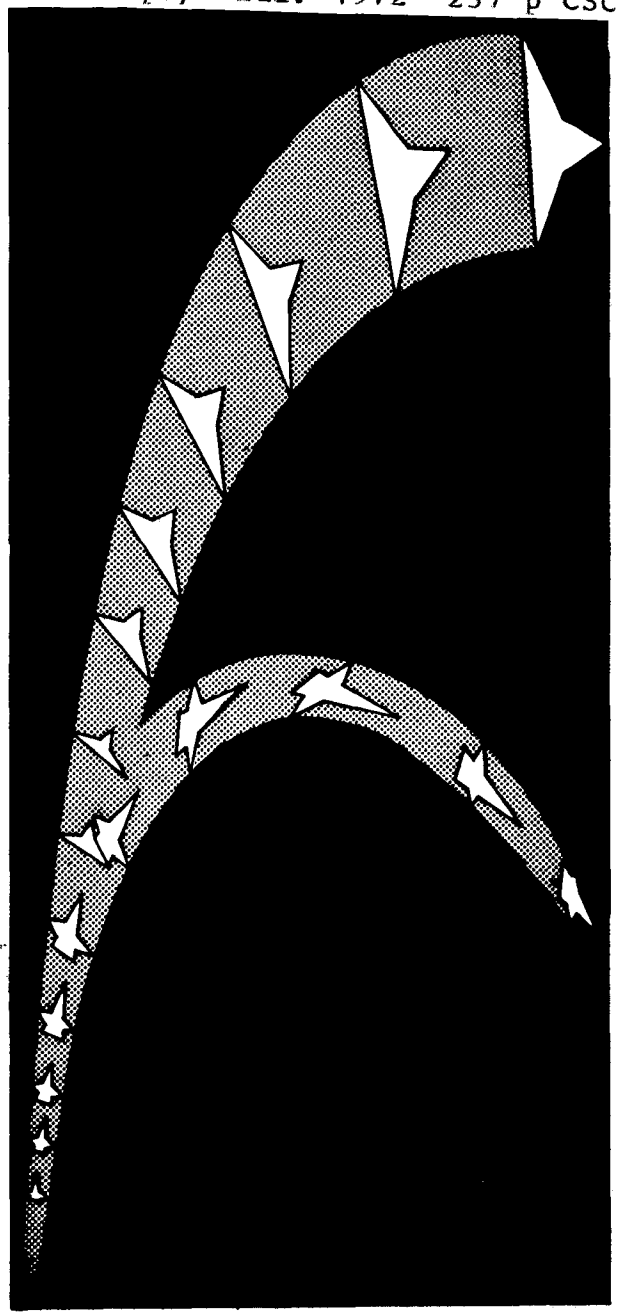
(NASA-CR-119985) INVESTIGATION OF THE MCDONNELL-DOUGLAS ORBITER AND BOOSTER SHUTTLE MODELS IN PROXIMITY AT MACH NUMBERS 2.0 TO 6.0. VOLUME 7: L.L. Trimmer, et al (Chrysler Corp.) Mar. 1972 237 p CSCL 22B G3/31

N72-22898

Unclas 25163

DMS-DR-1108
CR-119,985
MARCH 1972



—SPACE SHUTTLE—

INVESTIGATION OF THE McDONNELL-DOUGLAS ORBITER AND BOOSTER SHUTTLE MODELS IN PROXIMITY AT MACH NUMBERS 2.0 TO 6.0

VOLUME VII

PROXIMITY DATA AT MACH 4 AND 6, INTERFERENCE FREE AND LAUNCH VEHICLE DATA

by

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AEDC - VKF TUNNEL A

ARNOLD ENGINEERING DEVELOPMENT CENTER

SADSAC/SPACE SHUTTLE AEROTHERMODYNAMIC DATA MANAGEMENT SYSTEM

WIND TUNNEL TEST DATA REPORT

This document should be referenced as NASA CR-119,985

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MARSHALL SPACE FLIGHT CENTER

SPACE DIVISION CHRYSLER CORPORATION

344 pp

ABSTRACT

This report presents aerodynamic data obtained from a joint Langley Research Center (LaRC)/Marshall Space Flight Center (MSFC) Space Shuttle abort stage separation wind tunnel test. The .00556 scale models of the McDonnell-Douglas orbiter and booster configurations were tested in close proximity using dual balances in Tunnel A of the Von Karman Facility (VKF), Arnold Engineering Development Center (AEDC) during the time period of April 21 to April 27, 1971. Data were obtained for both booster and orbiter over an angle of attack range from -10^{o} to 10^{o} for zero degree sideslip angle. The models were tested at several relative incidence angles and separation distances and power conditions. Plug nozzles utilizing air were used to simulate booster and orbiter plumes at various altitudes along a nominal ascent trajectory. Powered conditions were 100, 50, 25 and 0 percent of full power for the orbiter and 100, 50 and 0 percent of full power for the booster. Pitch control effectiveness data were obtained for both booster and orbiter with power on and off. In addition, launch vehicle data with and without booster power were obtained utilizing a single balance in the booster model. Data were also obtained with the booster canard off in close proximity and for the launch configuration.

Plotted data for this test will be published under one data report number (DMS-DR-1108) with seven volumes as described below:

Volume	Description
I	Mach Number 5 Booster Proximity Data
II	Mach Number 5 Orbiter Proximity Data
III	Mach Number 3 Booster Proximity Data
IV	Mach Number 3 Orbiter Proximity Data
V	Mach Number 2 Booster Proximity Data
VI	Mach Number 2 Orbiter Proximity Data
VII	Interference Free Data for Orbiter and Booster, Launch Vehicle Data, and Proximity Data for Mach Numbers 4 and 6

A report containing Schlieren photographs will be published by AEDC. Schlieren photographs were taken at -10, 0, and 10 degrees angles of attack for each pitch polar.

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DMS-DR-1108
VOLUME VII
CR-119,985
MARCH, 1972

SADSAC/SPACE SHUTTLE

WIND TUNNEL TEST DATA REPORT

CONFIGURATION: McDonnell-Douglas Orbiter and Booster Shuttle Models; 0.00556 Scale

TEST PURPOSE: Experimental Aerodynamic Investigation of Space Shuttle Booster and Orbiter Vehicles in Close Proximity at Mach Numbers of 2.0 to 6.0

TEST FACILITY: AEDC-VKF Tunnel A

TESTING AGENCY: LARC/MSFC

TEST NO. & DATE: AEDC VA 1163; 21 through 27 April 1971

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CONTRACT NAS 8-4016 AMENDMENT 153 DRL 184 - 58

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

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SUMMARY

This report presents aerodynamic data obtained from a joint Langley Research Center (LaRC)/Marshall Space Flight Center (MSFC) Space Shuttle abort stage separation wind tunnel test. The .00556 scale models of the McDonnell-Douglas orbiter and booster configurations were tested in close proximity using dual balances in Tunnel A of the Von Karman Facility (VKF), Arnold Engineering Development Center (AEDC) during the time period of April 21 to April 27, 1971. Data were obtained for both booster and orbiter over an angle of attack range from -10° to 10° for zero degree sideslip angle. The models were tested at several relative incidence angles and separation distances and power conditions. Plug nozzles utilizing air were used to simulate booster and orbiter plumes at various altitudes along a nominal ascent trajectory. Powered conditions were 100, 50, 25 and 0 percent of full power for the orbiter and 100, 50 and 0 percent of full power for the booster. Pitch control effectiveness data were obtained for both booster and orbiter with power on and off. In addition, launch vehicle data with and without booster power were obtained utilizing a single balance in the booster model. Data were also obtained with the booster canard off in close proximity and for the launch configuration.

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A report containing Schlieren photographs will be published by AEDC. Schlieren photographs were taken at -10, 0, and 10 degrees angles of attack for each pitch polar.

TABLE I. SADSAC NOMENCLATURE OF AERODYNAMIC COEFFICIENTS

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

CONFIGURATIONS INVESTIGATED

The two configurations tested were the MDAC orbiter and booster, figures 4 and 5 respectively. The orbiter is basically the configuration illustrated on MDAC drawing number 255BJ0050. Modifications made on the orbiter to allow for installation of the nozzle assembly is shown in figure 4.

The booster configuration is basically the configuration designated 19A by MDAC (drawing number 256-19-0001). The body, wing, and canard of the booster model are that of configuration 19A except that the body does not have a base flare or boattail, figure 5. The vertical tails are those which were designed for the configuration designated 17 (drawing number 256-17-001).

Both the orbiter and booster models had moveable elevons with deflection angles of 0^{o}, $\pm 10^{o}$, and $\pm 20^{o}$. Geometric characteristics are shown on the following pages. Figures 4, 5, and 6 are photographs showing both models and models with associated separation hardware. Figures 5 and 6 also show the trip strip installation. For Mach 5 a grit size of #26 was utilized. However, at the beginning of the test a grit sizing study was performed which showed a slight effect on C_A only.

NOZZLE CALIBRATION

Two plug nozzle systems were designed and fabricated to simulate the rocket exhaust plume emitting from the booster and orbiter main propulsion systems during staging. Each nozzle was designed based on the gasdynamic simulation parameters established in Ref. 1. A variable area ratio capability was incorporated into both nozzle systems to permit the proper gasdynamic simulation of the full scale rocket exhaust plume at the various trajectory conditions of interest. Photographs of the nozzle hardware are shown in figures 6, 7 and 8.

Nozzle Calibration Test Objectives

The objectives of the nozzle calibration test were:

- Establish, experimentally, nozzle performance characteristics for the range of area ratio settings to be used with the booster and orbiter nozzles, respectively.
- Establish the degree of plume simulation obtained with the booster and orbiter nozzles, respectively.
- Establish a curve (based on experimental results) of nozzle exit conditions as a function of nozzle area ratio setting.

Nozzle Calibration

Calibration testing of the booster and orbiter plug nozzles was accomplished in Tunnel C of the Arnold Engineering Development Center's Von Karmon Gas Dynamics Facility. The nozzles were tested individually at a series of area ratio settings. Nozzle operating conditions (chamber pressure, P_{oj}; and chamber

temperature, T_{oj}) were maintained in a range compatible with the abort staging test conditions. A quiescent low pressure, P_b, condition was maintained in the test cell. Data recorded at each area ratio setting included: optical data to determine plume shapes; static pressure measurements on the sting surface at the nozzle exit; nozzle mass flow measurements; and pitot pressure surveys in the plume at several locations downstream of the nozzle exit plane. The various test parameters sampled at each setting were correlated during the data evaluation to establish actual nozzle performance characteristics.

In a parallel effort, analytical solutions of the nozzle flow field and associated plume were generated for various area ratio settings of the booster and orbiter models. A method of characteristics solution employing real gas thermodynamic data for air was utilized in the calculations. Analytical results for each area ratio setting included: plume shape; static pressure distribution along sting surface; and plots of constant Mach number and constant pitot pressure contours in the plume flow field. These results formed a baseline for evaluating the experimentally measured performance of the plug nozzles.

A detailed evaluation of the calibration test results has been prepared and presented in Reference 2. Included in this reference are curves relating experimentally measured nozzle performance to nozzle area ratio settings for both booster and orbiter. These curves were utilized to set the correct nozzle area ratio for exhaust plume gasdynamic simulations during the test.

TEST PROCEDURE

Abort staging was simulated by movement of the orbiter model through a matrix of points in the booster model flow field. Vertical and axial translation of the orbiter model was provided by an electrically driven remotely controlled positioning mechanism. The general arrangement of the models in the tunnel is shown in figure 3. The orbiter positioning mechanism and the booster model support were attached to the wind tunnel angle of attack system which provided $\pm$10-degree angle of attack variation for the booster-orbiter combination. Incidence angle variation was provided by manual adjustment of the orbiter sting.

The orbiter positioning mechanism provided axial translation of approximately 17 inches and vertical translation of approximately 15 inches with respect to the booster. An automatic control system allowed a series of positions to be programmed prior to a test run. The control system had provisions for 25 different x-positions and 25 different z-positions. For these tests, however, only $\underline{9}$ x-positions and $\underline{8}$ z positions were utilized. All x and z positions except the first and last could be switched in or out of the matrix as desired.

The automatic positioning mechanism was slaved to the angle of attack mechanism so that as a pitch sweep was completed the positioning mechanism

was released to advance to the next matrix point and as the point was reached the angle of attack mechanism was released for a pitch sweep. The entire matrix was covered in this manner and about 30 seconds were required for each pitch sweep in the matrix.

Plume simulation was provided by a single torodial nozzle in each model. The nozzles were designed with variable area ratio capability to permit proper simulation of the full-scale rocket plume at the various trajectory conditions of interest. Pretest calibration of the nozzles was used to correlate area ratio settings with measured plume shapes, nozzle mass flow, and nozzle exit static pressure. Air heated to approximately 100°F was supplied to the nozzles, and separate controls for the booster and orbiter supplies were provided.

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α	M∞	δeq	δe0	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.544	.908	10.0
RT8001	MDAC BASTER	A	0	0.0	0.0	-.391	0.0	5.0	0.0	0.0	8	301	318	319	338	339	354	355	355
002						-.143					8	302	317	320	337	340	353	356	
003						-.019					8	303	316	321	336	341	352	357	
004						.043					6	304	315	322	335	342			
005						.105					7	305	314	323	333	343	351	358	
006						.167					6	306	313	324	332	344			
007						.228					8	307	312	325	331	345	350	359	
008						.351					8	308	311	326	330	346	349	360	
009						.522	↓				8	309	310	327	328	347	348	361	↓
010						-.391	5.1				6		601	618	619	636	637		637
011						-.143					6		602	617	620	635	638		
012						-.019					5		603	616	621	634			
013						.043					5		604	615	622	633			
014						.105					6		605	614	623	632	639		
015						.167					5		606	613	624	631			
016						.228					5		607	612	625	630			
017						.351					5		608	611	626	629			
↓ 018	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	6		609	610	627	628	640		↓

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

ALPHA QCLM ICN ICA ICRL ICY CYN DELTAZ 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PWR_α	PWR_β	Δx/l_B	α_i	M_∞	δe_α	δe_β	No. of Runs	DELTA Z/l_B	.119	.151	.182	.222	.352	.572	.908	10.0
RT8 019	MDAC BOOSTER	A	0	0.0	0.0	-.391	10.1	5.0	0.0	0.0	5				1101	1118	1119	1131		1131
020						-.143					5				1102	1117	1120	1130		
021						-.019					4				1103	1116	1121			
022						.043					4				1104	1115	1122			
023						.105					5				1105	1114	1123	1129		
024						.167					4				1106	1113	1124			
025						.228					4				1107	1112	1125			
026						.351					4				1108	1111	1126			
027						.501					5				1109	1110	1127	1128		
028						-.391	-4.9				7		741	701	718	719	736	737		737
029						-.143					7		743	702	717	720	735	738		
030						-.019					6		744	703	716	721	734			
031						.043					6		745	704	715	722	733			
032						.105					7		746	705	714	723	732	739		
033						.167					6		747	706	713	724	731			
034						.228					6		748	707	712	725	730			
035						.351					6		749	708	711	726	729			
036						.522					7		750	709	710	727	728	740		

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

ALPHA DCLM ICN ICA ICBL CY CYN ..... DELTAZ 7

COEFFICIENTS: A = -10° To +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR1	PWR2	Δx/ℓ_B	α_i	M_∞	δ_eB	δ_e0	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.226	.352	.529	.908	10.0
RT8 037	MDAC BOOSTER	A	0	50.	100.	-.391	0.0	5.0	0.0	0.0	8	401	418	419	436	437	453	454	454
038						-.143					8	402	417	420	435	438	452	455	
039						-.019					8	403	416	421	434	439	451	456	
040						.043					6	404	415	422	433	440			
041						.105					8	405	414	423	432	441	450	457	
042						.167					6	406	413	424	431	442			
043						.228					8	407	412	425	430	443	449	458	
044						.351					8	408	411	426	429	444	447	459	
045						.522					9	409	410	427	428	445	446	460	
046						-.391	5.1				6		501	518	519	536	537		537
047						-.143					6		502	517	520	535	538		
048						-.019					5		503	516	521	534			
049						.043					5		504	515	522	533			
050						.105					6		505	514	523	532	539		
051						.167					5		506	513	524	531			
052						.228					5		507	512	525	530			
053						.351					5		508	511	526	529			
054						.523					6		509	510	527	528	540		

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

ALPHA QCLM ICN ICA ICBL CY CYN DELTAZ 7

COEFFICIENTS: A= -10° +0 +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_\alpha$	PWR$_\beta$	$\Delta X/\ell_B$	α_i	m_∞	δ_{e_α}	δ_{e_β}	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908	1.00
RT8055	MDAC RAKSTER	A	0	50.	100.	-.391	10.1	5.0	0.0	0.0	5			1001	1019	1020	1032		1052
056						-.143					5			1002	1018	1021	1031		
057						-.019					4			1003	1017	1022			
058						.043					4			1004	1016	1023			
059						.105					5			1005	1015	1024	1030		
060						.167					4			1006	1014	1025			
061						.228					4			1007	1012	1026			
062						.351					4			1008	1011	1027			
063						.501	↓				5			1009	1010	1028	1029		↓
064						-.391	-5.0				7	801	818	819	837	838	850		850
065						-.143					7	802	817	820	836	839	849		
066						-.019					6	803	816	821	835	840			
067						.043					6	804	815	822	834	841			
068						.105					7	805	814	823	833	842	848		
069						.167					6	806	813	824	832	843			
070						.228					6	807	812	825	831	844			
071						.351					6	808	811	827	830	845			
↓ 072		↓	↓	↓	↓	.502	↓	↓	↓	↓	7	809	810	828	829	846	847		↓

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

ALPHA MCLM ICN ICA ICBL CY CYN ..... DELTAZ 7

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_1$	PWR$_2$	$\Delta x/\ell_B$	α_i	M_∞	δ_{e_B}	δ_{e_D}	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.928	10.0
RTB 073	MDAC BOOSTER	A	0	50.	100.	-.391	-10.1	5.0	0.2	0.0	5			1201	1218	1219	1231		1231
074						-.143					5			1202	1217	1220	1230		
075						-.019					4			1203	1216	1221			
076						.043					4			1204	1215	1222			
077						.105					5			1205	1214	1223	1229		
078						.167					4			1206	1213	1224			
079						.228					4			1207	1212	1225			
080						.351					4			1208	1211	1226			
081						.522					5			1209	1210	1227	1228		
082				0.0	0.0	-.391	0.0				4	201	208	209	216				
083						-.143					4	202	207	210	215				
084						.105					4	203	206	211	214				
085						.522					4	204	205	212	213				

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

ALPHADCLM ICN ICA ICBL ICY ICYN ... DELTAZ 7

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

α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_A$	PWR$_B$	$\Delta x/\ell_B$	α_i	M_∞	δe_B	δe_D	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908	10.0
RT8086	MDAC BOOSTER	A	0	100.	100.	-.391	0.0	5.0	0.0	0.0	6	1301	1314	1315	1328	1329			1334
087						-.143					6	1302	1313	1316	1327	1330			
088						-.019					5	1303	1312	1317	1326				
089						.105					6	1304	1311	1318	1325	1331			
090						.167					5	1305	1310	1319	1324				
091						.351					6	1306	1309	1320	1323	1332			
092						.522					6	1307	1308	1321	1322	1333			
093						-.391	5.0				5		1501	1514	1515	1526			1535
094						-.143					5		1502	1513	1516	1525			
095						-.019					4		1503	1512	1517				
096						.105					5		1504	1511	1518	1524			
097						.167					4		1505	1510	1519				
098						.351					5		1506	1509	1520	1523			
099						.522					5		1507	1508	1521	1522			

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

ALPHADCLM ICN ICA ICBL ICY ICYN ... IDELTAZ 7

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

α or β SCHEDULES: α = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α	M∞	δeB	δeθ	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RT8 100	NDAC BOOSTER	A	0	0.0	100.	-.391	0.0	5.0	0.0	0.0	5	1401	1414	1415	1428				355
101						-.143					5	1402	1413	1416	1427				
102						-.019					5	1403	1412	1417	1426				
103						.105					5	1404	1411	1418	1425				
104						.167					5	1405	1410	1419	1424				
105						.351					5	1406	1409	1420	1423				
106						.522					5	1407	1408	1421	1422				
107				50.	50.	-.391					6	1801	1814	1815	1828	1829			1354
108						-.143					6	1802	1813	1816	1827	1830			
109						-.019					5	1803	1812	1817	1826				
110						.105					6	1804	1811	1818	1825	1831			
111						.167					5	1805	1810	1819	1824				
112						.351					6	1806	1809	1820	1823	1832			
113						.522					6	1807	1808	1821	1822	1833			

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

ALPHA MACH ICN ICA ICBL ICY ICYN ... DELTAZ T

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

α or β SCHEDULES: A = −10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_R$	PWR$_P$	AX/ℓ_B	α_i	M_∞	δe_B	δe_0	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908	10.0
RTB 114	NDAC BOOSTER	A	0	50.	50.	-.391	5.0	5.0	0.0	0.0	5		1601	1614	1615	1626			1627
115						-.143					5		1602	1613	1616	1625			
116						-.019					4		1603	1612	1617				
117						.105					5		1604	1611	1618	1624			
118						.167					4		1605	1610	1619				
119						.351					5		1606	1609	1620	1623			
120				↓	↓	.522					5		1607	1608	1621	1622			
121				50.	25.	-.391					3		1701	1714					
122						-.14=							1702	1713					
123						-.0[illegible]							1703	1712					
124						.105							1704	1711					
125						.167							1705	1710					
126						.351							1706	1709					
127		↓	↓	↓	↓	.522	↓	↓	↓	↓	↓		1707	1708					↓

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

ALPHA DCLA ICN ICA ICBL ICY ICYN ... DELTAZ 5

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	$\Delta x/l_B$	α_i	M_∞	δ_{e_D}	δ_{e_D}	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	10.0
RTB 128	MDAC BOOSTER	A	0	0.0	0.0	-.391	0.0	5.0	20.	-20.	6	1901	1914	1915	1928	1929			1934
129						-.143					6	1902	1913	1916	1927	1930			
130						-.019					5	1903	1912	1917	1926				
131						.105					6	1904	1911	1918	1925	1931			
132						.167					5	1905	1910	1919	1924				
133						.351					6	1906	1909	1920	1923	1932			
134						.522					6	1907	1908	1921	1922	1935			
135				100.	100.	-.391					3	2001	2014	2015					
136						-.143					3	2002	2013	2016					
137						-.019					3	2003	2012	2017					
138						.105					2	2004	2011						
139						.167					2	2005	2010						
140						.351					2	2006	2009						
141						.522					2	2007	2008						

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

ALPHA NCLM NCN NCA NCBL CY CYN ... DELTAZ 7

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	ΔX/ℓB	α∞	M∞	δeg	δeo	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.901	10.0
RT8142	MDAC ORBITER	A	0	0.0	0.0	-.391	0.0	5.0	0.0	0.0	8	301	318	319	338	339	354	355	361
143						-.143					8	302	317	320	337	340	353	356	
144						-.019					8	303	316	321	336	341	352	357	
145						.043					6	304	315	322	335	342			
146						.105					7	305	314	323	333	343	351	358	
147						.167					6	306	313	324	332	344			
148						.228					8	307	312	325	331	345	350	359	
149						.351					8	308	311	326	330	346	349	360	
150						.522	↓				8	309	310	327	328	347	348	361	↓
151						-.391	5.1				6		601	618	619	636	637		
152						-.143					6		602	617	620	635	638		
153						-.019					5		603	616	621	634			
154						.043					5		604	615	622	633			
155						.105					6		605	614	623	632	639		
156						.167					5		606	613	624	631			
157						.228					5		607	612	625	630			
158						.351					5		608	611	626	629			
159		↓	↓	↓	↓	.522	↓	↓	↓	↓	6		609	610	627	628	640		↓

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

ALPHADCLM ICN ICA ICBL ICY CYN DELTAZ 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α₂	m∞	δeA	δeD	No. of Runs	DELTA Z/ℓB .119	.151	.182	.222	.352	.579	.908	10.0
RT8160	BASIC CARRIER	A	0	0.0	0.0	-.391	10.1	5.0	0.0	0.0	5			1101	1118	1119	1131		1128
161						-.143					5			1102	1117	1120	1130		
162						-.019					4			1103	1116	1121			
163						.043					4			1104	1115	1122			
164						.105					5			1105	1114	1123	1129		
165						.167					4			1106	1113	1124			
166						.228					4			1107	1112	1125			
167						.351					4			1108	1111	1126			
168						.501					5			1109	1110	1127	1128		
169						-.391	-4.9				7	741	701	718	719	736	737		740
170						-.143					7	743	702	717	720	735	738		
171						-.019					6	744	703	716	721	734			
172						.043					6	745	704	715	722	733			
173						.105					7	746	705	714	723	732	739		
174						.167					6	747	706	713	724	731			
175						.228					6	748	707	712	725	730			
176						.351					6	749	708	711	726	729			
177						.522					7	750	709	710	727	728	740		

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

ALPHA DCLM ICN ICA ICBL CY CYN ... DELTAZ ... 7

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓ_B	α_j	M_∞	δe_B	δe_0	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.579	.908	10.0
RT8178	NDAC ORBITER	A	0	50.	100.	-.391	0.0	5.0	0.0	0.0	8	401	418	419	436	437	453	454	
179						-.143					8	402	417	420	435	438	452	455	
180						-.019					8	403	416	421	434	439	451	456	
181						.043					6	404	415	422	433	440			
182						.105					8	405	414	423	432	441	450	457	
183						.167					6	406	413	424	431	442			
184						.228					8	407	412	425	430	443	449	458	
185						.351					8	408	411	426	429	444	447	459	
186						.522	↓				8	409	410	427	428	445	446	460	↓
187						-.391	5.1				6		501	518	519	536	537		540
188						-.143					6		502	517	520	535	538		
189						-.019					5		503	516	521	534			
190						.043					5		504	515	522	533			
191						.105					6		505	514	523	532	539		
192						.167					5		506	513	524	531			
193						.228					5		507	512	525	530			
194						.351					5		508	511	526	529			
↓ 195	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	6		509	510	527	528	540		↓

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

ALPHA CLM CN CA CBL CY CYN DELTA 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° +0 +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAP

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PWR	PWR	Δx/ℓB	αi	M∞	δeg	δeo	No. of Runs	DELTA Z/ℓB .119	.151	.180	.228	.352	.529	.901	10.0
RT8196	MDAC SPOTSA	A	0	50.	100.	-.391	10.1	5.0	0.0	0.0	5			1001	1019	1020	1032		1029
197						-.143					5			1002	1018	1021	1031		
198						-.019					4			1003	1017	1022			
199						.043					4			1004	1016	1023			
200						.105					5			1005	1015	1024	1030		
201						.167					4			1006	1014	1025			
202						.228					4			1007	1062	1026			
203						.351					4			1008	1011	1027			
204						.501	↓				5			1009	1010	1028	1029		↓
205						-.391	-5.0				7	801	818	819	837	838	850		847
206						-.143					7	802	817	820	836	839	849		
207						-.019					6	803	816	821	835	840			
208						.043					6	804	815	822	834	841			
209						.105					7	805	814	823	833	842	848		
210						.167					6	806	813	824	832	843			
211						.228					6	807	812	825	831	844			
212						.351					6	808	811	827	830	845			
↓ 213	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	7	809	810	828	829	846	847		↓

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

ALPHA QCLM ICN ICA ICBL CY CYN DELTAZ

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	ΔX/l_B	α_i	M_∞	δ_{eB}	δ_{eD}	No. of Runs	DELTA Z/l_B	.119	.151	.182	.228	.352	.599	.908	10.0
RT8 214	MBAC CENTER	A	0	50.	100.	-.391	-10.1	5.0	0.0	0.0	5				1201	1218	1219	1231		1227
215						-.143					5				1202	1217	1220	1230		
216						-.019					4				1203	1216	1221			
217						.043					4				1204	1215	1222			
218						.105					5				1205	1214	1223	1229		
219						.167					4				1206	1213	1224			
220						.228					4				1207	1212	1225			
221						.351					4				1208	1211	1226			
222				↓	↓	.522	↓				5				1209	1210	1227	1228		↓
223				0.0	0.0	-.391	0.0				4		201	208	209	216				
224						-.143					4		202	207	210	215				
225						.105					4		203	206	211	214				
↓ 226		↓	↓	↓	↓	.522	↓	↓	↓	↓	4		204	205	212	213				

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

ALPHA QCLM ICN ICA ICBL ICY ICYN ... DELTAZ | 0

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

α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	$\Delta x/l_0$	α_i	M_∞	δ_{eq}	δ_{ep}	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	10.0
RT8 227	MDAC CONFIGURATION	A	D	100.	100.	-.391	0.0	5.0	0.0	0.0	6	1301	1314	1315	1328	1329			1334
228						-.143					6	1302	1313	1316	1327	1330			
229						-.019					5	1303	1312	1317	1326				
230						.105					6	1304	1311	1318	1325	1331			
231						.167					5	1305	1310	1319	1324				
232						.351					6	1306	1309	1320	1323	1332			
233						.522	↓				6	1307	1308	1321	1322	1333			↓
234						-.391	5.0				5		1501	1514	1515	1526			1527
235						-.143					5		1502	1513	1516	1525			
236						-.019					4		1503	1512	1517				
237						.105					5		1504	1511	1518	1524			
238						.167					4		1505	1510	1519				
239						.351					5		1506	1509	1520	1523			
240		↓	↓	↓	↓	.522	↓	↓	↓	↓	5		1507	1508	1521	1522			↓

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

ALPHA CLM ICN ICA ICBL CY CYN DELTAZ 1

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

α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_A$	PWR$_B$	$\Delta X/\ell_B$	α_i	M_∞	δ_{e_B}	δ_{e_D}	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.90P	10.0
RT8 241	NOAC SPLITTER	A	0	0.0	100.	-.391	0.0	5.0	0.0	0.0	5	1401	1414	1415	1428				1436
242						-.143					5	1402	1413	1416	1427				
243						-.019					5	1403	1412	1417	1426				
244						.105					5	1404	1411	1418	1425				
245						.167					5	1405	1410	1419	1424				
246						.351					5	1406	1409	1420	1423				
247						.522					5	1407	1408	1421	1422				
248				50.	50.	-.391					6	1801	1814	1815	1828	1829			1836
249						-.143					6	1802	1813	1816	1827	1830			
250						-.019					5	1803	1812	1817	1826				
251						.105					6	1804	1811	1818	1825	1831			
252						.167					5	1805	1810	1819	1824				
253						.351					6	1806	1809	1820	1823	1832			
254						.522					6	1807	1808	1821	1822	1833			

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

ALPHA DCLM ICN ICA ICBL ICY ICYN DELTAZ 7

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

α or β SCHEDULES: A = −10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α	M∞	δeB	δeD	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RT8255	MDAC 0.7-METER	A	0	50.	50.	-.391	5.0	5.0	0.0	0.0	5		1601	1614	1615	1626			16.27
256						-.143					5		1602	1613	1616	1625			
257						-.019					4		1603	1612	1617				
258						.105					5		1604	1611	1618	1624			
259						.167					4		1605	1610	1619				
260						.351					5		1606	1609	1620	1623			
261						.522					5		1607	1608	1621	1622			
262				50.	25.	-.391					2		1701	1714					
263						-.143							1702	1713					
264						-.019							1703	1712					
265						.105							1704	1711					
266						.167							1705	1710					
267						.351							1706	1709					
268						.522							1707	1708					

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

ALPHA QCLM ICN ICA ICBL ICY ICYN DELTAZ T

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR1	PWR2	ΔX/ℓB	α∞	M∞	δe1	δe2	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RT8 269	MDAC ORBITER	A	0	0.0	0.0	-.391	0.0	5.0	20.	-20.	6	1901	1914	1915	1928	1929			1937
270						-.143					6	1902	1913	1916	1927	1930			
271						-.019					5	1903	1912	1917	1926				
272						.105					6	1904	1911	1918	1925	1931			
273						.167					5	1905	1910	1919	1924				
274						.351					6	1906	1909	1920	1923	1932			
275						.522					6	1907	1908	1921	1922	1933			
276				100.	100.	-.391					3	2001	2014	2015					
277						-.143					3	2002	2013	2016					
278						-.019					3	2003	2012	2017					
279						.105					2	2004	2011						
280						.167					2	2005	2010						
281						.351					2	2006	2009						
282						.522					2	2007	2008						

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

ALPHA C.L.M ICN ICA ICBL CY CYN ... DELTA 7

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓ_B	α_i	M_∞	δ_eR	δ_eP	No. of Runs	DELTA Z/ℓ_B .113	.119	.151	.182	.228	.352	.599	.908	1.00
RTB 283	MDAC BOOSTER	A	0	0.0	0.0	-.391	0.0	2.0	0.0	0.0	9	4201	3301	3318	3319	3336	3337	3352	3353	3352
284						-.143					9	4202	3302	3317	3320	3335	3338	3351	3354	
285						-.019					8	4203	3303	3316	3321	3334	3339	3350		
286						.043					7	4204	3304	3315	3322	3333	3340			
287						.105					9	4205	3305	3314	3323	3332	3341	3349	3355	
288						.167					7	4206	3306	3313	3324	3331	3342			
289						.228					8	4207	3307	3312	3325	3330	3343	3348		
290						.351					8	4208	3308	3311	3326	3329	3344	3347		
291						.521	↓				9	4209	3309	3310	3327	3328	3345	3346	3356	↓
292						-.391	5.0				7			3501	3518	3519	3536			3537
293						-.143					7			3502	3517	3520	3535	3538		
294						-.019					6			3503	3516	3521	3534			
295						.043					5			3504	3515	3522	3533			
296						.105					7			3505	3514	3523	3532			
297						.167					5			3506	3513	3524	3531			
298						.228					6			3507	3512	3525	3530			
299						.351					6			3508	3511	3526	3529			
300	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	7			3509	3510	3527	3528	3543	3544	↓

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

ALPHA CLM ICN ICA ICBL ICY ICYN DELTAZ T

COEFFICIENTS: IDPVAR(1) IDPVAR(2) NDV

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR_α	PWR_β	Δx/l_B	α_i	M_∞	δe_α	δe_β	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	10.0
RTB 301	MDAC BOOSTER	A	0	0.0	0.0	-.391	10.0	2.0	0.0	0.0	6			3801	3818	3819	3834	3835	
302						-.143					6			3802	3817	3820	3833	3836	
303						-.019					5			3803	3816	3821	3832		
304						.043					4			3804	3815	3822			
305						.105					6			3805	3814	3823	3831	3837	
306						.167					4			3806	3813	3824			
307						.228					5			3807	3812	3825	3830		
308						.351					5			3808	3811	3826	3829		
309						.501	↓				6			3809	3810	3827	3828	3838	↓
31C						-.391	-5.0				8	3701	3718	3719	3736	3737	3752	3753	
311						-.143					8	3702	3717	3720	3735	3738	3751	3754	
312						-.019					7	3703	3716	3721	3734	3739	3750		
313						.043					6	3704	3715	3722	3733	3740			
314						.105					8	3705	3714	3723	3732	3741	3749	3755	
315						.167					6	3706	3713	3724	3731	3742			
316						.228					7	3707	3712	3725	3730	3743	3748		
317						.351					7	3708	3711	3726	3729	3744	3747		
318						.501	↓				8	3709	3710	3727	3728	3745	3746	3756	↓

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

ALPHA CLM CN CA CBL CY CYN ... DELTAZ 7

COEFFICIENTS: A = -10° TO +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_0$	PWR$_2$	$\Delta X/\ell_B$	α_i	M_∞	δe_B	δe_e	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908	1.00
RT8319	MDAC BOOSTER	A	O	50.0	100.0	-.391	0.0	2.0	0.0	0.0	7	3401	3418	3419	3436	3437	3452		3454
320						-.143					8	3402	3417	3420	3435	3438	3451	3454	
321						-.019					7	3403	3416	3421	3434	3439	3450		
322						.043					6	3404	3415	3422	3433	3440			
323						.105					8	3405	3414	3423	3432	3441	3449	3455	
324						.167					6	3406	3413	3424	3431	3442			
325						.228					7	3407	3412	3425	3430	3443	3448		
326						.351					7	3408	3411	3426	3429	3444	3447		
327						.522	↓				8	3409	3410	3427	3428	3445	3446	3456	↓
328						-.391	5.0				7		3601	3618	3619	3636	3637	3647	3647
329						-.143					7		3602	3617	3620	3635	3638	3646	
330						-.019					6		3603	3616	3621	3634	3639		
331						.043					5		3604	3615	3622	3633			
332						.105					7		3605	3614	3623	3632	3640	3645	
333						.167					5		3606	3613	3624	3631			
334						.228					6		3607	3612	3625	3630	3641		
335						.351					6		3608	3611	3626	3629	3642		
336		↓	↓	↓	↓	.522	↓	↓	↓	↓	7		3609	3610	3627	3628	3643	3644	↓

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

ALPHA CLM ICN ICA ICBL ICY ICYN ... DELTAZ | 7

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/l_B	α_i	M_∞	δe_B	δe_θ	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	10.0
RT8337	MDAC BOOSTER	A	0	50.0	100.0	-.391	10.0	2.0	0.0	0.0	6			4001	4018	4019	4034	4035	4055
338						-.143					6			4002	4017	4020	4033	4036	
339						-.019					5			4003	4016	4021	4032		
340						.043					4			4004	4015	4022			
341						.105					6			4005	4014	4023	4031	4037	
342						.167					4			4006	4013	4024			
343						.228					5			4007	4012	4025	4030		
344						.351					5			4008	4011	4026	4029		
345						.501					6			4009	4010	4027	4028	4038	
346				0.0	0.0	-.391	0.0				8	3901	3918	3919	3936	3937	3952	3953	3955
347						-.143					8	3902	3917	3920	3935	3938	3951	3954	
348						-.019					7	3903	3916	3921	3934	3939	3950		
349						.043					6	3904	3915	3922	3933	3940			
350						.105					8	3905	3914	3923	3932	3941	3949	3955	
351						.167					6	3906	3913	3924	3931	3942			
352						.228					7	3907	3912	3925	3930	3943	3948		
353						.351					7	3908	3911	3926	3929	3944	3947		
354						.521					8	3909	3910	3927	3928	3945	3946	3956	

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

ALPHA CLM CN CA CBL CY CYN ..... DELTAZ 7

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α_i	M∞	δeR	δeD	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RTB 355	MDAC BLISTER	A	O	0.0	1.0	-.391	0.0	2.0	20.0	-20.0	8	4401	4414	4415	4429	4430	4441	4442	4443
356						-.143					8	4402	4413	4416	4428	4431	4440	4443	
357						-.019					6	4403	4412	4417	4427		4439		
358						.105					8	4404	4411	4418	4426	4432	4438	4444	
359						.167					5	4405	4410	4419	4424				
360						.351					7	4406	4409	4420	4423	4433	4436		
361				↓	↓	.522					8	4407	4408	4421	4422	4434	4435	4445	↓
362				50.0	100.0	-.391					8	4501	4518	4519	4537	4538	4553	4554	4555
363						-.143					8	4502	4517	4520	4536	4539	4552	4555	
364						-.019					7	4503	4516	4521	4535	4540	4551		
365						.043					6	4504	4515	4522	4534	4541			
366						.105					8	4505	4514	4523	4533	4542	4550	4556	
367						.167					6	4506	4513	4524	4532	4543			
368						.228					7	4507	4512	4525	4530	4544	4549		
369						.351					7	4508	4511	4526	4529	4545	4548		
↓ 370	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	8	4509	4510	4527	4528	4546	4547	4557	↓

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

ALPHA CLM ICN ICA ICBL CY CYN DELTAZ 7

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_0$	PWR$_2$	$\Delta x/l_B$	α_i	m_∞	δ_{e_2}	δ_{e_0}	No. of Runs	DELTA Z/l_B .119
RTB 371	ATDAC BOOSTER	A	0	0.0	0.0	-.391	0.0	2.0	0.0	0.0	1	4201
372						-.143						4202
373						-.019						4203
374						.043						4204
375						.105						4205
376						.167						4206
377						.228						4207
378						.351						4208
379				↓		.501						4209
380				100.0		-.391						4101
381						-.143						4102
382						-.019						4103
383						.043						4104
384						.105						4105
385						.167						4106
386						.228						4107
387						.351						4108
388	↓	↓	↓	↓	↓	.501	↓	↓	↓	↓	↓	4109

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

ALPHADCLM ICN ICA ICBL CY CYN DELTAZ 7

→ IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° TO +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	ΔX/ℓ_B	α_i	M_∞	δ_{e_R}	δ_{e_0}	No. of Runs	DELTA Z/ℓ_B .119
ATB 389	MDAC BODY STEP	A	0	0.0	0.0	-.391	0.0	2.0	20.0	-20.0	1	4801
390						-.143						4802
391						-.019						4803
392						.043						4804
393						.105						4805
394						.167						4806
395						.228						4807
396						.351						4808
397						.522						4809
398				100.0		-.391						4901
399						-.143						4902
400						-.019						4903
401						.043						4904
402						.105						4905
403						.167						4906
404						.228						4907
405						.351						4908
406	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	↓	4909

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

ALPHA MCLM ICN ICA ICBL CY CYN DELTAB | 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: α or β SCHEDULES

A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAP

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_\alpha$	PWR$_\beta$	$\Delta X/\ell_B$	α_i	m_∞	δe_β	δe_0	No. of Runs	DELTA Z/ℓ_B .113	.119	.151	.182	.228	.352	.599	.901	10.0
RT8 407	MDAC BOOSTER	A	O	0.0	0.0	-.391	0.0	3.0	0.0	0.0	9	3101	2201	2218	2219	2236	2237	2252	2253	2253
408						-.143					9	3102	2202	2219	2220	2235	2237	2251	2254	
409						-.019					8	3103	2203	2216	2221	2234	2239	2250		
410						.043					7	3104	2204	2215	2222	2233	2240			
411						.105					9	3105	2205	2214	2223	2232	2241	2249	2255	
412						.167					7	3106	2206	2219	2224	2231	2242			
413						.228					8	3107	2207	2212	2225	2230	2243	2248		
414						.351					8	3108	2208	2211	2226	2229	2244	2247		
415						.521	↓				9	3109	2209	2210	2227	2228	2245	2246	2256	↓
416						-.391	5.0				8			2401	2418	2419	2436	2437	2447	2447
417						-.143					8			2402	2417	2420	2435	2438	2446	
412						-.019					7			2403	2416	2421	2434	2439		
419						.043					6			2404	2415	2422	2433			
420						.105					8			2405	2414	2423	2432	2440	2445	
421						.167					6			2406	2413	2424	2431			
422						.228					7			2407	2412	2425	2430	2441		
423						.351					7			2408	2411	2426	2429	2442		
↓ 424	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	8			2409	2410	2427	2428	2443	2444	↓

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

ALPHA QCLM ICN ICA ICBL ICY ICYN ... DELTAZ 7

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

α or β SCHEDULES: A = −10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAP

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α_i	M_∞	δe_a	δe_p	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RT8 425	MDAC BOOSTER	A	0	0.0	0.0	-.391	10.0	3.0	0.0	0.0	6			2901	2918	2919	2934	2935	2935
426						-.143					6			2902	2917	2920	2933	2936	
427						-.019					5			2903	2916	2921	2932		
428						.043					4			2904	2915	2922			
429						.105					6			2905	2914	2923	2931	2937	
430						.167					4			2906	2913	2924			
431						.228					5			2907	2912	2925	2930		
432						.351					5			2908	2911	2926	2929		
433						.501	↓				6			2909	2910	2927	2928	2938	↓
434						-.391	-5.0				8	2601	2618	2619	2636	2637	2652	2653	2655
435						-.143					8	2602	2617	2620	2635	2638	2651	2654	
436						-.019					7	2603	2616	2621	2634	2639	2650		
437						.043					6	2604	2615	2622	2633	2640			
438						.105					8	2605	2614	2623	2632	2641	2649	2655	
439						.167					6	2606	2613	2624	2631	2642			
440						.228					7	2607	2612	2625	2630	2643			
441						.351					7	2608	2611	2626	2629	2644	2647		
↓ 442	↓	↓	↓	↓	↓	.502	↓	↓	↓	↓	8	2609	2610	2627	2628	2645	2646	2656	↓

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

ALPHA CLM ICN ICA ICBL CY CYN DELTAZ 7

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_2$	PWR$_0$	$\Delta X/l_B$	α_i	M_∞	δe_2	δe_0	No. of Runs	DELTA Z/l_B .113	.119	.151	.182	.227	.352	.599	.908	10.0
RT8 1163	111DA: BAGSTER	A	0	50.0	100.0	-.391	0.0	3.0	0.0	0.0	8	3001	2301	2318	2319	2336	2337	2352	2353	2353
444						-.143					7	3002	2302	2317	2320	2335		2351	2354	
445						-.019					7	3003	2303	2316	2321	2334	2339	2350		
446						.043					6	3004	2304	2315	2322	2333	2340			
447						.105					8	3005	2305	2314	2323	2332	2341	2349	2355	
448						.167					6	3006	2306	2313	2324	2331	2342			
449						.228					7	3007	2307	2312	2325	2330	2343	2348		
450						.351					7	3008	2308	2311	2326	2329	2344	2347		
451						.521	↓				8	3009	2309	2310	2327	2328	2345	2346	2356	↓
452						-.391	5.0				7			2501	2518	2519	2536	2537	2547	2547
453						-.143					7			2502	2517	2520	2535	2538	2546	
454						-.019					6			2503	2516	2521	2534	2539		
455						.043					5			2504	2515	2522	2533			
456						.105					7			2505	2514	2523	2532	2540	2545	
457						.167					5			2506	2513	2524	2531			
458						.228					6			2507	2512	2525	2530	2541		
459						.351					6			2508	2511	2526	2529	2542		
460		↓	↓	↓	↓	.522	↓	↓	↓	↓	7			2509	2510	2527	2528	2543	2544	↓

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

ALPHA QCLM ICN ICA ICBL CY CYN ..... DELTAZ 7

COEFFICIENTS: A = −10° TO +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α_i	M_∞	δe_B	δe_0	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RT8461	MDAC REGISTER	A	0	50.3	100.3	-.391	10.0	3.0	0.0	0.0	6			2801	2818	2819	2834	2835	2855
462						-.143					6			2802	2817	2820	2833	2836	
463						-.019					5			2803	2816	2821	2832		
464						.043					4			2804	2815	2822			
465						.105					6			2805	2814	2823	2831	2837	
466						.167					4			2806	2813	2824			
467						.228					5			2807	2812	2825	2830		
468						.351					5			2808	2811	2826	2829		
469						.501					6			2809	2810	2827	2828	2838	
470						-.391	-5.0				8	2701	2718	2719	2736	2737	2752	2753	2753
471						-.143					8	2702	2717	2720	2735	2738	2751	2754	
472						-.019					7	2703	2716	2721	2734	2739	2750		
473						.043					6	2704	2715	2722	2733	2740			
474						.105					8	2705	2714	2723	2732	2741	2749	2755	
475						.167					6	2706	2713	2724	2731	2742			
476						.228					7	2707	2712	2725	2730	2743	2748		
477						.351					7	2708	2711	2726	2729	2744	2747		
478						.502					8	2709	2710	2727	2728	2745	2746	2756	

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

ALPHA,CLM ICN ICA ICBL ICY ICYN ... DELTAZ 7

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

α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	$\Delta X/l_B$	α_i	M_∞	δ_{e_R}	δ_{e_0}	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	10.0
RT8 479	MDAC BOOSTER (W/ CANARD)	A	0	50.0	100.0	-.391	0.0	3.0	0.0	0.0	4	3201	3218	3219					3223
480						-.143					4	3202	3217	3220					
481						-.019					3	3203	3216						
482						.043					3	3204	3215						
483						.105					4	3205	3214	3221					
484						.167					3	3206	3213						
485						.228					3	3207	3212						
486						.351					3	3208	3211						
487						.522					4	3209	3210	3222					
488	MDAC BOOSTER (PWR=.5 SHOM)					-.391					8	5201	5218	5219	5236	5237	5252	5253	5255
489						-.143					8	5202	5217	5220	5235	5238	5251	5254	
490						-.019					7	5203	5216	5221	5234	5239	5250		
491						.043					6	5204		5222	5233	5240			
492						.105					8	5205	5214	5223	5232	5241	5249	5255	
493						.167					6	5206	5213	5224	5231	5242			
494						.228					7	5207	5212	5225	5230	5243	5248		
495						.351					7	5208	5211	5226	5229	5244	5247		
496						.522					8	5209	5210	5227	5228	5245	5246	5256	

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

ALPHA QCLM ICN ICA ICBL ICY ICYN ... IDELTAZ ... 7

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

α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR_A	PWR_B	Δx/l_B	α_i	M_∞	δe_a	δe_o	No. of Runs	DELTA Z/l_B .113
RTB 497	MDAC BOOSTER	A	0	100.0	0.0	-.391	0.0	3.0	0.0	0.0	1	5001
498						-.143						5002
499						-.019						5003
500						.043						5004
501						.105						5005
502						.167						5006
503						.228						5007
504						.351						5008
505				↓	↓	.522						5009
506				0.0	0.0	-.391						5101
507						-.143						5102
508						-.019						5103
509						.043						5104
510						.105						5105
511						.167						5106
512						.228						5107
513						.351						5108
514	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	↓	5107

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

ALPHA DCLM ICN ICA ICBL ICY ICYN DELTAZ 7

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

α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α_i	M∞	δeβ	δeo	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RTB 515	1000 CASTER	A	O	50.0	100.0	-.371	0.0	4.0	0.0	0.0	7	5301	5318	5319	5336	5337	5352		535-
516						-.143					7	5302	5317	5320	5335	5338	5351		
517						-.019					7	5303	5316	5321	5334	5339	5350		
518						.043					6	5304	5315	5322	5333	5340			
519						.105					7	5305	5314	5323	5332	5341	5349		
520						.167					6	5306	5313	5324	5331	5342			
521						.228					7	5307	5312	5325	5330	5343	5348		
522						.351					7	5308	5311	5326	5329	5344	5347		
523						.522		↓			7	5309	5310	5327	5328	5345	5346		↓
524						-.391		6.0			6	5401	5418	5419	5436	5437			543-
525						-.143						5402	5417	5420	5435	5438			
526						-.019						5403	5416	5421	5434	5439			
527						.043						5404	5415	5422	5433	5440			
528						.105						5405	5414	5423	5432	5441			
529						.167						5406	5413	5424	5431	5442			
530						.228						5407	5412	5425	5430	5443			
531						.351						5408	5411	5426	5429	5444			
532	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	↓	5409		5427	5428	5445			↓

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

ALPHADCLM ICN ICA ICRL CY CYN DELTAZ 7

COEFFICIENTS: α or β SCHEDULES → IDPVAR(1) | IDPVAR(2) | NDV

A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	$\Delta x/l_B$	α_i	M_∞	δ_{e_B}	δ_{e_D}	No. of Runs	DELTA Z/l_B .119	.151	10.0
RTB 533	MDAC BASELINE (W/ CANARD)	A	0	50.0	100.0	-.391	0.0	6.0	0.0	0.0	3	5501	5518	5519
534						-.143						5502	5517	
535						-.019						5503	5516	
536						.043						5504	5515	
537						.105						5505	5514	
538						.167						5506	5513	
539						.228						5507	5512	
540						.351						5508	5511	
541						.522						5509	5510	

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

ALPHA CLM ICN ICA ICBL ICY ICYN ... DELTAZ

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	ΔX/l_B	α_i	M_∞	δ_eq	δ_ep	No. of Runs	DELTA Z/l_B .113	.119	.151	.182	.228	.552	.599	.908	1.00
RTB 542	MDAC ORBITER	A	0	0.0	0.0	-.391	0.0	2.0	0.0	0.0	9	4201	3301	3318	3319	3336	3337	3352	3353	
543						-.143					9	4202	3302	3317	3320	3335	3338	3351	3354	
544						-.019					8	4203	3303	3316	3321	3334	3339	3350		
545						.043					7	4204	3304	3315	3322	3333	3340			
546						.105					9	4205	3305	3314	3323	3332	3341	3349	3355	
547						.167					7	4206	3306	3313	3324	3331	3342			
548						.228					8	4207	3307	3312	3325	3330	3343	3348		
549						.351					8	4208	3308	3311	3326	3329	3344	3347		
550						.521	↓				9	4209	3309	3310	3327	3328	3345	3346	3356	↓
551						-.391	5.0				7			3501	3518	3519	3536			
552						-.143					7			3502	3517	3520	3535	3538		
553						-.019					6			3503	3516	3521	3534			
554						.043					5			3504	3515	3522	3533			
555						.105					7			3505	3514	3523	3532			
556						.167					5			3506	3513	3524	3531			
557						.228					6			3507	3512	3525	3530			
558						.351					6			3508	3511	3526	3529			
559	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	7			3509	3510	3527	3528	3543	3544	↓

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

ALPHA CLM CN CA CBL CY CYN DELTAZ 7

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α	M∞	δeα	δeq	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
AT8560	MDAC ARSITER	A	0	0.0	0.0	-.391	10.0	2.0	0.0	0.0	6			3801	3818	3819	3834	3835	3852
561						-.143					6			3802	3817	3820	3833	3836	
562						-.019					5			3803	3816	3821	3832		
563						.043					4			3804	3815	3822			
564						.105					6			3805	3814	3823	3831	3837	
565						.167					4			3806	3813	3824			
566						.228					5			3807	3812	3825	3830		
567						.351					5			3808	3811	3826	3829		
568						.501					6			3809	3810	3827	3828	3838	
569						-.391	-5.0				8	3701	3718	3719	3736	3737	3752	3753	3756
570						-.143					8	3702	3717	3720	3735	3738	3751	3754	
571						-.019					7	3703	3716	3721	3734	3739	3750		
572						.043					6	3704	3715	3722	3733	3740			
573						.105					8	3705	3714	3723	3732	3741	3749	3755	
574						.167					6	3706	3713	3724	3731	3742			
575						.228					7	3707	3712	3725	3730	3743	3748		
576						.351					7	3708	3711	3726	3729	3744	3747		
577						-.502					8	3709	3710	3727	3728	3745	3746	3756	

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

ALPHA ICLM ICN ICA ICBL ICY CYN ... DELTA Z ... 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° TO +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_A$	PWR$_B$	$\Delta X/l_B$	α_i	M_∞	δ_{e_B}	δ_{e_D}	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	1.00
RT8578	ADV. ORBITER	A	O	50.0	100.0	-.391	0.0	2.0	0.0	0.0	7	3401	3418	3419	3436	3437	3452		
579						-.143					8	3402	3417	3420	3435	3438	3451	3454	
580						-.019					7	3403	3416	3421	3434	3439	3450		
581						.043					6	3404	3415	3422	3433	3440			
582						.105					8	3405	3414	3423	3432	3441	3449	3455	
583						.167					6	3406	3413	3424	3431	3442			
584						.228					7	3407	3412	3425	3430	3443	3448		
585						.351					7	3408	3411	3426	3429	3444	3447		
586						.522	↓				8	3409	3410	3427	3428	3445	3446	3456	↓
587						-.391	5.0				7		3601	3618	3619	3636	3637	3647	
588						-.143					7		3602	3617	3620	3635	3638	3646	
589						-.019					6		3603	3616	3621	3634	3639		
590						.043					5		3604	3615	3622	3633			
591						.105					7		3605	3614	3623	3632	3640	3645	
592						.167					5		3606	3613	3624	3631			
593						.228					6		3607	3612	3625	3630	3641		
594						.351					6		3608	3611	3626	3629	3642		
595		↓	↓	↓	↓	.522	↓	↓	↓	↓	7		3609	3610	3627	3628	3643	3644	↓

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

ALPHA DCLM ICN ICA ICBL CY ICYN ... DELTAZ | 7

COEFFICIENTS: A = -10° TO +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓ_A	α_i	M_∞	δ_eβ	δ_eθ	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908	10.0
RT8596	WIDAC ORBITER	A	0	50.0	100.0	-.391	10.0	2.0	0.0	0.0	6			4001	4018	4019	4034	4035	4038
597						-.143					6			4002	4017	4020	4033	4036	
598						-.019					5			4003	4016	4021	4032		
599						.043					4			4004	4015	4022			
600						.105					6			4005	4014	4023	4031	4037	
601						.167					4			4006	4013	4024			
602						.228					5			4007	4012	4025	4030		
603						.351					5			4008	4011	4026	4029		
604						.501					6			4009	4010	4027	4028	4038	
605				0.0	0.0	-.391	0.0				8	3901	3918	3919	3936	3937	3952	3953	3956
606						-.143					8	3902	3917	3920	3935	3938	3951	3954	
607						-.019					7	3903	3916	3921	3934	3939	3950		
608						.043					6	3904	3915	3922	3933	3940			
609						.105					8	3905	3914	3923	3932	3941	3949	3955	
610						.167					6	3906	3913	3924	3931	3942			
611						.228					7	3907	3912	3925	3930	3943	3948		
612						.351					7	3908	3911	3926	3929	3944	3947		
613						.501					8	3909	3910	3927	3928	3945	3946	3956	

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

ALPHA CLM CN CA CBL CY CYN ... DELTAZ ... 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_1$	PWR$_2$	$\Delta X/l_B$	α_i	M_∞	δe_B	δe_0	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	10.0
RTB 614	MDAC ASTER	A	0	0.0	1.0	-.391	0.0	2.0	20.0	-20.0	8	4401	4414	4415	4429	4430	4441	4442	4445
615						-.143					8	4402	4413	4416	4428	4431	4440	4443	
616						-.019					6	4403	4412	4417	4427		4439		
617						.105					8	4404	4411	4418	4426	4432	4438	4444	
618						.167					5	4405	4410	4419	4424				
619						.351					7	4406	4409	4420	4423	4433	4436		
620				↓	↓	.522					8	4407	4408	4421	4422	4434	4435	4445	↓
621				50.0	100.0	-.391					8	4501	4518	4579	4537	4538	4553	4554	4557
622						-.143					8	4502	4517	4520	4536	4539	4552	4555	
623						-.019					7	4503	4516	4521	4535	4540	4551		
624						.043					6	4504	4515	4522	4534	4541			
625						.105					8	4505	4514	4523	4533	4542	4550	4556	
626						.167					6	4506	4513	4524	4532	4543			
627						.228					7	4507	4512	4525	4530	4544	4549		
628						.351					7	4508	4511	4526	4529	4545	4548		
629		↓	↓	↓	↓	.522	↓	↓	↓	↓	8	4509	4510	4527	4528	4546	4547	4557	↓

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

ALPHA CLM ICN KA ICBL CY CYN ... DELTAZ | 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	α_i	M_∞	δ_eq	δ_ep	No. of Runs	DELTA Z/ℓB .119
RTB 630	MDAC ARBITER	A	0	0.0	0.0	-.391	0.0	2.0	0.0	0.0	1	4201
631						-.143						4202
632						-.019						4203
633						.043						4204
634						.105						4205
635						.167						4206
636						.228						4207
637						.351						4208
638				↓		.501						4209
639				100.0		-.391						4101
640						-.143						4102
641						-.019						4103
642						.043						4104
643						.105						4105
644						.167						4106
645						.228						4107
646						.351						4108
647		↓	↓	↓	↓	.501	↓	↓	↓	↓	↓	4109

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

ALPHADCLM ICN ICA ICBL ICY CYN ... IDELTAZ | 7

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_B$	PWR$_B$	$\Delta x/\ell_B$	α_i	M_∞	δe_B	δe_0	No. of Runs	DELTA Z/ℓ_B	
												.119	
ATB6[illegible]	[illegible]	A	0	0.0	0.0	-.391	0.0	2.0	20.0	-20.0	1	4801	
[illegible]						-.143						4802	
[illegible]						-.019						4803	
651						.043						4804	
652						.105						4805	
653						.167						4806	
654						.228						4807	
655						.351						4808	
656				↓		.522						4809	
657				100.0		-.391						4901	
658						-.143						4902	
659						-.019						4903	
660						.043						4904	
661						.105						4905	
662						.167						4906	
663						.228						4907	
664						.351						4908	
[illegible]	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	↓	4909	

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

ALPHA CLM ICN ICA ICBL CY CYN ... DELTAZ 7

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE | IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PWR	PWR	Δx/ℓB	α∞	M∞	δeB	δeo	No. of Runs	DELTA Z/ℓB .113	.119	.151	.182	.228	.352	.599	.901	10.0
RT8 666	MDAC CENTER	A	0	0.0	0.0	-.391	5.0	3.0	0.0	0.0	9	3101	2201	2218	2219	2236	2237	2252	2253	2255
667						-.143					9	3102	2202	2217	2220	2235	2238	2251	2254	
668						-.019					8	3103	2203	2216	2221	2234	2239	2250		
669						.043					7	3104	2204	2215	2222	2233	2240			
670						.105					9	3105	2205	2214	2223	2232	2241	2249	2255	
671						.167					7	3106	2206	2213	2224	2231	2242			
672						.228					8	3107	2207	2212	2225	2230	2243	2248		
673						.351					8	3108	2208	2211	2226	2229	2244	2247		
674						.521	↓				9	3109	2209	2210	2227	2228	2245	2246	2256	↓
675						-.391	5.0				8			2401	2418	2419	2436	2437	2447	2454
676						-.143					8			2402	2417	2420	2435	2438	2446	
677						-.019					7			2403	2416	2421	2434	2439		
678						.043					6			2404	2415	2422	2433			
679						.105					8			2405	2414	2423	2432	2440	2445	
680						.167					6			2406	2413	2424	2431			
681						.228					7			2407	2412	2425	2430	2441		
682						.351					7			2408	2411	2426	2429	2442		
683						.522					8			2409	2410	2427	2428	2443	2444	

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

ALPHA QCLM ICN ICA ICBL ICY ICYN ... DELTA2 T

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAP

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_\alpha$	PWR$_\beta$	$\Delta x/\ell_B$	α_j	M_∞	δe_α	δe_β	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908	10.0
RT8604	MDAC ORBITER	A	0	0.0	0.0	-.391	10.0	3.0	0.0	0.0	6			2901	2918	2919	2934	2935	2933
625						-.143					6			2902	2917	2920	2933	2936	
626						-.019					5			2903	2916	2921	2932		
627						.043					4			2904	2915	2922			
628						.105					6			2905	2914	2923	2931	2937	
629						.167					4			2906	2913	2924			
690						.228					5			2907	2912	2925	2930		
691						.351					5			2908	2911	2926	2929		
692						.501	↓				6			2909	2910	2927	2928	2938	↓
693						-.391	-5.0				8	2601	2618	2619	2636	2637	2652	2653	2655
694						-.143					8	2602	2617	2620	2635	2638	2651	2654	
695						-.019					7	2603	2616	2621	2634	2639	2650		
696						.043					6	2604	2615	2622	2633	2640			
697						.105					8	2605	2614	2623	2632	2641	2649	2655	
698						.167					6	2606	2613	2624	2631	2642			
699						.228					7	2607	2612	2625	2630	2643	2648		
700						.351					7	2608	2611	2626	2629	2644	2647		
701		↓	↓	↓	↓	.501	↓	↓	↓	↓	8	2609	2610	2627	2628	2645	2646	2656	↓

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

ALPHA CLM ICN ICA ICBL ICY ICYN ... DELTAZ 7

COEFFICIENTS: A = -10° to +10° ONE DATA POINT PER DEGREE → IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_R$	PWR$_B$	$\Delta x/l_B$	α_i	M_∞	δe_B	δe_0	No. of Runs	DELTA Z/l_B .113	.119	.151	.182	.227	.352	.599	.908	10.0
RT8 702	11DAC ORBITER	A	0	50.0	100.0	-.391	0.0	3.0	0.0	0.0	8	3001	2301	2318	2319	2336	2337	2352	2353	2356
703						-.143					7	3002	2302	2317	2320	2335		2351	2354	
704						-.019					7	3003	2303	2316	2321	2334	2339	2350		
705						.043					6	3004	2304	2315	2322	2333	2340			
706						.105					8	3005	2305	2314	2323	2332	2341	2349	2355	
707						.167					6	3006	2306	2313	2324	2331	2342			
708						.228					7	3007	2307	2312	2325	2330	2343	2348		
709						.351					7	3008	2308	2311	2326	2329	2344	2347		
710						.521	↓				8	3009	2309	2310	2327	2328	2345	2346	2356	↓
711						-.391	5.0				7			2501	2518	2519	2536	2537	2547	2550
712						-.143					7			2502	2517	2520	2535	2538	2546	
713						-.019					6			2503	2516	2521	2534	2539		
714						.043					5			2504	2515	2522	2533			
715						.105					7			2505	2514	2523	2532	2540	2545	
716						.167					5			2506	2513	2524	2531			
717						.228					6			2507	2512	2525	2530	2541		
718						.351					6			2508	2511	2526	2529	2542		
719		↓	↓	↓	↓	.522	↓	↓	↓	↓	7			2509	2510	2527	2528	2543	2544	↓

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

ALPHA DCLM ICN ICA ICBL CY ICYN ... DELTAD 7

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAP

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/ℓB	αi	M∞	δeα	δeo	No. of Runs	DELTA Z/ℓB .119	.151	.182	.228	.352	.599	.908	10.0
RT8 720	MDAC GREITER	A	0	50.0	100.0	-.391	10.0	3.2	0.0	6.6	6			2801	2818	2819	2834	2835	2850
721						-.143					6			2802	2817	2820	2833	2836	
722						-.019					5			2803	2816	2821	2832		
723						.043					4			2804	2815	2822			
724						.105					6			2805	2814	2823	2831	2837	
725						.167					4			2806	2813	2824			
726						.228					5			2807	2812	2825	2830		
727						.351					5			2808	2811	2826	2829		
728						.501	↓				6			2809	2810	2827	2828	2838	↓
729						-.391	-5.0				8	2701	2718	2719	2736	2737	2752	2753	2768
730						-.143					8	2702	2717	2720	2735	2738	2751	2754	
731						-.019					7	2703	2716	2721	2734	2739	2750		
732						.043					6	2704	2715	2722	2733	2740			
733						.105					8	2705	2714	2723	2732	2741	2749	2755	
734						.167					6	2706	2713	2724	2731	2742			
735						.228					7	2707	2712	2725	2730	2743	2748		
736						.351					7	2708	2711	2726	2729	2744	2747		
↓ 737	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	8	2709	2710	2727	2728	2745	2746	2756	↓

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

ALPHA QCLM ICN ICA ICBL ICY ICYN DELTAZ T

→ IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS: A = −10° TO +10° ONE DATA POINT PER DEGREE

α or β SCHEDULES

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	Δx/l_B	α_i	M_∞	δ_eA	δ_eD	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908	10.0
RT8 738	MDAC ARBITER(MODIFIED)	A	0	50.0	100.0	-.391	0.0	3.0	0.0	0.0	4	3201	3218	3219					3223
739						-.143					4	3202	3217	3220					
740						-.019					3	3203	3216						
741						.043					3	3204	3215						
742						.105					4	3205	3214	3221					
743						.167					3	3206	3213						
744						.228					3	3207	3212						
745						.351					3	3208	3211						
746						.522					4	3209	3210	3222					
747	MDAC ARBITER(PUMP=6R)					-.391					8	5201	5218	5219	5236	5237	5252	5253	5256
748						-.143					8	5202	5217	5220	5235	5238	5251	5254	
749						-.019					7	5203	5216	5221	5234	5239	5250		
750						.043					6	5204		5222	5233	5240			
751						.105					8	5205	5214	5223	5232	5241	5249	5255	
752						.167					6	5206	5213	5224	5231	5242			
753						.228					7	5207	5212	5225	5230	5243	5248		
754						.351					7	5208	5211	5226	5229	5244	5247		
755						.522					8	5209	5210	5227	5228	5245	5246	5256	

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

ALPHA MCLM ICN ICA ICBL ICY ICYN ... DELTAZ 7

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α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_R$	PWR$_2$	$\Delta x/l_B$	α_i	M_∞	δe_B	δe_D	No. of Runs	DELTA Z/l_B .113	
RTB 756	MSAC BOOSTER	A	0	100	0.0	-.391	0.0	3.0	0.0	0.0	1	5001	
757						-.143						5002	
758						.019						5003	
759						.043						5004	
760						.105						5005	
761						.167						5006	
762						.228						5007	
763						.351						5008	
764				↓	↓	.522						5009	
765				0.0	0.0	-.391						5101	
766						-.143						5102	
767						-.019						5103	
768						.043						5104	
769						.105						5105	
770						.167						5106	
771						.228						5107	
772						.351						5108	
773		↓	↓	↓	↓	.522	↓	↓	↓	↓	↓	5107	

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

ALPHAQCLM ICN ICA ICBL ICY ICYN ... IDELTAZ 7

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

α or β SCHEDULES: A = −10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR	PWR	$\Delta X/\ell_B$	α_i	M_∞	δe_B	δe_D	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908	10.0
RTB 774	[illegible]	A	0	50.0	100.0	-.351	0.0	4.0	0.0	0.0	7	5301	5318	5319	5336	5337	5352		[illegible]
775						-.143					7	5302	5317	5320	5335	5338	5351		
776						-.019					7	5303	5316	5321	5334	5339	5350		
777						.043					6	5304	5315	5322	5333	5340			
[illegible]						.105					7	5305	5314	5323	5332	5341	5349		
[illegible]						.167					6	5306	5313	5324	5331	5342			
780						.228					7	5307	5312	5325	5330	5343	5348		
781						.351					7	5308	5311	5326	5329	5344	5347		
782						.522		↓			7	5309	5310	5327	5328	5345	5346		↓
783						-.391		6.0			6	5401	5418	5419	5436	5437			[illegible]
784						-.143						5402	5417	5420	5435	5438			
785						-.019						5403	5416	5421	5434	5439			
786						.043						5404	5415	5422	5433	5440			
787						.105						5405	5414	5423	5432	5441			
788						.167						5406	5413	5424	5431	5442			
789						.228						5407	5412	5425	5430	5443			
790						.351						5408	5411	5426	5429	5444			
[illegible]	↓	↓	↓	↓	↓	.522	↓	↓	↓	↓	↓	5409		5427	5428	5445			↓

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

ALPHA CLM ICN ICA ICB.L CY CYN DELTAZ 7

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

α or β SCHEDULES: A = -10° TO +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAP

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_R$	PWR$_R$	$\Delta X/l_B$	α_i	M_∞	δe_R	δe_P	No. of Runs	DELTA Z/l_B .119	.151	10.0
RT8 792	[illegible]	A	0	50.0	100	-.391	0.0	6.0	0.0	0.0	3	5501	5518	
793						-.143						5502	5517	
794						-.019						5503	5516	
795						.043						5504	5515	
796						.105						5505	5514	
797						.167						5506	5513	
798						.228						5507	5512	
799						.351						5508	5511	
800						.522						5509	5510	

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

ALPHA MCLM ICN ICA ICBL CY CYN ... DELTAZ

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAP

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_\alpha$	PWR$_\beta$	$\Delta X/\ell_B$	α_i	M_∞	δ_{e_B}	δ_{e_0}	No. of Runs	DELTA Z/ℓ_B .113	.119	.151	.182	.226	.352	.599	.908
RTB201	MDAC ORBITER	H	0	0.0	0.0	-.391	0.0	2.0	0.0	0.0	8	3356	3356	3356	3356	3356	3356	3356	3356
802							5.0		0.0	0.0		3544	3544	3544	3544	3544	3544	3544	3544
803							10.0		0.0	0.0		3732	3732	3732	3732	3732	3732	3732	3732
804							0.0		20.0	-20.0		4445	4445	4445	4445	4445	4445	4445	4445
805				↓	↓		0.0		0.0	0.0		3956	3956	3956	3956	3956	3956	3956	3956
806				50.0	100.0		0.0		0.0	0.0		3456	3456	3456	3456	3456	3456	3456	3456
807							5.0		0.0	0.0		3644	3644	3644	3644	3644	3644	3644	3644
808							10.0		0.0	0.0		4038	4038	4038	4038	4038	4038	4038	4038
809				↓	↓		0.0		20.0	-20.0		4557	4557	4557	4557	4557	4557	4557	4557
810				0.0	0.0		-5.0	↓	0.0	0.0		3756	3756	3756	3756	3756	3756	3756	3756
811							5.0	3.0				2444	2444	2444	2444	2444	2444	2444	2444
812				↓	↓		10.0					2938	2938	2938	2938	2938	2938	2938	2938
813				50.0	100.0		0.0					2356	2356	2356	2356	2356	2356	2356	2356
814							5.0					2544	2544	2544	2544	2544	2544	2544	2544
815							10.0					2838	2838	2838	2838	2838	2838	2838	2838
816				↓	↓		-5.0					2756	2756	2756	2756	2756	2756	2756	2756
817				0.0	0.0		-5.0					2656	2656	2656	2656	2656	2656	2656	2656
818	MDAC ORBITER (P_{200}=.5P_{100})	↓	↓	100.0	100.0	↓	0.0	↓	↓	↓	↓	5256	5256	5256	5256	5256	5256	5256	5256

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

ALPHA,MACH,CLM,CN,CA,CBL,CY,CYN,.....DELTAZ 7

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_\alpha$	PWR$_\beta$	$\Delta X/\ell_B$	α_i	M_∞	δe_α	δe_β	No. of Runs	DELTA Z/ℓ_B .119	.151	.182	.228	.352	.599	.908
AT8 819	MDAC ORBITER	A	0	0.0	0.0	-.371	0.0	5.0	0.0	0.0	7	361	361	361	361	361	361	361
820							5.0					640	640	640	640	640	640	640
821							10.0					1128	1128	1128	1128	1128	1128	1128
822				↓	↓		-5.0					740	740	740	740	740	740	740
823				50.0	100.0		0.0					460	460	460	460	460	460	460
824							5.0					540	540	540	540	540	540	540
825							10.0					1029	1029	1029	1029	1029	1029	1029
826							-5.0					847	847	847	847	847	847	847
827				↓	↓		-10.0					1228	1228	1228	1228	1228	1228	1228
828				100.0	100.0		0.0					1334	1334	1334	1334	1334	1334	1334
829				↓	↓		5.0					1527	1527	1527	1527	1527	1527	1527
830				50.0	50.0		0.0					1834	1834	1834	1834	1834	1834	1834
831				↓	↓		5.0		↓	↓		1627	1627	1627	1627	1627	1627	1627
832				0.0	0.0		0.0	↓	20.0	-20.0		1934	1934	1934	1934	1934	1934	1934
833				50.0	100.0		0.0	4.0	0.0	0.0		5346	5346	5346	5346	5346	5346	5346
↓ 834	↓	↓	↓	50.0	100.0	↓	0.0	6.0	↓	↓	↓	5445	5445	5445	5445	5445	5445	5445

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

ALPHA QCLM ICN ICA ICBL CY CYN DELTAZ 7

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

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NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_2$	PWR$_3$	$\Delta x/l_B$	α_i	M_∞	δe_B	δe_D	No. of Runs	DELTA Z/l_B -.113	.119	.151	.182	.228	.352	.599	.908
AT8835	MDAC BOOSTER	A	0	0.0	0.0	-.391	0.0	2.0	0.0	0.0	8	3353	3353	3353	3353	3353	3353	3353	3353
837							10.0					3835	3835	3835	3835	3835	3835	3835	3835
838				↓	↓		-5.0					3753	3753	3753	3753	3753	3753	3753	3753
839				50.0	100.0		2.0					3454	3454	3454	3454	3454	3454	3454	3454
840				↓	↓		5.0					3647	3647	3647	3647	3647	3647	3647	3647
841				↓	↓		10.0					4035	4035	4035	4035	4035	4035	4035	4035
842				0.0	0.0		0.0		↓	↓		3953	3953	3953	3753	3953	3953	3953	3953
843				↓	↓		0.0		20.0	-20.0		4442	4442	4442	4442	4442	4442	4442	4442
844				50.0	100.0		0.0	↓	20.0	-20.0		4554	4554	4554	4554	4554	4554	4554	4554
845				0.0	0.0		0.0	3.0	0.0	0.0		2253	2253	2253	2253	2253	2253	2253	2253
846							5.0					2447	2447	2447	2447	2447	2447	2447	2447
847							10.0					2935	2935	2935	2935	2935	2935	2935	2935
848				↓	↓		-5.0					2653	2653	2653	2653	2653	2653	2653	2653
849				50.0	100.0		0.0					2353	2353	2353	2353	2353	2353	2353	2353
850							5.0					2547	2547	2547	2547	2547	2547	2547	2547
851							10.0					2835	2835	2835	2835	2835	2835	2835	2835
852							-5.0					2753	2753	2753	2753	2753	2753	2753	2753
853	MDAC BOOSTER (NO CANARD)						0.0					3223	3223	3223	3223	3223	3223	3223	3223
854	MDAC BOOSTER (PLANE-CP)	↓	↓	↓	↓	↓	0.0	↓	↓	↓	↓	5253	5253	5253	5253	5253	5253	5253	5253

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A L P H A Q C L M ... I C N ... I C A ... I C B L ... I C Y ... I C Y N ... I D E L T A Z ... 7

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PWR_A	PWR_B	Δx/l_B	α_i	m_∞	δe_a	δe_o	No. of Runs	DELTA Z/l_B .119	.151	.182	.228	.352	.599	.908
RTB 855	MDAC BOOSTER	A	0	0.0	0.0	-.391	0.0	5.0	0.0	0.0	7	355	355	355	355	355	355	355
856							5.0					637	637	637	637	637	637	637
857							10.0					1131	1131	1131	1131	1131	1131	1131
858				↓	↓		-5.0					737	737	737	737	737	737	737
859				50.0	100.0		0.0					454	454	454	454	454	454	454
86 0							5.0					537	537	537	537	537	537	537
861							10.0					1032	1032	1032	1032	1032	1032	1032
862							-5.0					850	850	850	850	850	850	850
863				↓	↓		-10.0					1231	1231	1231	1231	1231	1231	1231
864				100.0	100.0		0.0					1334	1334	1334	1334	1334	1334	1334
865				↓	↓		5.0					1527	1527	1527	1527	1527	1527	1527
866				50.0	50.0		0.0					1834	1834	1834	1834	1834	1834	1834
867				↓	↓		5.0		↓	↓		1627	1627	1627	1627	1627	1627	1627
868				0.0	0.0		0.0	↓	20.0	-20.0		1934	1934	1934	1934	1934	1934	1934
869				50.0	100.0			4.0	0.0	0.0		5352	5352	5352	5352	5352	5352	5352
870				↓	↓			6.0	↓	↓		5437	5437	5437	5437	5437	5437	5437
↓ 871	MDAC BOOSTER No CANARD	↓	↓	↓	↓	↓	↓	6.0	↓	↓	↓	5519	5519	5519	5519	5519	5519	5519

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

ALPHA CLM ICN ICA ICBL ICY ICYN ... DELTAZ T

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

α or β SCHEDULES: A = -10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST VA 1163 DATA SET COLLATION SHEET

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES PWR$_1$	PWR$_2$	$\Delta x/\ell_B$	α_i	δe_θ	δe_0	$\Delta z/\ell_B$	No. of Runs	MACH NUMBER 2.0	3.0	5.0
RTB 872	MDAC LAUNCH (ONE BALANCE)	A	O	100.0	0.0	.104	0.0	0.0	0.0	.105	3	5201	5201	5601
873	MDAC LAUNCH (ONE BALANCE)	↓	↓	0.0	↓	↓	↓	↓	↓	↓	3	5802	5702	5602
874	MDAC LAUNCH (ONE BALANCE NO CANARD)			100.0							1	5901		
875	MDAC LAUNCH (NO CANARD ONE BALANCE)			0.0	↓	↓	↓	↓	↓	↓	1	5902		
876	MDAC ORBITER (NO SPLIT)			—	0.0	—	—	—	0.0	—	2		102	103
877	MDAC ORBITER (SPLIT ON)			—	0.0	—	—	—	0.0	—	2		101	105
878	MDAC ORBITER ($R=1.0\times10^6$)			—	0.0	—	—	—	0.0	—	1			106
879	MDAC ORBITER ($R=4.0\times10^6$)			—	0.0	—	—	—	0.0	—	1			105
880	MDAC BOOSTER (SPLIT OFF)			0.0	—	—	—	0.0	—	—	2		102	103
881	MDAC BOOSTER (SPLIT ON)			0.0	—	—	—	0.0	—	—	2		101	105
882	MDAC BOOSTER ($R=1.0\times10^6$)			0.0	—	—	—	0.0	—	—	1			106
883	MDAC BOOSTER ($R=4.0\times10^6$)	↓	↓	0.0	—	—	—	0.0	—	—	1			105

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

C,L,M, | C,N, | C,A, | C,B,L | C,Y, | C,Y,N | 6

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

α or β SCHEDULES: A = −10° to +10° ONE DATA POINT PER DEGREE

NASA-MSFC-MAF

TEST FACILITY DESCRIPTION

Tunnel A is a continuous, closed-circuit, variable density wind tunnel with an automatically driven flexible-plate-type nozzle and a 40- by 40-inch test section. The tunnel can be operated at Mach numbers from 1.5 to 6 at maximum stagnation pressures from 29 to 200 psia, respectively, and stagnation temperatures up to 750°R ($M_\infty = 6$). Minimum operating pressures range from about one-tenth to one-twentieth of the maximum at each Mach number. For a more comprehensive description of Tunnel A, see Reference 3.

TEST CONDITIONS
TEST VA1163

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
5.01 ± .01	1.09×10^6, ft^{-1}	0.73	132 ± 5°

BALANCE UTILIZED: 4.06-Y-36-037 (BOOSTER)

	CAPACITY:	CAL:	ACCURACY:	COEFFICIENT TOLERANCE: NEAR MIN. VALUE	NEAR MAX. VALUE, %
NF	± 150 lbs	± 50 lbs	± 0.2 lbs	± .006	1.5
SF	± 150 lbs	± 25 lbs	± 0.1 lbs	± .003	—
AF	25 lbs	25 lbs	± 0.05 lbs	± .002	1.6
PM	± 510 in-lbs	± 125 in-lbs	± 0.5 in-lbs	± .001	1.0
YM	± 510 in-lbs	± 40 in-lbs	± 0.2 in-lbs	± .0005	—
RM	± 100 in-lbs	± 20 in-lbs	± 0.05 in-lbs	± .0001	—

COMMENTS: 1. Coefficient tolerances include uncertainties in tunnel conditions and moment transfer distances as well as balance uncertainties.

2. Uncertainty in α and incidence angle = ± 0.1 deg

3. Uncertainty in X/L and Z/L = ± 0.002

TEST CONDITIONS
TEST VA1163

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
5.01 ± .01	$1.09 \times 10^6, ft^{-1}$	0.73	132 ± 5°

BALANCE UTILIZED: 4.00-Y-36-050 (ORBITER)

	CAPACITY:	CAL:	ACCURACY:	COEFFICIENT TOLERANCE: NEAR MIN. VALUE	NEAR MAX VALUE, %
NF	± 200 lbs	± 75 lbs.	± 0.2 lbs	± .01	2.1
SF	± 200 lbs	± 25 lbs.	± 0.1 lbs	± .006	—
AF	50 lbs	25 lbs.	± 0.1 lbs	± .006	7.3
PM	± 680 in-lbs	± 100 in-lbs	± 0.1 in-lbs	± .005	2.3
YM	± 680 in-lbs	± 35 in-lbs	± 0.1 in-lbs	± .002	—
RM	± 100 in-lbs	± 20 in-lbs	± 0.05 in-lbs	± .0005	—

COMMENTS: Same as on previous page.

TEST CONDITIONS
TEST VA 1163

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
3.00 ± .01	1.65 X 10^6, ft^{-1}	2.02	120
"	0.96 X 10^6, ft^{-1}	1.17	120

BALANCE UTILIZED: 4.06-Y-36-037 (BOOSTER)

	CAPACITY:	CAL:	ACCURACY:	COEFFICIENT TOLERANCE: (q_∞ 2.02) NEAR MIN. VALUE	NEAR MAX. VALUE, %
NF	± 150 lbs.	±50	±0.2	±0.002	± 1.2
SF	± 150 lbs.	±25	±0.1	±0.001	—
AF	25 lbs	25	±0.05	±0.0006	± 1.1
PM	± 510 in-lbs	±125	±0.4	±0.0004	± 1.1
YM	± 510 in-lbs	± 40	±0.2	±0.0002	—
RM	± 100 in-lbs	± 20	±0.05	±0.0001	—

COMMENTS: 1. Coefficient tolerances include uncertainties in tunnel conditions and moment transfer distances as well as balance uncertainties.
2. Uncertainty in α and incidence angle = ± 0.1 deg
3. Uncertainty in X/L and Z/L = ± 0.002.

TEST CONDITIONS
TEST VA 1163

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
3.00 ± .01	1.65 X10^6 ft^{-1}	2.02	120
"	0.96 X10^6 ft^{-1}	1.17	120

BALANCE UTILIZED: 400-Y-36-050 (ORBITER)

	CAPACITY:	CAL:	ACCURACY:	COEFFICIENT TOLERANCE: (q_∞ = 2.02) NEAR MIN. VALUE	NEAR MAX. VALUE, %
NF	±200 lbs	±75	±0.2	±0.004	±1.2
SF	±200 lbs	±25	±0.1	±0.002	—
AF	50 lbs	25	±0.1	±0.002	±4.4
PM	±680 in-lbs	±100	±0.1	±0.002	±1.1
YM	±680 in-lbs	±35	±0.1	±0.0007	—
RM	±100 in-lbs	±20	±0.05	±0.0002	—

COMMENTS: Same as on previous page.

TEST CONDITIONS
TEST VA1163

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
2.00 ± .01	1.77×10^6, ft^{-1}	2.76	120
"	3.28×10^6, ft^{-1}	5.07	120

BALANCE UTILIZED: 400-Y-36-050 (ORBITER)

	CAPACITY:	CAL:	ACCURACY:	COEFFICIENT TOLERANCE: (q∞ = 2.76) NEAR MIN. VALUE	NEAR MAX. VALUE, %
NF	±200 lbs	±75	±0.2	±0.003	±0.9
SF	±200 lbs	±25	±0.1	±0.0015	—
AF	50 lbs	25	±0.1	±0.0015	±0.8
PM	±680 in-lbs	±100	±0.1	±0.0015	±2.4
YM	±680 in-lbs	±35	±0.1	±0.0005	—
RM	±100 in-lbs	±20	±0.05	±0.0001	—

COMMENTS: Same as on previous page.

TEST CONDITIONS
TEST VA 1163

MACH NUMBER	REYNOLDS NUMBER per unit length	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
$2.00 \pm .01$	1.77×10^6, ft^{-1}	2.76	120
"	3.28×10^6, ft^{-1}	5.07	120

BALANCE UTILIZED: 4.06-Y-36-037 (BOOSTER)

	CAPACITY:	CAL:	ACCURACY:	COEFFICIENT TOLERANCE: (q_∞ = 2.76) NEAR MIN. VALUE	NEAR MAX. VALUE, %
NF	± 150 lbs.	±50	±0.2	±0.0015	±0.9
SF	± 150 lbs.	±25	±0.1	±0.0008	—
AF	25 lbs	25	±0.05	±0.0004	±0.8
PM	± 510 in-lbs	±125	±0.4	±0.0003	±0.8
YM	± 510 in-lbs	± 40	±0.2	±0.0001	—
RM	± 100 in-lbs	± 20	±0.05	±0.0001	—

COMMENTS: 1. Coefficient tolerances include uncertainties in tunnel conditions and moment transfer distances as well as balance uncertainties.
2. Uncertainty in α and incidence angle = ± 0.1 deg
3. Uncertainty in X/L and Z/L = ± 0.002.

DATA REDUCTION

FOR SADSAC

In the continuous pitch mode of data acquisition the wind tunnel parameters and model nozzle pressures were recorded at the beginning of each pitch sweep. The outputs of both balances and the angle of attack were scanned continuously at a rate of 67 times each second. Forty scans of these inputs were averaged to compute each data point, and when combined with the pitch rate of approximately 1-degree per second, a data point was computed every 0.6 degree. Linear interpolations were made between data points to obtain the data for even increments of booster angle of attack, and the data were tabulated in 1-degree increments of booster angle of attack from -10 to +10 degrees.

Schlieren photographs were automatically taken at pre-selected angles of attack during each pitch sweep. For these tests a photograph was taken near maximum, zero, and minimum angles of attack. Opening the camera shutter provided a photograph indicator record on the data tape which was used by the computer to calculate the booster angle of attack at which the photograph was taken. The camera shutter speed combined with the model pitching rate yielded an uncertainty in the tabulated photograph angle of attack of approximately ± 0.2 degree. A report containing a summary of all schlieren photographs will be published by AEDC.

The measured force and moment data for both models were corrected for balance tares and reduced about the respective moment reference points and the body axis system. The dimensional data used to reduce the orbiter measured data to coefficient form are listed and defined below:

S_{ref} = Orbiter wing planform area = 23.689 in.^{2} (0.164 ft^2)

l_{ref} = Orbiter wing mean aerodynamic chord = 4.193 in.

b = Orbiter wing equivalent span = 6.5 in. (0.542 ft)

The moment reference point (MRP) for the orbiter data is 4.917 inches aft of the nose, on the lateral center line, and 1.390 inches below the top fuselage surface. The dimensional data used to reduce the booster measured data to coefficient form are listed below:

S_{ref} = 44.444 in.^{2} = model reference area based on a full scale reference area of 10,000 ft^2 (see Data Report DMS-DR-1054, page 6)

l_{ref} = b = 13.333 in. = model reference length based on a full scale reference length and span of 200 ft (see Data Report DMS-DR-1054, page 6)

The moment reference point applicable to the booster data is 7.528 inches aft of the model nose, on the booster lateral center line, and 1.194 inches above the bottom fuselage surface.

The ΔX and ΔZ distances were referenced to the moment reference points of the orbiter and booster and the booster body axis system. For example, the ΔX distance is parallel to the longitudinal axis of the booster and between the moment reference points on the orbiter and booster. The ΔZ is perpendicular

to the longitudinal axis of the booster and that distance between the moment reference points on the orbiter and booster. Values for ΔX and ΔZ are positive when the orbiter moment reference point (MRP) is forward and above the booster MRP. Both ΔX and ΔZ were normalized using the booster fuselage length of 16.184 inches.

The reference lengths used to reduce the orbiter data, booster data and normalize the ΔX and ΔZ data were different; these different values are listed and discussed above. The large negative values of pitching moment coefficient for the orbiter at a -0.391 value of $\Delta X/l_B$ and booster power on condition were apparent because the orbiter was in the plume of the booster.

For each dual balance test run the orbiter and booster data were separated and assembled into data sets utilizing $\Delta Z/l_B$ (SADSAC parameter name DELTAZ) as the first independent variable (IDPVAR(I)) and booster angle of attack as the second independent variable (IDPVAR(2)) (see collation sheets). Test data applicable to a $\Delta Z/l_B$ value of 10.0 are interference free data.

DATA NOMINALIZING

Varying balance and sting deflections which were caused by variations in model attitude and test conditions prevented the data from being obtained at constant values of α_I and $\Delta z/l_B$. The differences between the nominal values and the values obtained during a test run were acceptable at the higher Mach numbers because of low aerodynamic loads. However, the differences

became appreciable at the lower Mach numbers. At the lower Mach numbers (Mach numbers of 2 and 3) pitch-plane coefficients (CN, CLM, and CA) for the booster and orbiter models were cross-plotted versus α_I at each booster angle of attack and test condition to adjust the coefficients to nominal α_I values. These values were then cross-plotted versus $\Delta z/l_B$ to adjust the coefficients to nominal $\Delta z/l_B$ values. This nominalizing was accomplished with a digital computer data fairing routine which used third degree polynominals determined by the coordinates and the slope at adjacent data points.

SUMMARY DATA PLOT INDEX

TITLE	DATASETS	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
Orbiter				
AEDC VA 1163 MDAC Booster and Orbiter Test Data at Mach Number 4	RT8774 thru RT8782	(A)	Separation Distance	1-27
AEDC VA 1163 MDAC Booster and Orbiter Test Data at Mach Number 6	RT8783 thru RT8791	(A)	Separation Distance	28-54
AEDC VA 1163 MDAC Booster and Orbiter Test Data at Mach Number 6 (No Canard)	RT8792 thru RT8800	(A)	Separation Distance	55-81
Booster				
AEDC VA1163 MDAC Booster and Orbiter Test Data at Mach Number 4	RT8515 thru RT8523	(A)	Separation Distance	82-108
AEDC VA 1163 MDAC Booster and Orbiter Test Data at Mach Number 6	RT8524 thru RT8532	(A)	Separation Distance	109-135
AEDC VA 1163 MDAC Booster and Orbiter Test Data at Mach Number 6 (No Canard)	RT8533 thru RT8541	(A)	Separation Distance	136-162

SUMMARY DATA PLOT INDEX
(CONTINUED)

TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
Interference Free-Orbiter			
AEDC VA 1163 Orbiter Interference Free Aerodynamics	(B)	Mach Number	163-180
Interference Free-Booster			
AEDC VA 1163 Booster Interference Free Aerodynamics	(A)	Mach Number	181-204
Launch Vehicle			
AEDC VA 1163 Launch Vehicle Aerodynamic Characteristics	(C)	Mach Number	205-216
Grit Size and Reynolds Number Effect			
AEDC VA 1163 Grit Size Effect Upon Orbiter Interference Free Aerodynamics	(C)	Grit	217-222
AEDC VA 1163 Reynolds Number Effect Upon Orbiter Interference Free Aerodynamics	(C)	Reynolds Number	223-225

SUMMARY DATA PLOT INDEX

(CONCLUDED)

TITLE	PLOTTED COEFFICIENTS SCHEDULE	CONDITIONS VARYING	PAGES
AEDC VA 1163 Grit Size Effect Upon Booster Interference Free Aerodynamics	(C)	Grit	226-231
AEDC VA 1163 Reynolds Number Effect Upon Booster Interference Free Aerodynamics	(C)	Reynolds Number	232-234

PLOTTED COEFFICIENTS SCHEDULE:

(A) CLM, CN, AND CA vs. ALPHAB

(B) CLM, CN, AND CA vs. ALPHAO

(C) CLM, CN, AND CA vs. ALPHA

FIGURES

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.

