

—SPACE SHUTTLE—

EFFECTS OF CRUISE ENGINE
LOCATION AND POWER ON
INTERFERENCE FOR A MSFC
PARAMETRIC BOOSTER
(M = 0.40 TO 1.13)

by

Dale Bradley, LMSC/HREC

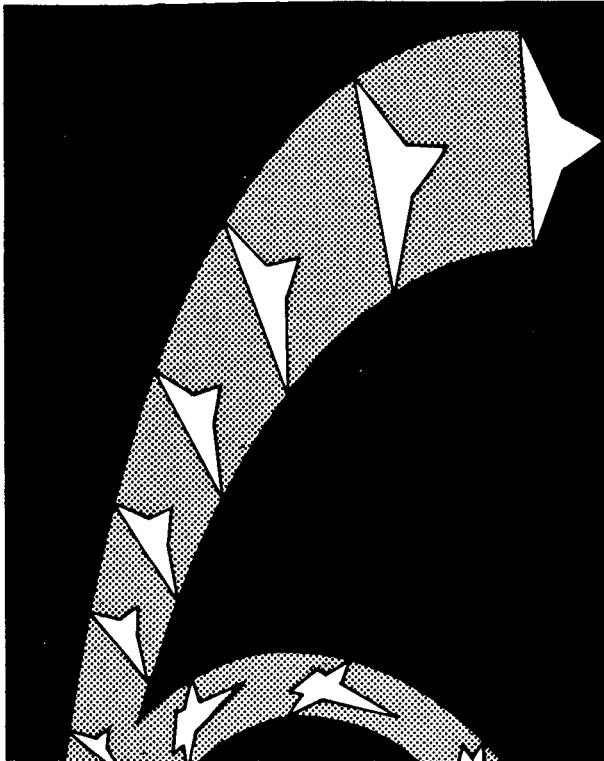
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NSRDC 7x10 FOOT
TRANSONIC WIND TUNNEL

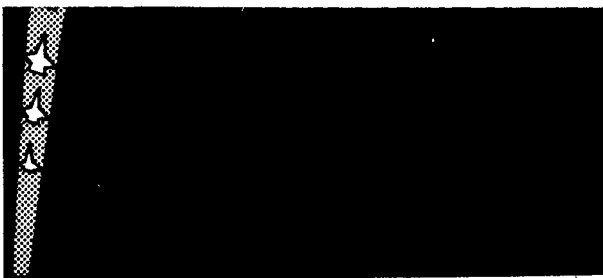
Navy Ship Research and
Development Center



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SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM

CONTRACT NAS8-4016
MARSHALL SPACE FLIGHT CENTER



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SADSAC/SPACE SHUTTLE
WIND TUNNEL TEST DATA REPORT

CONFIGURATION: MSFC Parametric Booster - 0.015 Scale

TEST PURPOSE: Investigate the Effects of Cruise Engine Location and Power
on Interference.

TEST FACILITY: NSRDC 7 x 10 Foot Transonic Wind Tunnel

TESTING AGENCY: LMSC/HREC

TEST NO. & DATE: NSRDC 3210; April, 1971

FACILITY COORDINATOR: Mr. Dale Chadock - NSRDC

PROJECT ENGINEER(S): Mr. Dale Bradley - LMSC/HREC

DATA MANAGEMENT SERVICES

LIAISON:

V. W. Sparks
V. W. Sparks

DATA OPERATIONS:

W. R. Morgan
W. R. Morgan

RELEASE APPROVAL:

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

CONTRACT NAS 8-4016

AMENDMENT 153

DRL 184-58

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FACILITY COORDINATOR:

Mr. Dale Chadock
Navy Department, NSRDC
Department of Aerodynamics
Code 655
Washington, D. C. 20034
Phone: (202) 227-1481

PROJECT ENGINEERS:

Mr. Dale Bradley
Department 5420
Lockheed Missile & Space Co.
Huntsville Research & Engineering Center
P. O. Box 1103, West Station
Huntsville, Alabama 35807
Phone: (205) 837-1800-X452

SADSAC LIAISON:

Mr. V. W. Sparks
Chrysler Corp. Space Division
Department 4831
102 Wynn Drive
Huntsville, Alabama 35805
Phone: (205) 895-1560

SADSAC OPERATIONS:

Mr. W. R. Morgan
Chrysler Corp. Space Division
Department 2780
P. O. Box 29200
New Orleans, Louisiana 70129
Phone: (504) 255-2304

A B S T R A C T

This report presents data, in plotted form, of tests for determining the interference effects of space shuttle booster cruise engine location for power-on and power-off conditions. The tests were conducted in the Naval Ship Research and Development Center's (NSRDC) 7 x 10-Foot Transonic Wind Tunnel. The model was a 0.015-scale space shuttle booster specially equipped for propulsion effects testing.

Overall objective of the test was to obtain force, static stability, and control effectiveness data for several cruise engine locations under power-on and power-off conditions. Data were obtained over a Mach number range of 0.4 to 1.13 at angles of attack from -4° to 20° at zero degrees sideslip and at angles of sideslip from -6° to $+6^{\circ}$ at constant angles of attack of 0° , 6° , 15° , and in some cases 10° . Additional parameters investigated were: elevon deflection, canard deflection, aileron deflection, rudder deflection, canard position, and mass flow rate.

TABLE OF CONTENTS

LIST OF FIGURES	1
LIST OF TABLES	2
INTRODUCTION	3
CONFIGURATIONS INVESTIGATED	4
DATASET COLLATIONS	6
TEST FACILITY DESCRIPTION	17
TEST CONDITIONS	18
DATA REDUCTION	19
REFERENCES	22
SUMMARY DATA PLOT INDEX	24
FIGURES	30
MODEL COMPONENT DESCRIPTION SHEETS	39
NOMENCLATURE	45
TABULATED DATA LISTING	52
PLOTTED DATA	53

LIST OF FIGURES

Figure No.		Page
1.	Axis System	30
2.	General Arrangement of a Typical High Wing-High Canard Configuration	31
3.	Sketch of Dummy Engine Pods	32
4.	Nozzle Instrumentation	33
5.	Location and Identification of Base Pressure Tubes	34
6.	Typical Transition Grit Installation on Body Wing and Canard	35
7.	Photograph of Configuration B1C2F2W1V1G3	36
8.	Photograph of Configuration B1C2F2W1V1G3P	37
9.	Photograph of Configuration B1C2F2W1V1G1 - High Wing - Low Canard	38

LIST OF TABLES

<u>TABLE NUMBER</u>	<u>TITLE</u>	<u>PAGE NUMBER</u>
I.	Test Conditions	18
II.	0.015-Scale Booster Reference Dimensions	21
III.	Summary of SADSAC Nomenclature - Aerodynamic Force and Moment Coefficients	23
IV.	Model Component - Body - B_1	39
V.	Model Component - Canard - C_2	40
VI.	Model Component - F_2 for Canard C_1	41
VII.	Model Component - Wing Tip Vertical Fin - V_1	42
VIII.	Model Component - Wing Tip Extensions - V_2	43
IX.	Model Component - Wing - W_1	44

INTRODUCTION

NASA-George C. Marshall Space Flight Center (MSFC) is currently investigating several configurations of a space shuttle booster concept. In support of this effort (Contract NAS8-26370) Lockheed-Huntsville has conducted an extensive experimental test program in the Naval Ship Research and Development Center (NSRDC) 7 x 10-foot Transonic Wind Tunnel to determine the aerodynamic interference effects of cruise engine location. Results of this investigation will be used by MSFC to provide guidance to the major contractors of the space shuttle booster. Overall objective of the test will be to obtain force, static stability, and control effectiveness data for several alternate locations of the cruise engines on a 0.015-scale space shuttle booster configuration. These data were obtained for a cruise Mach number of 0.40 and altitude of 10,000 feet ($q = 165$ psf). After selection of the most promising configuration, data were obtained at Mach numbers from 0.40 up to and including 1.2 as a check of their transonic stability and control characteristics. All tests were conducted at a tunnel Reynolds number per foot of approximately 2×10^6 .

Additional parameters investigated were elevon deflection, canard deflection, aileron deflection, rudder deflection, canard position, and mass flow rate. Values for these parameters as well as the configurations investigated are available from the Data Collation Sheets.

CONFIGURATIONS INVESTIGATED

The baseline model was a modified version of the 0.015-scale McDonnell Douglas model (256-14 booster configuration). A sketch of a similar model showing overall dimensions is included as Fig. 2. In addition to the variations in cruise engine location, the model had deflectable elevons, canard trailing edge flaps, dorsal fin rudders and wingtip rudders. Deflection angles were obtained by replacing the control surface with a separate surface set to the desired angle. Dummy engine pods were mounted on the model to obtain the power-off interference effects data. The five engine locations tested were: (1) above the body near the canard; (2) below the body near the canard; (3) above the wing (four engines to the left and four engines to the right); (4) below the wing; and (5) above the wing on pylons. A sketch of the dummy engine pods is included as Fig. 3. Several pressure measurements were required to monitor the mass flow rate of the nozzles. Total and static pressure at nozzle exit; plenum total pressure for each block of nozzles and plenum temperature were monitored. The locations of the pressure tubes were as shown in Fig. 4.

Six pressure ports were required for measuring the base pressures, and were located as shown in Fig. 5. Measurements from the pressure ports were used to calculate the base drag coefficient.

To ensure a turbulent boundary layer, artificial transition strips were applied as shown in Fig. 6. Wing, body and canard grit size was calculated by the method of Braslow and Knox (Ref. 2) for a tunnel Reynolds number of 2×10^6 per foot.

The following model component were utilized during the test:

B1	Baseline MDAC booster body 256-19A-X
C2	Booster small canard
E1	Body mounted engine pods; high location
E2	Body mounted engine pods; low location
E3	Wing mounted engine pods, above wing
E4	Wing mounted engine pods, below wing
F2	With canard C2
G1	Dummy body mounted engine pods, high location
G2	Dummy body mounted engine pods, low location
G3	Dummy wing mounted engine pods, above wing
G4	Dummy wing mounted engine pods, below wing
P	Wing pylon
V1	Booster wing tip vertical fin
V2	Booster wing tip extension
W1	Baseline booster wing 256-14

Pertinent dimensional information that is available for each of these components is given in the Model Component Description Sheets which follow the Figures. The Dataset Collation Sheets show the various component combinations tested and summarizes the total test conditions.

TEST NSRDC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values				Mach Number				
		a	b	d _e	d _c	d _a	d _r	AND POS		WNG POS	i _c	i _w	.7	.8	.9	1.0	1.125	
<u>AN3001</u>	<u>BIG2 F2 W1 V1</u>	A	0	0	0	0	0	5	1	1	3°	0°	7	9	13	17	21	
02		0	A	↑	↑	↑	↑	↑	↑	↑	↑	↑	6	10	14	18	22	
03		6	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	7	11	15	19	23	
04		15	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	8	12	16	20	24	
05		A	0	10	↑	↑	↑	↑	↑	↑	↑	↑	63	67	71	75	79	
06		0	A	↑	↑	↑	↑	↑	↑	↑	↑	↑	64	68	72	76	80	
07		6	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	65	69	73	77	81	
08		15	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	66	70	74	78	82	
09		A	0	-10	↑	↑	↑	↑	↑	↑	↑	↑	25	29	33	37	41	
10		0	A	↑	↑	↑	↑	↑	↑	↑	↑	↑	26	30	34	38	42	
11		6	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	27	31	35	39	43	
12		15	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	28	32	36	40	44	
13		A	0	-20	↑	↑	↑	↑	↑	↑	↑	↑	46	50	54	58	62	
14		0	A	↑	↑	↑	↑	↑	↑	↑	↑	↑	47	51	55	59		
15		6	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	48	52	56	60		
16		15	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	49	53	57	61		
17		A	0	20	↑	↑	↑	↑	↑	↑	↑	↑	135	139	143	147		
18		0	A	↑	↑	↑	↑	↑	↑	↑	↑	↑	136	140	144	148		
19		6	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	137	141	145	149		
20		15	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	138	142	146	150		

TEST RUN NUMBERS

COEFFICIENTS:

a or B SCHEDULES

ALPHA SCHEDULE A: -4, 0, 2, 4, 6, 8, 10, 15, 20
BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR(1) | IDPVAR(2) | NDV

TEST NSRDC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. of RUNS	Parameters/Values				Mach Numbers										
		a	B	θ_e	θ_c	θ_a	θ_r		END FOR	WNG POS	I_c	I_v	\dot{m}	.4	.5	.7	.8	.9	1.0	1.125			
RN3062	B1W1V2	0	A	0	-	0	-	5	-	1	-	0°	-	-	-	-	272	276	280	284	288		
63		6	T	T	T	T	T	2	T	T	T	T	T	-	-	-	273	277	281	285	289		
64		15	T	T	T	T	T	2	T	T	T	T	T	-	-	-	274	278	282	286	290		
65	B1W1V1	A	0					1						-	-	-	291	295	298	301	304		
66		0	A					1						-	-	-	292	296	299	302	305		
67		6	T					1						-	-	-	293	297	300	303	306		
68		15	T					3						-	-	-	294	-	-	-	-		
69	B	A	0	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	307	308	309
70	RIC2EMVIESP	A	0	0	0	0	0	1	1	3°	0°	0	-	-	-	-	310	-	-	-	-		
71		0	A	T	T	T	T	1	T	T	T	T	T	-	-	-	311	-	-	-	-		
72		6	T					1						-	-	-	312	-	-	-	-		
73		15	T					1						-	-	-	313	-	-	-	-		
74		A	0					1						-	-	-	314	-	-	-	-		
75		0	A					1						-	-	-	315	-	-	-	-		
76		6	T					1						-	-	-	316	-	-	-	-		
77		15	T					1						-	-	-	317	-	-	-	-		
78		A	0					1						-	-	-	318	-	-	-	-		
79		0	A					1						-	-	-	319	-	-	-	-		
80		6	T					1						-	-	-	320	-	-	-	-		
81		15	T					1						-	-	-	321	-	-	-	-		

TEST RUN NUMBERS

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

COEFFICIENTS: ALPHA SCHEDULE A: -4, 0, 2, 4, 6, 8, 10, 15, 20
 BETA SCHEDULE A: -6, -3, 0, 3, 6
 IDPVAR(1) IDPVAR(2) IDV

OF 8 SCHEDULES

TEST NSFDC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mech Numbers					
		a	b	de	dc	da	dr	QND POS		KNG POS	Ic	Iv	m							
083	BIC2F2W1W1E3P	A	0	0	0	0	0	1	1	1	3	0	.753							
084		6	T																	
085		15	T																	
086	BIC2F2W1W1E3	A	0										0							
087		0	A																	
088		6	T																	
089		15	T																	
090		A	0										.765							
091		0	A																	
092		6	T																	
093		15	T																	
094		A	0										0							
095		0	A																	
096		6	T																	
097		15	T																	
098		A	0										.760							
099		0	A																	
100		6	T																	
101		15	T																	

TEST RUN NUMBERS

7 13 19 25 31 37 43 49 55 61 67 75.76
 COEFFICIENTS: ALPHA SCHEDULE A: -9 0 2 4 6 8 10 15 20
 BETA SCHEDULE A: -6 -3 0 3 6
 IDPVAR(1) IDPVAR(2) INDV

a or B SCHEDULES

TEST NSR0C 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mach Number	
		a	B	de	dc	da	dr	COND POS		ENG POS	Ic	Iw	h	.4	.5	
PK3102	BIG2FWWIE4	A	0	0	0	0	0	1	1	3"	0"	0	345	-		
03		0	A	T	T	T	T	T	T	T	T	T	346	-		
04		6	T										347	-		
05		10	T										348	-		
06		A	0										349	-		
07		0	A										350	-		
08		6	T										351	-		
09		10	T										352	-		
10		A	0										354	-		
11		0	A										355	-		
12		6	T										356	-		
13		10	T										357	-		
14		A	0										358	-		
15		0	A										359	-		
16		6	T										360	-		
17		10	T										361	-		
18	BIG2FWWIE2	A	0										362	-		
19		0	A										363	-		
20		6	T										364	-		
21		10	T										365	-		

TEST RUN NUMBERS

COEFFICIENTS:

a or B SCHEDULES

ALPHA SCHEDULE A: -4, 0, 2, 4, 6, 8, 10, 15, 20
BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR (1) | IDPVAR (2) | NDV

TEST ASPEC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIERS	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mach Number				
		a	B	d _e	d _c	d _a	d _r	GND POS		WNG POS	I _c	I _w	i _m	.4	.5				
23	<u>RICIFRWIWE2</u>	A	0	0	0	0	0	1	1	1	3	0	0.28	367	-				
24		0	A	T	T	T	T	T	T	T	T	T	T	368	-				
25		10	10	T	T	T	T	T	T	T	T	T	369	-					
26		A	0	0	0	0	0	0	0	0	0	0	370	-					
27		0	A	T	T	T	T	T	T	T	T	T	371	-					
28		0	A	T	T	T	T	T	T	T	T	T	372	-					
29		0	A	T	T	T	T	T	T	T	T	T	373	-					
30		10	10	T	T	T	T	T	T	T	T	T	374	-					
31		A	0	0	0	0	0	0	0	0	0	0	375	-					
32		0	A	T	T	T	T	T	T	T	T	T	376	-					
33		0	A	T	T	T	T	T	T	T	T	T	377	-					
34		10	10	T	T	T	T	T	T	T	T	T	378	-					
35		A	0	0	0	0	0	0	0	0	0	0	379	-					
36		0	A	T	T	T	T	T	T	T	T	T	380	-					
37		0	A	T	T	T	T	T	T	T	T	T	381	-					
38		10	10	T	T	T	T	T	T	T	T	T	382	-					
39		A	0	0	0	0	0	0	0	0	0	0	383	-					
40		0	A	T	T	T	T	T	T	T	T	T	384	-					
41		0	A	T	T	T	T	T	T	T	T	T	385	-					
		10	10	T	T	T	T	T	T	T	T	T	386	-					

TEST RUN NUMBERS

COEFFICIENTS:
α or β
SCHEDULES

ALPHA SCHEDULE A: -4.0, 2.4, 6.8, 10.15, 20
BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR(1) IDPVAR(2) INDV

TEST NSRDC 310 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mach Number		
		a	B	d _e	d _c	d _a	d _r	Parameters/Values		Parameters/Values	Parameters/Values	Parameters/Values	Parameters/Values	Parameters/Values	Parameters/Values		
PK3142	BIC2F2W1E1	A	0	0	0	0	0	1	2	1	3	0'	0	392	-		
43		A	A	-	-	-	-	-	-	-	-	-	-	393	-		
44		6	T	-	-	-	-	-	-	-	-	-	-	394	-		
45		10	T	-	-	-	-	-	-	-	-	-	-	395	-		
46		A	0	-	-	-	-	-	-	-	-	-	-	396	-		
47		0	A	-	-	-	-	-	-	-	-	-	-	397	-		
48		6	T	-	-	-	-	-	-	-	-	-	-	398	-		
49		10	T	-	-	-	-	-	-	-	-	-	-	399	-		
50		A	0	-	-	-	-	-	-	-	-	-	-	400	-		
51		0	A	-	-	-	-	-	-	-	-	-	-	401	-		
52		6	T	-	-	-	-	-	-	-	-	-	-	402	-		
53		15	T	-	-	-	-	-	-	-	-	-	-	403	-		
54		A	0	-	-	-	-	-	-	-	-	-	-	404	-		
55		0	A	-	-	-	-	-	-	-	-	-	-	405	-		
56		6	T	-	-	-	-	-	-	-	-	-	-	406	-		
57		15	T	-	-	-	-	-	-	-	-	-	-	407	-		
58	BIC2F2W1V1	A	0	-	-	-	-	-	-	-	-	-	-	408	-		
59		0	A	-	-	-	-	-	-	-	-	-	-	409	-		
60		6	T	-	-	-	-	-	-	-	-	-	-	410	-		
61		15	T	-	-	-	-	-	-	-	-	-	-	411	-		
				-	-	-	-	-	-	-	-	-	-	412	-		
				-	-	-	-	-	-	-	-	-	-	413	-		

TEST RUN NUMBERS

COEFFICIENTS:

0 OR B SCHEDULES

ALPHA SCHEDULE A: -4, 0, 2, 4, 6, 8, 10, 15, 20
BETA SCHEDULE B: -6, -3, 0, 3, 6

IDPVAR(1) IDPVAR(2) NDV

TEST ASRDC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values		Mach Number		
		a	B	de	dc	da	dr	END POS		END POS	tc		td	
63	BIC2F2WV1	A	0	0	0	0	0	1	1	1	3	0	-	413
64		0	A										-	414
65		6	↑										-	415
66	BIC2F2WV1B3P	15	↑										-	416
67		A	0										417	-
68		0	A										418	-
69		6	↑										419	-
70		15	↑										420	-
71		A	0										-	421
72		0	A										-	422
73		6	↑										-	423
74	BIC2F2WV163	15	↑										-	424
75		A	0										425	-
76		0	A										426	-
77		6	↑										427	-
78		15	↑										428	-
79		A	0										-	429
80		0	A										-	430
81		6	↑										-	431
		15	↑										-	432

TEST RUN NUMBERS

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

α or β SCHEDULES
ALPHA SCHEDULE A: -4 0 2 4 6 8 10 15 20
BETA SCHEDULE A: -6 -3 0 3 6

IDPVAR(1) IDPVAR(2) NDV

TEST MSENC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mach Number				
		a	B	δ_e	δ_c	δ_a	δ_r	CND POS		MNG POS	1_c	1_w	.4	.5	.7	.8	.9	1.0	
183	BIC2F2W1V1G4	A	0	0	0	0	0	1	1	3	0	433	434	435	-	436	438		
184		A	0									433	-	-	-	-	-		
185		A	0									451	-	-	-	-	-		
186		A	0									452	-	-	-	-	-		
187		A	0									453	-	-	-	-	-		
188		A	0									431	-	-	-	-	-		
189		A	0									454	-	-	-	-	-		
190		A	0									455	-	-	-	-	-		
191		A	0									456	-	-	-	-	-		
192	BIC2F2W1V1G2	A	0									439	-	-	-	-	-		
193		A	0									445	-	-	-	-	-		
194		A	0									446	-	-	-	-	-		
195		A	0									447	-	-	-	-	-		
196		A	0									440	-	-	-	-	-		
197		A	0									448	-	-	-	-	-		
198		A	0									449	-	-	-	-	-		
199		A	0									450	-	-	-	-	-		
200		A	0									439	440	441	-	442	444		
201		A	0									-	-	-	-	443	-		

TEST RUN NUMBERS

COEFFICIENTS: 1 7 13 19 25 31 37 43 49 55 61 67 75 76
 IDPVAR(1) | IDPVAR(2) | NDV

ALPHA SCHEDULE A: -4 0 1 4 6 8 10 15 20
 BETA SCHEDULE A: -6 -3 0 3 6

TEST ASSOC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

PRETEST
 POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values			Mach Number					
		a	B	d _e	d _c	d _a	d _r	1 _c		1 _w	.4	.5						
PK3203 BIC121WV 61		A	0	0	0	0	0	1	1	1	3	0	461	-				
		0	A	~	~	~	~	~	~	~	~	~	~	462	-			
		15	T	~	~	~	~	~	~	~	~	~	~	463	-			
		A	0	~	~	~	~	~	~	~	~	~	~	464	-			
		0	A	~	~	~	~	~	~	~	~	~	~	457	-			
		A	0	~	~	~	~	~	~	~	~	~	~	458	-			
		0	A	~	~	~	~	~	~	~	~	~	~	459	-			
		6	T	~	~	~	~	~	~	~	~	~	~	460	-			
		15	T	~	~	~	~	~	~	~	~	~	~	~	~	~		
		~	~	~	~	~	~	~	~	~	~	~	~	~	~	~		

TEST RUN NUMBERS

COEFFICIENTS:
a or B
SCHEDULES

ALPHA SCHEDULE A: -4 0 1 4 6 8 10 15 20
BETA SCHEDULE A: -6 -3 0 3 6

IDPVAR(1) | IDPVAR(2) | NDV

TEST FACILITY DESCRIPTION

The test program was conducted in the NSRDC 7 x 10 foot transonic wind tunnel, which is a closed-loop, continuous flow tunnel with a Mach number range from $M = 0.40$ to $M = 1.20$ at simulated altitudes from sea level to 40,000 feet. Reynolds number can be varied between 1×10^6 and 3×10^6 per foot by adjusting the settling chamber total pressure. A detailed description of the test facility can be found in Ref. 1.

TABLE I.

TEST CONDITIONS
 TEST NSRDC 3210

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.4	2.43 x 10 ⁶	195	
0.5	3.36	313	
0.7	1.98	245	
0.8	2.10	285	
0.9	2.11	325	
1.0	2.15	360	
1.13	2.10	385	

BALANCE UTILIZED: TSB - 24

CAPACITY:

NF 1500 lbs
 SF 500 lbs
 AF 100 lbs
 PM 1850 in. lbs
 YM 625 in. lbs
 RM 750 in. lbs

ACCURACY:

± 7.5 lbs
± 2.5 lbs
± 0.5
± 9.25 in. lbs
± 3.13 in lbs
± 3.75 in lbs

COEFFICIENT
TOLERANCE:

± 0.0290
± 0.0097
± 0.0020
± 0.0009
± 0.0003
± 0.0004

COMMENTS:

DATA REDUCTION

All model forces and moments were resolved in the body axis system and presented in the form of non-dimensional coefficients. Stability axis lift and drag coefficients and the ratio of lift to drag were required. Coefficients were non-dimensionalized as given below.

$$C_N = \frac{F_N}{qS_{ref}}, \text{ normal force coefficient}$$

$$C_A = \frac{F_A}{qS_{ref}}, \text{ axial force coefficient}$$

$$C_Y = \frac{F_Y}{qS_{ref}}, \text{ side force coefficient}$$

$$C_{LM} = \frac{M_y}{qS_{ref} l_{ref}}, \text{ pitching moment coefficient}$$

$$C_{YN} = \frac{M_z}{qS_{ref} b}, \text{ yawing moment coefficient}$$

$$C_{BL} = \frac{M_x}{qS_{ref} b}, \text{ rolling moment coefficient}$$

$$C_L = \frac{F_L}{qS_{ref}}, \text{ } C_N \cos\alpha - C_A \sin\alpha, \text{ lift force coefficient}$$

$$C_D = \frac{F'_D}{qS_{ref}}, \text{ } C_A \cos\alpha + C_N \sin\alpha, \text{ drag force coefficient}$$

$$L/D = C_L/C_D, \text{ lift-to-drag ratio}$$

$$C_{AB} = (p_\infty - p_b) \frac{A_b}{S_{ref}}, \text{ base axial force coefficient}$$

$$C_{AF} = C_A - C_{AB}, \text{ forebody axial force coefficient}$$

Data were corrected for any tunnel flow angularities and sting deflections. Axial force was corrected for weight tares. Base pressure coefficients were calculated individually and an average used for calculating the base axial force coefficient.

Nozzle mass flow rate was variable but capable of being held constant for a given Mach number altitude combination.

SADSAC created additional data sets by obtaining an increment due to nozzle mass flow rate and adding this increment to data sets having dummy engines. These data sets are identifiable by an alphabetic character in the sixth column of the data set I. D.

Example:

RN3082 - RN3078 = increment due to nozzle mass flow rate

RN3166 + increment due to nozzle mass flow rate = AN300A

Model reference dimensions to be used in the data reduction are given in Table II.

Table II

0.015-SCALE BOOSTER REFERENCE DIMENSIONS

PARAMETER	FULL SCALE	MODEL SCALE
Reference Area (S_{ref})	6020 ft ²	1.355 ft ²
Reference Length (l_{ref}^b)	229 ft	3.453 ft
Balance Location		
Body Station Bl		2.957 ft
Moment Reference Center		
Body Station (c.g.)	172.92 ft	2.594 ft
Water Line (above \bar{x})	1.25 ft	0.01875 ft
Base Area (A_b)		
High Wing	866.67 ft ²	0.195 ft ²

REFERENCES

1. Thomas, Walter S., "The David Taylor Model Basin 7 x 10-Foot Transonic Wind Tunnel Facility," Aero Report 985, Naval Ship Reserach and Development Center, Carderock, Md., July 1960.
2. Braslow, A. L., and E. C. Knox, "Simplified Method for Determination of Critical Height of Distributed Roughness Particles for Boundary-Layer Transition at Mach Numbers from 0 to 5," NACA TN 4363, September 1958.
3. "Low Speed Aerodynamic Characteristics of the McDonnel Douglas Space Shuttle Booster," DMS DR 1035, DAC LSWT Test No. 1351, Chrysler Corp. Space Division, New Orleans, La., August 1970.
4. "Transonic Aerodynamic Characteristics of the McDonnell Douglas Space Shuttle Booster," Ames 6-6 Foot Transonic Test 66-504, Ames Research Center, Moffett Field, Calif., November 1970.
5. Kemp, N. D., et al., "Data Management System for the NASA/DOD Space Shuttle Phase B Development," TN-AP-70-44, Chrysler Corp. Space Division, New Orleans, La., August 1970.
6. Bradley, D., "Pretest Report for a 0.015-Scale Parametric Space Shuttle Booster Motel in the NSRDC 7 x 10-Foot Transonic Wind Tunnel," LMSC-HREC D162856, Lockheed Missiles & Space Company, Huntsville, Ala., February 1971.

SUMMARY OF SADSAC NOMENCLATURE - AERODYNAMIC FORCE AND MOMENT COEFFICIENTS

TABLE III

COEFFICIENT	COEFFICIENT NAME	SADSAC NOMENCLATURE		
		BODY AXIS	STABILITY AXIS	WIND AXIS
CA	Total Axial Force	CA	-	-
CAB	Base Axial Force	CAB	--	-
CAF	Forebody Axial Force	CAF	-	-
CD	Total Drag Force	-	CD	CDTOTL
CDB	Base Drag Force	-	CDB	CDBASE
CDF	Forebody Drag Force	-	CDF	CDFORE
CL	Lift Force	-	CL	CL
CN	Normal Force	CN	-	-
CY	Side Force	CY	CY	CC
C ρ	Rolling Moment	CBL	CSL	CWL
Cm	Pitching Moment	CLM	CLM	CPM
Cn	Yawing Moment	CYN	CLN	CLN
L/D	Lift-To-Drag Force Ratio	-	L/D	CL/CD
L/D	Lift-To-Forebody Drag Force Ratio	-	L/DF	CL/CDF
N/A	Normal-To-Axial Force Ratio	N/A	-	-
N/A	Normal-To-Forebody Axial Force Ratio	CN/CAF	-	-

SUMMARY DATA PLOT INDEX

TITLE	PIOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
IMSC/HREC Booster Studies-Longitudinal Characteristics-Elevon Effects	A	Elevon Deflection	1-40
IMSC/HREC Booster Studies-Longitudinal Static Derivatives-Elevons	B	Elevon Deflection	41-44
IMSC/HREC Booster Studies-Longitudinal Elevon Control Effectiveness	C	Alpha	45-64
IMSC/HREC Booster Studies-Elevon Control Effectiveness Versus Mach Number	D	Alpha	65-67
IMSC/HREC Booster Studies-Longitudinal Characteristics-Canard Effects	A	Canard Deflection	68-107
IMSC-HREC Booster Studies-Longitudinal Canard Control Effectiveness	E	Alpha	108-127
IMSC/HREC Booster Studies-Canard Control Effectiveness Versus Mach Number	F	Alpha	128-130
IMSC/HREC Booster Studies-Longitudinal Characteristics- Elevon Effects	A	Elevon Deflection	131-170
IMSC/HREC Booster Studies-Longitudinal Static Derivatives-Elevons	B	<u>Elevon Deflection</u>	171-174
IMSC/HREC Booster Studies-Longitudinal Elevon Control Effectiveness	C	Alpha	175-194
IMSC/HREC Booster Studies-Elevon Control Effectiveness Versus Mach Number	D	Alpha	195-197

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PIOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Rudder Effects	G	Rudder Deflection Alpha \approx 0	198-212
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Rudder Effects	G	Rudder Deflection Alpha \approx 6.0	213-227
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Rudder Effects	G	Rudder Deflection Alpha \approx 15.0	228-242
IMSC/HREC Booster Studies-Rudder Control Effectiveness	H	Alpha Beta = 0	243-266
IMSC/HREC Booster Studies-Rudder Control Effectiveness	I	Alpha	267-270
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Aileron Effects	G	Aileron Deflection Alpha \approx 0	271-285
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Aileron Effects	G	Aileron Deflection Alpha \approx 6.0	286-300
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Aileron Effects	G	Aileron Deflection Alpha \approx 15.0	301-315
IMSC/HREC Booster Studies-Aileron Control Effectiveness	J	Alpha Beta = 0	316-339
IMSC/HREC Booster Studies-Aileron Control Effectiveness Versus Mach Number	K	Alpha	340-343
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Alpha Effects	G	Alpha	344-361

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PIOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
IMSC/HREC Booster Studies-Longitudinal Characteristics-Elevon Effects	A	Elevon Deflection	362-401
IMSC/HREC Booster Studies-Longitudinal Static Derivatives-Elevons	B	Elevon Deflection	402-405
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Alpha Effects	G	Alpha	406-420
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration	421-460
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration	461-475
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	476-483
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	484-486
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	487-494
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	495-497
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	498-505

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PLOTTED		PAGES
	COEFFICIENTS SCHEDULE	CONDITIONS VARYING	
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	506-508
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	509-516
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	517-519
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	520-527
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	528-530
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	531-538
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	539-541
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	542-549
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	550-552

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	553-560
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	561-563
IMSC/HREC Booster Studies-Longitudinal Characteristics-Donfiguration Comparison	A	Configuration & Mass Flow M = 0.4	564-571
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	572-574
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	575-582
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	583-585
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Engine Configuration Variation	A	Configuration	586-625
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Engine Configuration Variation	G	Configuration	626-634
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Wing Size	A	Configuration	635-674

SUMMARY DATA PLOT INDEX
(Concluded)

TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Wing Size	G	Configuration	675-689
IMSC/HREC Booster Studies-Longitudinal Charac- teristics of Cruise Engine Propulsion Effects	A	Configuration	690-697
IMSC/HREC Booster Studies-Longitudinal Charac- teristics of Cruise Engine Propulsion Effects	A	Configuration	698-705
IMSC/HREC Booster Studies-Lateral-Directional Characteristics of Cruise Engine Propulsion Effects	G	Configuration	706-708
IMSC/HREC Booster Studies-Lateral-Directional Characteristics of Cruise Engine Propulsion Effects	G	Configuration	709-711

PLOTTED COEFFICIENTS SCHEDULE:

- | | |
|--|--|
| (A) CN, CL, CA, CAB, CD, L/D & CIM vs. Alpha
CIM vs. CL | (F) DCL/DC, DCLMDC & DCD/DC vs. Mach |
| (B) D(CL)/DA, D(CIM)/DA, CIM/CL & CDALFO vs. Mach | (G) CY, CYN & CBL vs. Beta |
| (C) CL, CIM, CD & L/D vs. ELEVTR | (H) CY, CYN, CBL, CIM, CD & L/D vs. Rudder |
| (D) DCL/DE, DCLMDE & DCD/DE vs. Mach | (I) DCY/DR, DCMNDR, DCBLDR & DCD/DR vs. Mach |
| (E) CL, CIM, CD & L/D vs. CANARD | (J) CY, CYN, CBL, CIM, CD & L/D vs. Aileron |
| | (K) DCY/DA, DCMNDA, DCBLDA, DCD/DA vs. Mach |

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

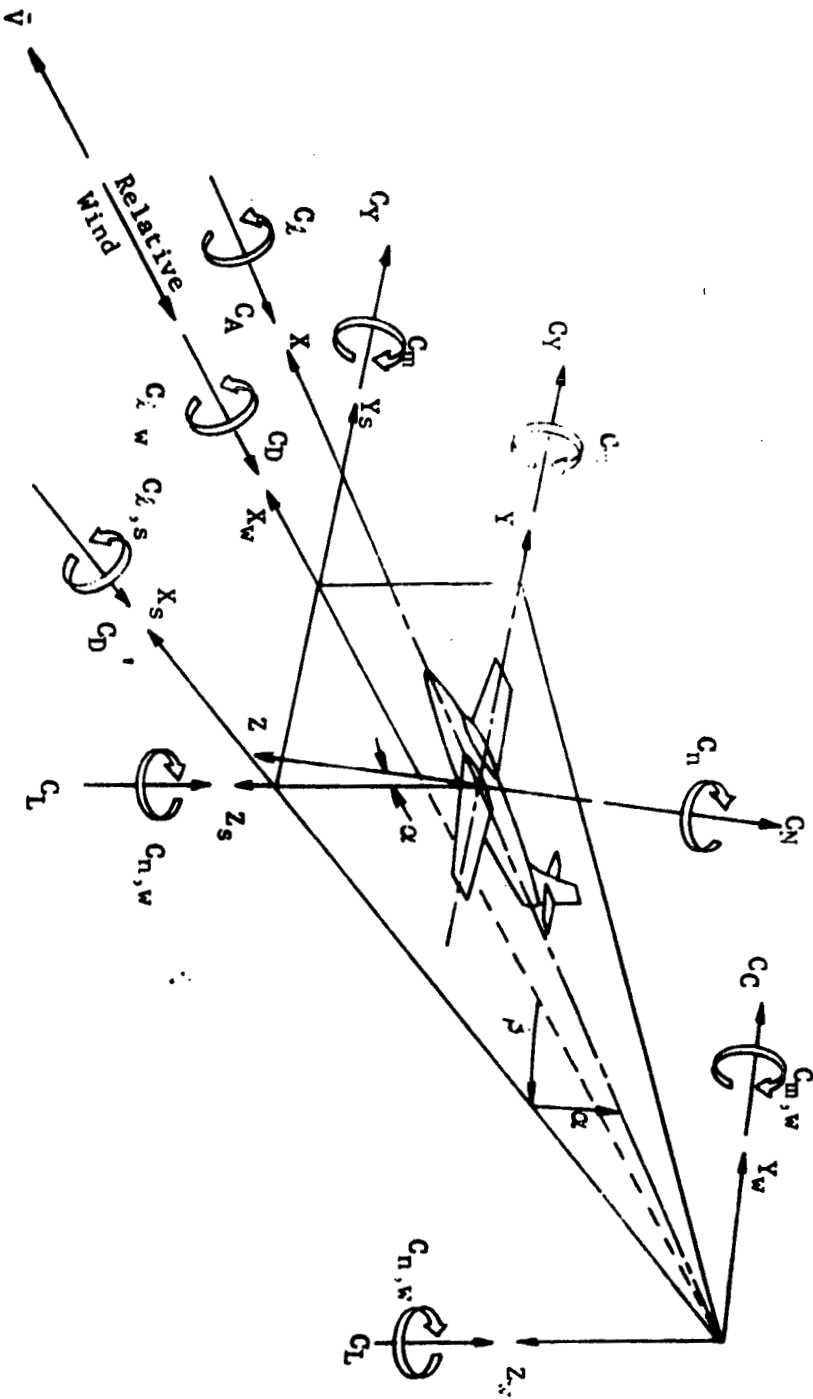


Figure 1. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

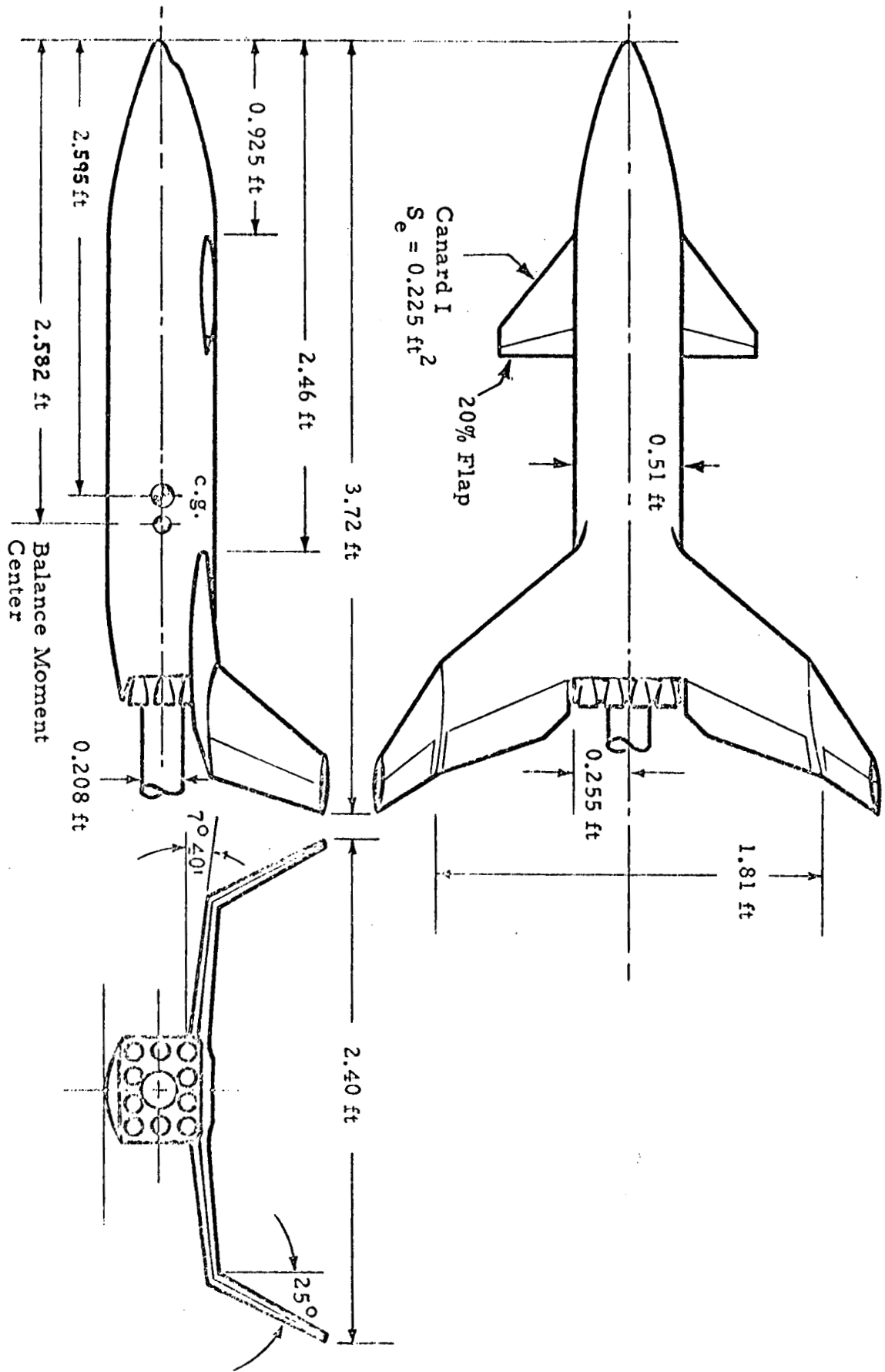
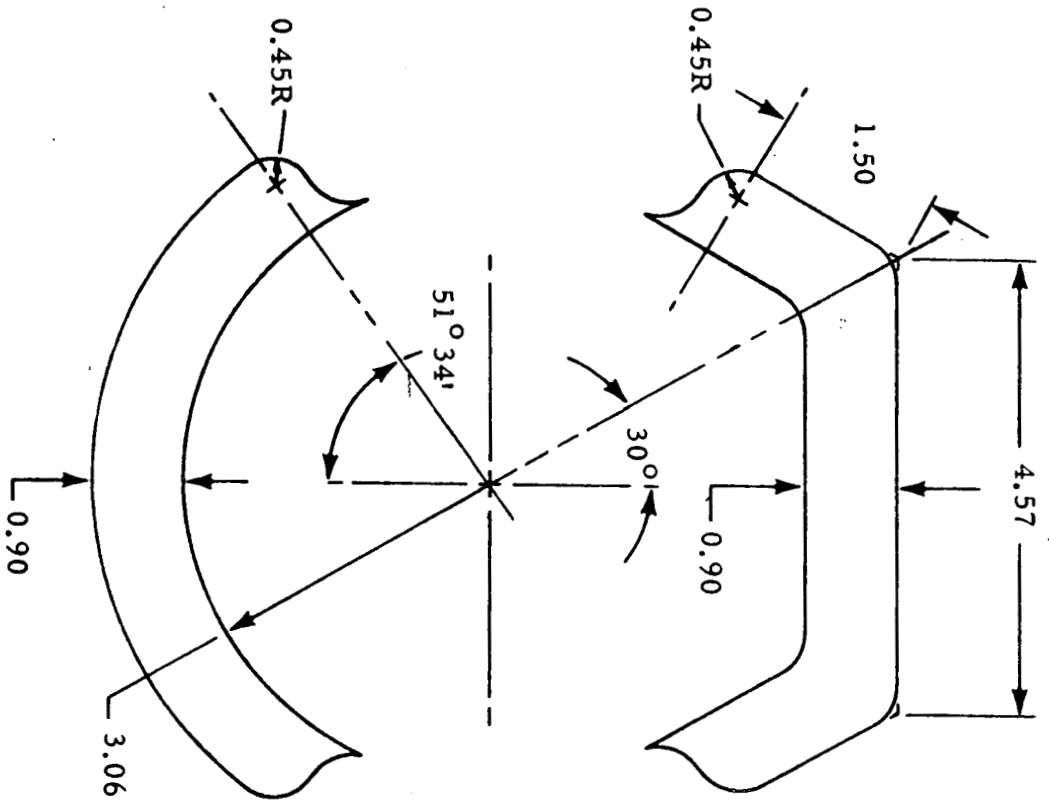


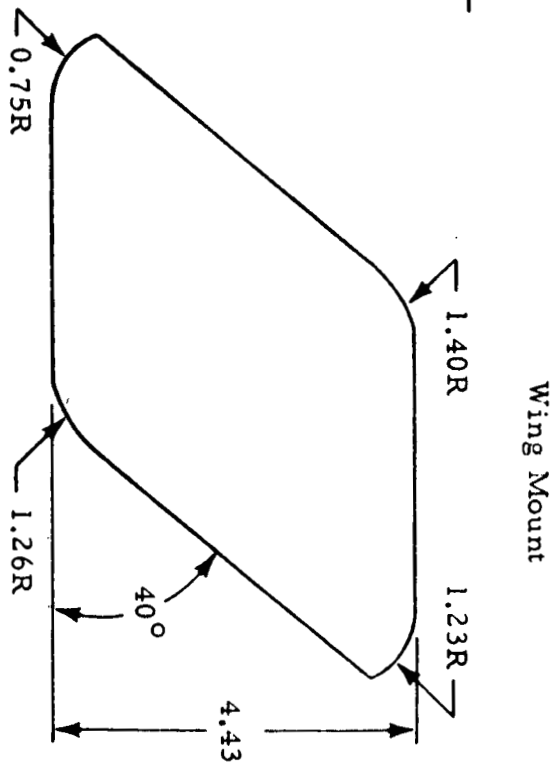
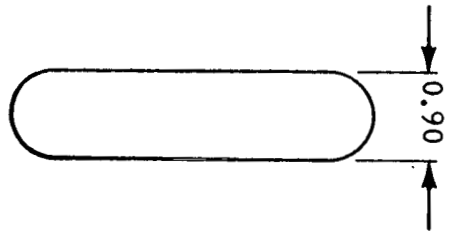
Fig.2. - General Arrangement of a Typical High Wing - High Canard Configuration

Top Body Mount

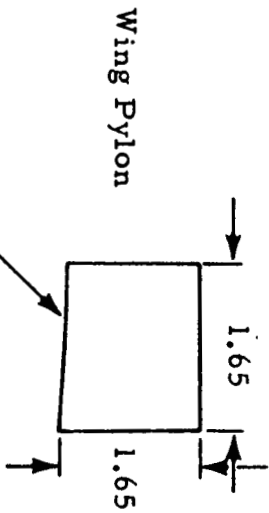


Bottom Body Mount

Note: All dimensions are in inches (model scale)



Wing Mount



Fit to Contour of Wing Assembly

Figure 3. - Sketch of Dummy Engine Pods

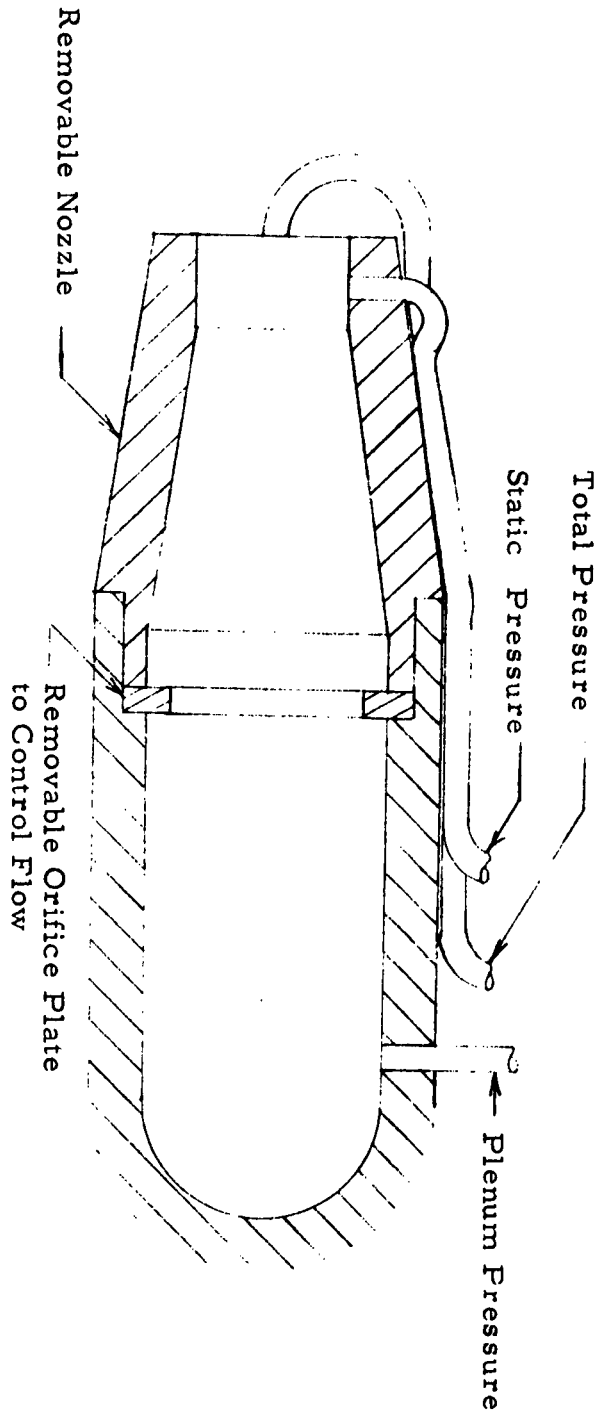


Figure 4. - Nozzle Instrumentation

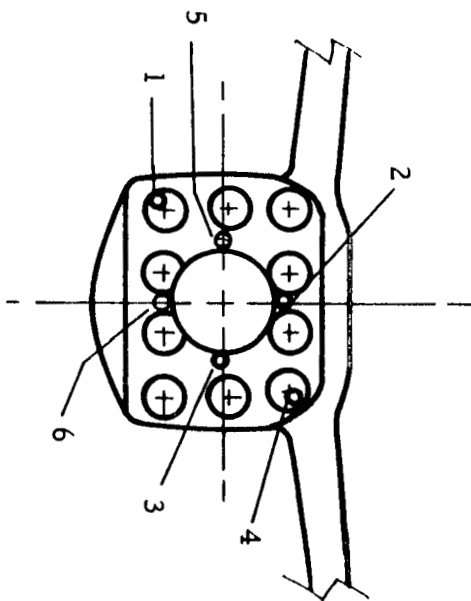
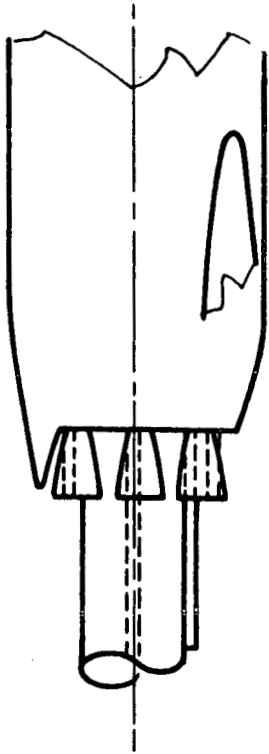


Figure 5. - Location and Identification of Base Pressure Tubes

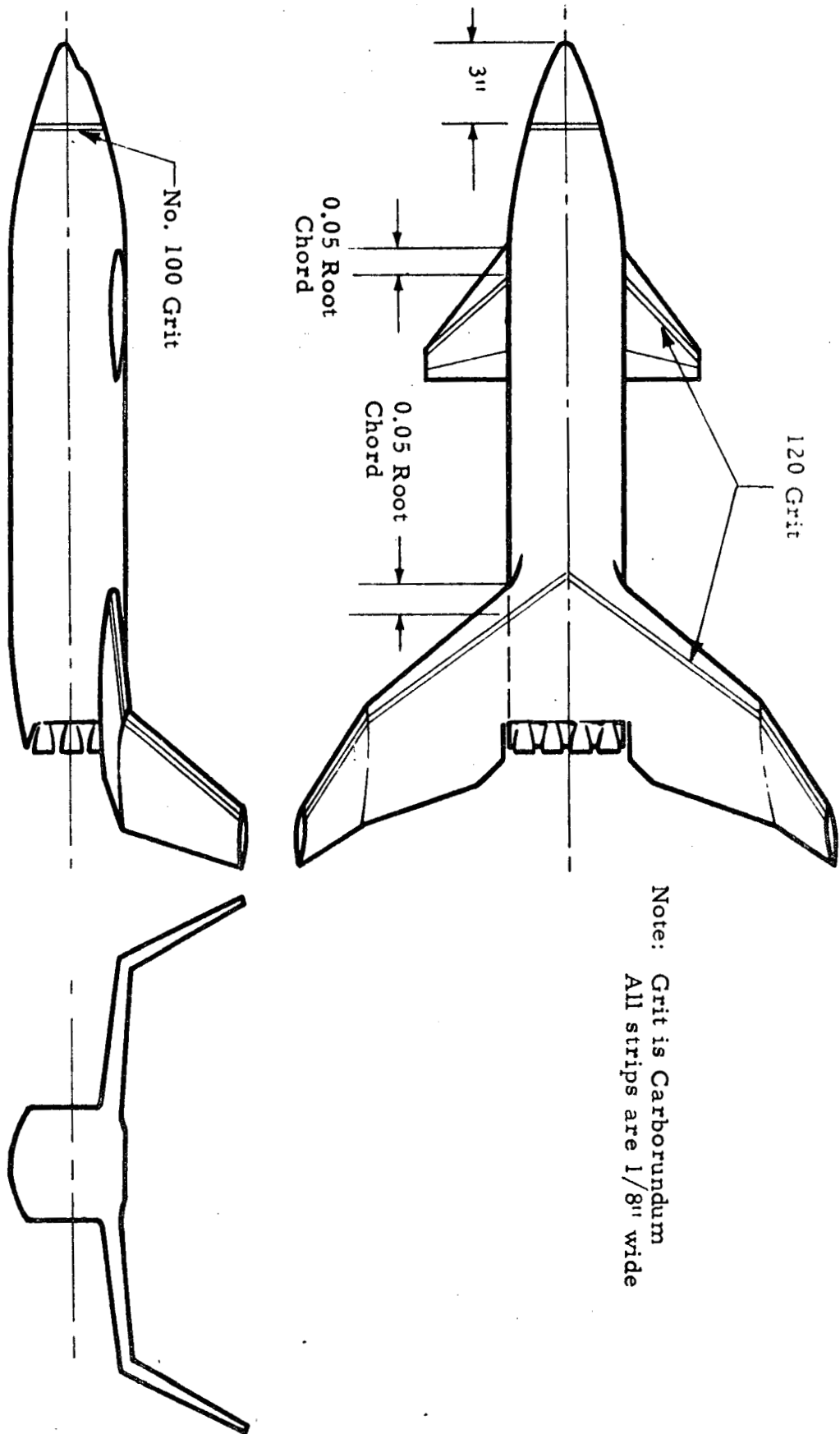


Figure 6. - Typical Transition Grit Installation on Body, Wing and Canard

Figure 7. Configuration BIC2F2W1V1G3

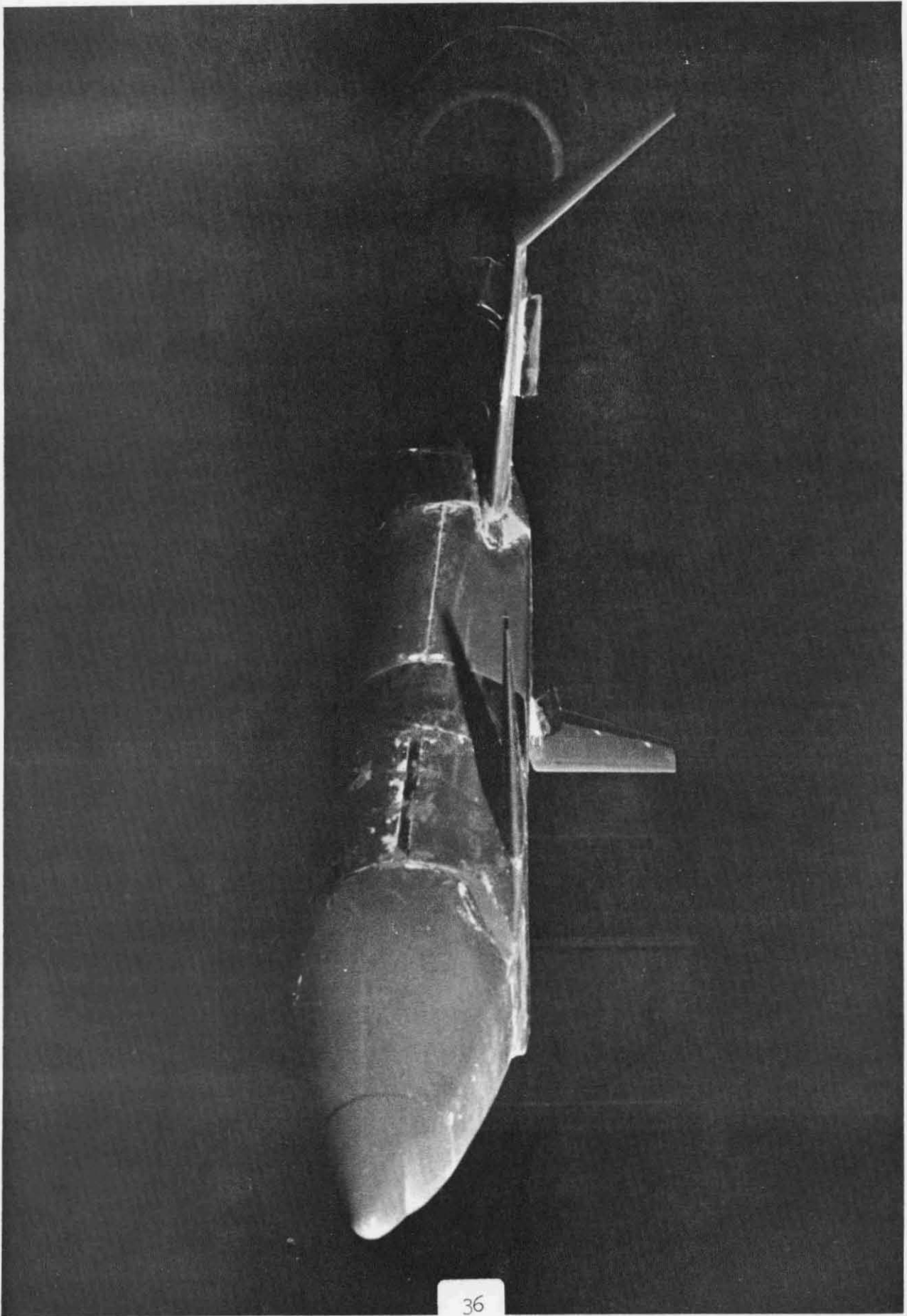


Figure 8. Configuration B1C2F2M1V1G3P

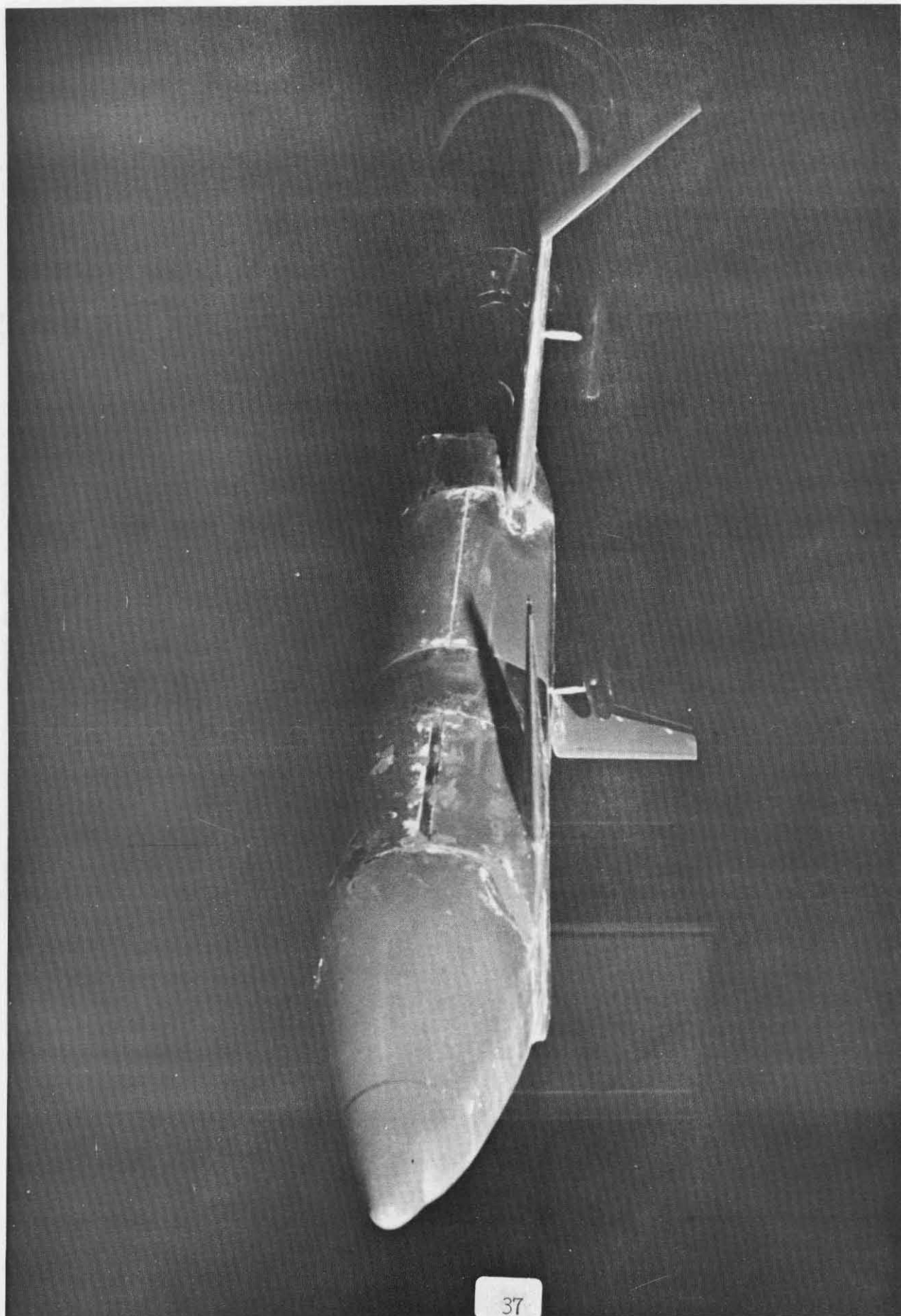


Figure 9. Configuration B1C2F2M1V1G1 High Wing - Low Canard

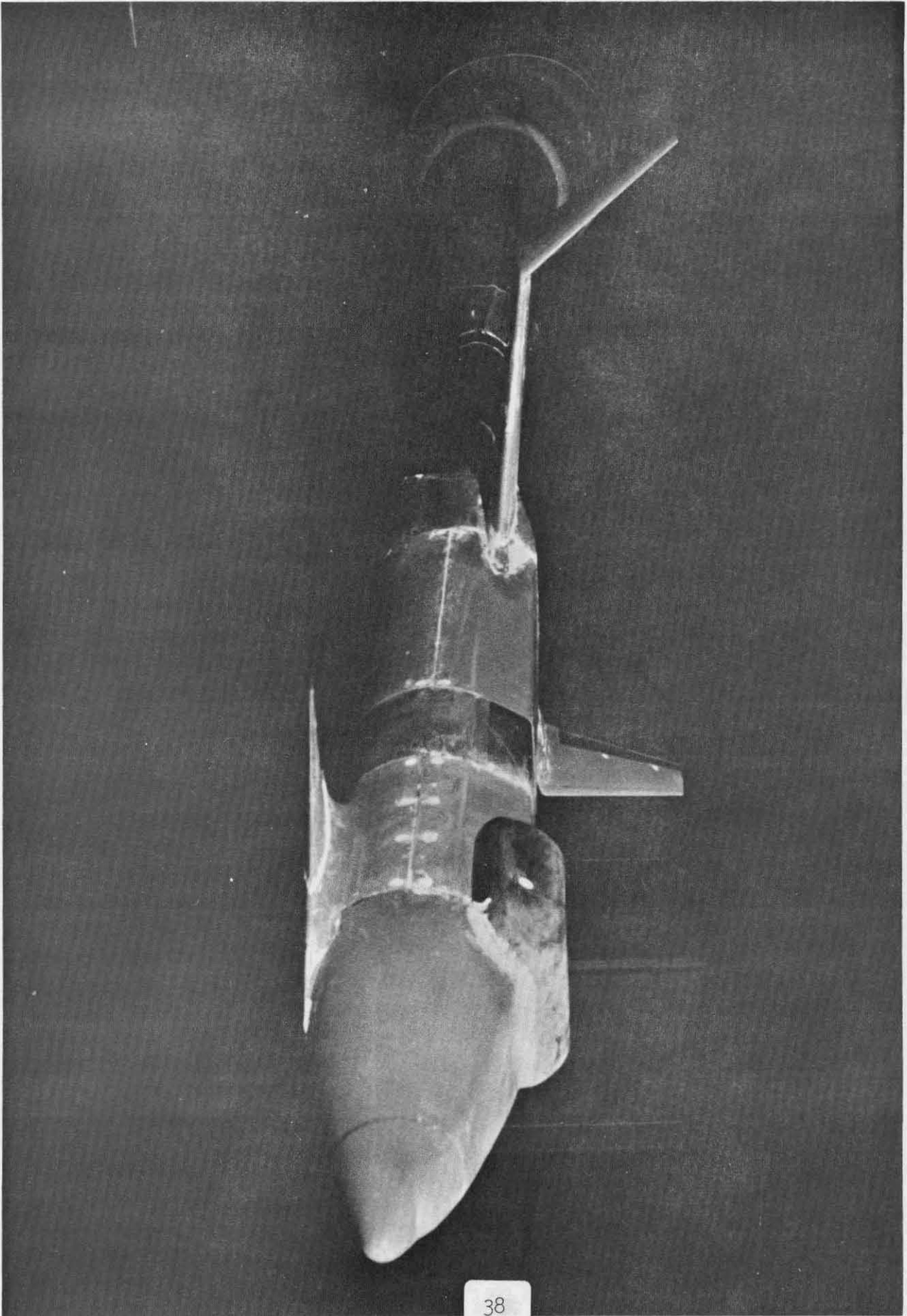


TABLE IV.

MODEL COMPONENT: BODY - B1

GENERAL DESCRIPTION: Baseline MDAC boattail body 256-19A-X
X = total length is 229 vs 241.7 for 19A

DRAWING NUMBER: NSRDX A152011-A

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length	<u>229 ft</u>	<u>3.453 ft</u>
Max. Width	<u>34 ft</u>	<u>0.51 ft</u>
Max. Depth	<u>34 ft</u>	<u>0.51 ft</u>
Fineness Ratio	_____	_____
Area		
Max. Cross-Sectional	<u>907.92 ft²</u>	<u>0.204 ft²</u>
Planform	_____	_____
Wetted	_____	_____
Base	<i>high wing</i> <u>866.67 ft²</u>	<u>0.195 ft²</u>
	<i>low wing</i> <u>893.21 ft²</u>	<u>0.201 ft²</u>

TABLE V.

MODEL COMPONENT: C2

GENERAL DESCRIPTION: Regular small canard

DRAWING NUMBER: NSRDC A-152018-5

DIMENSIONS: FULL-SCALE MODEL SCALE

TOTAL DATA

Area		
Planform	2235 ft ²	0.503 ft ²
Wetted		
Span (equivalent)	72.6 ft	1.09 ft
Aspect Ratio	2.36	2.36
Rate of Taper		
Taper Ratio	.118	.118
Dihedral Angle, degrees	0	0
Incidence Angle, degrees	3° 15'	3° 15'
Aerodynamic Twist, degrees	0	0
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	53°	53°
Trailing Edge	0	0
0.25 Element Line		
Chords:		
Root (Wing Sta. 0.0)	55. ft	.825 ft
Tip, (equivalent)	6.47 ft	.097 ft
MAC, inches		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
Airfoil Section		
Root	64A010	64A010
Tip	64A010	64A010

EXPOSED DATA

Area	750 ft ²	0.169 ft ²
Span, (equivalent)	38.8 ft	0.531 ft
Aspect Ratio	2	2
Taper Ratio	0.2	0.2
Chords		
Root	32.2 ft	0.434 ft
Tip	6.46 ft	0.097 ft
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		

TABLE VI.

MODEL COMPONENT: F2 WITH CANARD C2

GENERAL DESCRIPTION: _____

DRAWING NUMBER: _____

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area	<u>300 ft²</u>	<u>0.0676 ft²</u>
Span (equivalent)	<u>38.8 ft</u>	<u>0.581 ft</u>
Inb'd equivalent chord	<u>12.9 ft</u>	<u>0.1936 ft</u>
Outb'd equivalent chord	<u>2.59 ft</u>	<u>0.0388 ft</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.4</u>	<u>0.4</u>
At Outb'd equiv. chord	<u>0.4</u>	<u>0.4</u>
Sweep Back Angles, degrees		
Leading Edge	<u>28°</u>	<u>28°</u>
Tailing Edge	<u>0</u>	<u>0</u>
Hingeline	<u>—</u>	<u>—</u>
Area Moment (Normal to hinge line)	<u>—</u>	<u>—</u>

TABLE VII.

MODEL COMPONENT: VI

GENERAL DESCRIPTION: Booster wing tip vertical fin

(Dimensions given are for each tip)

DRAWING NUMBER: NSRDC A152027-1,4

DIMENSIONS: FULL-SCALE MODEL SCALE

TOTAL DATA

Area		
Planform	1010 ft ²	.226 ft ²
Wetted		
Semi-Span (equivalent)	38.90 ft	.582 ft
Aspect Ratio	1.5	1.5
Rate of Taper		
Taper Ratio	.467	.467
Dihedral Angle, degrees	29°	29°
Incidence Angle, degrees	3°	3°
Aerodynamic Twist, degrees	0	0
Toe-In Angle	0	0
Cant Angle	0	0
Sweep Back Angles, degrees		
Leading Edge	40°	40°
Trailing Edge	19°31'	19°31'
0.25 Element Line		
Chords:		
Root (Wing Sta. 0.0)	35.35 ft	.530 ft
Tip, (equivalent)	16.50 ft	.297 ft
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		
Airfoil Section		
Root	64A010	64A010
Tip	64A009	64A009

EXPOSED DATA

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		

TABLE VIII.

MODEL COMPONENT: V2

GENERAL DESCRIPTION: Broaden wing tip extension

(Dimensions are for each tip)

DRAWING NUMBER: NSRDC A 152030-1

DIMENSIONS: FULL-SCALE MODEL SCALE

TOTAL DATA

Area		
Planform	671 ft ²	0.15 ft ²
Wetted		
Span (equivalent)	21.9 ft	.329 ft
Aspect Ratio	0.72	0.72
Rate of Taper		
Taper Ratio	0.70	0.70
Dihedral Angle, degrees	7°40'15"	7°40'15"
Incidence Angle, degrees	0°3'	0°3'
Aerodynamic Twist, degrees		
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	40°	40°
Trailing Edge	19°31'	19°31'
0.25 Element Line		
Chords:		
Root (Wing Sta. 0.0)	35.9 ft	.538 ft
Tip, (equivalent)	25.2 ft	.378 ft
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		
Airfoil Section		
Root	64A010	64A010
Tip	64A010	64A010

EXPOSED DATA

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		

TABLE IX.

MODEL COMPONENT: W1
 GENERAL DESCRIPTION: Baseline bracket wing 256-14

DRAWING NUMBER: NSRDC A152024-1

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
<u>TOTAL DATA</u>		
Area		
Planform	<u>6020 ft²</u>	<u>1.355 ft²</u>
Wetted	<u>—</u>	<u>—</u>
Span (equivalent)	<u>120.67 ft.</u>	<u>1.81 ft.</u>
Aspect Ratio	<u>2.42</u>	<u>2.42</u>
Rate of Taper	<u>—</u>	<u>—</u>
Taper Ratio	<u>.517</u>	<u>.517</u>
Diehedral Angle, degrees	<u>7°40' 15"</u>	<u>7°40' 15"</u>
Incidence Angle, degrees	<u>0° 3'</u>	<u>0° 3'</u>
Aerodynamic Twist, degrees	<u>—</u>	<u>—</u>
Toe-In Angle	<u>0°</u>	<u>0°</u>
Cant Angle	<u>—</u>	<u>—</u>
Sweep Back Angles, degrees		
Leading Edge	<u>40°</u>	<u>40°</u>
Trailing Edge	<u>12°31'</u>	<u>12°31'</u>
0.25 Element Line	<u>—</u>	<u>—</u>
Chords:		
Root (Wing Sta. 0.0)	<u>64.55 ft</u>	<u>.969 ft</u>
Tip, (equivalent)	<u>35.4 ft</u>	<u>.53 ft</u>
MAC	<u>—</u>	<u>—</u>
Fus. Sta. of .25 MAC	<u>—</u>	<u>—</u>
W.P. of .25 MAC	<u>—</u>	<u>—</u>
B.L. of .25 MAC	<u>—</u>	<u>—</u>
Airfoil Section		
Root	<u>64A010</u>	<u>64A010</u>
Tip	<u>64A010</u>	<u>64A010</u>
<u>EXPOSED DATA</u>		
Area	<u>3960 ft²</u>	<u>.891 ft²</u>
Span, (equivalent)	<u>84.8 ft</u>	<u>1.30 ft.</u>
Aspect Ratio	<u>1.89</u>	<u>1.89</u>
Taper Ratio	<u>.627</u>	<u>.627</u>
Chords		
Root	<u>56.4 ft</u>	<u>.845 ft</u>
Tip	<u>35.4</u>	<u>.53 ft</u>
MAC	<u>—</u>	<u>—</u>
Fus. Sta. of .25 MAC	<u>—</u>	<u>—</u>
W.P. of .25 MAC	<u>—</u>	<u>—</u>
B.L. of .25 MAC	<u>—</u>	<u>—</u>

NOMENCLATURE

(General)

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

NOMENCLATURE (Continued)

Reference & C. G. Definitions

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
S		wing area; m^2 , ft^2
S	SREF	reference area; m^2 , ft^2
\bar{c}		wing mean aerodynamic chord or reference chord; m, ft, in (see l_{ref} or LREF)
l_{ref}	LREF	reference length; m, ft, in.; (see \bar{c})
b_{ref}	BREF	wing span or reference span; m, ft, in
A_b		base area; m^2 , ft^2 , in^2
c. g.		center of gravity
MRP	MRP	abbreviation for moment reference point
	XMRP	abbreviation for moment reference point on X-axis
	YMRP	abbreviation for moment reference point on Y-axis
	ZMRP	abbreviation for moment reference point on Z-axis

NOMENCLATURE (Continued)

Axis System General

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

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

NOMENCLATURE (Continued)
Body & Stability Axis System

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

NOMENCLATURE (Continued)

Surface Definitions

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

SURFACE SUBSCRIPTS

DEFINITION

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

ADDITIONS TO SADSAC NOMENCLATURE

NSRDC. 3210

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
\dot{m}	MSFLOW	nozzle mass flow rate, pounds mass per sec.
$C_{L\alpha}$	$D(CL)/DA$	derivative of lift coefficient with respect to alpha, ($\alpha = 5^\circ$); per degree.
$C_{m\alpha}$	$D(CIM)/DA$	derivative of pitching moment coefficient with respect to alpha, ($\alpha = 5^\circ$); per degree.
dC_m/dC_L	CIM/CL $X/LREF$	derivative of pitching moment coefficient with respect to the lift coefficient, $CIM/CL = D(CIM)/DA/D(CL)/DA$
$C_{D\alpha=0}$	CDALFO	drag coefficient at zero angle of attack
$C_{L\delta_e}$	DCL/DE	rate of change of total lift coefficient with elevator deflection; degrees.
$C_{m\delta_e}$	DCIMDE	rate of change of total pitching moment coefficient with elevator deflection; degrees.
$C_{D\delta_e}$	DCD/DE	rate of change of total drag coefficient with elevator deflection; degrees.
$C_{L\delta_c}$	DCL/DC	rate of change of total lift coefficient with canard deflection; per degree.
$C_{m\delta_c}$	DCIMDC	rate of change of total pitching moment coefficient with canard deflection; degrees.
$C_{D\delta_c}$	DCD/DC	rate of change of total drag coefficient with canard deflection; degrees

ADDITIONS TO SADSAC NOMENCLATURE
(Continued)

NSRDC 3210

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
$C_{y\delta_r}$	DCY/DR	rate of change of total side force coefficient with rudder deflection; degrees.
$C_{n\delta_r}$	DCYNDR	rate of change of total yawing moment coefficient with rudder deflection; degrees.
$C_{l\delta_r}$	DCBLDR	rate of change of total rolling moment coefficient with rudder deflection; degrees.
$C_{D\delta_r}$	DCD/DR	rate of change of total drag coefficient with rudder deflection; degrees.
$C_{y\delta_a}$	DCY/DA	rate of change of total side force coefficient with total aileron deflection; degrees.
$C_{n\delta_a}$	DCYNDA	rate of change of total yawing moment coefficient with total aileron deflection; degrees.
$C_{l\delta_a}$	DCBLDA	rate of change of total rolling moment coefficient with total aileron deflection; degrees.
$C_{D\delta_a}$	DCD/DA	rate of change of total drag coefficient with total aileron deflection; degrees.

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
NSRDC	Mr. D. Chadock
LMSC/HREC	Mr. D. Bradley

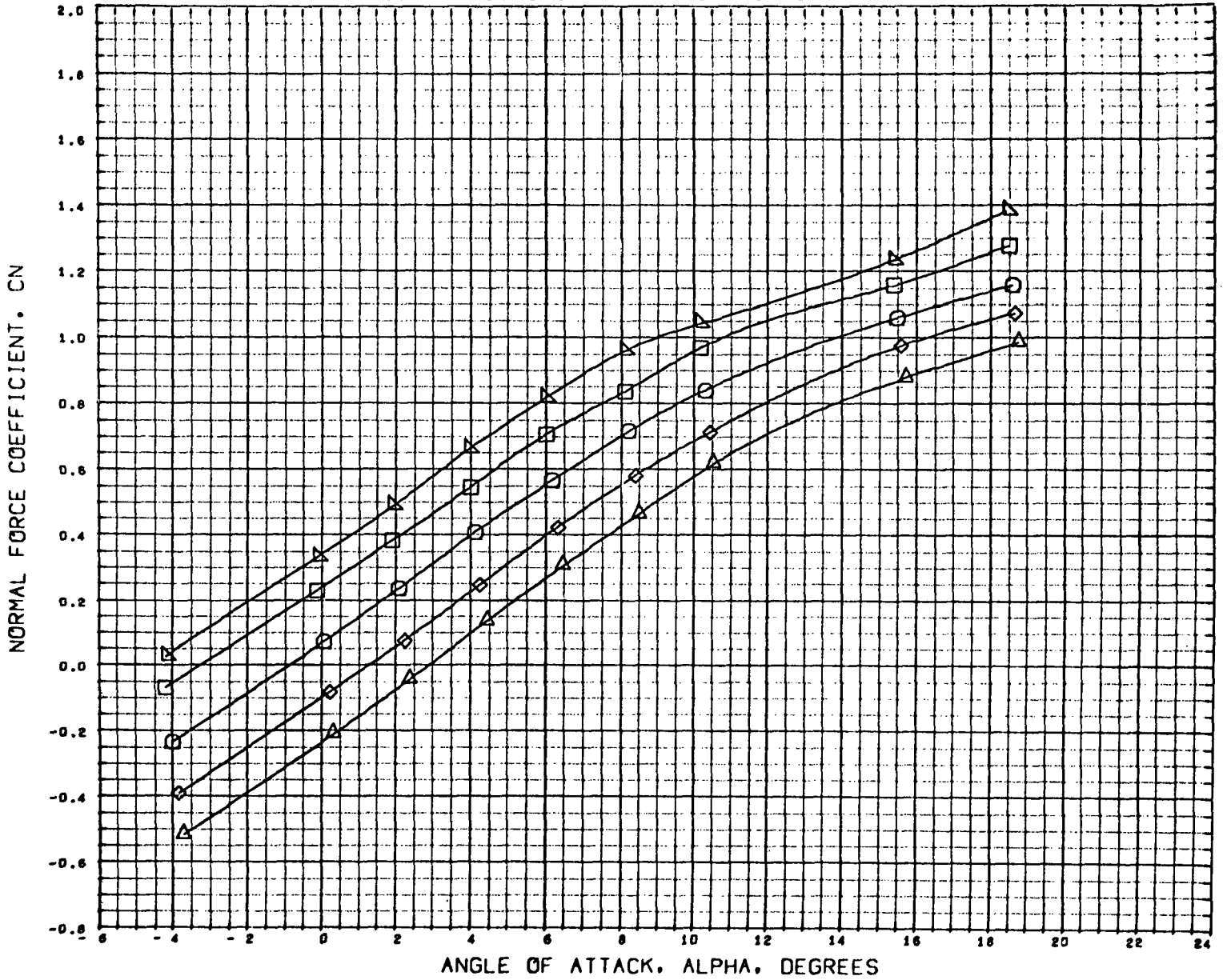
If copies of this listing are desired, please contact the above or the cognizant SADSAC personnel who, for this data, is:

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

(504) 255-2304

P L O T T E D D A T A

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

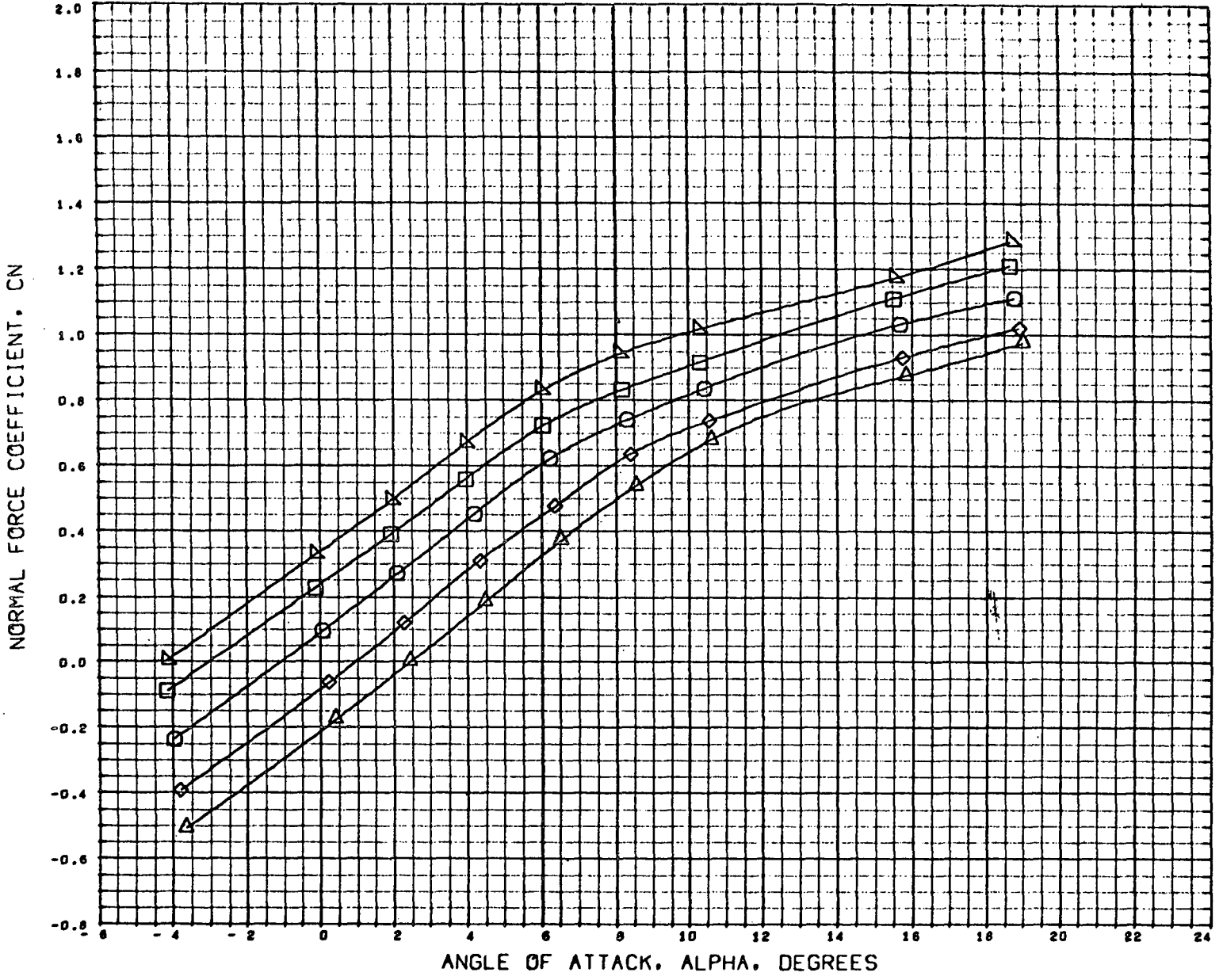


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
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(RN3009)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RN3003)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950	FEET
(RN3017)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000	FEET
							ZMRP	0.0187	FEET
							SCALE	0.0150	SCALE

MACH 0.704

2

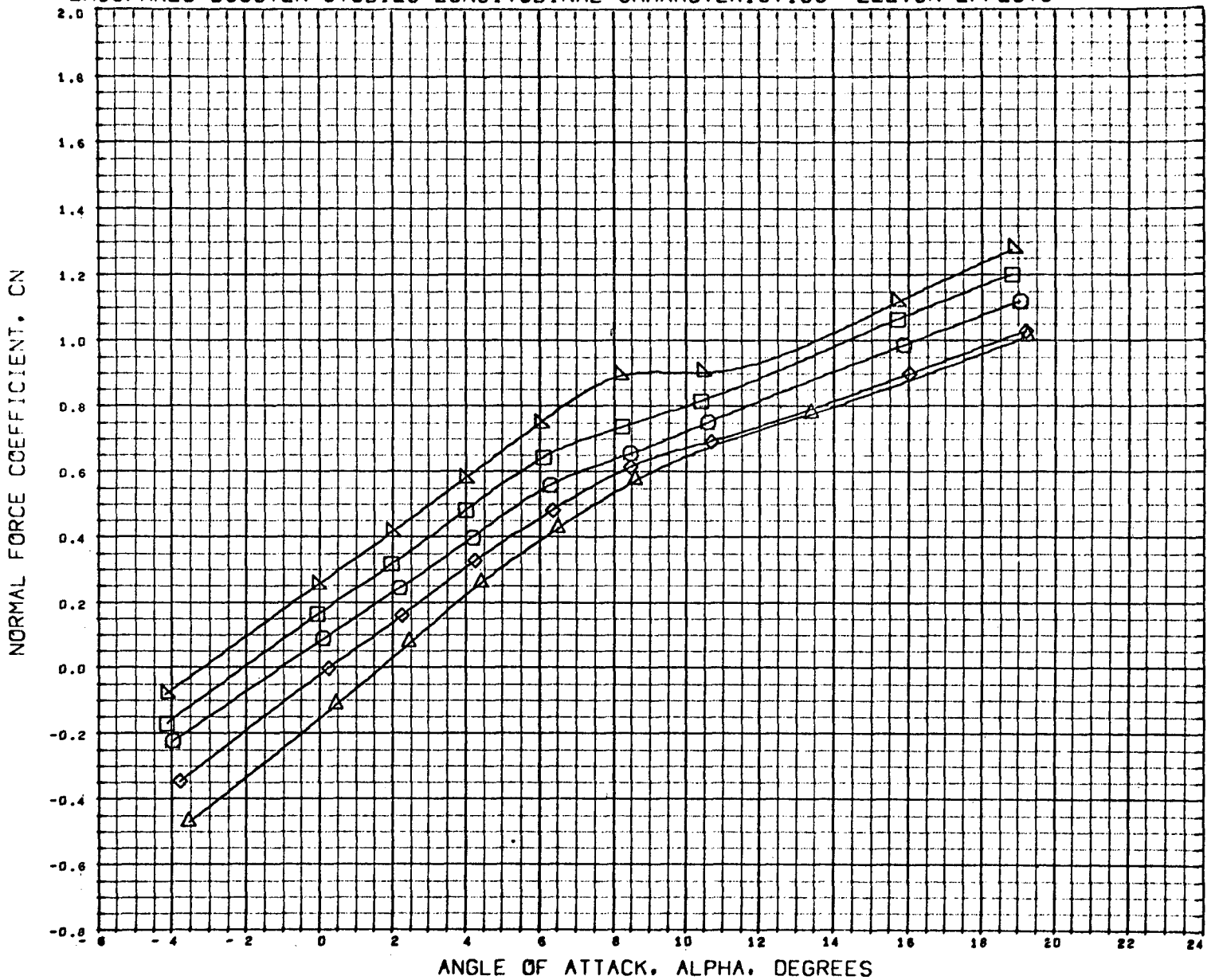
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.000

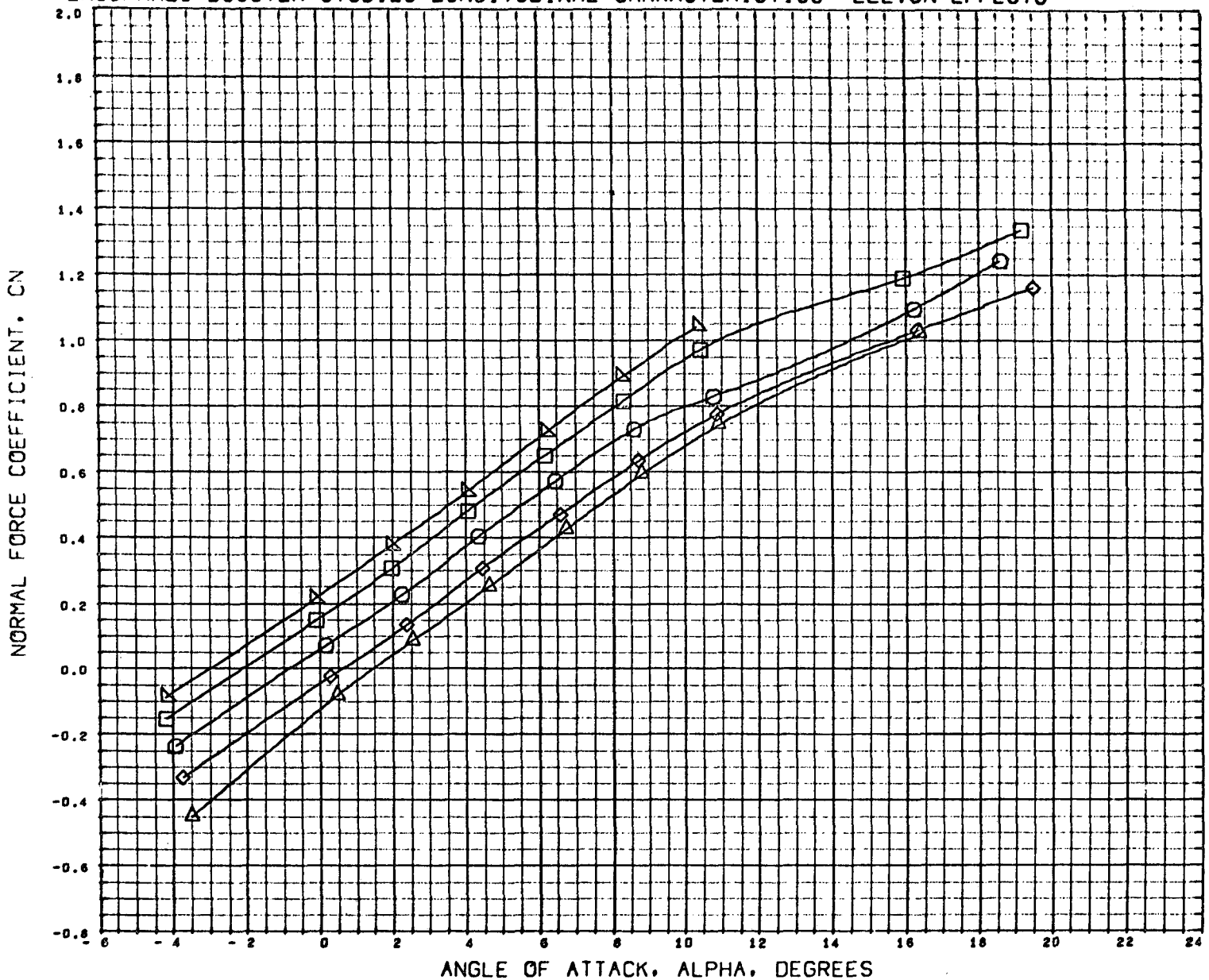
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

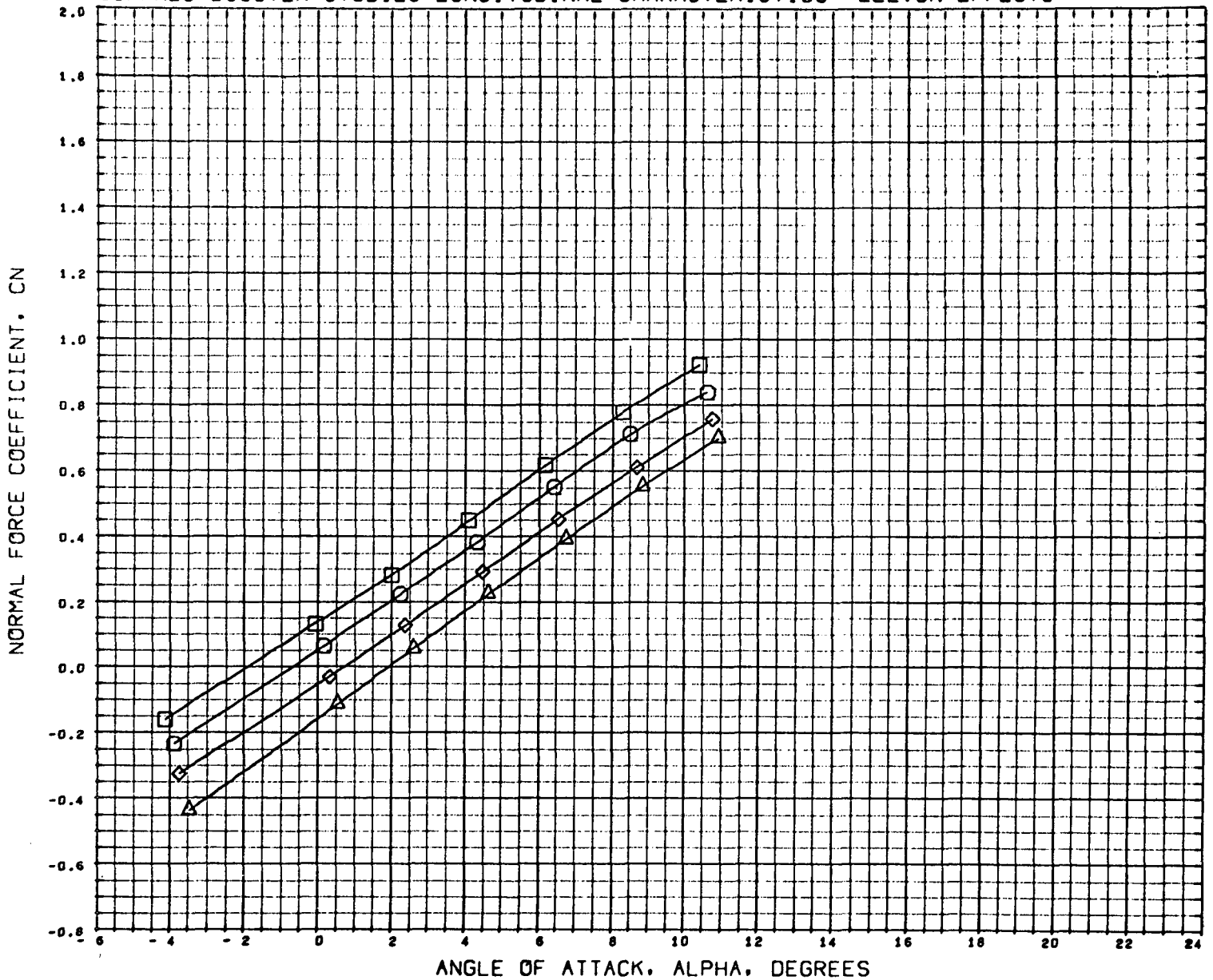


ANGLE OF ATTACK, ALPHA, DEGREES

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(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950	FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000	FEET
						ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

MACH 1.003

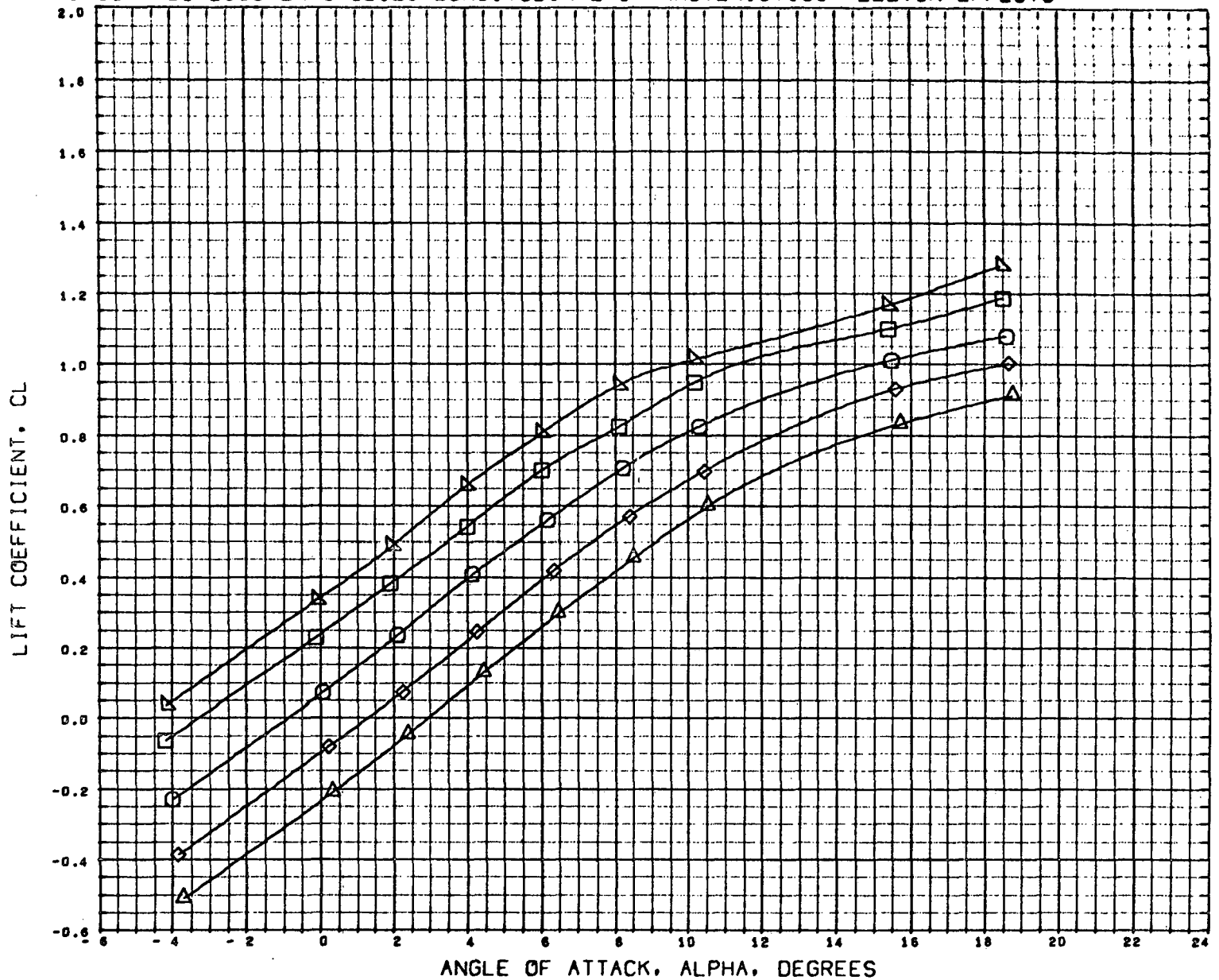
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
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(RN3009)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF 2.9950 FEET
(RN3017)	▽	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRF 0.0000 FEET ZMRF 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.122

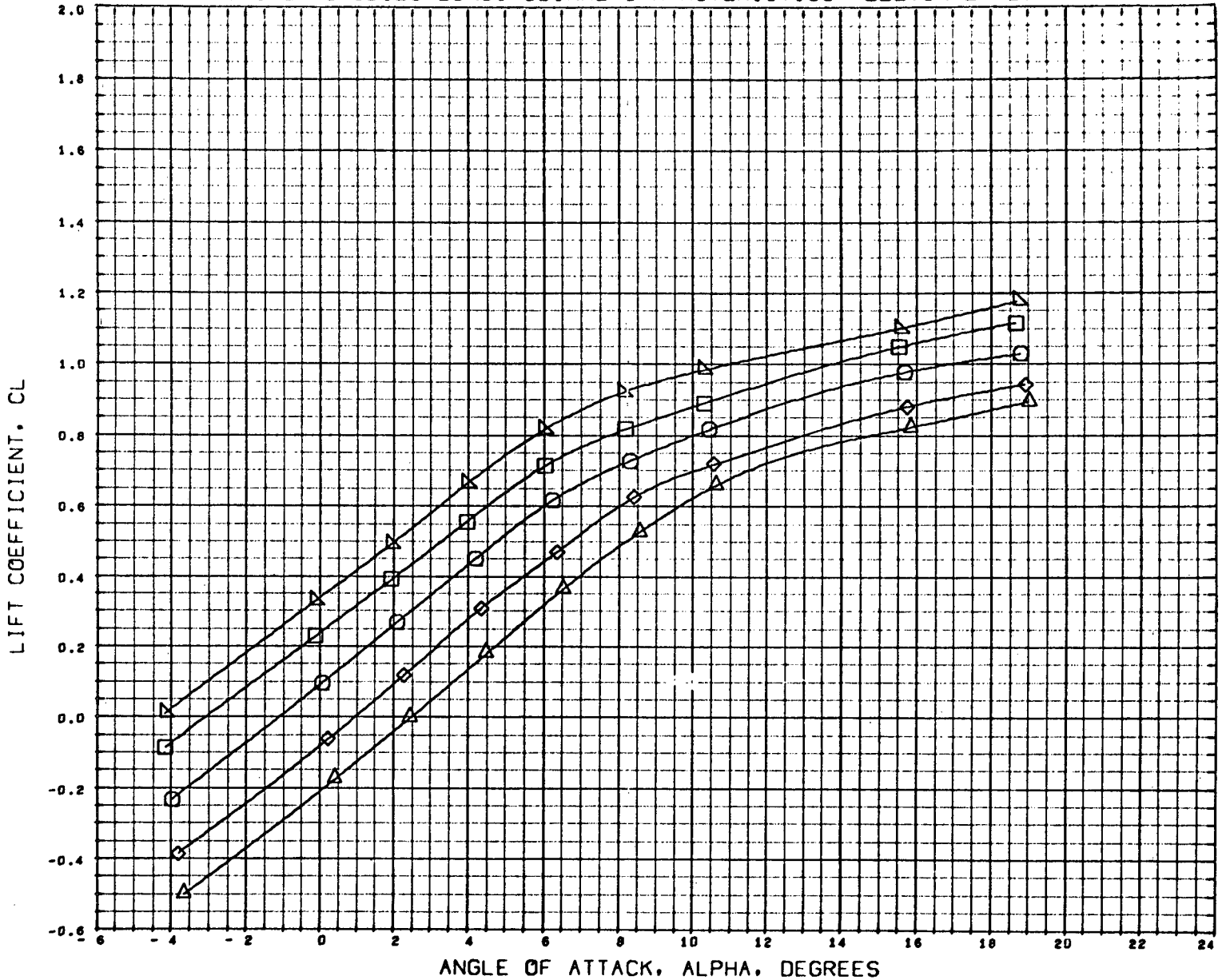
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(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XHRP 2.9950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YHRP 0.0000 FEET ZHRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.704

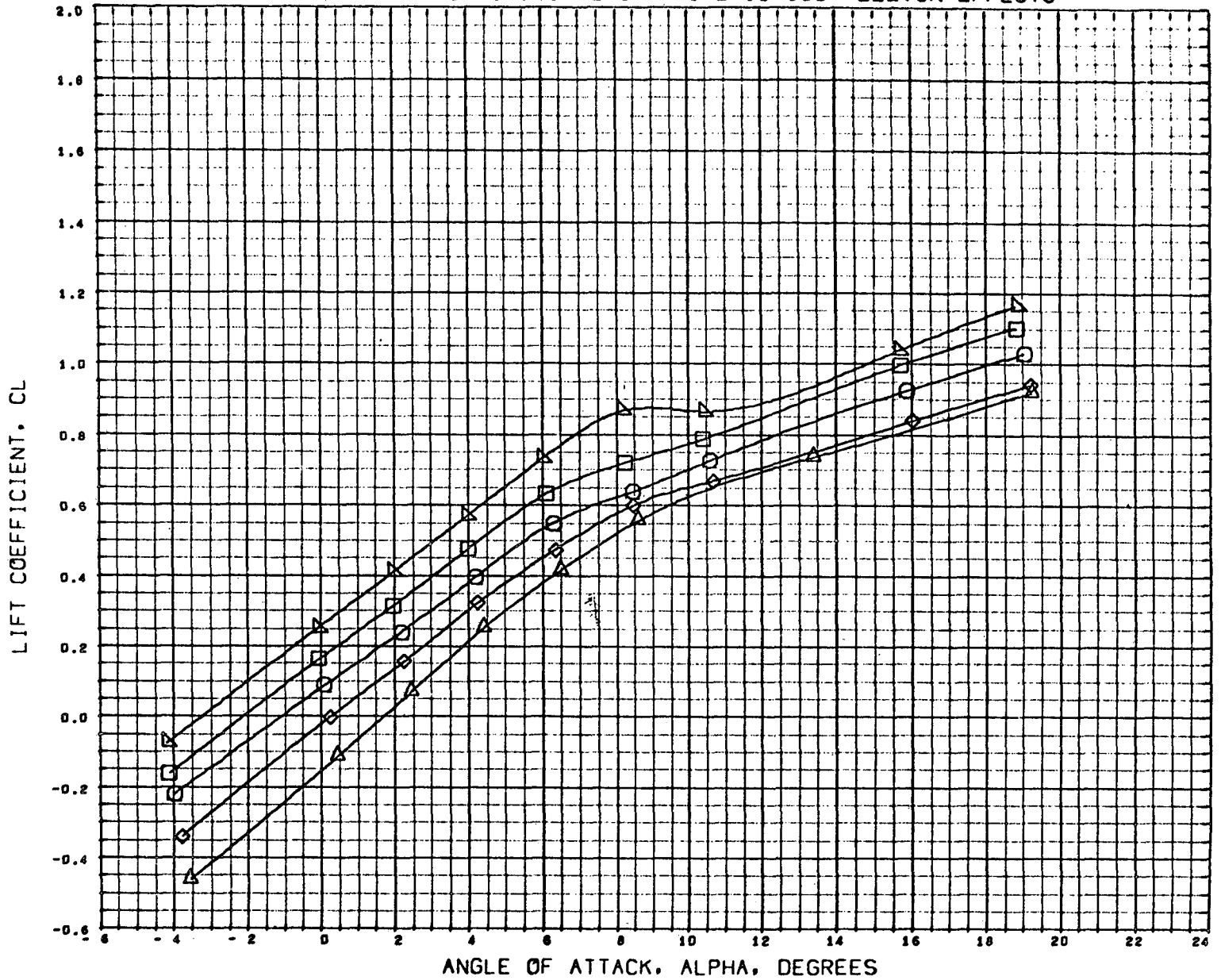
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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 0.800

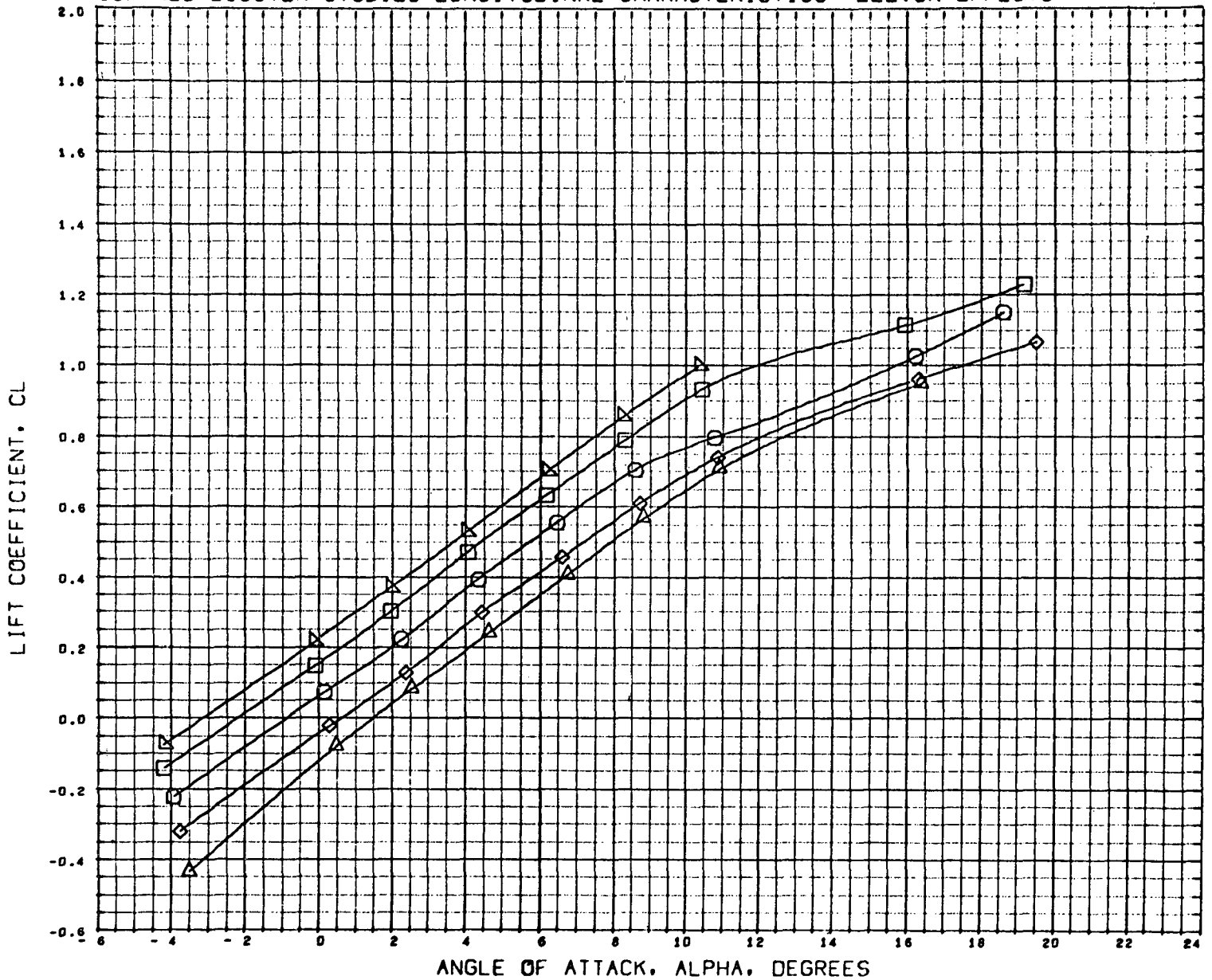
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



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(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XHRP 2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YHRP 0.0000 FEET
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MACH 0.903

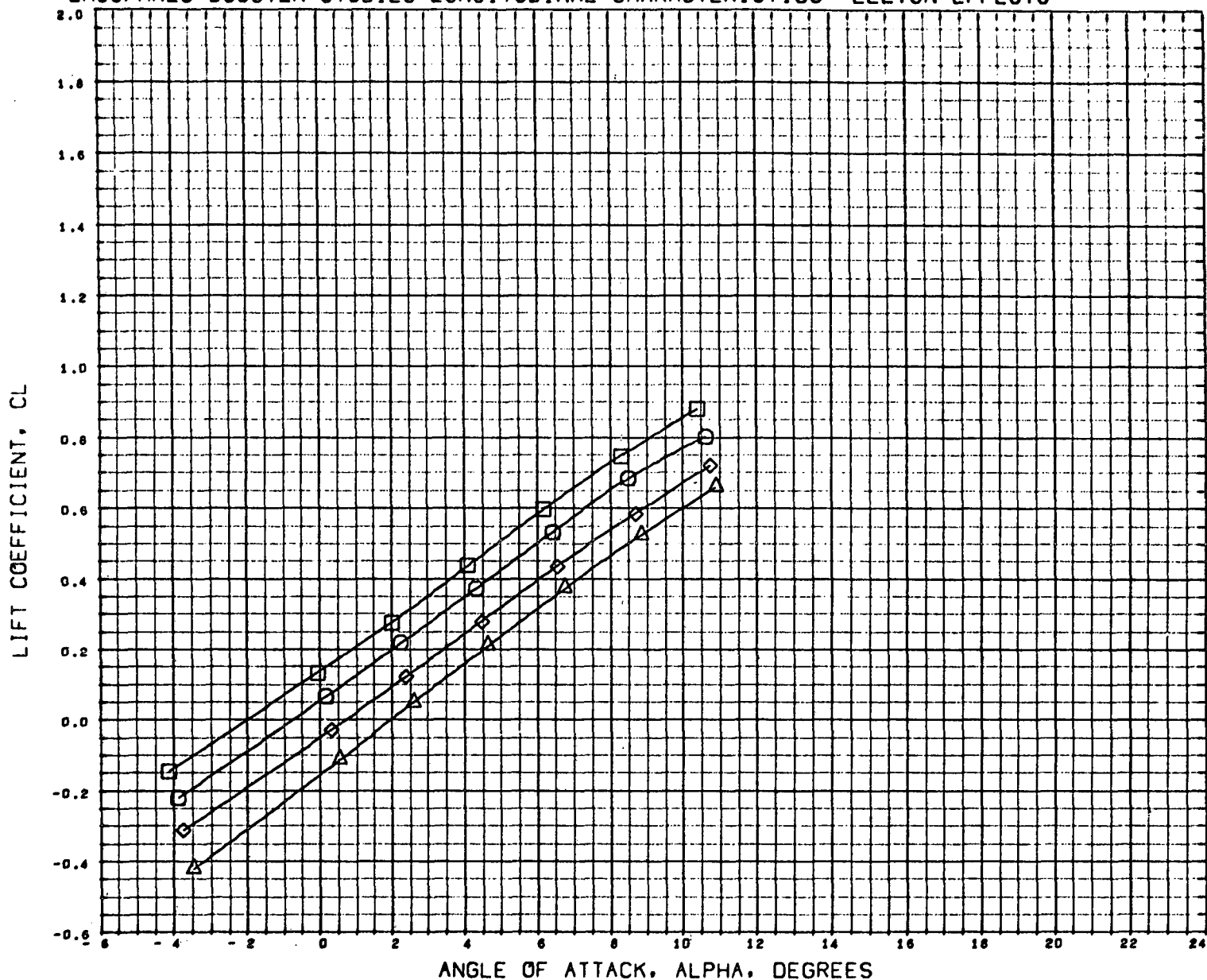
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3009)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3001)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3005)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.9950 FEET
(RN3017)	▽	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.003

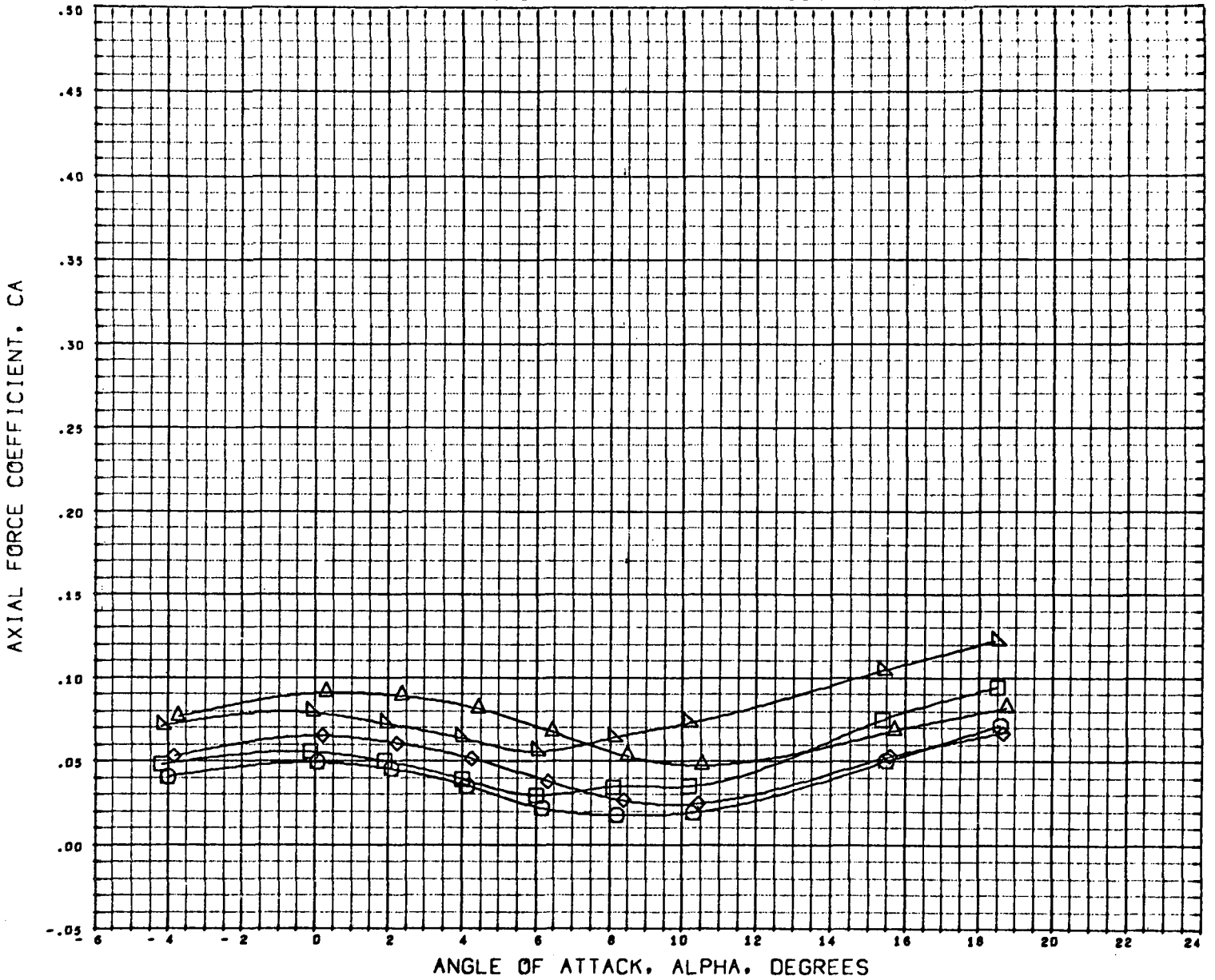
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RN3009)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3051)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)		DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.122

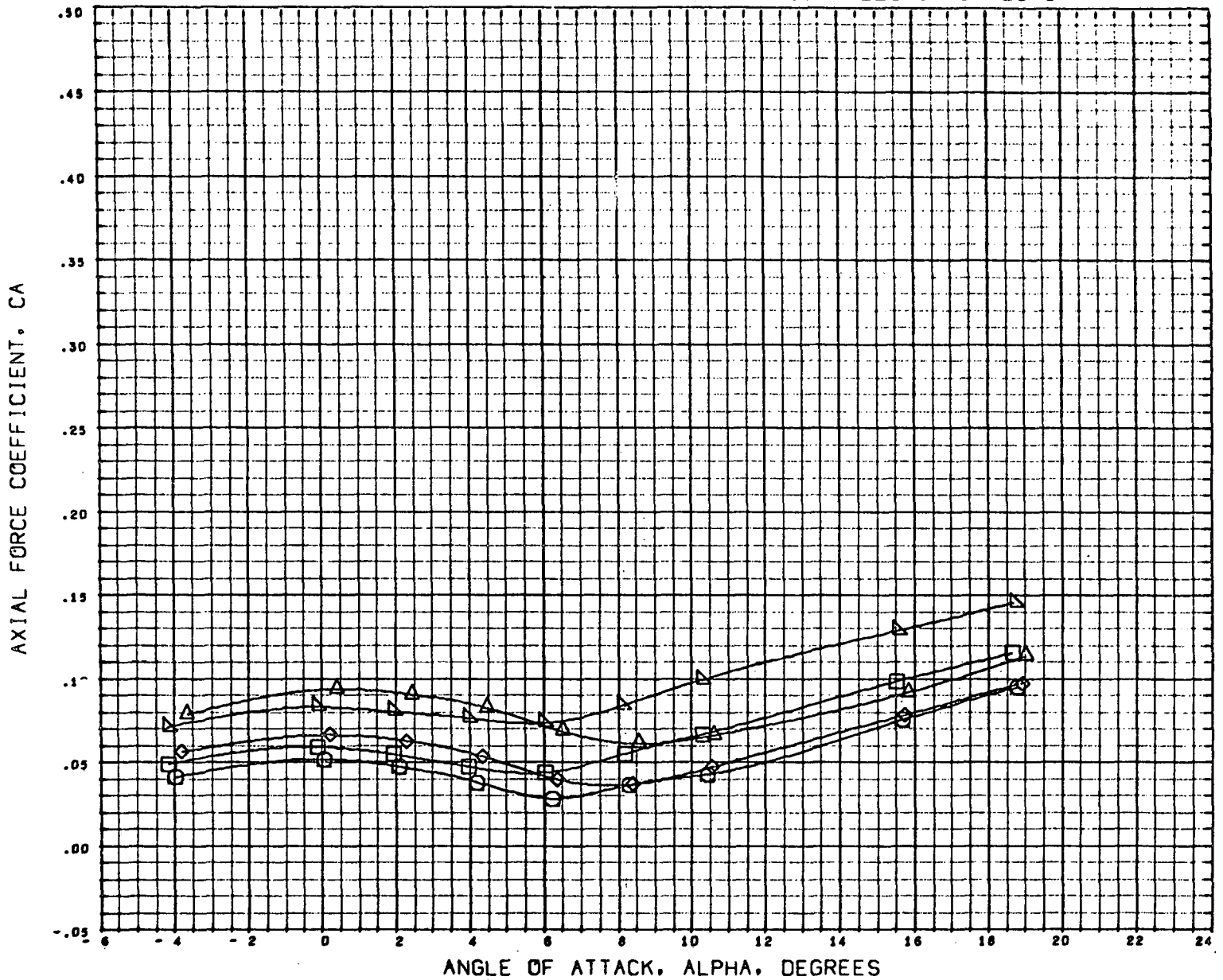
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4330 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XHRP 2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YHRP 0.0000 FEET
						ZHRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.704

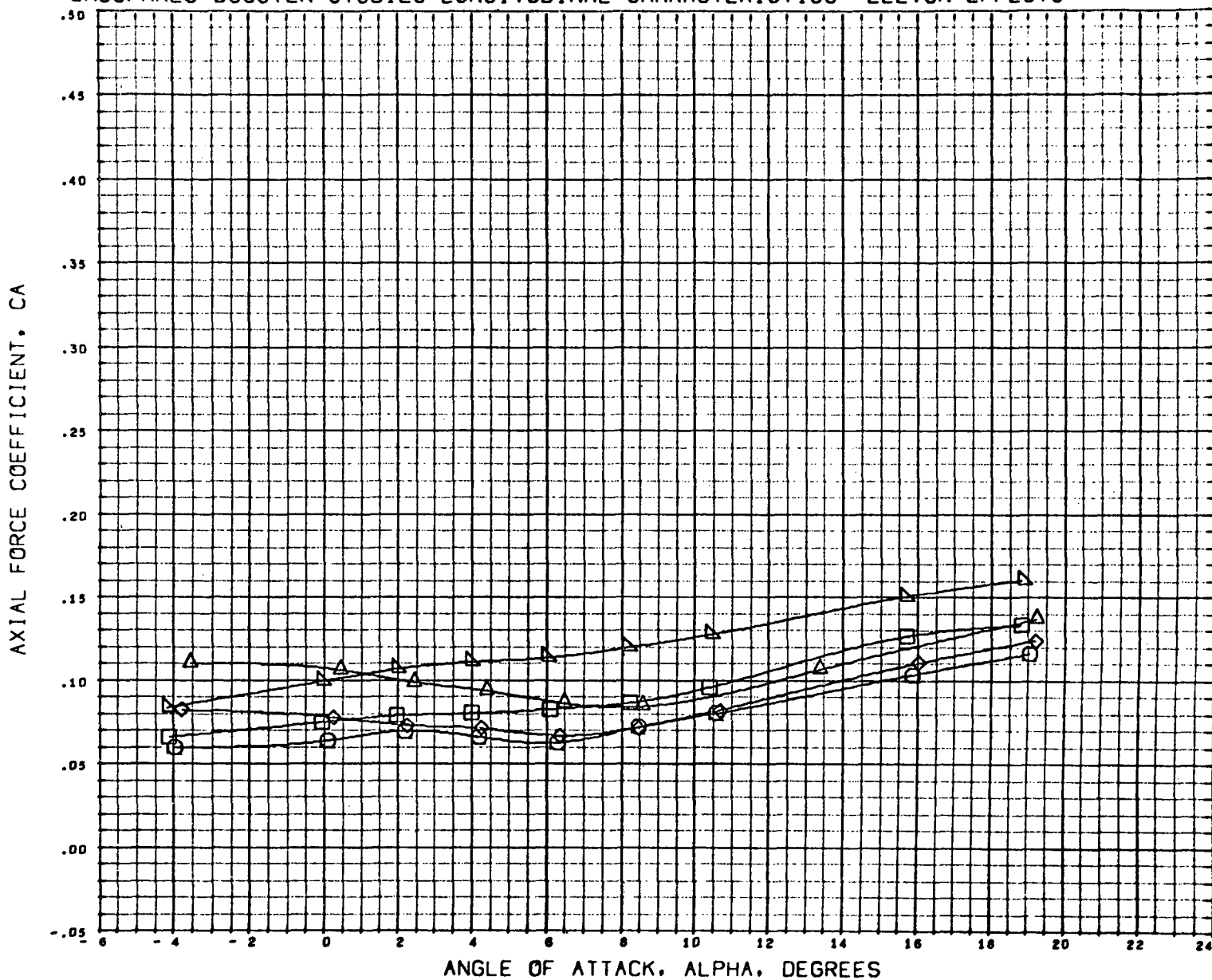
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3001)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3005)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.800

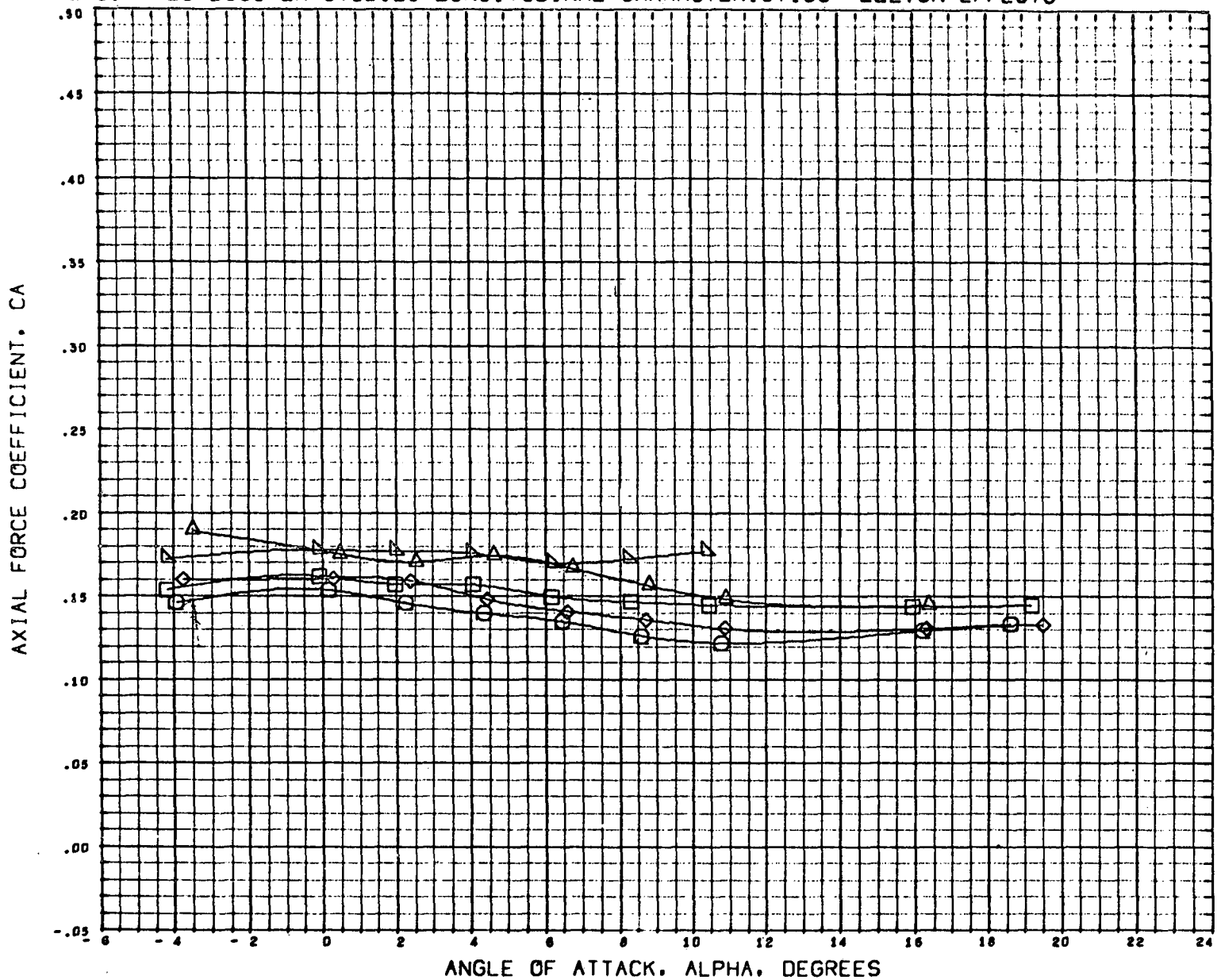
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	◻	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4930 FEET
(RN3001)	◊	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(RN3005)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

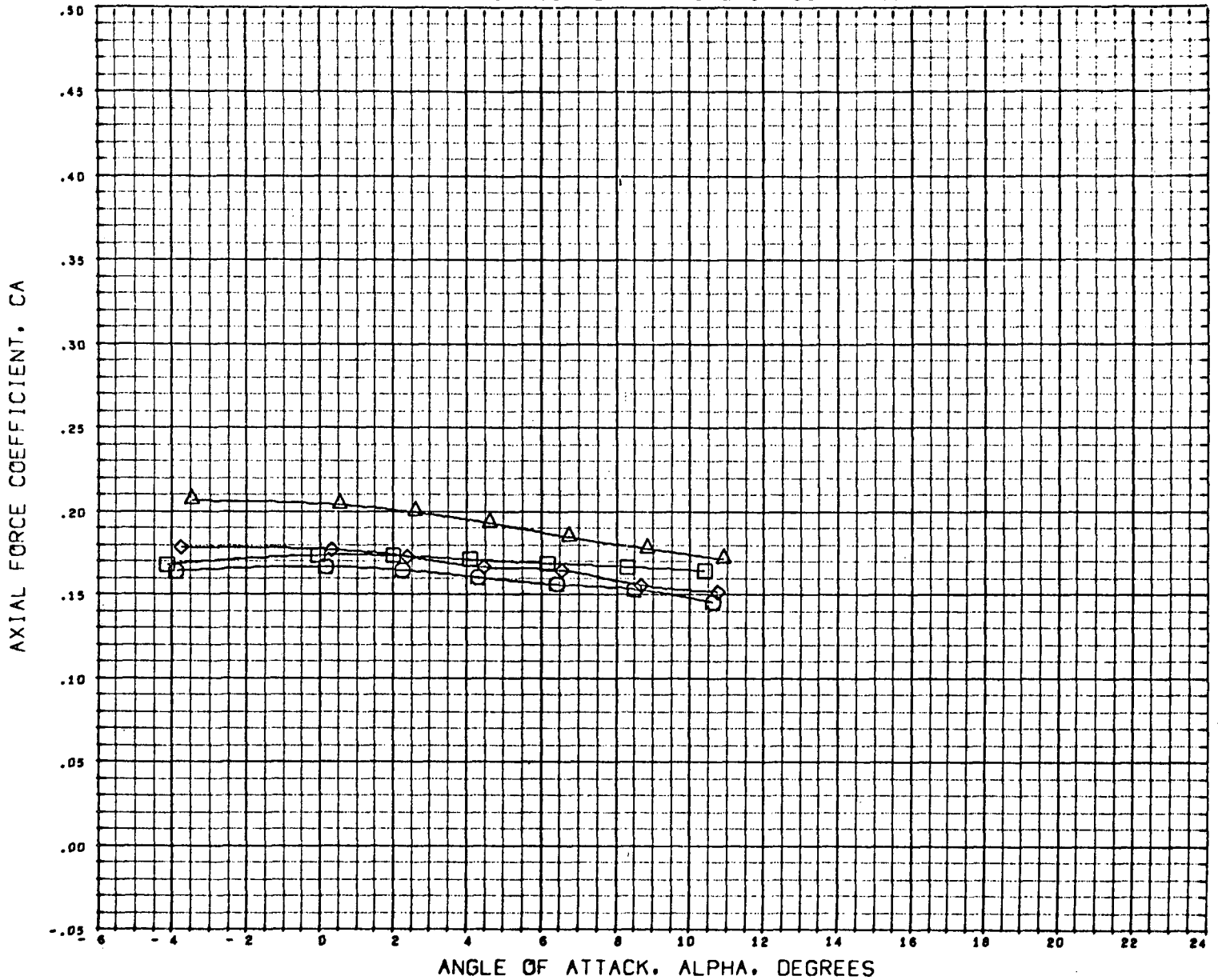


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 1.003

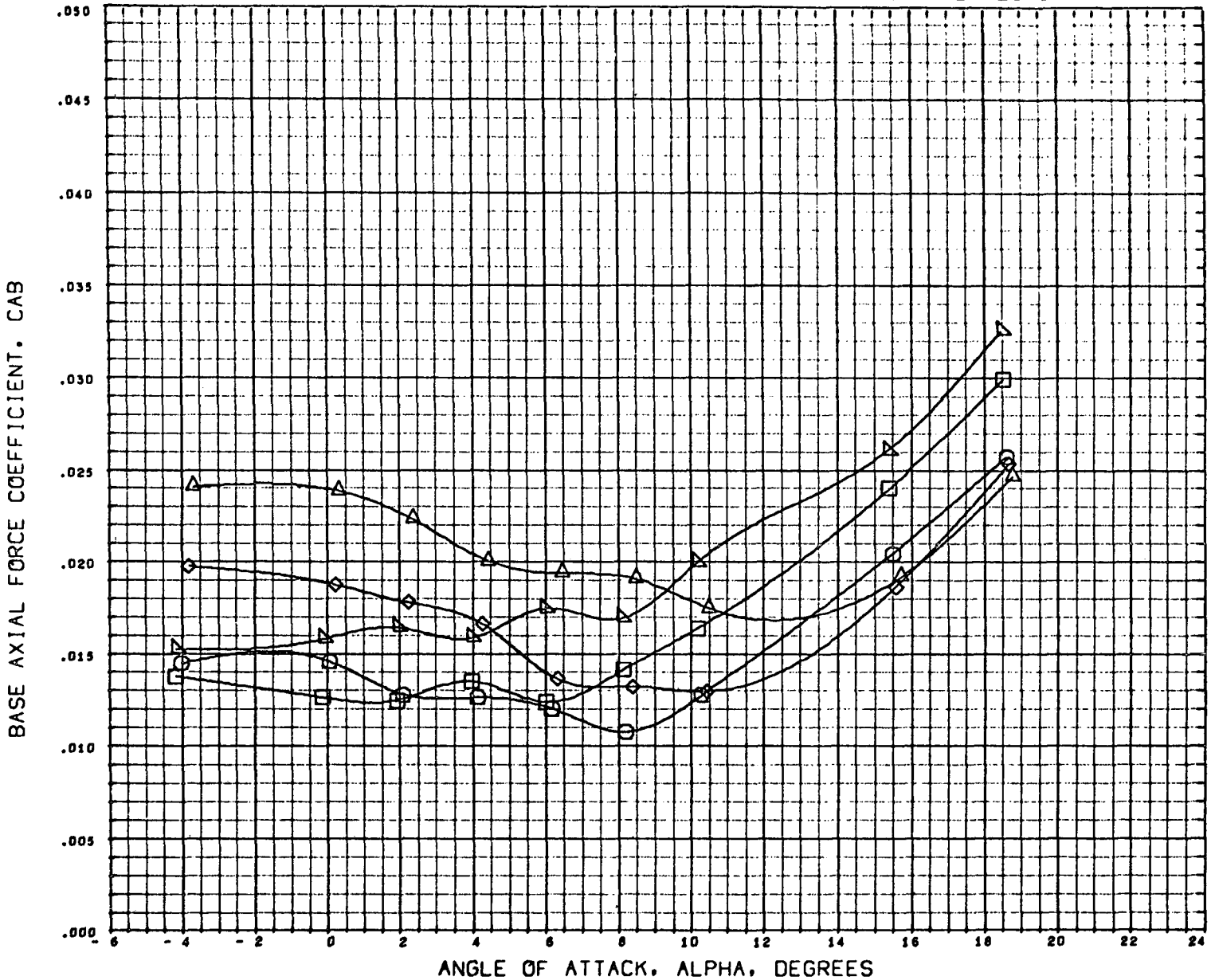
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.9950 FEET
(RN3017)	▽	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.122

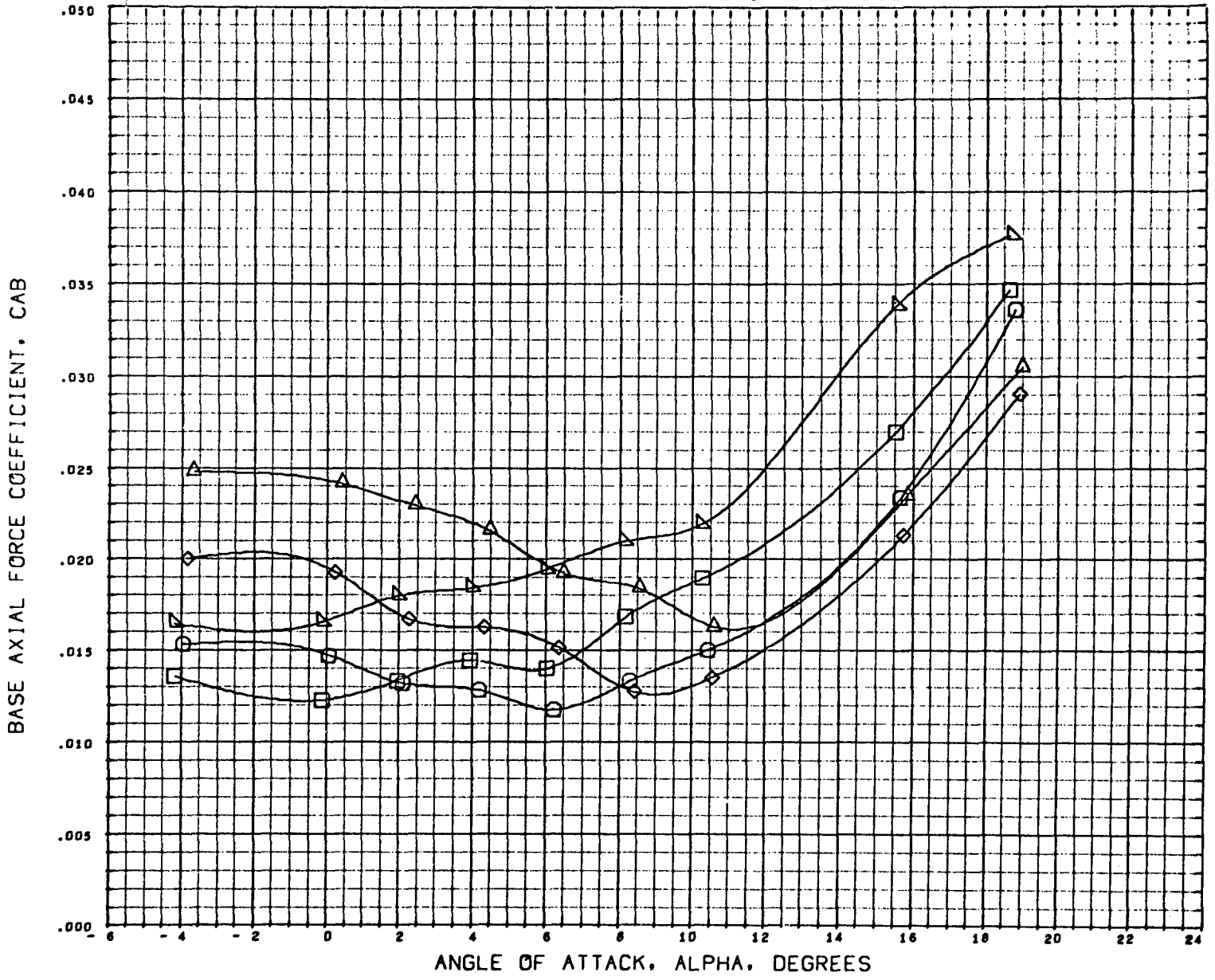
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

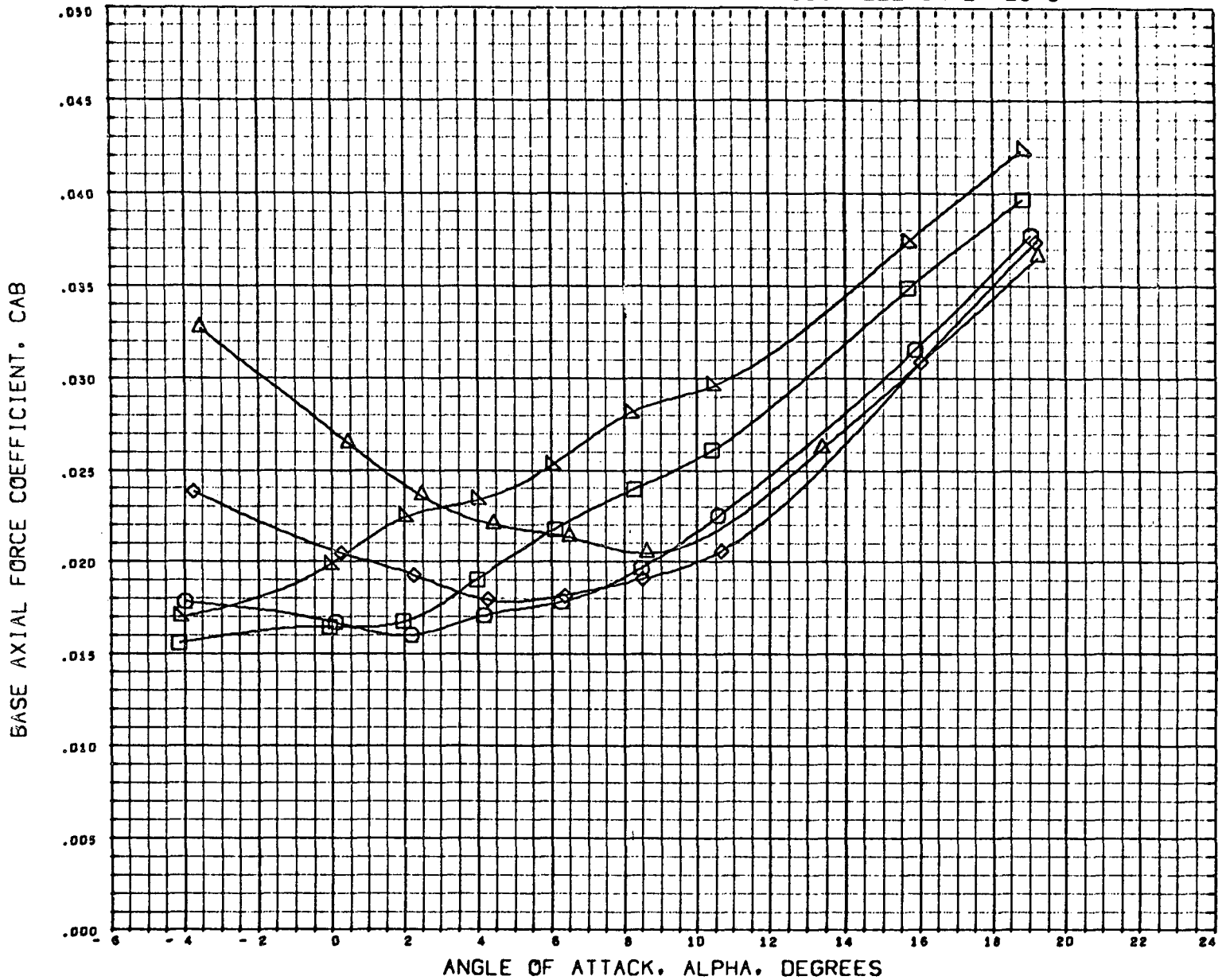
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013) \triangle	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009) \diamond	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4330 FEET
(RN3001) \square	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3005) \circ	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF 2.5950 FEET
(RN3017) ∇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF 0.0000 FEET ZMRF 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.800

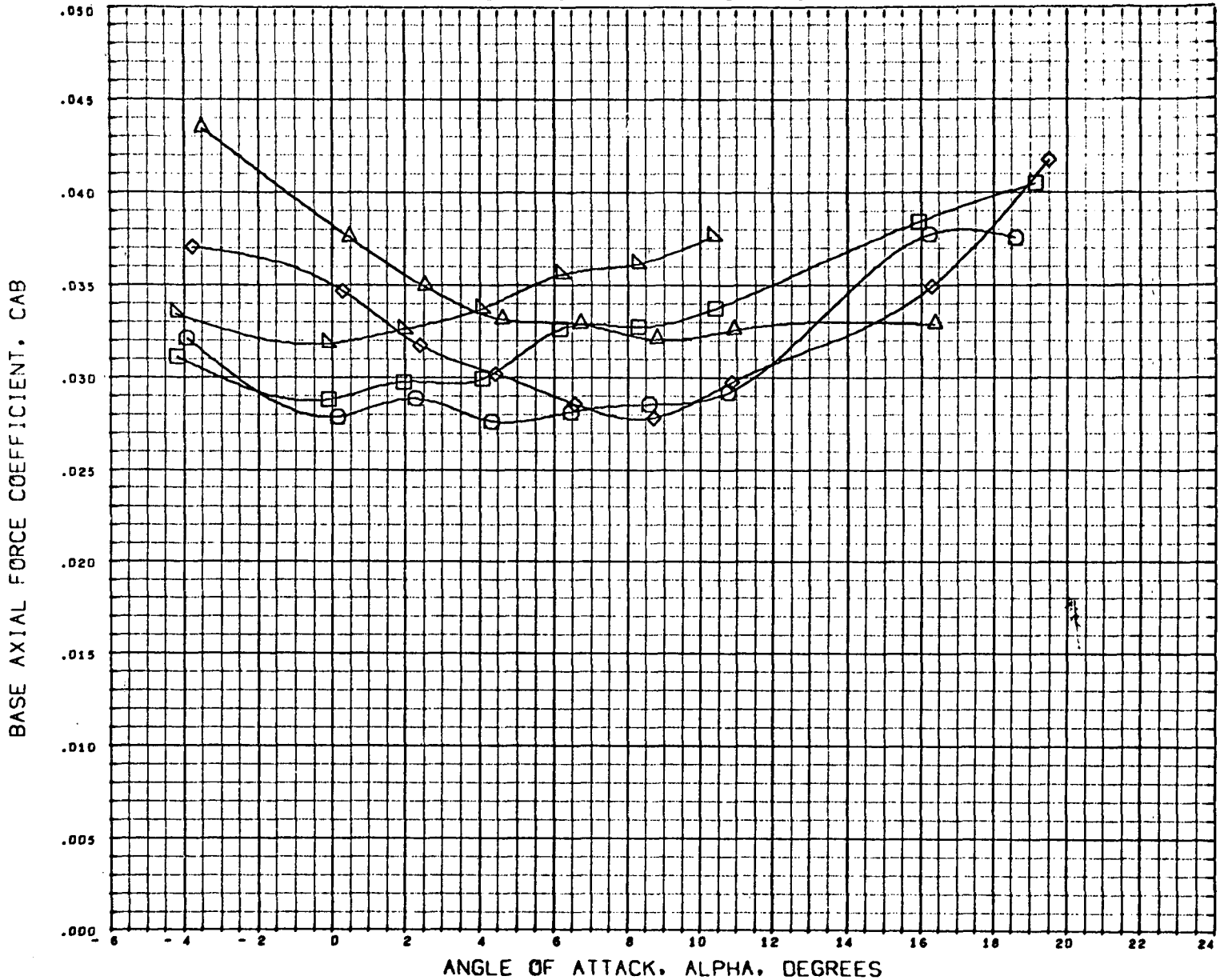
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.9950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.903

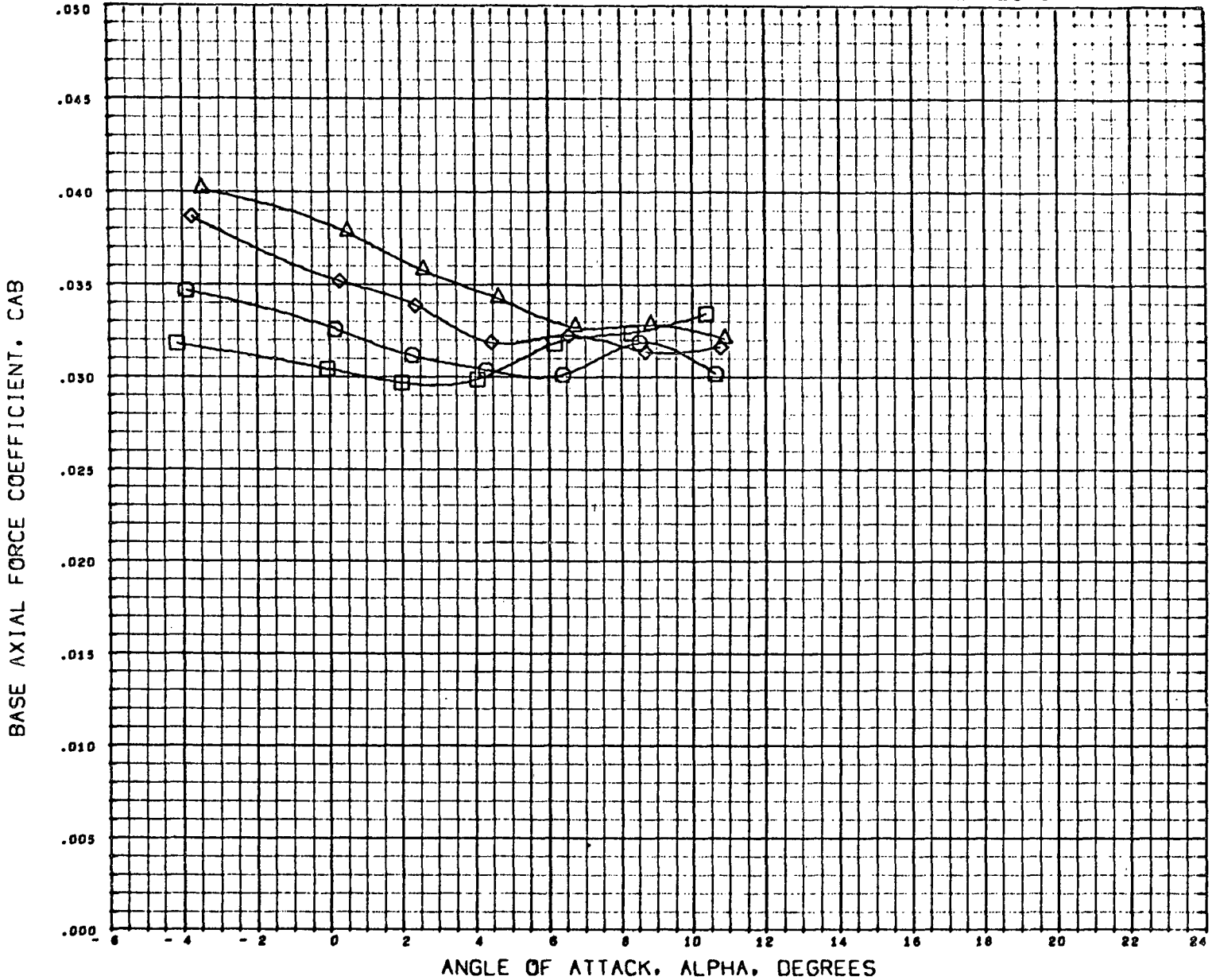
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.003

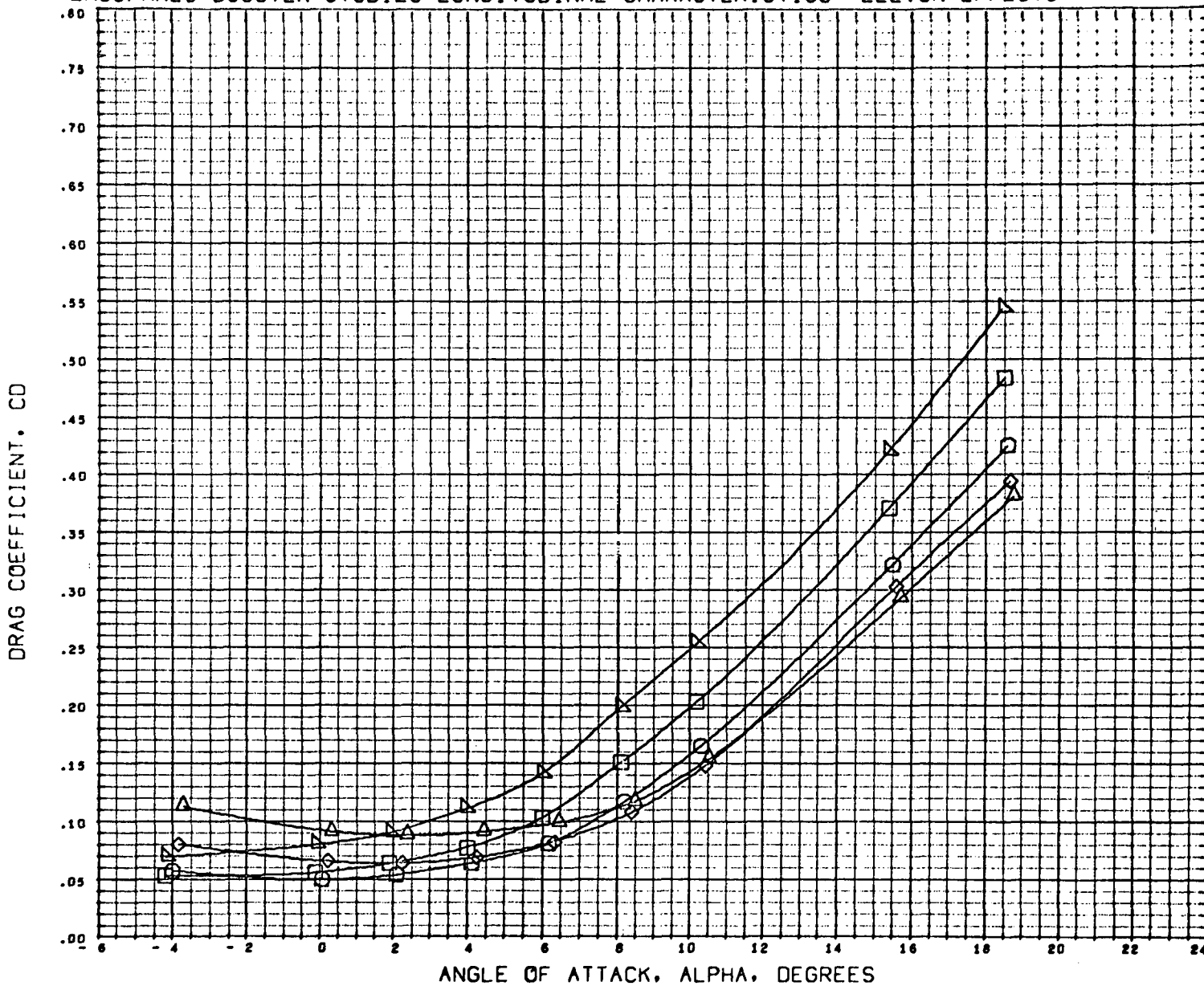
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.950	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

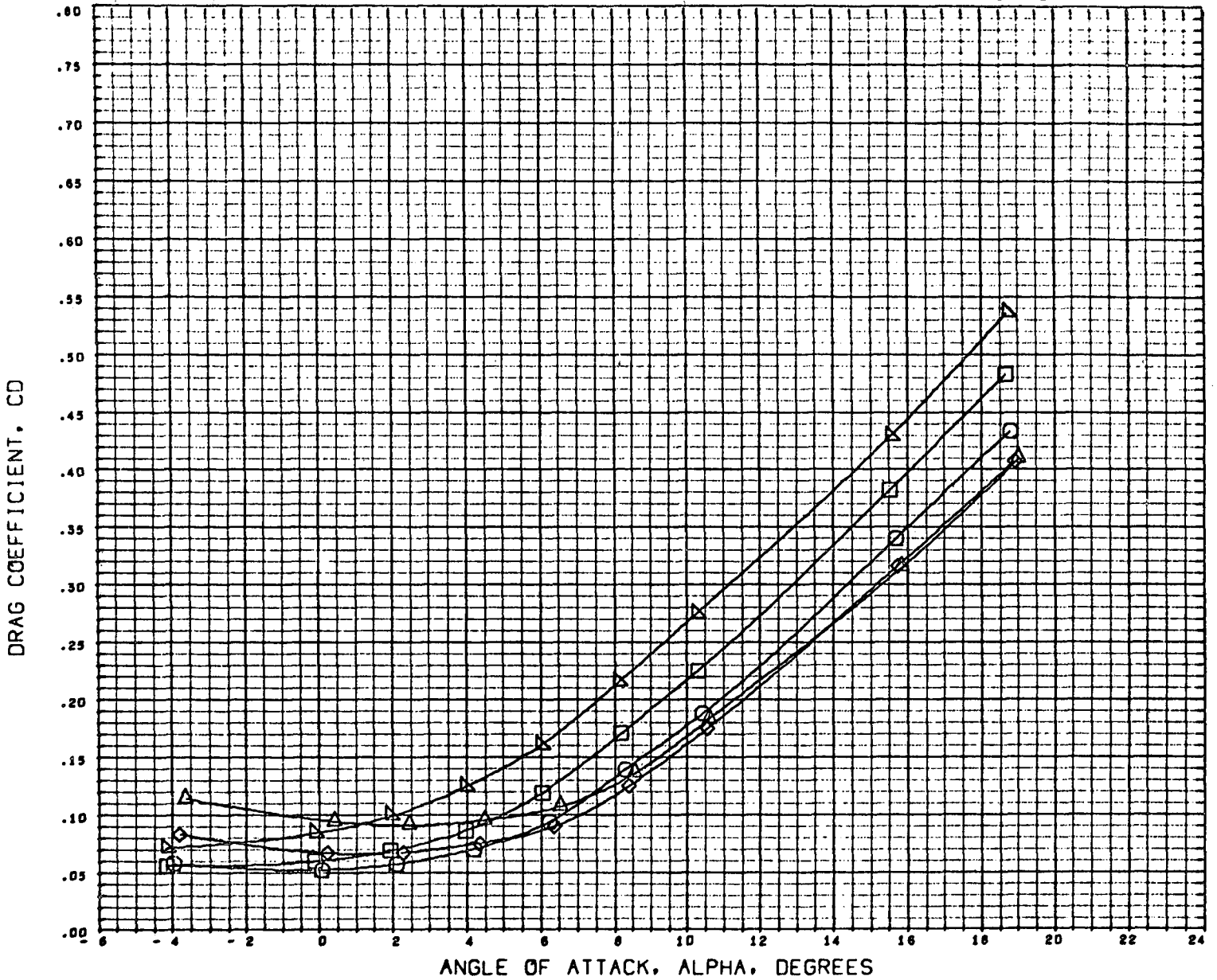


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

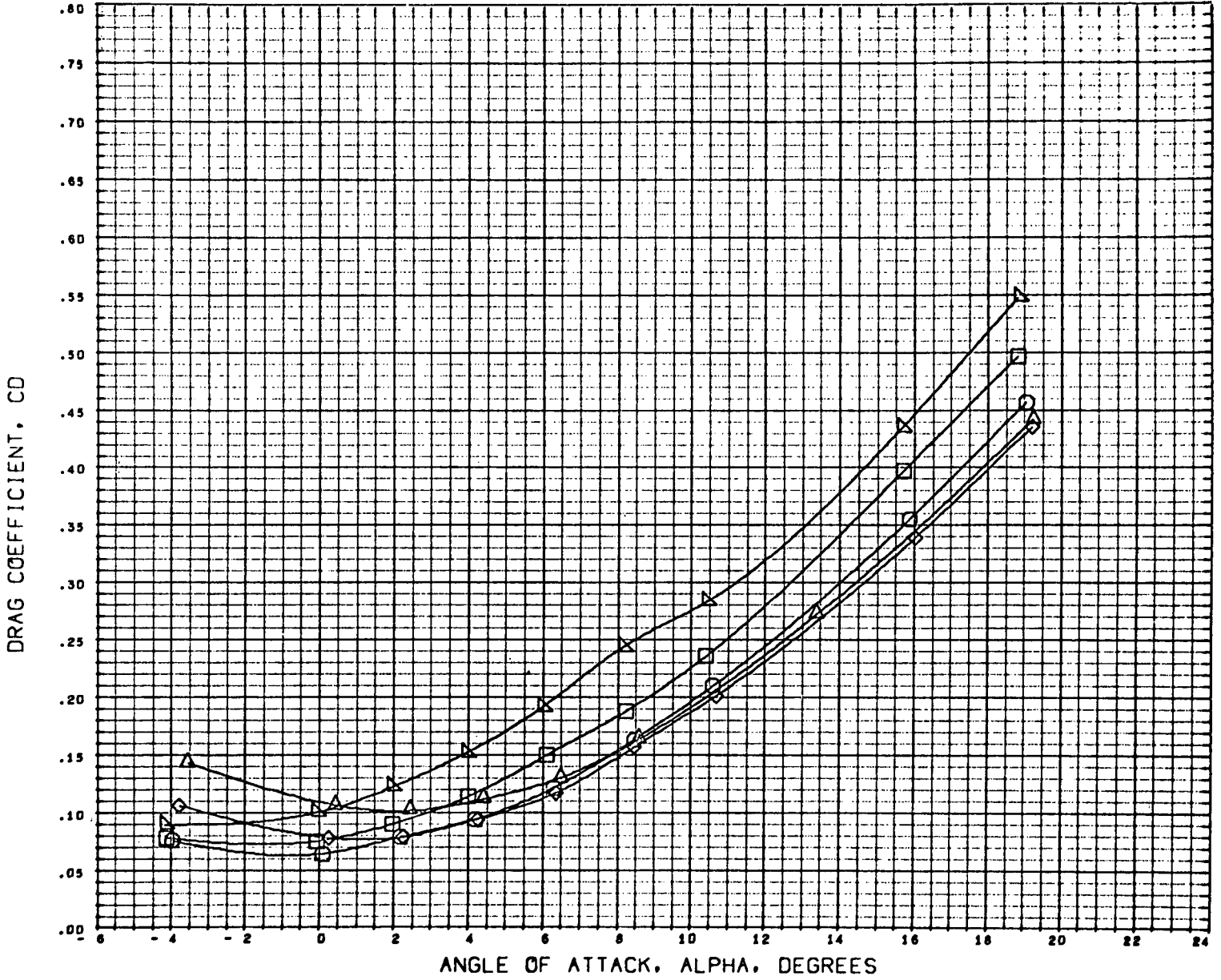


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF 2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF 0.0000 FEET
						ZMRF 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.800

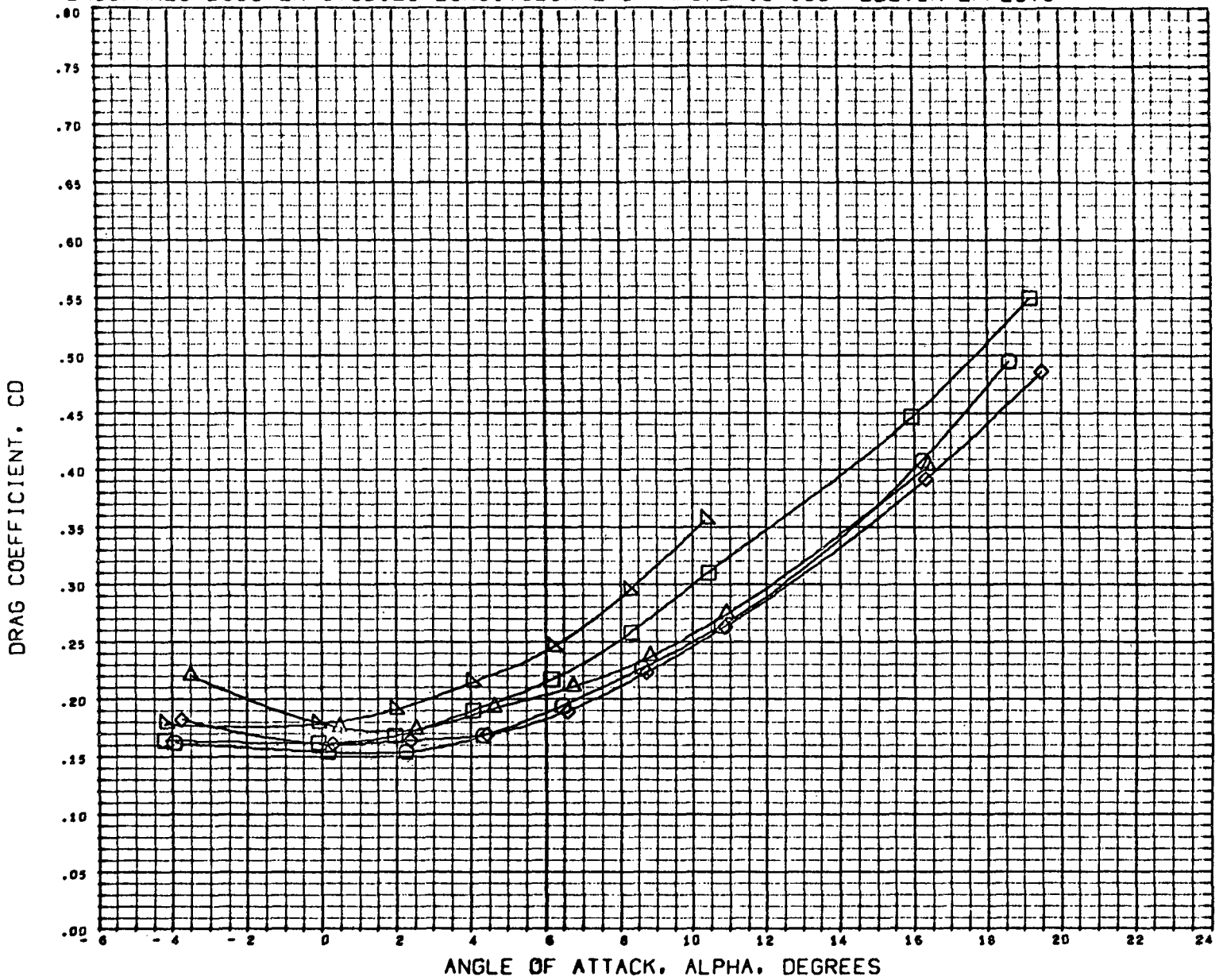
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.903

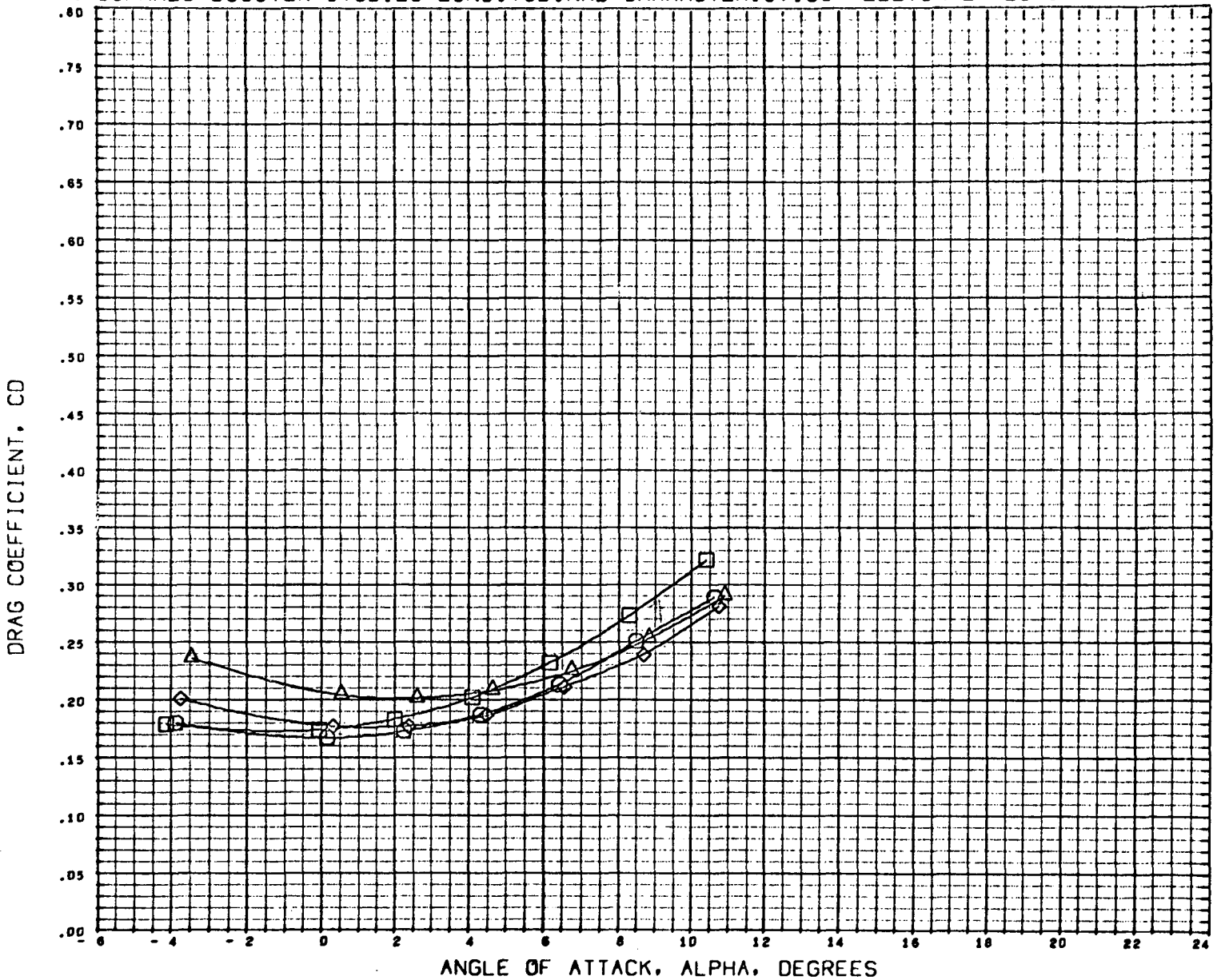
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3009)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.3950 FEET
(RN3017)	▽	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.003

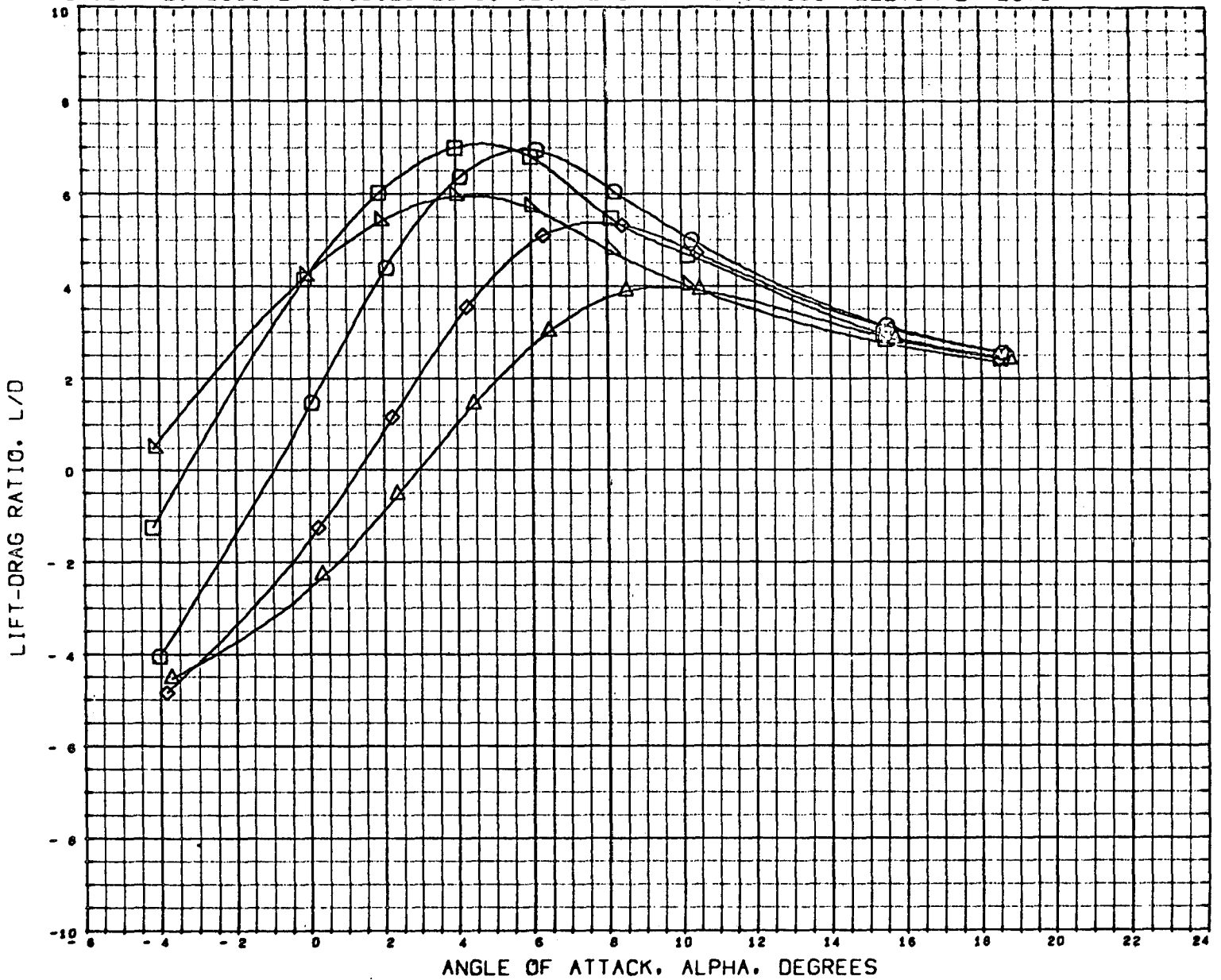
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	▽	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 1.122

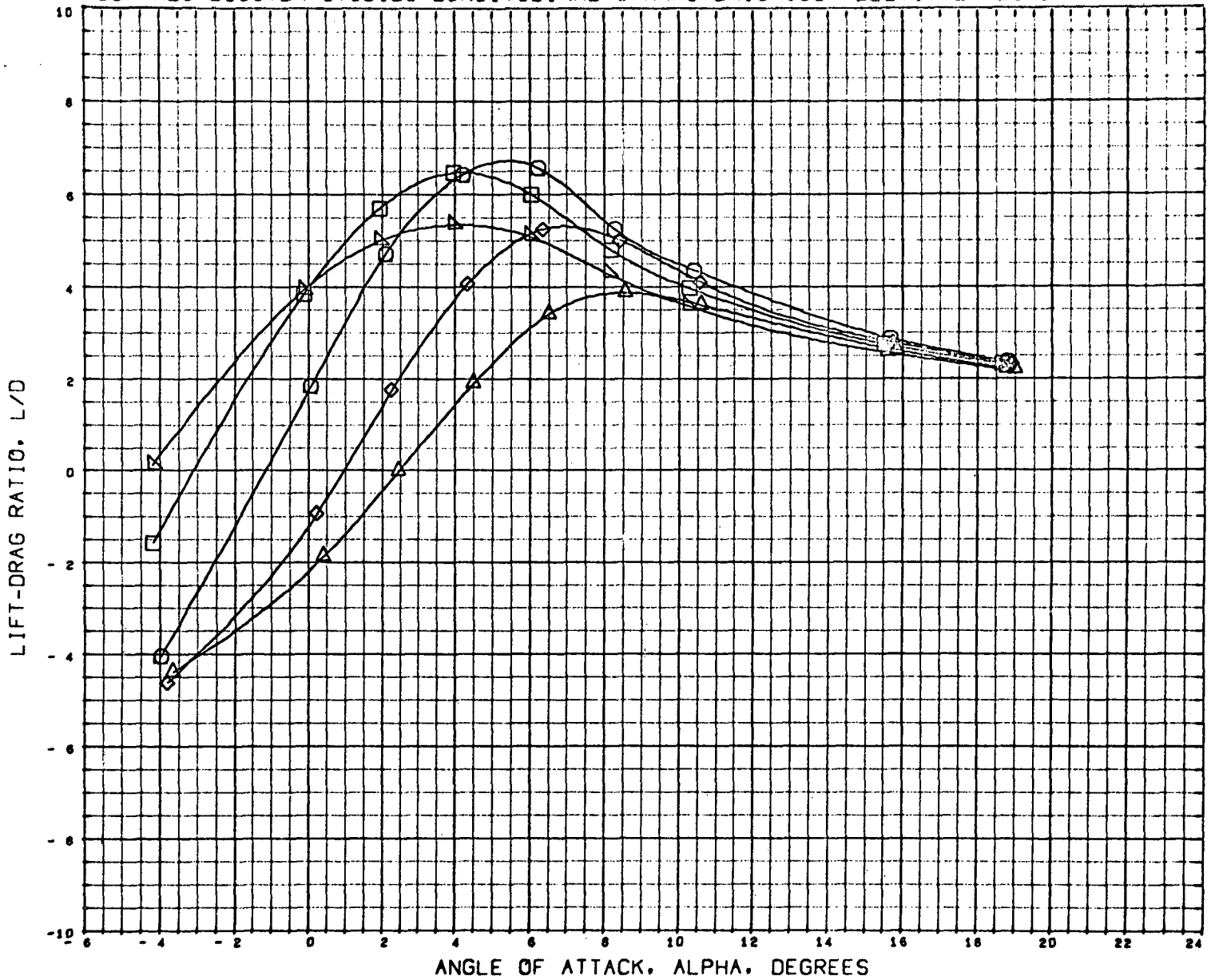
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3059)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3095)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XWRP 2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	ZWRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.704

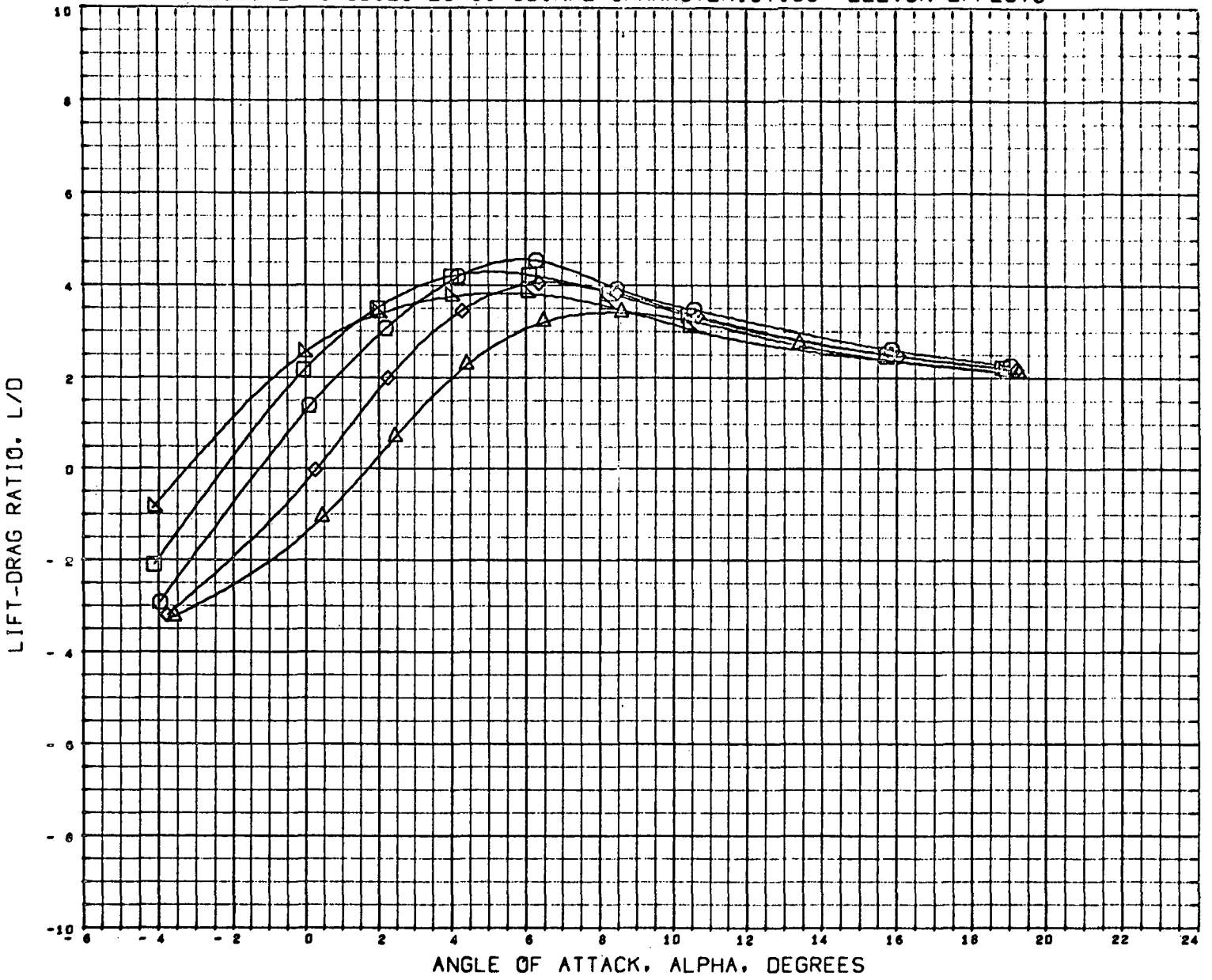
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.800

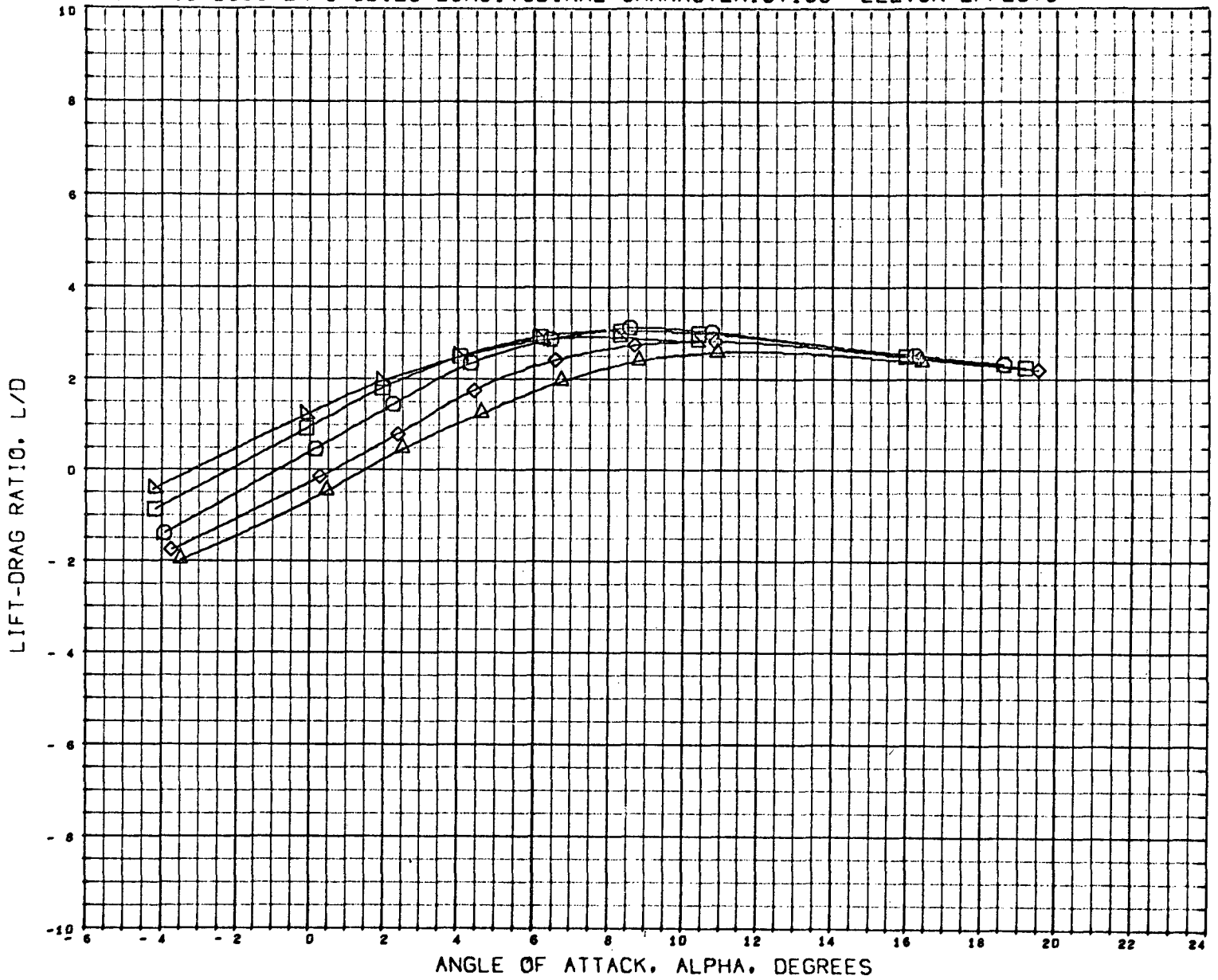
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XHRP 2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YHRP 0.0000 FEET ZHRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3013) \triangle	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550	SQ. FT.
(RN3009) \square	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3001) \diamond	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RN3005) \circ	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950	FEET
(RN3017) ∇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	ZMRP	0.0000	FEET
						SCALE	0.0187	FEET
							0.0150	SCALE

MACH 1.063

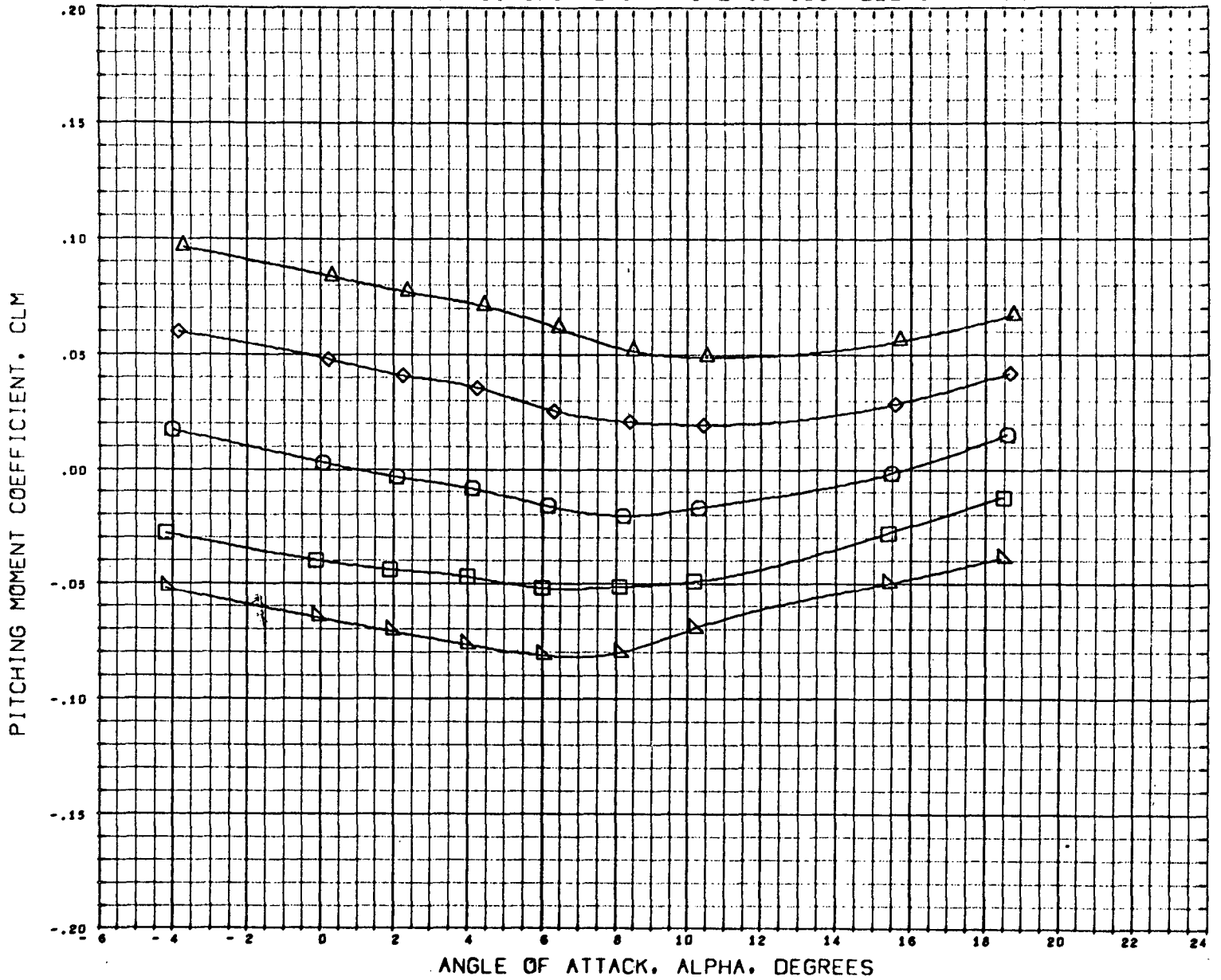
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4330 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF 2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF 0.0000 FEET
	DATA NOT AVAILABLE FOR ALL CONDITIONS					ZMRF 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.122

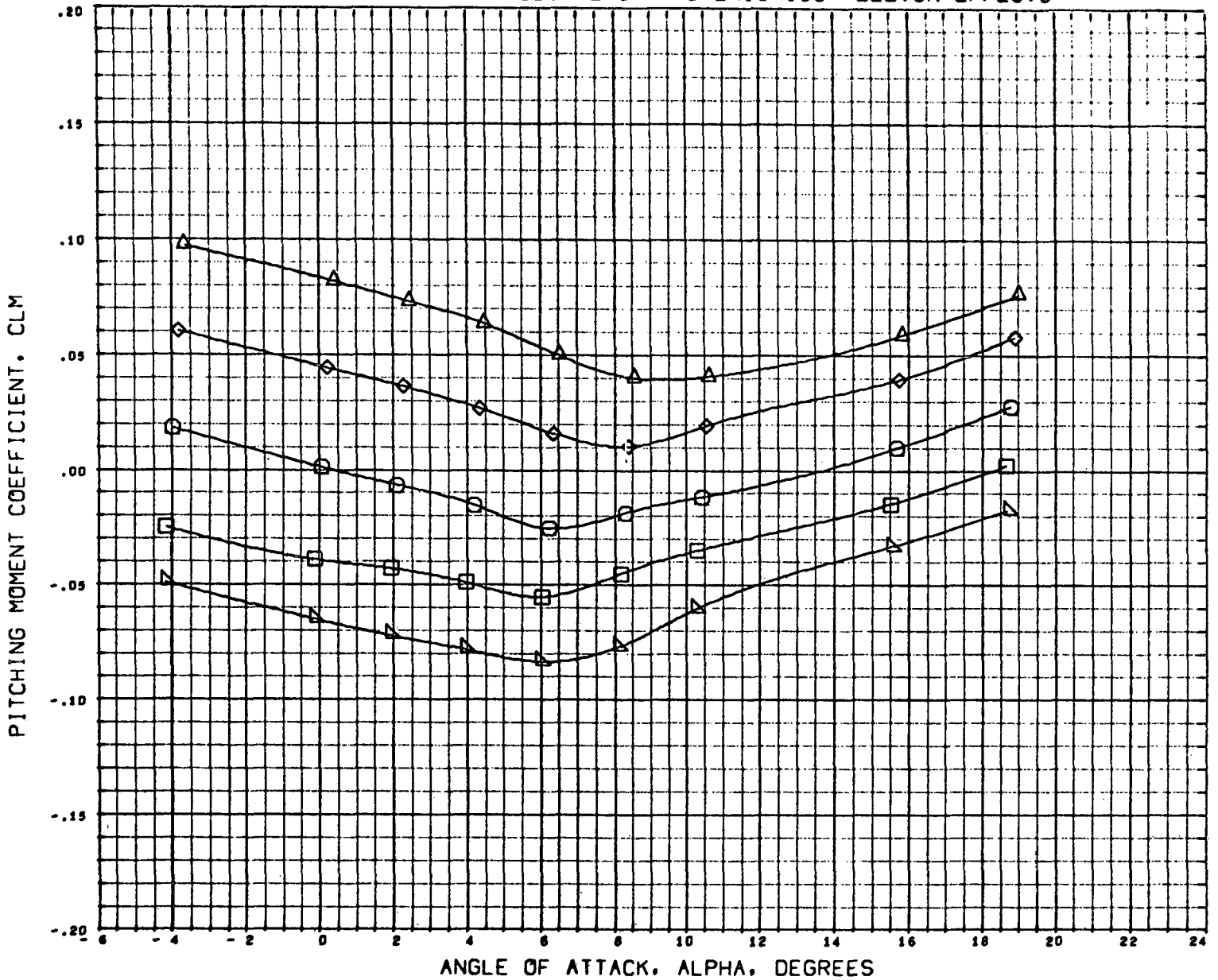
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.704

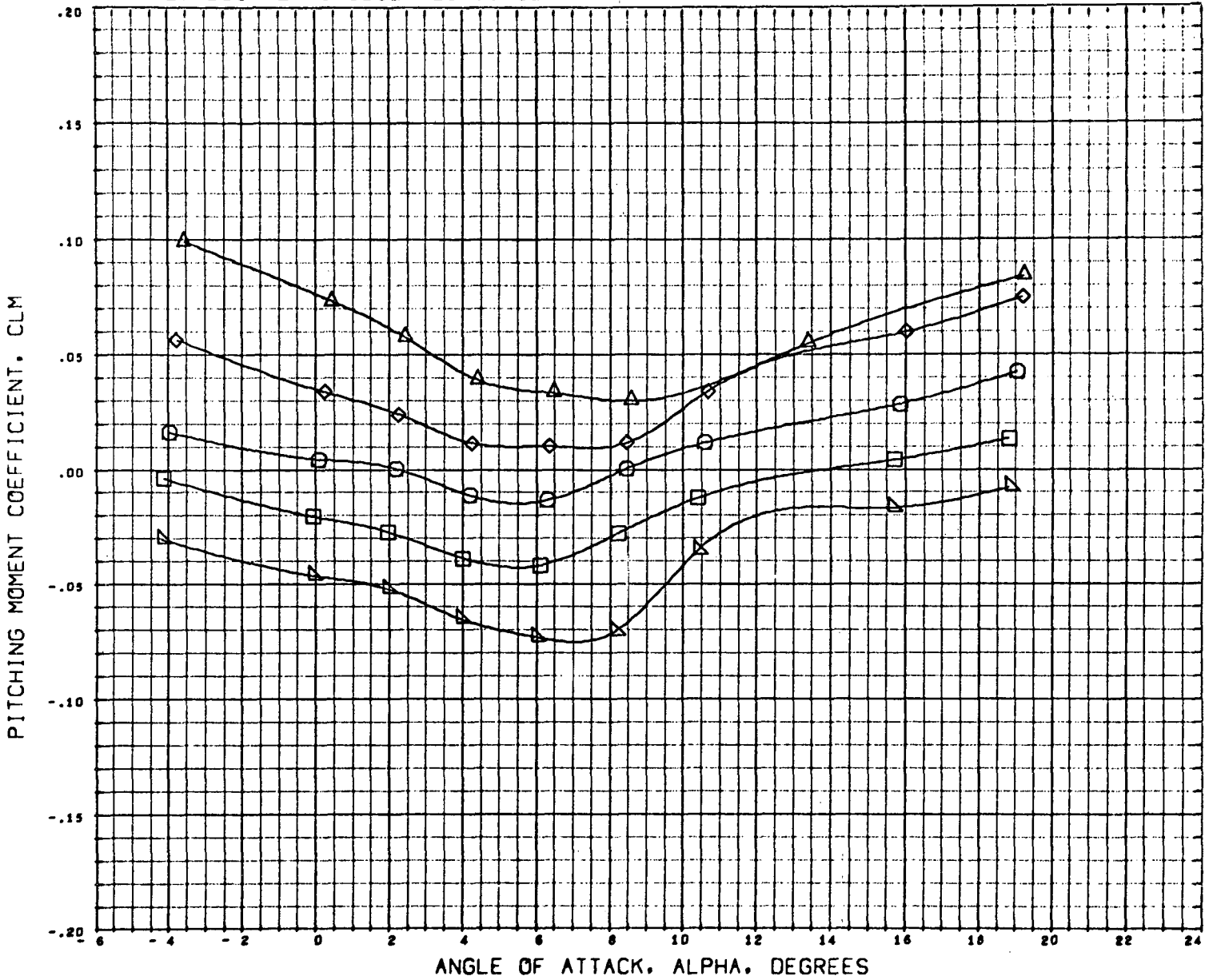
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3009)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	▽	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.800

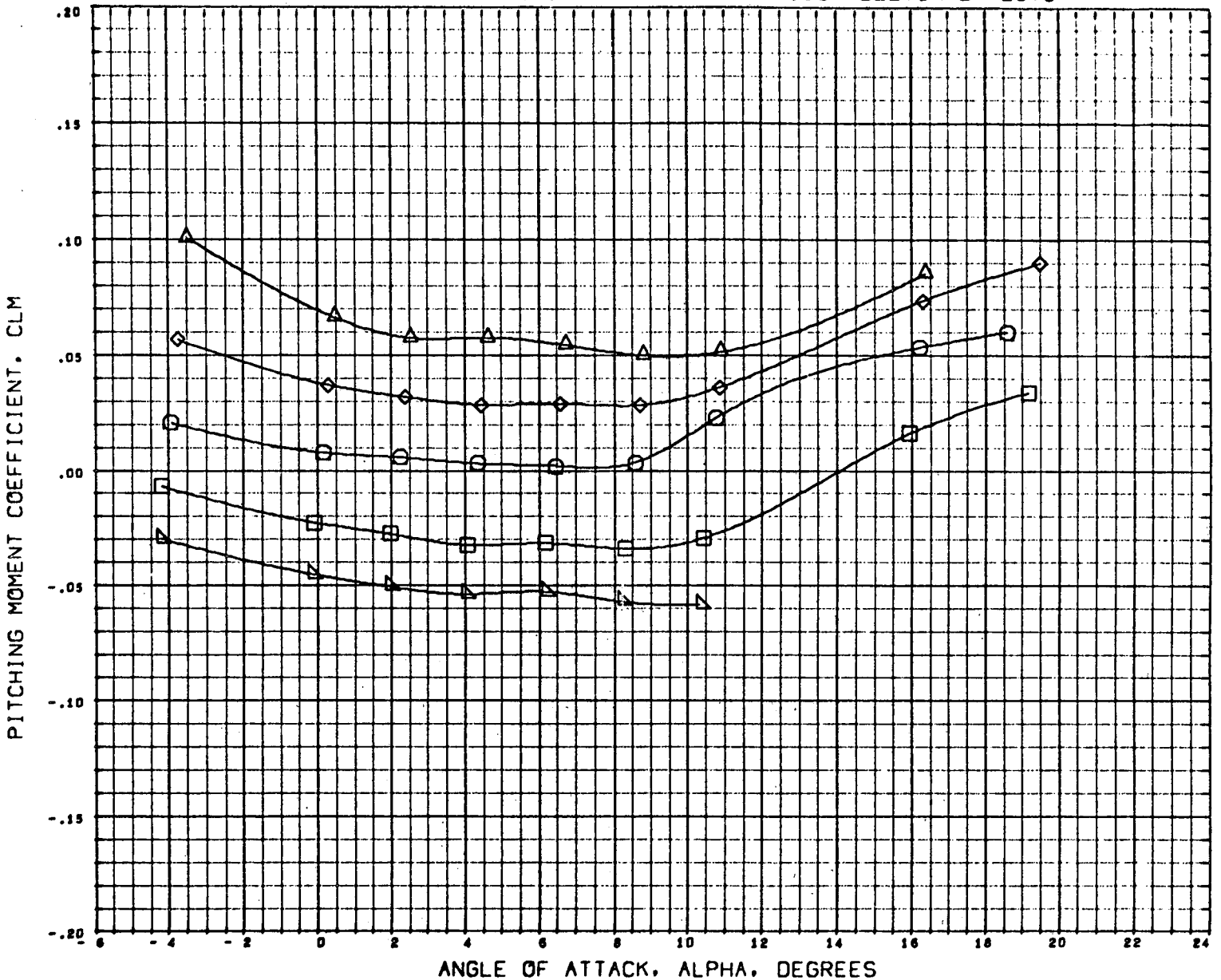
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XM RP 2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YM RP 0.0000 FEET
							ZM RP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.903

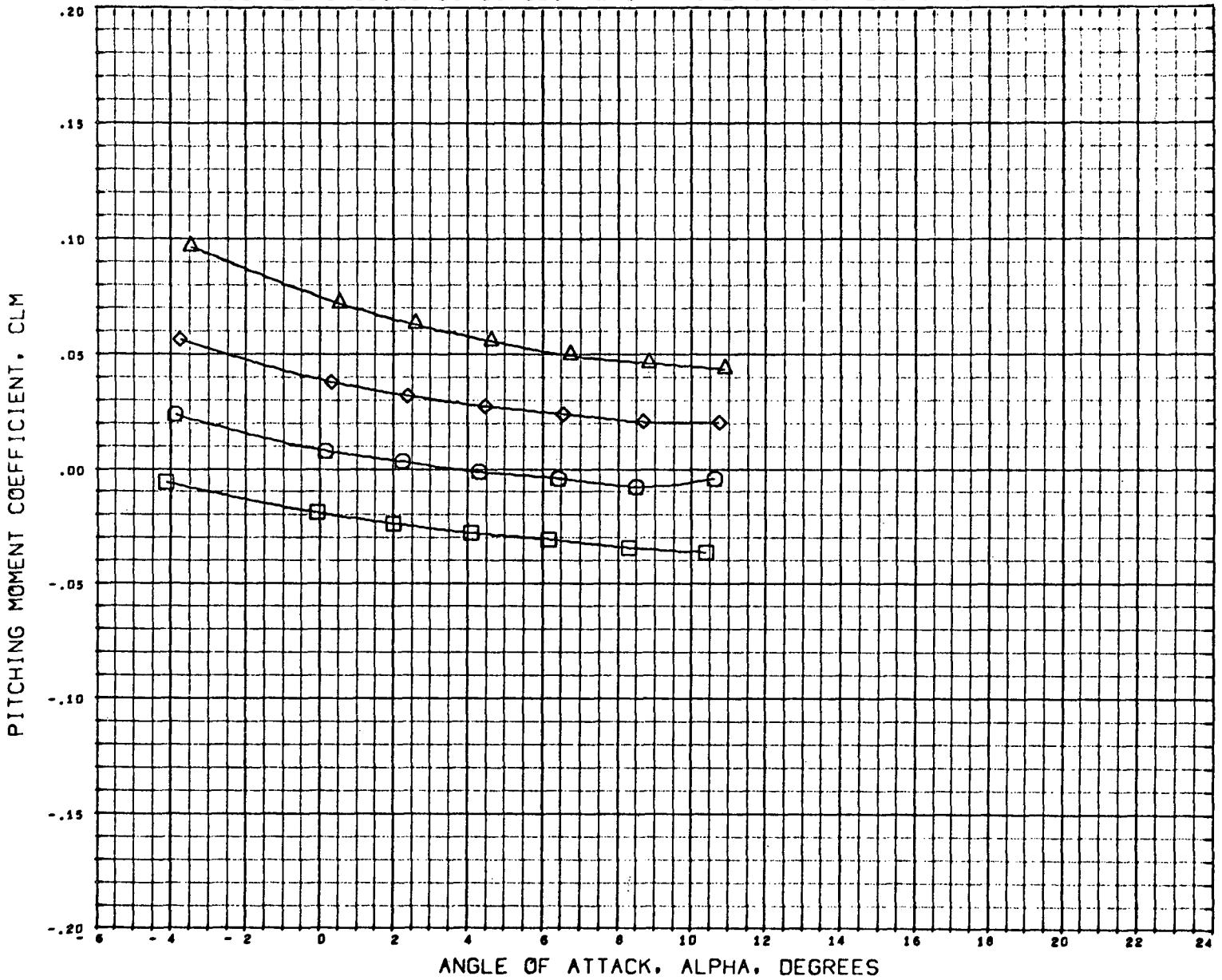
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.9950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.003

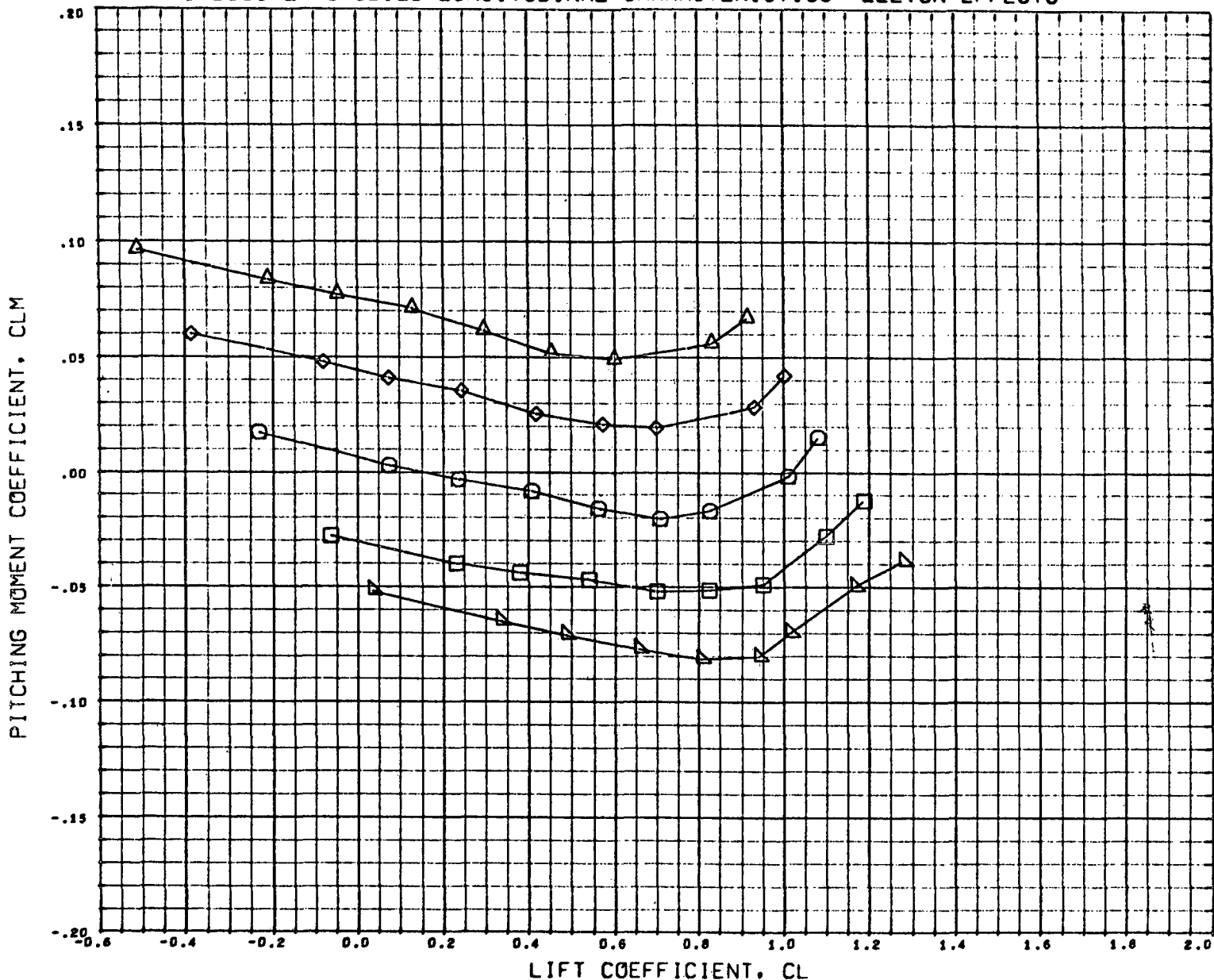
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	□	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.122

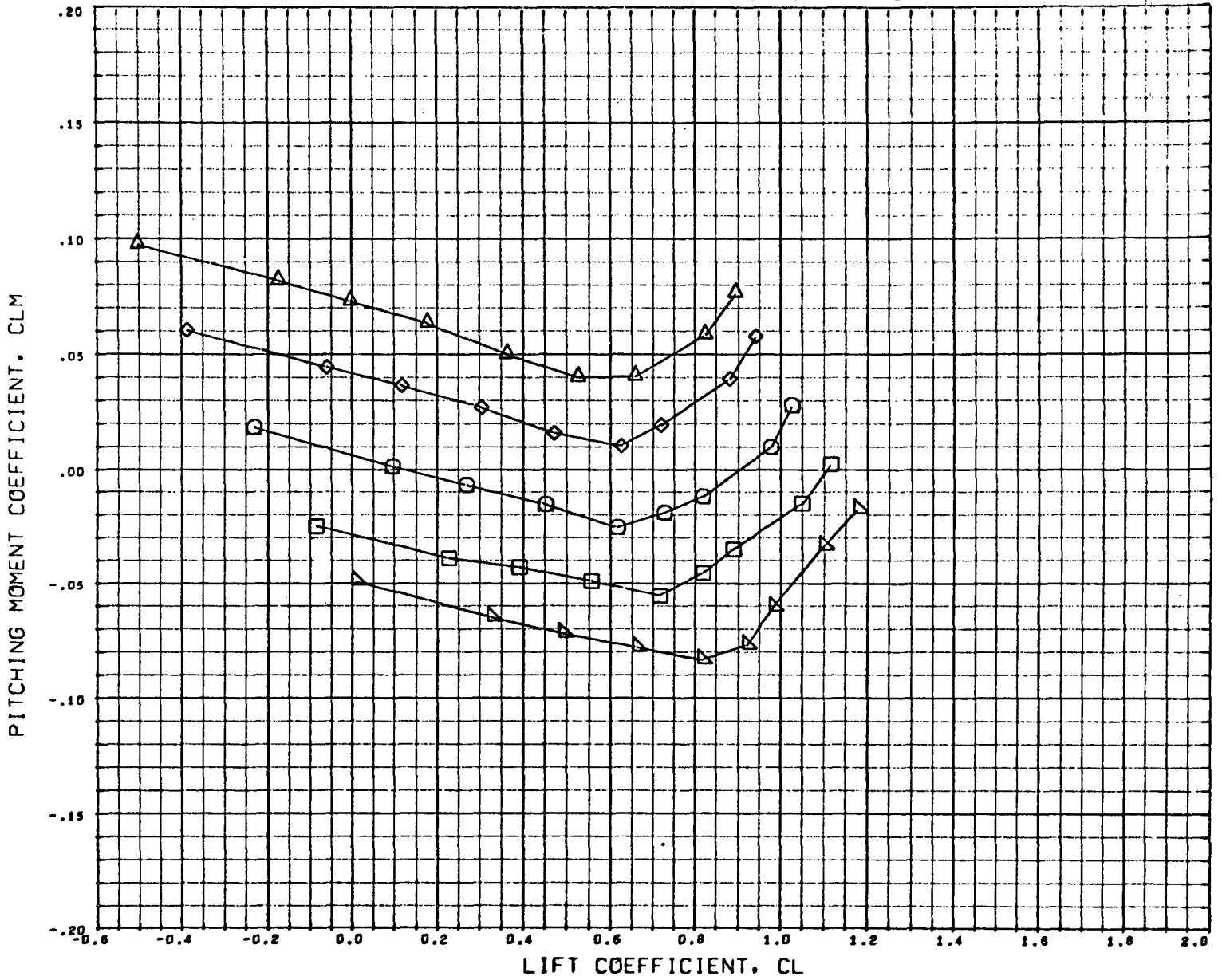
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.704

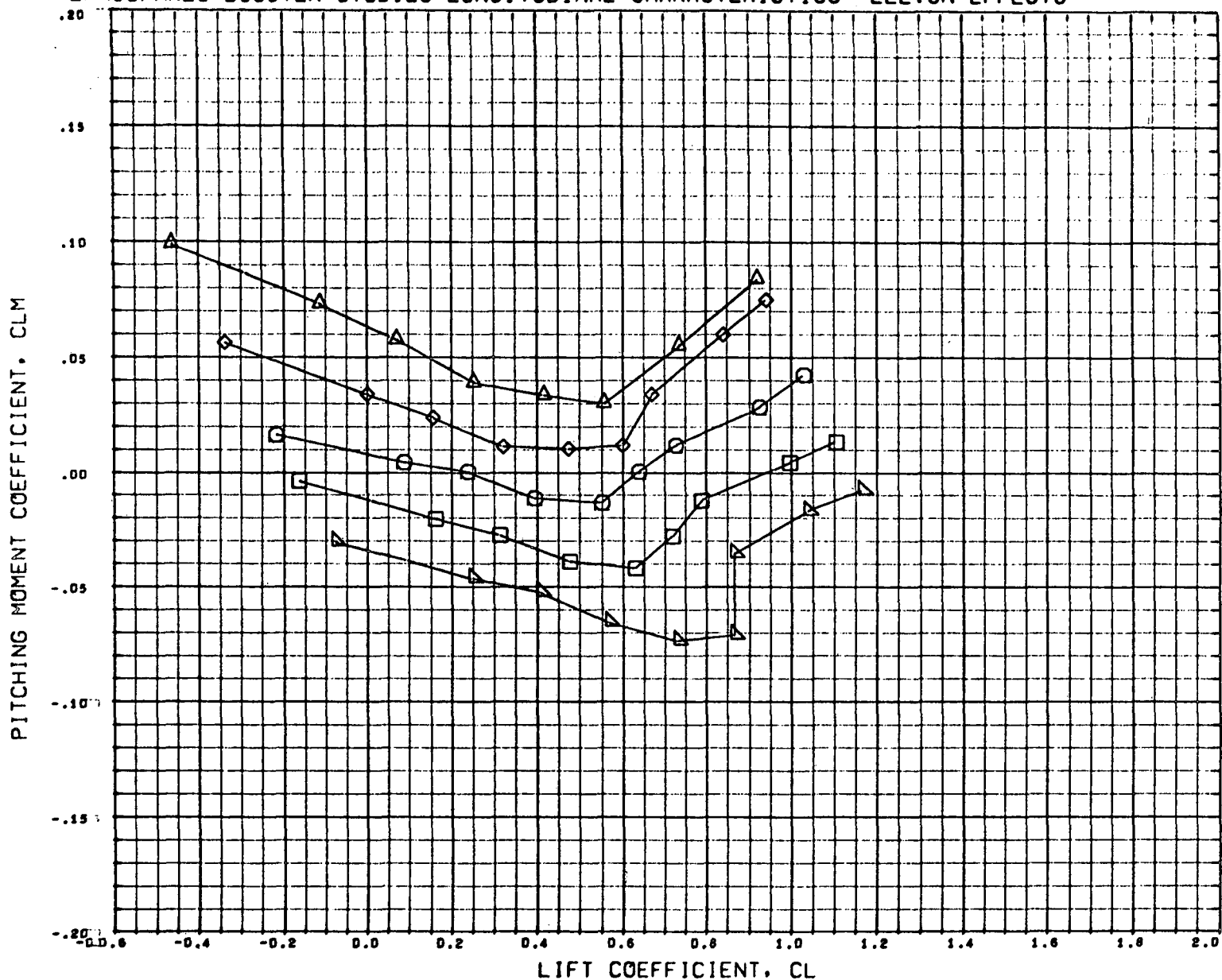
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5930 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.000

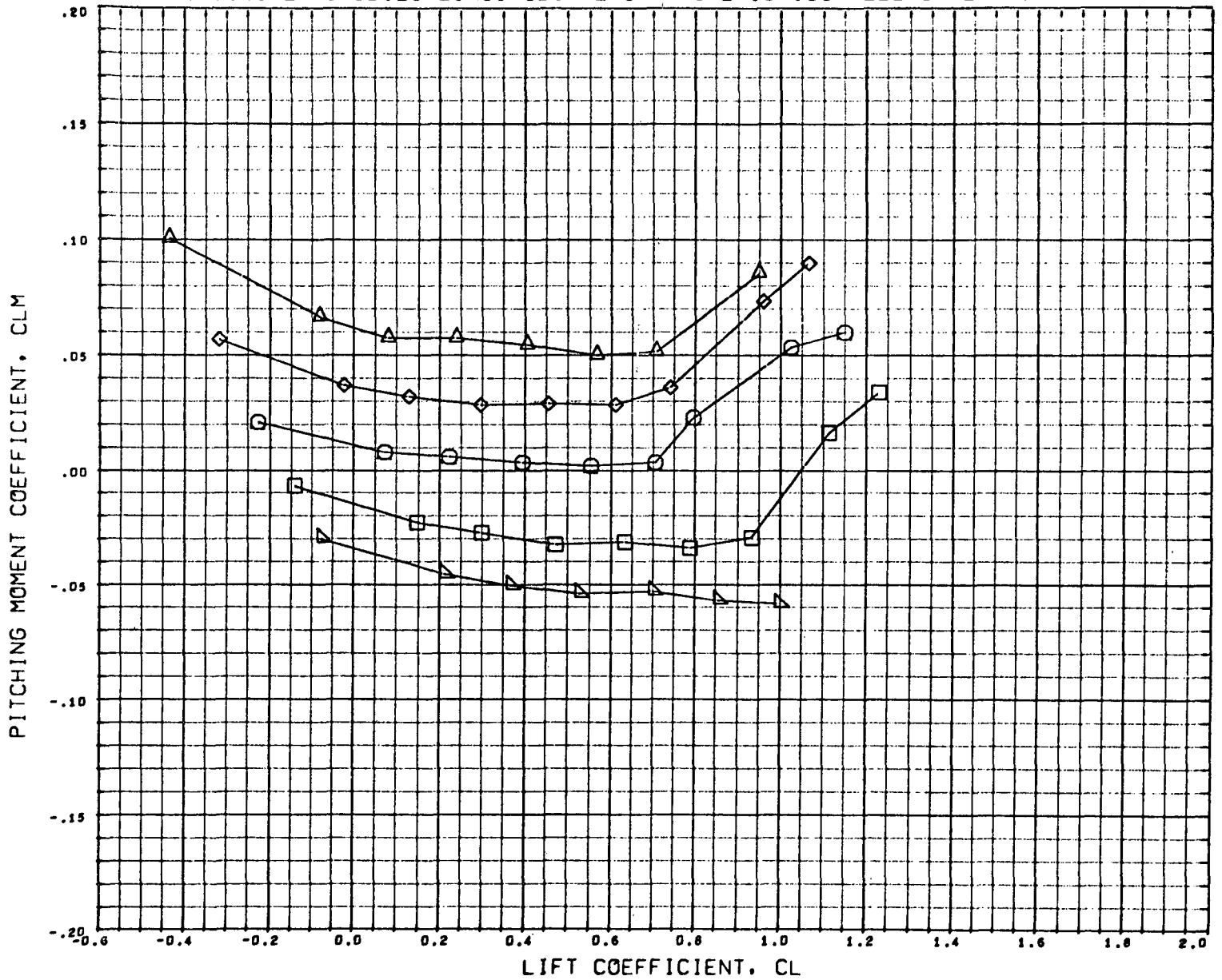
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 39.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.903

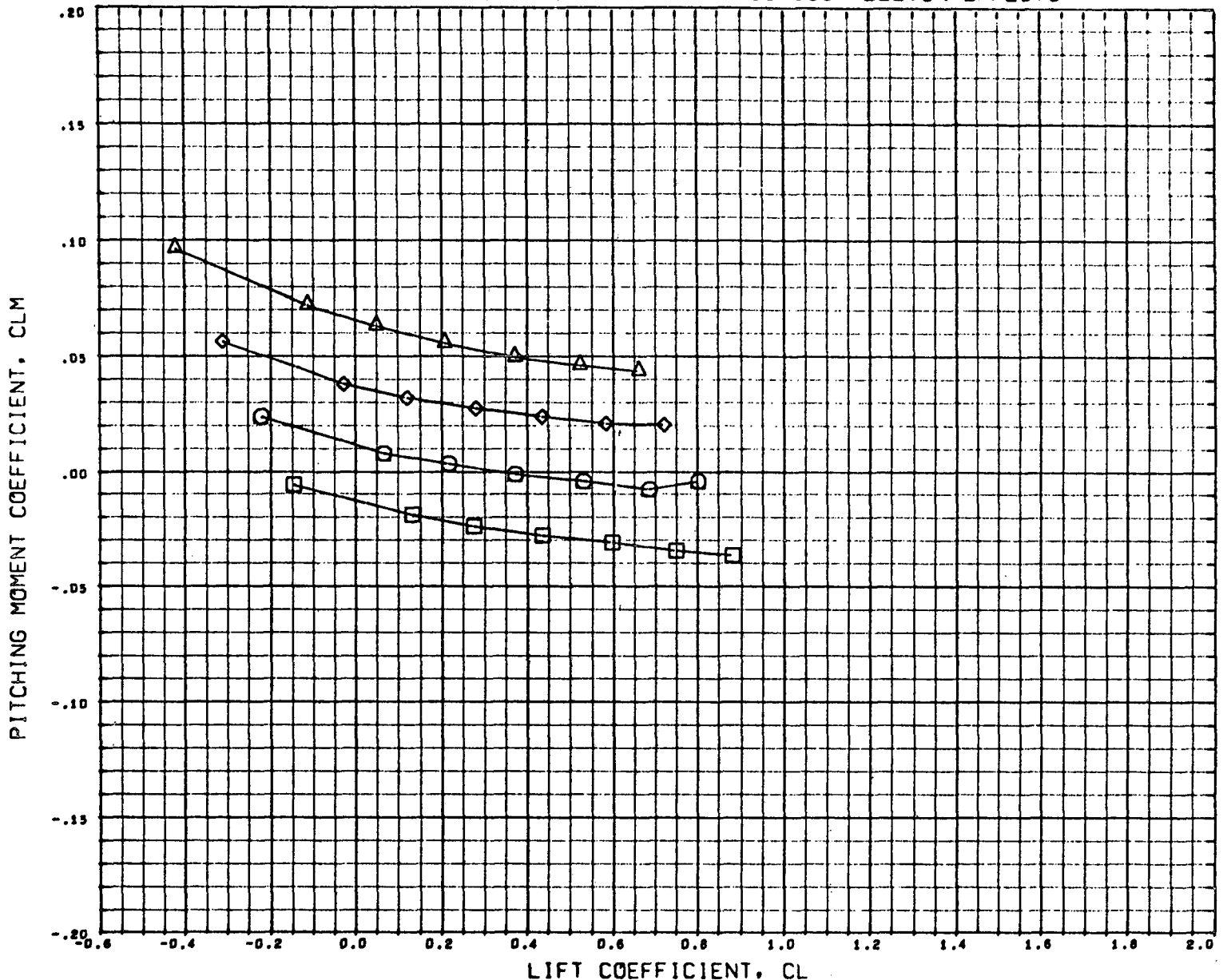
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

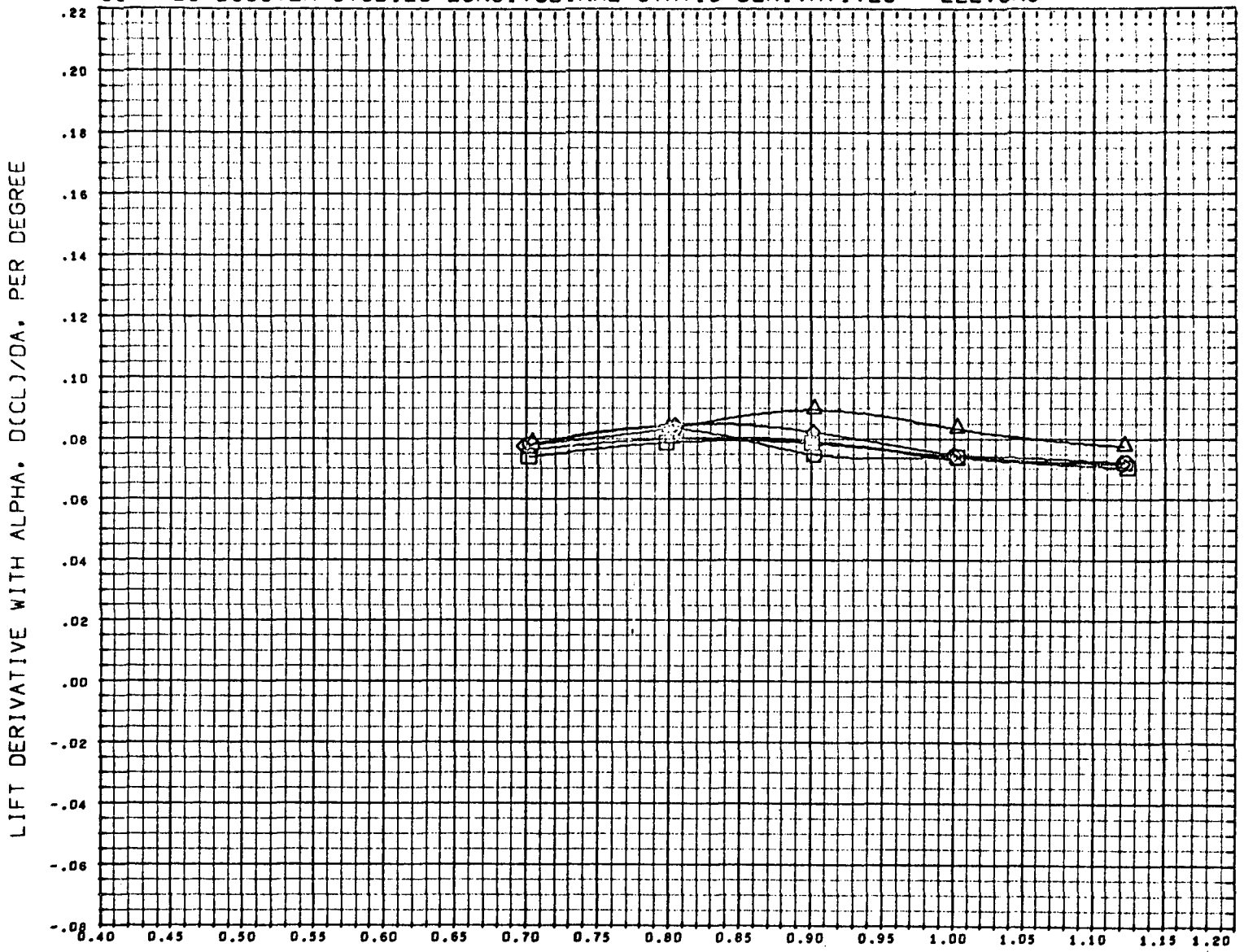


LIFT COEFFICIENT, CL

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 1.122

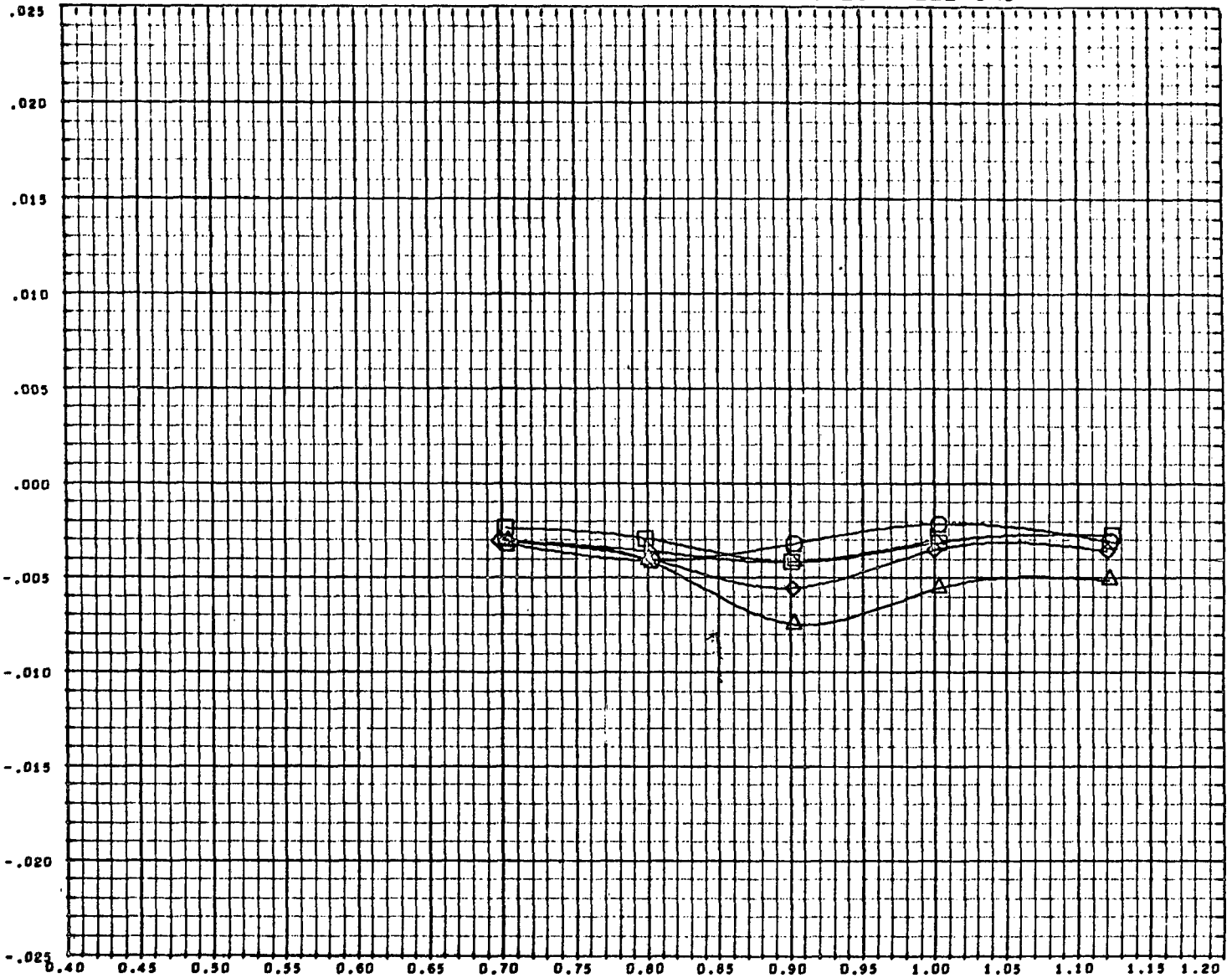
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	▲	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◆	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	◻	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	◼	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

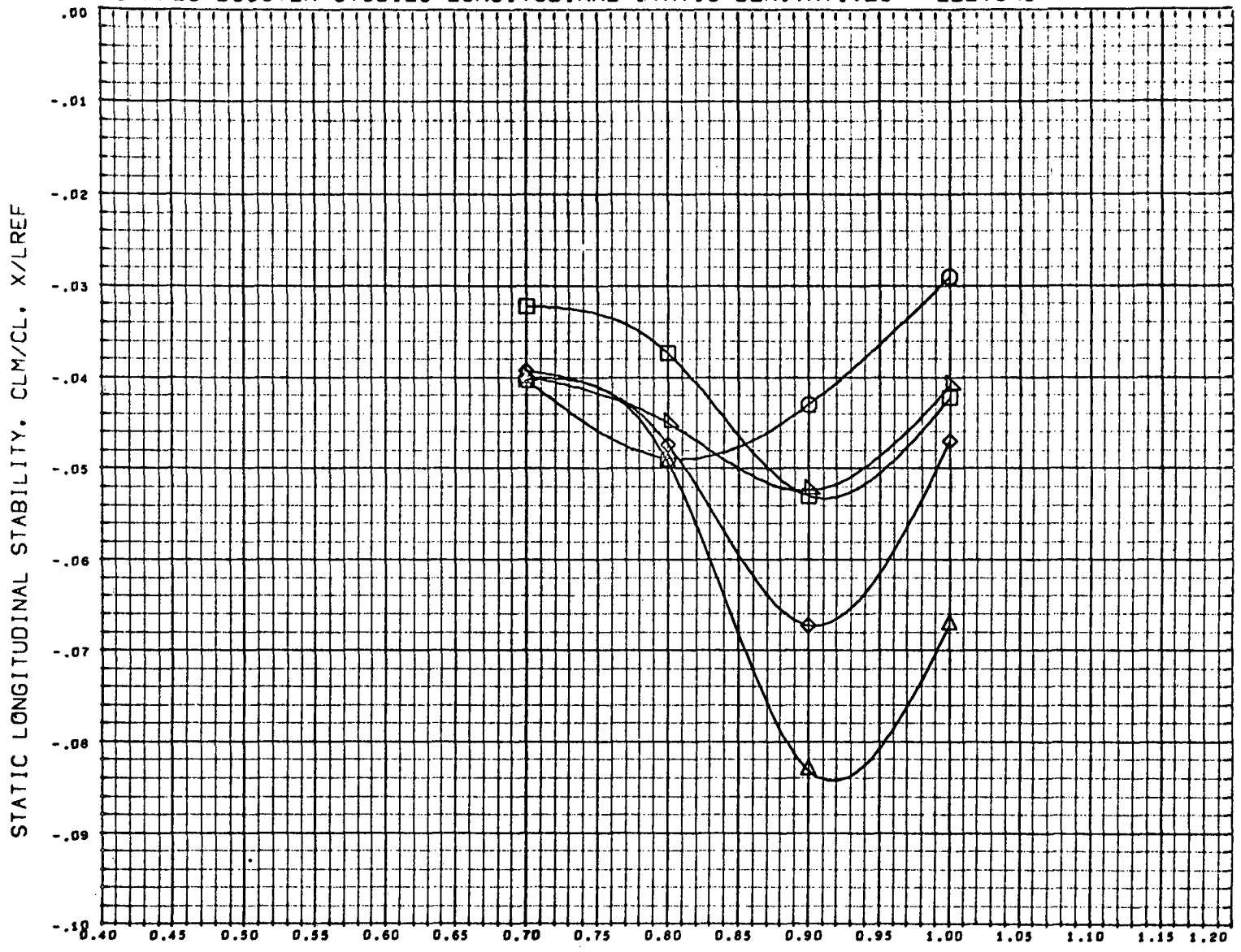
PITCHING MOMENT DERIVATIVE WITH ALPHA, $DC(LM)/DA$, PER DEGREE



MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.9950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0100 FEET SCALE 0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

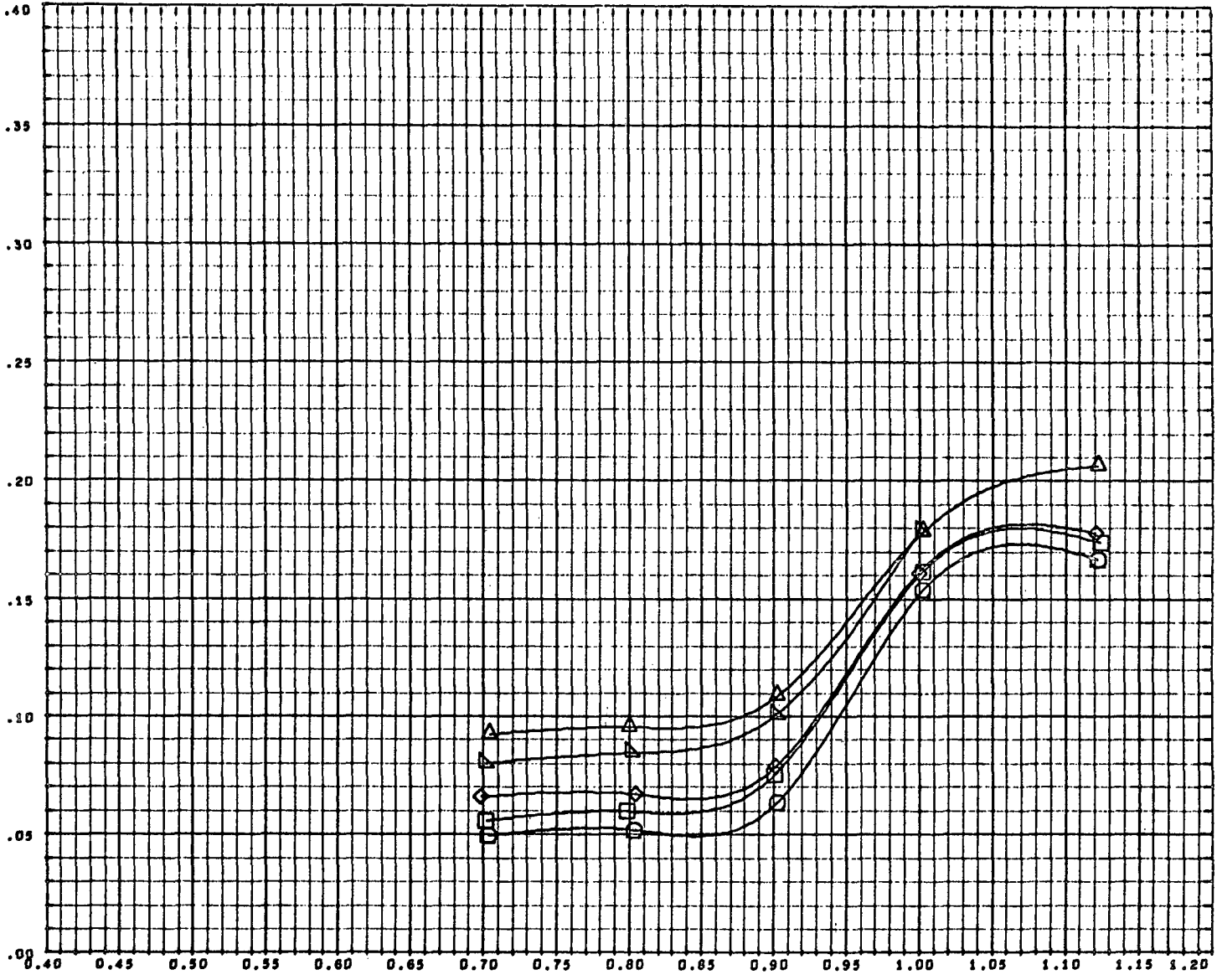


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(TN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 30.FT.
(TN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(TN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(TN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(TN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

ALPHA 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

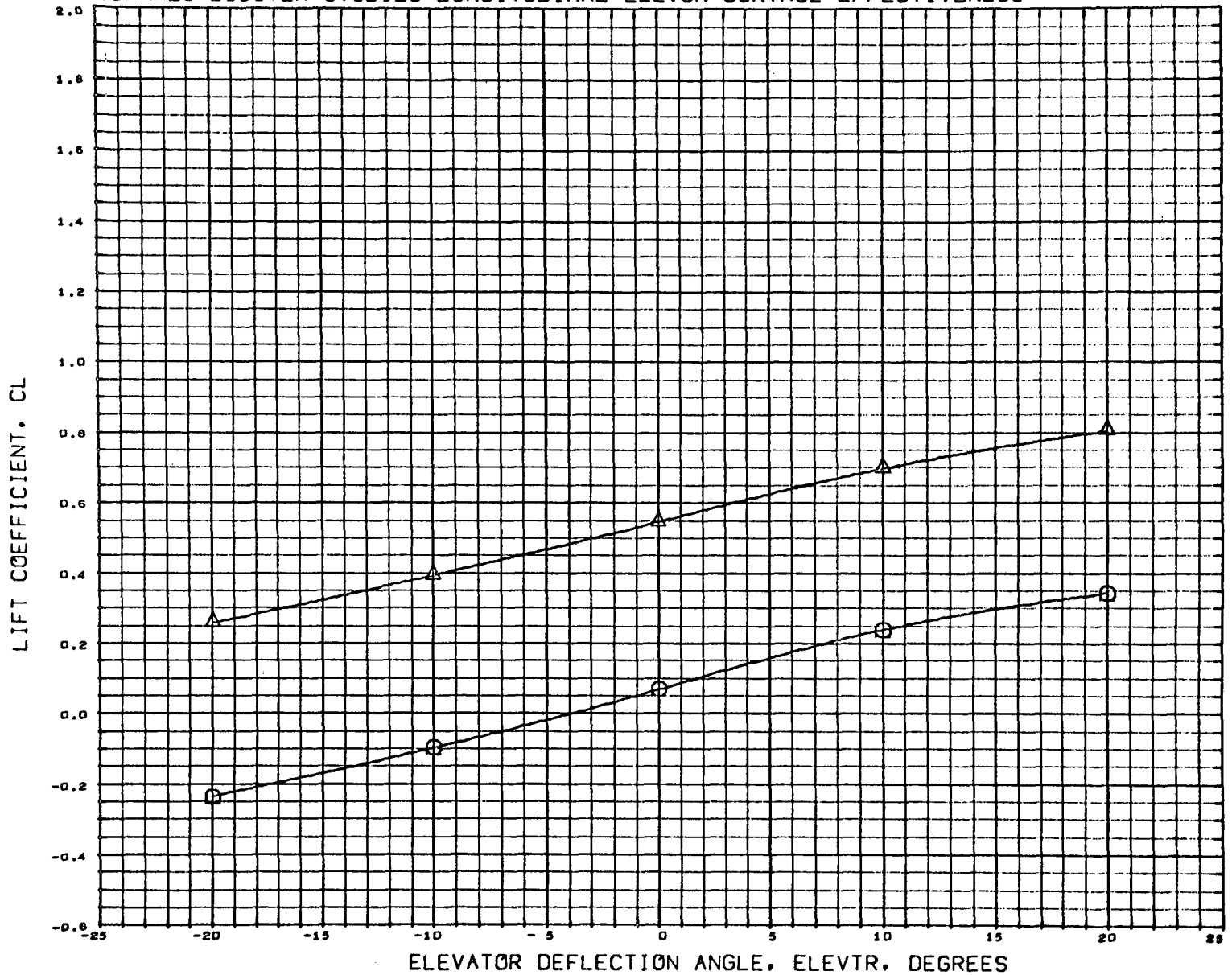
ZERO ANGLE OF ATTACK DRAG COEFFICIENT, CD(ALPHA=0) (CDALF0)



MACH NUMBER

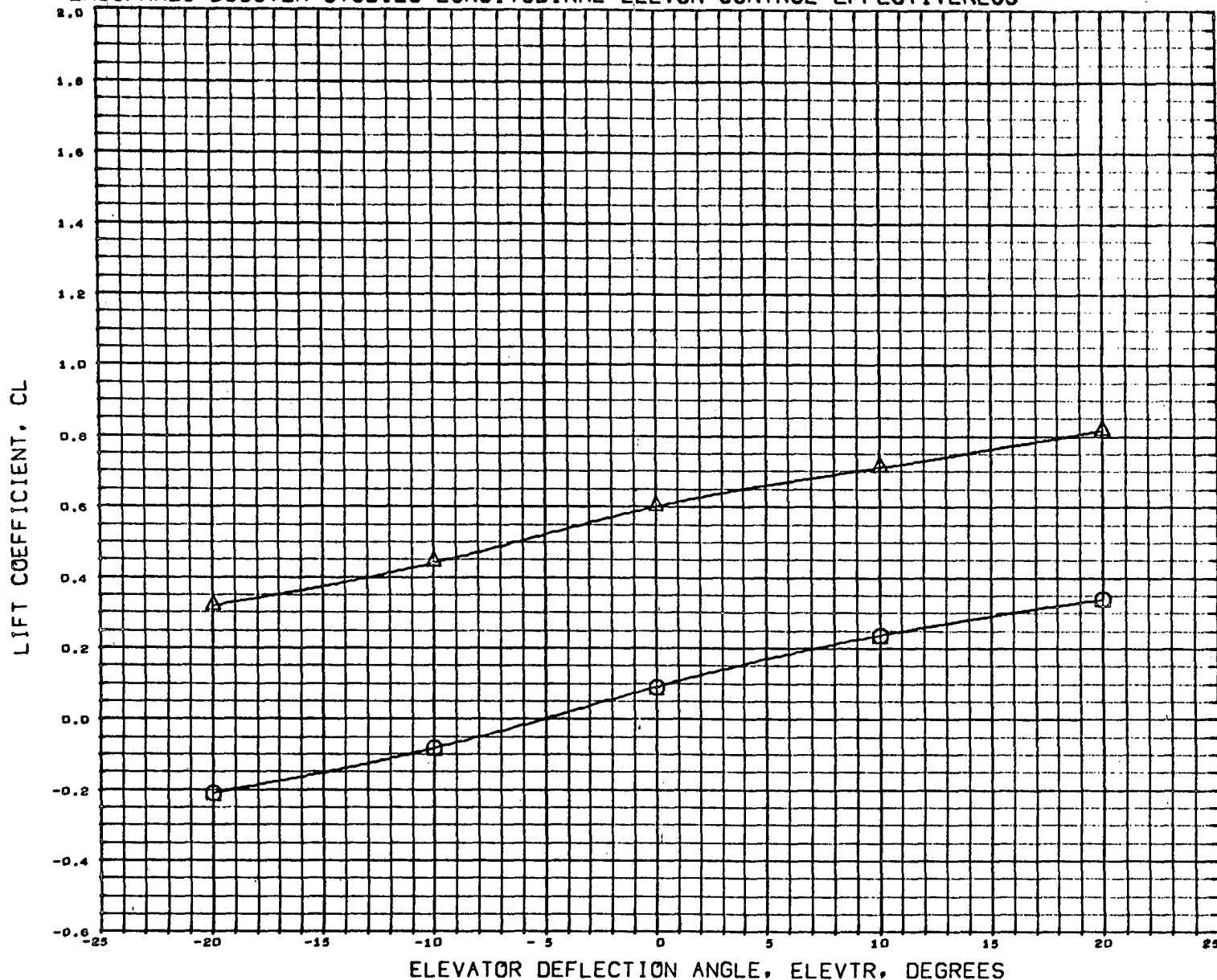
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(BN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(BN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(BN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(BN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.9950 FEET
(BN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



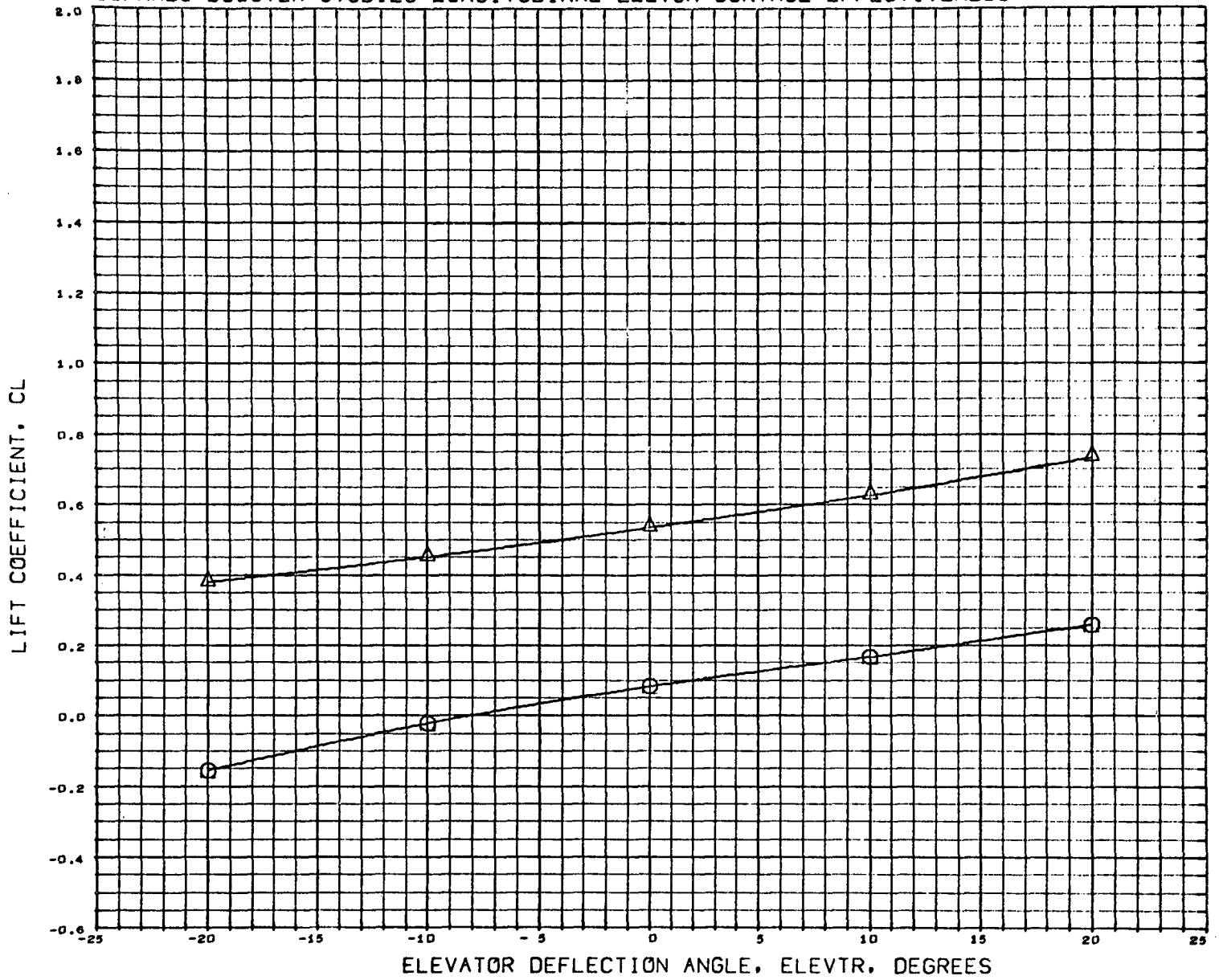
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	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEET
△		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I#A							ZMRP	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



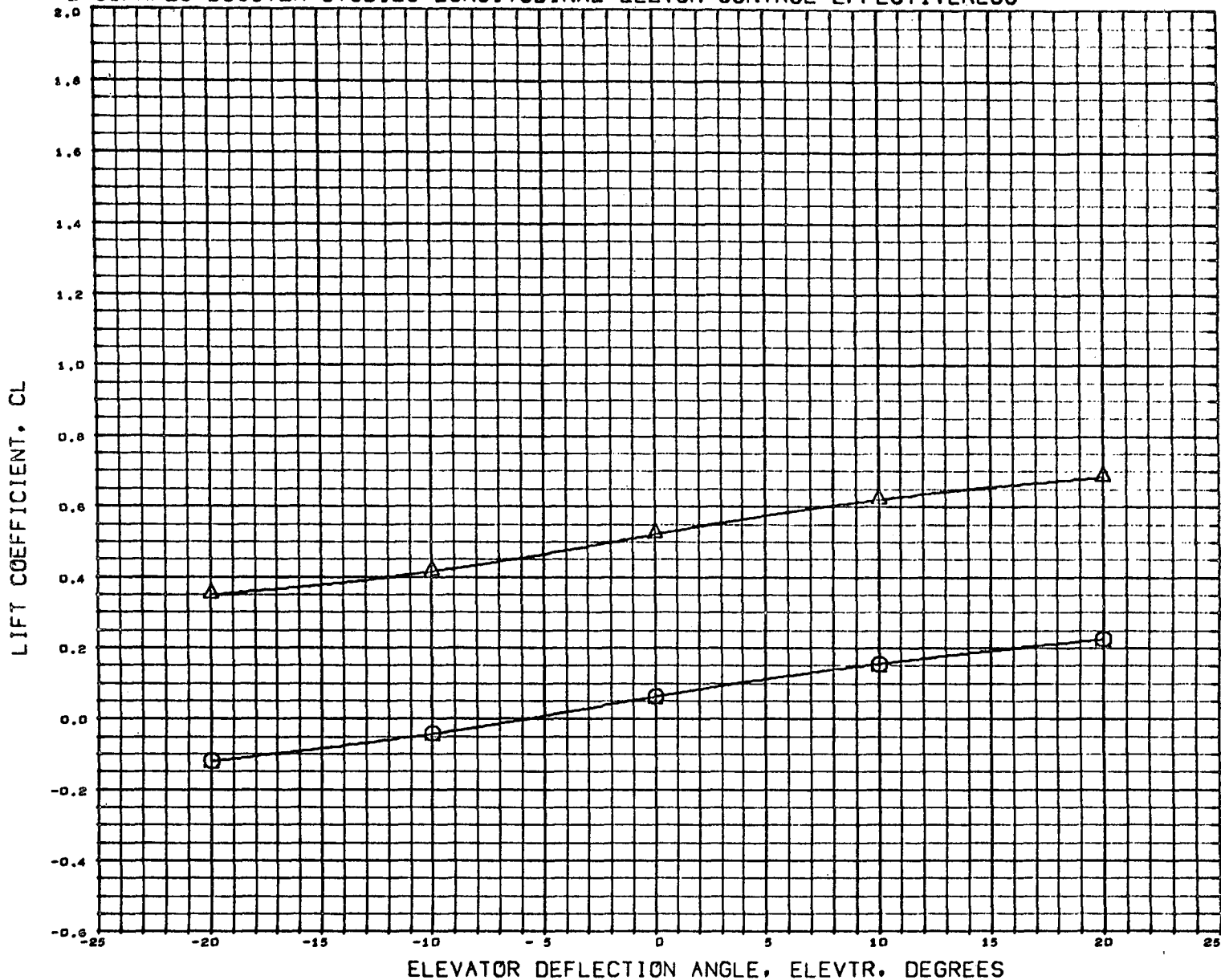
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1* A							ZMRP	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



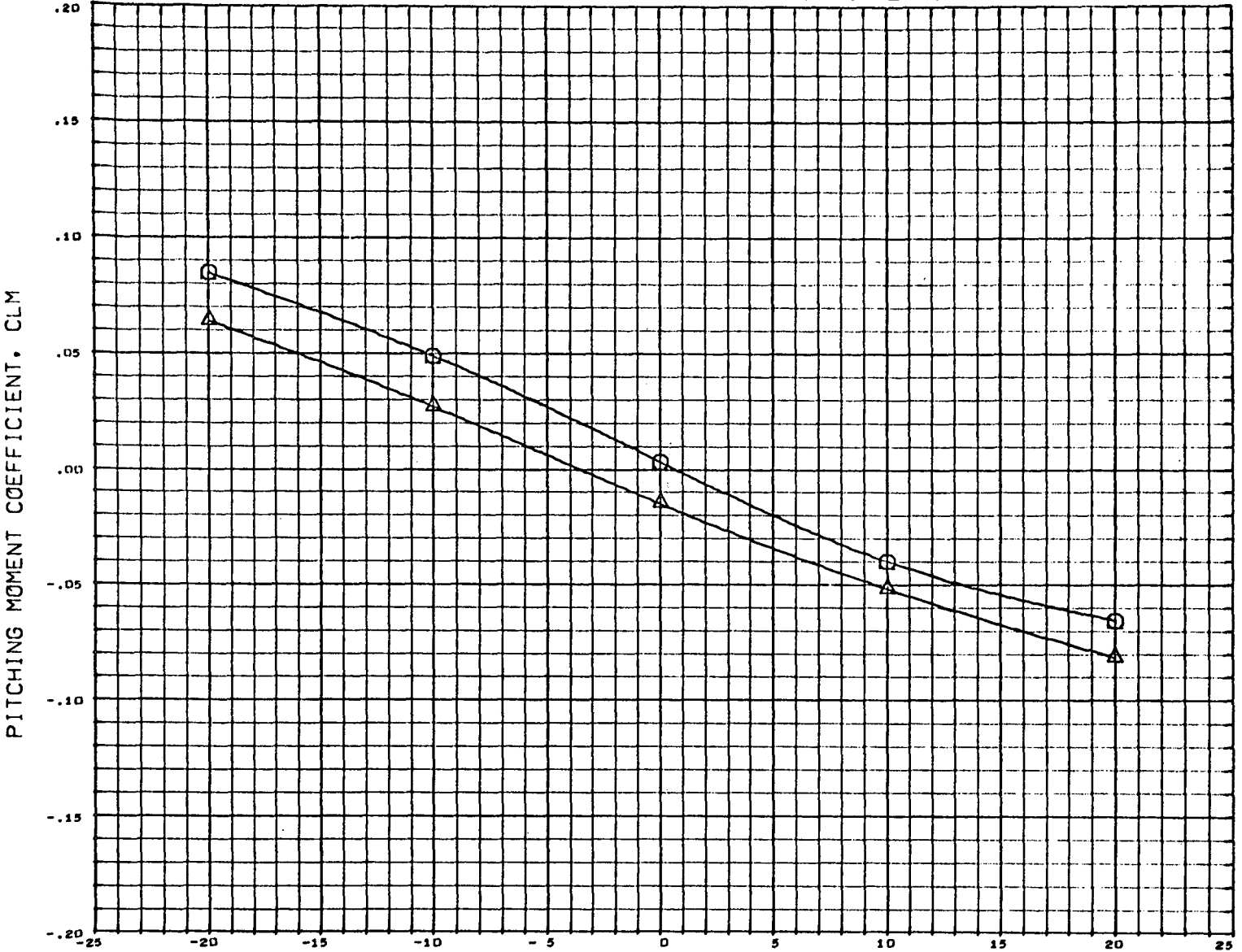
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	MACH	1.000	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4330	FEET
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4330	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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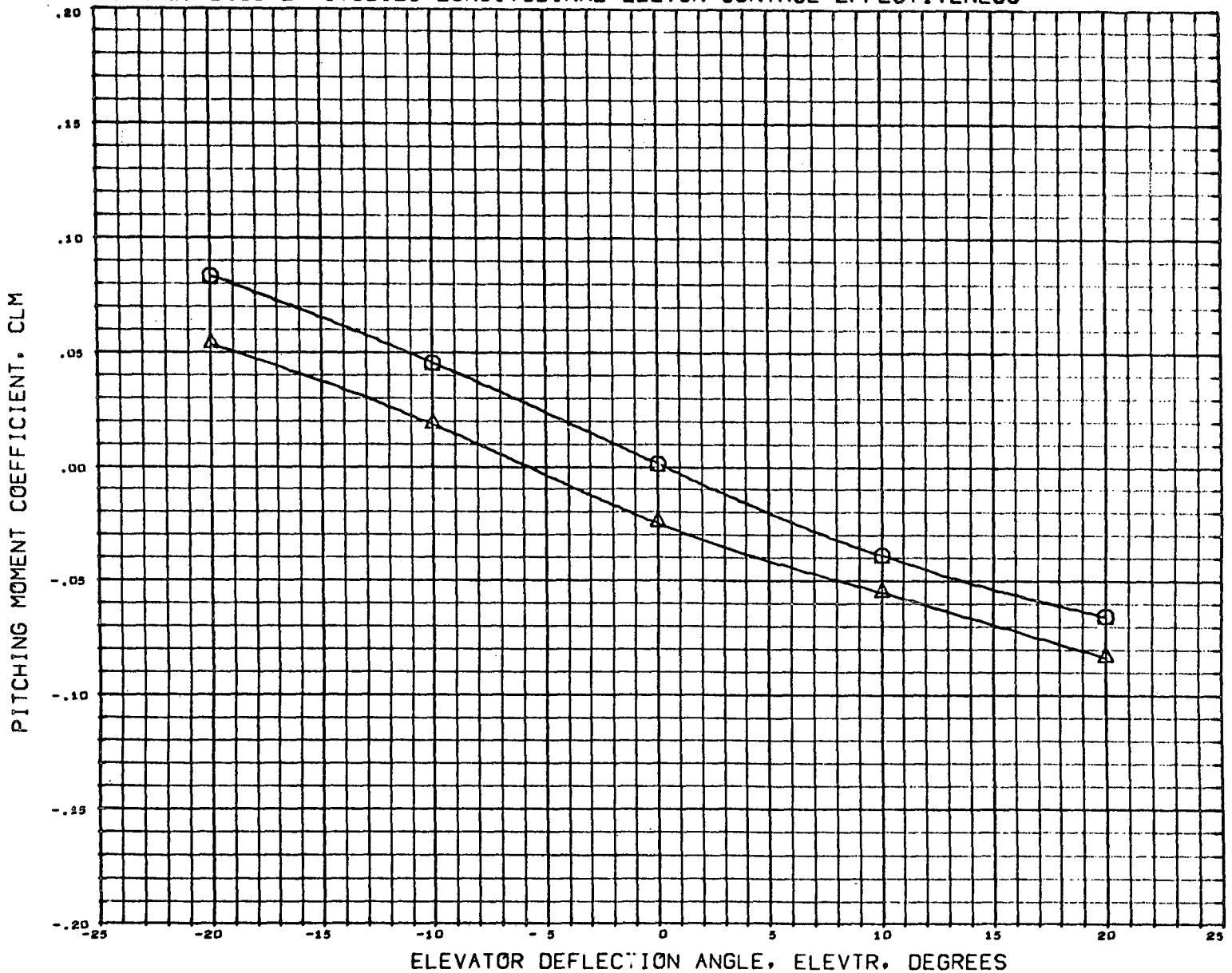
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

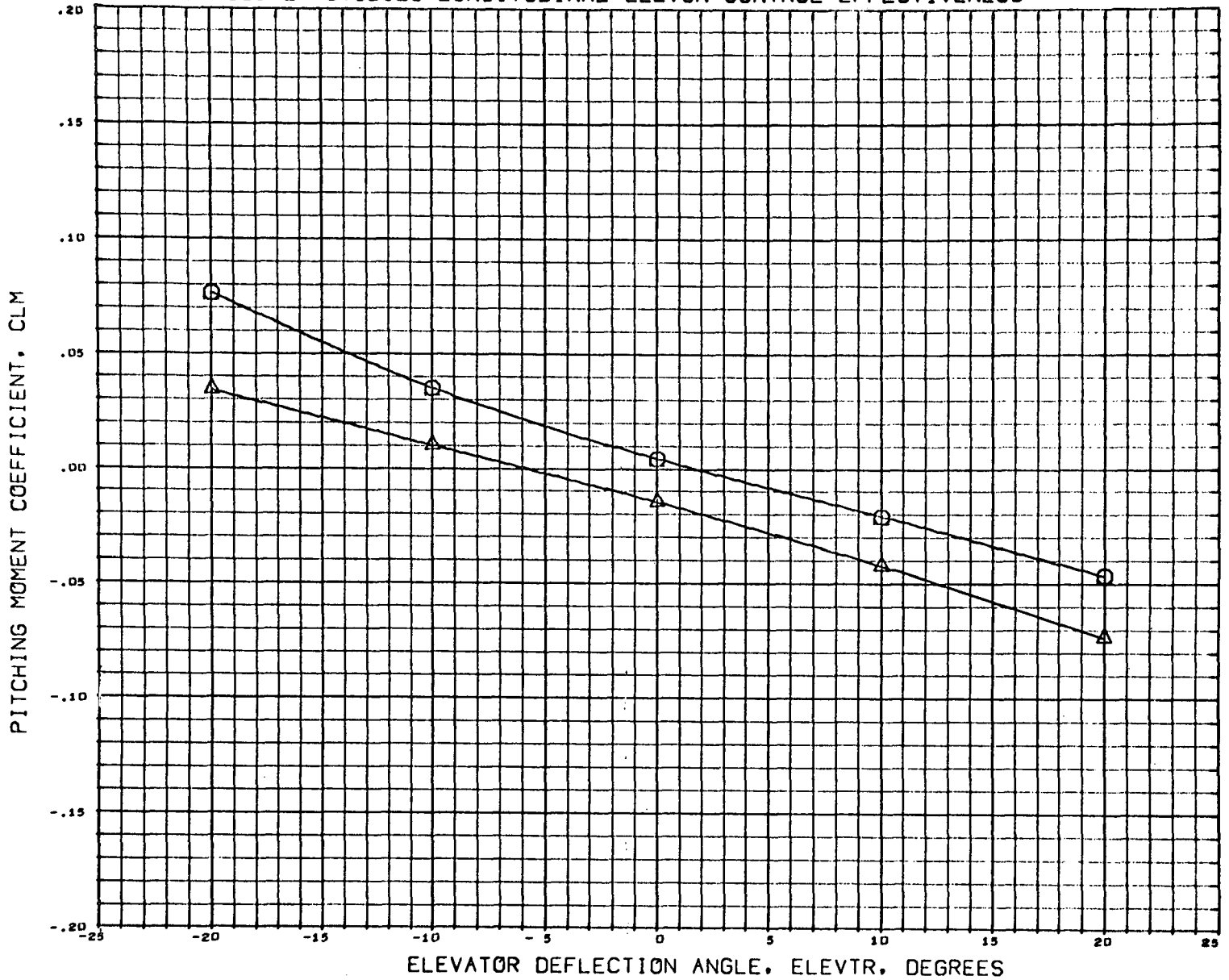
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDGER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE		I*#A						ZMRP	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



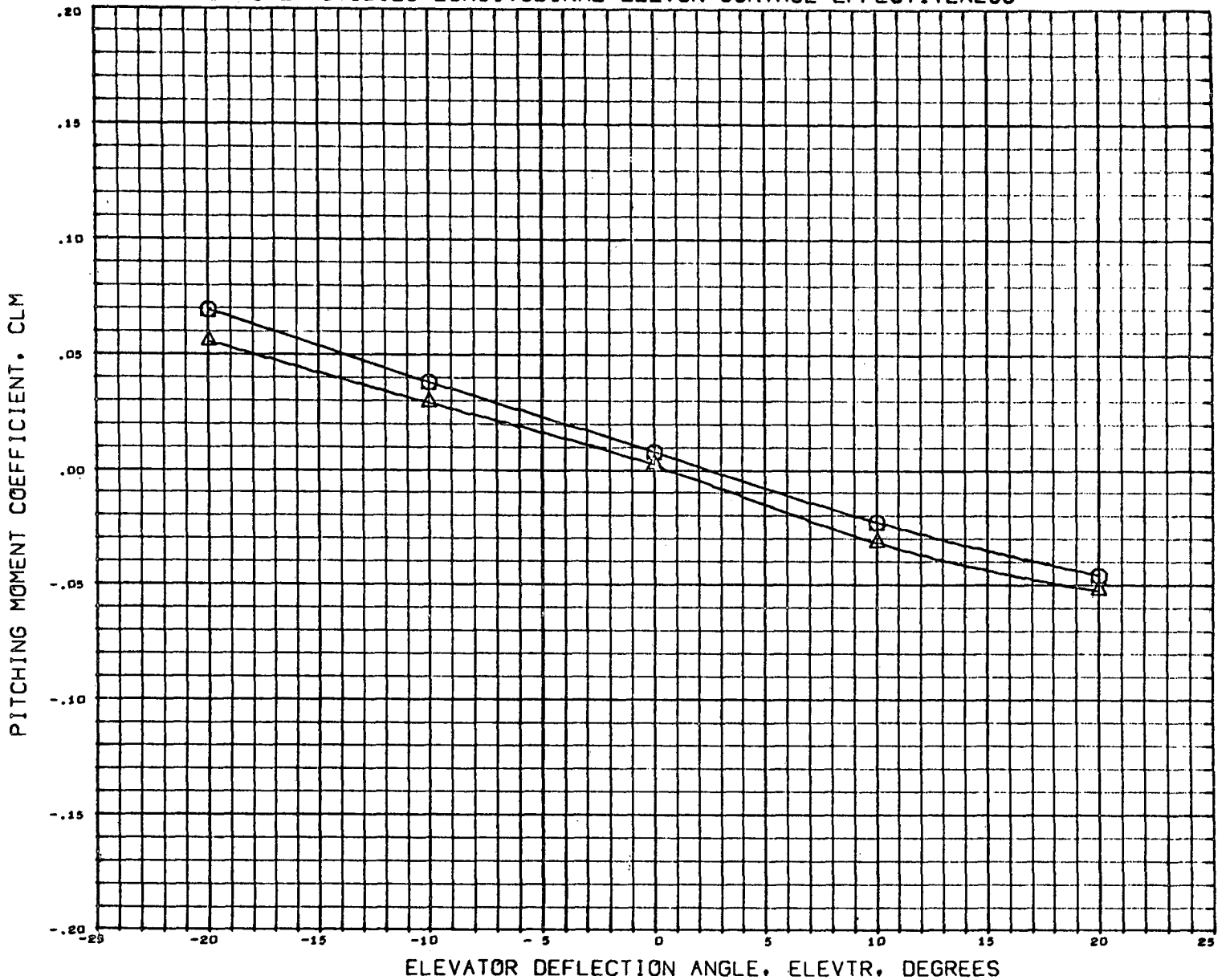
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O	0.000	MACH	0.000	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	90.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEEET
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEEET
		WNGFOS	1.000	CNOFOS	1.000					YMRP	0.0000	FEEET
		DATA HIST. CODE	I#A							ZMRP	0.0187	FEEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



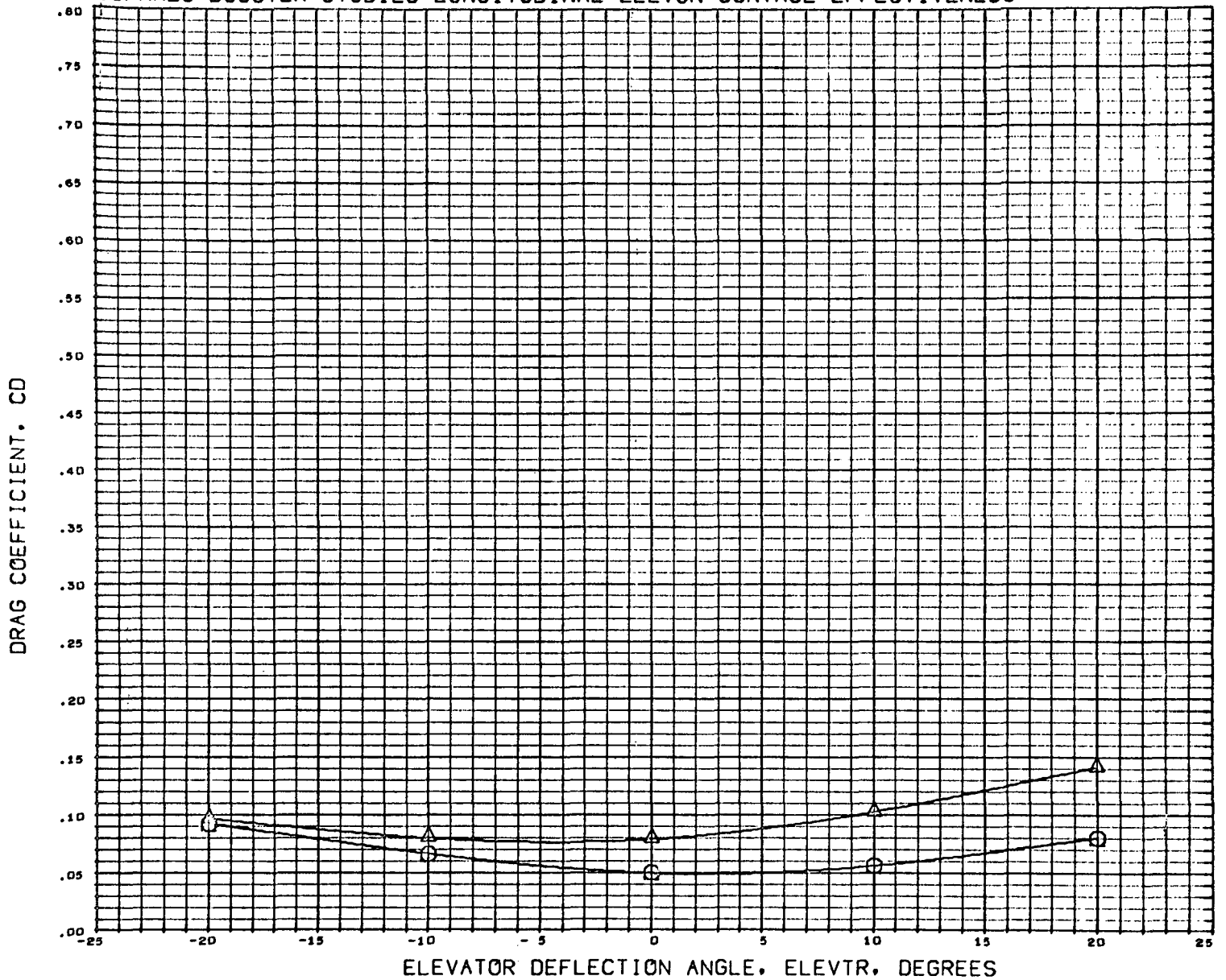
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



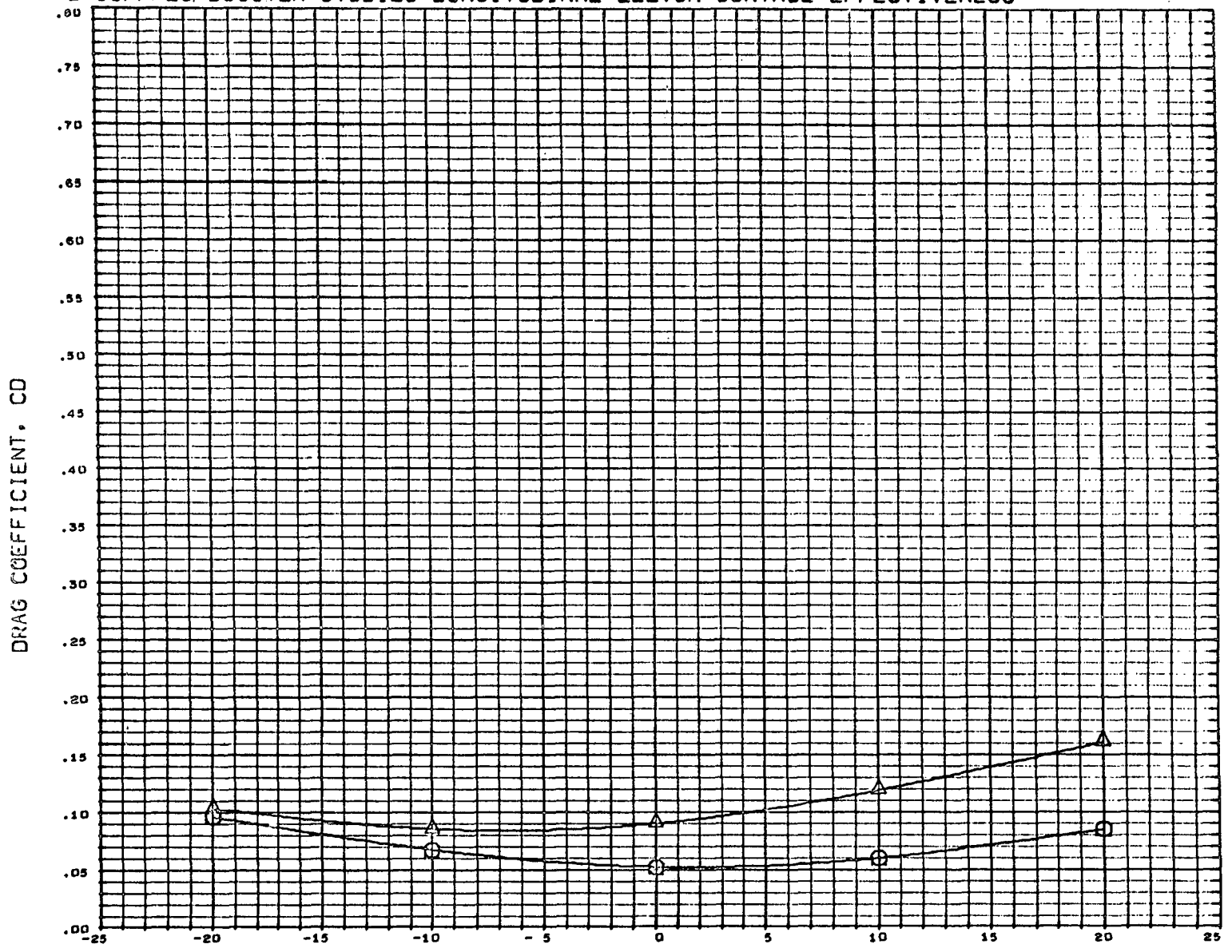
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	MN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1*#A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	90.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEEET
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEEET
		DATA HIST. CODE	I*A							ZMRP	0.0187	FEEET
										SCALE	0.0150	SCALE

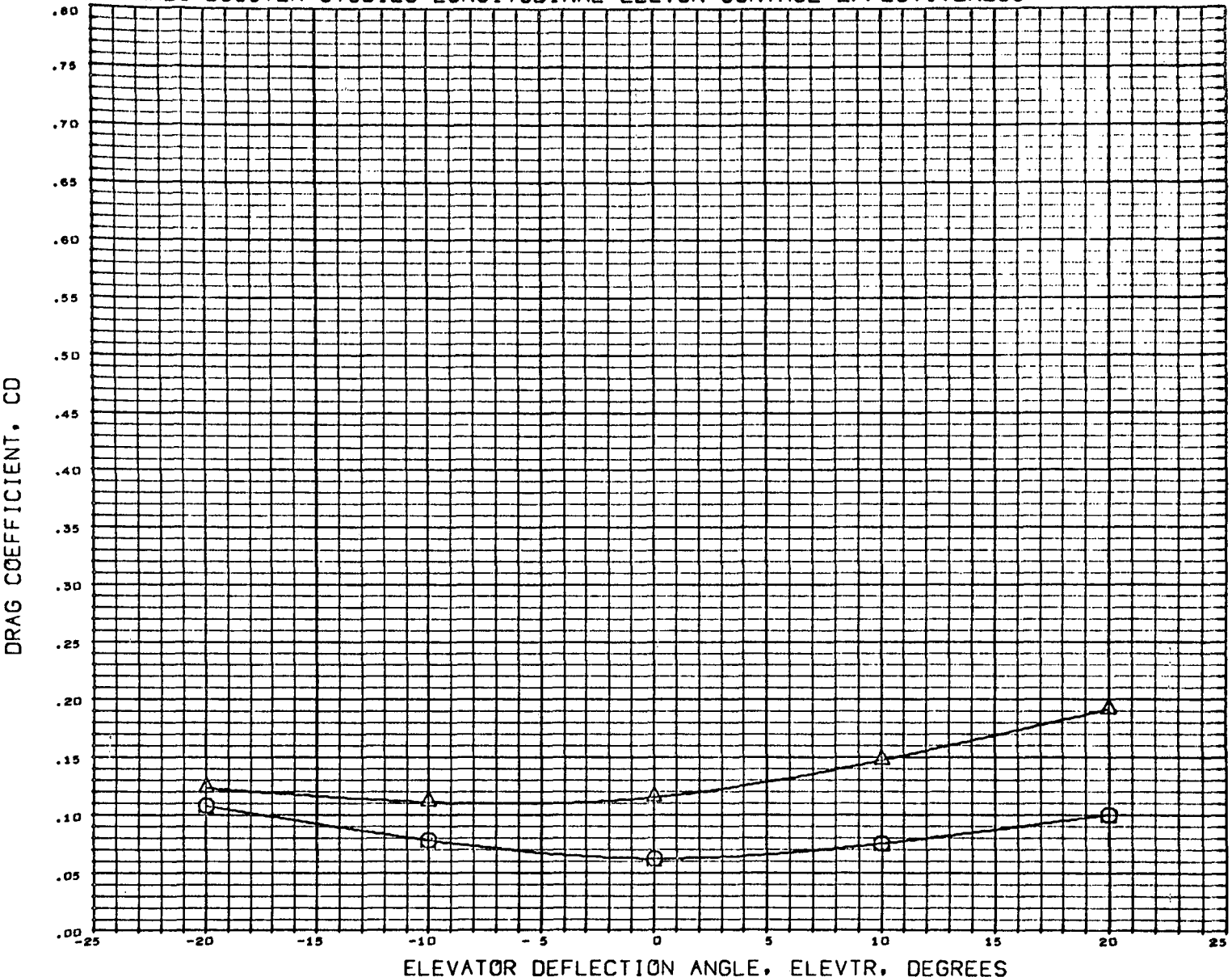
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

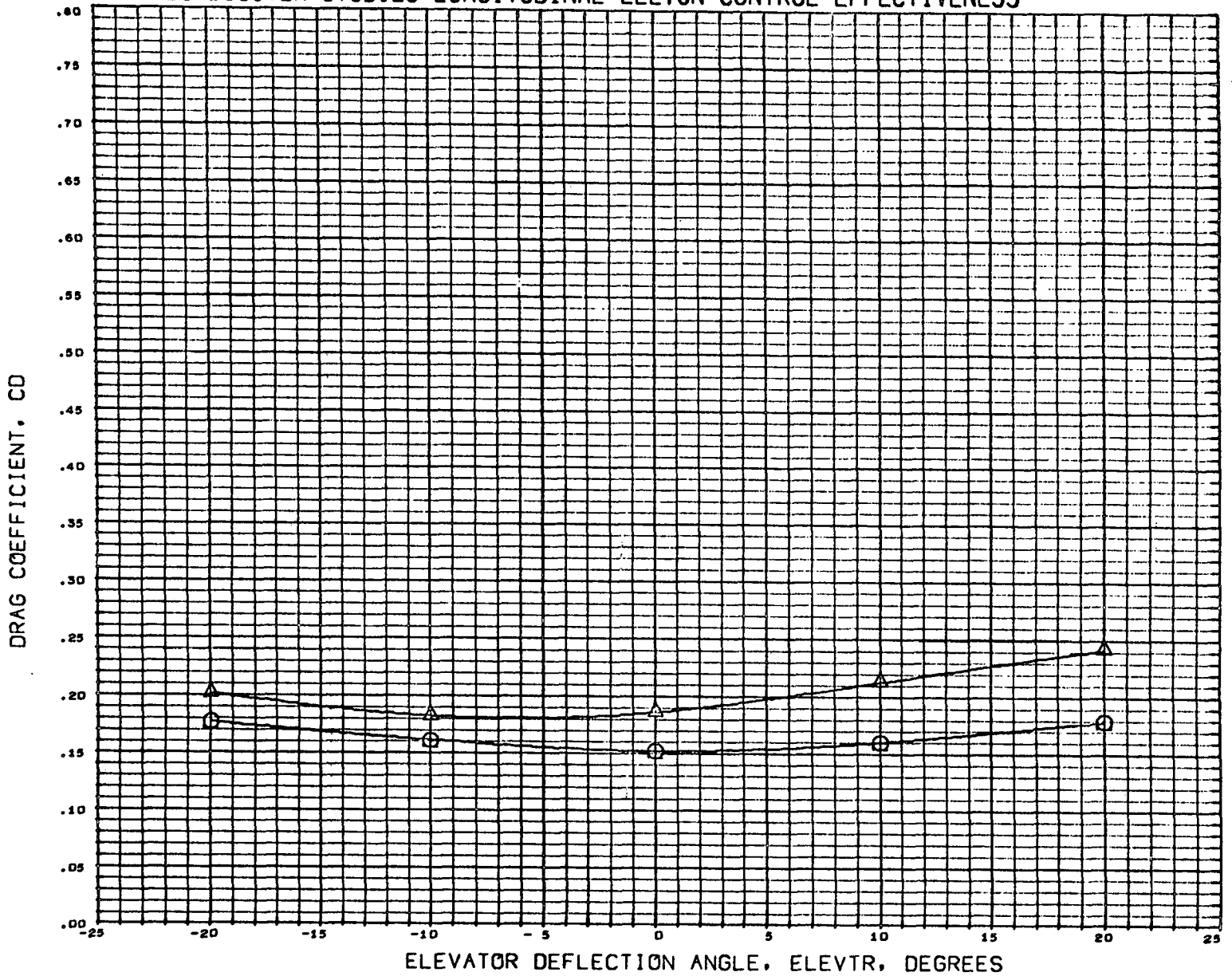
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△	6.000		3.000	INCIDC	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4930	FEET
			0.000	MSFLOW	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
			0.000	CANARD	0.000	NN3017	20.000			XMRP	2.5950	FEET
			1.000	WNGPOS	1.000					YMRP	0.0000	FEET
				CNDPOS	1.000					ZMRP	0.0187	FEET
				DATA HIST. CODE	1#A					SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



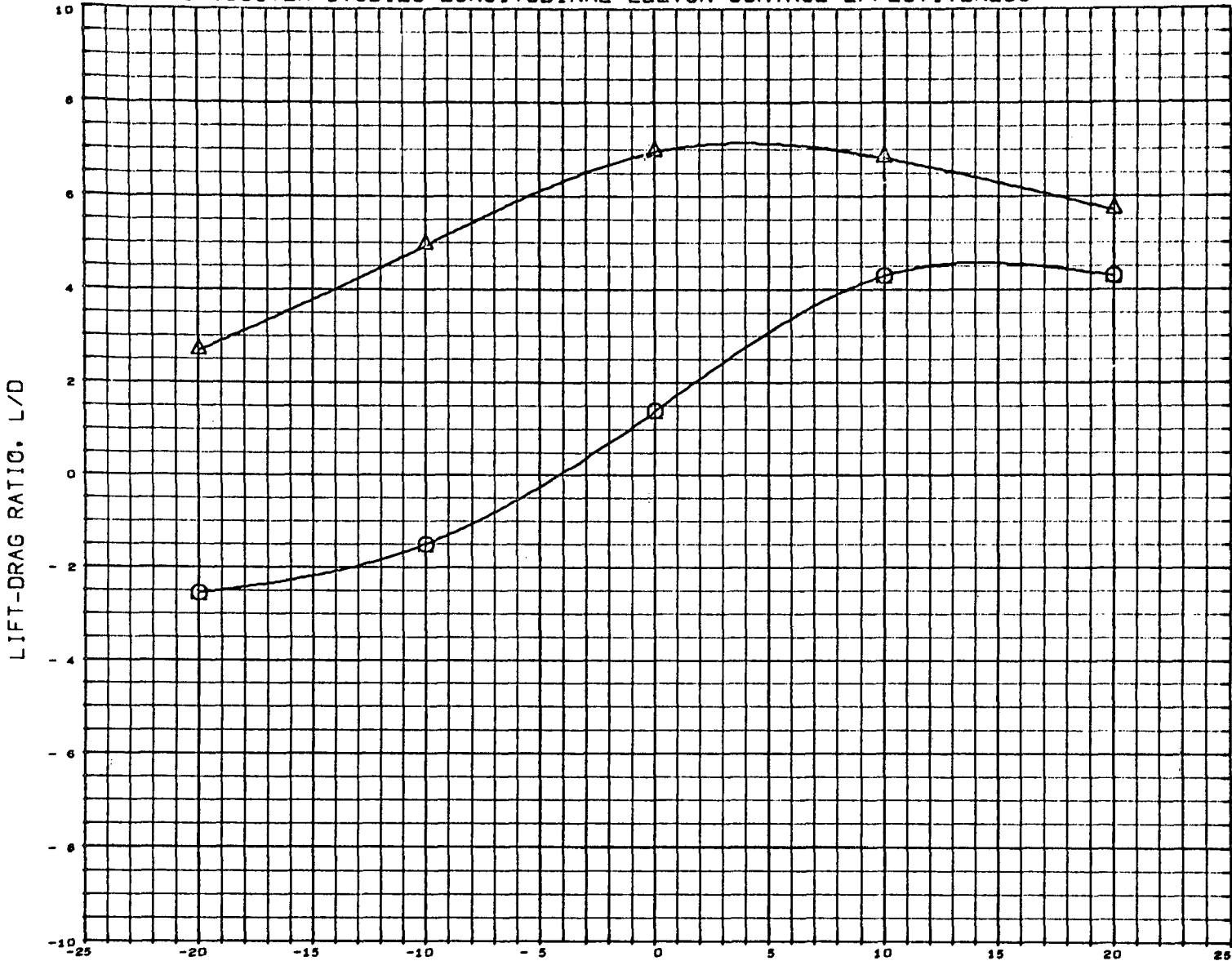
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△	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEEET
		HSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEEET
		DATA HIST. CODE	I#A							ZMRP	0.0187	FEEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



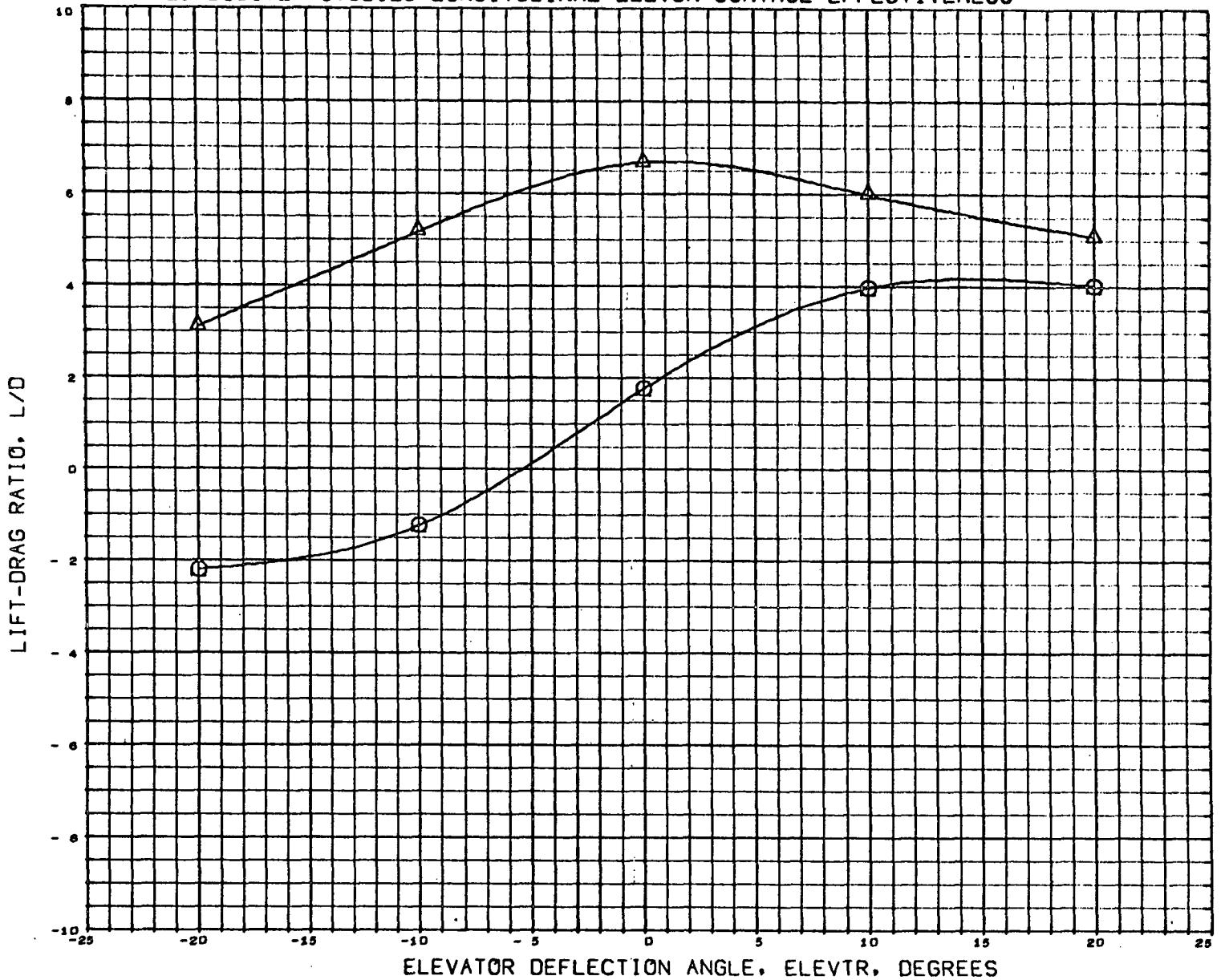
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△	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	MN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1*A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



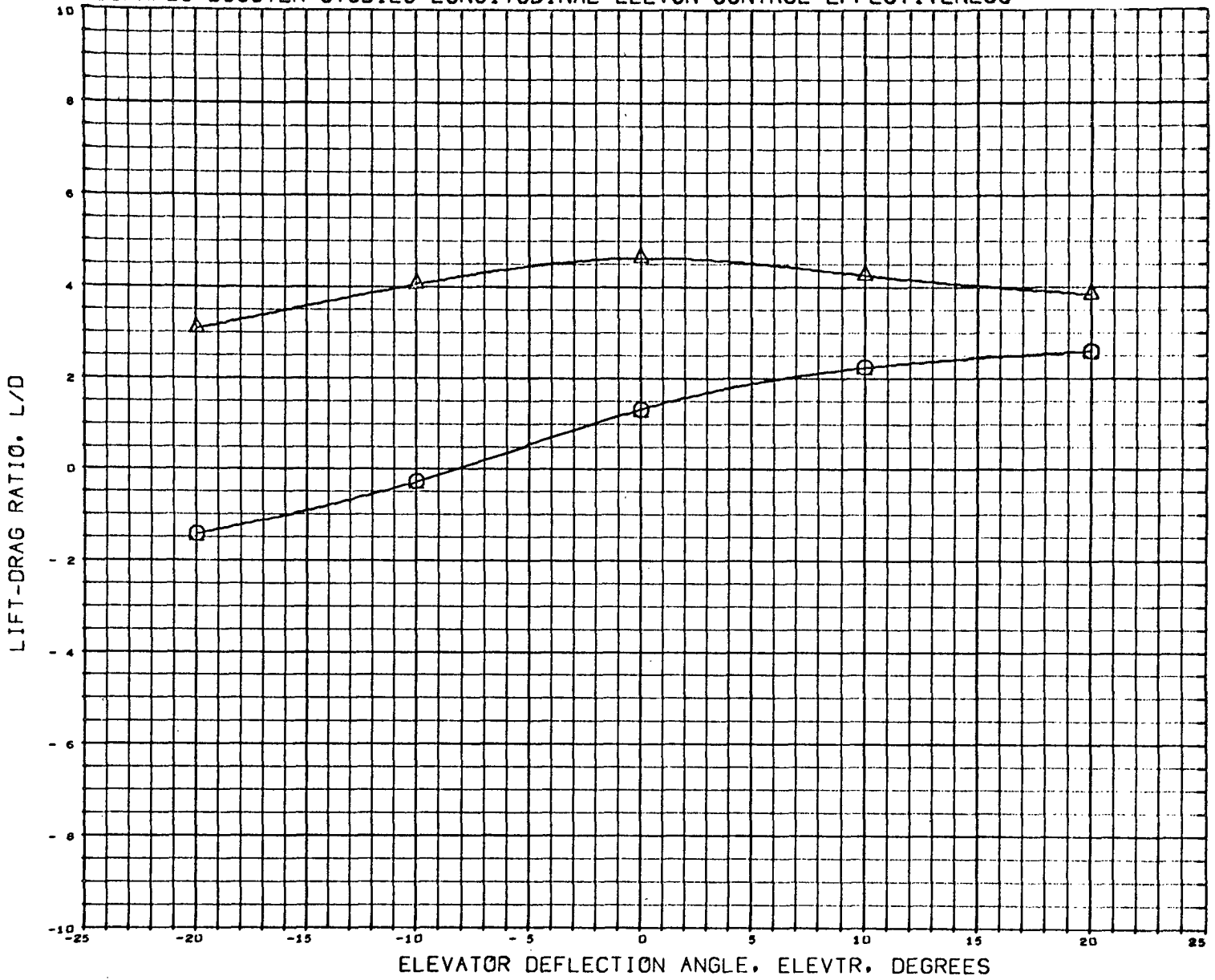
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



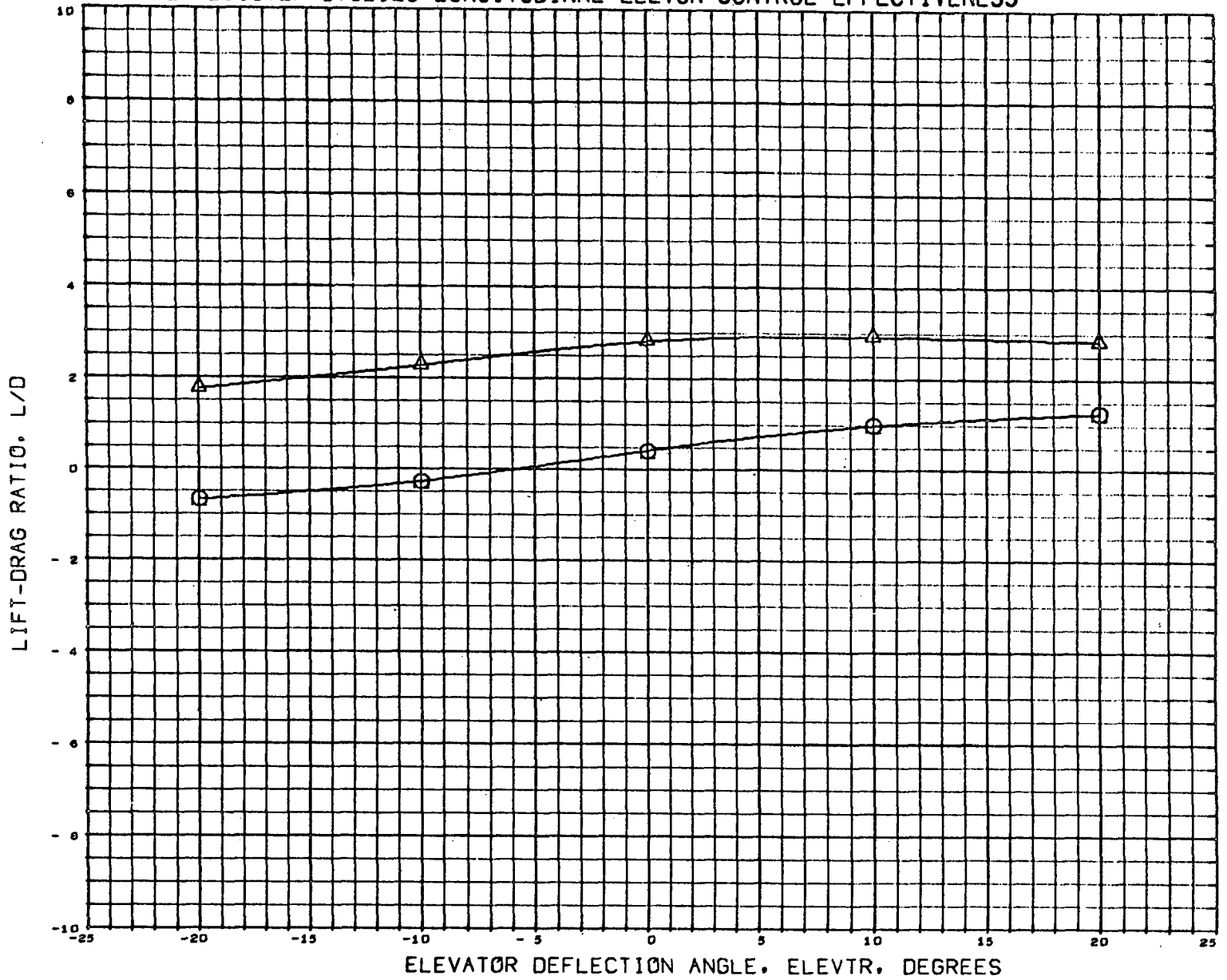
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRR	2.5950	FEEET
		WNGPOS	1.000	CNDPOS	1.000					YMRR	0.0000	FEEET
		DATA HIST. CODE	I#A							ZMRR	0.0187	FEEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	MACH	0.900	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE		I#A						ZMRP	0.0187	FEET
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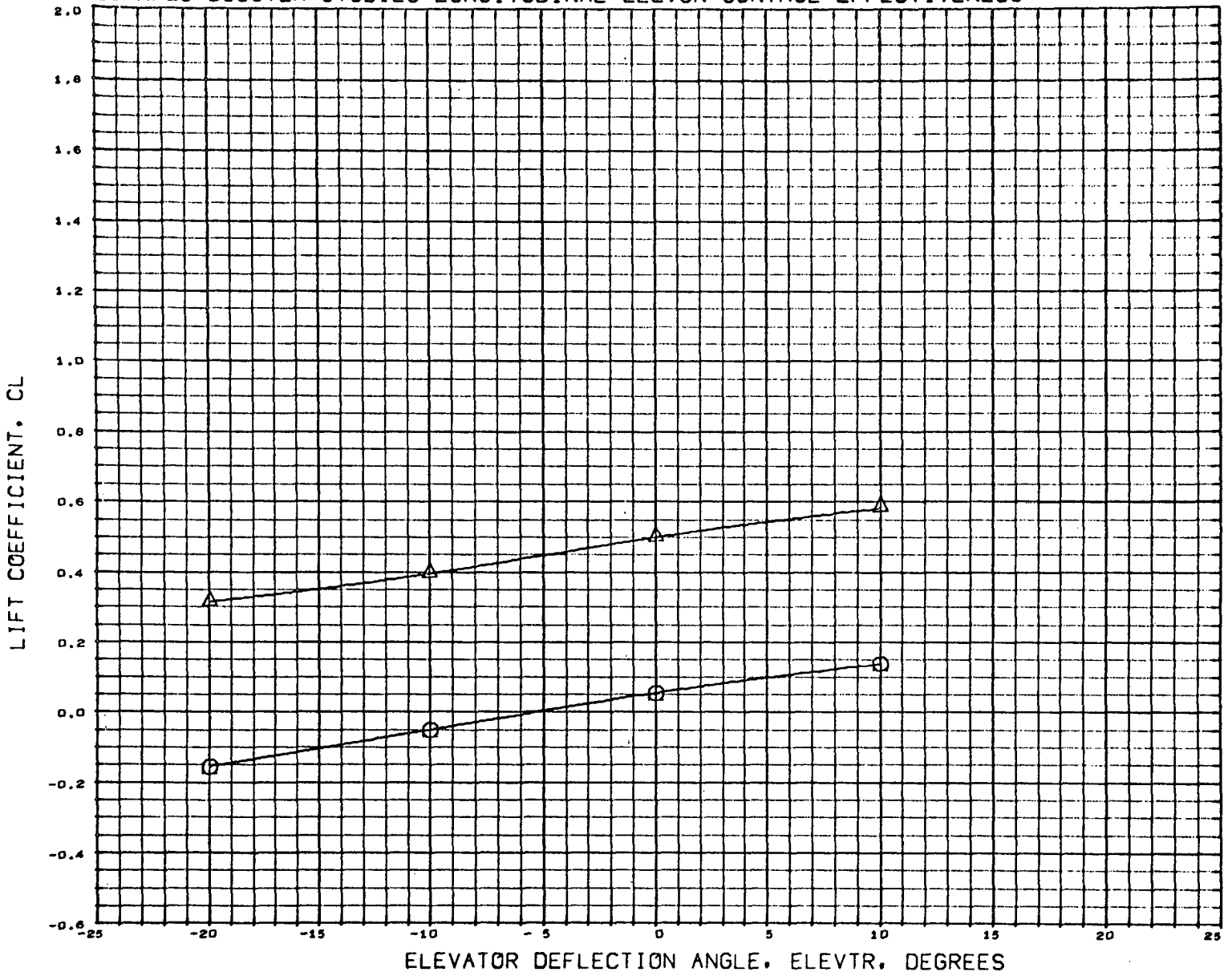
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
○	0.000	MACH	1.000	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	90.FT.	
△	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEET	
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET	
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET	
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET	
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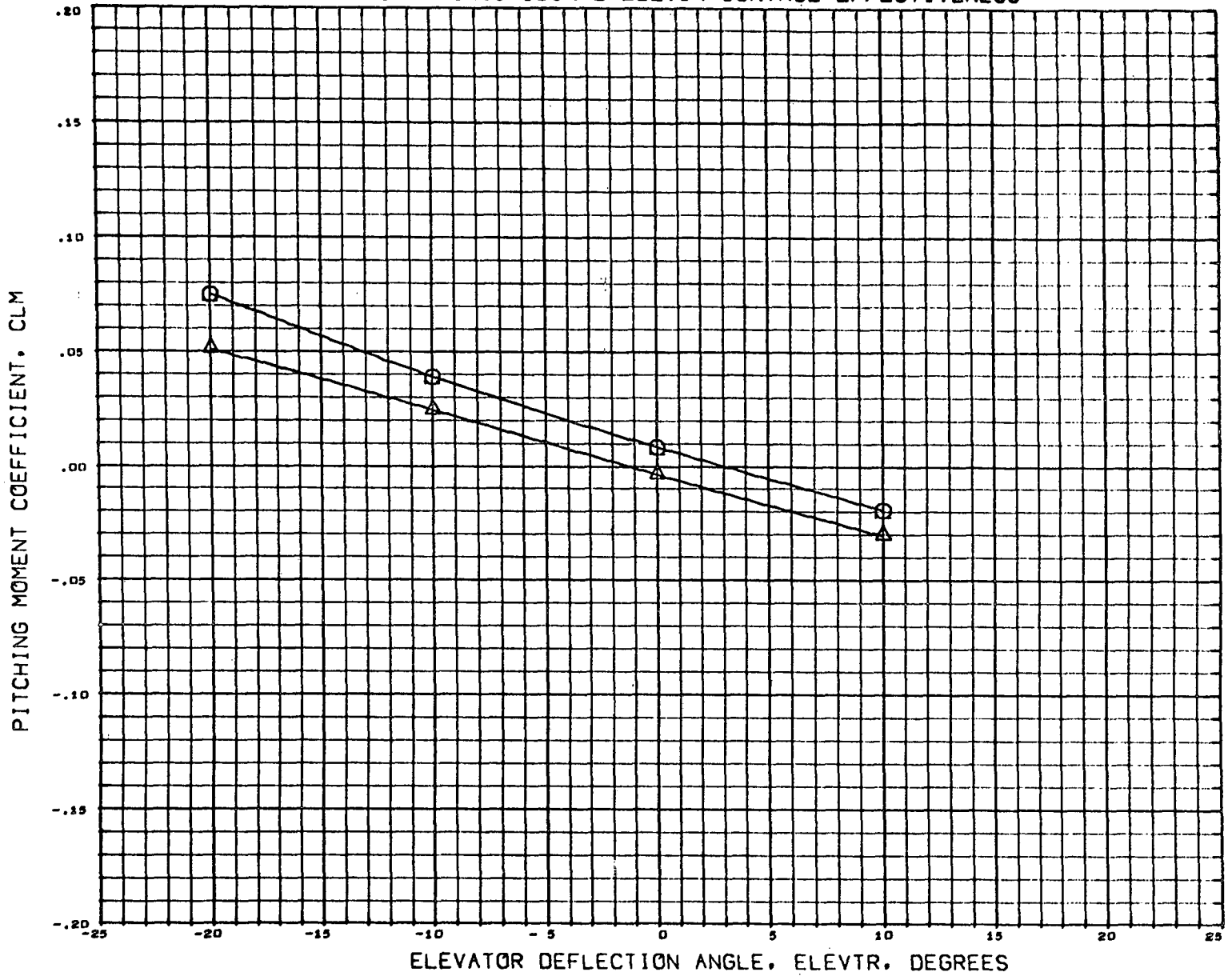
3

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
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△	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I* A							ZMRP	0.0187	FELT
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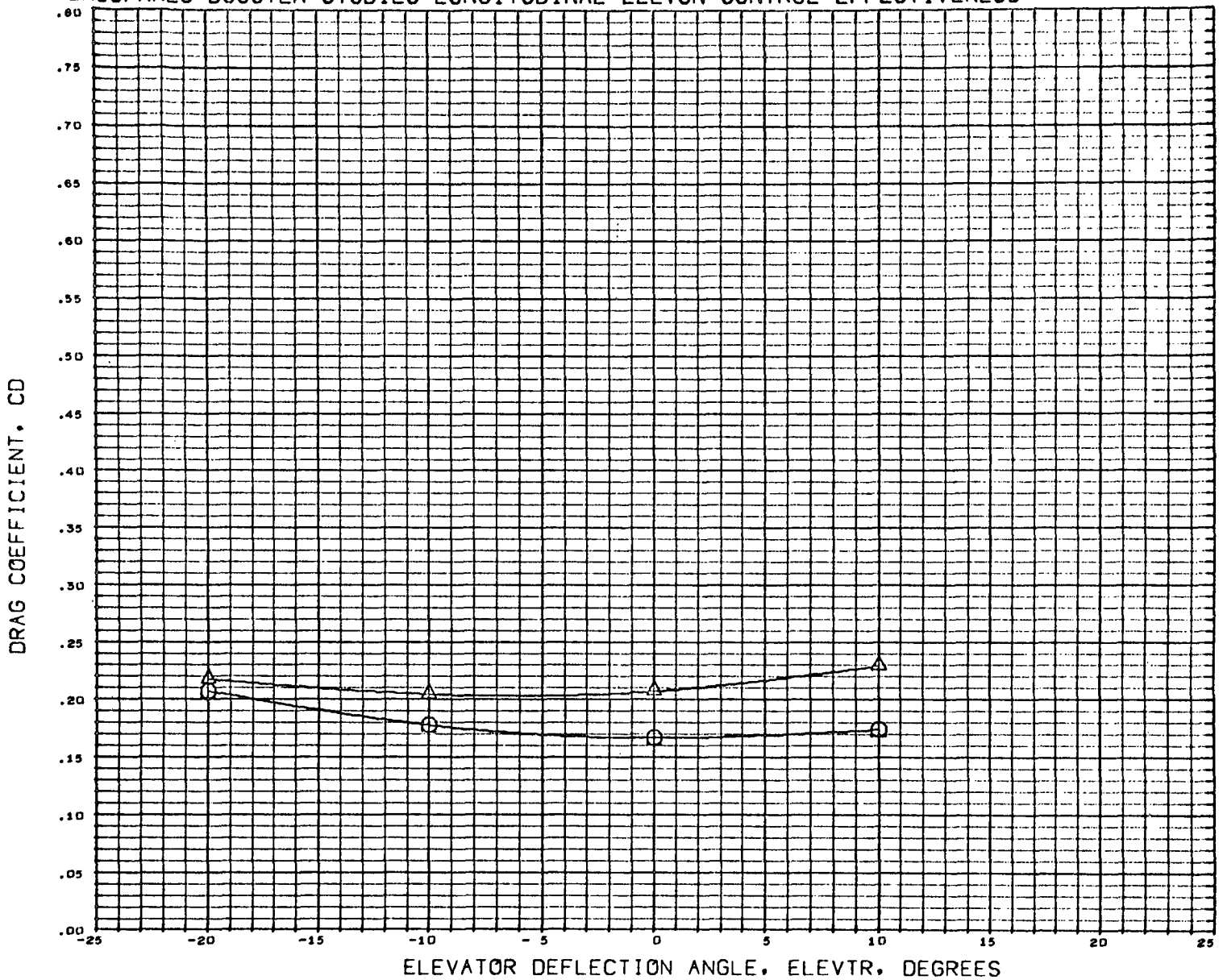
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

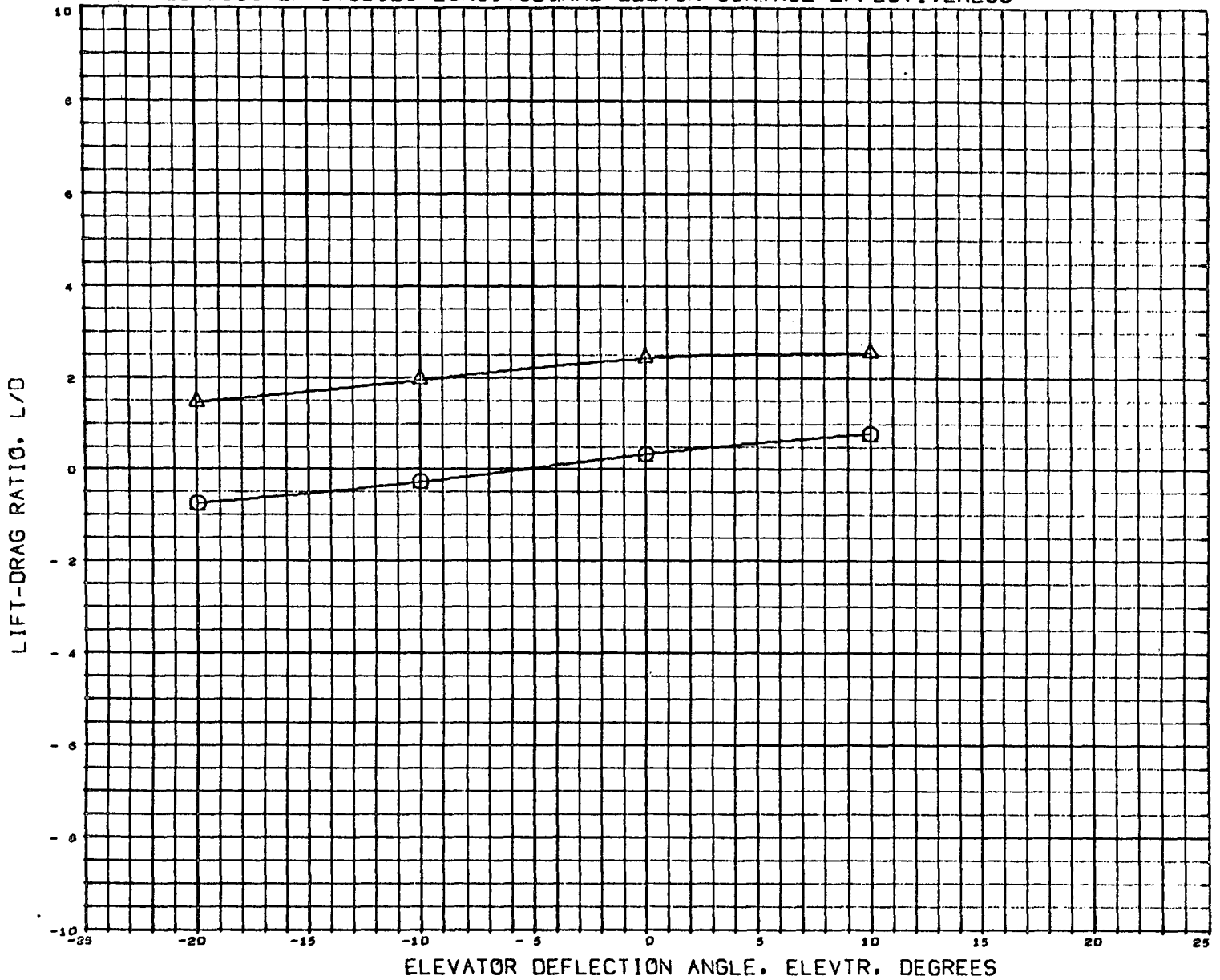
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△	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	19A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



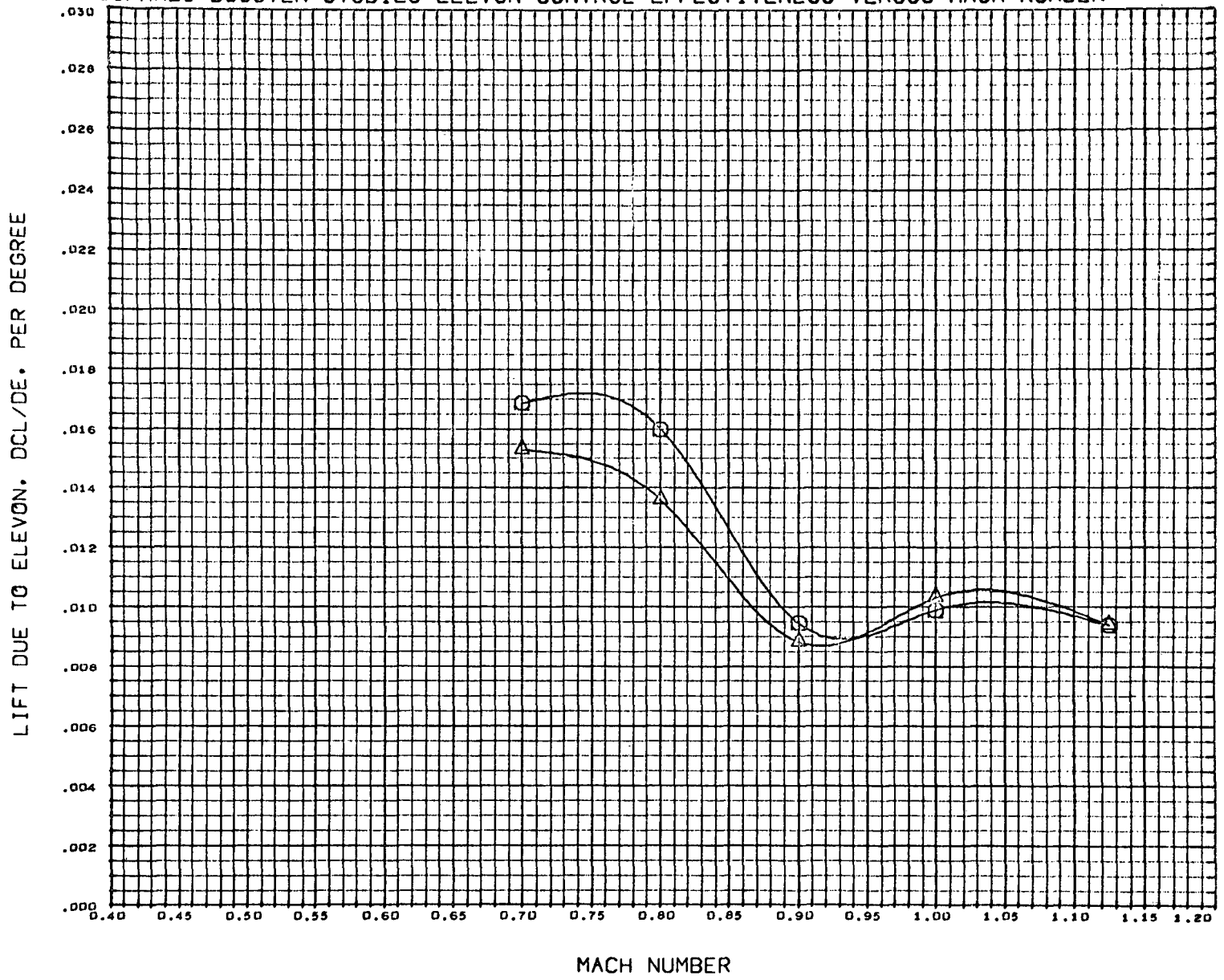
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.125	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUGDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I4A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	1.125	BETA	- 0.012	DATASET	ELEVTR		SREF	1.3550	SQ.FT.	
△	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I#A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

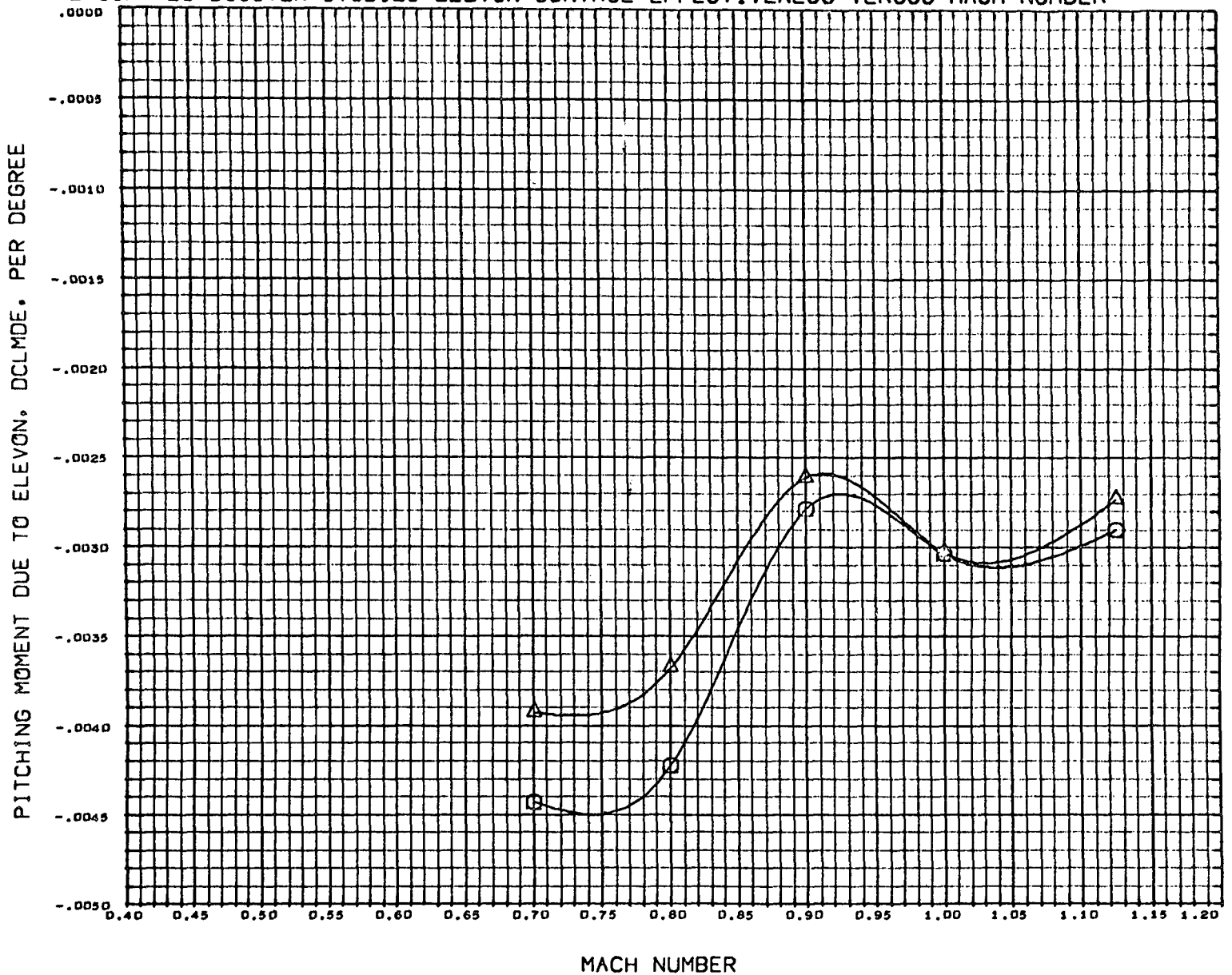
LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	INCIDC	3.000	INCIDW	0.000
△	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA HIST. CODE	I*F		

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

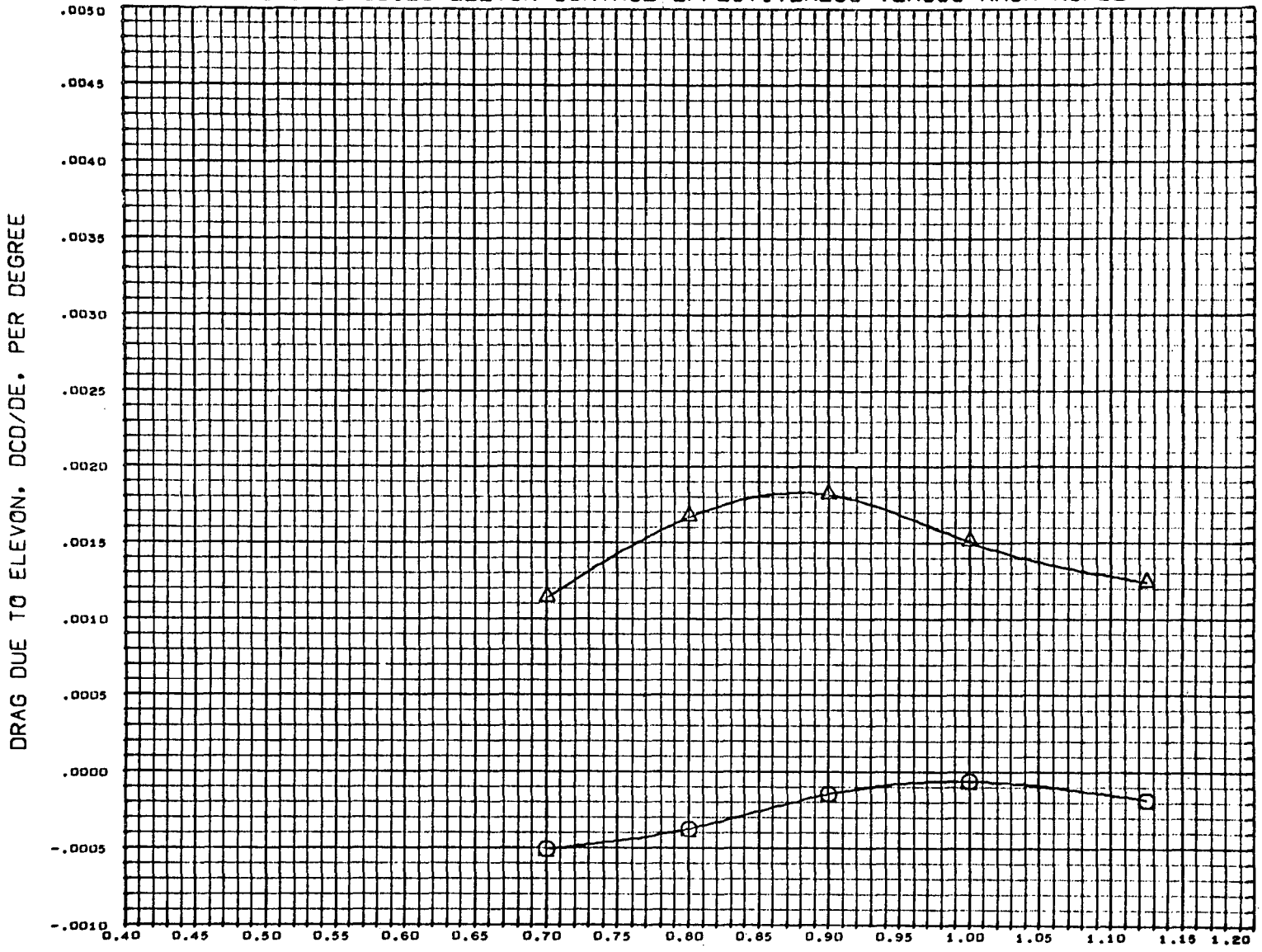
LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES			
∞	0.000	INCIDC	3.000	INCIDW	0.000
	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA HIST. CODE	I*P		

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

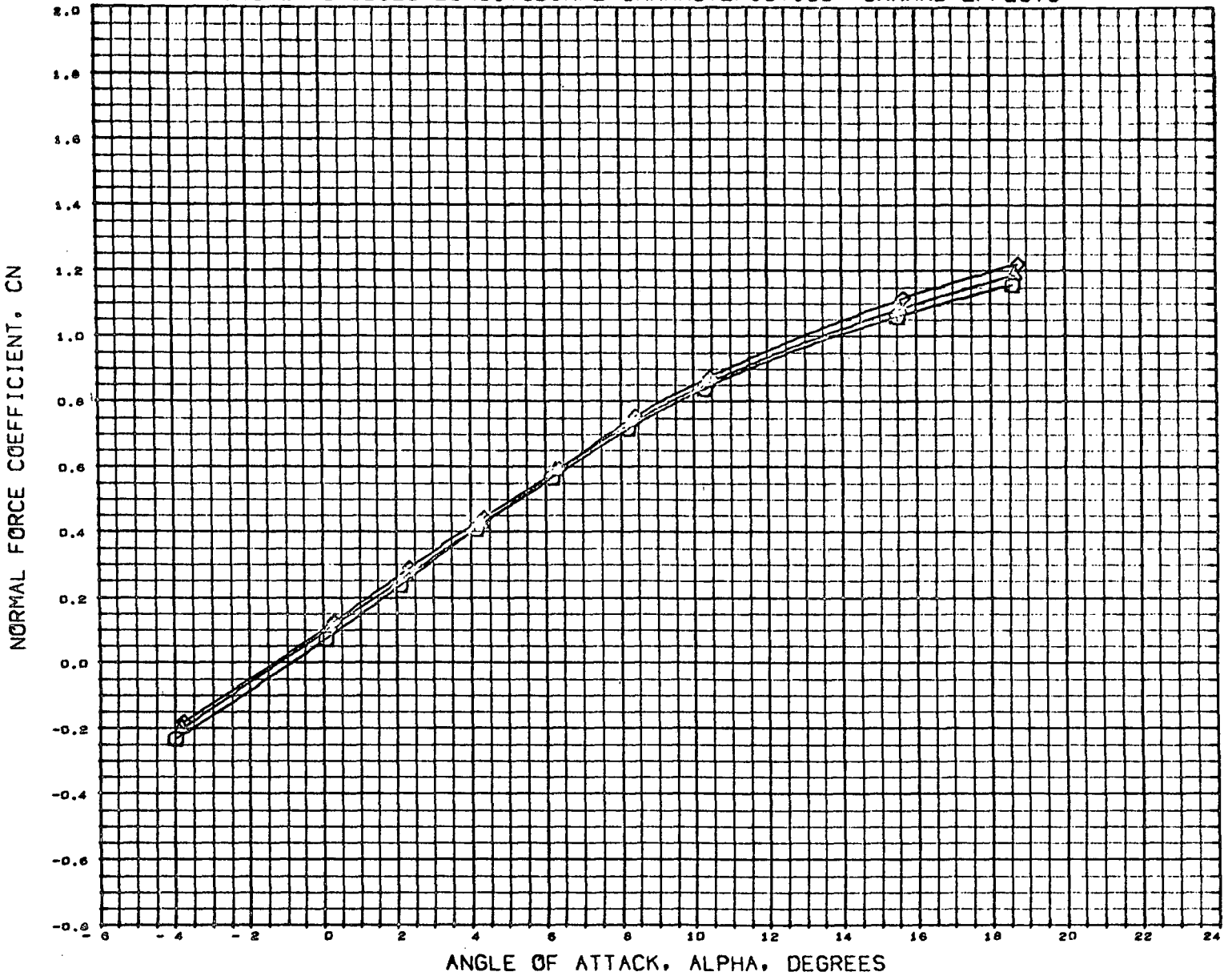


MACH NUMBER

SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	INCIDC	3.000	INCIDW	0.000
△	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA HIST. CODE	I#P		

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

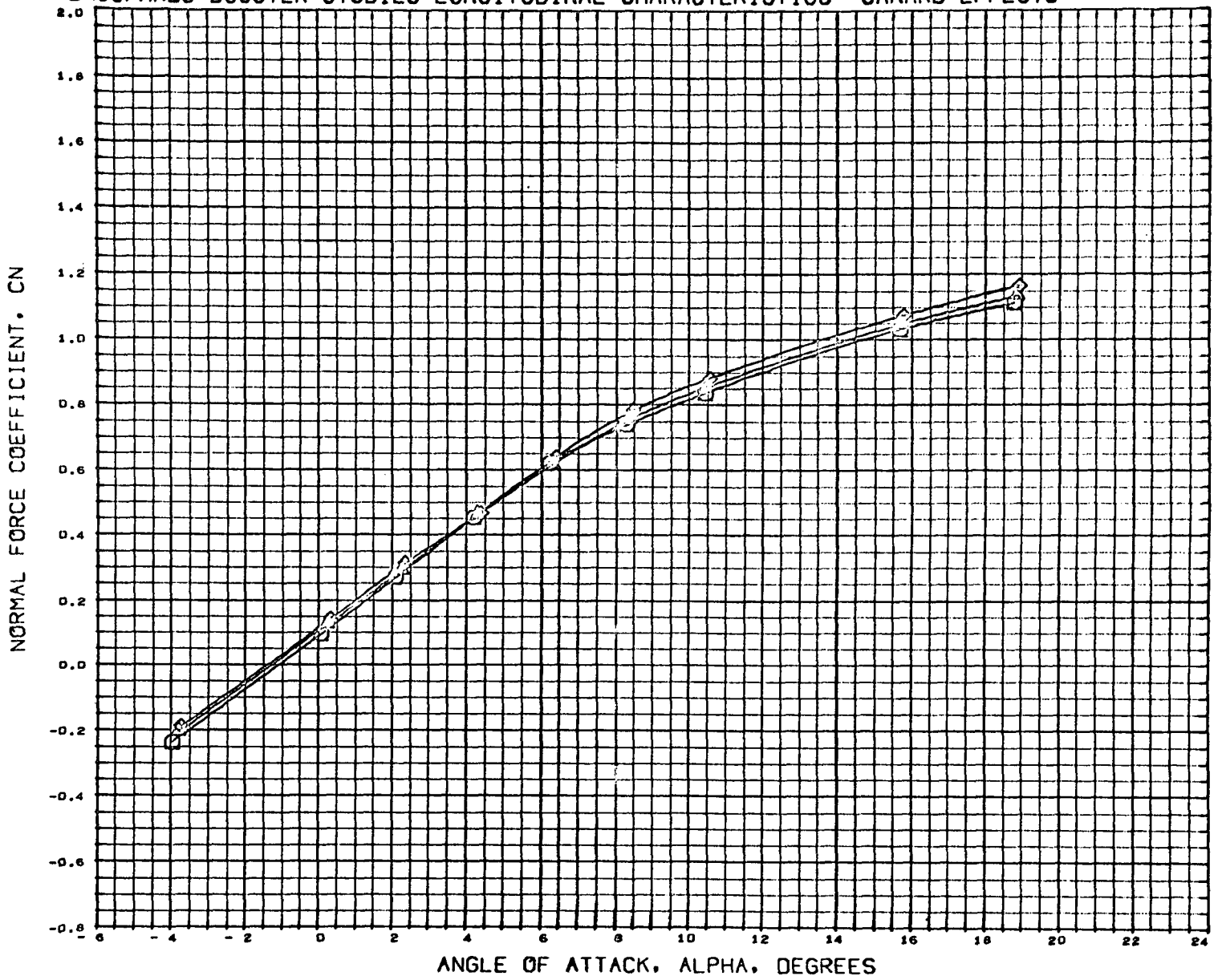
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.703

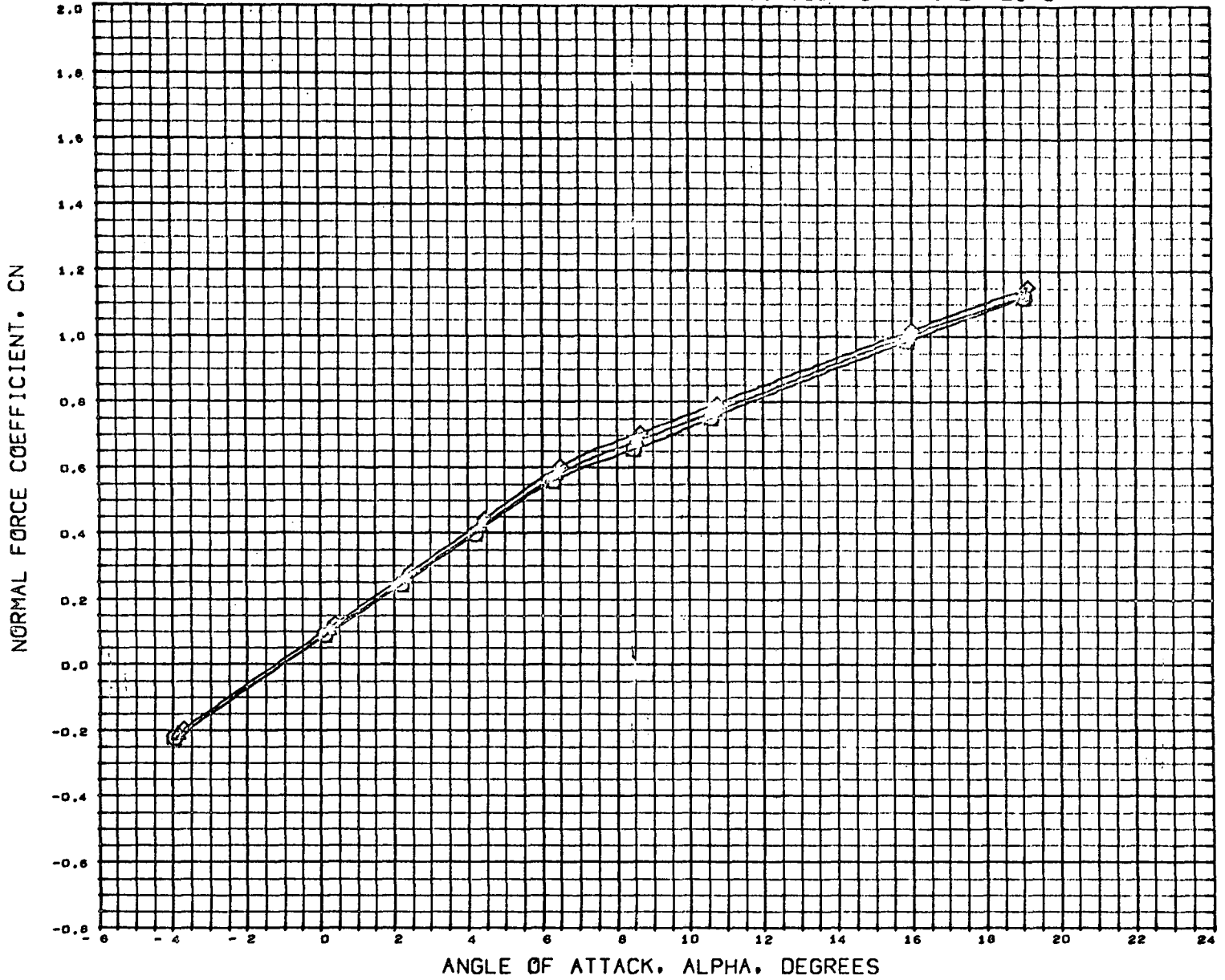
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

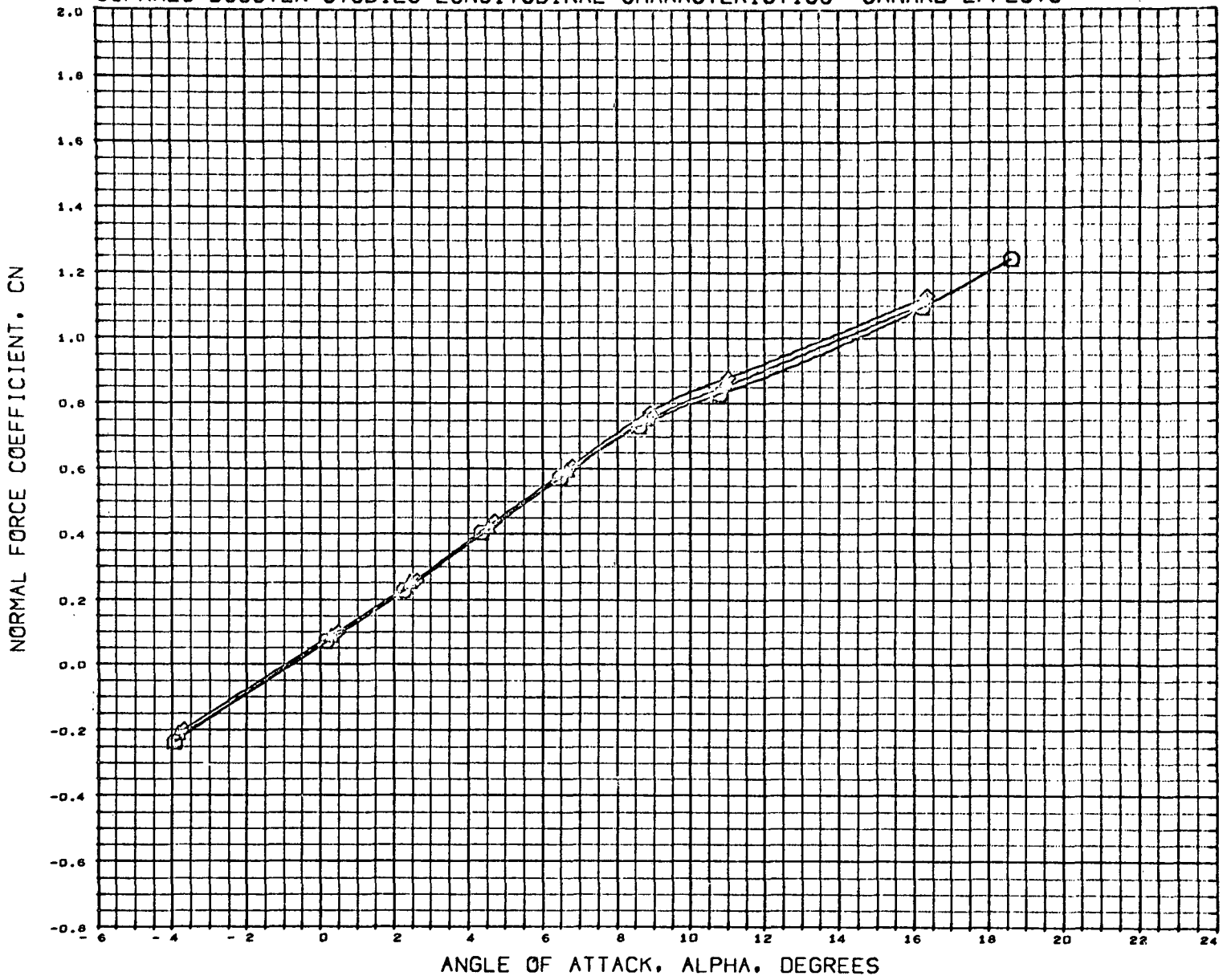
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

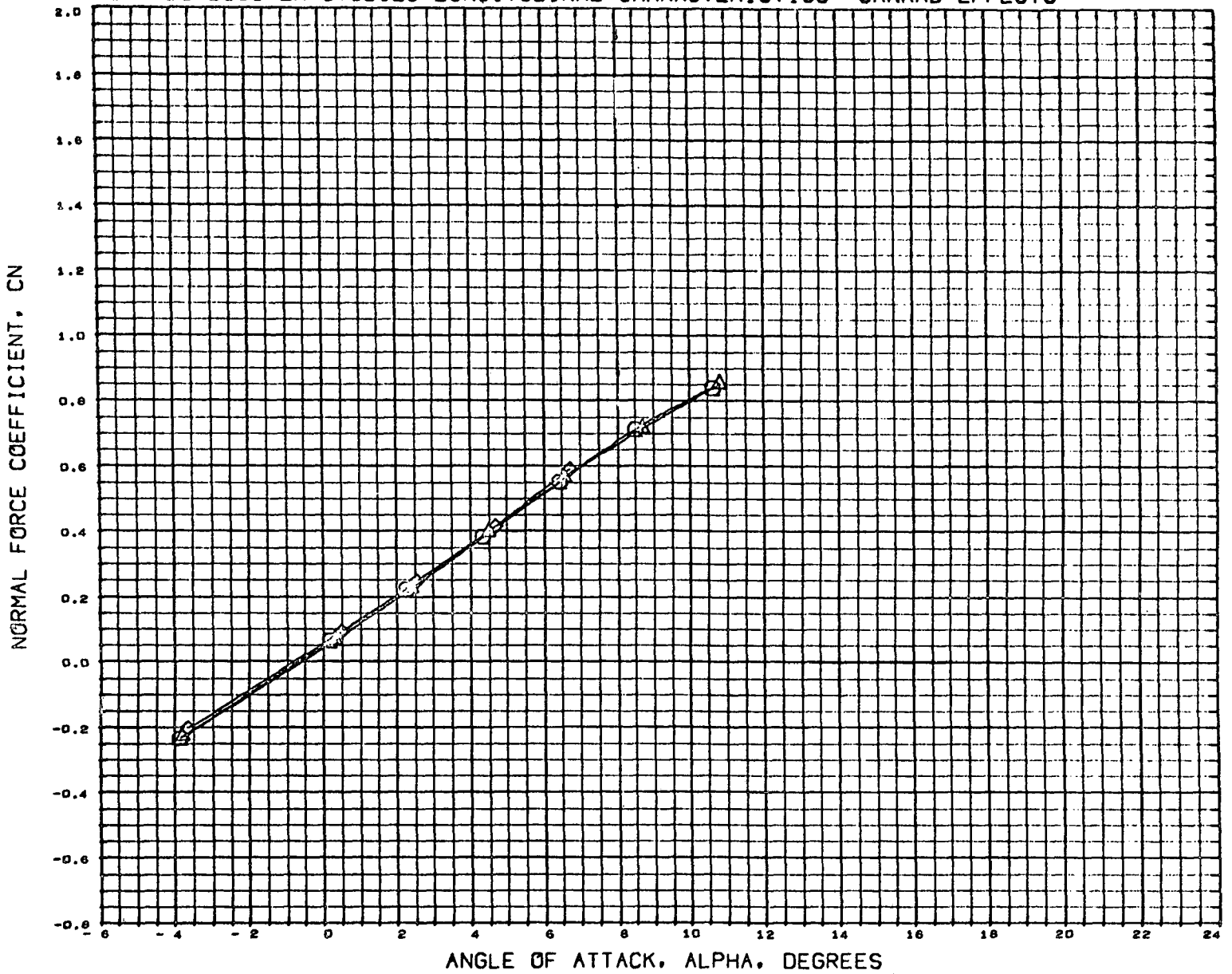
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

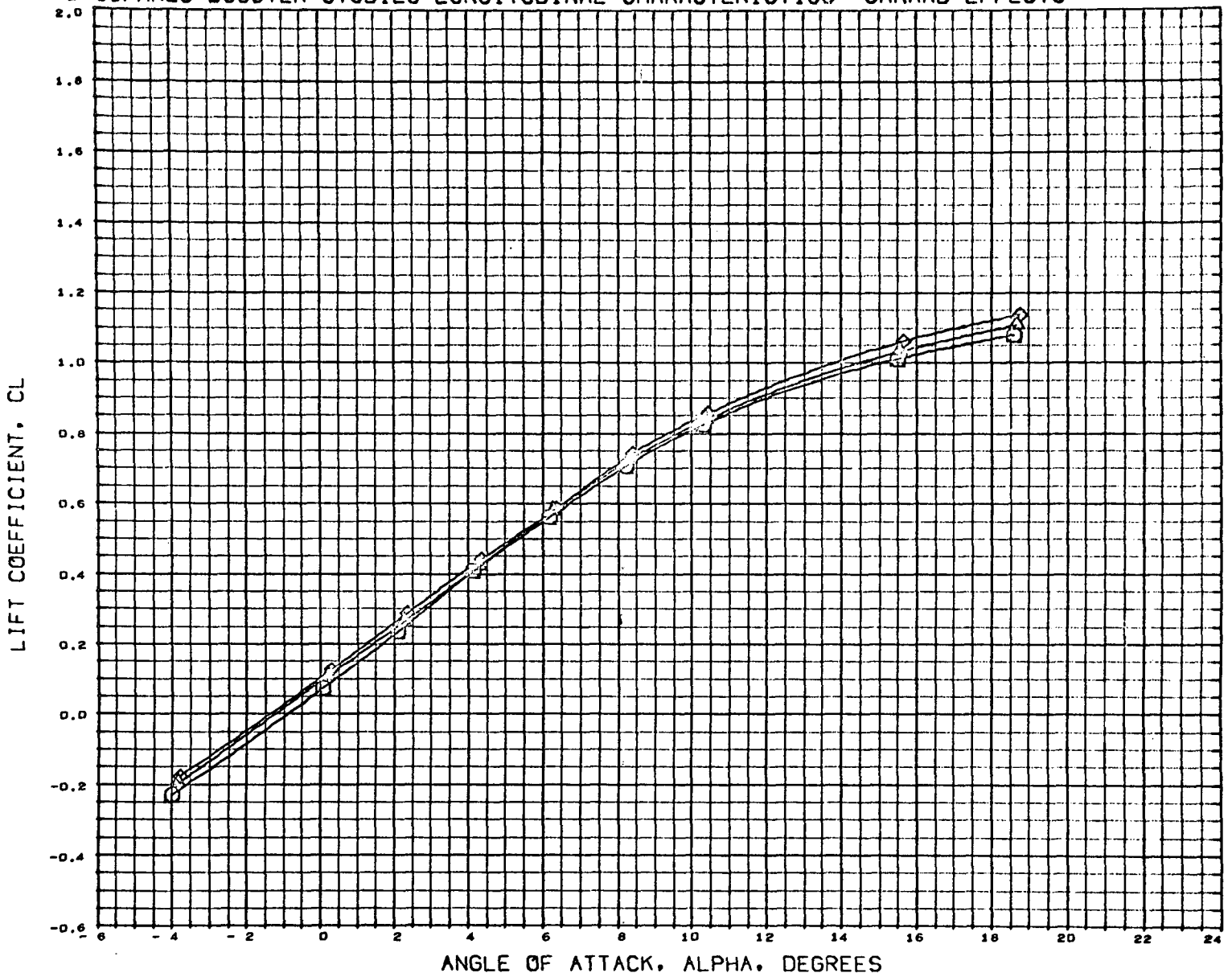
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0197 FEET
						SCALE	0.0150 SCALE

MACH 1.122

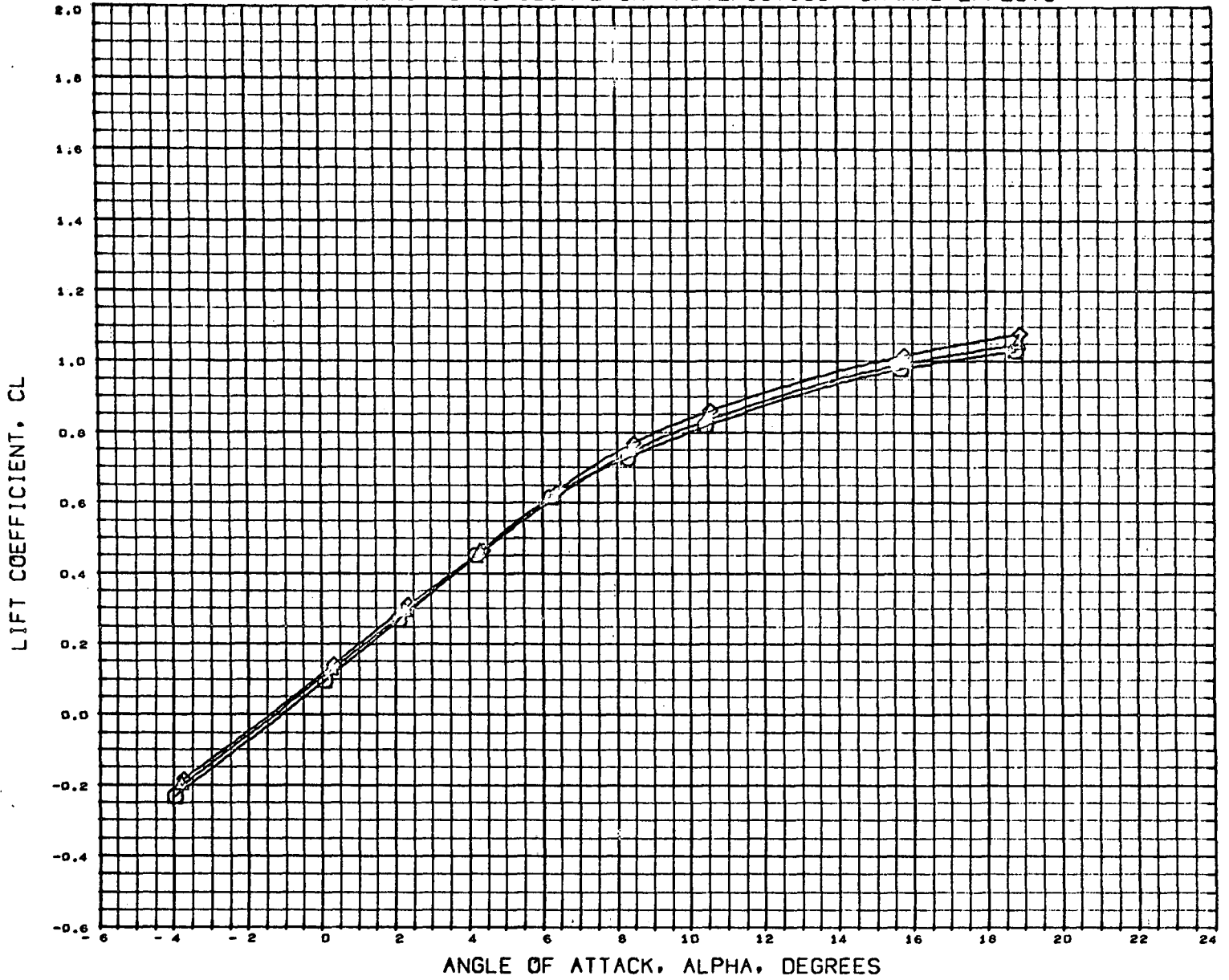
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.703

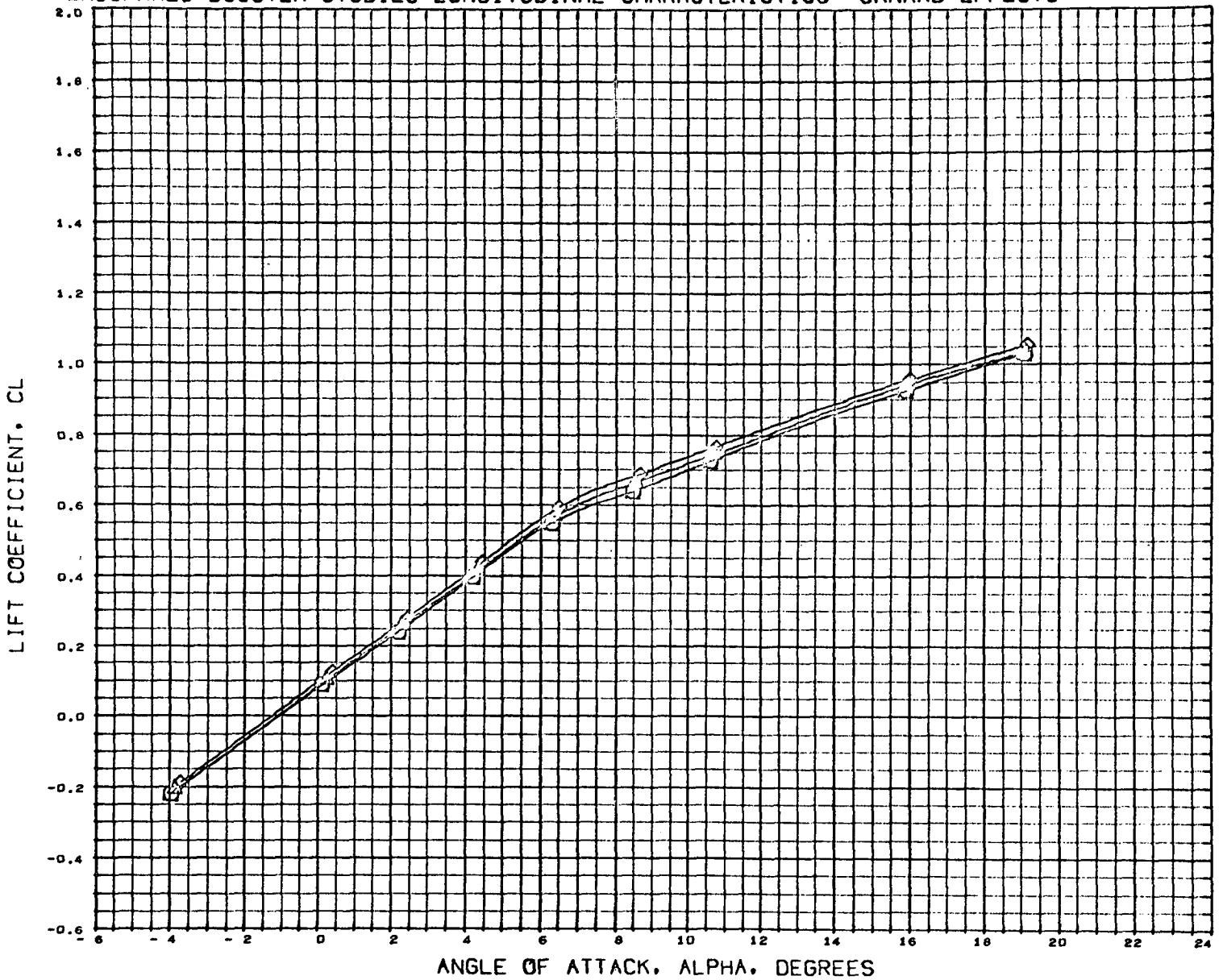
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.803

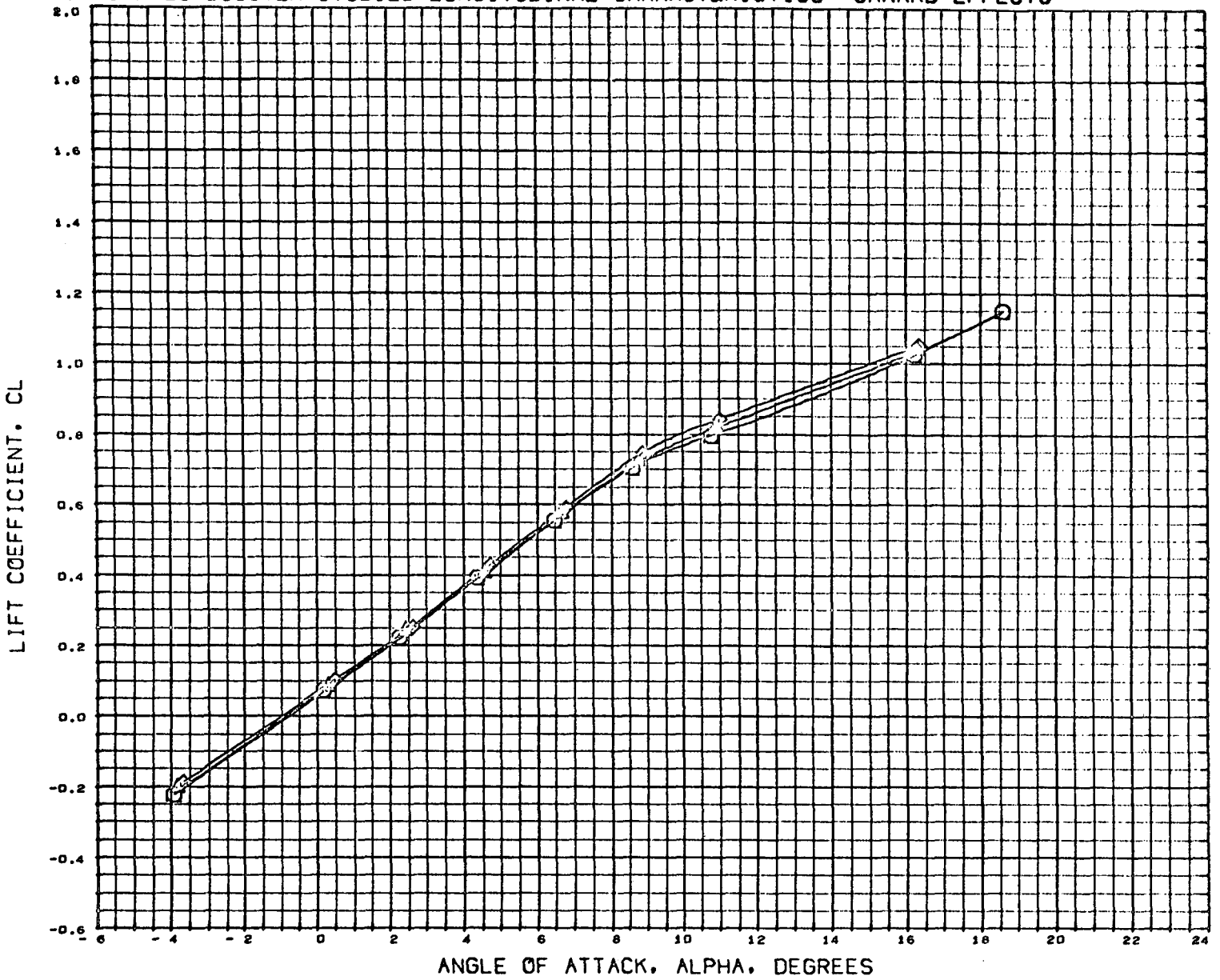
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.903

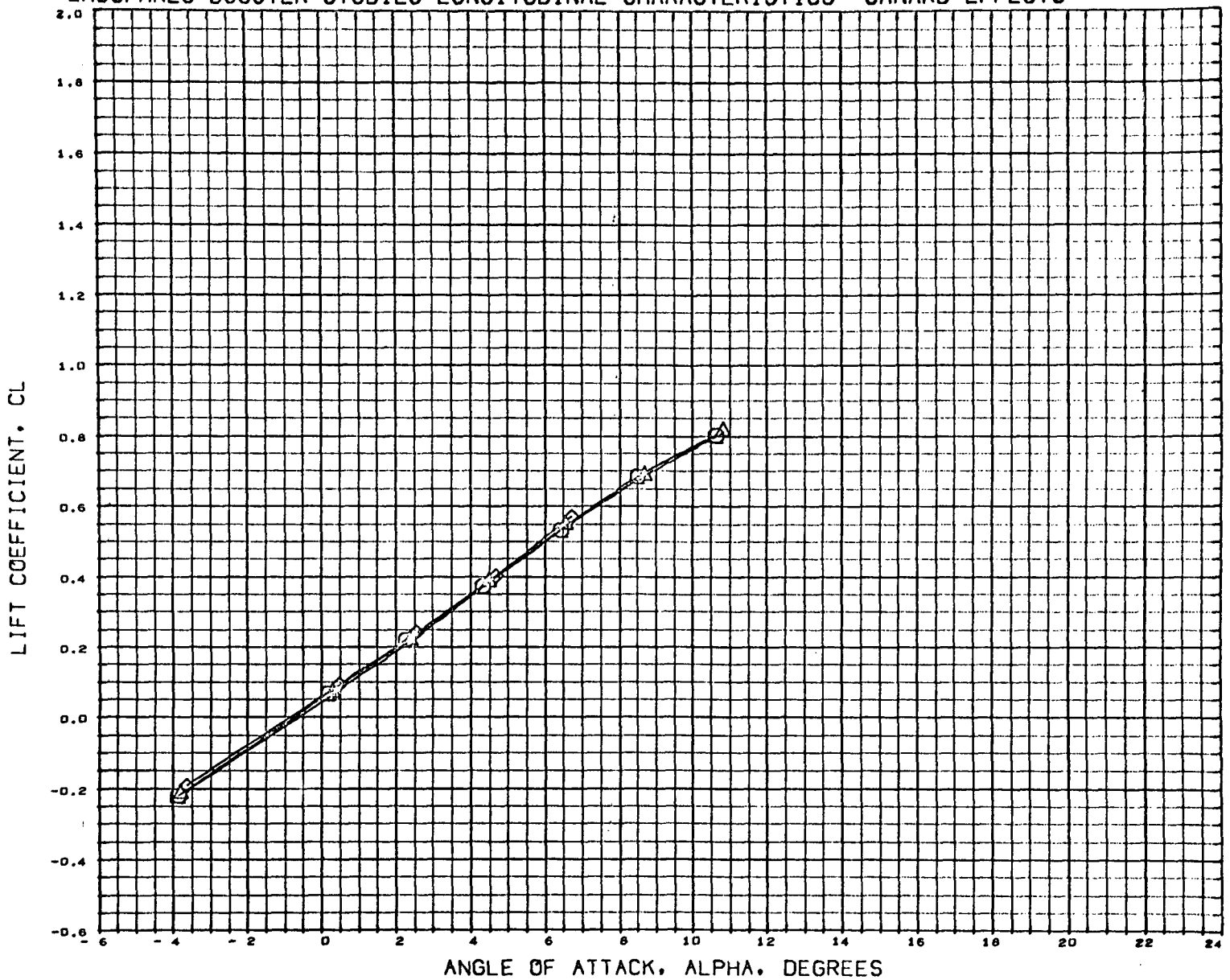
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.F.T.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

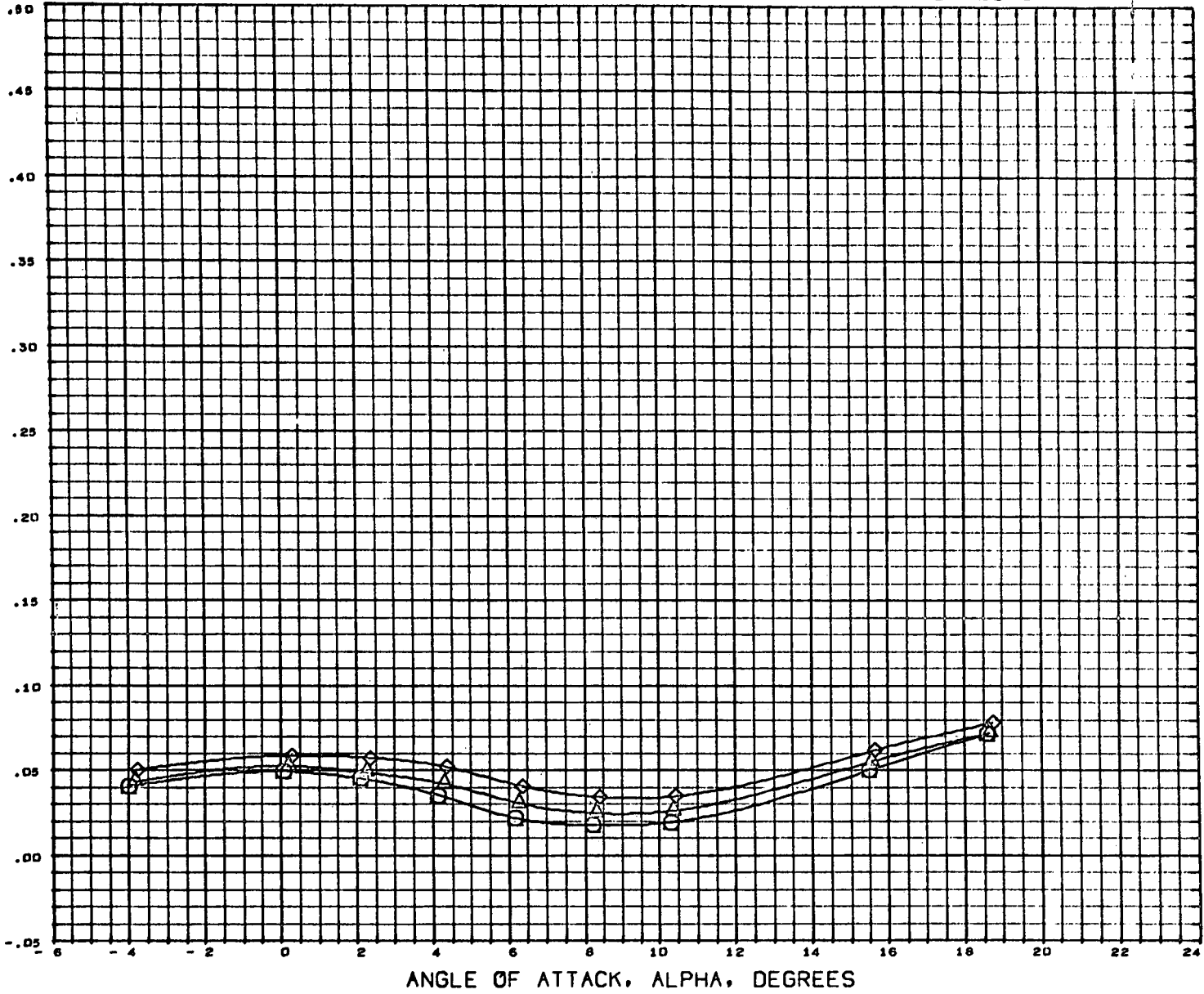


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRRP	2.5950 FEET
							YMRRP	0.0000 FEET
							ZMRRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

AXIAL FORCE COEFFICIENT, CA

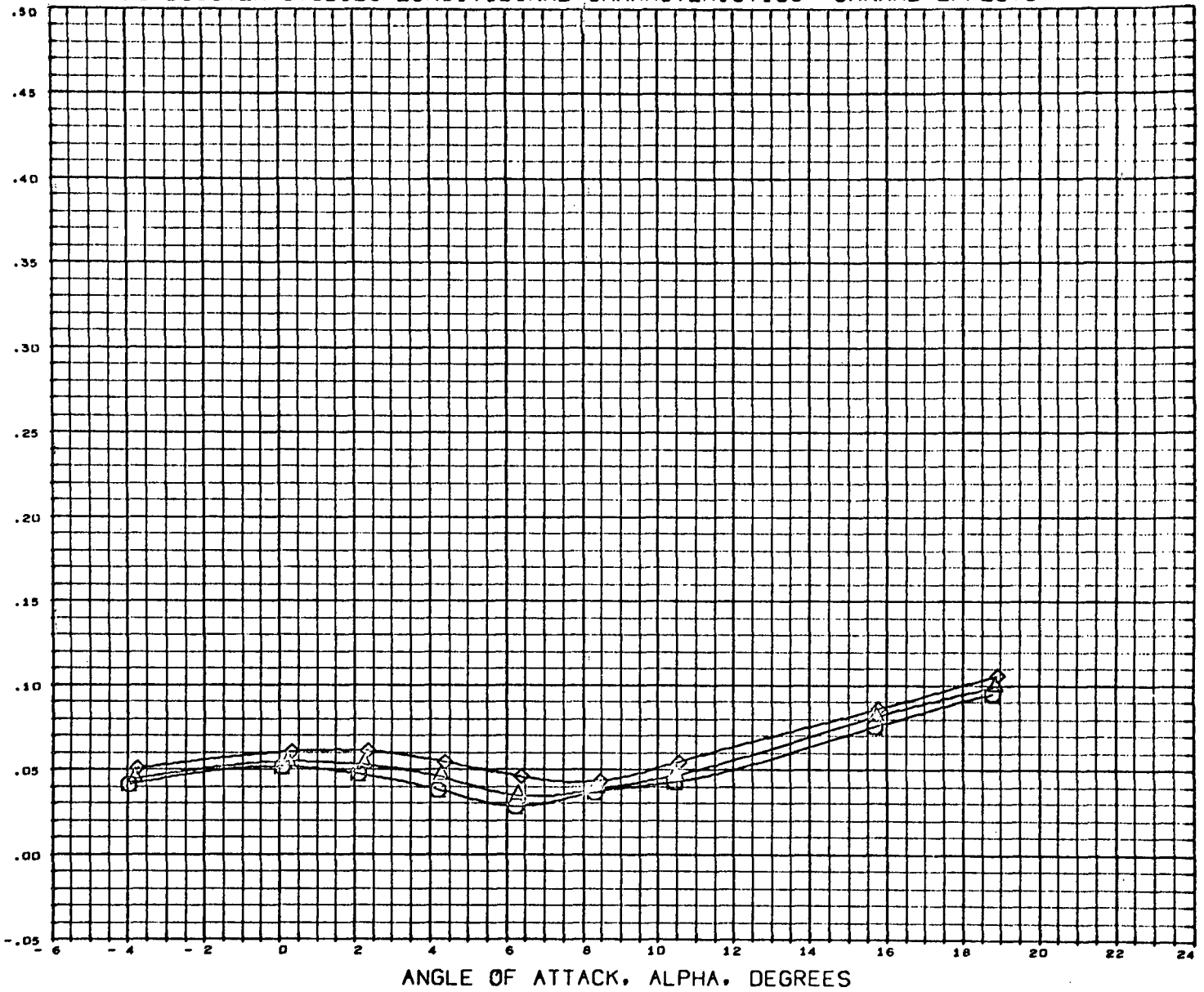


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.703

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

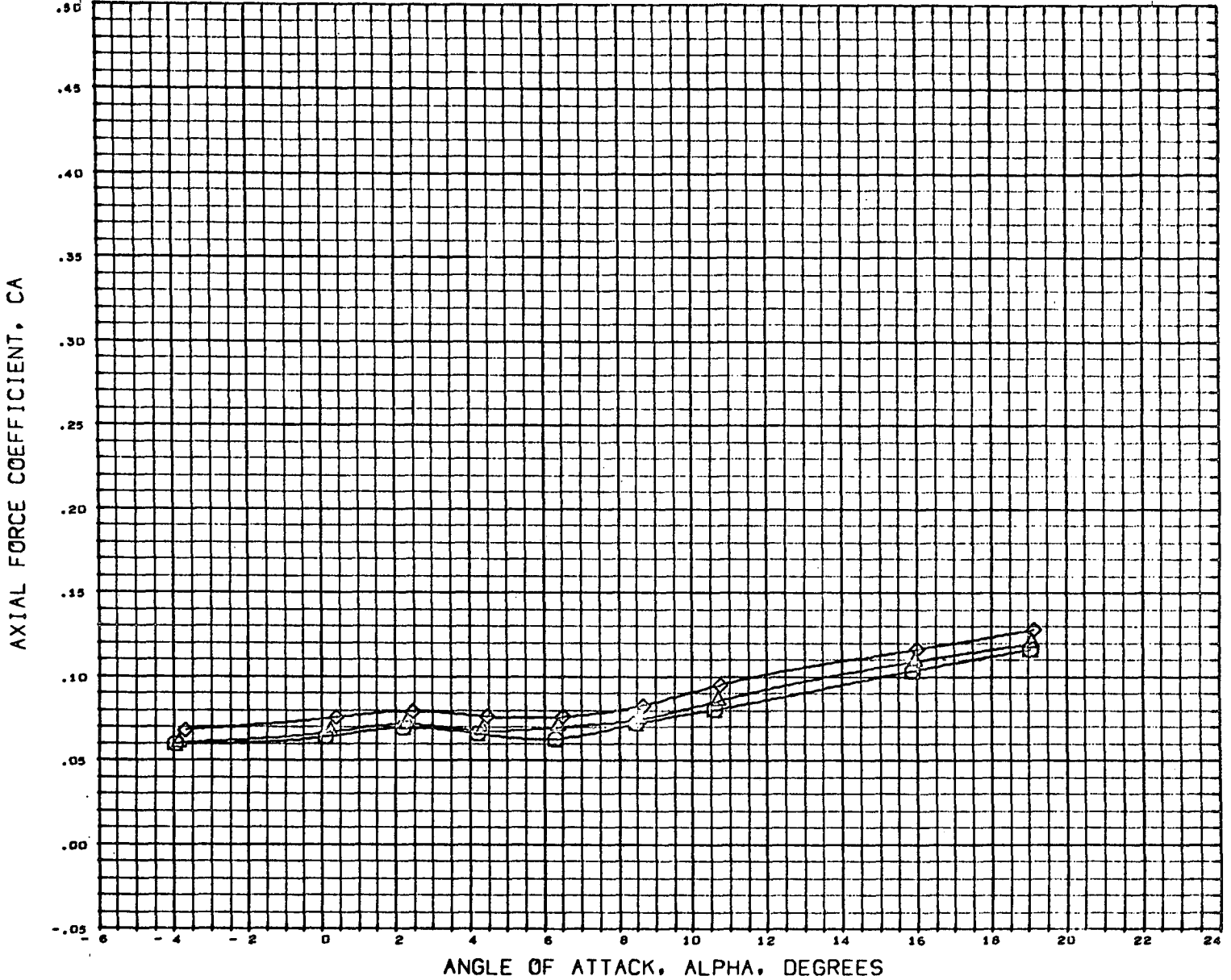
AXIAL FORCE COEFFICIENT, CA



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 89.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

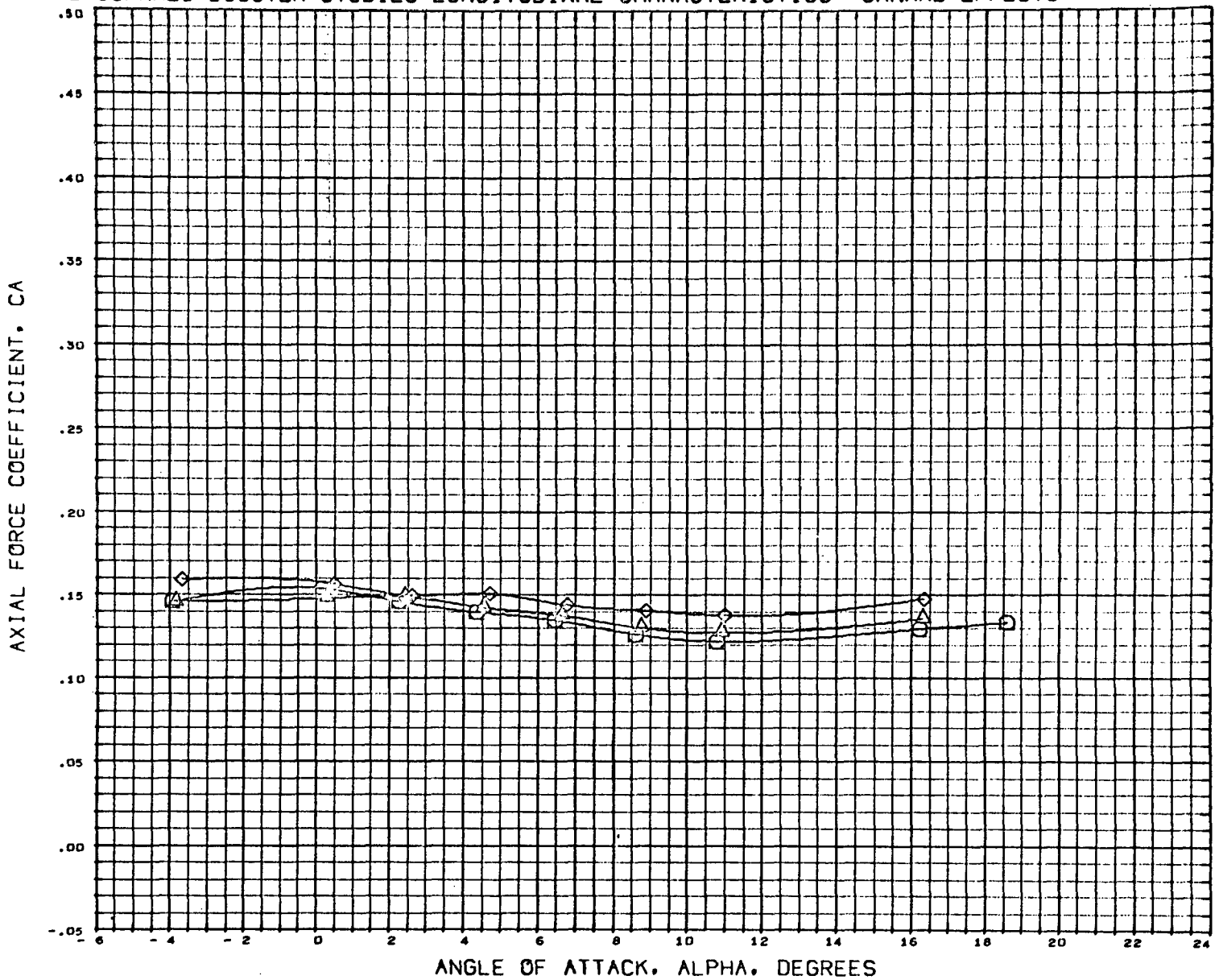
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.903

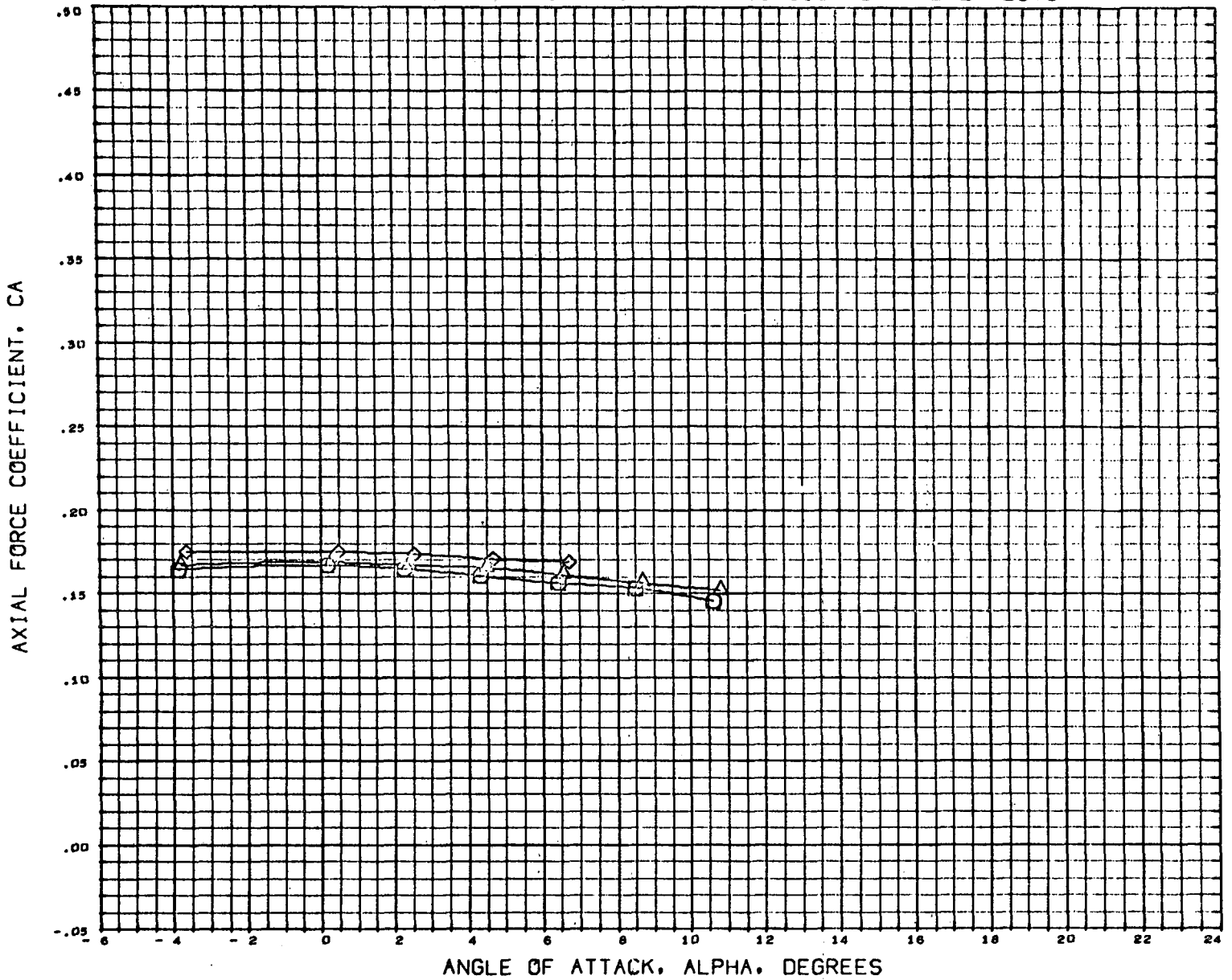
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRF 2.5950 FEET
						YMRF 0.0000 FEET
						ZMRF 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.003

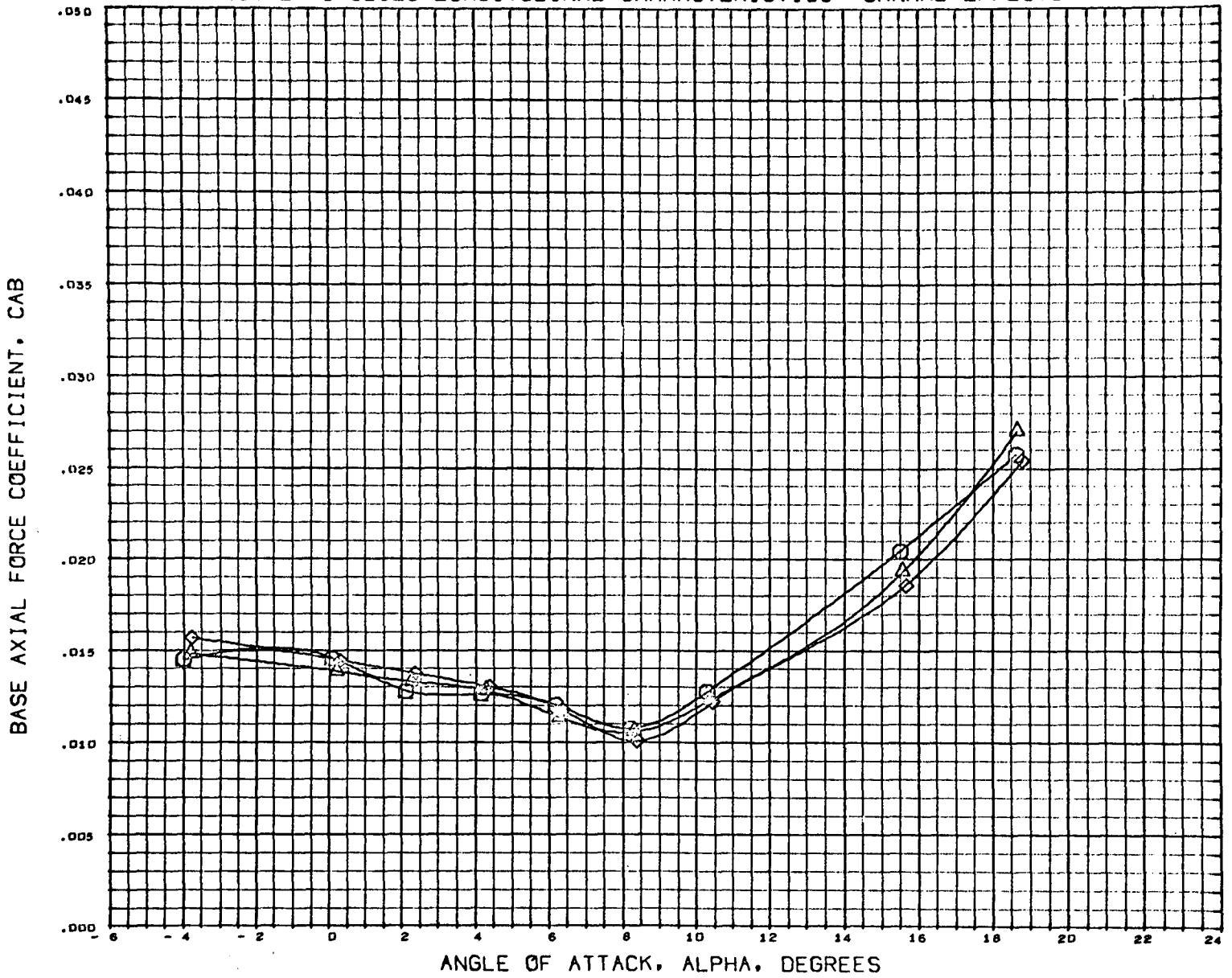
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

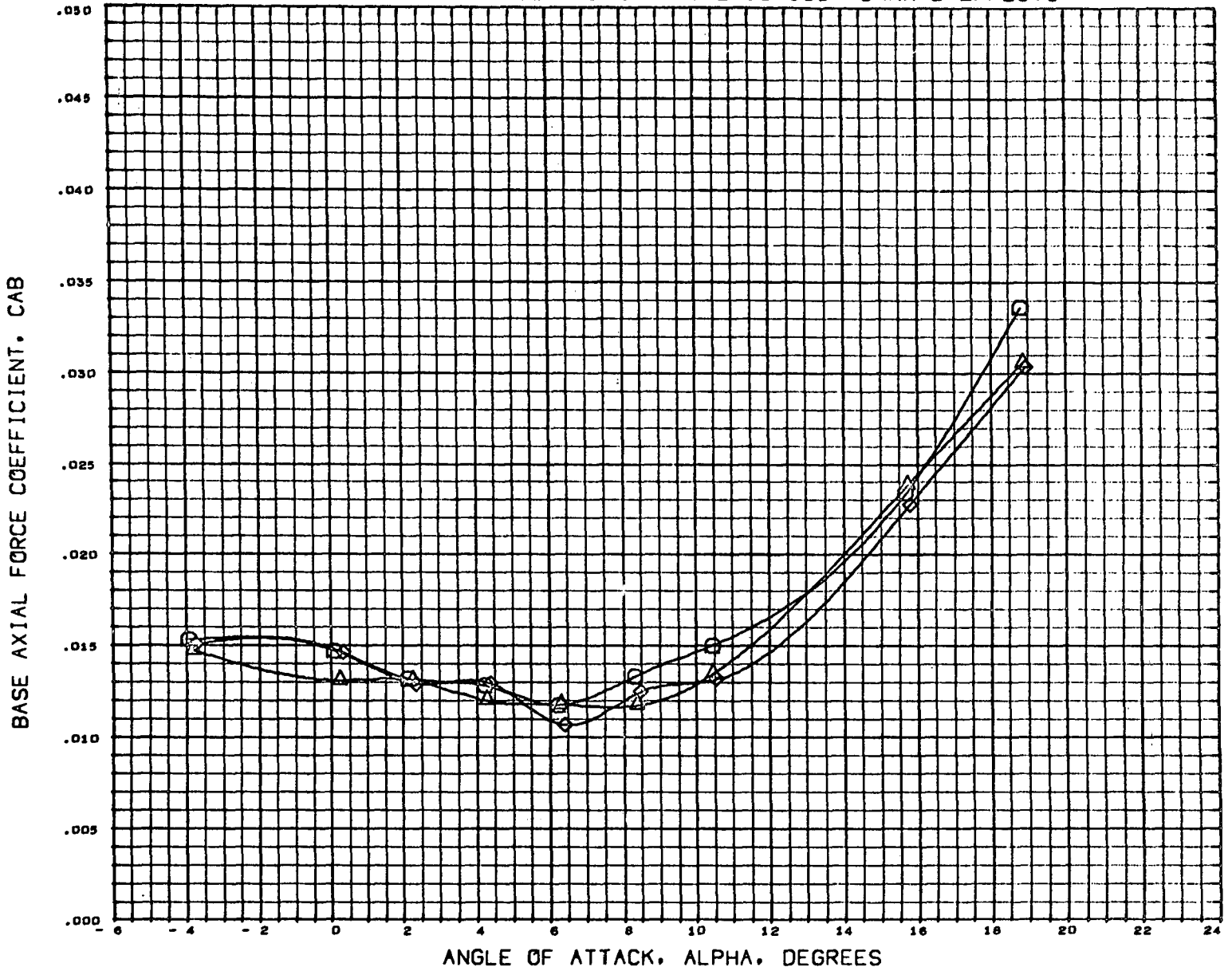
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.703

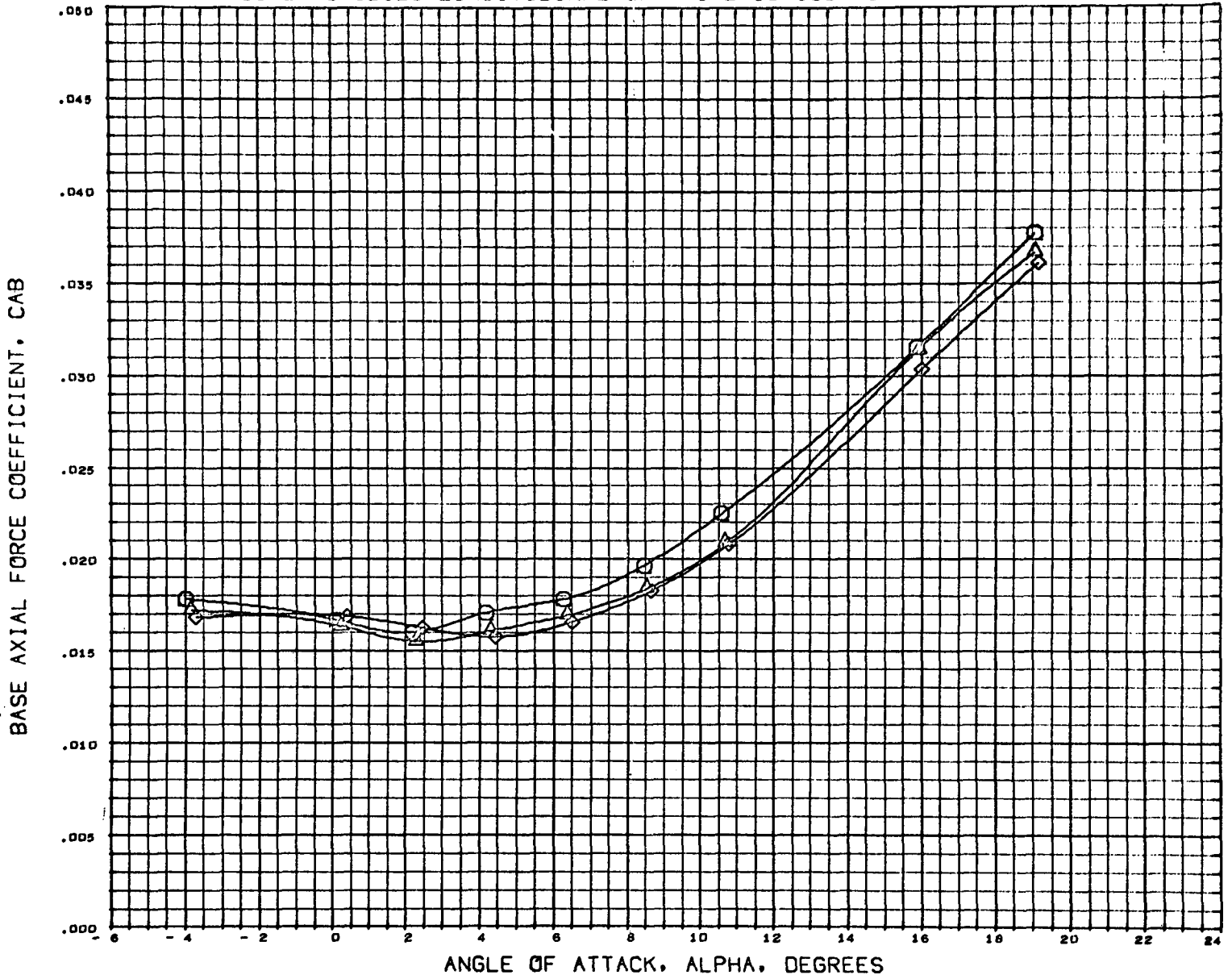
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

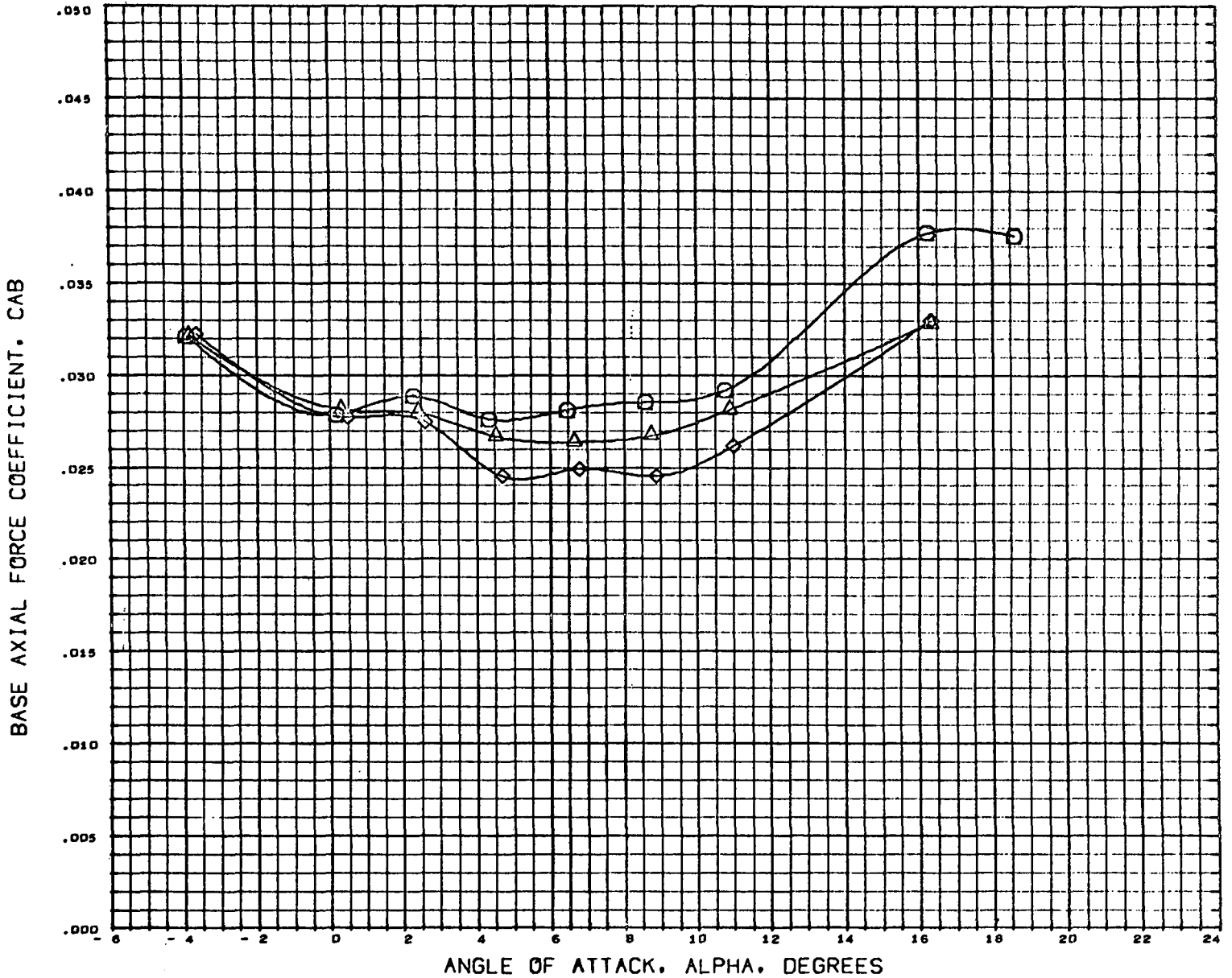
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.903

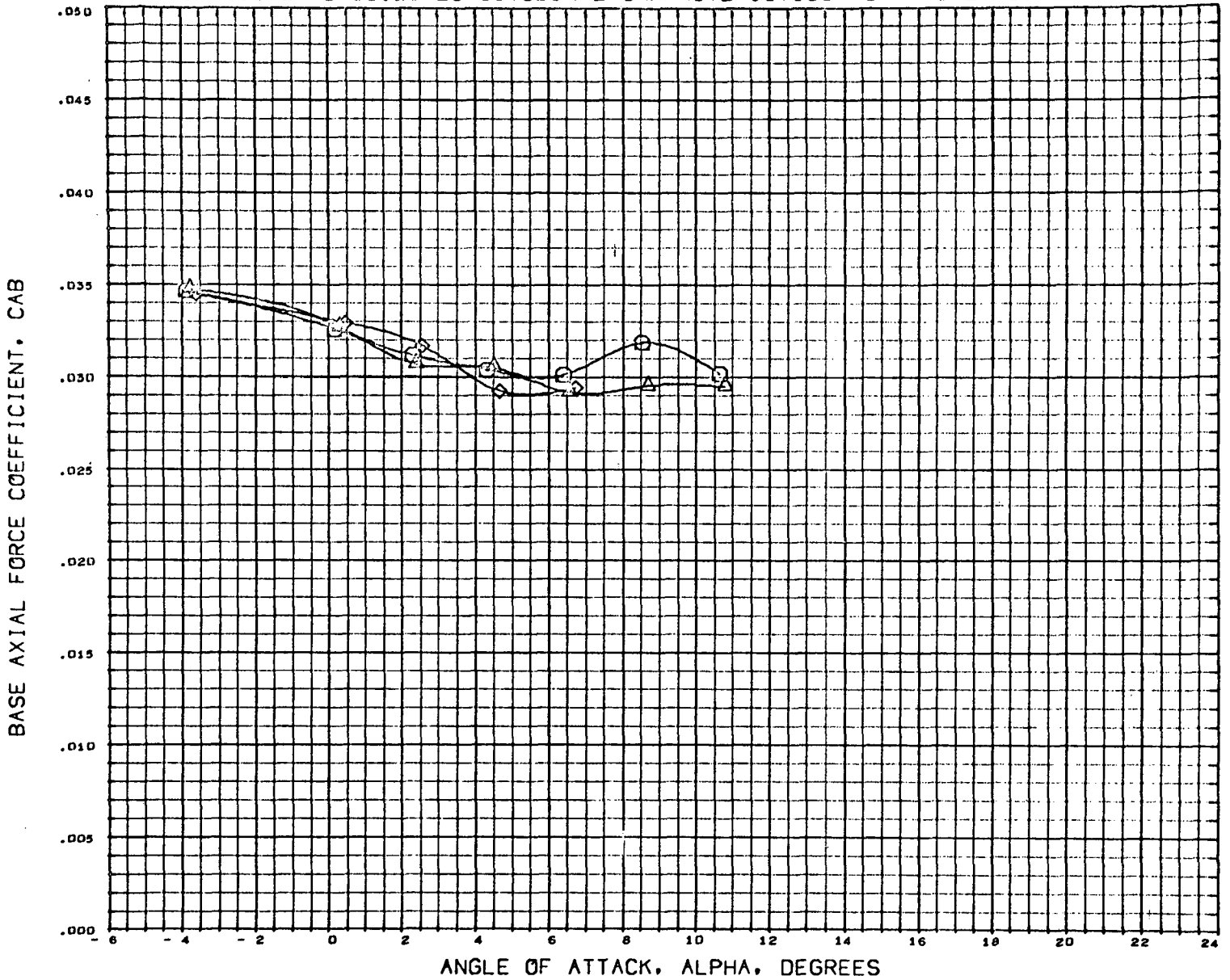
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	DREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 1.003

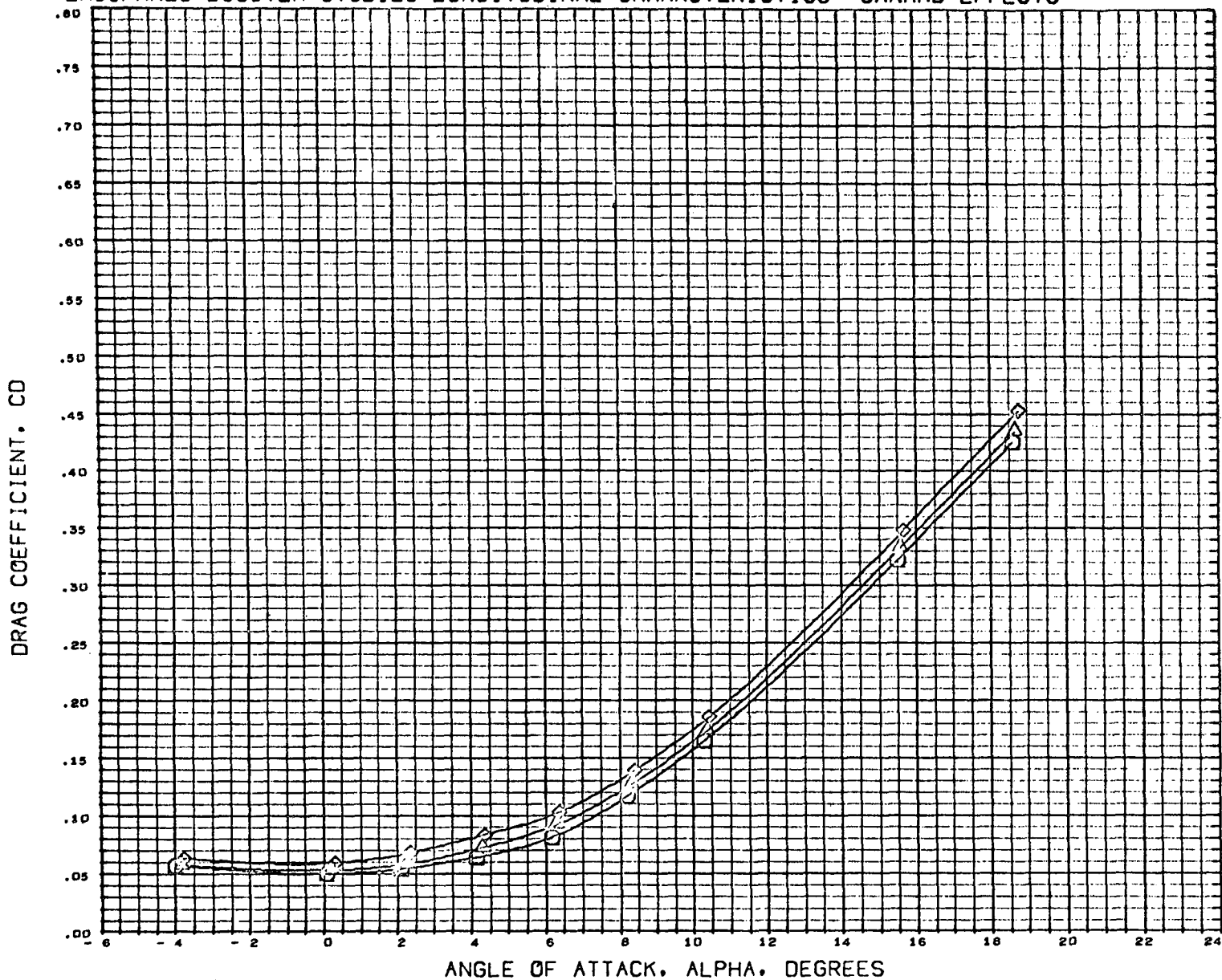
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	DREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.122

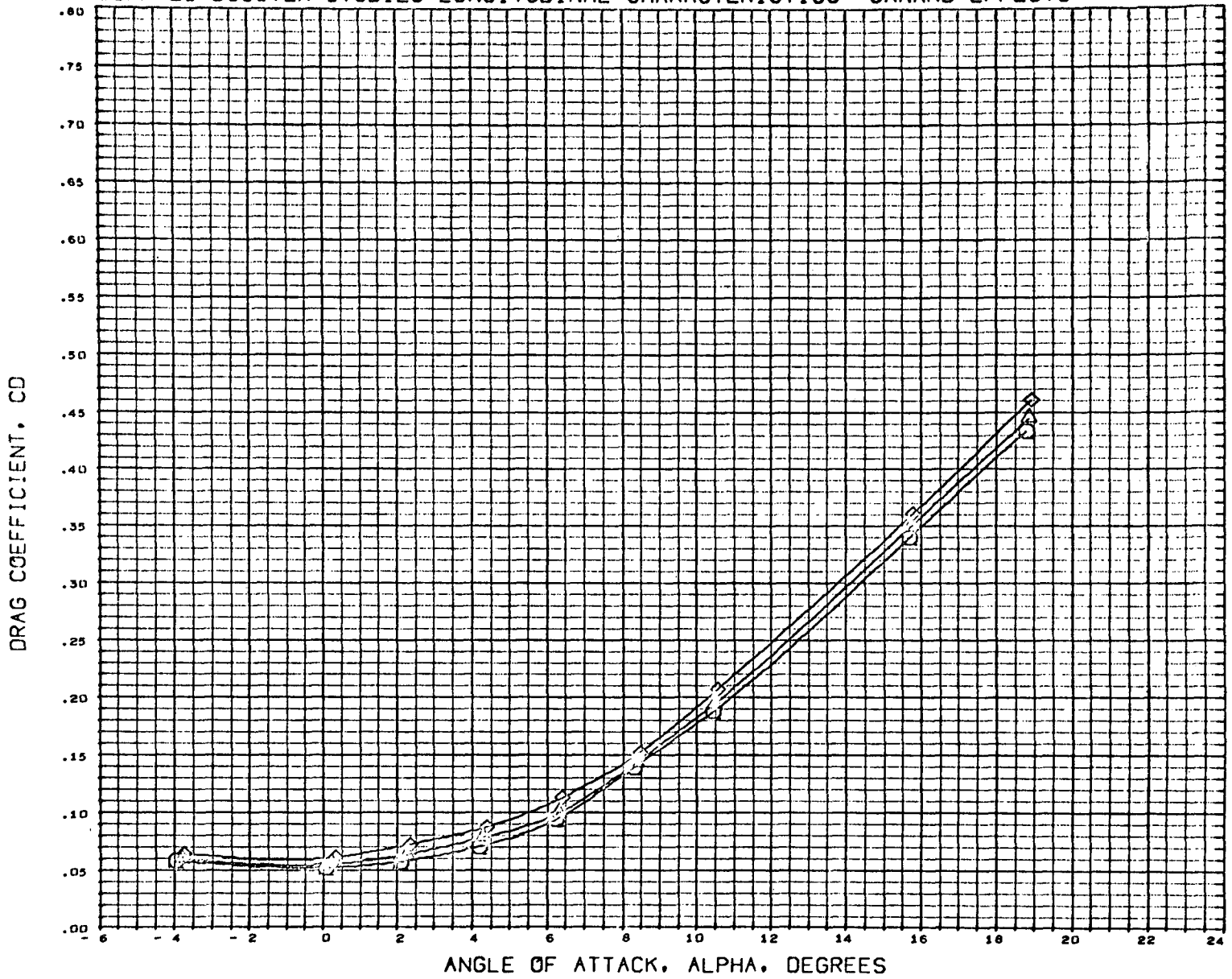
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	DREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.703

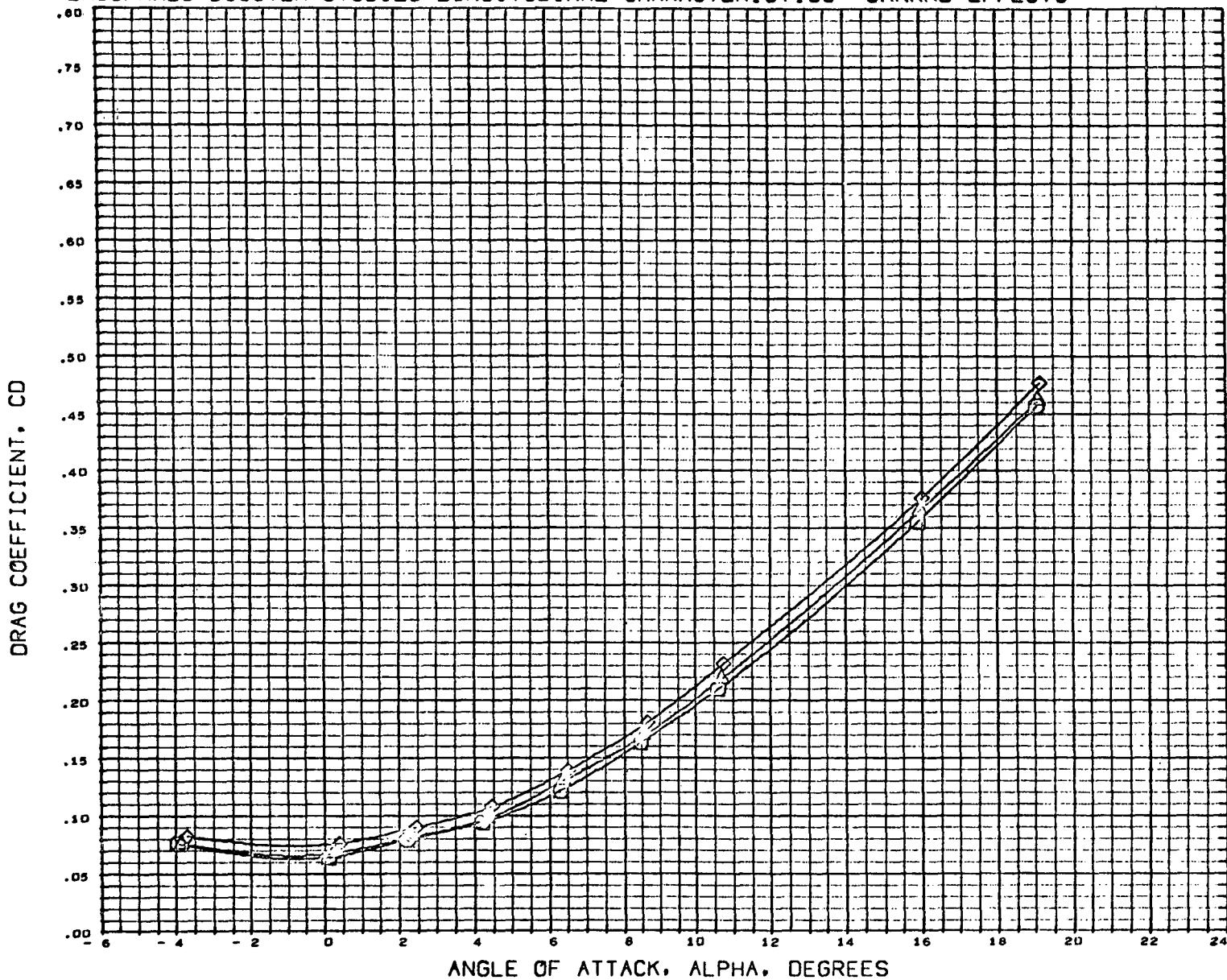
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.F.T.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 0.803

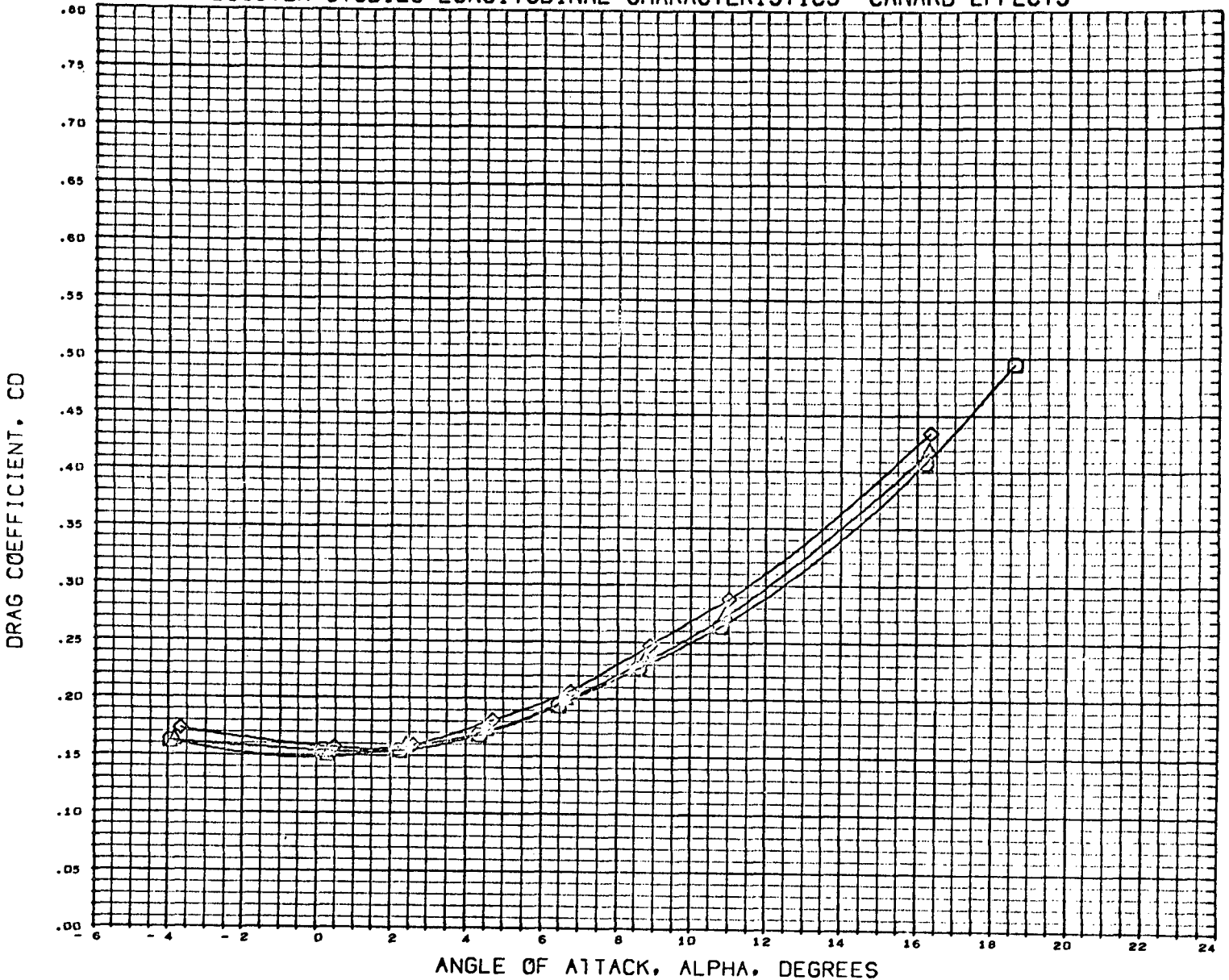
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

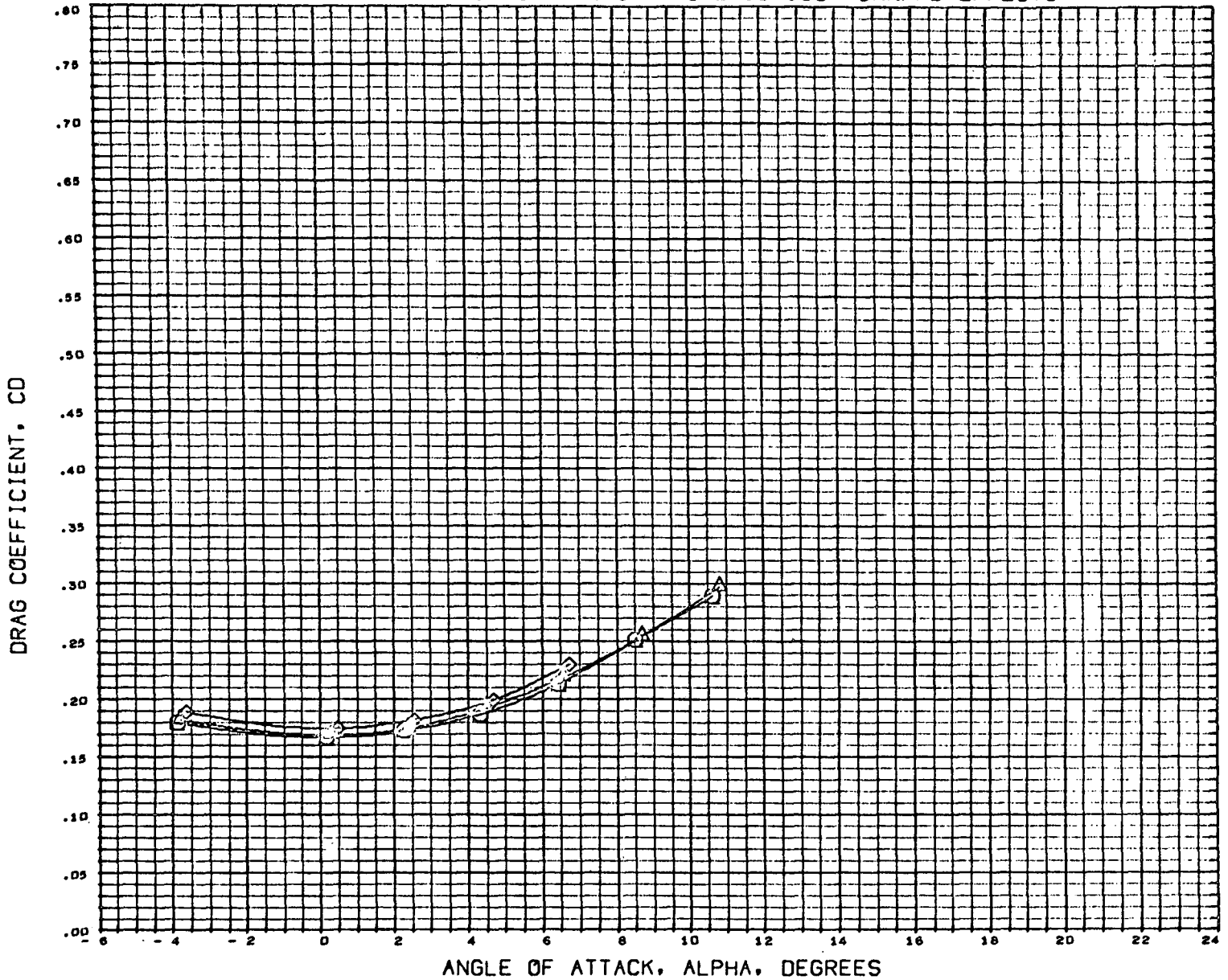
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

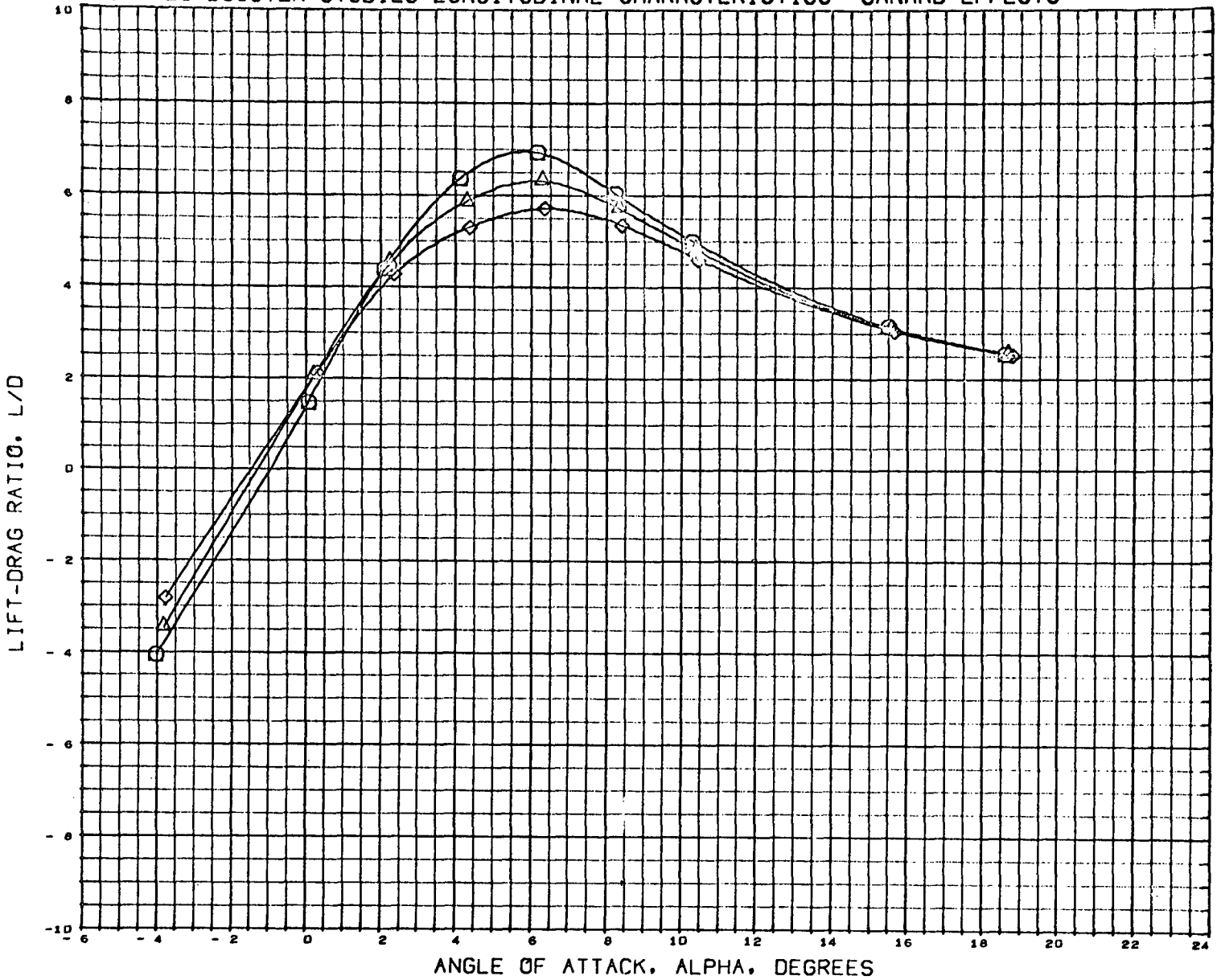
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOl	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

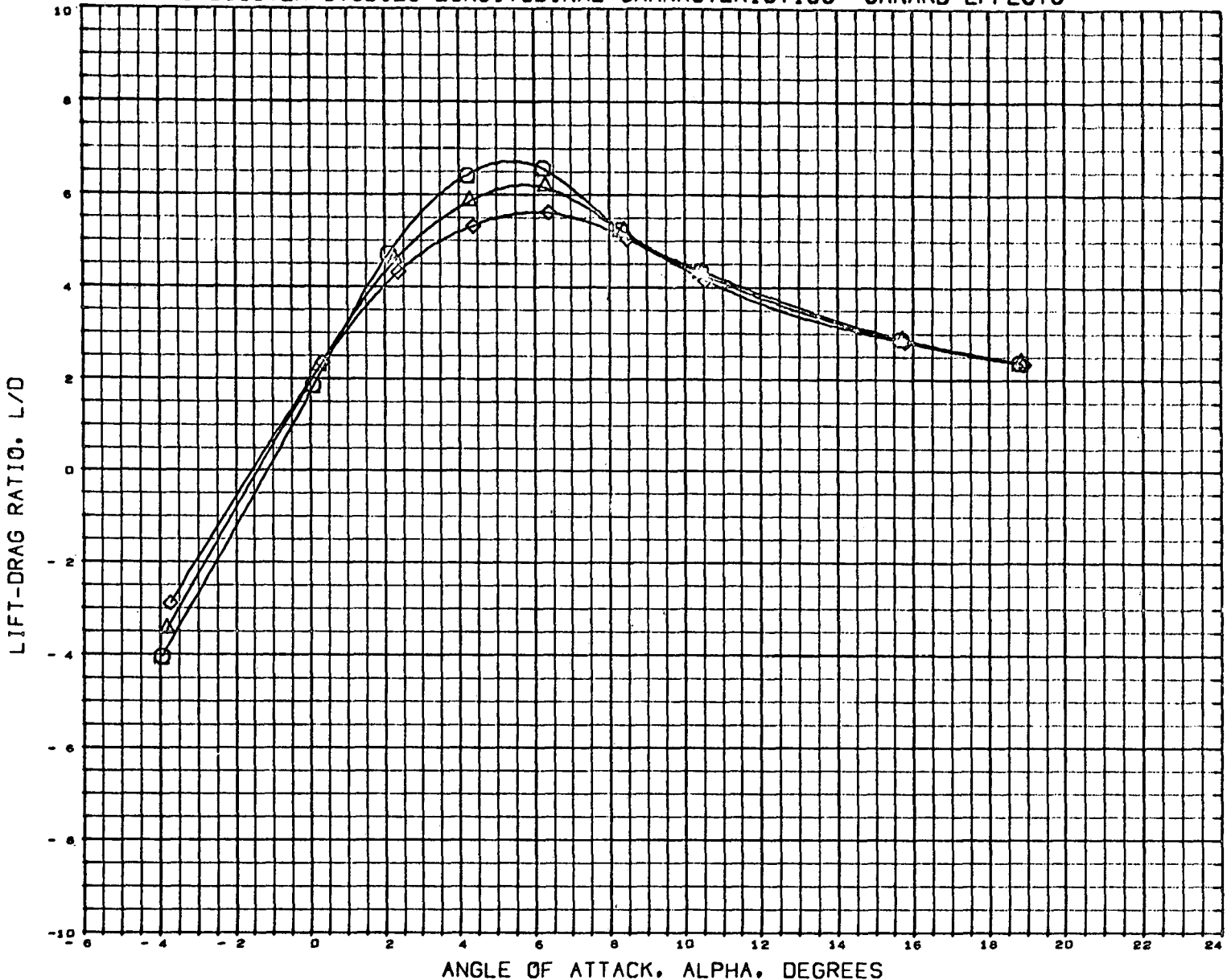
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.703

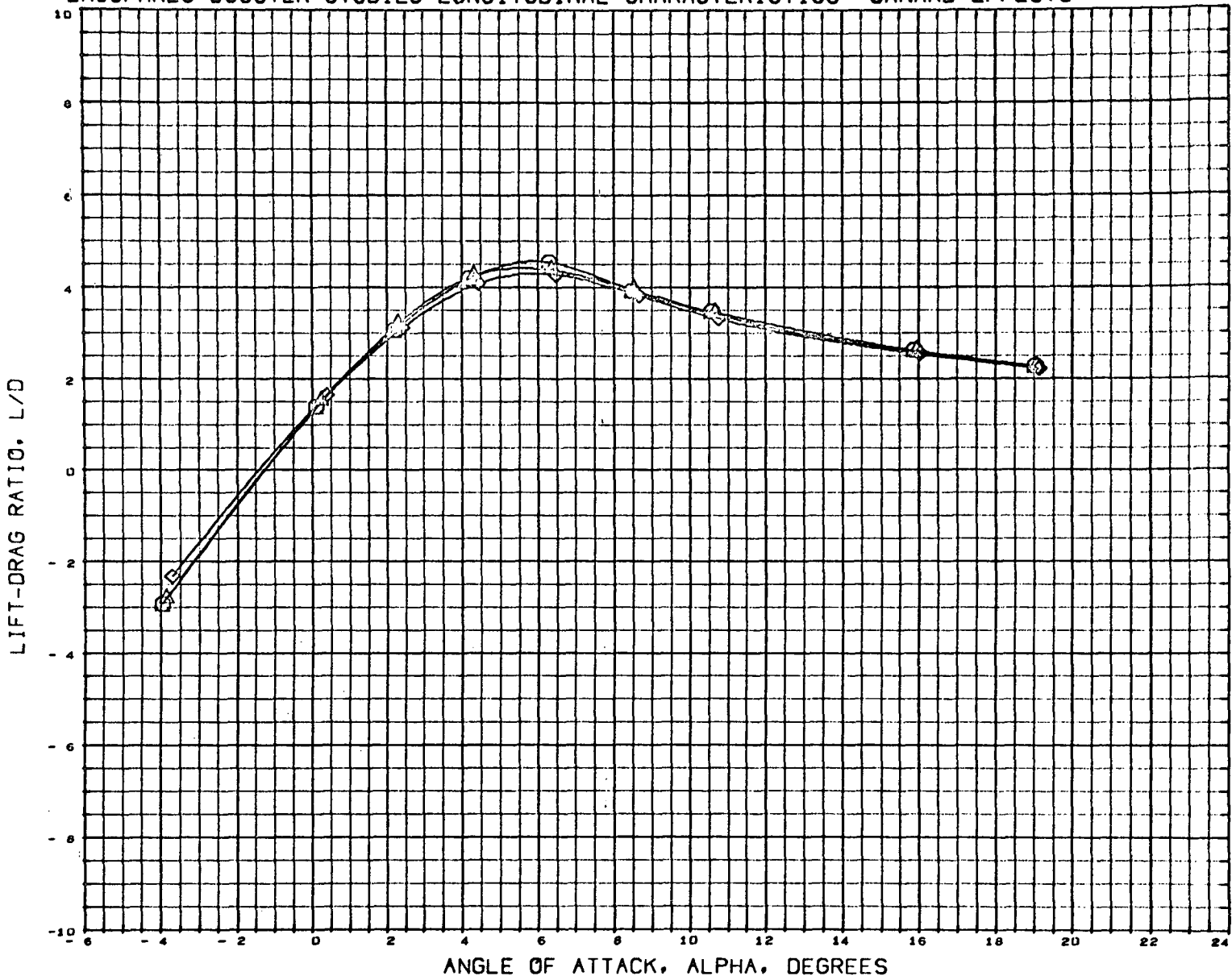
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

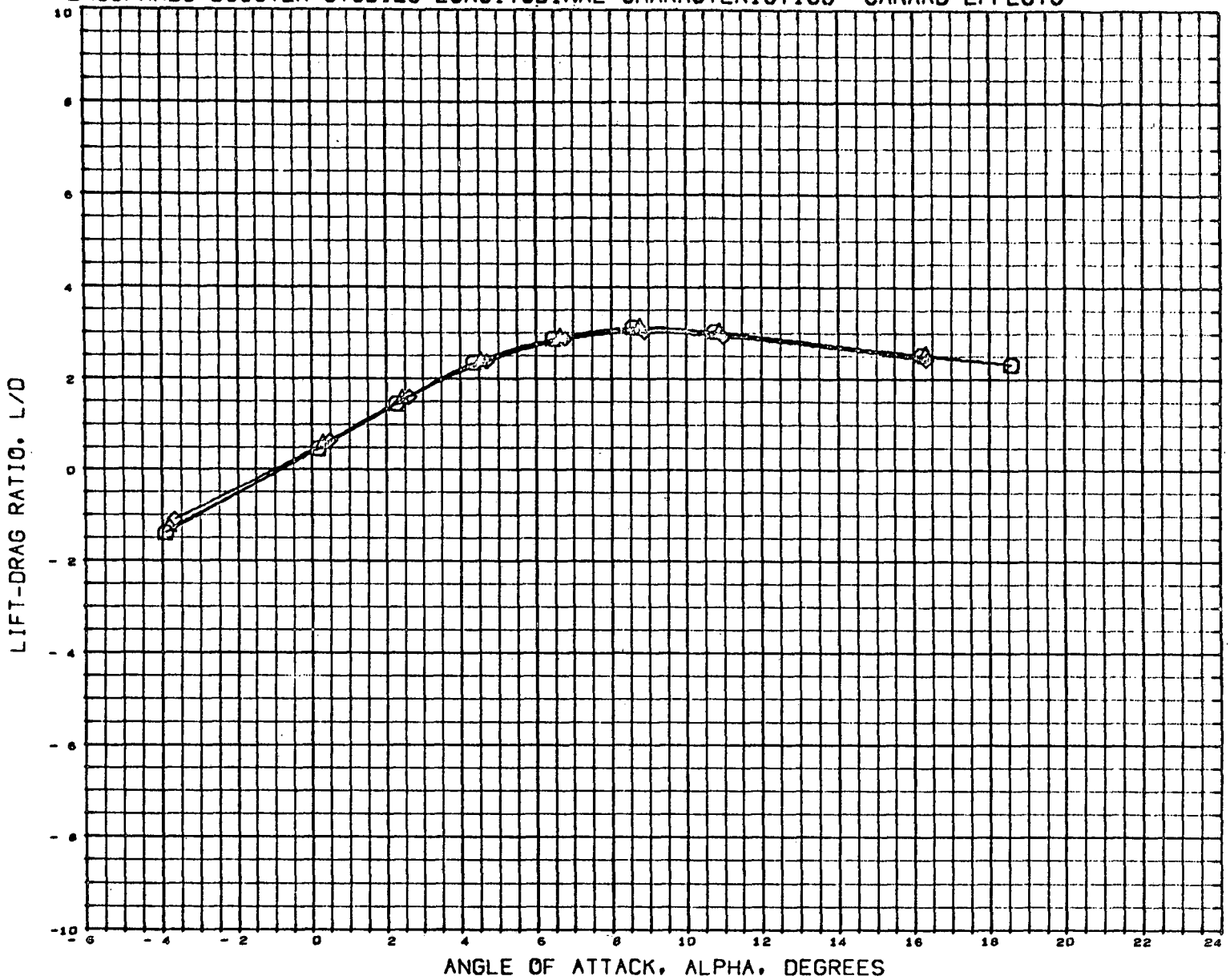
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LRCF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.903

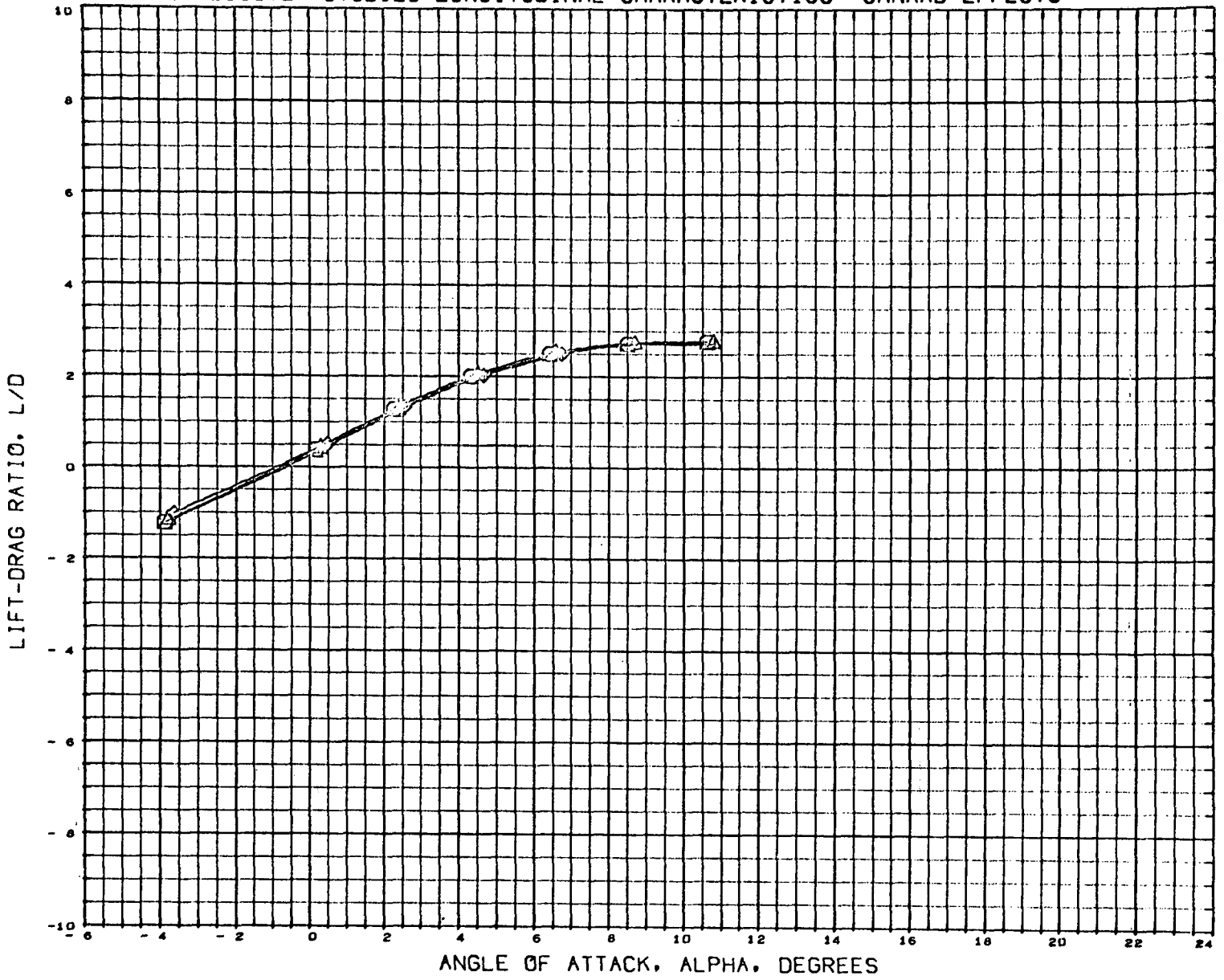
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.003

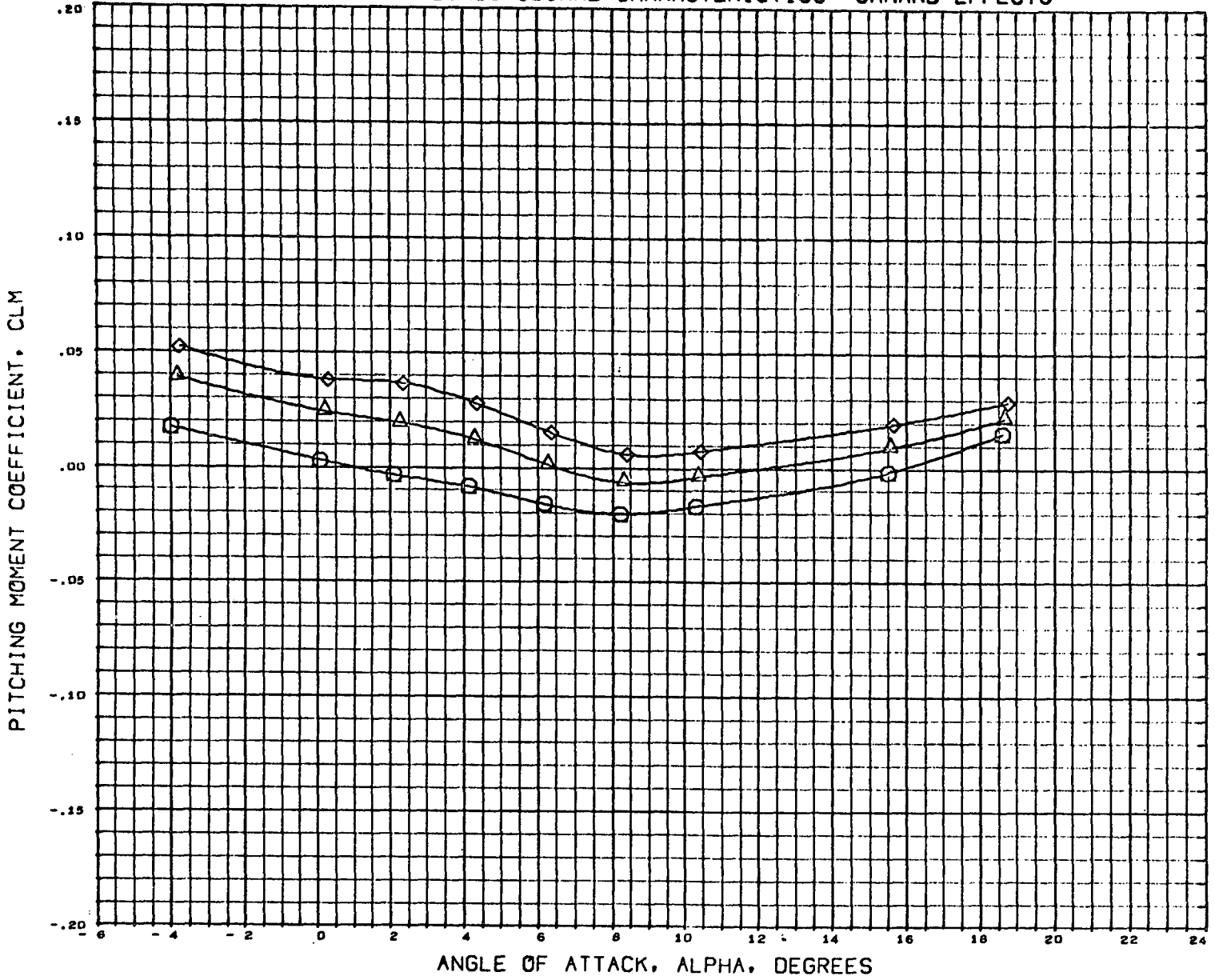
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

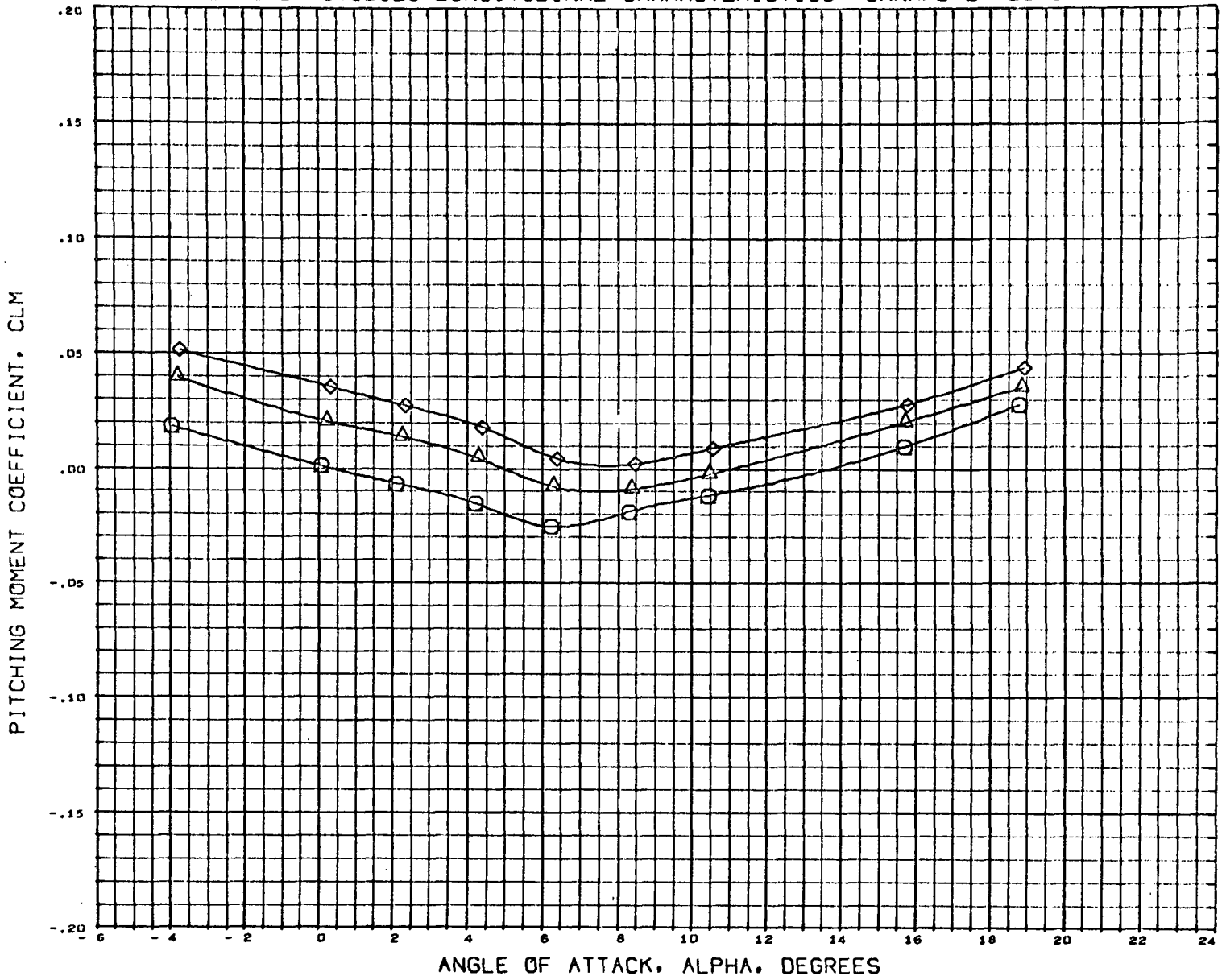
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.703

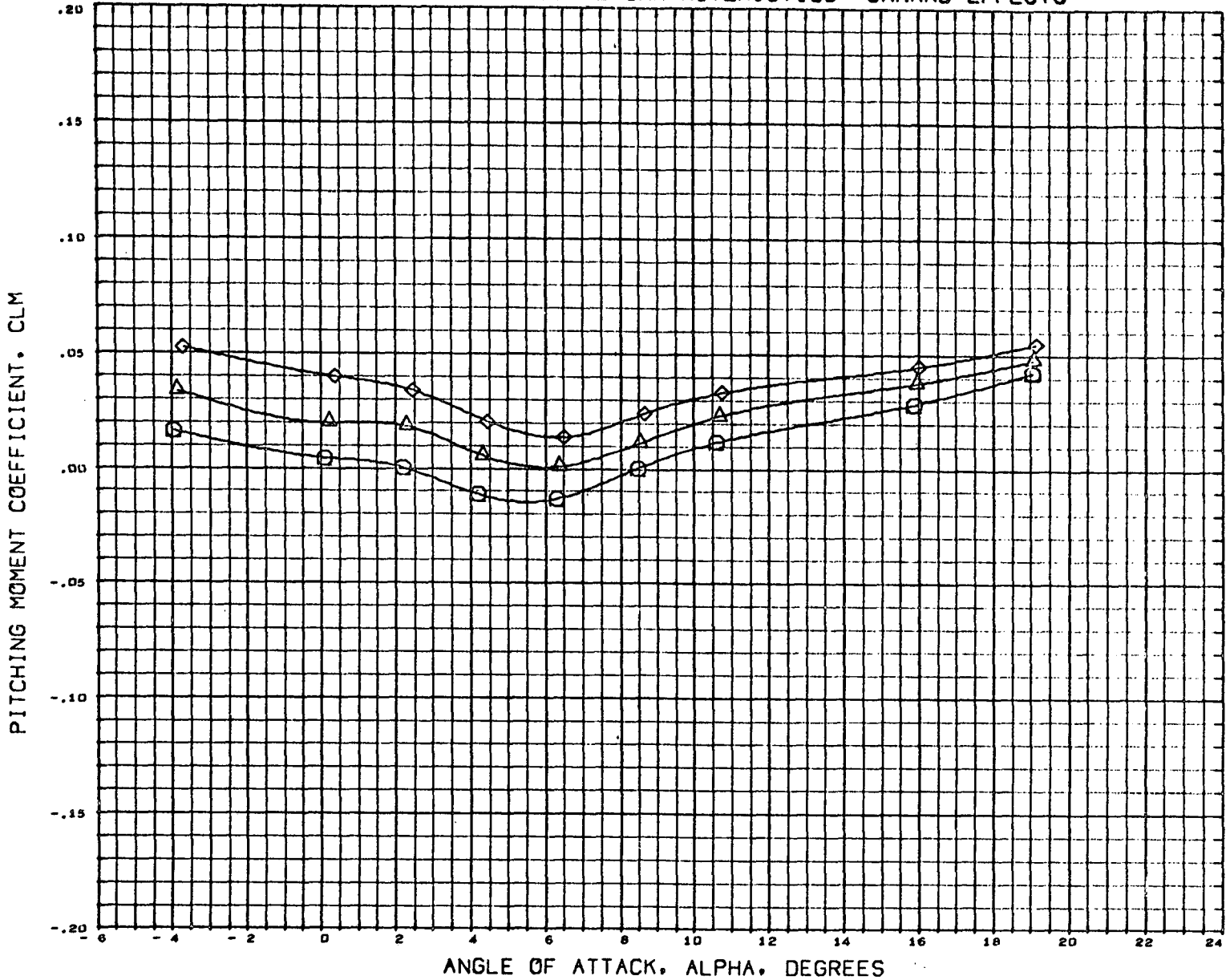
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOl	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.803

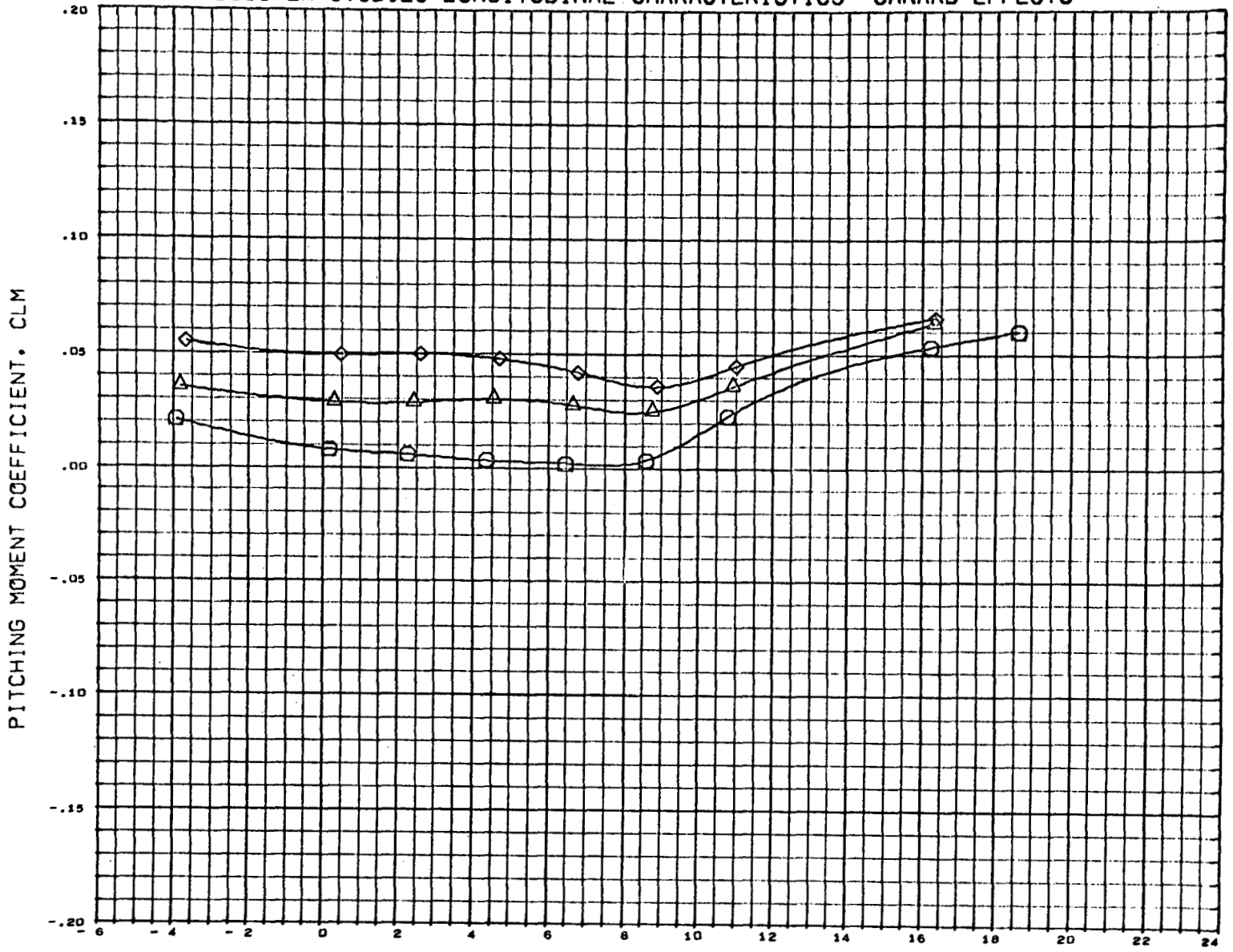
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3022)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

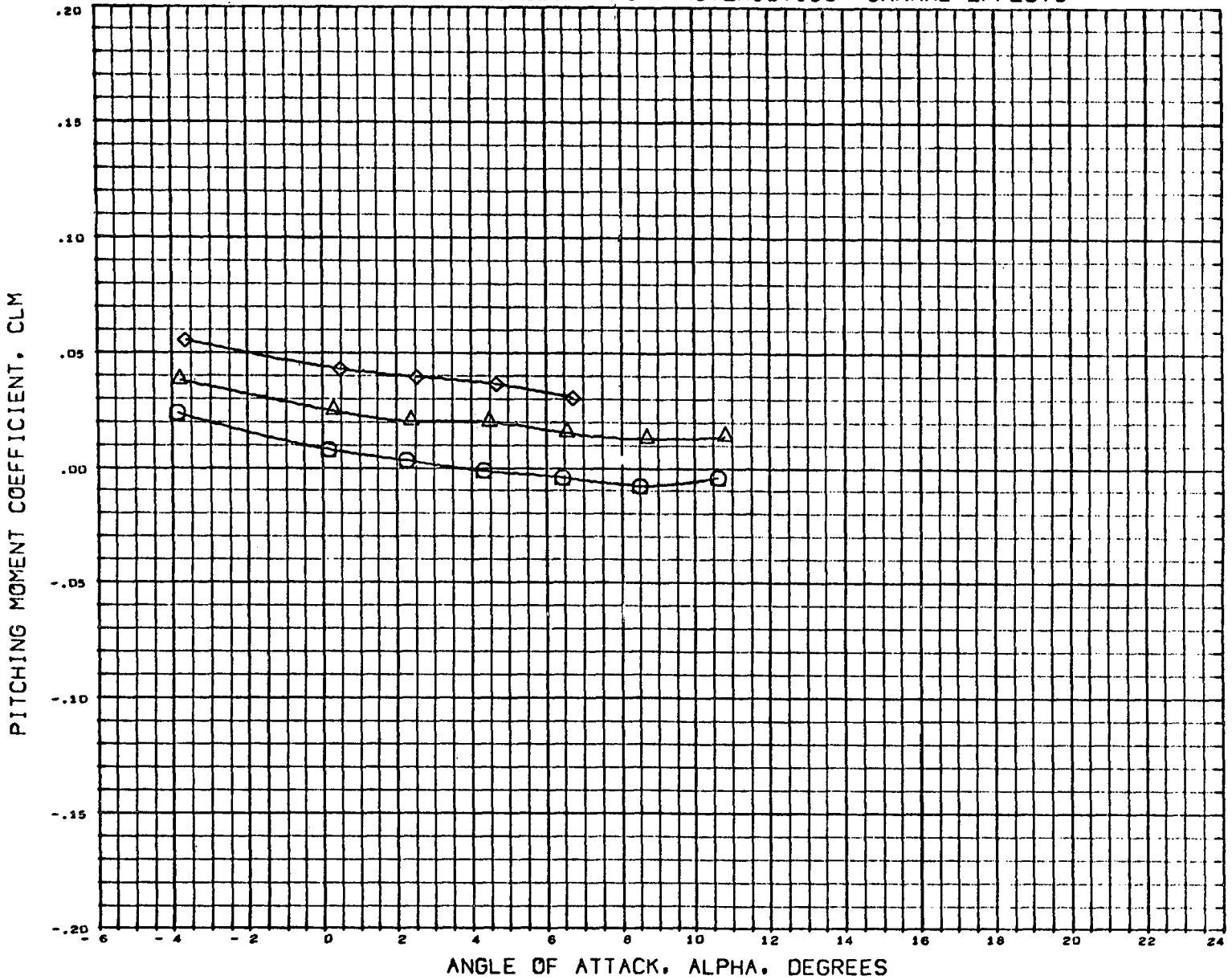


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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	DREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

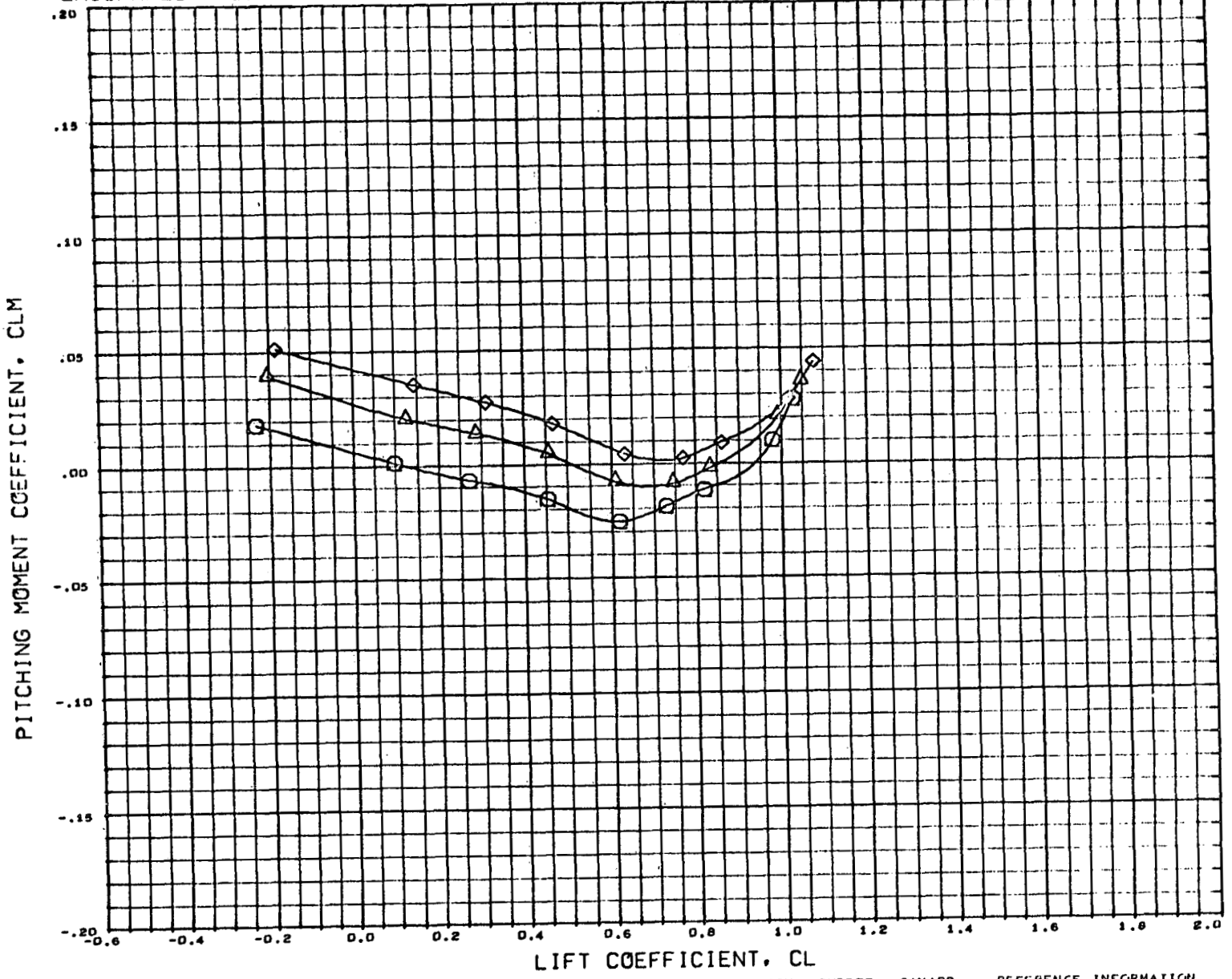


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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.703

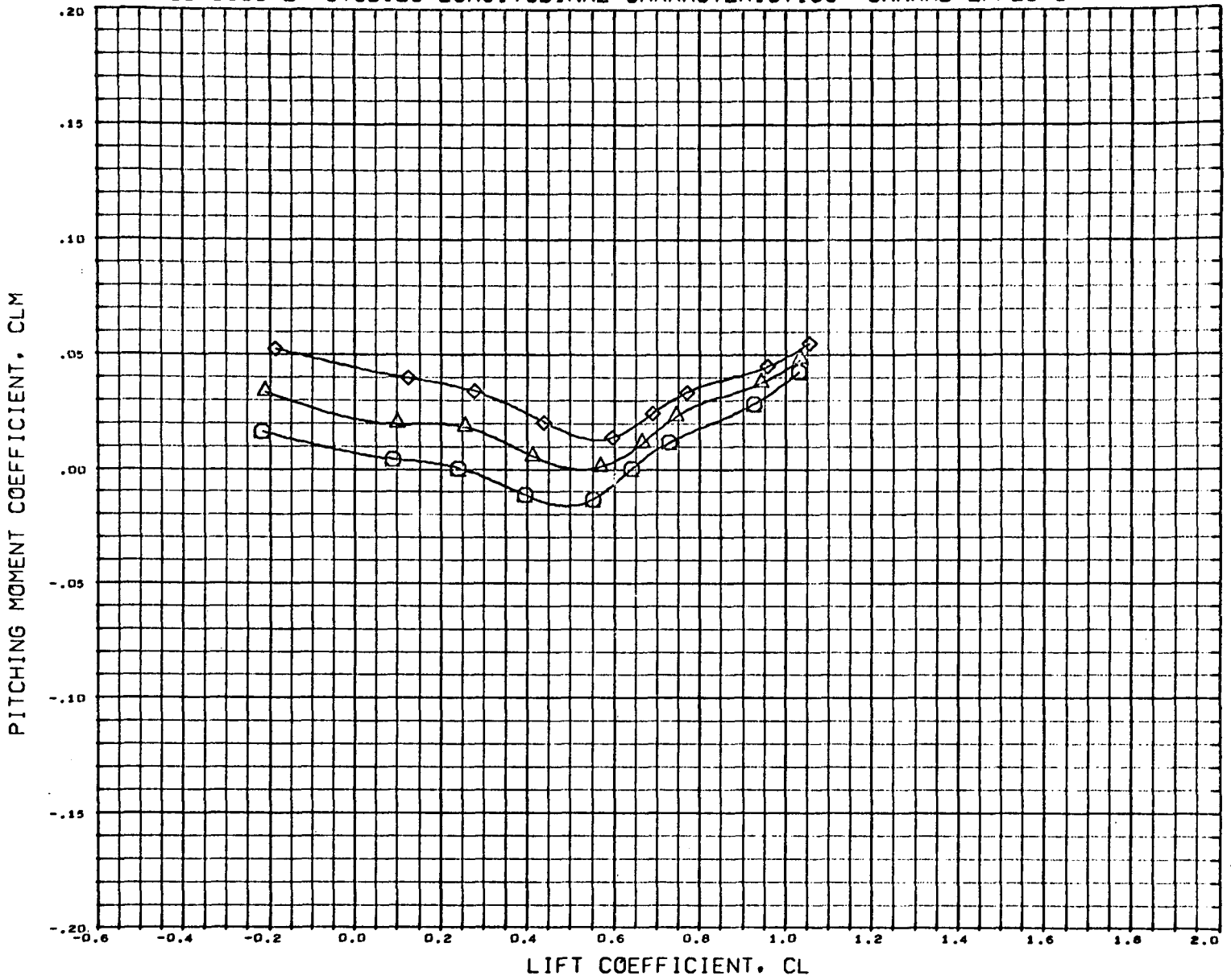
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBO	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN5033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

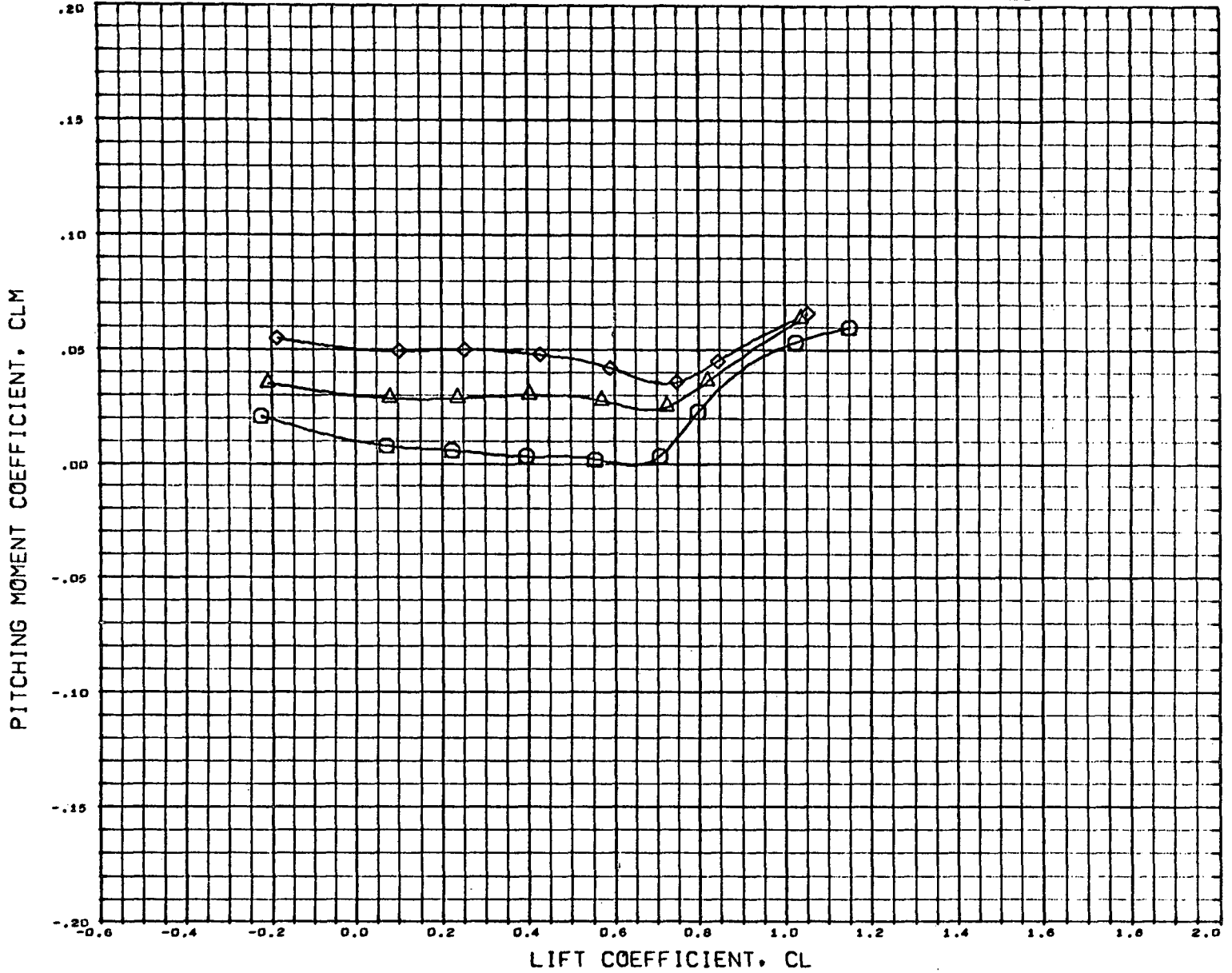
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

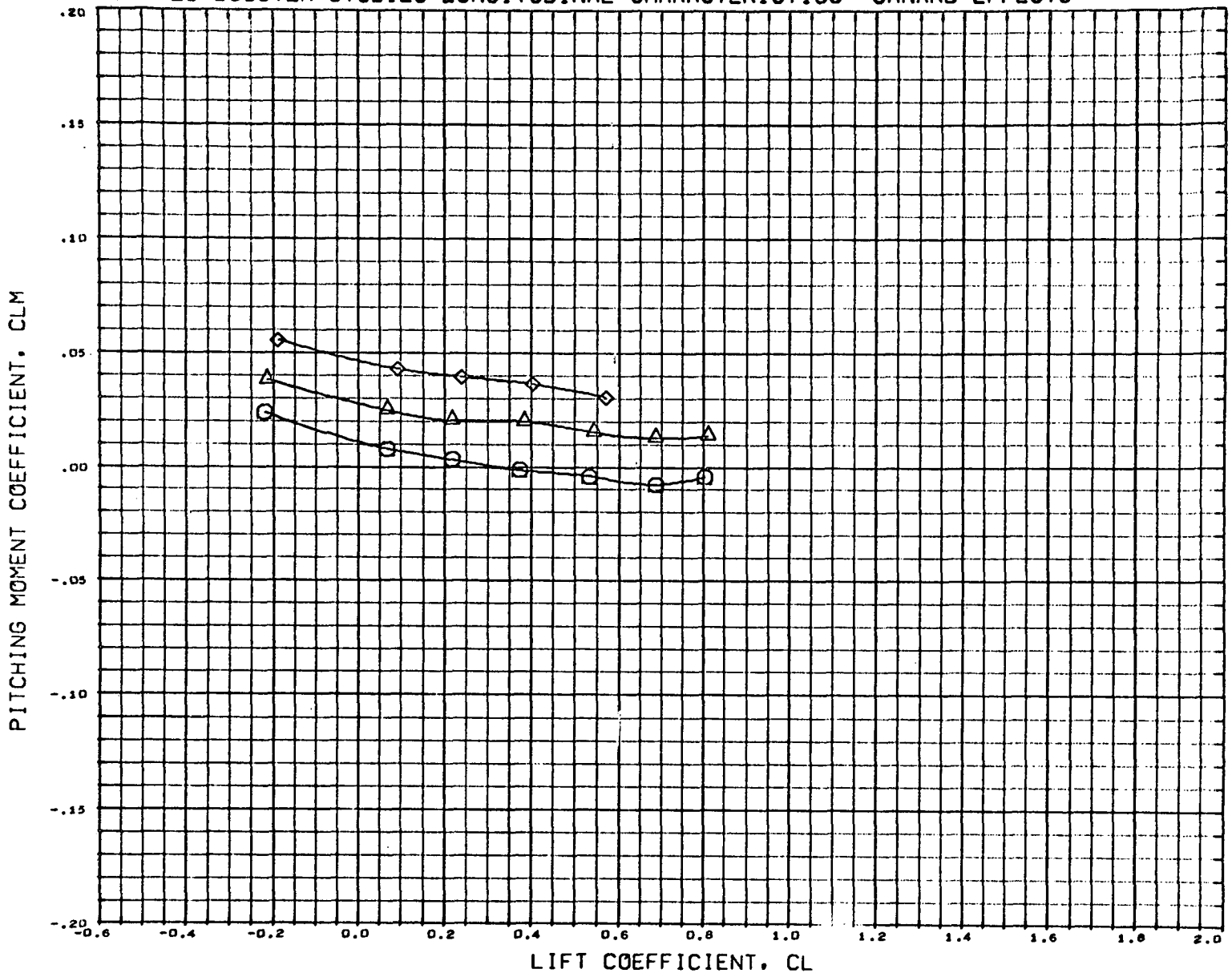
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.003

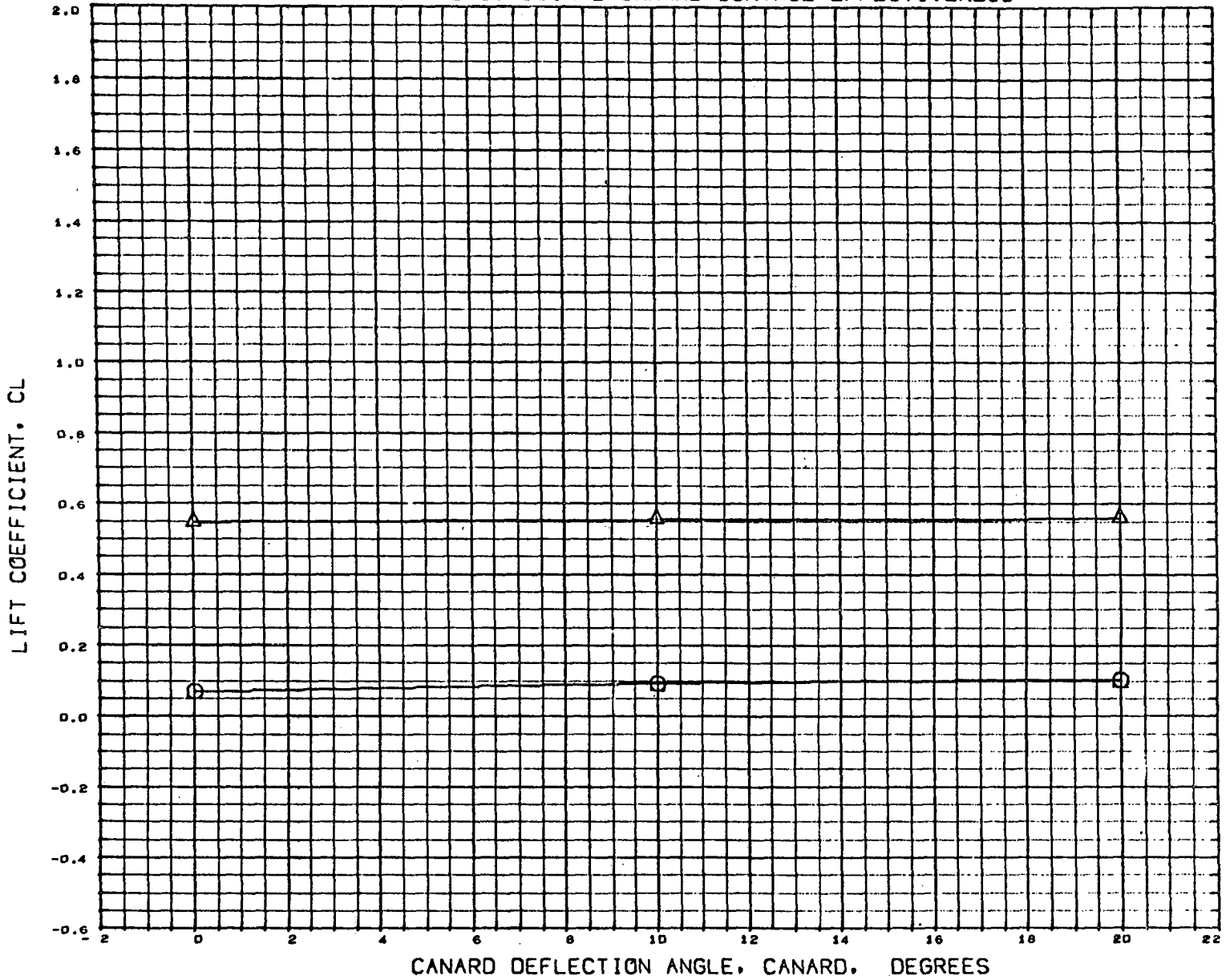
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

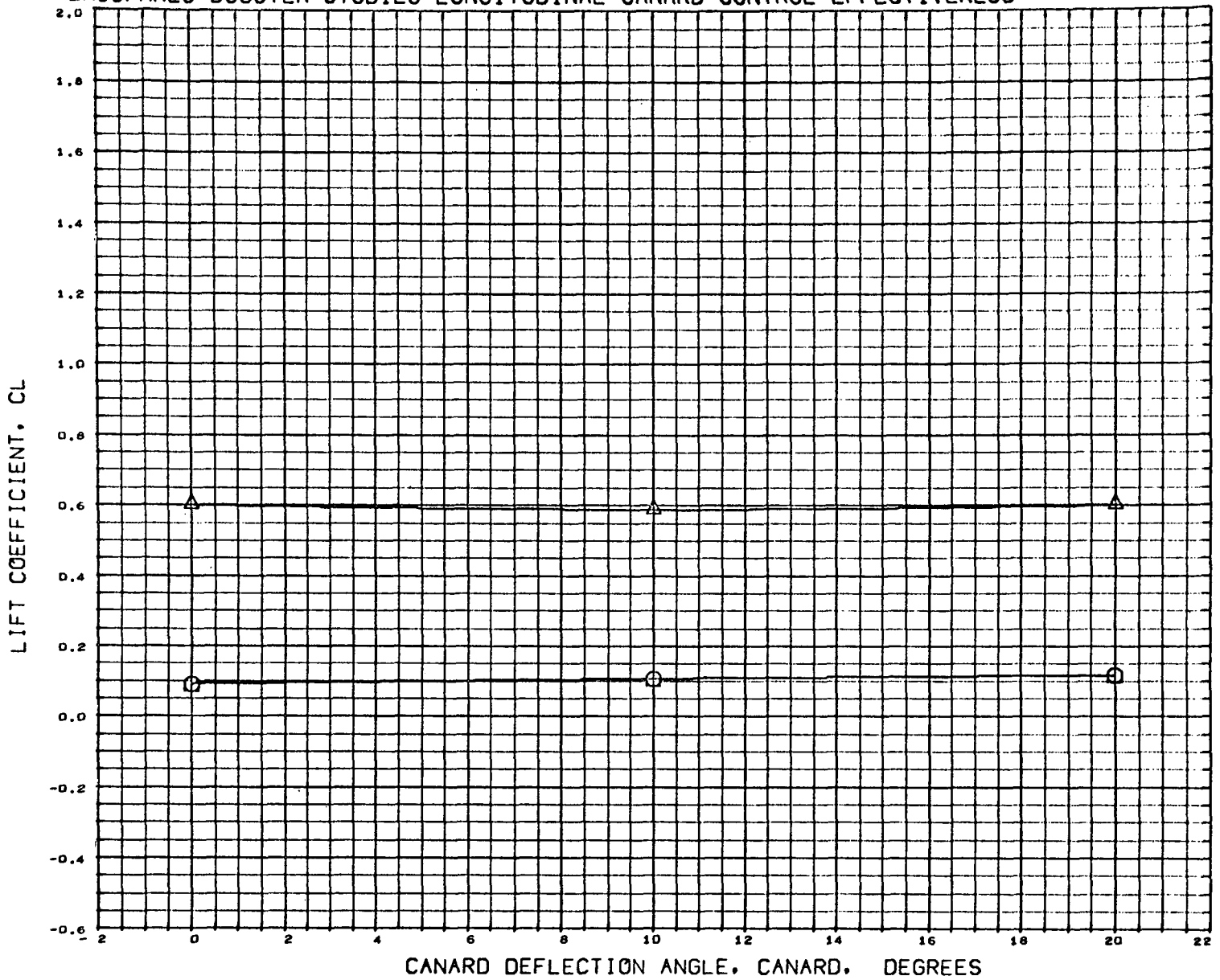
MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.700	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEEET
		M9FLOW	0.000	AIRCW	0.000	NN3033	20.000		BREF	3.4530	FEEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEEET
									ZMRP	0.0187	FEEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE	1								

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

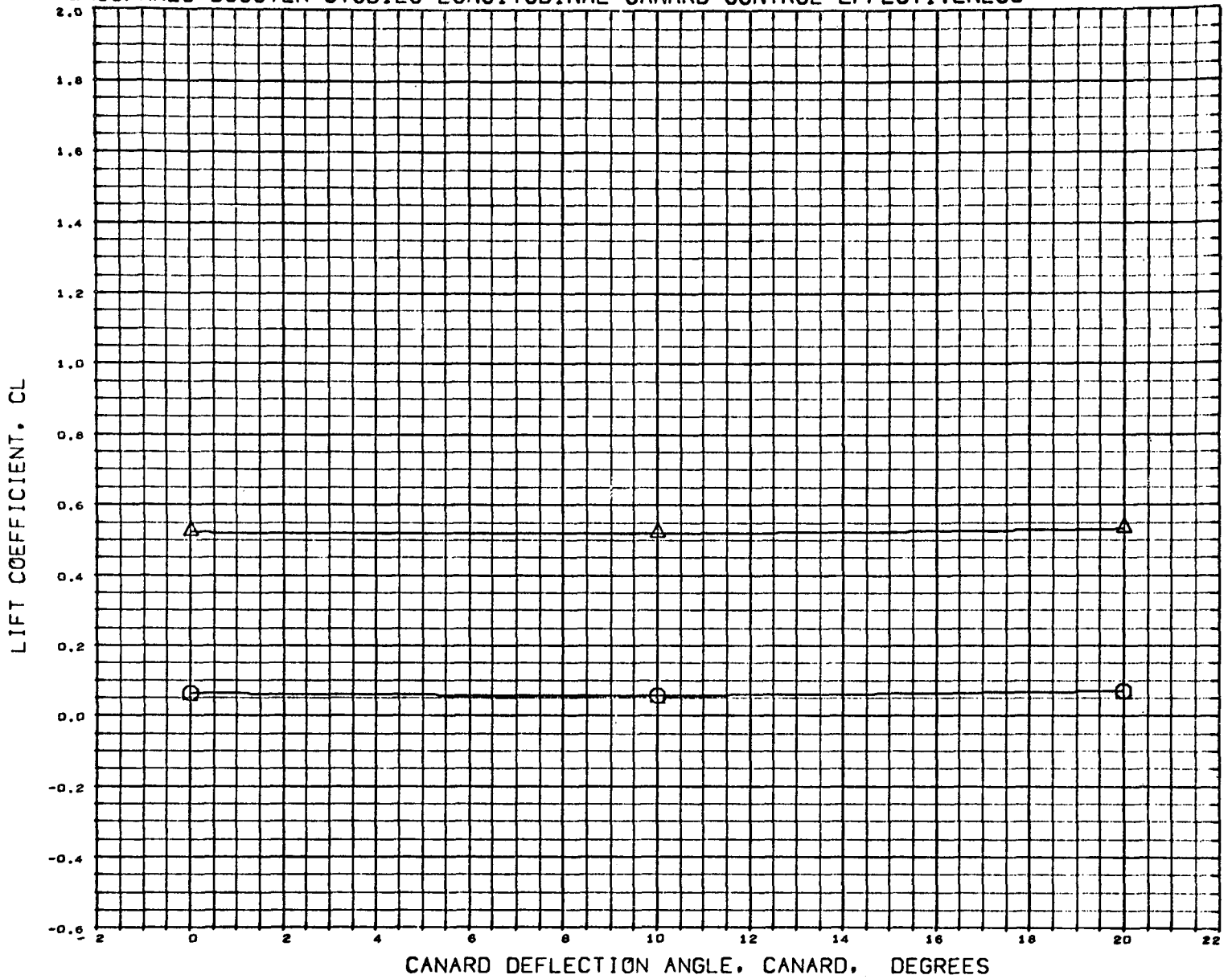
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.800	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



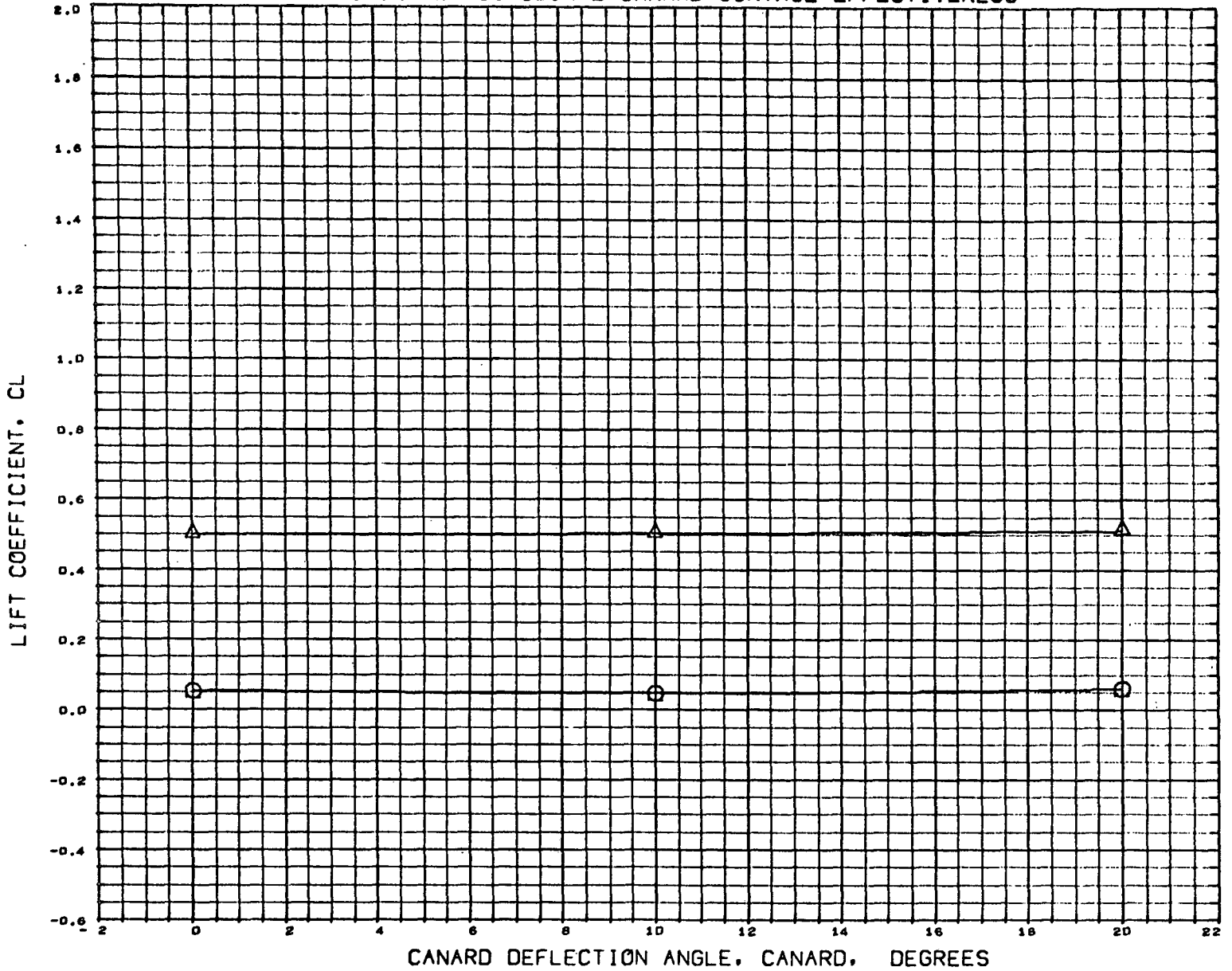
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.900	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AIRLON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



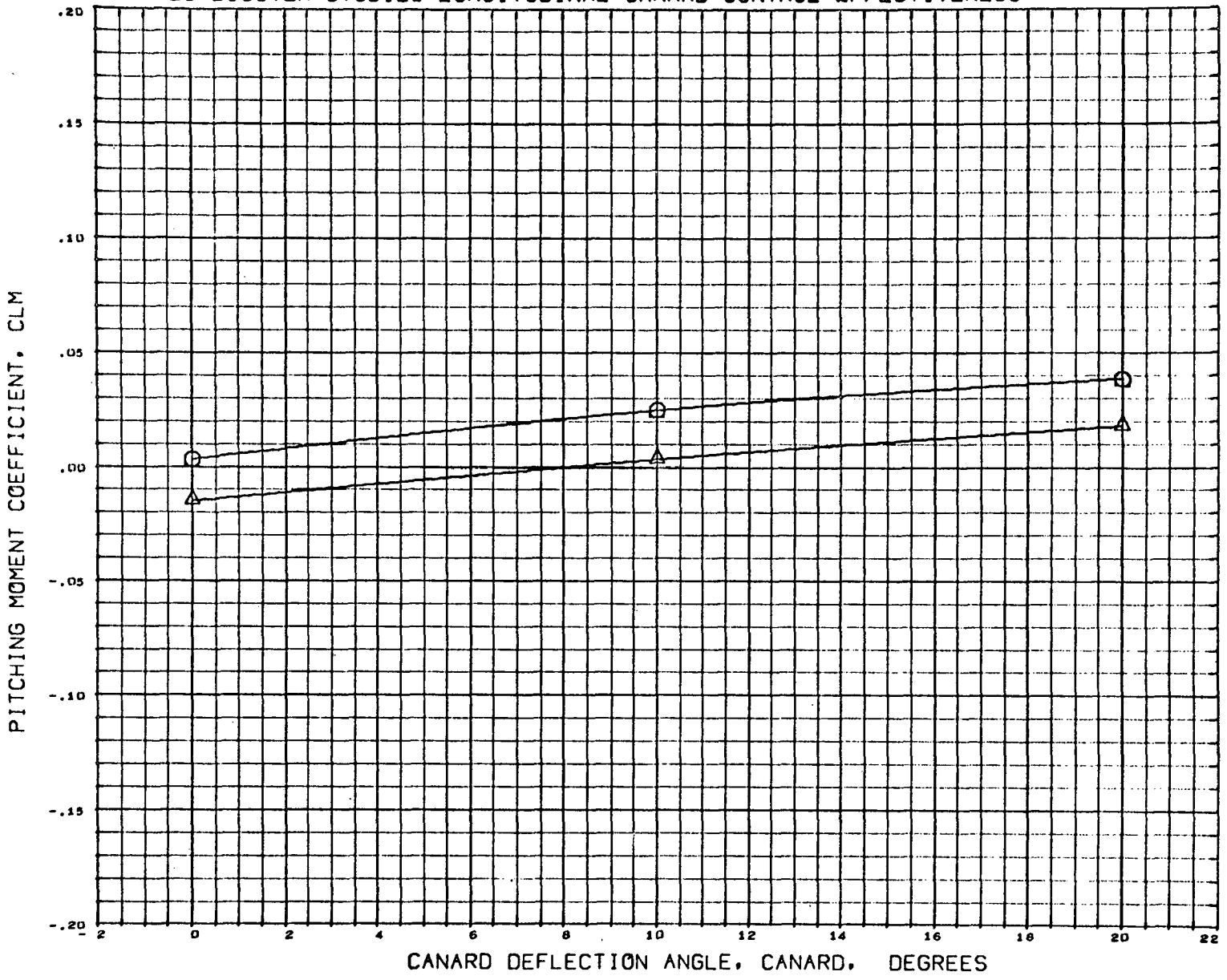
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	<u>MACH</u>	1.000	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	30.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



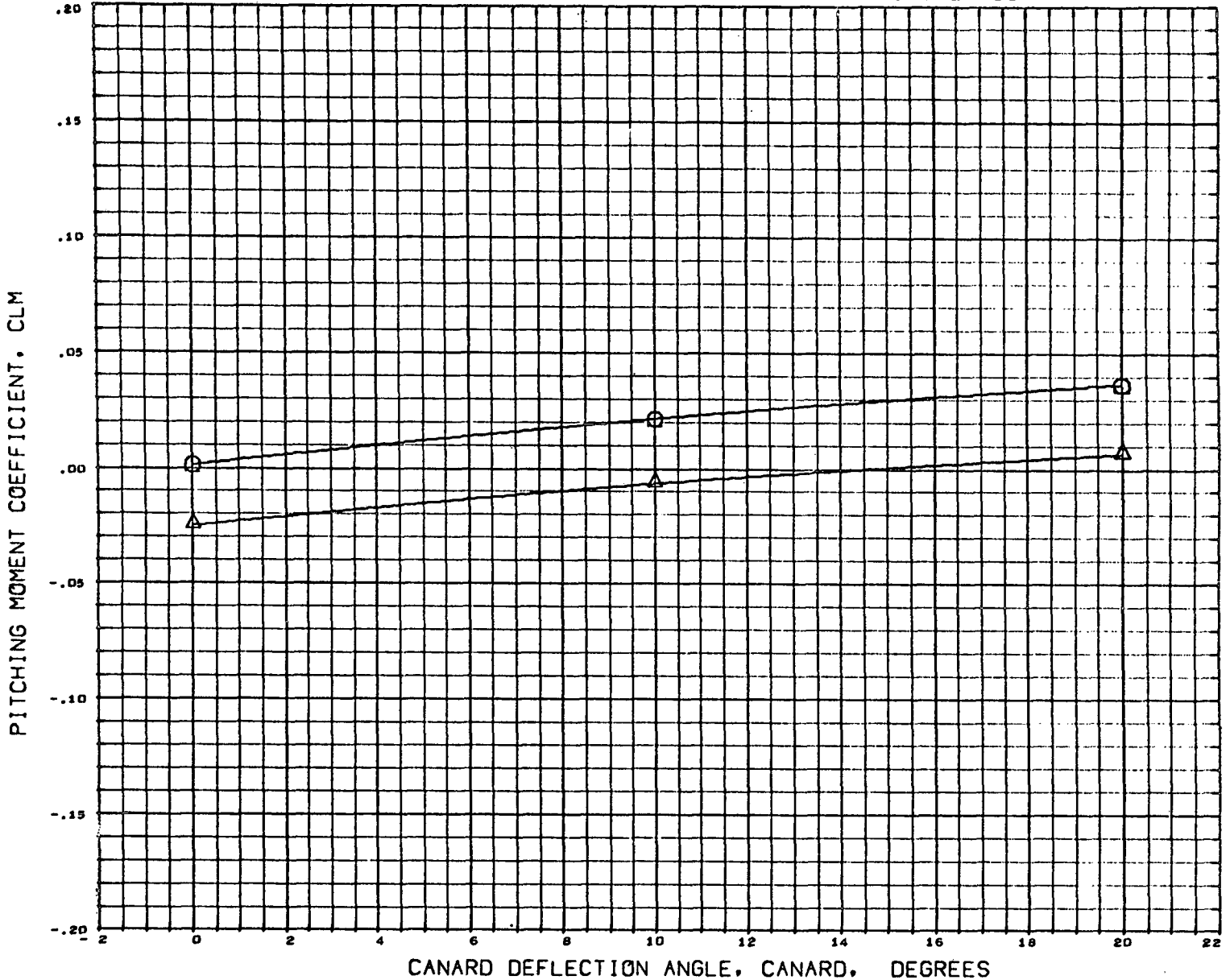
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.125	BETA	0.031	DATA SET	CANARD		SREF	1.3550	30.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	1						ZMRP	0.0107	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



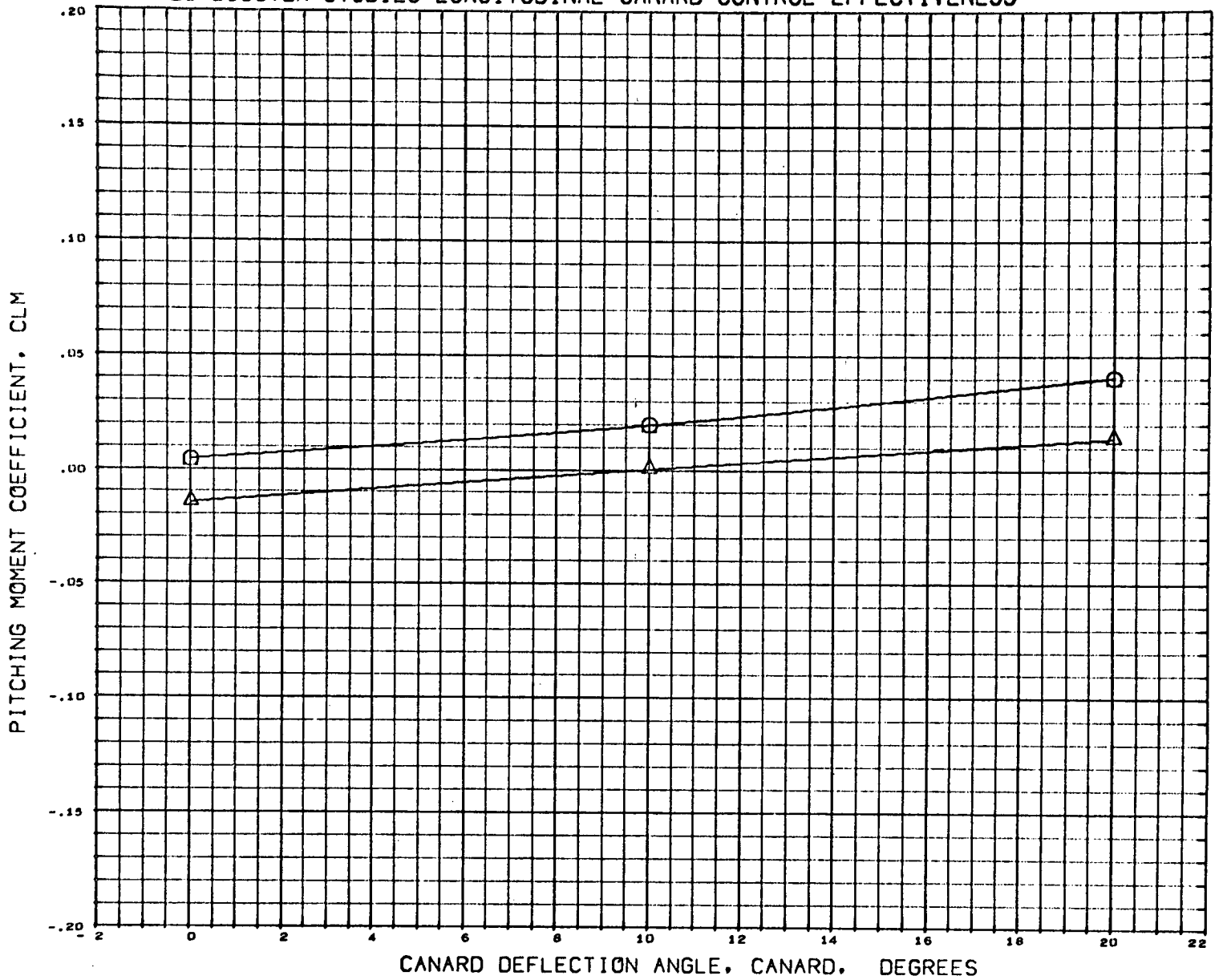
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
		MACH	BETA	INCIDC	INCIDW	DATASET	CANARD	DATASET	CANARD	SREF	SCALE	UNIT
○	0.000	0.700	0.031	3.000	0.000	NN3001	0.000	NN3021	10.000	1.3550	0.0150	SQ. FT.
△	6.000	0.700	0.031	3.000	0.000	NN3033	20.000			3.4530		FEET
		MSFLOW		AILRON						3.4530		FEET
		ELEVTR		RUDDER						2.5950		FEET
		WINGPOS		CNDPOS						0.0000		FEET
		DATA HIST. CODE								0.0187		FEET
												SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



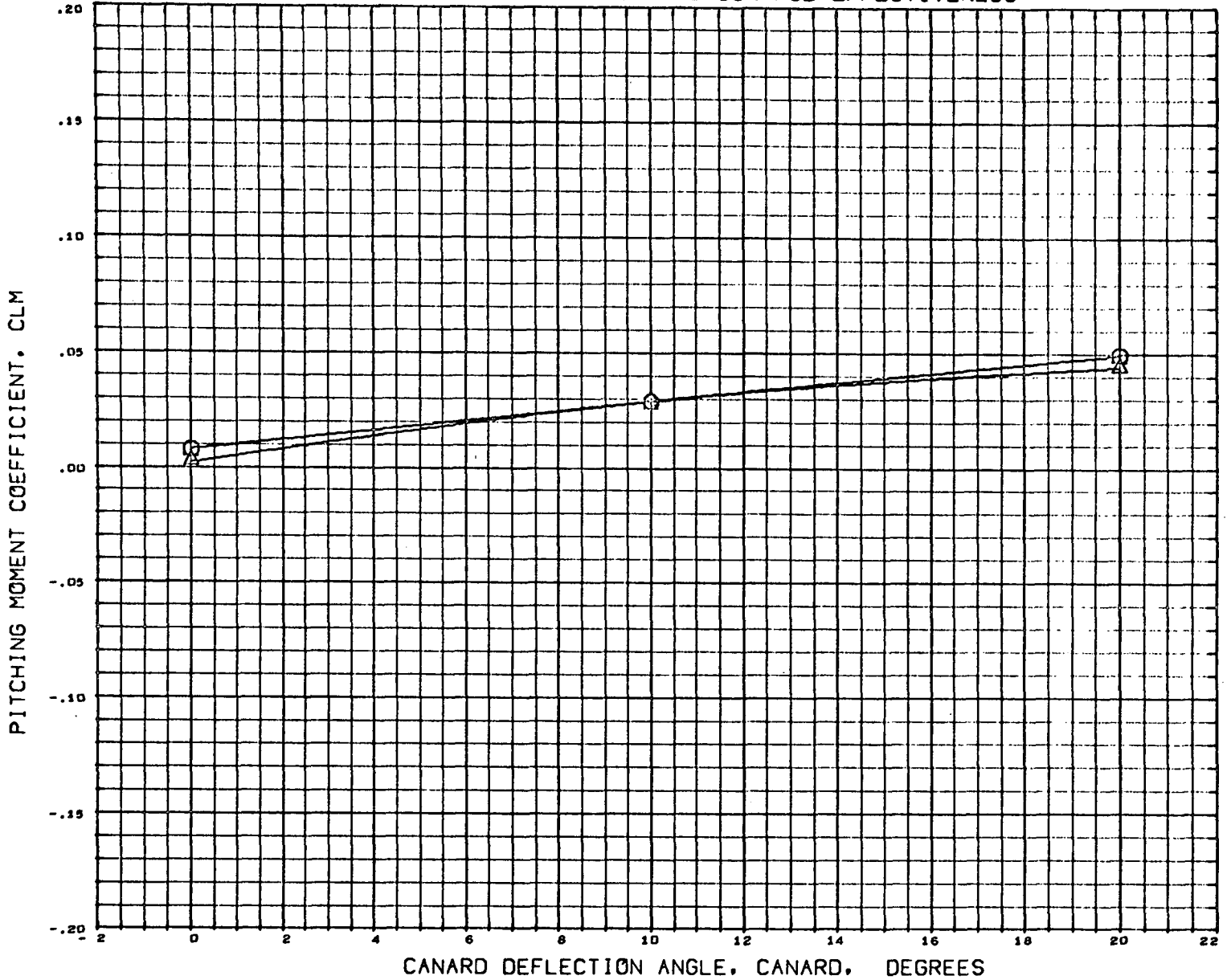
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.800	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRF	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRF	0.0000	FEET
		DATA HIST. CODE	I						ZMRF	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.900	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

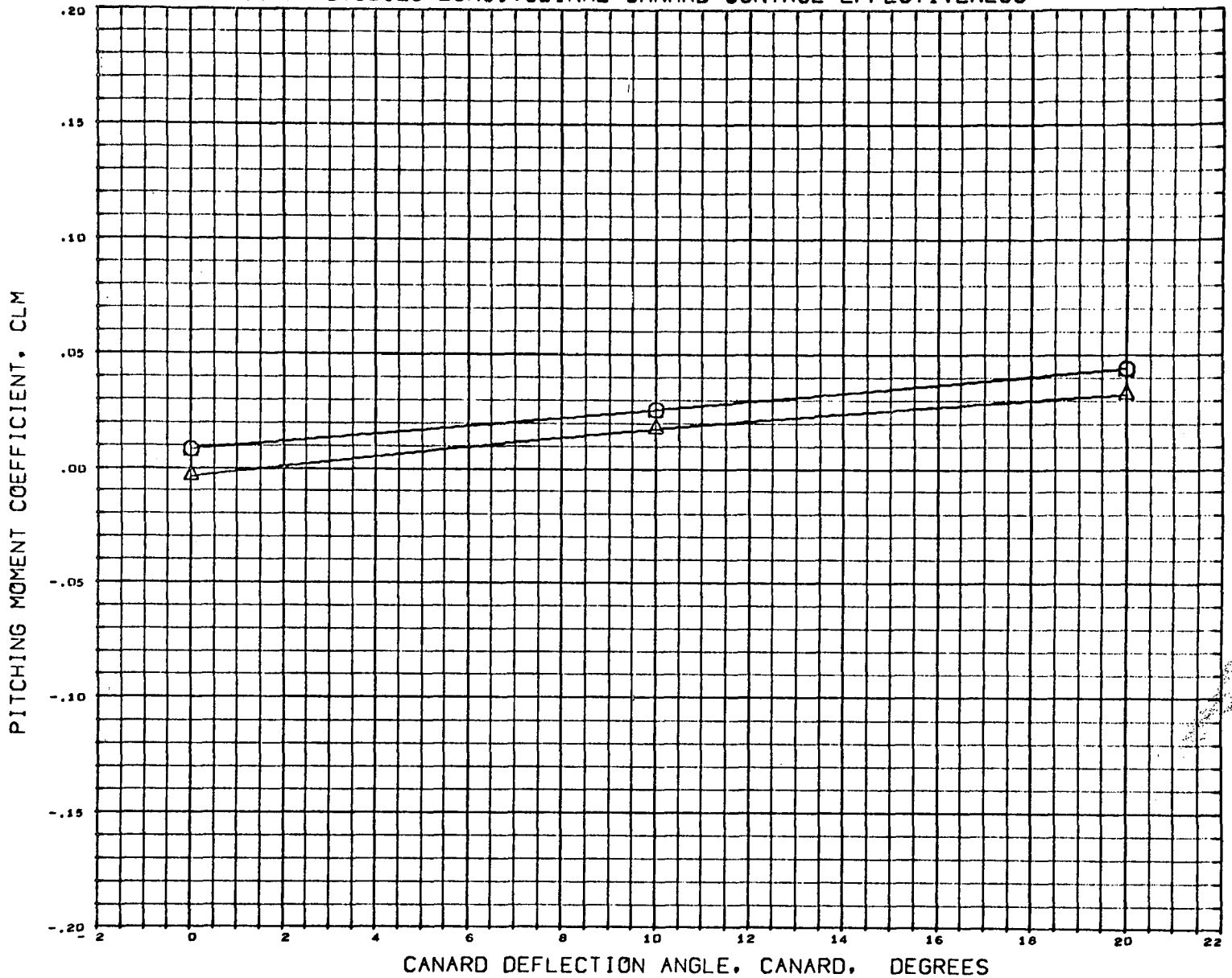
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

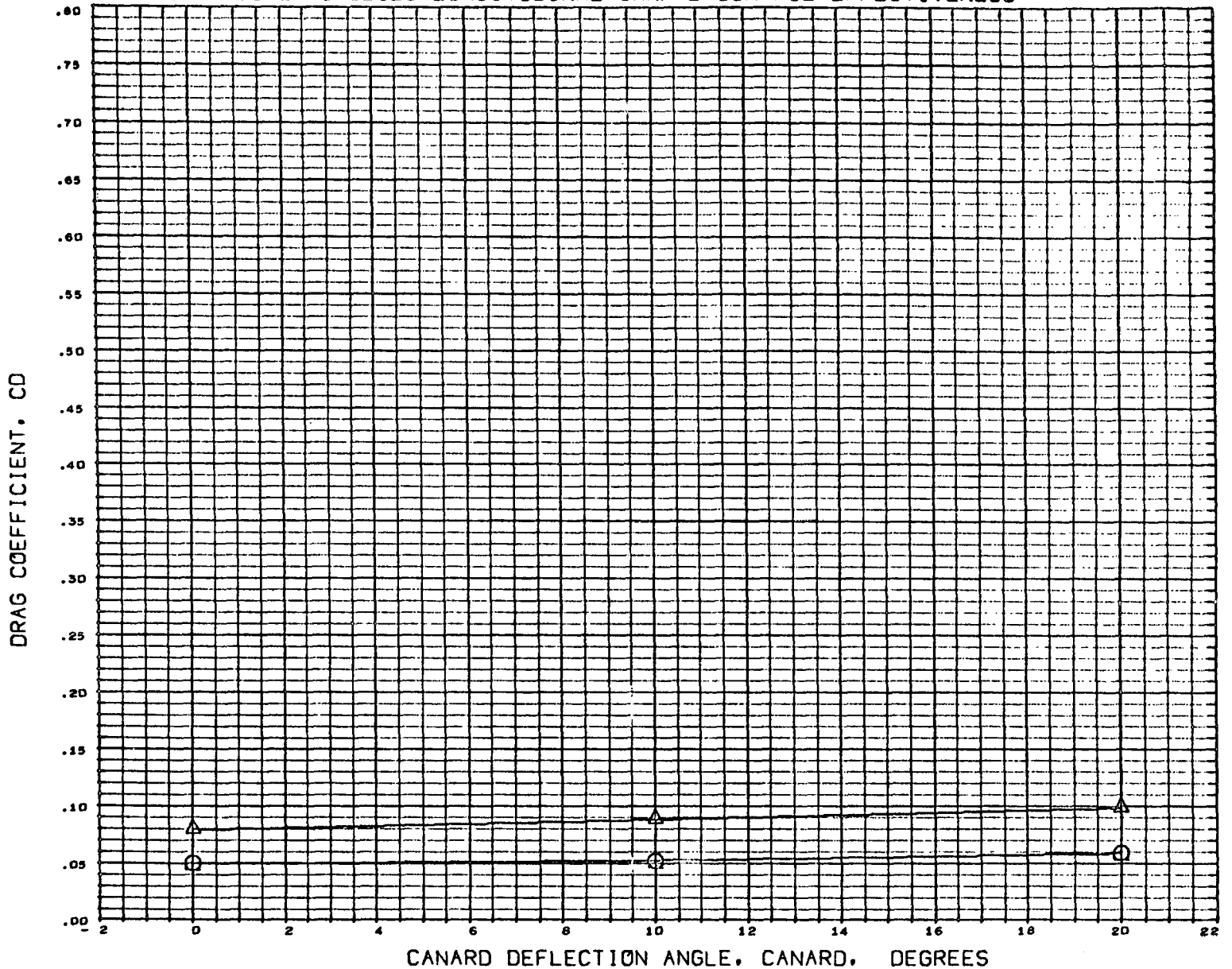
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.000	BETA	0.031	DATASET	CANARD		SREF	1.3550	90.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AIRLON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	MACH	1.125	BETA	0.031	DATA SET	CANARD		SREF	1.3550	80. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA MIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

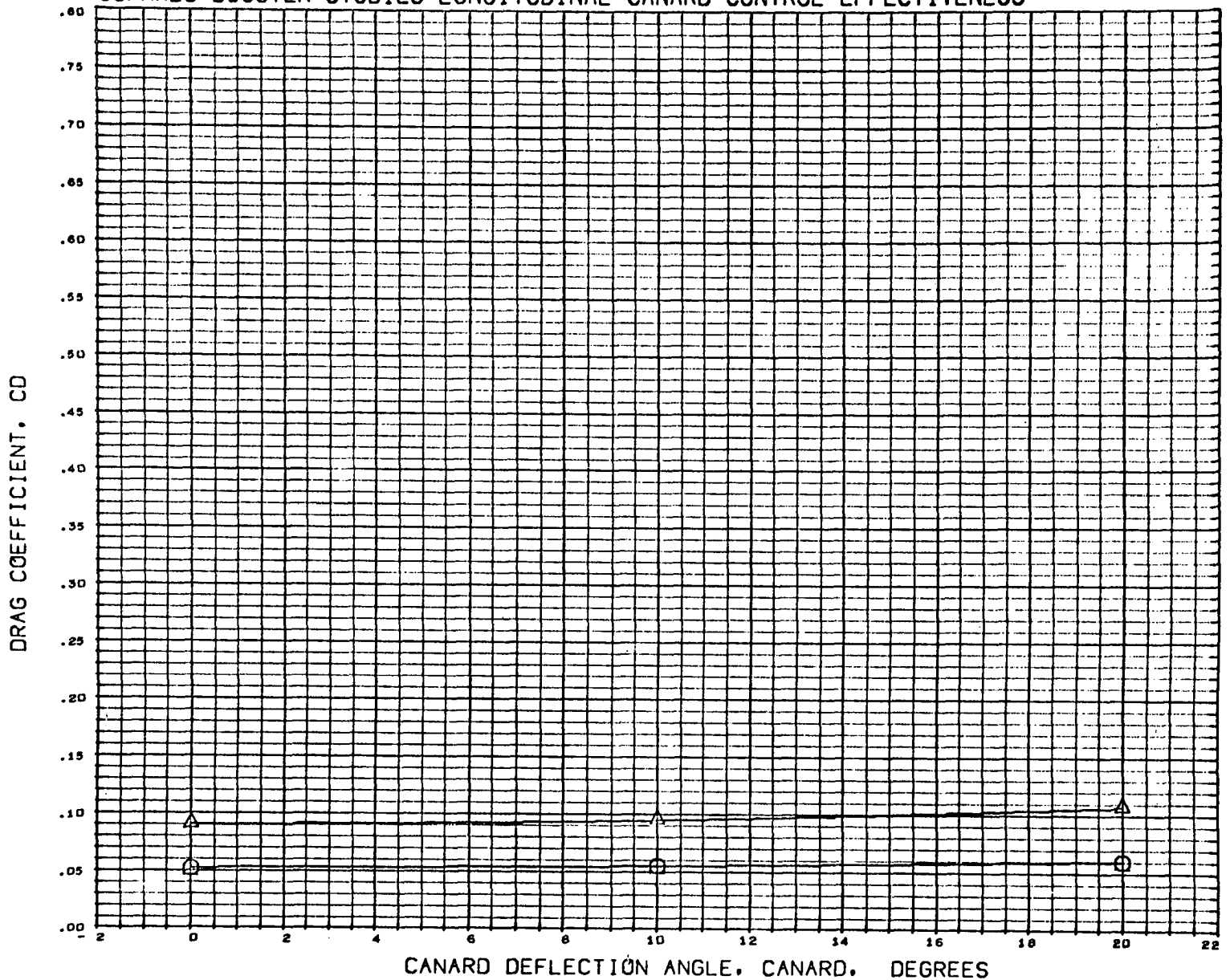
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.700	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNGPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS

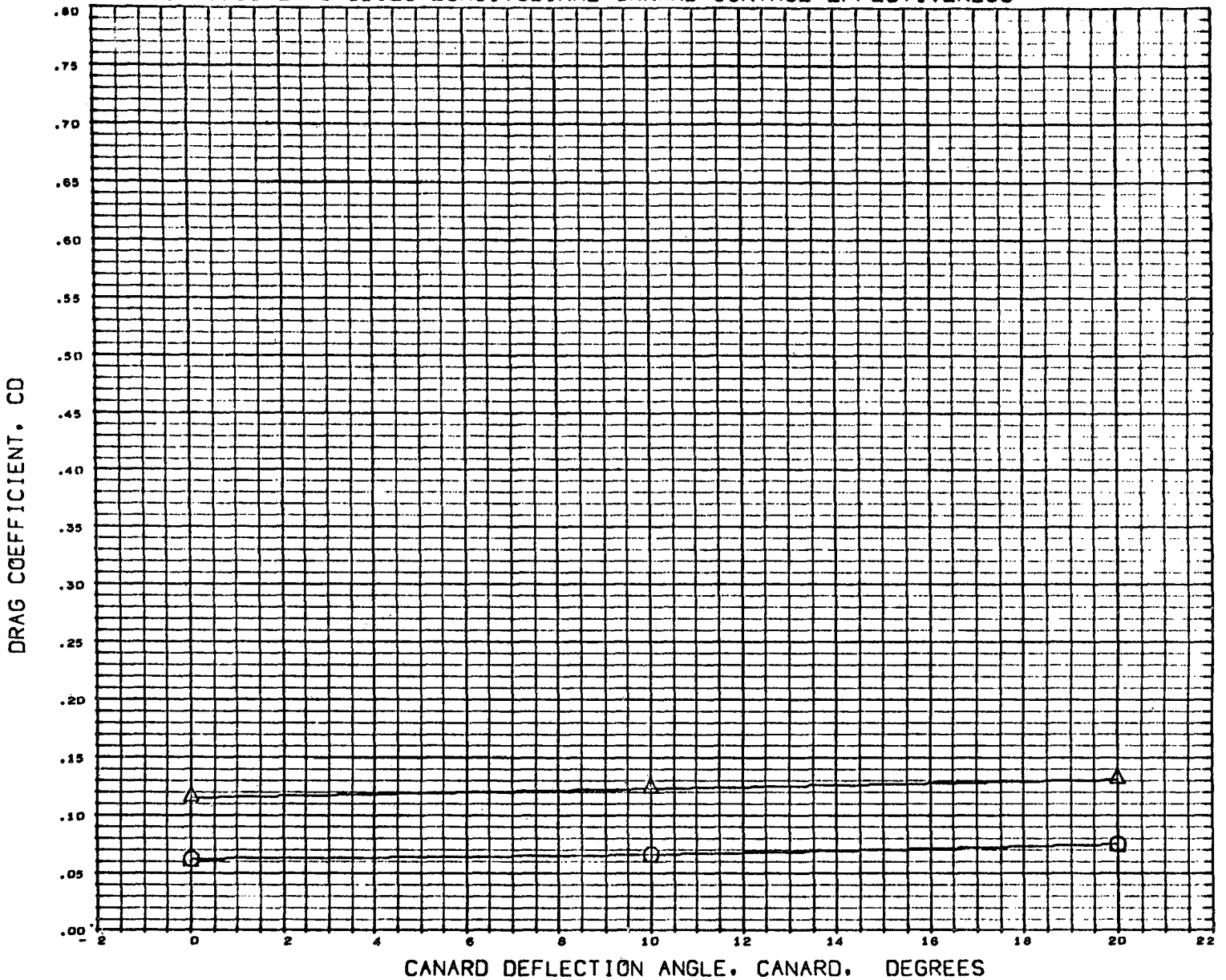


CANARD DEFLECTION ANGLE, CANARD, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
△	0.000	MACH	0.800	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ. FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

4

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



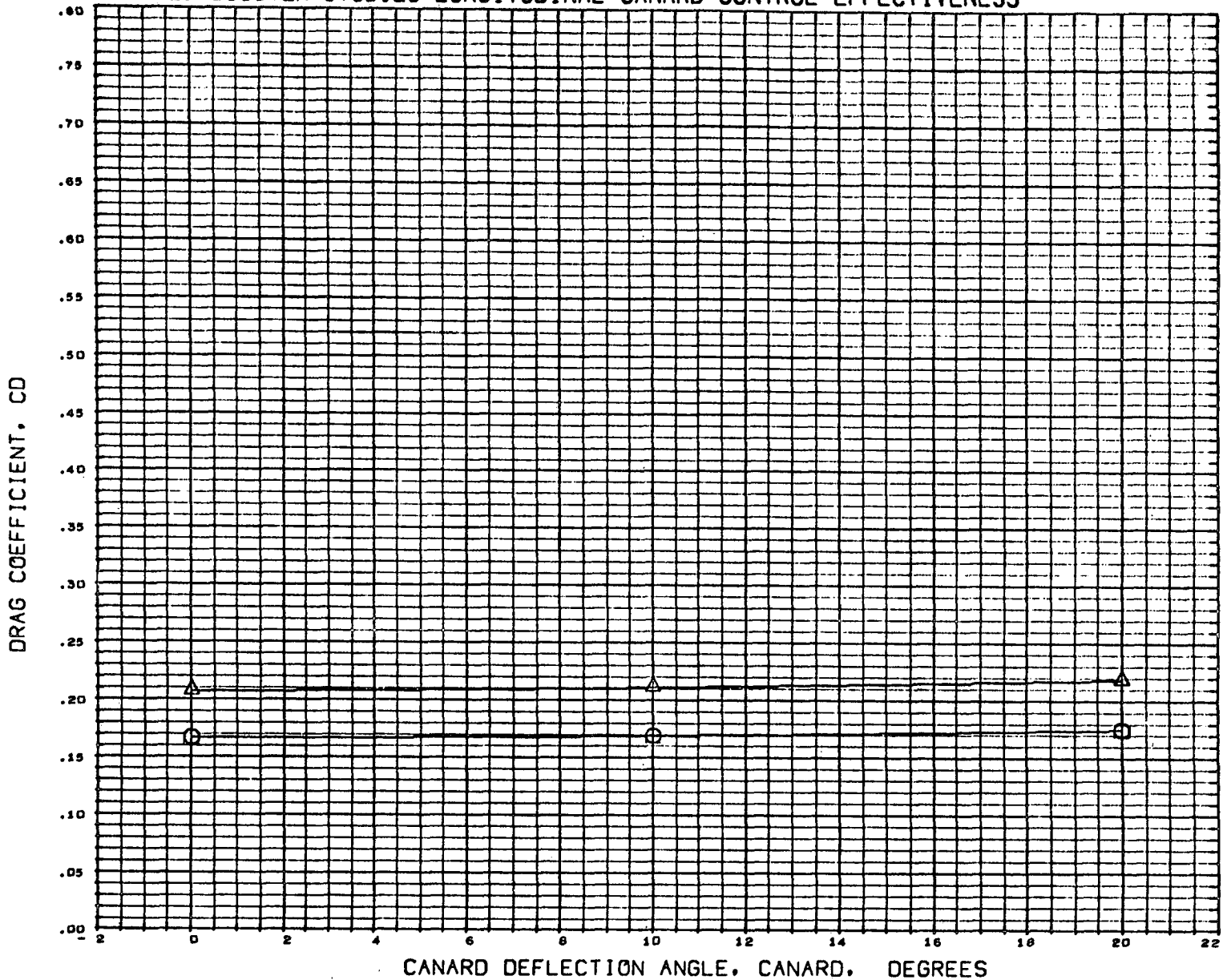
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION				
○	0.000	<u>MACH</u>	0.900	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	80. FT.	
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET	
△		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	2.5950	FEET	
		ELEVTR	0.000	RUDDER	0.000					YMRP	0.0000	FEET	
		WNGPOS	1.000	CNDPOS	1.000					ZMRP	0.0187	FEET	
		DATA HIST. CODE	I								SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



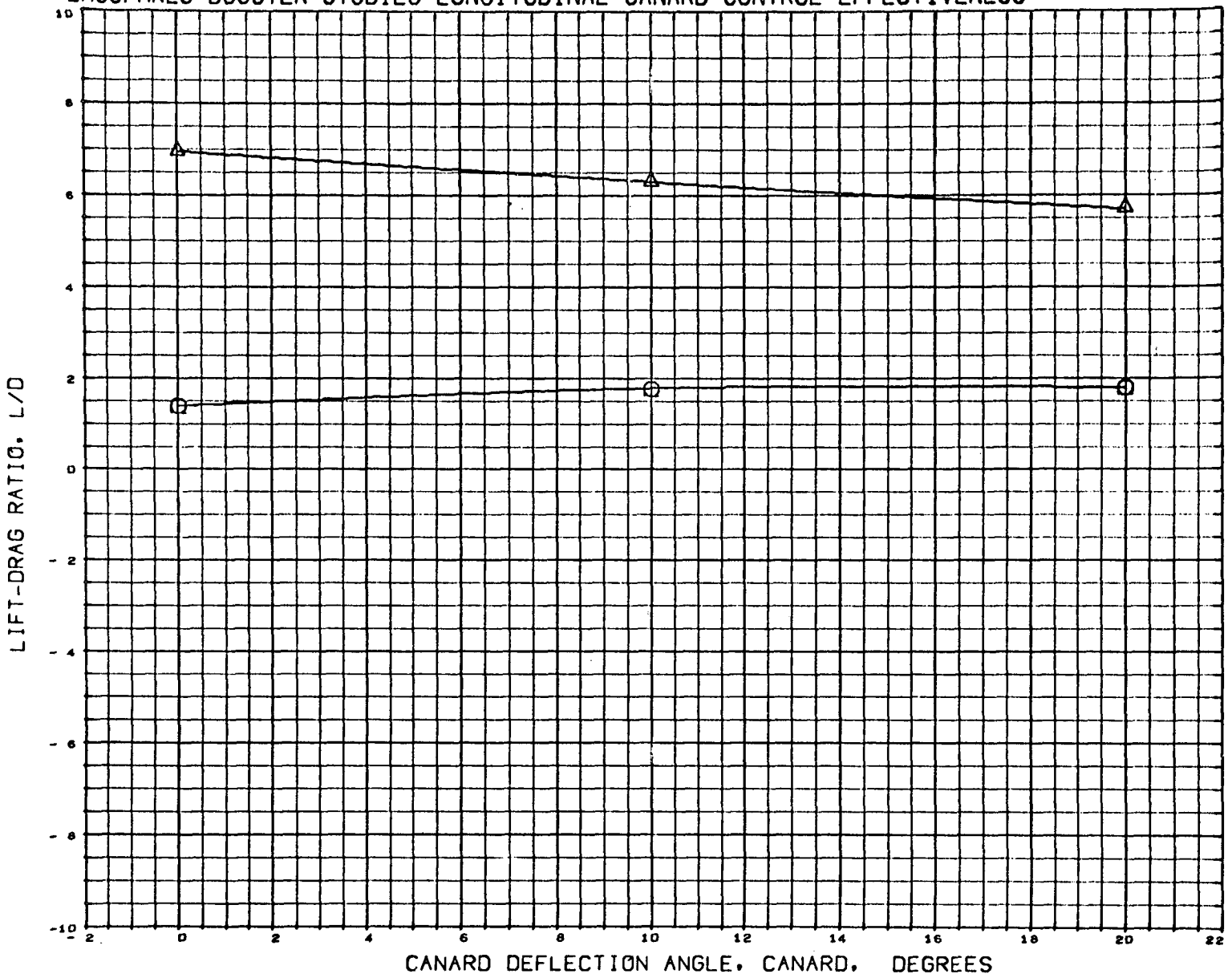
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
△	0.000	MACH	1.000	BETA	0.031	DATA SET	CANARD	DATA SET	CANARD	SREF	1.3550	SQ. FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
O	0.000	MACH	1.125	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ. FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1							ZMRP	0.0107	FEET
										SCALE	0.0150	SCALE

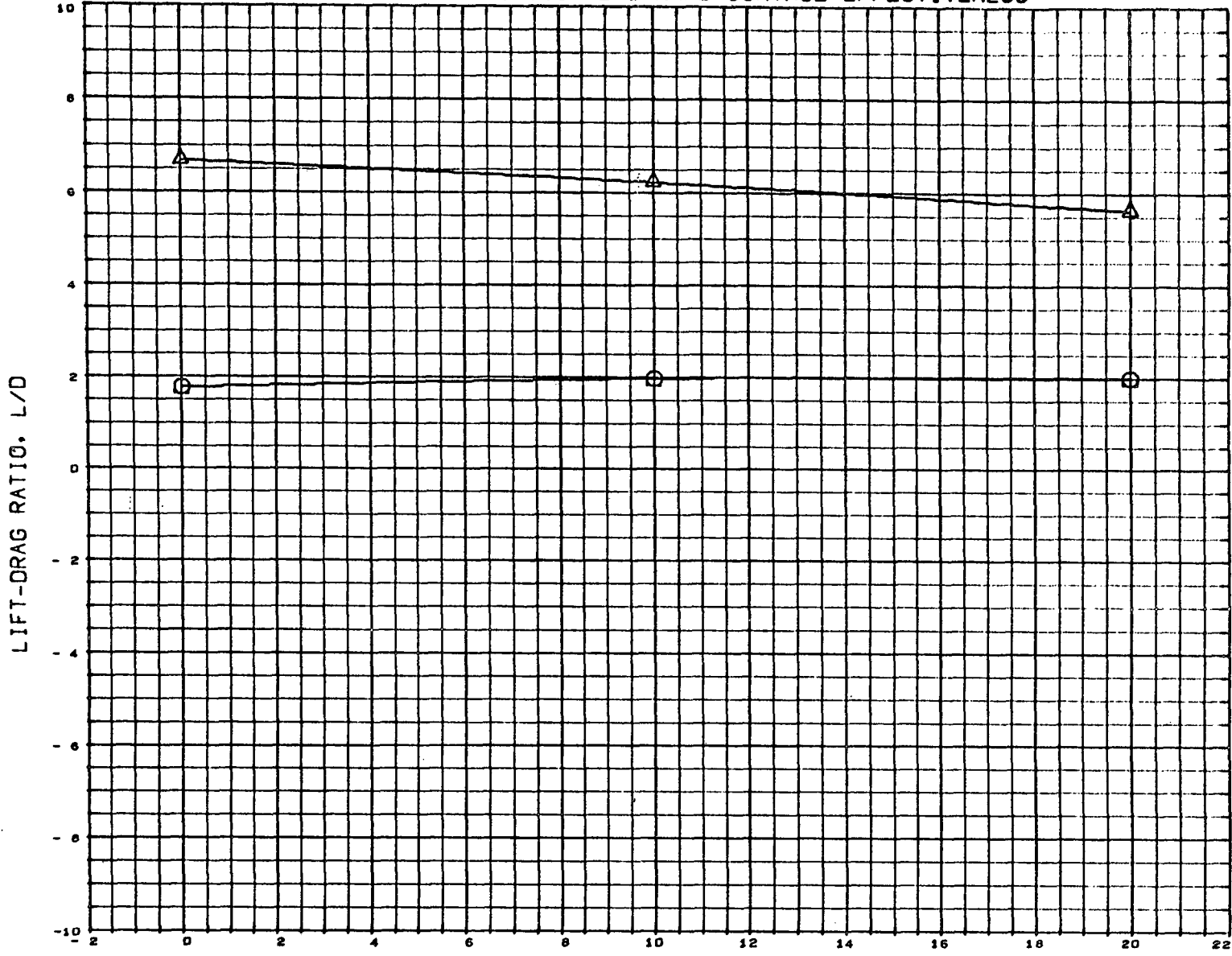
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
△	0.000	MACH	0.700	BETA	0.031	DATA SET	CANARD	DATA SET	CANARD	SREF	1.3550	30.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0107	FEET
										SCALE	0.0150	SCALE

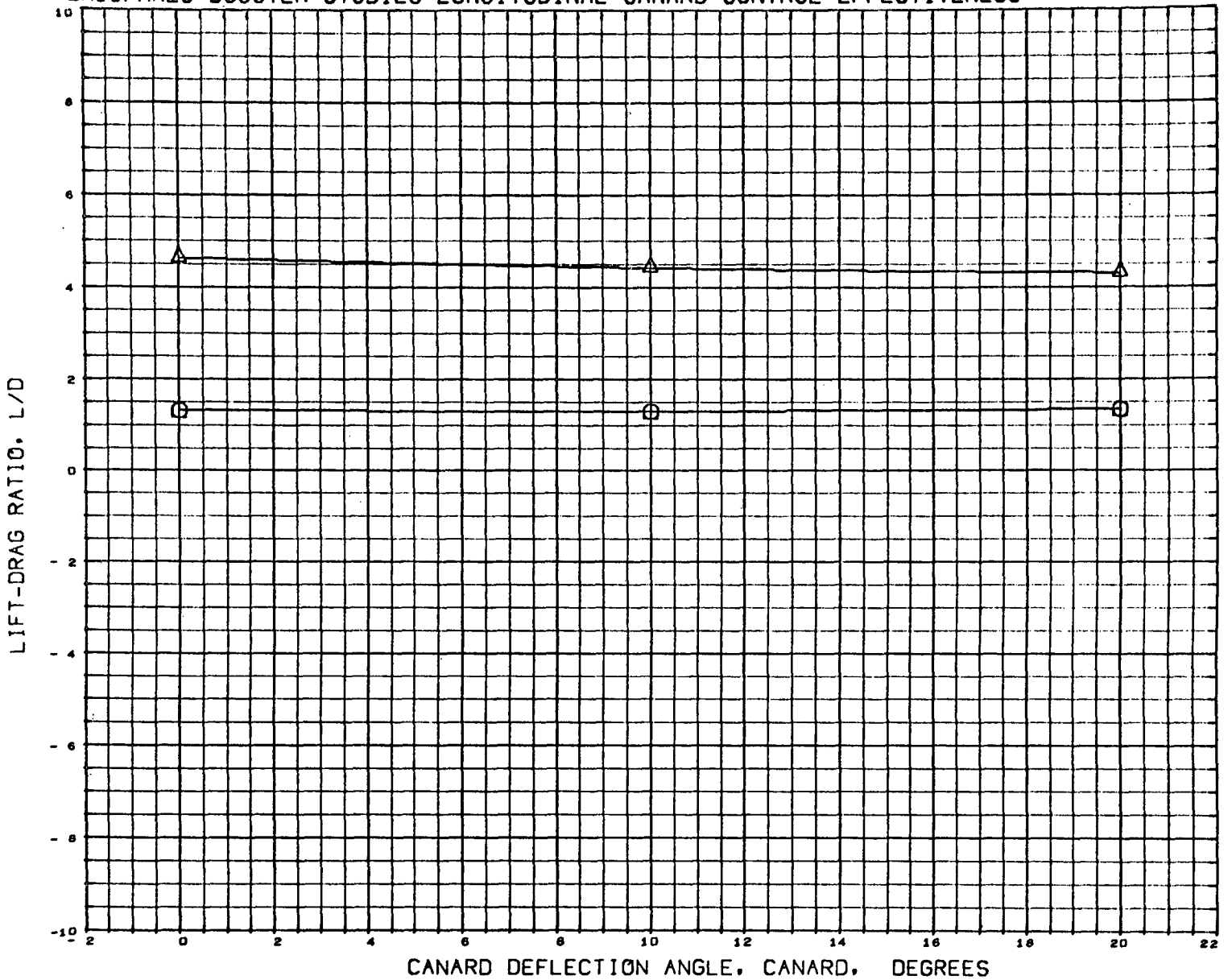
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

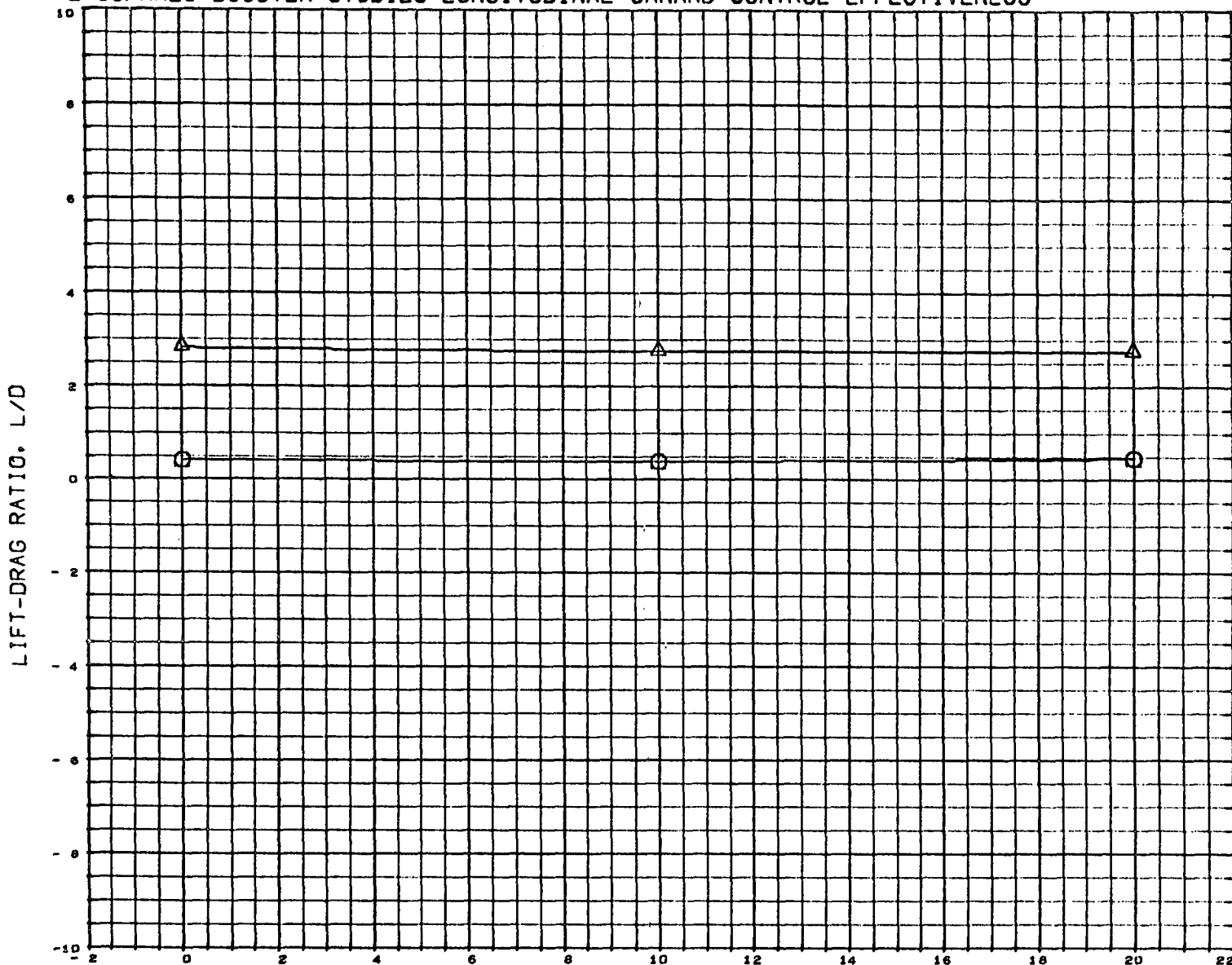
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.000	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	90.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEE T
		MSFLOW	0.000	AIRON	0.000	NN3033	20.000			BREF	3.4530	FEE T
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEE T
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEE T
		DATA HIST. CODE	I							ZMRP	0.0187	FEE T
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.900	BETA	0.031	DATA SET	CANARD	DATA SET	CANARD	SREF	1.3550	SQ. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	J							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

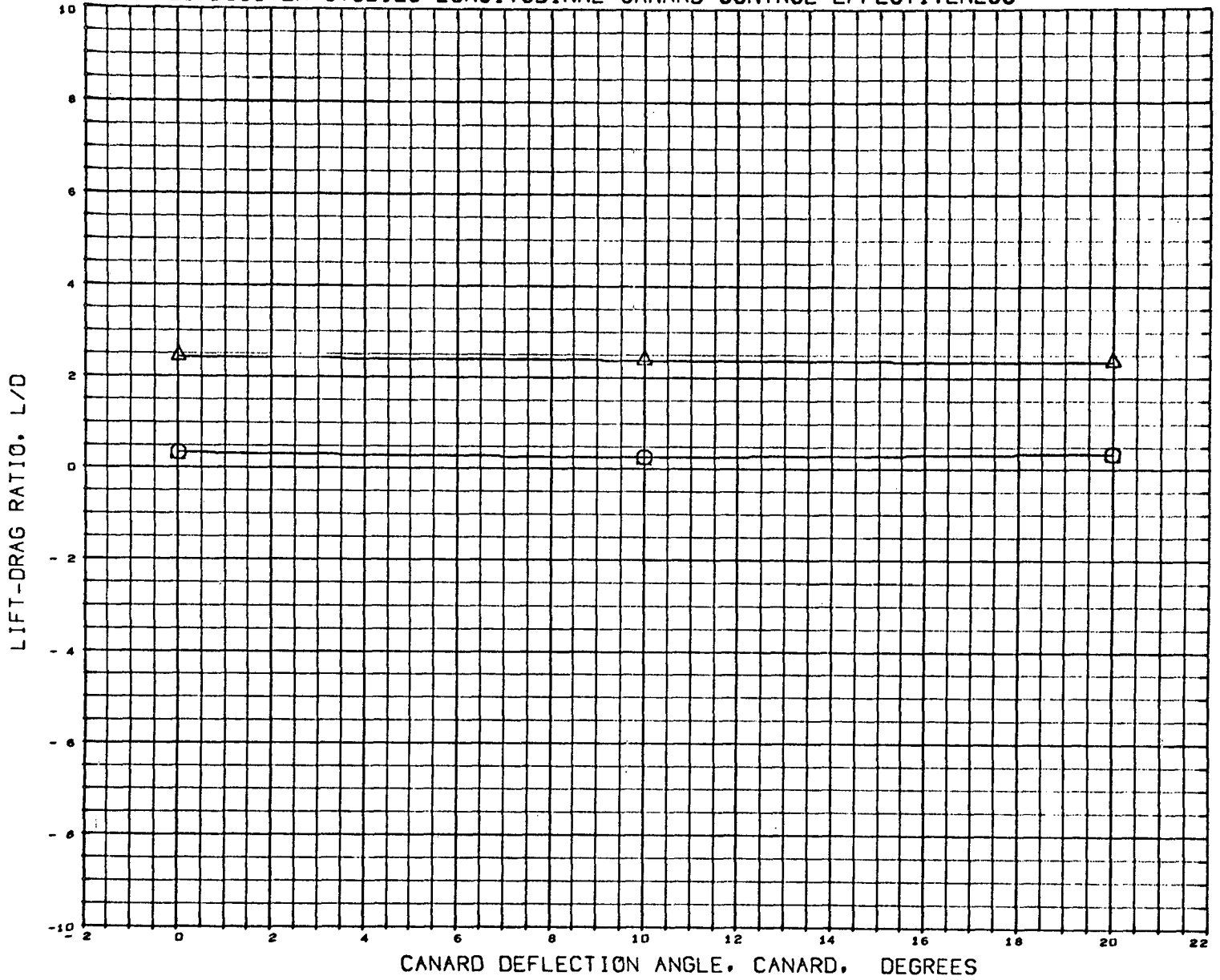
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

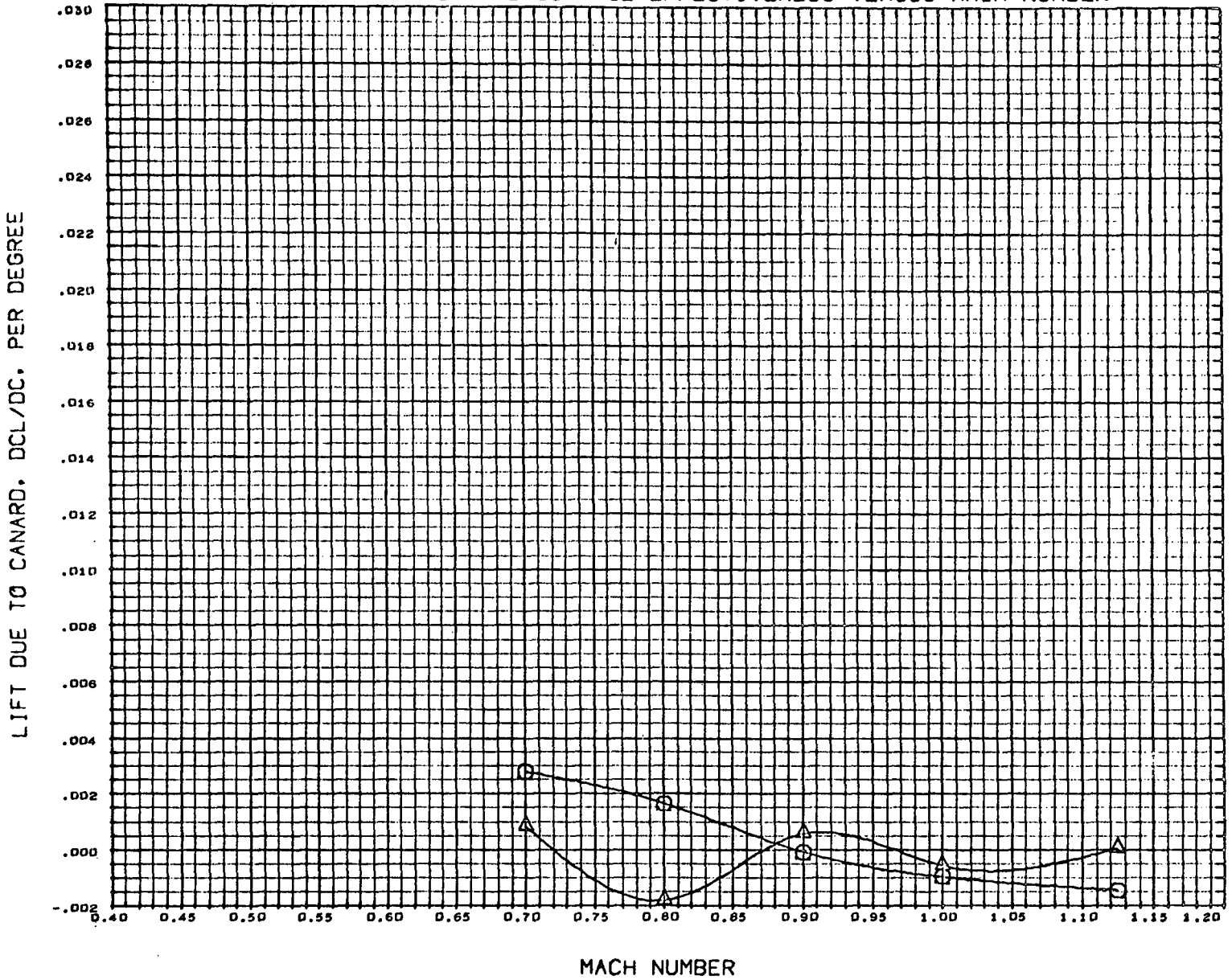
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	<u>MACH</u>	1.000	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	ATLRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	MACH	1.125	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

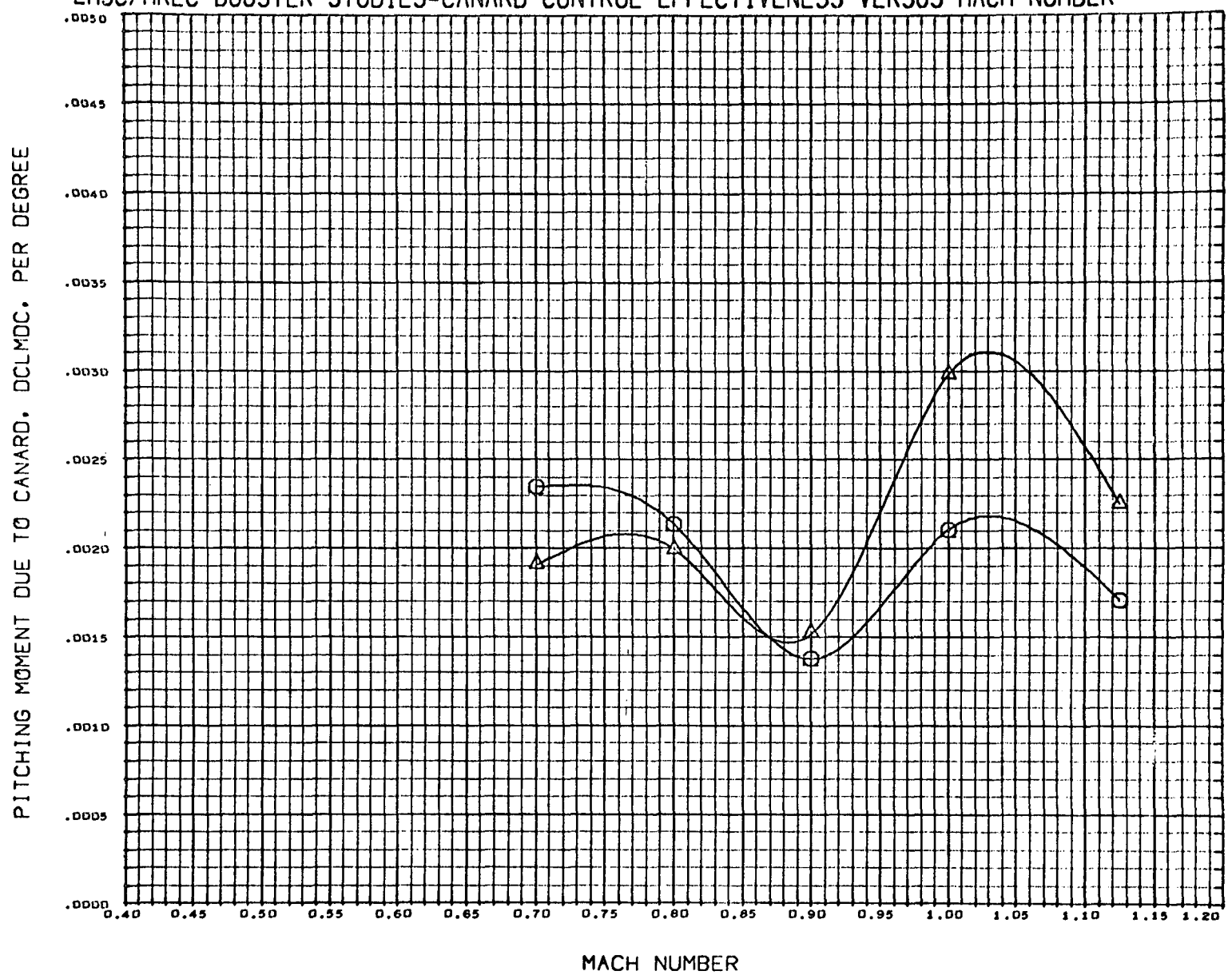
LMSC/HREC BOOSTER STUDIES-CANARD CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	INCIDC	3.000	INCIDW	0.000
△	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA HIST. CODE		I#P	

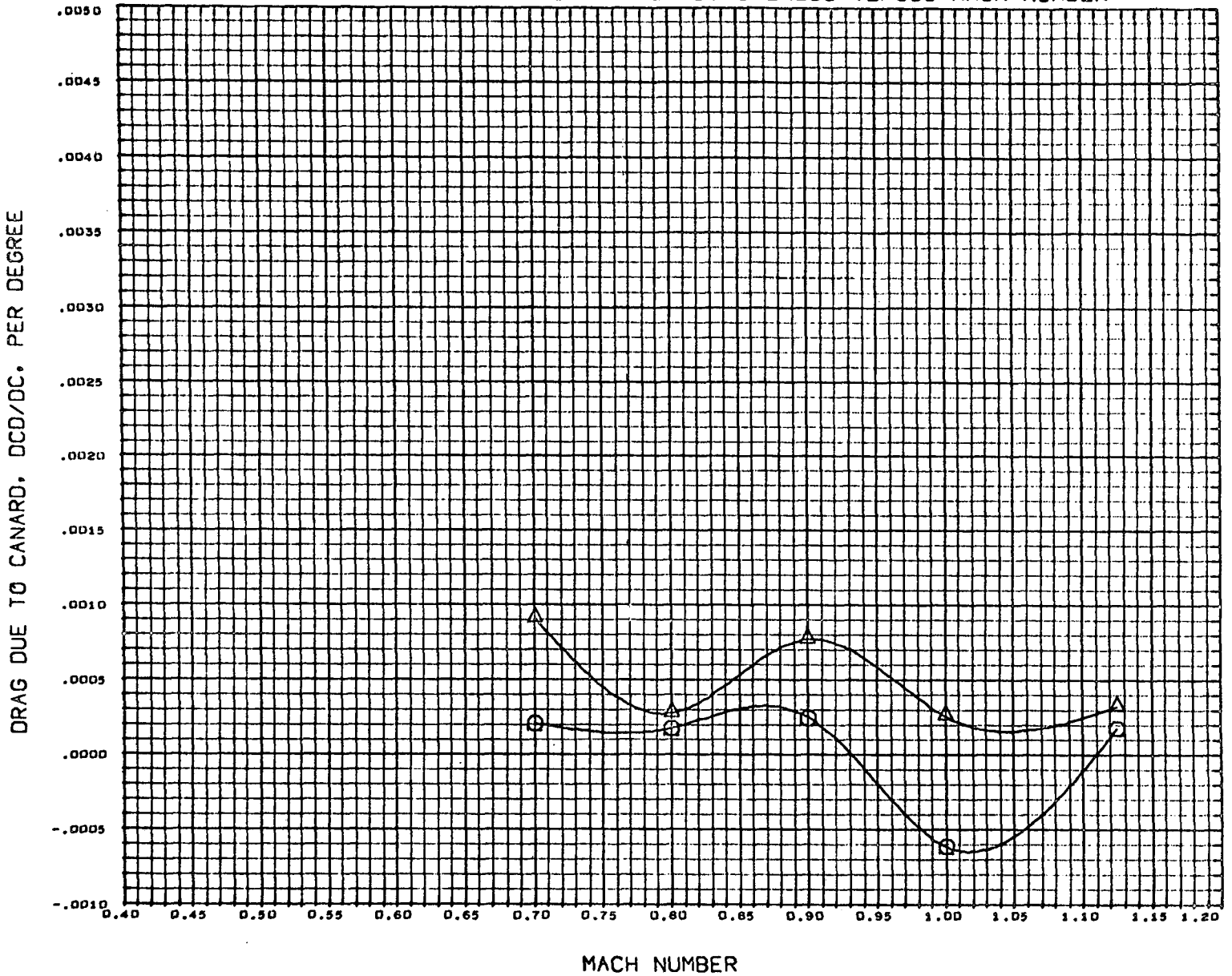
REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-CANARD CONTROL EFFECTIVENESS VERSUS MACH NUMBER



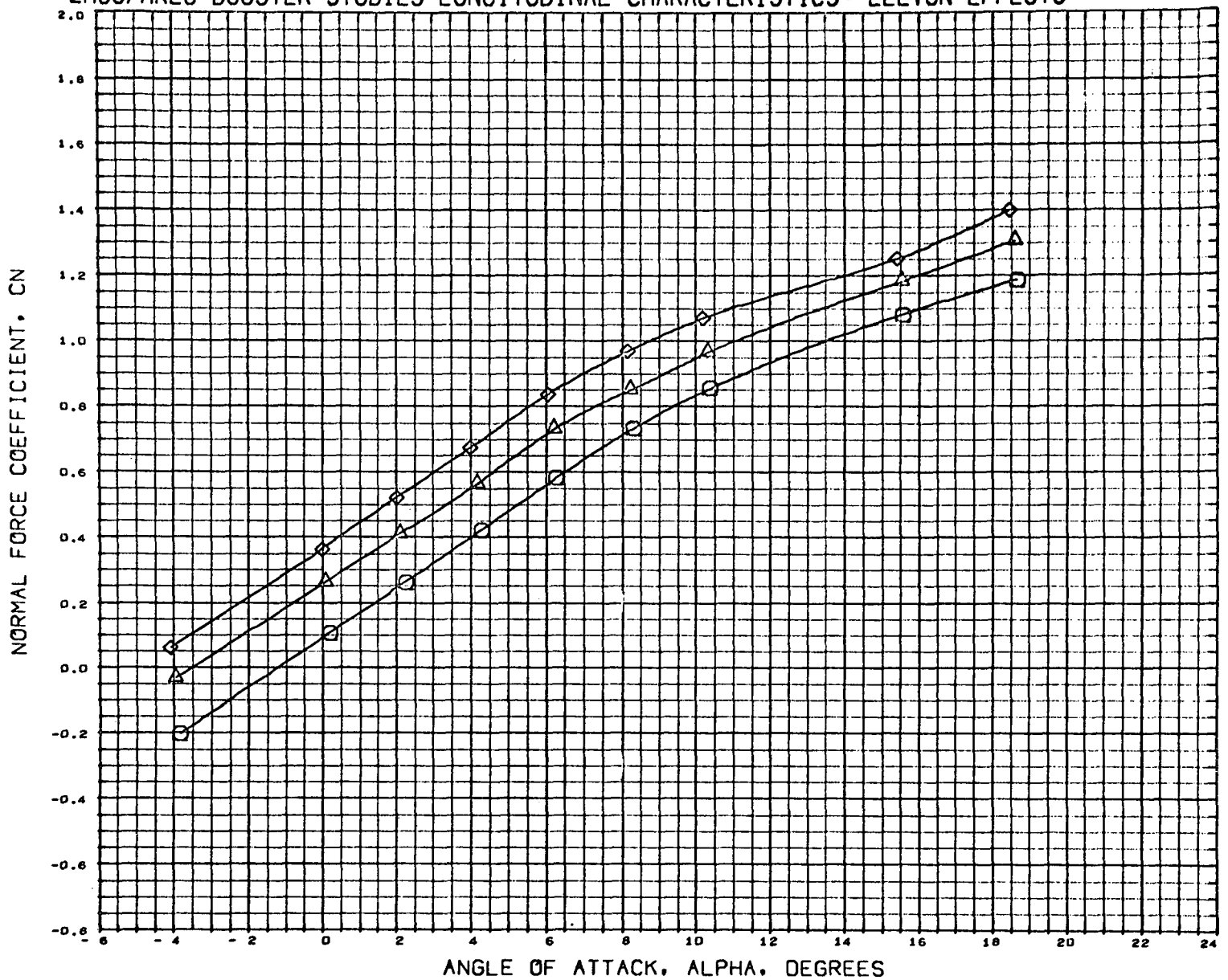
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
∞	0.000	INCIDC	3.000	INCIDW	0.000	SREF	1.3550	SQ.FT.
	6.000	MSFLOW	0.000	AILRON	0.000	LREF	3.4530	FEEET
		CANARD	0.000	ELEVTR	0.000	BREF	3.4530	FEEET
		RUDDER	0.000	WNGPOS	1.000	XMRP	2.5950	FEEET
		CNDPOS	1.000			YMRP	0.0000	FEEET
		DATA HIST. CODE	I#F			ZMRP	0.0187	FEEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-CANARD CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	INCIDC	3.000	INCIDW	0.000	SREF	1.3550	SQ. FT.
△	6.000	MSFLOW	0.000	AILRON	0.000	LREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	BREF	3.4530	FEET
		RUDDER	0.000	WNGFOS	1.000	XMRP	2.5950	FEET
		CNCFOS	1.000			YMRP	0.0000	FEET
		DATA HIST. CODE	I4P			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

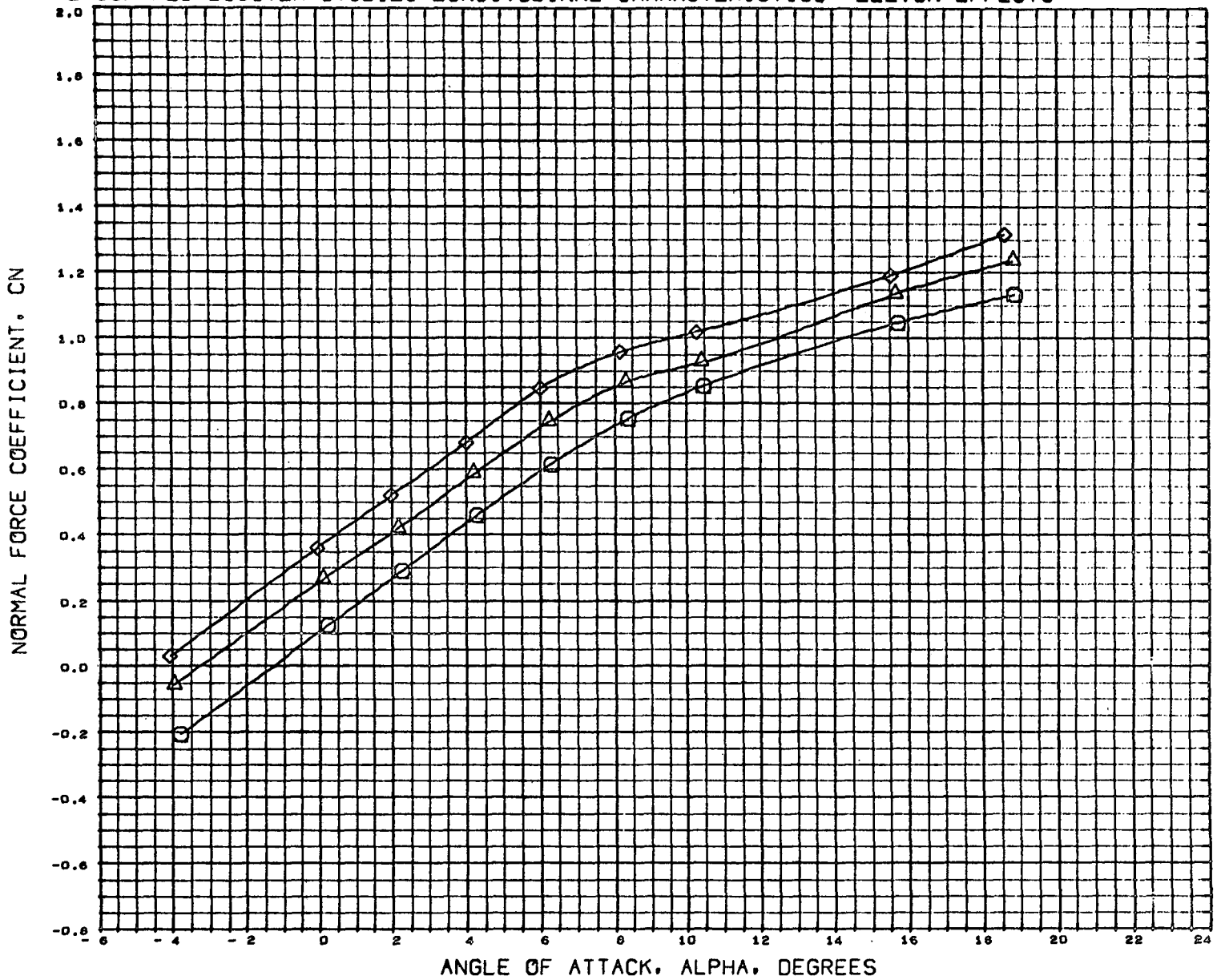
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

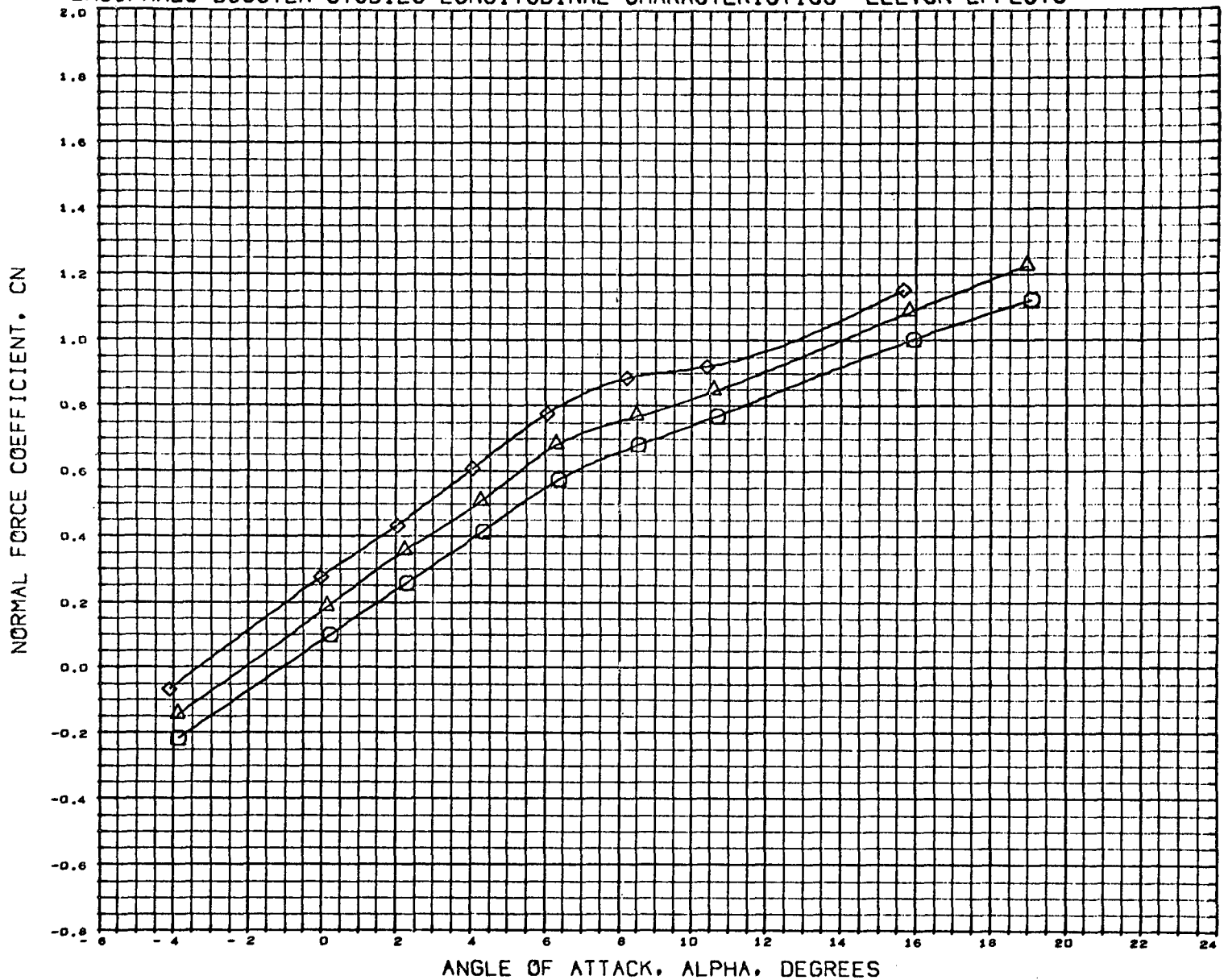
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 90.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LRCF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

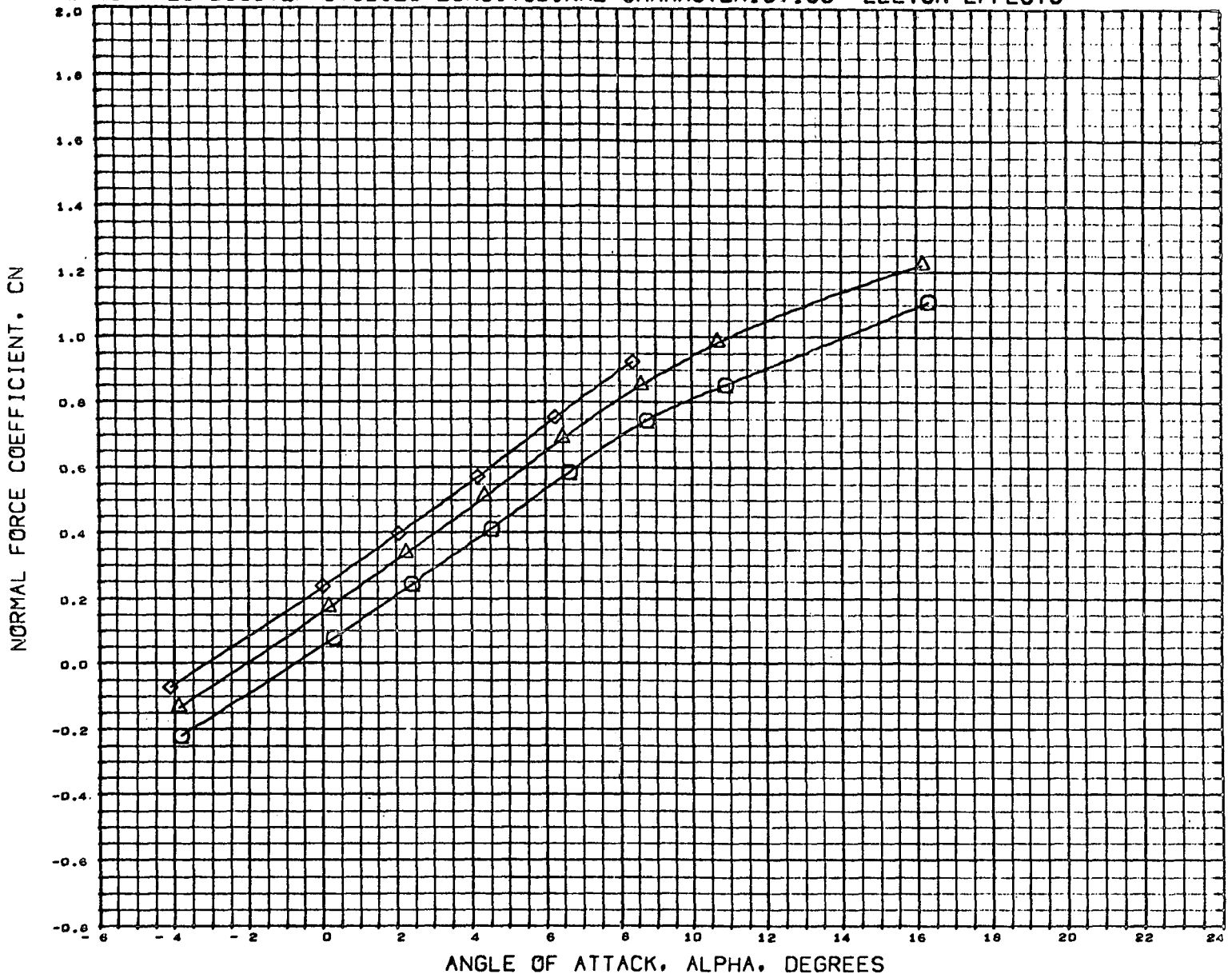
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ. FT.
(RN3025)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.901

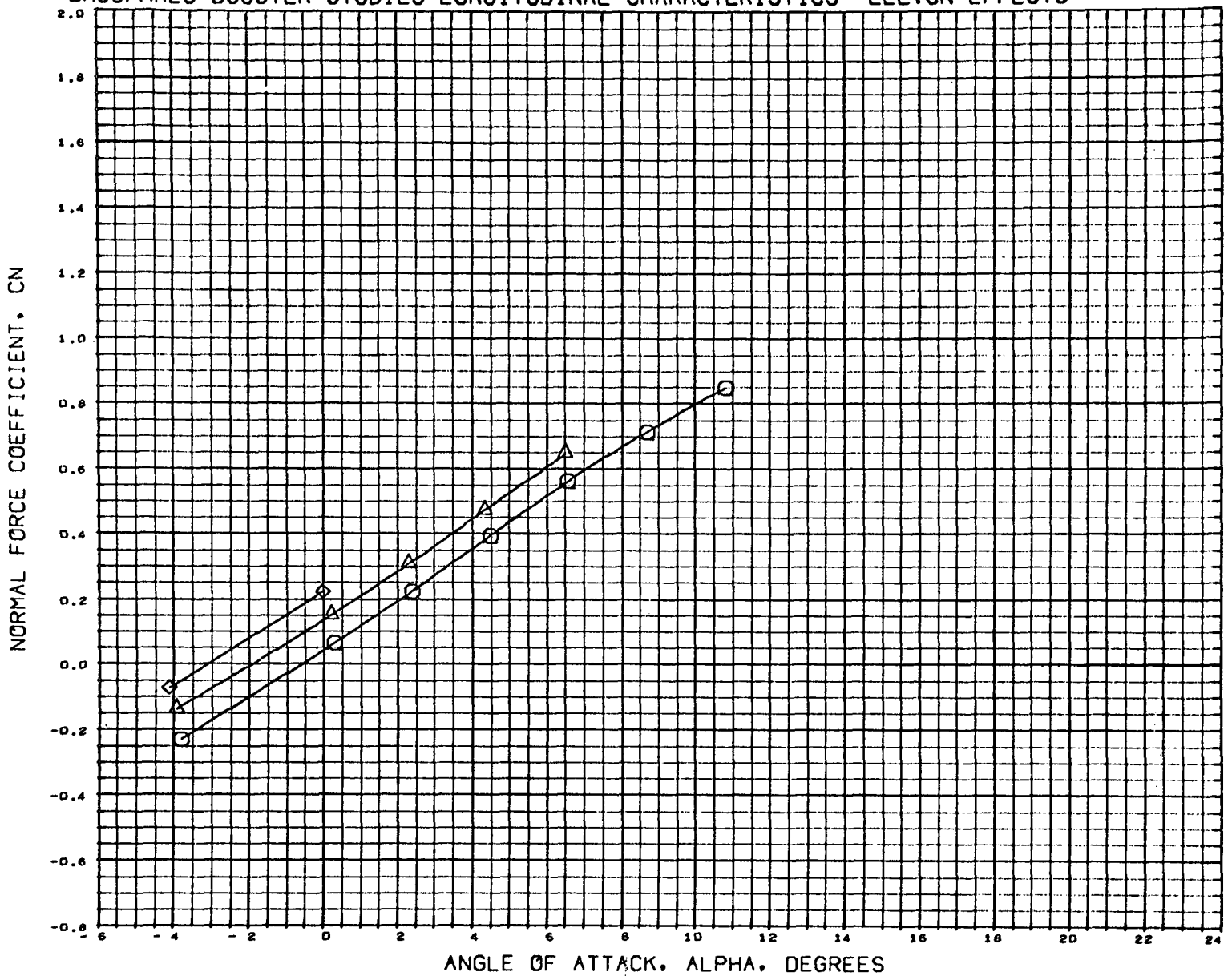
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.999

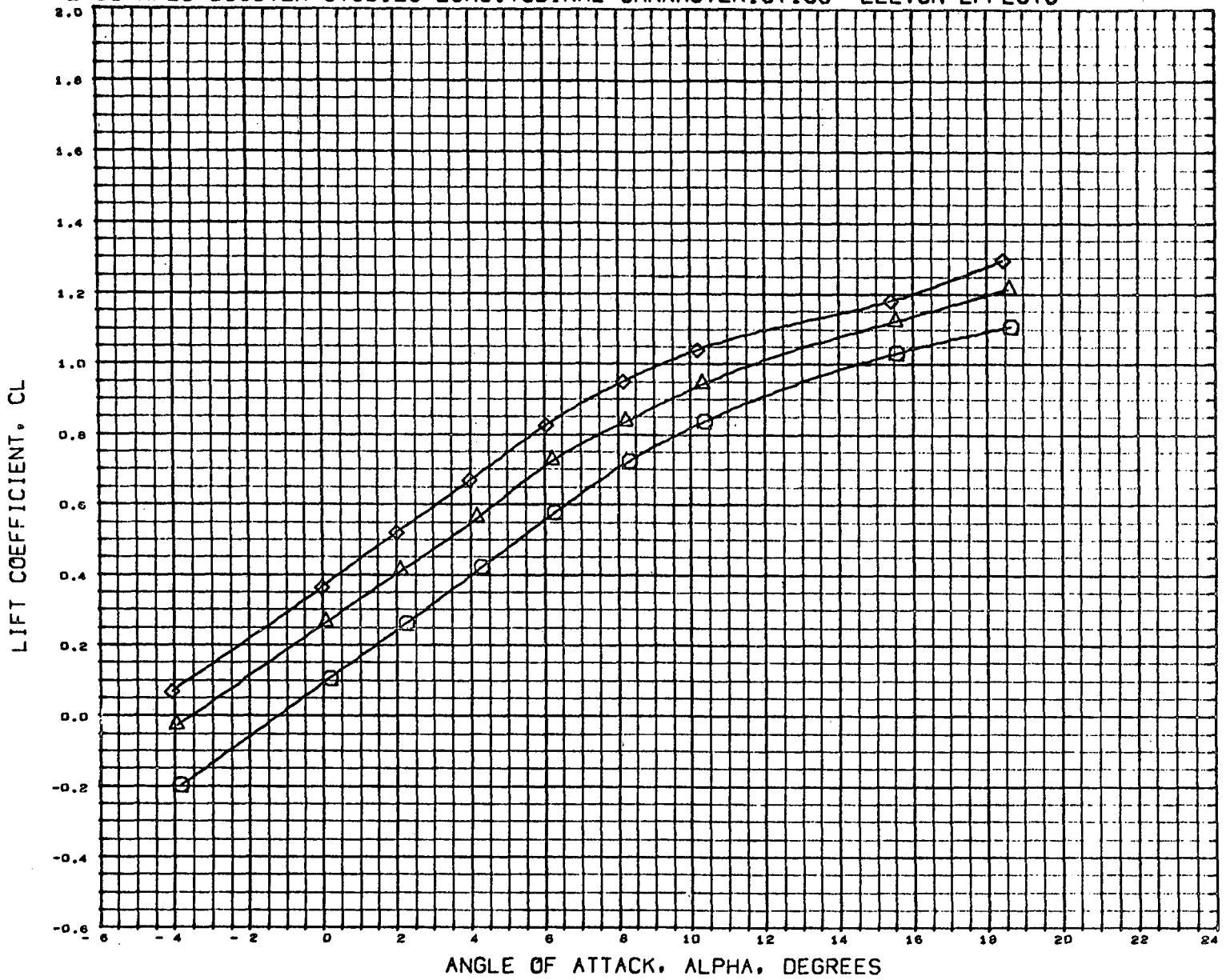
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.128

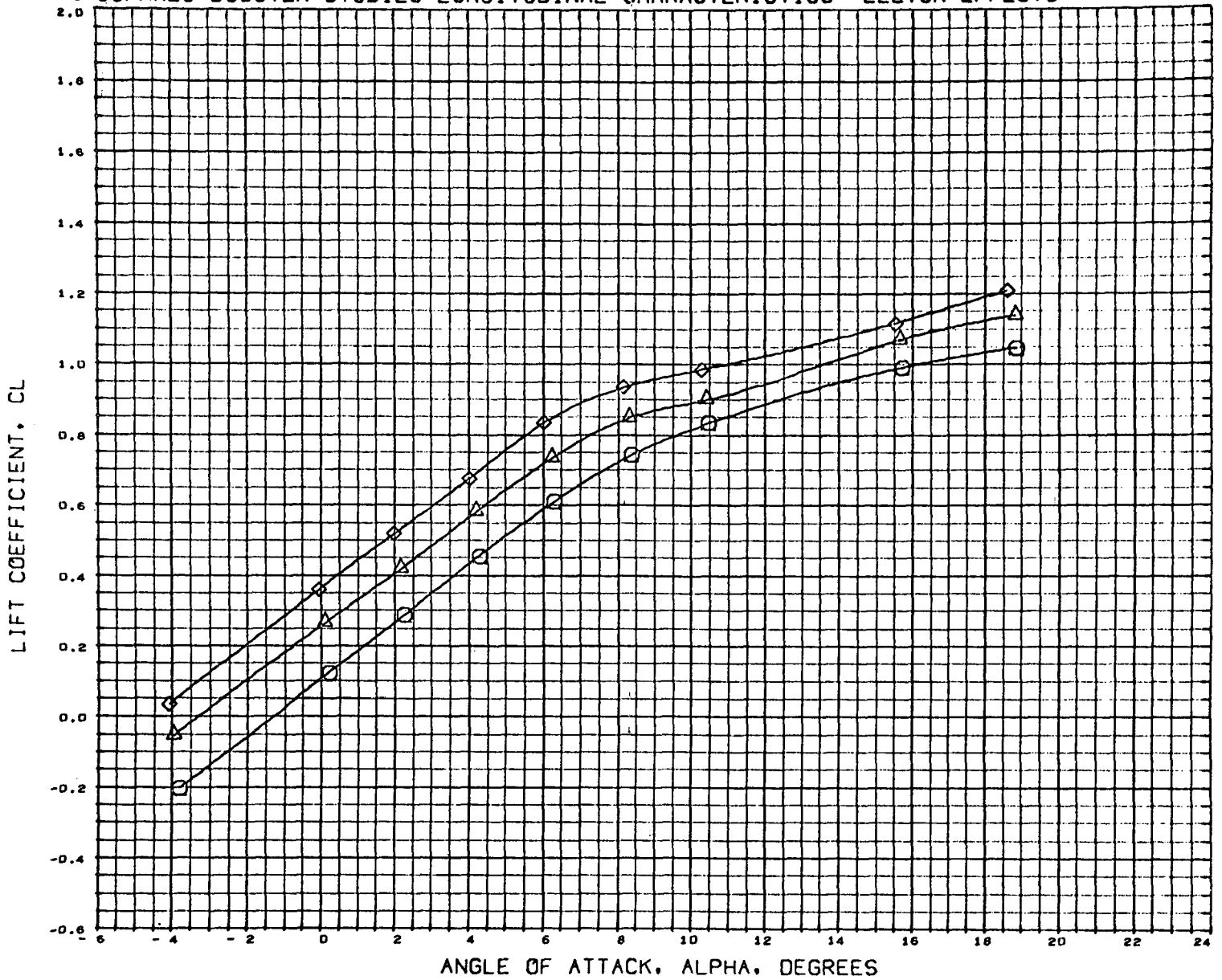
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025) △	NSRDC-3210,MSFC/LMSC BOOSTER D1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029) ◻	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

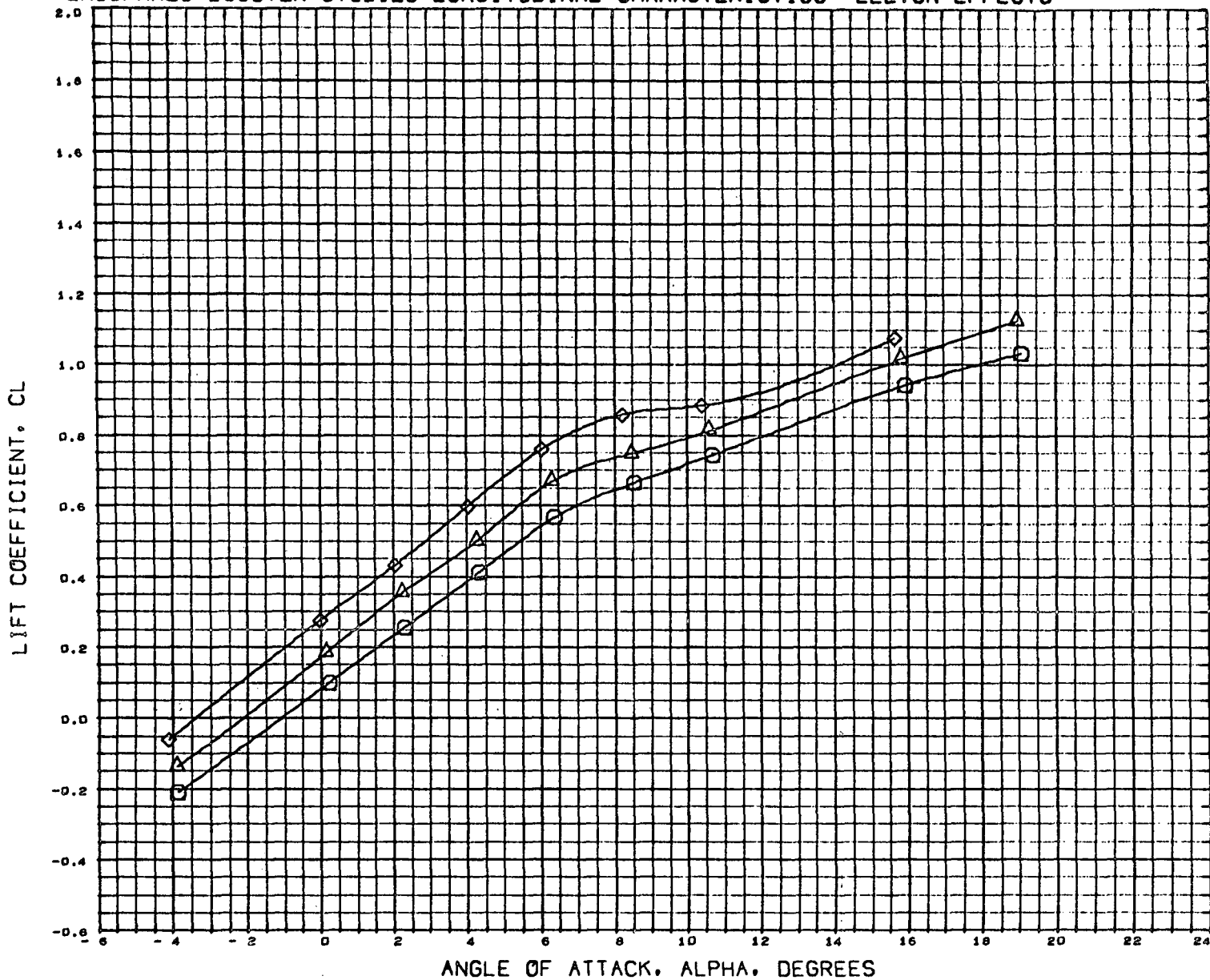
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ. FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

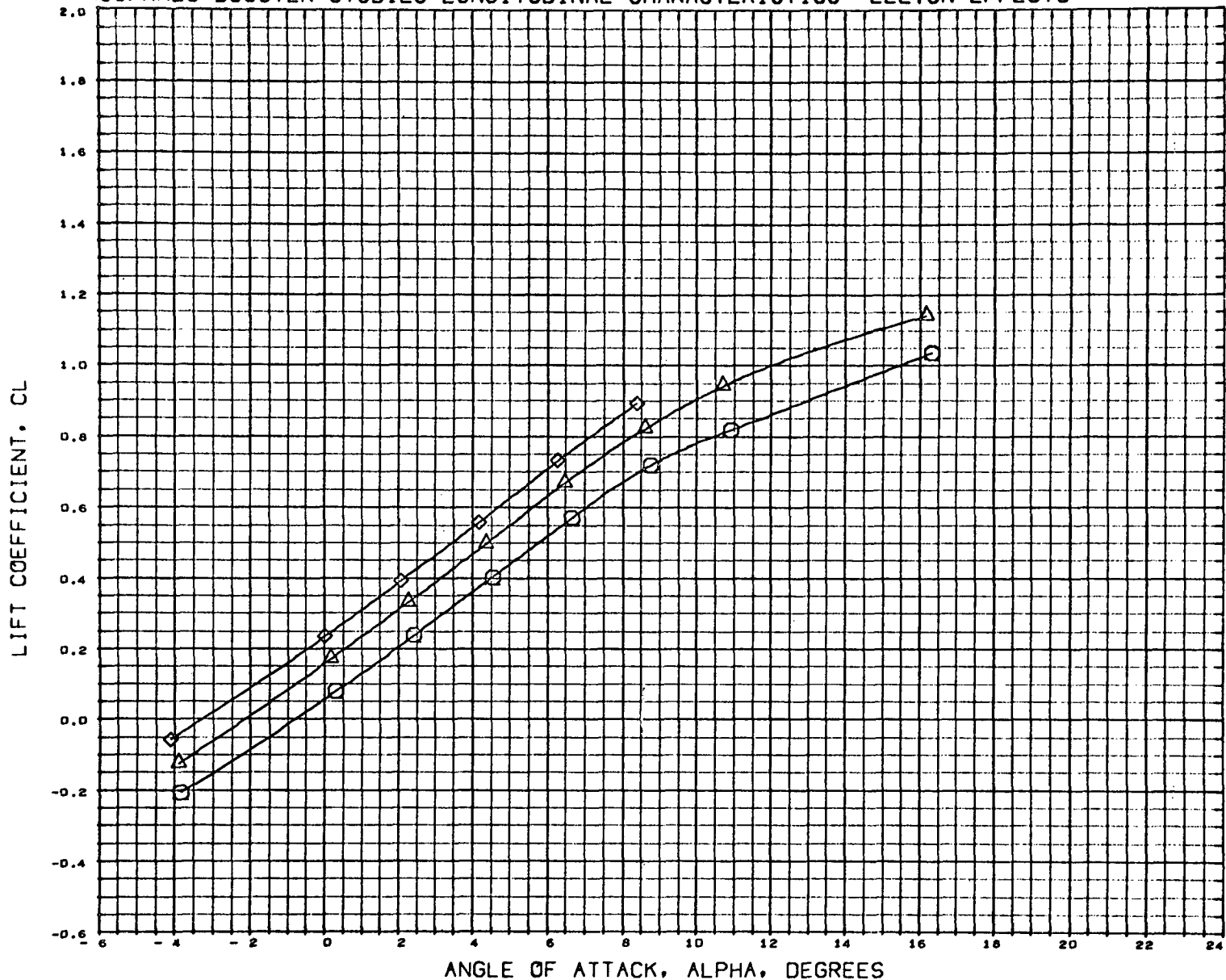
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.901

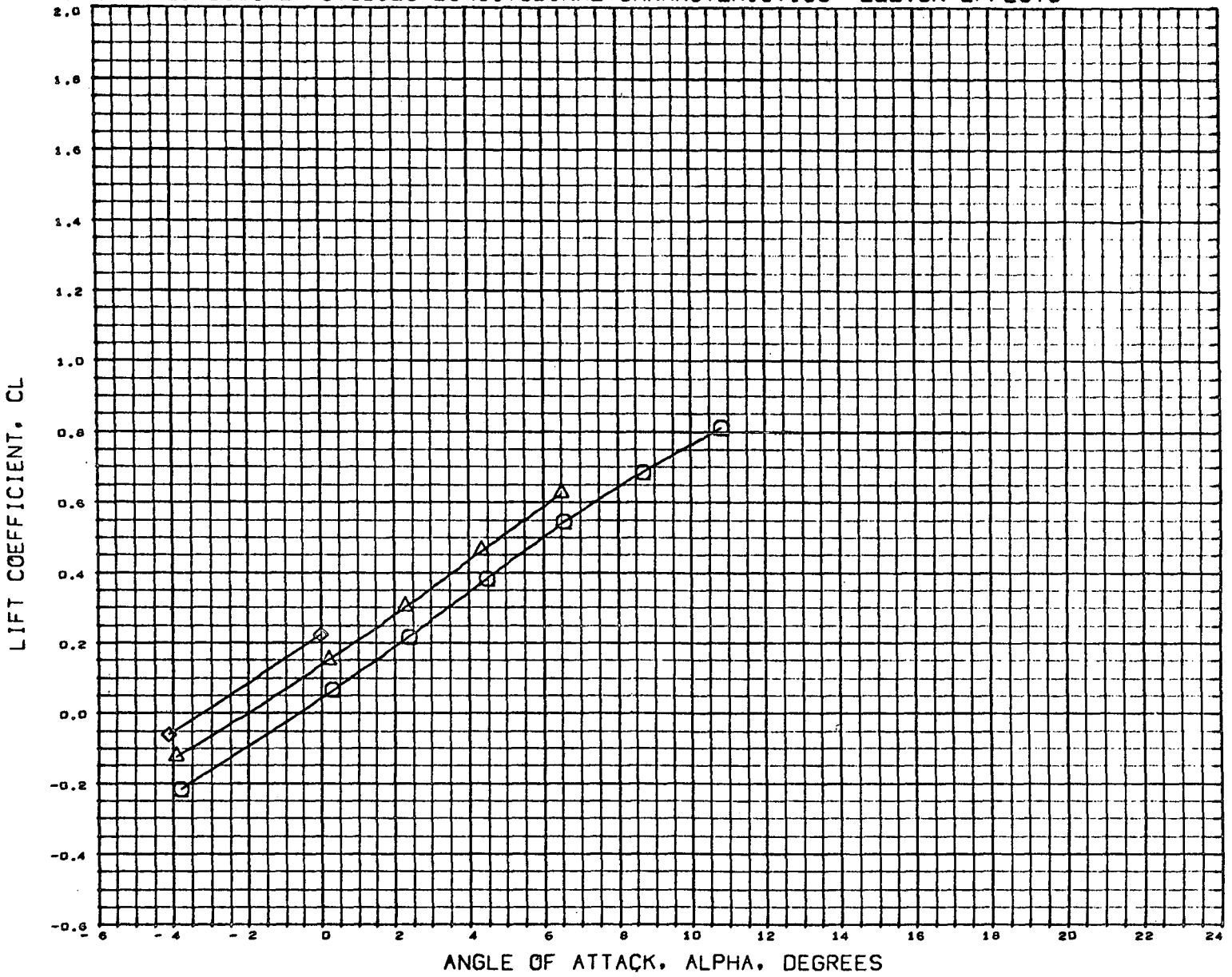
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.999

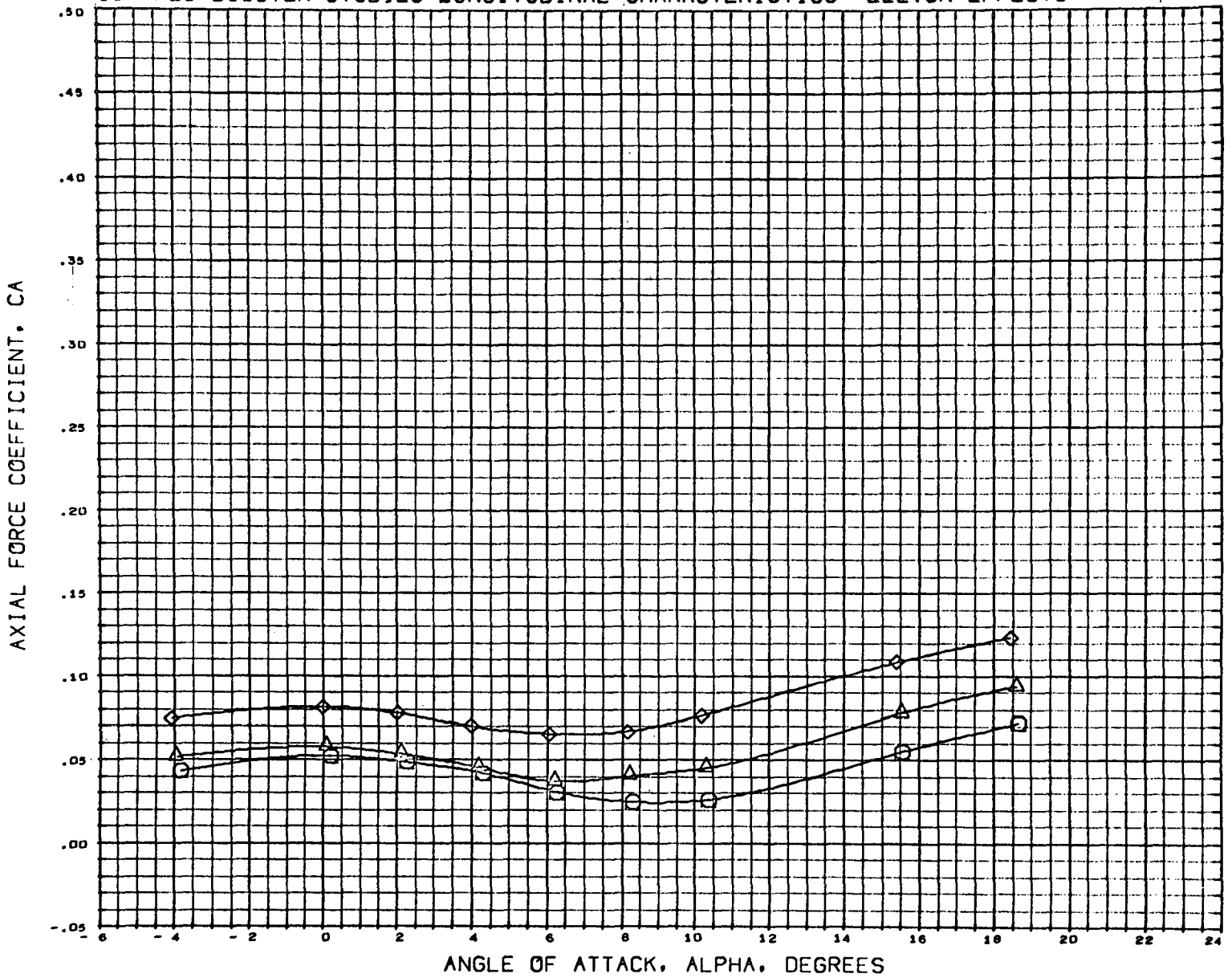
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.128

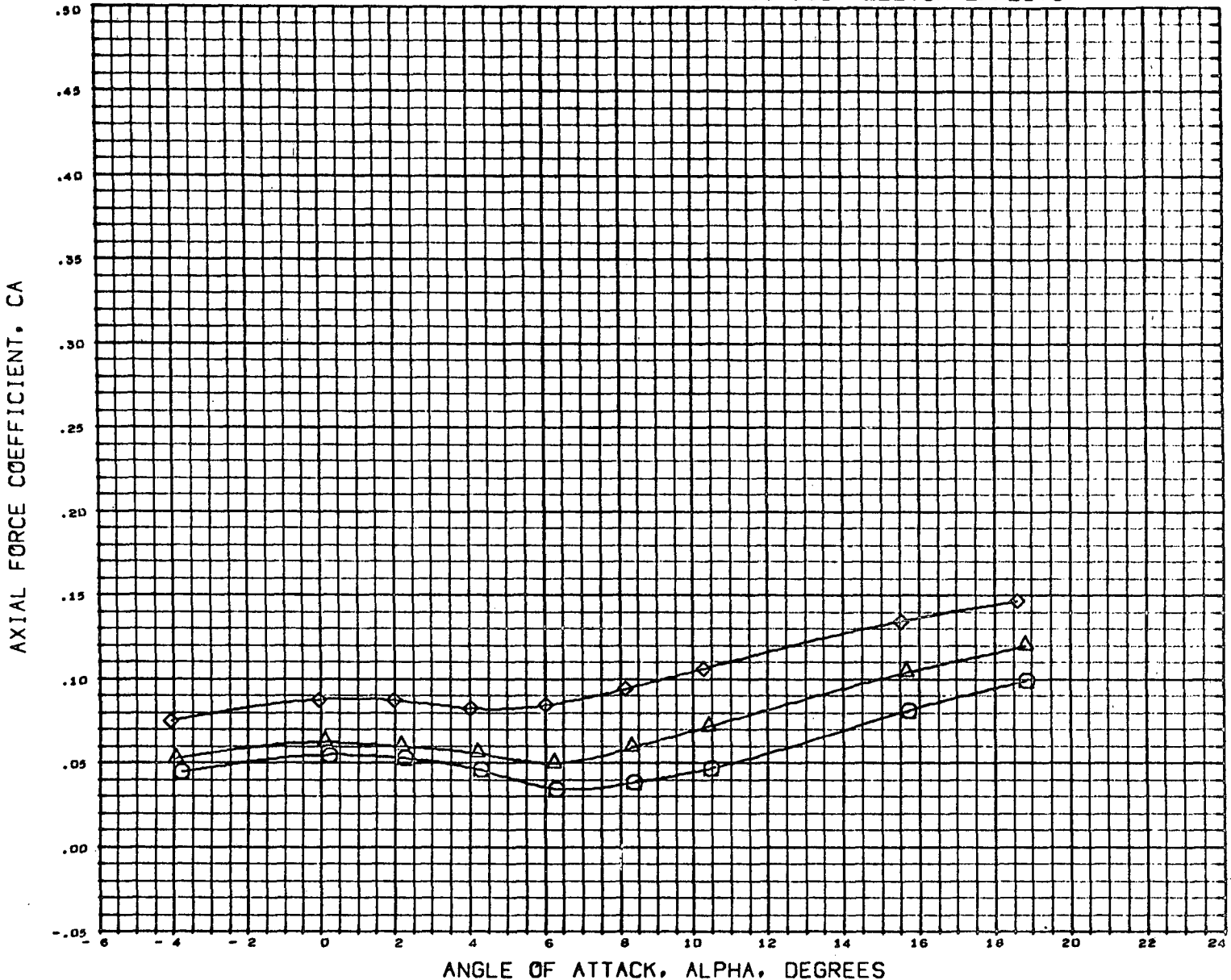
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.704

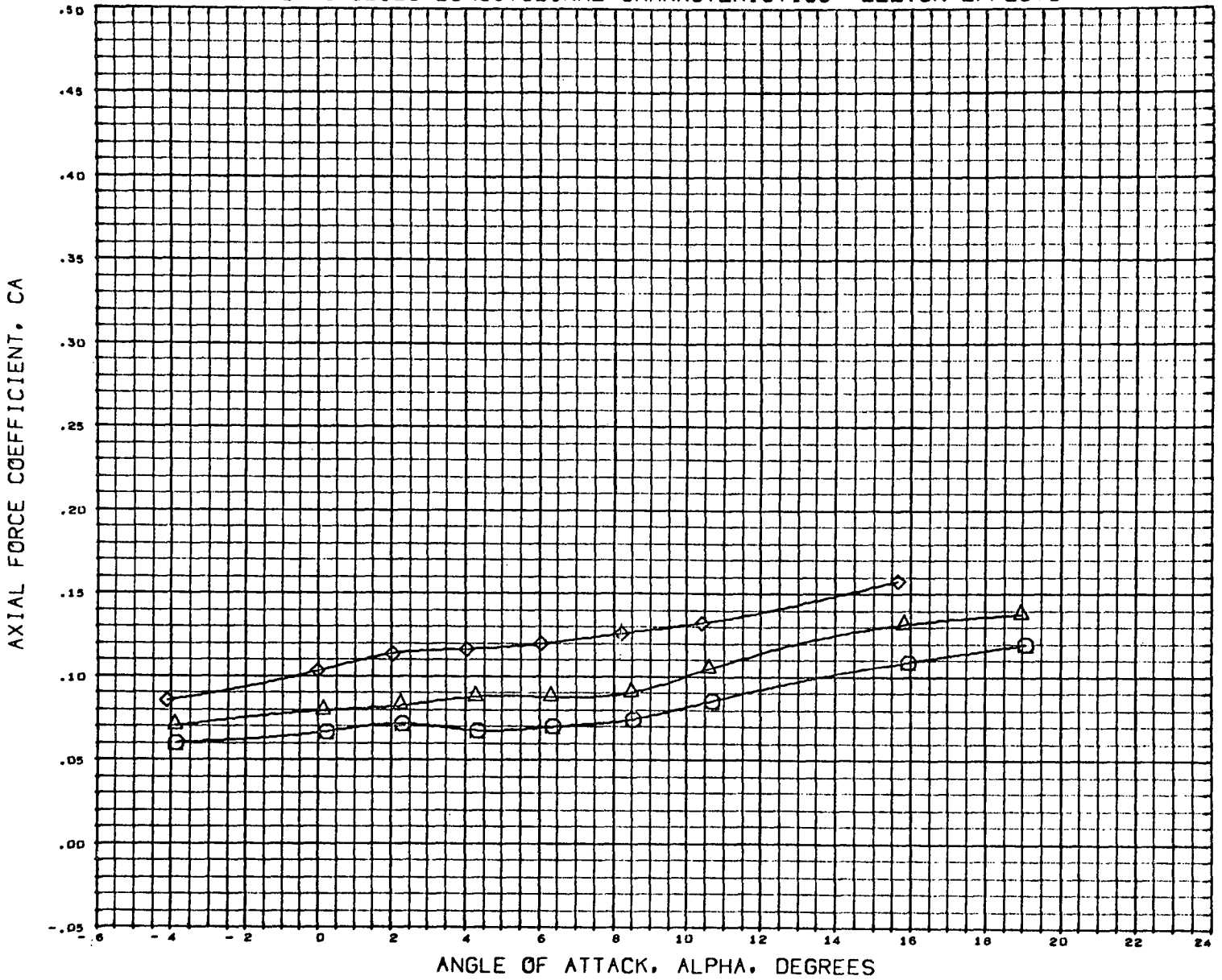
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
							XMRP 2.9950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.802

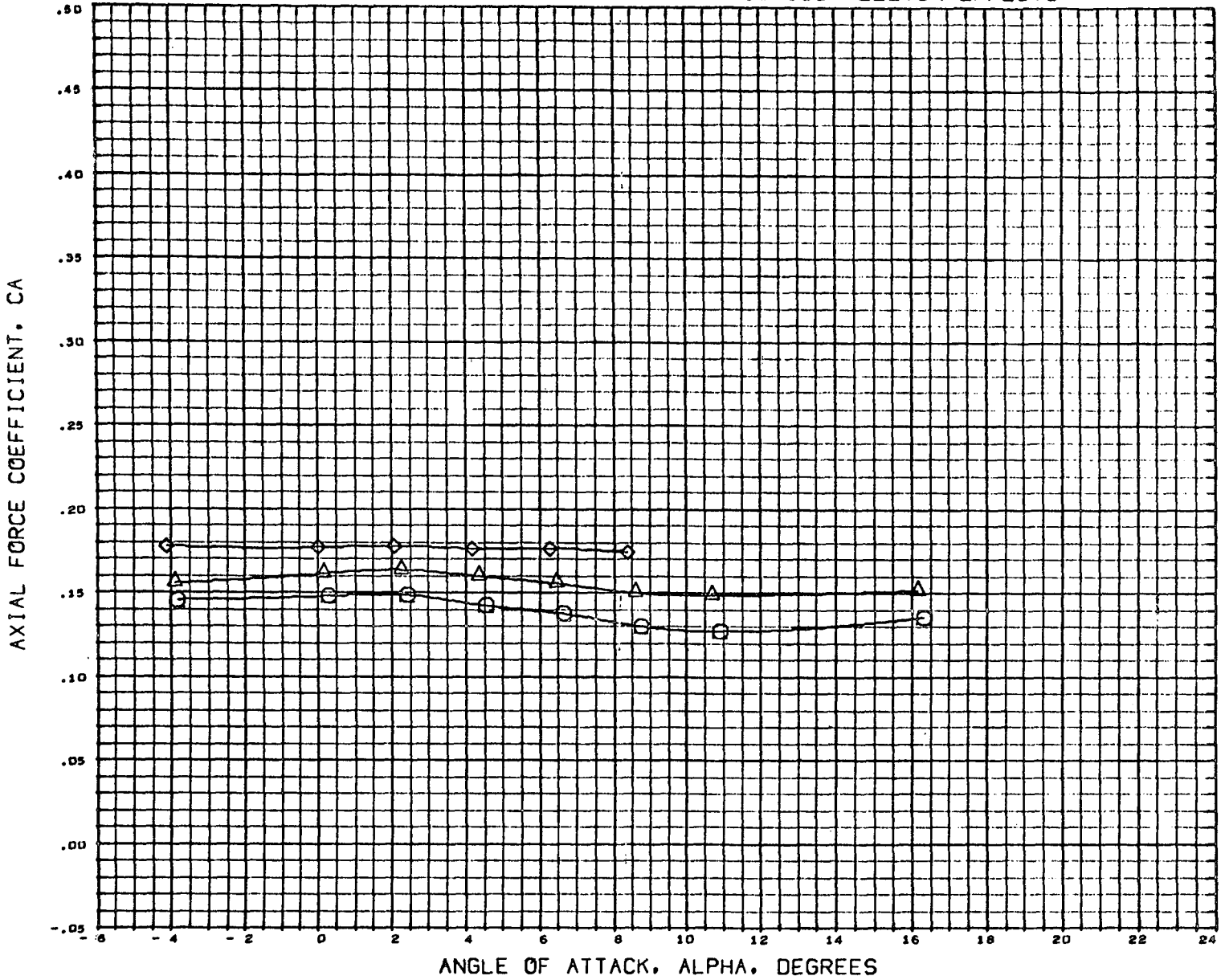
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.901

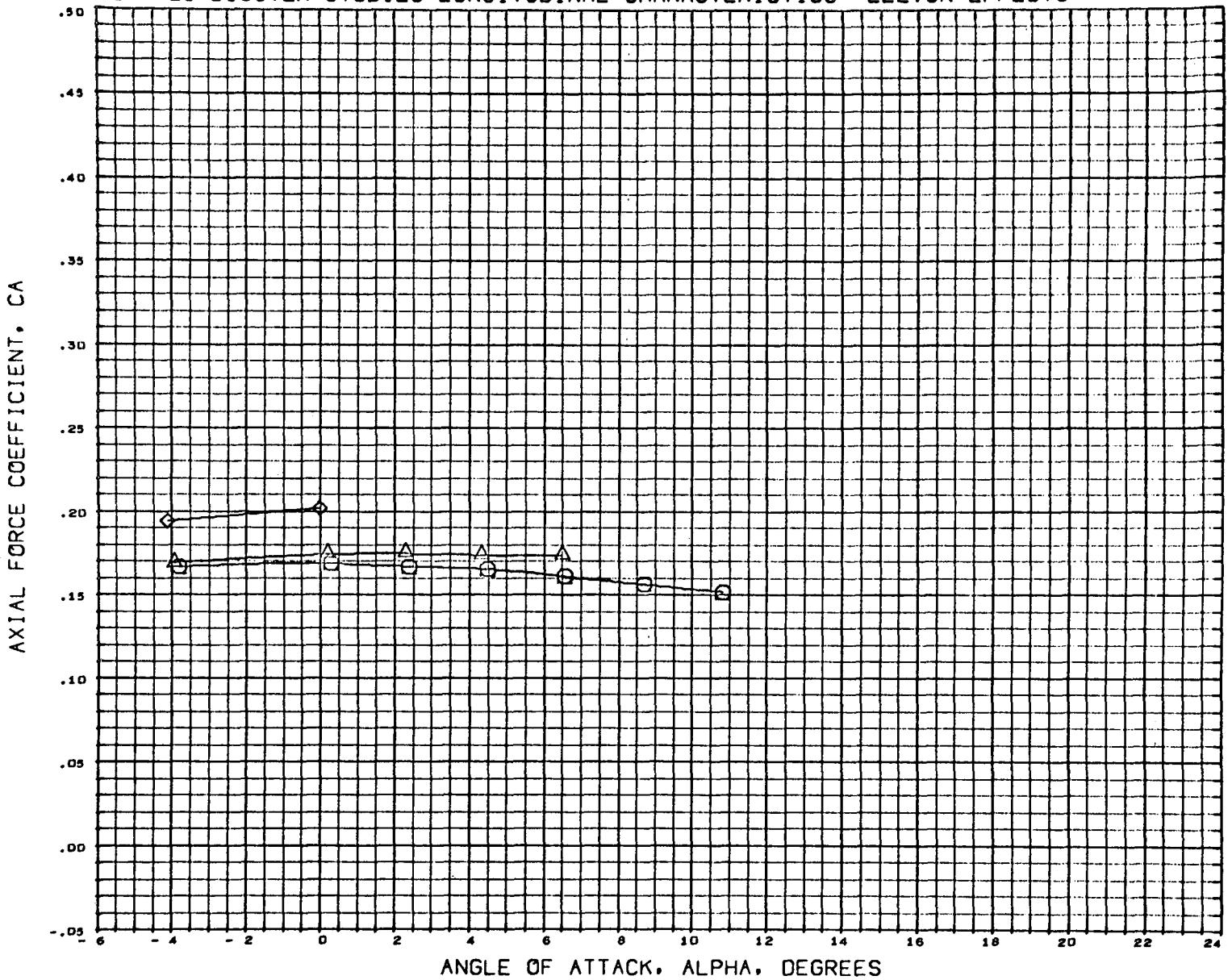
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						YMRP	2.5950 FEET
						ZMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

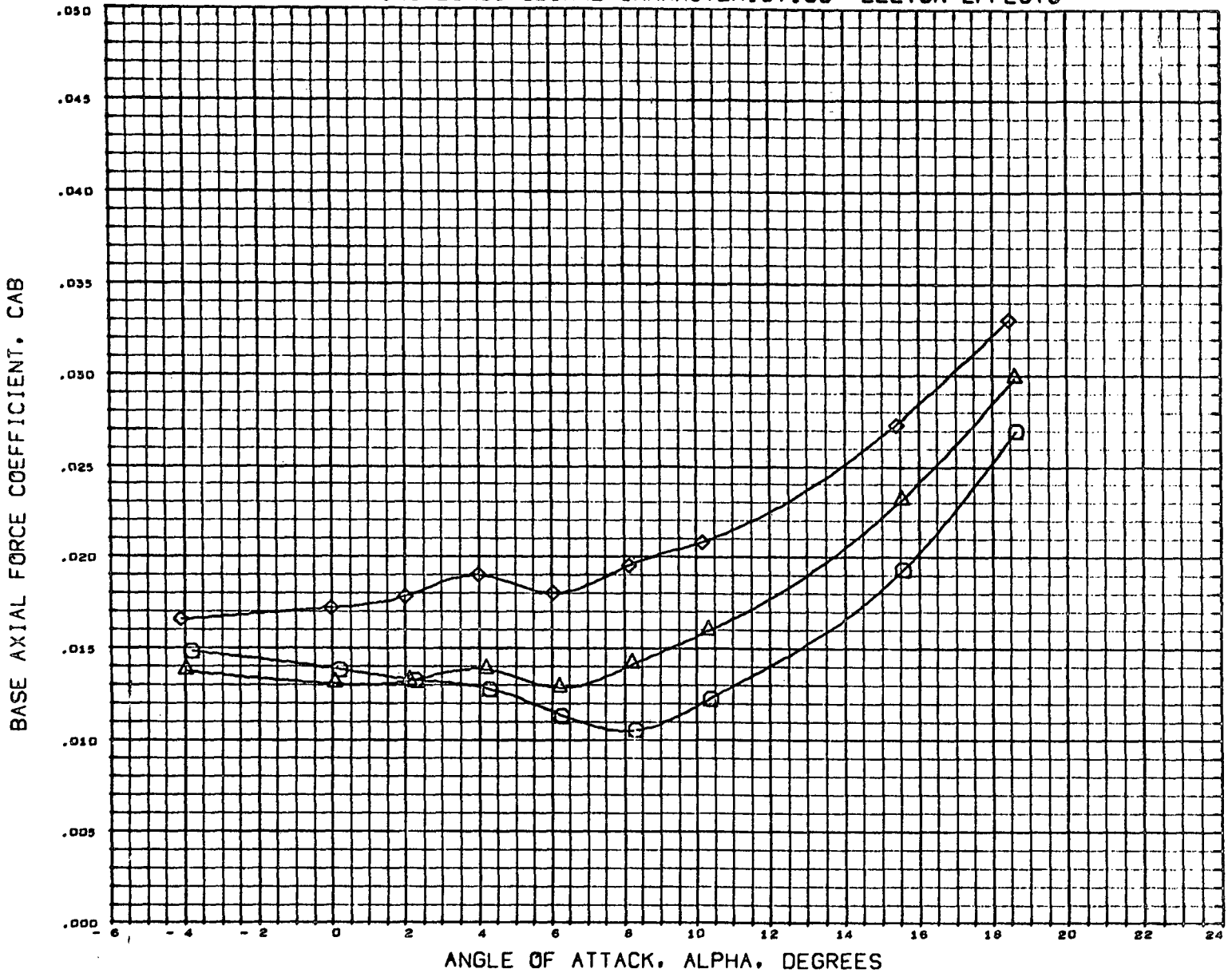
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 50.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.128

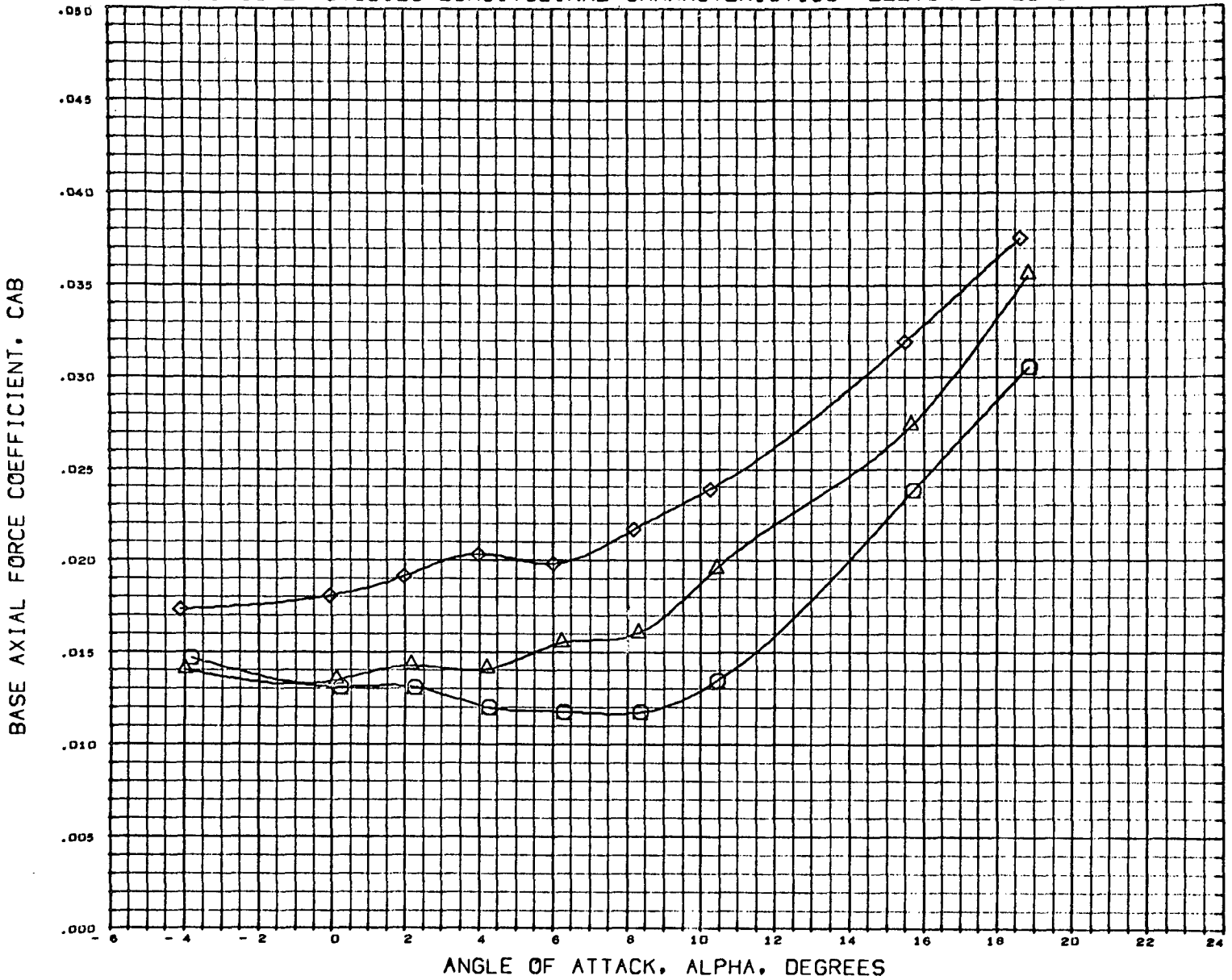
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILERON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
						XMRF 2.5950 FEET
						YMRF 0.0000 FEET
						ZMRF 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.704

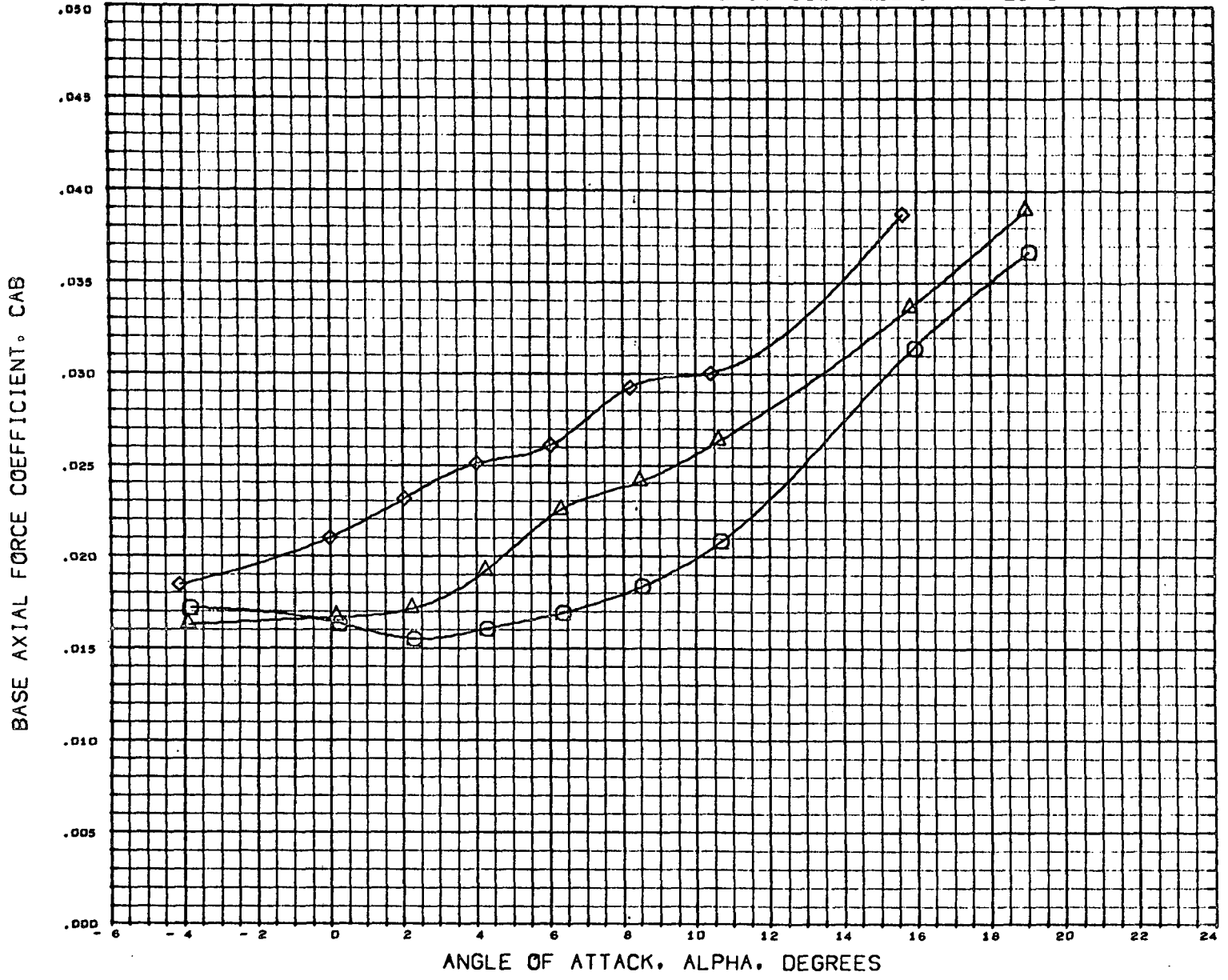
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

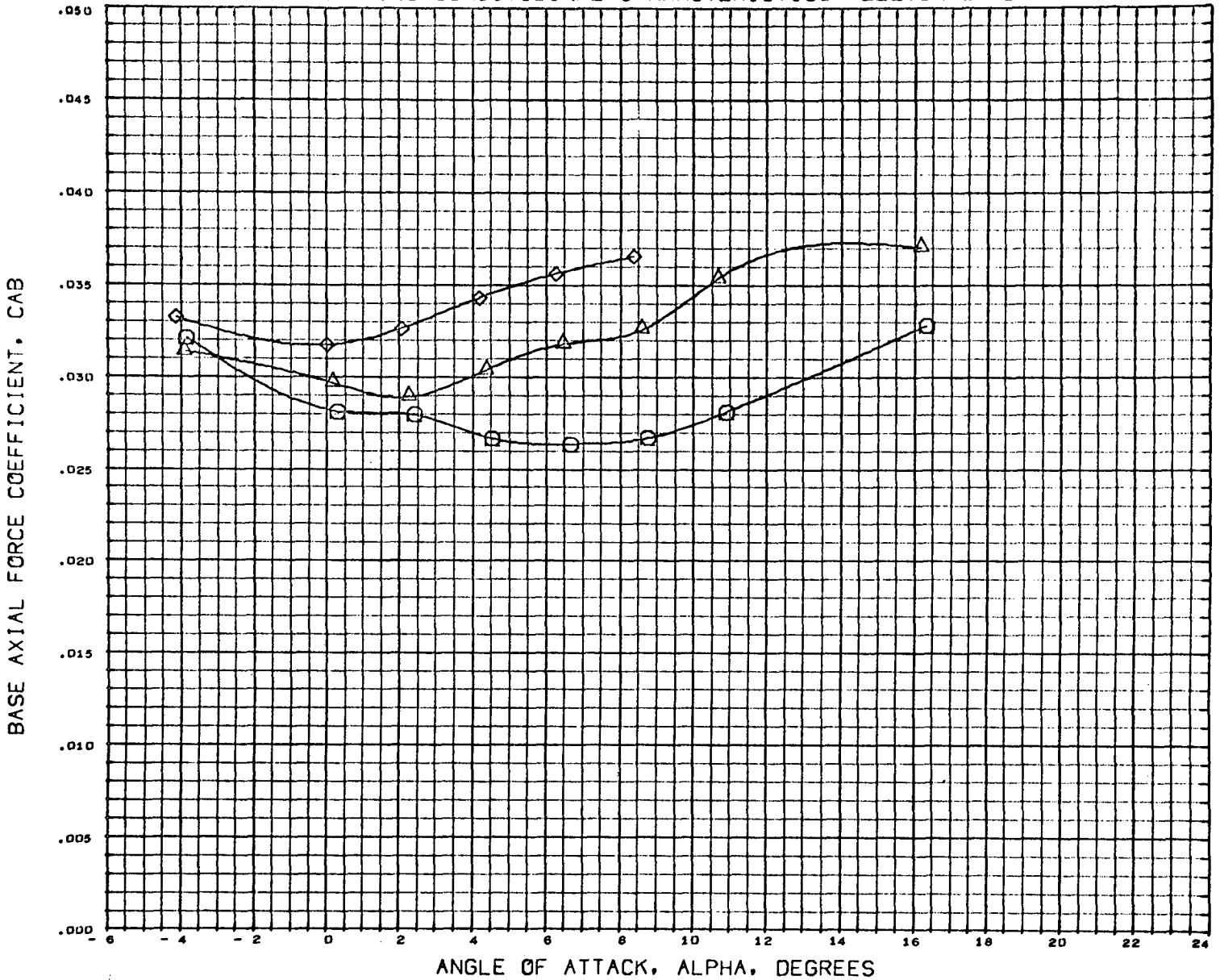
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

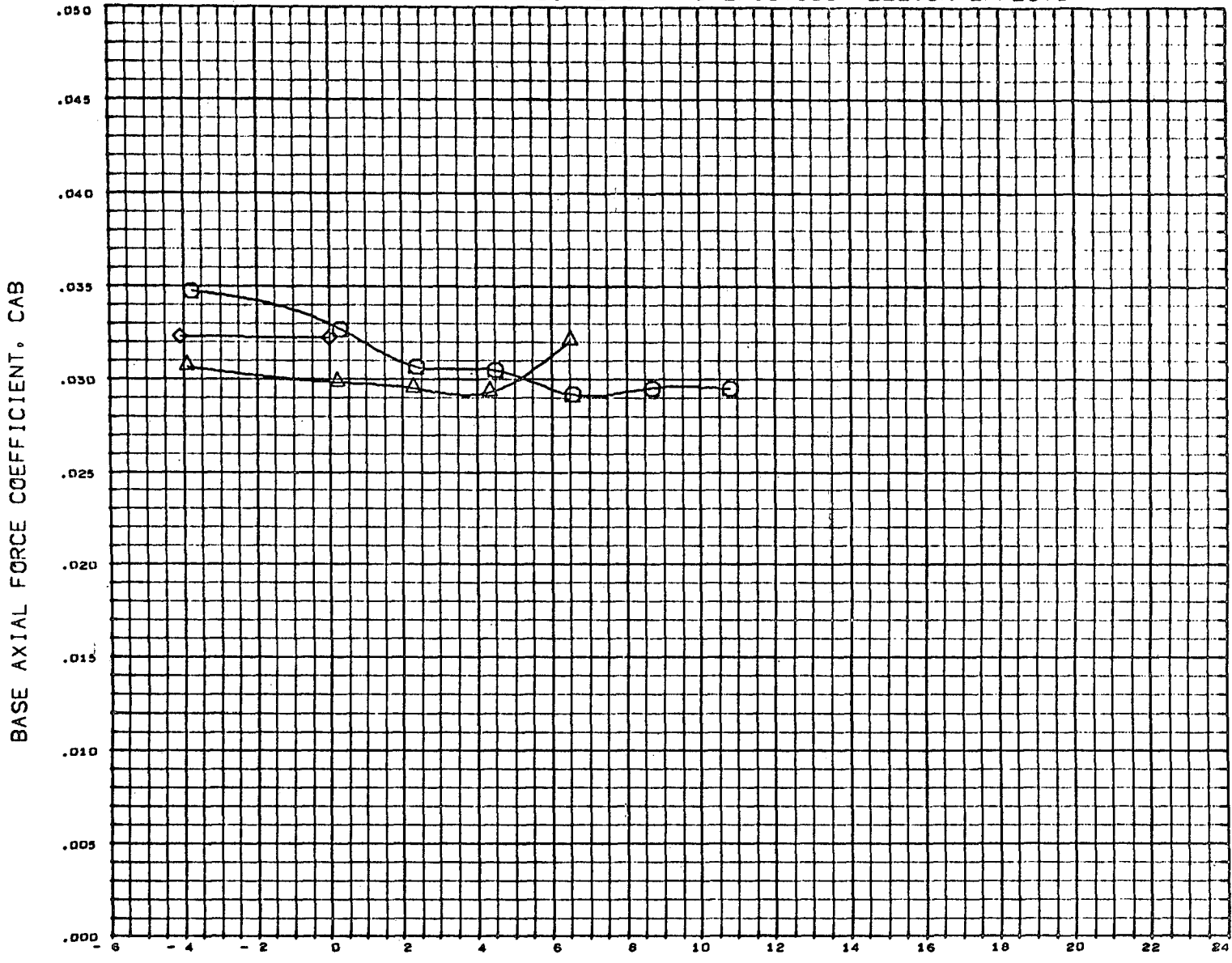
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

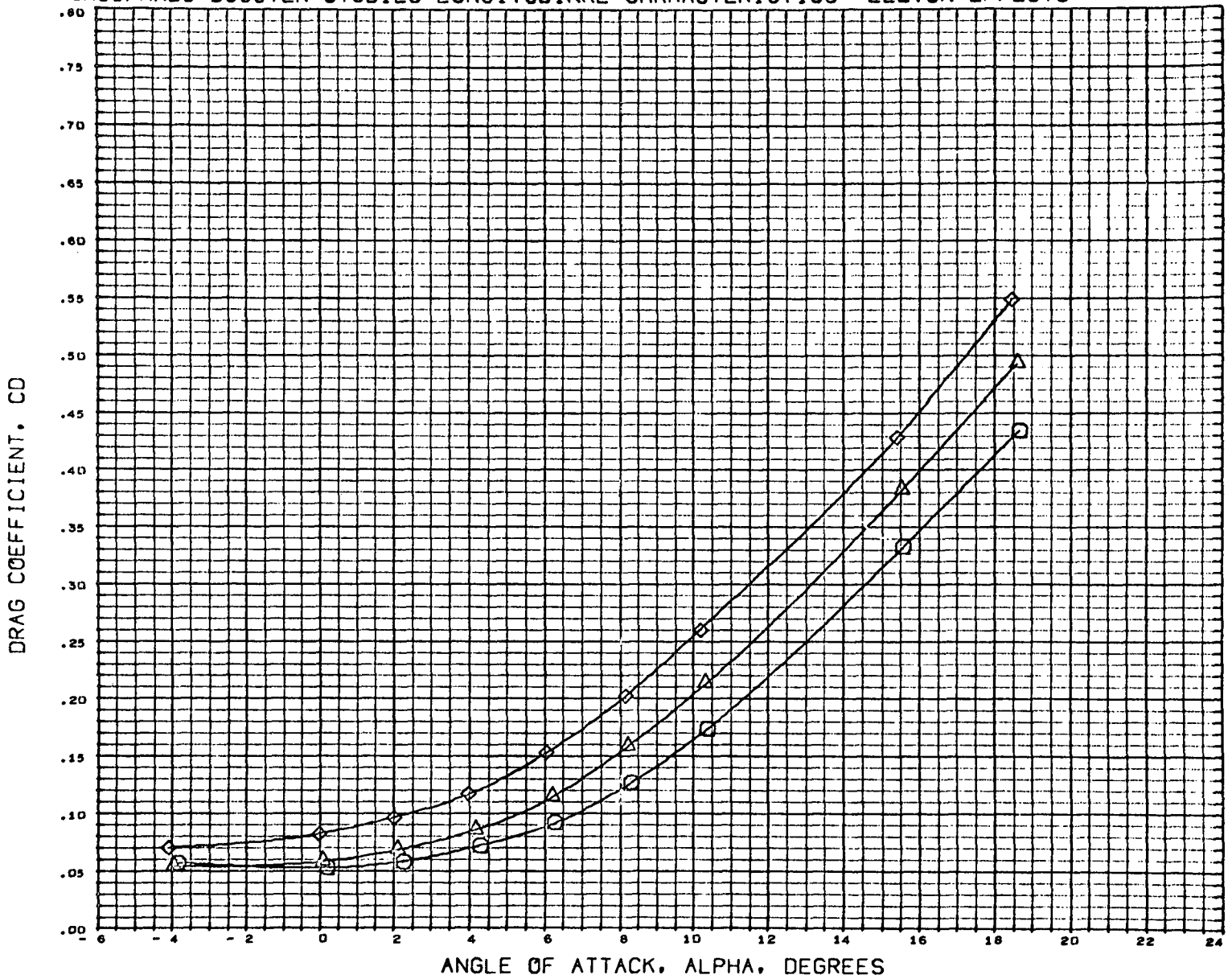


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ. FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 1.128

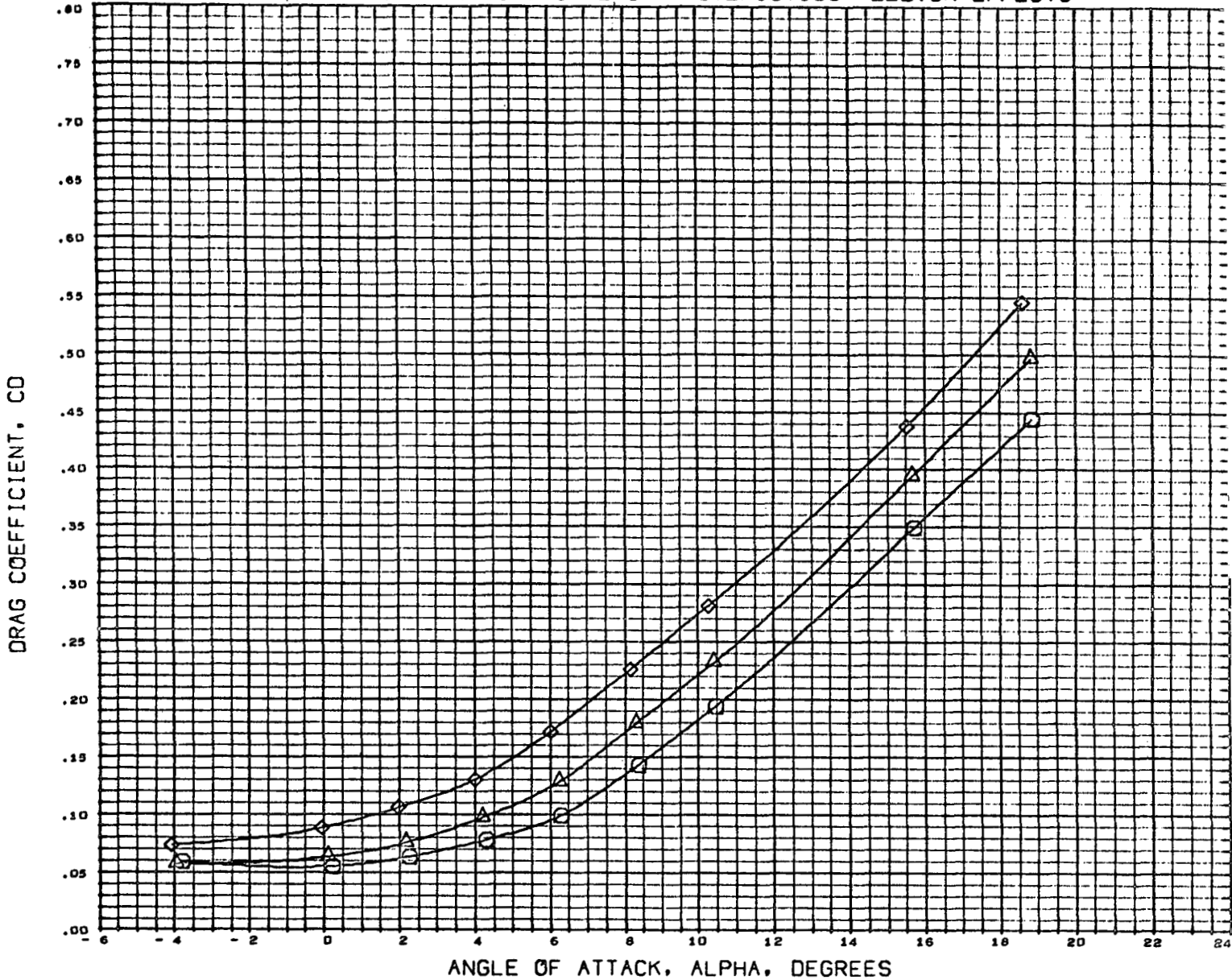
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XM RP	2.5950 FEET
						YM RP	0.0000 FEET
						ZM RP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

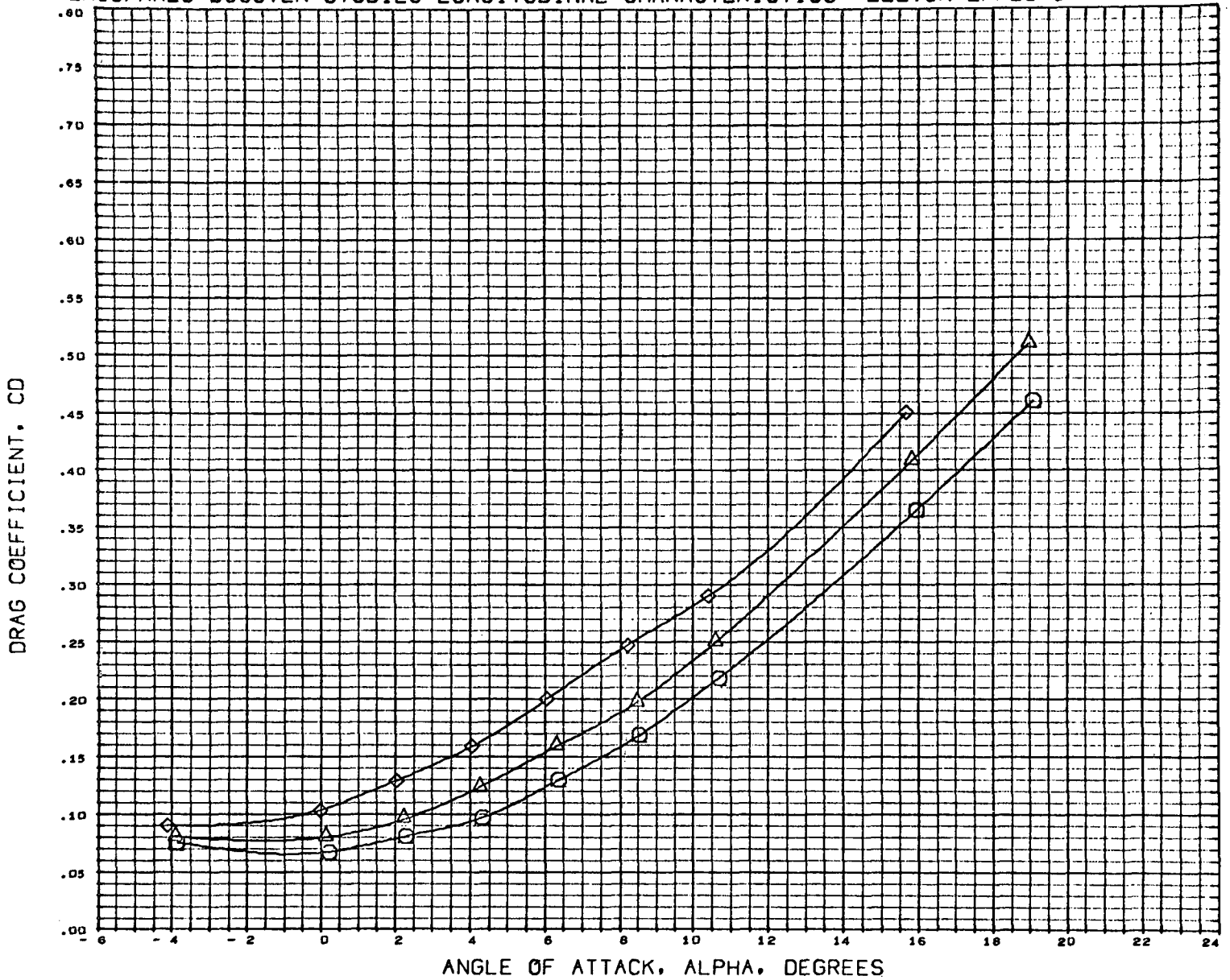
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(R3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(R3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(R3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
						XHRP 2.9950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.802

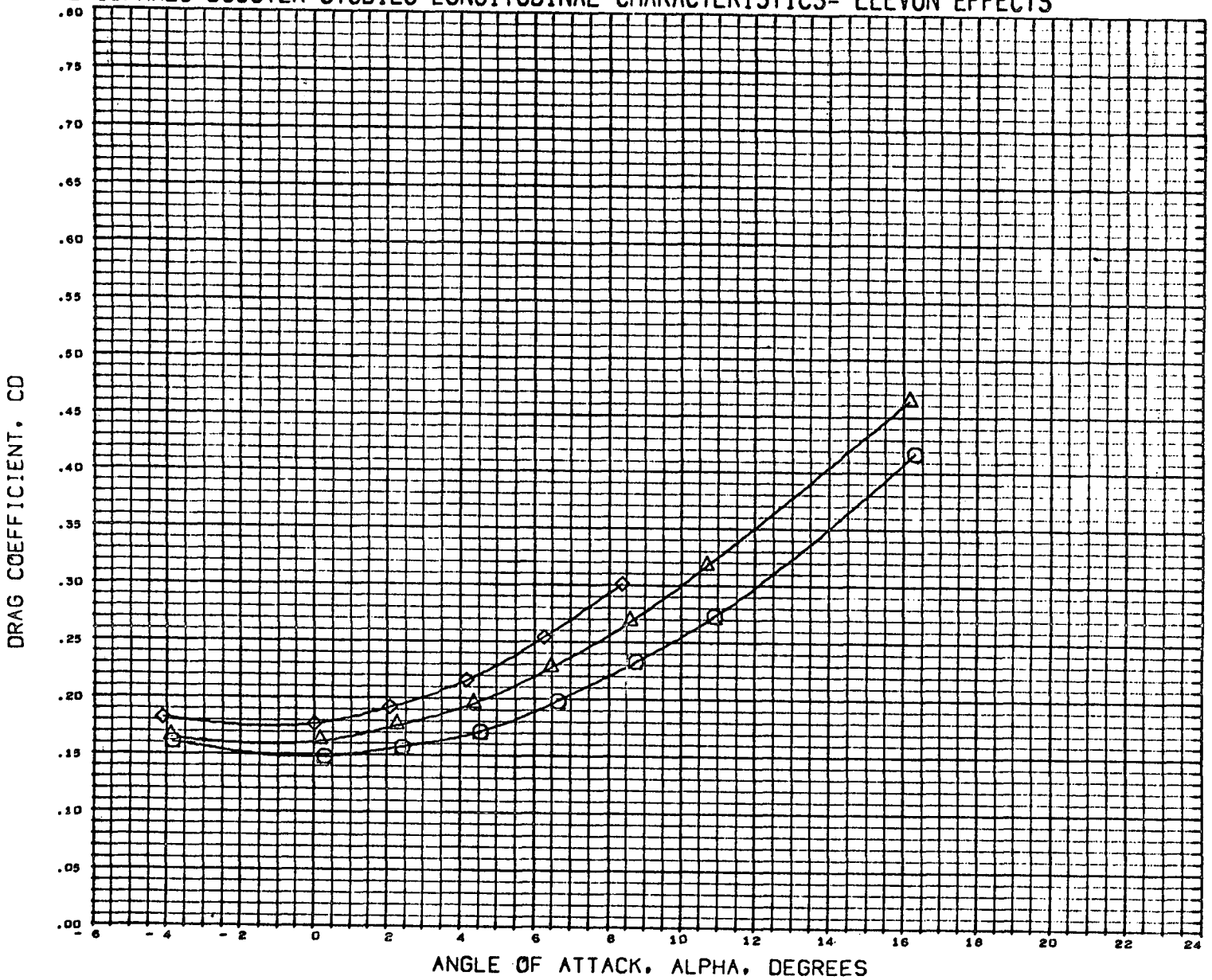
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

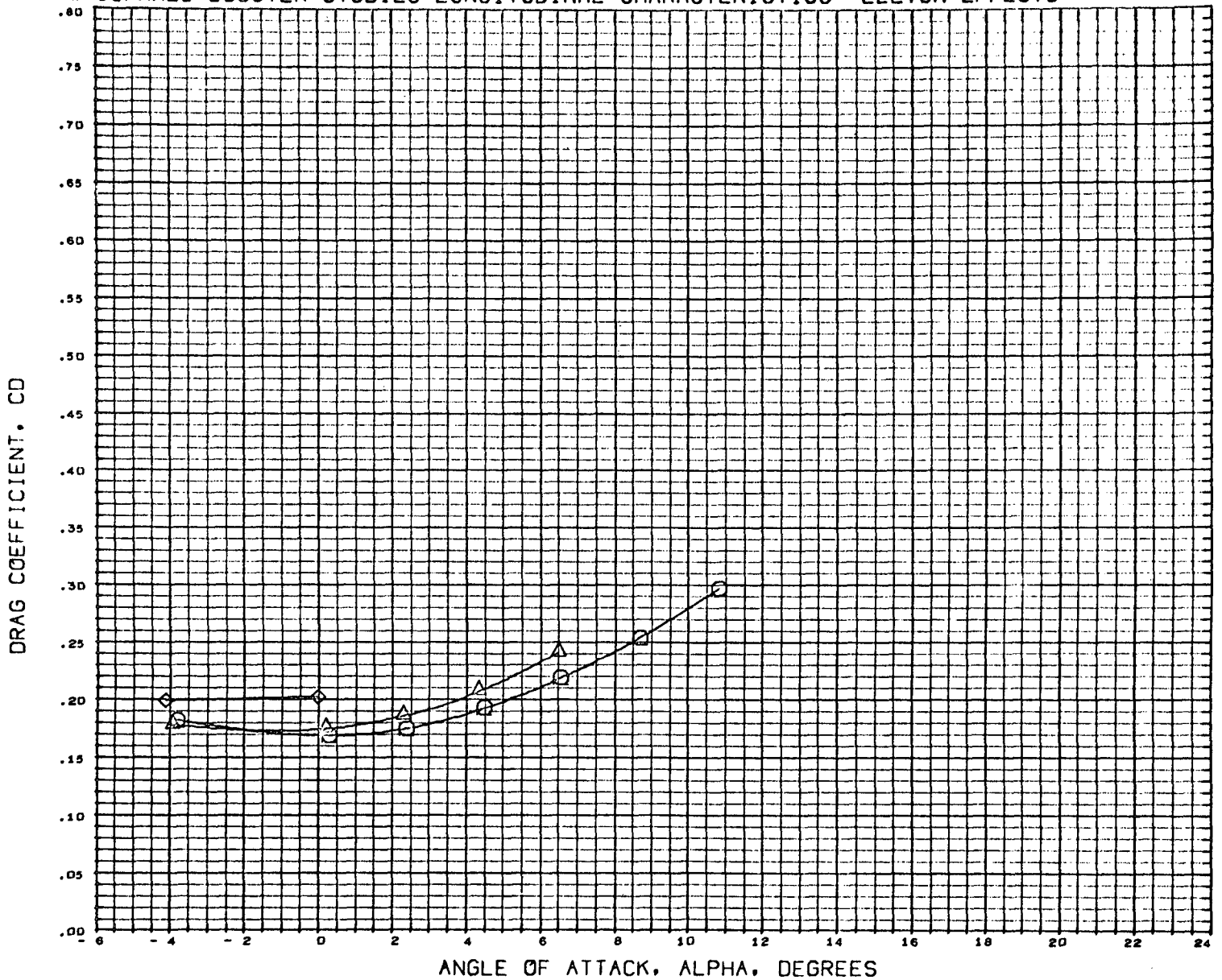
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.F.T.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.999

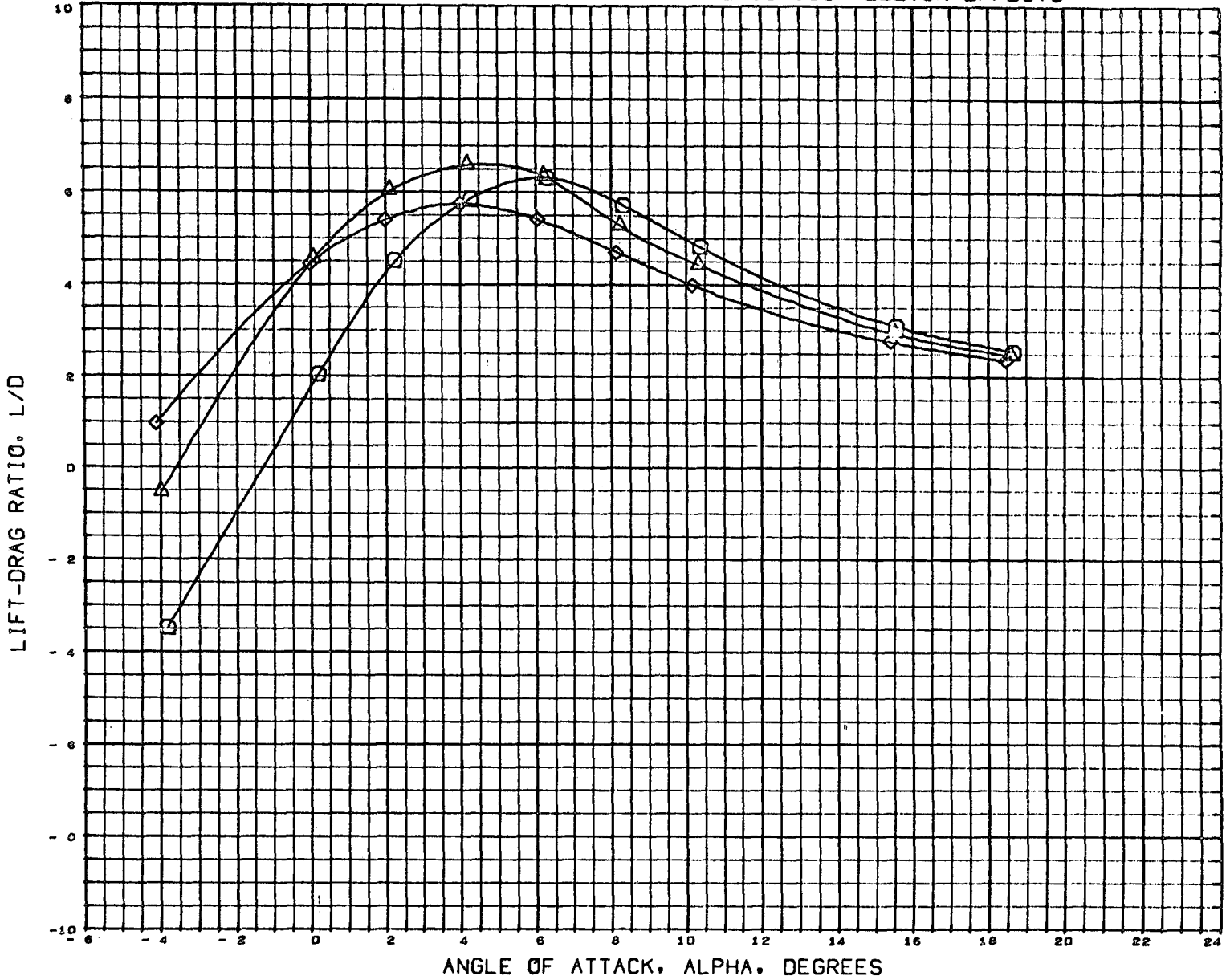
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 90.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

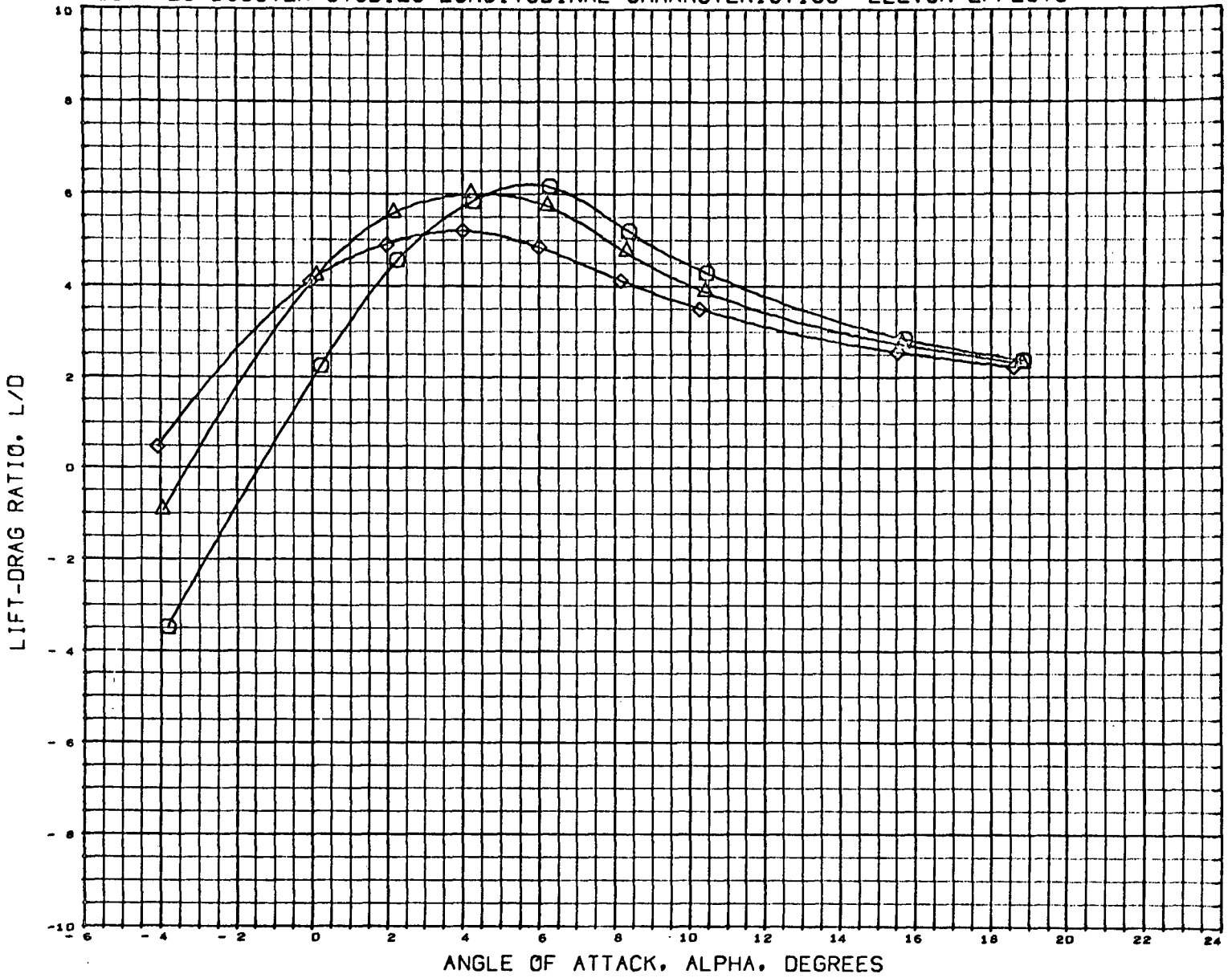
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.704

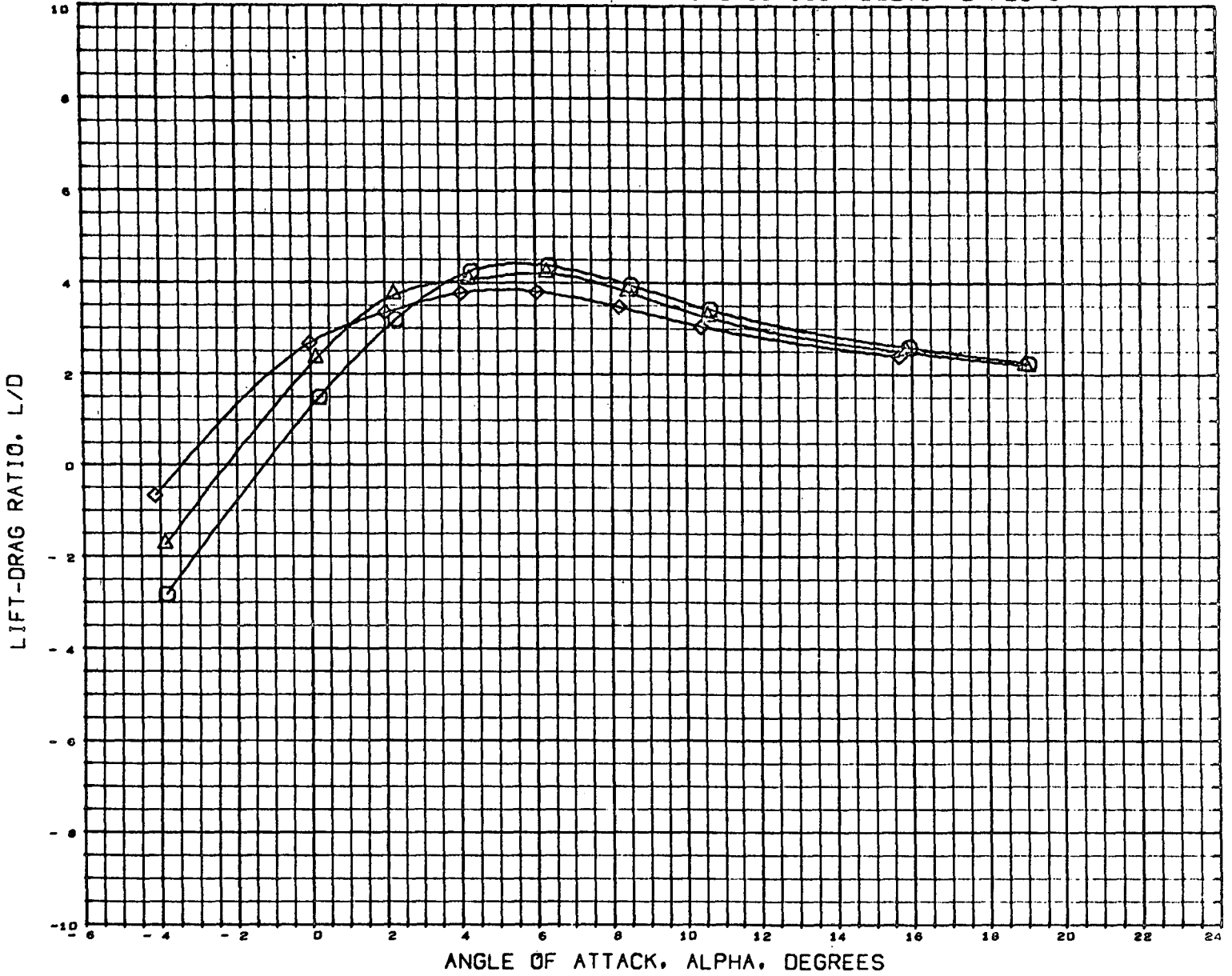
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

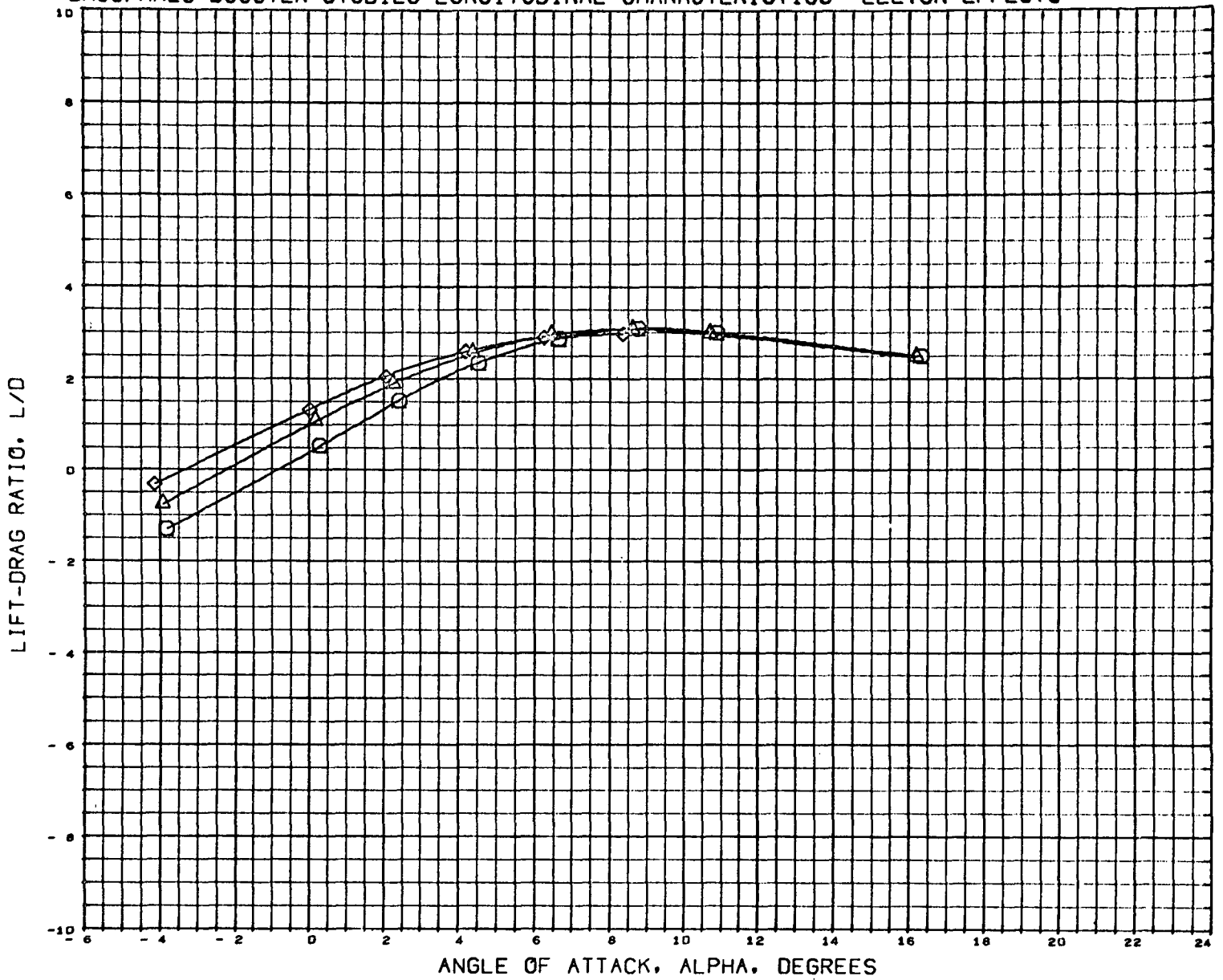
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

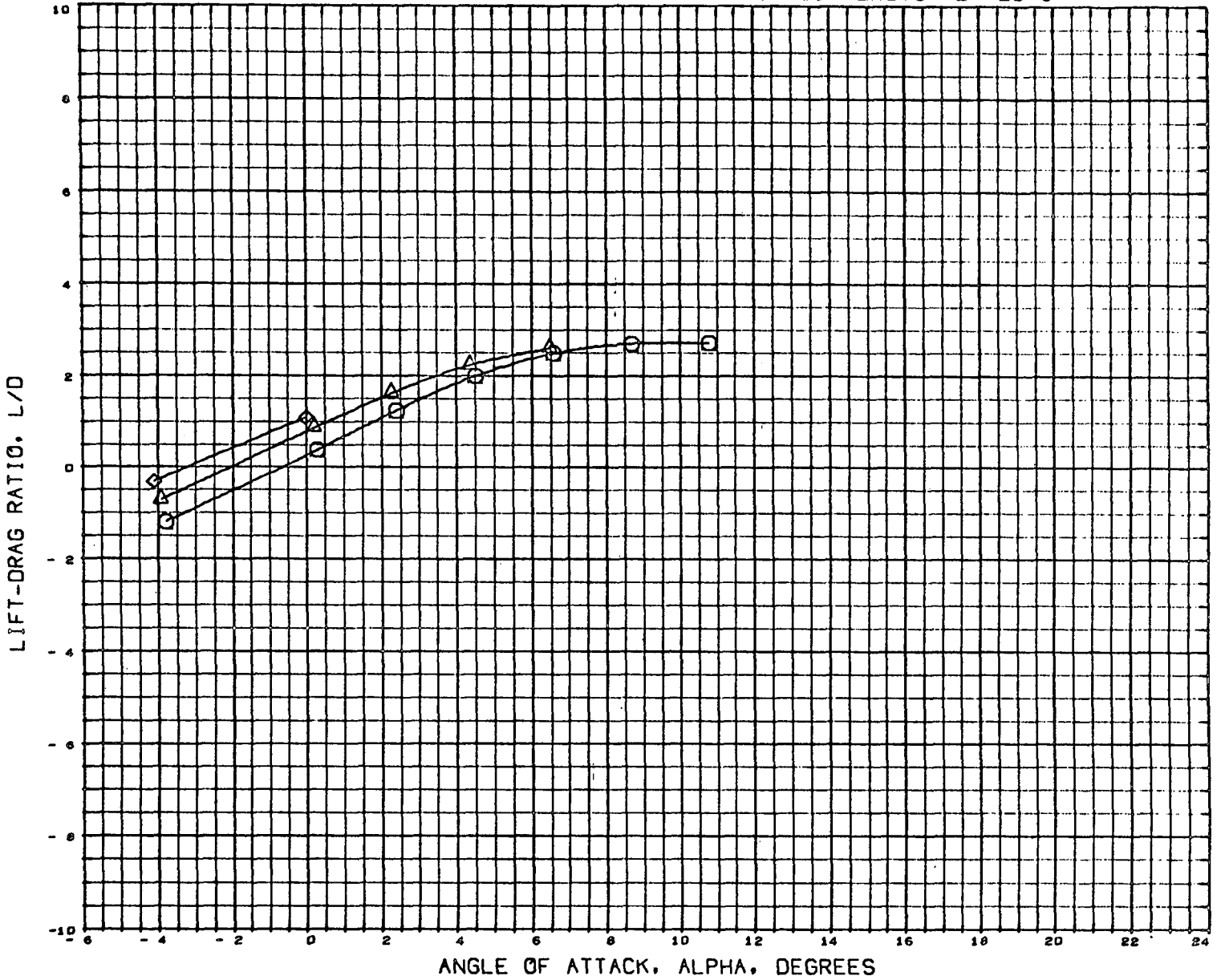
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.995

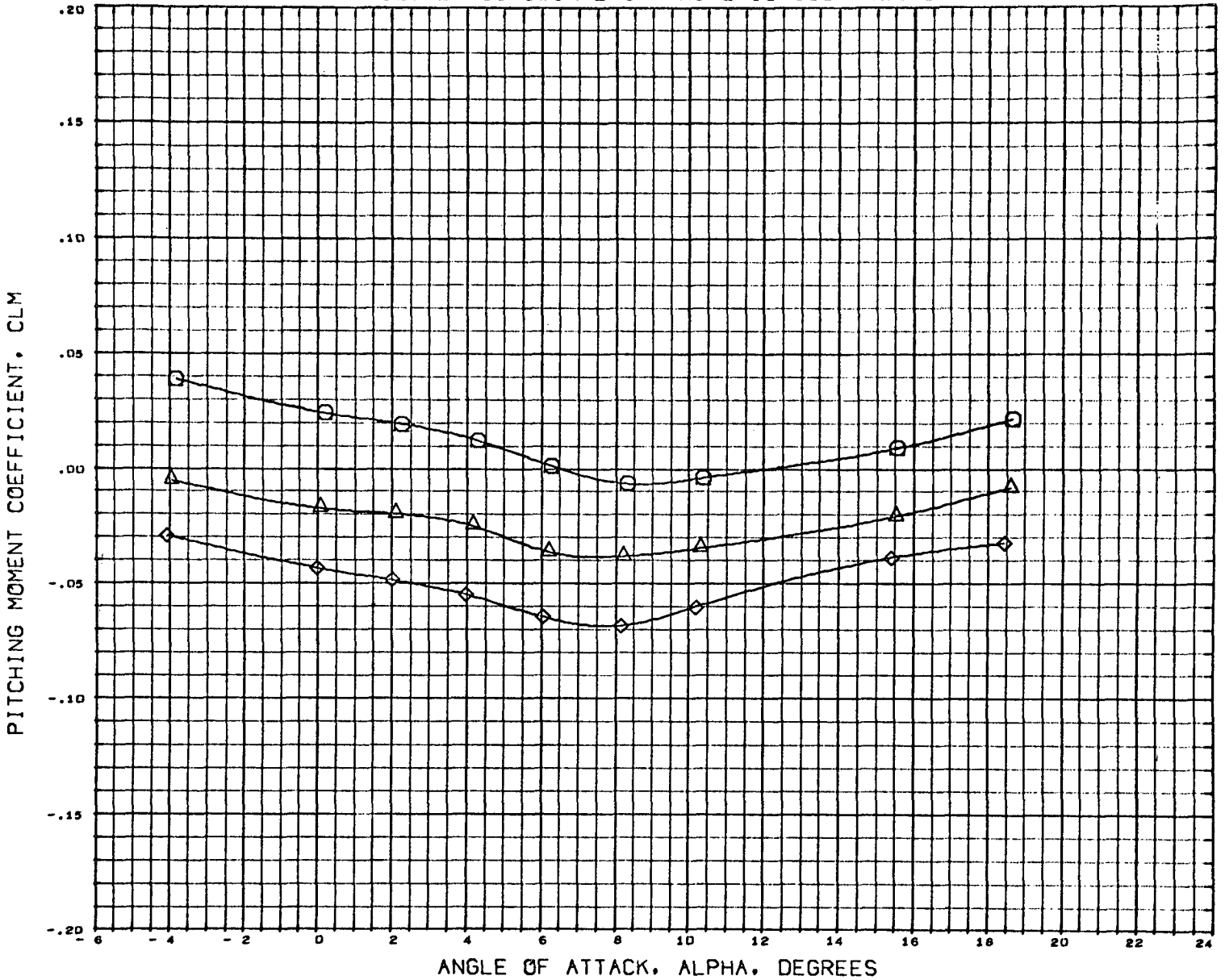
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

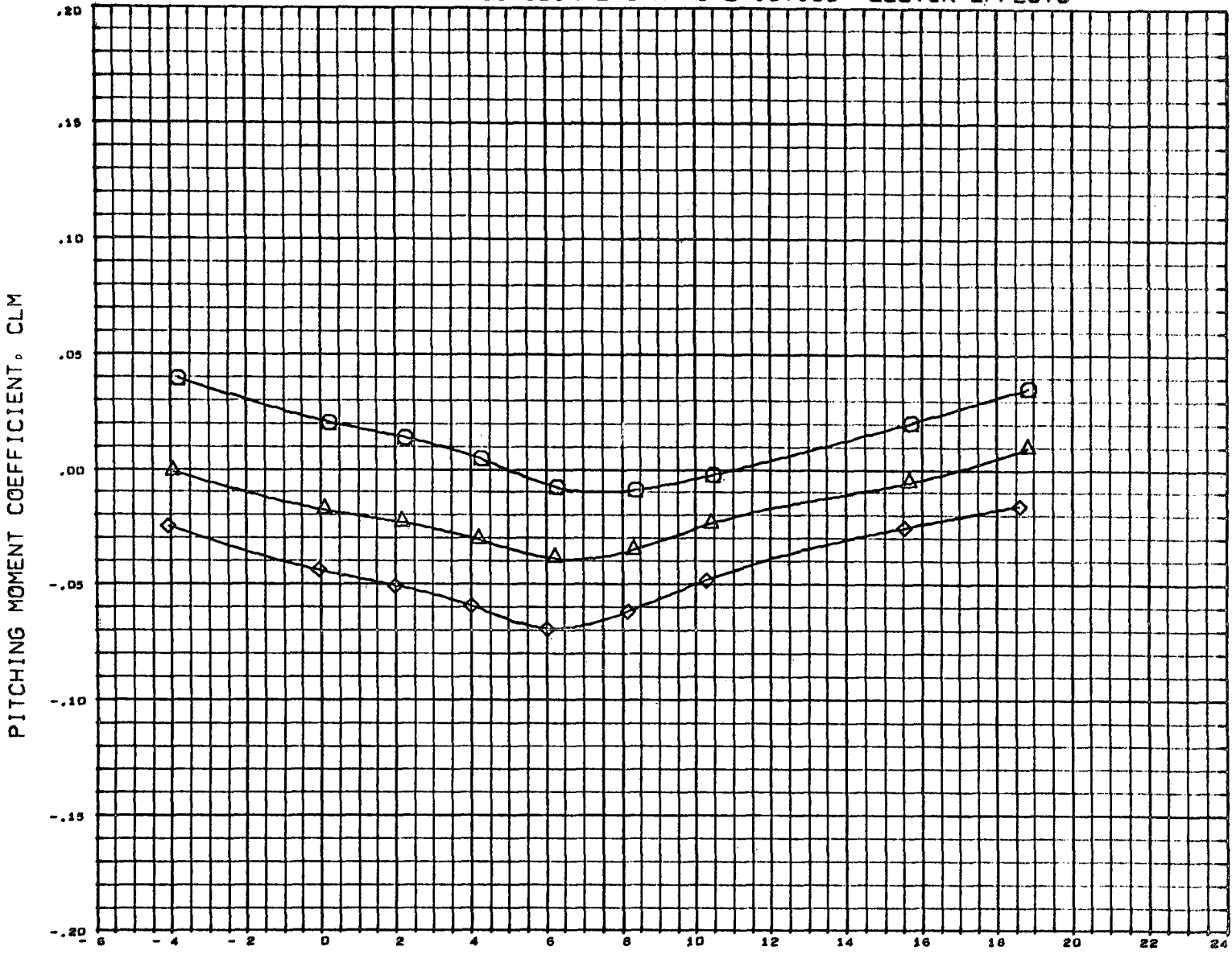
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

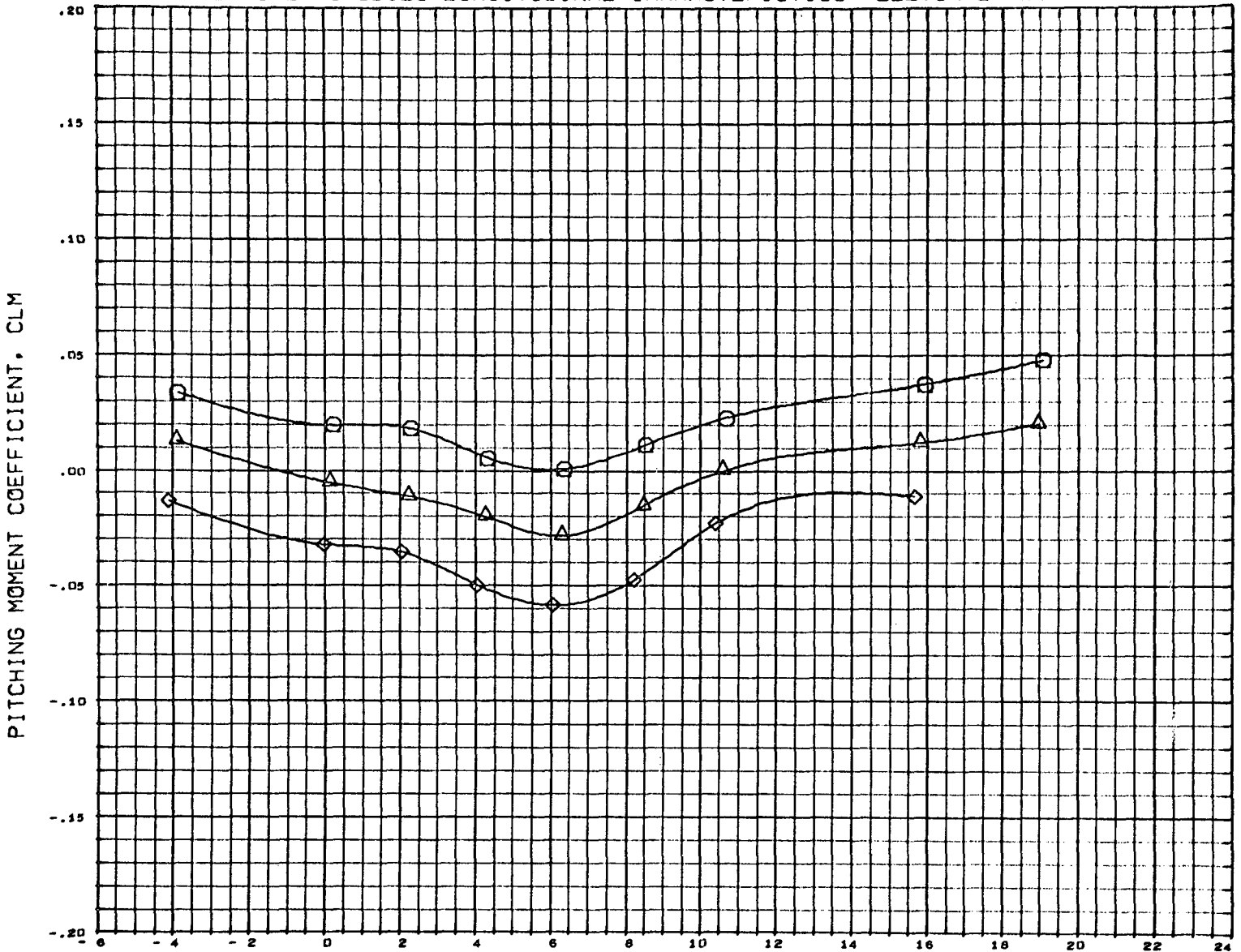


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.802

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

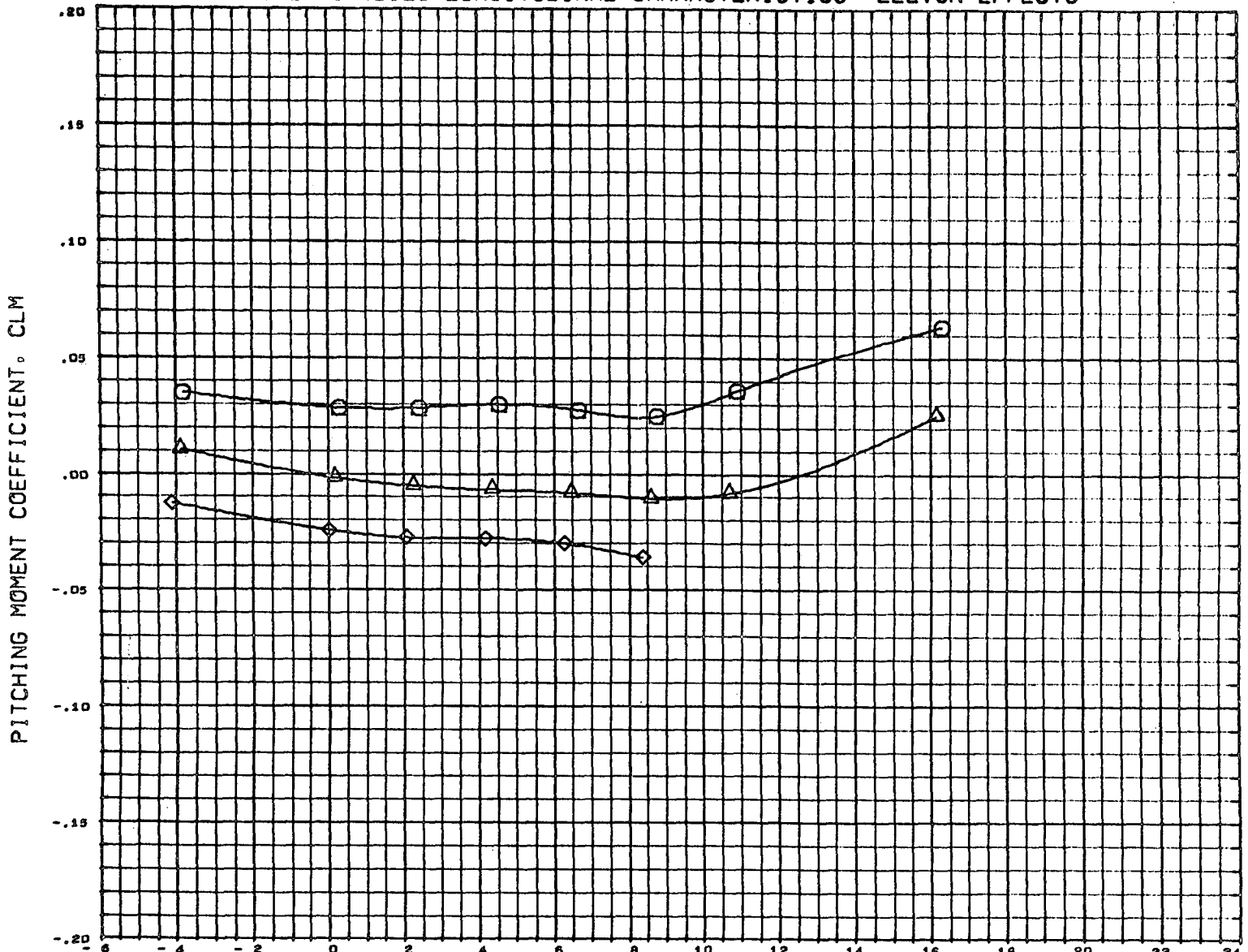


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LRCF 3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.901

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

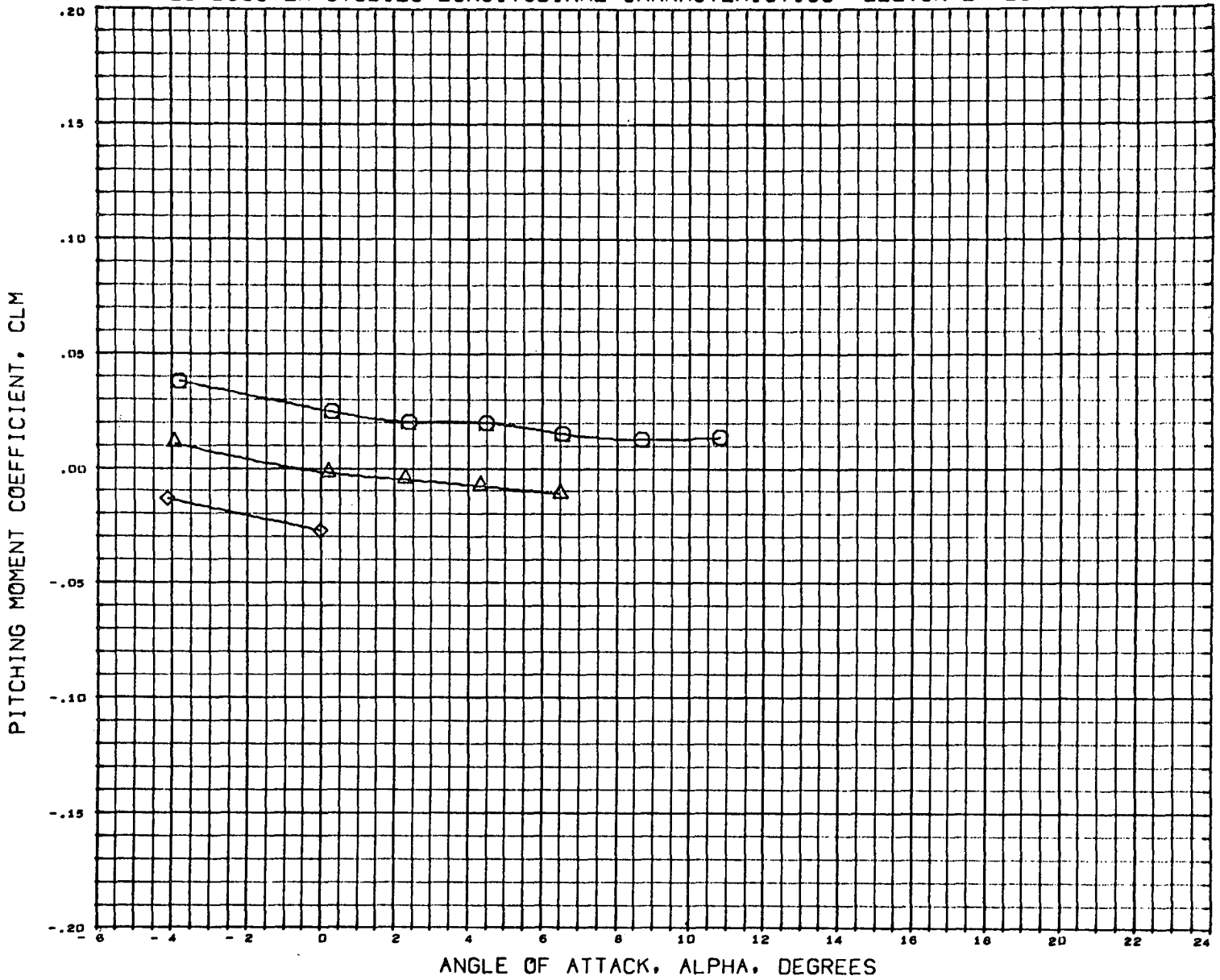


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.999

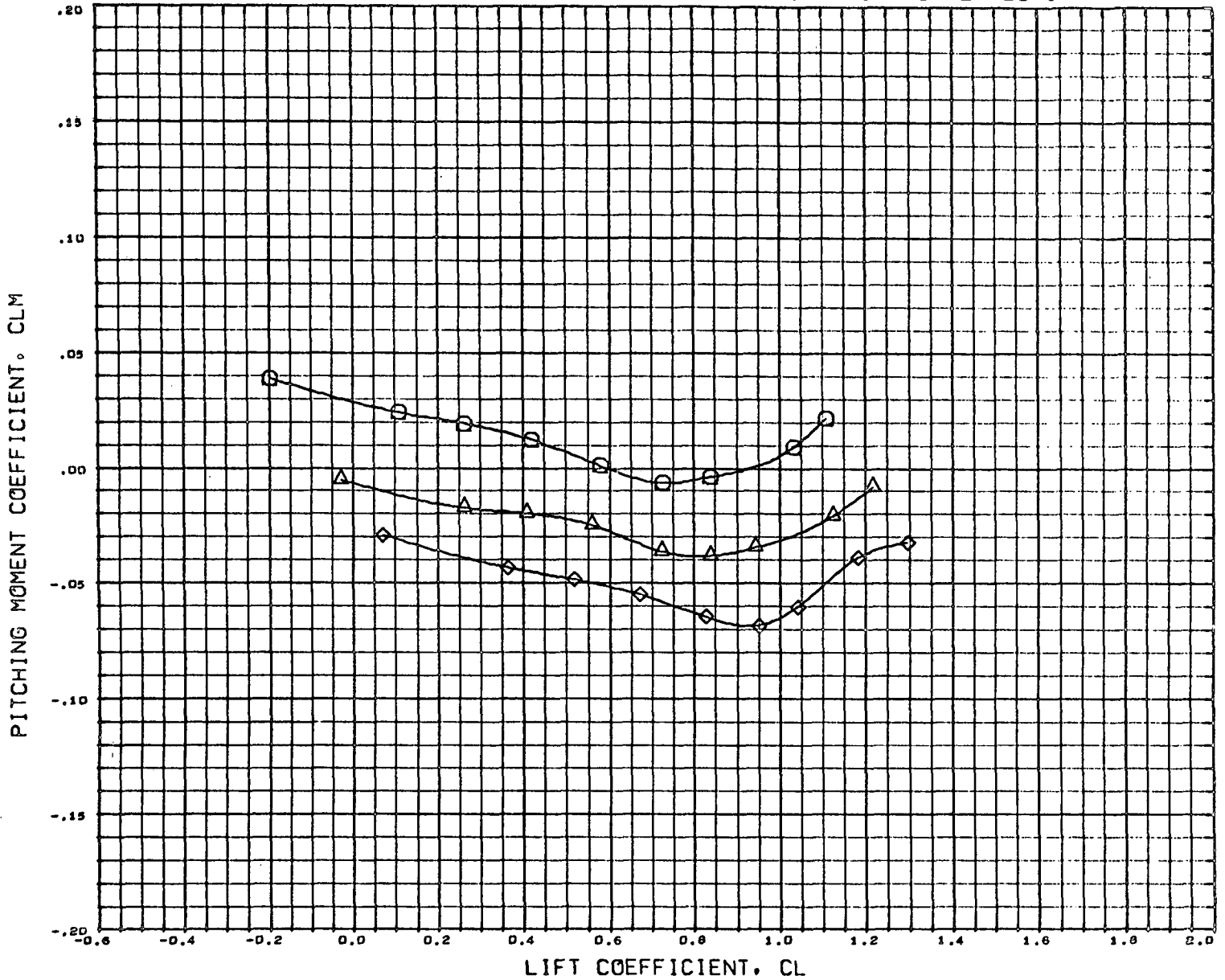
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.128