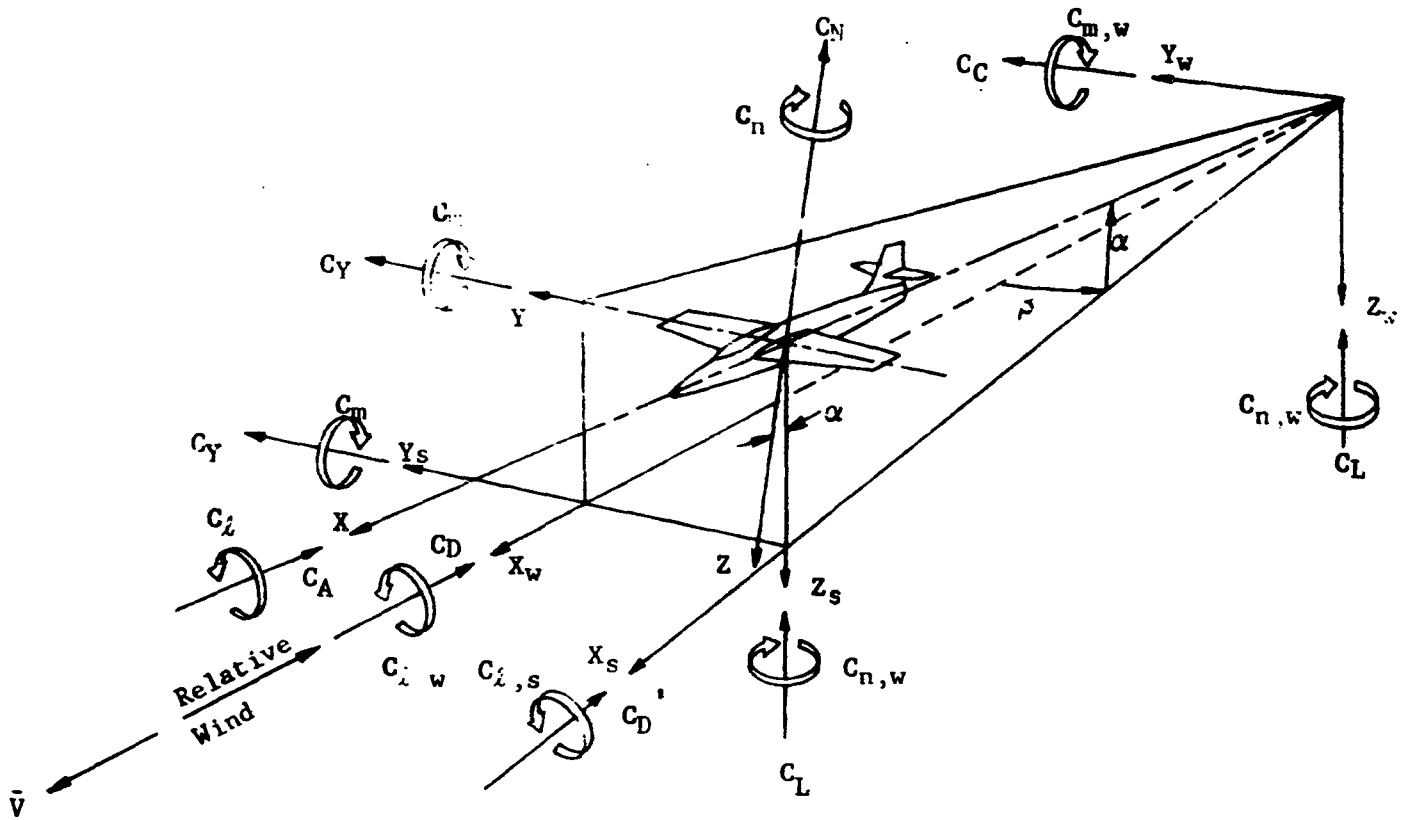


Figure 1. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

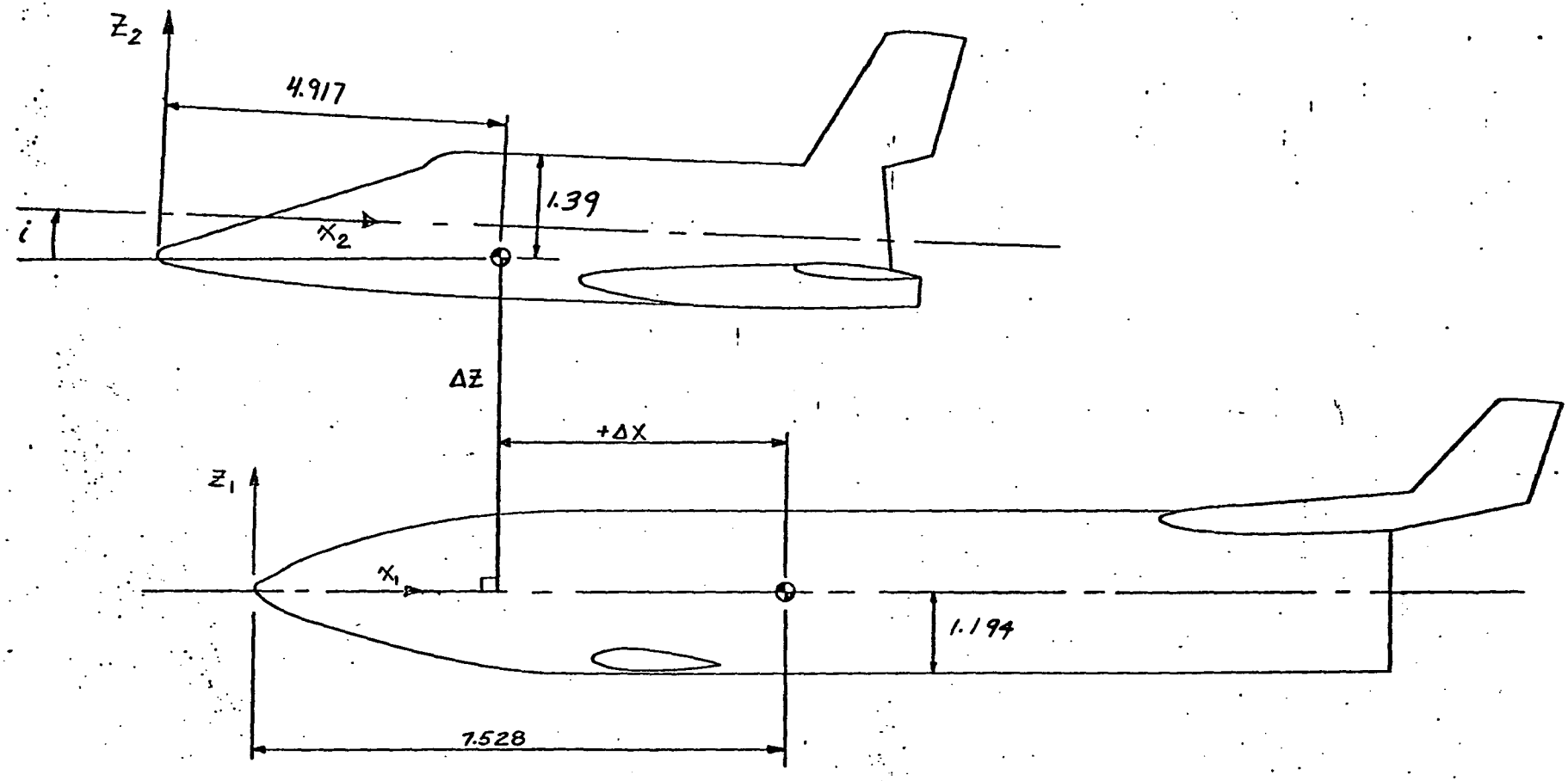


Fig. 2 - Separation Nomenclature and Moment Reference Points

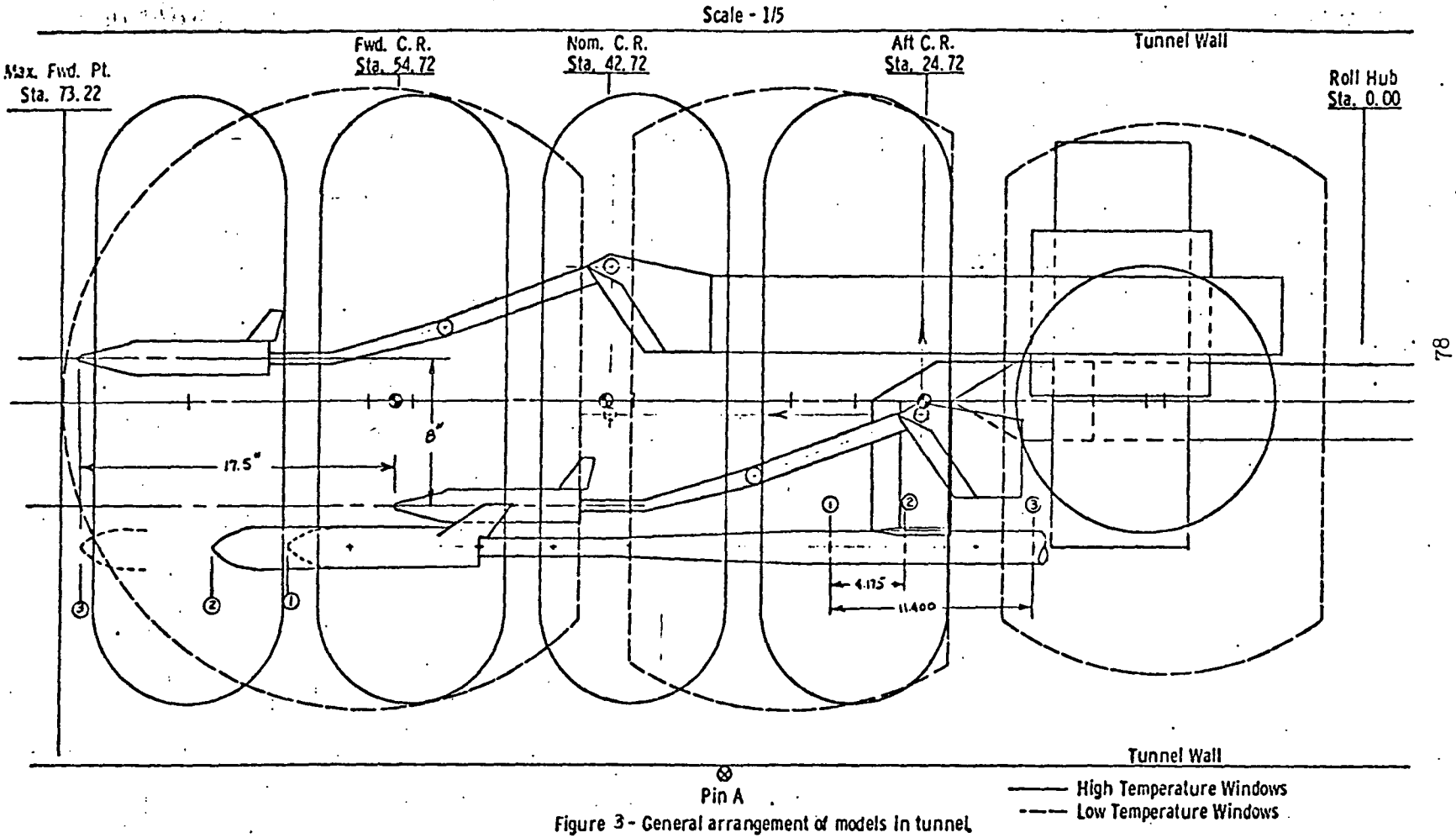


Figure 3 - General arrangement of models in tunnel

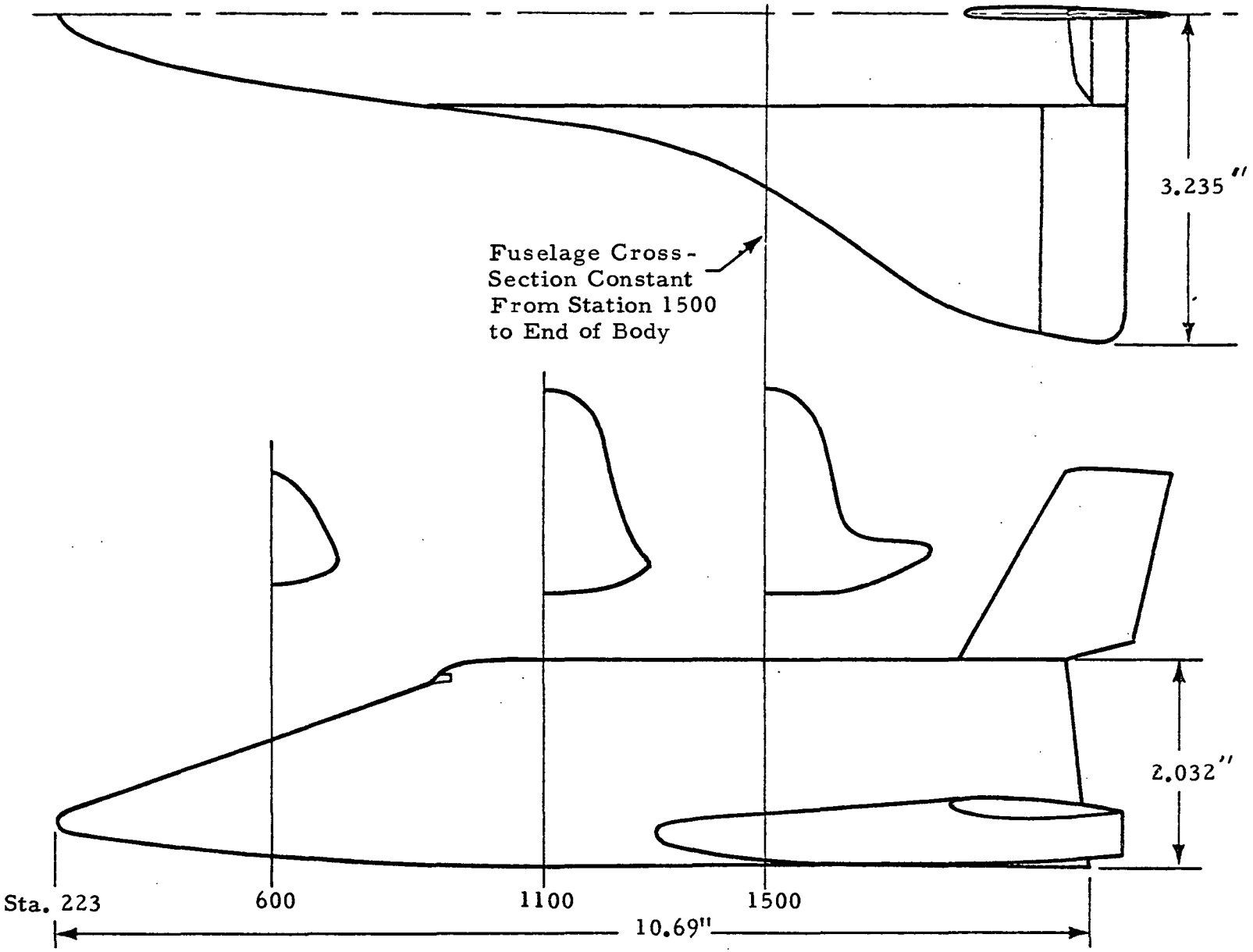


Fig. 4 - Modifications to Orbiter Model

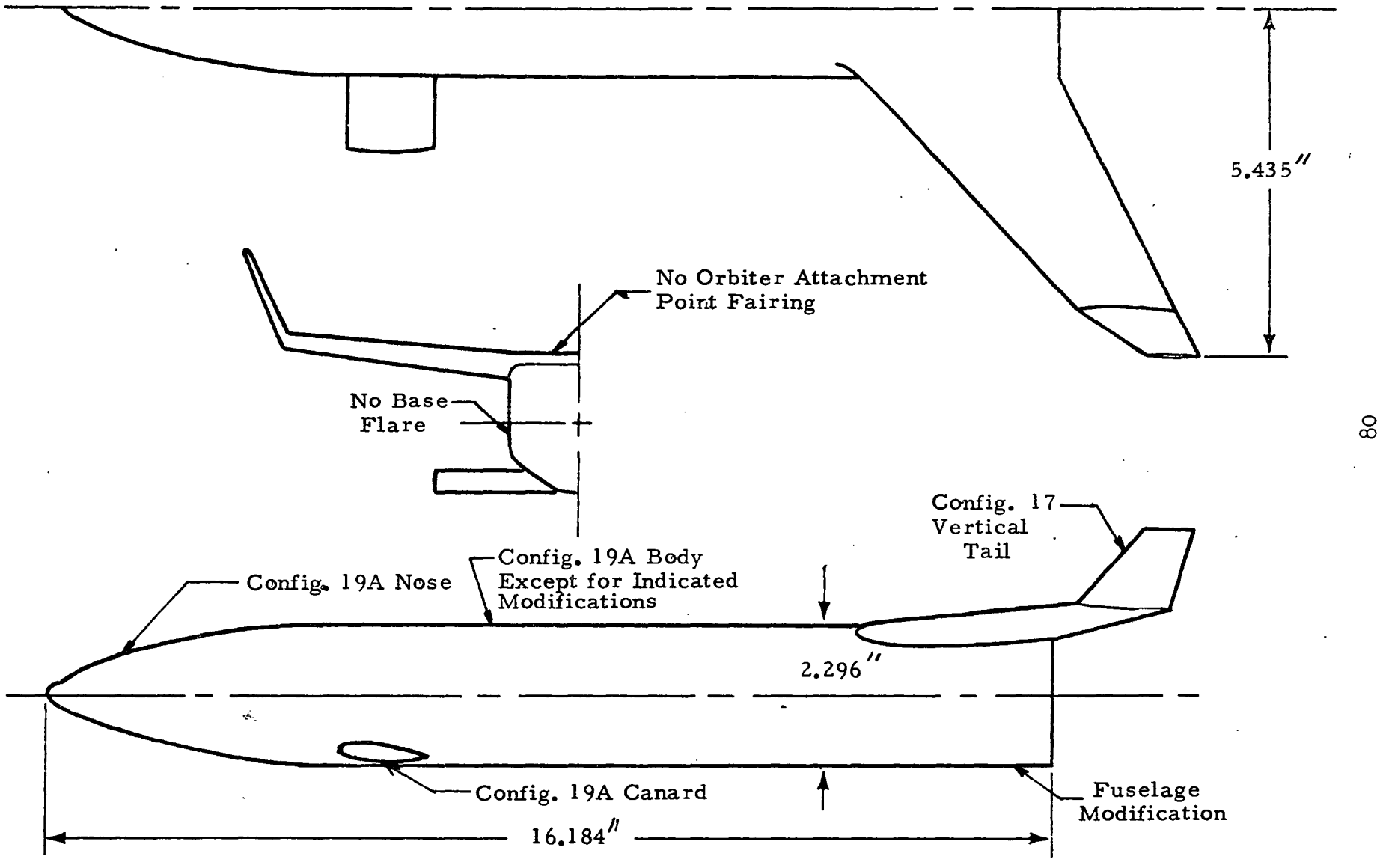
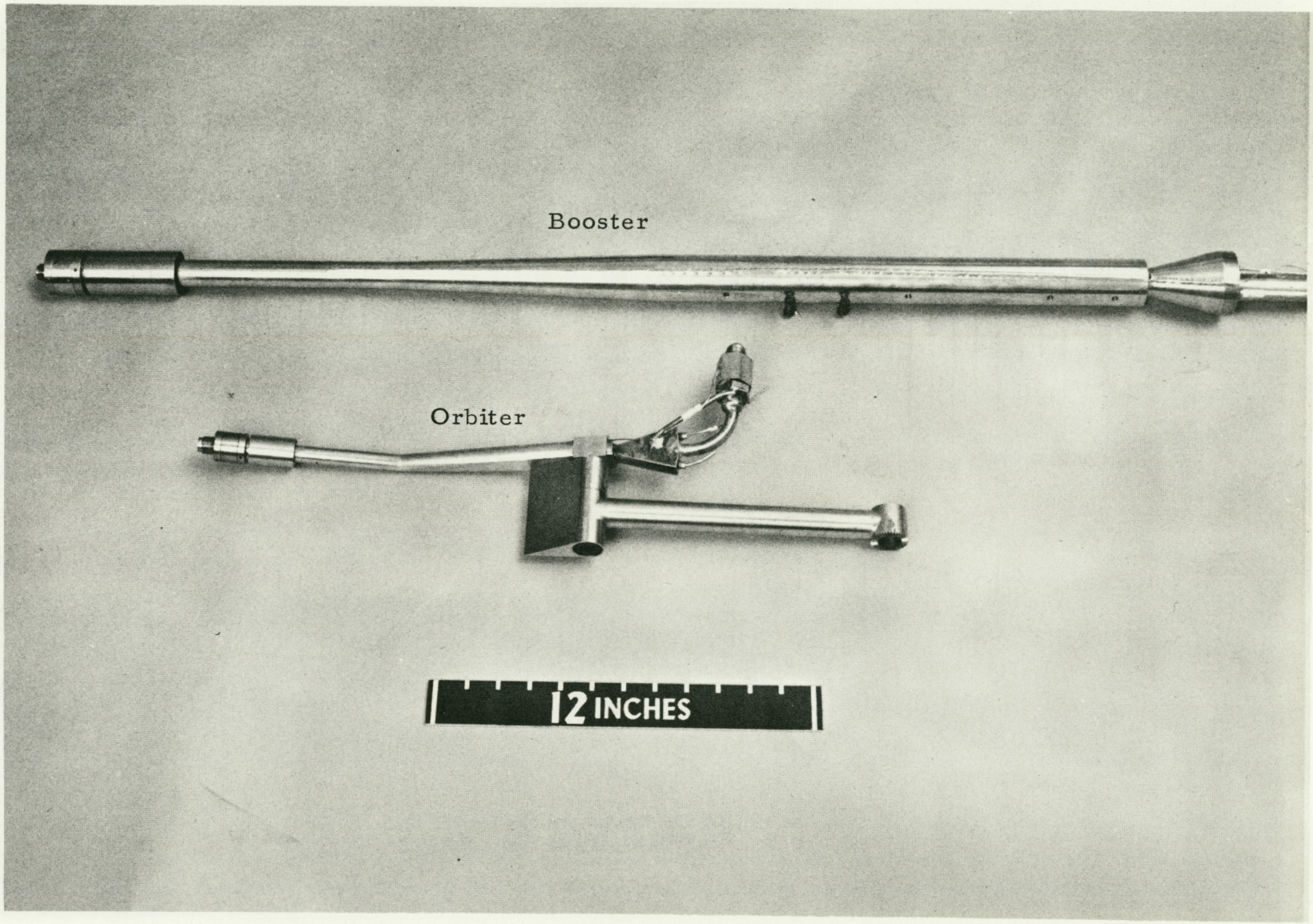


Fig. 5 - Modifications to Booster Model

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ARO INC. OPERATING CONTRACTOR
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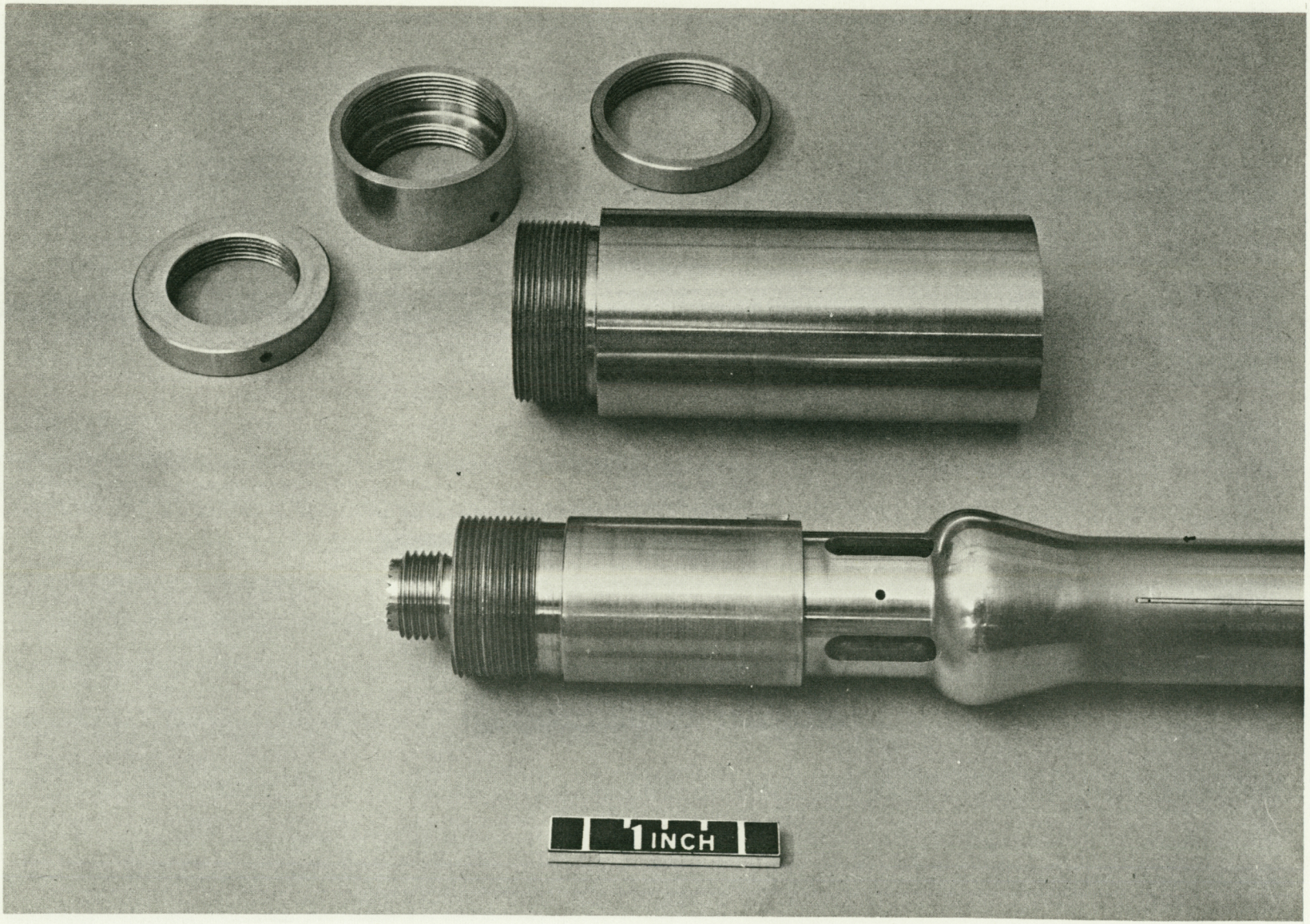


3901 (5-14-71) VA1163 SPACE SHUTTLE NOZZLES

Figure 6. Photograph of Booster and Orbiter Sting Nozzle Hardware

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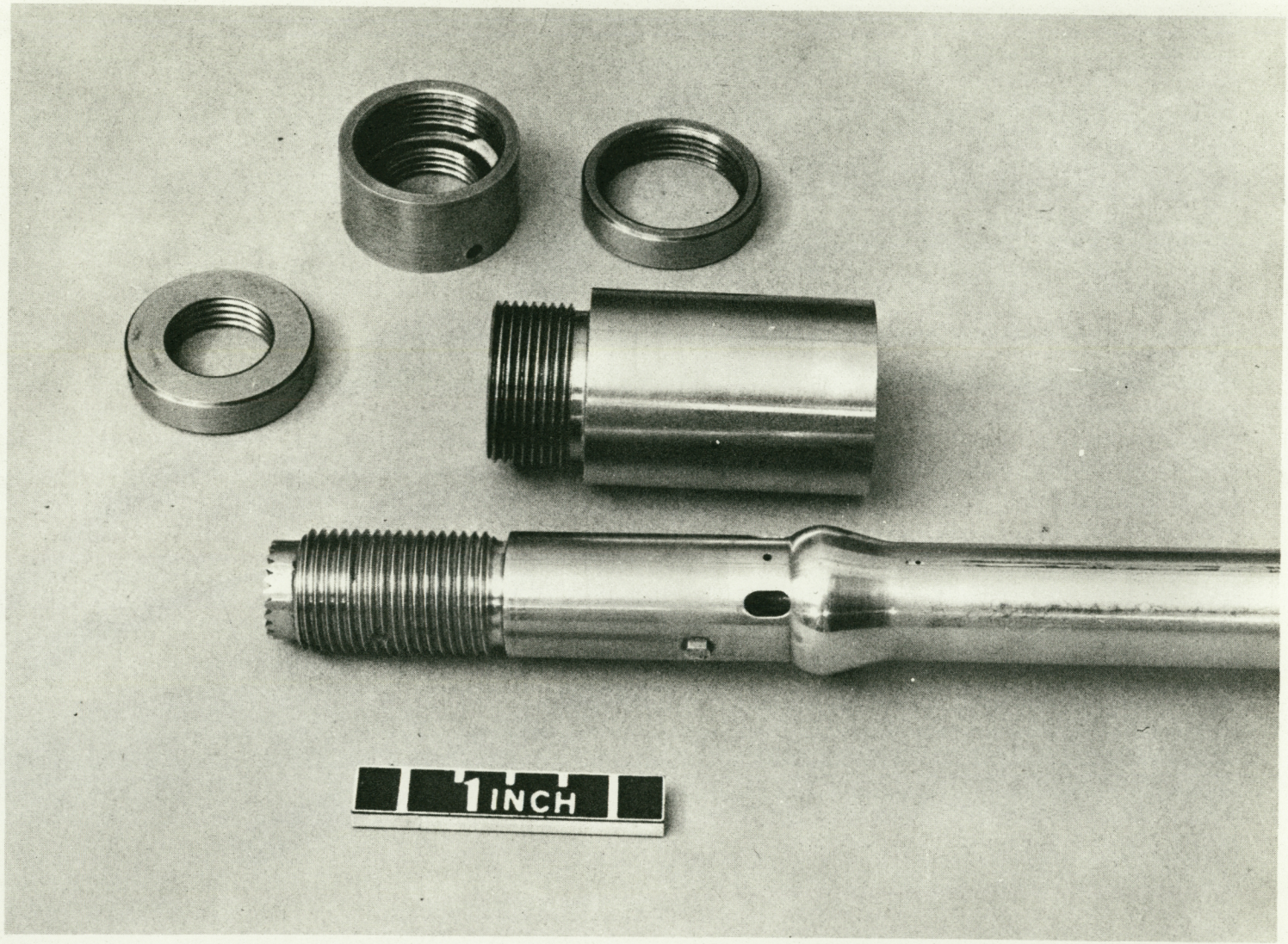


3895 (5-14-71) VA1163 SPACE SHUTTLE NOZZLES

Figure 7. Photograph of Booster Nozzle Hardware

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3896 (5-14-71) VA1163 SPACE SHUTTLE NOZZLES

Figure 8. Photograph of Orbiter Nozzle Hardware

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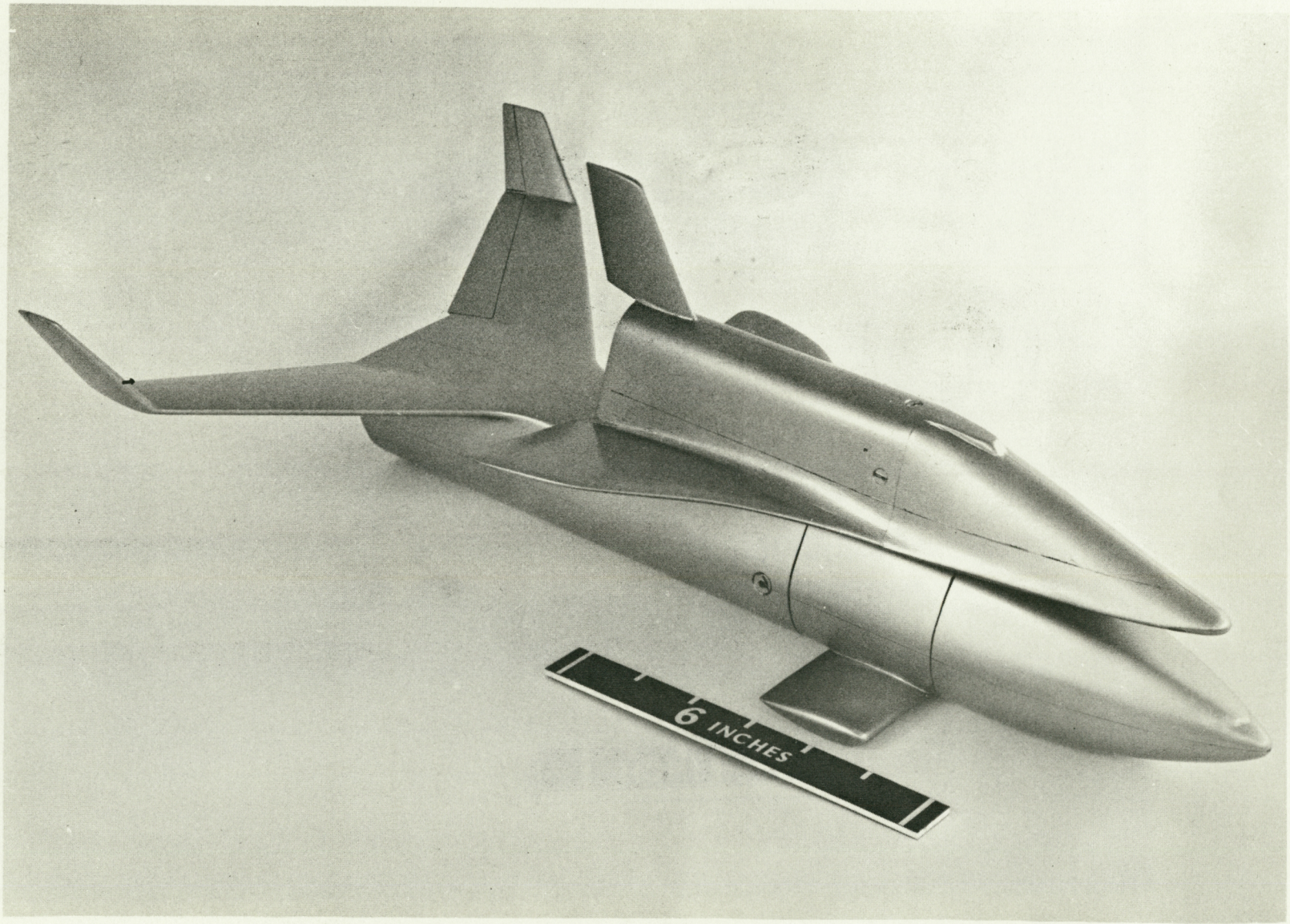


Figure 9. Photograph of MDAC Booster and Orbiter Models

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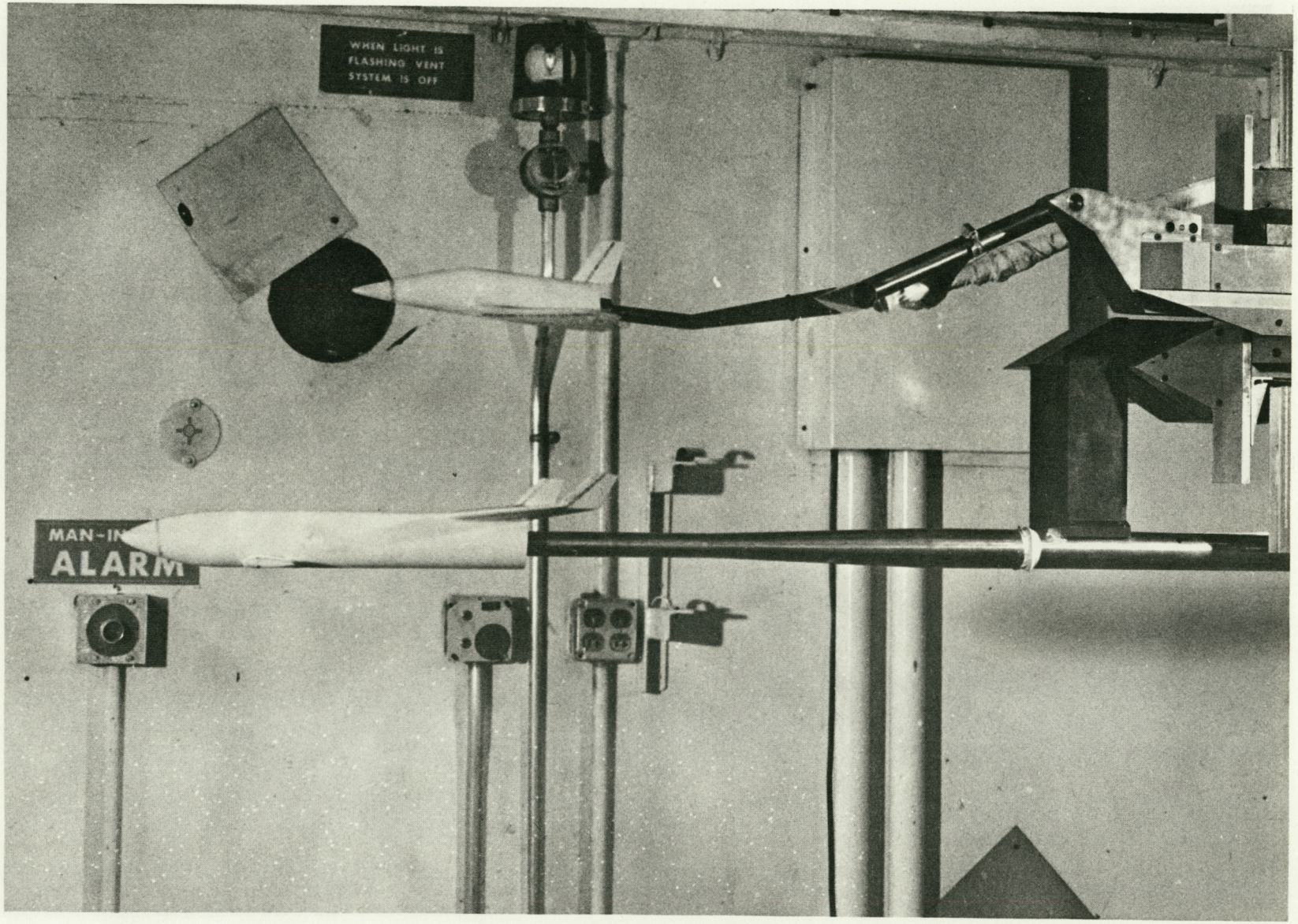


Figure 10. Photograph of Side View of Models and Separation Hardware

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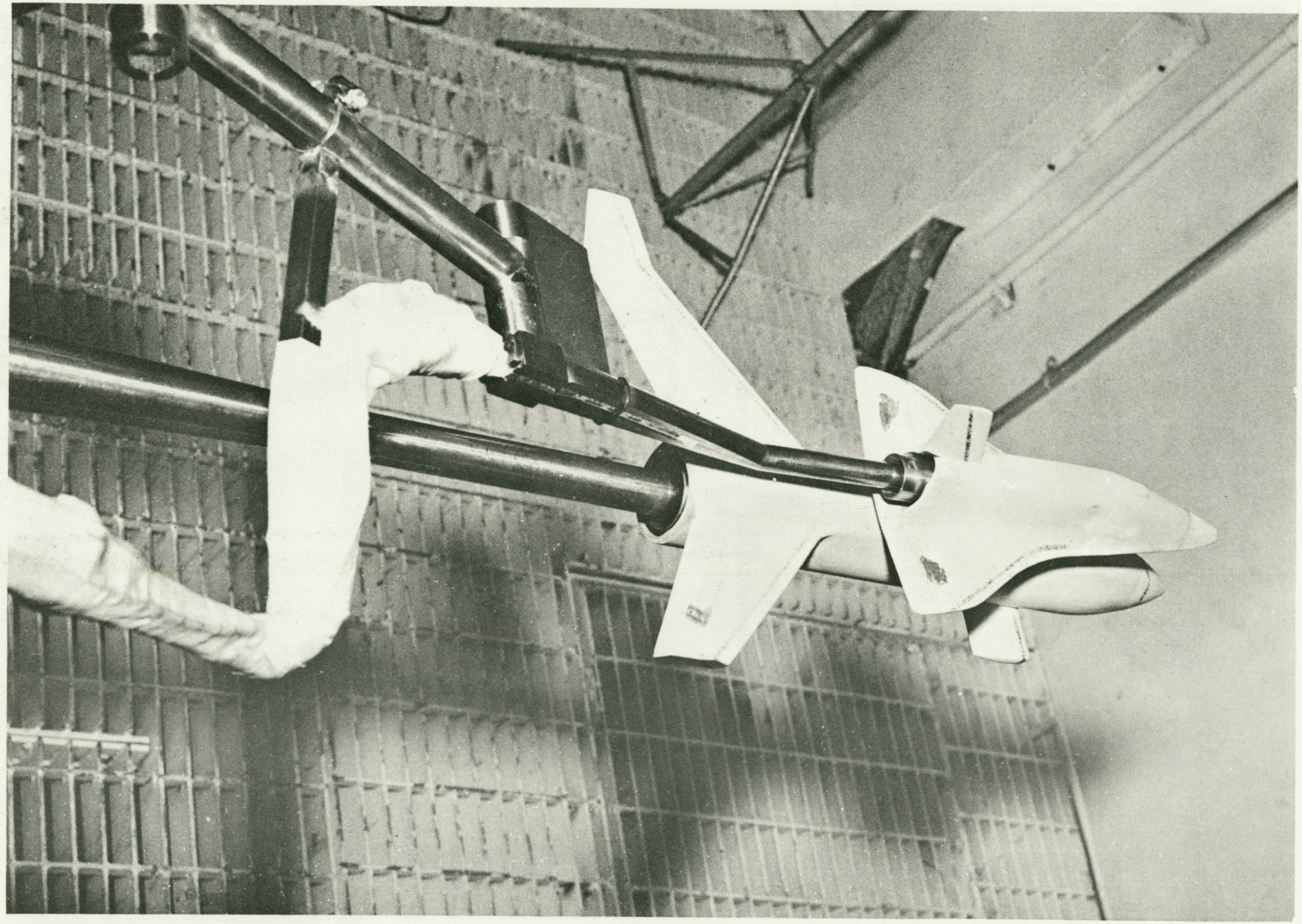


Figure 11. Photograph of Top View of Models and Associated Separation Hardware

3199 (4-27-71) VA1163 NASA STS FORCE MODEL

MODEL COMPONENT: BODY - MDAC Orbiter

GENERAL DESCRIPTION: Basic fuselage contours including canopy with modified aft fuselage cross sections; cross-sectional shape constant from station 1500 to end of fuselage - model scale 1/180.

DRAWING NUMBER: 255 BJ 00060, Rev. B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length	156.4	.869
Max. Width	27.1	.150
Max. Depth	30.3	.168
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

MODEL COMPONENT: Wing - MDAC Orbiter

GENERAL DESCRIPTION: Model Scale 1/180

DRAWING NUMBER: 255 BJ 00050, Rev. B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area, ft^2		
Planform	5330.0	.164
Wetted		
Span (equivalent), FT	97.5	.542
Aspect Ratio	1.79	1.79
Rate of Taper		
Taper Ratio	.230	.230
Diehedral Angle, degrees	10.0	10.0
Incidence Angle, degrees	2.0	2.0
Aerodynamic Twist, degrees	0	0
Sweep Back Angles, degrees		
Leading Edge	55.0	55.0
Trailing Edge	0	0
0.25 Element Line	47.0	47.0
Chords:		
Root (Wing Sta. 0.0), INCHES	1084.8	6.027
Tip, (equivalent), INCHES	249.6	1.387
MAC, inches	754.8	4.193
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
Airfoil Section		
Root (B.L. 162)	0010-64	0010-64
Tip (B.L. 540)	0009-64	0009-64
EXPOSED DATA		
Area, FT^2	3147.3	.097
Span, (equivalent), FT	70.5	.392
Aspect Ratio	1.58	1.58
Taper Ratio		
Chords		
Root, inches	855.0	4.750
Tip, inches	249.6	1.387
MAC	607.2	3.373
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		

MODEL COMPONENT: Elevon - MDAC Orbiter

GENERAL DESCRIPTION: Model Scale 1/180

DRAWING NUMBER: 255 BJ 00050, Rev. B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area, ft^2	820.9	.025
Span (equivalent), INCHES	385.2	2.140
Inb'd equivalent chord, INCHES	153.6	.353
Outb'd equivalent chord, INCHES	153.6	.353
Ratio Elevator chord/horizontal tail chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge	0	0
Tailing Edge	0	0
Hingeline	0	0
Area Moment (Normal to hinge line)		

MODEL COMPONENT: Vertical Tail - MDAC Orbiter

GENERAL DESCRIPTION: Model Scale 1/180

DRAWING NUMBER: 255 BJ 00050, Rev. B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area, ft^2		
Planform	580.0	.013
Wetted		
Span (equivalent), ft.	27.5	.153
Aspect Ratio		
Rate of Taper		
Taper Ratio	.638	.638
Diehedral Angle, degrees		
Incidence Angle, degrees		
Aerodynamic Twist, degrees		
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	30.0	30.0
Trailing Edge	13.4	13.4
0.25 Element Line	26.2	26.2
Chords:		
Root, inches	309.6	1.720
Tip, (equivalent), inches	196.8	1.093
MAC, inches	21.4	.119
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
Airfoil Section		
Root	0009-64	0009-64
Tip	0009-64	0009-64
EXPOSED DATA		
Area, ft^2	580.0	.018
Span, (equivalent), ft	27.5	.153
Aspect Ratio		
Taper Ratio	.638	.638
Chords		
Root, inches	309.6	1.720
Tip, inches	196.8	1.093
MAC, inches	21.4	.119
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		

MODEL COMPONENT: BODY - MDAC Booster

GENERAL DESCRIPTION: Configuration 19A fuselage without base flare and boattail

Model Scale 1/180

DRAWING NUMBER: 256-19-0001, Rev. A

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length (Ft)	241.7	1.343
Max. Width (Ft)	34.0	.189
Max. Depth (Ft)	34.0	.189
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

MODEL COMPONENT: Wing - MDAC Booster

GENERAL DESCRIPTION: Configuration 19A Wing

Model Scale 1/180

DRAWING NUMBER:

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area, ft^2		
Planform	6020.0	.106
Wetted		
Span (equivalent), ft.	146.0	.811
Aspect Ratio	3.54	3.54
Rate of Taper		
Taper Ratio	.435	.435
Diehedral Angle, degrees	7.67	7.67
Incidence Angle, degrees	3.0	3.0
Aerodynamic Twist, degrees	0	0
Sweep Back Angles, degrees		
Leading Edge	44.0	44.0
Trailing Edge		
0.25 Element Line		
Chords:		
Root (Wing Sta. 0.0), inches	690.0	3.833
Tip, (equivalent)	300.0	1.667
MAC, inches	520.0	2.889
Fus. Sta. of .25 MAC, inches	3625	20.139
W.P. of .25 MAC, inches		
B.L. of .25 MAC, inches	380	2.111
Airfoil Section		
Root	0010-64	0010-64
Tip	0010-64	0010-64
EXPOSED DATA		
Area, ft^2	4190.0	.129
Span, (equivalent), ft.		
Aspect Ratio		
Taper Ratio		
Chords		
Root, inches	594.0	3.300
Tip, inches	300.0	1.667
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		

MODEL COMPONENT: Vertical Tails - MDAC Booster

GENERAL DESCRIPTION: Configuration 17 Vertical Tails

Model Scale 1/180

DRAWING NUMBER: 256-17-0001, Rev. A

DIMENSIONS:		FULL-SCALE	MODEL SCALE
TOTAL DATA (Values for one)			
Area			
Planform (True)		438	.014
(Side Projection)		397	.012
Span (equivalent), inches		276	1.533
Aspect Ratio		1.21	1.21
Rate of Taper			
Taper Ratio		.520	.520
Toe-In Angle		0	0
Cant Angle		25	25
Sweep Back Angles, degrees			
Leading Edge		40	40
Trailing Edge			
0.25 Element Line			
Chords:			
Root		300	1.667
Tip, (equivalent), inches		156	.867
MAC, inches		236	1.311
Fus. Sta. of .25 MAC			
W.P. of .25 MAC			
Airfoil Section			
Root	NACA	64A-009	NACA 64A-009
Tip	NACA	64A-009	NACA 64A-009
EXPOSED DATA			
Area			
Span, (equivalent)			
Aspect Ratio			
Taper Ratio			
Chords			
Root			
Tip			
MAC			
Fus. Sta. of .25 MAC			
W.P. of .25 MAC			

MODEL COMPONENT: Elevon - MDAC Booster

GENERAL DESCRIPTION: Configuration 19A Elevons

Model Scale 1/180

DRAWING NUMBER: 256-19-0001, Rev. A

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	617 ft^2	.0191 ft^2
Span (equivalent)	650 in.	3.611 in.
Inb'd equivalent chord	180 in.	.9999 in.
Outb'd equivalent chord	93 in.	.5166 in.
Ratio Elevator chord/horizontal tail chord		
At Inb'd equiv. chord	.3	.3
At Outb'd equiv. chord	.3	.3
Sweep Back Angles, degrees		
Leading Edge	33	33
Tailing Edge	27	27
Hingeline	33	33
Area Moment (Normal to hinge line), Ft^3	2998	.00004

MODEL COMPONENT: Canard - MDAC Booster

GENERAL DESCRIPTION: Configuration 19A Canard

Model Scale 1/180

DRAWING NUMBER: 256-19-001, Rev. A

DIMENSIONS:		FULL-SCALE		MODEL SCALE
Theo. Area, Ft^2		1660		.051
Exp Area, Ft^2		1215		.038
Aspect Ratio		3.0		3.0
Chord (Incl. Flap), Ft		23.625		.131
Airfoil (360 In. Theo Chord)	NACA	63-018	NACA	63-018

NOMENCLATURE

(General)

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

NOMENCLATURE (Continued)

Reference & C. G. Definitions

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

NOMENCLATURE (Continued)

Axis System General

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

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

NOMENCLATURE (Continued)

Body & Stability Axis System

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

NOMENCLATURE (Continued)

Surface Definitions

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

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

ADDITIONS AND CHANGES TO NOMENCLATURE

SYMBOL	SADSAC SYMBOL	DEFINITION
i_T		tail incidence positive when trailing edge down, deg
V		velocity of vehicle relative to surrounding atmosphere; m/sec, ft/sec
α_B	ALPHAB	booster angle of attack, angle between the projection of the wind X_w-axis on the body X, Z-plane and the body X-axis; deg
β	BETA	sideslip angle, angle between the wind X_w-axis and the projection of this axis on the body X-Z-plane; deg
γ		ratio of specific heats
Γ	DIHDRL	wing dihedral angle; deg
ρ		air density; K_g/m^3, slugs/ft^3
α_I	ALPHAI	incidence angle between the orbiter and booster on the XZ plane
α_O	ALPHAO	orbiter angle of attack, $\alpha_O = \alpha_B + \alpha_I$
PWR_B	BSTPOW	booster power, percent of full thrust
PWR_O	ORBPOW	orbiter power, percent of full thrust
δ_{eB}	ELVBST	booster elevon deflection angle, positive is trailing edge down
δ_{eO}	ELVORB	orbiter elevon deflection angle, positive is trailing edge down

ADDITIONS AND CHANGES TO NOMENCLATURE (CONTINUED)

SYMBOL	SADSAC SYMBOL	DEFINITION
X/l_B	DELTAX	distance between the MRP on the orbiter and booster measured parallel to the longitudinal axis of the booster, positive when the orbiter MRP is forward of the booster MRP, the distance has been normalized with respect to the booster fuselage length (16.184 inches)
Z/l_B	DELTAZ	distance between the MRP on the orbiter and booster measured normal to the longitudinal axis of the booster, positive when the orbiter MRP is above the booster MRP, the distance has been normalized with respect to the booster fuselage length (16.184 inches)

REFERENCES

1. Sims, Joseph L., "Plume Simulation for Space Shuttle Abort Staging Aerodynamic Testing," Memo S&E-AERO-AF-70-6, December 1970.

2. Baker, L. R., "Calibration of the Propulsion Simulation Nozzles for the Space Shuttle Booster and Orbiter Models for the Abort/Separation Staging Experimental Program," LMSC/HREC D225144, June 1971.

3. "Test Facilities Handbook" (8th Edition), Arnold Engineering Development Center, December 1969.

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.

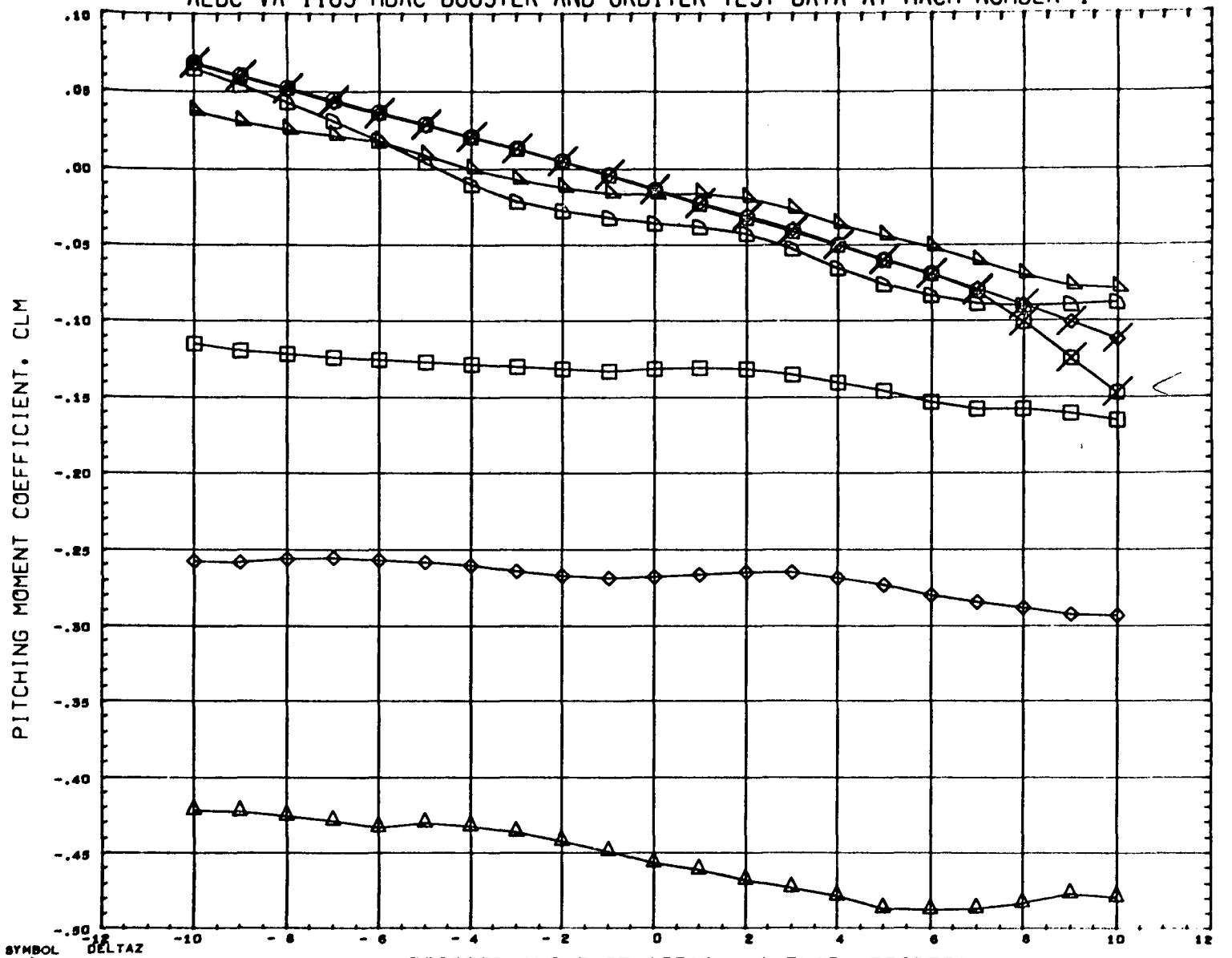
If copies of this listing are desired, please contact the cognizant SADSAC personnel who, for this data, is:

J. L. Glynn
Department 2780
Chrysler Corporation Space Division
New Orleans, Louisiana 70129

(504) 255-2304

PLOTTED DATA

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
⊘	0.352
⊗	0.599
	10.000

PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
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MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

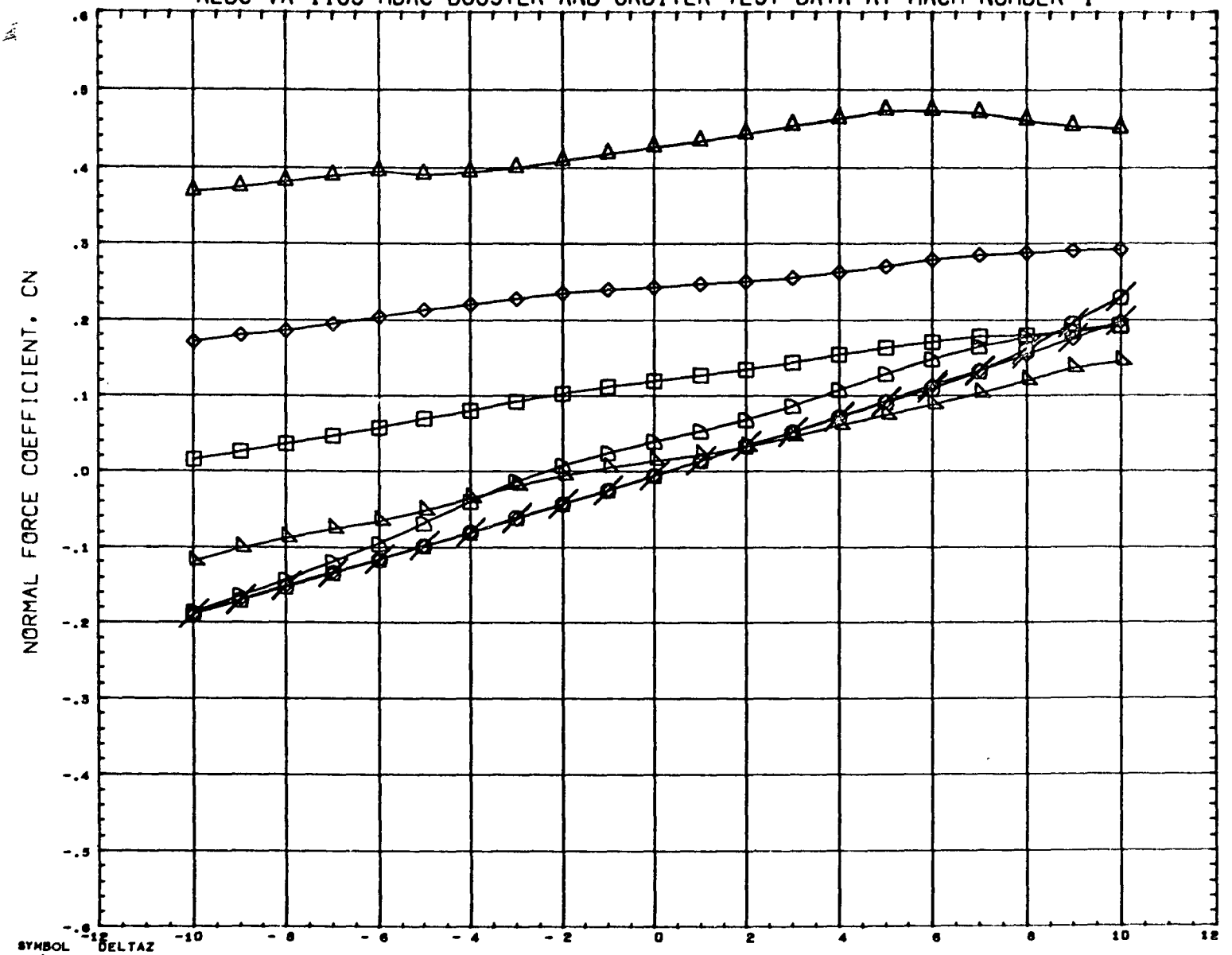
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ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 MDAC ORBITER IN PROXIMITY TO BOOSTER (RT8774) 09 JAN 72 PAGE 1

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



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▷	0.352
⊗	0.599
⊘	10.000

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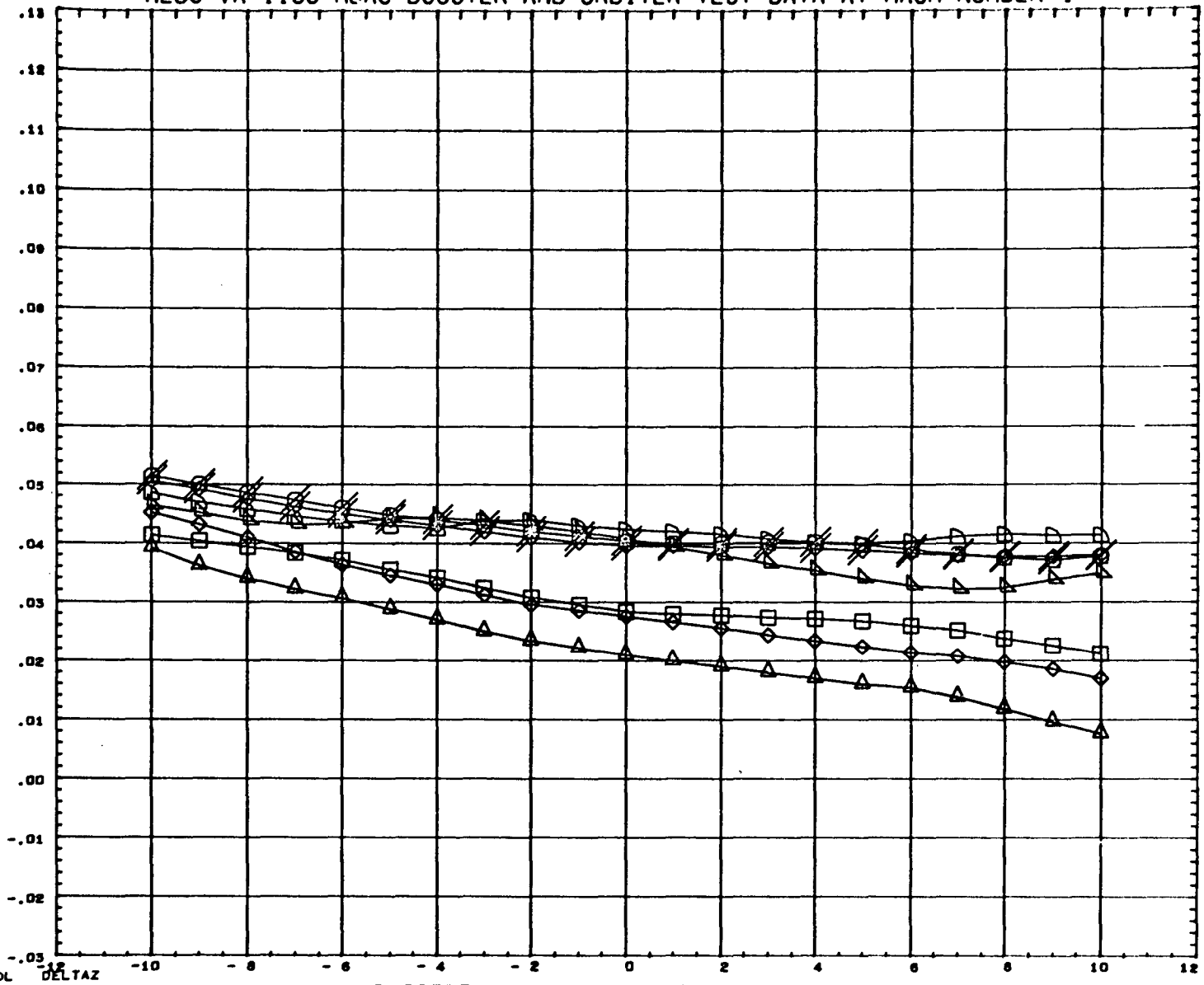
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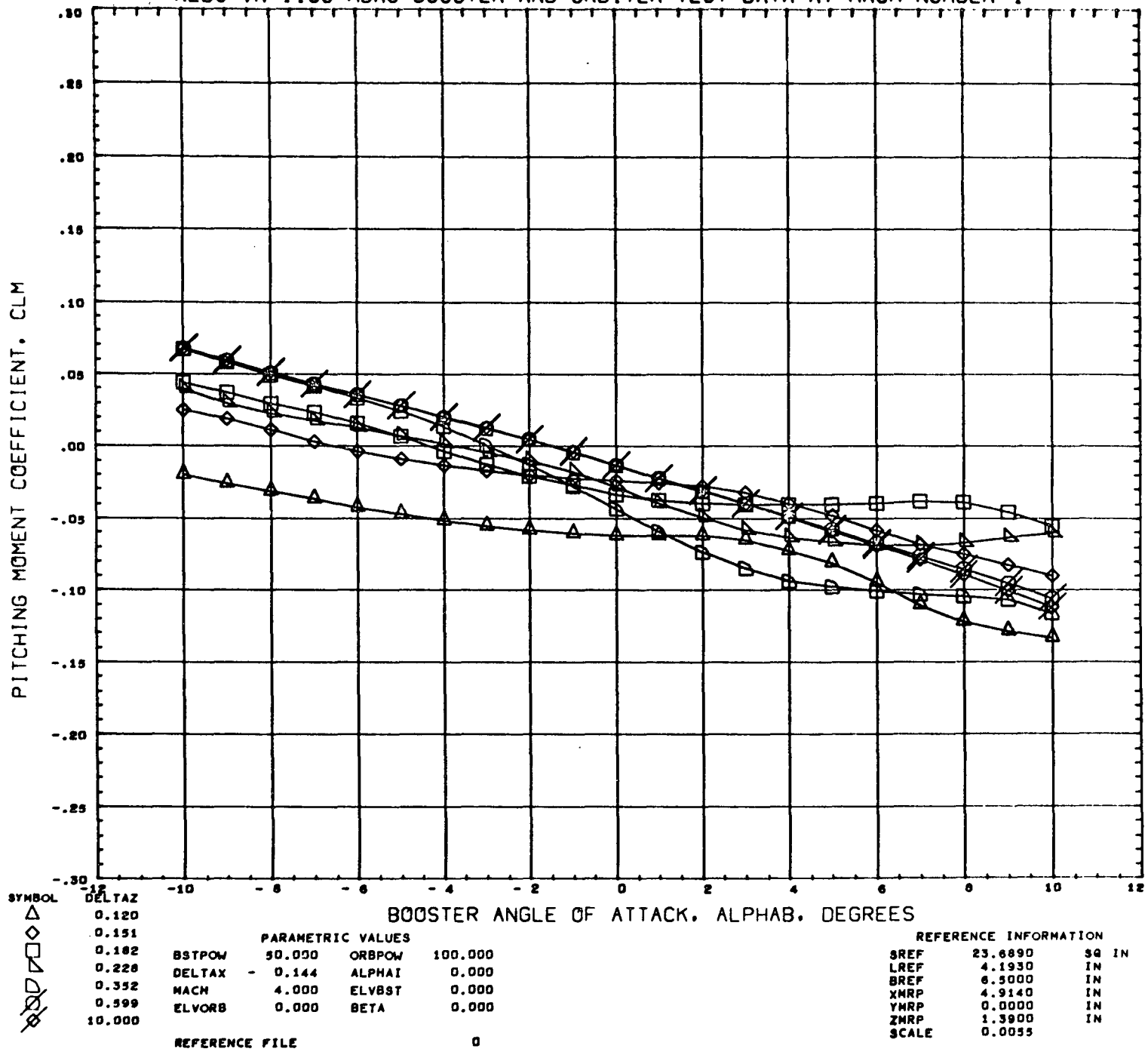
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AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



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⊘	0.352
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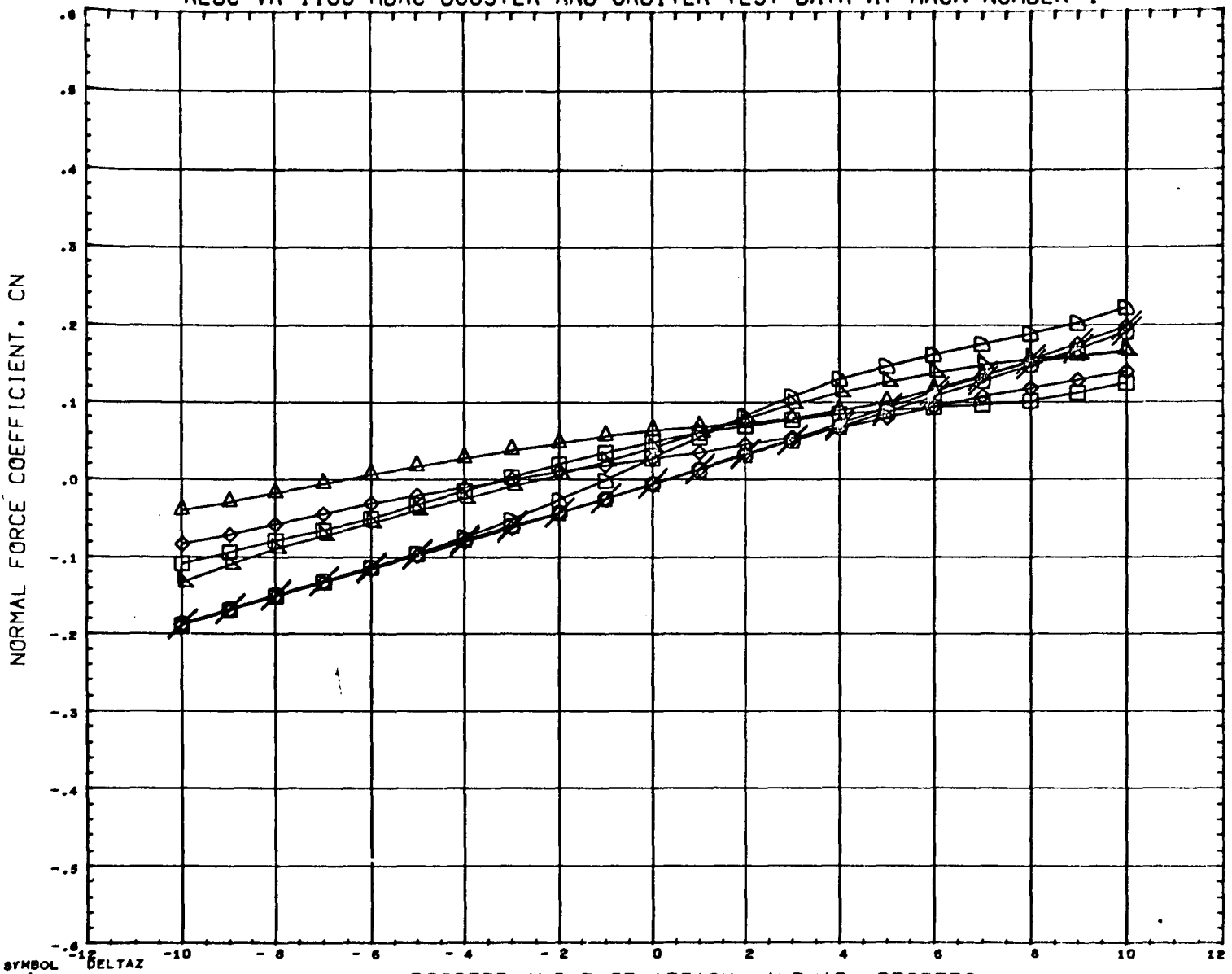
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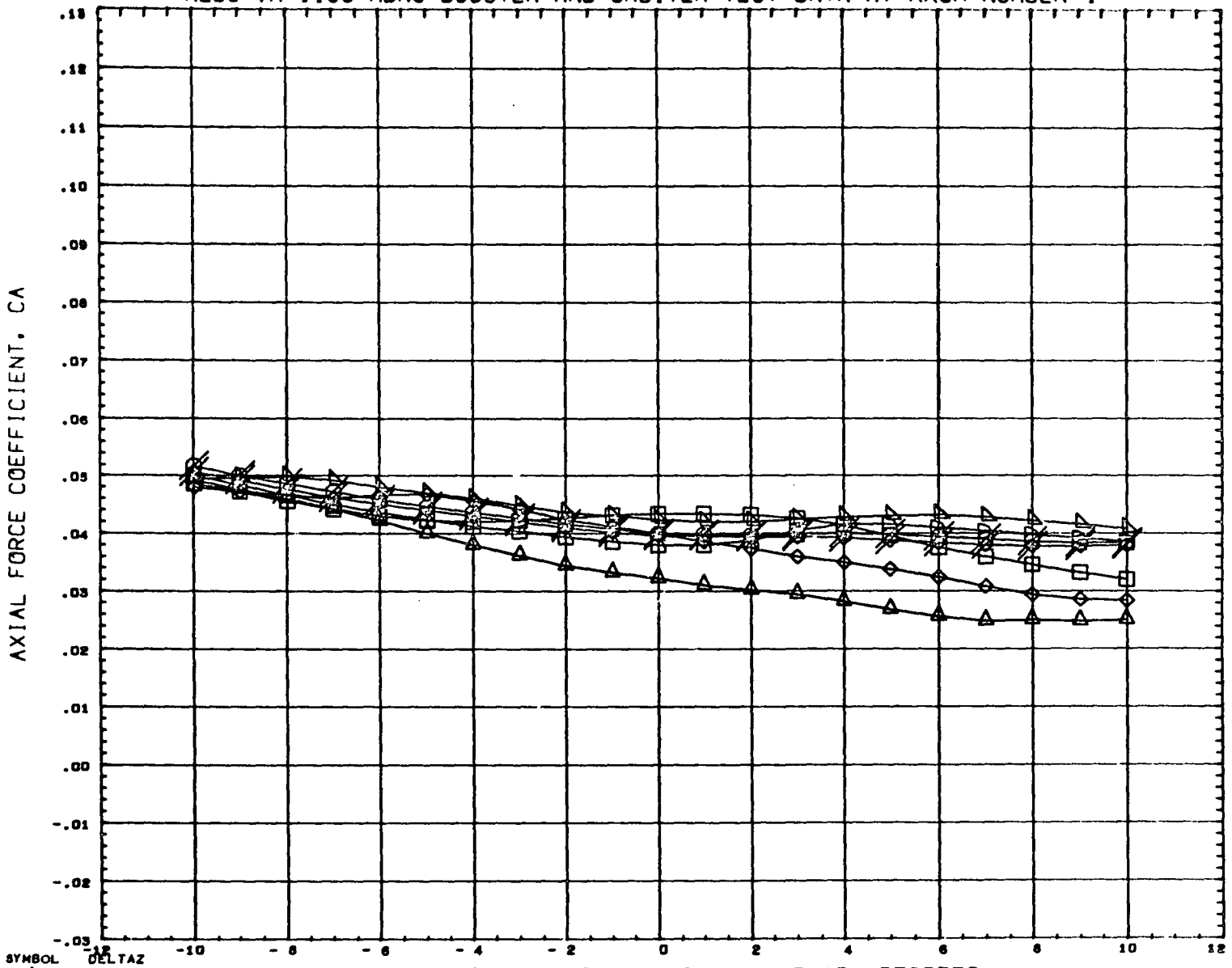
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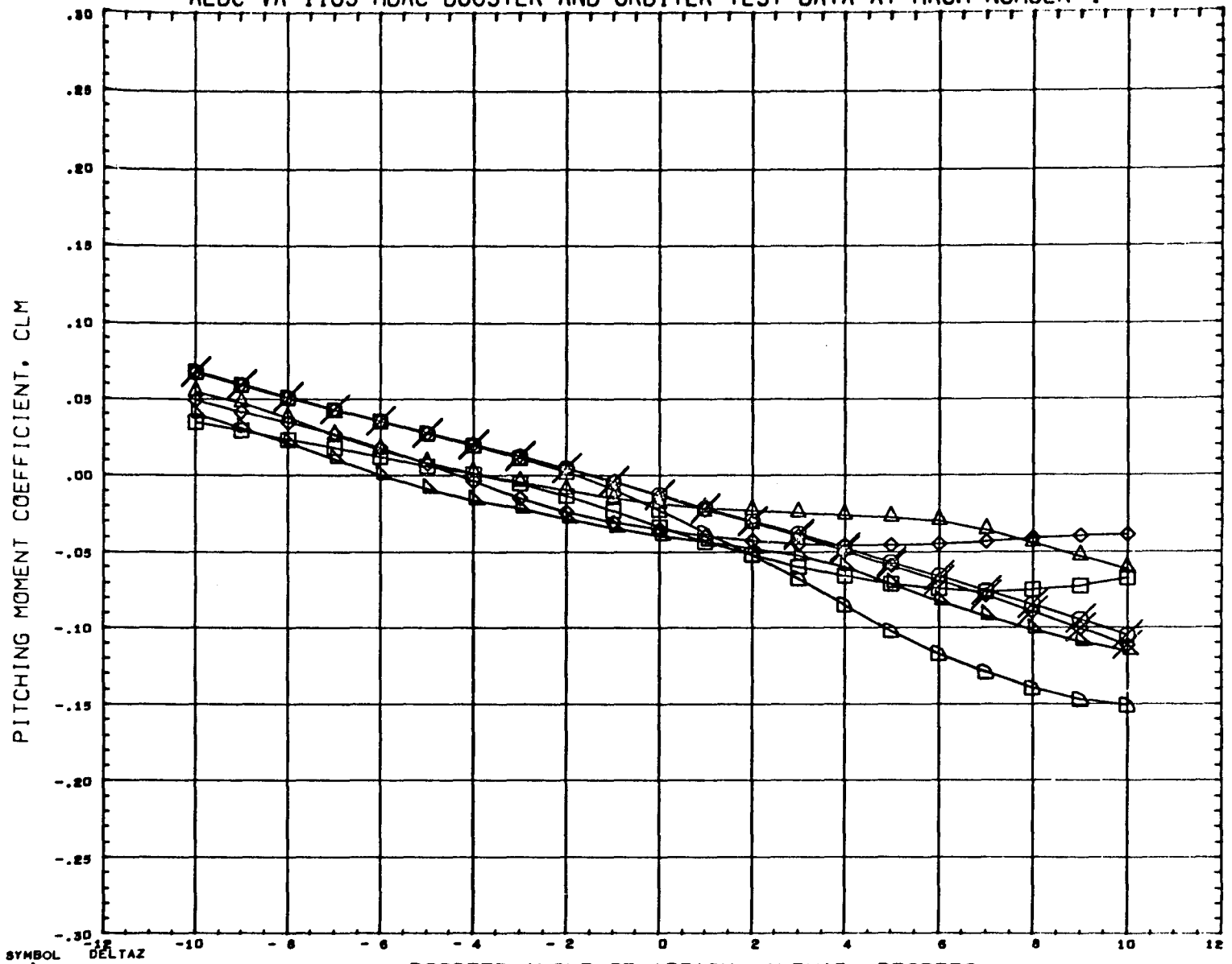
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AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
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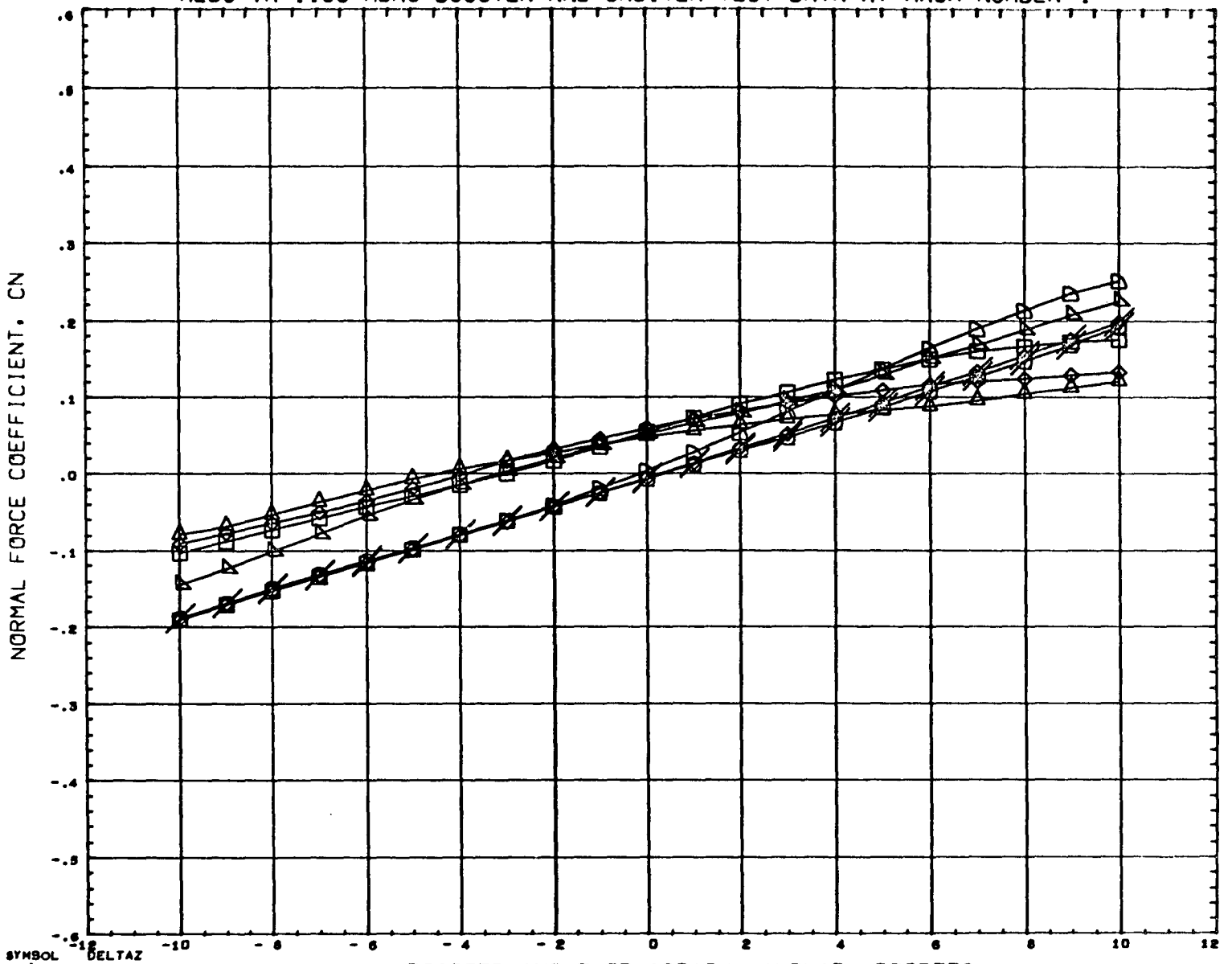
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AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



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◇	0.151
□	0.182
▽	0.226
⊘	0.352
⊗	0.599
	10.000

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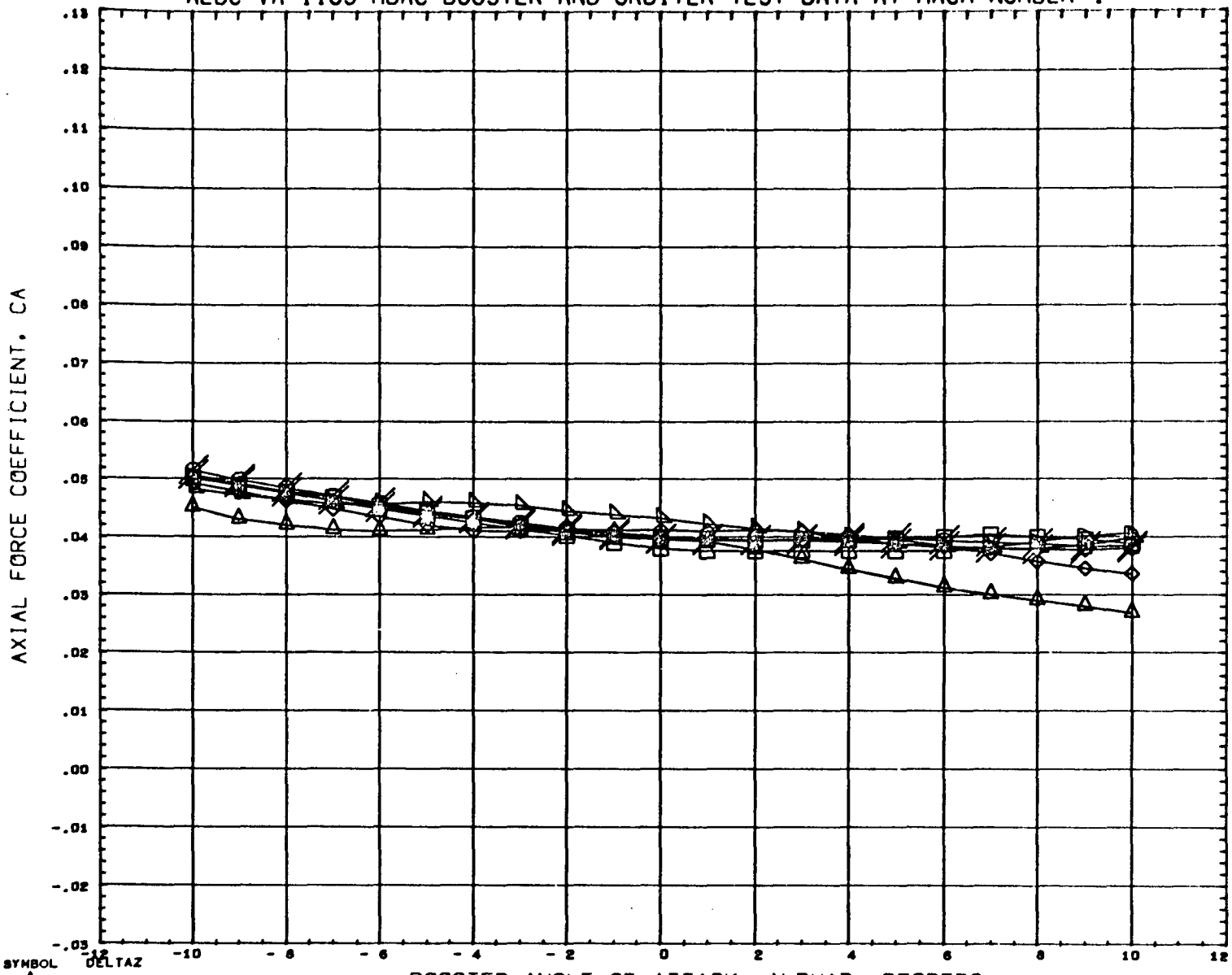
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◇	0.151
□	0.182
▽	0.226
⊘	0.352
⊗	0.599
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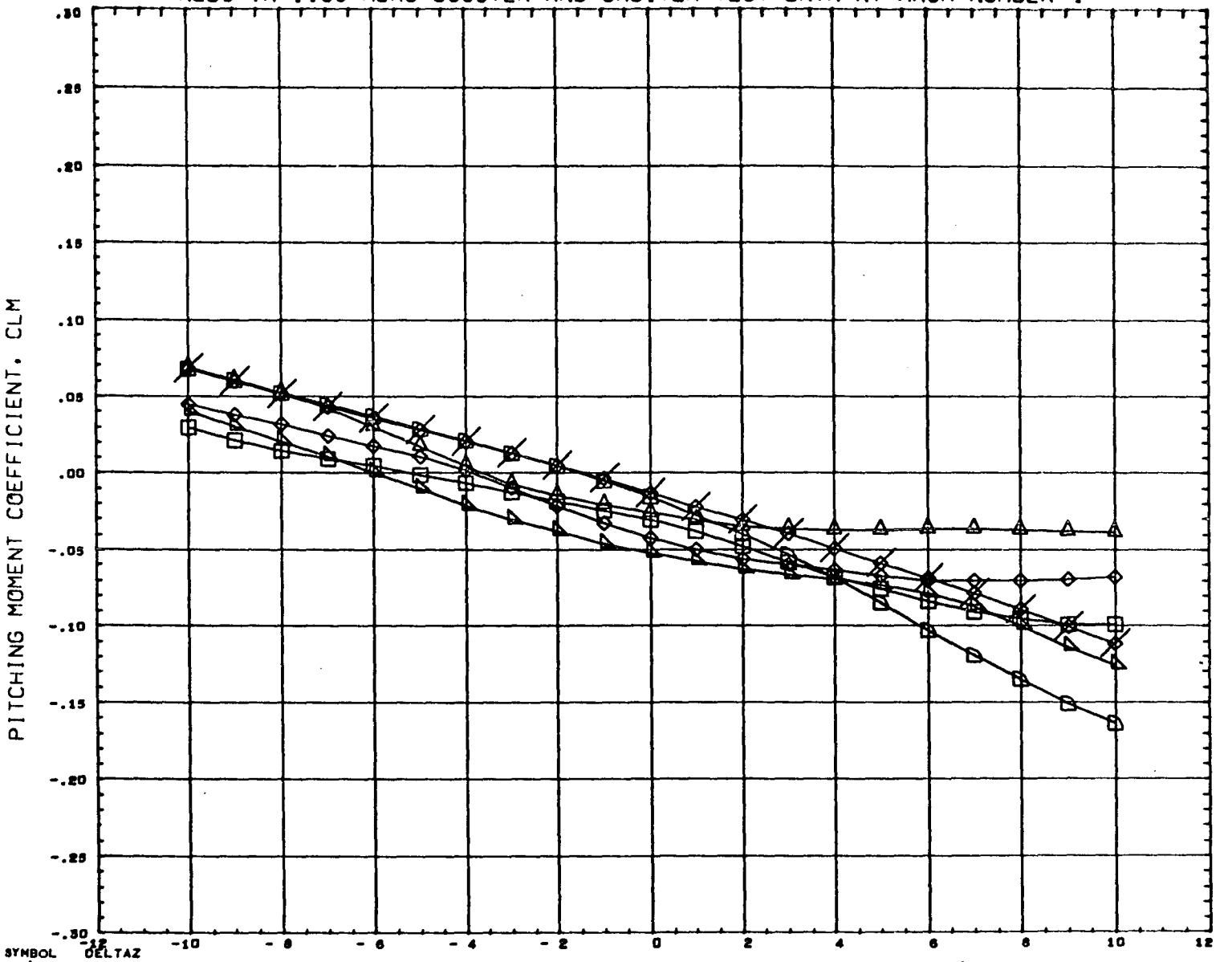
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REFERENCE FILE 0

REFERENCE INFORMATION

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ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
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◇	0.151
□	0.182
◸	0.228
◇	0.352
⊗	10.000

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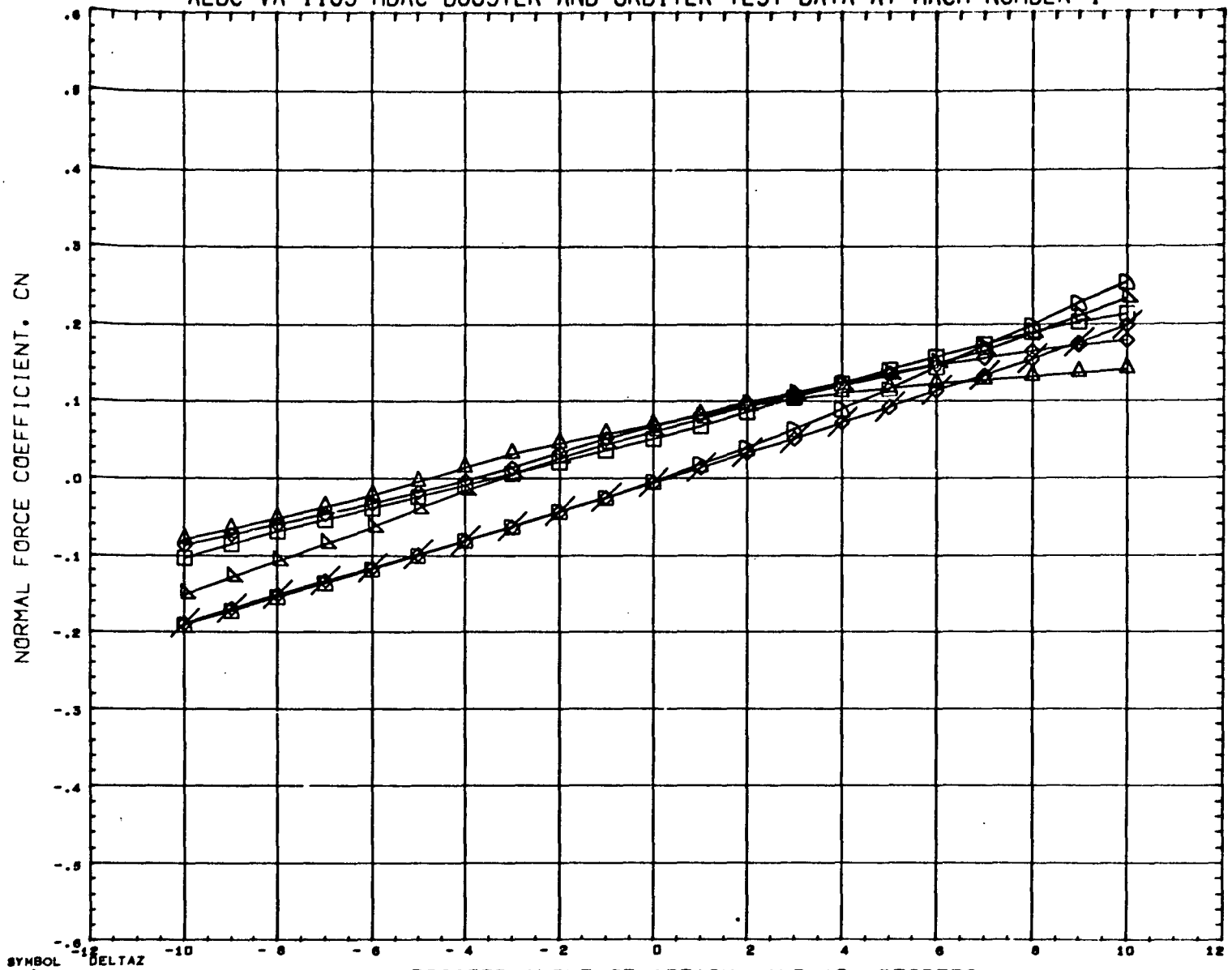
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SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
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◇	0.151
□	0.162
▽	0.228
◁	0.352
⊘	10.000