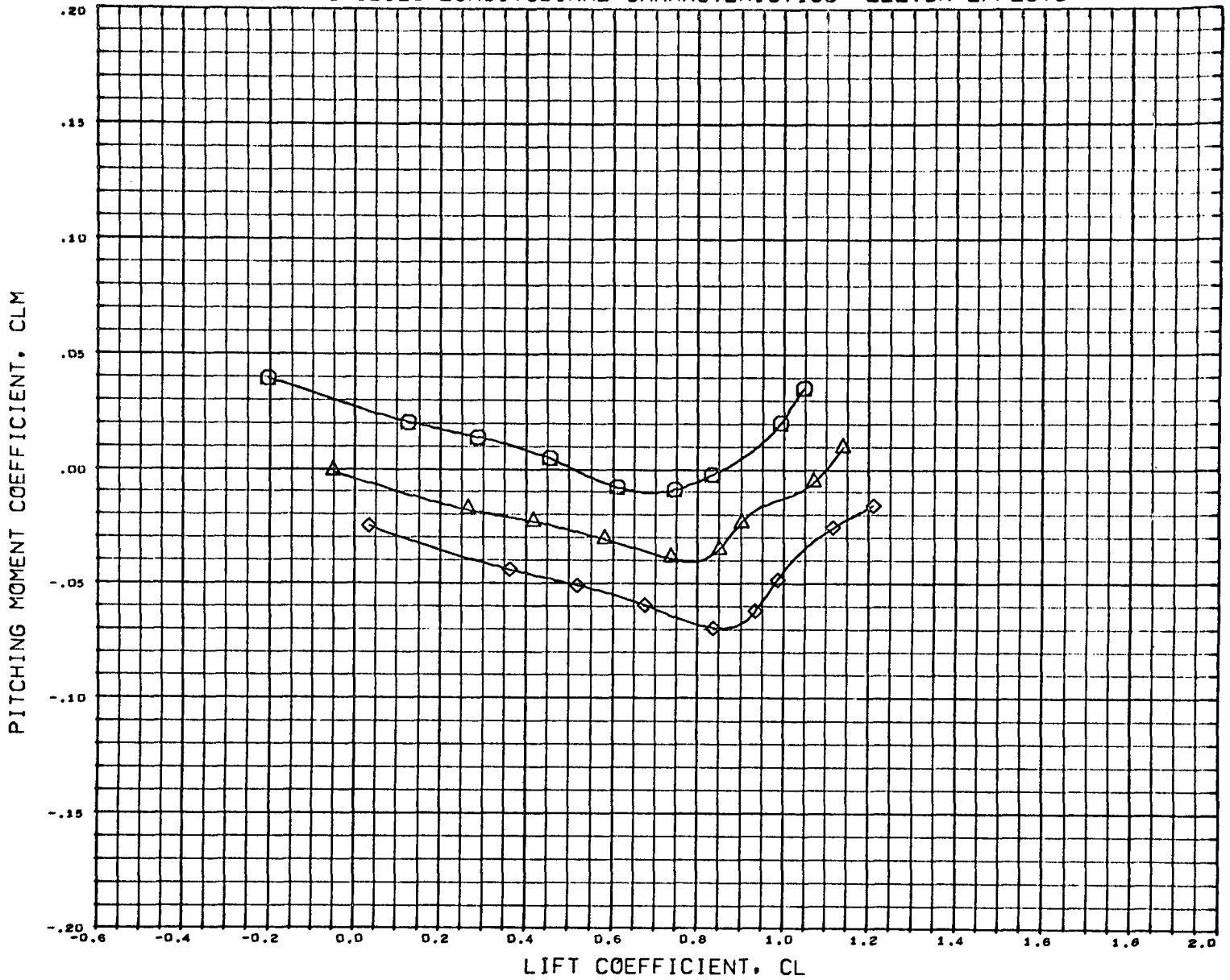
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ. FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

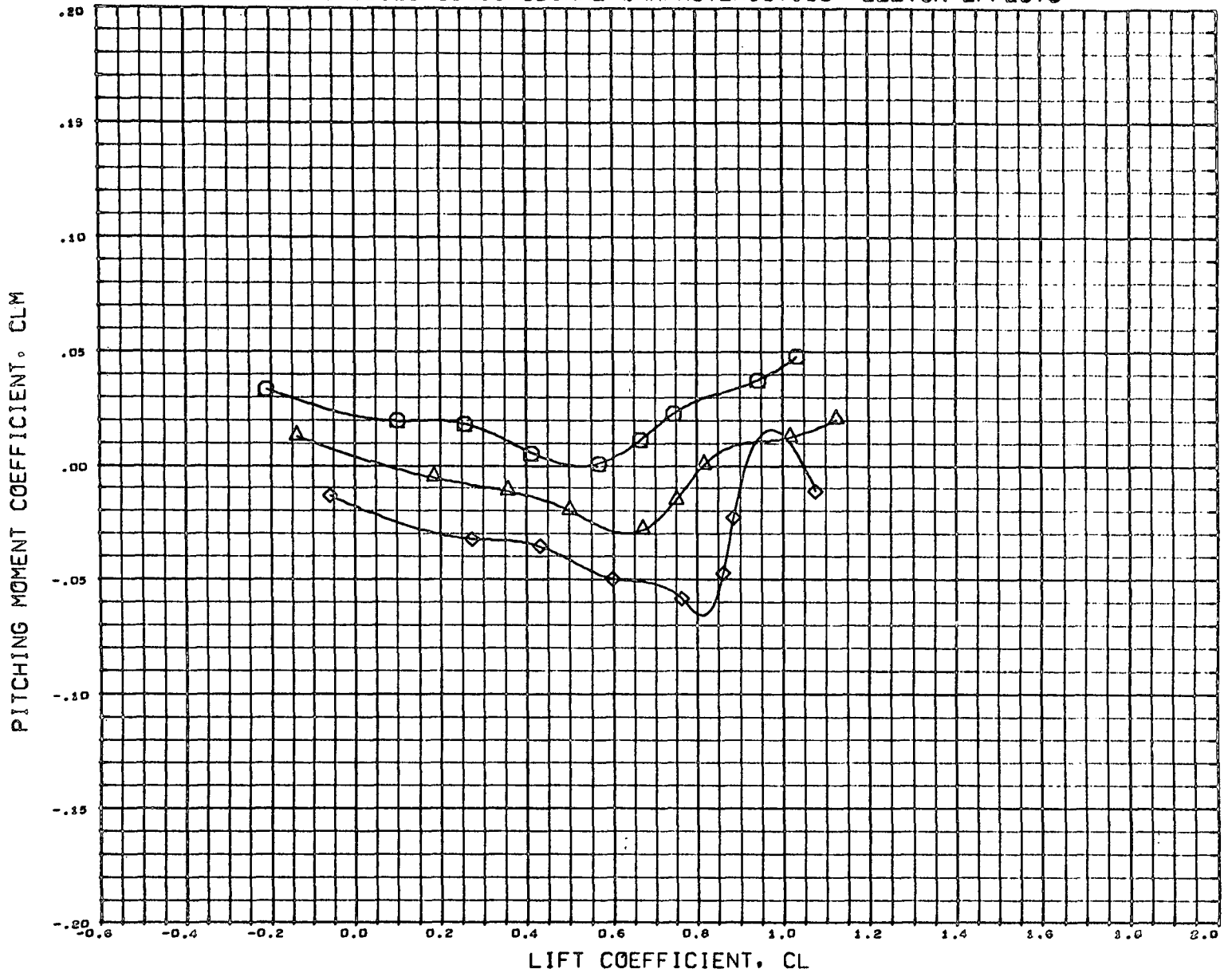
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550	89.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530	FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530	FEET
						XMRP	2.5950	FEET
						YMRP	0.0000	FEET
						ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

MACH 0.802

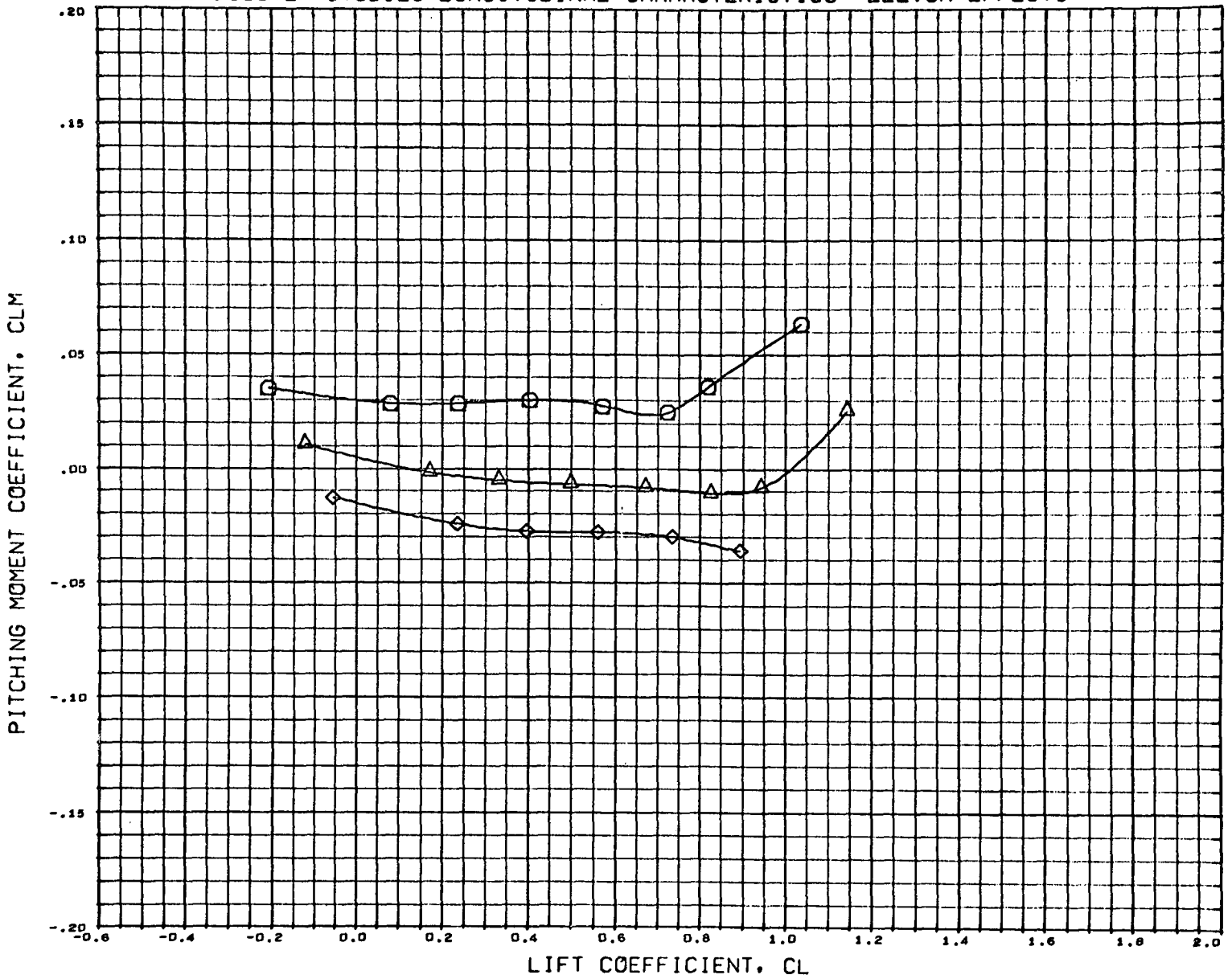
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 99.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

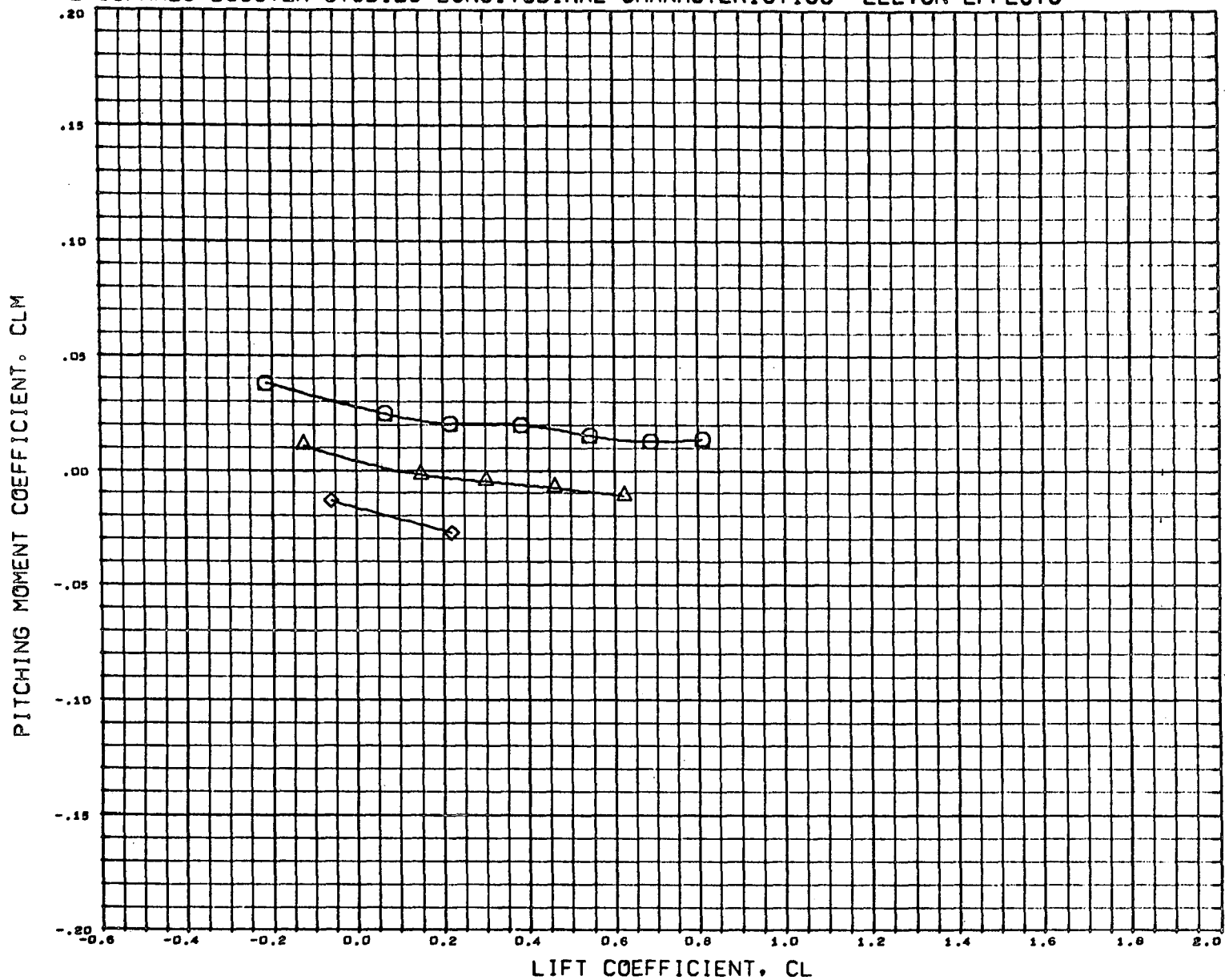
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.999

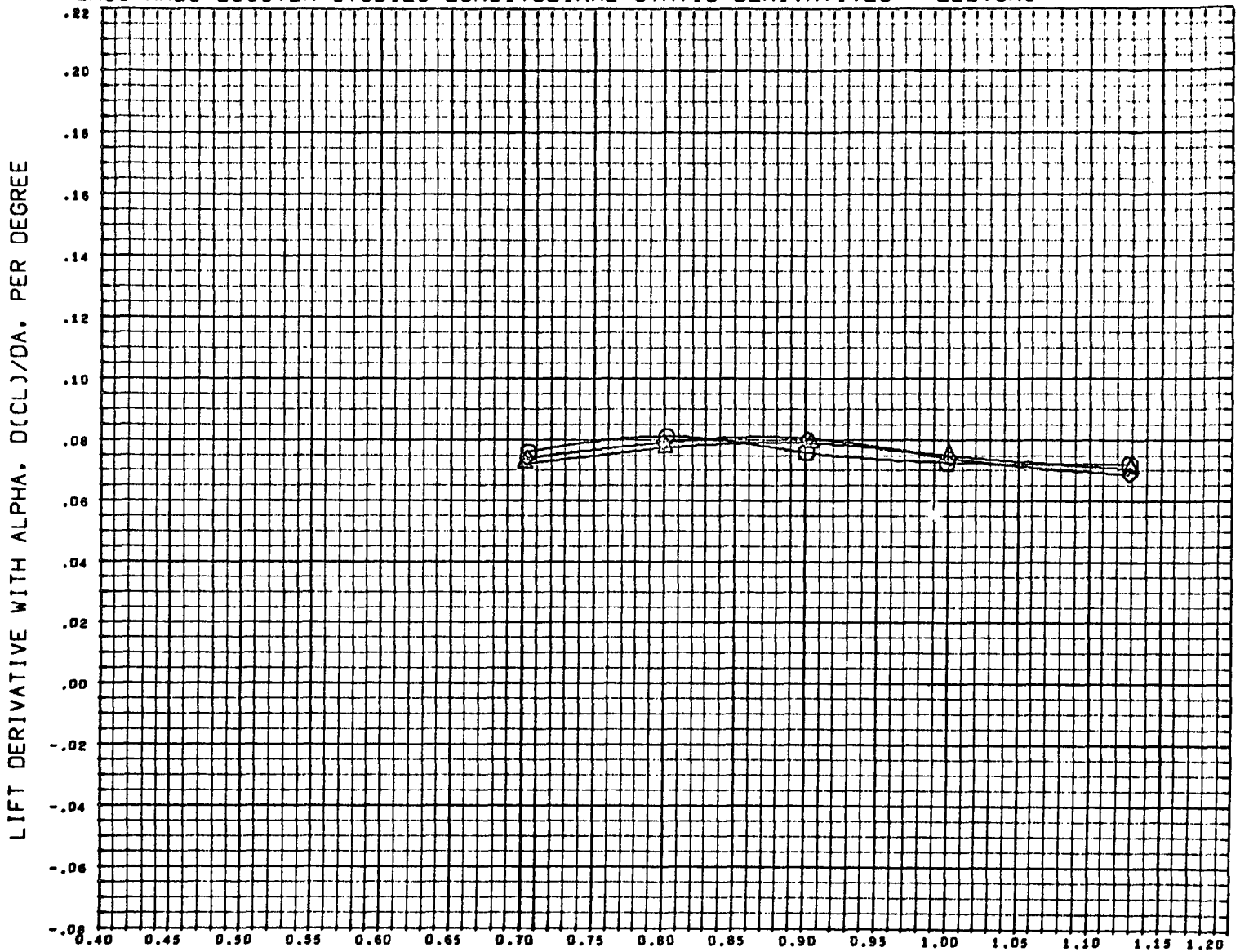
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ.FT.
(RN3025) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.128

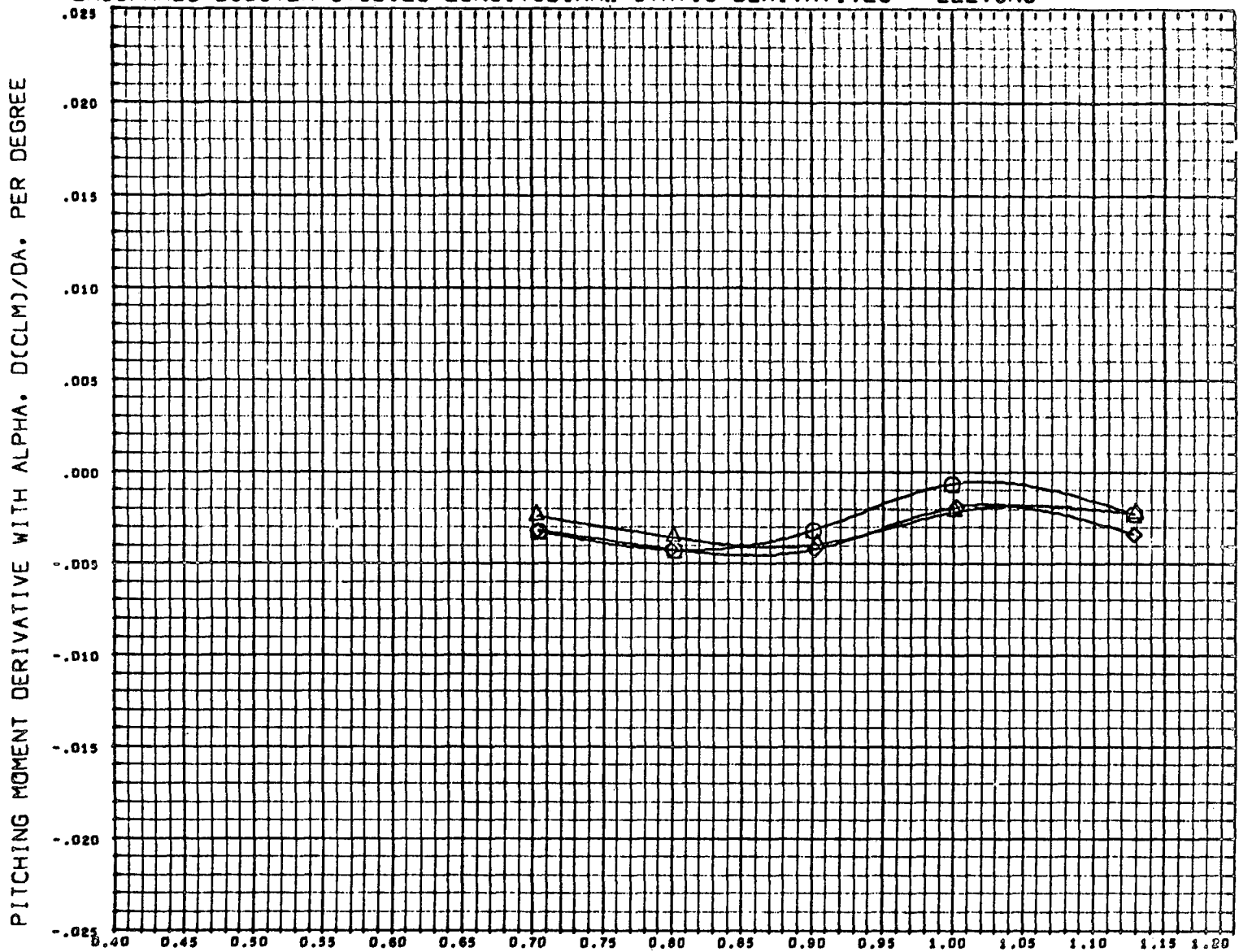
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ. FT.
(RN3025)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4330 FEET
(RN3029)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4330 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

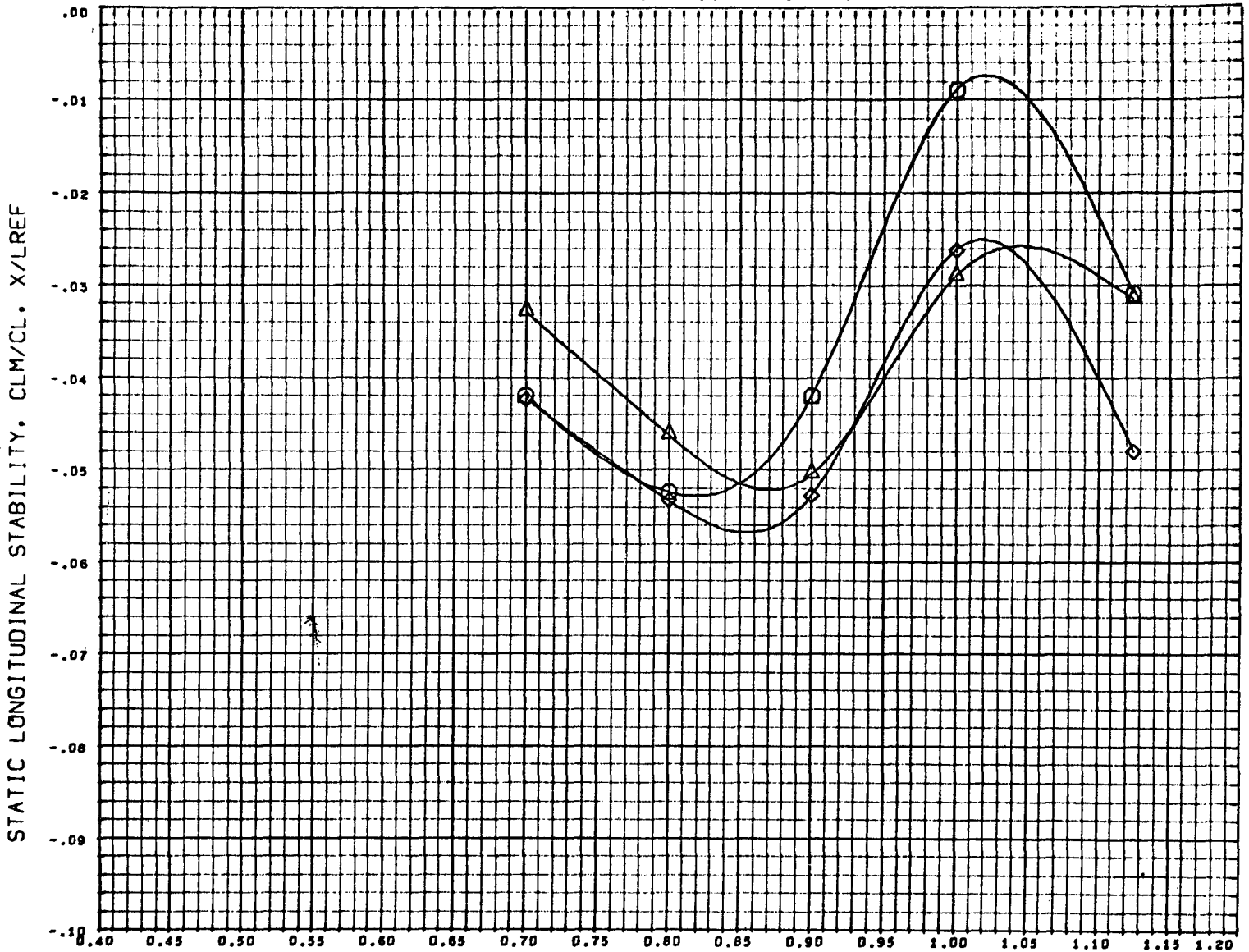
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3021) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 SQ. FT.
(RN3025) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3029) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



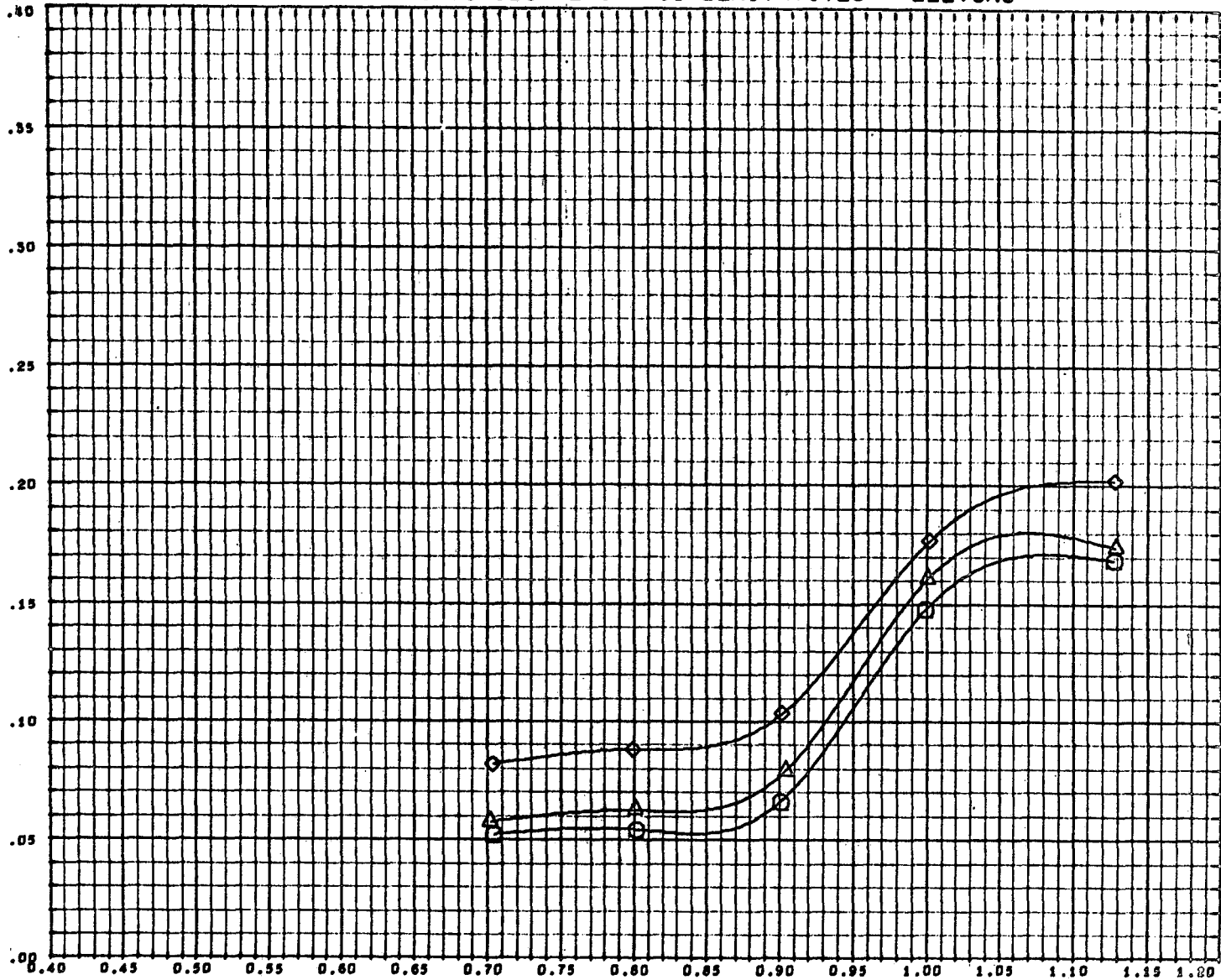
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(TN3021)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ. FT.
(TN3025)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(TN3029)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

P-703

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

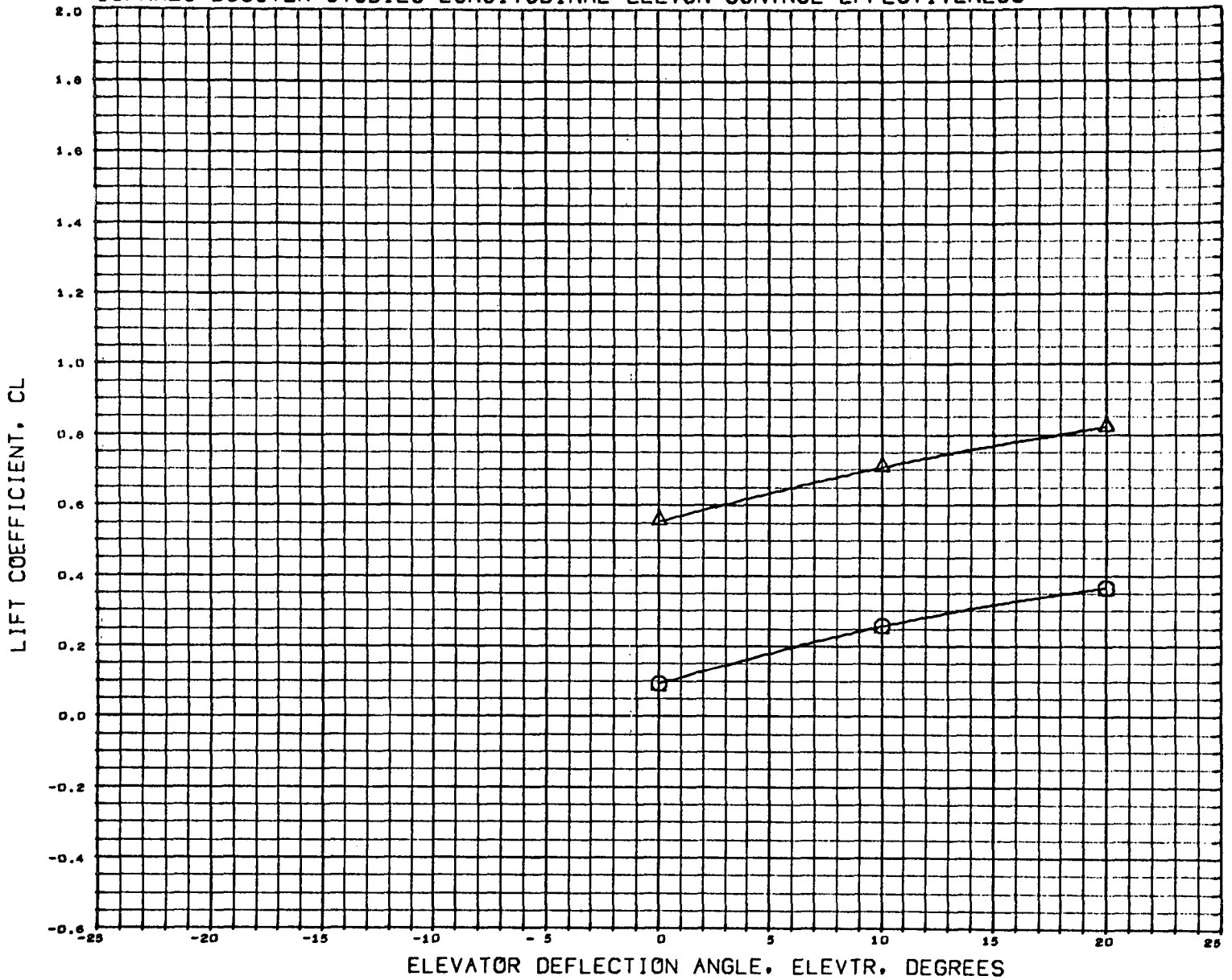
ZERO ANGLE OF ATTACK DRAG COEFFICIENT, CD(ALPHA=0) (CDALF0)



MACH NUMBER

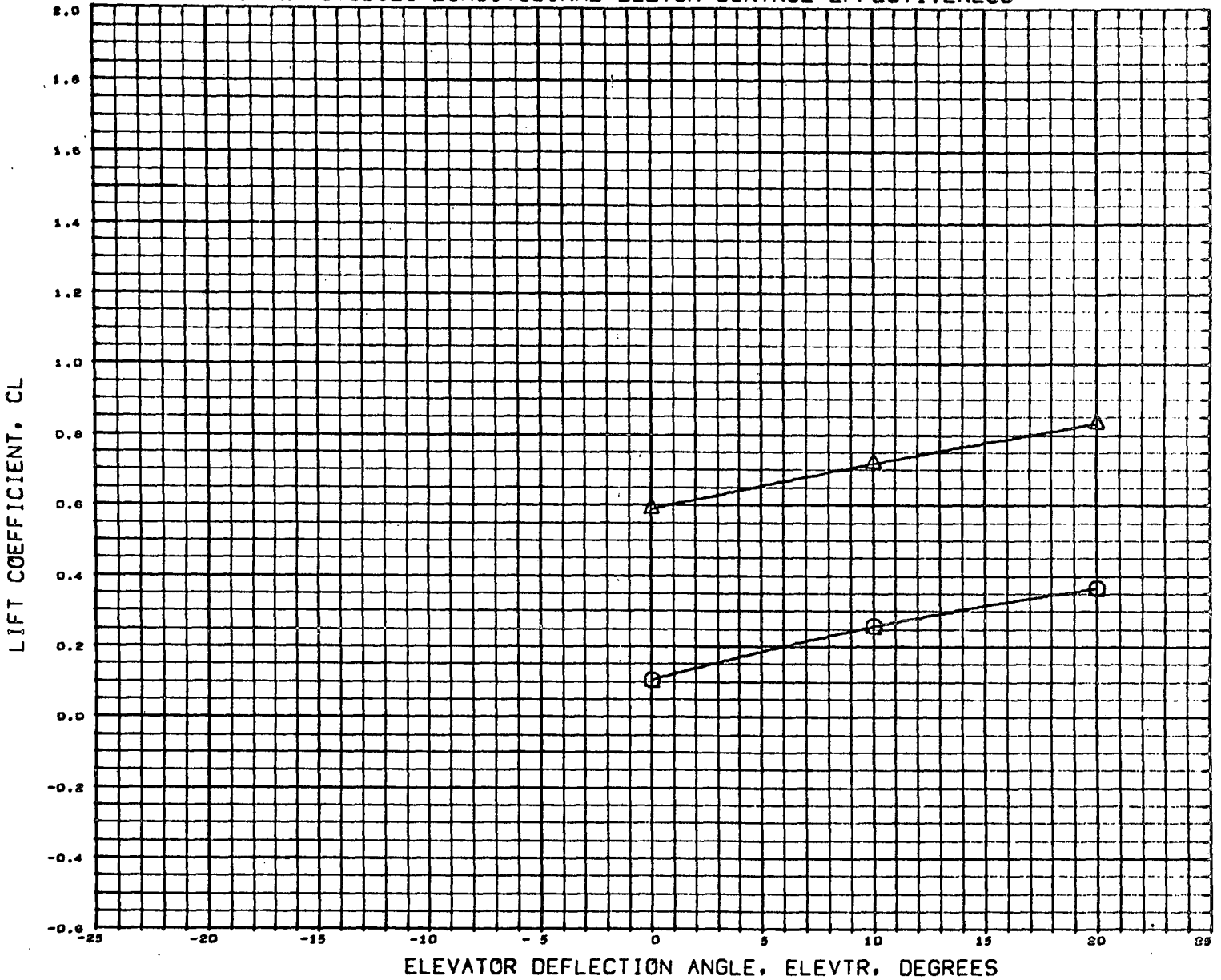
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(BN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF 1.3550 80.FT.
(BN3025)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF 3.4530 FEET
(BN3029)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF 3.4530 FEET XNRP 2.5950 FEET YNRP 0.0000 FEET ZNRP 0.0187 FEET SCALE 0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



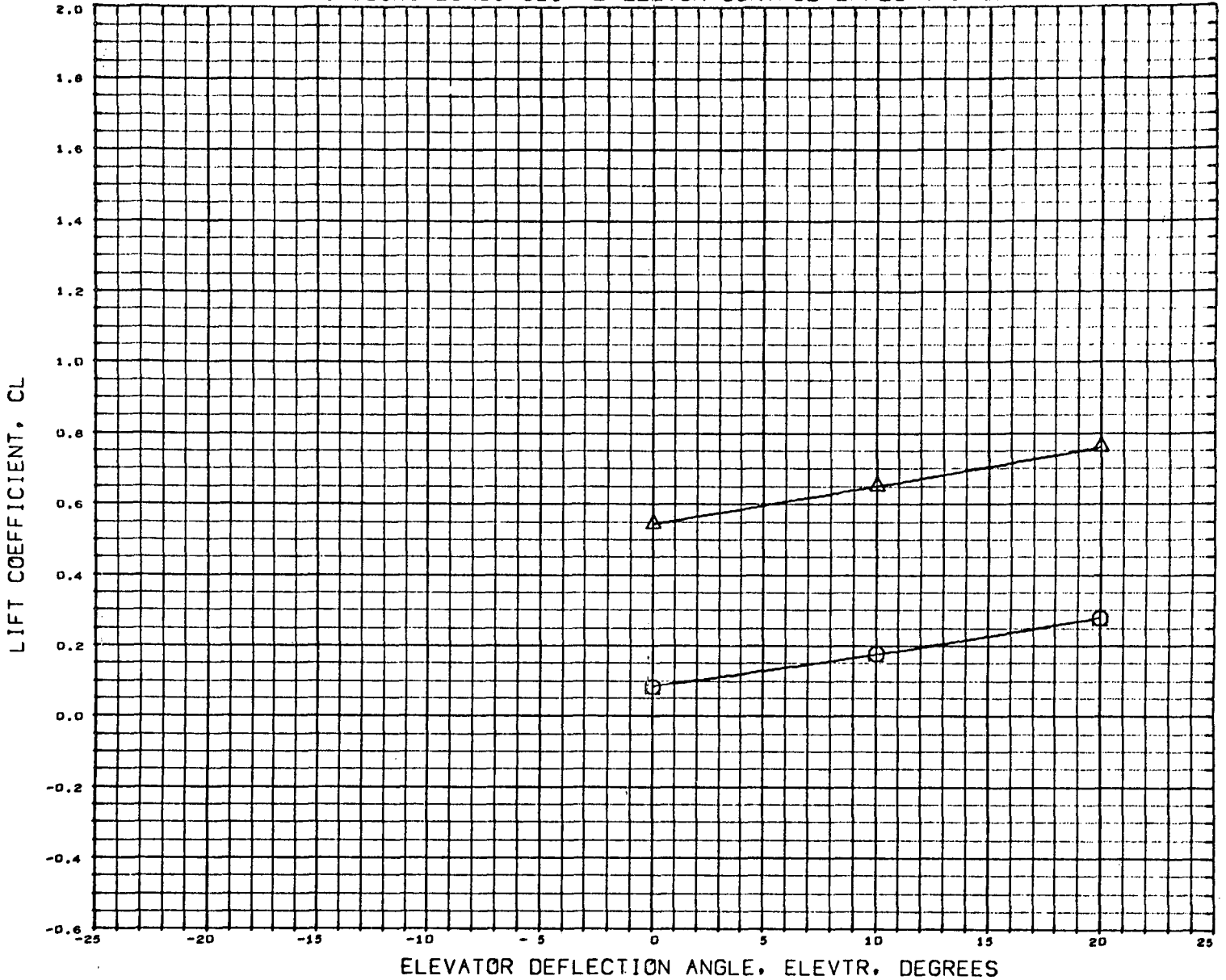
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○	0.000	MACH	0.700	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



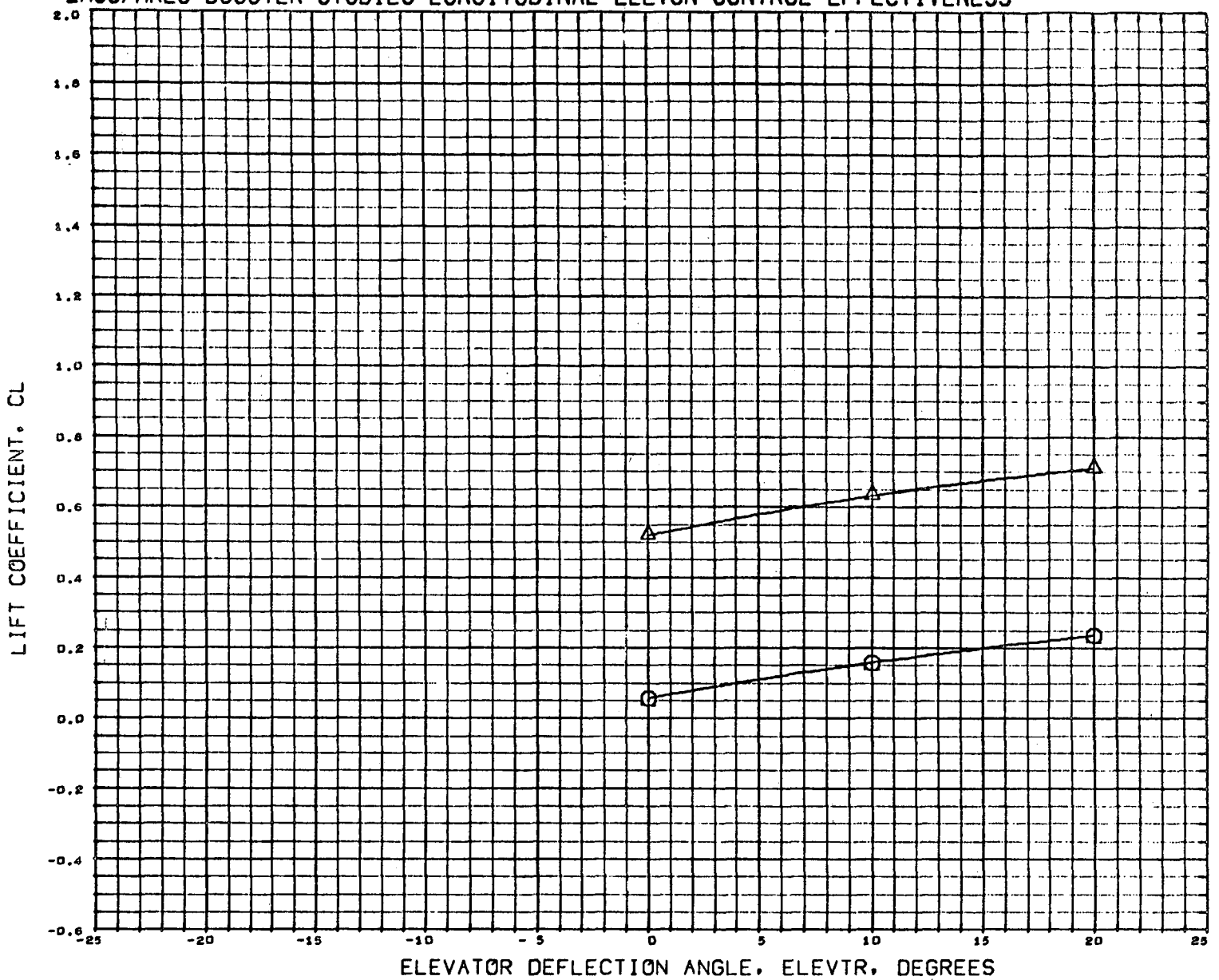
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	MACH	0.800	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.900	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

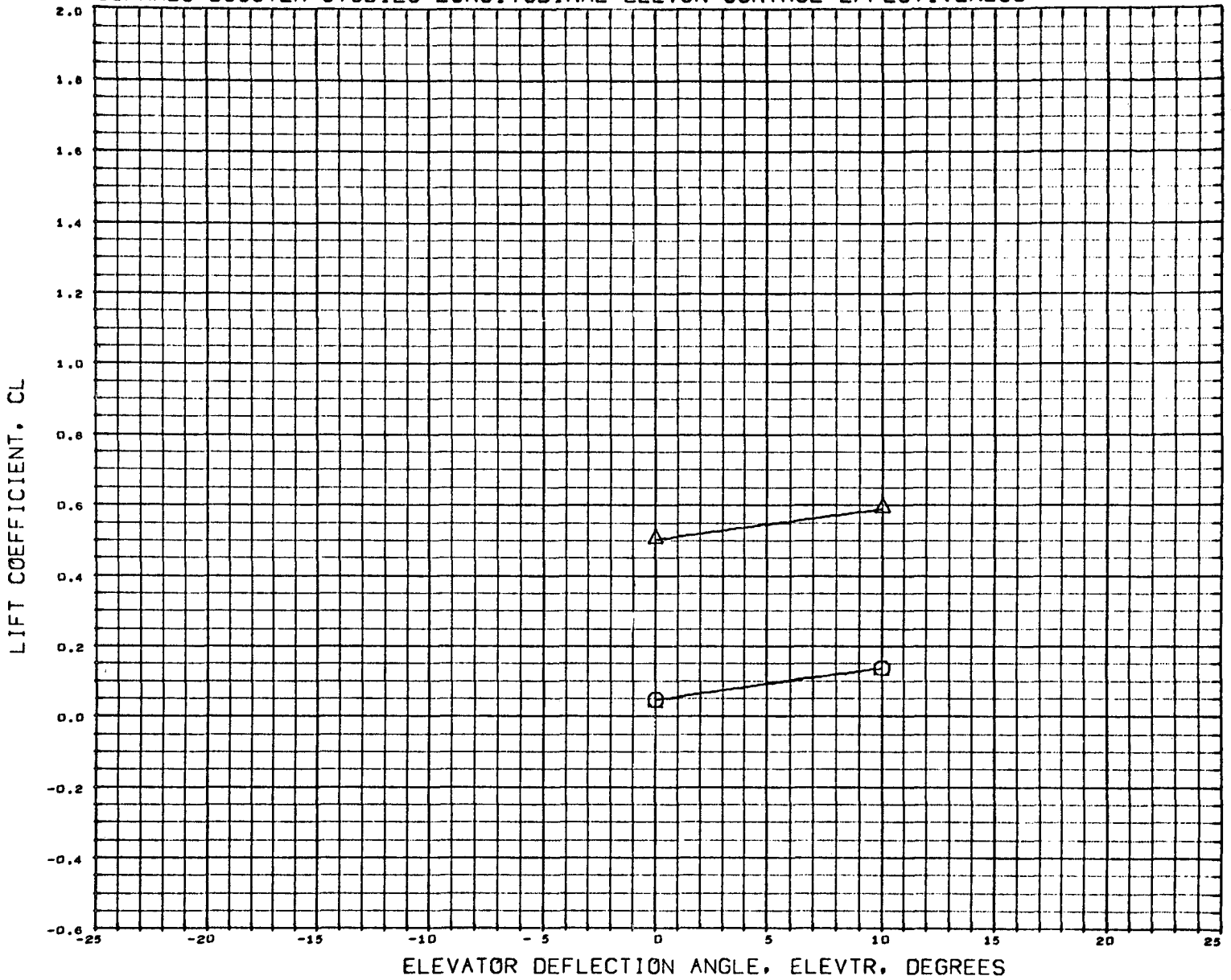


ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	1.000	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ. FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
△		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

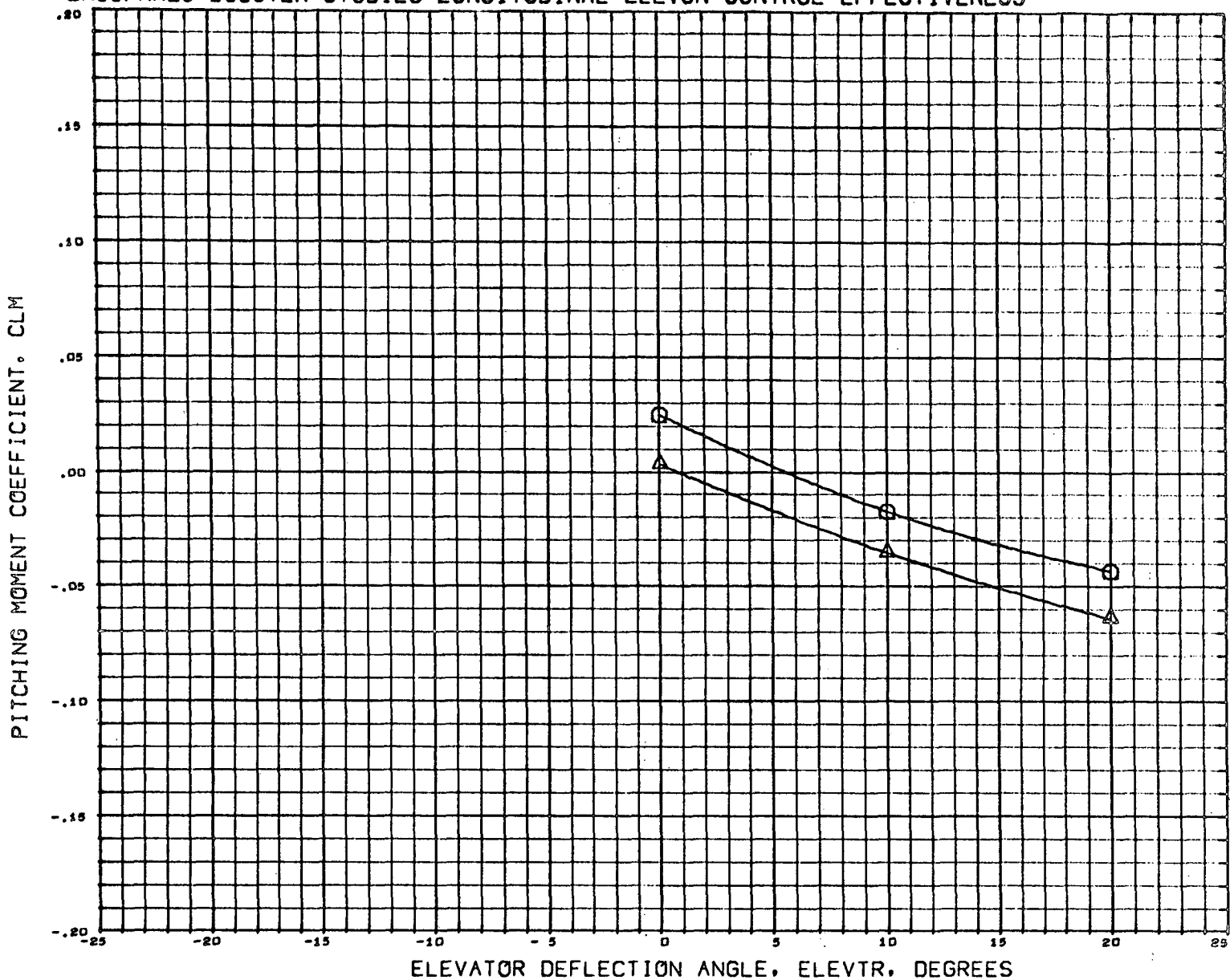
5

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



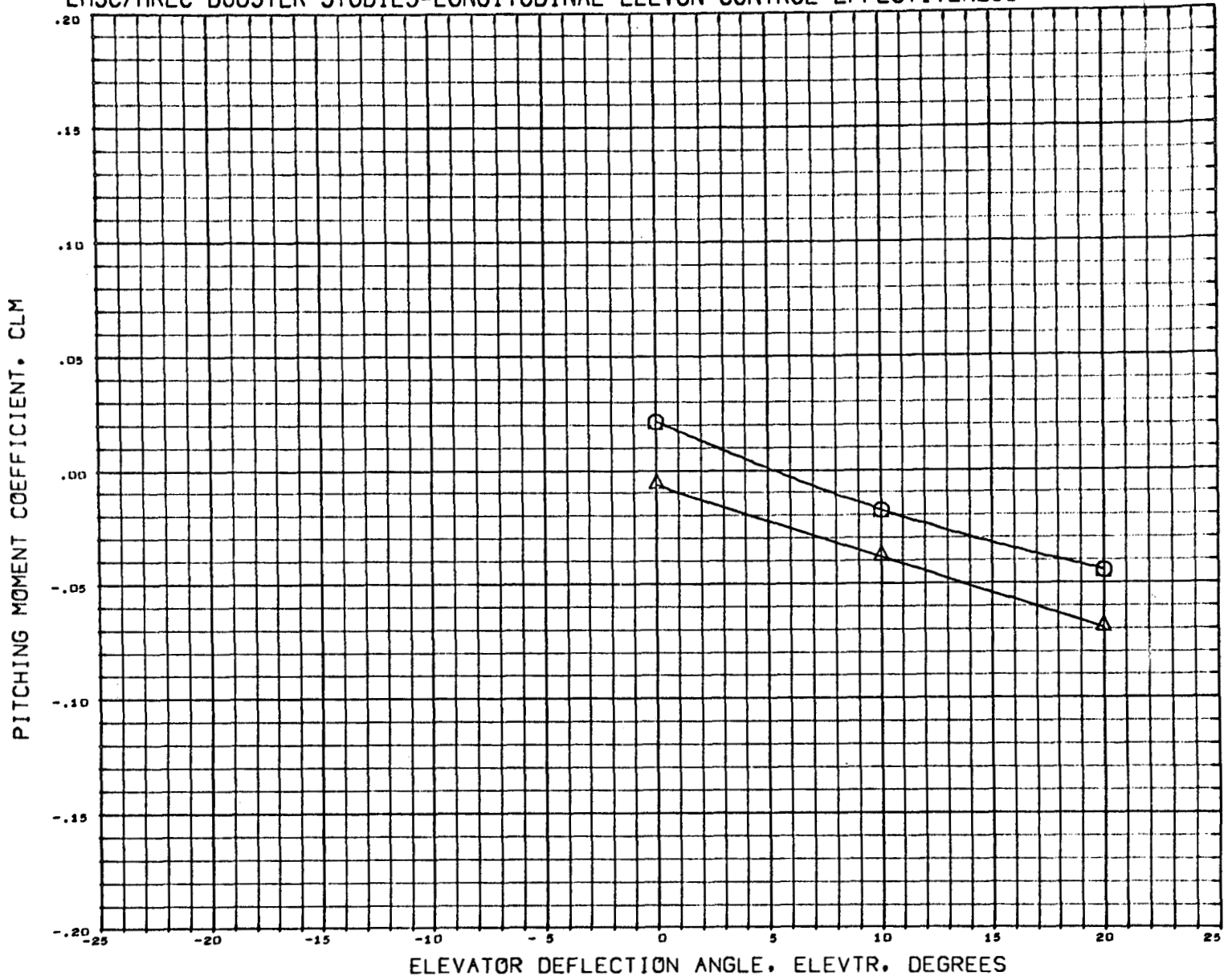
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	MACH	1.125	BETA	- 0.032	DATASET	ELEVTR	SCALE	SREF	1.3550	30.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



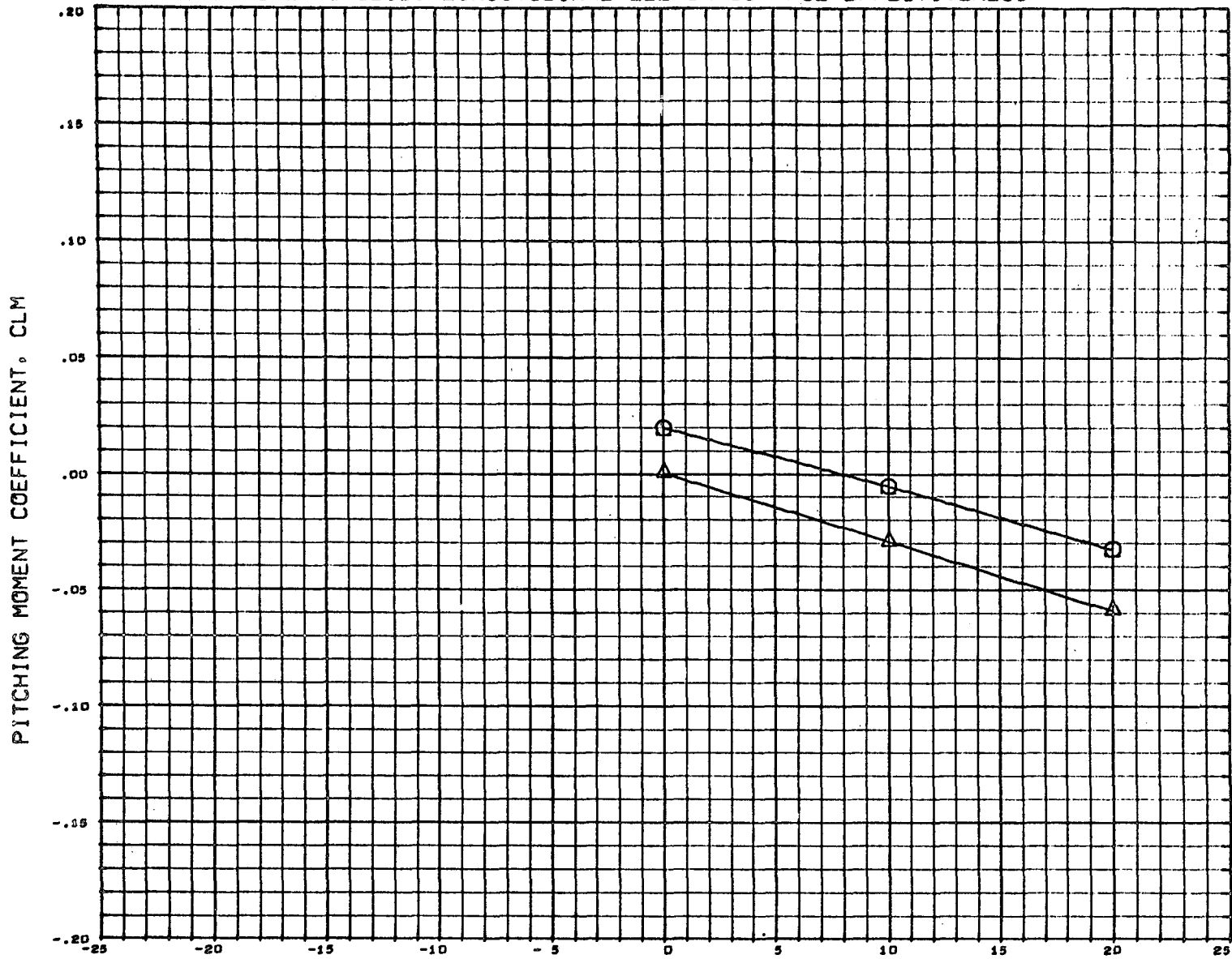
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○	0.000	<u>MACH</u>	0.700	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0107	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



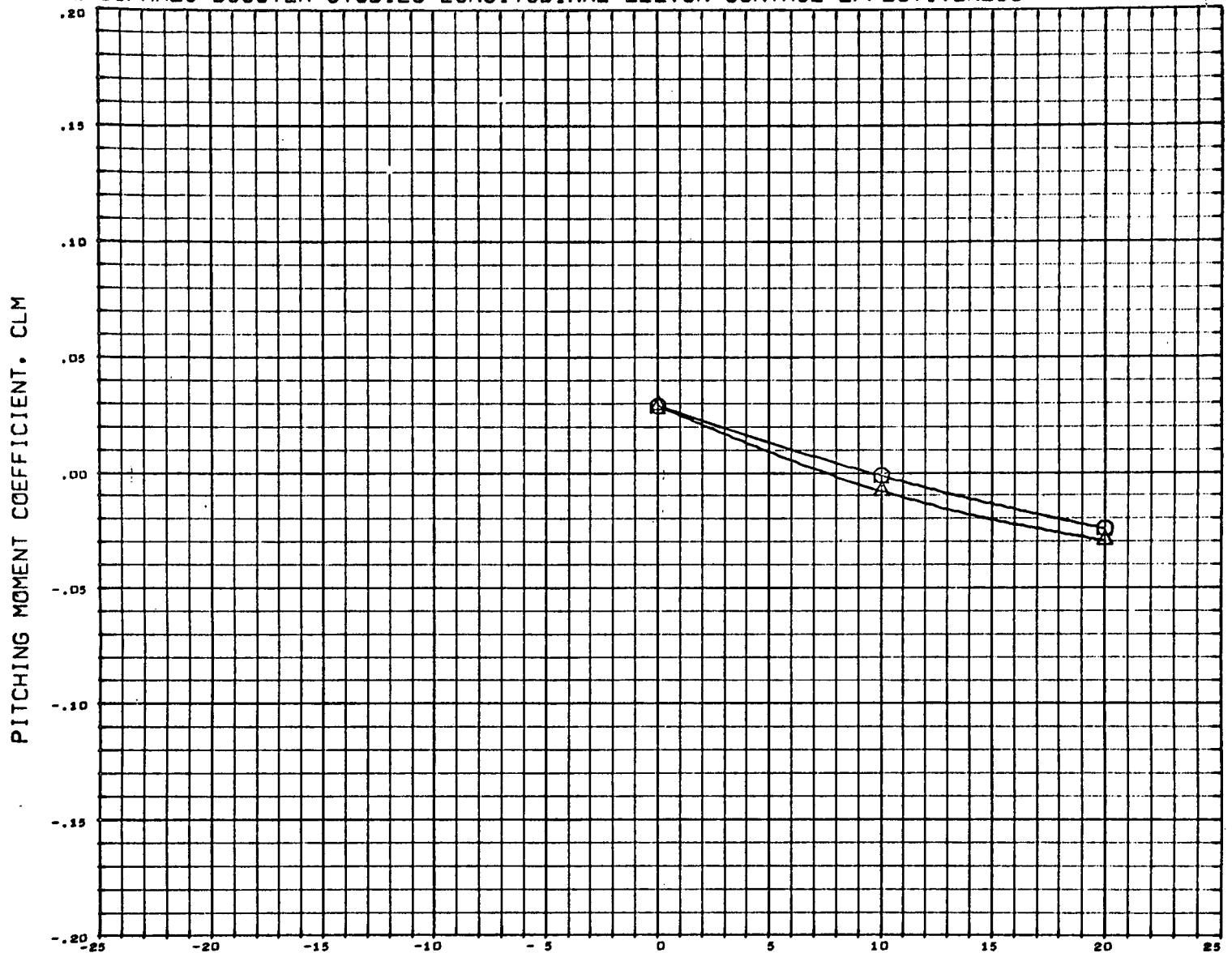
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	DATA SET	ELEVTR	DATA SET	ELEVTR	SREF	SQ.FT.
○	0.000	0.800	- 0.032	0.000	0.000	NN3021	0.000	NN3025	10.000	1.3550	FEET
△	6.000	0.800	0.000	0.000	0.000	NN3029	20.000			3.4530	FEET
		MSFLOW	0.000	AILRON	0.000					3.4530	FEET
		CANARD	10.000	RUDDER	0.000					2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					0.0000	FEET
		DATA HIST. CODE	1							0.0187	FEET
										SCALE	SCALE
										0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.900	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

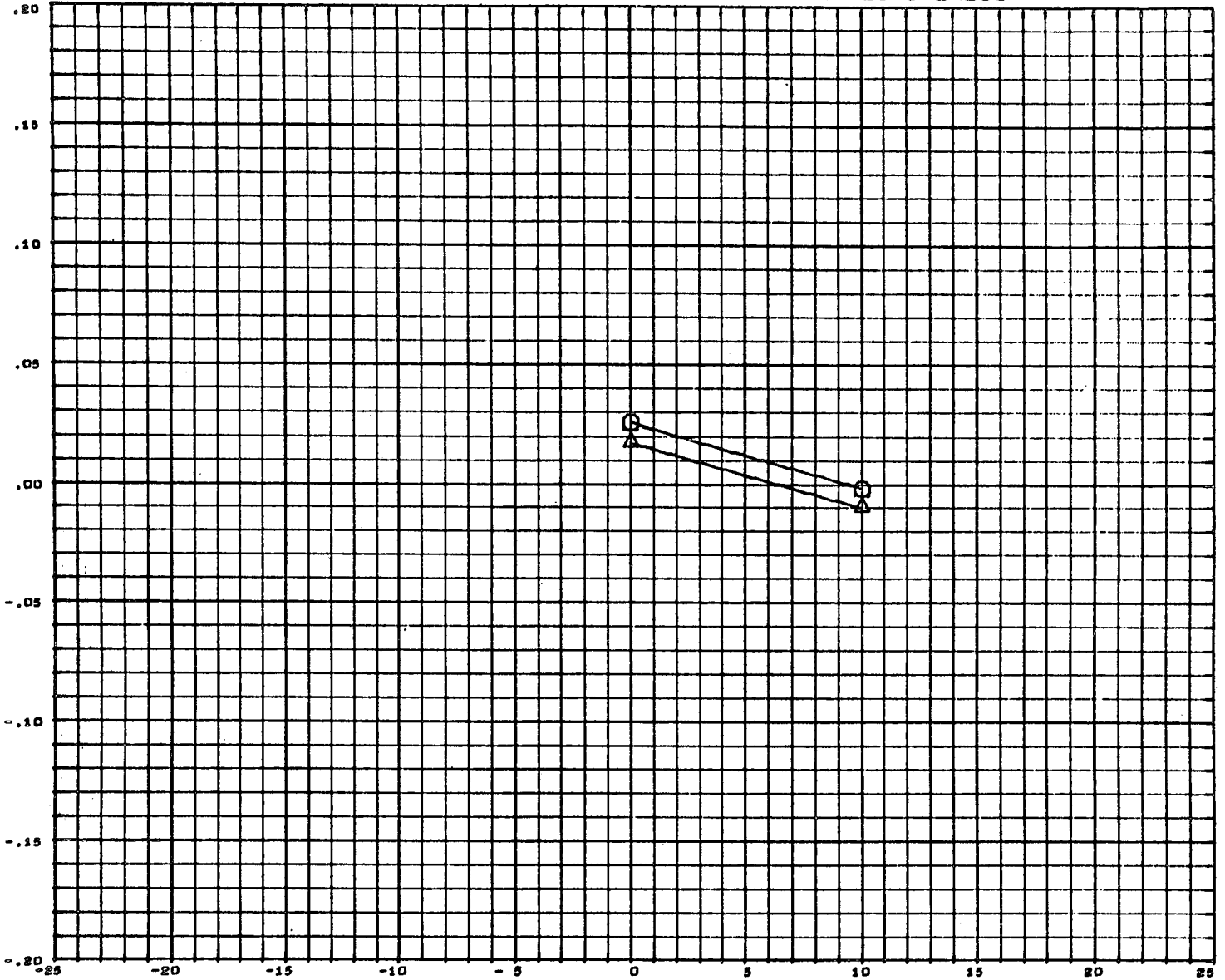


ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	1.000	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEEET
		MSFLOW	0.000	AIRLN	0.000	NN3029	20.000			BREF	3.4530	FEEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

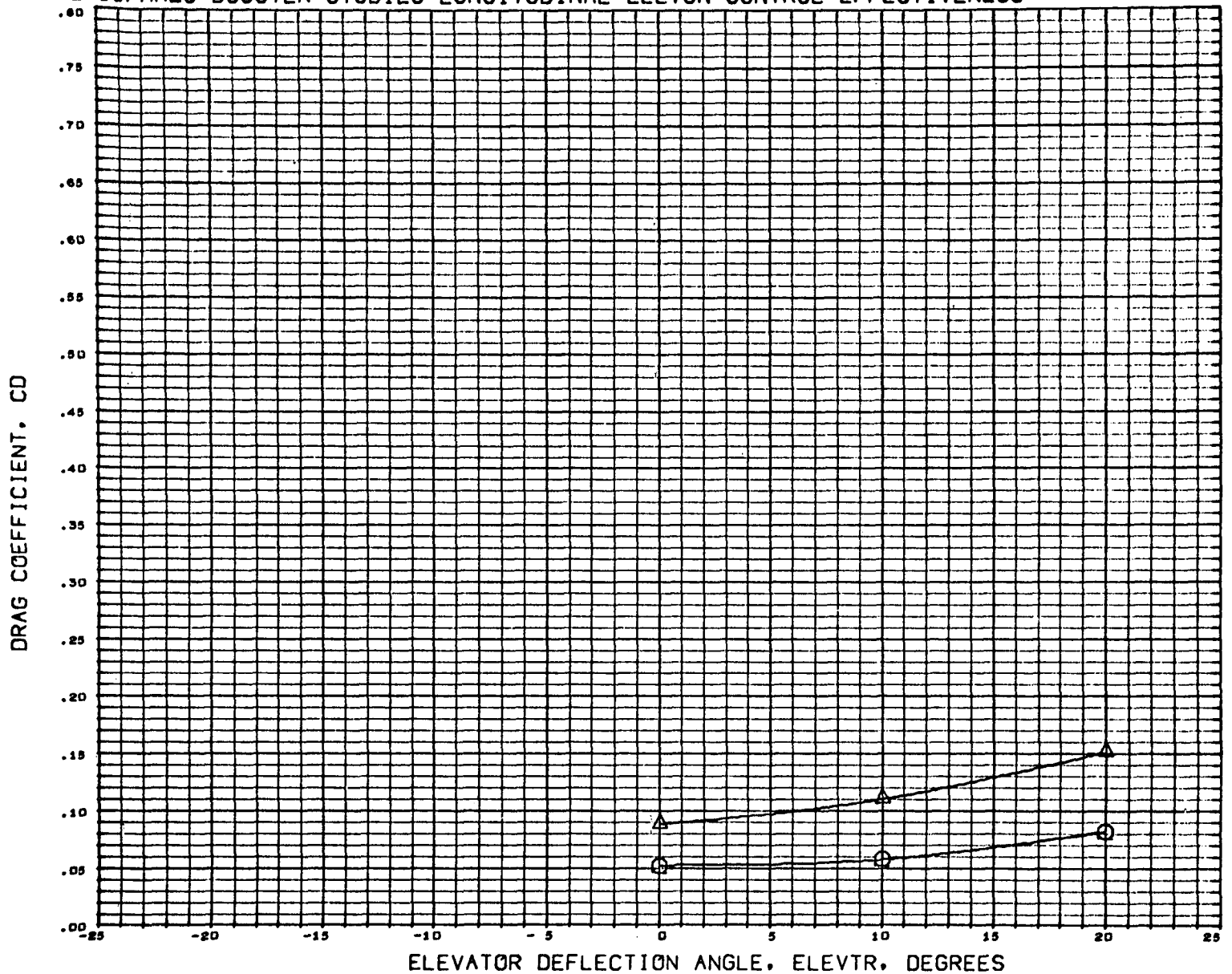
PITCHING MOMENT COEFFICIENT, CLM



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

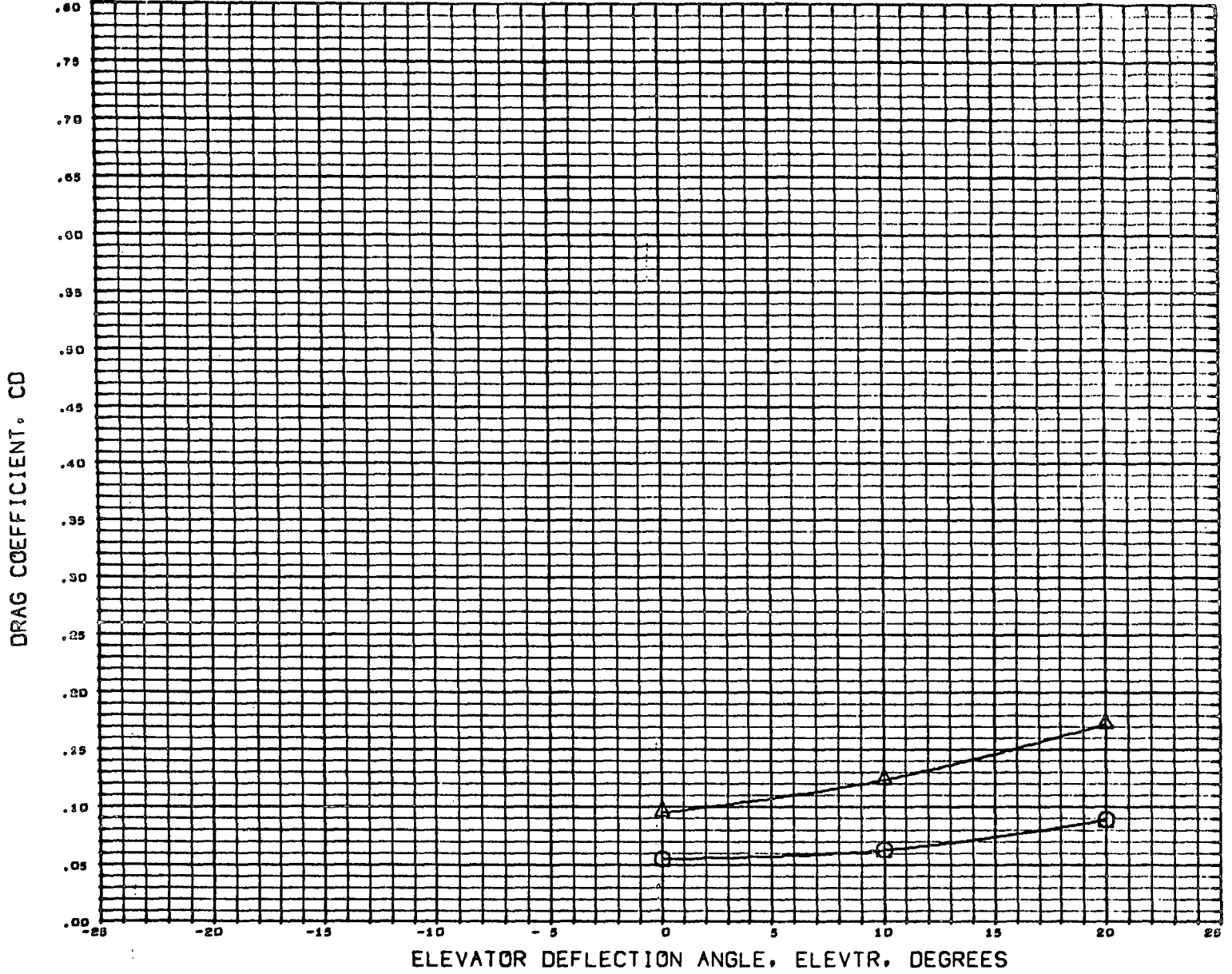
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Δ	0.000	MACH	1.125	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	50.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRCN	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



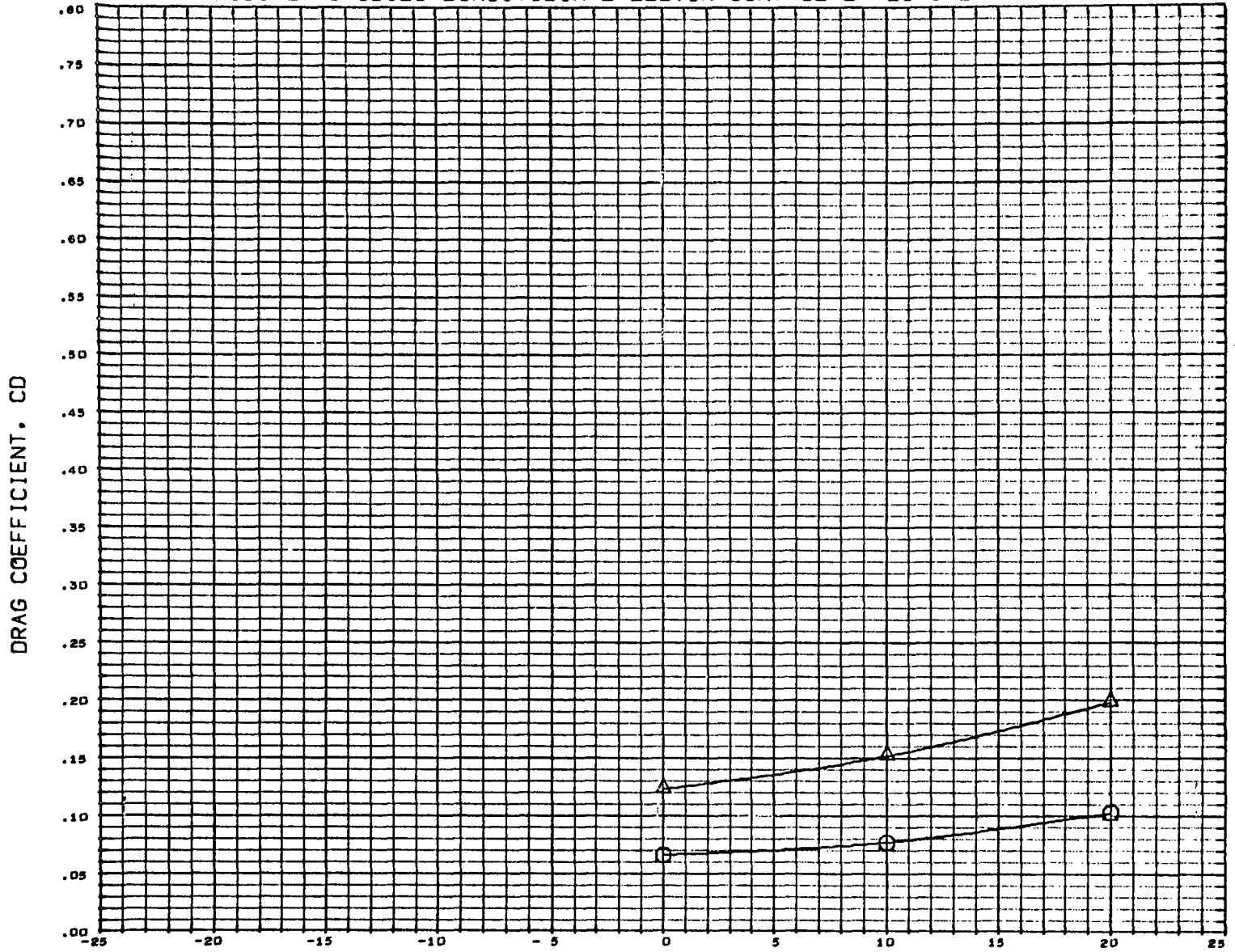
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○	0.000	MACH	0.700	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	MACH	0.800	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.9950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
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		DATA HIST. CODE	I									

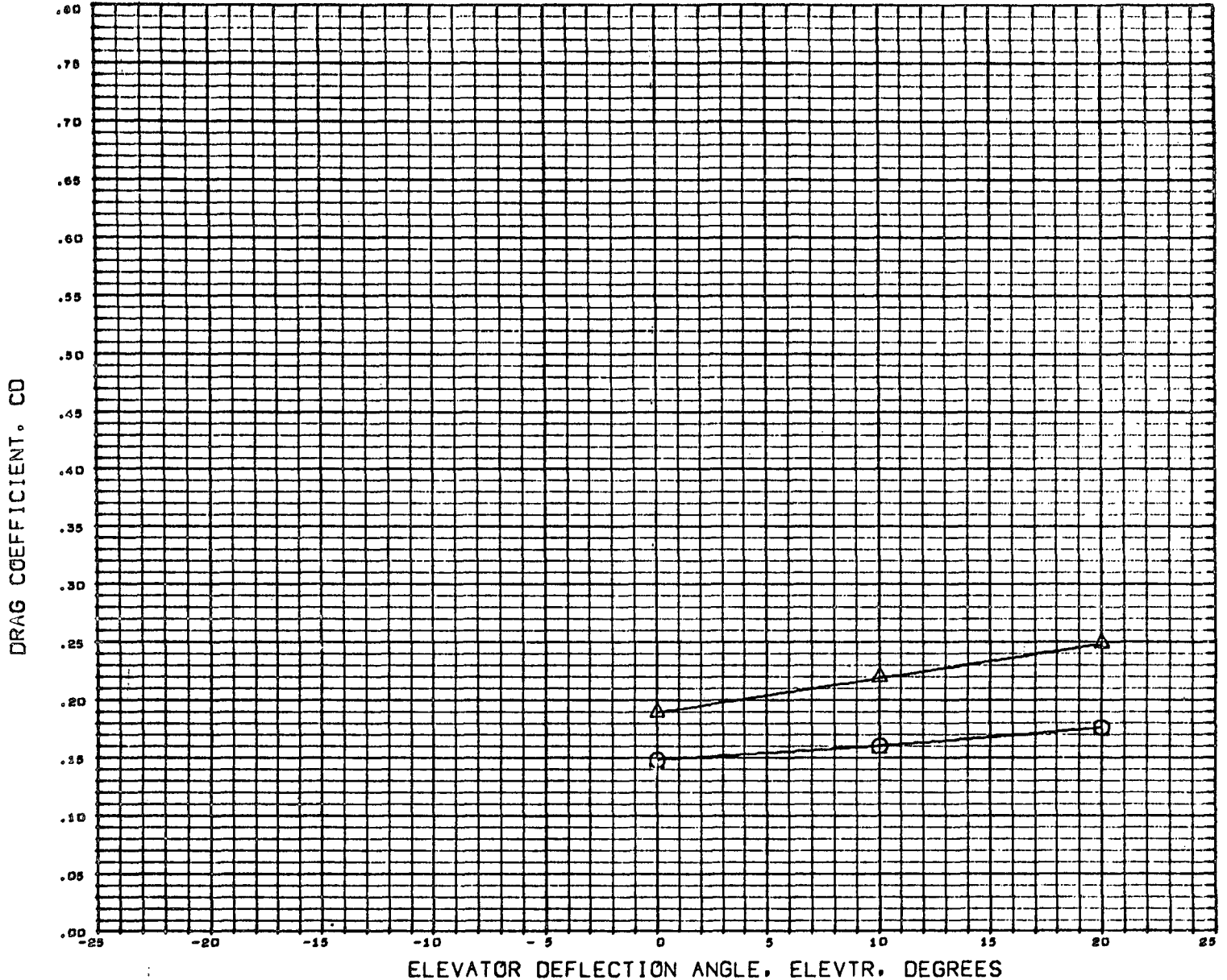
LMSC/HREC BOOSTER STUDIES—LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

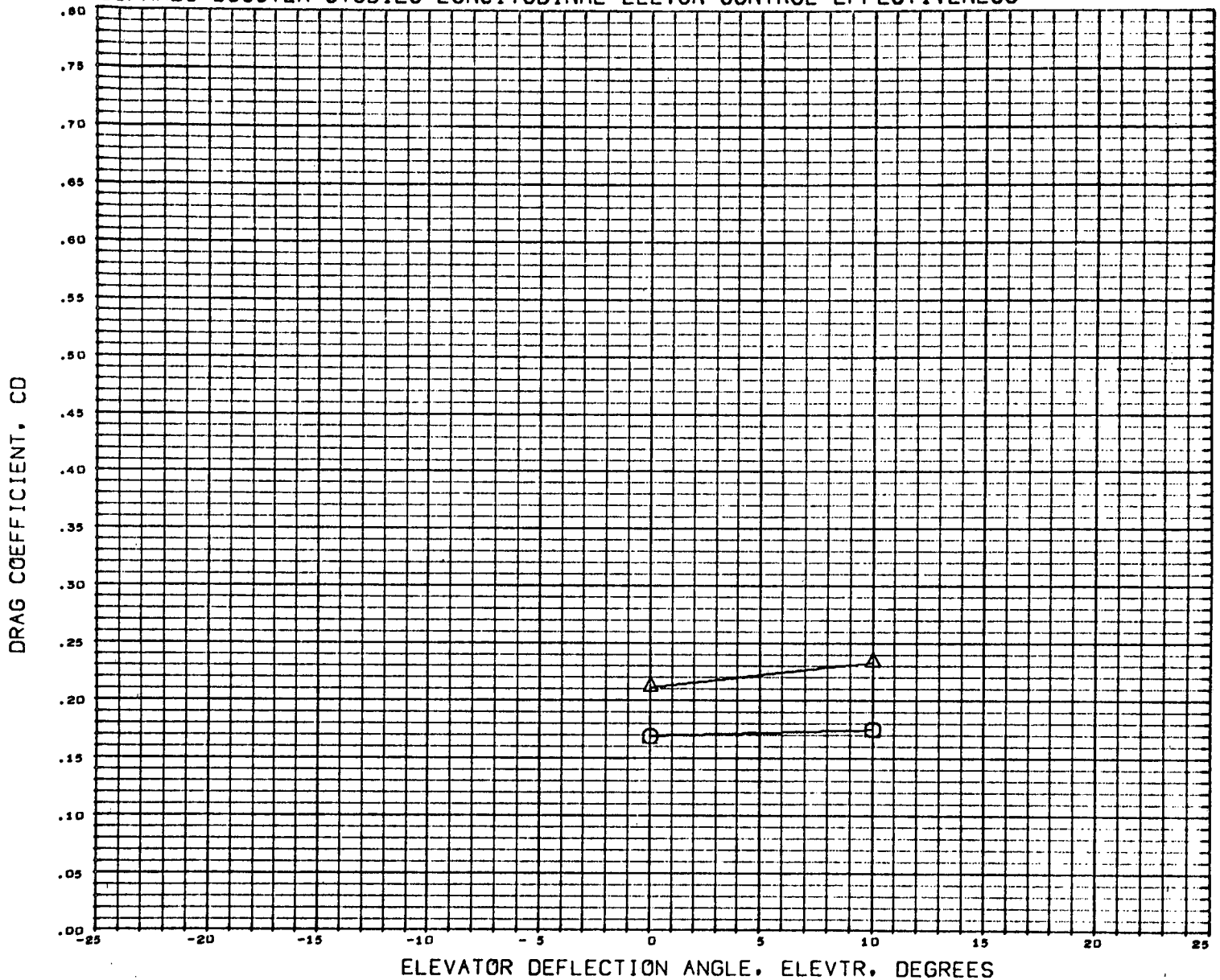
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△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1							ZMRP	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



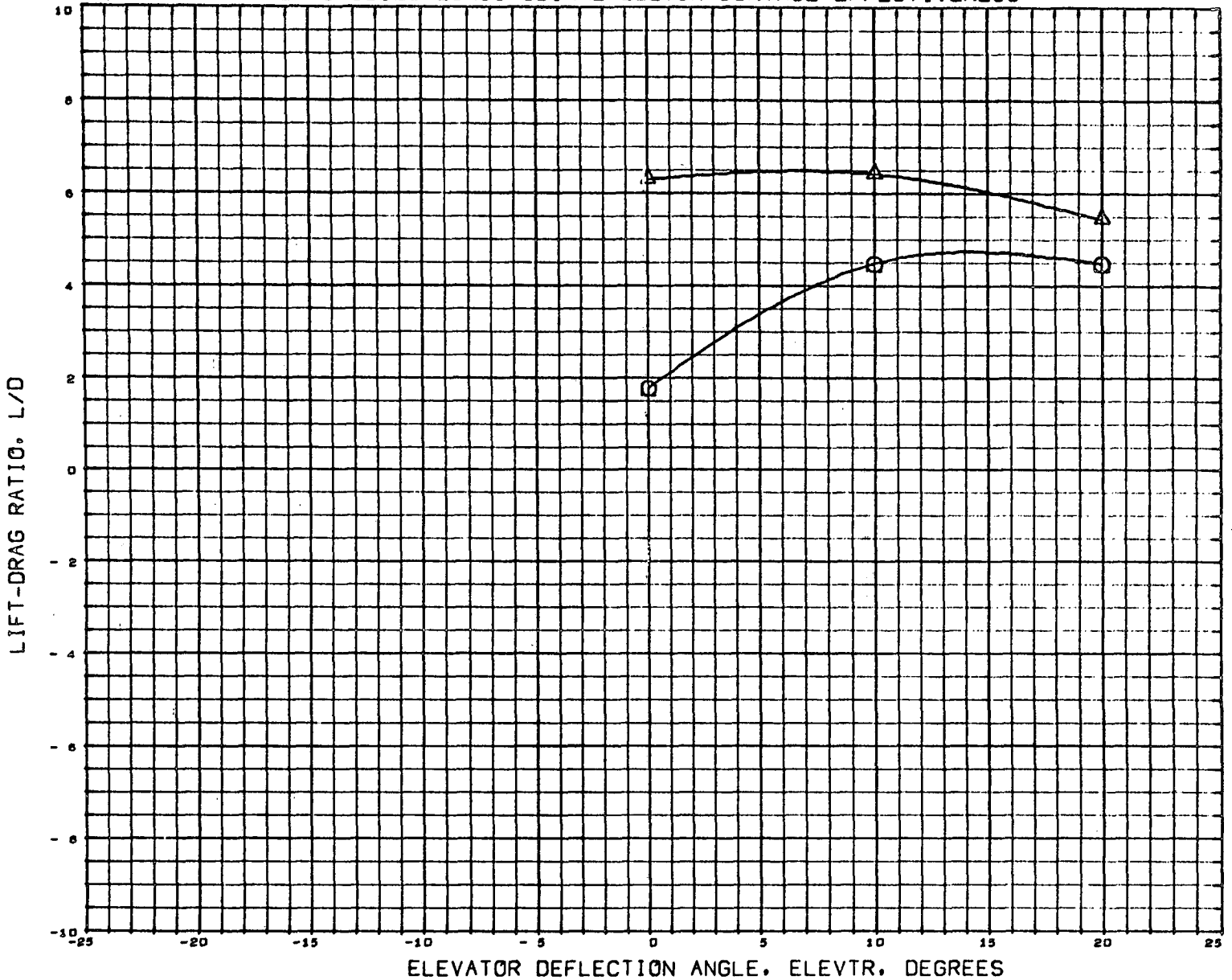
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○	0.000	MACH	1.000	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



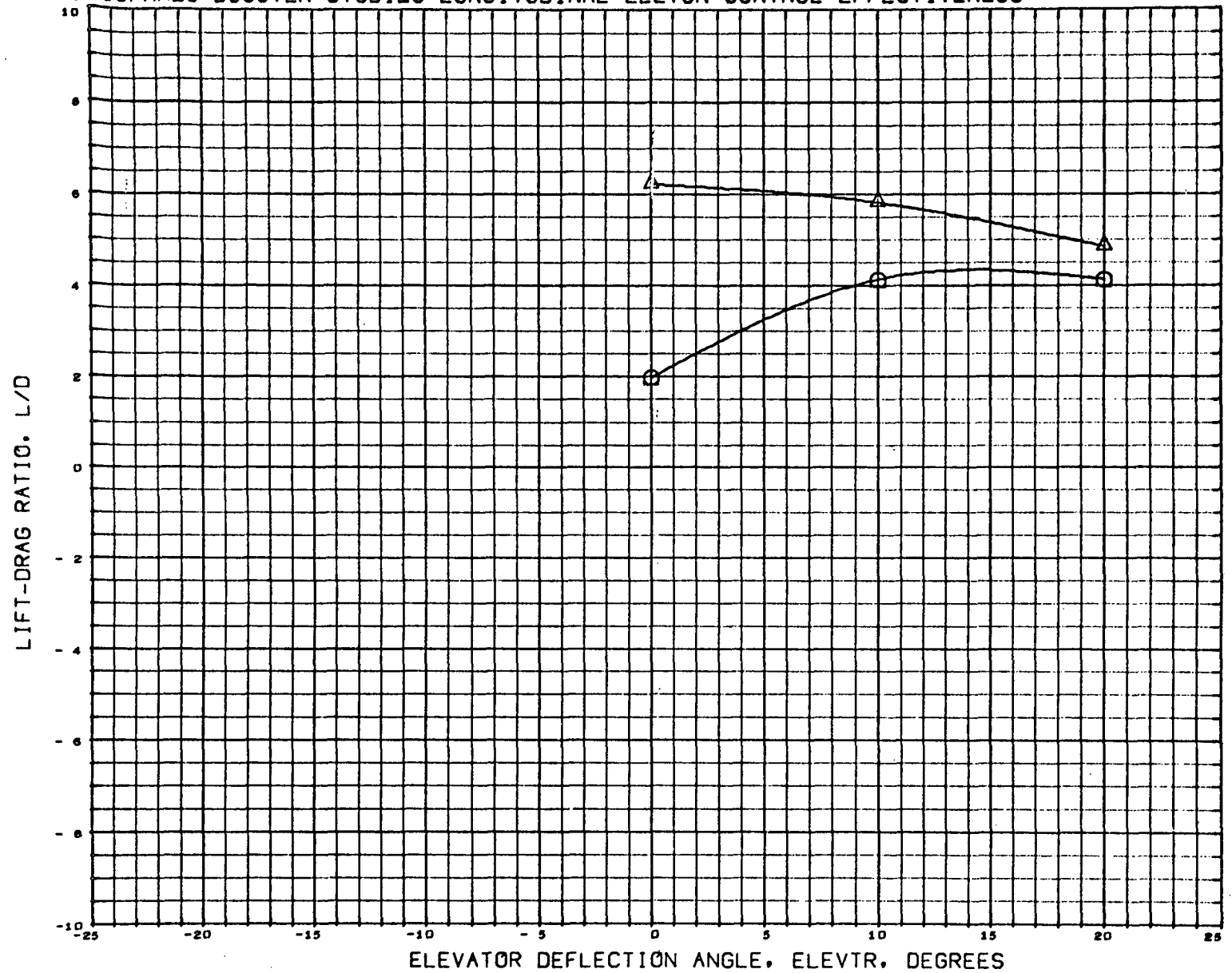
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	1.125	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
∞	0.000	<u>MACH</u>	0.700	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	120.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

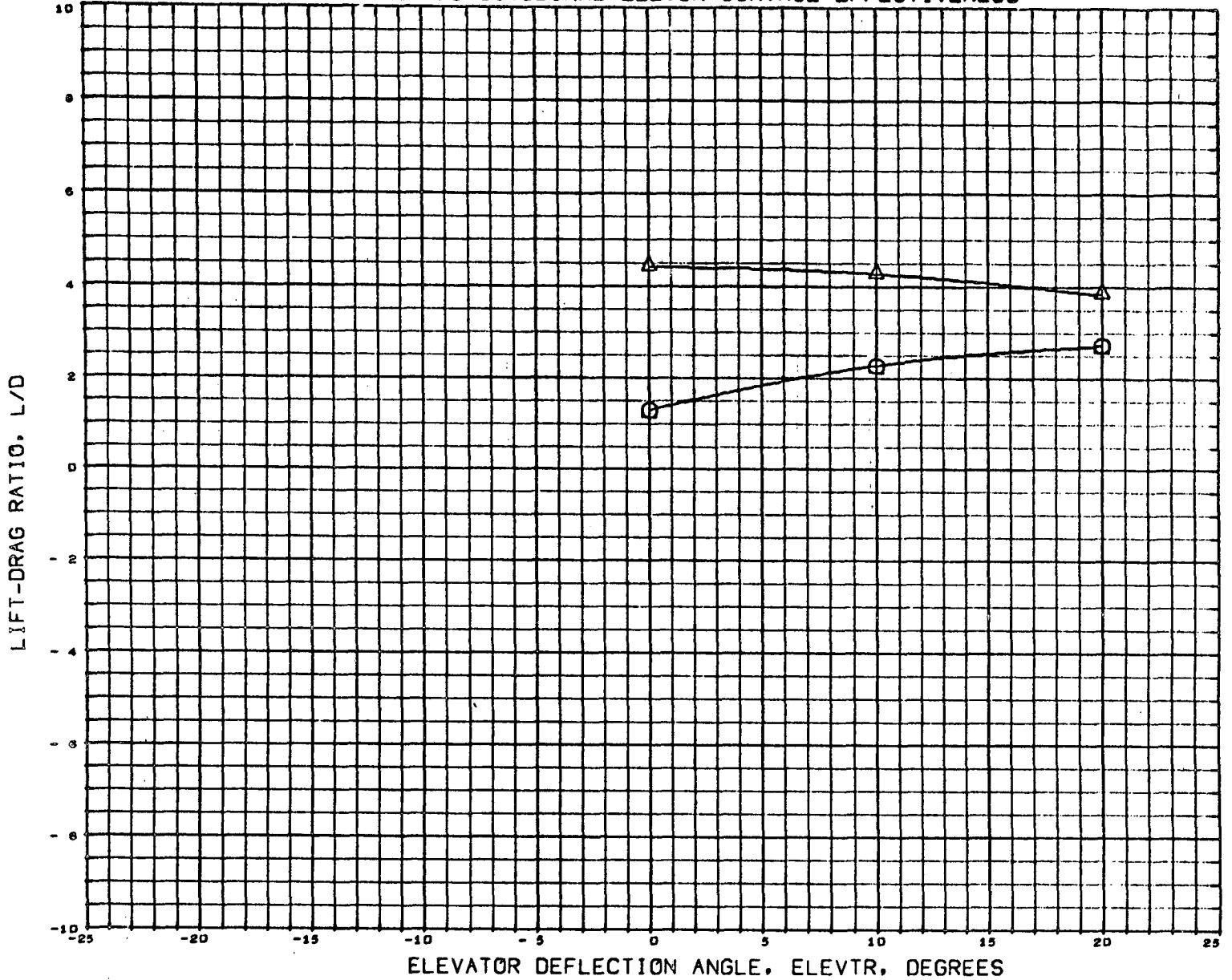
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

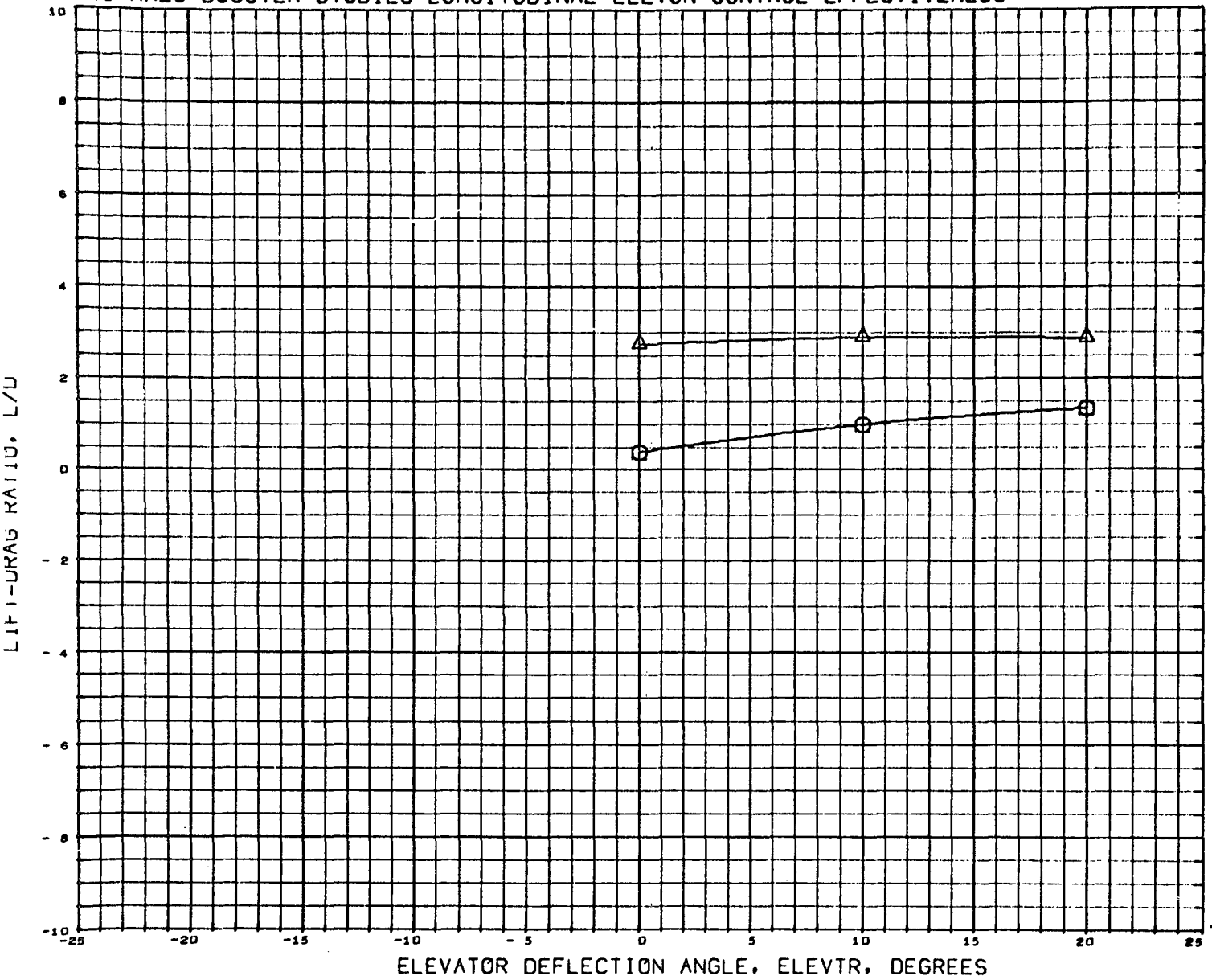
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	0.800	BETA	- 0.032	DATA SET	ELEVTR	DATA SET	ELEVTR	SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



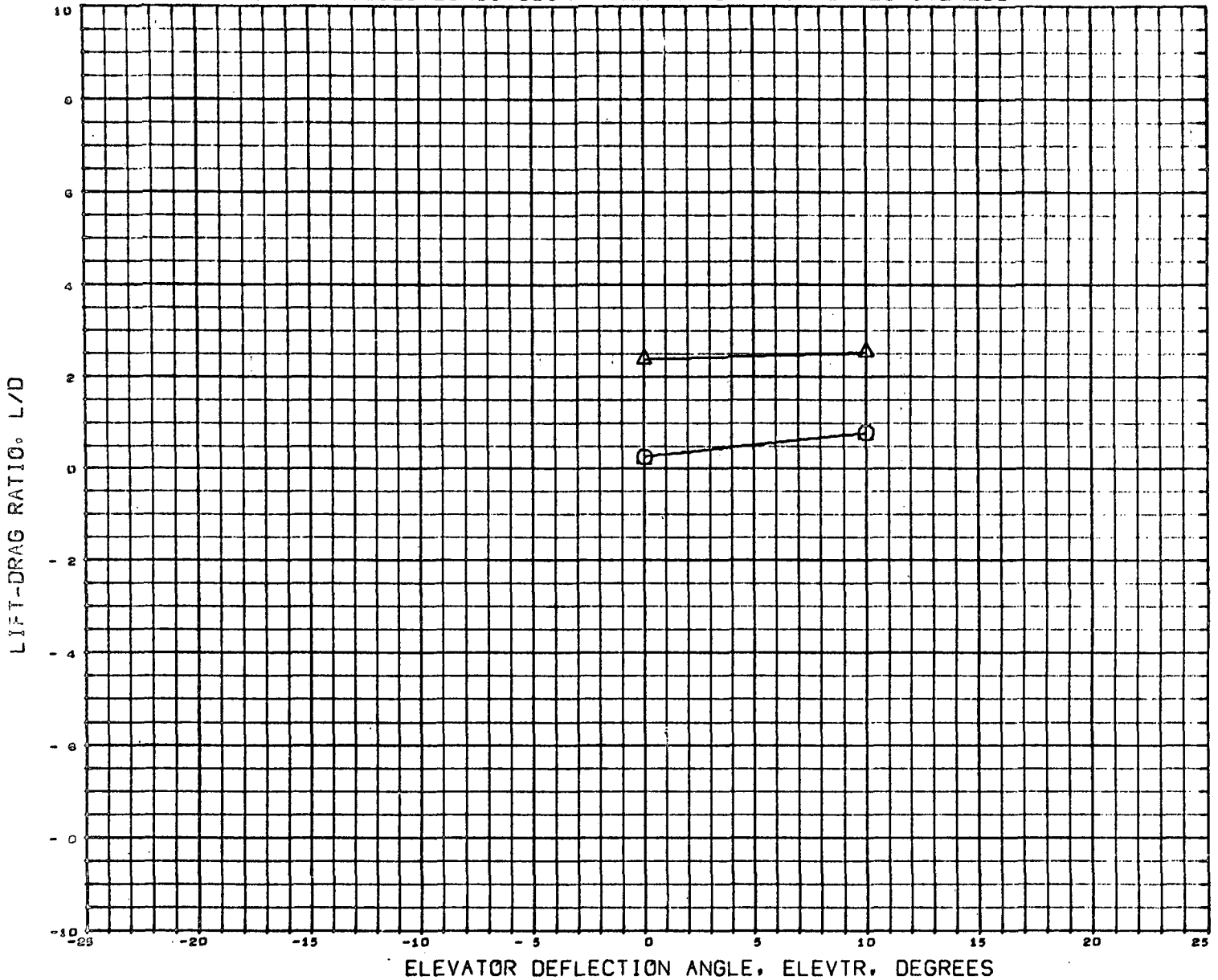
SYMBOL	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
	ALPHA	MACH	BETA	BETA	DATA SET	ELEVTR	DATA SET	ELEVTR	SREF	SCALE	UNIT
△	0.000	0.900	-0.032	-0.032	NN3021	0.000	NN3025	10.000	1.3550	0.0150	SG.FT.
	0.000	3.000	0.000	0.000	NN3029	20.000			3.4530		FEET
		MSFLOW	0.000	AILRON	0.000				3.4530		FEET
		CANARD	10.000	RUDDER	0.000				2.5950		FEET
		WNGPOS	1.000	CNDPOS	1.000				0.0000		FEET
		DATA HIST. CODE							0.0187		FEET
									0.0150		SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



YMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	1.000	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

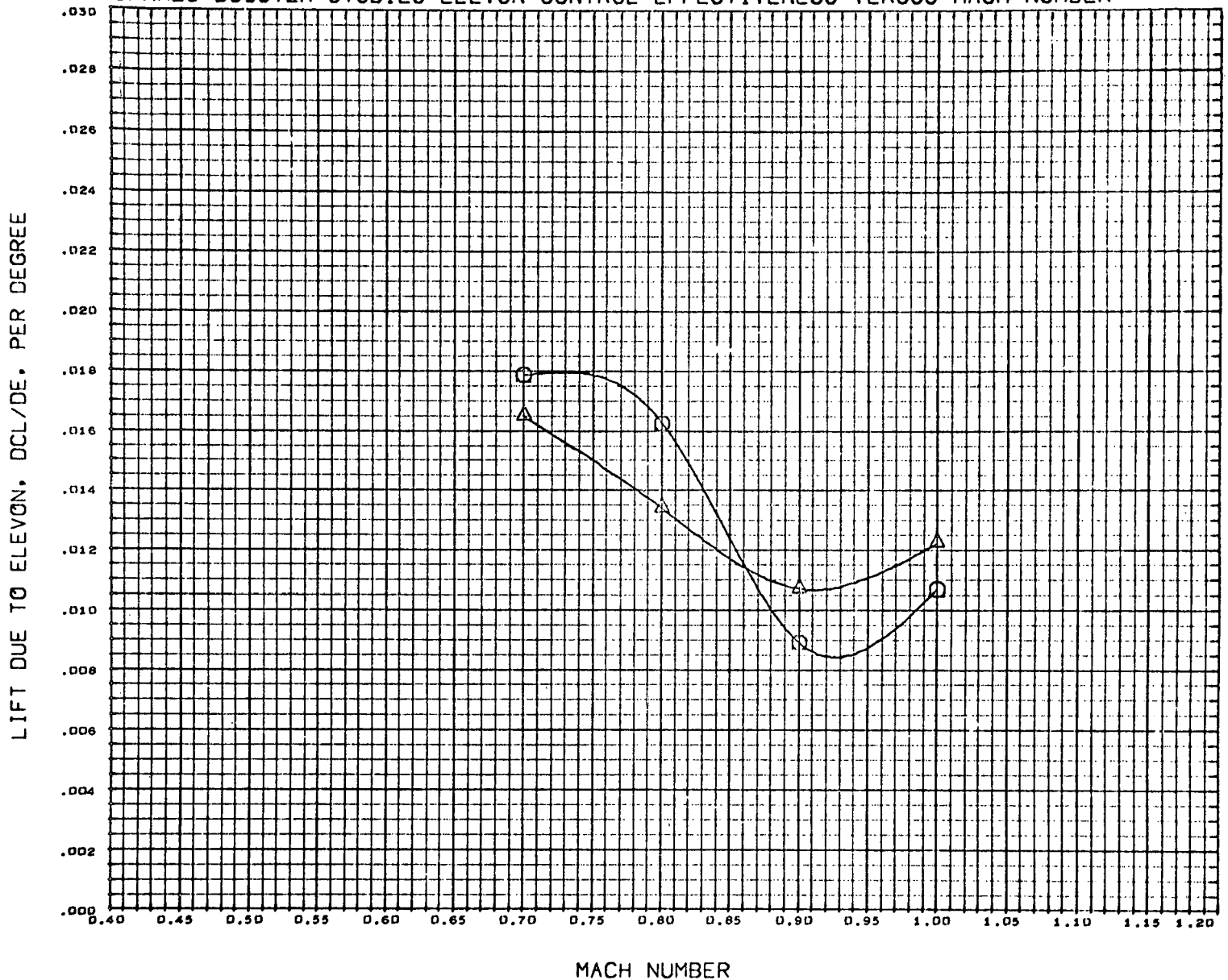
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	MACH	1.125	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE	I									

LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

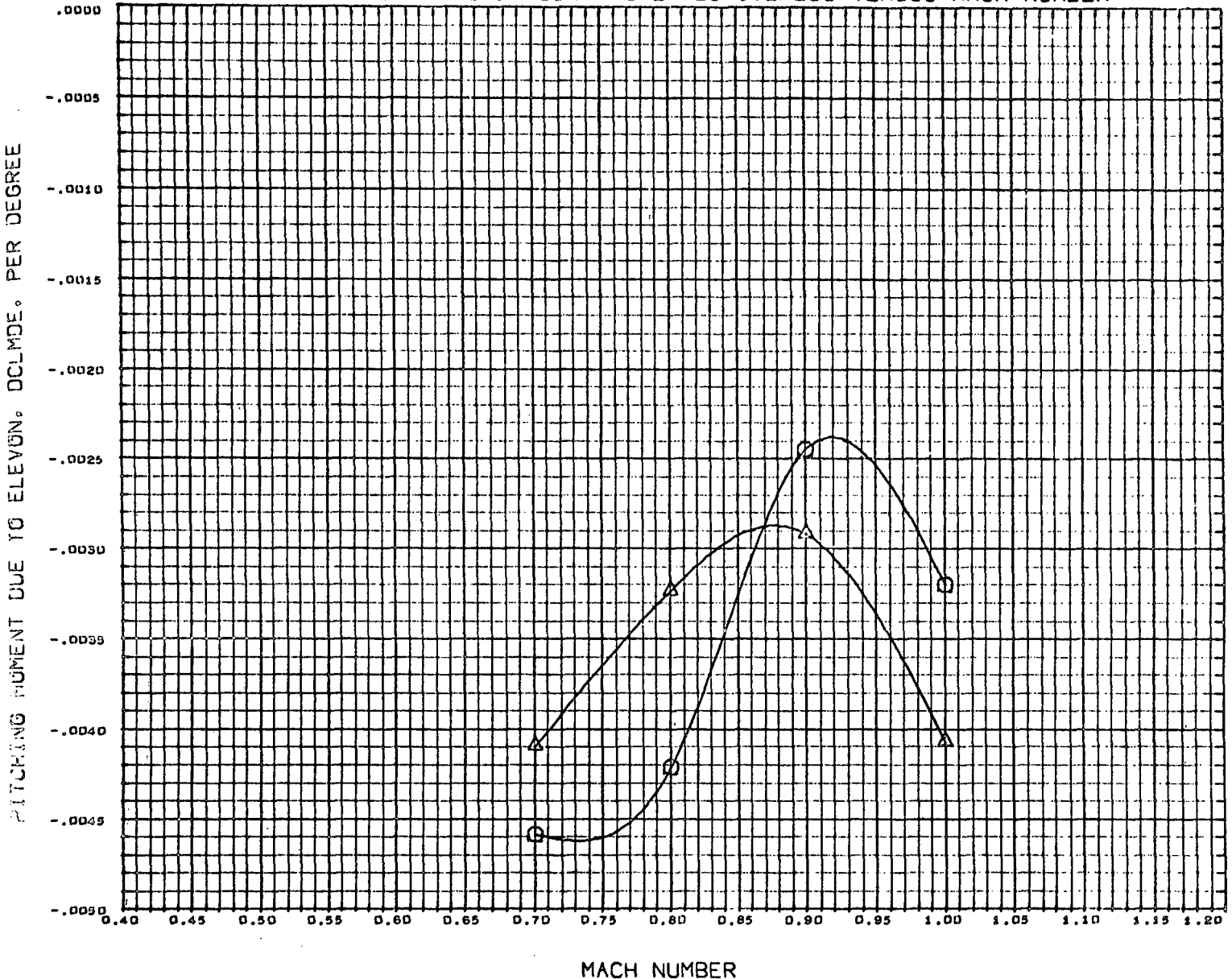


MACH NUMBER

SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	INCIDC	3.000	INCIDW	0.000
△	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	10.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA MIST. CODE	I#P		

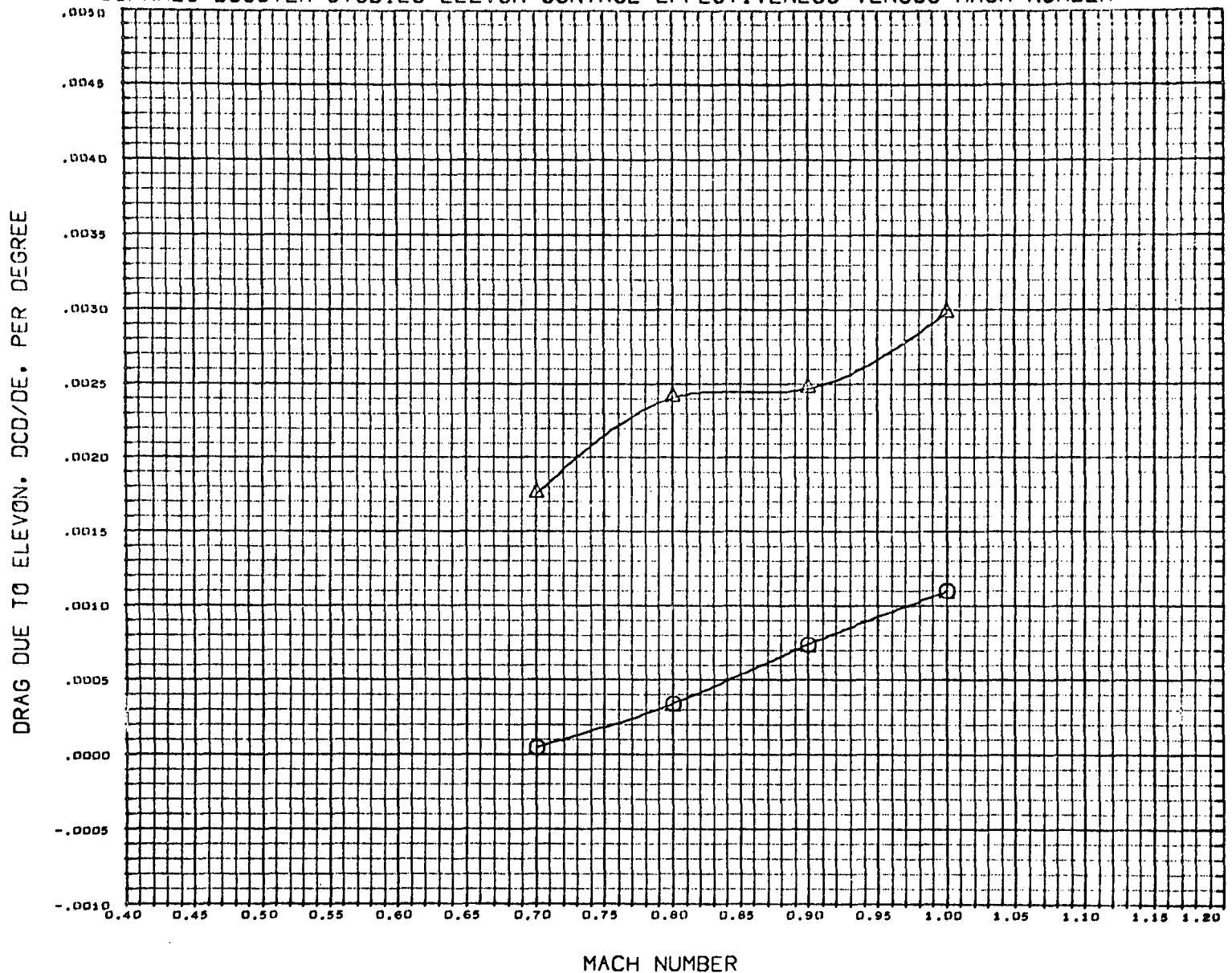
REFERENCE INFORMATION		
SREF	1.3550	90. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



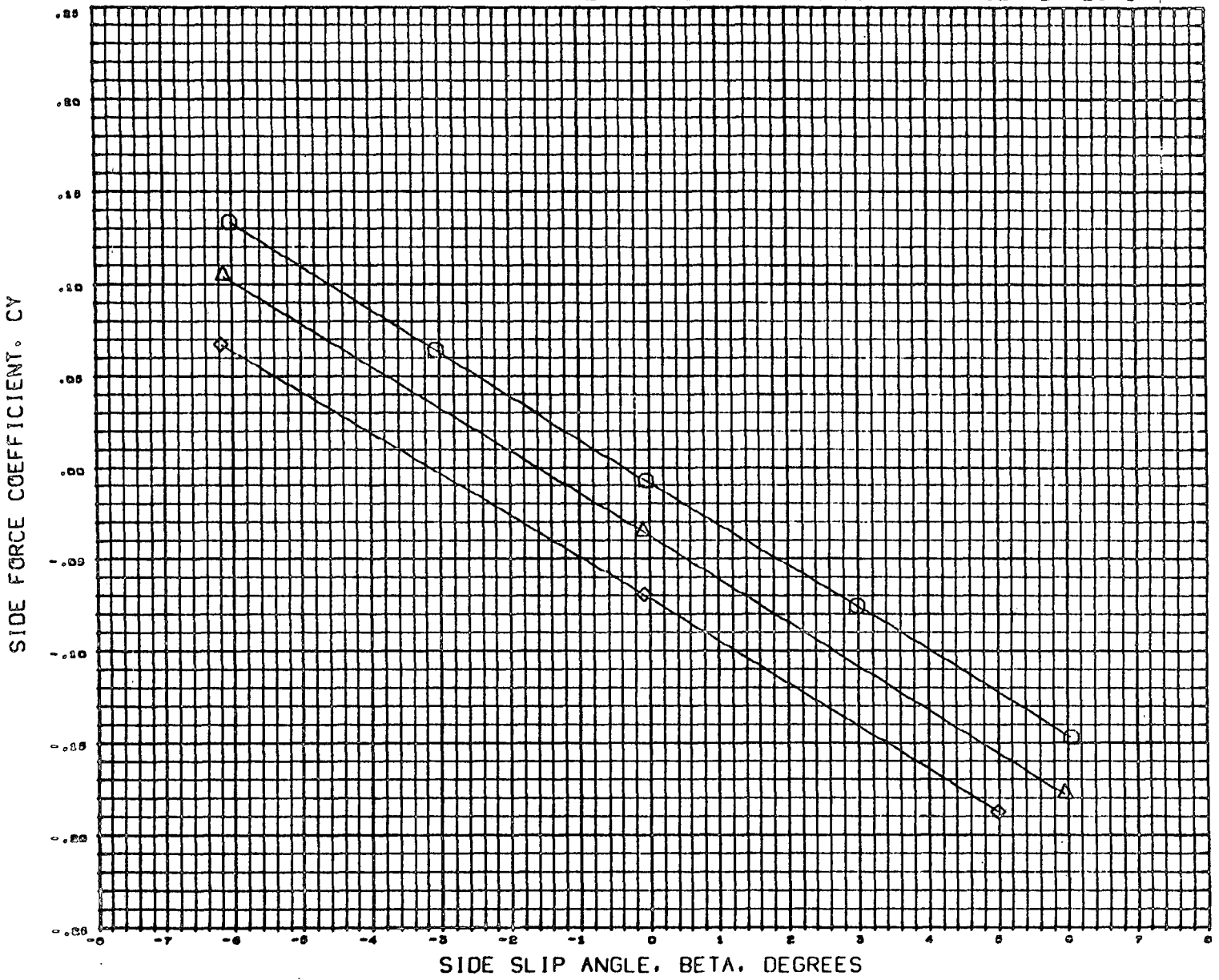
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○		0.000	INCIDC	3.000	INCIDW	0.000	SREF	1.3550	50. FT.
△		6.000	MSFLOW	0.000	AILRON	0.000	LREF	3.4530	FEET
			CANARD	10.000	ELEVTR	0.000	BREF	3.4530	FEET
			RUDDER	0.000	WINGPOS	1.000	XMRP	2.5950	FELT
			CNGPOS	1.000			YMRP	0.0000	FELT
							ZMRP	0.0187	FELT
							SCALE	0.0150	SCALE
			DATA HIST. CODE J&P						

LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	INCIDC	3.000	INCIDW	0.000	SREF	1.3550	SQ. FT.
△	6.000	MSFLOW	0.000	AILRON	0.000	LREF	3.4530	FEET
		CANARD	10.000	ELEVTR	0.000	BREF	3.4530	FEET
		RUDDER	0.000	WNGFOS	1.000	XMRP	2.5950	FEET
		CNDPOS	1.000			YMRP	0.0000	FEET
		DATA HIST. CODE	1#F			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

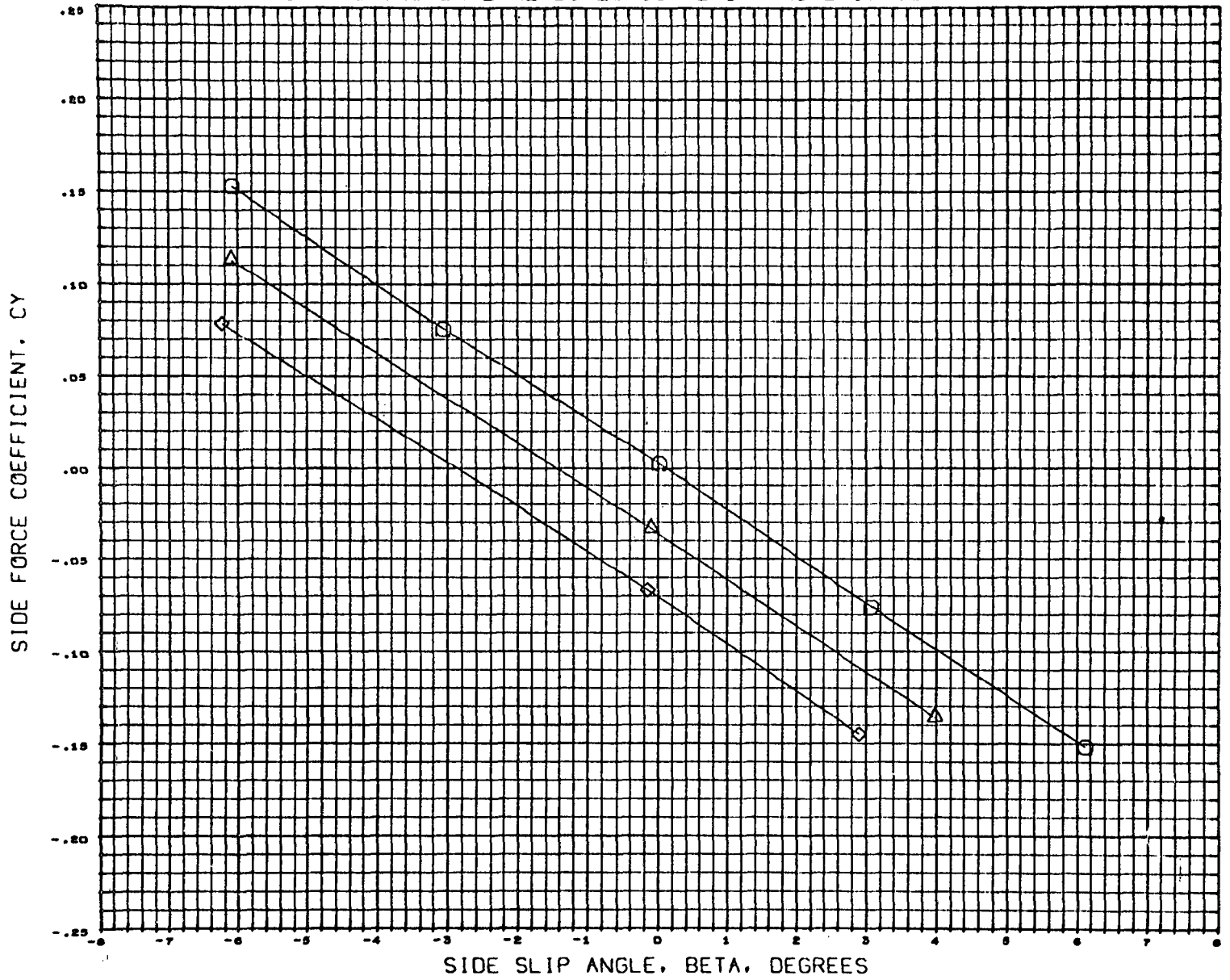
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
QRW002	○	NBRDC-3210, MSPC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3590 SQ.FT.
QRW006	△	NBRDC-3210, MSPC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
QRW009	◇	NBRDC-3210, MSPC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.9990 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0190 SCALE

MACH 0.099

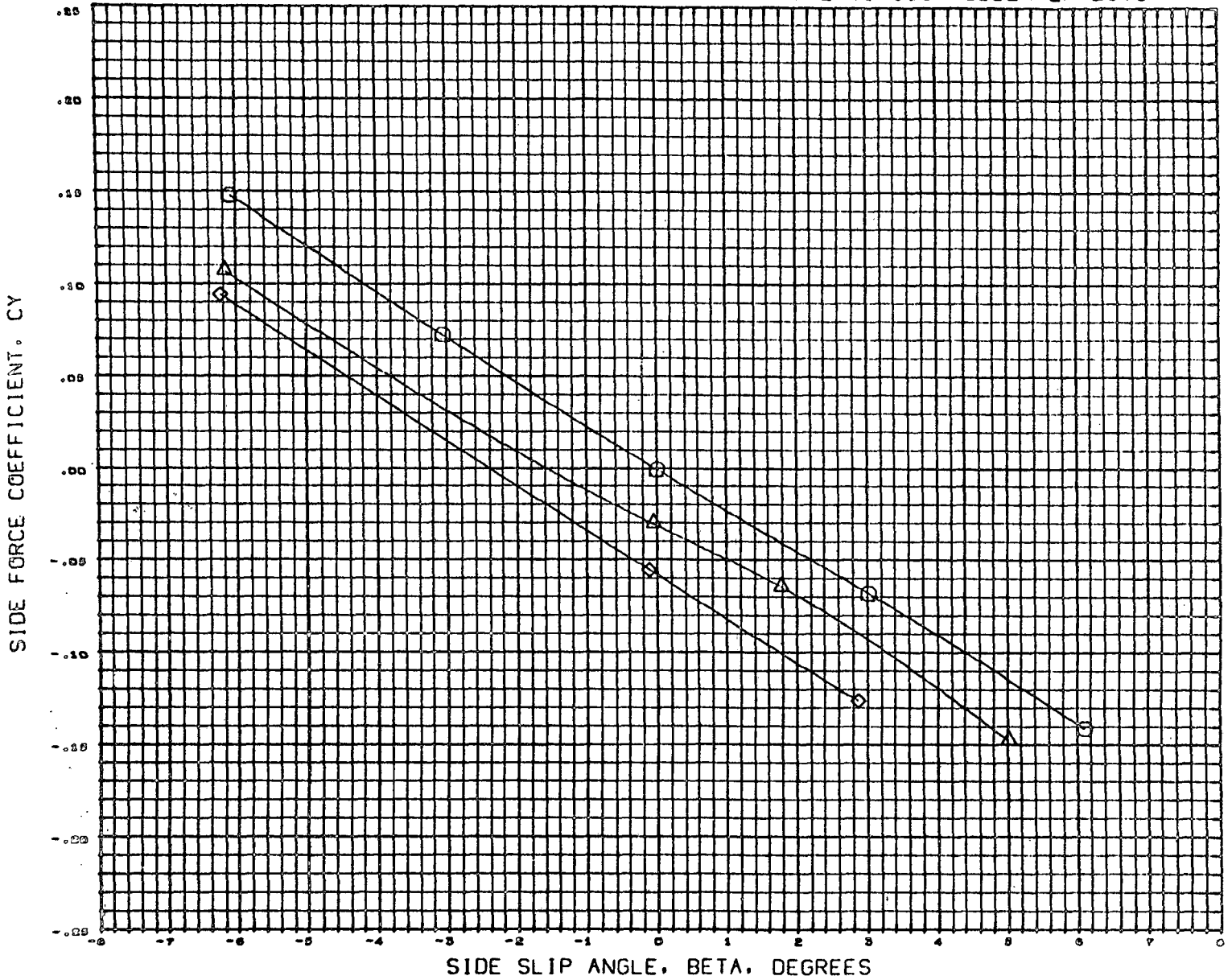
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3046)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4330 FEET
(RN3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4330 FEET
						XMRF 2.9950 FEET
						YMRF 0.0000 FEET
						ZMRF 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.800

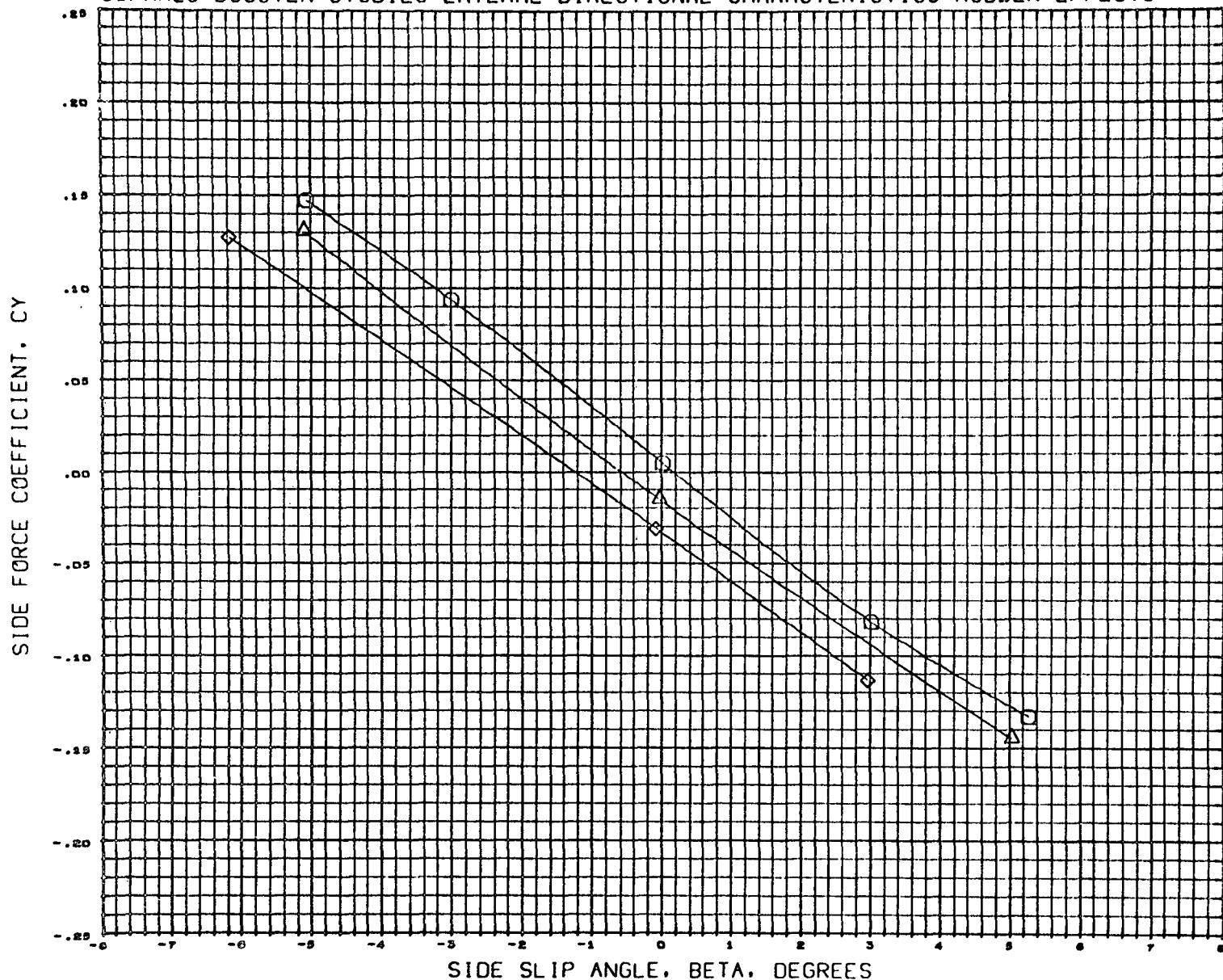
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RND002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3950 SQ. FT.
(RND040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RND050)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.8950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.900

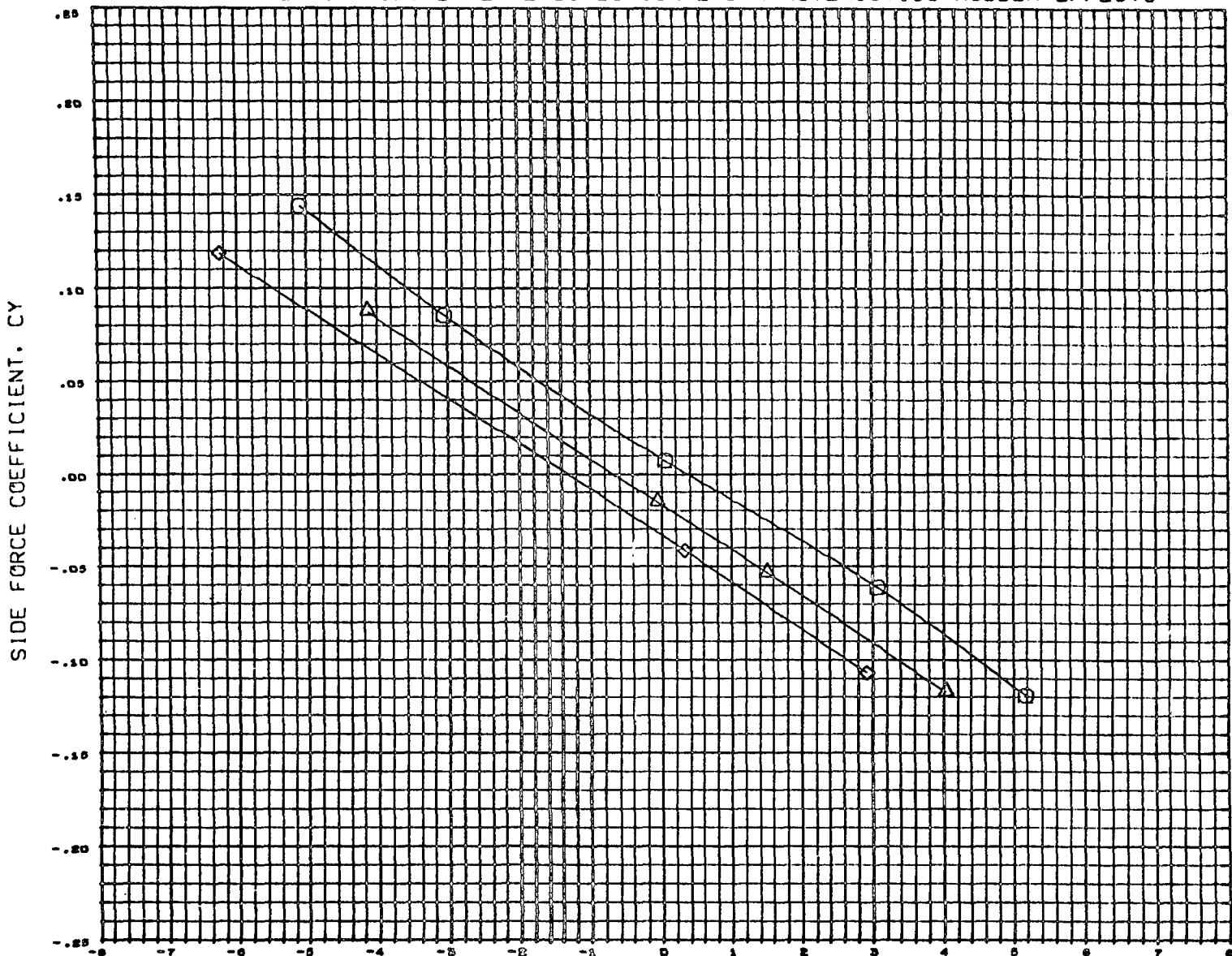
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 3.3550 SQ.FT.
(RN3046)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-3.000	0.000	0.000	LREF 3.4530 FEET
(RN3050)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

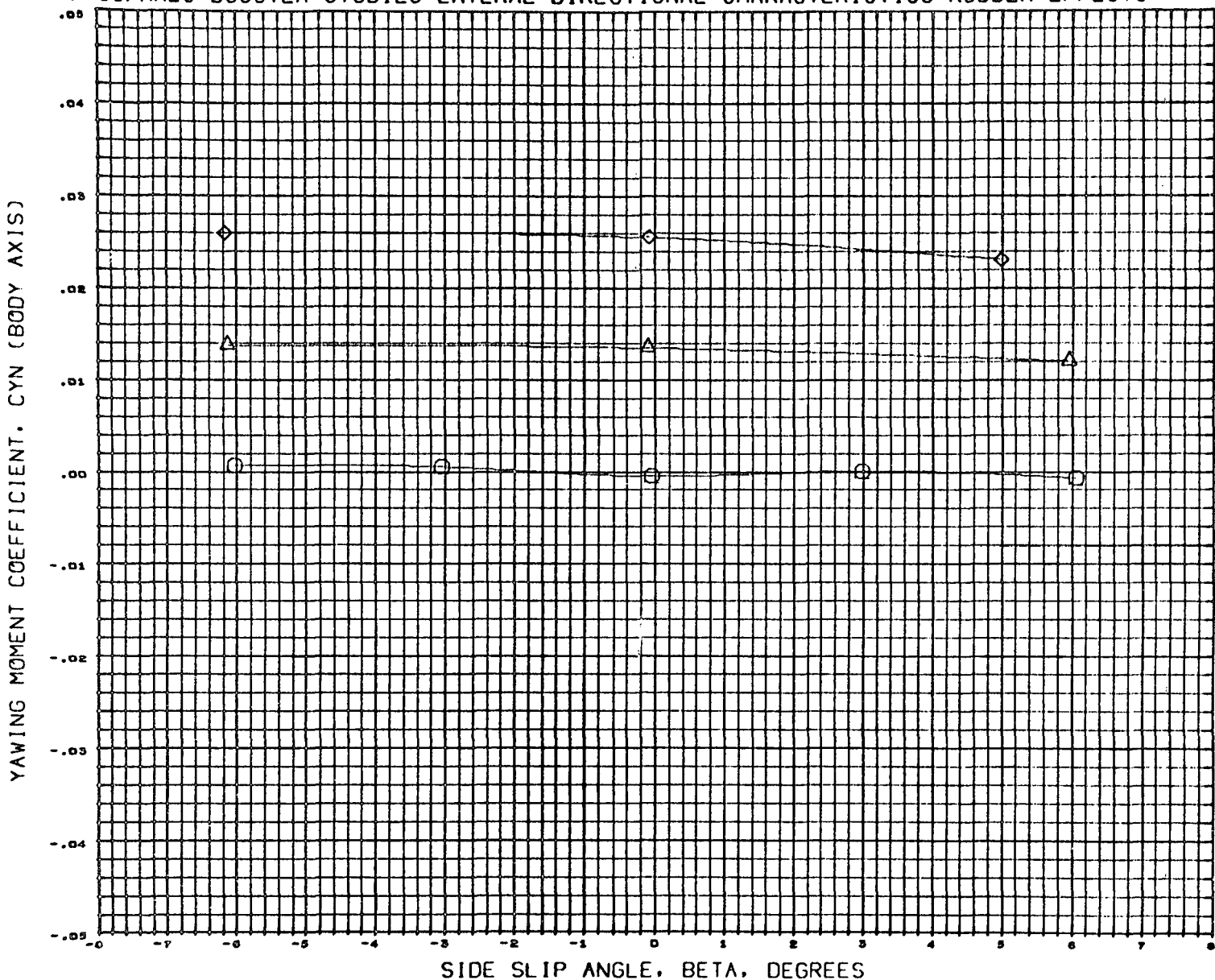


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	0.017	0.000	0.000	0.000	SREF 1.3590 SQ.FT.
(RNS046)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RNS050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	0.023	-10.000	0.000	0.000	SREF 3.4530 FEET
						XMRP 2.5990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0190 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

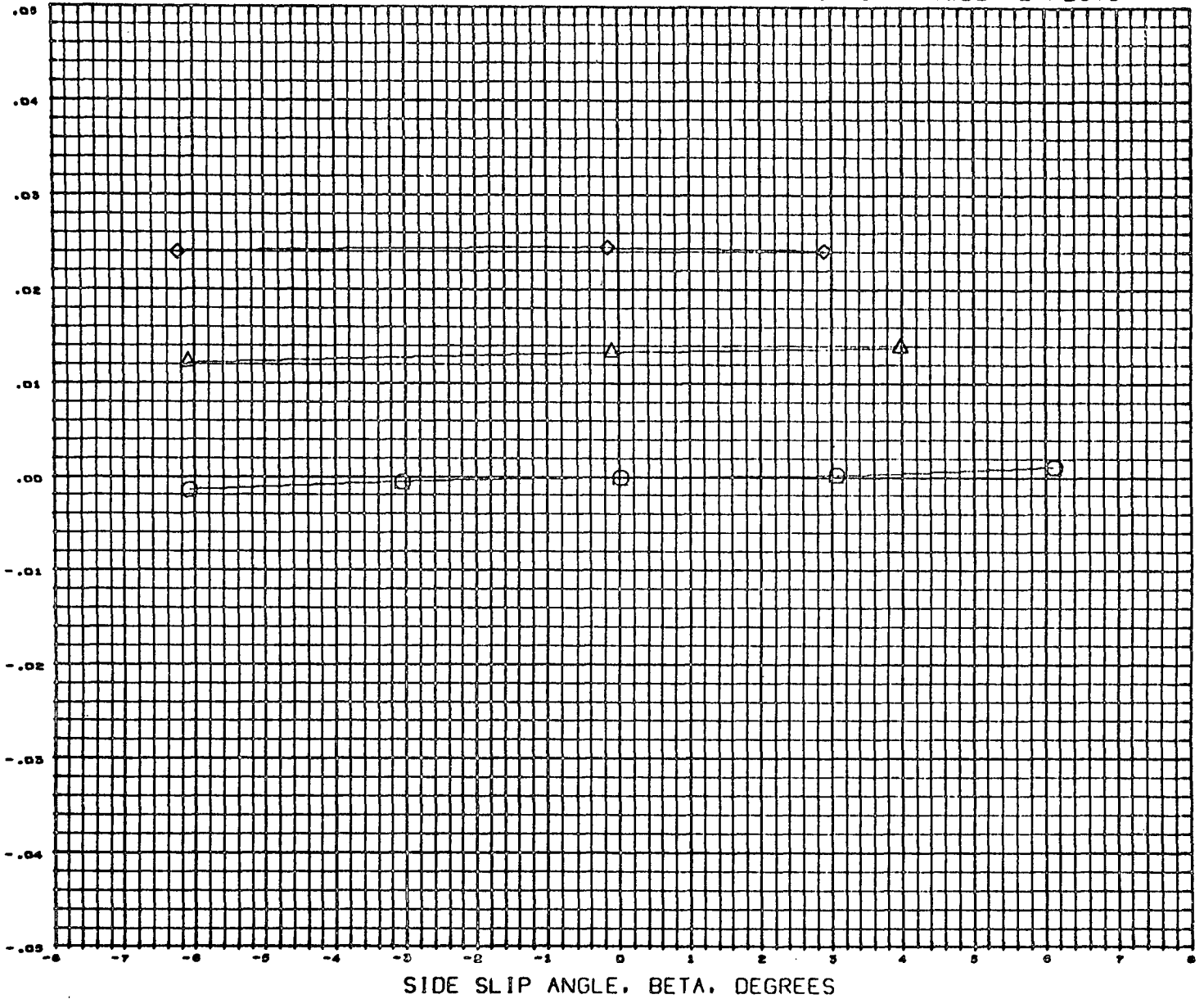


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3046)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.006	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3050)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.600

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

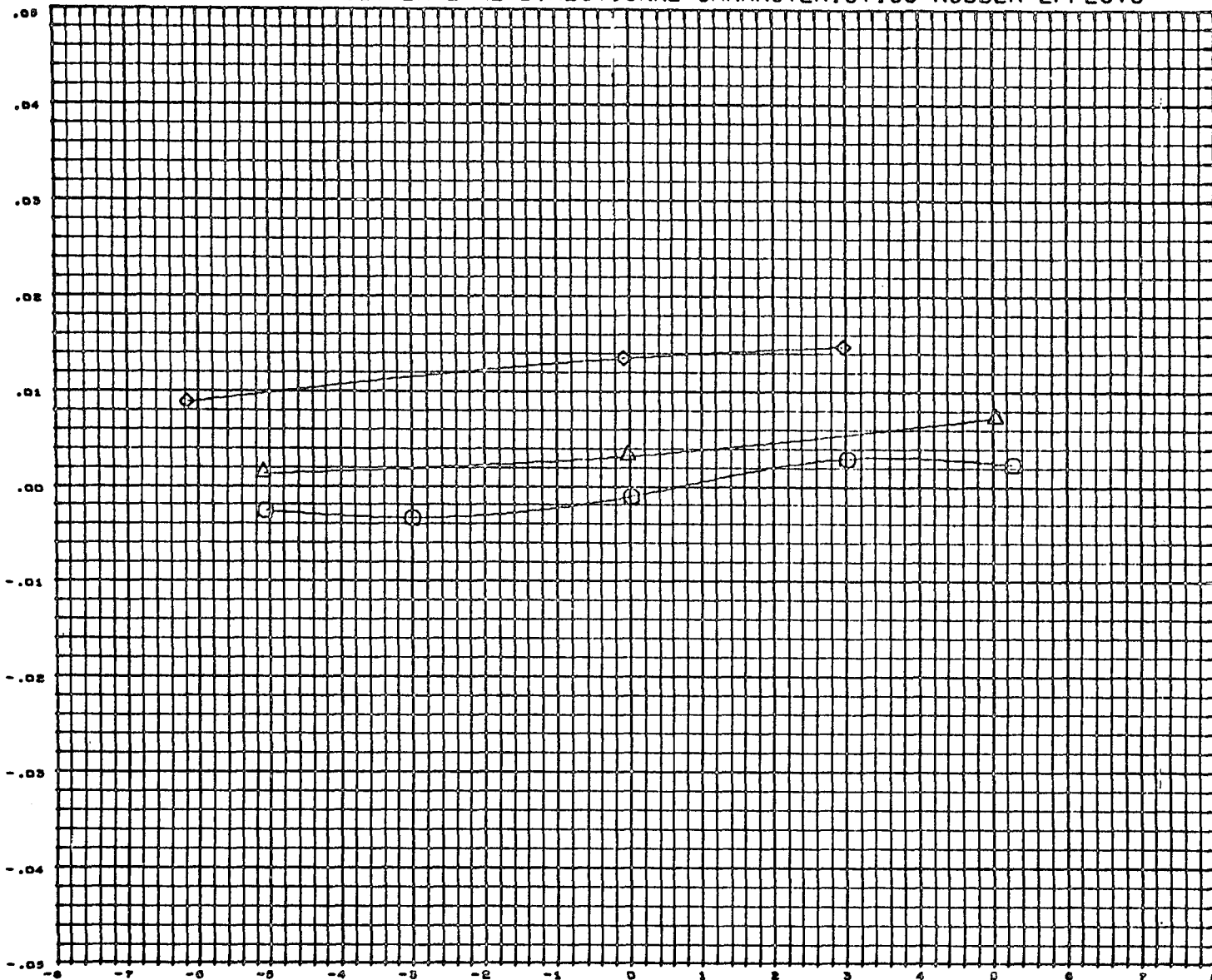


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3046)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3050)	◇	NSRDC-3210,MBFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0190 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

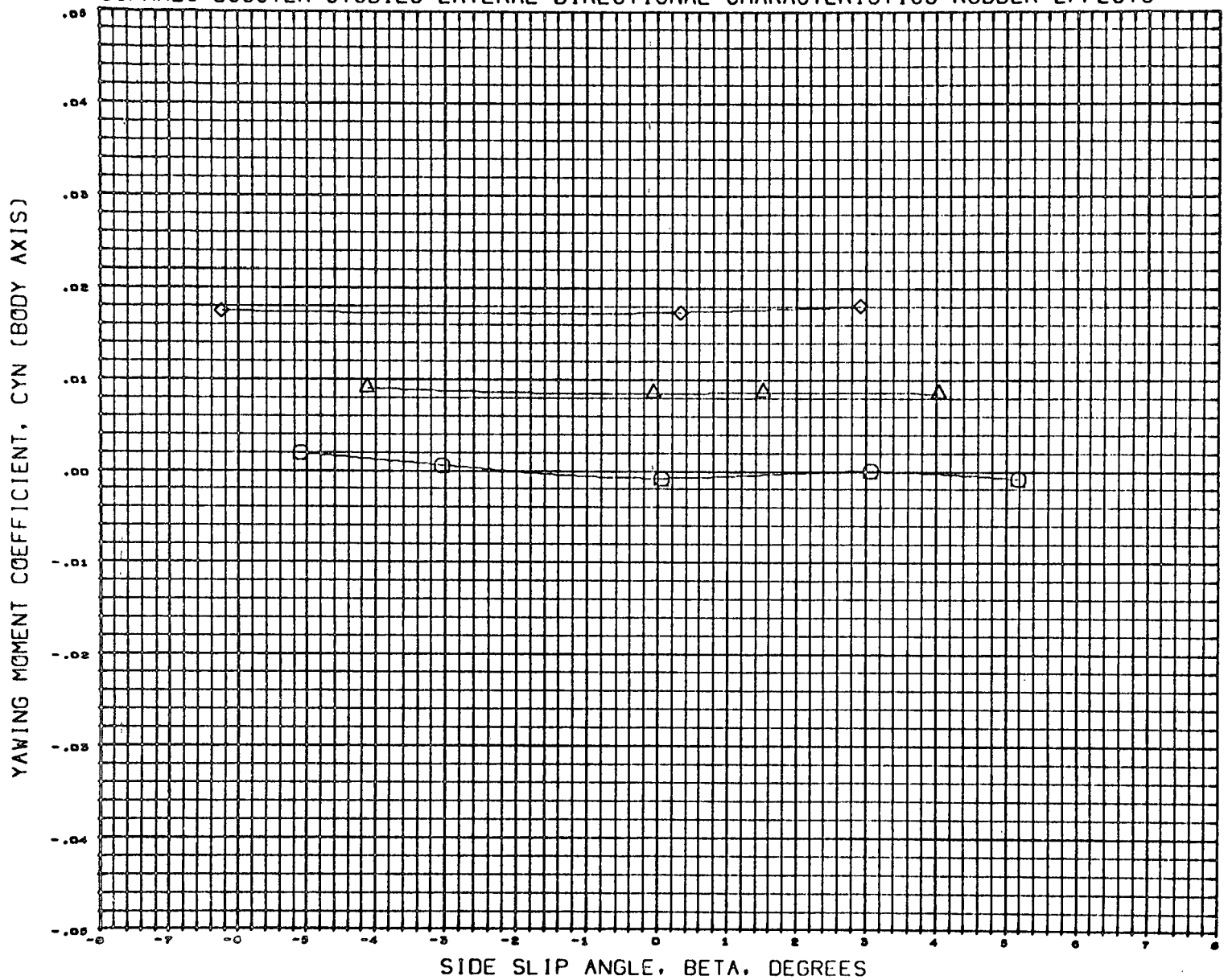


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(RNS050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

MACH 1.003

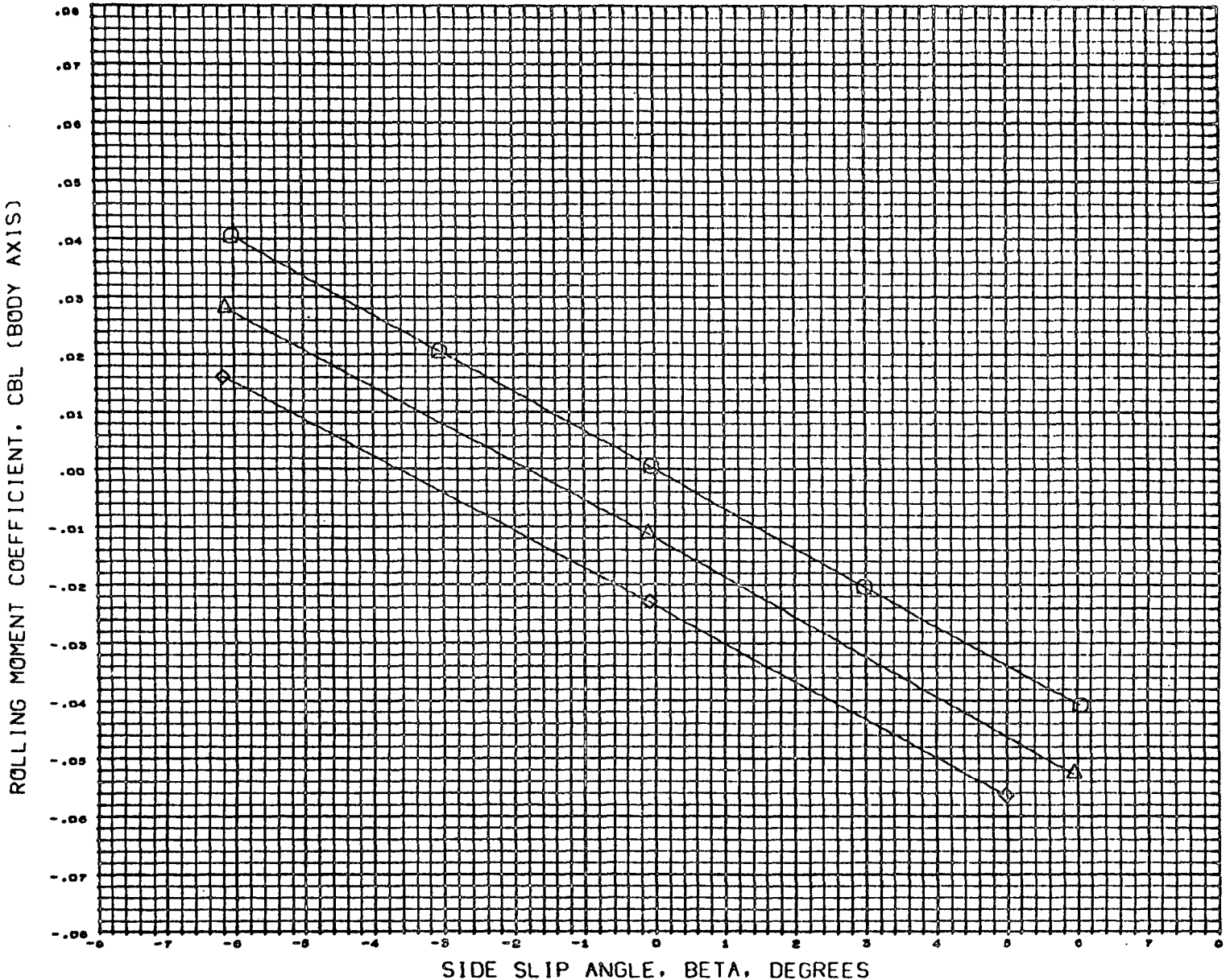
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS048)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RNS050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 5.522

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

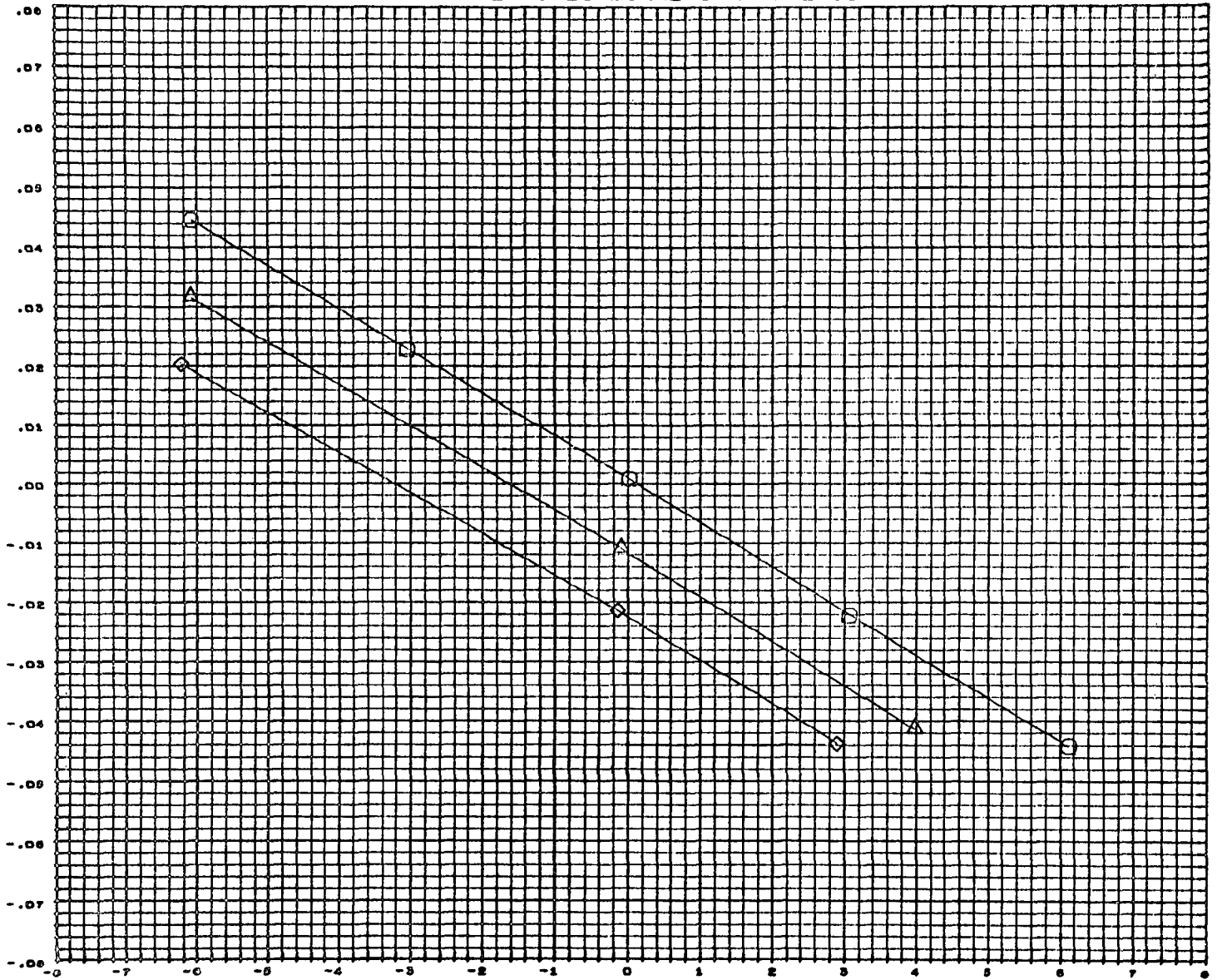


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.099

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

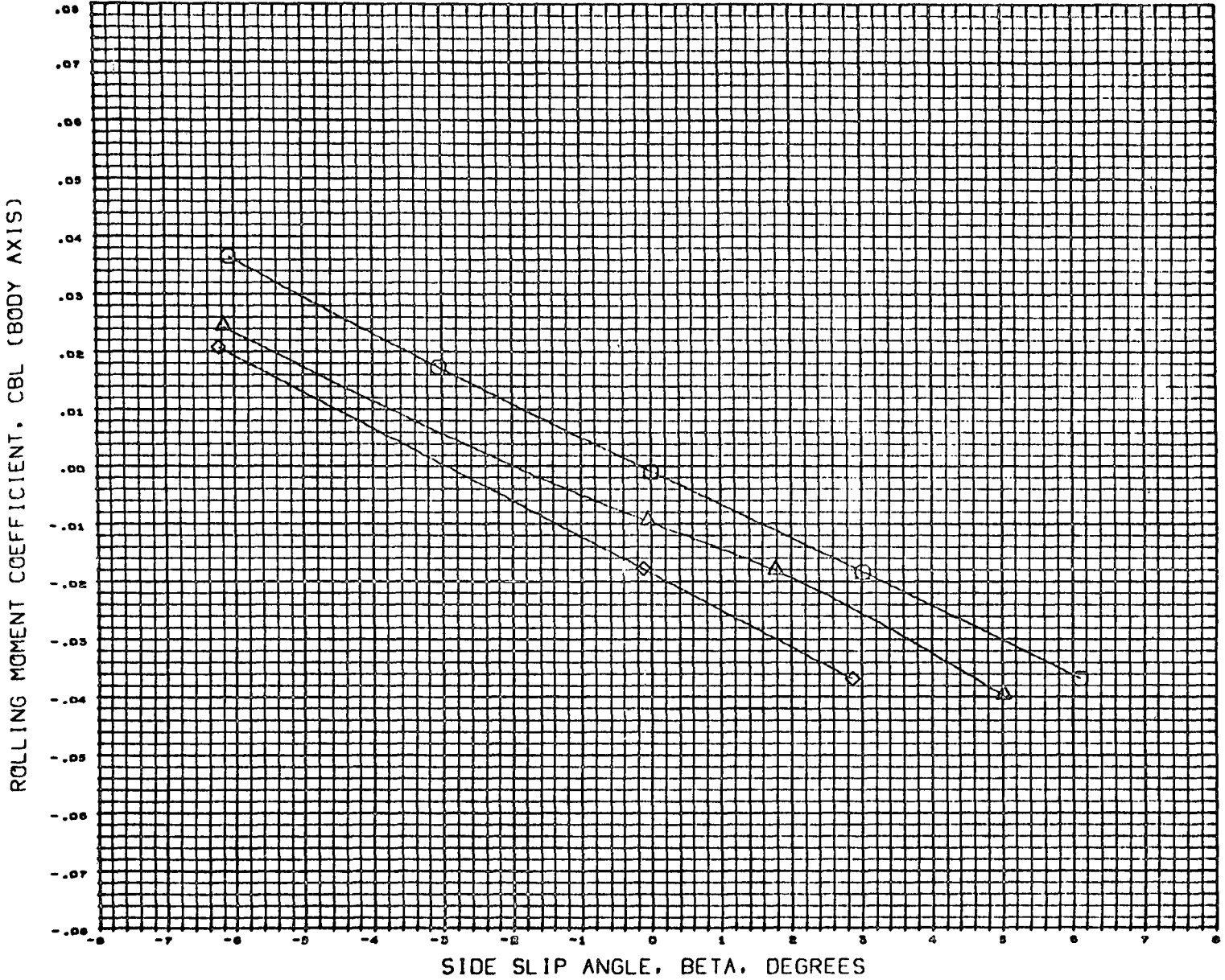


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.006	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.800

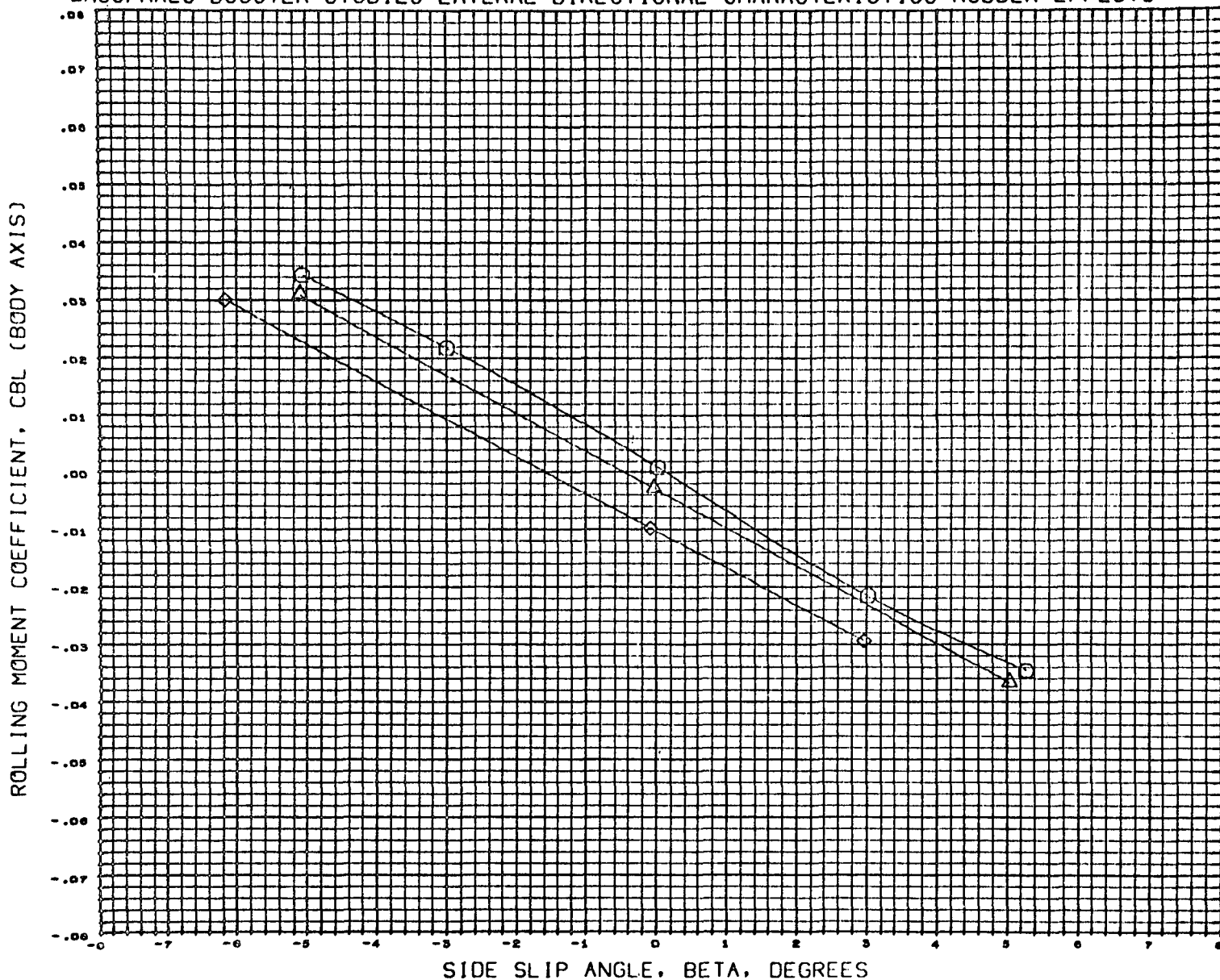
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	○	NSRDC-3210,MBFC/LM5C BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3046)	△	NSRDC-3210,MBFC/LM5C BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3050)	◇	NSRDC-3210,MBFC/LM5C BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.900

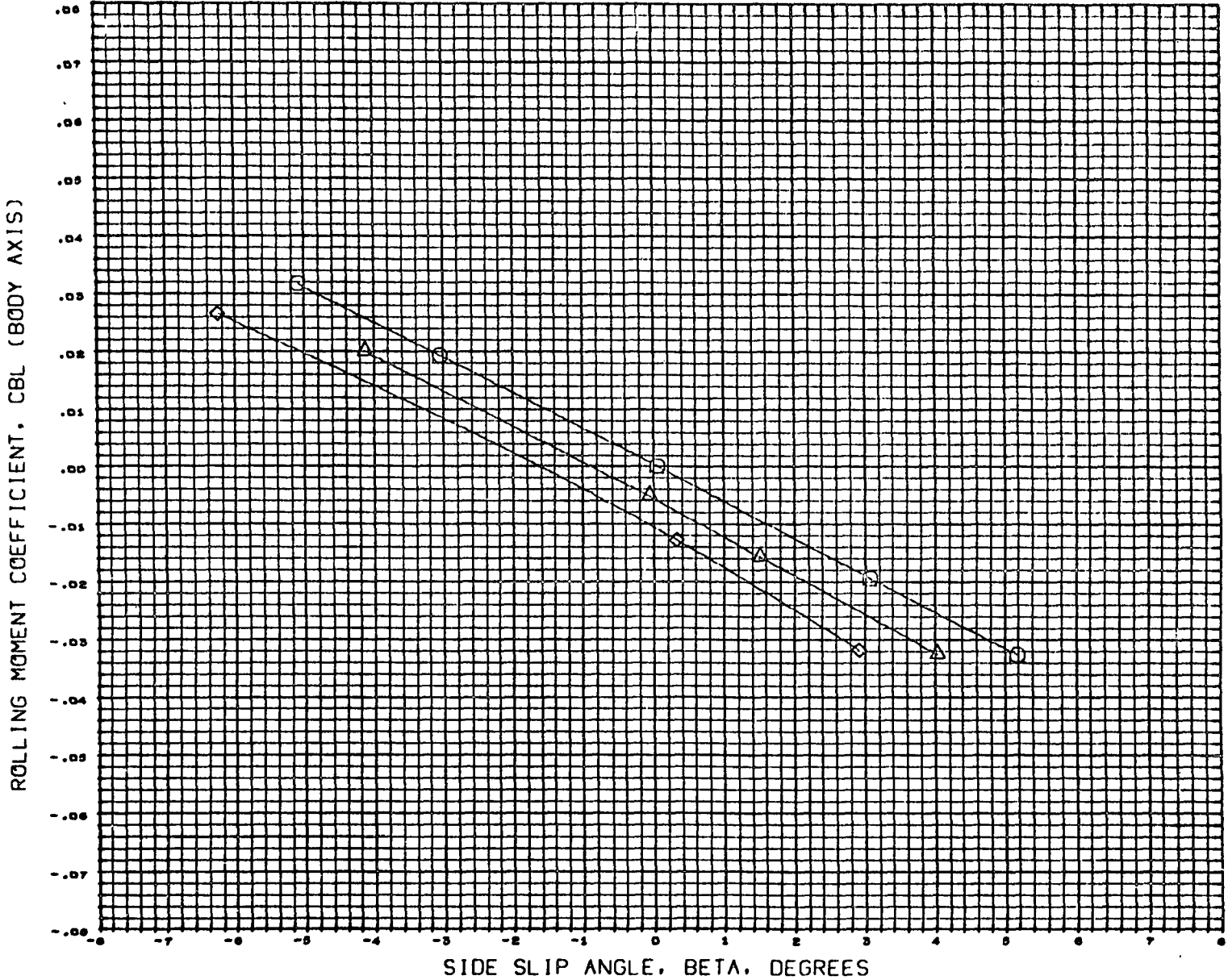
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3046)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-3.000	0.000	0.000	LREF 3.4530 FEET
(RN3030)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

HACH 1.001

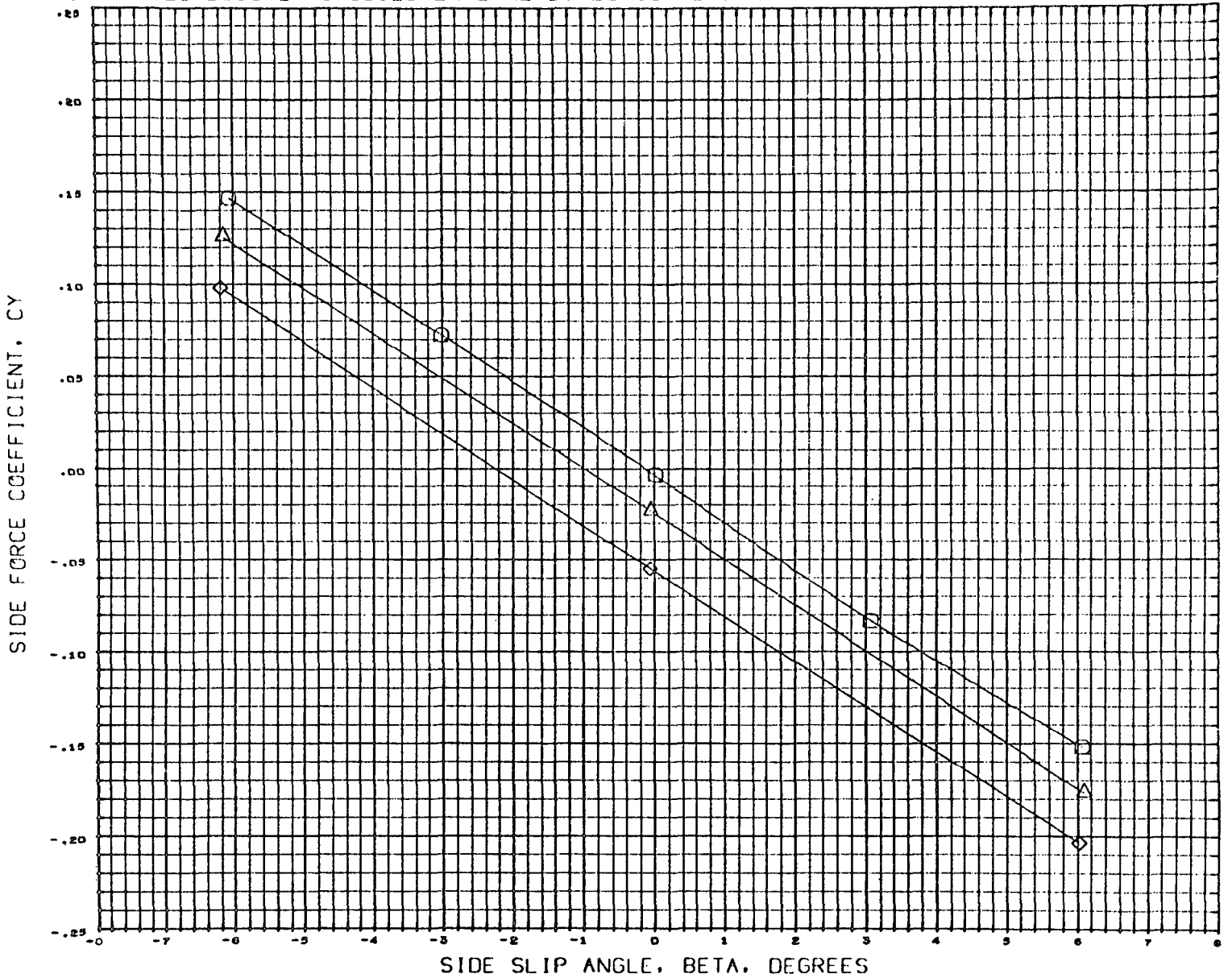
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3046)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3050)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRF 2.5950 FEET
						YMRF 0.0000 FEET
						ZMRF 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.122

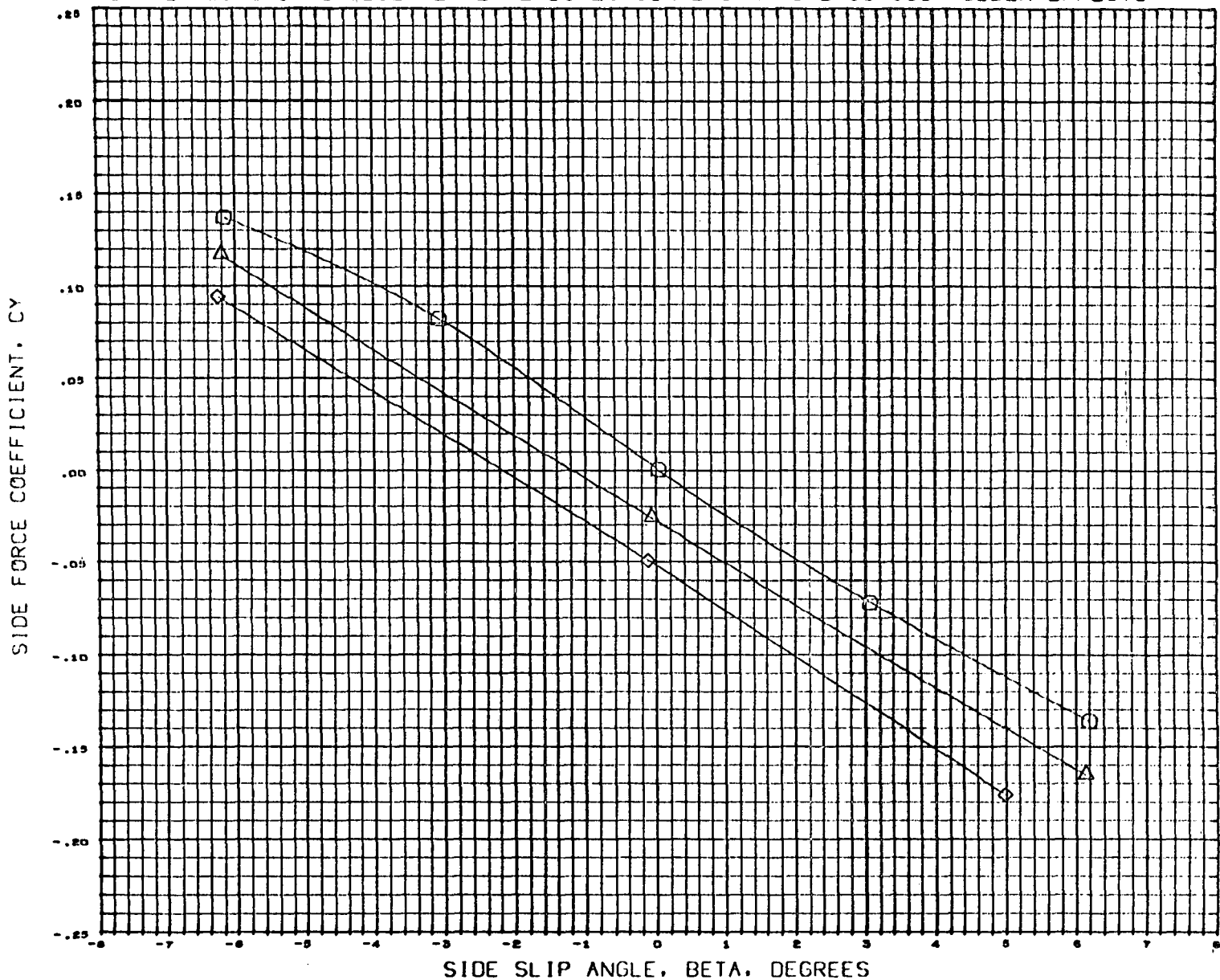
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-3.000	0.000	0.000	LREF 3.4550 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4550 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.700

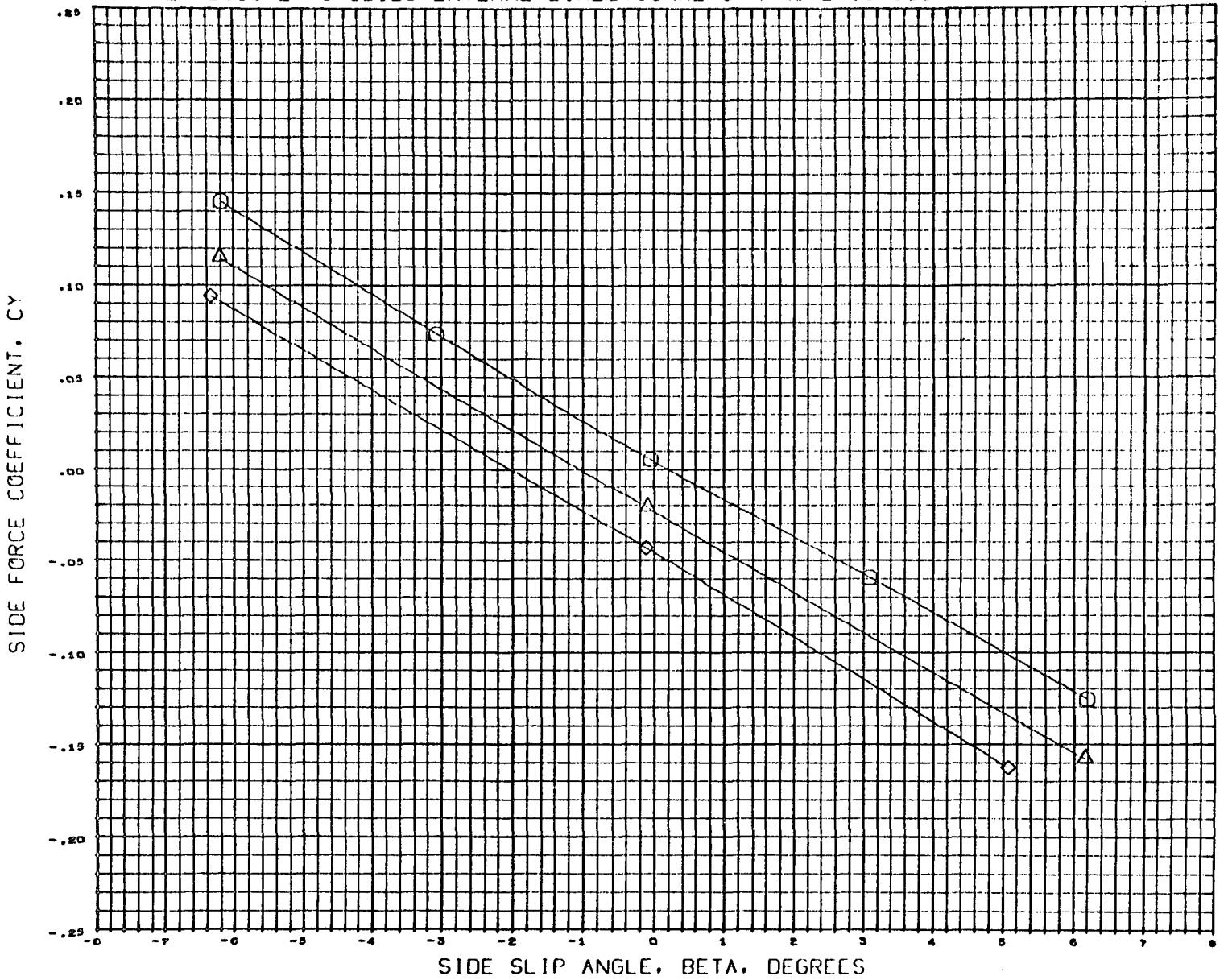
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.600

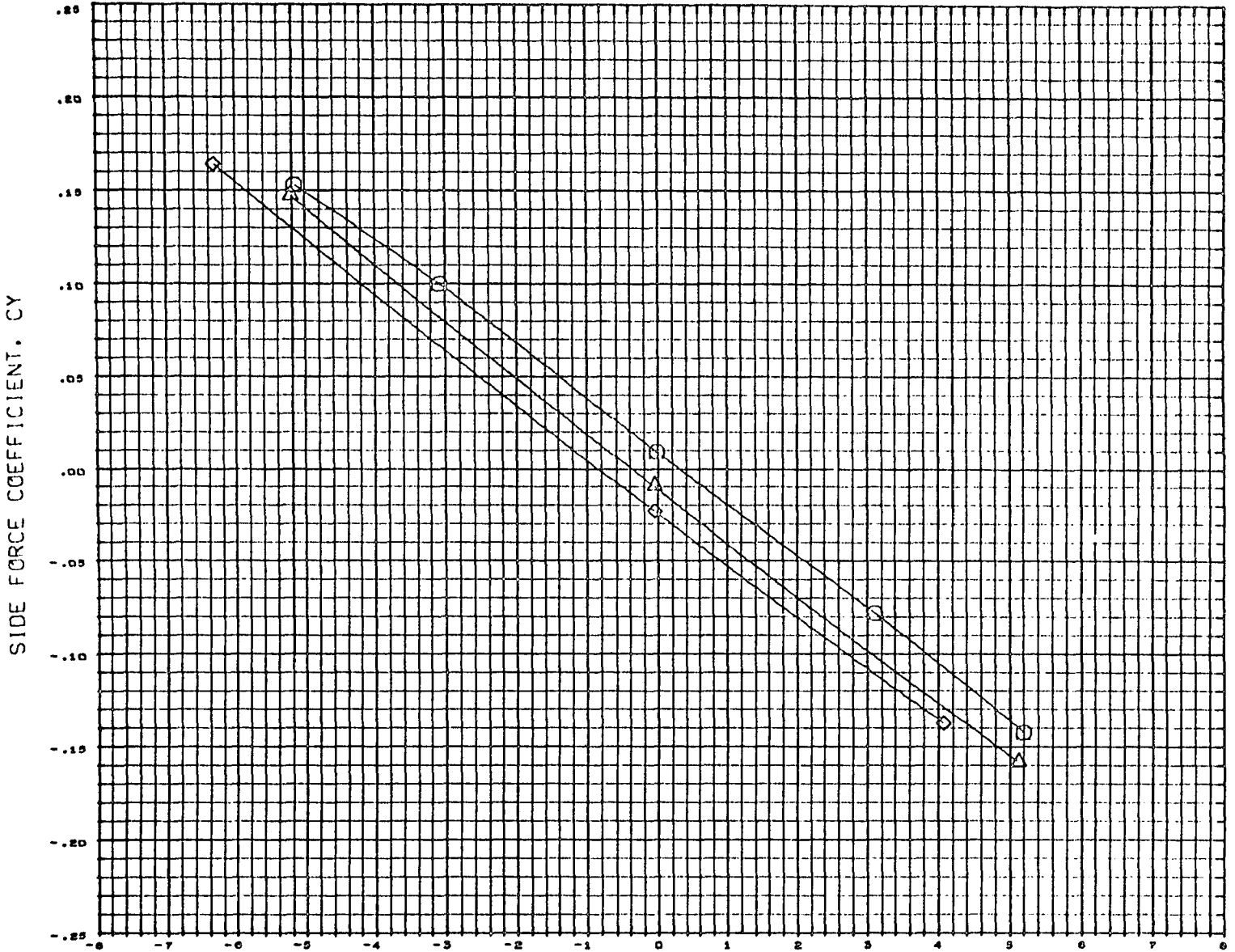
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN3047)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.904

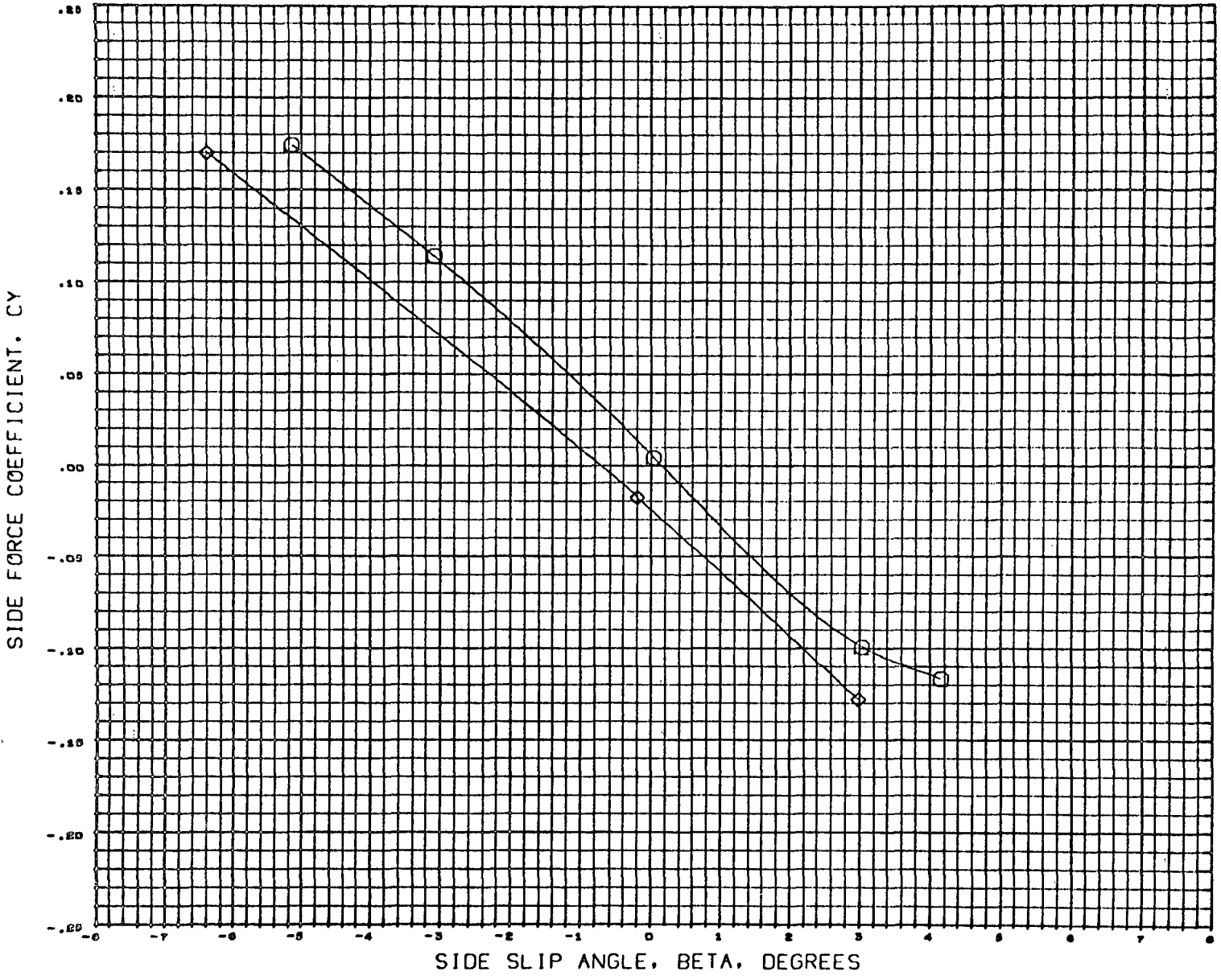
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0190 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

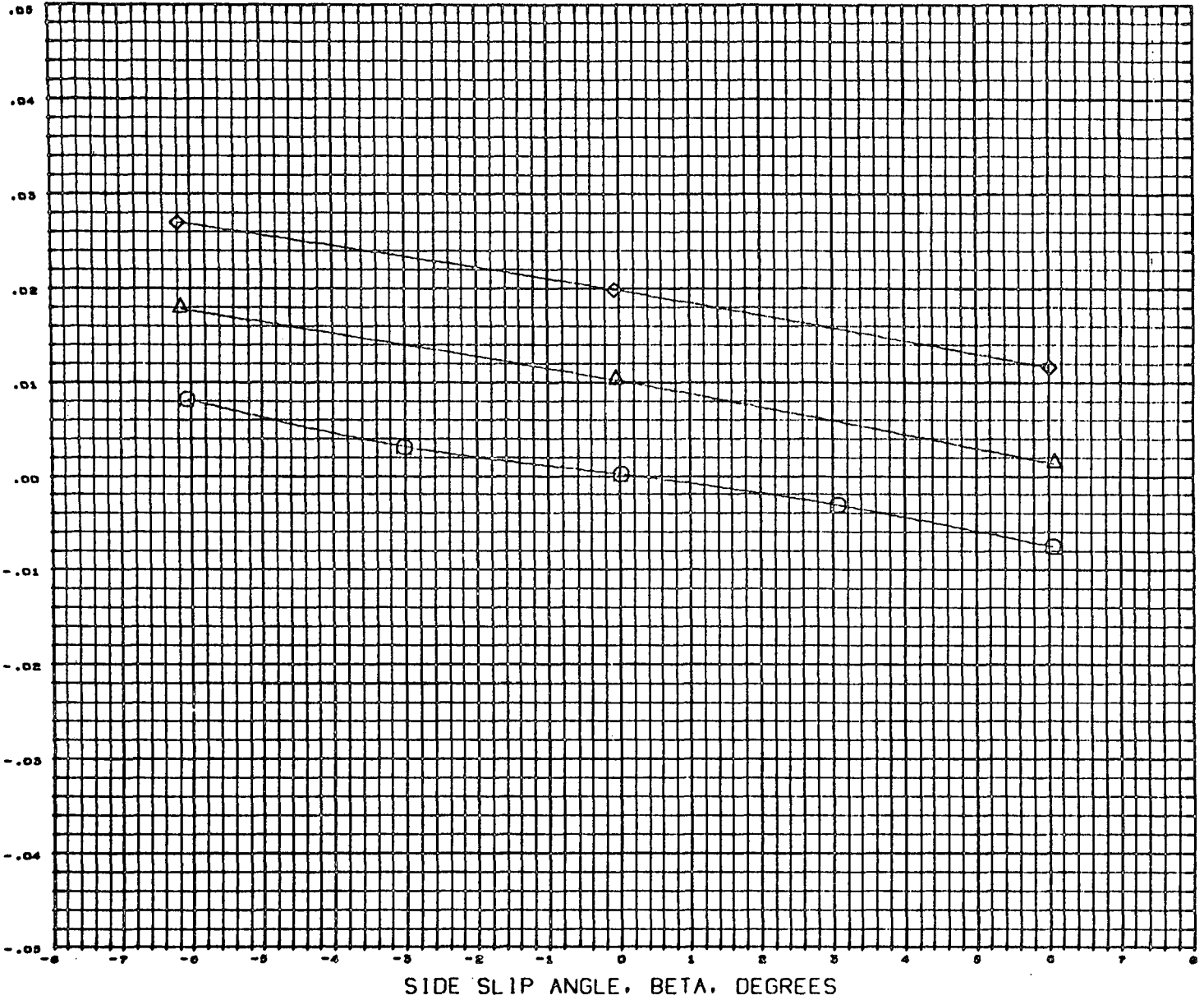


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3047)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3051)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 3.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

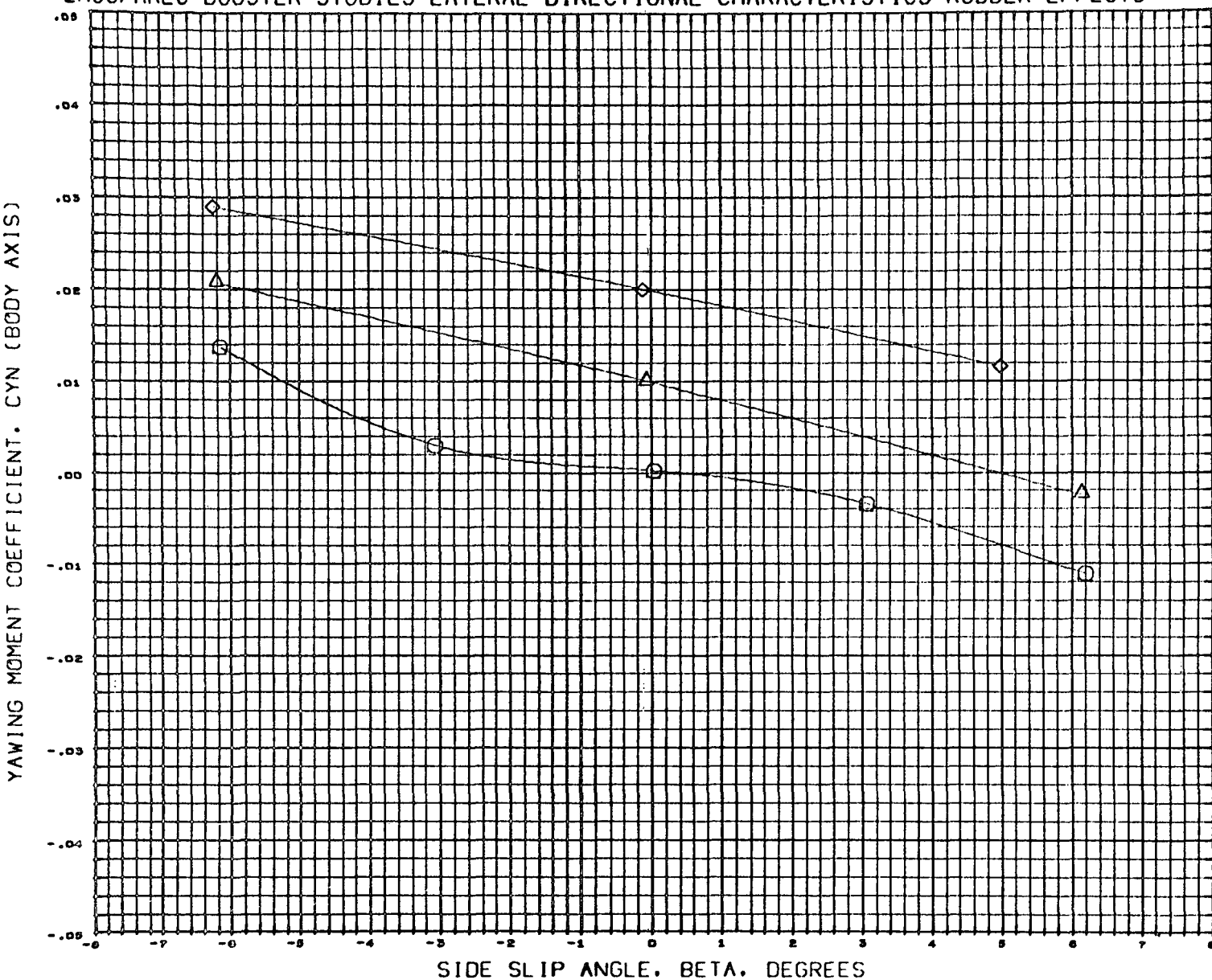
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN3047)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3091)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.700

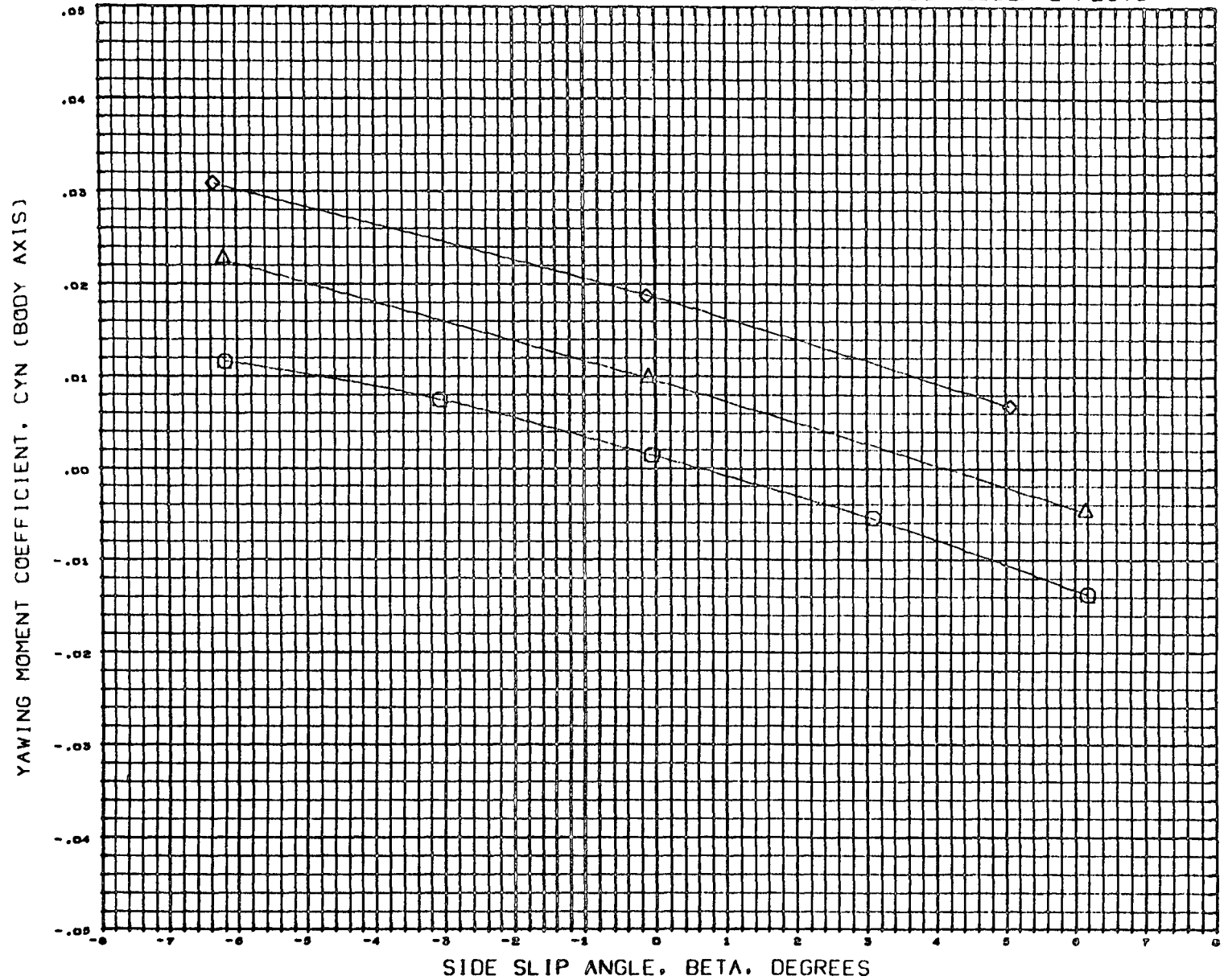
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3091)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.8950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.800

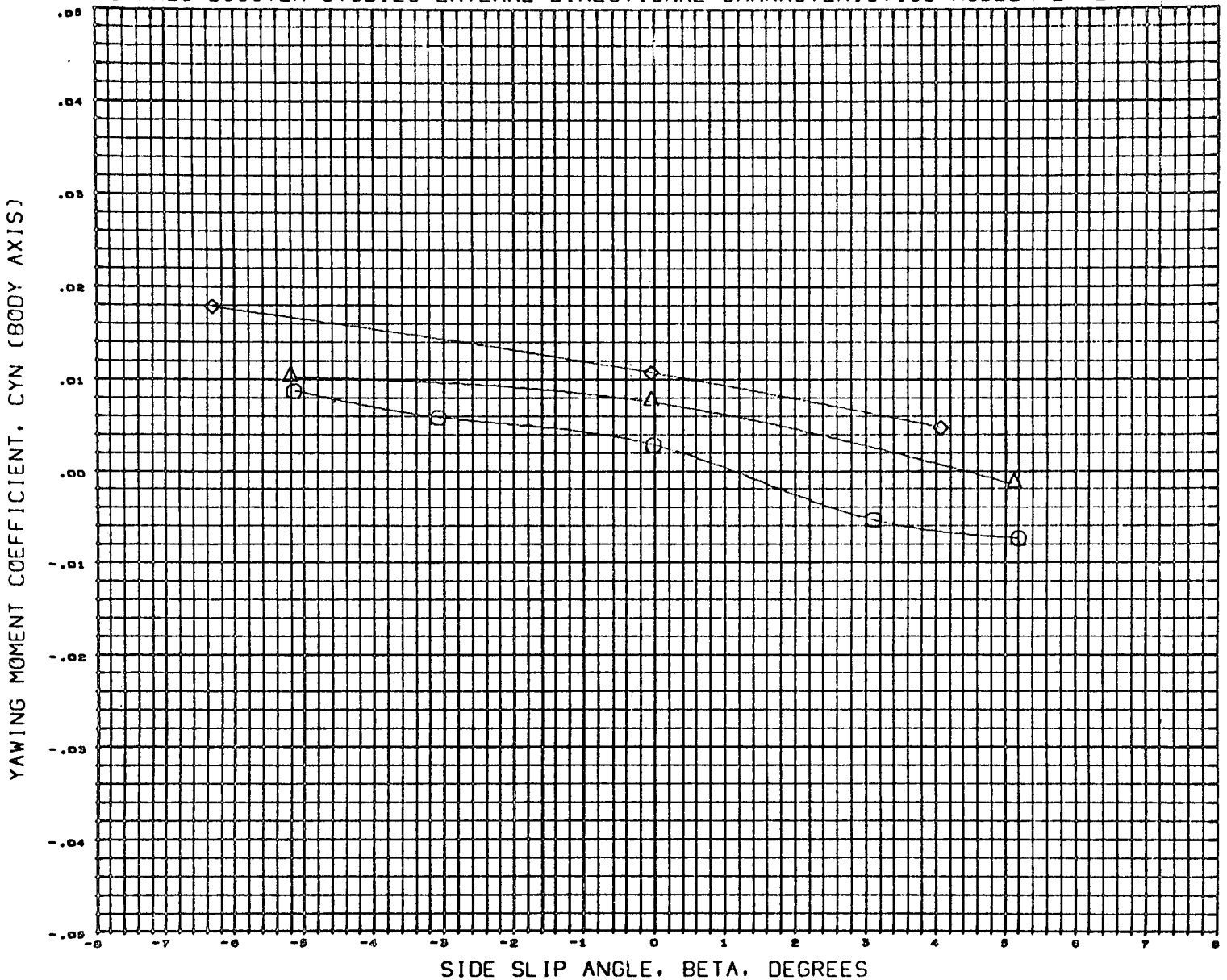
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(AN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.135	0.000	0.000	0.000	BREF 1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.146	-9.000	0.000	0.000	LREF 3.4550 FEET
(AN3045)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0190 SCALE

MACH 0.904

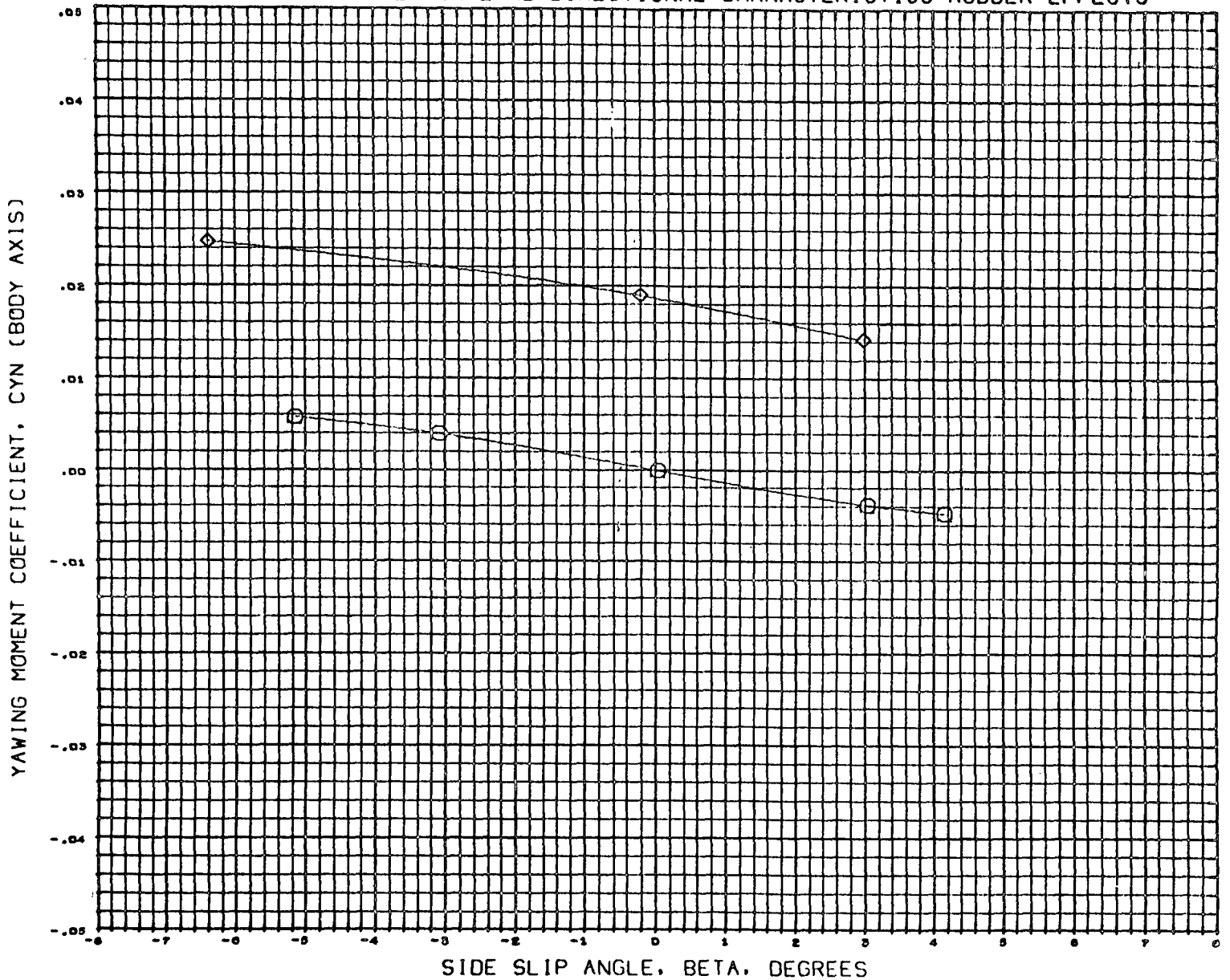
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN3047)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3051)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.001

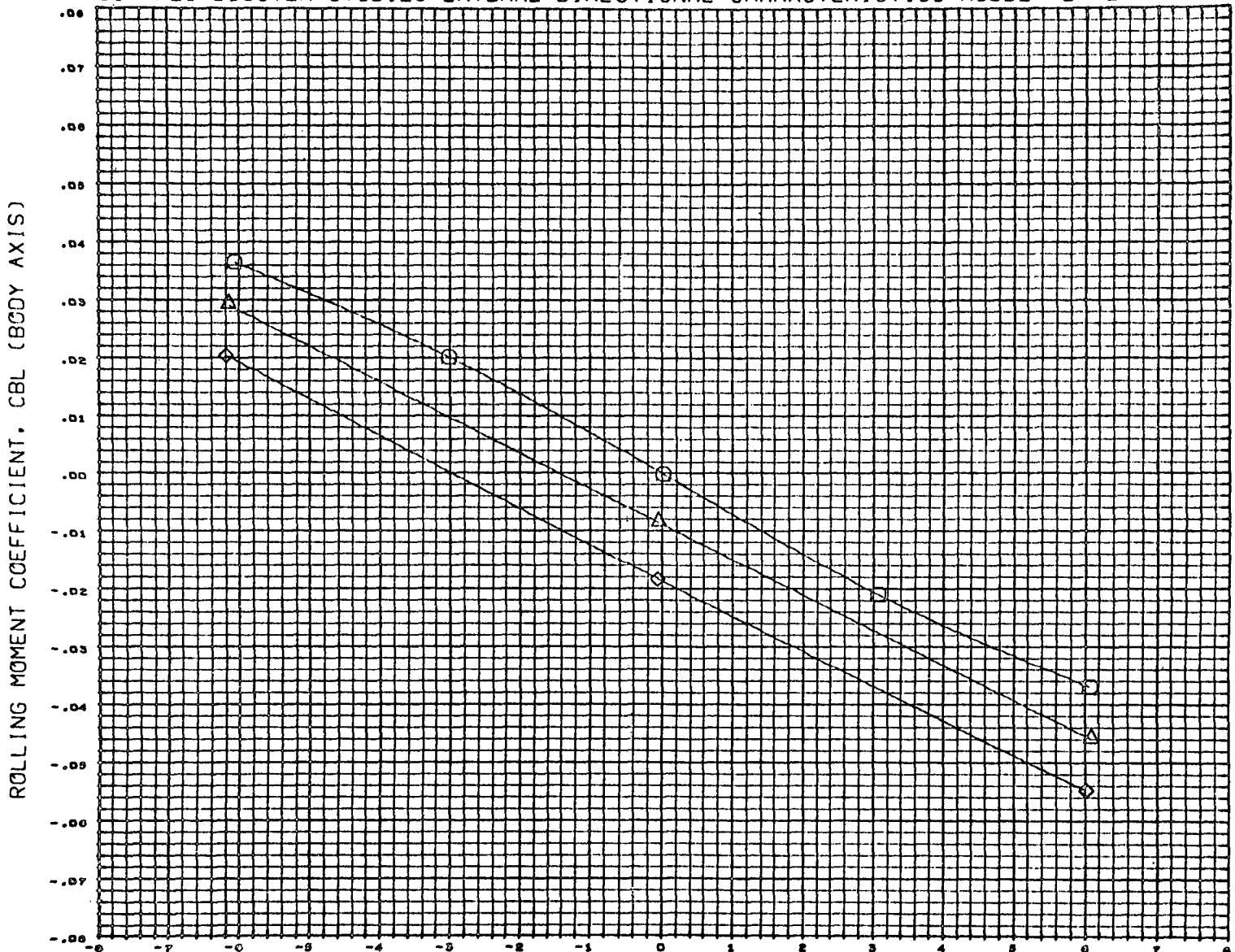
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RM3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	BREF 1.5550 SQ. FT.
(AN3047)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.146	-5.000	0.000	0.000	LREF 3.4330 FEET
(RM3051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.150	-10.000	0.000	0.000	BREF 3.4330 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



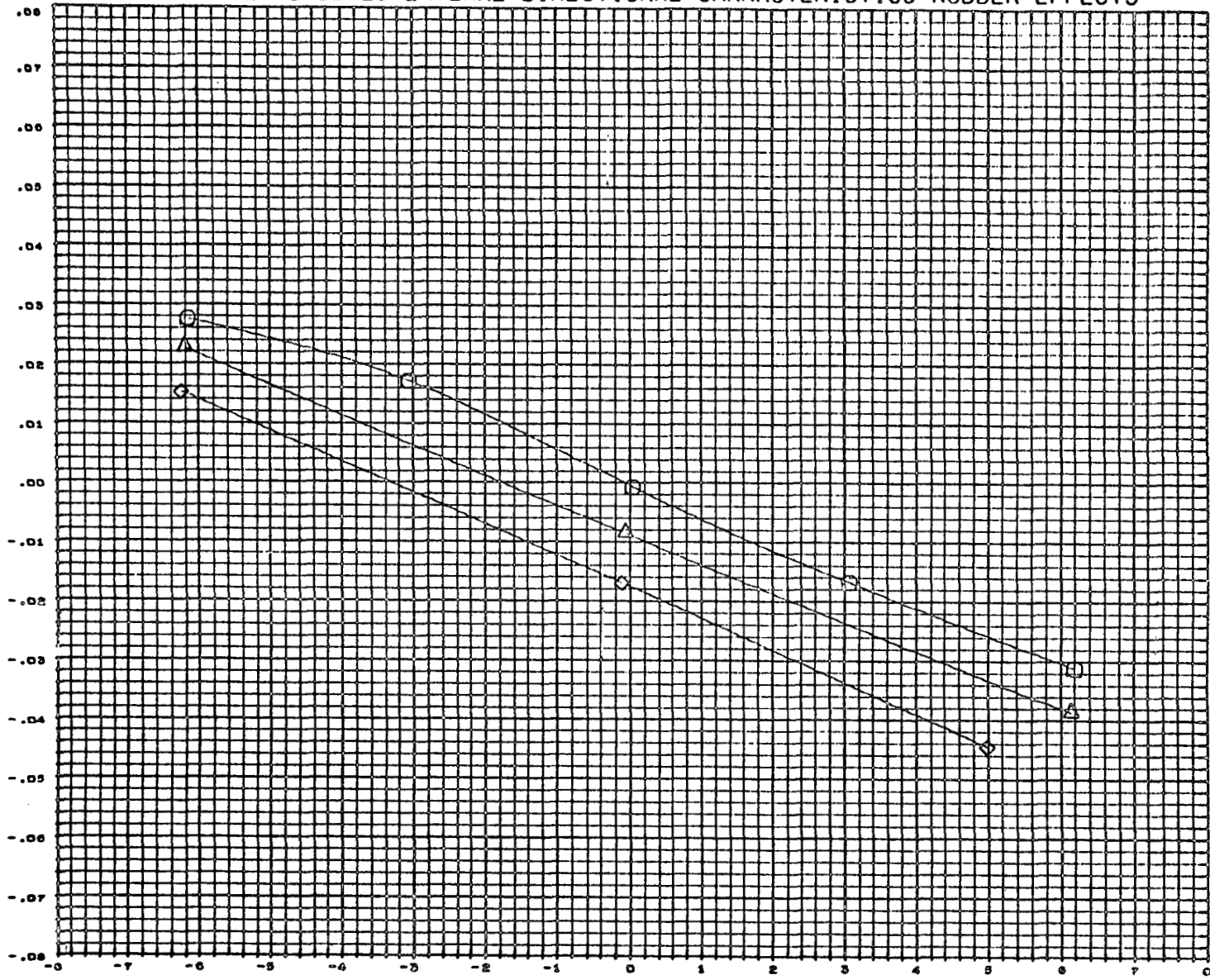
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	○	NSRDC-3210,MBFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3047)	△	NSRDC-3210,MBFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3091)	◇	NSRDC-3210,MBFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.9990 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE




MACH 0.700

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

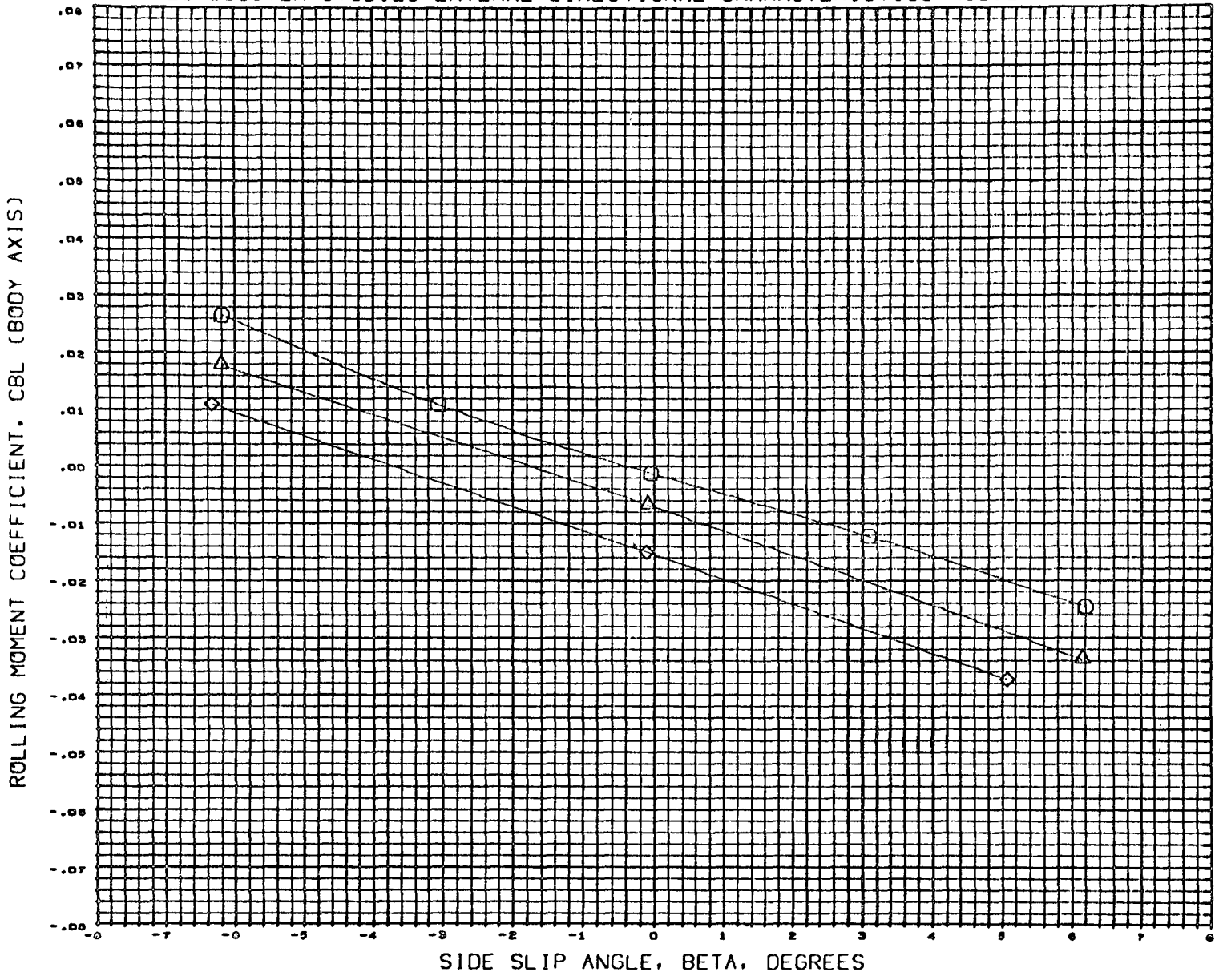


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RNS003) 	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(ANS047) 	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RNS051) 	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.9990 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

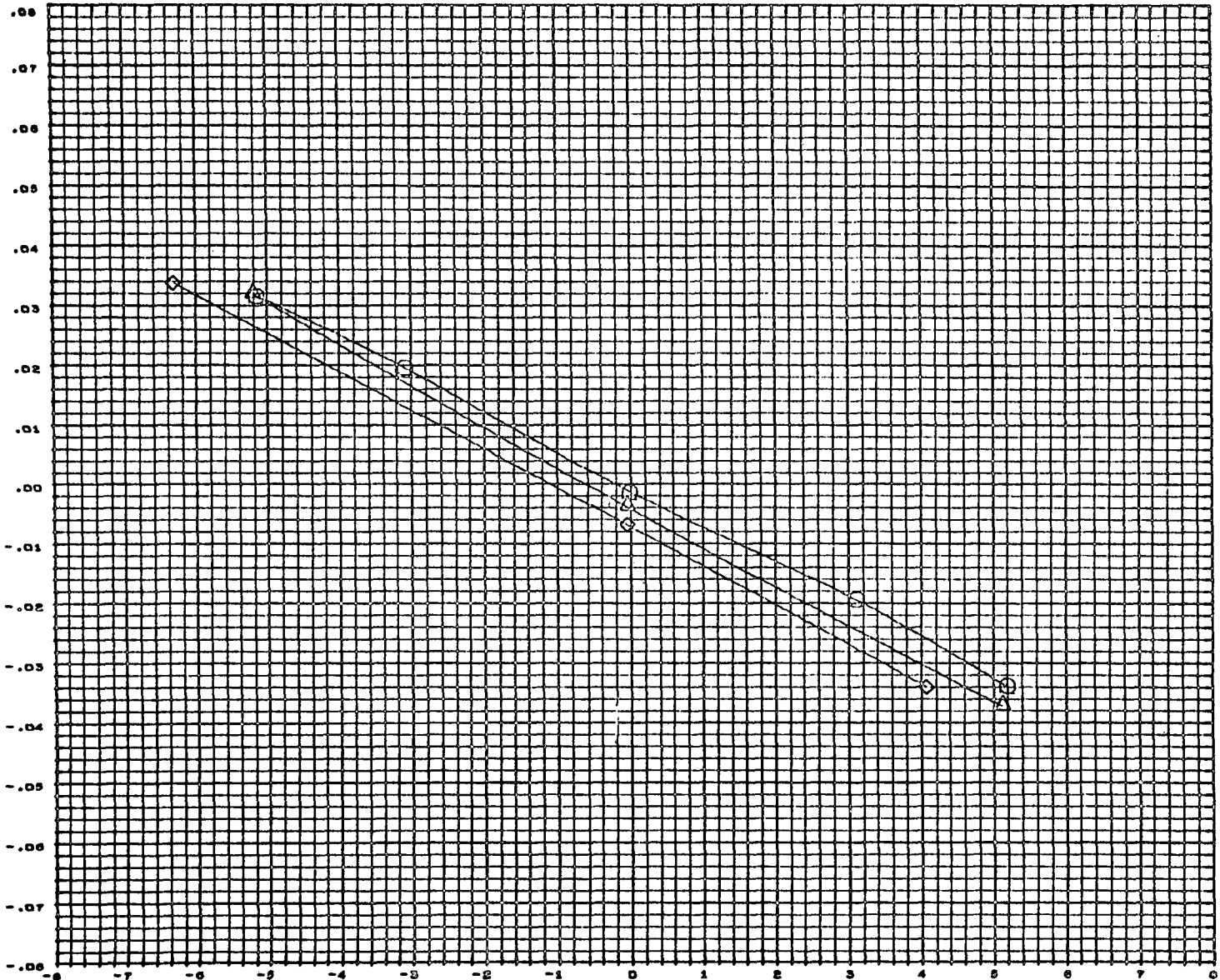


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.133	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.004

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

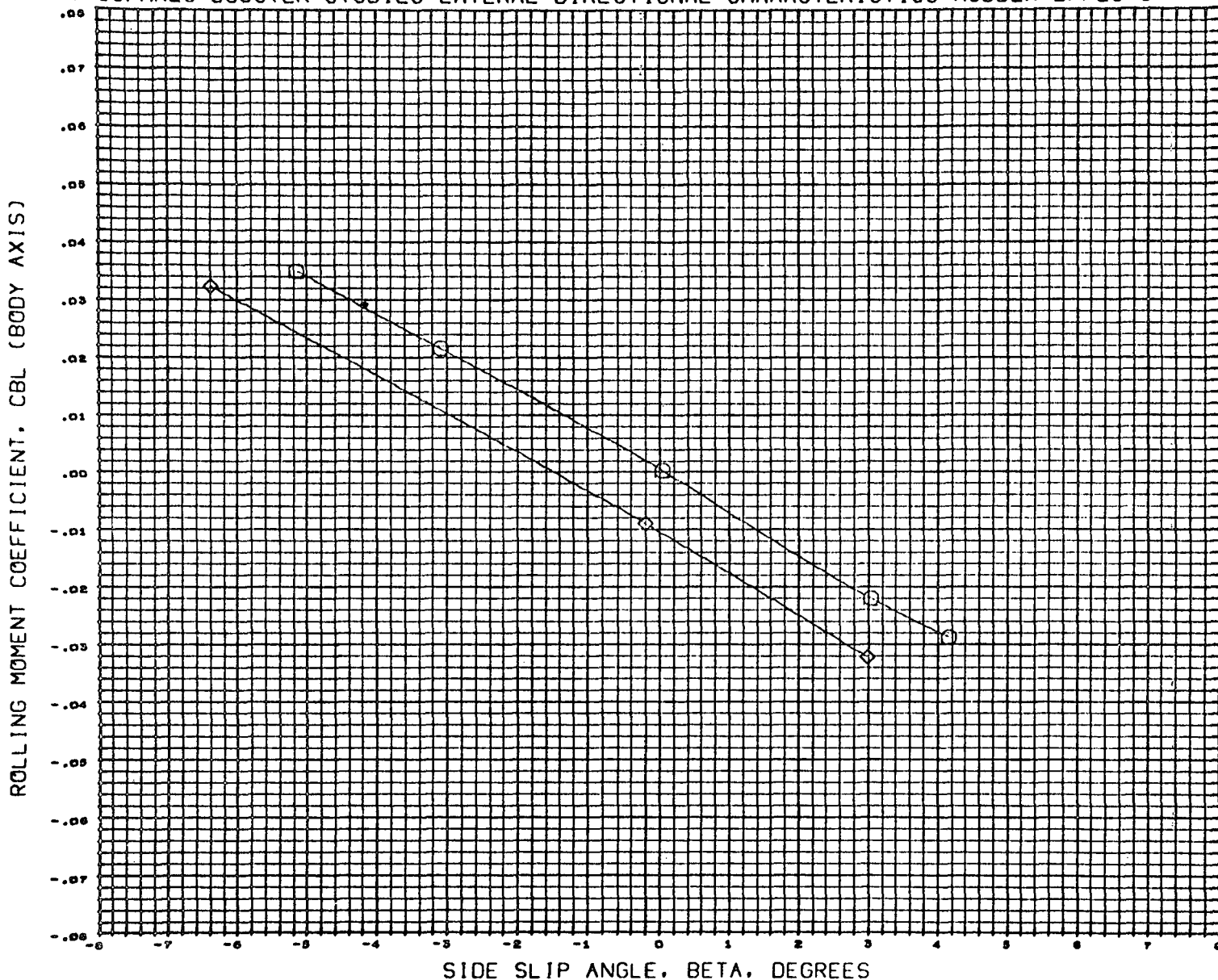


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	DREF 1.3950 SQ. FT.
(AN3047)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF 3.4950 FEET
(RN3051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4950 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0100 SCALE

MACH 1.001

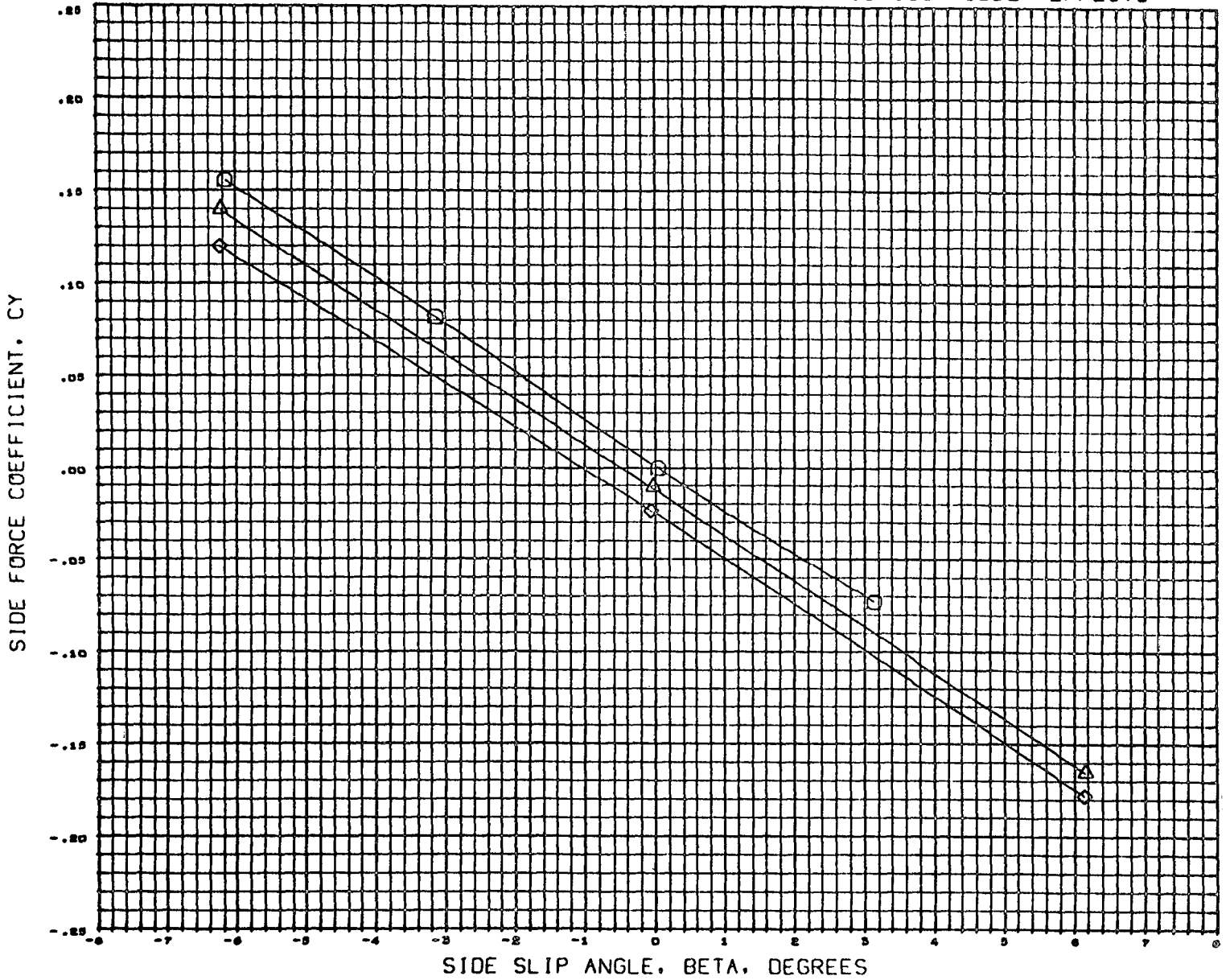
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RNS003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3590 80. FT.
(ANS047)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
(RNS051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 5.124

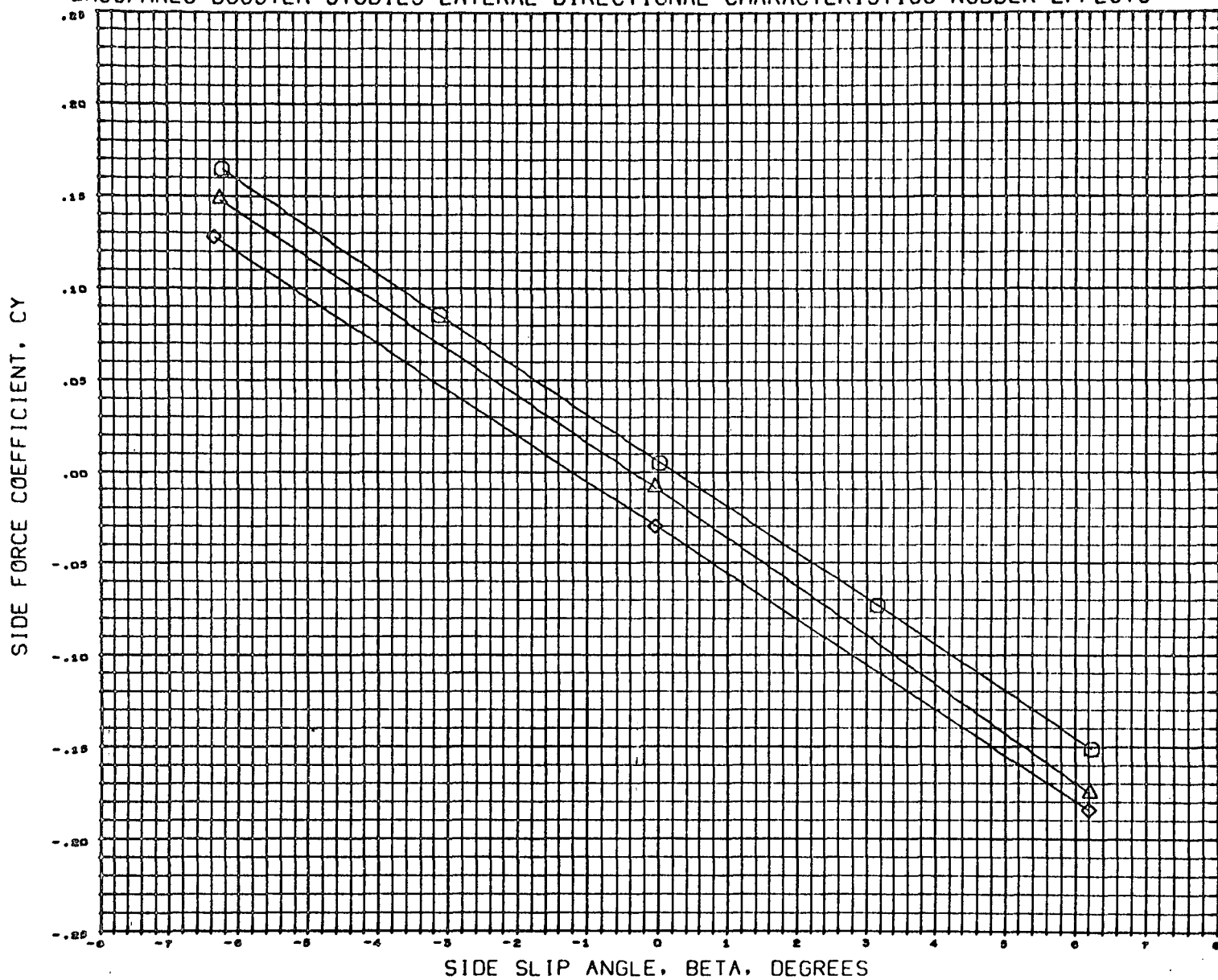
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3048) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-9.000	0.000	0.000	LREF 3.4630 FEET
(RN3052) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4580 FEET XMRP 2.9980 FEET VMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0190 SCALE

MACH 0.702

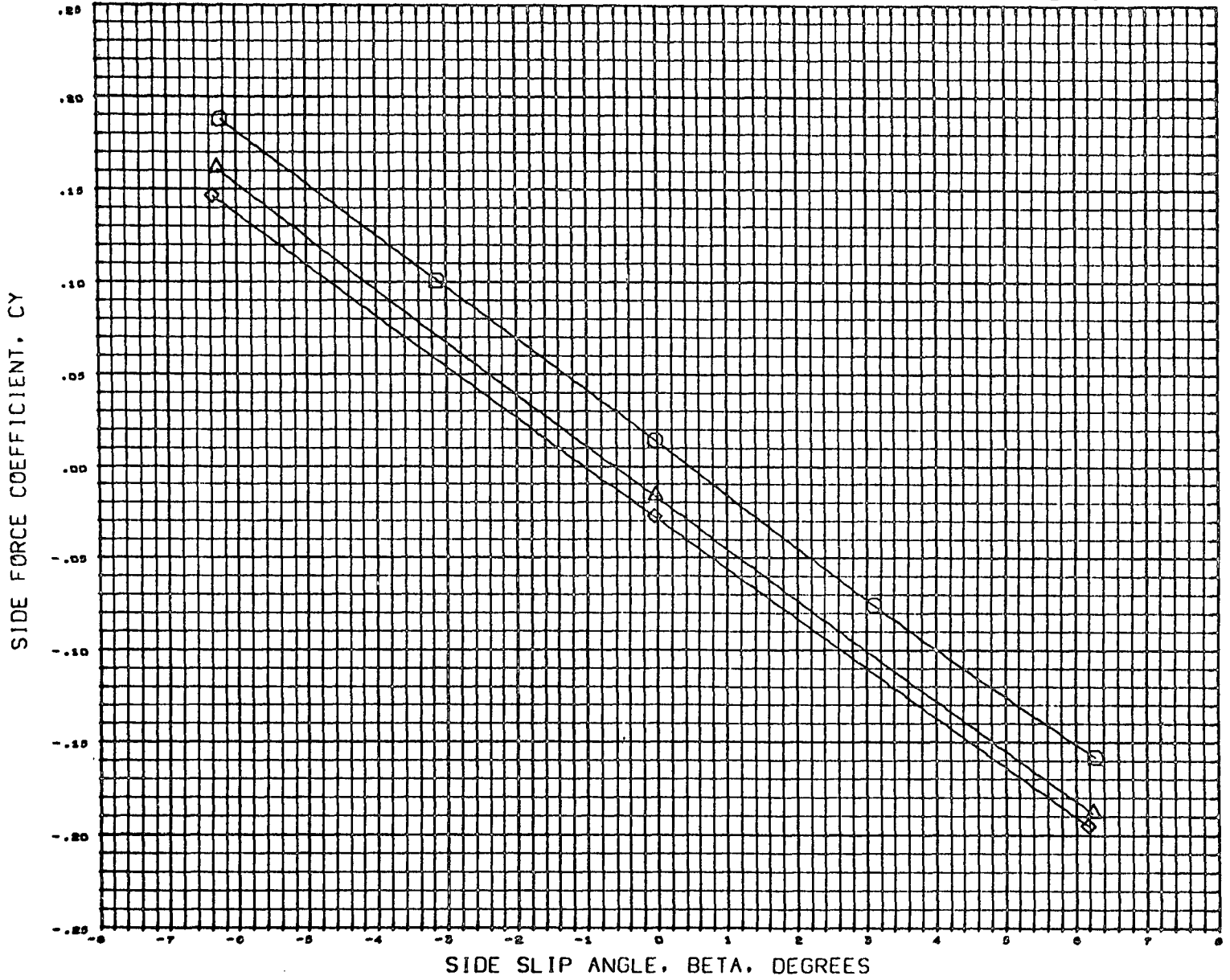
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	○	NBRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF 1.3950 00.FT.
(RN3040)	△	NBRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4950 FEET
(RN3092)	◇	NBRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4950 FEET
							XMRP 2.5050 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.000

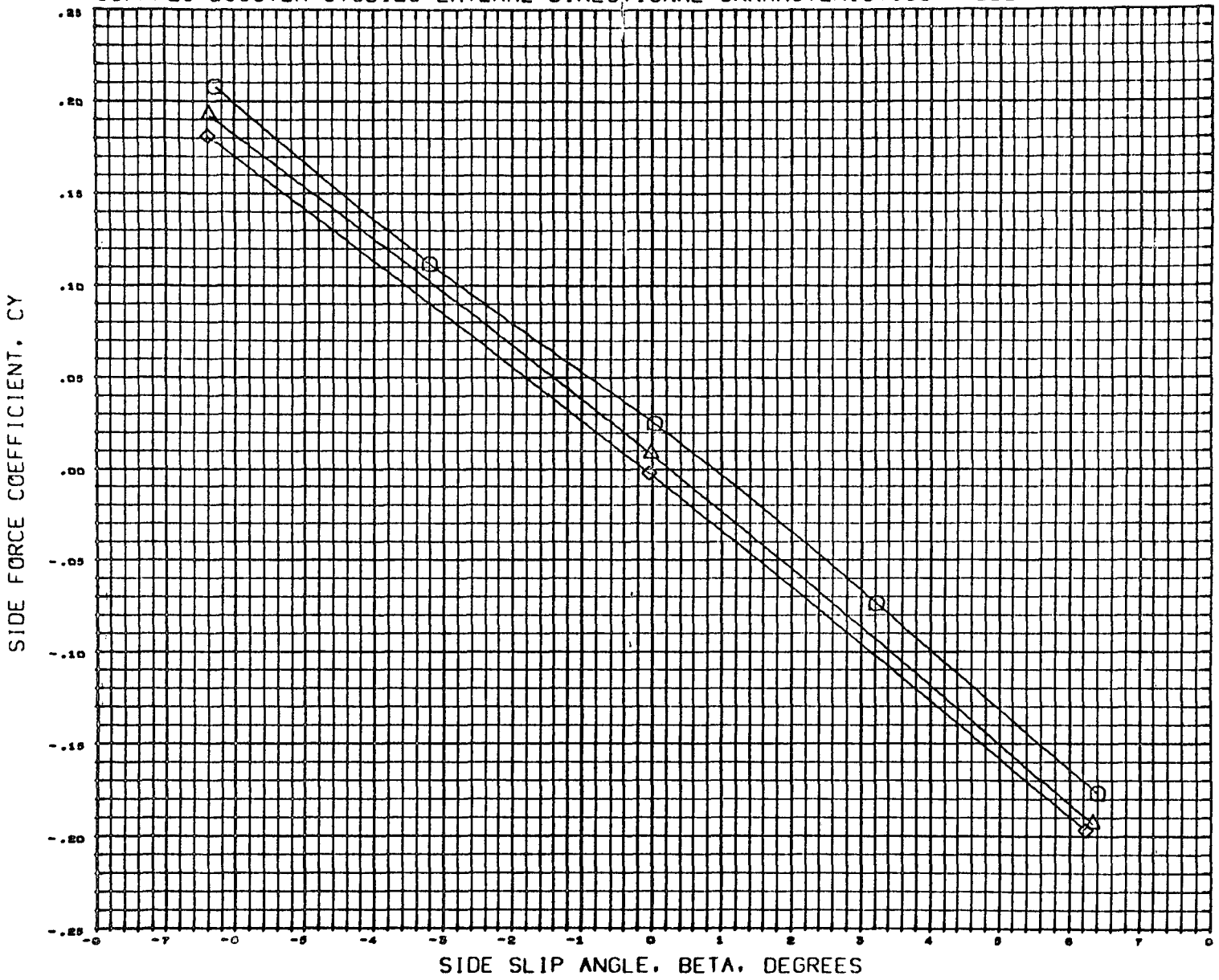
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004) ○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF 1.3550 SQ. FT.
(RN3040) △	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3092) ◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.8950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.903

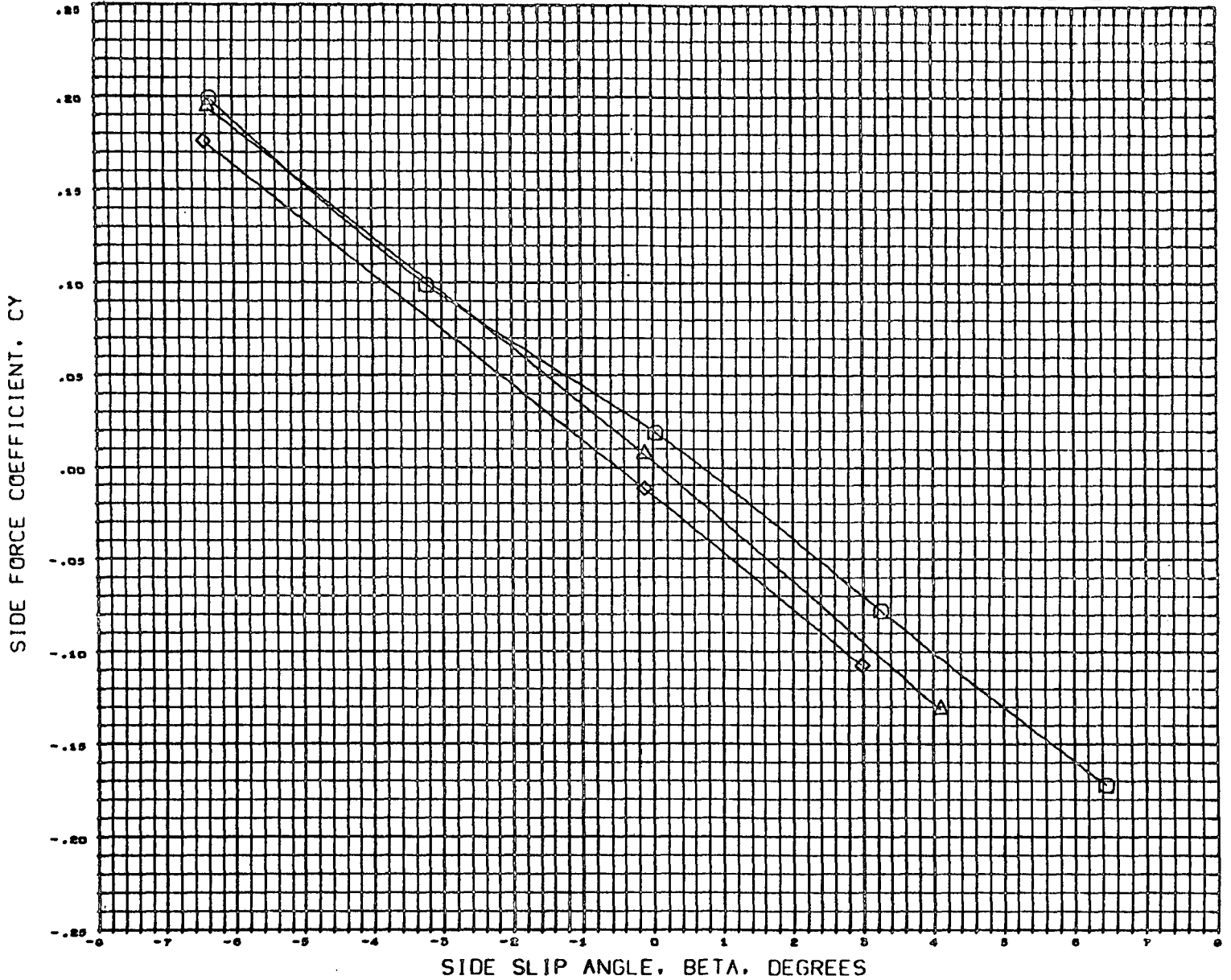
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3650 SQ. FT.
(RN3040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.409	-5.000	0.000	0.000	LREF 5.4530 FEET
(RN3092)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4550 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

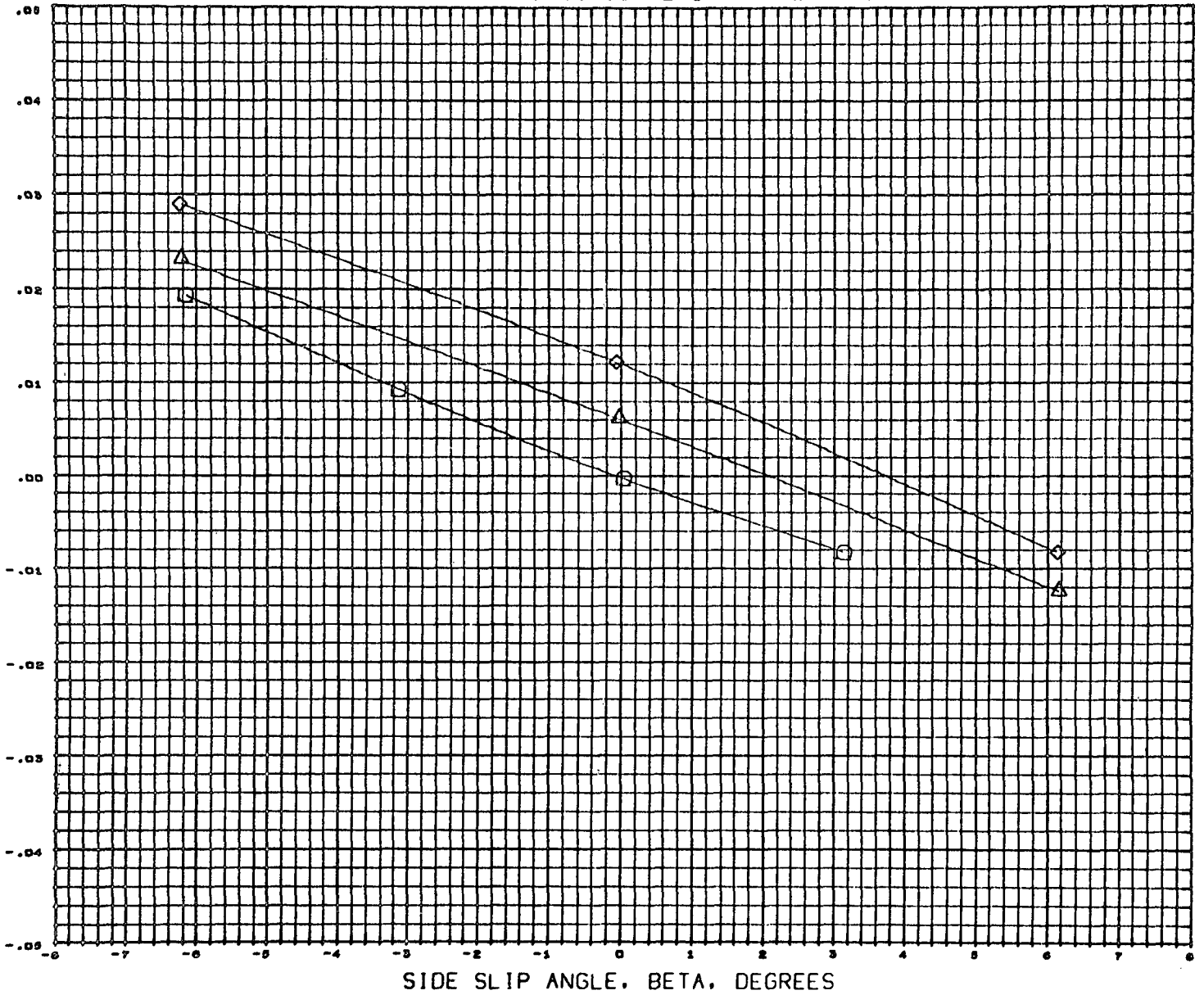


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.506	-10.000	0.000	0.000	SREF 3.4530 FEET XMRP 2.8050 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

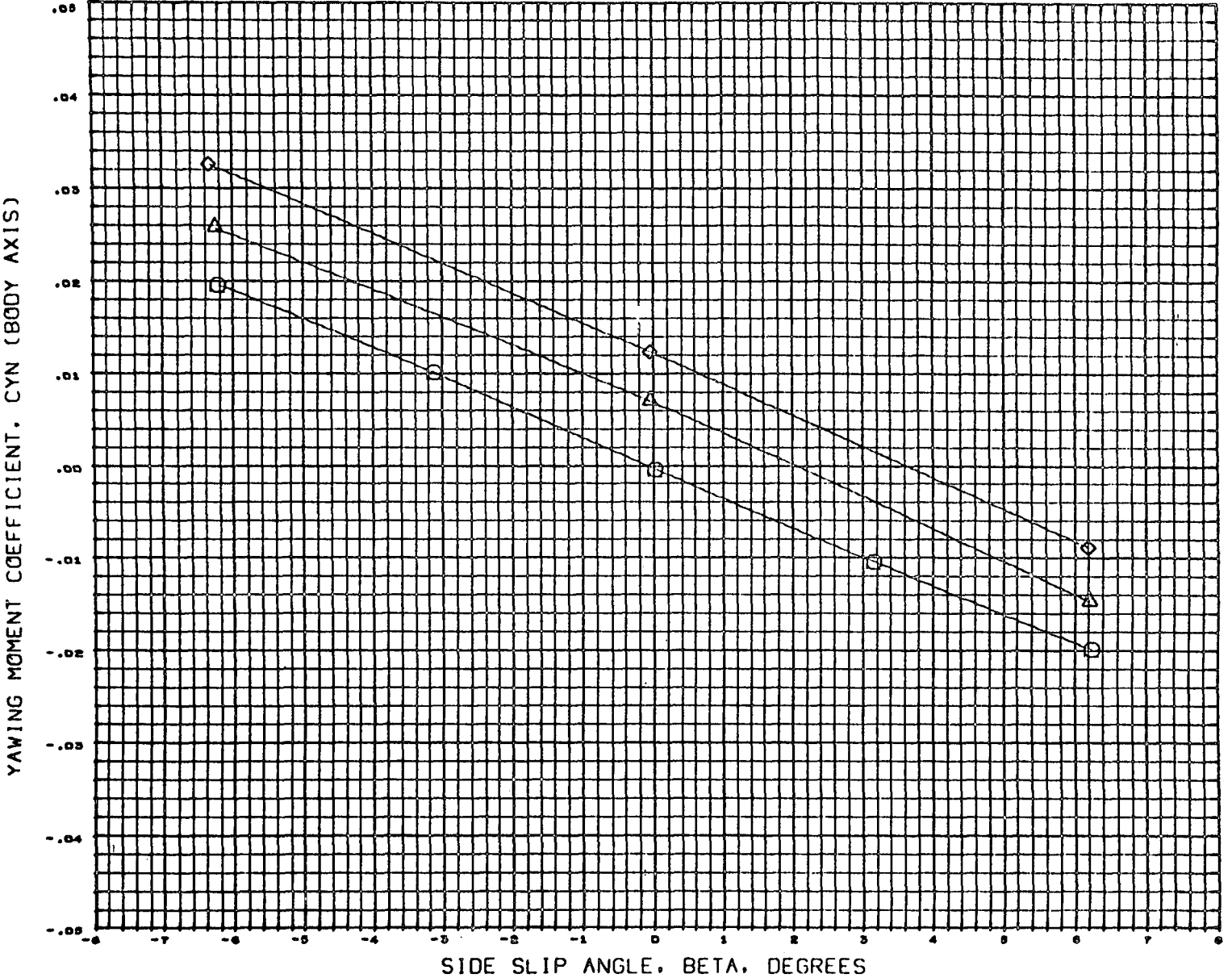
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3048)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3092)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	8.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0190 SCALE

MACH 0.702

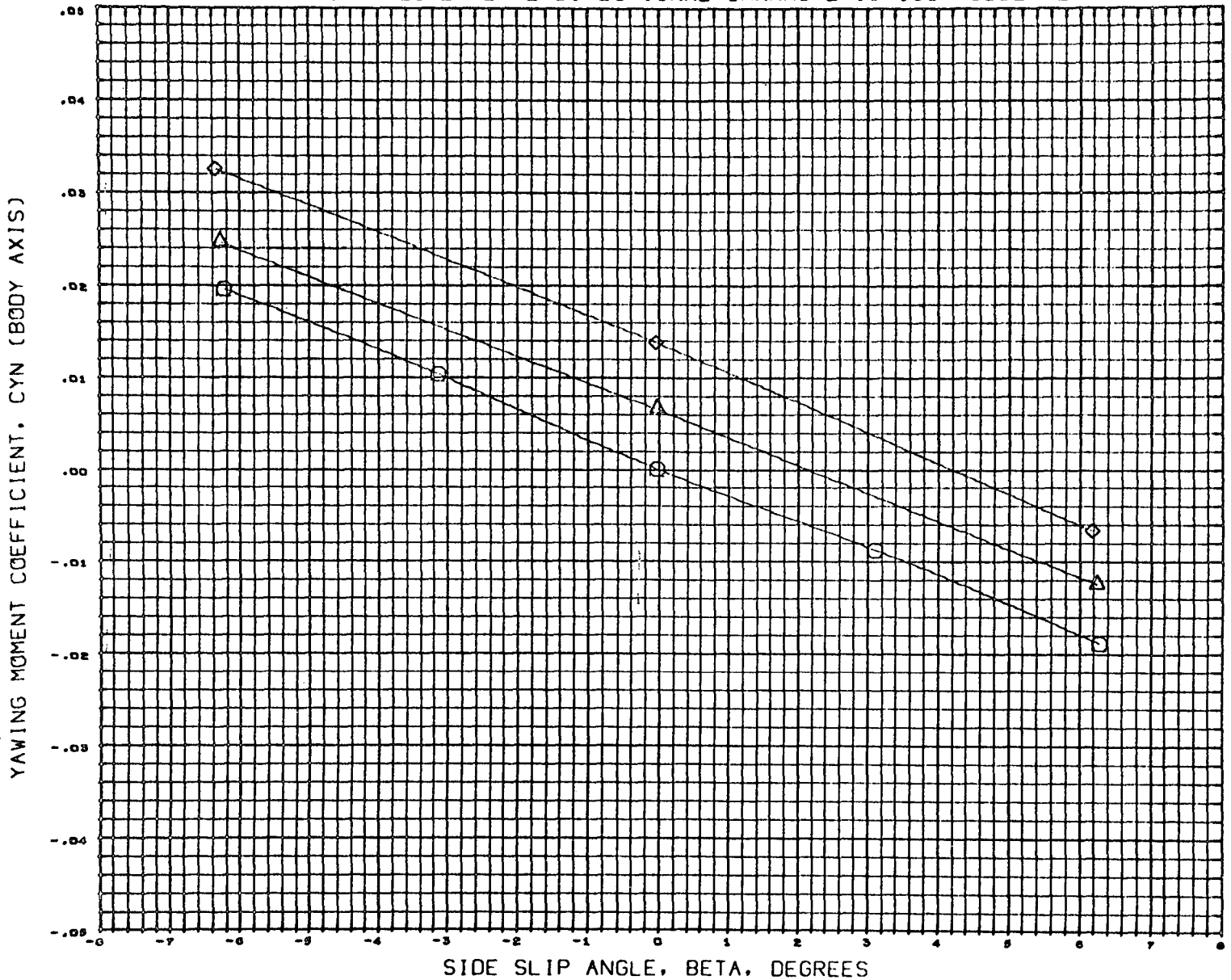
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF 1.3890 SQ.FT.
(RN3048)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.469	-9.000	0.000	0.000	LREF 3.4530 FEET
(RN3092)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.800

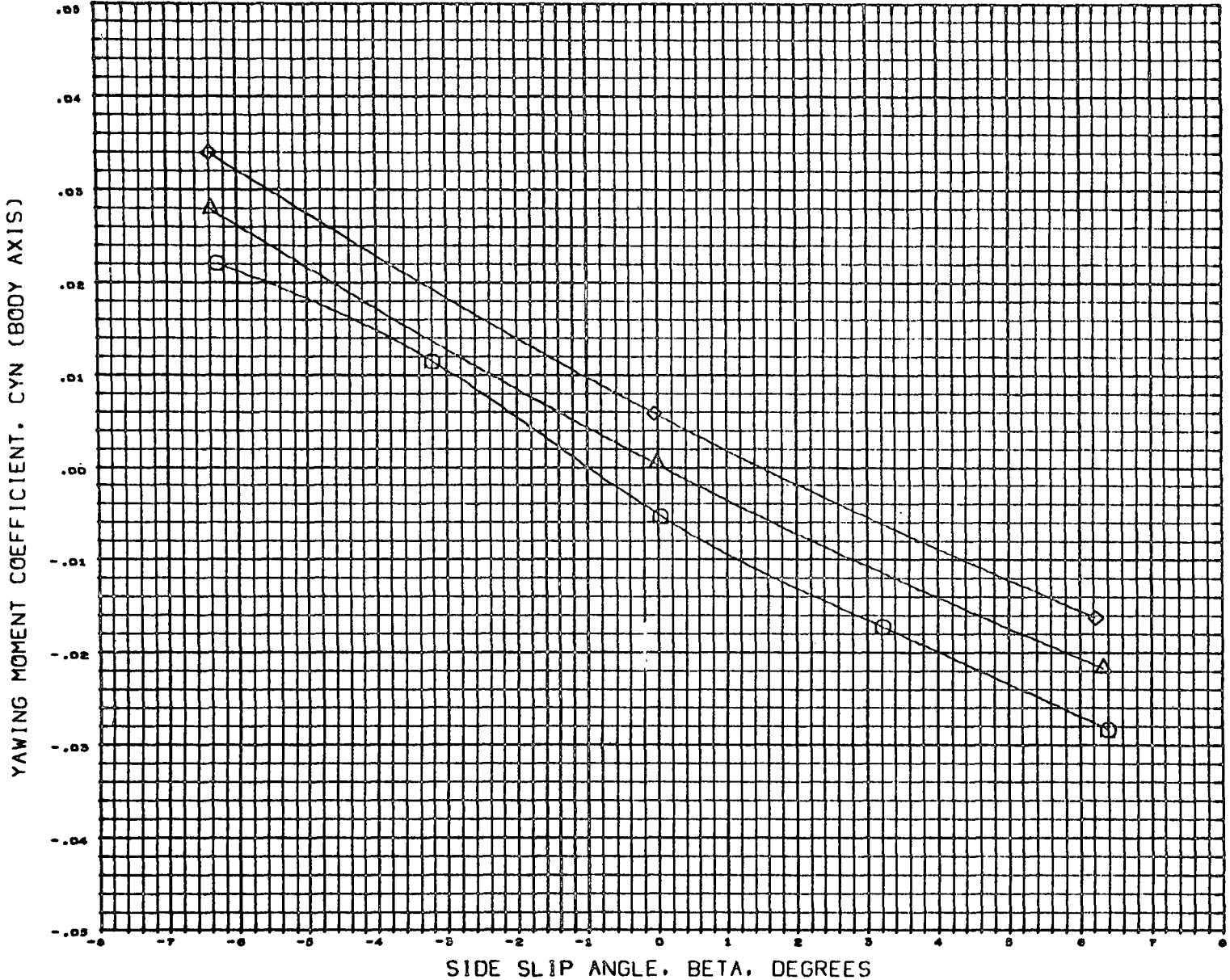
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3048)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3052)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0167 FEET
							SCALE 0.0150 SCALE

MACH 0.903

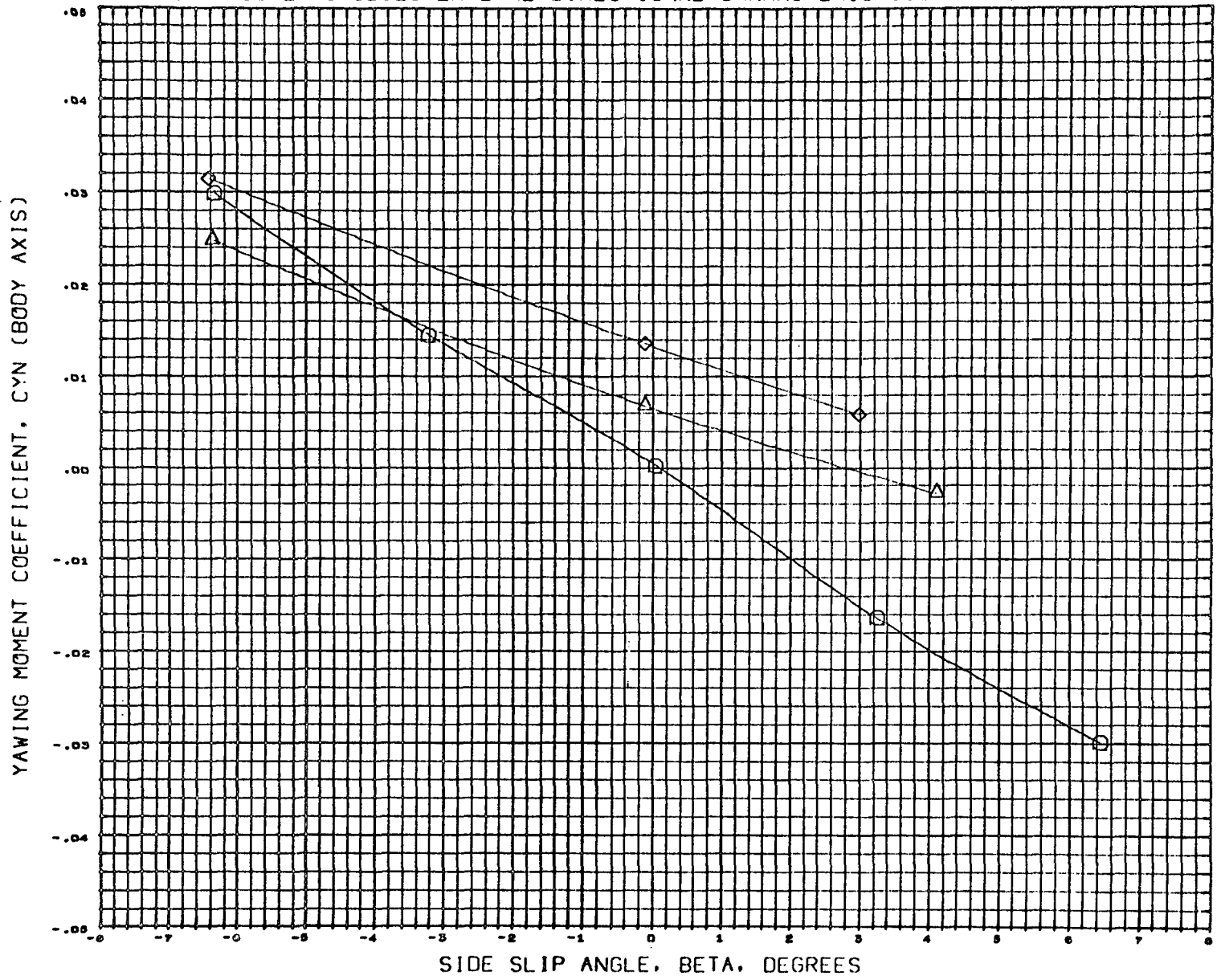
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3048)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3052)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 0.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 1.001

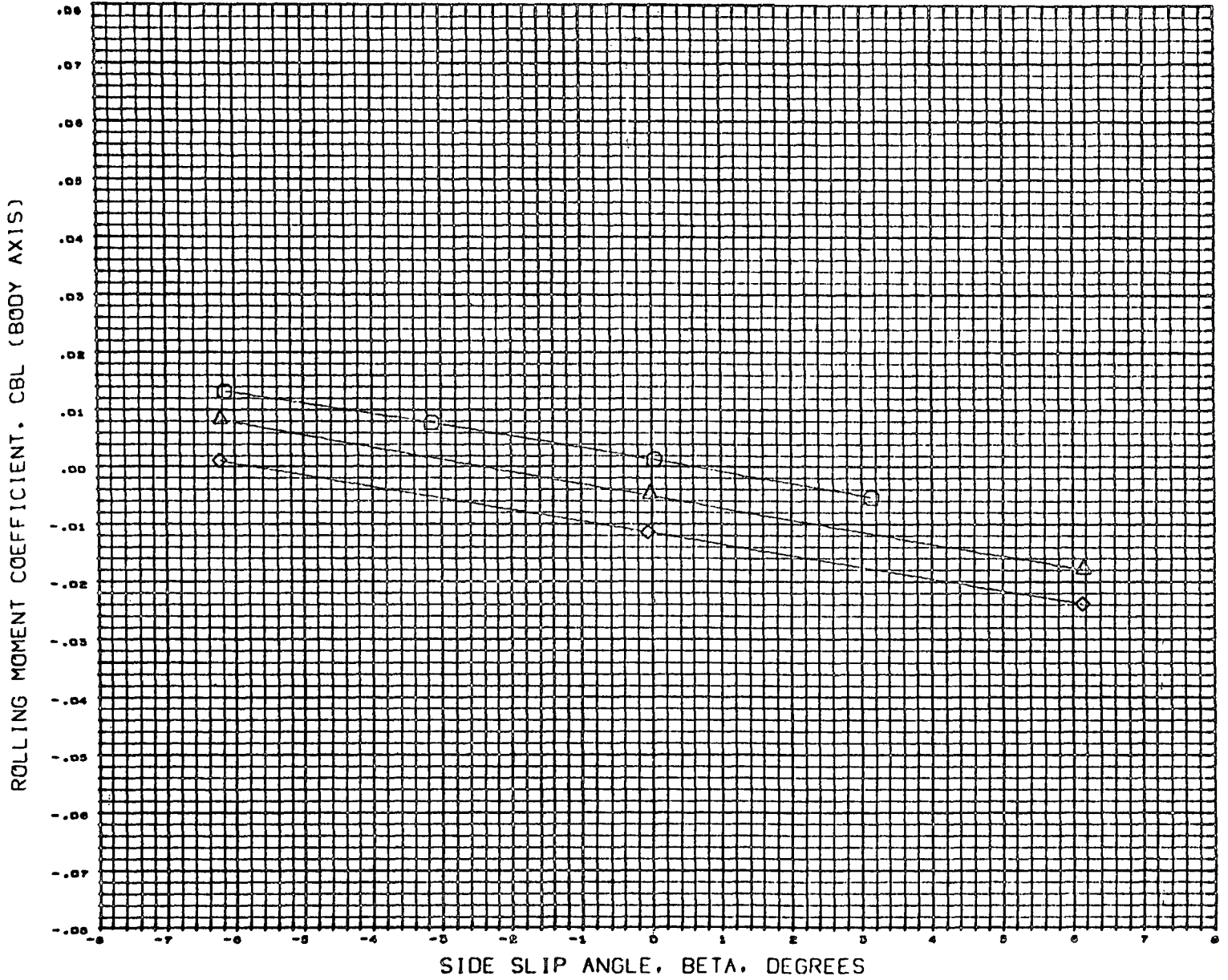
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3048)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.506	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.3990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 1.125

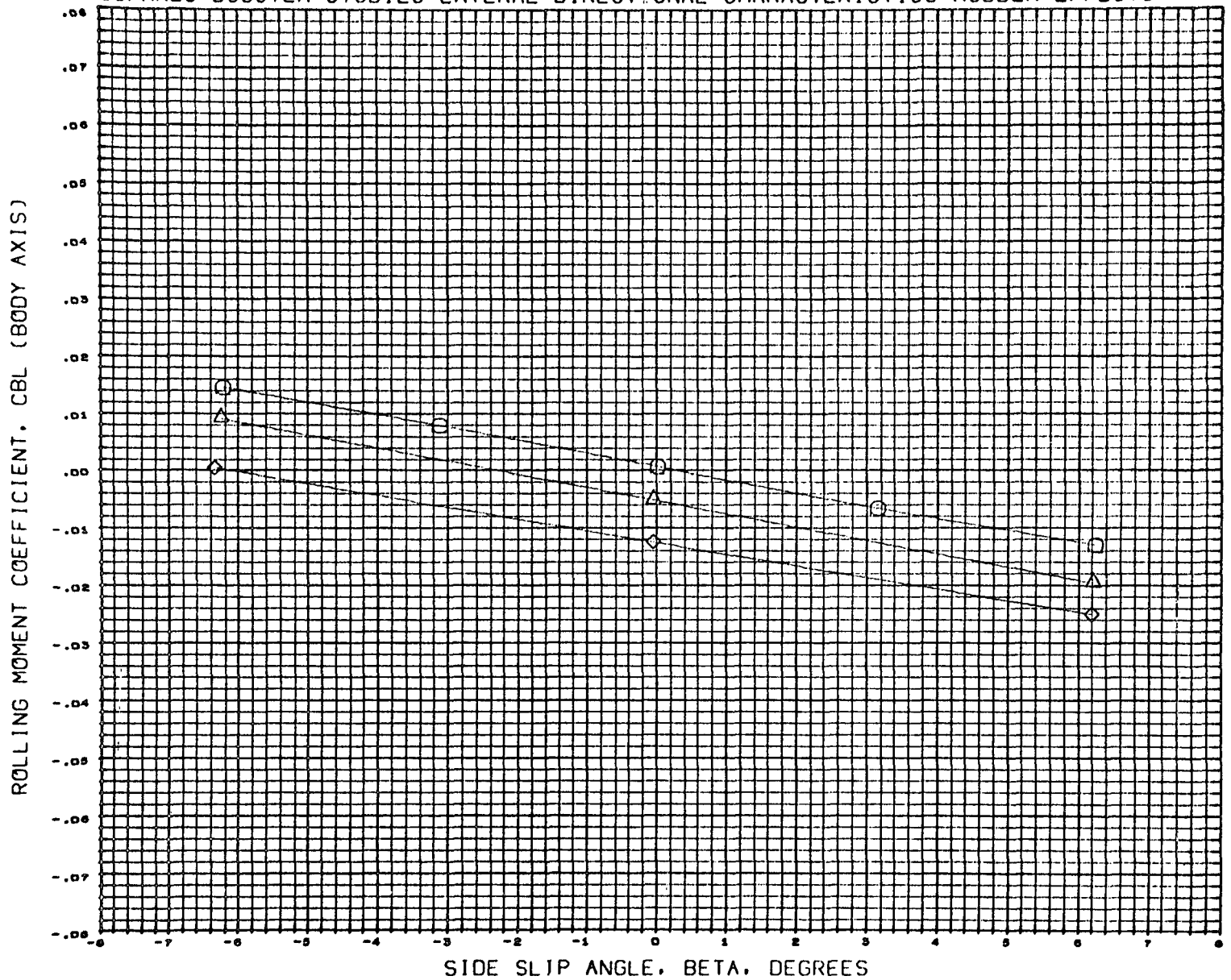
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	GRF 1.3550 80. FT.
(RN3040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.460	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3052)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.702

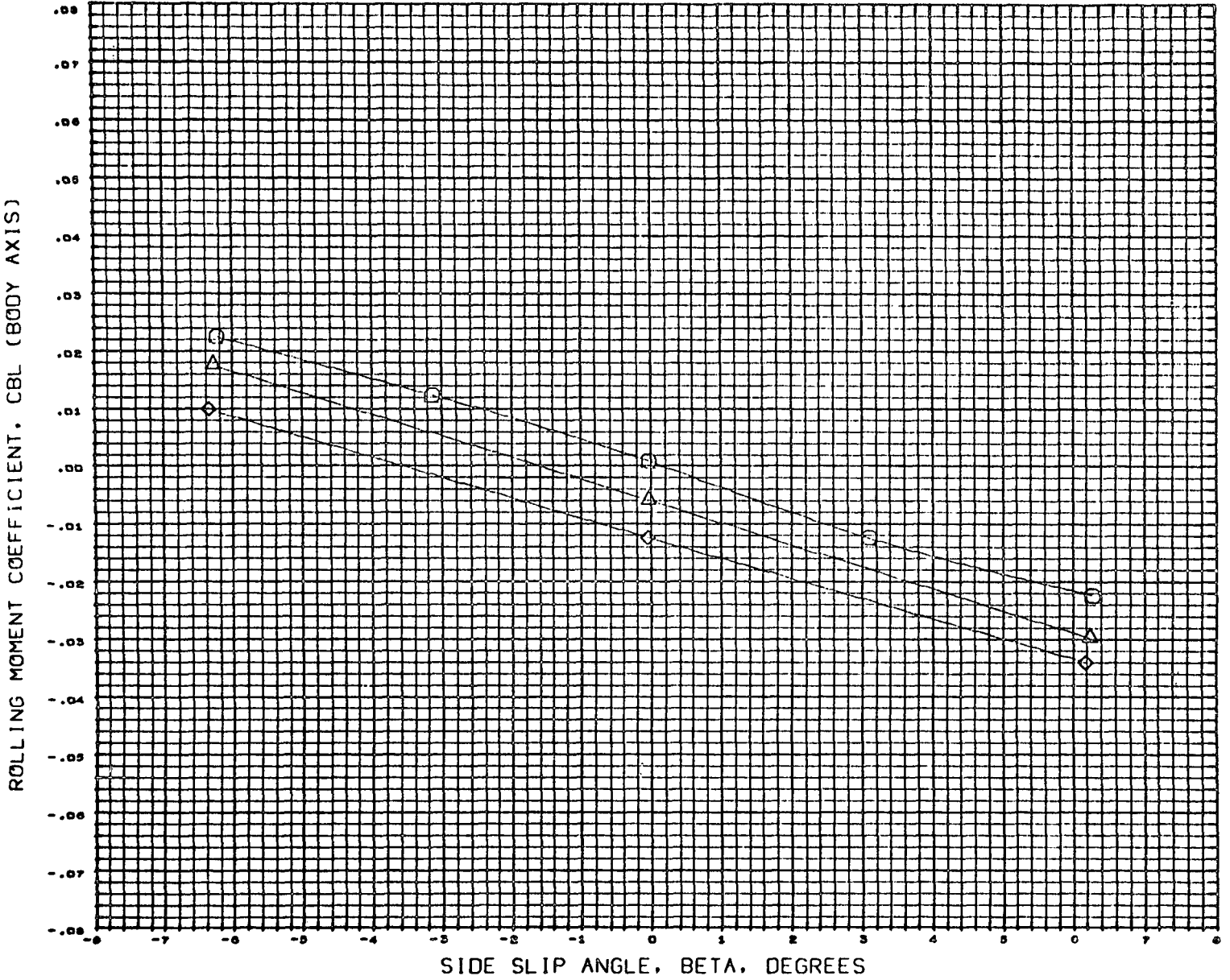
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3040)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4330 FEET
(RN3052)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	-10.000	0.000	0.000	BREF 3.4330 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0190 SCALE

MACH 0.600

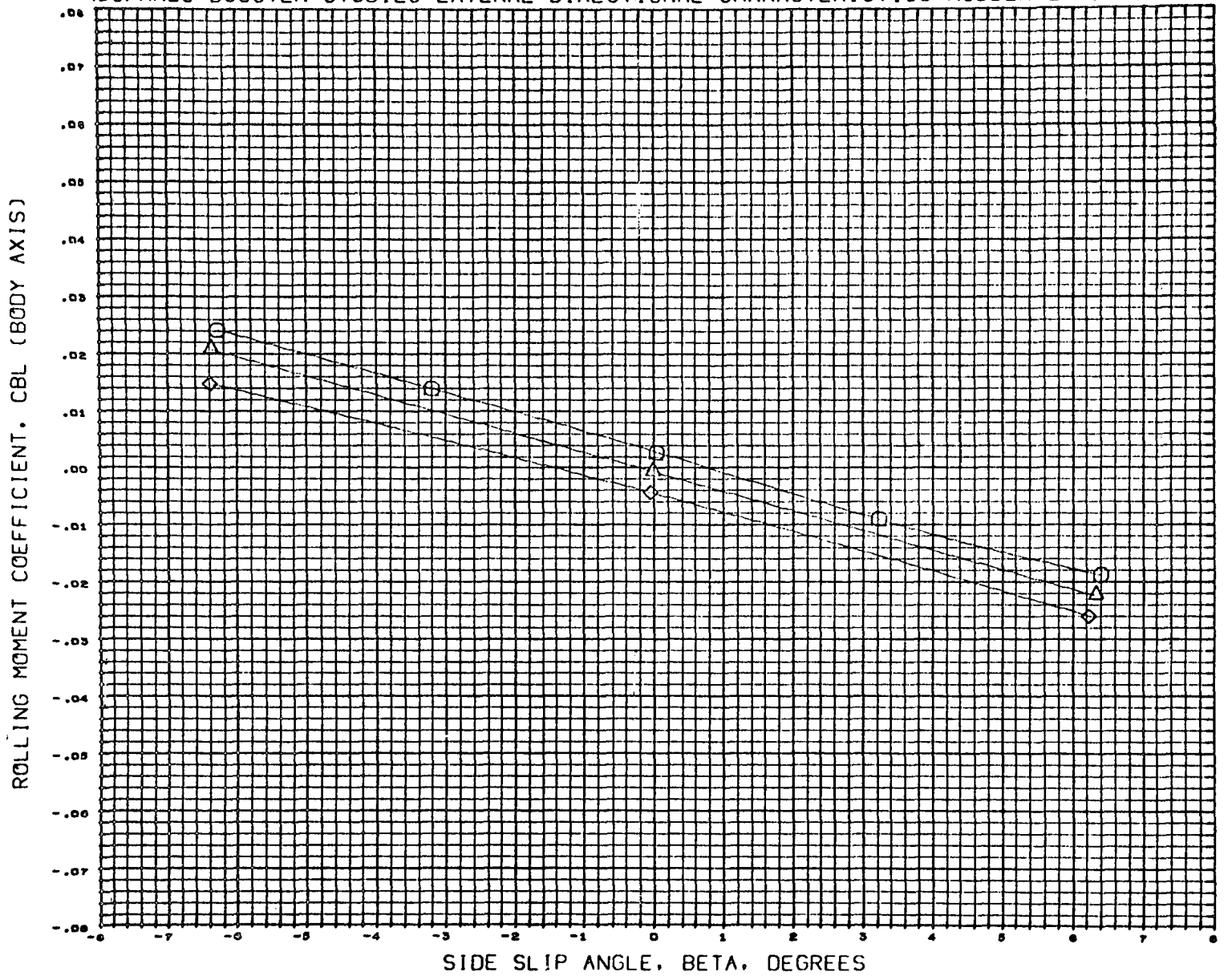
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 89. FT.
(RN3046)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF 3.4530 FEET
(RN3052)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.903

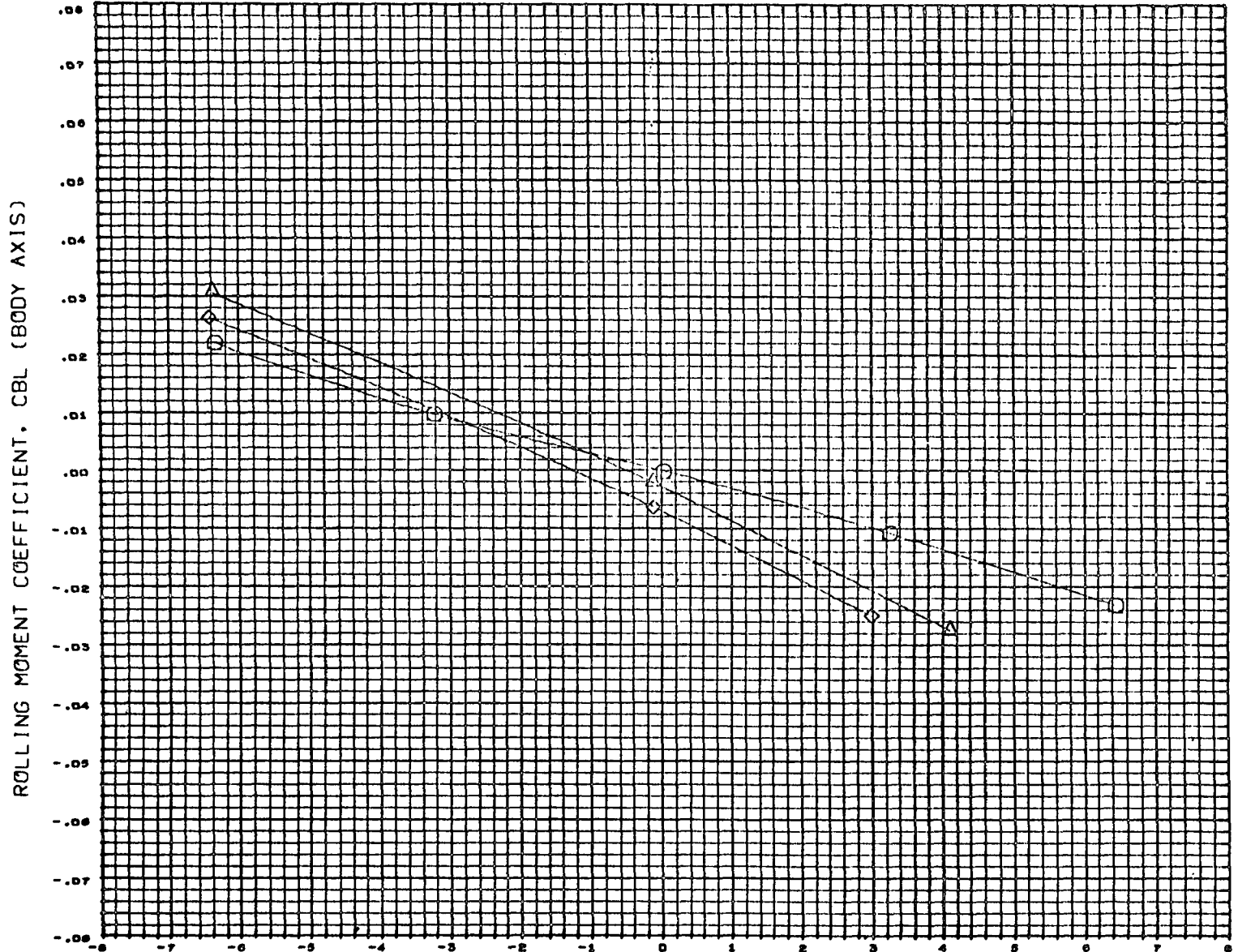
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	○	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3046)	△	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.469	-3.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	◇	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.506	-10.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

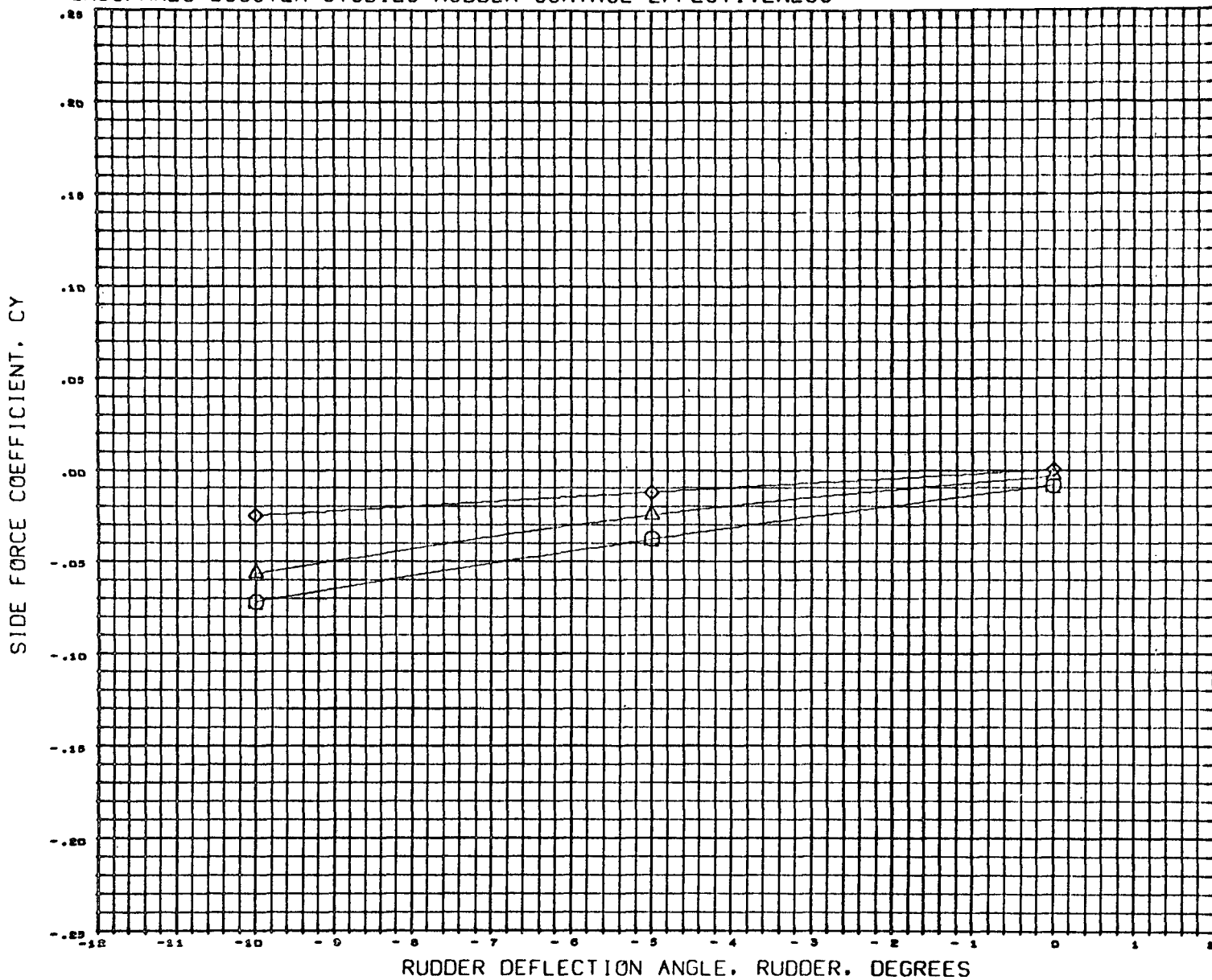


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RNS048)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4930 FEET
(RNS092)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4930 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

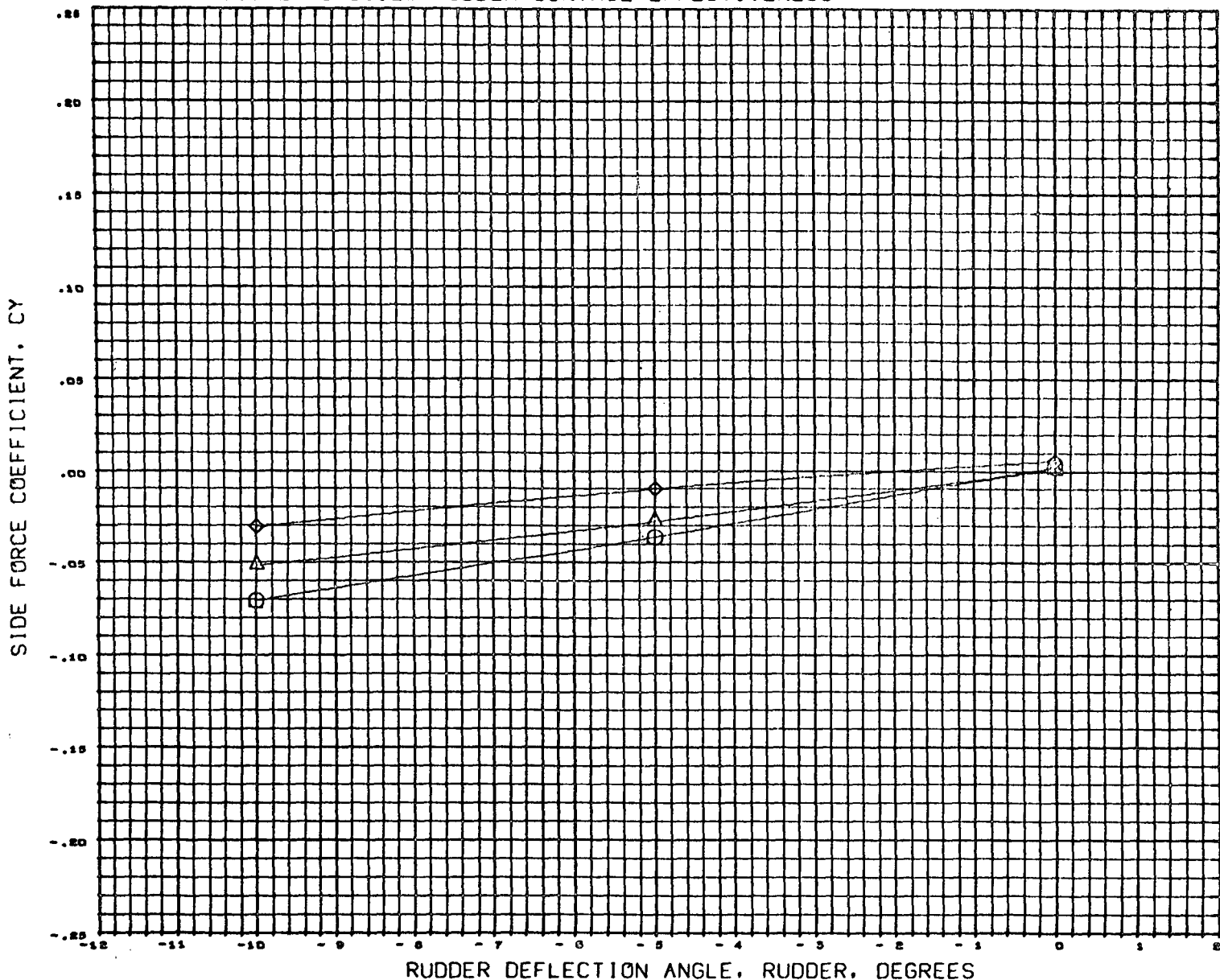
MACH 1.125

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	INCIDC	INCIDW	BETA	BREF	LREF	DREF
○	0.000	0.700	0.000	0.000	1.3550	3.4530	3.4530	
△	0.150	0.000	0.000	0.000	2.9950	0.0000	0.0000	
◇	15.500	0.000	0.000	0.000	0.0167	0.0150		
		CANARD	ELEVTR					
		WINGPOS	CNDPOS					
		DATA HIST. CODE	1M					

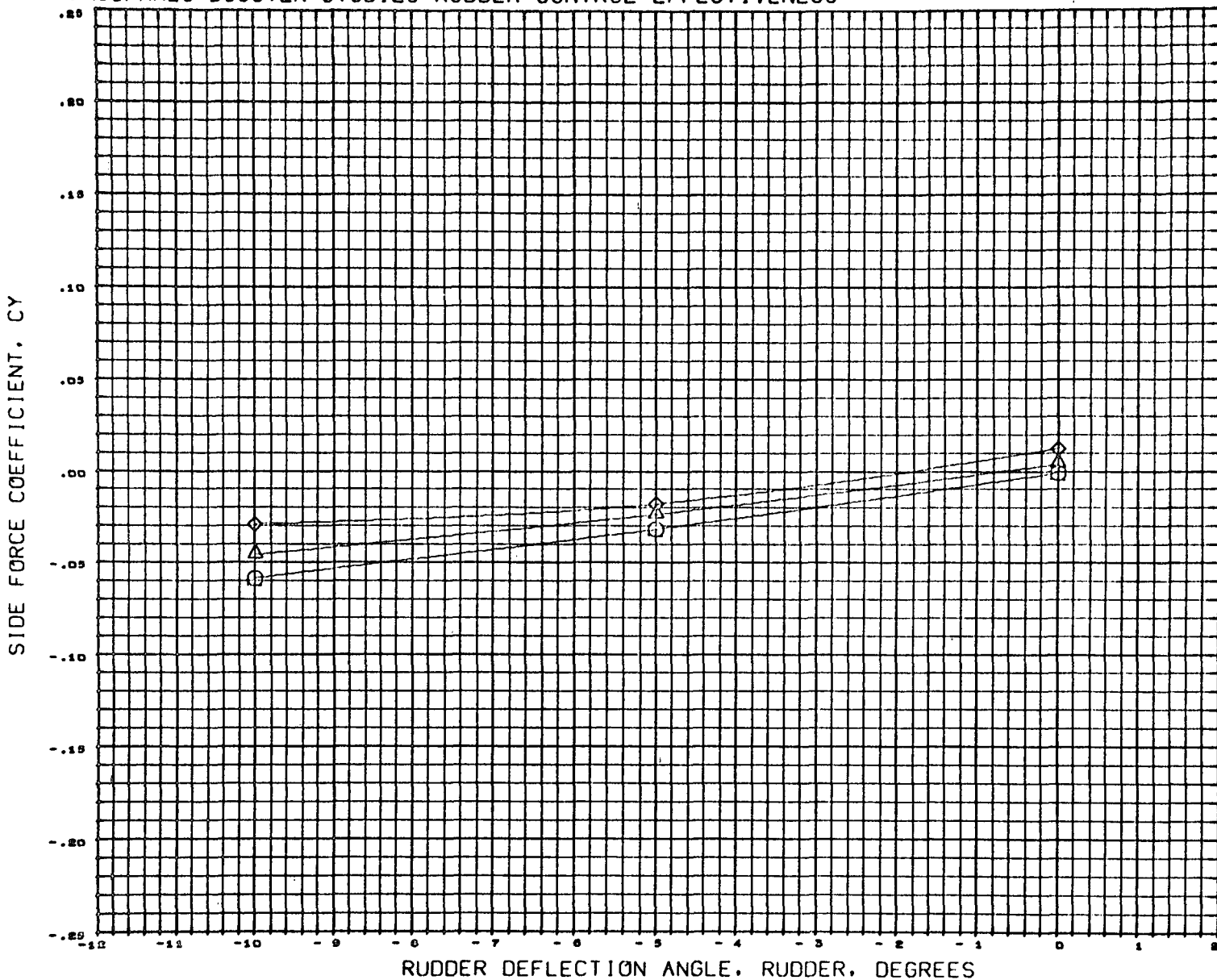
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.000	BETA	0.000	REF	1.3550	80. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4550	FEET
◇	15.500	MSFLOW	0.000	AIRON	0.000	BREF	3.4550	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

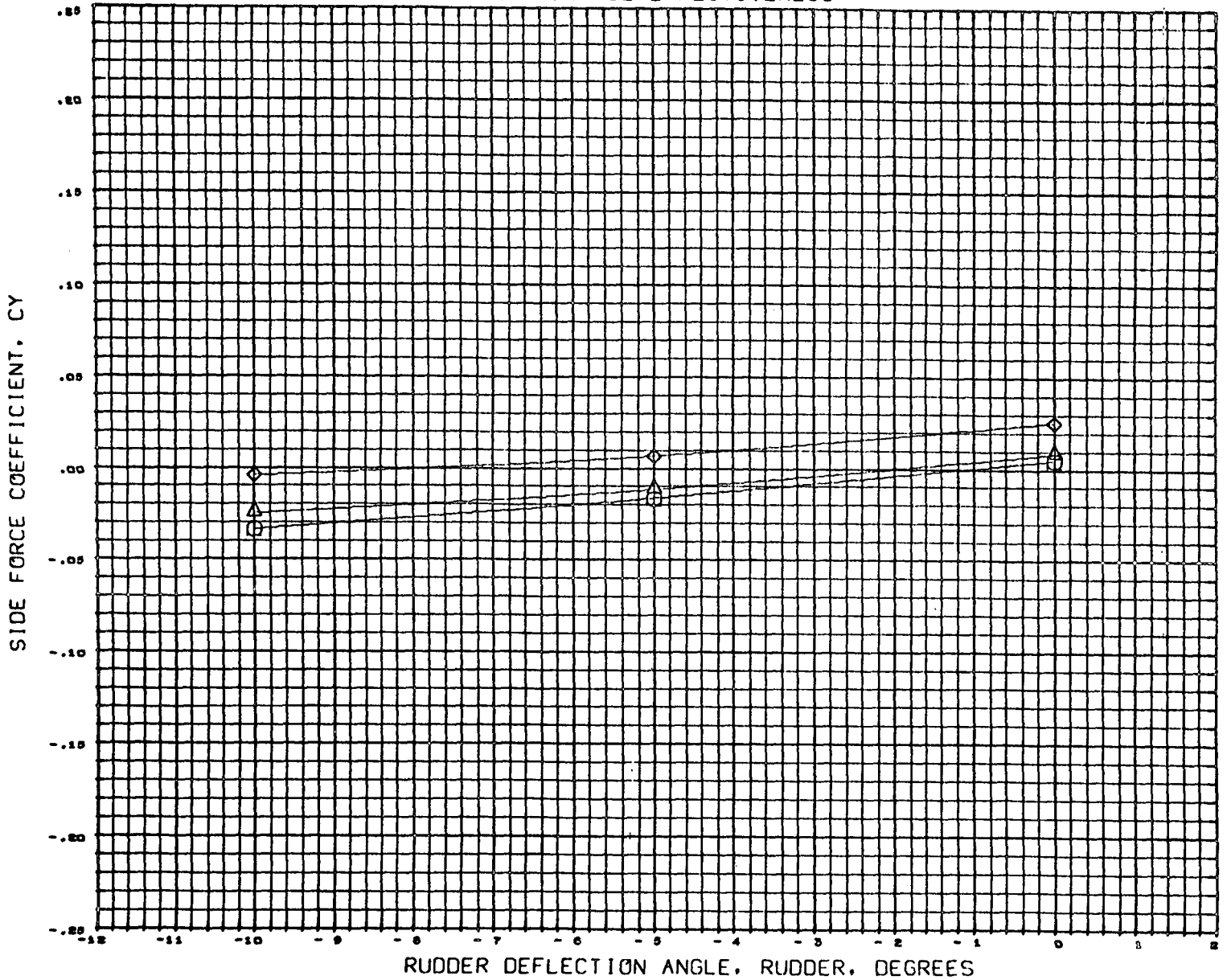
88%

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	PARAMETRIC VALUES					REFERENCE INFORMATION		
	ALPHA	MACH	BETA	INCIDC	INCIDW	SREF	LREF	BREF
○	0.000	0.900	0.000	0.000	0.000	1.3550	80. FT.	
△	0.150	3.000	0.000	0.000	0.000	3.4530	FEET	
◇	15.900	0.000	0.000	0.000	0.000	3.4530	FEET	
		MSFLOW	AILRON	ELEVTR		XMRP	YMRP	ZMRP
		0.000	0.000	0.000		0.0000	0.0000	0.0167
		CANARD	CNDPOS					
		1.000	1.000					
		WNGPOS				SCALE	SCALE	SCALE
		1.000				0.0180		
		DATA HIST. CODE	IM					

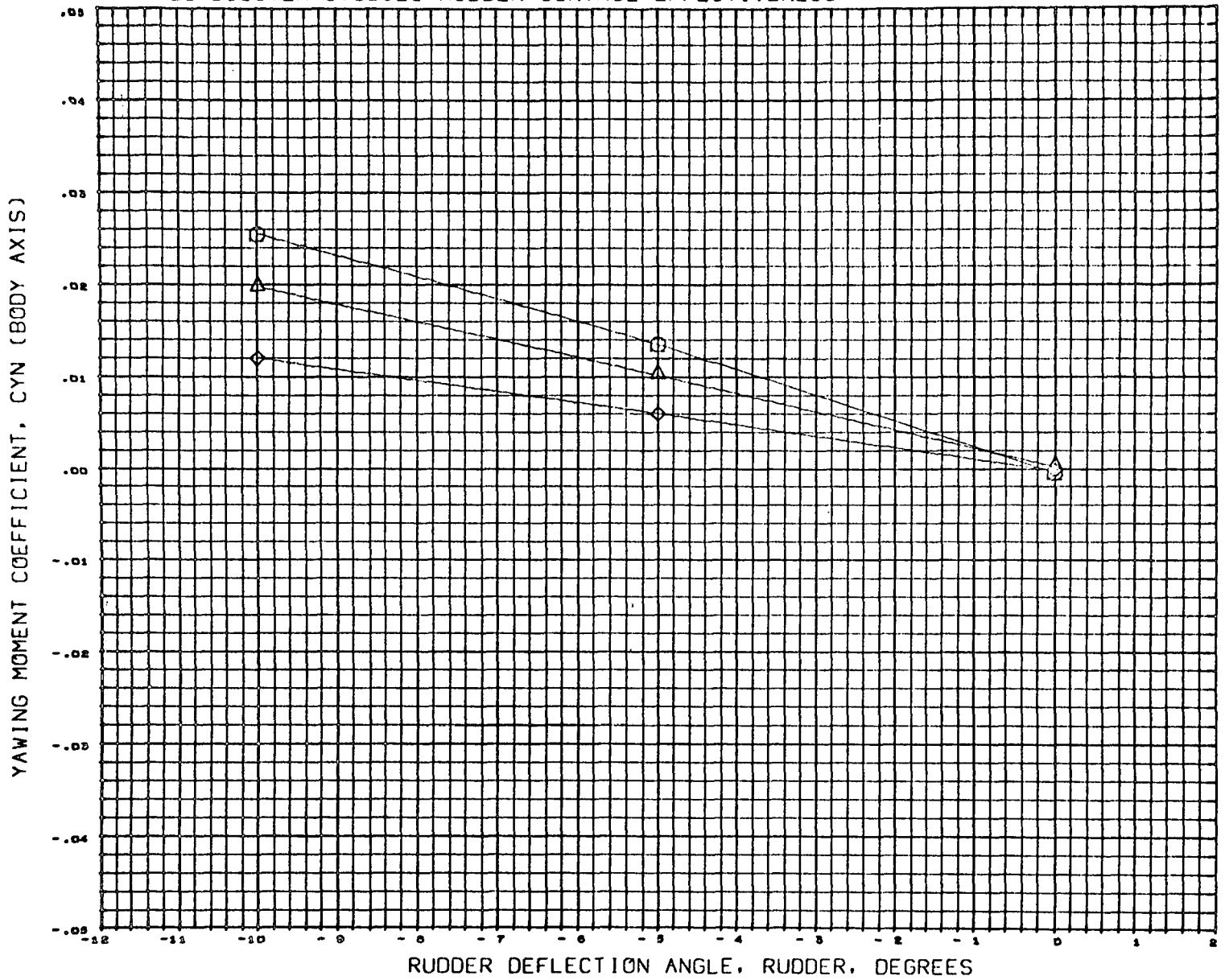
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION				
		MACH	BETA	INCIDC	INCIDW	SRF	LRP	BRP	YMRP	ZMRP
◇	0.000	1.000	0.000	0.000	1.3550	3.4530	3.4530	0.0000	0.0167	0.0100
△	0.150	3.000	0.000	0.000						
○	15.500	0.000	0.000	0.000						
		CANARD	ELEVTR							
		WNGPOS	CNDPOS	1.000						
		DATA HIST. CODE	IM							

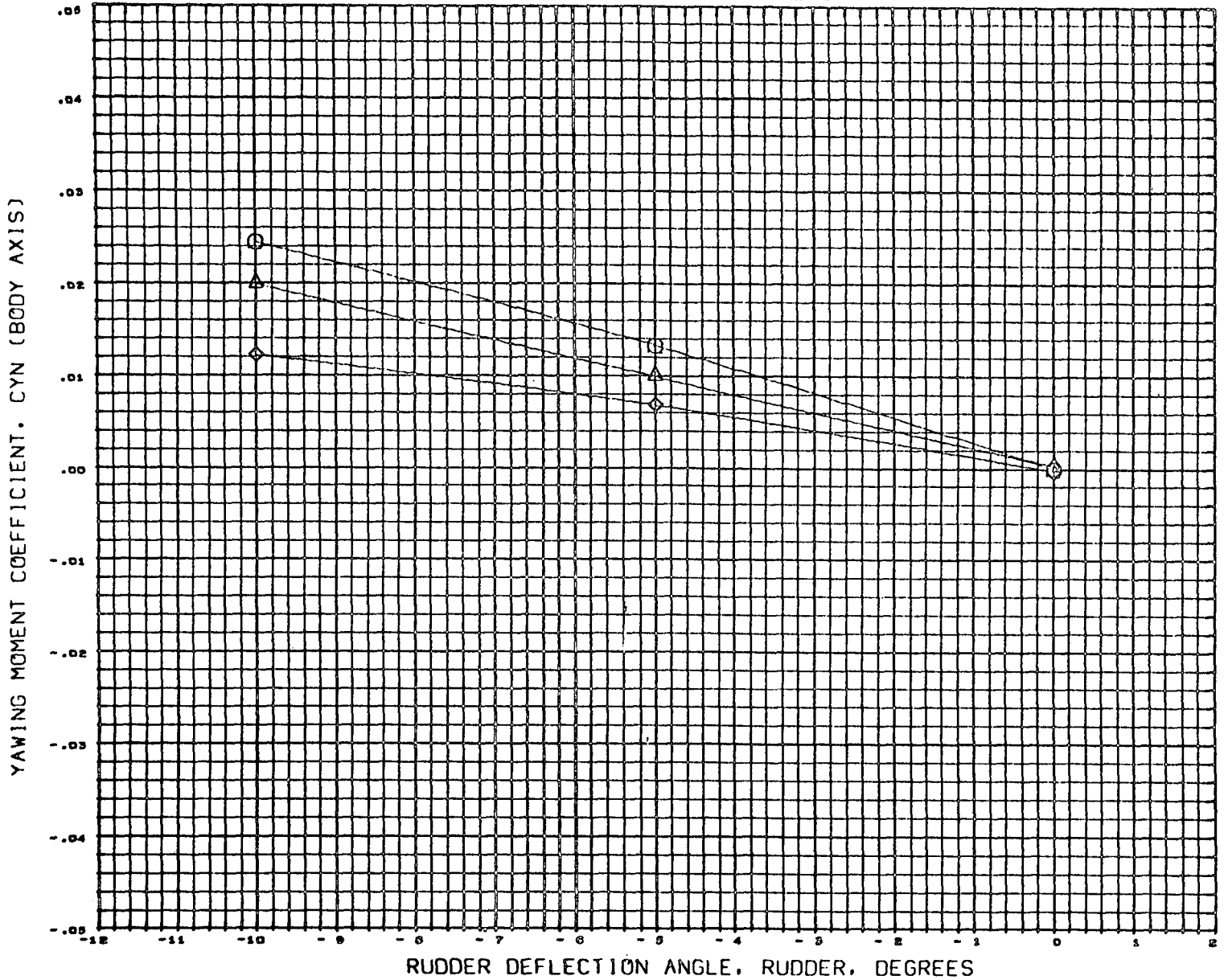
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LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



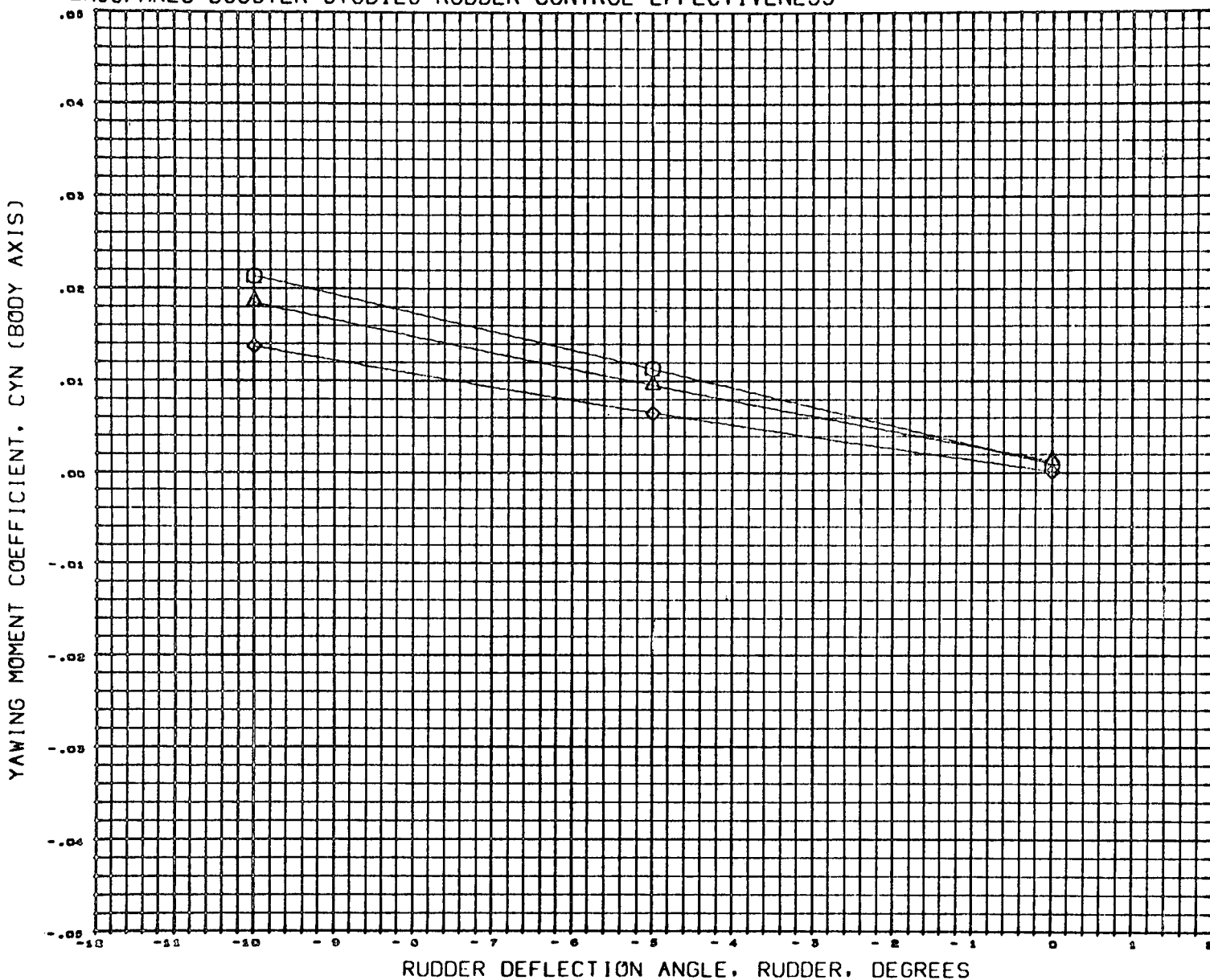
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	BREF	SCALE	UNIT
○	0.000	0.700	0.000	3.000	0.000	1.3550	80	FT.
△	0.150	0.700	0.000	3.000	0.000	3.4530	FEET	
◇	0.300	0.700	0.000	3.000	0.000	3.4530	FEET	
		MSFLOW	0.000	AILRON	0.000	XMRP	2.5050	FEET
		CANARD	0.000	ELEVTR	0.000	YMRP	0.0000	FEET
		WINGPOS	1.000	CNDPOS	1.000	ZMRP	0.0107	FEET
		DATA MIST. CODE	IM			SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



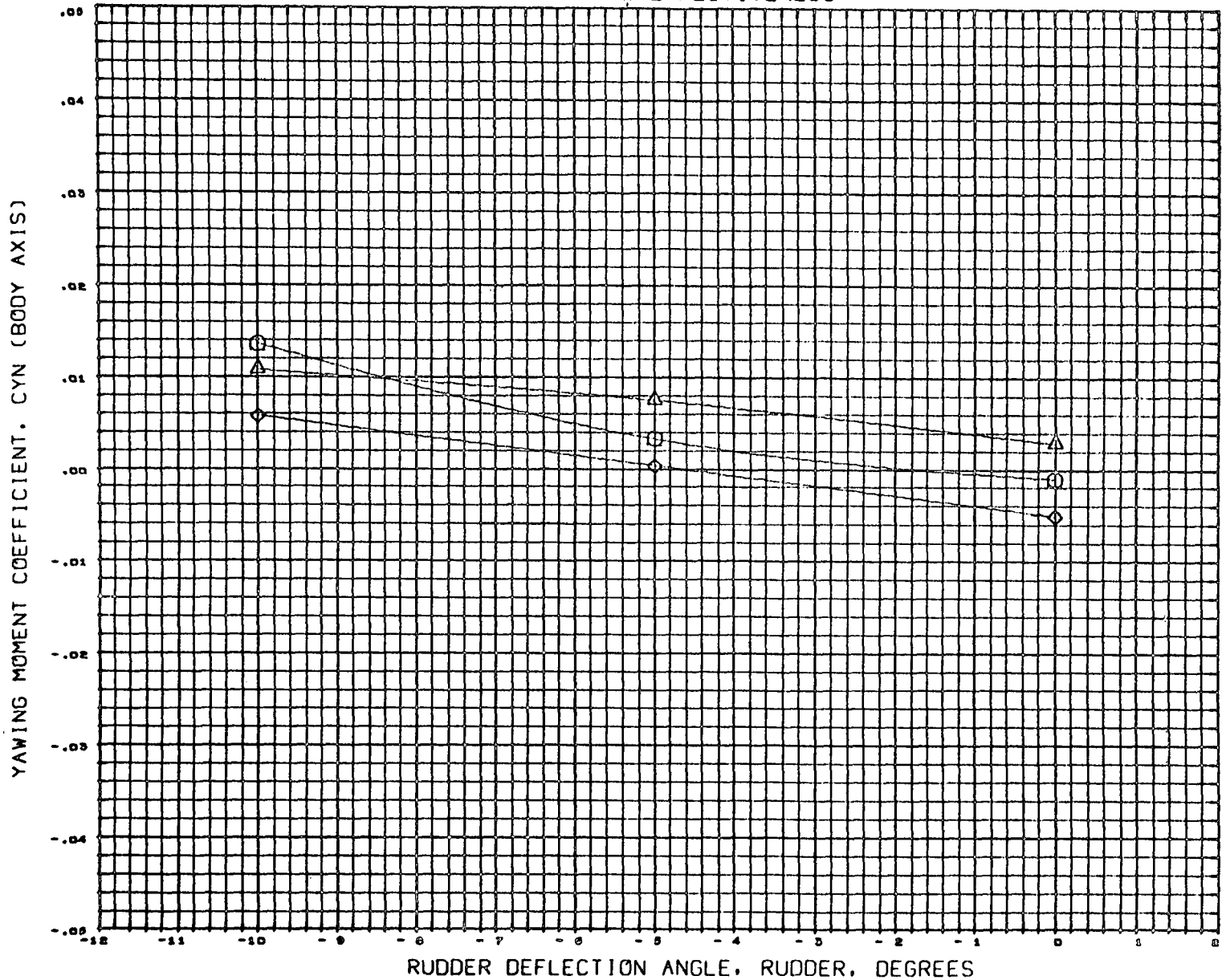
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.000	<u>BETA</u>	0.000	OREF	1.3550	SQ. FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	GREF	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.3950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		<u>DATA MIST. CODE</u>	1M			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



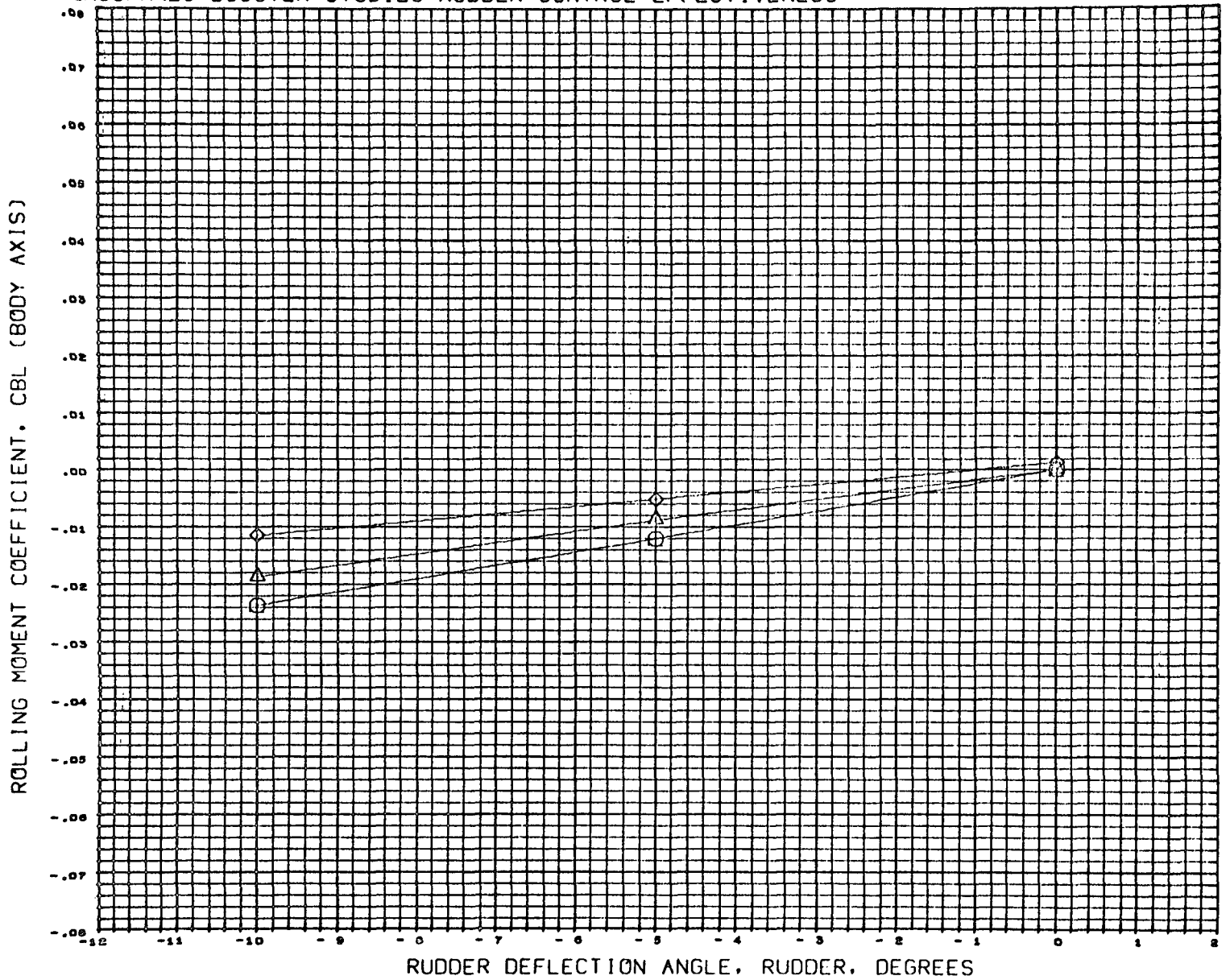
SYMBOL	PARAMETRIC VALUES						REFERENCE INFORMATION						
	ALPHA	MACH	INCIDC	INCIDW	BETA	0.000	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE
○	0.000	0.900	3.000	0.000	0.000	0.000	1.3550	3.4530	3.4530	2.8950	0.0000	0.0167	80. FT.
△	0.190	0.900	3.000	0.000	0.000	0.000	1.3550	3.4530	3.4530	2.8950	0.0000	0.0167	FEET
◇	19.500	0.900	3.000	0.000	0.000	0.000	1.3550	3.4530	3.4530	2.8950	0.0000	0.0167	FEET
													SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



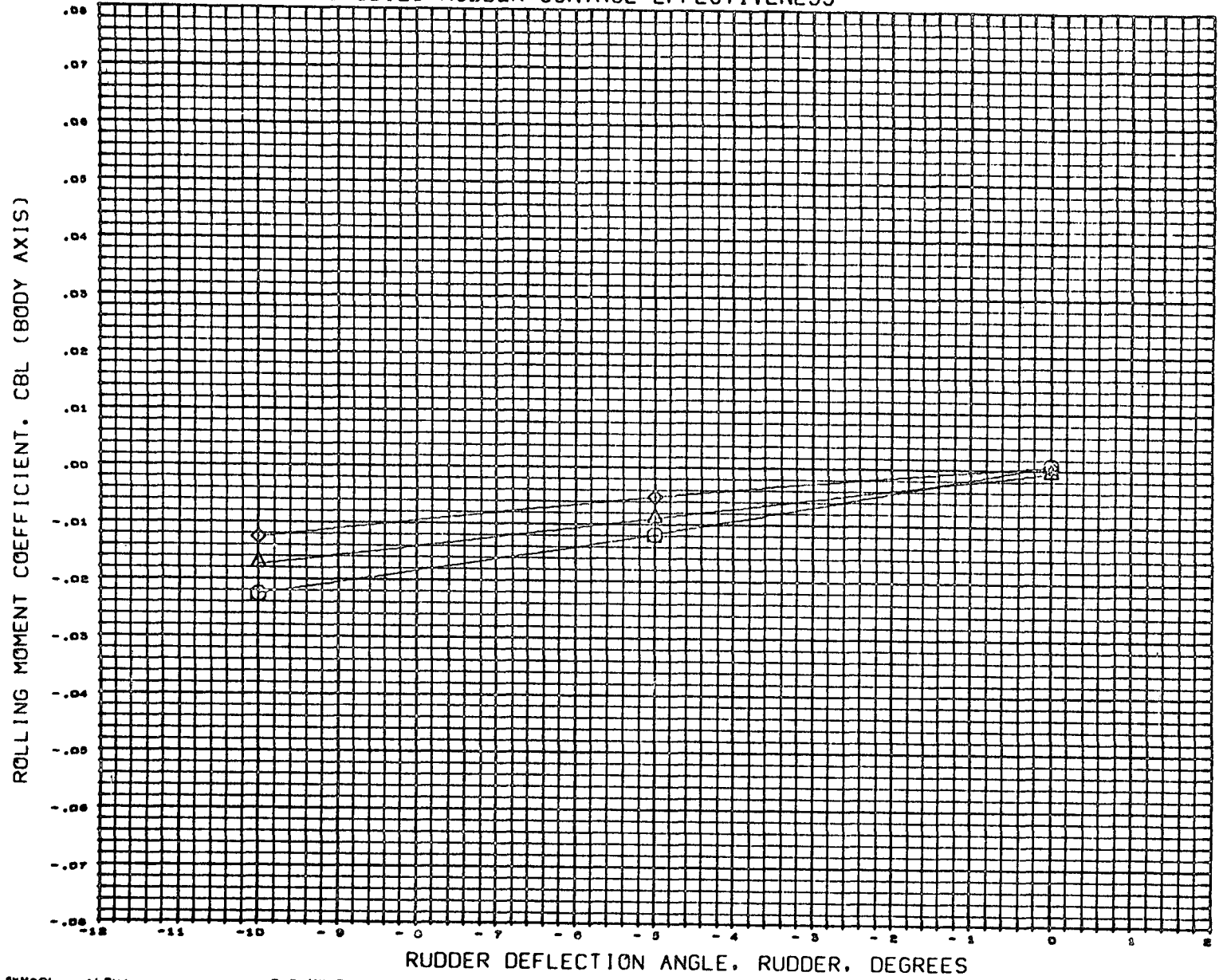
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	1.000	BETA	0.000	SREF	1.5550	CG.FT.
△	0.150	INCIDC	0.000	INCIDW	0.000	LREF	3.4930	FEET
◇	19.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4930	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.3950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1M			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	PARAMETRIC VALUES					REFERENCE INFORMATION		
	ALPHA	MACH	INCIDC	INCIDW	BETA	BREF	LREF	SCALE
○	0.000	0.700	3.000	0.000	0.000	1.3550	3.4530	80. FT.
△	0.150	0.000	0.000	0.000	0.000	3.4530	2.5950	FEET
◇	15.900	0.000	0.000	0.000	0.000	0.0000	0.0167	FEET
		MSFLOW	ELEVTR	CNDPOS		ZMRP		SCALE
		0.000	0.000	1.000		0.0150		
		DATA HIST. CODE		IM				

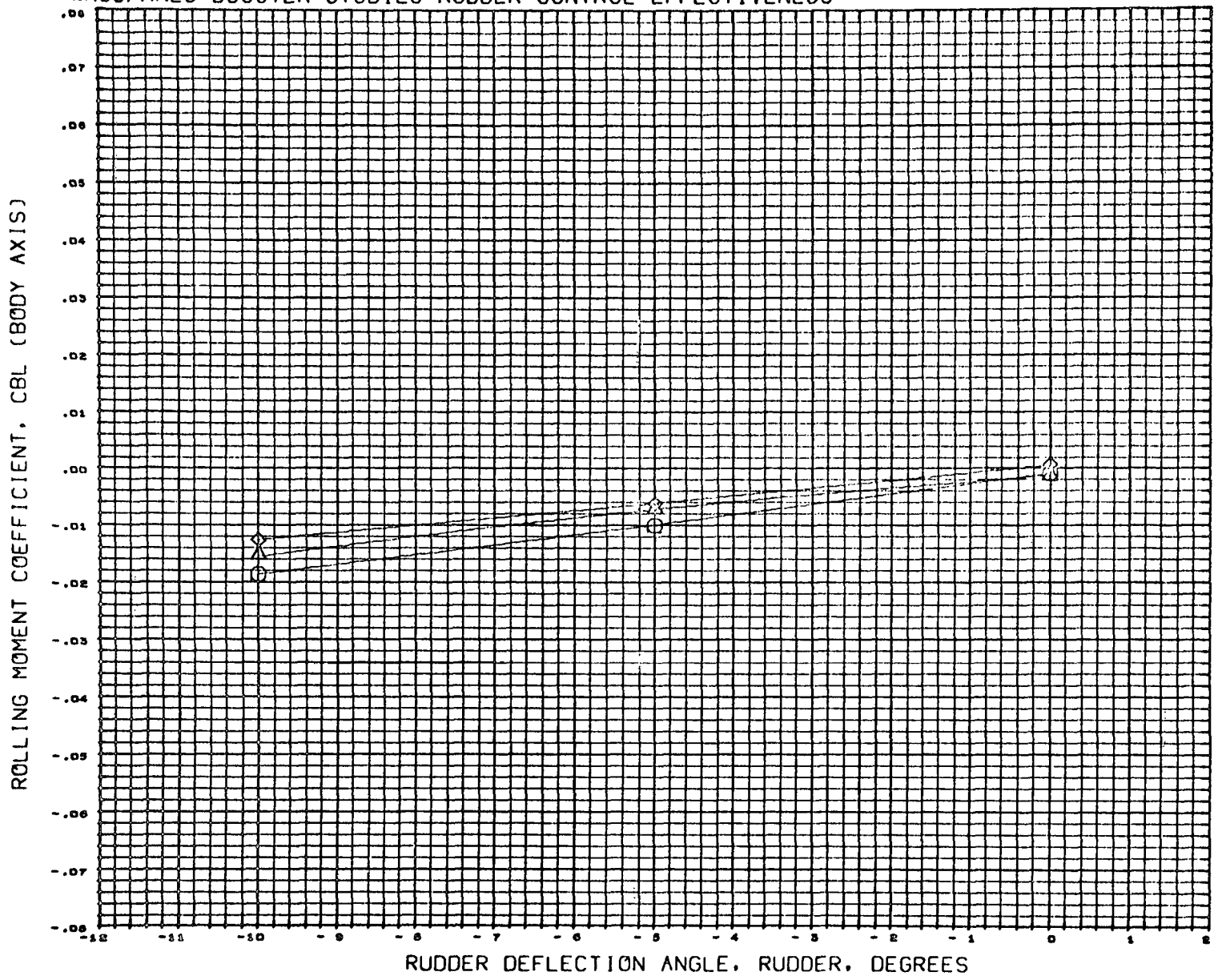
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
◇	0.000	<u>MACH</u>	0.000	<u>BETA</u>	0.000	BREF	1.3550	80 FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
○	15.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IN			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

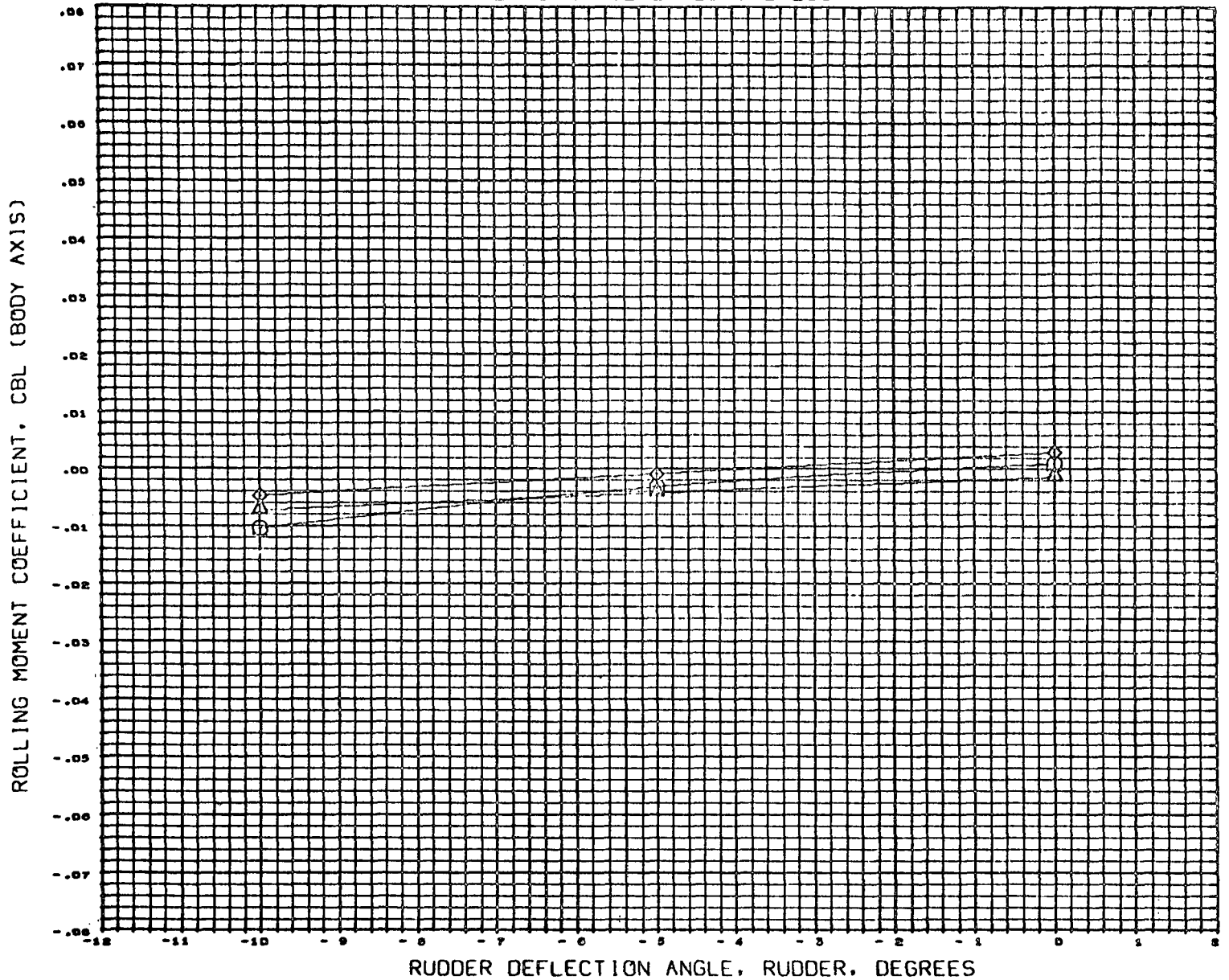
1981

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	BREF	SCALE	UNIT
○	0.000	0.000	0.000	0.000	0.000	1.3550	0.0150	SCALE
△	0.150	0.000	0.000	3.000	0.000	3.4530	0.0150	FEET
◇	15.500	0.000	0.000	0.000	0.000	3.4530	0.0150	FEET
		CANARD	ELEVTR	WNGPOS	CNDPOS	XMRP	ZMRP	FEET
		0.000	0.000	1.000	1.000	0.0000	0.0187	FEET
		DATA MIST. CODE		IM				SCALE

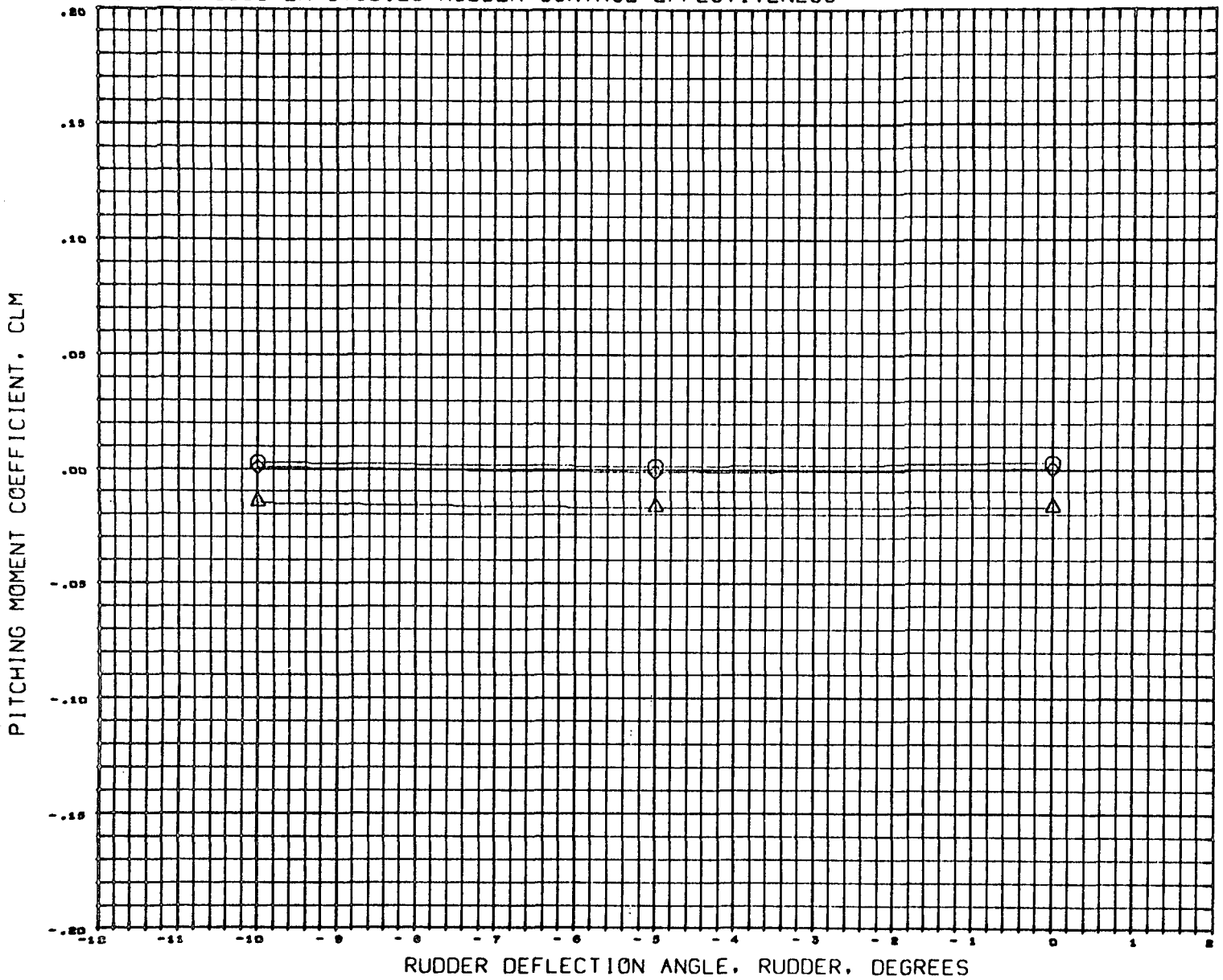
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	PARAMETRIC VALUES					REFERENCE INFORMATION		
	ALPHA	MACH	INCIDC	BETA	INCIDW	GREP	LRFP	SRFP
◇	0.000	1.000	0.000	0.000	0.000	1.3550	3.4530	3.4530
△	0.150	1.000	0.000	0.000	0.000	2.8950	0.0000	0.0167
○	15.500	1.000	0.000	0.000	1.000	SCALE	0.0190	SCALE

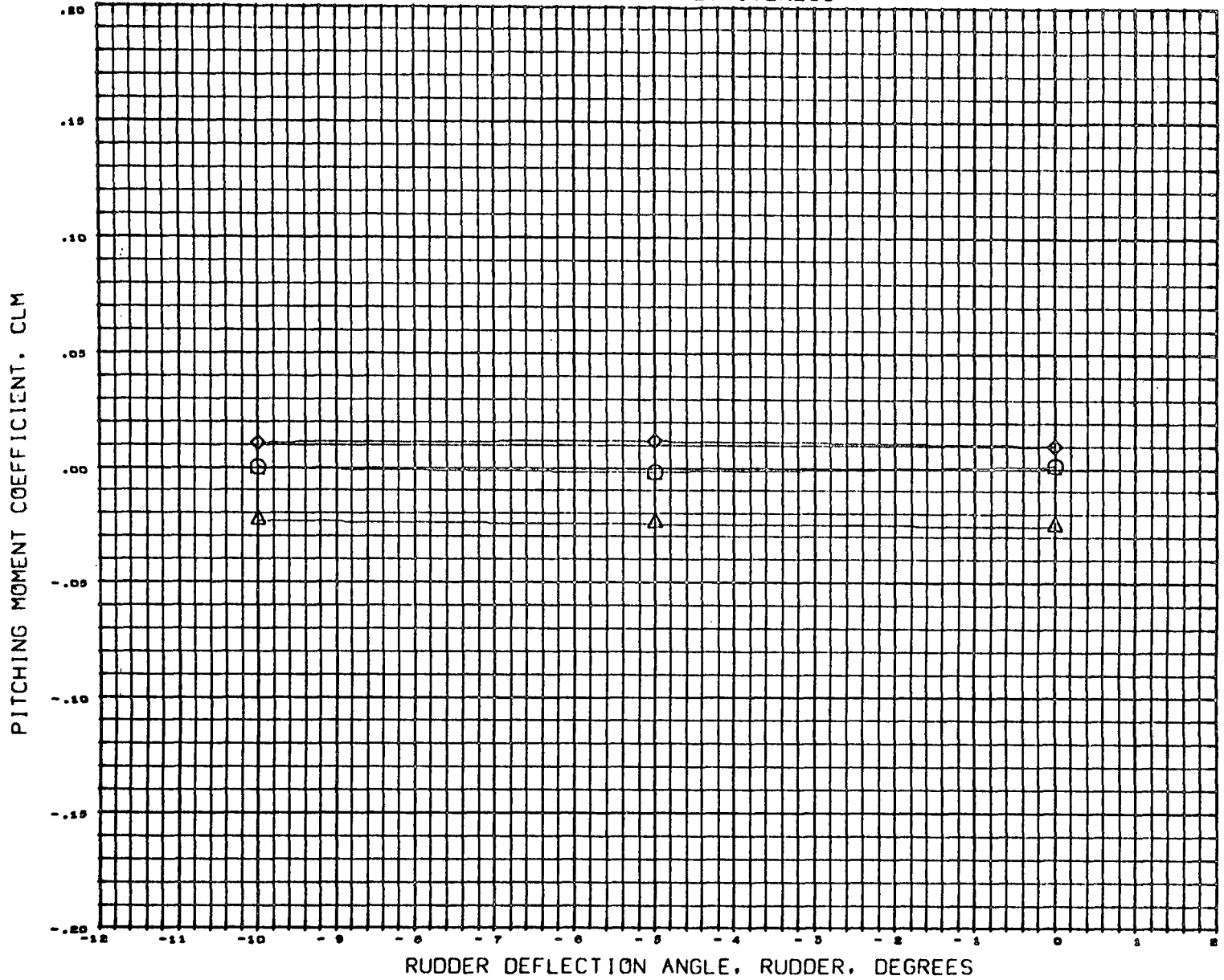
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LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



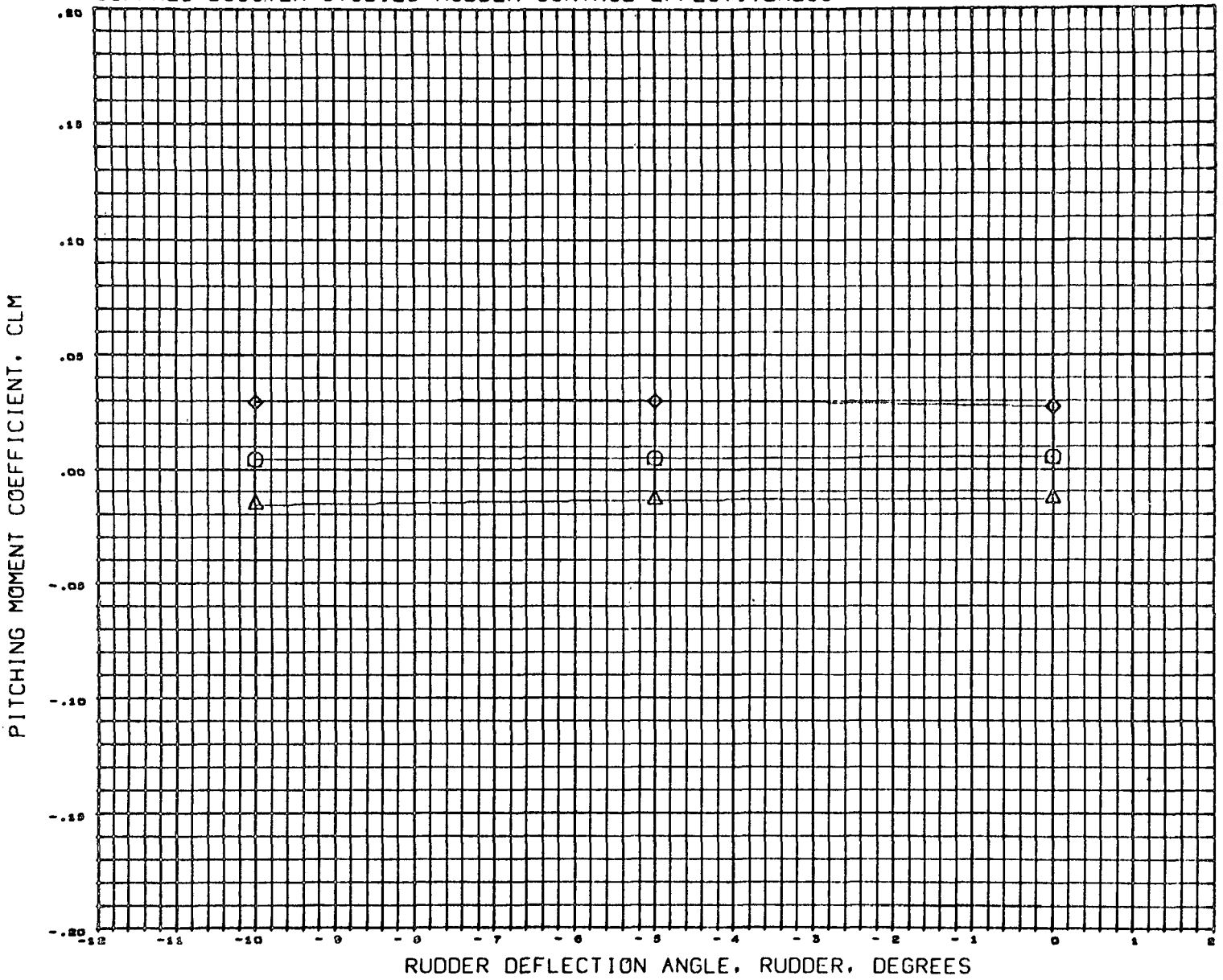
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
	0.000	MACH	0.700	BETA	0.000	BREF	1.3550	SG.FT.
○	0.150	INC10C	3.000	INC10W	0.000	LREF	3.4530	FEET
◇	0.900	MSFLOW	0.000	AILRON	0.000	BREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



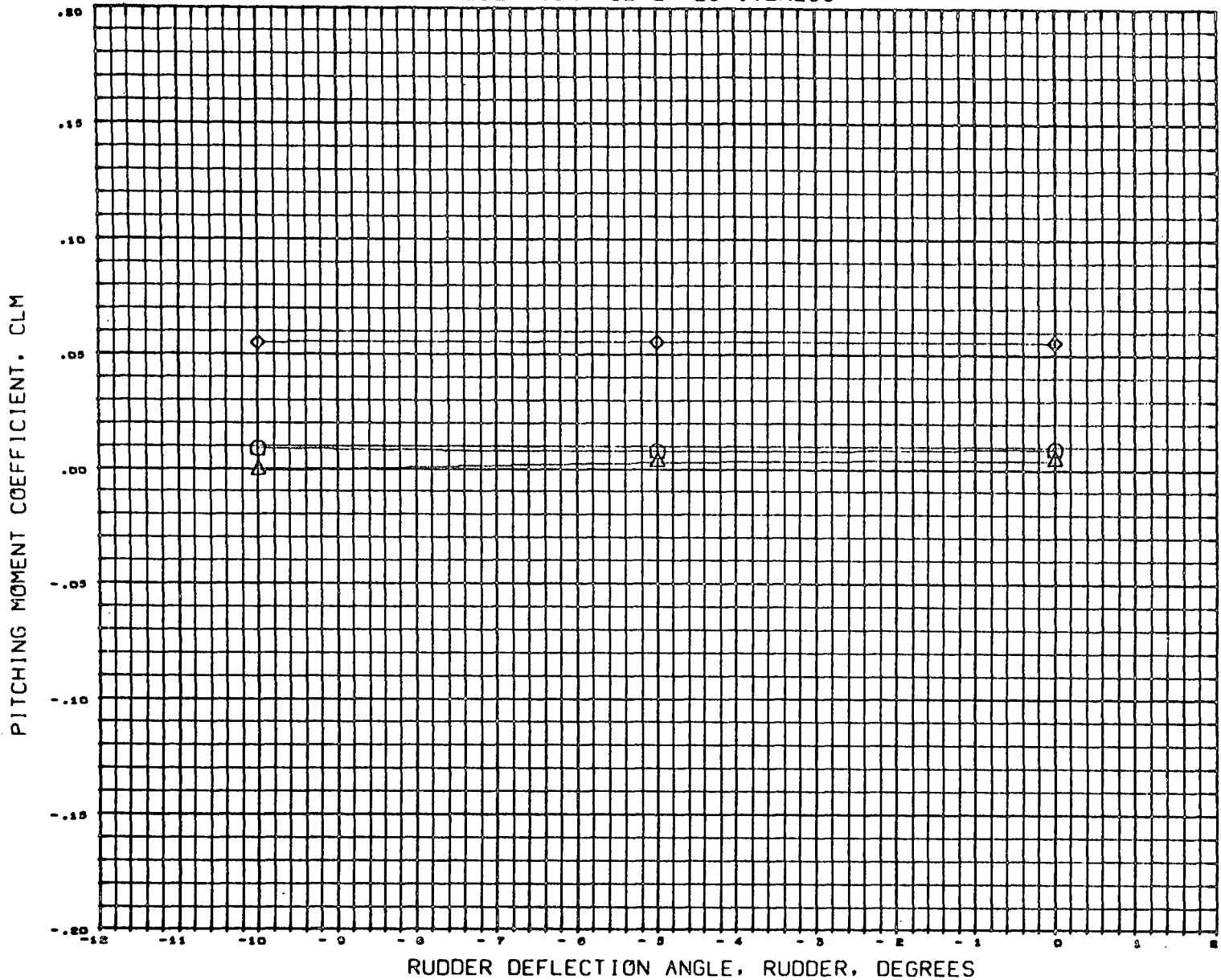
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.800	<u>BETA</u>	0.000	<u>SRP</u>	1.3980	<u>SQ. FT.</u>
△	0.190	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	<u>LRP</u>	3.4980	<u>FEET</u>
◇	15.500	<u>MSFLOW</u>	0.000	<u>AIRLN</u>	0.000	<u>ORP</u>	3.4980	<u>FEET</u>
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	<u>XMRP</u>	2.9980	<u>FEET</u>
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	<u>YMRP</u>	0.0000	<u>FEET</u>
		<u>DATA HIST. CODE</u>	IM			<u>ZMRP</u>	0.0167	<u>FEET</u>
						<u>SCALE</u>	0.0180	<u>SCALE</u>

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



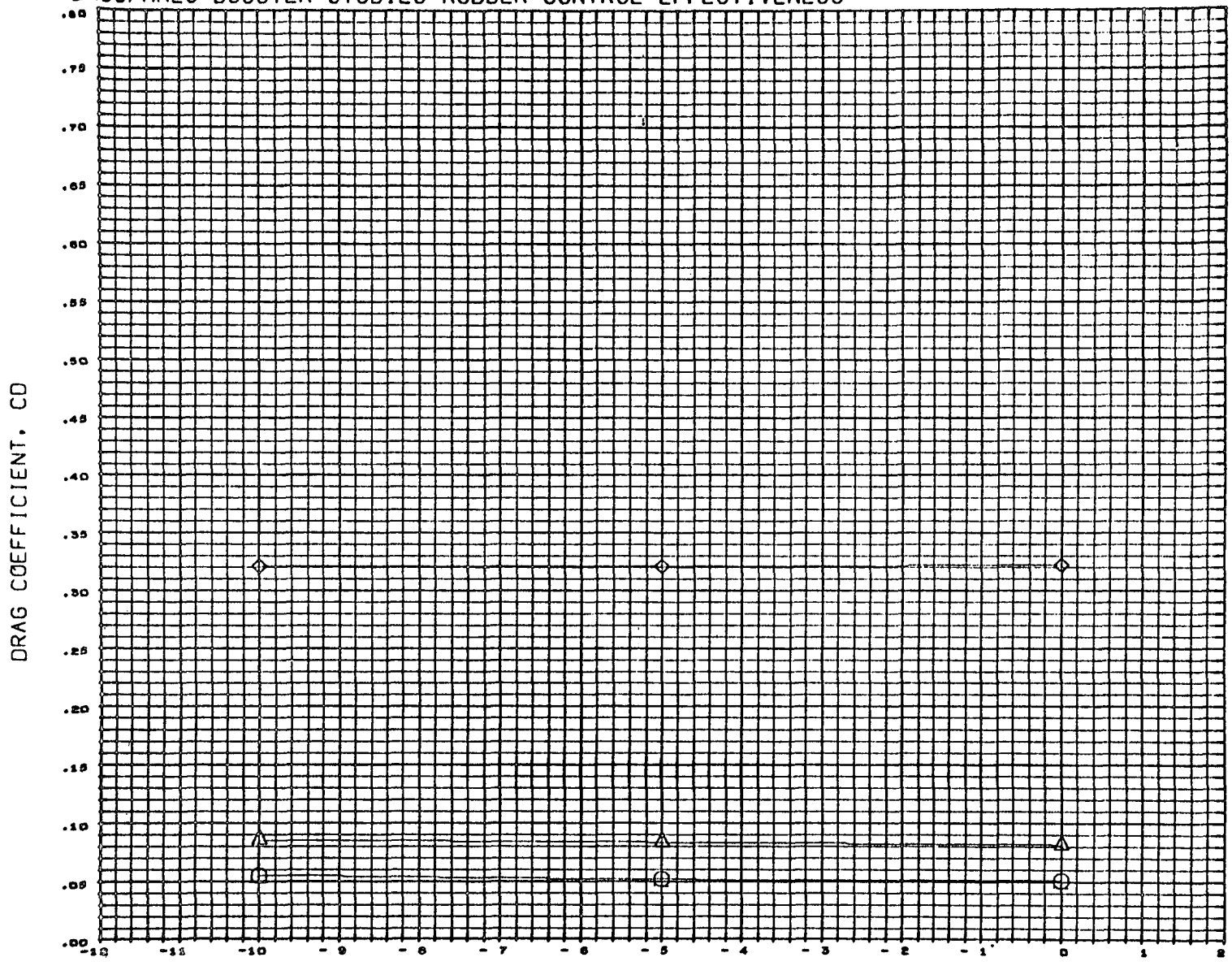
SYMBOL	○	ALPHA	0.000	PARAMETRIC VALUES			REFERENCE INFORMATION		
	○	0.190	MACH	0.000	BETA	0.000	SREF	1.3550	80. FT.
◇	15.500	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET	
		MSFLOW	0.000	ATLON	0.000	BREF	3.4530	FEET	
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5950	FEET	
		ENGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET	
		DATA HIST. CODE	IM			ZMRP	0.0167	FEET	
						SCALE	0.0150	SCALE	

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



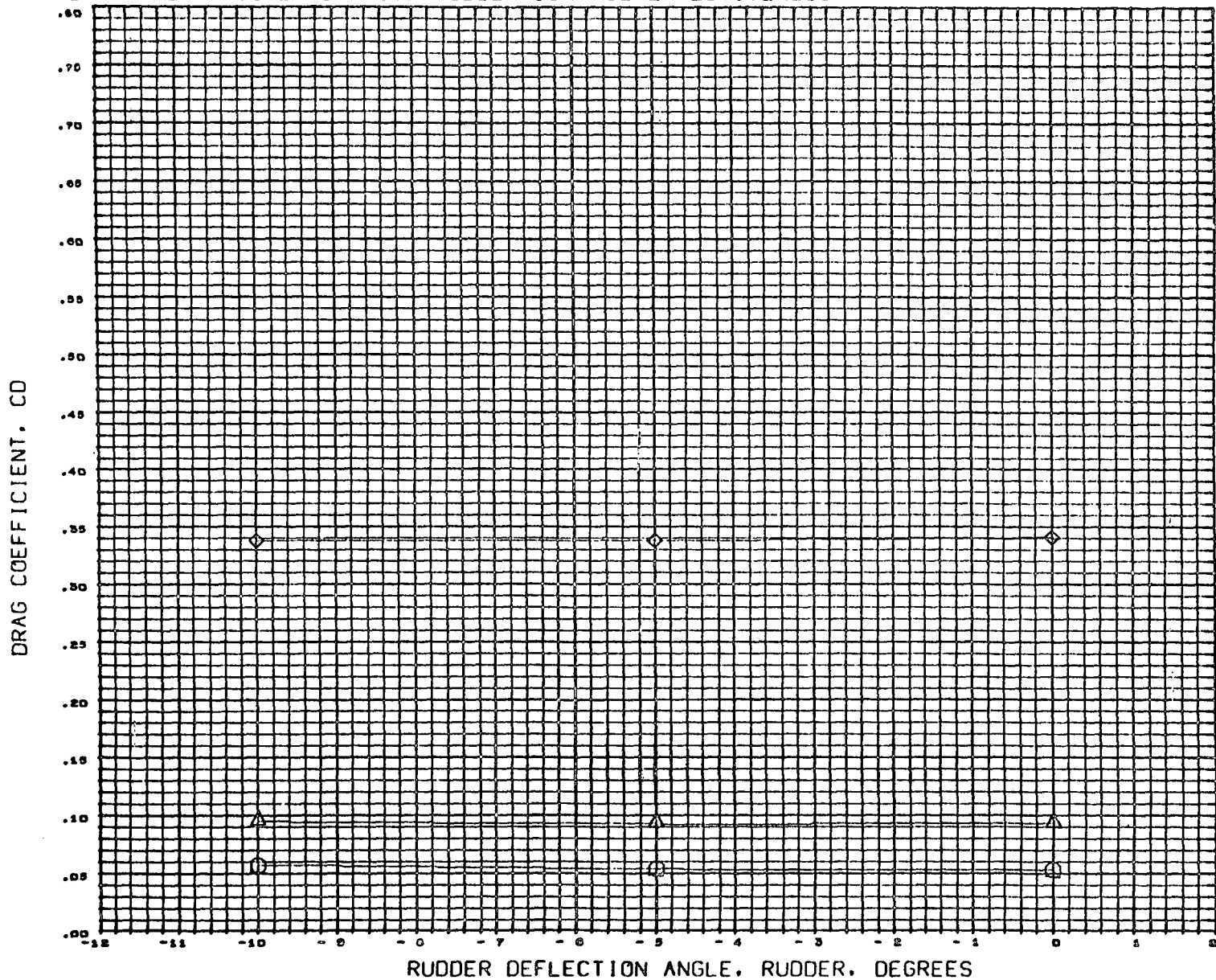
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	1.000	BETA	0.000	SREF	1.3550	SG. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	19.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1M			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



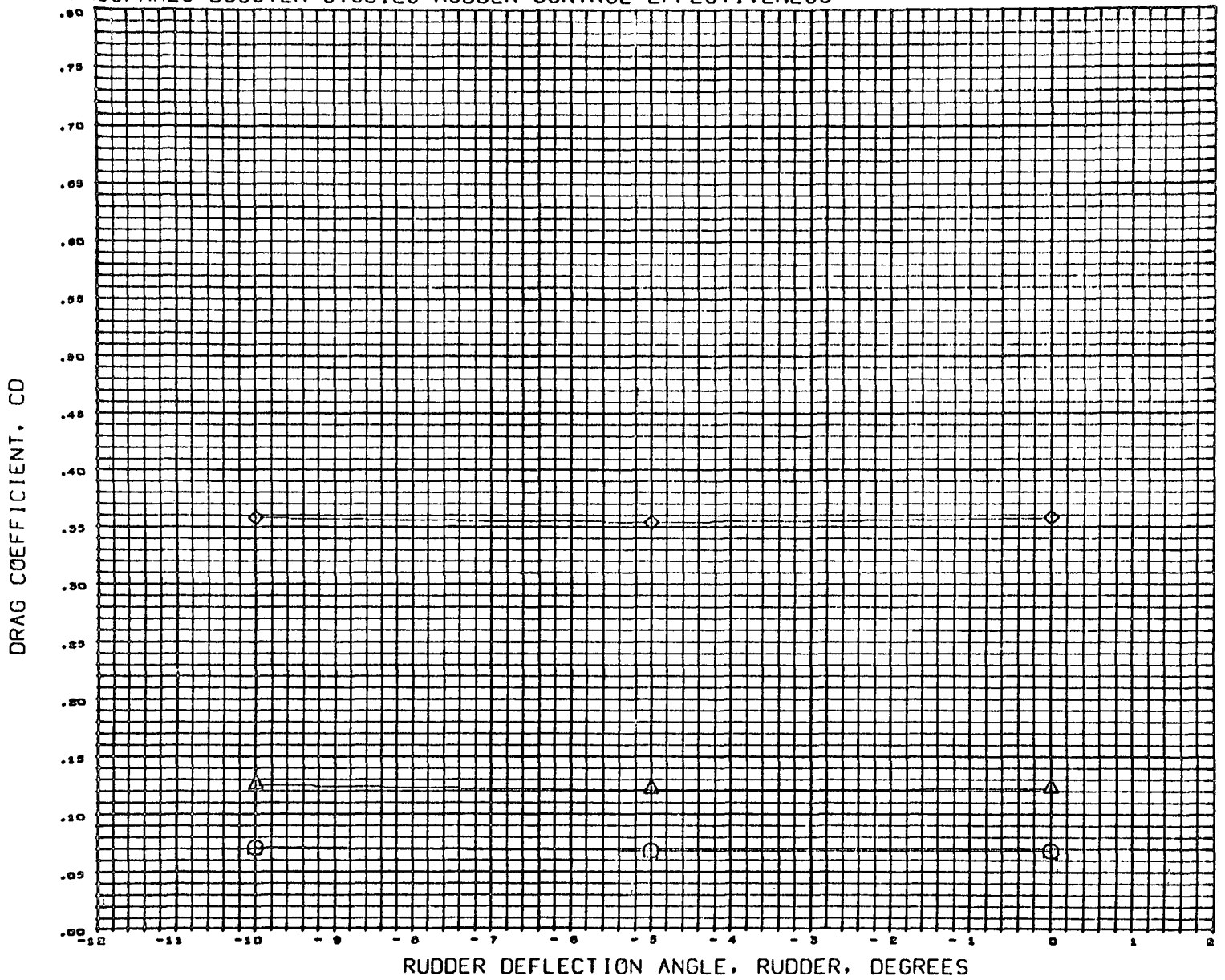
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MASH	0.700	BETA	0.000	BREF	1.3950	00.FT.
△	0.190	INCIDC	3.000	INCIDW	0.000	LREF	3.4930	FEET
◇	0.900	MBFLOW	0.000	AILRON	0.000	BREF	3.4930	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5080	FEET
		WNGPOD	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



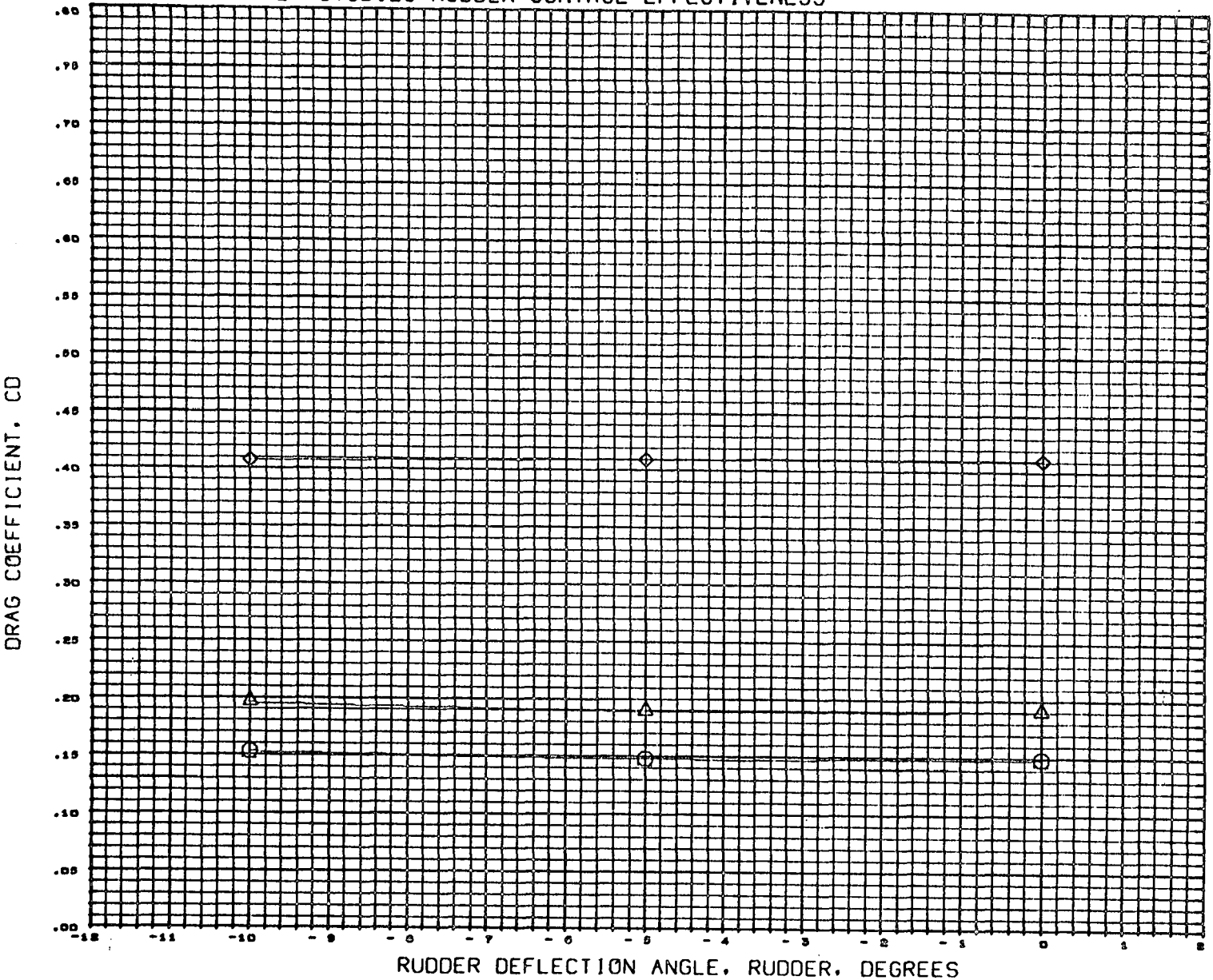
SYMBOL	ALPHA	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	6.150	0.000	0.000	0.000	0.000	BREF	1.3950	00.FT.
△	6.150	INCIDC	3.000	INCIDW	0.000	0.000	LREF	3.4550	FEET
◇	19.900	MSFLOW	0.000	AILRON	0.000	0.000	BREF	3.4550	FEET
		CANARD	0.000	ELEVTR	0.000	0.000	XMRP	2.0050	FEET
		WNGPOS	1.000	CNDPOS	1.000	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IM				ZMRP	0.0107	FEET
							SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



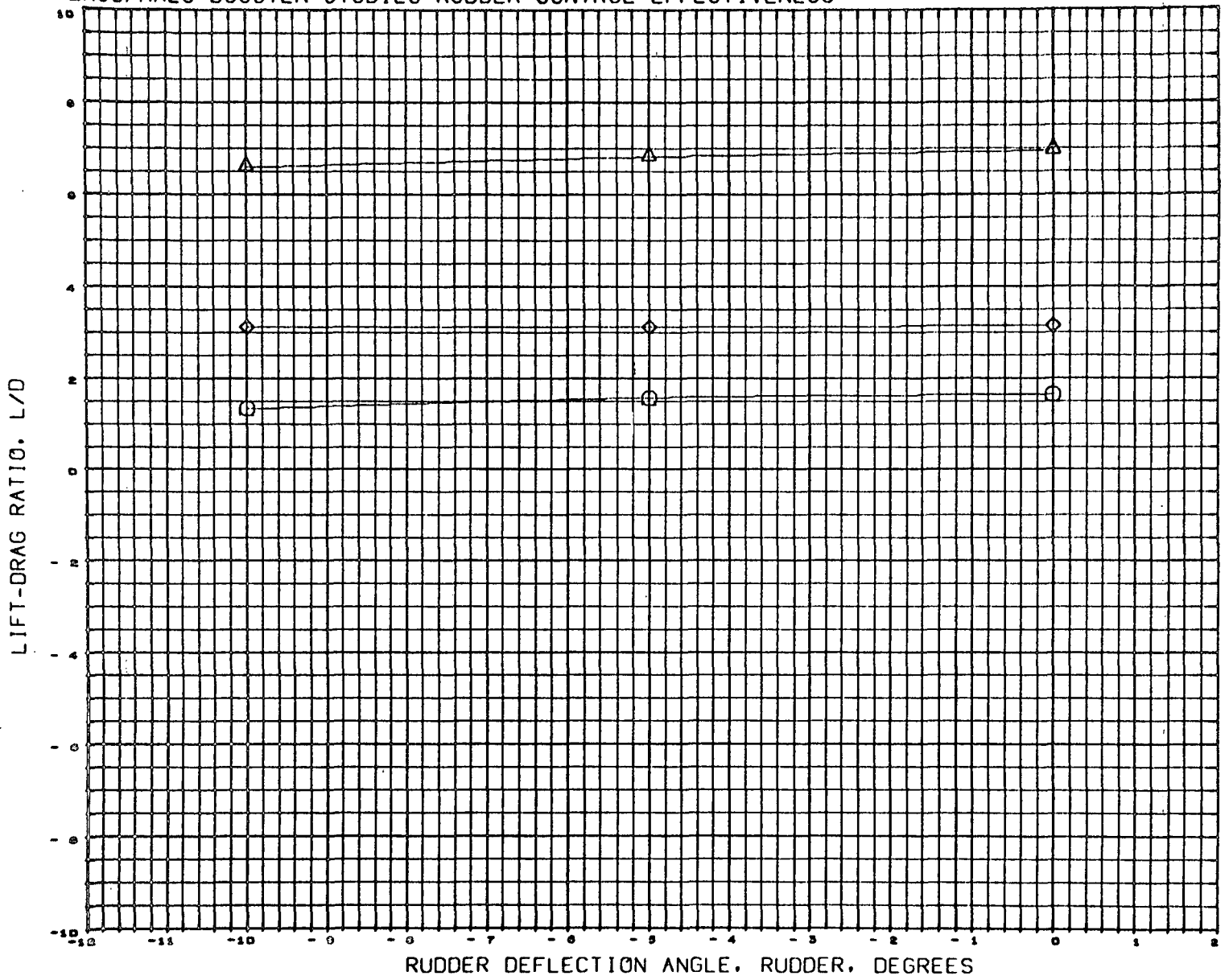
SYMBOL	PARAMETRIC VALUES				REFERENCE INFORMATION		
	ALPHA	MACH	BETA	BETA	BREF	SCALE	UNIT
○	0.000	15.500	0.000	0.000	1.3550	0.0150	SCALE
△	0.150	0.000	3.000	0.000	3.4530	0.0167	FEET
◇	0.000	0.000	0.000	0.000	3.4830	0.0187	FEET
		CANARD	ELEVTR	0.000	2.9850	0.0000	FEET
		WINGPOS	CNDPOS	1.000	0.0000	0.0167	FEET
		DATA MIST. CODE	1M		SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



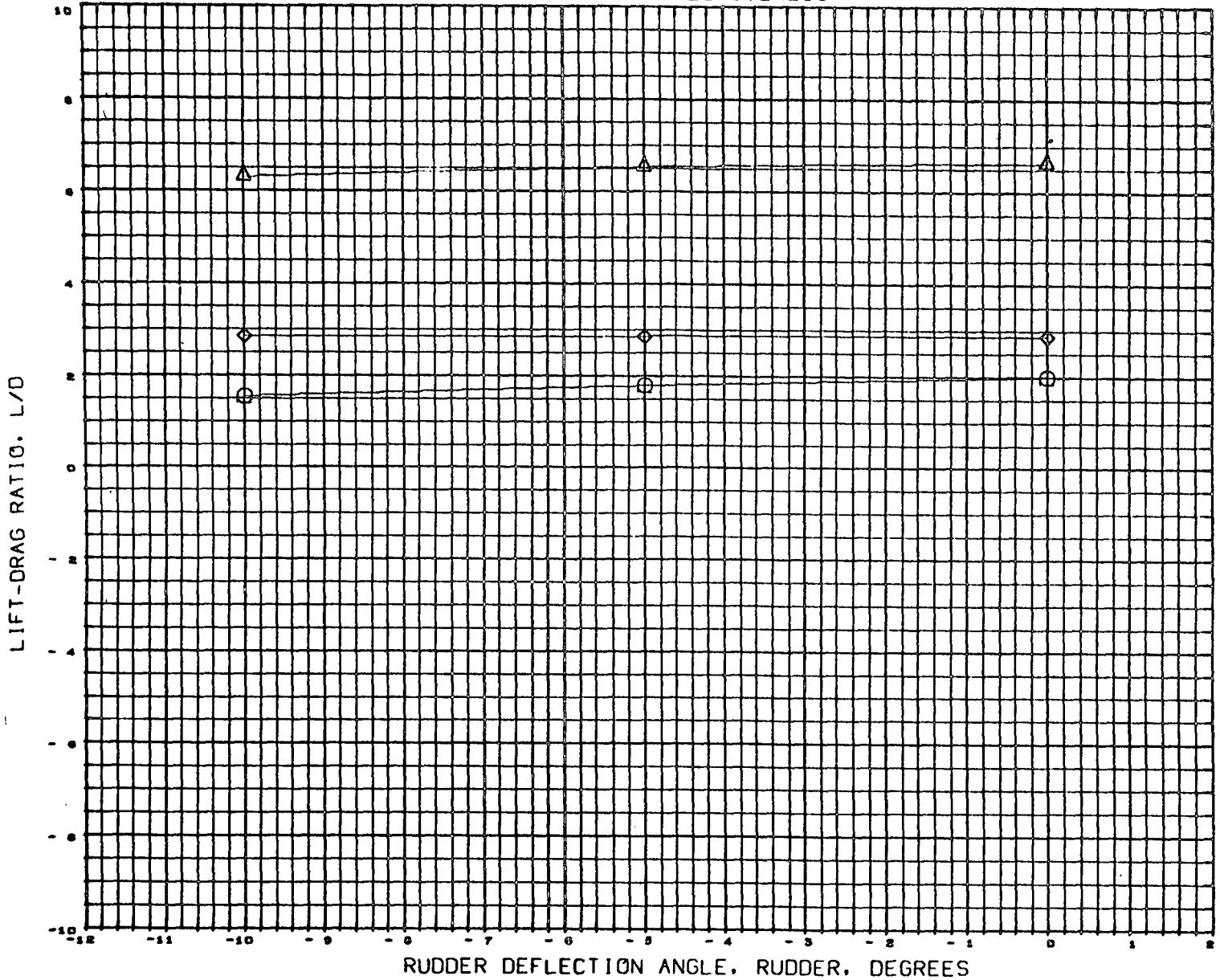
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	1.000	BETA	0.000	SREF	1.3550	30, FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4930	FEET
◇	15.500	MSFLOW	0.000	AILRON	0.000	OREF	3.4930	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE		IM		ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



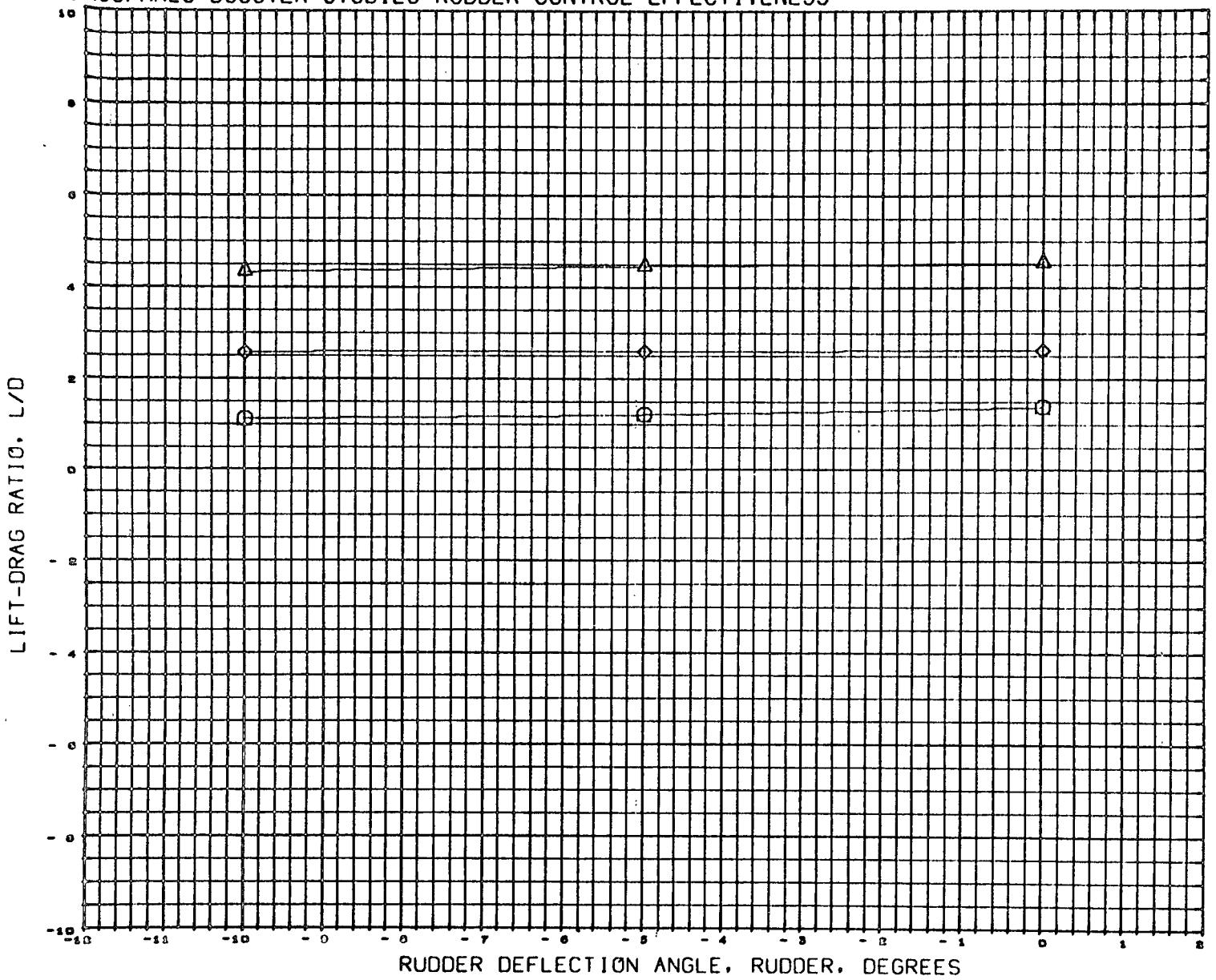
SYMBOL	PARAMETRIC VALUES				REFERENCE INFORMATION		
	ALPHA	MACH	BETA	INCIDC	SREF	FEET	SCALE
○	0.000	0.700	0.000	0.000	1.3550	FEET	
◇	6.150	3.000	0.000	0.000	3.4530	FEET	
△	10.900	0.000	0.000	0.000	2.5950	FEET	
		CANARD	ELEVTR	0.000	0.0000	FEET	
		WNGPOS	CNDPOS	1.000	0.0187	FEET	
		DATA HIST. CODE	IM		0.0150	SCALE	

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



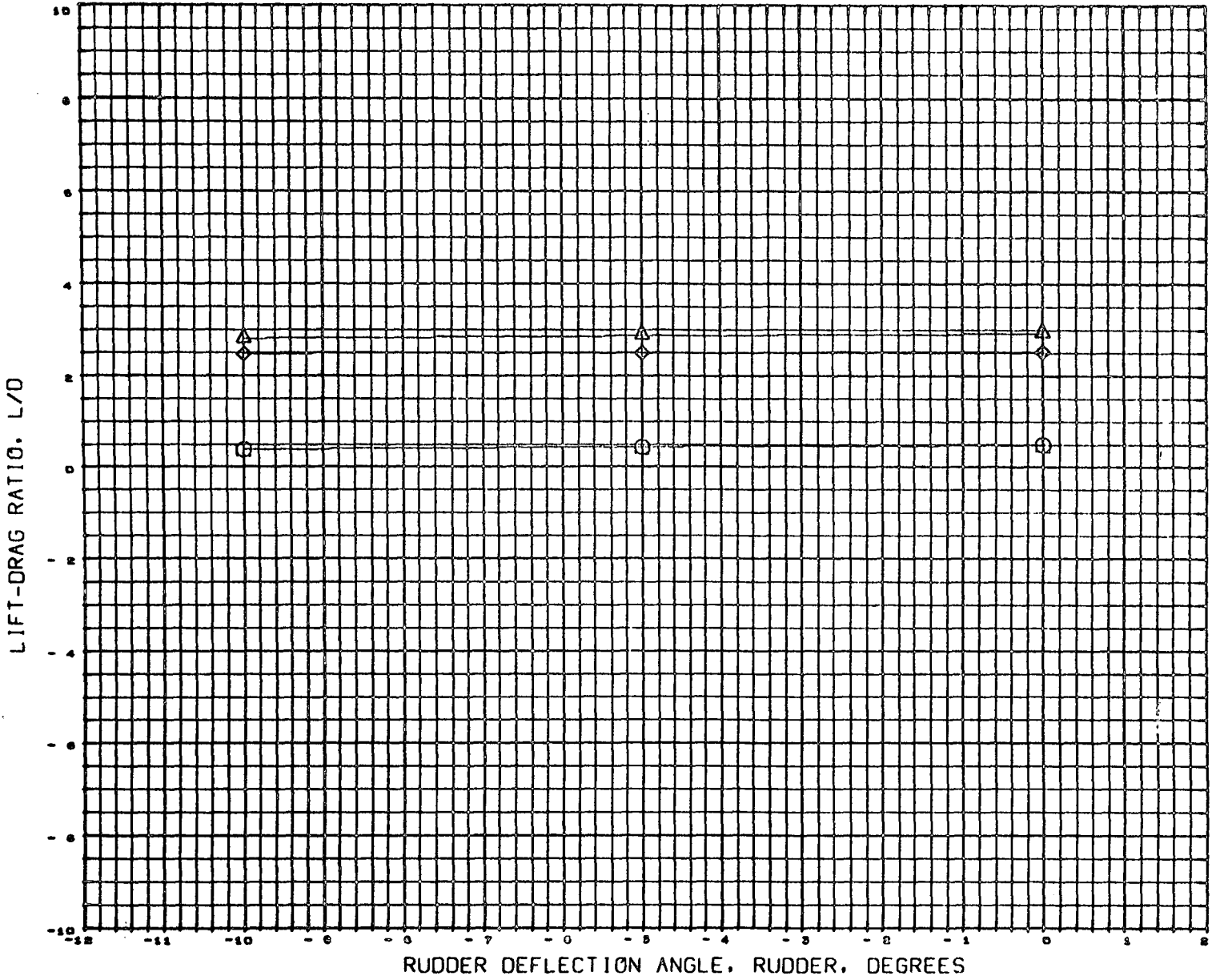
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
	0.000	MACH	0.800	BETA	0.000	BREF	1.3890	80. FT.
○	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4930	FEET
△	19.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4930	FEET
◇		CANARD	0.000	ELEVTR	0.000	XMRP	2.9950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	PARAMETRIC VALUES		REFERENCE INFORMATION		
	ALPHA	PARAMETRIC VALUES	BREF	LREF	SQ. FT.
○	0.000	MACH 0.900	BETA 0.000	1.3950	SQ. FT.
△	0.190	INCIDC 3.000	INCIDW 0.000	3.4930	FEET
◇	19.900	MSFLOW 0.000	AILRON 0.000	3.4930	FEET
		CANARD 0.000	ELEVTR 0.000	XMRP 2.8050	FEET
		ENGPOS 1.000	CNDPOS 1.000	YMRP 0.0000	FEET
		DATA HIST. CODE 1M		ZMRP 0.0187	FEET
				SCALE 0.0150	SCALE

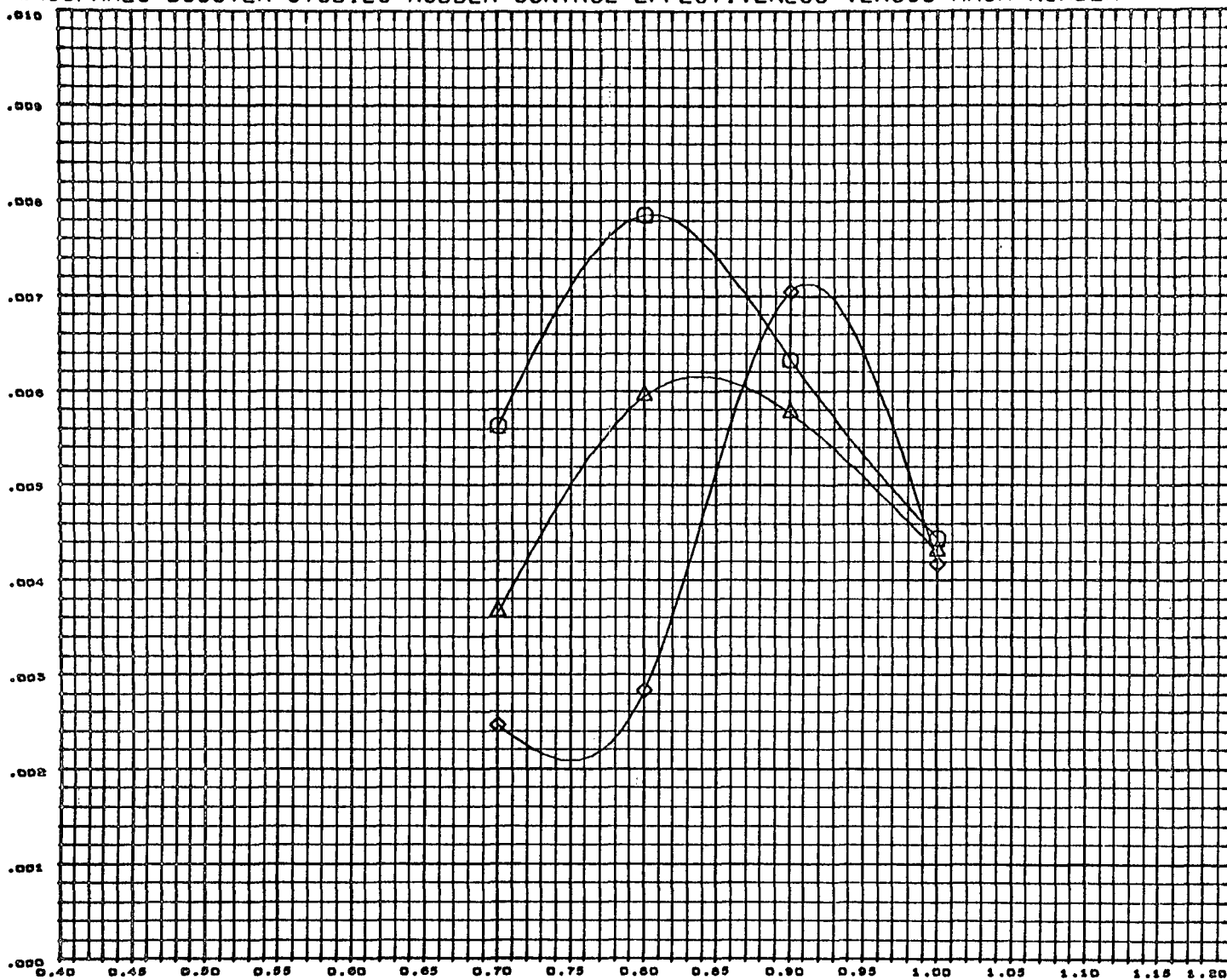
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	PARAMETRIC VALUES				REFERENCE INFORMATION		
	ALPHA	MACH	BETA	BETA	BREF	SCALE	SCALE
○	0.000	1.000	0.000	0.000	1.0000	0.0100	SCALE
△	0.150	3.000	0.000	0.000	0.4000	0.0100	SCALE
◇	15.500	0.000	0.000	0.000	0.4000	0.0100	SCALE
		CANARD	ELEVTR		XMRP		
		1.000	0.000		ZMRP		
		DATA HIST. CODE	1M				

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER

SIDE FORCE DUE TO RUDDER, DCY/DR. PER DEGREE



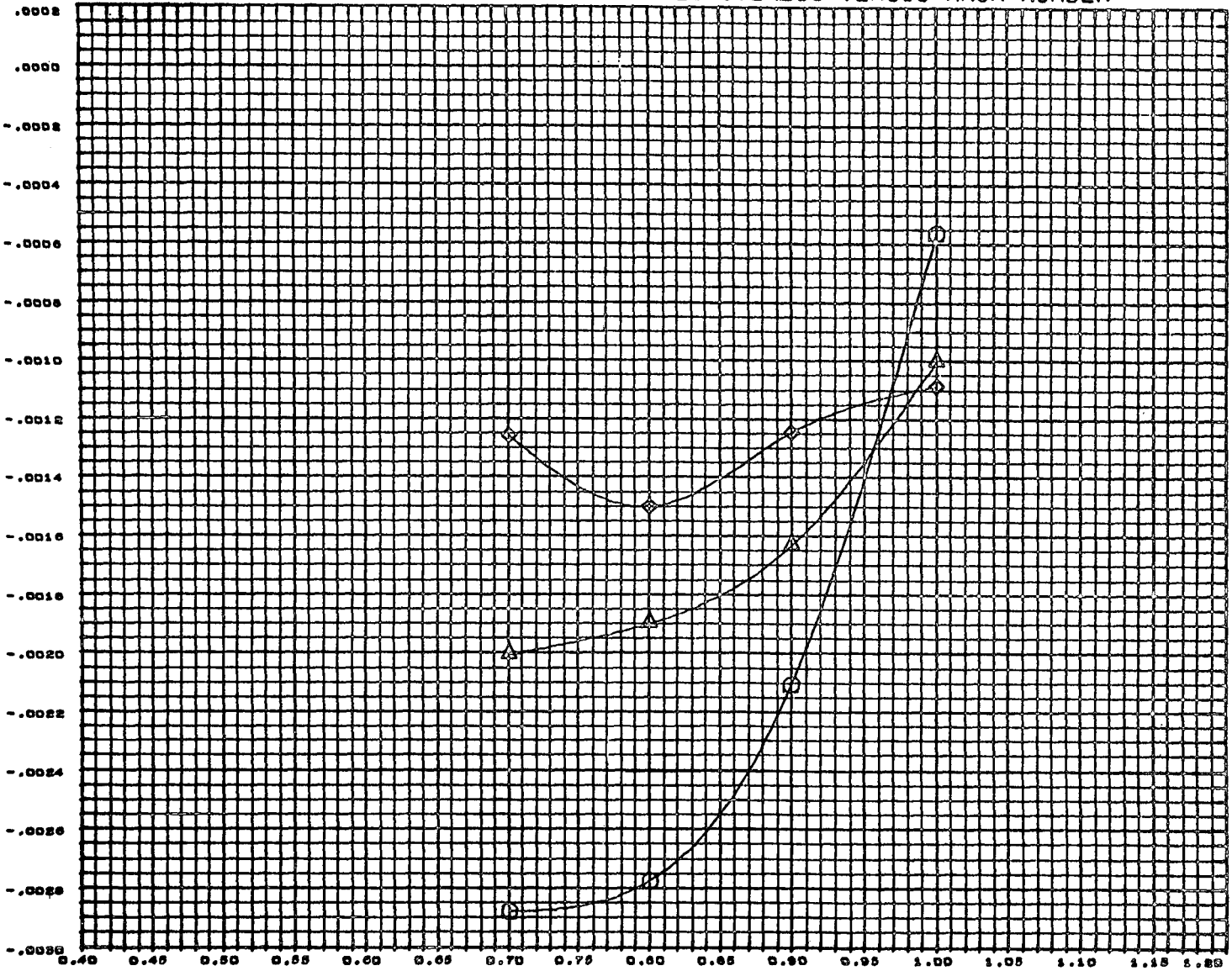
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(IN3004)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.016	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(DN3005)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.147	0.000	0.000	0.000	LREF 3.4930 FEET
(DN3006)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.473	0.000	0.000	0.000	BREF 0.4530 FEET
						XMRP 3.9080 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0180 SCALE

DELTA 0.000

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER

YAWING MOMENT DUE TO RUDDER, DCYNDR. PER DEGREE, (BODY AXIS)

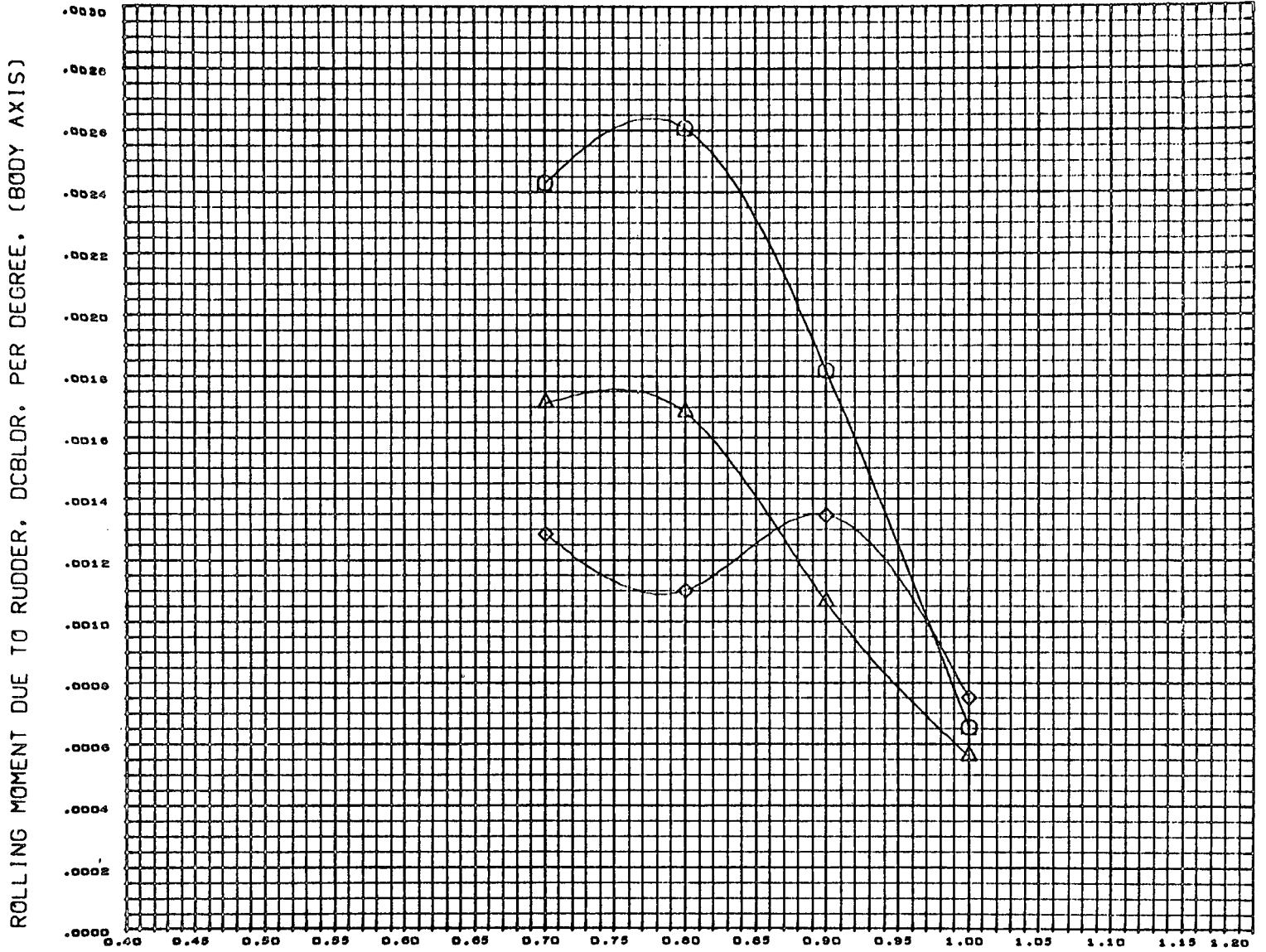


MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(DN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	0.016	0.000	0.000	0.000	BREF 1.3000 SQ.FT.
(DN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.147	0.000	0.000	0.000	LREF 3.4550 FEET
(DN3006)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.473	0.000	0.000	0.000	BREF 3.4000 FEET
						XMRP 2.0950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0100 SCALE

BETA 0.000

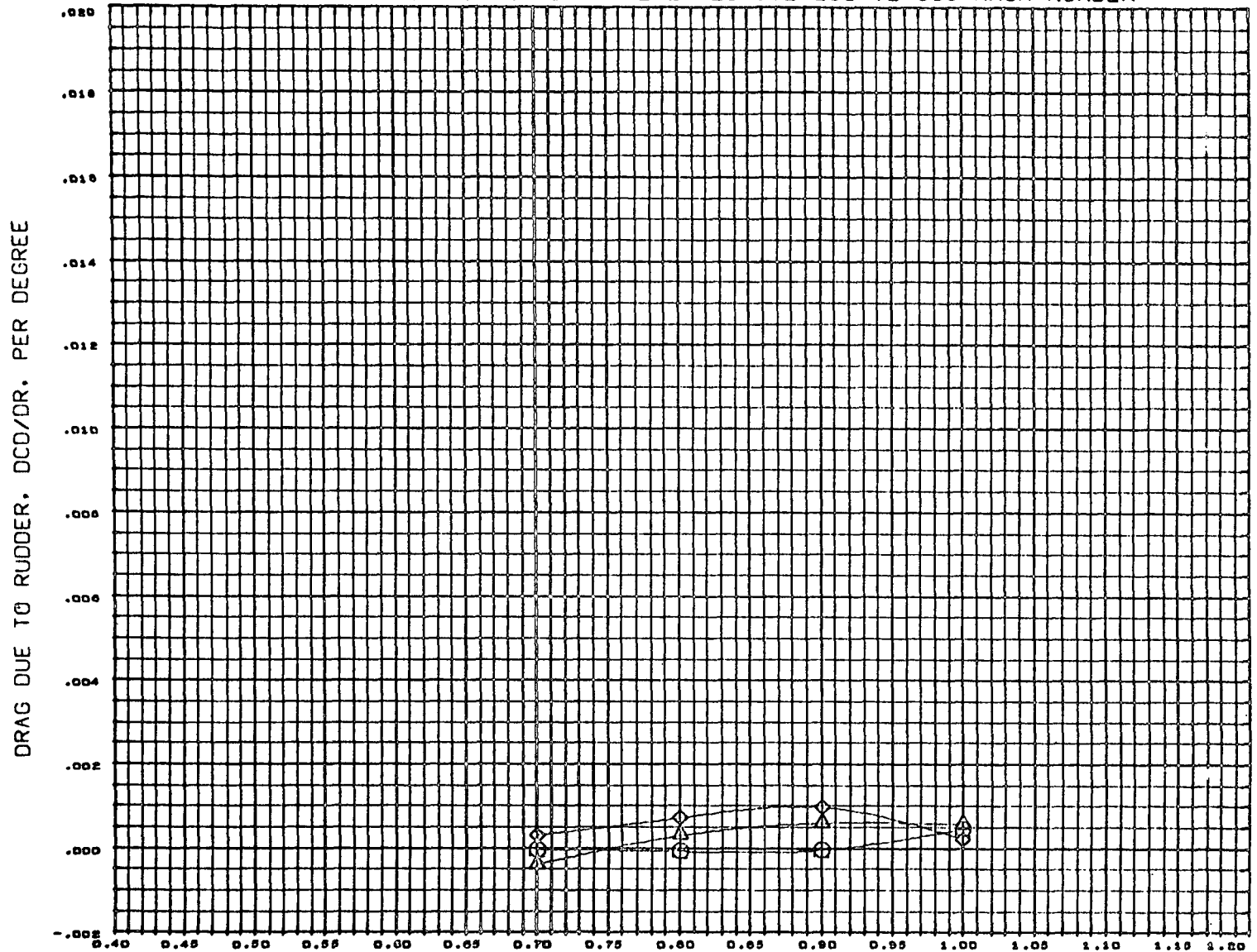
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(IN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.016	0.000	0.000	0.000	BREF 1.3550 SQ.FT.
(DN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.147	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3006)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.473	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

DELTA 0.000

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER

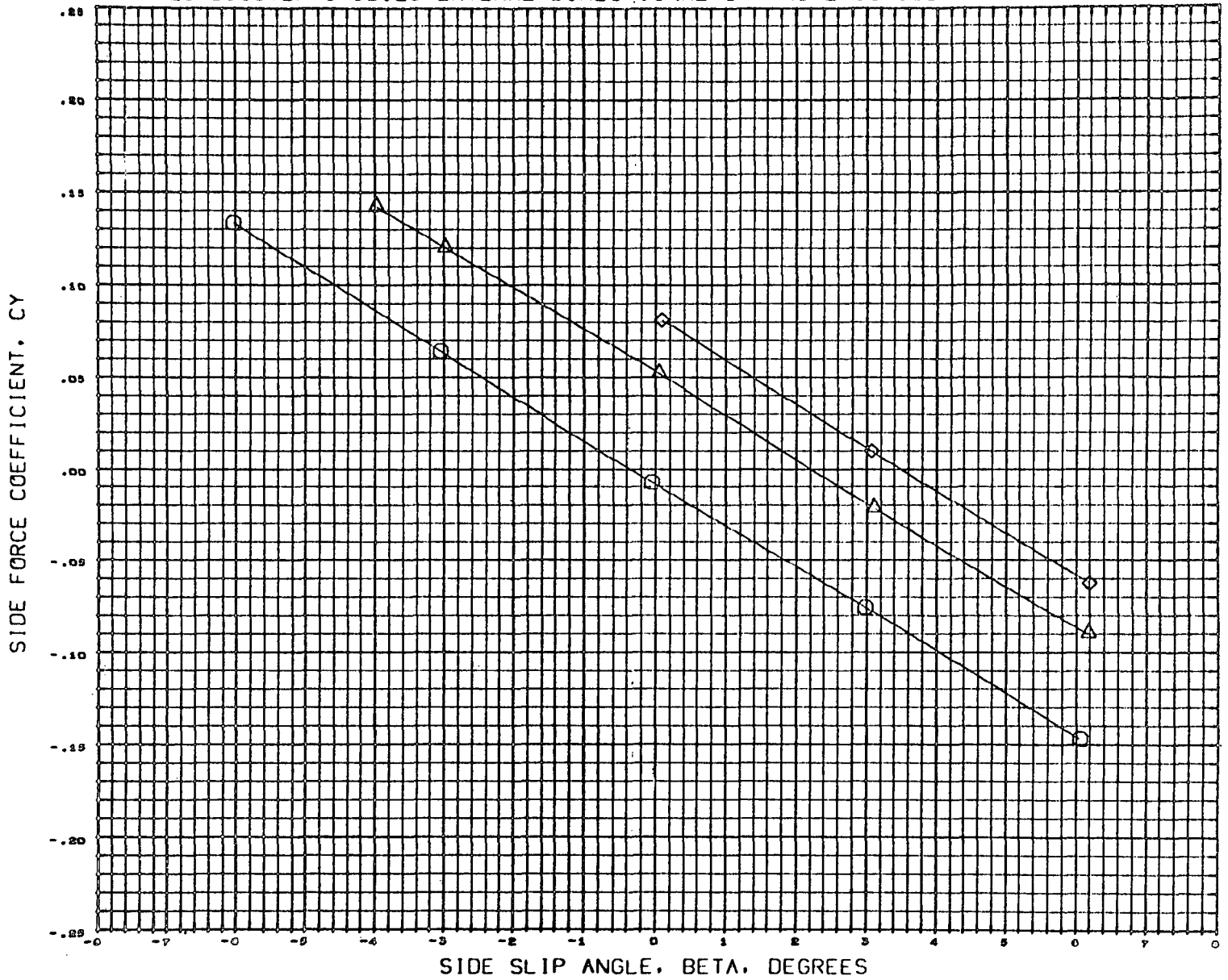


MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(IN3004)	NSRDC-3210,M3FC/LM3C BOOSTER B1C2F2W1V1	0.016	0.000	0.000	0.000	SREF 1.3950 SQ.FT.
(DN3005)	NSRDC-3210,M3FC/LM3C BOOSTER B1C2F2W1V1	6.147	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3006)	NSRDC-3210,M3FC/LM3C BOOSTER B1C2F2W1V1	15.473	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

BETA 0.000

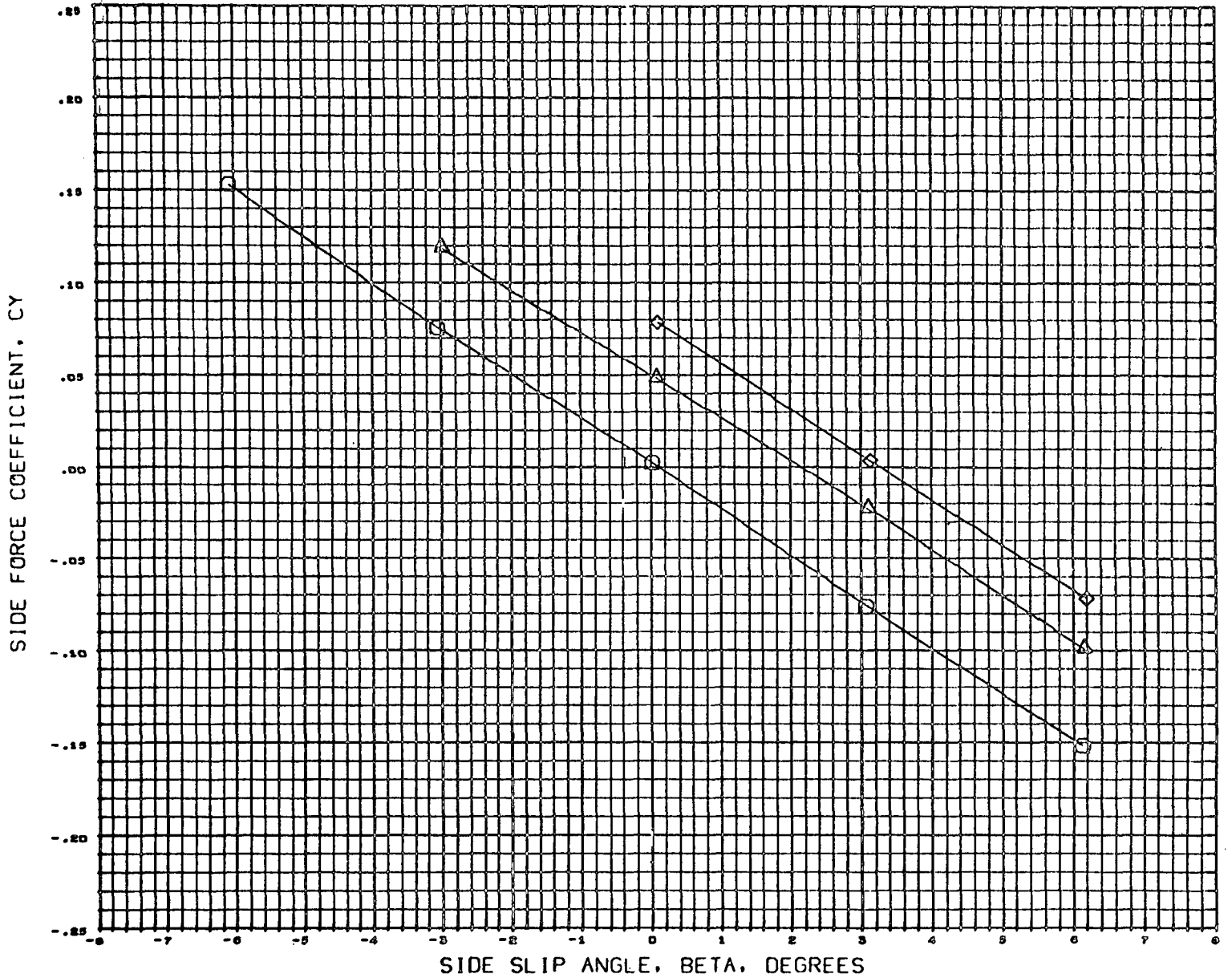
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	8REF 1.3550 SQ.FT.
(RN3036)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3042)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	8REF 3.4630 FEET
						XMRP 2.3080 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0180 SCALE

MACH 0.009

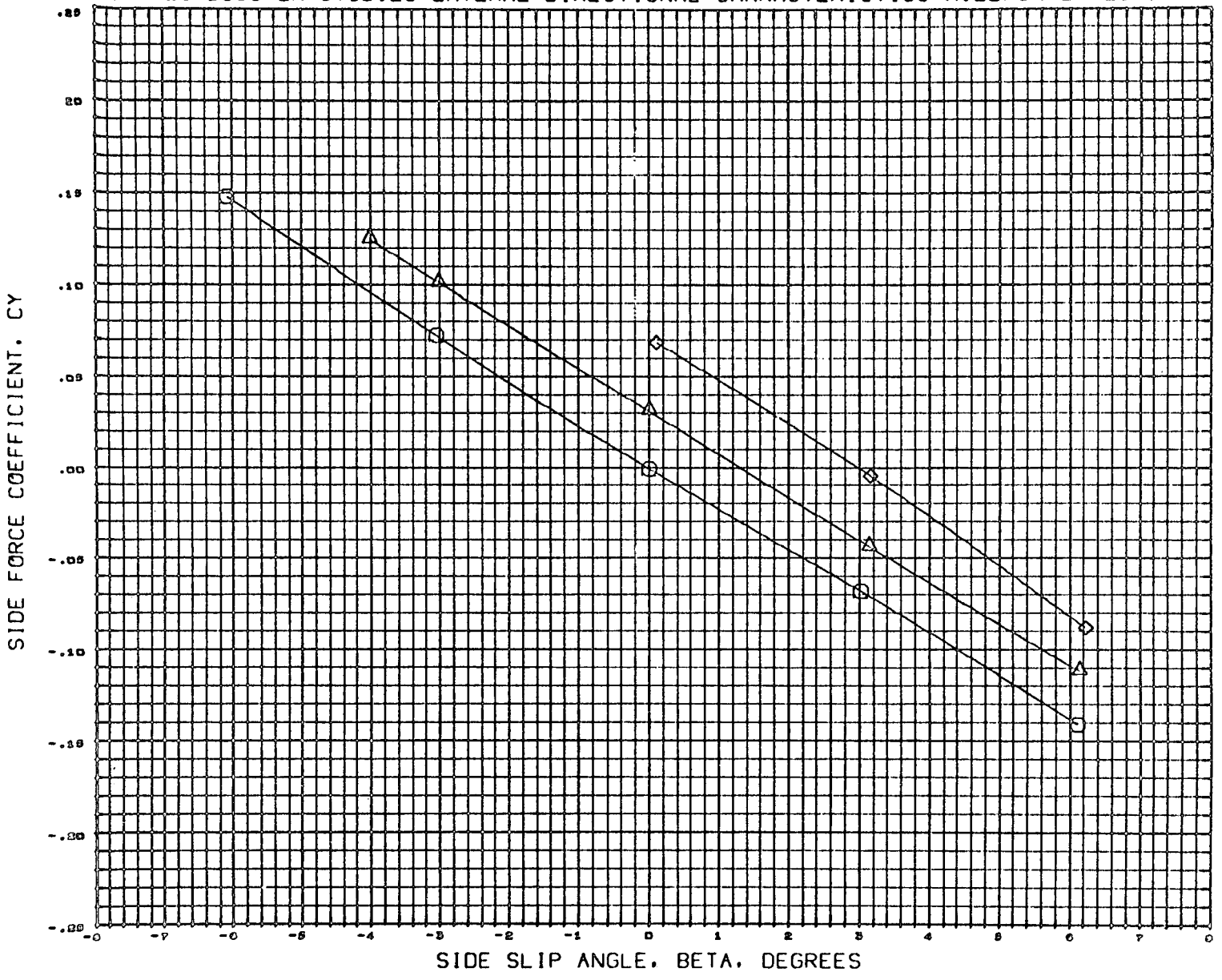
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3036)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 2.4930 FEET
(RN3042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4930 FEET
						XMRP 8.5000 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.800

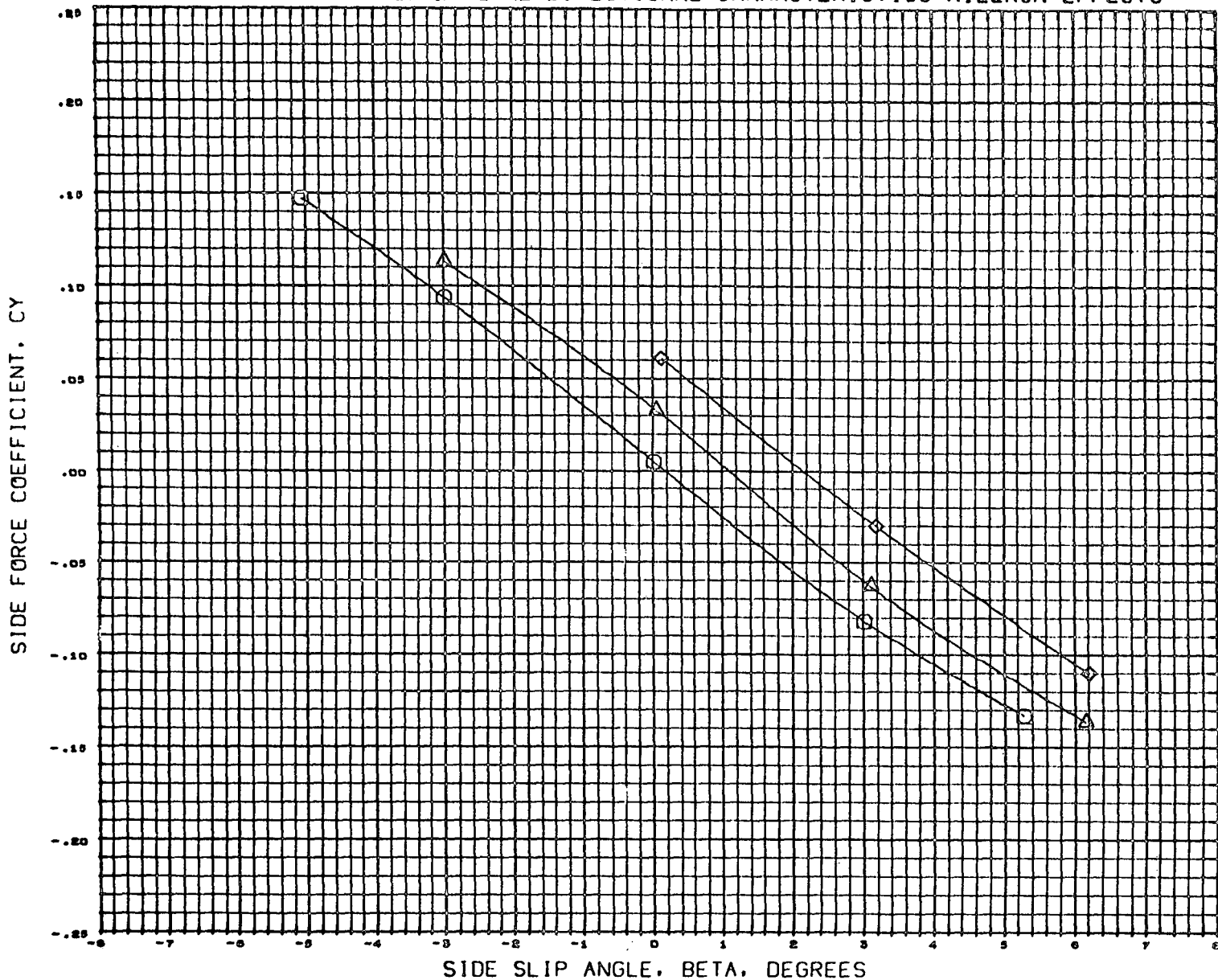
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3950 CG.FT.
(RN3036)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4930 FEET
(RN3042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4930 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.900

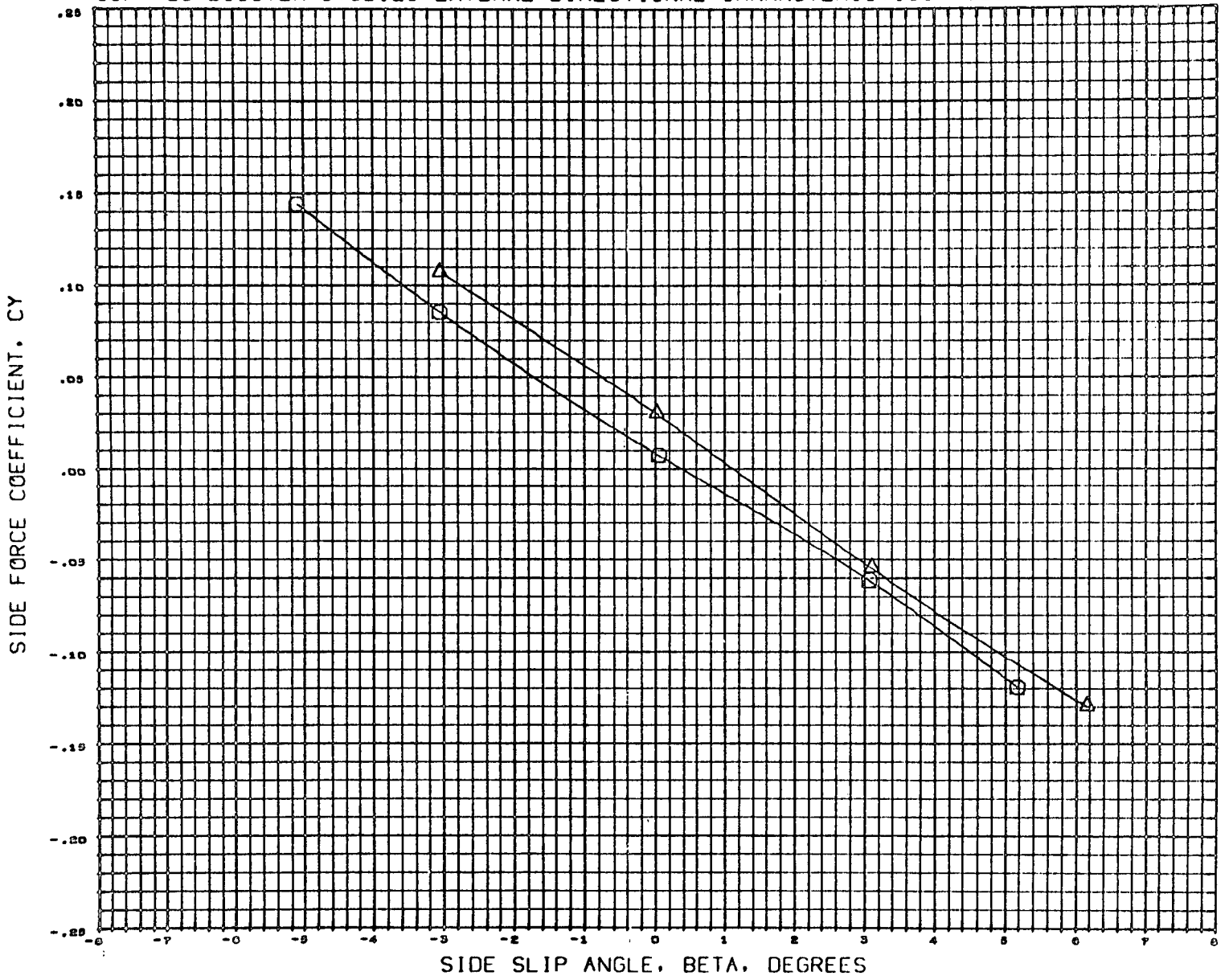
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4930 FEET
(RNS042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4830 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0100 SCALE

MACH 1.001

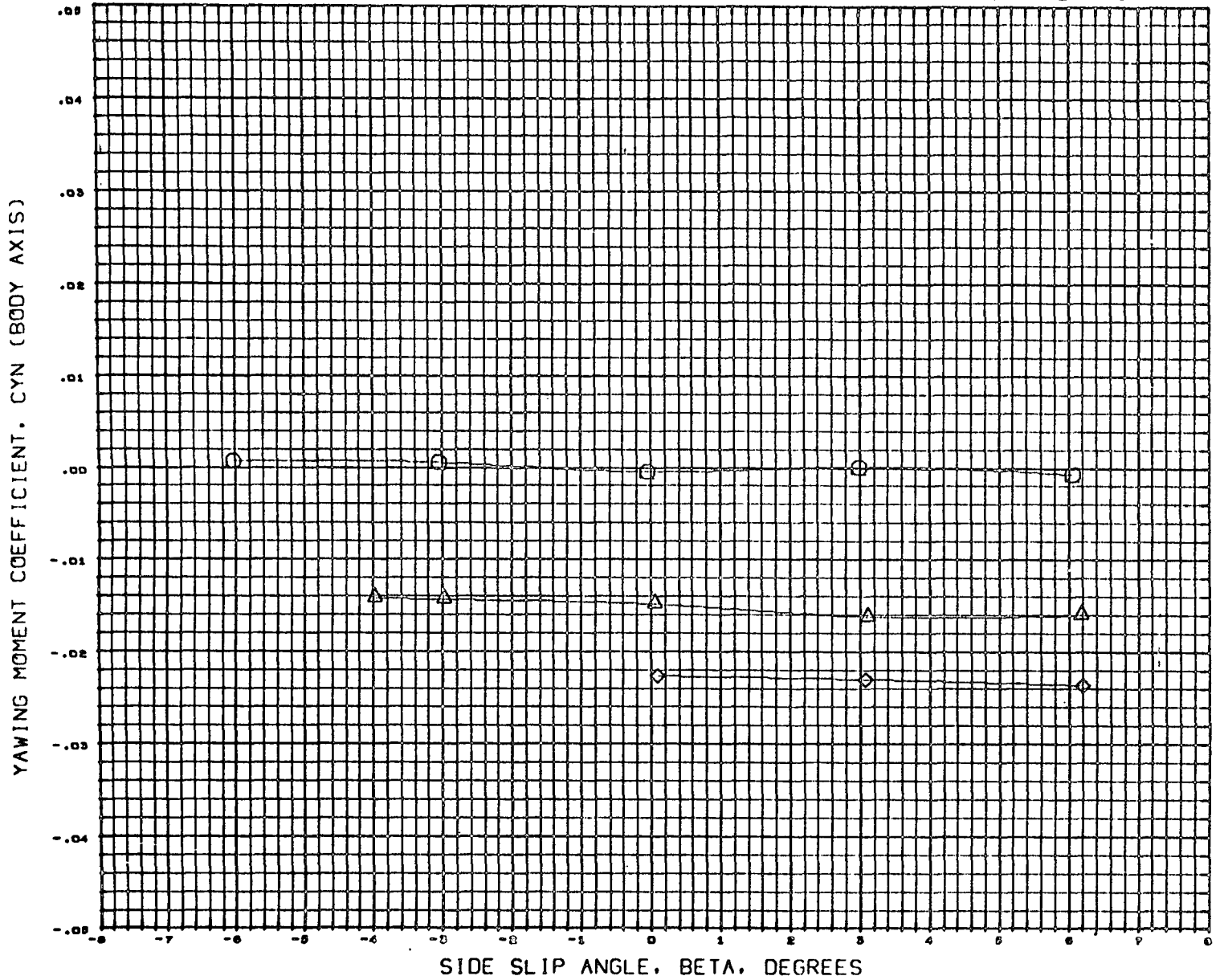
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3950 80.FT.
(RN3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4330 FEET
(RN3042)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.122	0.000	20.000	0.000	BREF 3.4930 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 DSCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

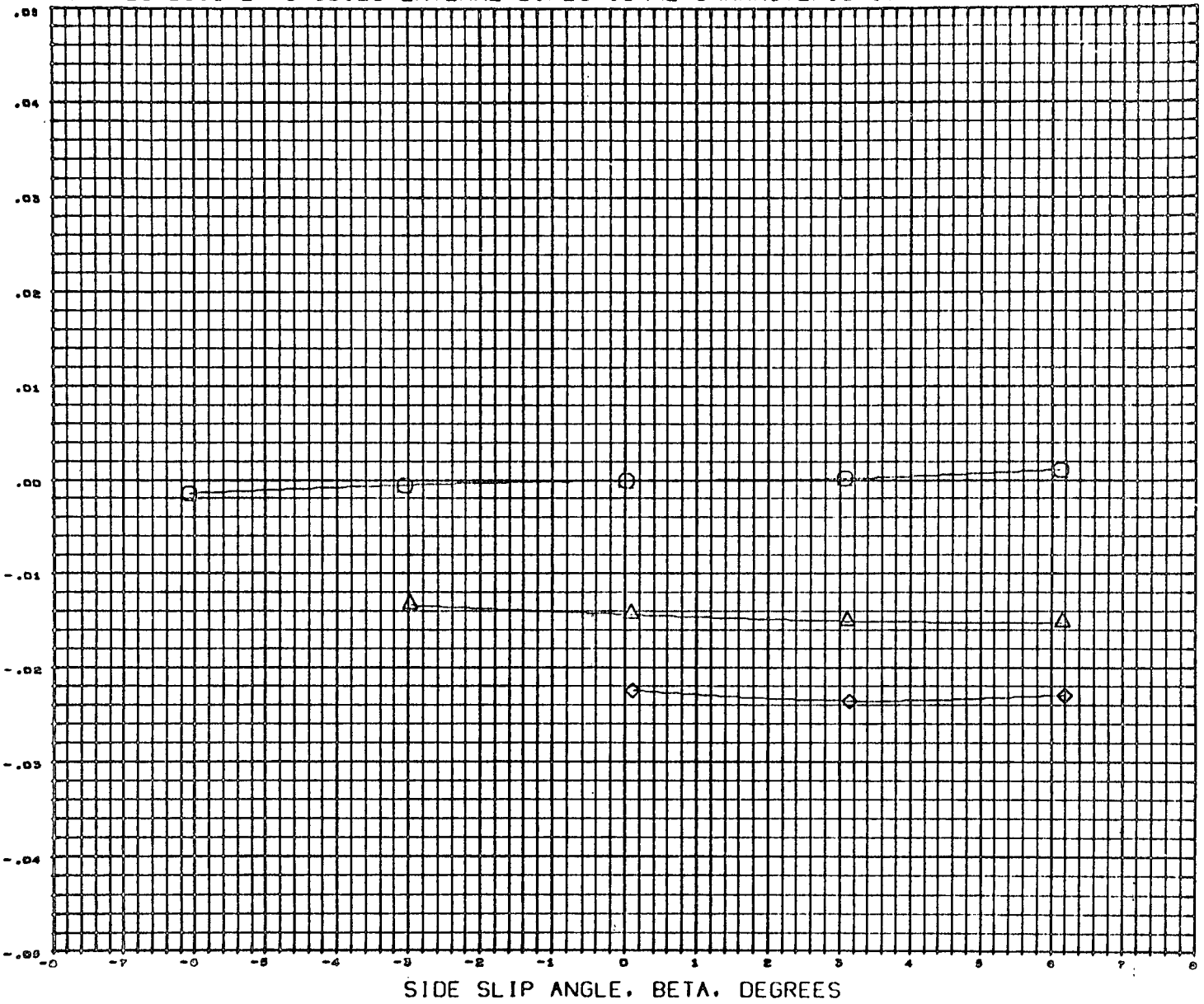


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	BREF 1.9550 00.FT.
(RN3038)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.9080 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION		
(RM3002)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3990	00.FT.
(RM3030)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530	FEET
(RM3042)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4530	FEET
							XMRP	2.5050	FEET
							YMRP	0.0000	FEET
							ZMRP	0.0107	FEET
							SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



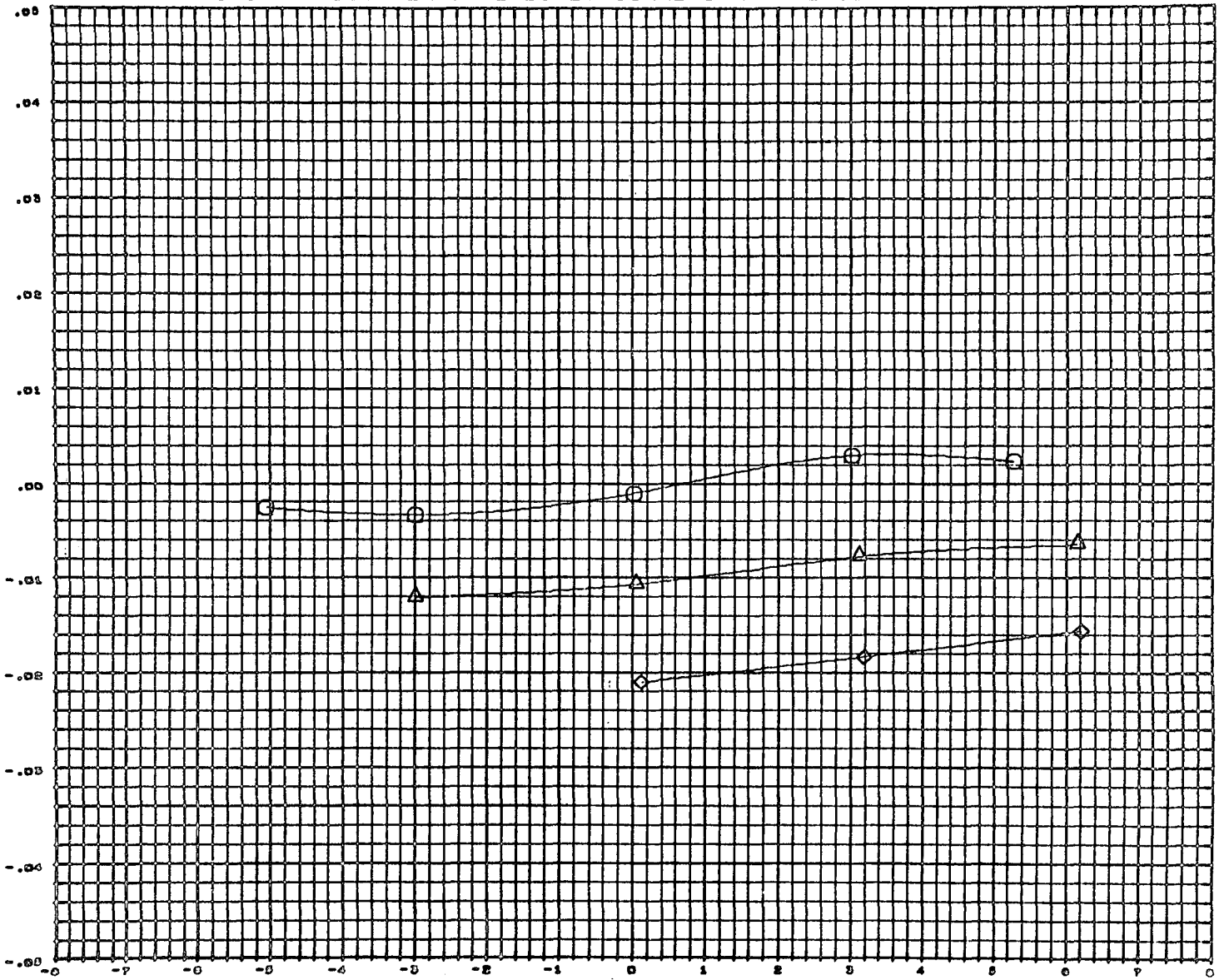
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS002)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 DEG.PT.
(RNS036)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4550 FEET
(RNS042)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4550 FEET
							XMRP 2.9050 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0167 FEET
							SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



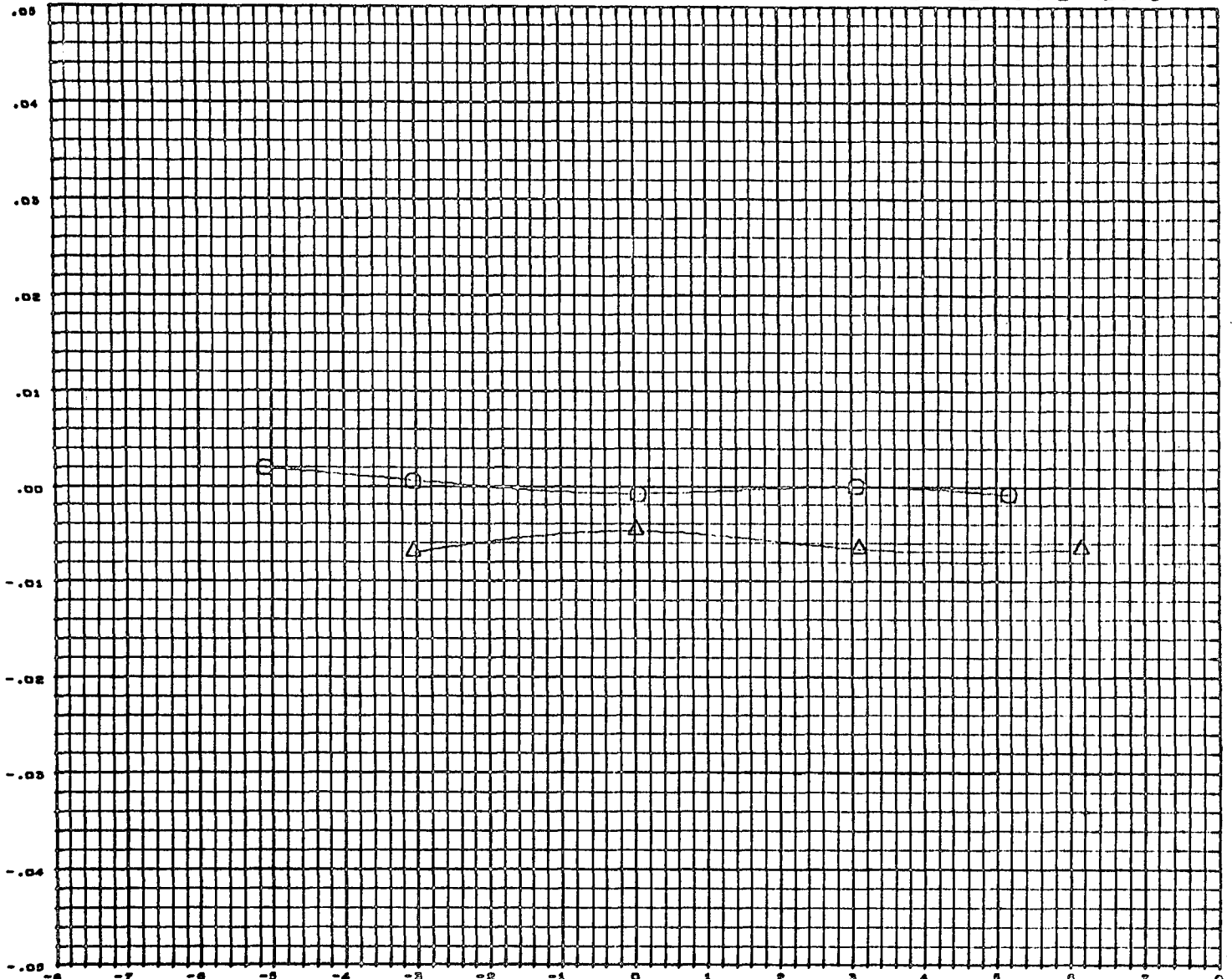
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS002)	○	NORDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 00.FT.
(RNS030)	△	NORDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 0.4530 FEET
(RNS048)	◇	NORDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	SREF 0.4630 FEET XMRP 0.3090 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0390 SCALE

MACH 5.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

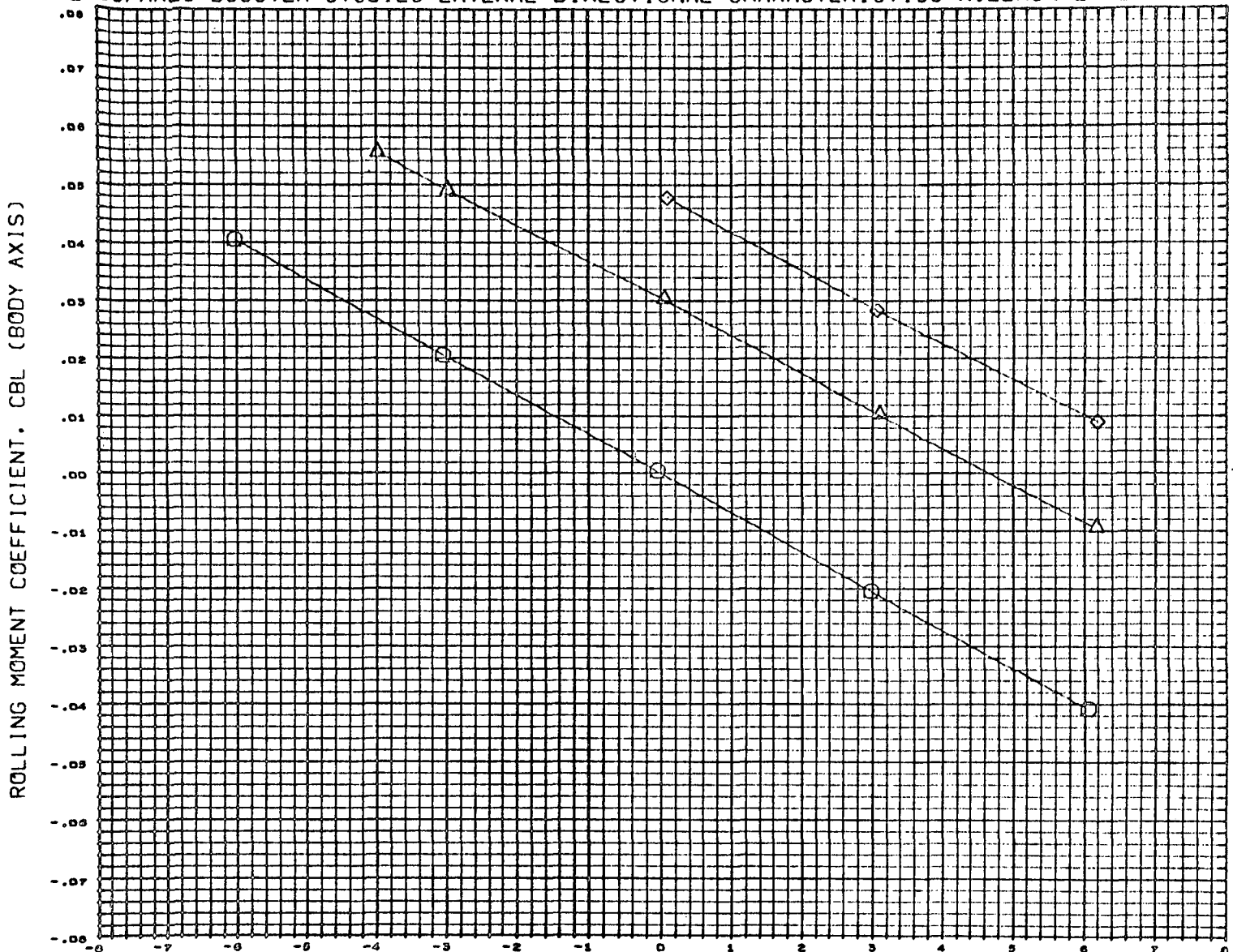


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 CO. FT.
(RN3036)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4930 FEET
(RN3042)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.122	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 3.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

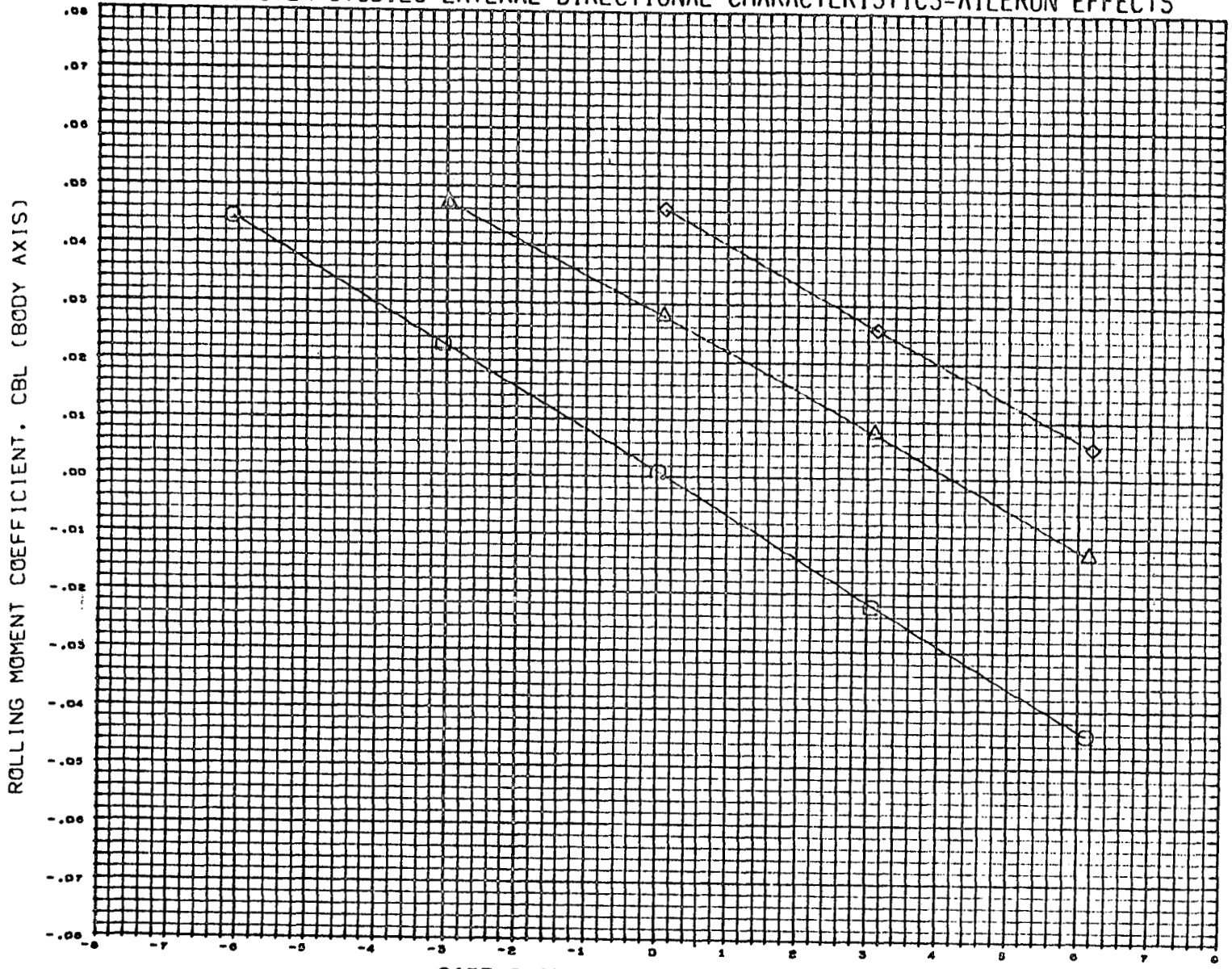


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3030)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3042)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.609

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

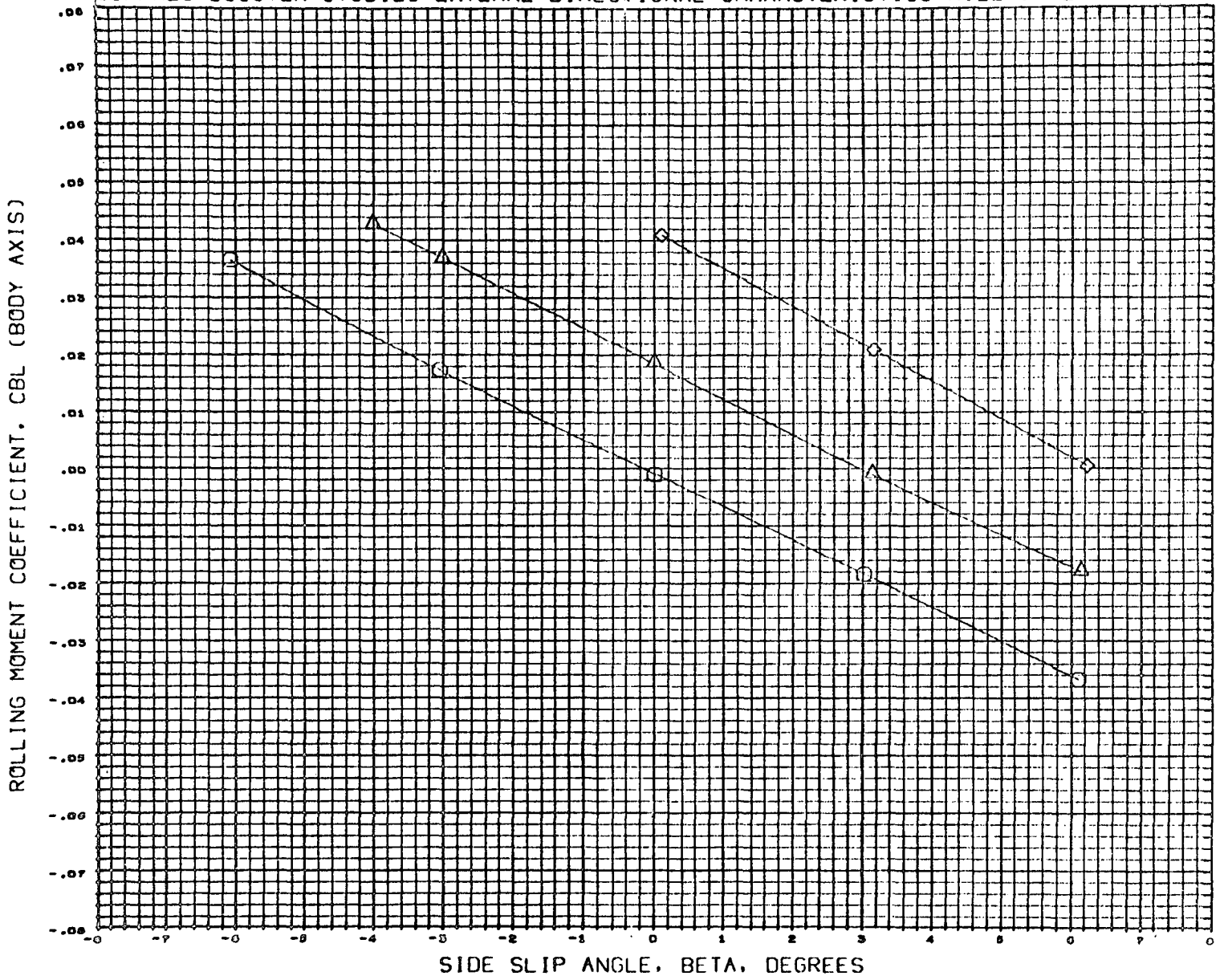


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3038)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3042)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	DREF	3.4530 FEET
							XMRP	2.3950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

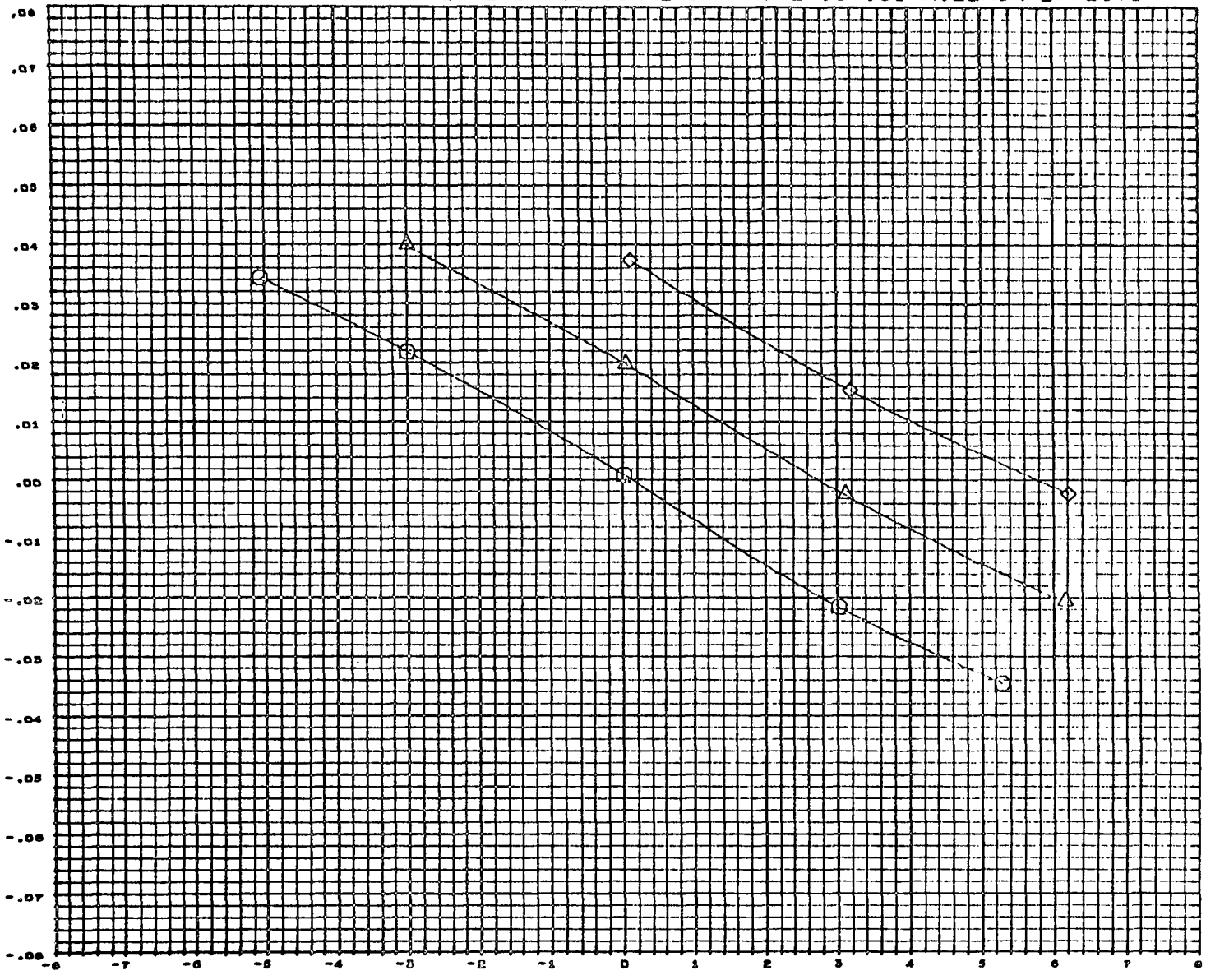


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS002)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RNS030)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS042)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

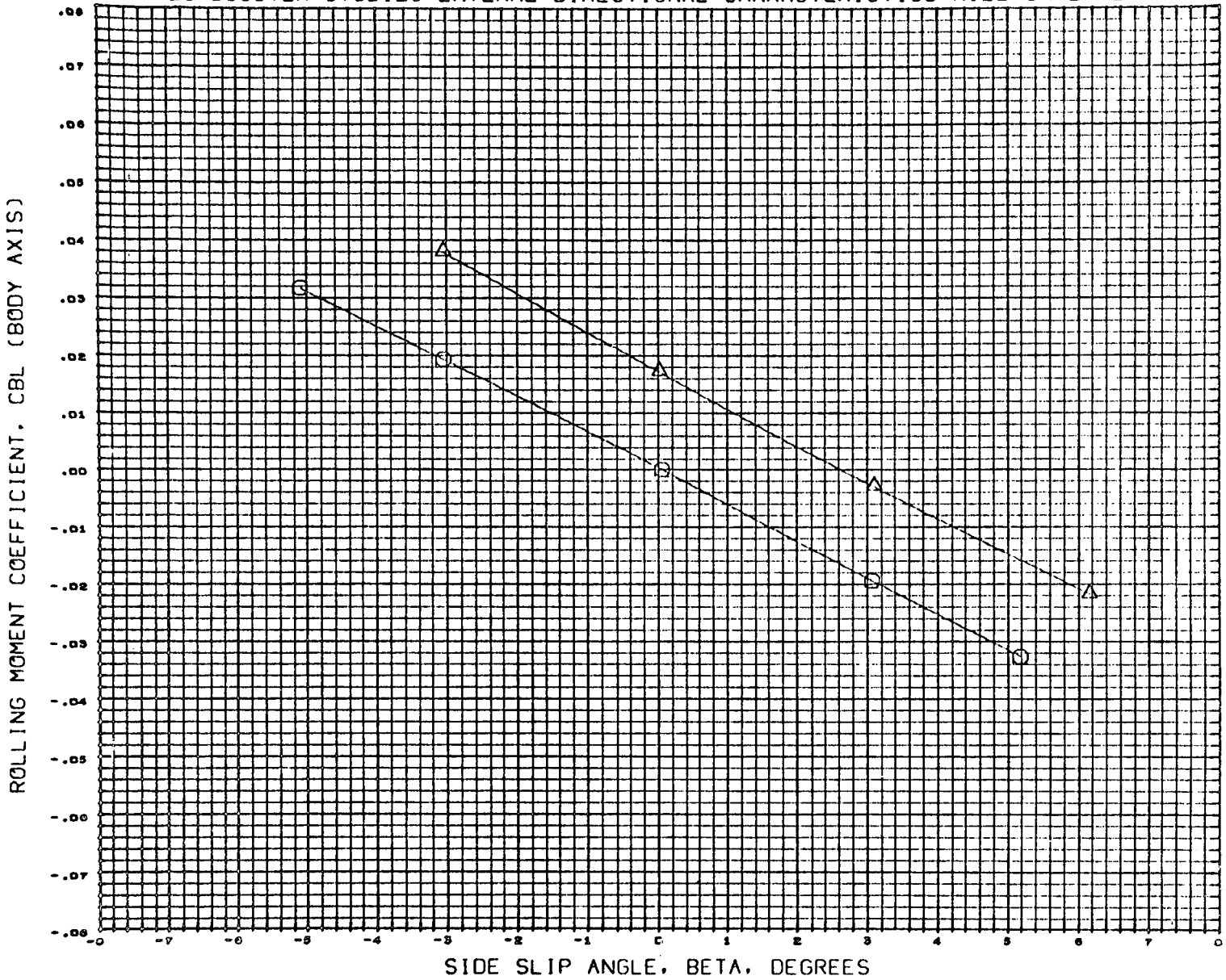


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 90.FT.
(RNS036)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF 3.4530 FEET XMRP 2.9990 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.001

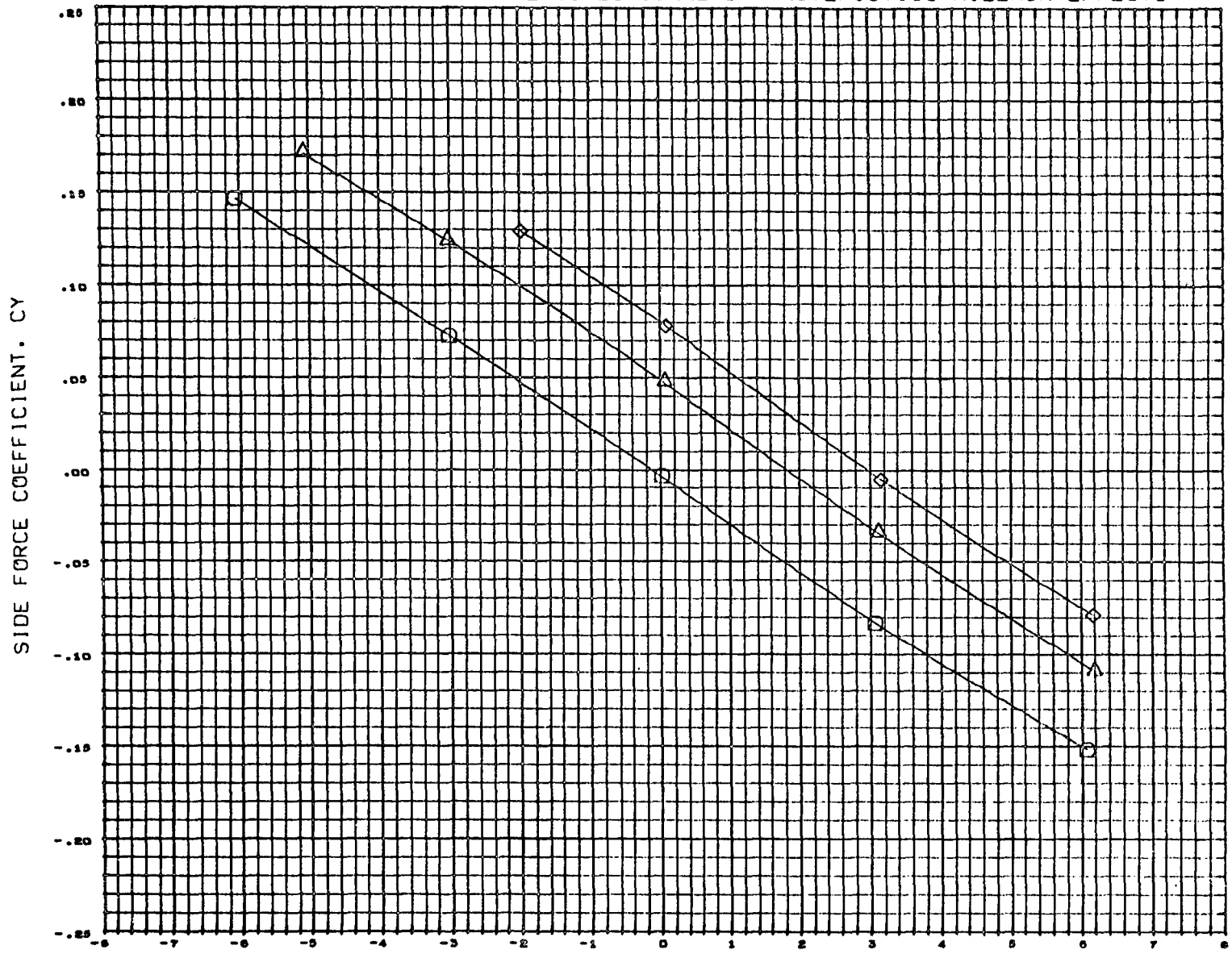
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3002)	○ NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3030)	△ NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3042)	◇ DATA NOT AVAILABLE FOR ALL CONDITIONS	0.122	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.122

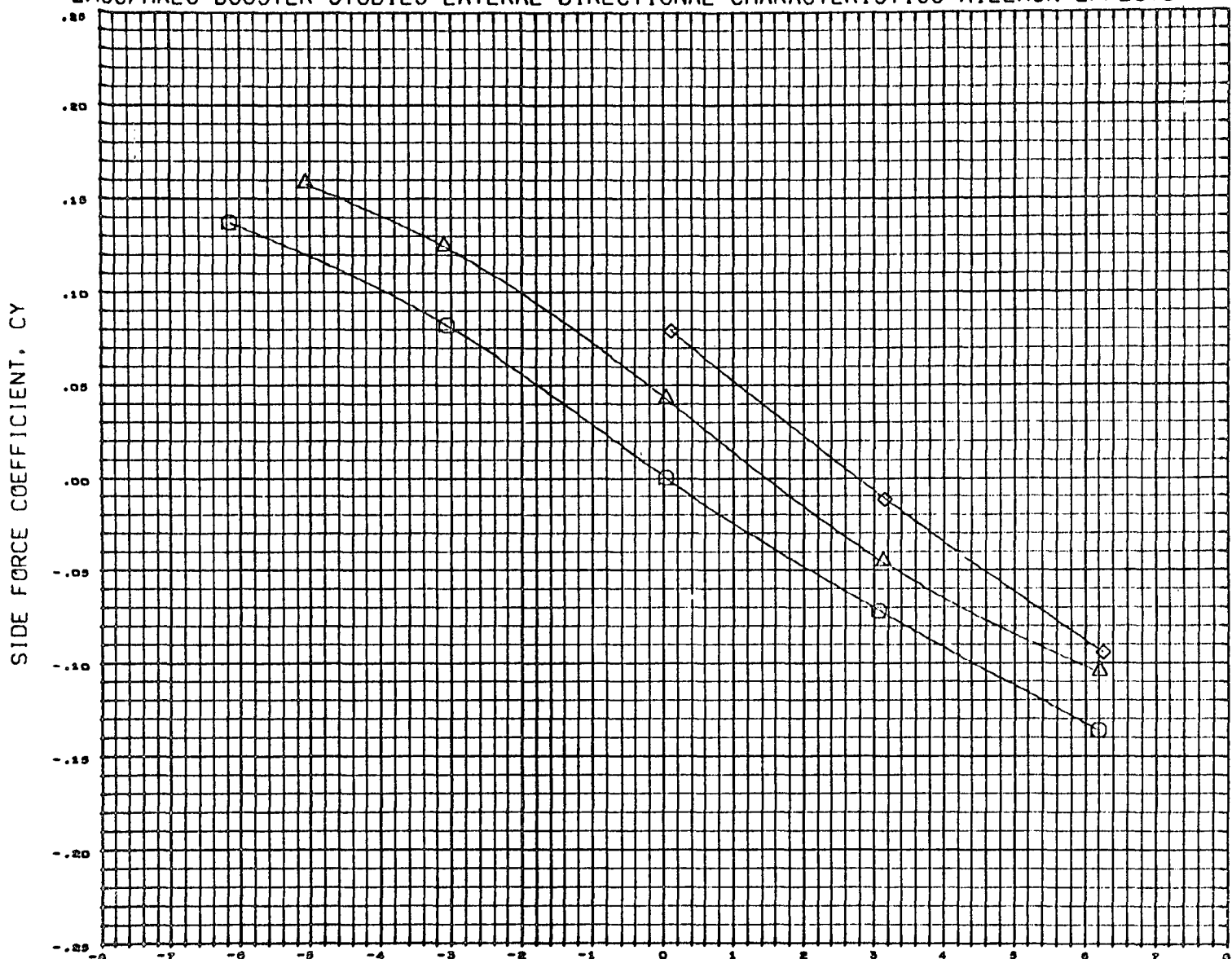
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS






DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3039)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.700

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

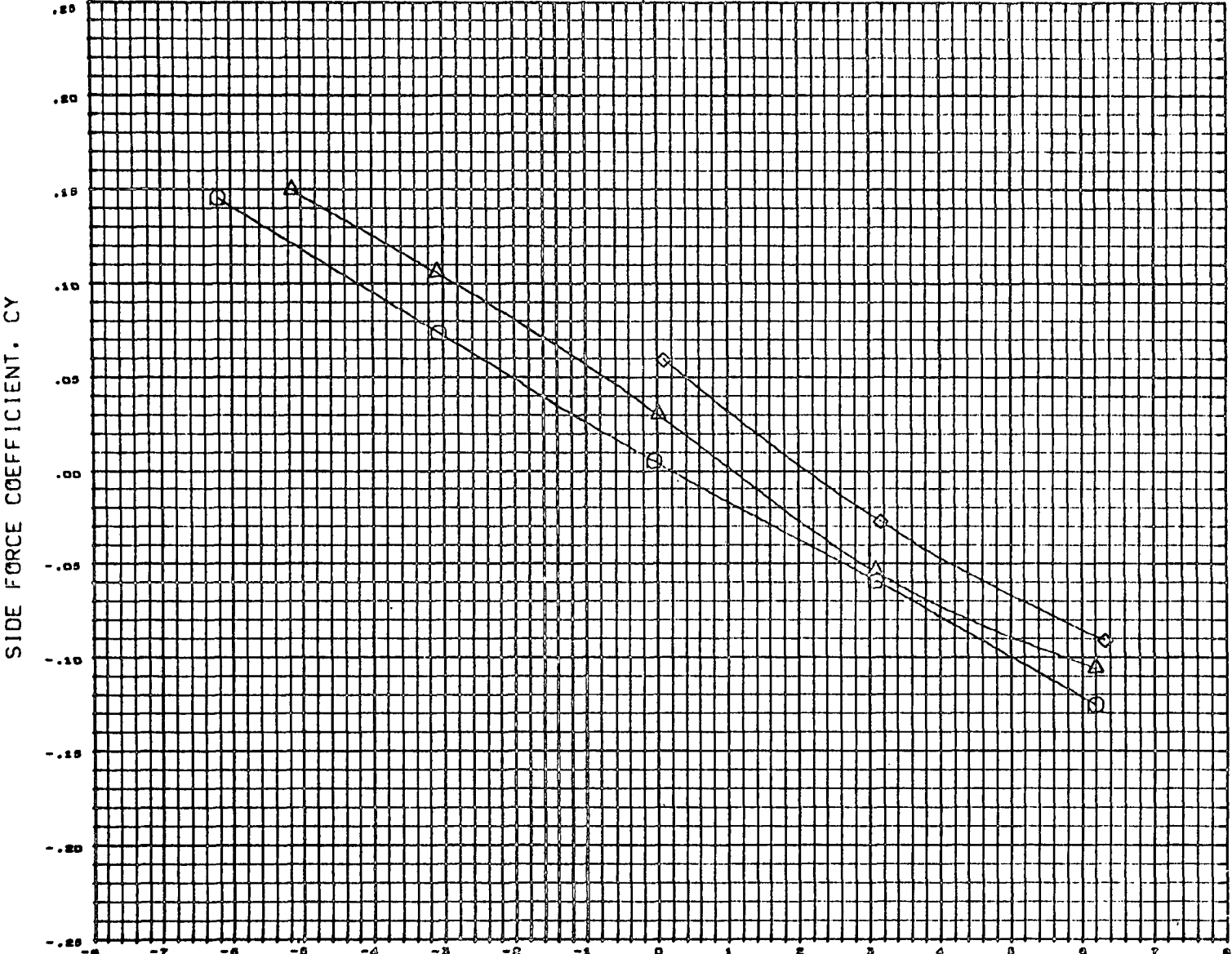


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS003) 	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RNS030) 	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.107	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS049) 	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	SREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 0.800

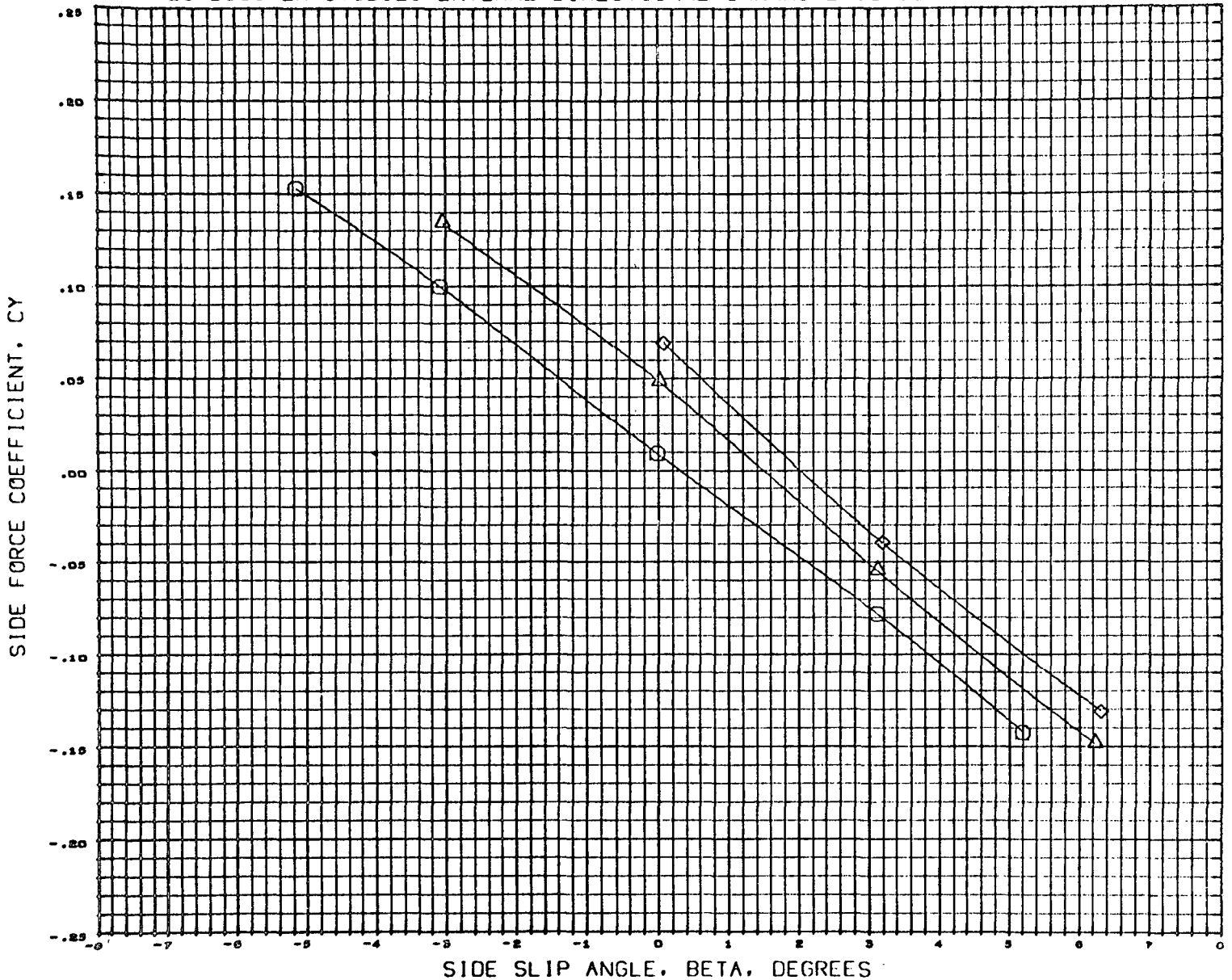
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003)	○	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	BREF 1.3550 DD.FT.
(RN3039)	△	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF 3.4550 FEET
(RN3043)	◇	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4550 FEET
							XMRP 2.3950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0167 FEET
							SCALE 0.0150 SCALE

MACH 0.904

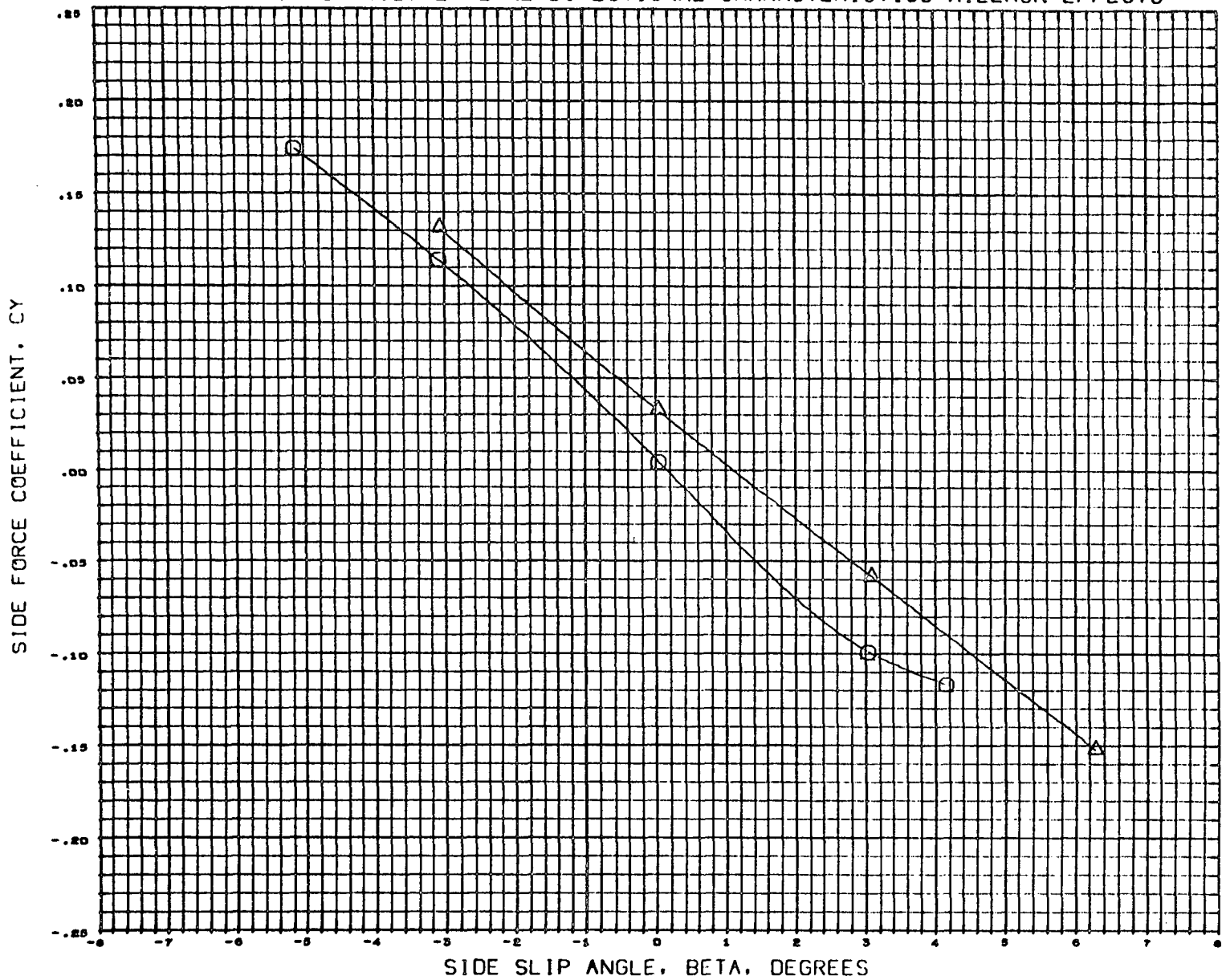
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

PACK 1.001

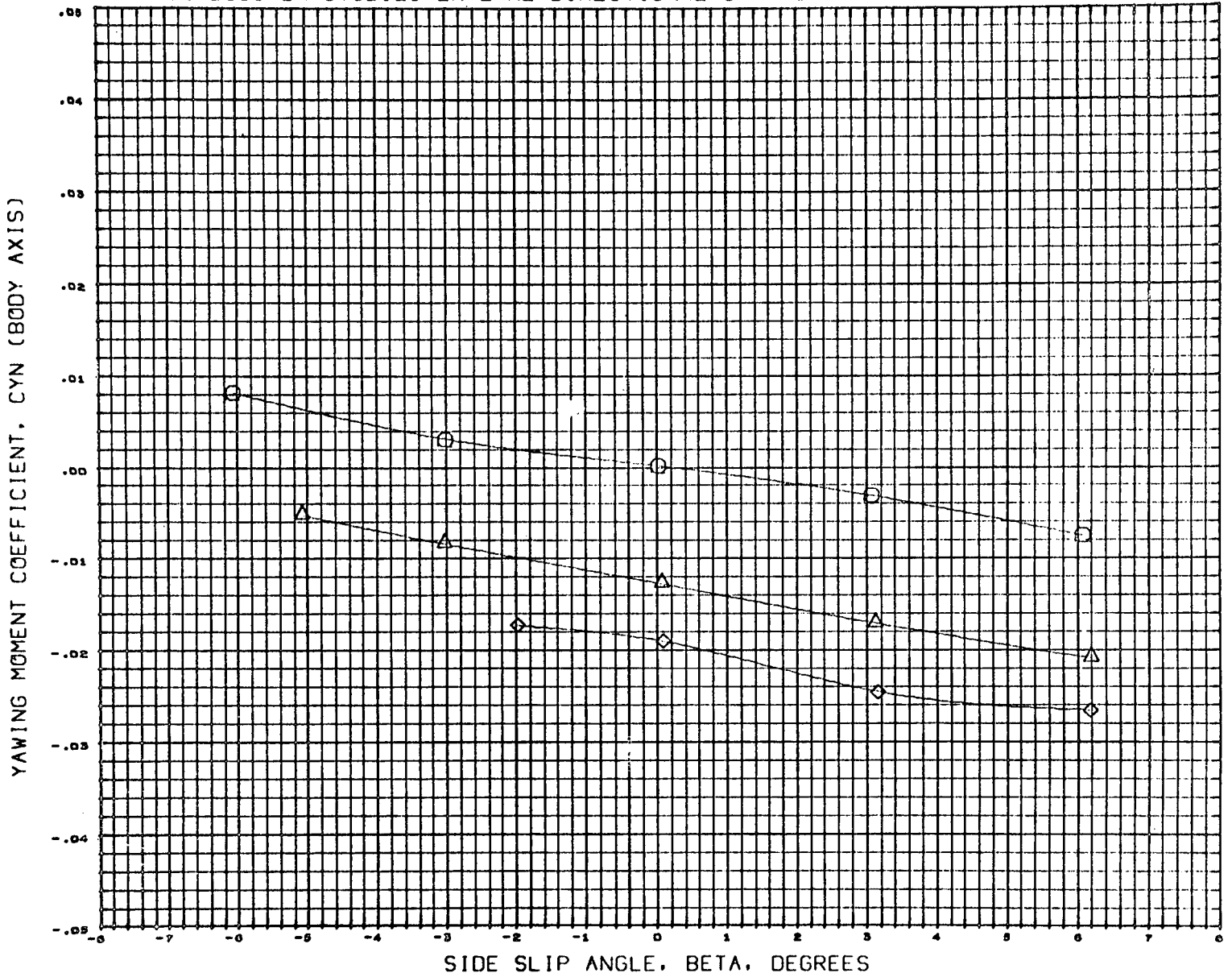
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	⊙ NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3039)	△ NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	◇ DATA NOT AVAILABLE FOR ALL CONDITIONS	6.214	0.000	20.000	0.000	BREF	3.4930 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

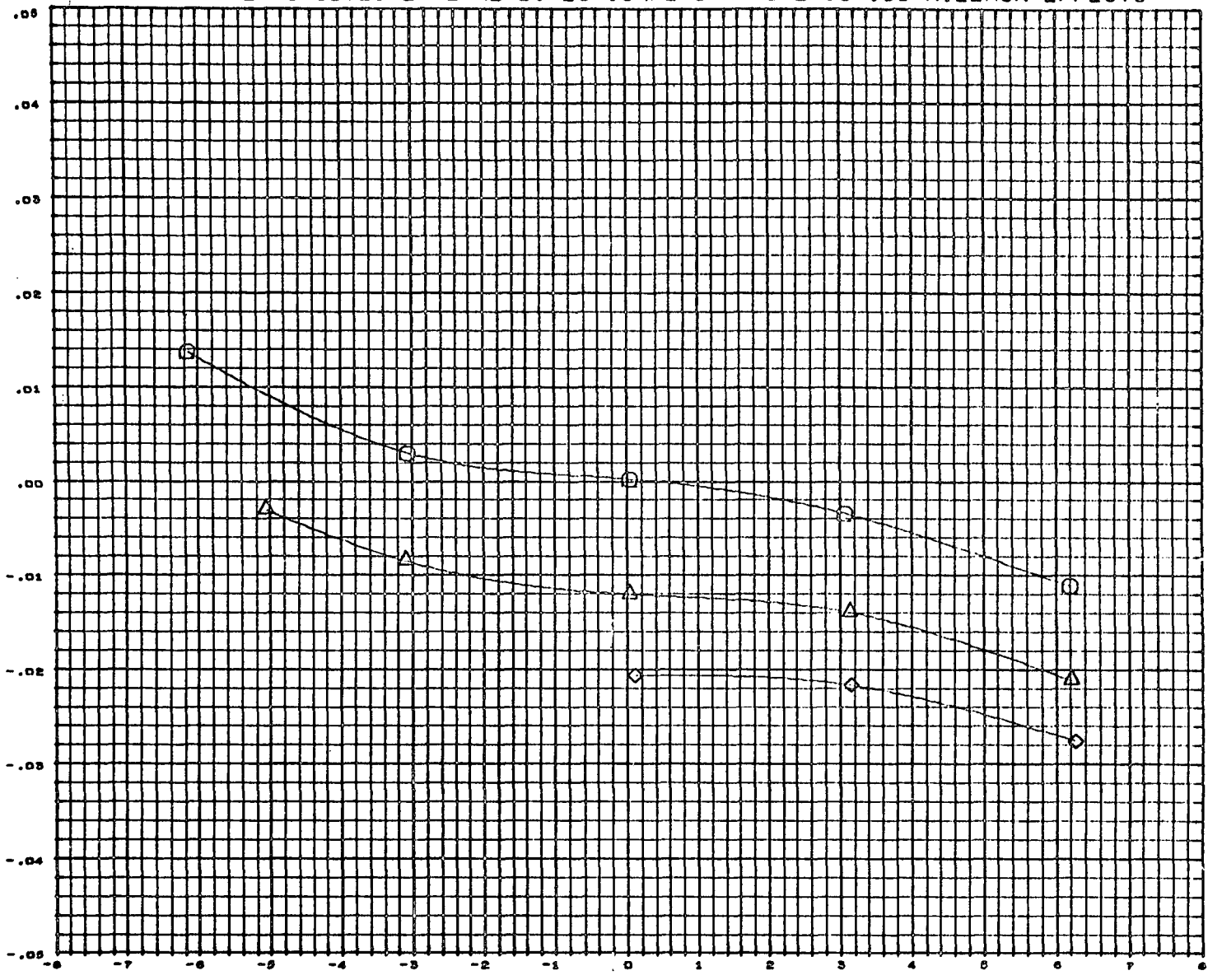


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3039)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF 3.4330 FEET
(RN3043)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4330 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0190 SCALE

MACH 0.700

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

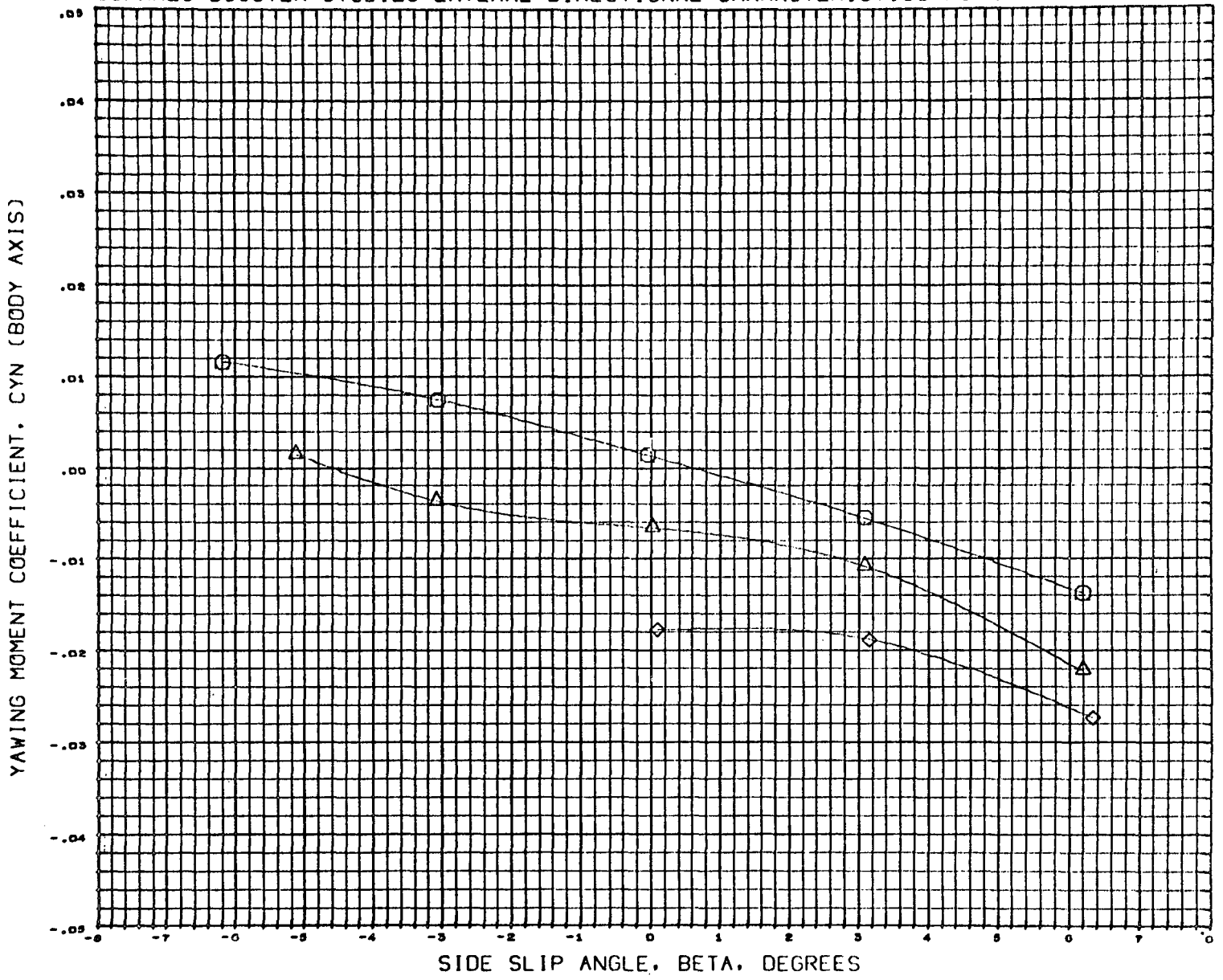


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003) ○	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	GREF 1.3550 SQ.FT.
(RN3039) △	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3043) ◇	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.9050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

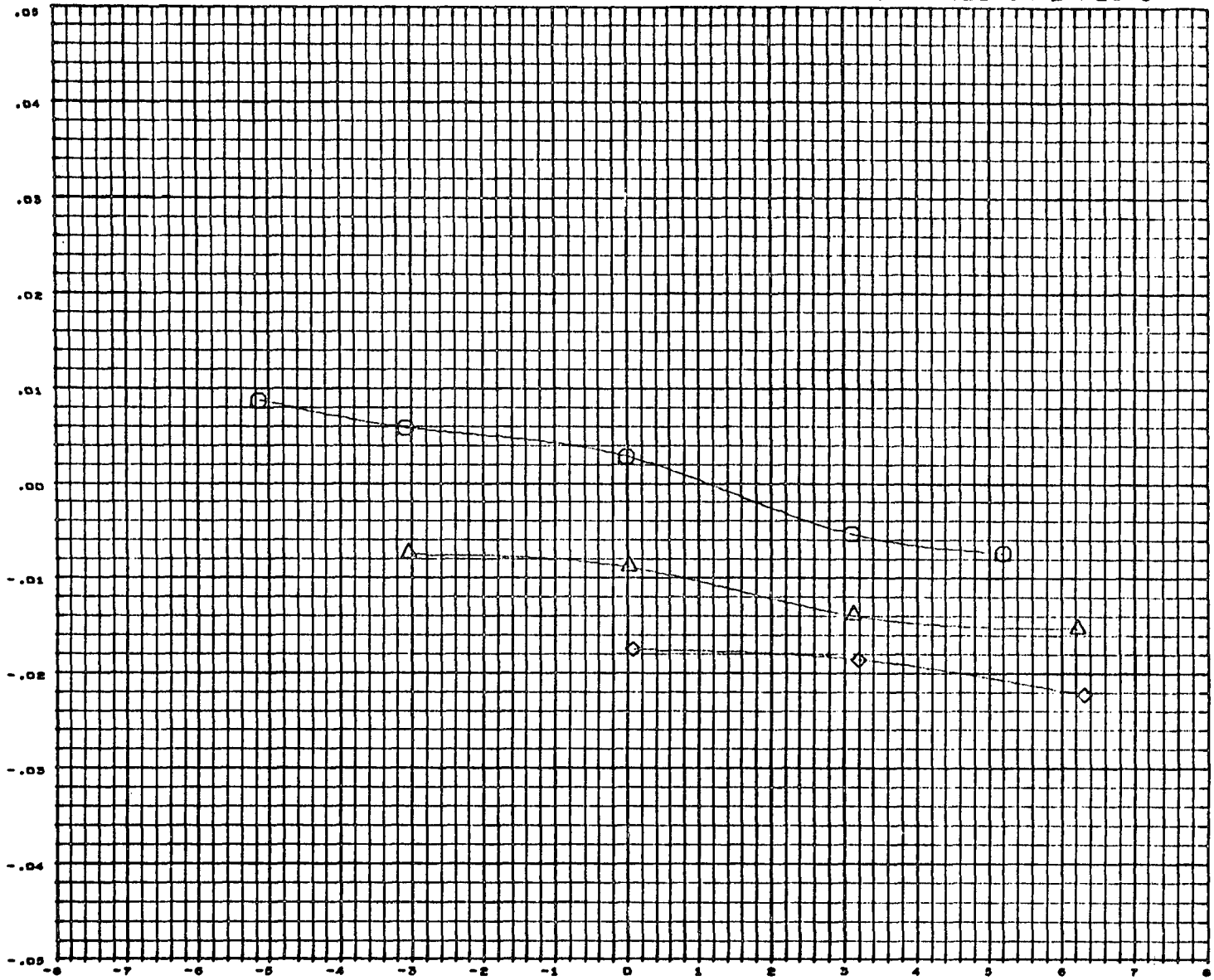


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4930 FEET
						XMRP 8.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

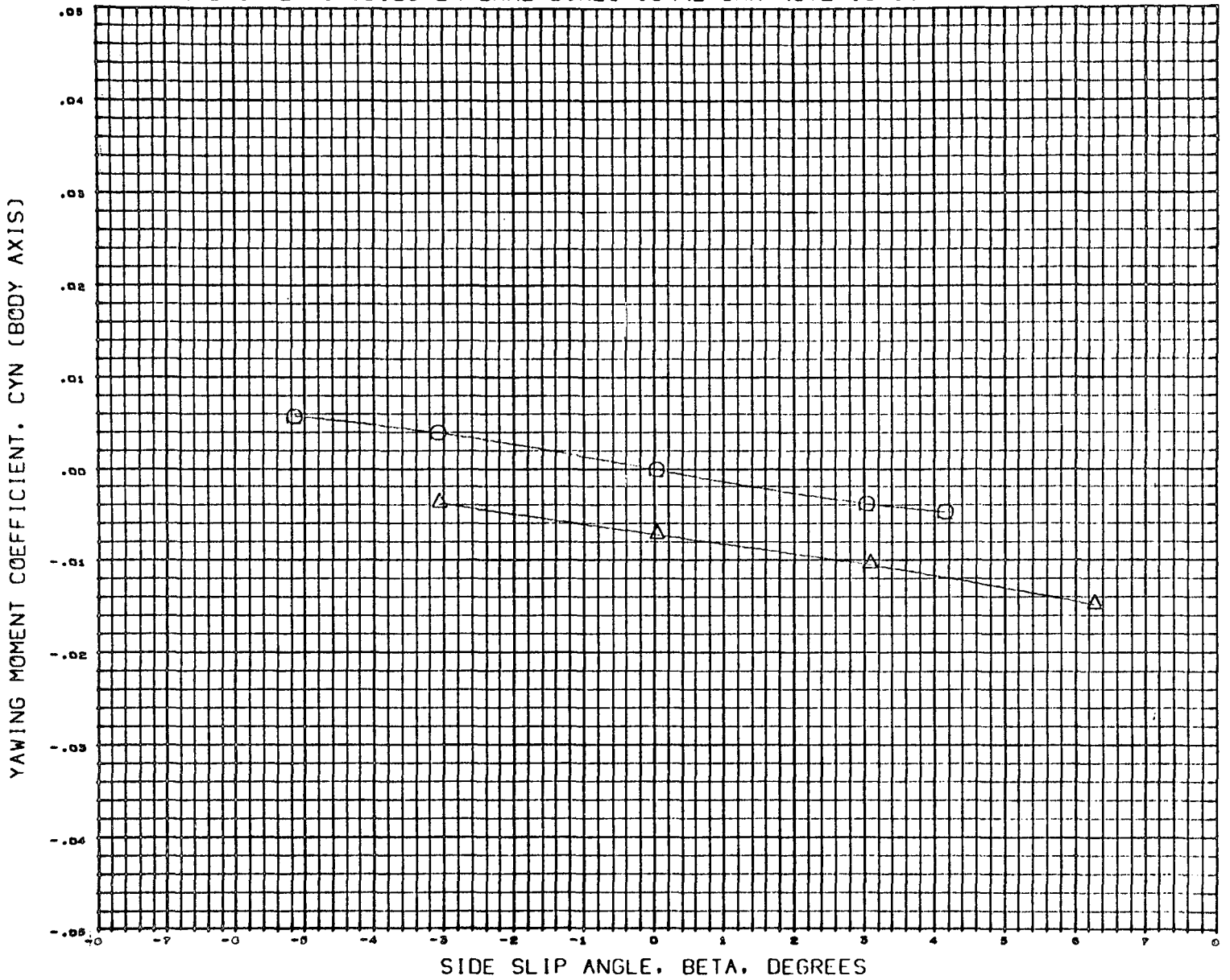


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3039)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3043)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 1.001

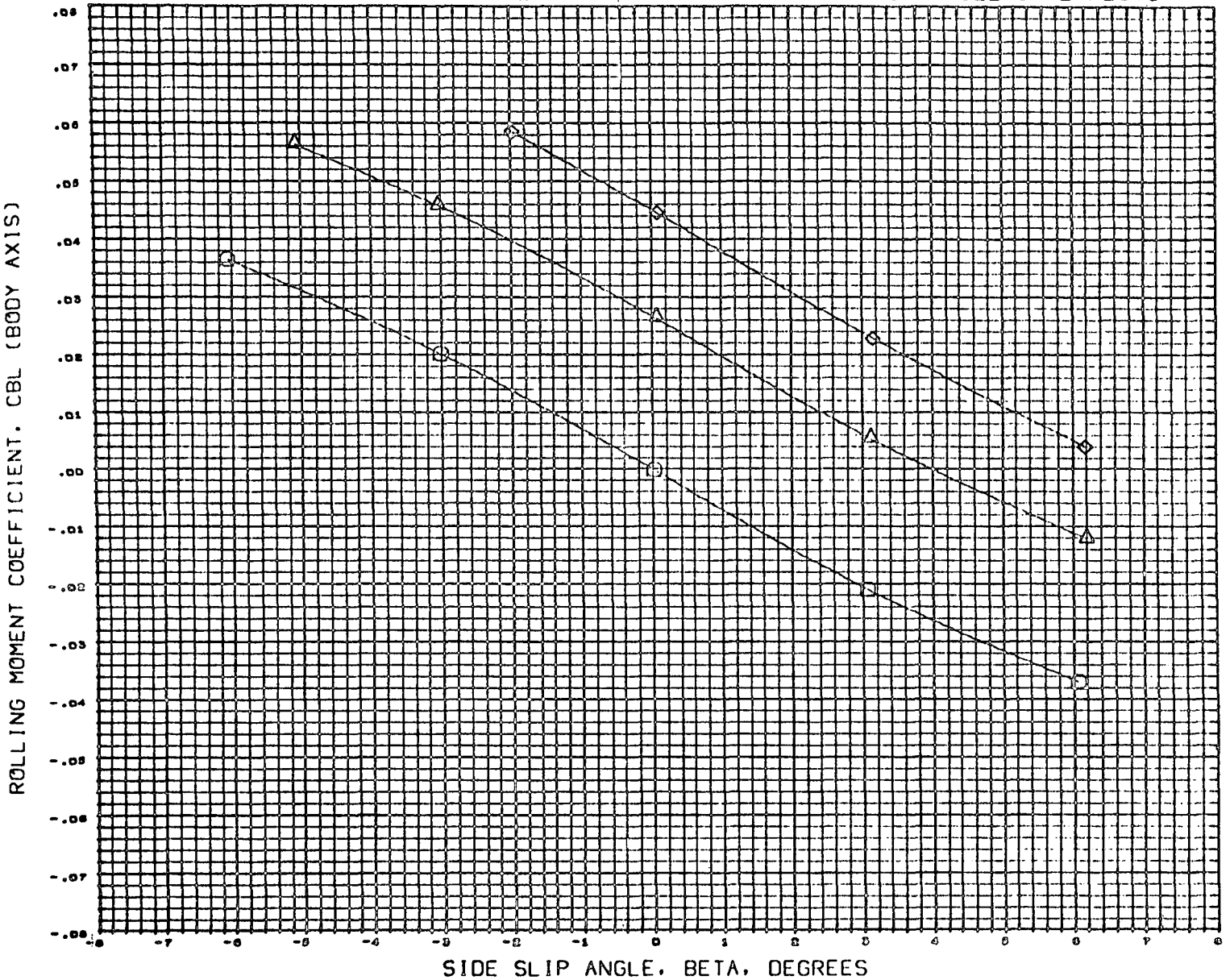
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003)	NSRDC-3210, MSPC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3950 30. FT.
(RN3030)	NSRDC-3210, MSPC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3043)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.214	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 8.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

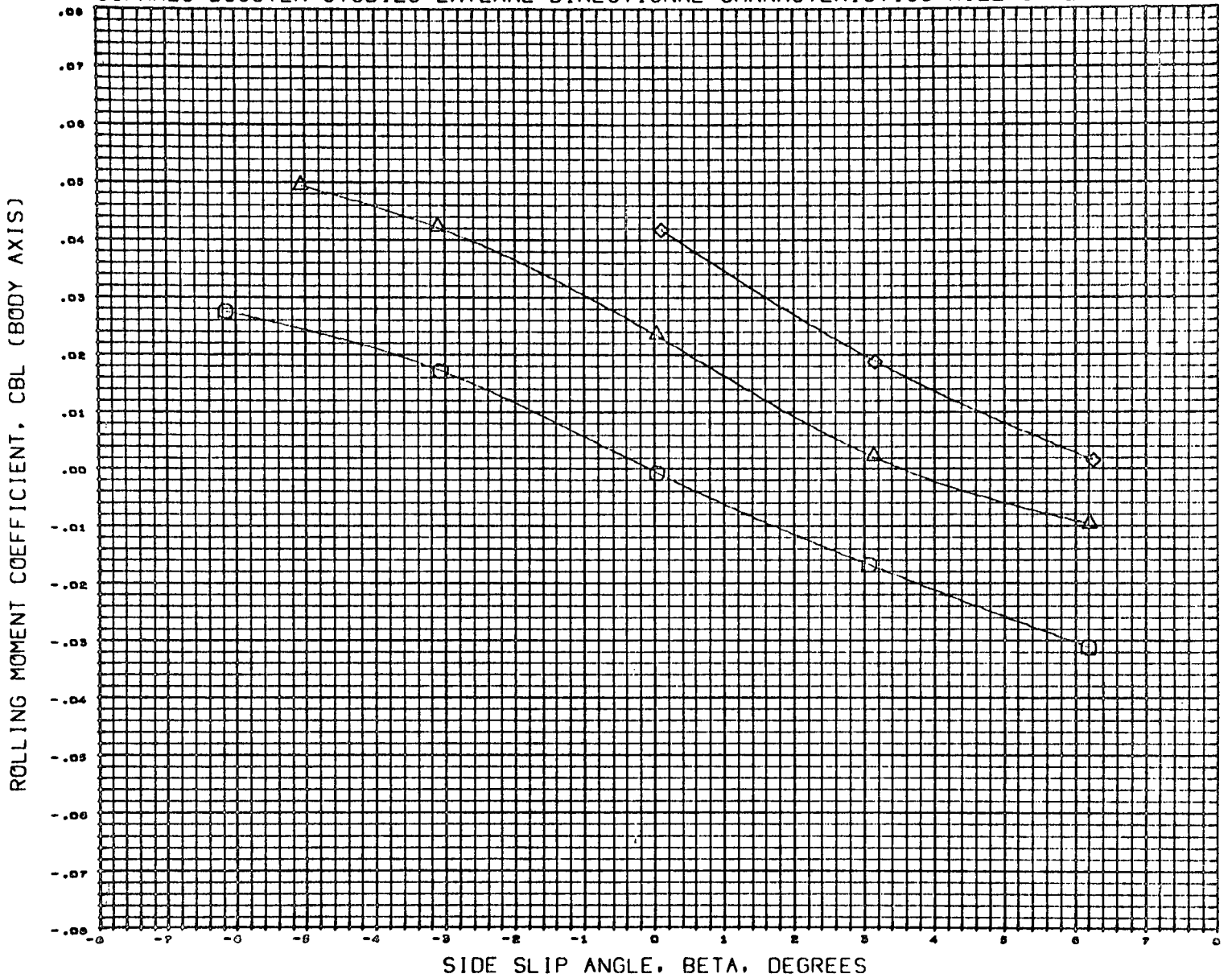


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V3	0.135	0.000	0.000	0.000	SREF 1.3950 SQ. FT.
(RN3039)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V3	0.167	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3043)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V3	0.214	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.9050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.700

7

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

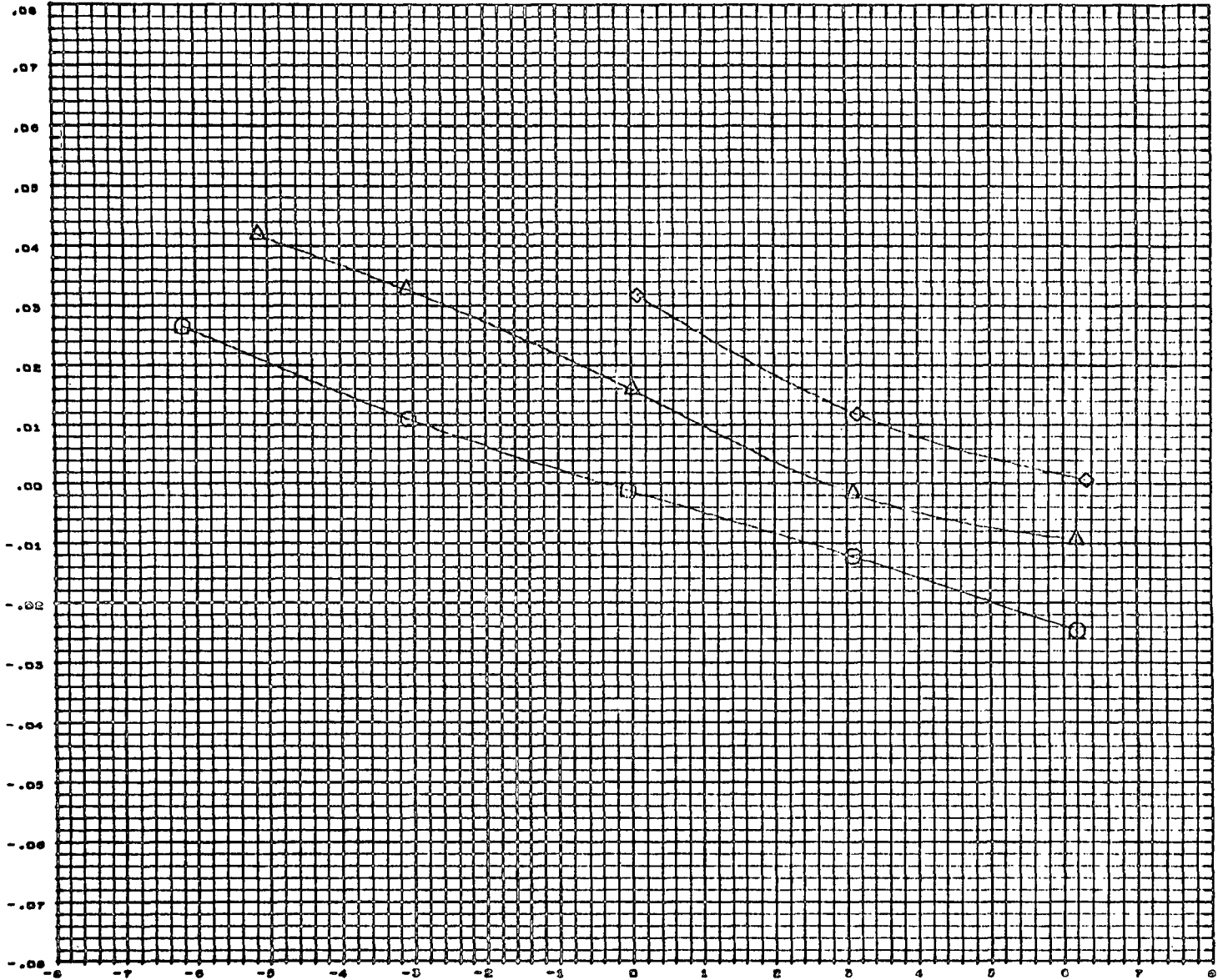


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	BREF 1.9550 DG.FT.
(RN3039)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

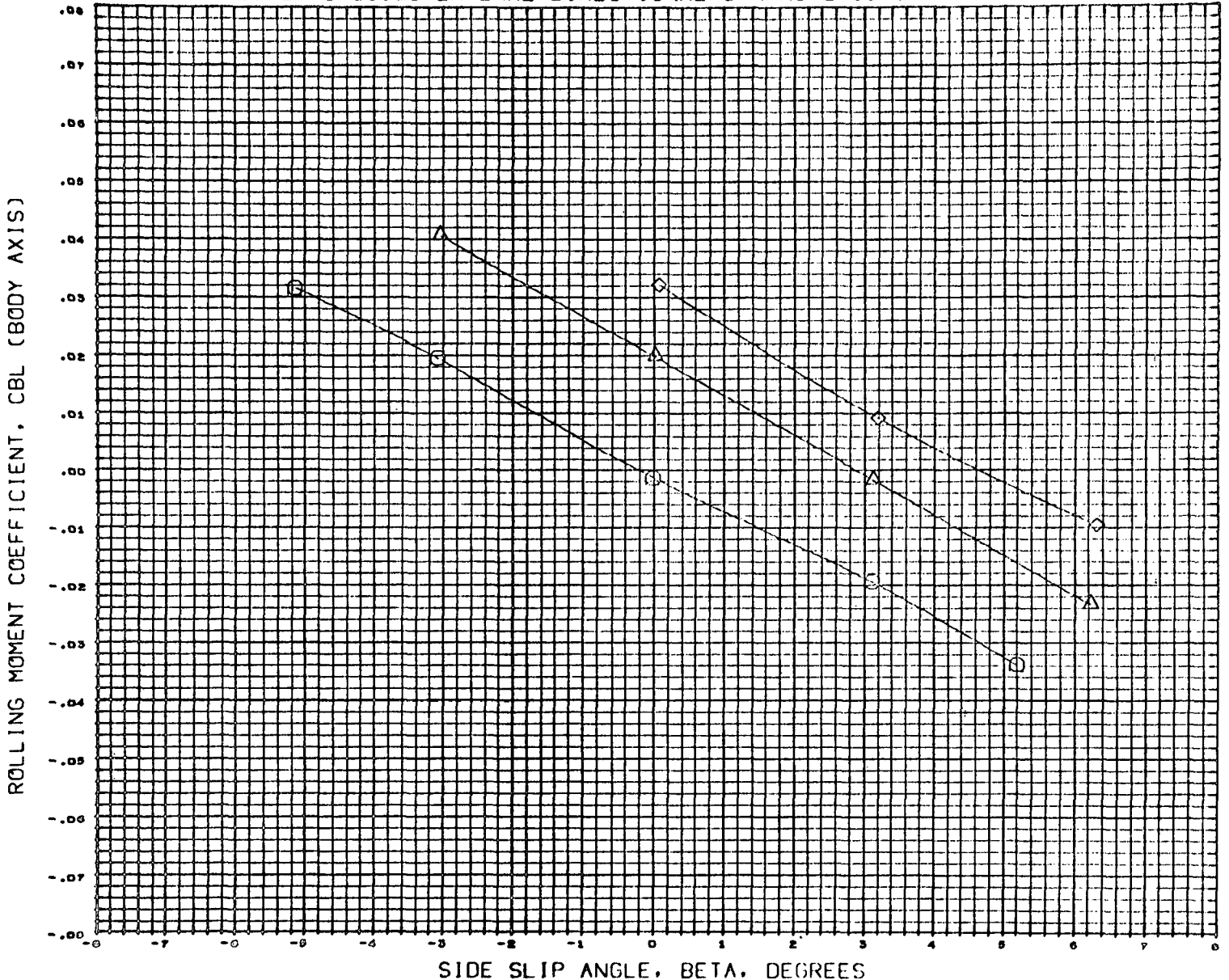


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2H1V1	6.139	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3039)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2H1V1	6.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2H1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
							XMRP	2.9850 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0107 FEET
							SCALE	0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

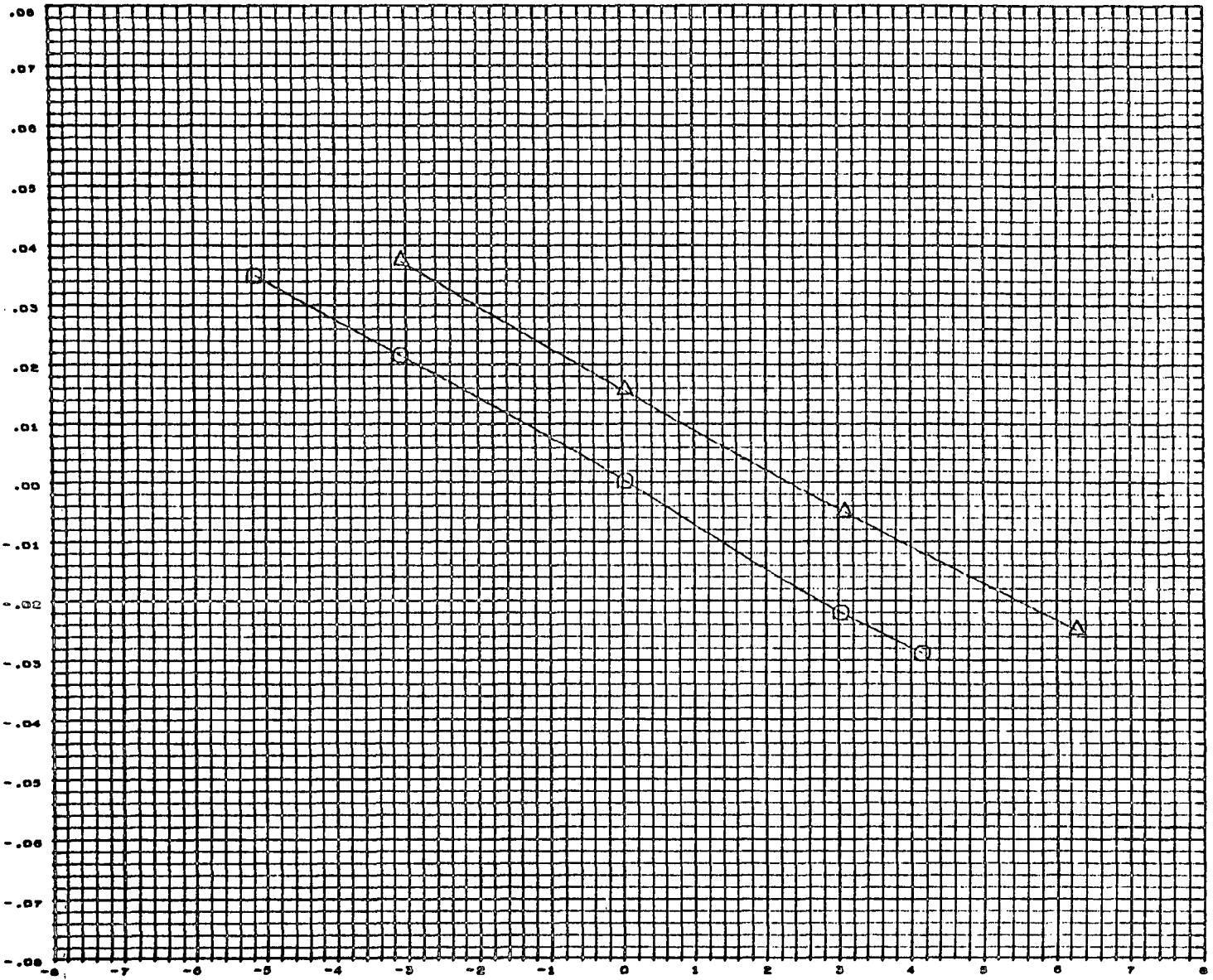


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(R3003)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3990 SQ. FT.
(R3030)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF 3.4530 FEET
(R3043)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

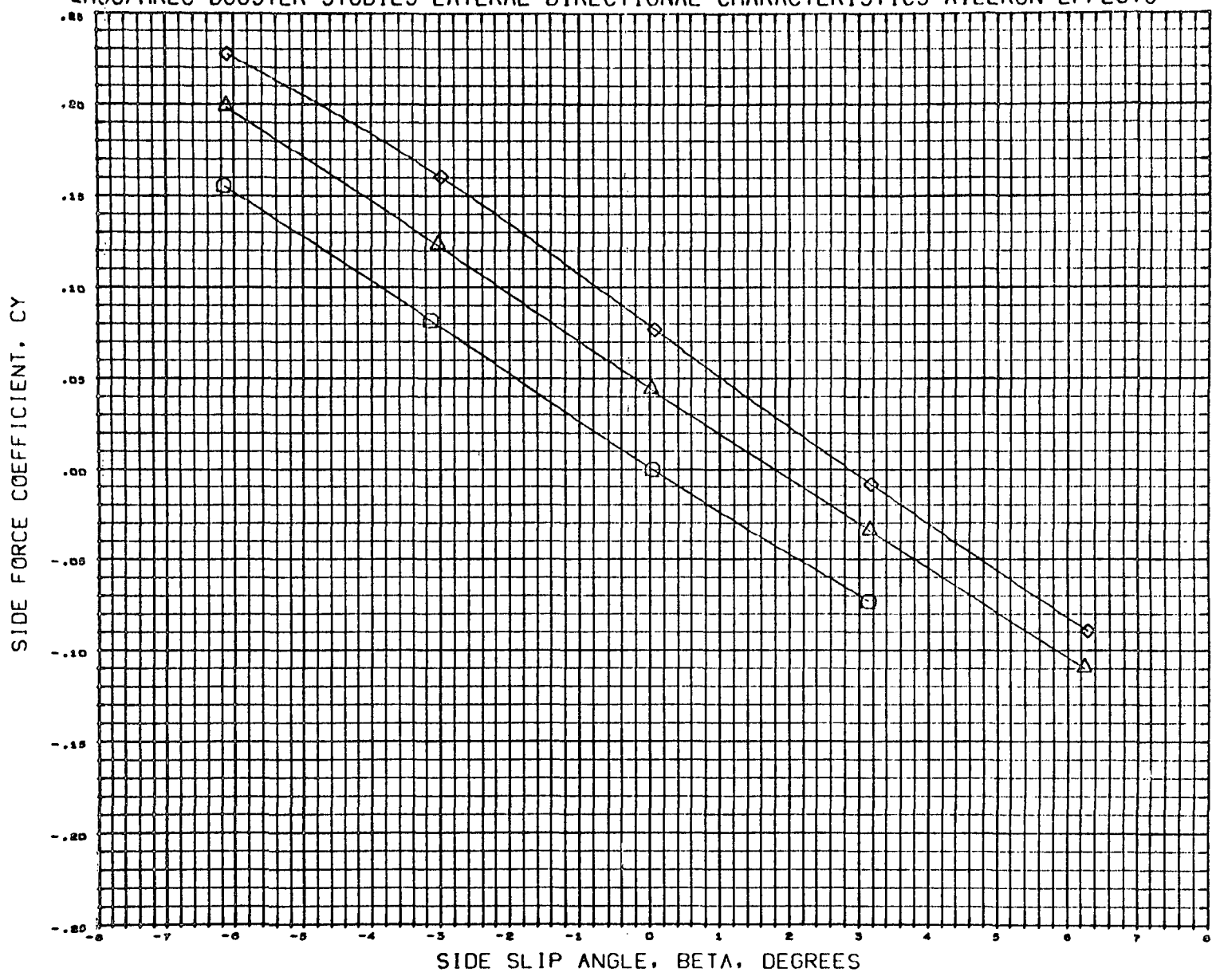


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS003)	○ NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF 1.3550 00.FT.
(RNS039)	△ NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS043)	◇ DATA NOT AVAILABLE FOR ALL CONDITIONS	6.214	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.124

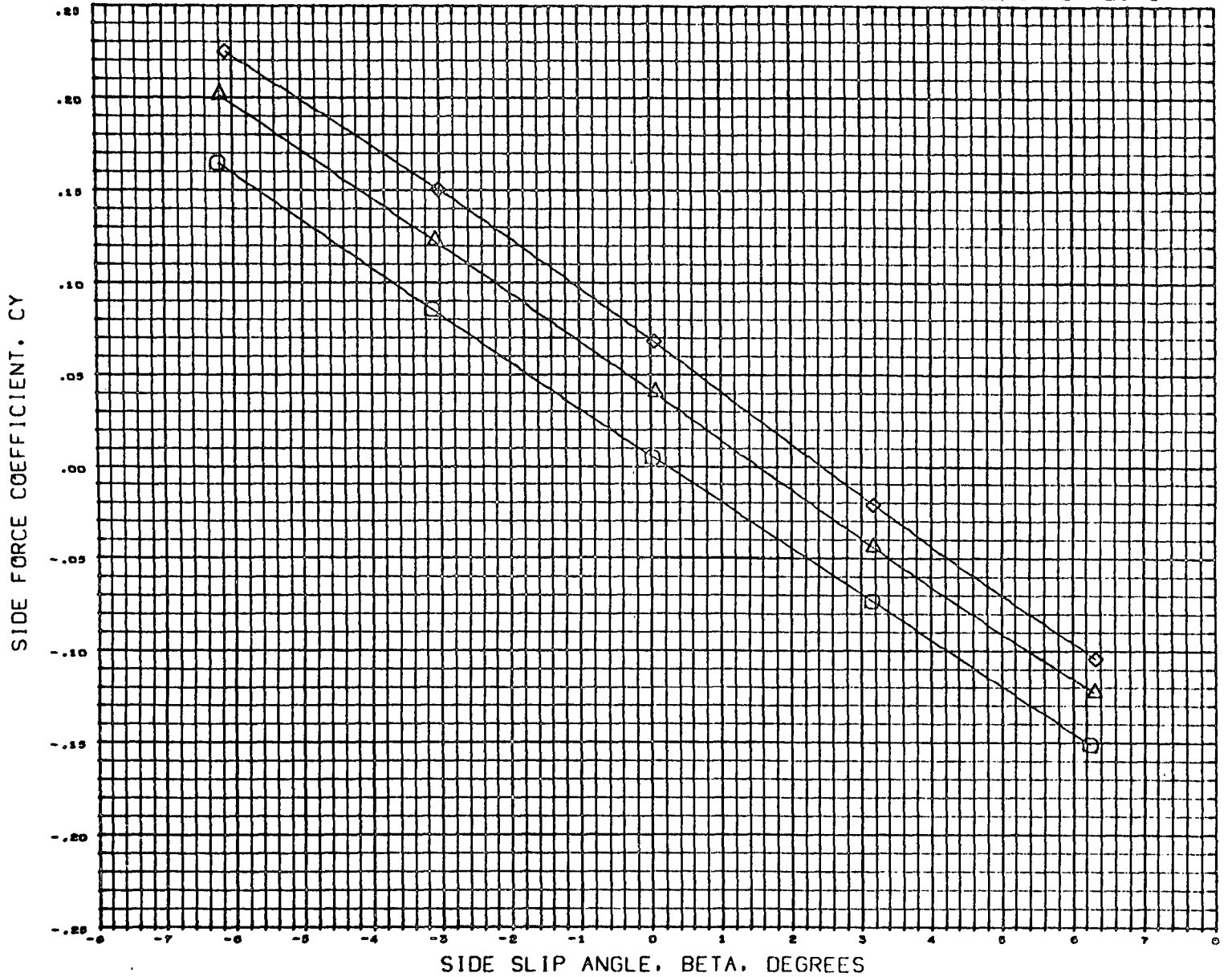
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3040)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.702

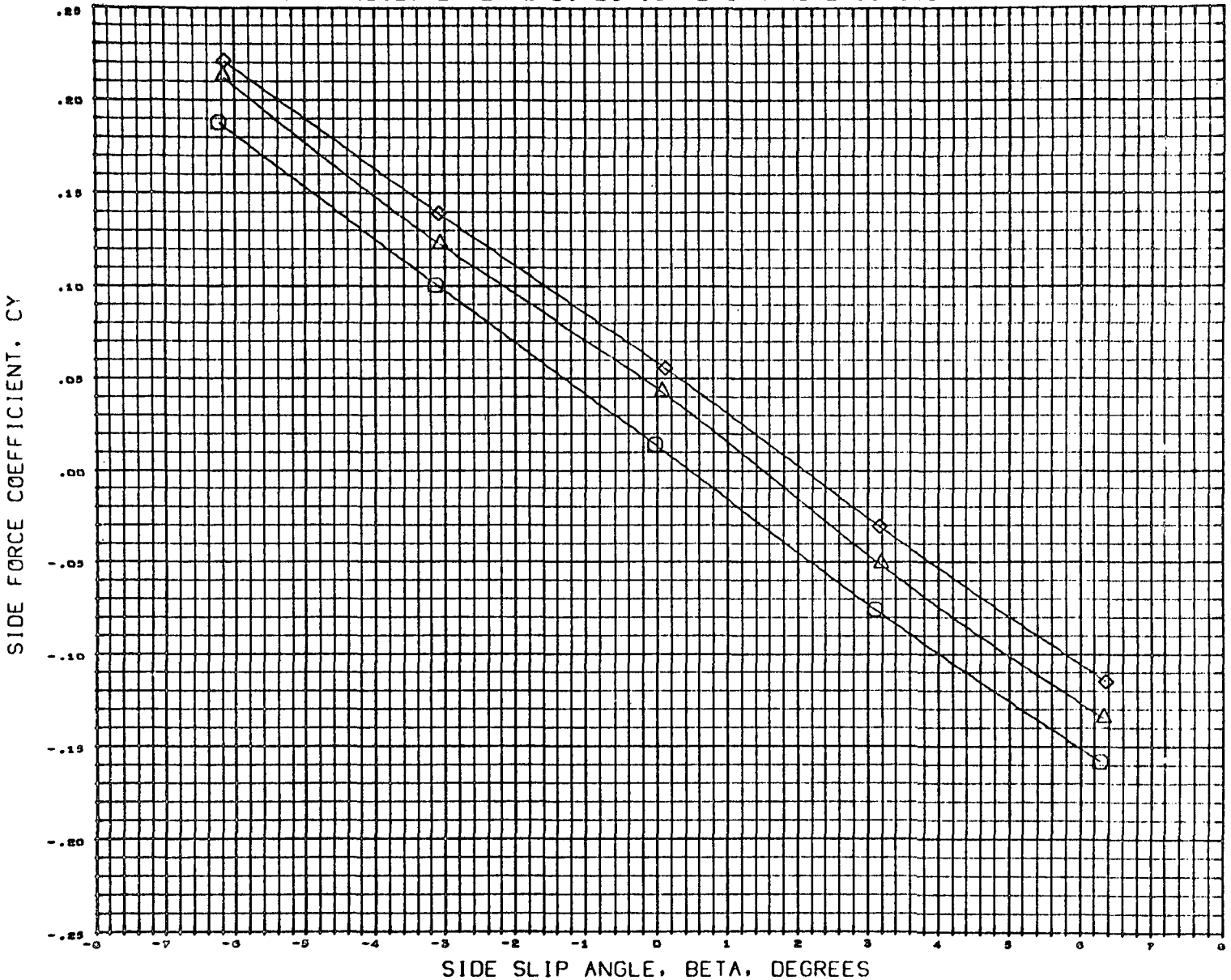
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(R) (R3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(A) (R3040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(D) (R3044)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	SREF	3.4530 FEET
						XMRP	2.5990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.600

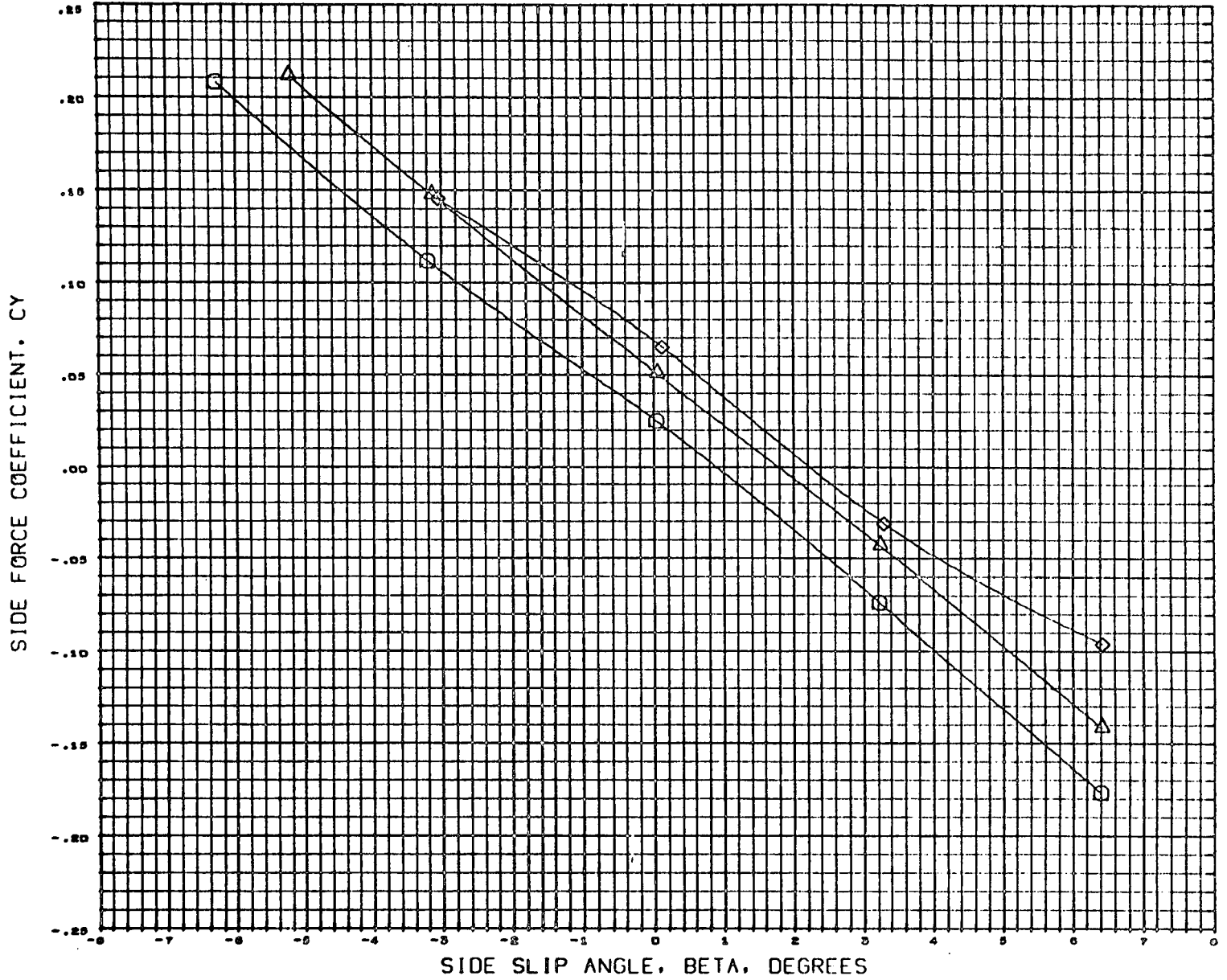
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3044)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.903

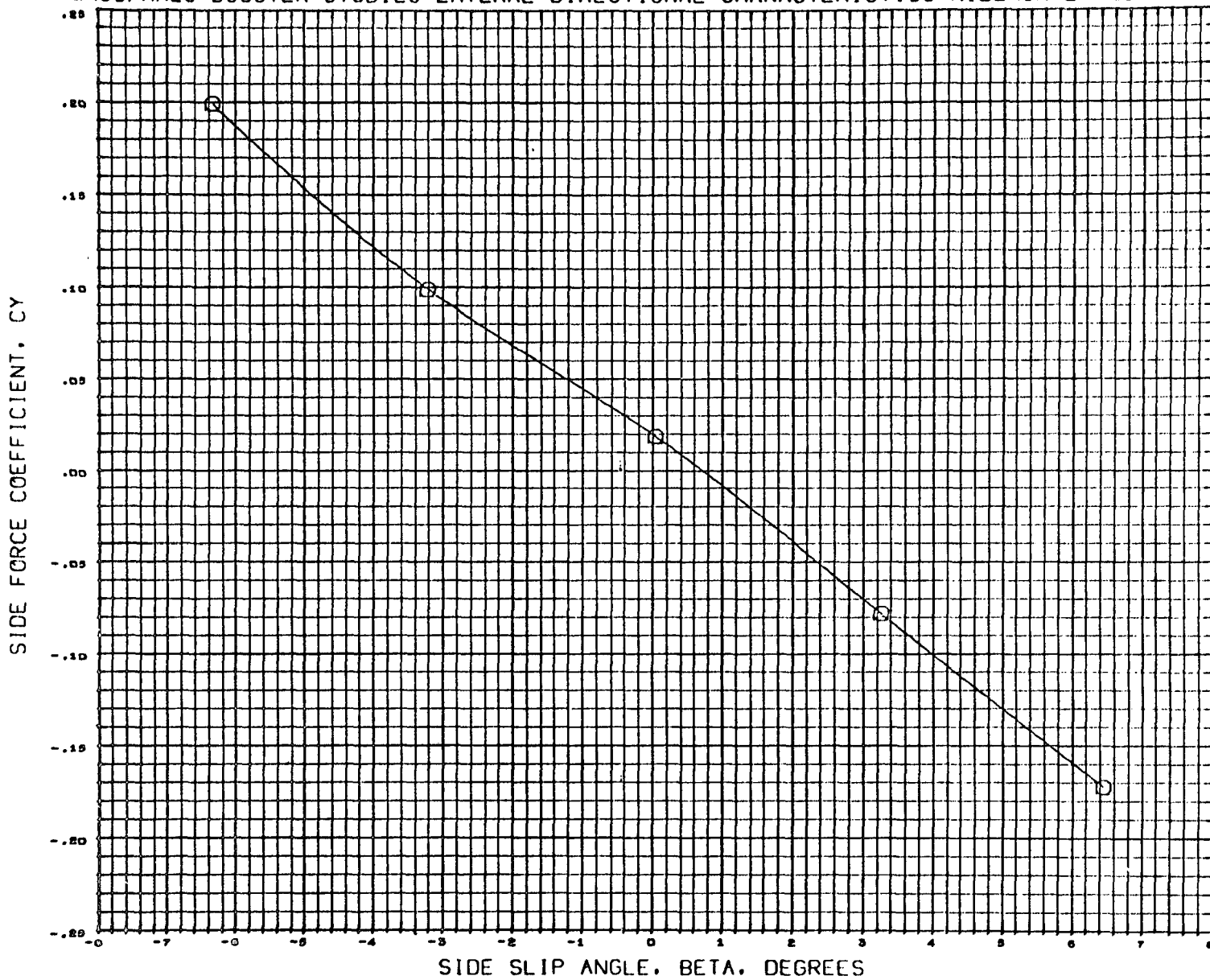
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3040)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4930 FEET
						XMRP	8.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

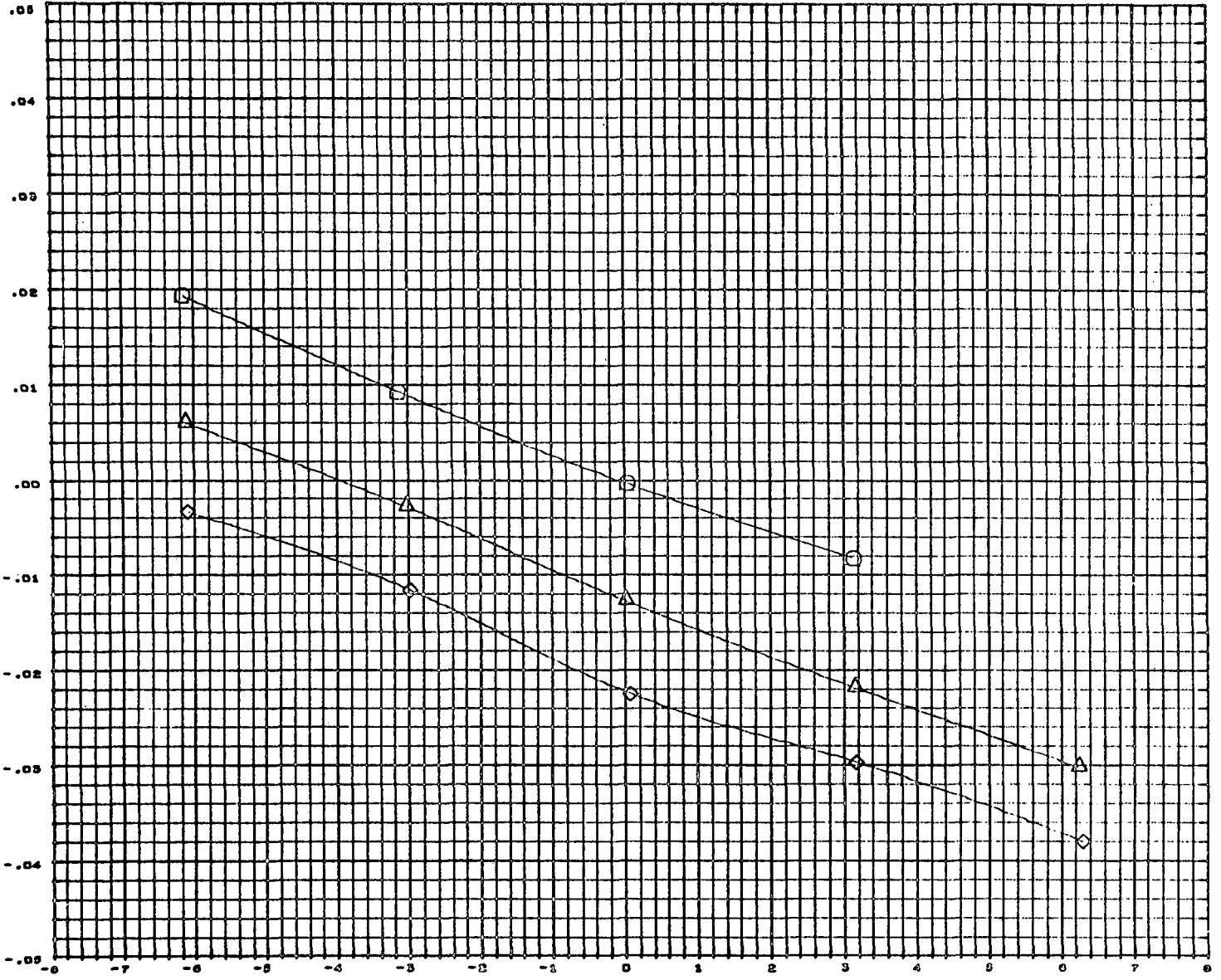


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	○	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RN3040)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	◇	DATA NOT AVAILABLE FOR ALL CONDITIONS	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

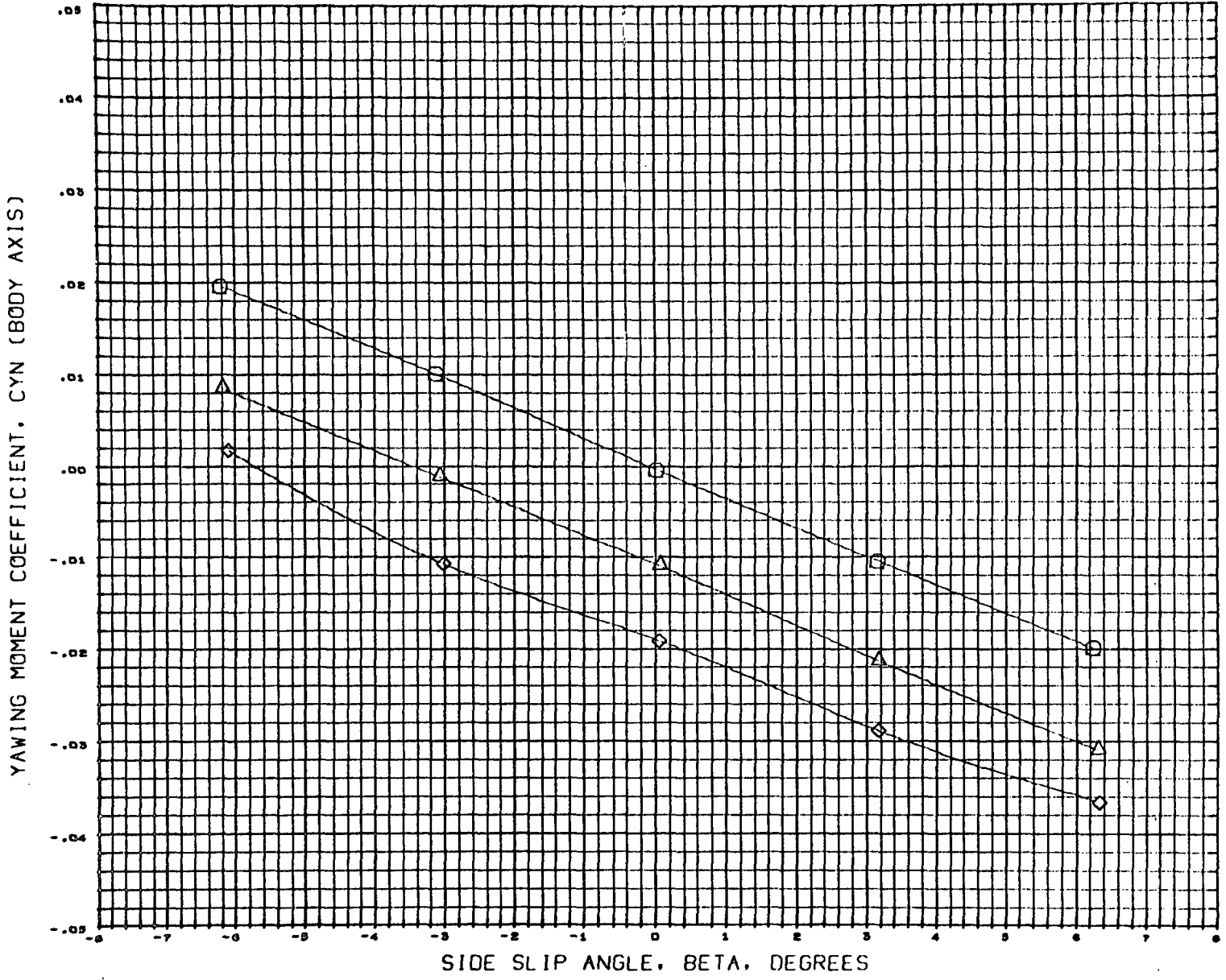


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF 1.3550 SQ.FT.
(RN3040)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3044)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF 3.4530 FEET XMRP 2.5930 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.702

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

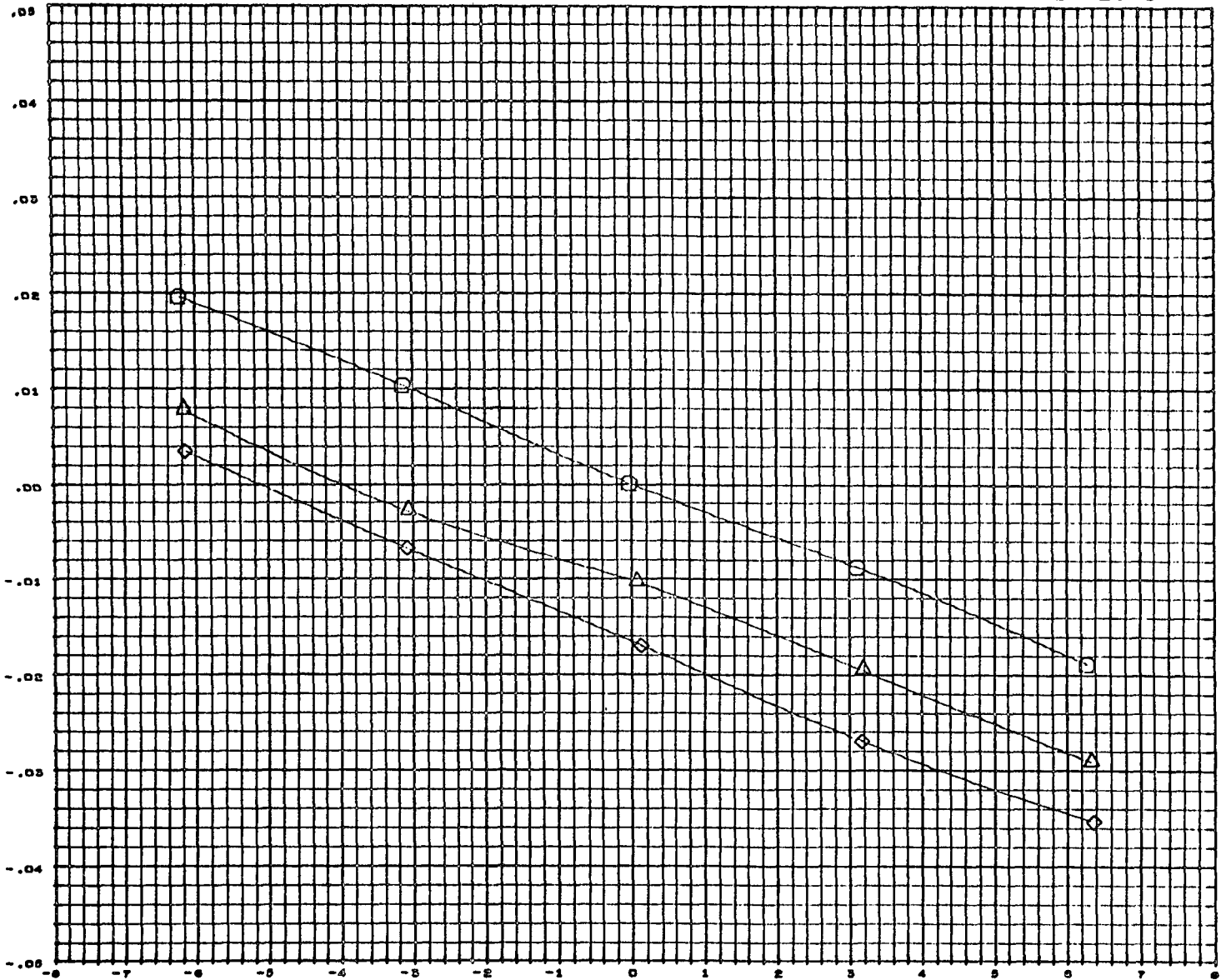


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4930 FEET
(RN3044)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	SREF 3.4930 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

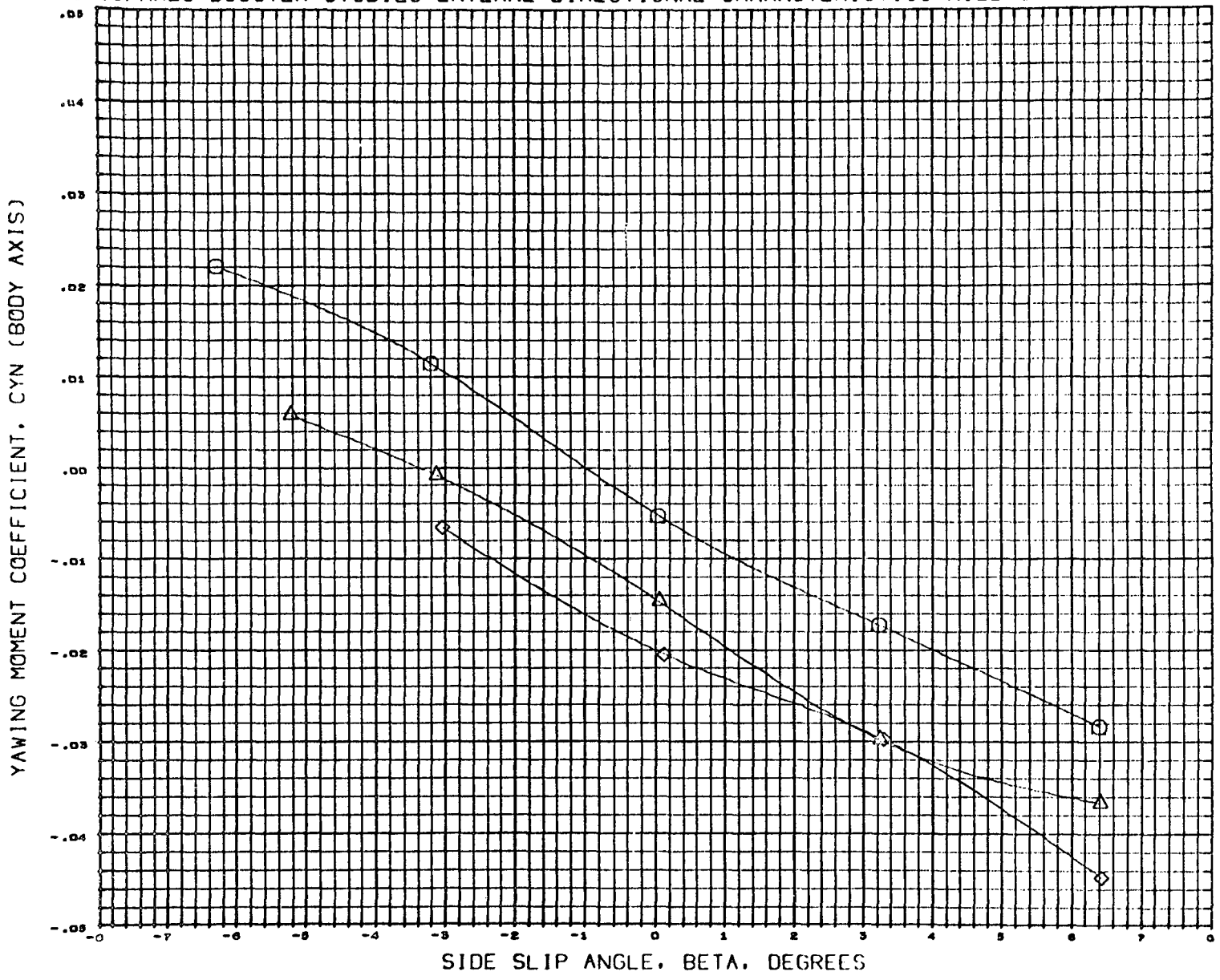


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3004) ○	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3040) △	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3044) ◇	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF 3.4550 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.903

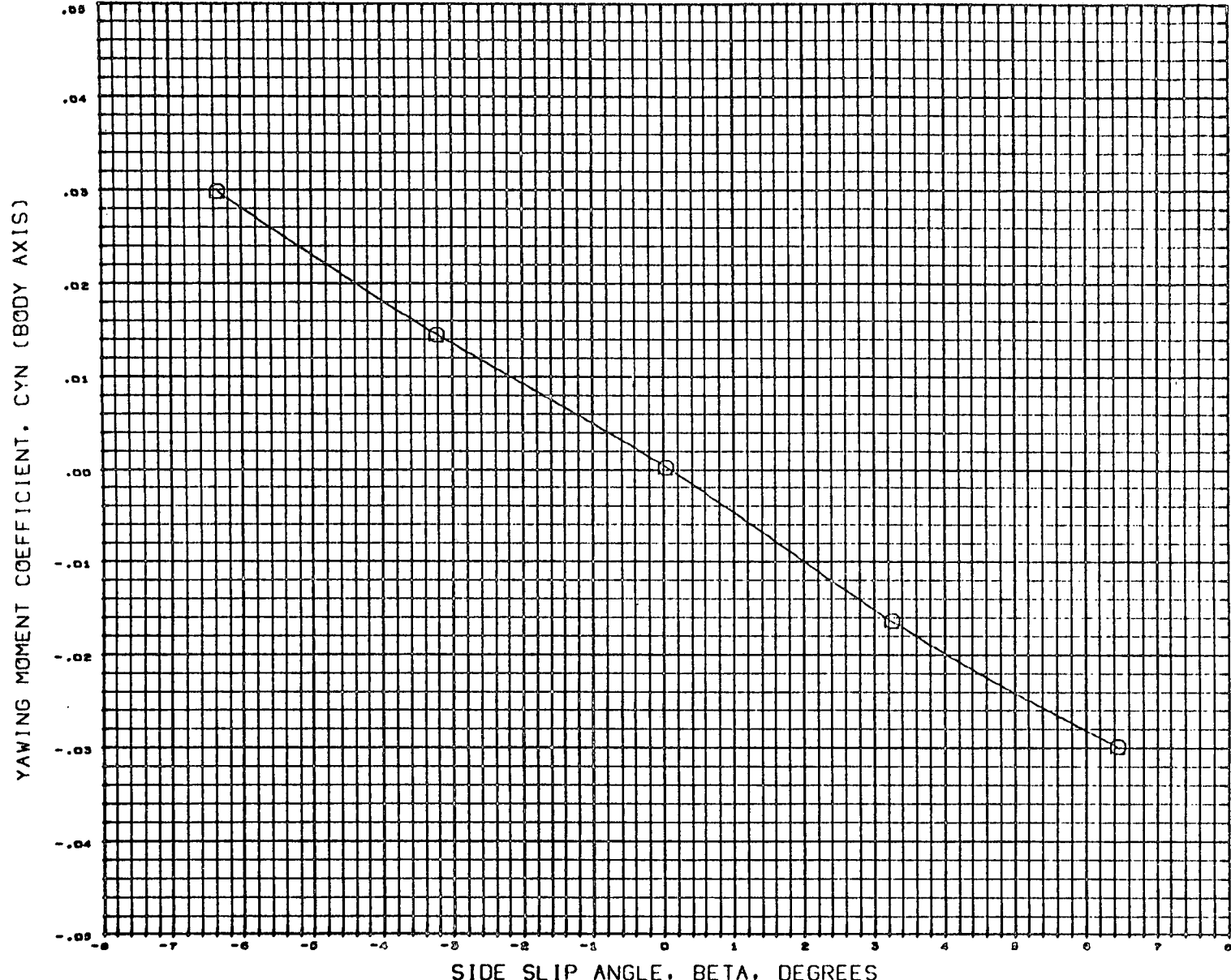
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3004)	○	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 50. FT.
(RN3040)	△	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3044)	◇	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF 3.4530 FEET
							XMRP 2.9850 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 1.001

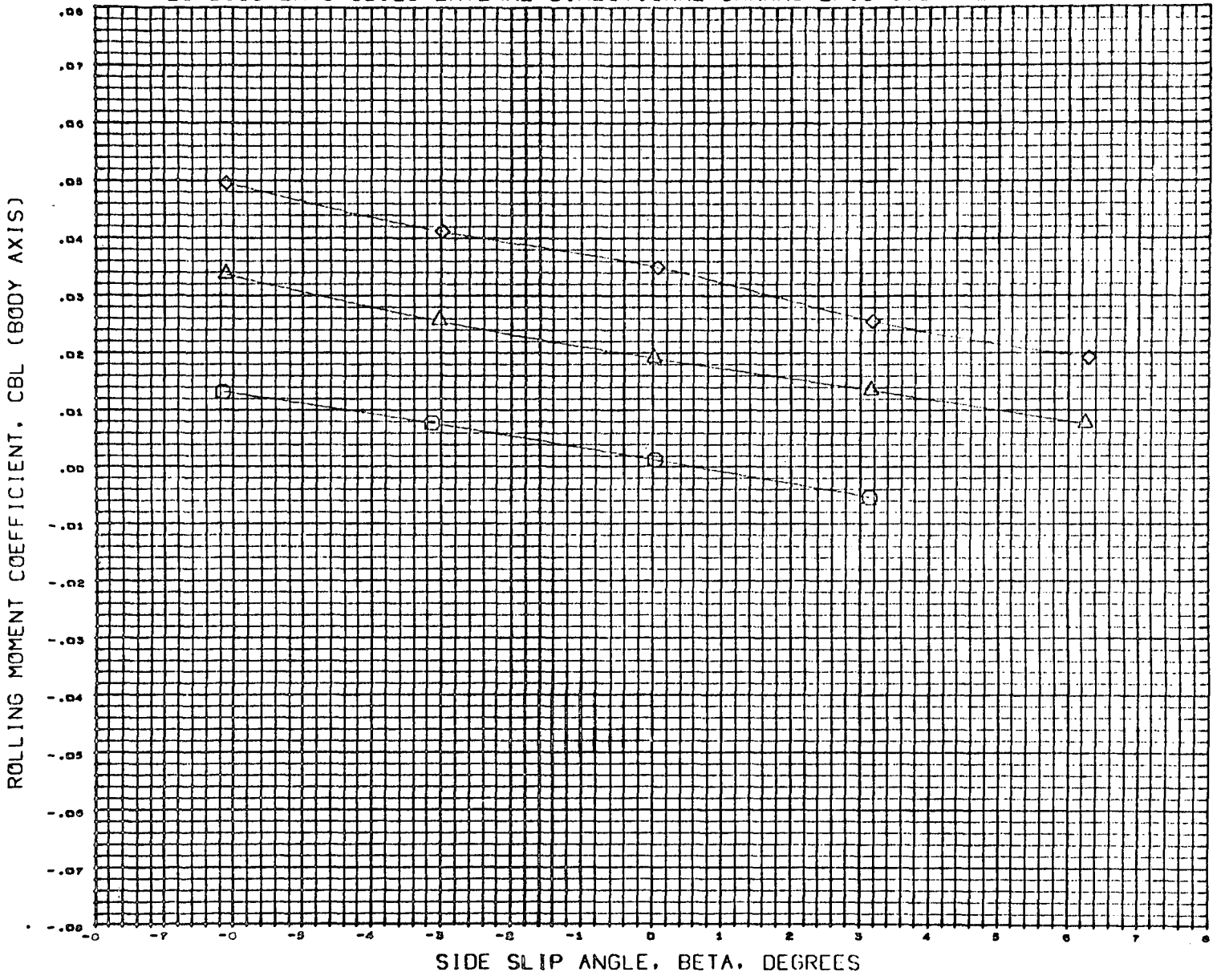
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF 1.3550 80. FT.
(RNS040)	DATA NOT AVAILABLE FOR ALL CONDITIONS	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS044)	DATA NOT AVAILABLE FOR ALL CONDITIONS	15.555	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						VMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.125

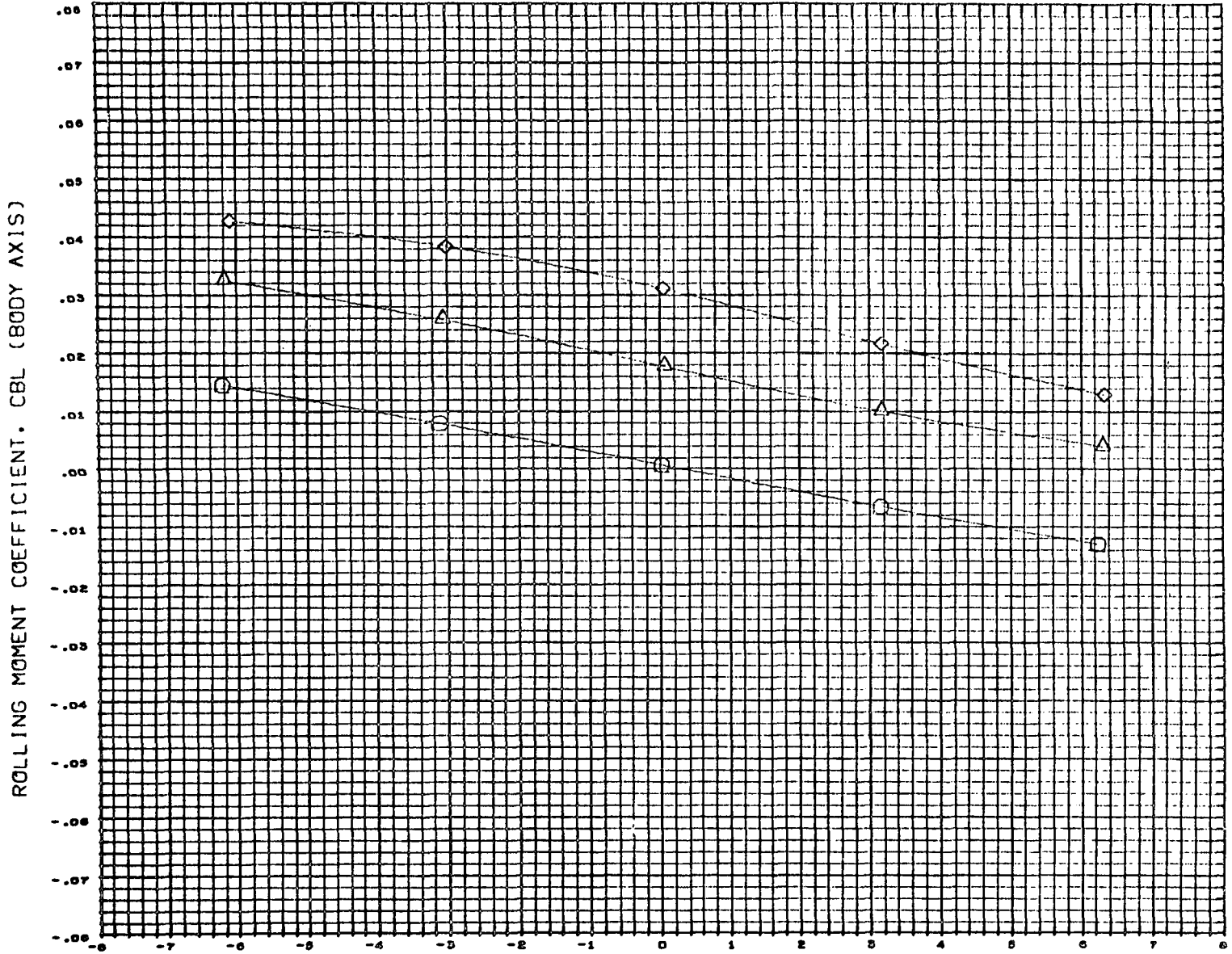
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3004)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF 1.3550 SQ.FT.
(RN3040)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3044)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.702

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



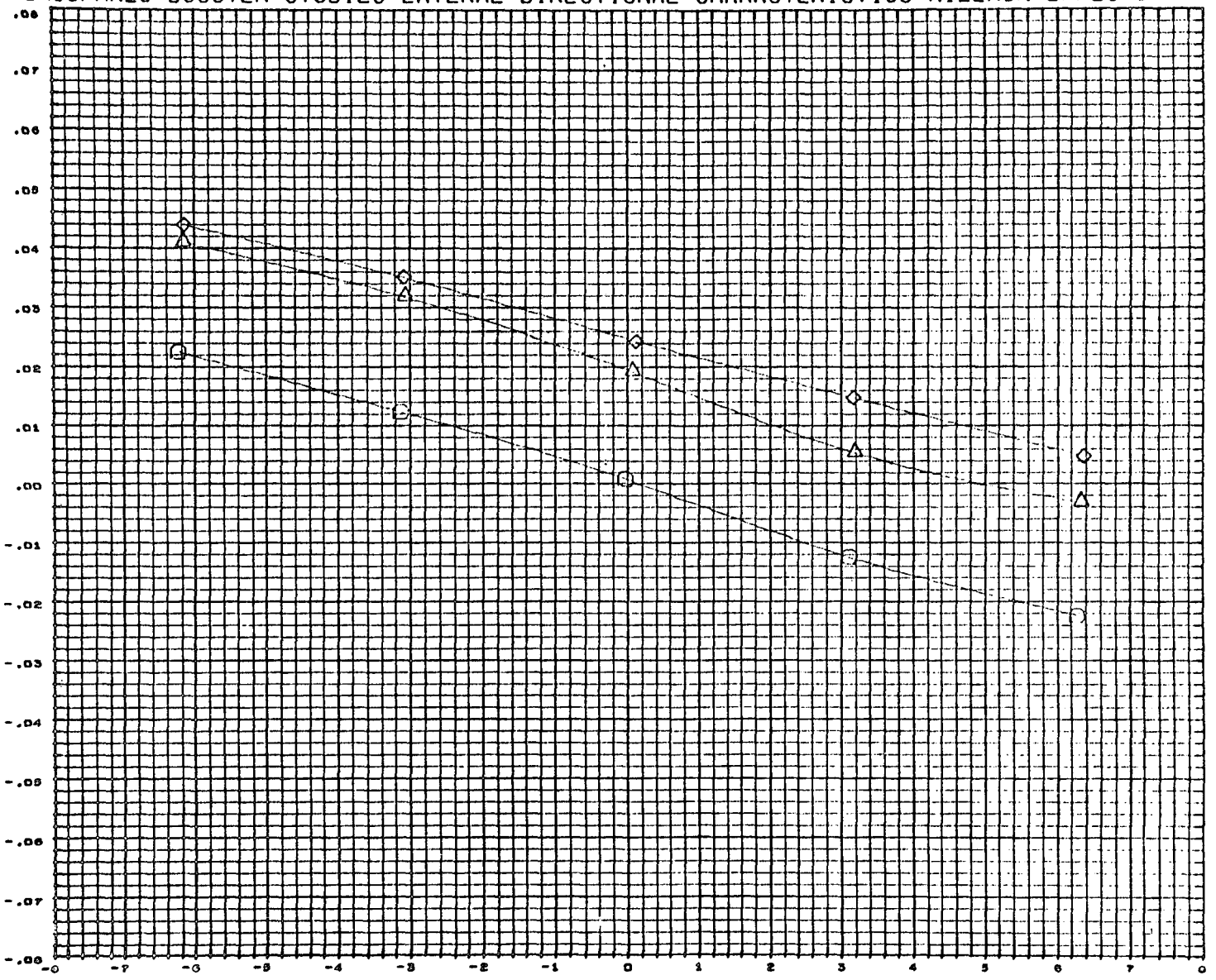
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3004)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3950 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RN3044)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	SREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

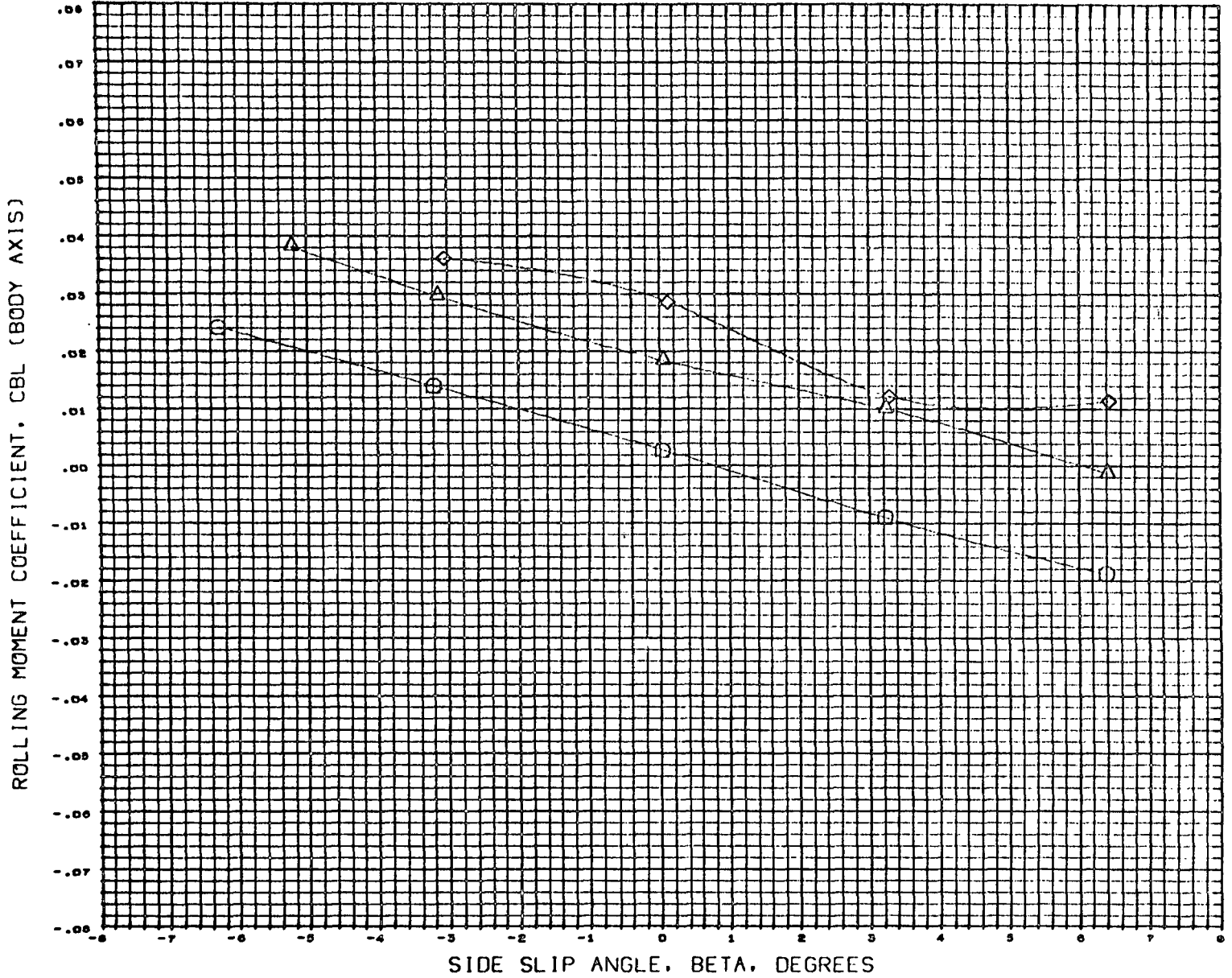


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS044)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.003

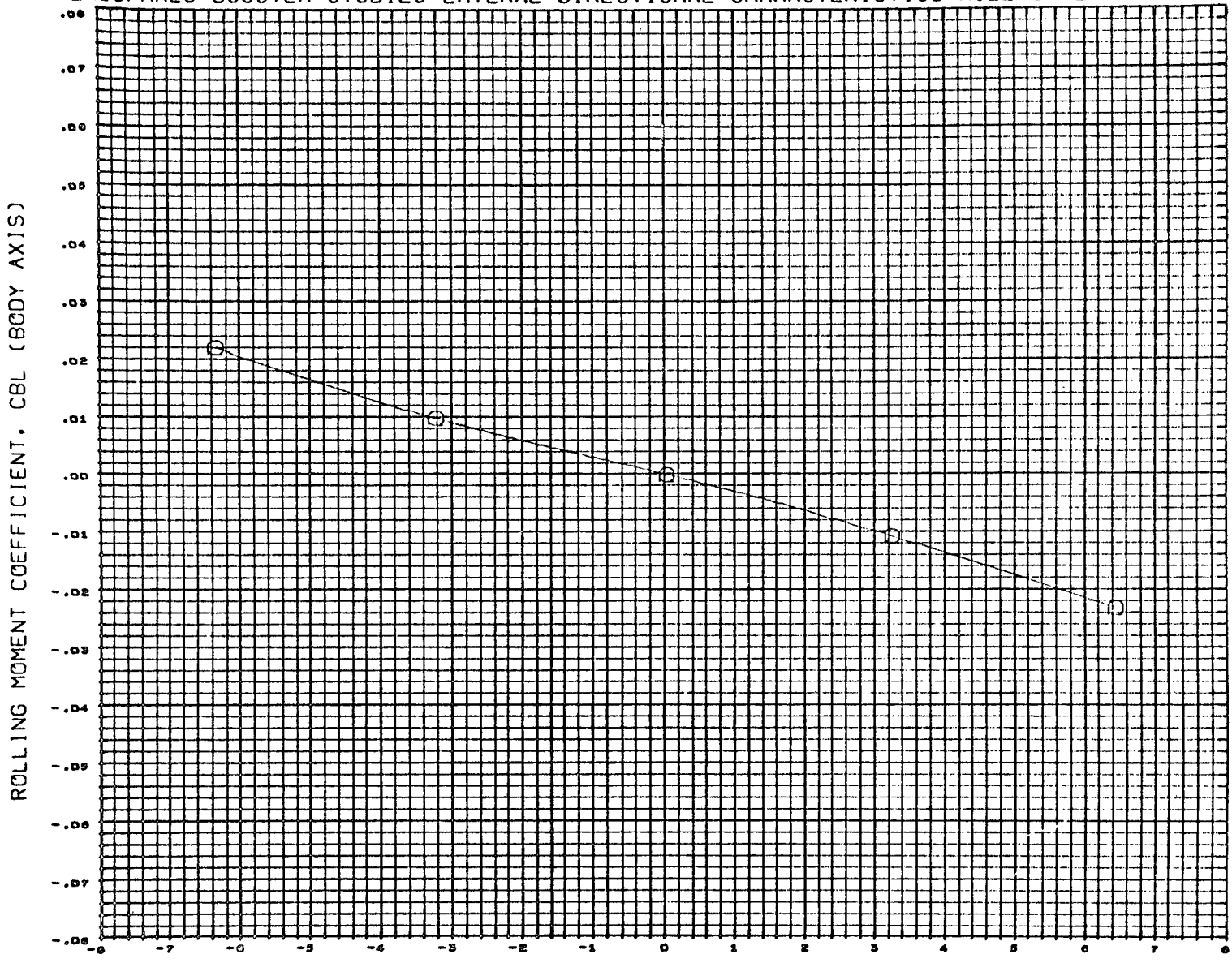
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS004)	MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3950 SQ. FT.
(RNS040)	MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS044)	MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRP 2.5930 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

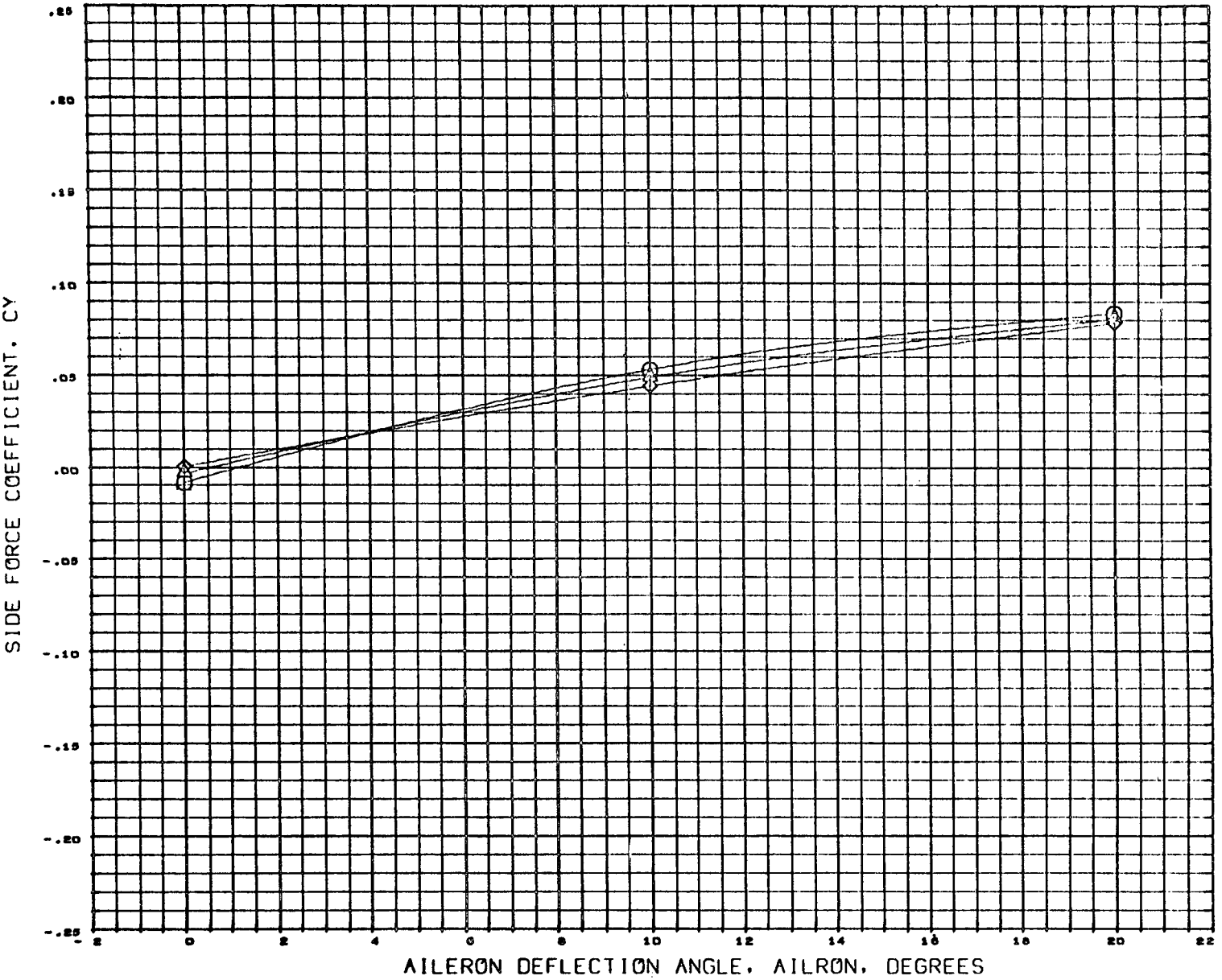


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF 1.3950 SQ. FT.
(RNS040)	DATA NOT AVAILABLE FOR ALL CONDITIONS	15.524	0.000	10.000	0.000	LREF 3.4530 FEET
(RNS044)	DATA NOT AVAILABLE FOR ALL CONDITIONS	15.555	0.000	20.000	0.000	BREF 3.4530 FEET
						XMRF 2.5950 FEET
						YMRF 0.0000 FEET
						ZMRF 0.0167 FEET
						SCALE 0.0150 SCALE

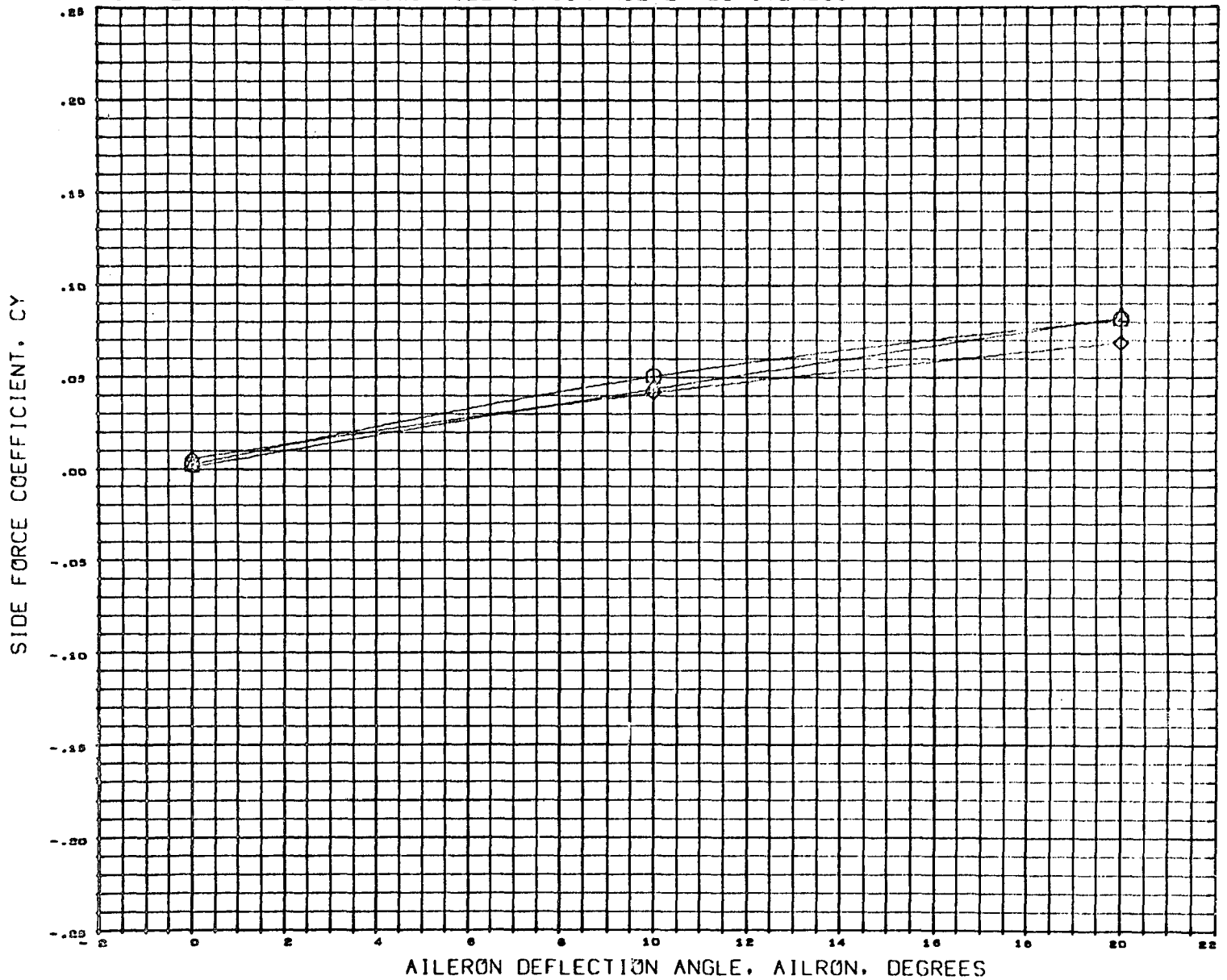
MACH 1.125

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



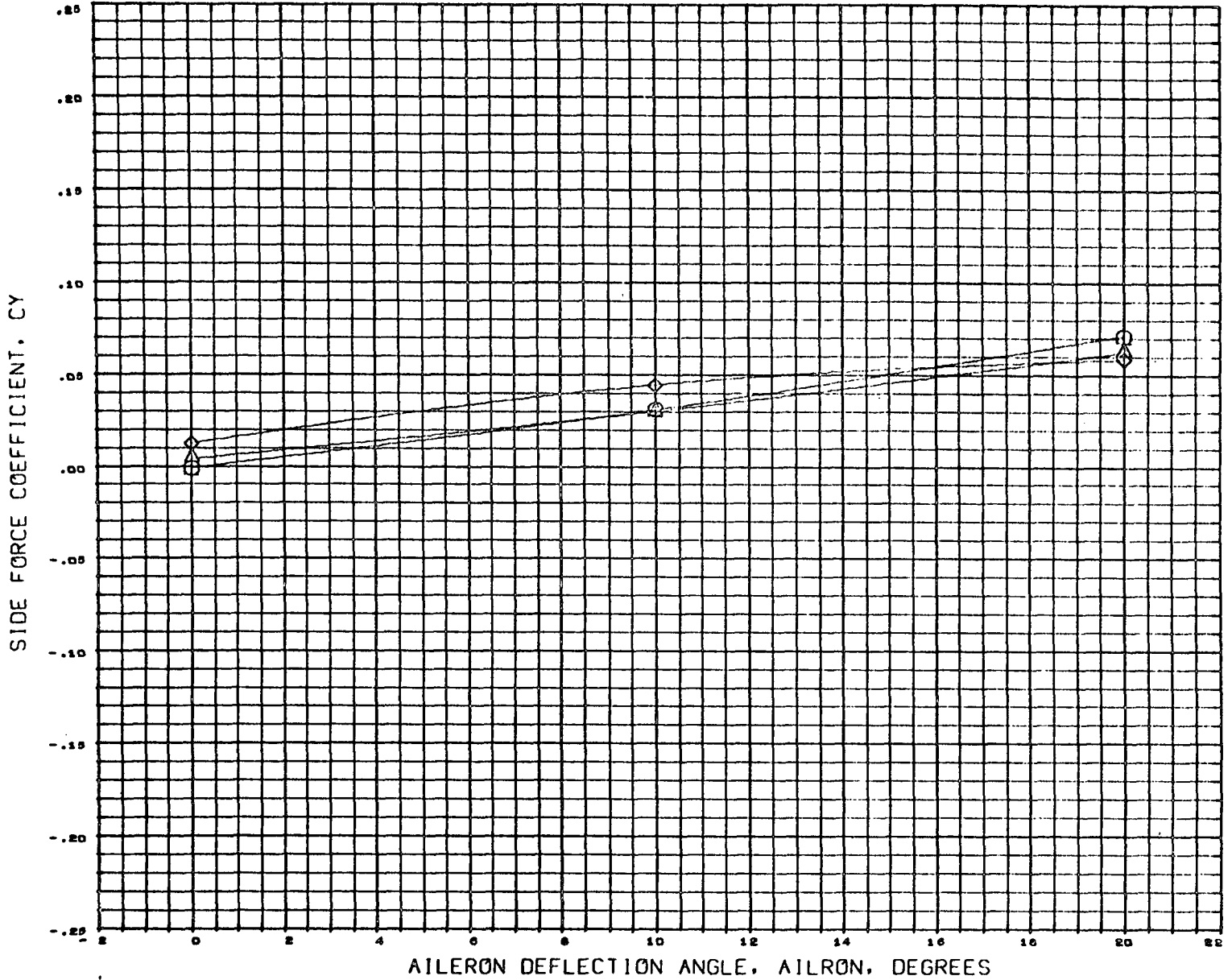
SYMBOL	PARAMETRIC VALUES				REFERENCE INFORMATION		
	ALPHA	MACH	BETA	BETA	SREF	SCALE	UNIT
○	0.000	0.700	0.000	0.000	1.3550	0.0150	sq. ft.
△	0.150	3.000	0.000	0.000	3.4530	0.0150	FEET
◇	15.900	0.000	0.000	0.000	3.4530	0.0150	FEET
		ELEVTR	RUDDER	0.000	XMRP		FEET
		WNGPOS	CNDPOS	1.000	YMRP		FEET
					ZMRP		FEET
		DATA HIST. CODE	1*AM				SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



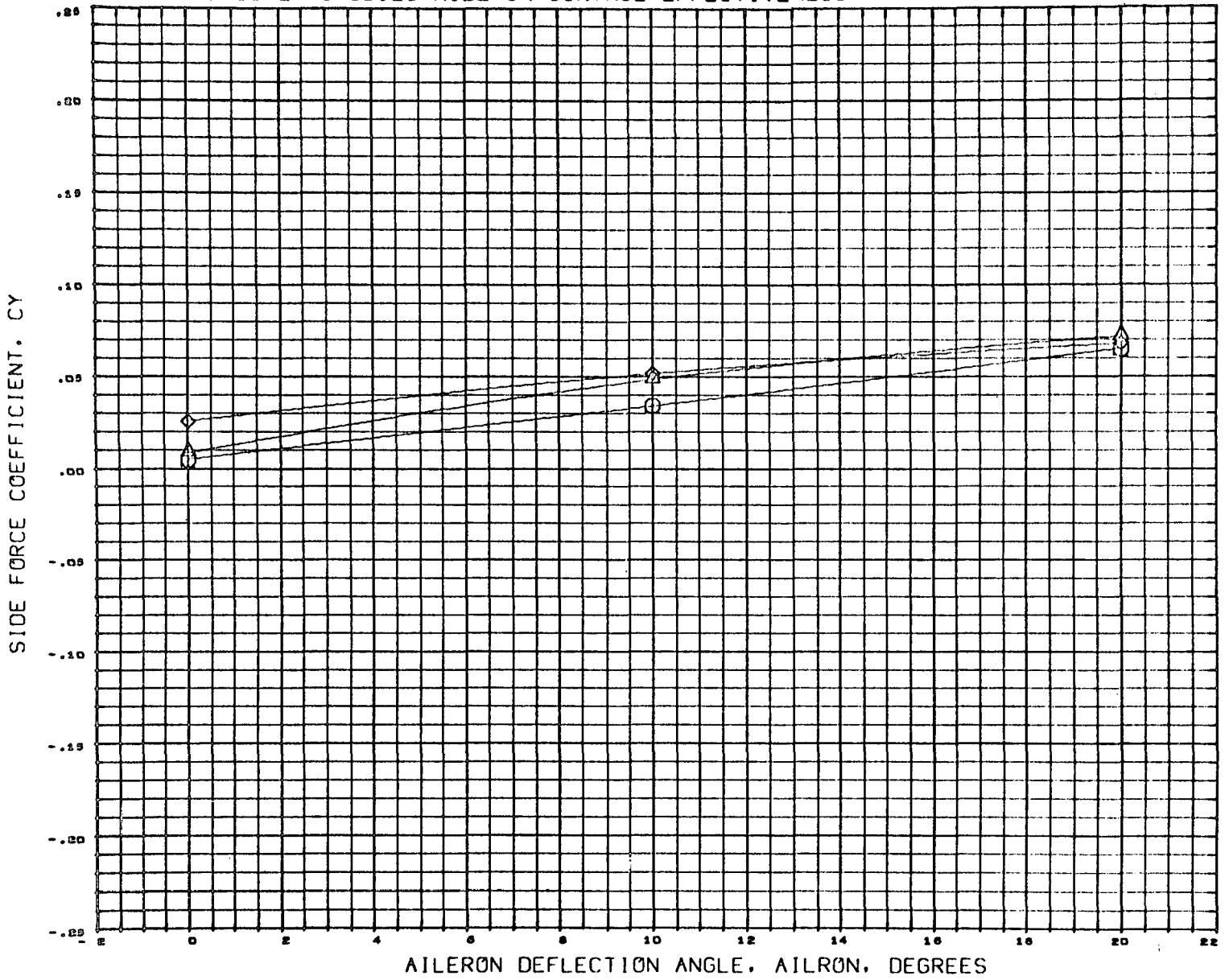
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.000	<u>BETA</u>	0.000	<u>SREF</u>	1.3550	50. FT.
△	0.190	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	<u>LREF</u>	3.4530	FEET
◇	19.900	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	<u>BREF</u>	3.4530	FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	<u>XMRP</u>	2.5050	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	<u>YMRP</u>	0.0000	FEET
		<u>DATA HIST. CODE</u>		<u>I#AM</u>		<u>ZMRP</u>	0.0107	FEET
						<u>SCALE</u>	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



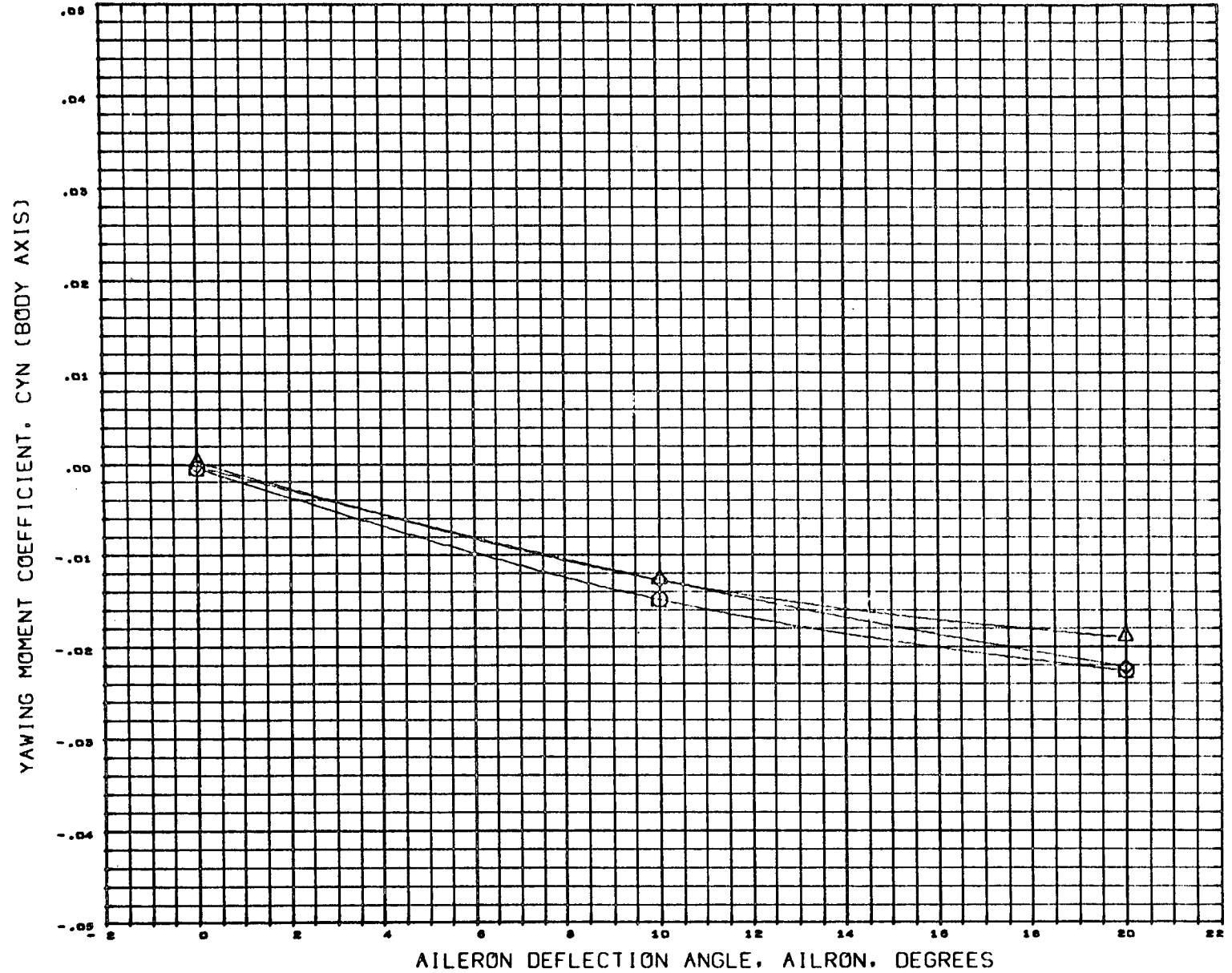
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.900	BETA	0.000	SREF	1.3550	50.FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	1.000	BETA	0.000	SREF	1.3550	SQ. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

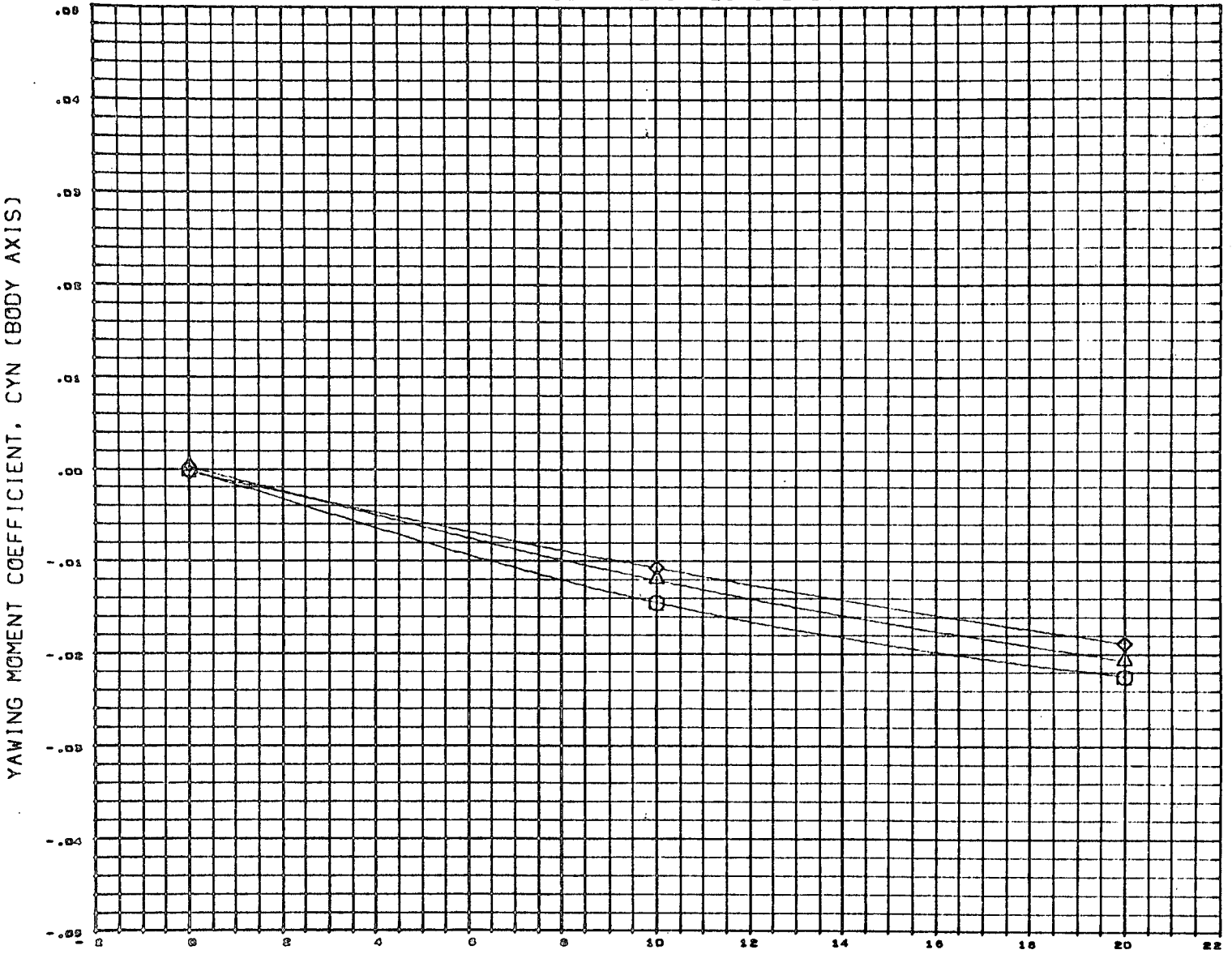
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



AILERON DEFLECTION ANGLE, AILERON, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	0.000	SREF	1.3950	60. FT.
△	6.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	YMRP	2.9950	FEET
		WNGPOS	1.000	CNDPOS	1.000	ZMRP	0.0187	FEET
		DATA HIST. CODE	1*AM			SCALE	0.0150	SCALE

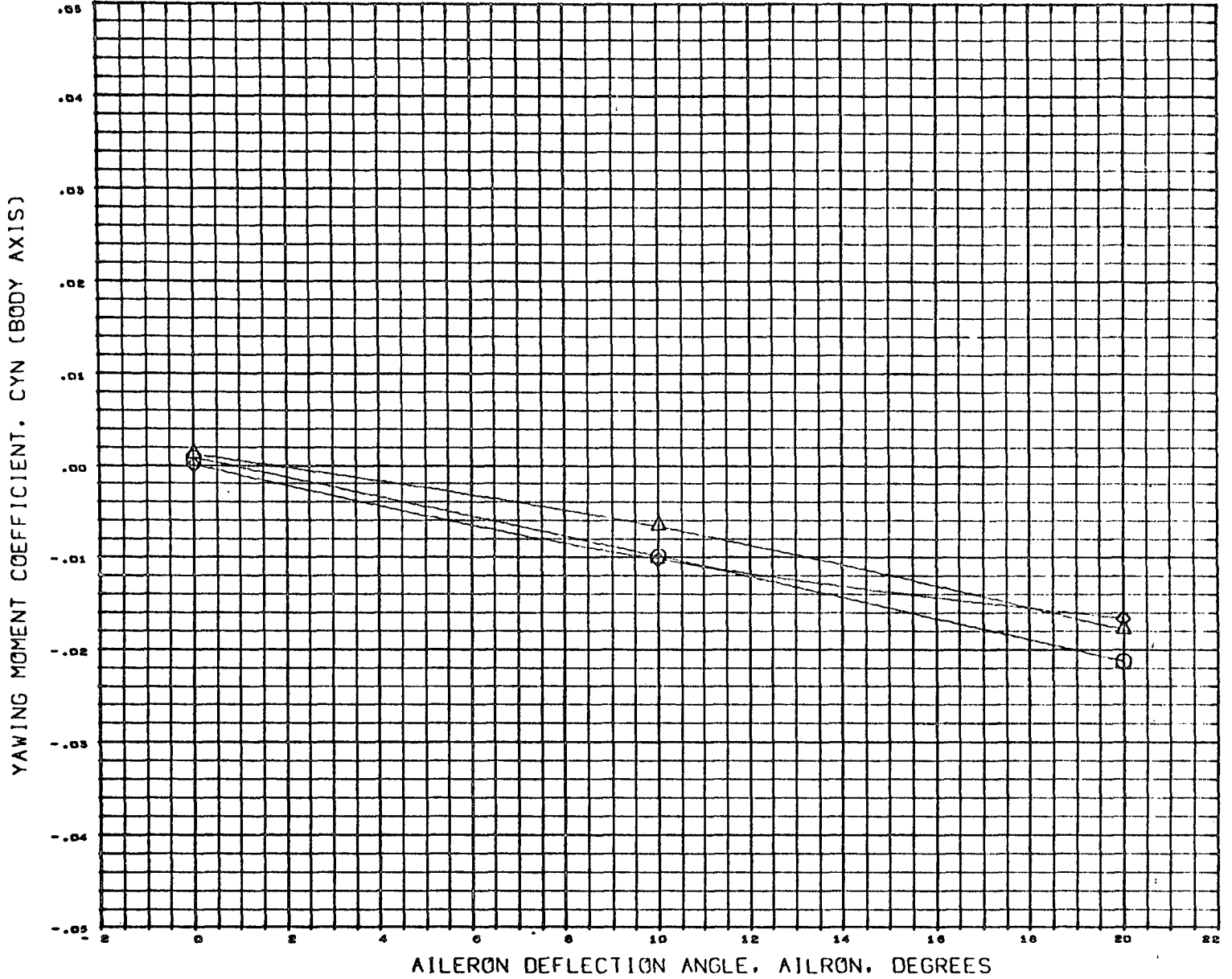
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



AILERON DEFLECTION ANGLE, AILRON, DEGREES

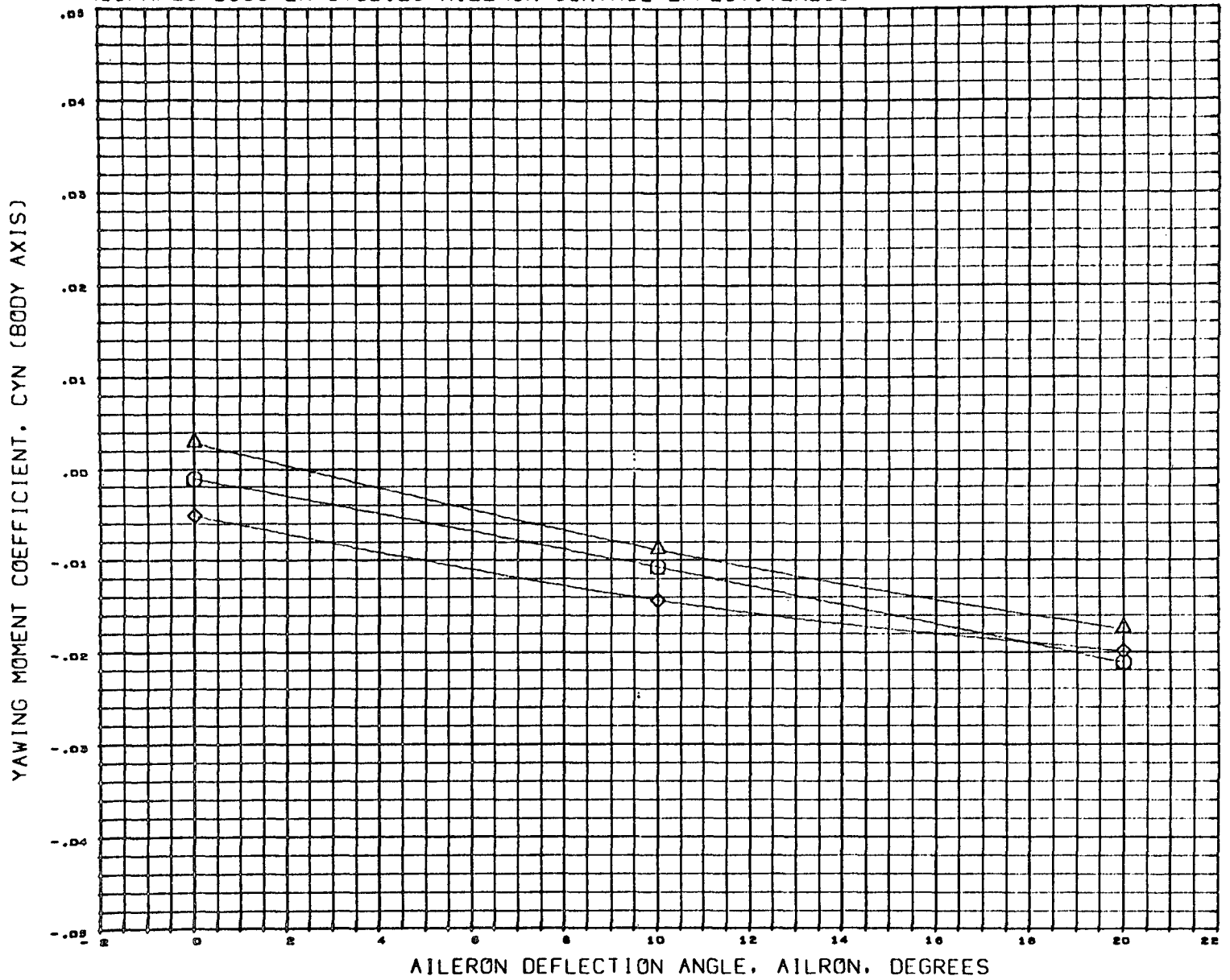
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.000	<u>BETA</u>	0.000	<u>SREF</u>	1.3550	SQ. FT.
△	0.250	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	<u>LREF</u>	3.4530	FEET
◇	0.500	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	<u>BREF</u>	3.4530	FEET
		<u>LEVTR</u>	0.000	<u>RUDDER</u>	0.000	<u>XMRP</u>	2.3990	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	<u>YMRP</u>	0.0000	FEET
		<u>DATA MIST. CODE</u>	30AM			<u>ZMRP</u>	0.0167	FEET
						<u>SCALE</u>	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA		PARAMETRIC VALUES				REFERENCE INFORMATION		
	0.000	13.500	MACH	0.900	BETA	0.000	SREF	1.3550	50. FT.
○	6.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET	
△	13.500	HSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET	
◇		ELEVTR	0.000	RUDDER	0.000	XMRP	2.9950	FEET	
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET	
		DATA HIST. CODE	1*AM			ZMRP	0.0167	FEET	
						SCALE	0.0150	SCALE	

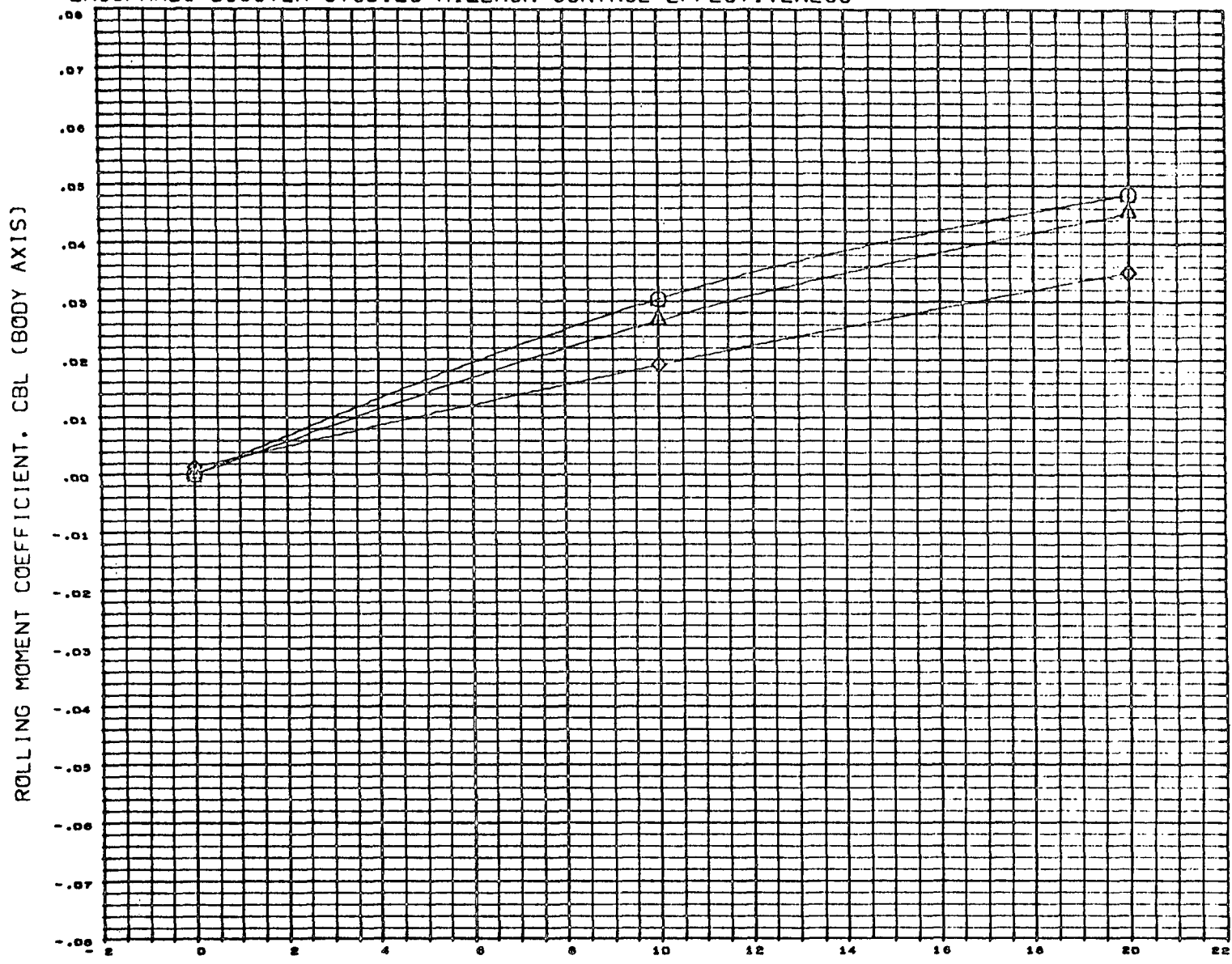
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	MASH	1.000	BETA	0.000
△	0.150	INCIDC	3.000	INCIDW	0.000
◇	19.500	MSPLOW	0.000	CANARD	0.000
		ELEVTR	0.000	RUDDER	0.000
		ENGPOS	1.000	CNDPOS	1.000
		DATA HIST. CODE	10AM		

REFERENCE INFORMATION		
BREF	1.3550	59. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

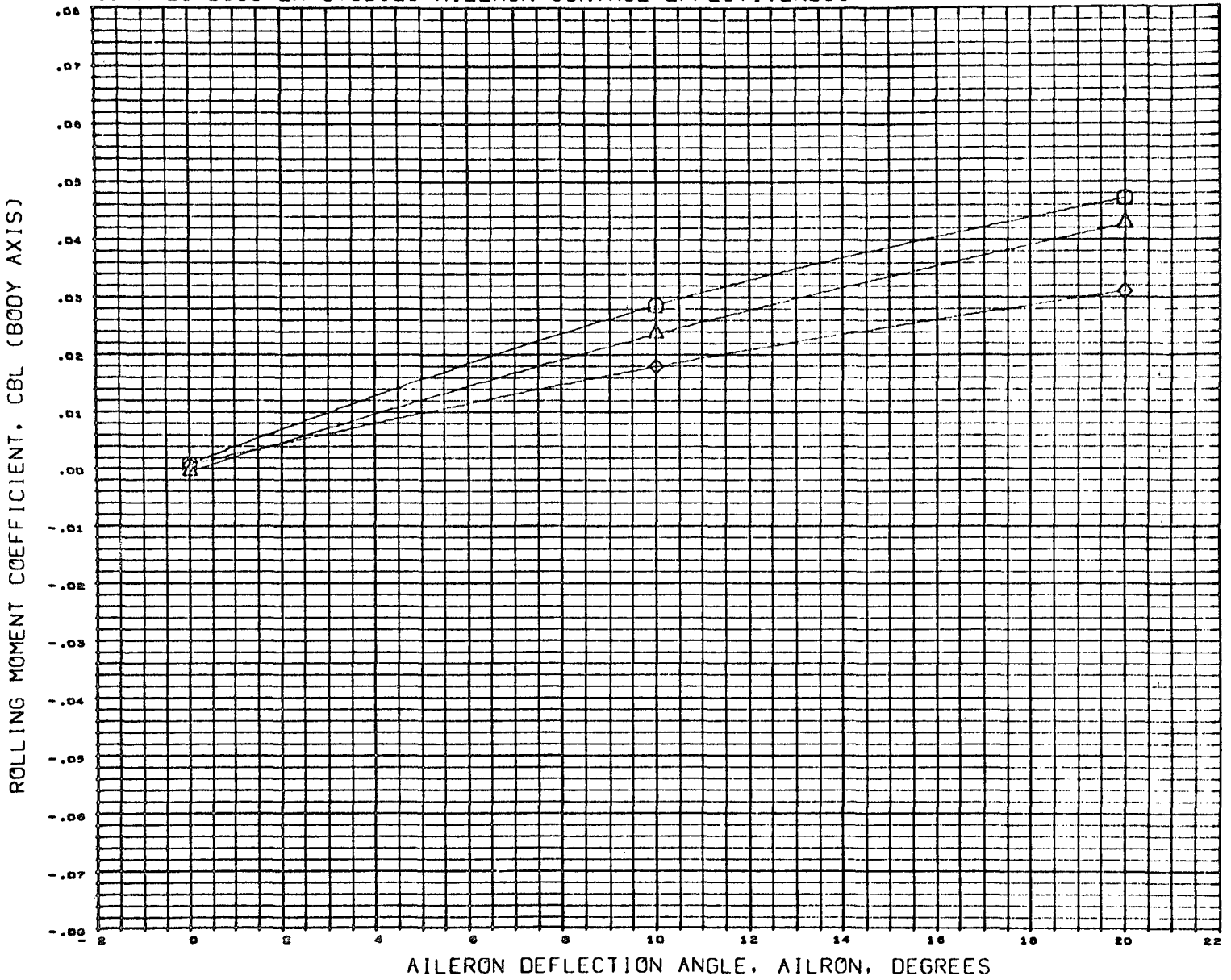
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



AILERON DEFLECTION ANGLE, AILERON, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	SRF	SCALE	UNIT
○	0.000	0.700	0.000	3.000	0.000	1.3950	30.000	FEET
△	6.150	0.000	0.000	0.000	0.000	3.4530	30.000	FEET
◇	19.500	0.000	0.000	0.000	0.000	3.4530	30.000	FEET
		ELEVTR	0.000	CANARD	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	RUDDER	0.000	YMRP	0.0000	FEET
		CNDPOS	1.000	ZMRP	0.0167	SCALE	0.0150	SCALE
		DATA HIST. CODE	1*AH					

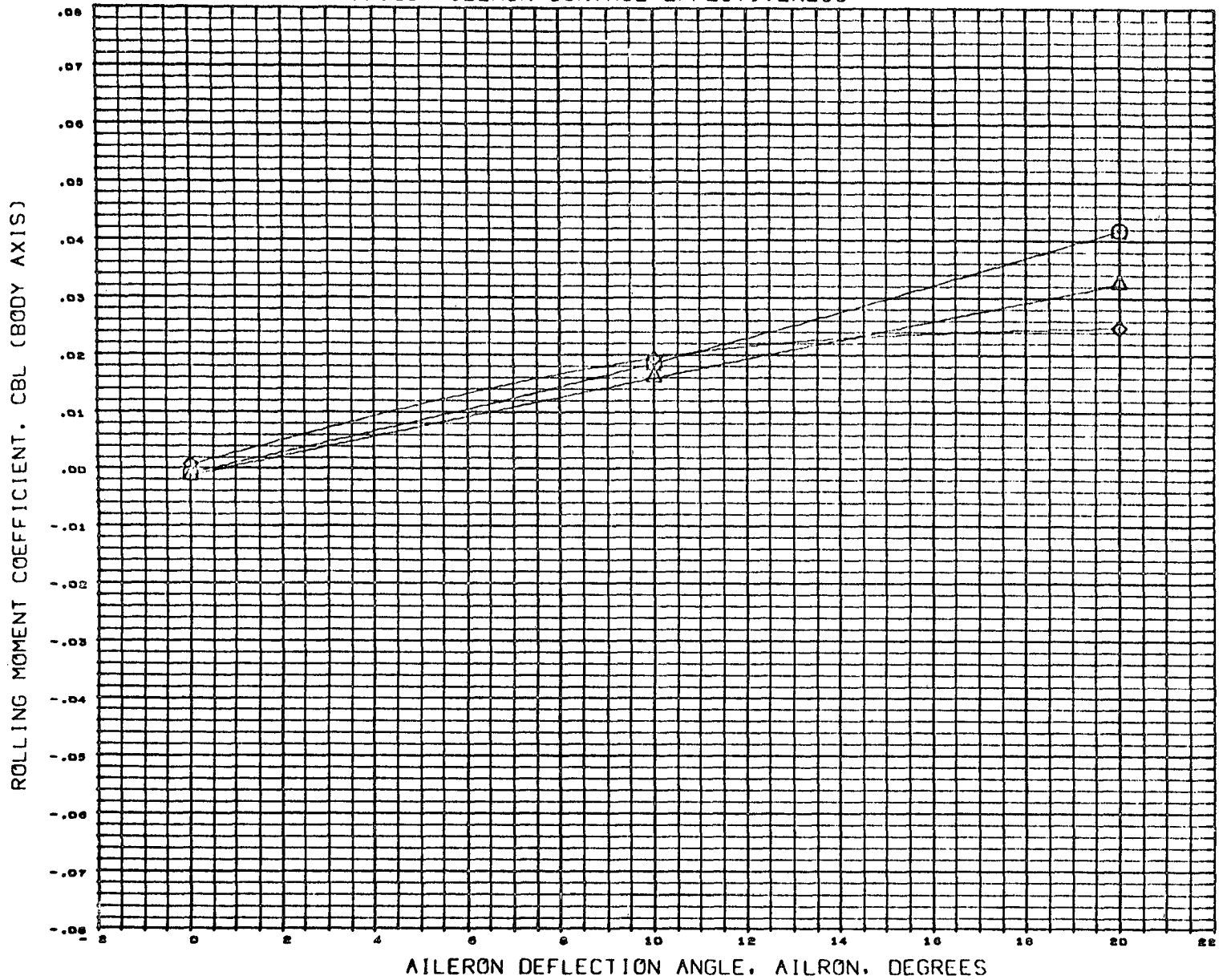
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	SREF	LREF	BREF
○	0.000	0.000	0.000	0.190	0.000	1.3550	3.4530	3.4530
△	0.190	0.000	0.000	0.000	0.000	2.5950	0.0000	0.0167
◇	15.500	0.000	0.000	1.000	1.000	0.0150		

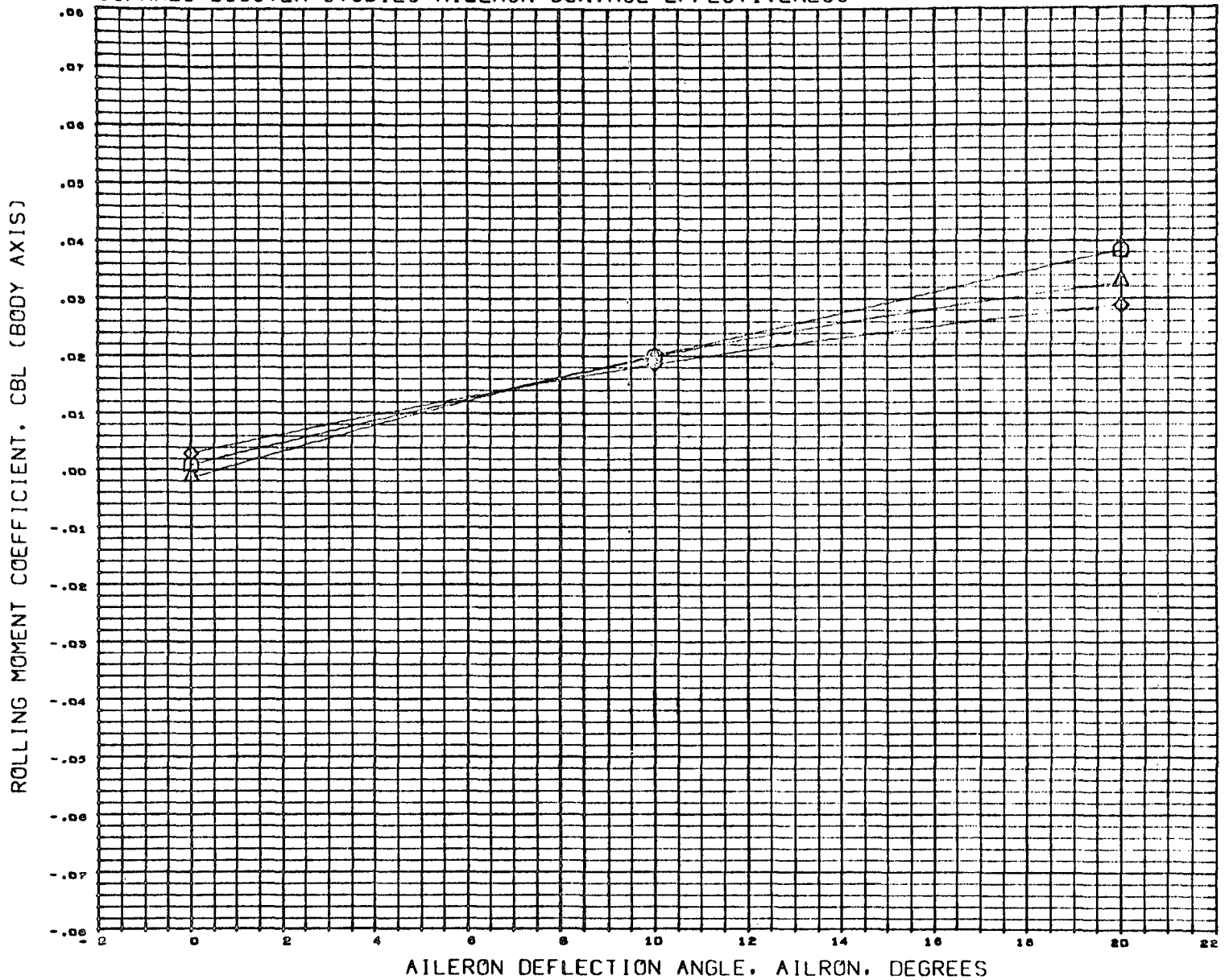
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LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



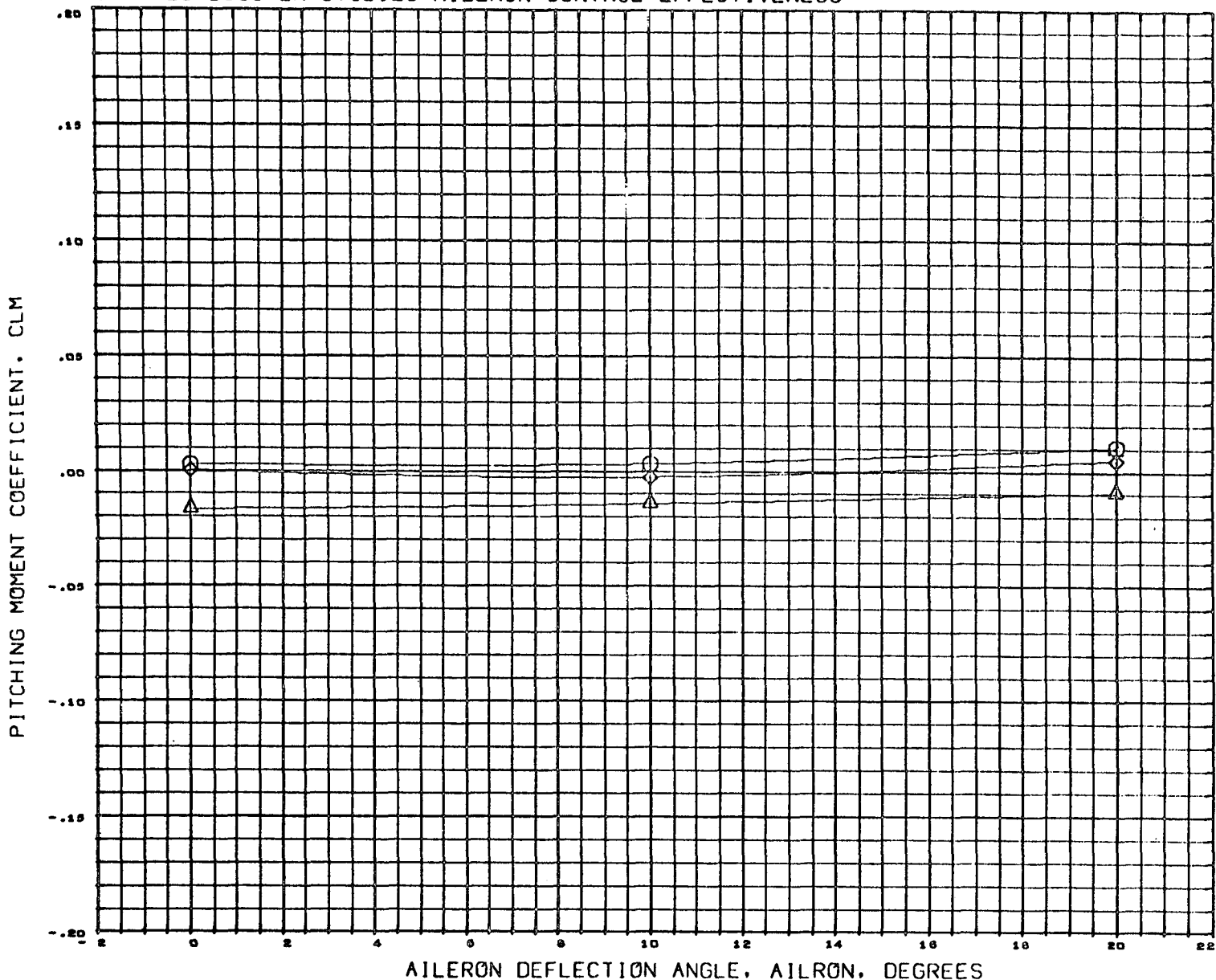
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.000	BETA	0.000	SREF	1.3550	SQ. FT.
△	6.350	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



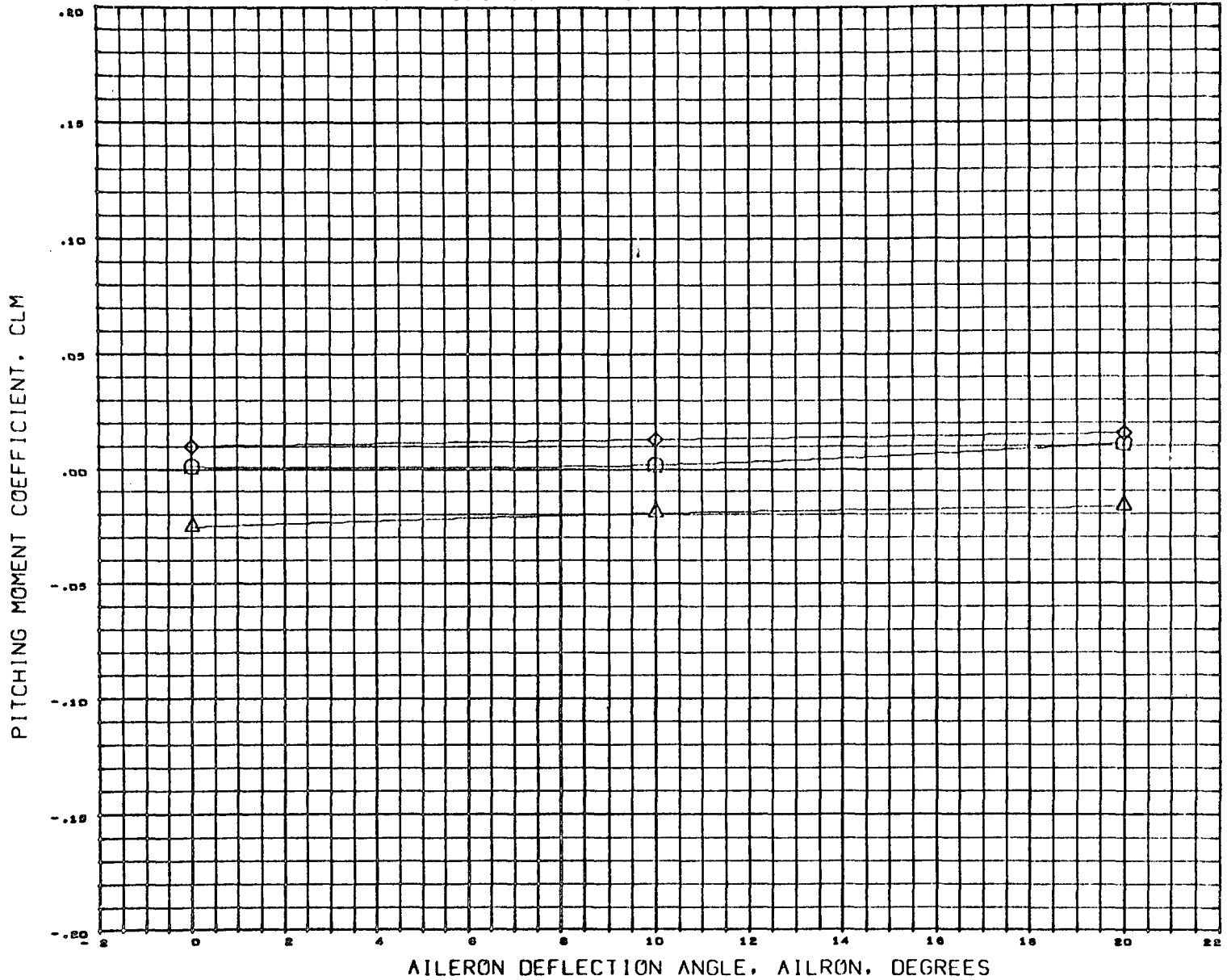
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	SREF	LREF	BREF
○	0.000	1.000	0.000	3.000	0.000	1.3550	3.4530	3.4530
△	0.150	0.000	0.000	0.000	0.000	2.5950	0.0000	0.0167
◇	15.500	0.000	0.000	0.000	1.000	0.0150	0.0150	0.0150
		ELEVTR	RUDDER	CANARD	CNDPOS	YMRP	ZMRP	SCALE
		1.000	1.000	0.000	1.000	0.0000	0.0167	0.0150
		WNGPOS	CNDPOS					
		1.000	1.000					
		DATA HIST. CODE	I*AM					

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



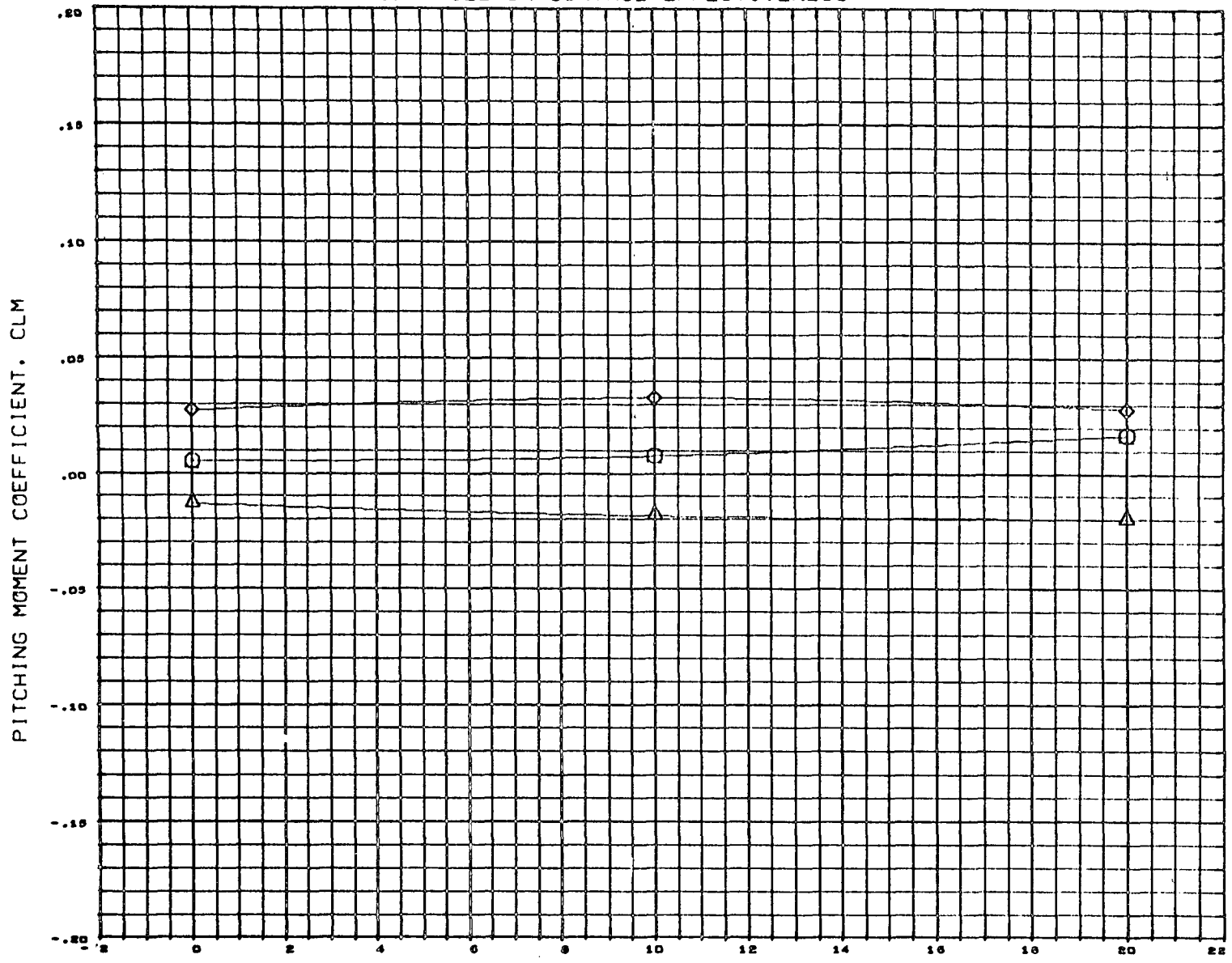
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	0.000	SREF	1.3550	SQ. FT.
◇	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4550	FEET
△	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4550	FEET
		ELEVTR	0.000	RUDDER	0.000	YMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	ZMRP	0.0000	FEET
		DATA HIST. CODE	I*AM			SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



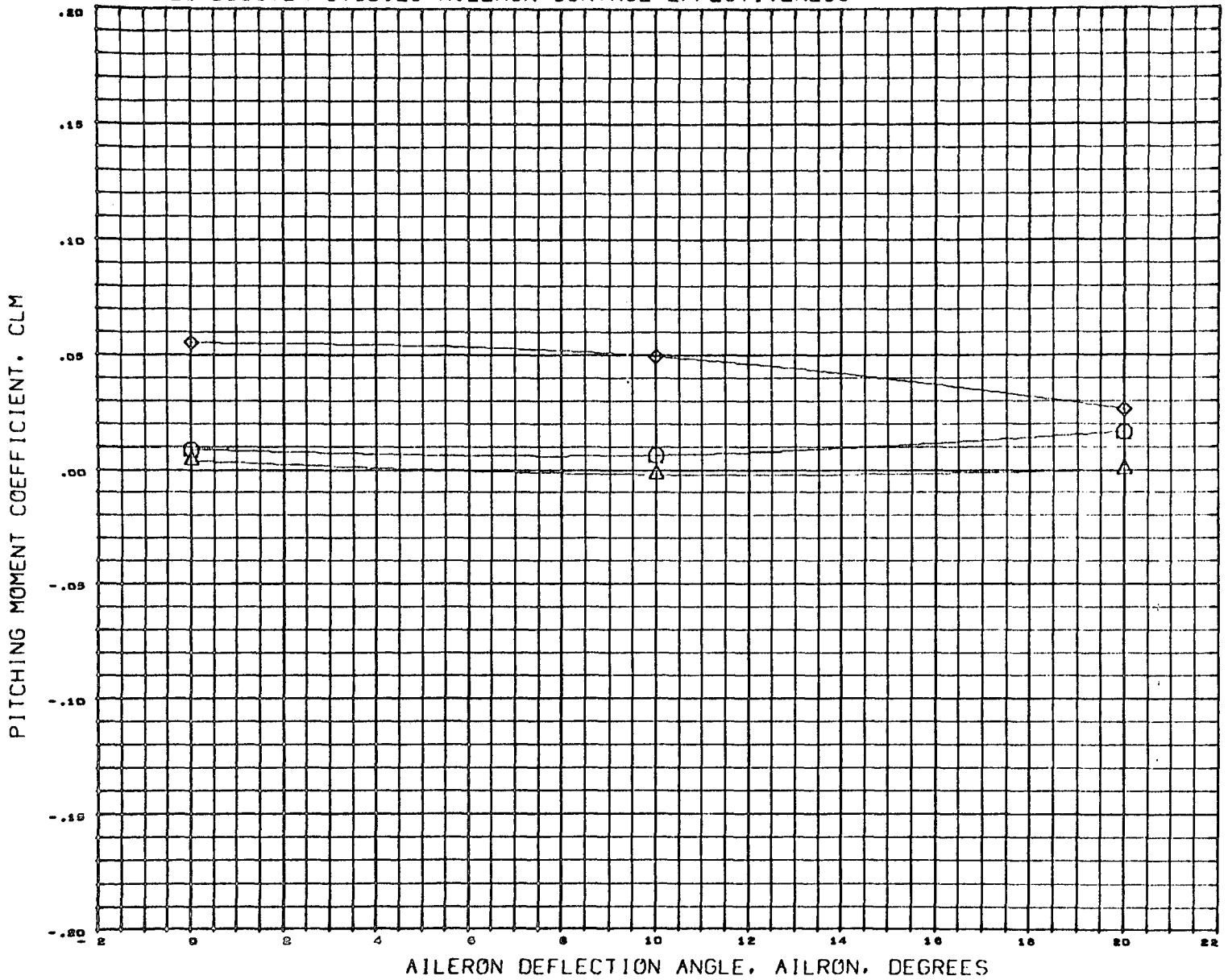
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	INCIDC	INCIDW	DELTA	BREF	LREF	SCALE
○	0.000	0.800	3.000	0.000	1.3550	3.4530	80. FT.	
△	0.150	0.000	0.000	0.000	3.4530	FEET		
◇	15.900	0.000	0.000	0.000	2.9950	FEET		
		ELEVTR	0.000	RUDDER	0.000	YMRP	0.0000	FEET
		WINGPOS	1.000	CNDPOS	1.000	ZMRP	0.0187	FEET
		DATA HIST. CODE	19AM			SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



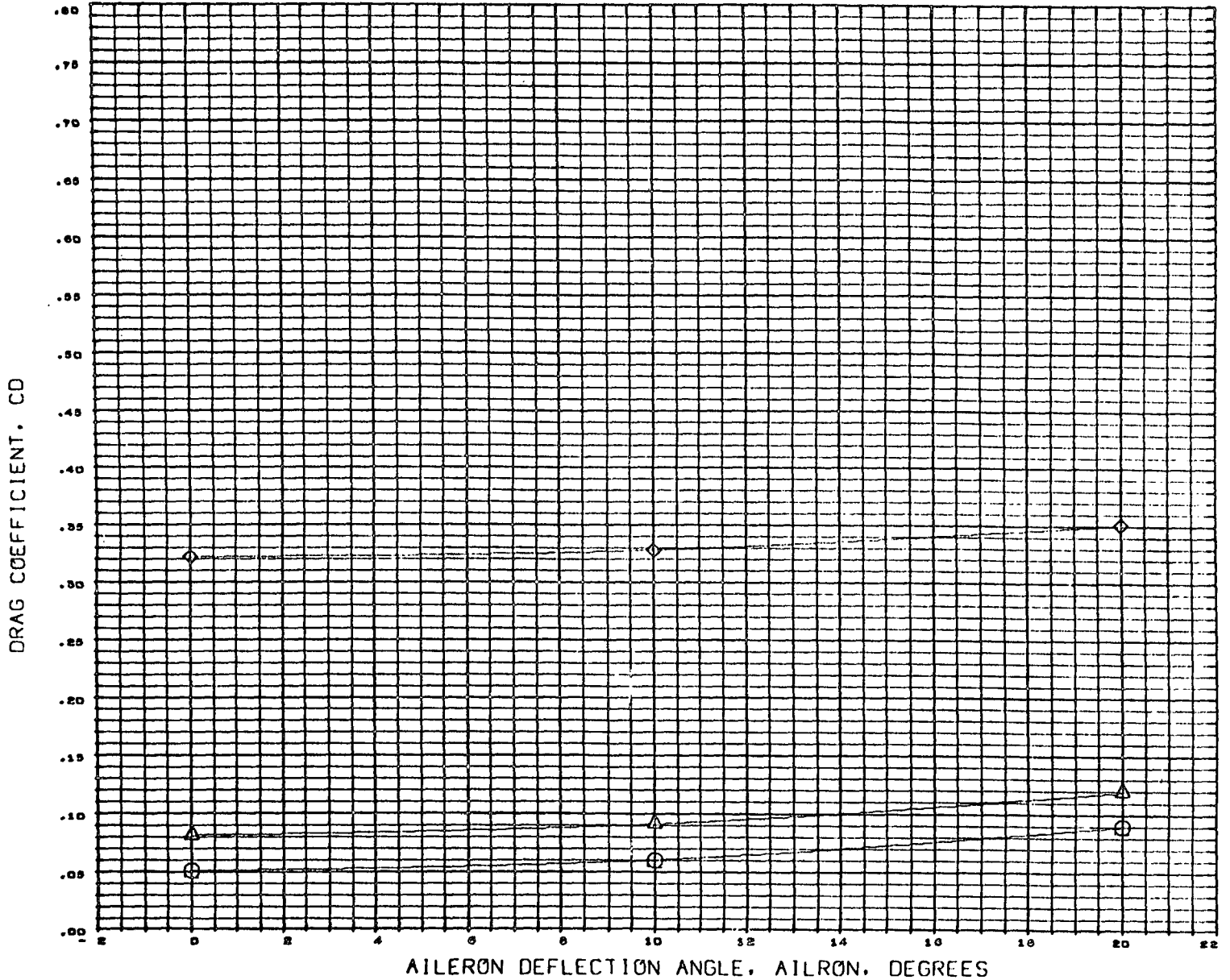
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
◇	0.000	<u>MACH</u>	0.900	<u>BETA</u>	0.000	SREF	1.3950	80. FT.
○	0.190	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4930	FEET
◇	19.500	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	BREF	3.4930	FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	XMRP	2.9950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		<u>DATA HIST. CODE</u>	1*AM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



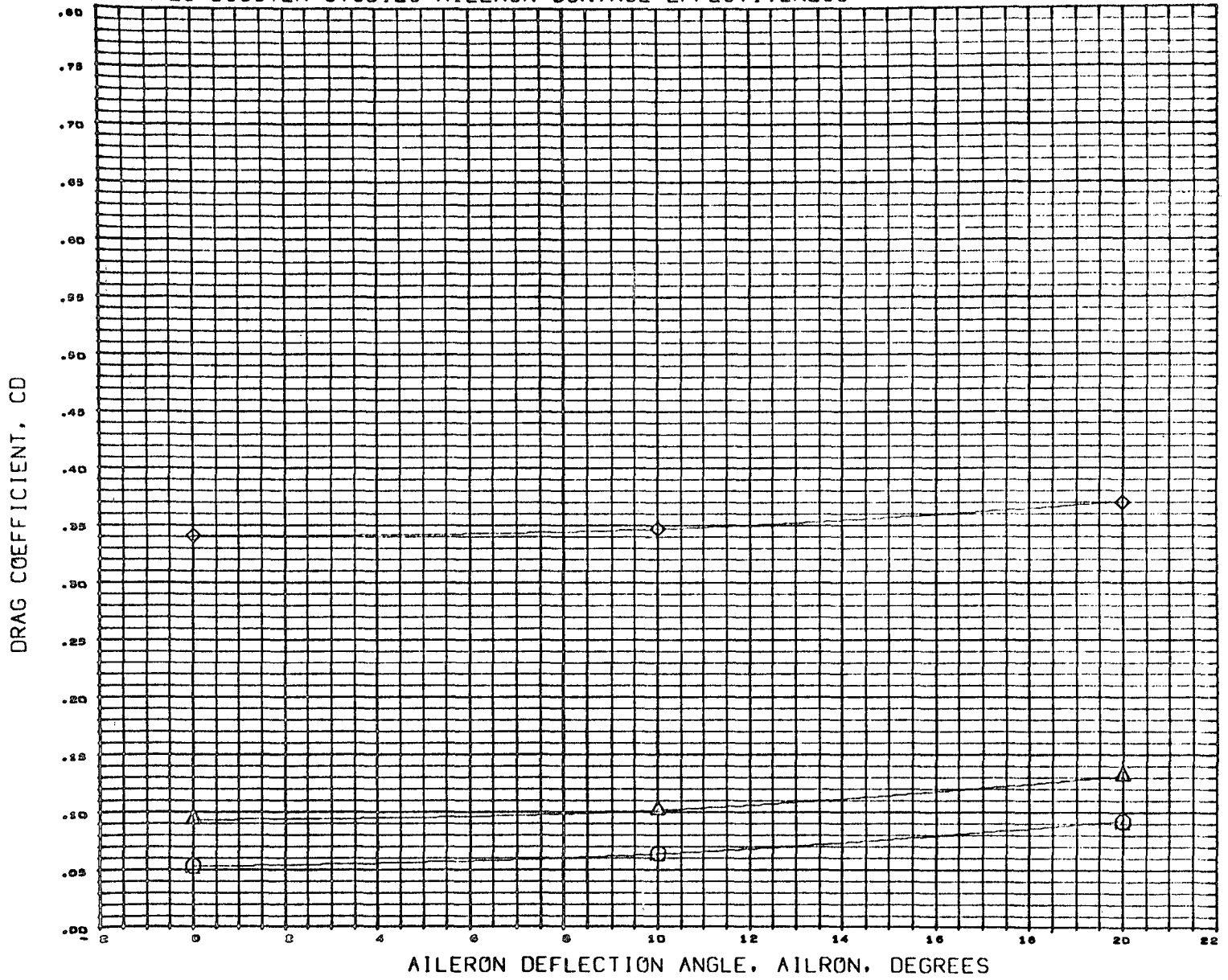
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	SREF	LREF	SCALE
○	0.000	1.000	0.000	3.000	0.000	1.3550	SQ. FT.	
△	0.190	0.000	0.000	0.000	0.000	3.4530	FEET	
◇	19.900	0.000	0.000	0.000	0.000	3.4330	FEET	
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.9950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	19AM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



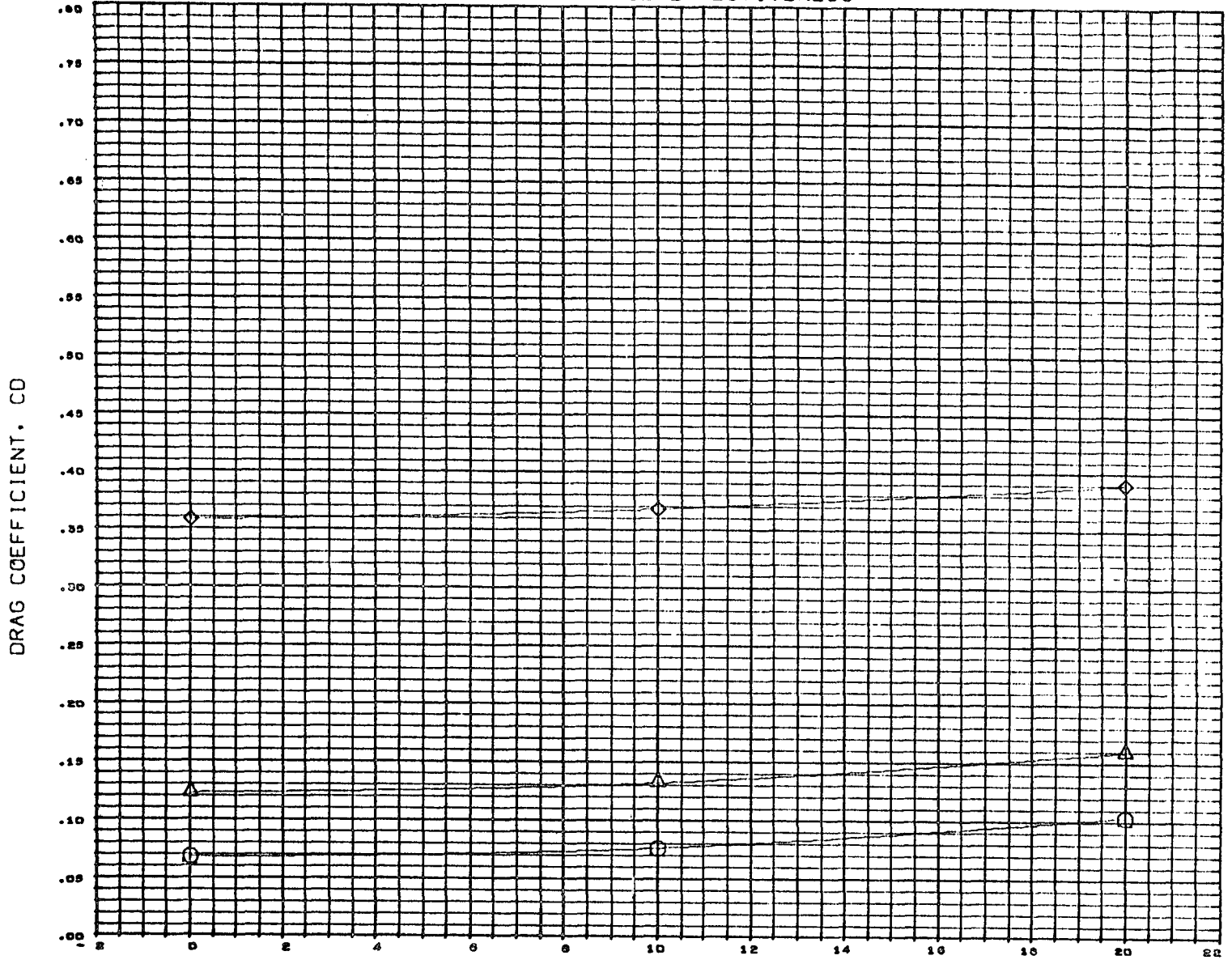
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	0.000	BREF	1.3550	50. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.800	BETA	0.000	SREF	1.3550	80. FT.
△	0.890	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	13.900	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	14AM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

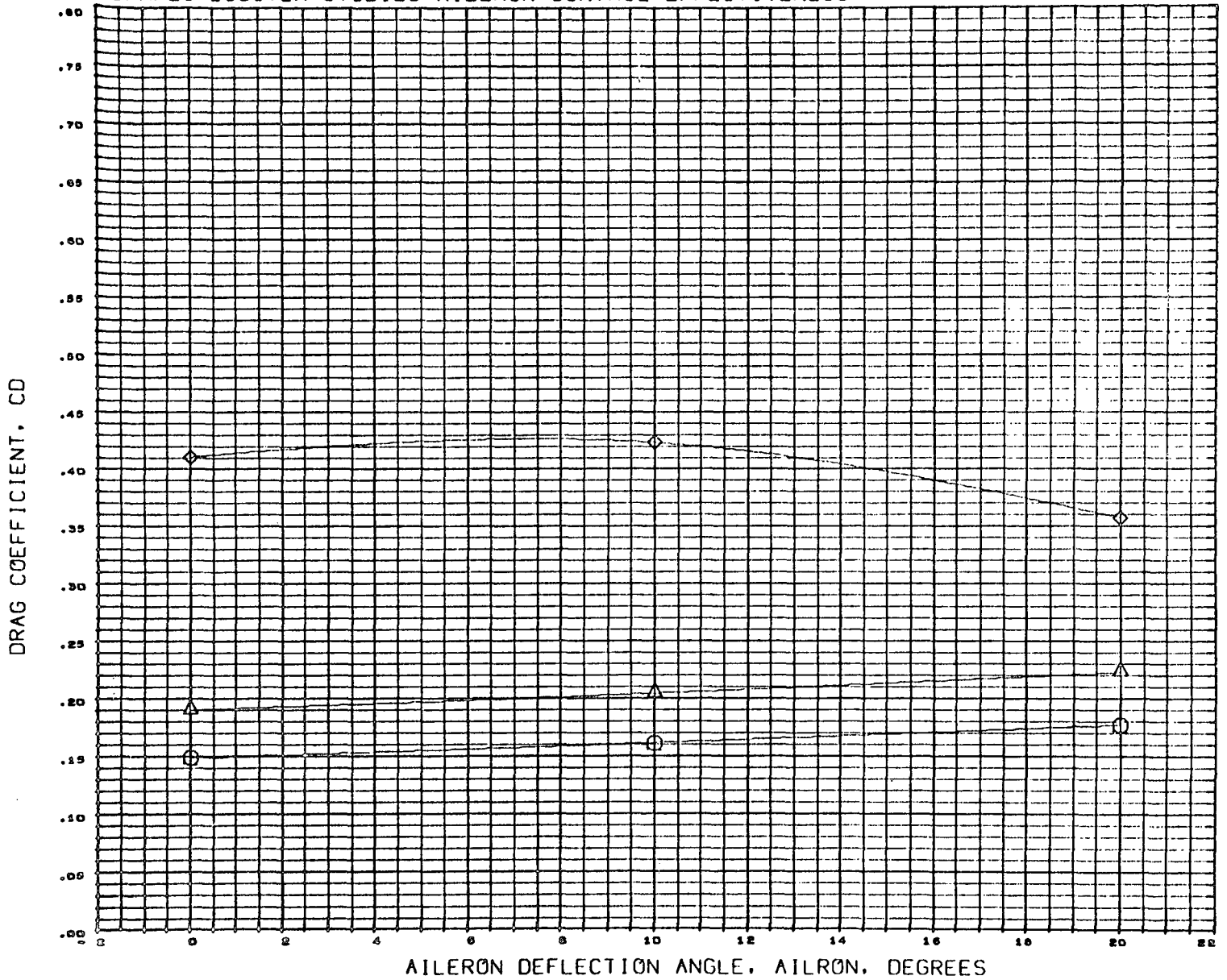
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



AILERON DEFLECTION ANGLE, AILERON, DEGREES

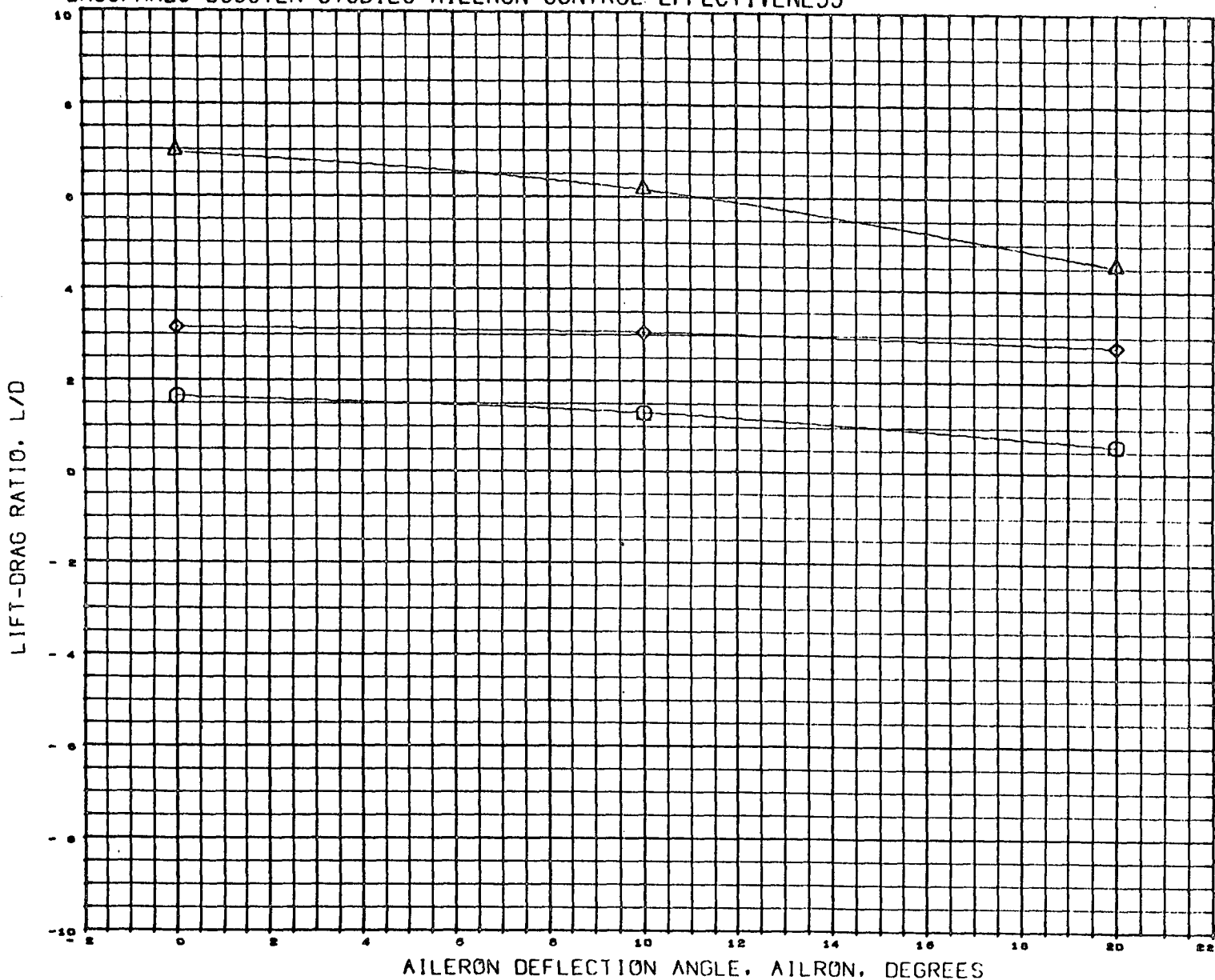
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.900	BETA	0.000	BREF	1.3550	SQ. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.9950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
		DATA HIST. CODE	19AM			SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MASH	1.000	BETA	0.000	SREF	1.3550	SQ. FT.
△	0.190	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	0.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.9950	FEET
		ENGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	10AM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

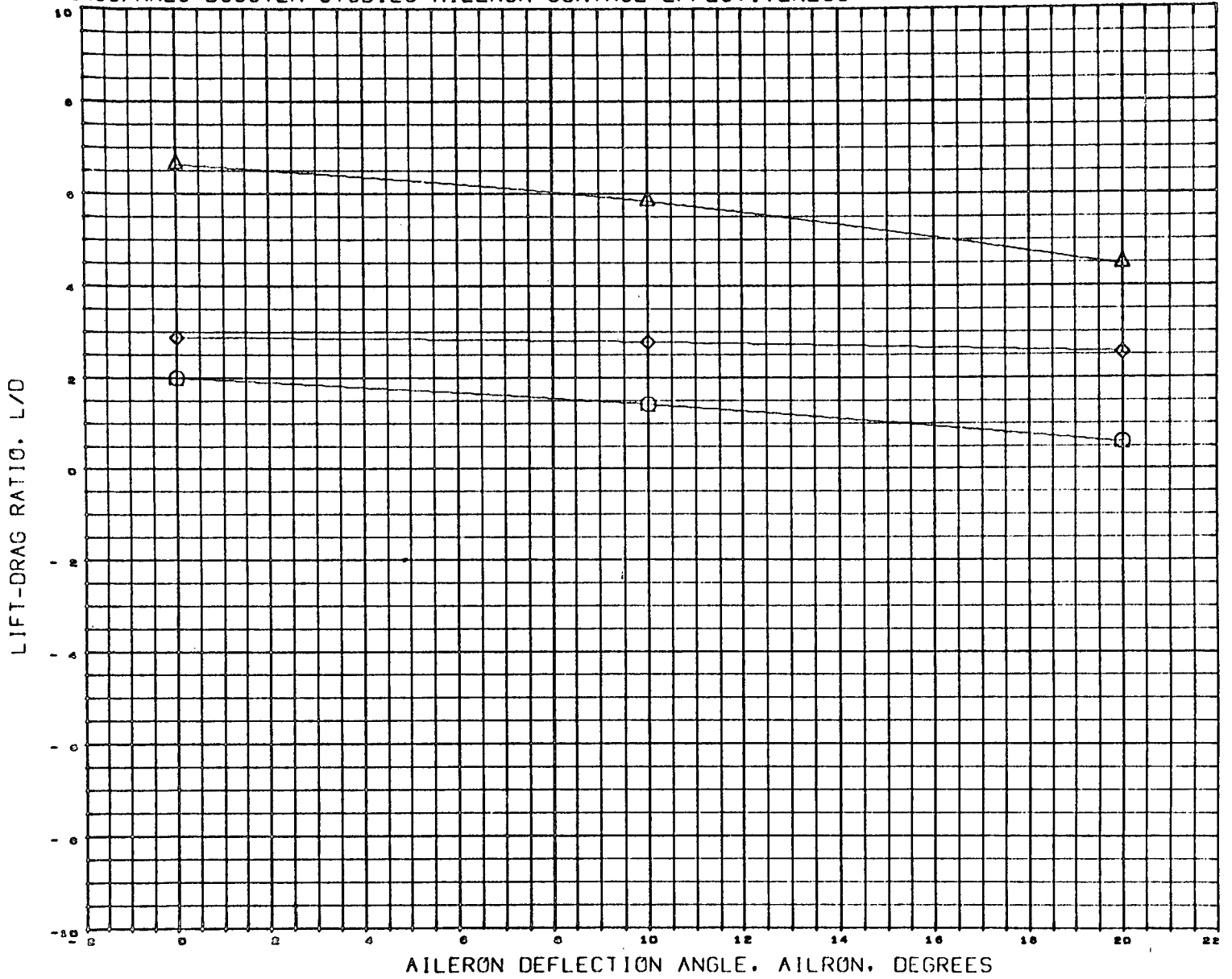
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



AILERON DEFLECTION ANGLE, AILERON, DEGREES

SYMBOL	PARAMETRIC VALUES				REFERENCE INFORMATION		
	ALPHA	MACH	BETA	INCIDW	SREF	SO. FT.	
○	0.000	0.700	0.000	0.000	3.4530	FEET	
△	6.150	3.000	0.000	0.000	3.4530	FEET	
◇	15.500	0.000	0.000	0.000	2.5050	FEET	
		INCIDC	CANARD	RUDDER	YMRP	FEET	
		0.000	0.000	0.000	ZMRP	FEET	
		ELEVTR	0.000	0.000	SCALE	SCALE	
		WNGPOS	1.000	CNDPOS	0.0150	SCALE	
		DATA HIST. CODE	1*AM				

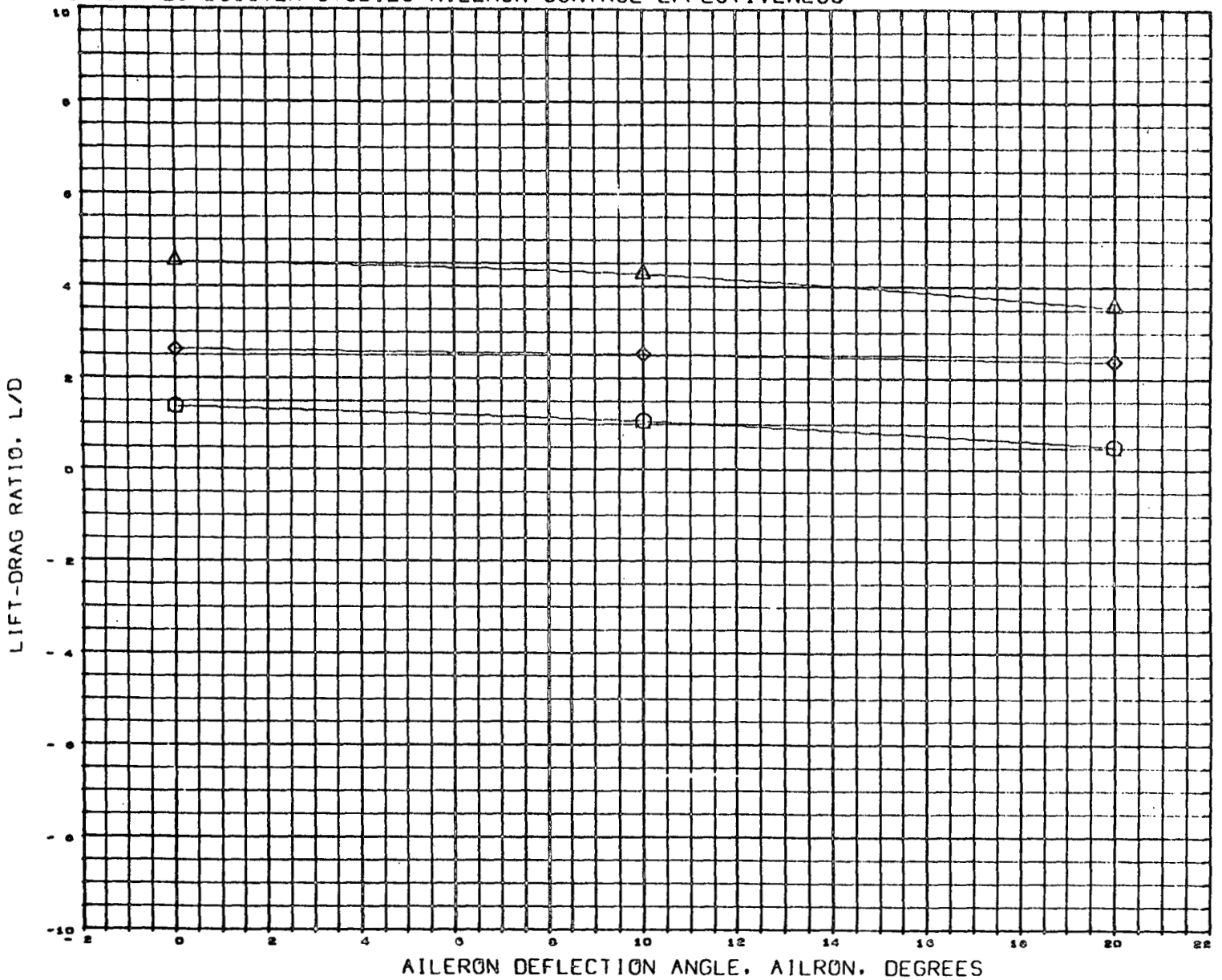
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	SREF	LREF	BREF
○	0.000	0.000	0.000	0.000	0.000	1.3550	3.4530	3.4630
△	0.190	0.000	0.000	0.000	0.000	2.9950	0.0000	0.0167
◇	19.500	0.000	0.000	0.000	0.000	0.0150	0.0150	0.0150

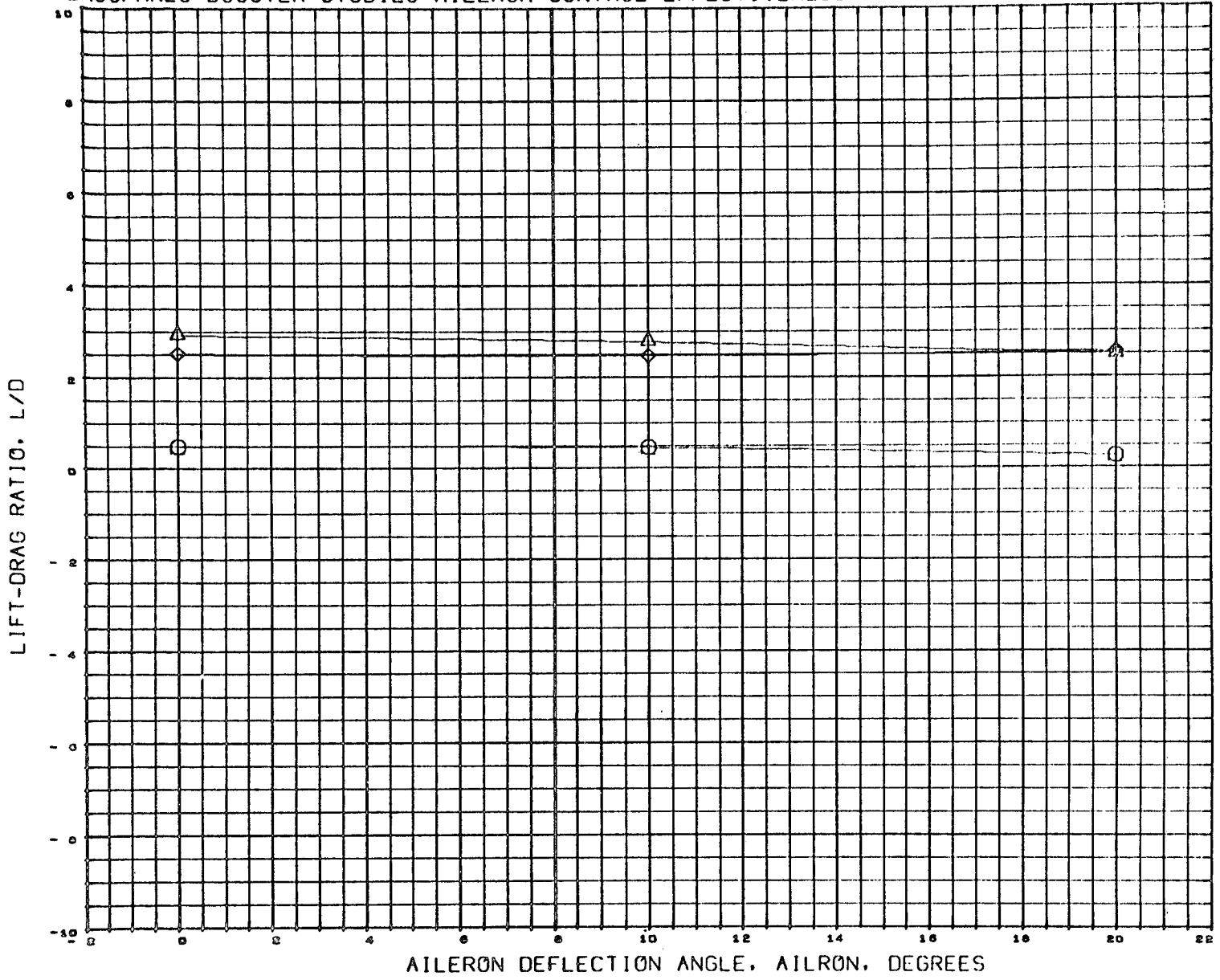
DATA HIST. CODE 1*AM

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	○	ALPHA	0.000	PARAMETRIC VALUES				REFERENCE INFORMATION		
	△	0.190	MACH	0.900	BETA	0.000	BREF	1.3550	SQ. FT.	
	◇	15.500	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET	
			MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET	
			ELEVTR	0.000	RUDDER	0.000	XMRP	2.5050	FEET	
			WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET	
			DATA HIST. CODE	19AM			ZMRP	0.0167	FEET	
							SCALE	0.0150	SCALE	

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS

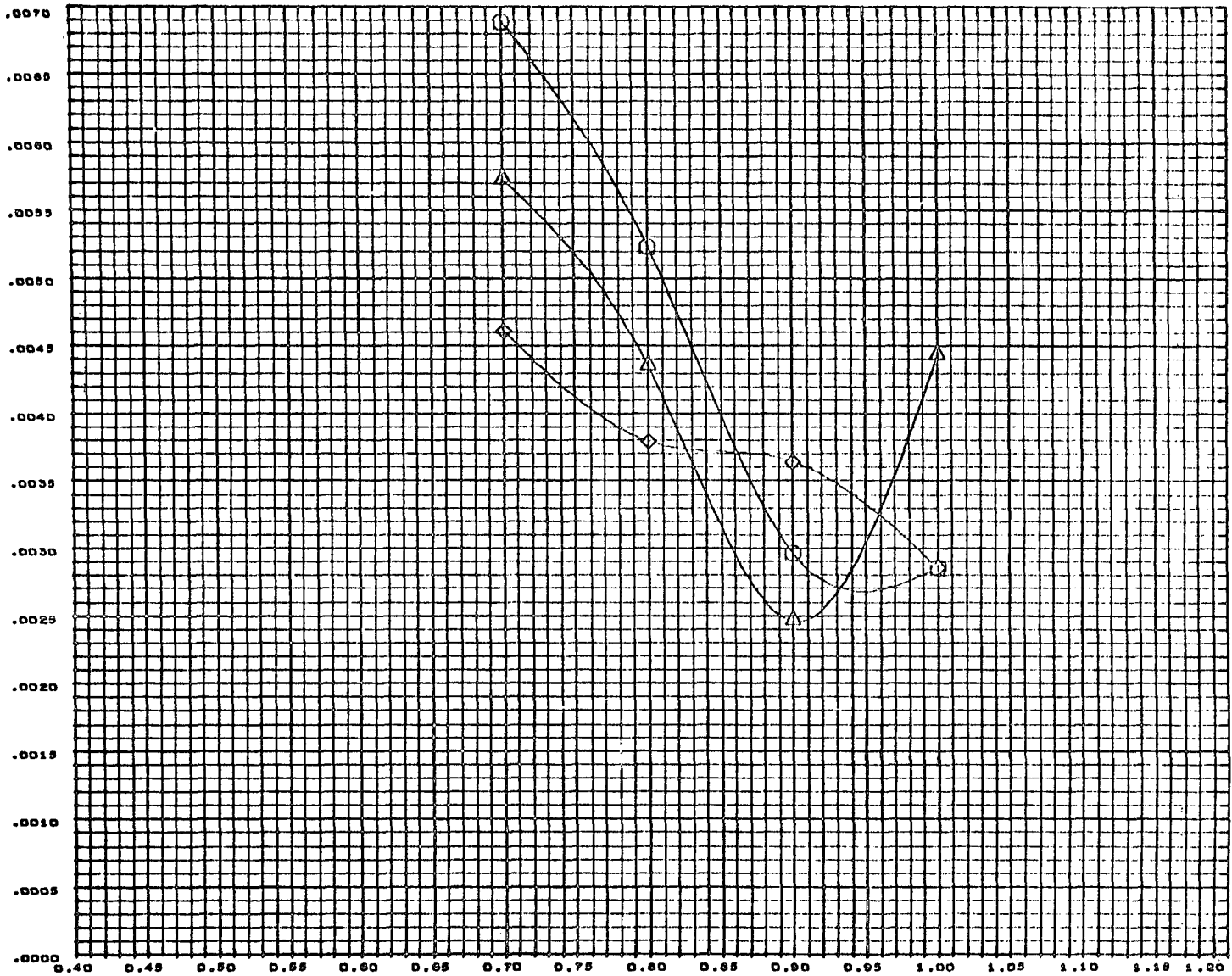


SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
		MACH	BETA	INCIDC	INCIDW	SRF	LRF	BRF
○	0.000	1.000	0.000	3.000	0.000	1.3550	3.4530	3.4530
△	0.190	1.000	0.000	3.000	0.000	2.9950	3.4530	3.4530
◇	19.900	1.000	0.000	3.000	1.000	0.0000	0.0187	0.0150

DATA HIST. CODE 15AM
 SRF 80.FT.
 LRF FEET
 BRF FEET
 XMRP FEET
 YMRP FEET
 ZMRP FEET
 SCALE SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

SIDE FORCE DUE TO AILERON, DCY/DA, PER DEGREE



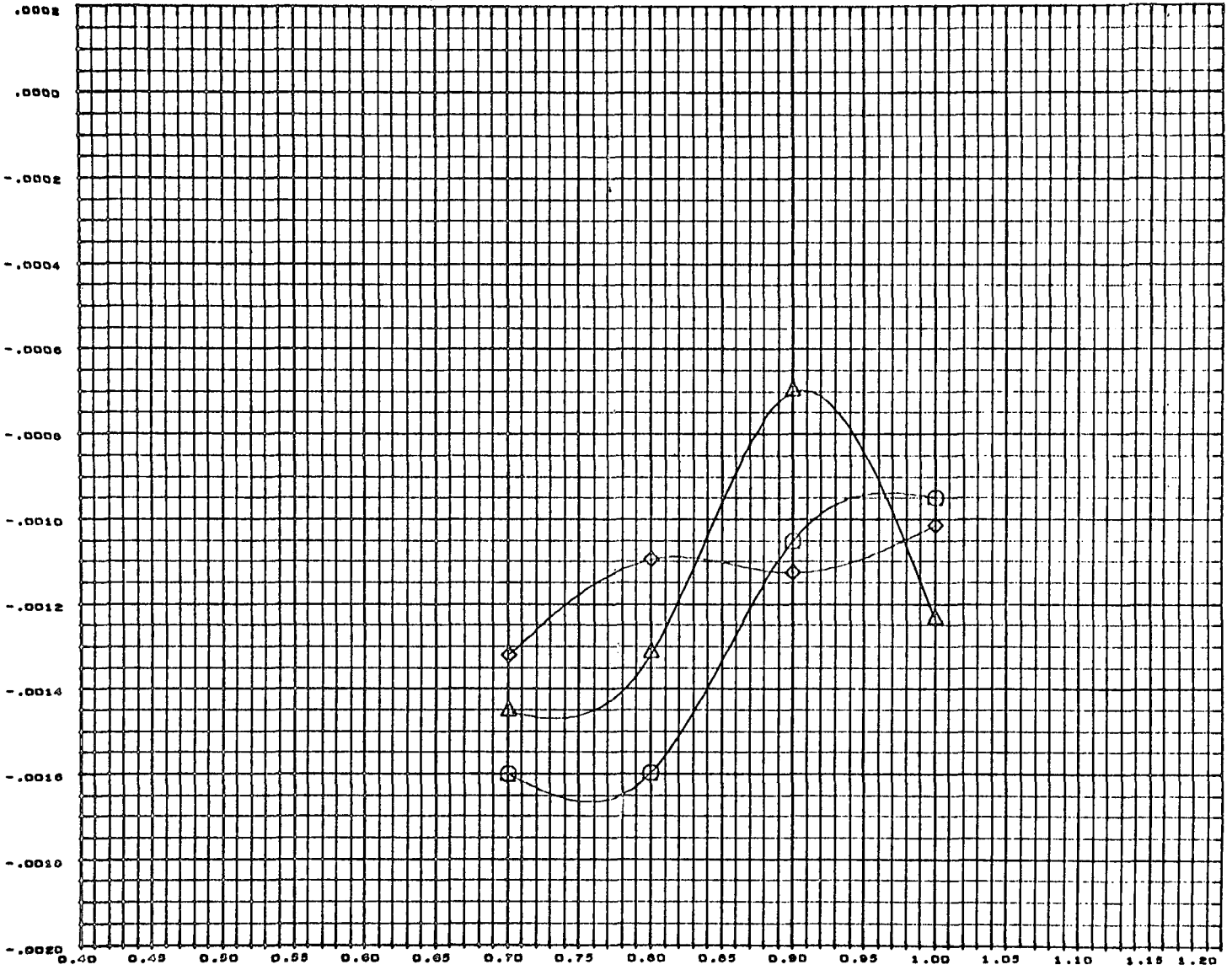
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(DN3007)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.062	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(DN3008)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.179	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.507	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

BETA 0.000

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

YAWING MOMENT DUE TO AILERON, DCY/DA, PER DEGREE, (BODY AXIS)



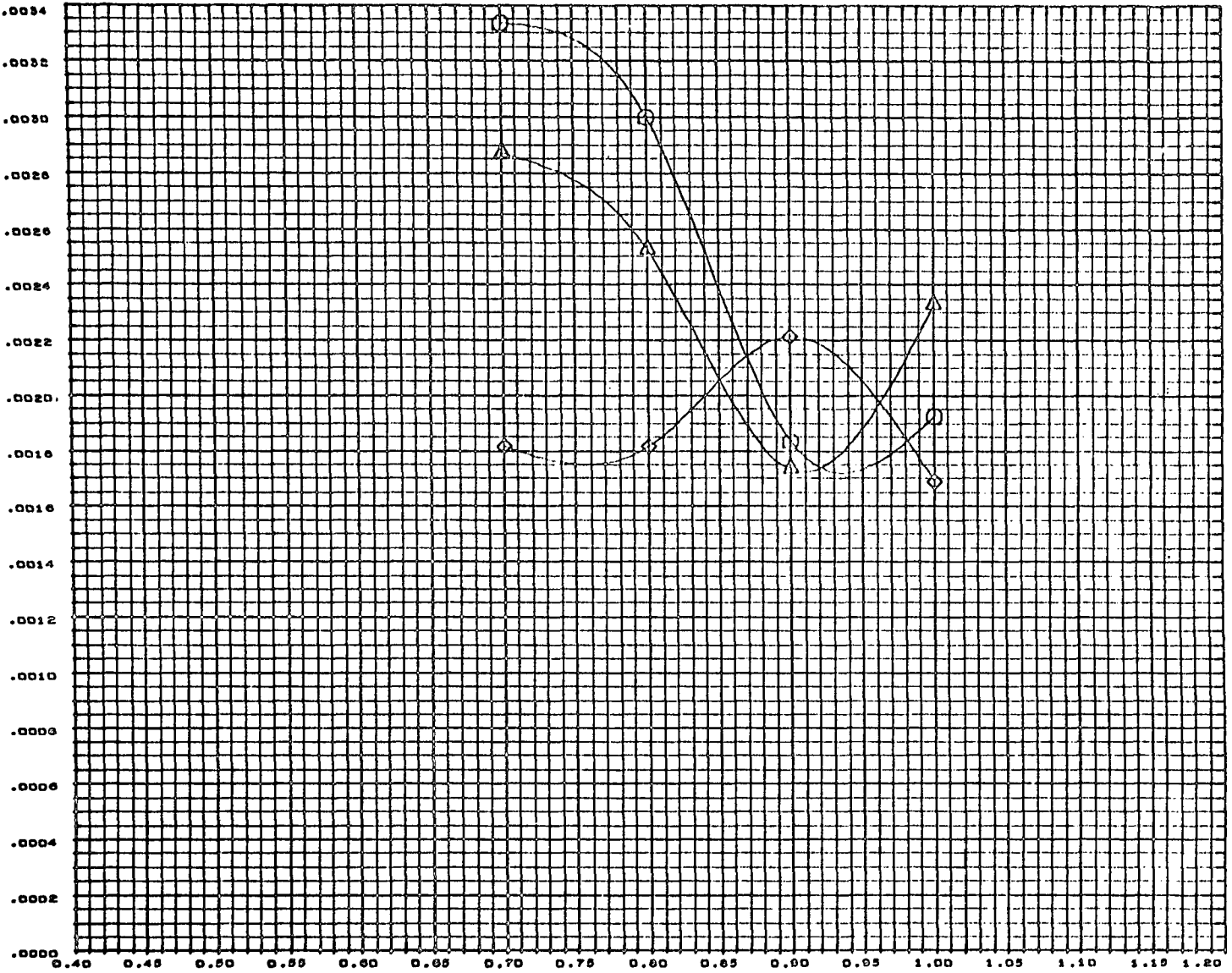
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(DN3007)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.062	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(DN3008)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.179	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3009)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.907	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

BETA 0.000

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

ROLLING MOMENT DUE TO AILERON, DCBLDA, PER DEGREE, (BODY AXIS)

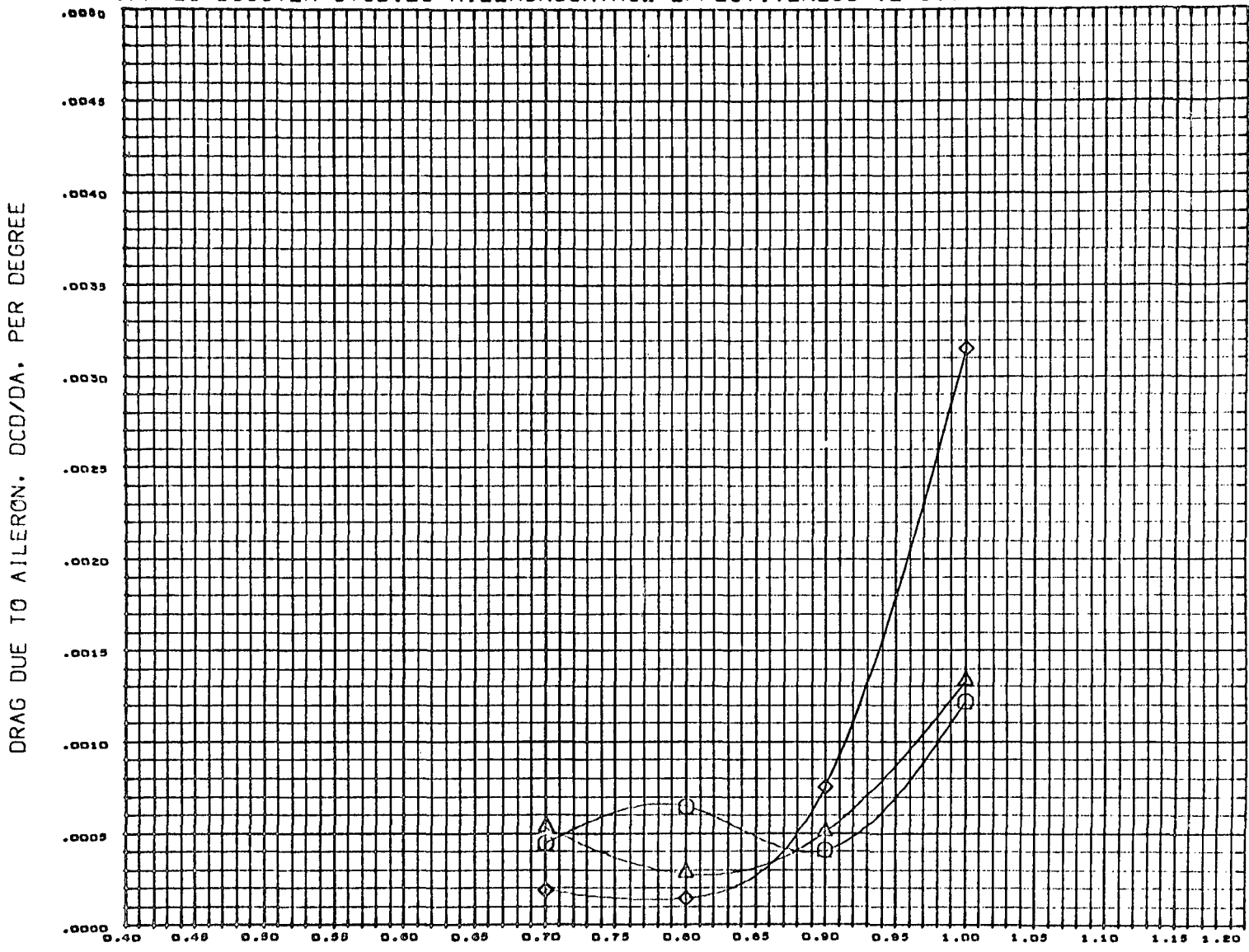


MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(DN3007)	N8RDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	0.062	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(DN3008)	N8RDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	0.179	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3009)	N8RDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.507	0.000	0.000	0.000	DREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

BETA 0.000

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



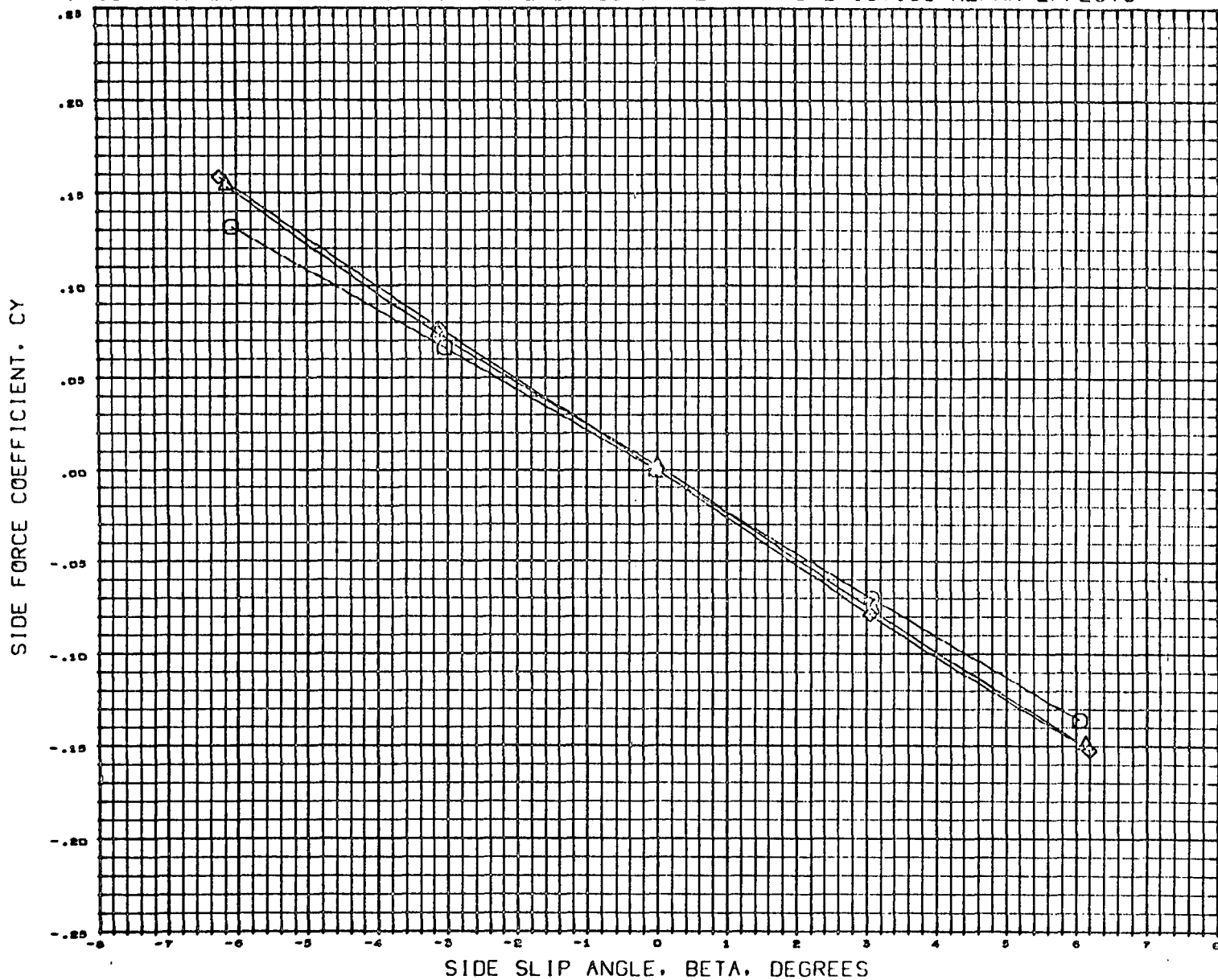
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(DN3007) ○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(DN3008) △	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(DN3009) ◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

MACH NUMBER

ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
0.062	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
6.179	0.000	0.000	0.000	LREF	3.4530 FEET
15.507	0.000	0.000	0.000	BREF	3.4530 FEET
				XMRP	2.5950 FEET
				YMRP	0.0000 FEET
				ZMRP	0.0107 FEET
				SCALE	0.0150 SCALE

BETA 0.000

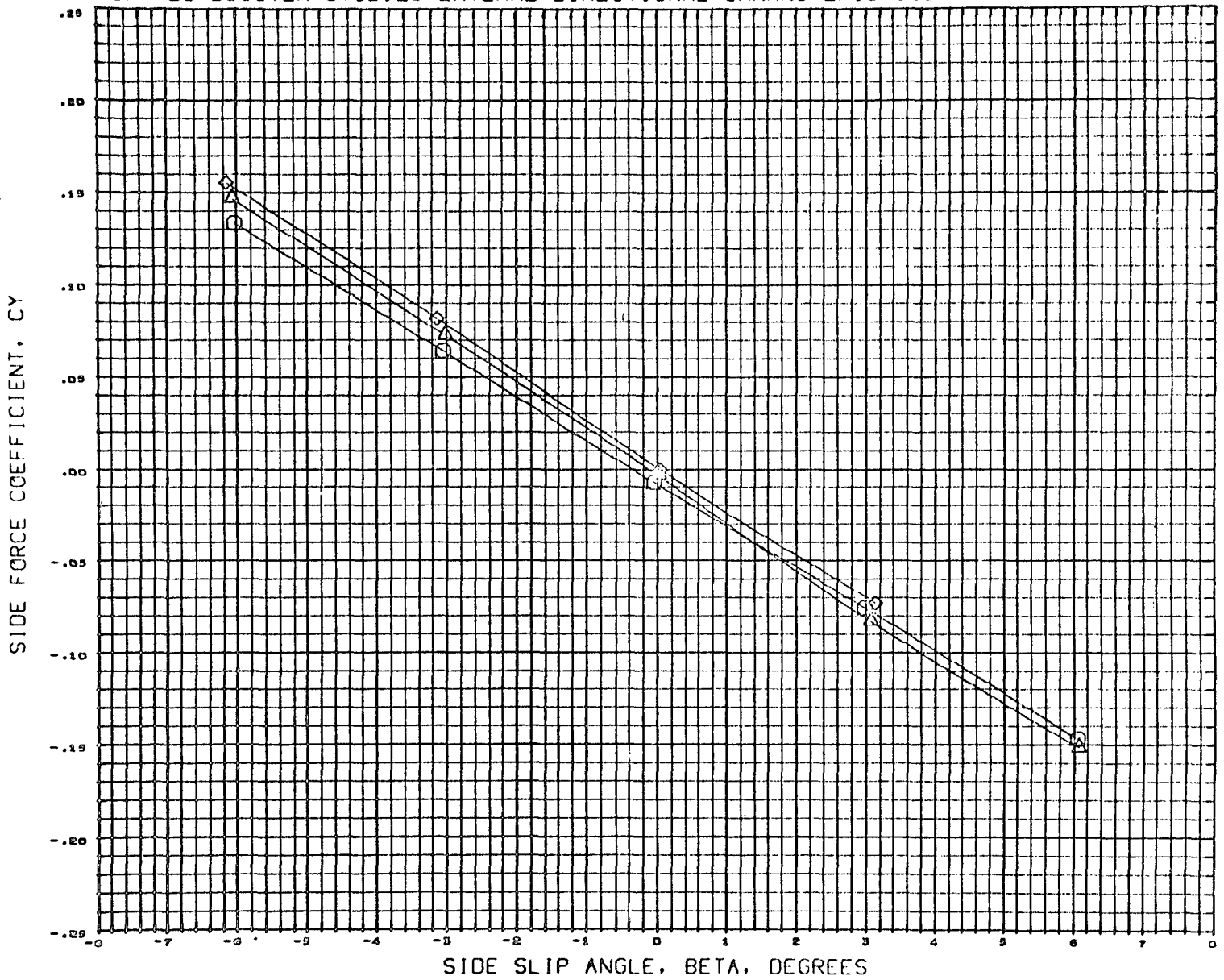
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1 C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 80.FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1 C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1 C2F2W1V1	13.500	0.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5050 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.500