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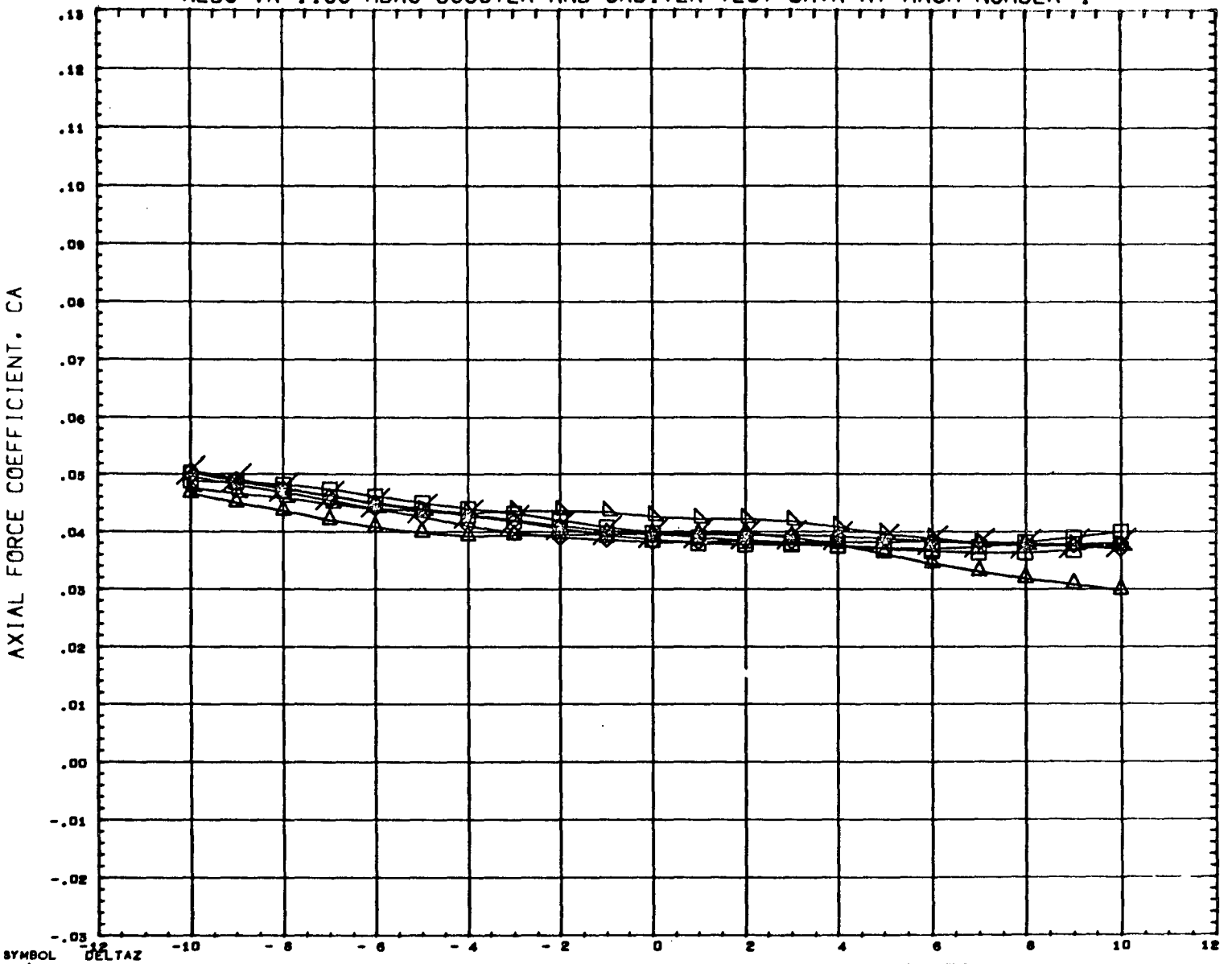
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◸	0.228
◺	0.352
⊗	10.000

PARAMETRIC VALUES

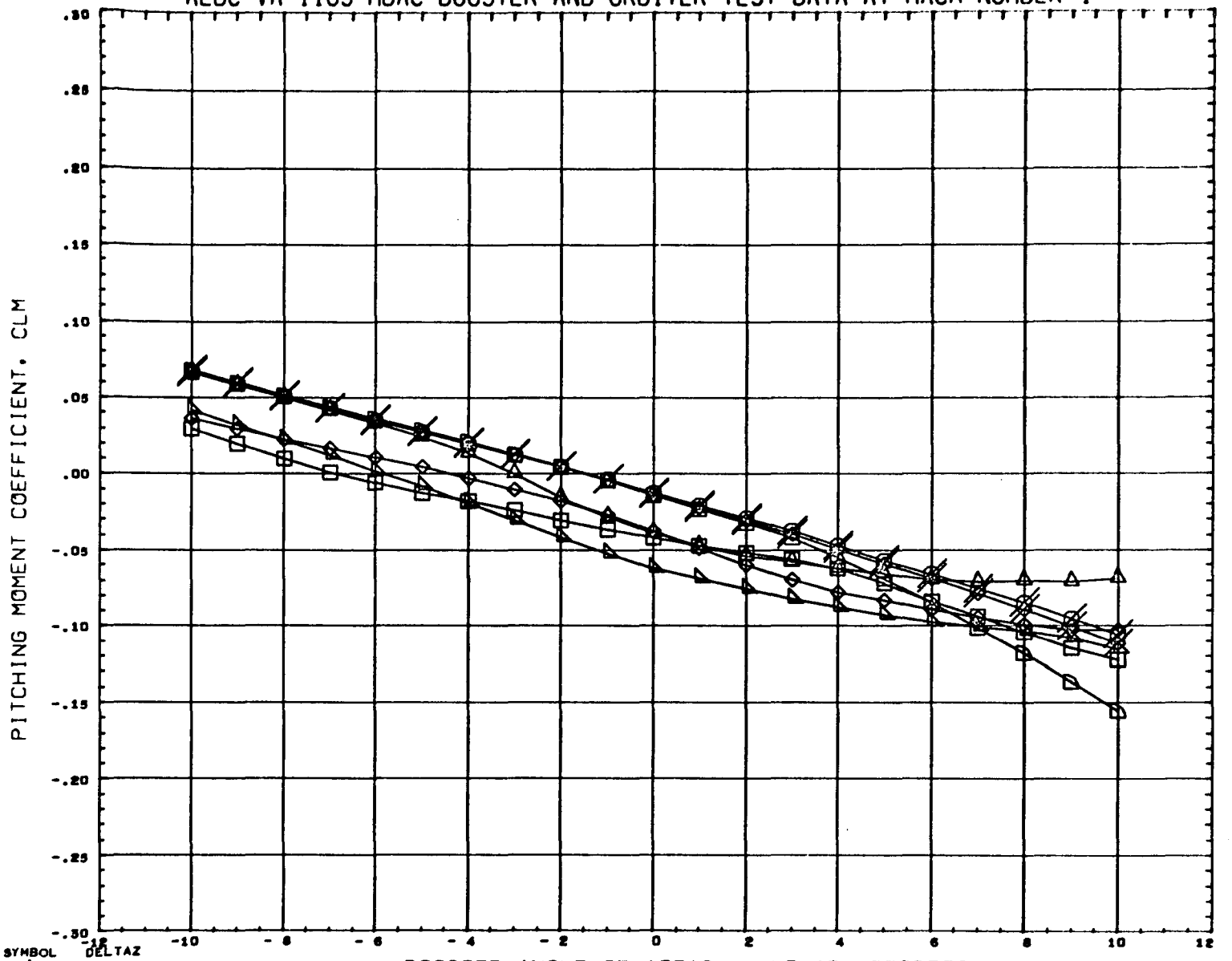
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.226
⊘	0.352
⊗	0.599
	10.000

PARAMETRIC VALUES

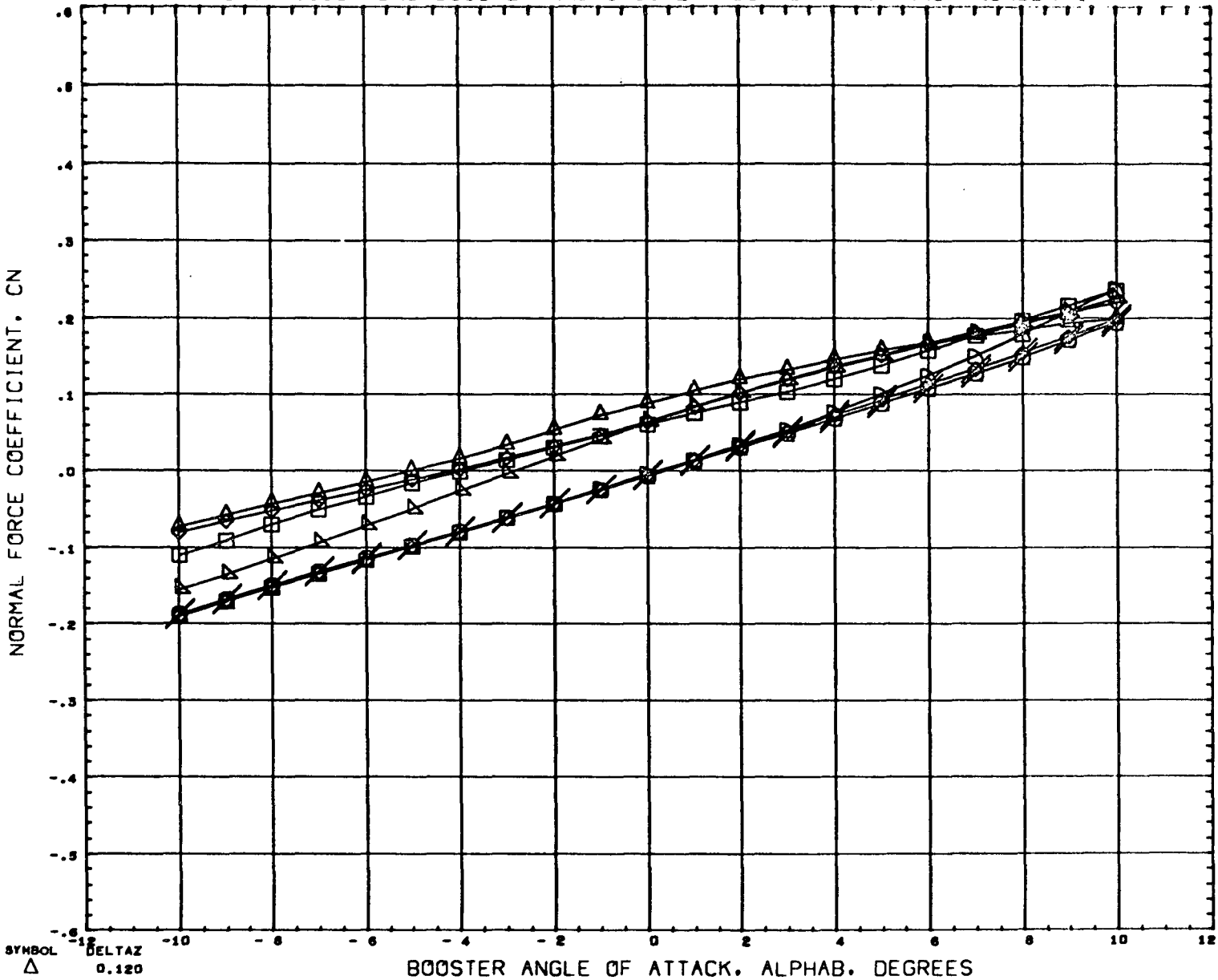
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DELTAX	0.104	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊘	0.599
⊗	10.000

PARAMETRIC VALUES

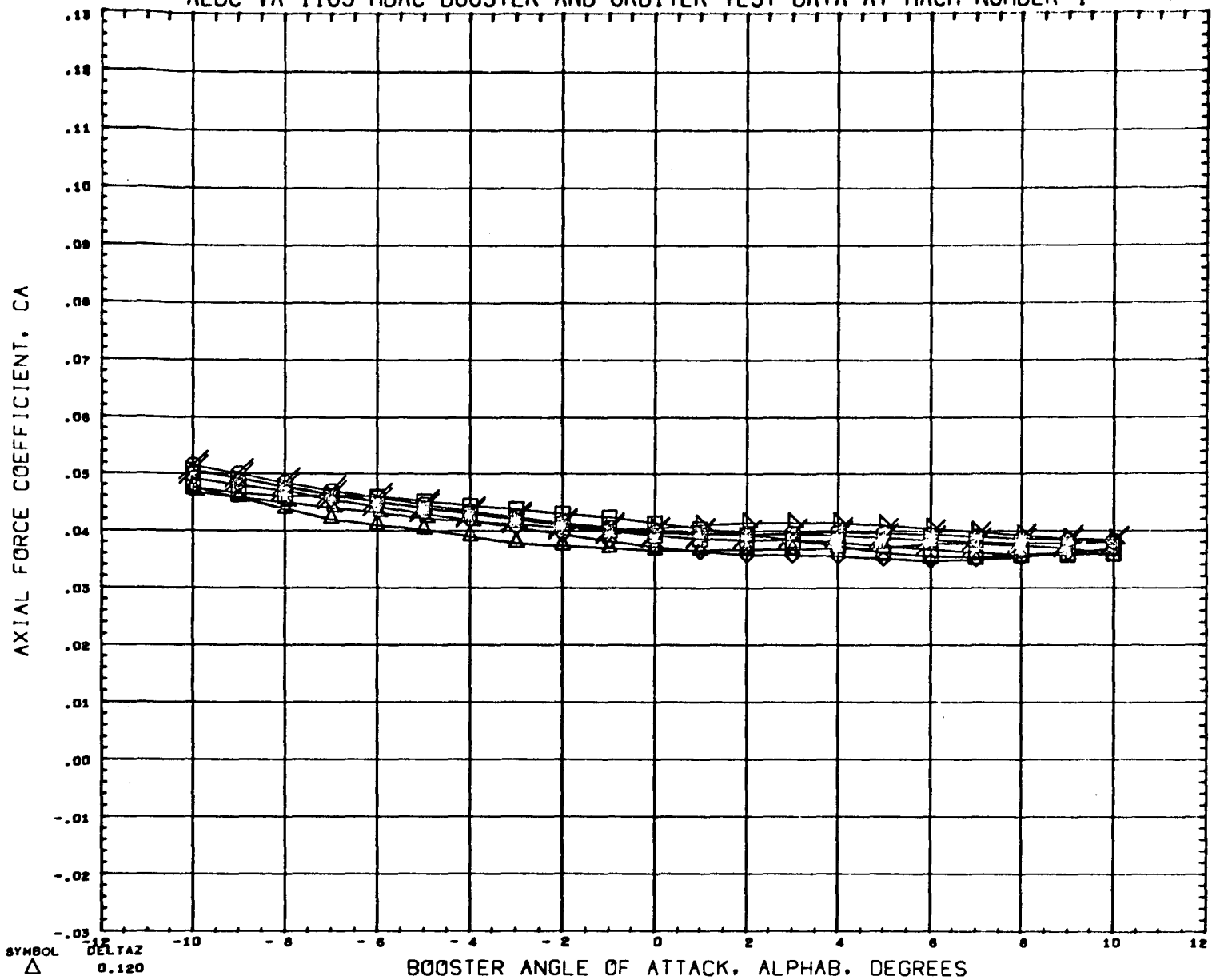
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.131
□	0.182
▱	0.228
⊘	0.352
⊘	0.599
⊘	10.000

PARAMETRIC VALUES

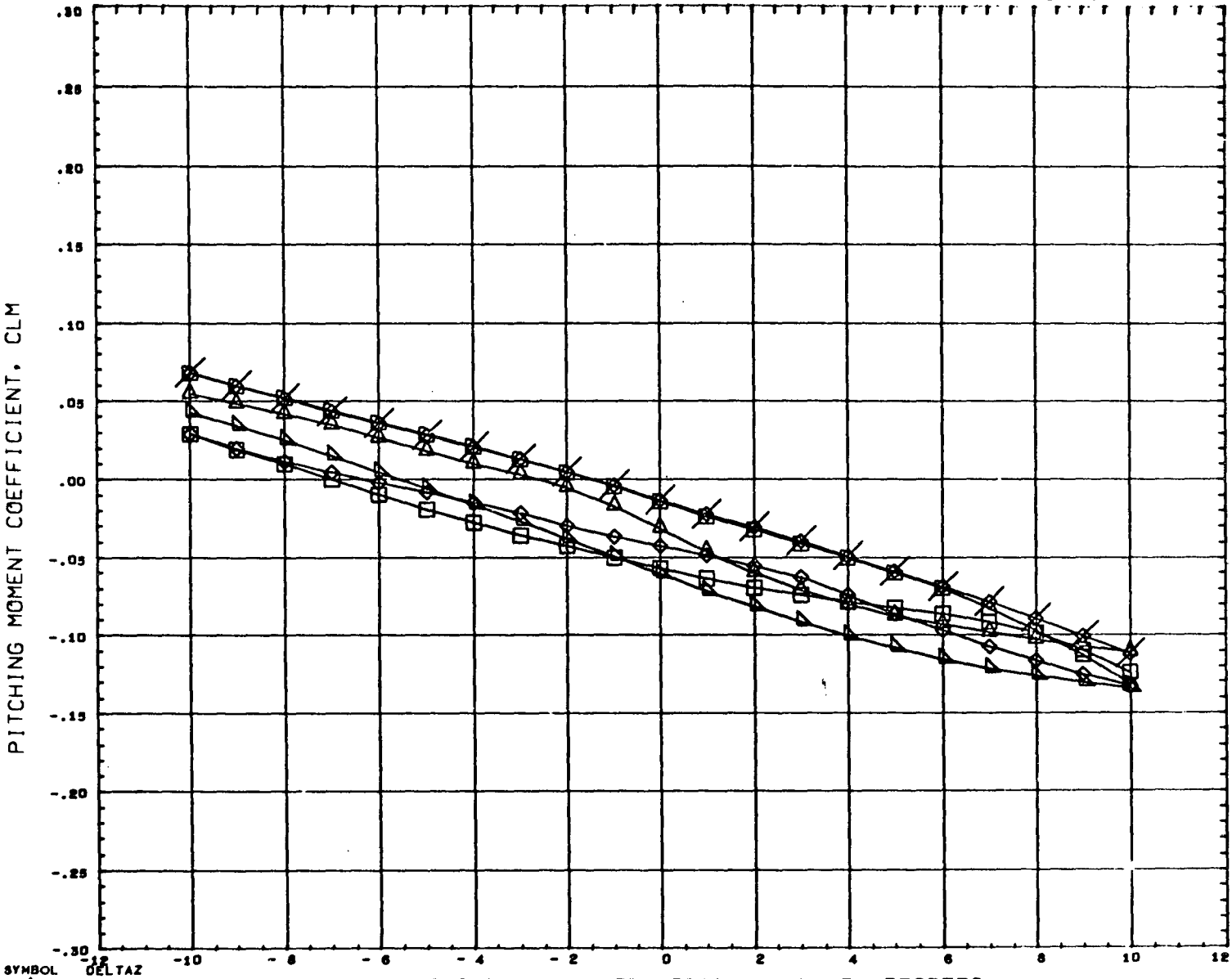
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.226
⊲	0.352
⊗	10.000

PARAMETRIC VALUES

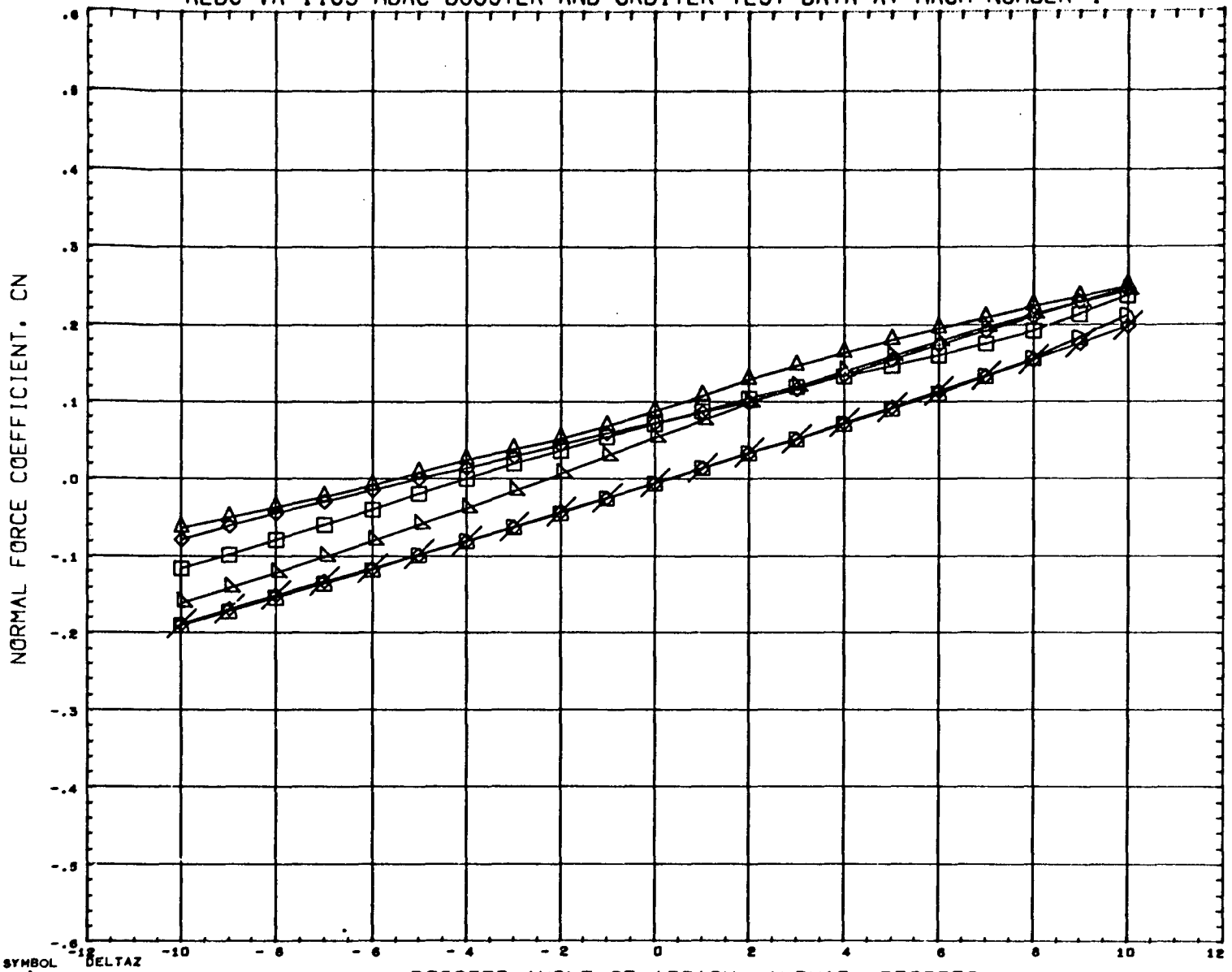
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DELTAX	0.166	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

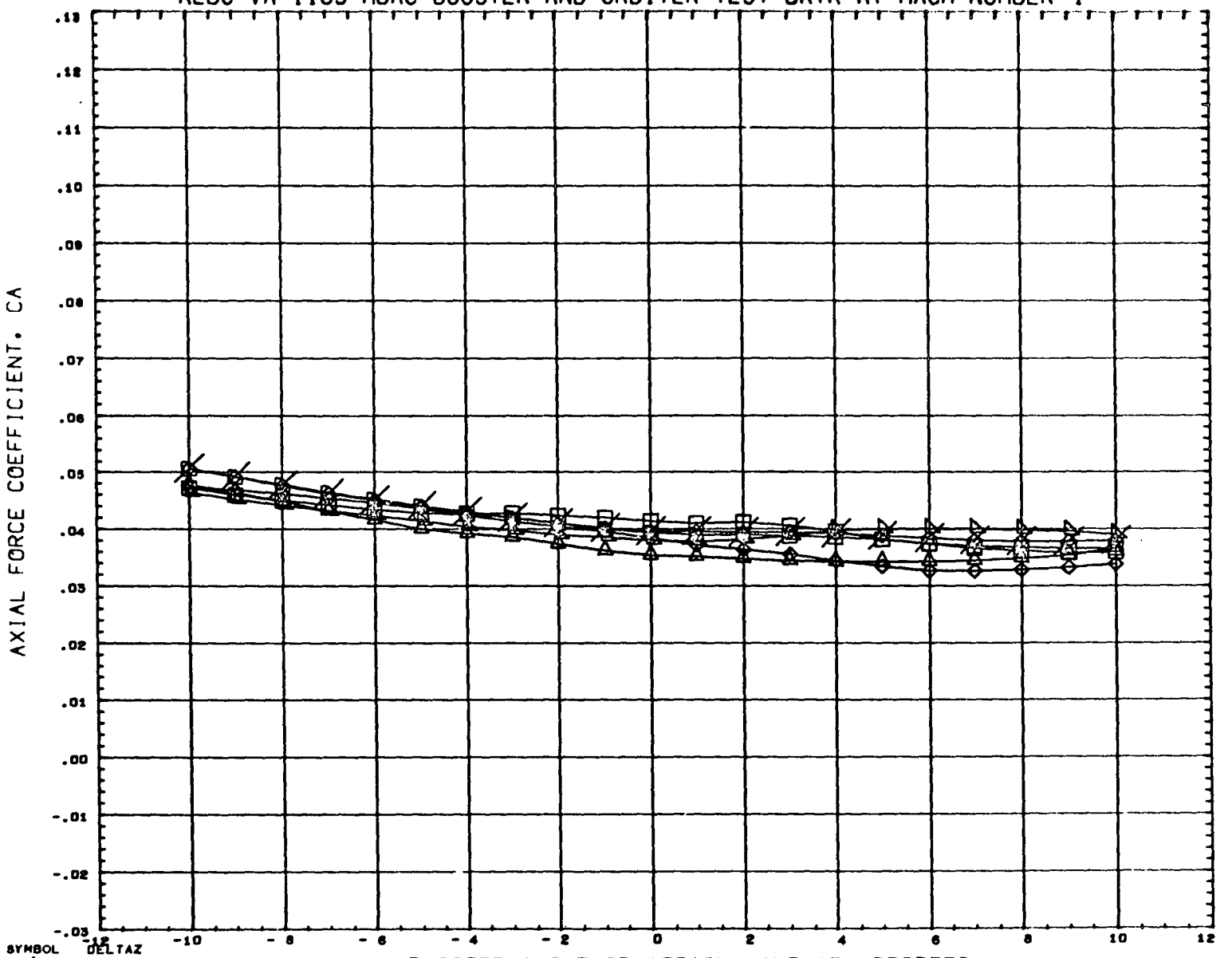
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
▷	0.352
⊘	10.000

PARAMETRIC VALUES

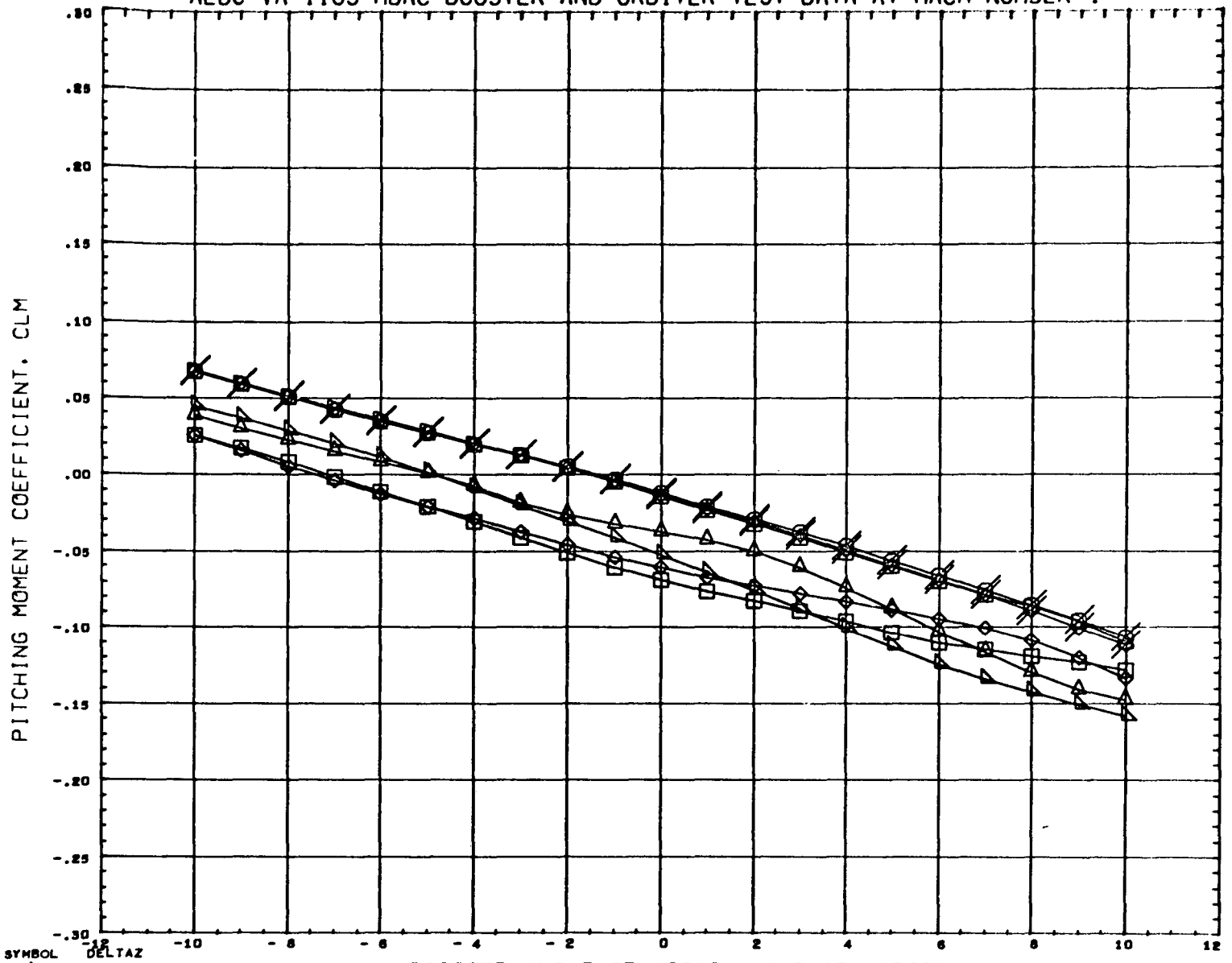
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DELTAX	0.166	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
	0.151
◇	0.182
□	0.228
▽	0.352
⊘	0.599
⊗	10.000

PARAMETRIC VALUES

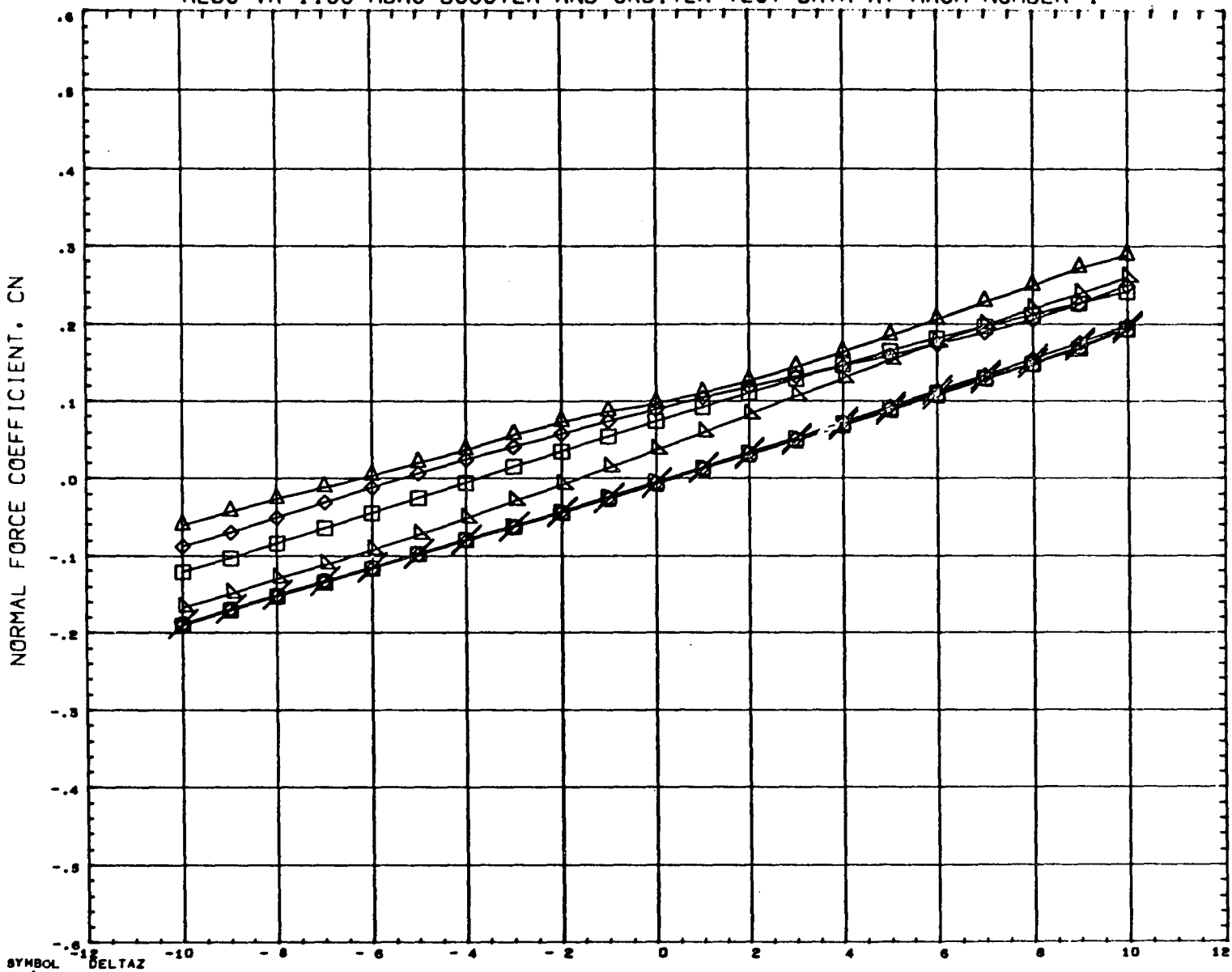
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
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	0.151
◇	0.182
□	0.228
	0.352
	0.399
	10.000

PARAMETRIC VALUES

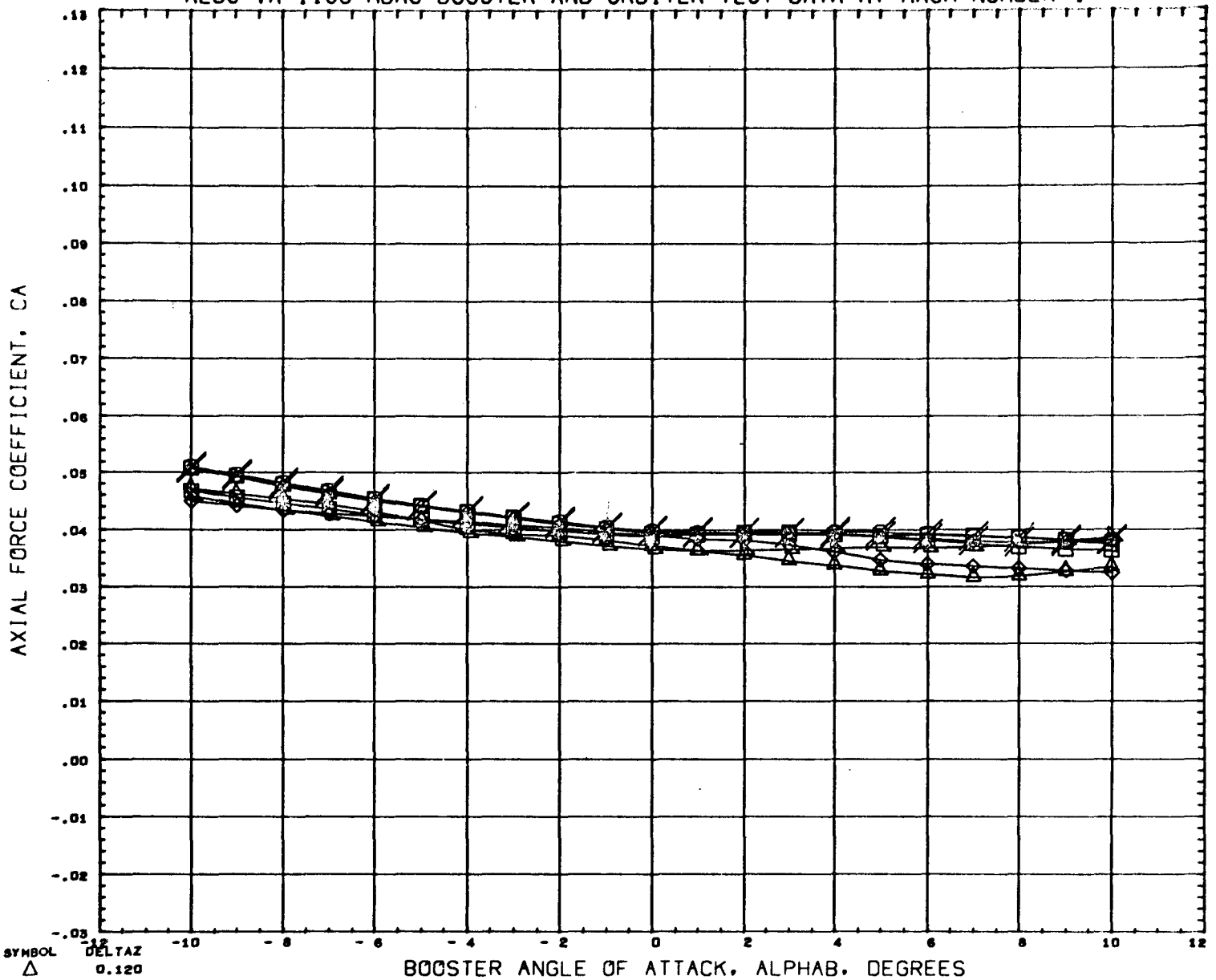
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
⬠	0.352
⊗	0.599
⊘	10.000

PARAMETRIC VALUES

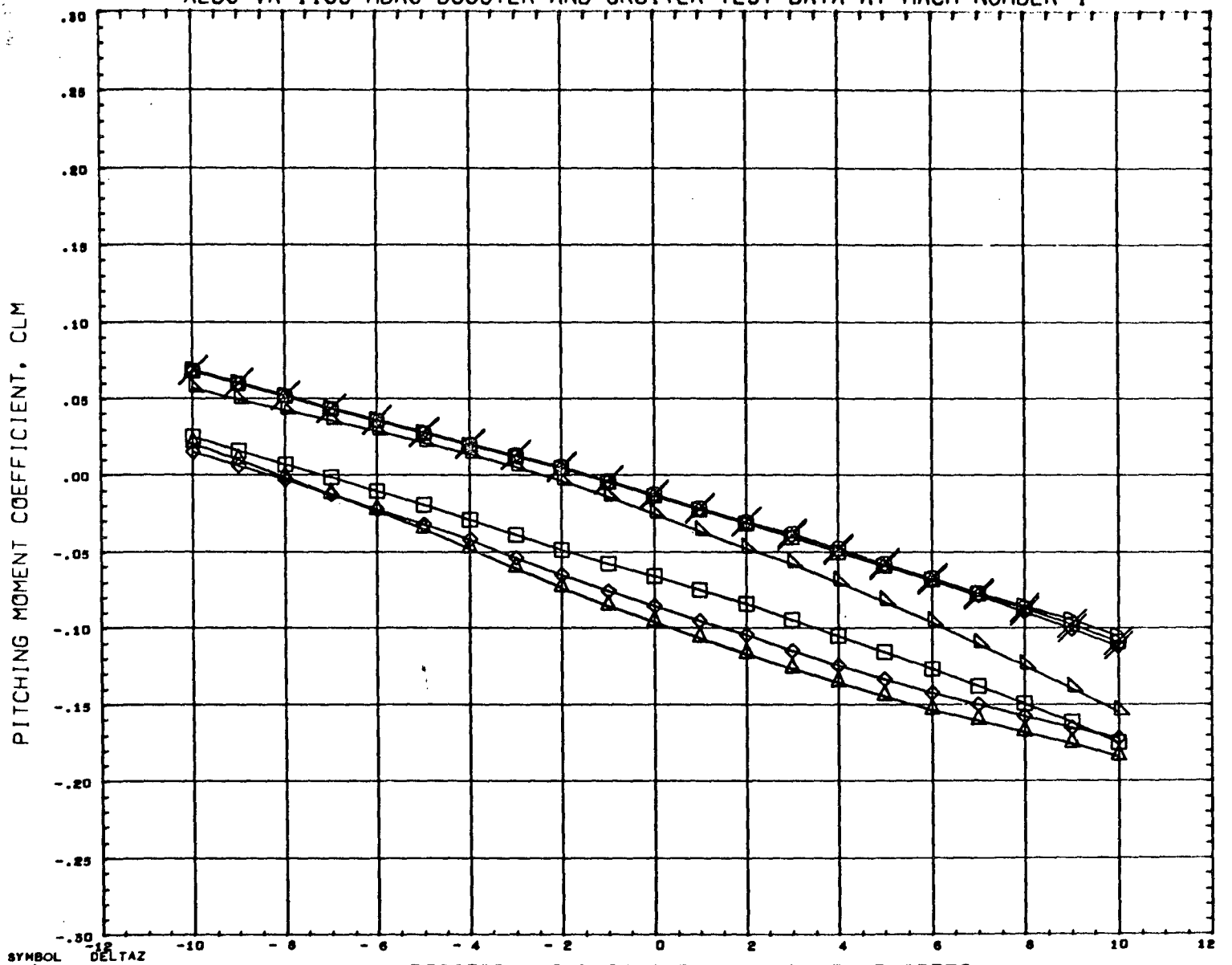
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊠	0.352
⊗	0.599
⊘	10.000

PARAMETRIC VALUES

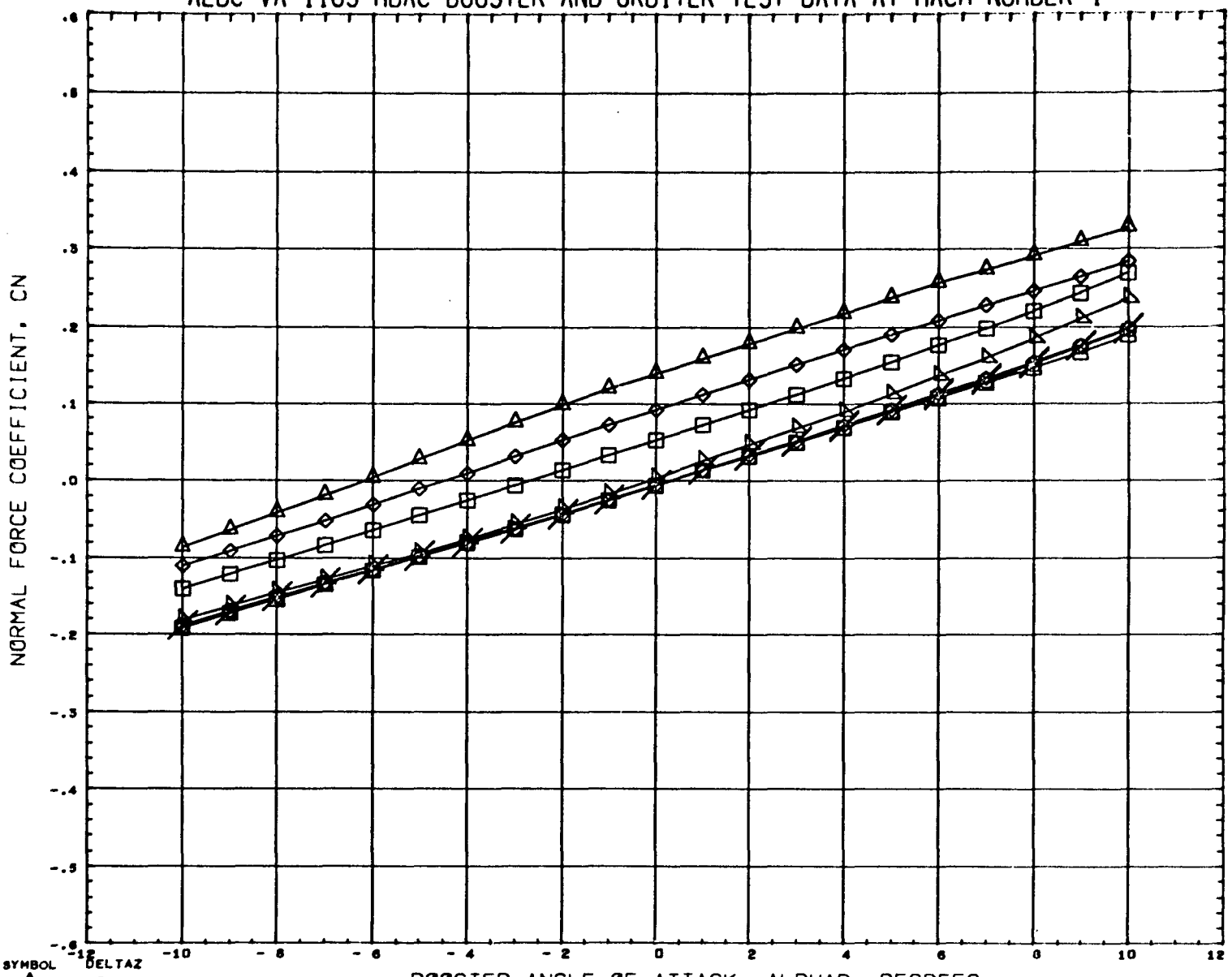
BSTPOW	50.000	ORBPOW	100.000
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ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
⊠	0.352
⊗	0.599
⊘	10.000

PARAMETRIC VALUES

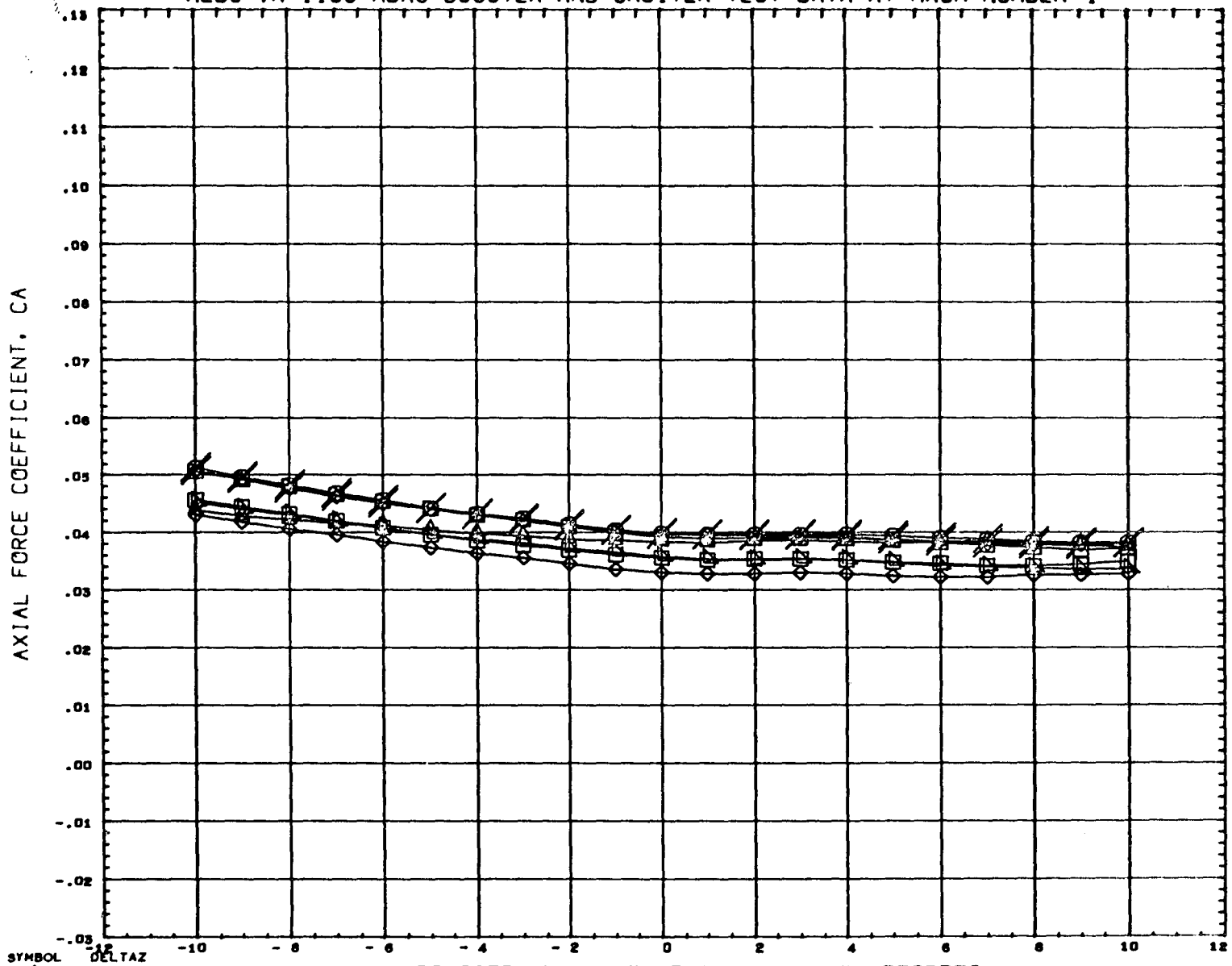
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▱	0.228
⊠	0.352
⊘	0.599
	10.000

PARAMETRIC VALUES

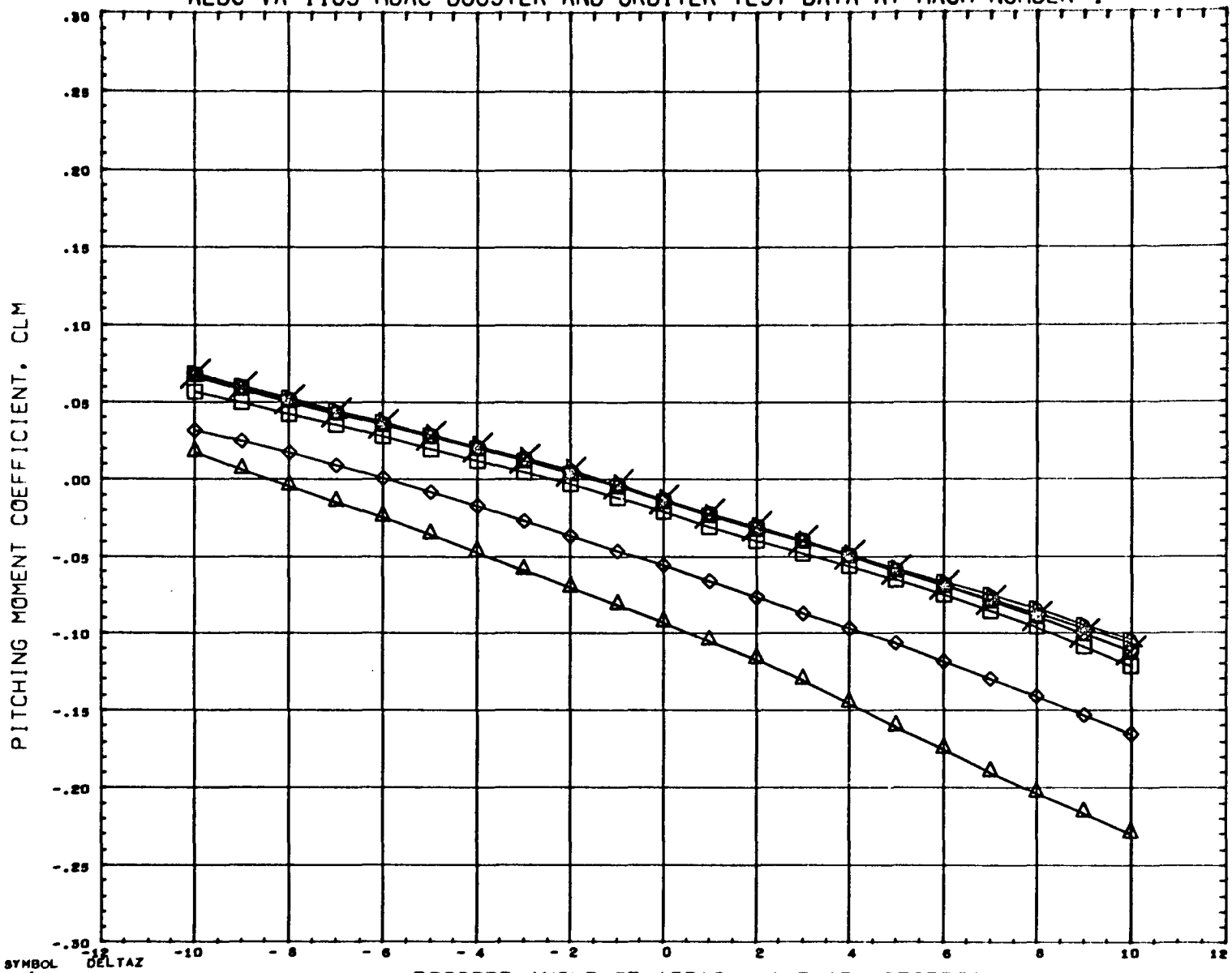
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
⊗	0.599
⊗	10.000

PARAMETRIC VALUES

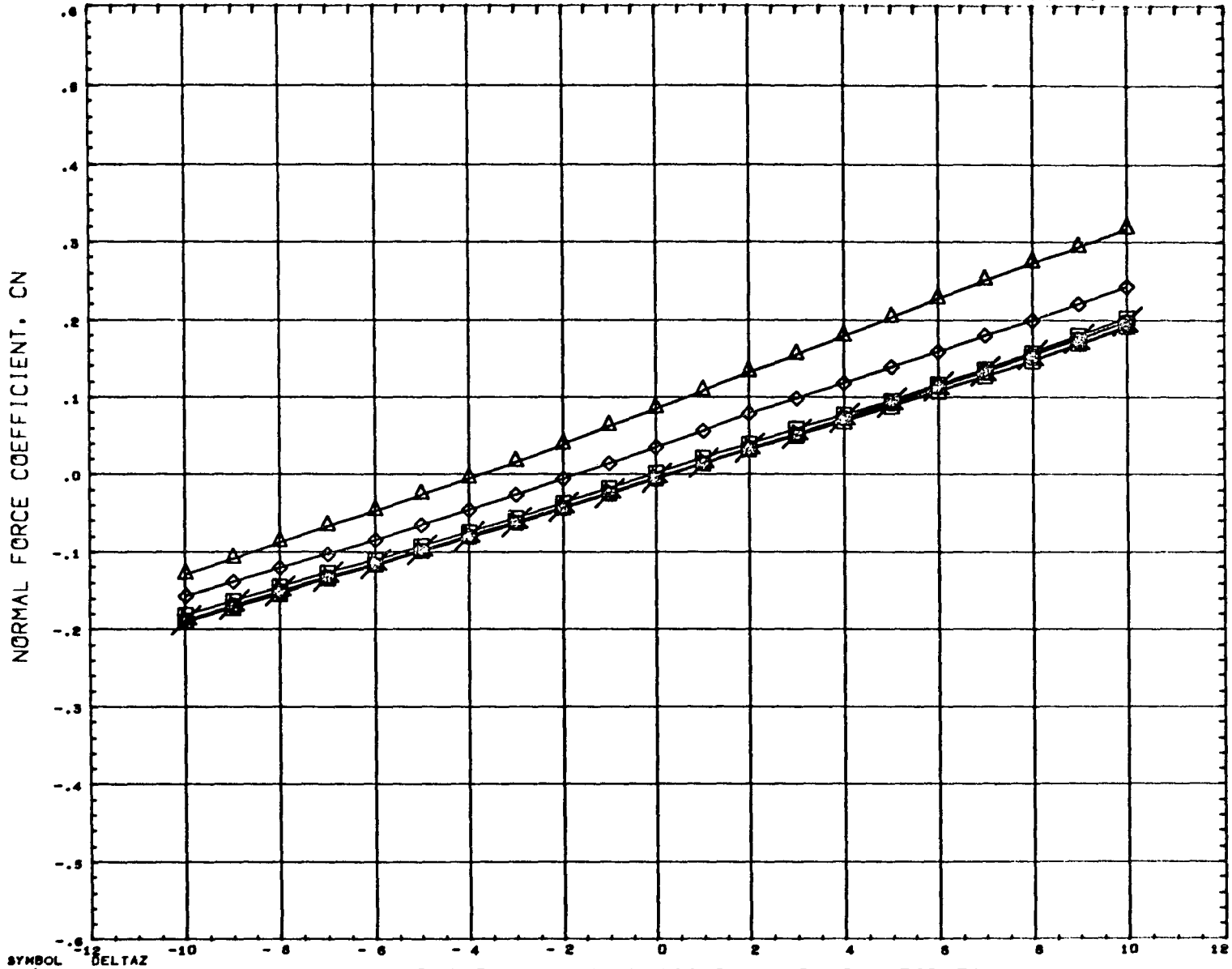
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DELTAX	0.522	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	0.599
⊘	10.000

PARAMETRIC VALUES

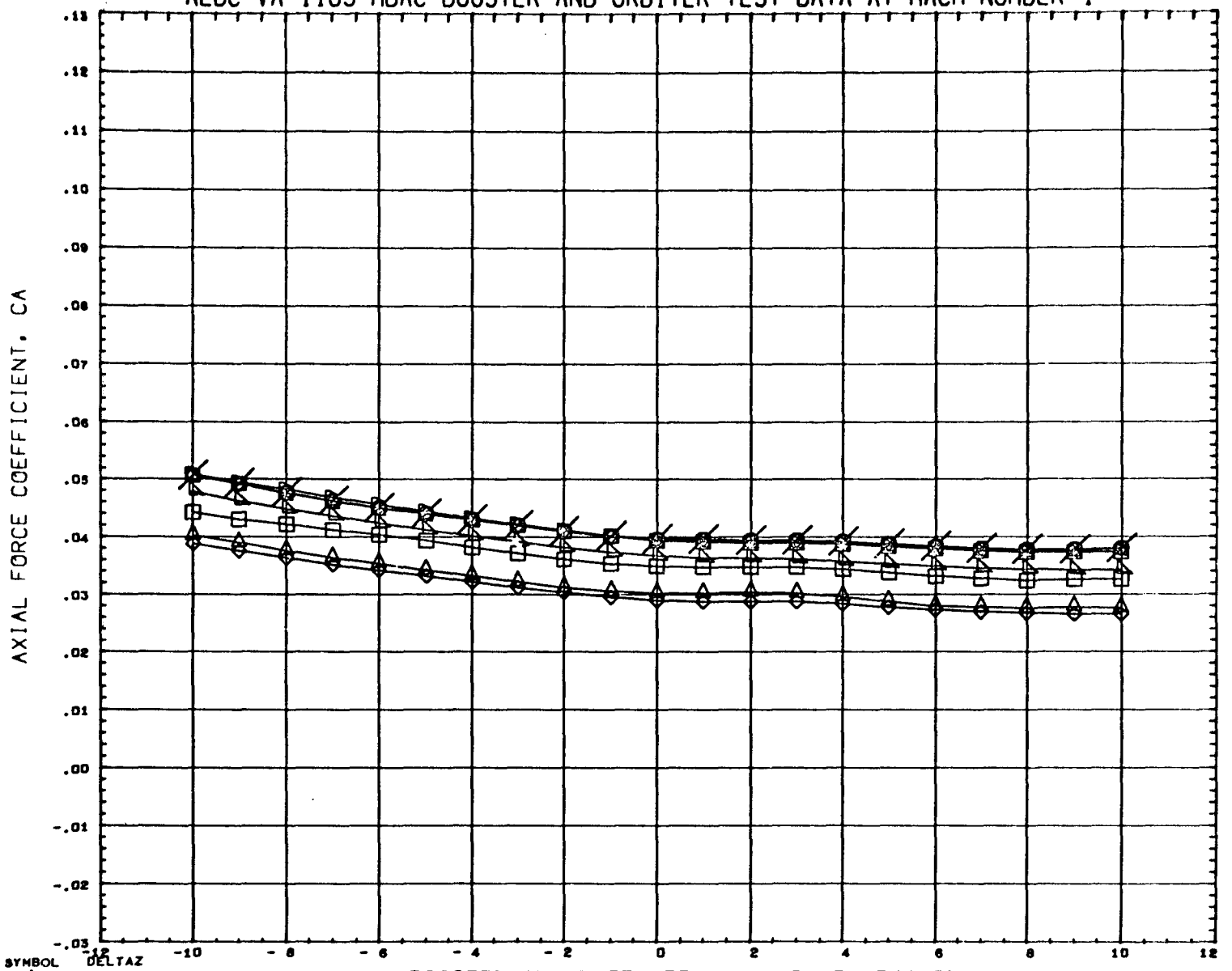
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.226
⌀	0.352
⊗	0.599
⊗	10.000

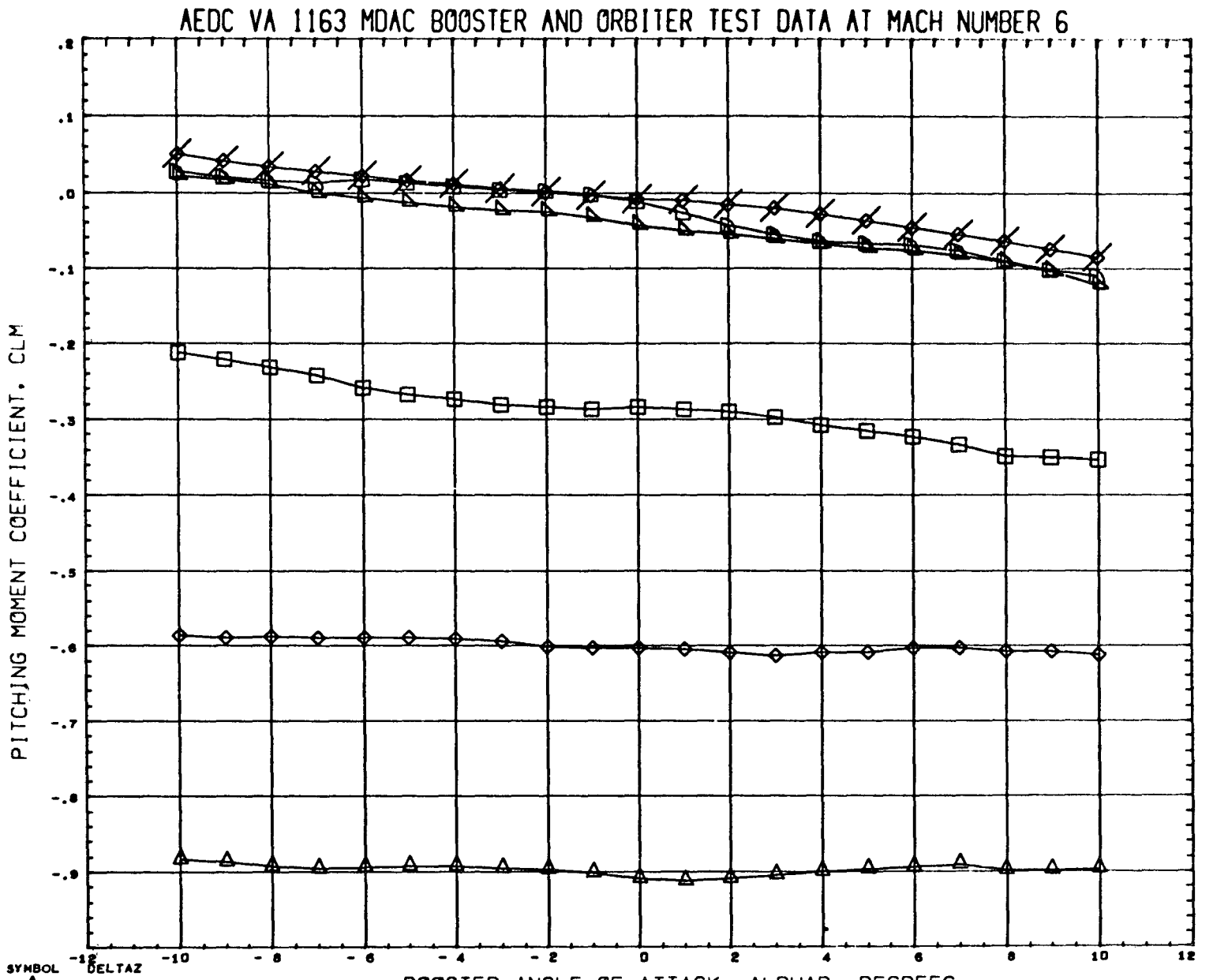
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

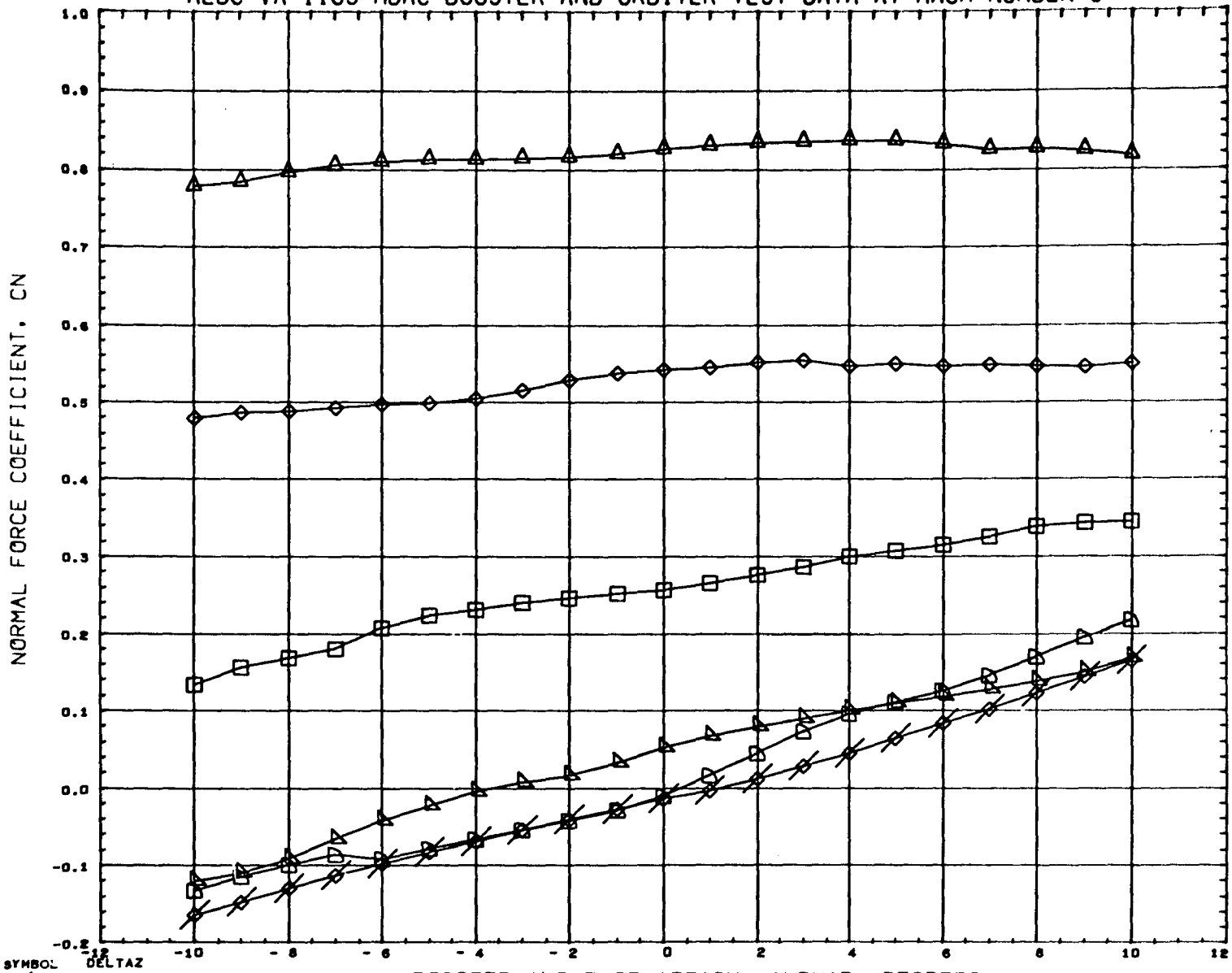
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DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
▽	0.352
⊘	10.000

PARAMETRIC VALUES

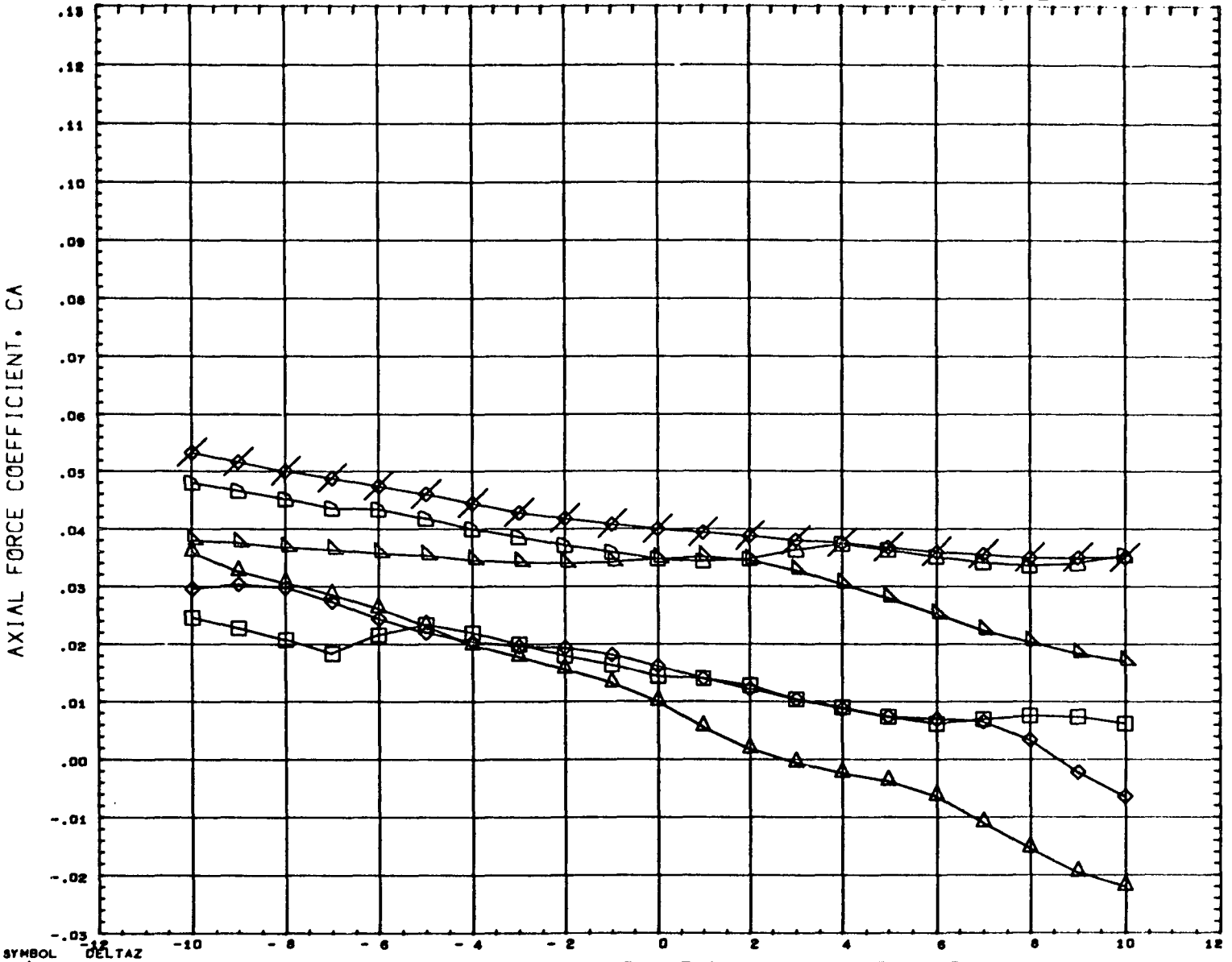
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◸	0.228
⬠	0.352
⊘	10.000

PARAMETRIC VALUES

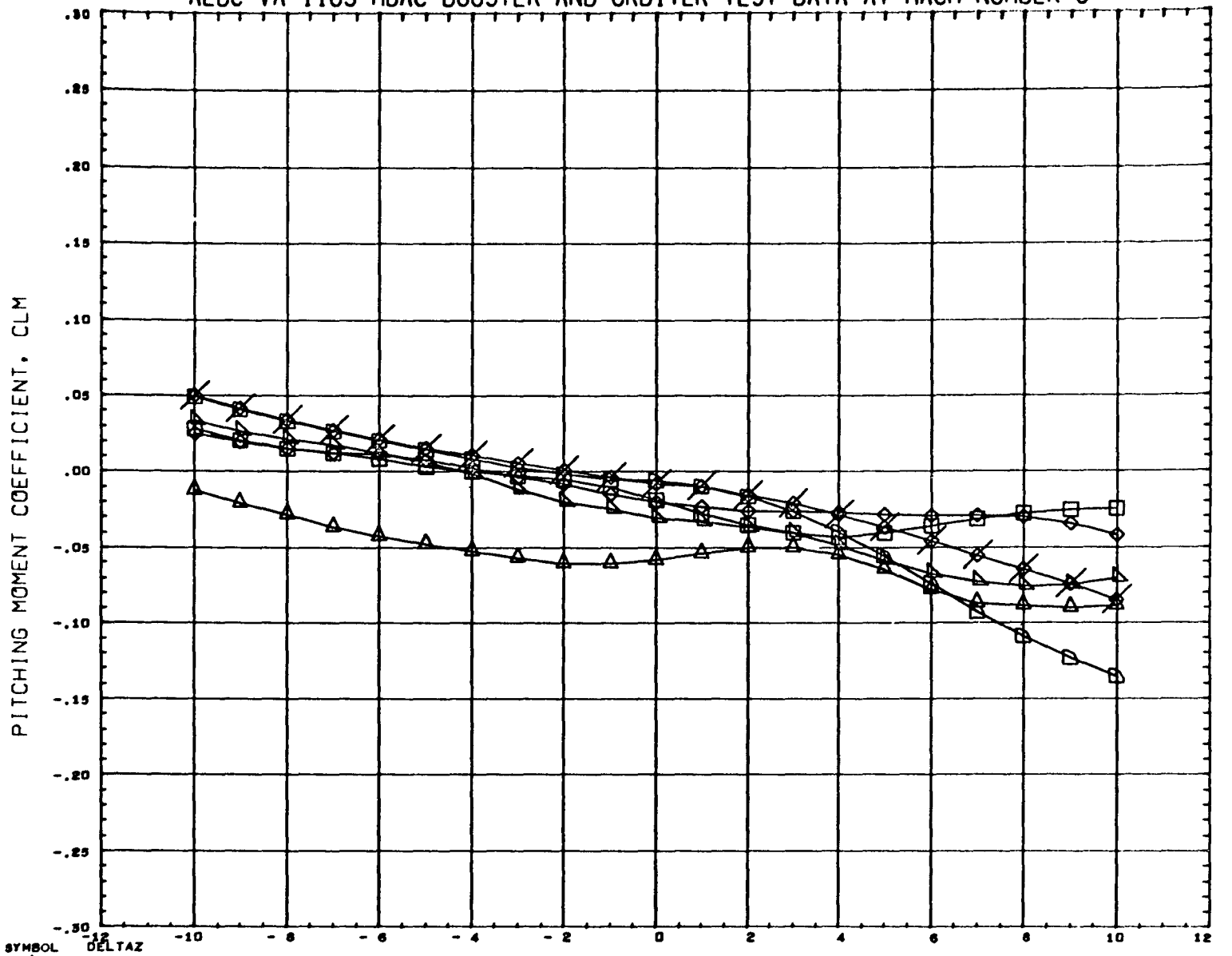
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

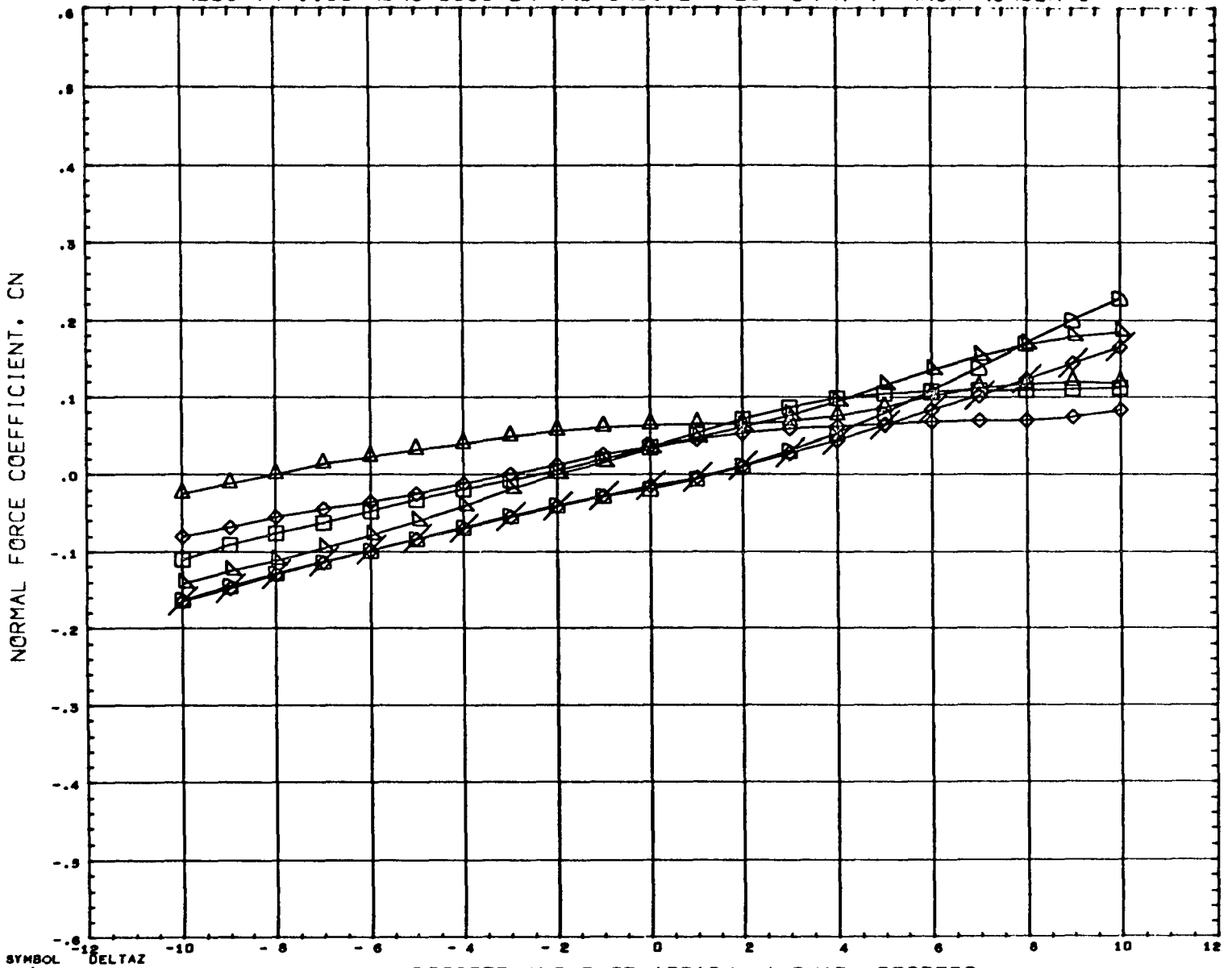
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
⊘	0.352
⊗	10.000

PARAMETRIC VALUES

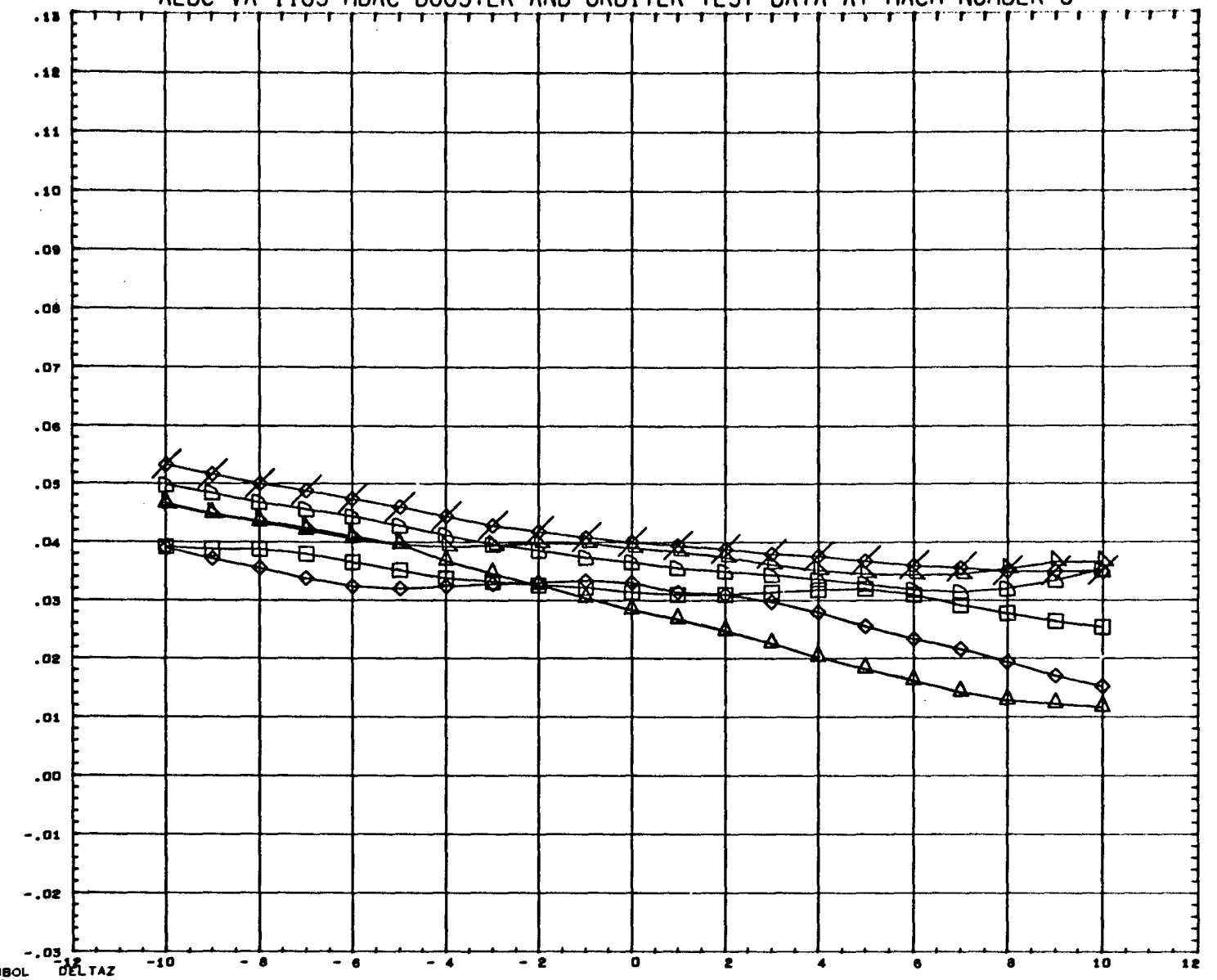
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

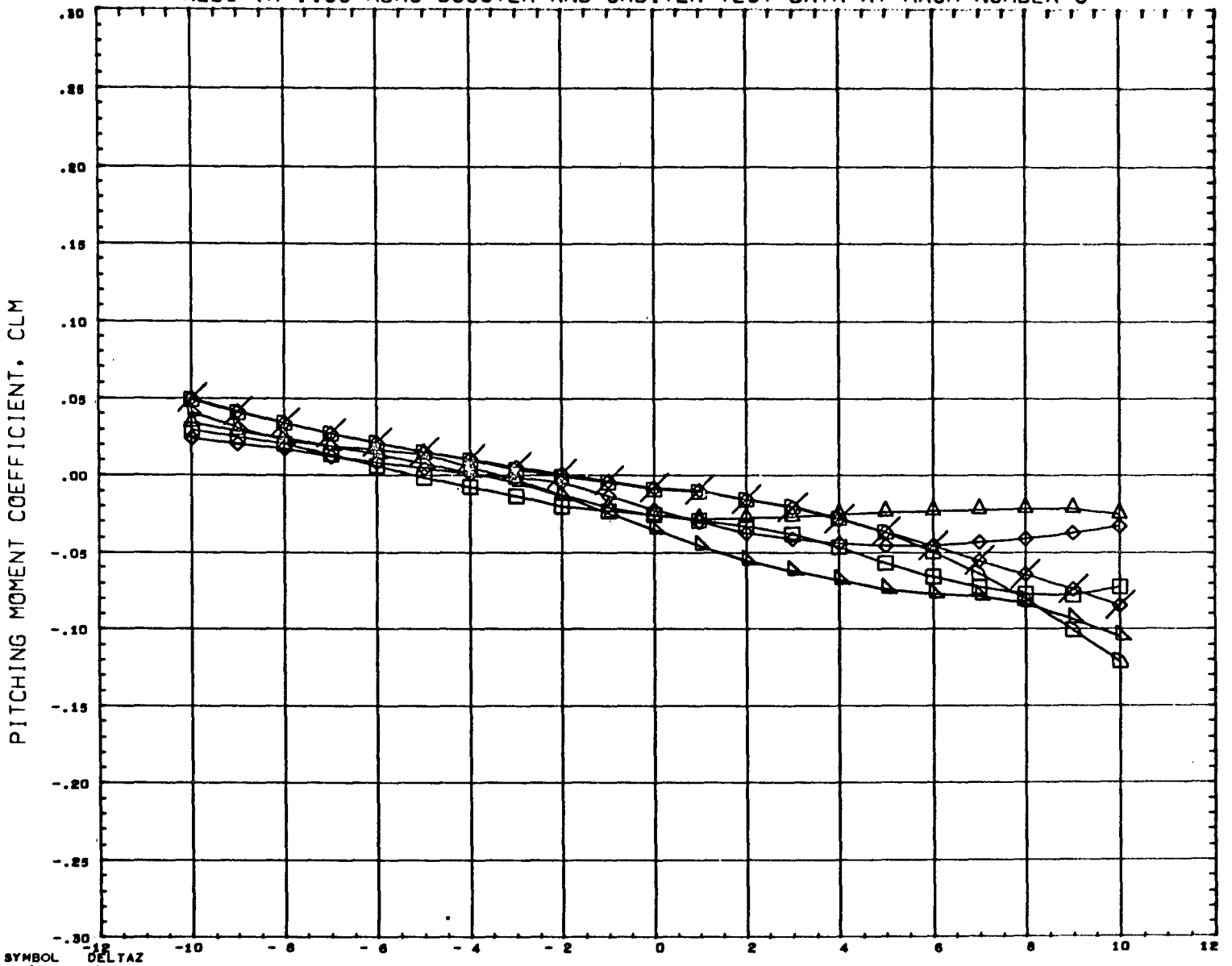
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

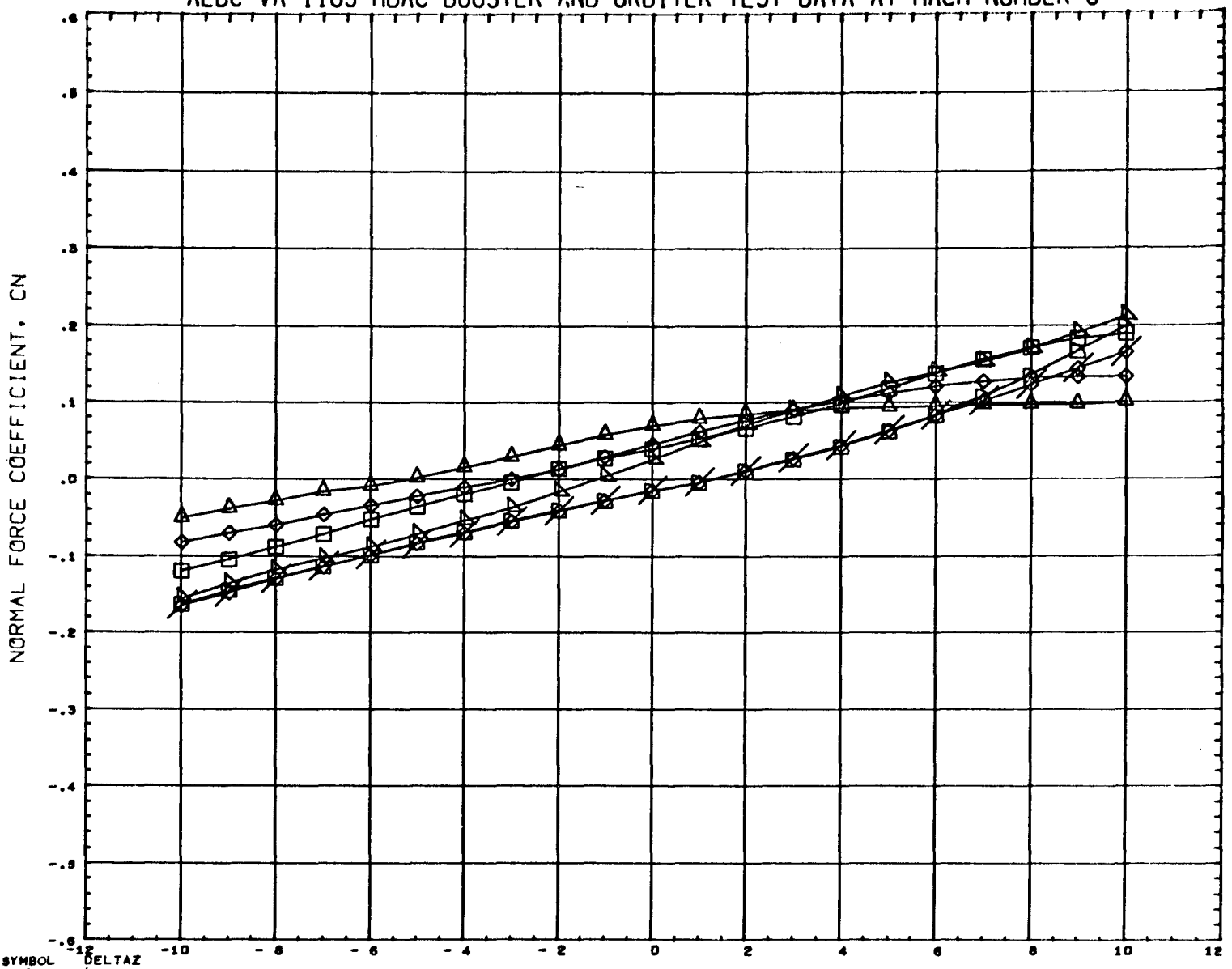
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.229
⊘	0.352
⊗	10.000

PARAMETRIC VALUES

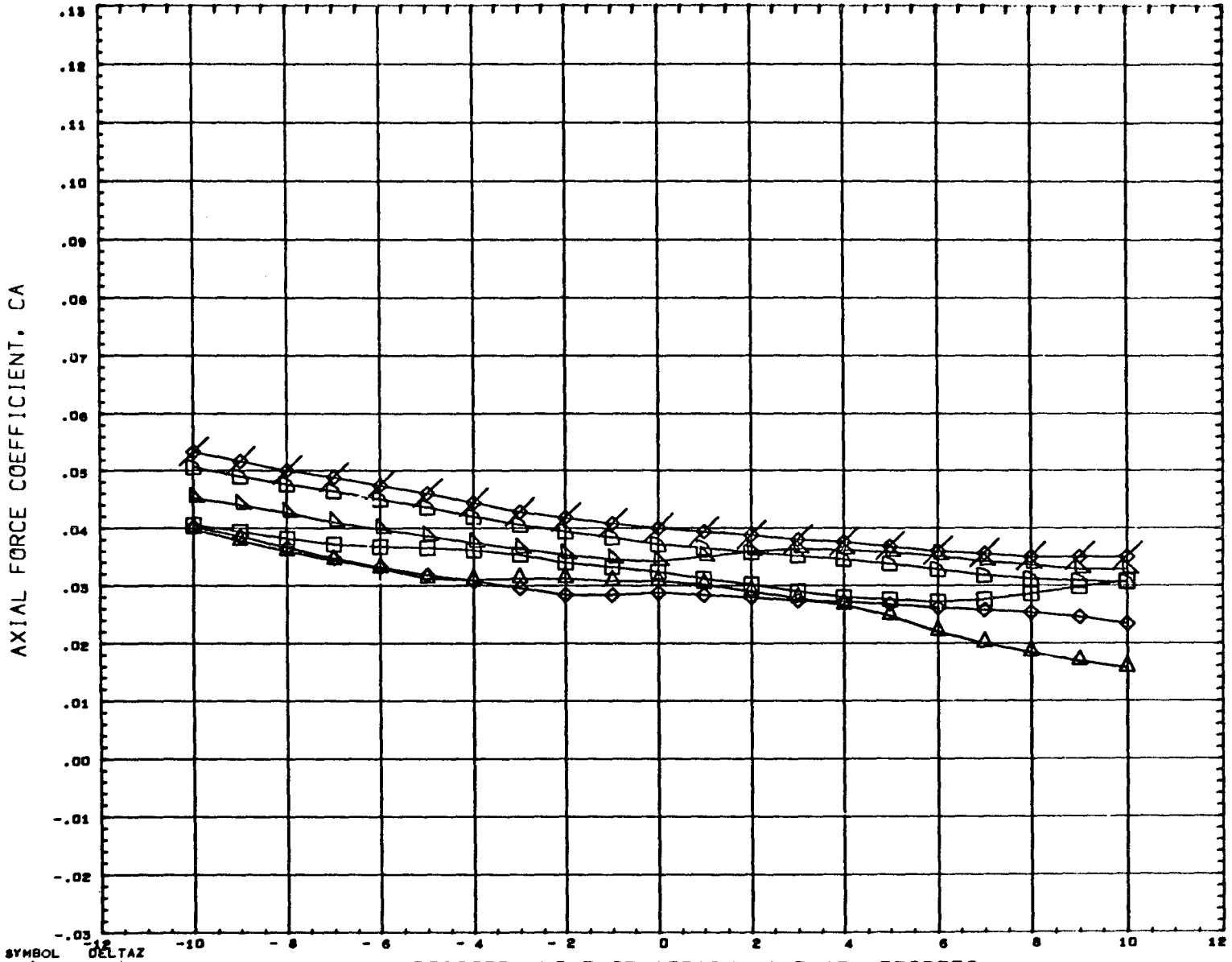
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
⊗	10.000