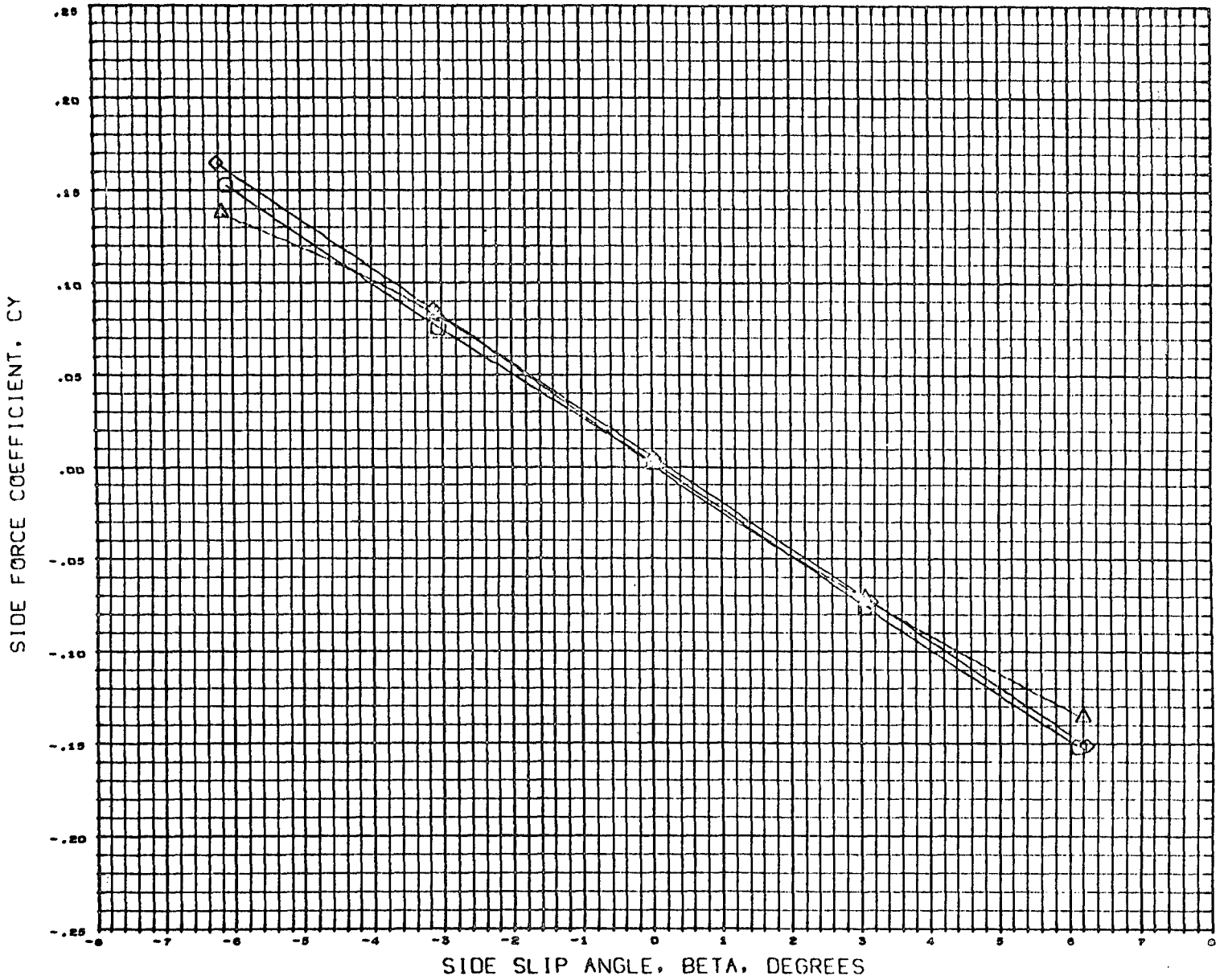
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACN 0.099

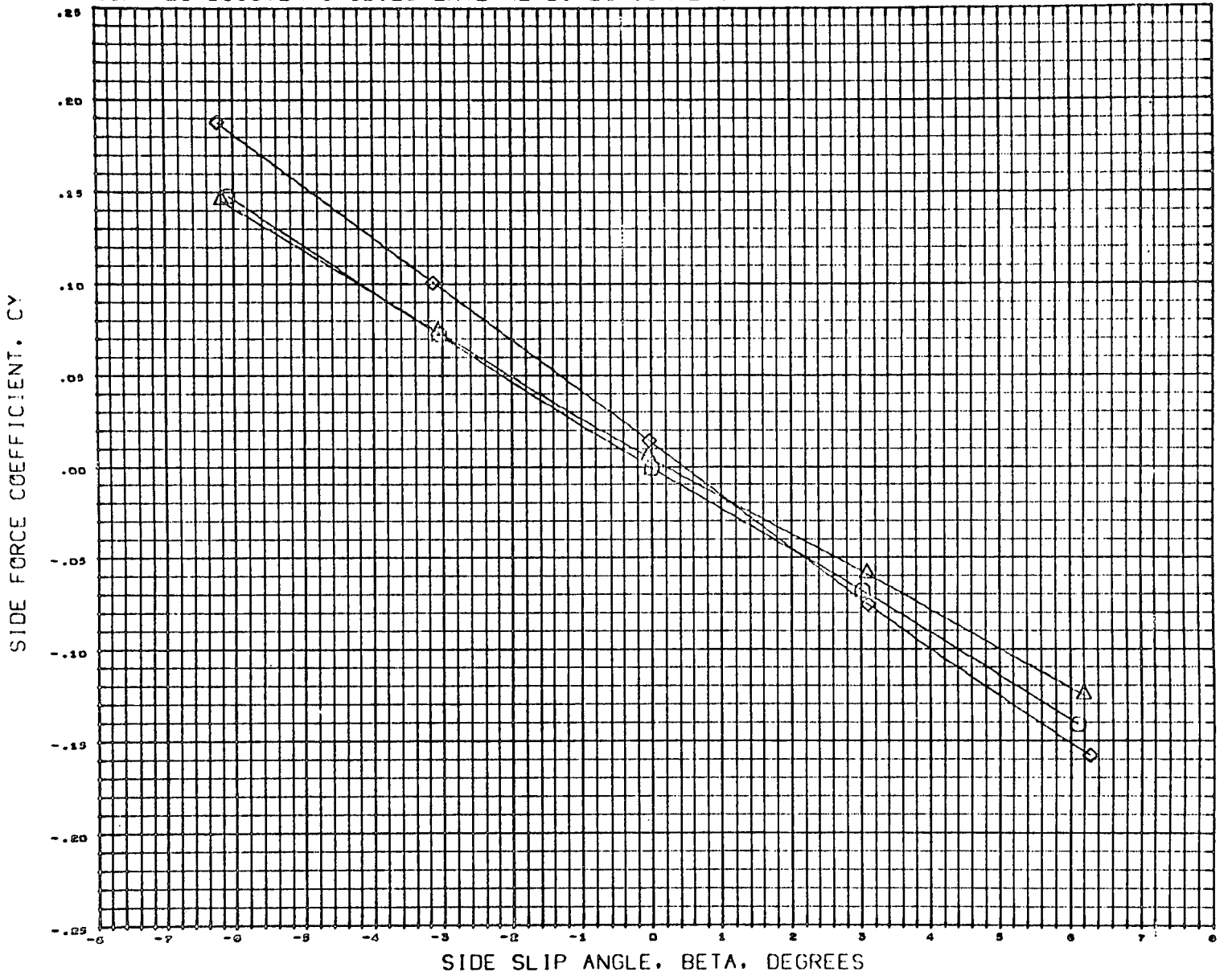
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.600

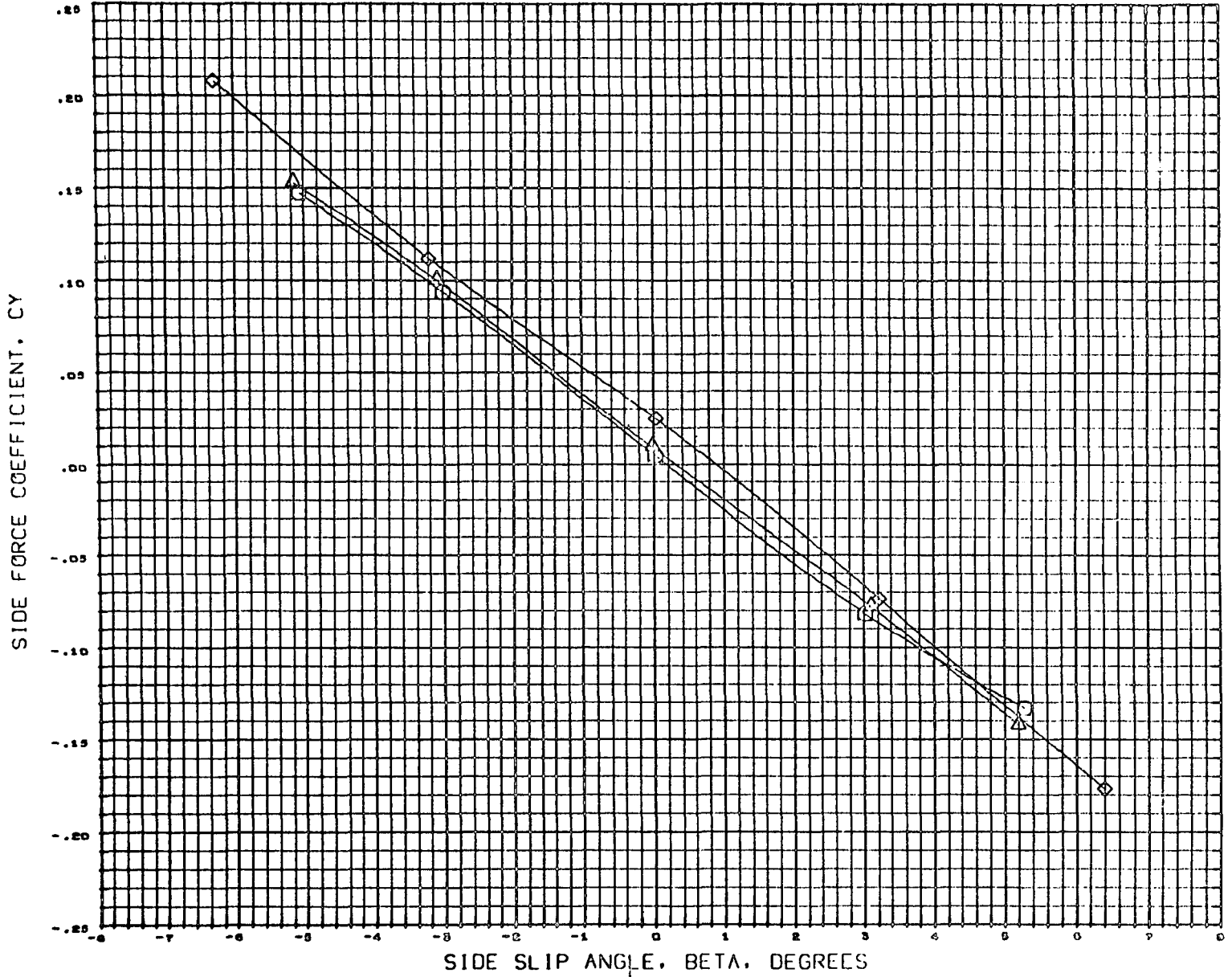
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.200	0.000	0.000	0.000	LREF	3.4930 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

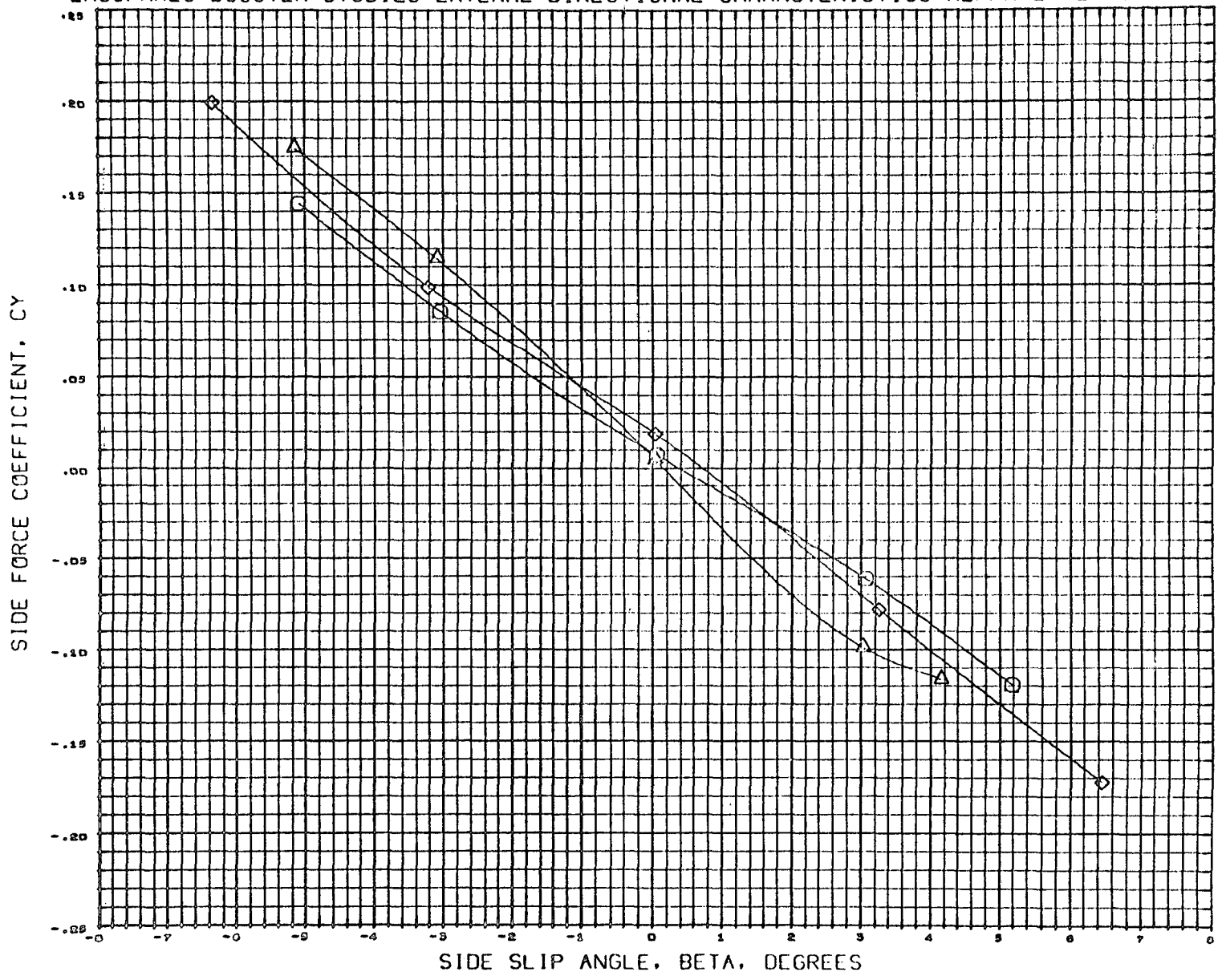
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 89.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.001

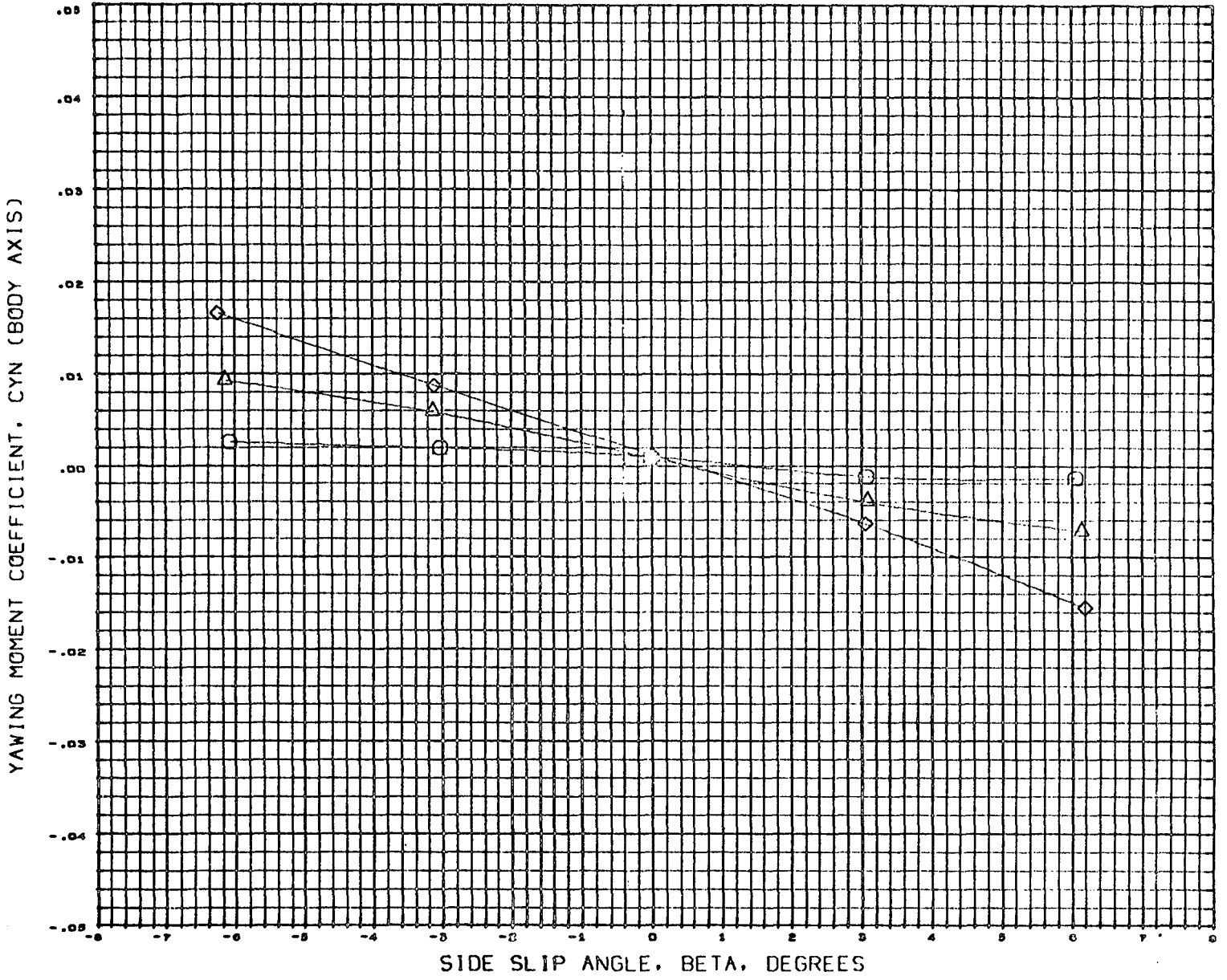
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4330 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4330 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

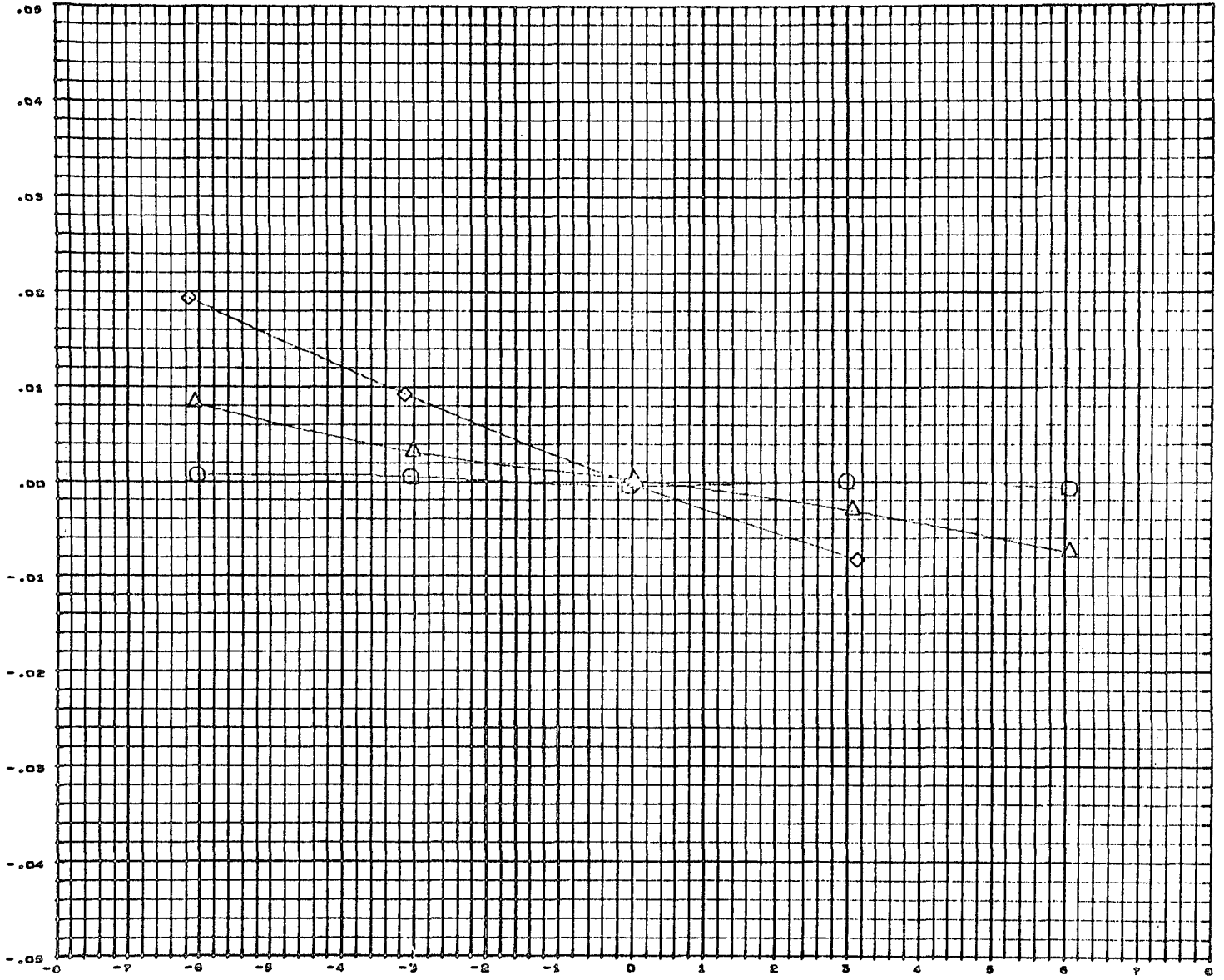


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1,3550 80.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3,4530 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.900	0.000	0.000	0.000	BREF 3,4530 FEET
						XMRP 2,9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

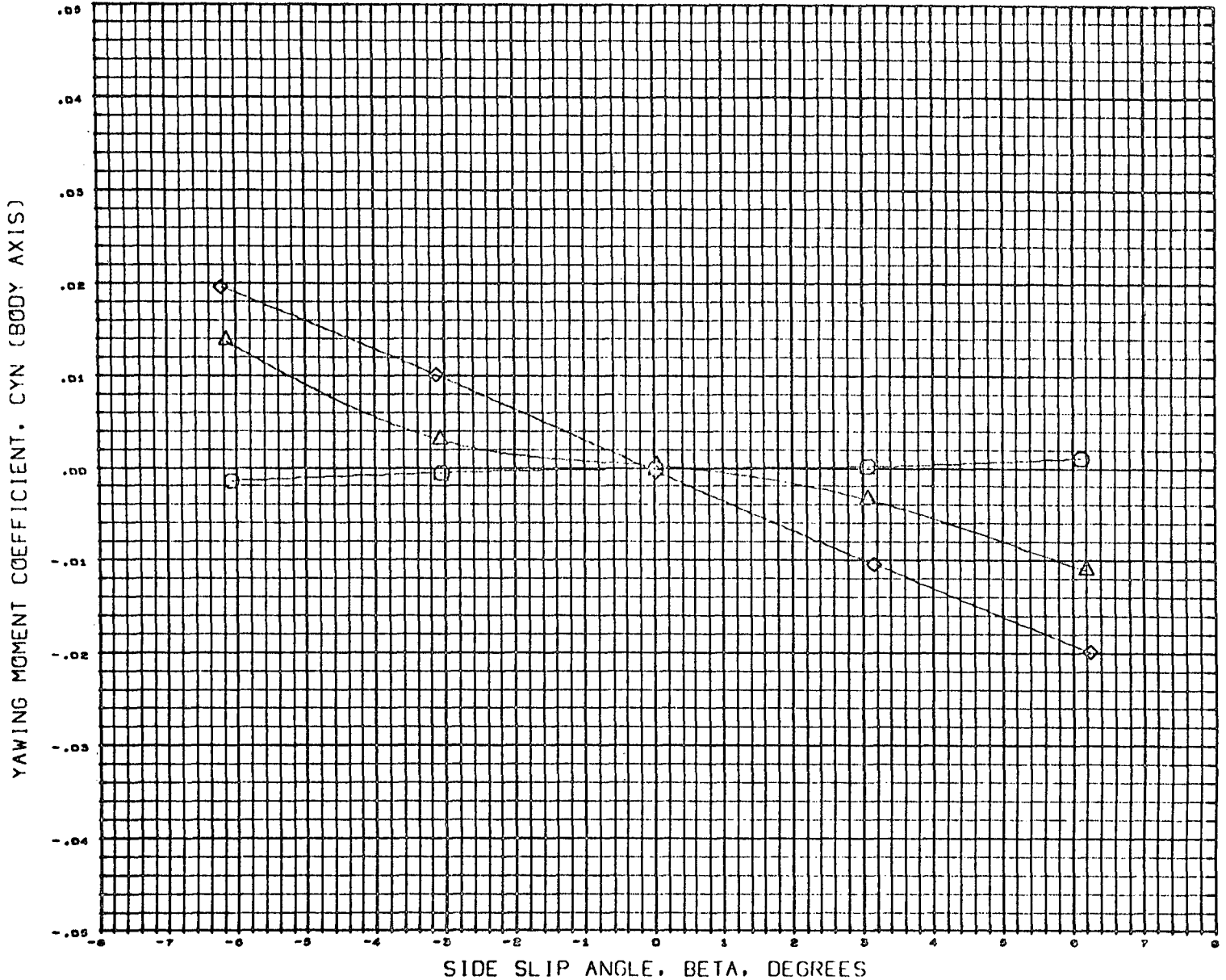


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JNS002) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 1.3550 SQ.FT.
(JNS003) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JNS004) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.900	0.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5930 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

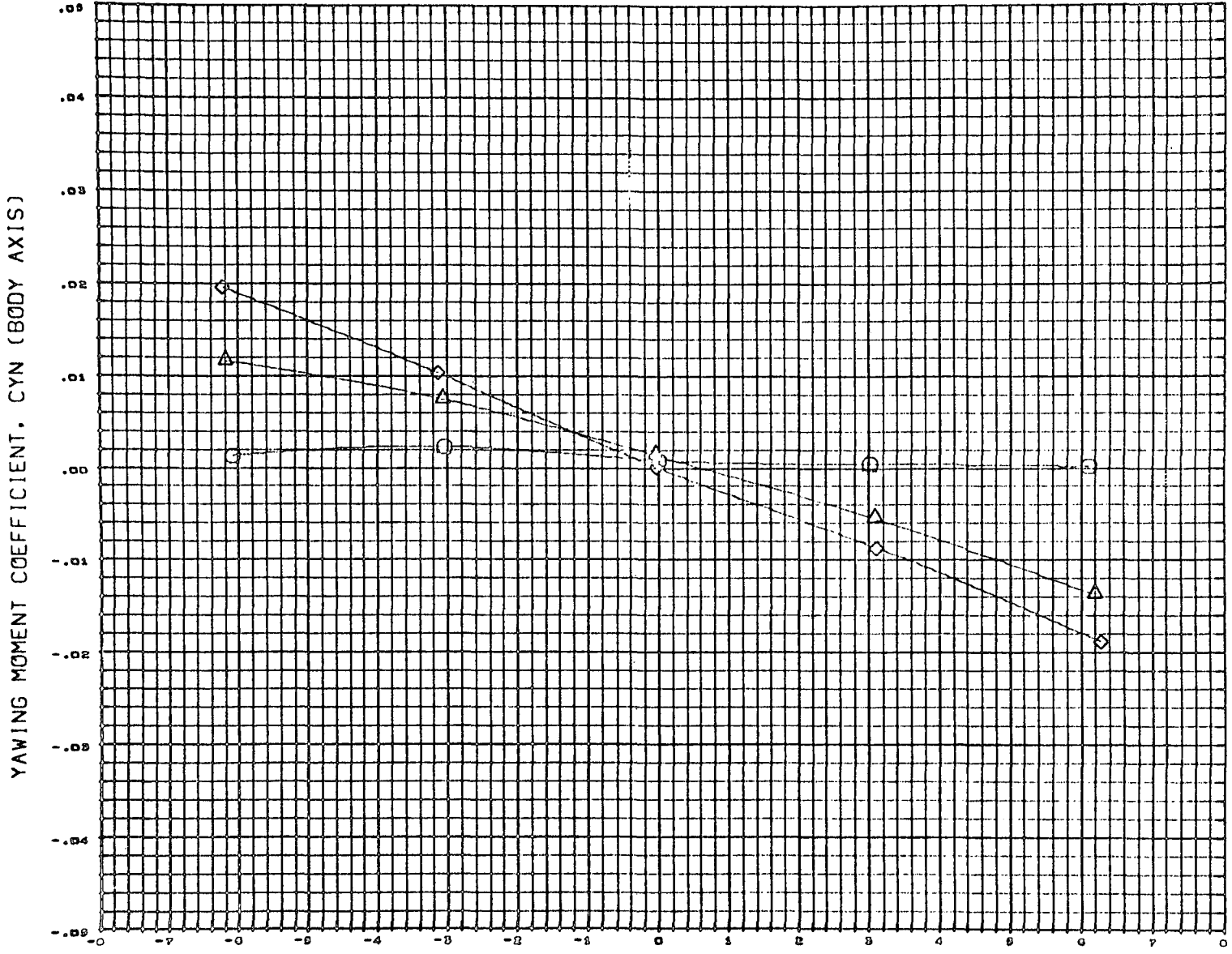


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3990 00.FT.
(JN3003) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JN3004) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

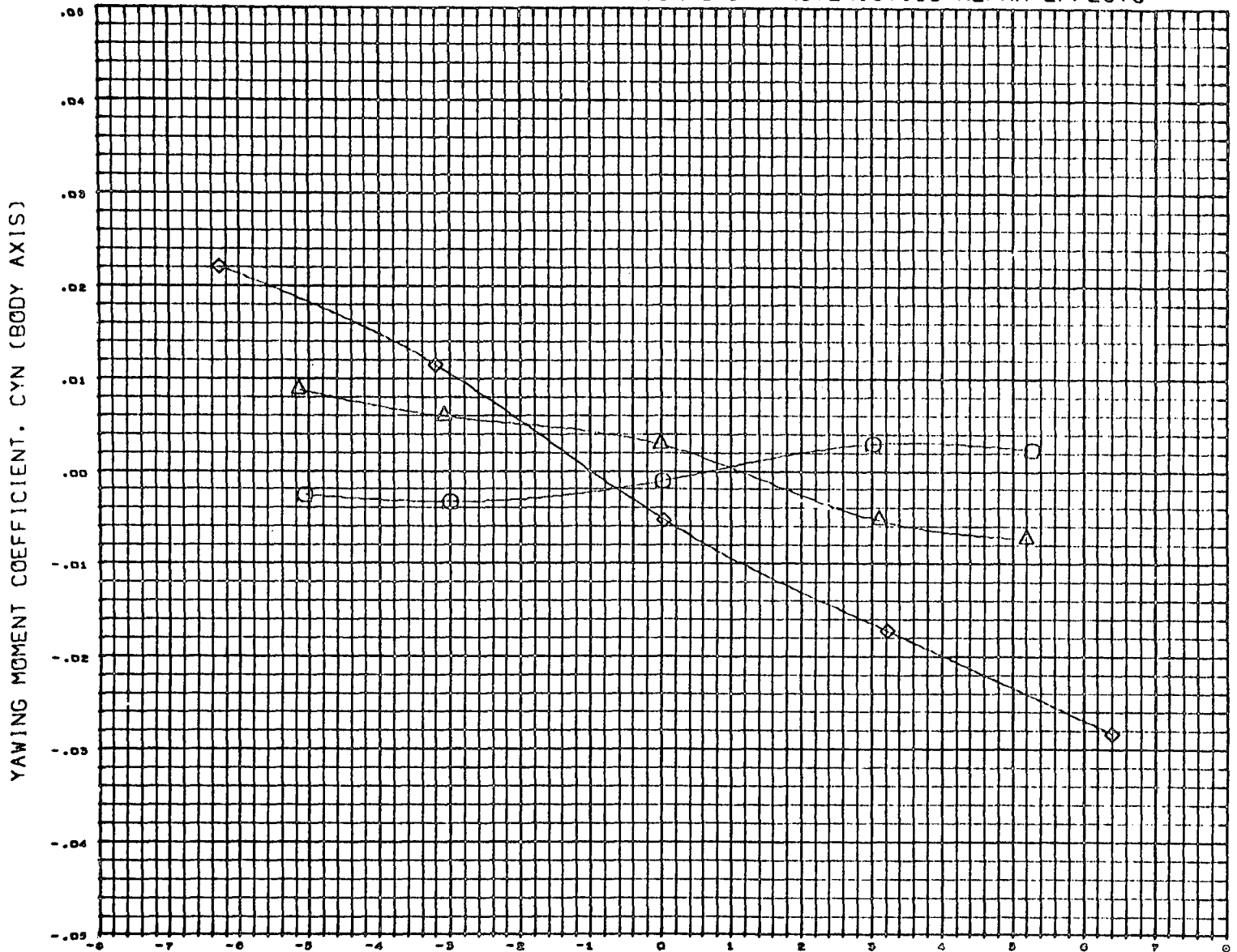


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JNS002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(JNS003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JNS004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0190 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

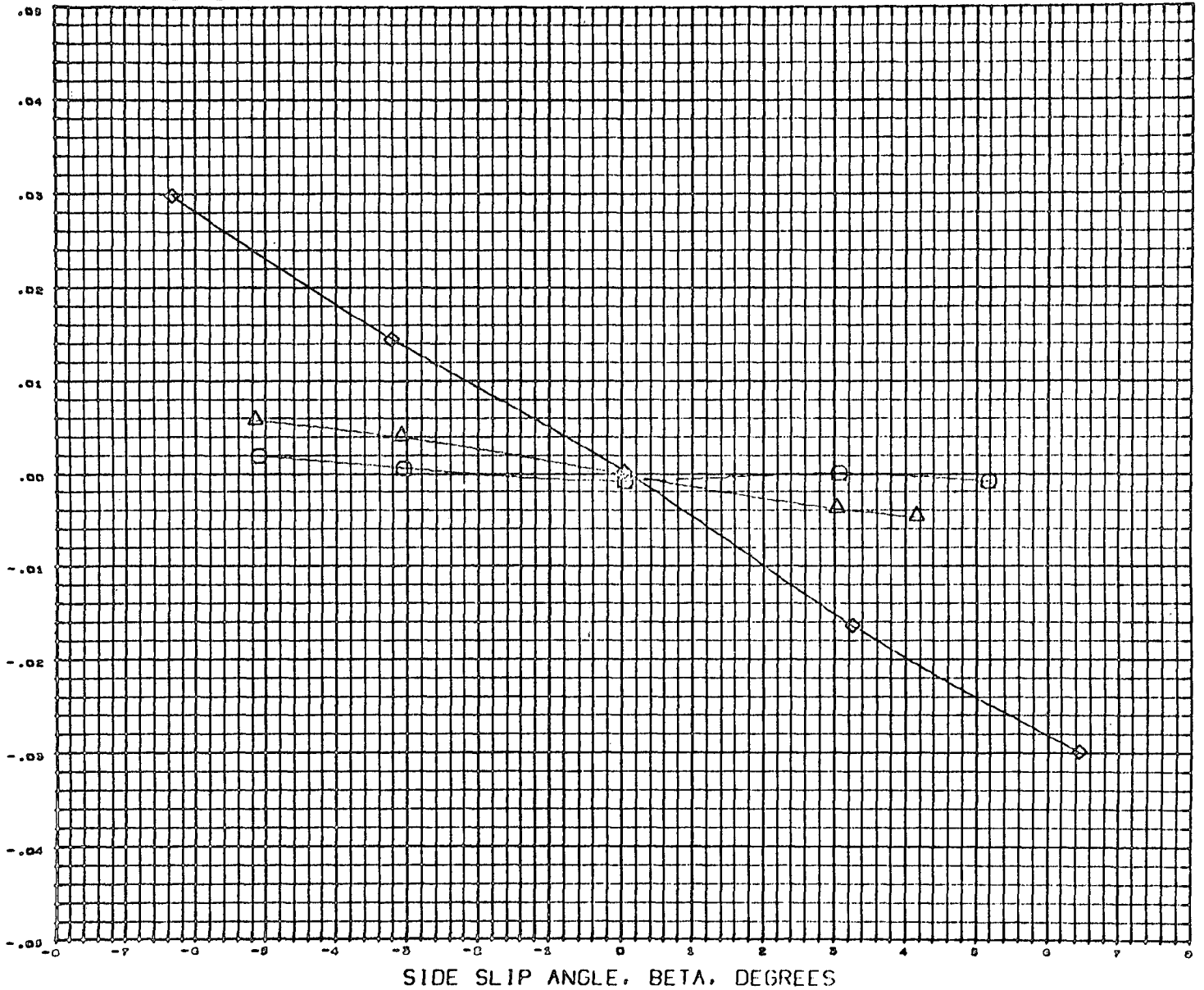


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 1.3550 SQ. FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.9050 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



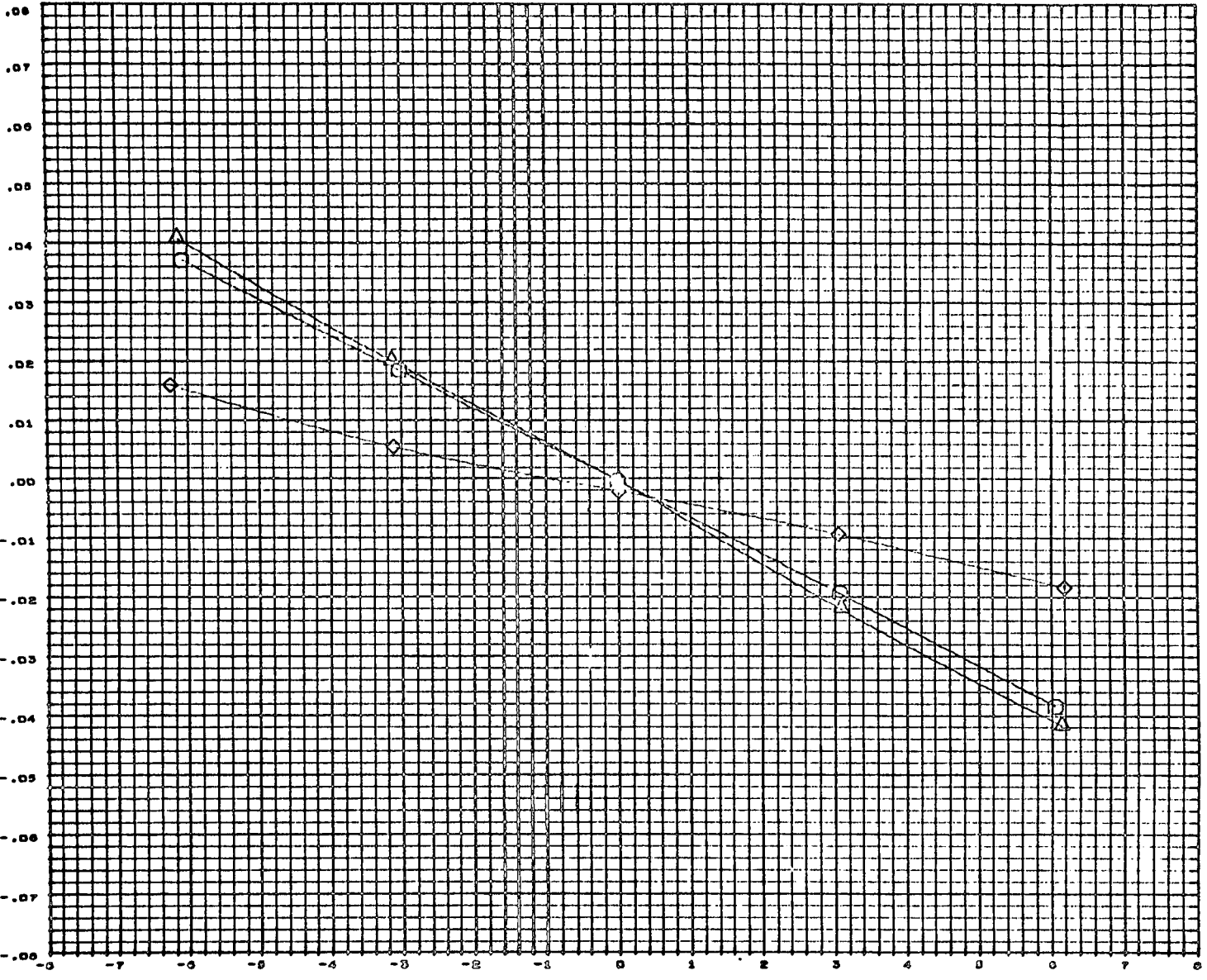
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 00. FT.
(JN3003)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4550 FEET
(JN3004)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4550 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.122

8

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

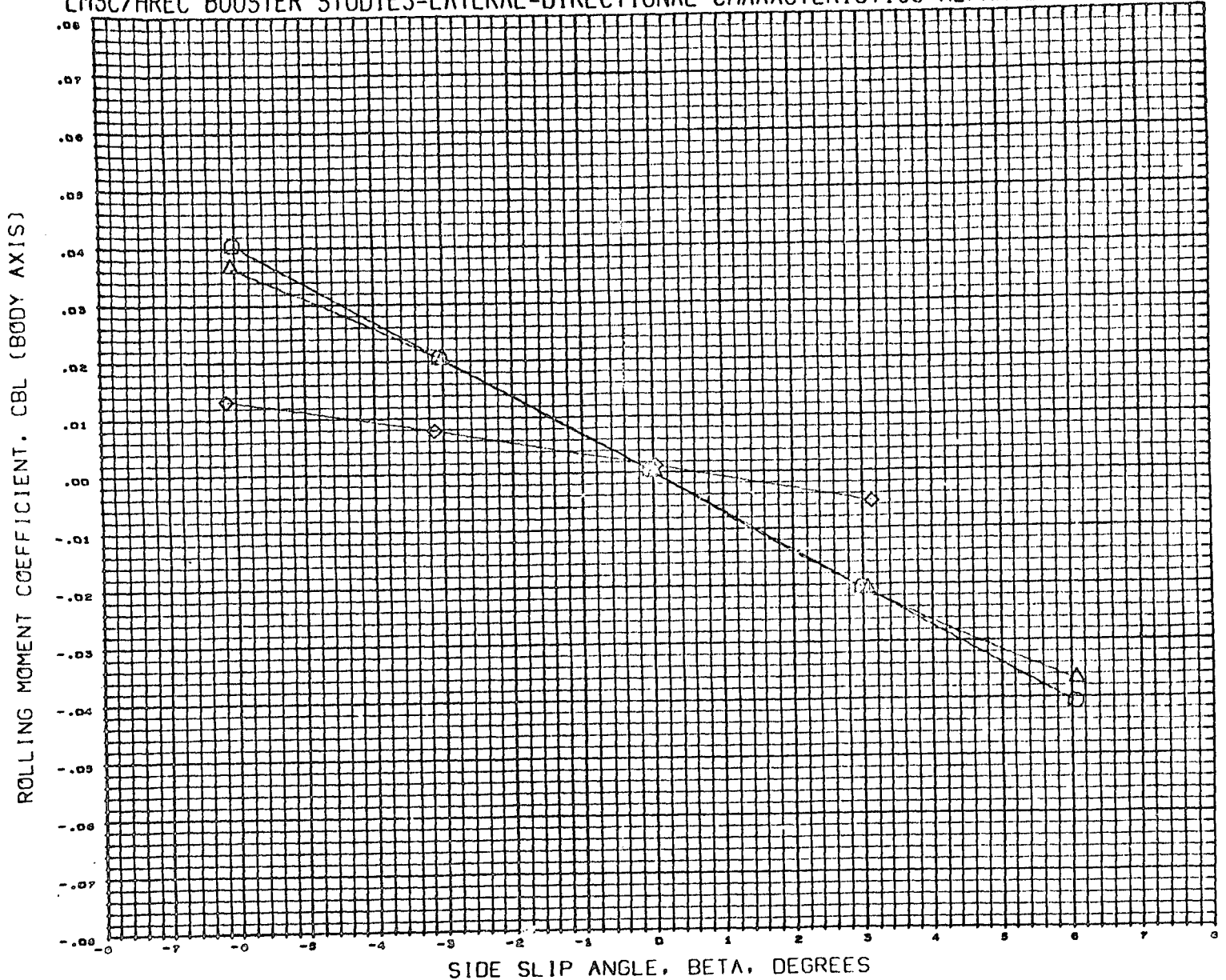


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	△	N8RDC-3210,MSFC/LM3C BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	○	N8RDC-3210,MSFC/LM3C BOOSTER B1C2F2W1V2	6.200	0.000	0.000	0.000	LREF	3.4930 FEET
(JN3004)	◇	N8RDC-3210,MSFC/LM3C BOOSTER B1C2F2W1V1	15.900	0.000	0.000	0.000	SREF	3.4930 FEET
							XMRP	2.9880 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0190 SCALE

MACH 0.500

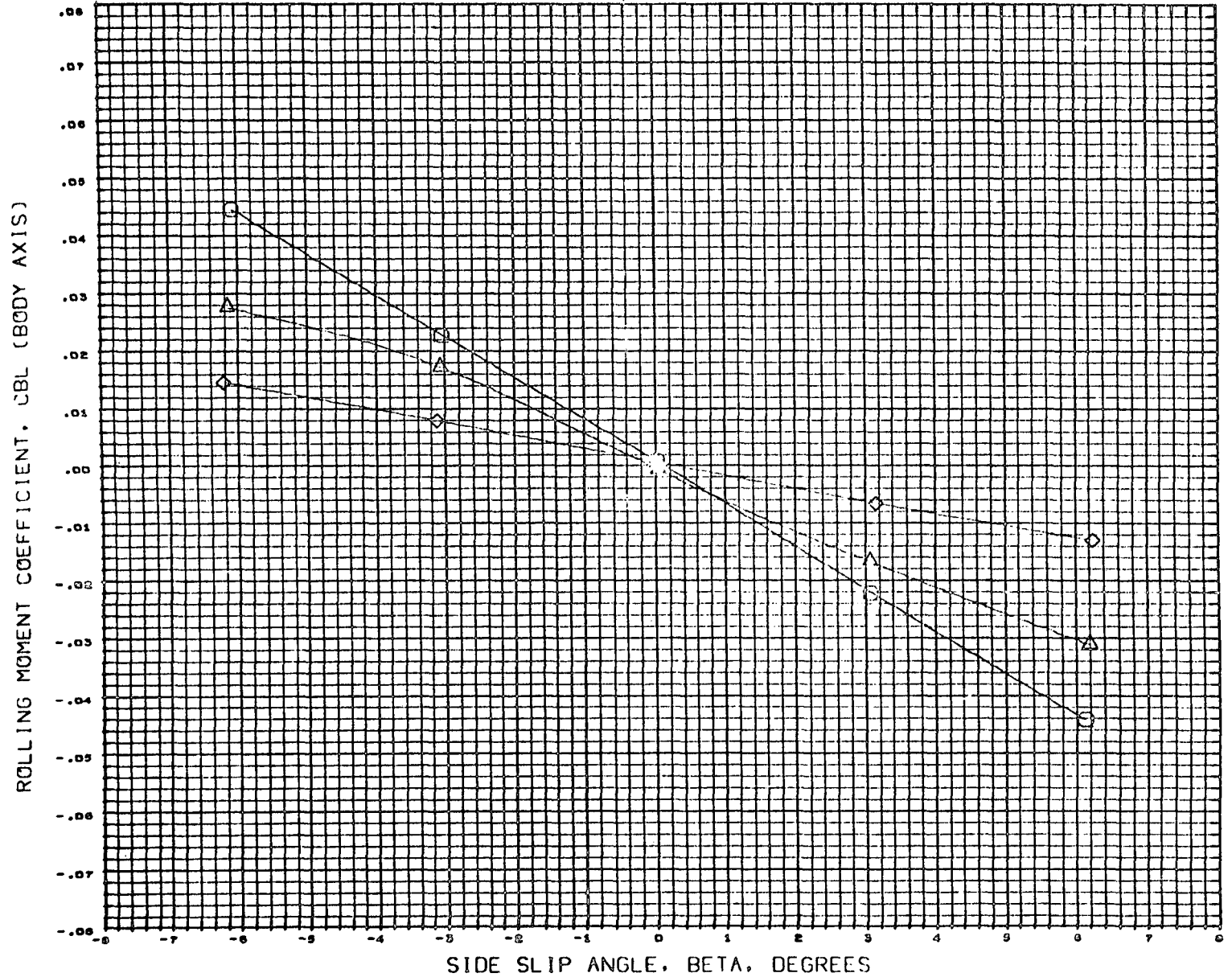
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 1.3550 SQ. FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4330 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4550 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.850

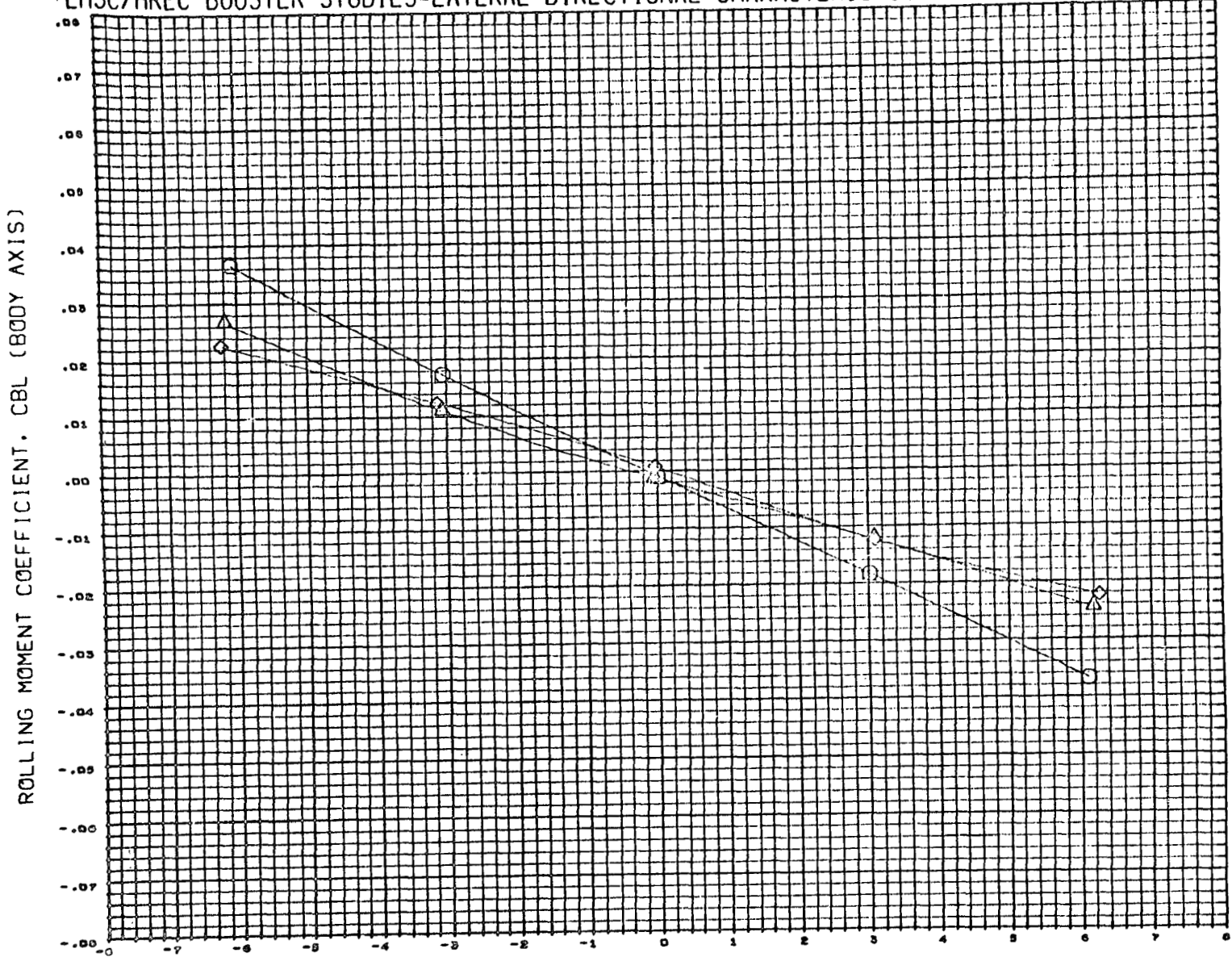
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	SREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.800

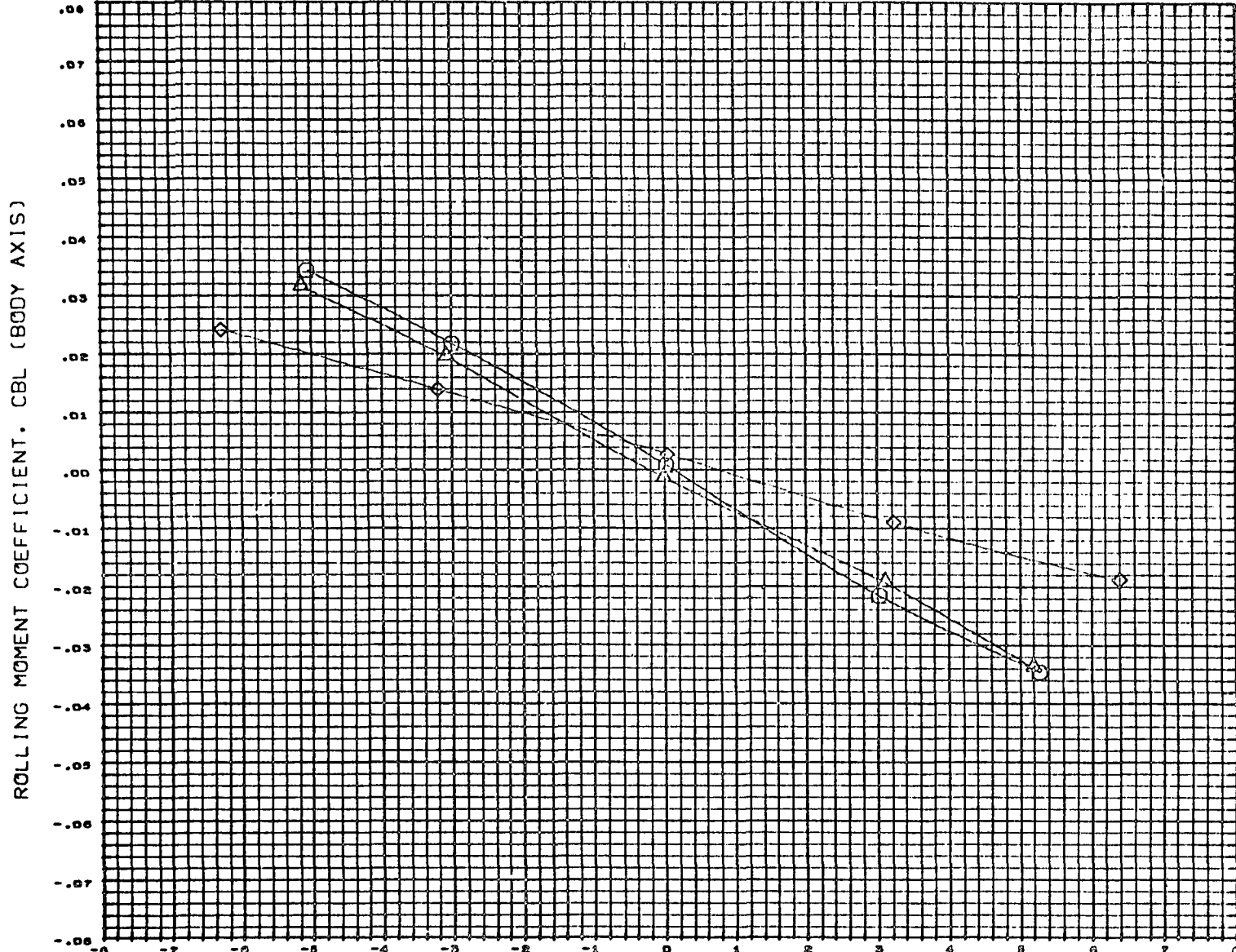
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JNS002)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(JNS003)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JNS004)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

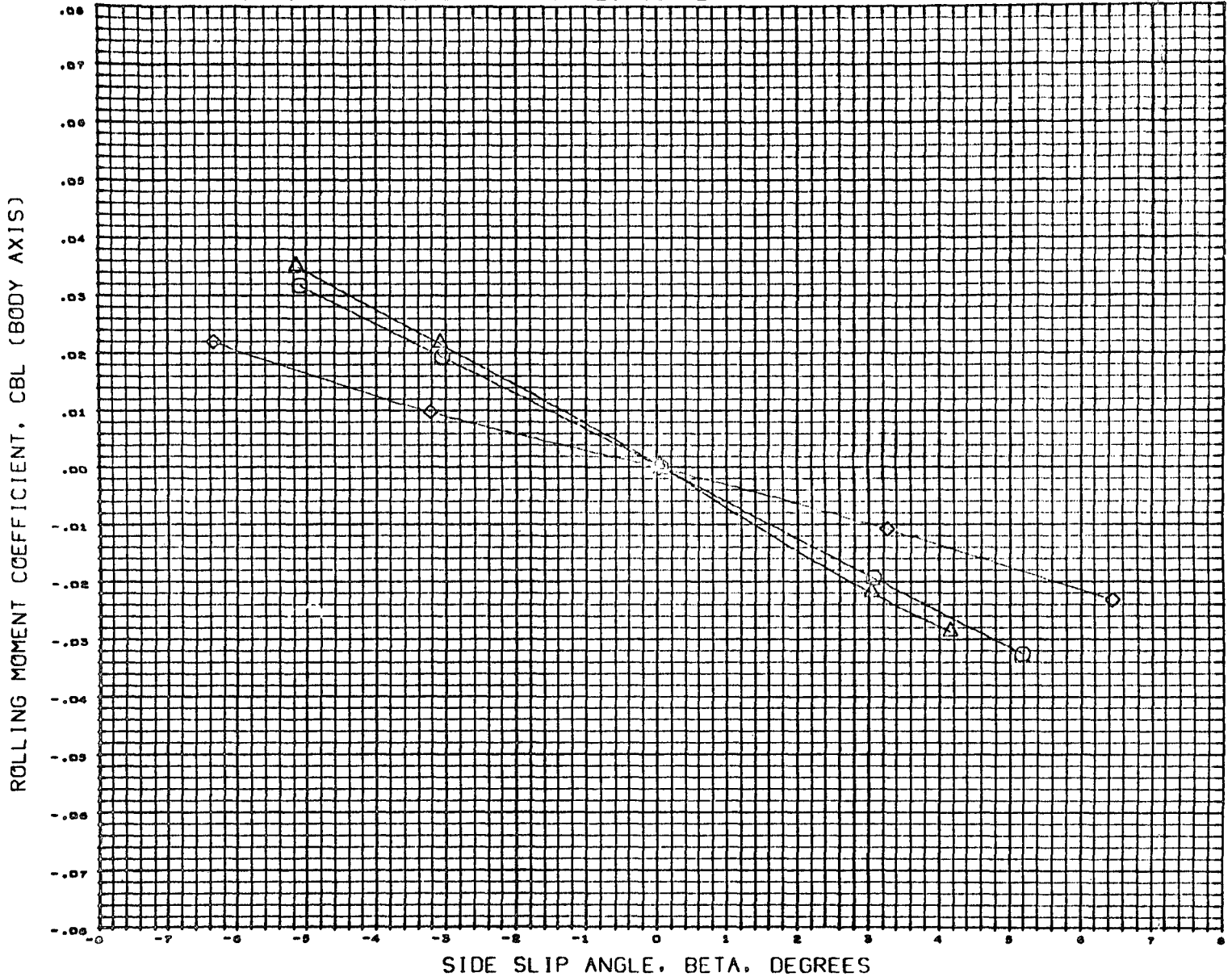


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	OREF 1.3990 00. FT.
(JN3003)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4930 FEET
(JN3004)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.900	0.000	0.000	0.000	BREF 3.4930 FEET XMRP 0.5930 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.001

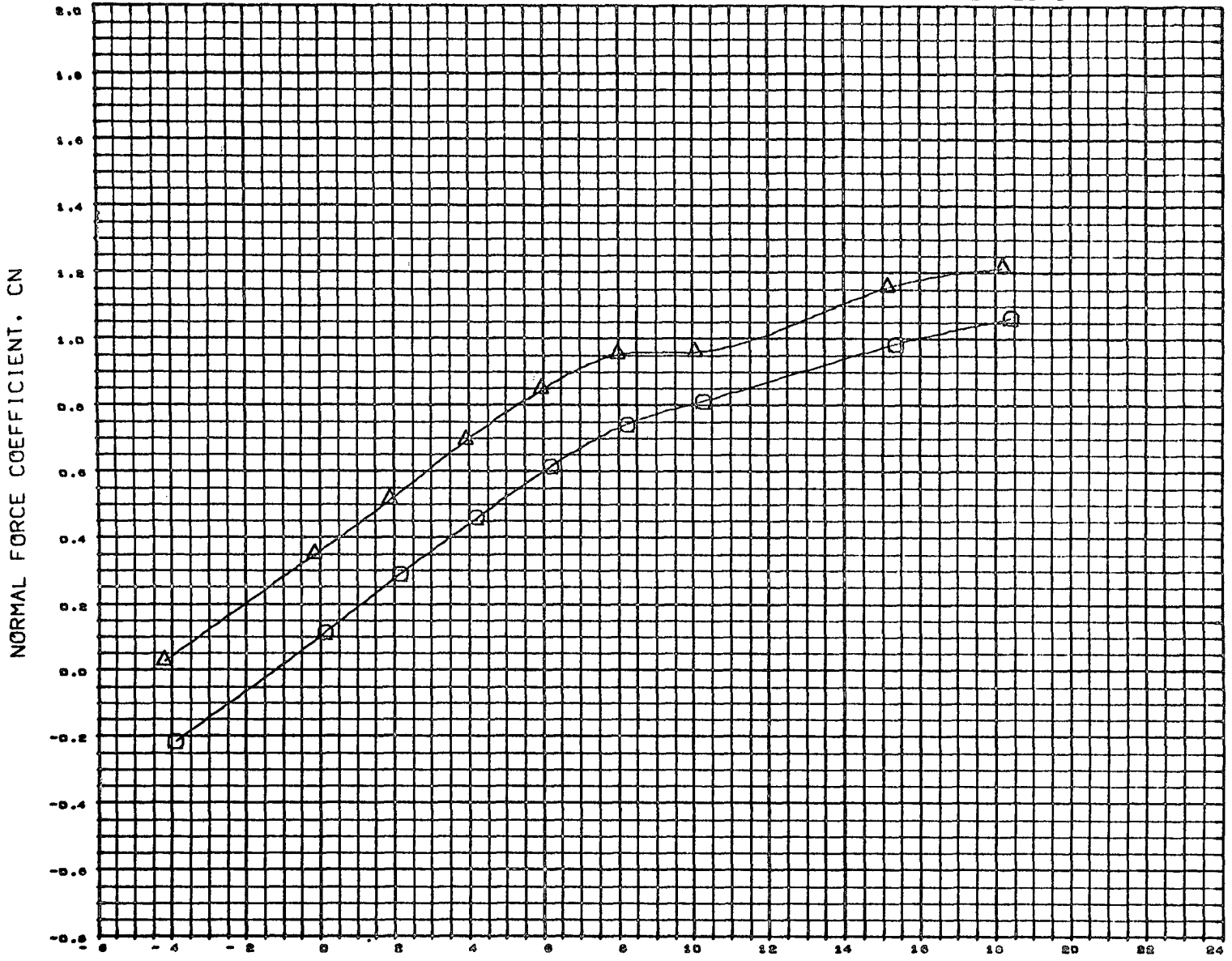
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 1.3550 SQ.FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF 3.4550 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF 3.4550 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

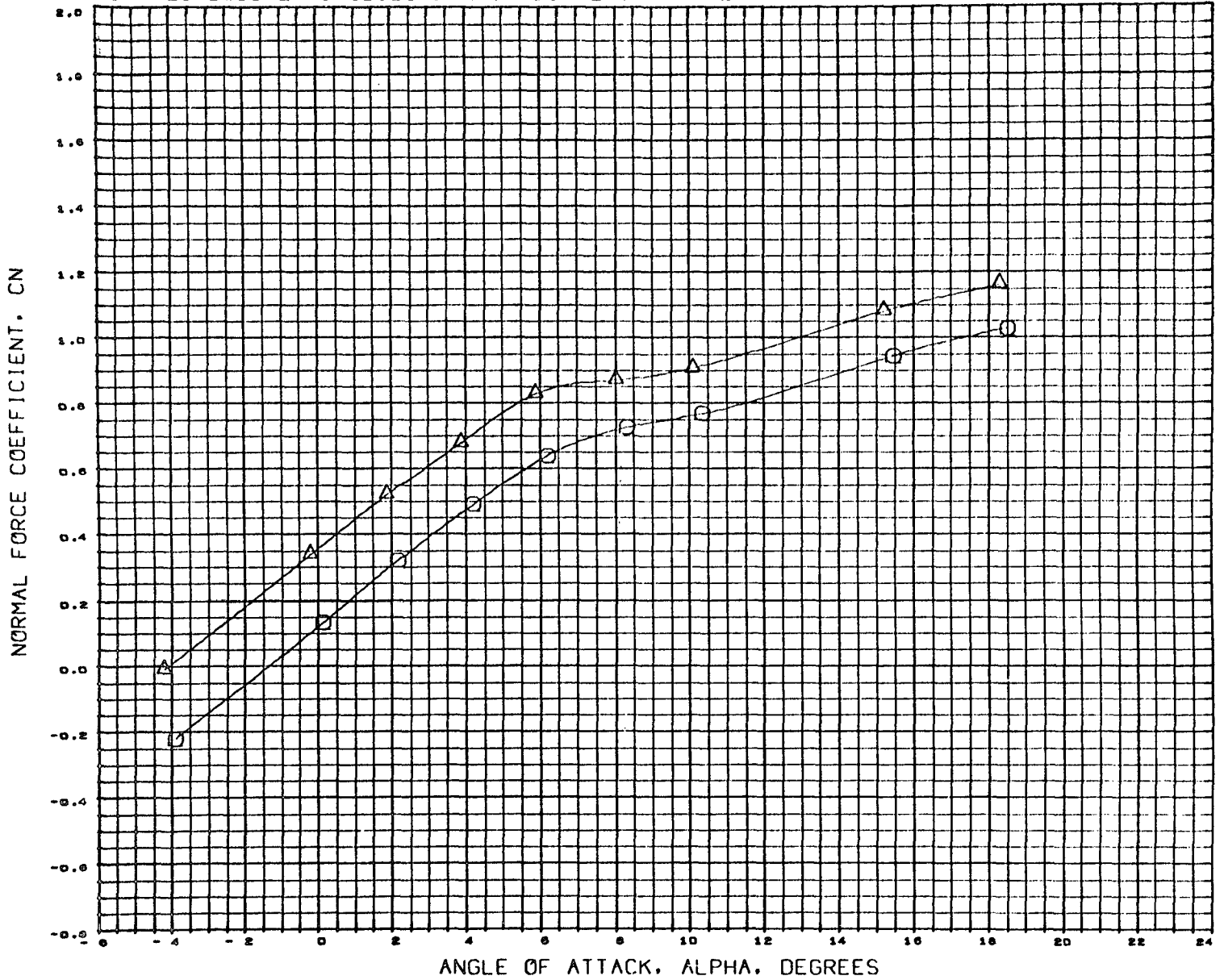


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	OREF 1.3550 90.FT.
(RNS057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET OREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.701

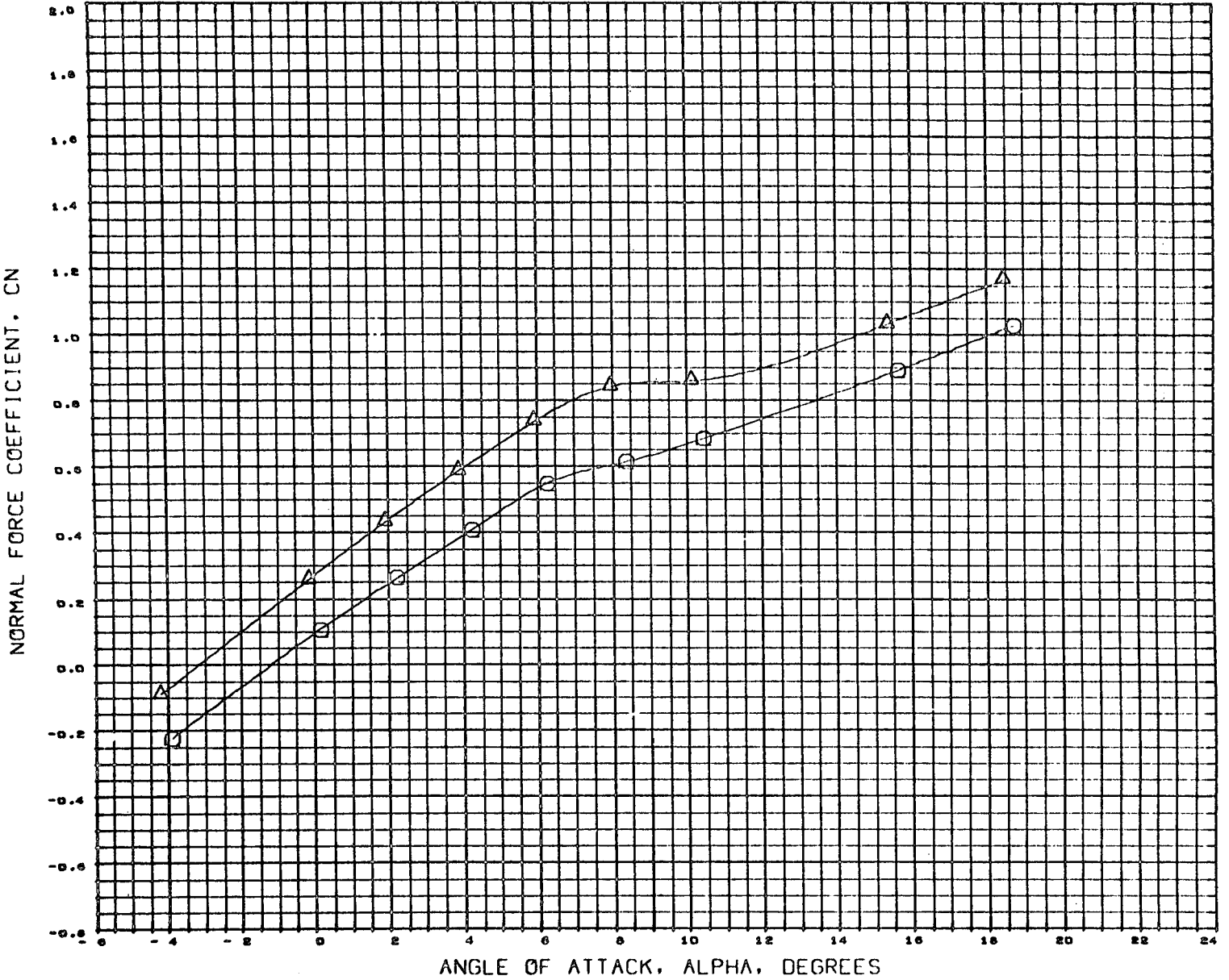
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RNS057)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4930 FEET
						BREF 3.4930 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.799

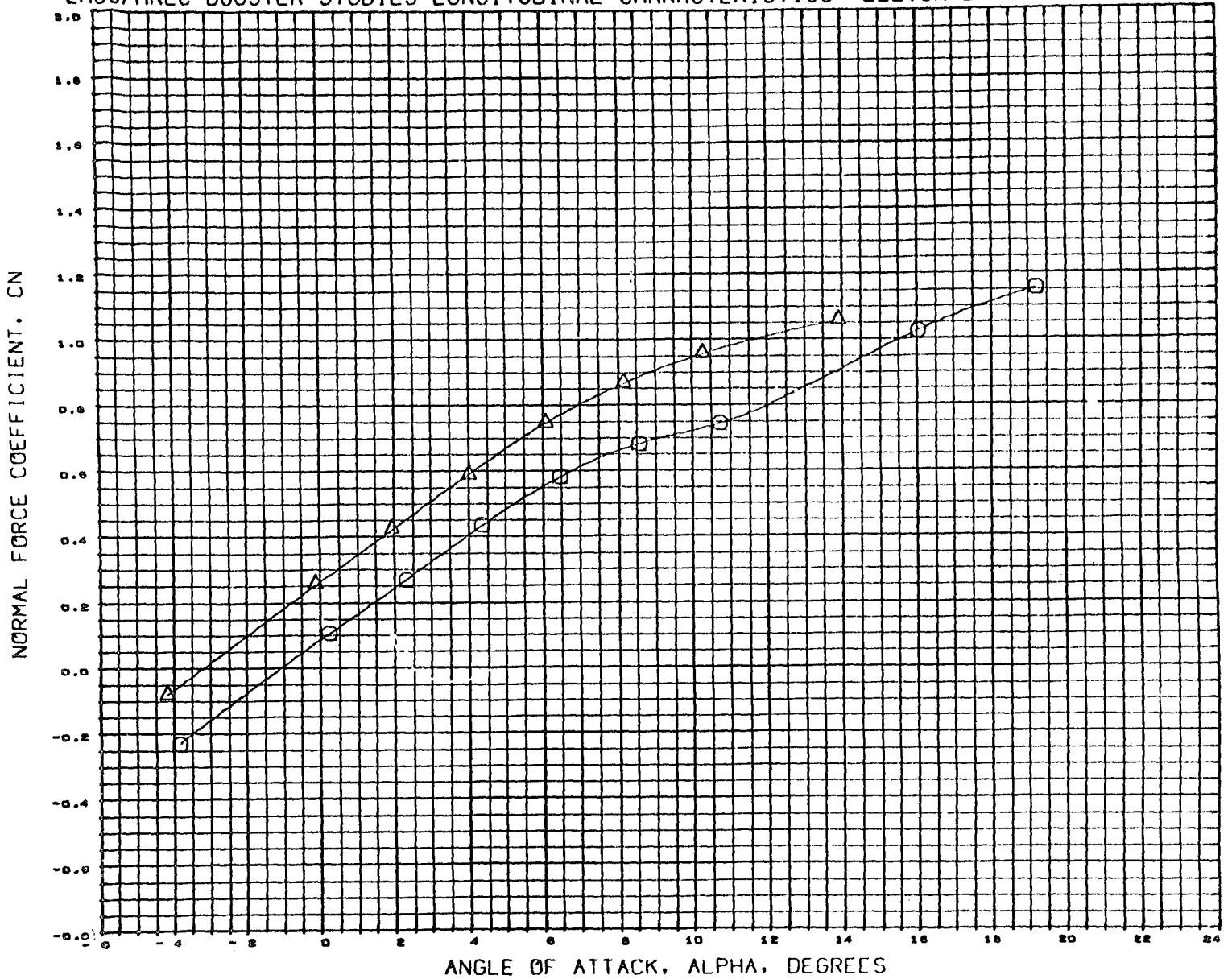
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.904

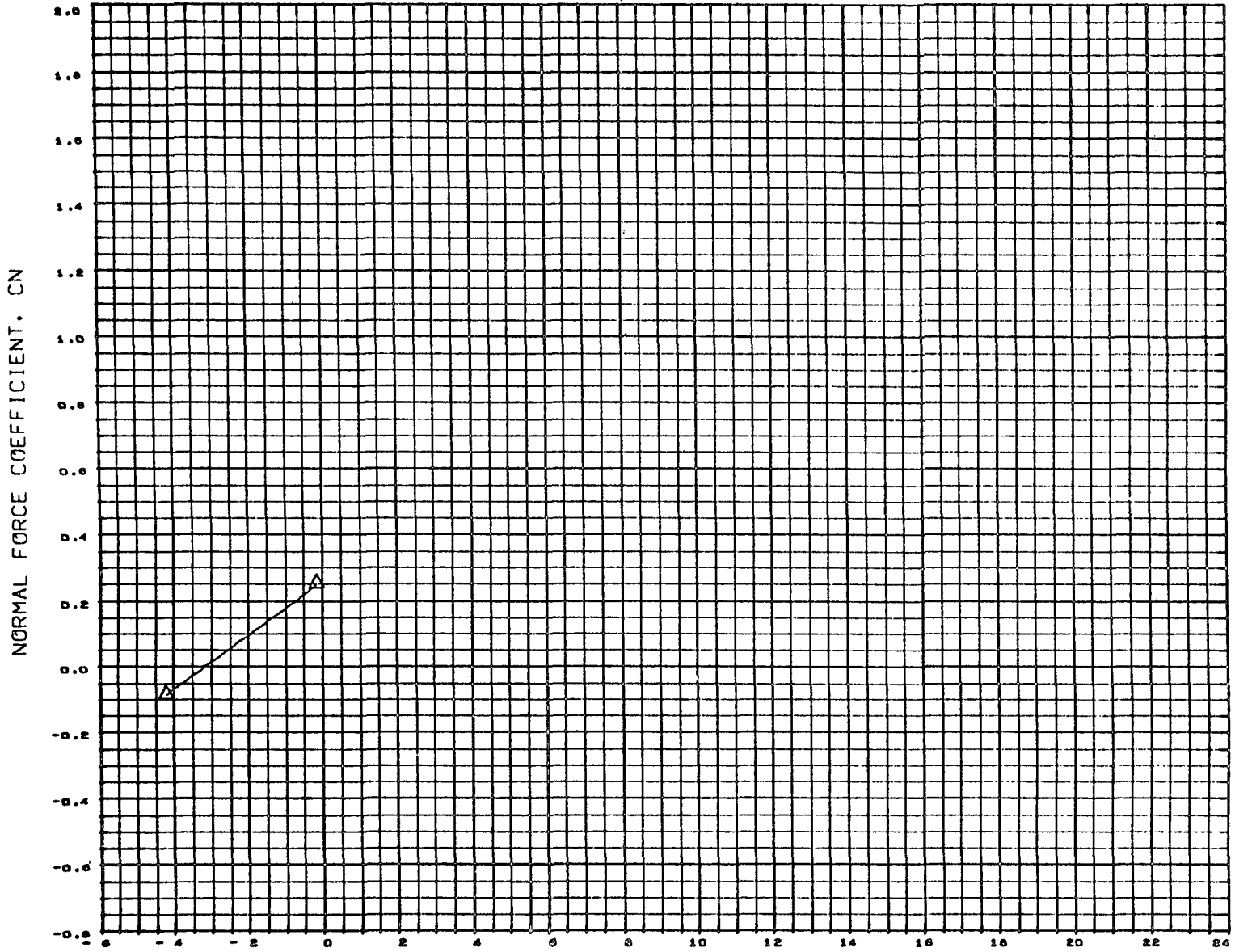
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RNS057)	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

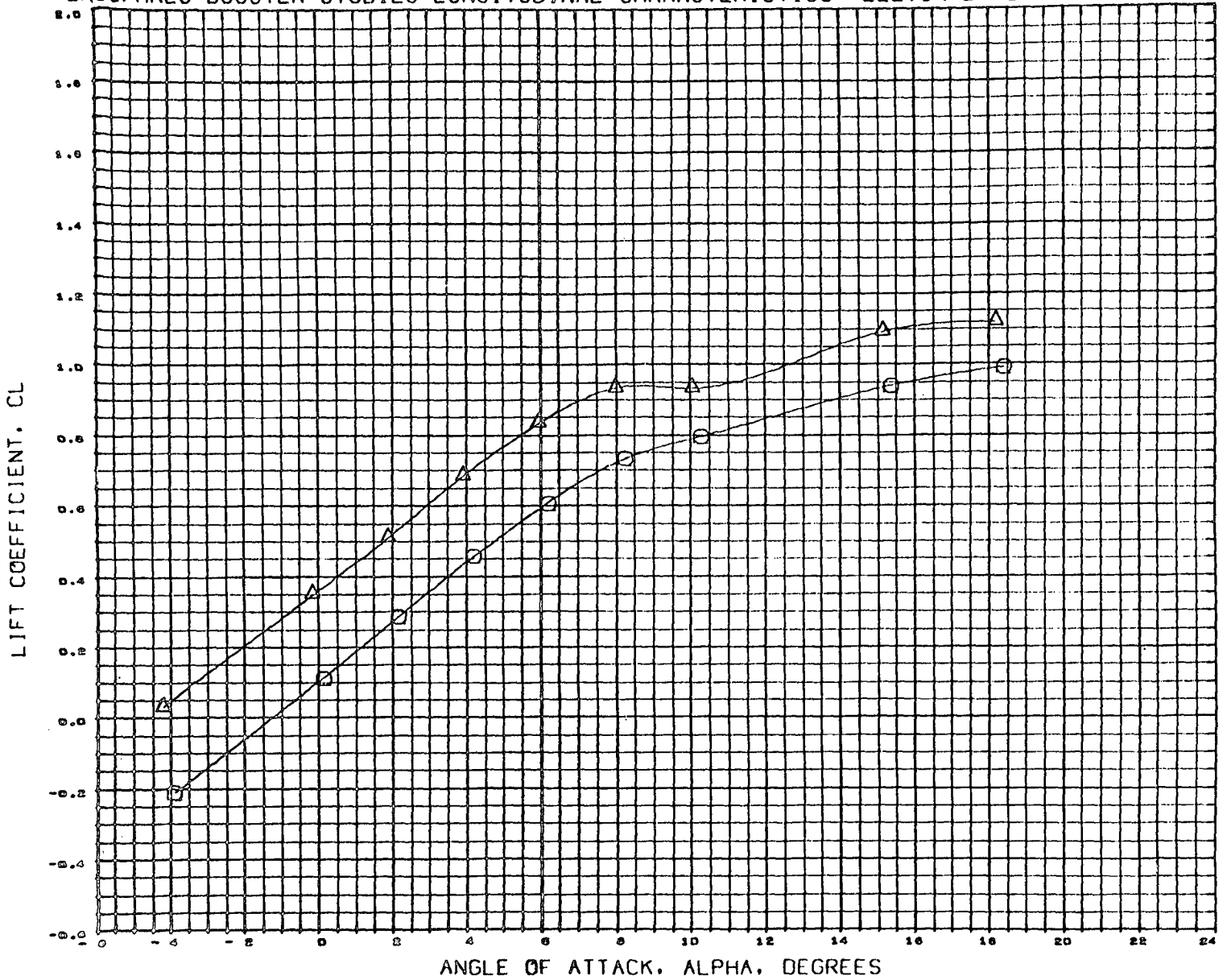


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3053)  DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RN3057)  NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3950 SQ. FT.
2.000	3.000	20.000	0.000	LREF 3.4530 FEET
				BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0187 FEET
				SCALE 0.0150 SCALE

MACH 1.125

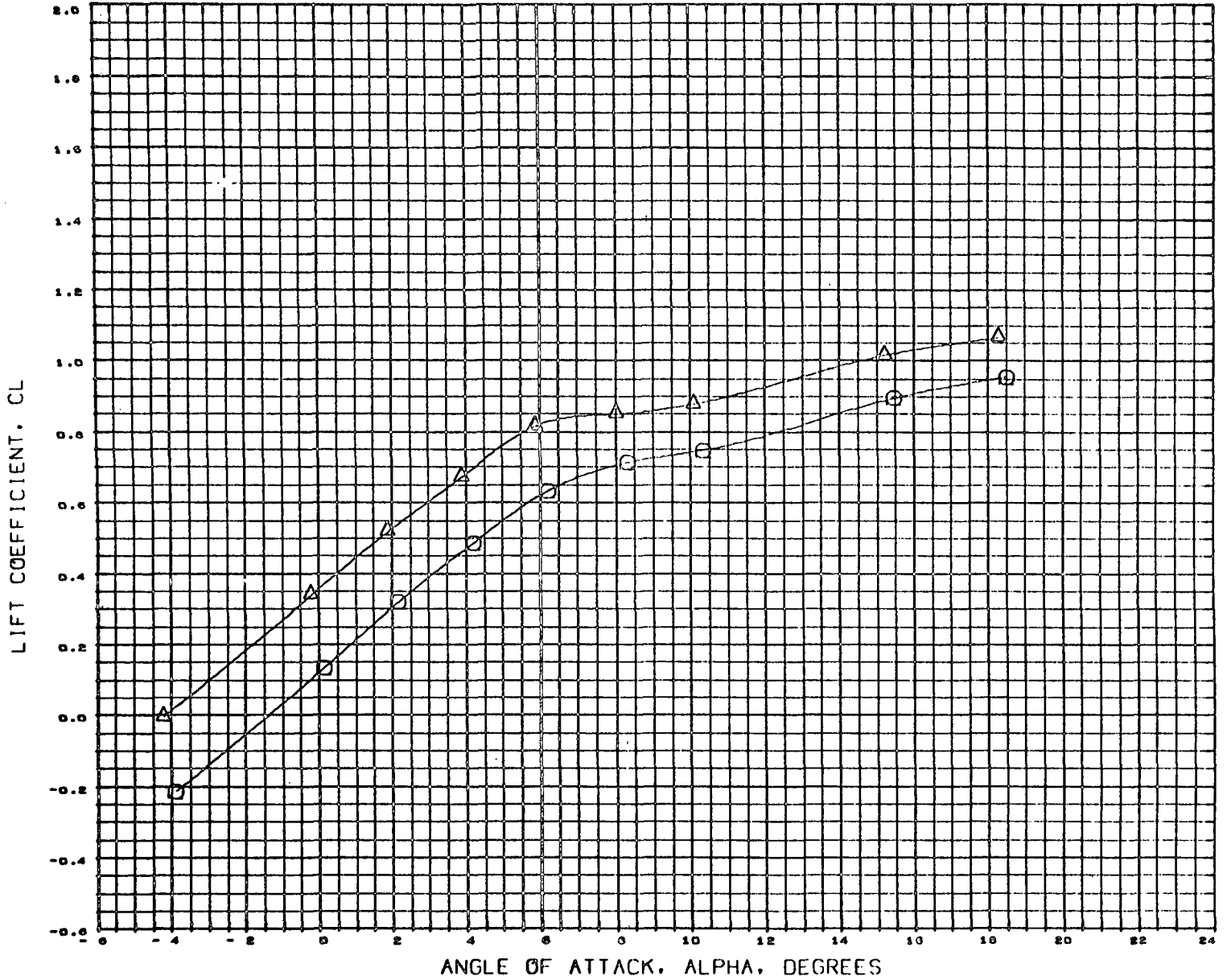
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS093)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS097)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.701

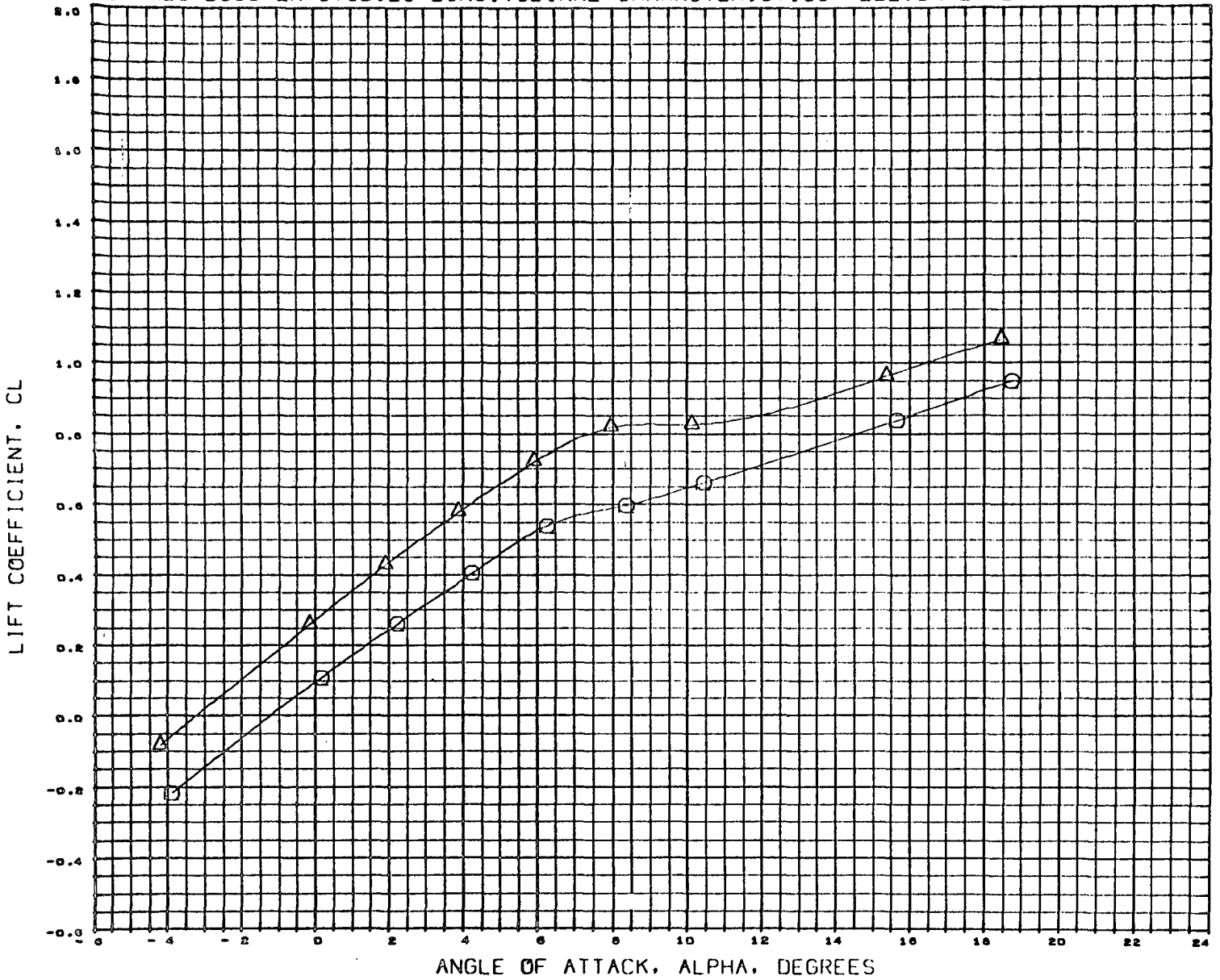
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS055) 	NSRDC-3210,MBFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF 1.3550 SQ.FT. LREF 3.4530 FEET
(RNS057) 	NSRDC-3210,MBFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	BREF 3.4530 FEET XMRP 2.5050 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.799

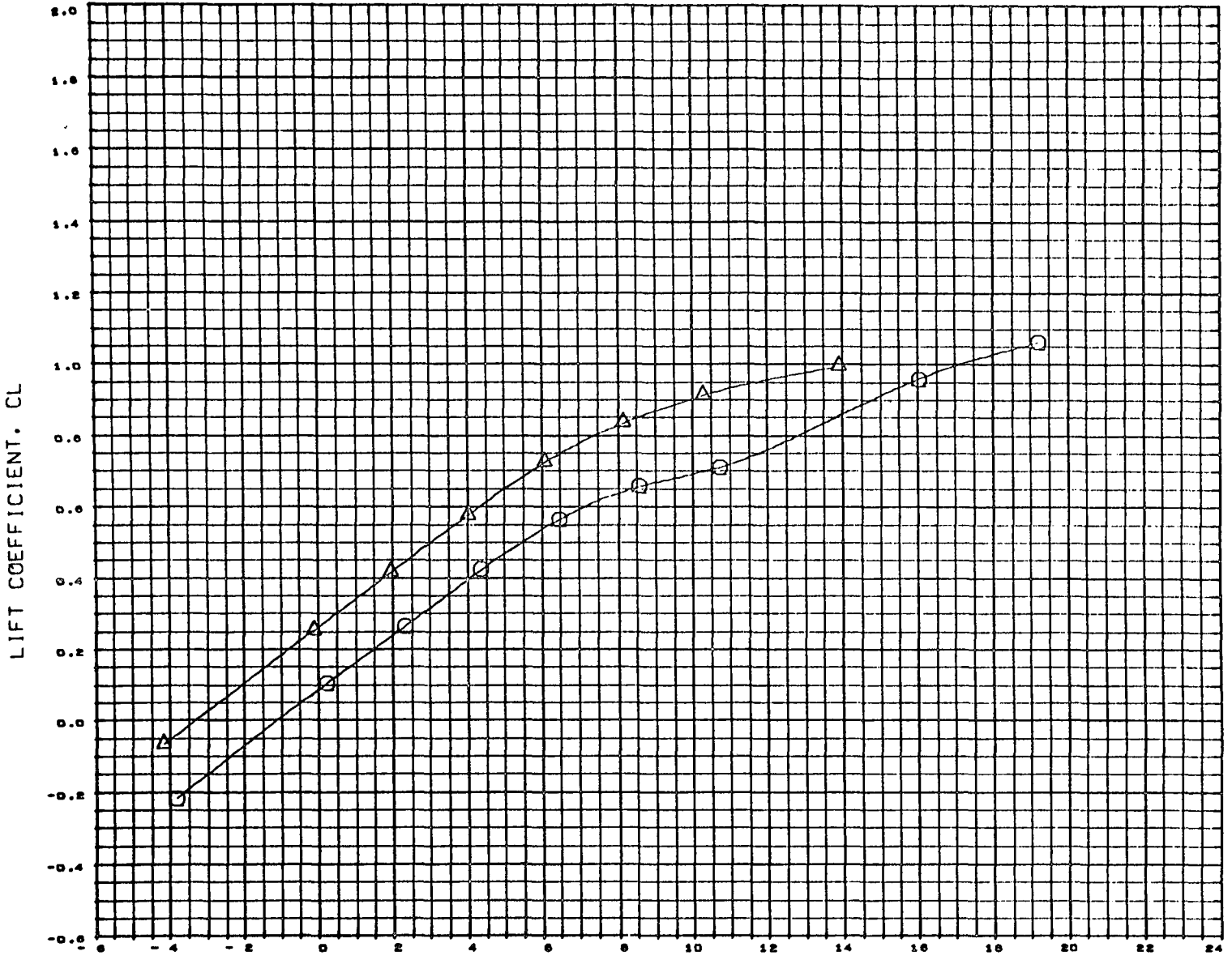
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF 1.3550 SQ. FT.
(RN3057)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.904

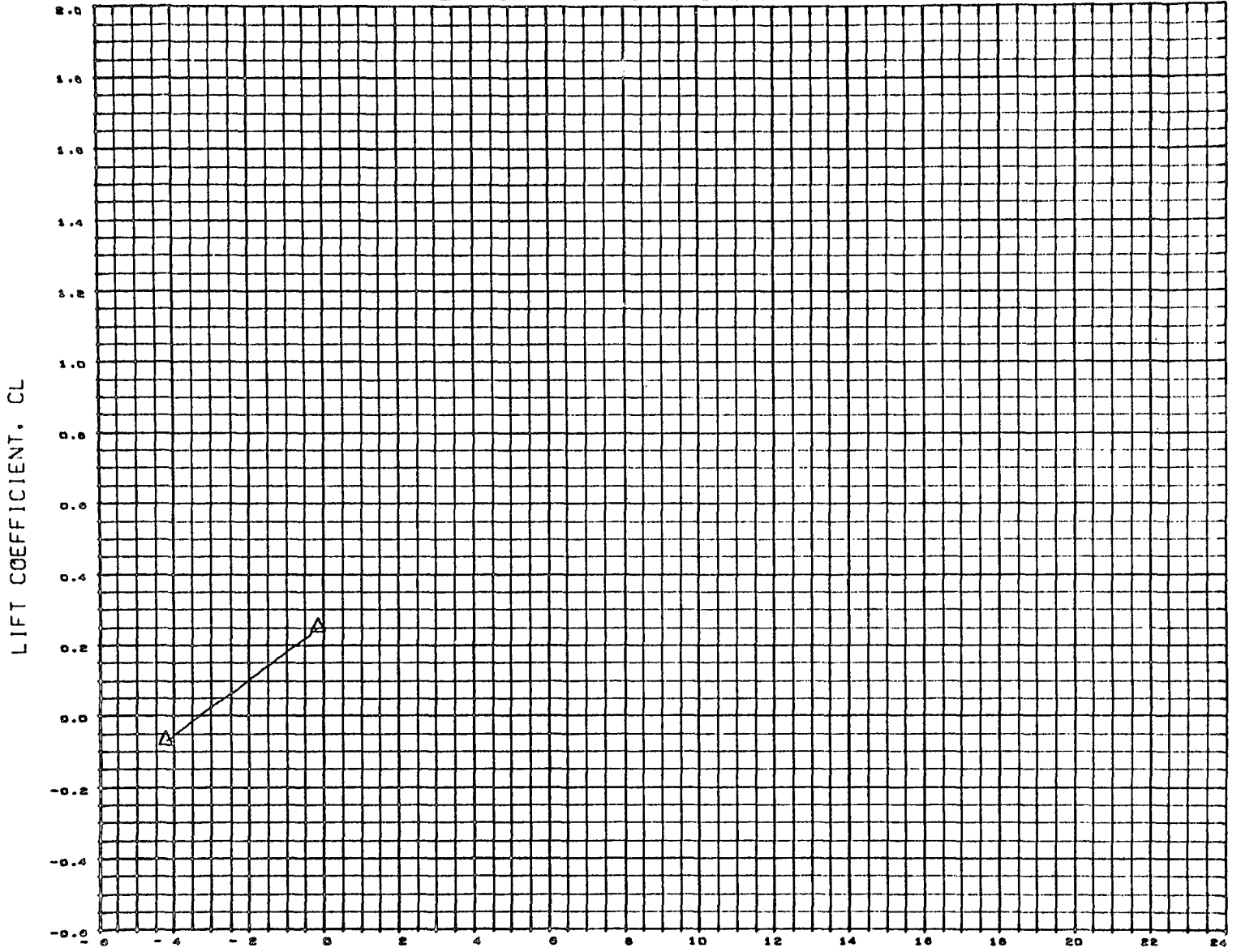
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INC1DC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 60.FT.
(RNS057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

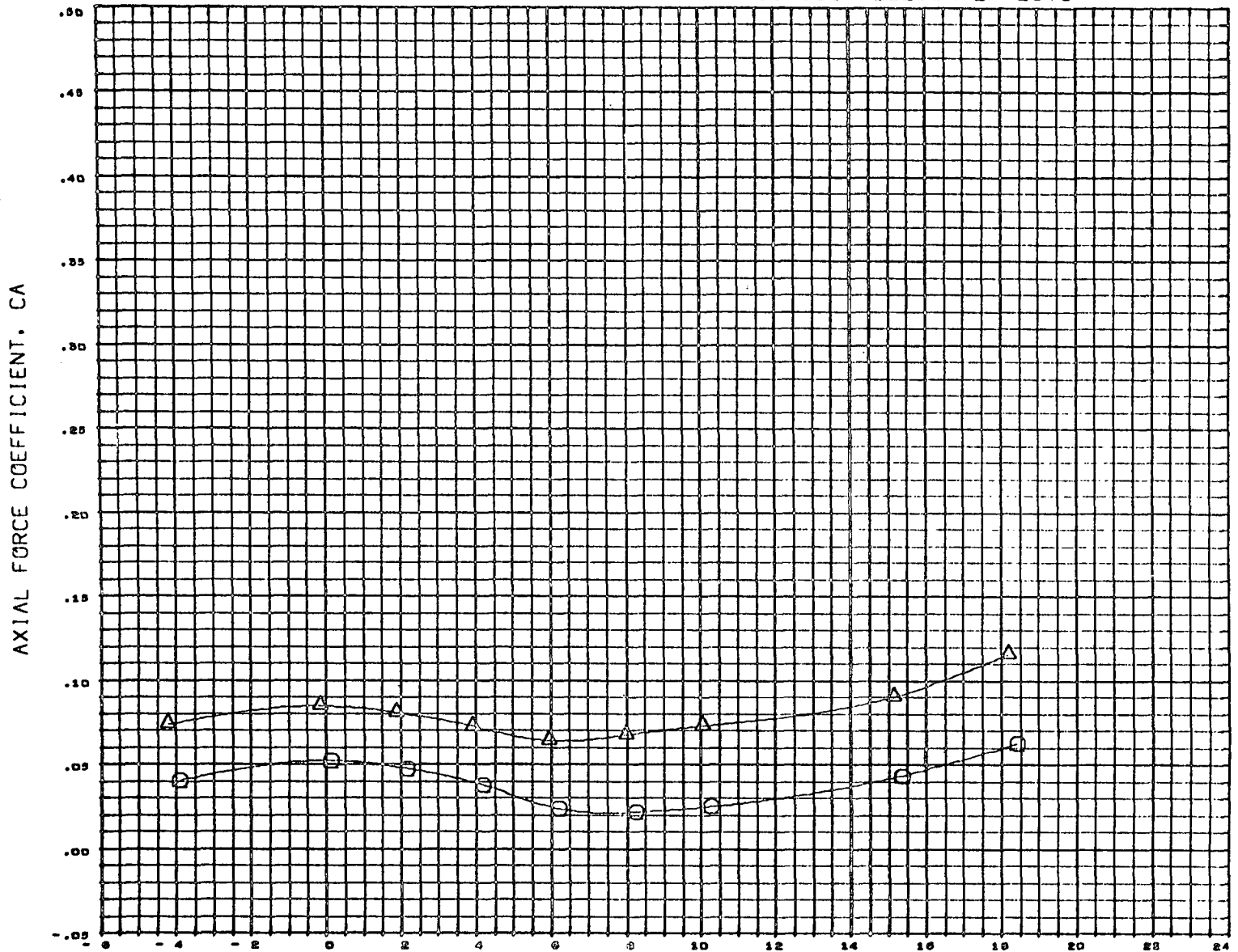


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN093)	DATA NOT AVAILABLE FOR ALL CONDITIONS	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN097)	N8RDC-3210, M8PC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 5.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

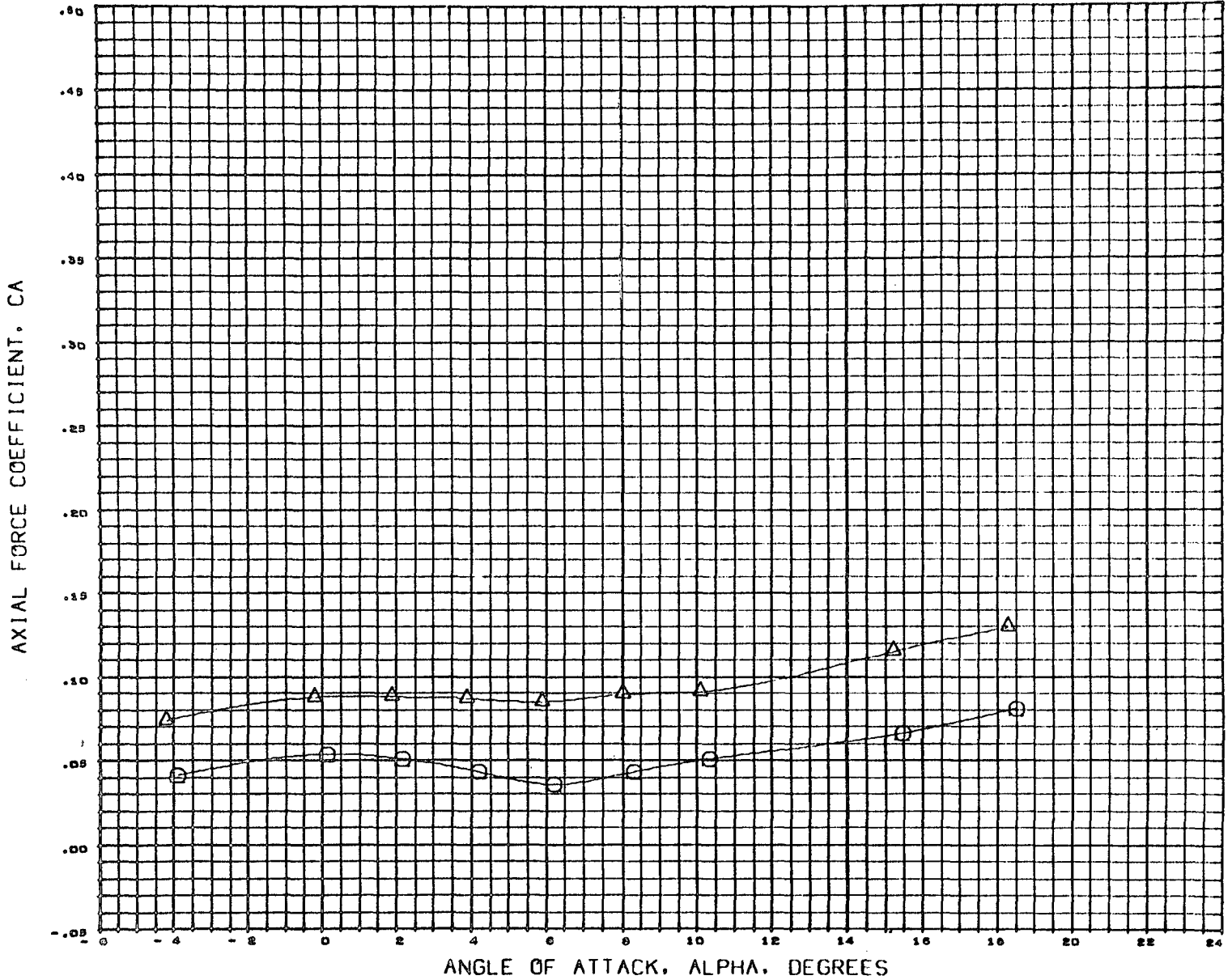


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3950 SQ. FT.
(RN3057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4930 FEET
						BREF 3.4930 FEET
						XMRP 2.9990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.701

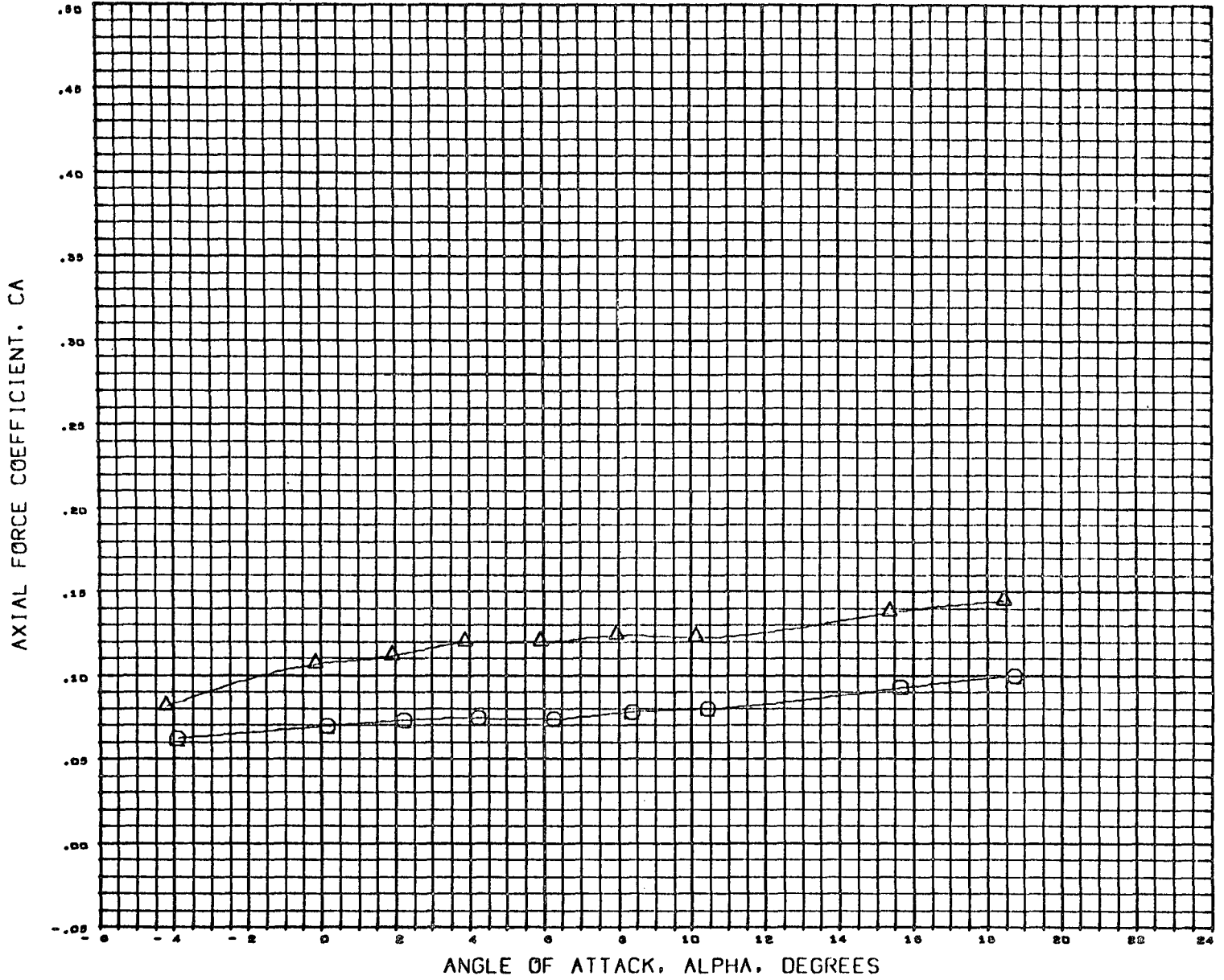
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						DREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.700

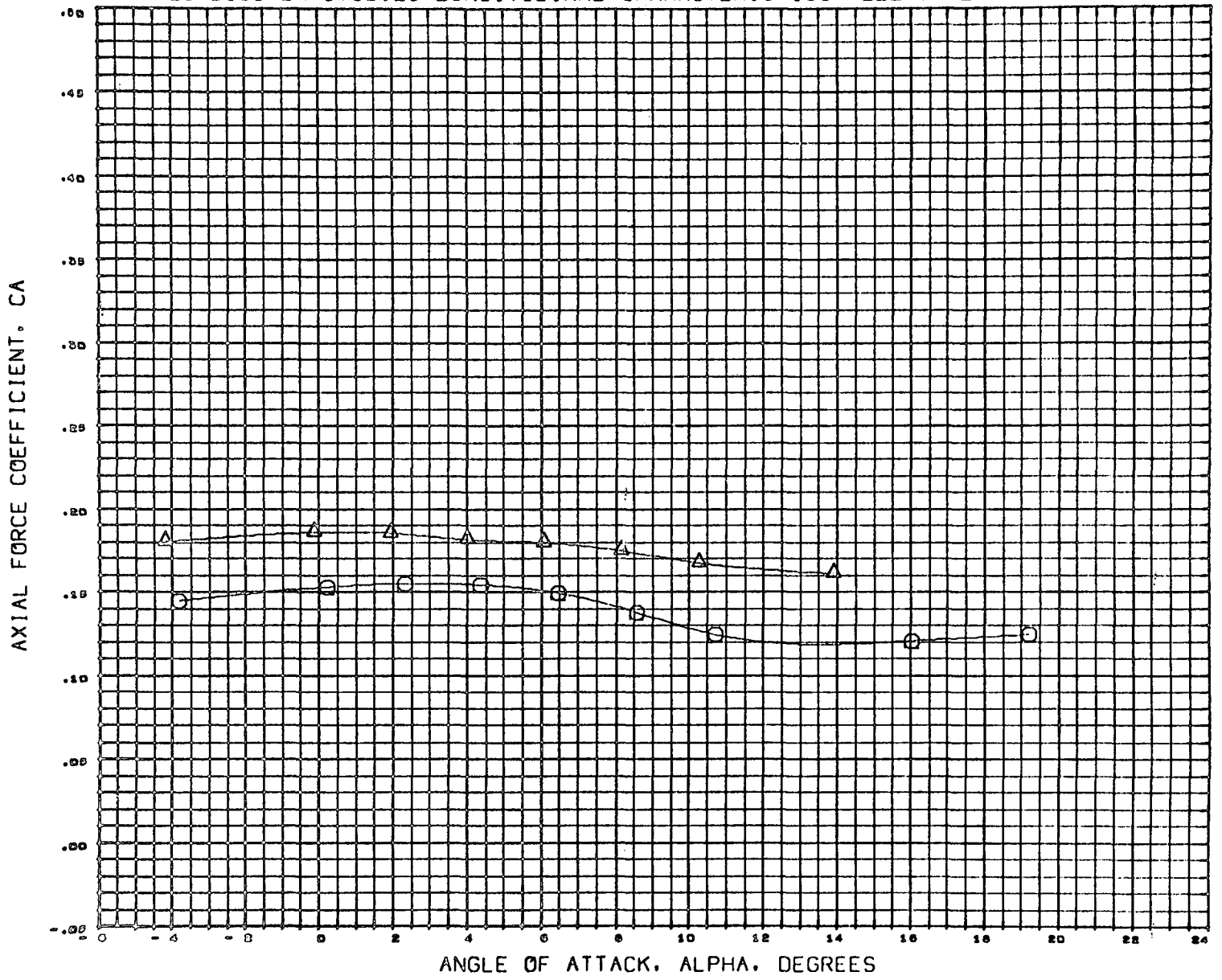
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF 1.3550 60. FT.
(RNS057)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4930 FEET
						BREF 3.4930 FEET
						XMRP 2.5980 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RND005)	NSRDC-0210, M8FC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 80. FT.
(RND007)	NSRDC-0210, M8FC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.8950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

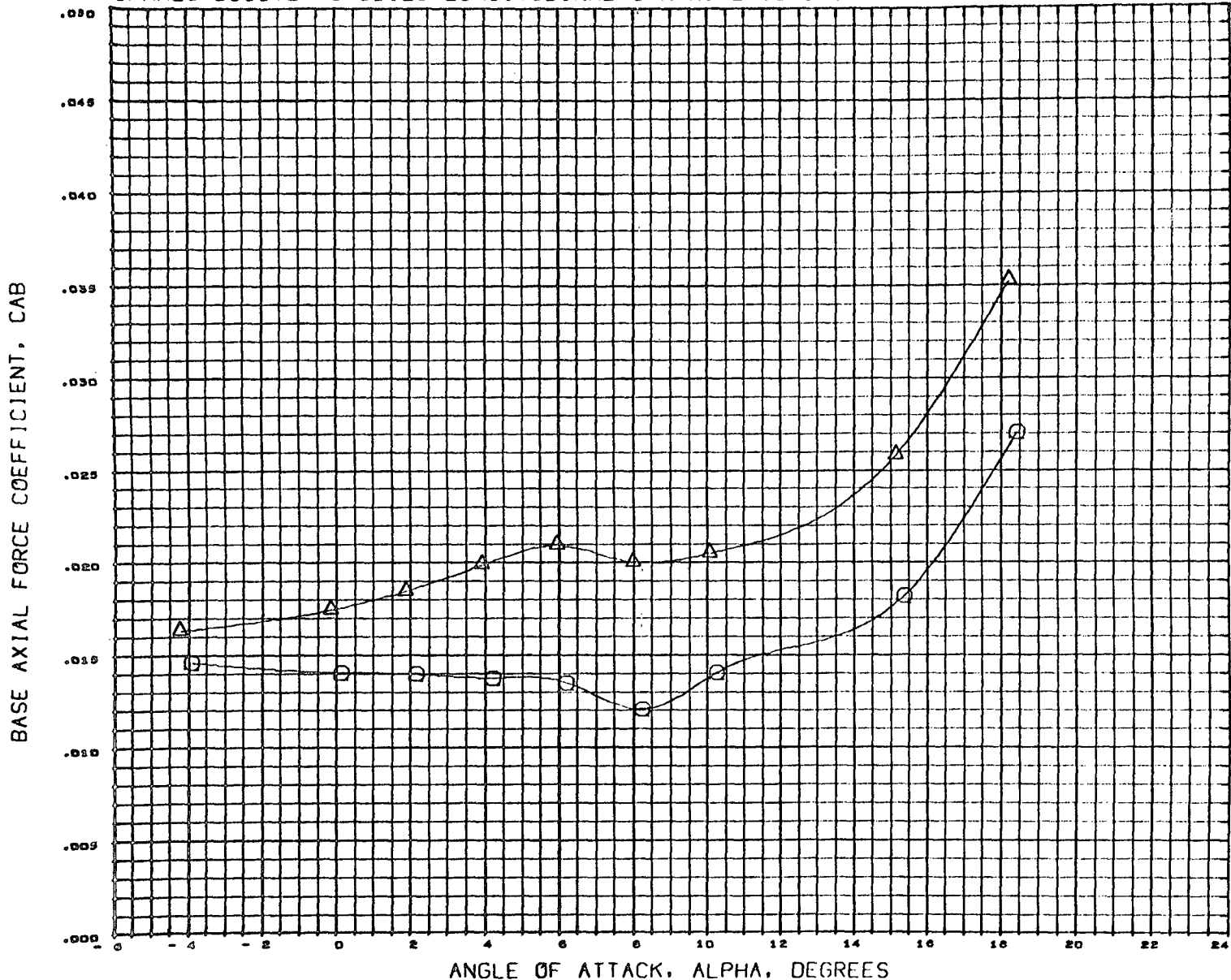


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	DATA NOT AVAILABLE FOR ALL CONDITIONS	2.000	3.000	0.000	0.000	SREF 1.3550 50. FT.
(RN3057)	NSRDC-3210, M8FC/LMBC BOOSTER 01C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4330 FEET
						ORF 3.4330 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

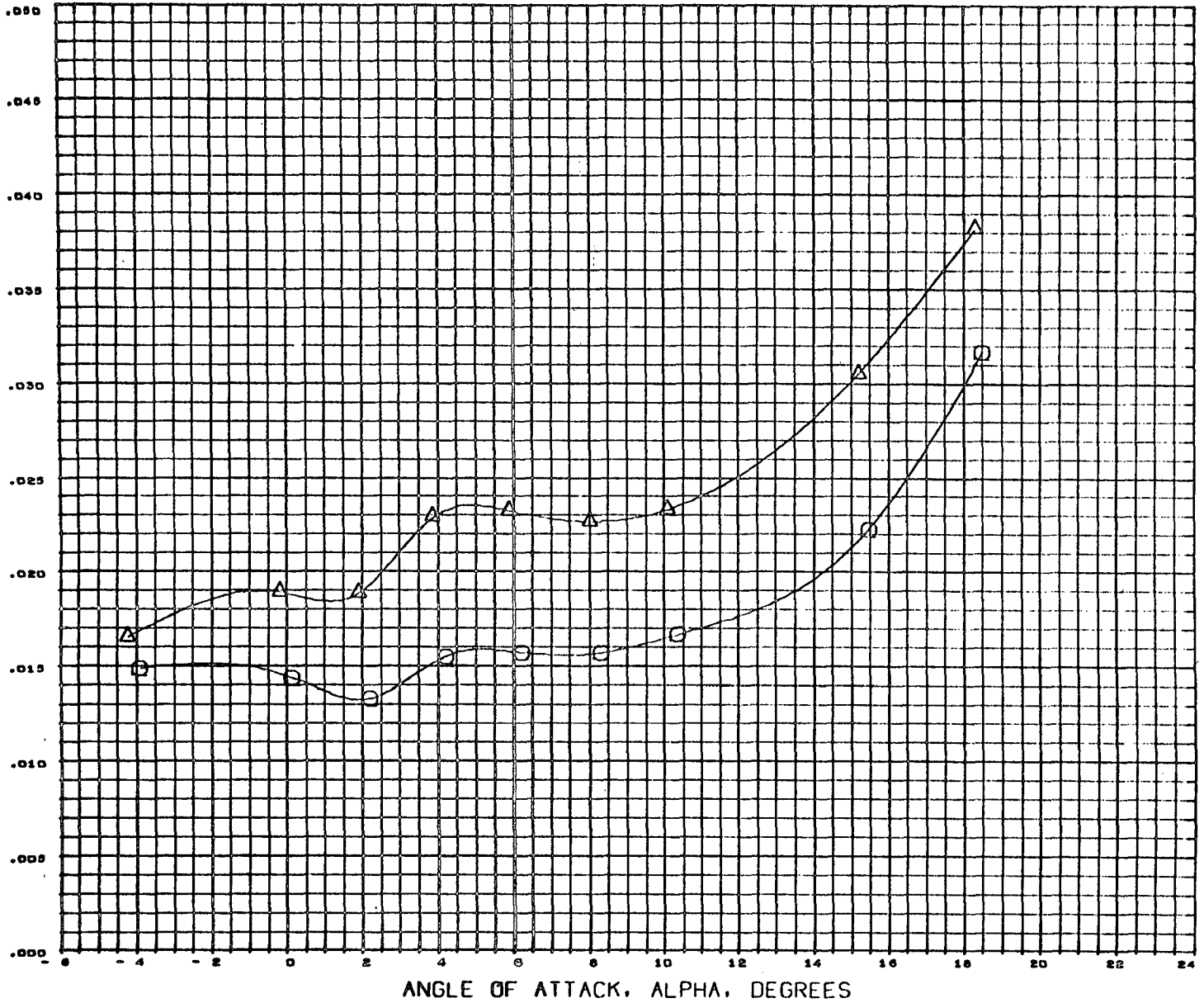


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3057)	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

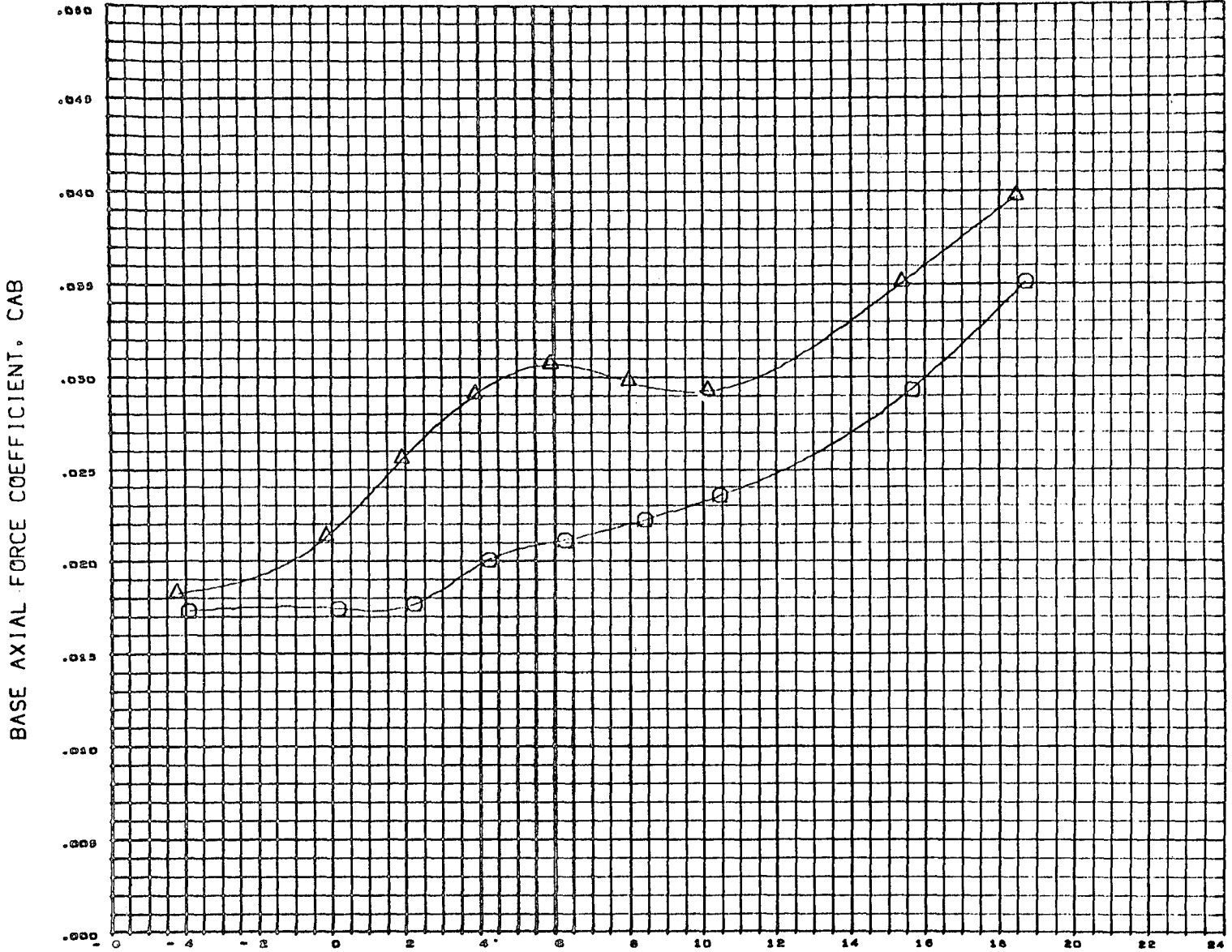
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 89.FT.
(RN3057)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.799

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

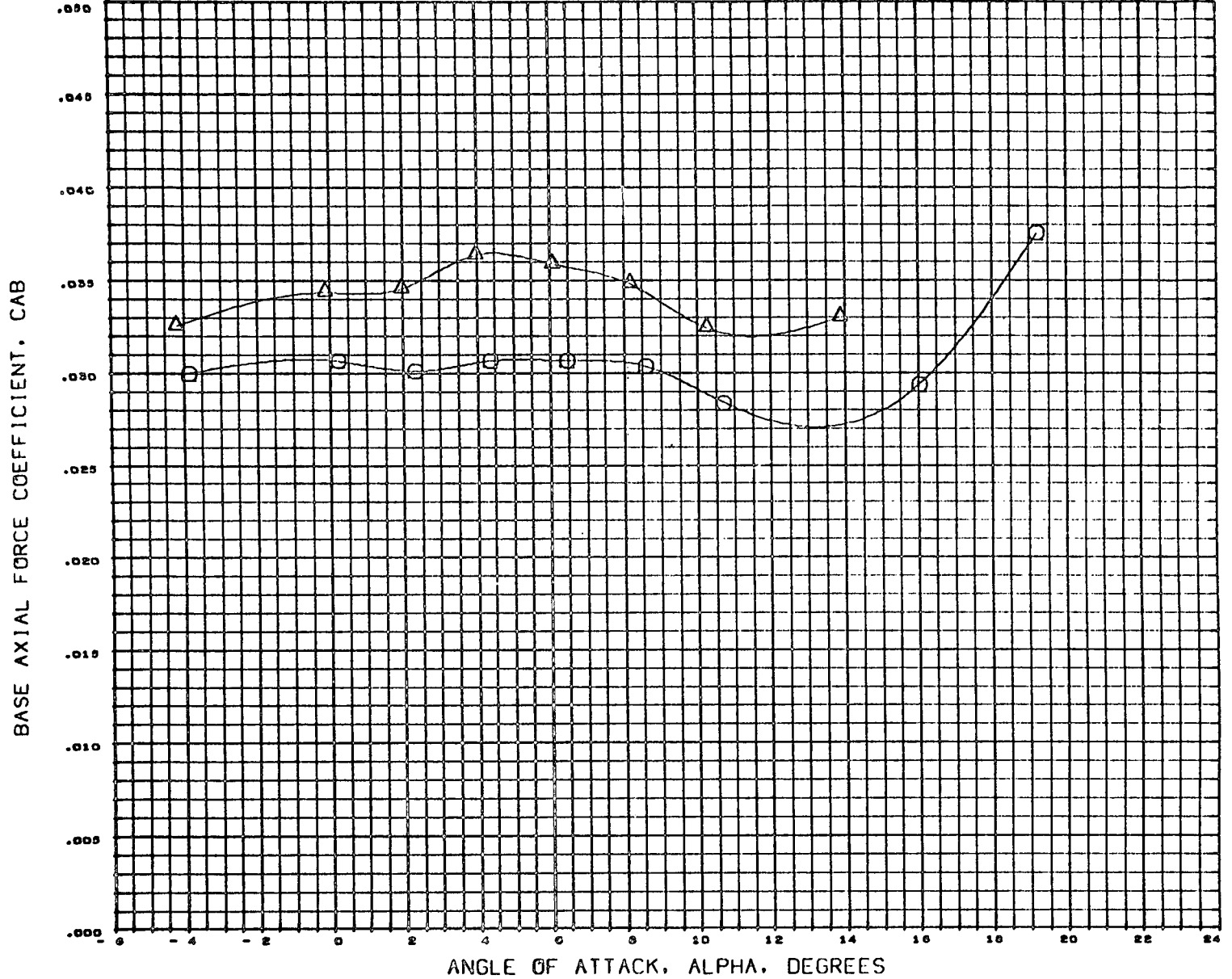


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(R3059)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(R3057)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACM 0.004

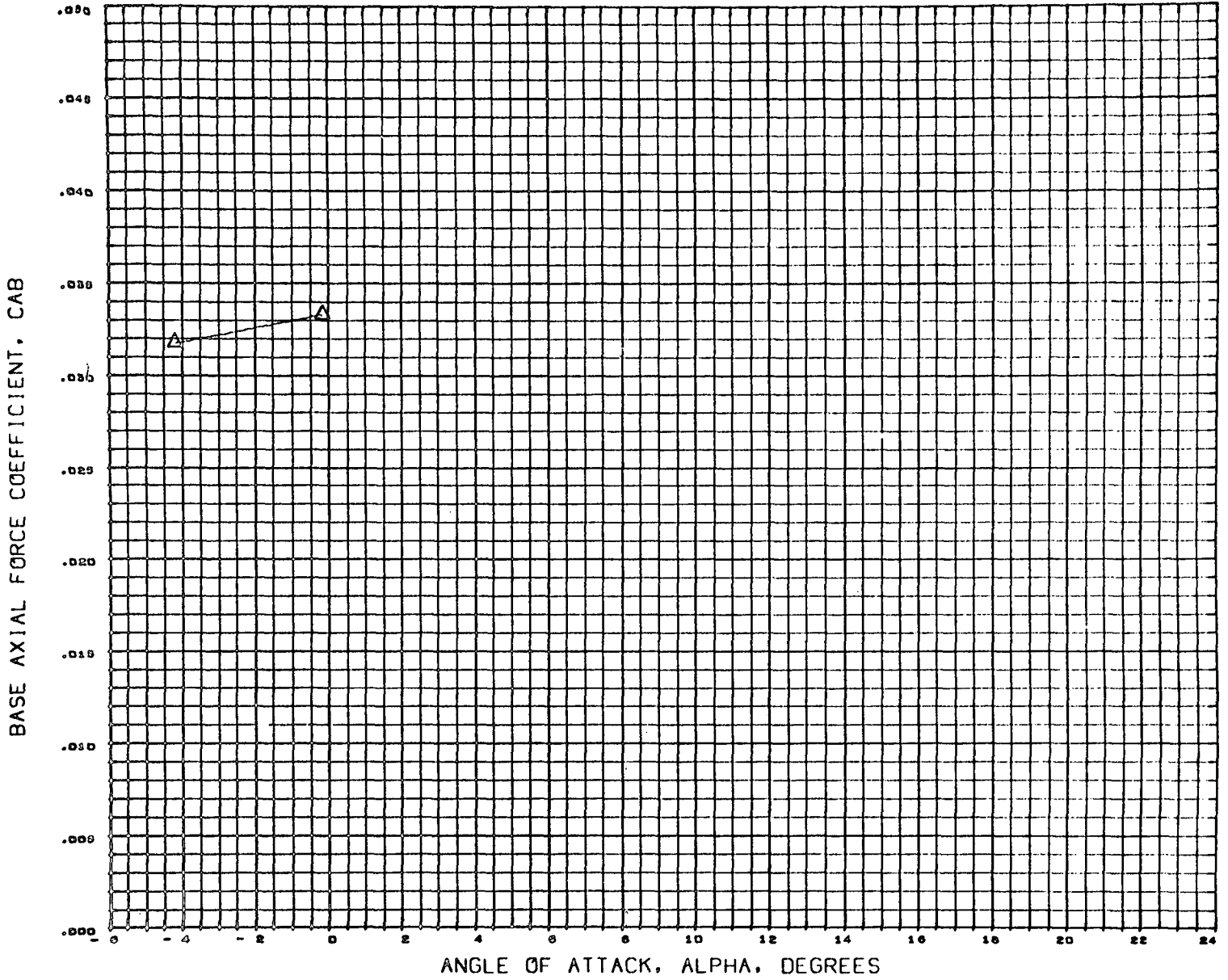
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RND053)	MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3990 SQ.FT.
(RND057)	MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.000

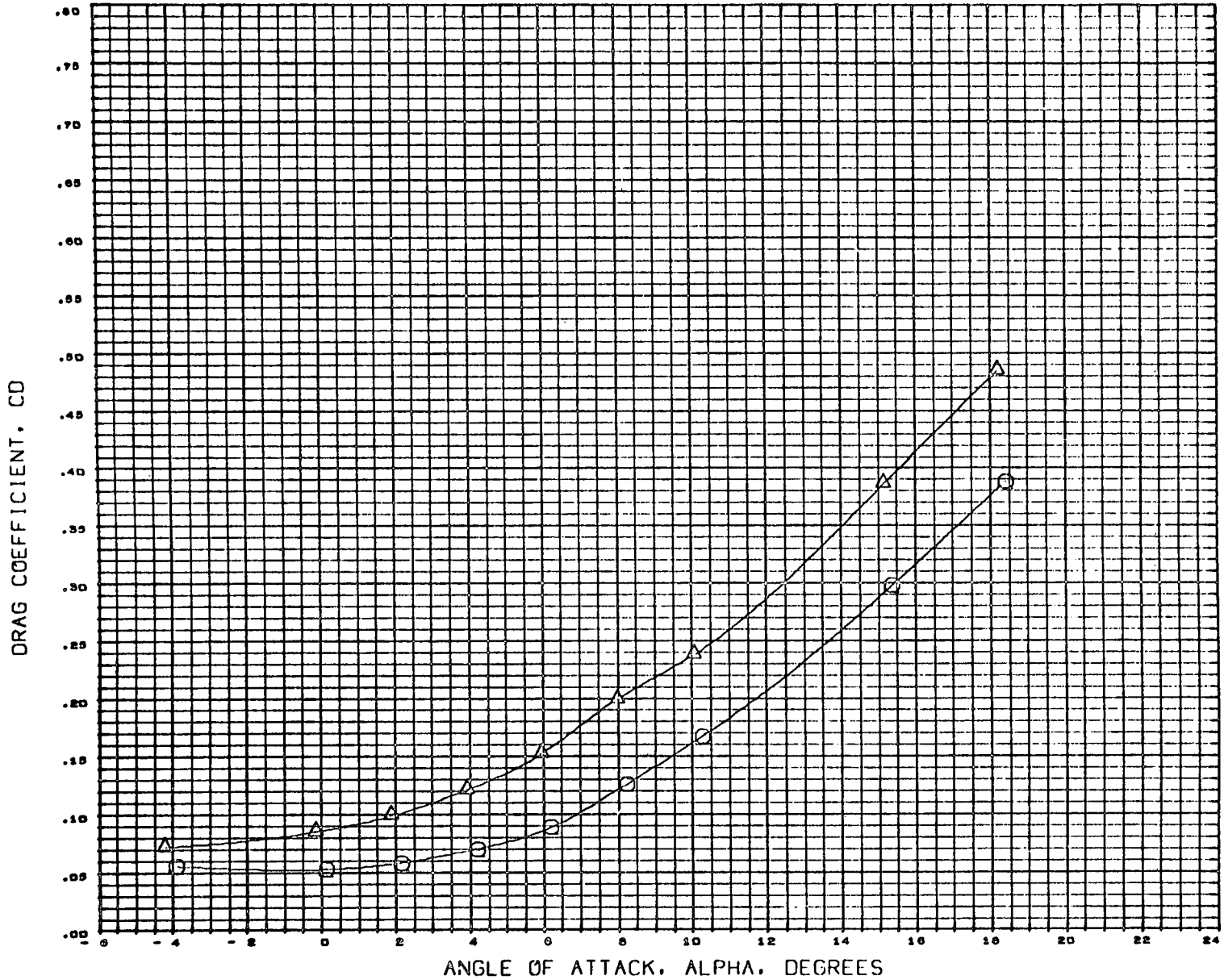
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS055)	DATA NOT AVAILABLE FOR ALL CONDITIONS	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.8950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 5.129

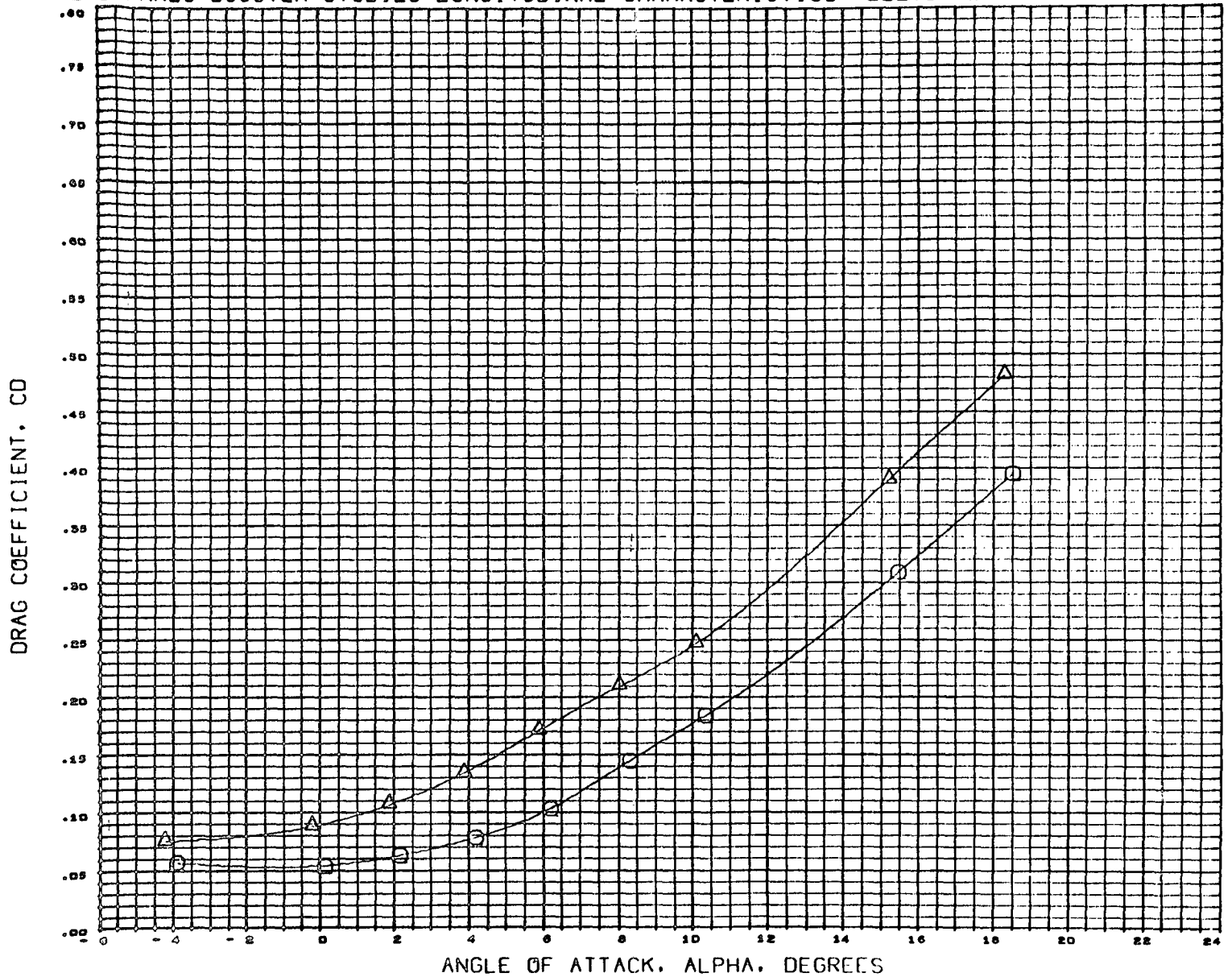
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.701

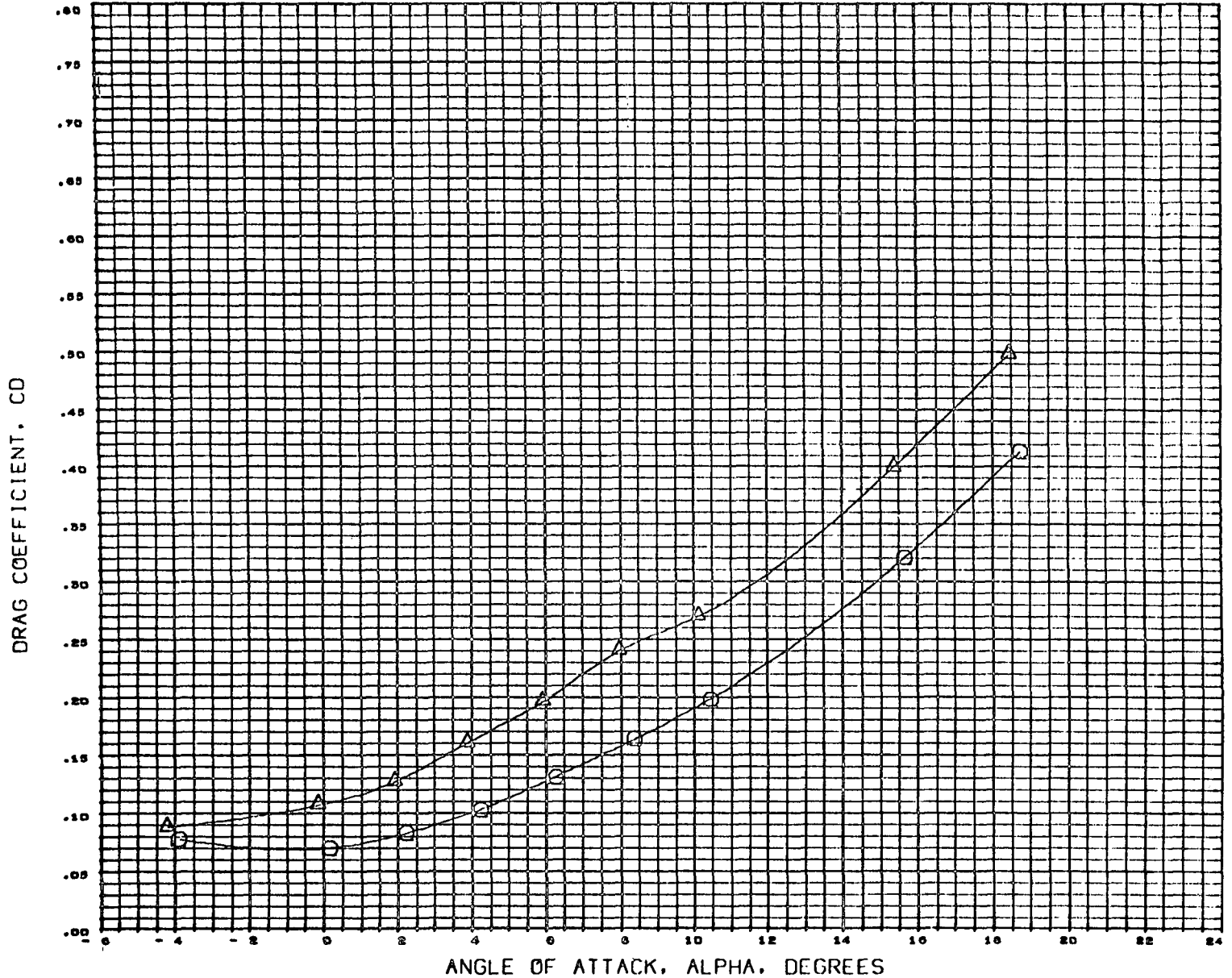
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3055)	NSRDC-3210, MBFC/LMBC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF 1.3550 SQ. FT.
(RN3057)	NSRDC-3210, MBFC/LMBC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.700

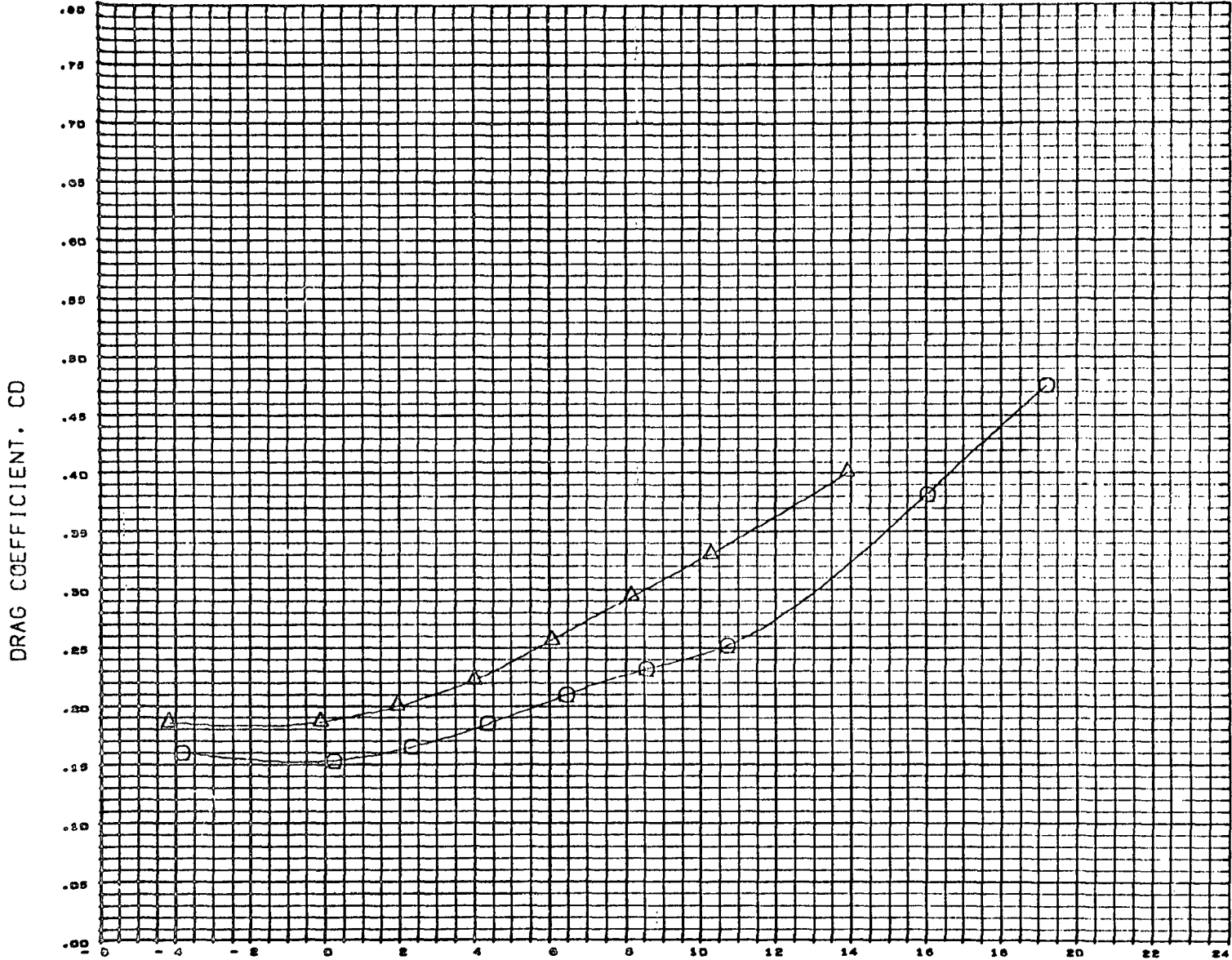
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	ALLRON	REFERENCE INFORMATION
(RN3055)	NSRDC-3210, M5FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREP 1.3550 SQ. FT.
(RN3057)	NSRDC-3210, M5FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

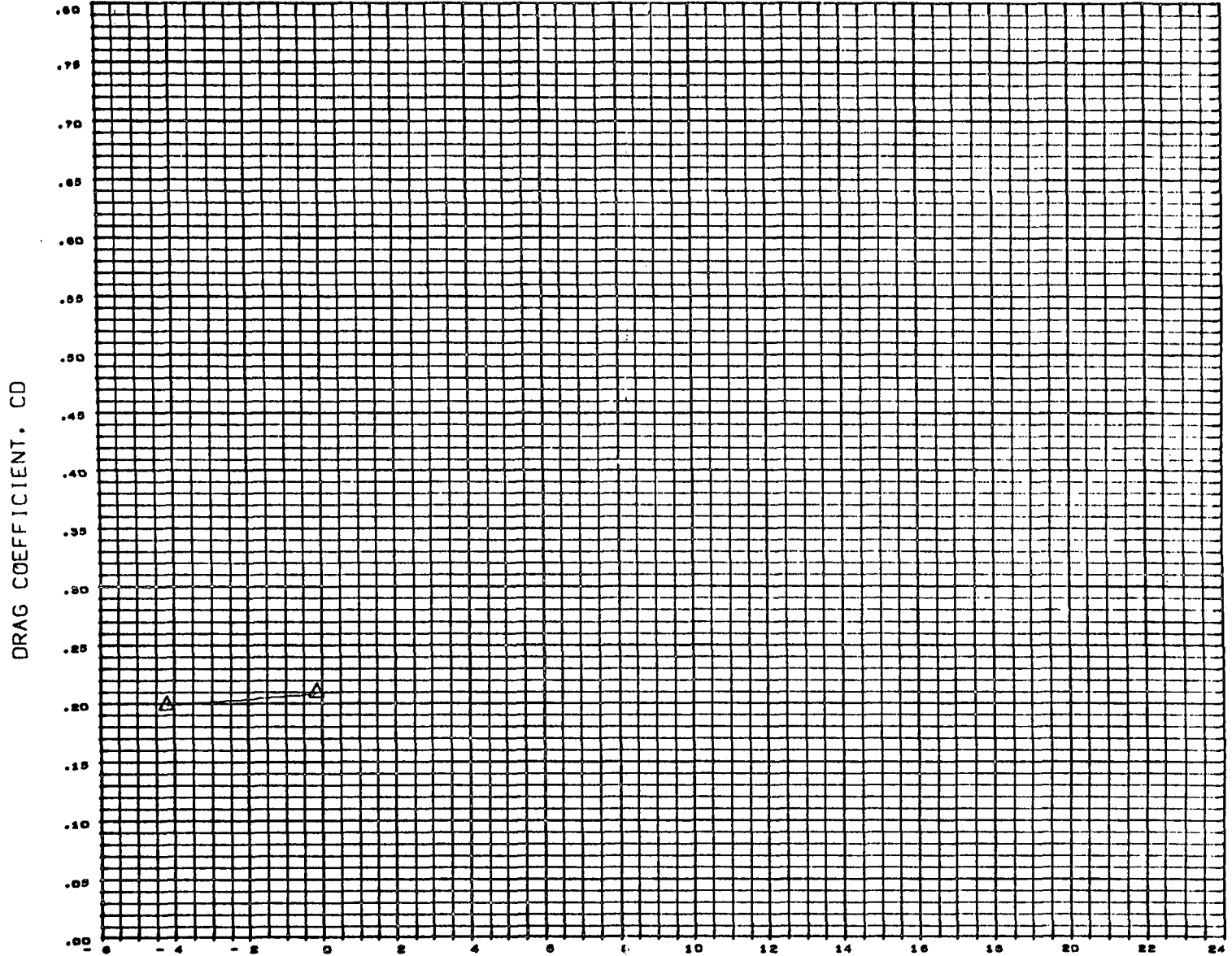


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3055)	NSRDC-3210, M8PC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3057)	NSRDC-3210, M8PC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4550 FEET
						BREF 3.4550 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

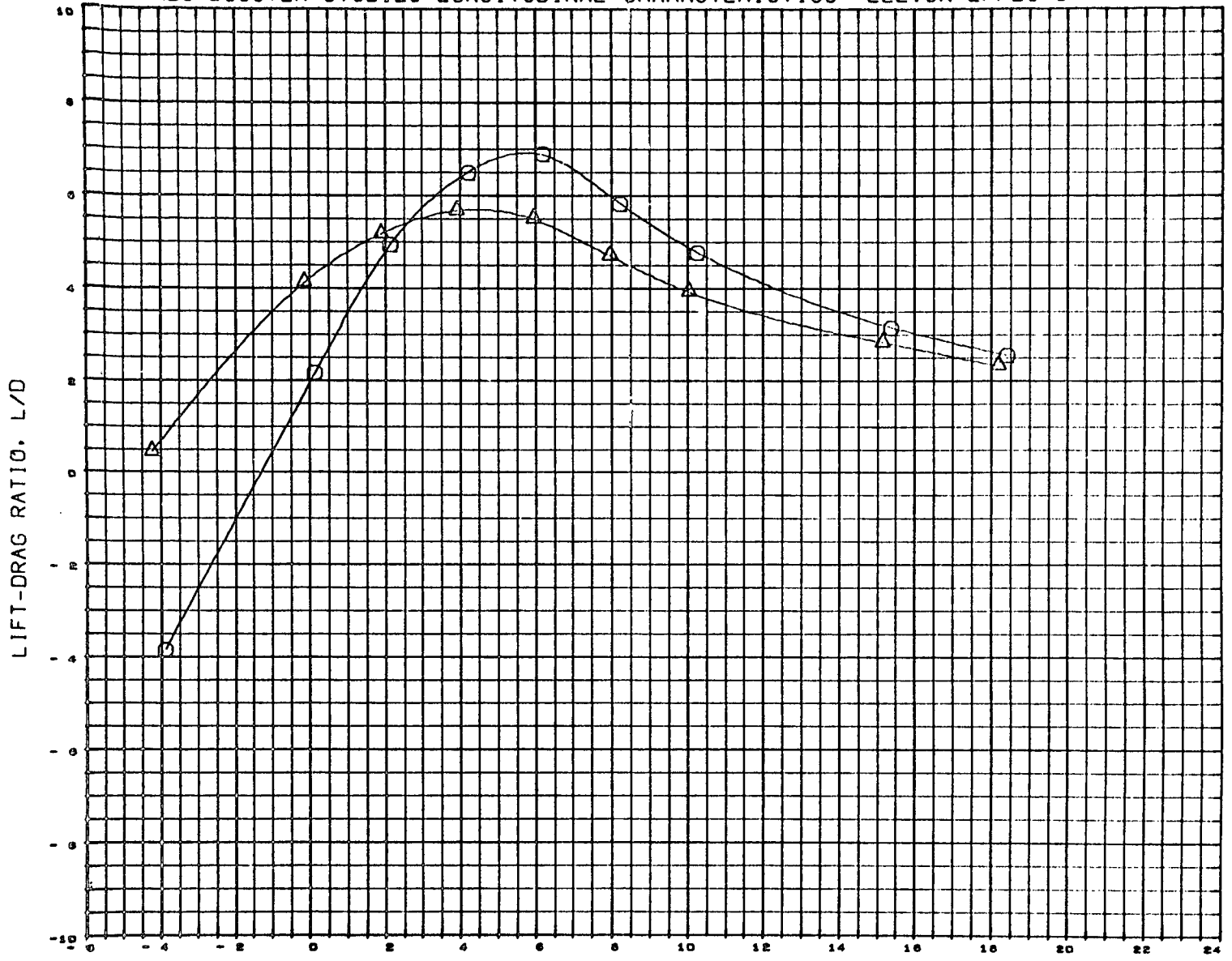


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS055)	DATA NOT AVAILABLE FOR ALL CONDITIONS	2.000	3.000	0.000	0.000	BREF 1.3550 SQ. FT.
(RNS057)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0130 SCALE

MACH 1.125

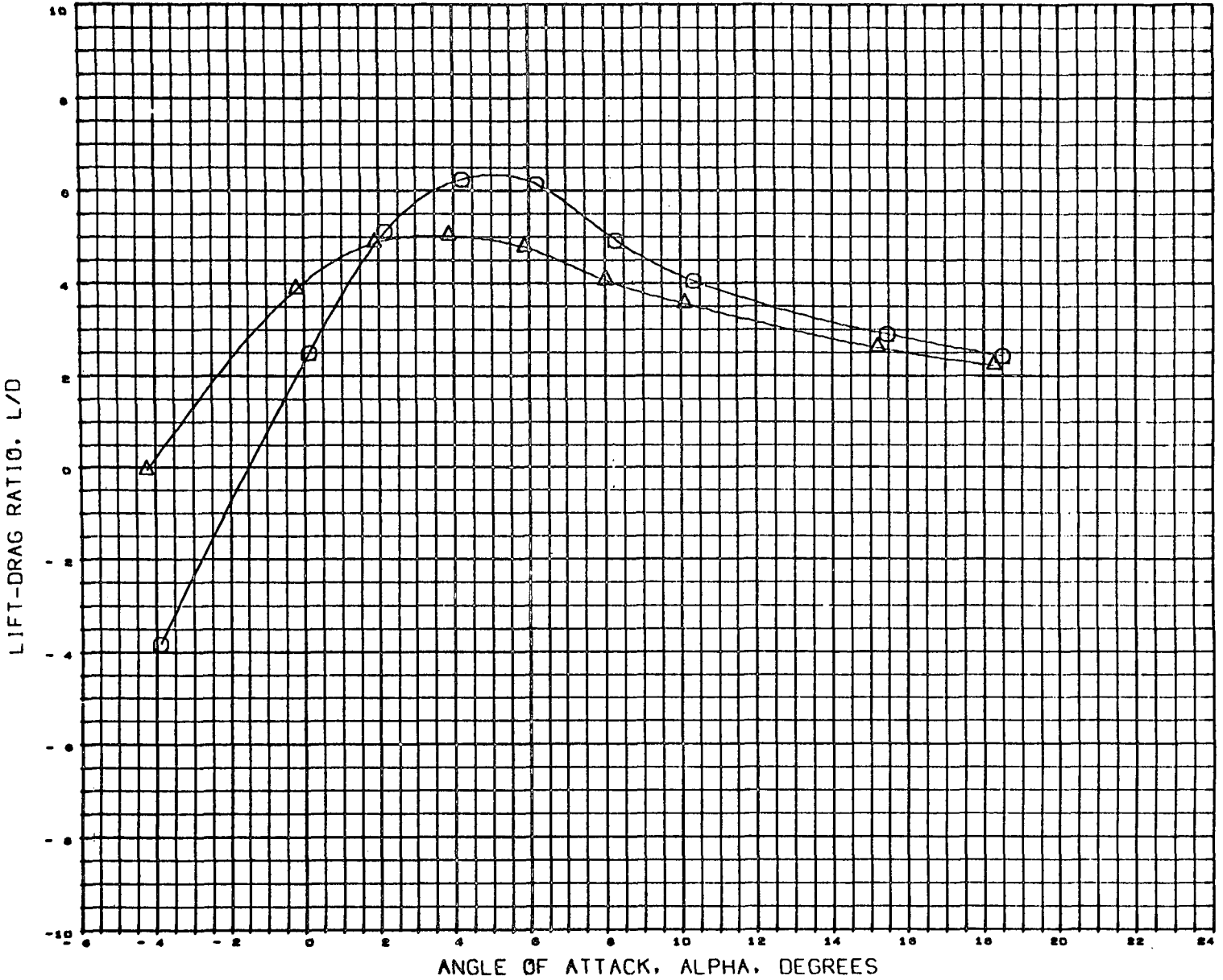
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS050)	NSRDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RNS057)	NSRDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4550 FEET
						BREF 3.4550 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.701

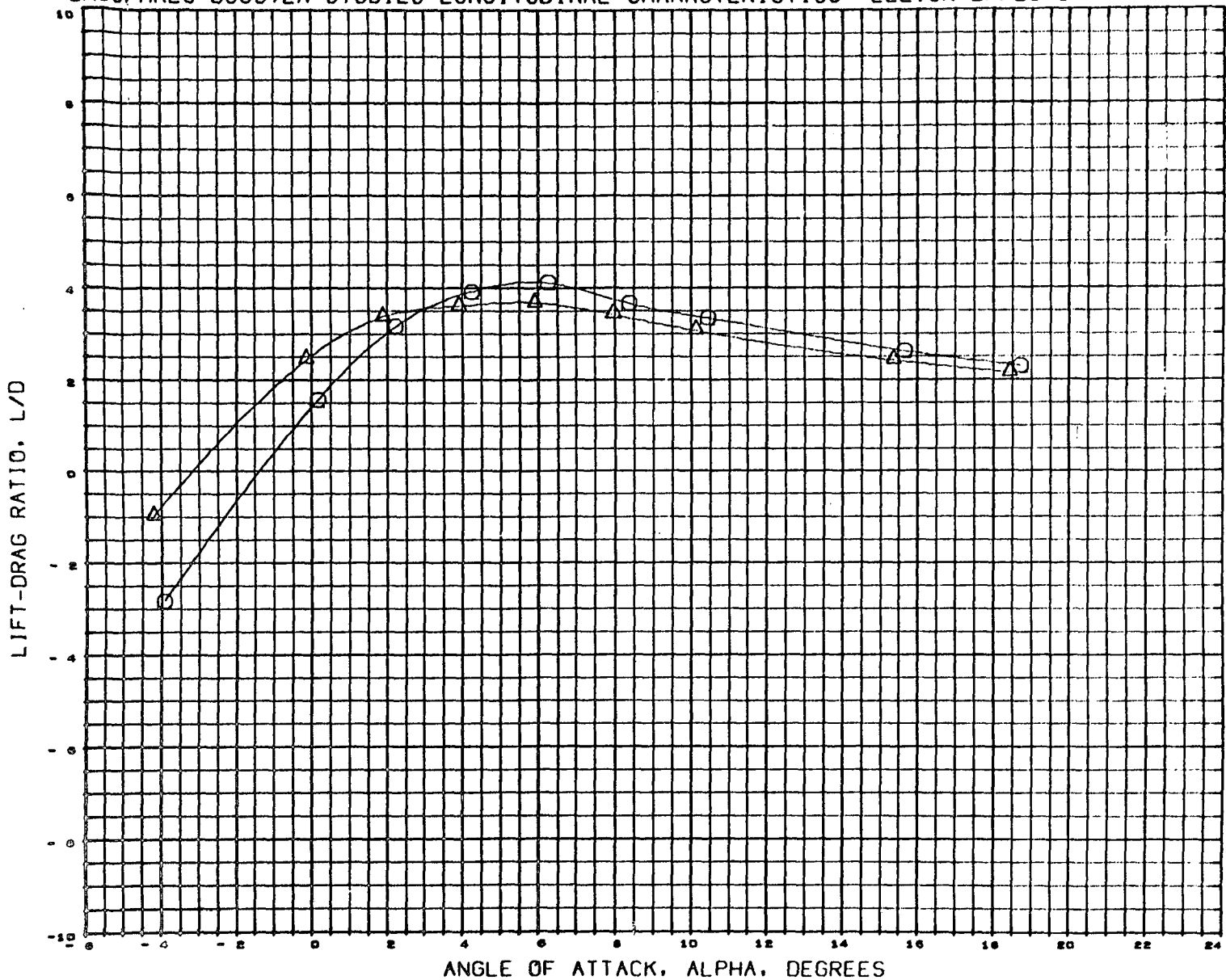
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	INCIDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS055) ○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RNS057) △	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.799

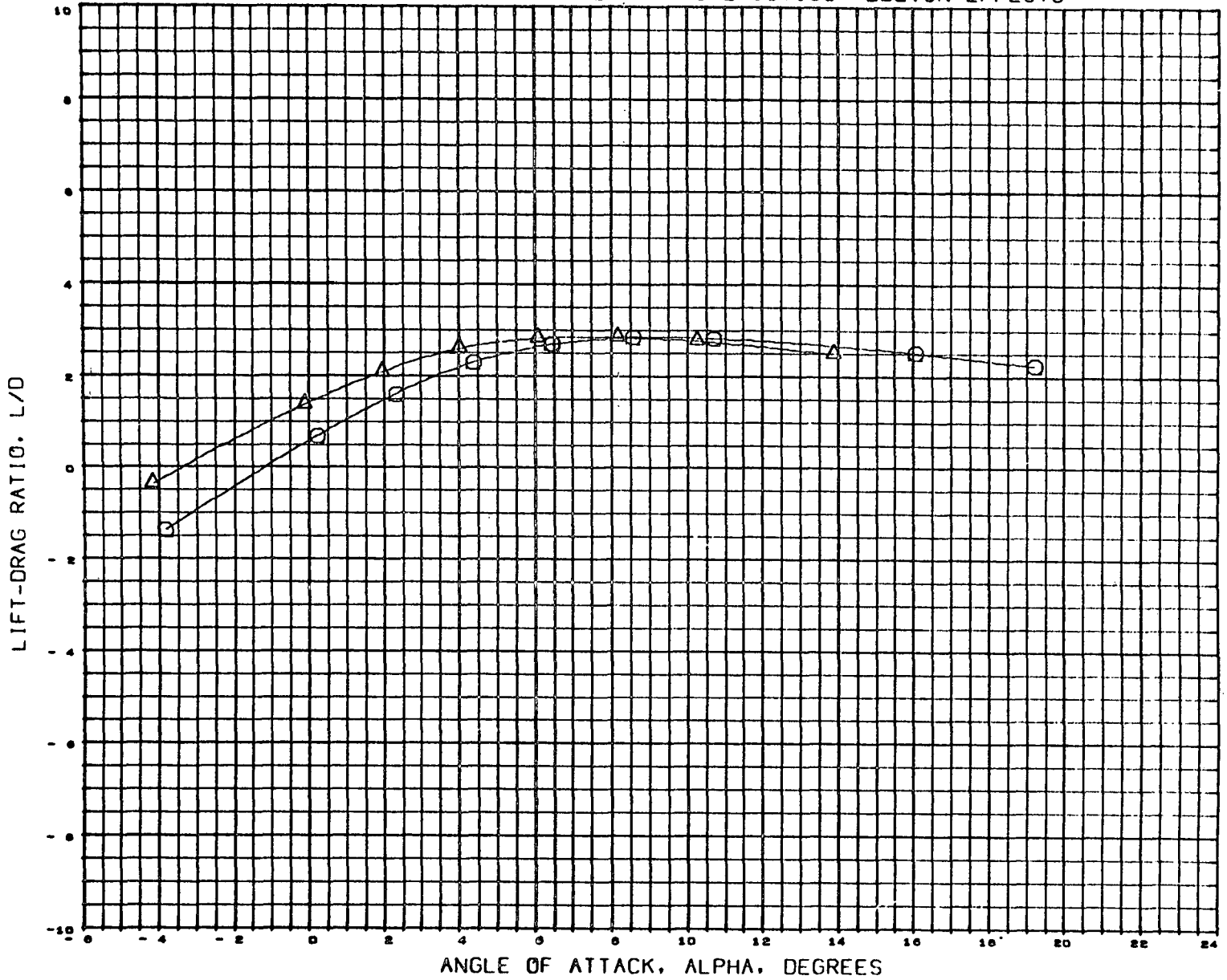
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RNS057)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.004

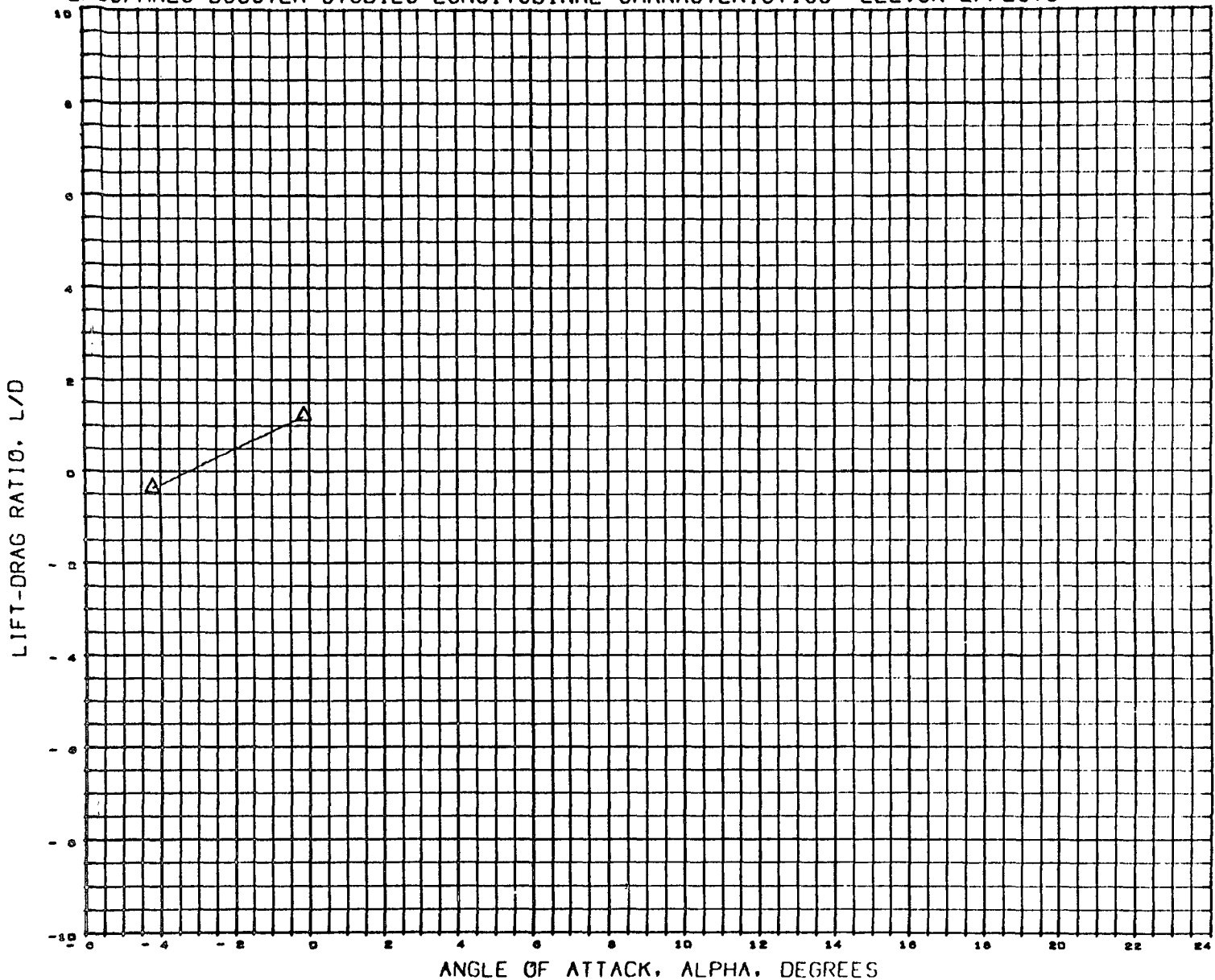
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3093)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3097)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5960 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

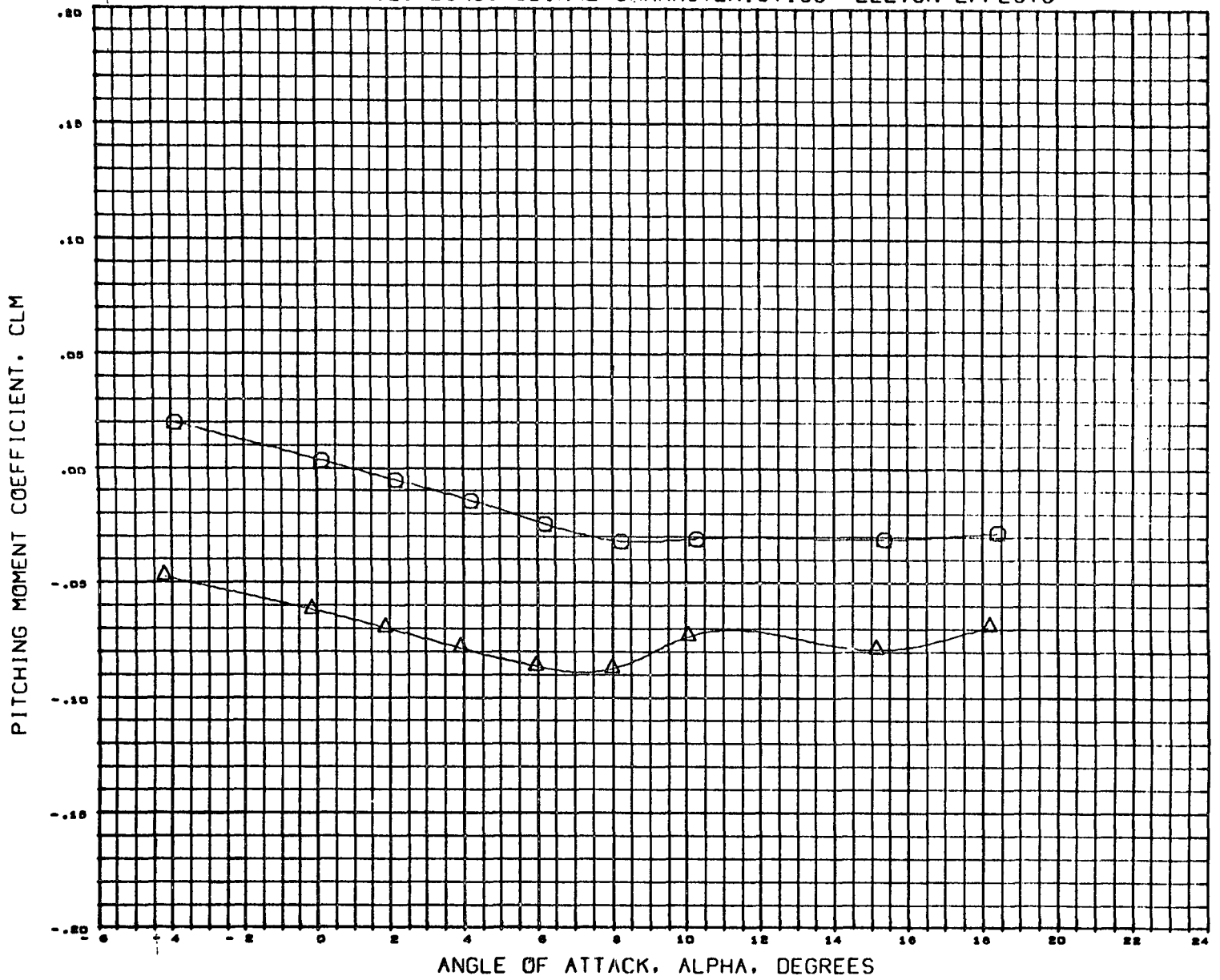


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3053) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RN3057) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
2.000	3.000	20.000	0.000	LREF 3.4550 FEET
				BREF 3.4550 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0107 FEET
				SCALE 0.0150 SCALE

MACH 3.125

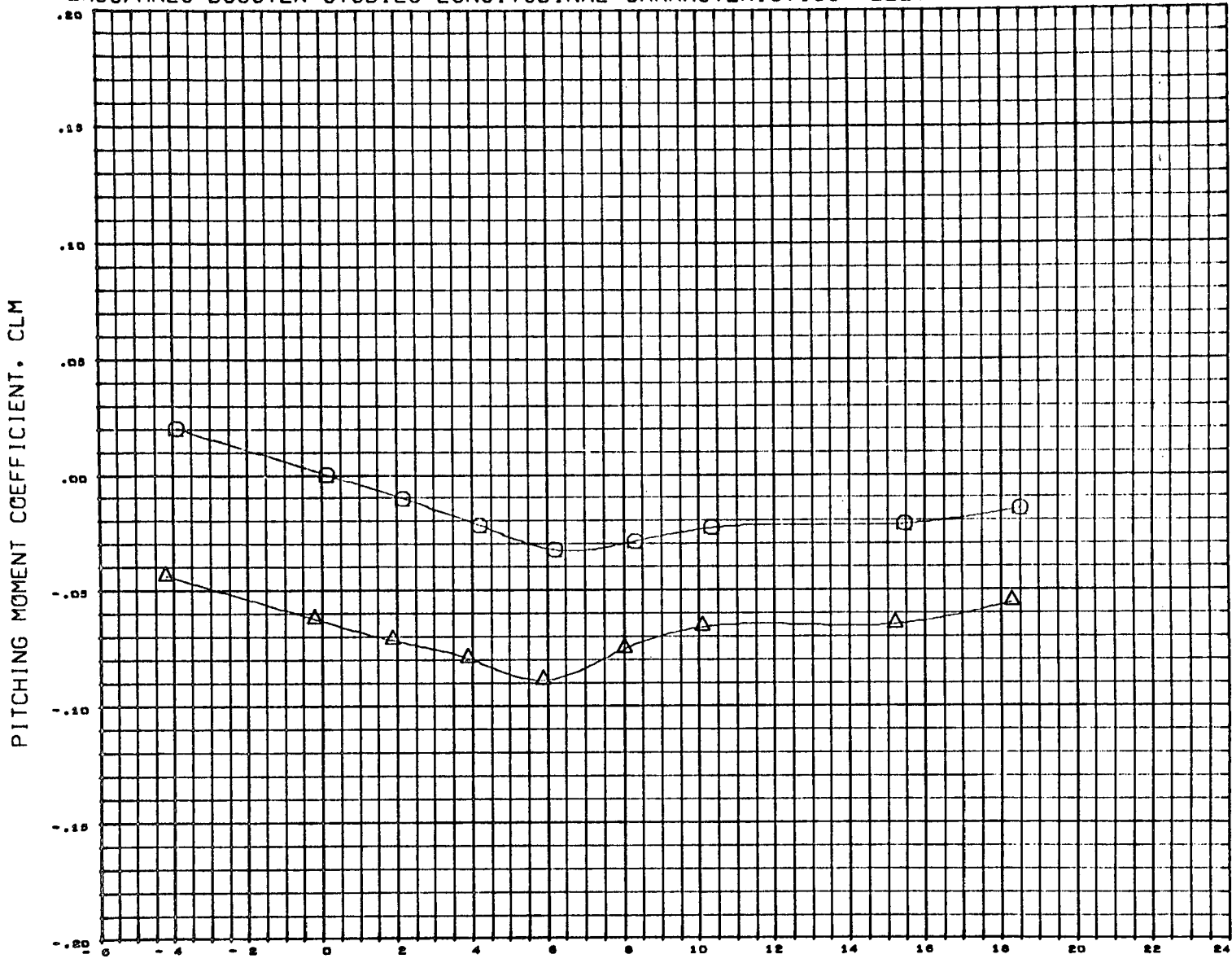
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS055)	NBRDC-321D,MSFC/LMSC BOOSTER B1C2P3W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS057)	NBRDC-321D,MSFC/LMSC BOOSTER B1C2P3W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

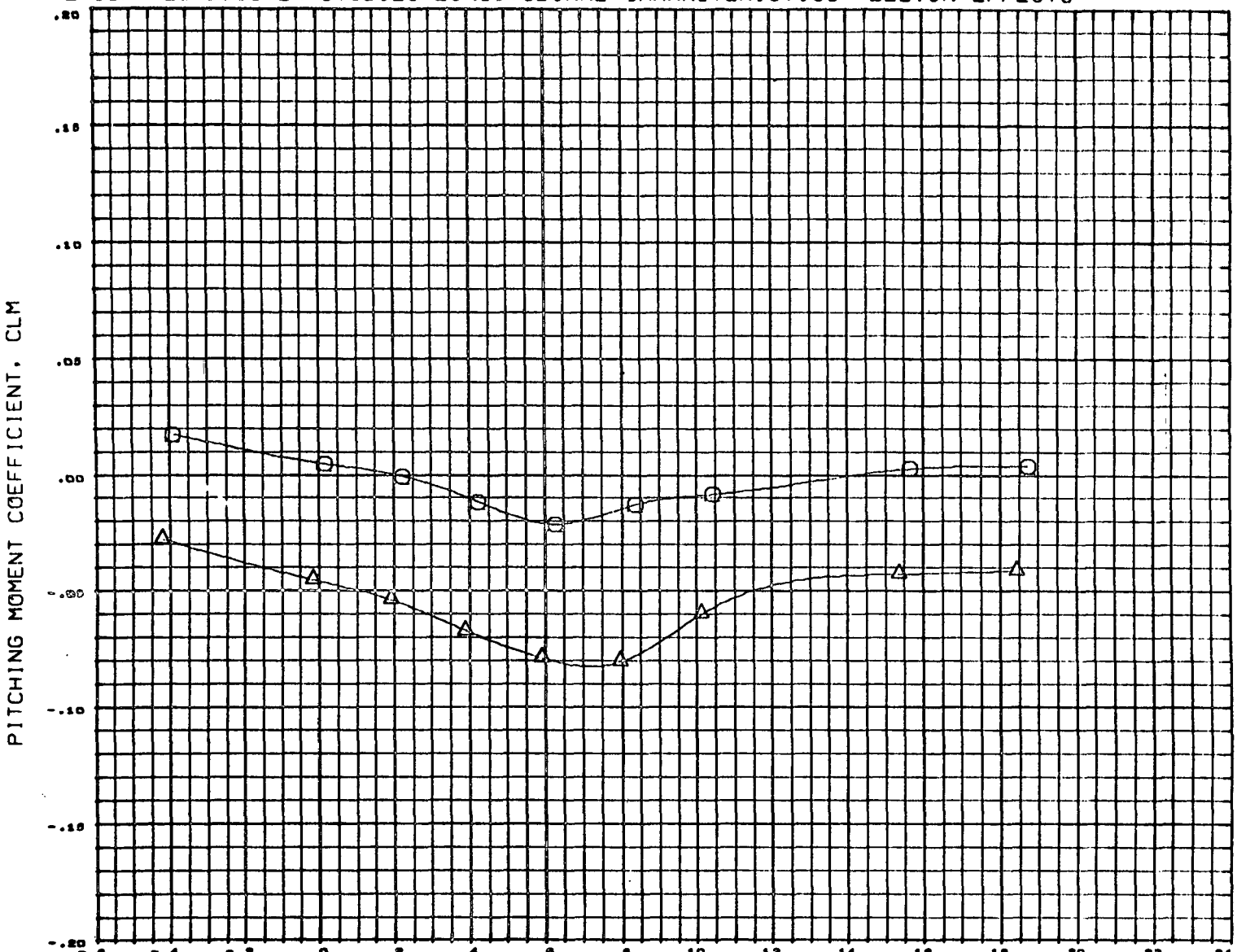


ANGLE OF ATTACK, ALPHA, DEGREES



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3055)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.799

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

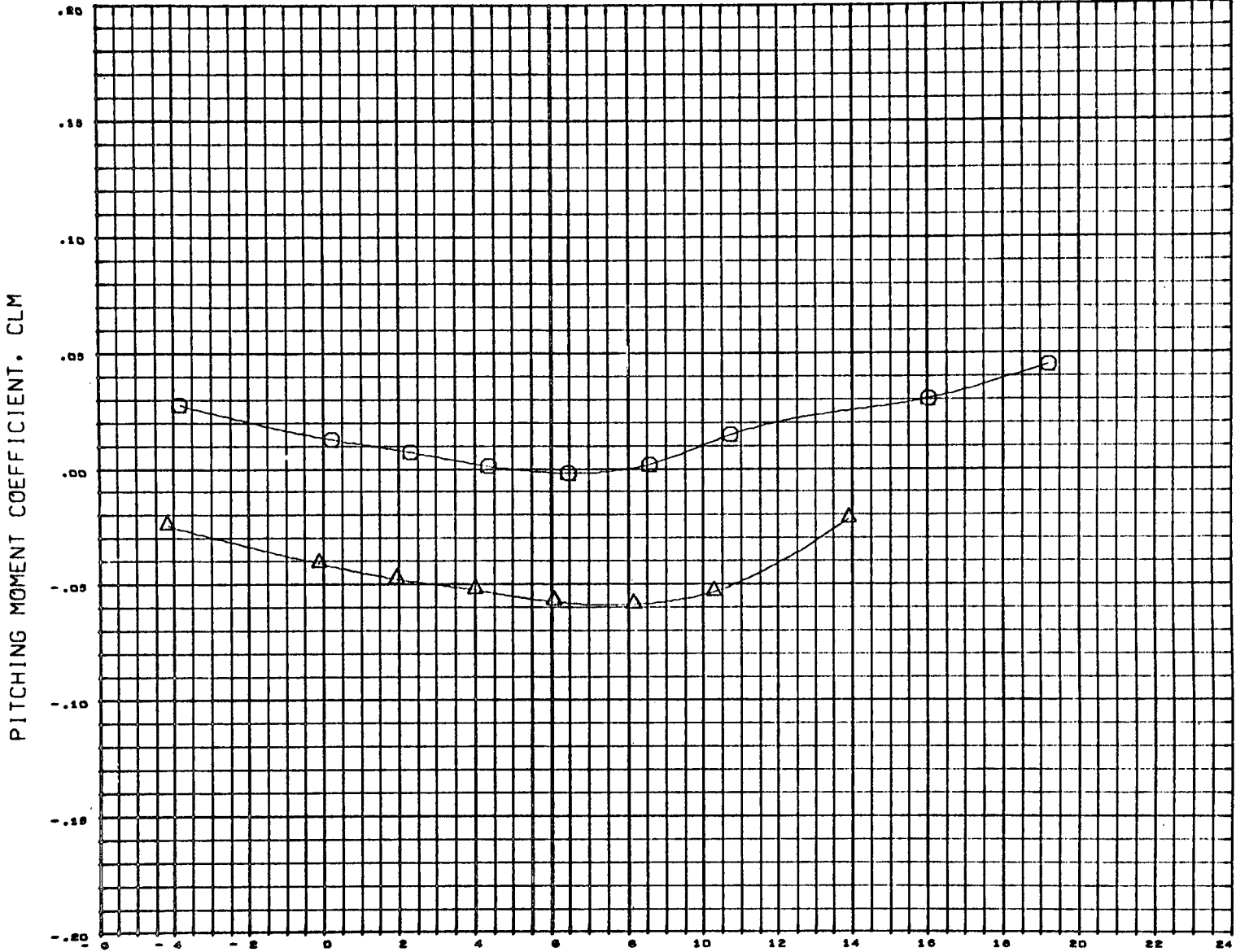


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053) 	NBRDC-3210, M5FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3057) 	NBRDC-3210, M5FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET BREF 3.4530 FEET XMRP 2.5050 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.904

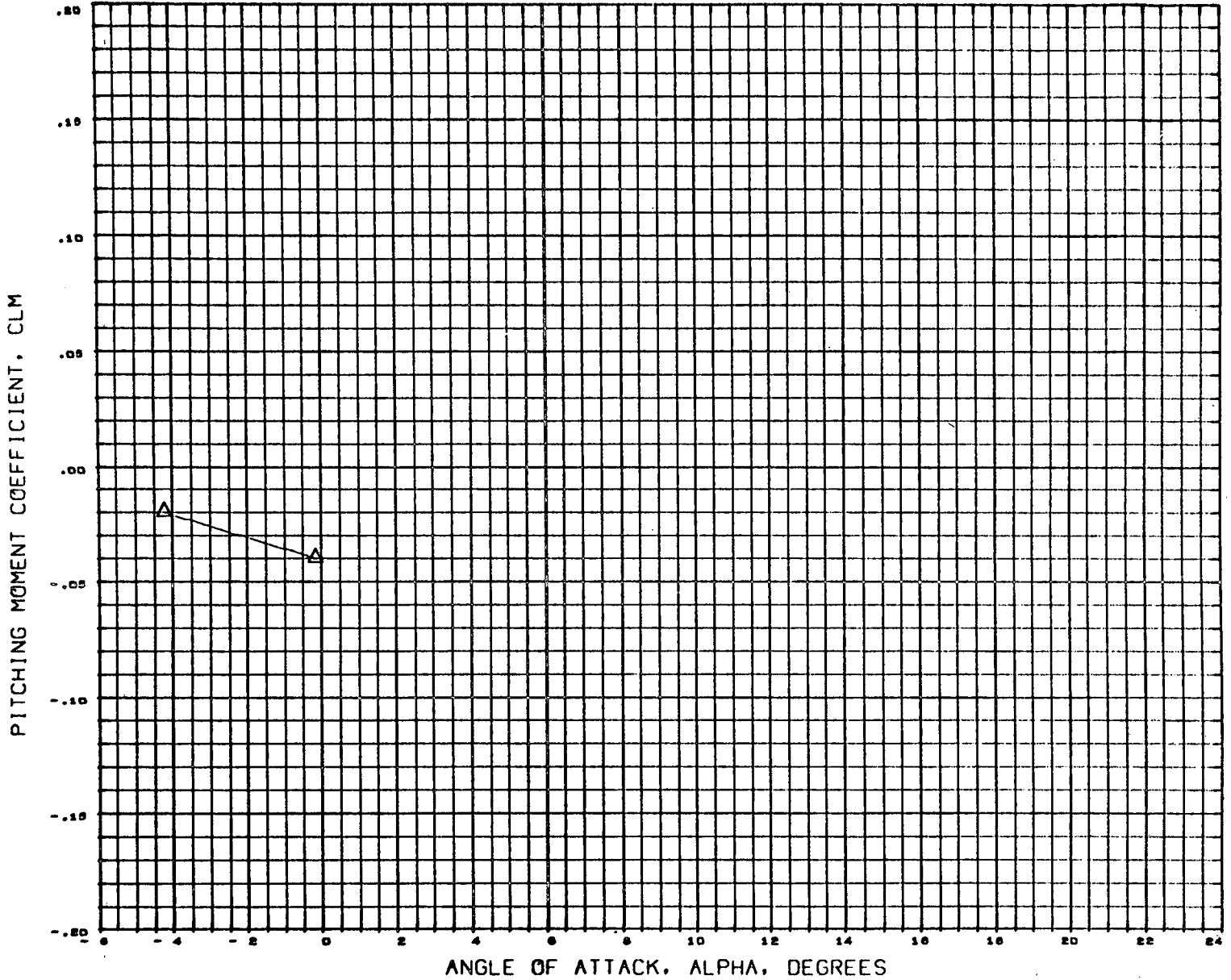
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 3.000

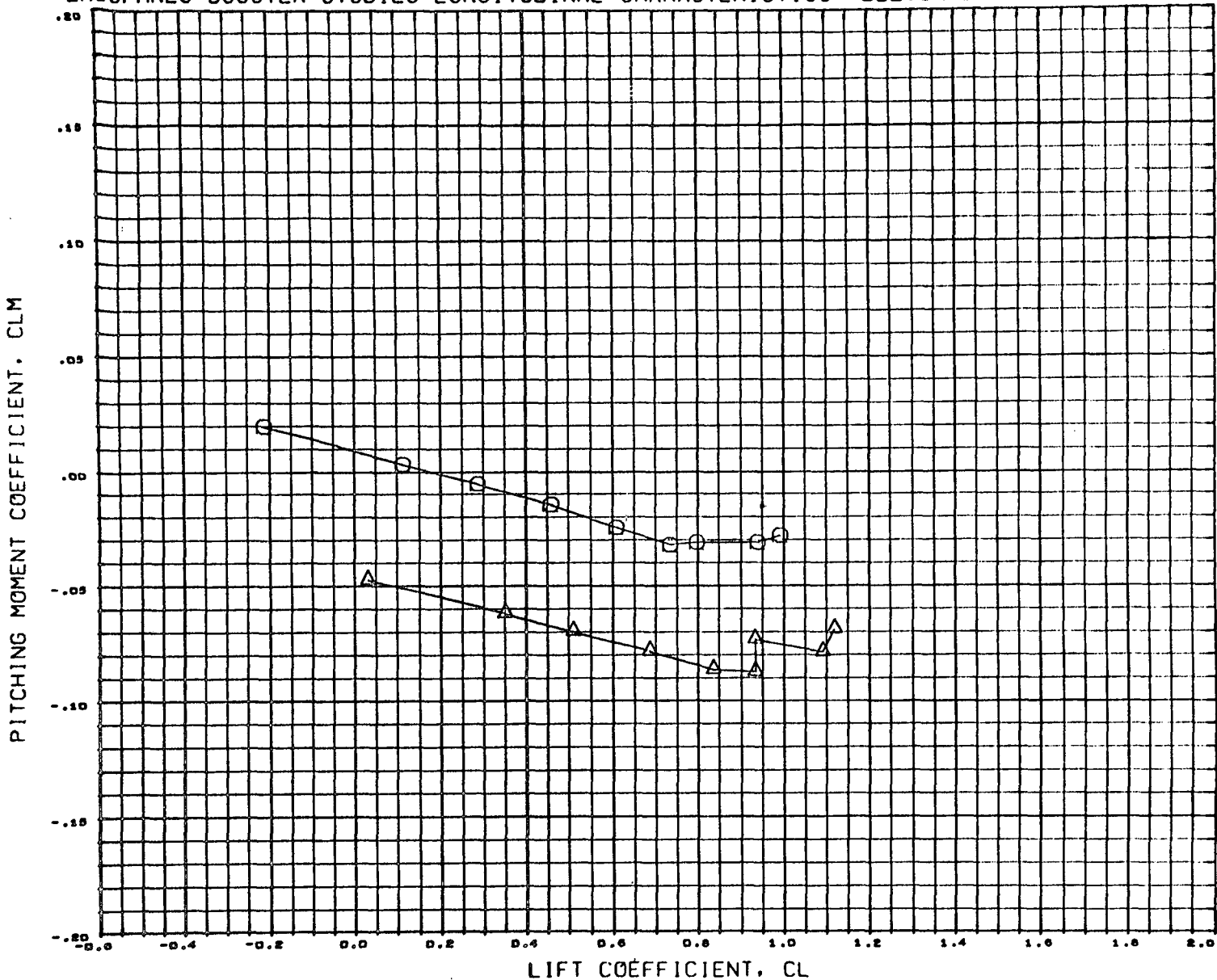
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	DATA NOT AVAILABLE FOR ALL CONDITIONS	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3057)	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.125

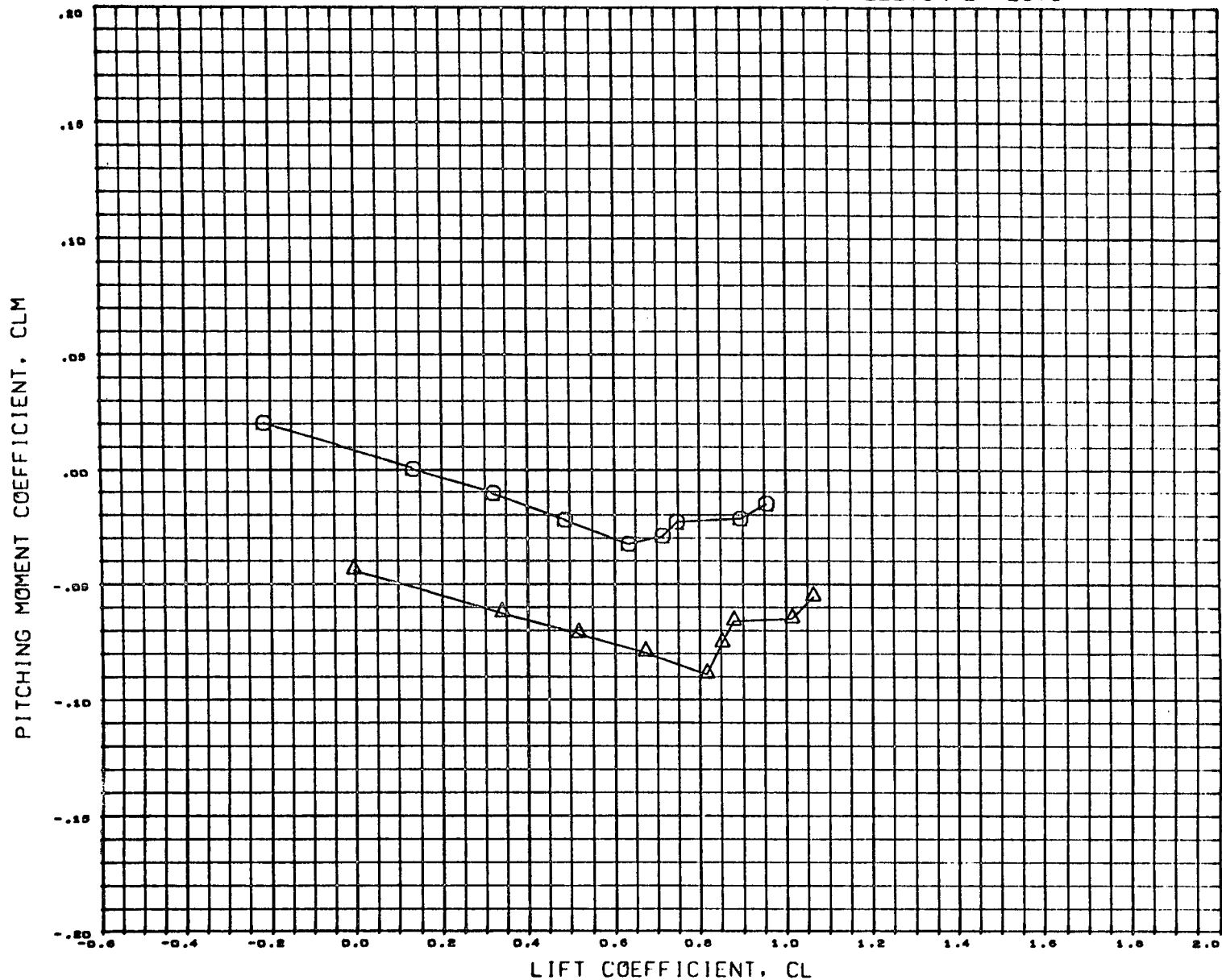
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	NSRDC-3210, H8FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3057)	NSRDC-3210, H8FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.701

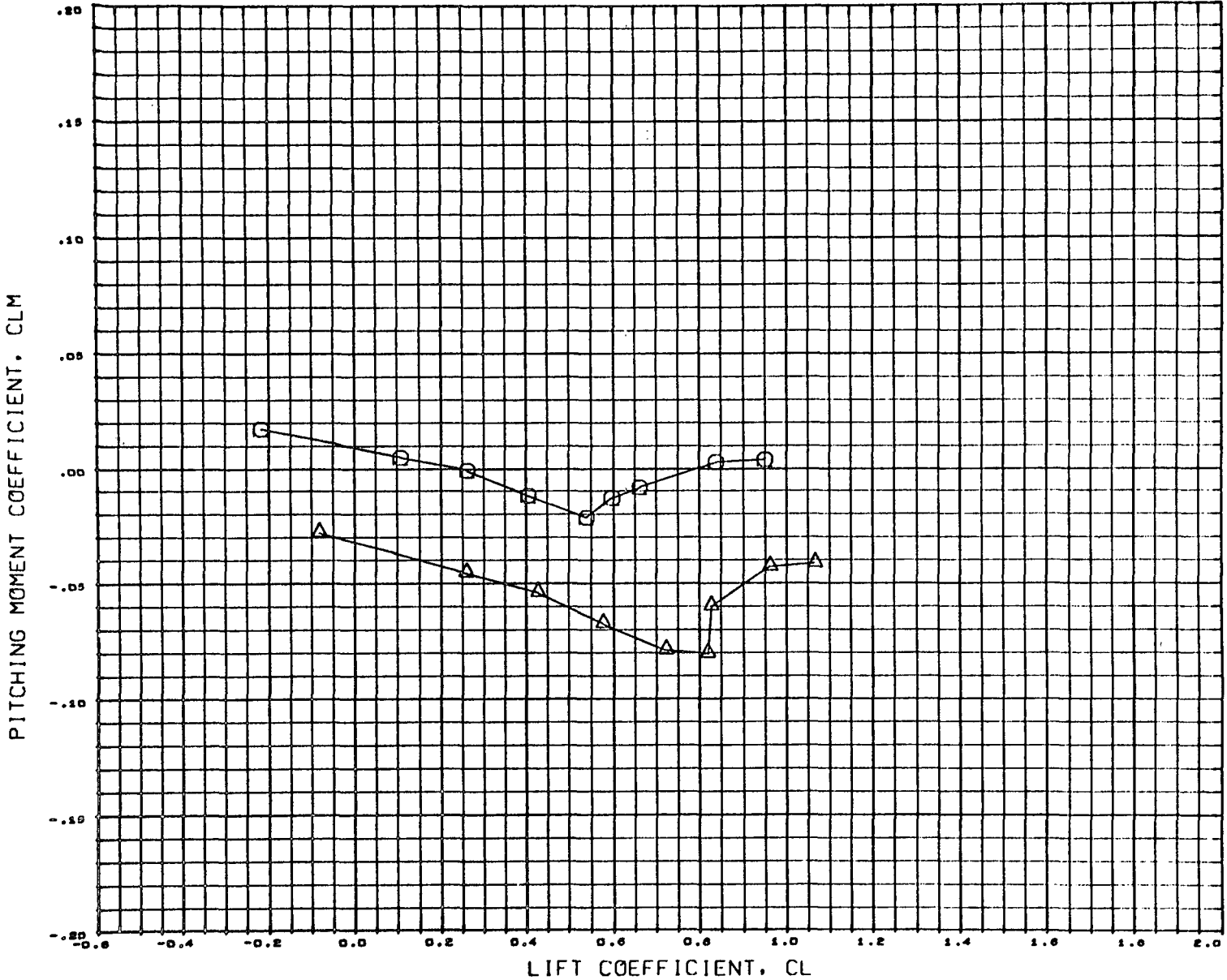
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3055)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.799

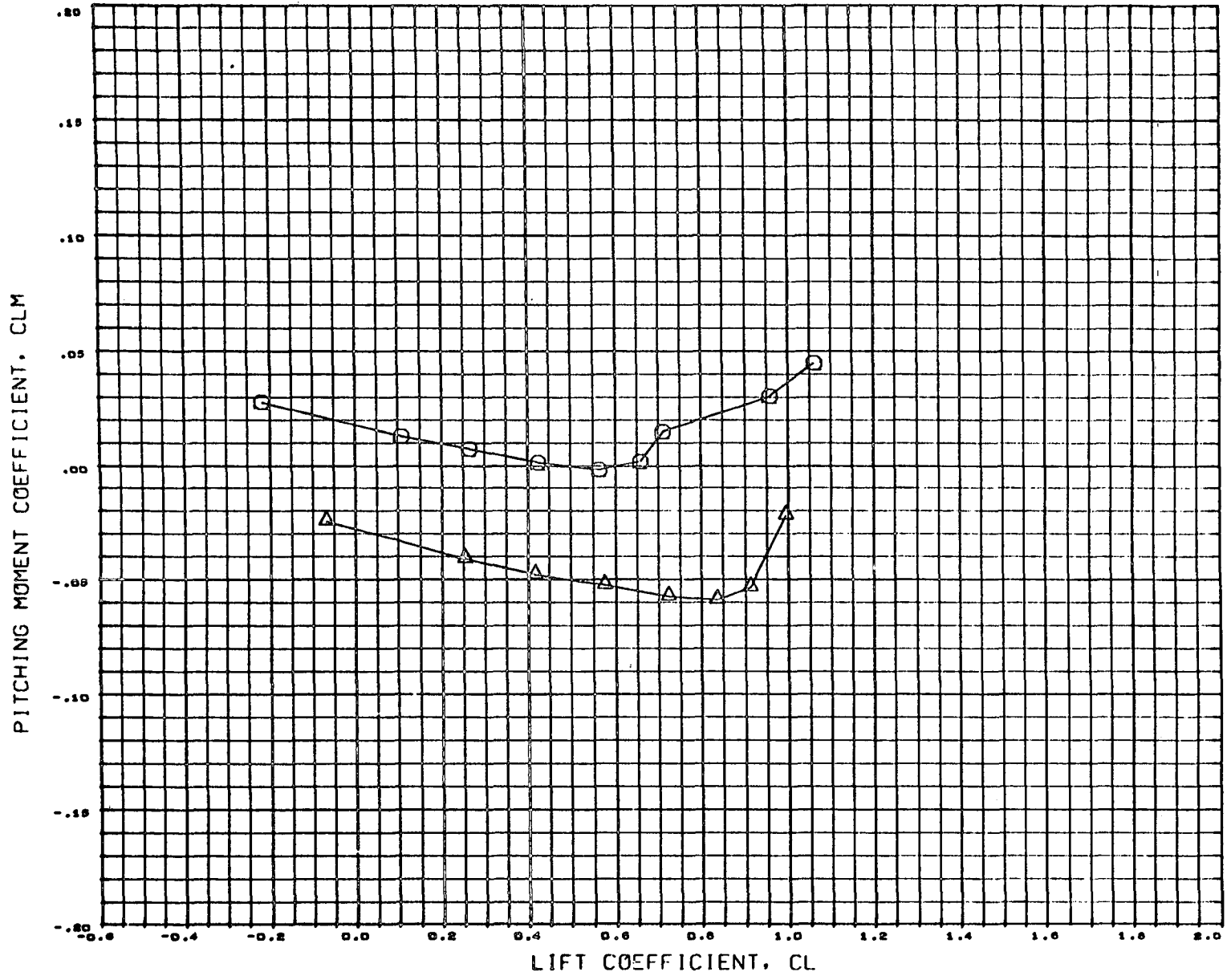
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	MSRDC-3210,MSFC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3057)	MSRDC-3210,MSFC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						OREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.904

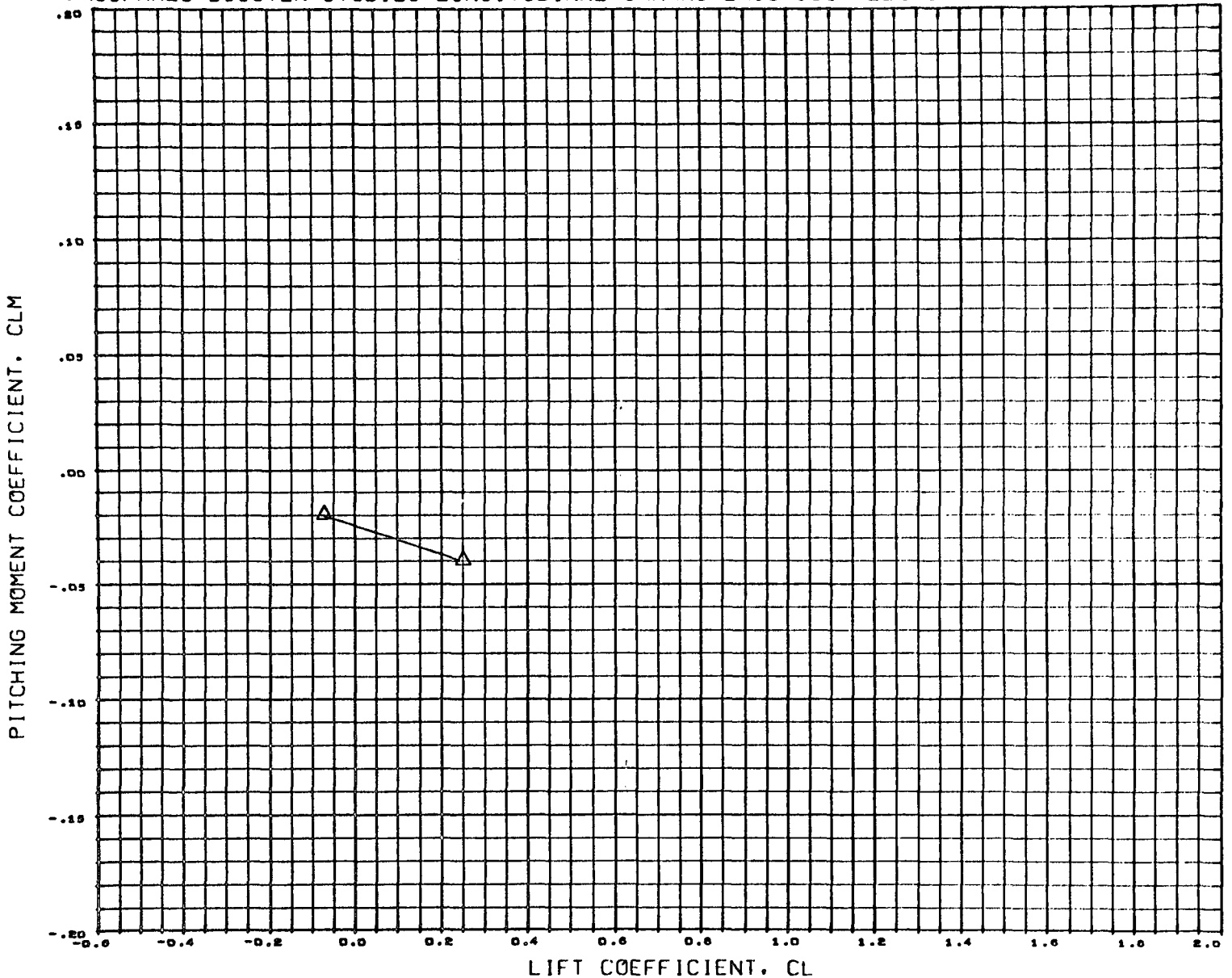
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF 1.3550 SQ.FT.
(RNS057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.000

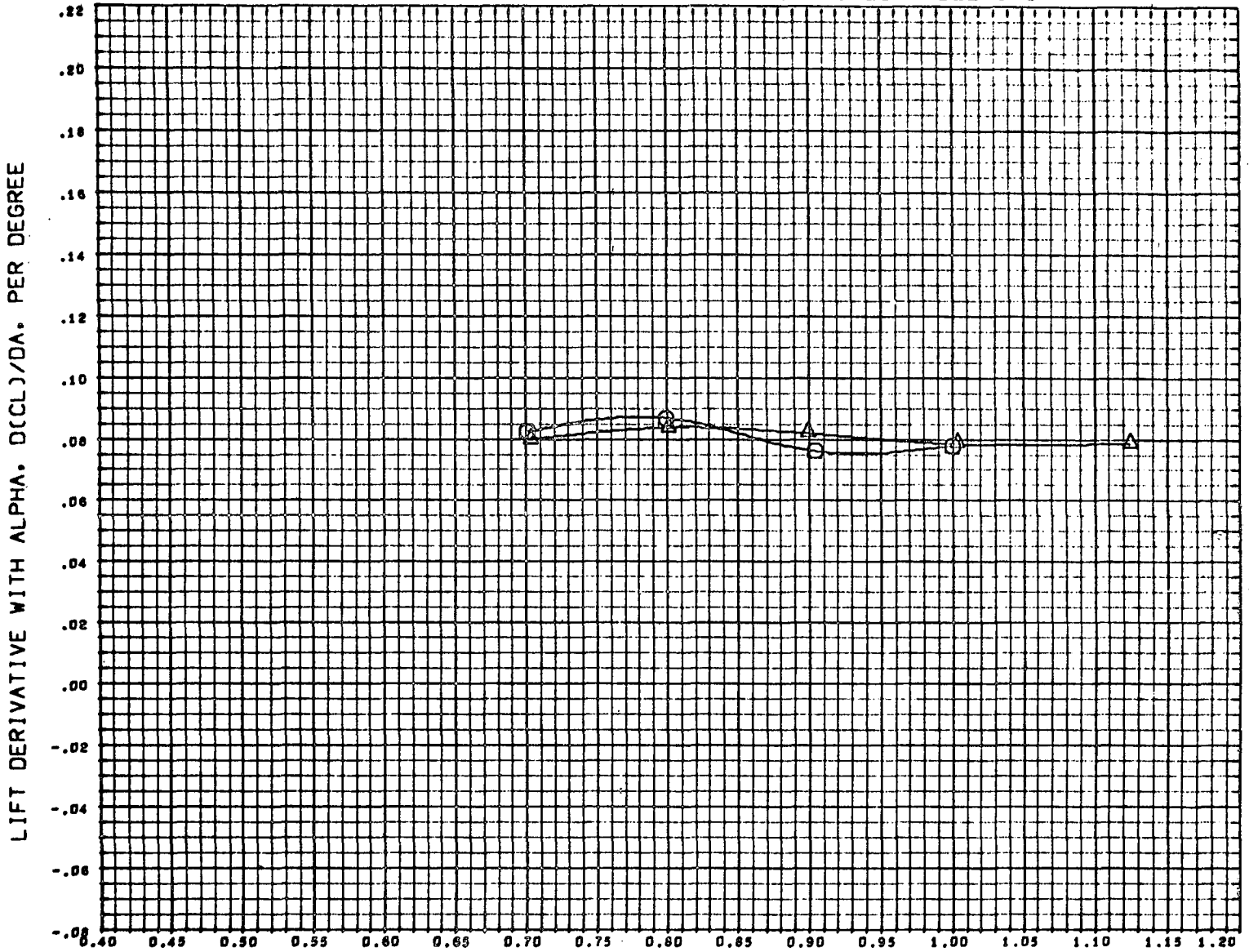
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	DATA NOT AVAILABLE FOR ALL CONDITIONS	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS057)	M8RDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.129

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

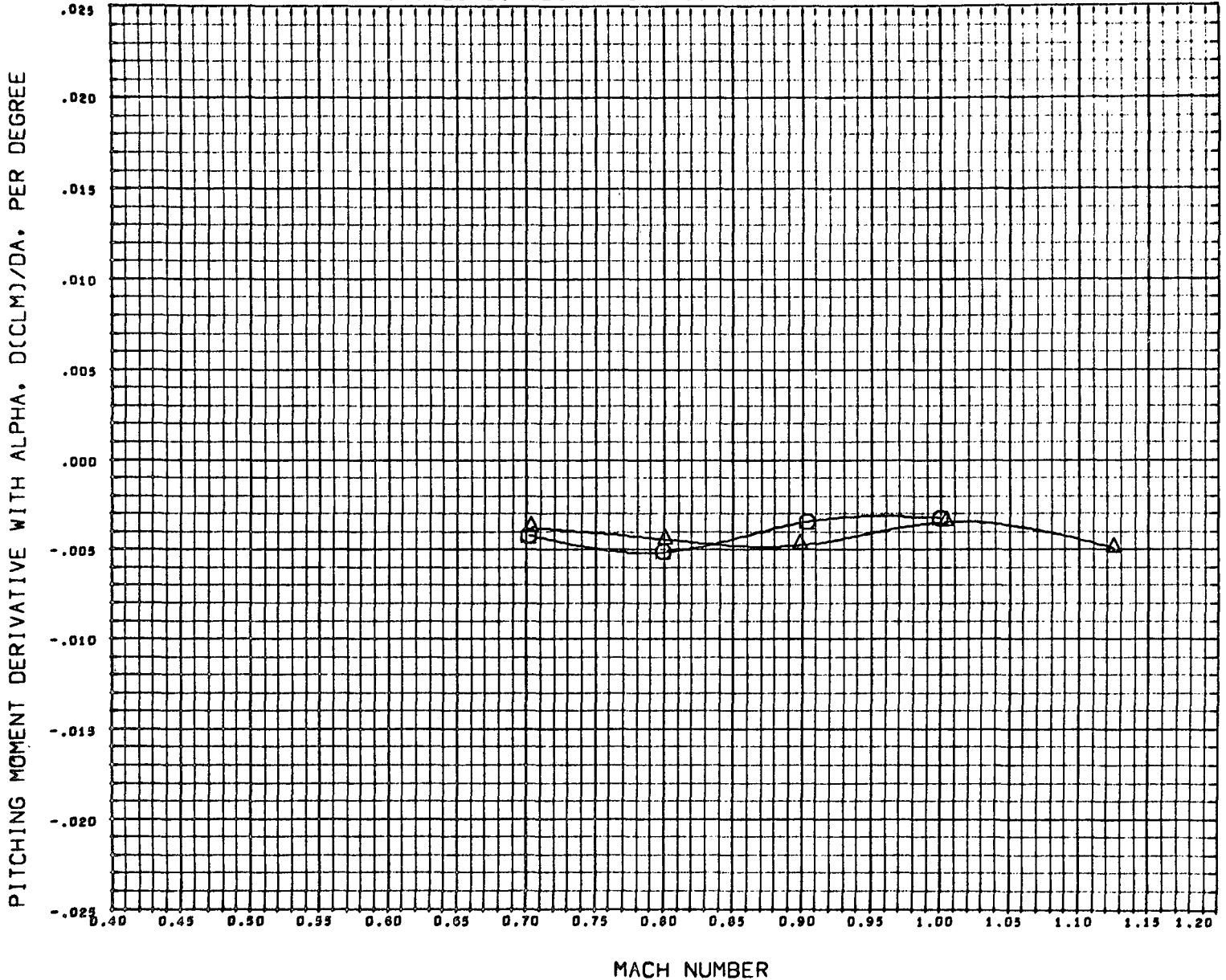


DATA SET SYMBOL (RN3053) (RN3057)	CONFIGURATION DESCRIPTION NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1 NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
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MACH NUMBER

CNDPOS 2.000 2.000	INCIDC 3.000 3.000	ELEVTR 0.000 20.000	AILRON 0.000 0.000	REFERENCE INFORMATION SREF 1.3550 30.FT. LREF 3.4530 FEET BREF 3.4530 FEET XHRP 2.9950 FEET YHRP 0.0000 FEET ZHRP 0.0187 FEET SCALE 0.0150 SCALE
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

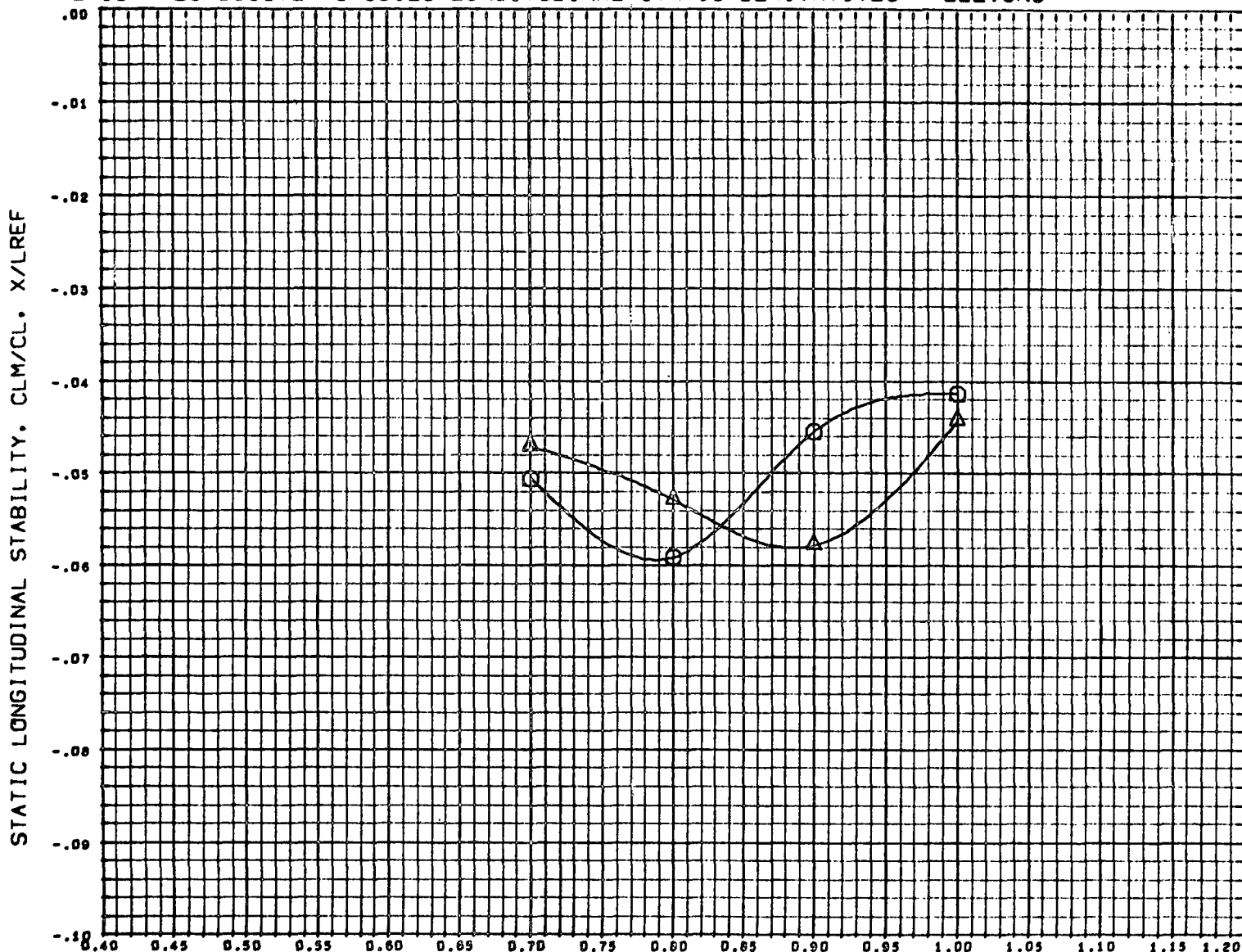


DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3093)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(RN3097)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

MACH NUMBER

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 50. FT.
2.000	3.000	20.000	0.000	LREF 3.4530 FEET
				BREF 3.4530 FEET
				XMRP 2.9950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0187 FEET
				SCALE 0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

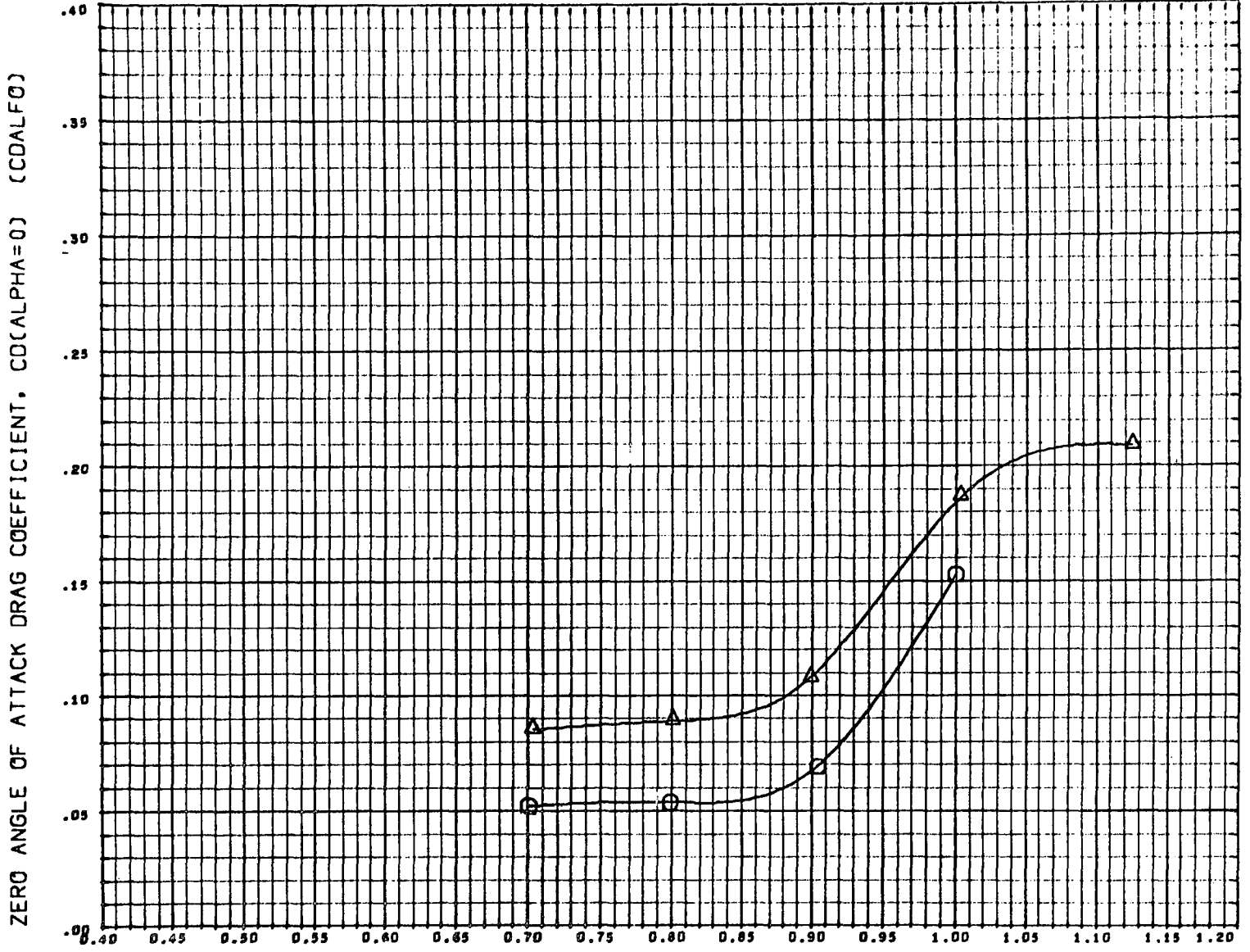


MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(TN3053)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
(TN3057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

ALPHA 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

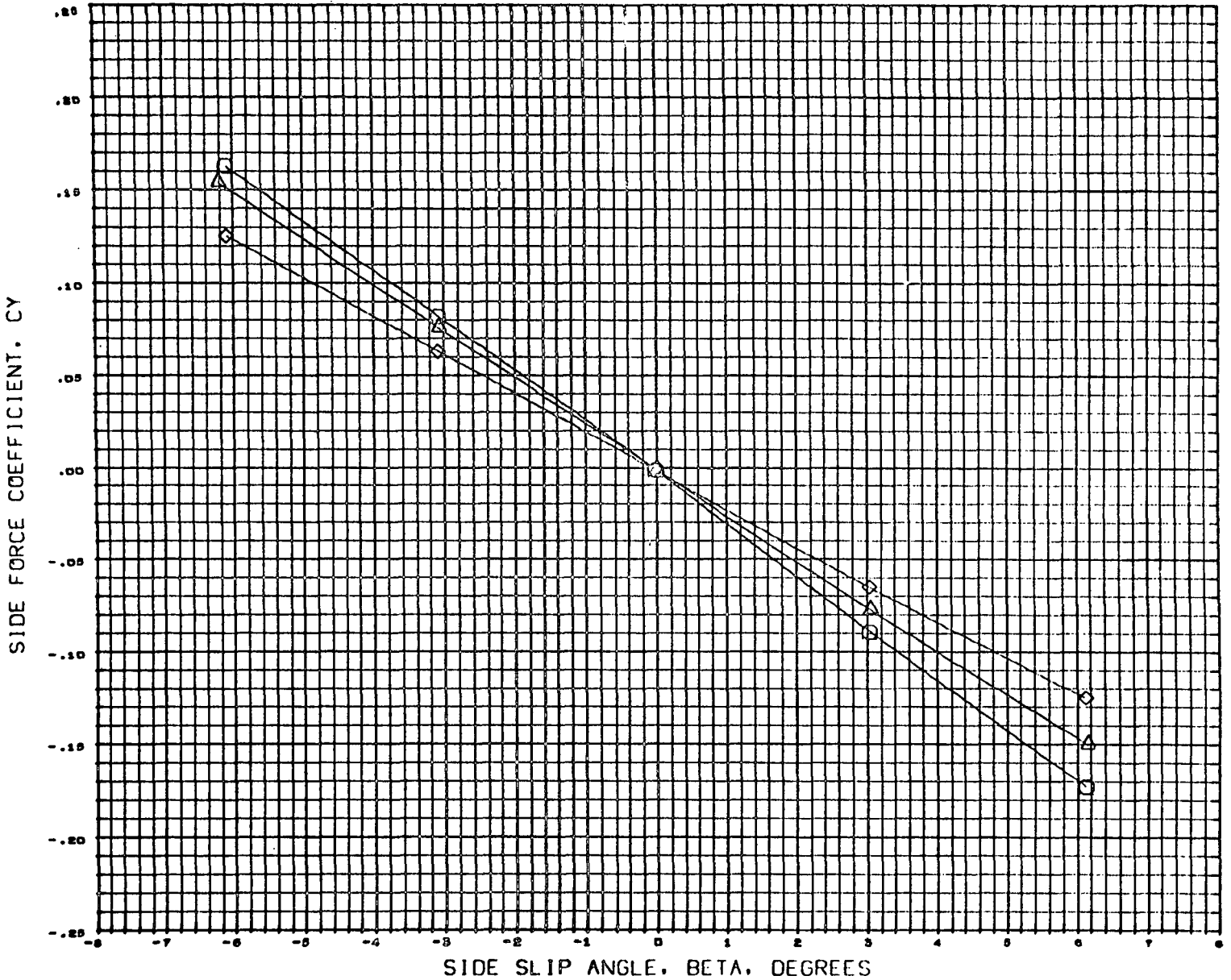


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (BN3053) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
 (BN3057) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

MACH NUMBER

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
2.000	3.000	20.000	0.000	LREF	3.4530 FEET
				BREF	3.4530 FEET
				XNRP	2.5950 FEET
				YNRP	0.0000 FEET
				ZNRP	0.0107 FEET
				SCALE	0.0150 SCALE

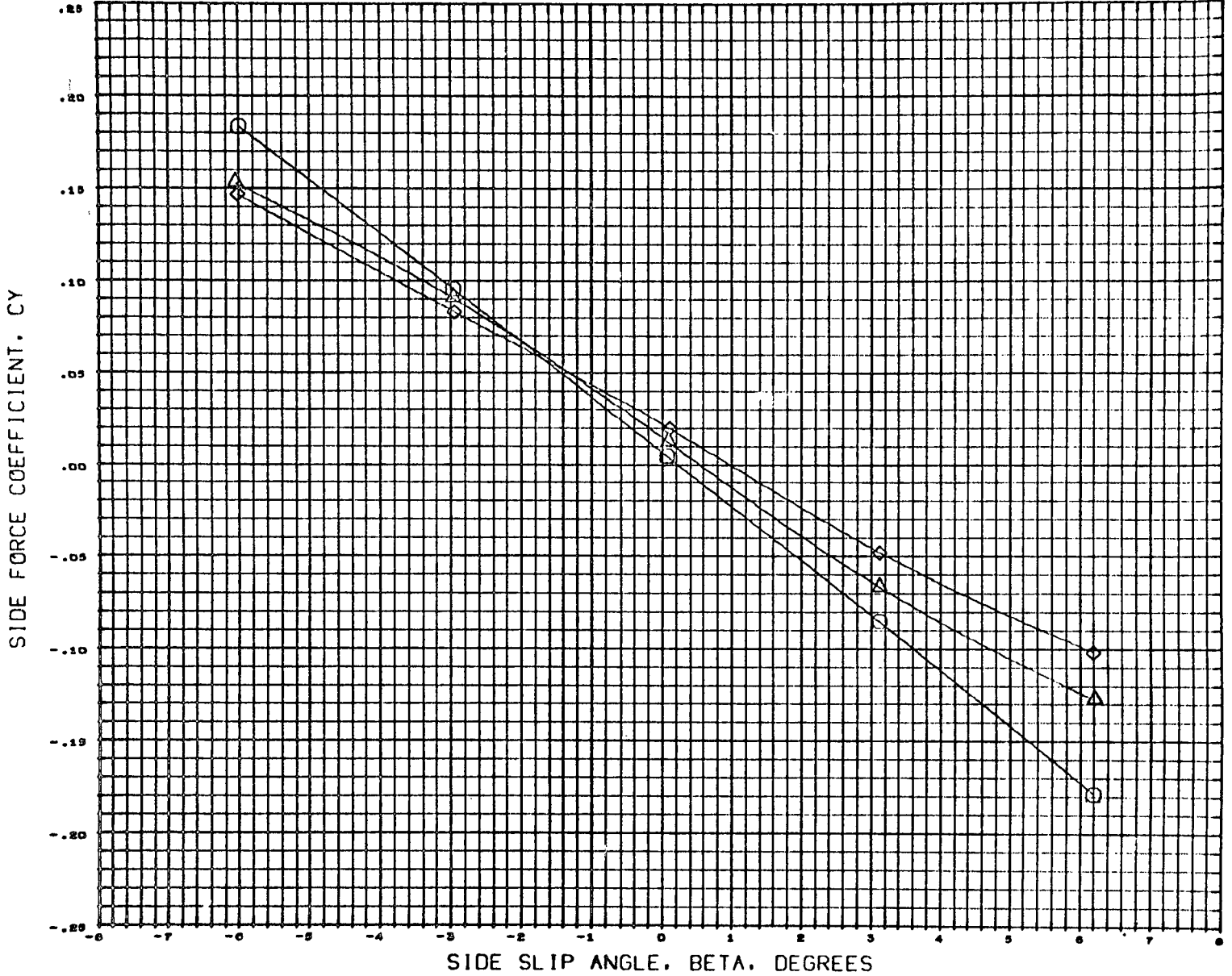
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION	
(JN3054)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF	1.3550 SQ. FT.
(JN3055)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF	3.4530 FEET
(JN3056)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000	BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0167 FEET
					SCALE	0.0190 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL
 (JN3054) ○
 (JN3055) △
 (JN3056) ◇

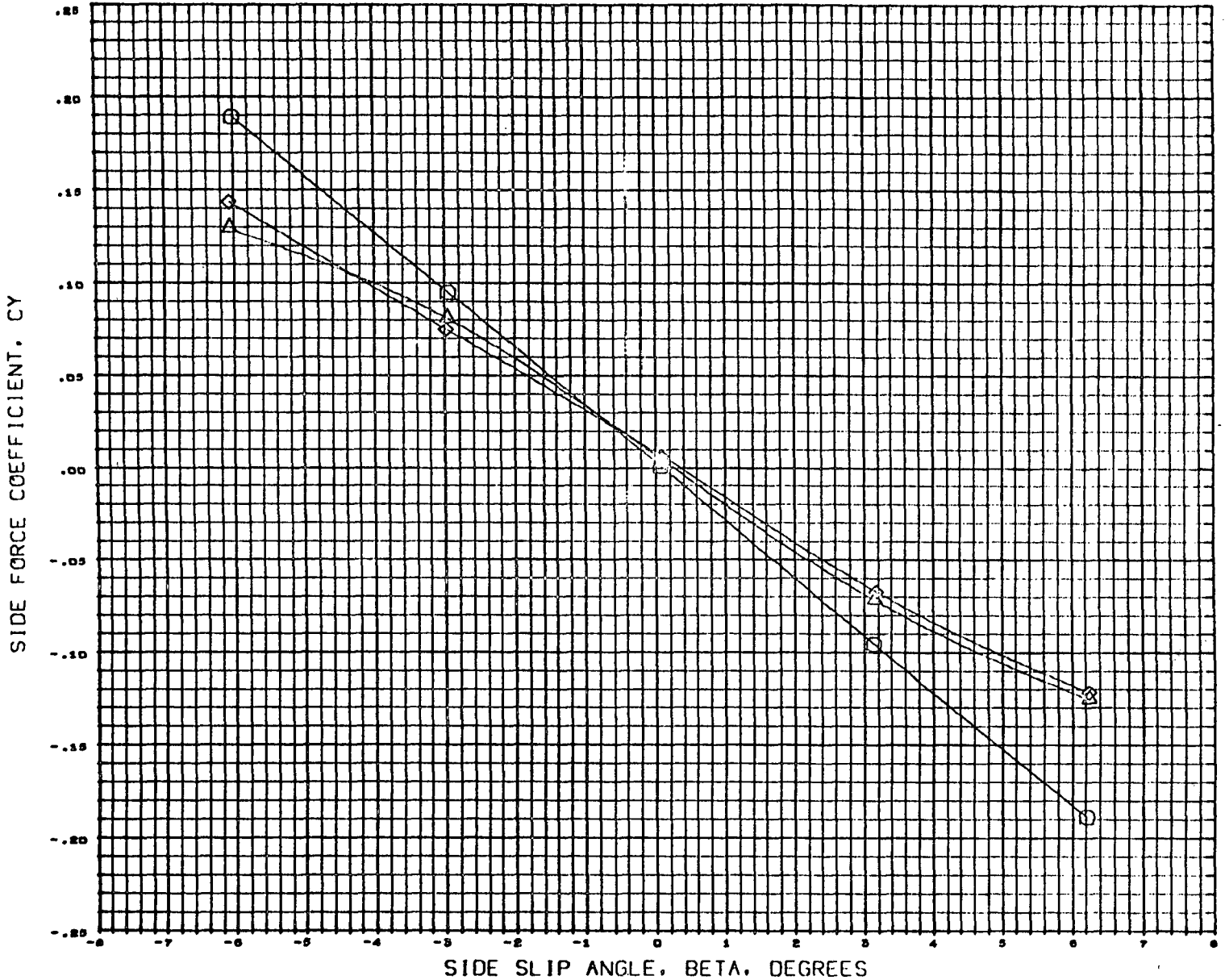
CONFIGURATION DESCRIPTION
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 NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
 NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION
 SREF 1.3550 SQ. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0167 FEET
 SCALE 0.0150 SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

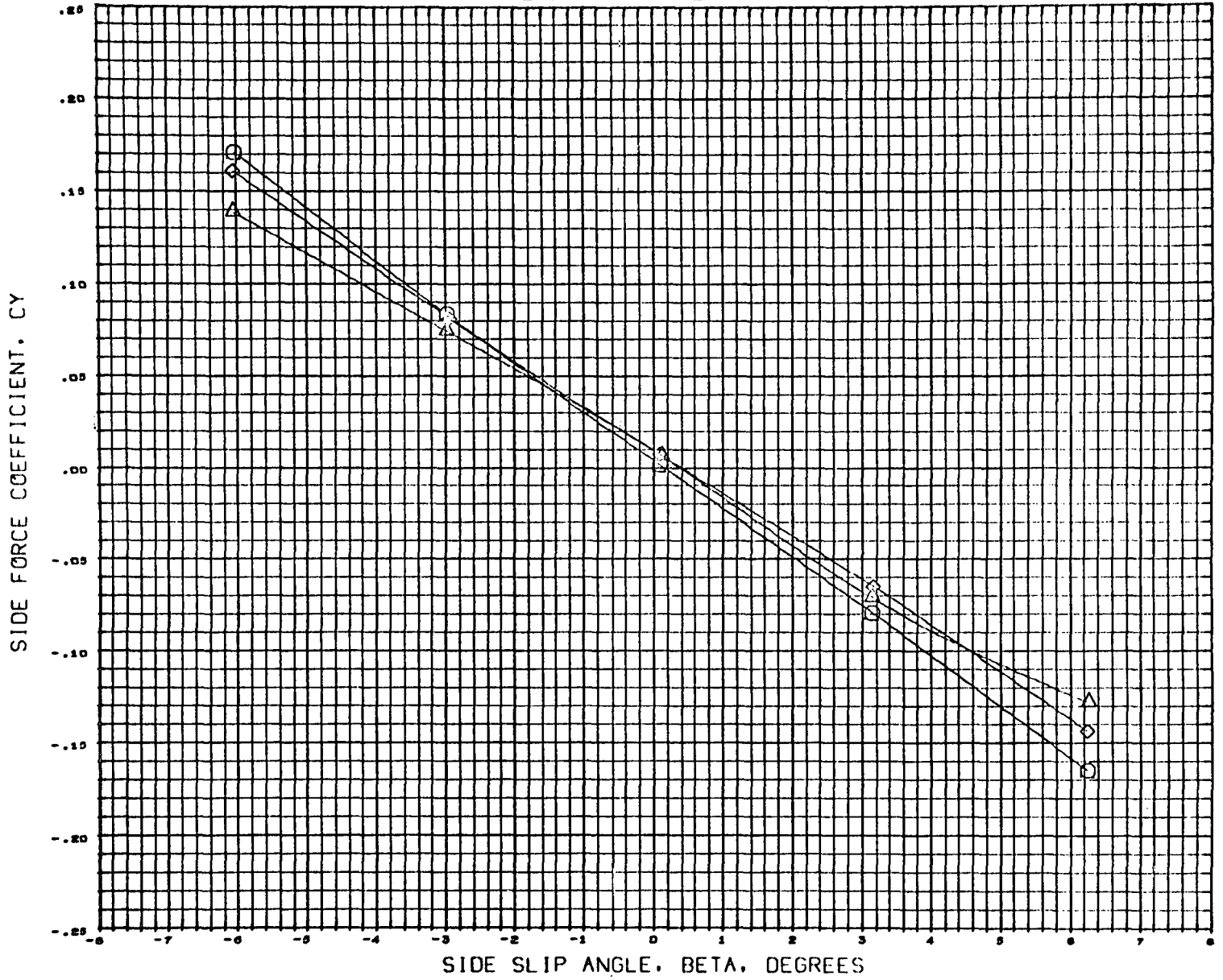


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC
(JN3054)	N&RDC-3210, M&FC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000
(JN3055)	N&RDC-3210, M&FC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000
(JN3056)	N&RDC-3210, M&FC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000

REFERENCE INFORMATION		
BREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.3950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0190	SCALE

MACH 0.797

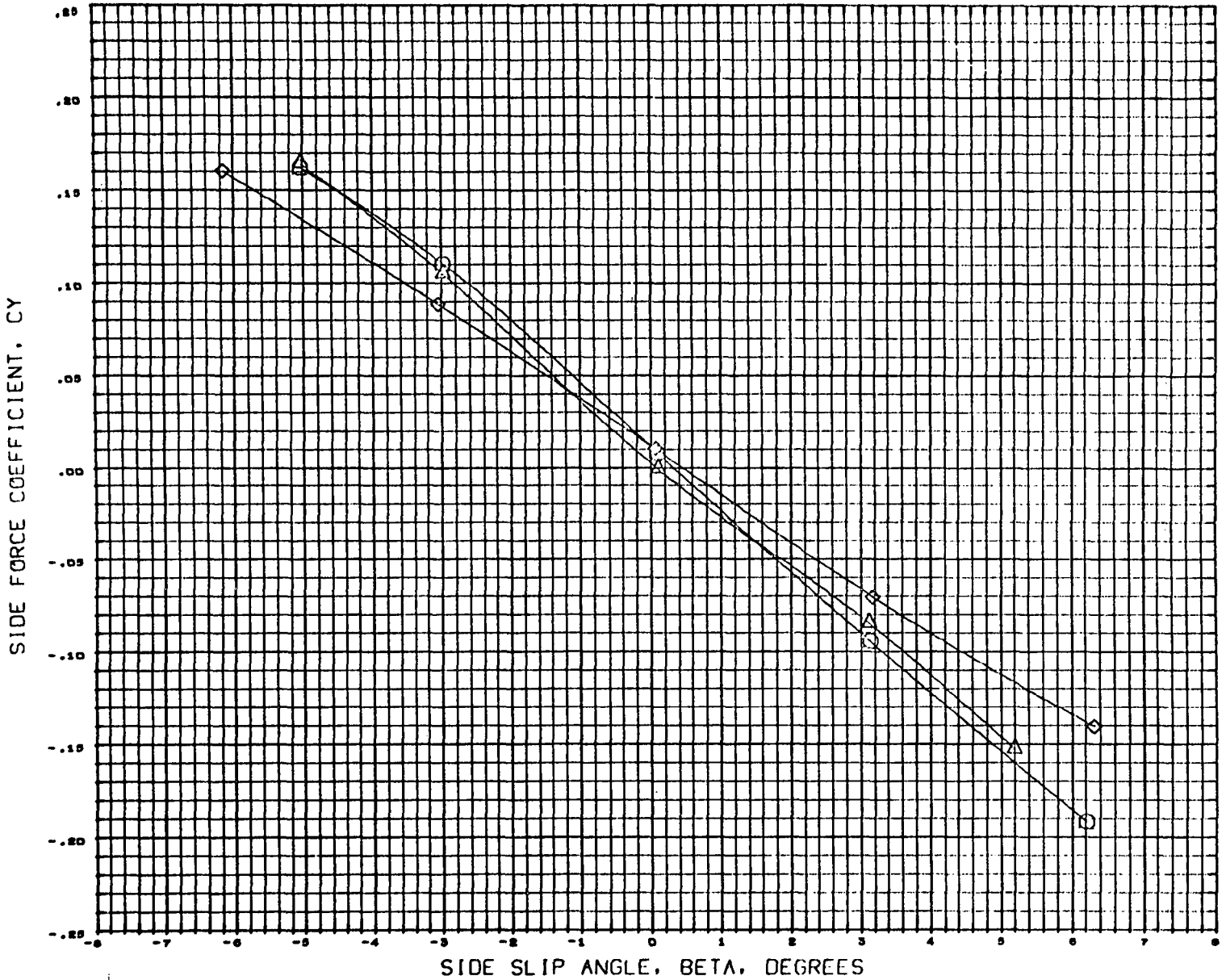
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION
(JN3054)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF 1.3550 80.FT.
(JN3055)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF 3.4530 FEET
(JN3056)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.898

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

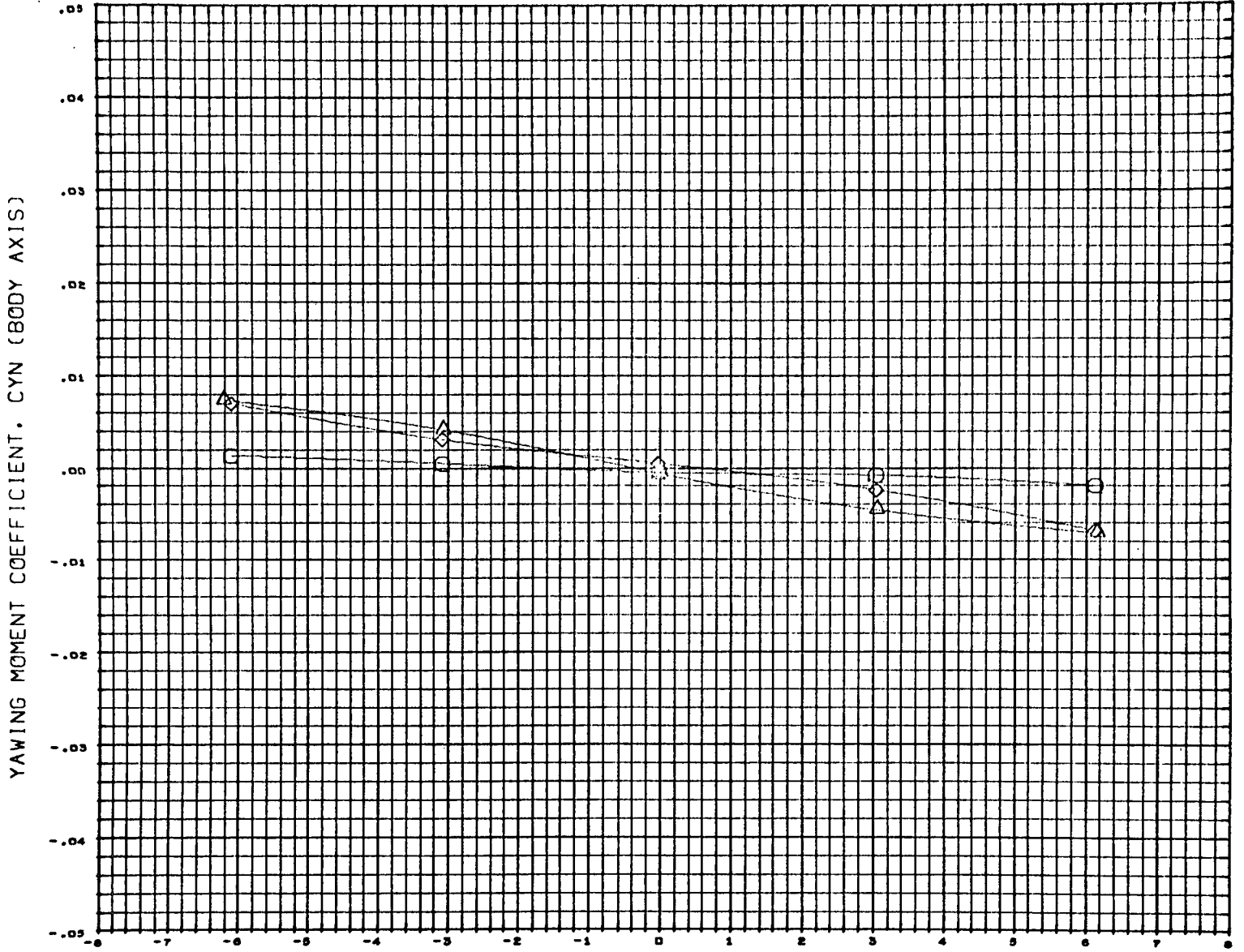


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC
(JN3094)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000
(JN3095)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000
(JN3096)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

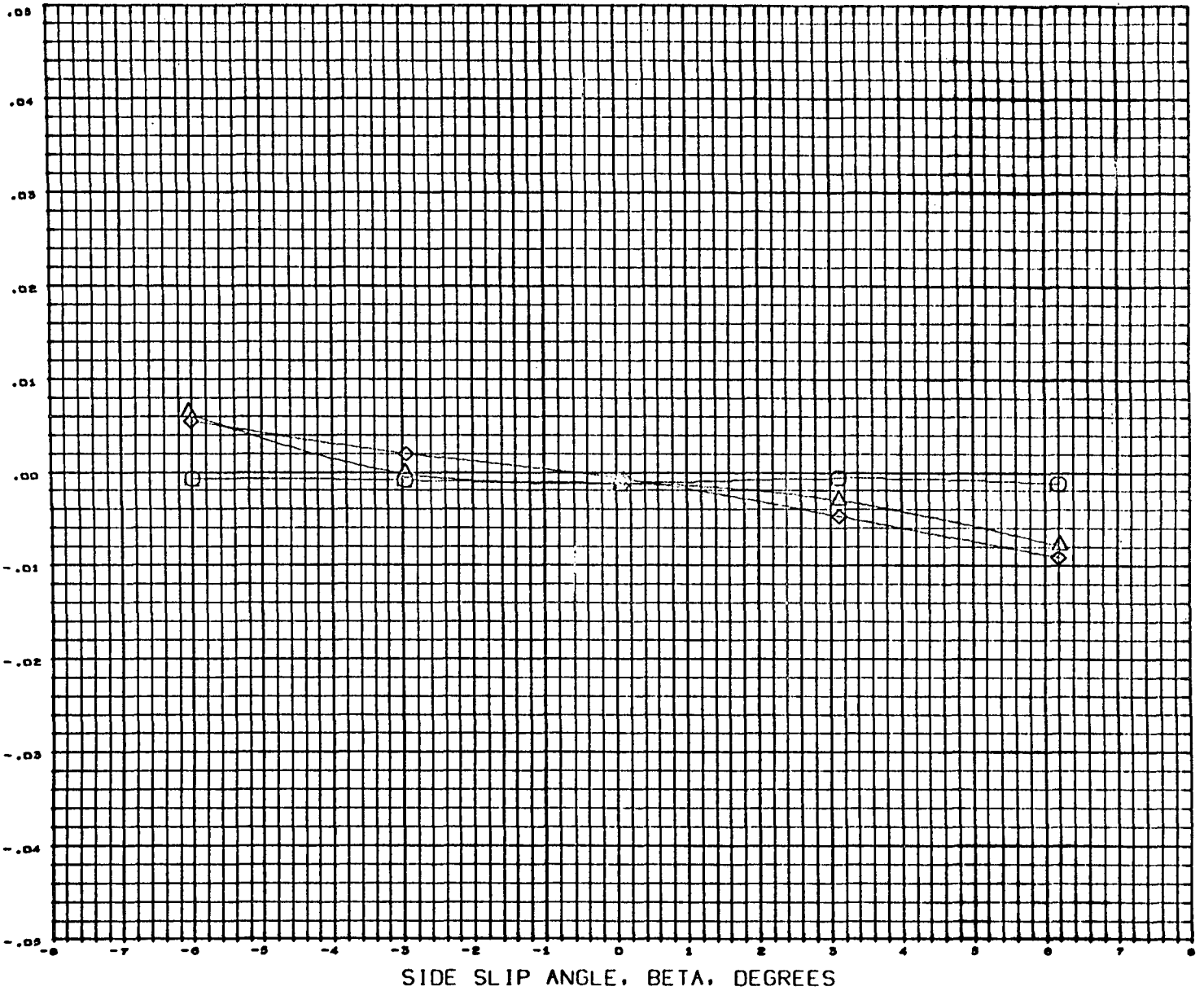


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION
(JN3054)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF 1.3550 SQ.FT.
(JN3055)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF 3.4550 FEET
(JN3056)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000	BREF 3.4550 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC
(JN3054)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000
(JN3055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000
(JN3056)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4930	FEET
OREF	3.4930	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0107	FEET
SCALE	0.0150	SCALE

MACH 0.099

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



SIDE SLIP ANGLE, BETA, DEGREES

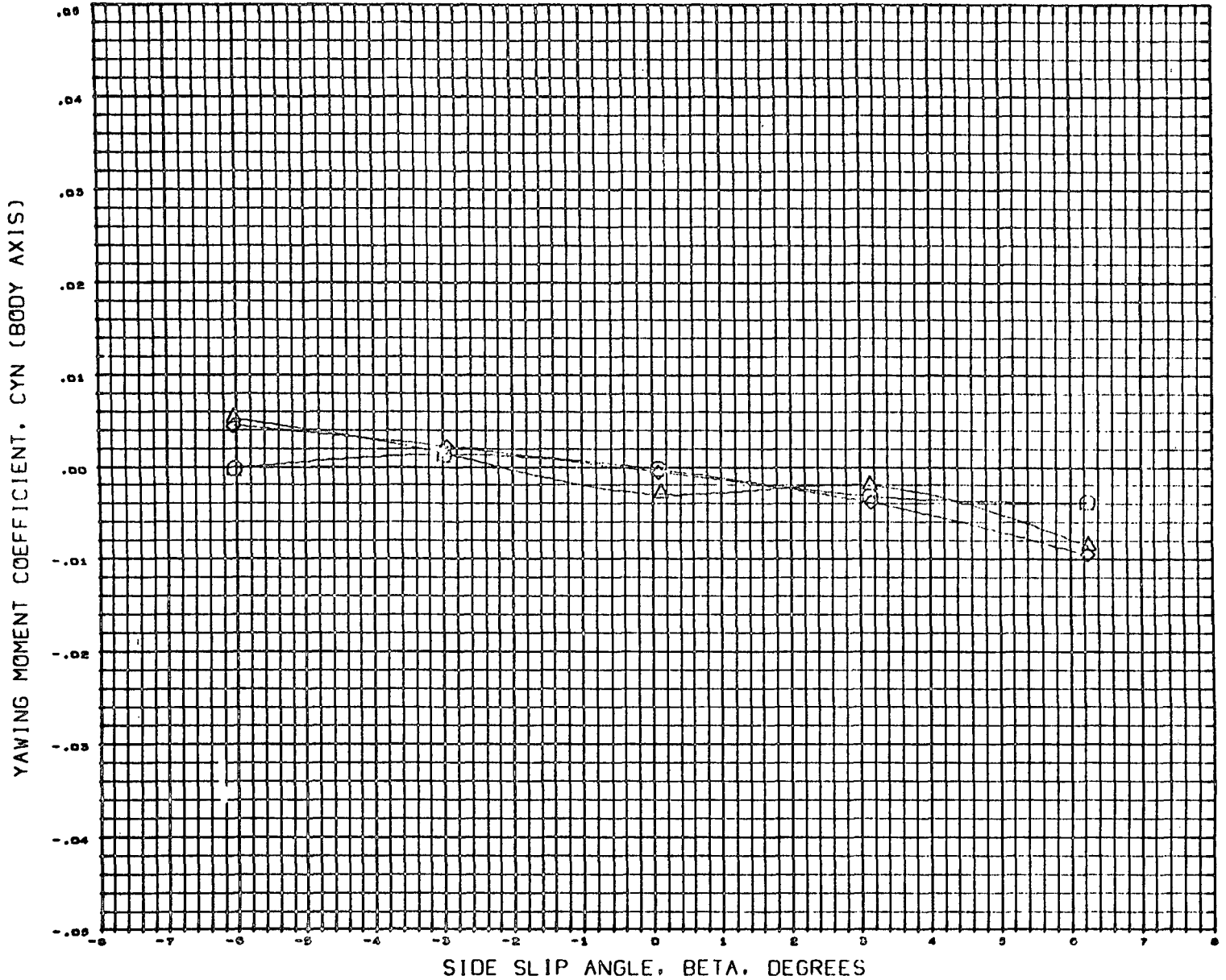
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(JN3054)	○	N8RDC-3210, M8PC/LMSC BOOSTER B1C2F2W1V1
(JN3055)	△	N8RDC-3210, M8PC/LMSC BOOSTER B1C2F2W1V1
(JN3056)	◇	N8RDC-3210, M8PC/LMSC BOOSTER B1C2F2W1V1

ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

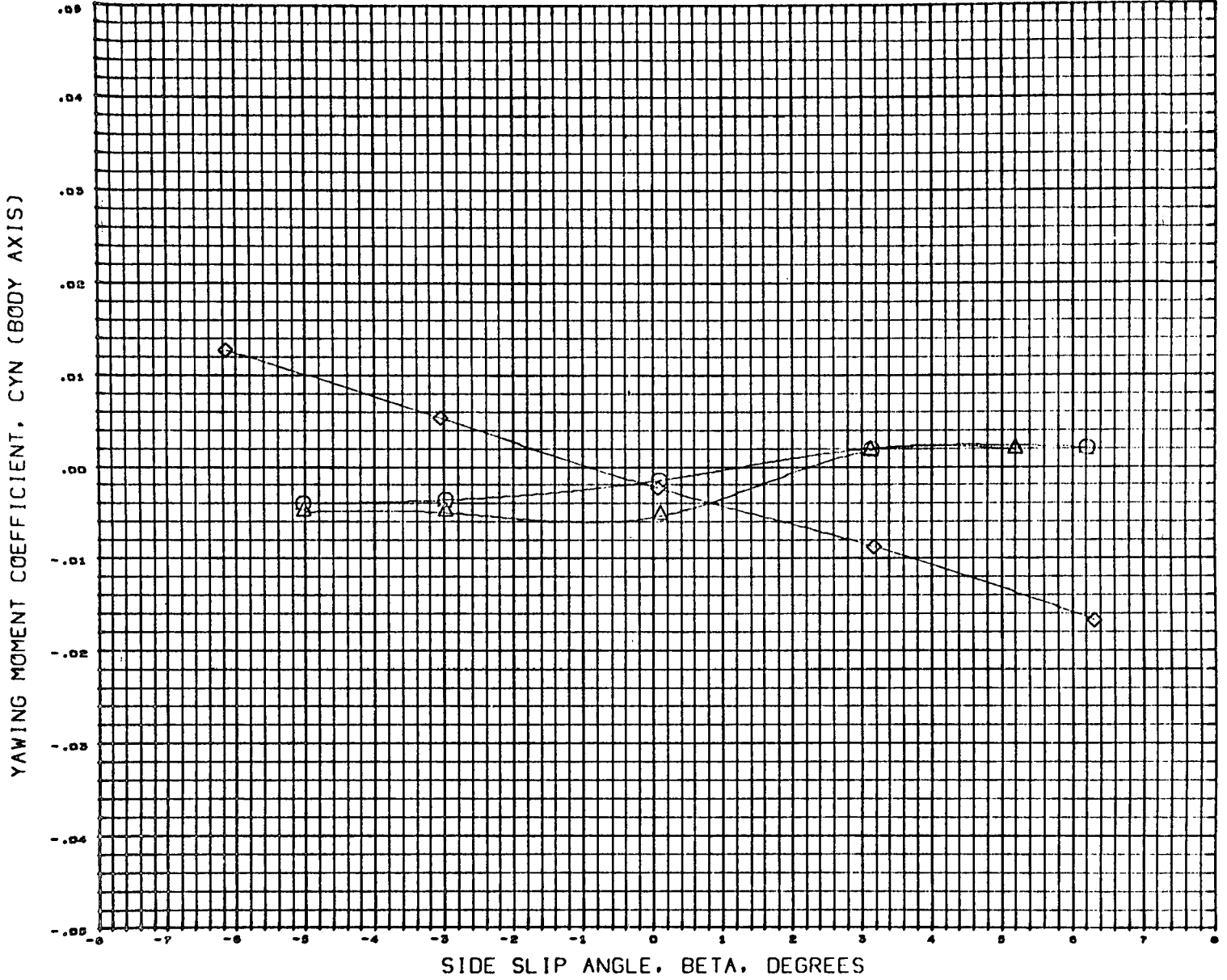


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION
(JN3054) ○	N8RDC-3210,MSFC/LM8C BOOSTER 01C2F2W1V3	0.000	2.000	3.000	SREF 1.3550 SQ.FT.
(JN3055) △	N8RDC-3210,MSFC/LM8C BOOSTER 01C2F2W1V3	0.200	2.000	3.000	LREF 3.4530 FEET
(JN3056) ◇	N8RDC-3210,MSFC/LM8C BOOSTER 01C2F2W1V3	15.400	2.000	3.000	BREF 3.4530 FEET
					XMRP 2.8990 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 0.898

9

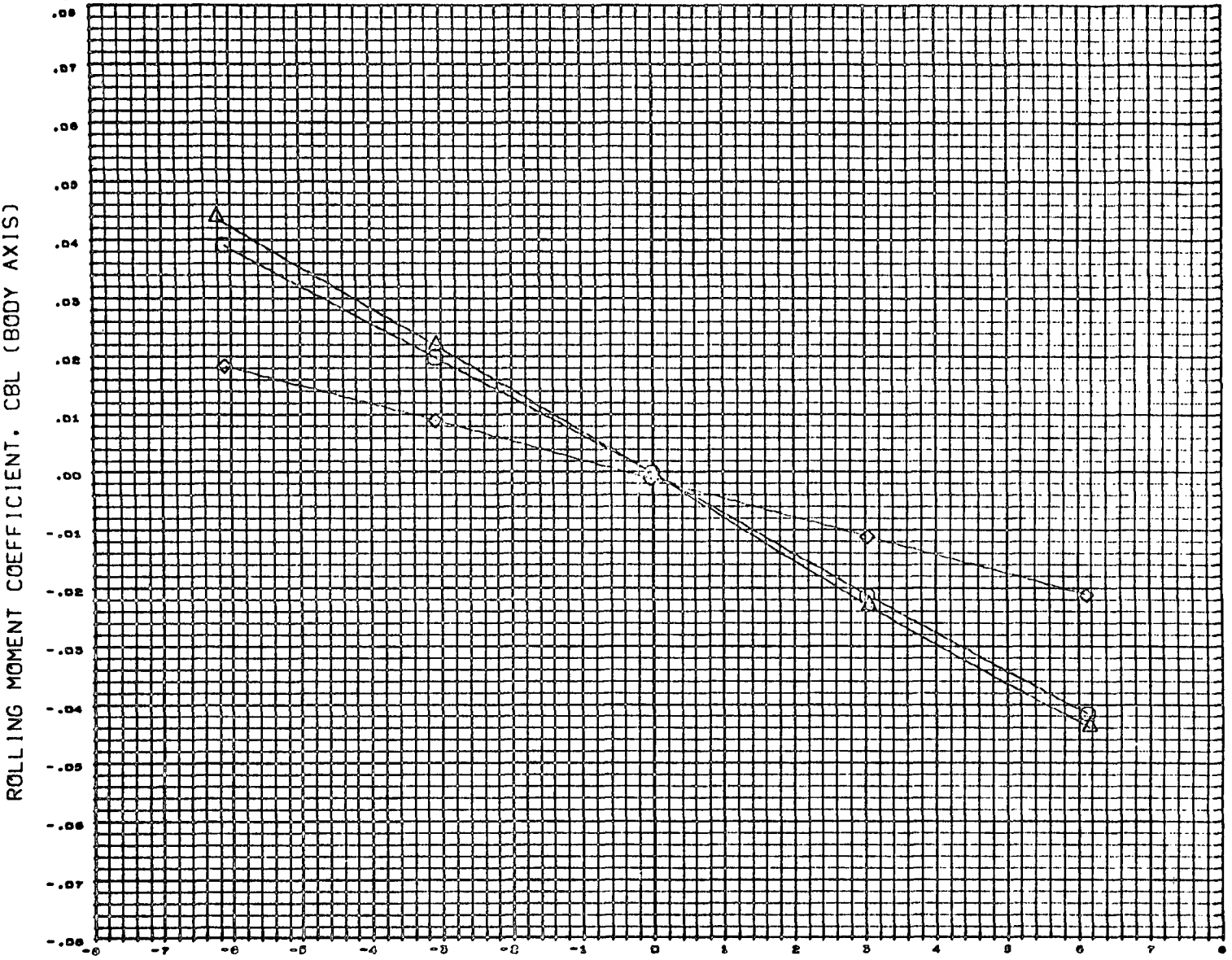
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION
(JN3054)	NBRDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF 1.3550 SQ. FT.
(JN3055)	NBRDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF 3.4530 FEET
(JN3056)	NBRDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1	15.400	2.000	3.000	BREF 3.4530 FEET
					XMRP 2.3950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 3.000

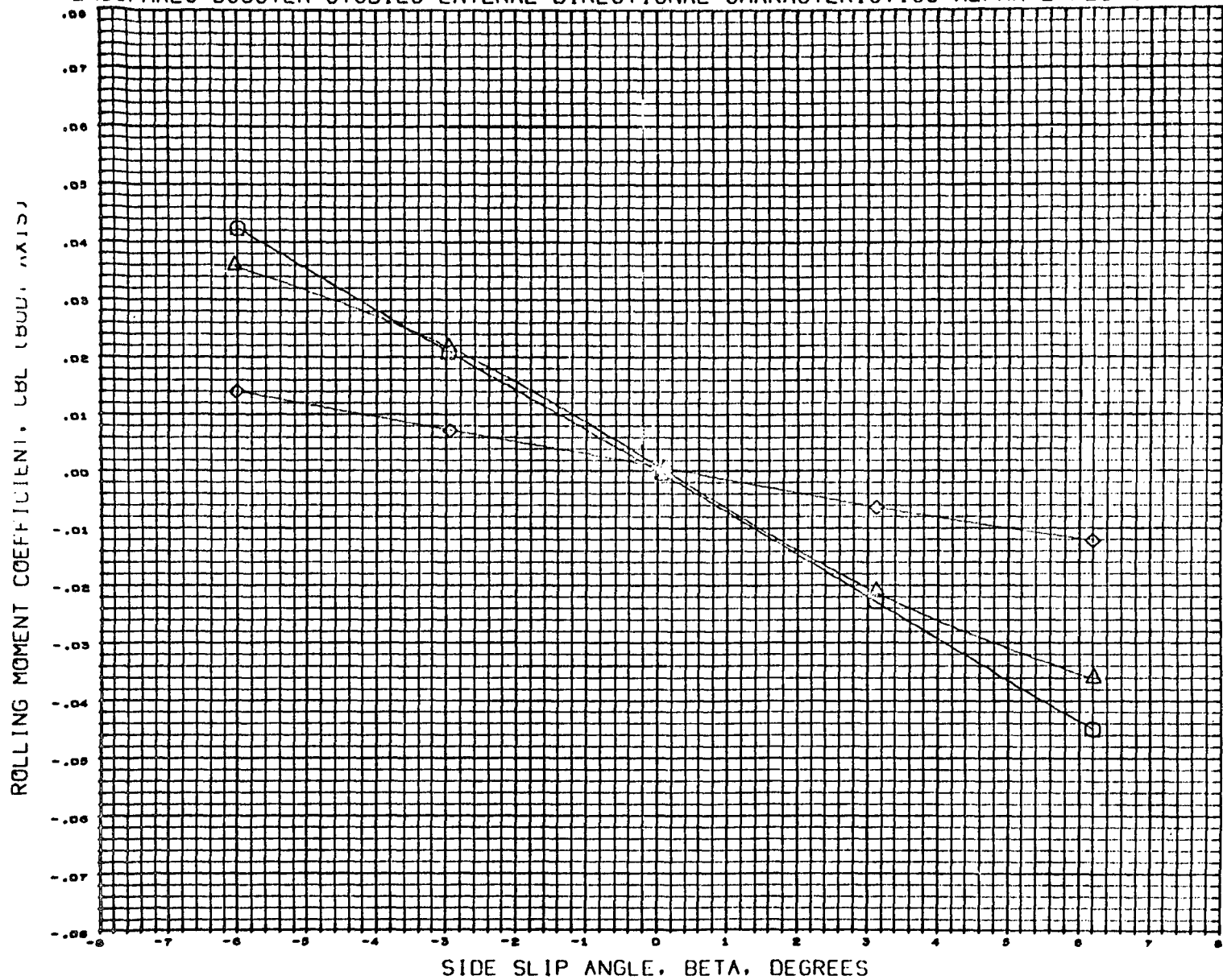
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION	
(JN3054)	○	N8RDC-3210, M8FC/LM8C BOOSTER 01C2F2W1V1	0.000	2.000	3.000	BREF	1.3550 00. FT.
(JN3055)	△	N8RDC-3210, M8FC/LM8C BOOSTER 01C2F2W1V1	0.260	2.000	3.000	LREF	3.4930 FEET
(JN3056)	◇	N8RDC-3210, M8FC/LM8C BOOSTER 01C2F2W1V1	15.400	2.000	3.000	BREF	3.4930 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

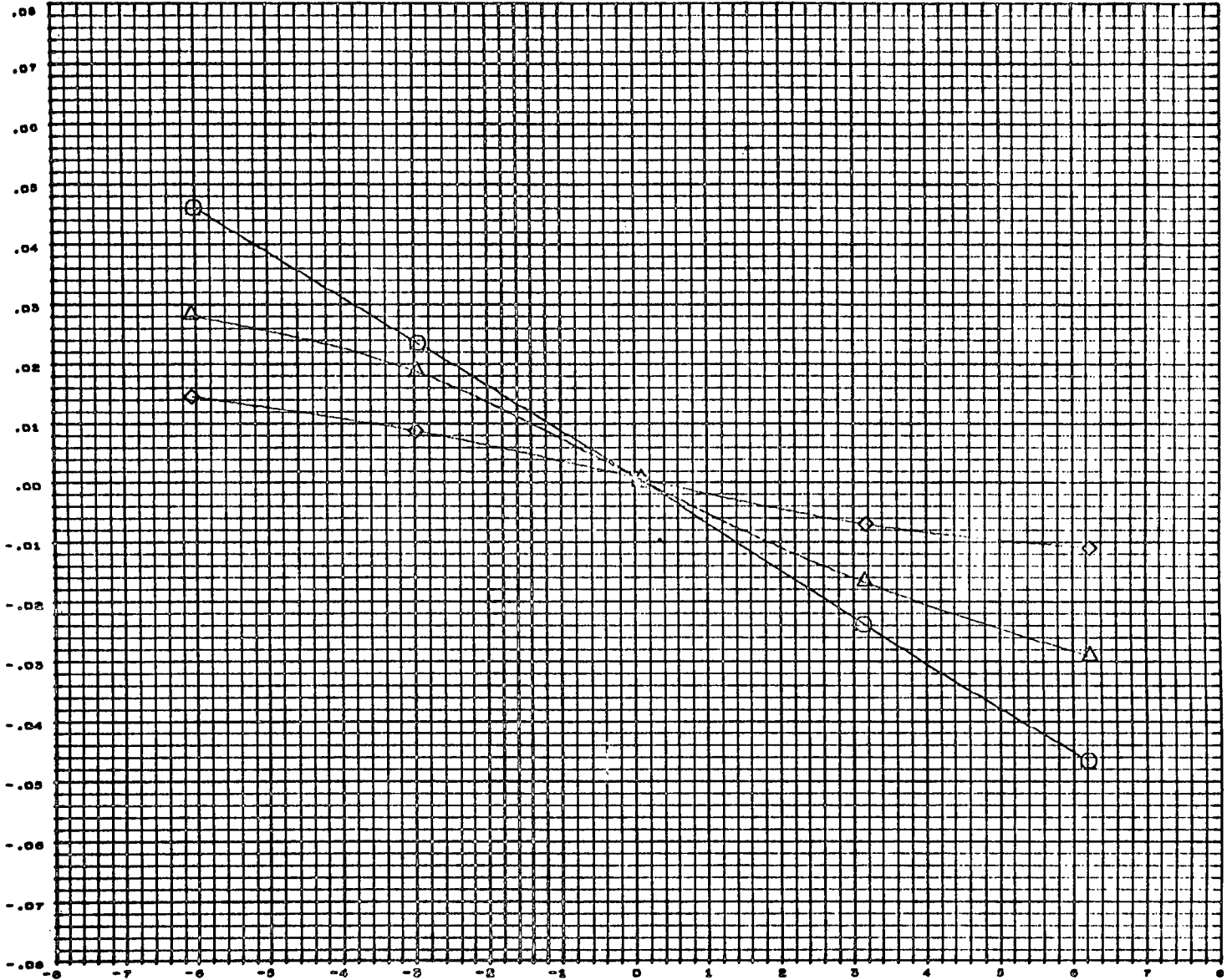


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION	
(JND094)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF	1.3550 SQ.FT.
(JND099)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF	3.4530 FEET
(JND096)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000	BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0167 FEET
					SCALE	0.0150 SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

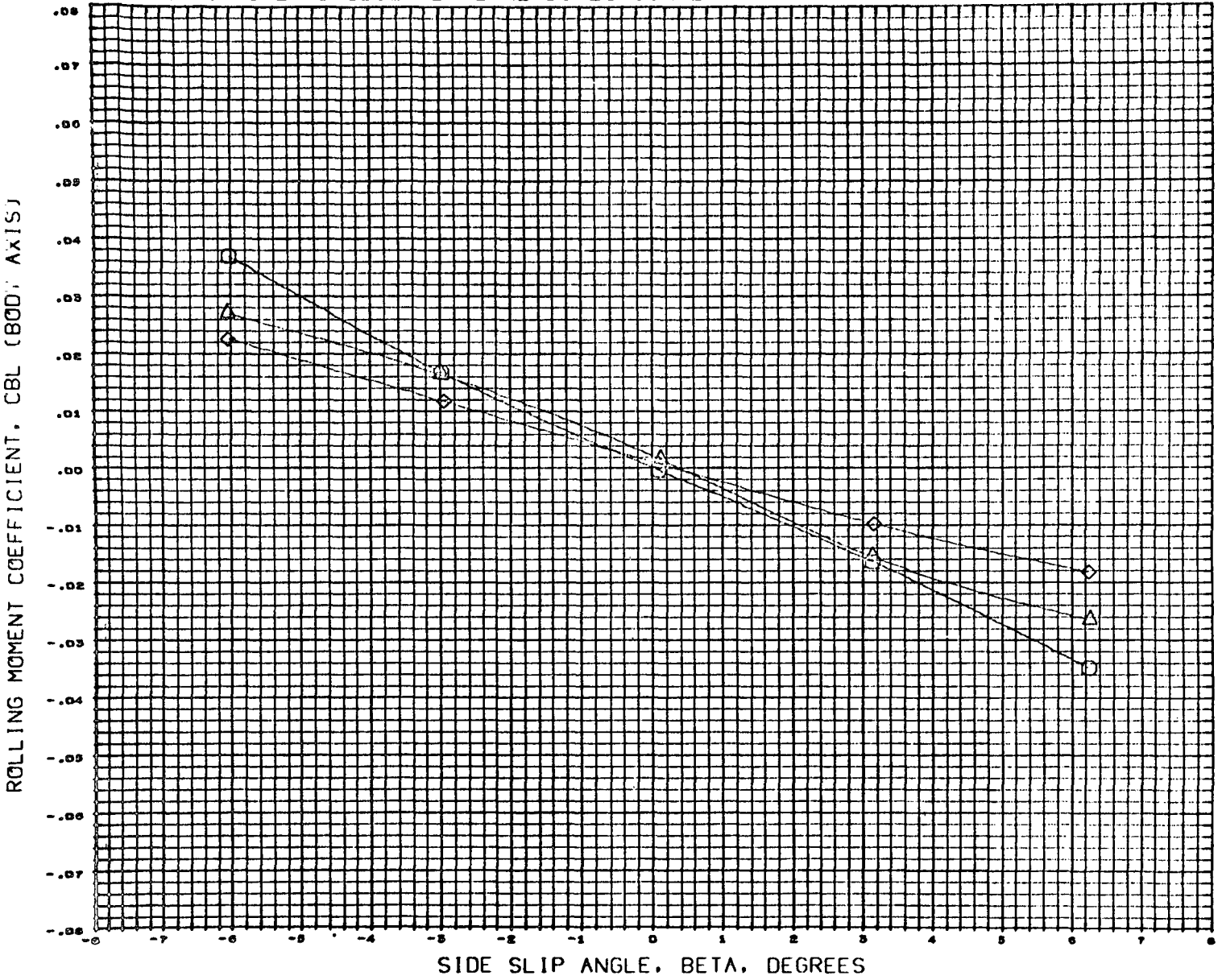


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION	
(JN3054)	○	NBRDC-3210, H8FC/LM8C BOOSTER 01C2F2W1V1	0.000	2.000	3.000	SREF	1.3550 SQ. FT.
(JN3055)	△	NBRDC-3210, H8FC/LM8C BOOSTER 01C2F2W1V1	6.200	2.000	3.000	LREF	3.4930 FEET
(JN3056)	◇	NBRDC-3210, H8FC/LM8C BOOSTER 01C2F2W1V1	15.400	2.000	3.000	BREF	3.4930 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

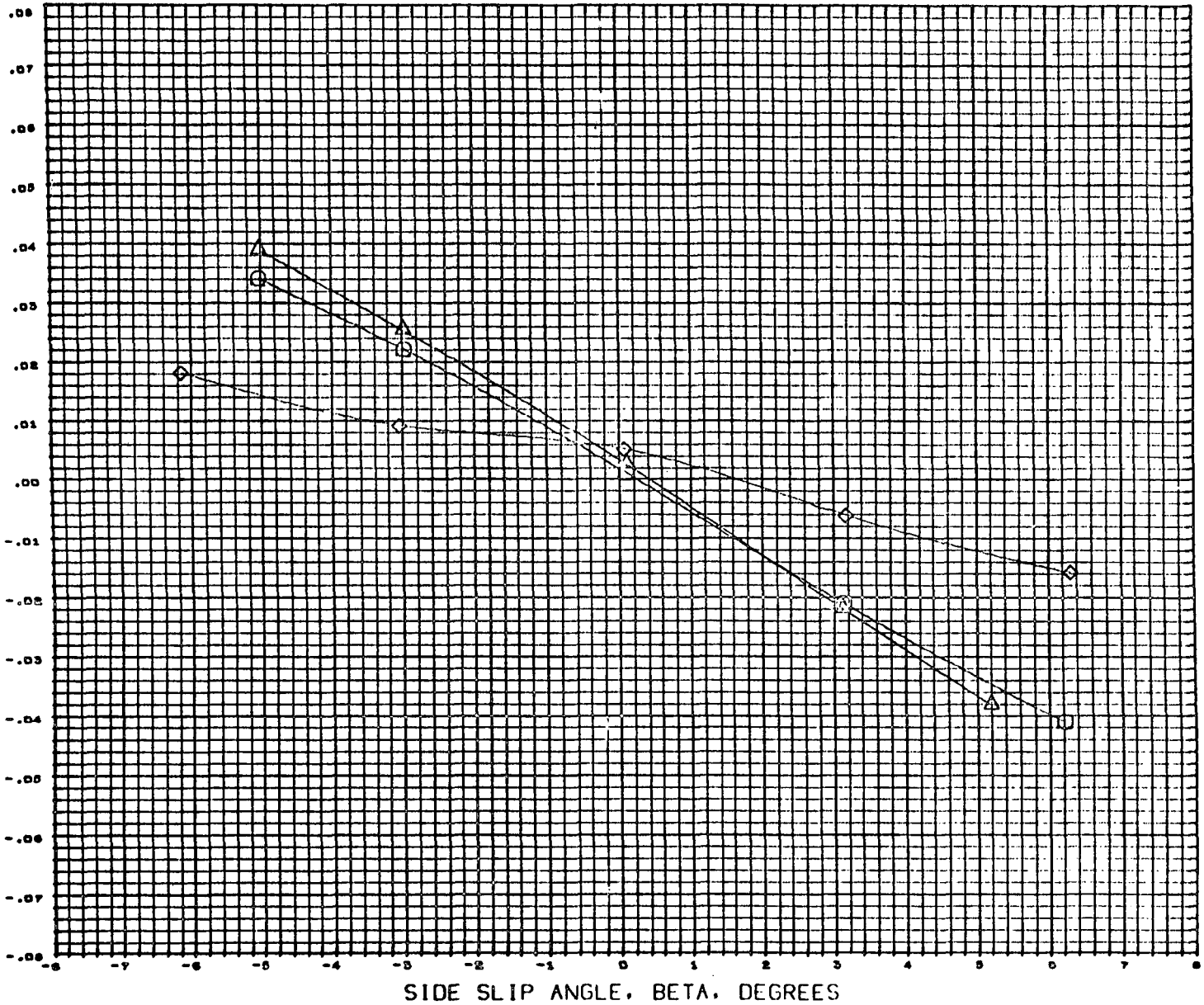


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION	
(JN3054)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF	1.3550 SQ.FT.
(JN3055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF	3.4530 FEET
(JN3056)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000	BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0167 FEET
					SCALE	0.0150 SCALE

HACH 0.090

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BOU. AXIS)

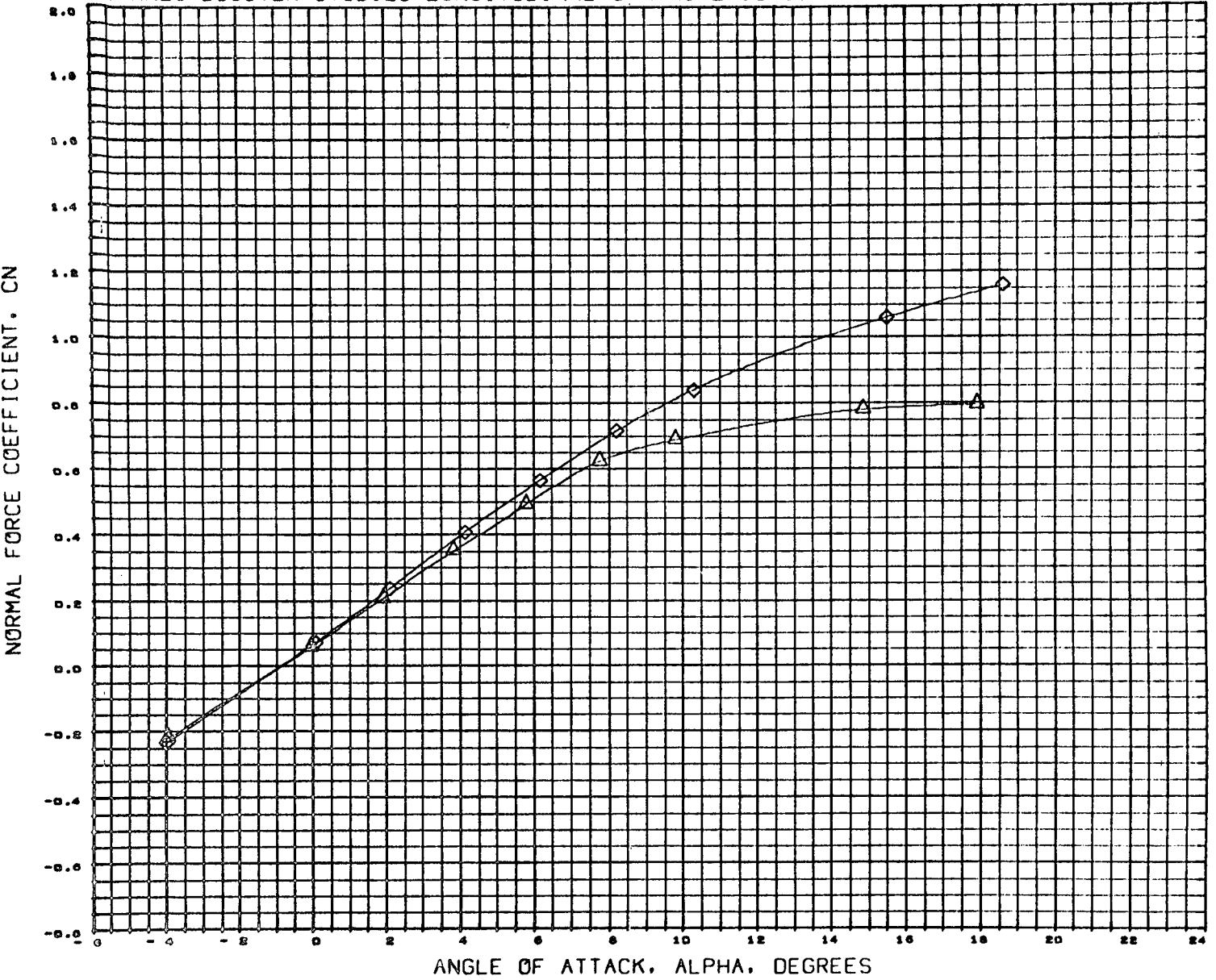


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION	
(JN3054)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF	1.3550 SQ. FT.
(JN3055)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF	3.4530 FEET
(JN3056)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V3	15.400	2.000	3.000	BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0167 FEET
					SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

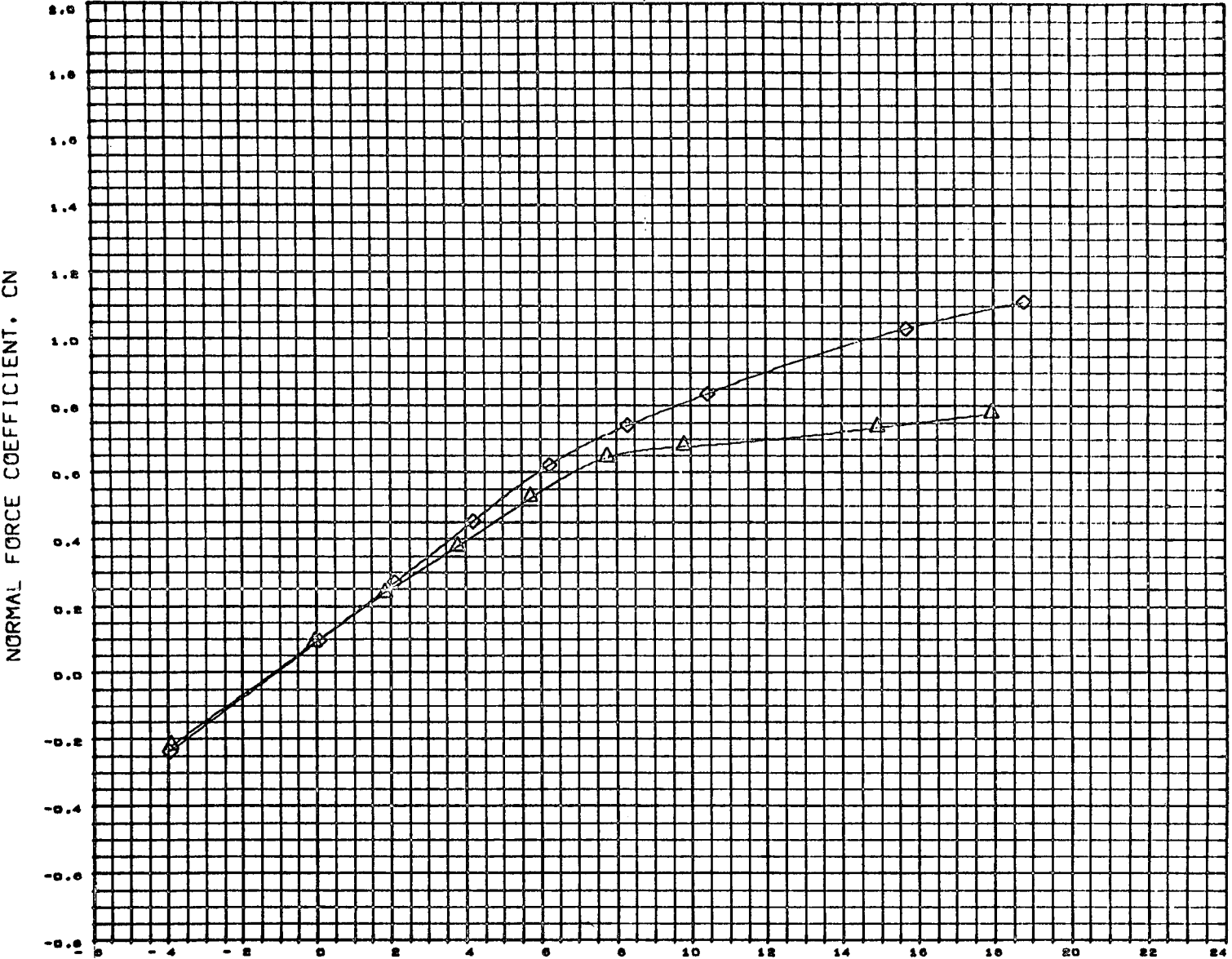


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS066)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550 SQ. FT.
(RNS066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

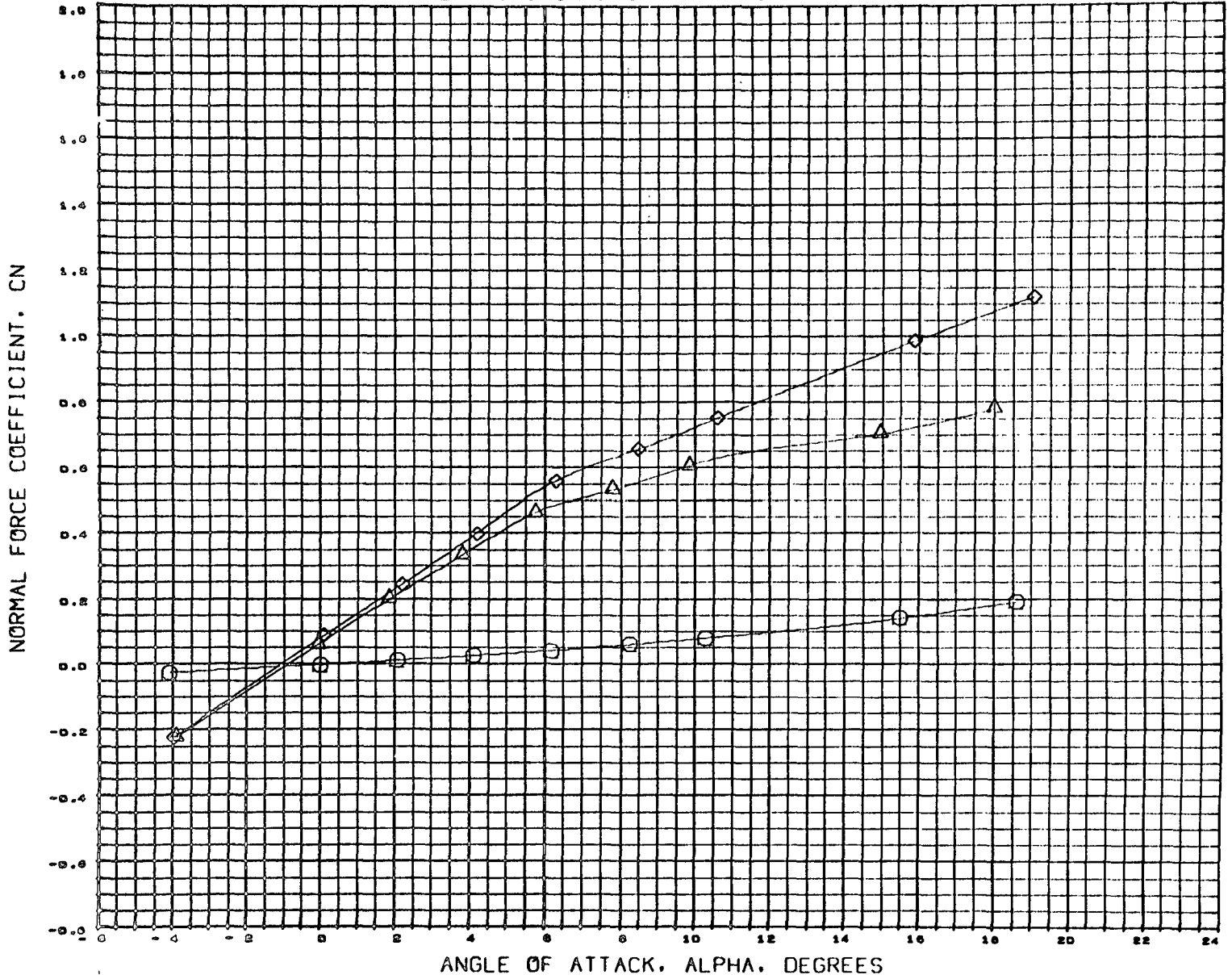


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS069)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF 1.3950 SQ.FT.
(RNS068)	NSRDC-3210,MSFC/LMBC BOOSTER B1V1W1	1.000	0.000			LREF 3.4930 FEET
(RNS001)	NSRDC-3210,MSFC/LMBC BOOSTER B1C2P2W1V1	1.000	0.000	1.000	3.000	BREF 3.4930 FEET
						XMRP 2.8950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.800

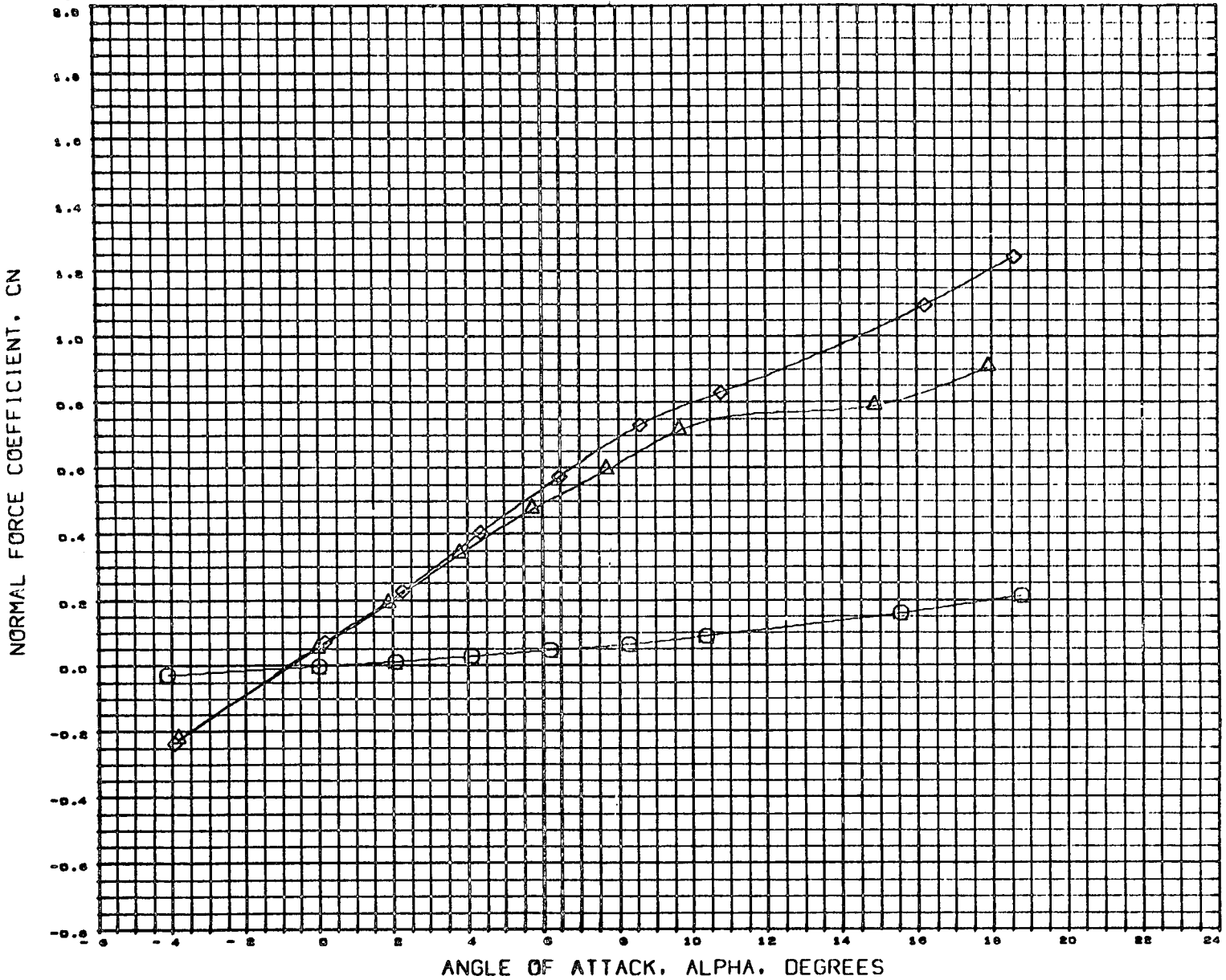
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3000)	NSRDC-9210, HSPC/LMSC BOOSTER B1					SREF 1.3550 SQ. FT.
(RN3001)	NSRDC-9210, HSPC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4930 FEET
(RN3002)	NSRDC-9210, HSPC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4930 FEET
						XMRP 8.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

SCALE 0.005

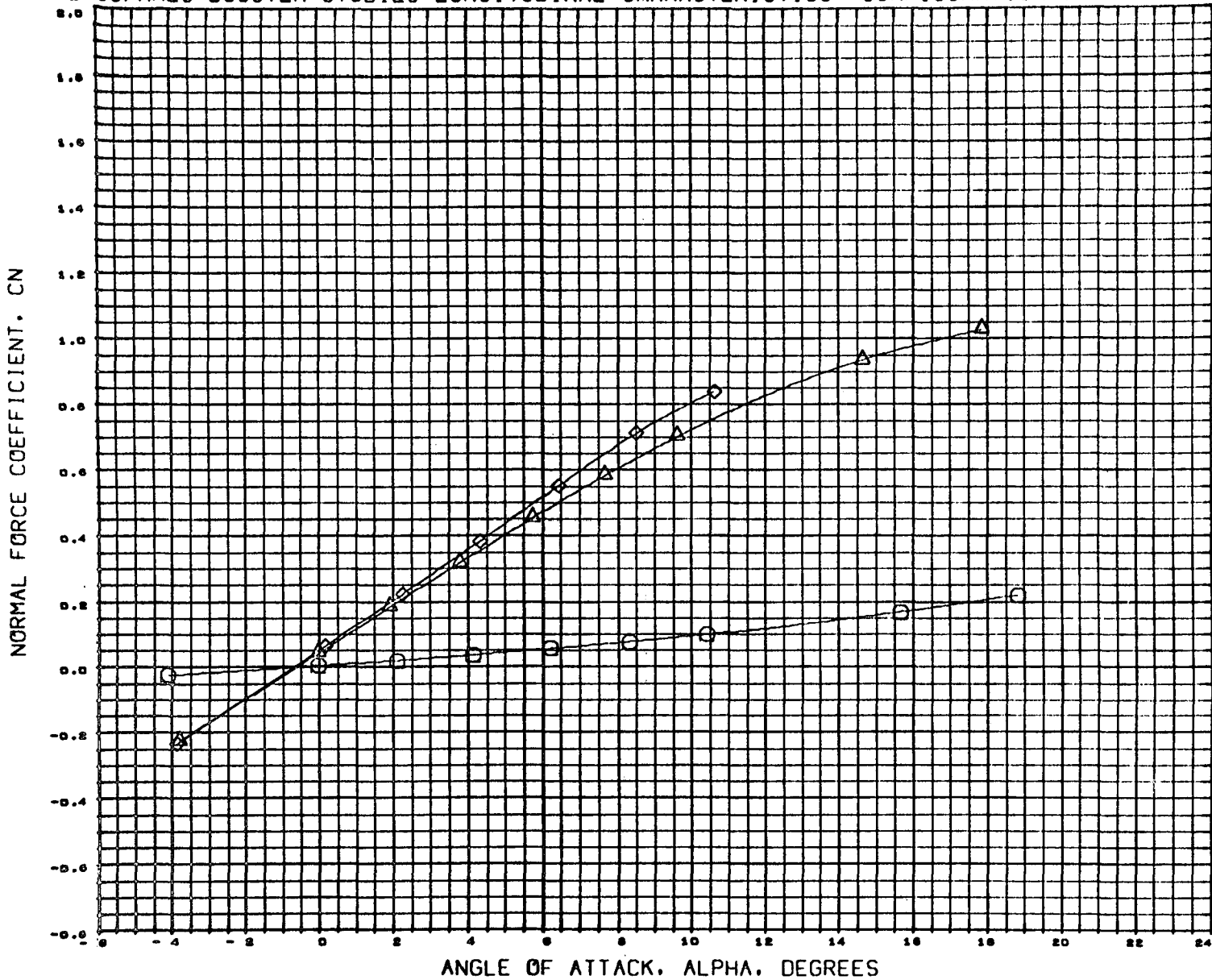
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS000)	NSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000			BREF 1.3550 SQ.FT.
(RNS005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W3V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.001

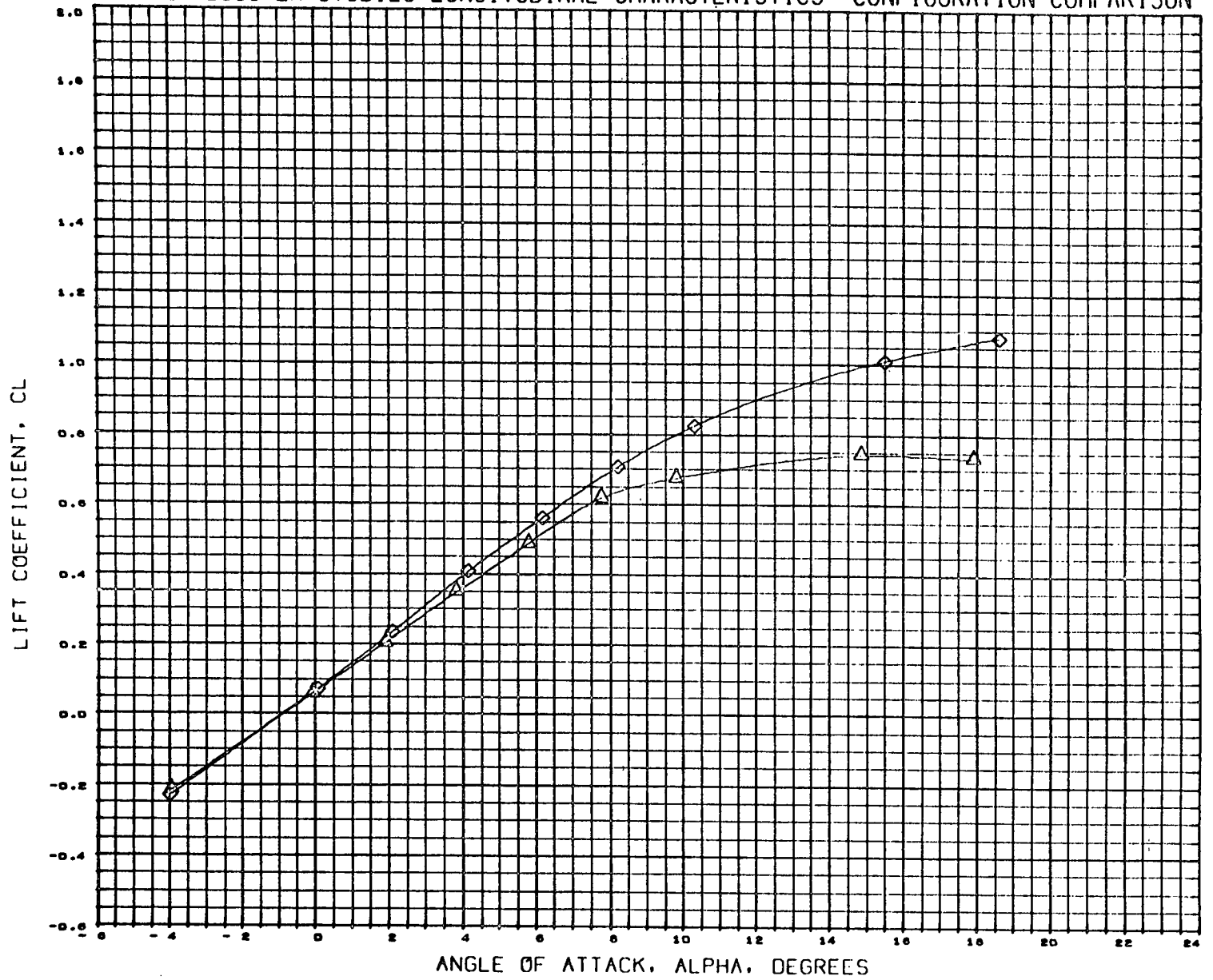
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RMS009)	NSRDC-5210,MSFC/LMSC BOOSTER B1					BREF 1.3550 SQ.FT.
(RMS008)	NSRDC-5210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RMS005)	NSRDC-5210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

HACH 8.120

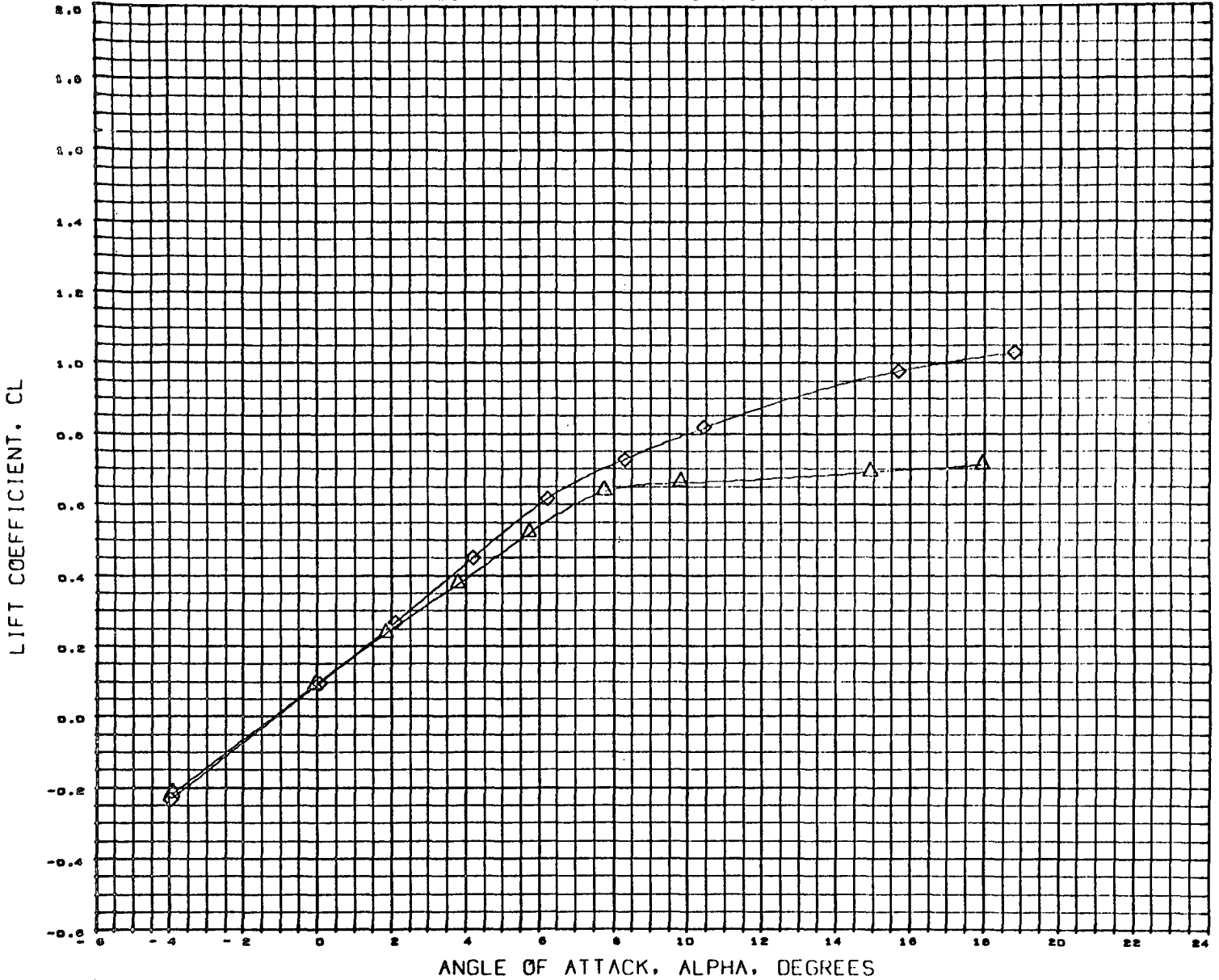
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550 30.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

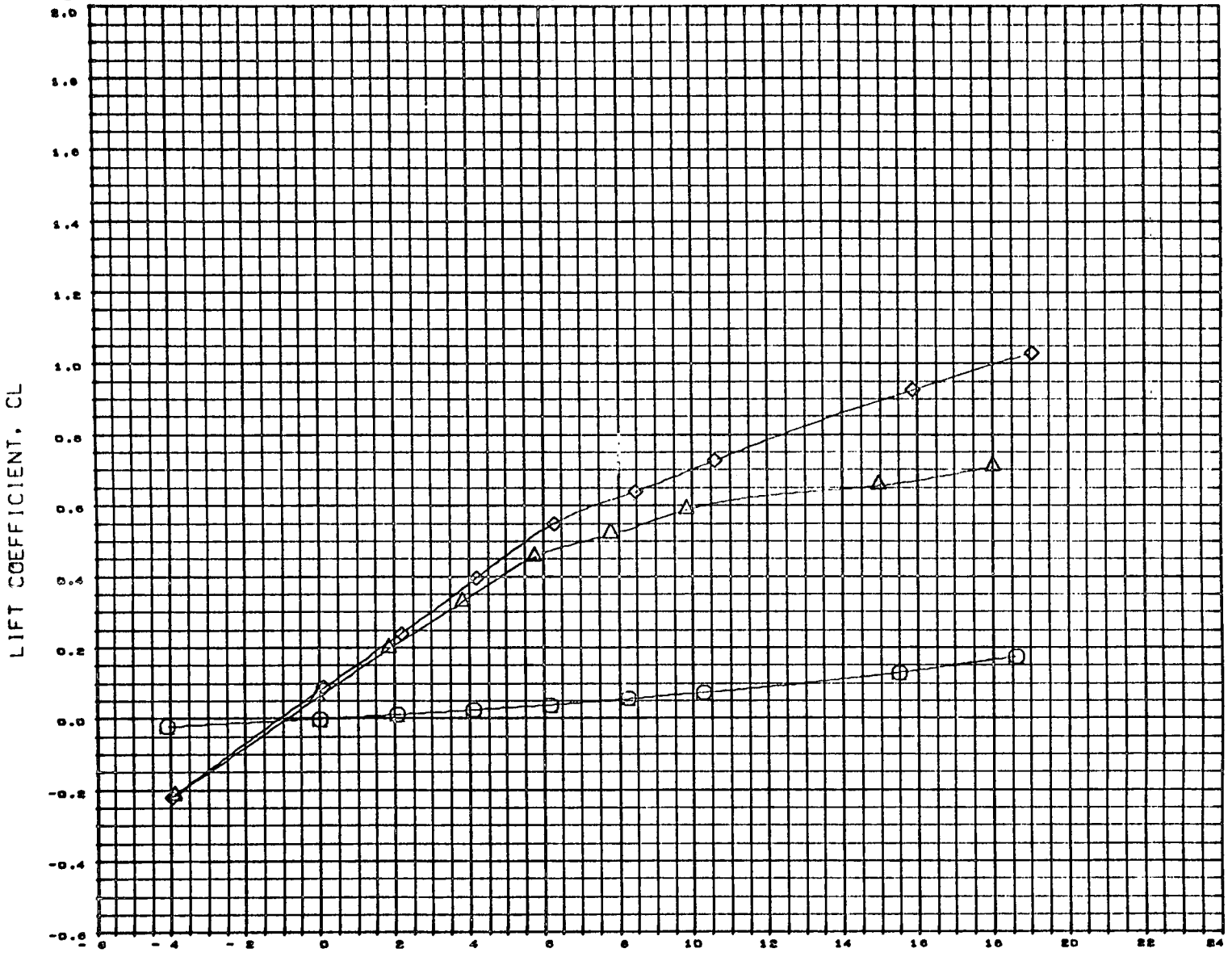
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION		
(RNS000)	□	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550	80.FT.
(RNS009)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530	FEET
(RNS003)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530	FEET
							XMRP	2.5950	FEET
							YMRP	0.0000	FEET
							ZMRP	0.0167	FEET
							SCALE	0.0150	SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

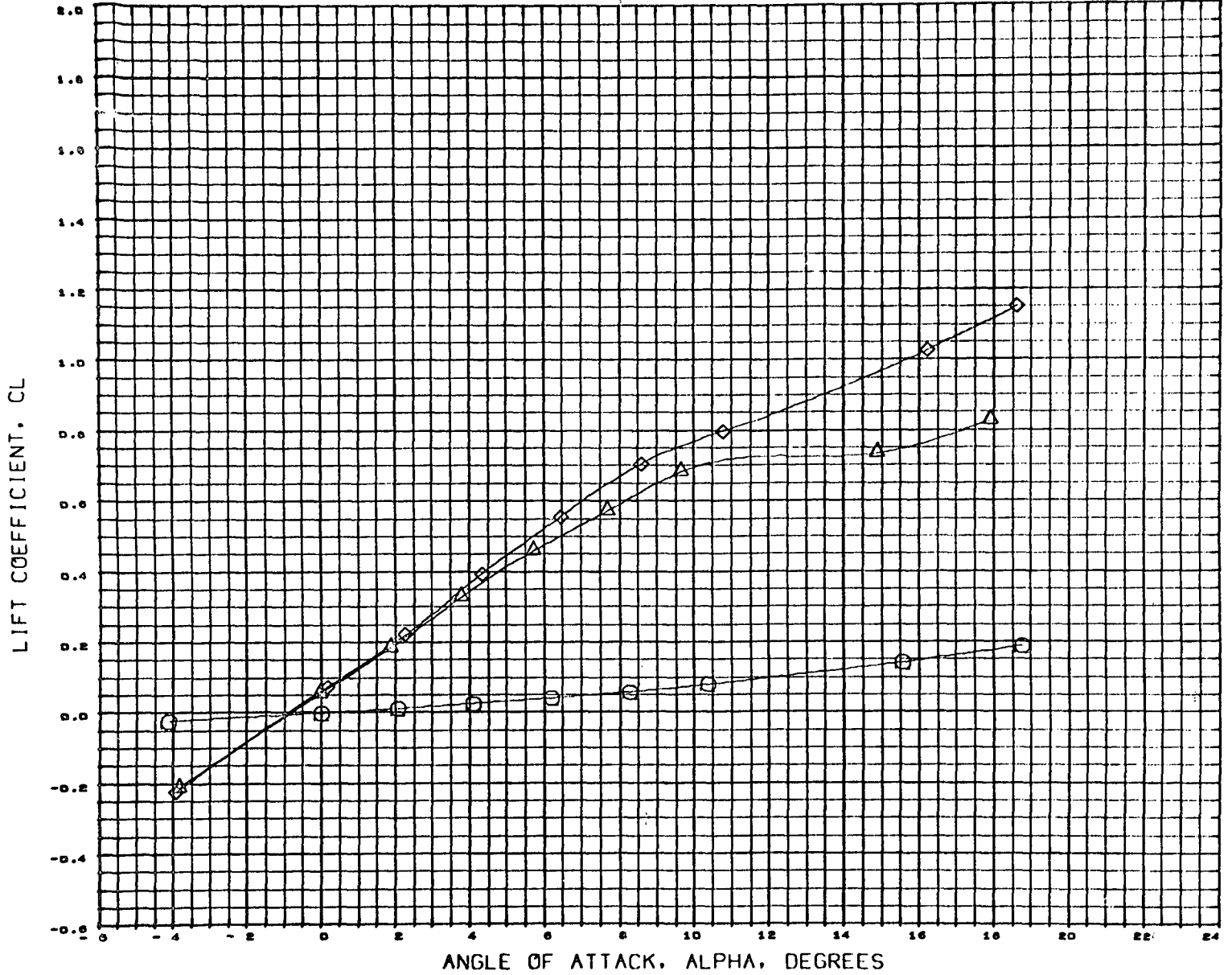


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS009)	MSRDC-3210,MSFC/LMSC BOOSTER B1					BREF 1.3950 SQ.FT.
(RNS005)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RNS001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.5990 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.905

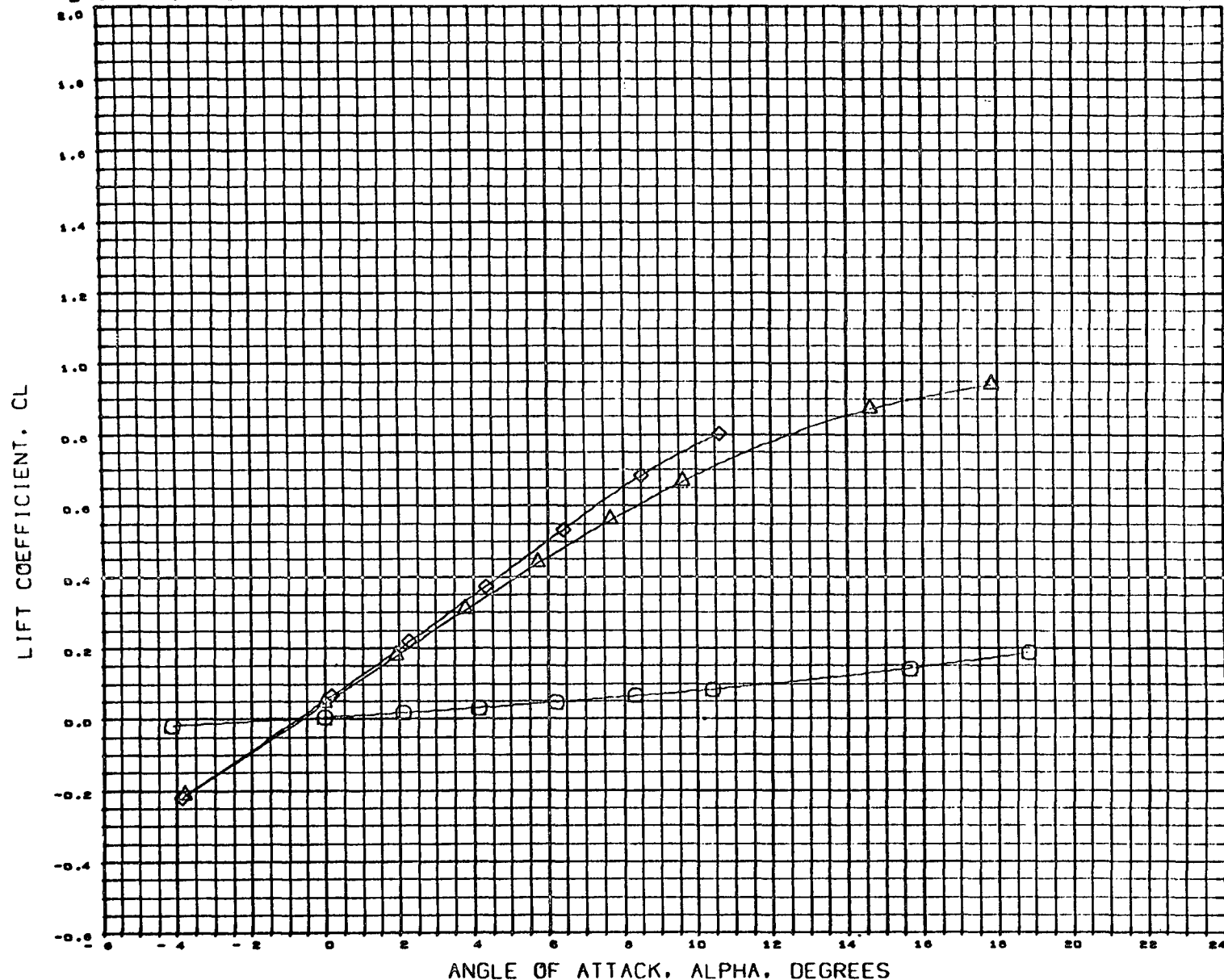
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3060)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF 1.3550 SQ.FT.
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

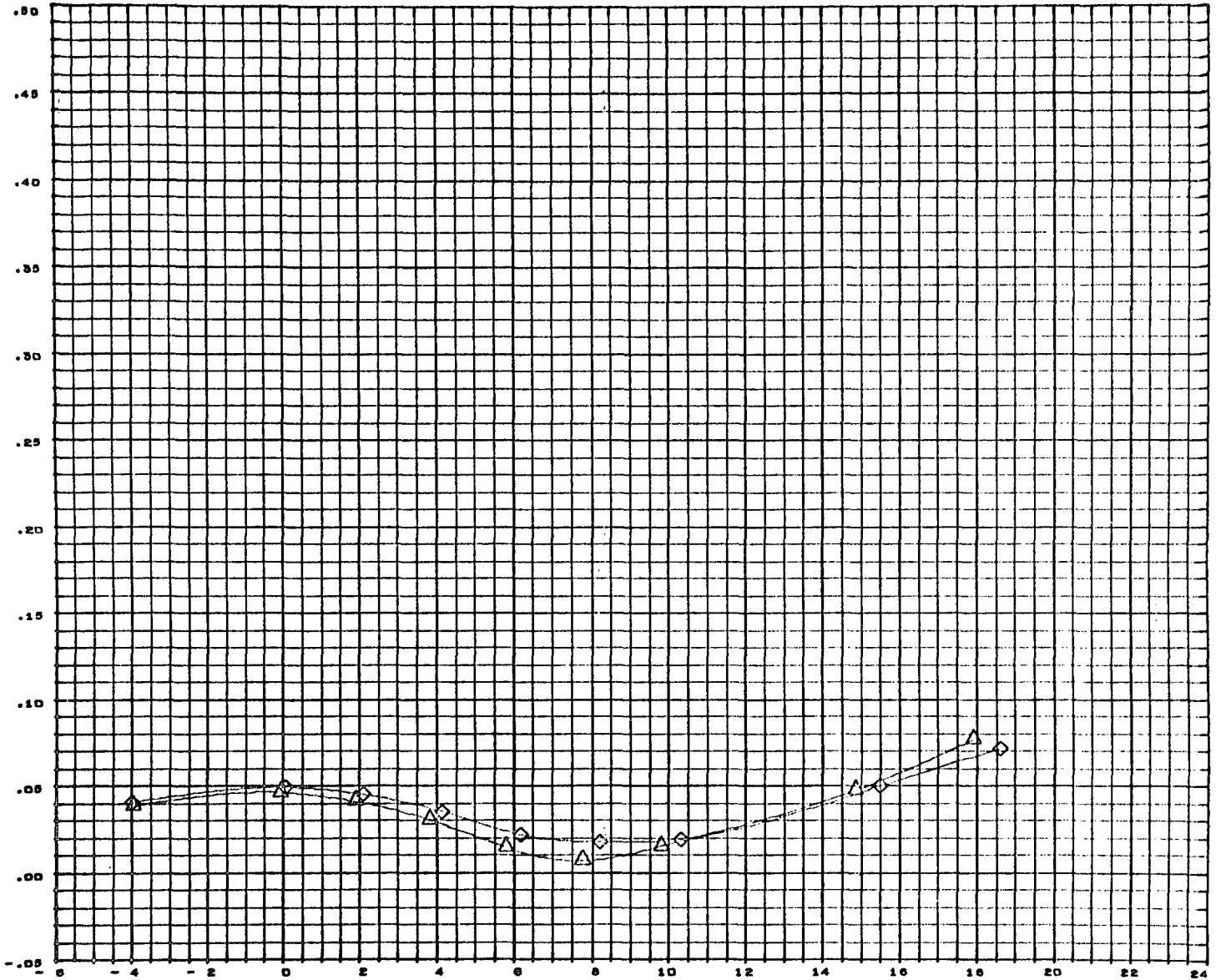


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3069)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF 1.3550 SQ.FT.
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
						XMRP 2.5990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA



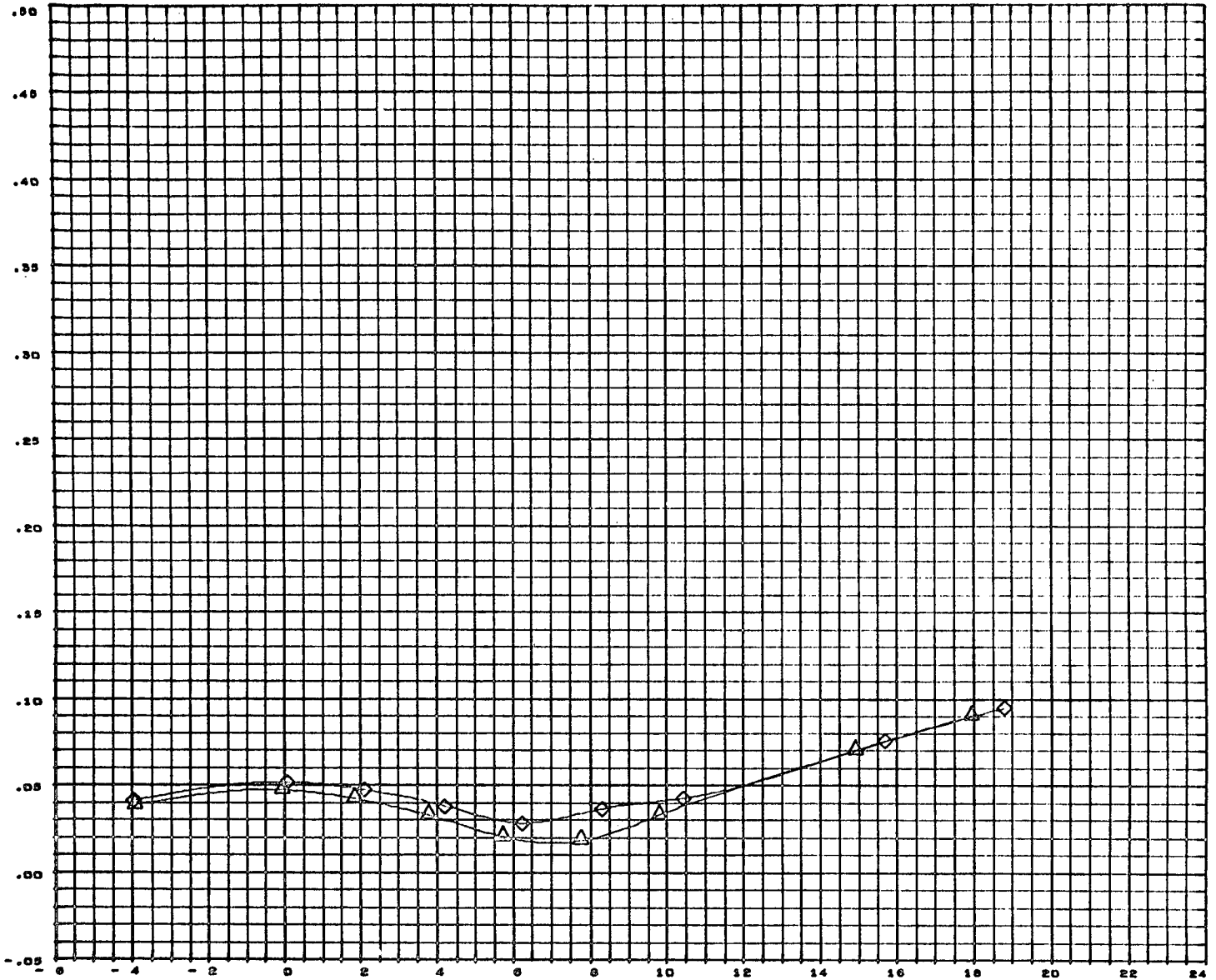
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3069)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF 1.3550 SQ. FT.
(RN3065)	△	NSRDC-3210,HSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	◇	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA



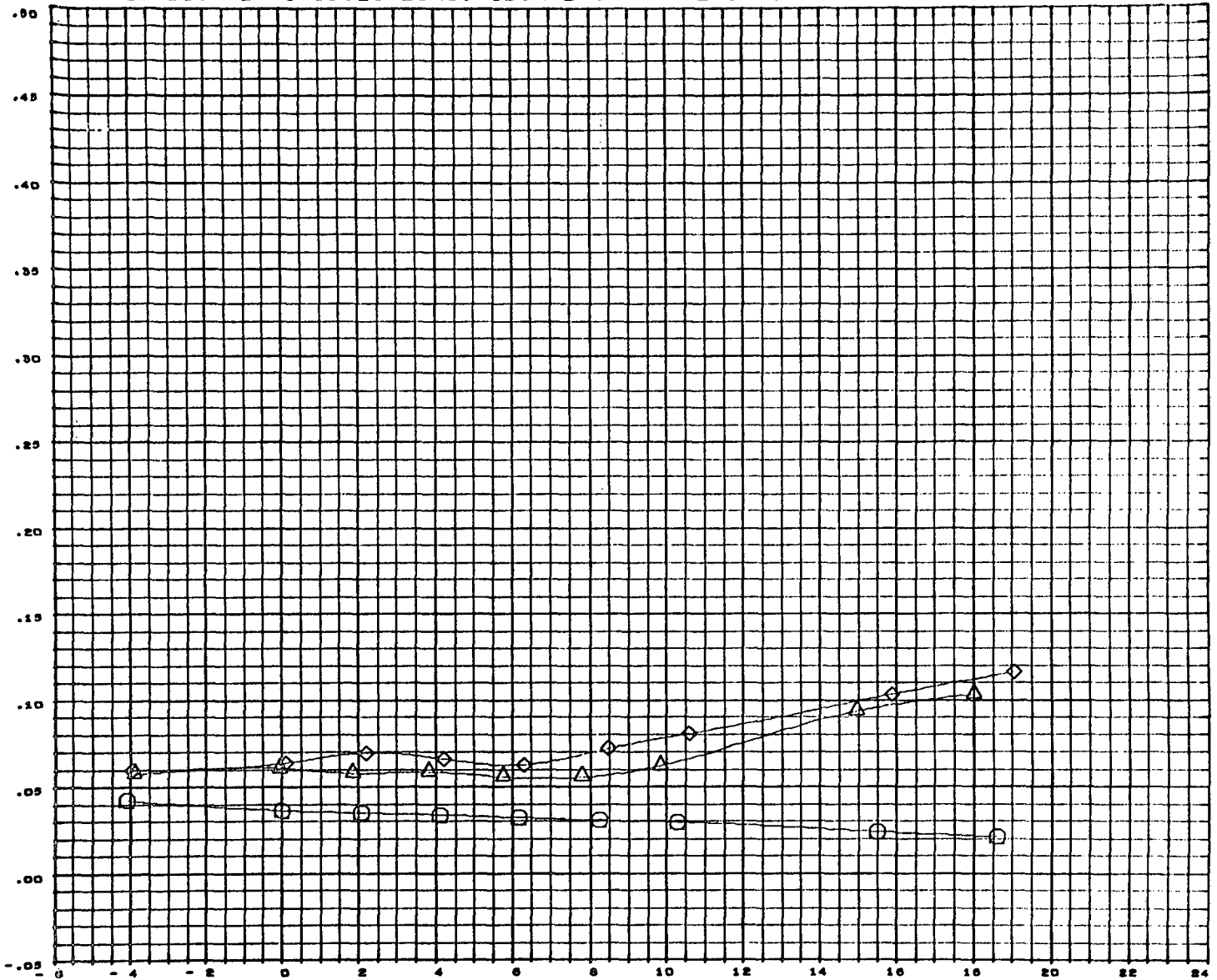
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3000)	DATA NOT AVAILABLE FOR ALL CONDITIONS					BREF 1.3550 SQ. FT.
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA

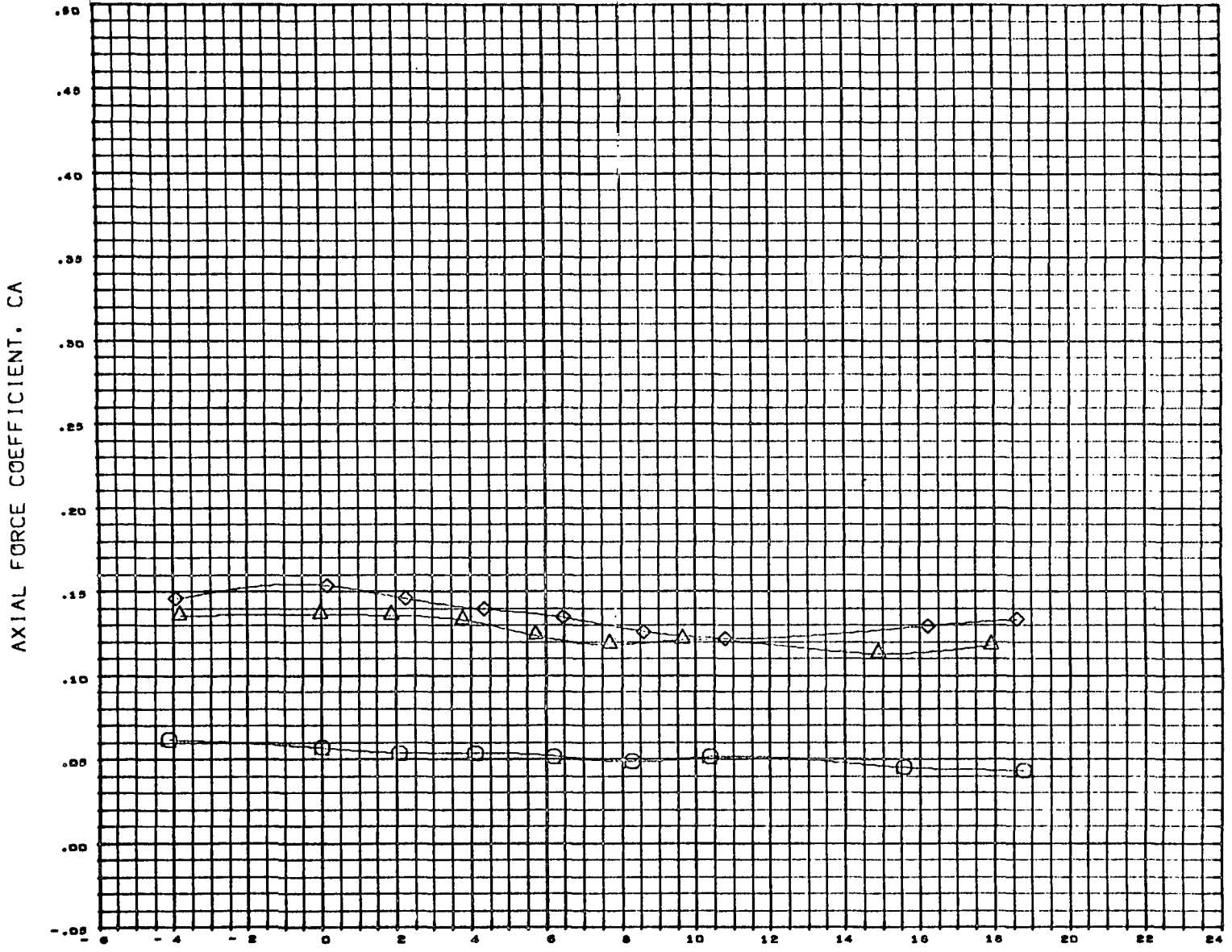


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3060)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ. FT.
(RN3065)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4930 FEET
(RN3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.905

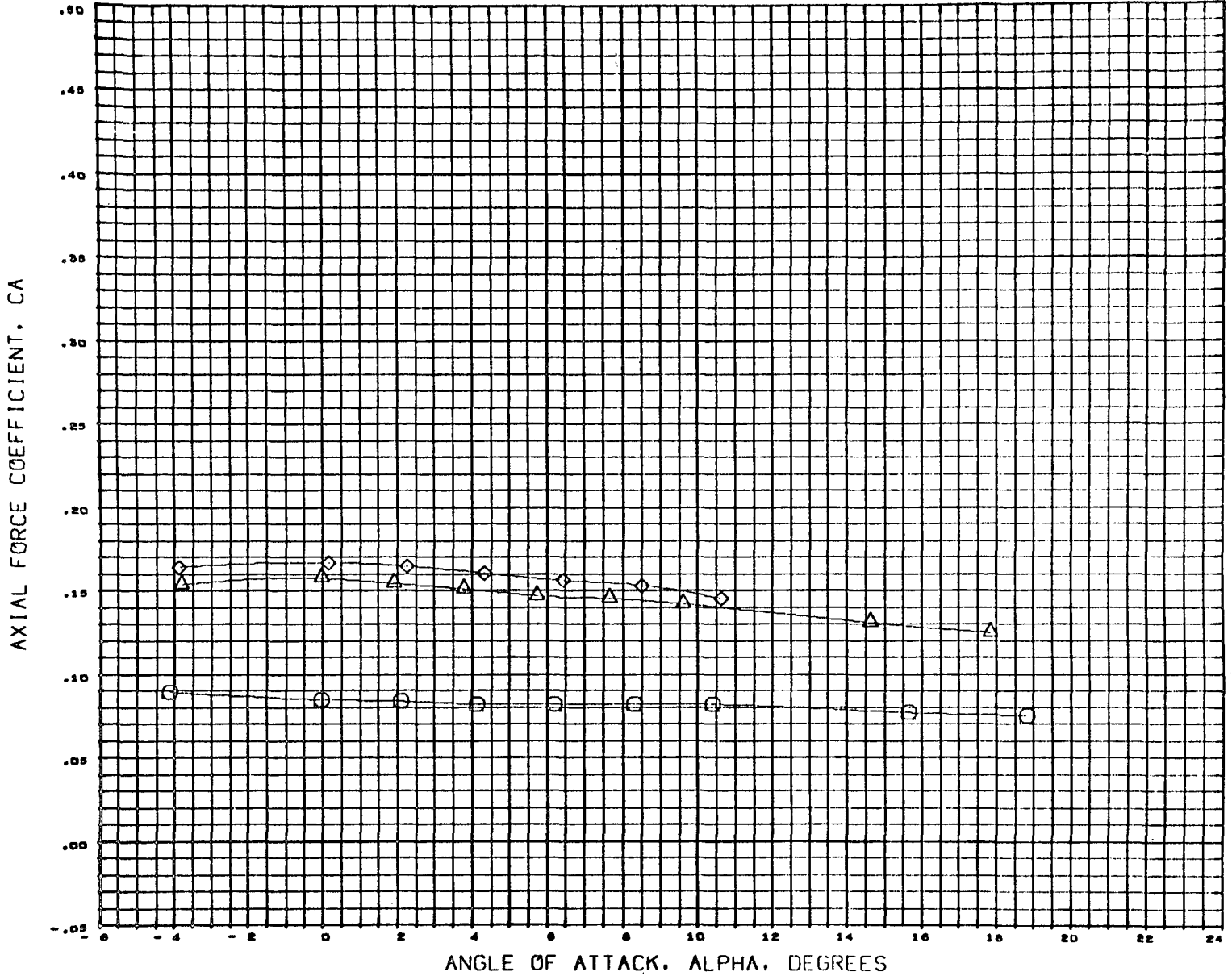
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS009)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000			SREF 1.3550 SQ.FT.
(RNS009)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RNS001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4930 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

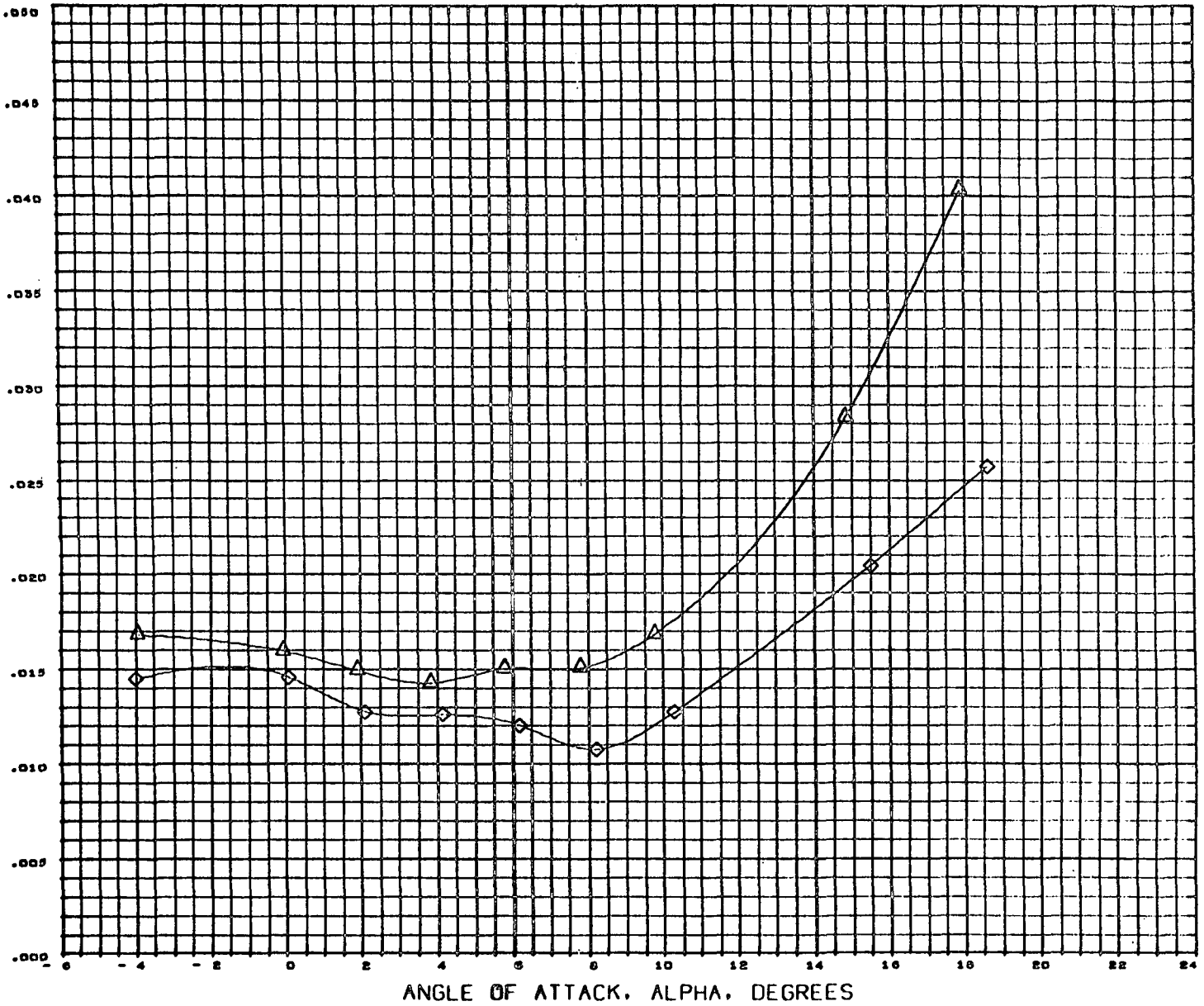


DATA SET SYMBOL	SYMBOL	CONFIGURATION DESCRIPTION	WINGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3005)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1	1.000	0.000			BREF	1.3550 SQ. FT.
(RN3005)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

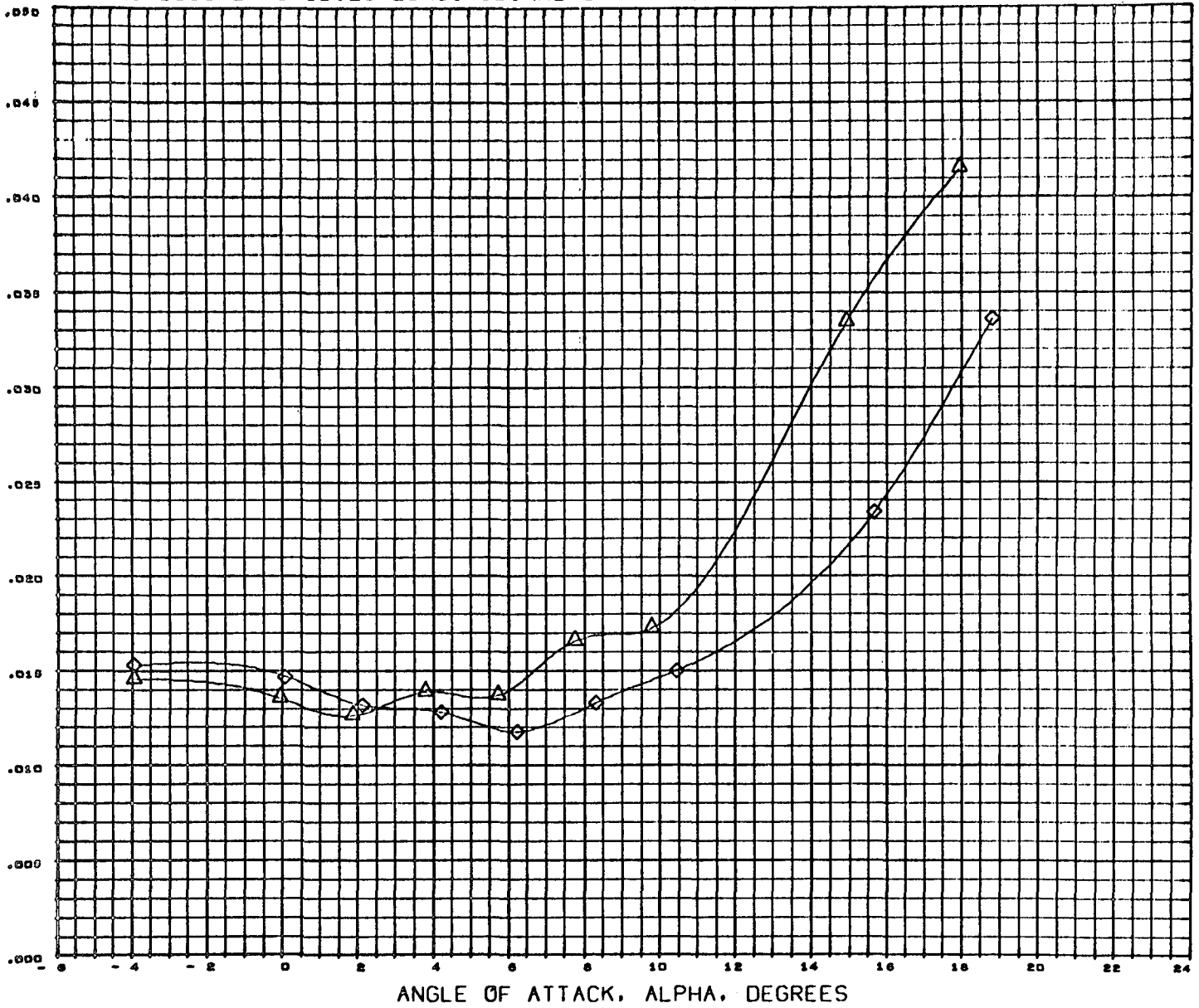


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RM3069)	DATA NOT AVAILABLE FOR ALL CONDITIONS					BREF 1.3590 SQ. FT.
(RM3065)	N8RDC-3210, MSFC/LMSC BOOSTER D1V1W1	1.000	0.000			LREF 3.4530 FEET
(RM3001)	N8RDC-3210, MSFC/LMSC BOOSTER D1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

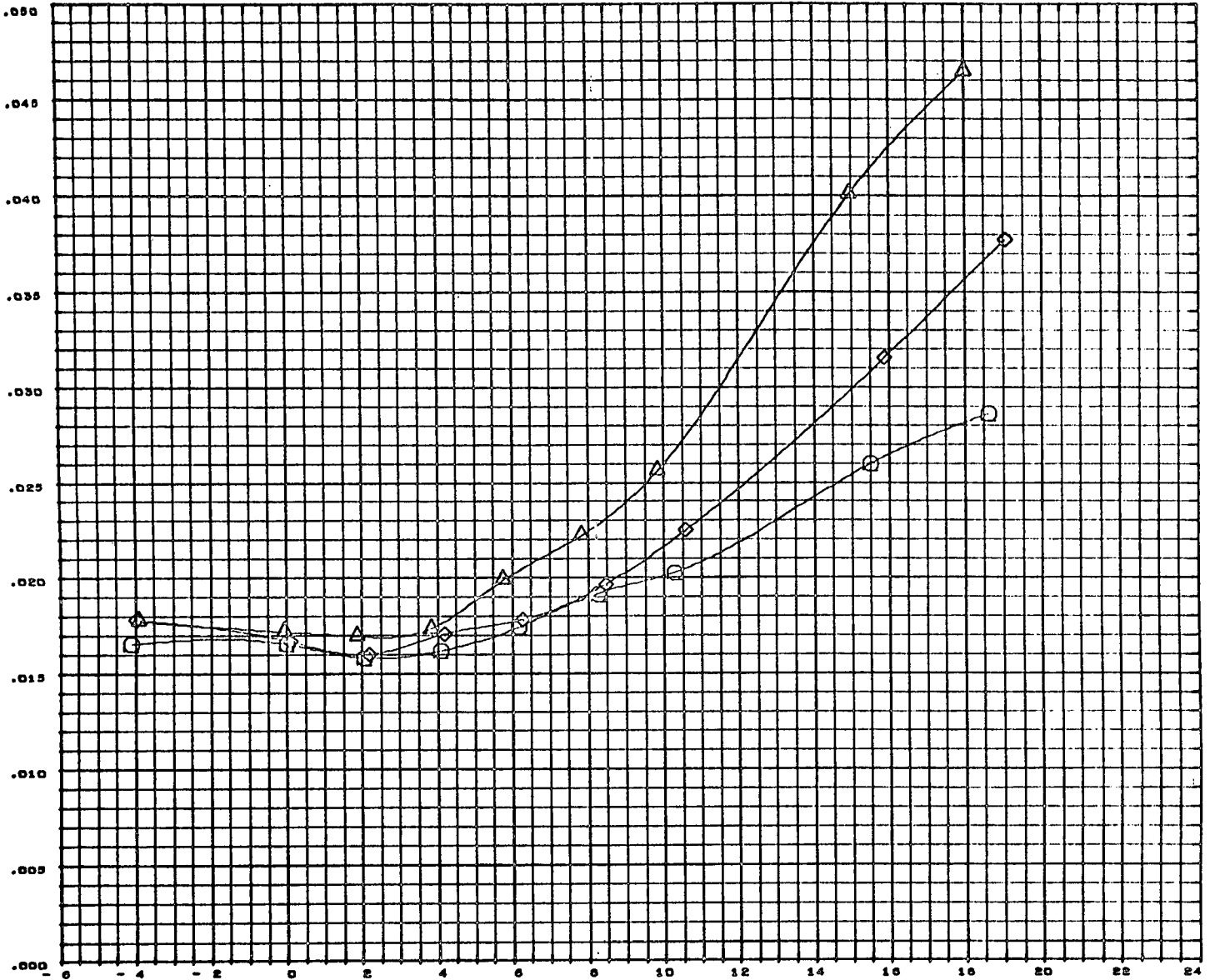


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3000)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF 1.3350 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4350 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4350 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB



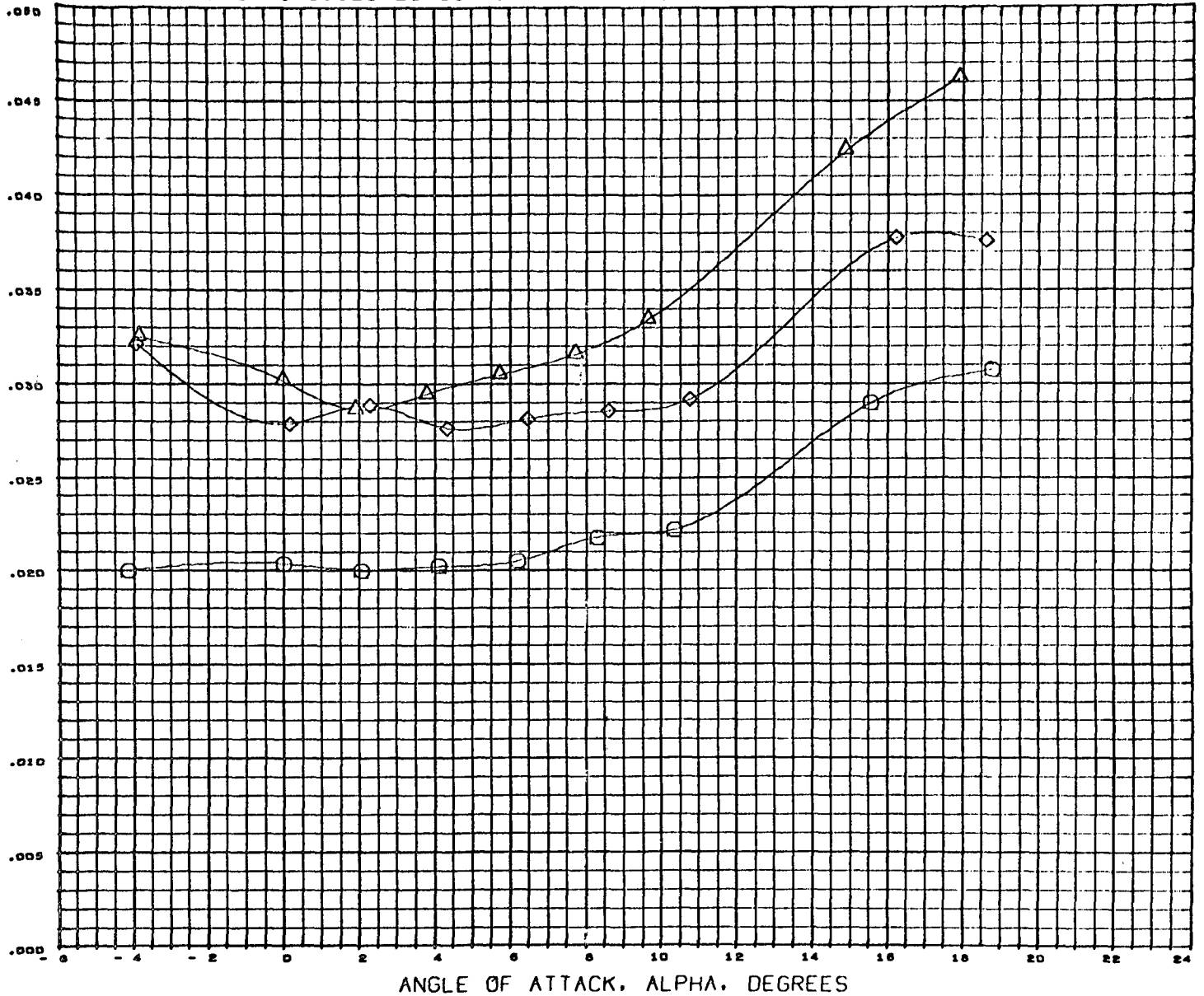
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT.
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.3990 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0190 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

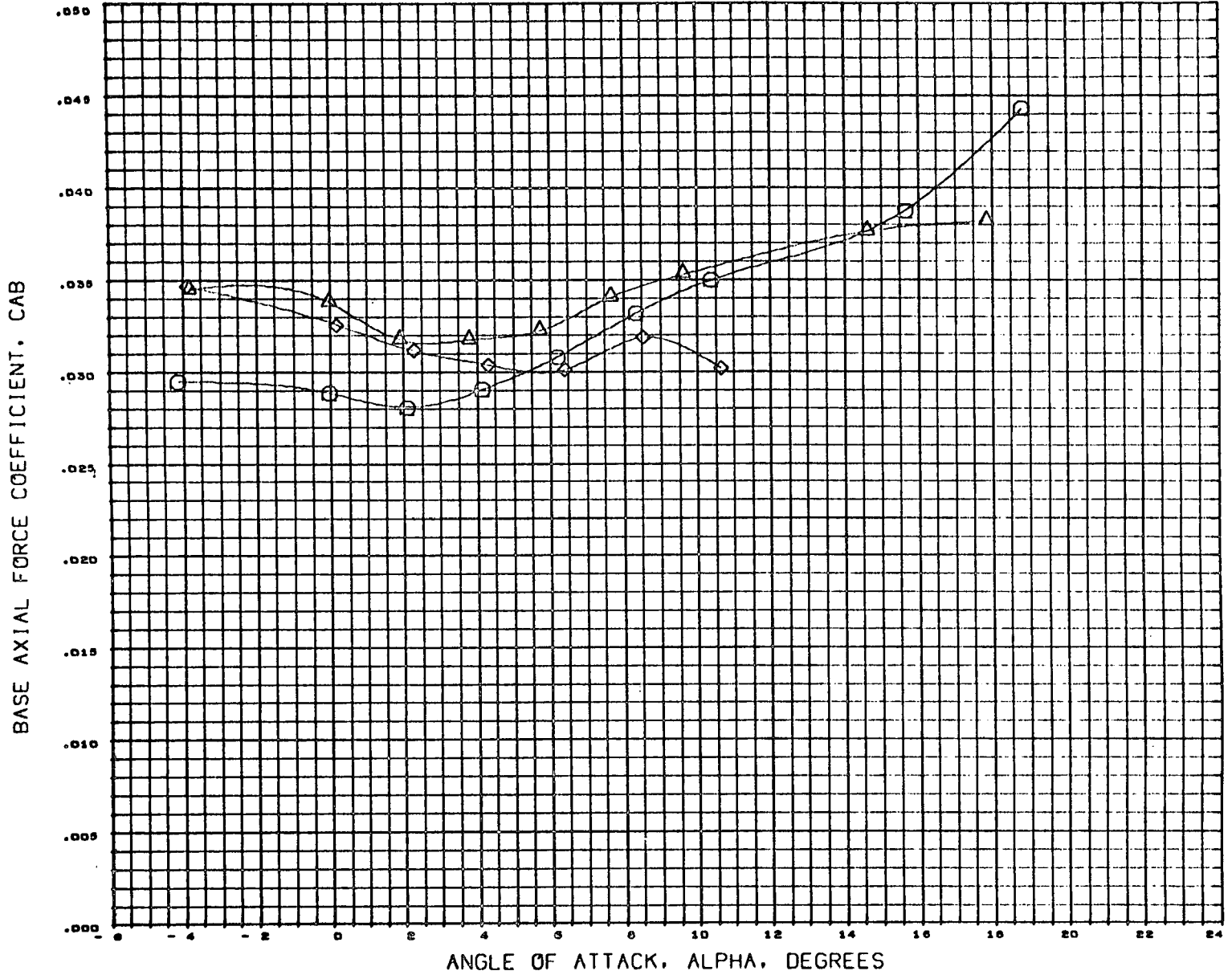
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4930 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.001

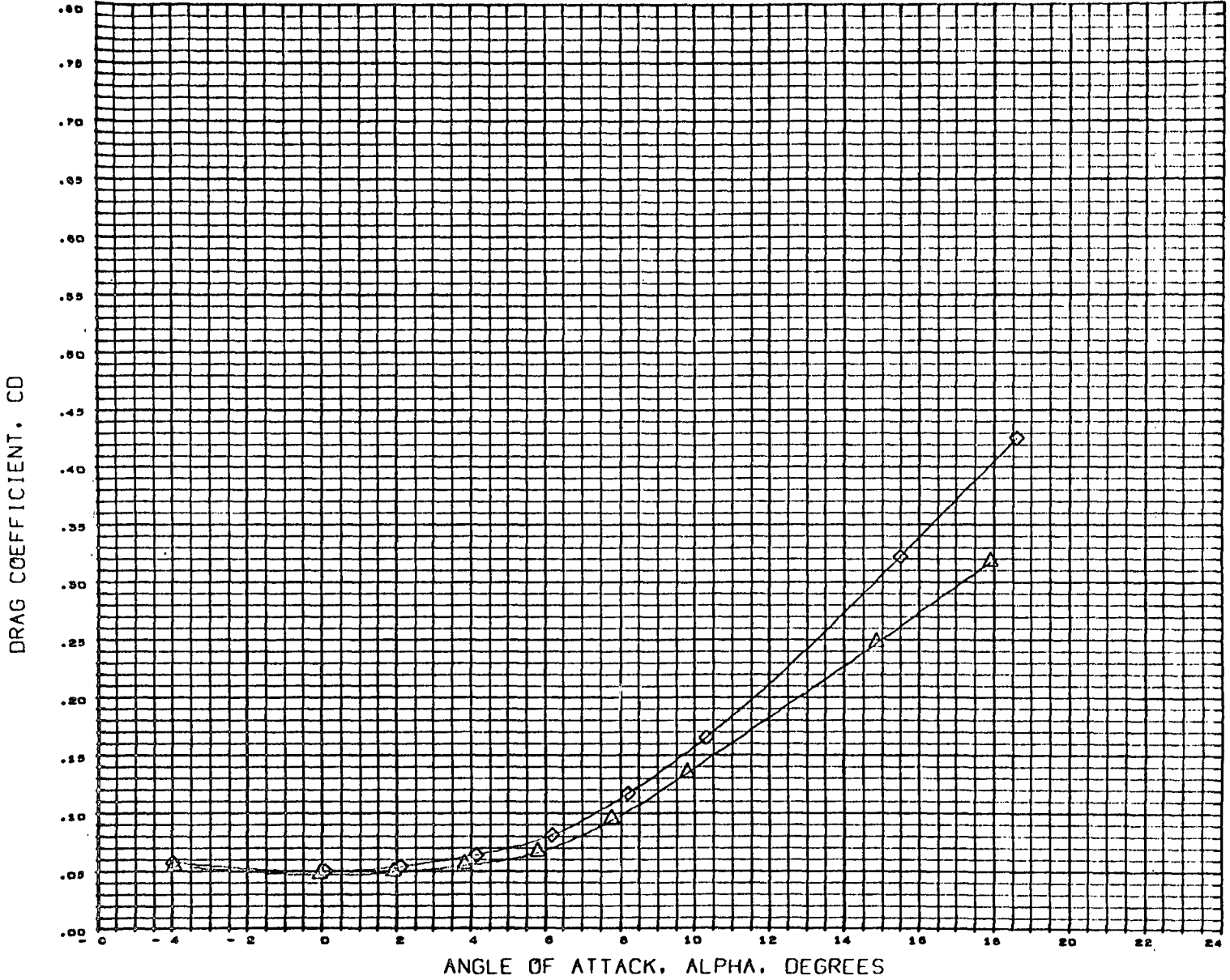
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT.
(RNS005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.126

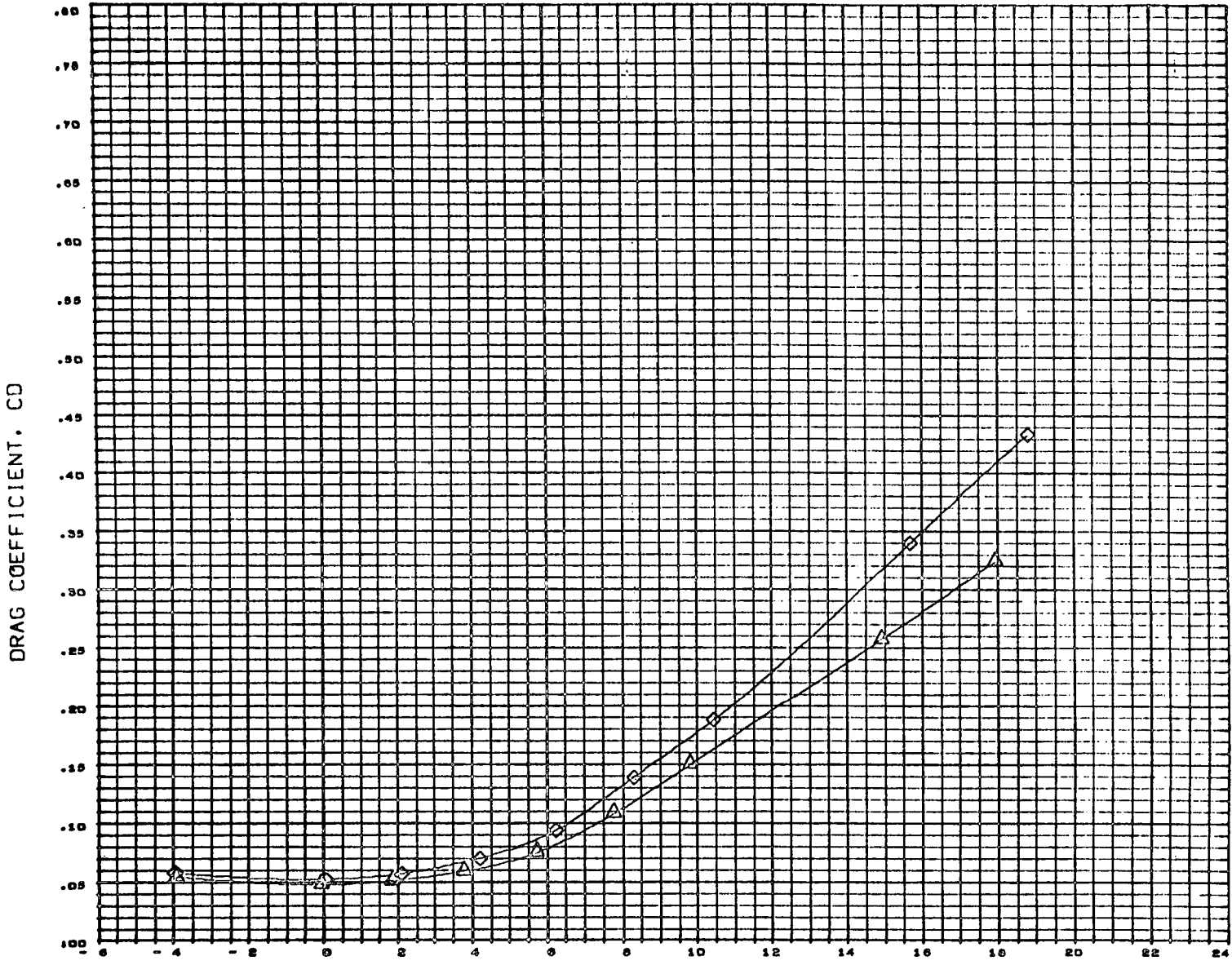
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3069)	□	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF 1.3550 SQ. FT.
(RN3069)	△	NSRDC-3210, MSFC/LMSC BOOSTER 81V1V1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

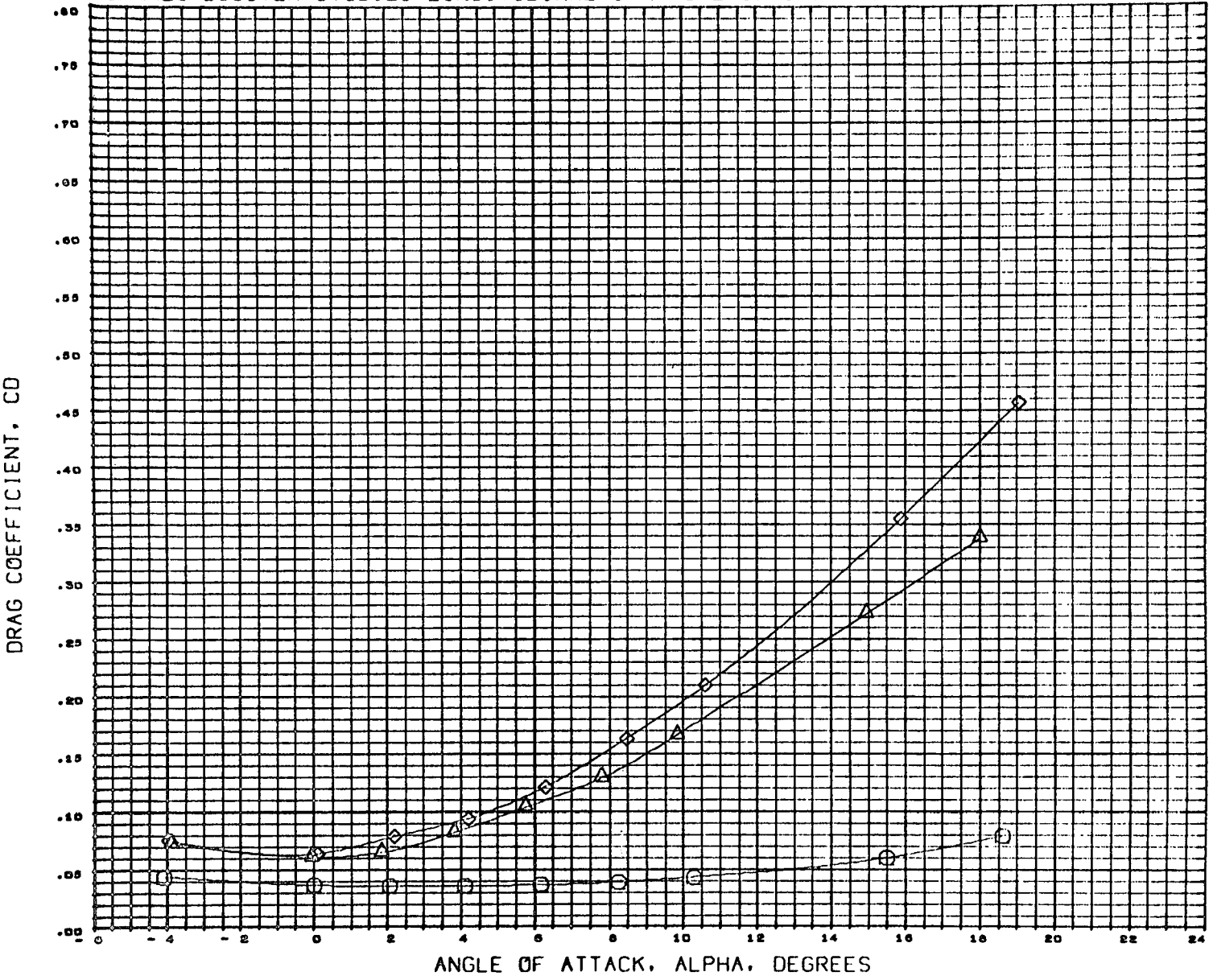


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3000)	△	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF 1.3950 SQ. FT.
(RN3000)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4930 FEET
(RN3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4930 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0167 FEET
							SCALE 0.0150 SCALE

MACH 0.600

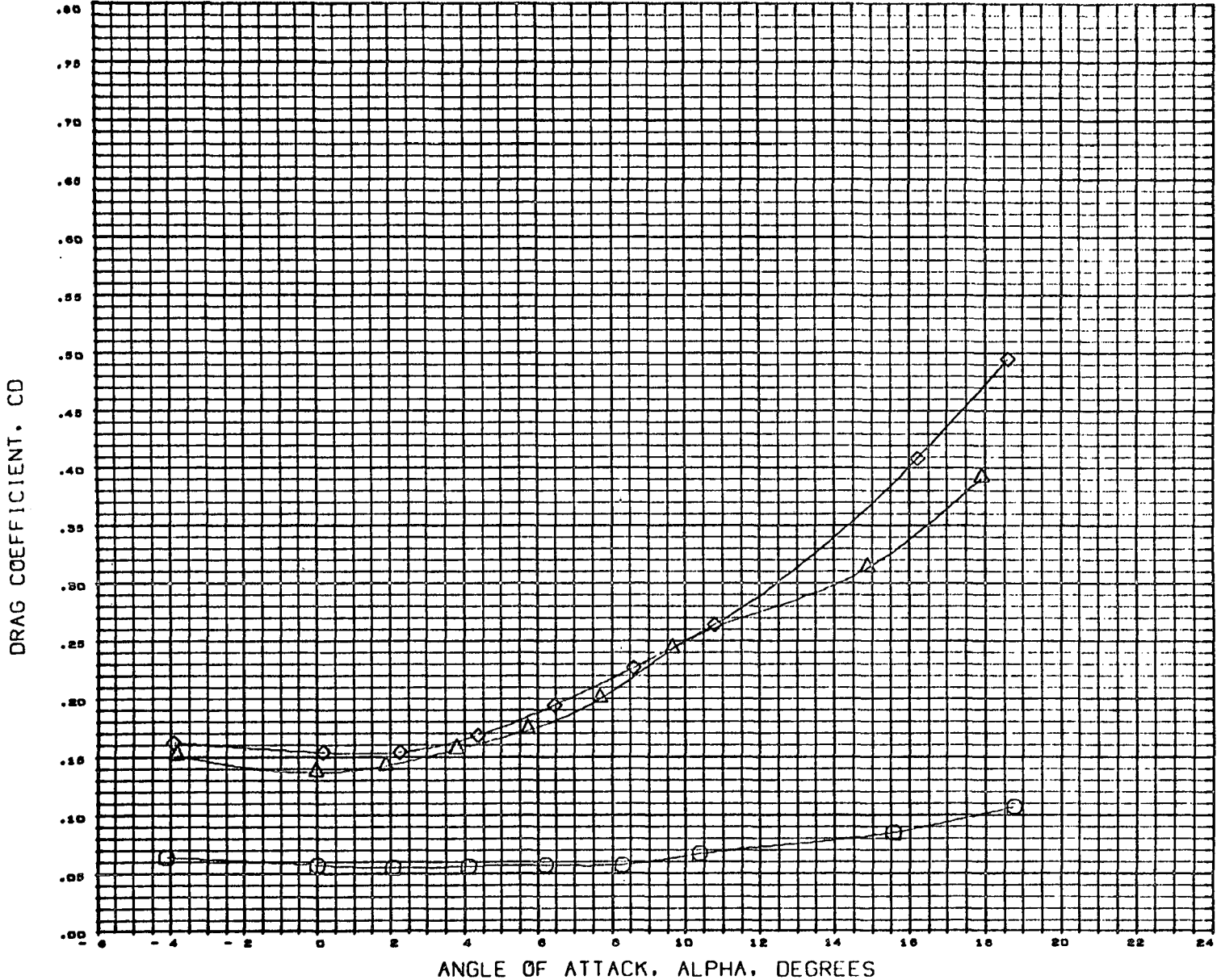
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3009)	○	NBRDC-3210, MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ. FT.
(RN3009)	△	NBRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	◇	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.903

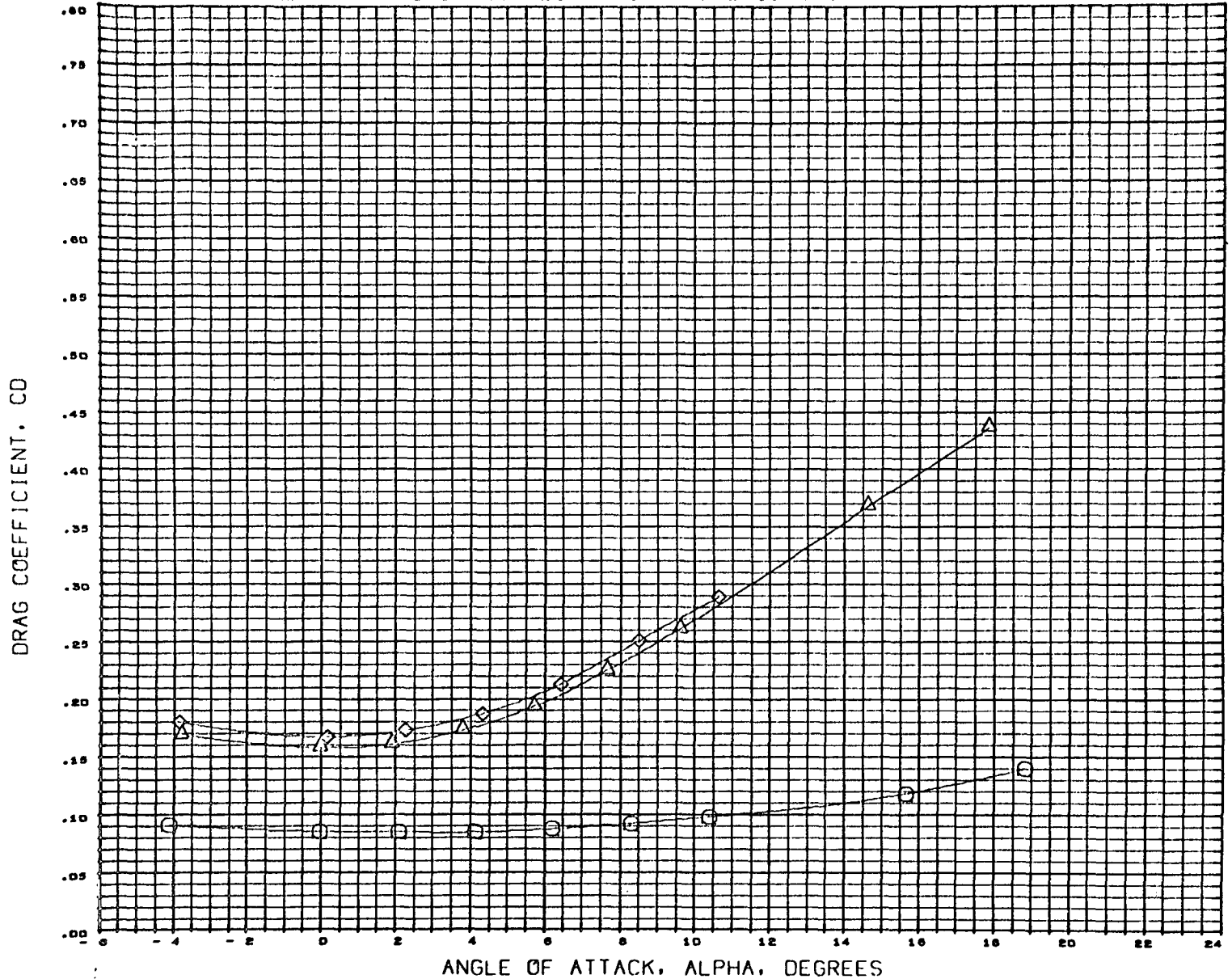
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	NBRDC-3210,MSFC/LMSC BOOSTER B1					SREF	1.3350 30.FT.
(RN3005)	NBRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	SREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.001

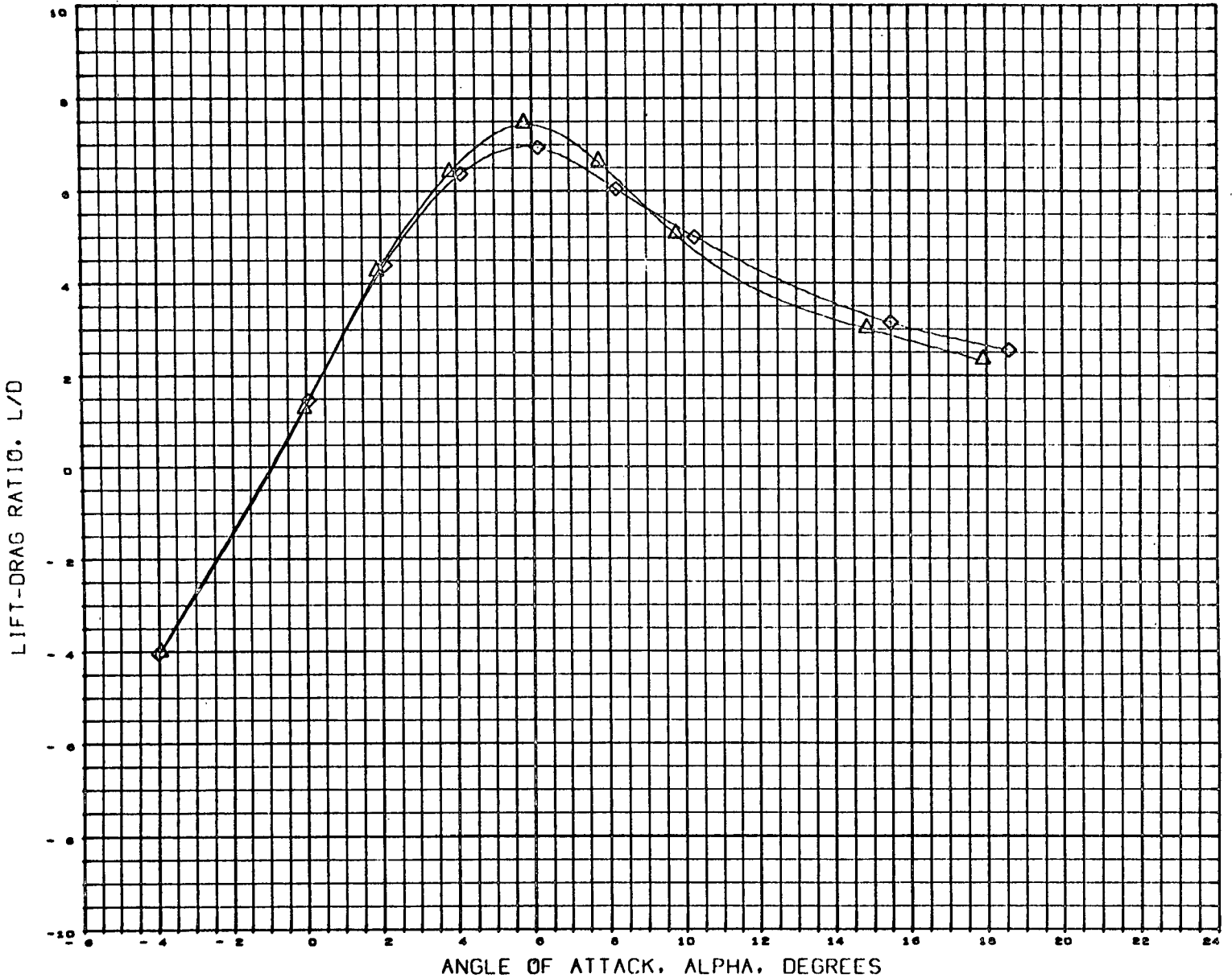
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS009) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT. LREF 3.4530 FEET
(RNS005) △	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			BREF 3.4530 FEET XMRP 2.9050 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET
(RNS001) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	SCALE 0.0150 SCALE

MACH 1.126

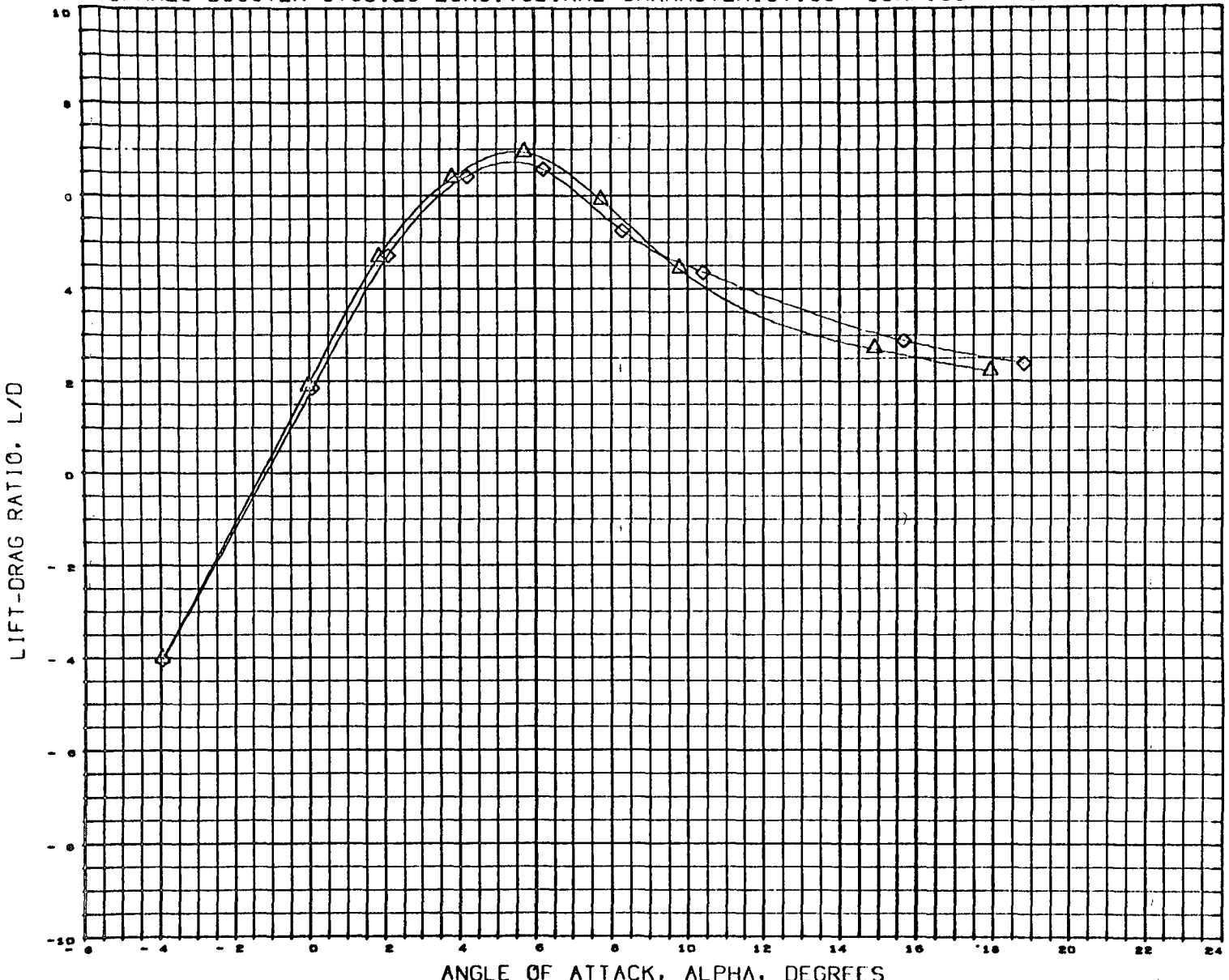
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INC1DW	CNDPOS	INC1DC	REFERENCE INFORMATION
(RN3009)	DATA NOT AVAILABLE FOR ALL CONDITIONS					BREF 1.3550 SQ. FT.
(RN3005)	M8RDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	M8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
						XMRP 2.5990 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



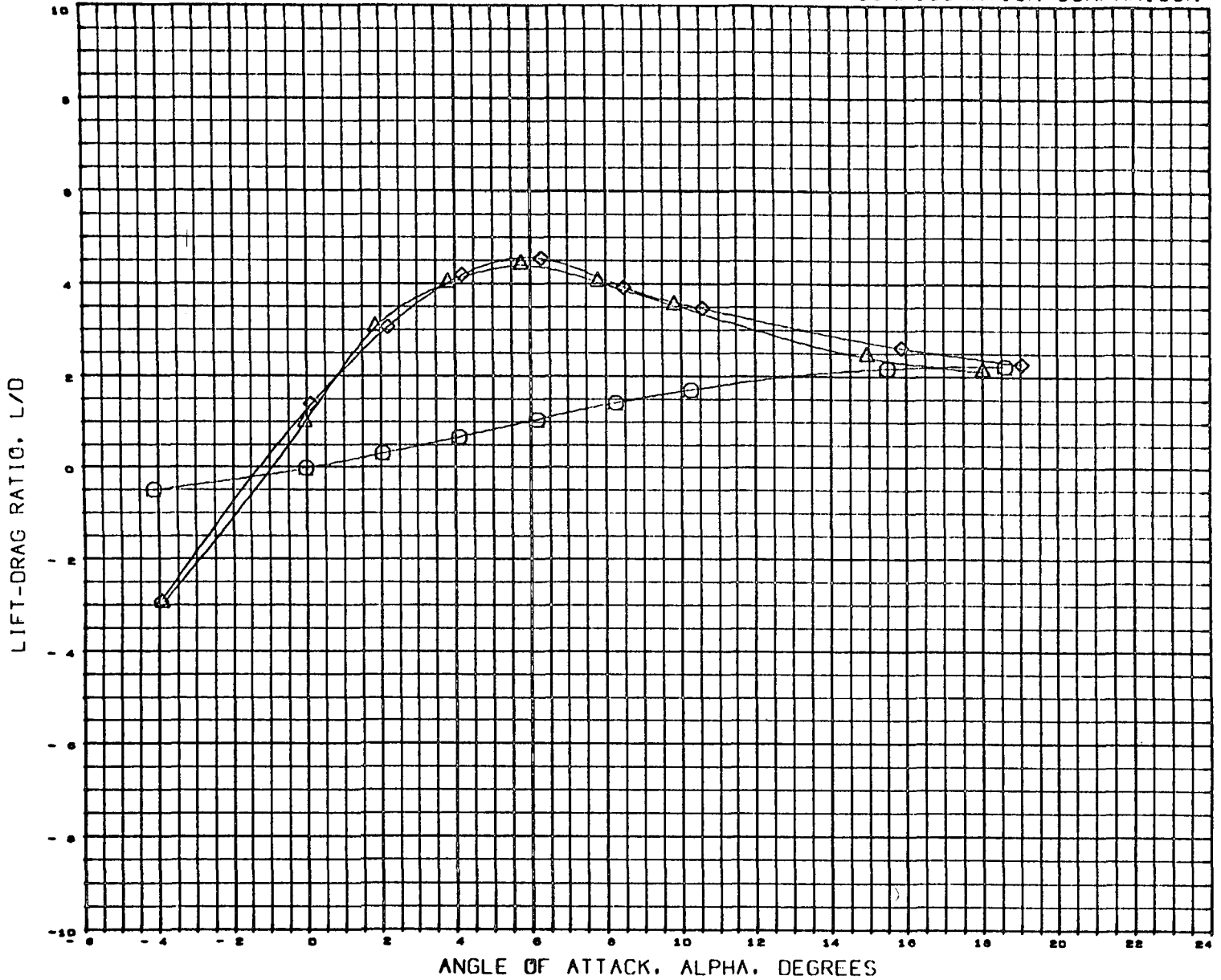
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3009)	DATA NOT AVAILABLE FOR ALL CONDITIONS
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

WNGPOS	INCIDW	CNOPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
BREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0107	FEET
SCALE	0.0150	SCALE

MACH 0.800

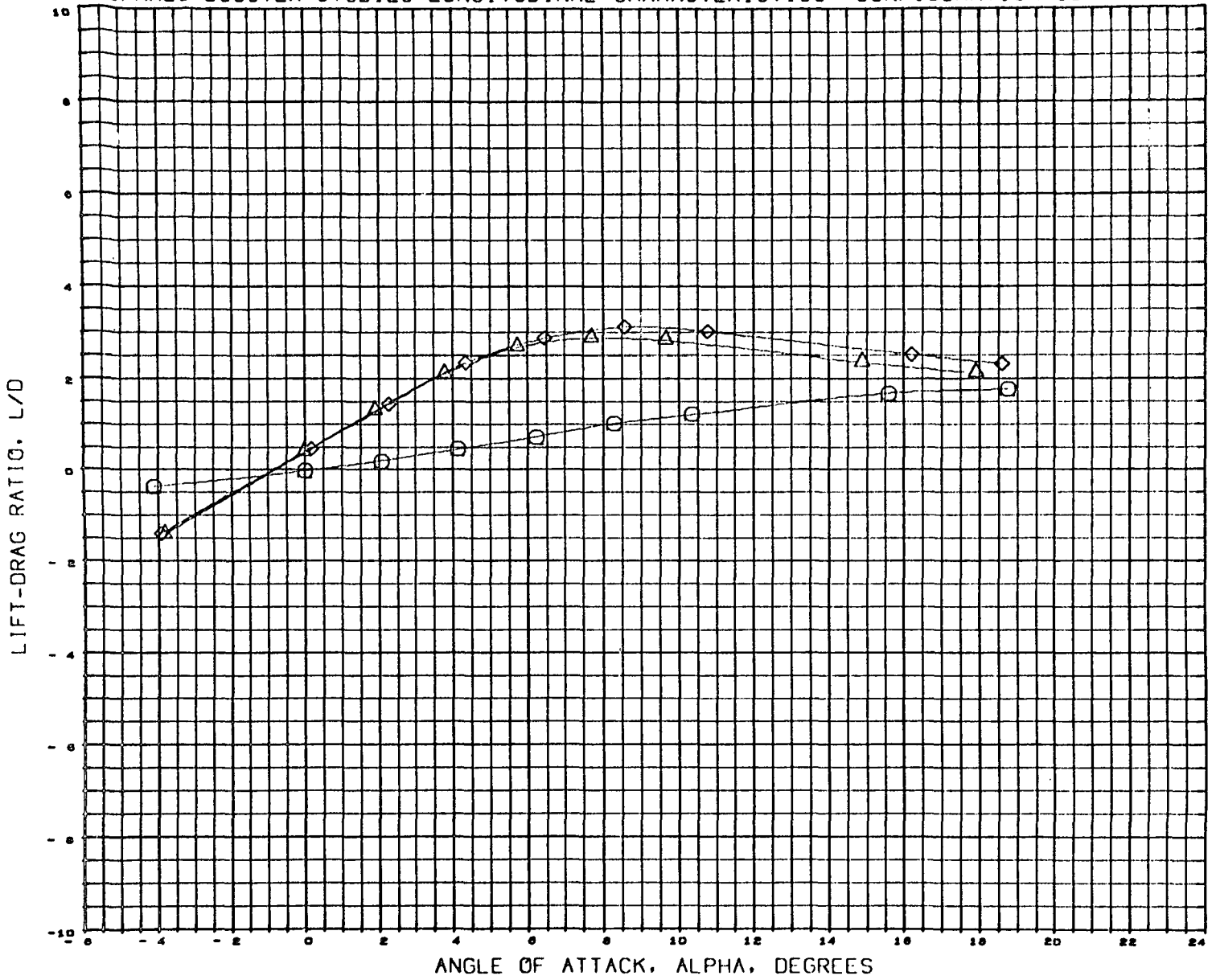
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF 1.9990 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.905

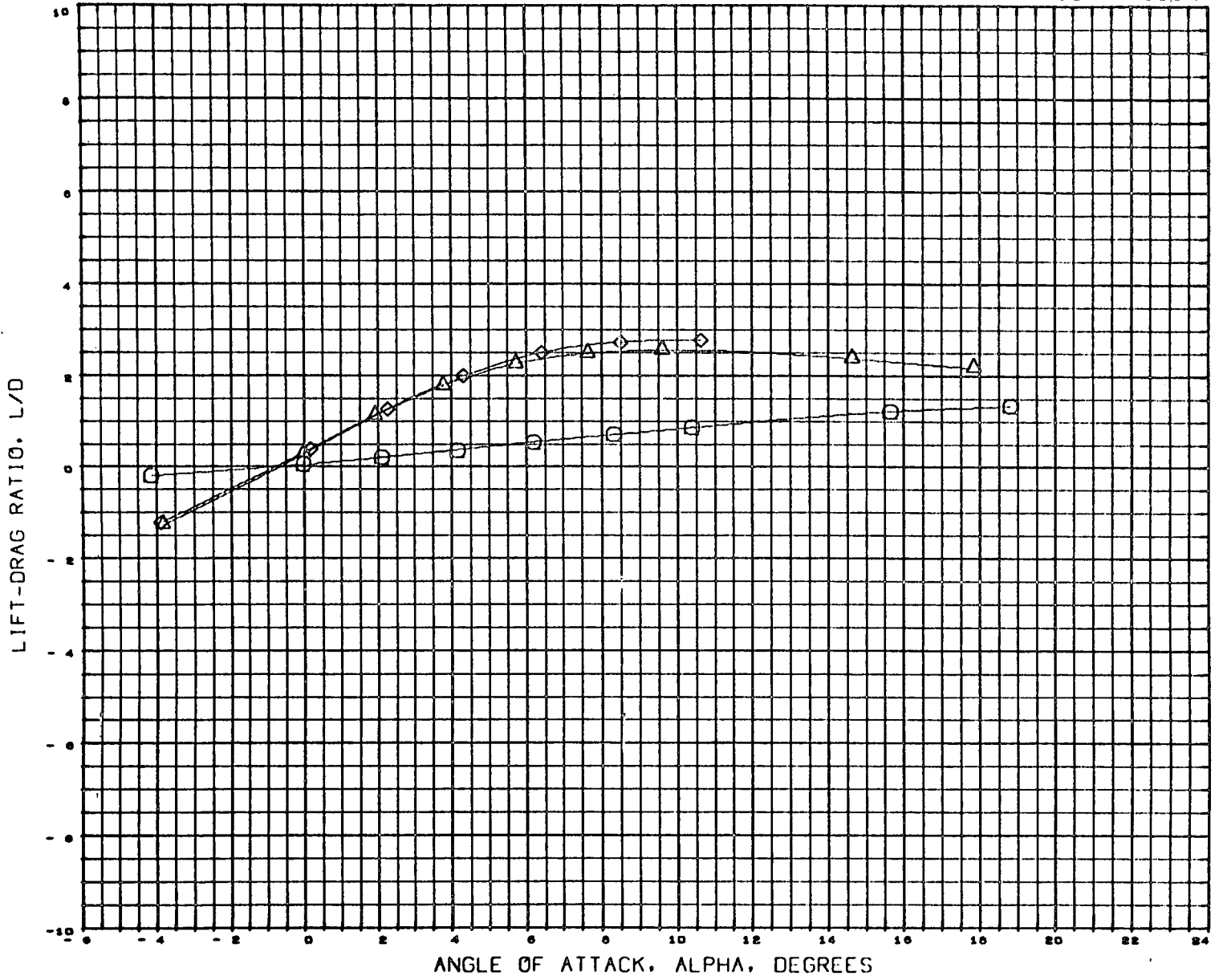
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4330 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4330 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.001

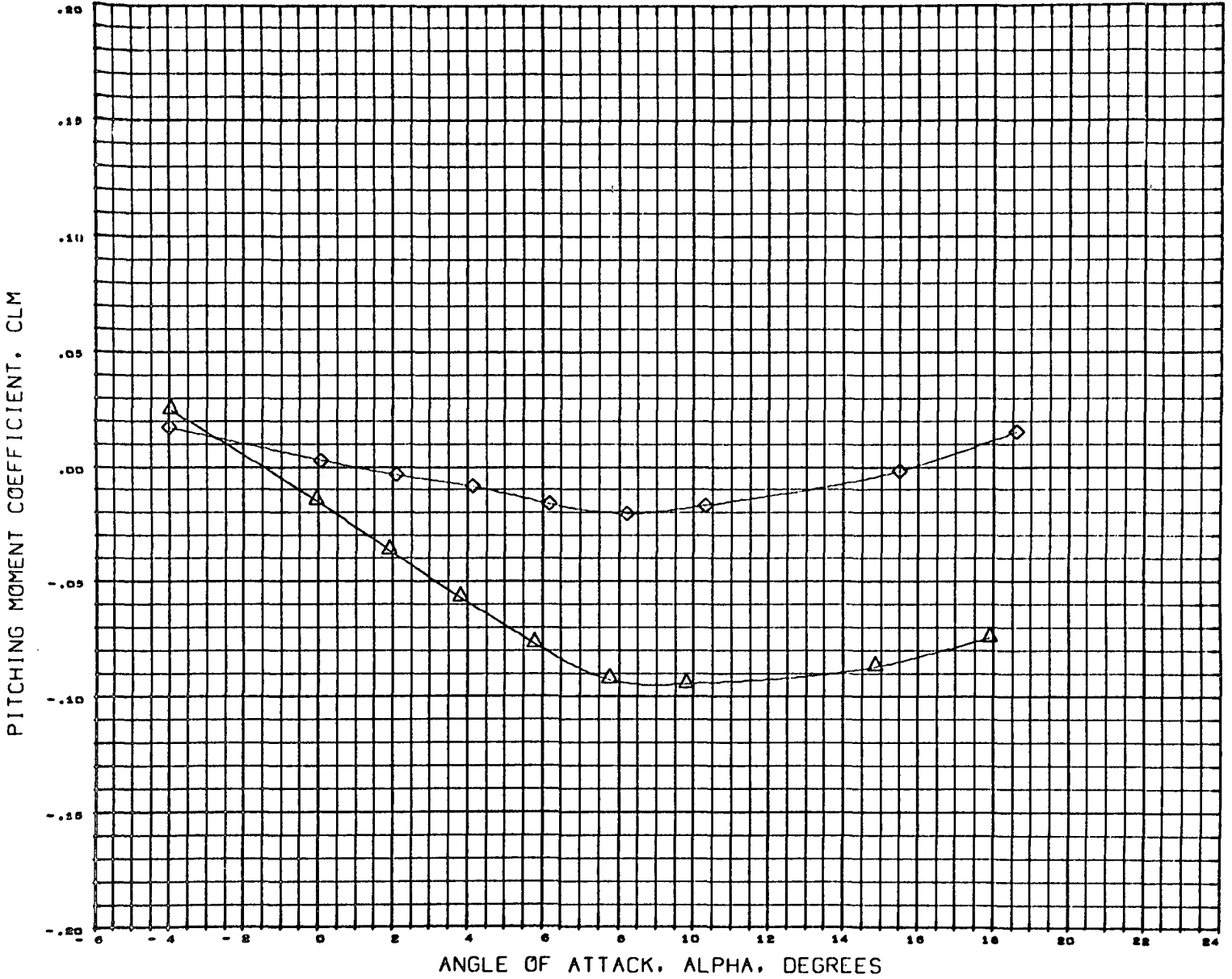
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3590 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4930 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4930 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.126

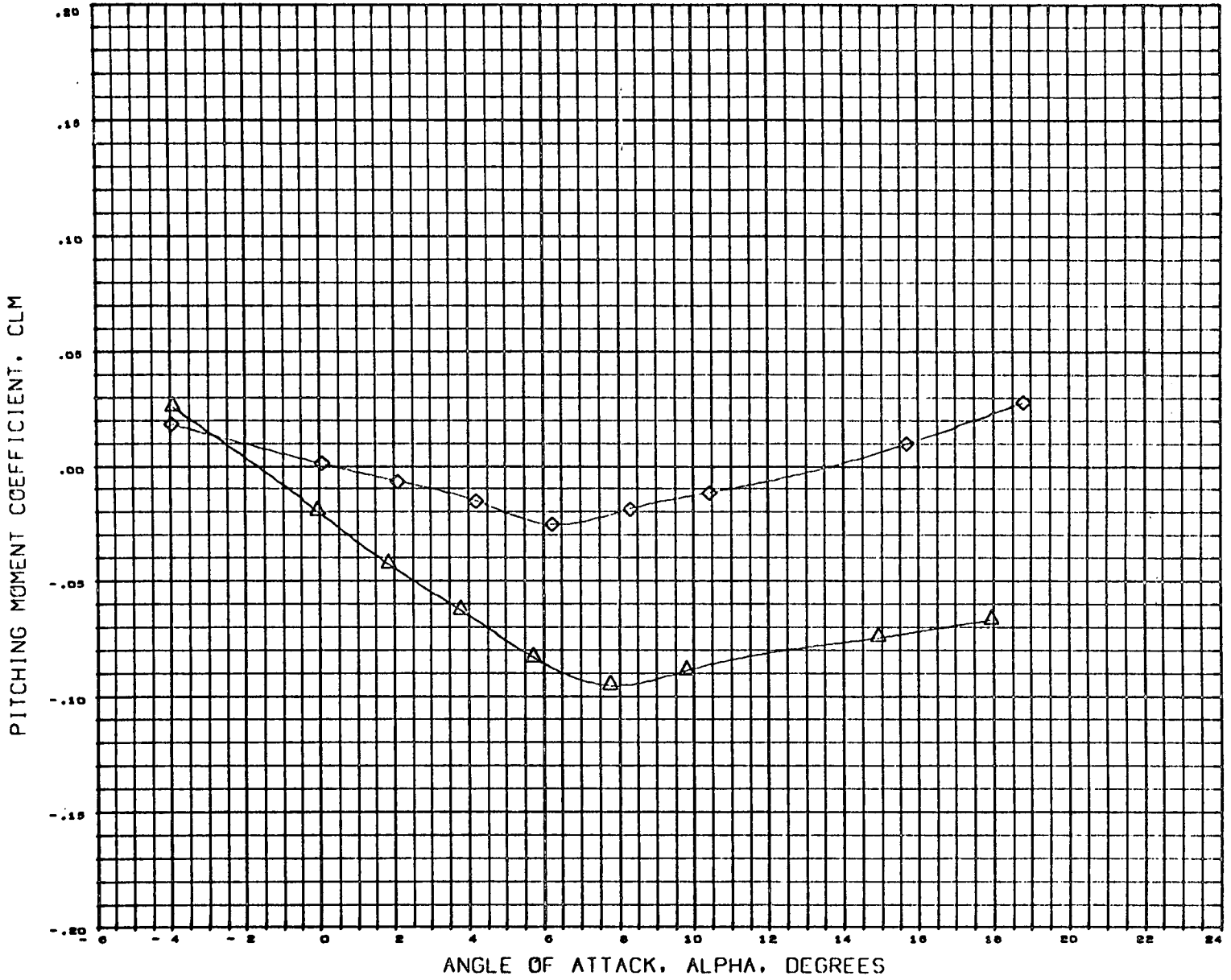
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS009)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS					BREF 1.3550 SQ.FT.
(RNS005)	△	NSRDC-321D,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RNS001)	◇	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
							XMRP 2.5990 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.704

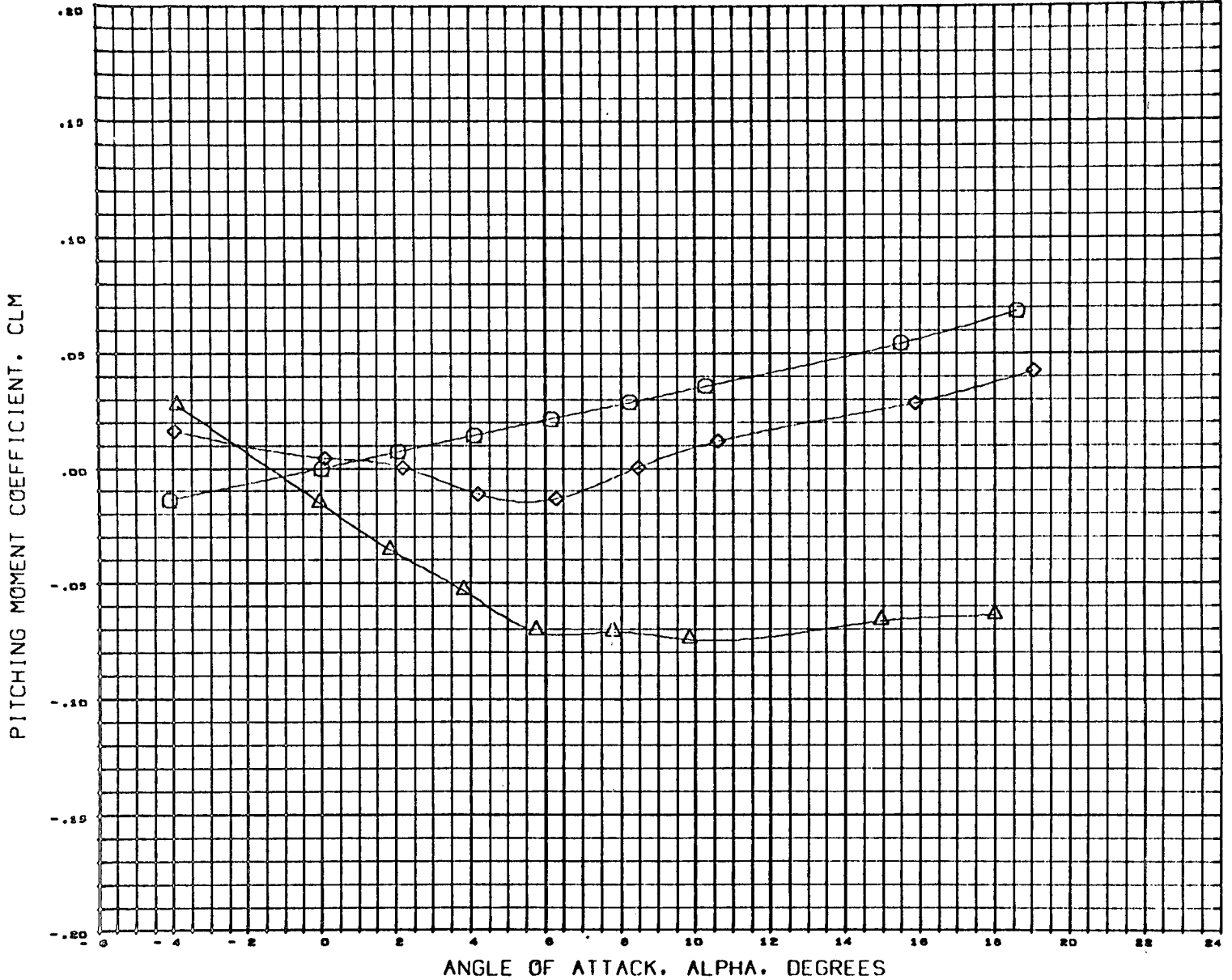
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3069)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF 1.3550 SQ.FT.
(RN3065)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RN3001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
						XMRP 2.5050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.600

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

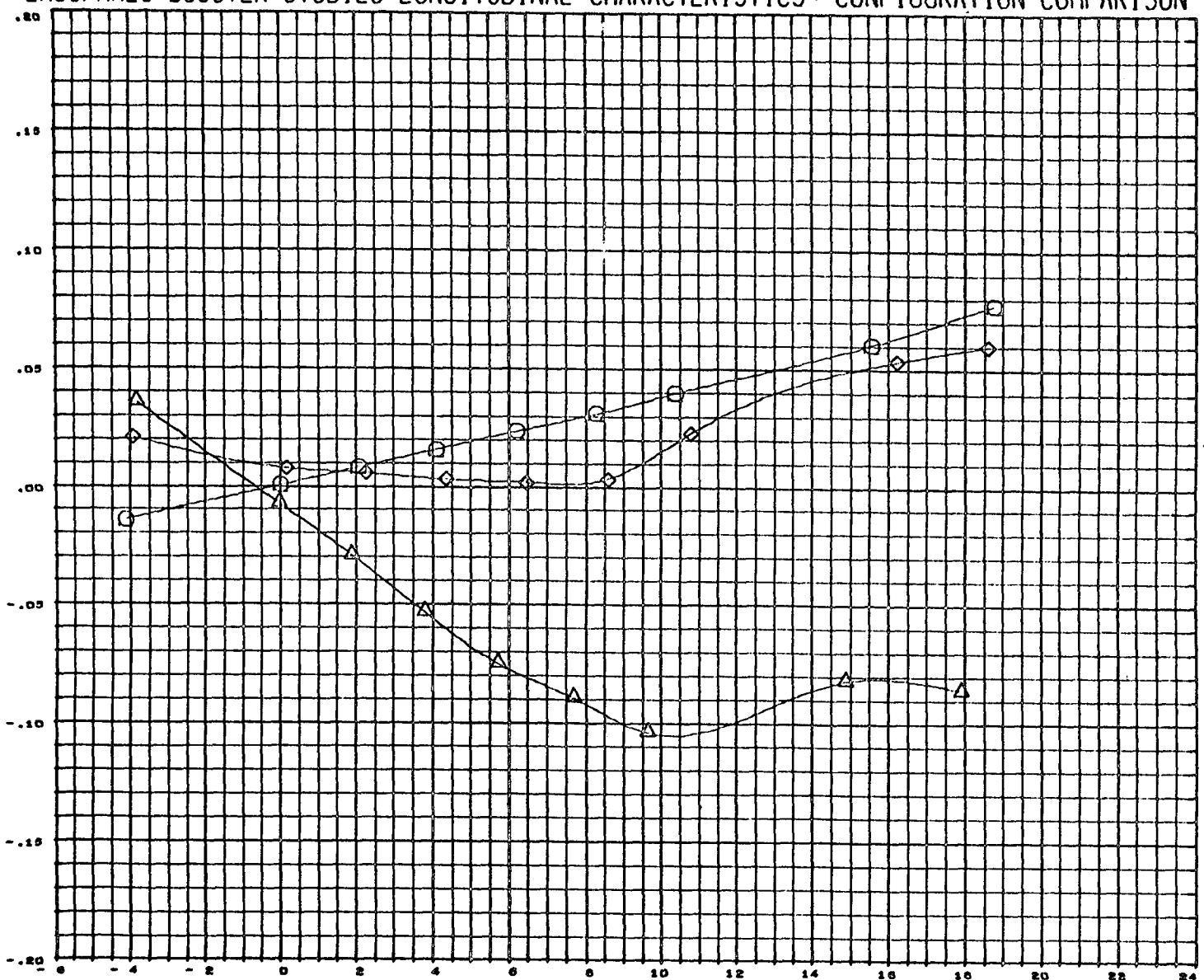


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(R3000)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1					SREF 1.3550 80. FT.
(R3005)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(R3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

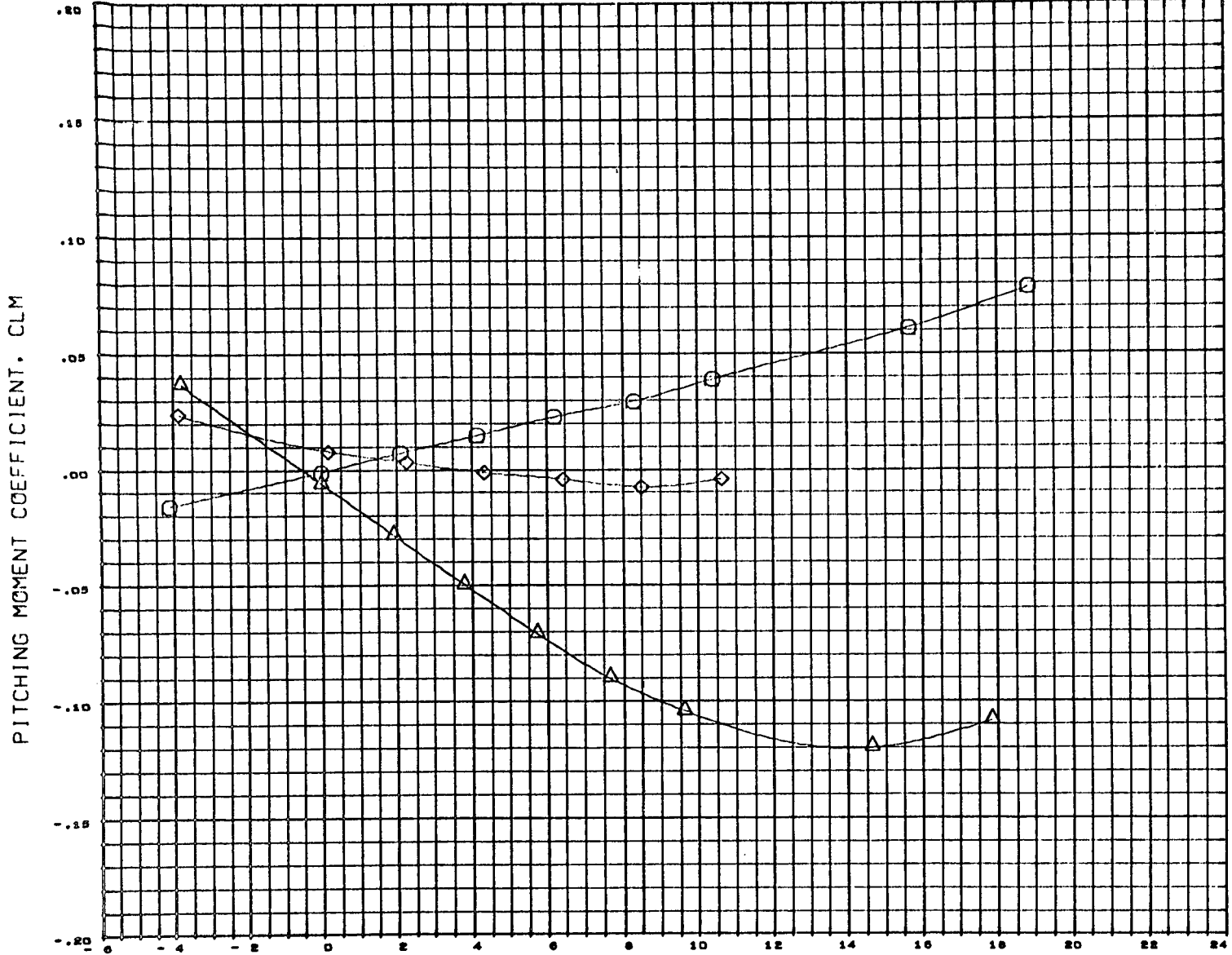
PITCHING MOMENT COEFFICIENT, CLM



DATA SET SYMBOL	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3060)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF	1.3950 SQ.FT.
(RN3065)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
							XMRP	2.5050 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

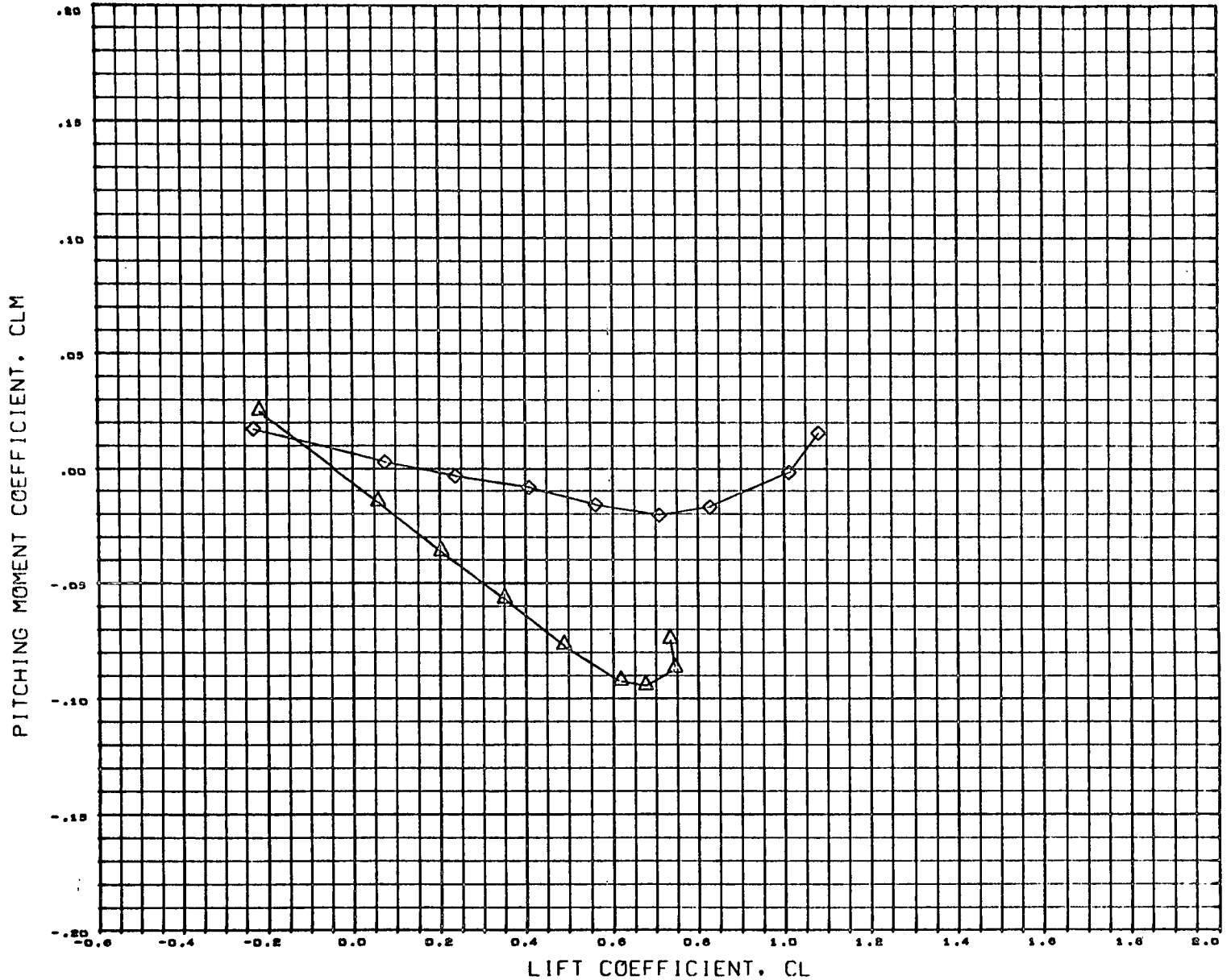


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS009)	MSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT. LREF 3.4530 FEET
(RNS005)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			BREF 3.4530 FEET XMRP 2.5050 FEET
(RNS001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

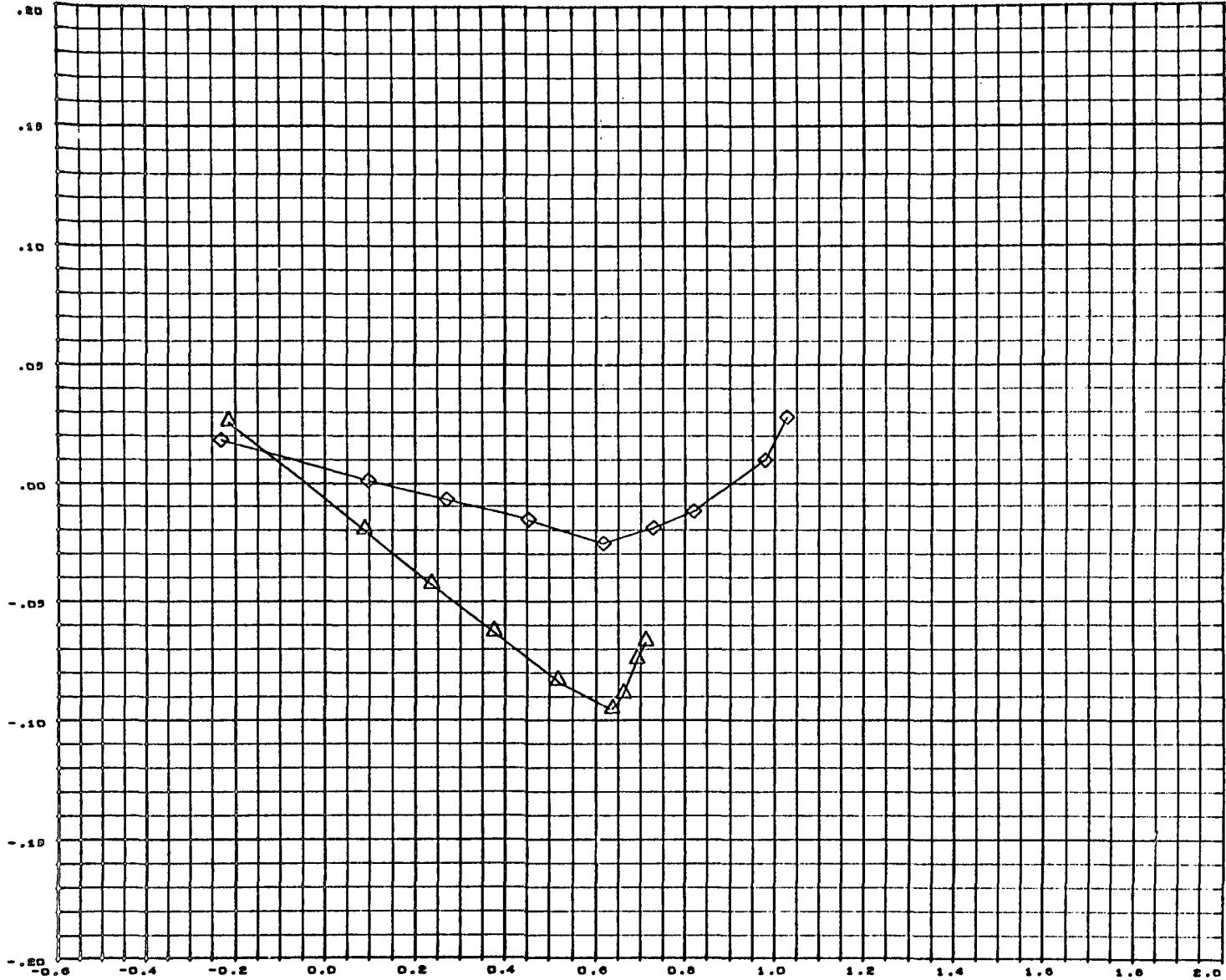


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS089)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550 SQ. FT.
(RNS085)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RNS001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, CLM

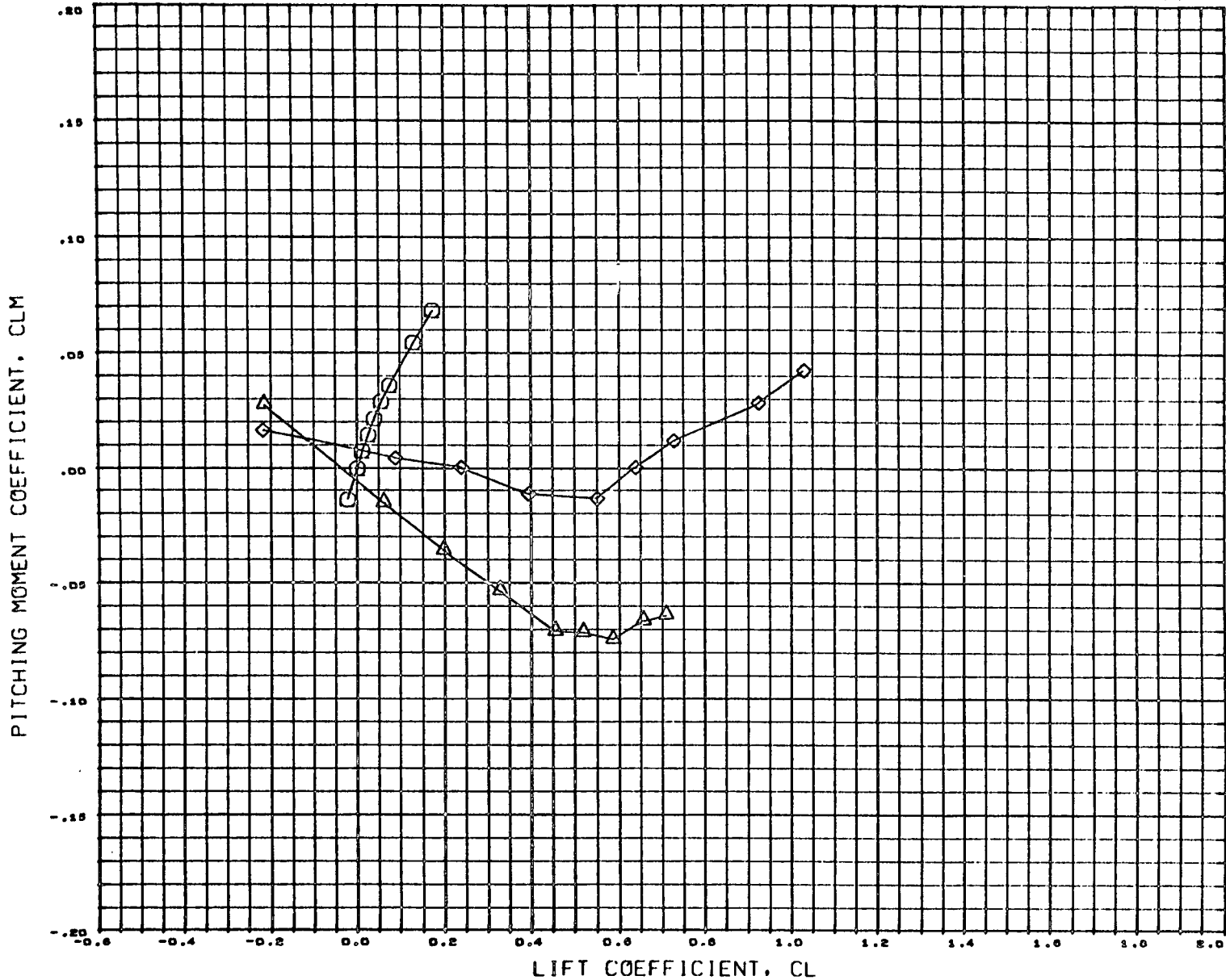


LIFT COEFFICIENT, CL

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INC1DW	CNDPOS	INC1DC	REFERENCE INFORMATION
(RM3000)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF 1.3550 SQ. FT.
(RM3005)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RM3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0167 FEET
							SCALE 0.0150 SCALE

MACH 0.800

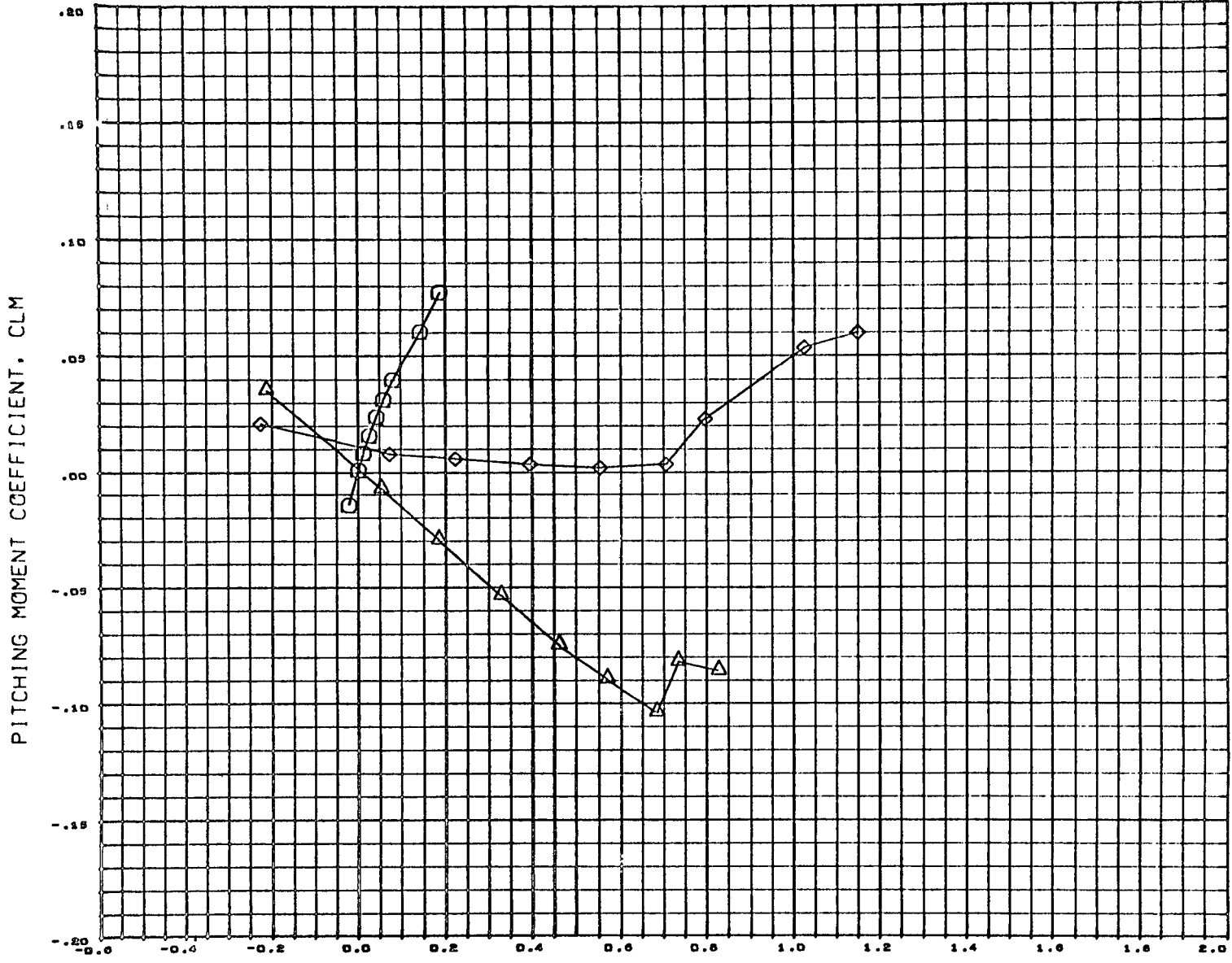
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INC1DW	CNDPOS	INC1DC	REFERENCE INFORMATION
(RNS009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT.
(RNS005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	SREF 3.4530 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

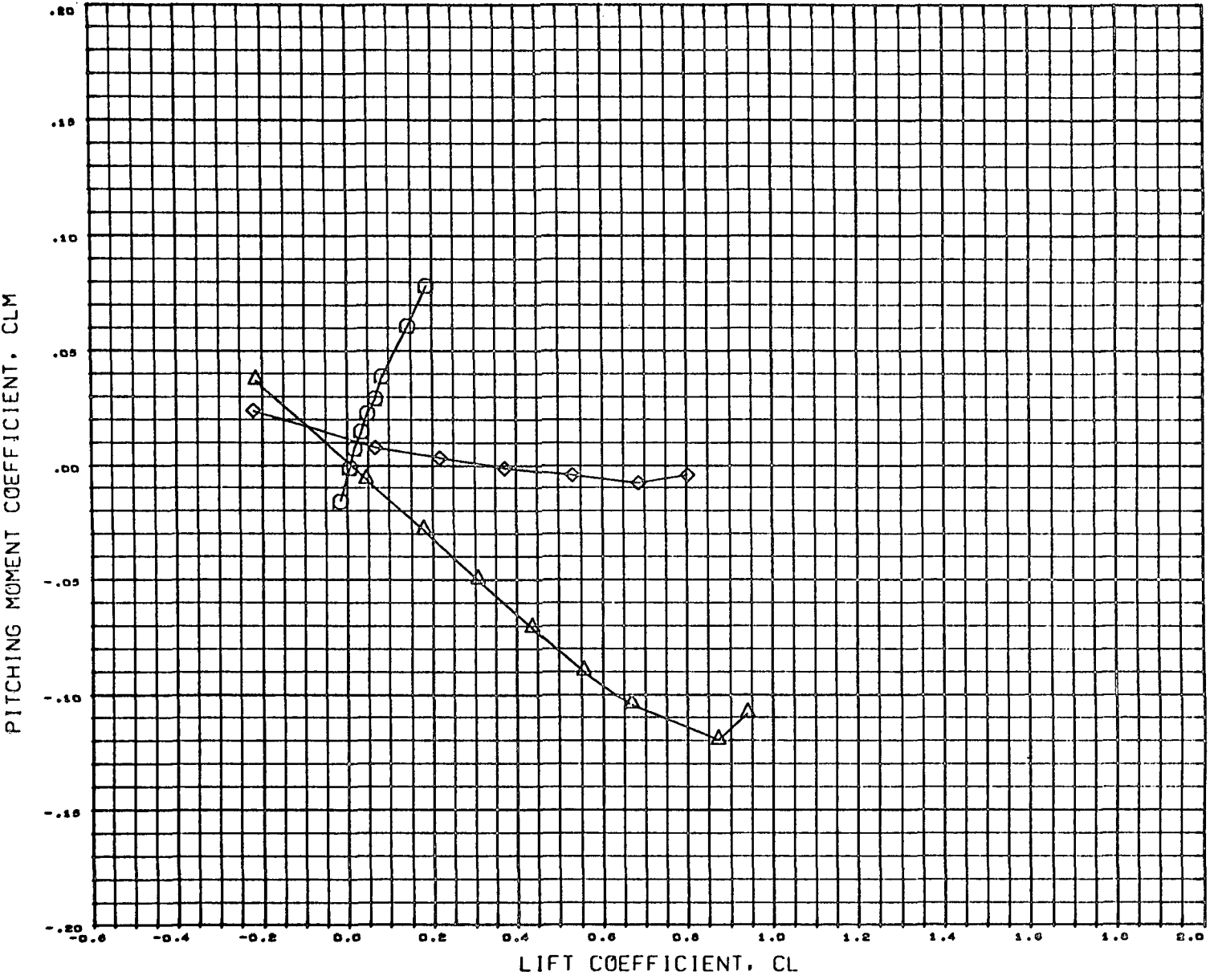


LIFT COEFFICIENT, CL

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS000)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF 1.3550 SQ.FT.
(RNS009)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF 3.4530 FEET XMRP 2.5990 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.001

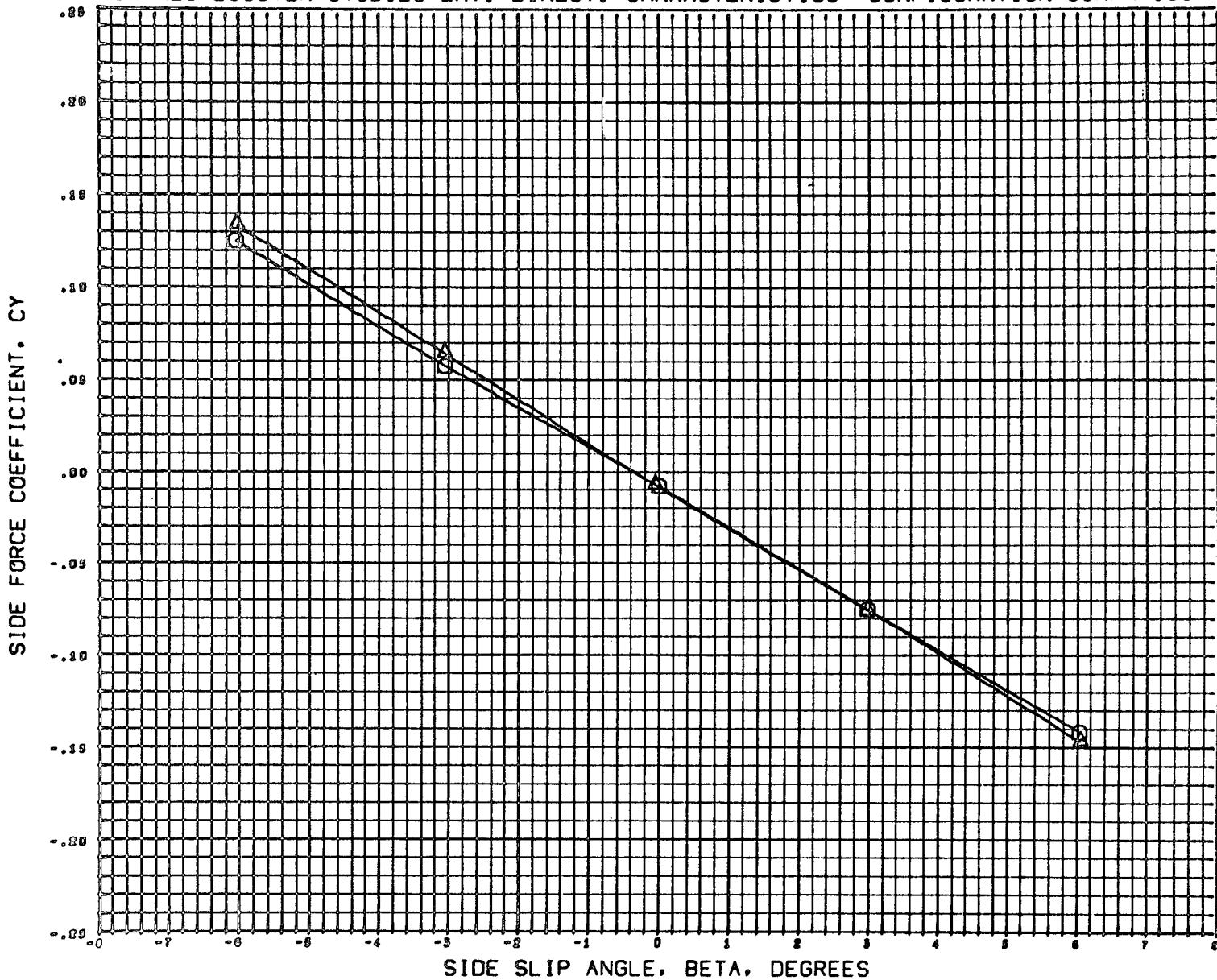
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON





DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3009)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1					GREF 1.3950 SQ.FT.
(RN3005)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF 3.4330 FEET
(RN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	GREF 2.5050 FEET XMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.120

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
 (RNS000) 
 (RNS002) 

CONFIGURATION DESCRIPTION
 NSRDC-9210,MSFC/LMSC BOOSTER B1V1W1
 RDRDC-9210,MSFC/LMSC BOOSTER B1C2F2W1V1

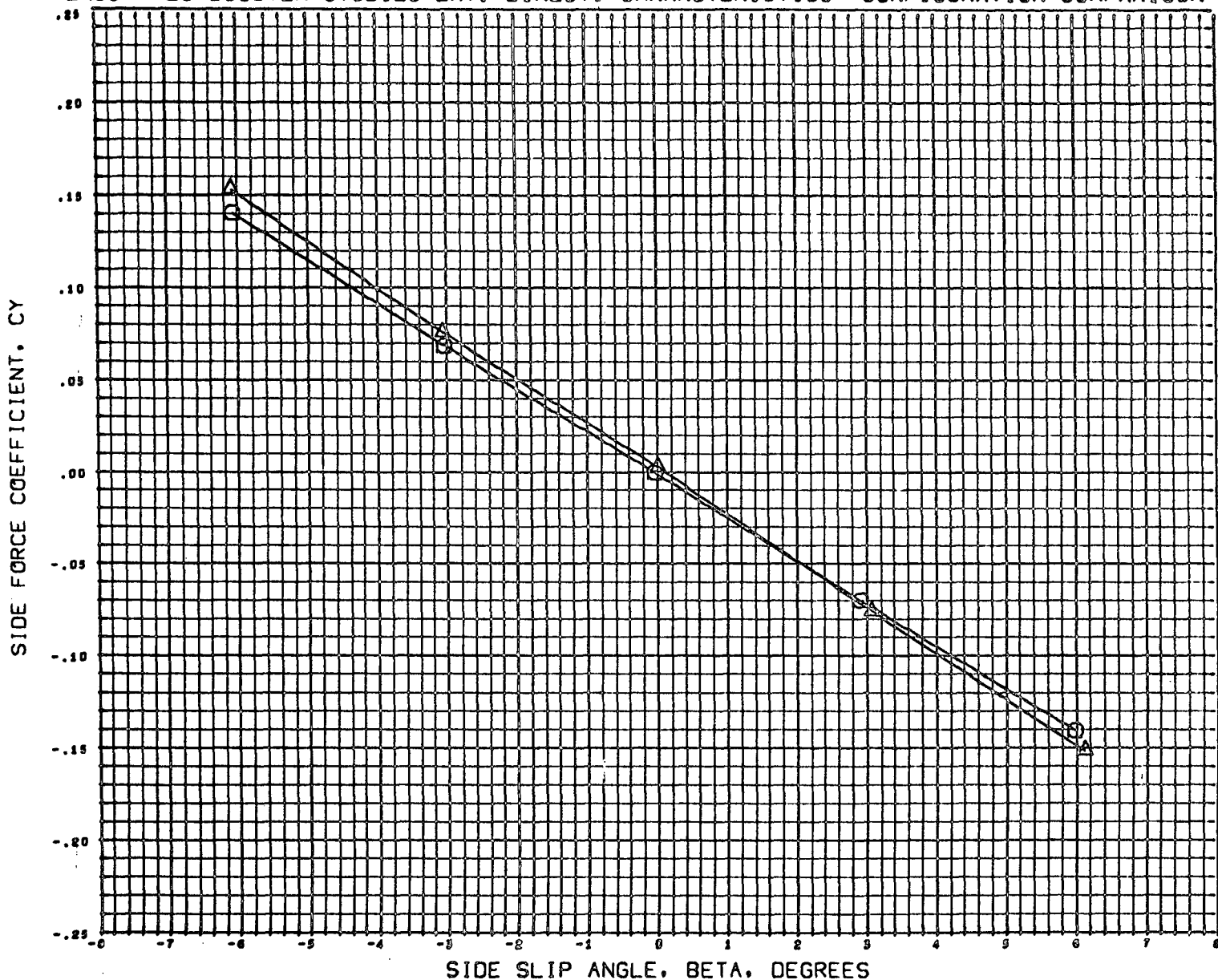
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000	1.000	3.000
1.000	0.000	1.000	3.000



REFERENCE INFORMATION

SREF	1.3350	SQ.FT.
LREF	3.4330	FEET
BREF	3.4330	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.600

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
 (RN3066) 
 (RN3002) 

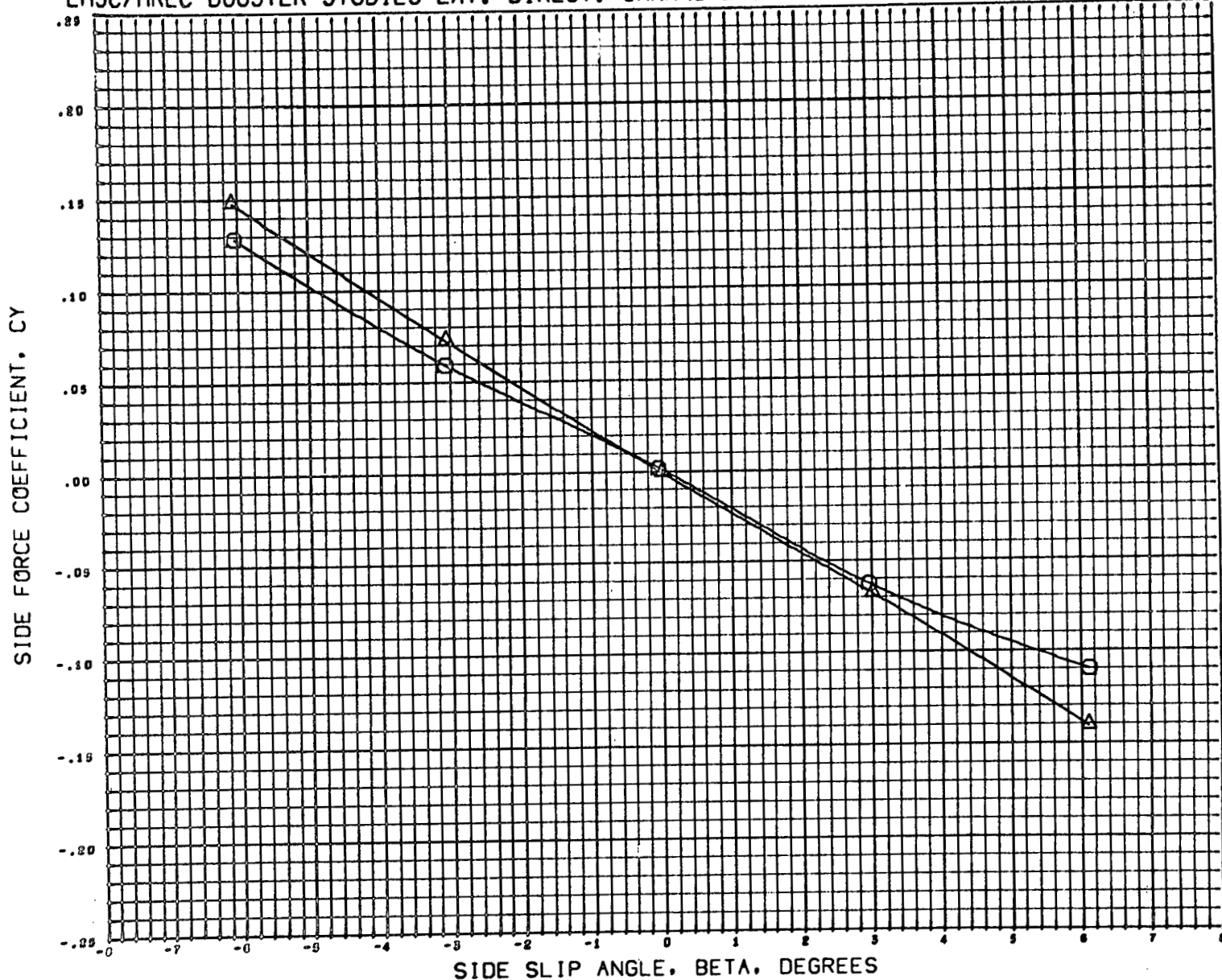
CONFIGURATION DESCRIPTION
 NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
 NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

WNGPOS INCIDW CNDPOS INCIDC
 1.000 0.000
 1.000 0.000 1.000 3.000

REFERENCE INFORMATION
 SREF 1.3550 SQ.FT.
 LREF 3.4530 FEET
 DREF 3.4530 FEET
 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0167 FEET
 SCALE 0.0150 SCALE

MACH 0.797

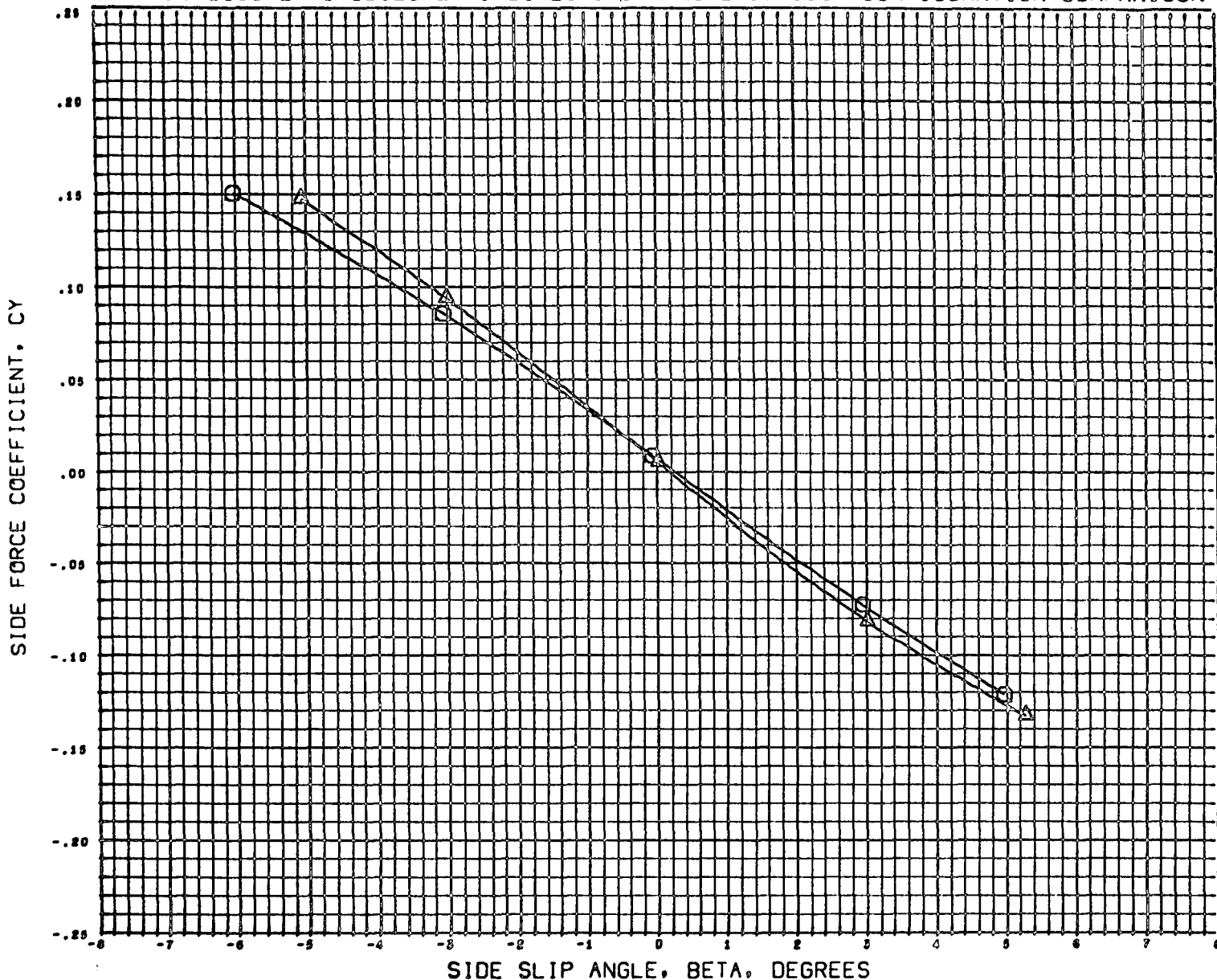
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RND066)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			BREF 1.3550 SQ. FT.
(RND002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5980 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
 (RNS066) 
 (RNS002) 

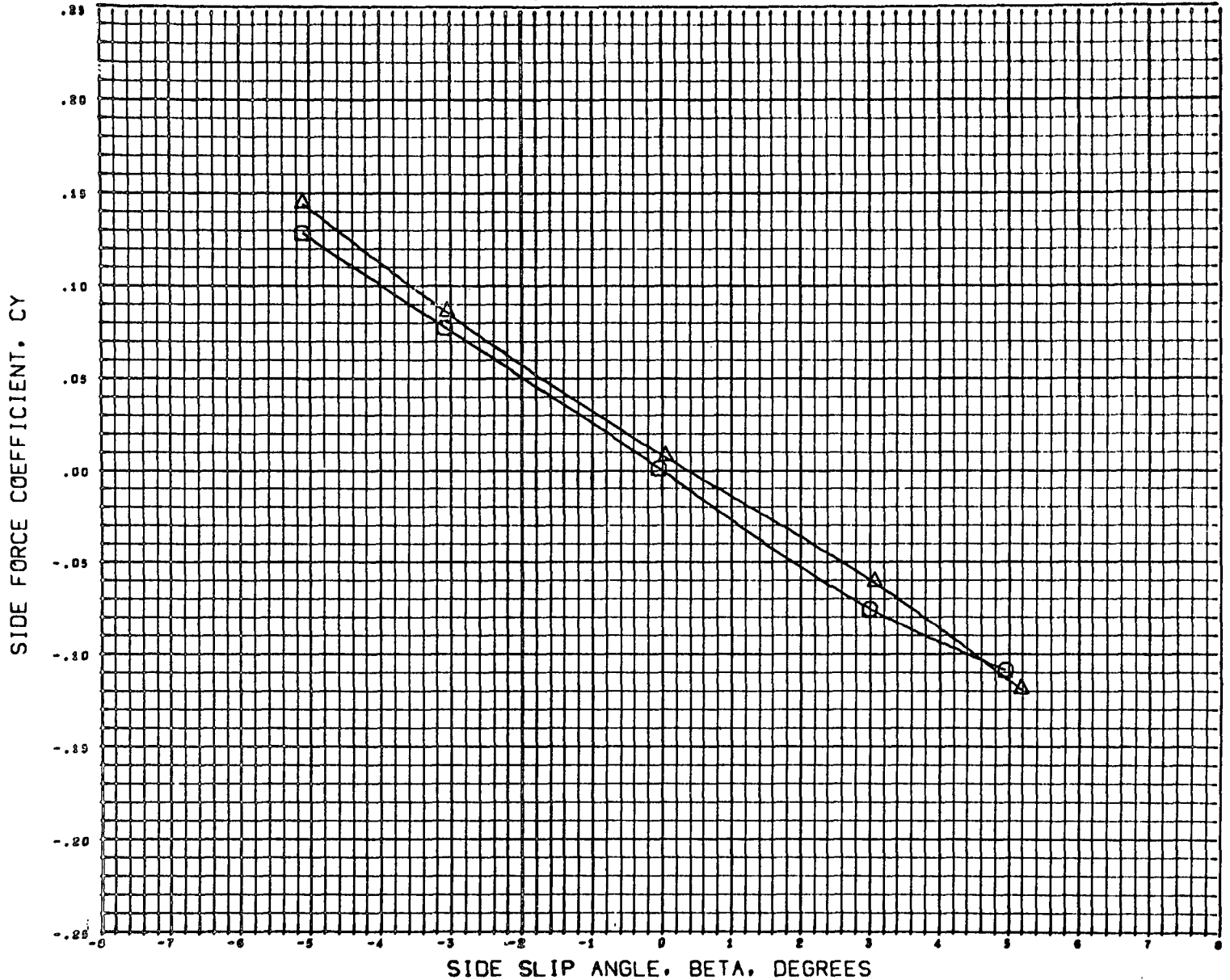
CONFIGURATION DESCRIPTION
 NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
 NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

WNGPOS INCIDW CNDPOS INCIDC
 1.000 0.000
 1.000 0.000 1.000 3.000

REFERENCE INFORMATION
 SREF 1.3550 SQ. FT.
 LREF 3.4930 FEET
 BREF 3.4530 FEET
 XMRP 2.9050 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 1.001

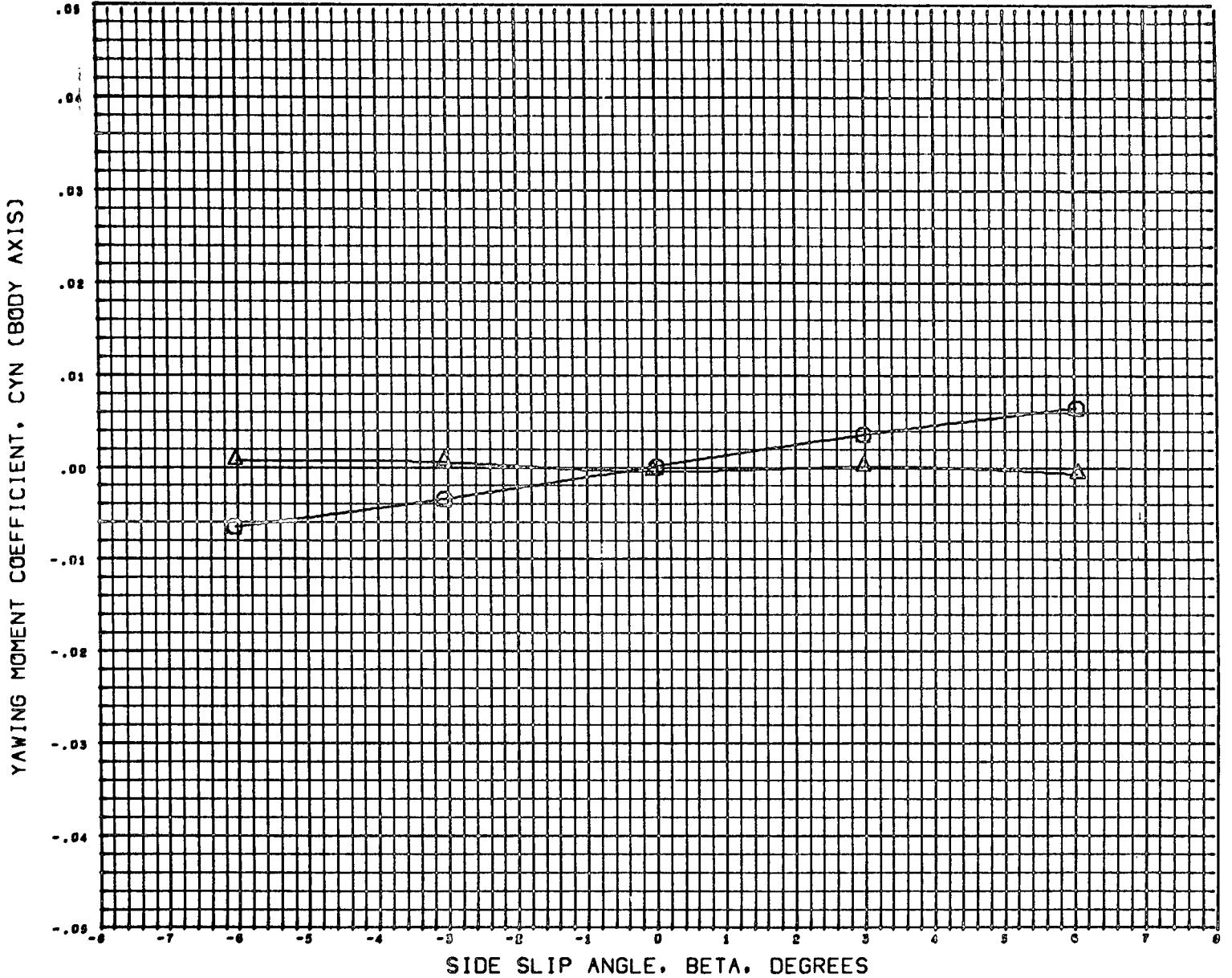
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3066)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF	1.3550 SQ.FT.
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						YMRP	2.5950 FEET
						ZMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.126

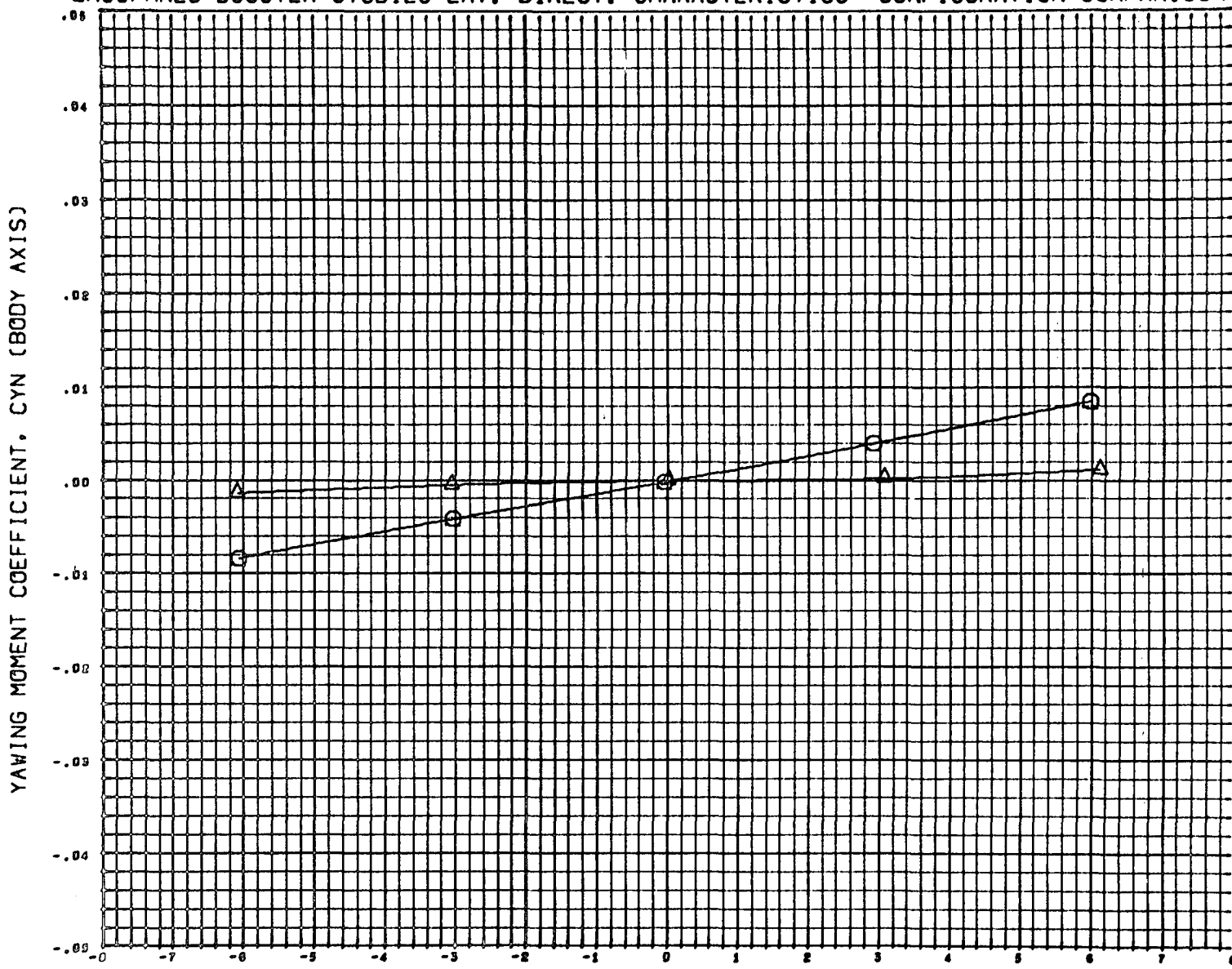
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS066)	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF 1.3550 SQ.FT.
(RNS002)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2H1V1	1.000	0.000	1.000	3.000	LREF 3.4550 FEET
						DREF 3.4550 FEET
						WHRP 2.8090 FEET
						VHRP 0.0000 FEET
						ZWRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.698

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

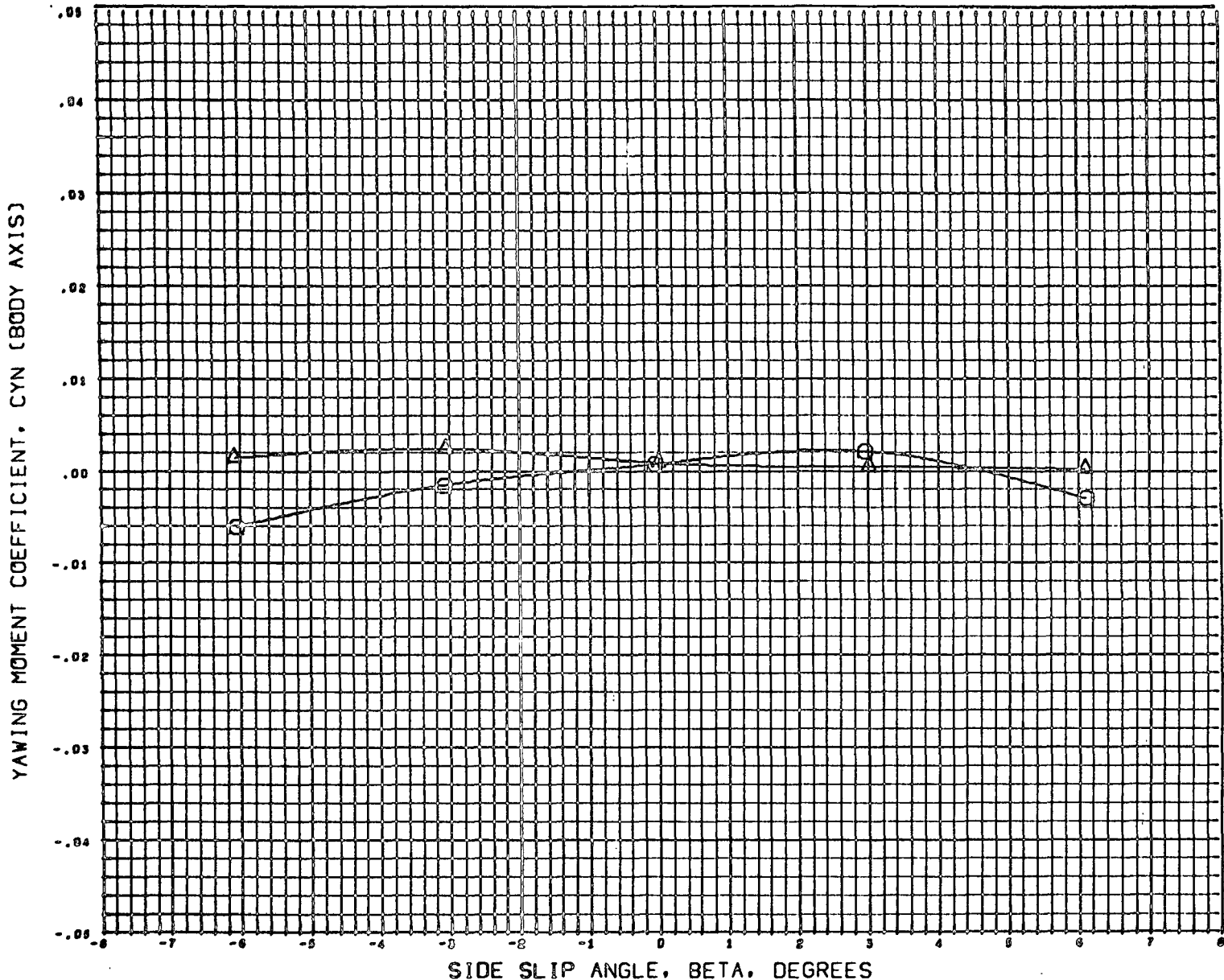


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RMS006)	MSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF 1.3550 80.FT.
(RMS002)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF 3.4530 FEET BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

RACH 0.797

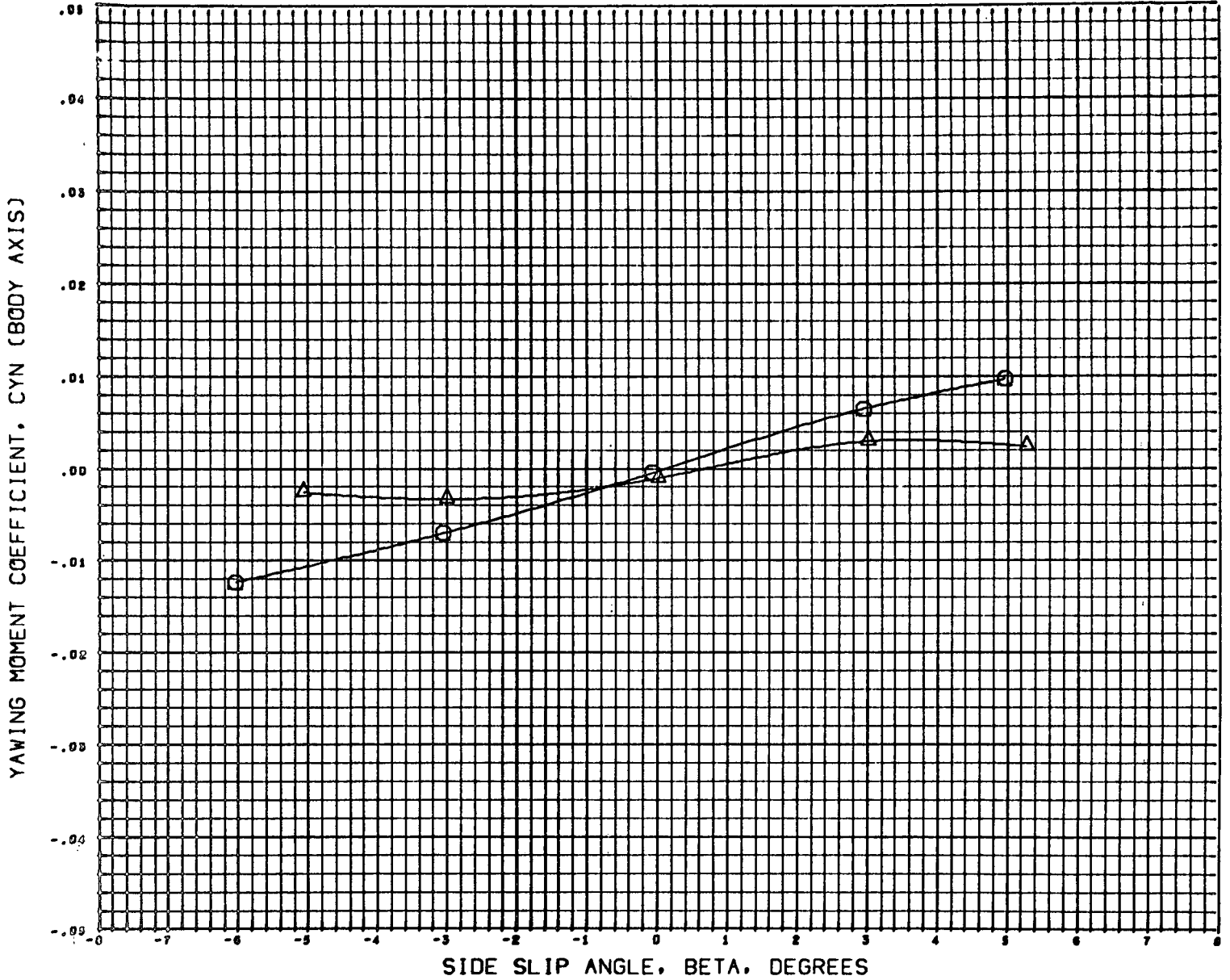
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3066)	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF 1.3950 80. FT. LREF 3.4930 FEET OREF 3.4930 FEET XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE
(RN3062)	NSRDC-3210, NSFC/LMSC BOOSTER B1CRF2U1V1	1.000	0.000	1.000	3.000	

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

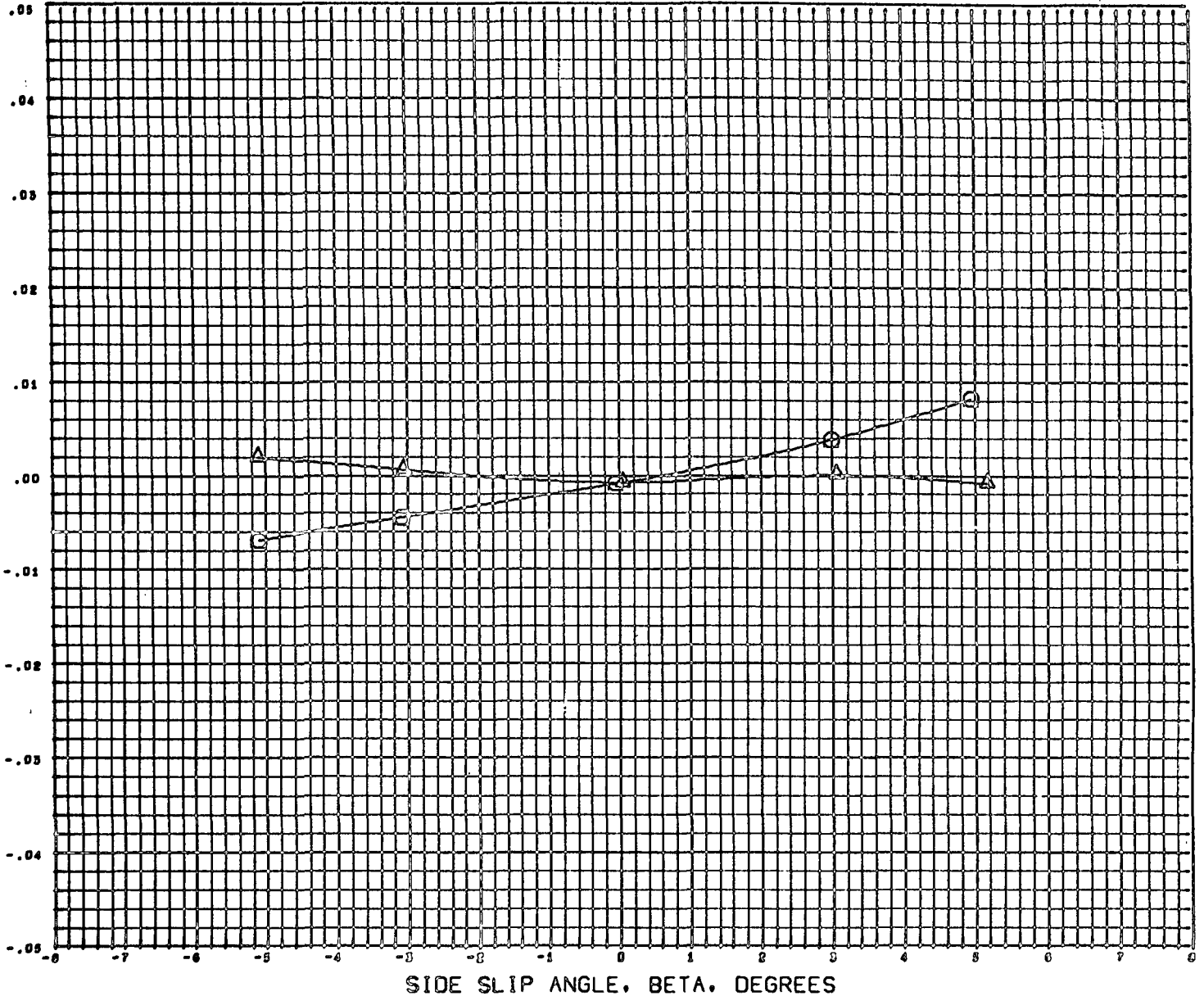


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3000)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF 1.3550 SQ.FT.
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

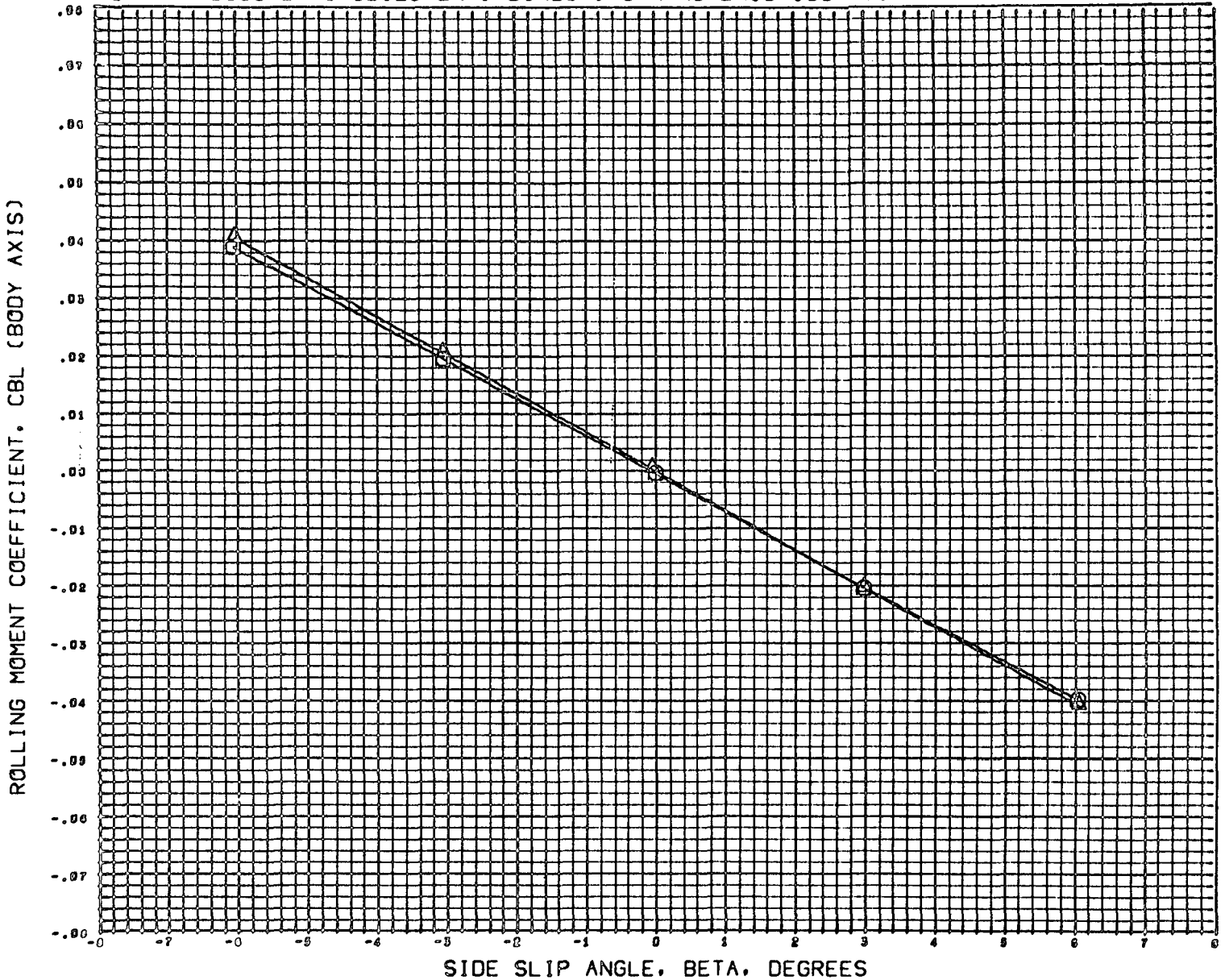
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNSD66)	MSRDC-3210,MSFC/LHSC BOOSTER B1V1W1	1.000	0.000			SREF 1.9350 SQ.FT. LREF 3.4930 FEET BREF 3.4930 FEET
(RNSD62)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2H1V1	1.000	0.000	1.000	3.000	XMRP 2.9050 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.126

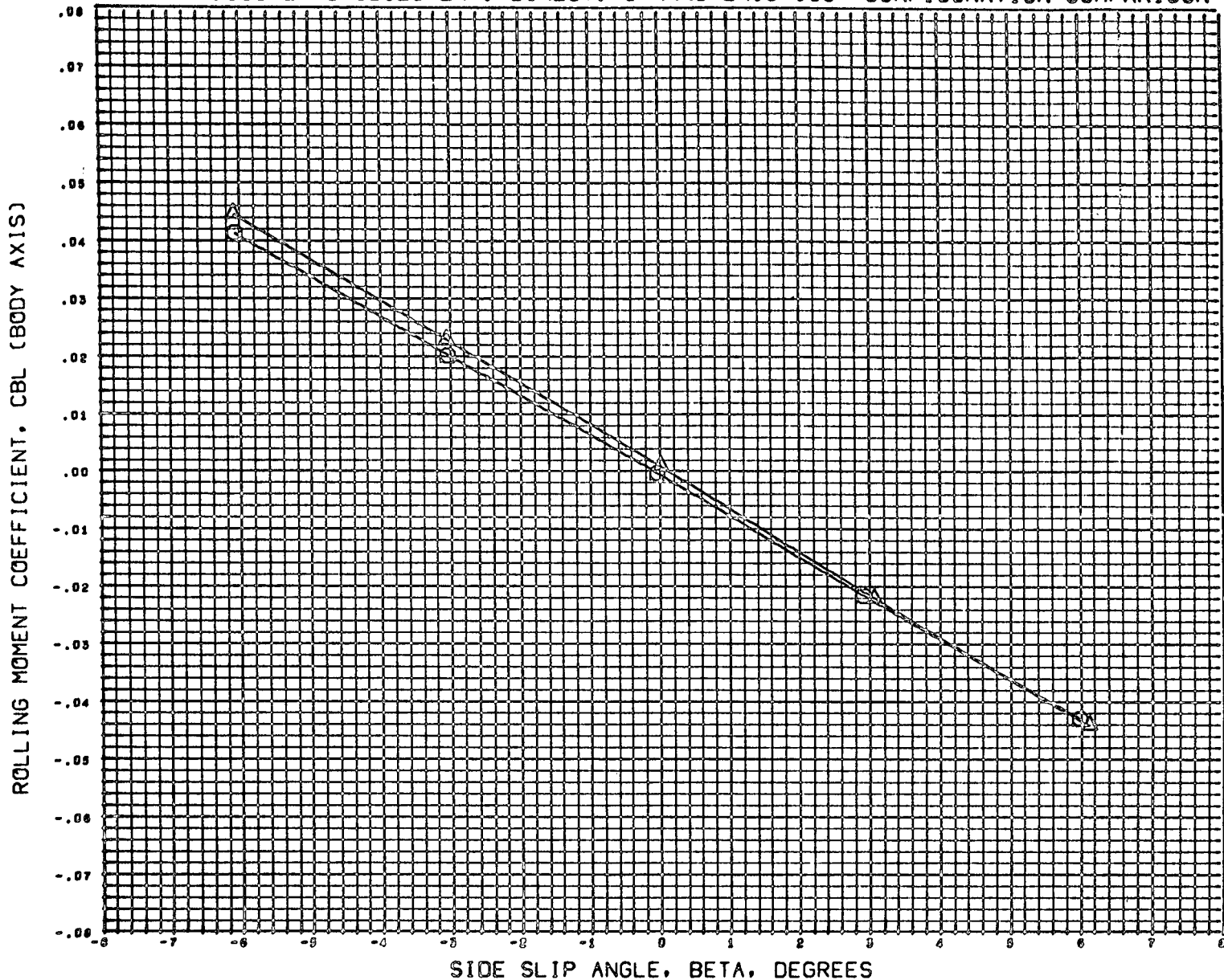
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS006)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			GREF 1.3550 SQ.FT. LREF 3.4930 FEET BREF 3.4930 FEET XMRP 2.9050 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	

MACH 0.600

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

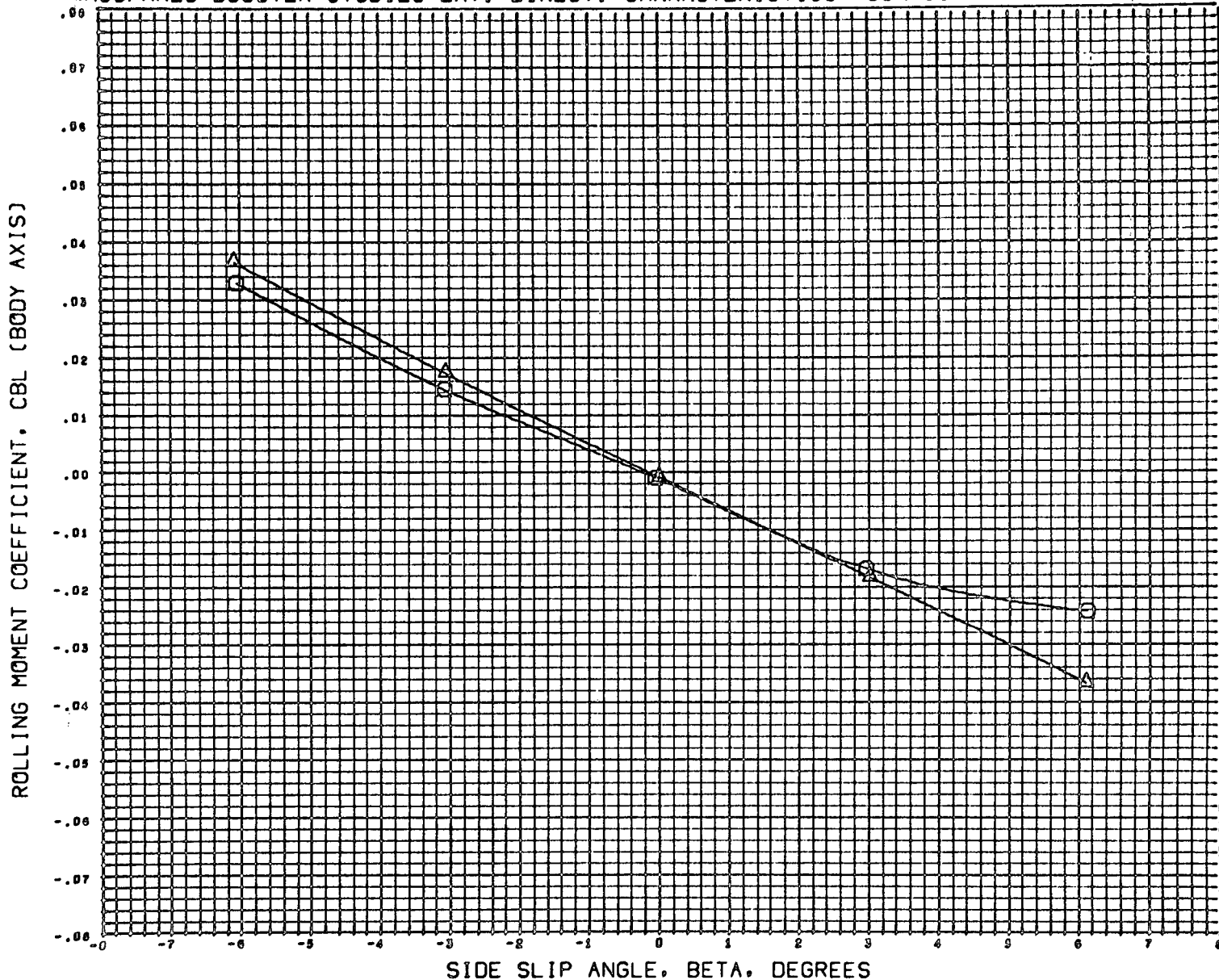


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS066)	MSRDC-3210,MSFC/LHSC BOOSTER 01V1H1	1.000	0.000			OREF 1.3550 DEG.FT.
(RNS002)	MSRDC-3210,MSFC/LHSC BOOSTER 01C0F2H1V1	1.000	0.000	1.000	5.000	LREF 3.4330 FEET
						BREF 0.4330 FEET
						BMRP 8.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



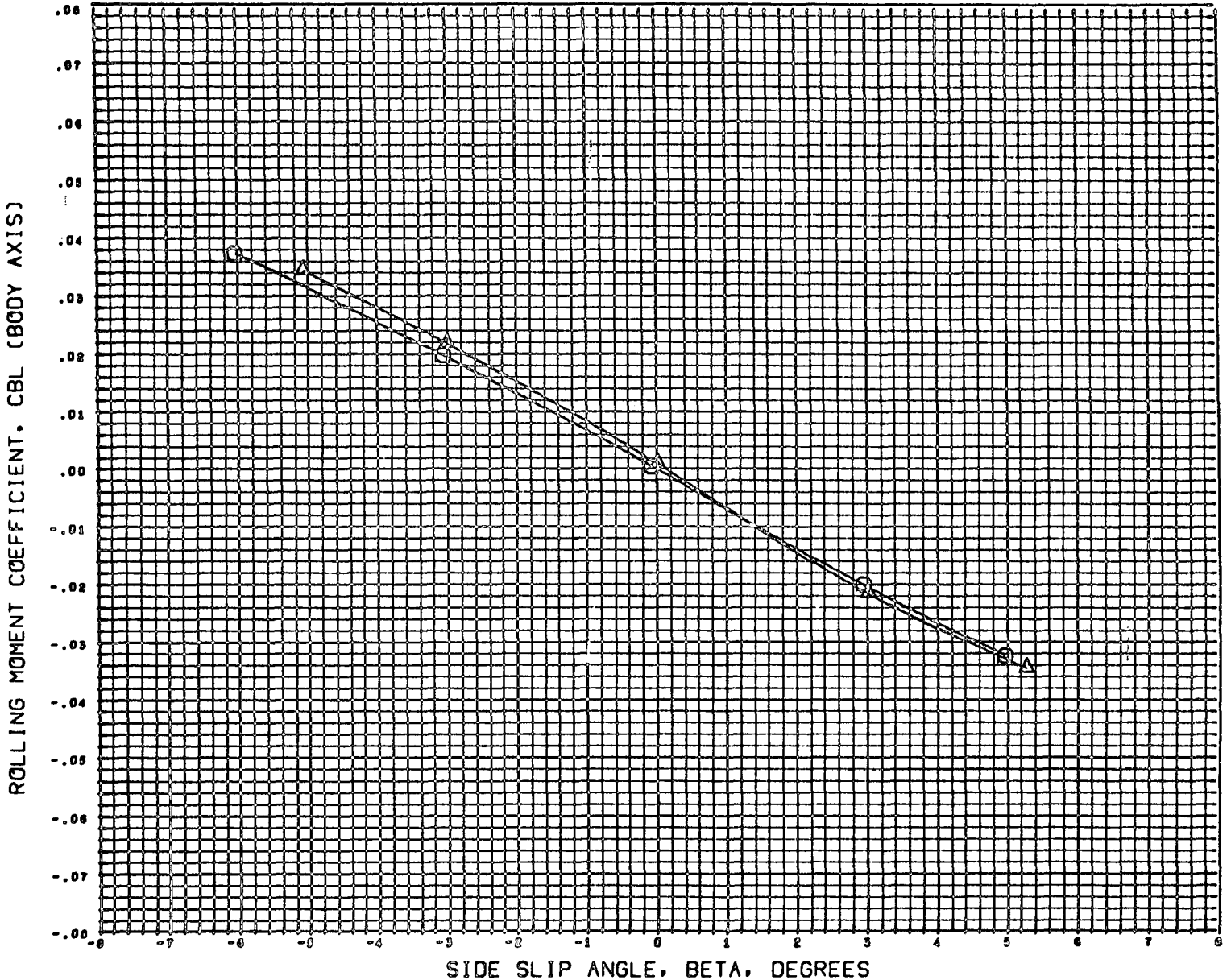
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RN3006)	NORDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF 1.3550 SQ.FT.
(RN3002)	NORDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF 3.4530 FEET
						OREF 3.4590 FEET
						XMRP 2.0990 FEET
						VMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0190 SCALE

MACH 0.900

10

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

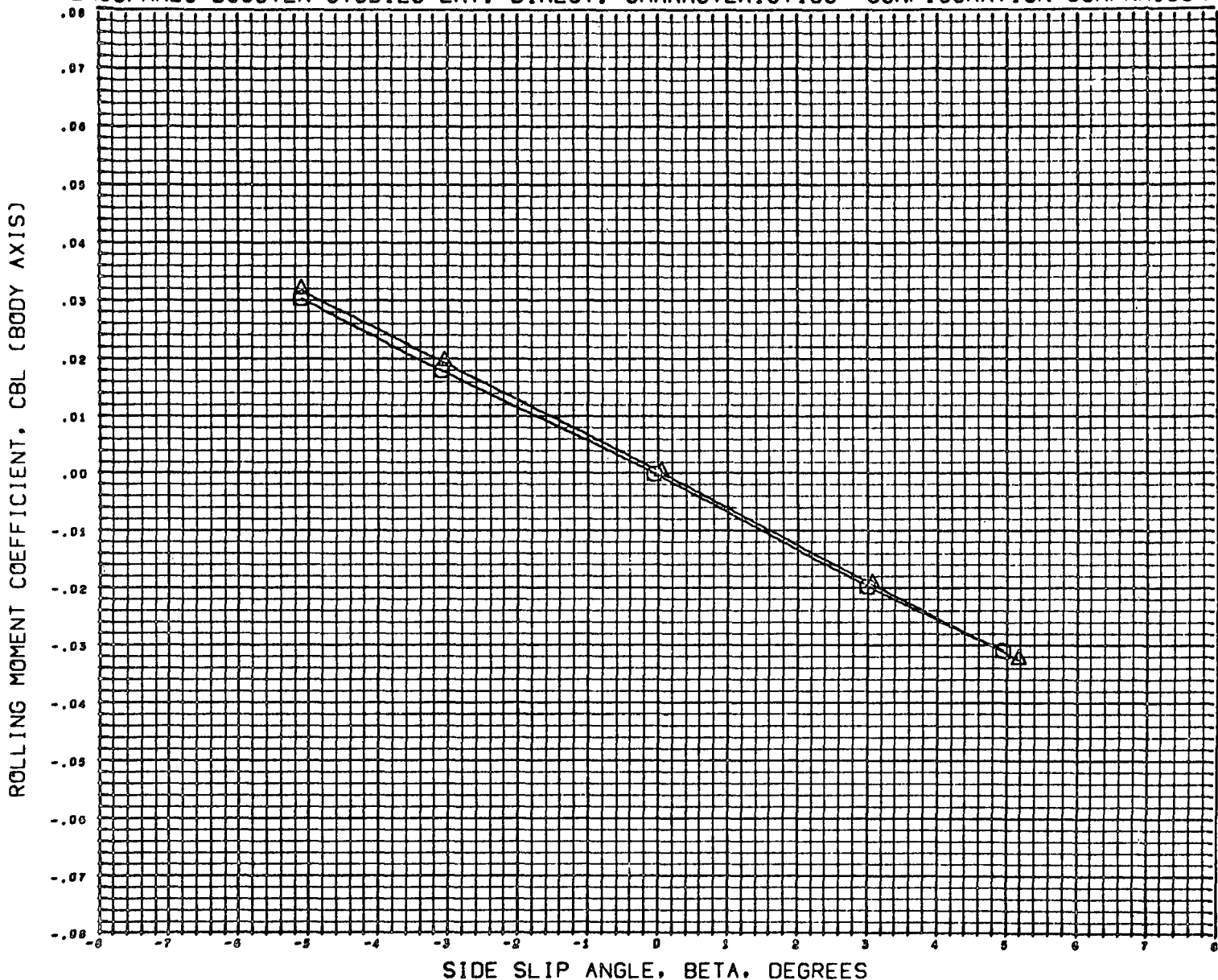


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RNS086)	Q NSRDC-3210,MSFC/LMSC BOOSTER D1V1W1	1.000	0.000			SREF 1.3550 SQ.FT.
(RNS002)	△ NSRDC-3210,MSFC/LMSC BOOSTER D1C2F2W1V1	1.000	0.000	1.000	3.000	LREF 3.4550 FEET
						OREF 3.4550 FEET
						ZHRP 2.9050 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.001

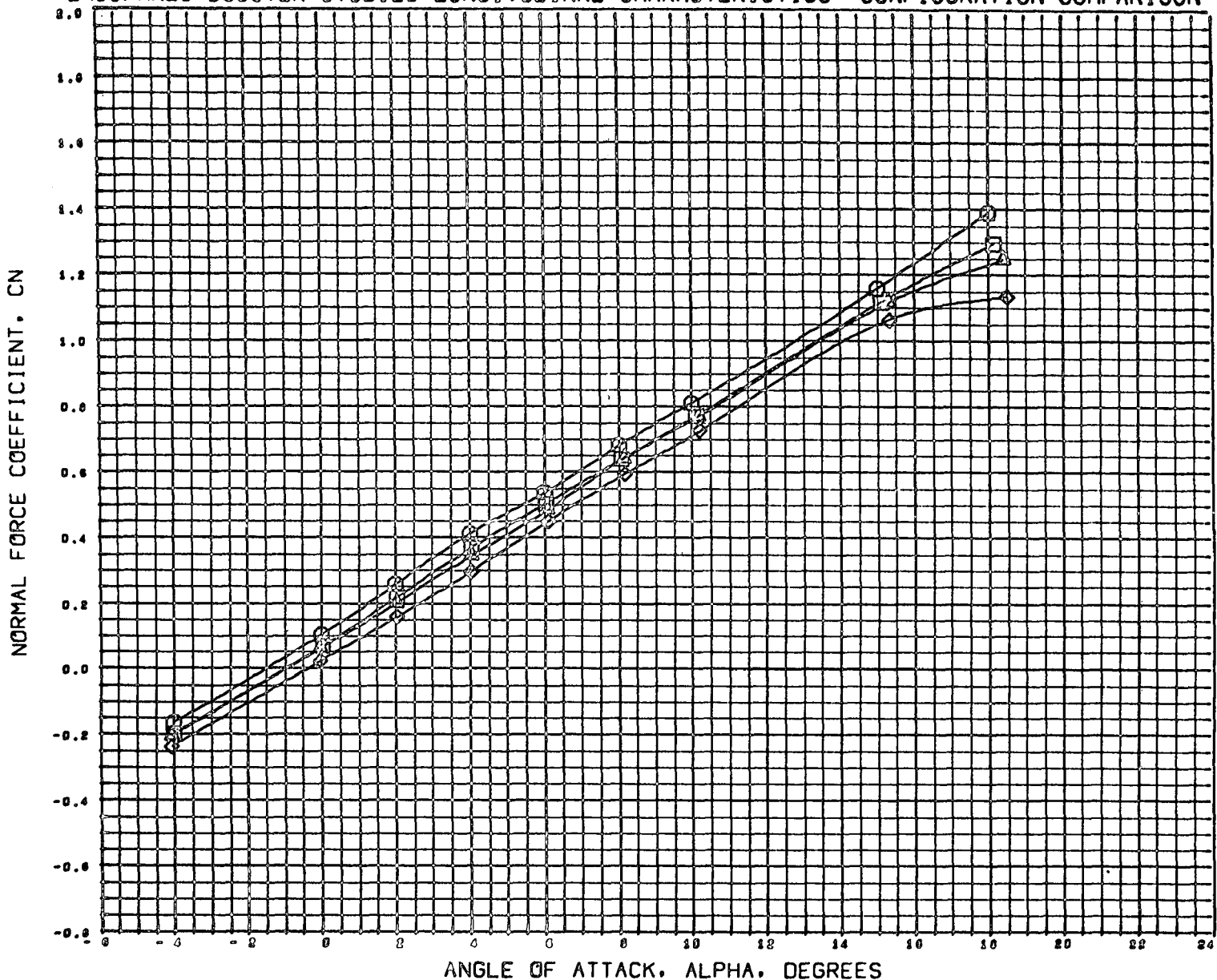
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION
(RMS000)	NGRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF 1.3950 60. FT.
(RMS002)	NGRDC-3210,MSFC/LMSC BOOSTER B1C2F2H1V1	1.000	0.000	1.000	3.000	LREF 3.4930 FEET
						BREF 3.4930 FEET
						XMRP 2.3050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 1.126

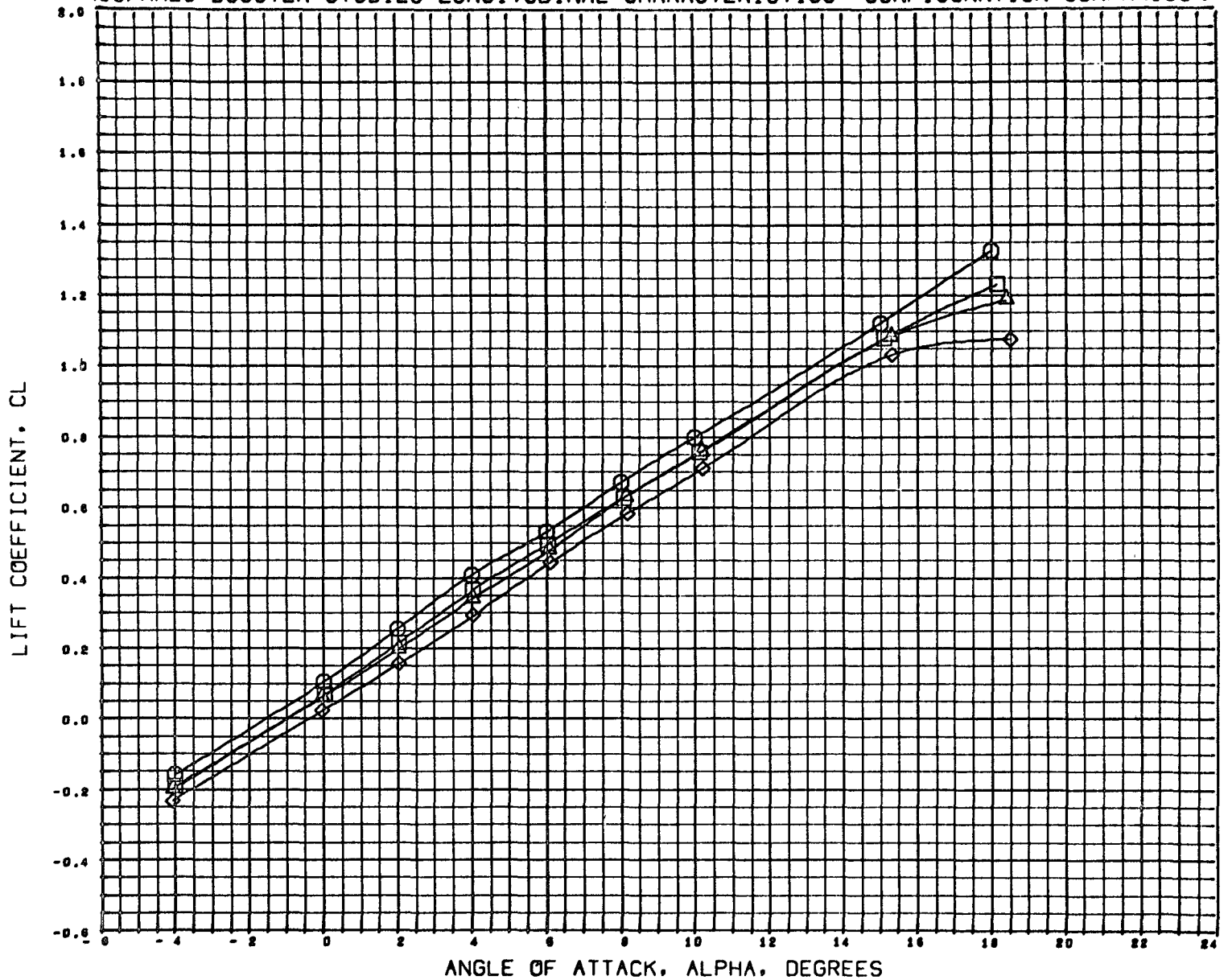
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(#N300A)	NBRDC-3210, MSFC/LMSC DSTR. (PWR-ON) D1C2F2W1V1H3P	0.753	0.000	0.000	0.000	OREF 1.5990 80. FT.
(#N3062)	NBRDC-3210, MSFC/LMSC BOOSTER D1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF 3.4530 FEET
(#N3078)	NBRDC-3210, MSFC/LMSC BOOSTER D1C2F2W1V1E3P	0.000	0.000	0.000	0.000	DREF 3.4530 FEET
(#N3166)	NBRDC-3210, MSFC/LMSC BOOSTER D1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XHRP 2.8950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0156 SCALE

MACH 0.400

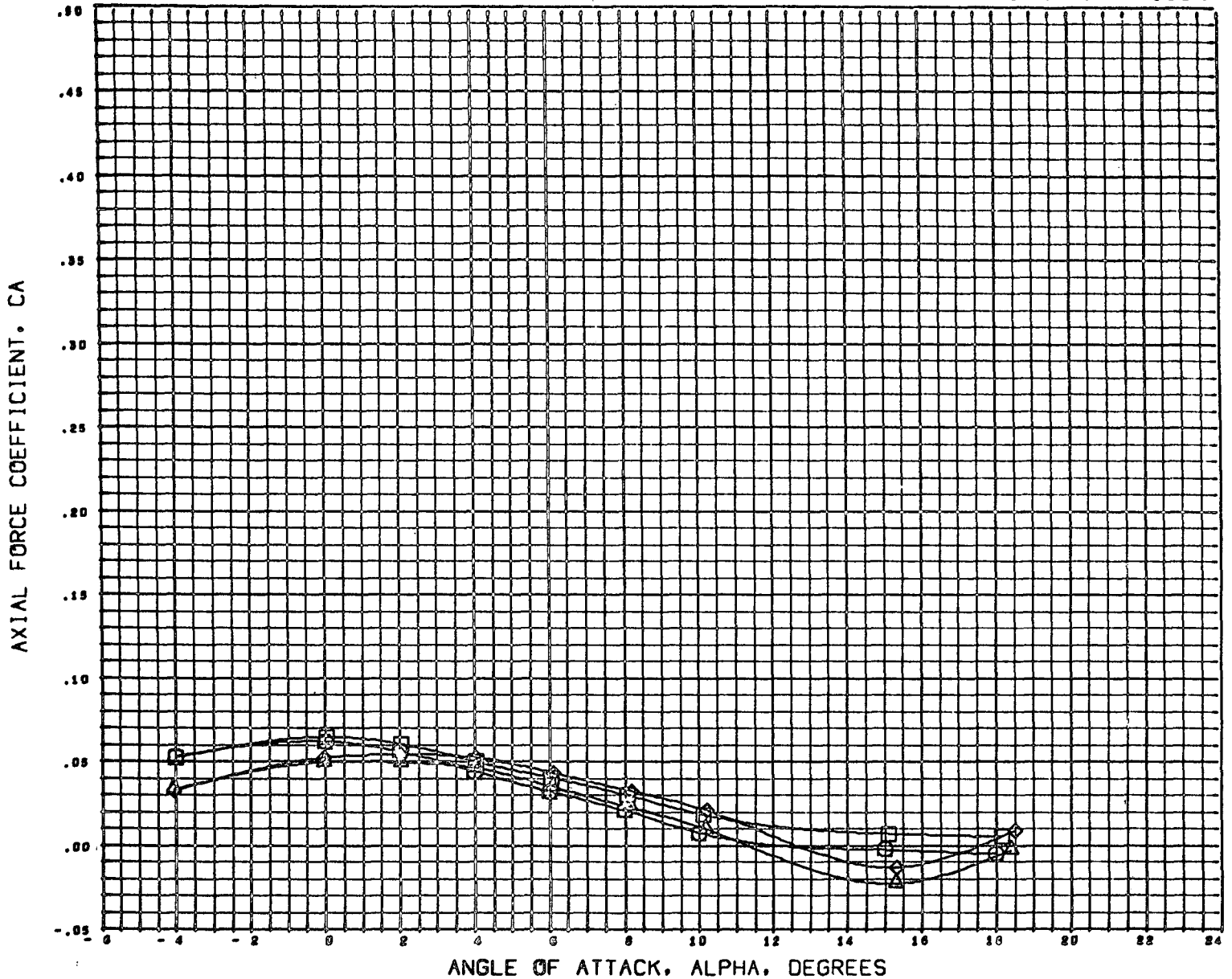
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3530 80.FT.
(AN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4330 FEET
(AN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(AN3106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRF	2.5930 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

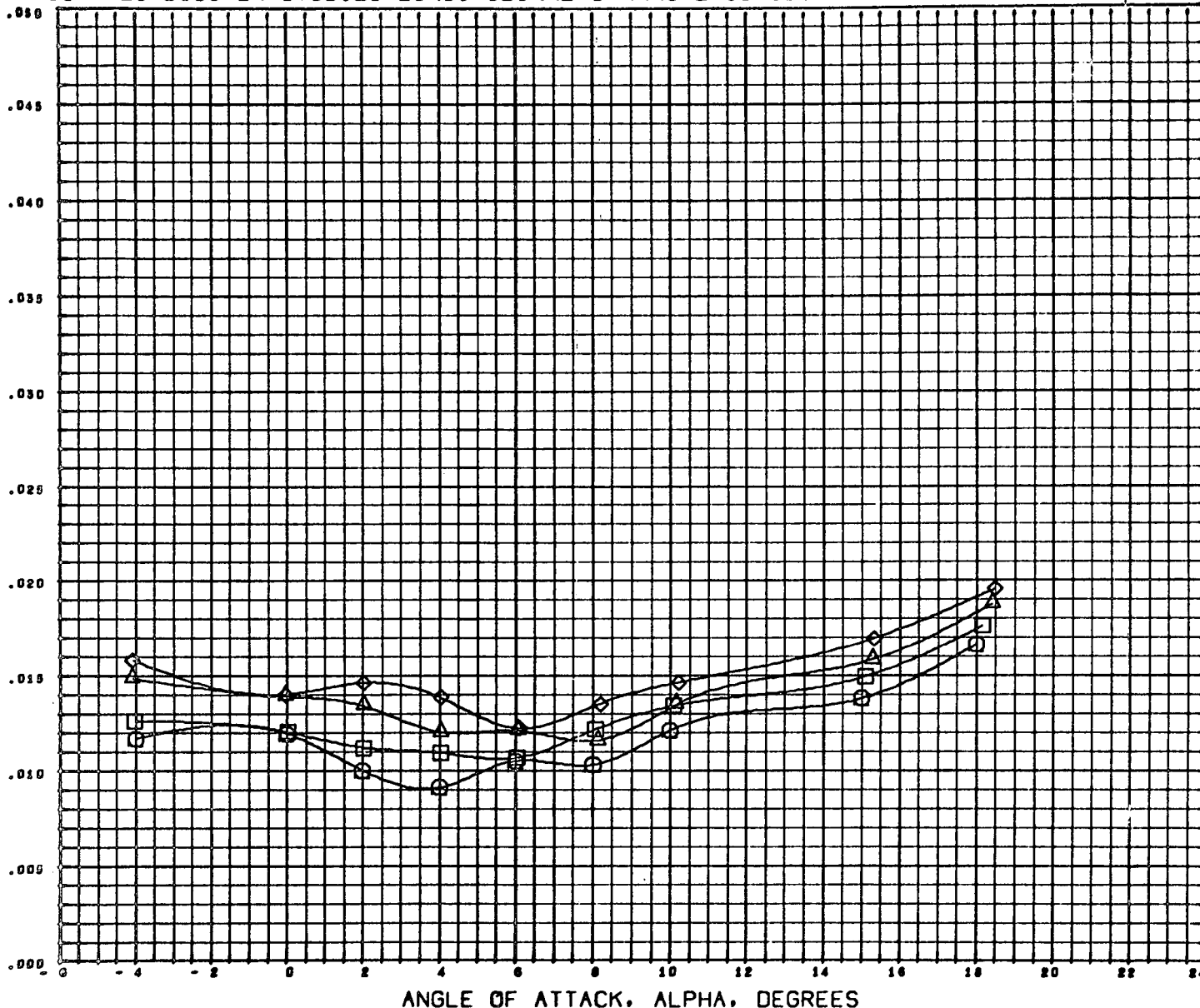


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1N3P	0.753	0.000	0.000	0.000	SREF	1.3550 66.FT.
(AN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3166)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W3V1E3P	0.000	0.000	0.000	0.000	XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

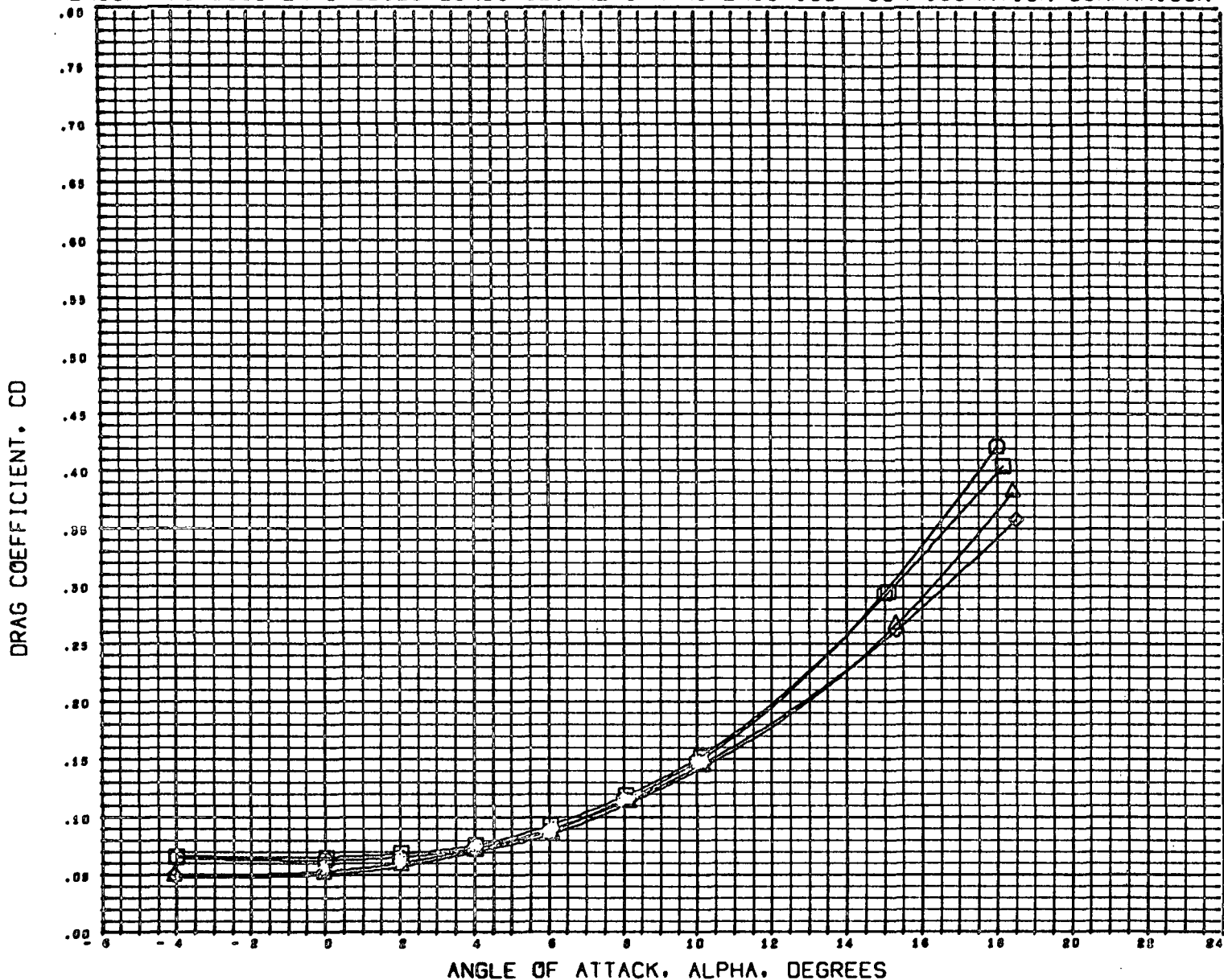
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN5002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(RN5078)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN5106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

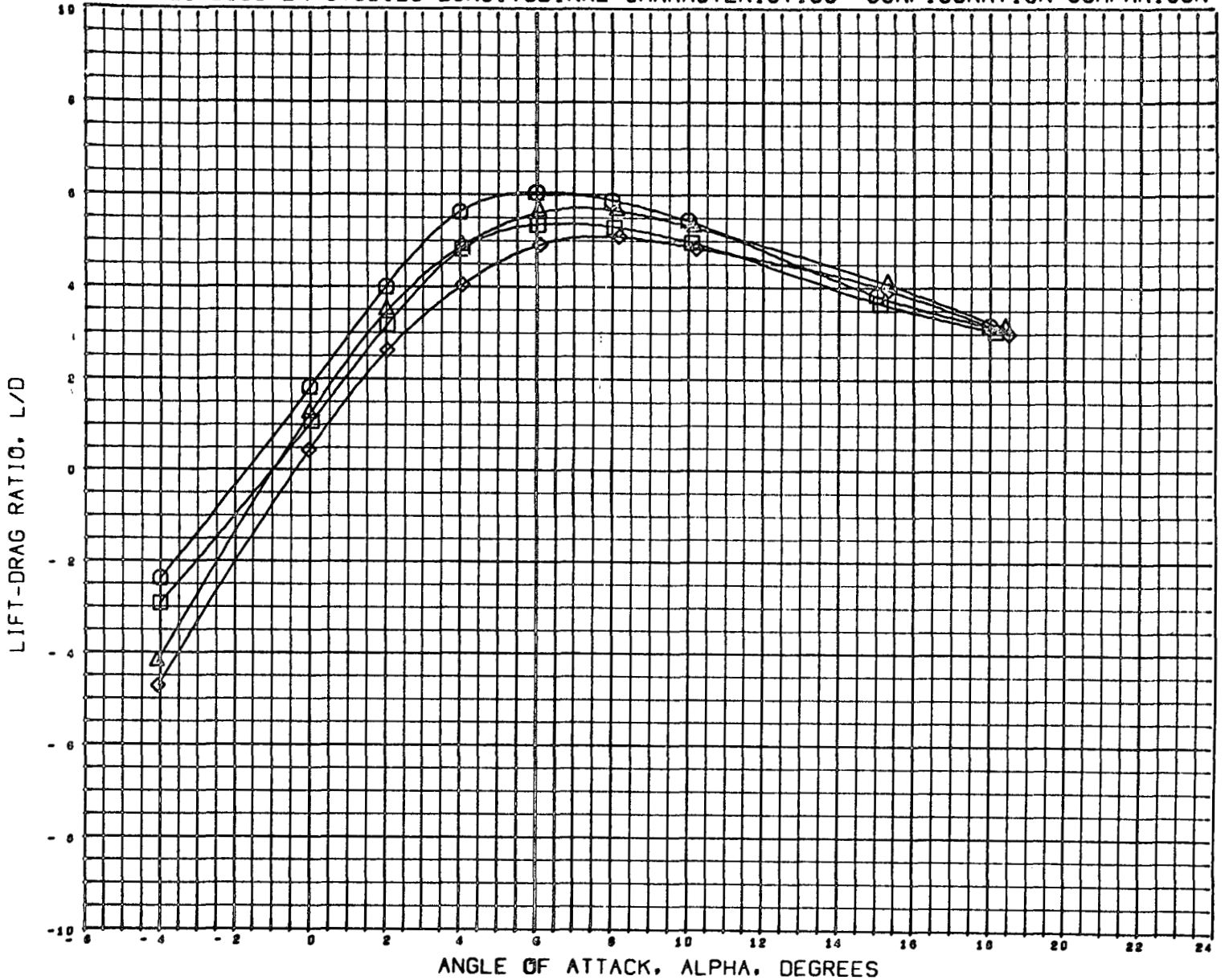
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNF300A)	○	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNF3082)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF 3.4530 FEET
(RNF3078)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RNF3166)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.400

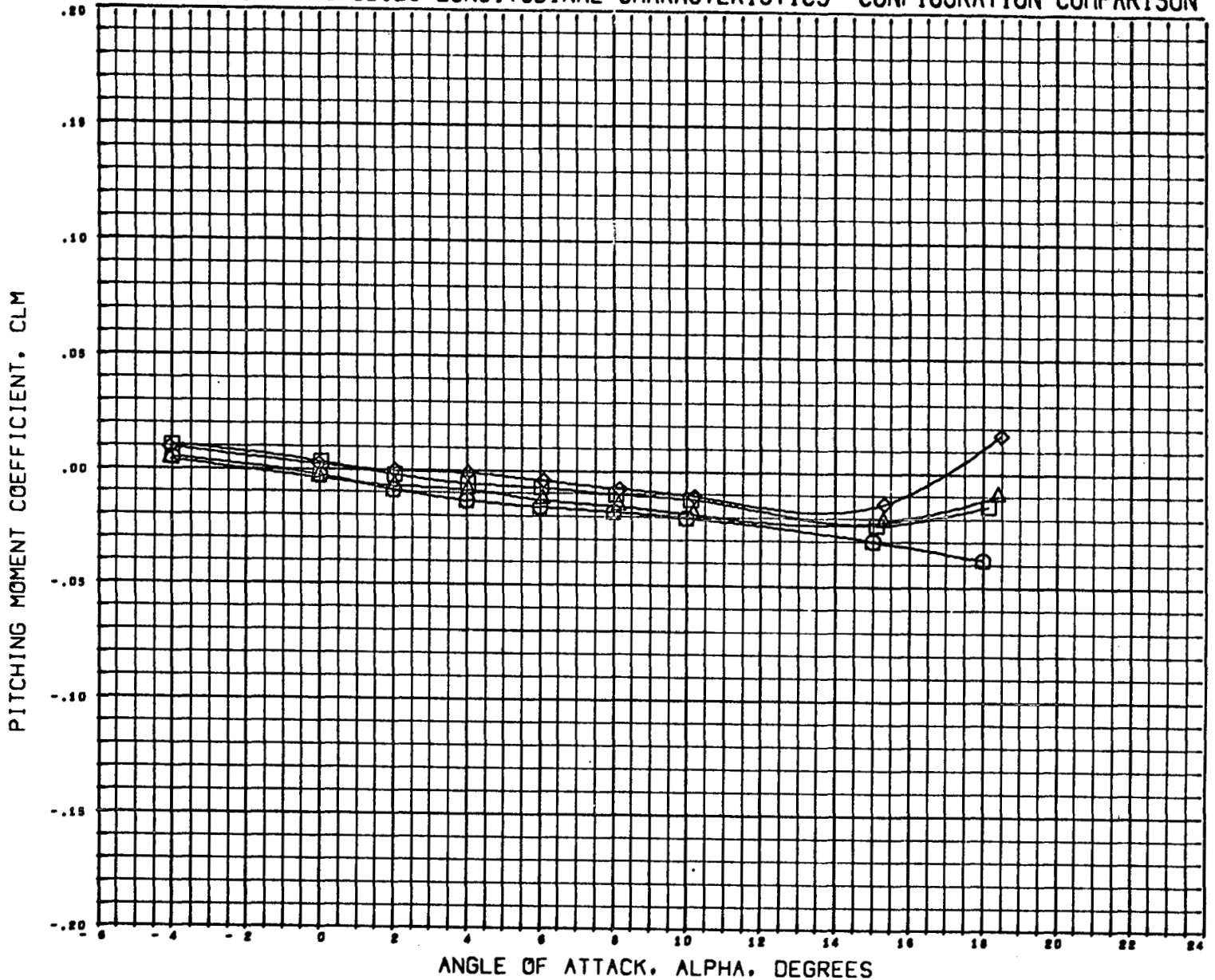
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN300A)	○	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3002)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3070)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3100)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XHRP 2.5950 FEET
							YHRP 0.0000 FEET
							ZHRP 0.0107 FEET
							SCALE 0.0190 SCALE

MACH 0.400

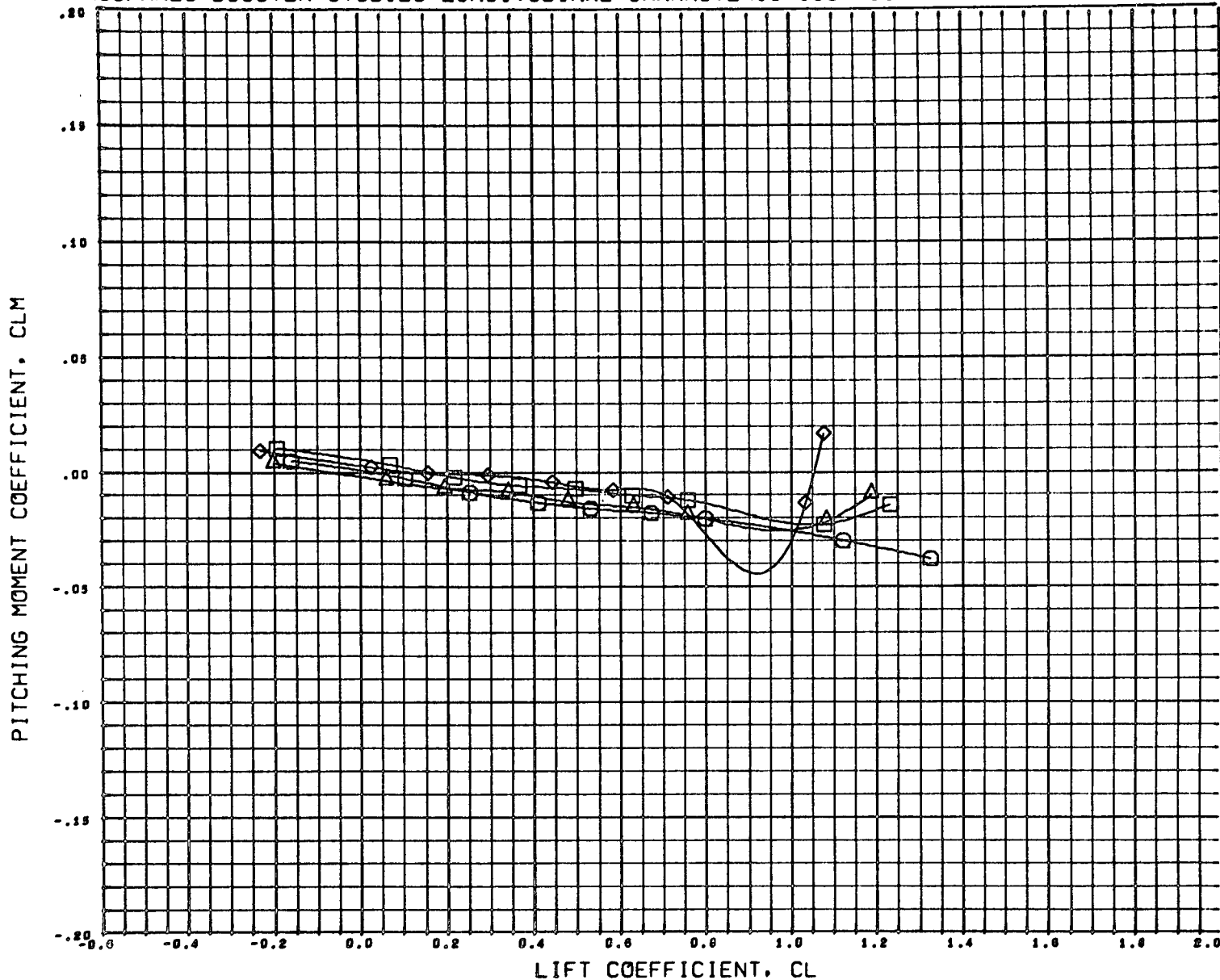
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	BREF 1.3550 80. FT.
(AN3082)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF 3.4930 FEET
(AN3076)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(AN3166)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.400

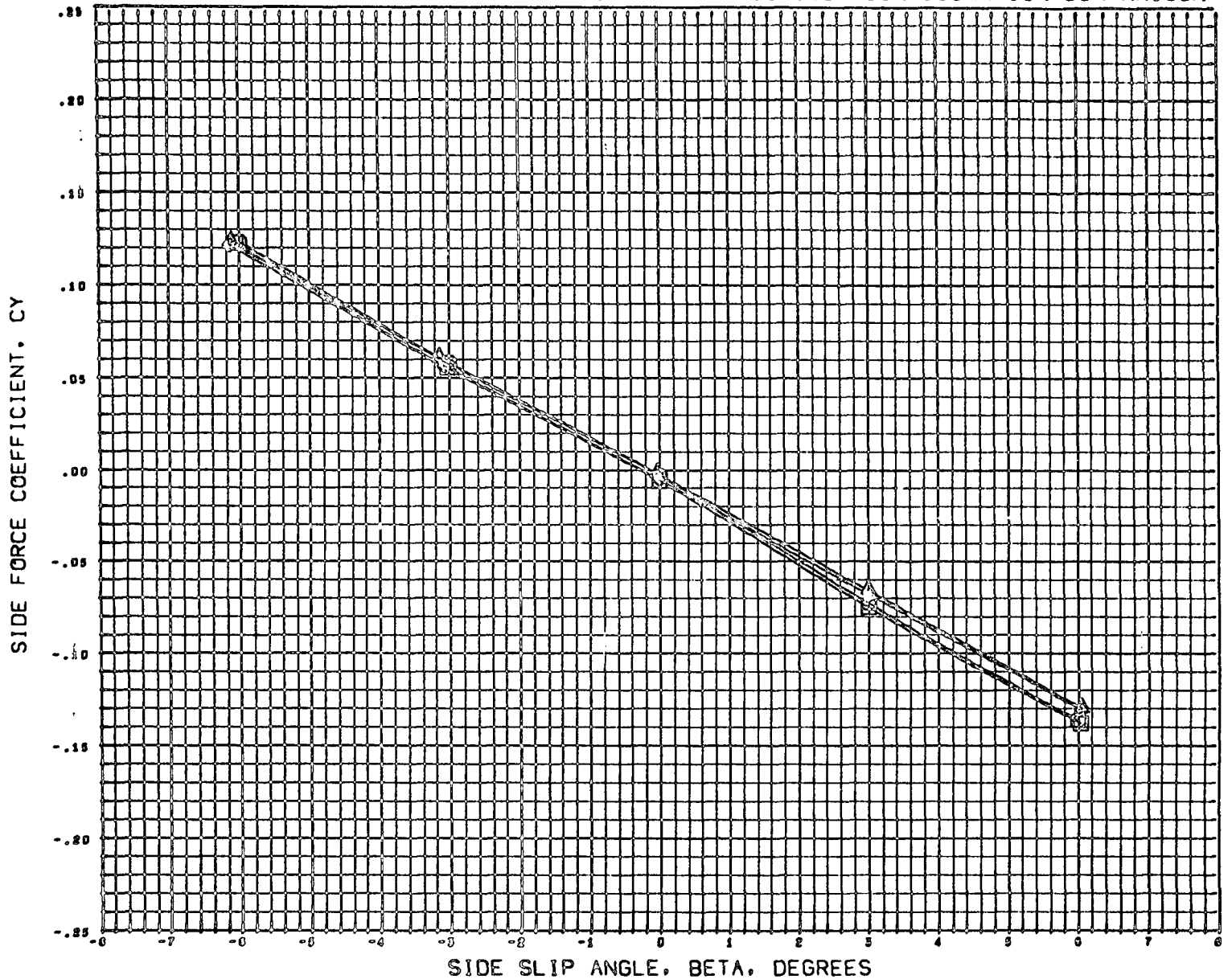
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3950 SQ.FT.
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF 3.4930 FEET
(RN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(RN3166)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

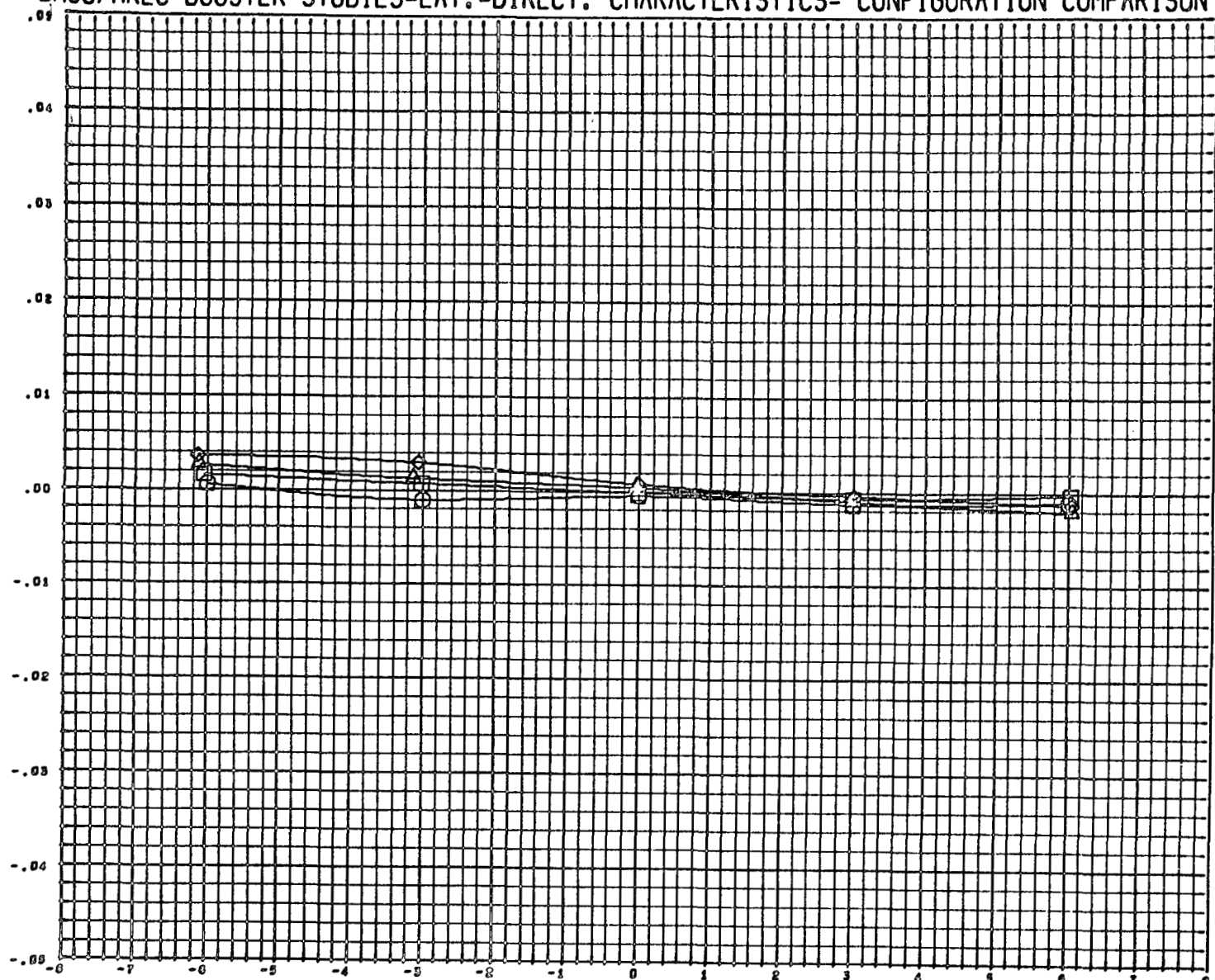


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300C)	MSRDC-3210, HBFC/LHSC BOOSTER (PWR-ON) 01C2F2M1V1H3P	-0.039	0.753	0.000	0.000	SREF 1.3990 80.FT.
(RN3083)	MSRDC-3210, HBFC/LHSC BOOSTER 01C2F2M1V1E3P	-0.039	0.753	0.000	0.000	LREF 3.4990 FEET
(RN3079)	MSRDC-3210, HBFC/LHSC BOOSTER 01C2F2M1V1E3P	-0.022	0.000	0.000	0.000	DREF 3.4990 FEET
(RN3167)	MSRDC-3210, HBFC/LHSC BOOSTER 01C2F2M1V1E3P	0.019	0.000	0.000	0.000	KMRP 2.9990 FEET
						VMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

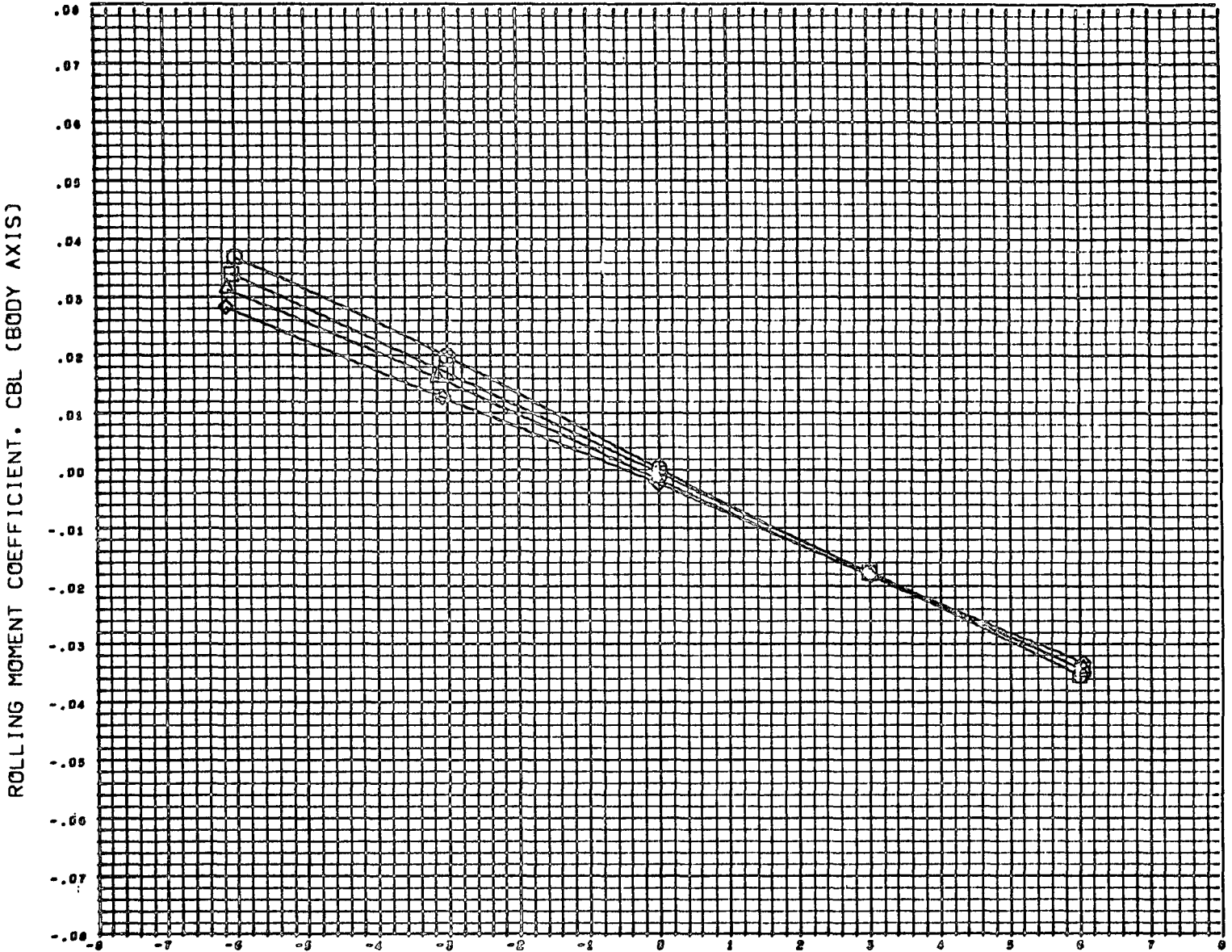


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300C)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3003)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	-0.039	0.753	0.000	0.000	LREF 3.4550 FEET
(RN3079)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	-0.022	0.000	0.000	0.000	BREF 3.4550 FEET
(RN3107)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.015	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0190 SCALE

MACH 0.400

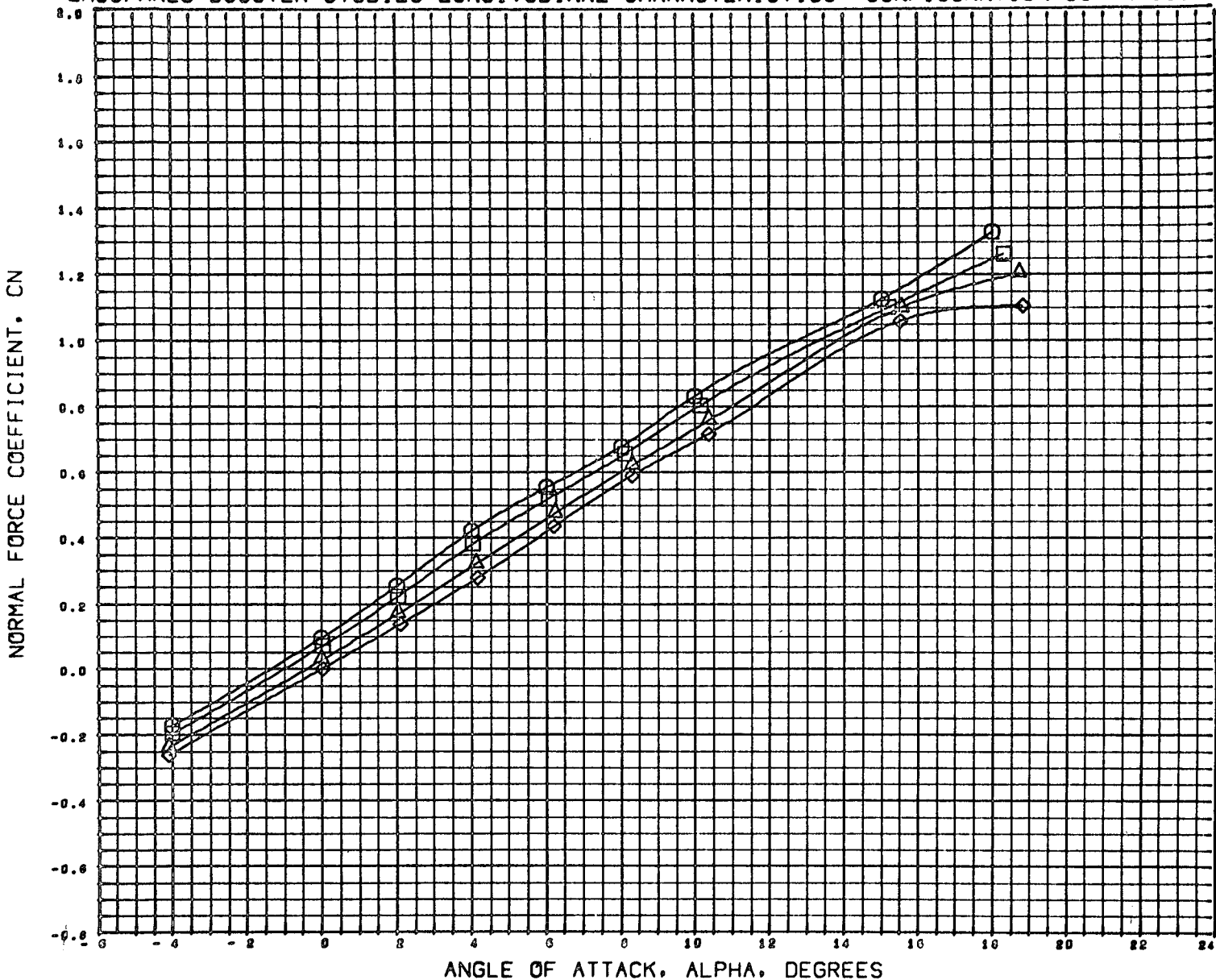
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(RN300C)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) 01C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3063)	MSRDC-3210,MSFC/LMSC BOOSTER 01C2F2W1V1E3P	-0.039	0.753	0.000	0.000	LREF 3.4930 FEET
(RN3079)	MSRDC-3210,MSFC/LMSC BOOSTER 01C2F2W3V1E3P	-0.022	0.000	0.000	0.000	BREF 3.4930 FEET
(RN3167)	MSRDC-3210,MSFC/LMSC BOOSTER 01C2F2W3V169P	0.015	0.000	0.000	0.000	XHRP 2.9950 FEET YHRP 0.0000 FEET ZHRP 0.0107 FEET SCALE 0.0150 SCALE

MAC 0.400

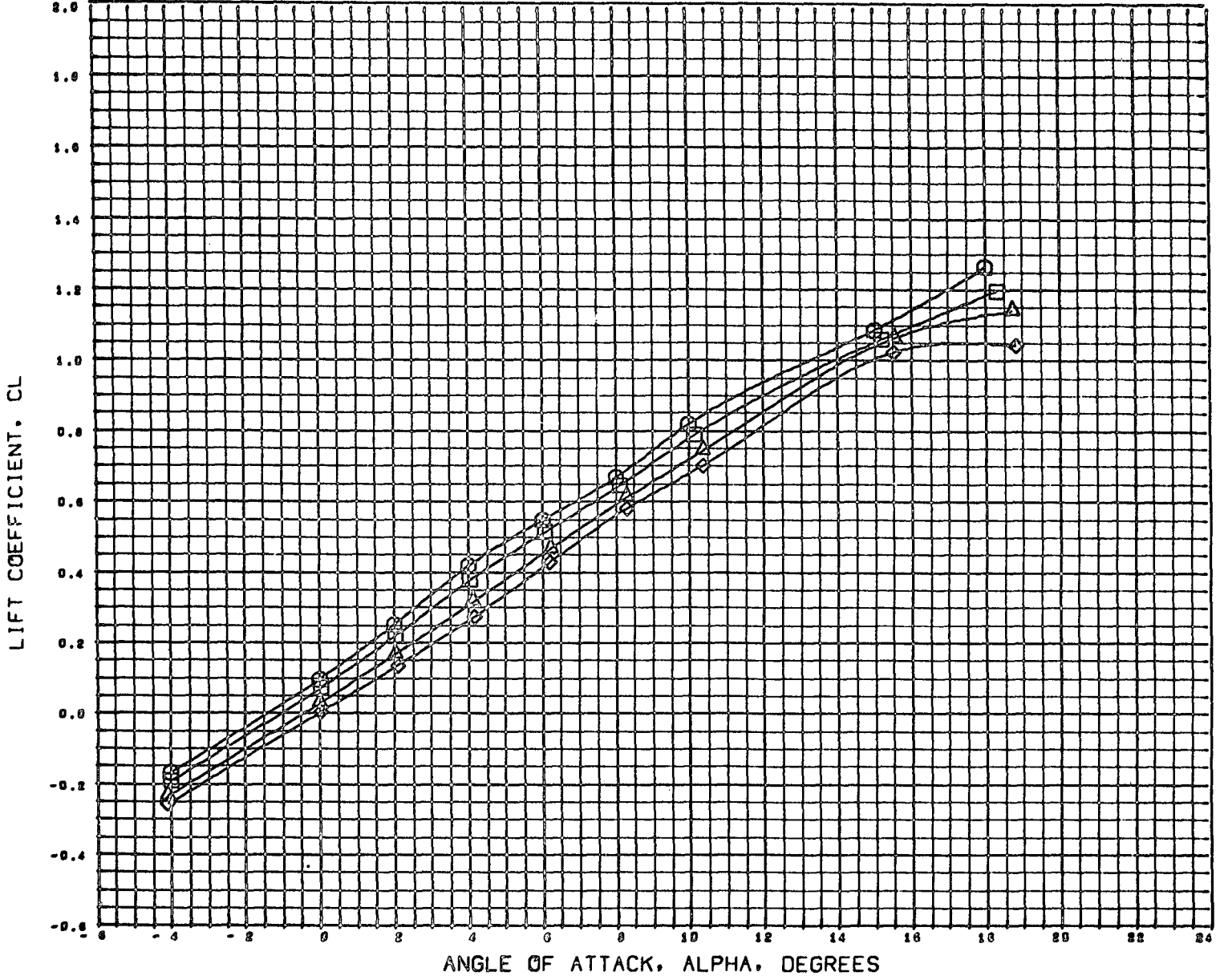
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3008)	○	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3350 SQ. FT.
(RN3074)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3070)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3170)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 0.500

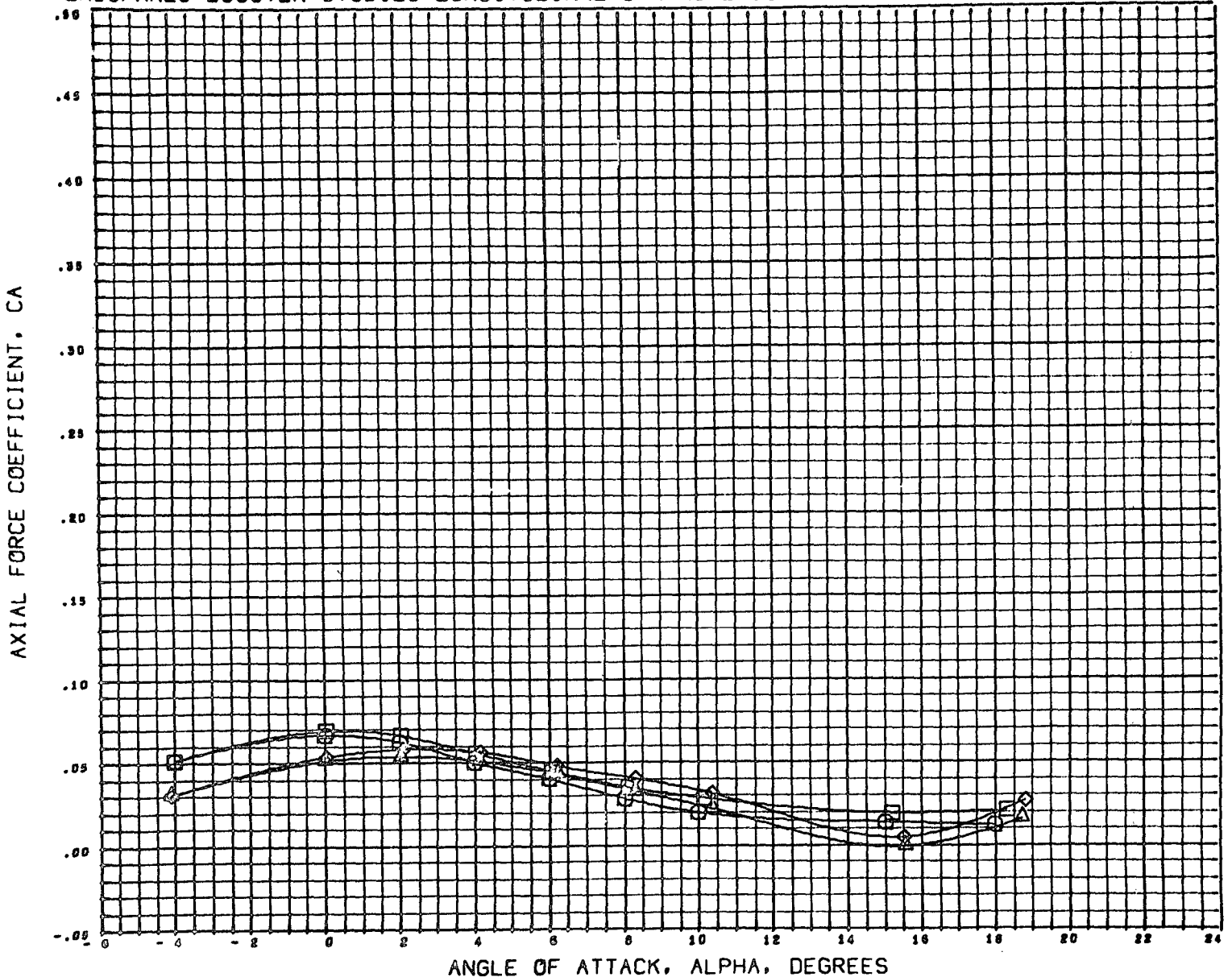
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	M8RDC-3210, M8FC/LM8C B8TR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3990 SQ. FT.
(RN3074)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF 3.4590 FEET
(RN3070)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4590 FEET
(RN3170)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XHRP 2.9950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0107 FEET
						SCALE 0.0190 SCALE

MACH 0.500

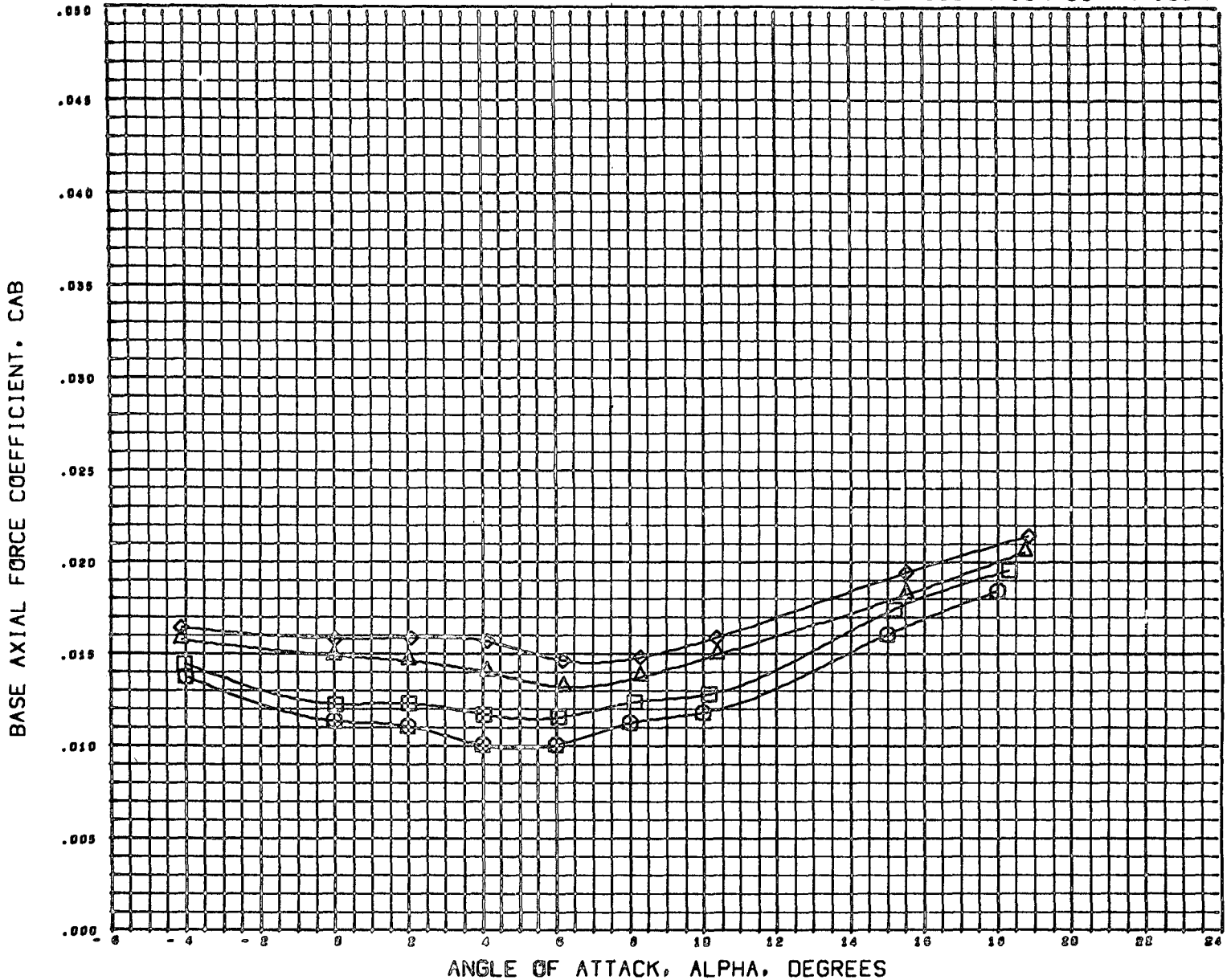
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	□	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3074)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3170)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XHRP	2.5950 FEET
							YHRP	0.0000 FEET
							ZHRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

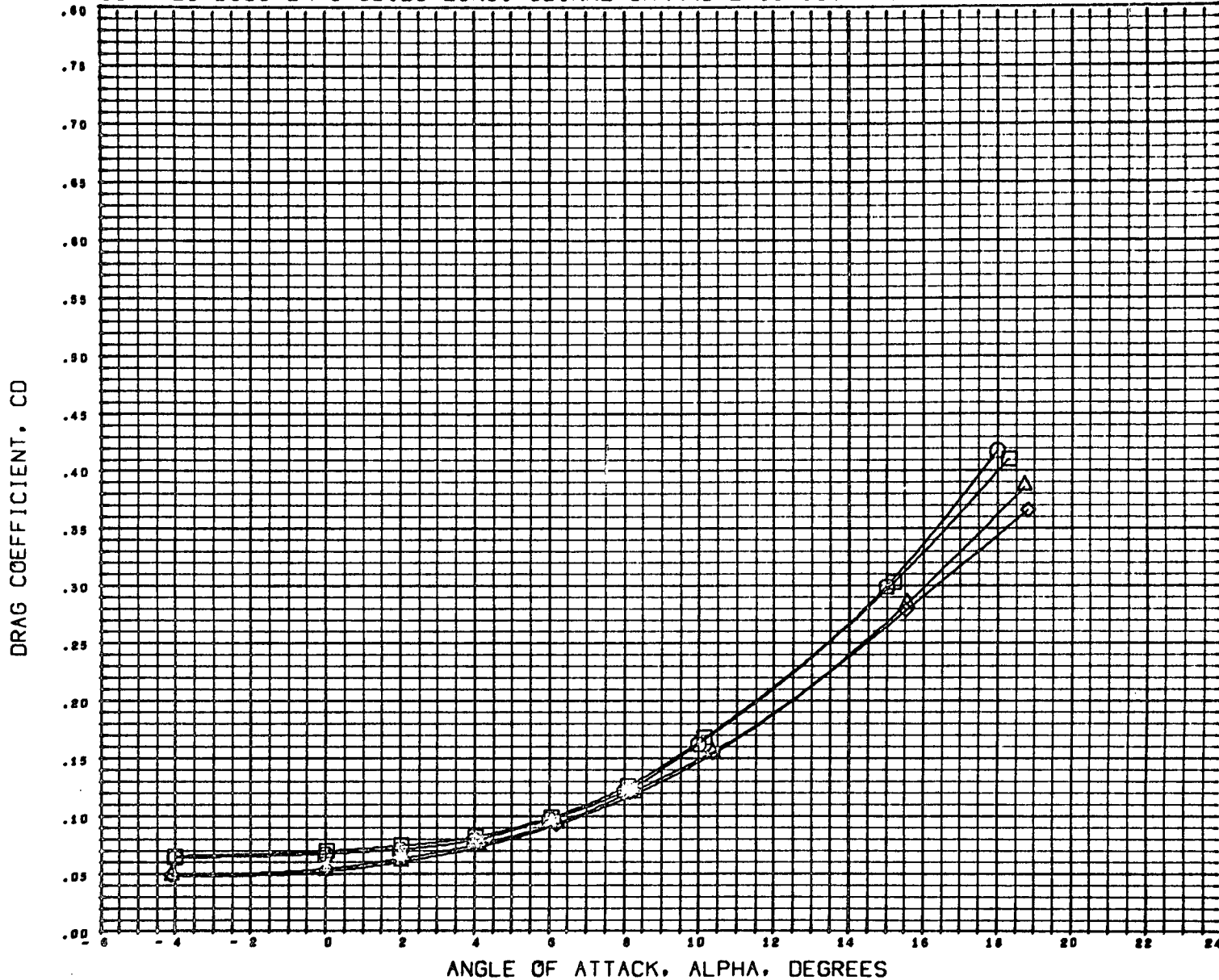
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3008)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) D1C2F2M1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN3074)	MSRDC-3210, MSFC/LMSC BOOSTER D1C2F2M1V1E3P	0.732	0.000	0.000	0.000	LREF 3.4530 FEET
(AN3070)	MSRDC-3210, MSFC/LMSC BOOSTER D1C2F2M1V1E3P	0.000	0.000	0.000	0.000	SREF 3.4530 FEET
(AN3170)	MSRDC-3210, MSFC/LMSC BOOSTER D1C2F2M1V1E3P	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.900

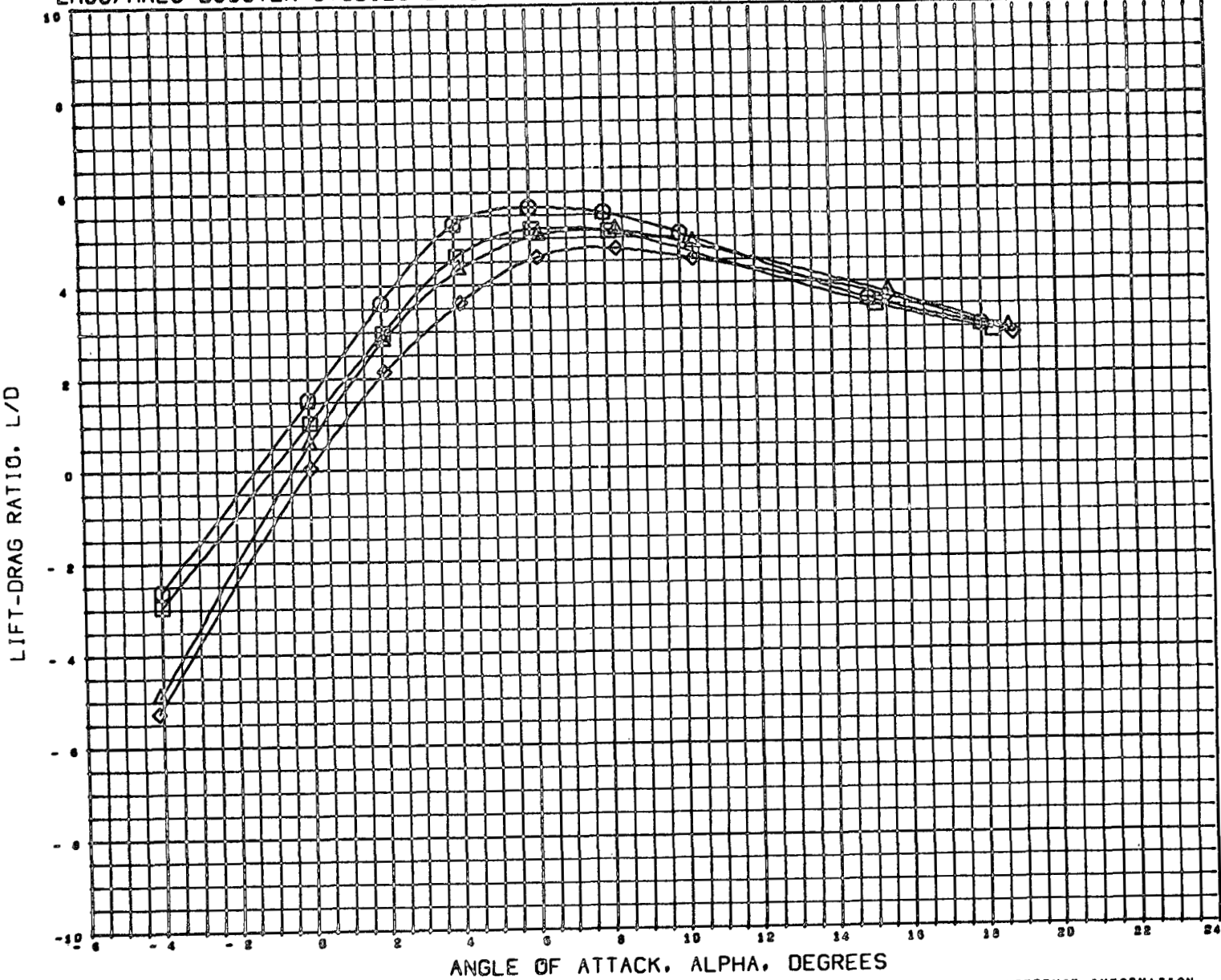
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	NSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(ANS008)	○	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS074)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF 3.4530 FEET
(RNS070)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS170)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP 2.5050 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 0.500

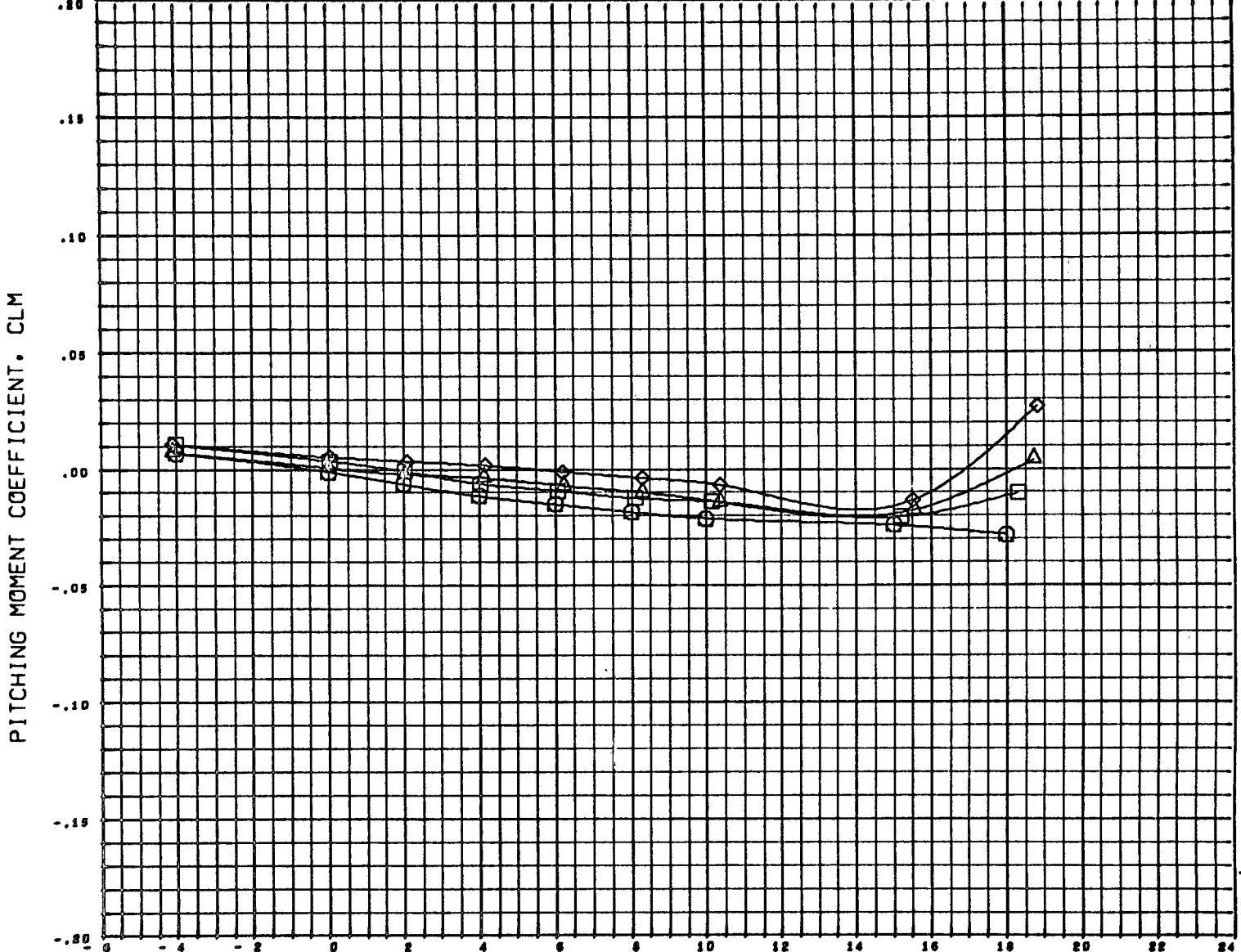
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3008)	NSRDC-3210, HBFC/LHSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3074)	NSRDC-3210, HBFC/LHSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF 3.4530 FEET
(AN3070)	NSRDC-3210, HBFC/LHSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(AN3170)	NSRDC-3210, HBFC/LHSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

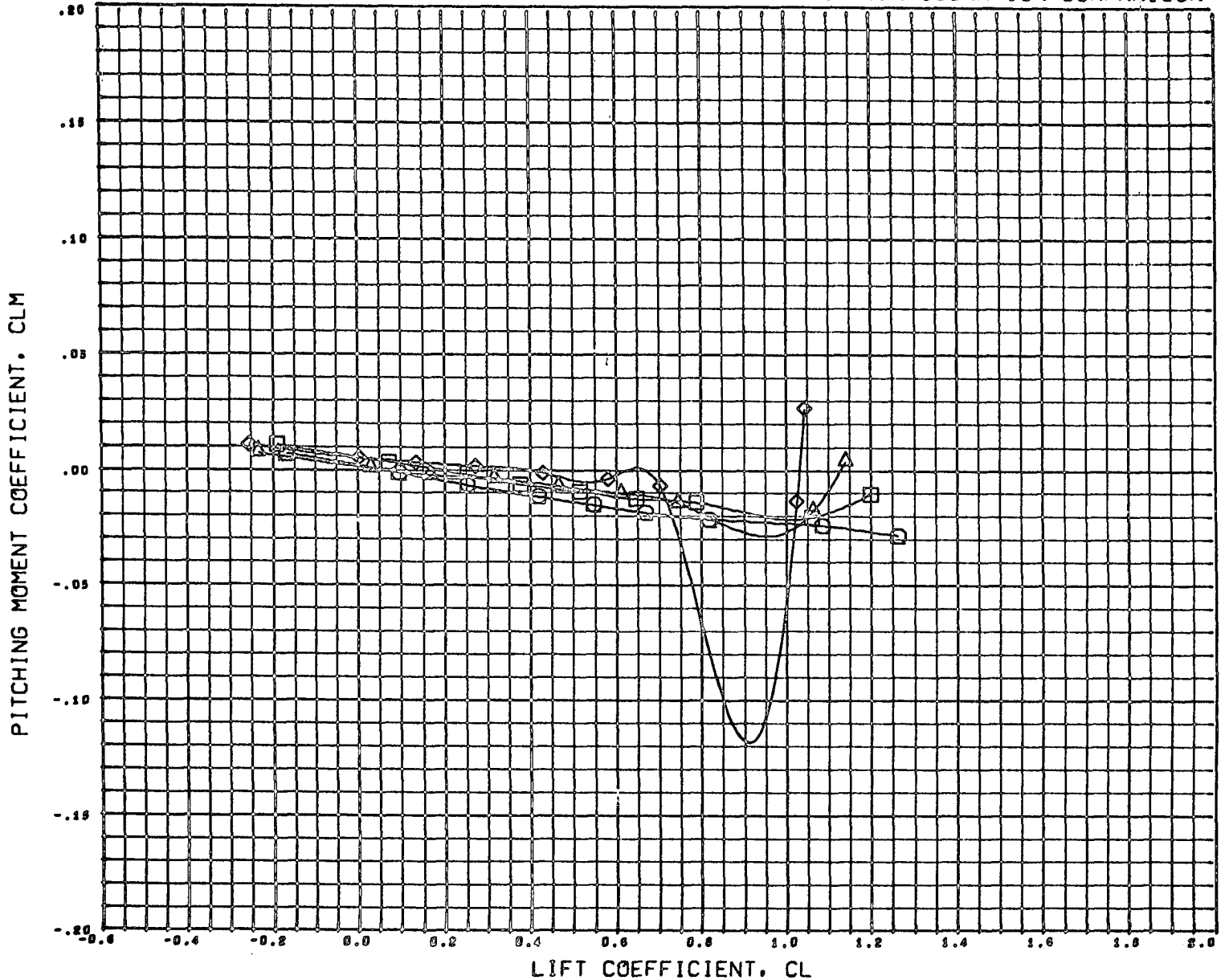
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3008)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3074)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF 3.4930 FEET
(AN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(AN3170)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.500

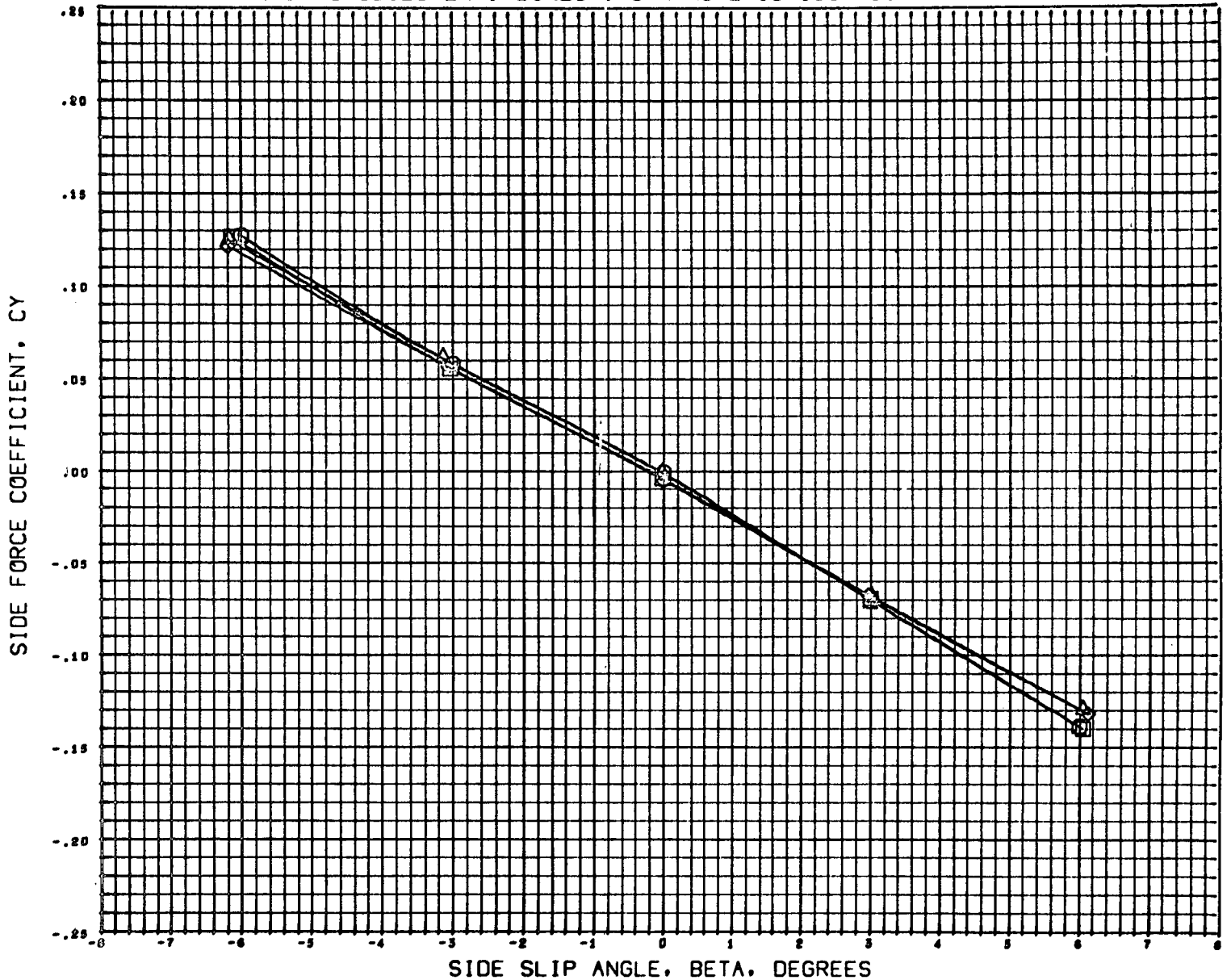
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	MSRDC-3210, HBFC/LMSC BOOSTER (PWR-ON) D1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3074)	MSRDC-3210, HBFC/LMSC BOOSTER D1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210, HBFC/LMSC BOOSTER D1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3170)	MSRDC-3210, HBFC/LMSC BOOSTER D1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XHRP	2.5930 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0197 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

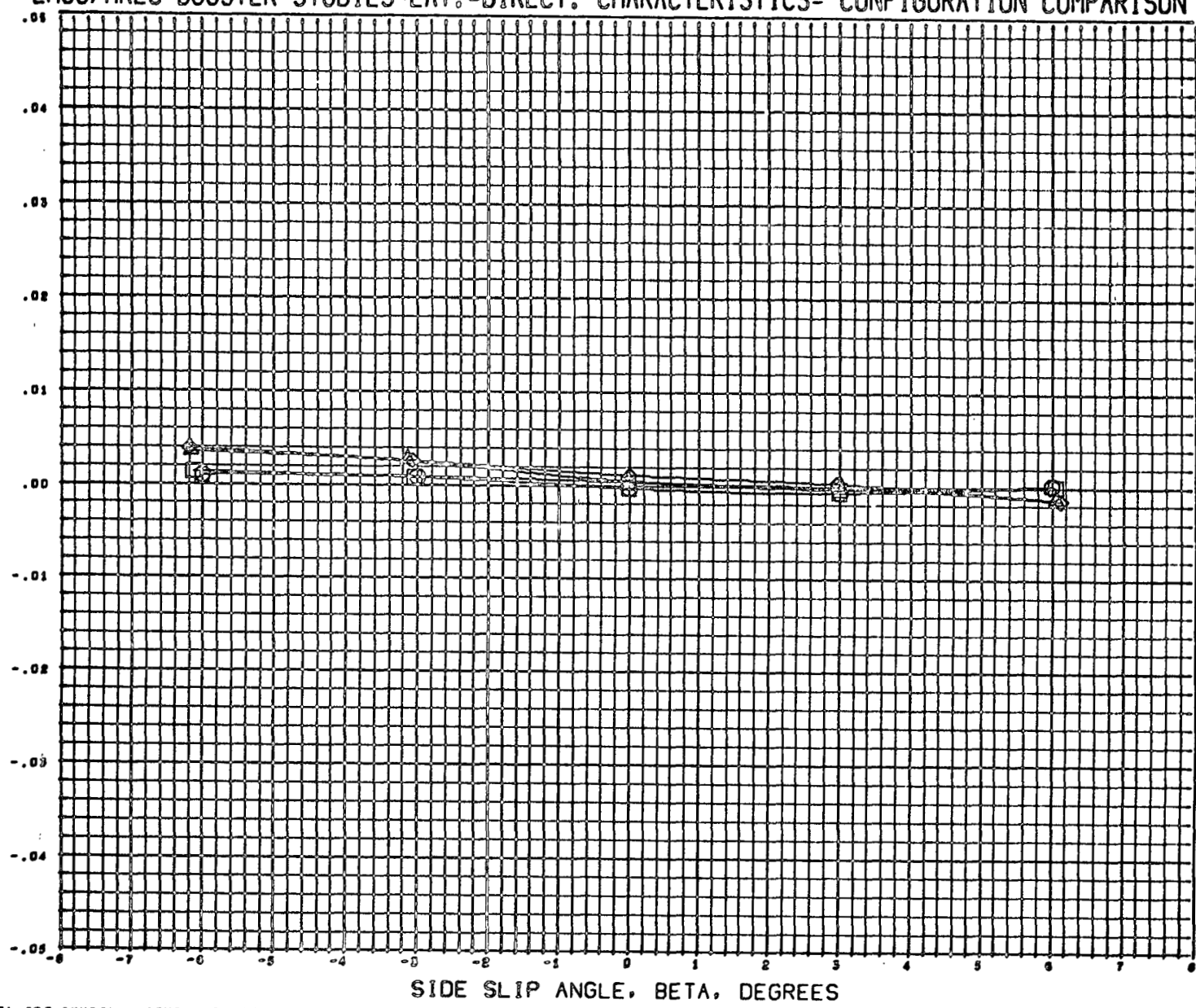


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300D)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF 1.3550 39.FT.
(RN3075)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	-0.017	0.726	0.000	0.000	LREF 3.4530 FEET
(RN3071)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.023	0.000	0.000	0.000	SREF 3.4530 FEET
(RN3171)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.014	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

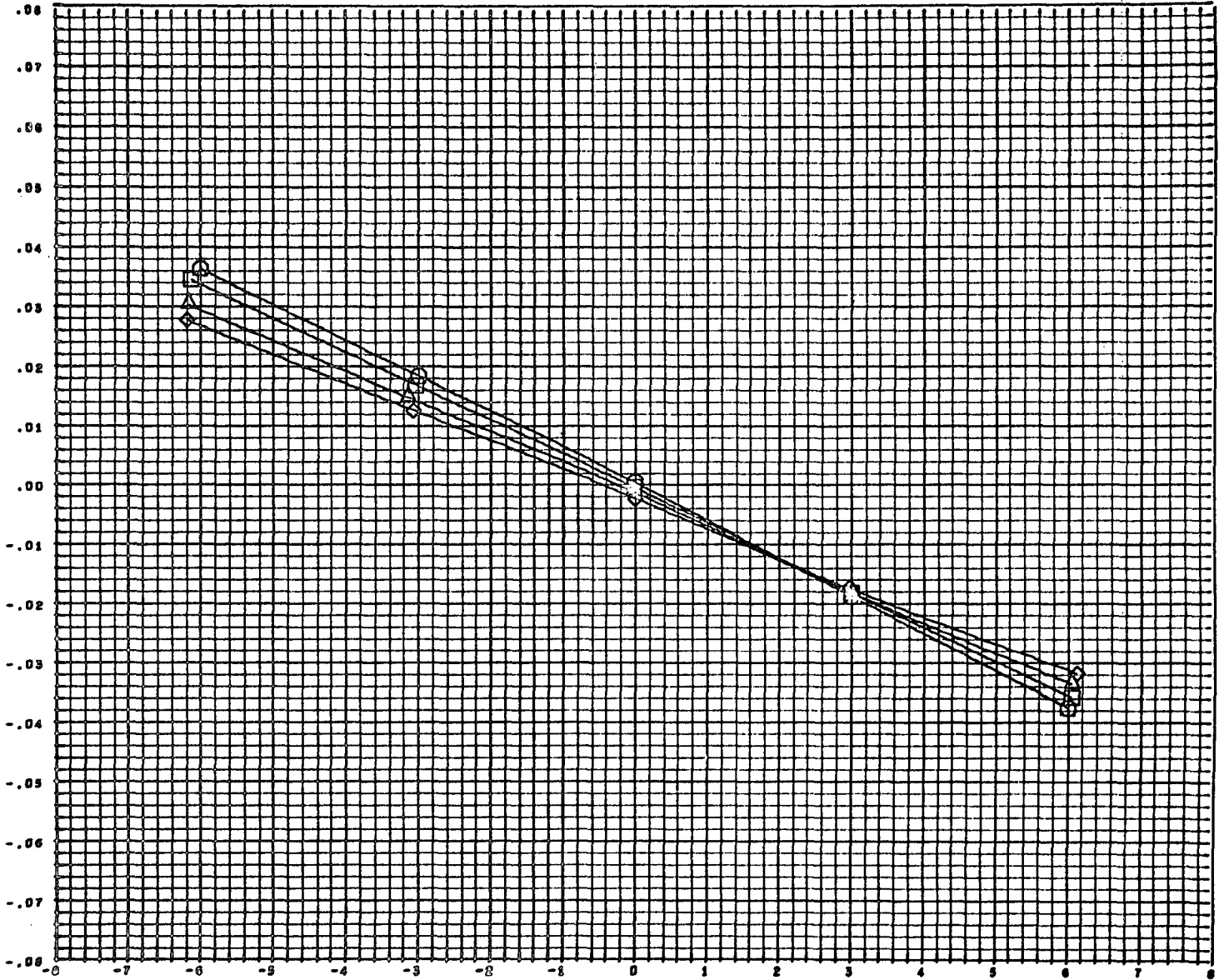


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3000)	MSRDC-3210,MSFC/LHSC BOOSTER (PWR-ON) B1C2F2M1V1H3P	-0.017	0.726	0.000	0.000	BREF 1.3550 SQ. FT.
(RN3075)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2M1V1E3P	-0.017	0.726	0.000	0.000	LREF 3.4530 FEET
(RN3071)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2M1V1E3P	0.023	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3171)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2M1V163P	0.014	0.000	0.000	0.000	XMRP 2.3050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

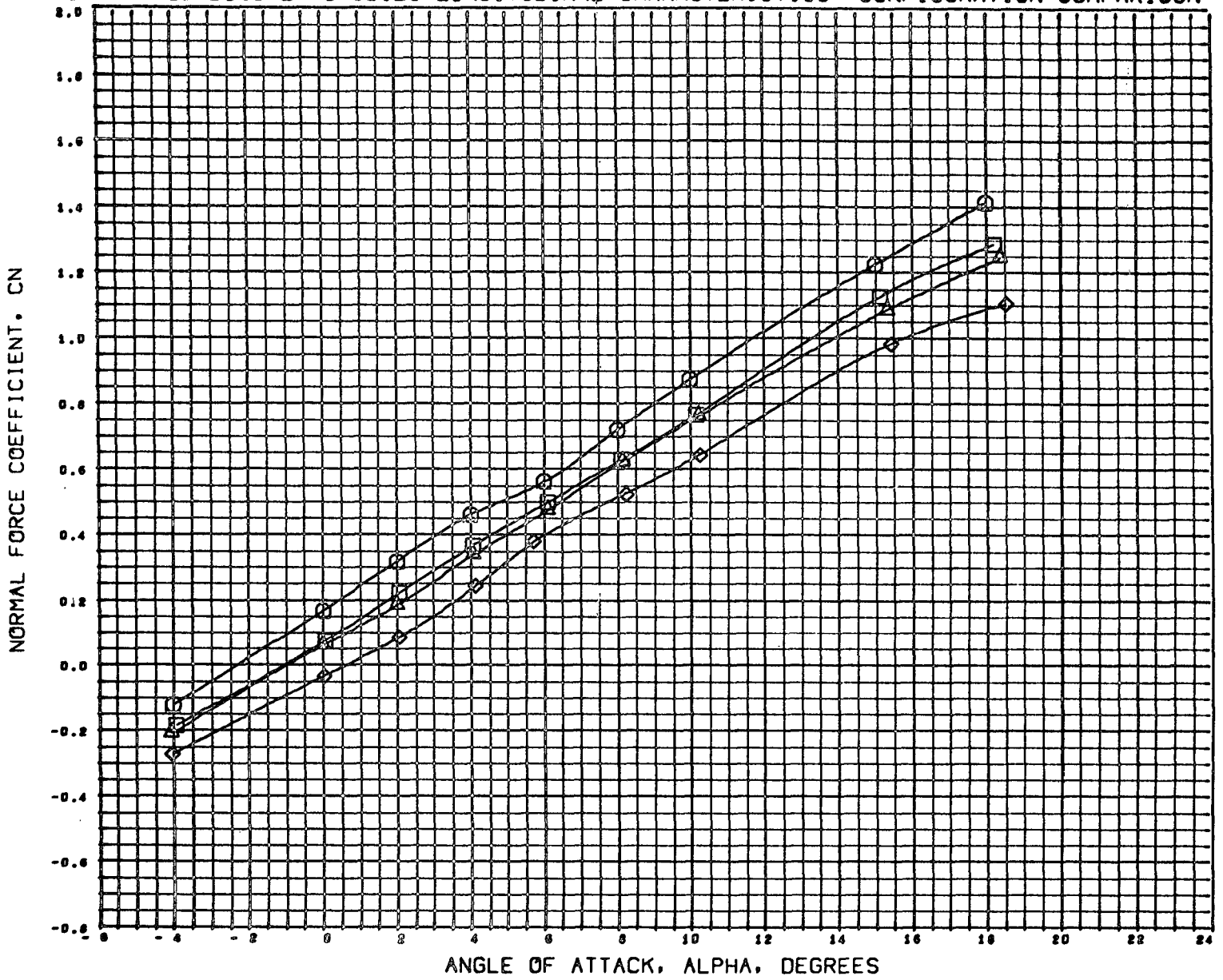


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3000)	○	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF 1.3950 88. FT.
(RN3075)	△	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	-0.017	0.726	0.000	0.000	LREF 3.4530 FEET
(RN3071)	◇	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.023	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3171)	□	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.014	0.000	0.000	0.000	XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.900

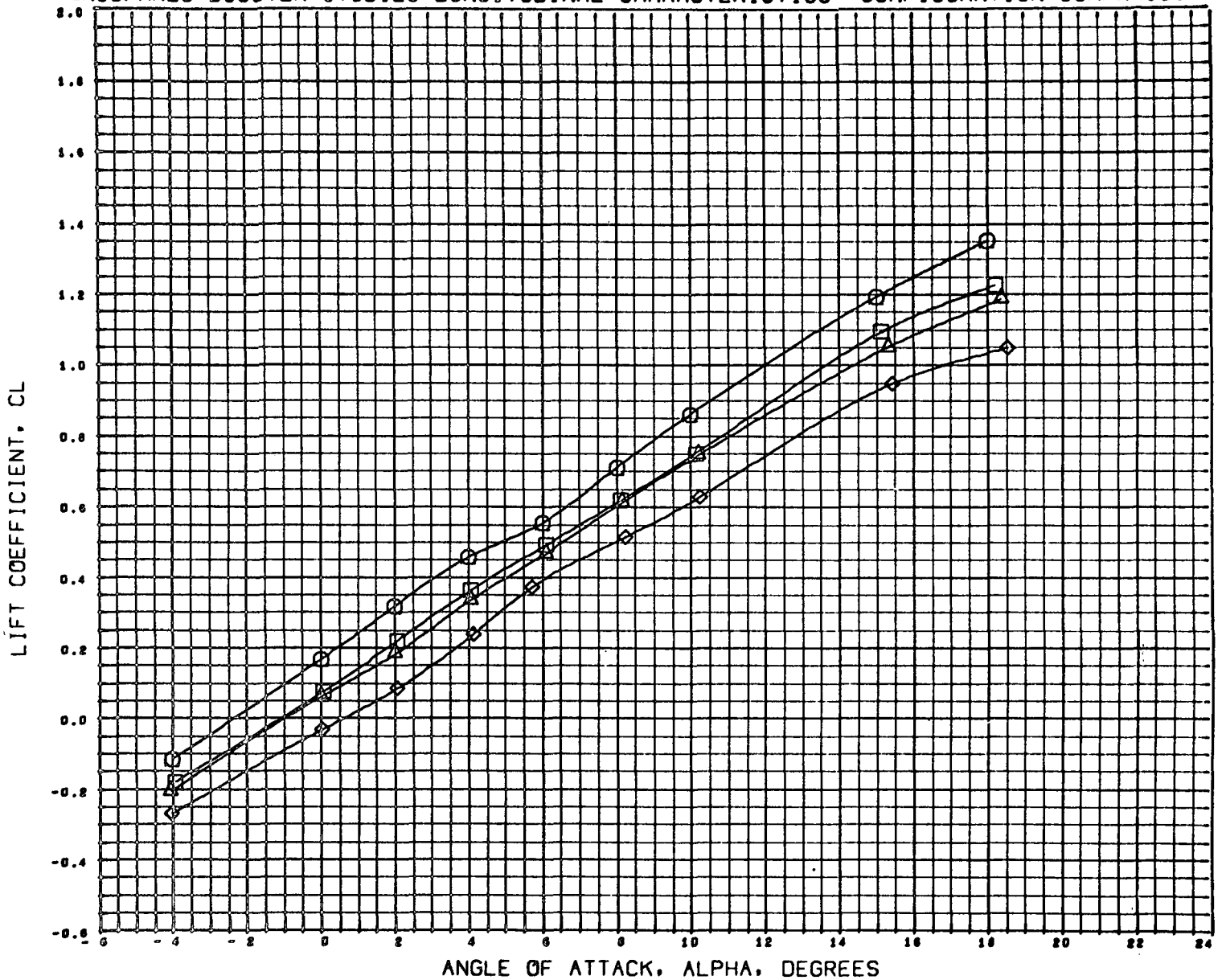
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300E)	○	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF 1.3350 88.FT.
(AN3090)	△	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(AN3086)	□	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(AN3174)	◇	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	YMRP 2.9990 FEET
							ZMRP 0.0000 FEET
							SCALE 0.0187 FEET
							SCALE 0.0190 SCALE

MACH 0.400

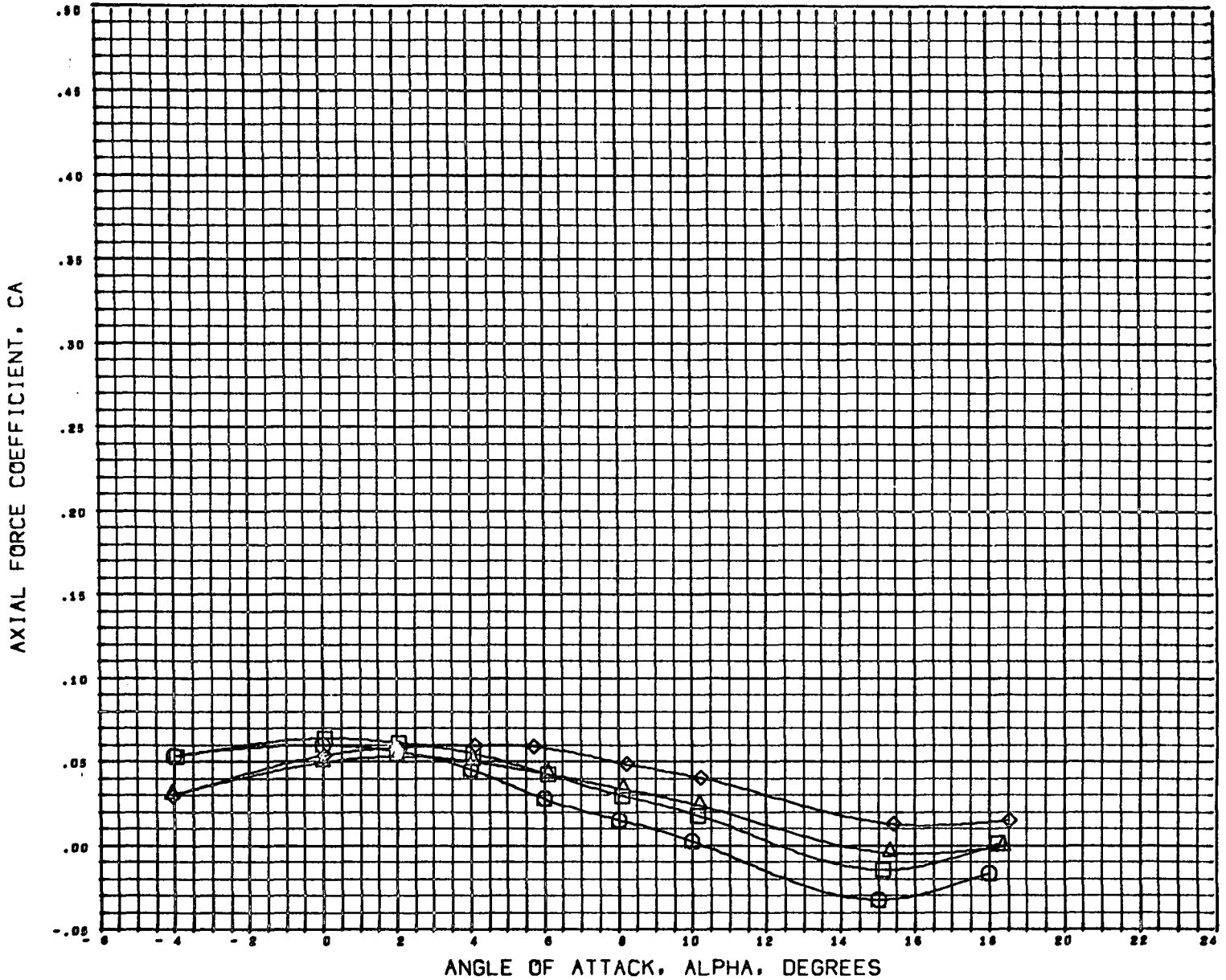
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS00E)	NSRDC-3210,HSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1M3	0.763	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RNS000)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF 3.4930 FEET
(RNS008)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(RNS174)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

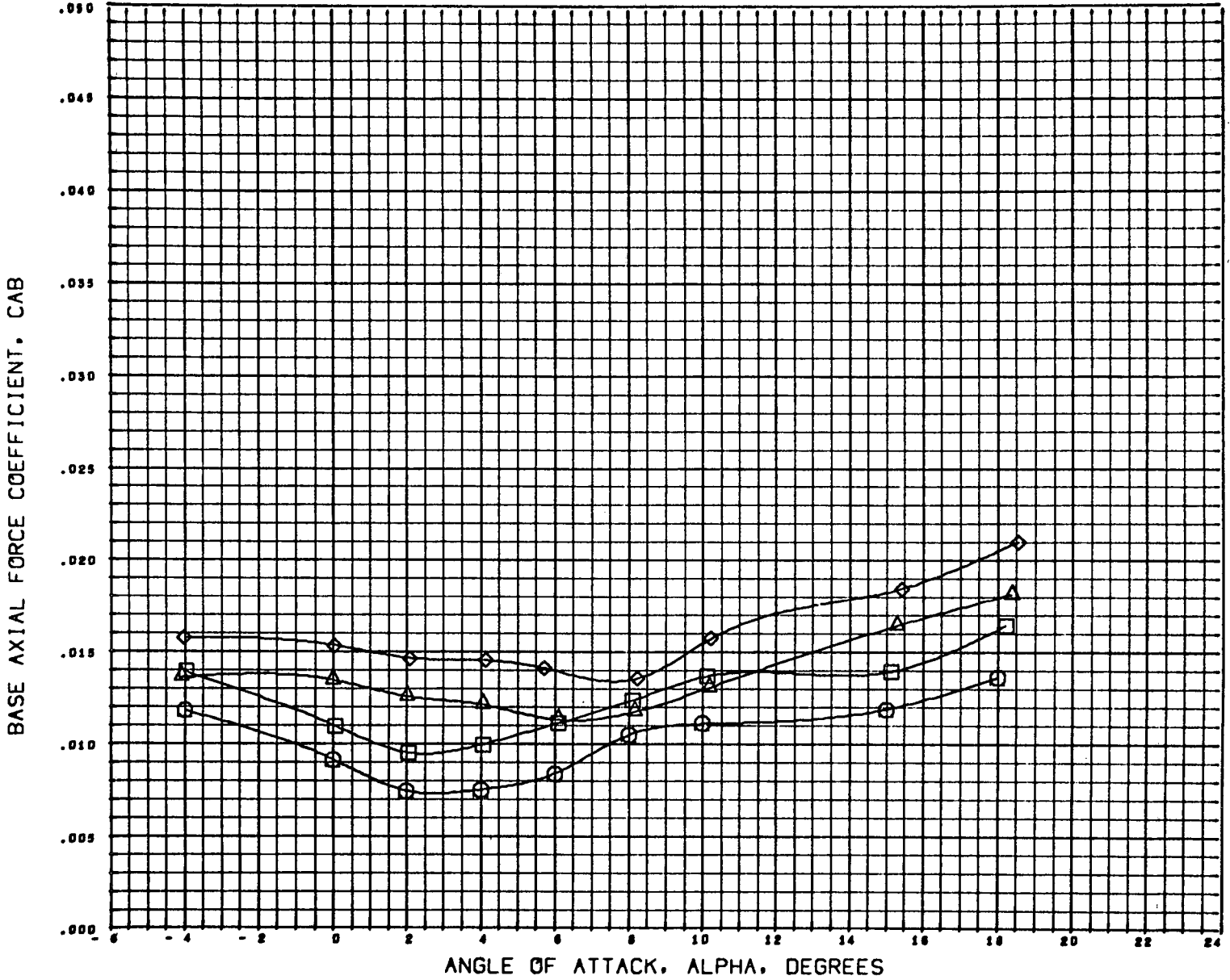
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF 1.3350 SQ.FT.
(RN3090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF 3.4330 FEET
(RN3086)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3174)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

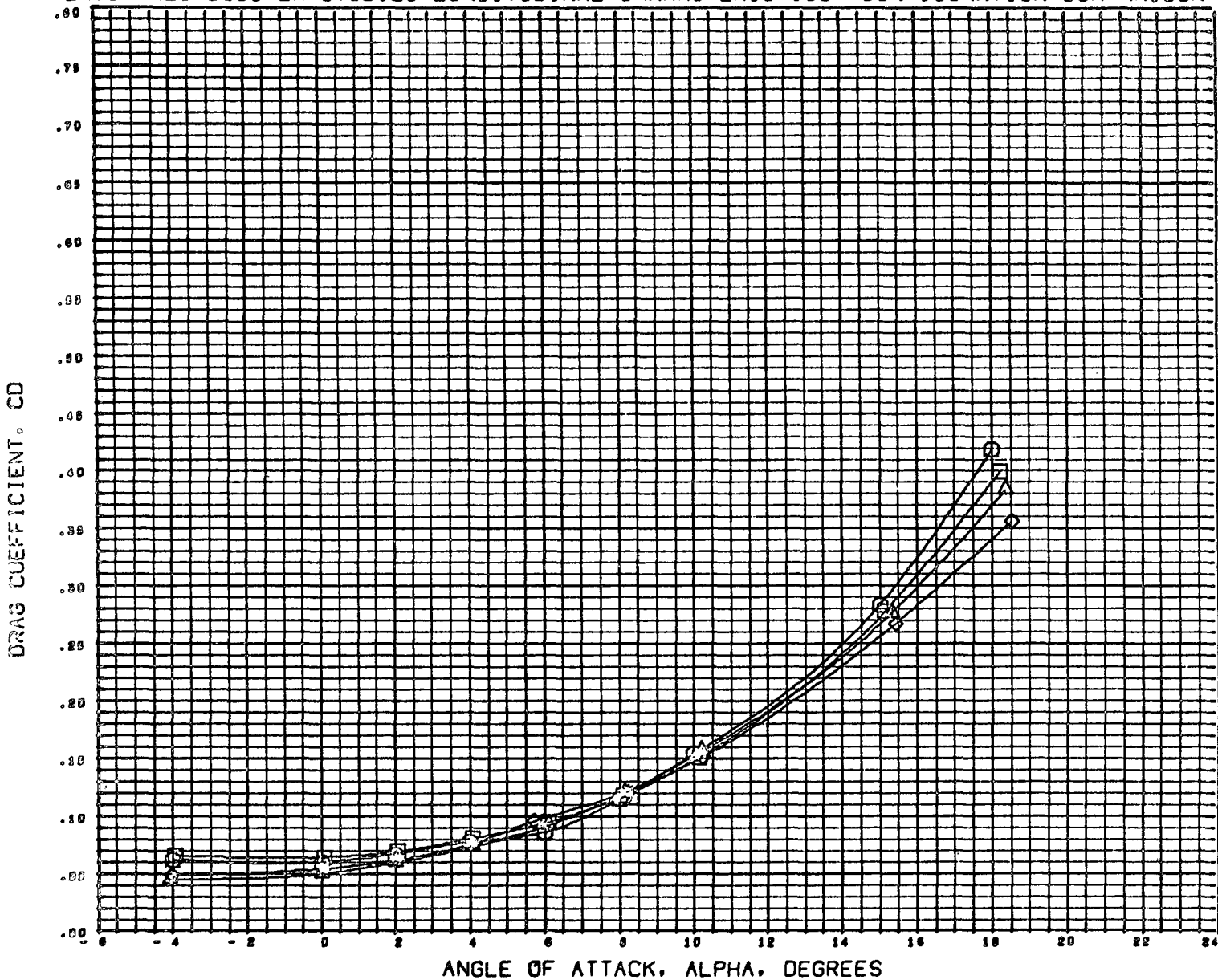
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF 3.4330 FEET
(RN3086)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3174)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	XHRP 2.5990 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.400

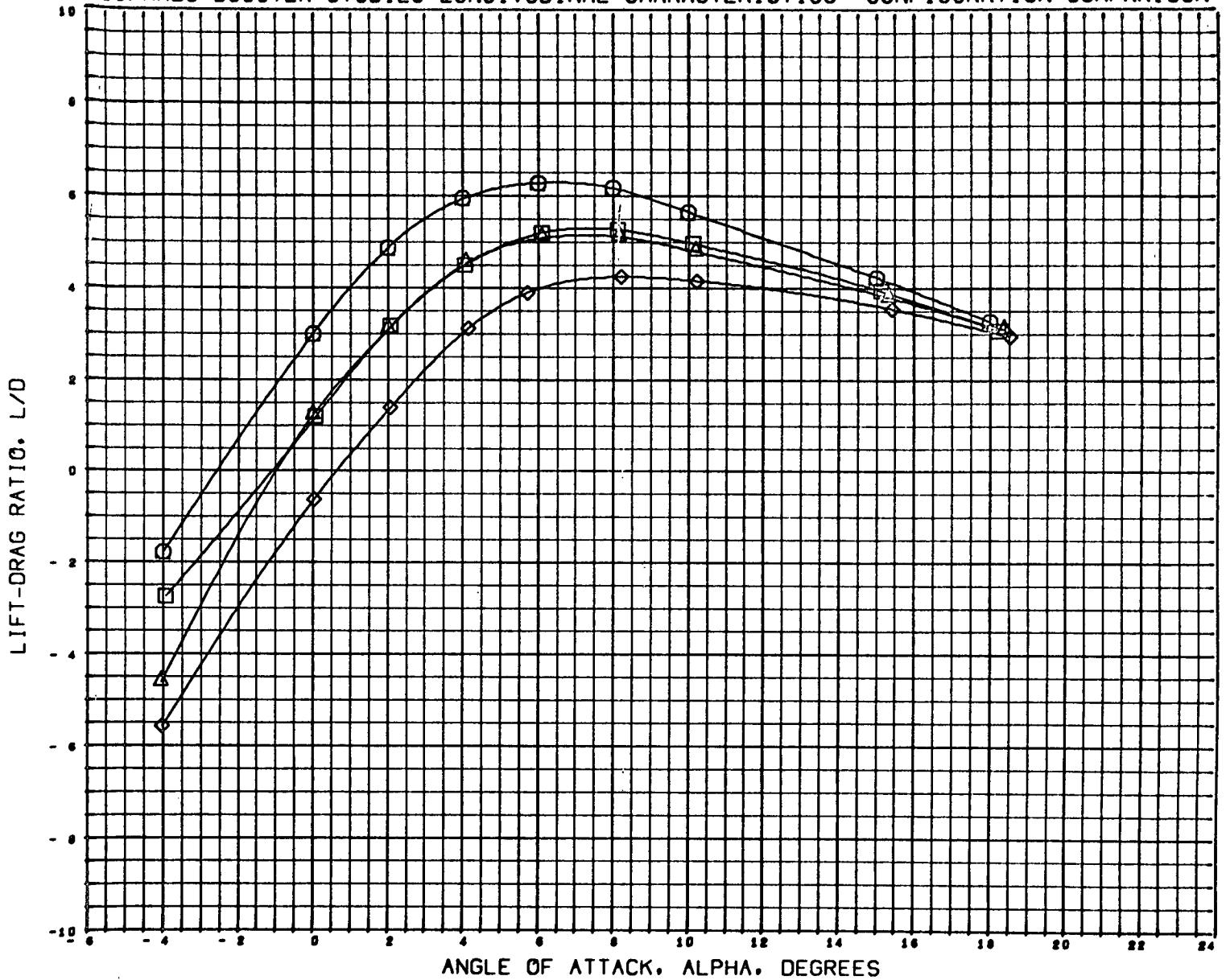
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(QNS00E)	MSRDC-3210, MSFC/LMSC BOOSTER (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF 1.3550 90.FT.
(QNS000)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(QNS008)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(QNS174)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

WACH 0.400

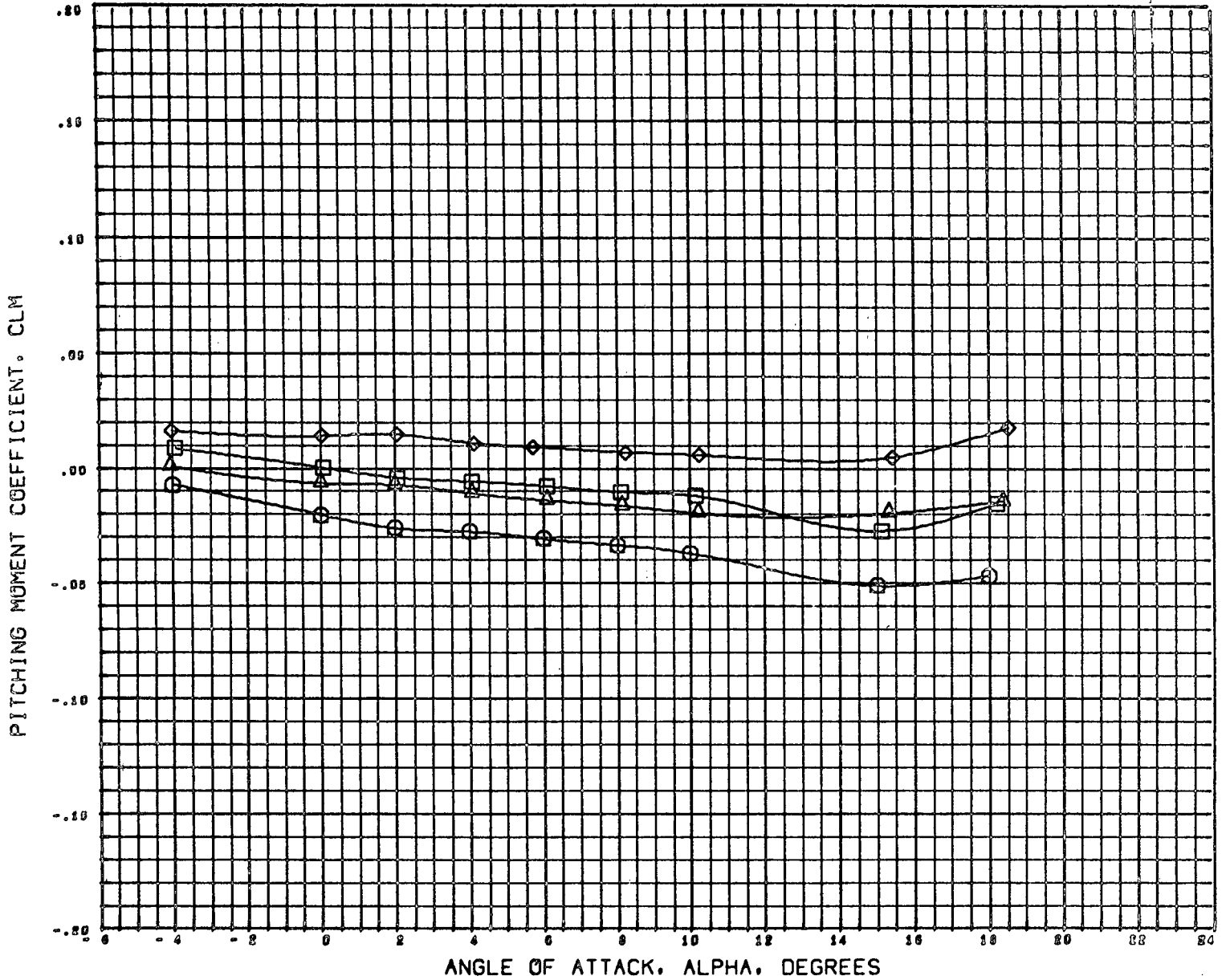
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS00E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	BREF	1.3550 50.FT.
(RNS090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4930 FEET
(RNS066)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(RNS174)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

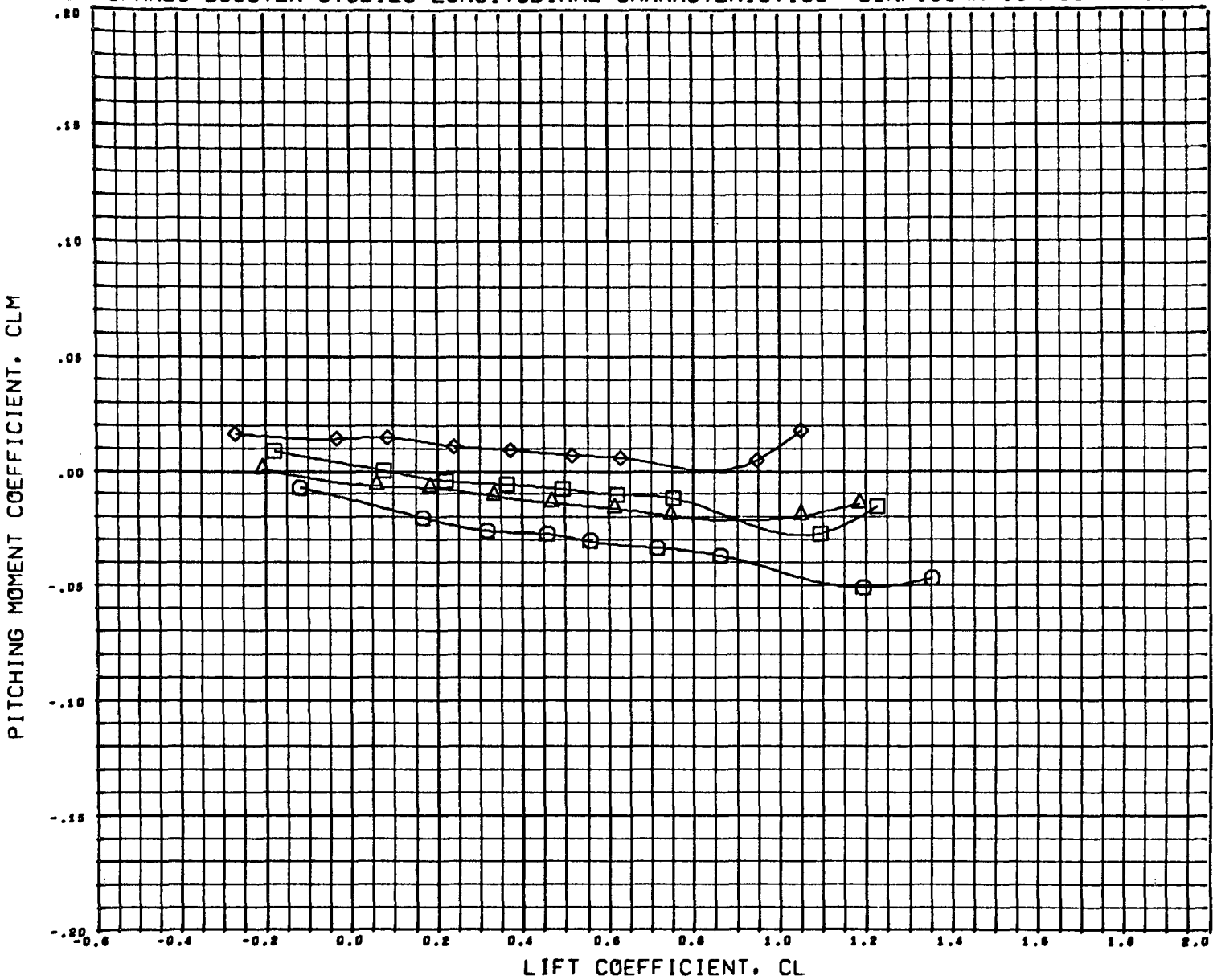
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M\$FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(ANS008)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	BREF 1.3950 80.FY.
(ANS009)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF 3.4930 FEET
(ANS010)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(ANS174)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.400

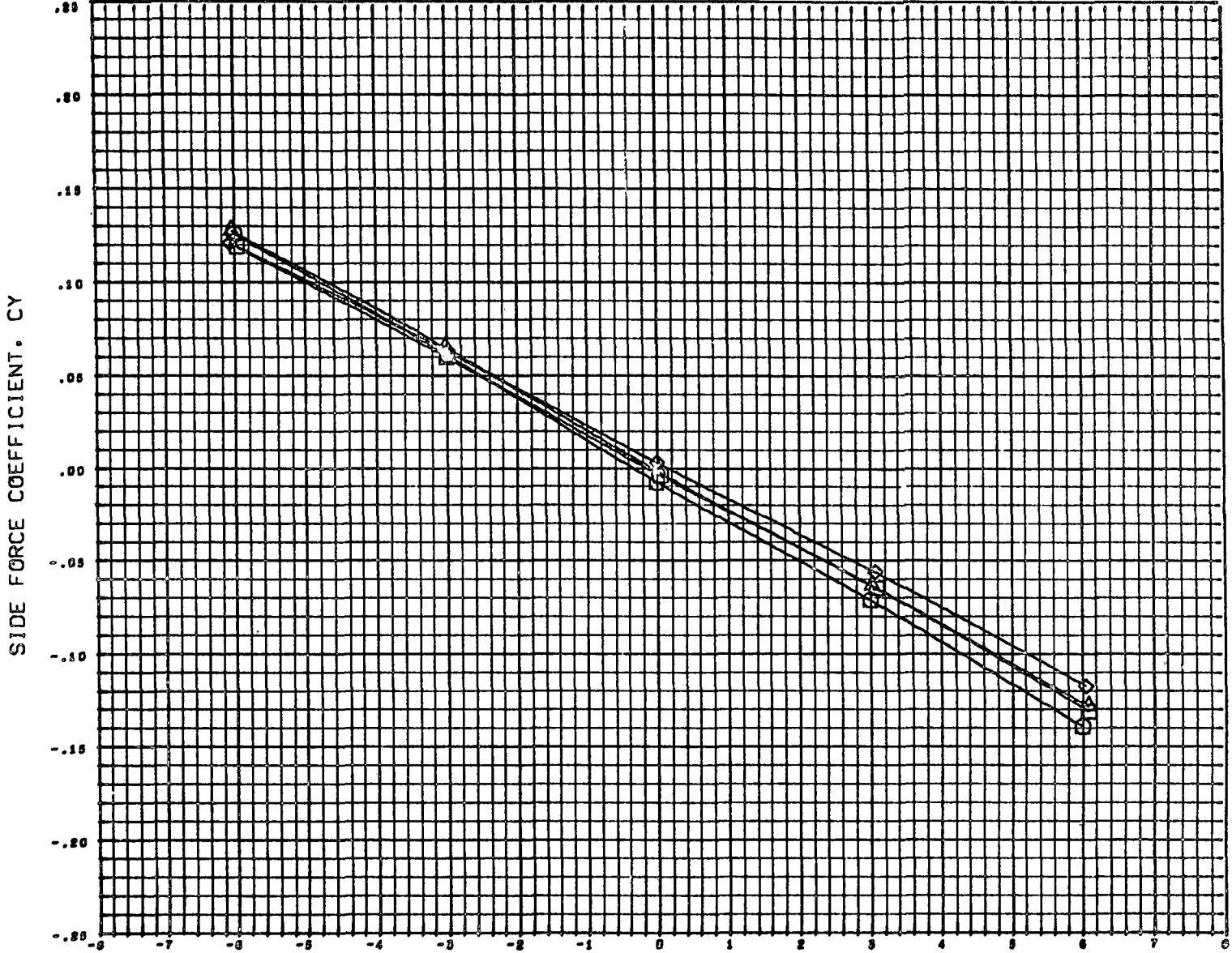
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300E)	M8RDC-3210, M8FC/LM8C B8TR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3090)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3086)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3174)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.400

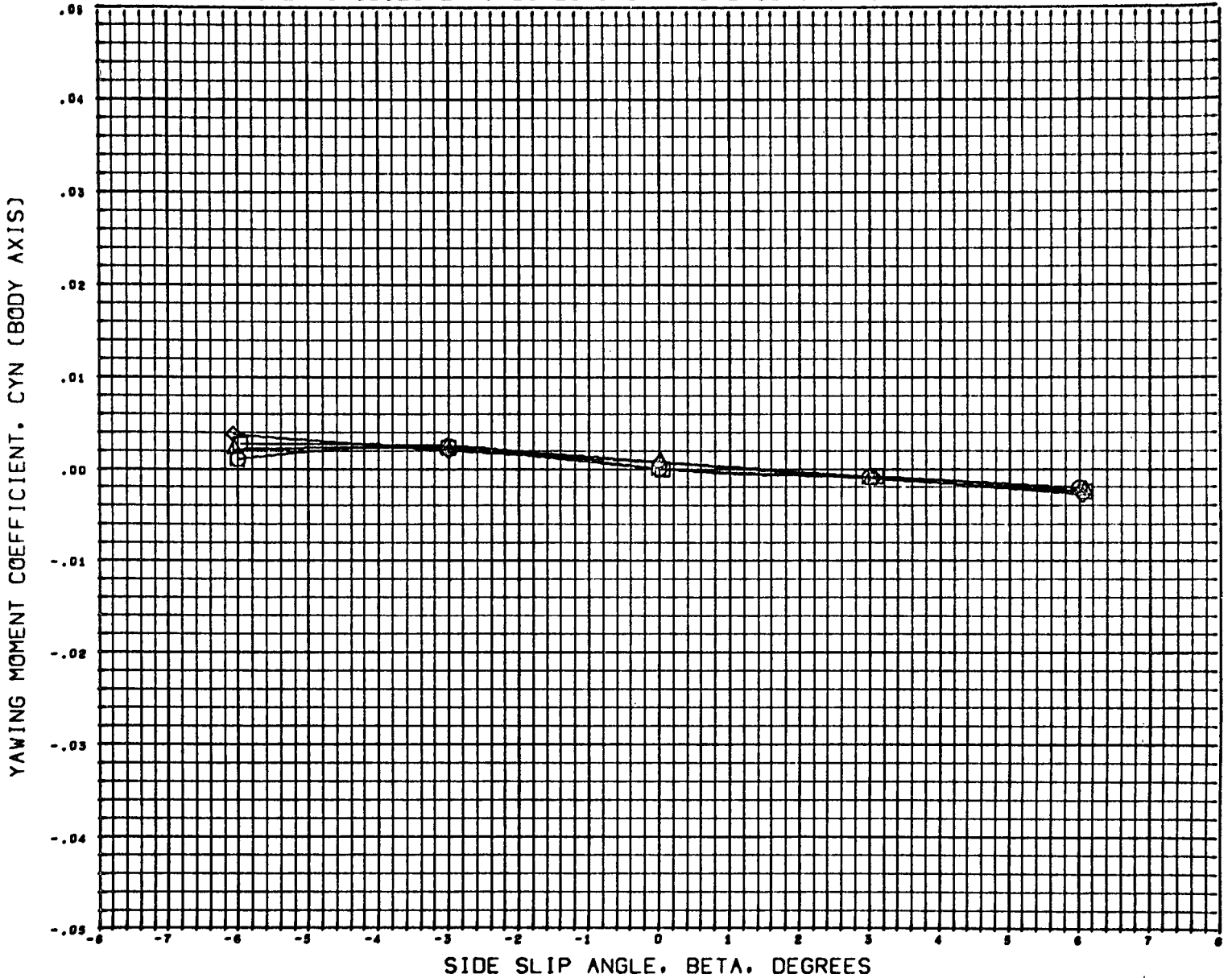
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3006)	MSRDC-3210,MSFC/LM8C BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.765	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3001)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1E3	-0.015	0.765	0.000	0.000	LREF 5.4550 FEET
(RN3007)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V3E3	0.044	0.000	0.000	0.000	BREF 5.4950 FEET
(RN3175)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1G3	0.033	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

SCALE 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

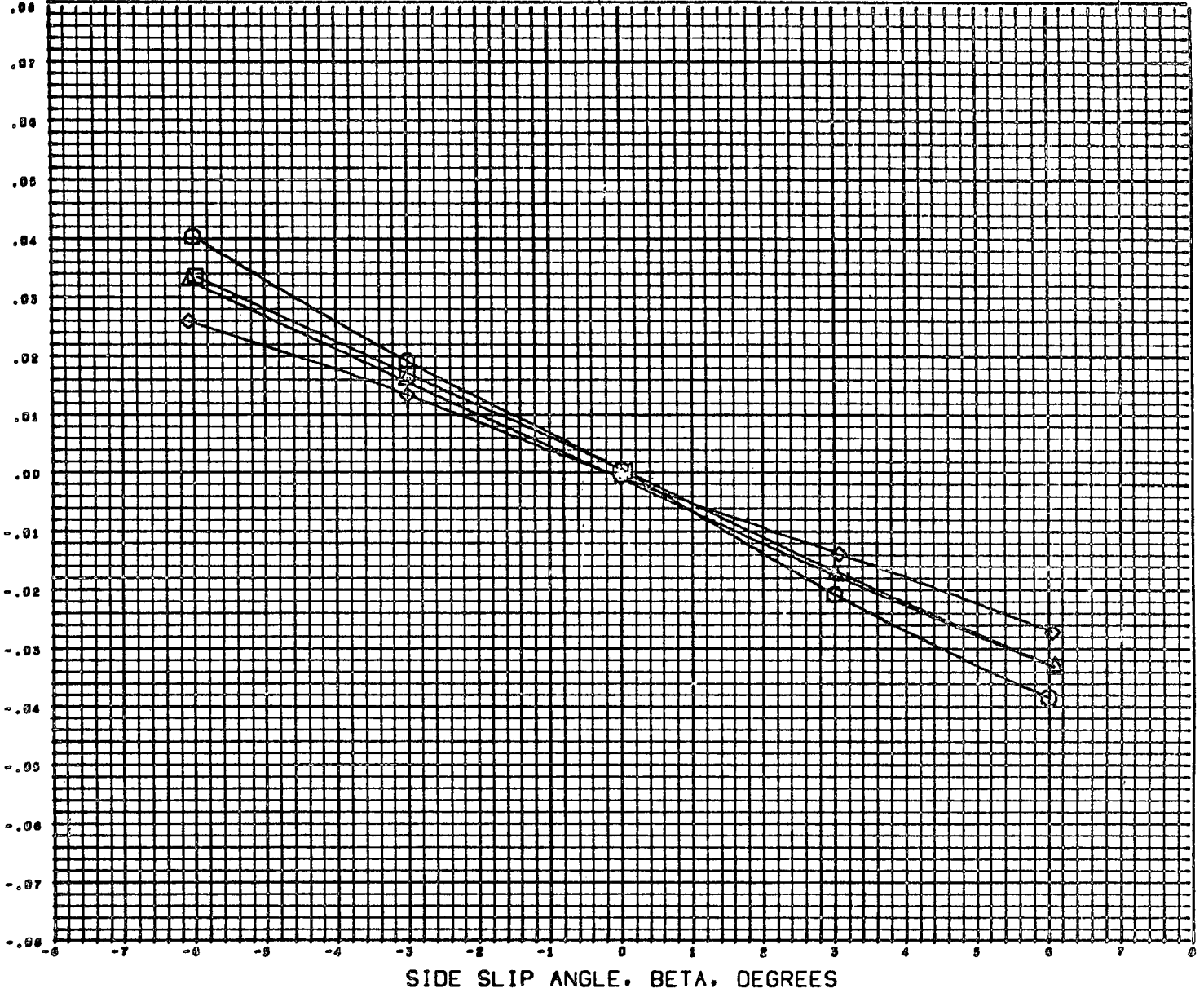


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(ANS006)	NSRDC-3210, NSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	SREF 1.3580 80. FT.
(RNS001)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.015	0.763	0.000	0.000	LREF 3.4530 FEET
(RNS007)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E3	0.044	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS175)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G3	0.053	0.000	0.000	0.000	XMRF 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

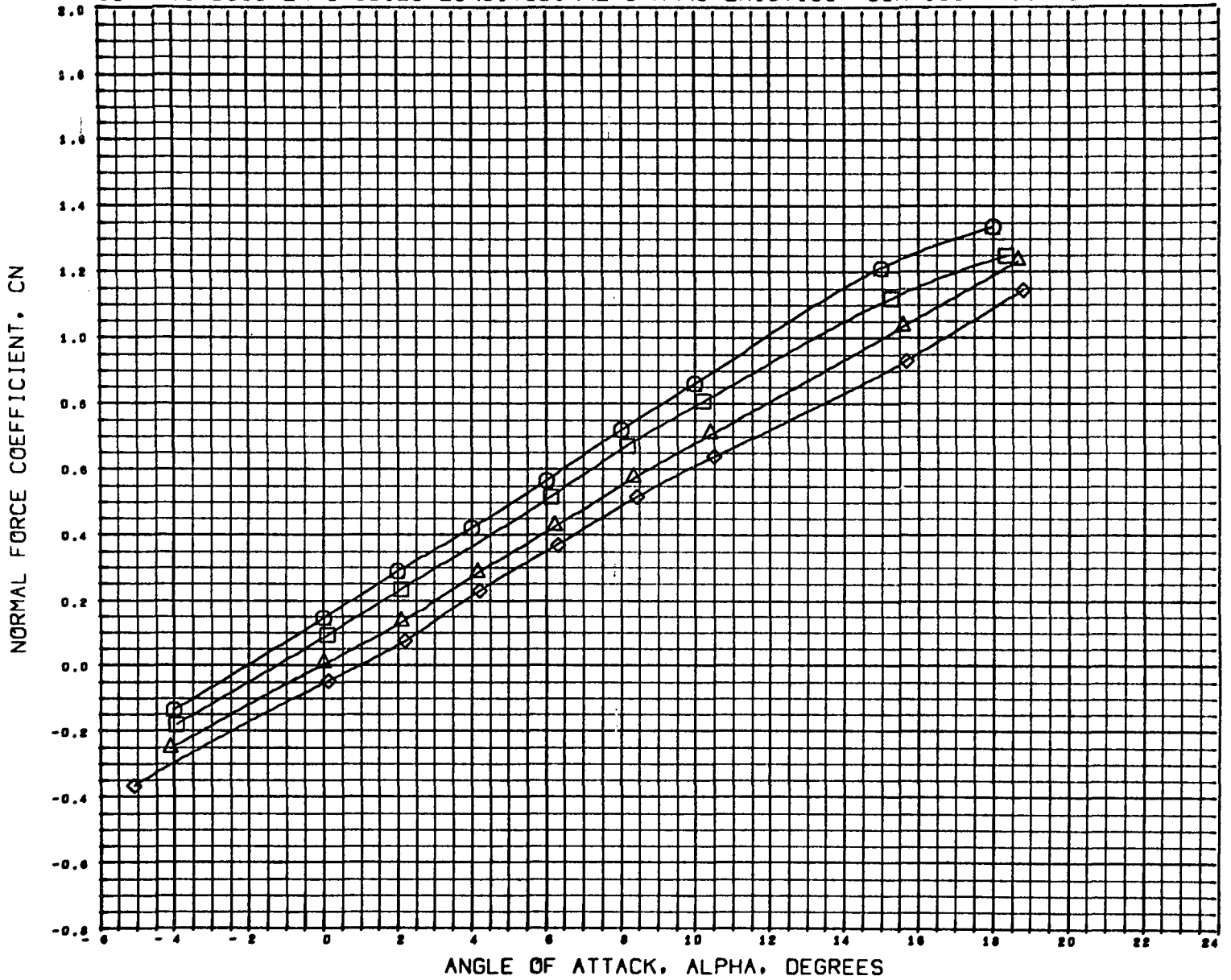


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3006)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V3M3	-0.015	0.763	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.015	0.763	0.000	0.000	LREF 3.4530 FEET
(RN3007)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.044	0.000	0.000	0.000	DREF 3.4530 FEET
(RN3170)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.053	0.000	0.000	0.000	XMRP 2.9990 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

RACH 0.400

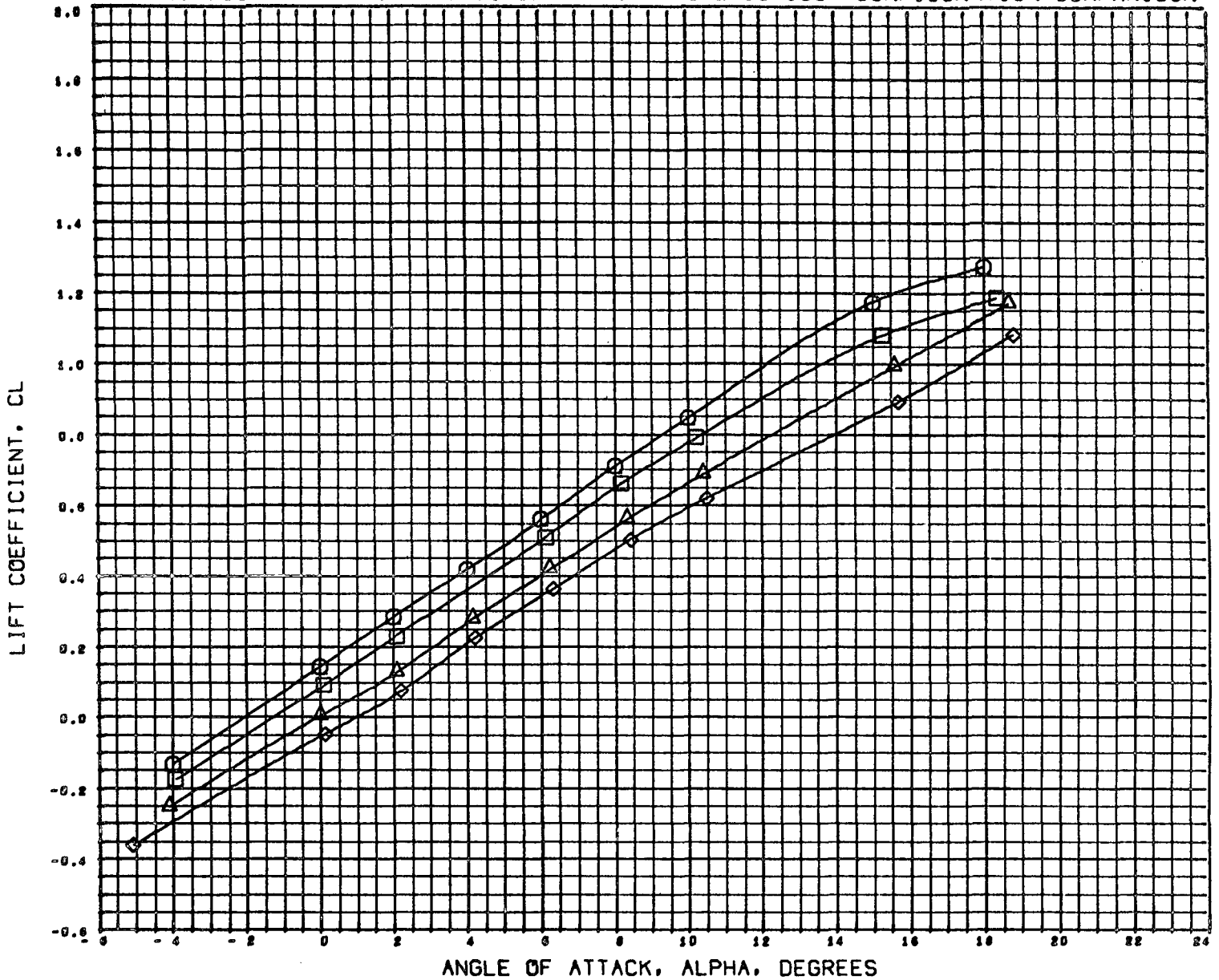
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300P)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	BREF	1.3550 SQ.FT.
(RN3090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3094)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3170)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.500

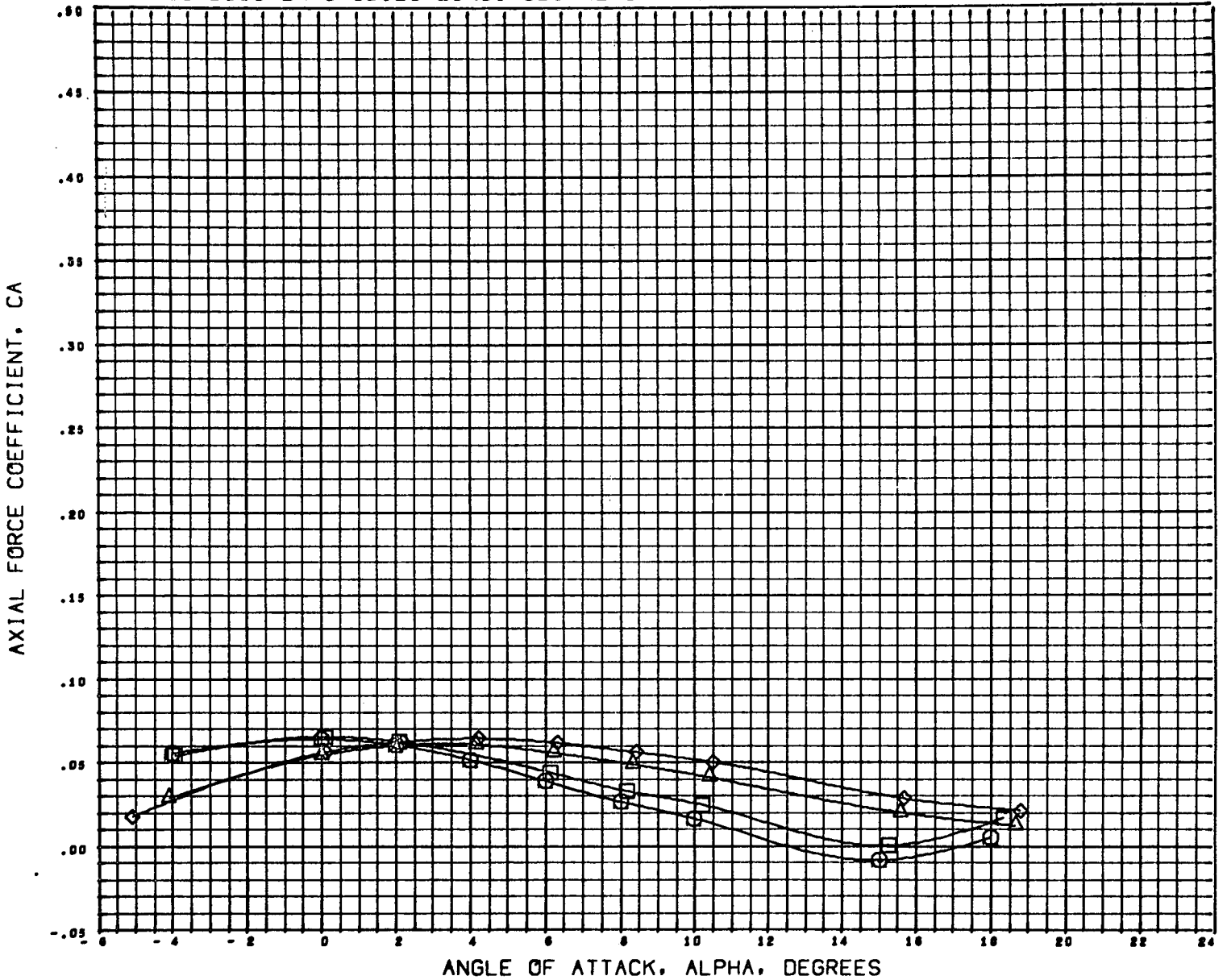
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	BREF	1.3550 SQ.FT.
(AN3098)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3094)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3178)	MSRDC-3210,MSFC/LH8C BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5850 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

MACH 0.300

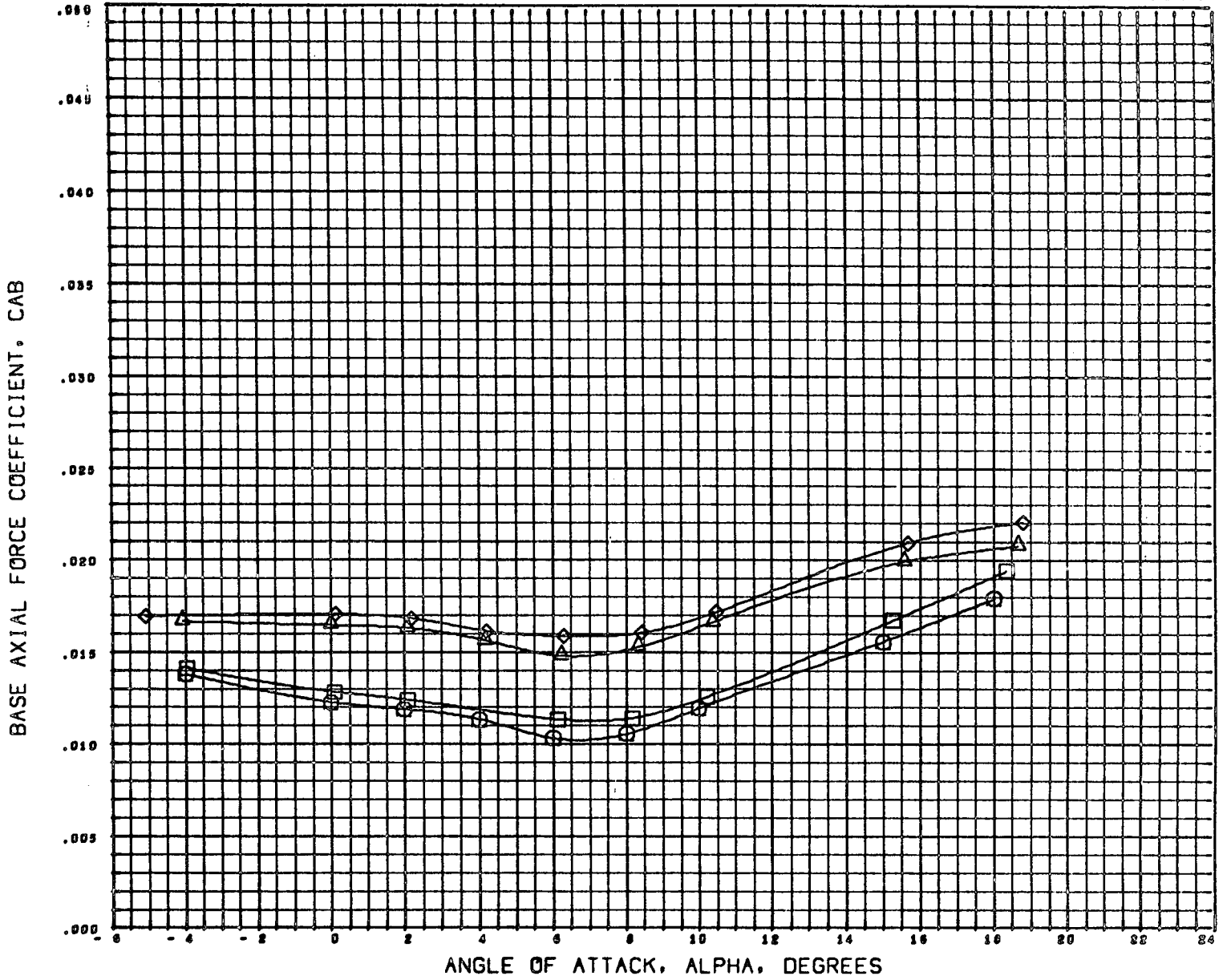
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M\$FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION		
(RNS00F)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550	80. FT.
(RNS096)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530	FEET
(RNS094)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RNS178)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.3950	FEET
						YMRP	0.0000	FEET
						ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

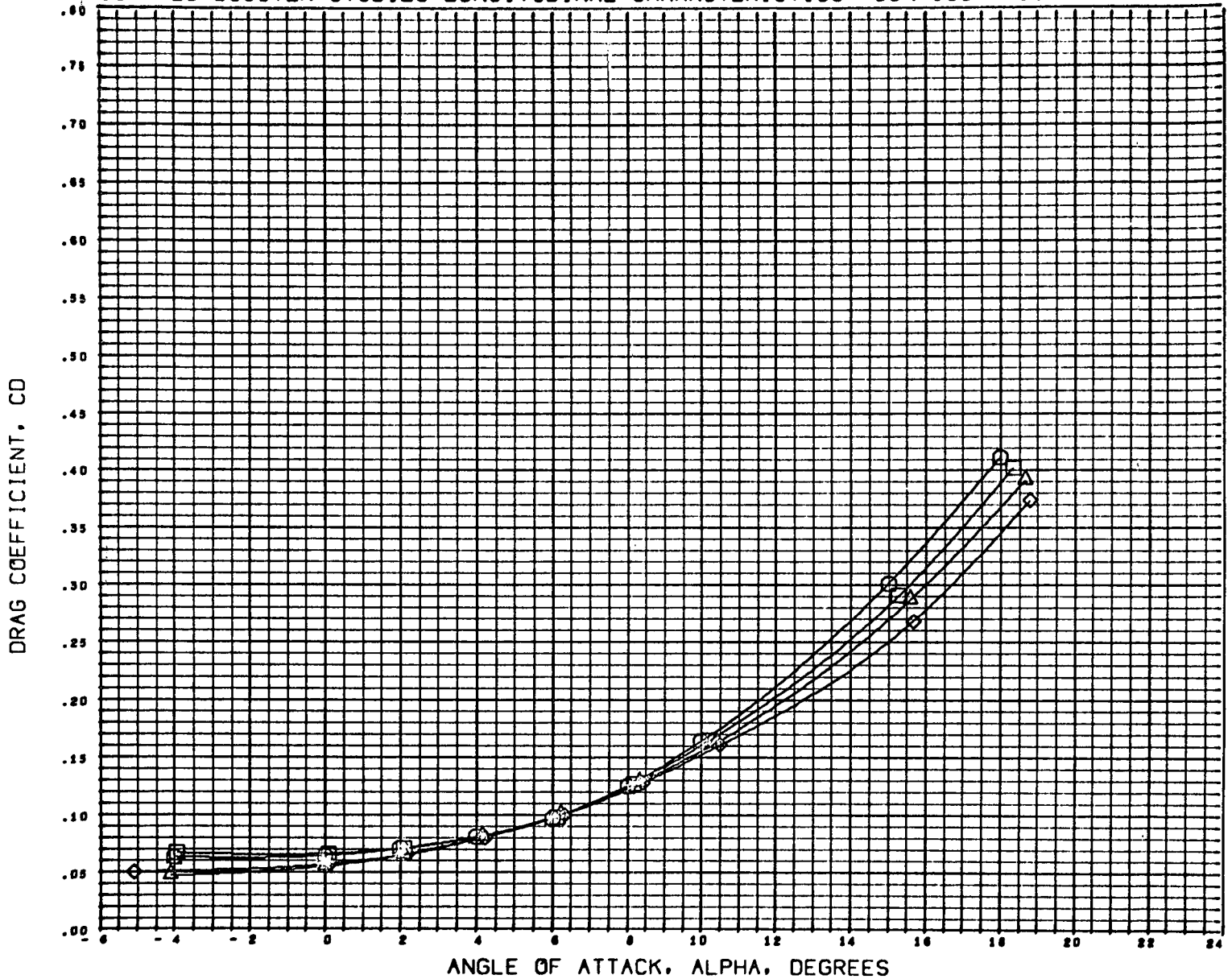


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF 1.3950 80.FT.
(RN3000)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF 3.4930 FEET
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(RN3178)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.900

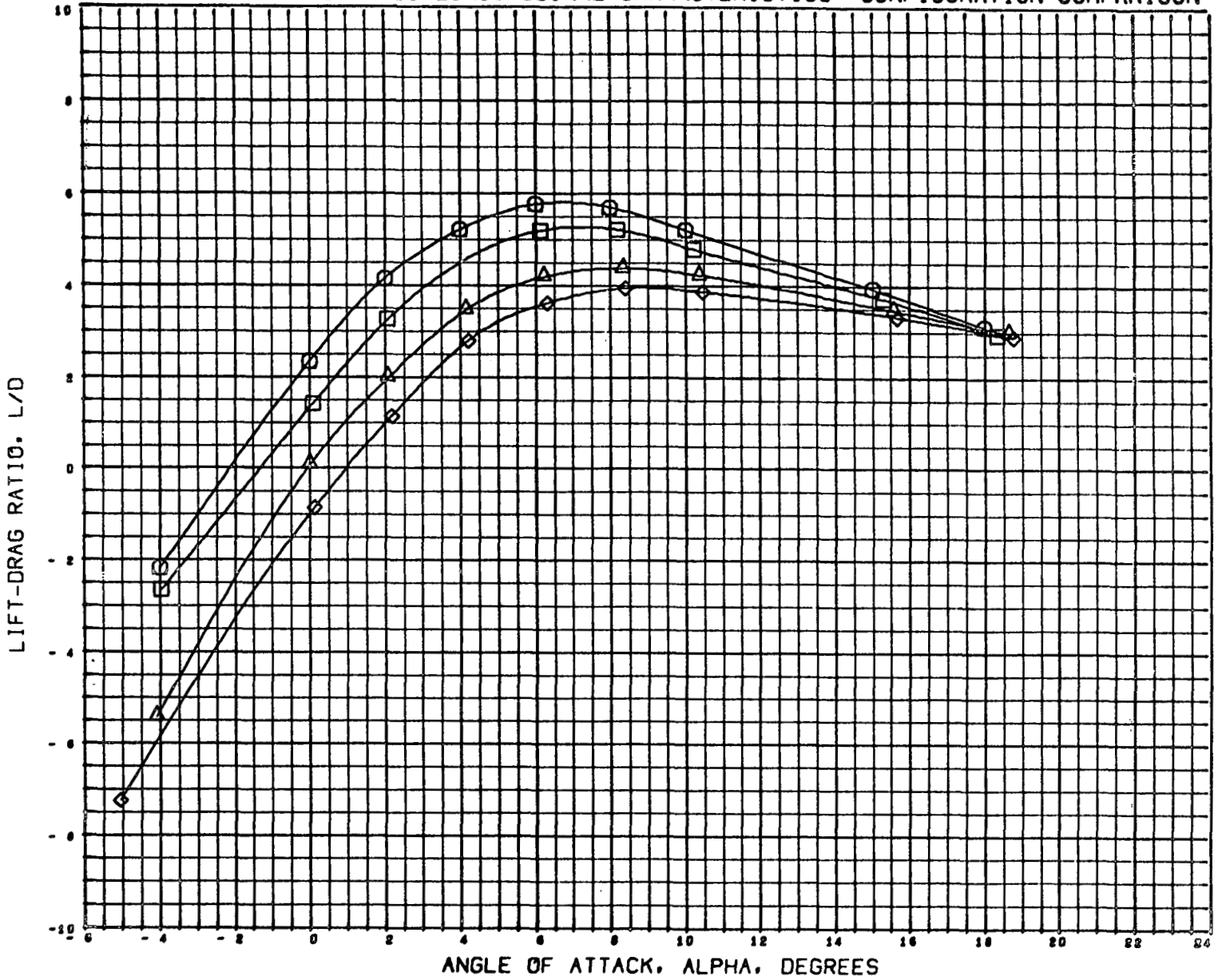
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 88. FT.
(RN3098)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3094)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3178)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.9650 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

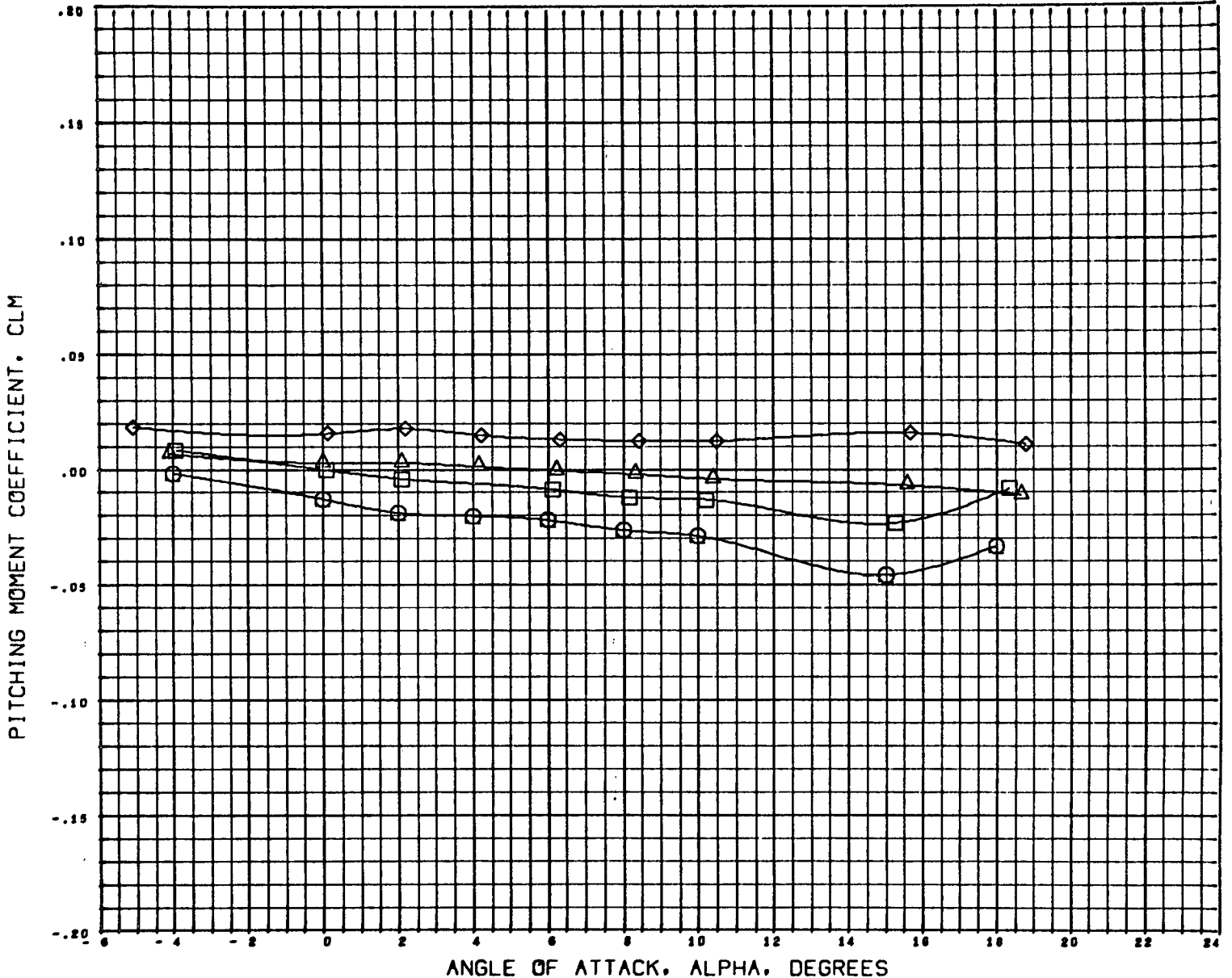
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS00F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS098)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(RNS094)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS178)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						TMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

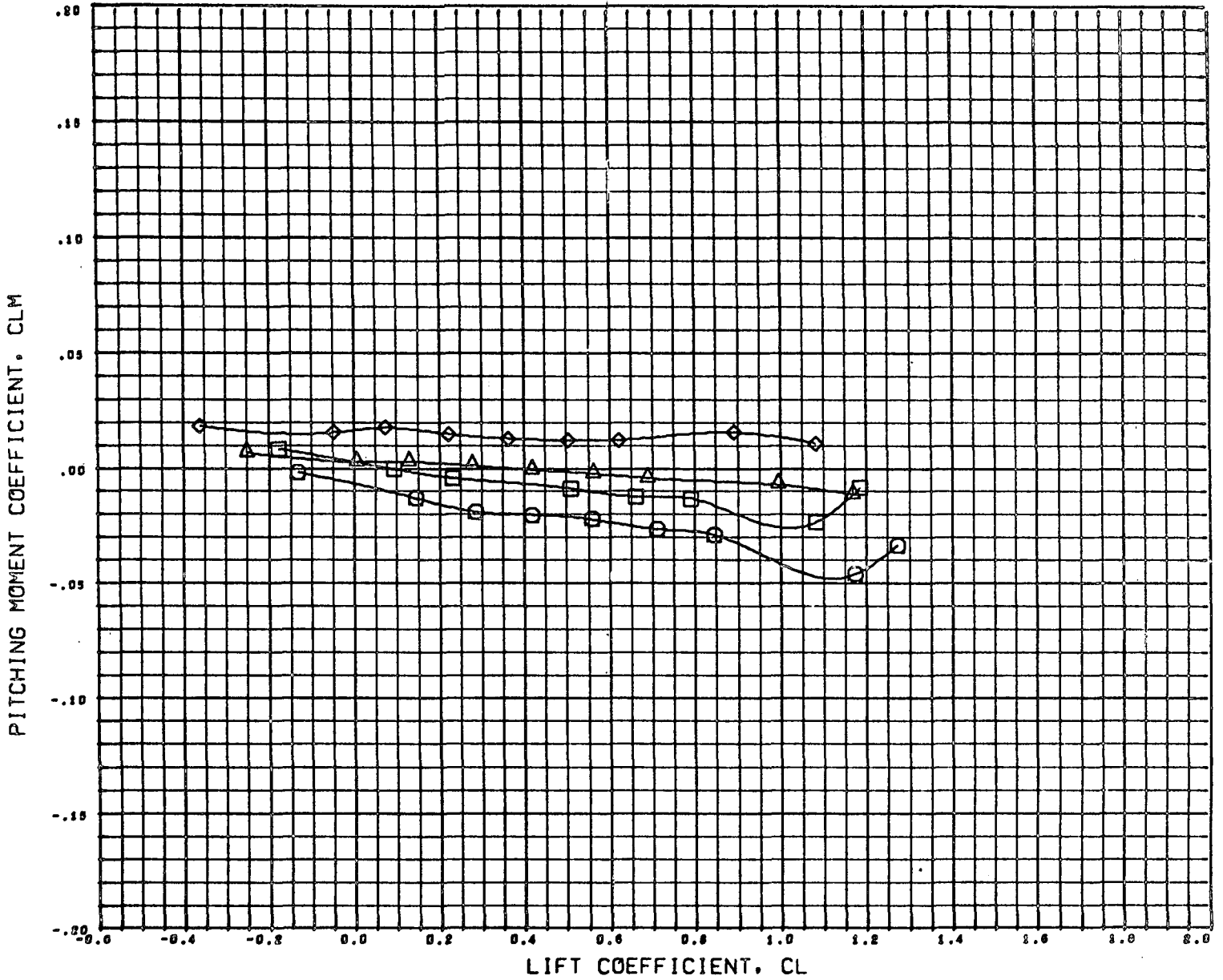
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300F)	◇	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3098)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3094)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3178)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.500

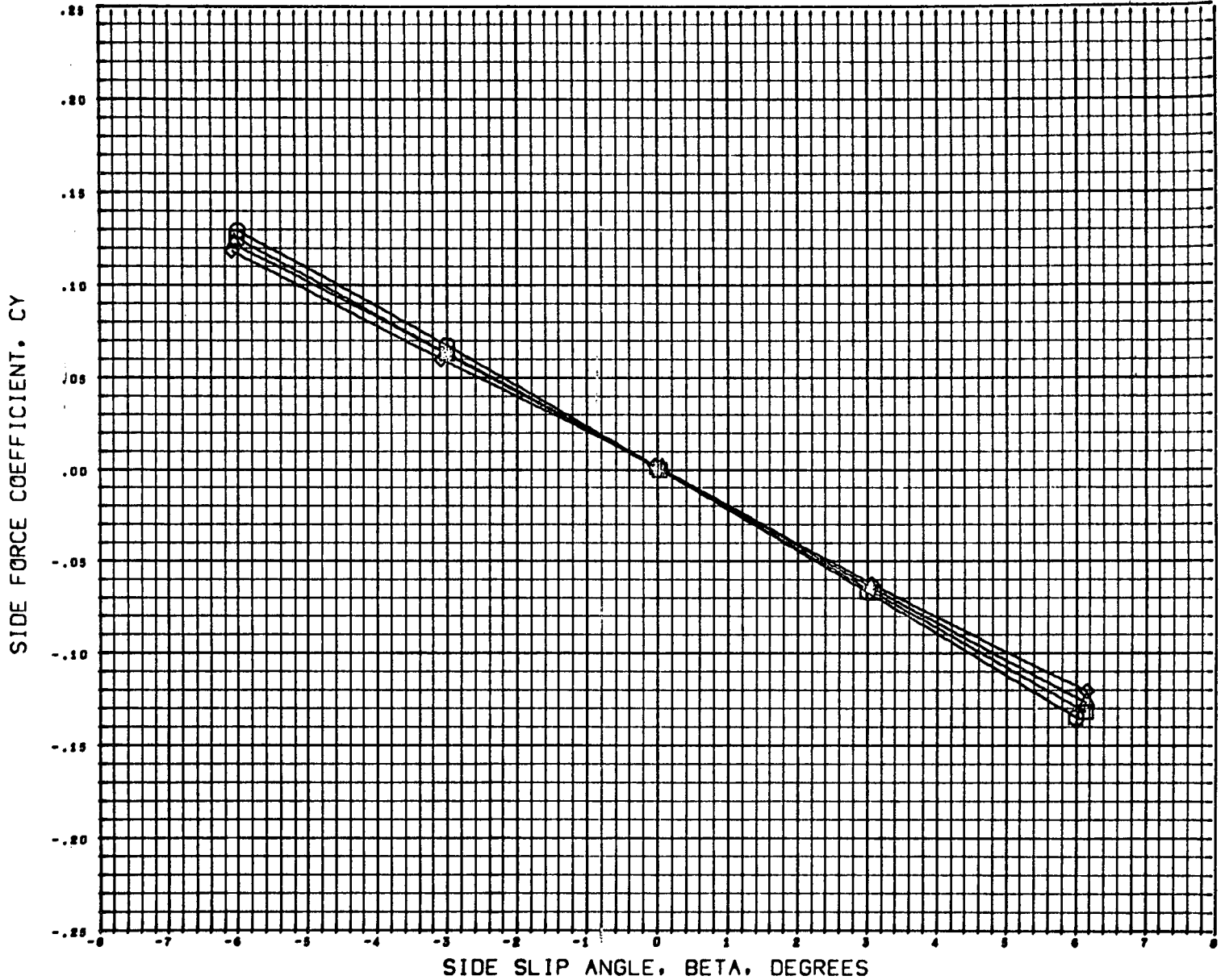
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF 1.3950 FEET
(RN3006)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3176)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACI 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

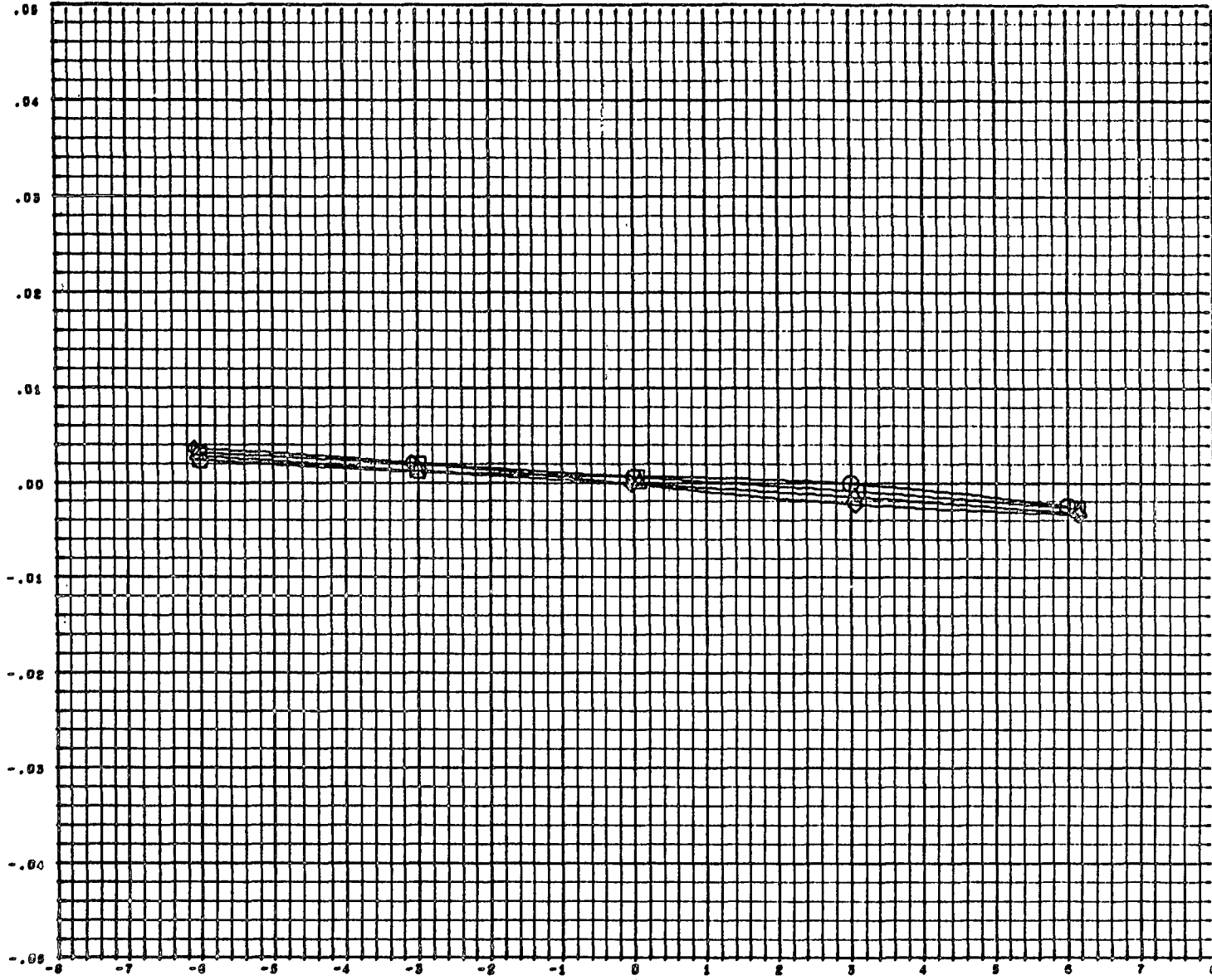


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AM300H)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	SREF 1.3550 80.FT.
(AM3099)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.003	0.749	0.000	0.000	LREF 3.4530 FEET
(AM3095)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.072	0.000	0.000	0.000	SREF 3.4530 FEET
(AM3179)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.074	0.000	0.000	0.000	XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



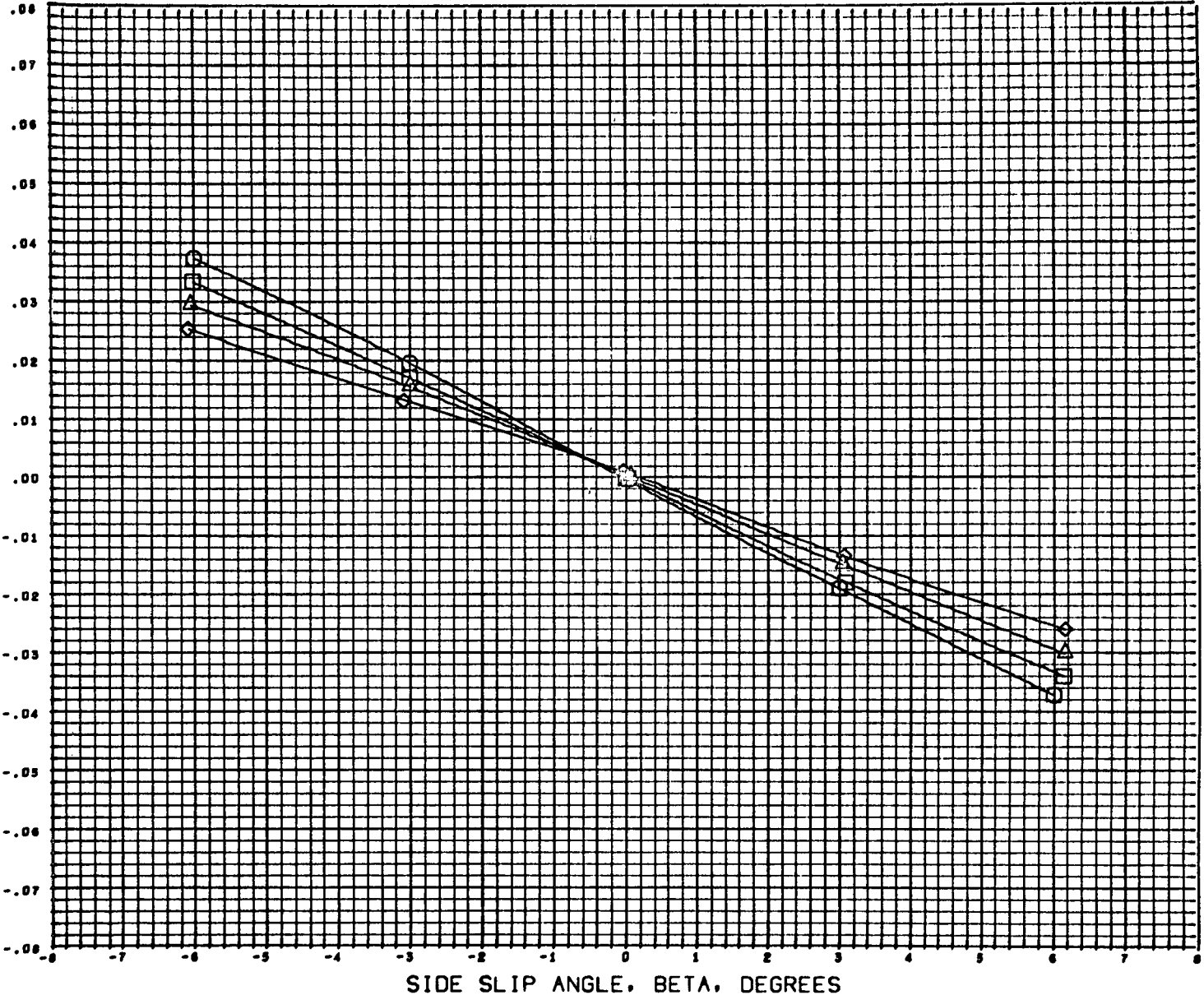
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300N)	MSRDC-3210, MSFC/LM8C BSTR. (PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	BREF 1.3590 SQ.FT.
(AN3009)	MSRDC-3210, MSFC/LM8C BOOSTER B1C2F2W1V1E3	-0.003	0.749	0.000	0.000	LREF 3.4930 FEET
(AN3095)	MSRDC-3210, MSFC/LM8C BOOSTER B1C2F2W1V1E3	0.072	0.000	0.000	0.000	BREF 3.4930 FEET
(AN3179)	MSRDC-3210, MSFC/LM8C BOOSTER B1C2F2W1V1G3	0.074	0.000	0.000	0.000	XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

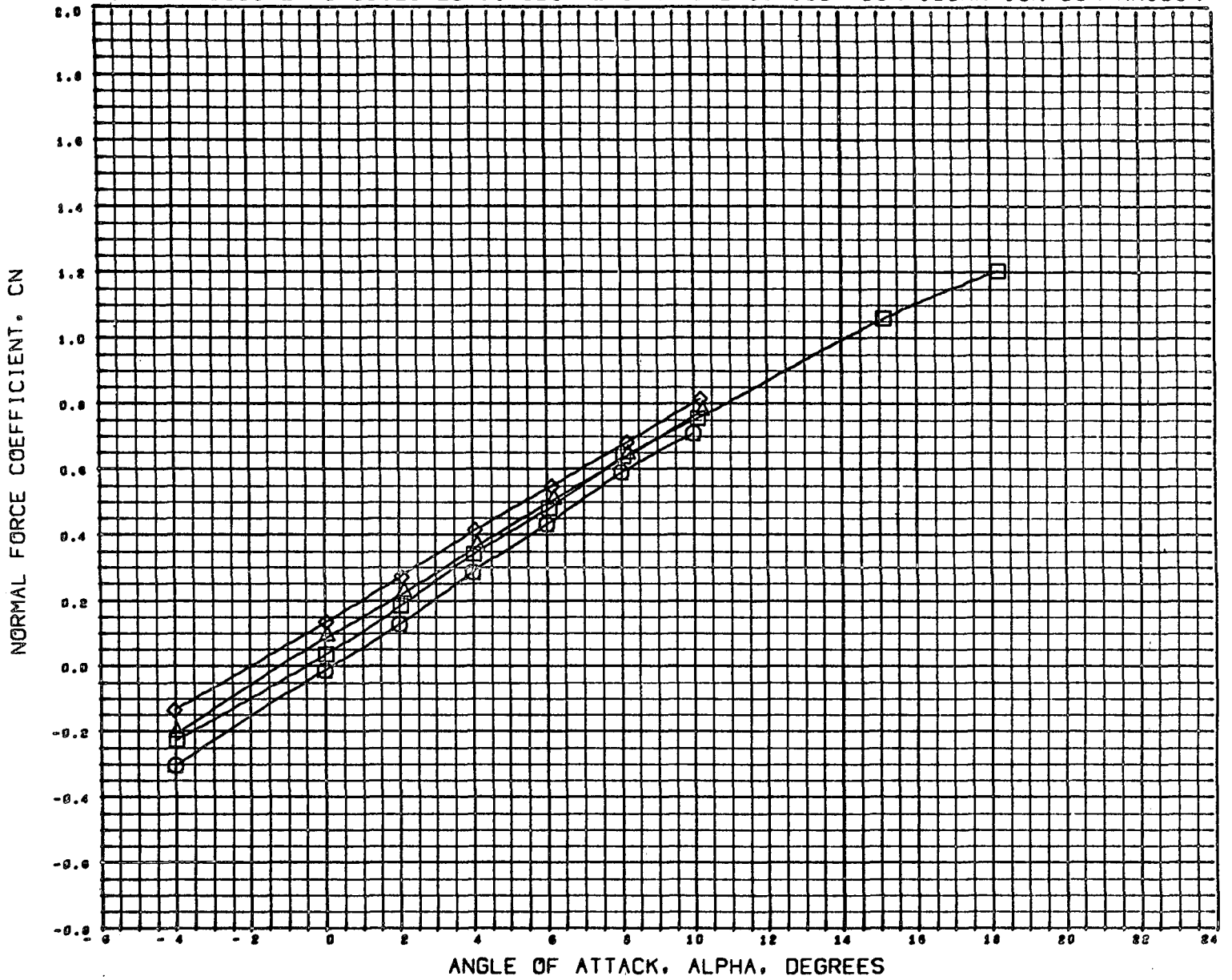
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300H)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	SREF 1.3550 30. FT.
(RN3099)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.003	0.749	0.000	0.000	LREF 3.4530 FEET
(RN3095)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.072	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3179)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.074	0.000	0.000	0.000	XHRP 2.5990 FEET YHRP 0.0000 FEET ZHRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 0.900

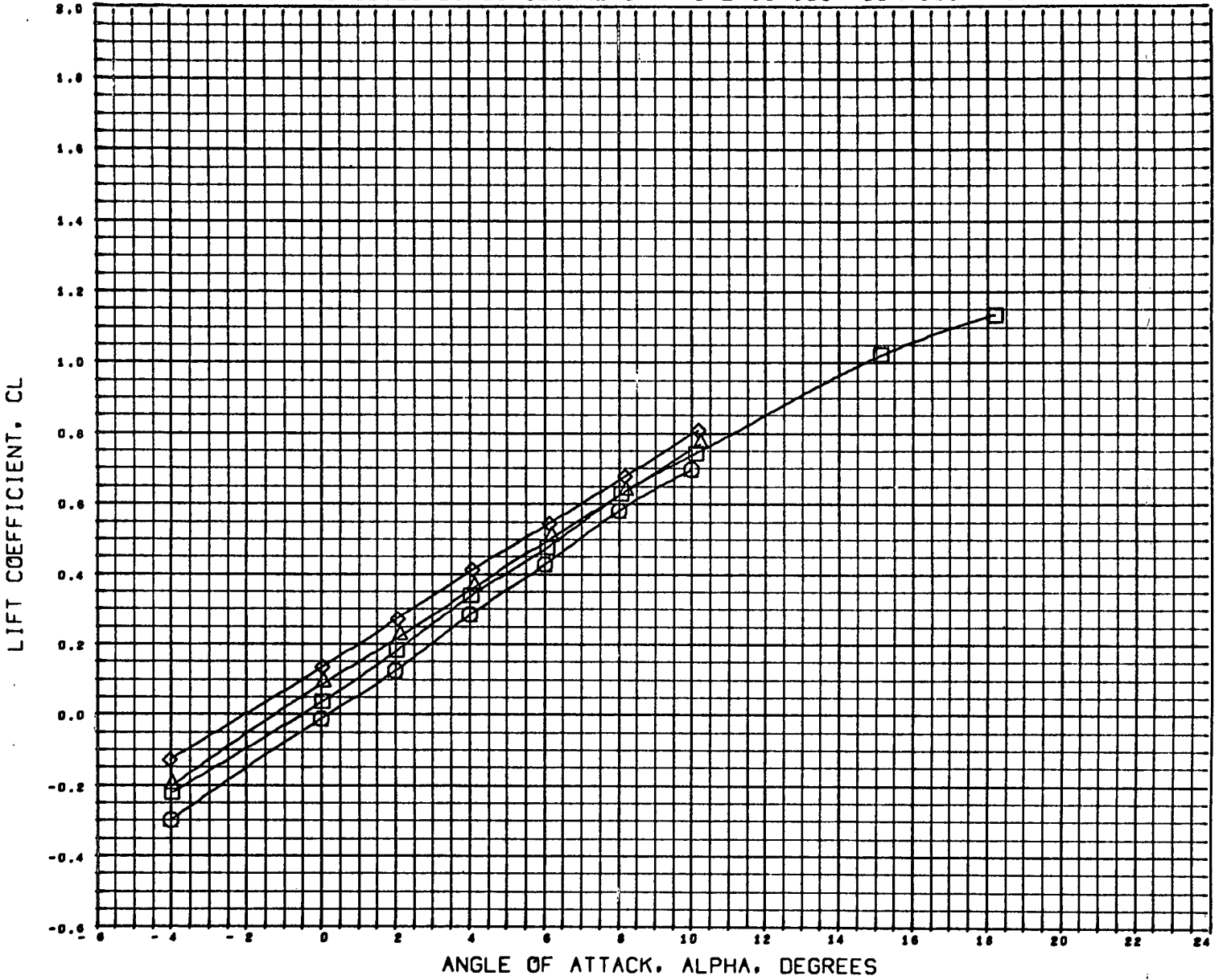
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(ANS101)	MSRDC-3210,MSFC/LM8C BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF 1.3550 00.FT.
(RMS106)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF 3.4530 FEET
(RMS108)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RMS104)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0187 FEET
						SCALE 0.0180 SCALE

MACH 0.400

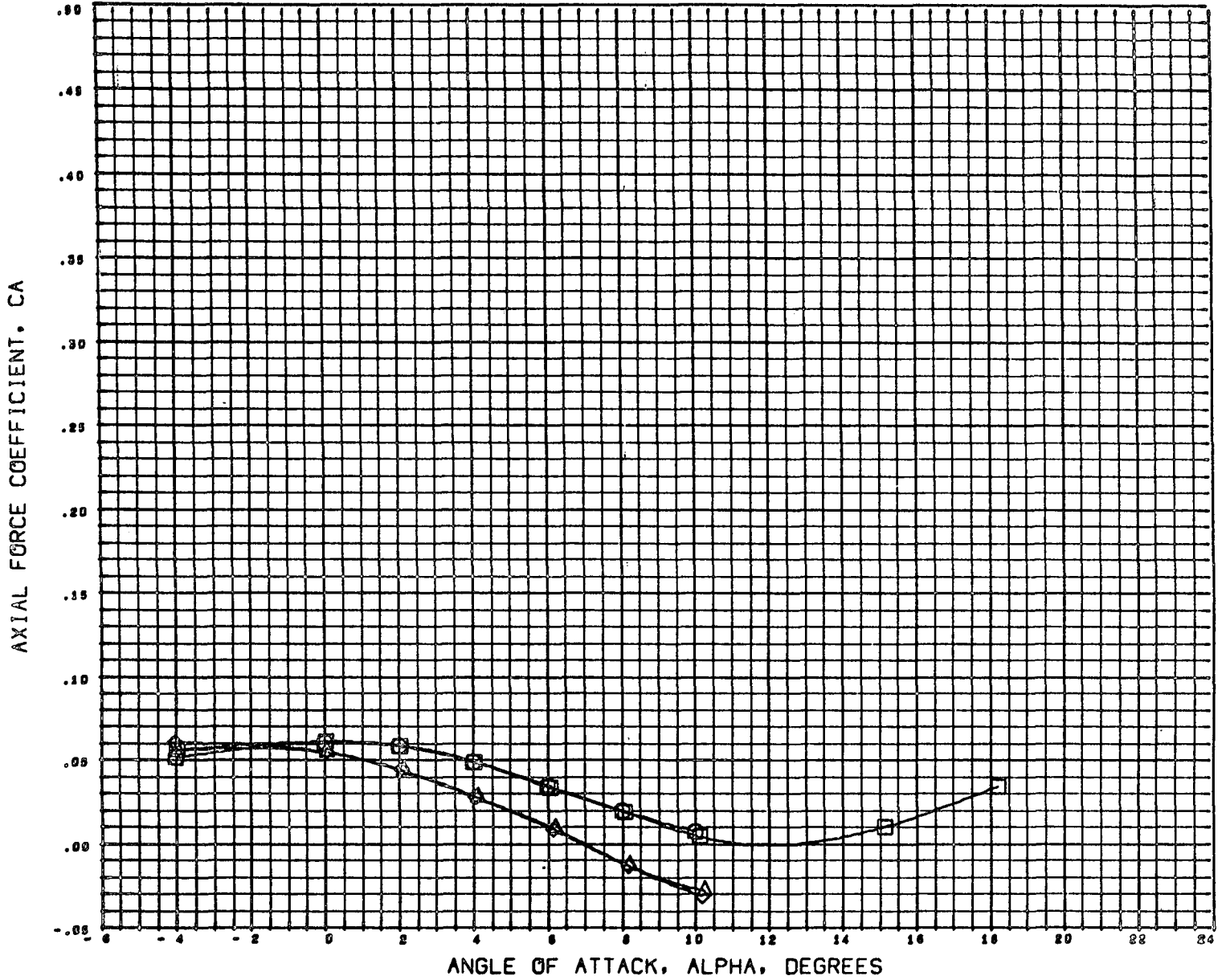
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	○	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3100)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3102)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3104)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.400

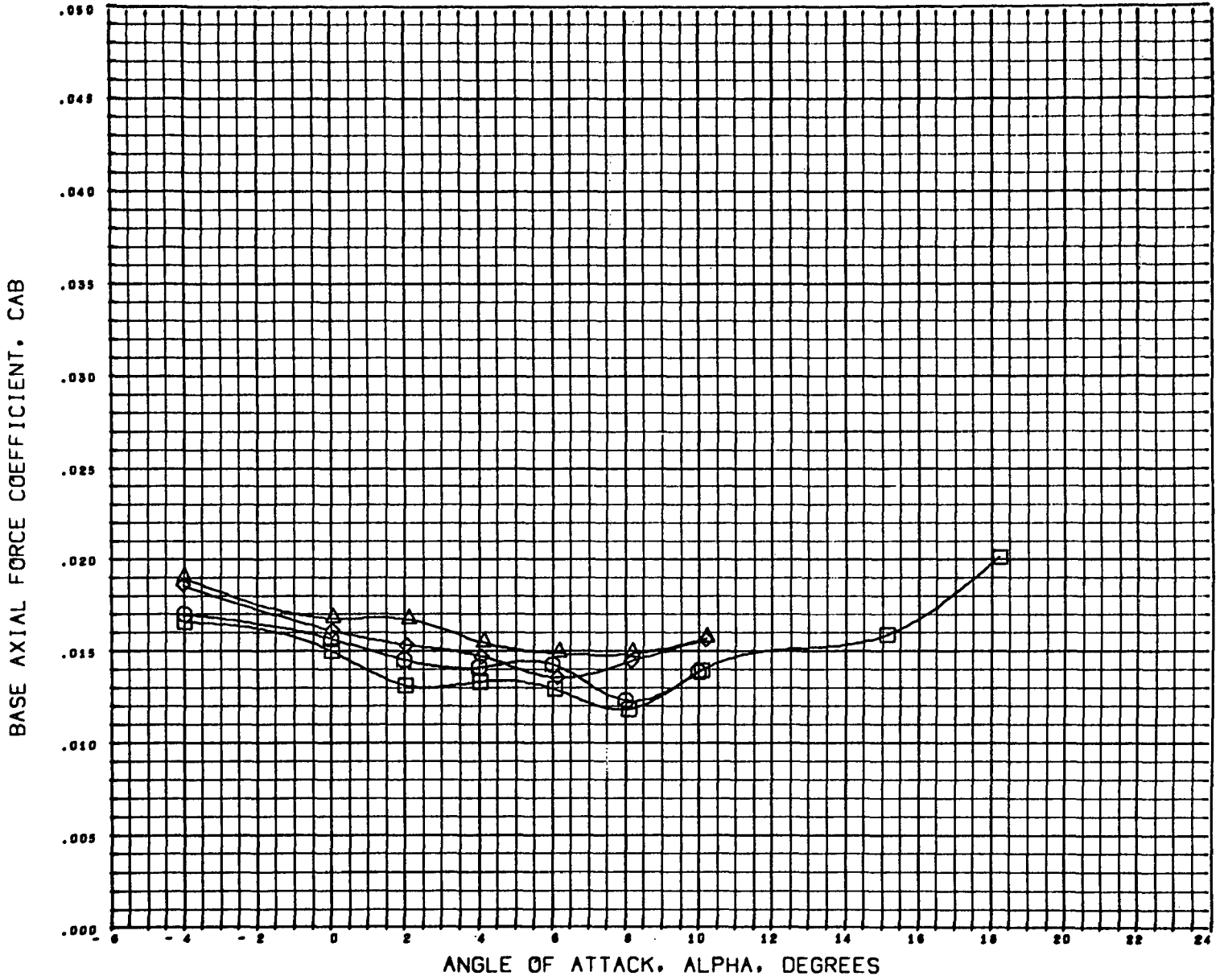
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3001)	MSRDC-3210, MSFC/LHSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3100)	MSRDC-3210, MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3102)	MSRDC-3210, MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	DREF 3.4530 FEET
(RN3104)	MSRDC-3210, MSFC/LHSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XHRP 2.3930 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACN 0.400

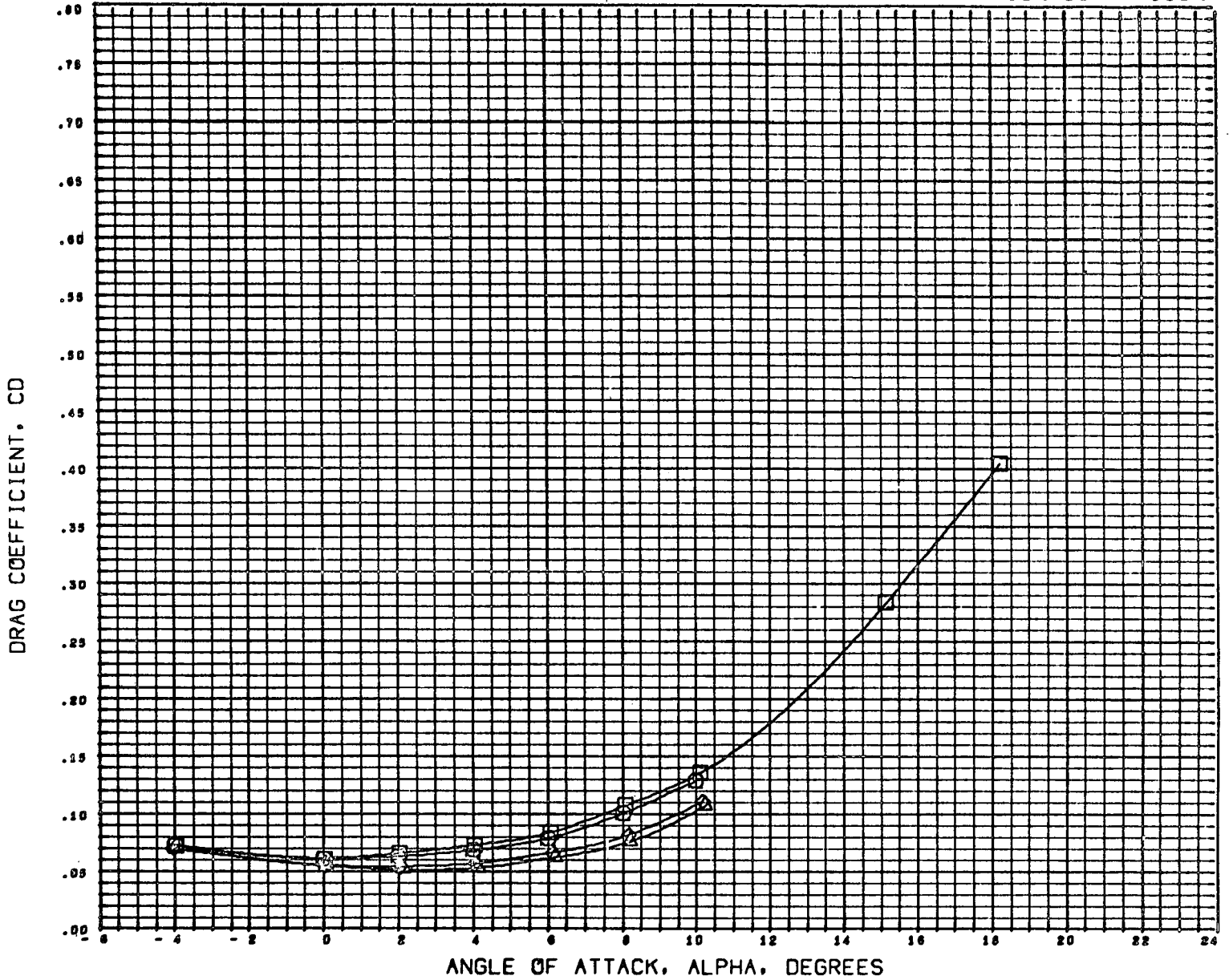
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3001)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF 1.3550 80. FT.
(RN3106)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3164)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET YNRP 0.0000 FEET ZNRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.400

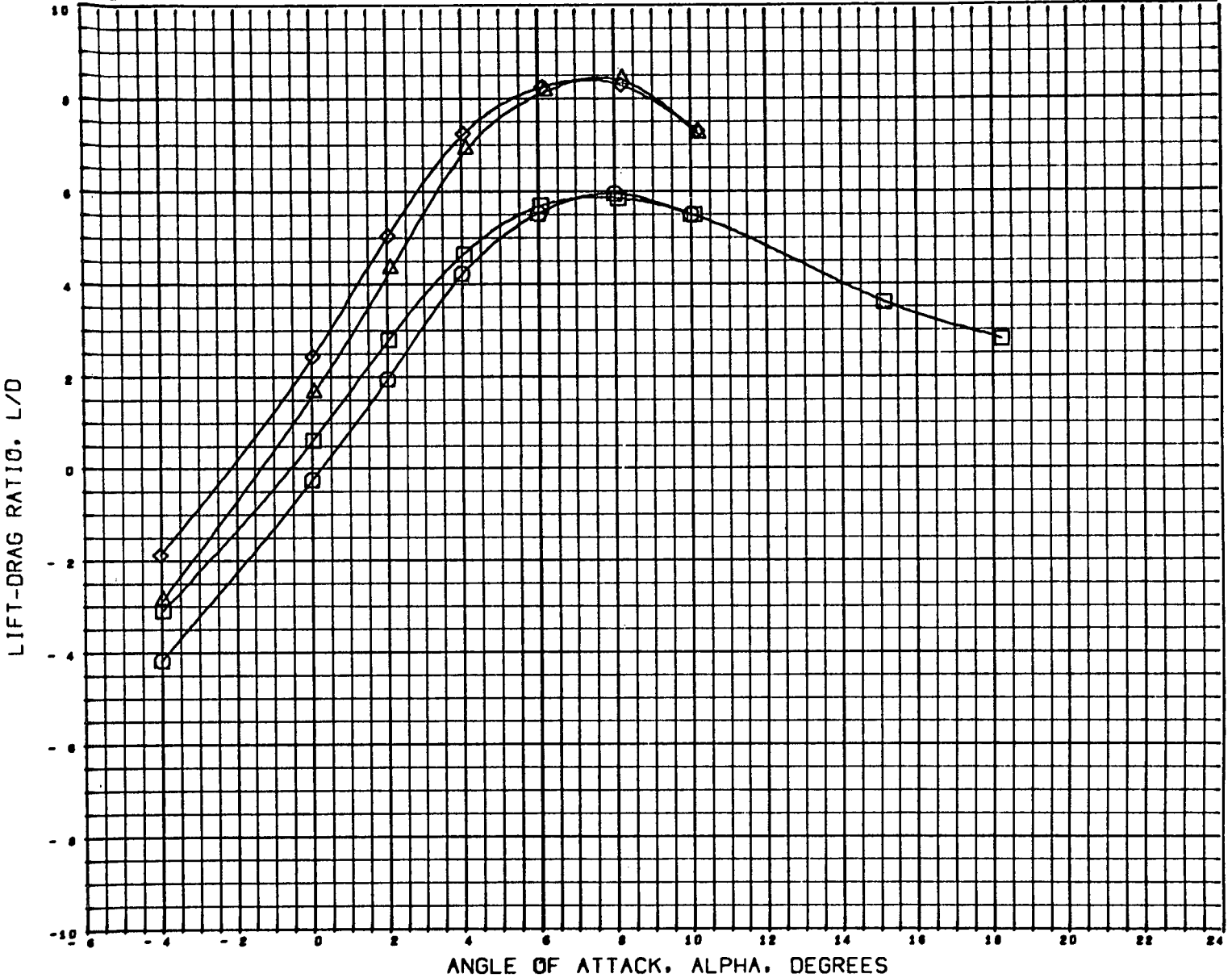
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3350 60.FT.
(AN3106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3102)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3104)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