PARAMETRIC VALUES

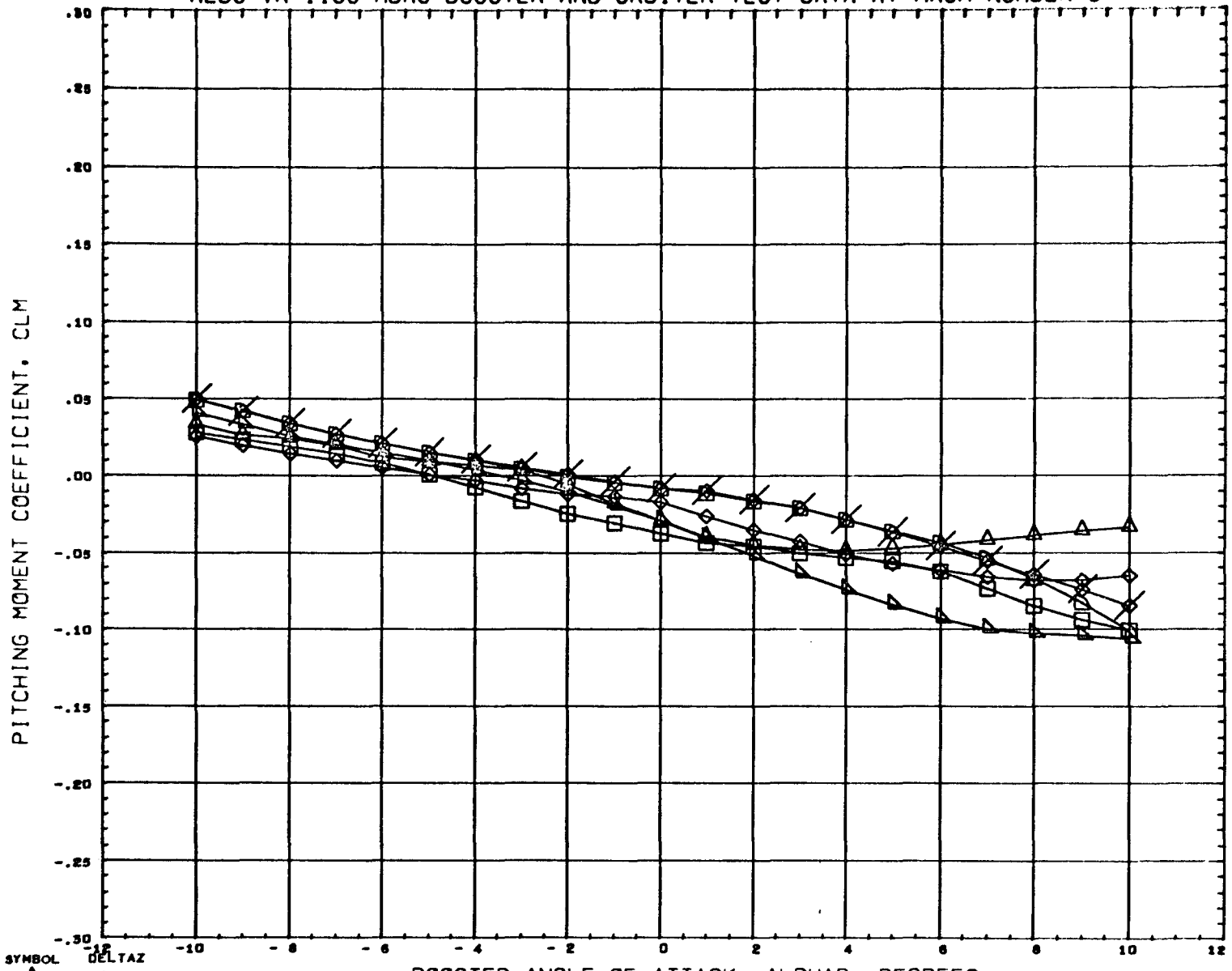
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.300
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.226
▽	0.352
⊗	10.000

PARAMETRIC VALUES

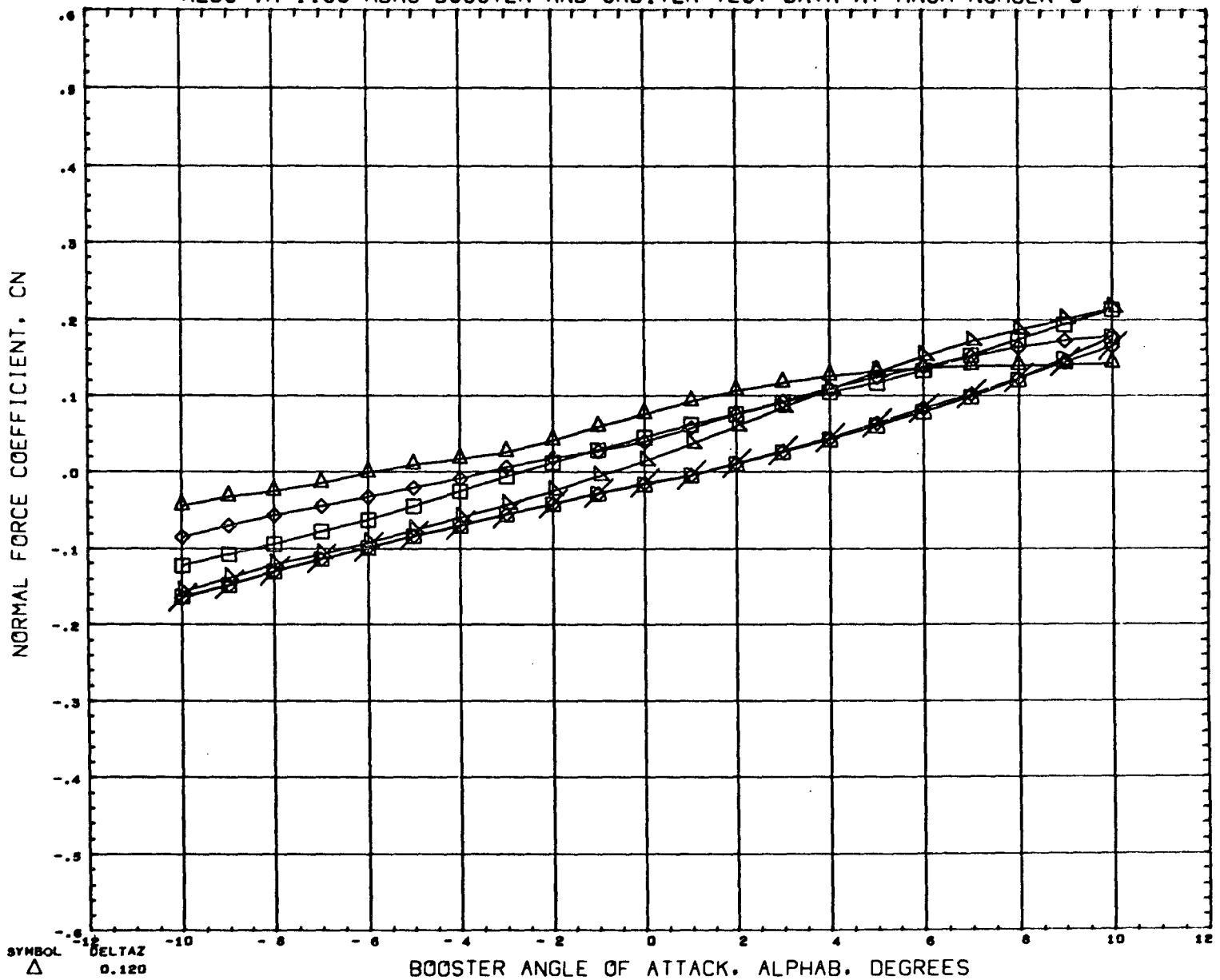
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DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
⊗	10.000

PARAMETRIC VALUES

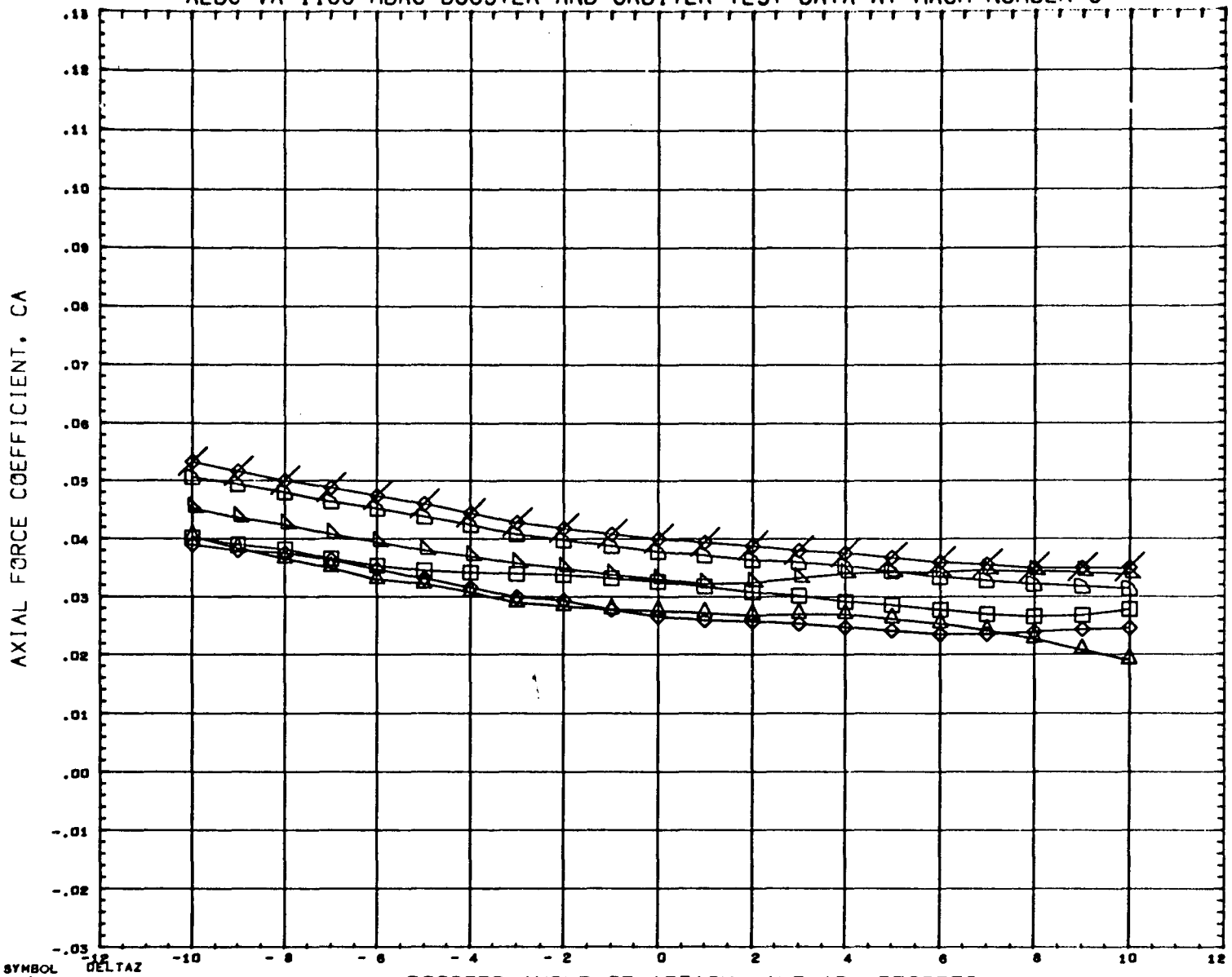
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◇	0.352
⊘	10.000

PARAMETRIC VALUES

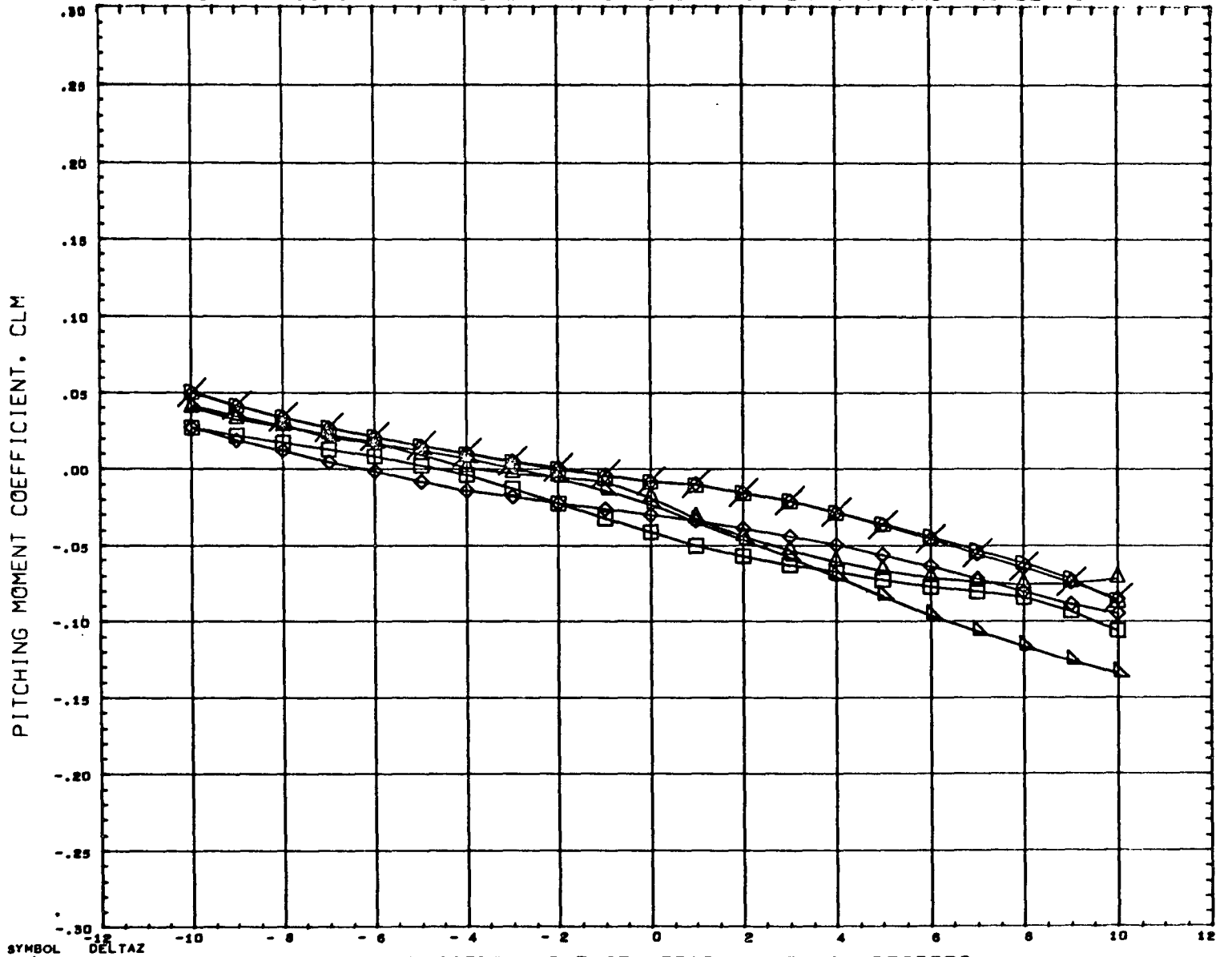
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◸	0.228
◫	0.352
⊗	10.000

PARAMETRIC VALUES

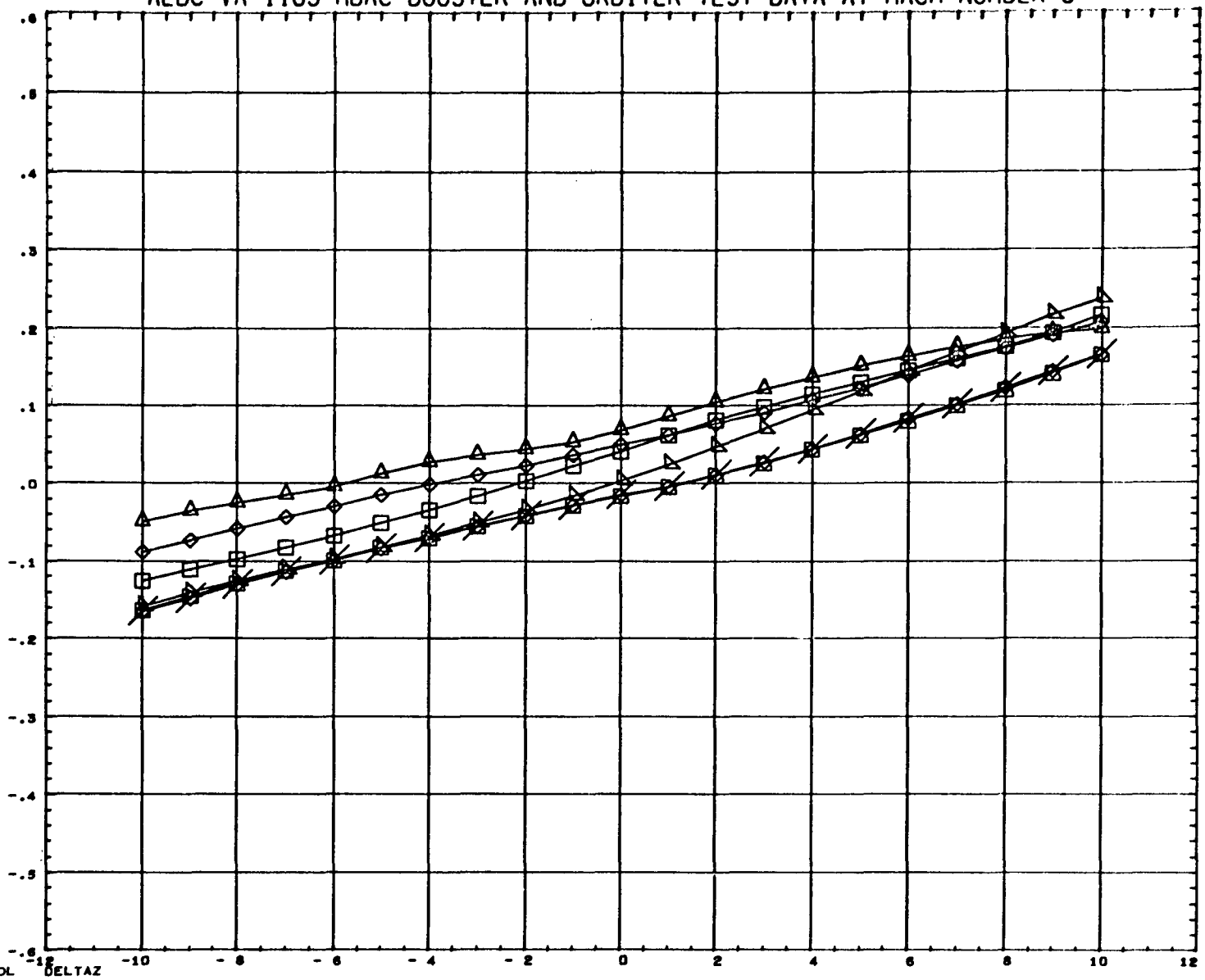
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
⊘	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

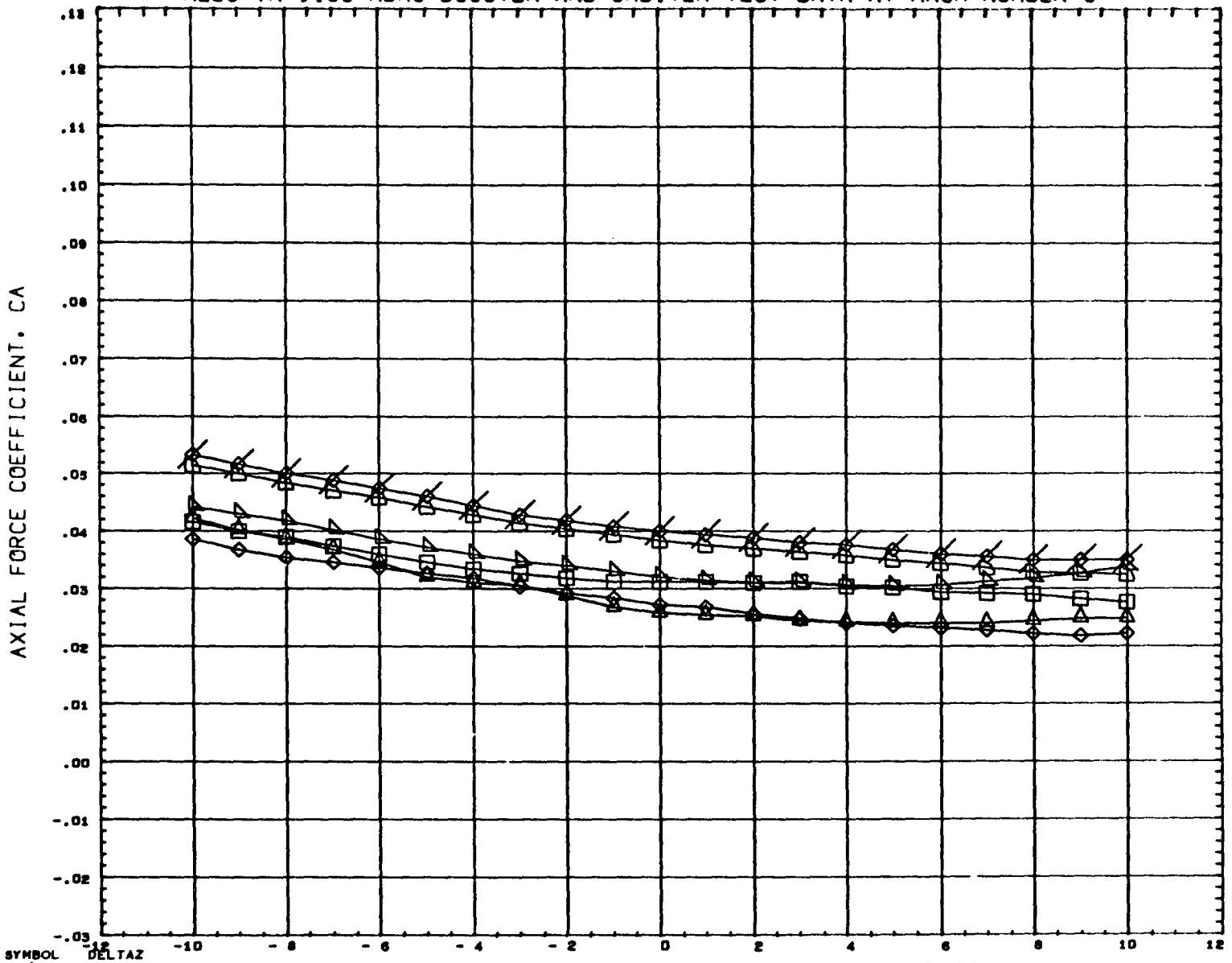
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.226
⬠	0.352
⊘	10.000

PARAMETRIC VALUES

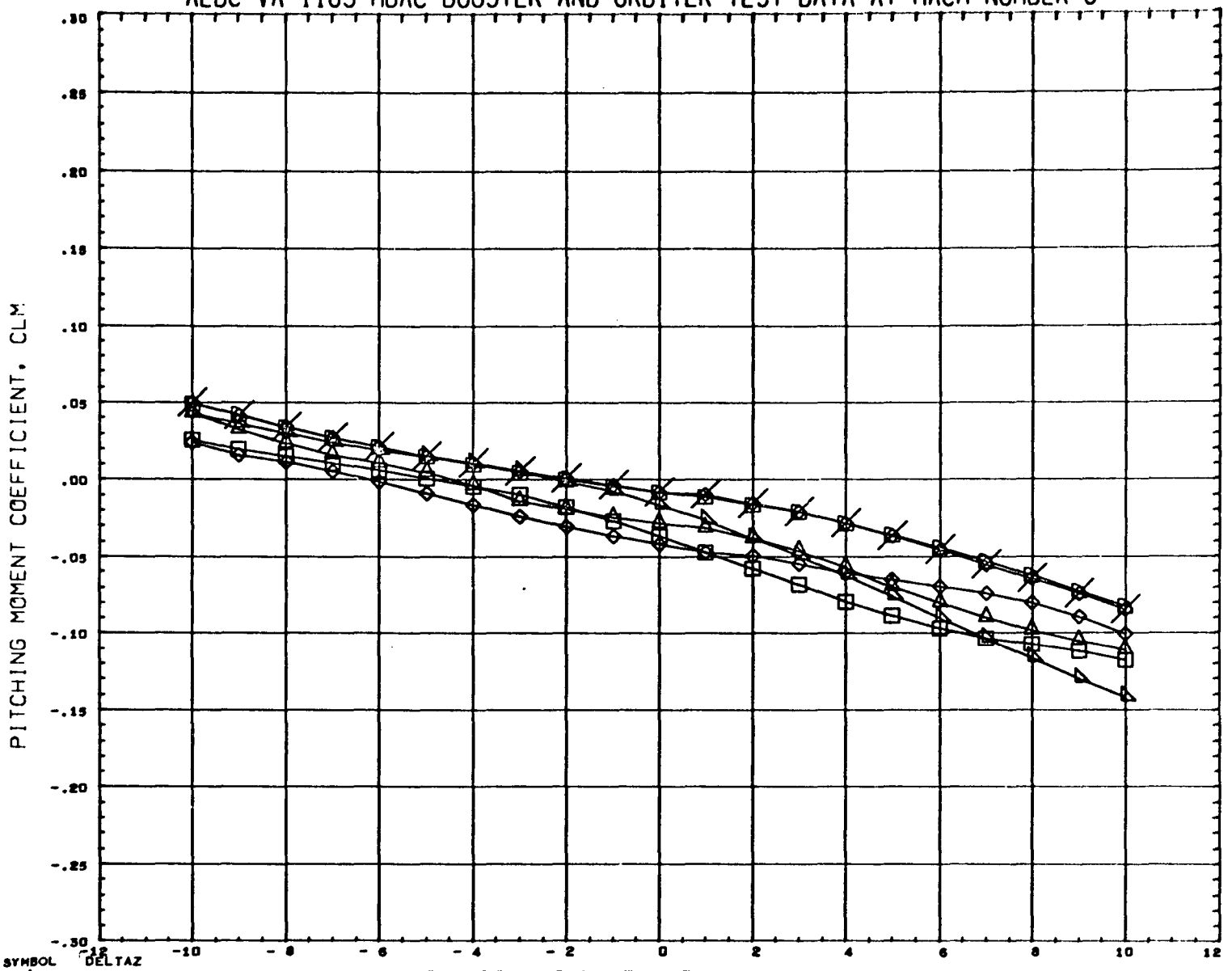
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊘	10.000

PARAMETRIC VALUES

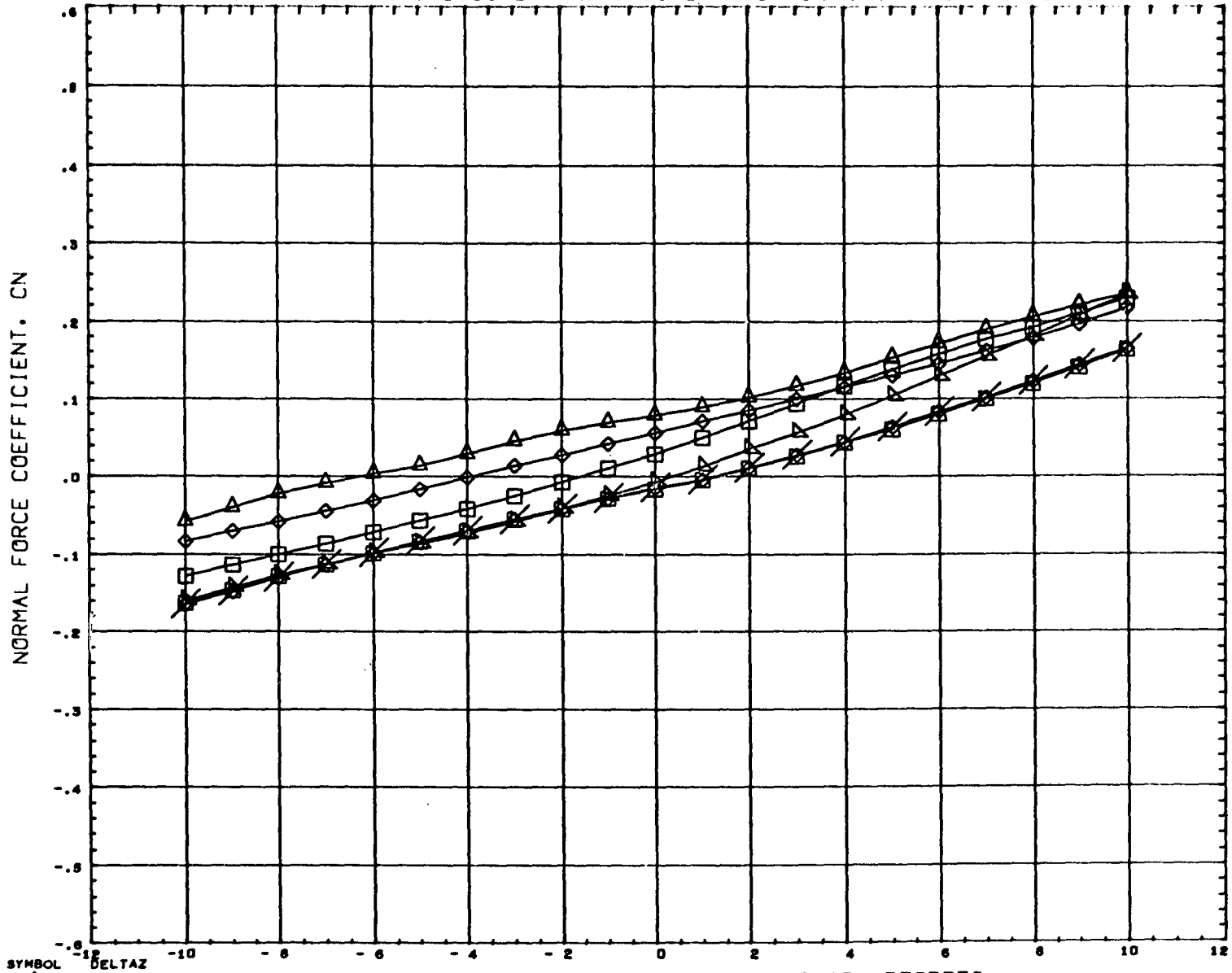
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

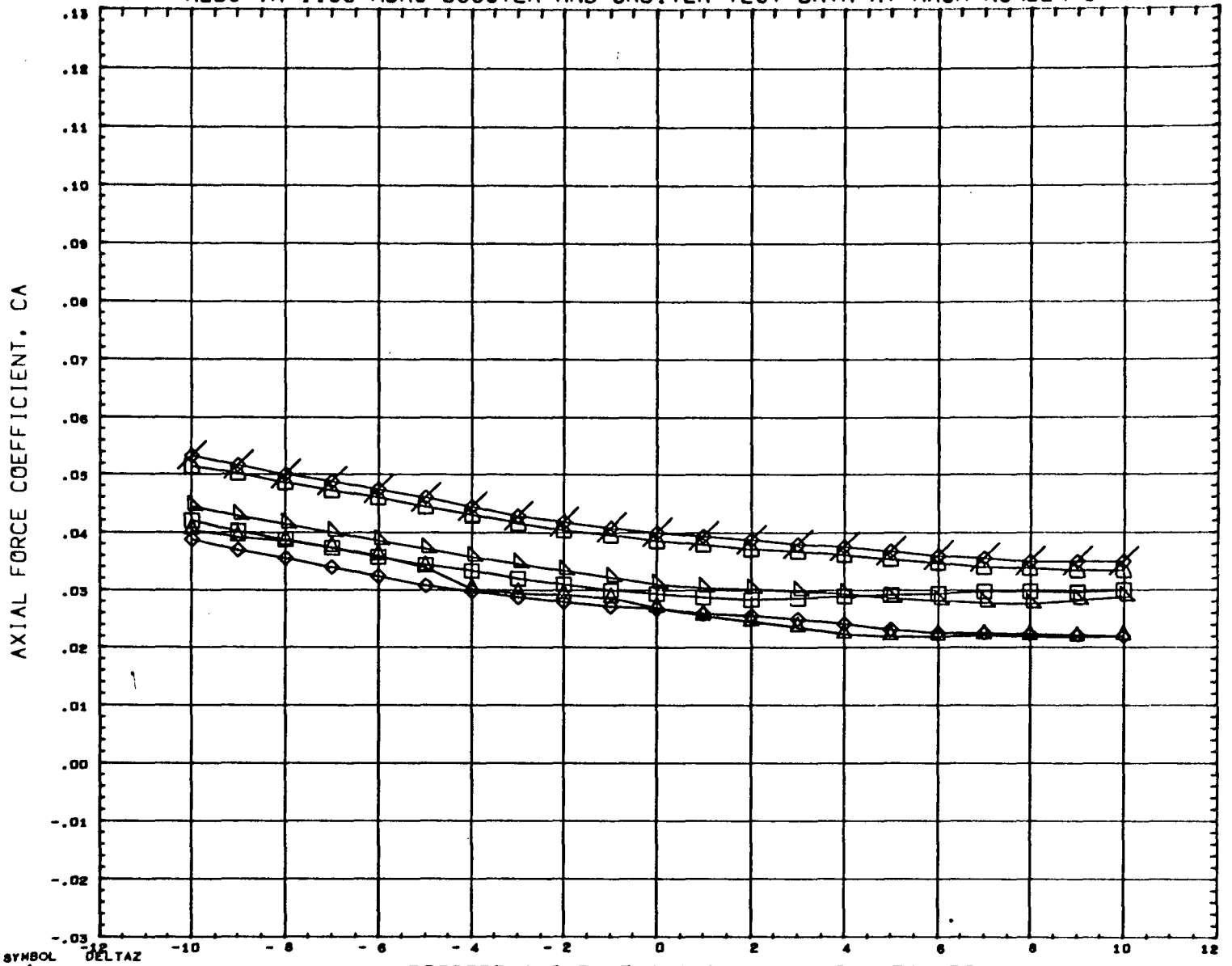
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

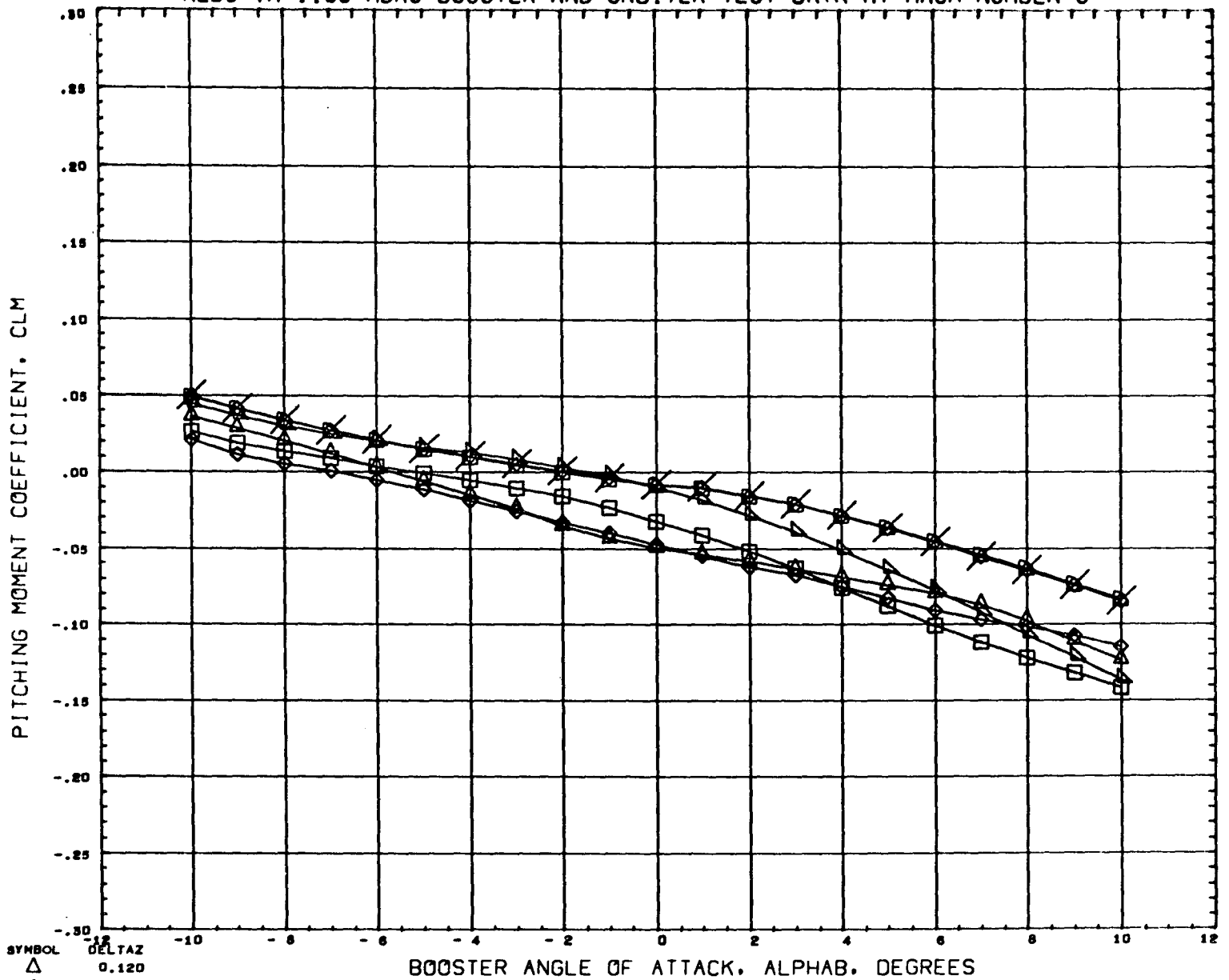
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
⊘	0.228
◁	0.352
⊗	10.000

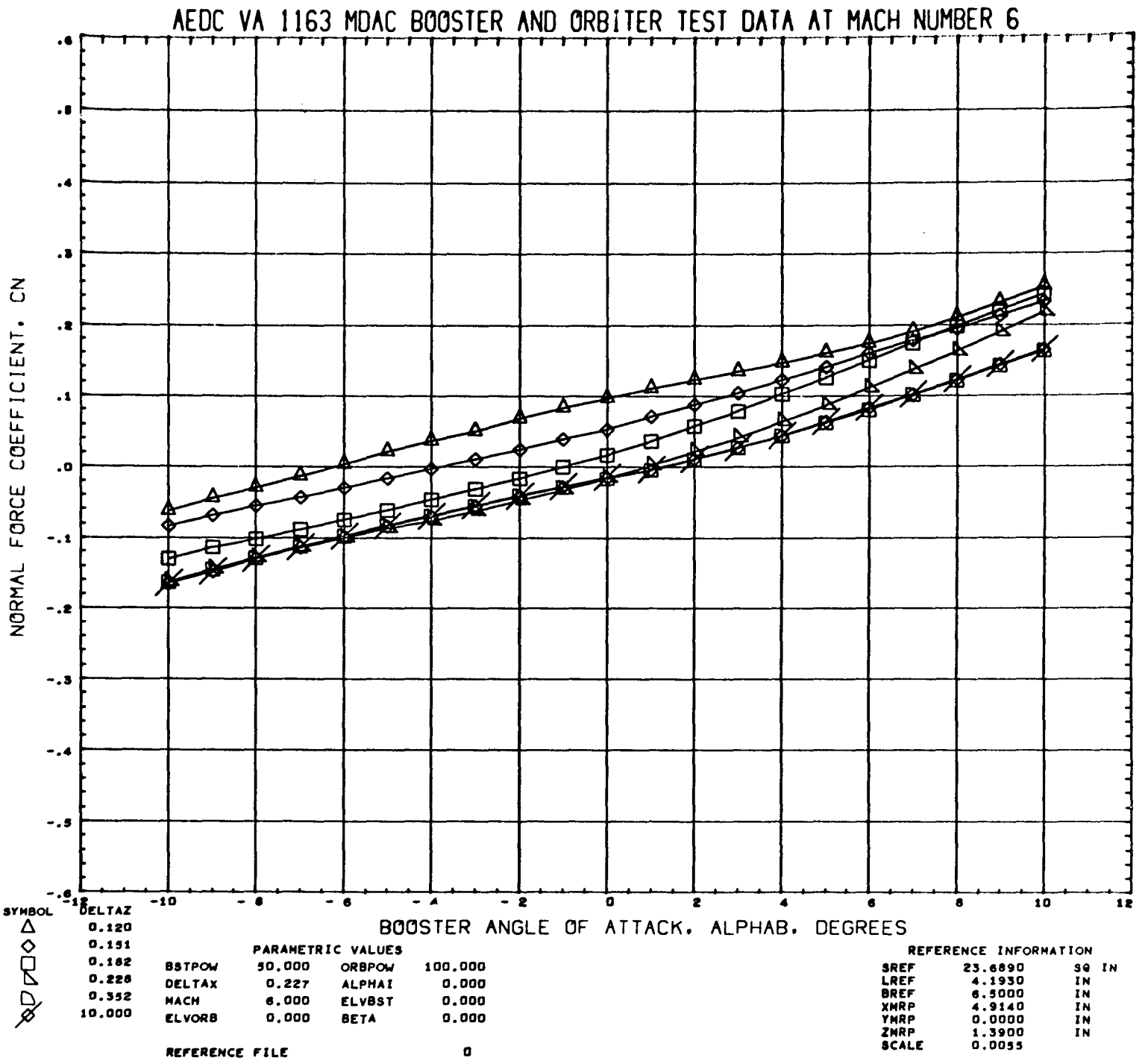
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

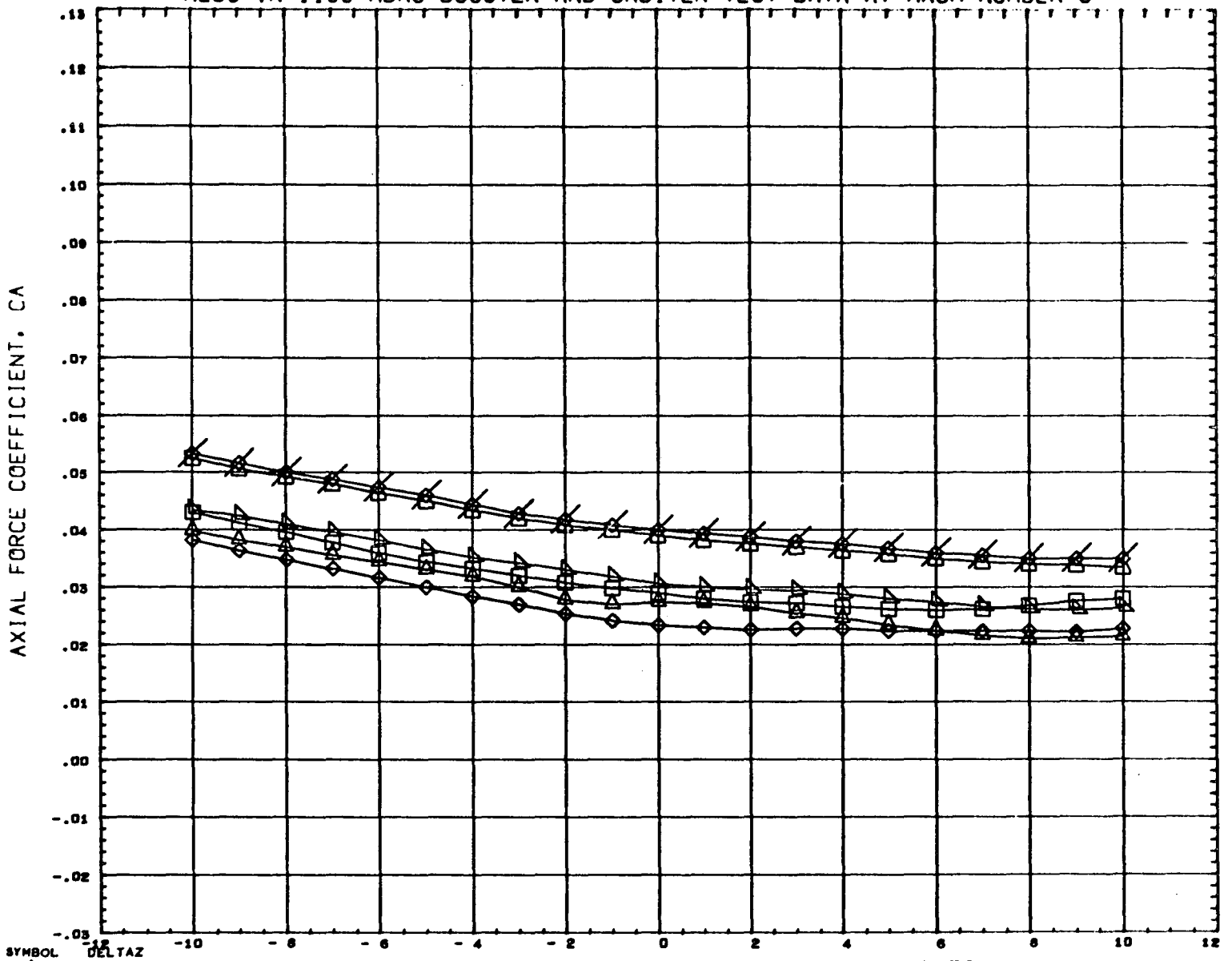
REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	


AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6
NORMAL FORCE COEFFICIENT, CN
.6
.5
.4
.3
.2
.1
.0
-.1
-.2
-.3
-.4
-.5
-.6
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
BOOSTER ANGLE OF ATTACK, ALPHAB, DEGREES
SYMBOL
DELTAZ
0.120
0.151
0.182
0.226
0.352
10.000
PARAMETRIC VALUES
BSTPOW 50.000
ORBPOW 100.000
DELTAX 0.227
ALPHAI 0.000
MACH 6.000
ELVBST 0.000
ELVORB 0.000
BETA 0.000
REFERENCE FILE 0
REFERENCE INFORMATION
SREF 23.6890 SQ IN
LREF 4.1930 IN
BREF 6.5000 IN
XMRP 4.9140 IN
YMRP 0.0000 IN
ZMRP 1.3900 IN
SCALE 0.0055

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.226
○	0.352
⊘	10.000

PARAMETRIC VALUES

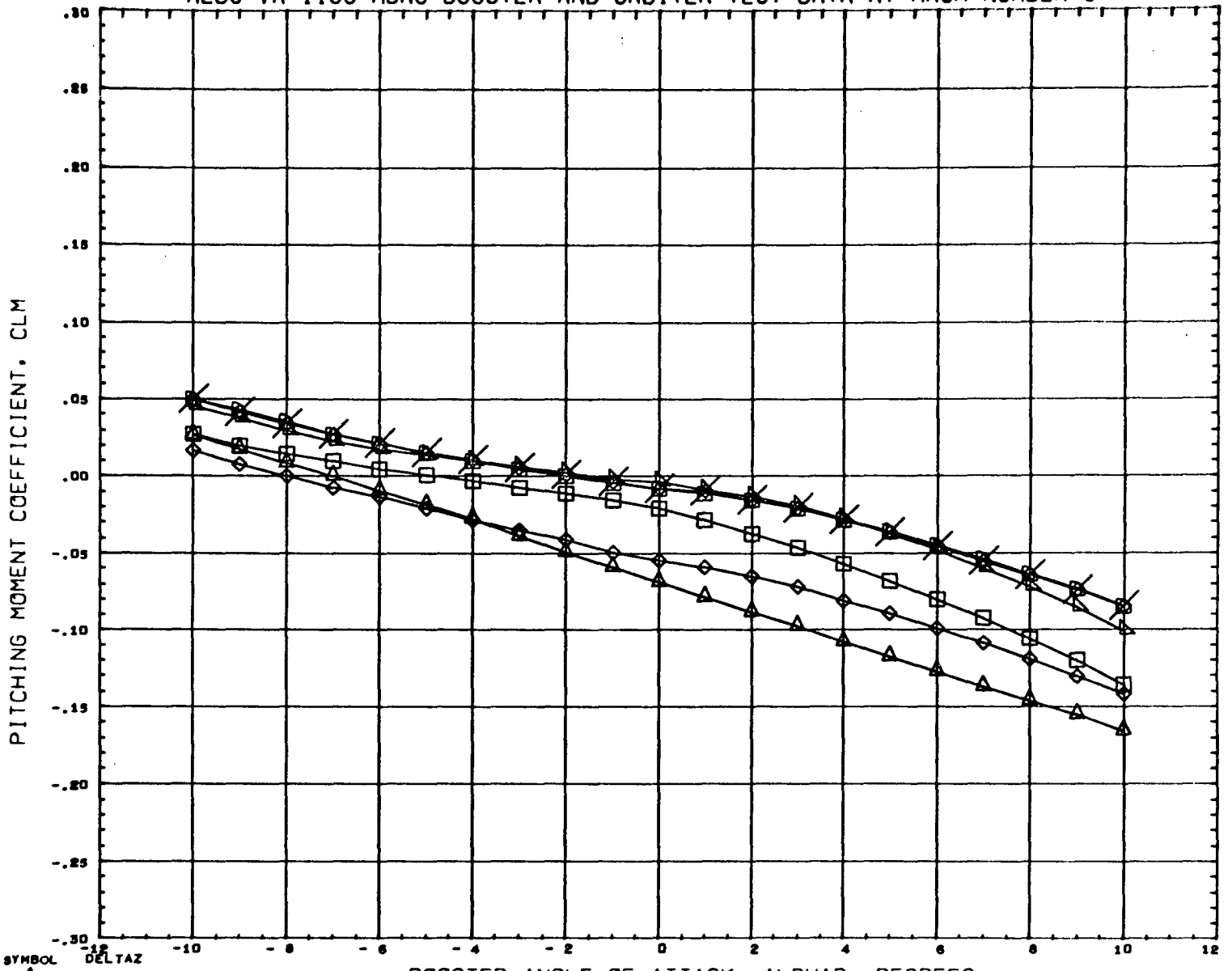
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◇	0.352
⊗	10.000

PARAMETRIC VALUES

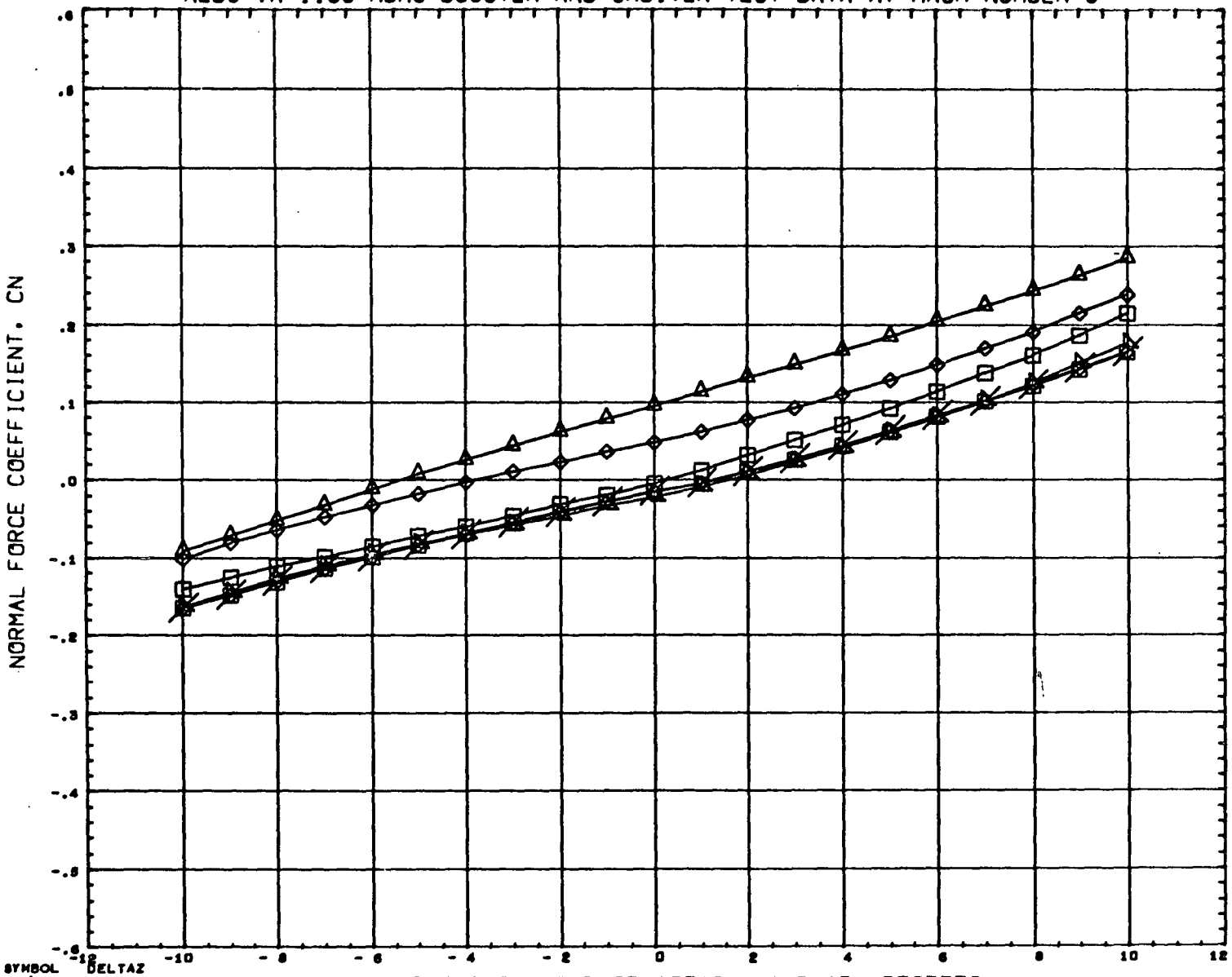
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.191
□	0.192
▽	0.220
◁	0.352
⊗	10.000

PARAMETRIC VALUES

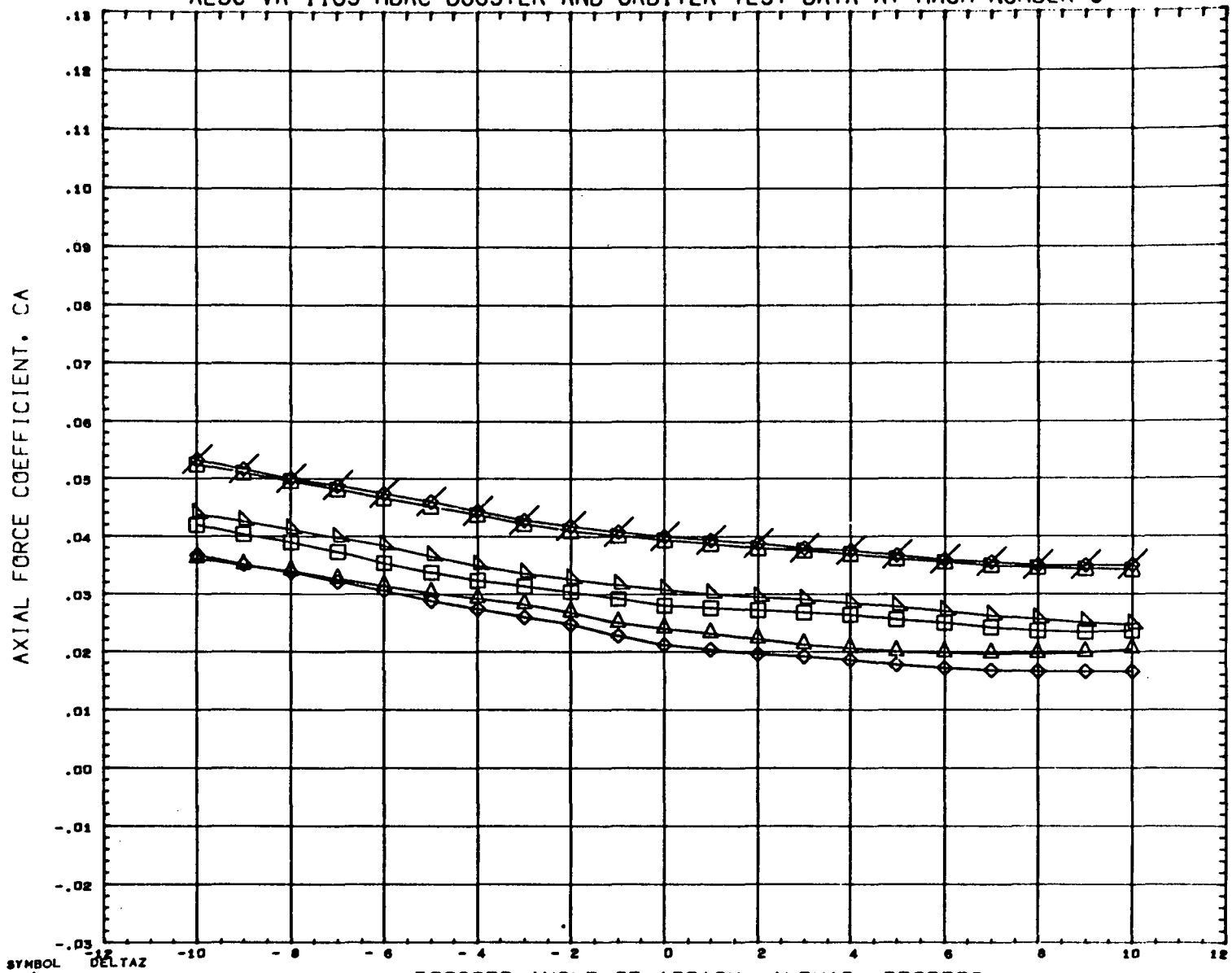
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
○	0.352
⊘	10.000

PARAMETRIC VALUES

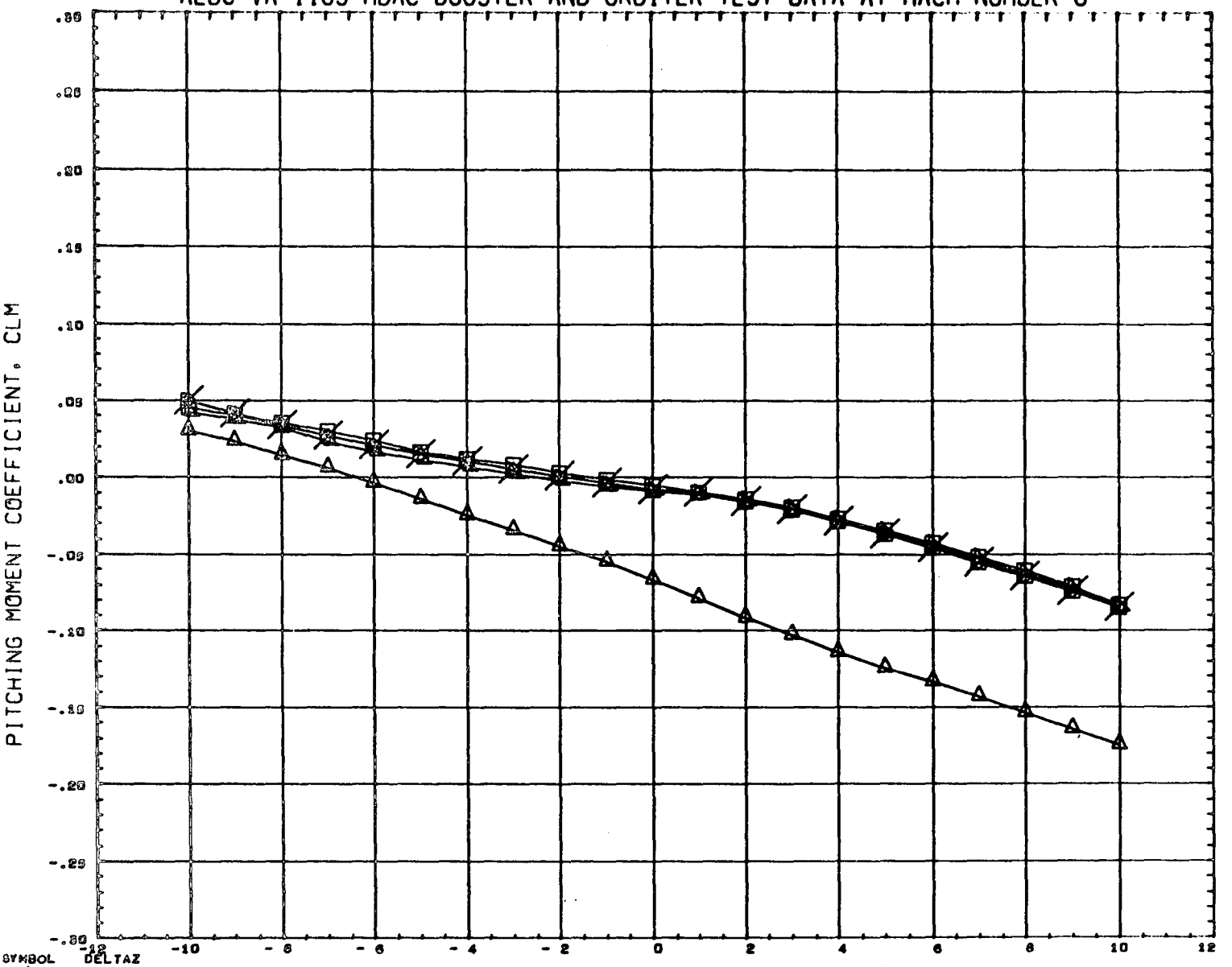
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE · 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
□	0.162
◇	0.220
⊘	0.352
⊗	10.000

PARAMETRIC VALUES

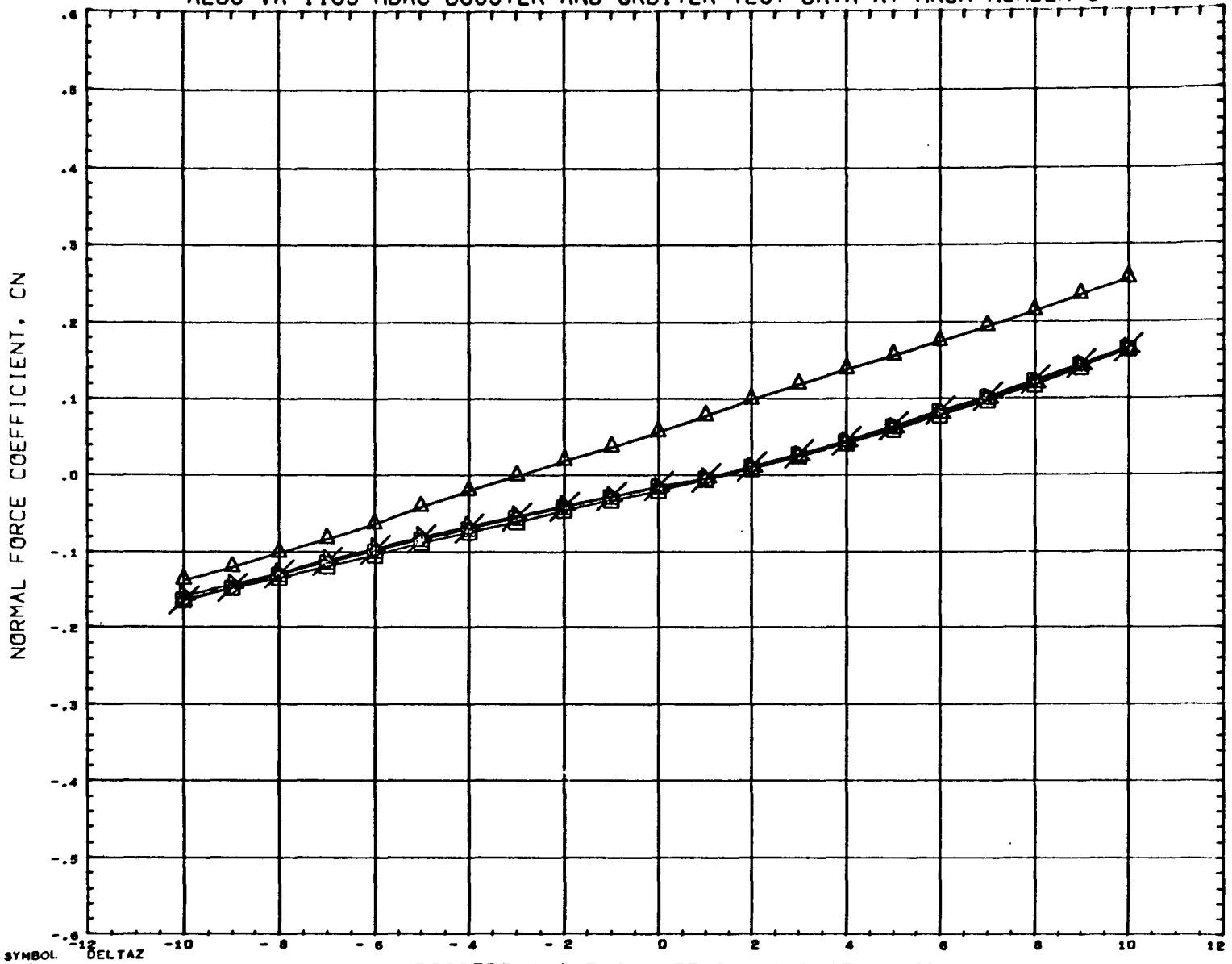
BSTPOW	90.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
□	0.182
◇	0.228
⊘	0.352
⊗	10.000

PARAMETRIC VALUES

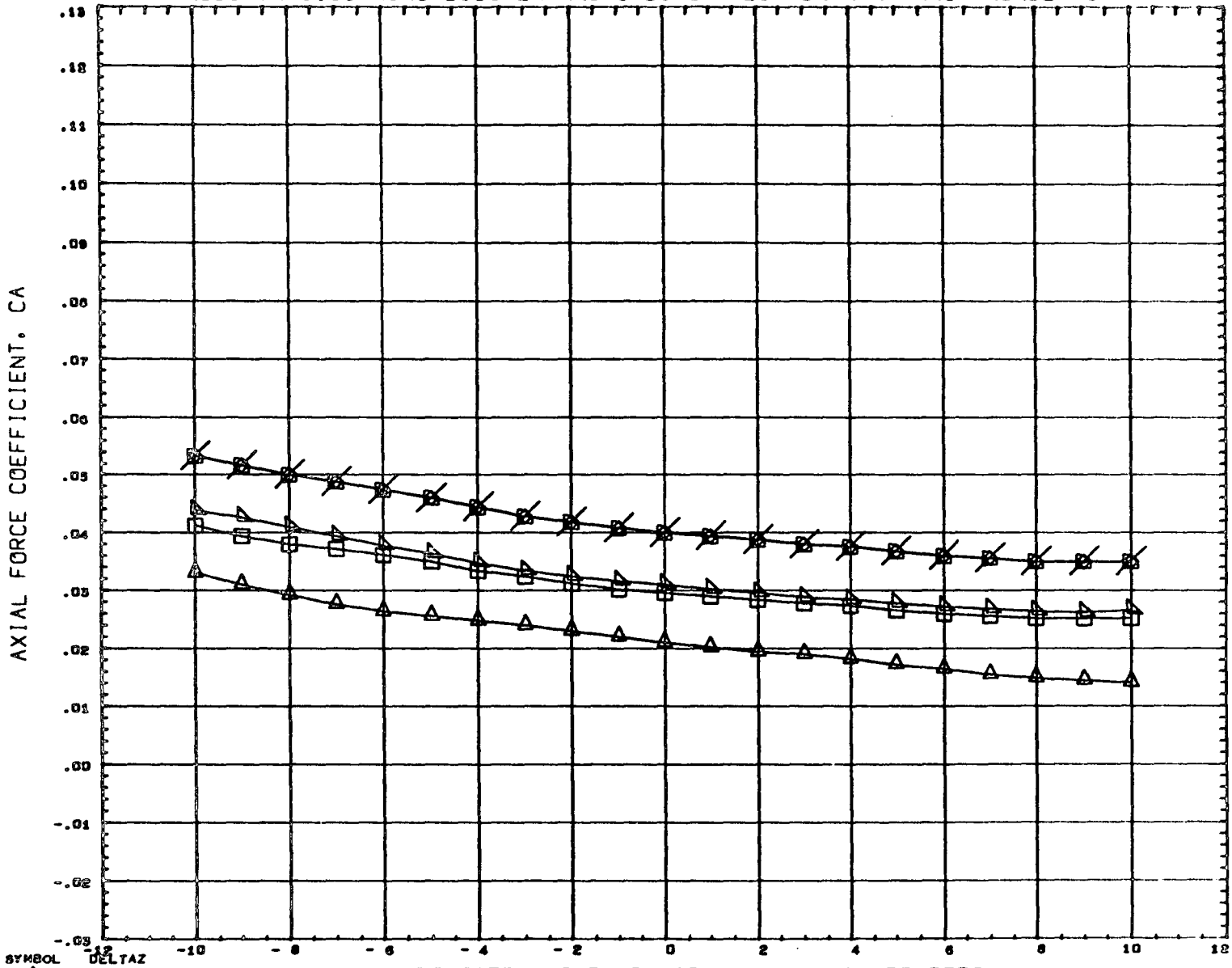
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
□	0.182
◇	0.228
▷	0.352
⊘	10.000

PARAMETRIC VALUES

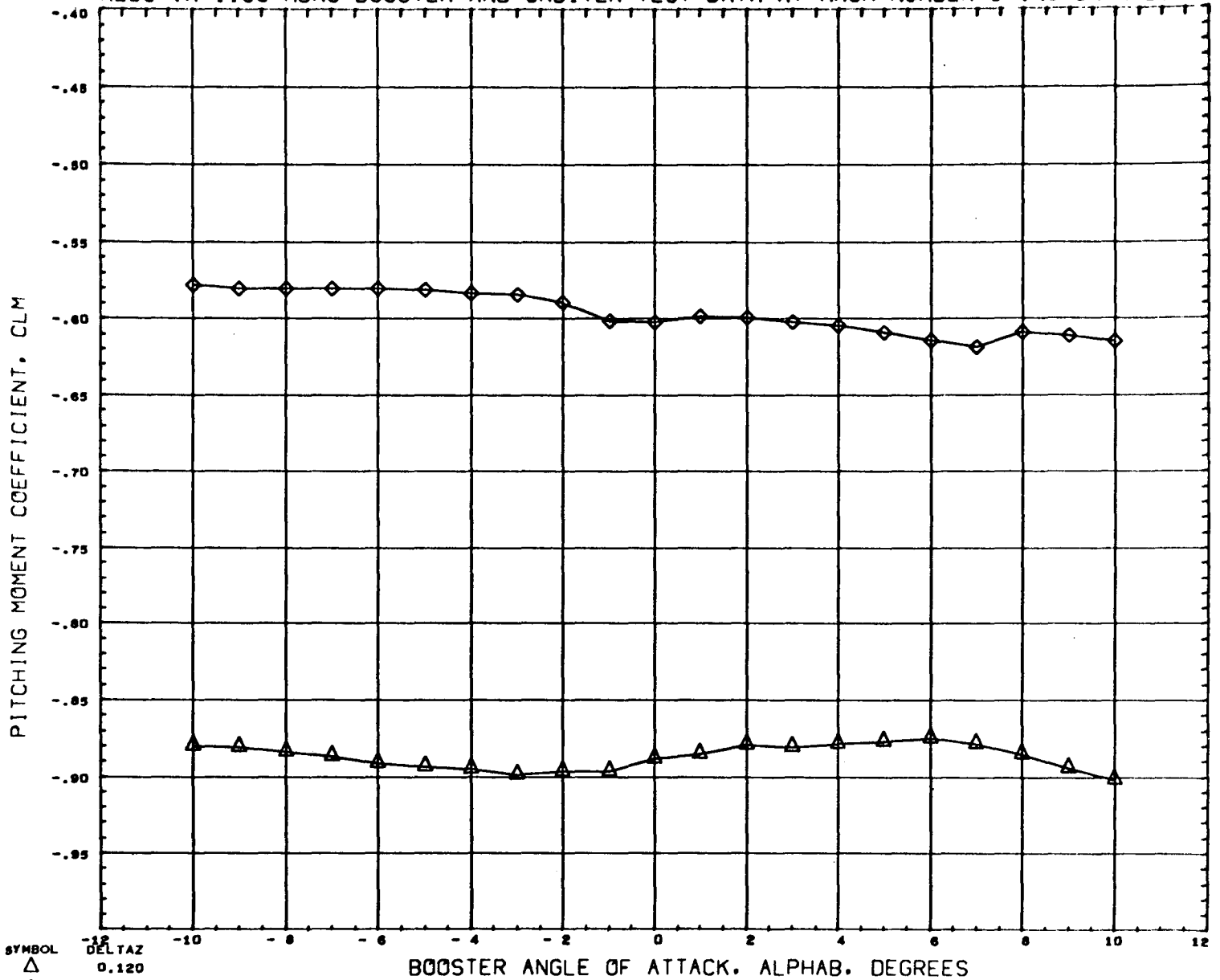
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

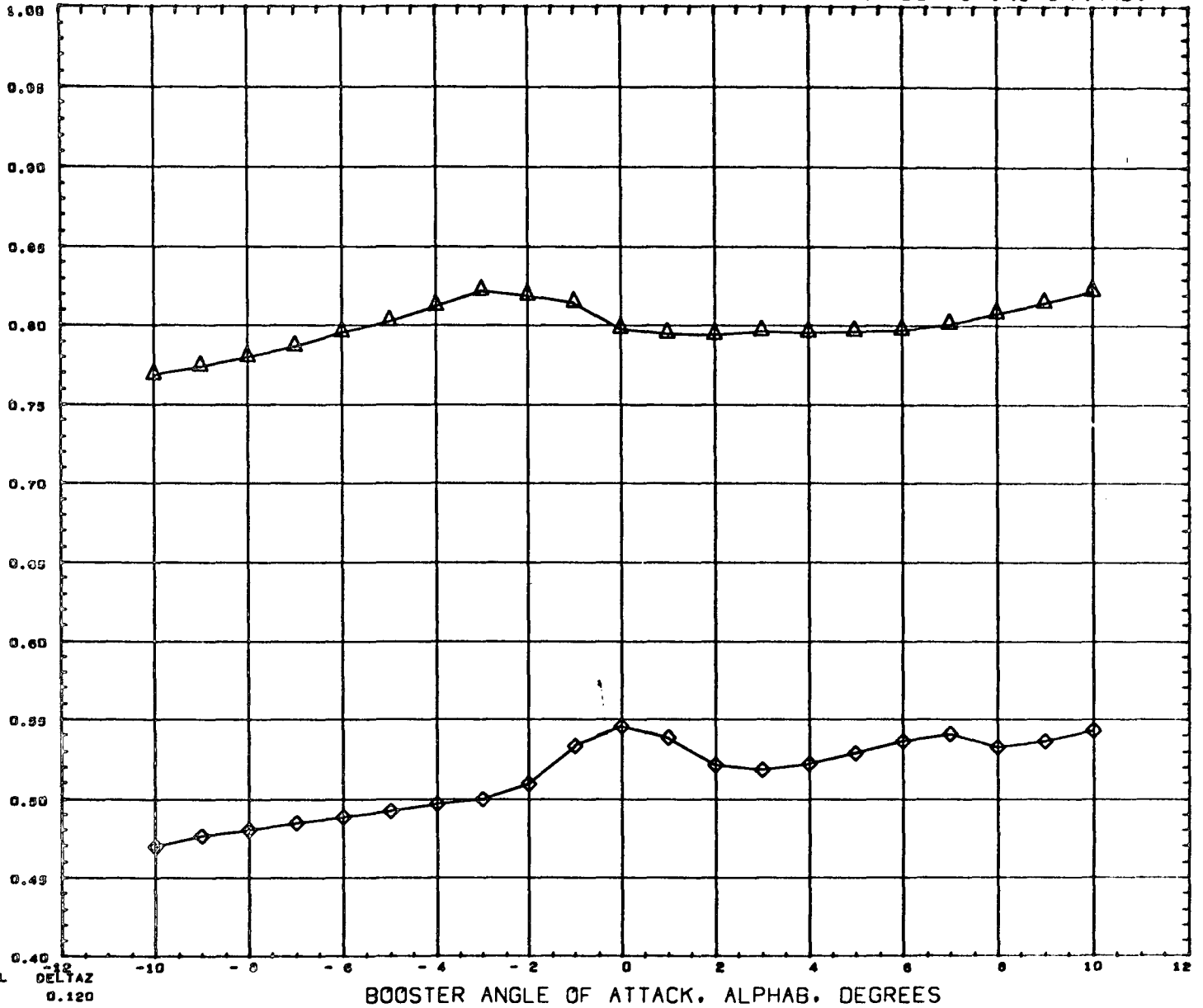
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

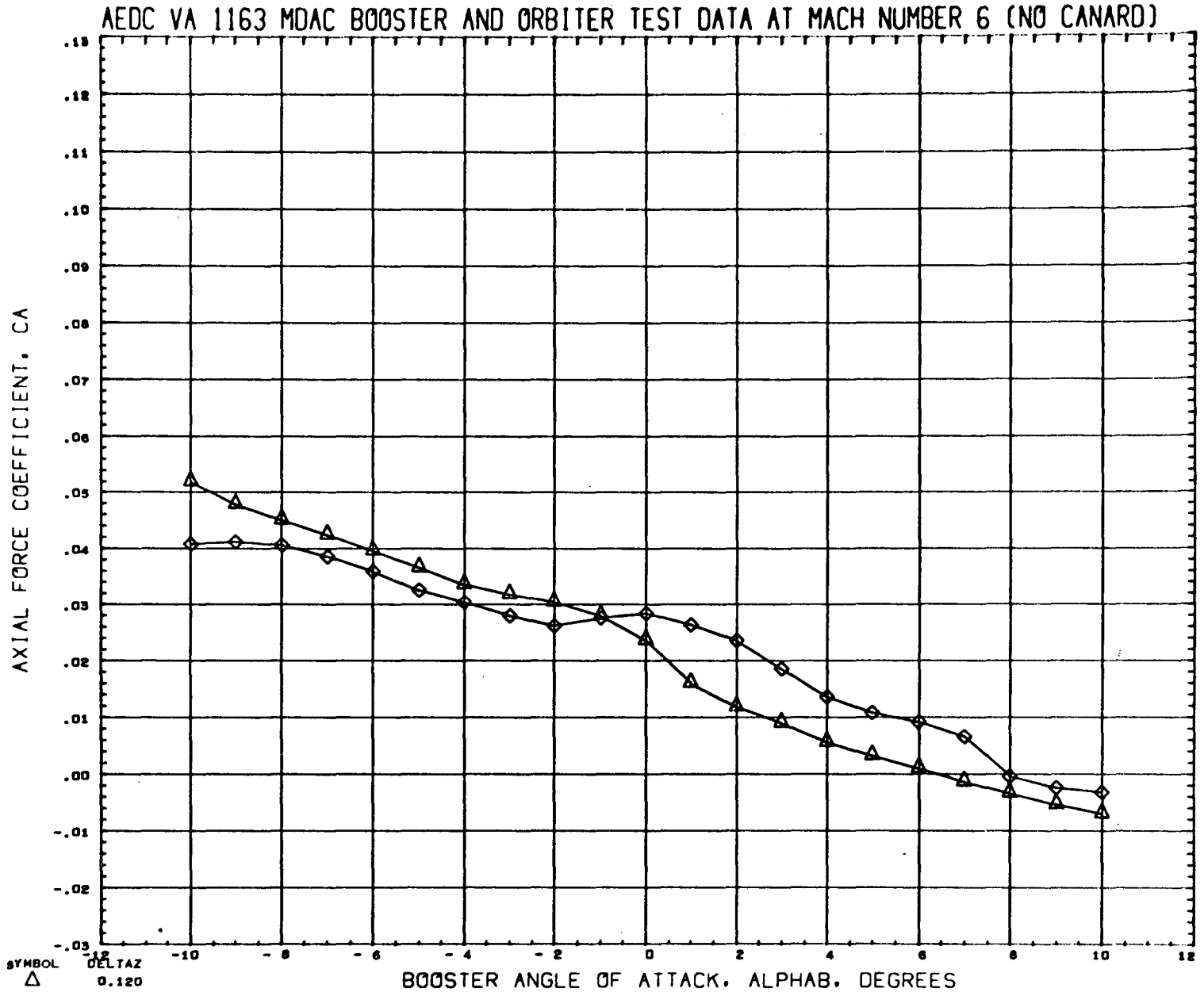
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.339	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	



SYMBOL	DELTAZ
△	0.120
◇	0.151

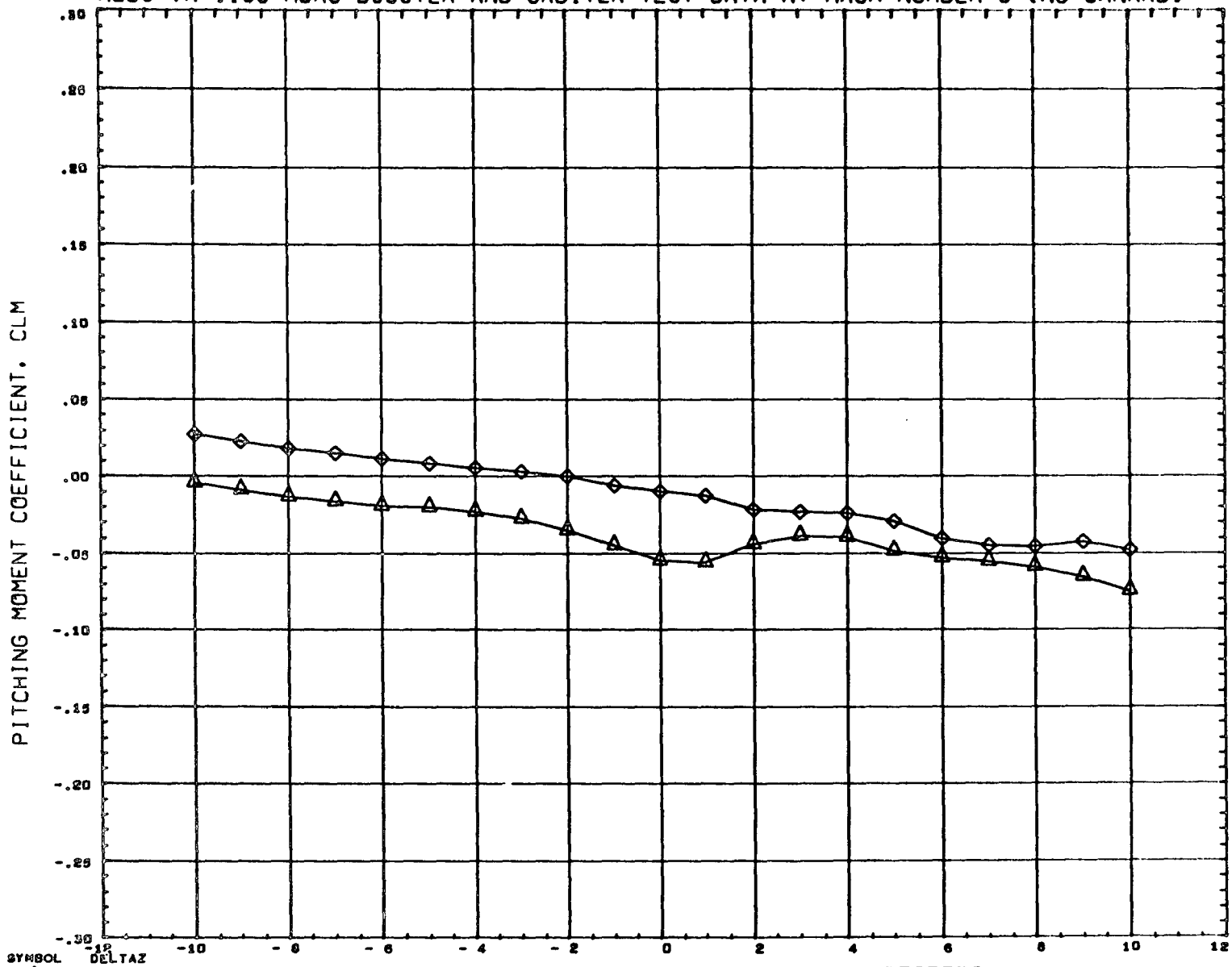
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



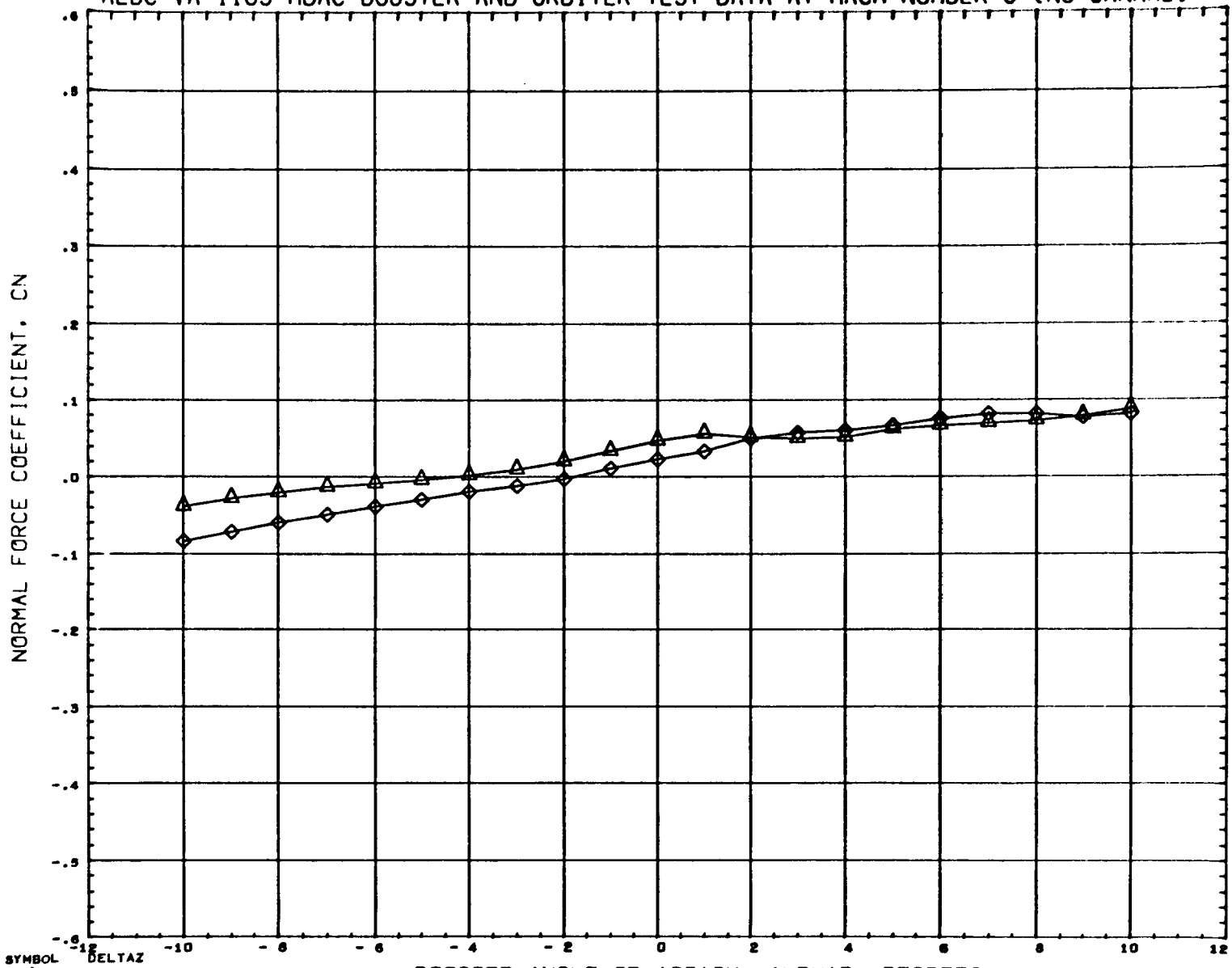
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



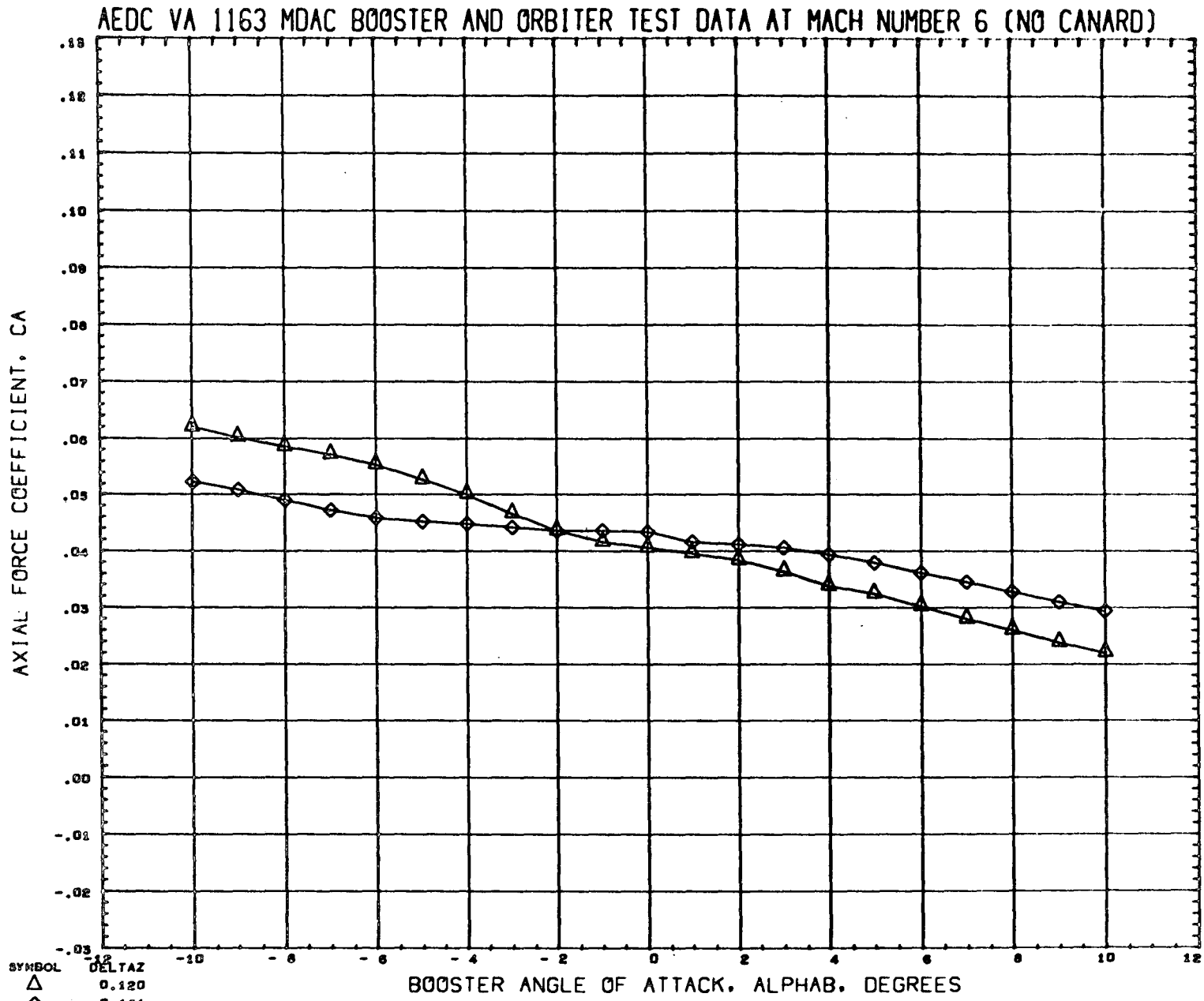
SYMBOL	DELTAZ
△	0.120
◇	0.151

PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

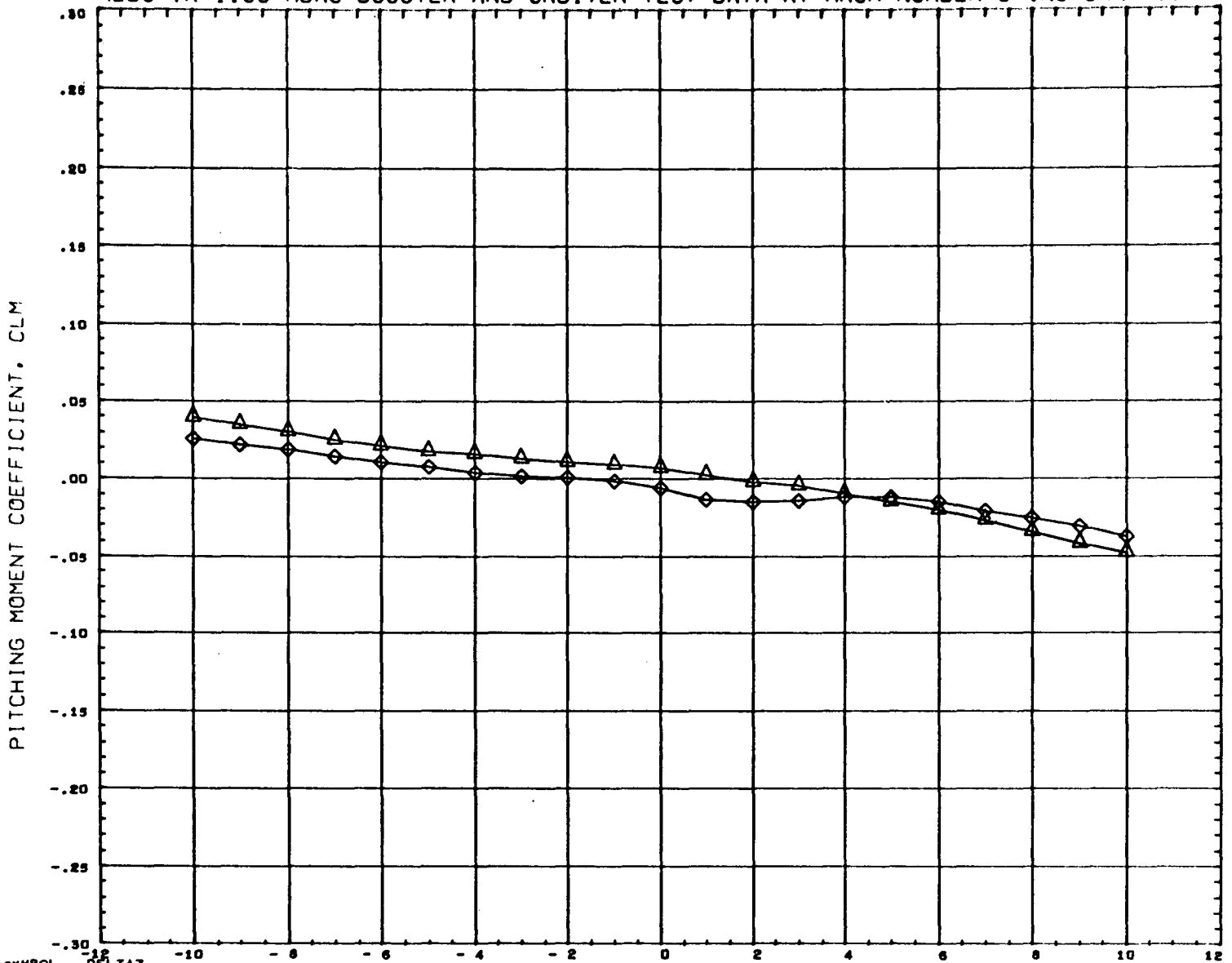
REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	