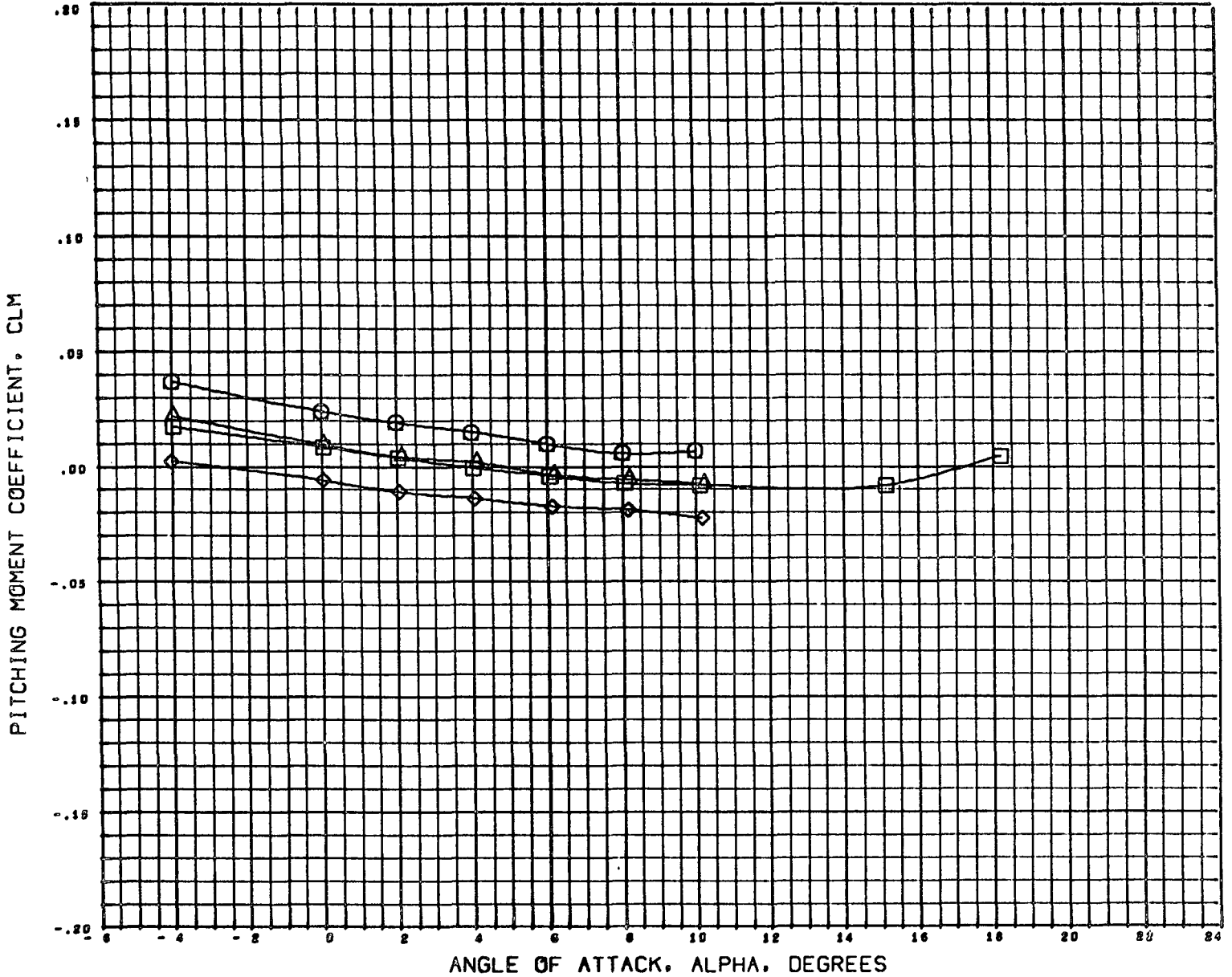
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3001)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF 1.3950 SQ.FT.
(RN3106)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3104)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XHRP 2.9950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.400

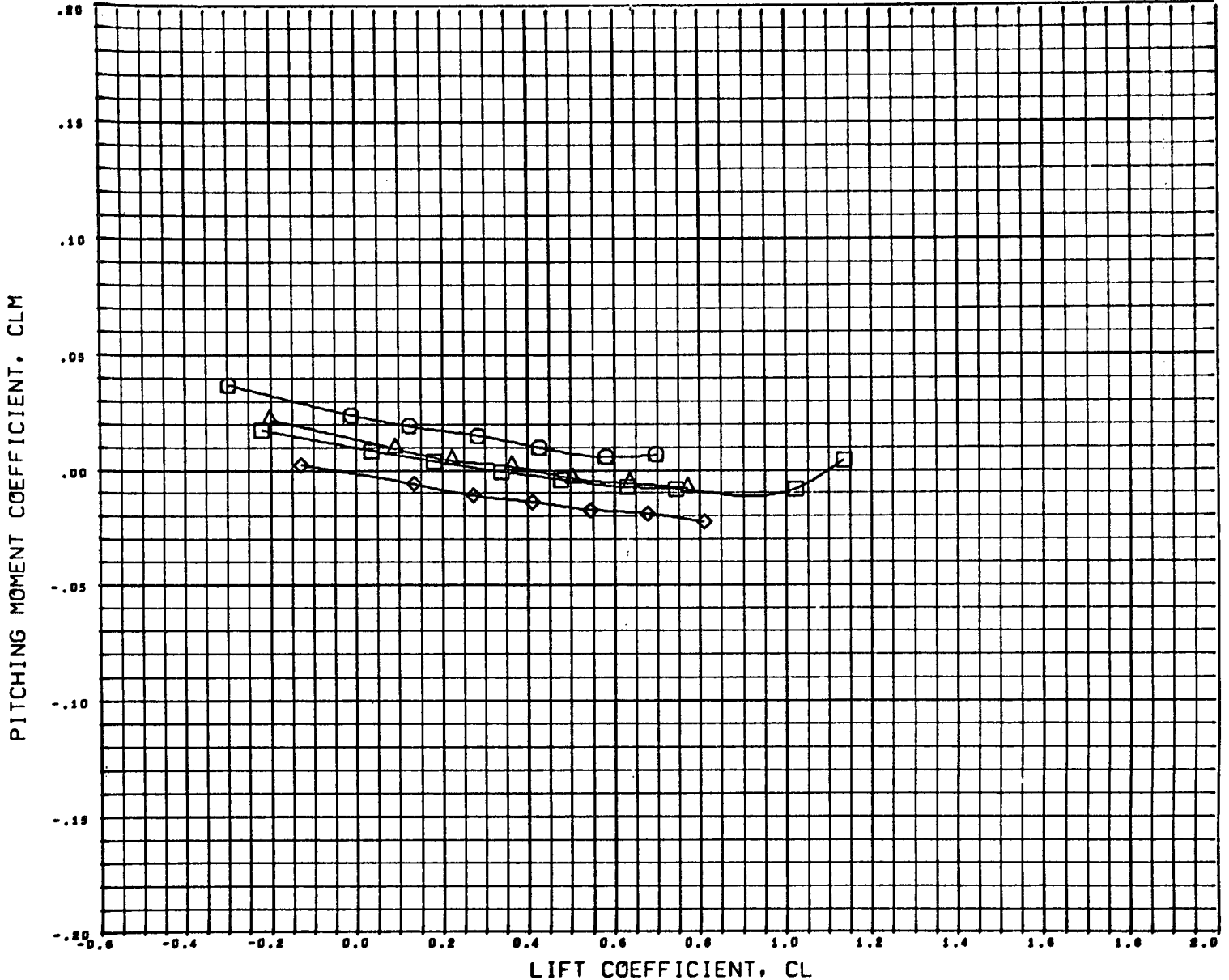
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3001)	NSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN3106)	NSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF 3.4530 FEET
(AN3102)	NSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(AN3104)	NSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

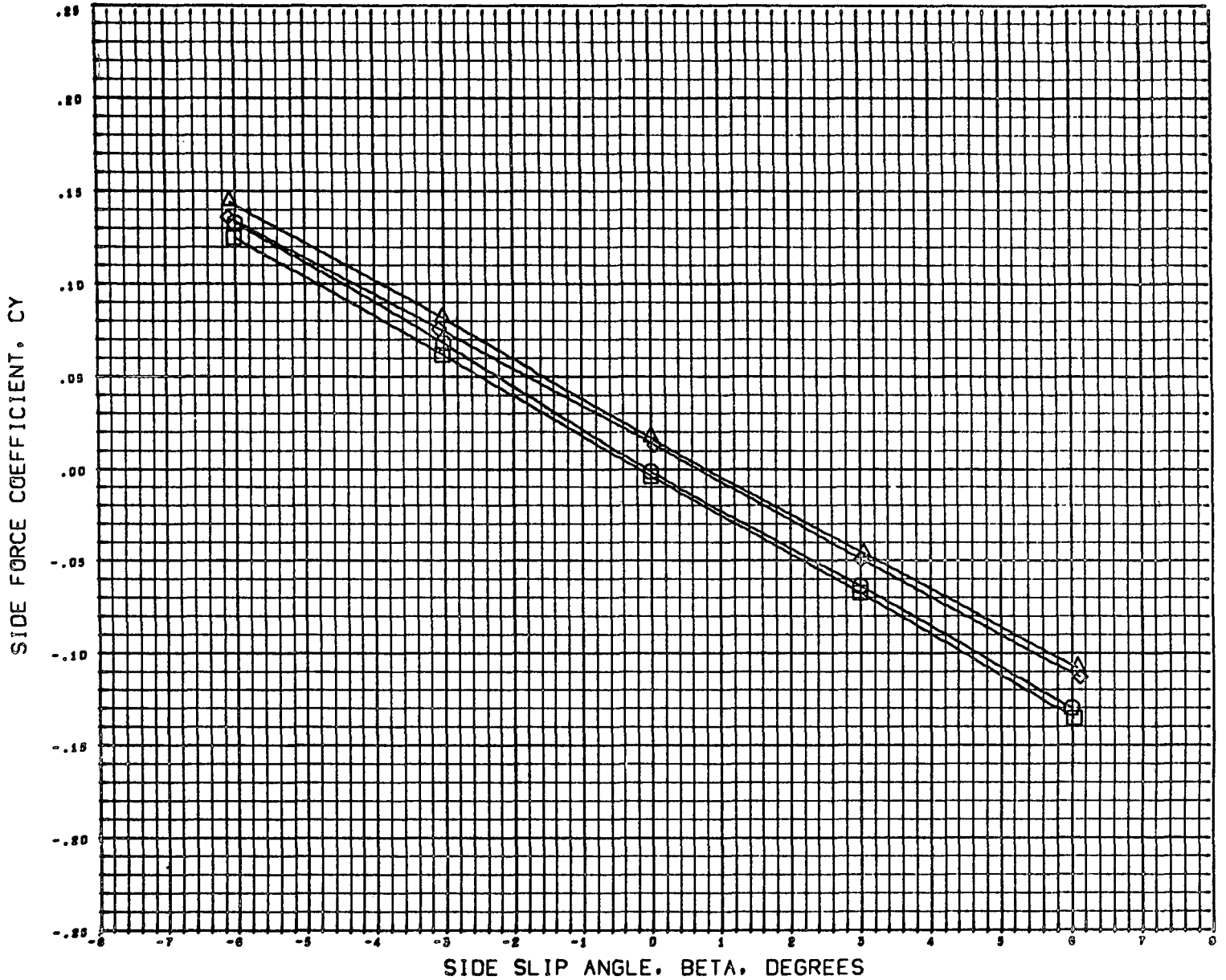
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3001)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 1.3550 SQ.FT.
(AN3106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF 3.4530 FEET
(AN3102)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(AN3104)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

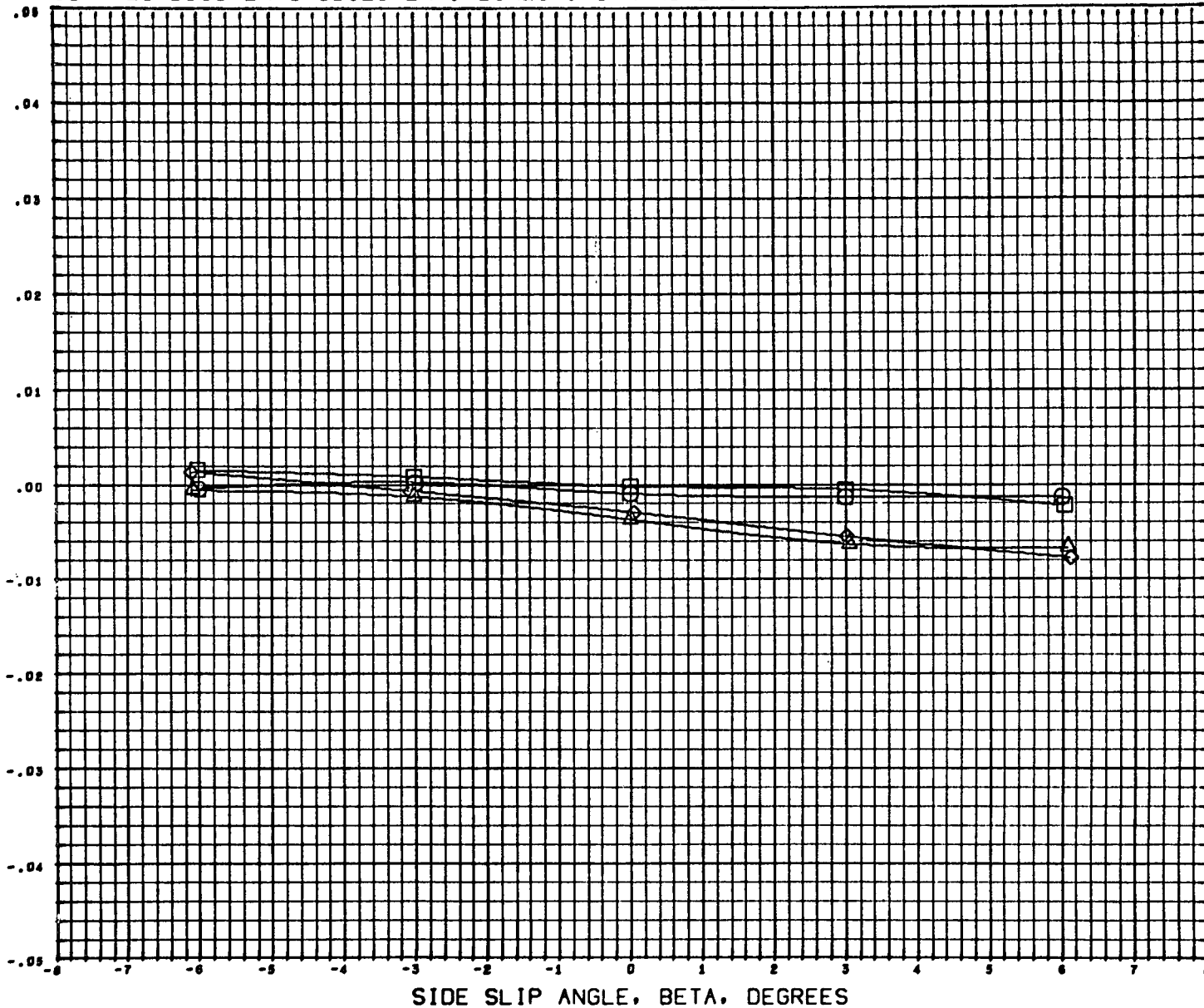


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(RNS300)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	SREF 1.3950 SQ.FT.
(RNS107)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.045	0.772	0.000	0.000	LREF 3.4530 FEET
(RNS103)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.010	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS105)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.002	0.000	0.000	0.000	XMRP 2.9050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

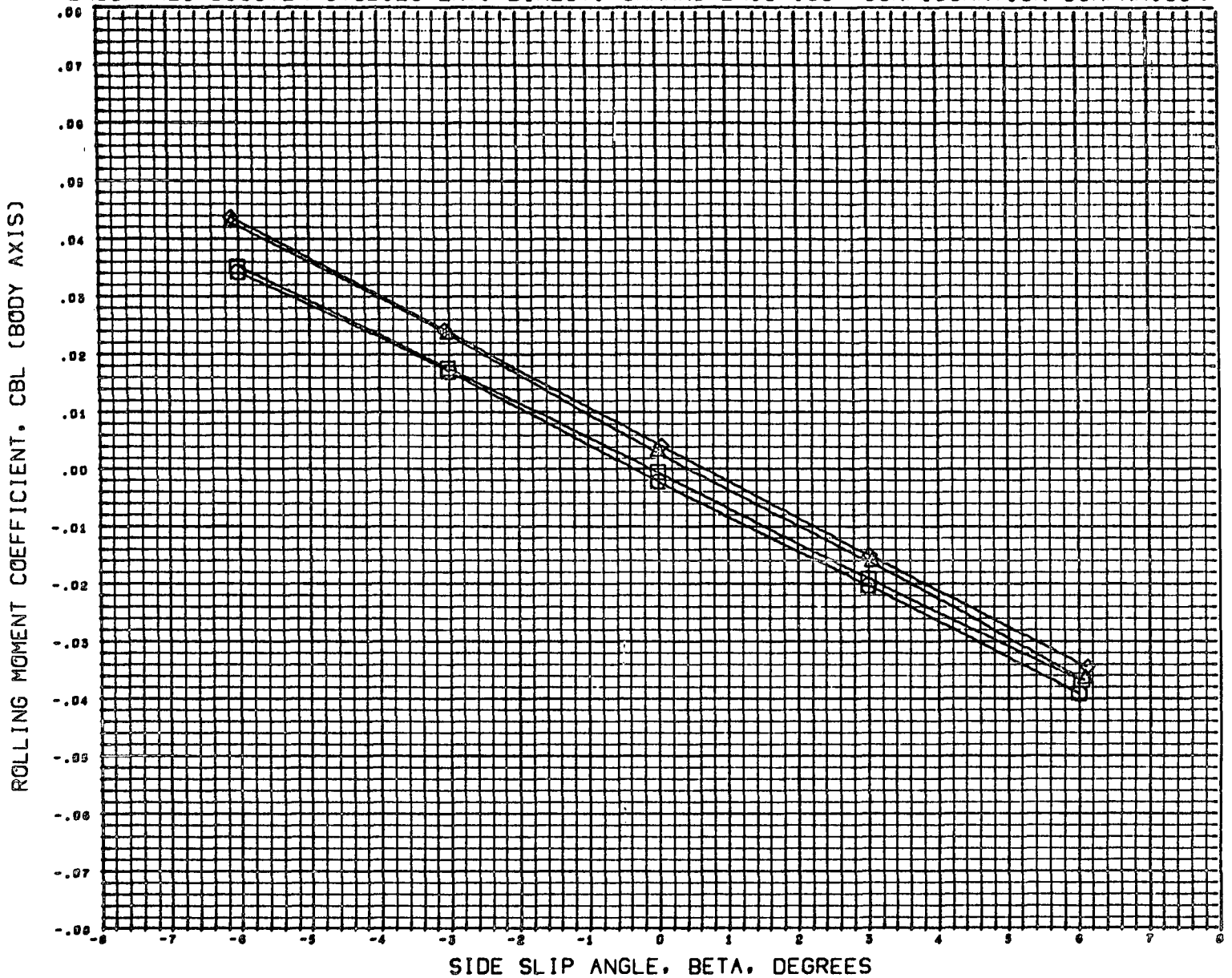
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300K)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	SREF 1.3950 SQ.FT.
(RN3107)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.045	0.772	0.000	0.000	LREF 3.4530 FEET
(RN3103)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.010	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3105)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.002	0.000	0.000	0.000	XNRP 2.3950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0107 FEET
						SCALE 0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

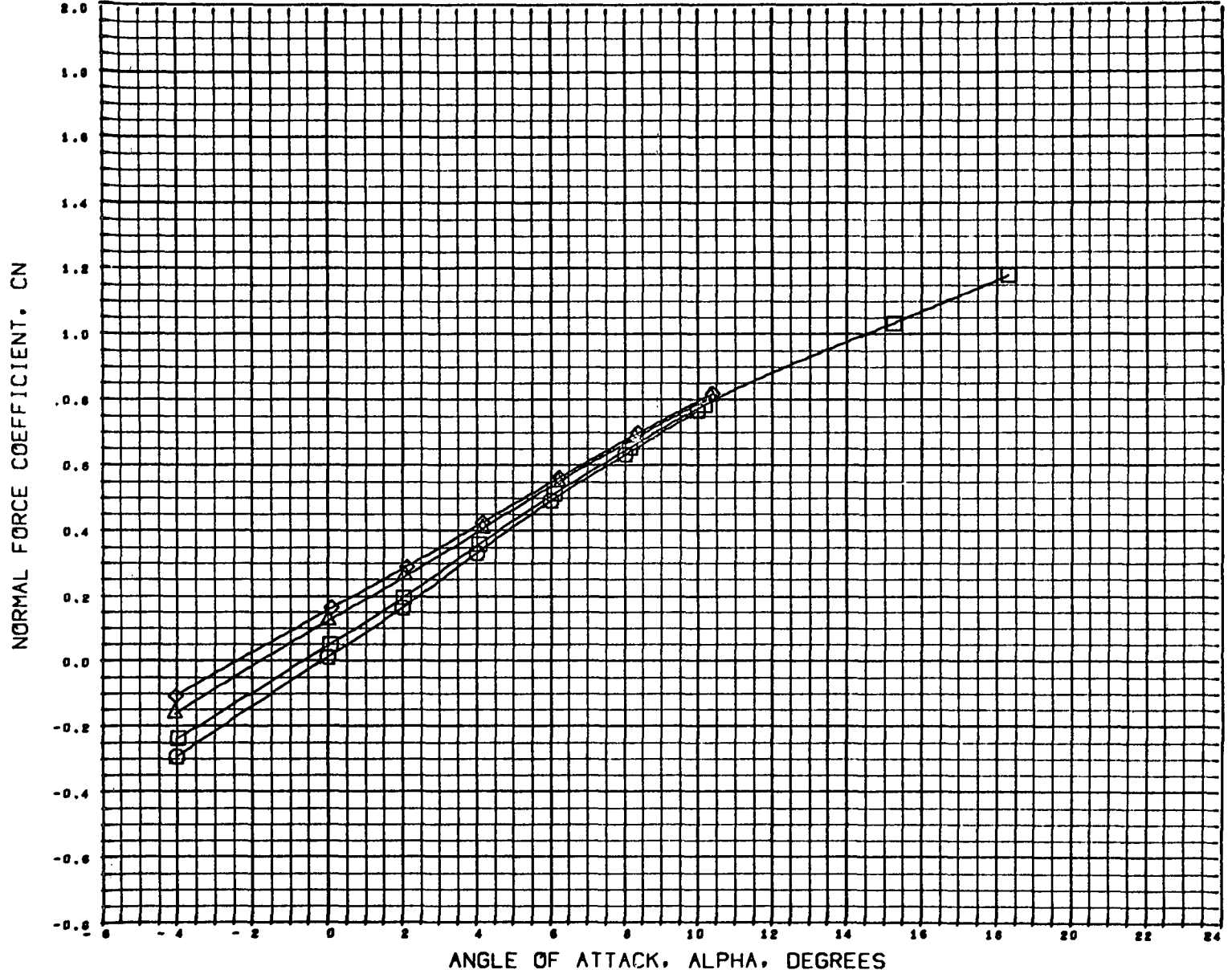


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300K)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3107)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.045	0.772	0.000	0.000	LREF 3.4530 FEET
(RN3109)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.010	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3109)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.002	0.000	0.000	0.000	XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0387 FEET
						SCALE 0.0150 SCALE

MACH 0.400

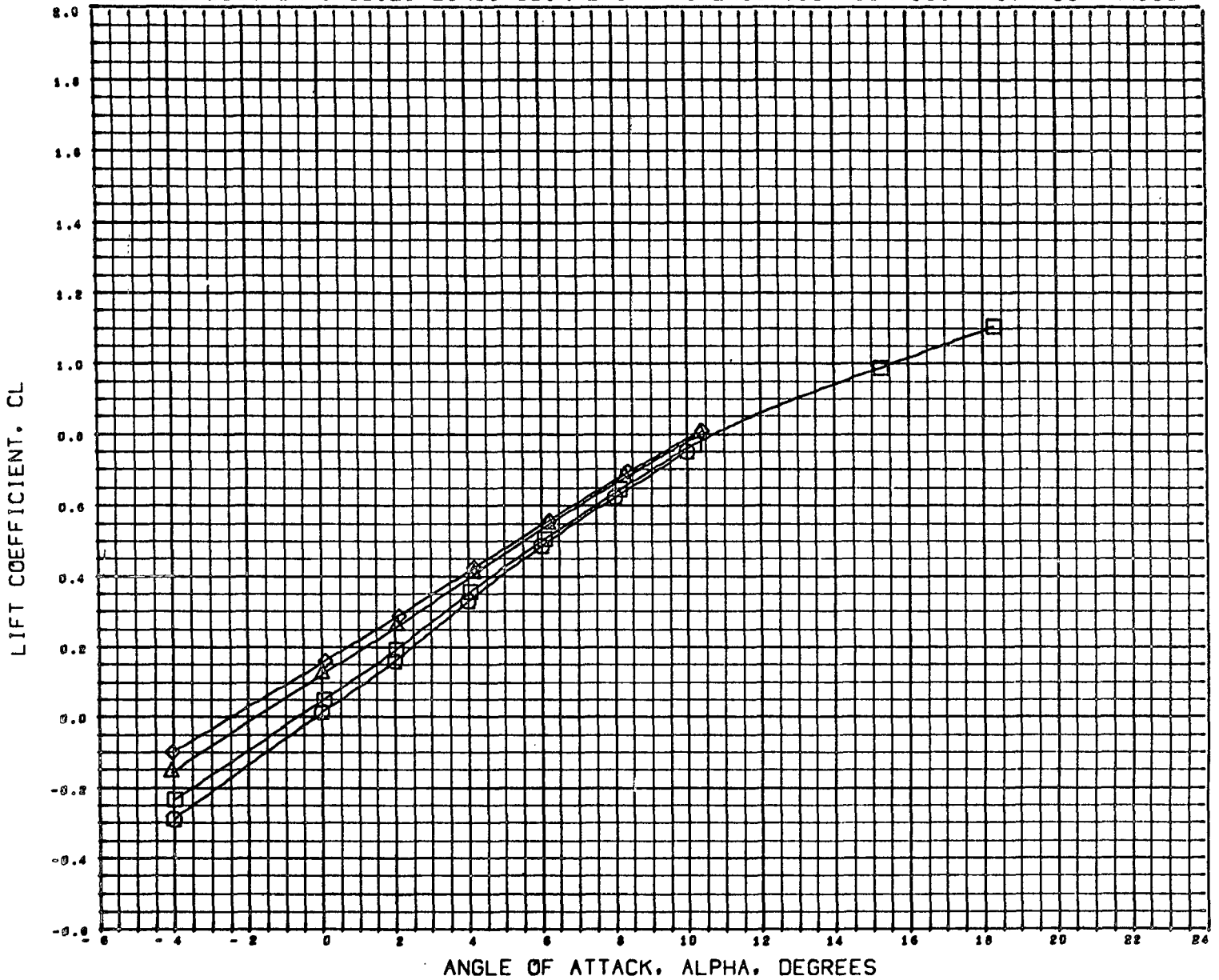
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300J)	○	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3114)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3110)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3188)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



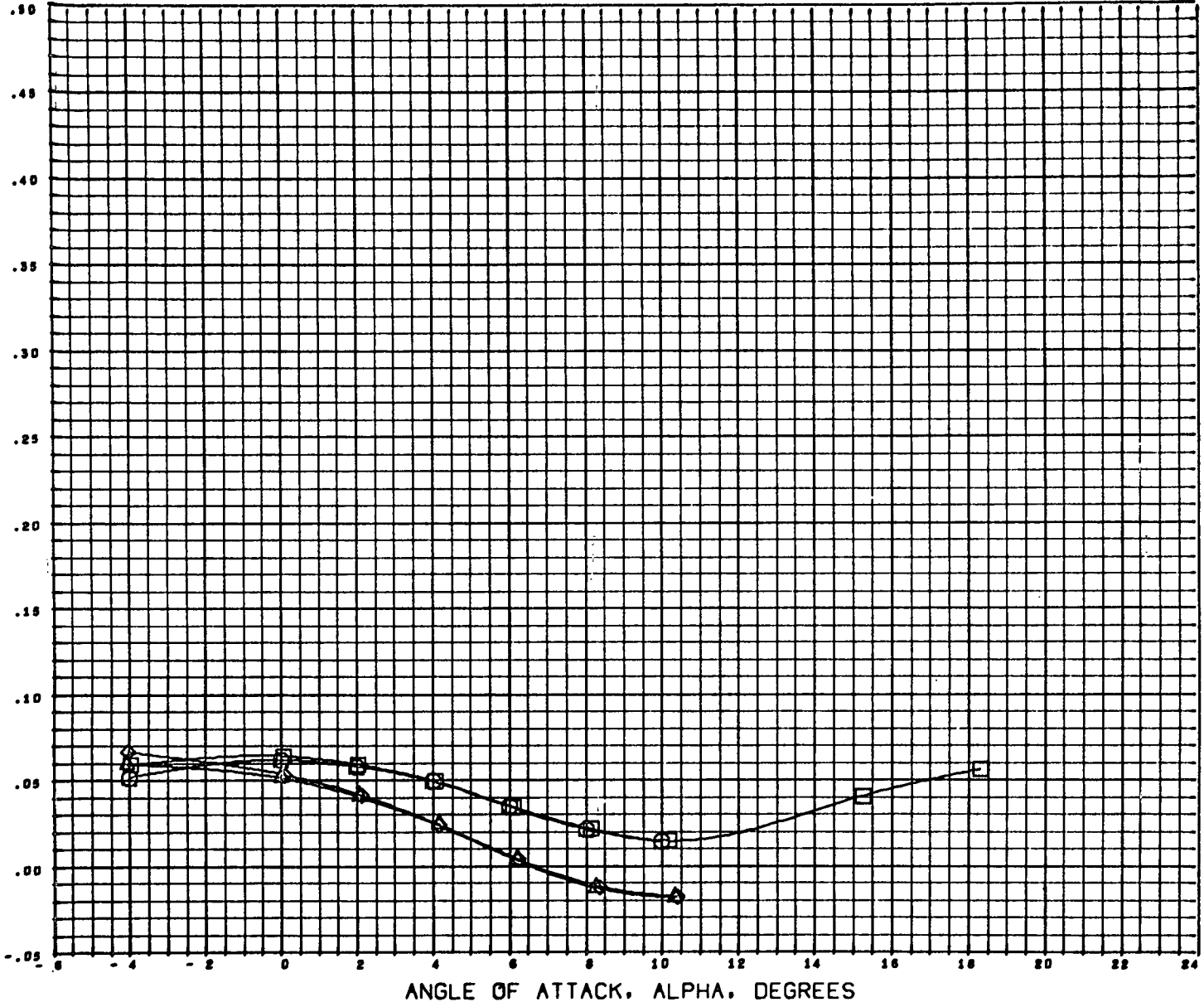
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300J)	NSRDC-3210,MSFC/LMSC B&TR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF 1.3550 SB.FT.
(RN3114)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3110)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3106)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

11

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA

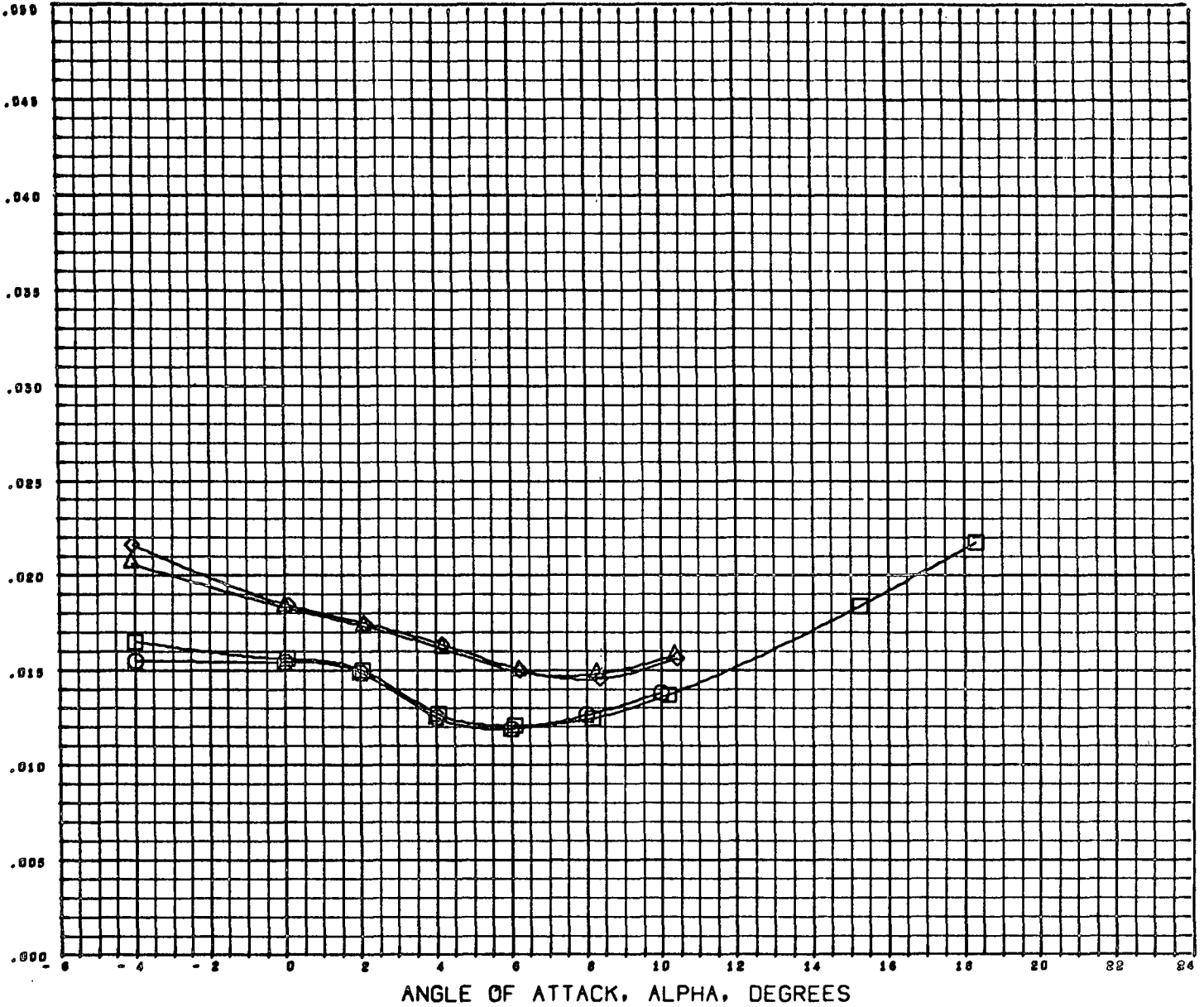


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF 1.3350 80.FT.
(RN3114)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF 3.4330 FEET
(RN3110)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3188)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

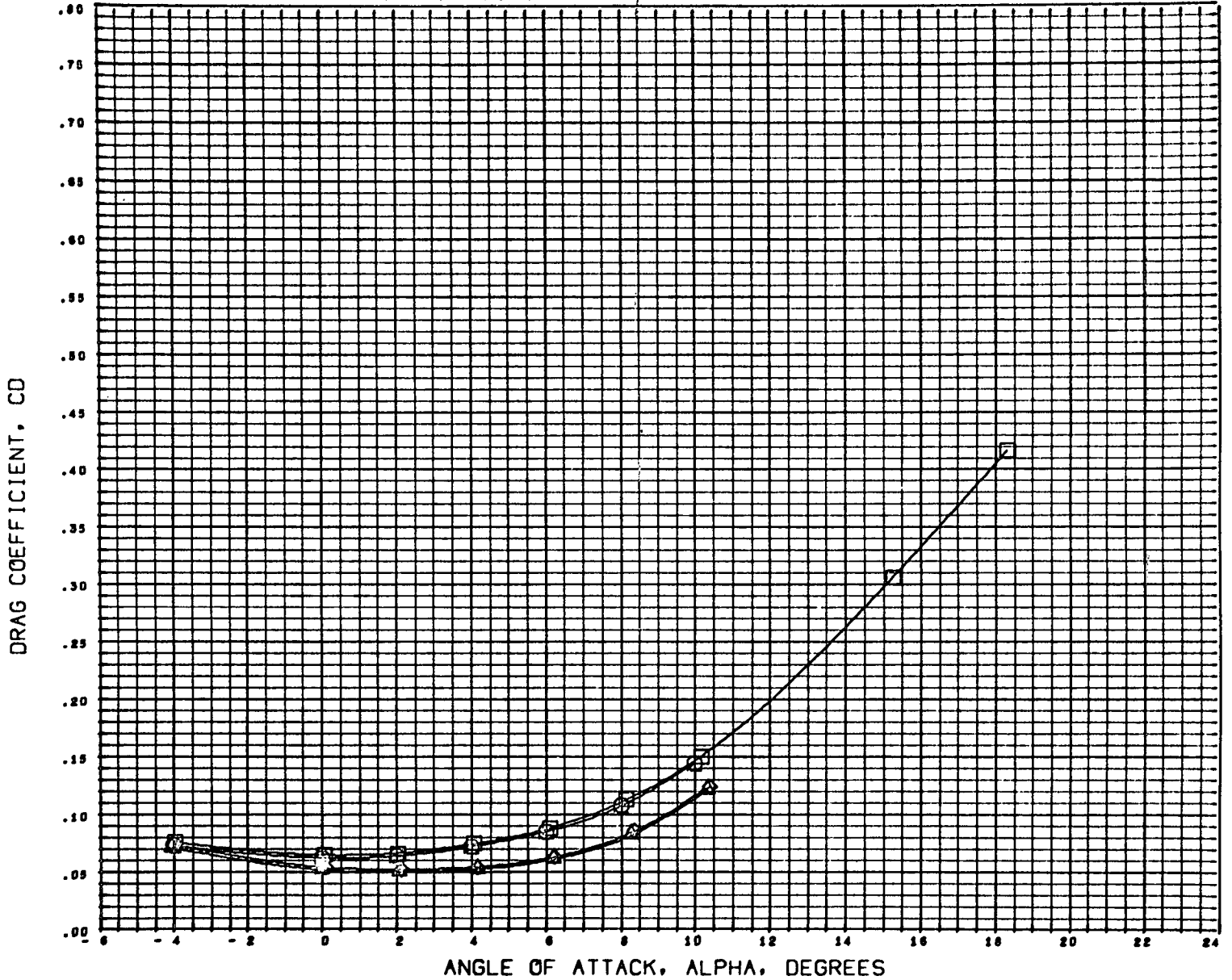
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300J)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3134)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3130)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3186)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

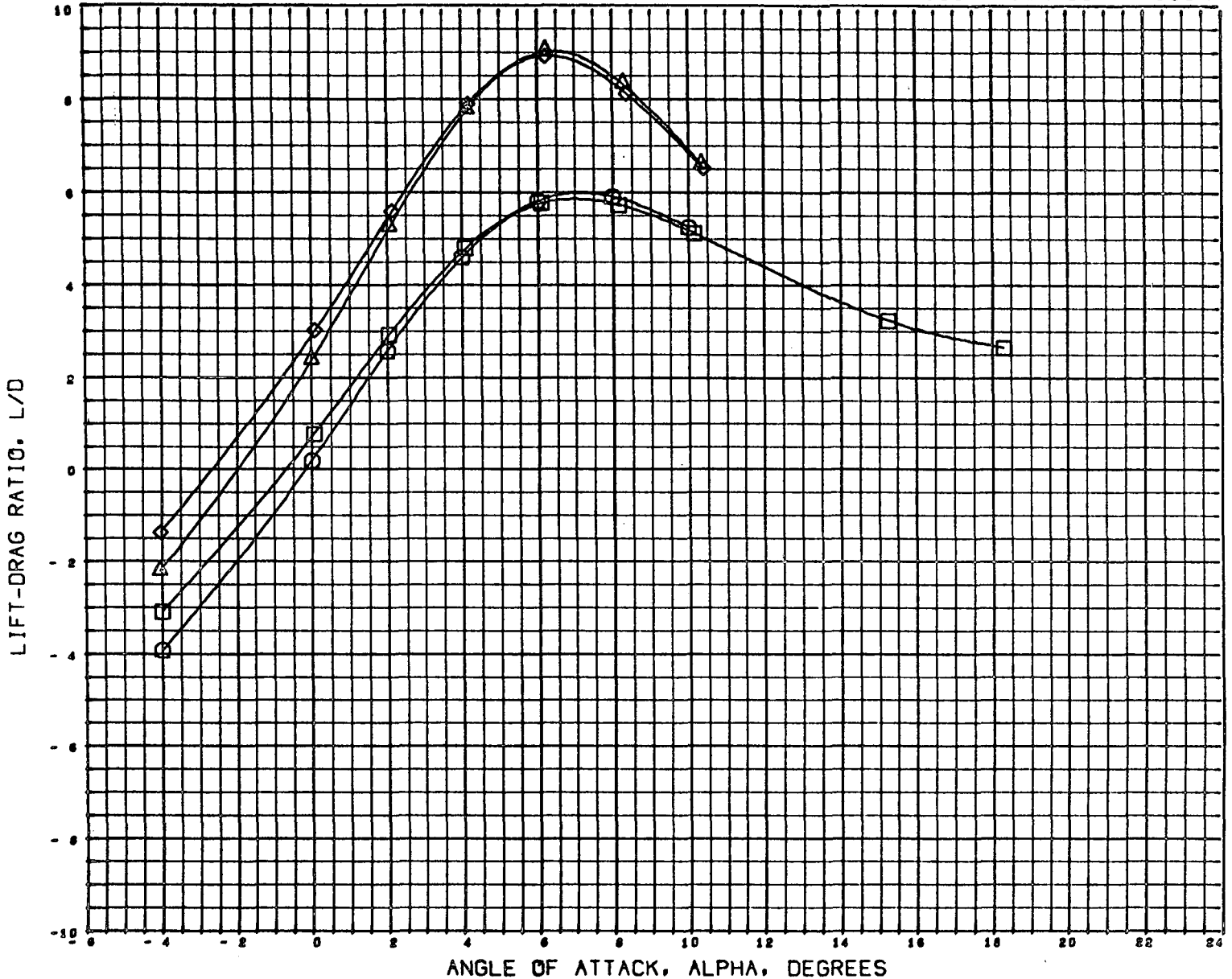
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3114)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3119)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3108)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.900

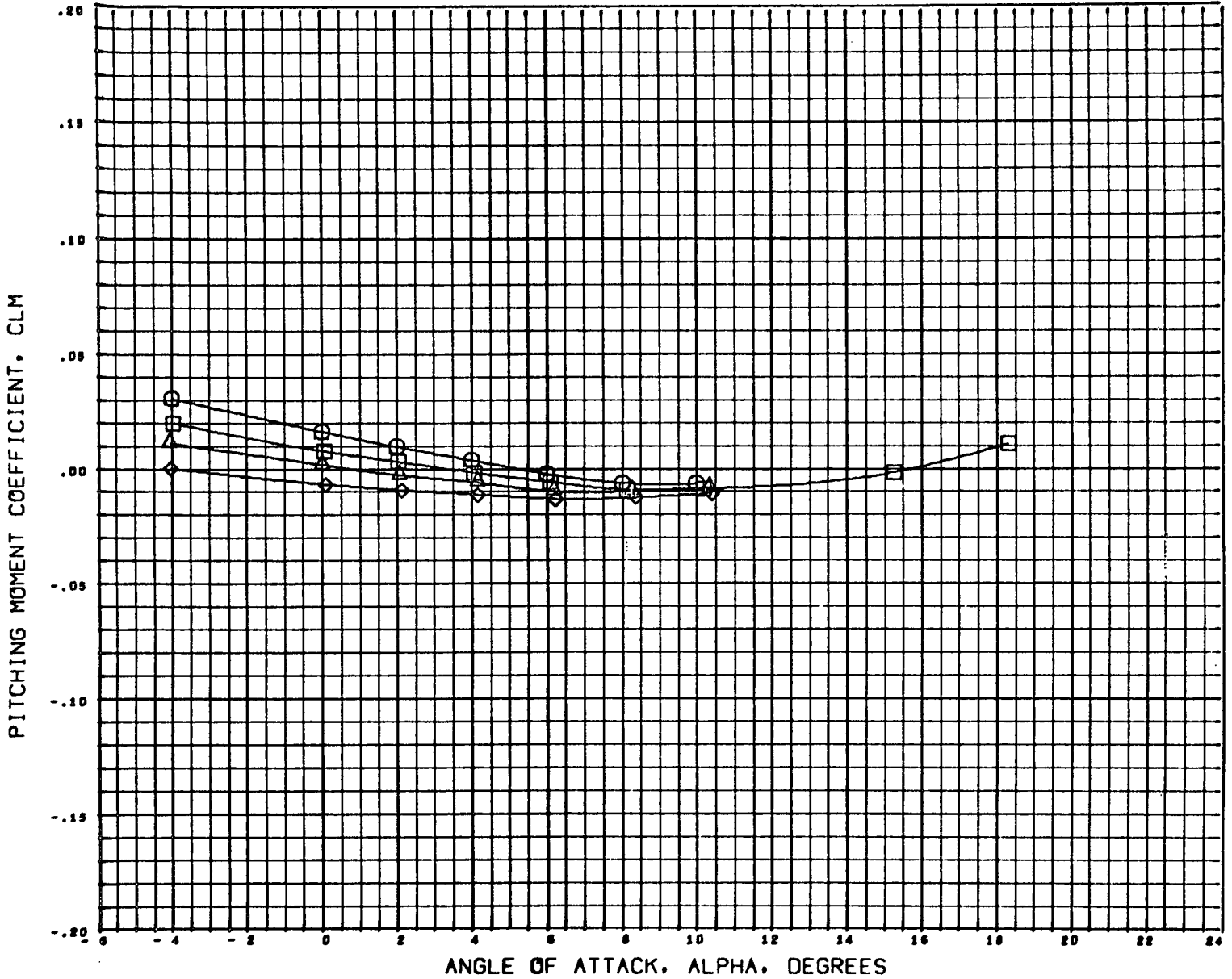
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(ANS00J)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS114)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF 3.4930 FEET
(RNS110)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	GREF 3.4930 FEET
(RNS108)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

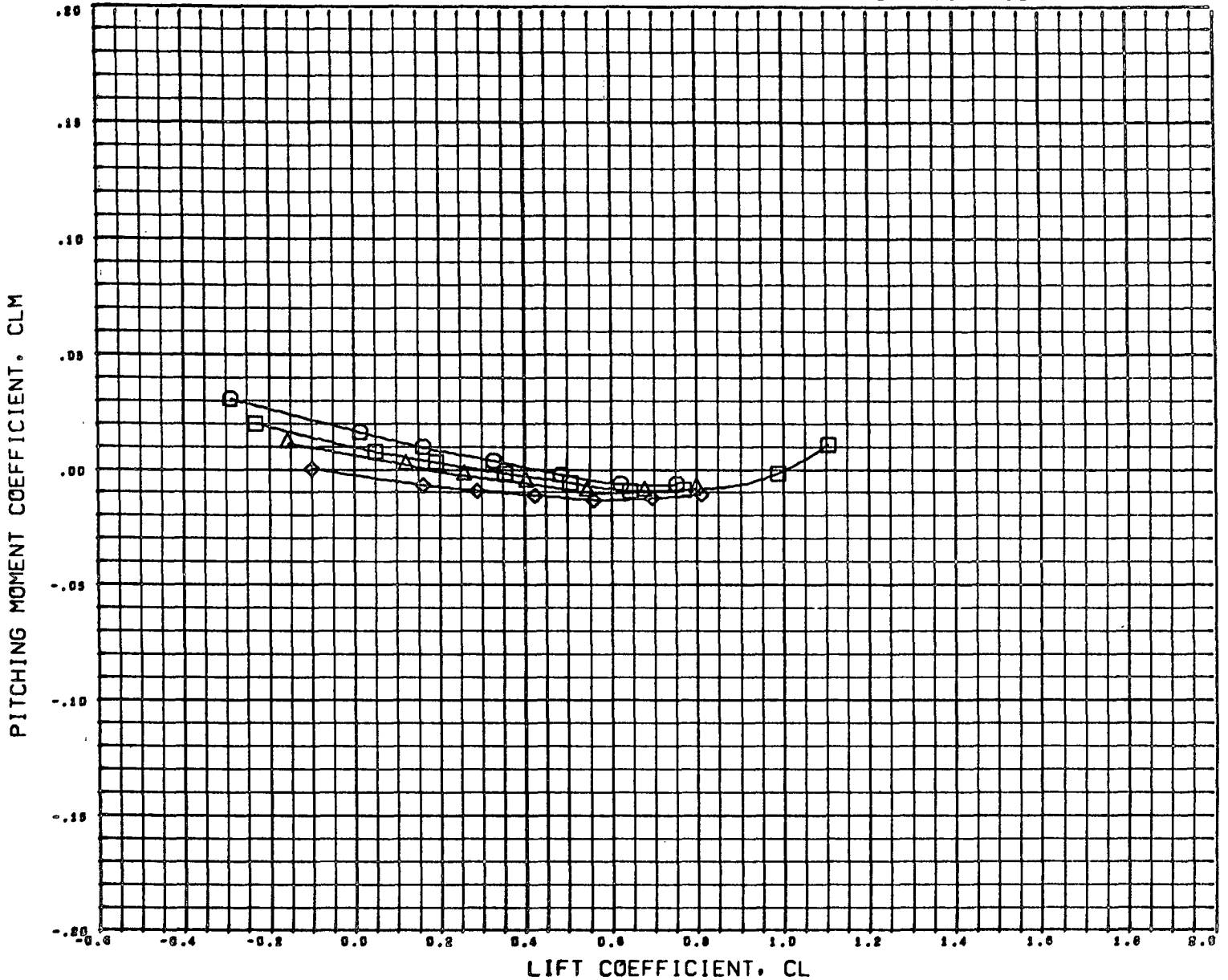
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2M1V1H4	0.717	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3114)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2M1V1E4	0.717	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3110)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2M1V1E4	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3108)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2M1V1G4	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

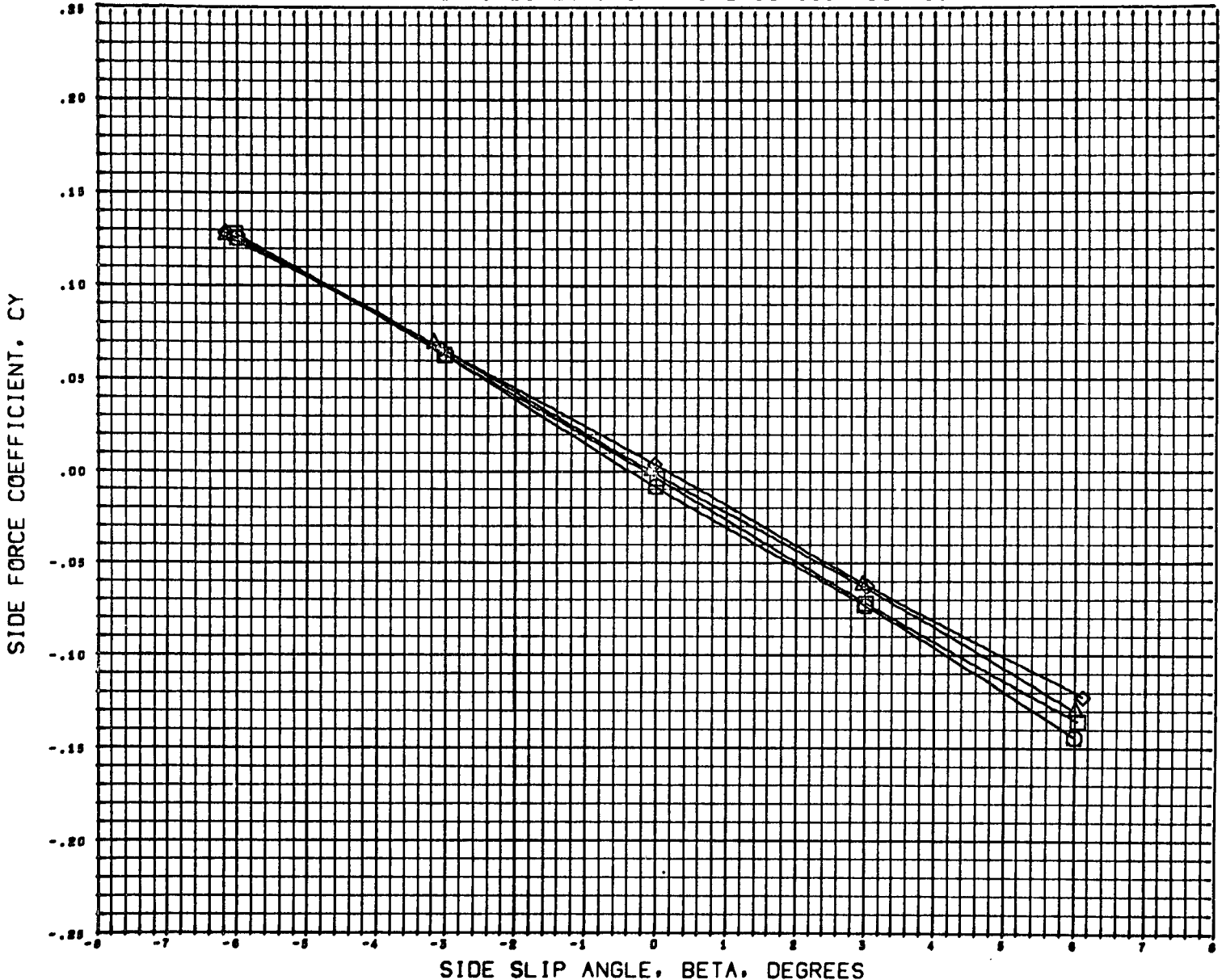


LIFT COEFFICIENT, CL

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS00J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS114)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF 3.4530 FEET
(RNS110)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	DREF 3.4530 FEET
(RNS100)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP 0.9050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.900

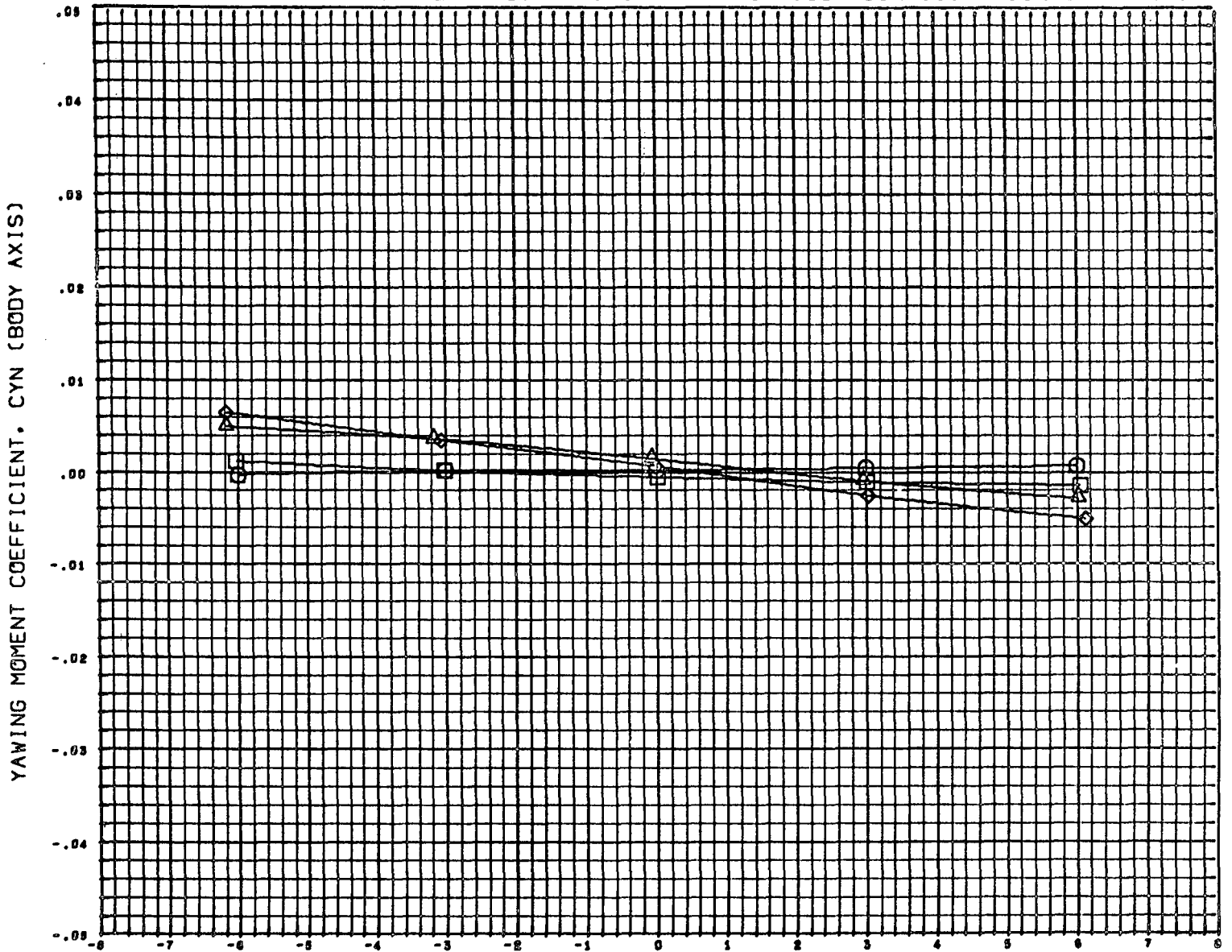
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN800L)	○	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	BREF 1.3550 86.FT.
(RN3115)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	-0.001	0.716	0.000	0.000	LREF 3.4530 FEET
(RN3111)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.005	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3109)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.021	0.000	0.000	0.000	XHRP 2.5930 FEET YHRP 0.0000 FEET ZHRP 0.0107 FEET SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



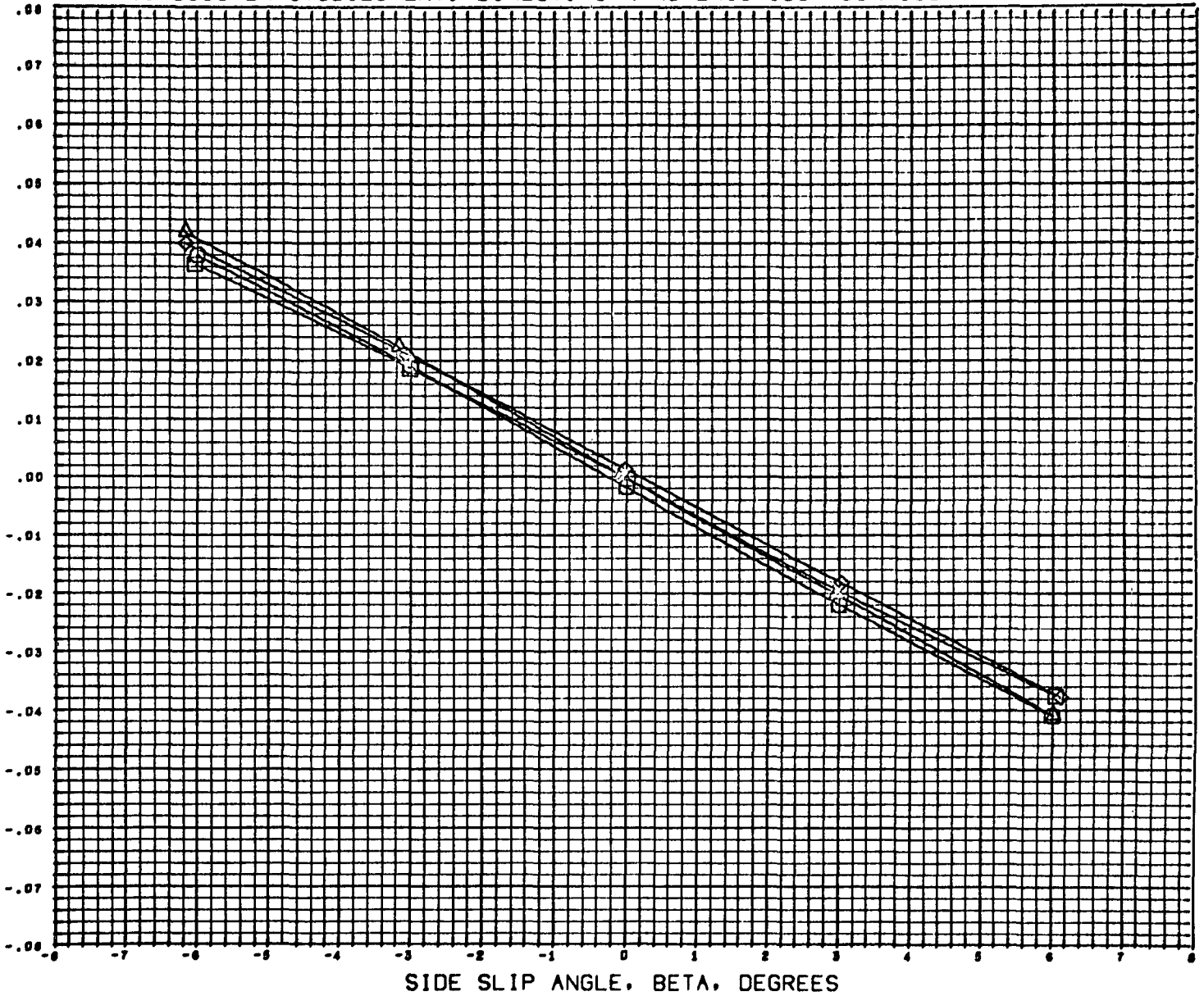
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(ANS00L)	○	NSRDC-3210,HSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	SREF	1.3550 00.FT.
(RNS115)	△	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1E4	-0.001	0.716	0.000	0.000	LREF	3.4930 FEET
(RNS111)	◇	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1E4	0.005	0.000	0.000	0.000	GRF	3.4930 FEET
(RNS109)	□	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1G4	0.021	0.000	0.000	0.000	XMRP	2.3950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0107 FEET
							SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

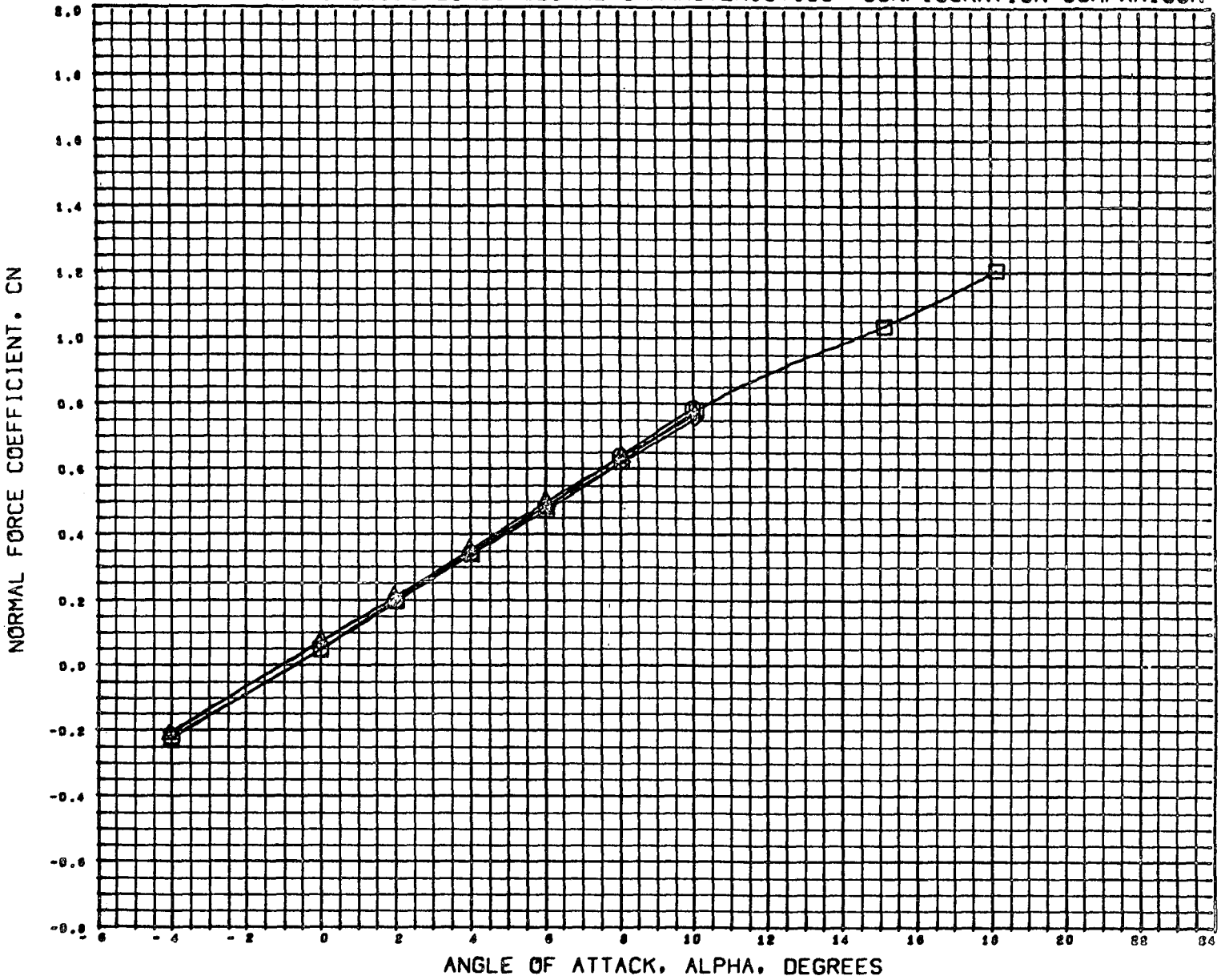
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(ANS00L)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	SREF 1.3950 86. FT.
(RNS118)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	-0.001	0.716	0.000	0.000	LREF 3.4930 FEET
(RNS111)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.005	0.000	0.000	0.000	ORF 3.4930 FEET
(RNS109)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.021	0.000	0.000	0.000	XNRP 2.5950 FEET YNRP 0.0000 FEET ZNRP 0.0167 FEET SCALE 0.0190 SCALE

MACH 0.500

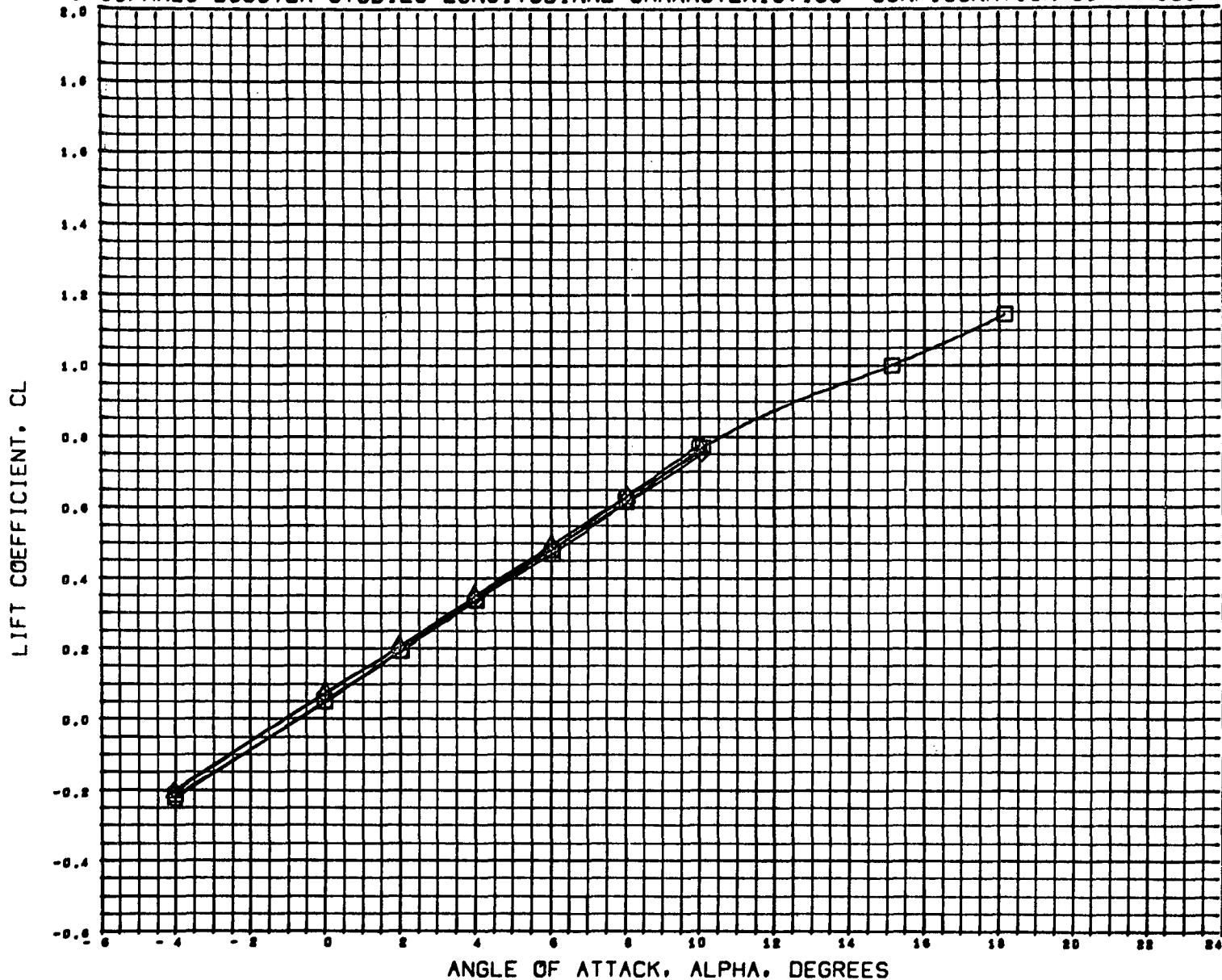
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300H)	○	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	BREF 1.3950 50. FT.
(RN3182)	△	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREP 3.4930 FEET
(RN3118)	◇	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
(RN3192)	□	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET YNRP 0.0000 FEET ZNRP 0.0187 FEET SCALE 0.0190 SCALE

MACH 0.400

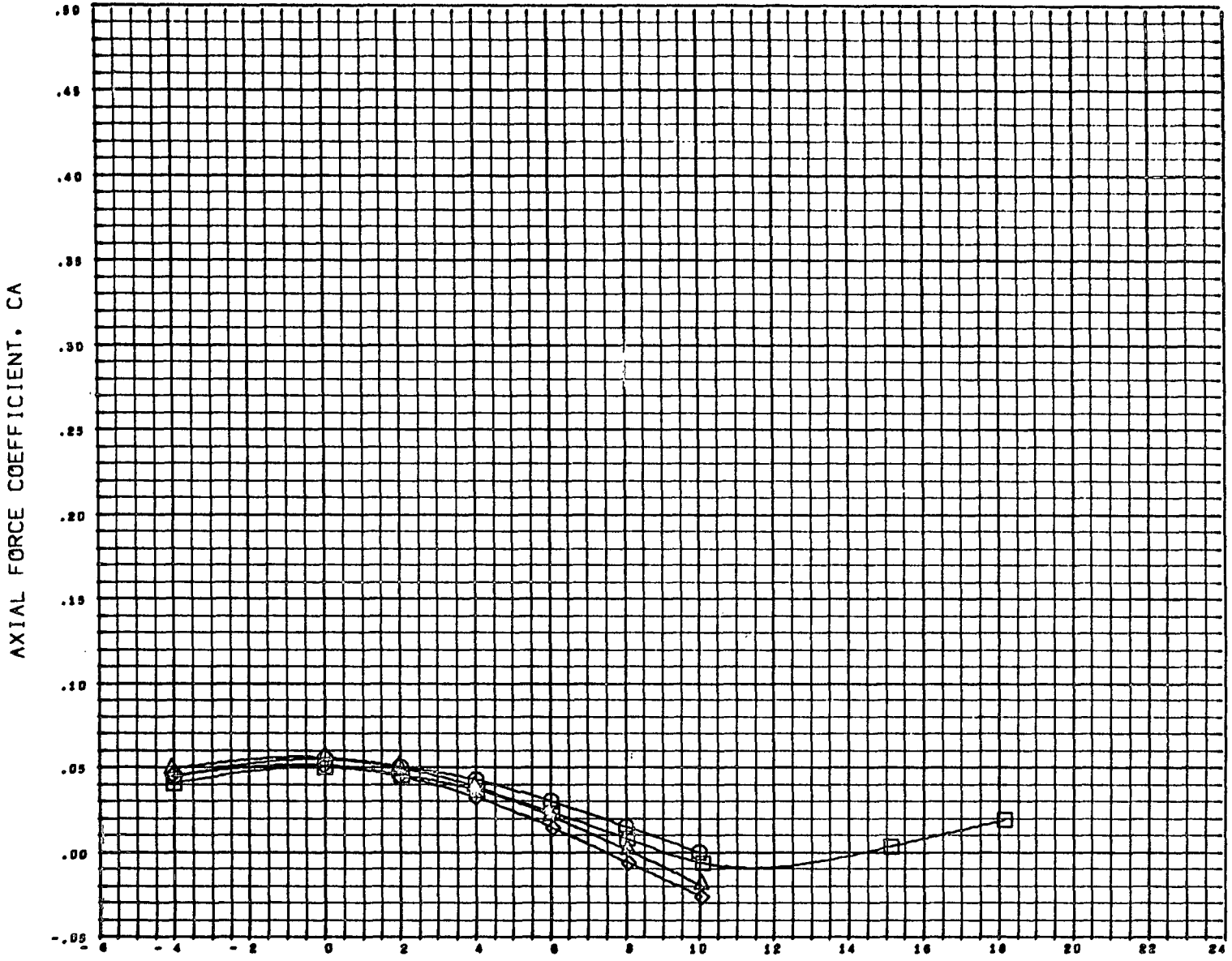
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF 1.3550 88.FT.
(RN3122)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3118)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3192)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XHRP 2.9980 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



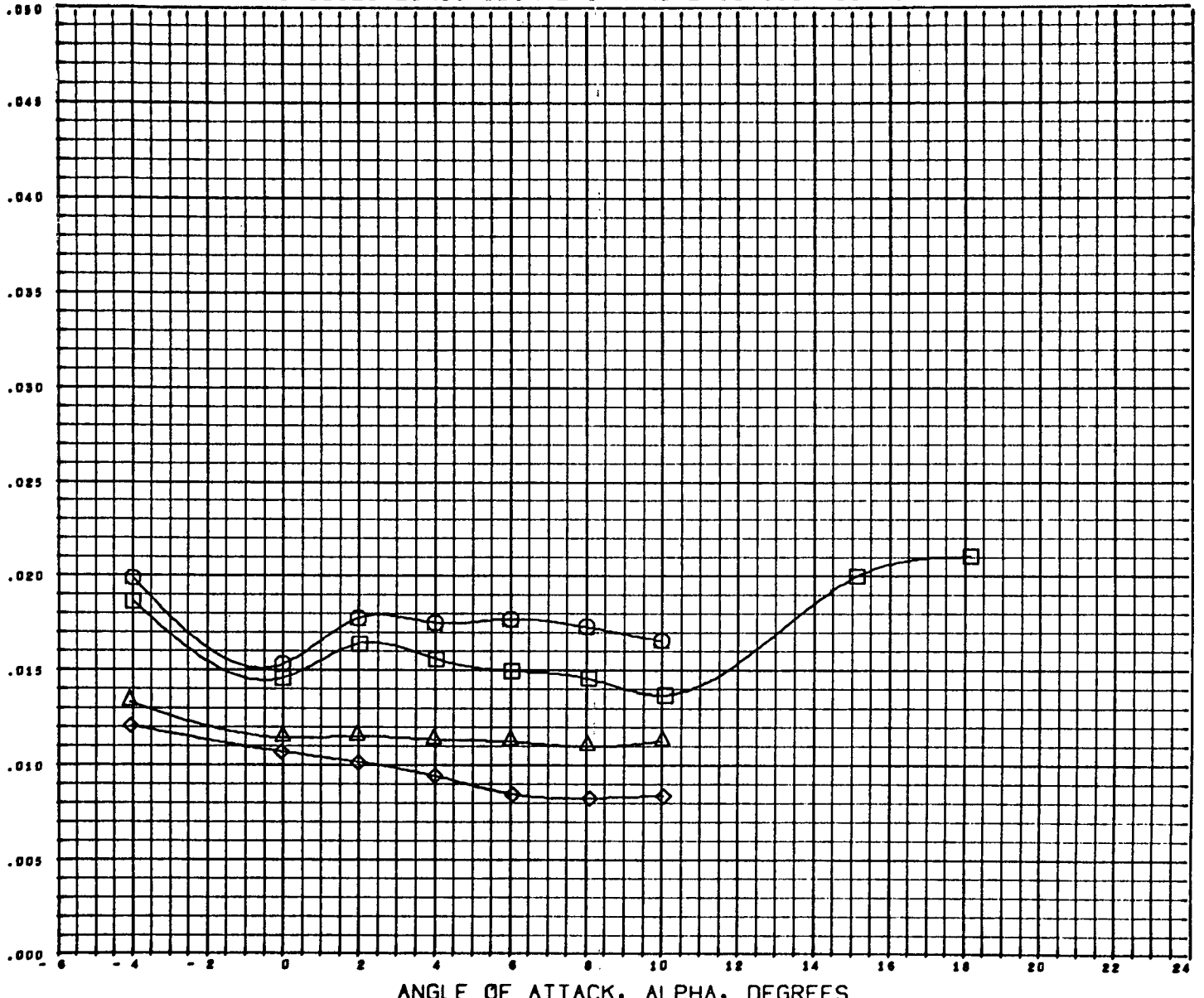
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300M)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3122)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3118)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	OREF 3.4530 FEET
(RN3192)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

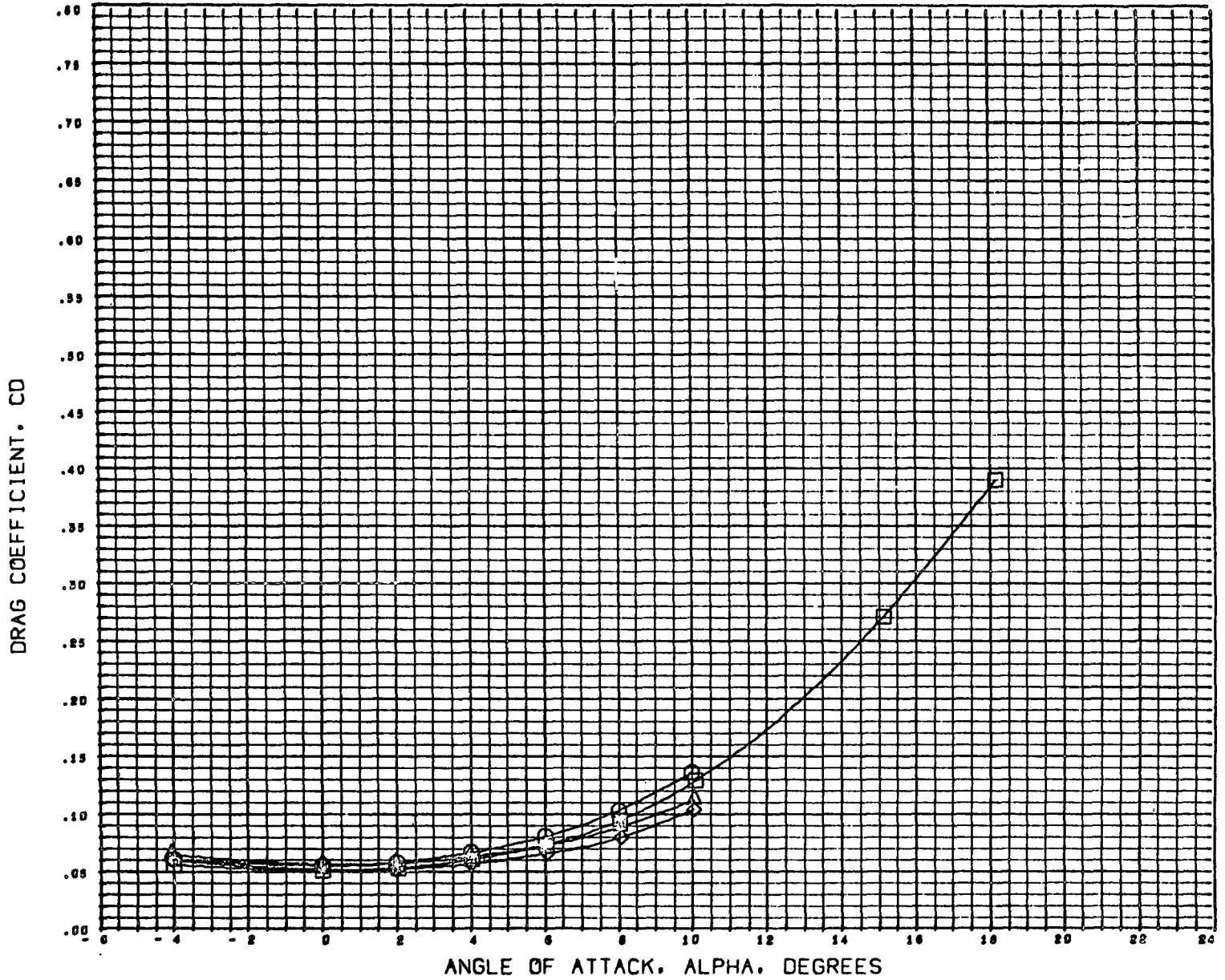


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS122)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF 3.4530 FEET
(RNS118)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS192)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.400

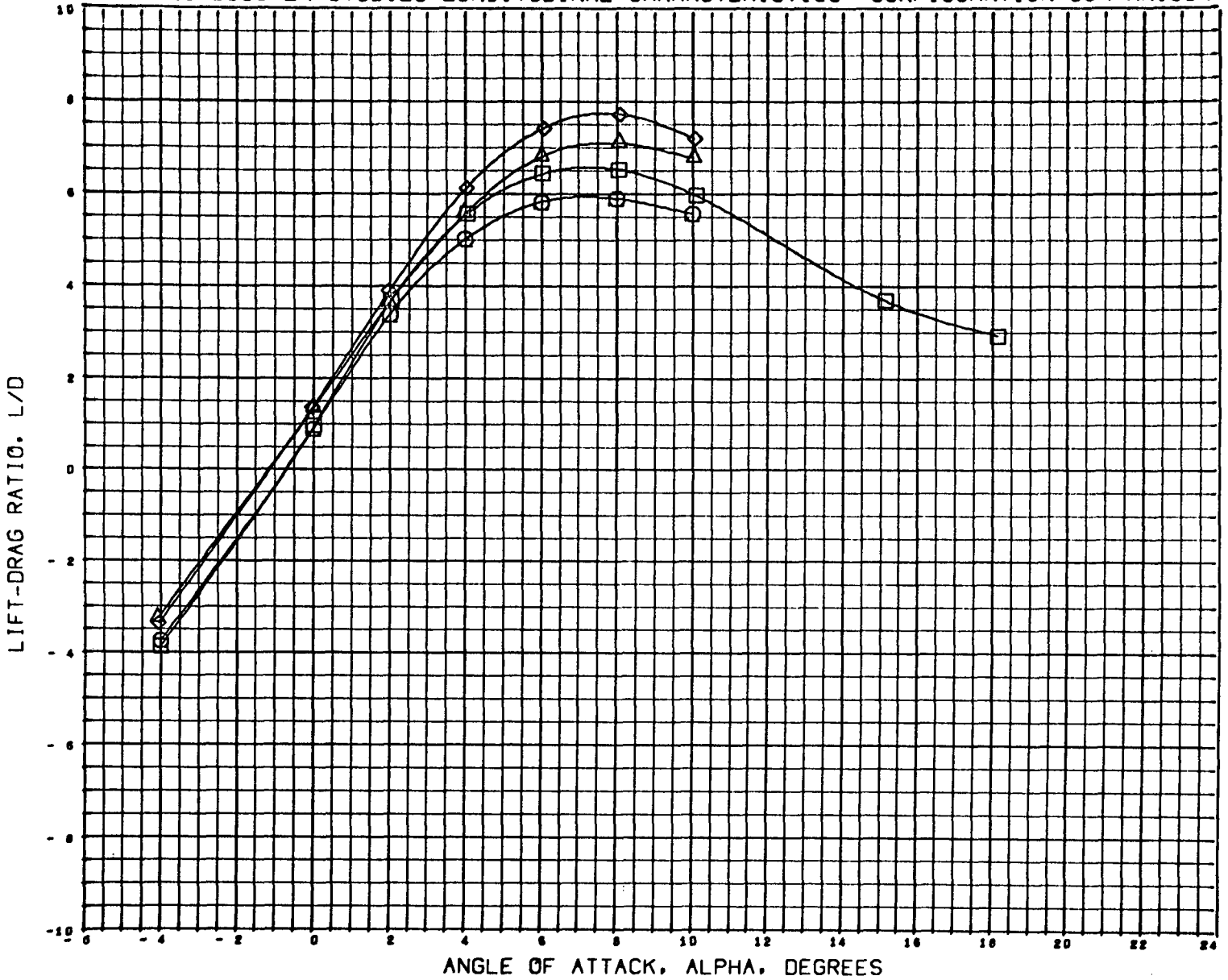
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSPFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300M)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1N2	0.728	0.000	0.000	0.000	SREF	1.3950 80. FT.
(RN3122)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3110)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3102)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0100 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

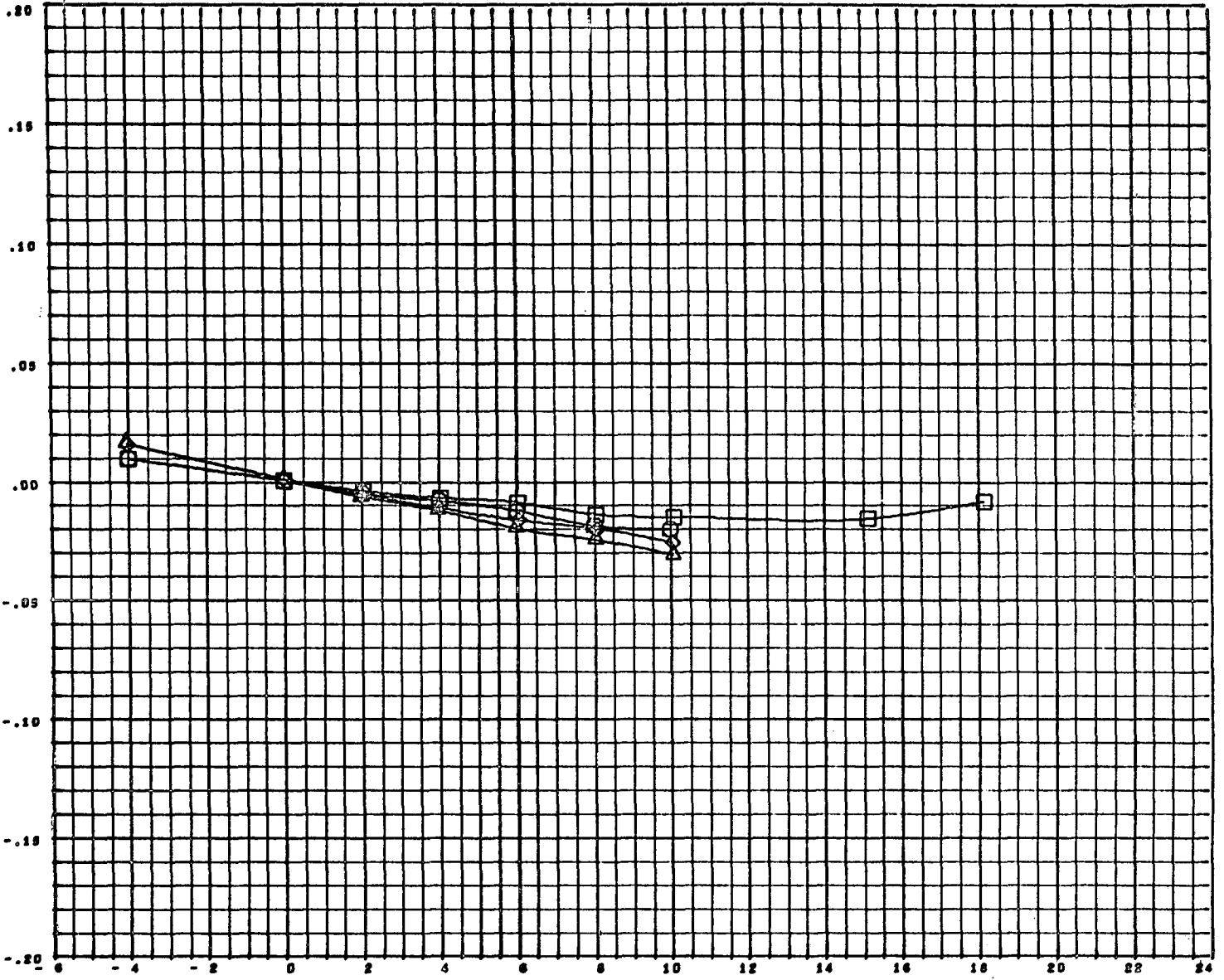


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300H)	◇	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3550 80.FT.
(AN3122)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3118)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3192)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, CLM

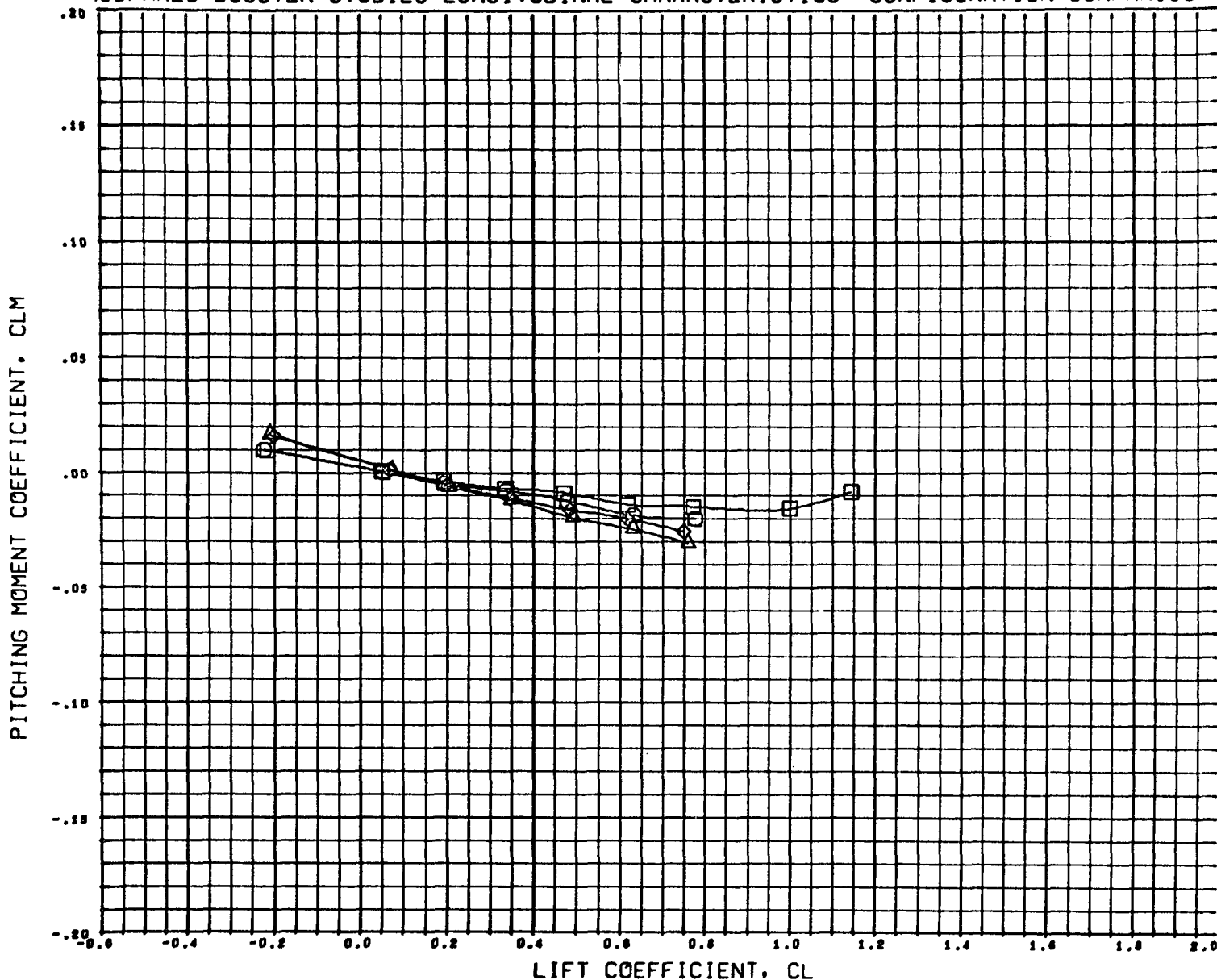


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF 1.3550 FEET
(RN3122)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3119)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3192)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0130 SCALE

MACH 0.400

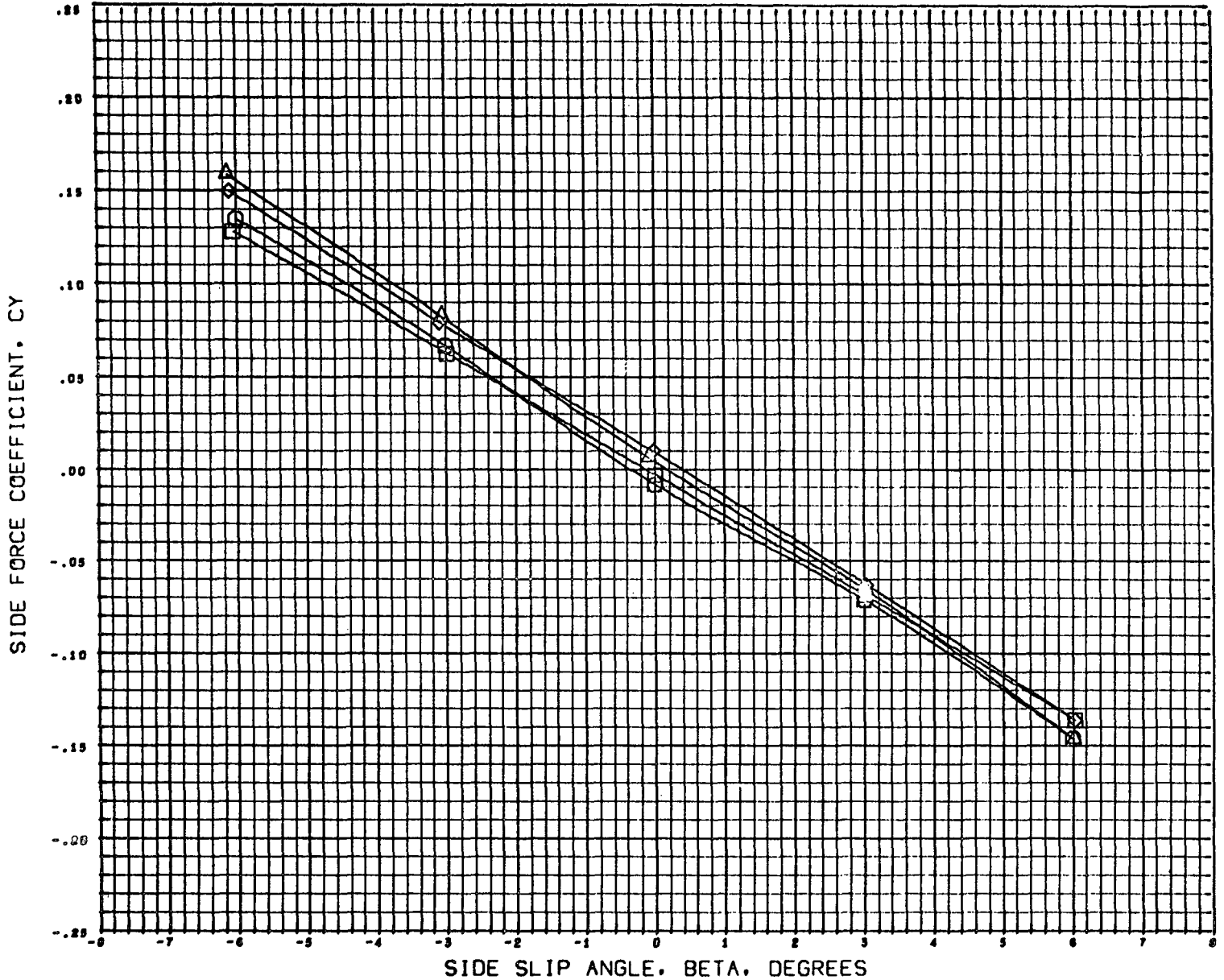
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN500W)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.729	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN318Z)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.729	0.000	0.000	0.000	LREF 3.4530 FEET
(RN311B)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN319Z)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XHRP 2.5930 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0180 SCALE

MACH 0.400

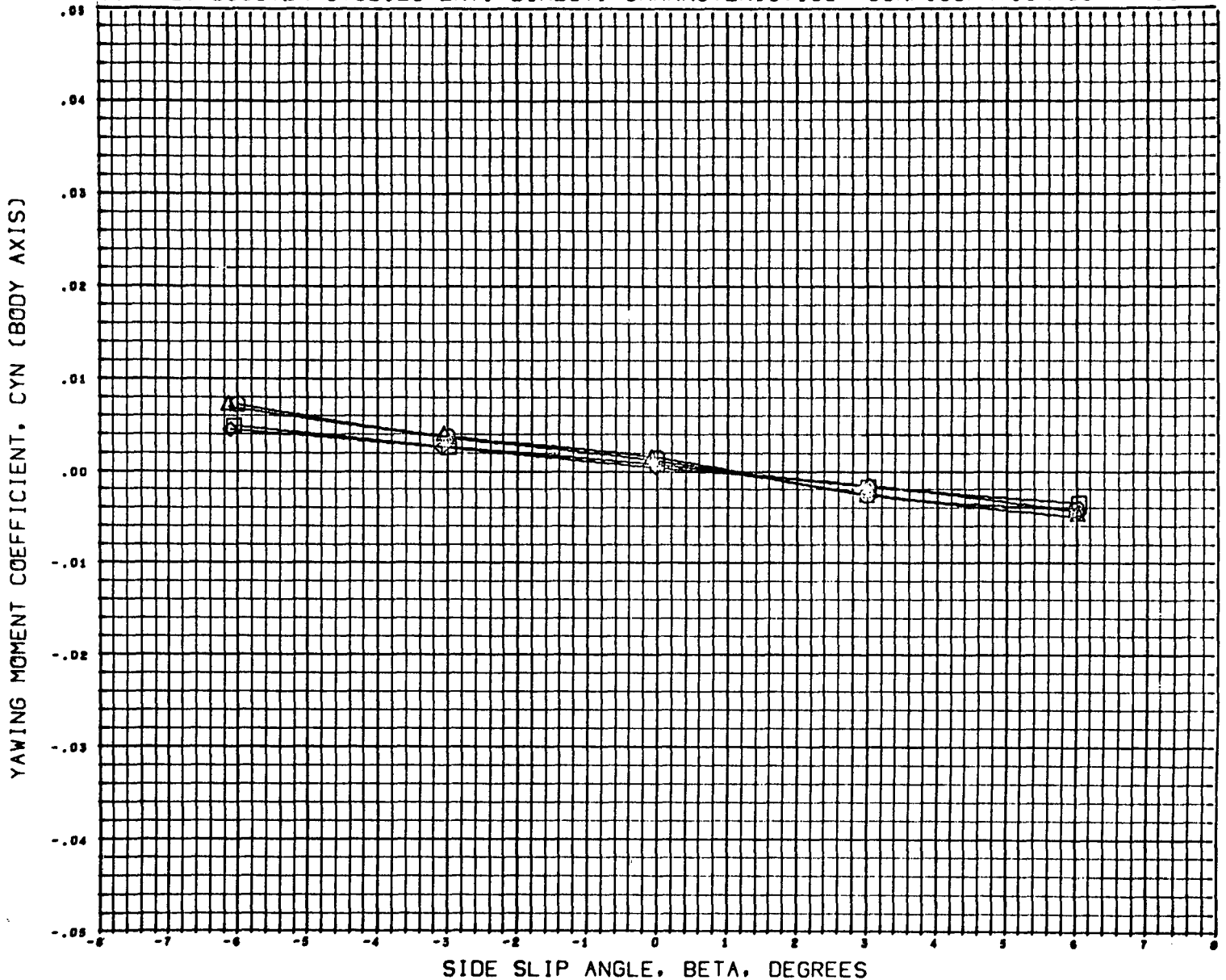
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3000)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3123)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.031	0.729	0.000	0.000	LREF 3.4530 FEET
(RN3119)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.052	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3193)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

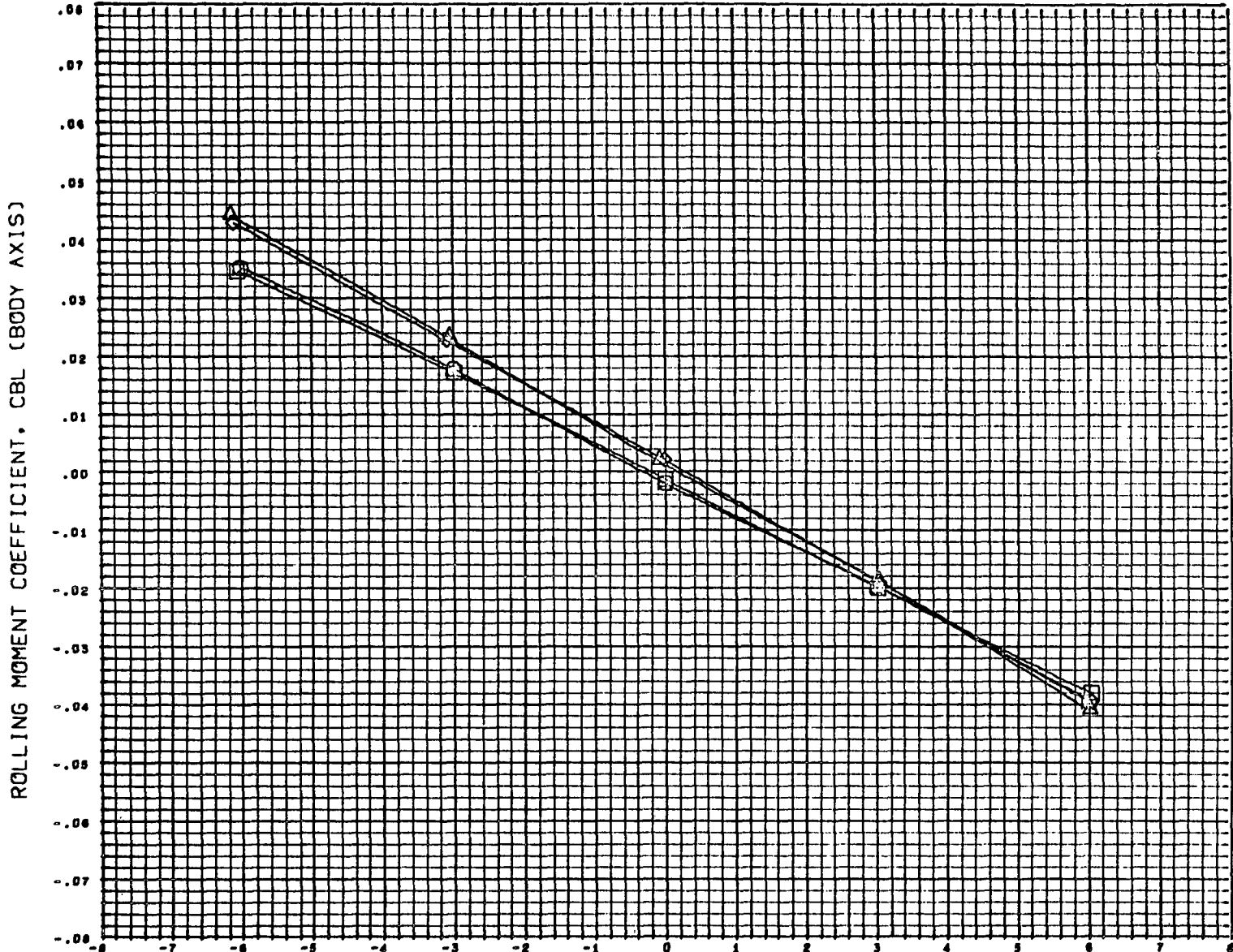
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(RNS000)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS125)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.031	0.729	0.000	0.000	LREF 3.4530 FEET
(RNS119)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.052	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS193)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

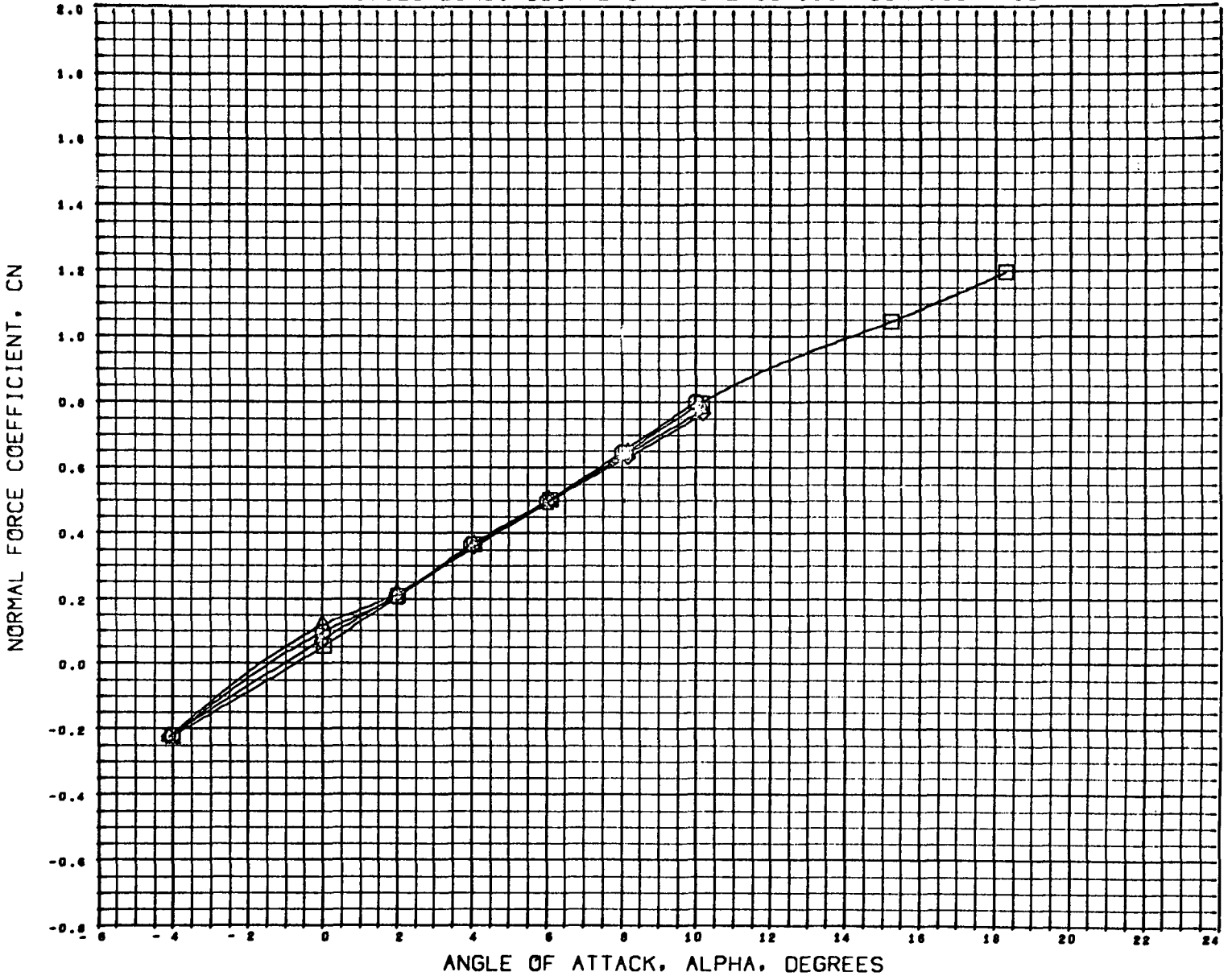


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	M\$FLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(ANS000)	NSRDC-3210, NSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	SREF 1.3550 SQ. FT.
(RNS123)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.031	0.729	0.000	0.000	LREF 3.4530 FEET
(RNS119)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.052	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS193)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XWRP 2.5930 FEET
						YWRP 0.0000 FEET
						ZWRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

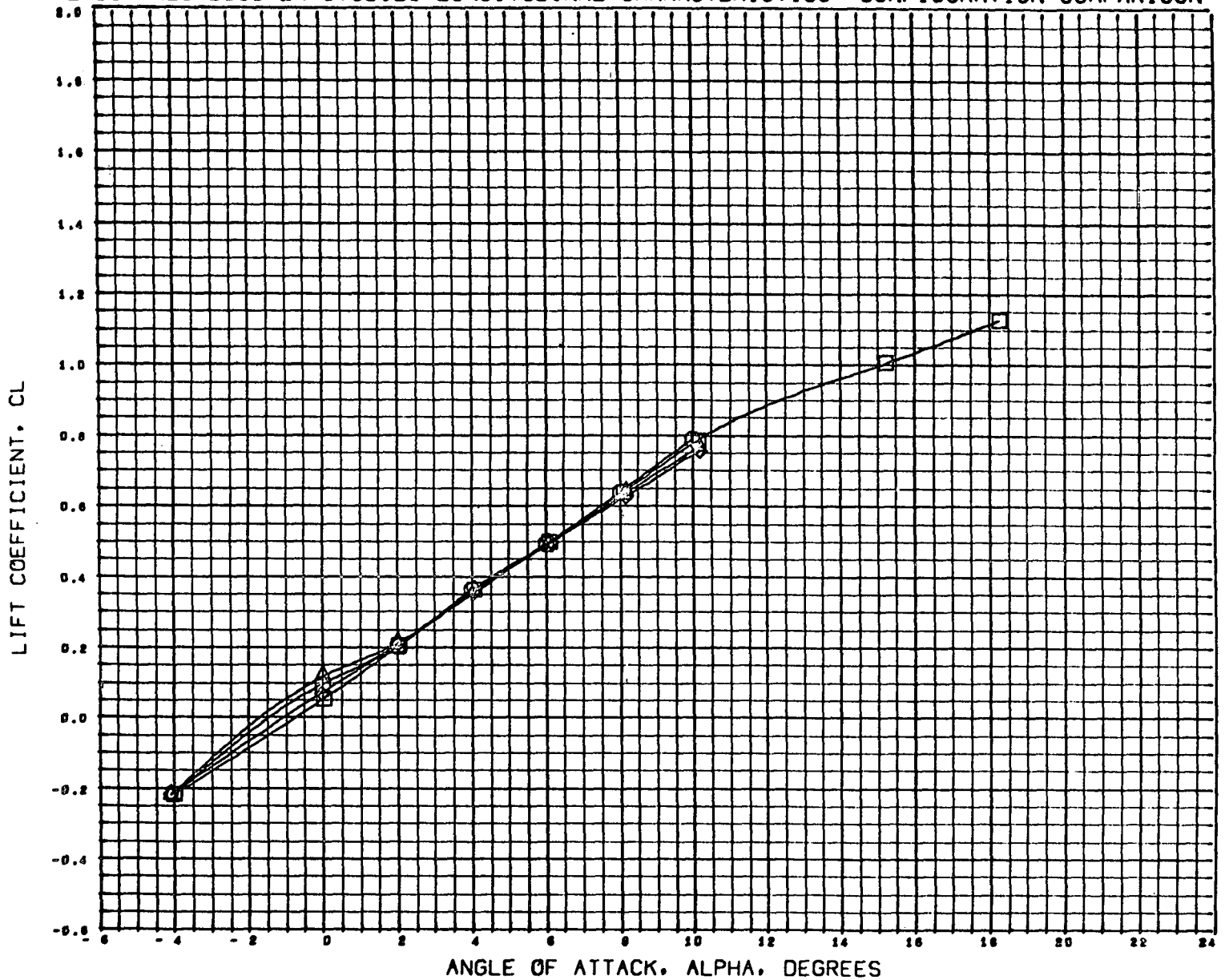
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 50.FT.
(RN3150)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3126)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

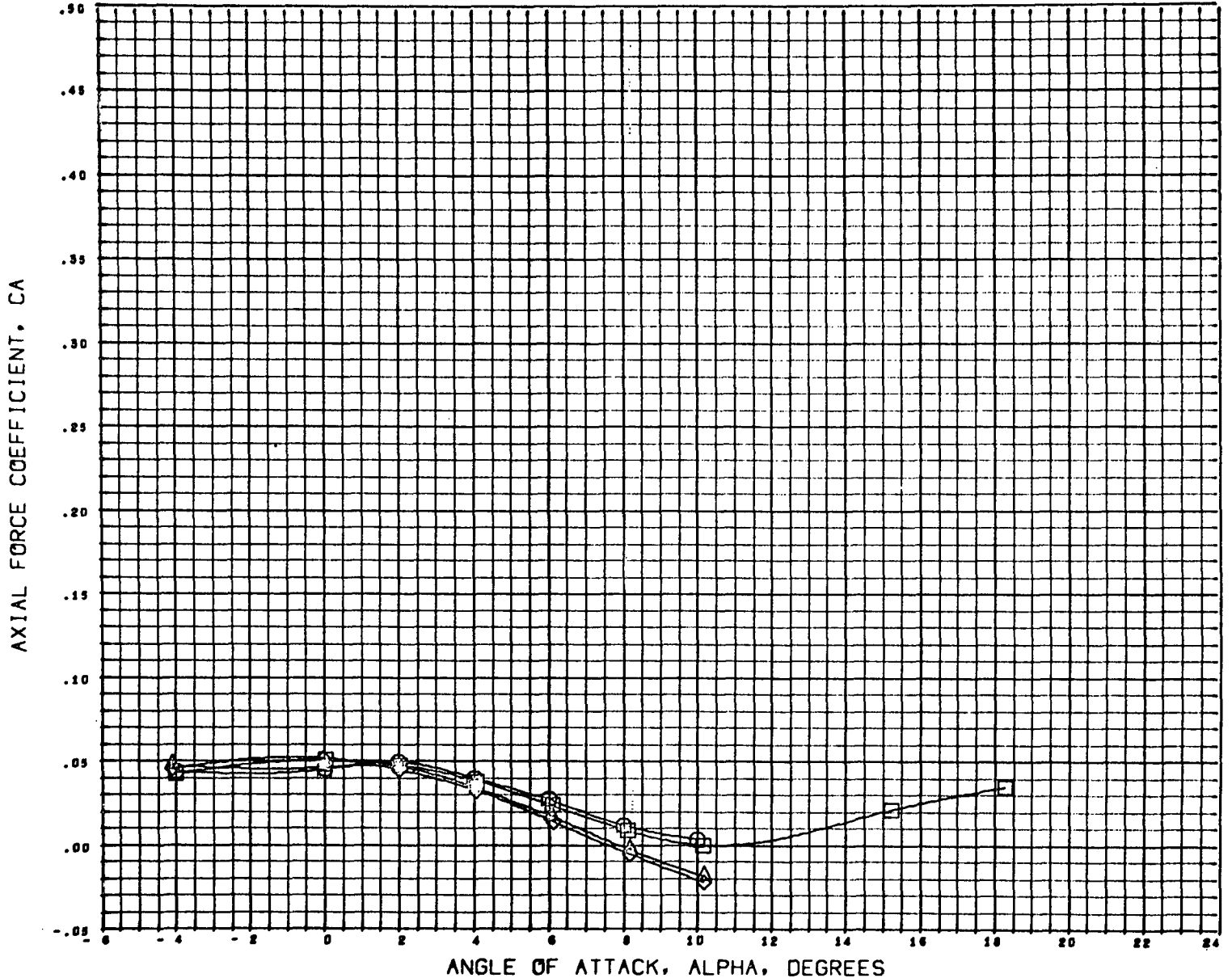
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	○	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3150)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3186)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XWRP	2.5950 FEET
							YWRP	0.0000 FEET
							ZWRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

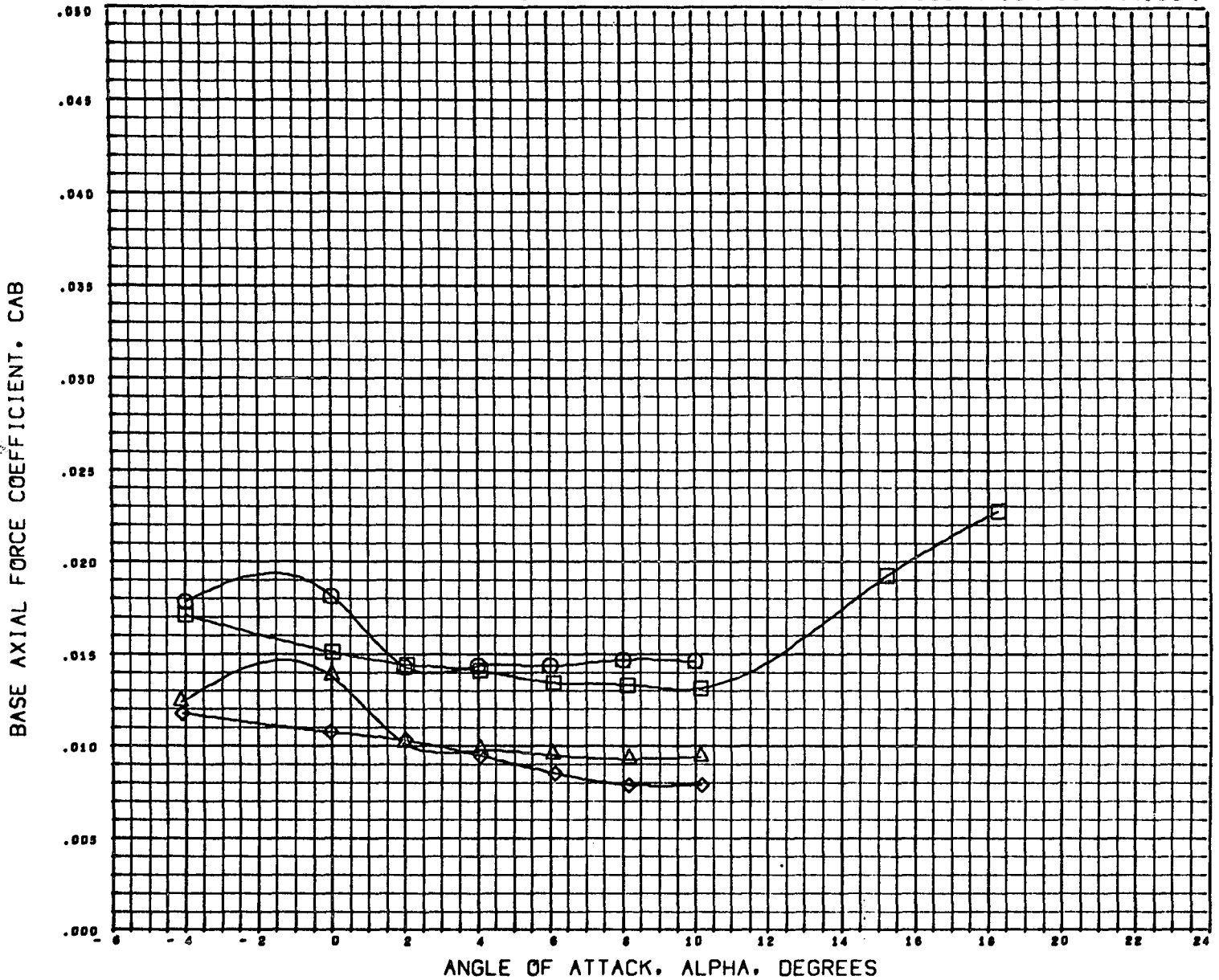
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	○	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3150)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3126)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3196)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.500

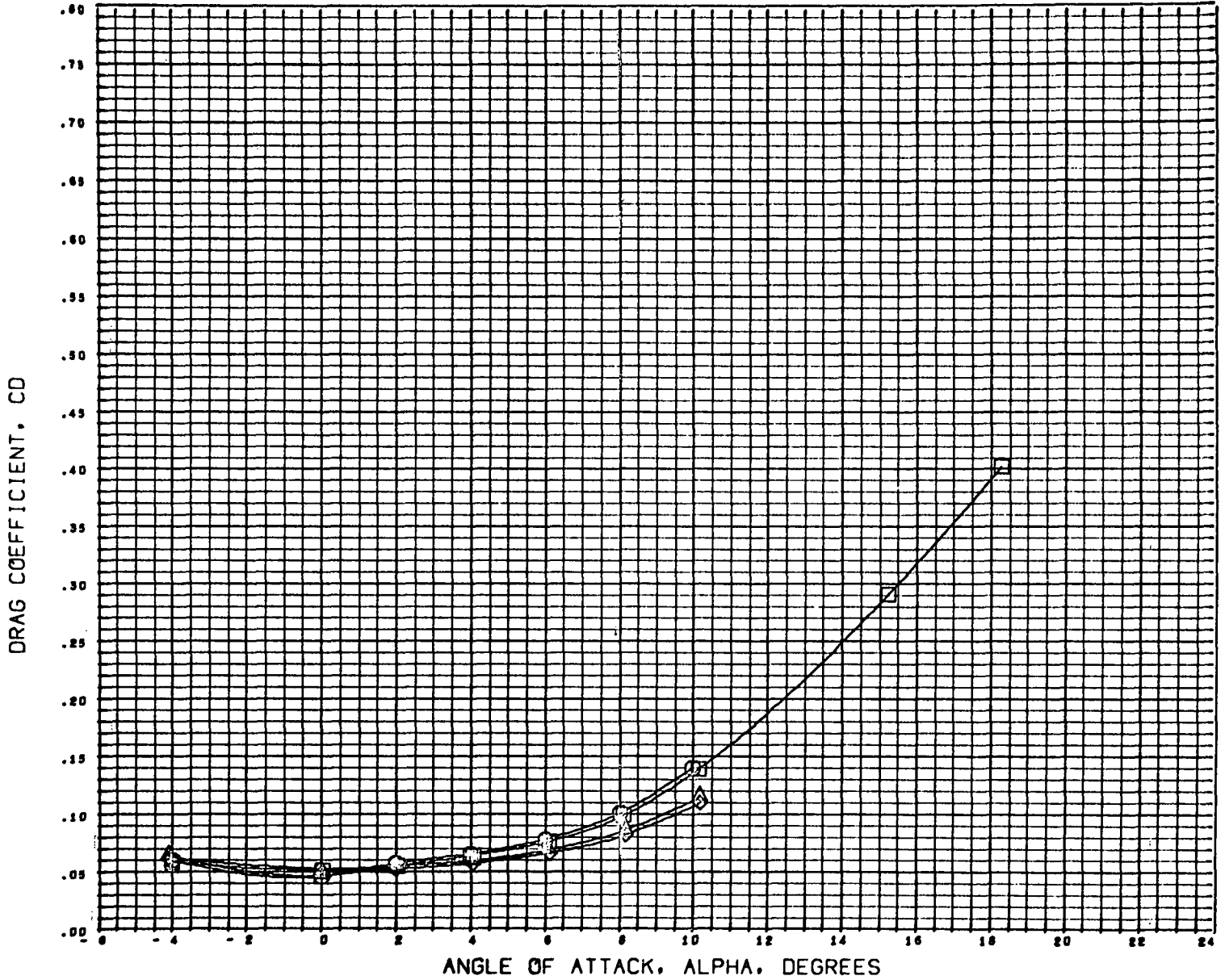
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3130)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3124)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3196)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.500

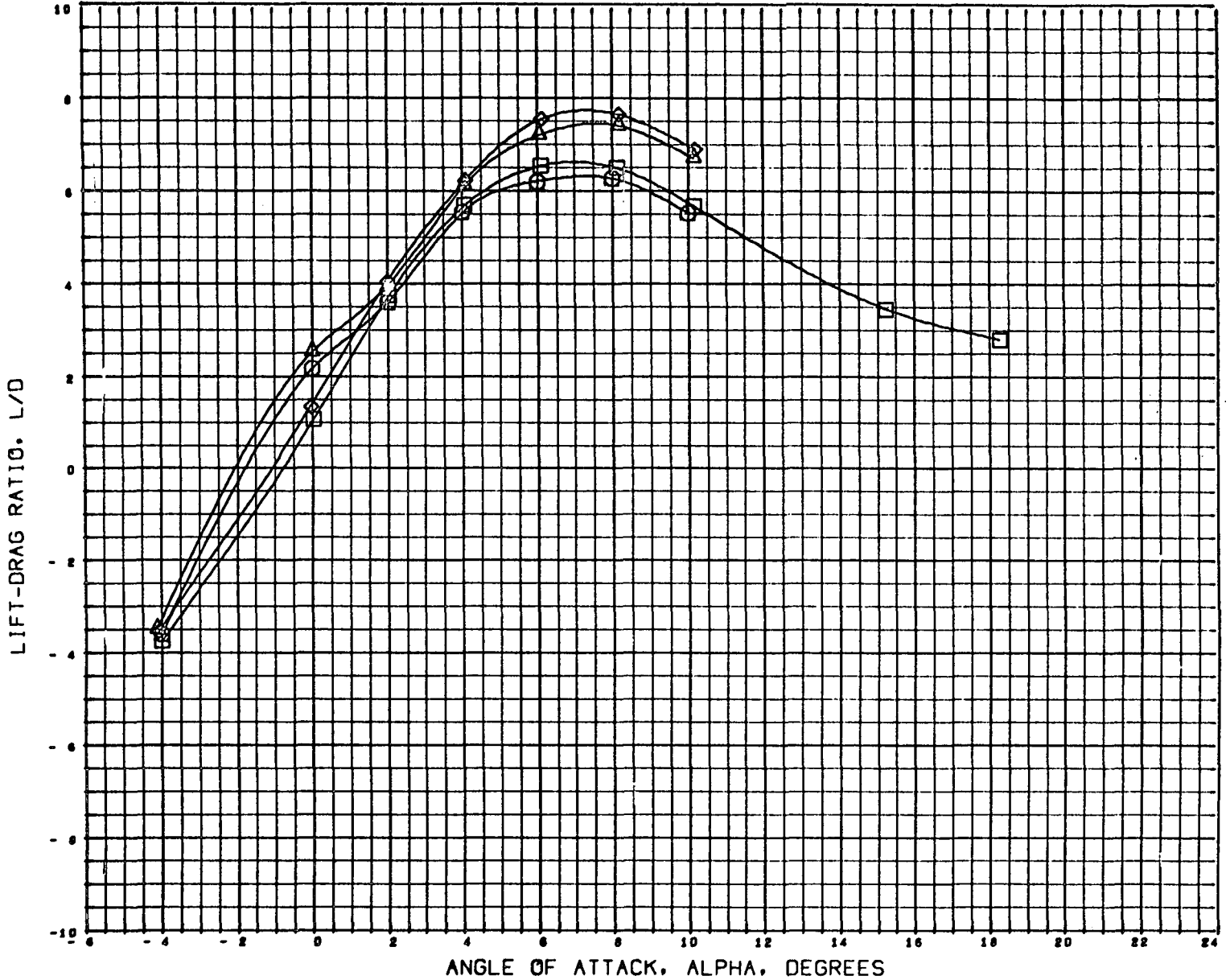
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	○	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF 1.3550 80. FT.
(RN3130)	△	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3124)	◇	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3196)	□	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET YNRP 0.0000 FEET ZNRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.900

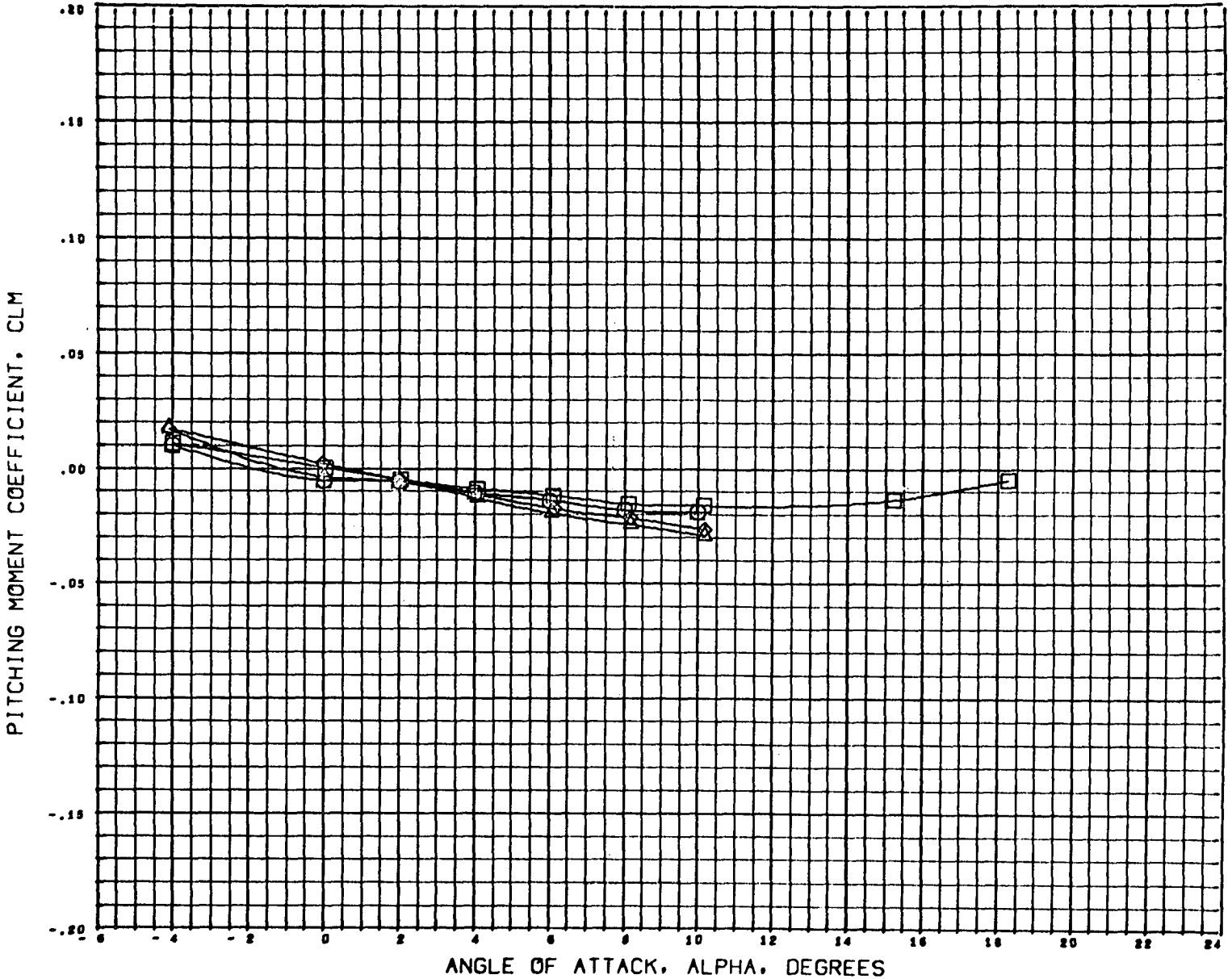
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	NSRDC-3210,MSFC/LM&C BSTR.(PWR-ON) BIC2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3130)	NSRDC-3210,MSFC/LM&C BOOSTER BIC2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3124)	NSRDC-3210,MSFC/LM&C BOOSTER BIC2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	NSRDC-3210,MSFC/LM&C BOOSTER BIC2F2W1V1E2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

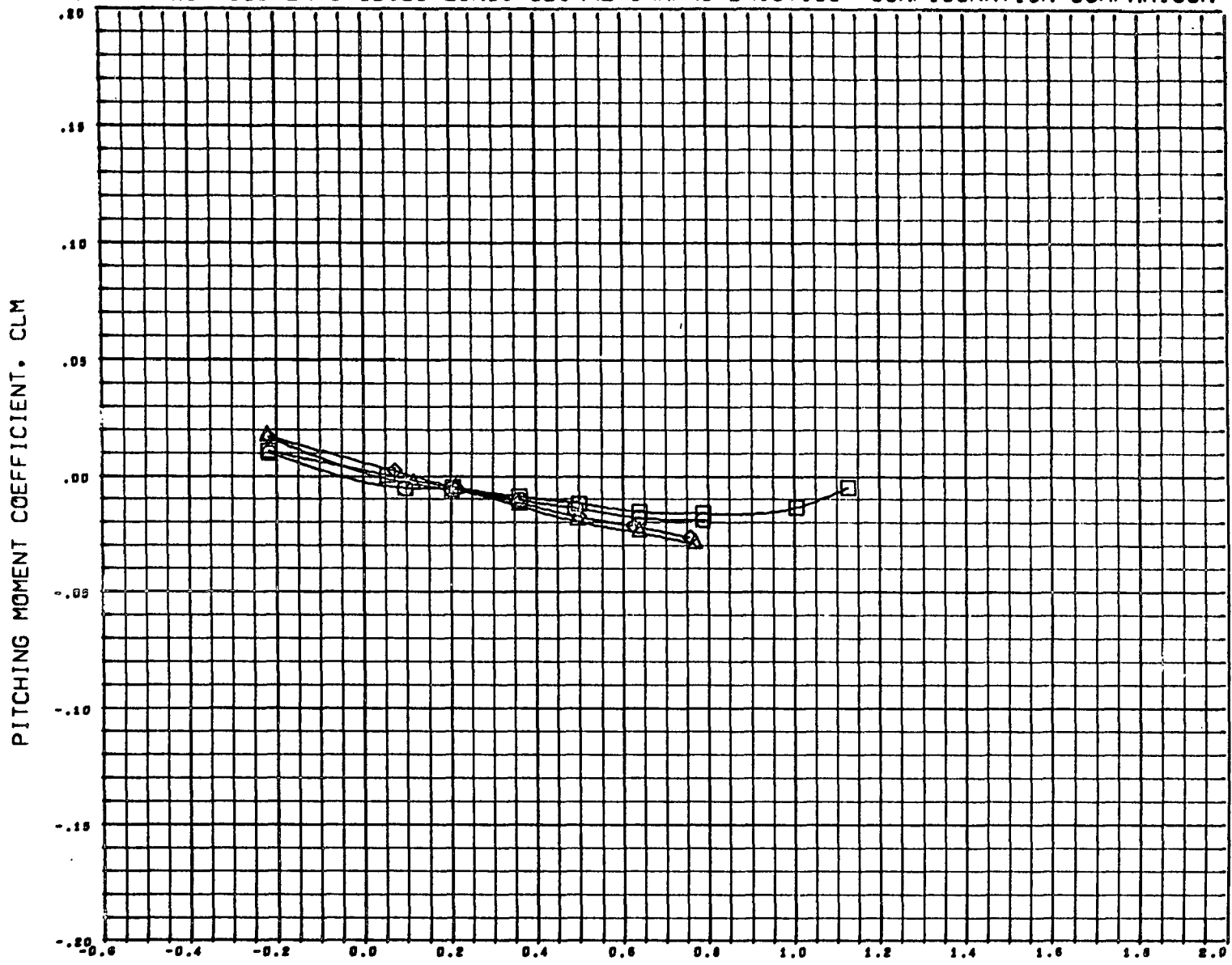
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3130)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3126)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3196)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	XHRP 2.5930 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

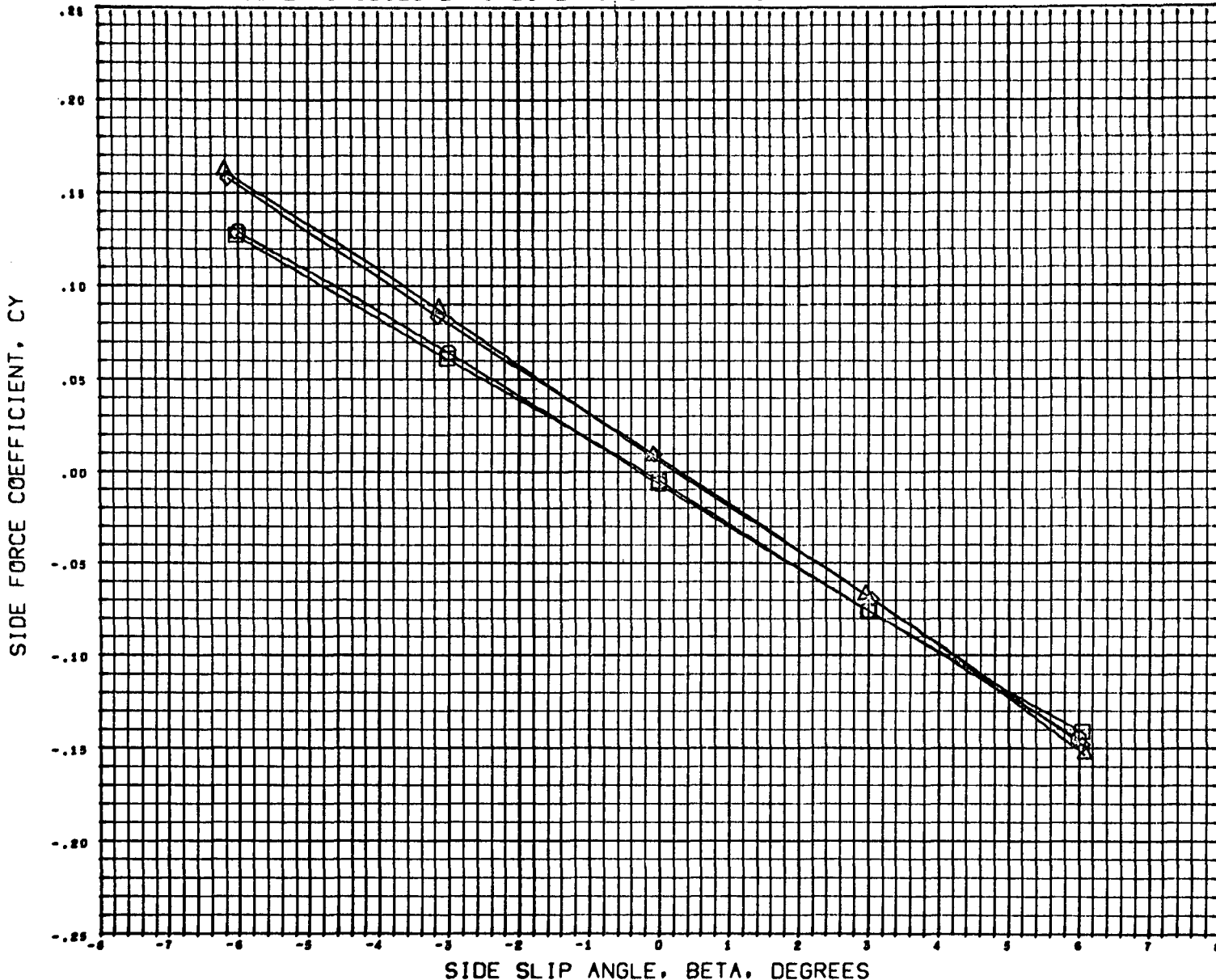


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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300N)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3130)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3126)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3166)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.900

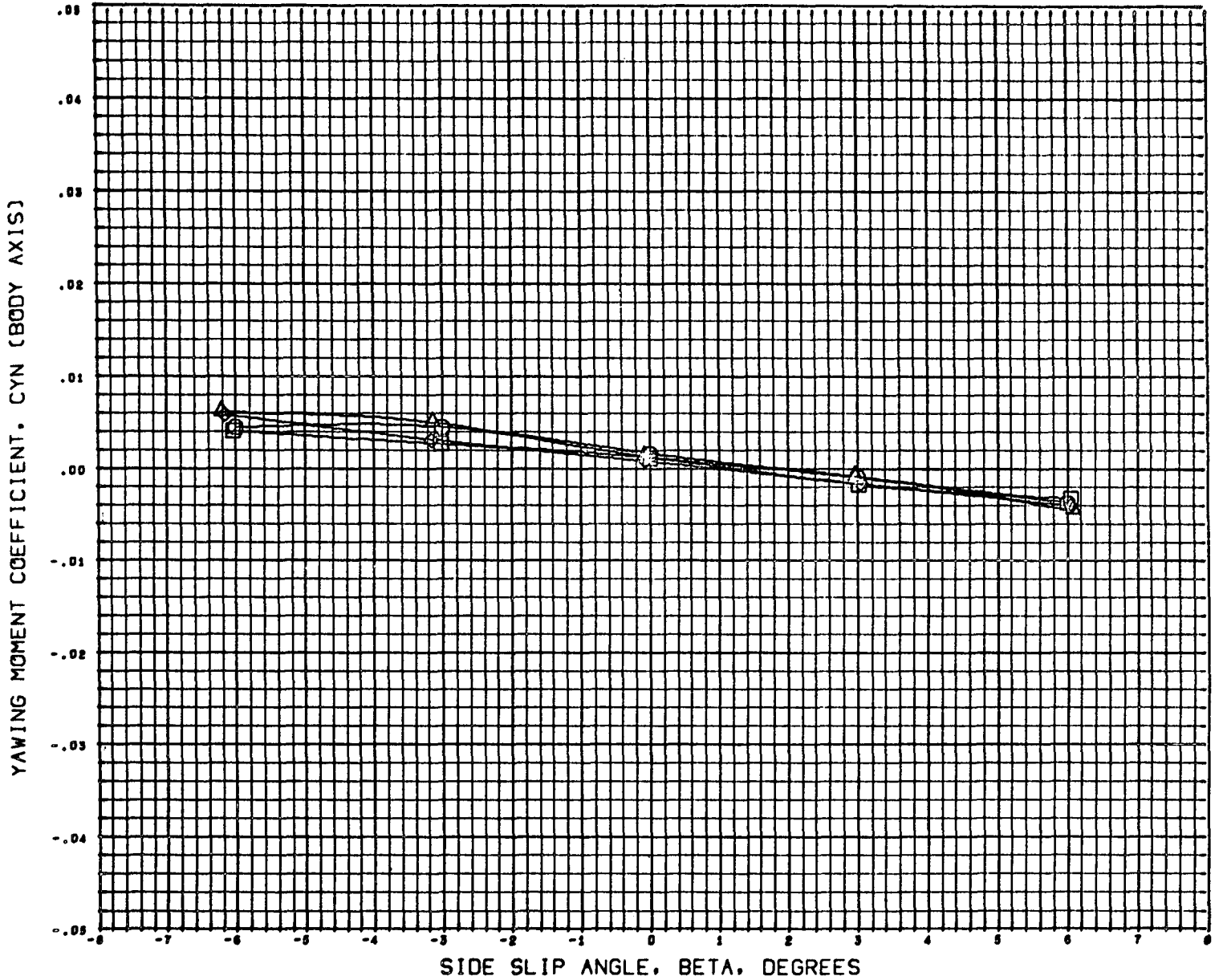
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(ANS00P)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2M1V1H2	-0.012	0.702	0.000	0.000	SREF 1.3550 80.FT.
(RNS131)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2M1V1E2	-0.012	0.702	0.000	0.000	LREF 3.4530 FEET
(RNS127)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2M1V1E2	-0.023	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS197)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2M1V1G2	0.011	0.000	0.000	0.000	XNRP 2.5950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.900

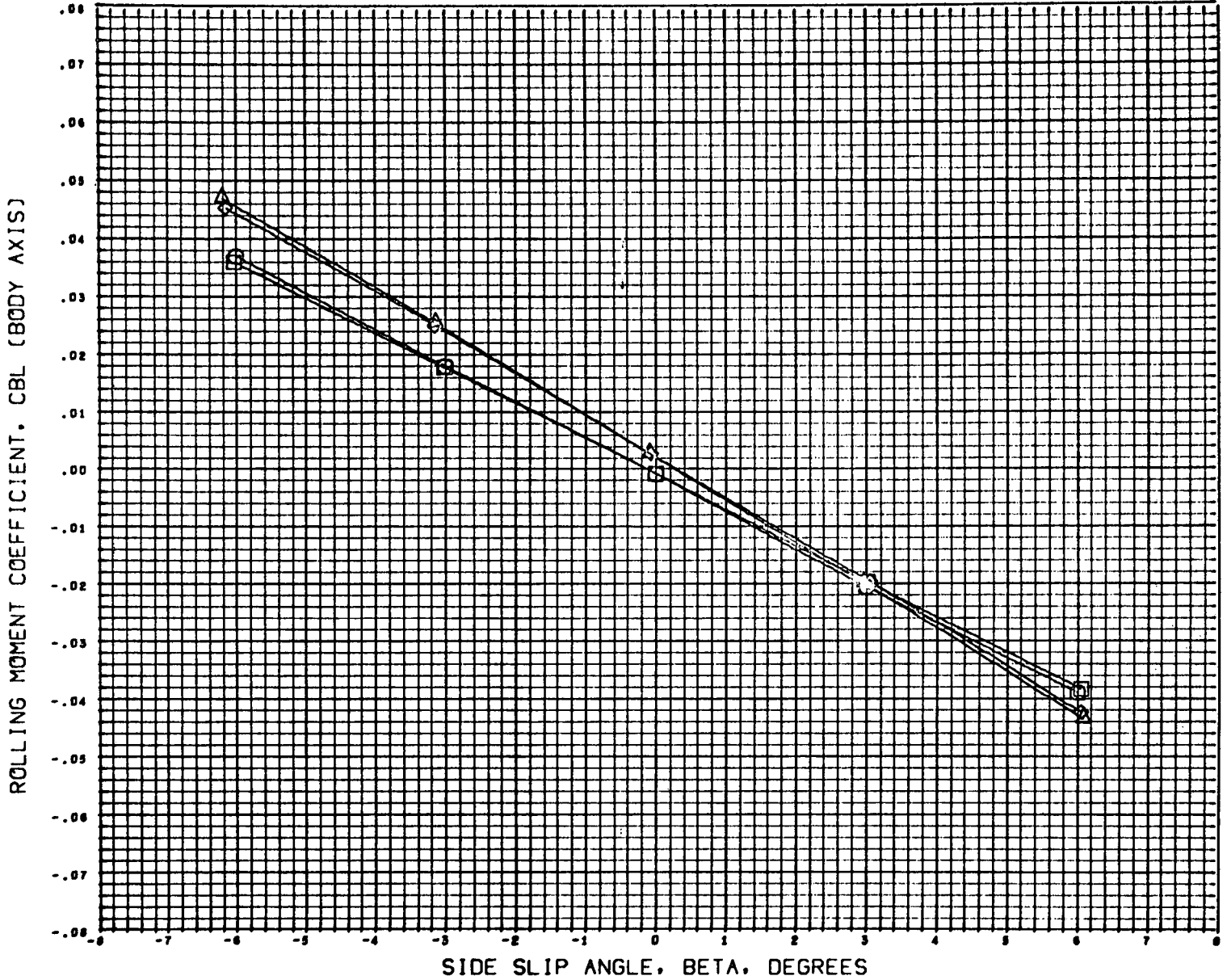
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300P)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	SREF 1.3950 SQ.FT.
(RN3131)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.012	0.702	0.000	0.000	LREF 3.4930 FEET
(RN3127)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.023	0.000	0.000	0.000	BREF 3.4930 FEET
(RN3197)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.011	0.000	0.000	0.000	XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

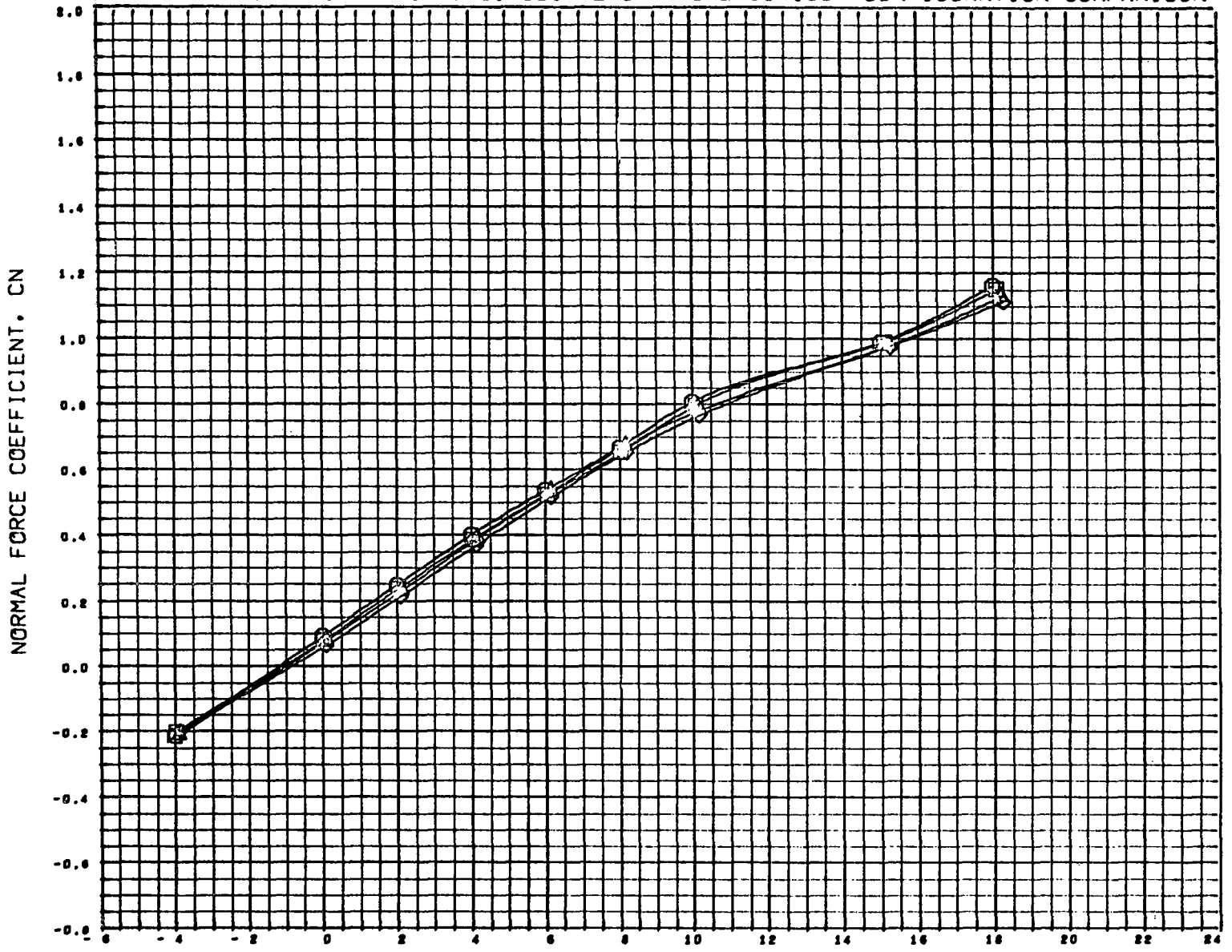
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN30DP)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	SREF 1.3550 90.FT.
(RN3131)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.012	0.702	0.000	0.000	LREF 3.4530 FEET
(RN3127)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.023	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3197)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.011	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

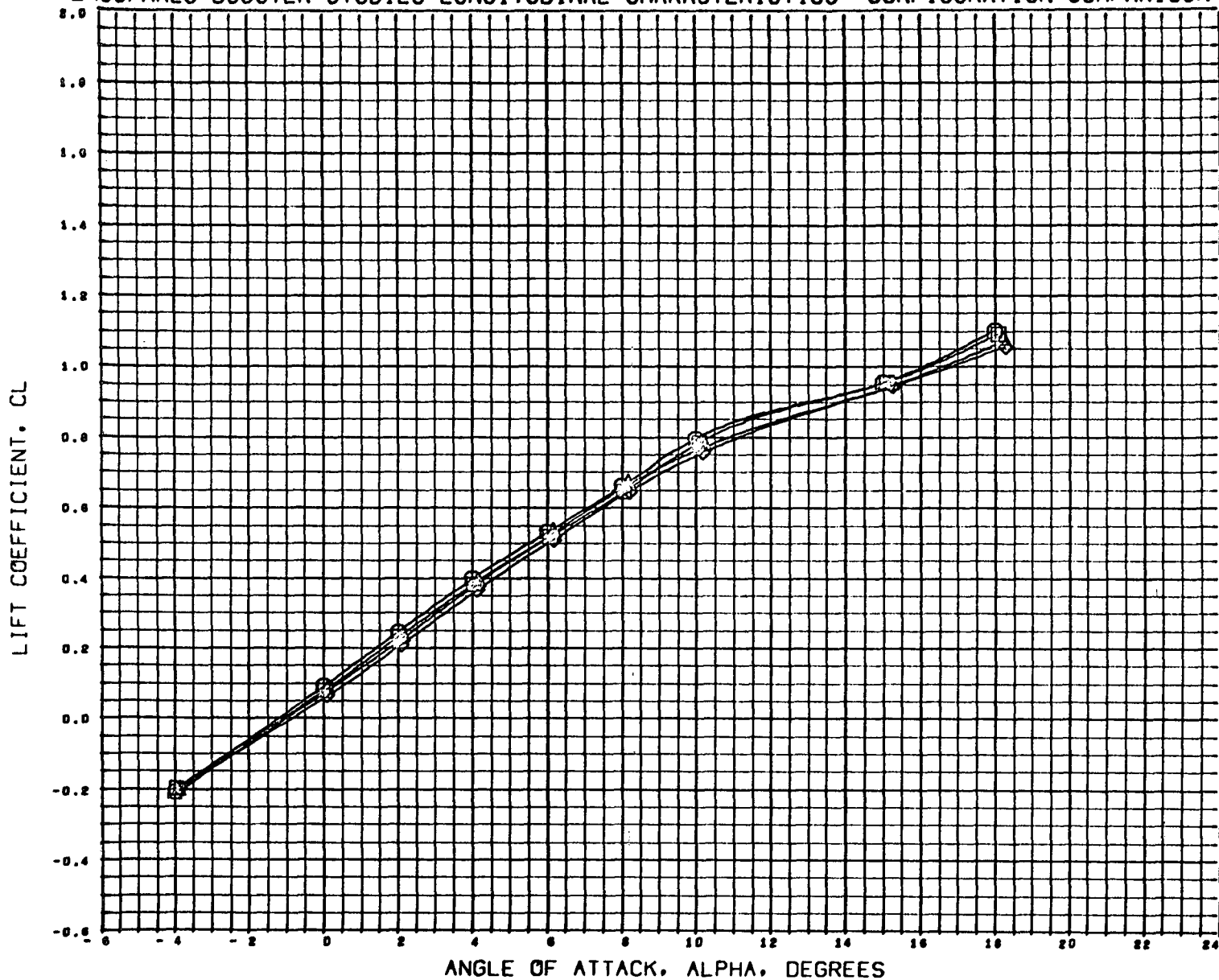


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3008)	⊗	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF 1.3590 SQ. FT.
(RN3146)	⊙	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3142)	⊖	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	SREF 3.4530 FEET
(RN3202)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XHRP 2.5990 FEET
							YHRP 0.0000 FEET
							ZHRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.400

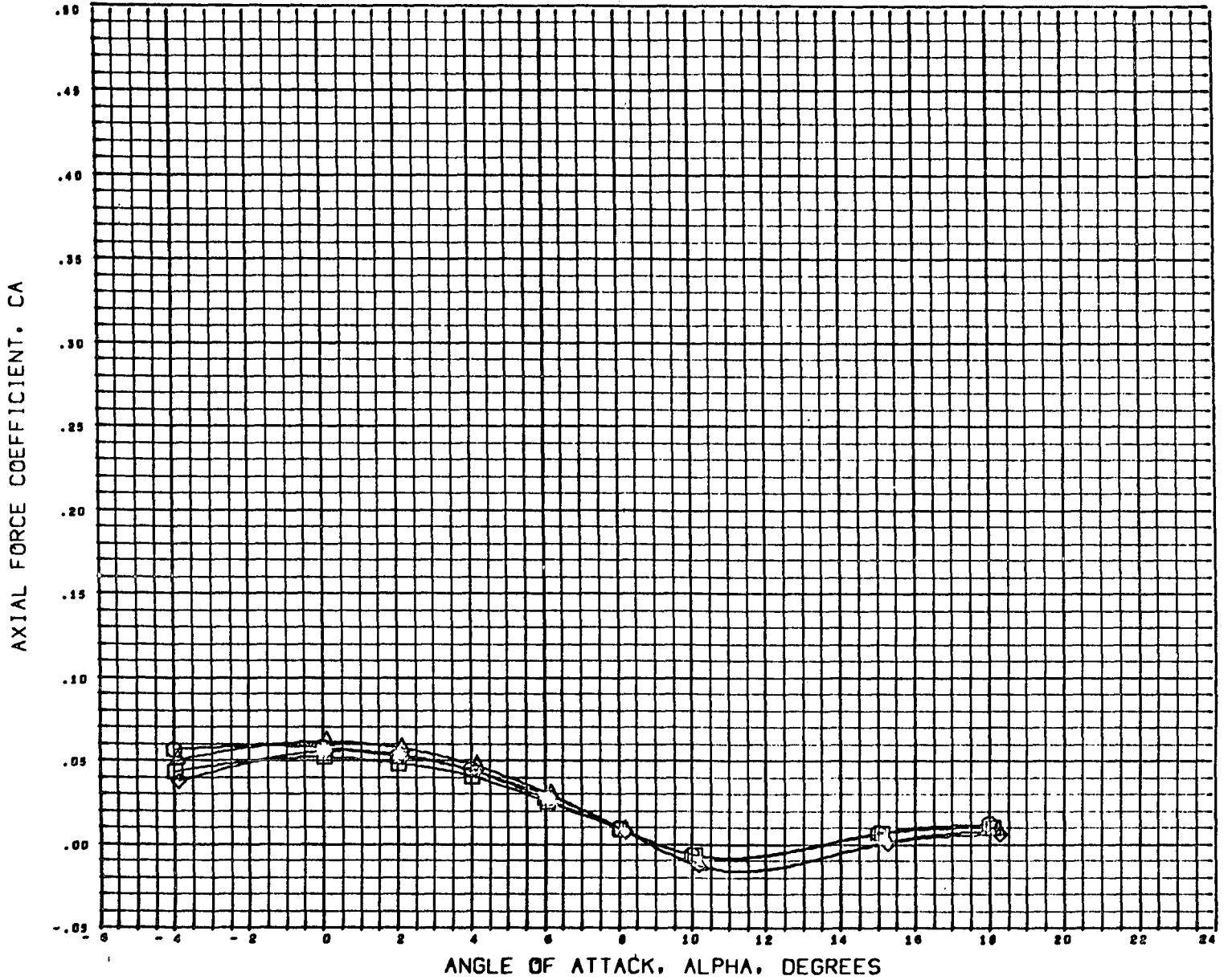
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3000)	○	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3950 SQ. FT.
(RN3148)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3202)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.400

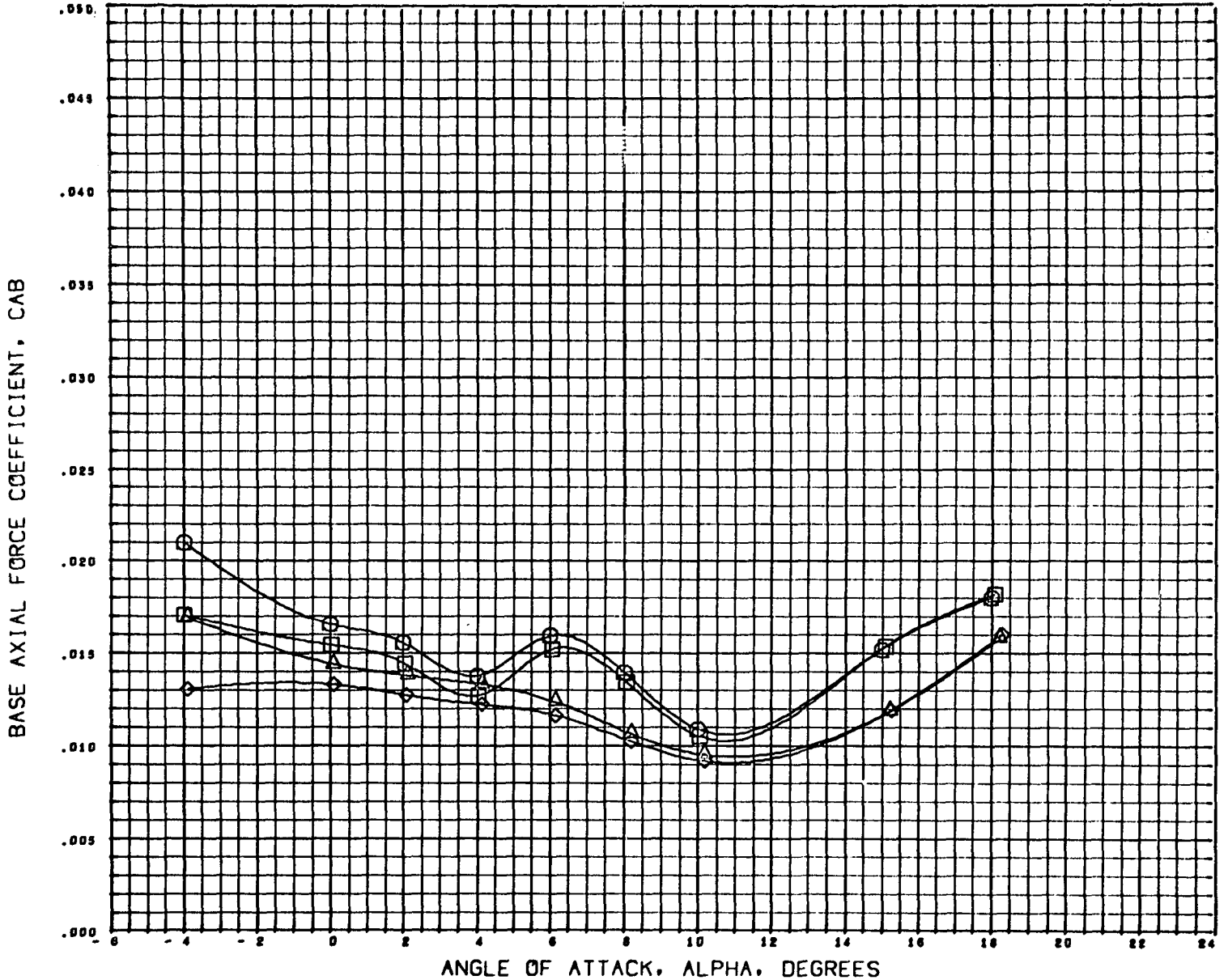
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS000)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS146)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF 3.4530 FEET
(RNS142)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS202)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XNRP 2.5950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

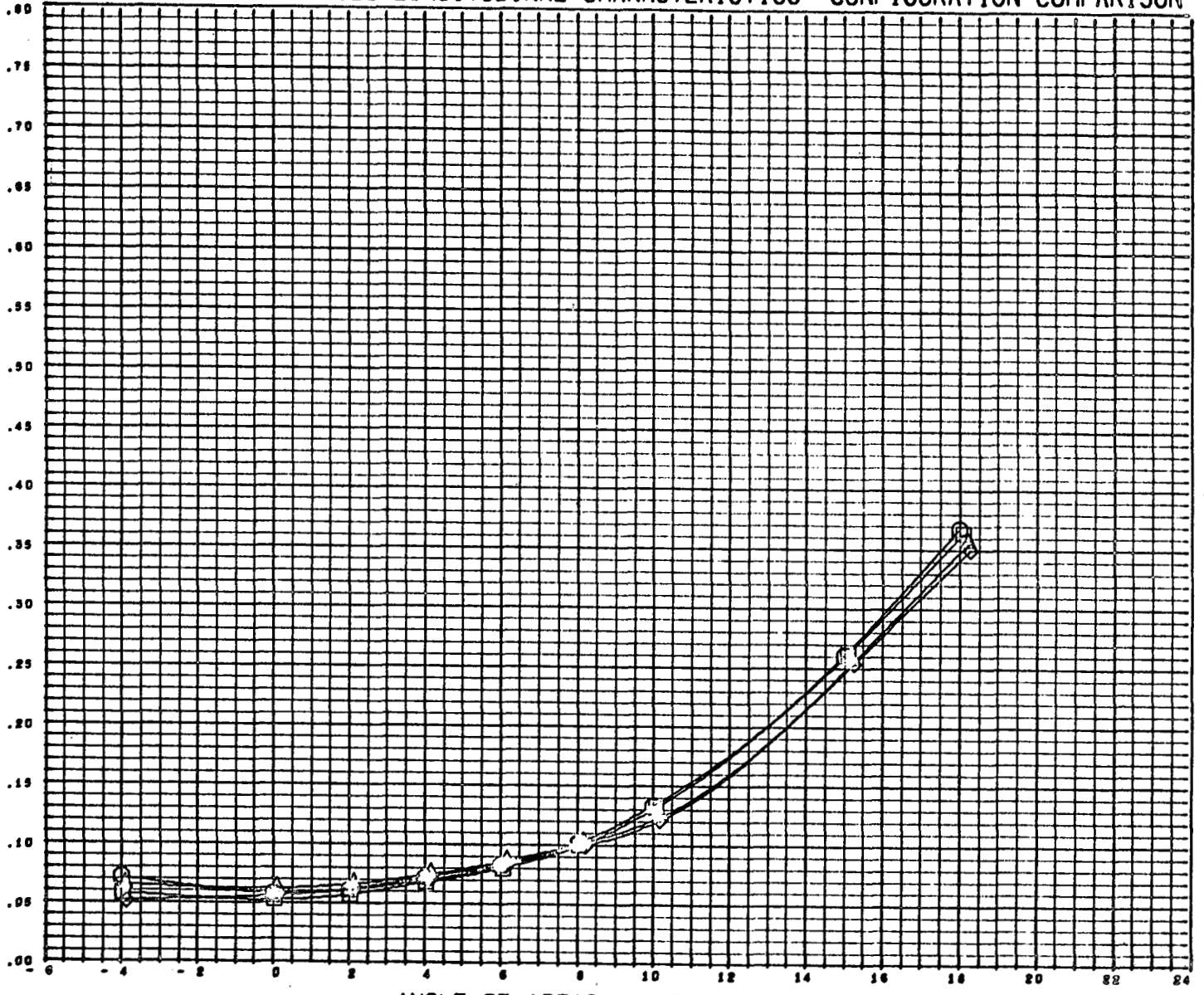


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3000)	○	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3140)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3142)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3202)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XHRP 2.9950 FEET YHRP 0.0000 FEET ZHRP 0.0107 FEET SCALE 0.0150 SCALE

HACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

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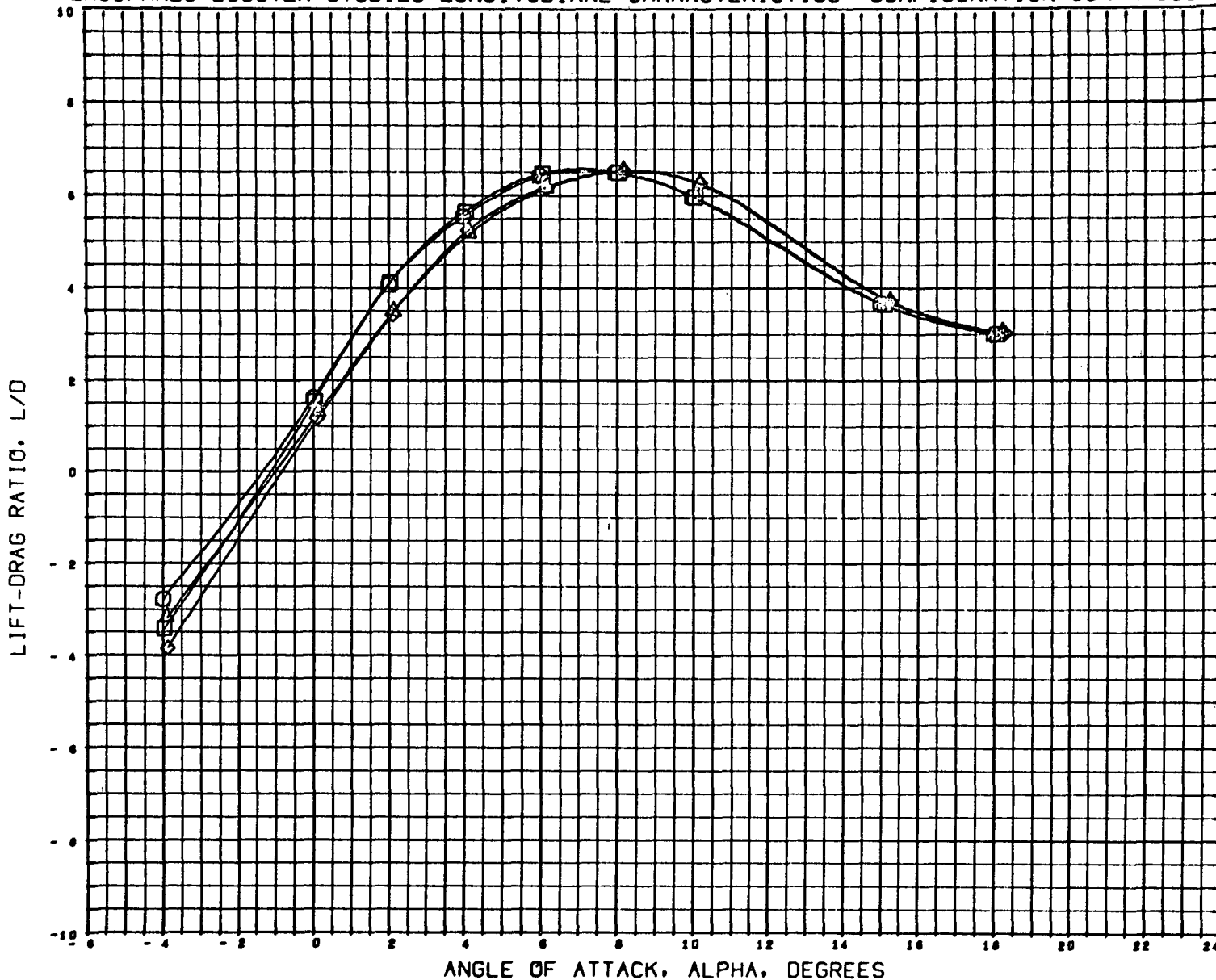


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(ANS008)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RNS146)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF 3.4530 FEET
(RNS142)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS202)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP 2.5930 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

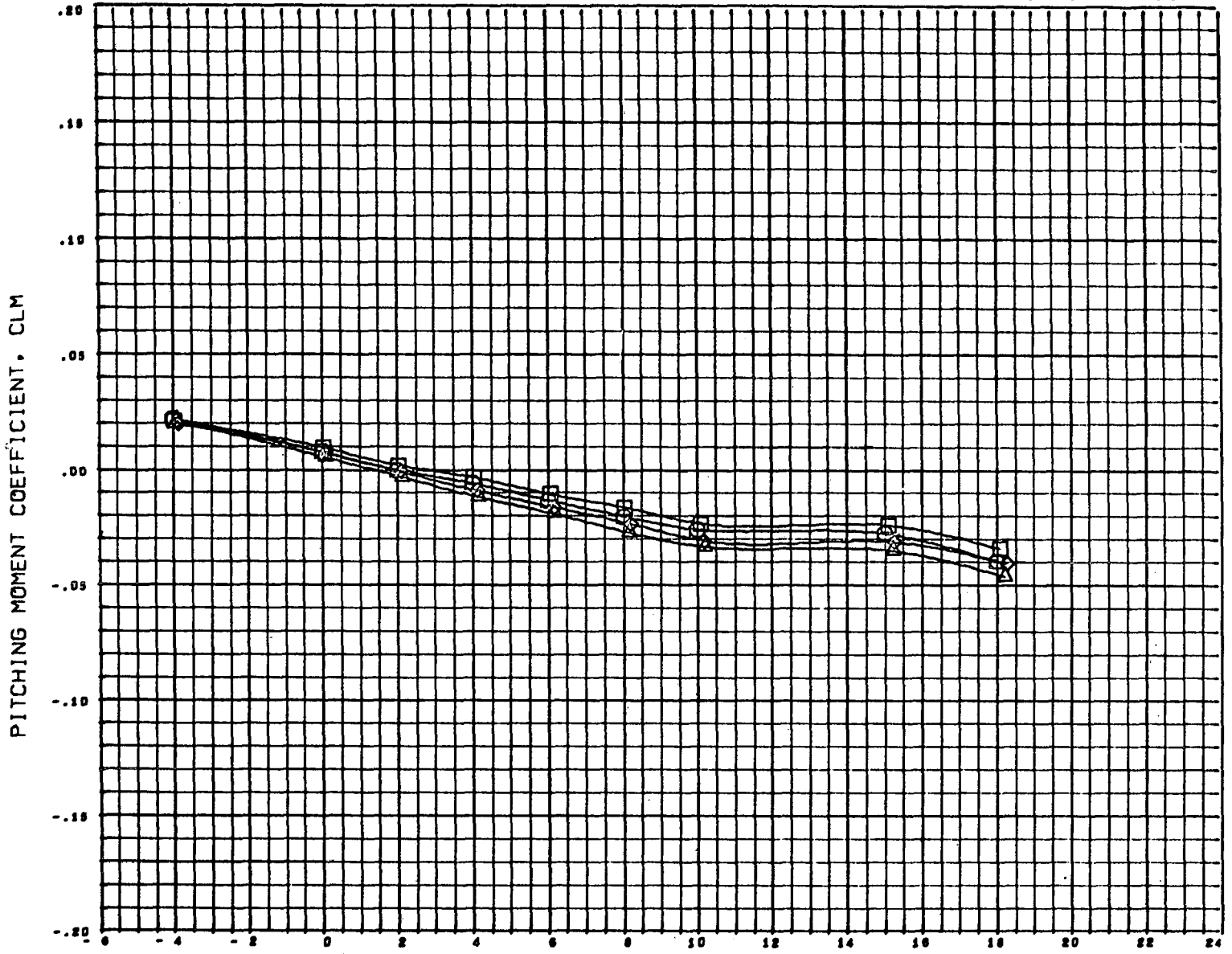


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3000)	NSRDC-3210, NSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3950 80. FT.
(RN3146)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4930 FEET
(RN3142)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	SREF	3.4930 FEET
(RN3202)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

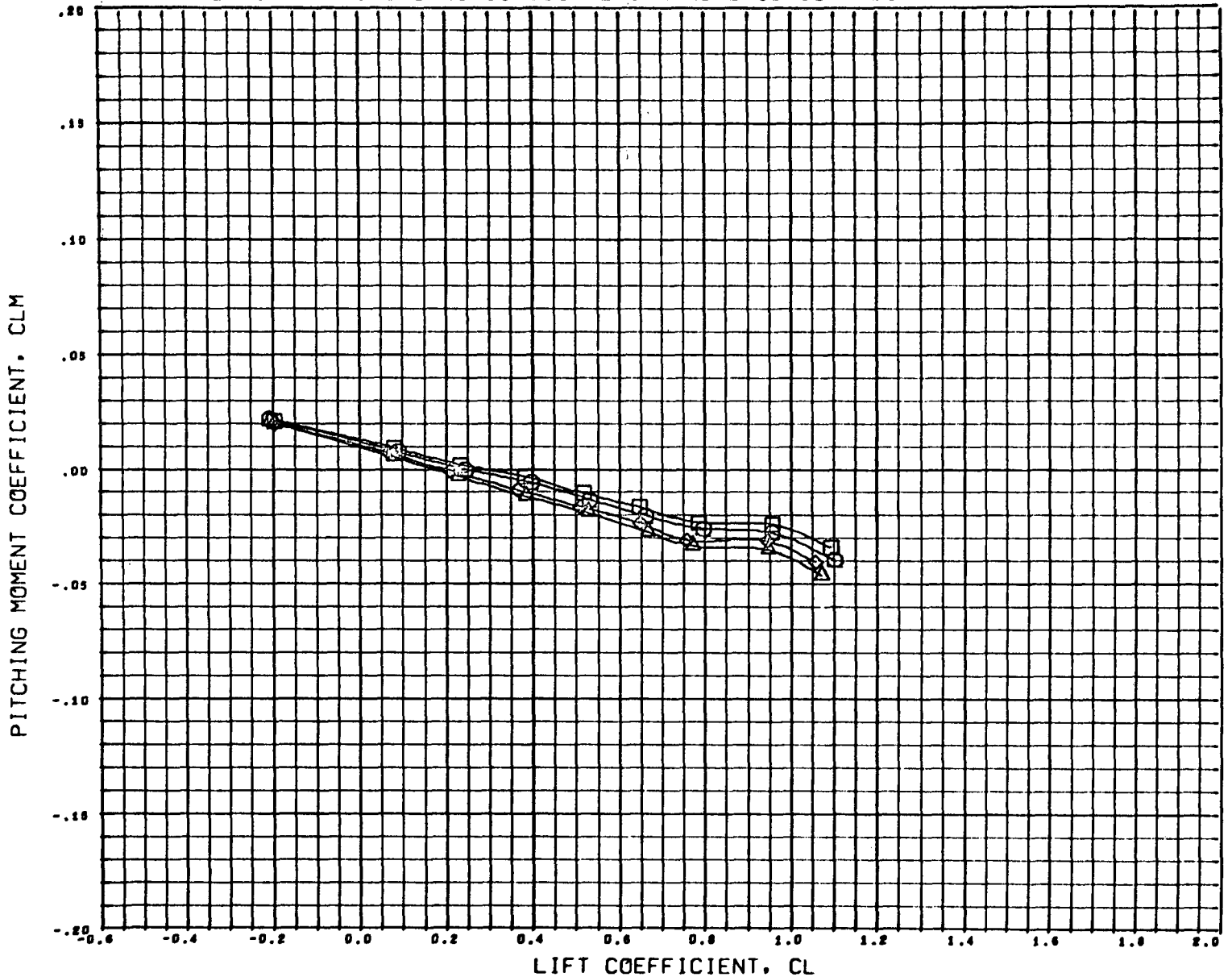


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	NSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN3008)	NSRDC-3210, NSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3146)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3142)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3202)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.400

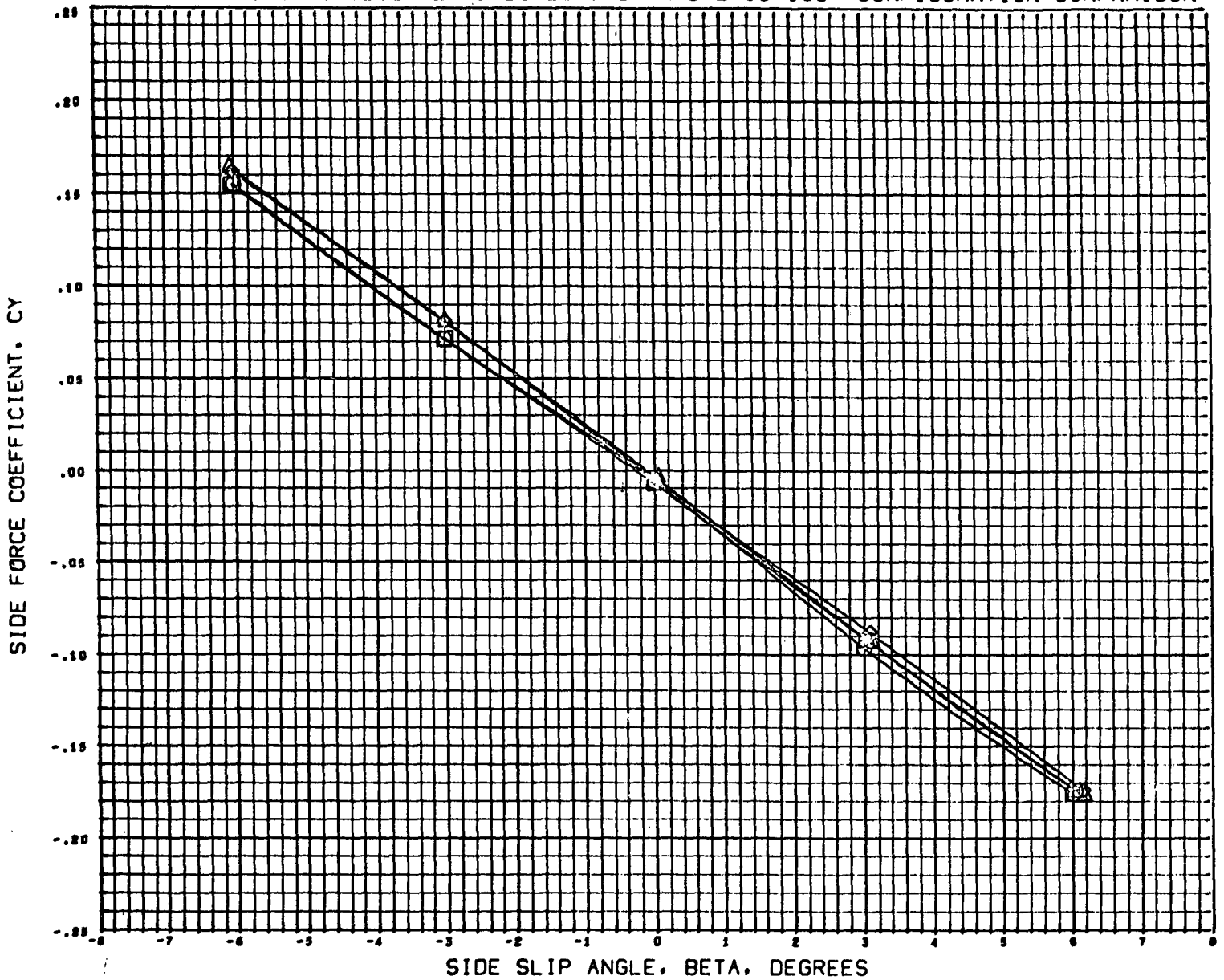
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3000)	○	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3590 80.FT.
(RN3146)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3202)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XHRP	2.5950 FEET
							YHRP	0.0000 FEET
							ZHRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

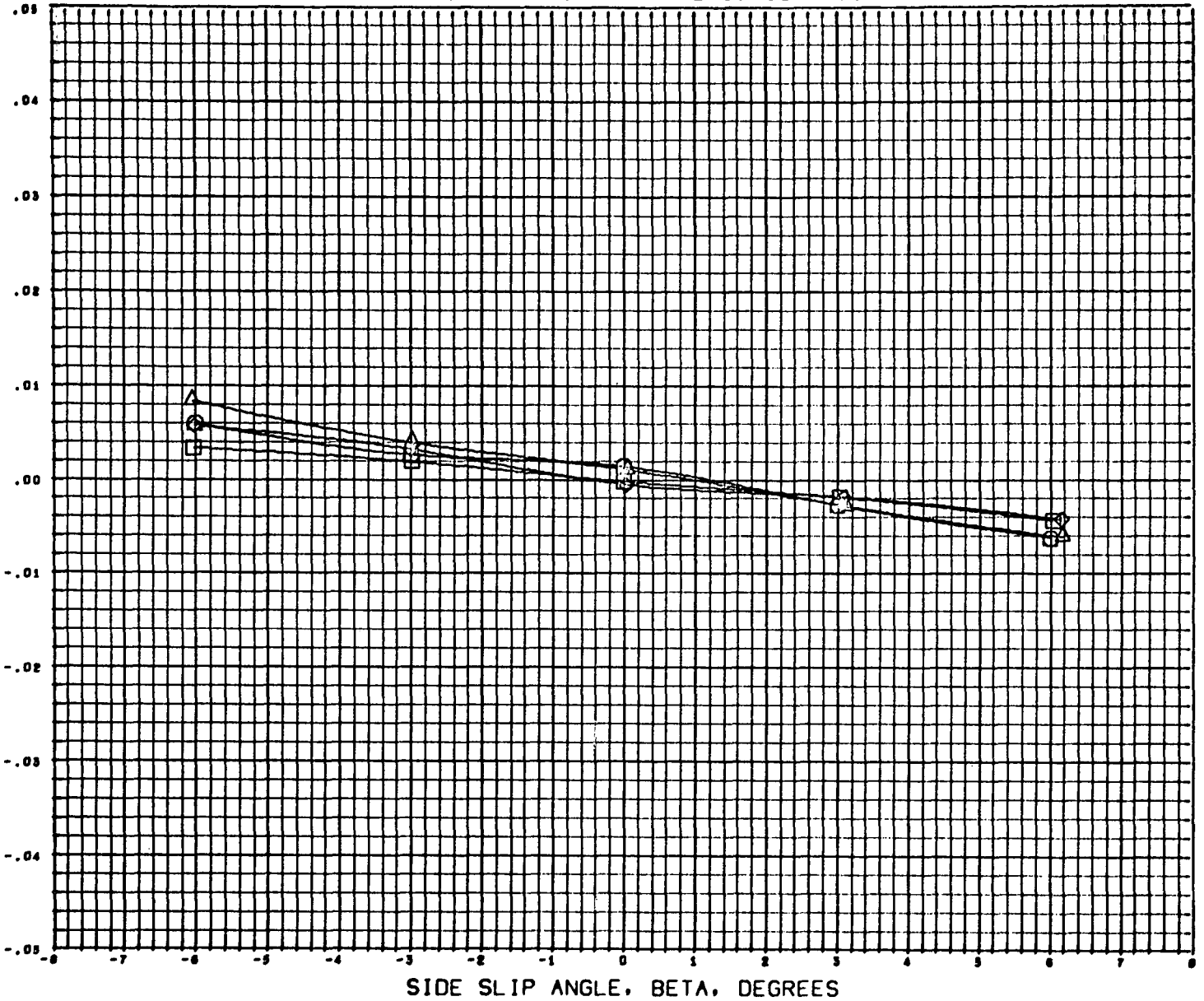


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3008)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.118	0.631	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3147)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.118	0.631	0.000	0.000	LREF 3.4530 FEET
(RN3143)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.104	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3203)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.041	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

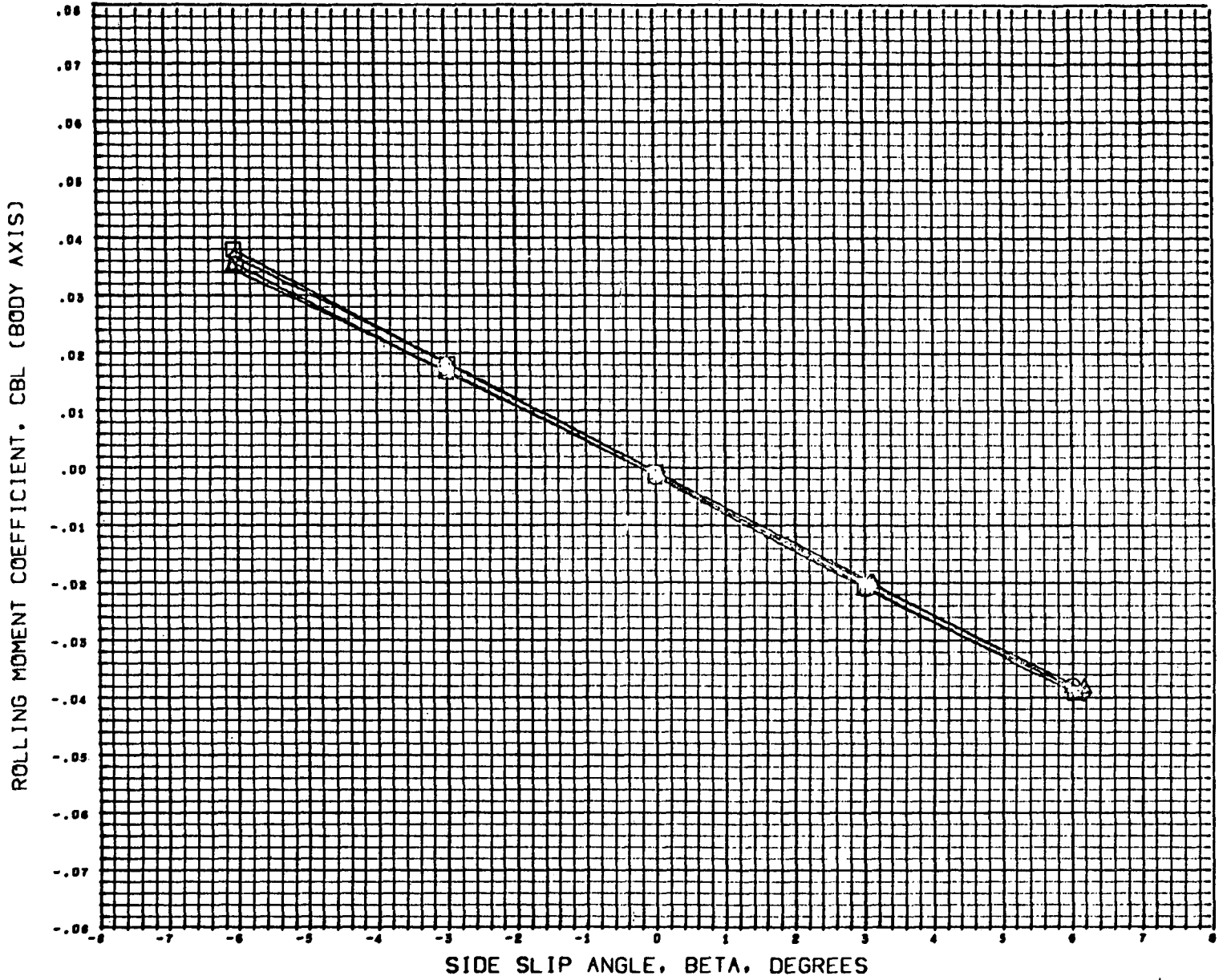
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3008)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1M1	0.110	0.631	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3147)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.110	0.631	0.000	0.000	LREF 3.4530 FEET
(RN3143)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.104	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3203)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.041	0.000	0.000	0.000	XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0147 FEET
						SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

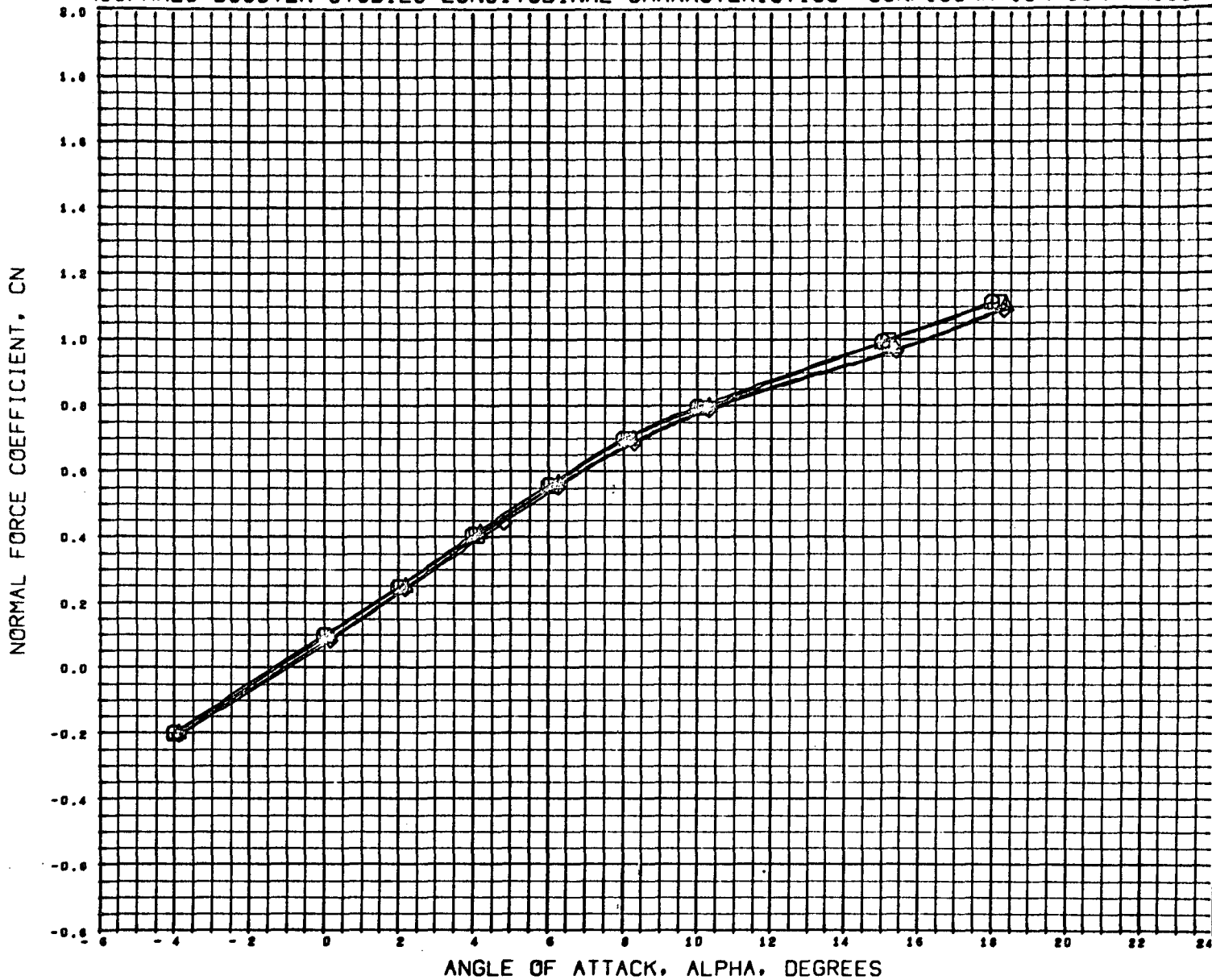


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(RNS008)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.118	0.631	0.000	0.000	SREF 1.3550 80.FT.
(RNS147)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.118	0.631	0.000	0.000	LREF 3.4530 FEET
(RNS143)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.104	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS203)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.041	0.000	0.000	0.000	XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

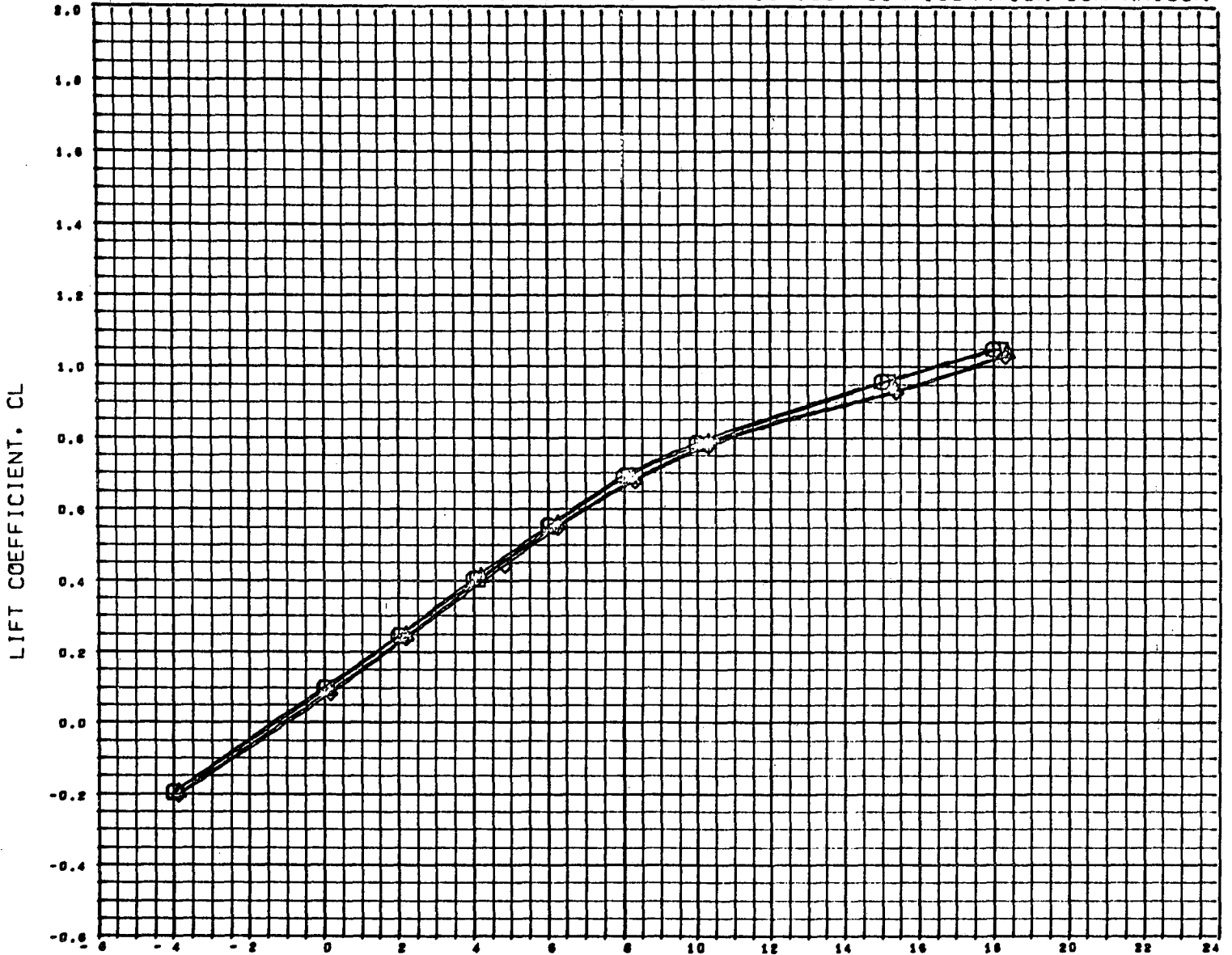
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300R)	○	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.459	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3154)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF 3.4330 FEET
(RN3150)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3206)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

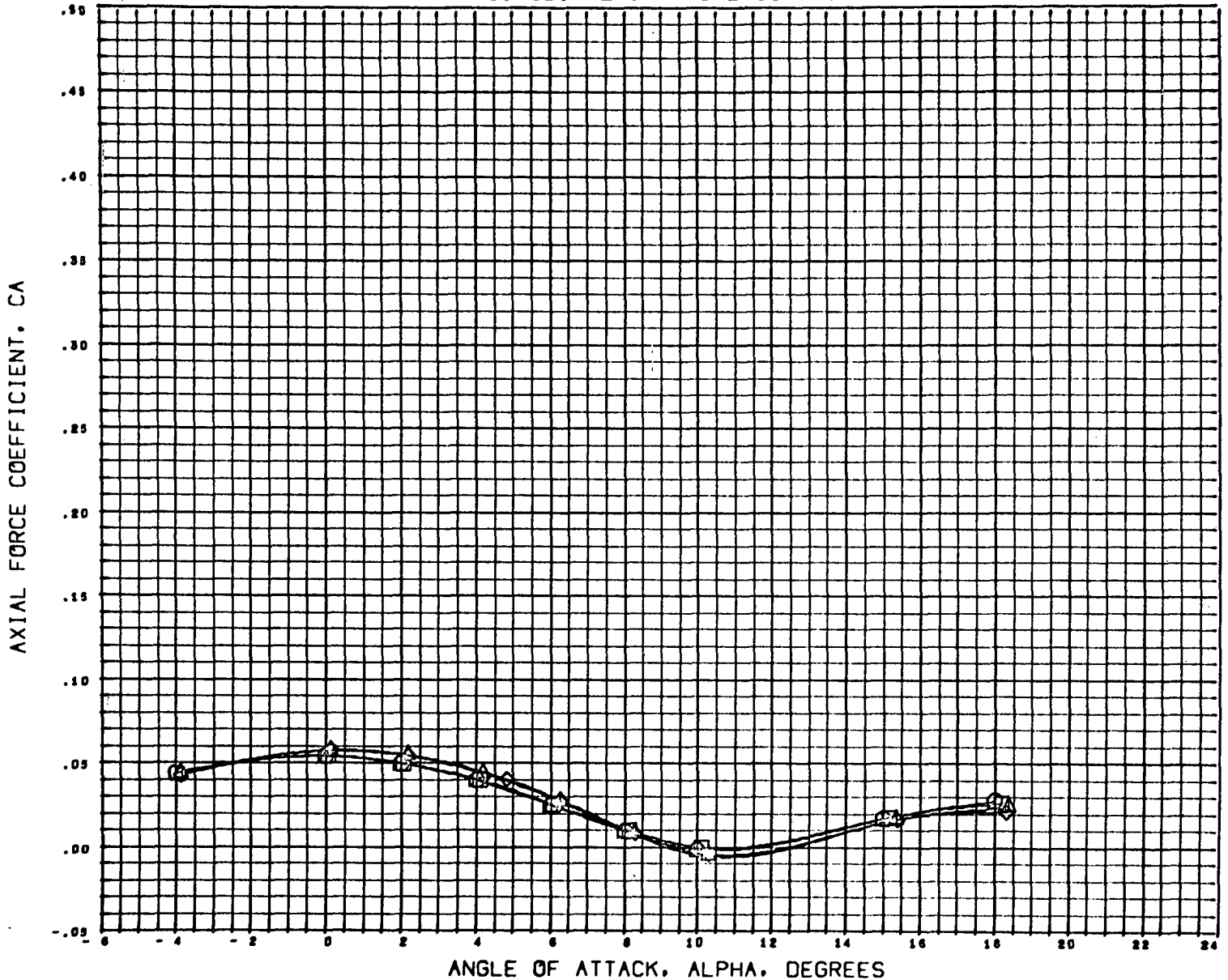


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(ANS00R)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RNS194)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF 3.4530 FEET
(RNS150)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS206)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.500

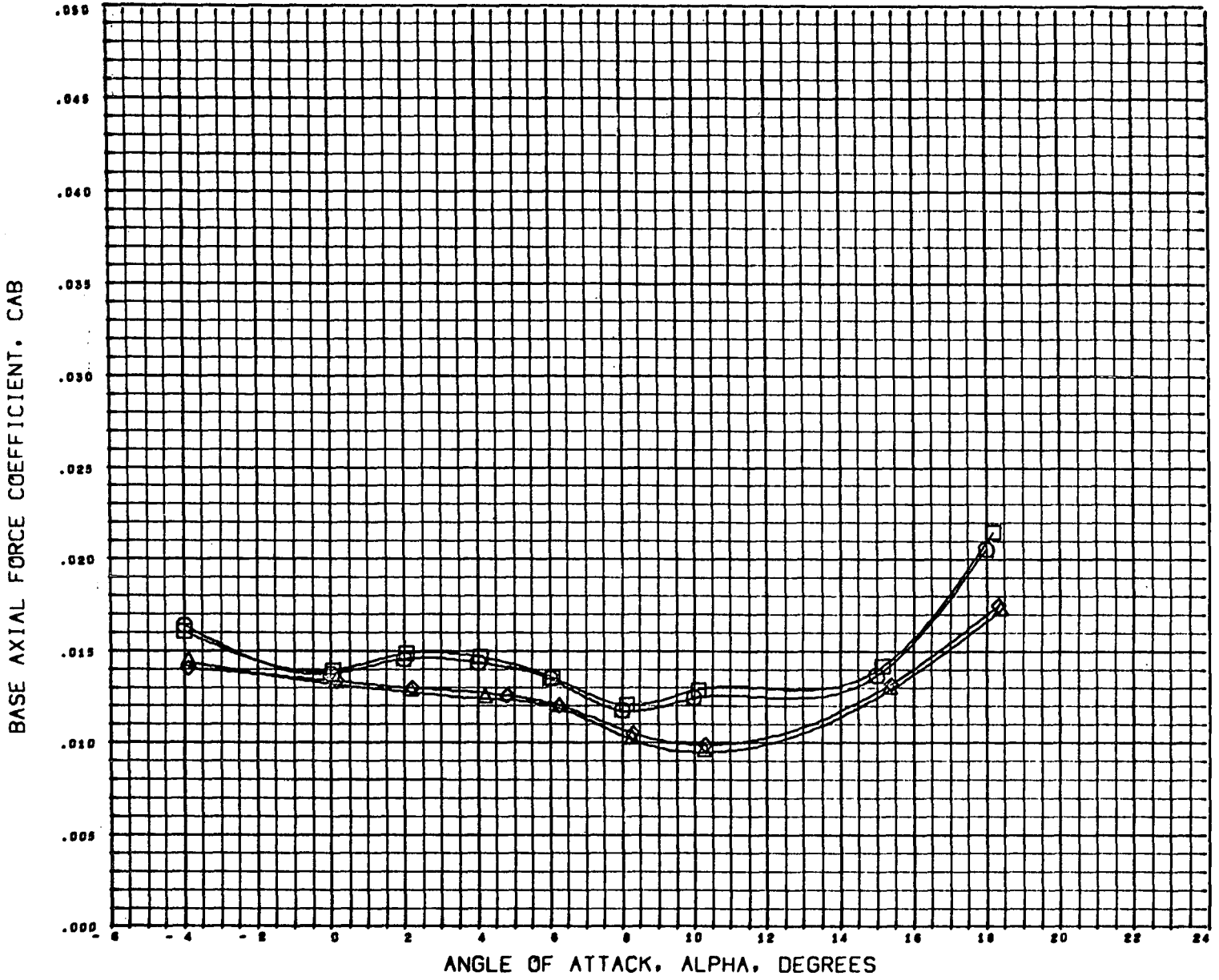
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300R)	○	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3154)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3150)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3206)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP 2.9950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.500

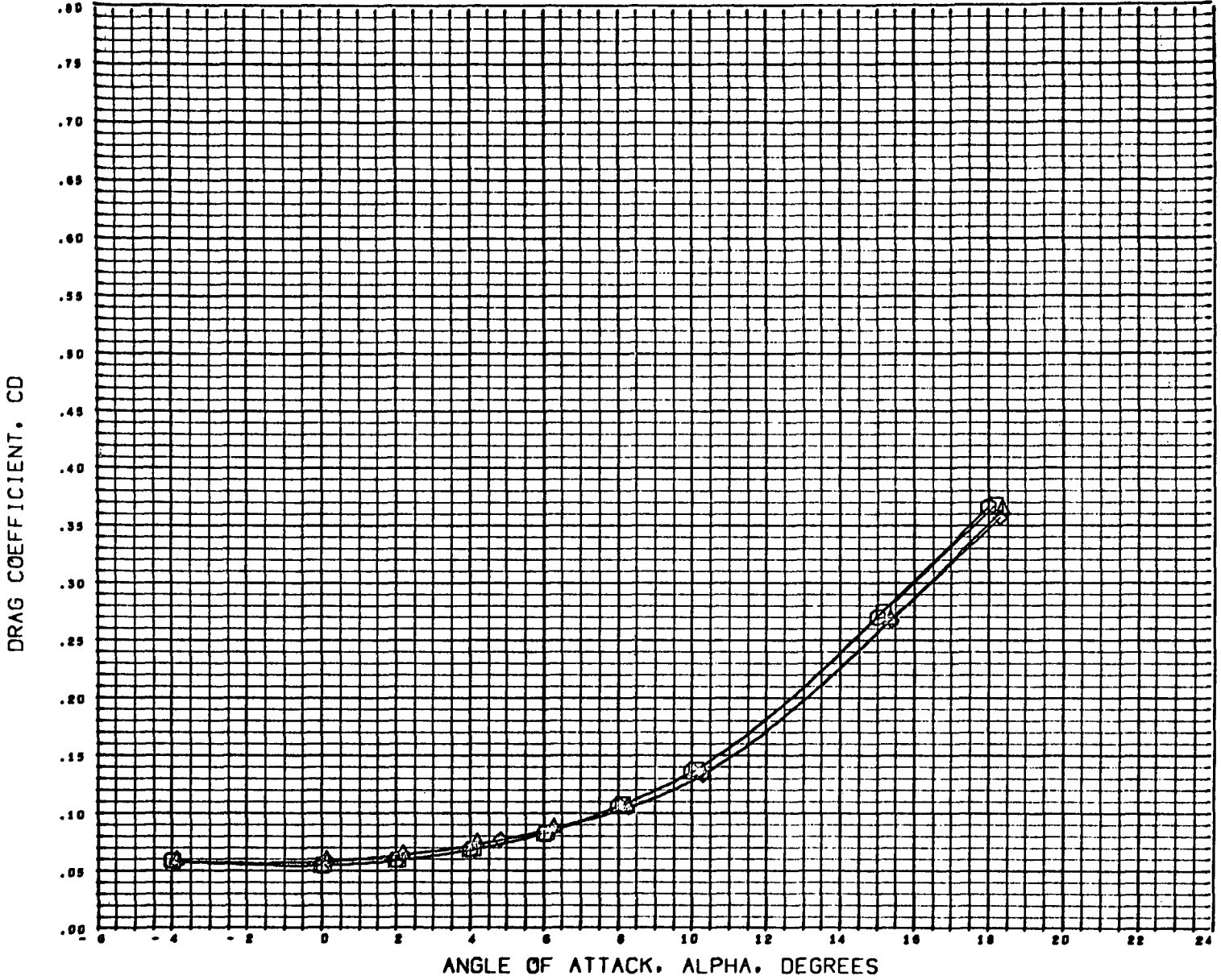
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION		
(AN300R)	○	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550	80.FT.
(RN3154)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4330	FEET
(RN3150)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4330	FEET
(RN3206)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950	FEET
							YMRP	0.0000	FEET
							ZMRP	0.0187	FEET
							SCALE	0.0150	SCALE

MACH 0.500

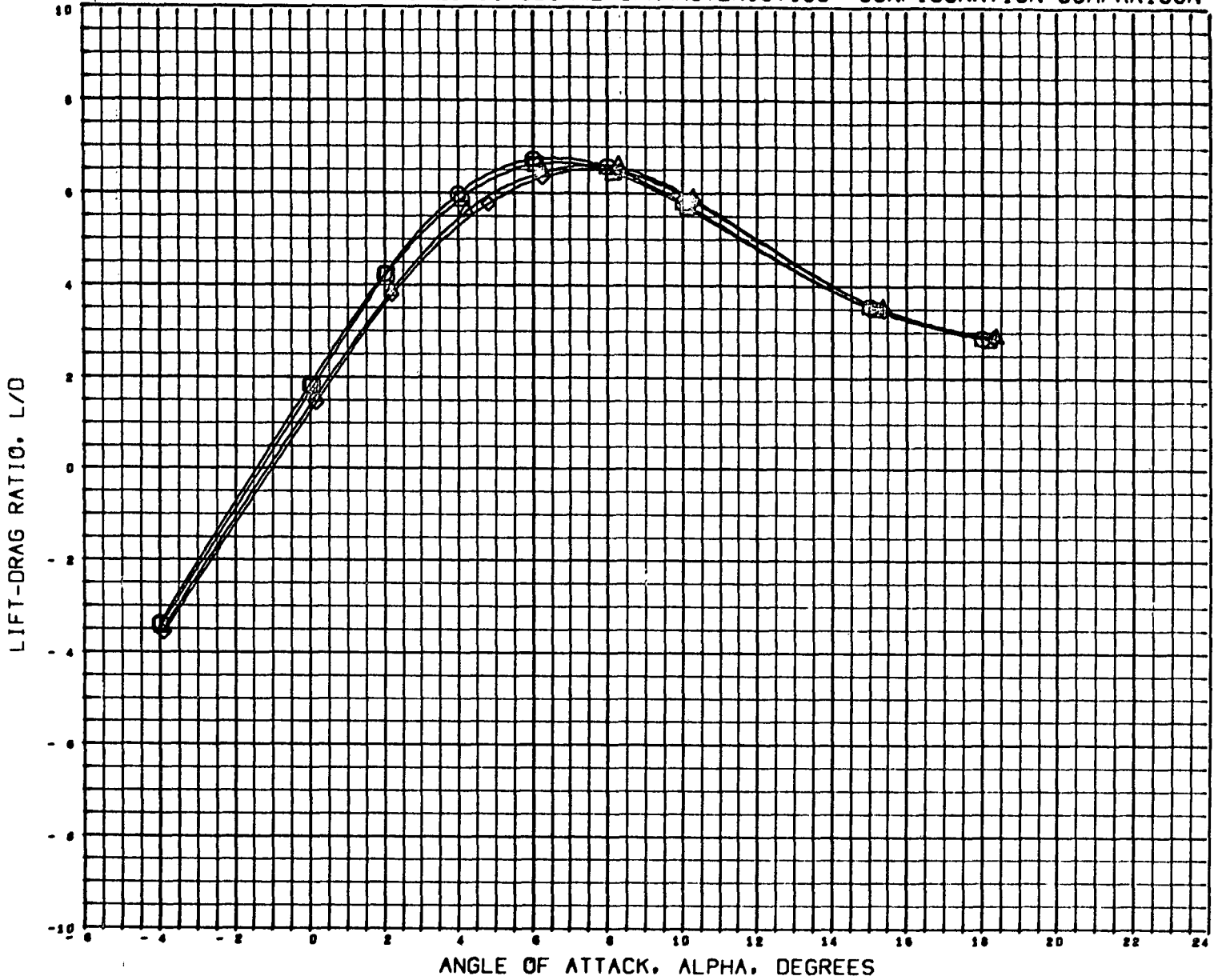
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	○	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RN3194)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3190)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3206)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.300

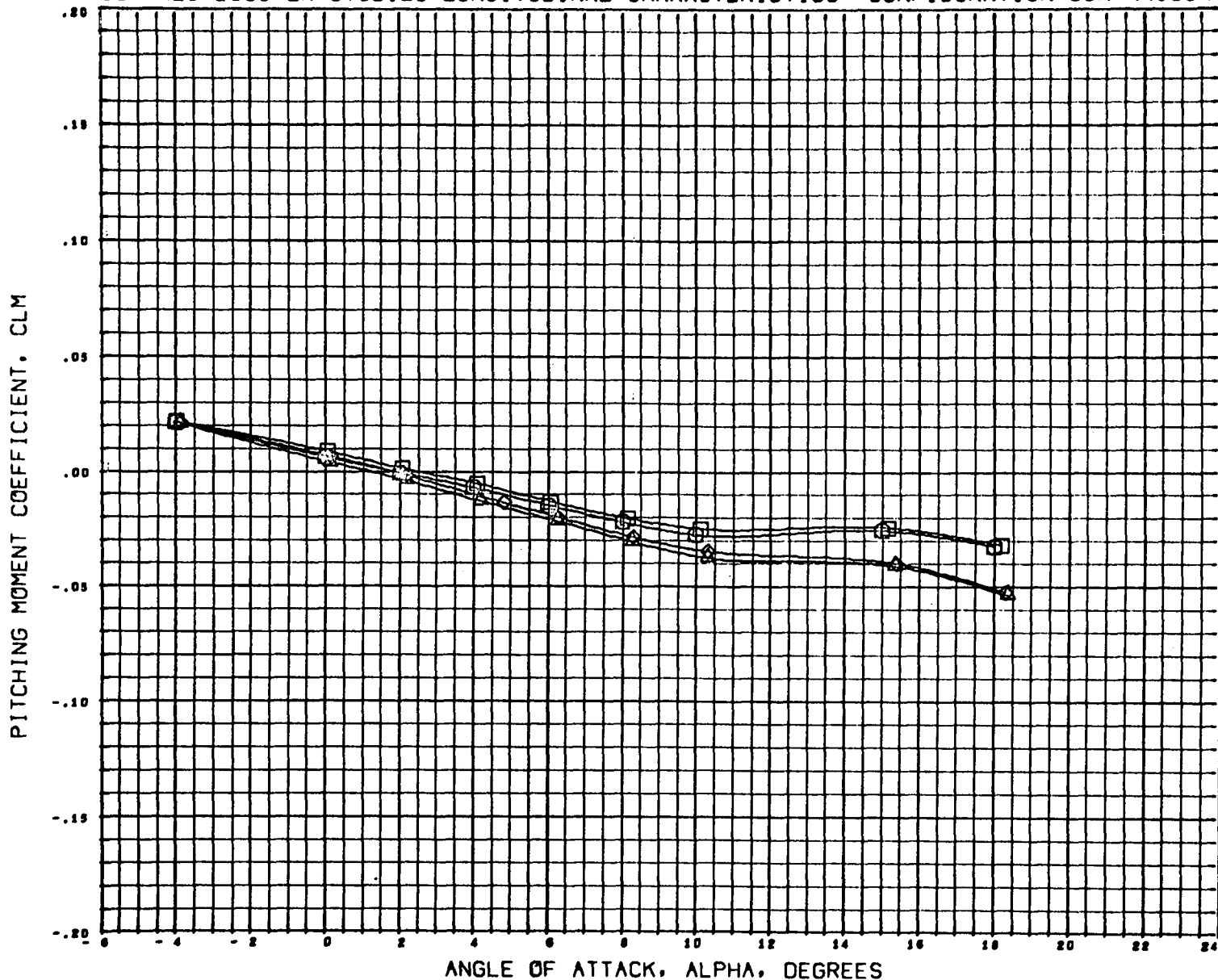
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3194)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3190)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	SREF	3.4530 FEET
(RN3206)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.300

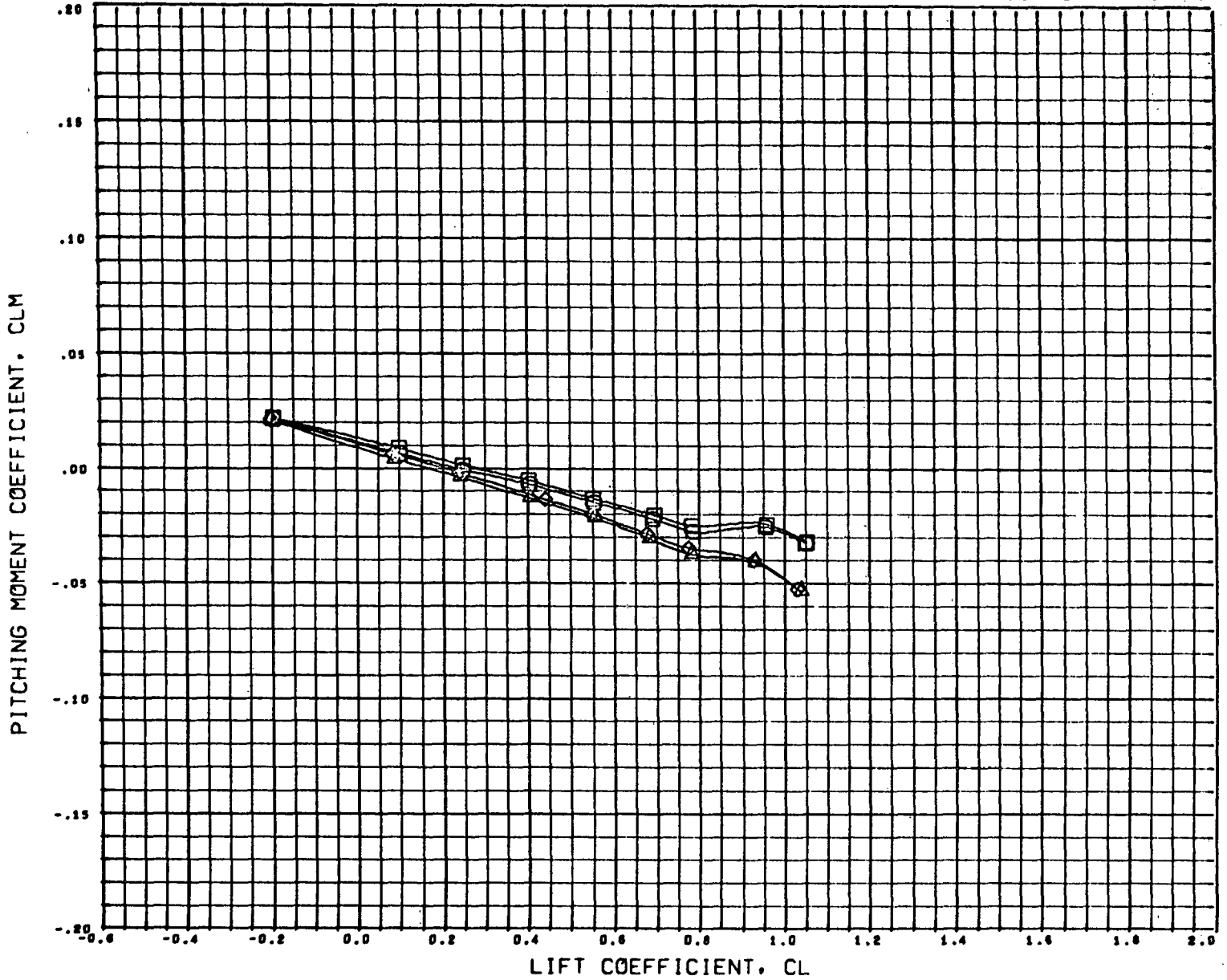
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(ANS00R)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3154)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3150)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3206)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.300

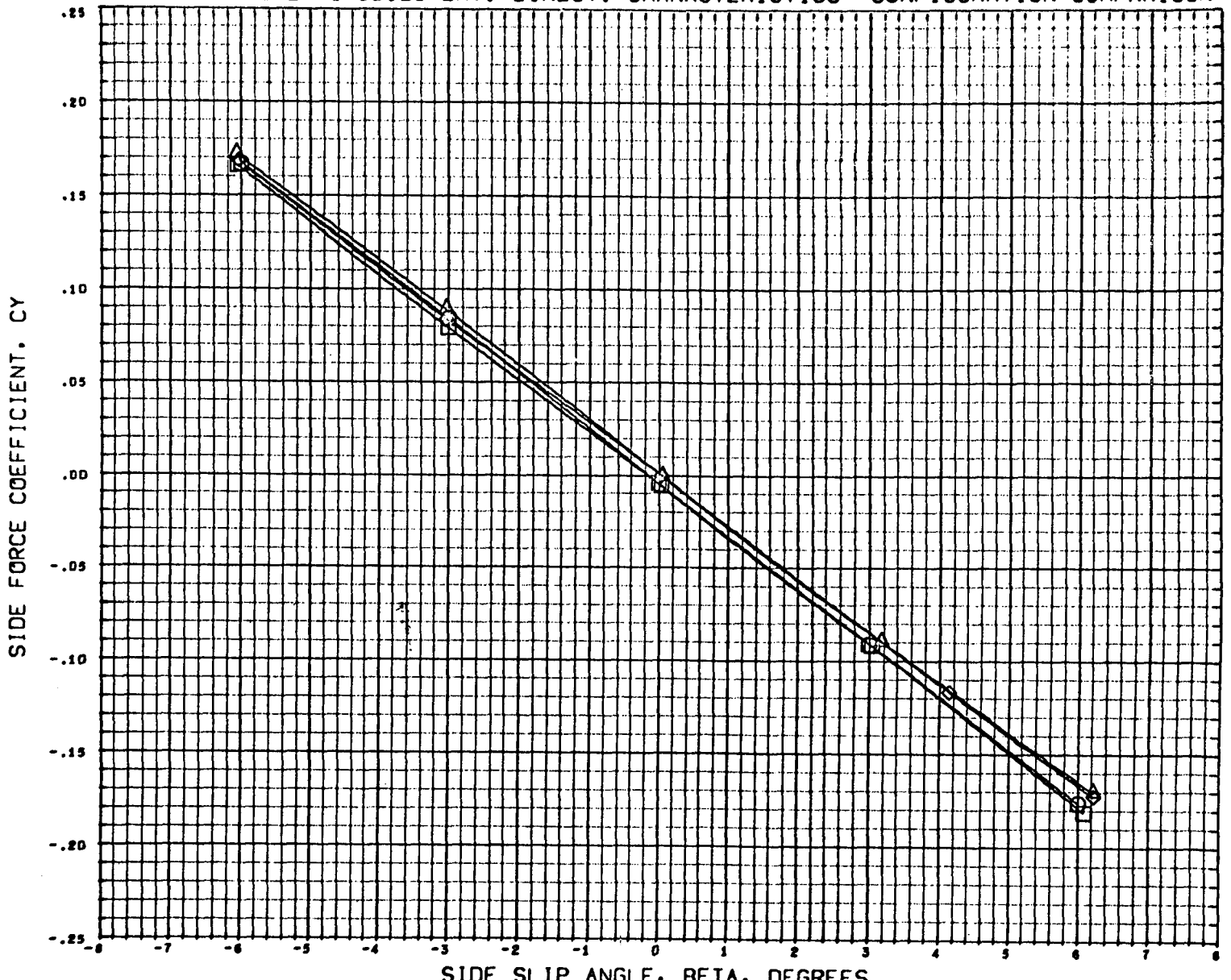
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(ANS00R)	○	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RNS154)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RNS150)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RNS208)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

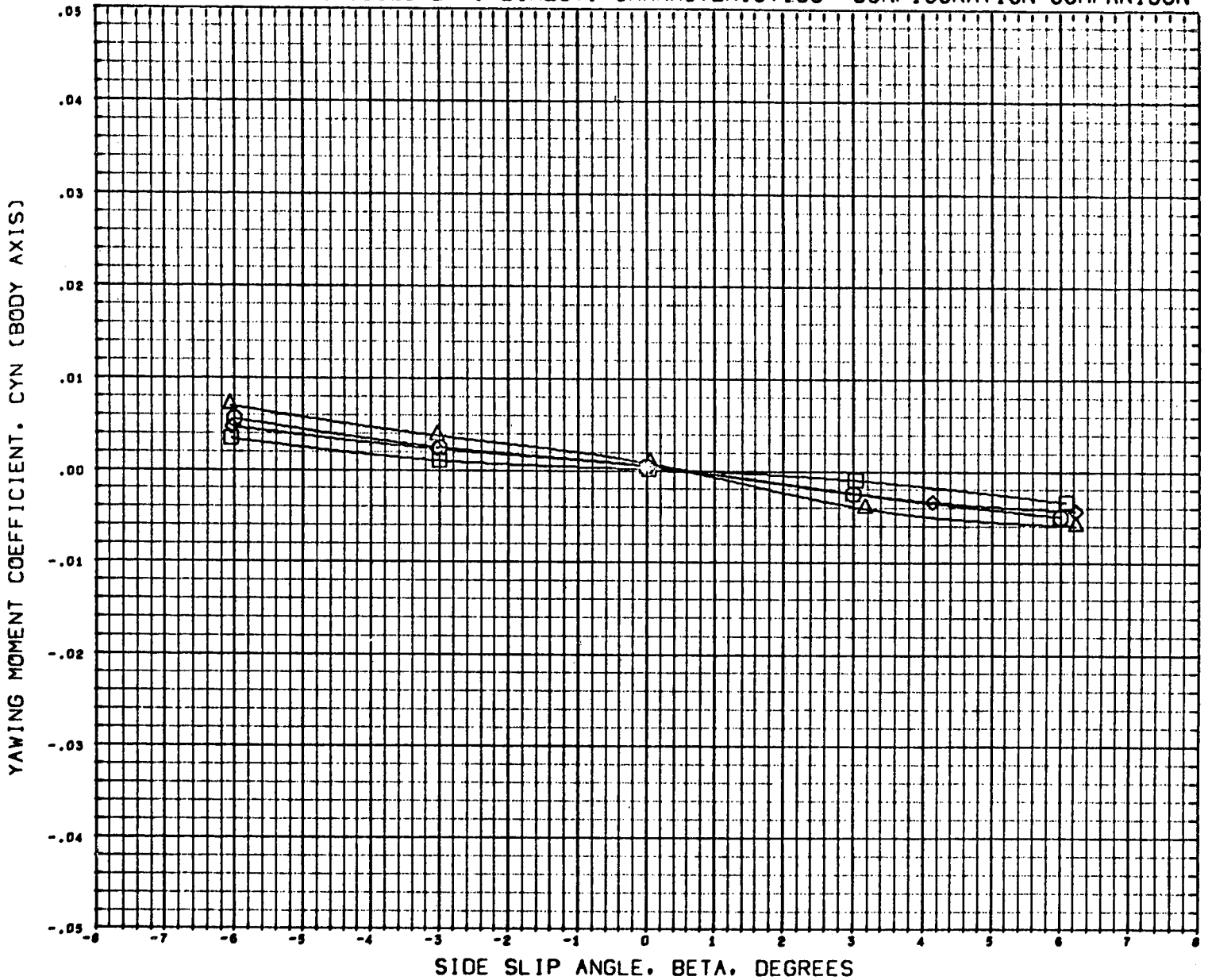
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(RNS300T)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	SREF 1.3550 80.FT.
(RNS155)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.160	0.468	0.000	0.000	LREF 3.4530 FEET
(RNS151)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.176	0.000	0.000	0.000	BREF 3.4530 FEET
(RNS207)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.068	0.000	0.000	0.000	XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

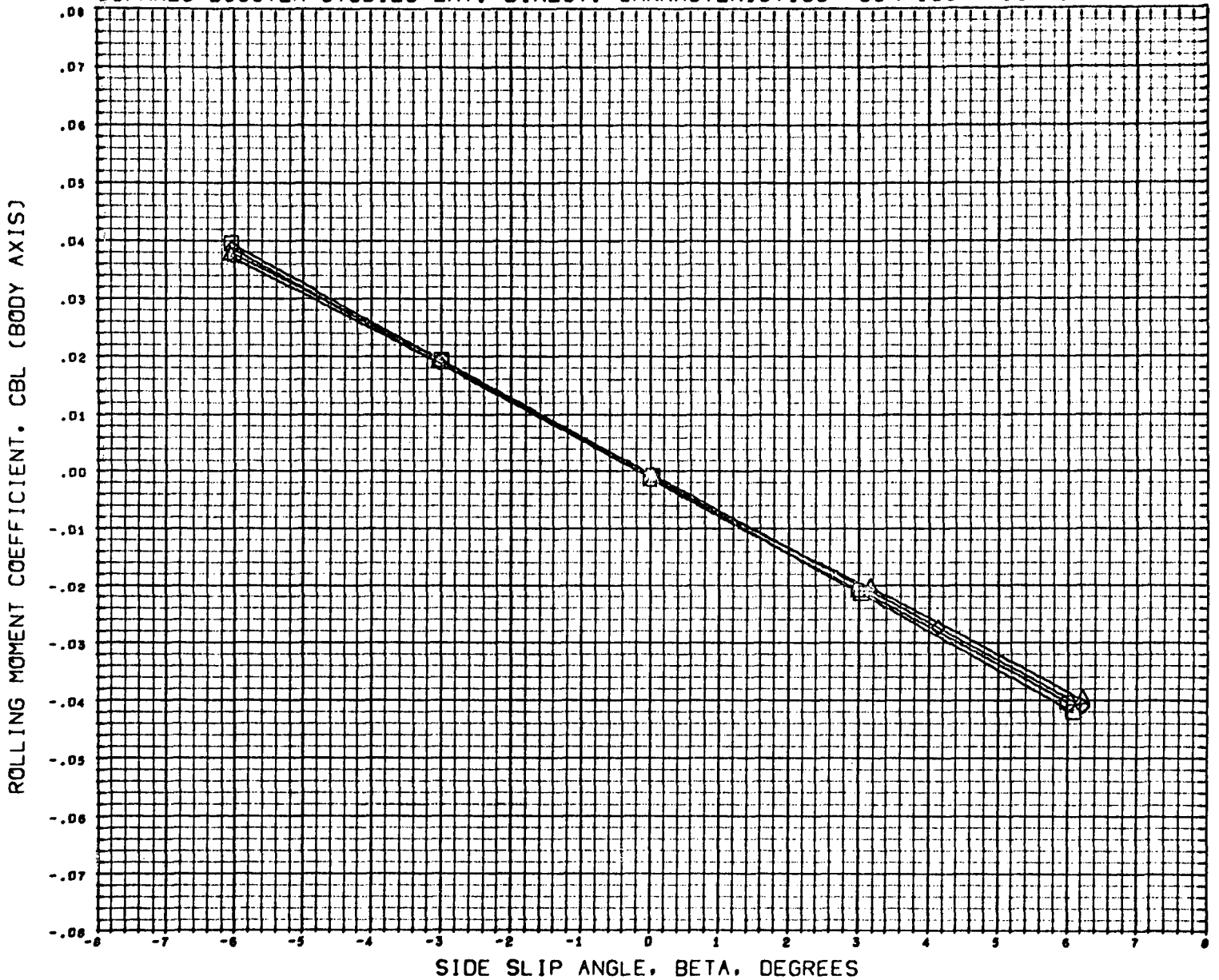
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3007)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	SREF 1.3350 SQ.FT.
(RN3155)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.160	0.468	0.000	0.000	LREF 3.4330 FEET
(RN3151)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.176	0.000	0.000	0.000	BREF 3.4330 FEET
(RN3207)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.068	0.000	0.000	0.000	XMRF 2.5950 FEET
						YMRF 0.0000 FEET
						ZMRF 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

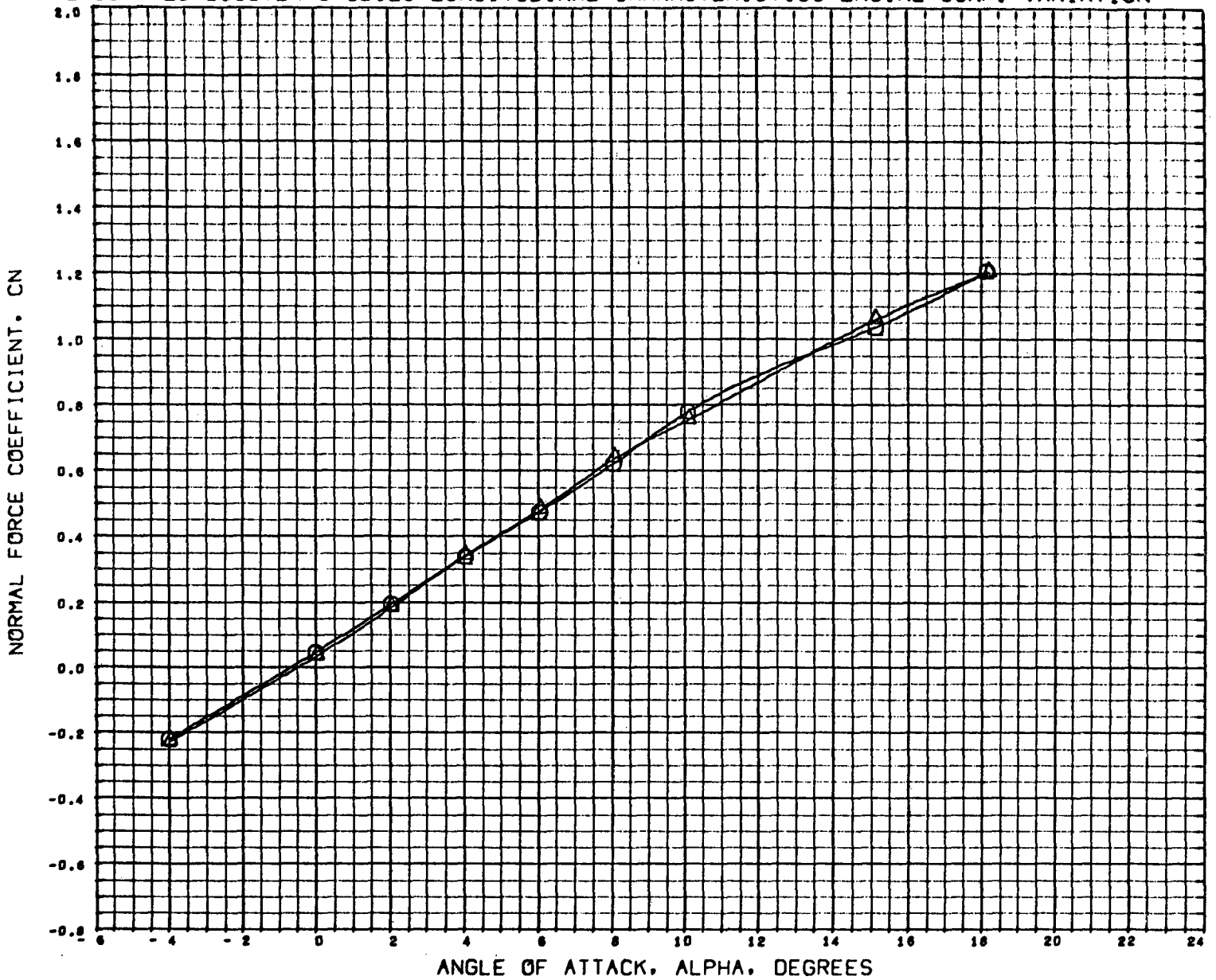
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN30GT)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3155)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.160	0.468	0.000	0.000	LREF 3.4530 FEET
(RN3151)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.176	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3207)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.068	0.000	0.000	0.000	XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.500

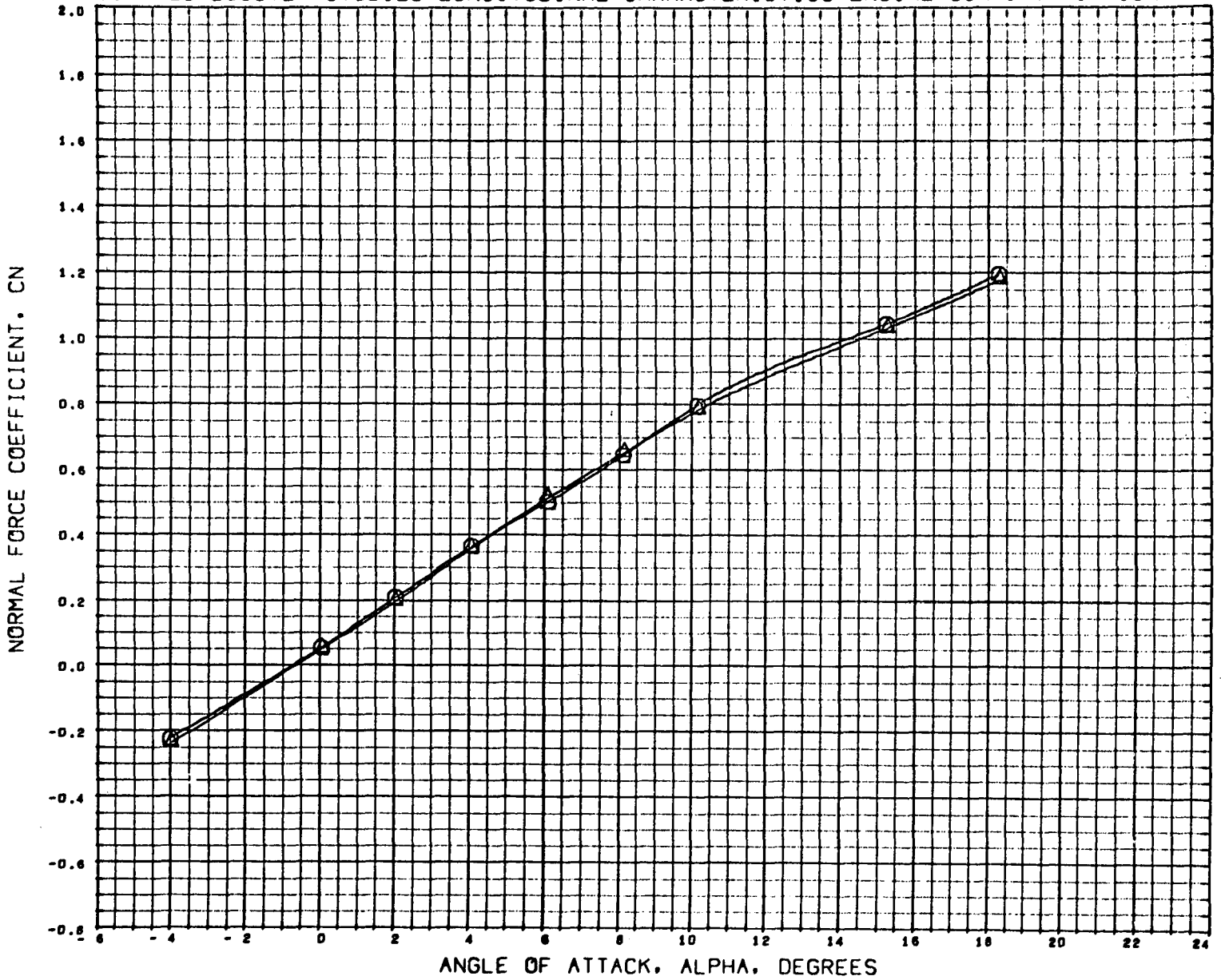
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3182)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.374

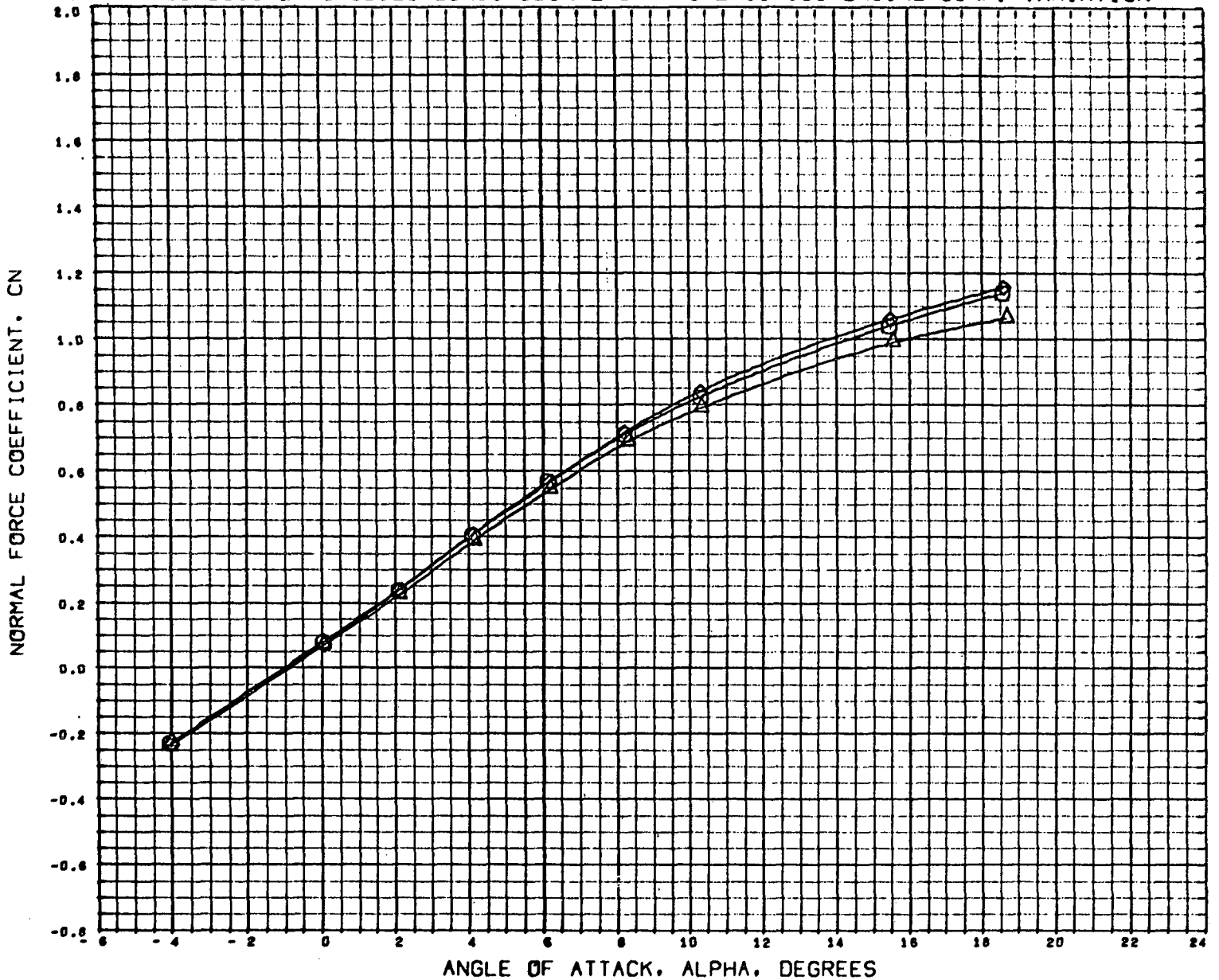
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSROC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3182)	NSROC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.9950 FEET
						VMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.505

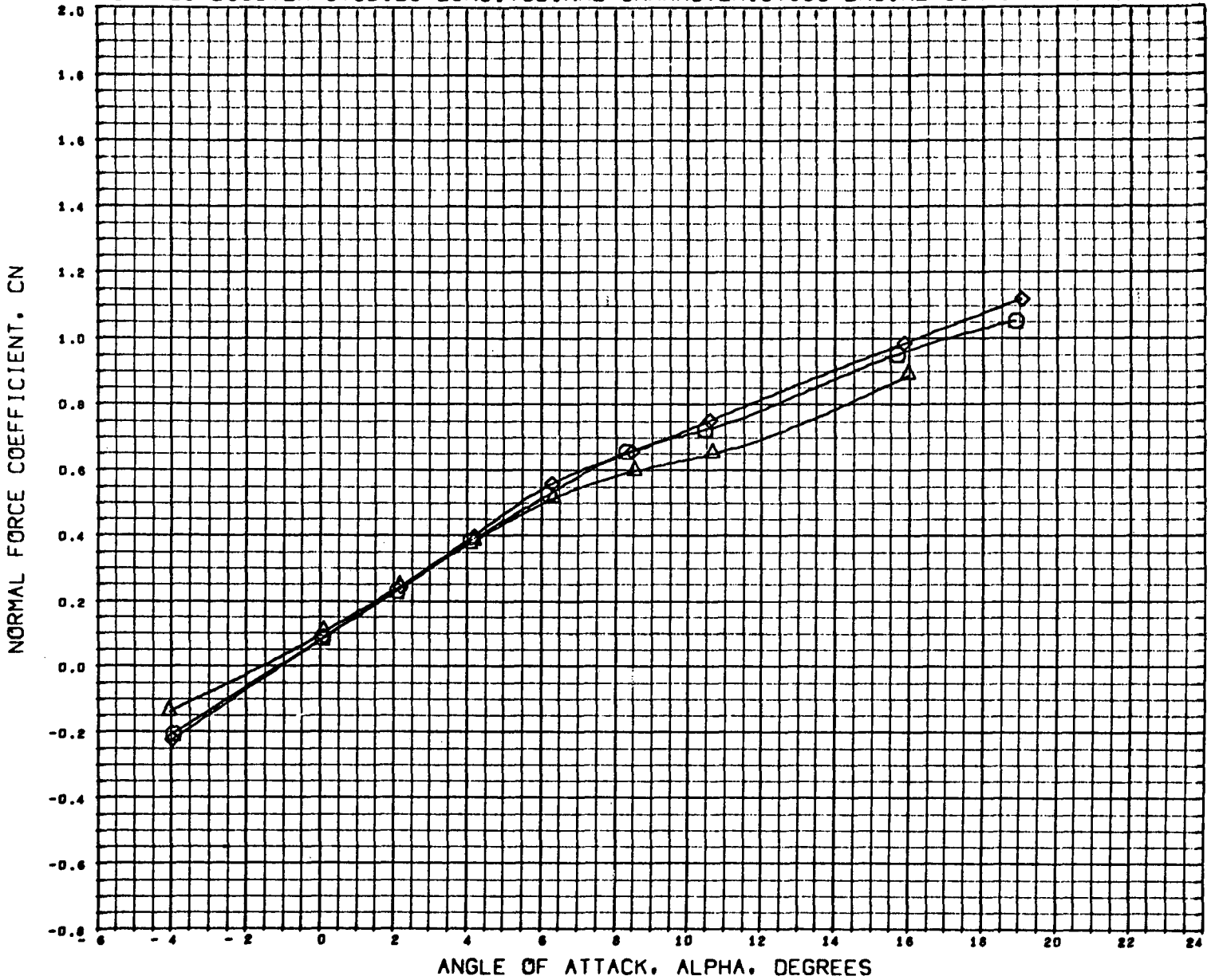
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(R3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(R3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5930 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.701

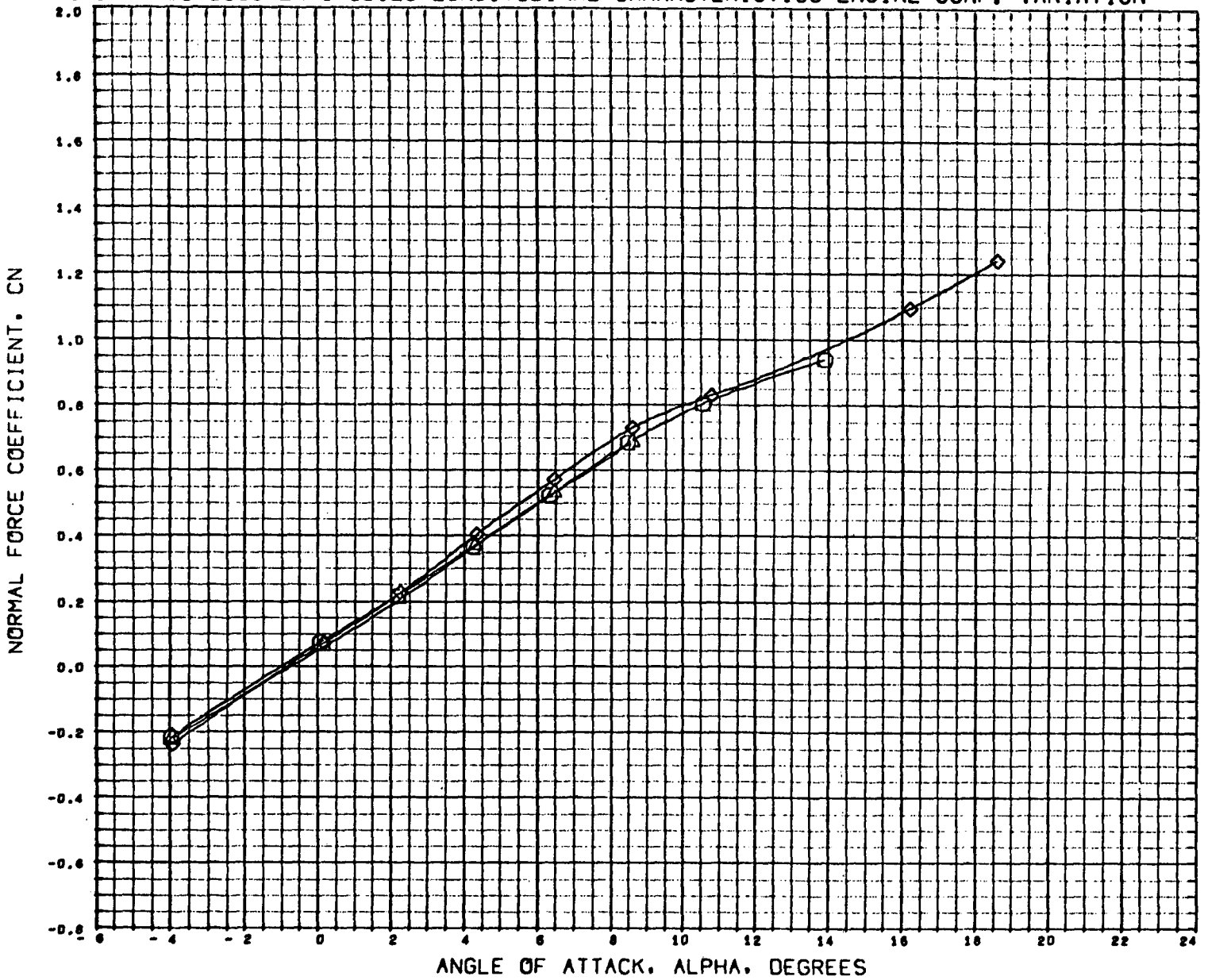
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.901

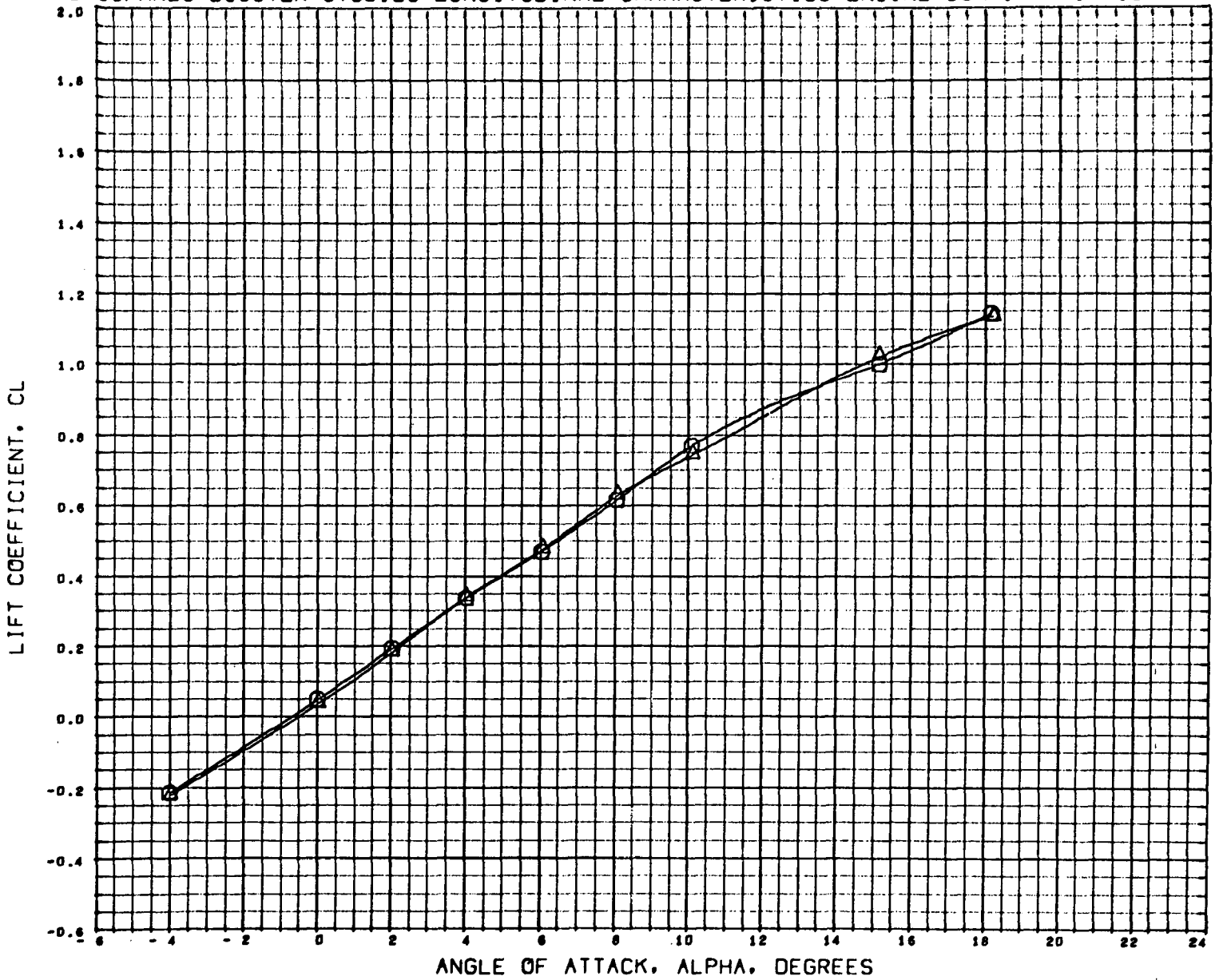
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3182)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YNRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 1.004

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION

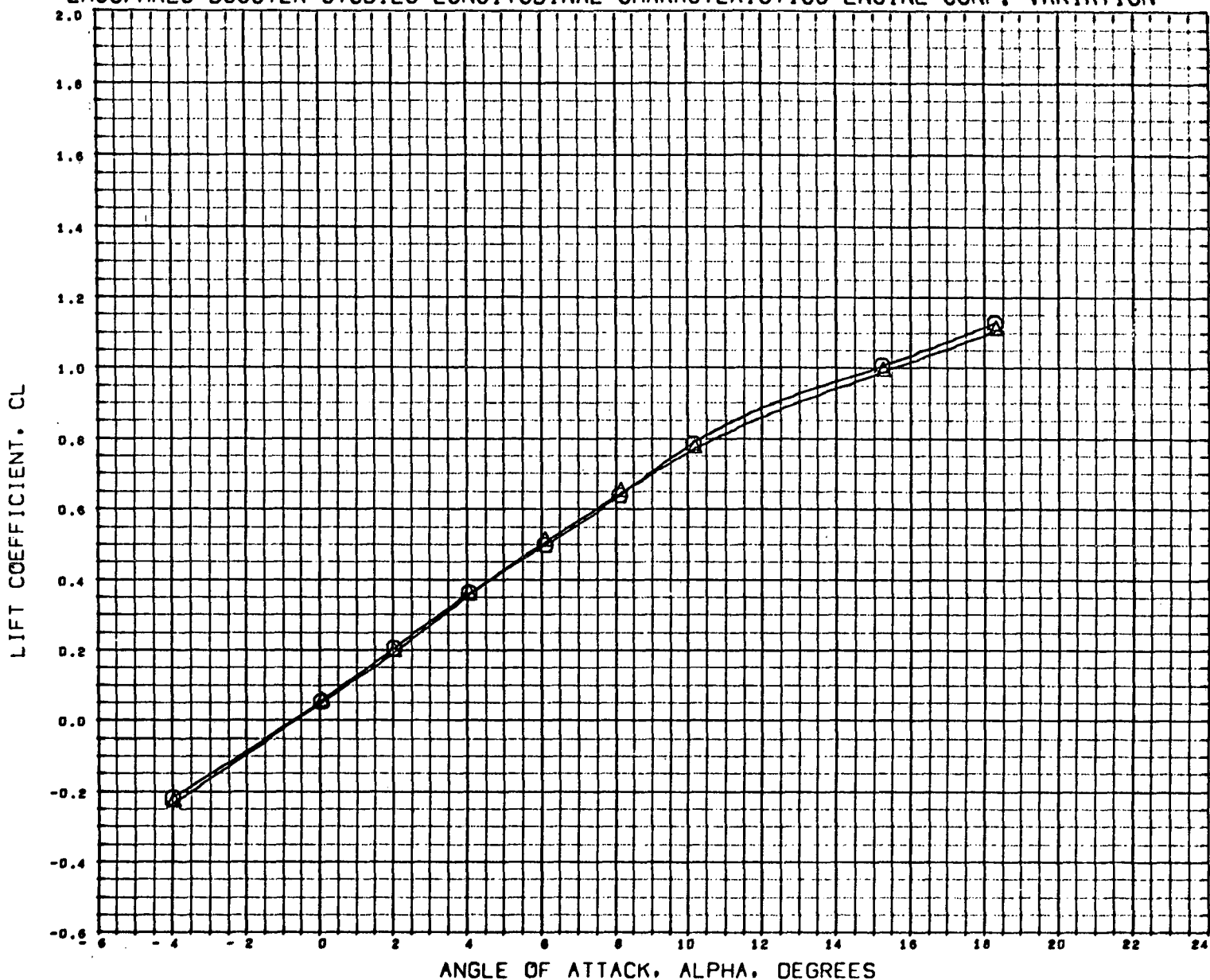


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	ATLRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.374

12

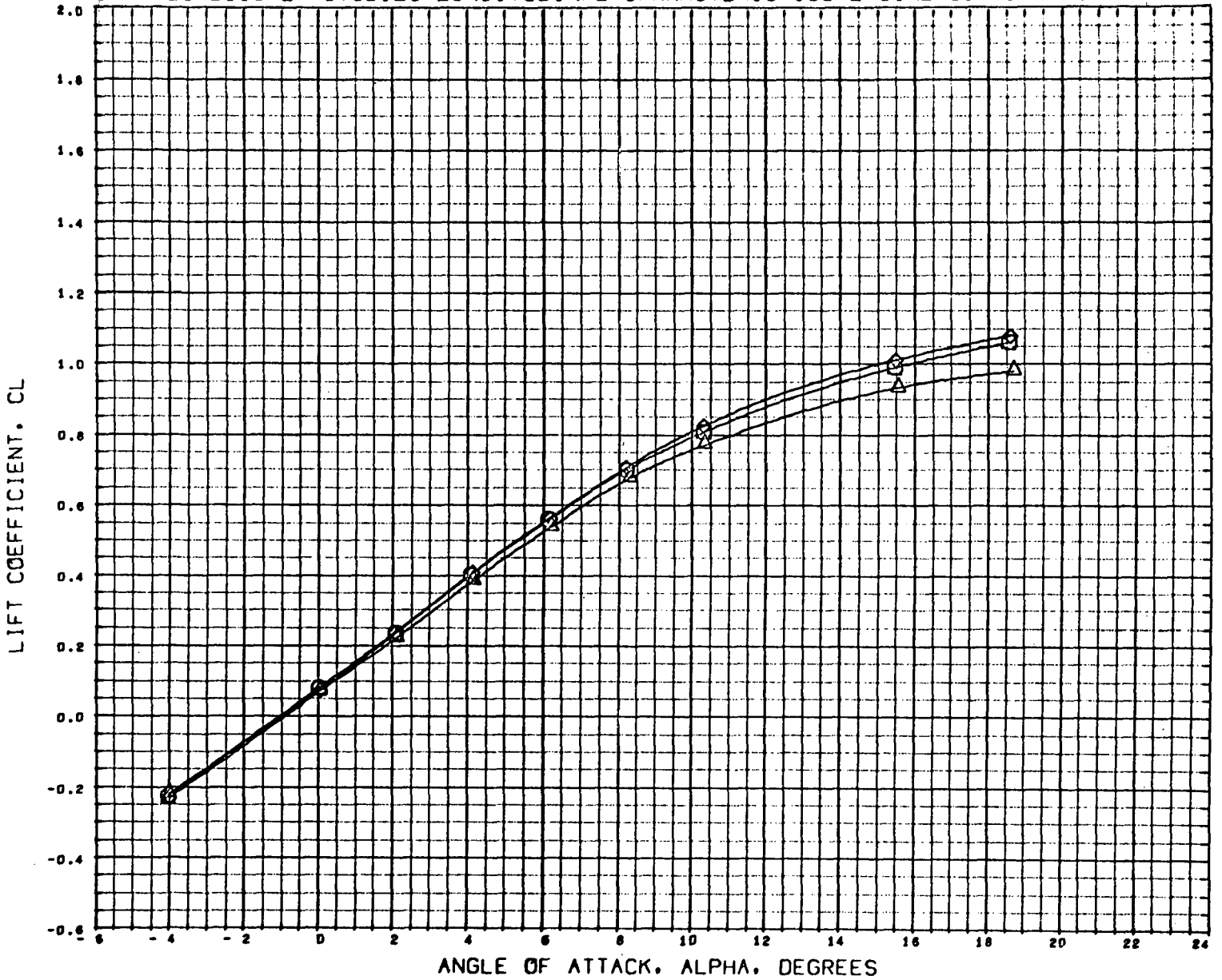
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.503

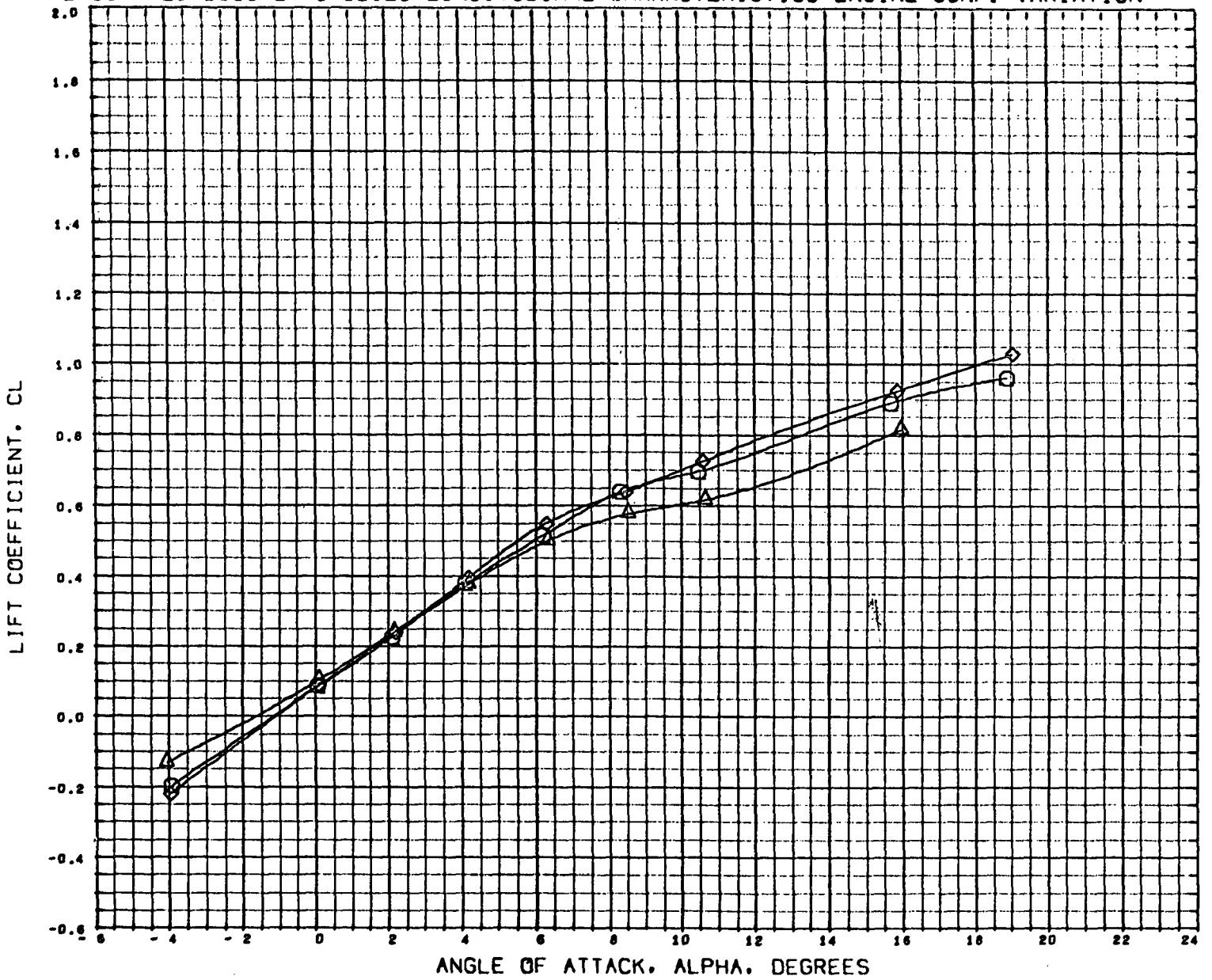
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.007	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

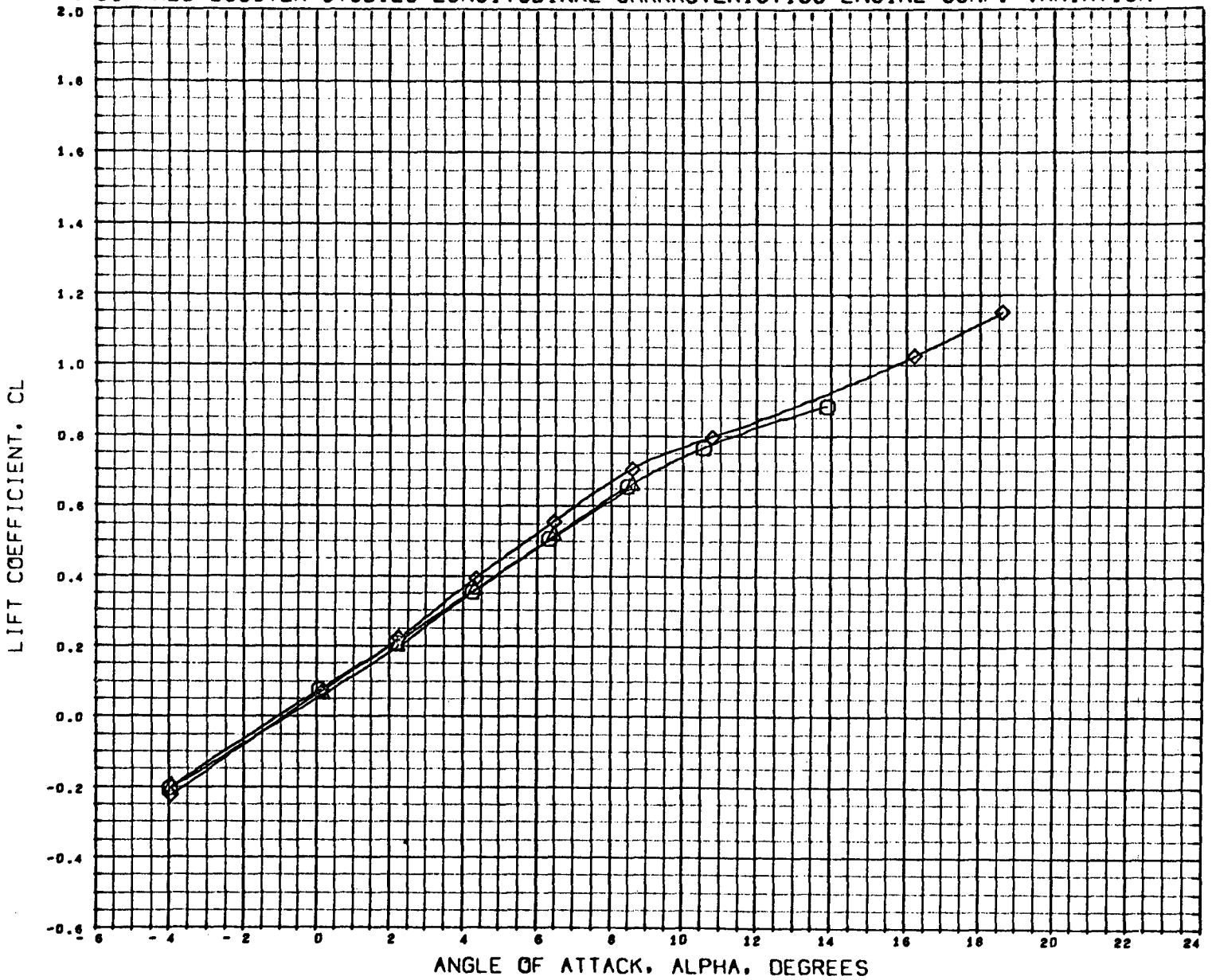
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 0.901

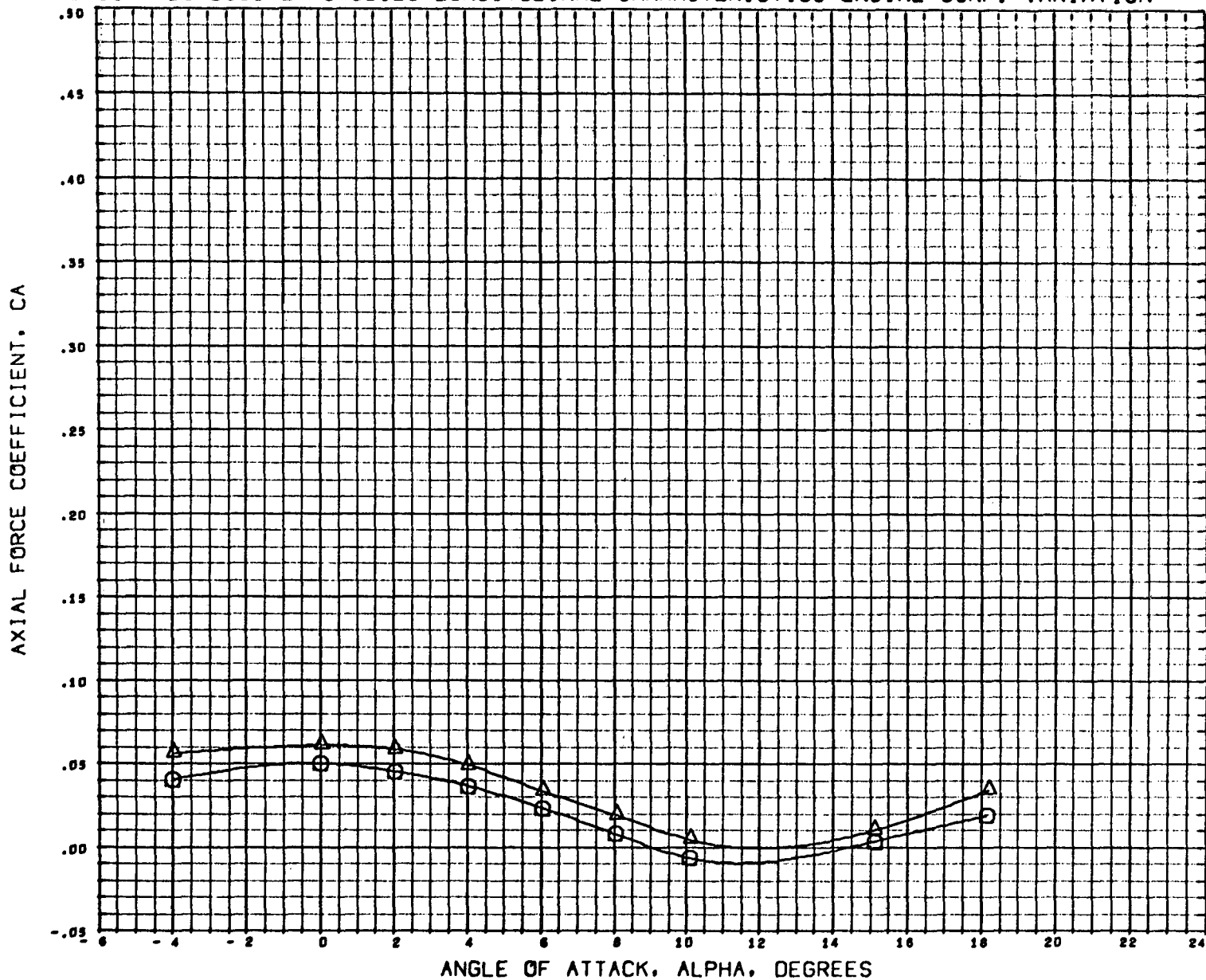
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3182)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(ON3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.004

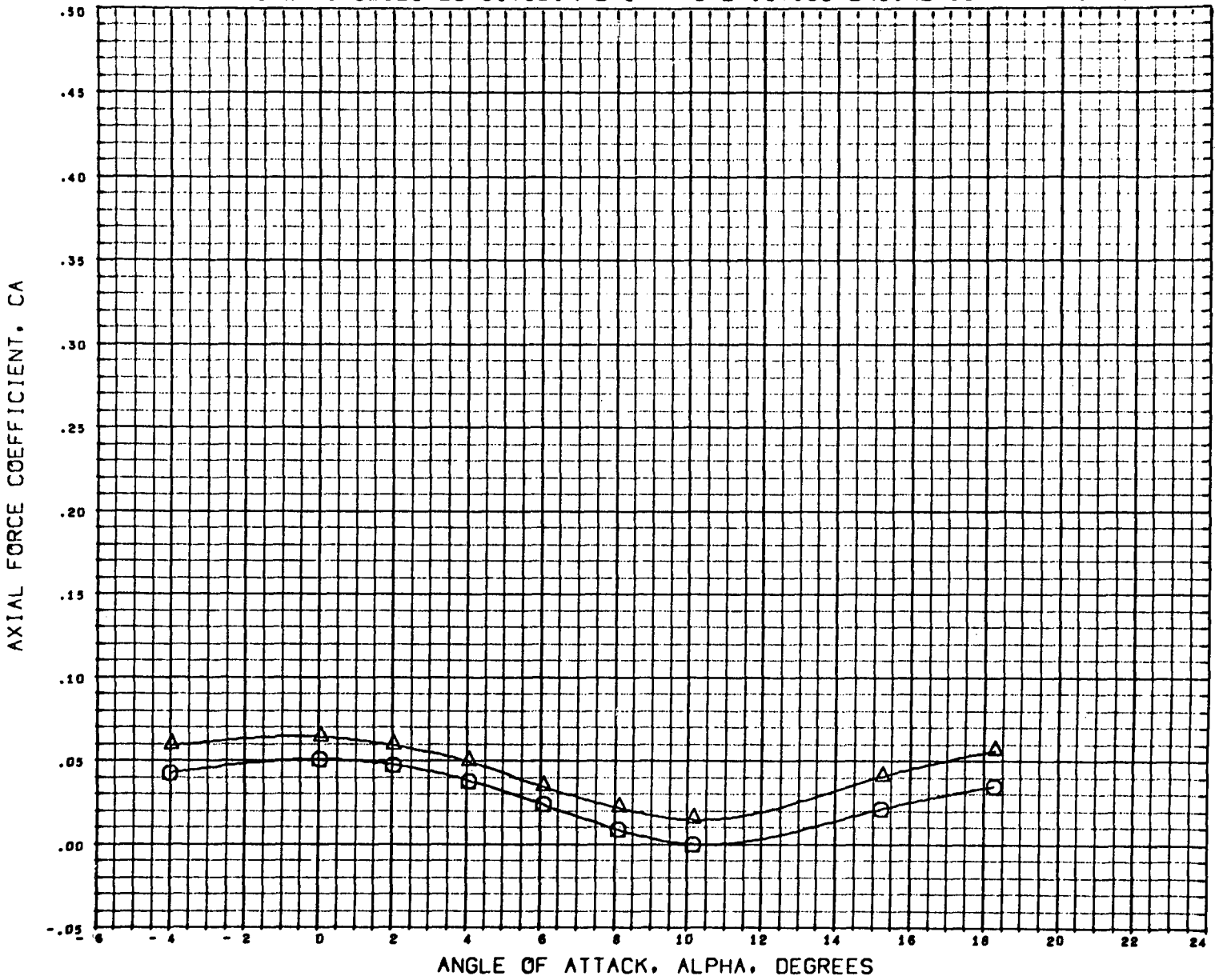
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550	SQ. FT.
(RN3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530	FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
						XMRP	2.5950	FEET
						YMRP	0.0000	FEET
						ZMRP	0.0107	FEET
						SCALE	0.0150	SCALE

MACH 0.374

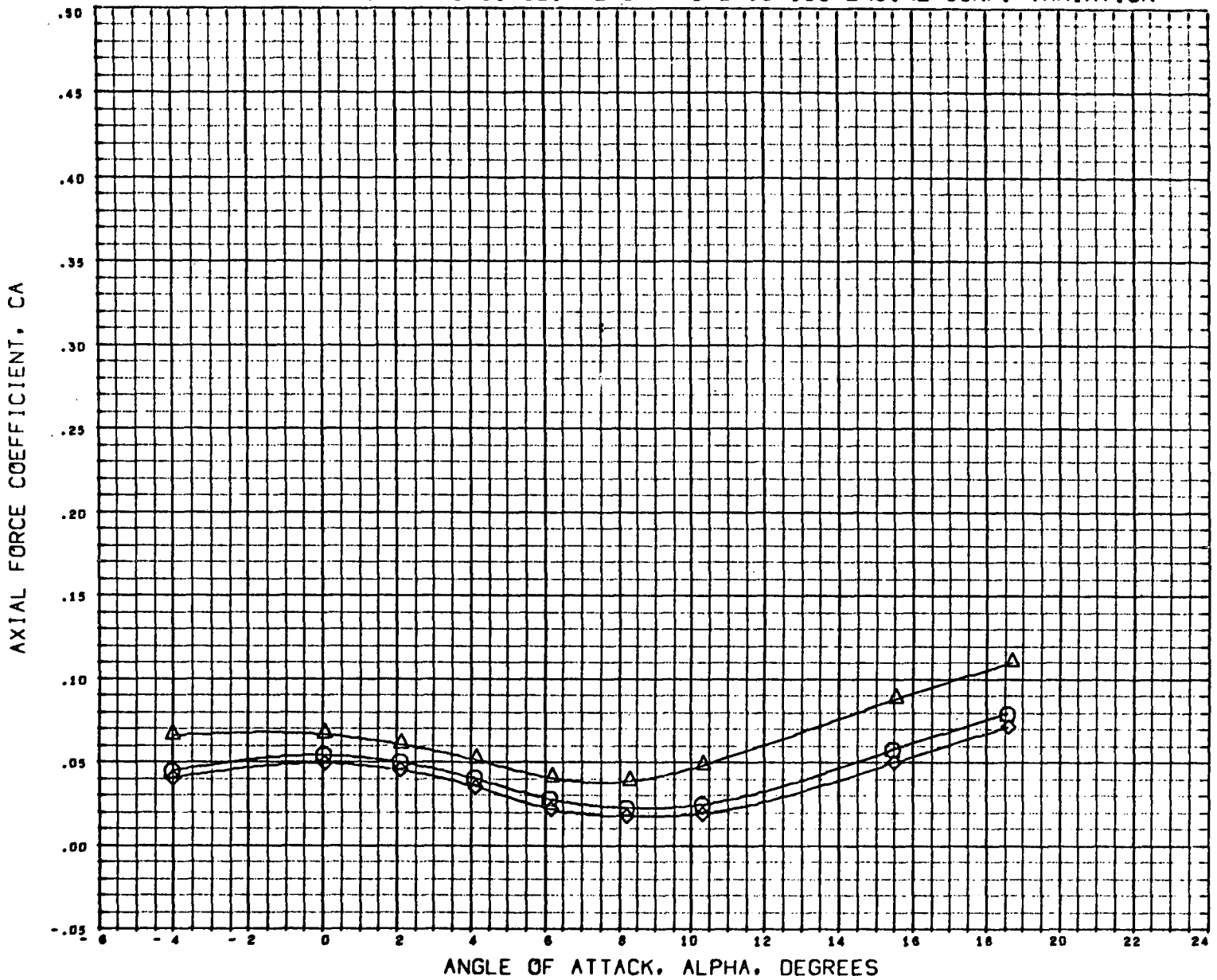
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

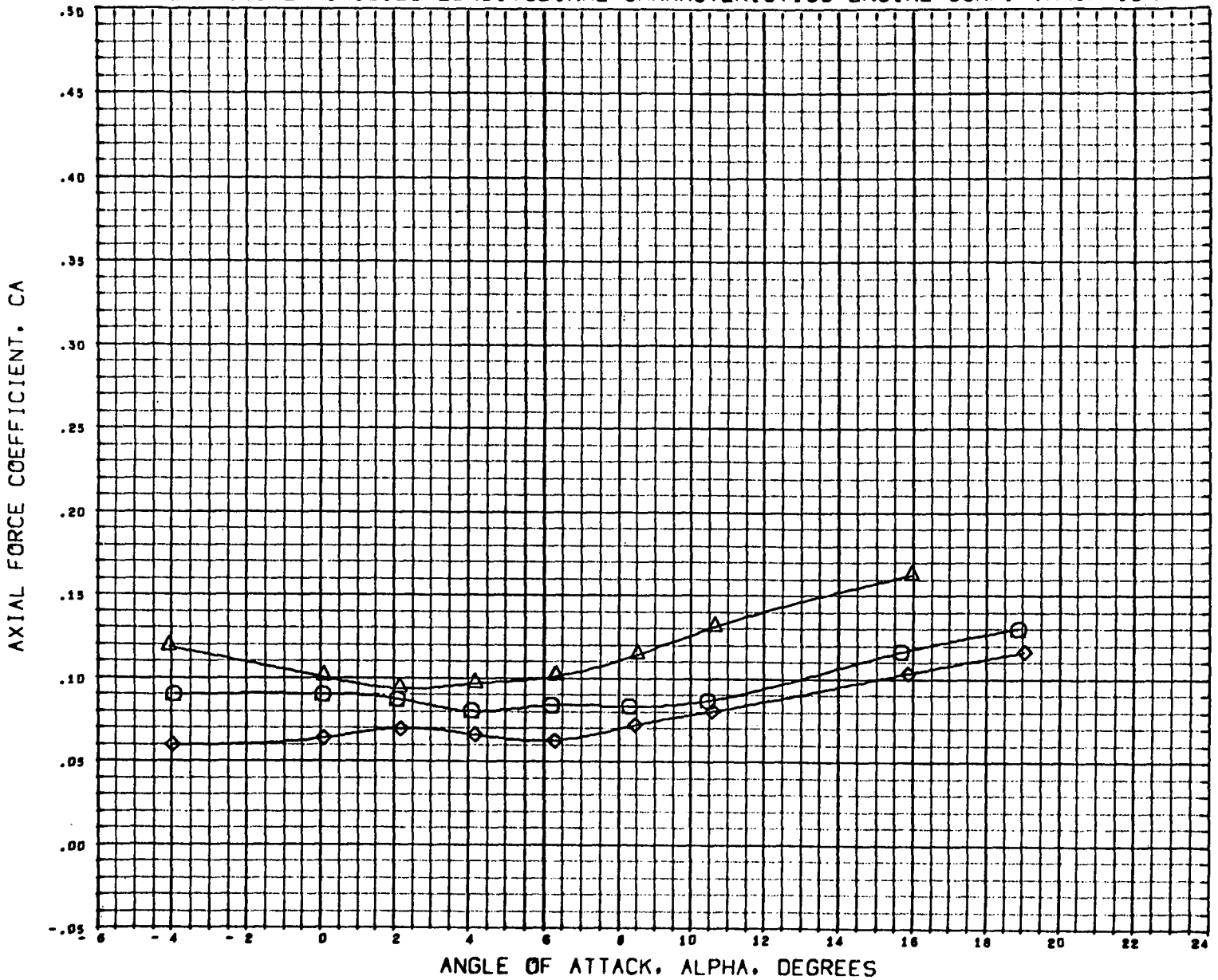
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.701

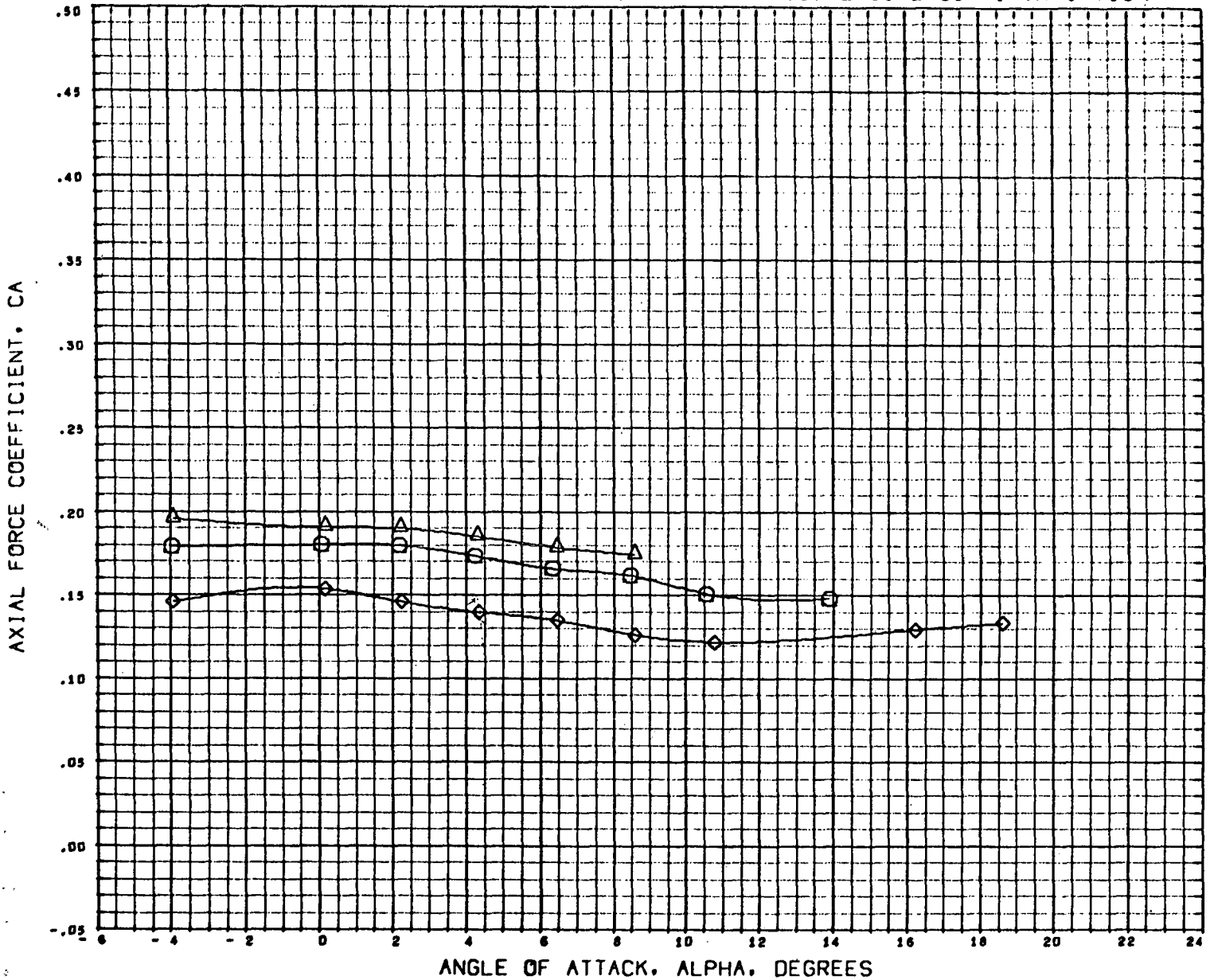
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 90.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

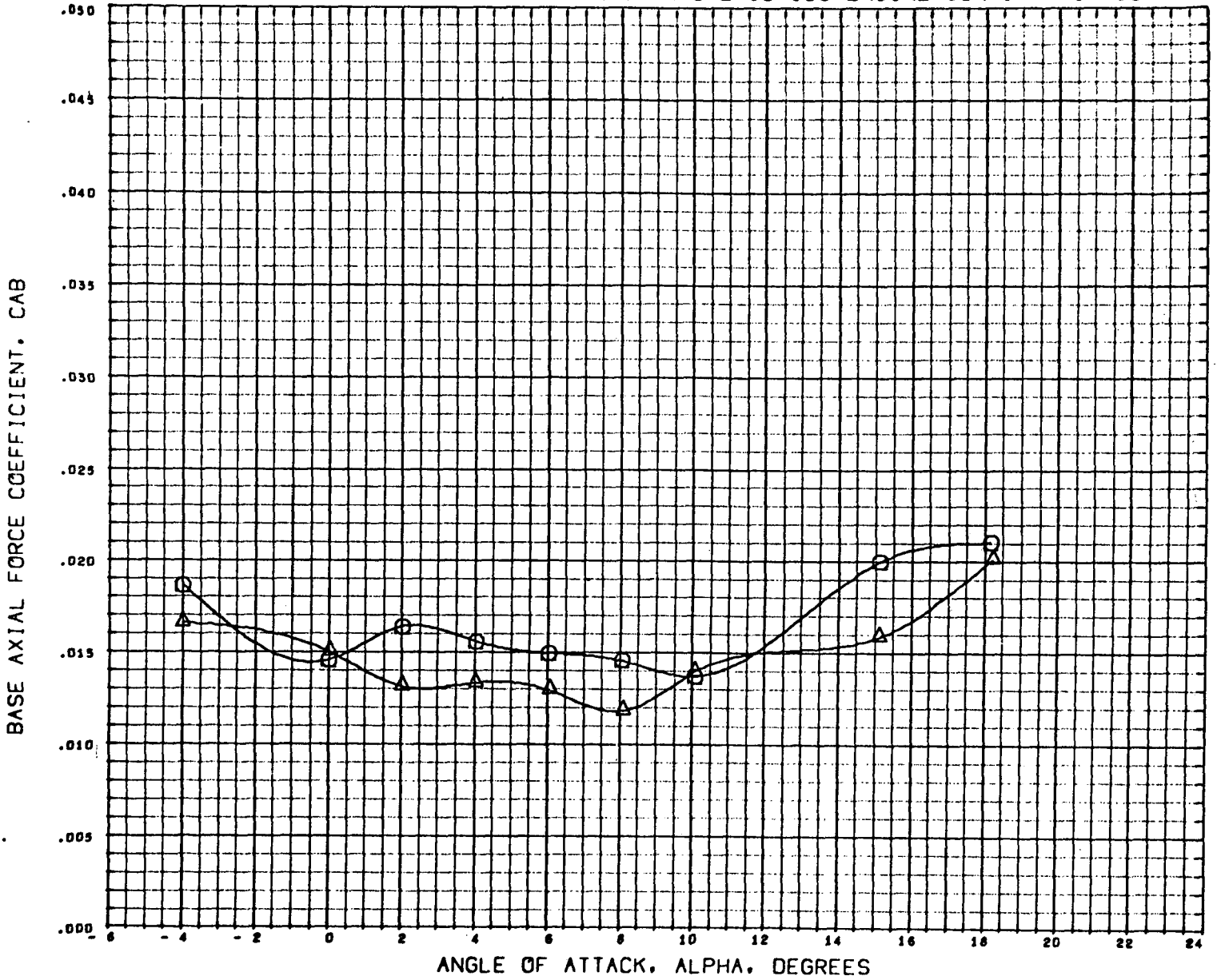
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.004

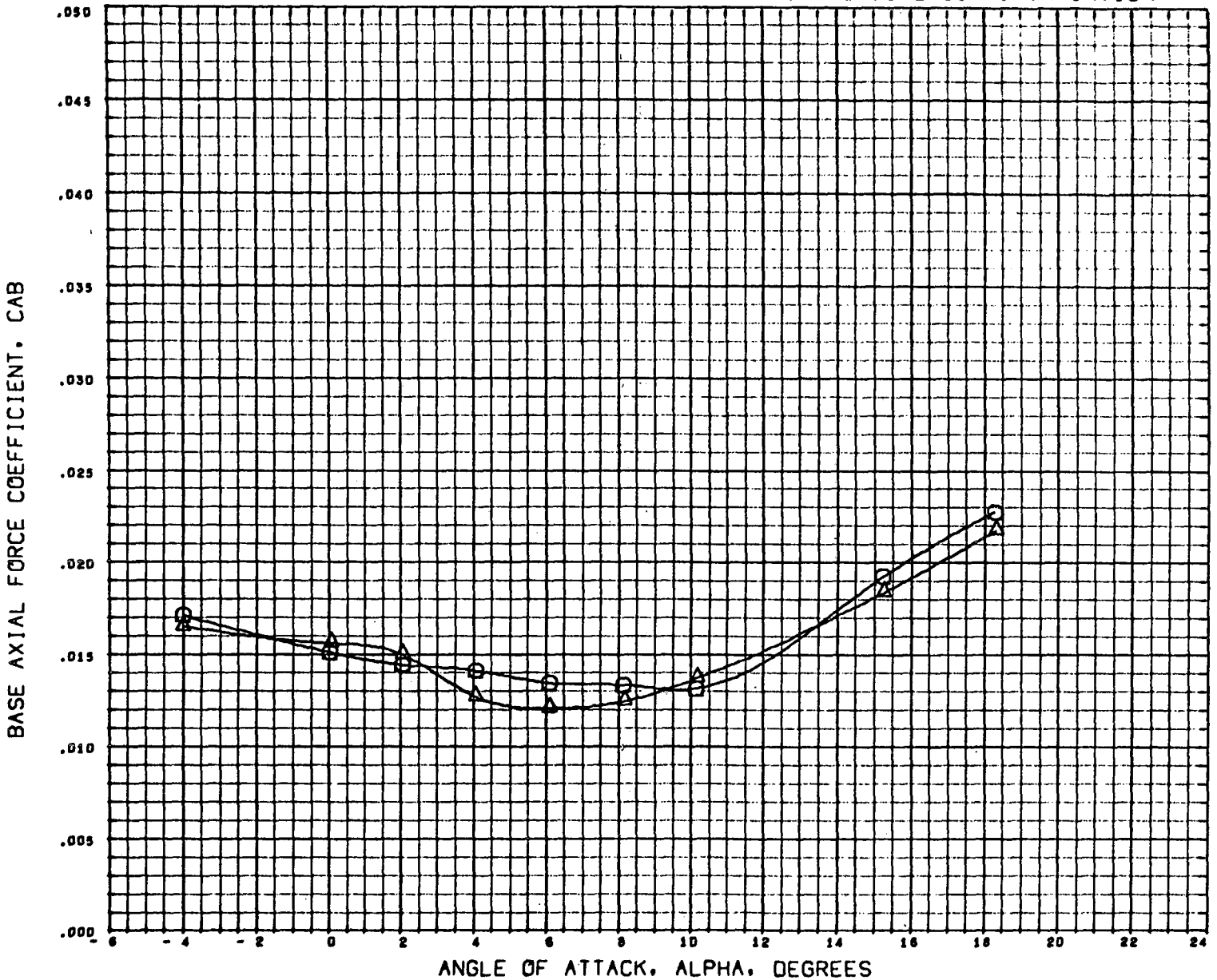
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.374

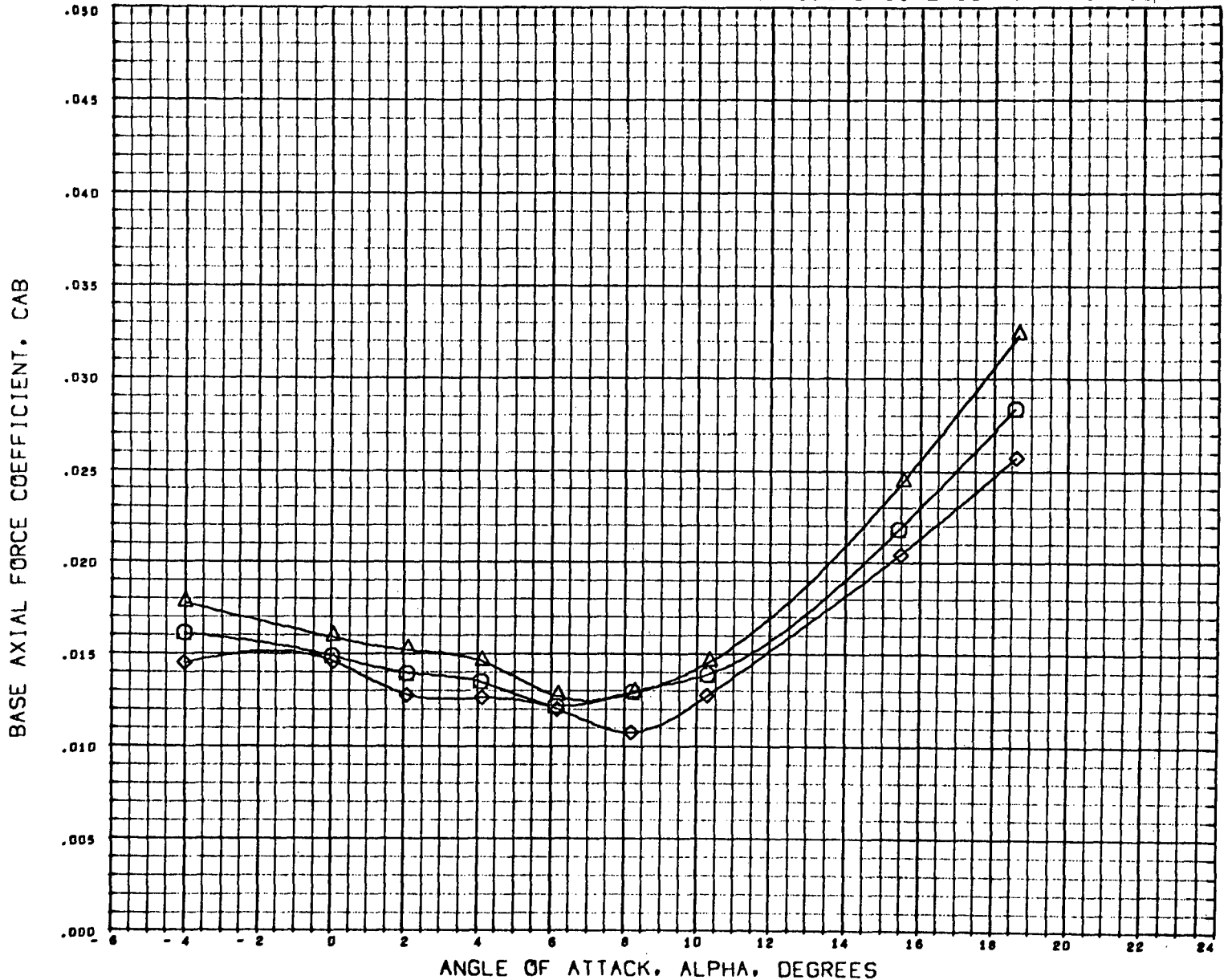
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

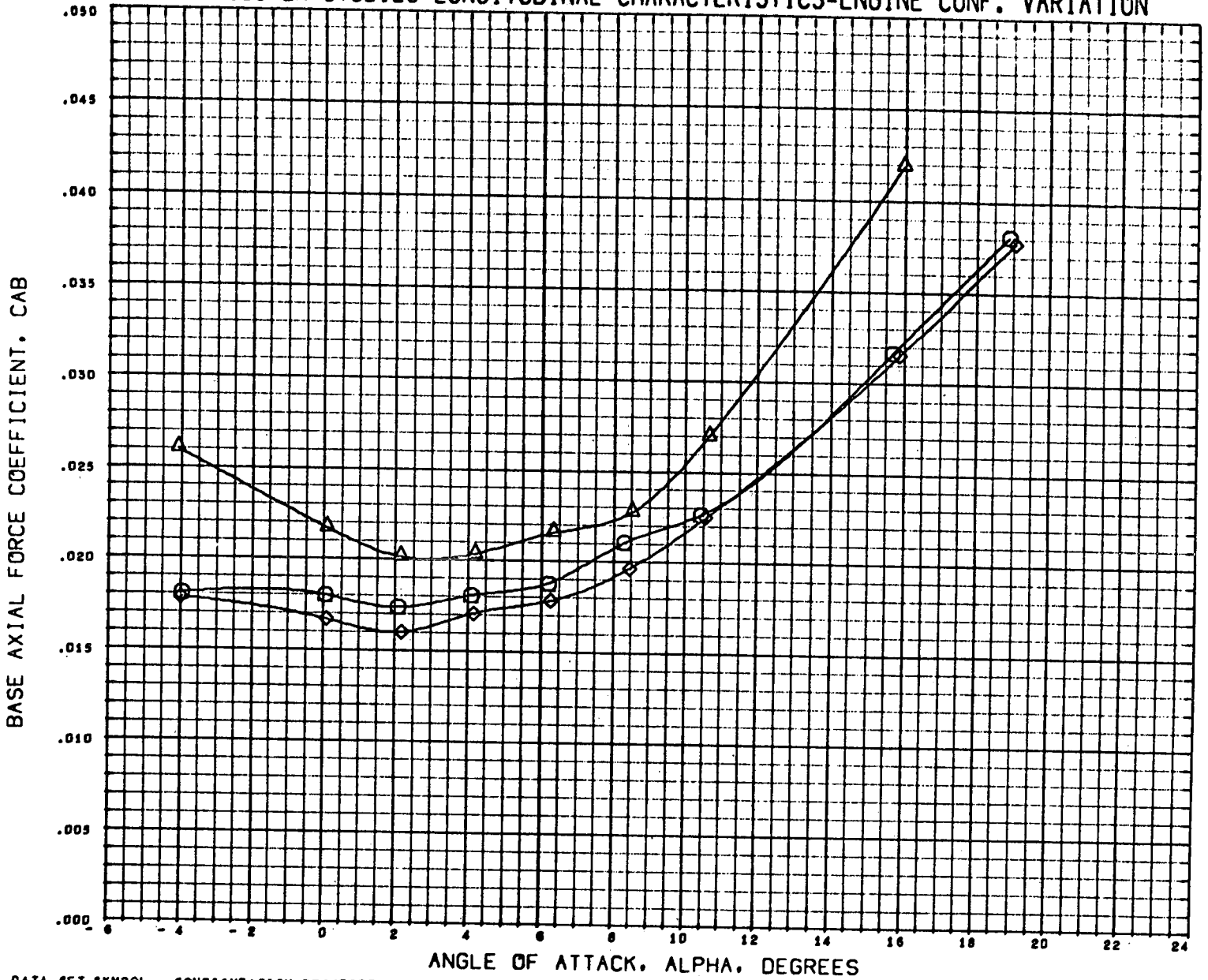
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.901

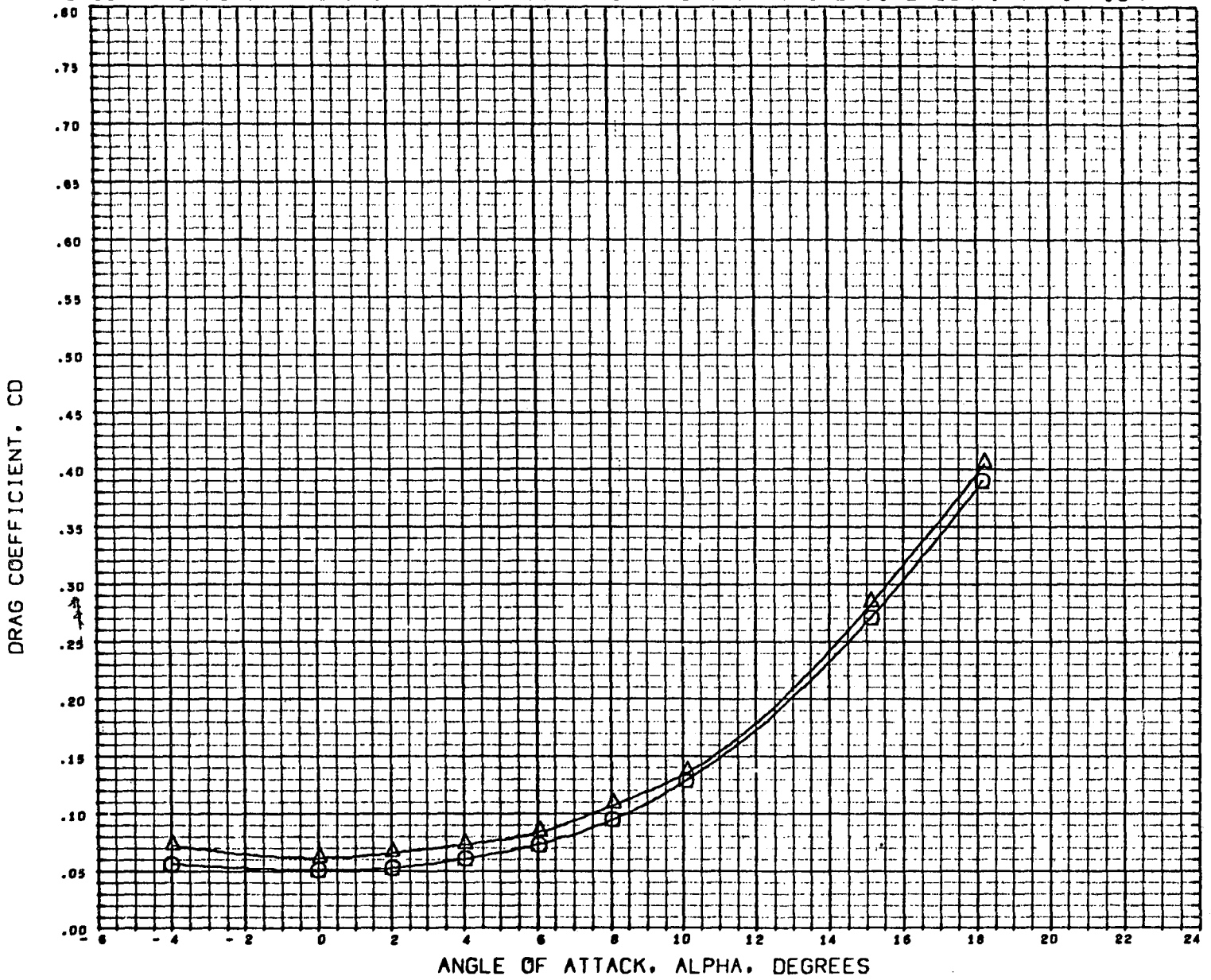
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3200)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550	SQ.FT.
(RN3102)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530	FEET
(DN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
							XMRP	2.5950	FEET
							YMRP	0.0000	FEET
							ZMRP	0.0187	FEET
							SCALE	0.0150	SCALE

MACH 1.004

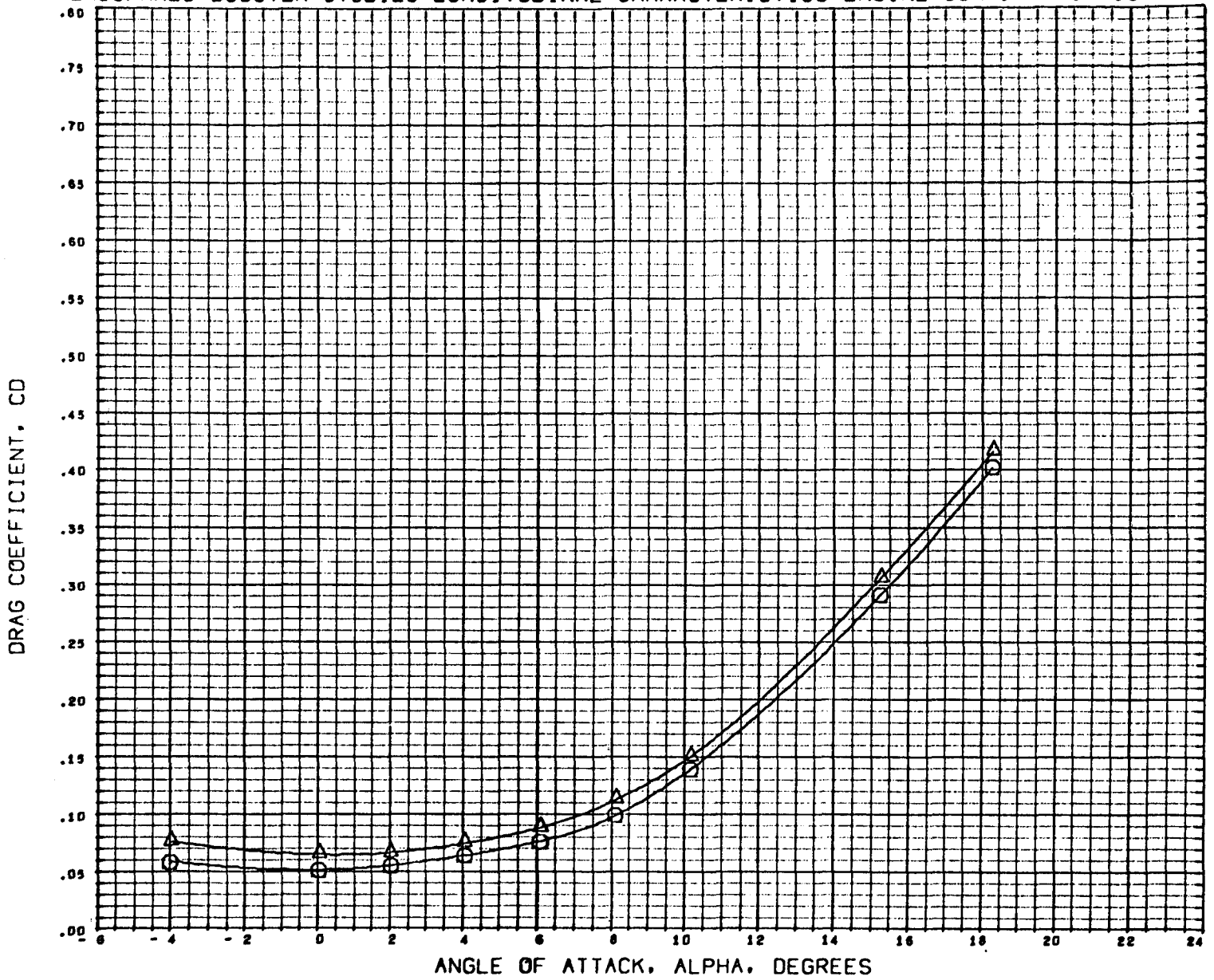
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3901)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.374

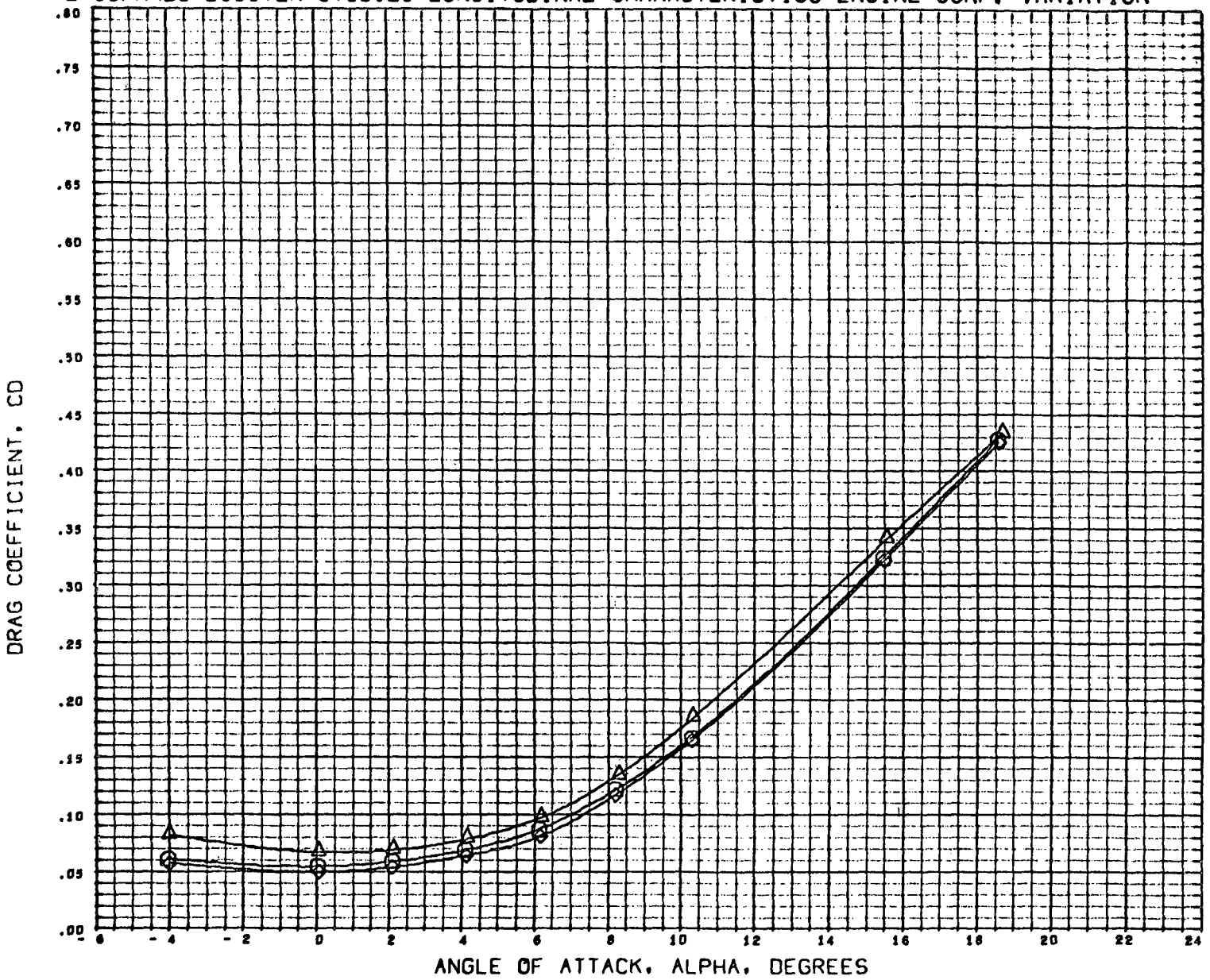
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4930 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

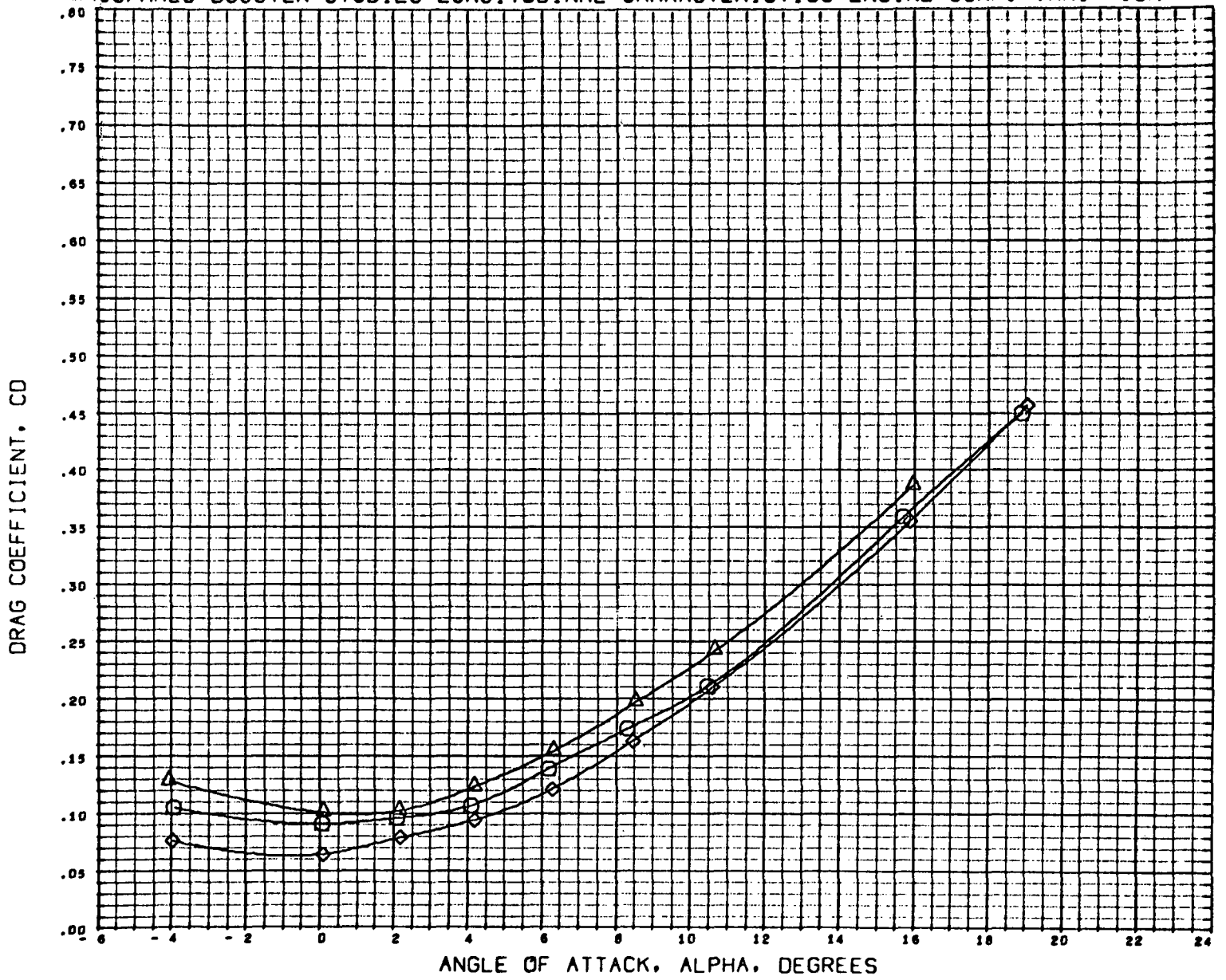
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(R3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(R3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.701

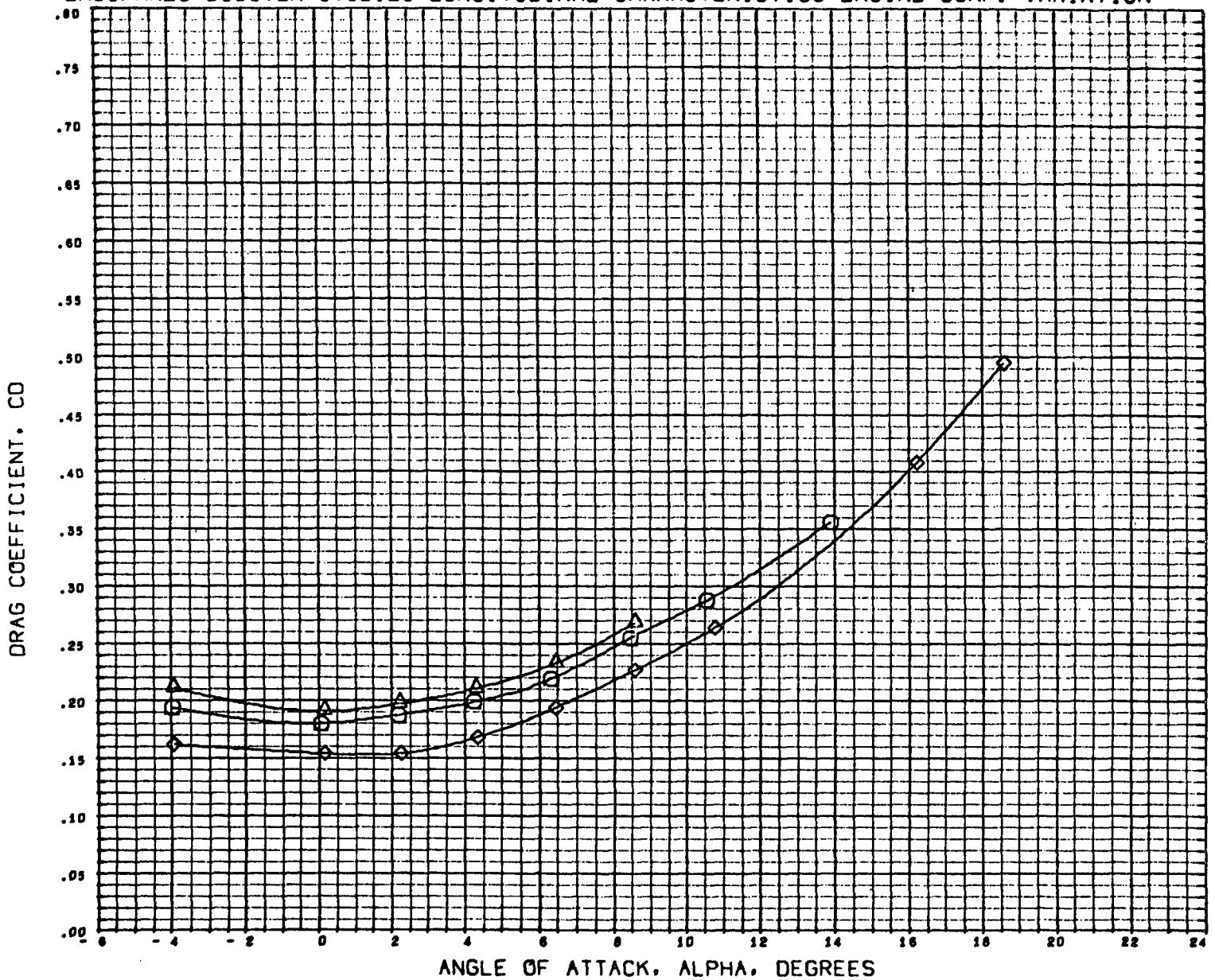
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3182)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
							XMRP 2.5950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.901

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3162)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET XMRP 2.5950 FEET YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.004

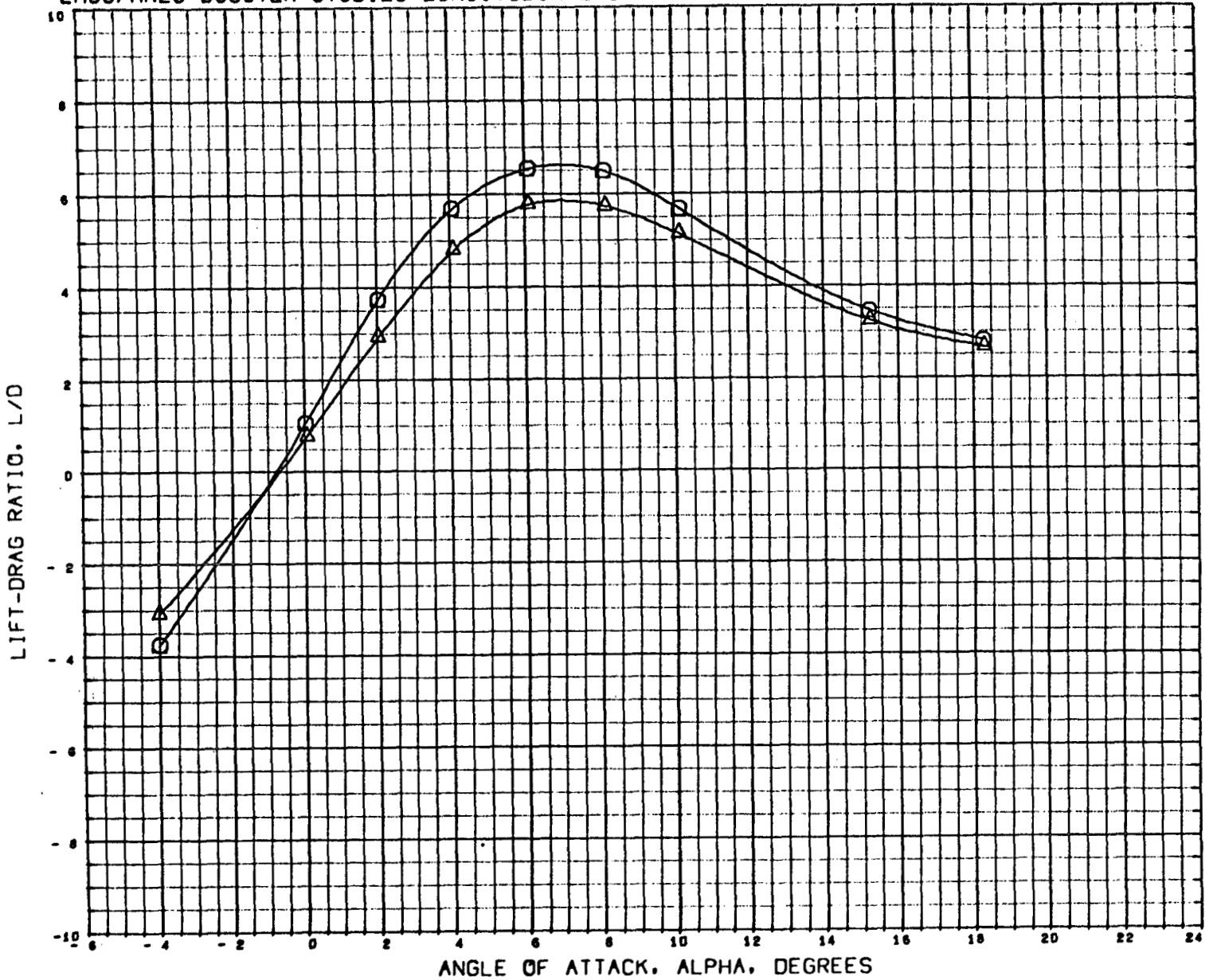
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.374

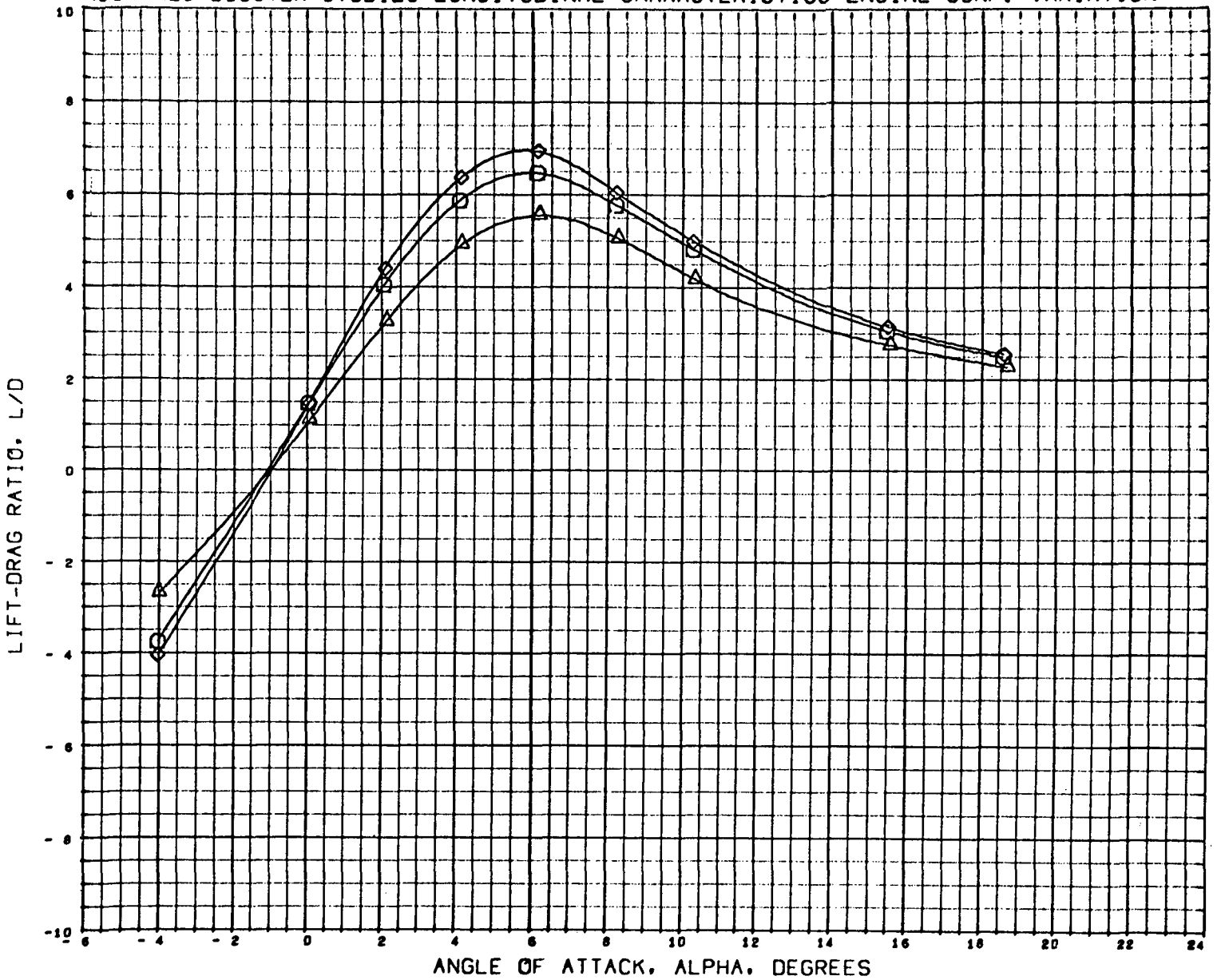
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XNRP	2.5930 FEET
						YNRP	0.0000 FEET
						ZNRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

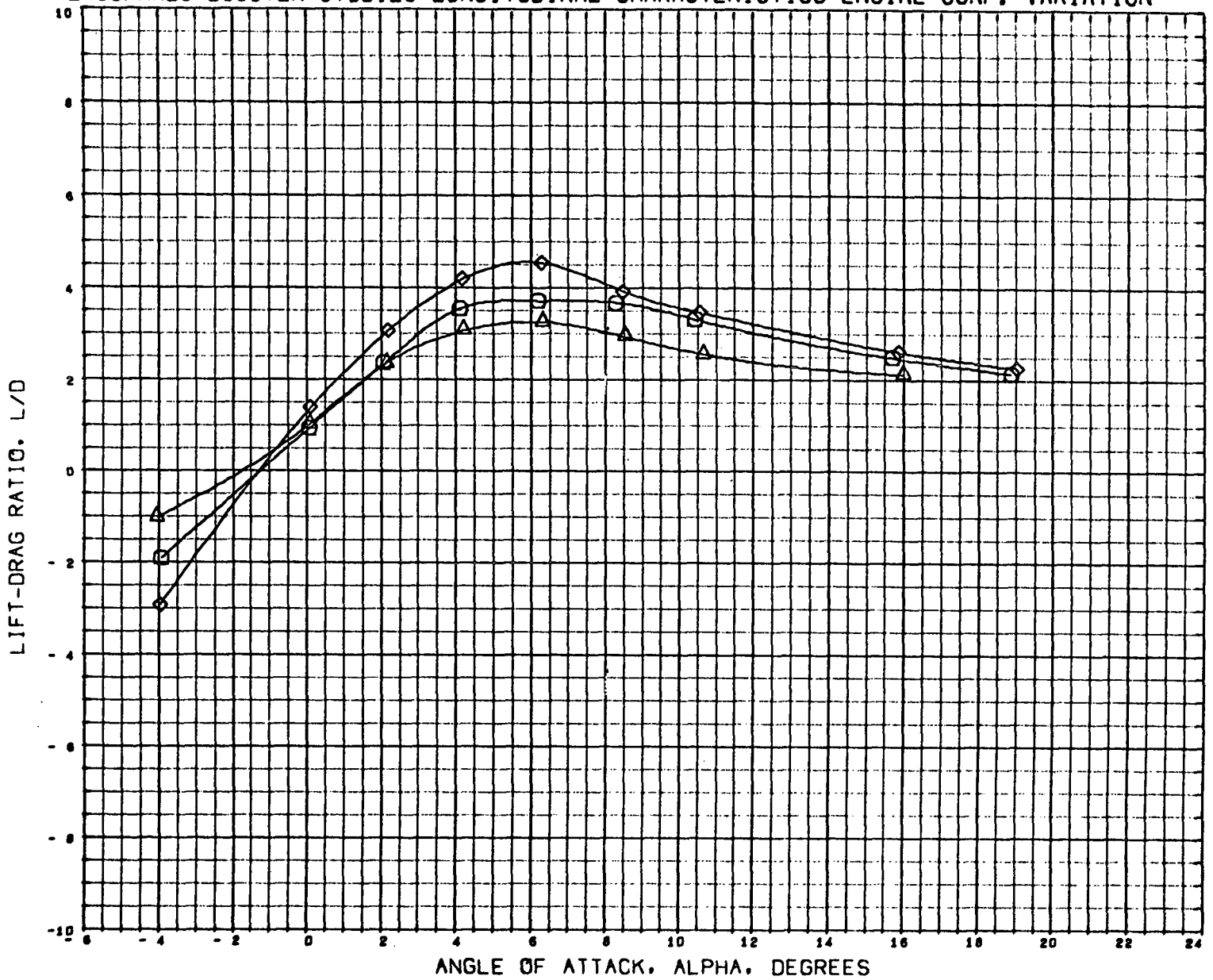
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

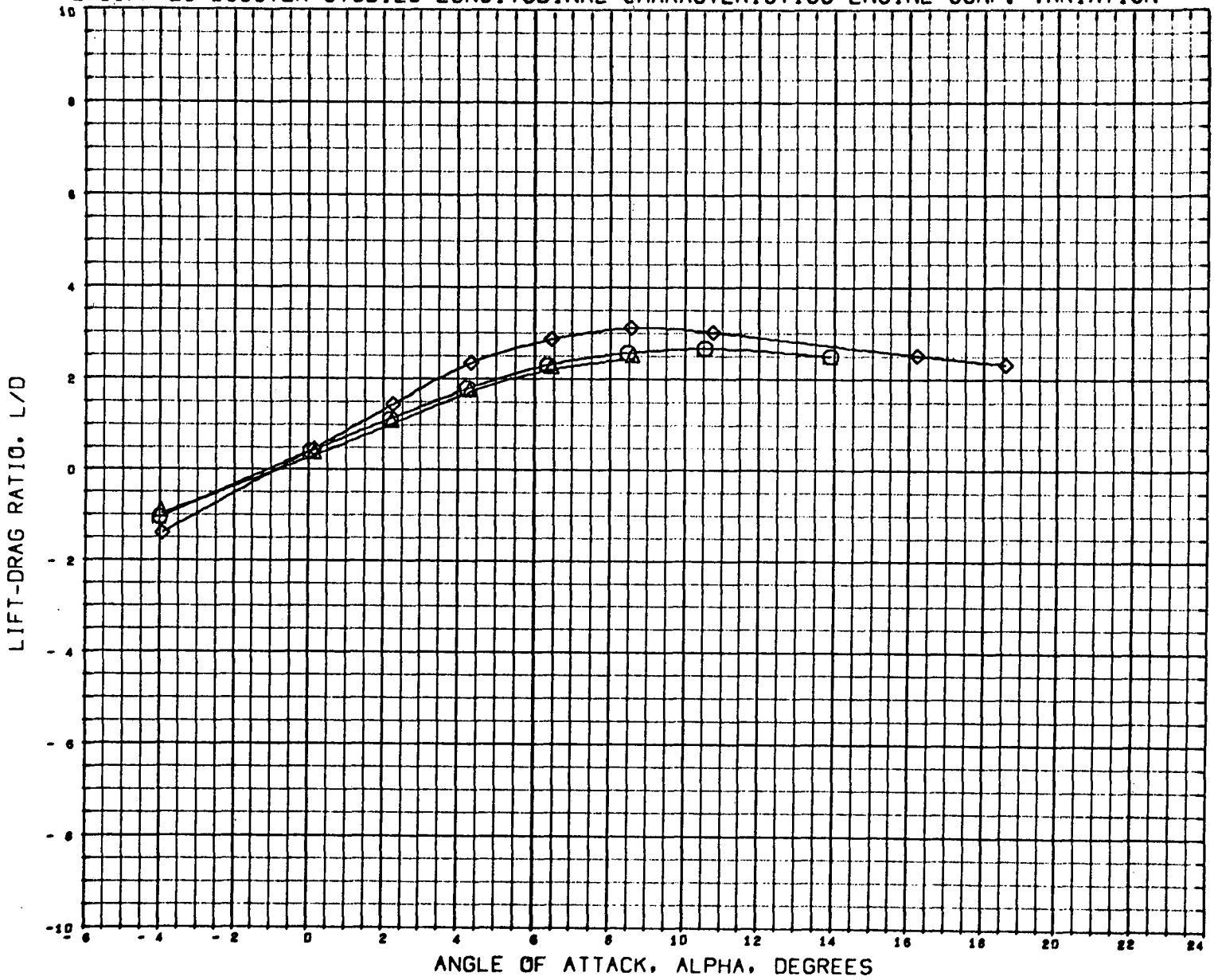
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3530 SQ. FT.
(RN3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.901

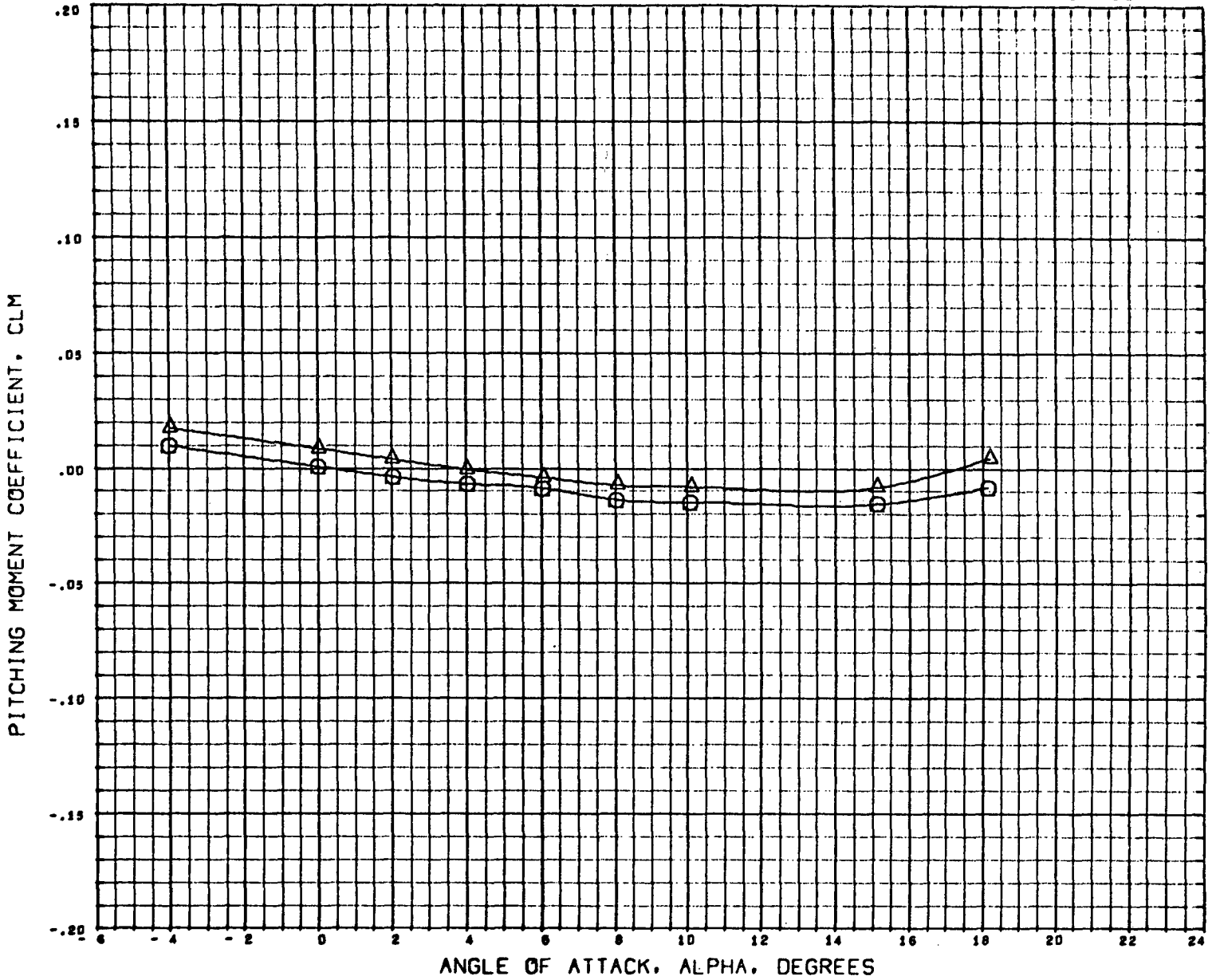
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3102)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.004

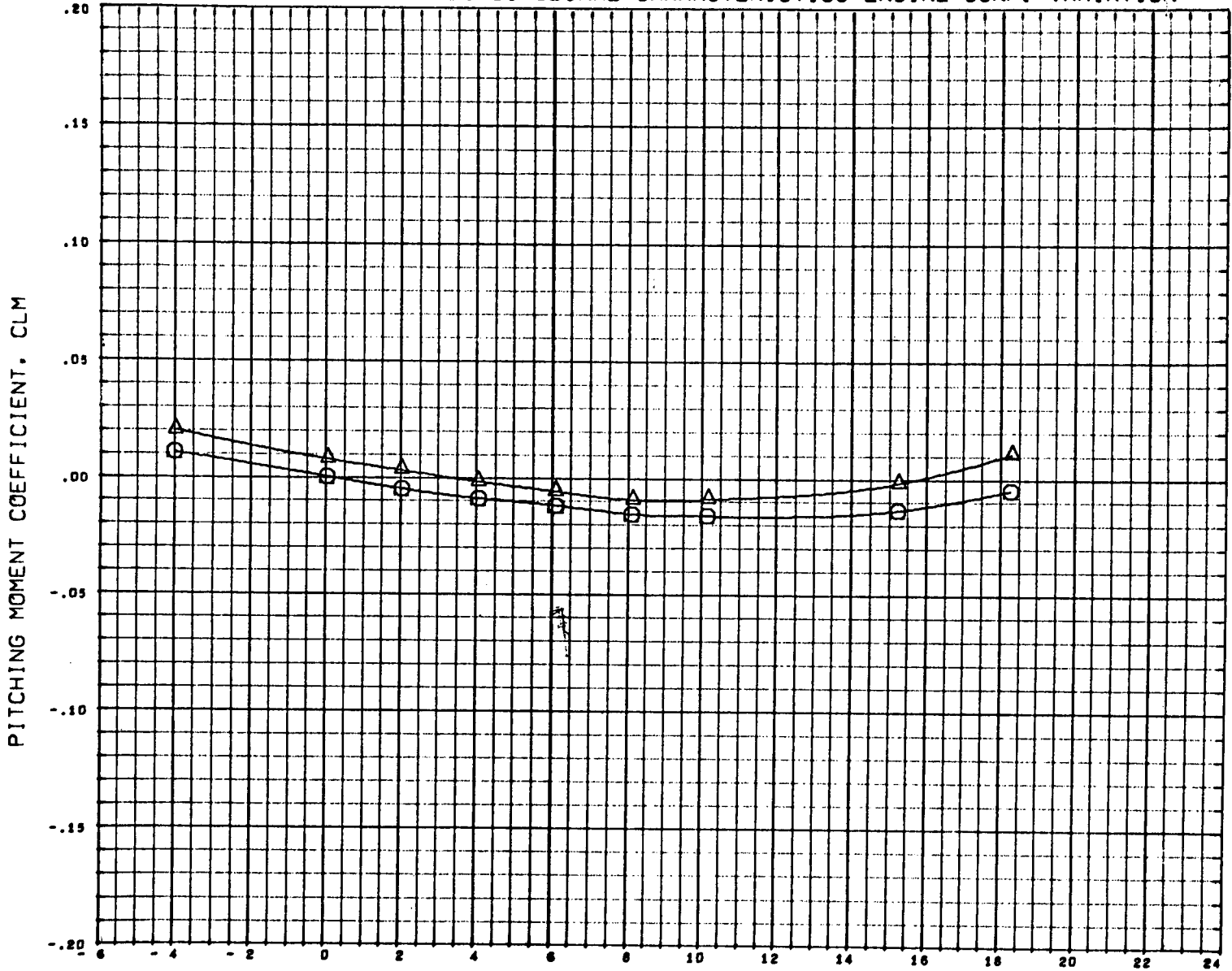
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4330 FEET
(DN3501)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
						XM RP	2.5950 FEET
						YM RP	0.0000 FEET
						ZM RP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.374

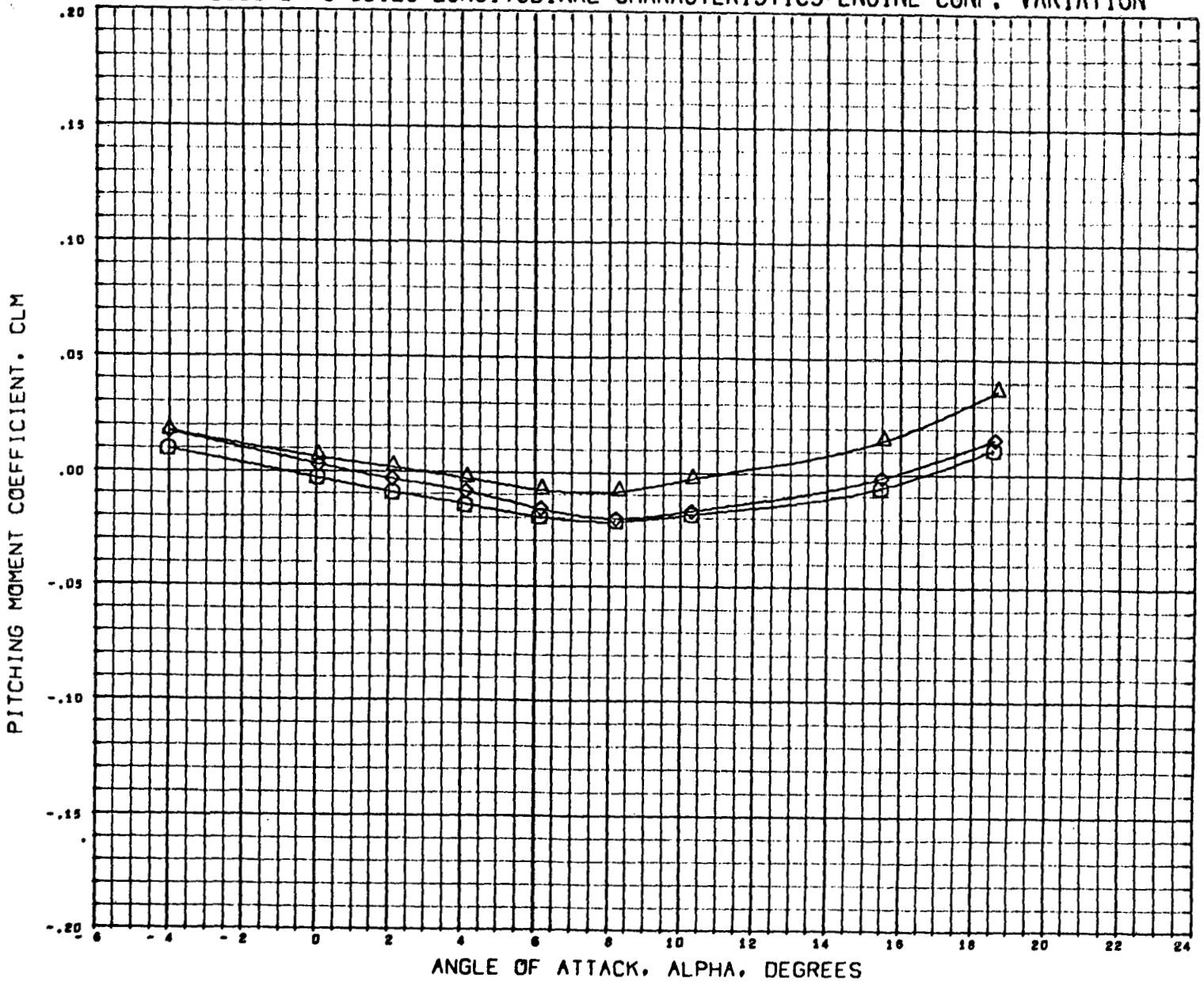
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

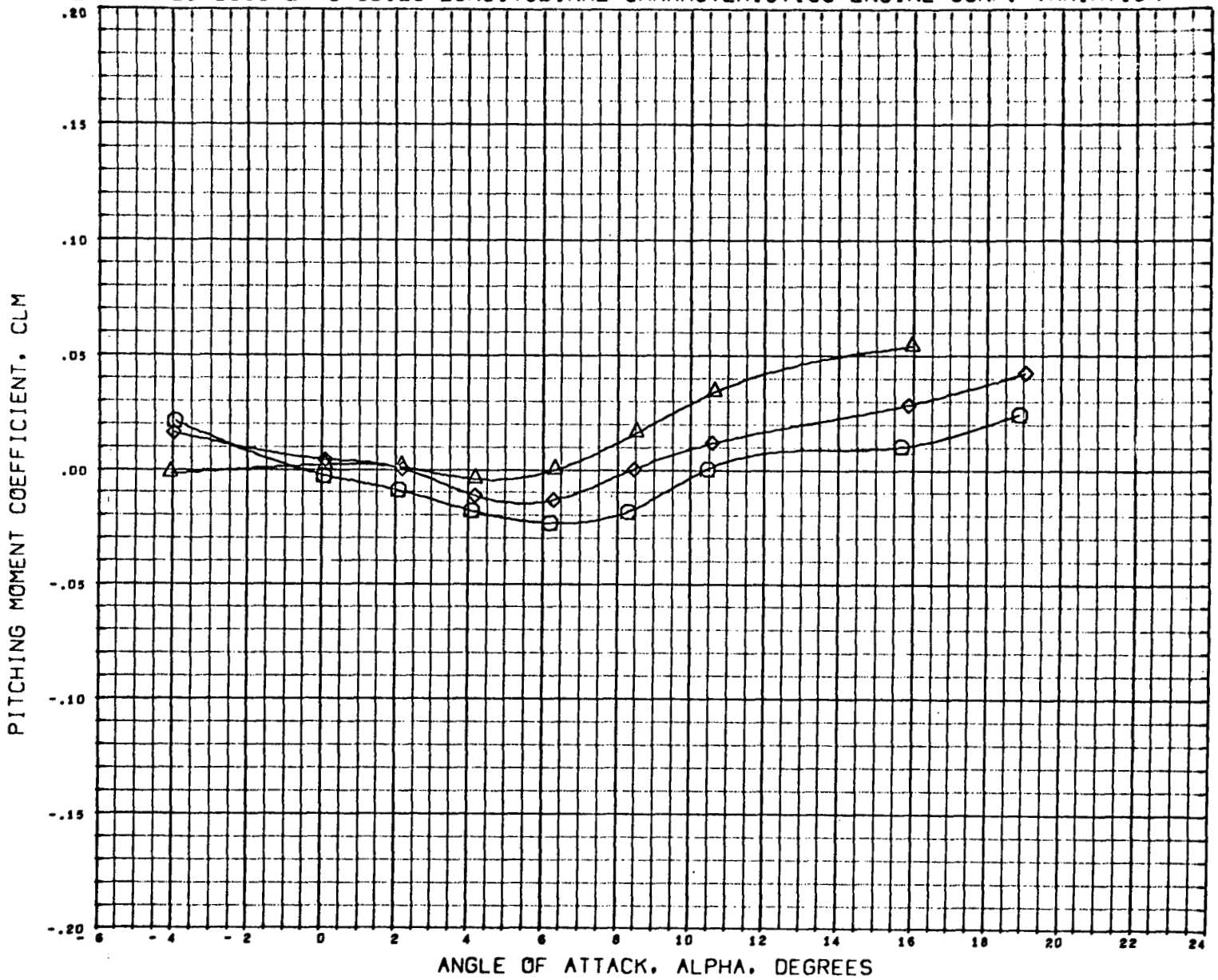
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3182)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.701

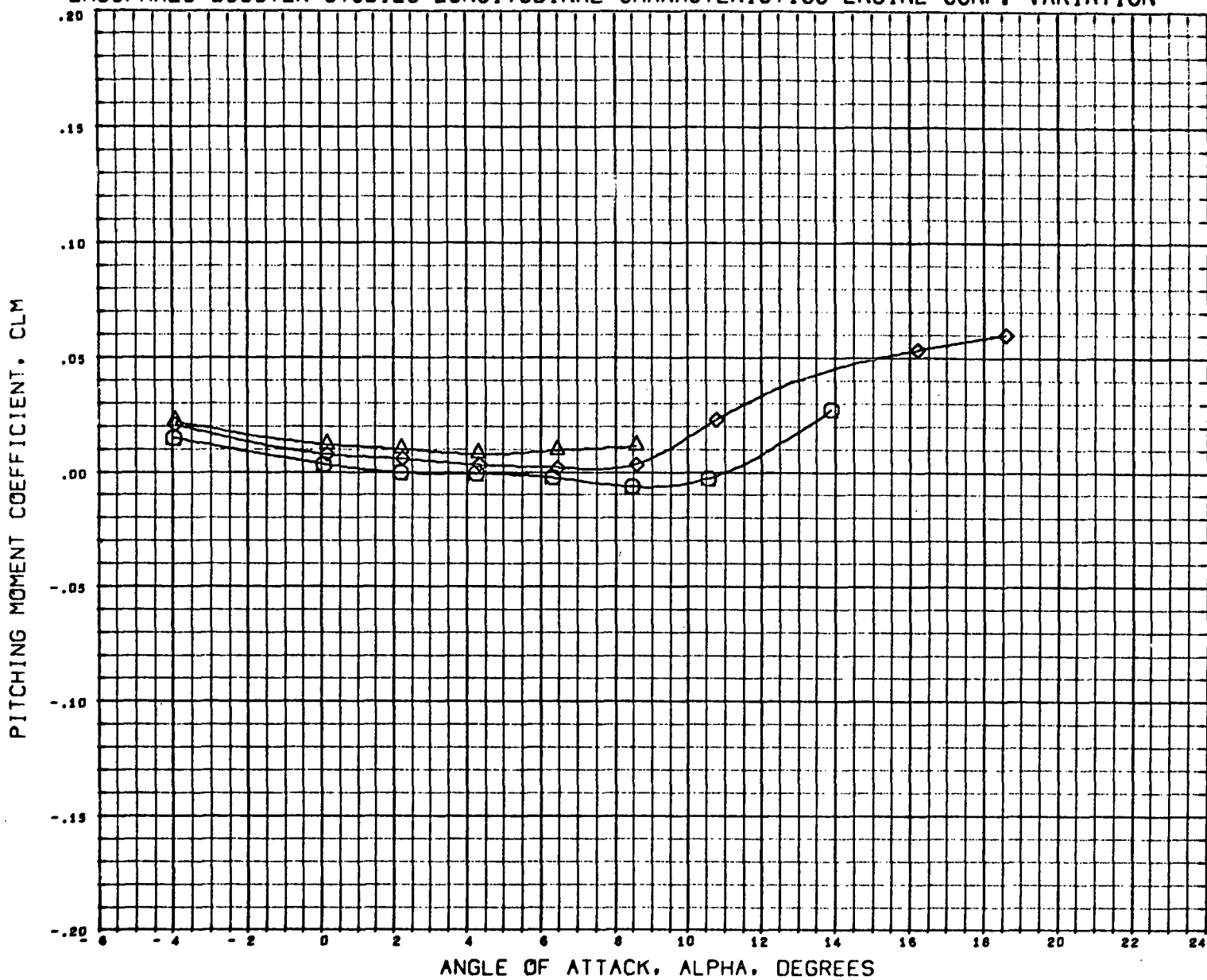
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

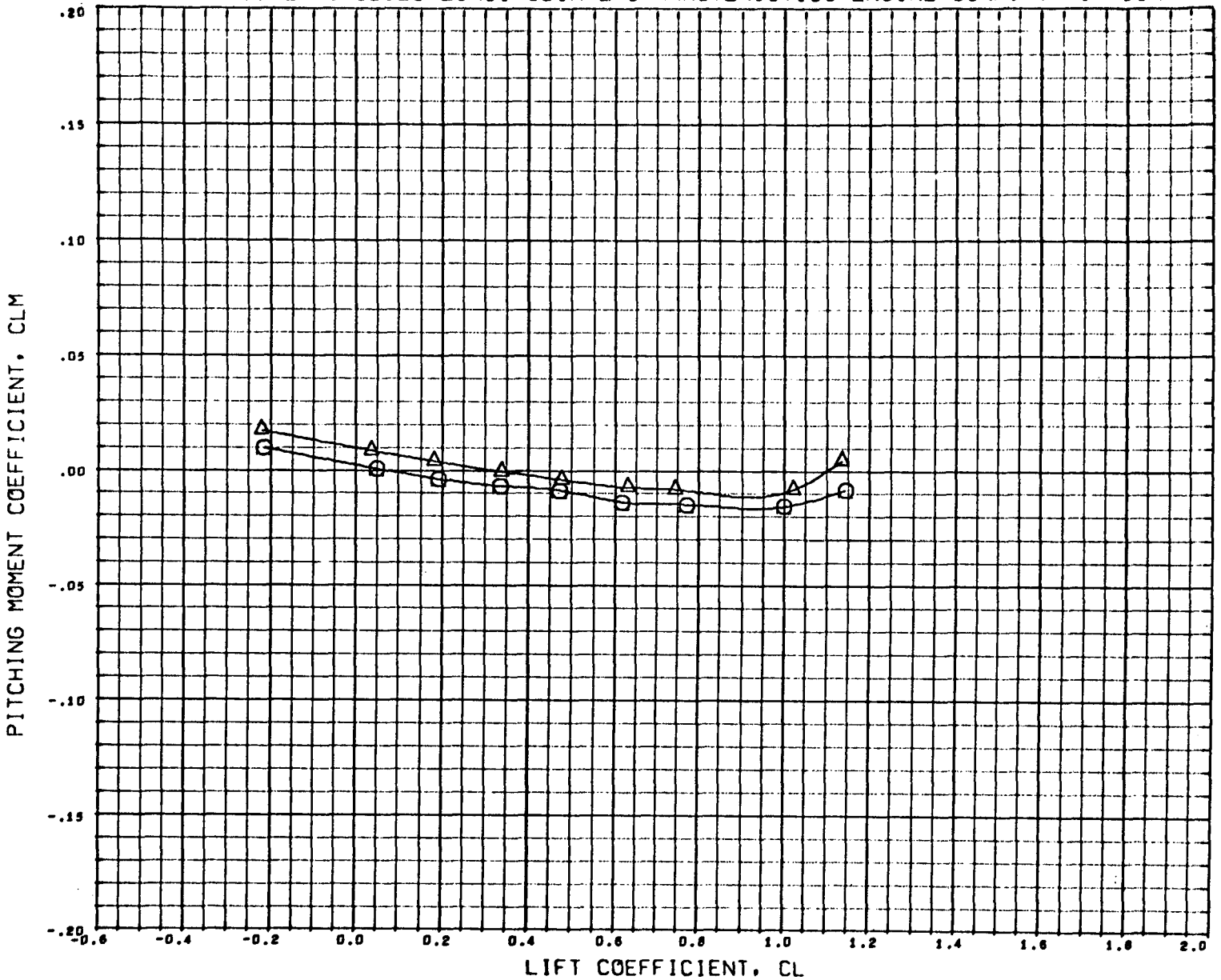
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 90. FT.
(RN3182)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET XHRP 2.5950 FEET YHRP 0.0000 FEET ZHRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 1.004

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.374

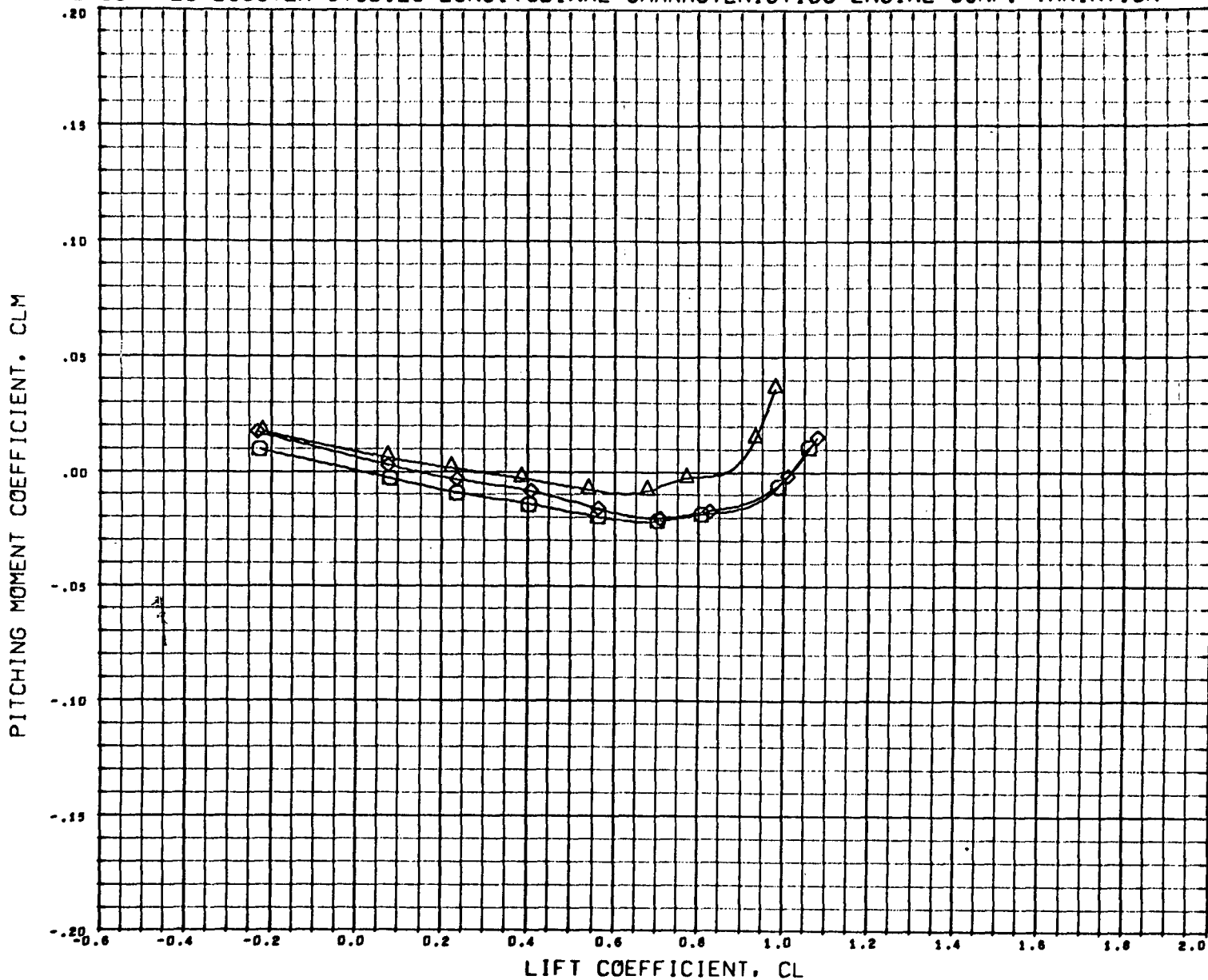
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRF 2.5950 FEET
						YMRF 0.0000 FEET
						ZMRF 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.905

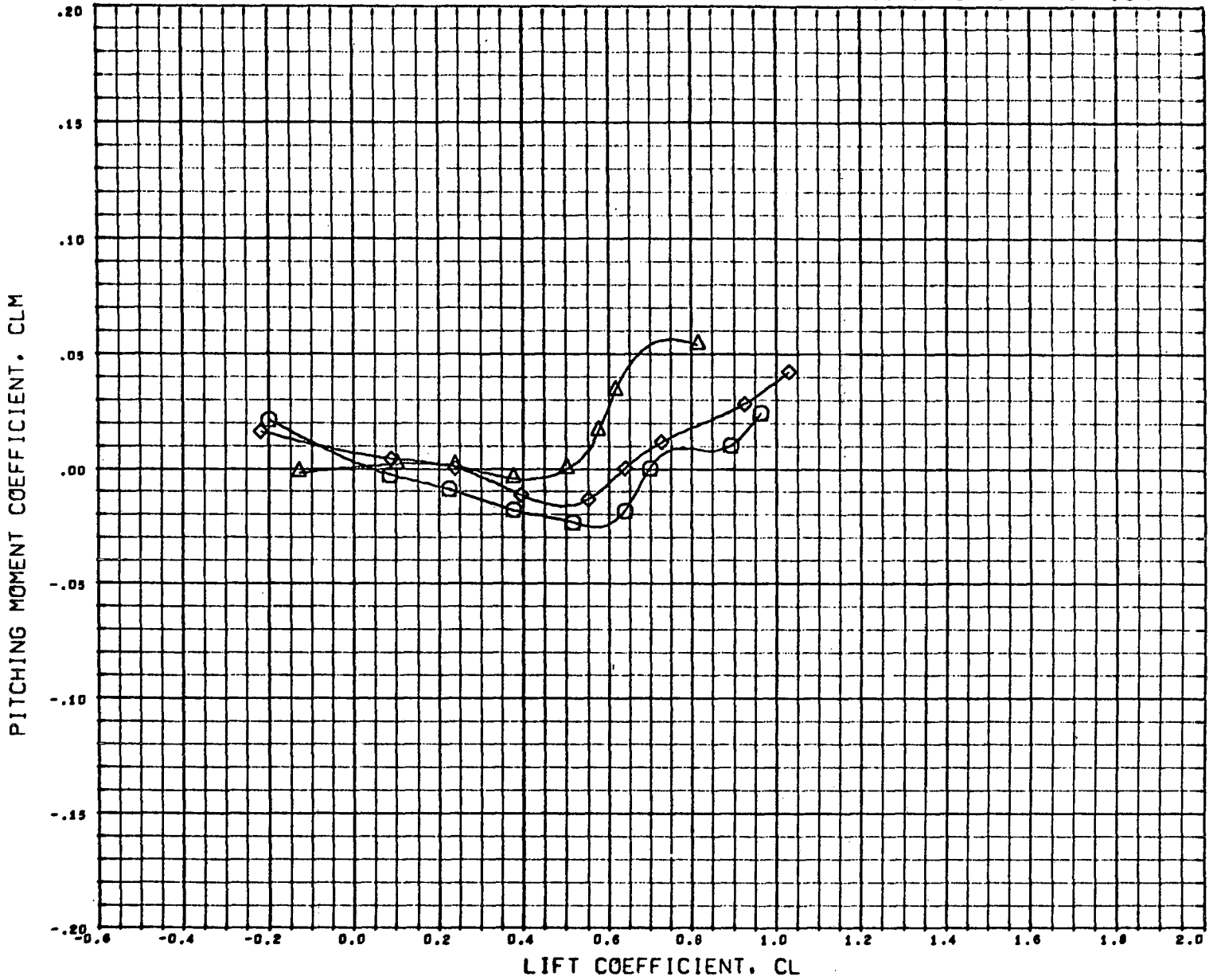
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(R3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3950 SQ.FT.
(R3182)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4930 FEET
(R3001)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4930 FEET
							XMRP 2.9950 FEET
							YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0190 SCALE

MACH 0.701

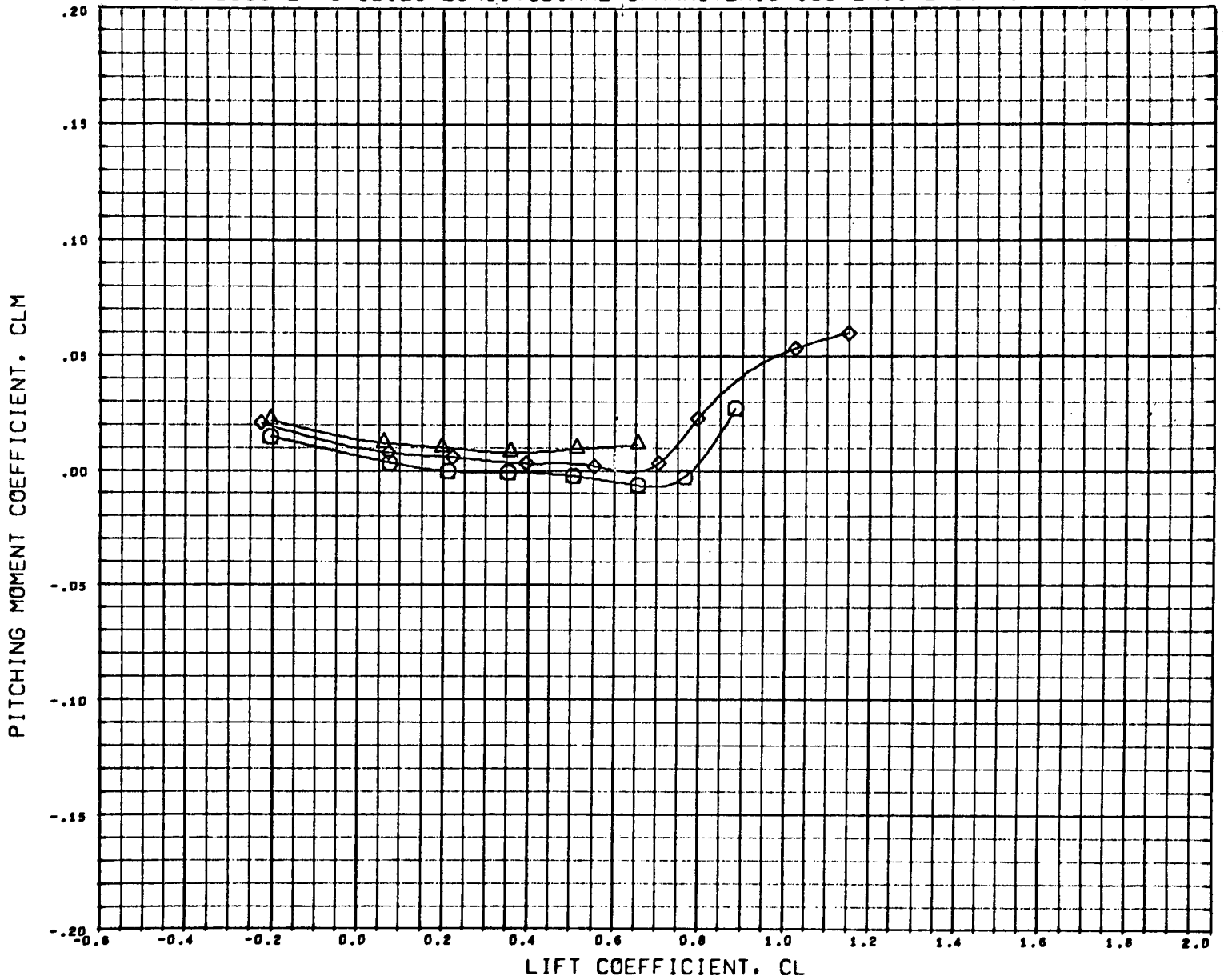
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3182)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.901

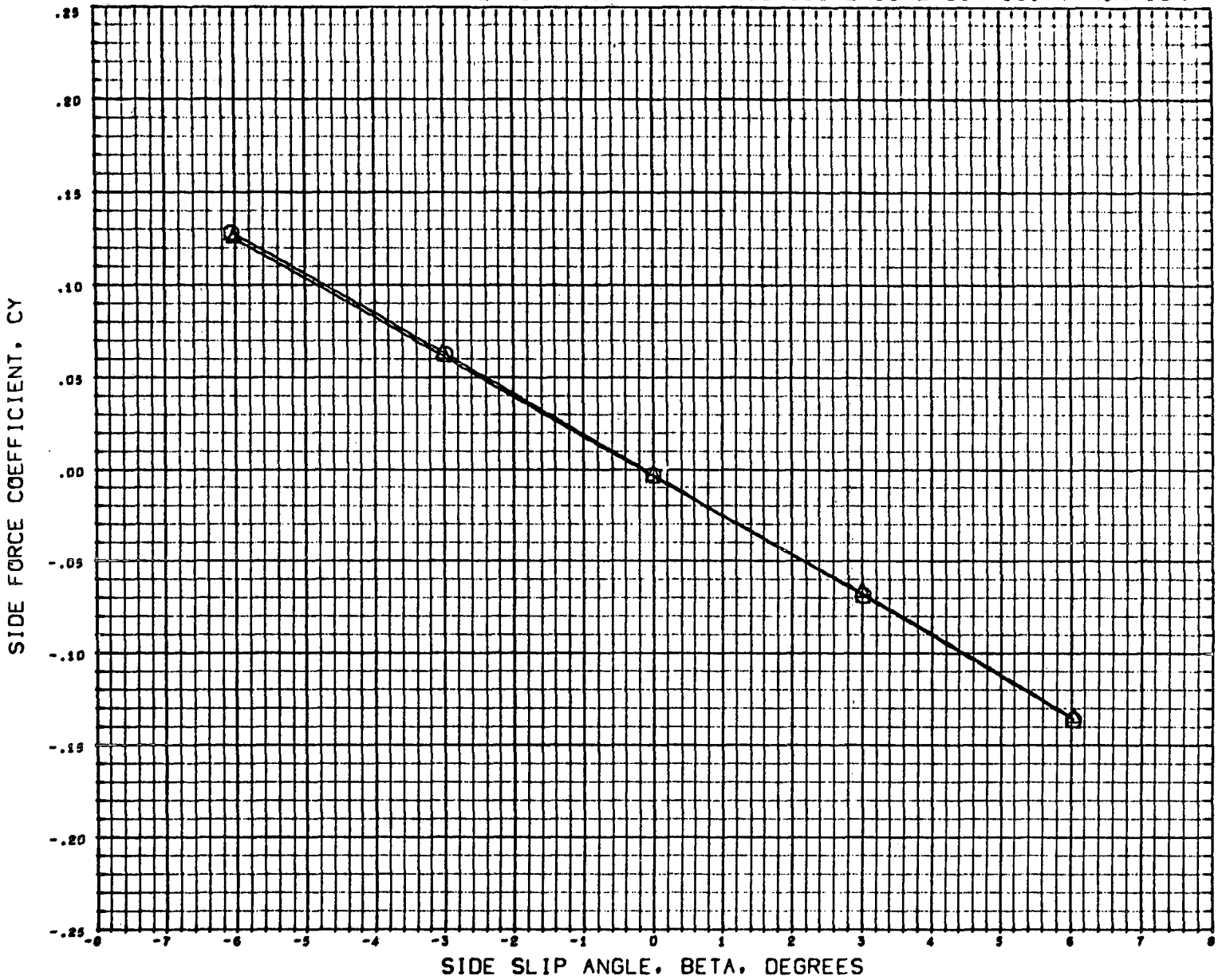
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.004

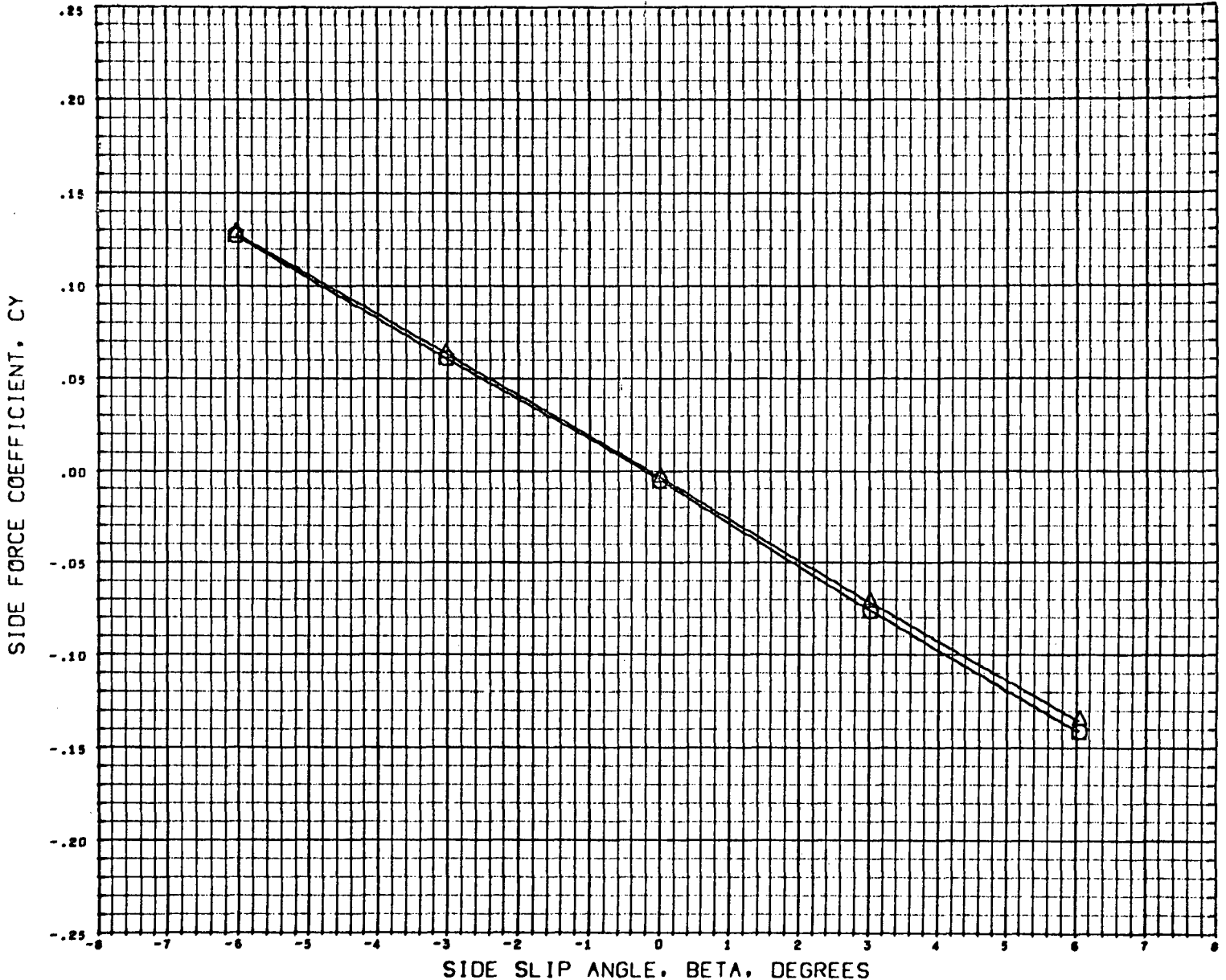
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3193)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(JN3183)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						VMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.375

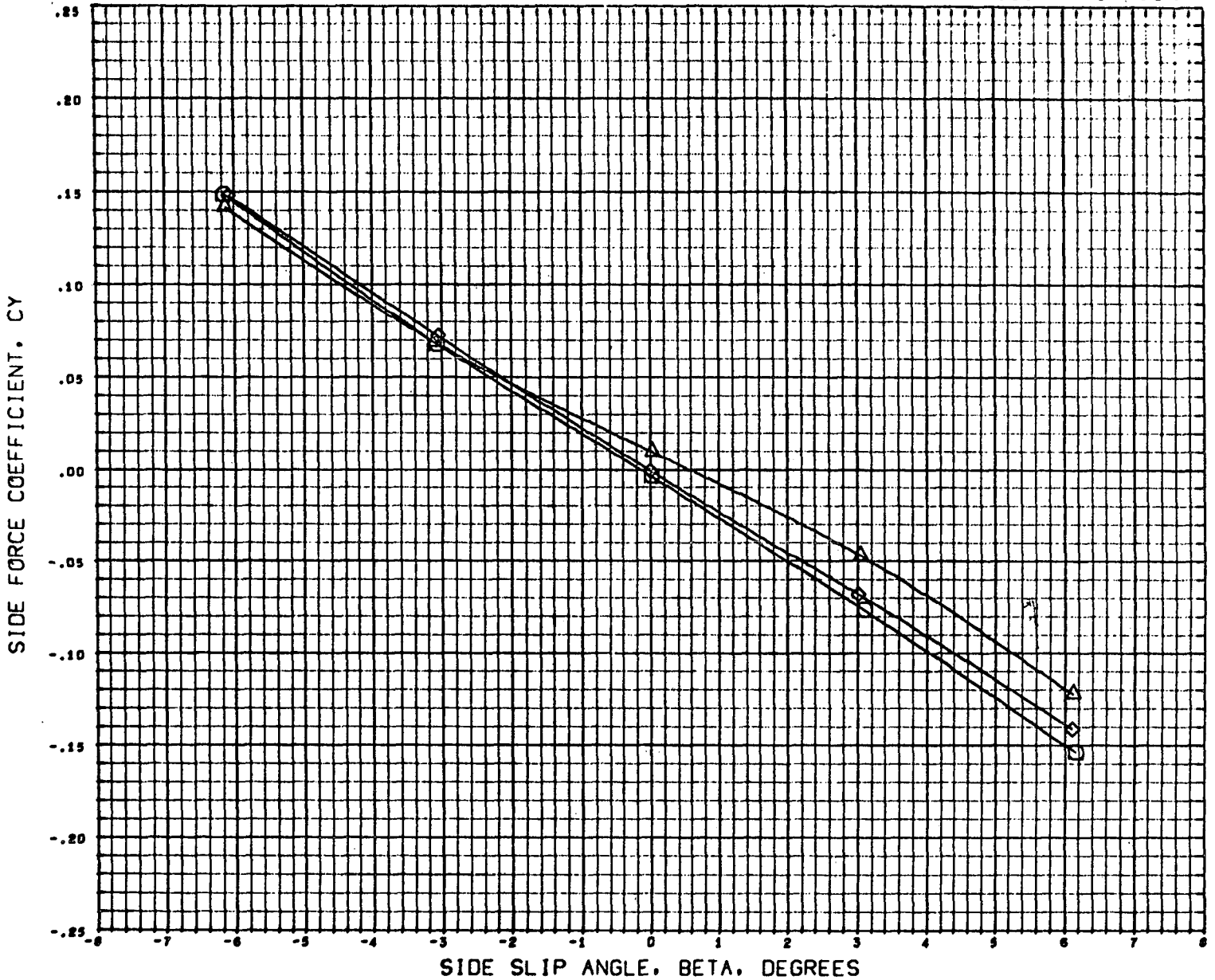
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

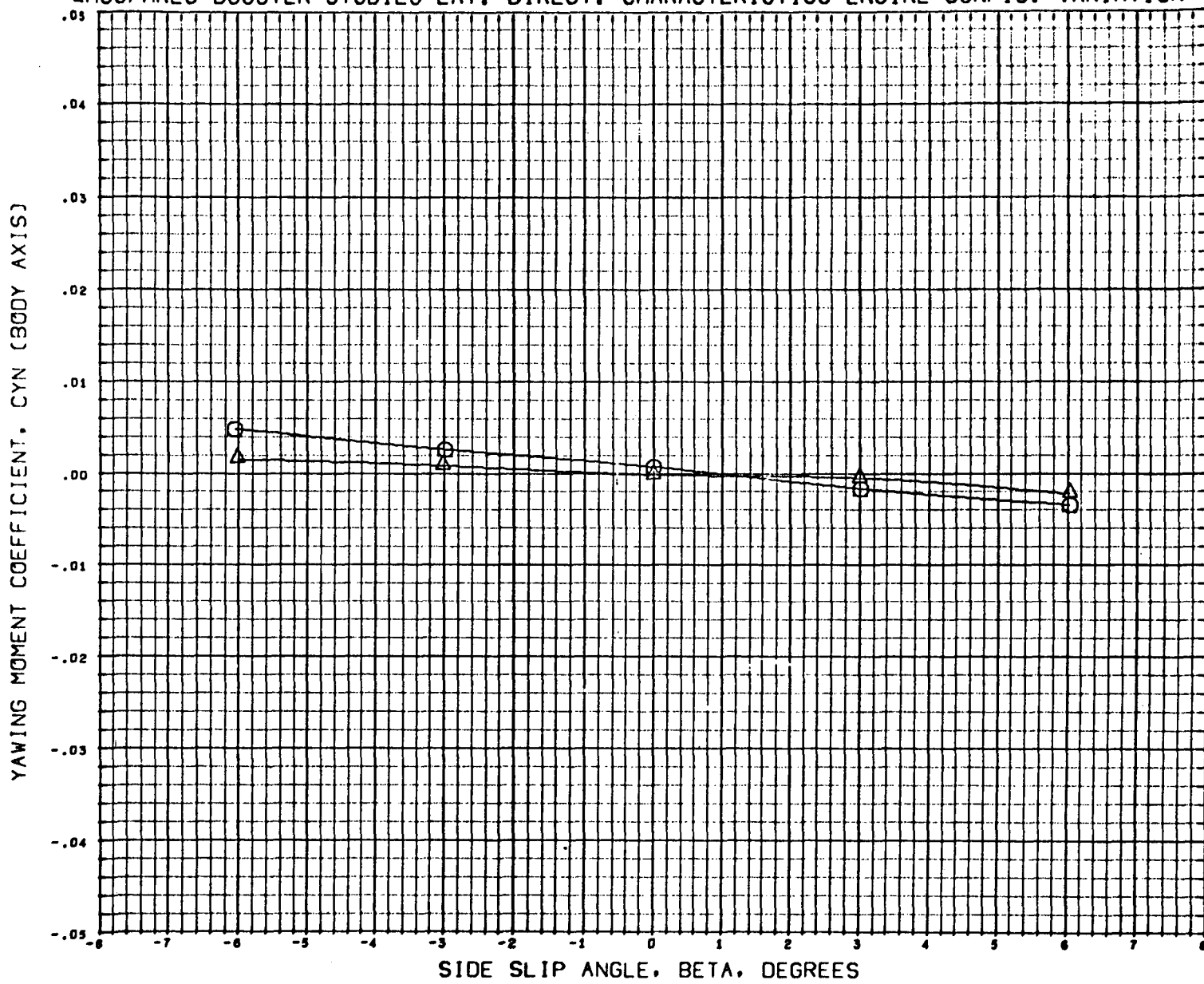
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3193)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(JN3183)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(KN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XHRP 2.9950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.896

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION

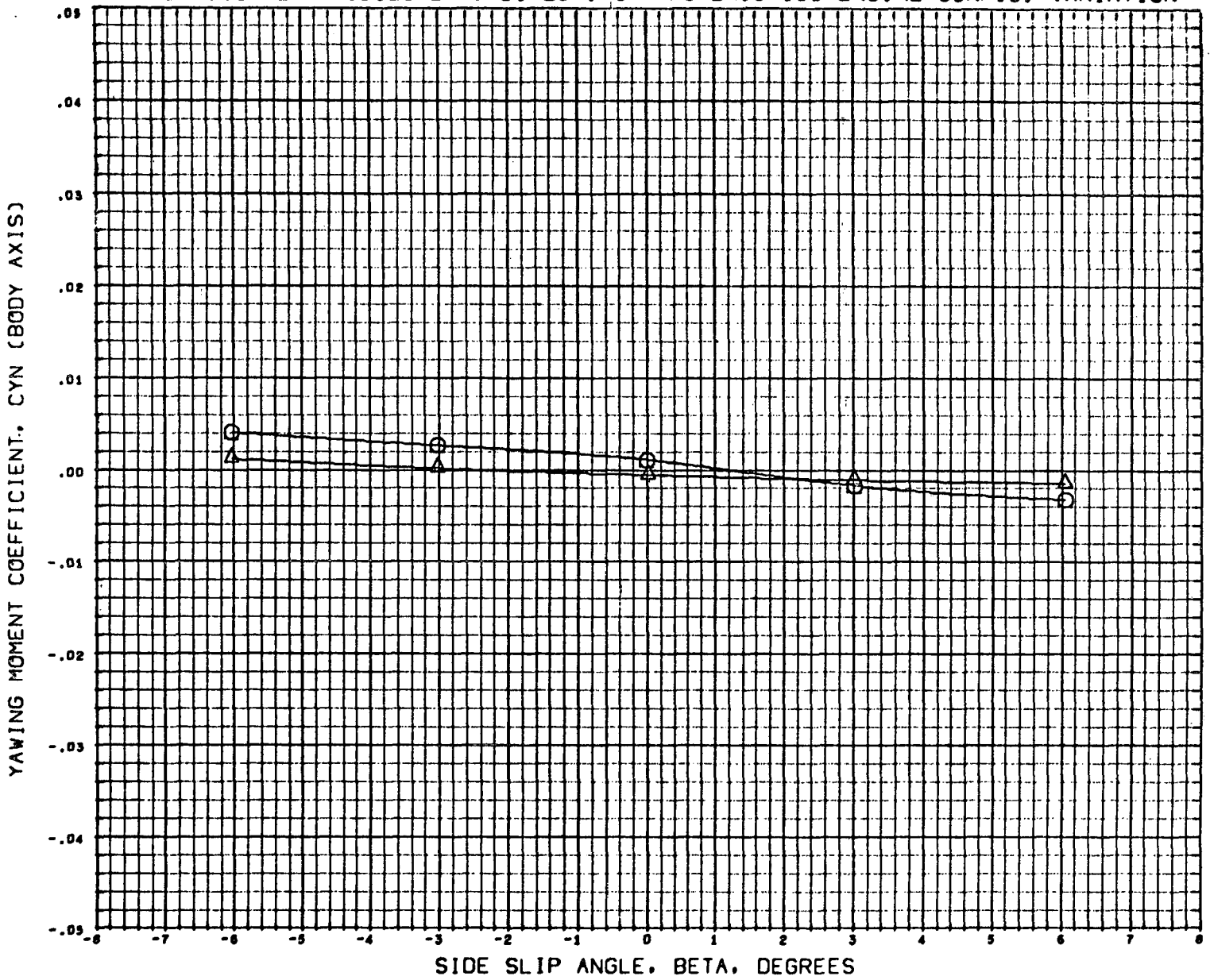


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3193)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(JN3183)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.375

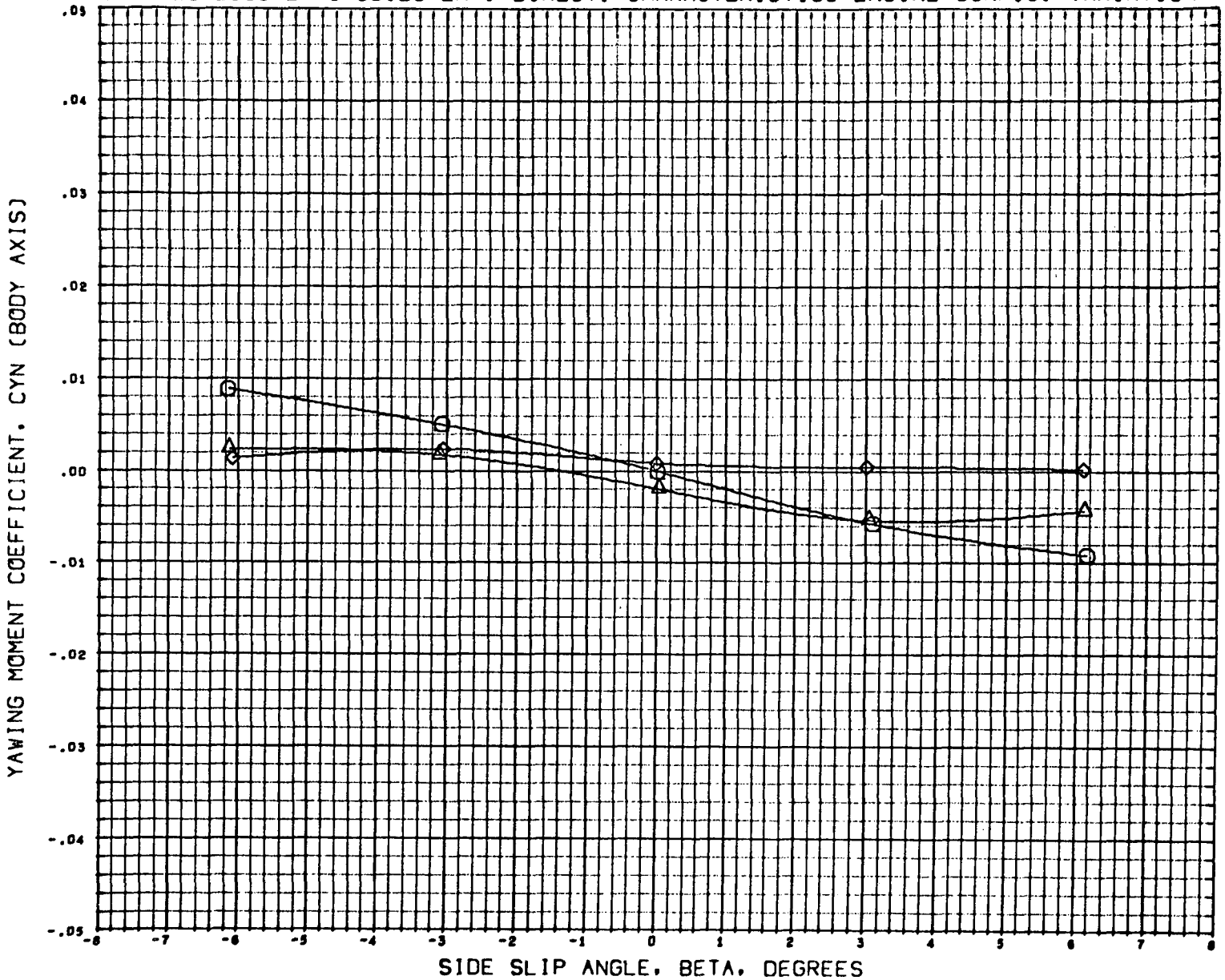
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDGER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 50.FT.
(JN3183)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

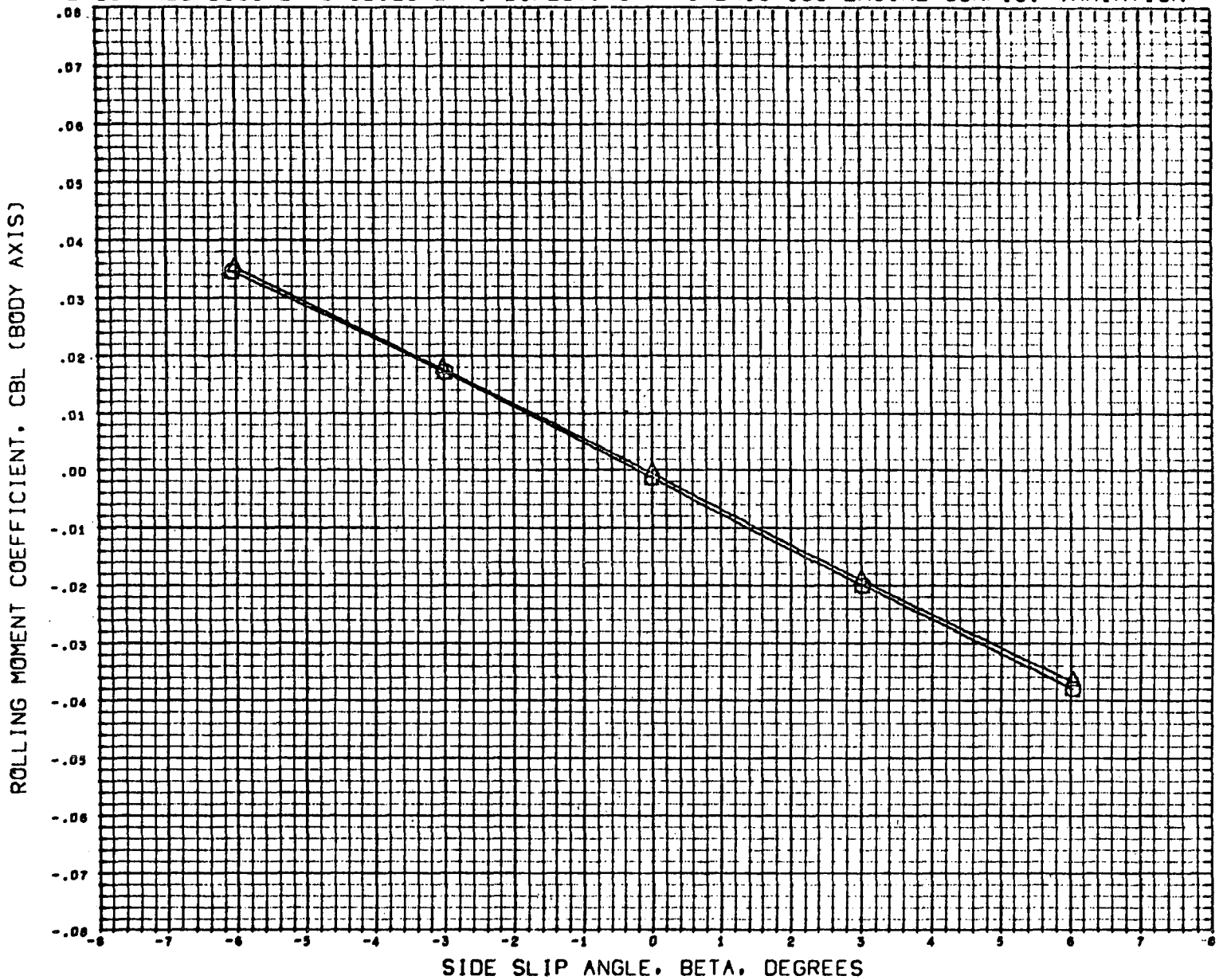
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3193)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(JN3183)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(KN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.096

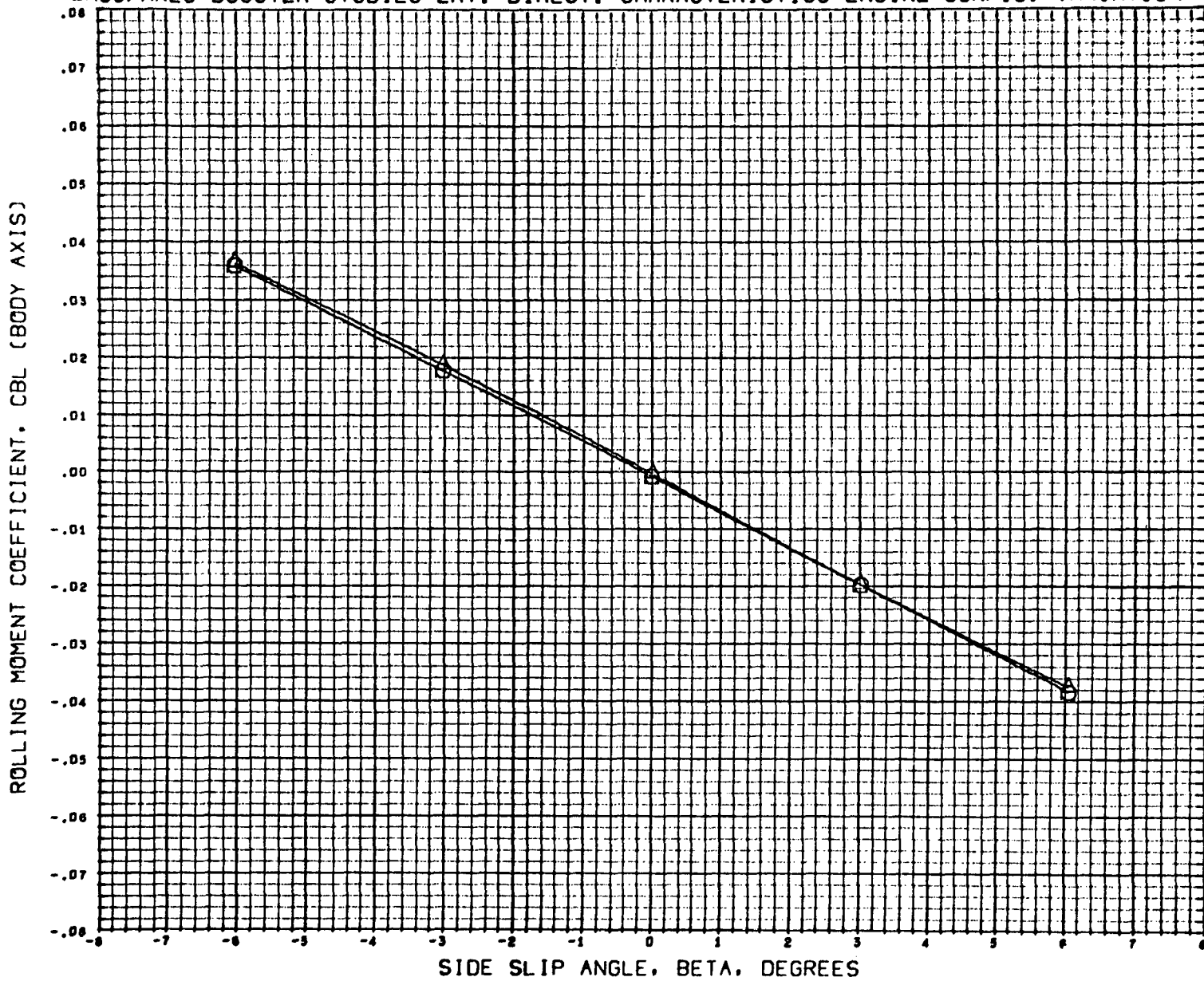
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF 1.3550 80.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF 3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.375

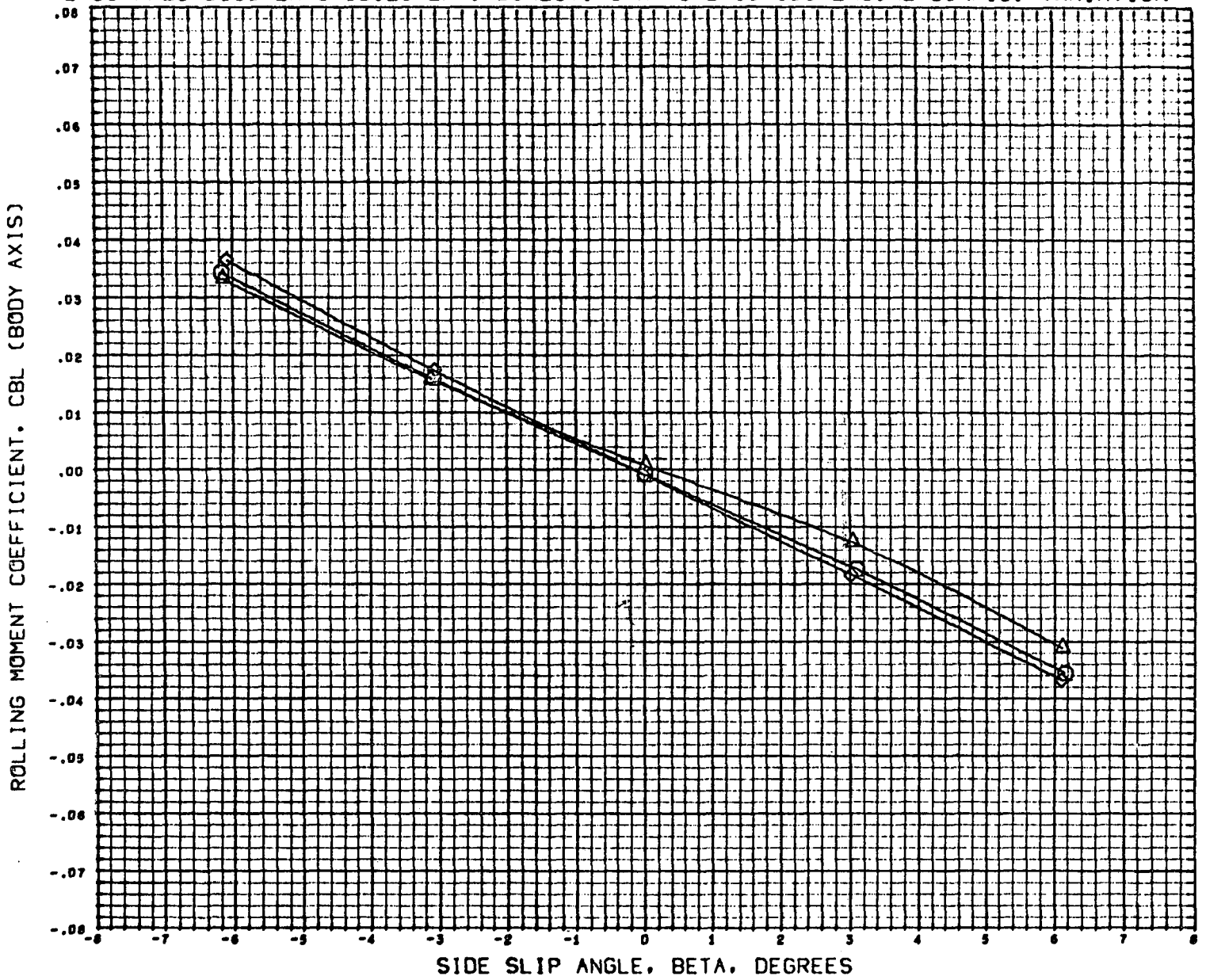
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 30.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4930 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

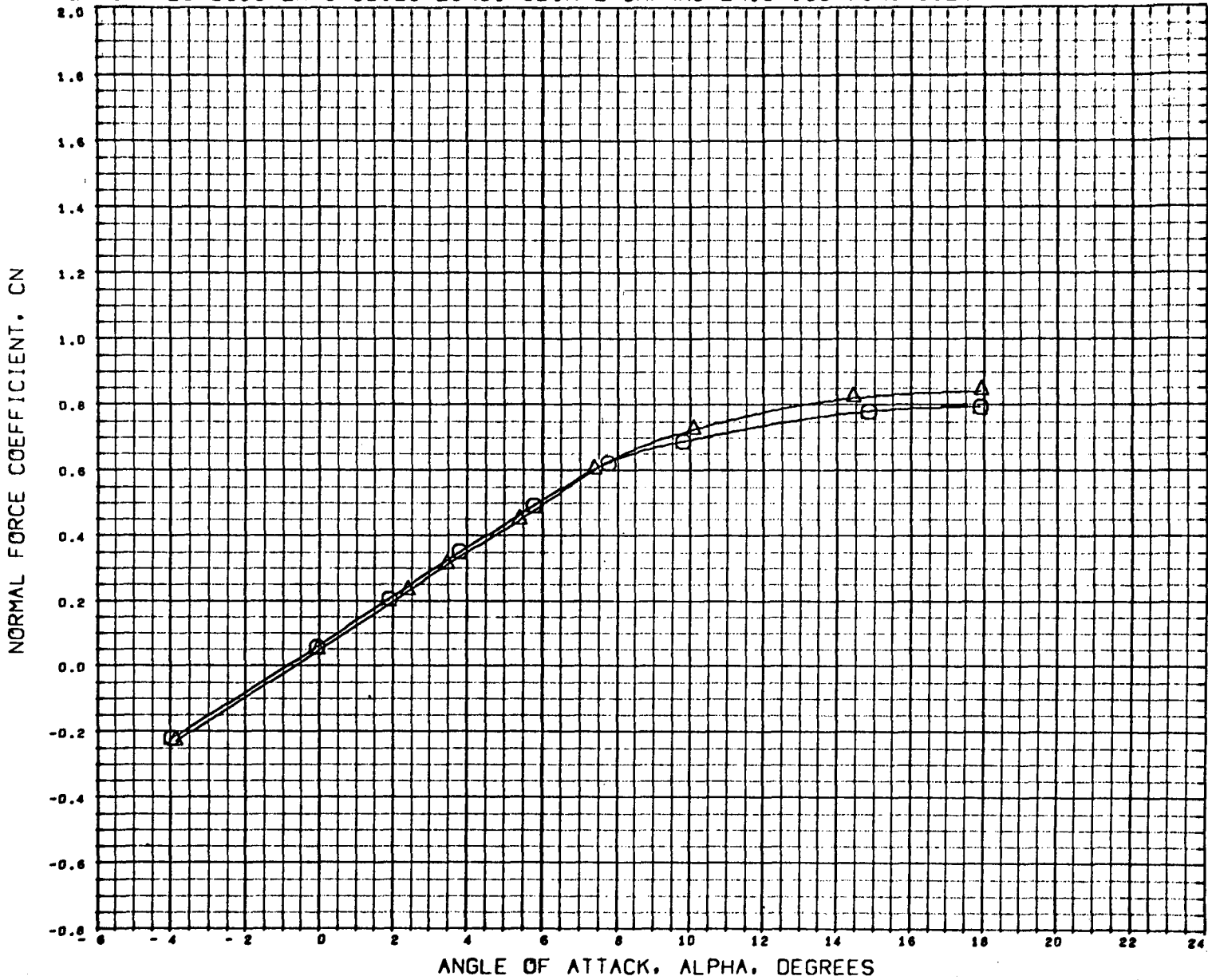
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.896

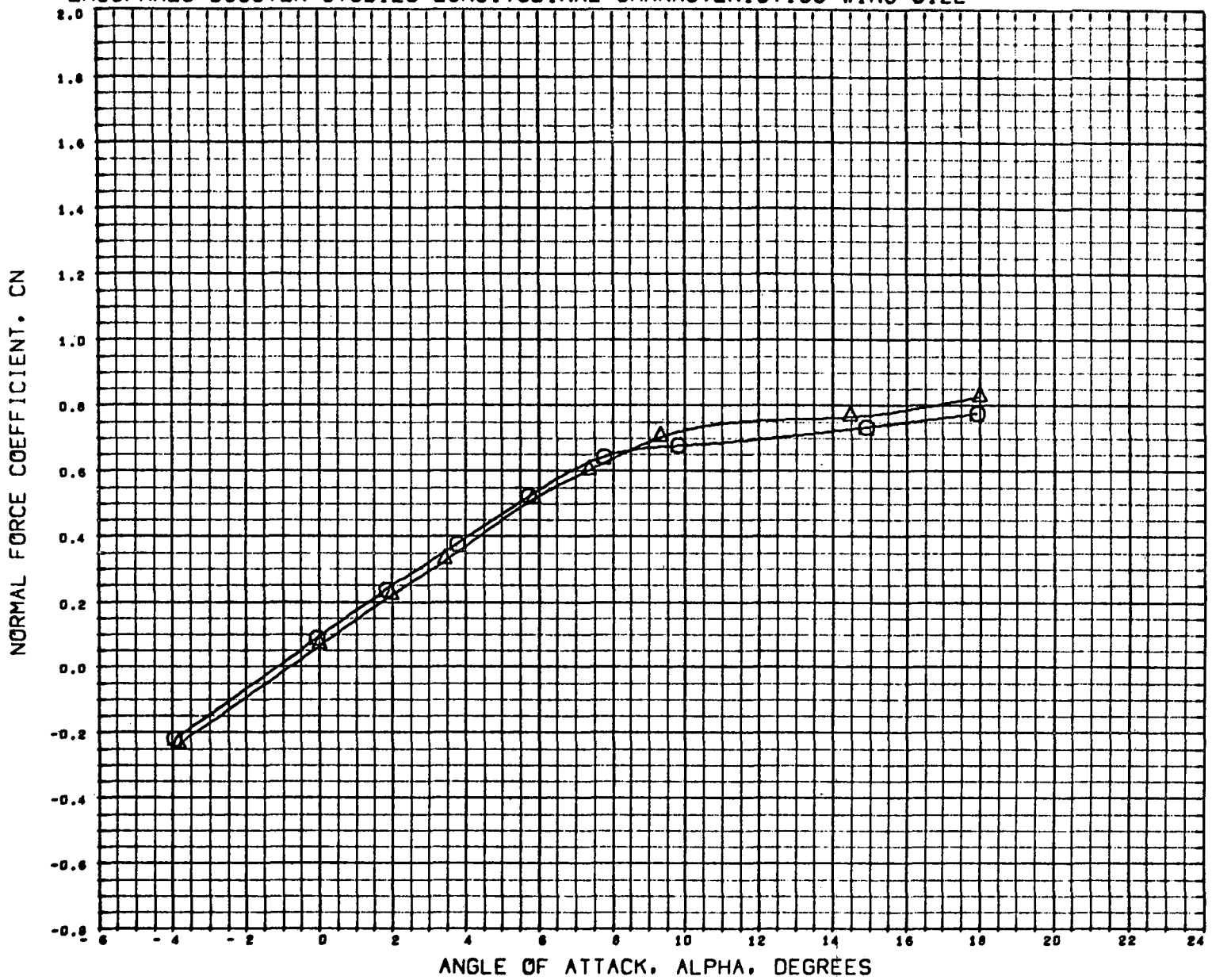
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF	3.4530 FEET
					BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0187 FEET
					SCALE	0.0150 SCALE

MACH 0.704

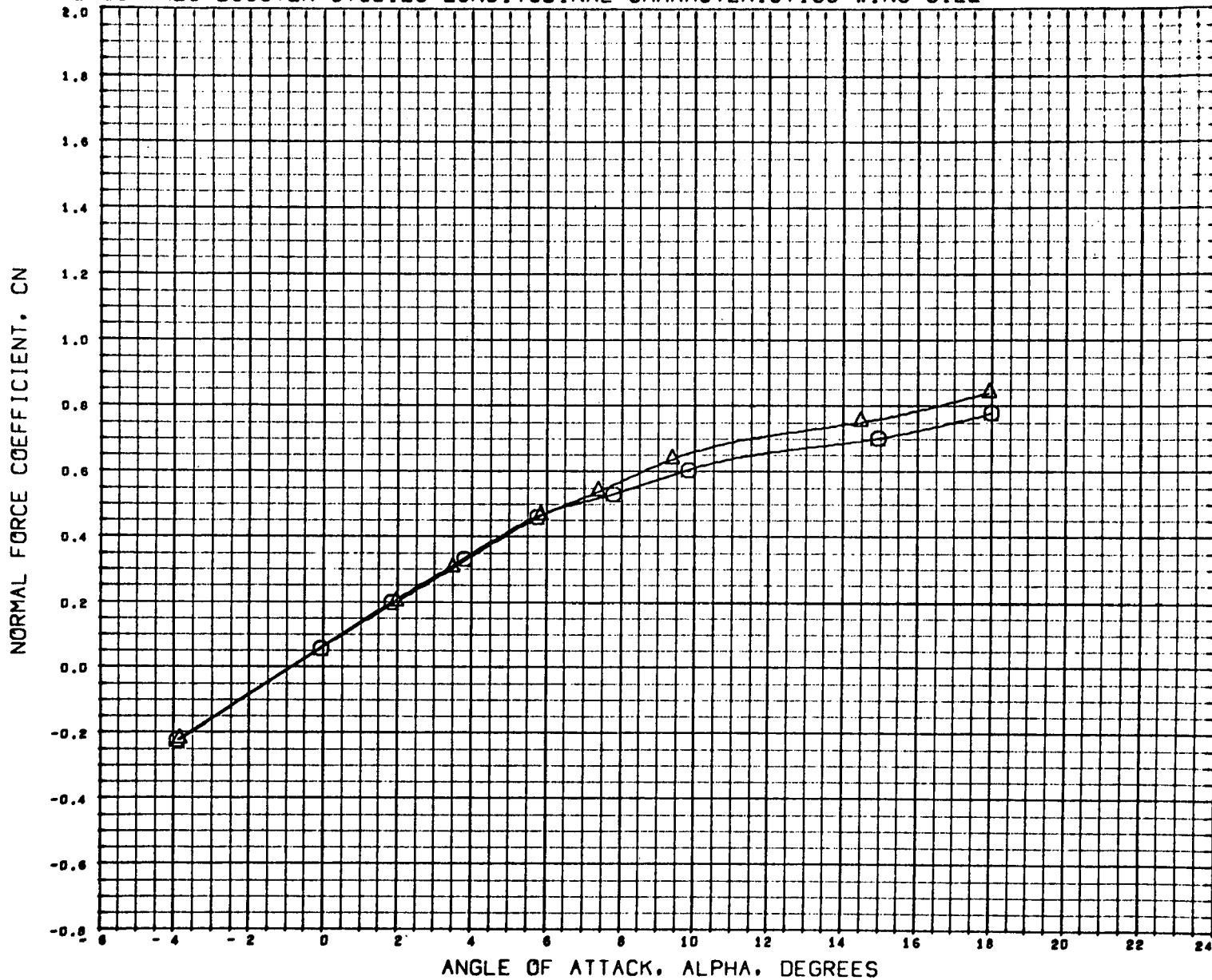
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF	3.4530 FEET
					BREF	3.4530 FEET
					XMRP	2.3950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0187 FEET
					SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
 (RN3065) \bigcirc
 (RN3061) \triangle

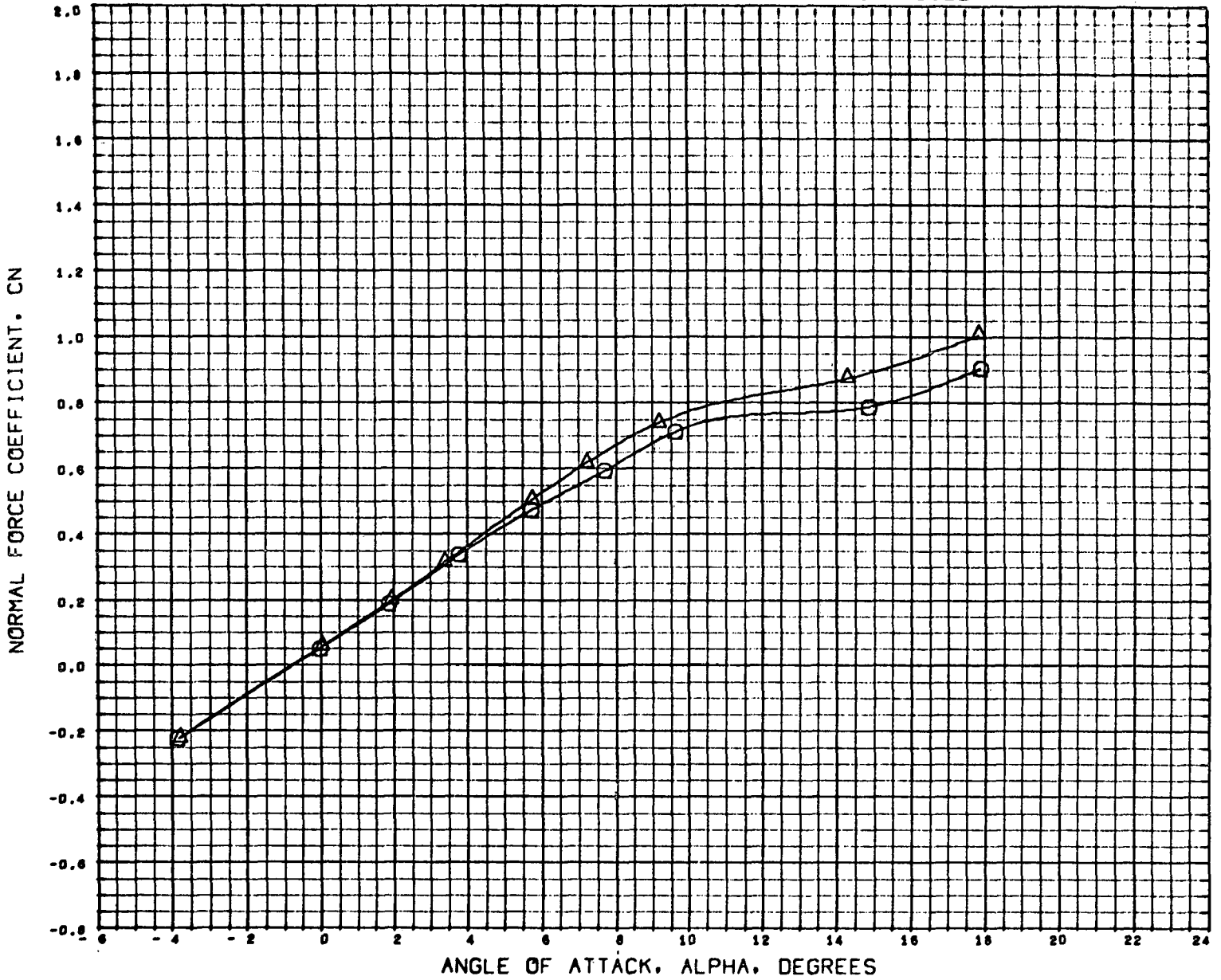
CONFIGURATION DESCRIPTION
 NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
 NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
 0.000 0.000 0.000
 0.000 0.000

REFERENCE INFORMATION
 SREF 1.3550 SQ. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRP 2.3950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 0.902

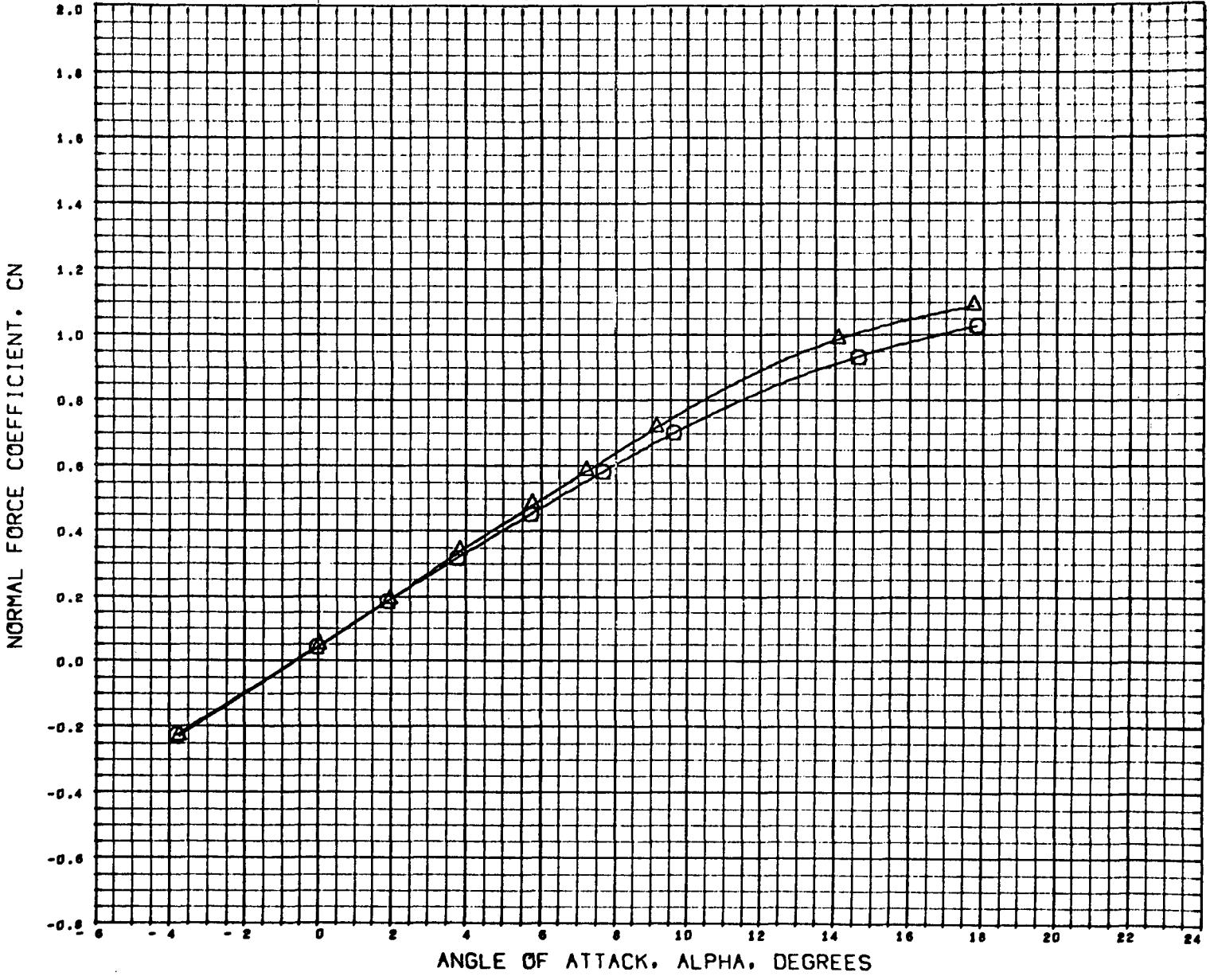
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF	3.4530 FEET
					BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0187 FEET
					SCALE	0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



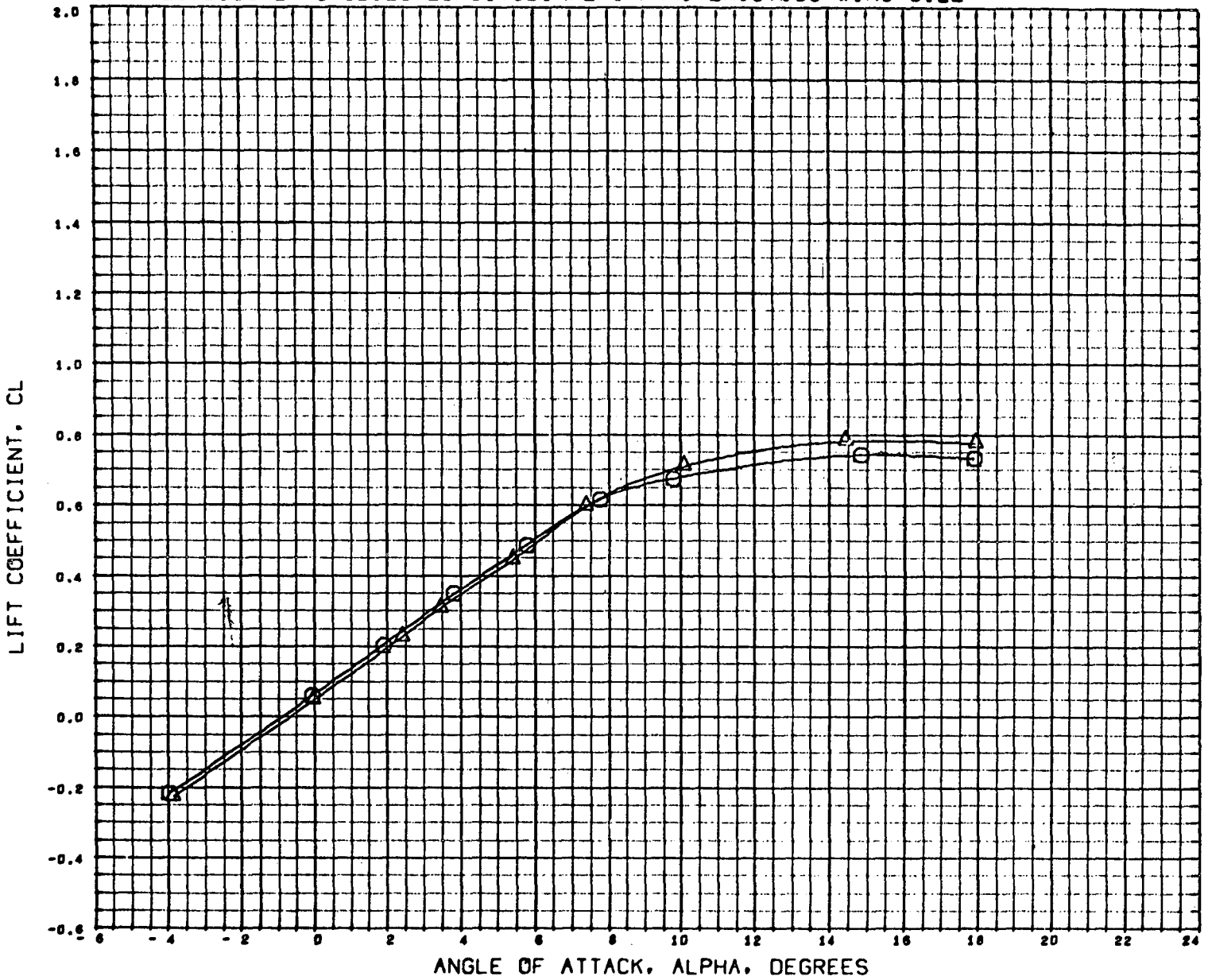
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.125

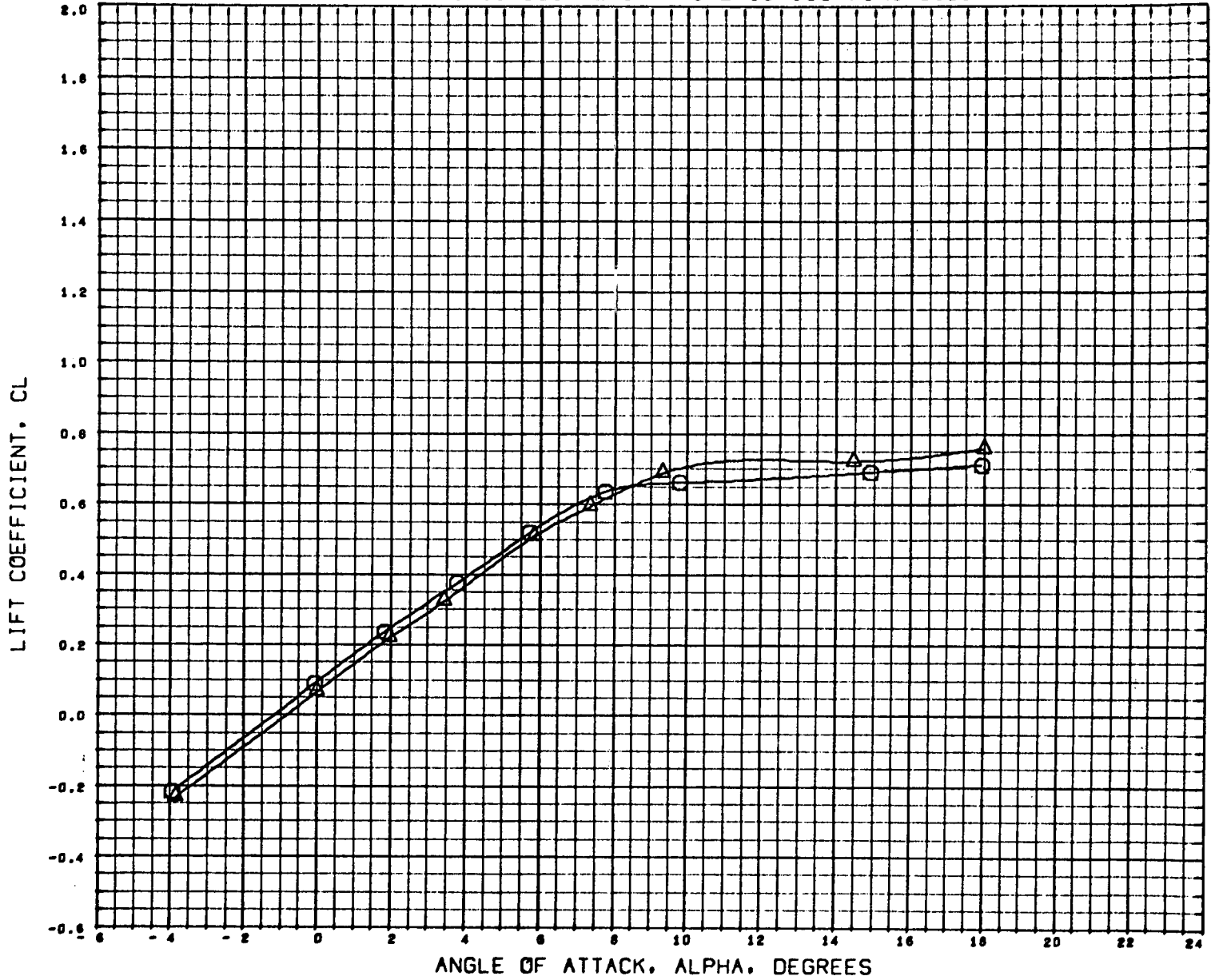
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065) \odot	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3065) \triangle	NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1	0.000	0.000	0.000	LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 0.704

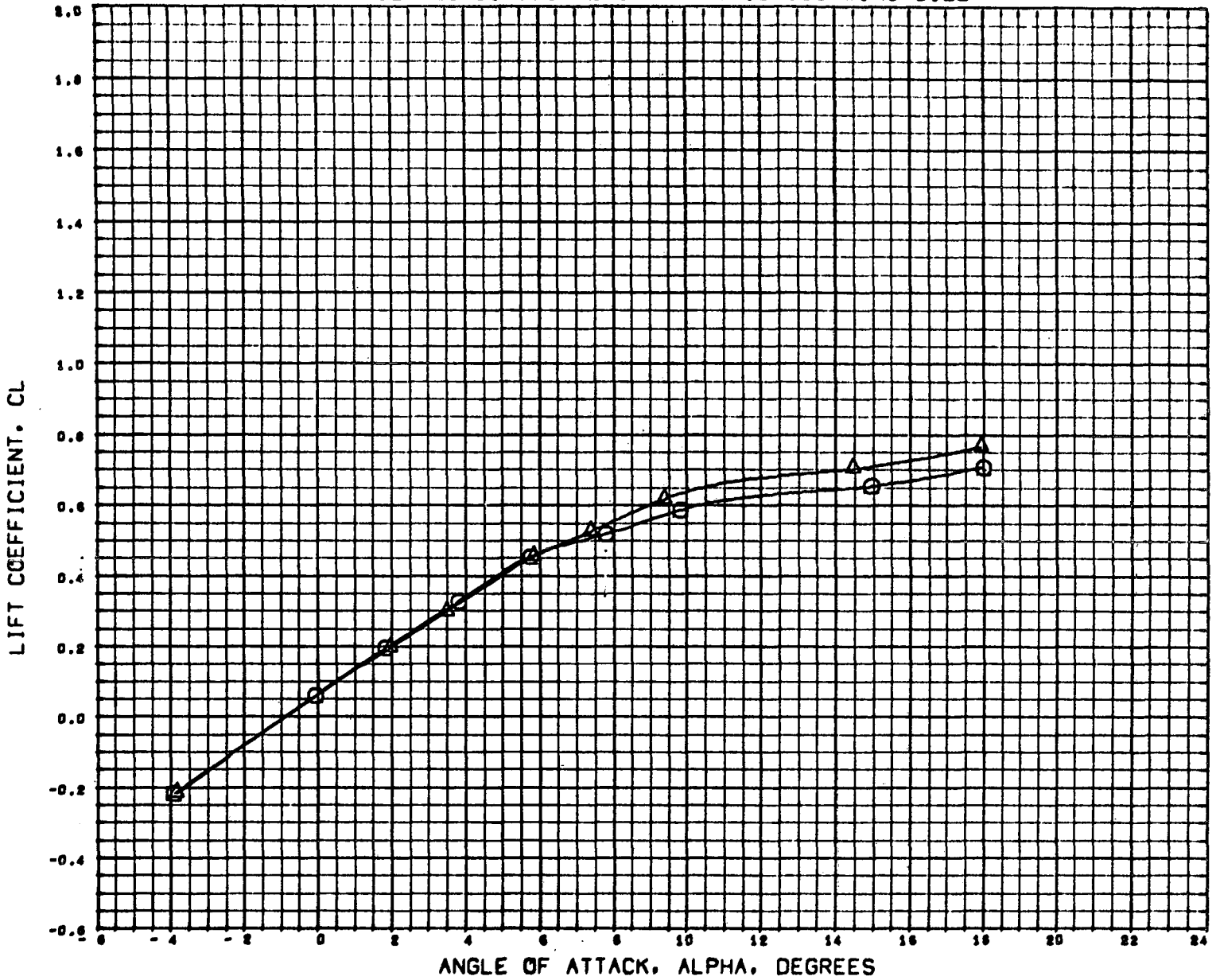
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RNS065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RNS061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 0.000

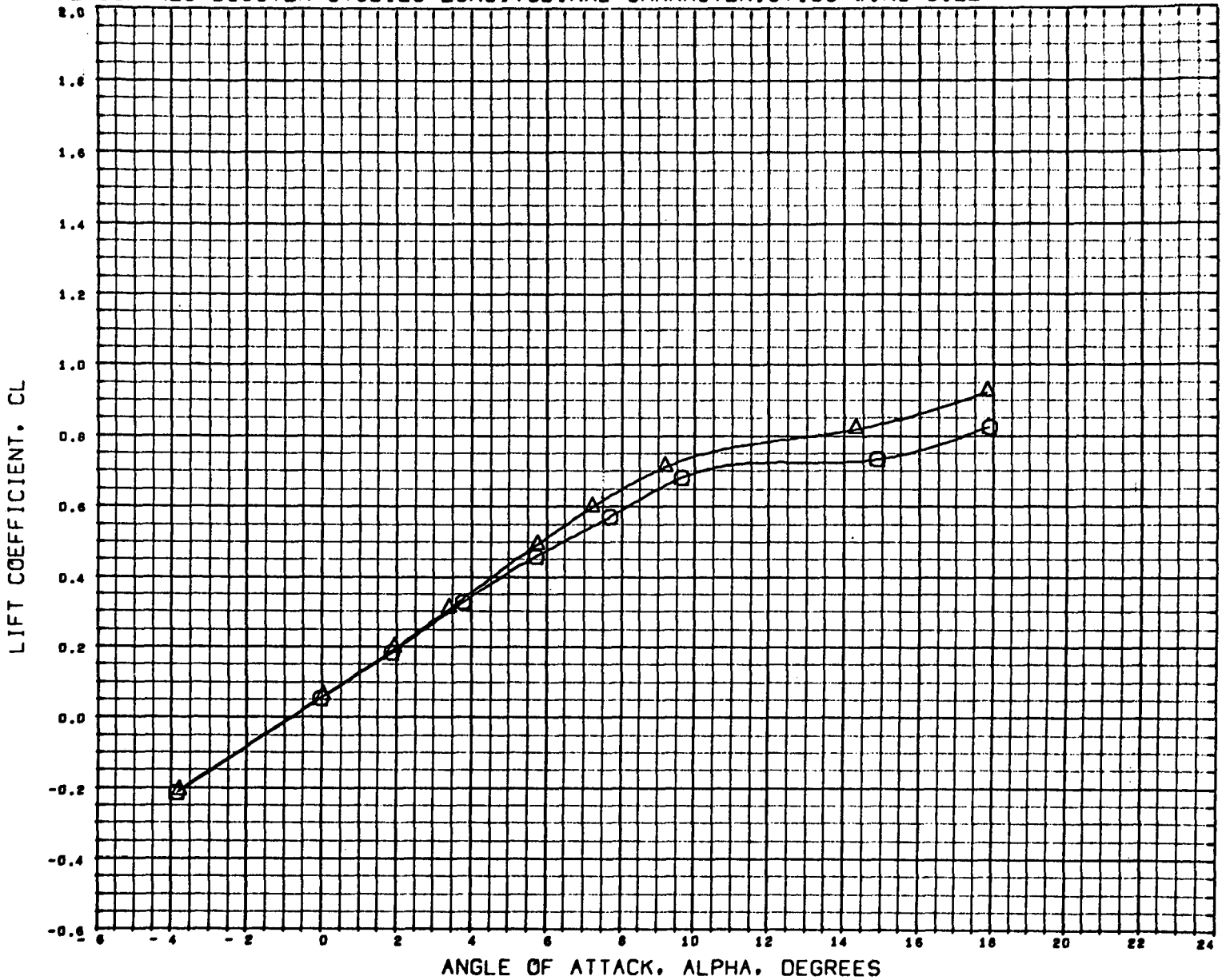
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AIRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000	0.000	LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



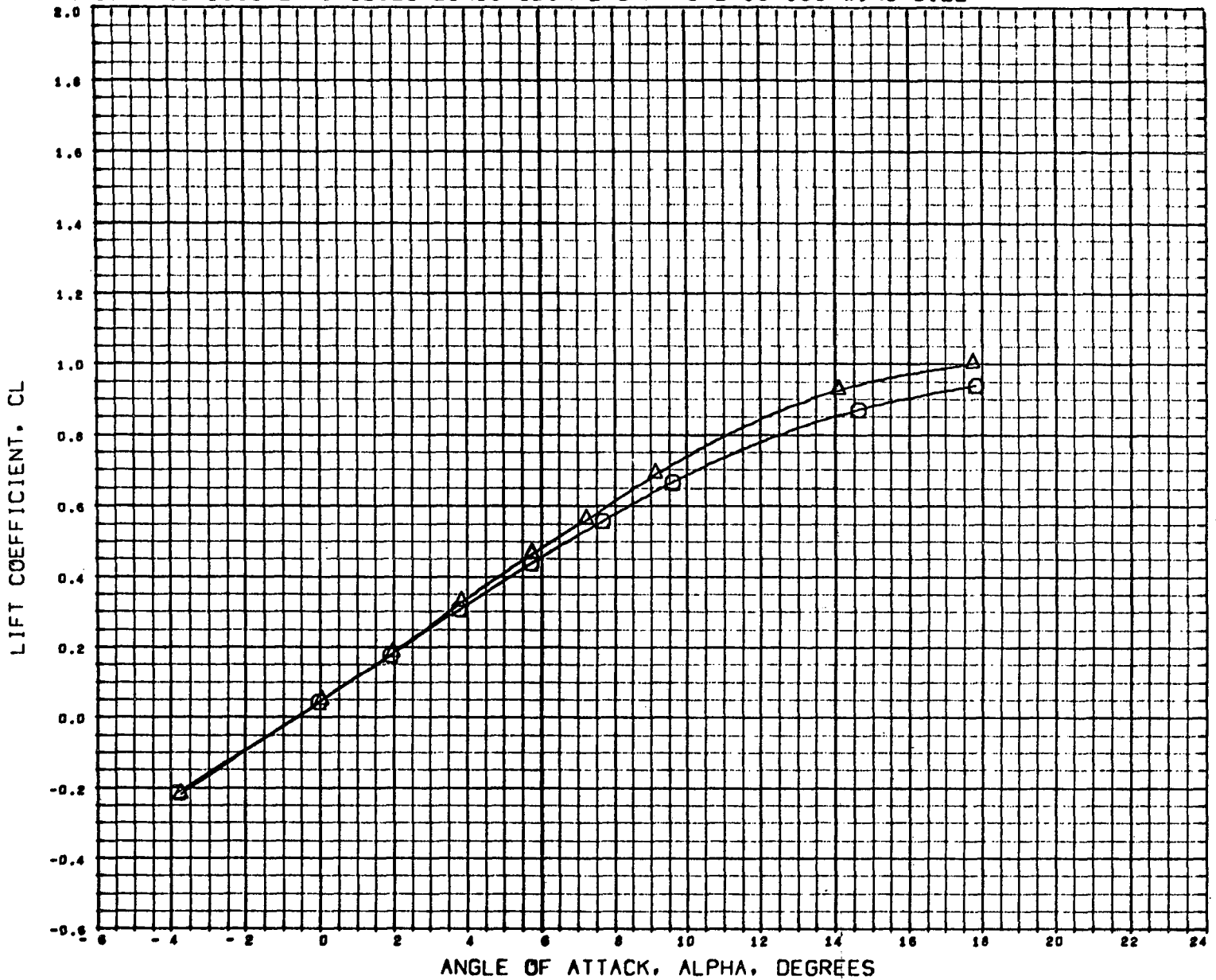
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) ○	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061) △	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION	
SREF	1.3350 SQ. FT.
LREF	3.4330 FEET
BREF	3.4330 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



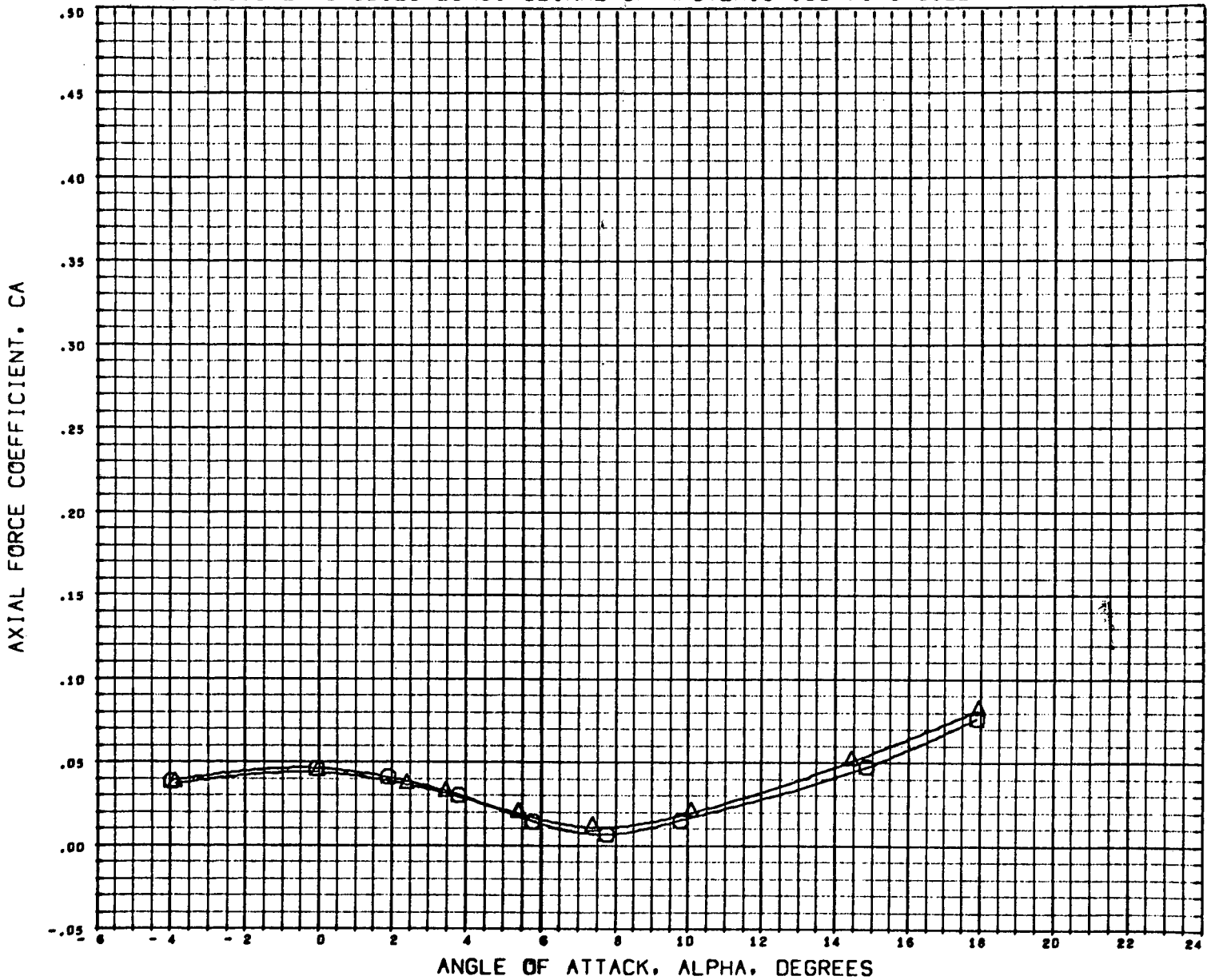
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061) △	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	sq. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



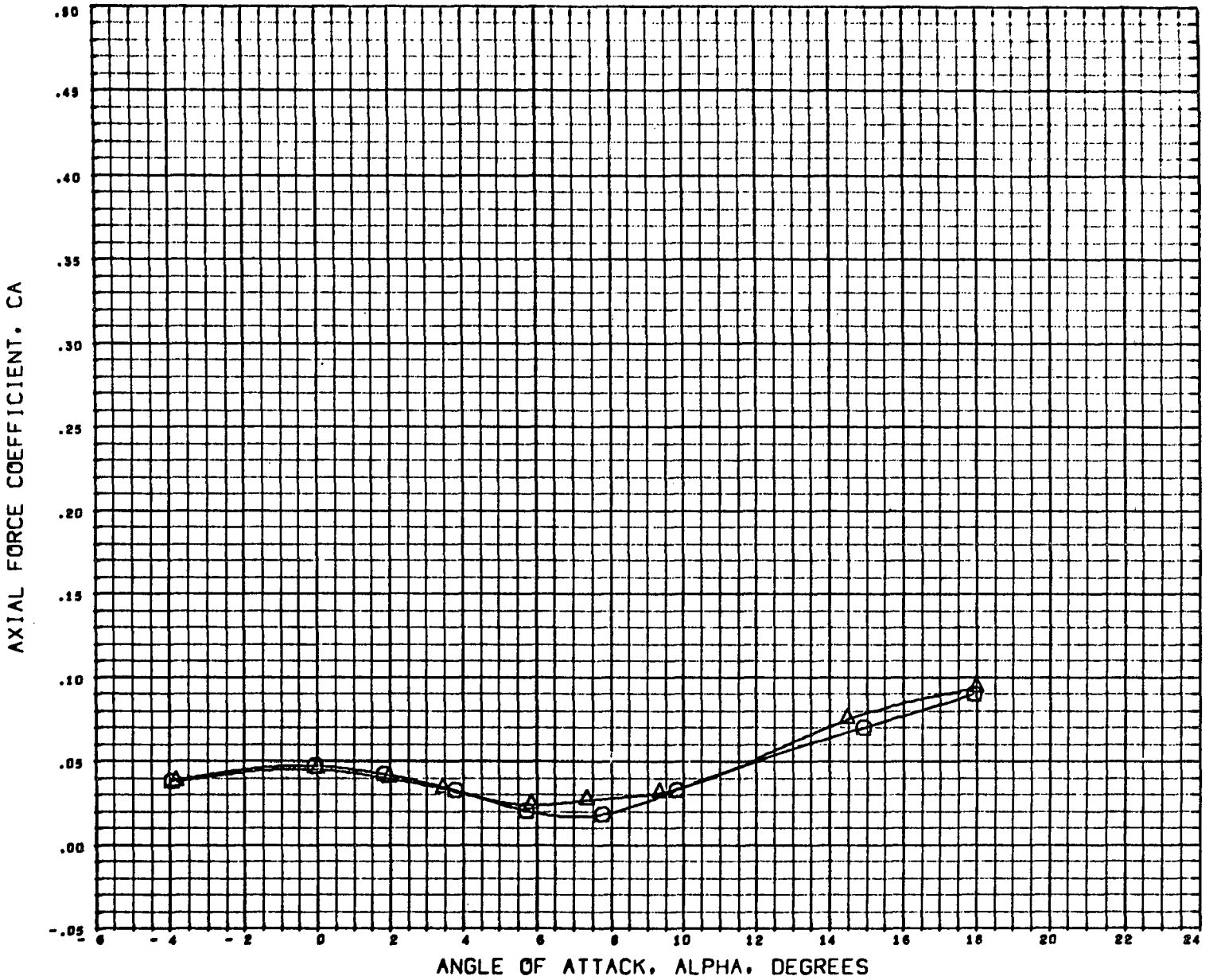
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	30. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.704

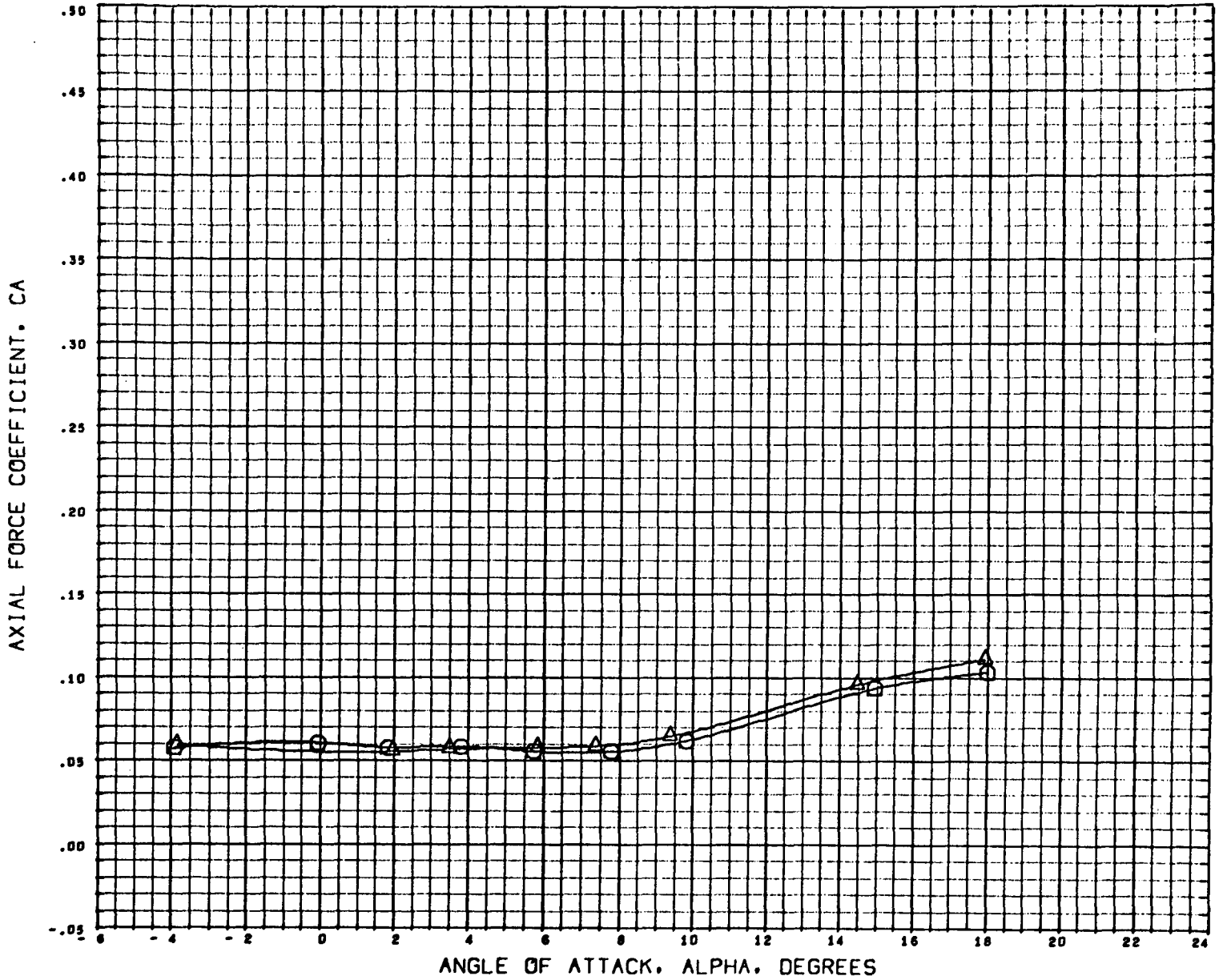
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 89. FT.
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5930 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 0.800

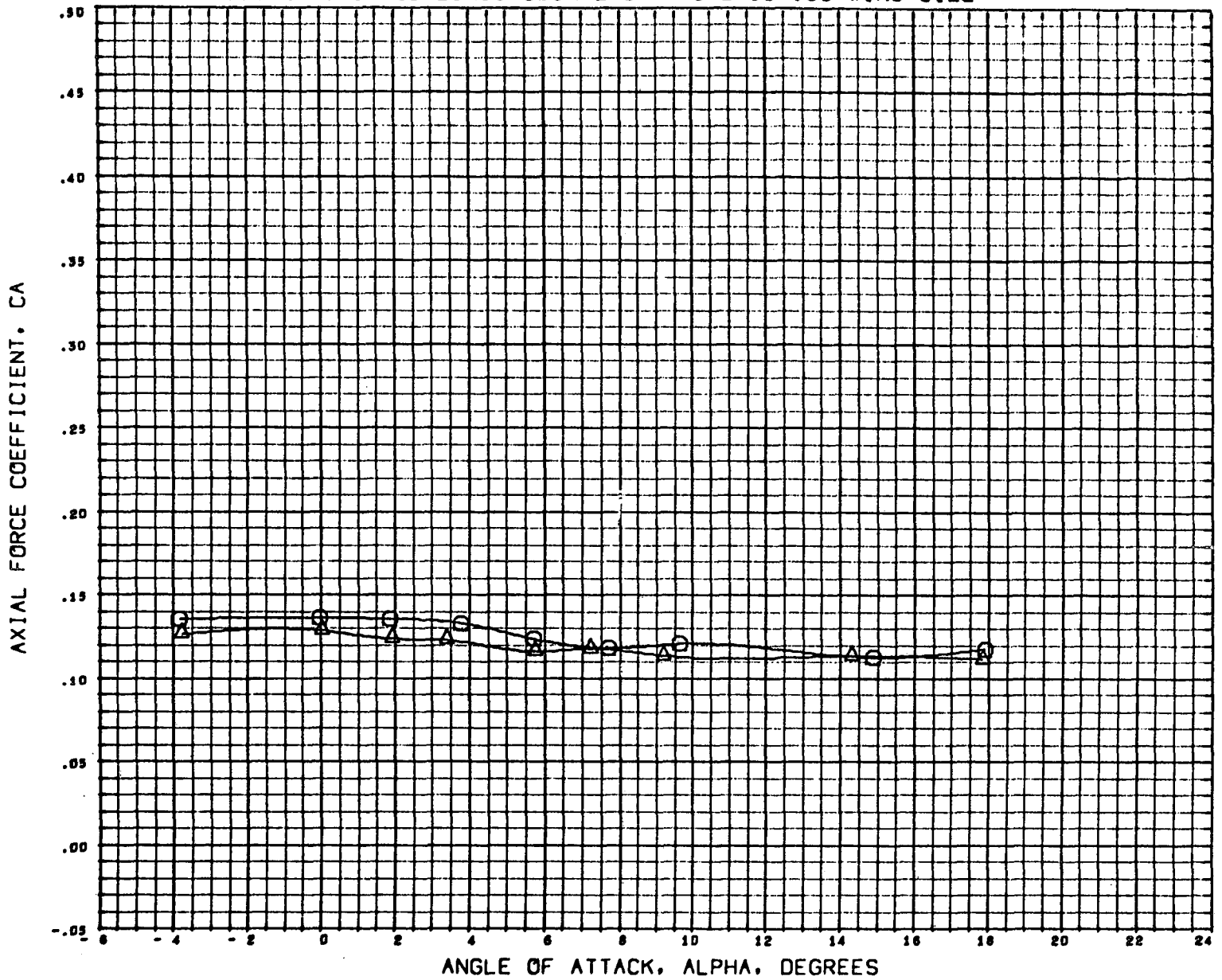
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF	3.4530 FEET
					BREF	3.4330 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0187 FEET
					SCALE	0.0150 SCALE

MACH 0.902

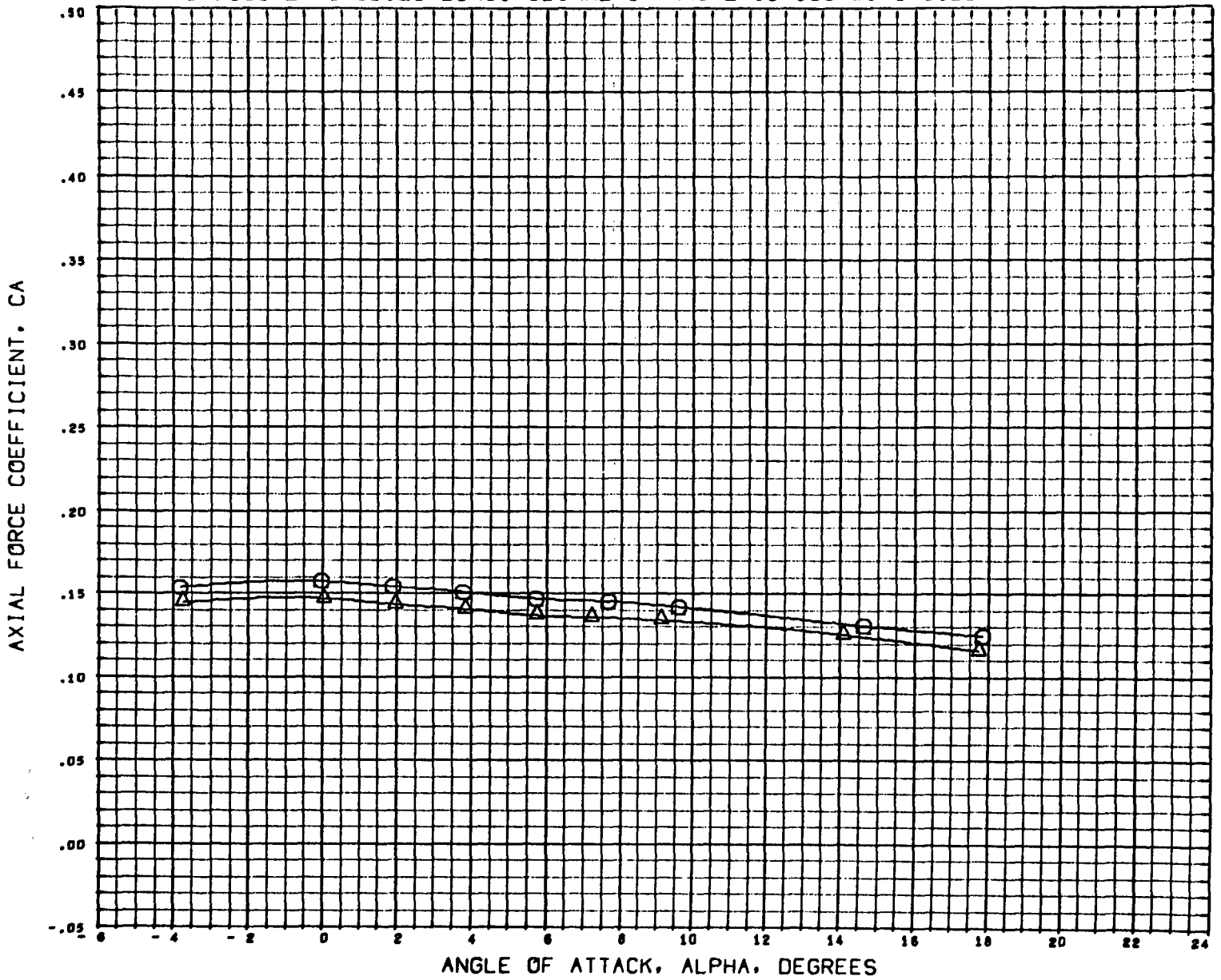
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3069)	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3950 80. FT.
(RN3061)	NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4330 FEET
					BREF 3.4330 FEET
					XMRF 2.9950 FEET
					YMRF 0.0000 FEET
					ZMRF 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



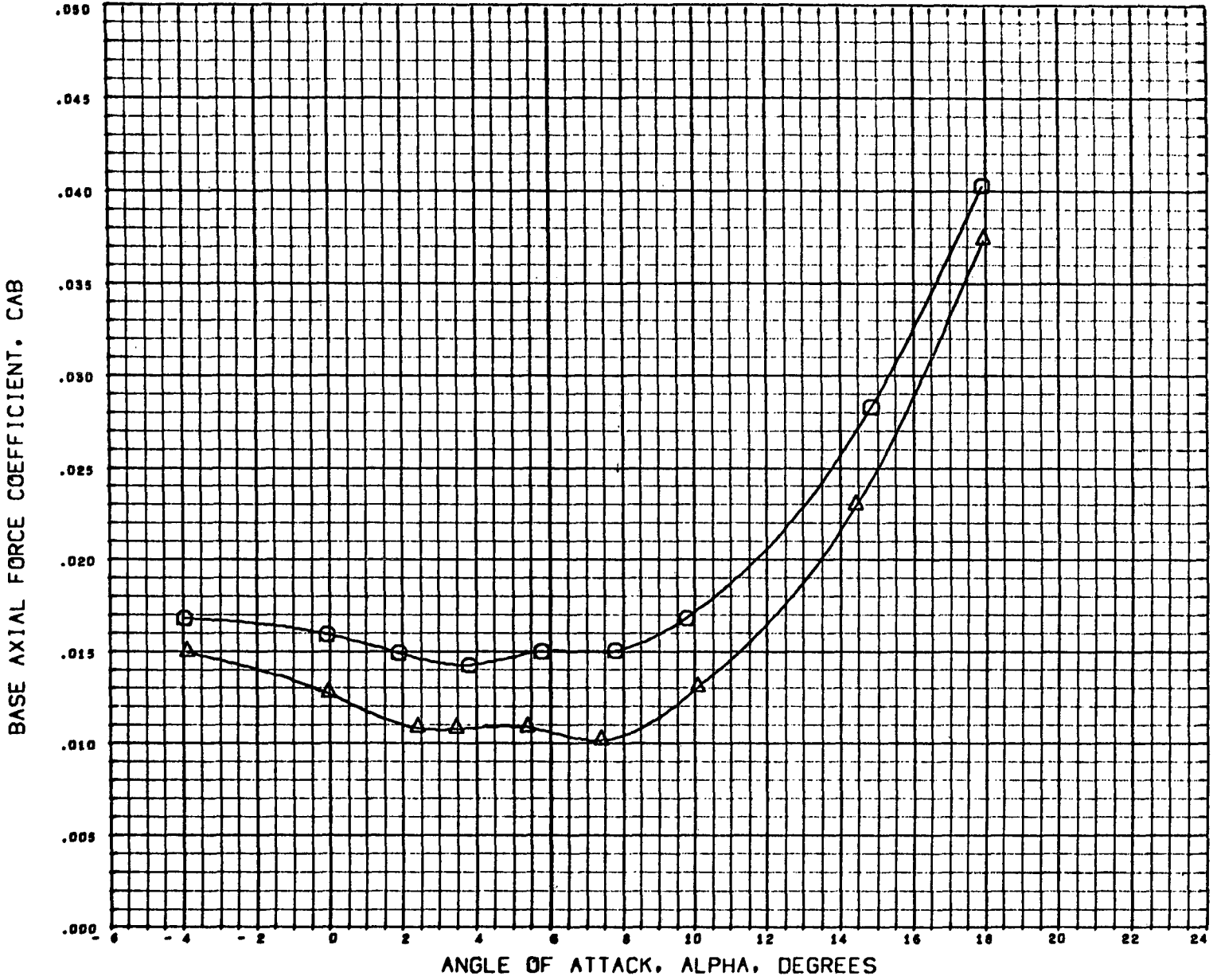
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.3930	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE

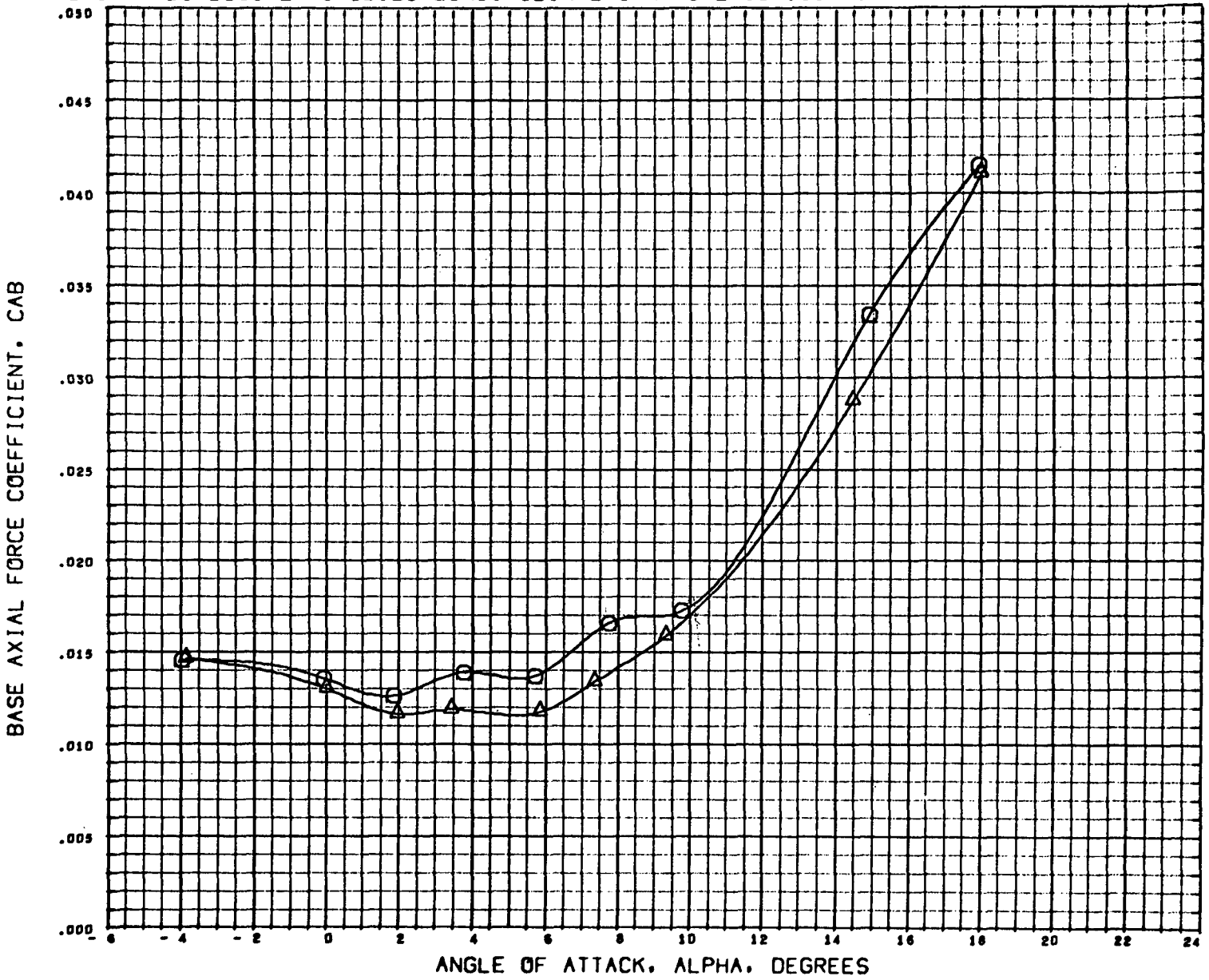


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3069) \odot	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3061) \triangle	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.9950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 0.704

13

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065) \circ
(RN3061) \triangle

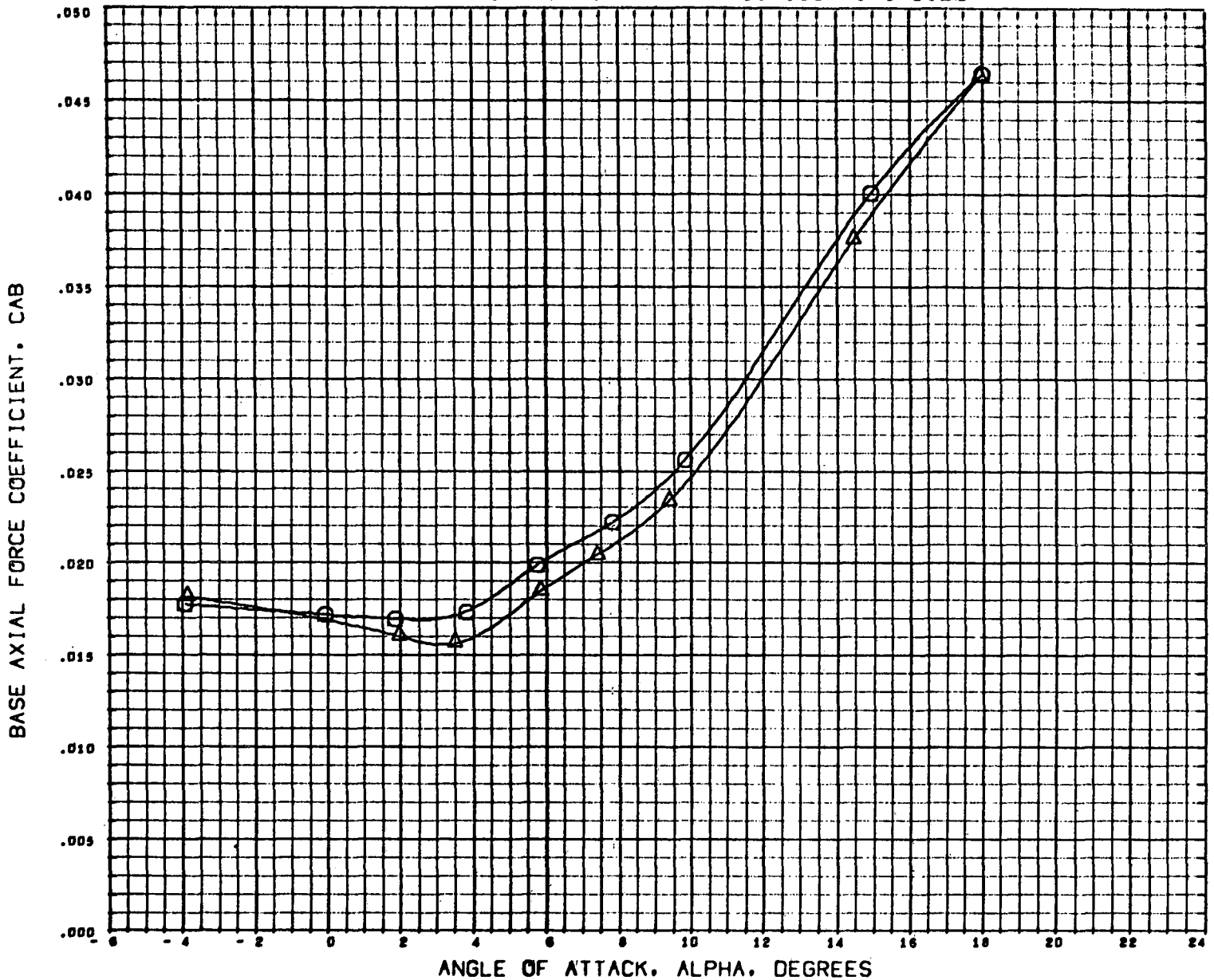
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
0.000 0.000 0.000
0.000 0.000

REFERENCE INFORMATION
SREF 1.3550 90.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH 0.800

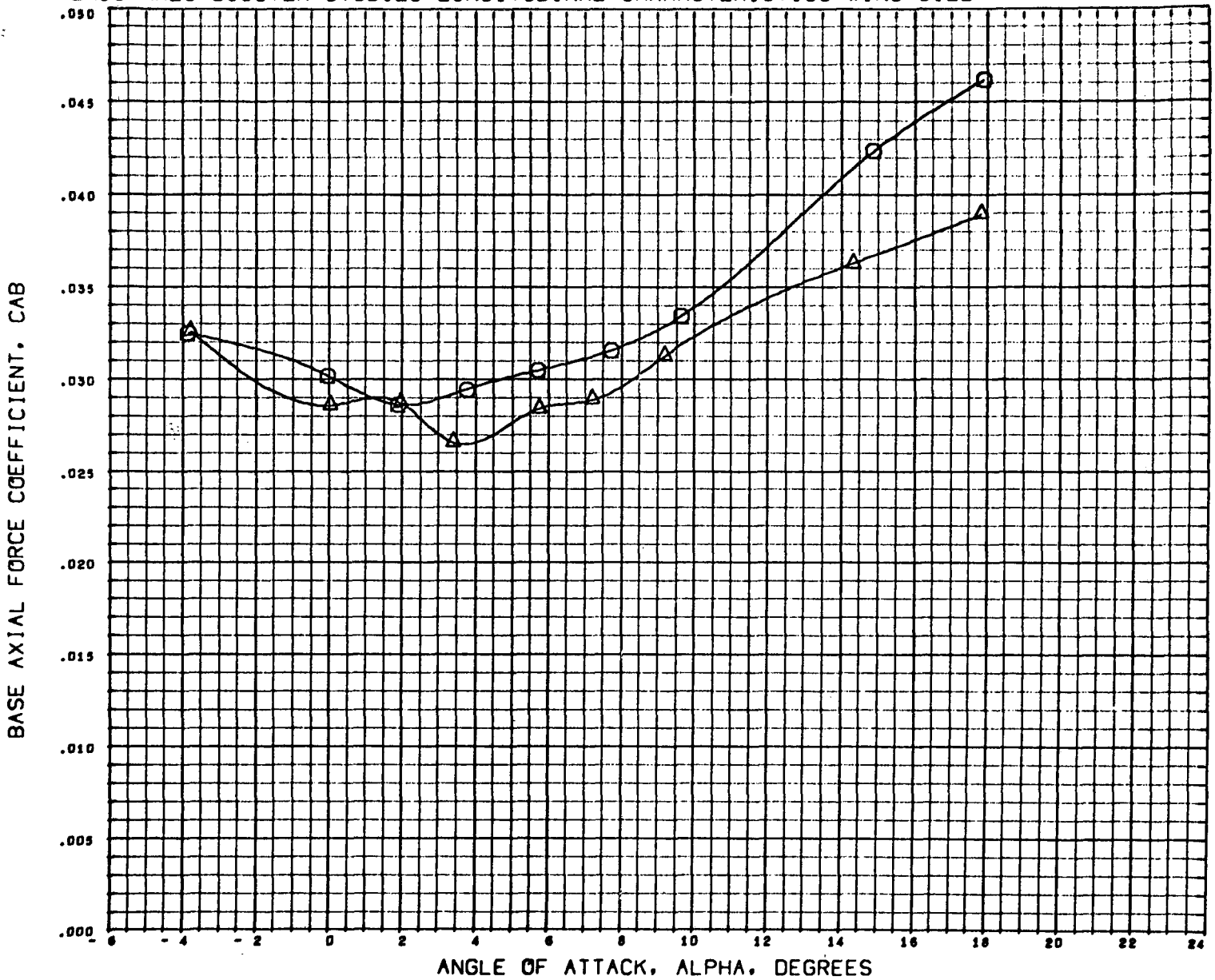
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3061)	NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1	0.000	0.000	0.000	LREF 3.4330 FEET
					BREF 3.4330 FEET
					XMRP 2.9950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 0.902

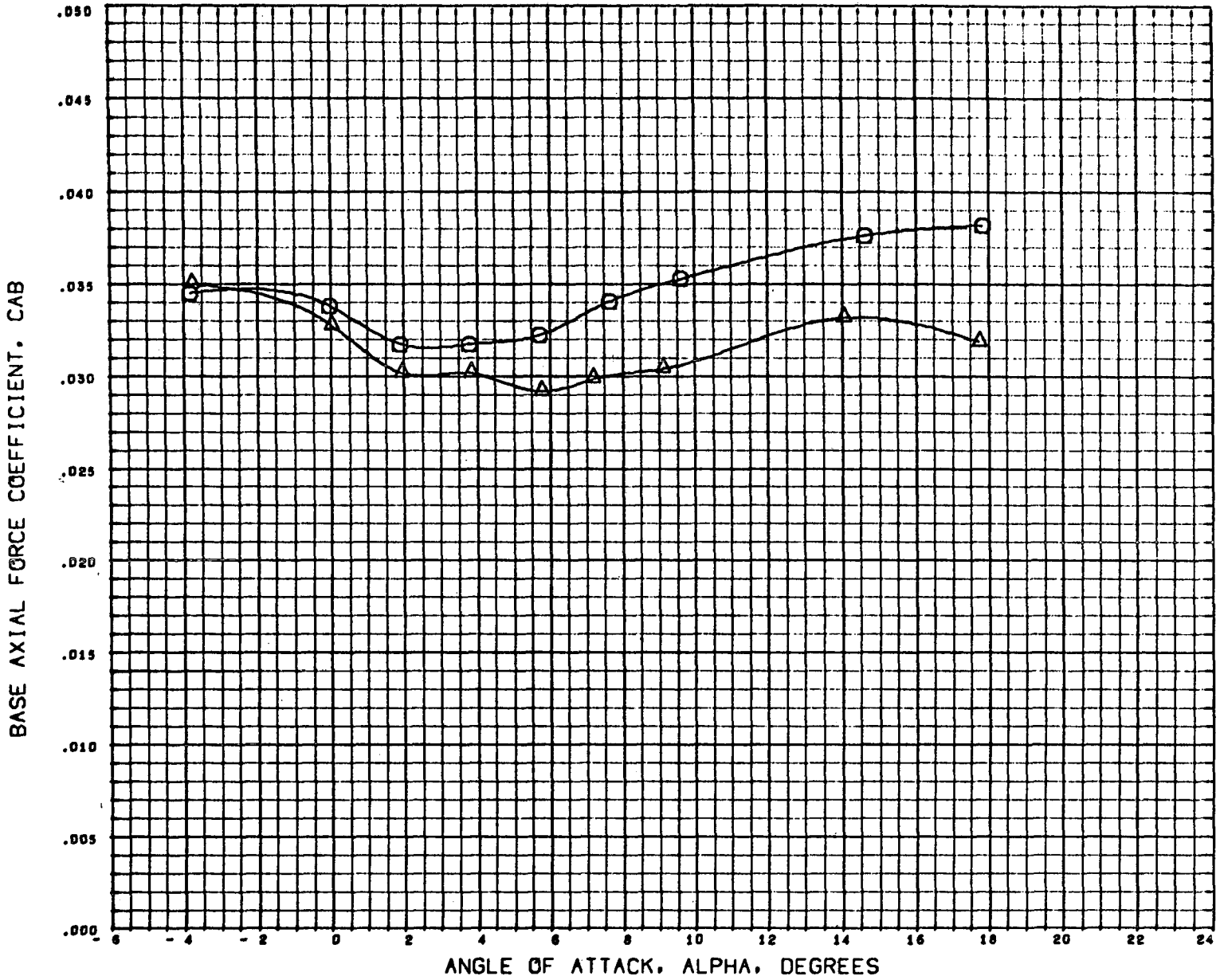
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000	0.000	LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 1.002

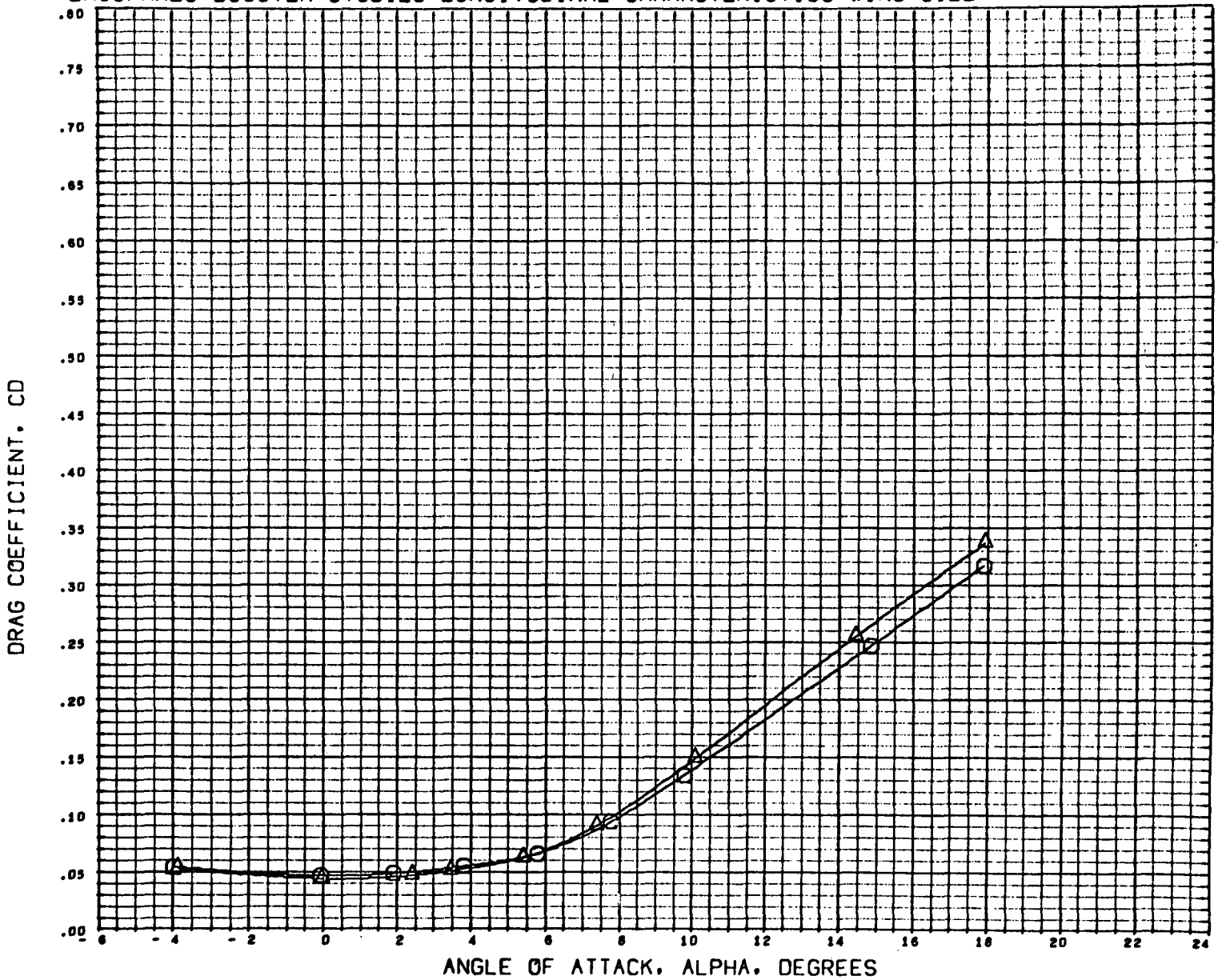
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-321D,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3061)	NSRDC-321D,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.9950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065) \odot
(RN3061) \triangle

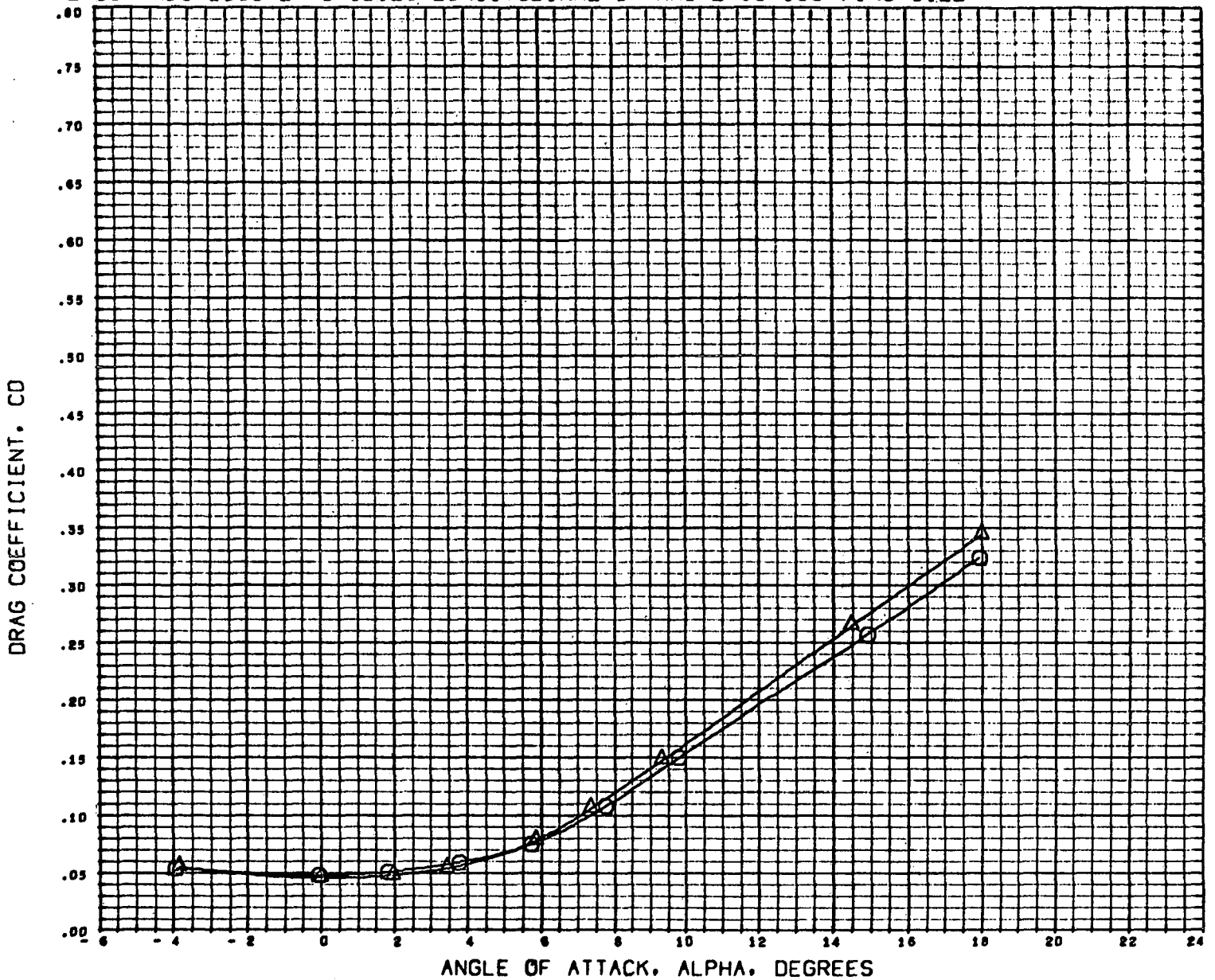
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
0.000 0.000 0.000
0.000 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ. FT.
LREF 3.4930 FEET
OREF 3.4930 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



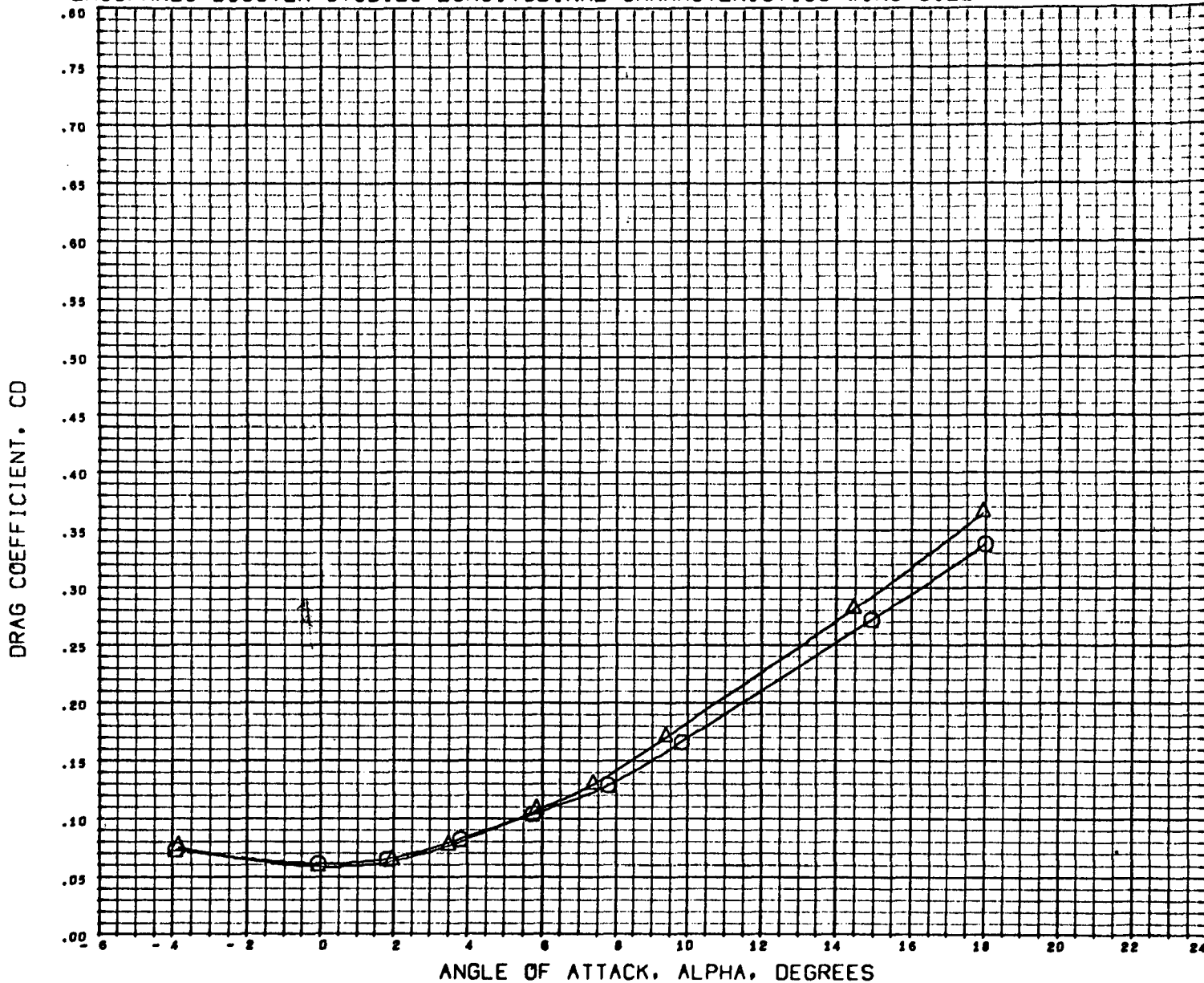
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



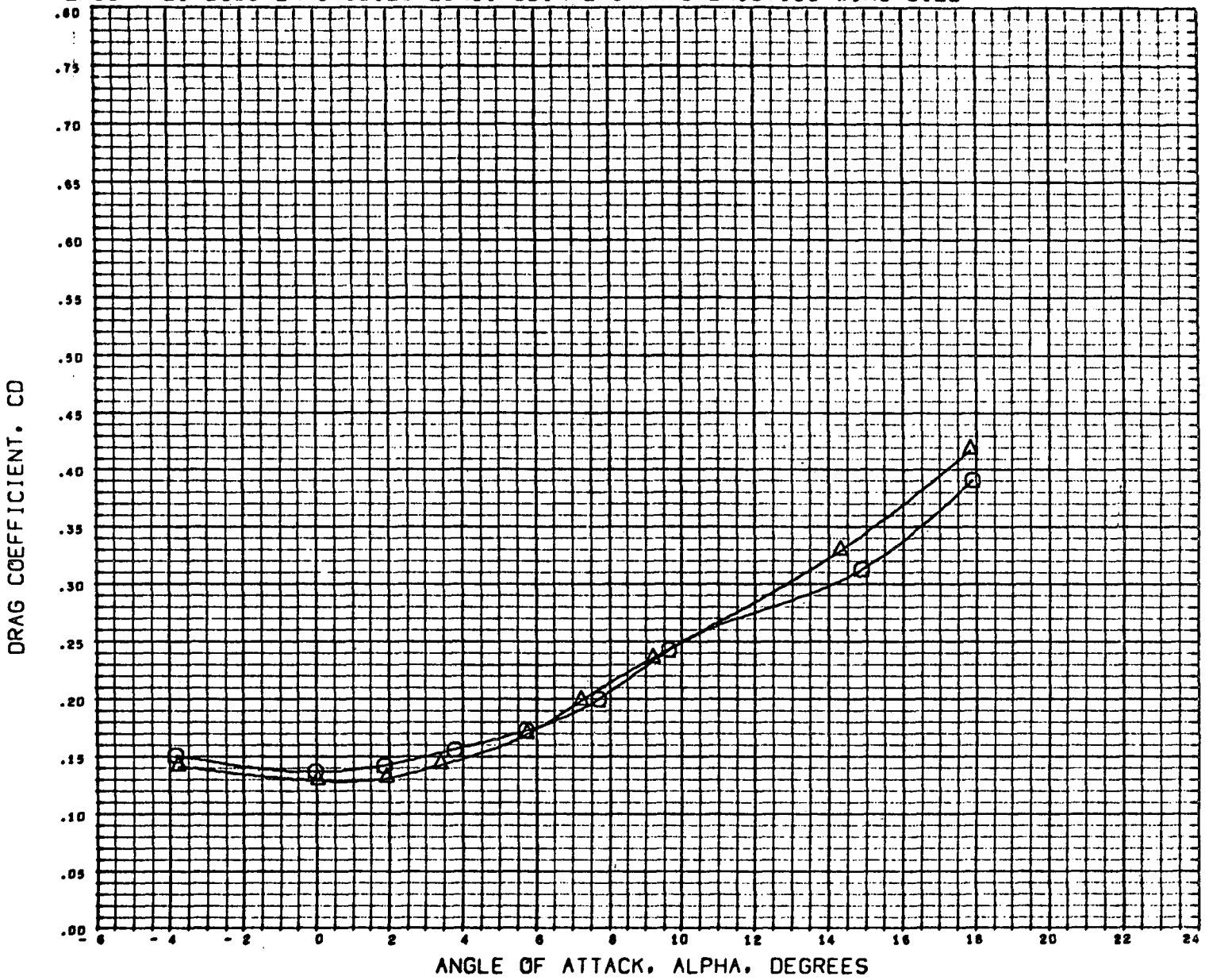
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-321D, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-321D, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION	
SREF	1.3550 SQ. FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE

MACH 0.902

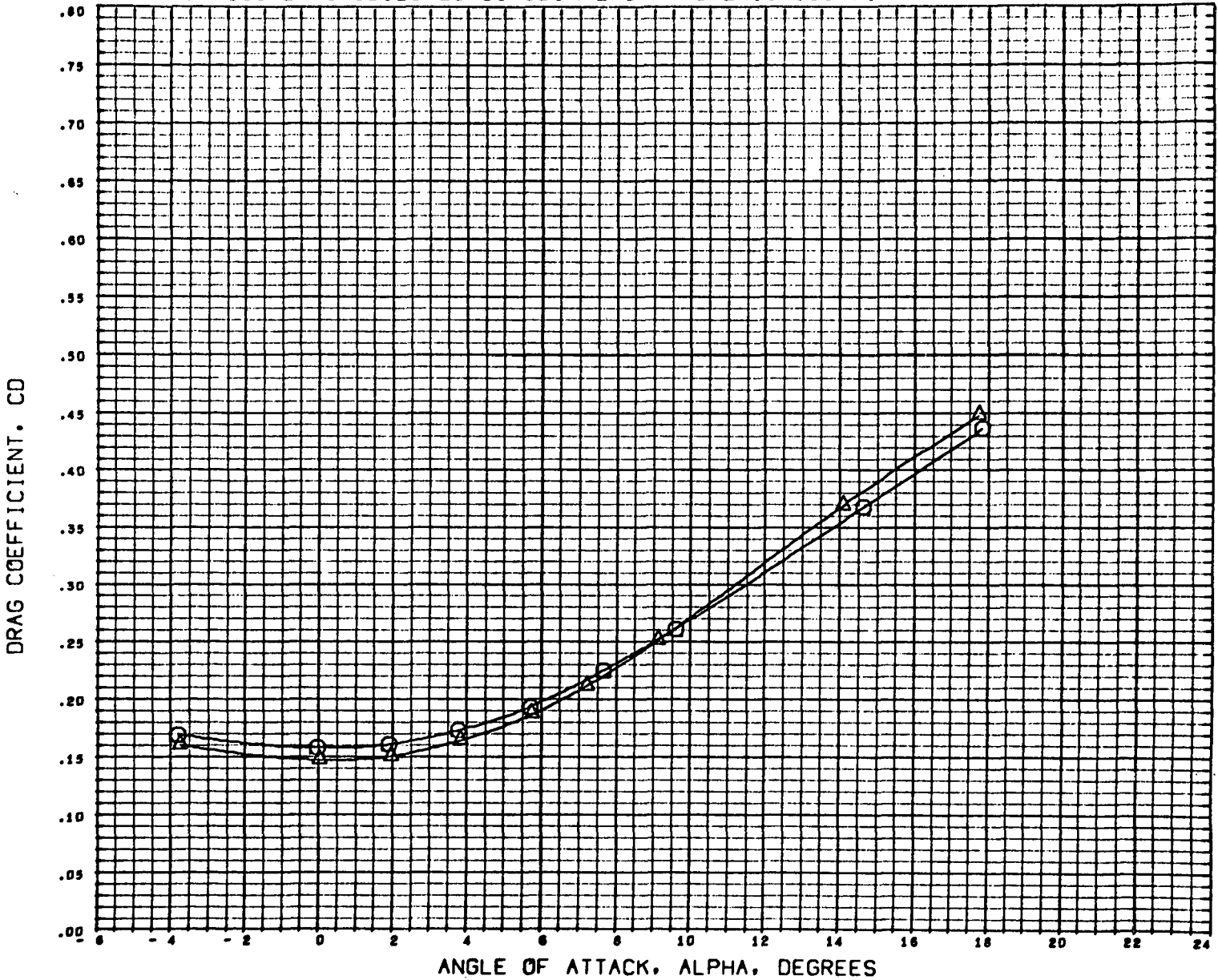
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000	0.000	LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 1.125

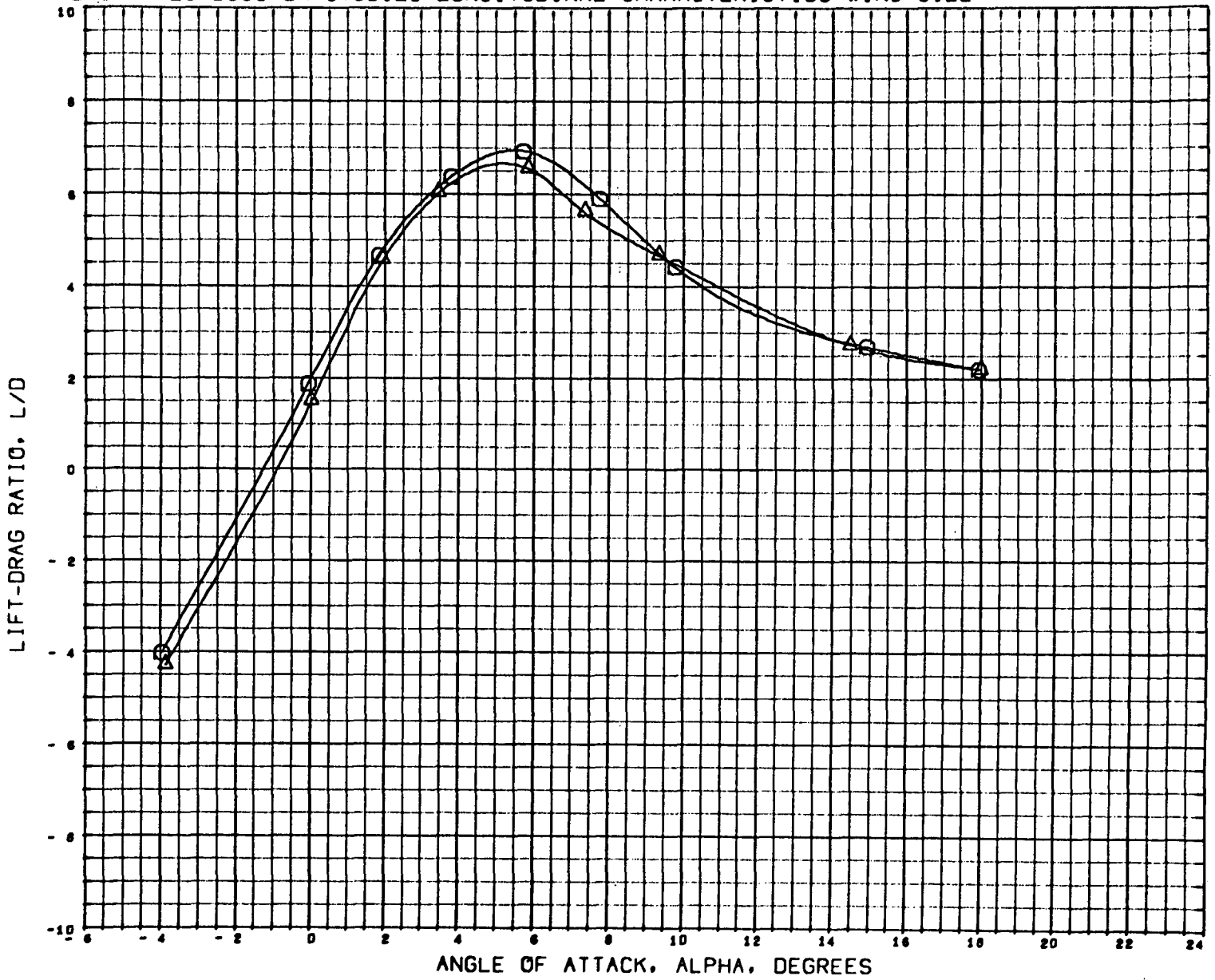
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER 81V1W1	0.000	0.000	0.000	SREF 1.3550 80. FT.
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER 81V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XHRP 2.5930 FEET
					YHRP 0.0000 FEET
					ZHRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



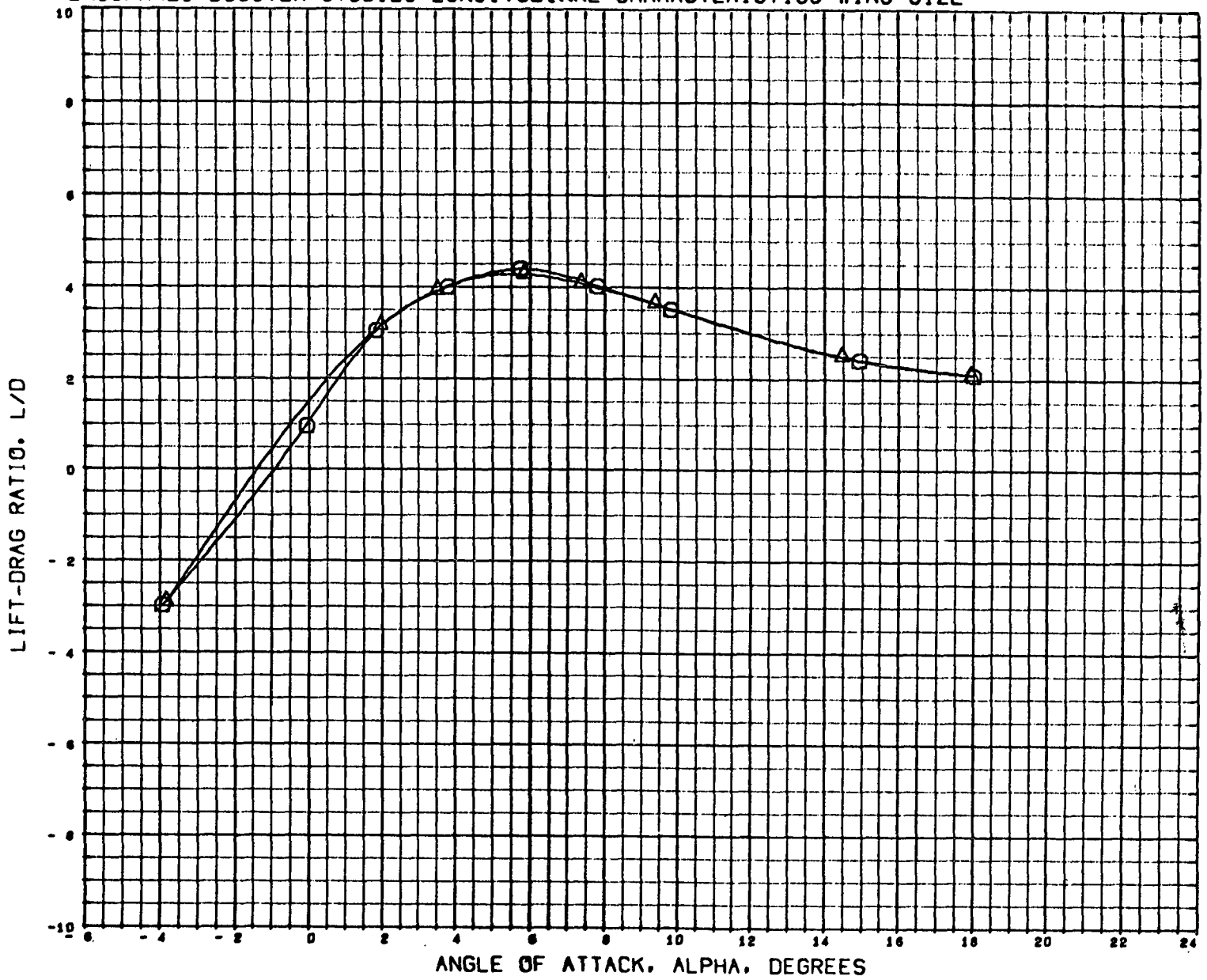
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210,HSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210,HSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



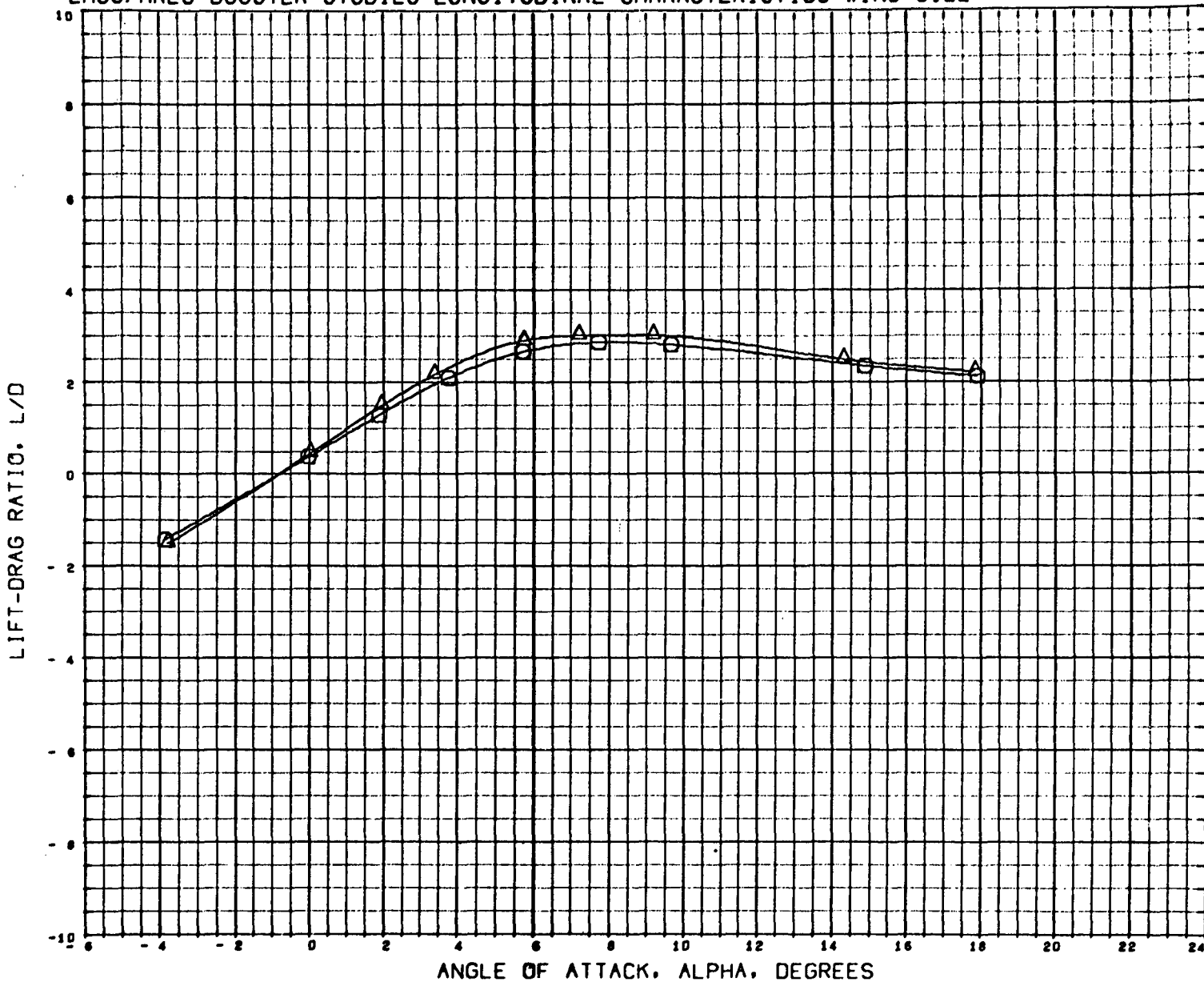
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000	

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	88. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



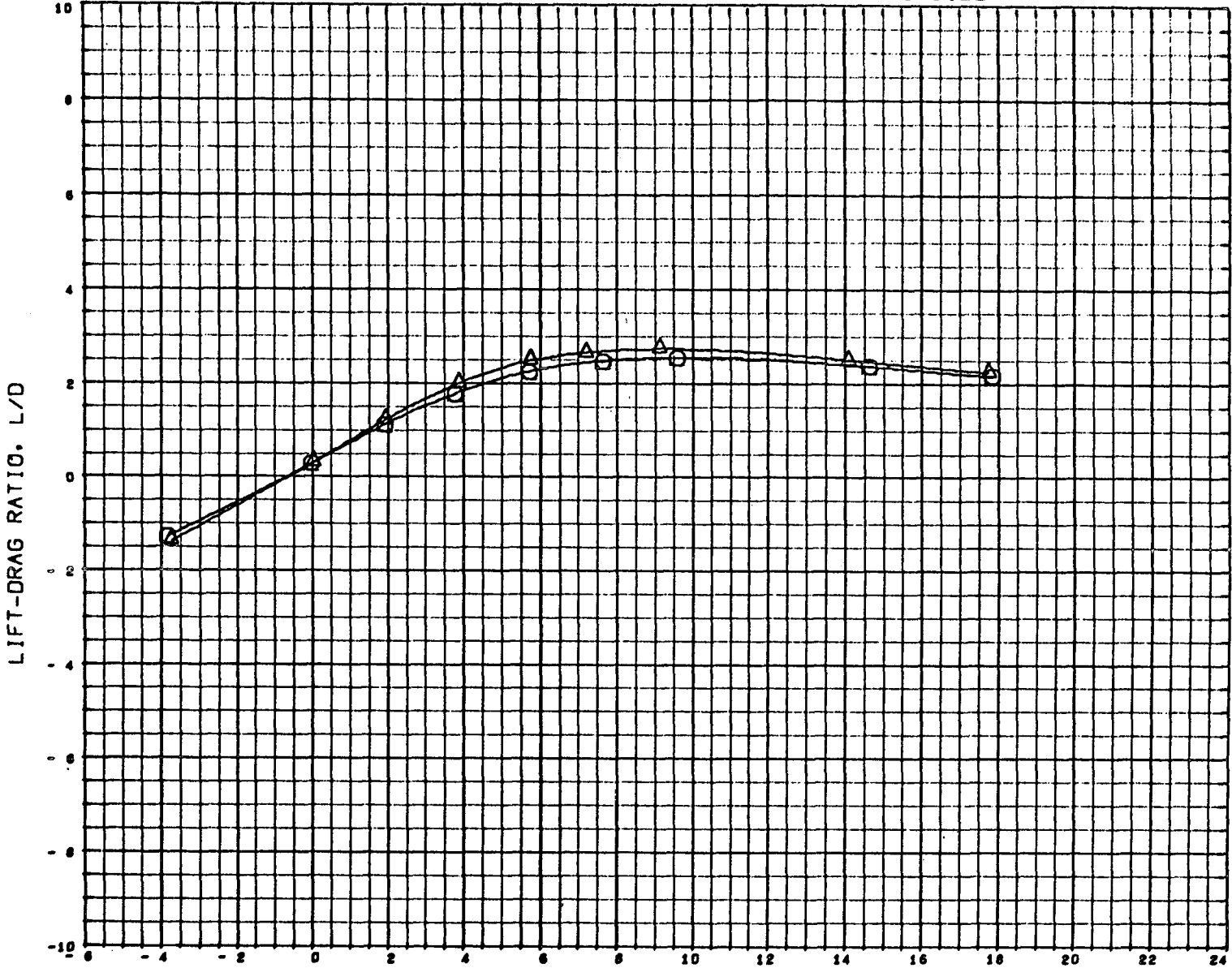
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.002

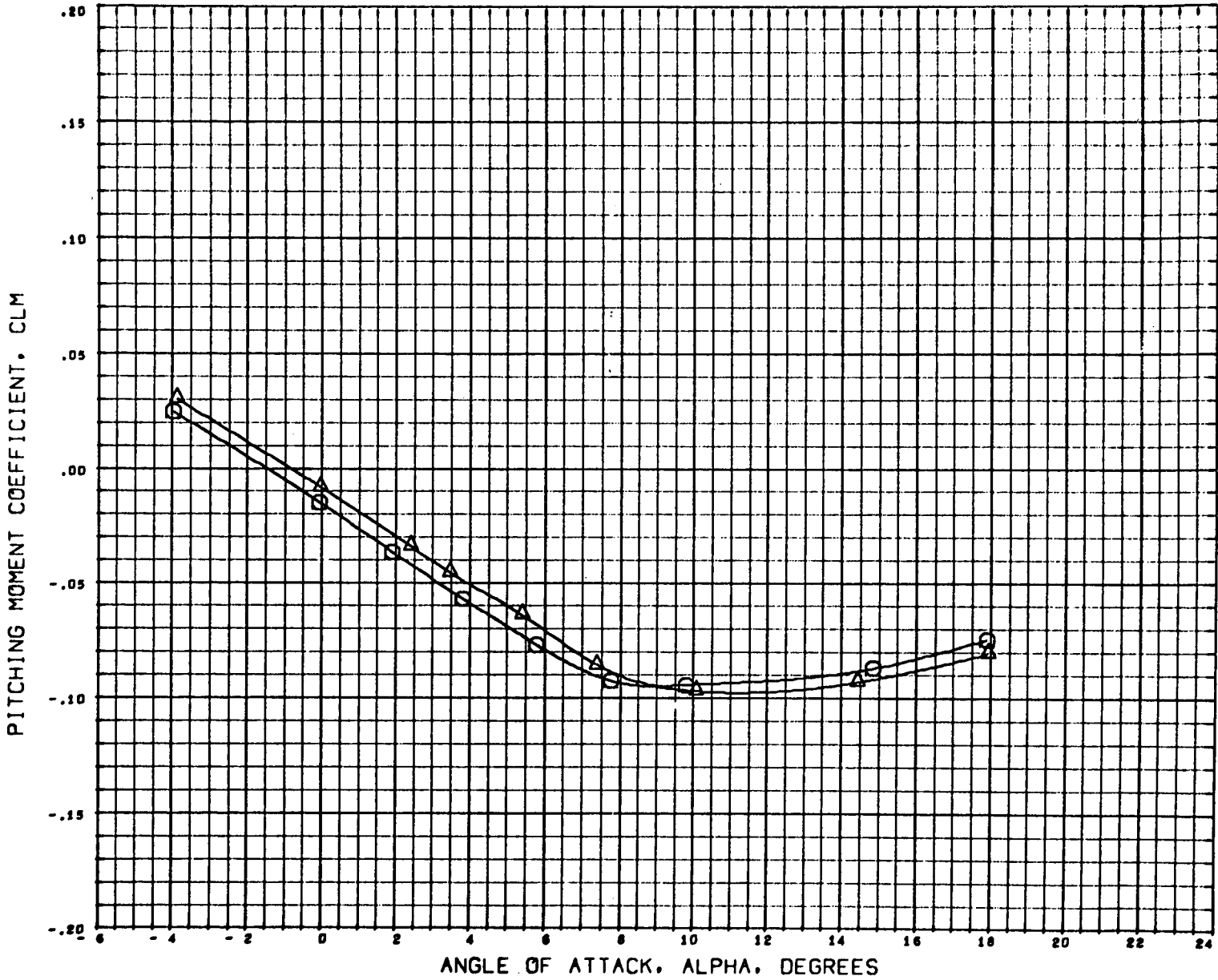
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



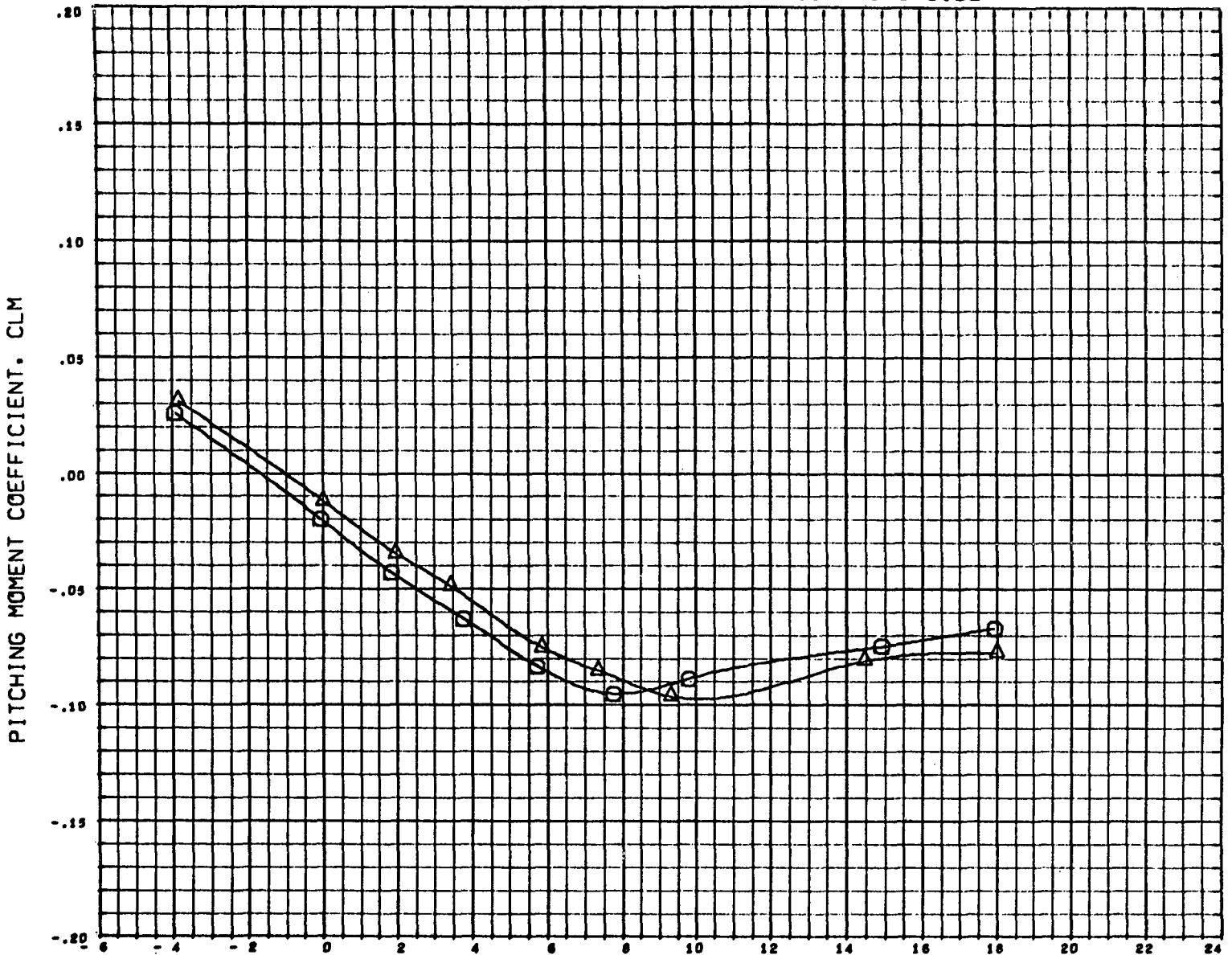
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000	

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4930	FEET
BREF	3.4930	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.704

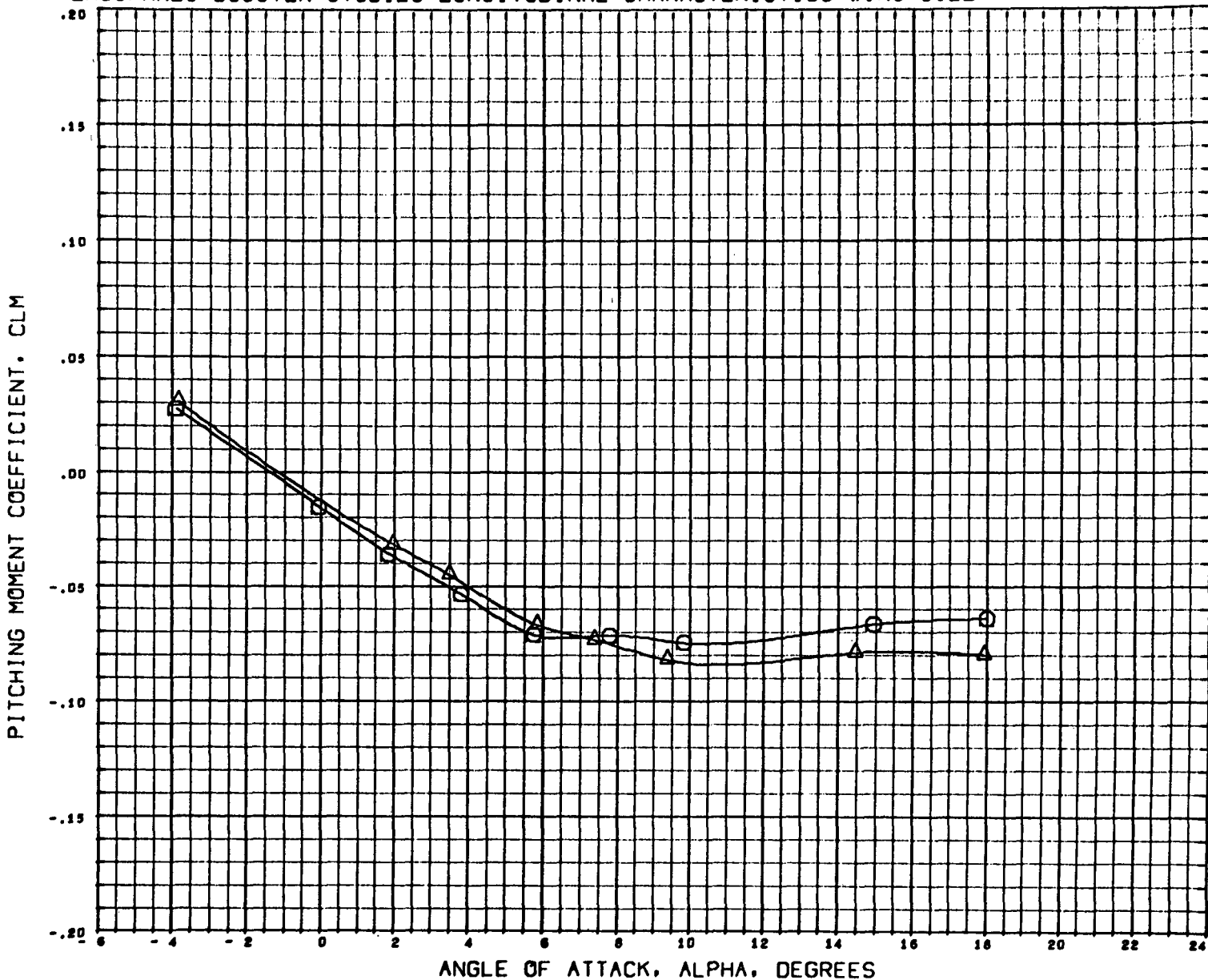
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	BREF 1.3550 80.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XWRP 2.5950 FEET
					YWRP 0.0000 FEET
					ZWRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



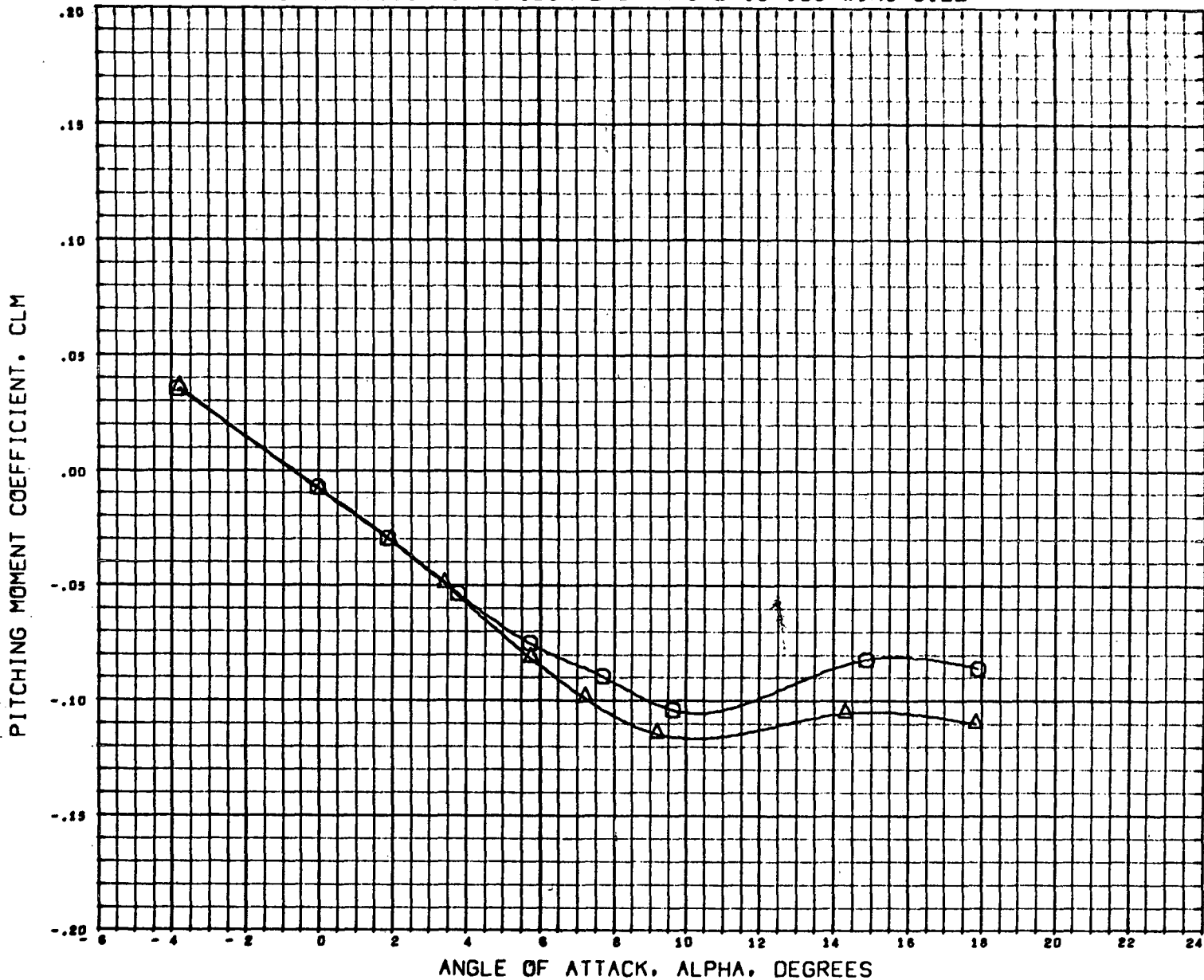
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) \circ	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061) \triangle	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
OREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.902

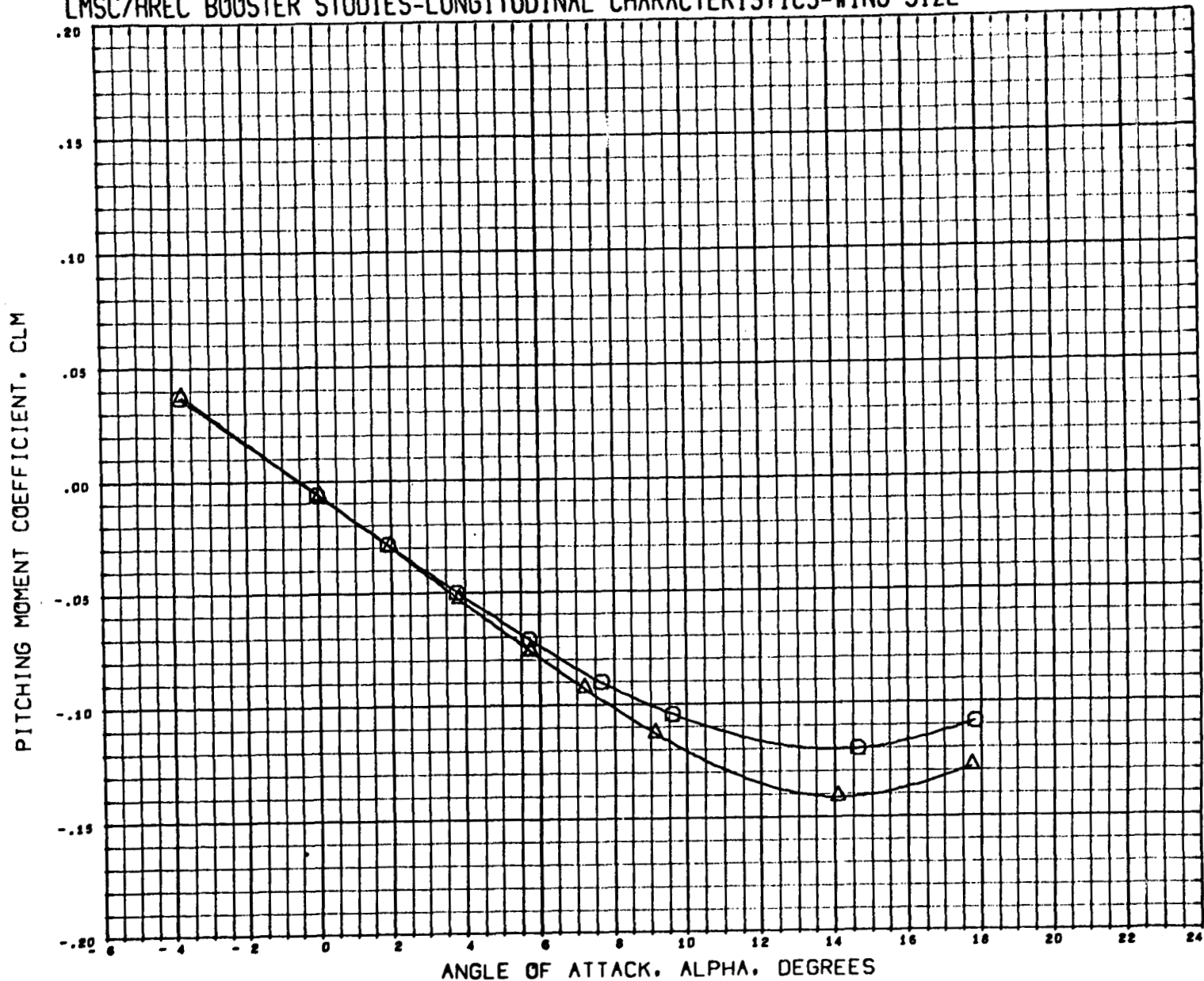
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065) \circ	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(RN3061) \triangle	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4330 FEET
					BREF 3.4330 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



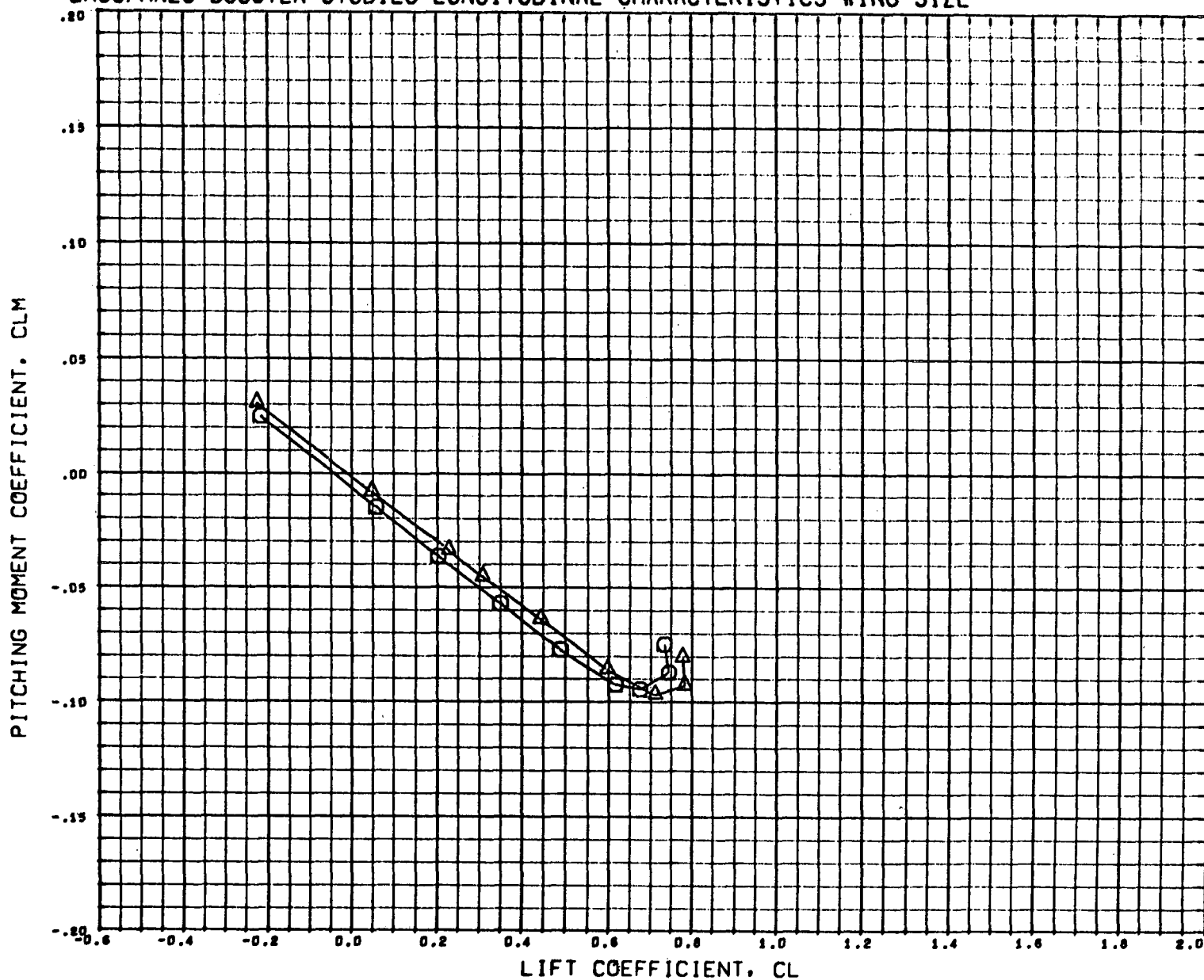
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	50.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.125

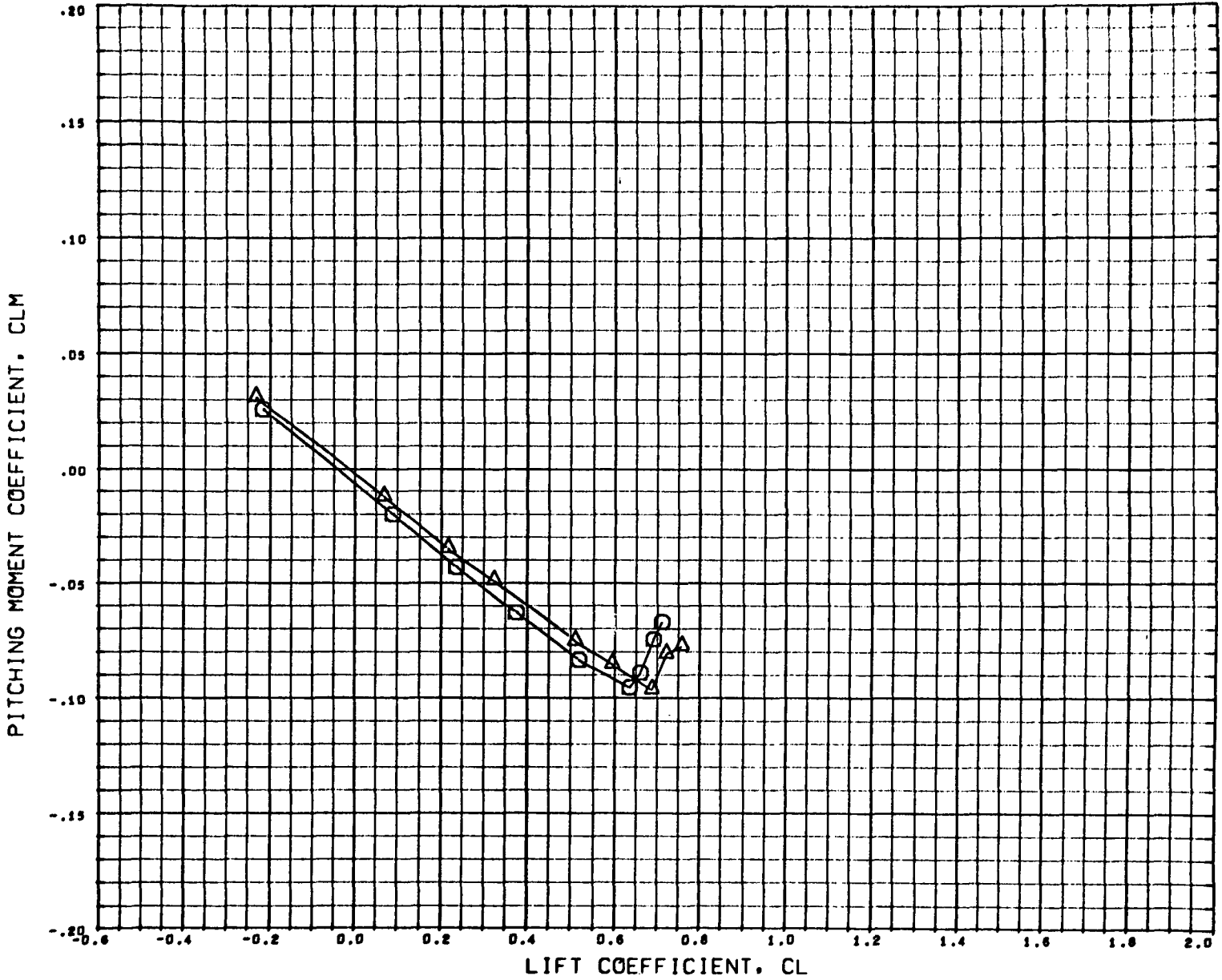
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000	0.000	LREF 3.4930 FEET
					BREF 3.4930 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



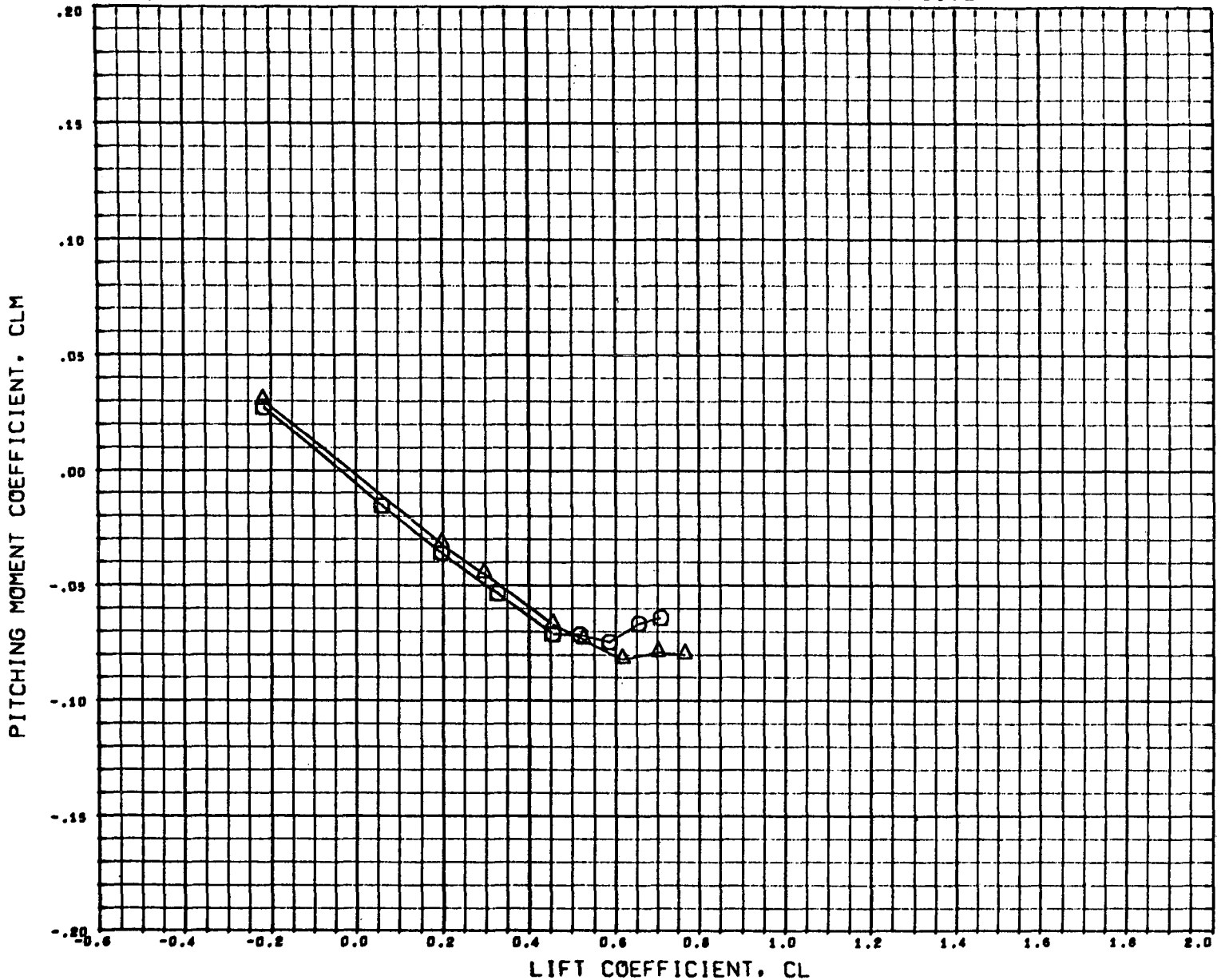
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3950	SQ. FT.
LREF	3.4930	FEET
BREF	3.4930	FEET
XNRP	2.9950	FEET
YNRP	0.0000	FEET
ZNRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

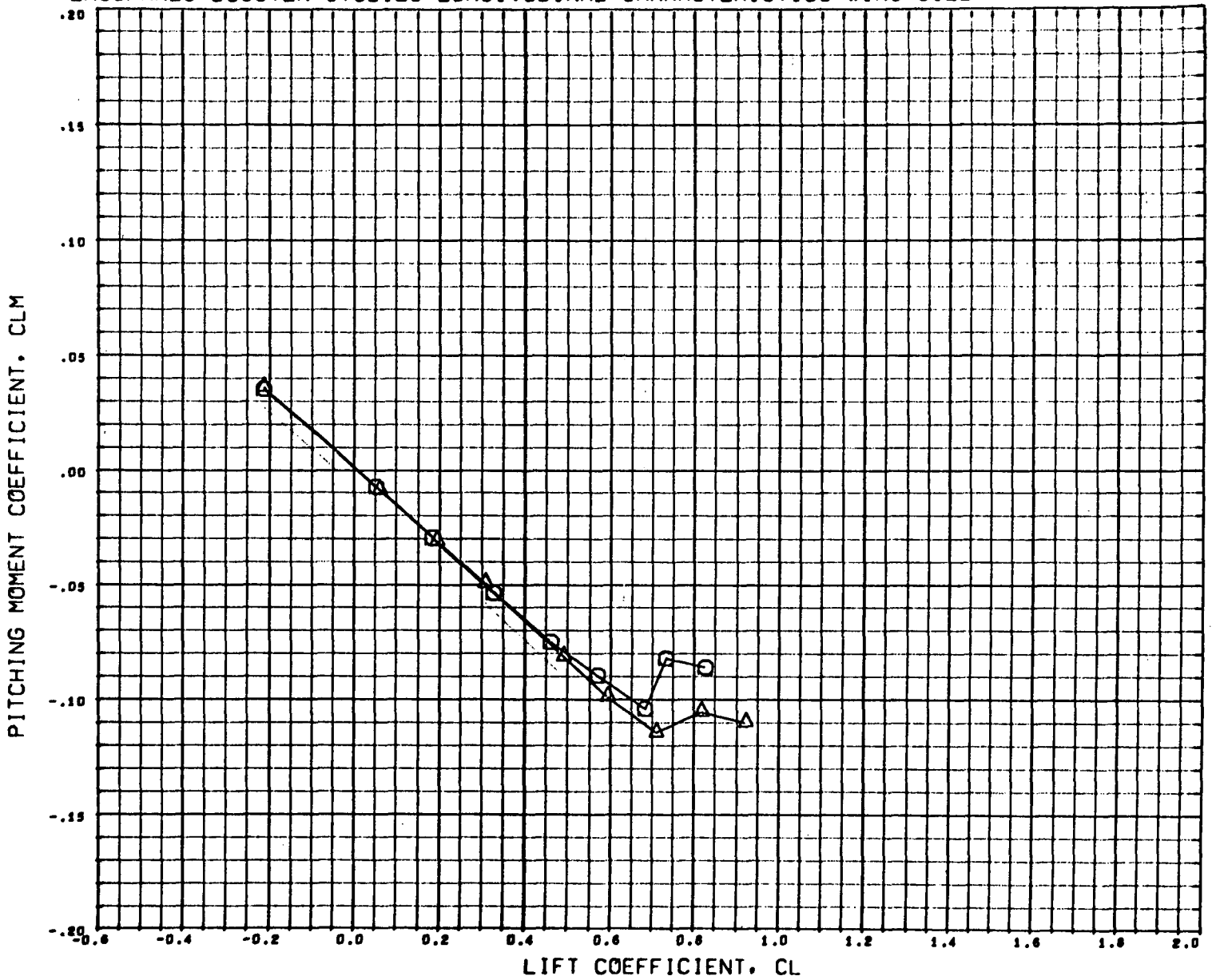
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.9950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0167 FEET
					SCALE 0.0150 SCALE

MACH 0.902

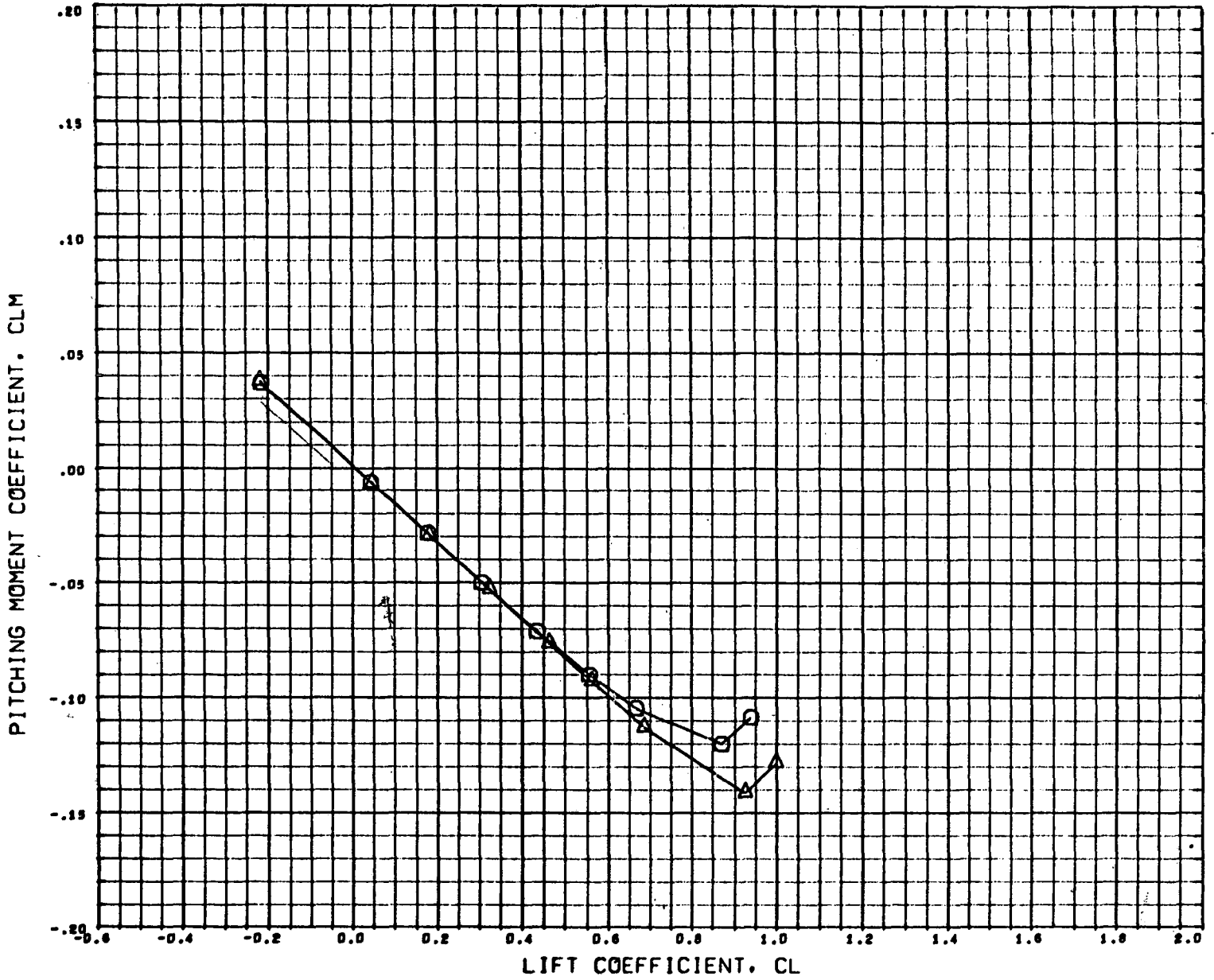
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(RN3085)	NSRDC-321D, MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF 1.3550 80. FT.
(RN3081)	NSRDC-321D, MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF 3.4530 FEET
					BREF 3.4530 FEET
					XMRP 2.5950 FEET
					YMRP 0.0000 FEET
					ZMRP 0.0187 FEET
					SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
 (RN3085)
 (RN3081)



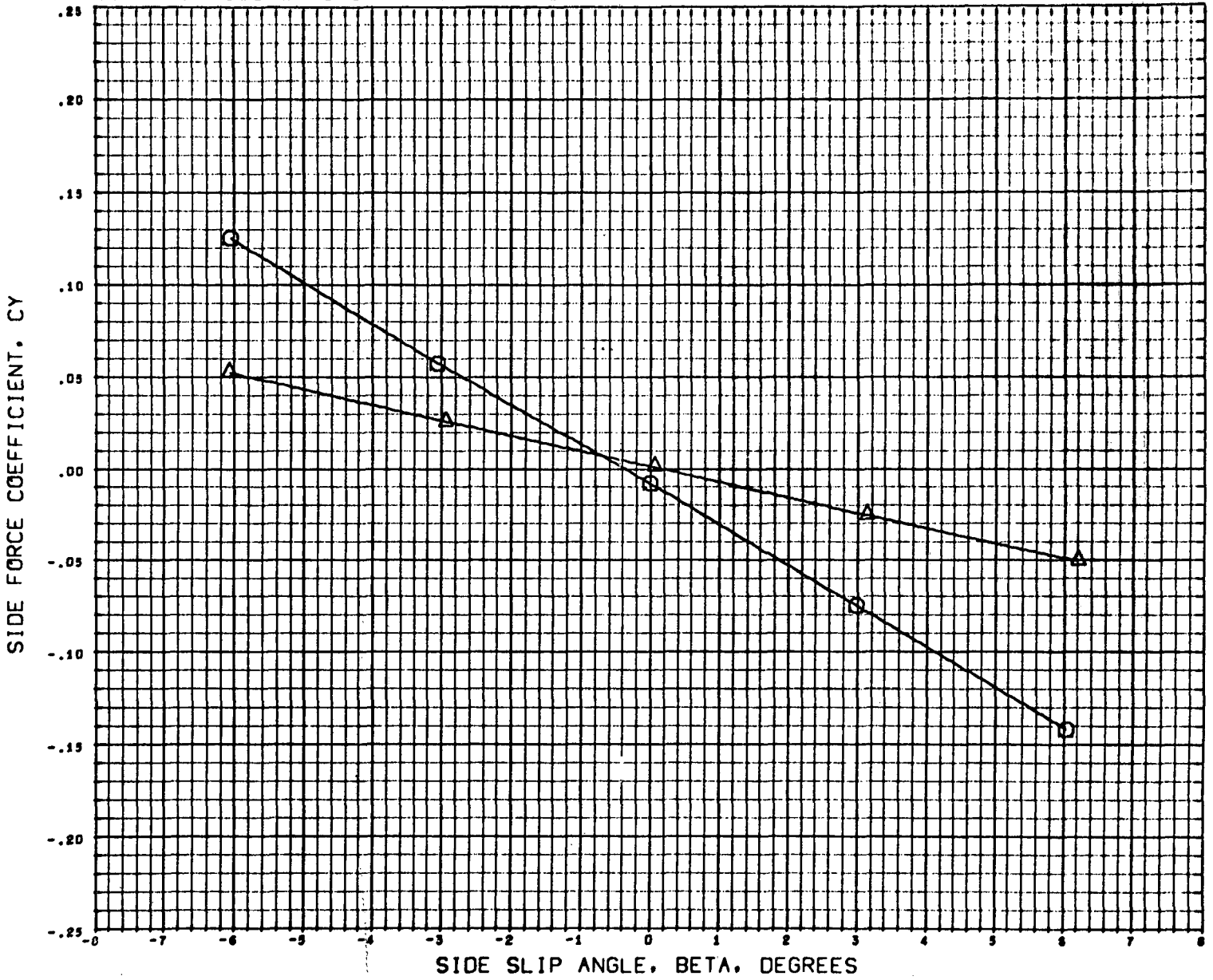
CONFIGURATION DESCRIPTION
 NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
 NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR 0.000
 AILRON 0.000
 RUDDER 0.000

REFERENCE INFORMATION
 SREF 1.3550 50. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XHRP 2.5950 FEET
 YHRP 0.0000 FEET
 ZHRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE

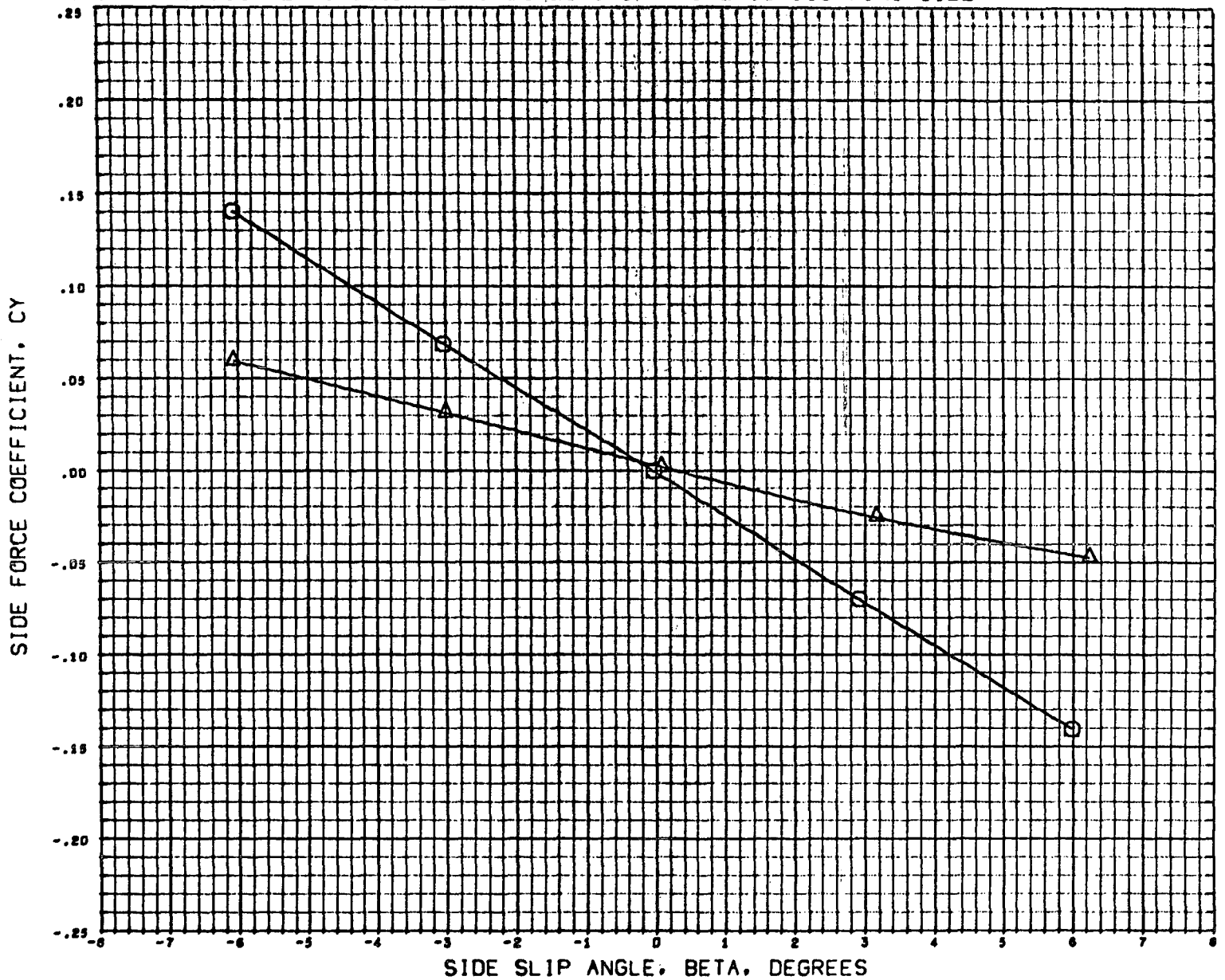




DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR
(RN3066) \odot	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000
(RN3062) \triangle	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024			

MACH 0.698

REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.3950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

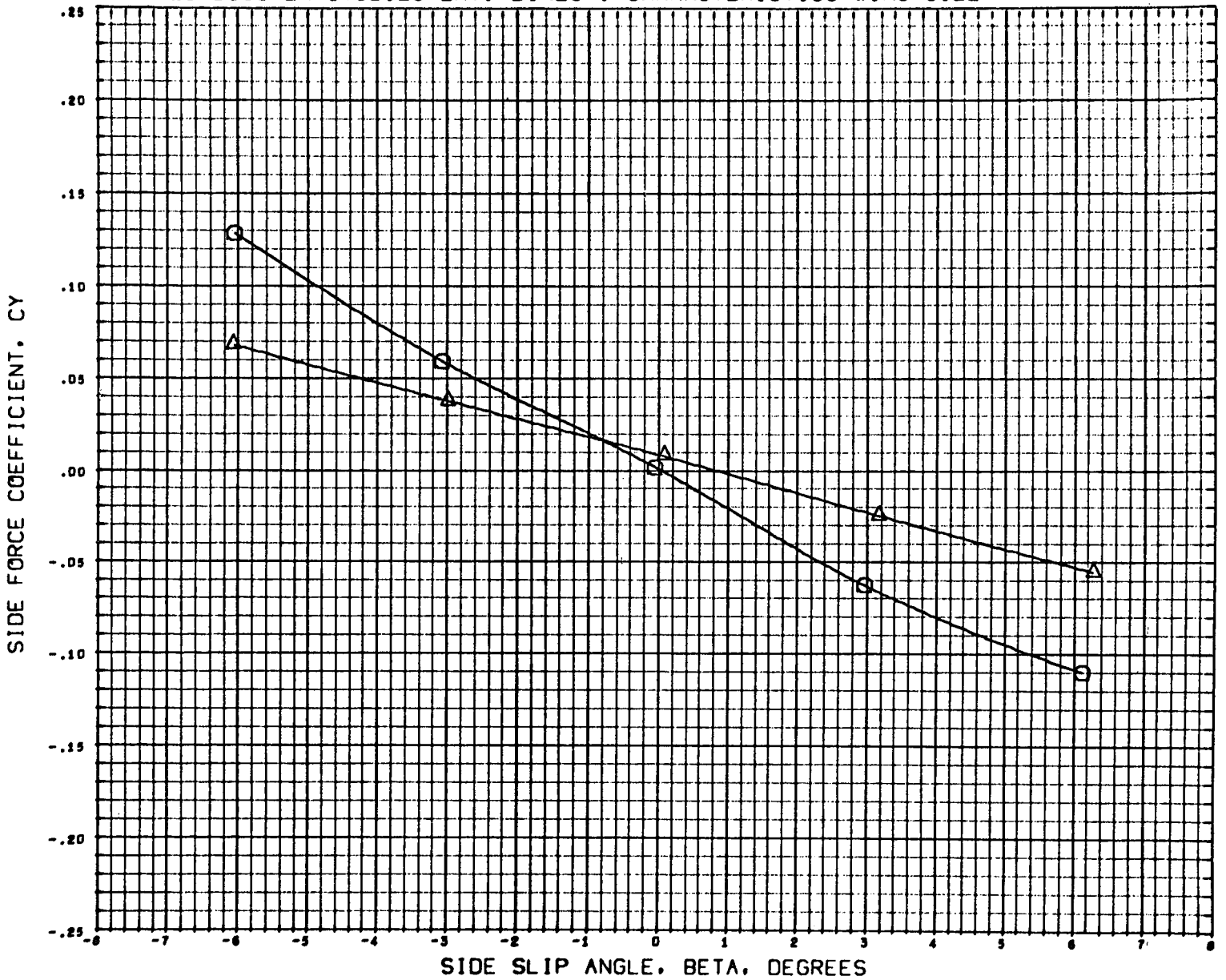
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ. FT.
(RN3062) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4330 FEET
						BREF 3.4330 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
 (RN3066) 
 (RN3062) 

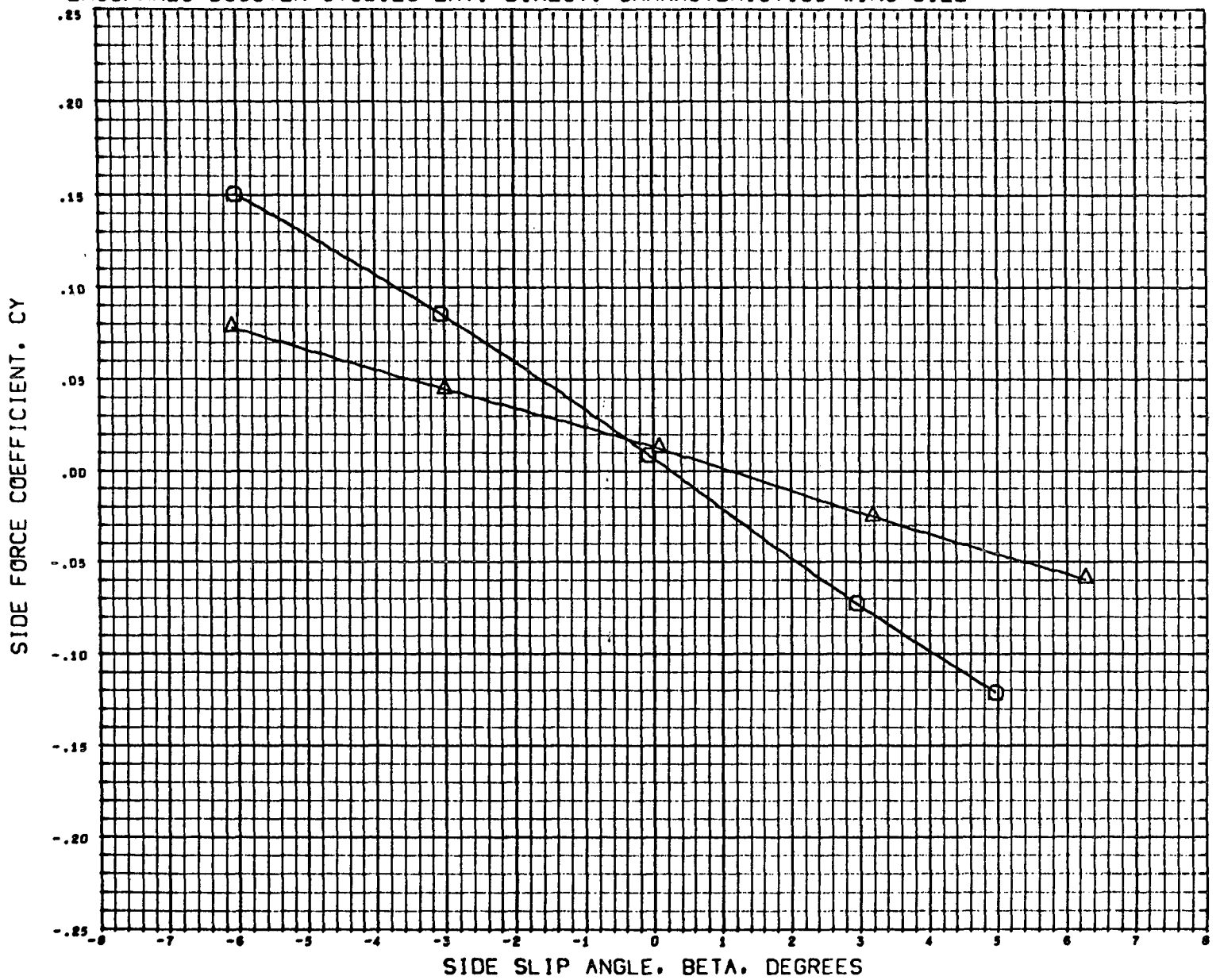
CONFIGURATION DESCRIPTION
 NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
 NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ALPHA -0.093
 RUDDER 0.000
 CANARD
 ELEVTR 0.000

REFERENCE INFORMATION
 SREF 1.3550 SQ. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0167 FEET
 SCALE 0.0150 SCALE

MACH 0.900

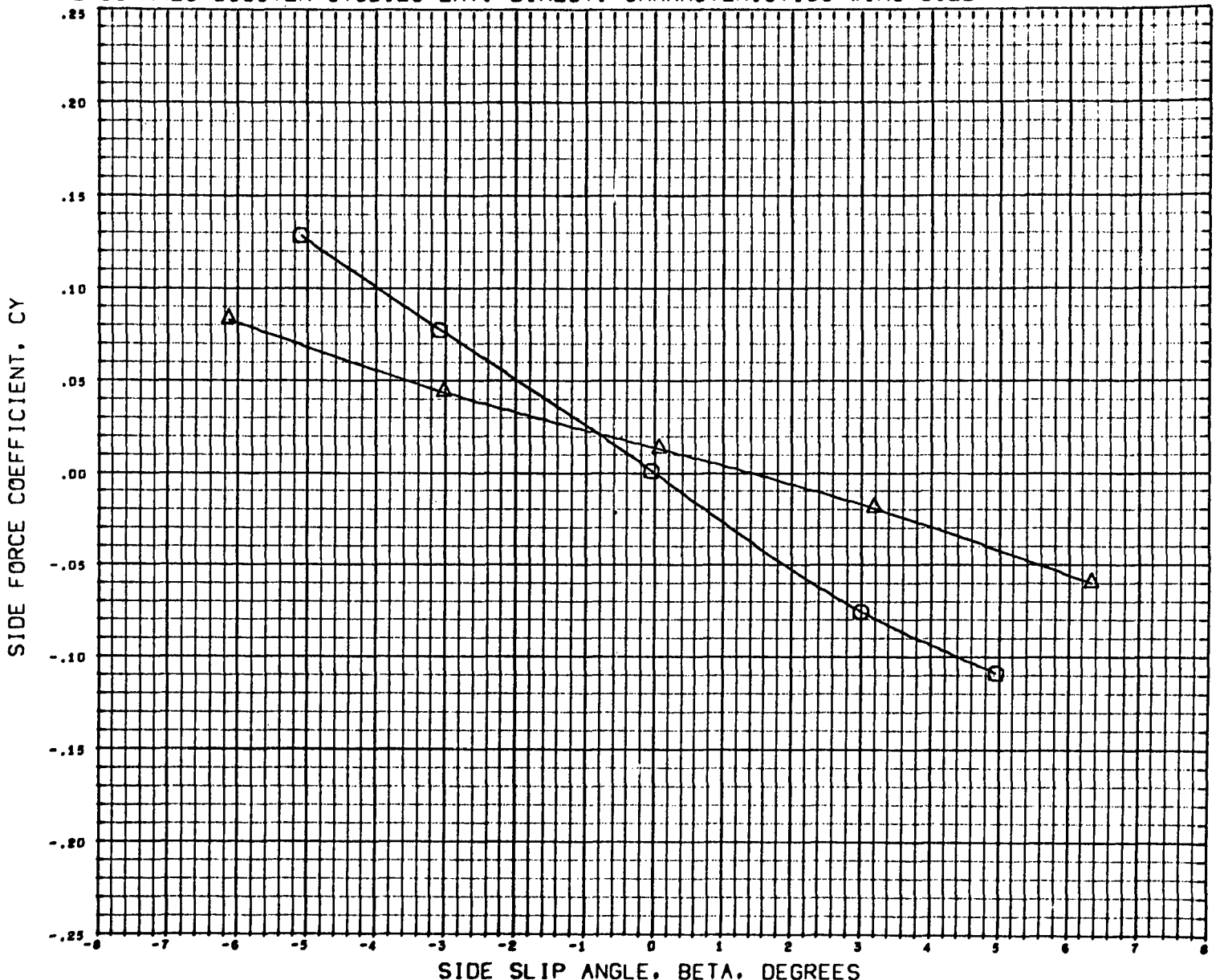
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ. FT.
(RN3062)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.001

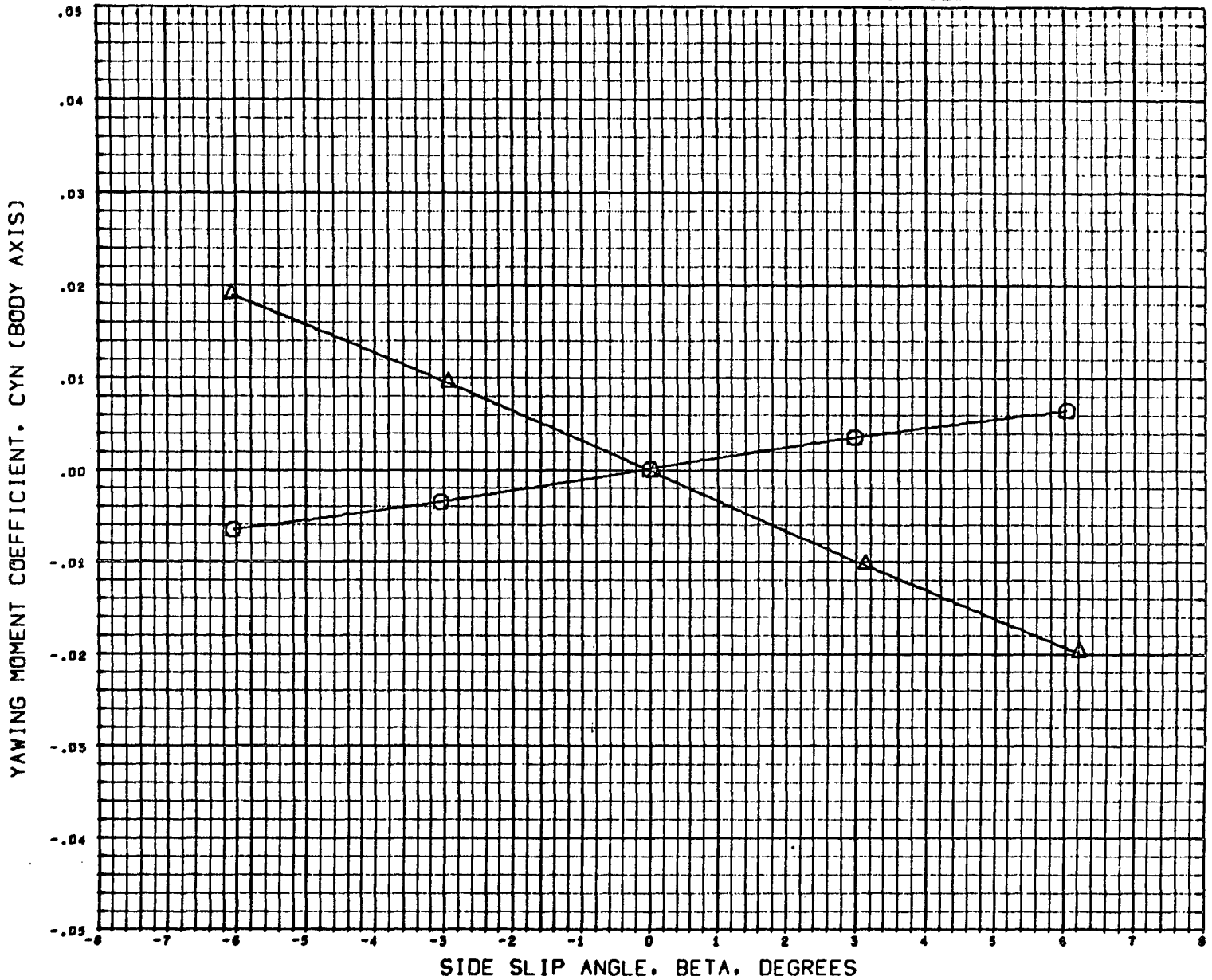
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 50.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5930 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 1.126

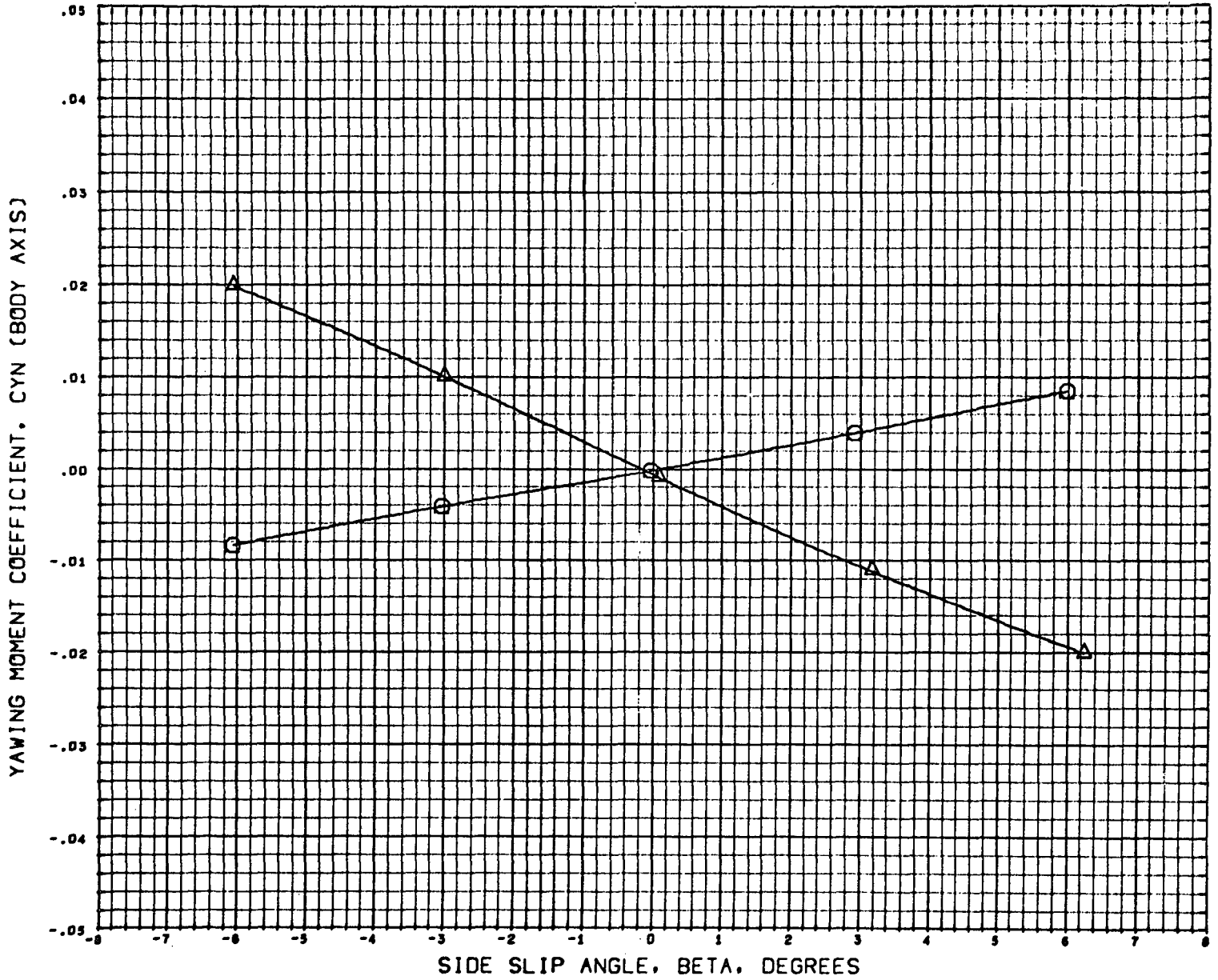
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.698

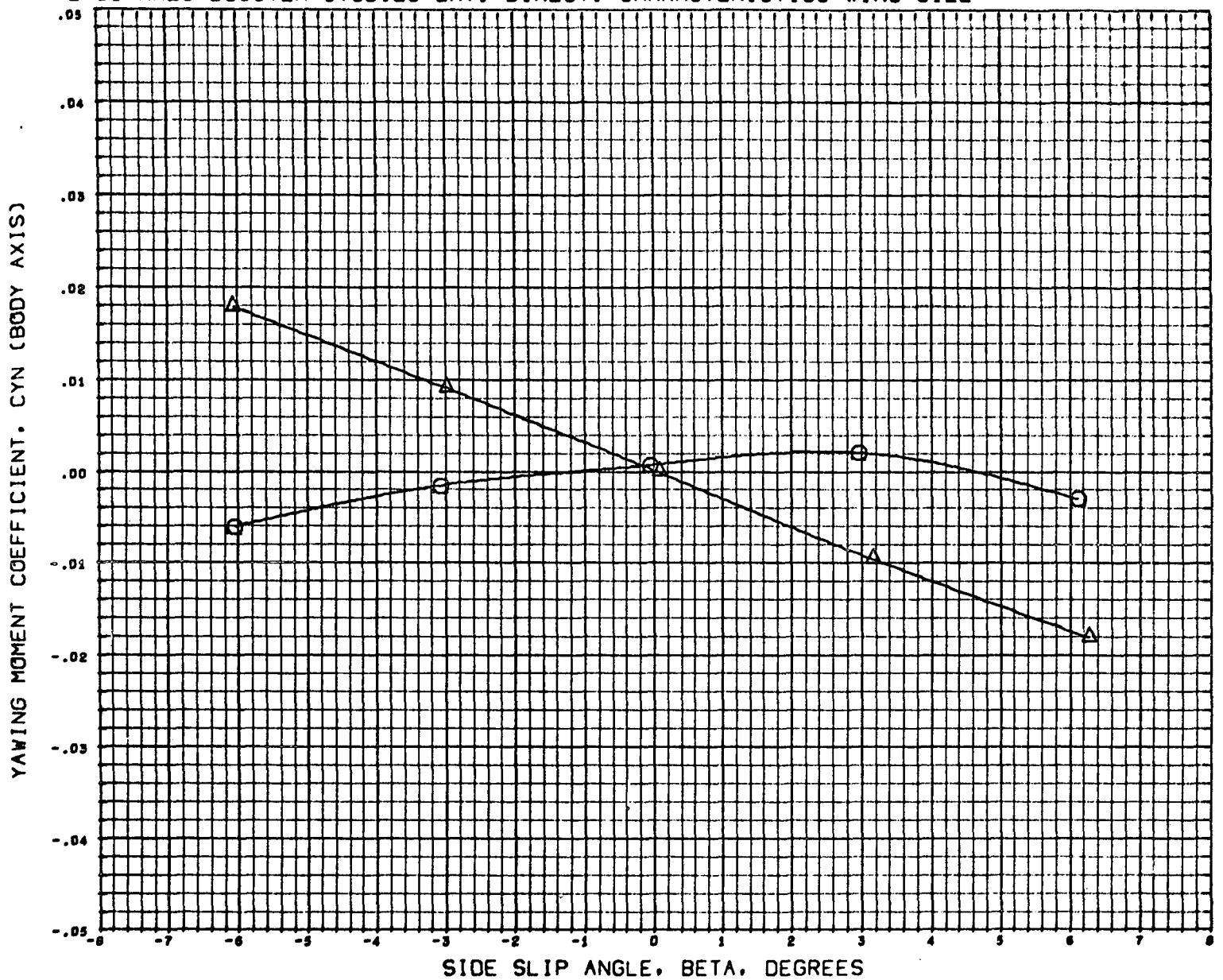
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 80.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.797

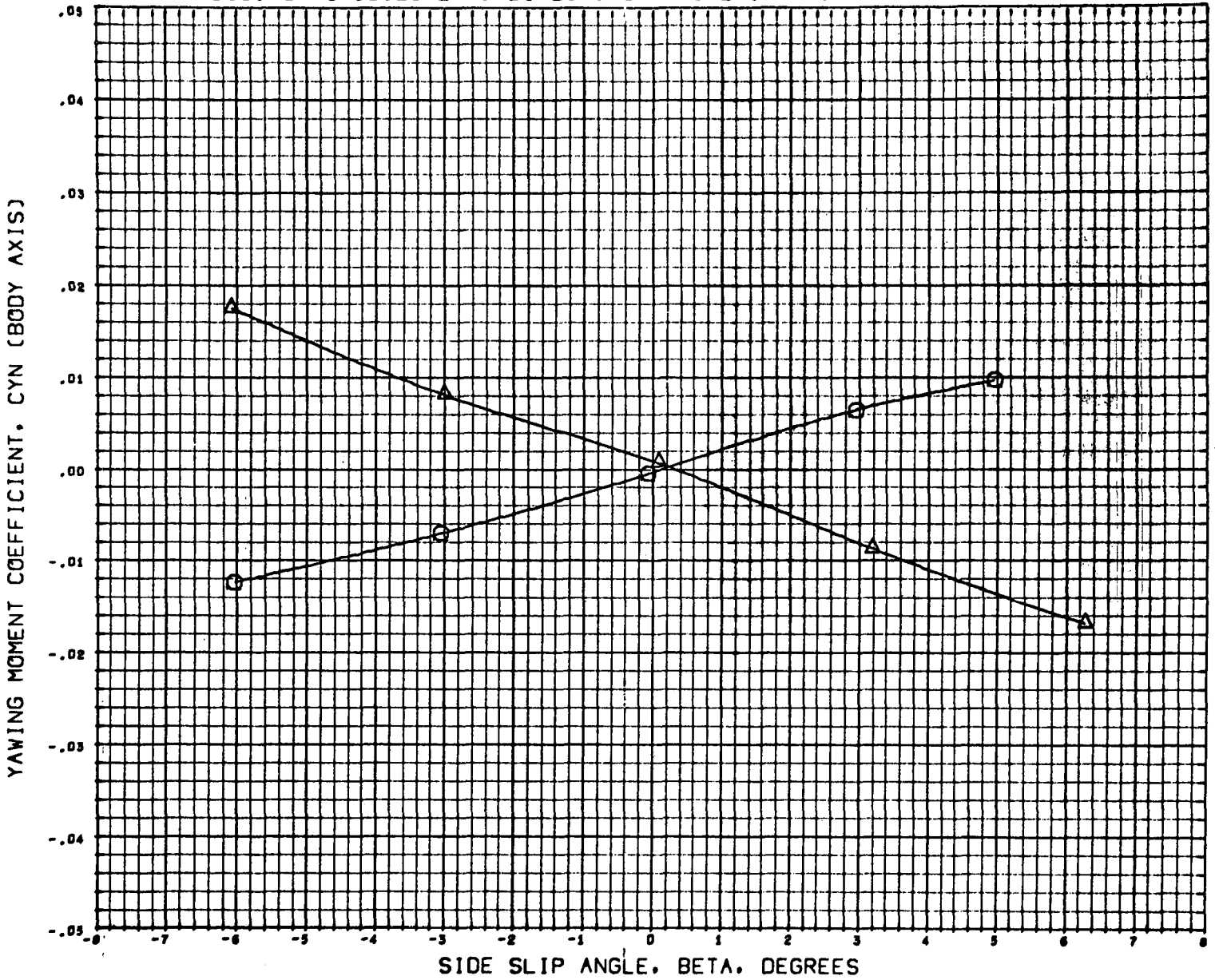
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RNS066)
(RNS062)



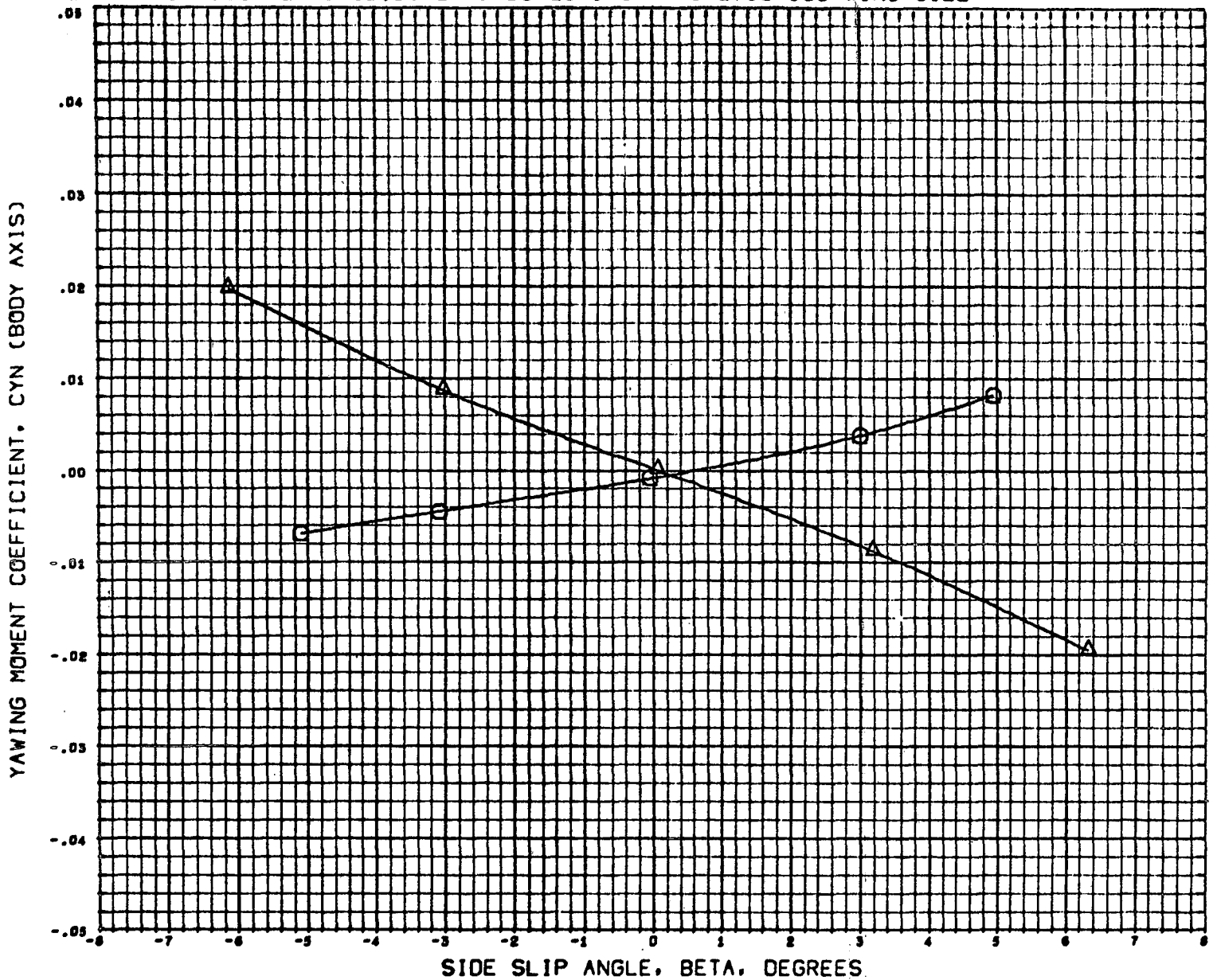
CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1



ALPHA -0.093
RUDDER 0.000
CANARD
ELEVTR 0.000

REFERENCE INFORMATION
SREF 1.3550 80. FT.
LREF 3.4530 FEET
OREF 3.4530 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH 1.001

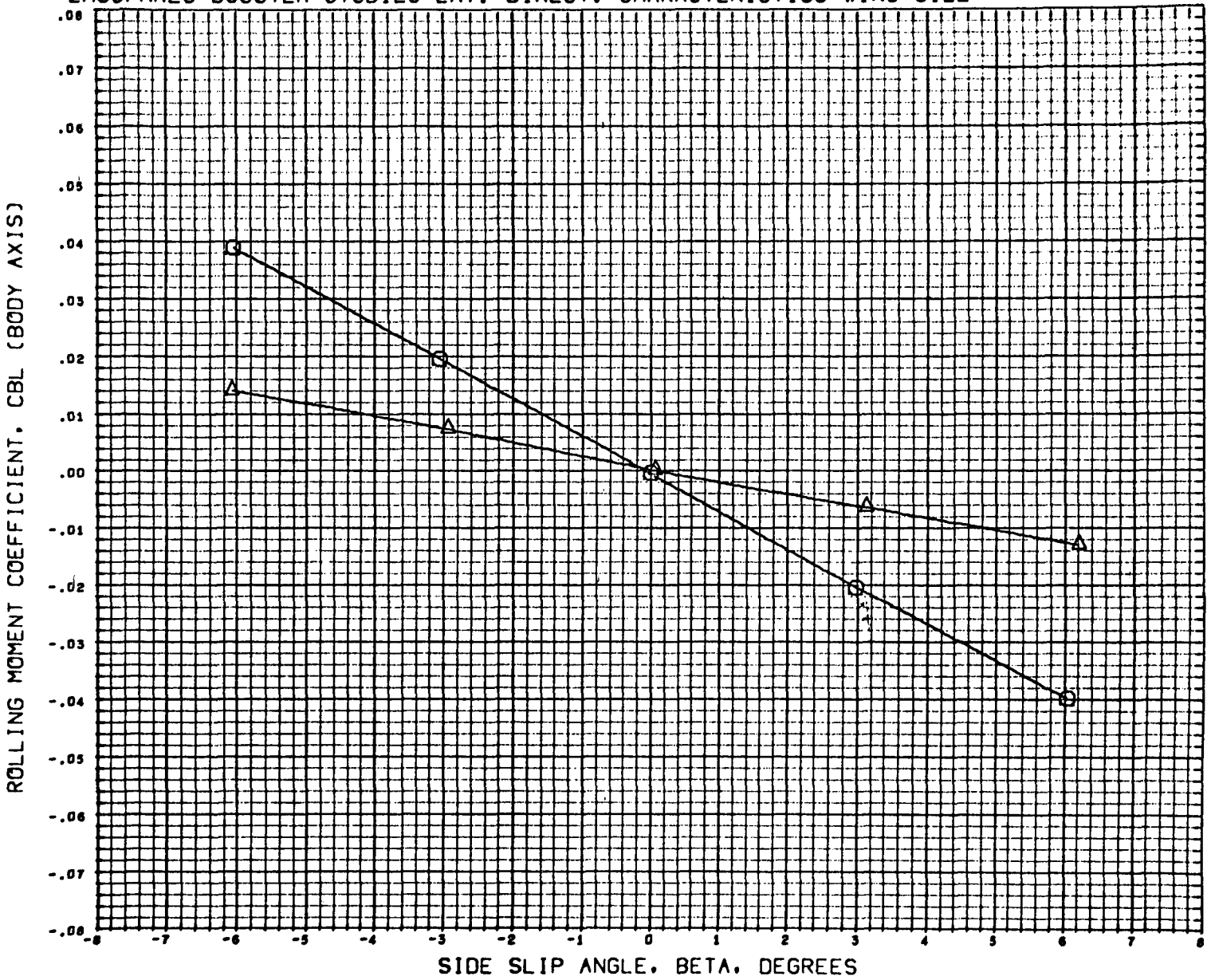
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066) 	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 80.FT.
(RN3062) 	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3066) 
(RN3062) 

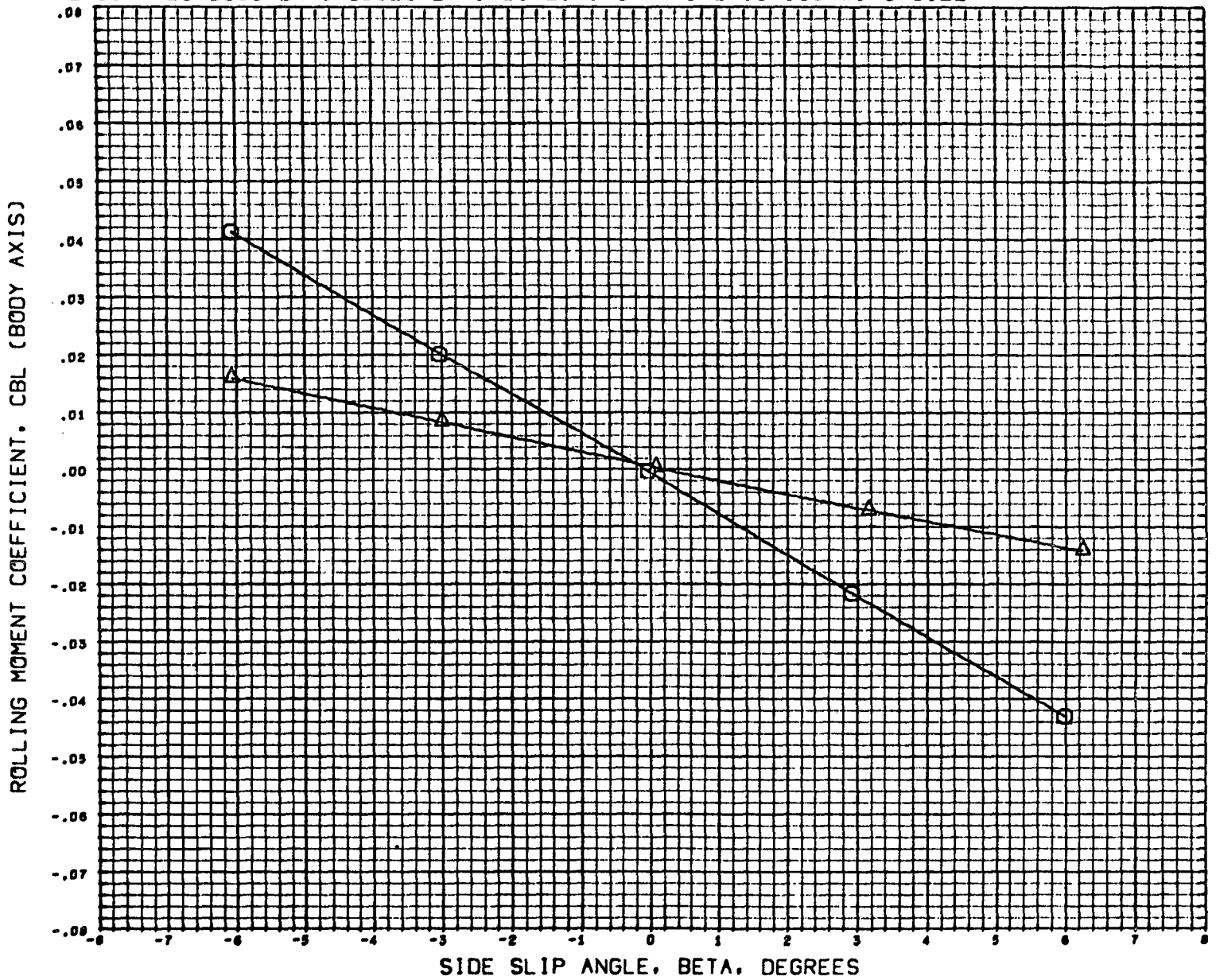
CONFIGURATION DESCRIPTION
MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
MSRDC-3210,MSFC/LMSC BOOSTER B1V2W1



ALPHA -0.093
RUDDER 0.000
CANARD
ELEVTR 0.000

REFERENCE INFORMATION
SREF 1.3950 SQ.FT.
LREF 3.4930 FEET
BREF 3.4930 FEET
XMRP 2.9950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.698

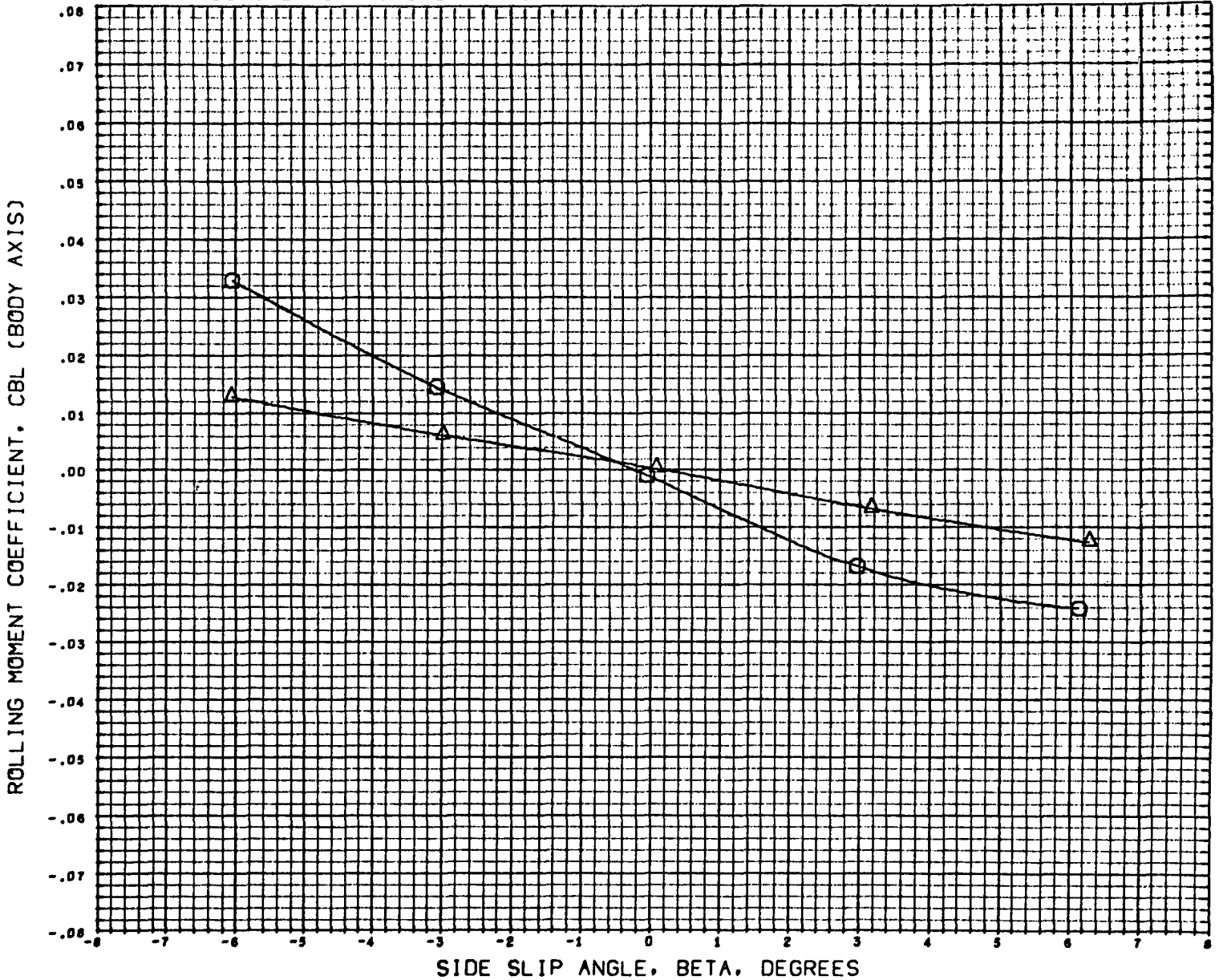
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3086) 	NSRDC-321D,MSFC/LMSC BOOSTER 81V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ.FT.
(RN3082) 	NSRDC-321D,MSFC/LMSC BOOSTER 81V2W1	0.024				LREF 3.4530 FEET
						OREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.797

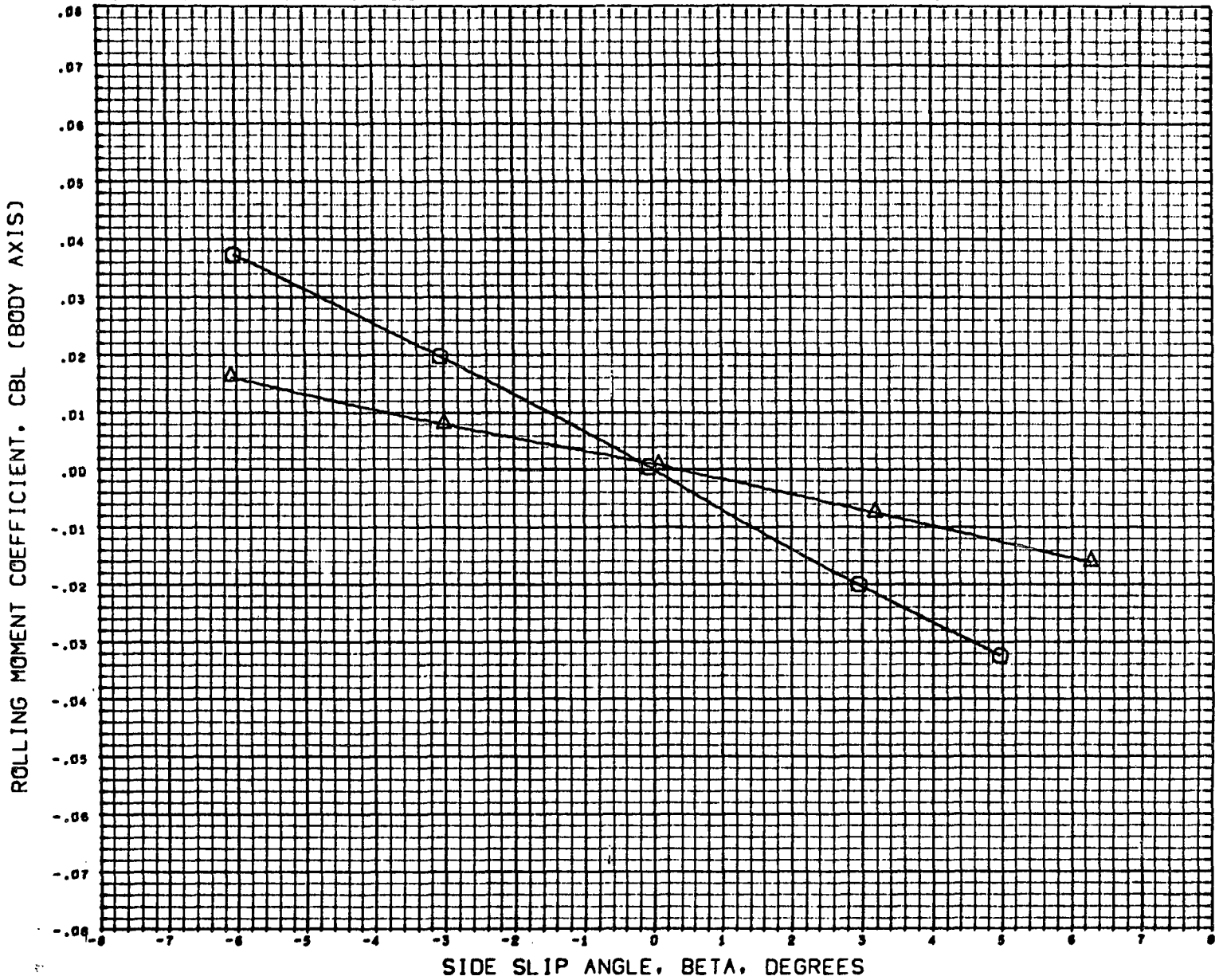
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.9050 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.900

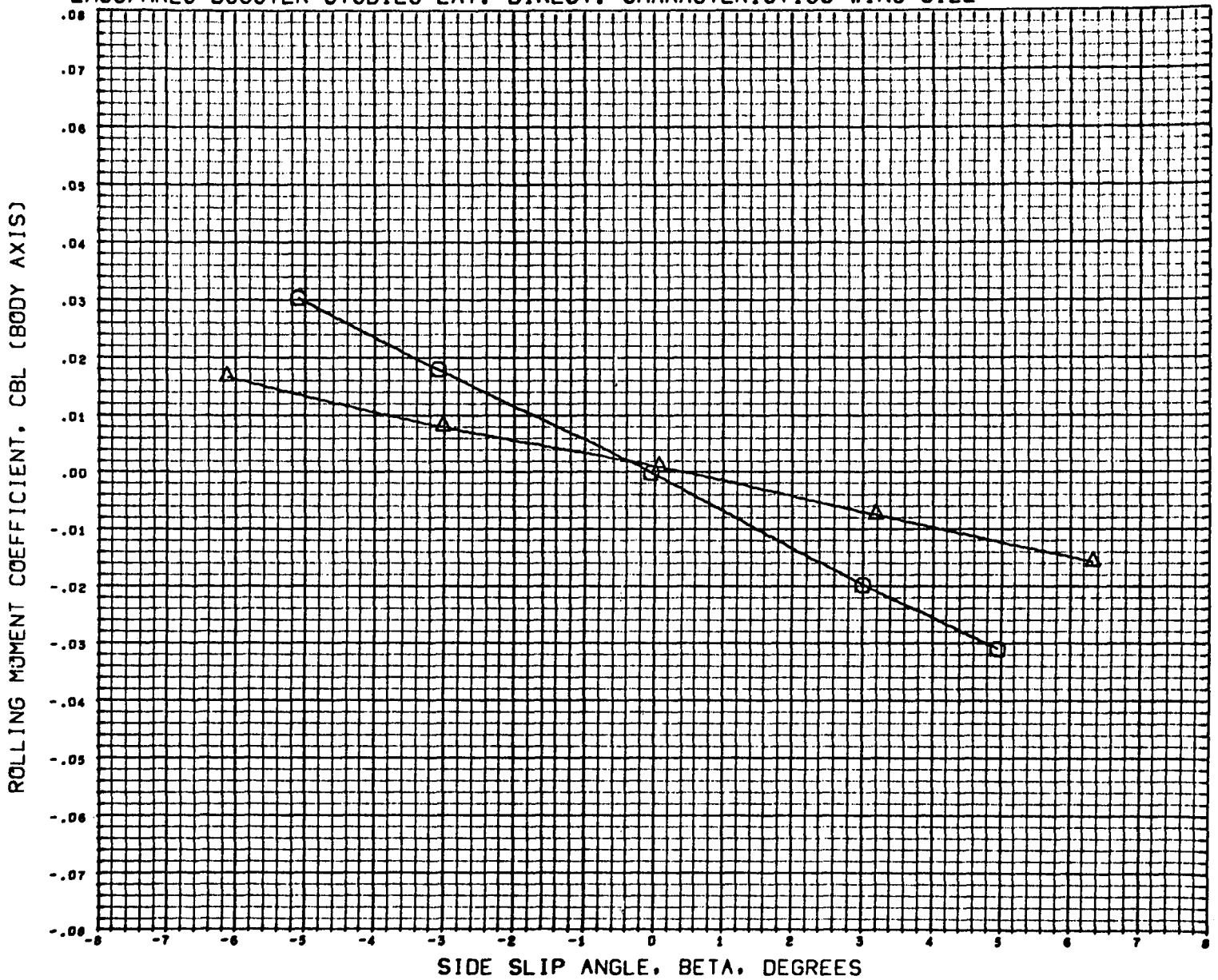
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3085)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	BREF 1.3550 SQ.FT.
(RN3082)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XNRP 2.5950 FEET
						YNRP 0.0000 FEET
						ZNRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.001

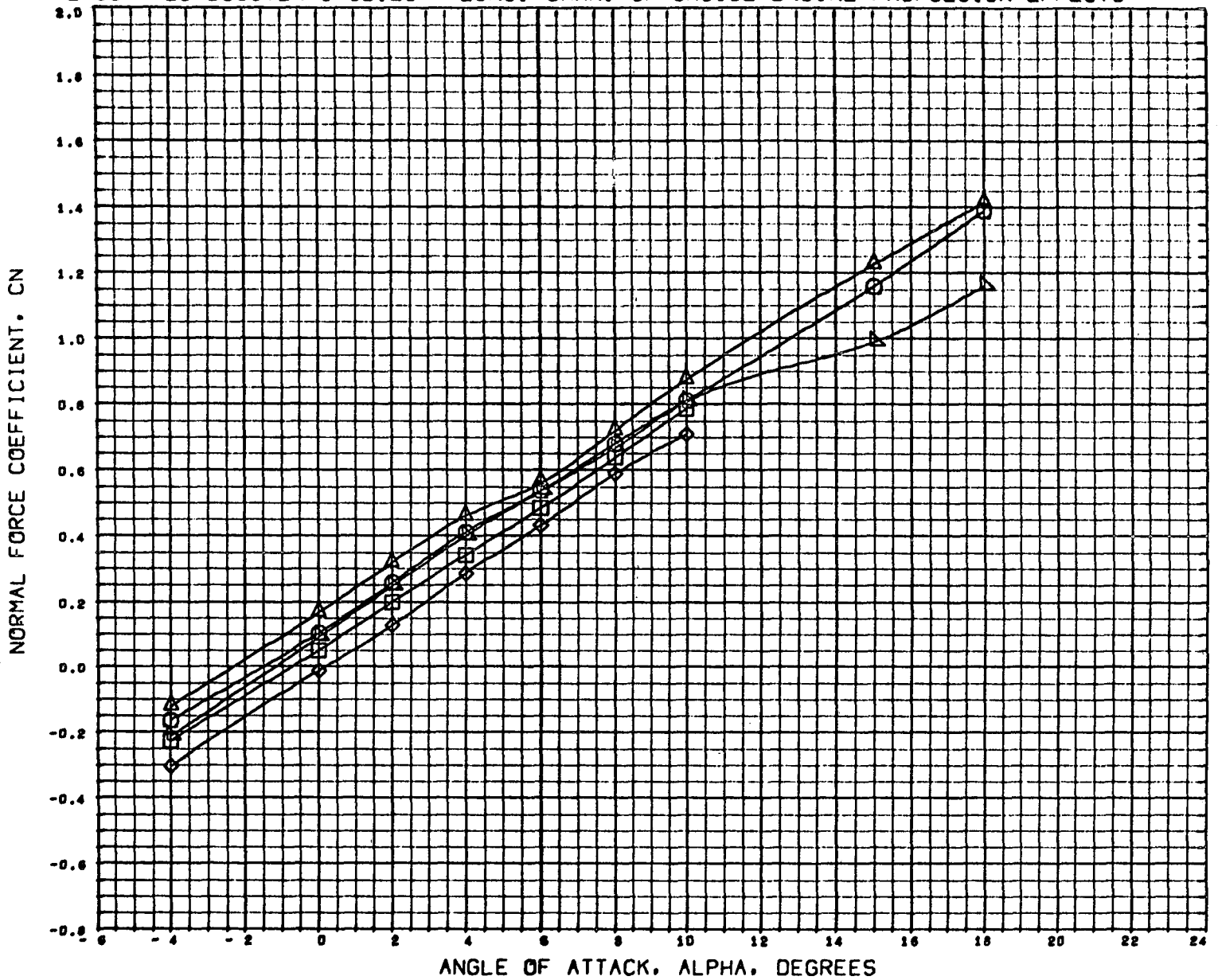
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210, MSFC/LHSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ.FT.
(RN3062)	NSRDC-3210, MSFC/LHSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XHRP 2.5950 FEET
						YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 1.126

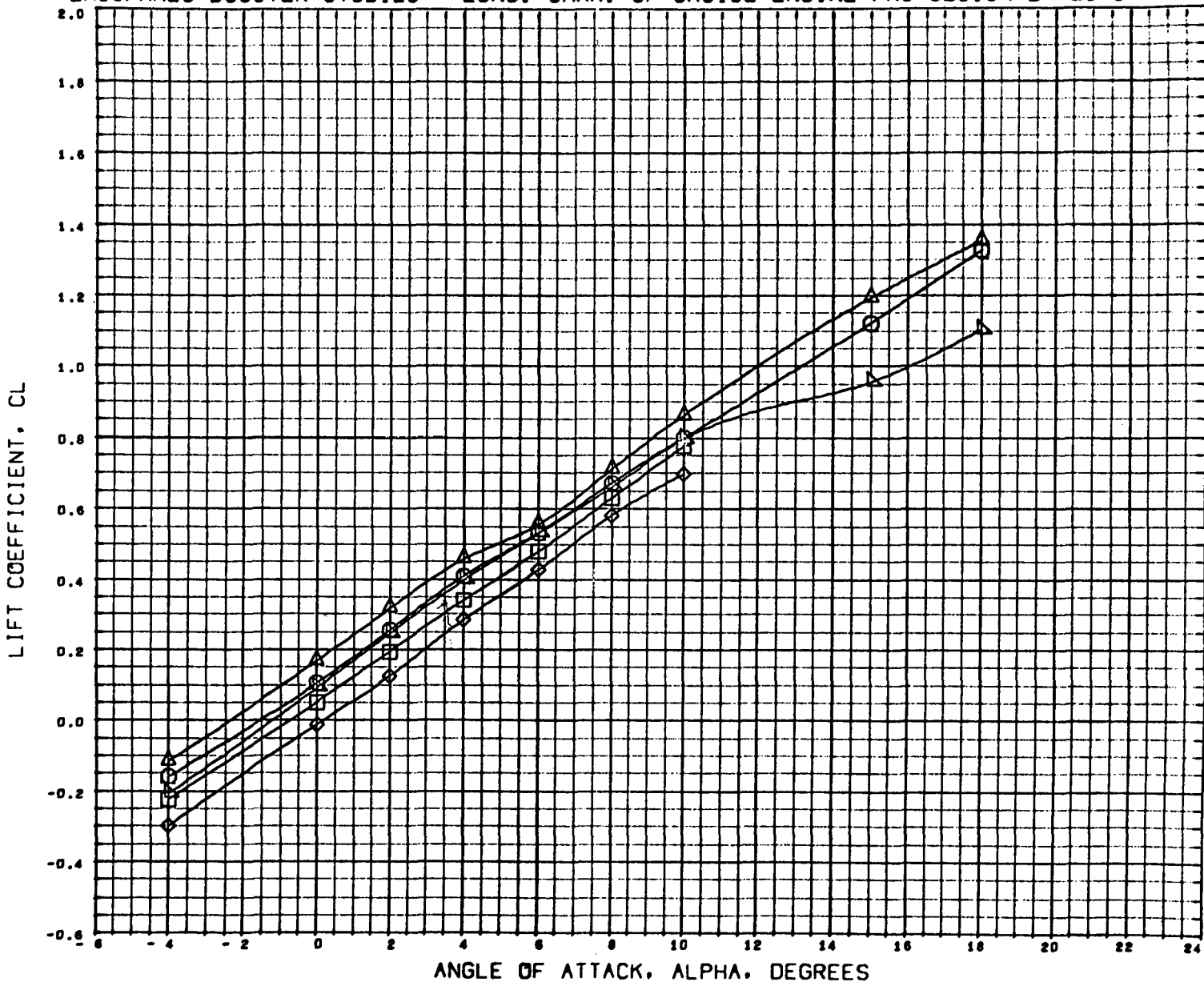
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 80.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300M)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP 2.5950 FEET
(AN3000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.400

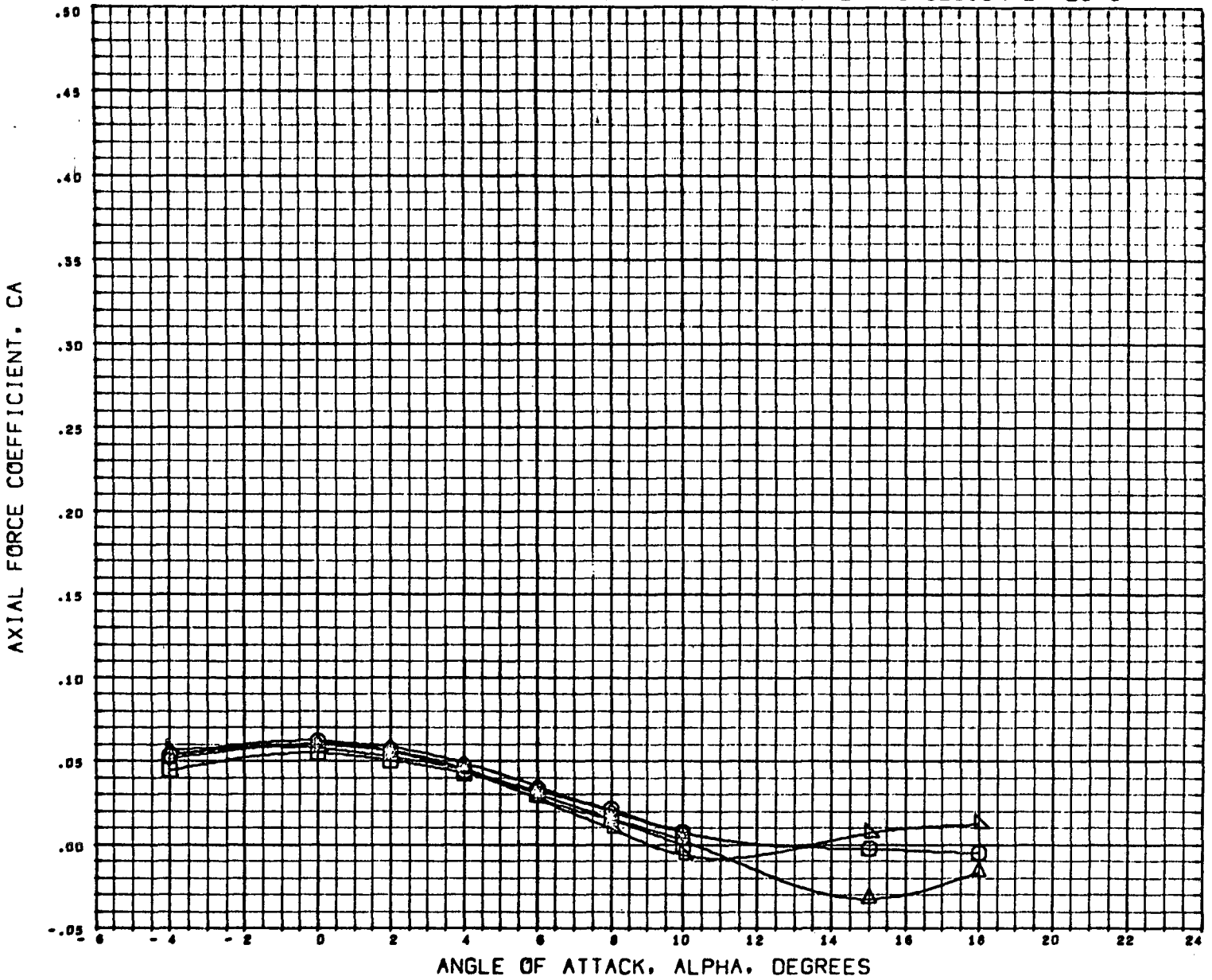
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 30.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300M)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP 2.5930 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0190 SCALE

MACH 0.400

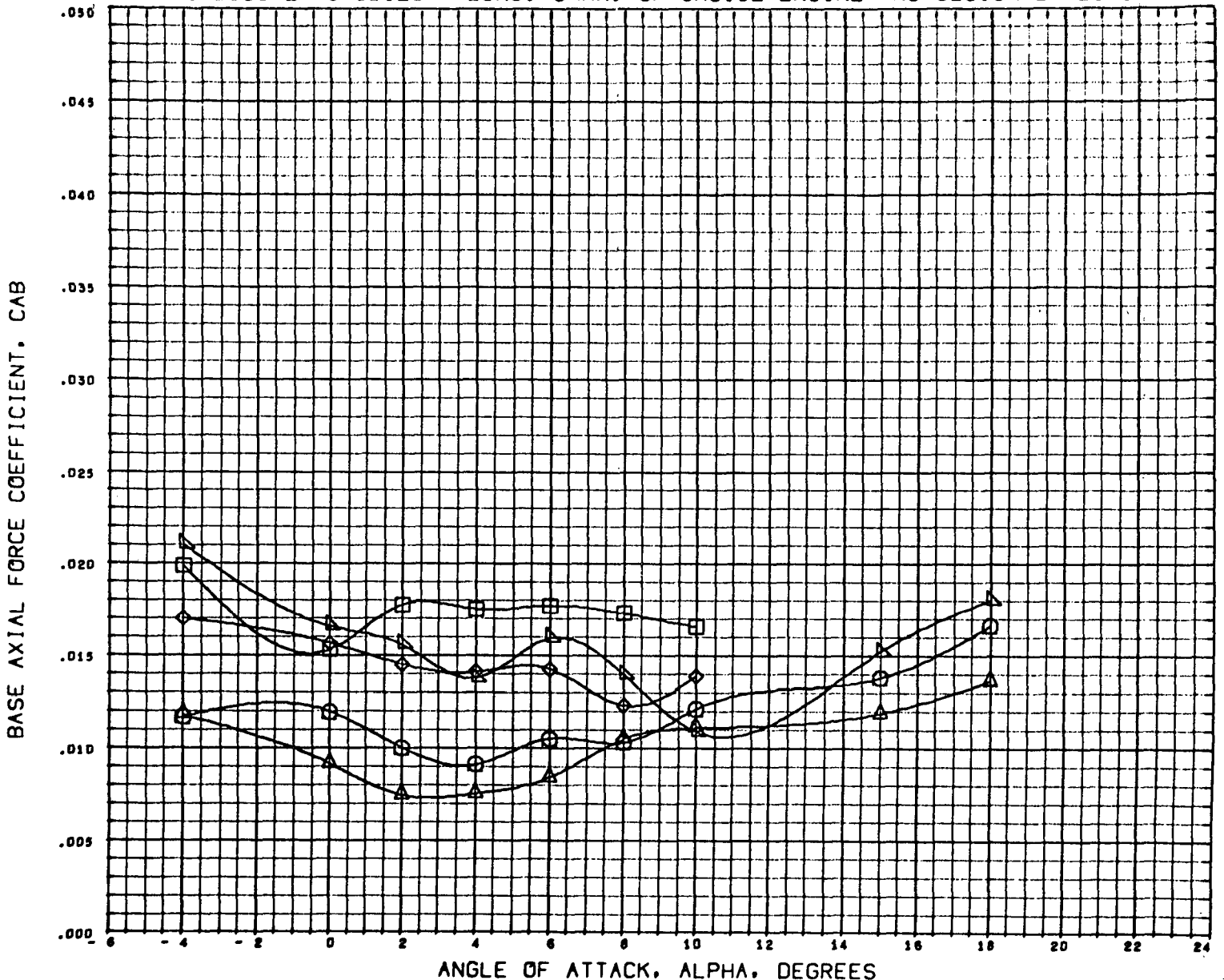
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AIRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN300E)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300I)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300M)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP 2.5950 FEET
(AN300G)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.400

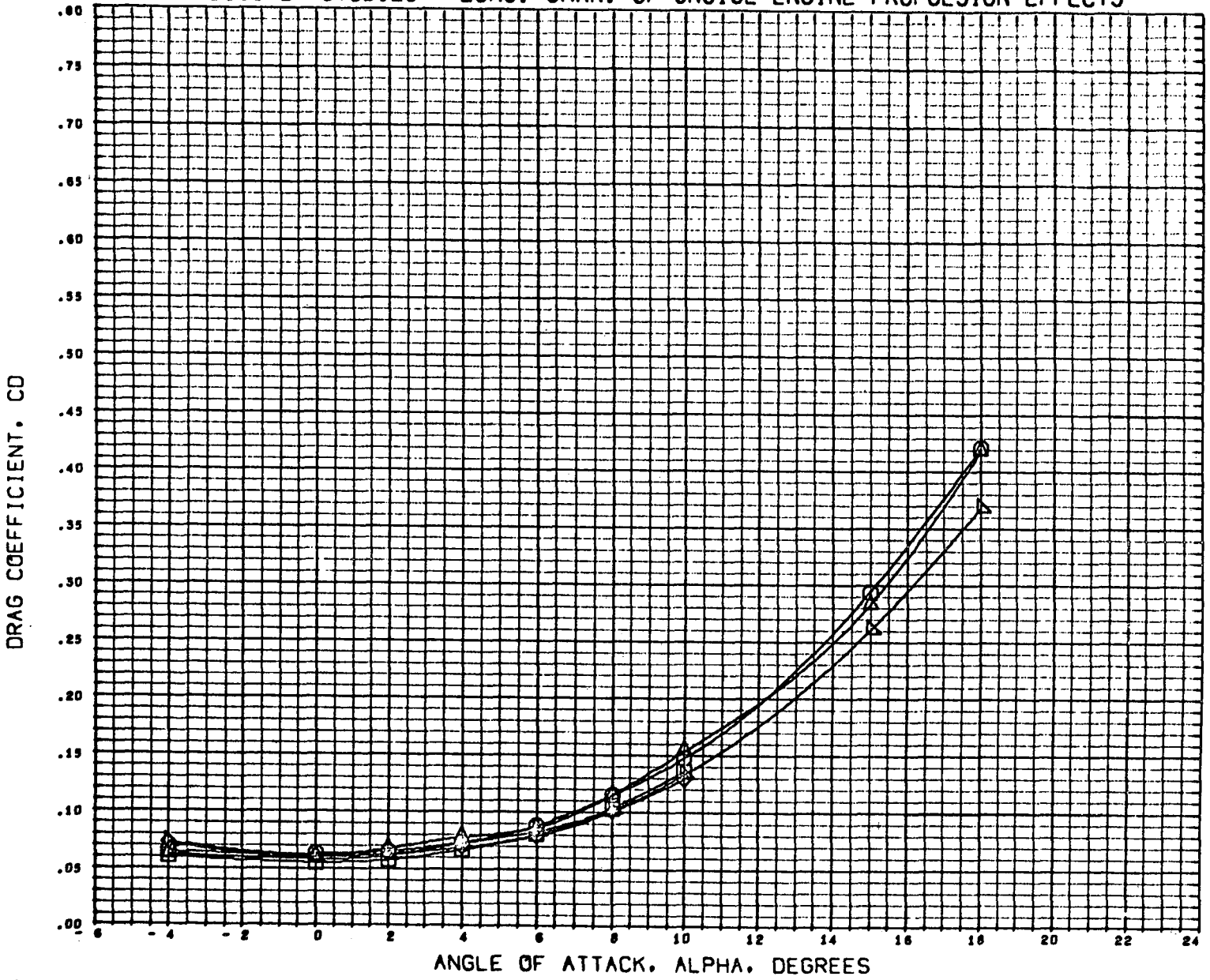
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN300E)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4930 FEET
(AN300I)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4930 FEET
(AN300M)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRF 2.9950 FEET
(AN300R)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRF 0.0000 FEET ZMRF 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.400

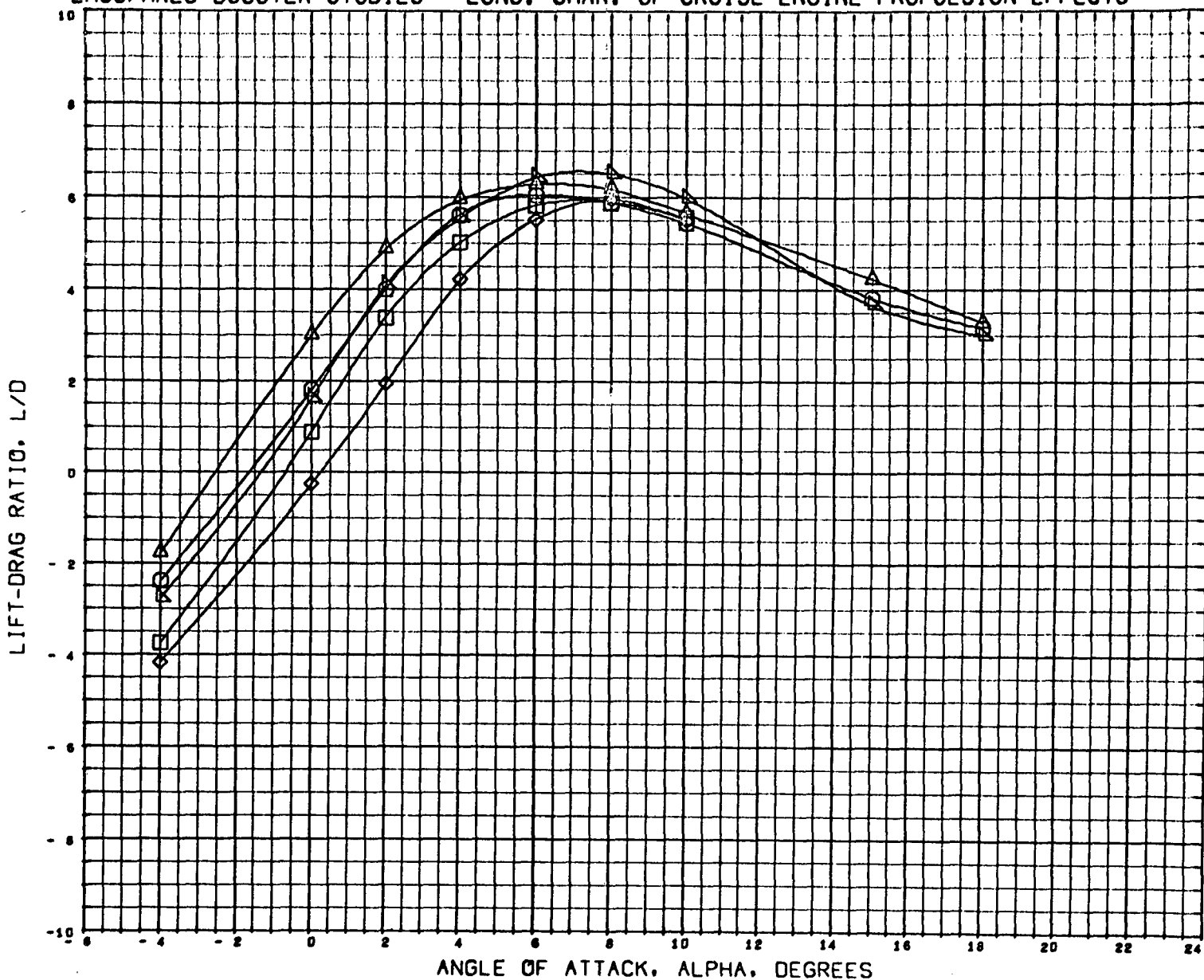
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4330 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4330 FEET
(AN300M)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP 2.5950 FEET
(AN3000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.400

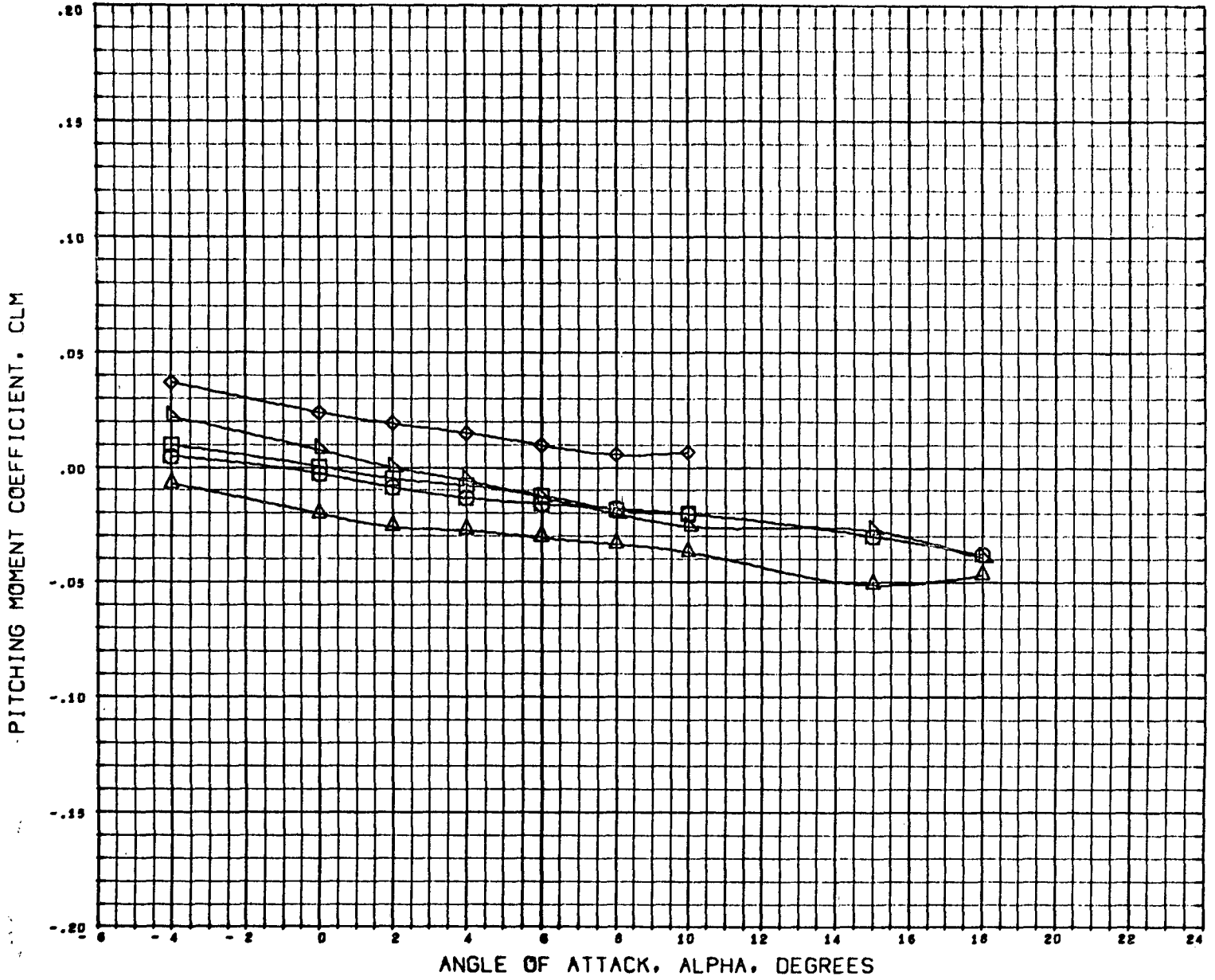
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4330 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4330 FEET
(AN300H)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP 2.5950 FEET
(AN300G)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

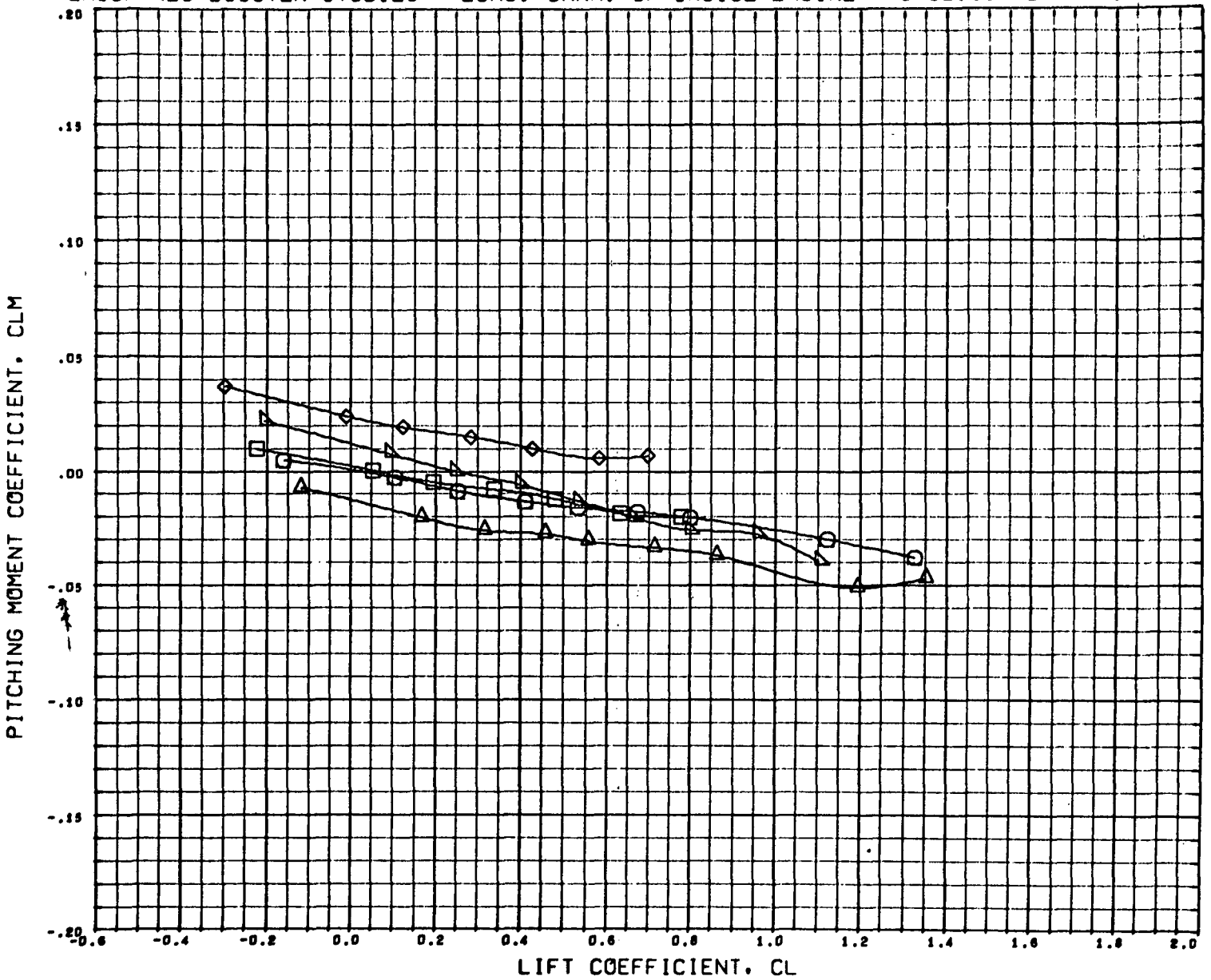
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3530 SQ. FT.
(AN300E)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300I)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300M)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XHRP 2.5950 FEET
(AN300Q)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

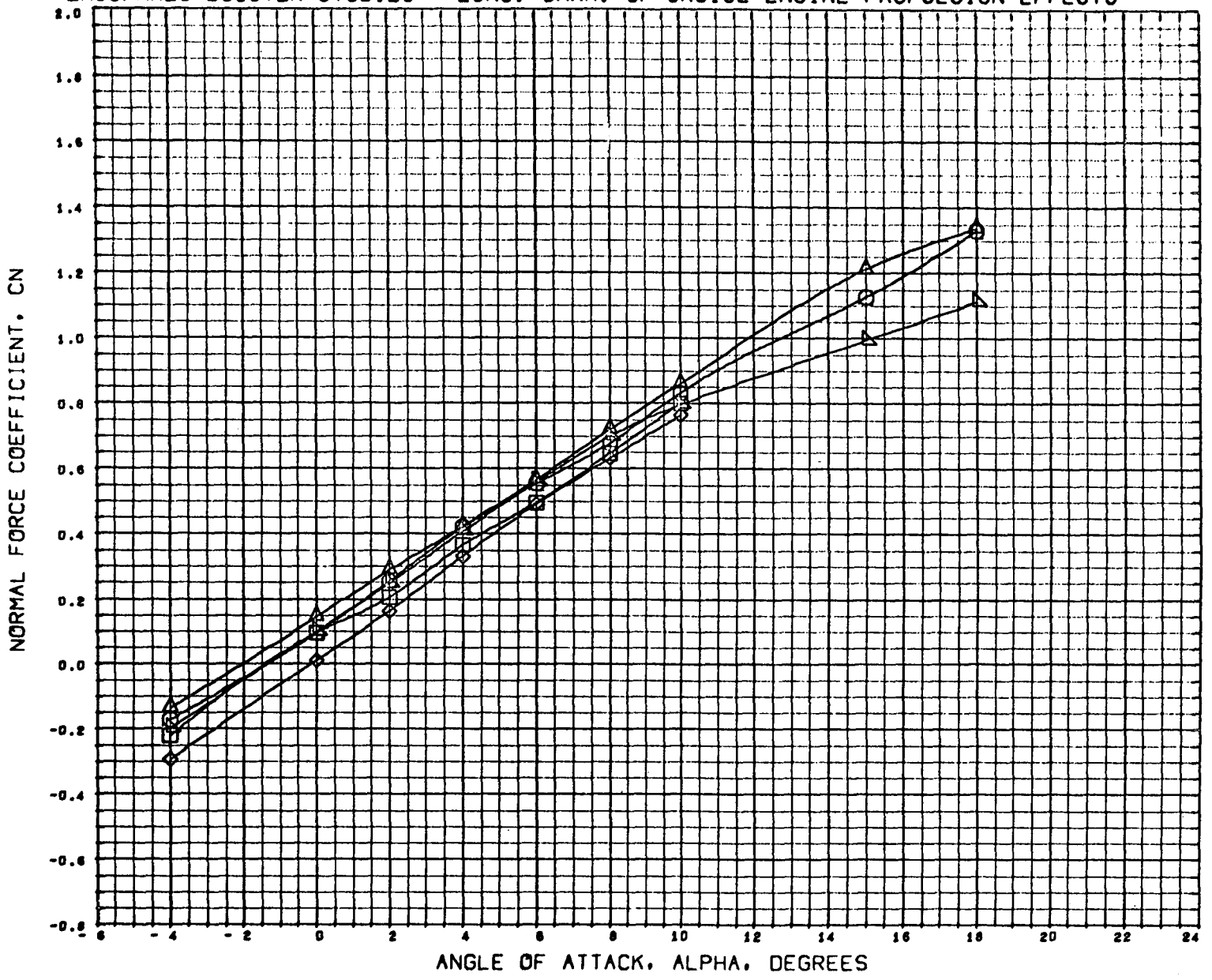
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3550 80.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300H)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMMP 2.5950 FEET
(AN300G)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMMP 0.0000 FEET
						ZMMP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

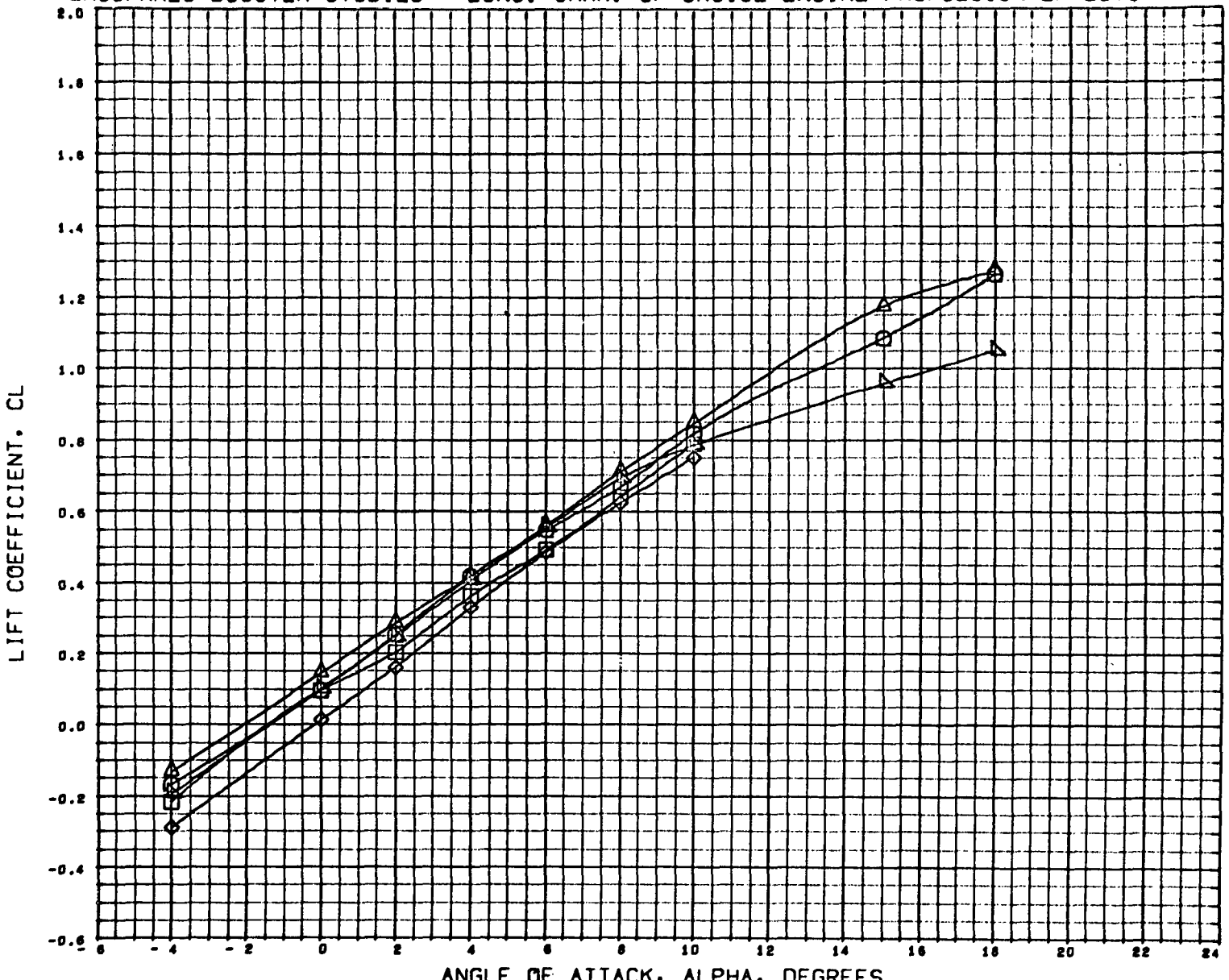
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	BREF	1.3550 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XHRP	2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.300

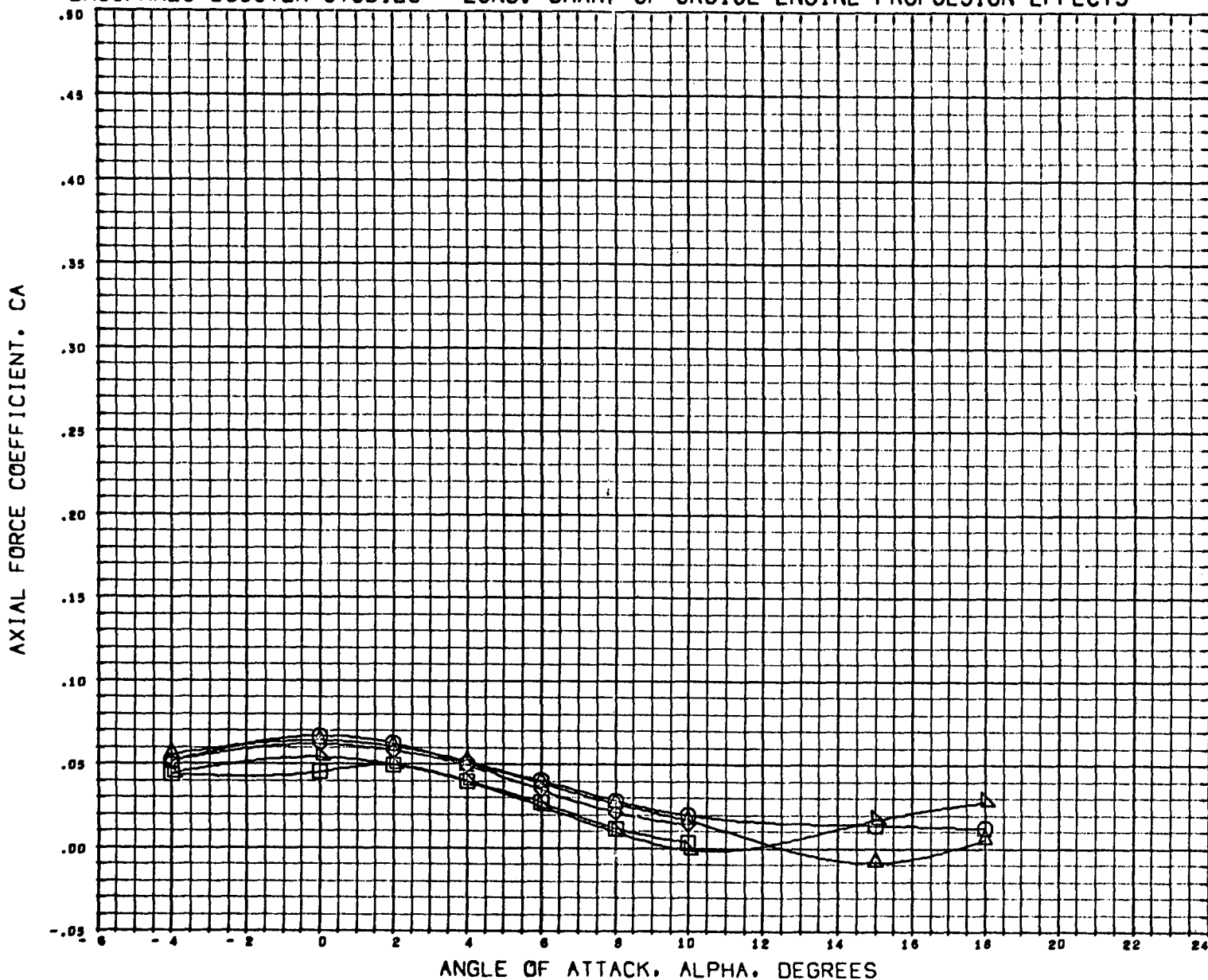
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3590 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XHRP 2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YHRP 0.0000 FEET ZHRP 0.0187 FEET SCALE 0.0190 SCALE

MACH 0.500

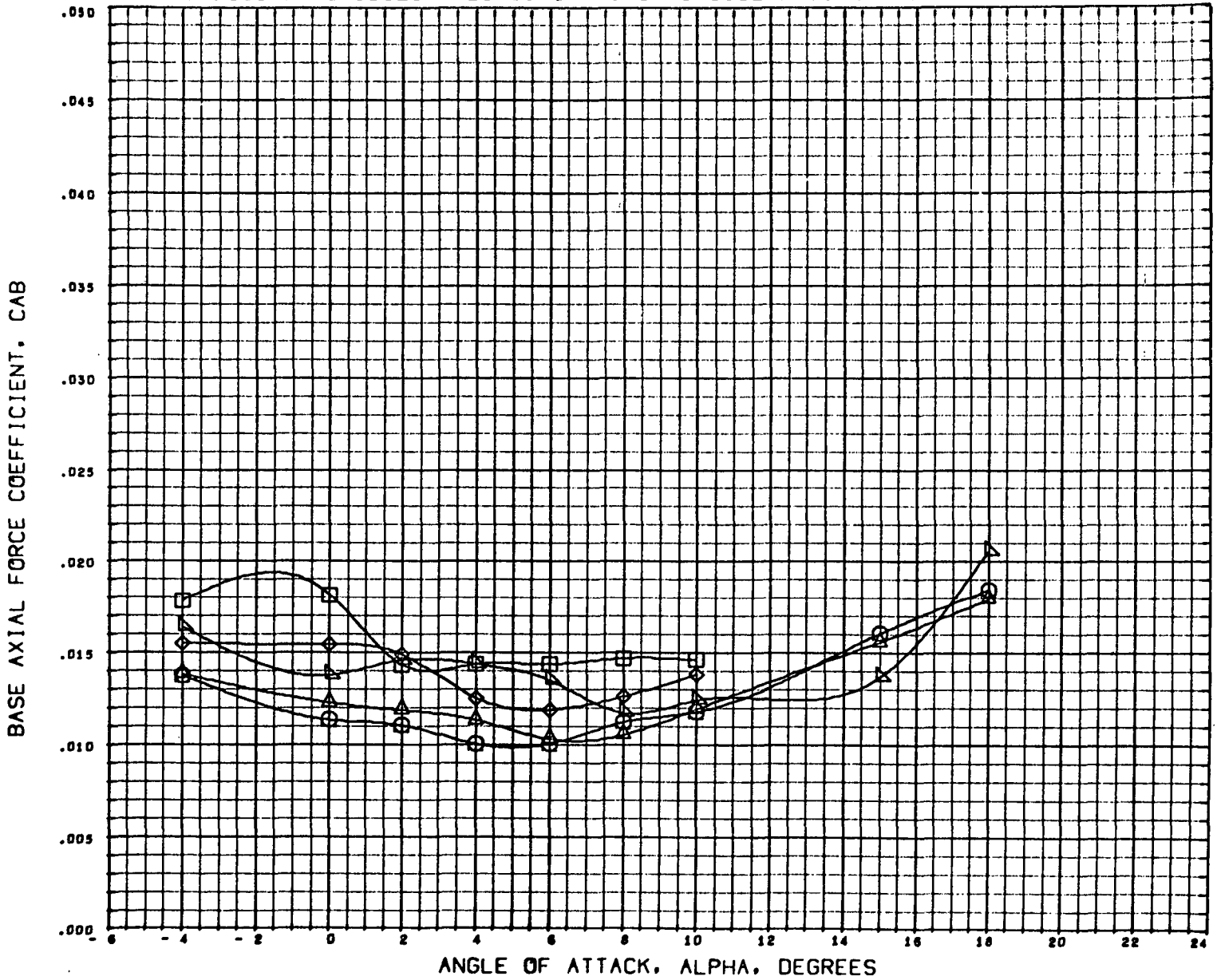
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP 2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

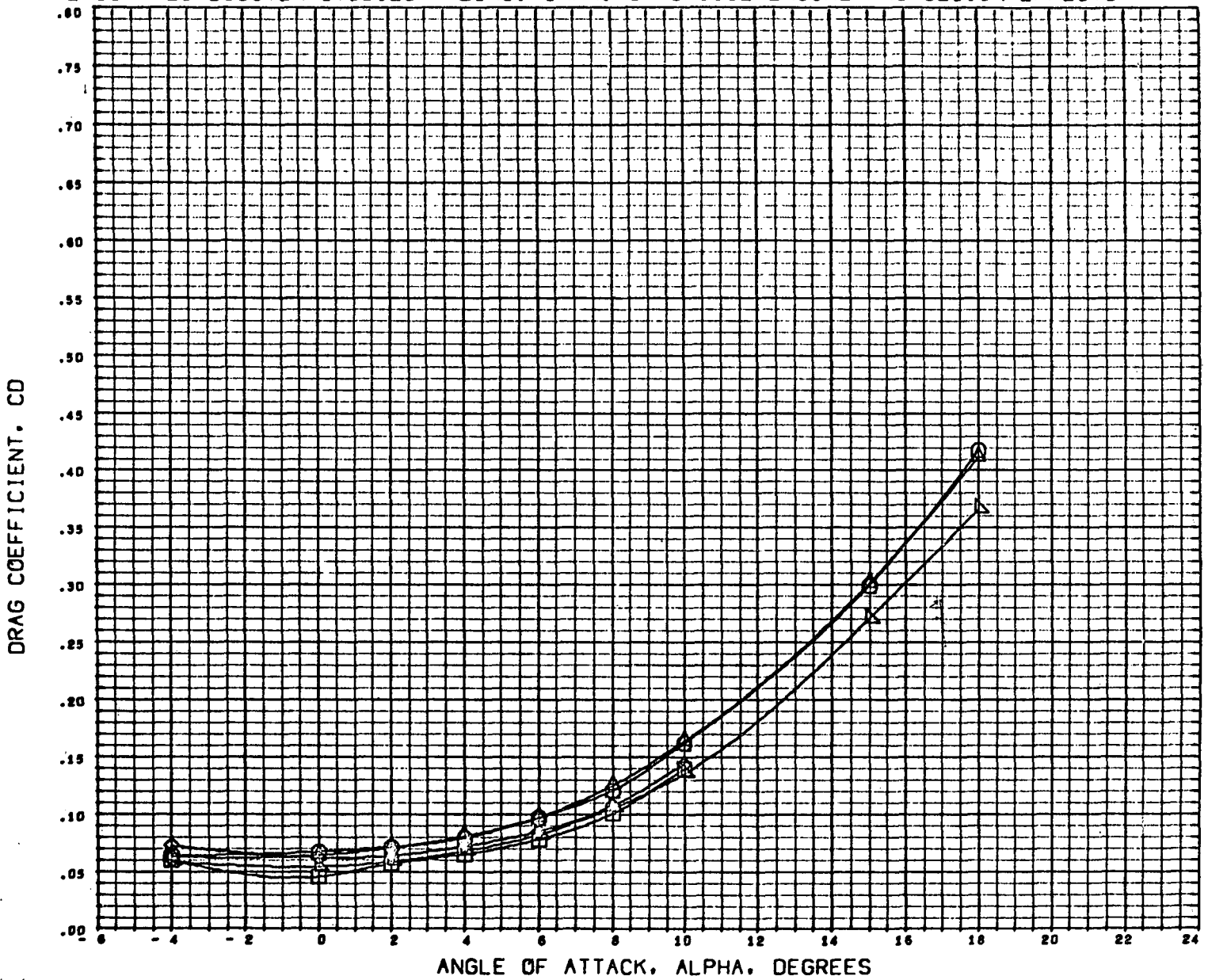
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN300F)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300N)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XHRP 2.5950 FEET
(AN300R)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YHRP 0.0000 FEET ZHRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF 3.4330 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP 2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.500

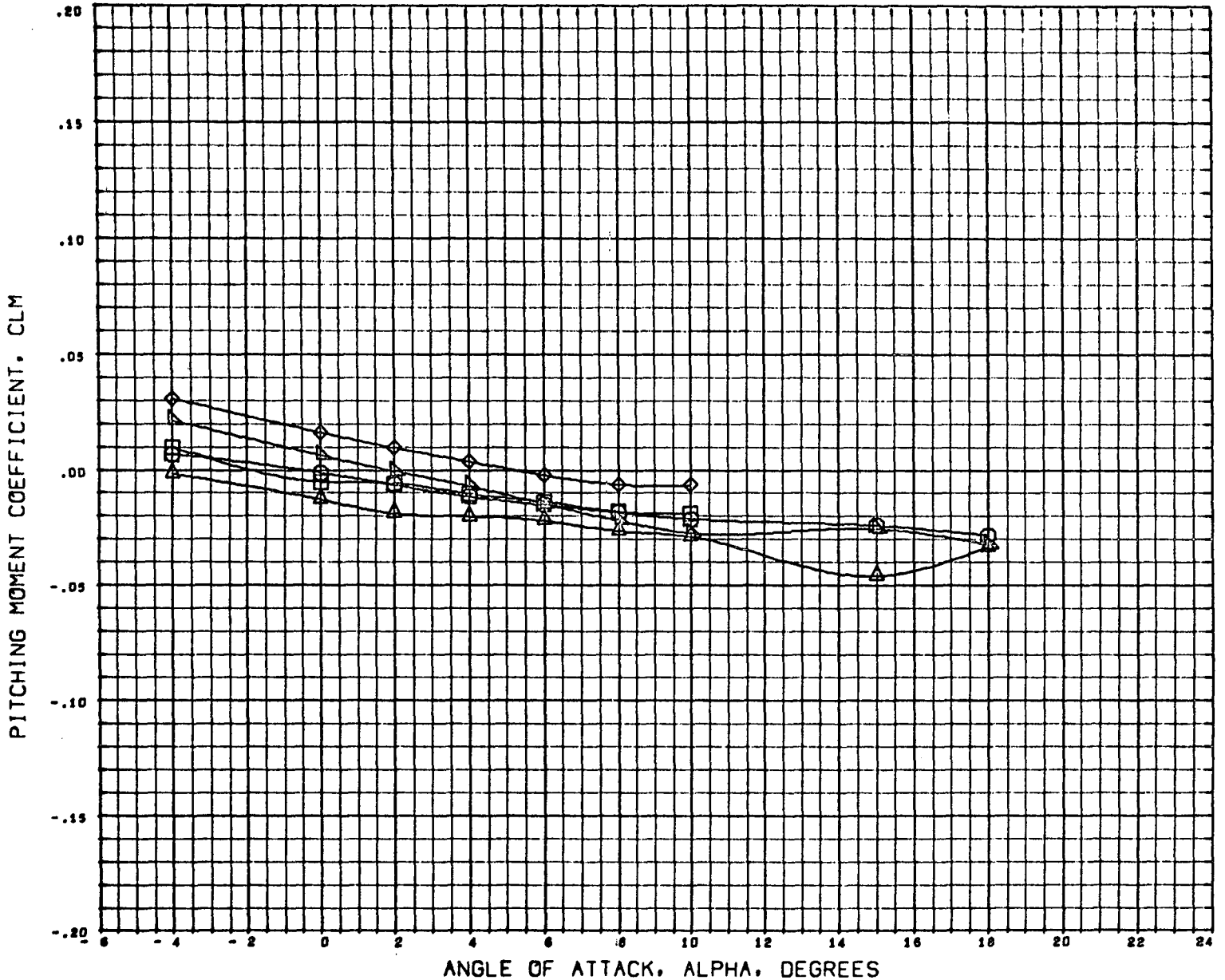
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300F)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300N)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XHRP 2.5950 FEET
(AN300R)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

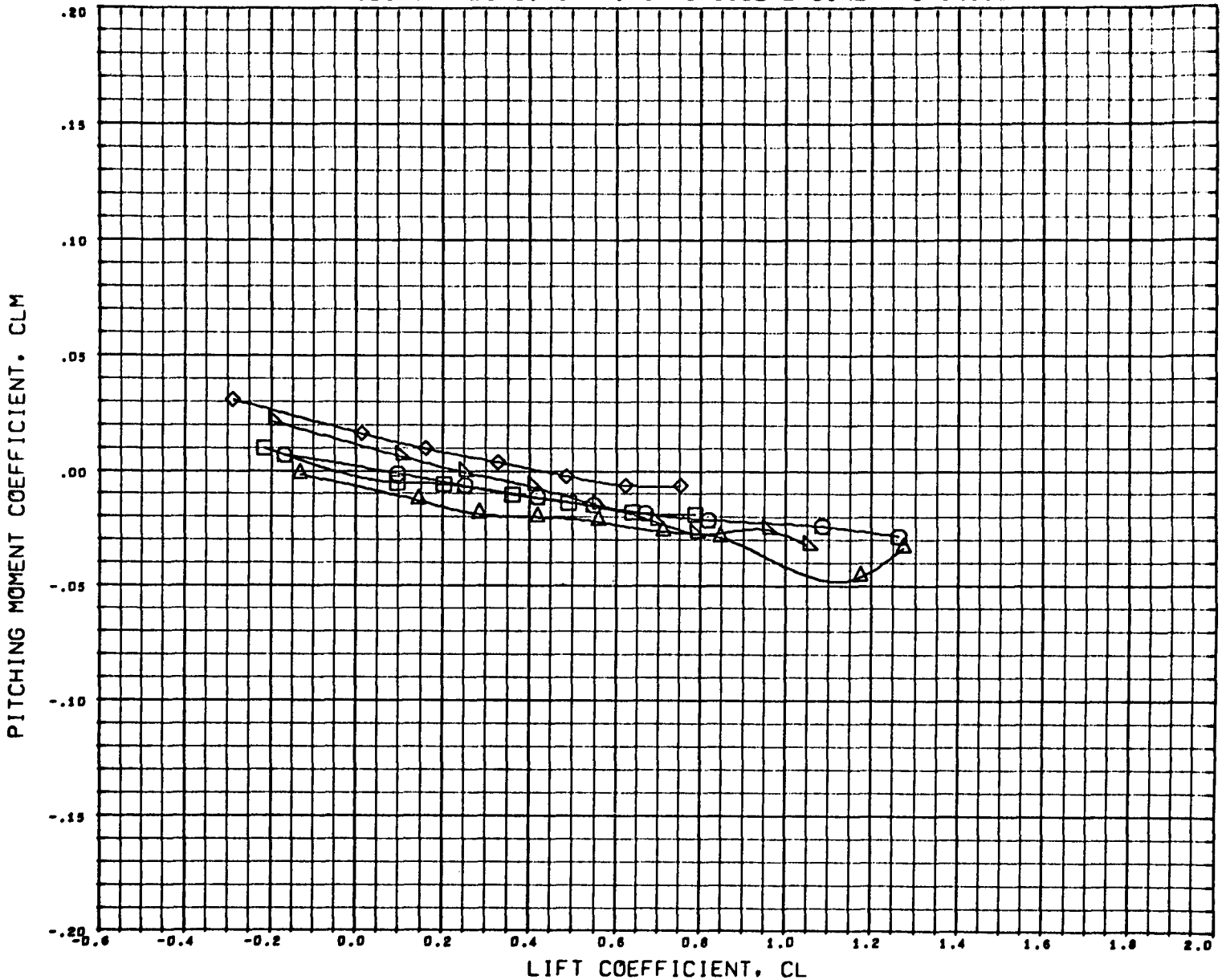
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	NSRDC-321D, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
(AN300F)	NSRDC-321D, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-321D, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300N)	NSRDC-321D, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP 2.9950 FEET
(AN300R)	NSRDC-321D, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

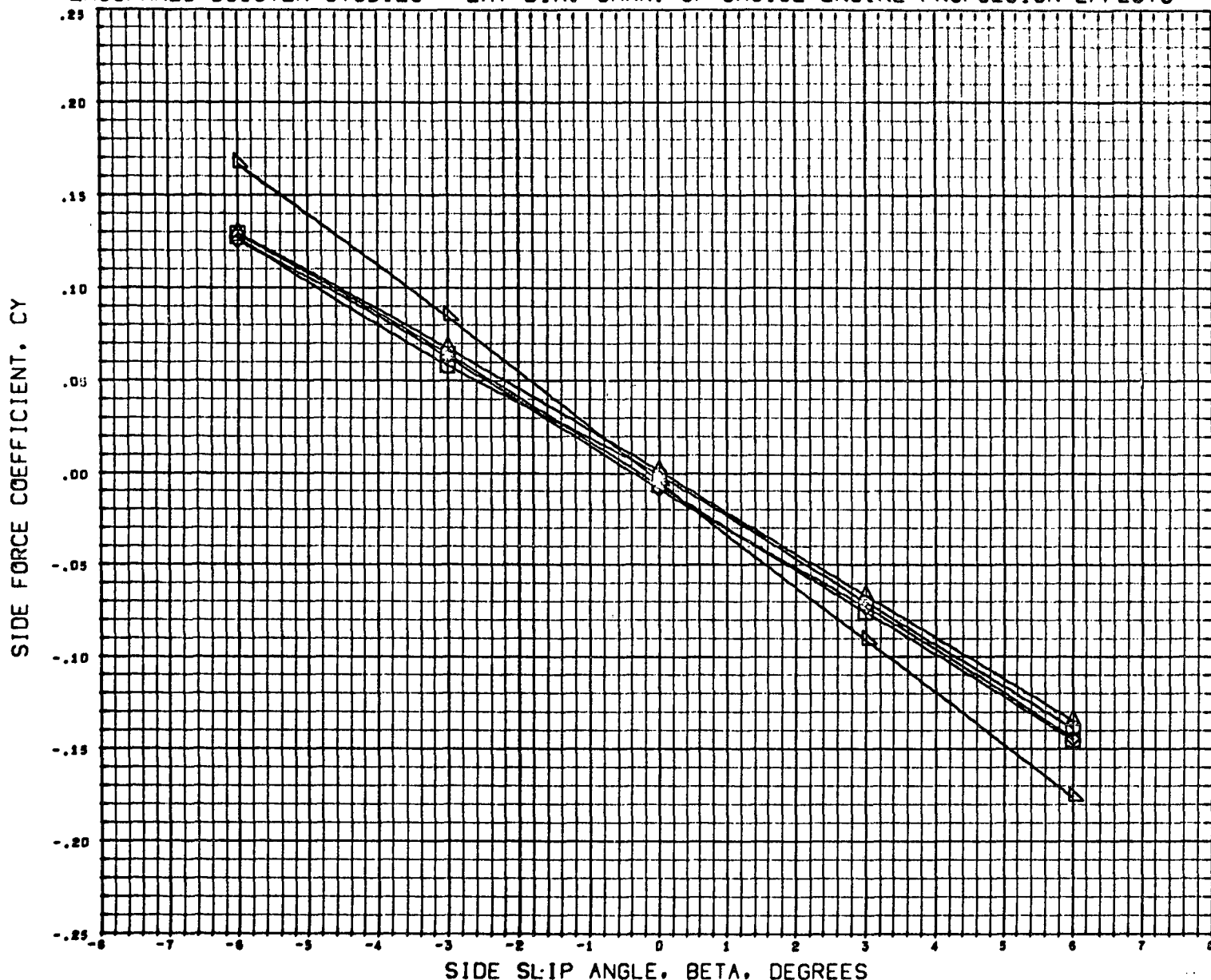
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF 1.3550 30.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP 2.9950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0187 FEET SCALE 0.0150 SCALE

MACH 0.900

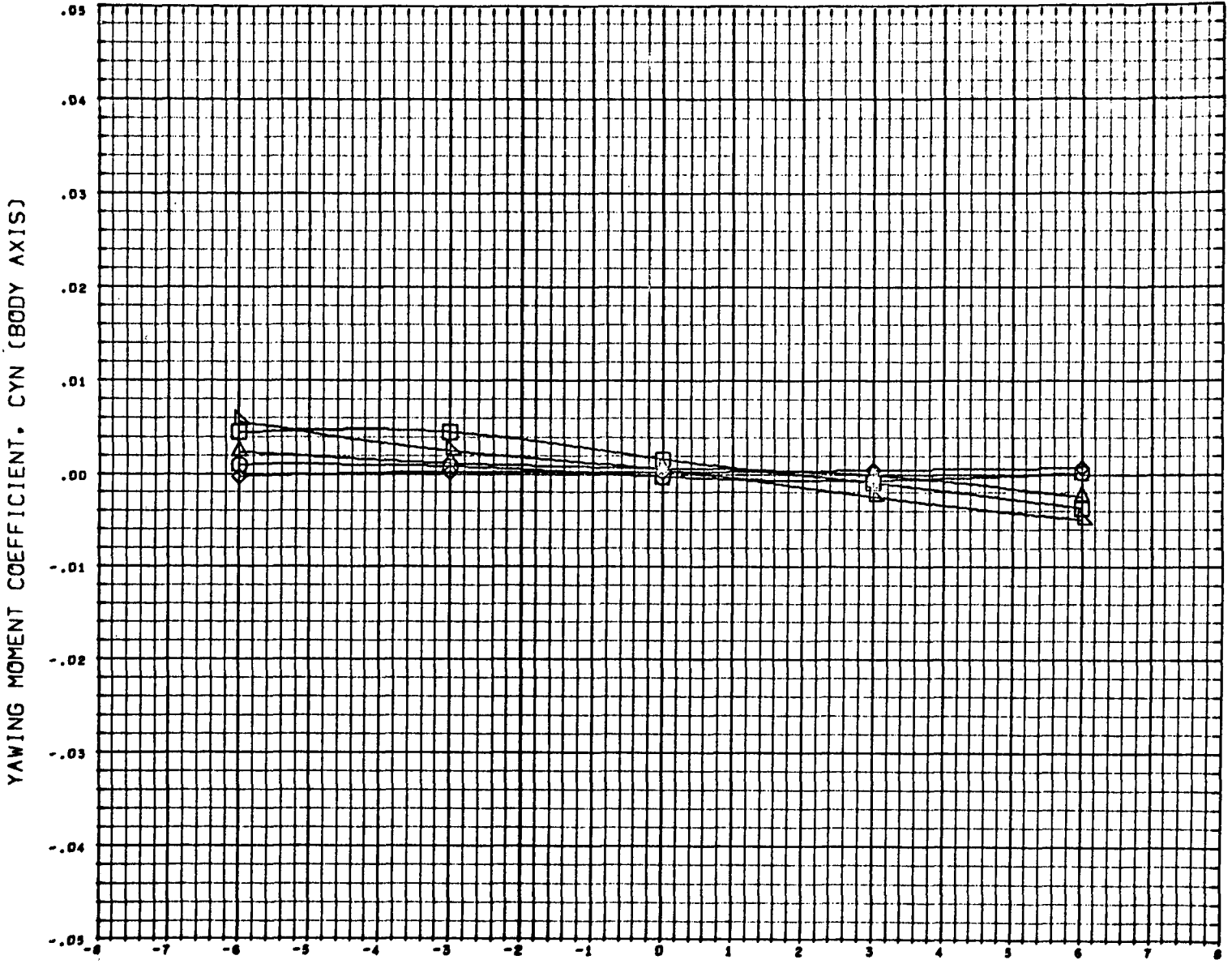
LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300H)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	LREF 3.4530 FEET
(AN300L)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	BREF 3.4530 FEET
(AN300P)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	XMRP 2.9950 FEET
(AN300T)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.180	0.468	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

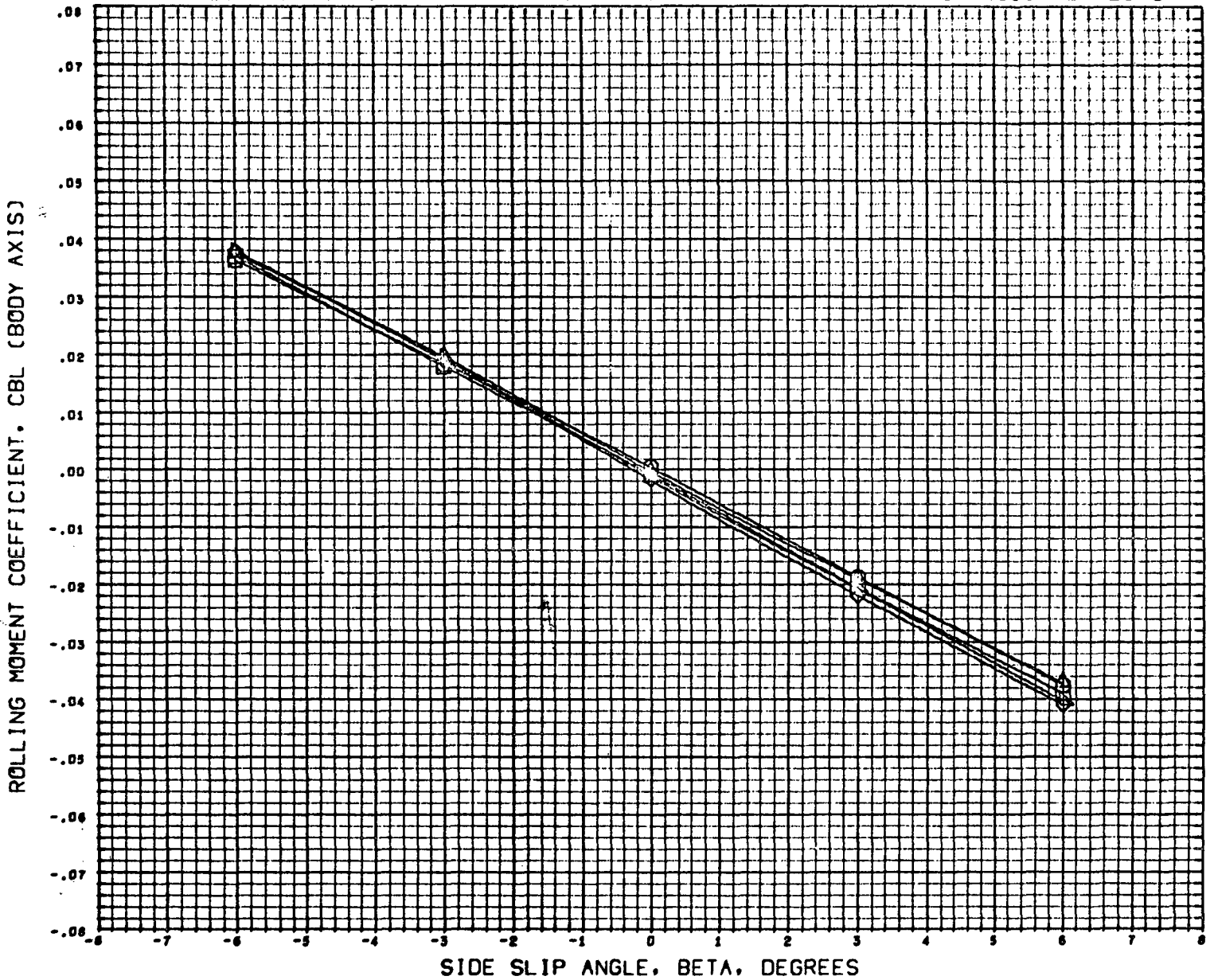
LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN3000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300M)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	LREF 3.4530 FEET
(AN300L)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	BREF 3.4530 FEET
(AN300P)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	XMRP 2.3950 FEET
(AN300T)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.500

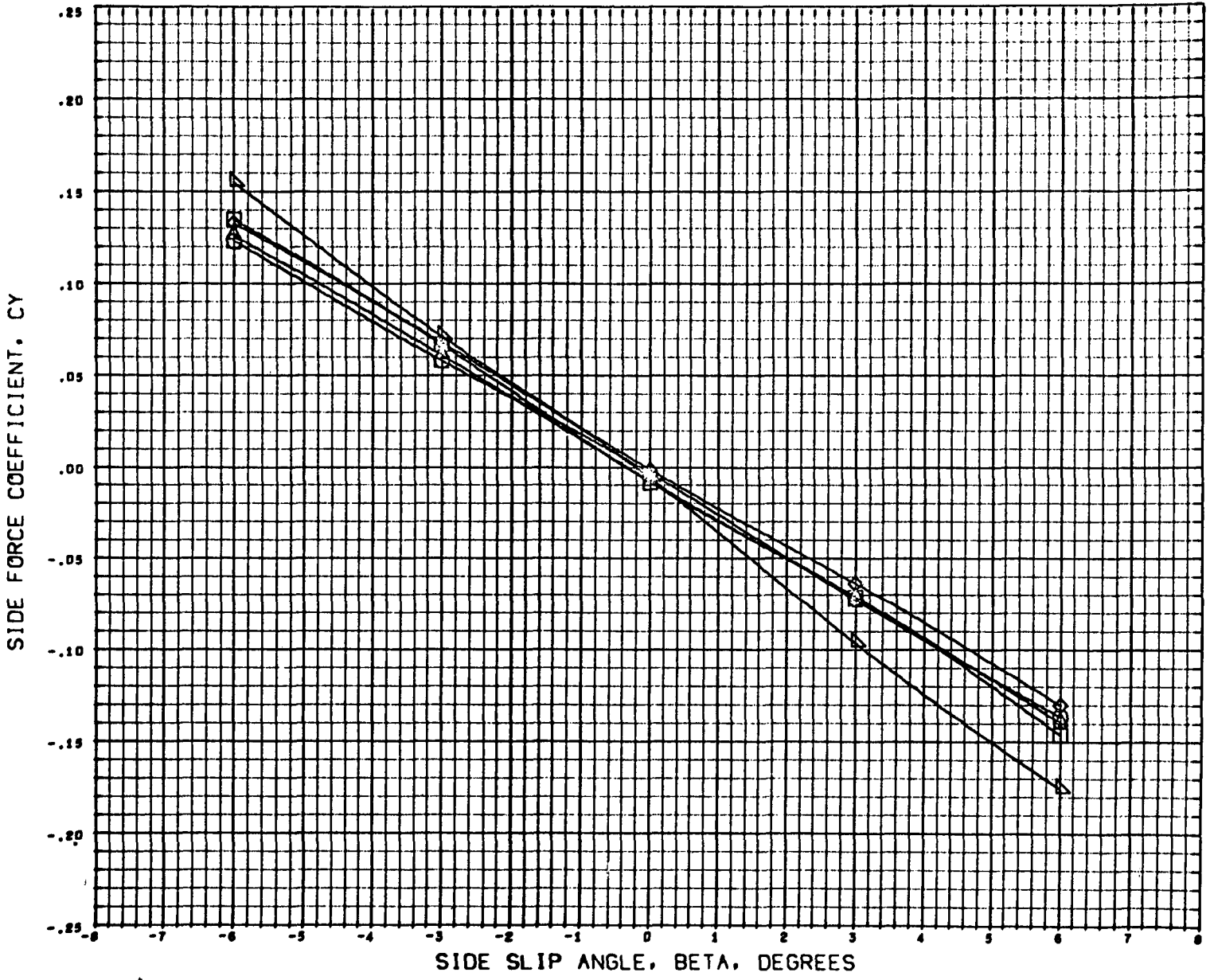
LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300D)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF 1.3550 80.FT.
(AN300H)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	LREF 3.4930 FEET
(AN300L)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	BREF 3.4930 FEET
(AN300P)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	XMRP 2.5950 FEET
(AN300T)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS

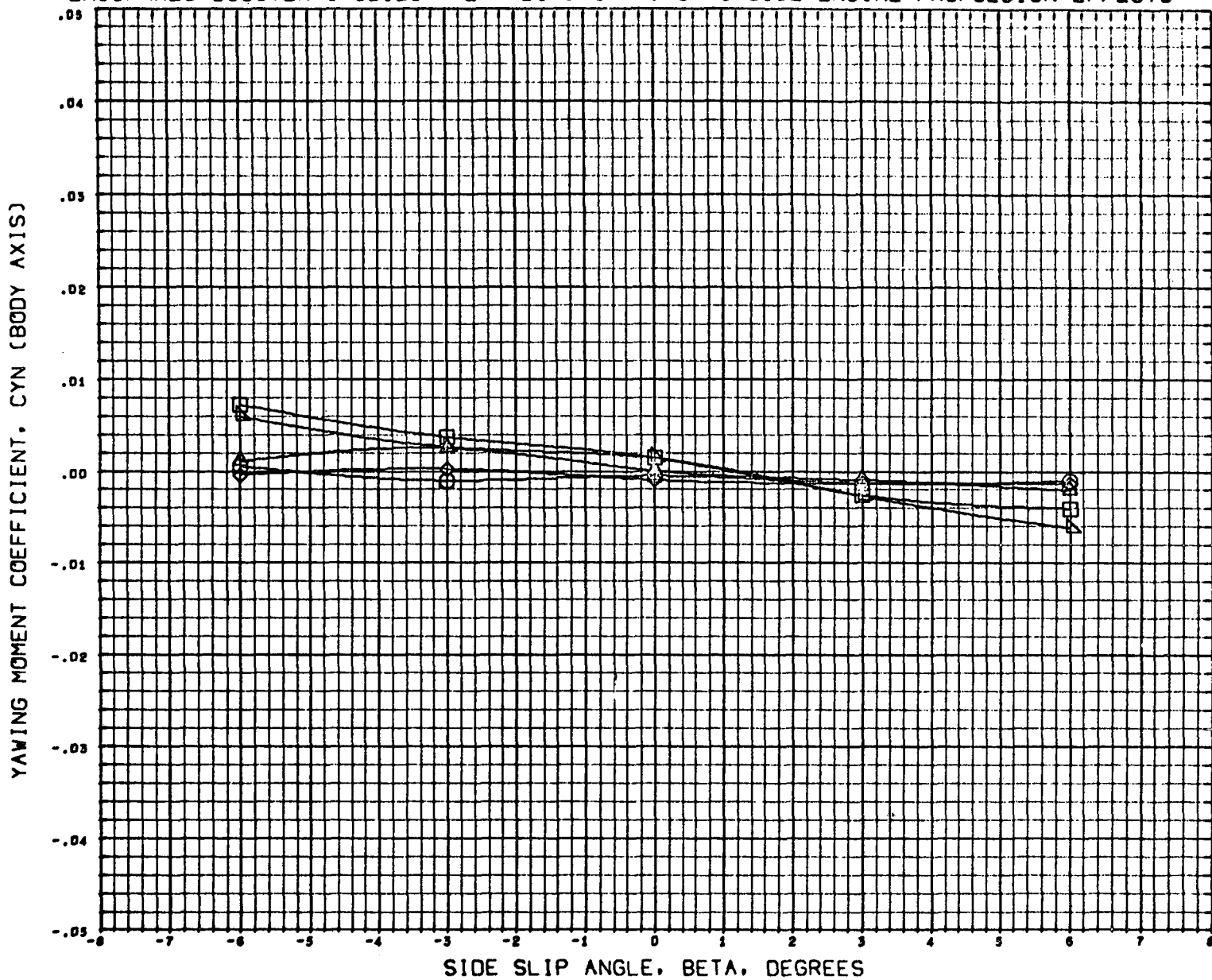


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300C)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF 1.3550 30.FT.
(AN300G)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	LREF 3.4530 FEET
(AN300K)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	BREF 3.4530 FEET
(AN300O)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	XMRP 2.5950 FEET
(AN300S)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.116	0.631	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

14

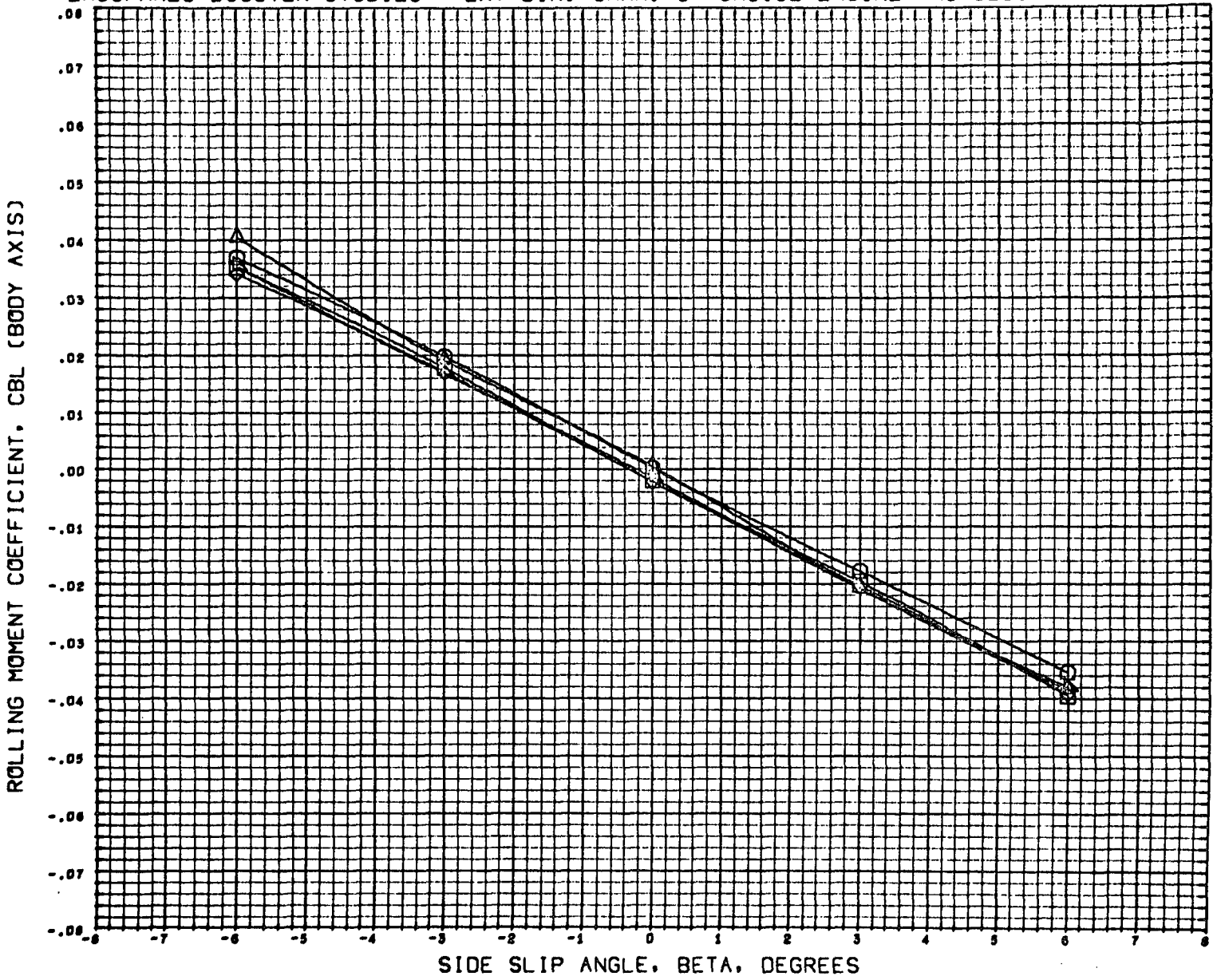
LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300C)		NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300G)		NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	LREF 3.4530 FEET
(AN300K)		NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	BREF 3.4530 FEET
(AN300O)		NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	XMRP 2.3950 FEET
(AN300S)		NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.118	0.631	0.000	0.000	YMRP 0.0000 FEET ZMRP 0.0167 FEET SCALE 0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300C)	NSRDC-3210,MSFC/LM8C BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300G)	NSRDC-3210,MSFC/LM8C BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	LREF 3.4530 FEET
(AN300K)	NSRDC-3210,MSFC/LM8C BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	BREF 3.4530 FEET
(AN300O)	NSRDC-3210,MSFC/LM8C BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	XMRP 2.5990 FEET
(AN300S)	NSRDC-3210,MSFC/LM8C BSTR.(PWR-ON) B1C2F2W1V1H1	0.118	0.631	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400