AEDC VA1163 MDAC ORB IN PROX. TO BSTR(NO CANARD) (RT8793) 09 JAN 72 PAGE 60

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

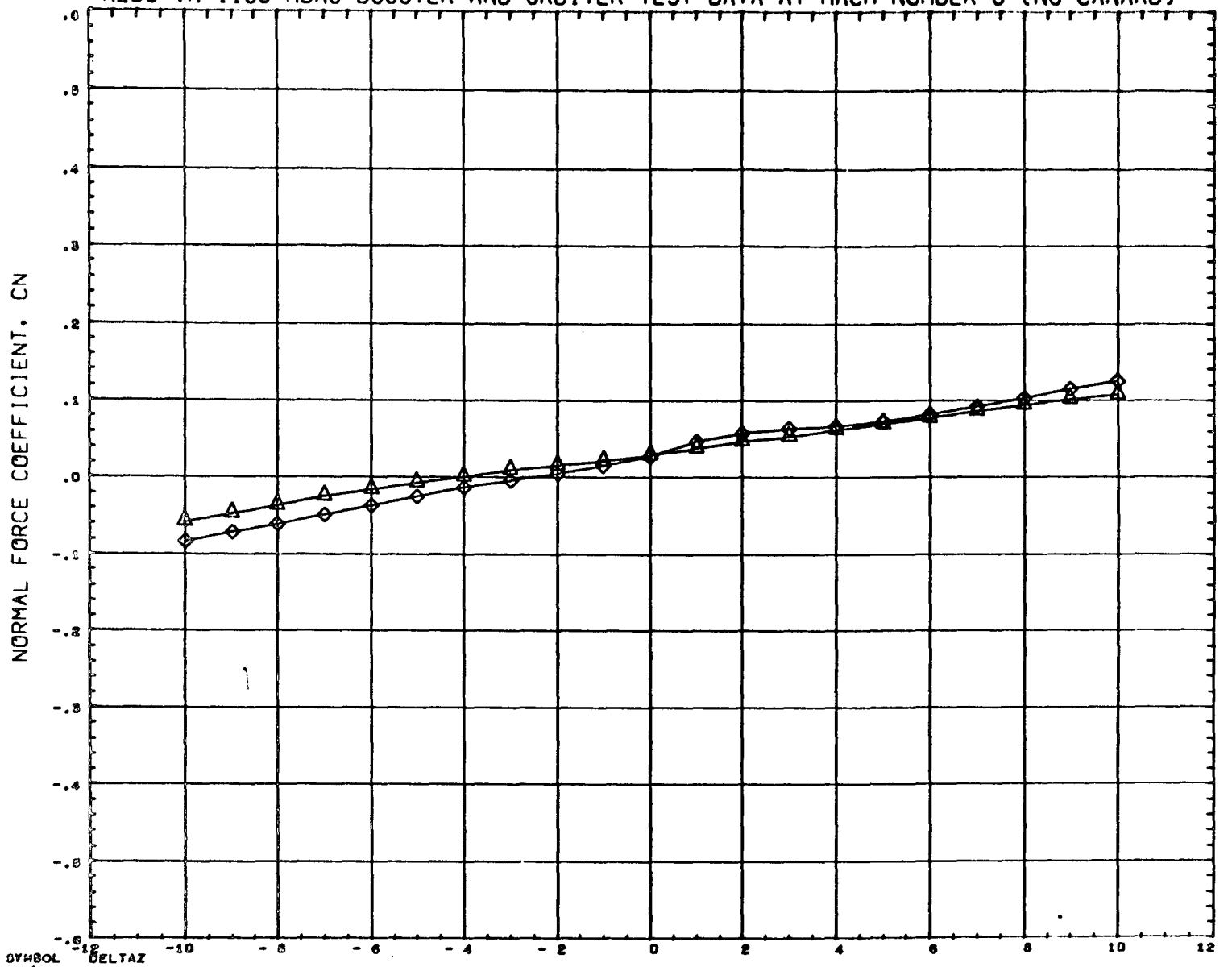
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.191

PARAMETRIC VALUES

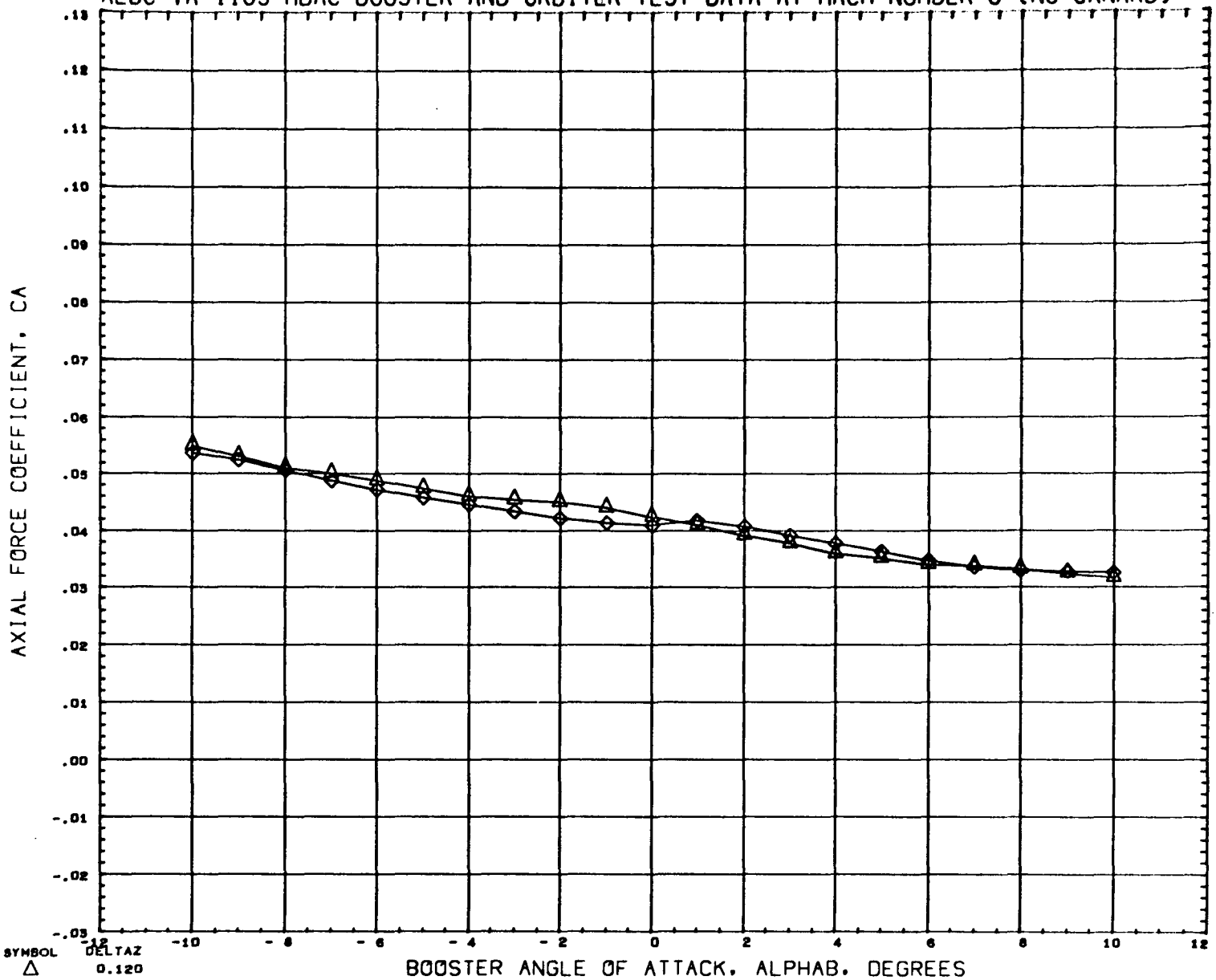
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

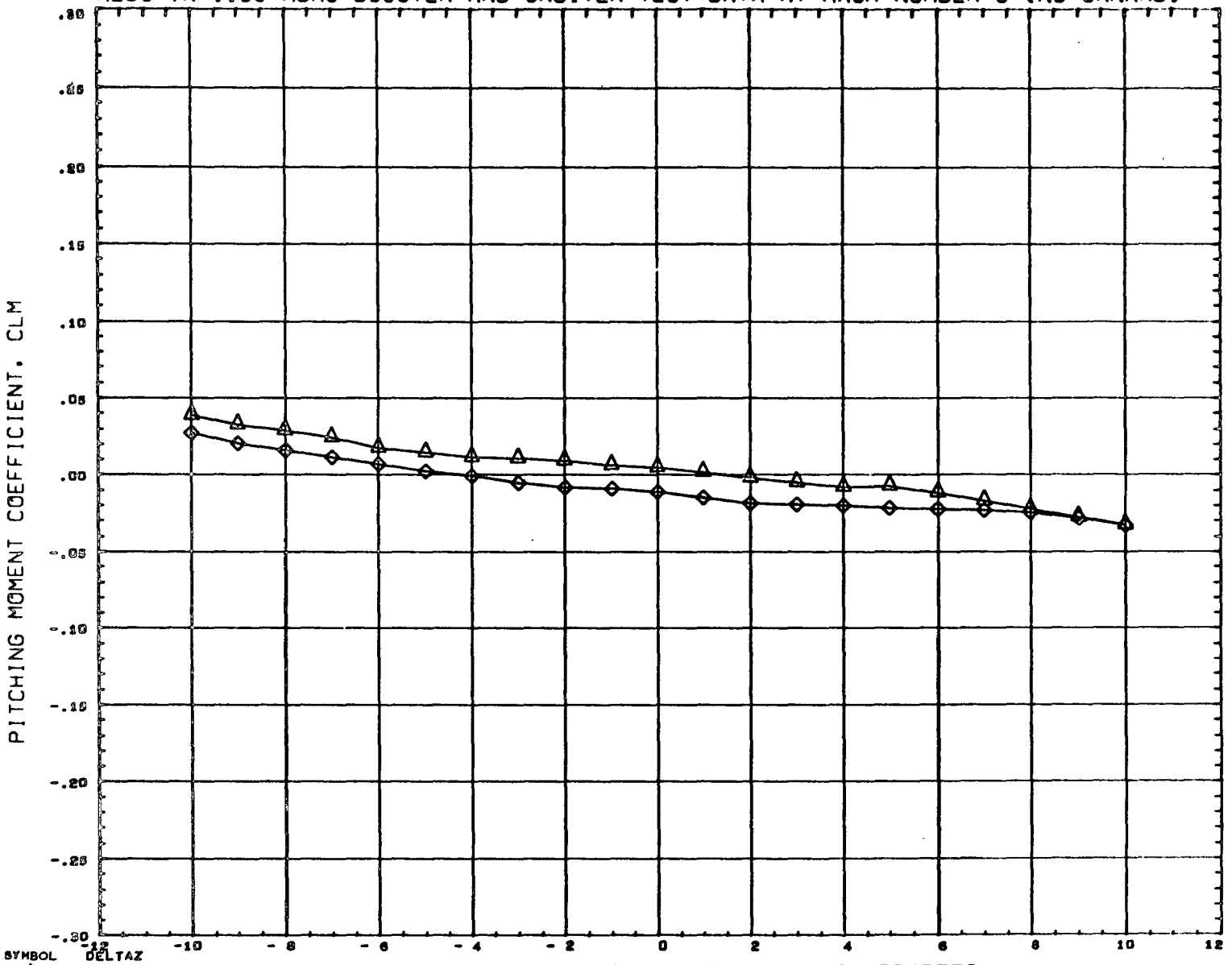
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

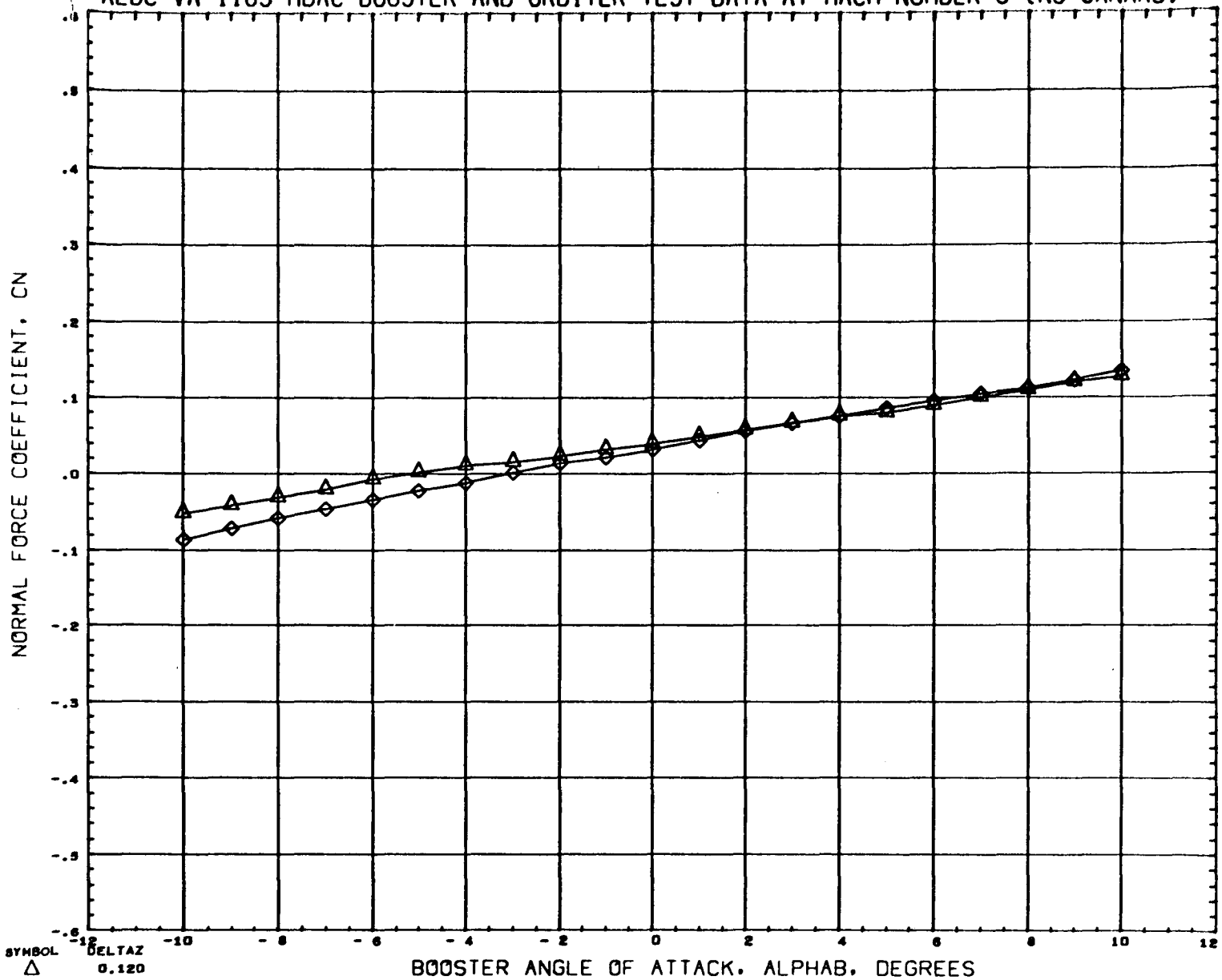
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



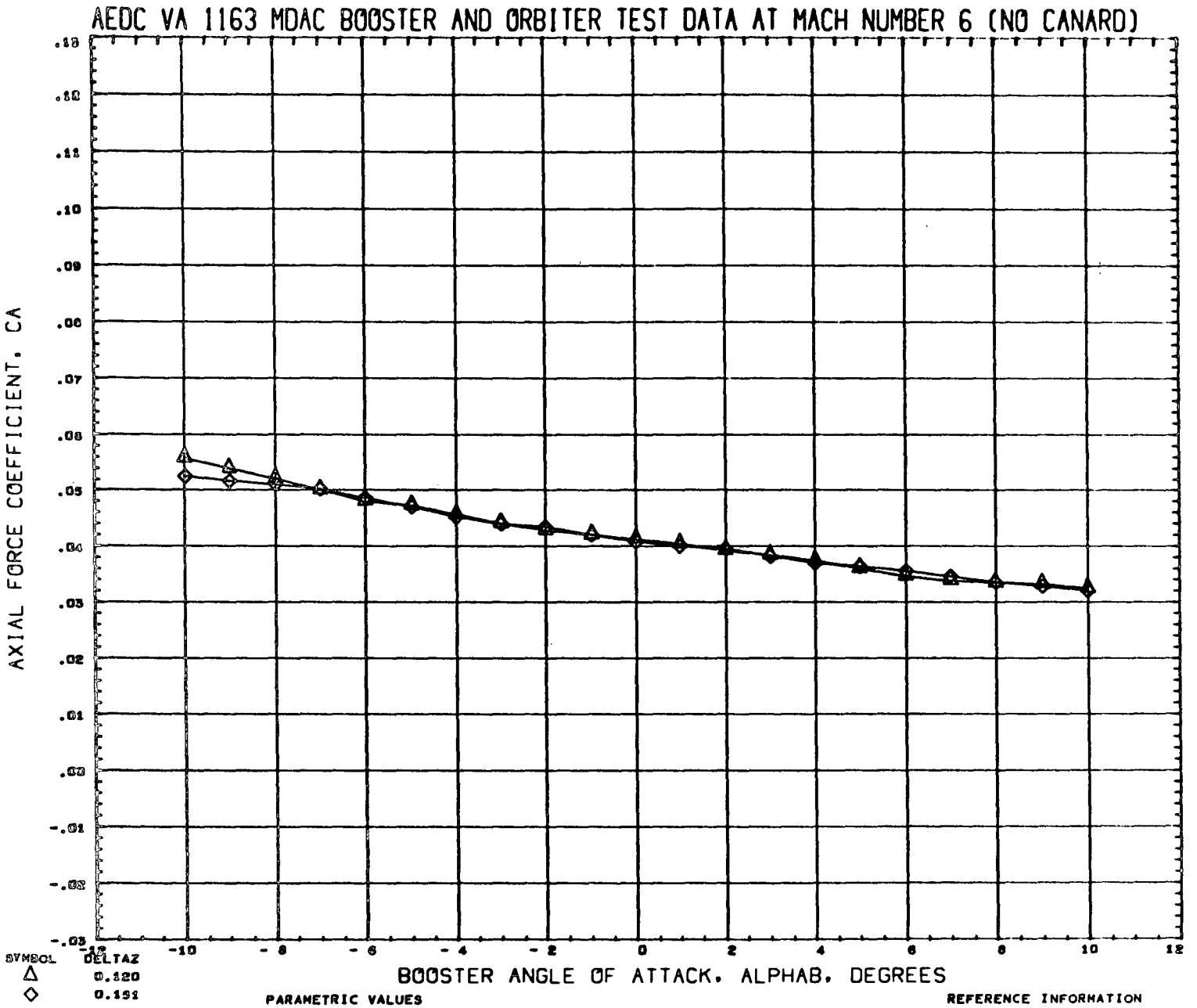
SYMBOL	DELTAZ
△	0.120
◇	0.151

PARAMETRIC VALUES

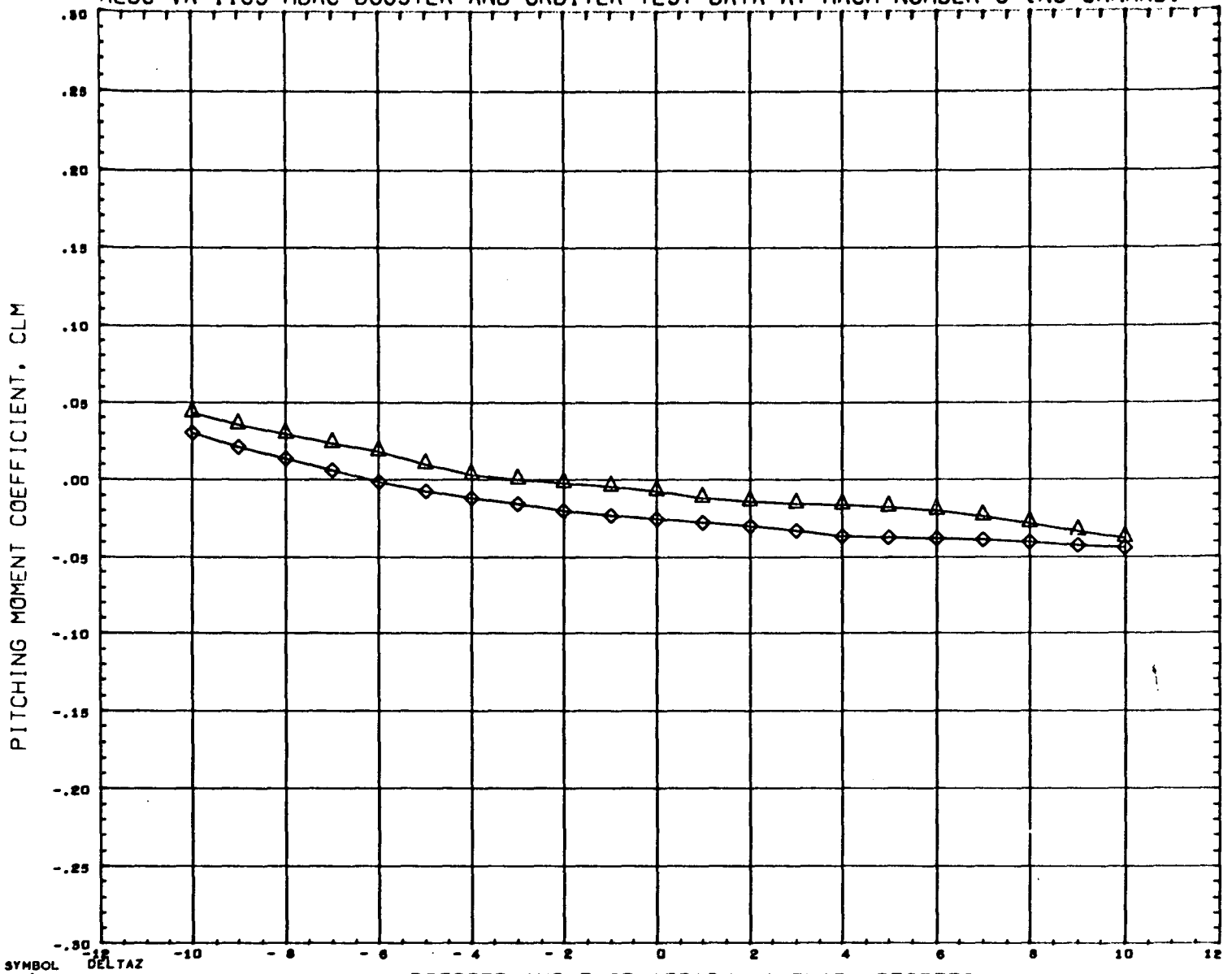
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	


AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)
AXIAL FORCE COEFFICIENT, CA
.12
.10
.11
.10
.09
.08
.07
.08
.05
.04
.03
.02
.01
.00
-.01
-.02
-.03
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
BOOSTER ANGLE OF ATTACK, ALPHAB, DEGREES
SYMBOL DELTAZ
△ 0.120
◇ 0.151
PARAMETRIC VALUES
BSTPOW 50.000 ORBPOW 100.000
DELTAX 0.042 ALPHAI 0.000
MACH 6.000 ELVBST 0.000
ELVORB 0.000 BETA 0.000
REFERENCE FILE 0
REFERENCE INFORMATION
SREF 23.6890 SQ IN
LREF 4.1930 IN
BREF 6.5000 IN
XMRP 4.9140 IN
YMRP 0.0000 IN
ZMRP 1.3900 IN
SCALE 0.0055

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.191

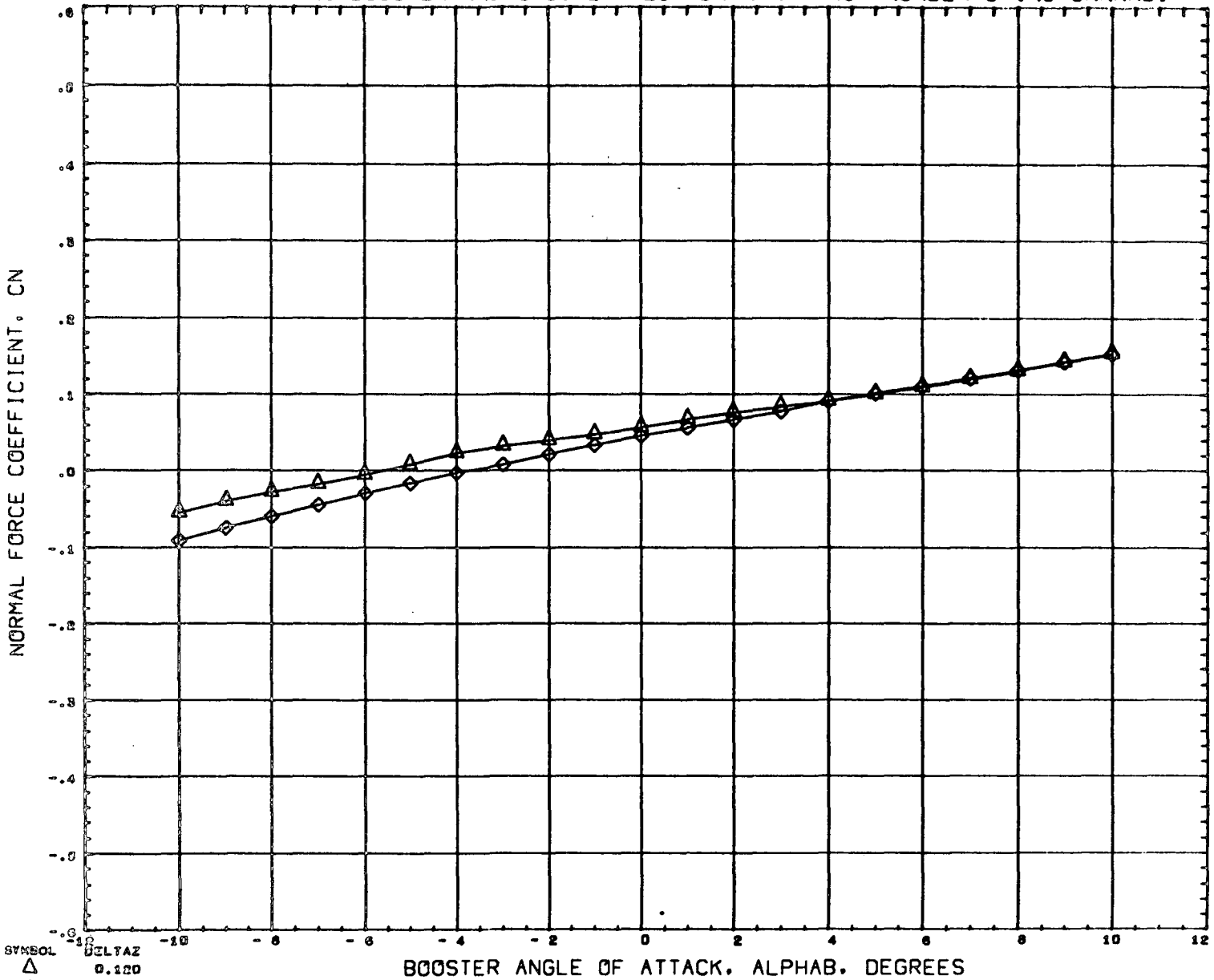
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



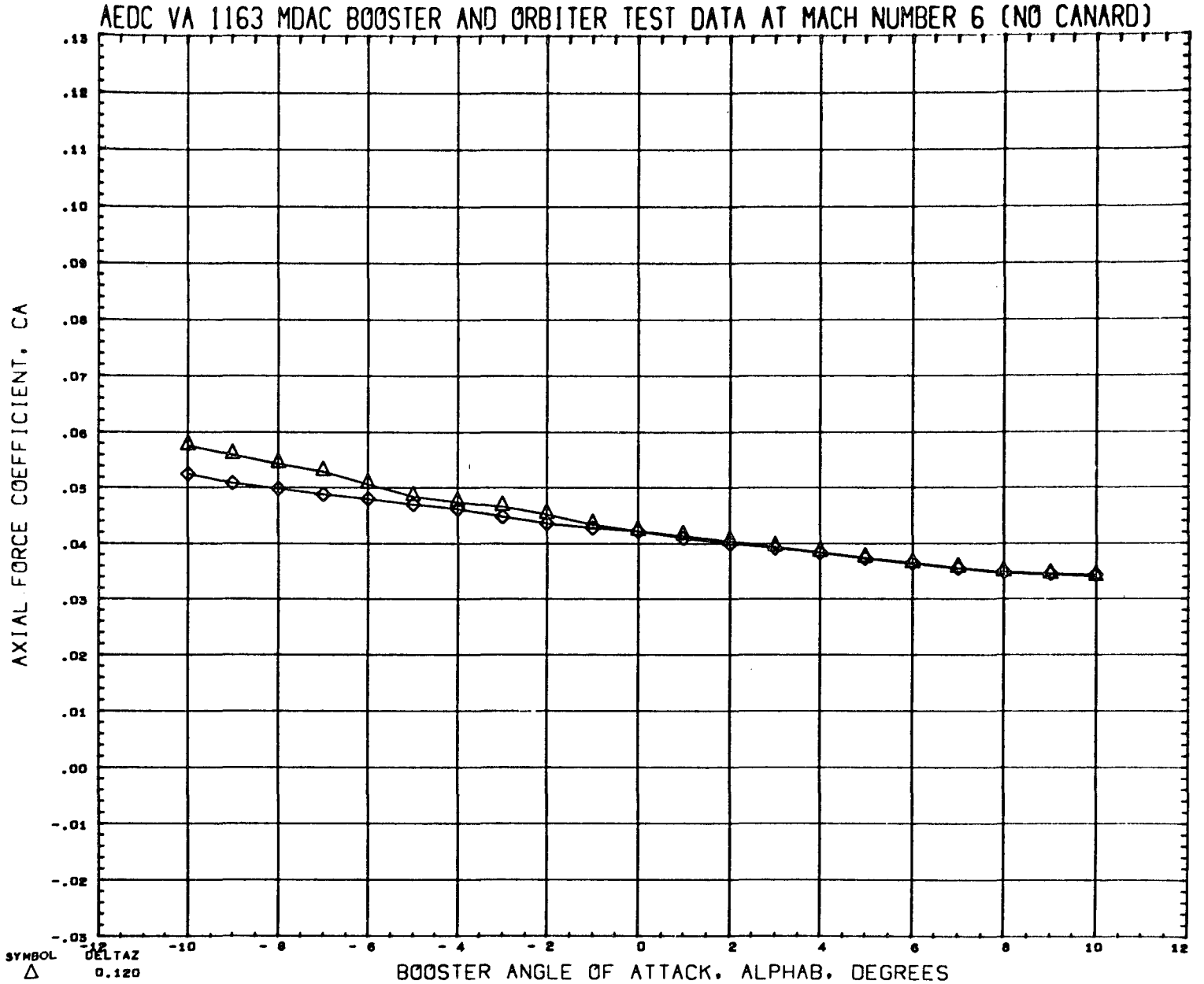
SYMBOL	DELTAZ
△	0.120
◇	0.151

PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.9000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	



SYMBOL	DELTAZ
△	0.120
◇	0.151

PARAMETRIC VALUES

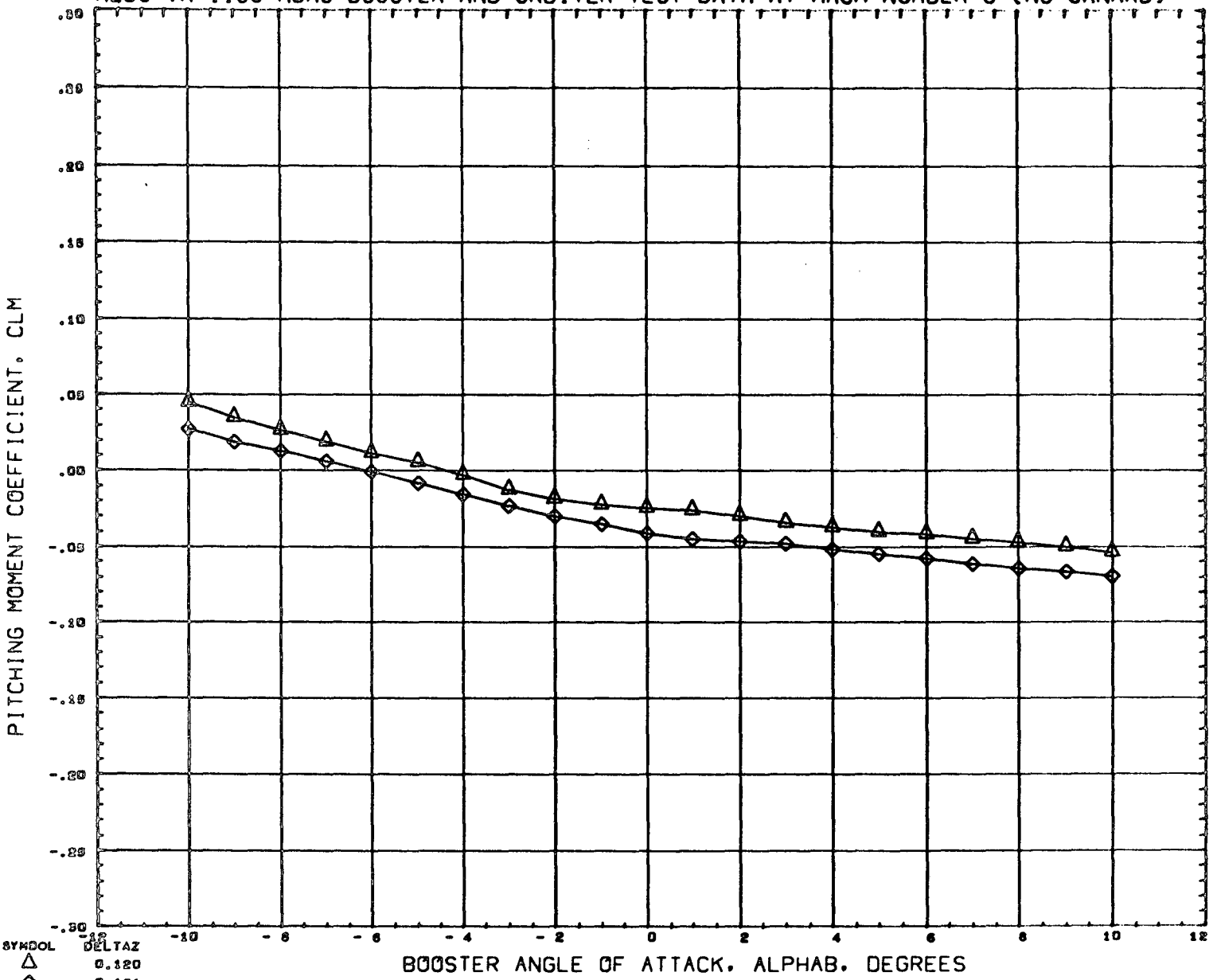
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



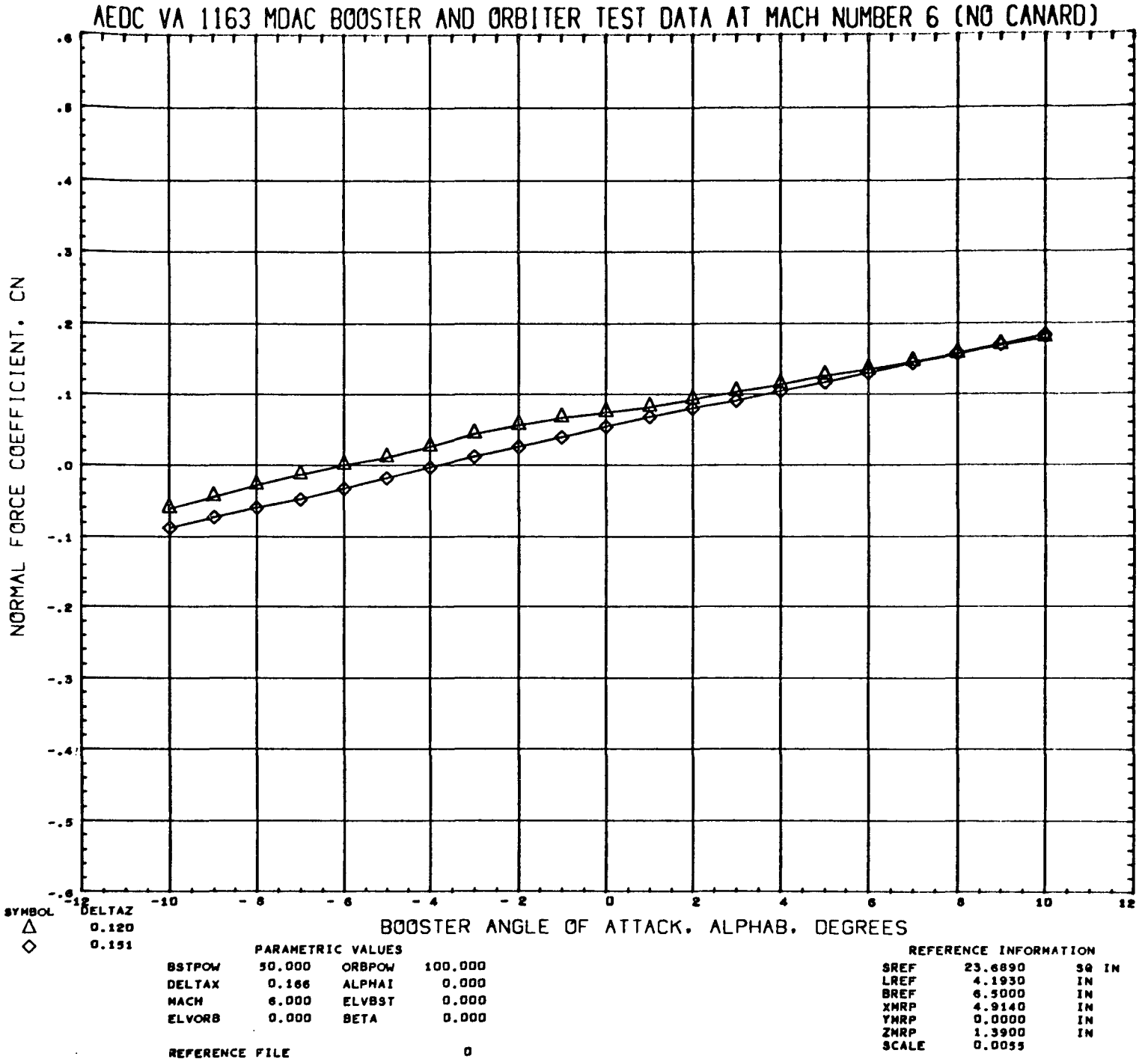
PARAMETRIC VALUES

BSTPOW	90.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

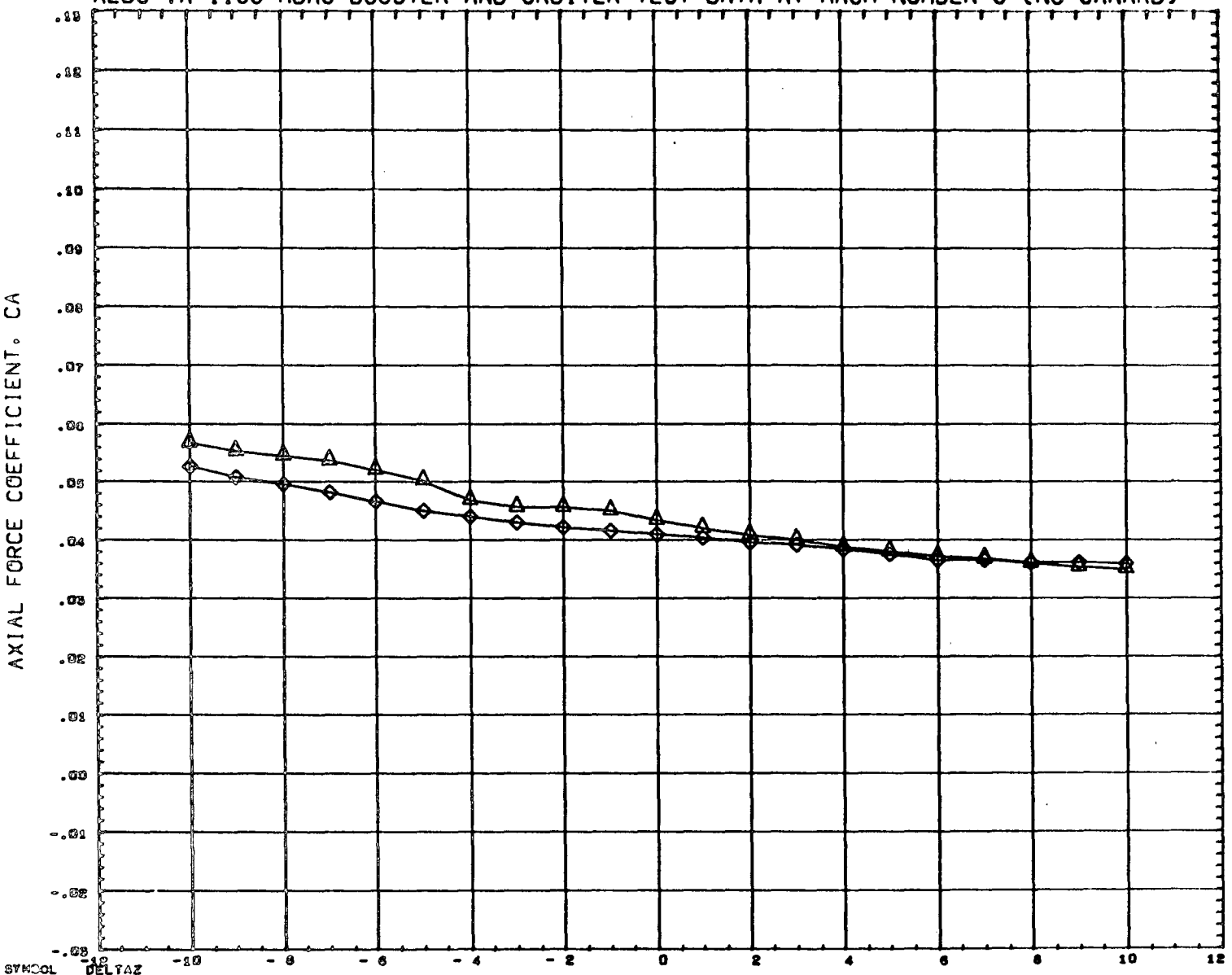
REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	


AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)
NORMAL FORCE COEFFICIENT, CN
.6
.5
.4
.3
.2
.1
.0
-.1
-.2
-.3
-.4
-.5
-.6
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
BOOSTER ANGLE OF ATTACK, ALPHAB, DEGREES
SYMBOL
DELTAZ
△ 0.120
◇ 0.151
PARAMETRIC VALUES
BSTPOW 50.000
ORBPOW 100.000
DELTAX 0.166
ALPHAI 0.000
MACH 6.000
ELVBST 0.000
ELVORB 0.000
BETA 0.000
REFERENCE FILE 0
REFERENCE INFORMATION
SREF 23.6890 SQ IN
LREF 4.1930 IN
BREF 6.5000 IN
XMRP 4.9140 IN
YMRP 0.0000 IN
ZMRP 1.3900 IN
SCALE 0.0055

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

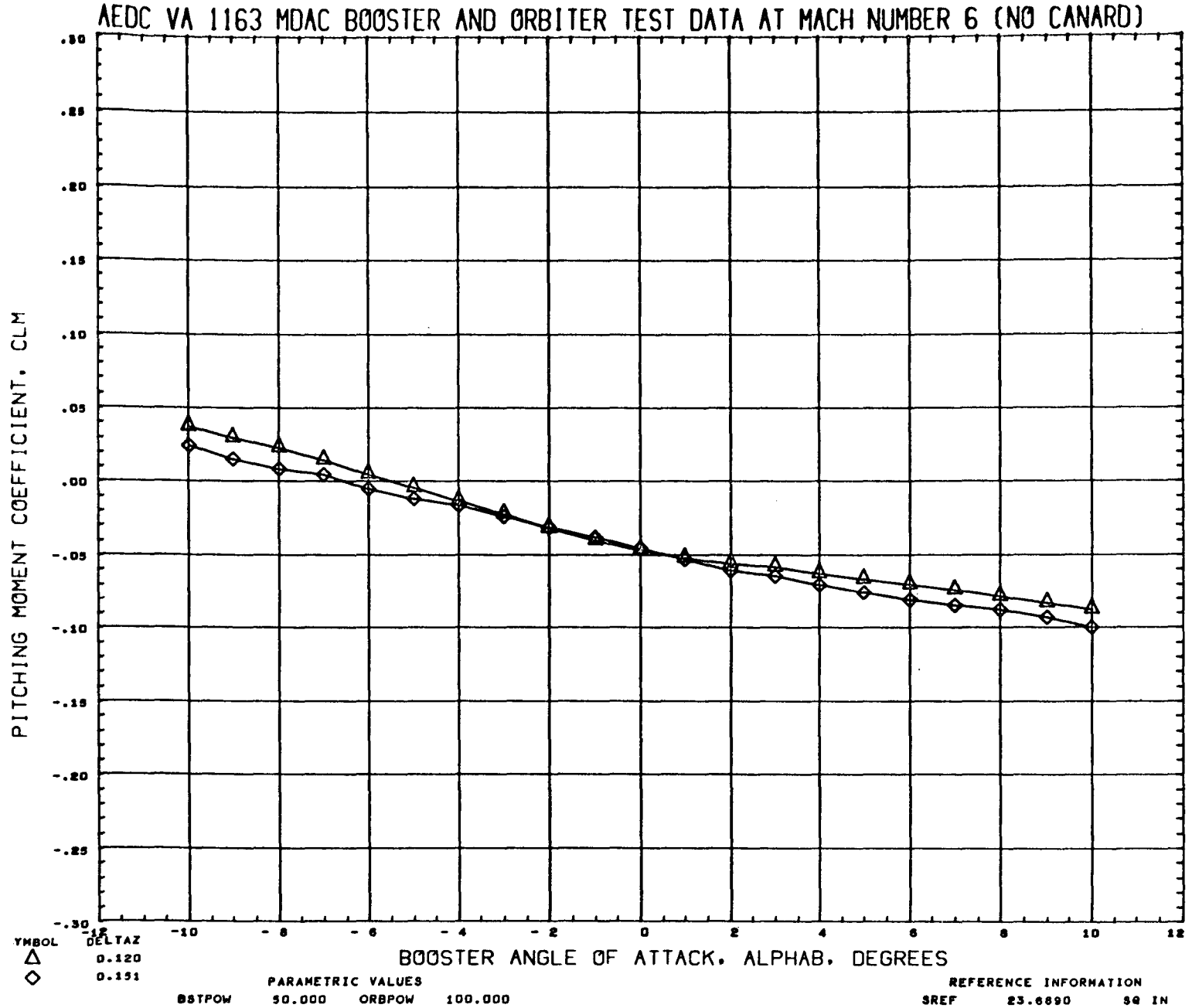
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

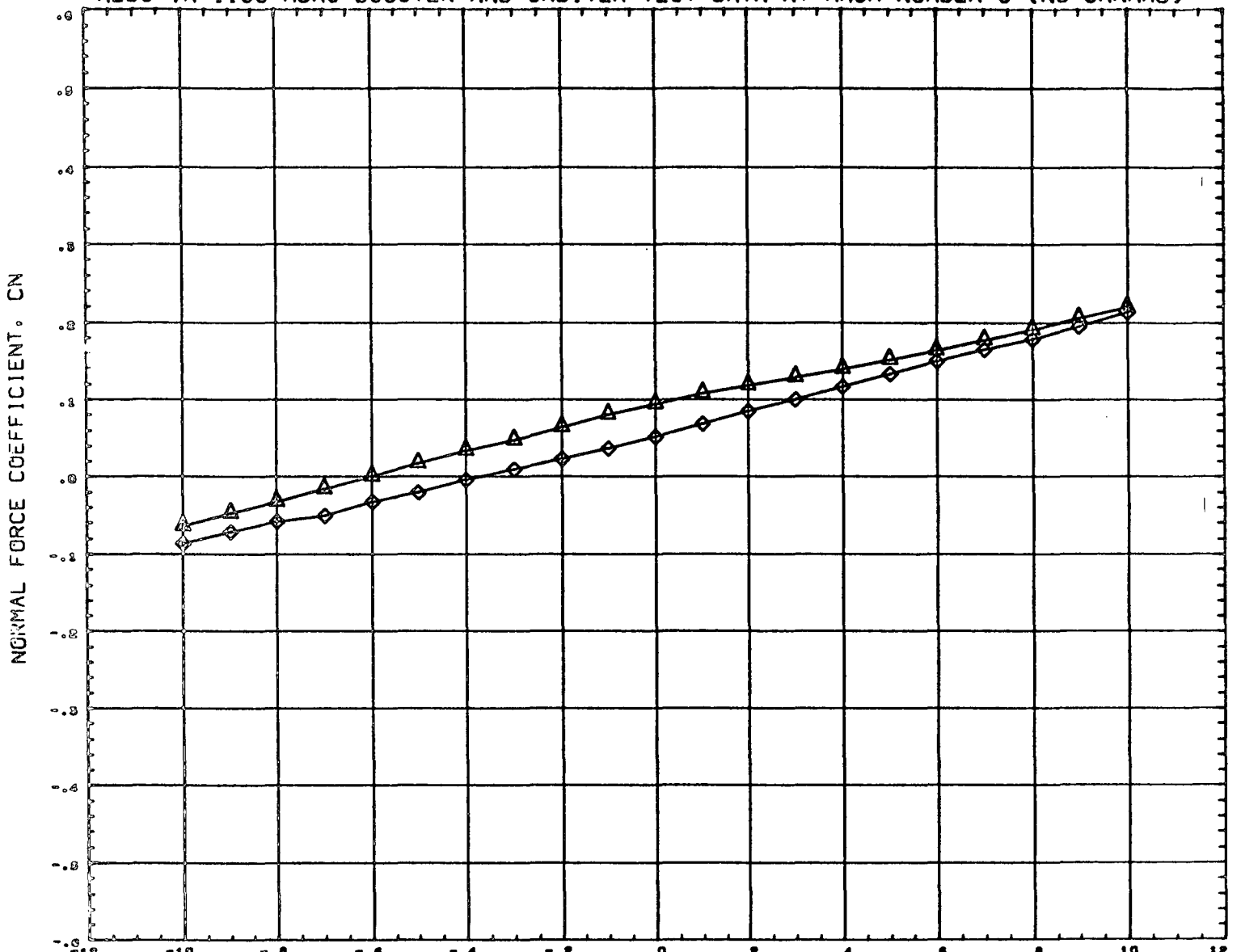
REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	


AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)
PITCHING MOMENT COEFFICIENT, CLM
.30
.25
.20
.15
.10
.05
.00
-.05
-.10
-.15
-.20
-.25
-.30
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
BOOSTER ANGLE OF ATTACK, ALPHAB, DEGREES
SYMBOL DELTAZ
△ 0.120
◇ 0.151
PARAMETRIC VALUES
BSTPOW 50.000 ORBPOW 100.000
DELTAX 0.228 ALPHAI 0.000
MACH 6.000 ELVBST 0.000
ELVORB 0.000 BETA 0.000
DATA HIST. CODE MV
REFERENCE INFORMATION
SREF 23.6890 SQ IN
LREF 4.1930 IN
BREF 6.5000 IN
XMRP 4.9140 IN
YMRP 0.0000 IN
ZMRP 1.3900 IN
SCALE 0.0055

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

PARAMETRIC VALUES

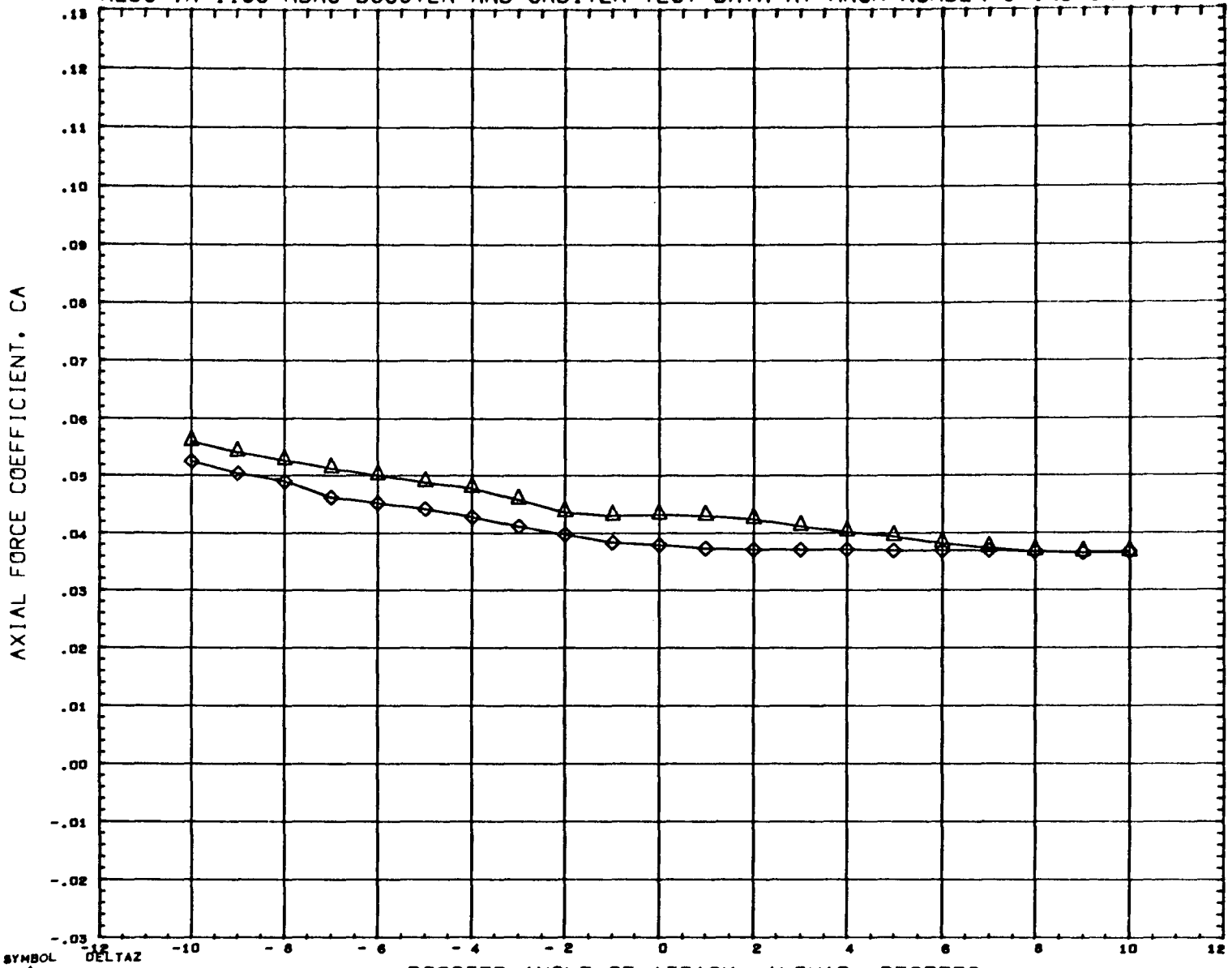
BOTPOW	50.000	ORBPOW	100.000
DELTAX	0.228	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

DATA MIST. CODE MV

REFERENCE INFORMATION

SREF	23.6690	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0035	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

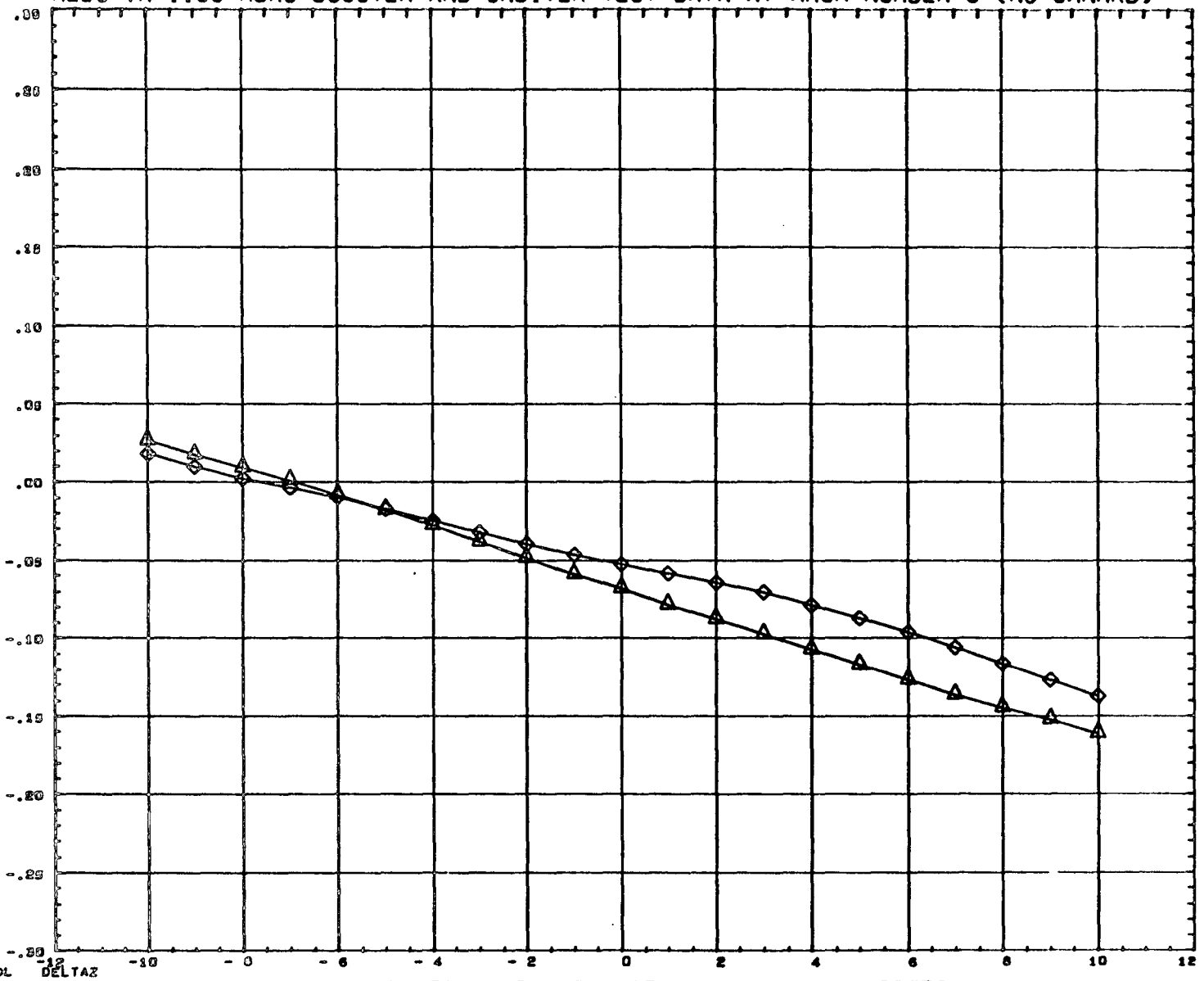
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.228	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

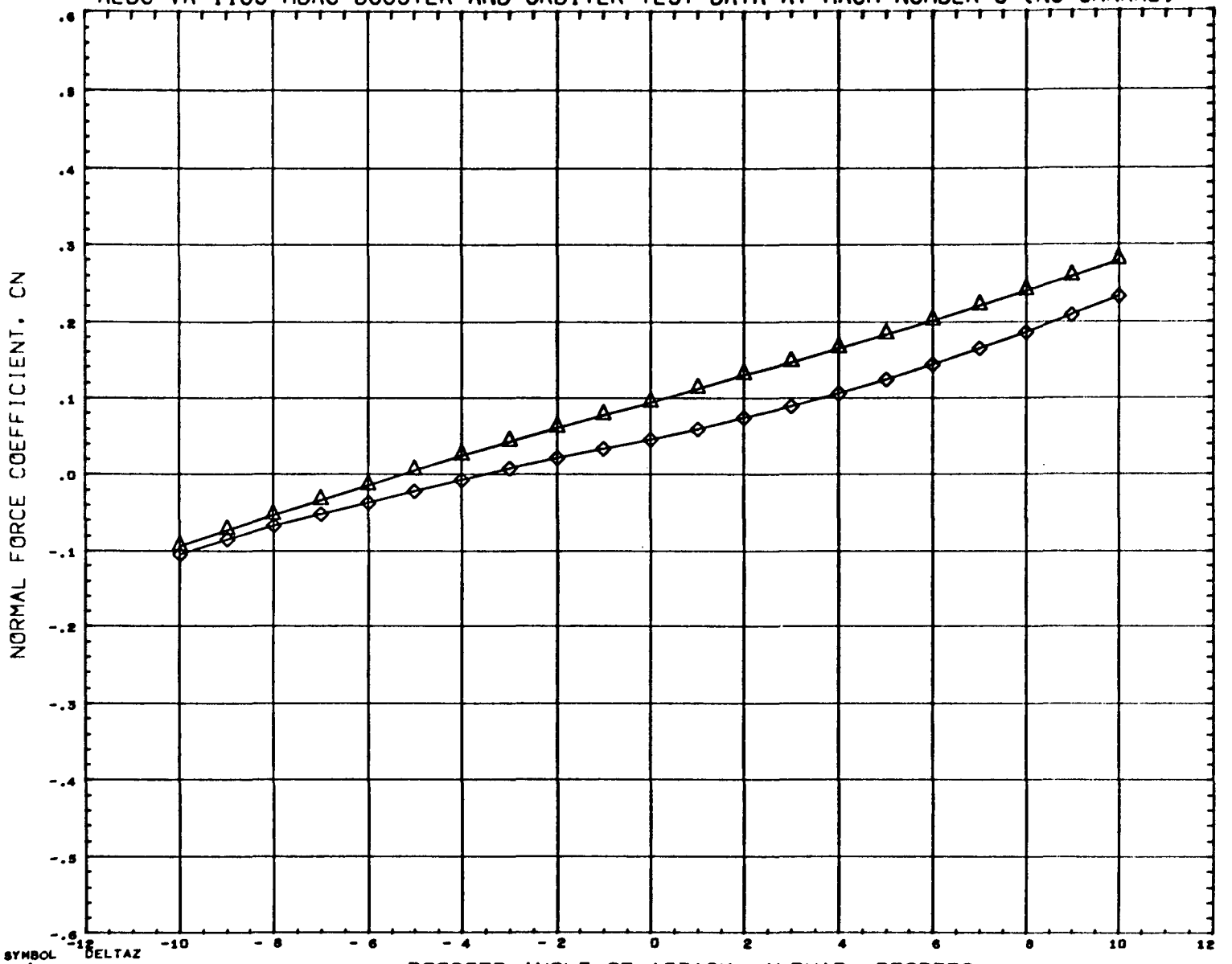
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

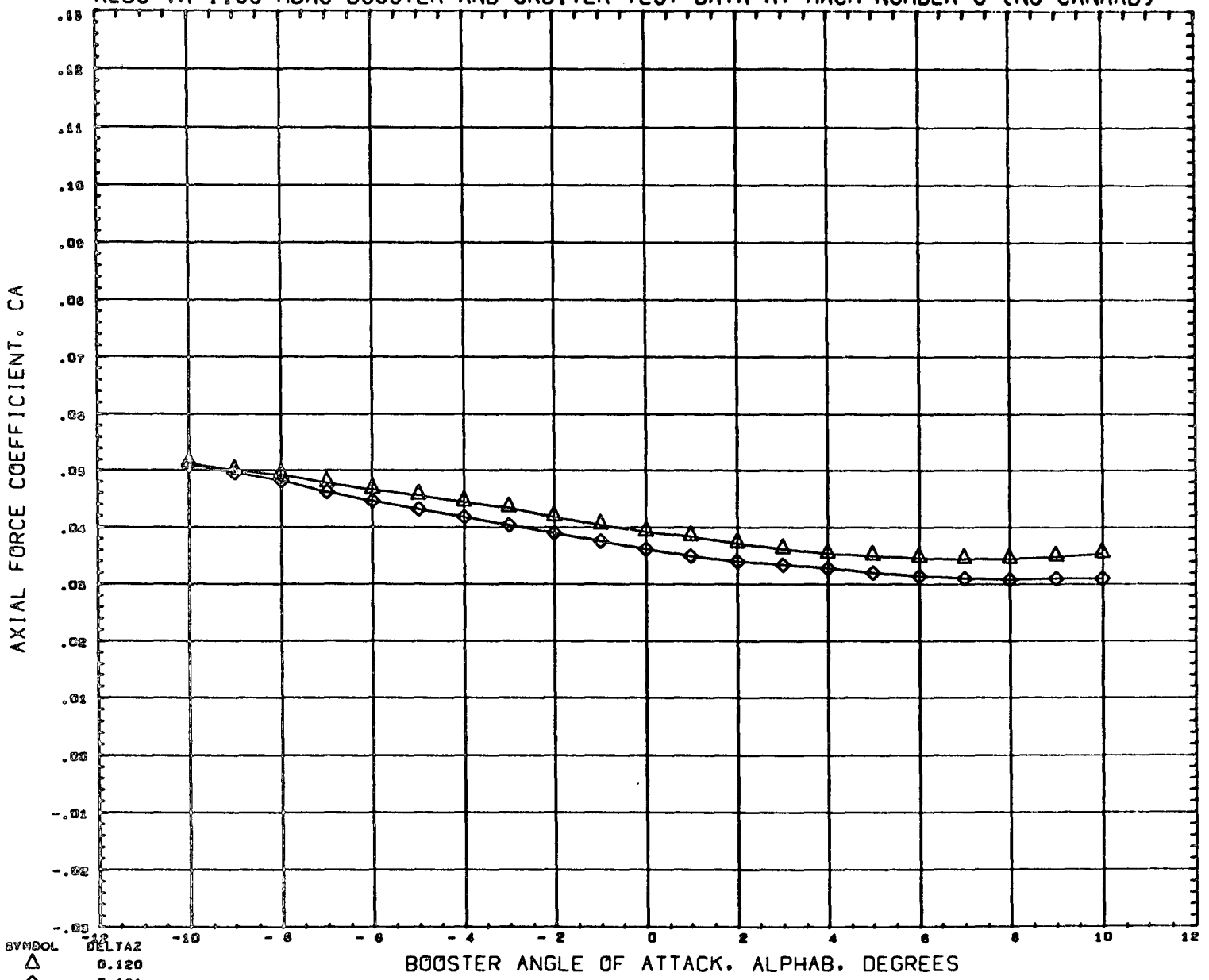
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.191

PARAMETRIC VALUES

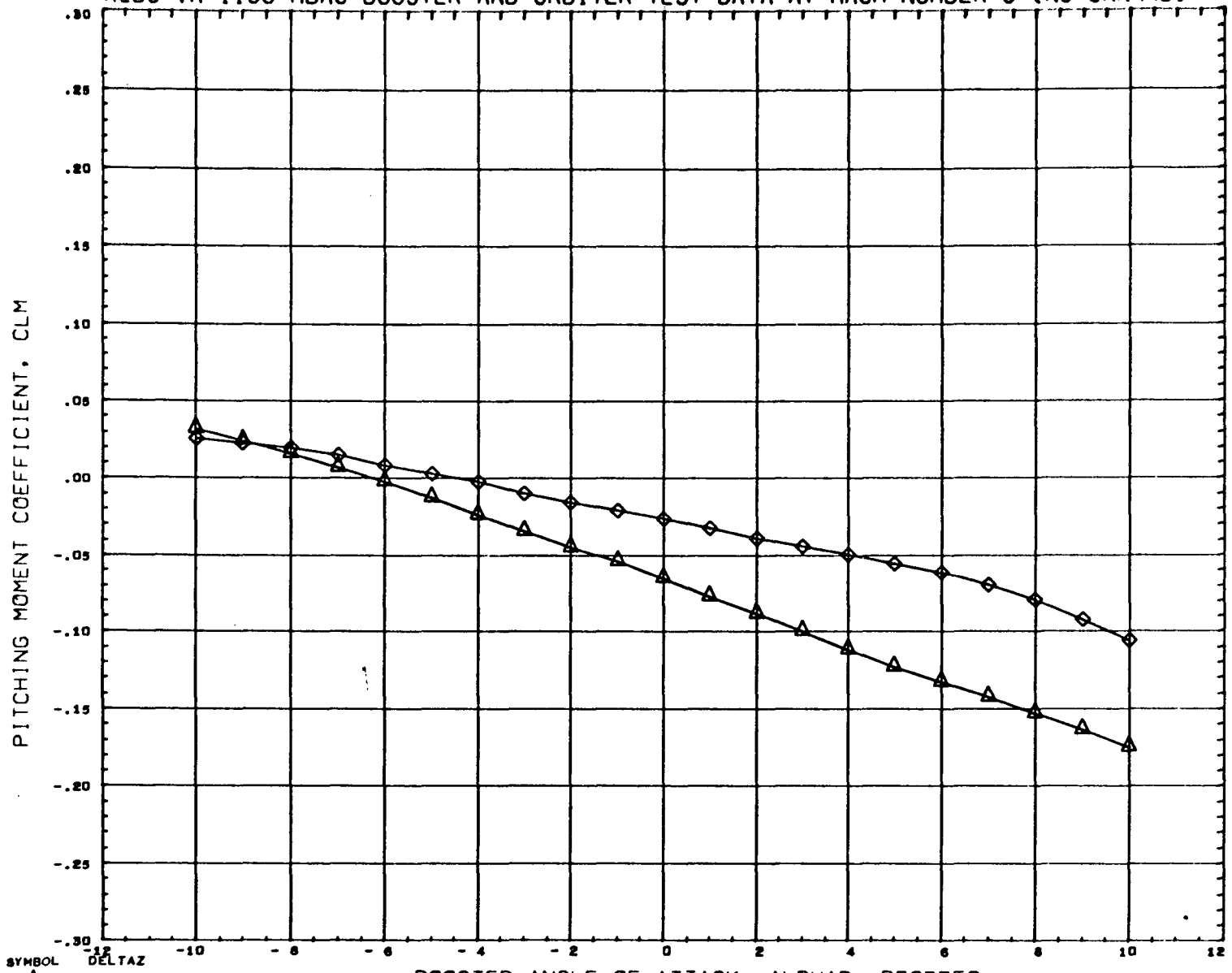
BSTPOW	90.000	ORBPOW	100.000
DELTAX	0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

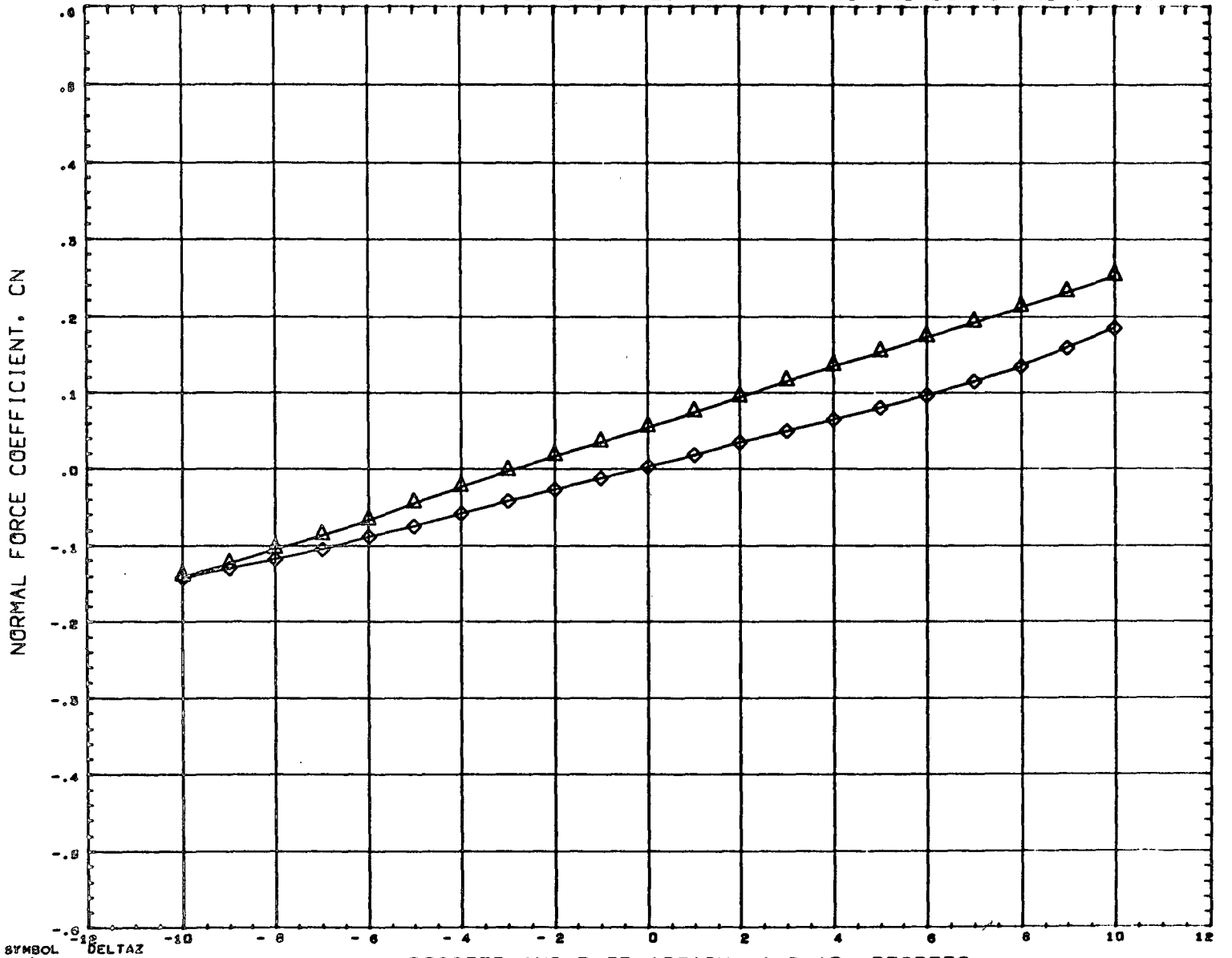
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1950	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

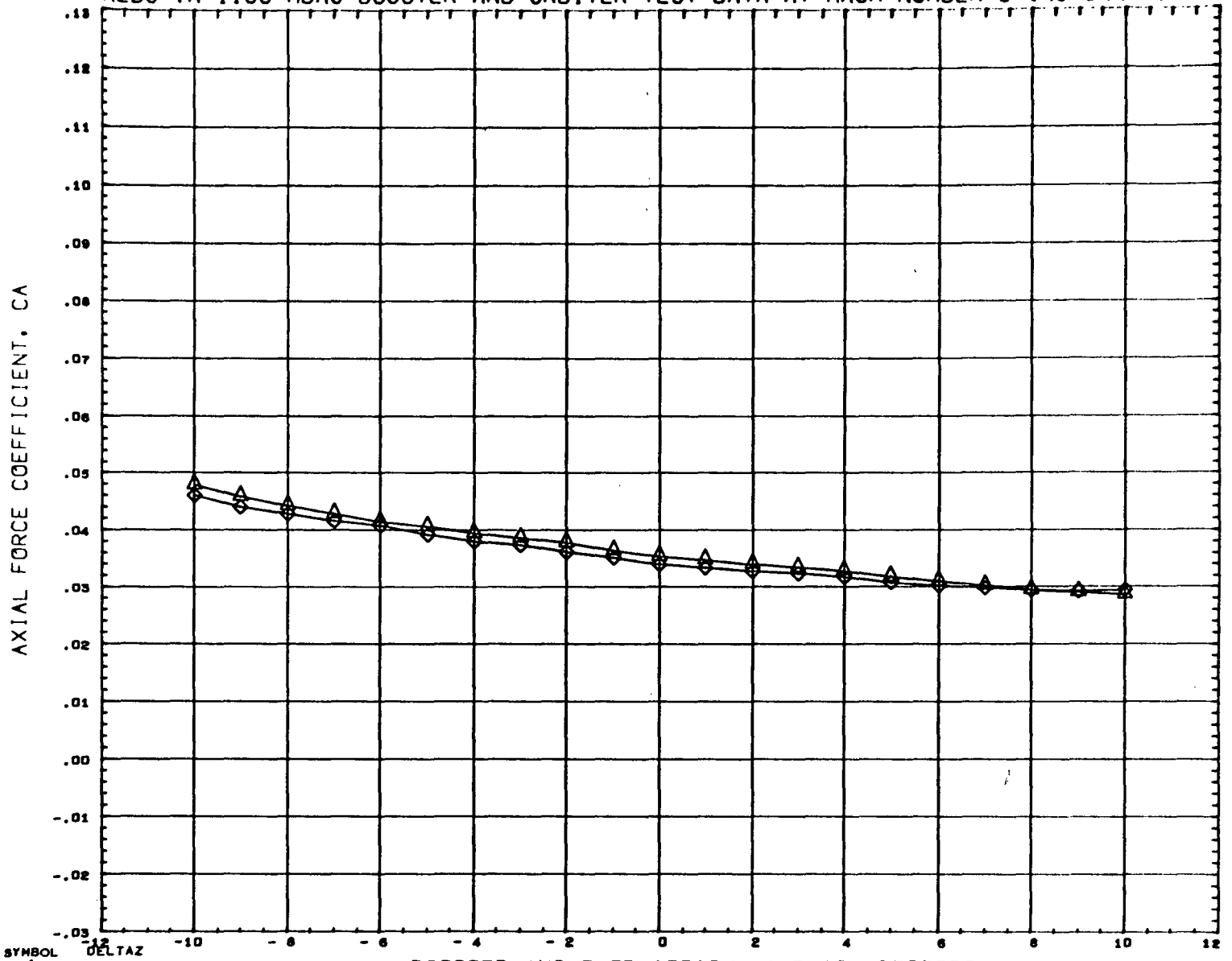
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151

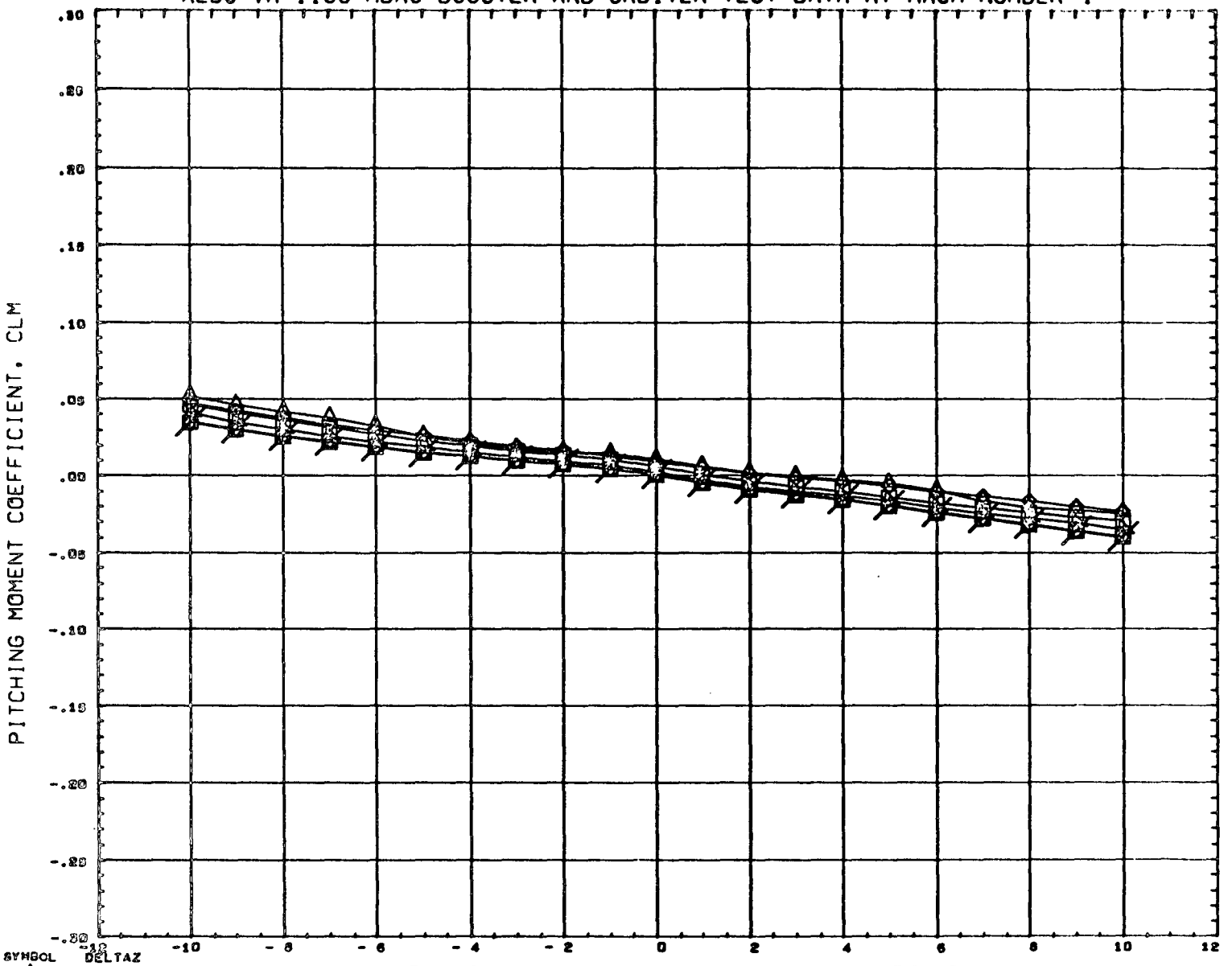
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9140	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.220
⊲	0.352
⊗	0.999
⊘	10.000

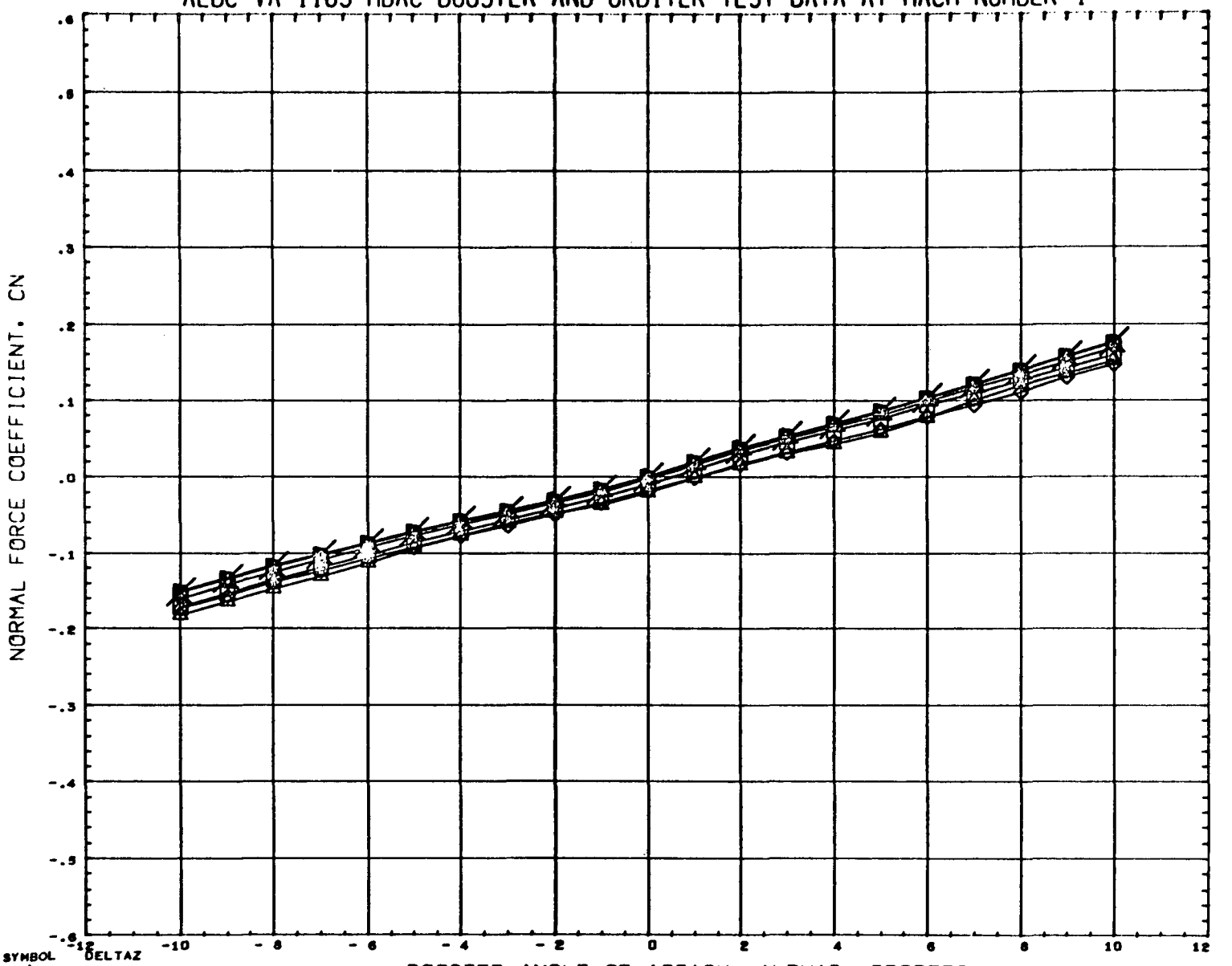
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▽	0.228
⊘	0.352
⊗	0.599
	10.000

PARAMETRIC VALUES

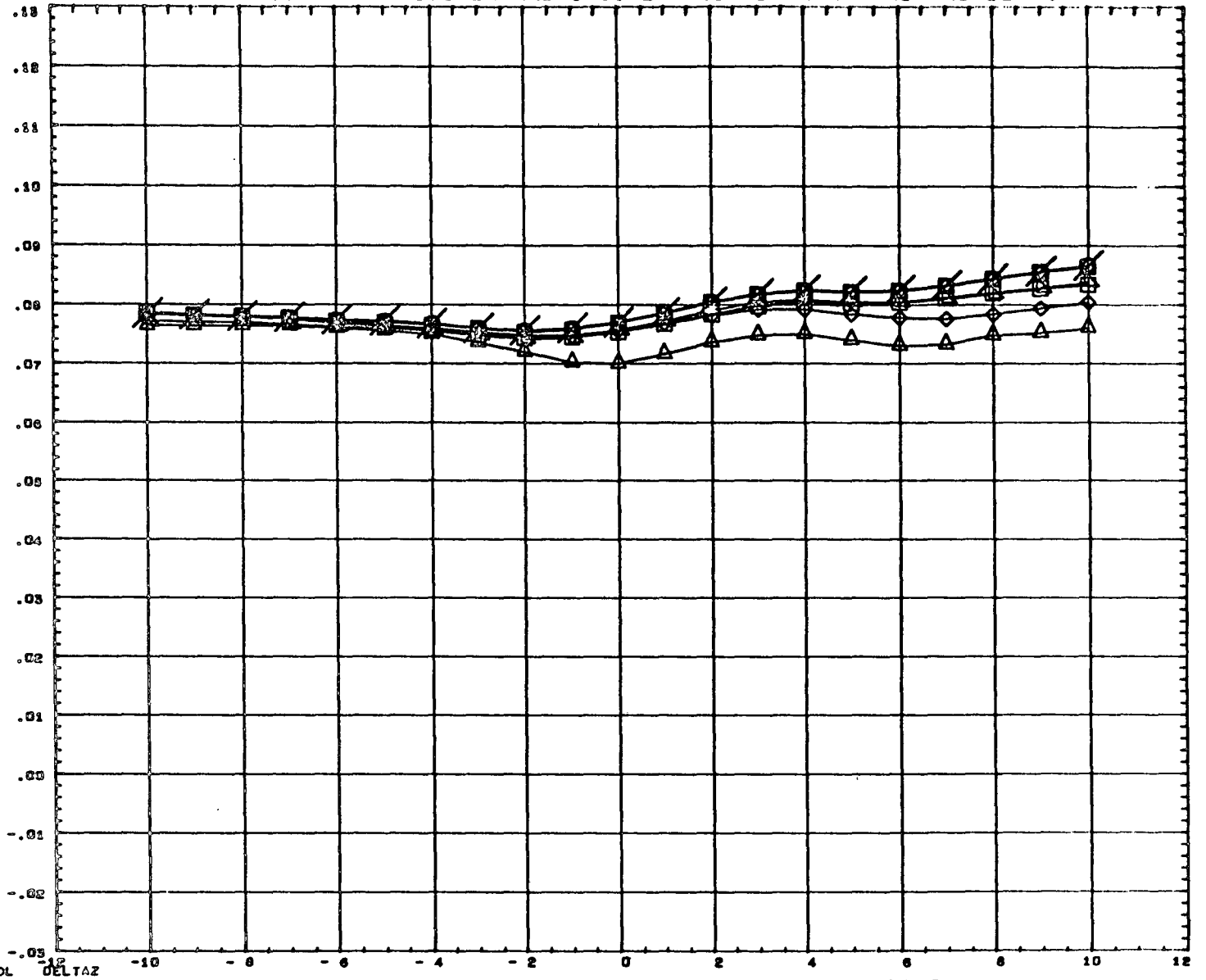
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▽	0.228
⊘	0.352
⊗	0.599
⊠	10.000

PARAMETRIC VALUES

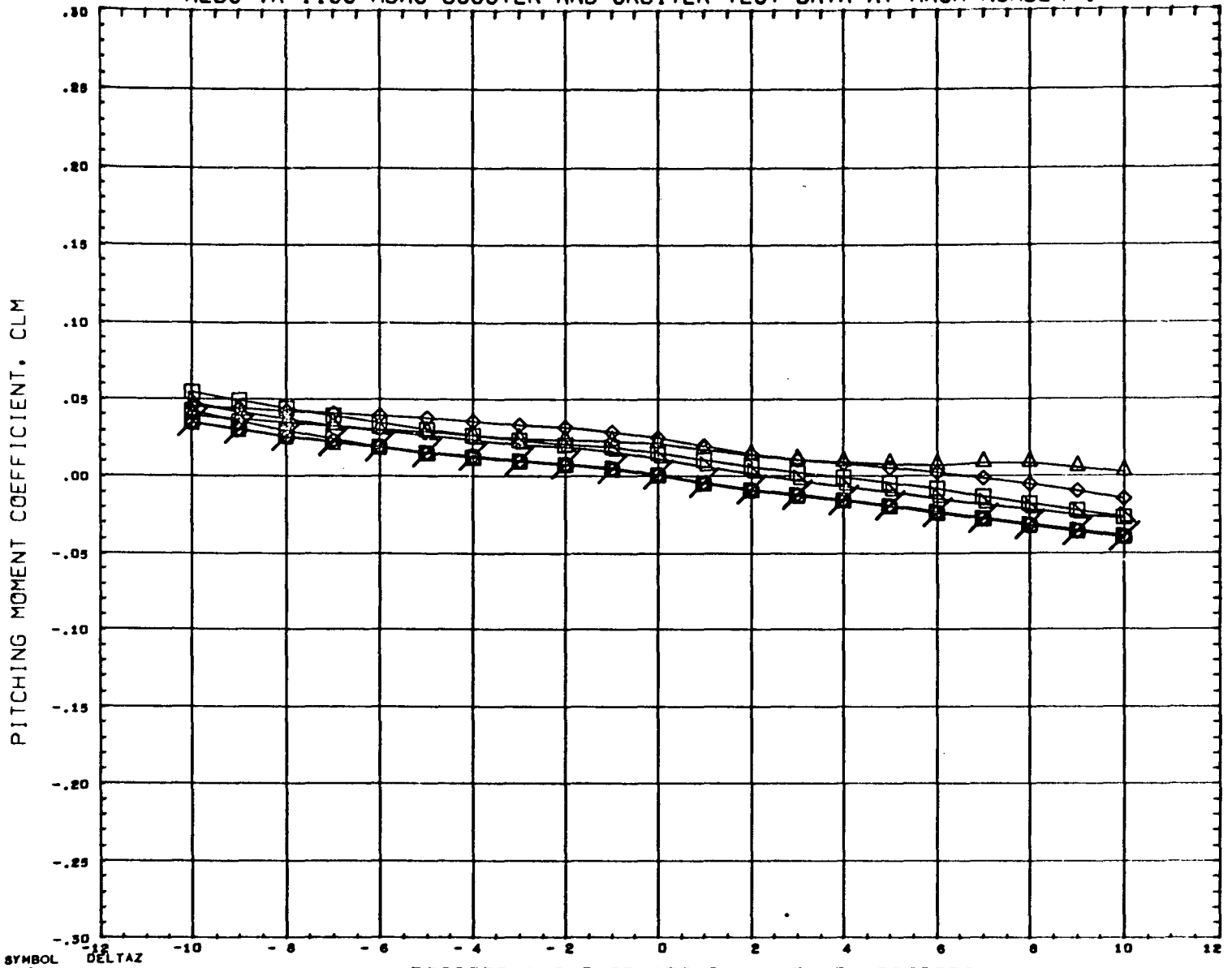
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
	0.151
◇	0.182
□	0.228
▽	0.352
⊗	0.399
⊗	10.000

PARAMETRIC VALUES

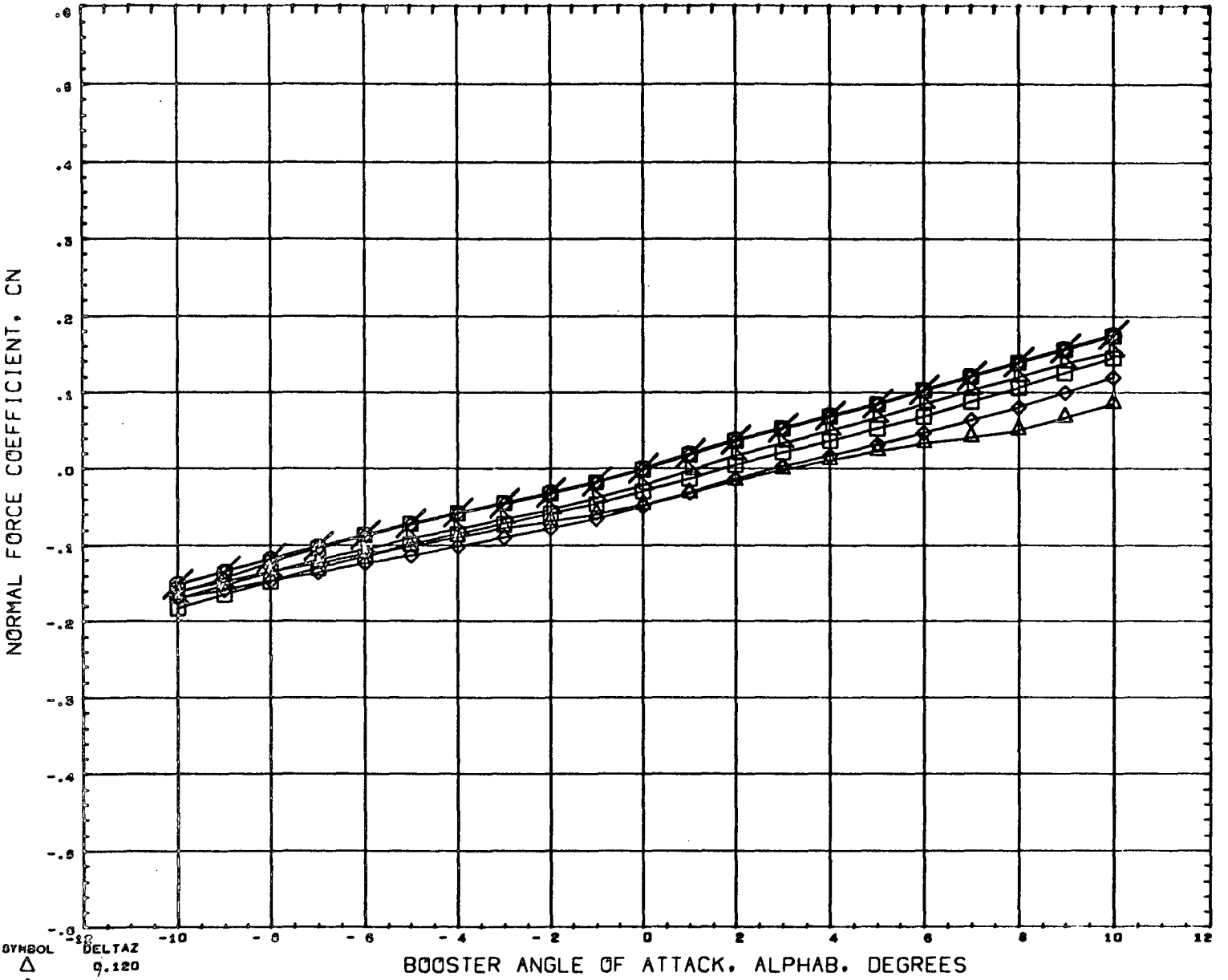
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
⊗	0.599
⊗	10.000

PARAMETRIC VALUES

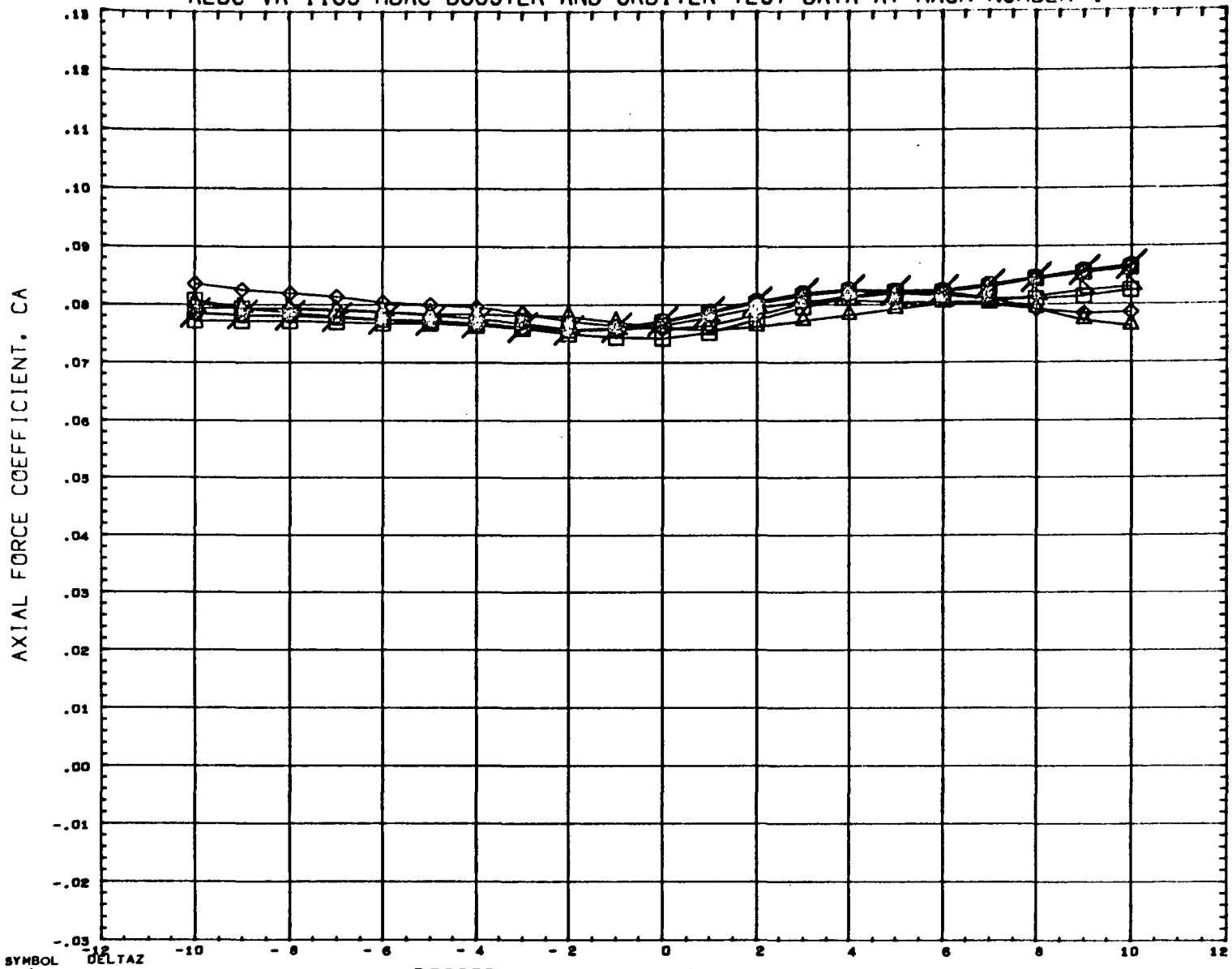
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
◁	0.599
⊗	10.000

PARAMETRIC VALUES

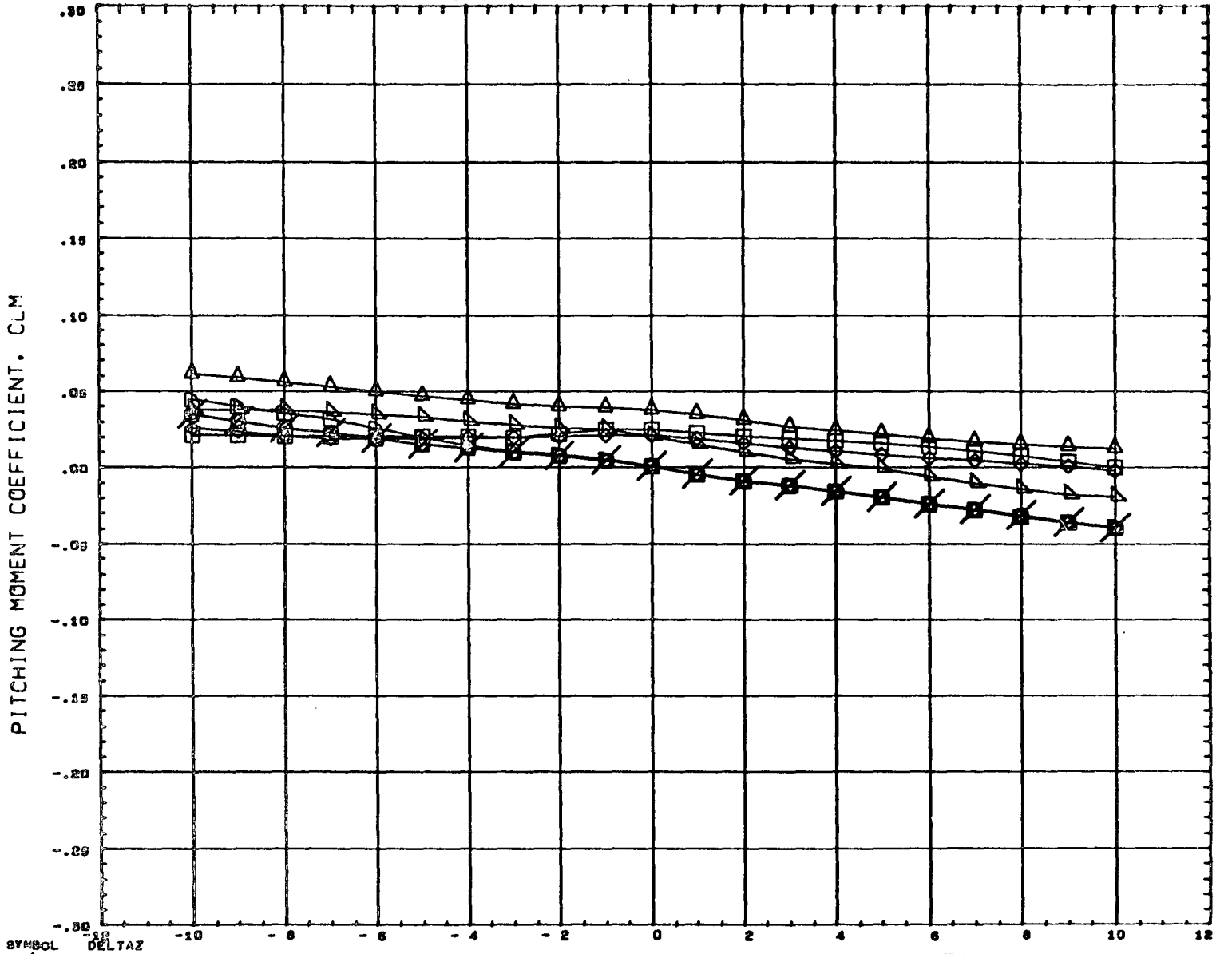
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▱	0.226
⊘	0.352
⊗	0.599
	10.000

PARAMETRIC VALUES

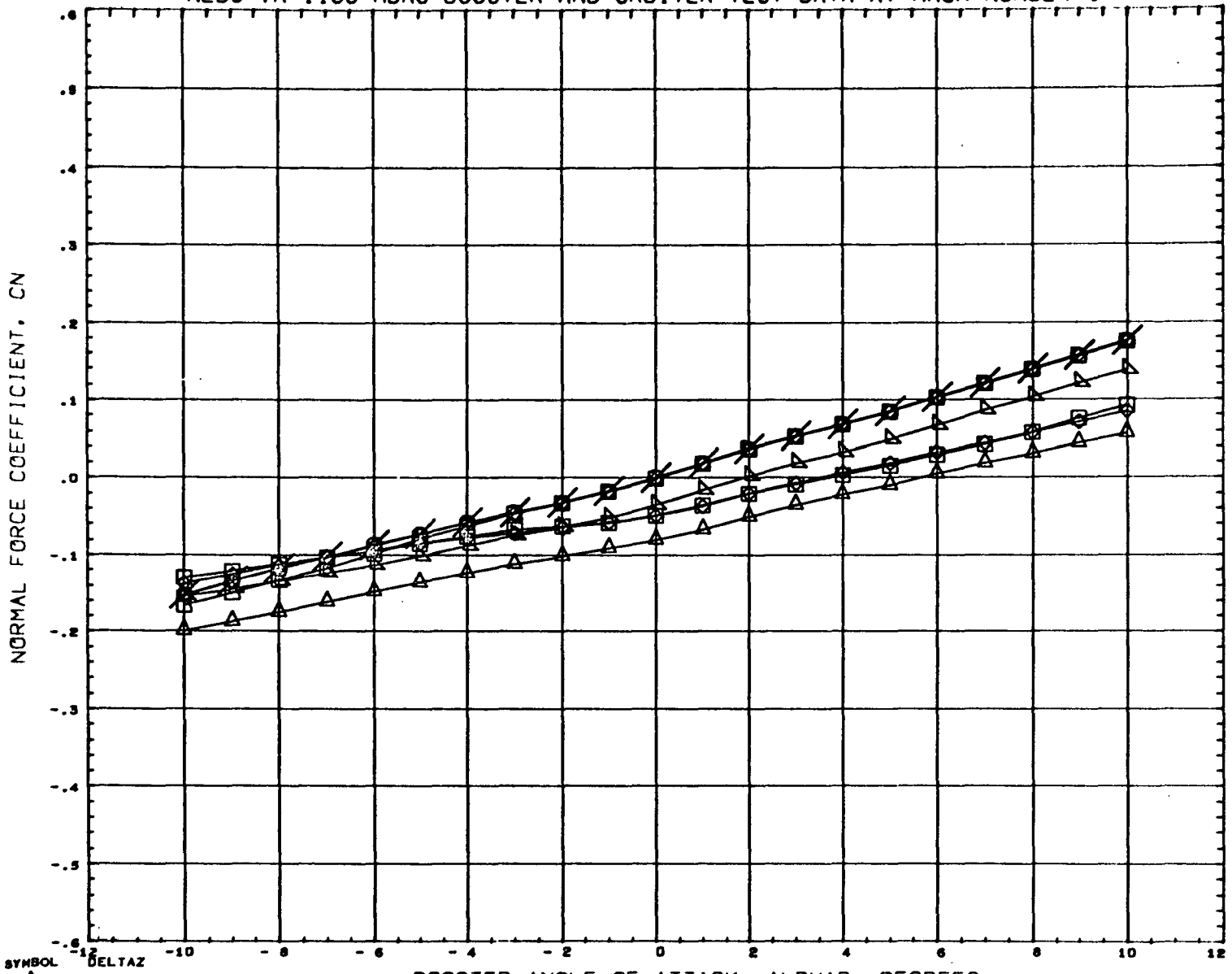
BSTPOW	50.000	ORBPOW	100.000
DELTAH	- 0.019	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
⊘	0.352
⊘	0.599
	10.000

PARAMETRIC VALUES

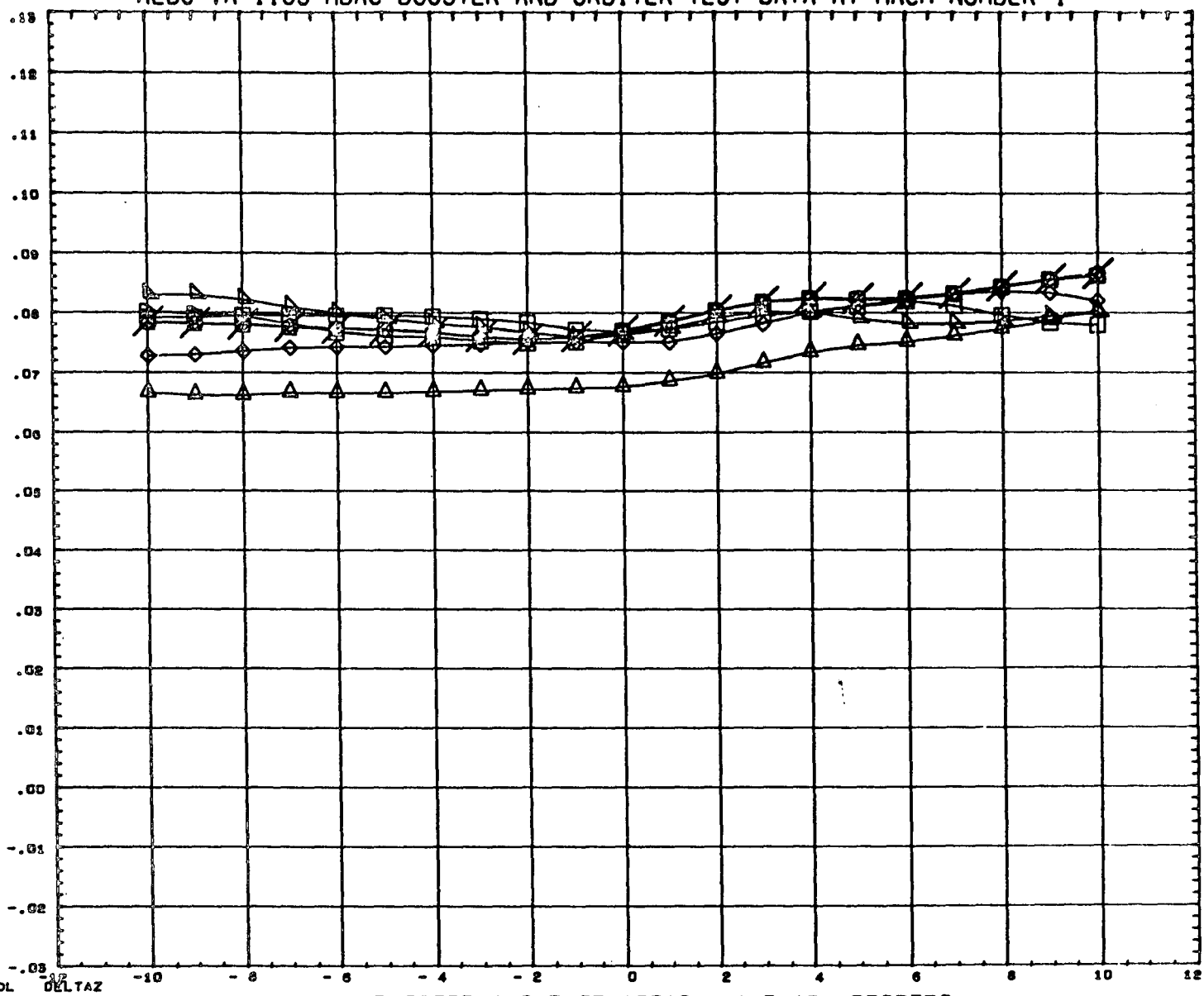
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊗	0.332
⊘	0.599
	10.000

PARAMETRIC VALUES

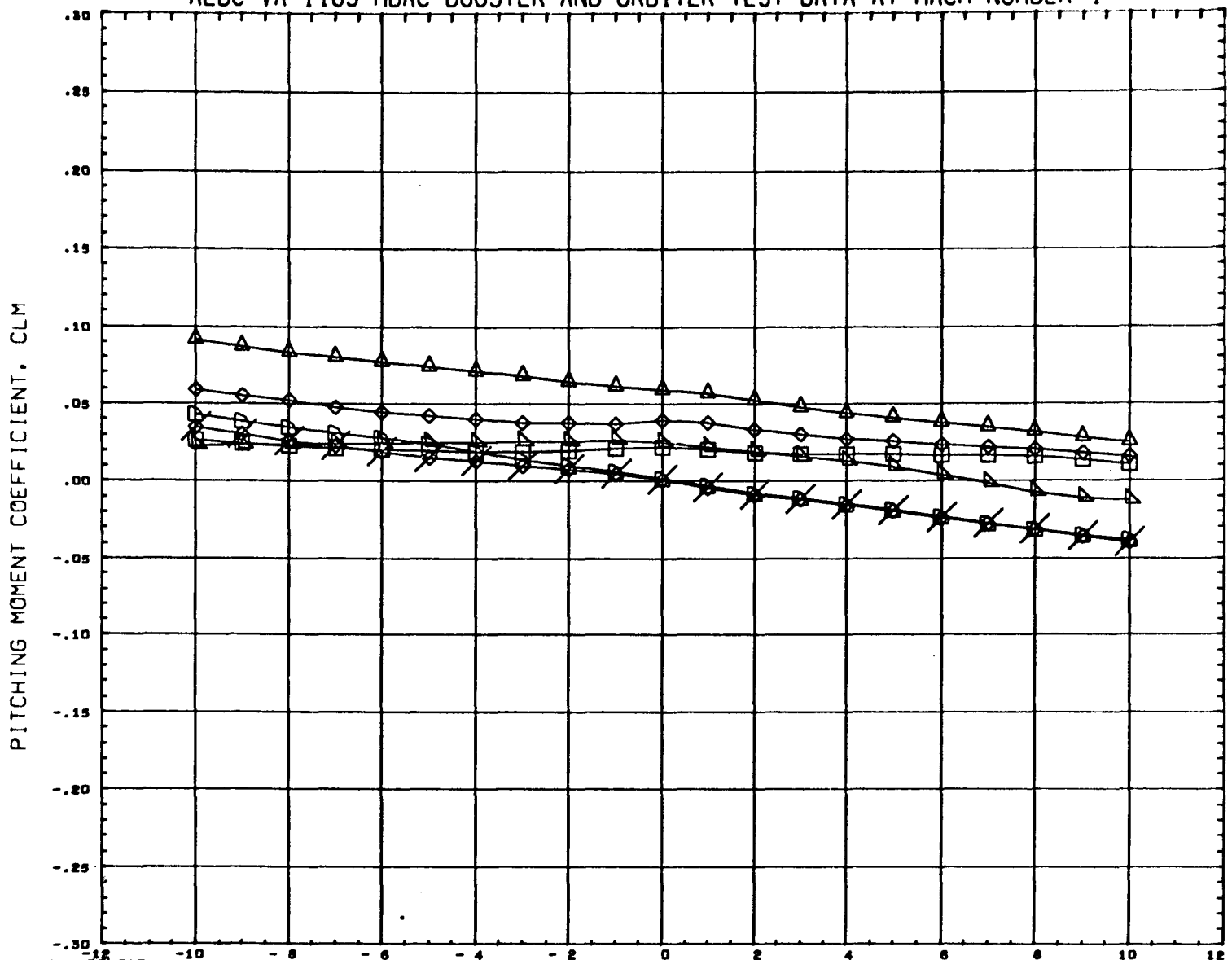
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▱	0.228
⬠	0.352
⊗	10.000

PARAMETRIC VALUES

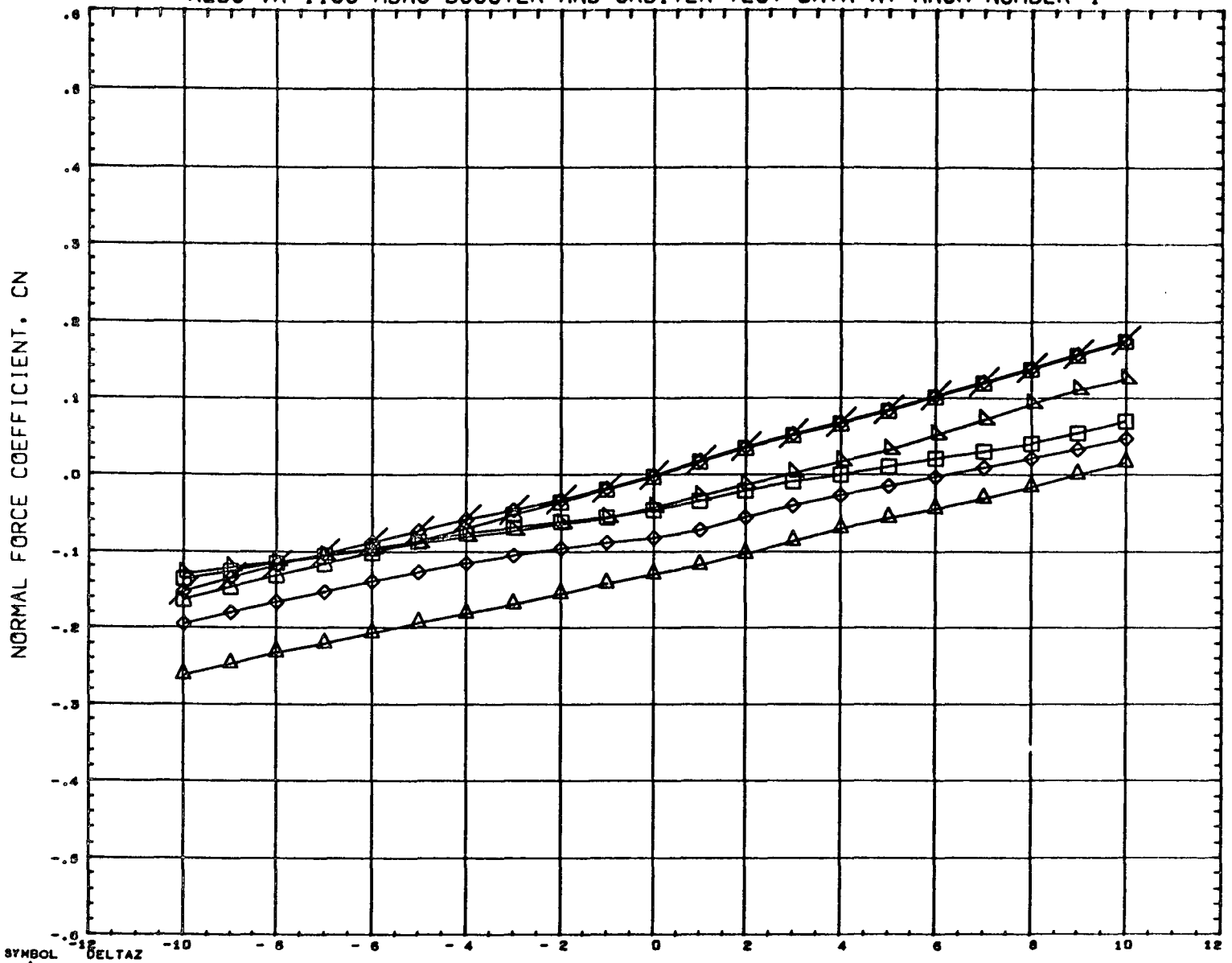
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▱	0.226
▷	0.352
⊘	10.000

PARAMETRIC VALUES

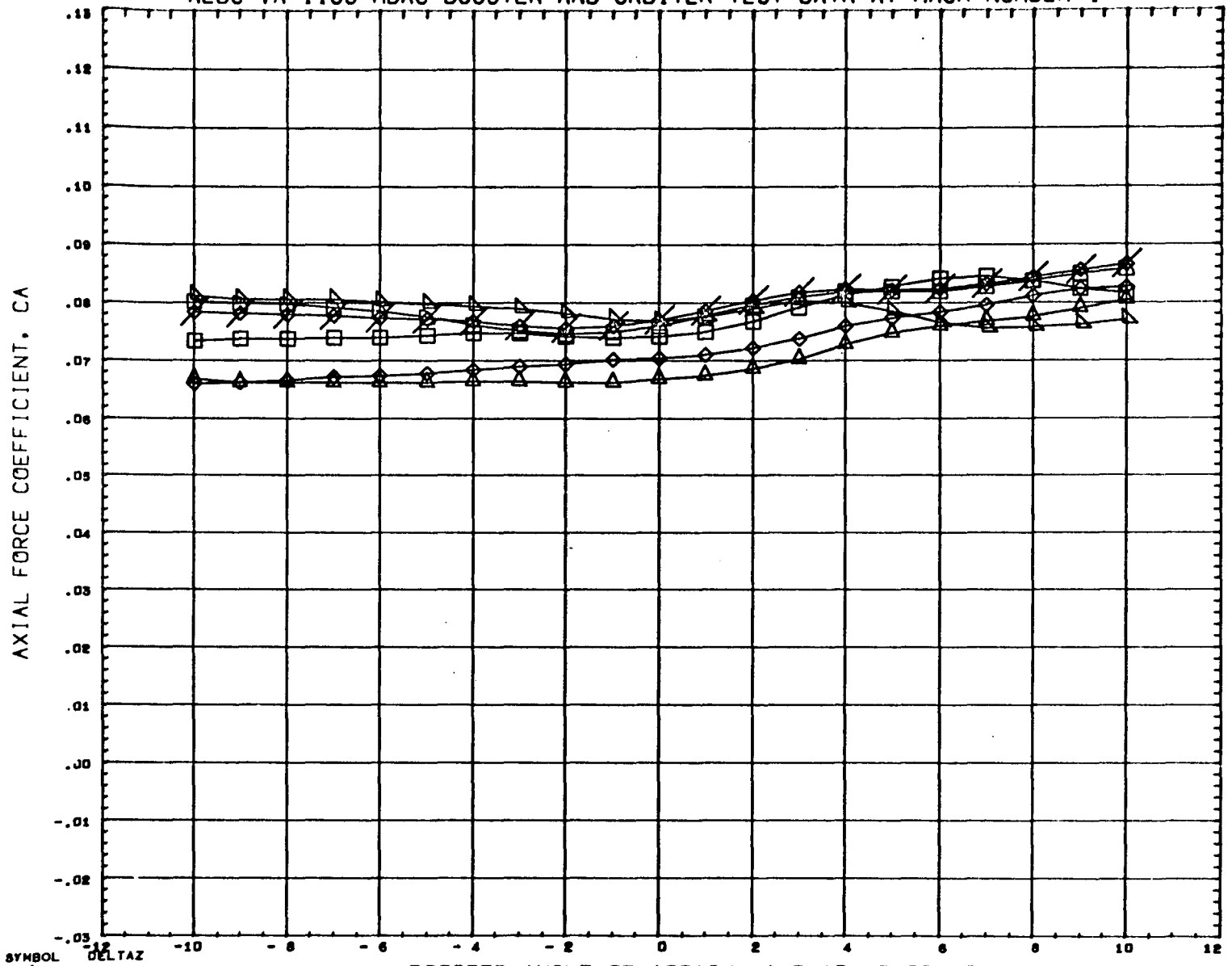
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
○	0.352
⊘	10.000

PARAMETRIC VALUES

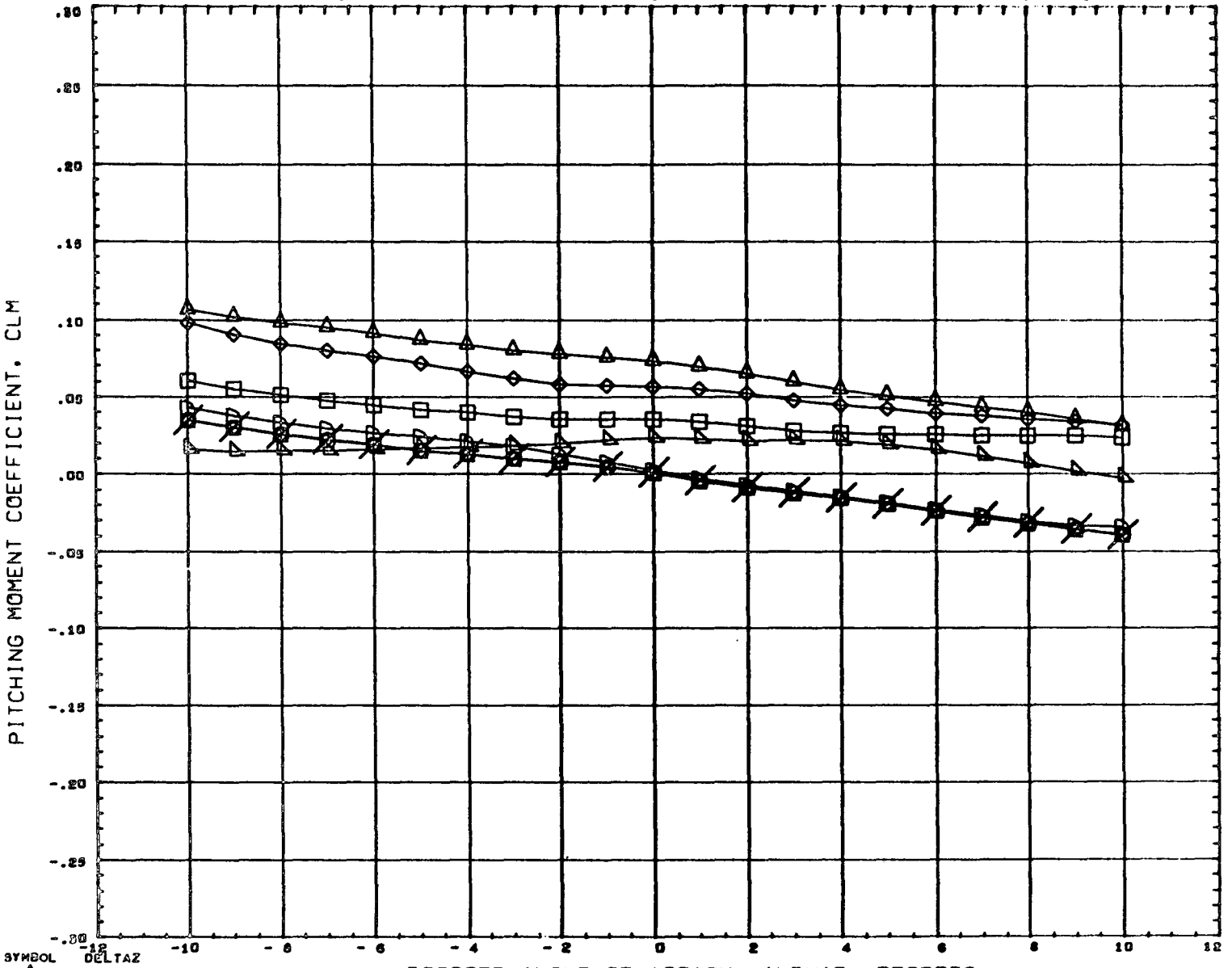
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▽	0.226
⊘	0.352
⊗	0.599
⊗	10.000

PARAMETRIC VALUES

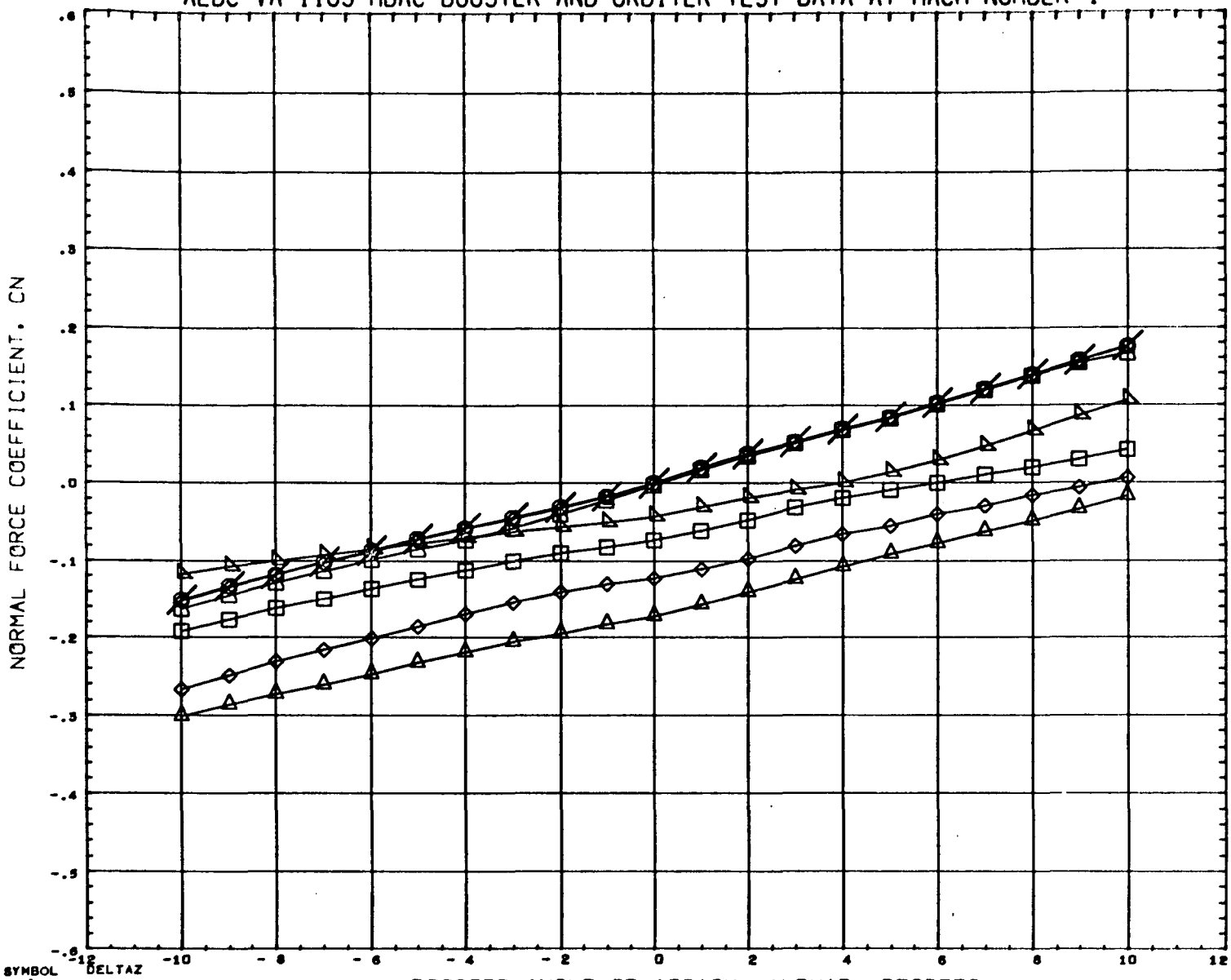
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
⊗	0.599
⊗	10.000

PARAMETRIC VALUES

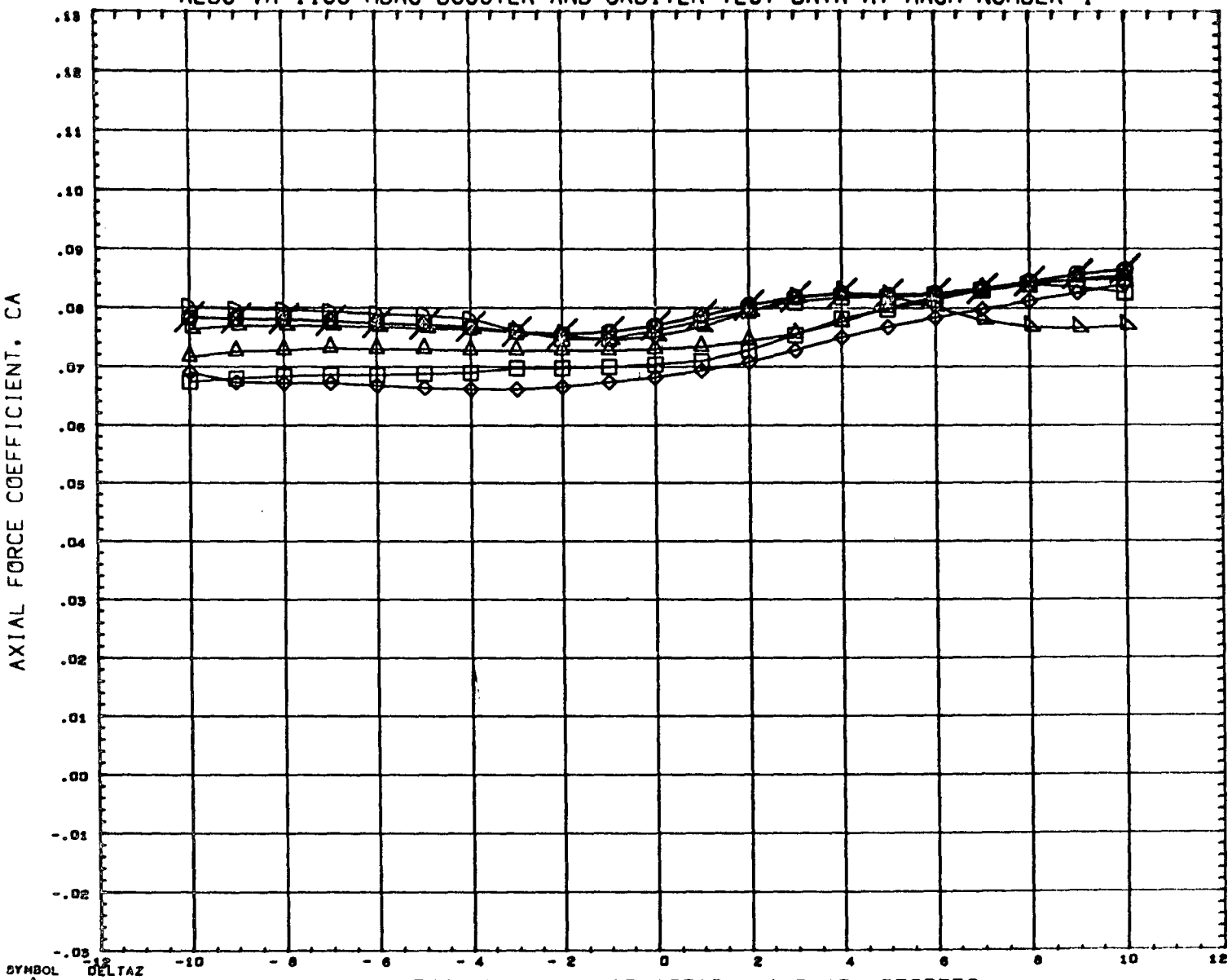
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◸	0.228
⊘	0.352
⊗	0.399
	10.000

PARAMETRIC VALUES

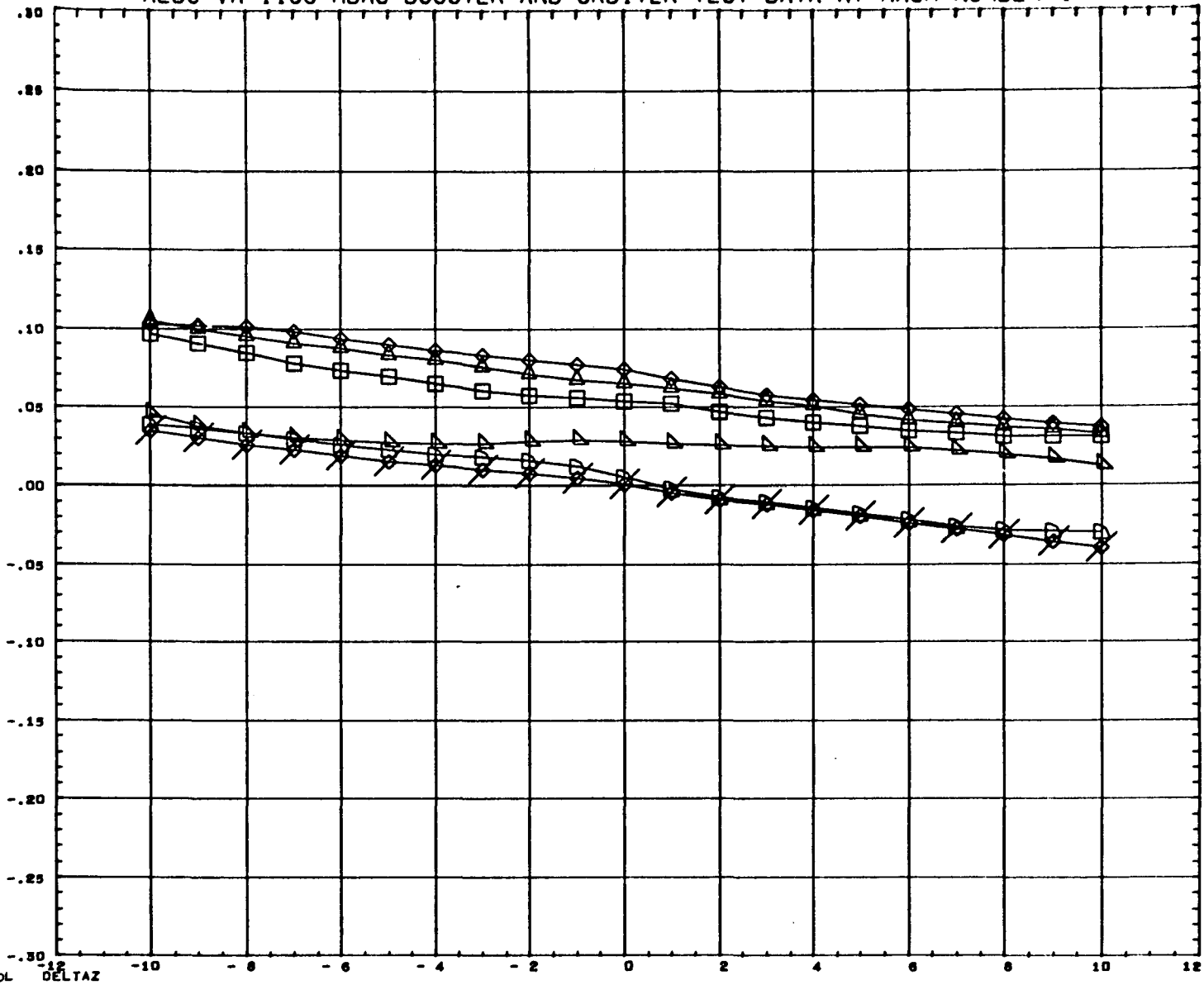
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.226
▷	0.352
⊘	10.000

PARAMETRIC VALUES

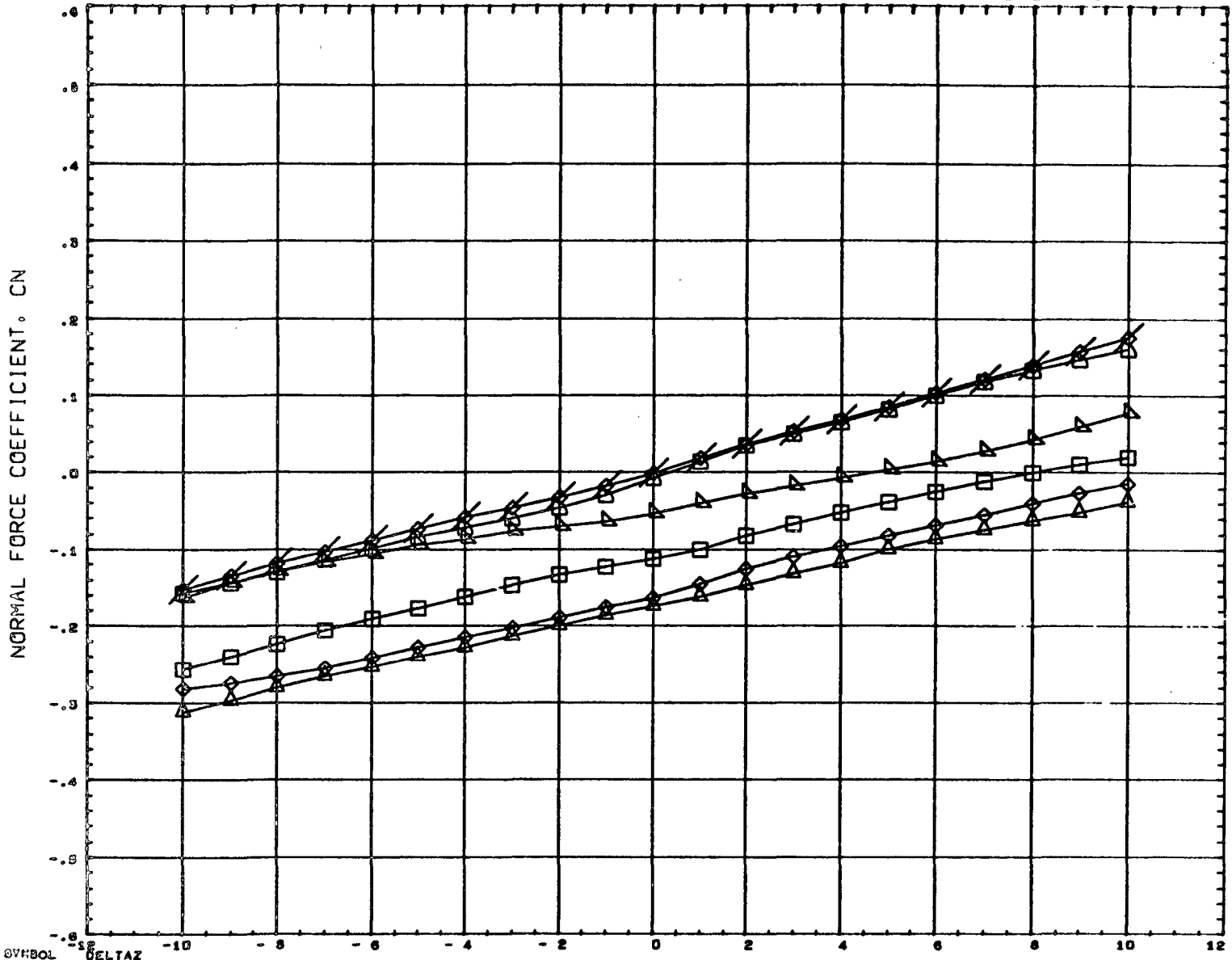
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◇	0.352
⊗	10.000

PARAMETRIC VALUES

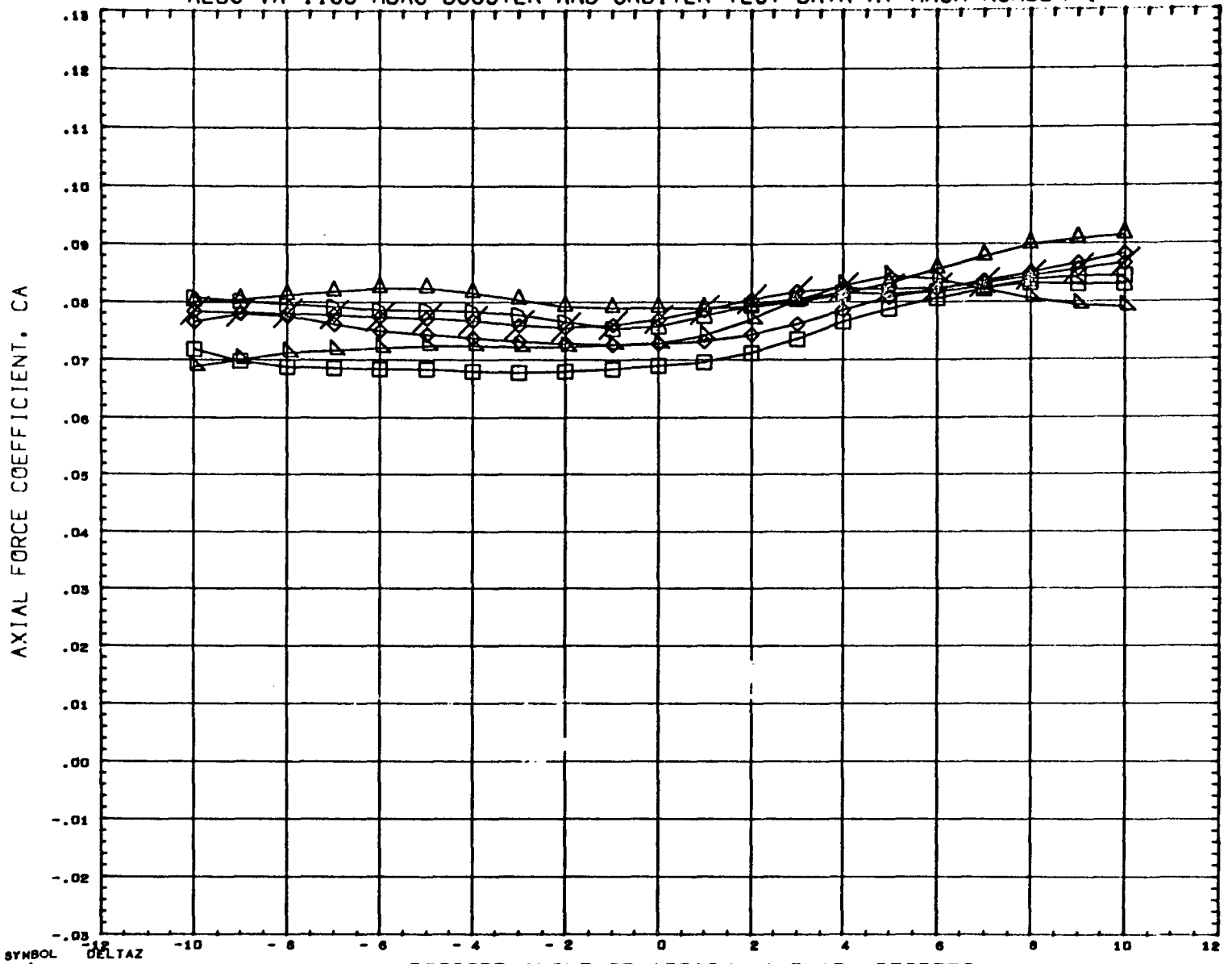
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.186	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▽	0.228
◁	0.352
⊘	10.000

PARAMETRIC VALUES

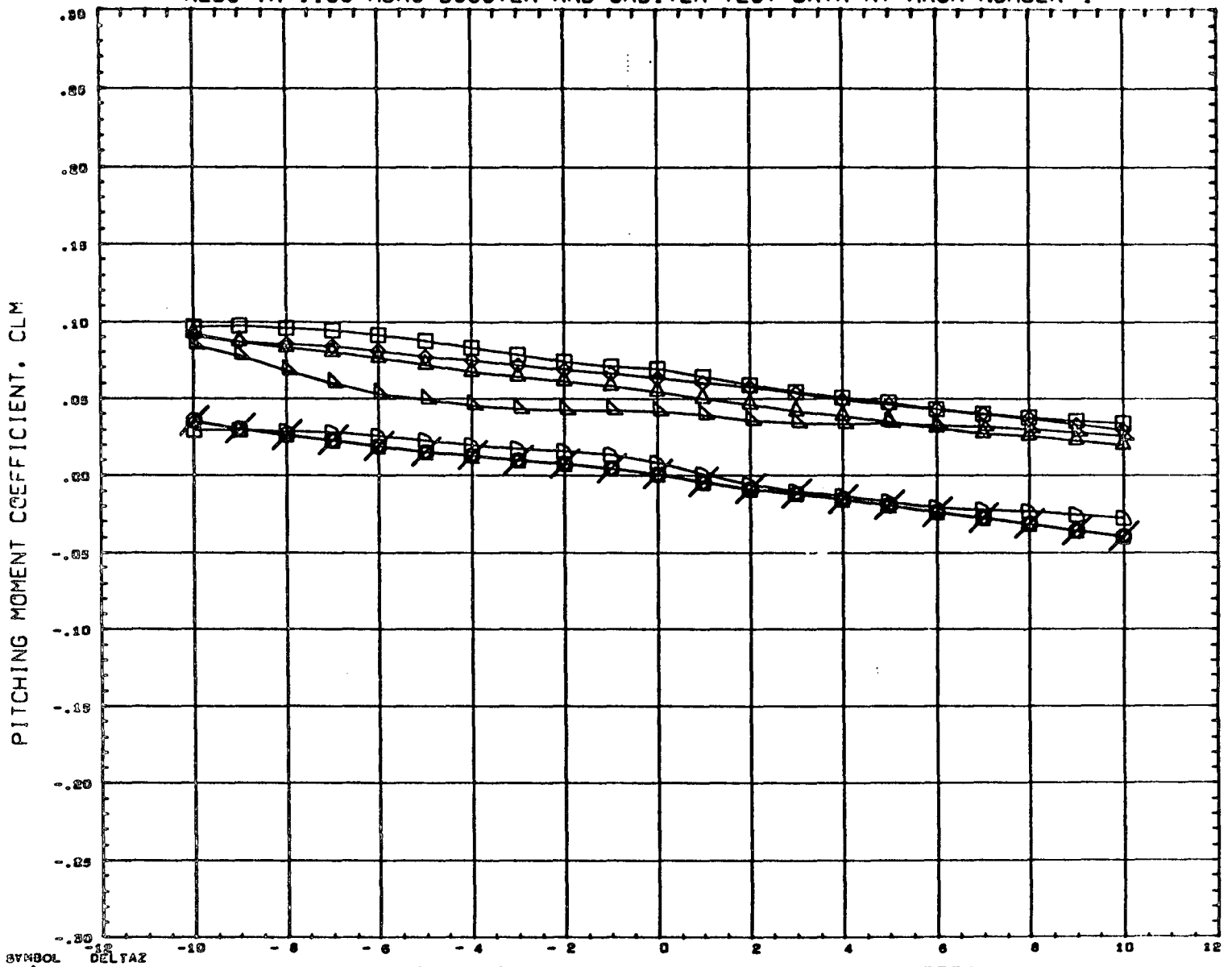
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
▷	0.599
⊘	10.000

PARAMETRIC VALUES

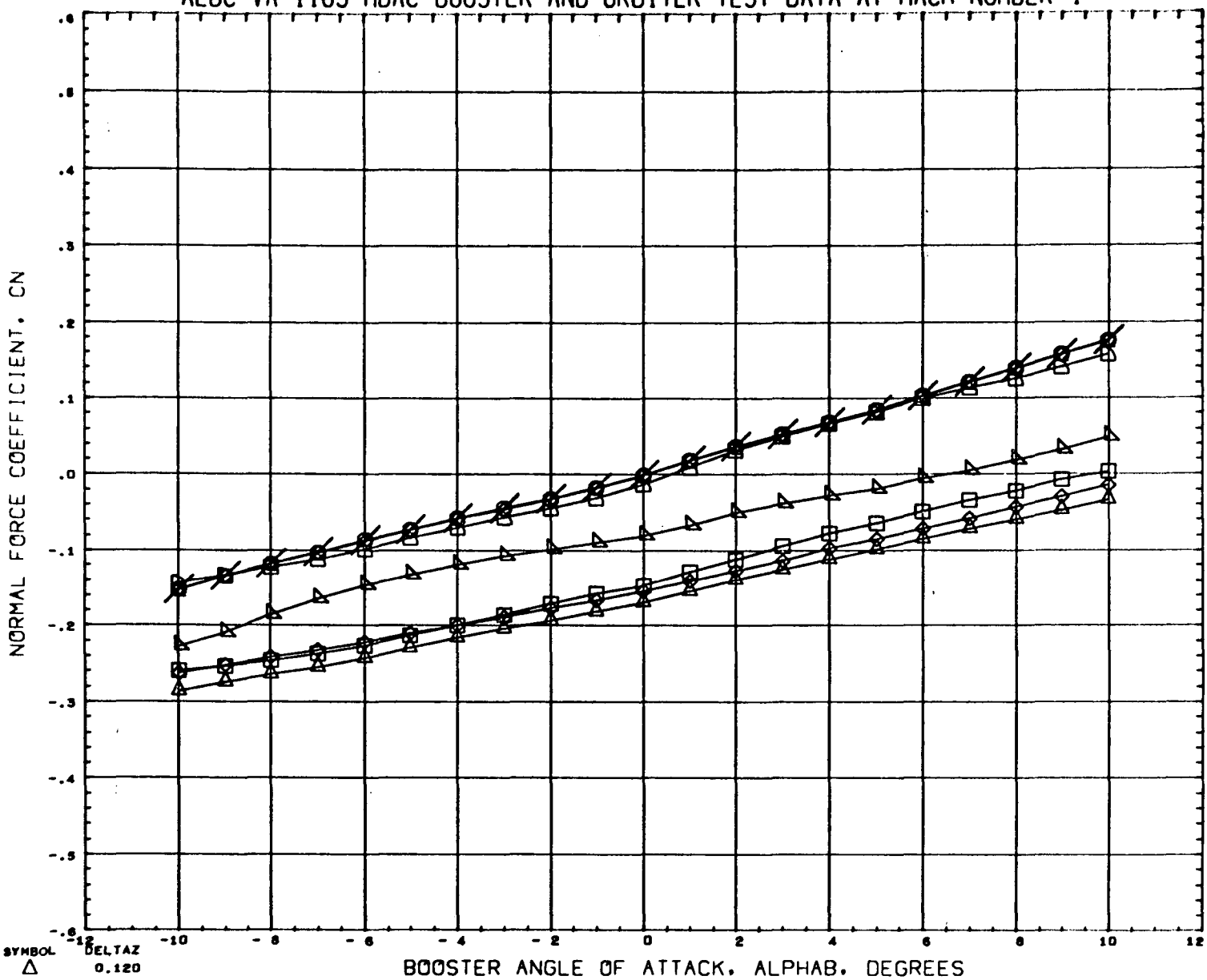
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◸	0.226
◇	0.352
⊘	0.599
⊗	10.000

PARAMETRIC VALUES

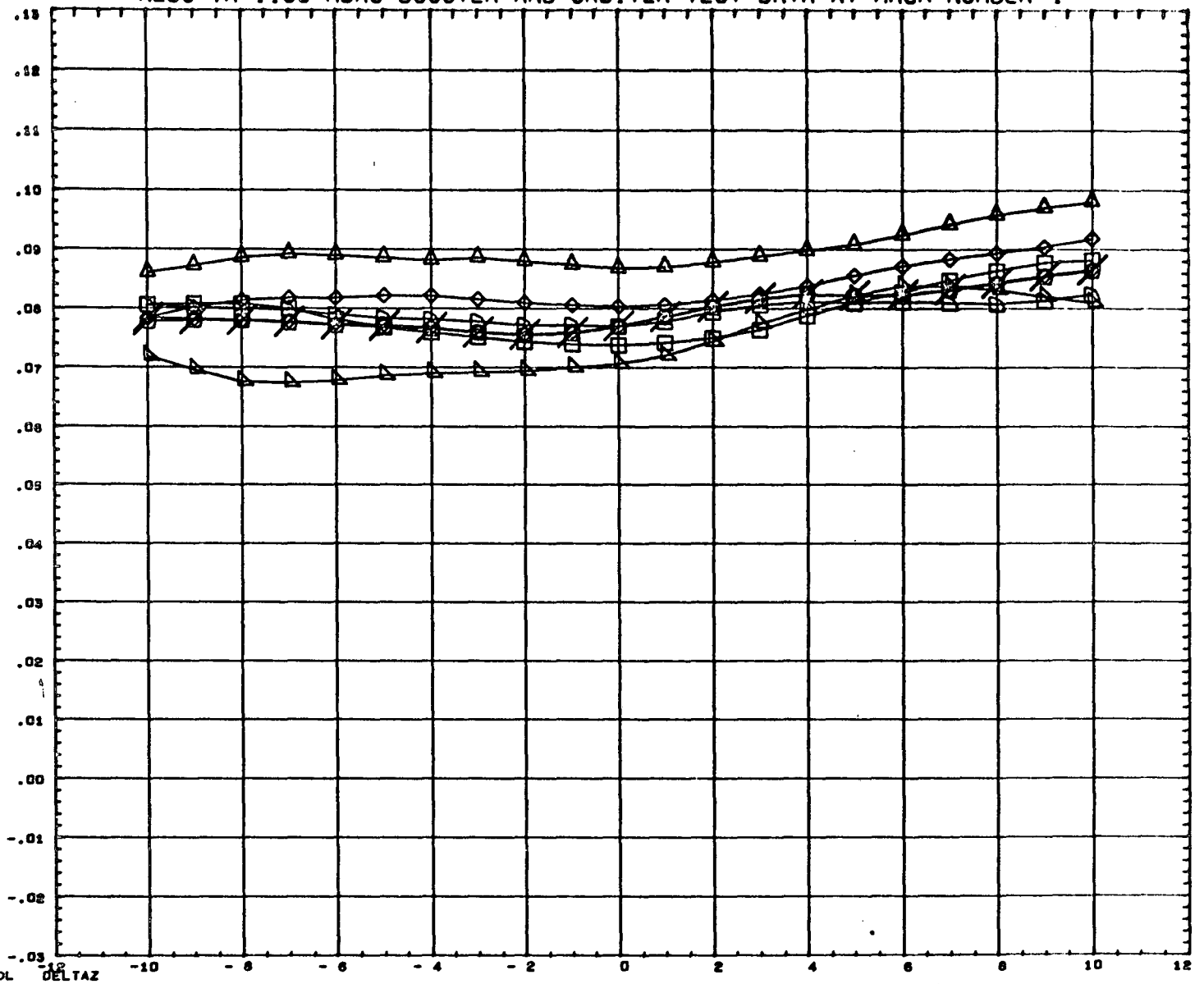
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊘	0.599
⊗	10.000

PARAMETRIC VALUES

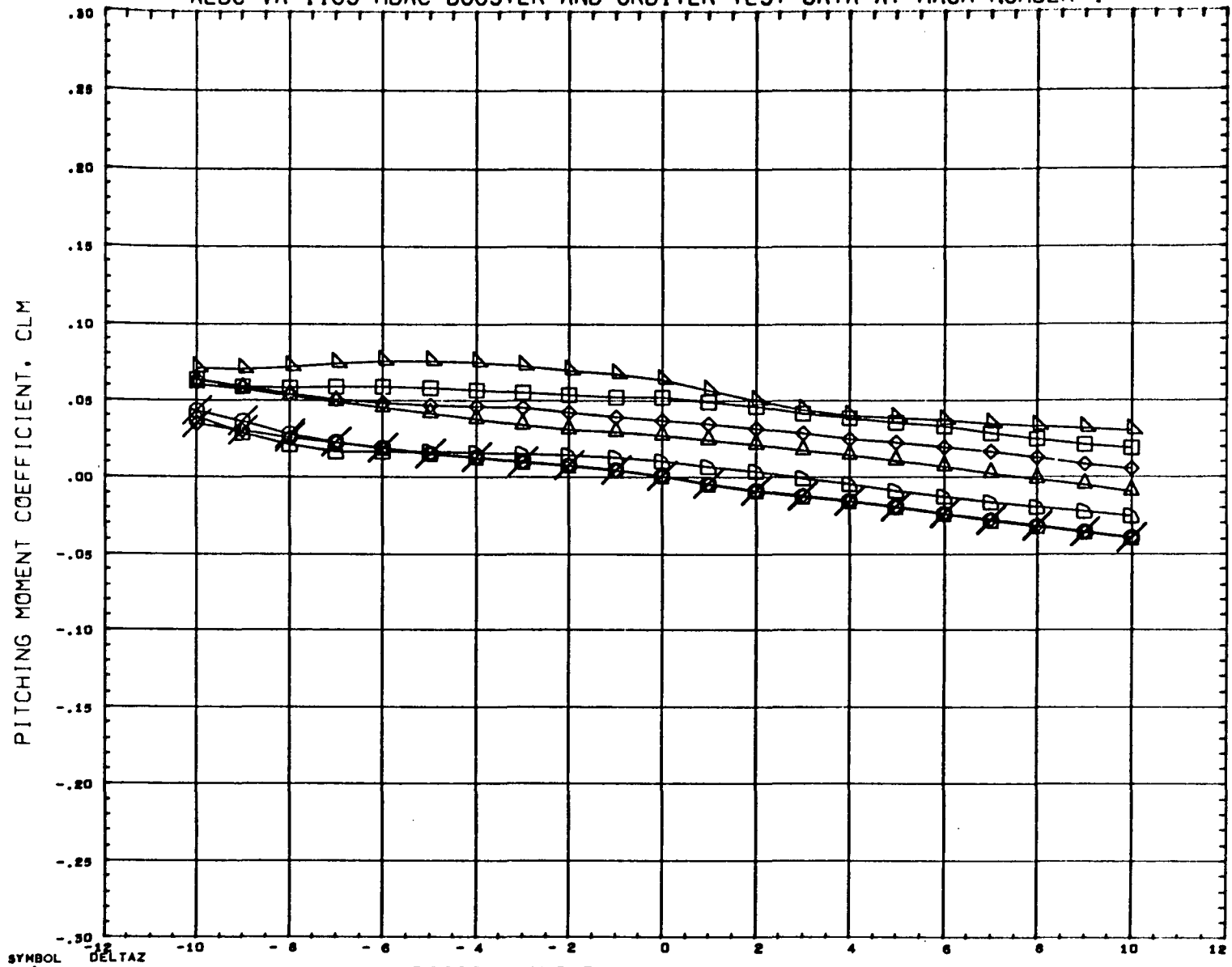
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
⊗	0.599
⊠	10.000

PARAMETRIC VALUES

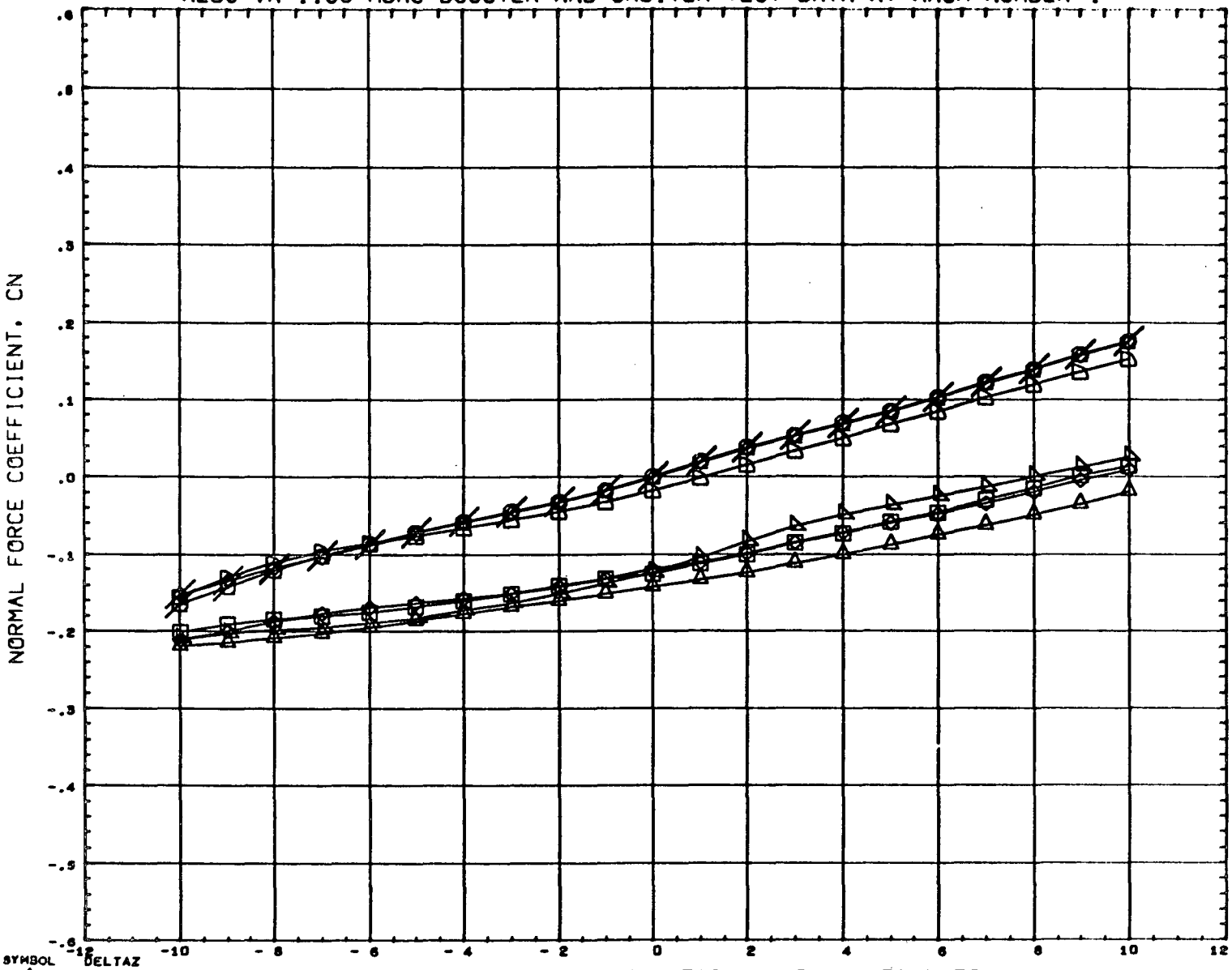
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▱	0.228
▷	0.352
⊘	0.599
⊗	10.000

PARAMETRIC VALUES

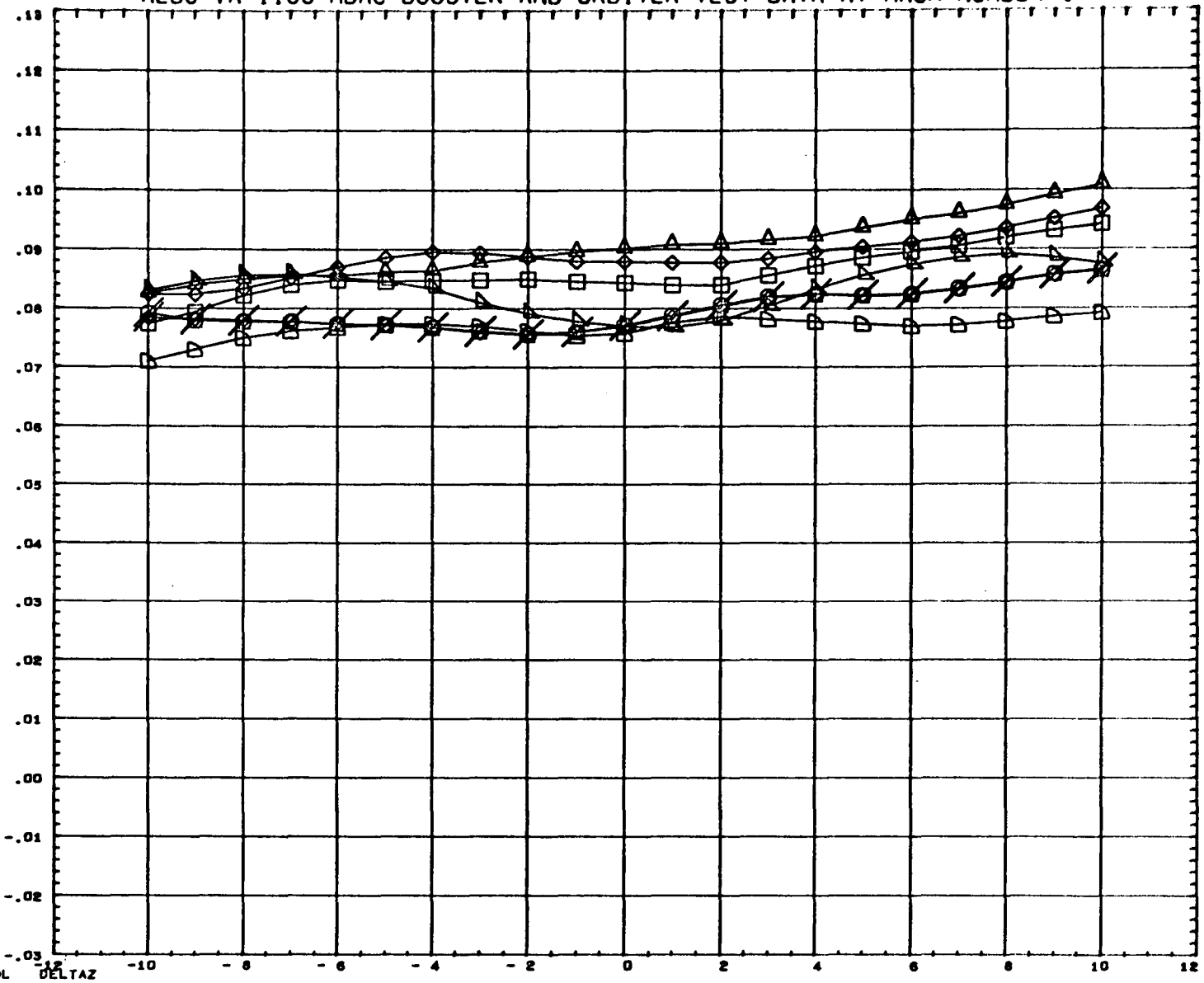
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.226
⬠	0.352
⊗	0.599
⊘	10.000

PARAMETRIC VALUES

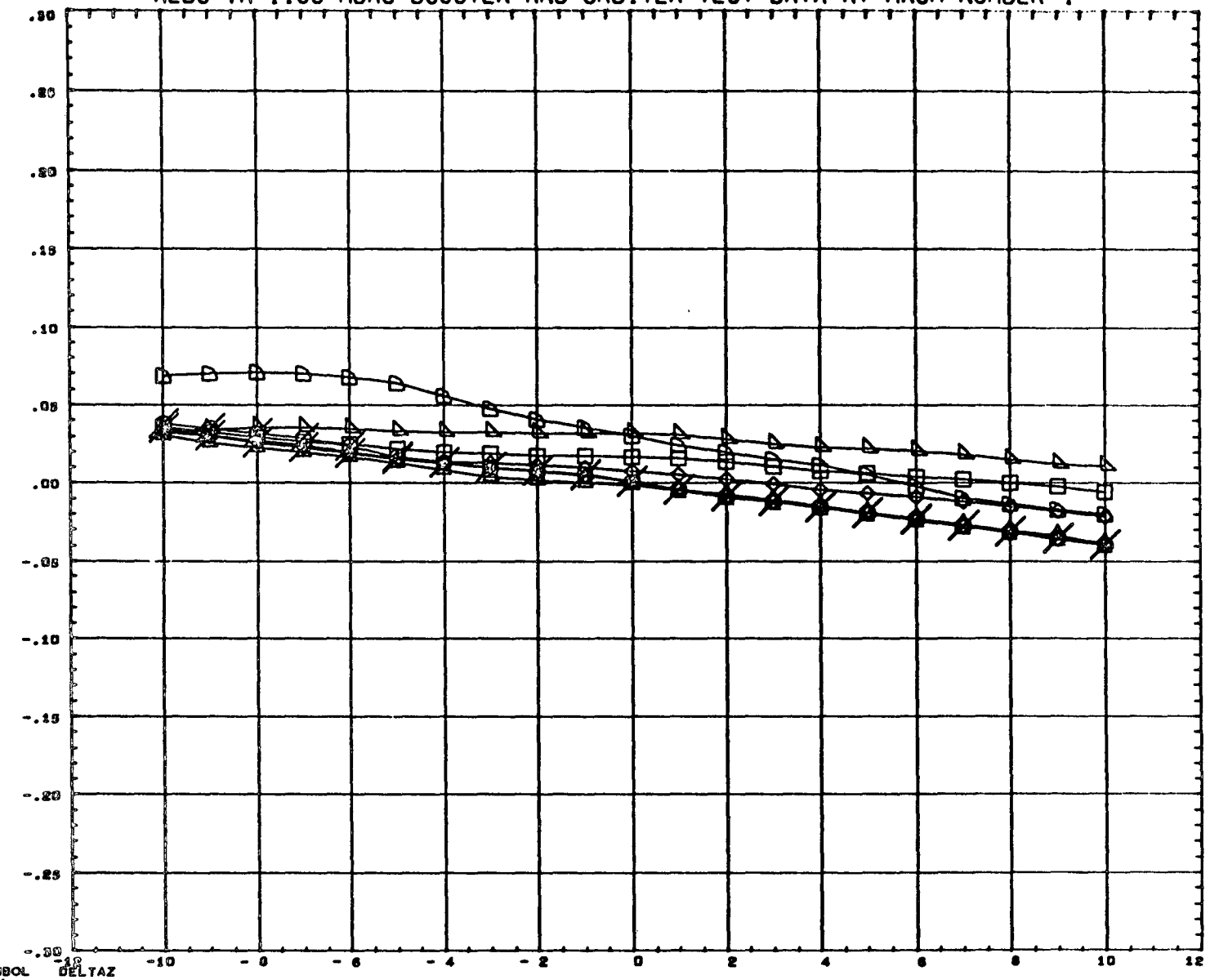
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5260	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.220
⊘	0.352
⊗	0.399
⊗	80.000

PARAMETRIC VALUES

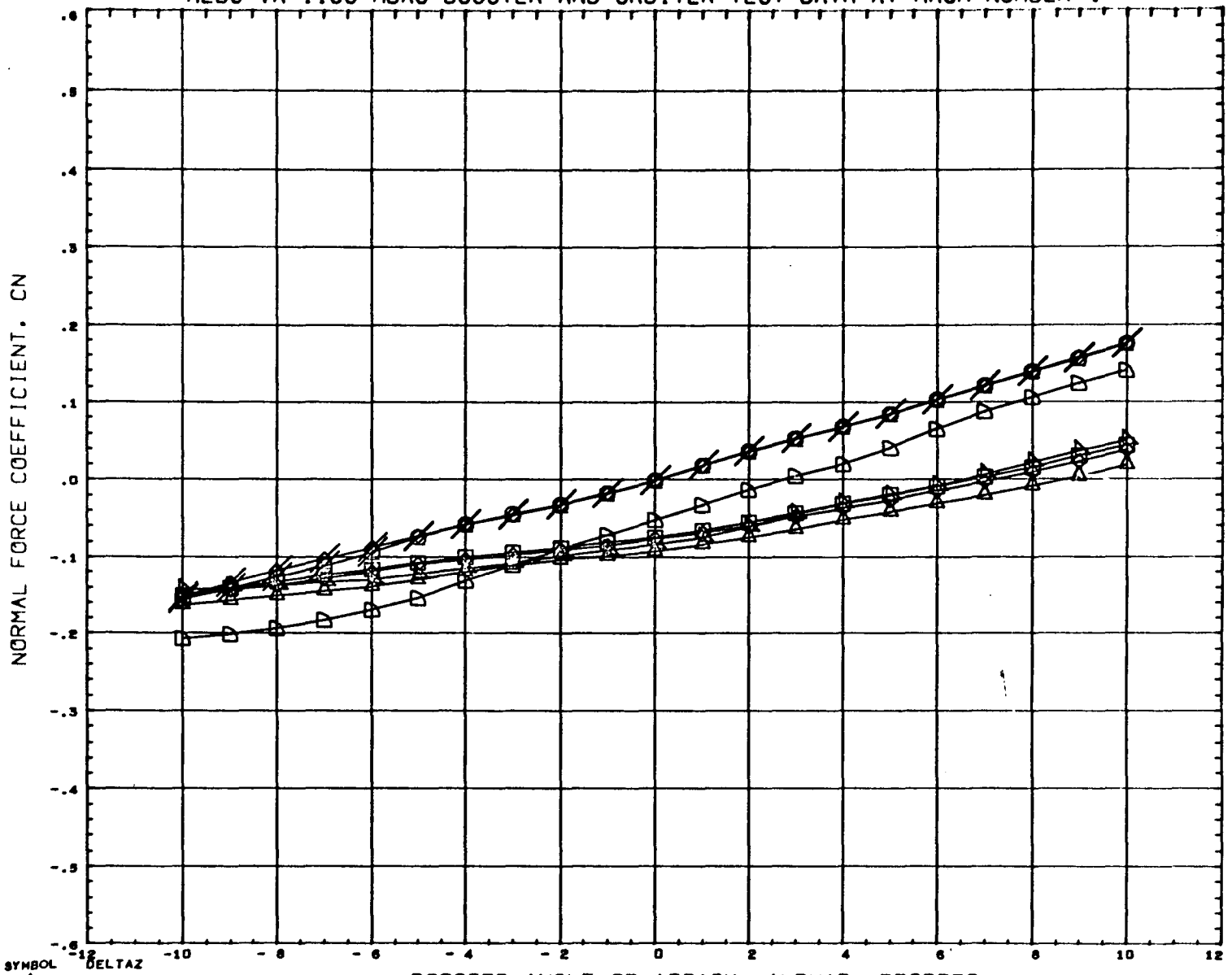
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
⊘	0.352
⊗	0.399
⊗	10.000

PARAMETRIC VALUES

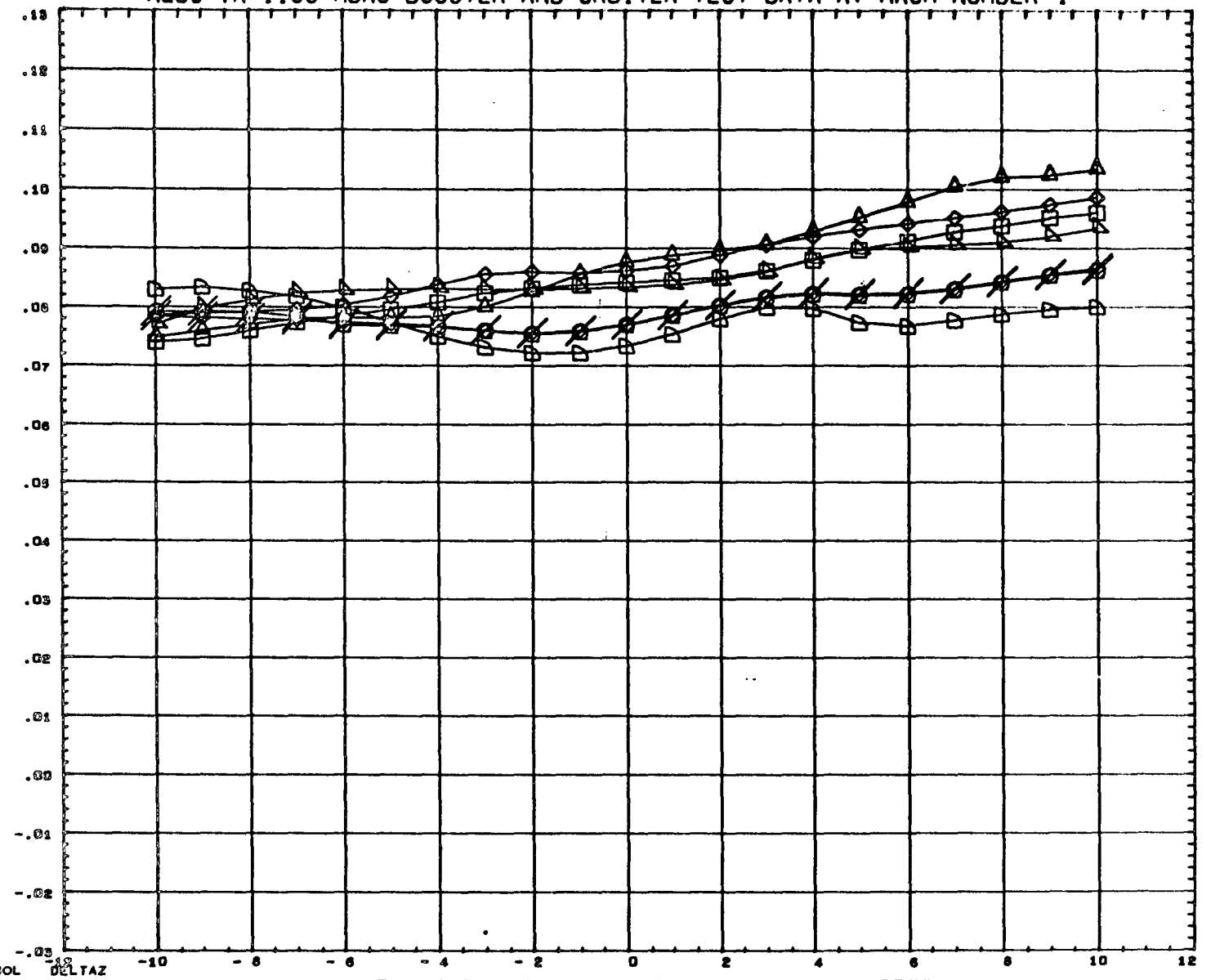
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5260	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 4



SYMBOL	DELTAZ
△	0.120
	0.151
◇	0.162
□	0.228
	0.352
	0.599
⊗	10.000

PARAMETRIC VALUES

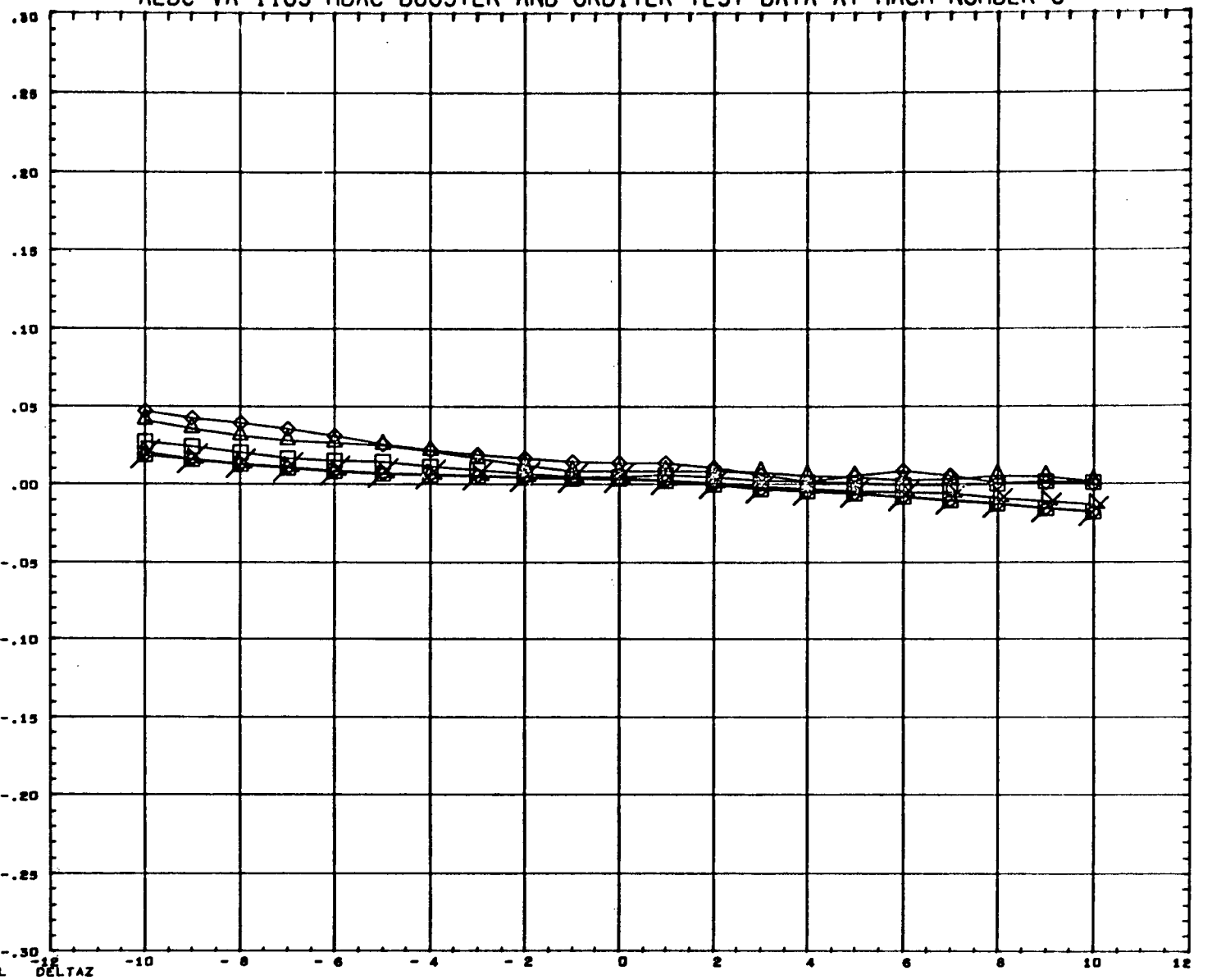
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	4.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◸	0.226
⊘	0.352
⊗	10.000

PARAMETRIC VALUES

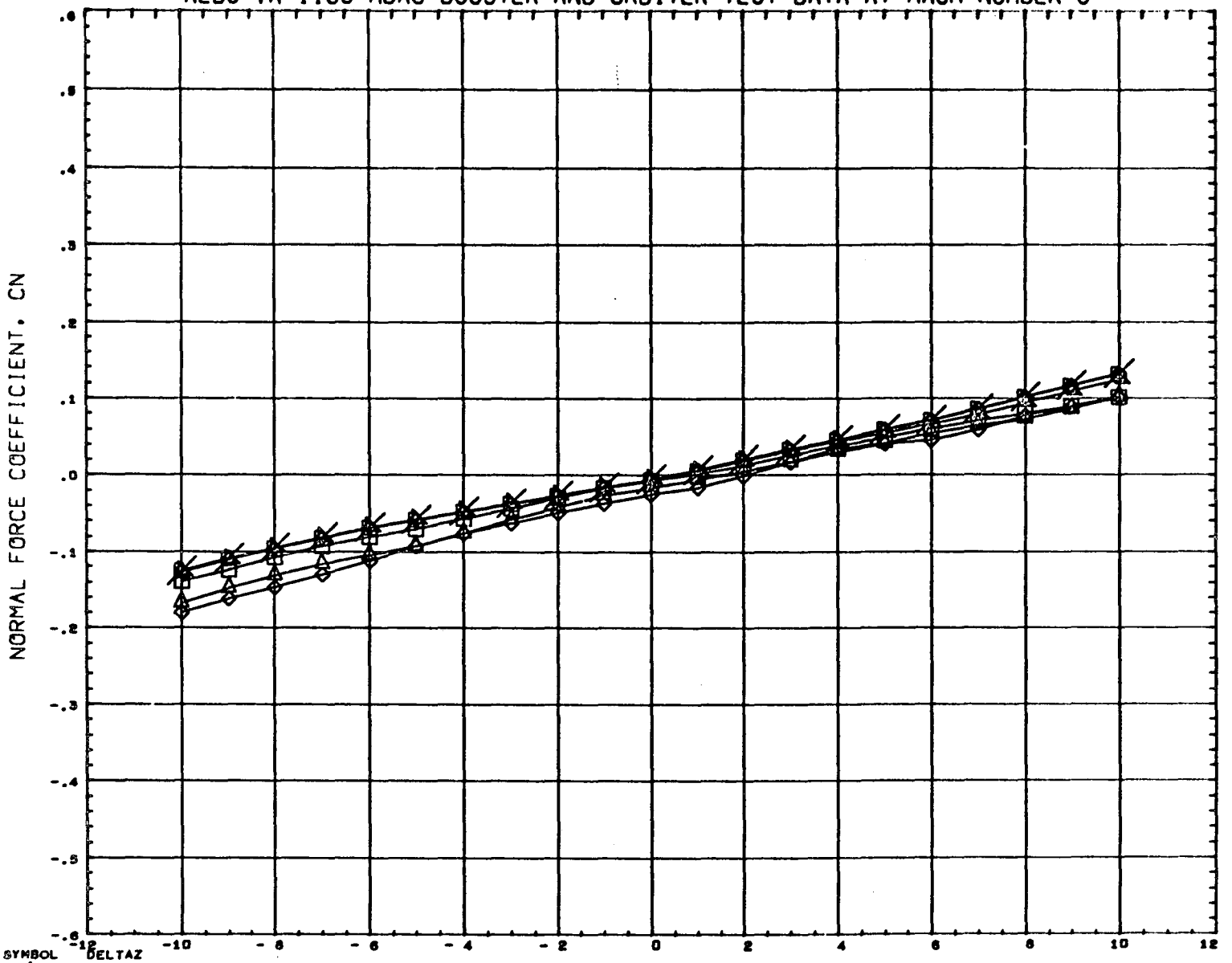
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▽	0.226
○	0.352
⊘	10.000

PARAMETRIC VALUES

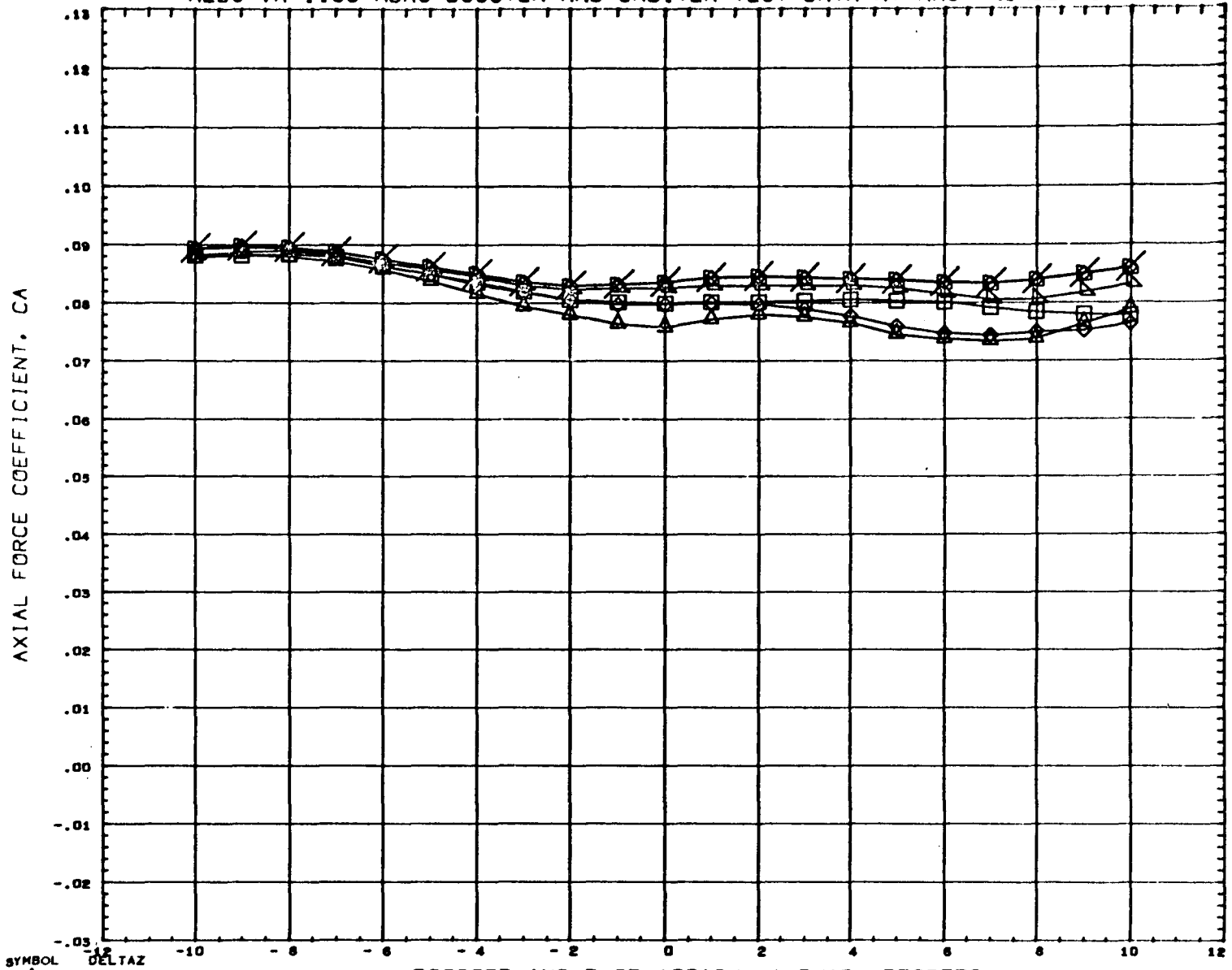
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▷	0.228
▷	0.352
⊘	10.000

PARAMETRIC VALUES

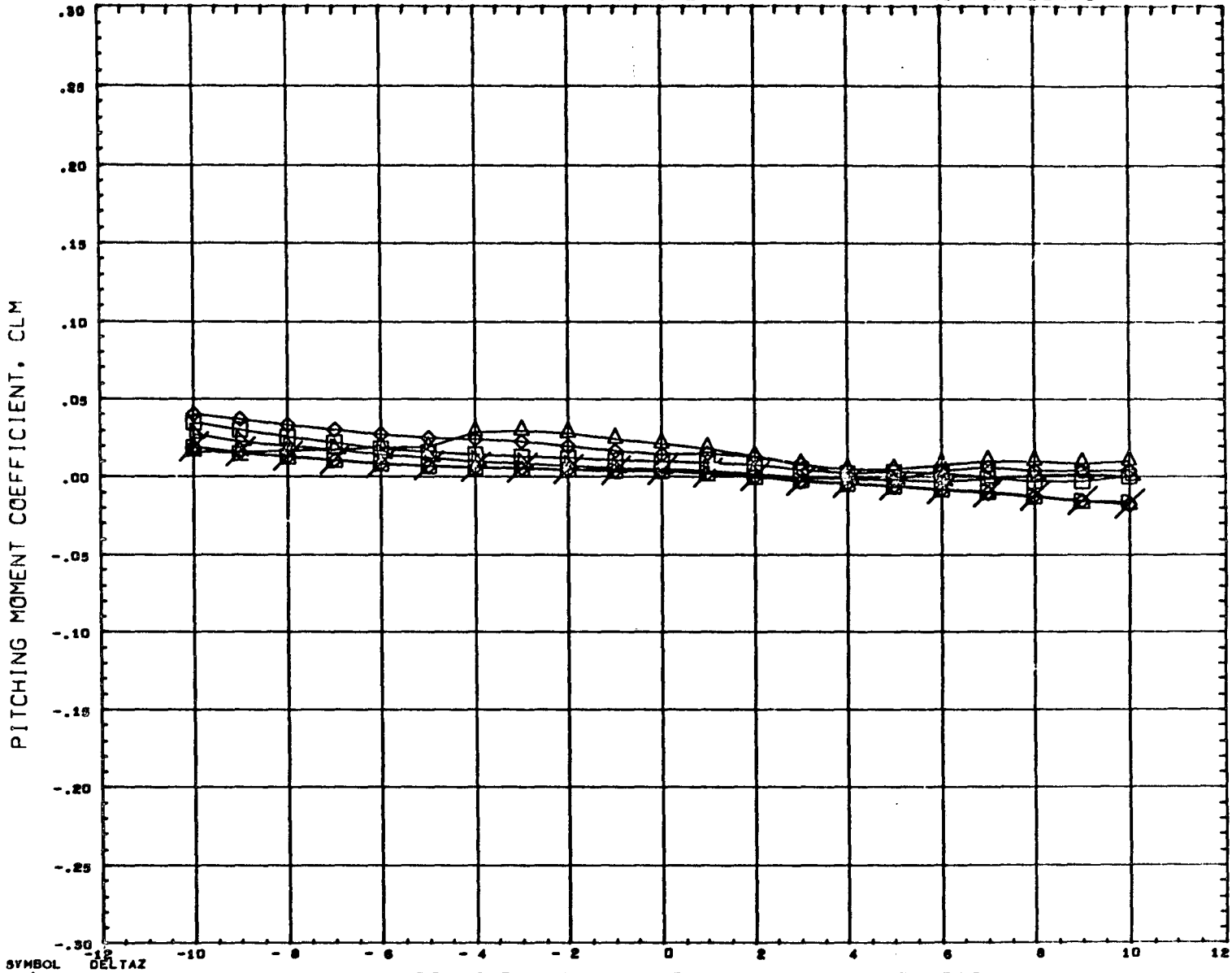
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.226
▽	0.352
⊗	10.000

PARAMETRIC VALUES

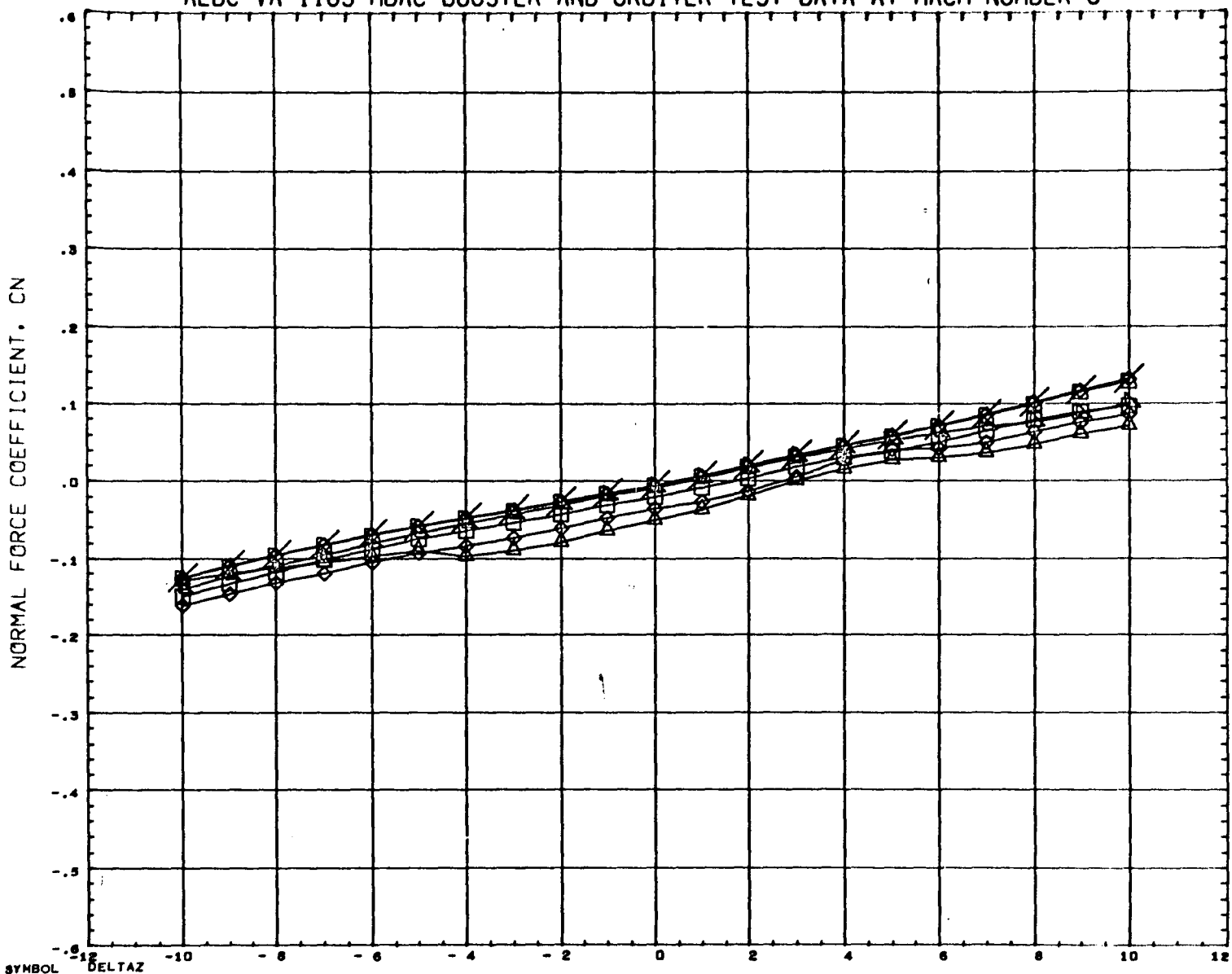
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
⊘	0.352
	10.000

PARAMETRIC VALUES

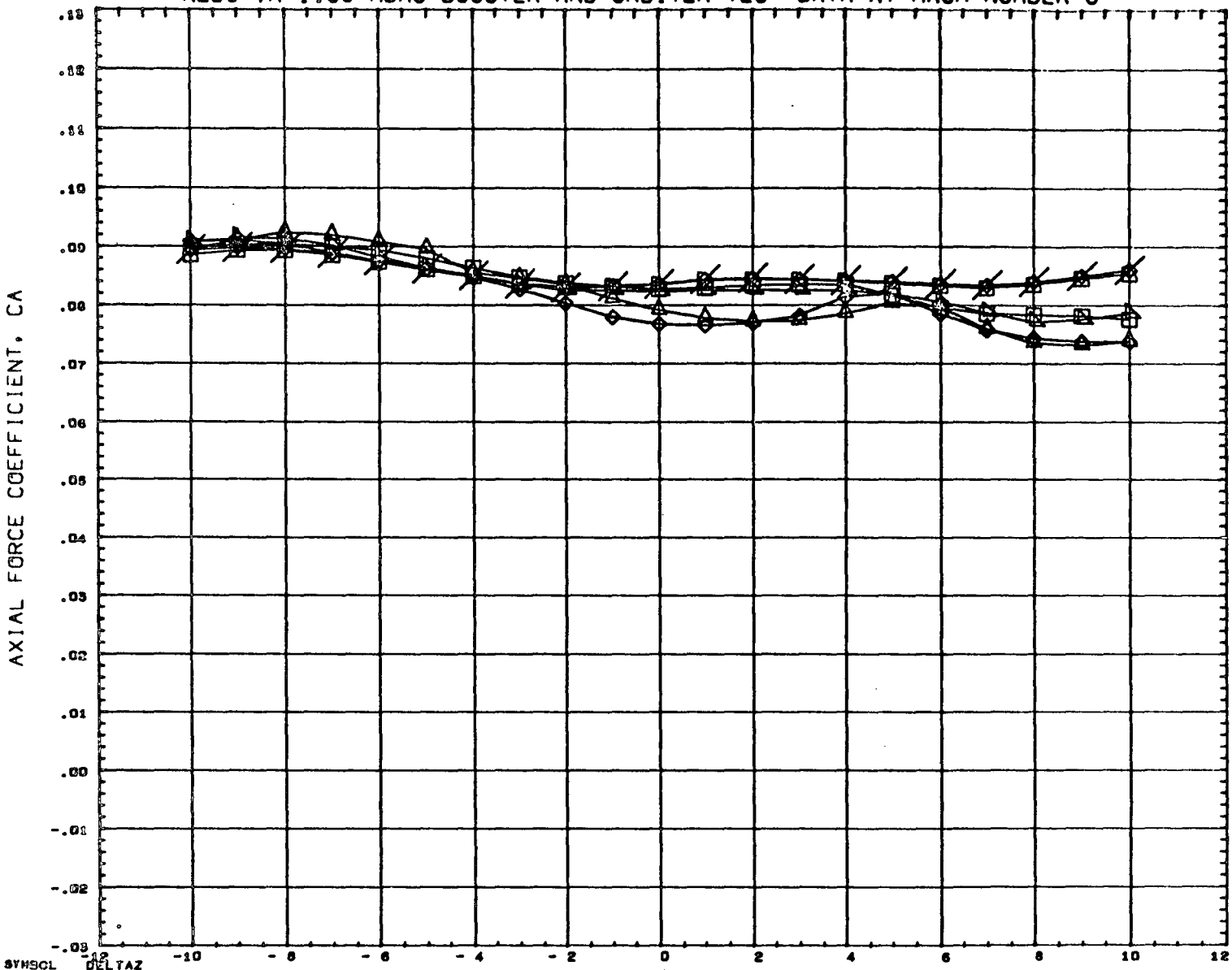
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.191
□	0.182
▽	0.228
◇	0.252
⊗	10.000

PARAMETRIC VALUES

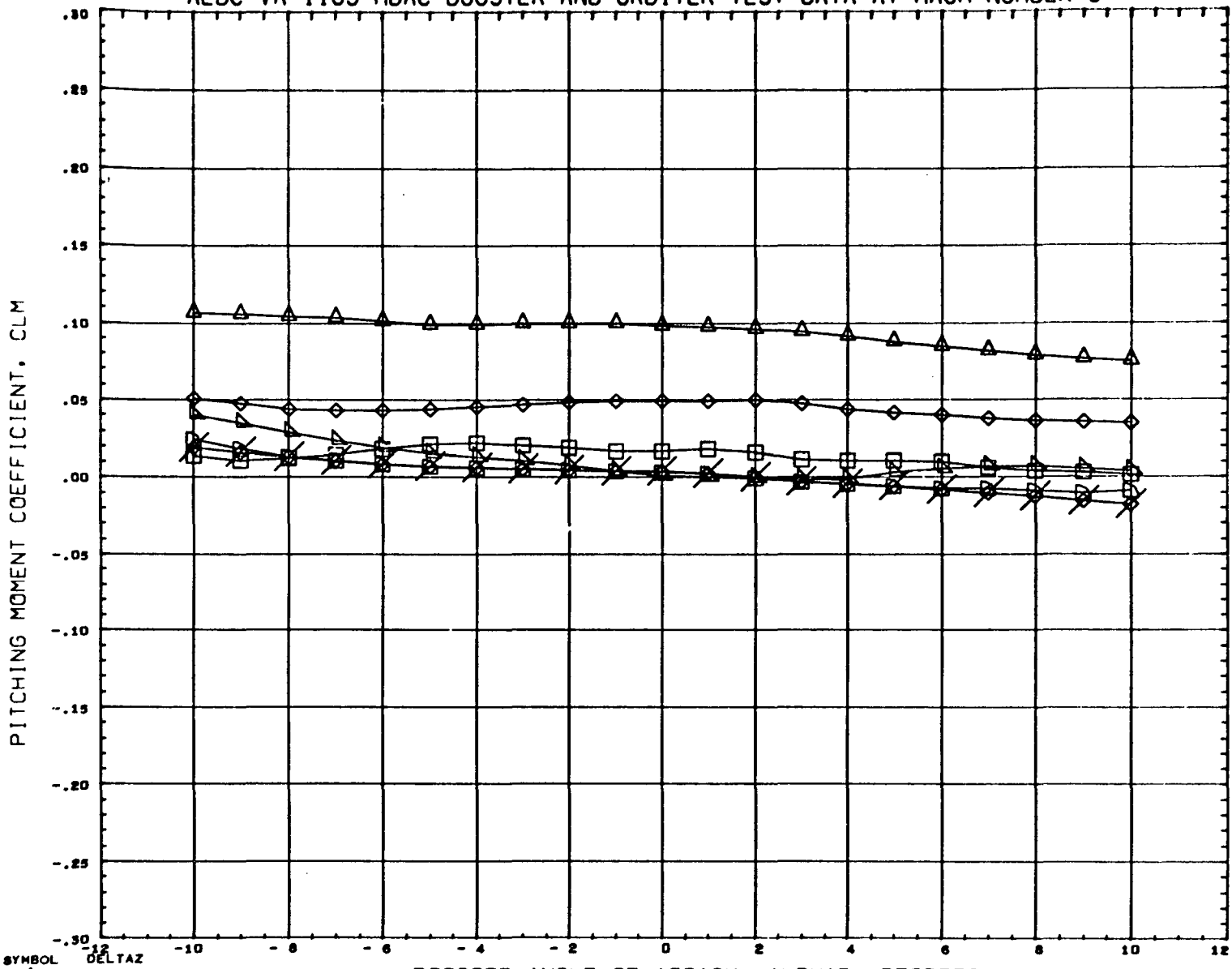
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
▷	0.352
⊘	10.000

PARAMETRIC VALUES

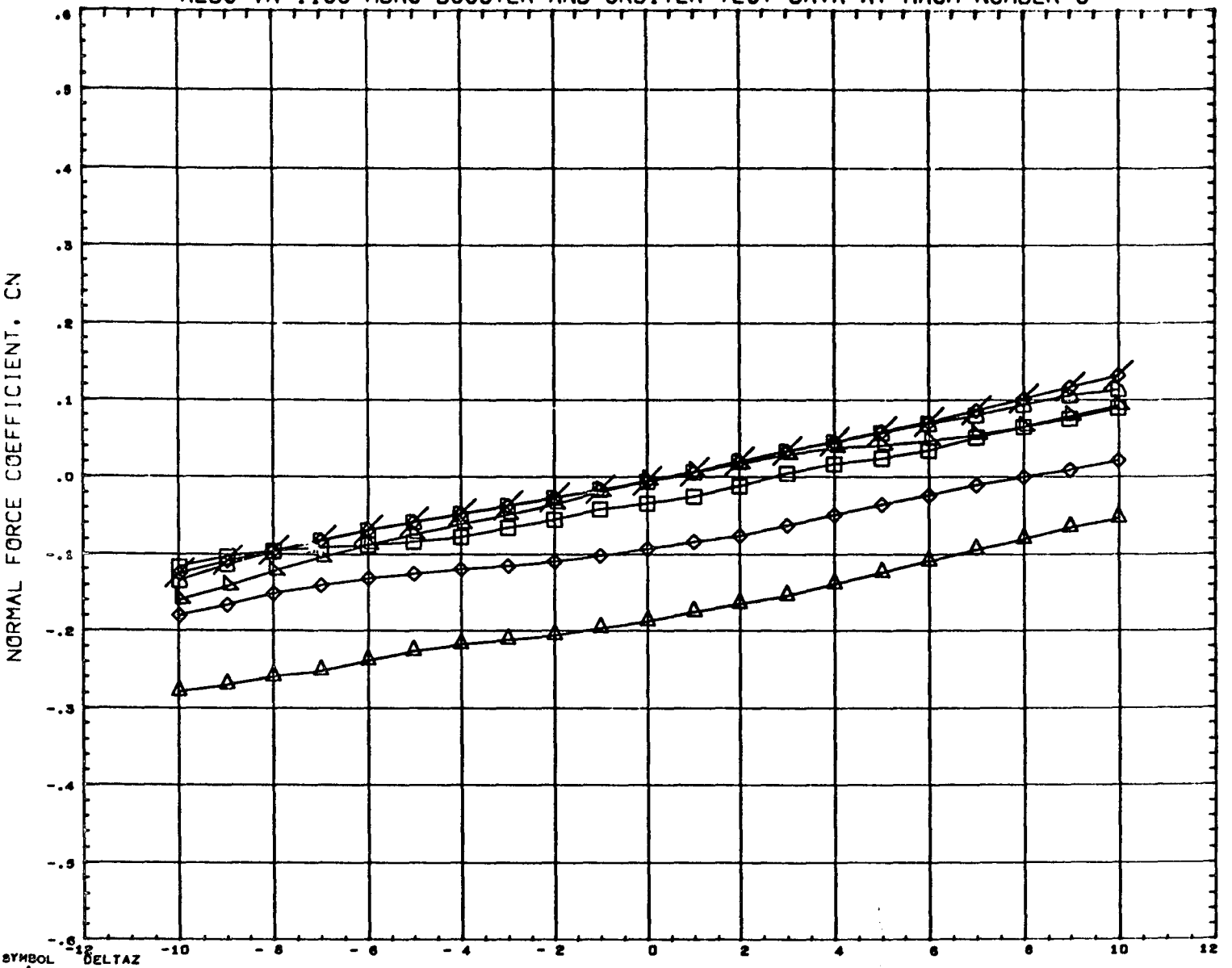
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
○	0.352
⊗	10.000

PARAMETRIC VALUES

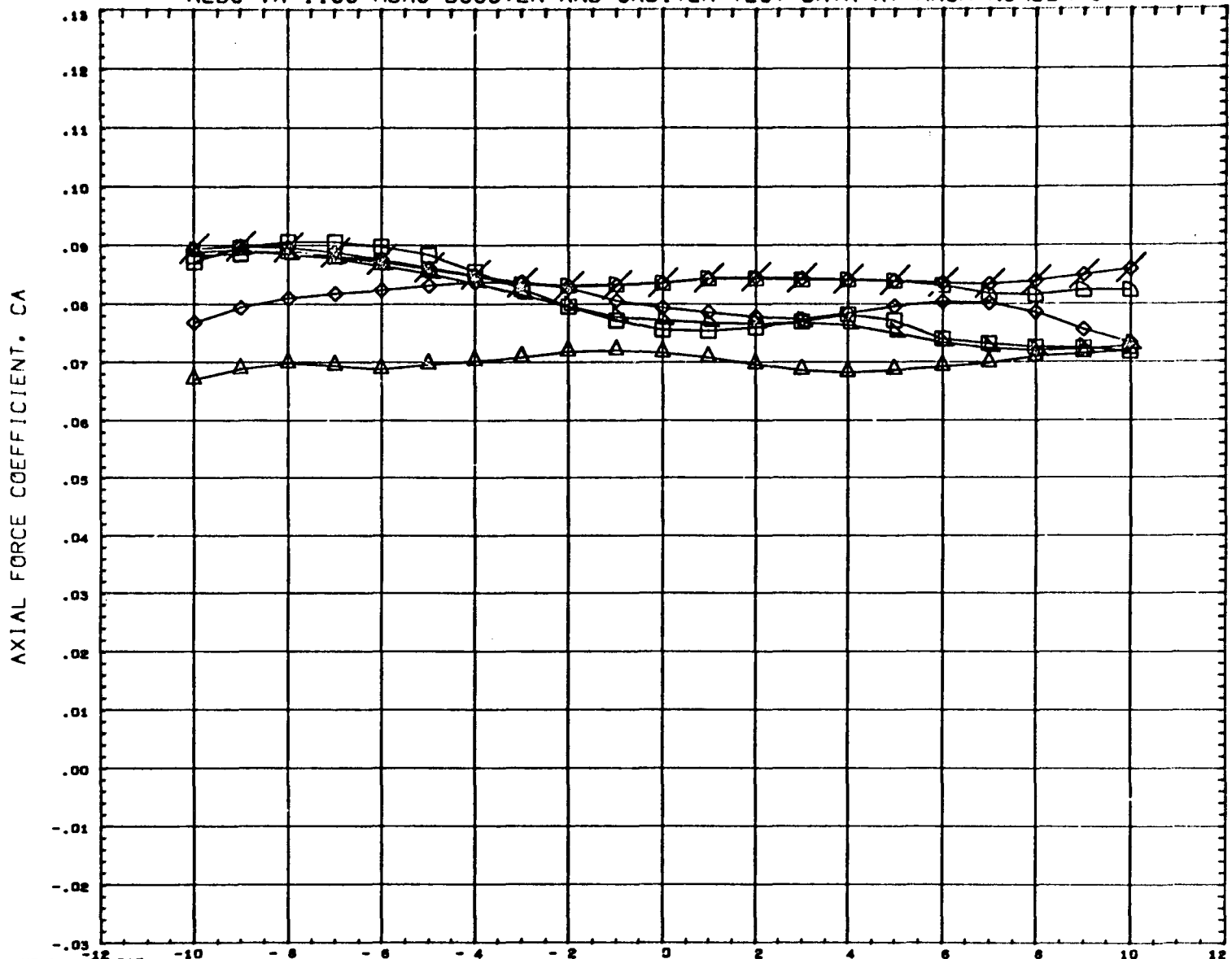
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◁	0.228
▷	0.352
⊘	10.000

PARAMETRIC VALUES

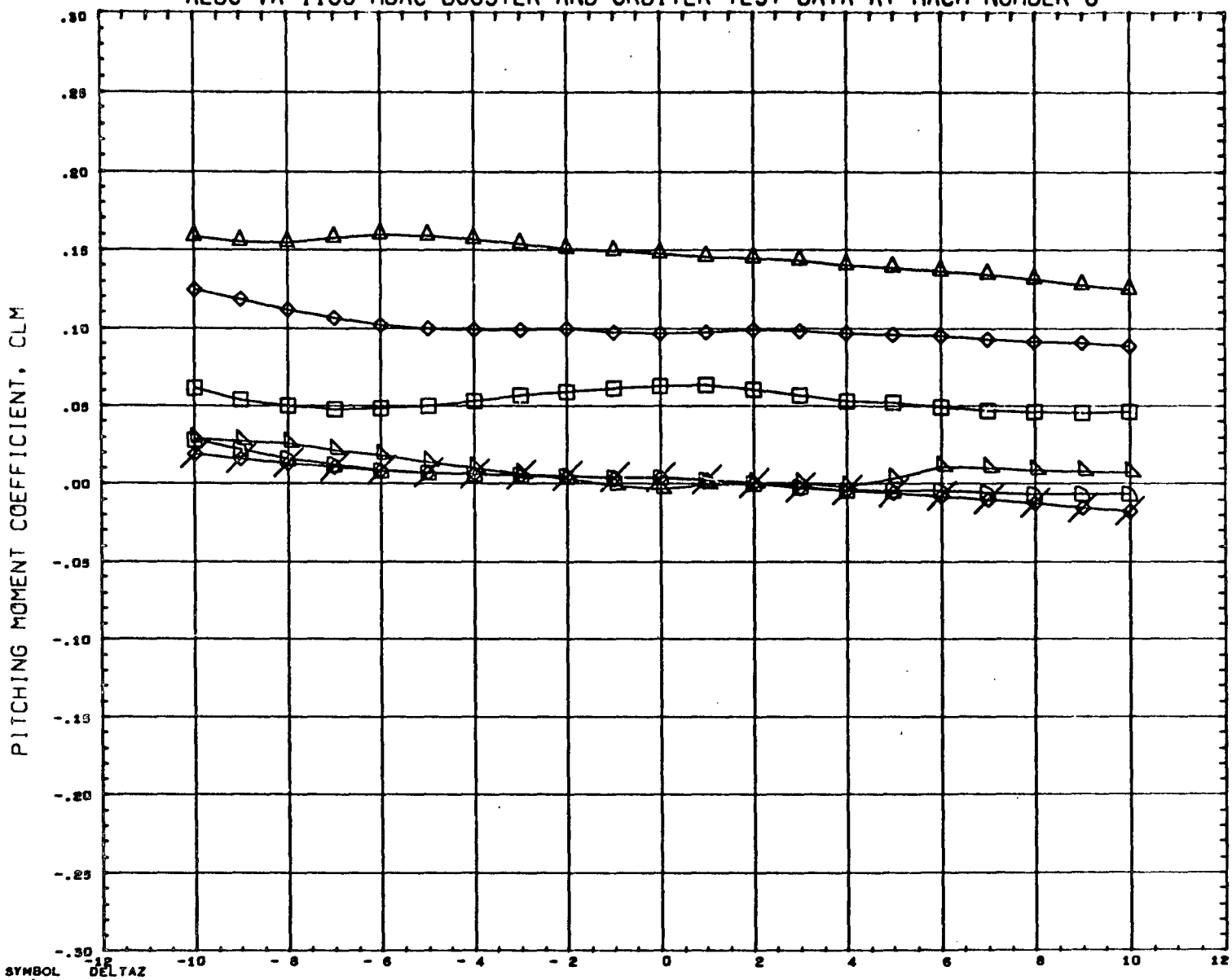
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
▽	0.352
⊘	10.000

PARAMETRIC VALUES

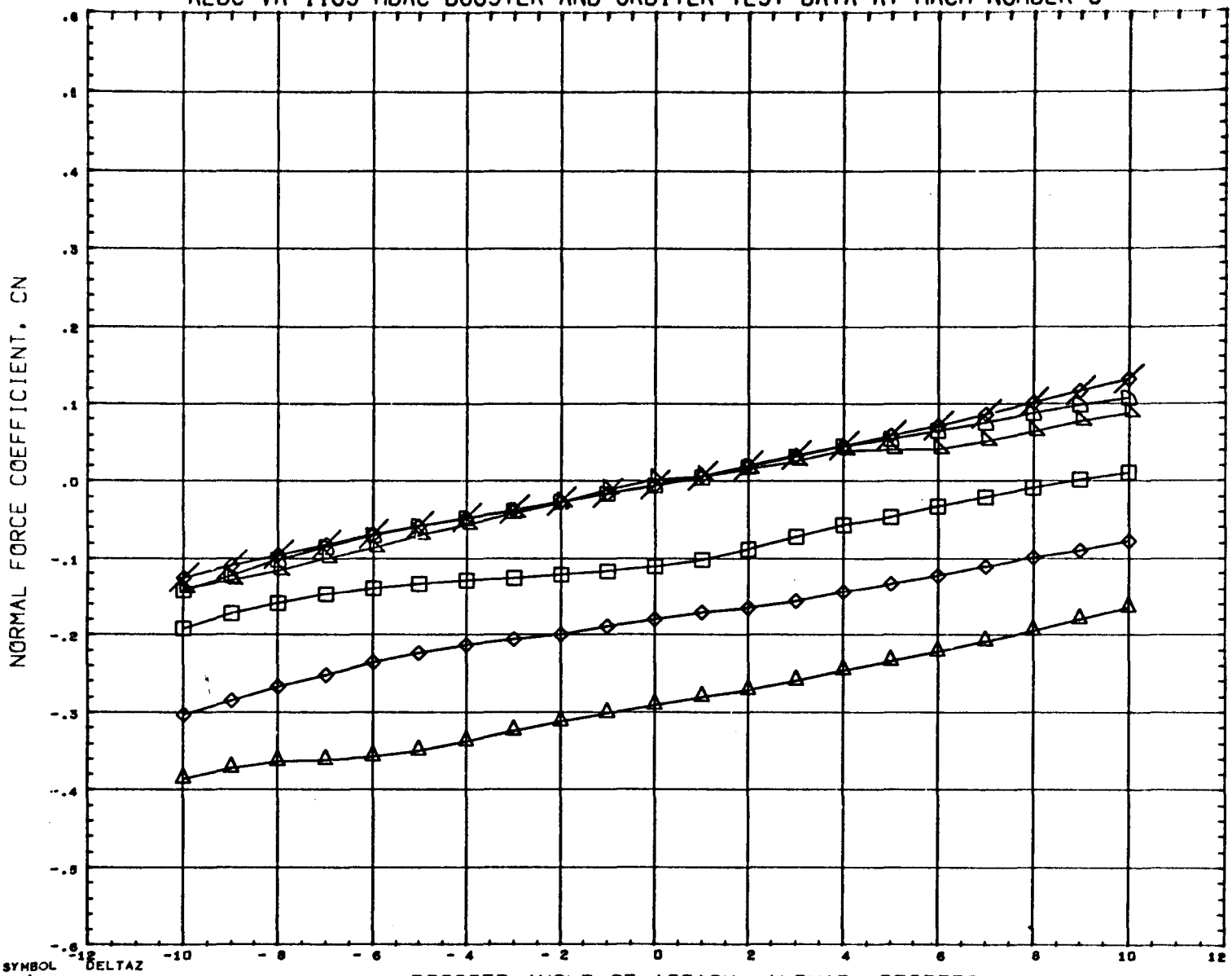
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
▷	0.352
⊘	10.000

PARAMETRIC VALUES

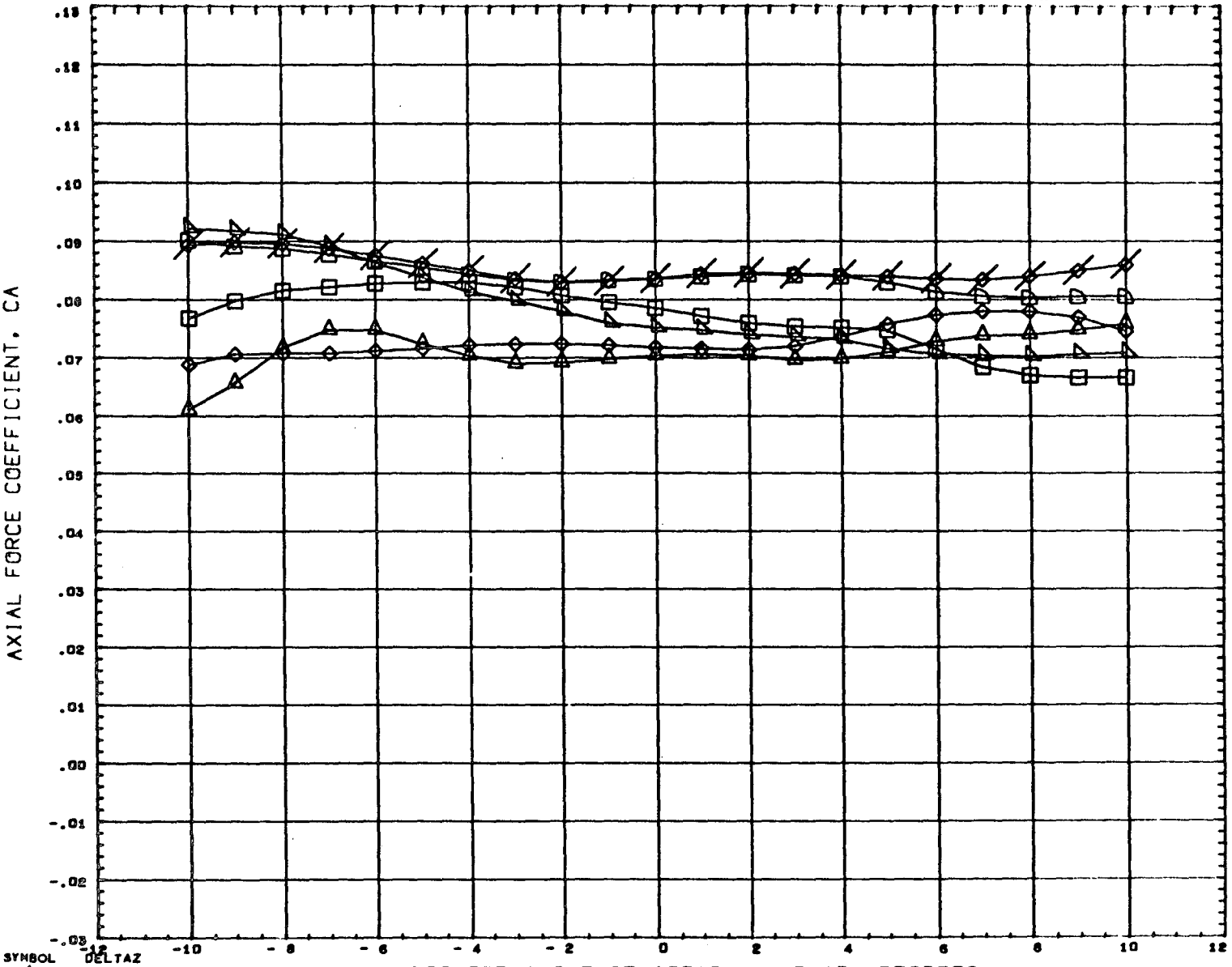
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

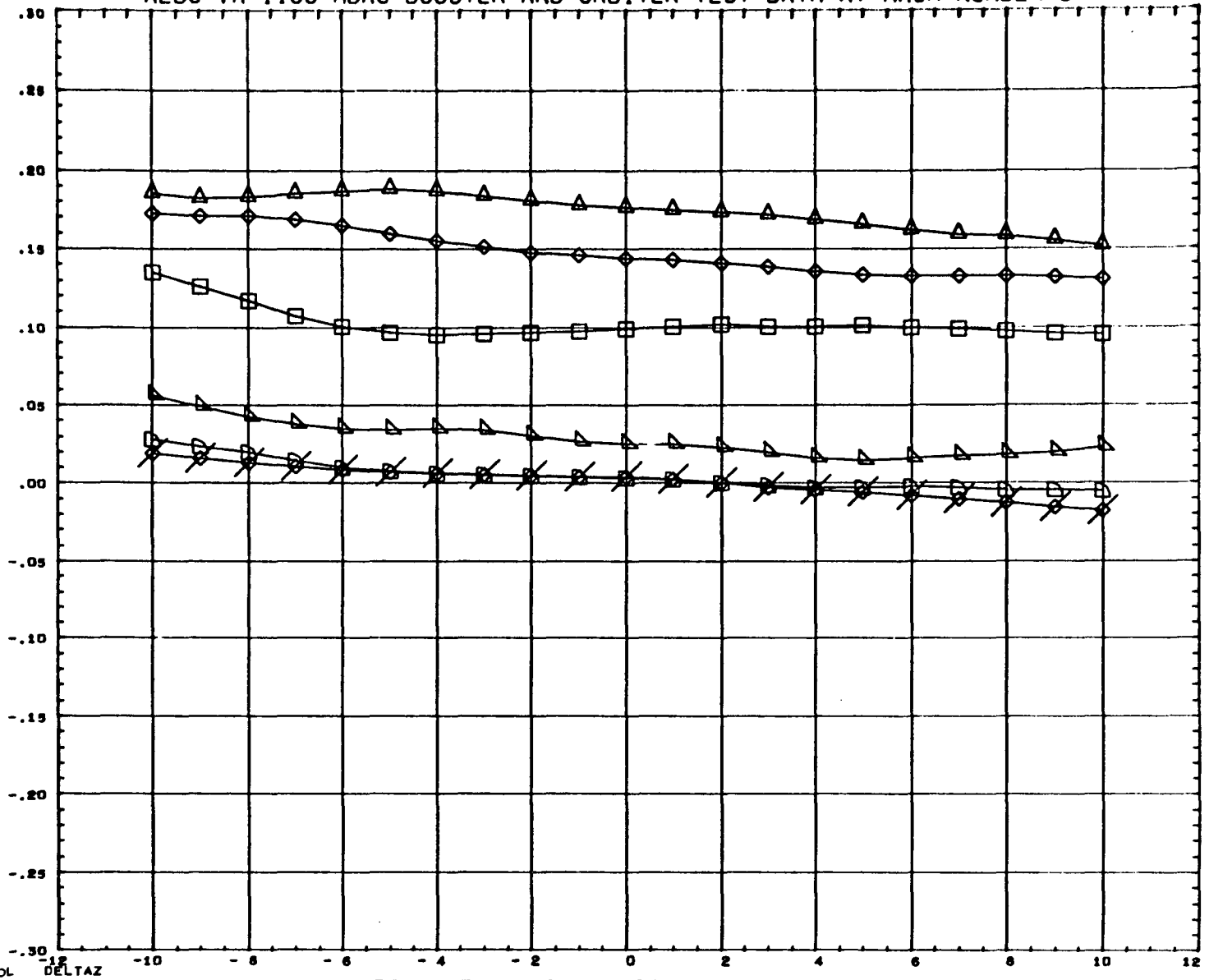
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊘	10.000

PARAMETRIC VALUES

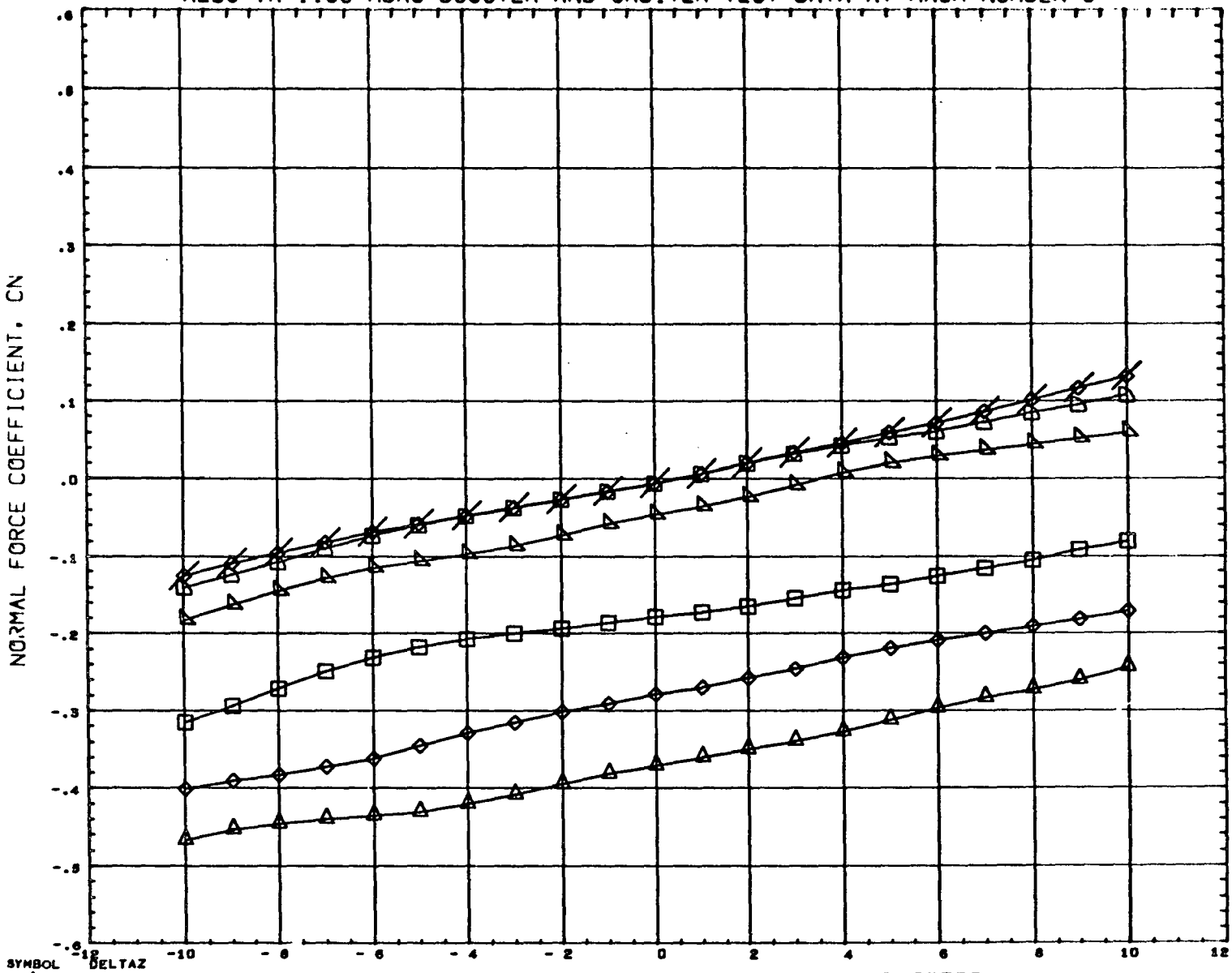
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◇	0.352
⊗	10.000

PARAMETRIC VALUES

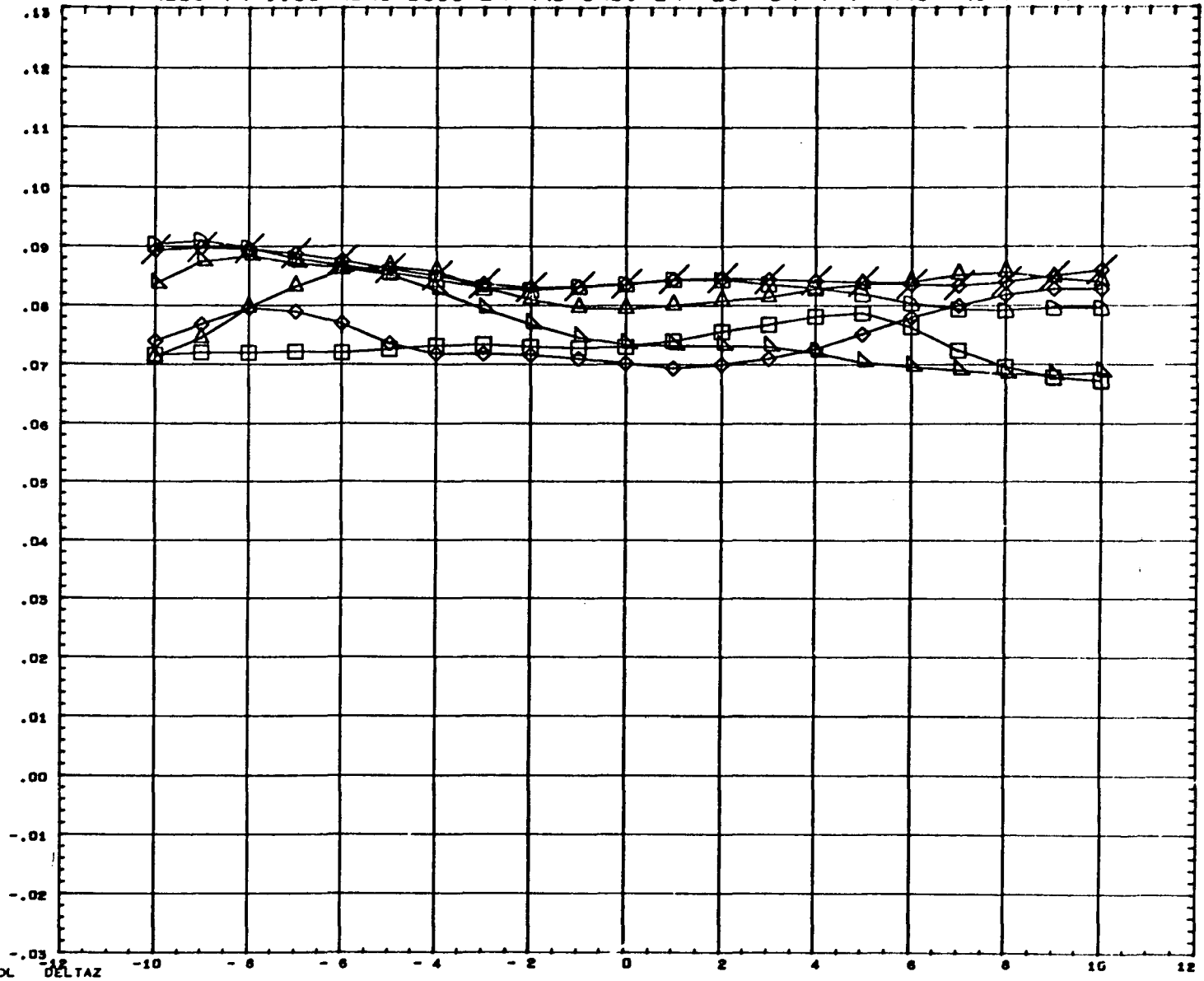
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
◸	0.228
◺	0.352
⊗	10.000

PARAMETRIC VALUES

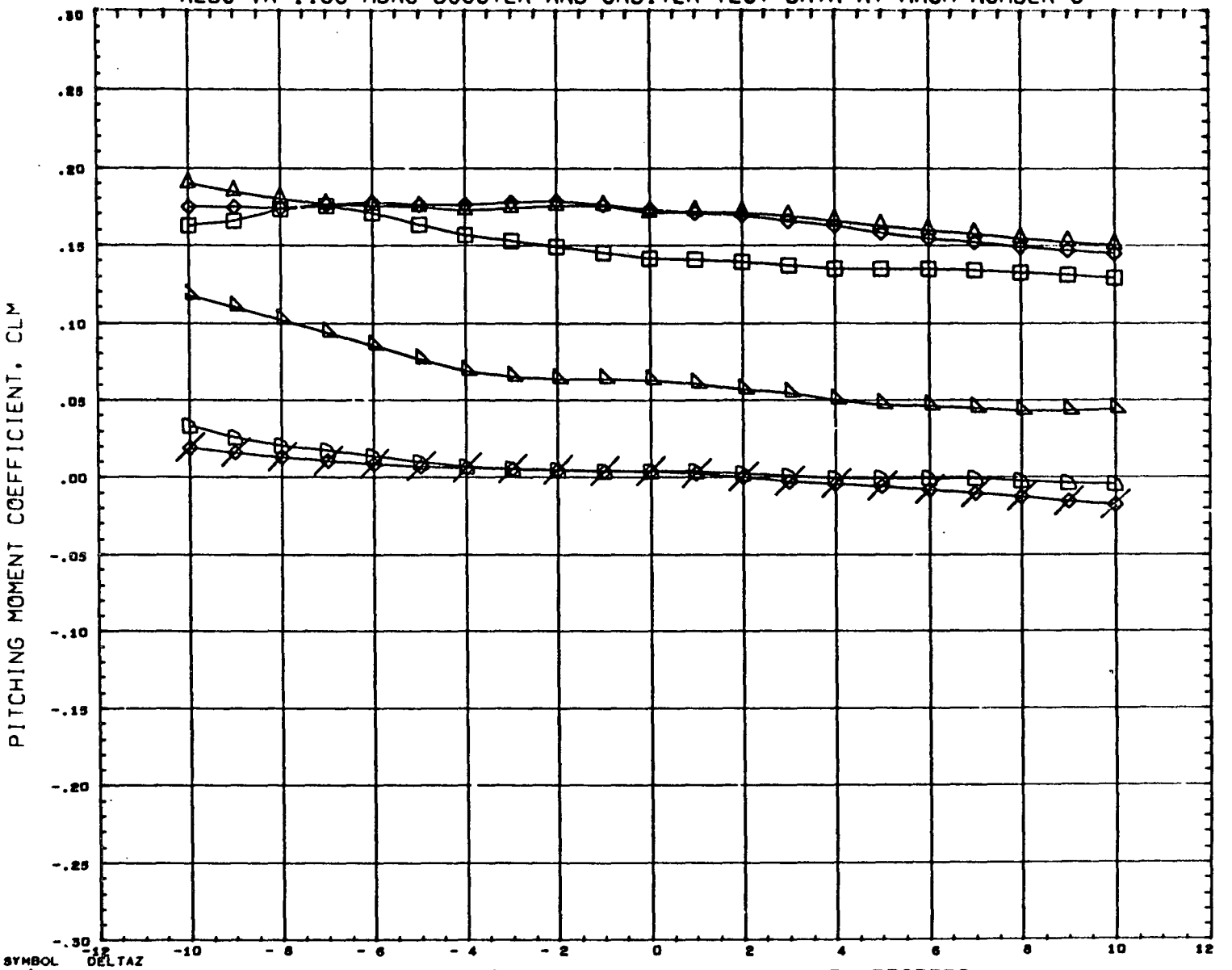
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.226
▽	0.352
⊗	10.000

PARAMETRIC VALUES

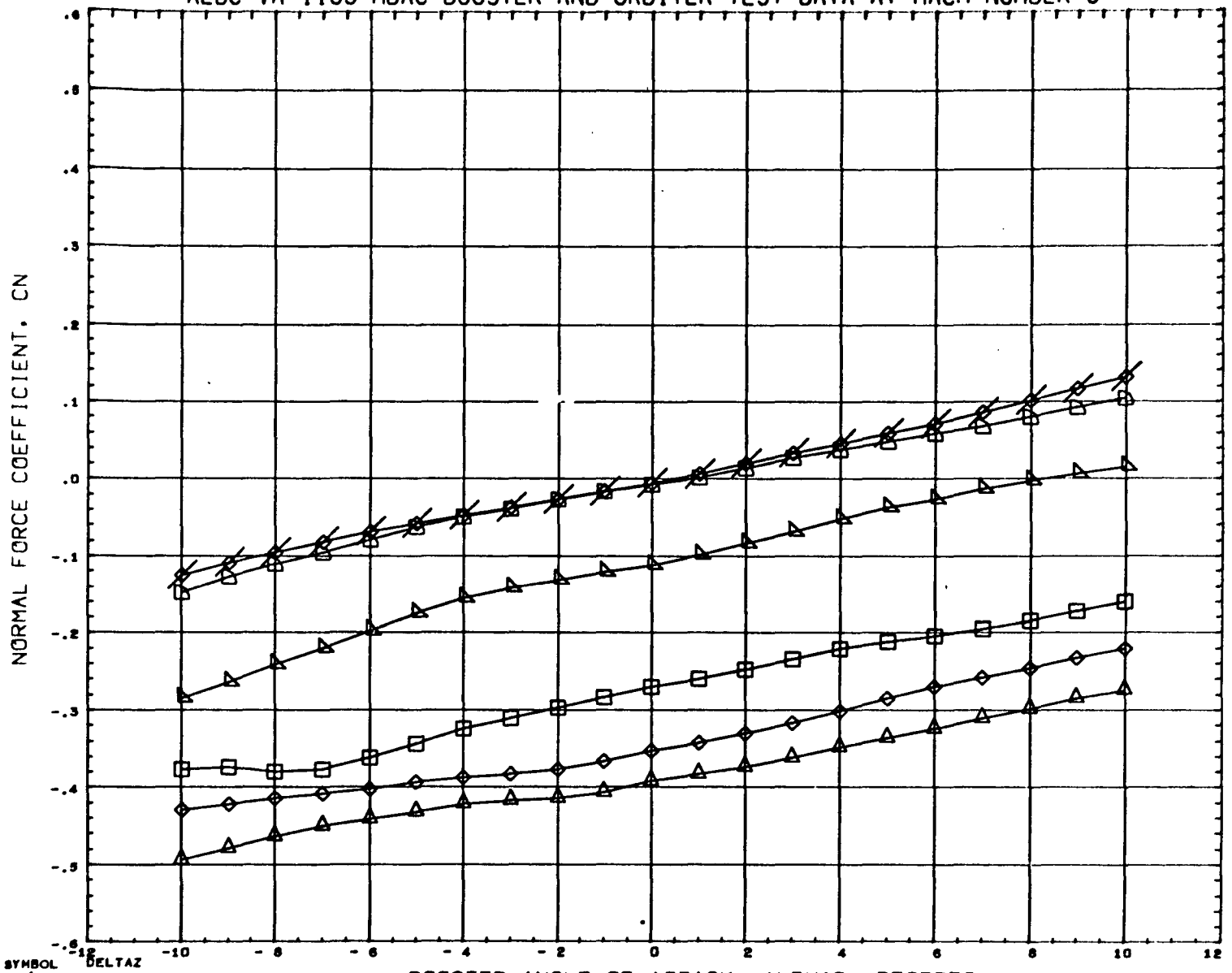
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
○	0.352
⊘	10.000

PARAMETRIC VALUES

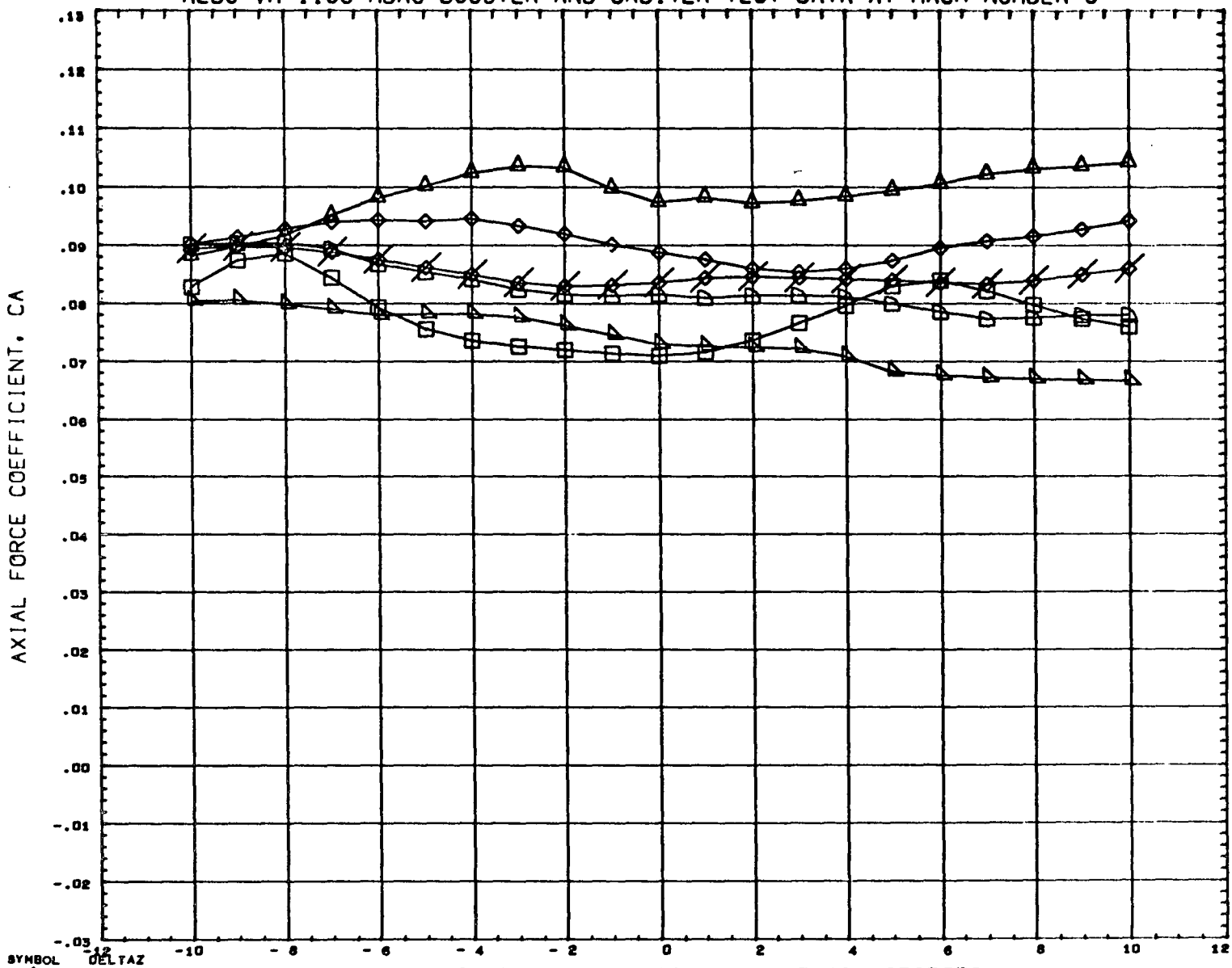
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

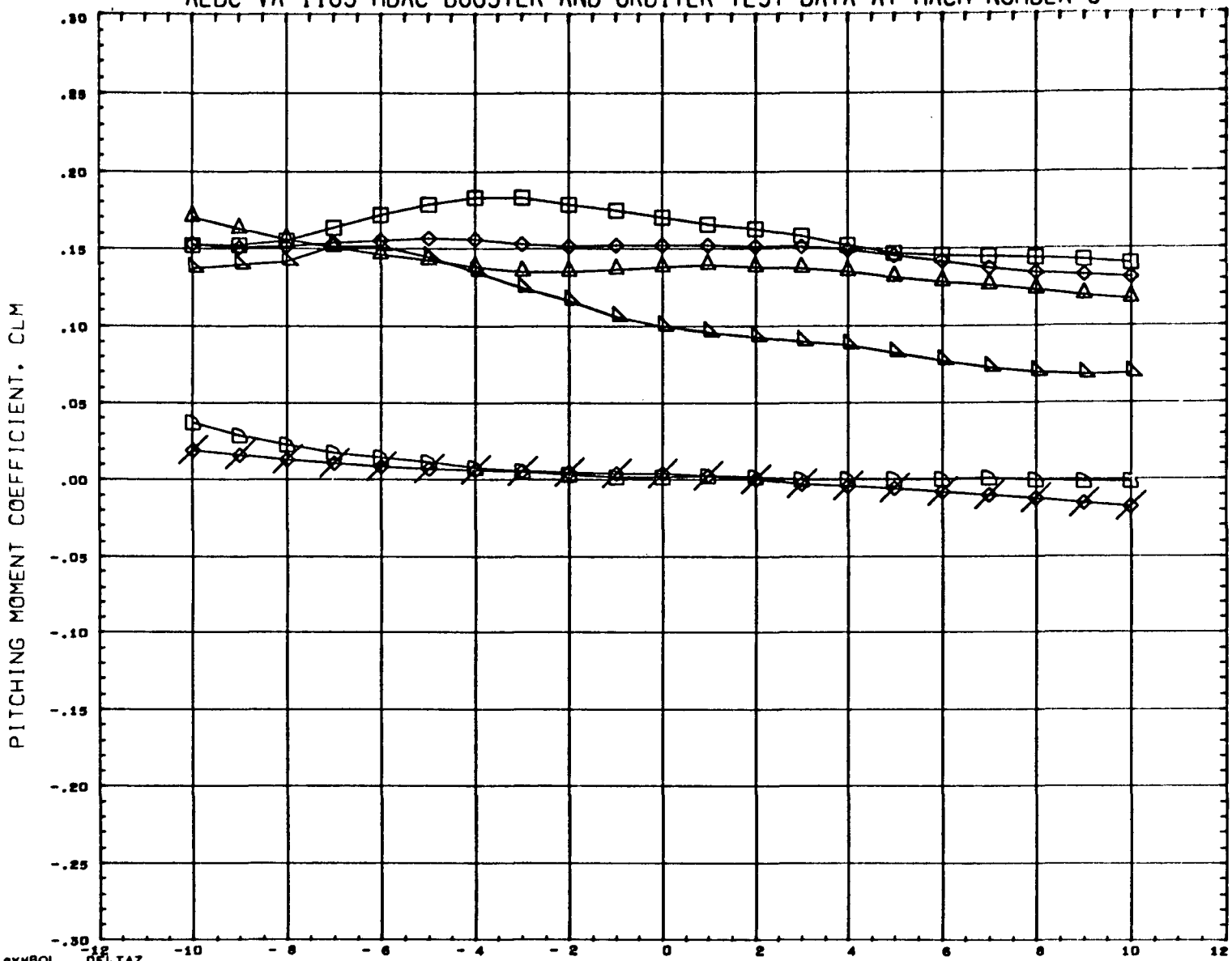
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◇	0.352
⊘	10.000

PARAMETRIC VALUES

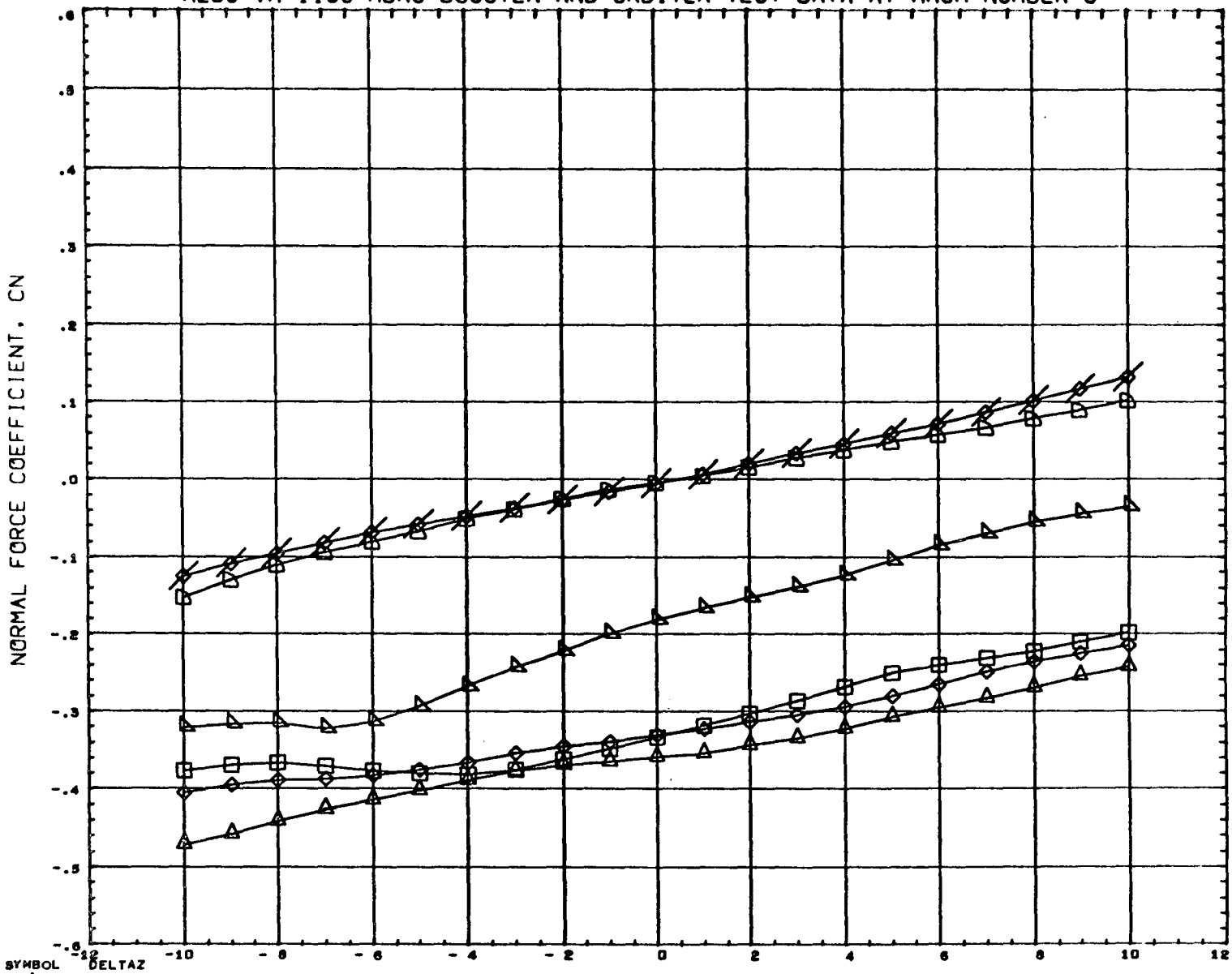
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

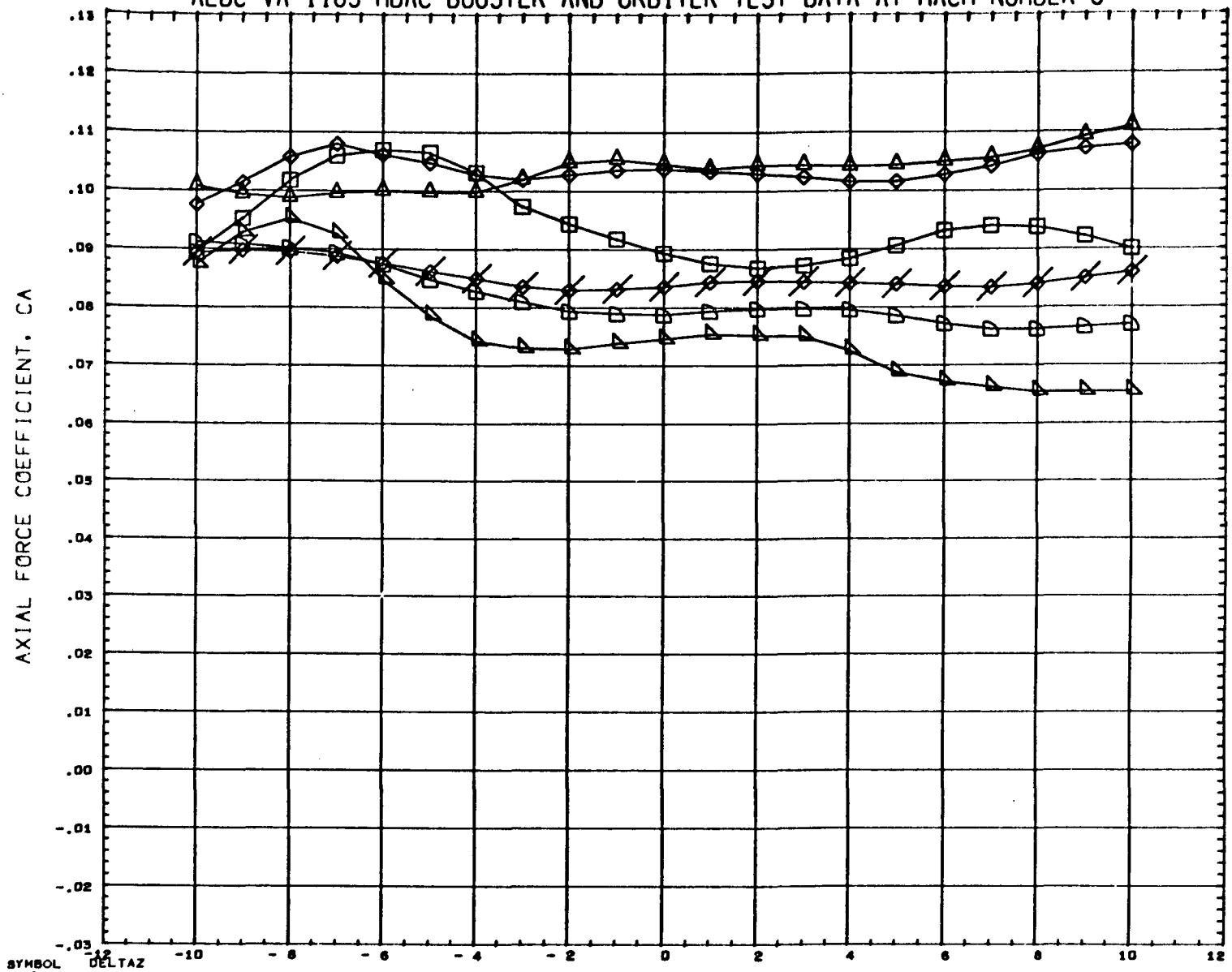
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▷	0.228
◁	0.352
⊗	10.000

PARAMETRIC VALUES

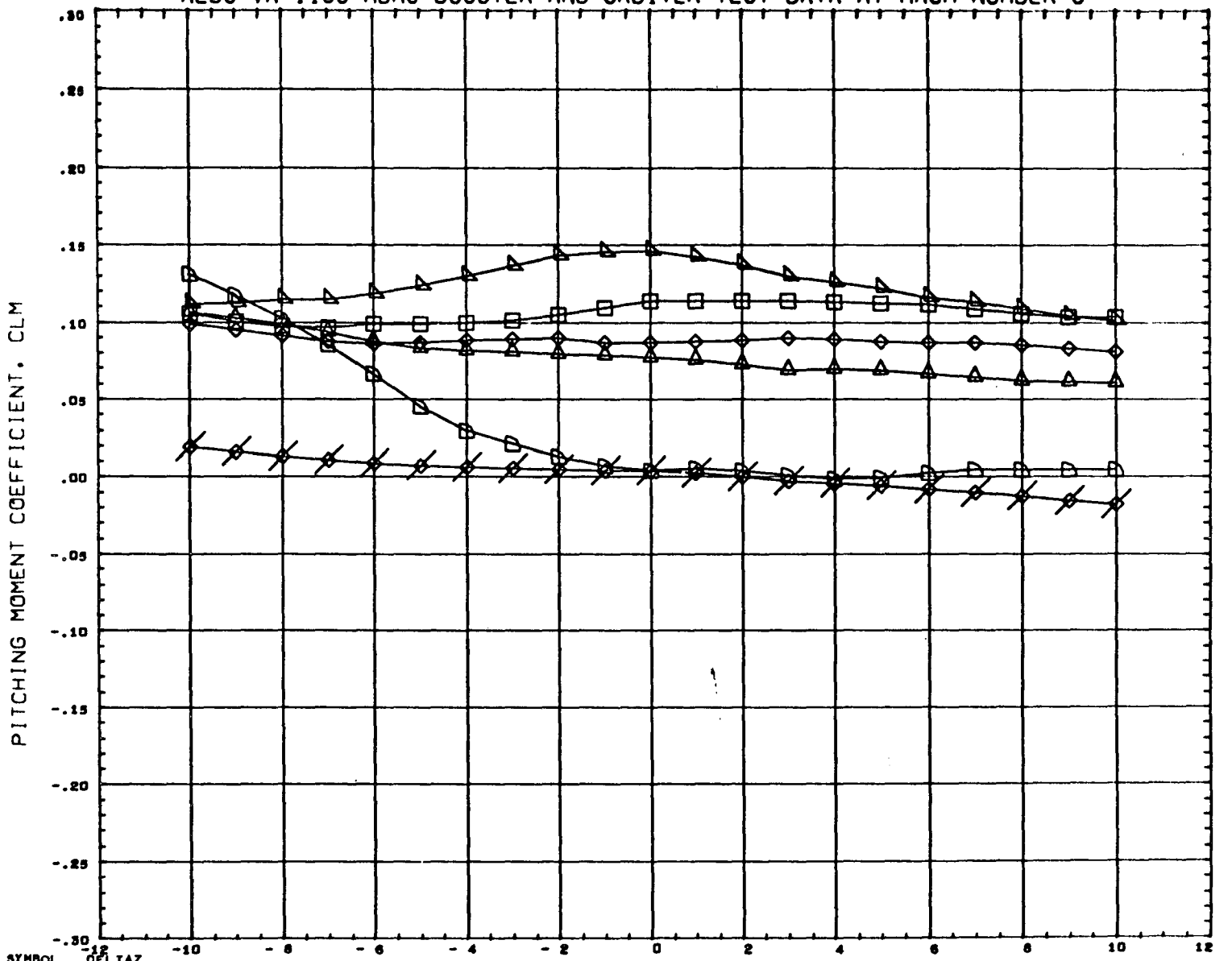
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.227	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.162
▽	0.226
◁	0.352
⊗	10.000

PARAMETRIC VALUES

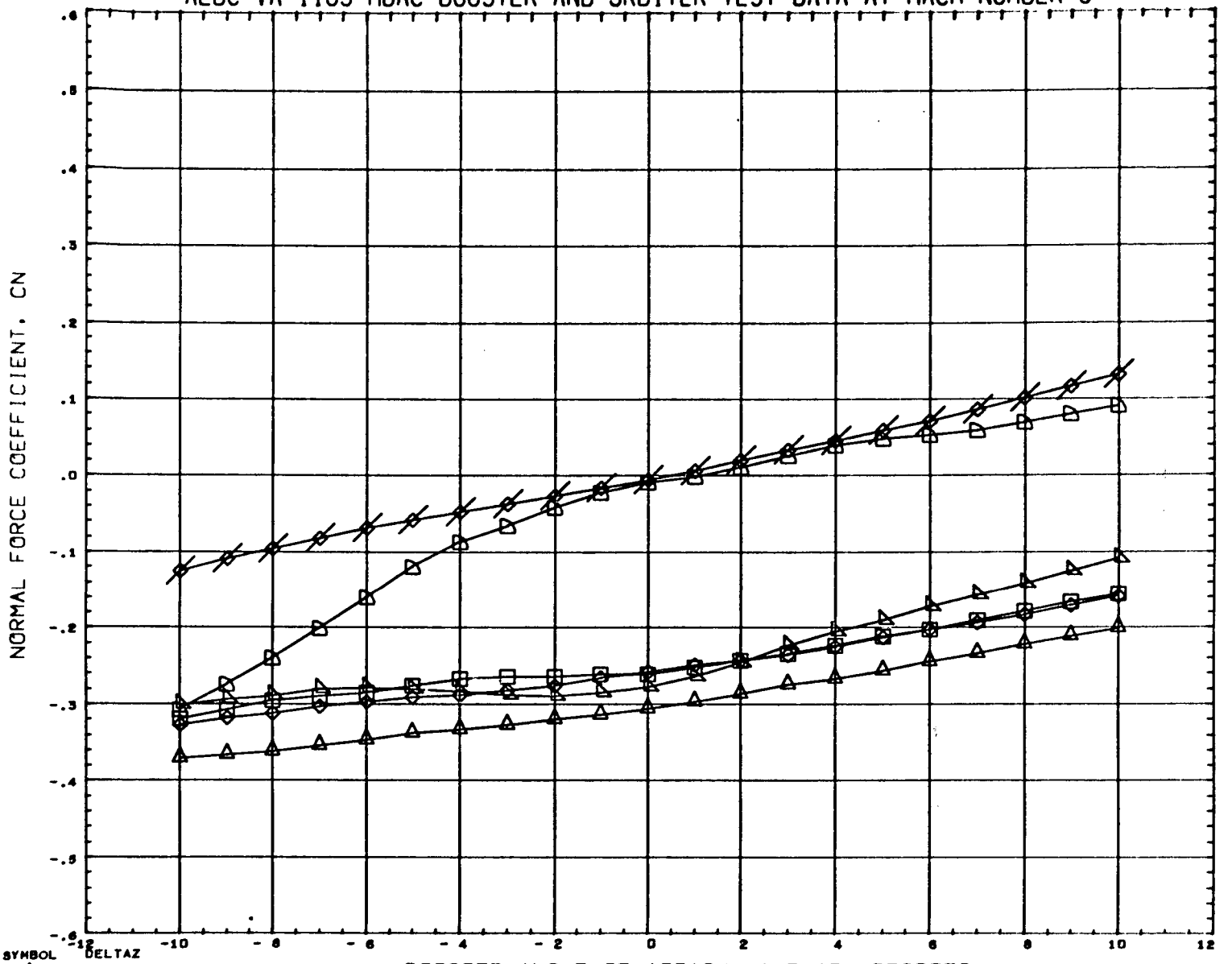
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▱	0.228
⊘	0.352
⊘◇	10.000

PARAMETRIC VALUES

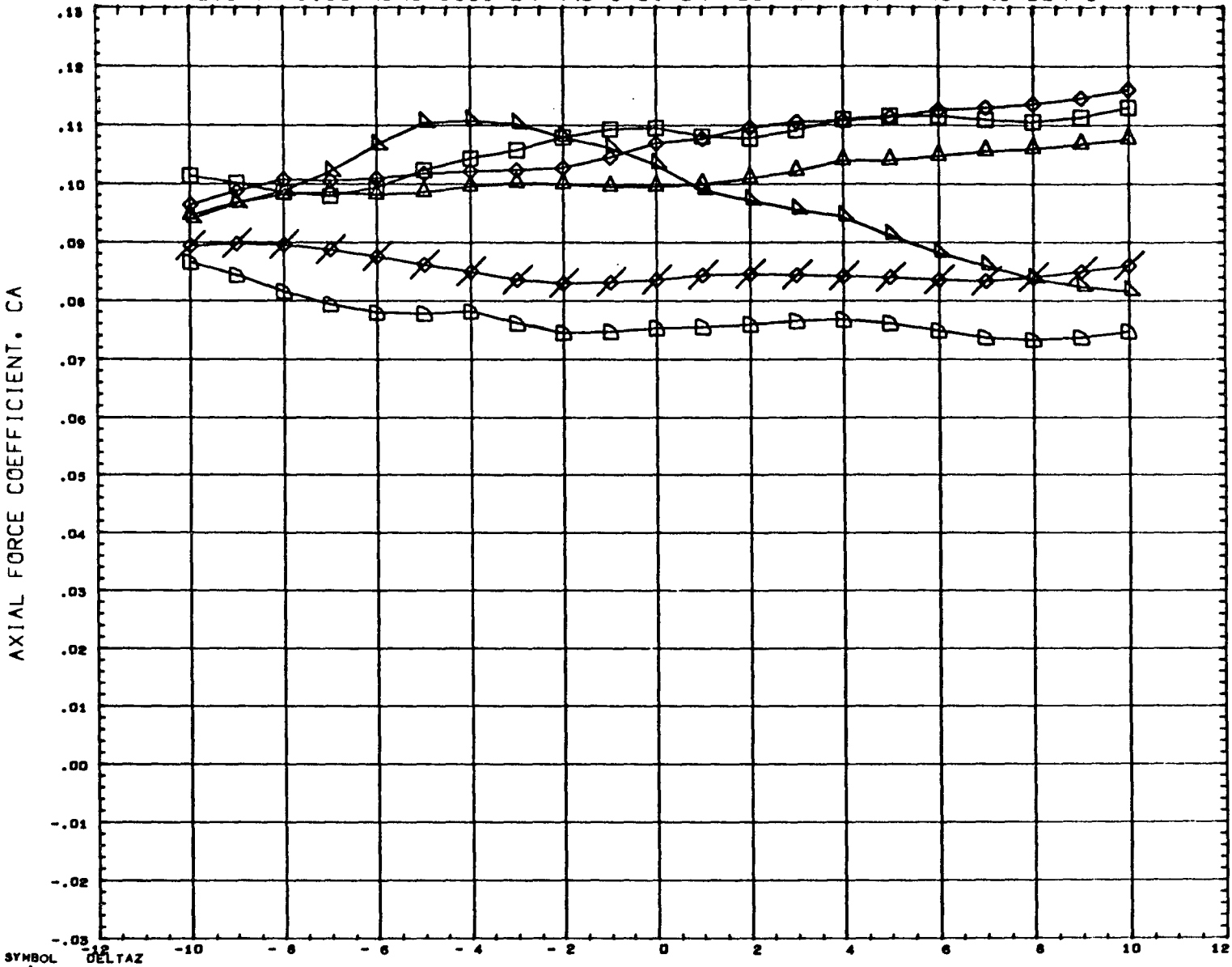
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
◇	0.151
□	0.182
▽	0.228
◁	0.352
⊘	10.000

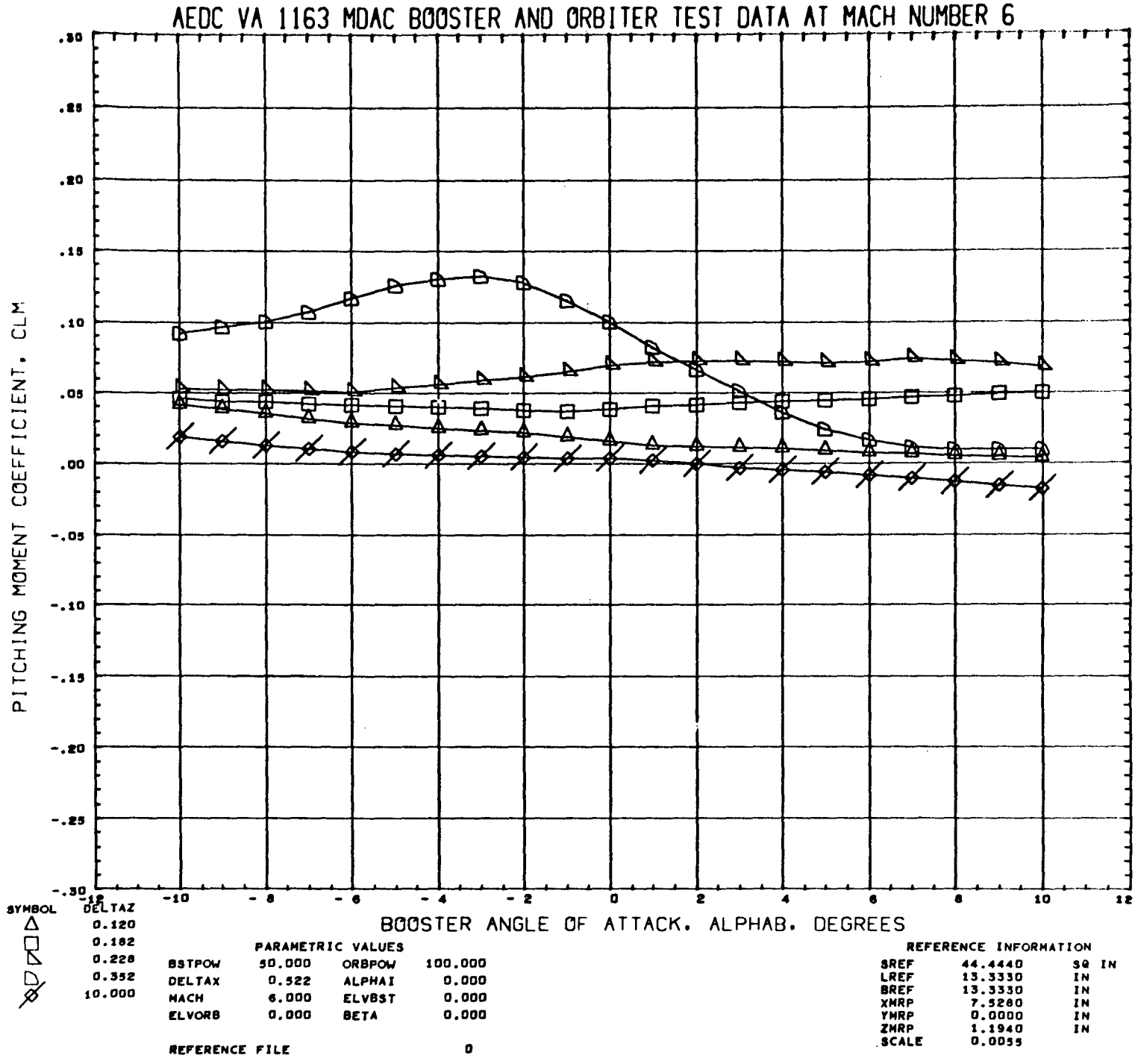
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

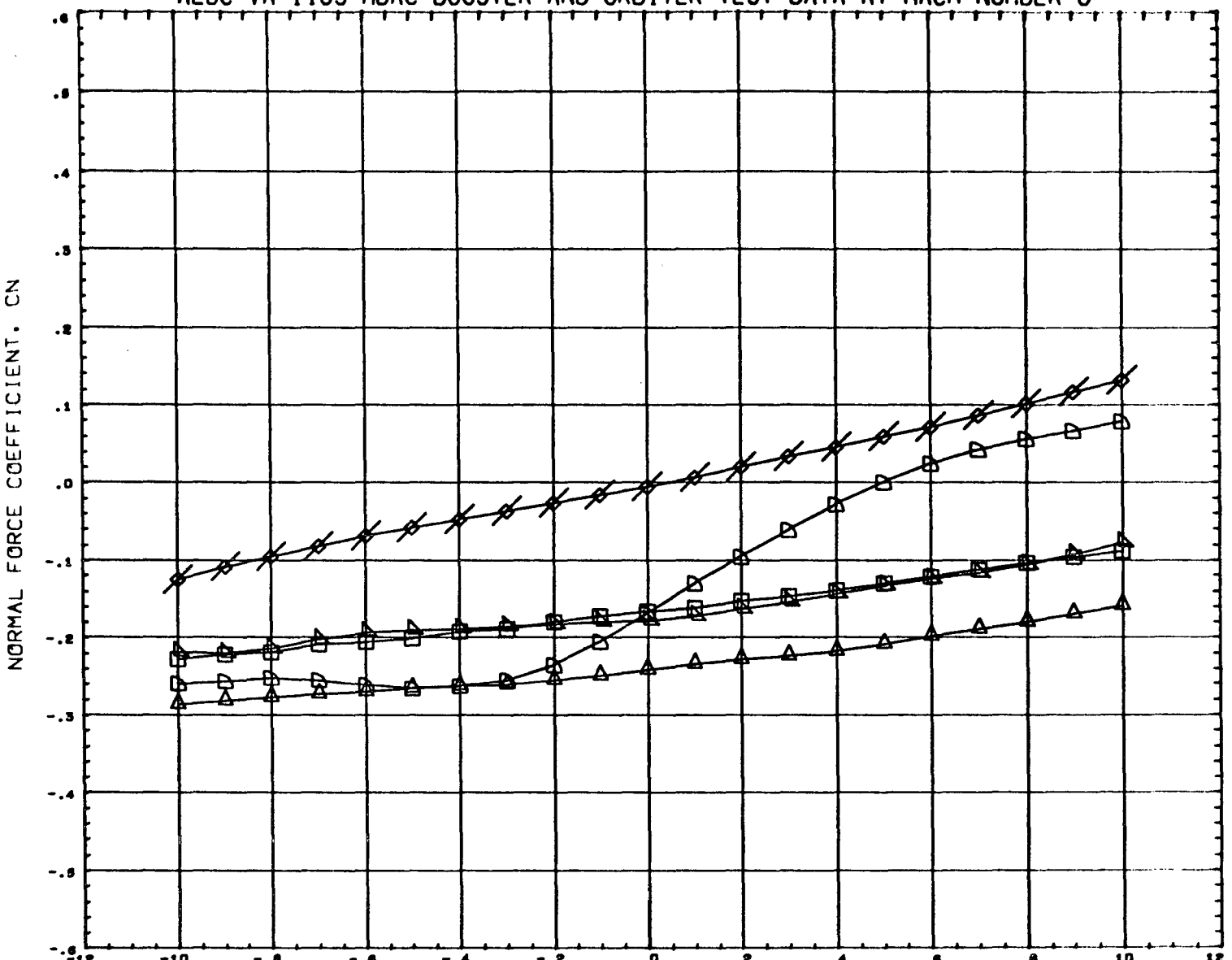
REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	


AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6
PITCHING MOMENT COEFFICIENT, CLM
.30
.25
.20
.15
.10
.05
.00
-.05
-.10
-.15
-.20
-.25
-.30
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
BOOSTER ANGLE OF ATTACK, ALPHAB, DEGREES
SYMBOL DELTAZ
0.120
0.182
0.228
0.352
10.000
PARAMETRIC VALUES
BSTPOW 50.000 ORBPOW 100.000
DELTAX 0.522 ALPHAI 0.000
MACH 6.000 ELVBST 0.000
ELVORB 0.000 BETA 0.000
REFERENCE FILE 0
REFERENCE INFORMATION
SREF 44.4440 SQ IN
LREF 13.3330 IN
BREF 13.3330 IN
XMRP 7.5260 IN
YMRP 0.0000 IN
ZMRP 1.1940 IN
SCALE 0.0055

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
□	0.182
◇	0.226
▷	0.352
⊘	10.000

PARAMETRIC VALUES

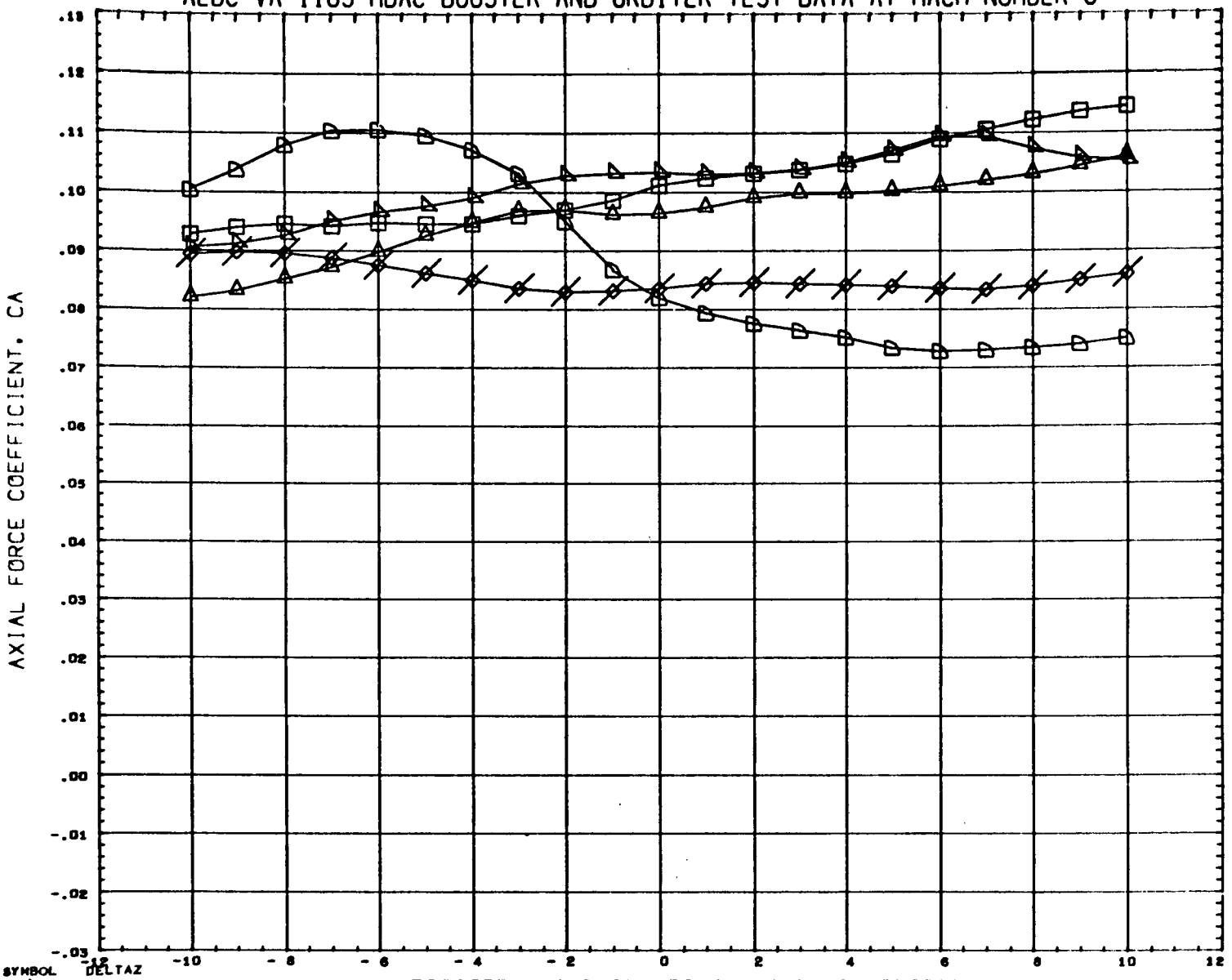
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6



SYMBOL	DELTAZ
△	0.120
□	0.182
◇	0.228
⬠	0.352
⊘	10.000

PARAMETRIC VALUES

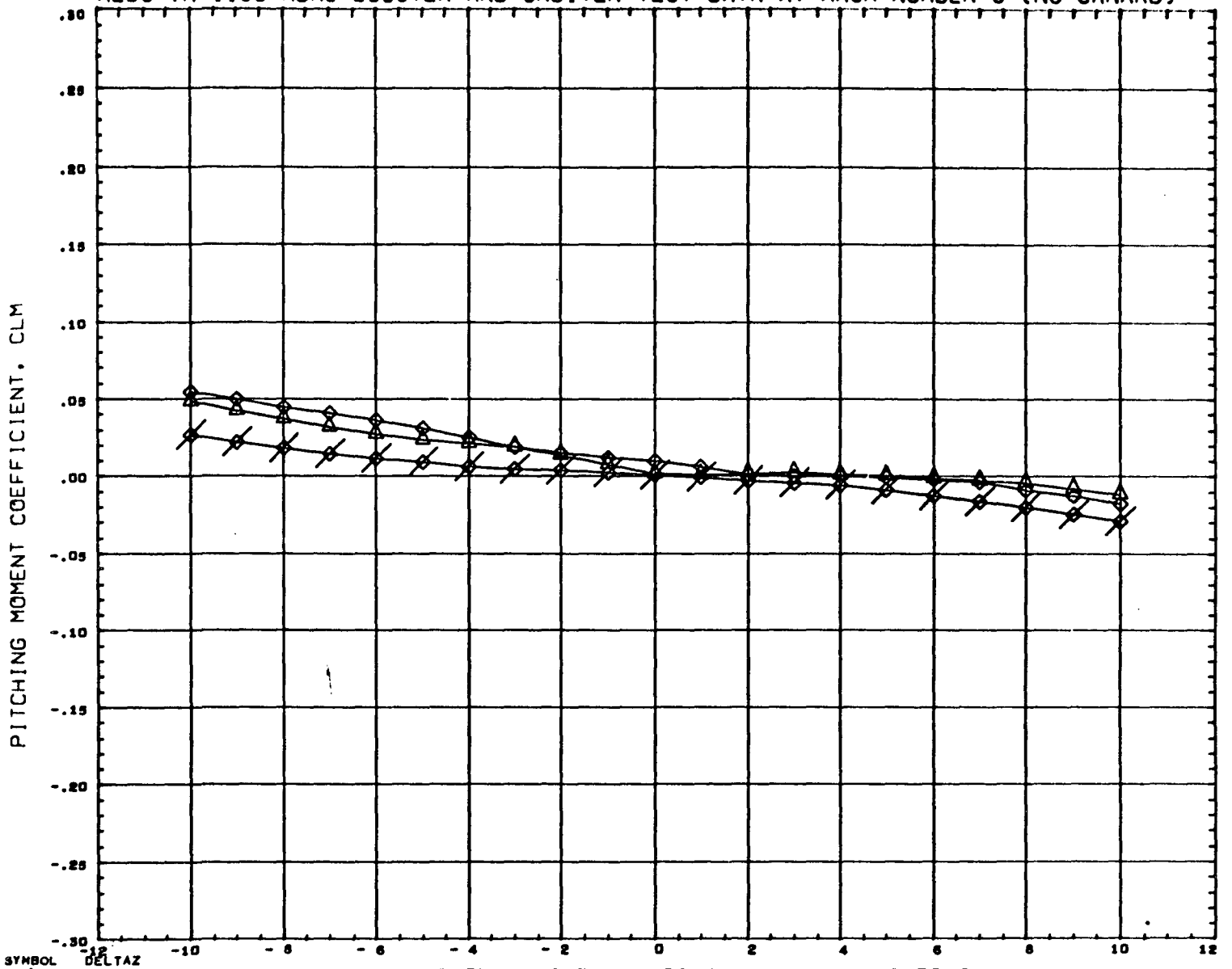
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

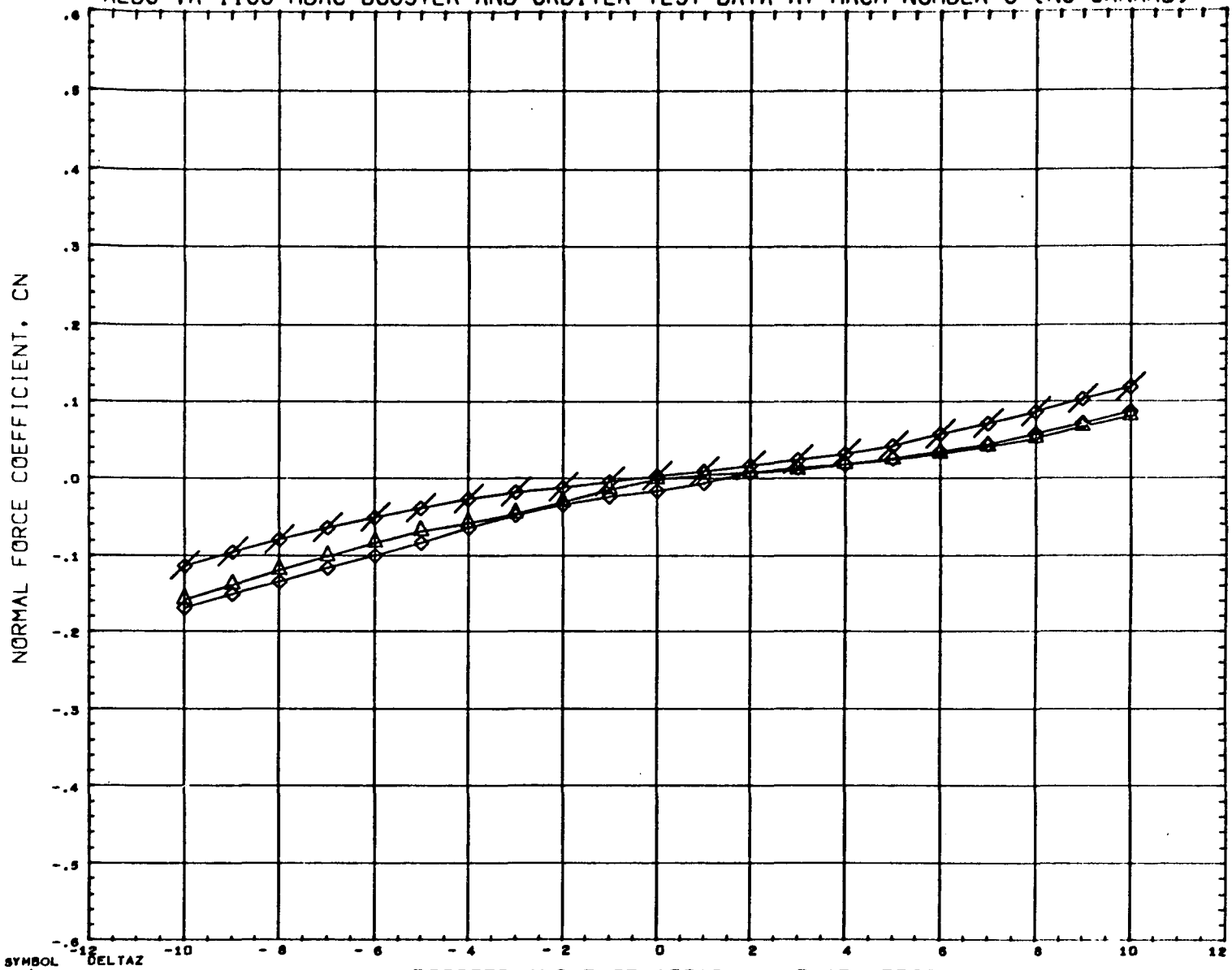
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

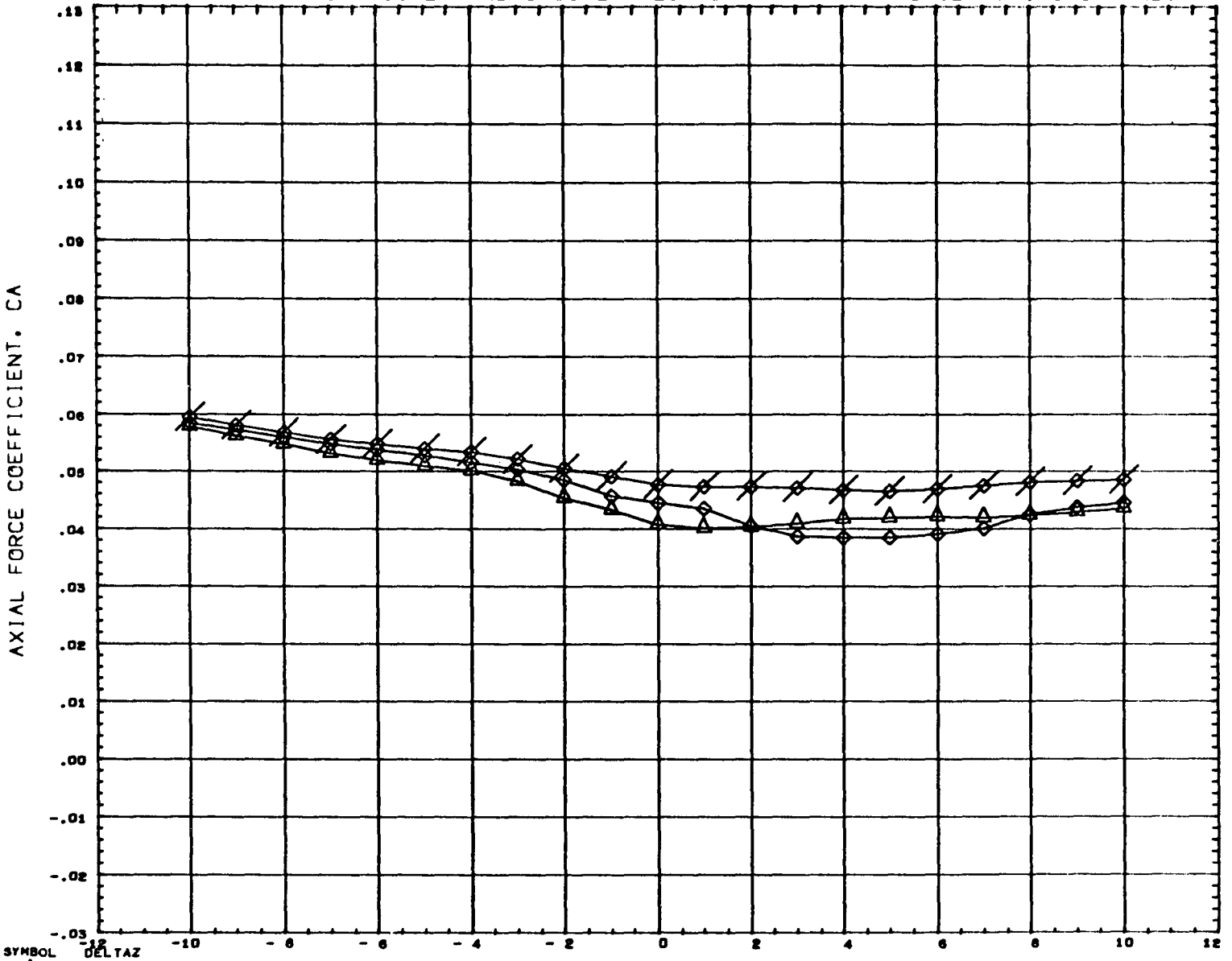
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

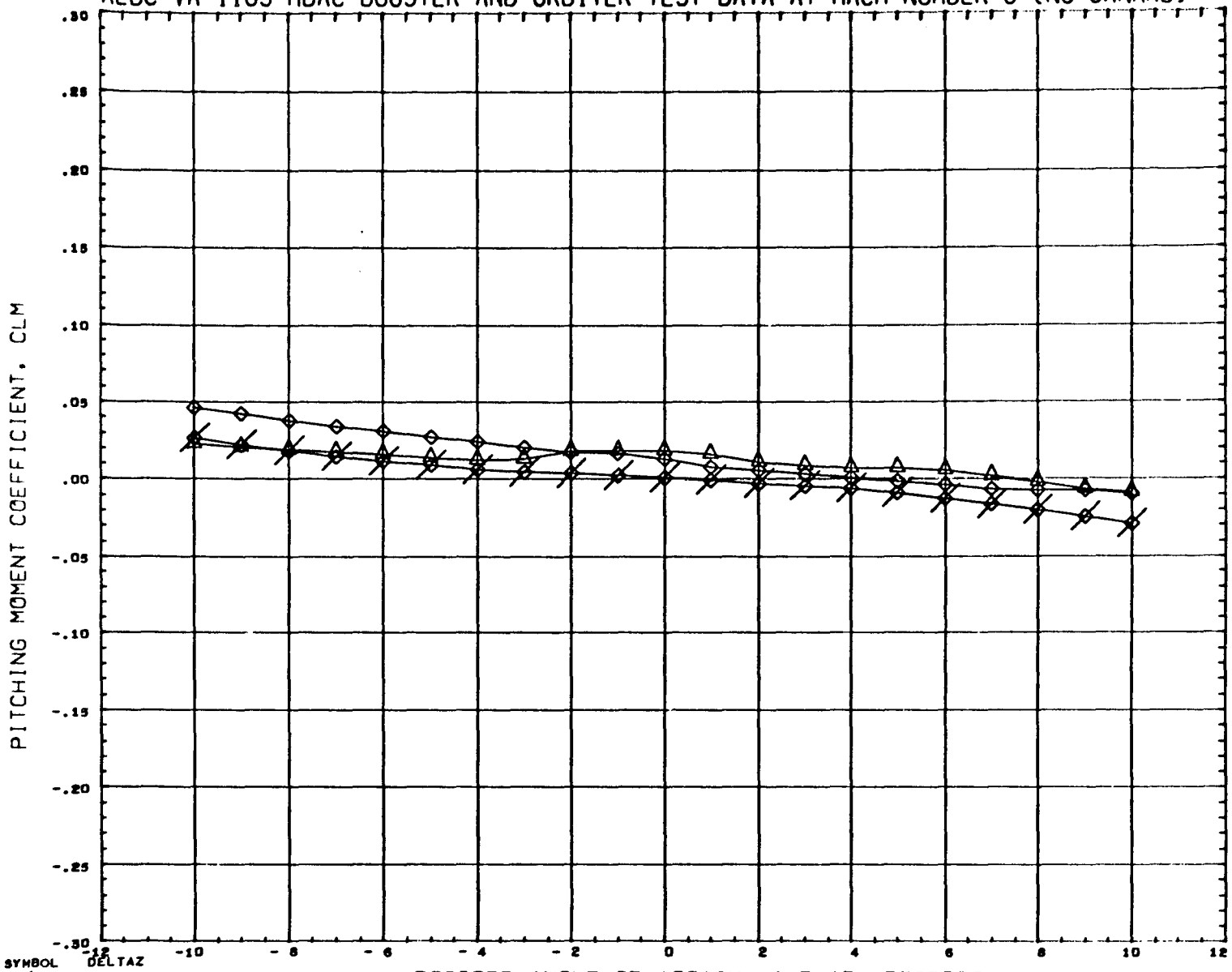
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.391	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



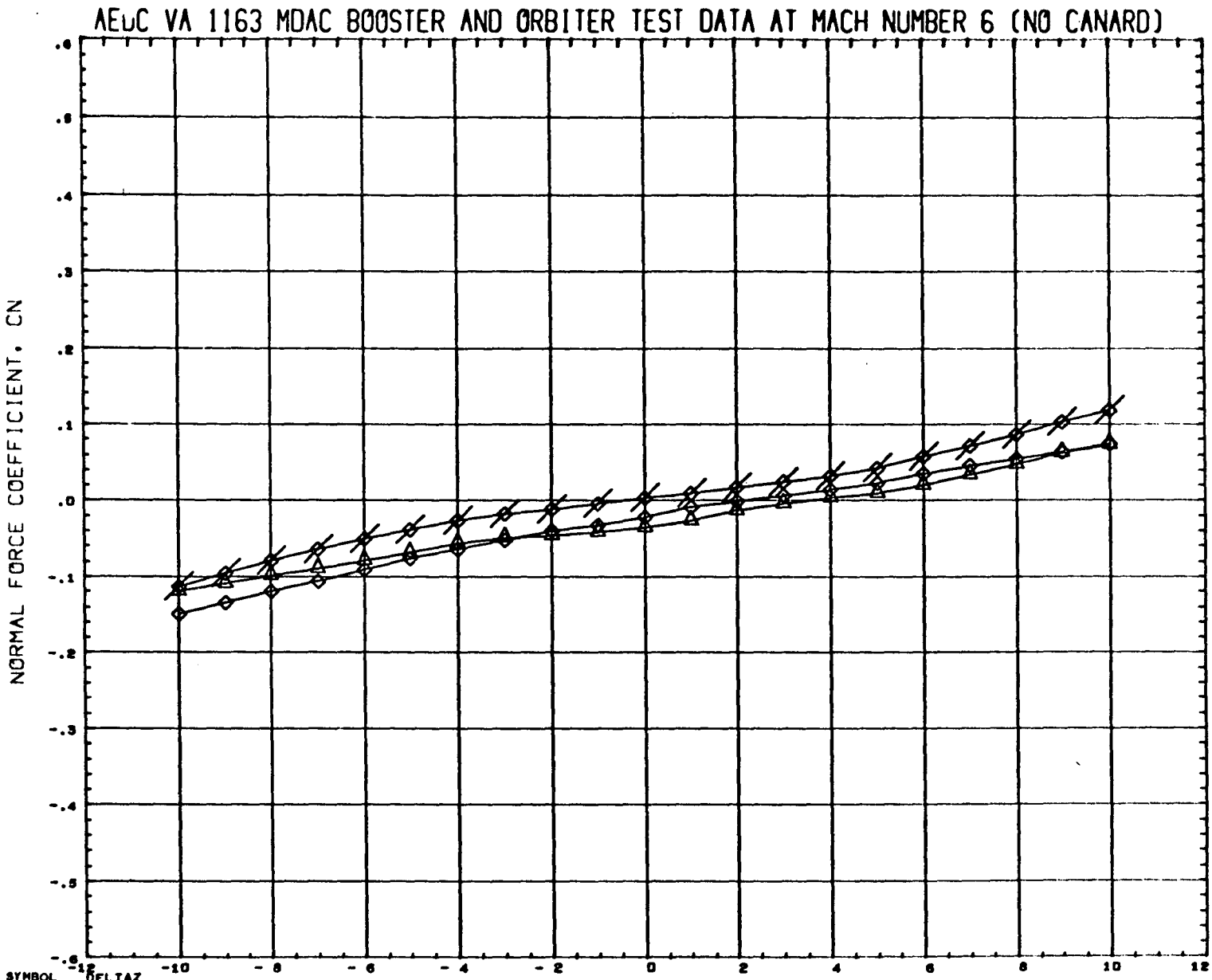
SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

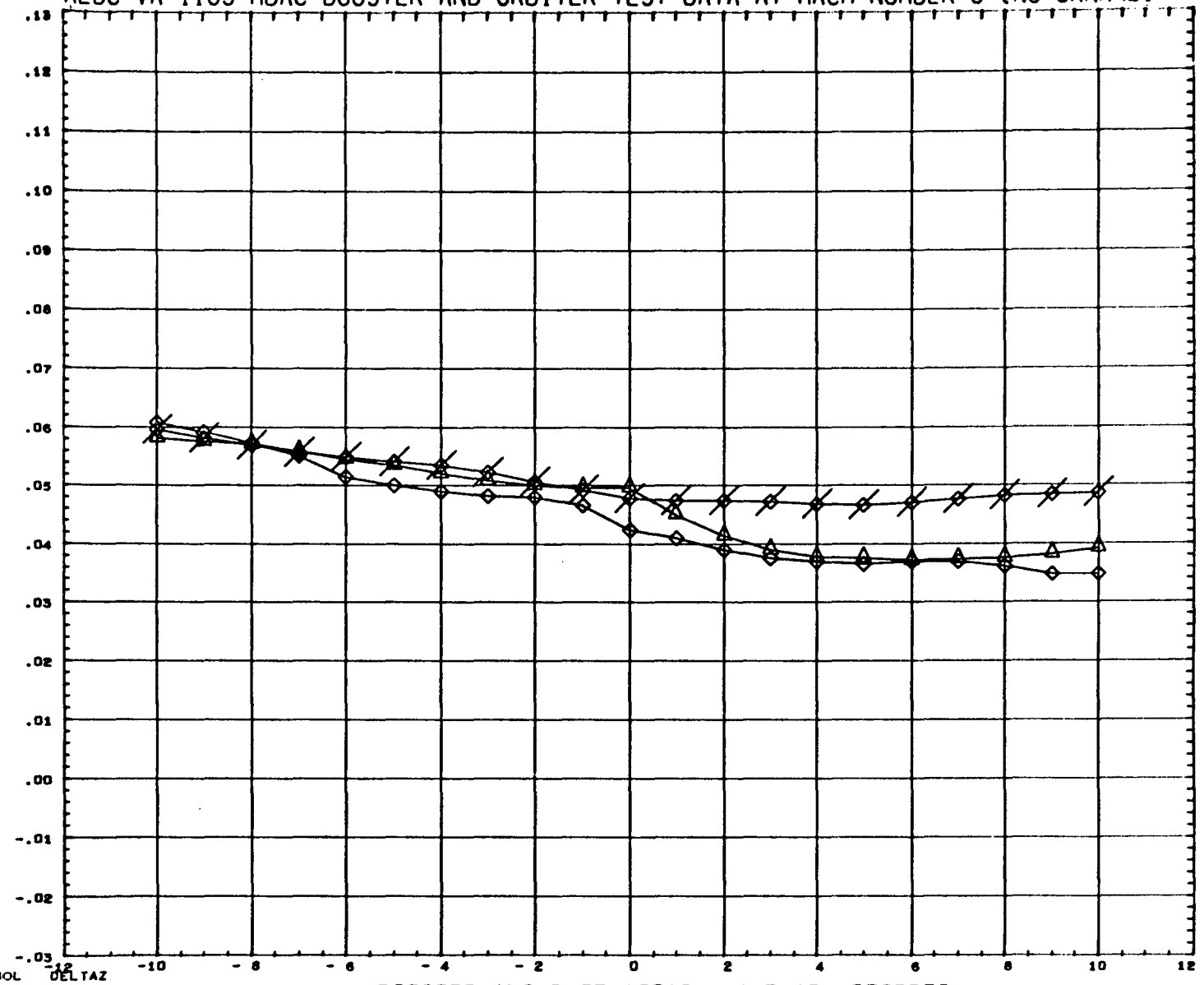
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

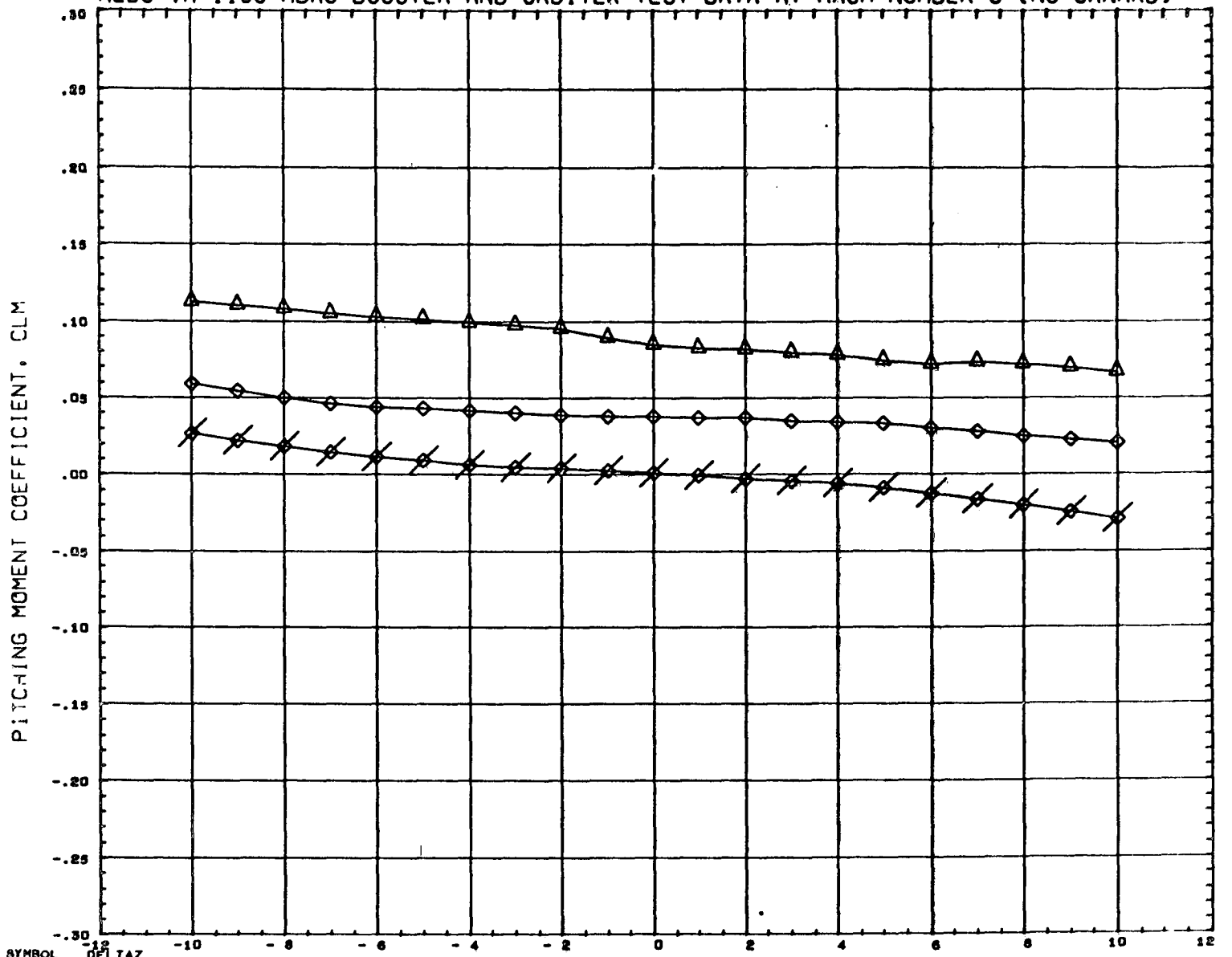
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.144	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

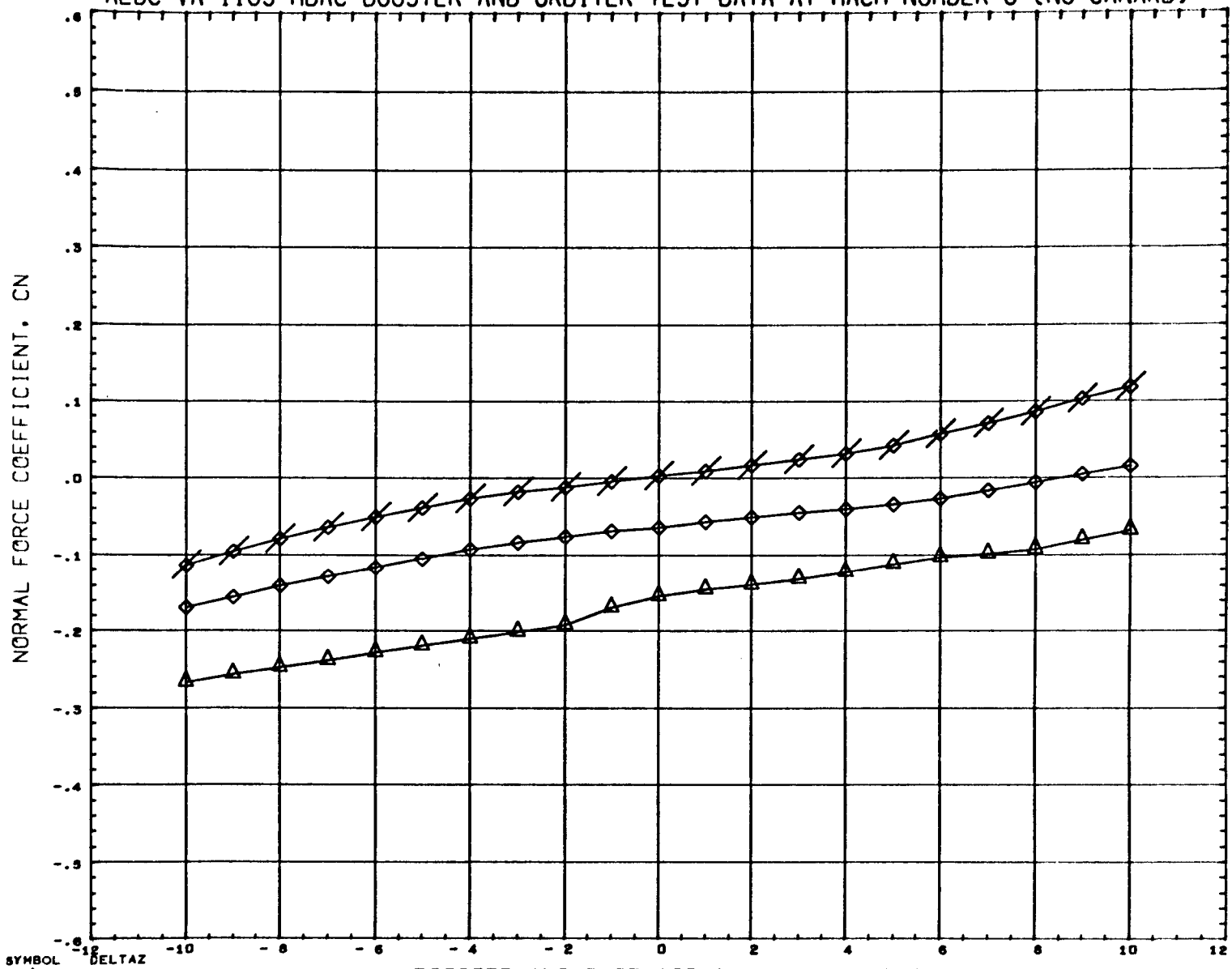
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

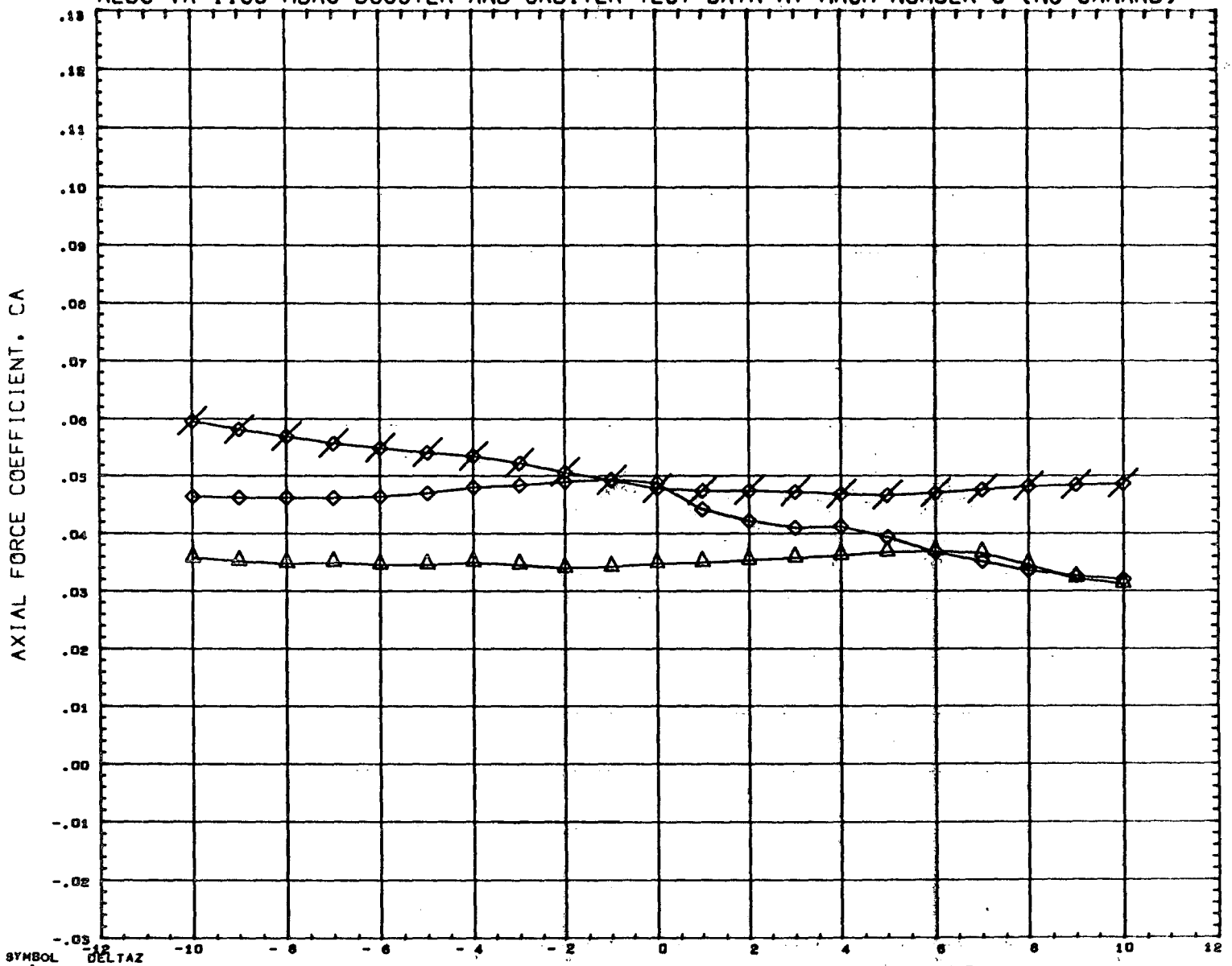
BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.191
⊘	10.000

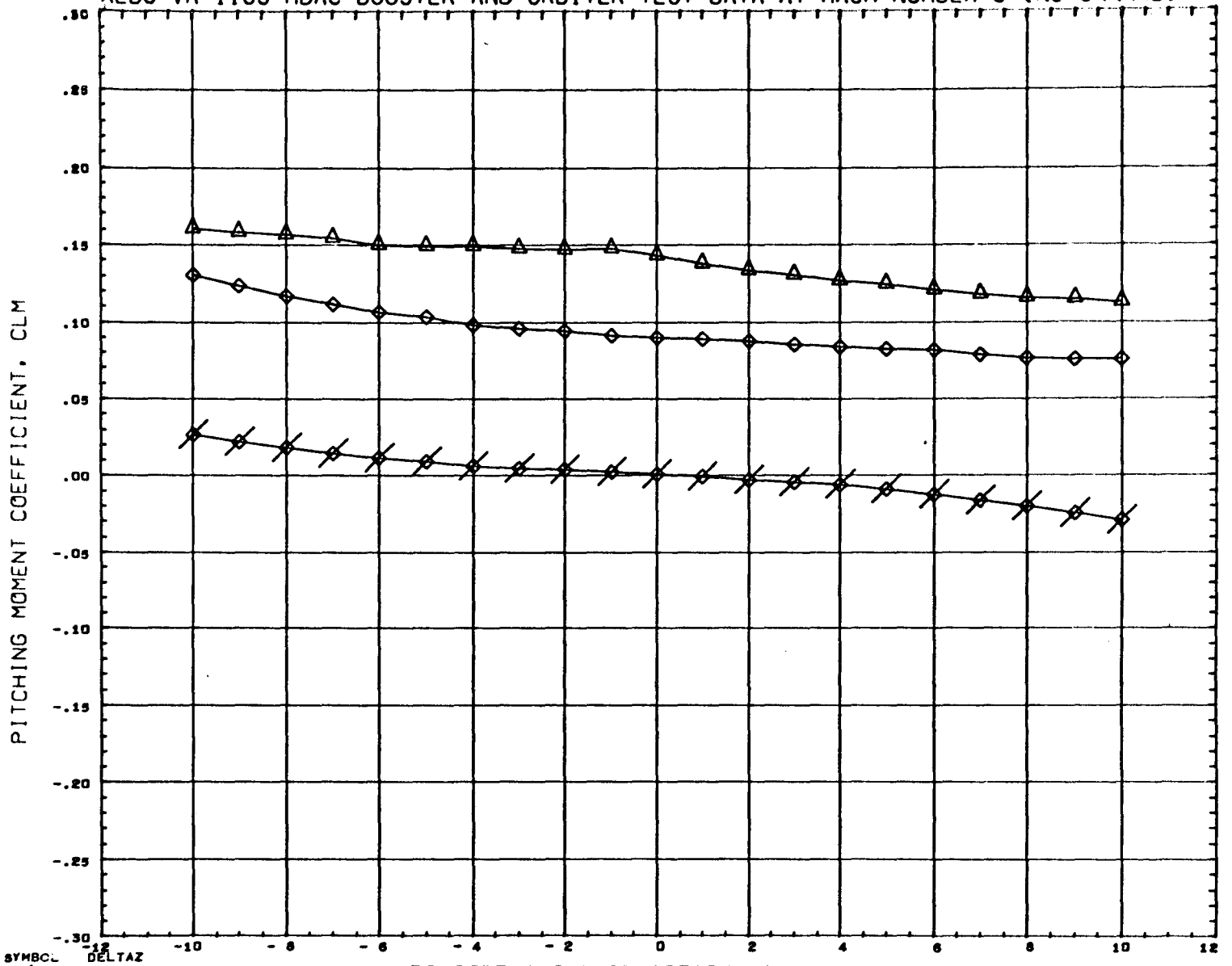
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	- 0.019	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

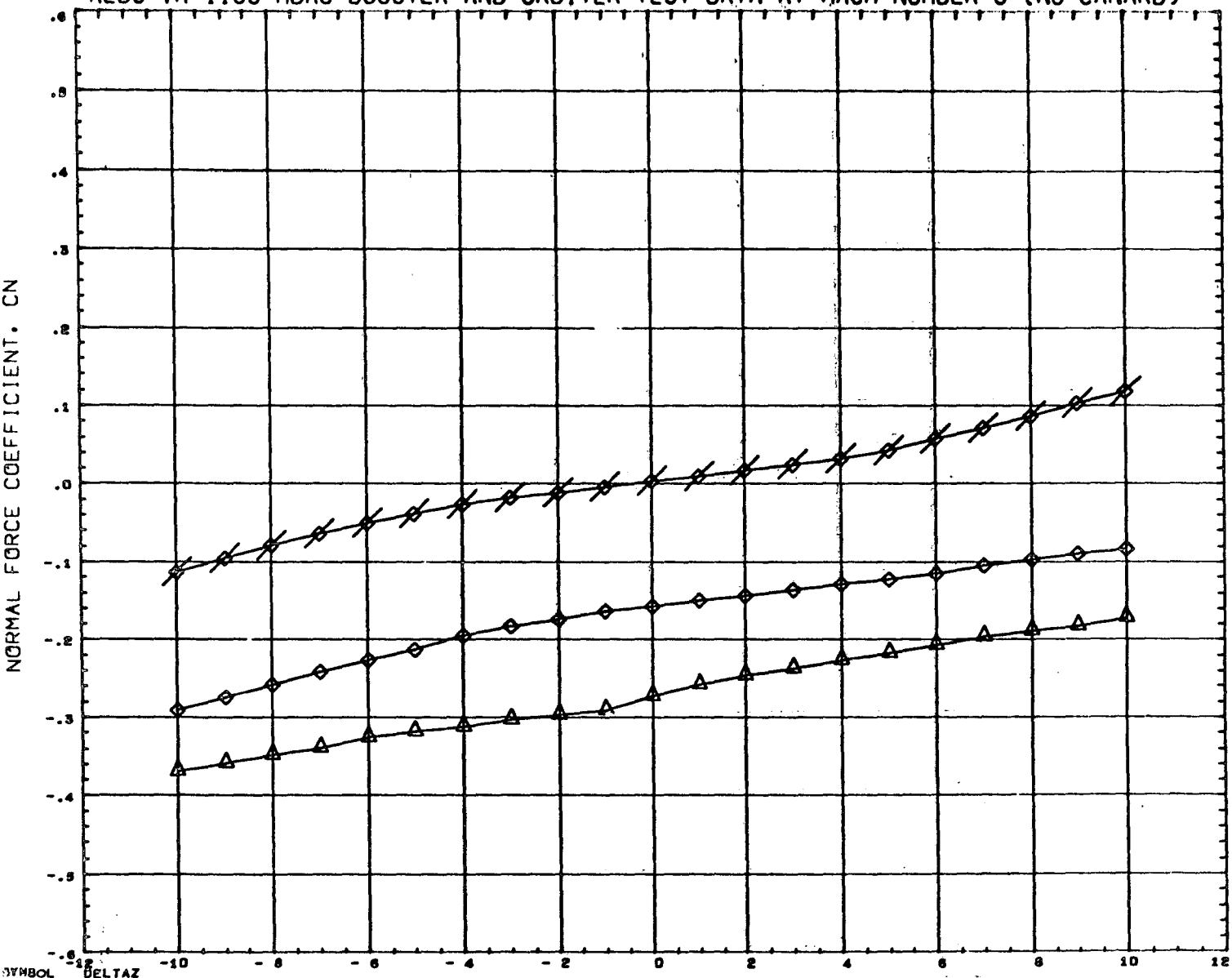
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5260	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

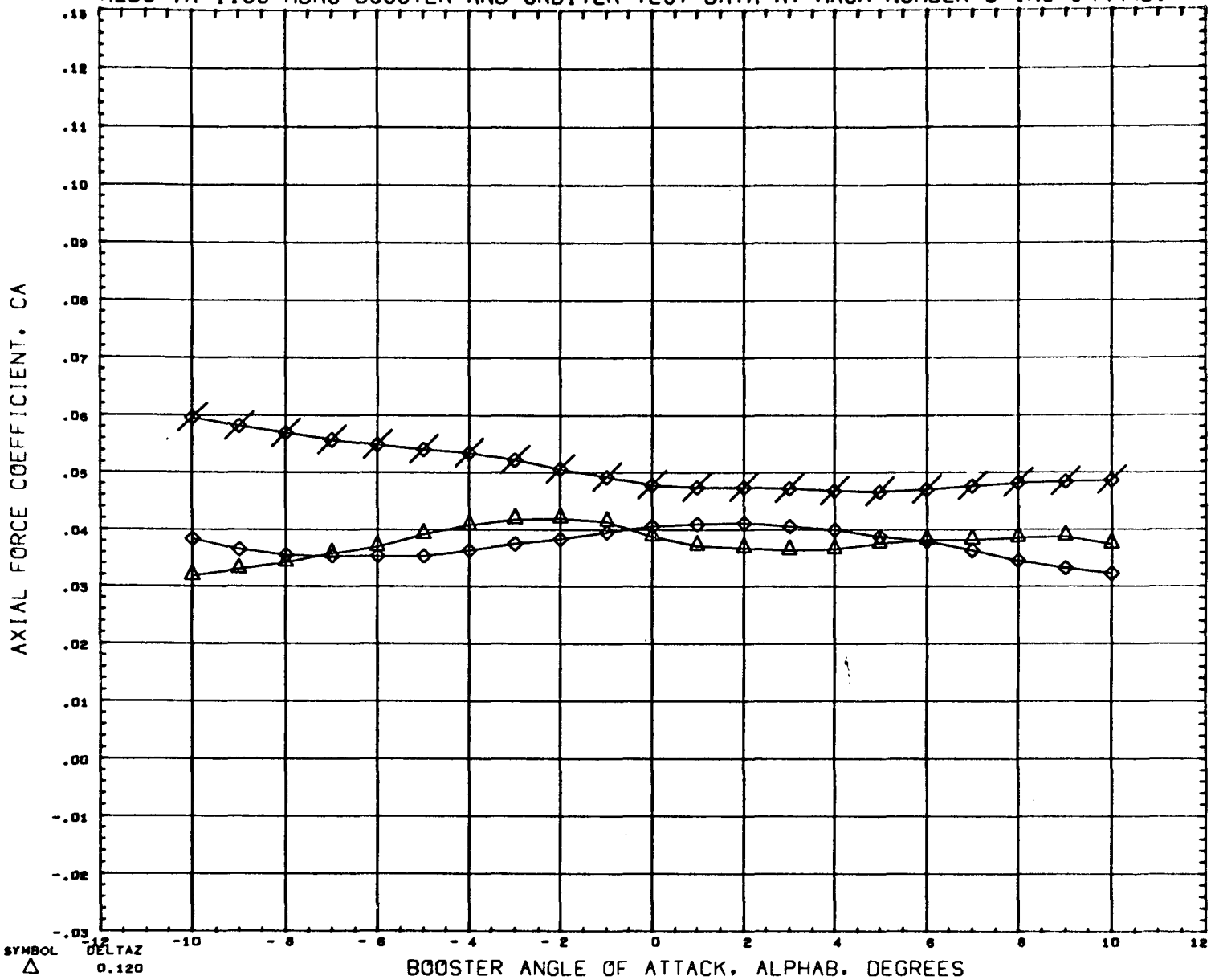
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

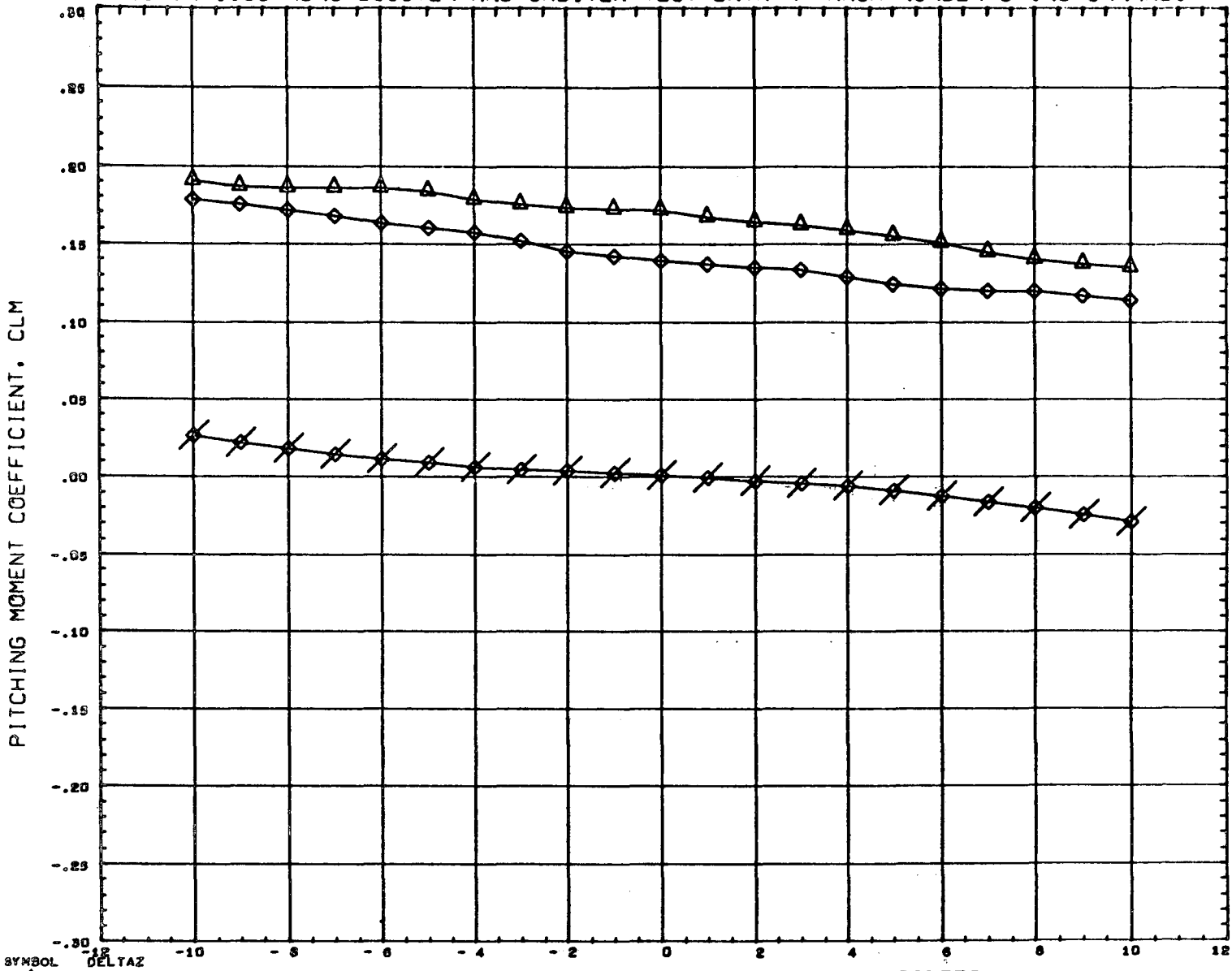
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.042	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

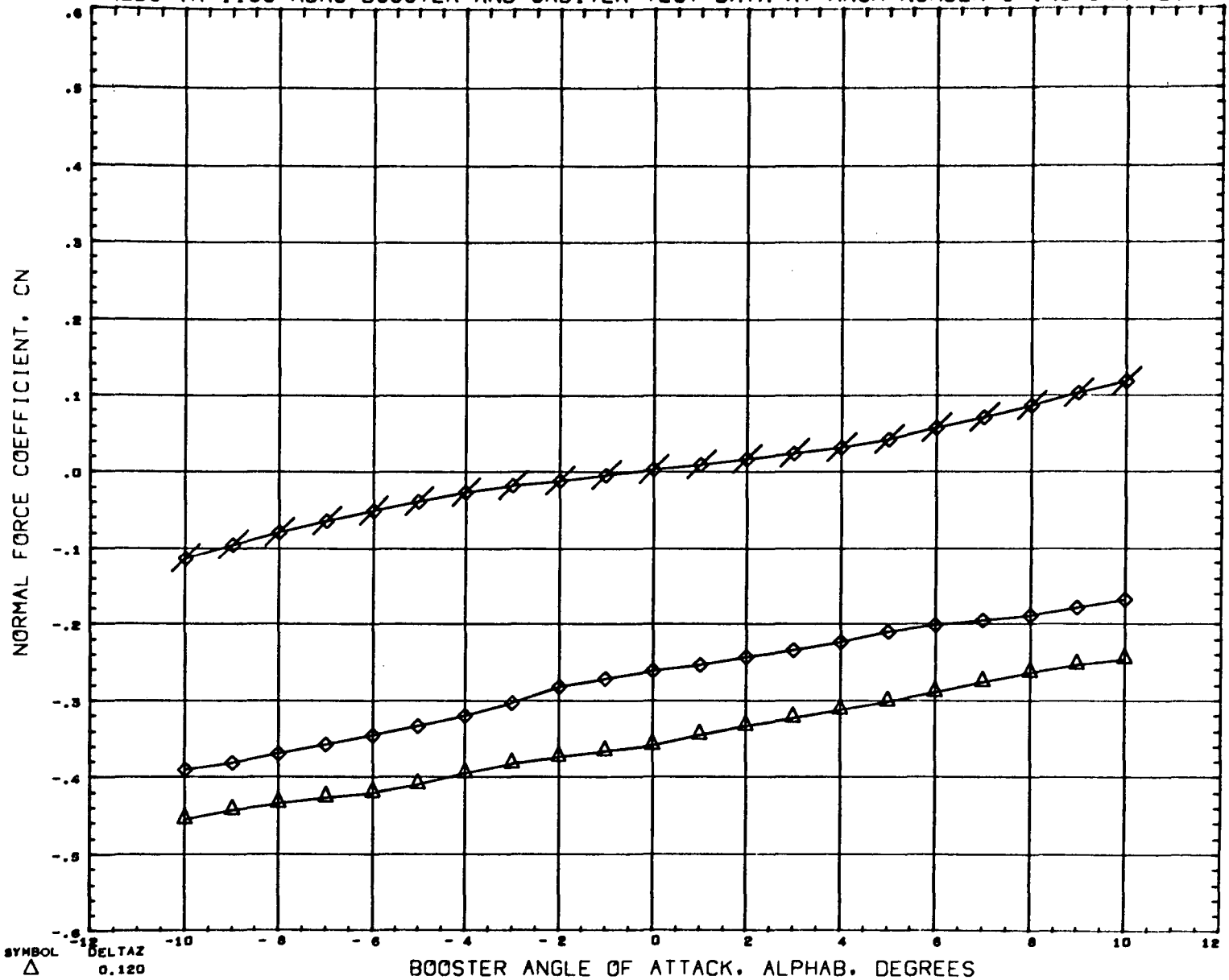
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

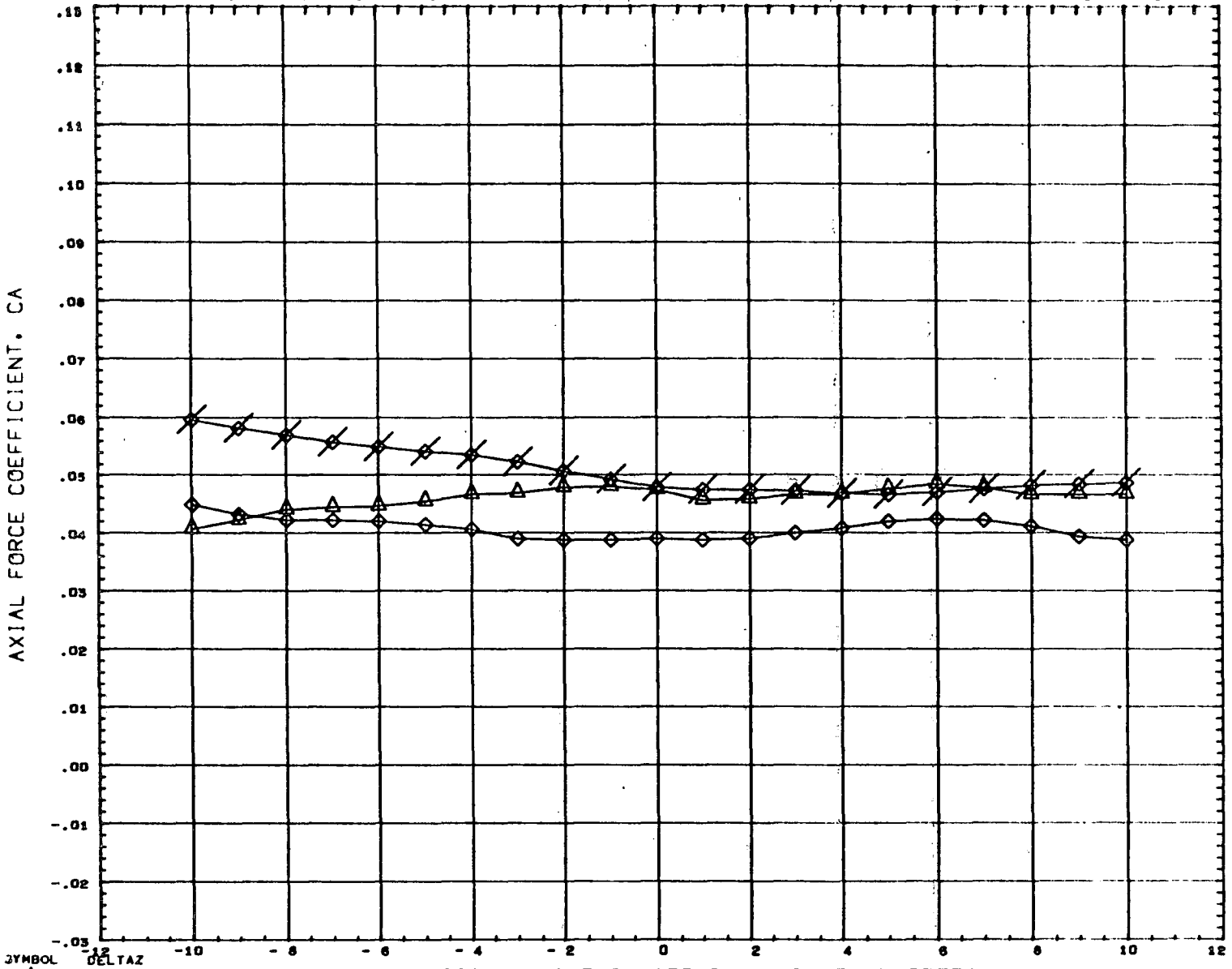
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

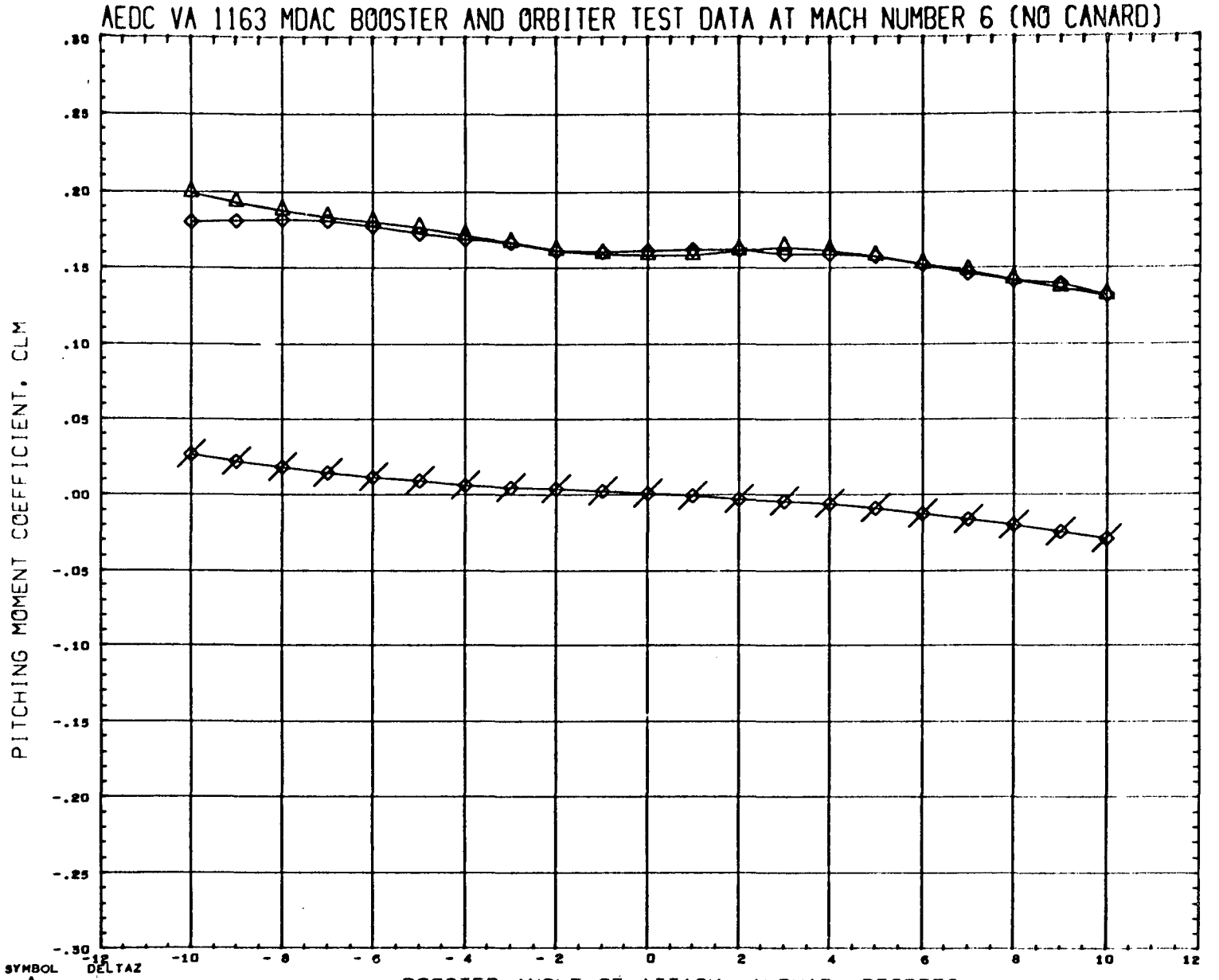
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.104	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

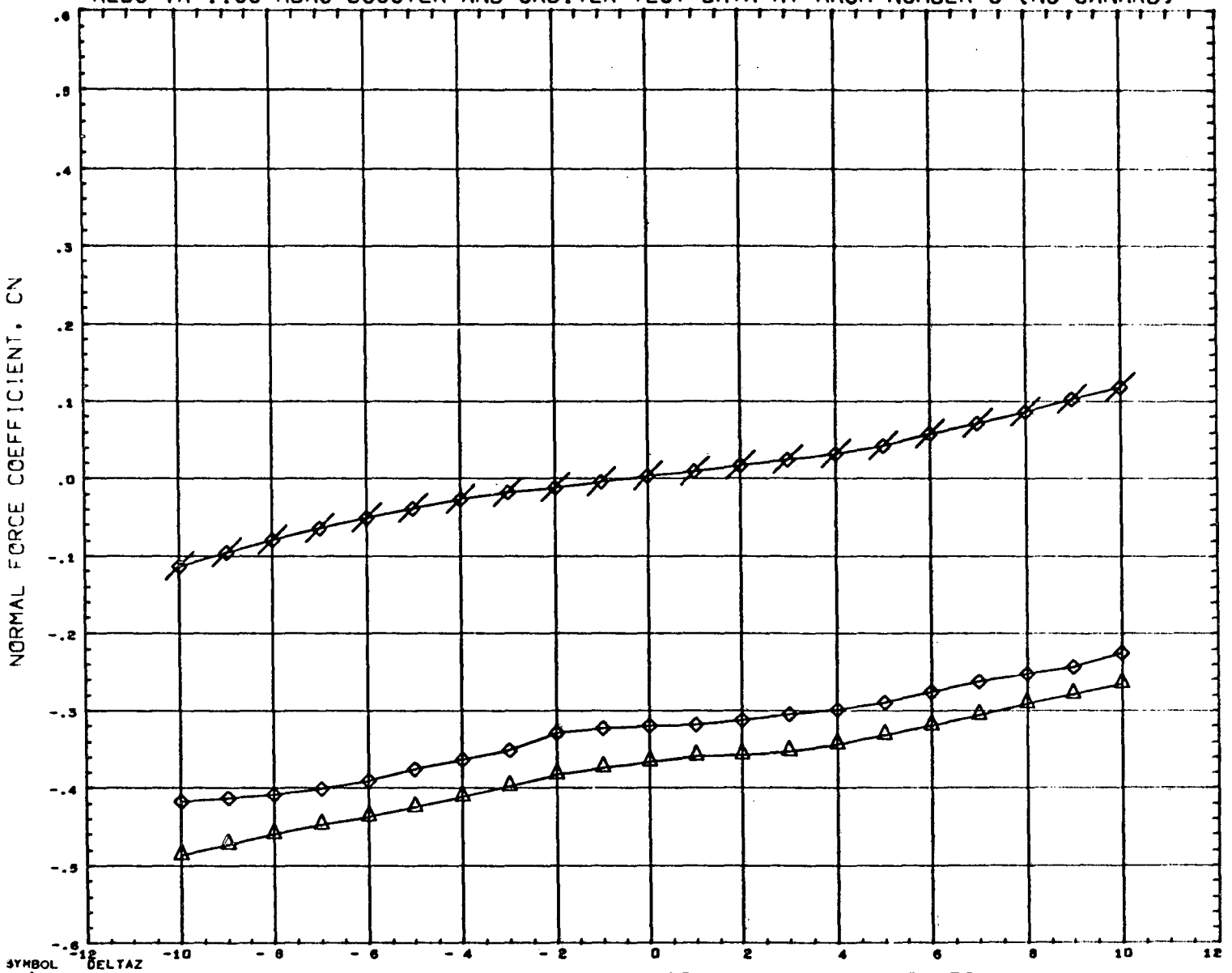
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

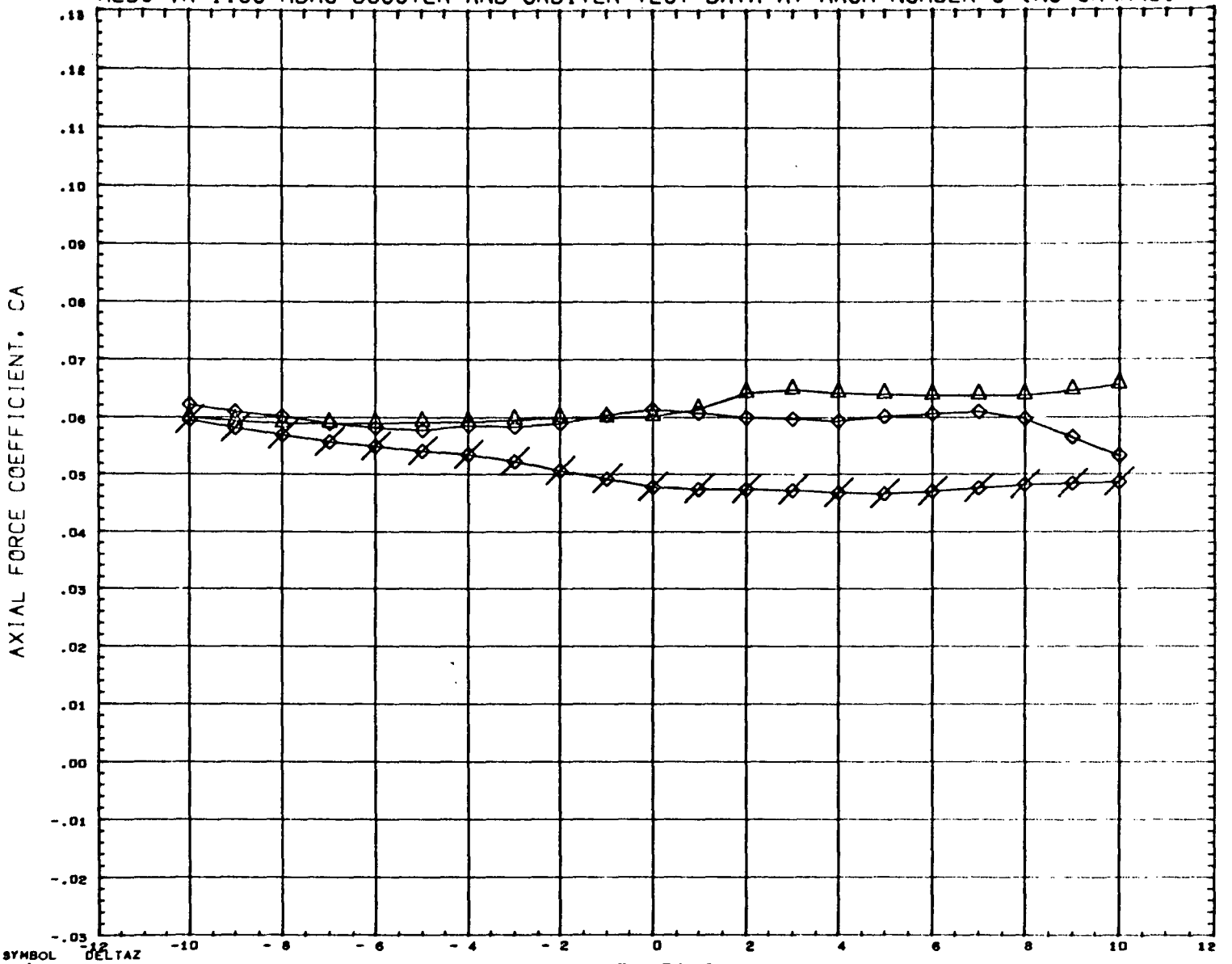
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

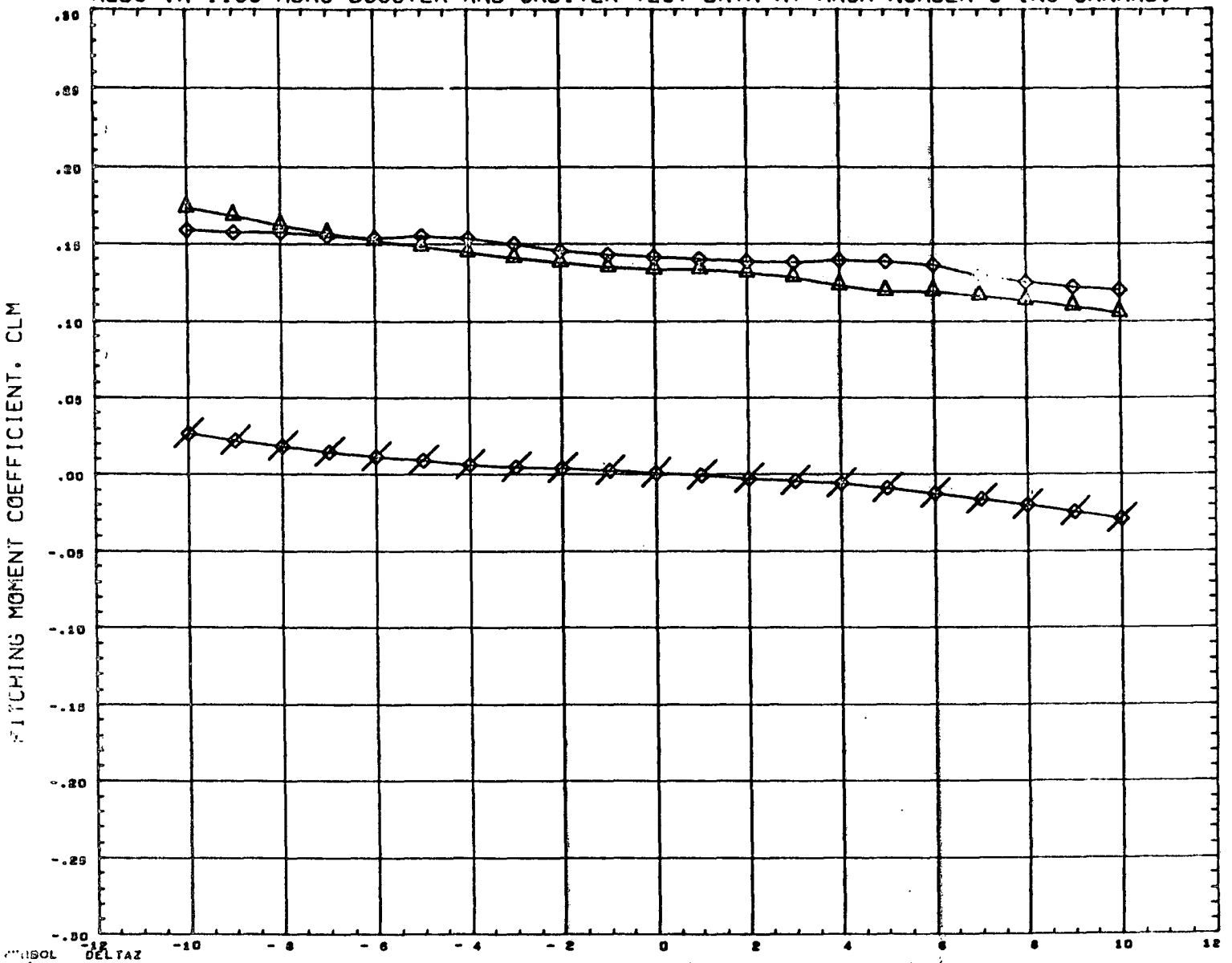
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.166	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

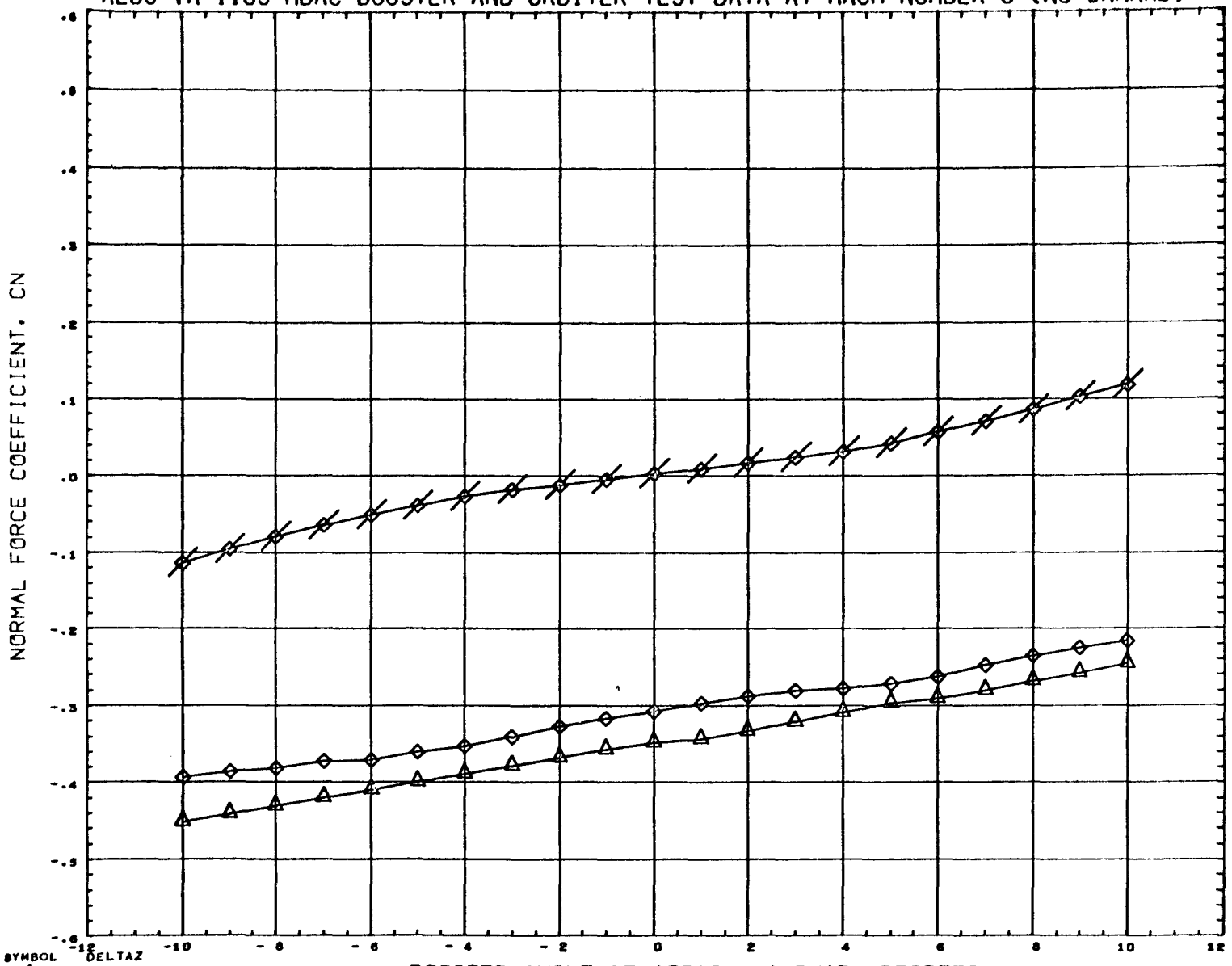
SSTPOW	50.000	ORBPOW	100.000
DELTAX	0.228	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

DATA HIST. CODE MV

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

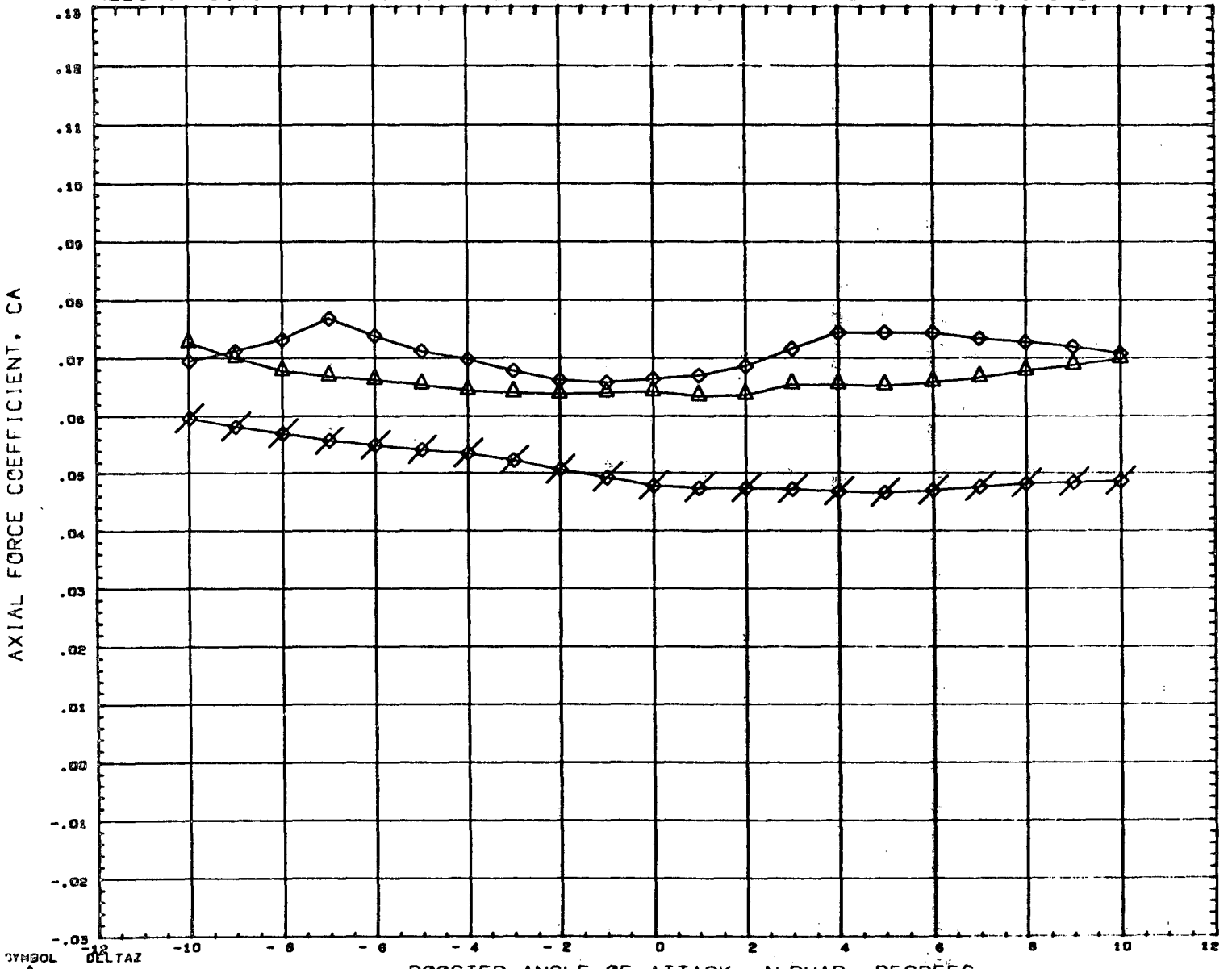
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.228	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

.DATA HIST. CODE MV

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

PARAMETRIC VALUES

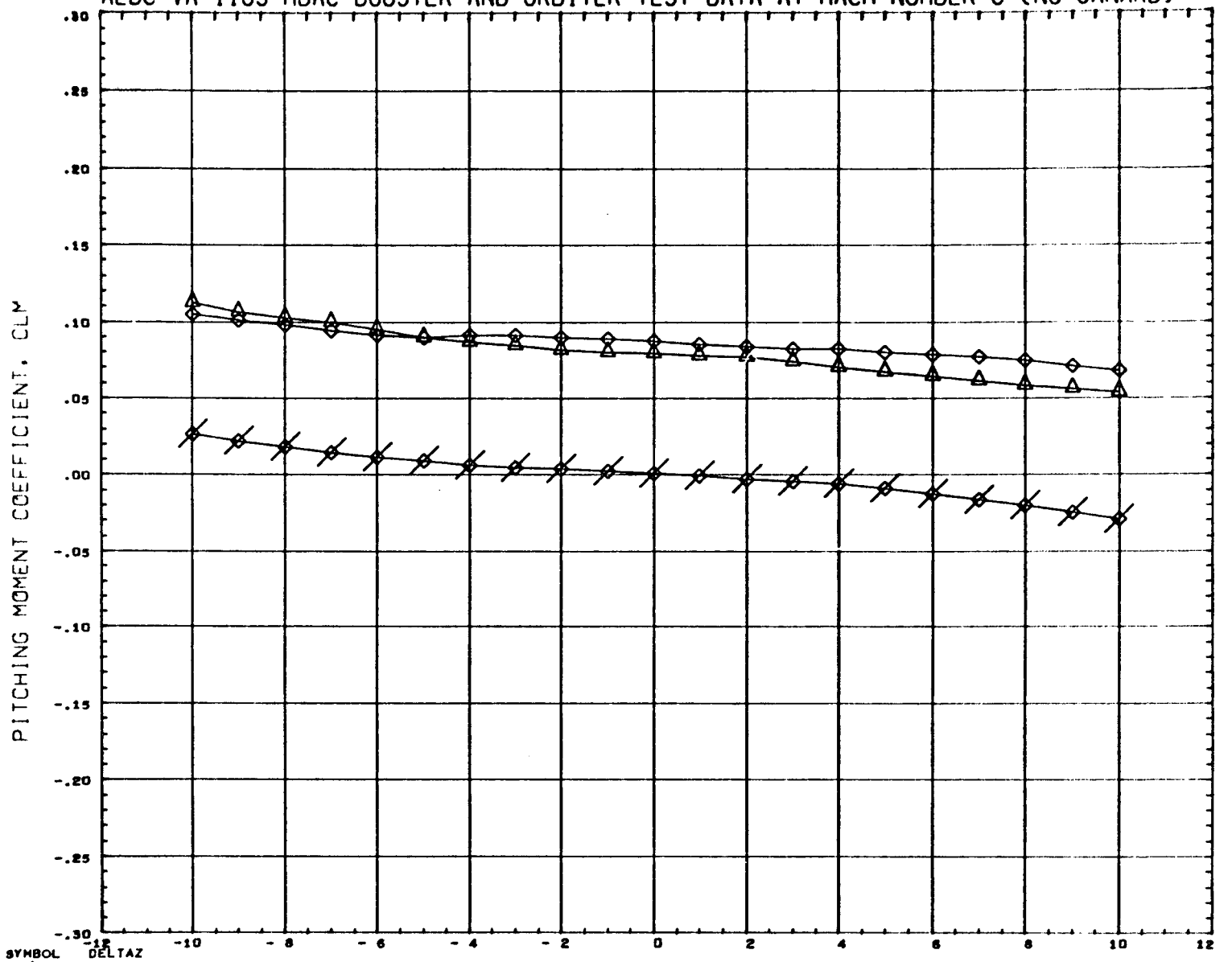
BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.228	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000

REFERENCE FILE 0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

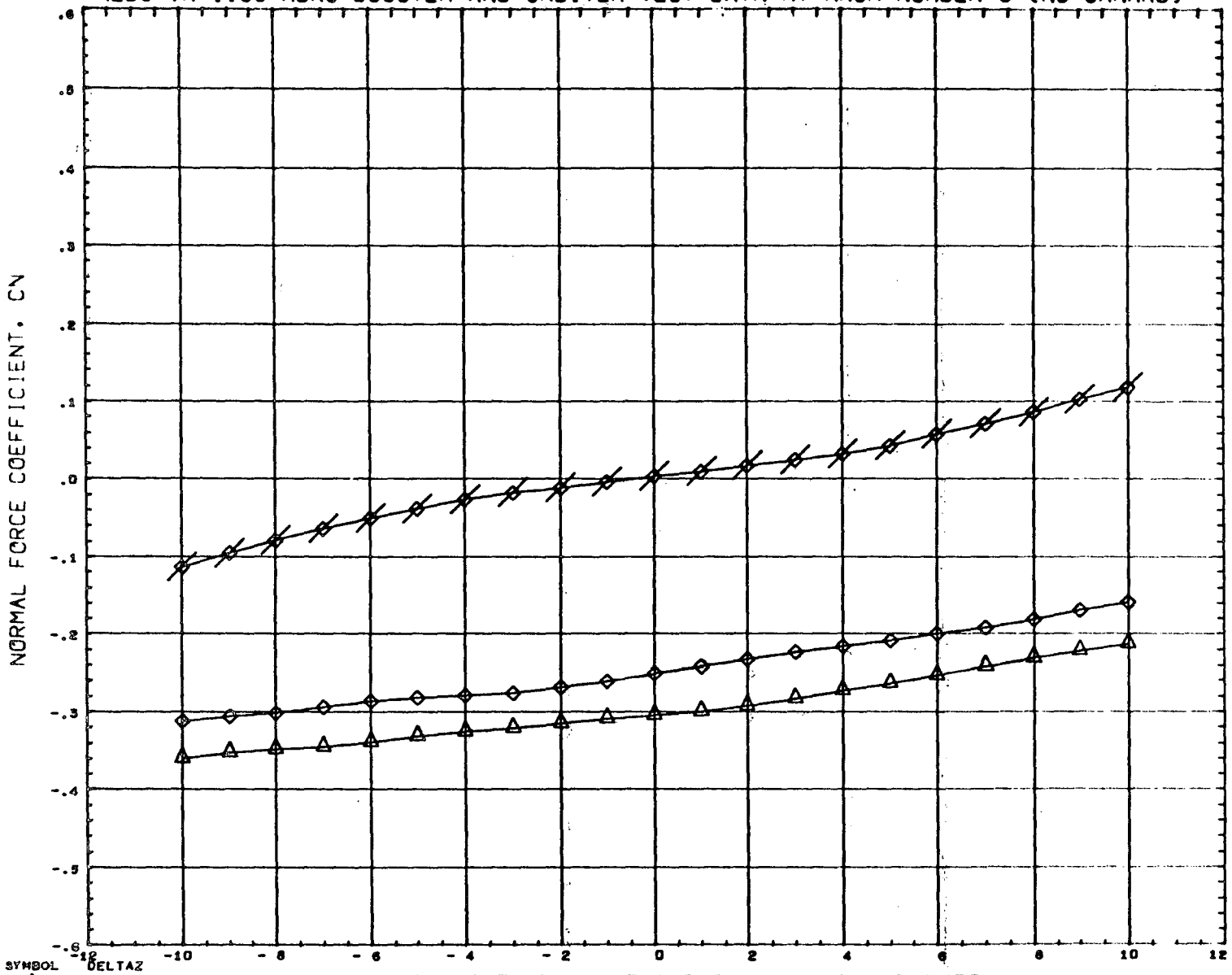
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⌀	10.000

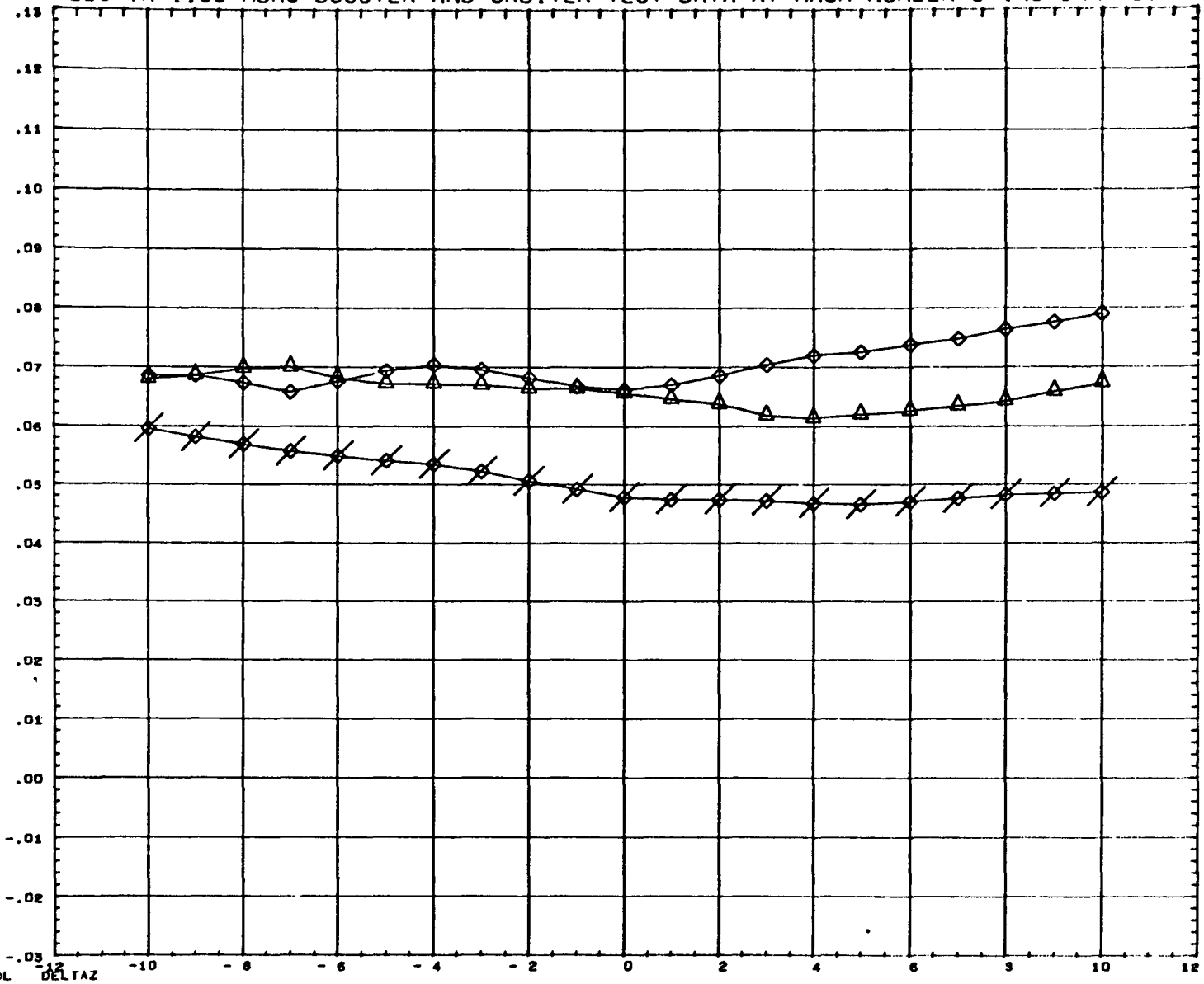
PARAMETRIC VALUES

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DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

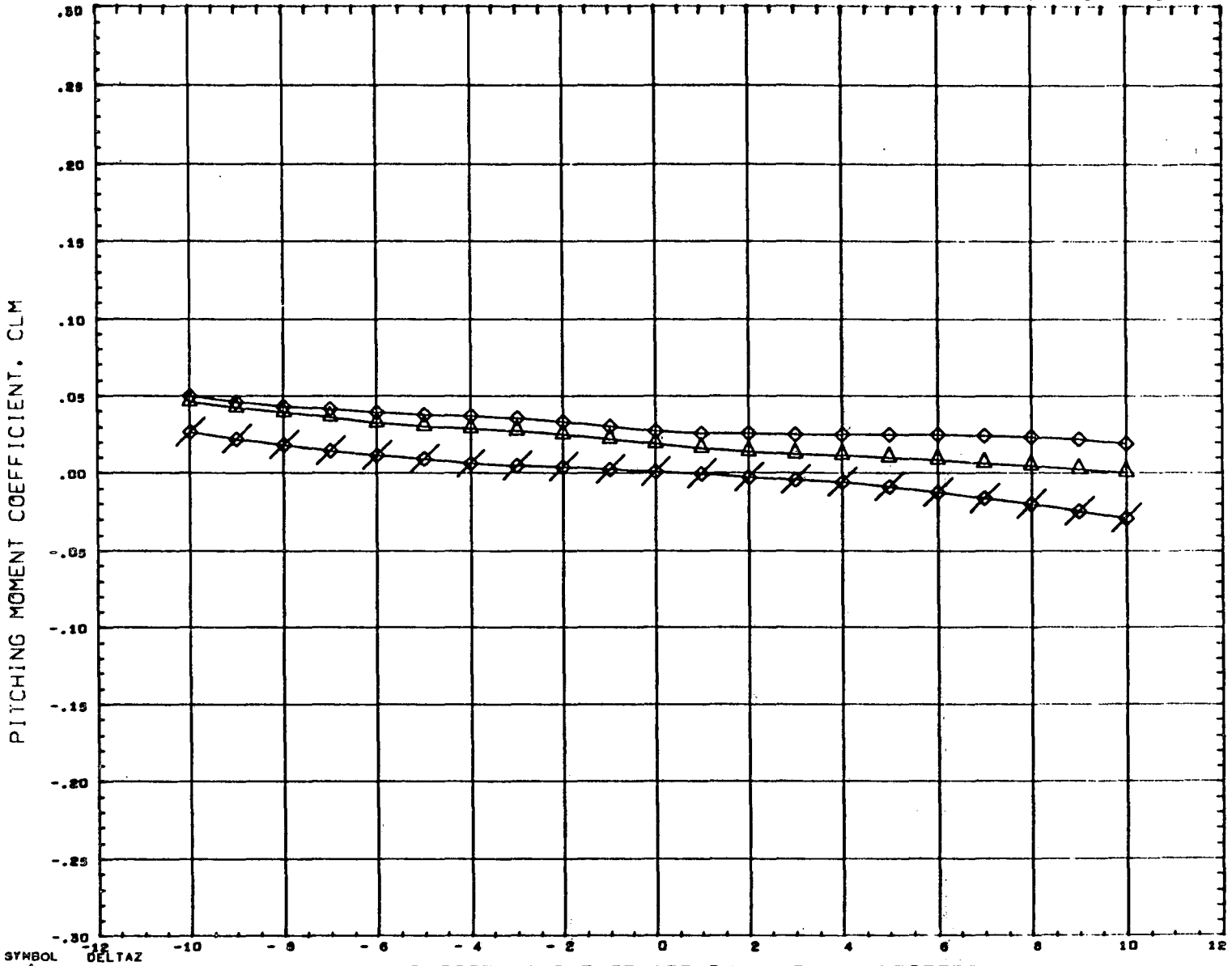
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.351	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.191
⊘	10.000

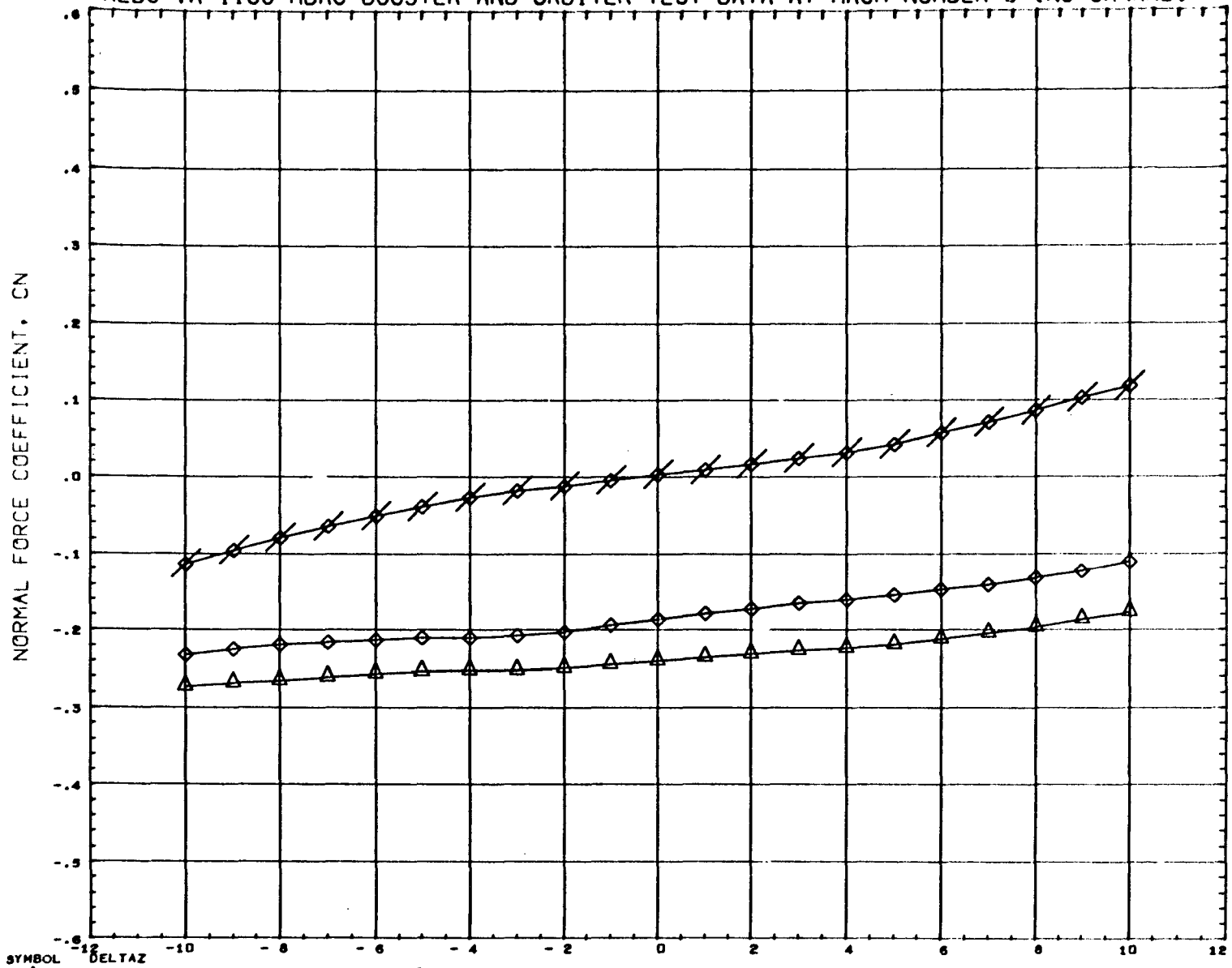
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE		0	

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5260	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

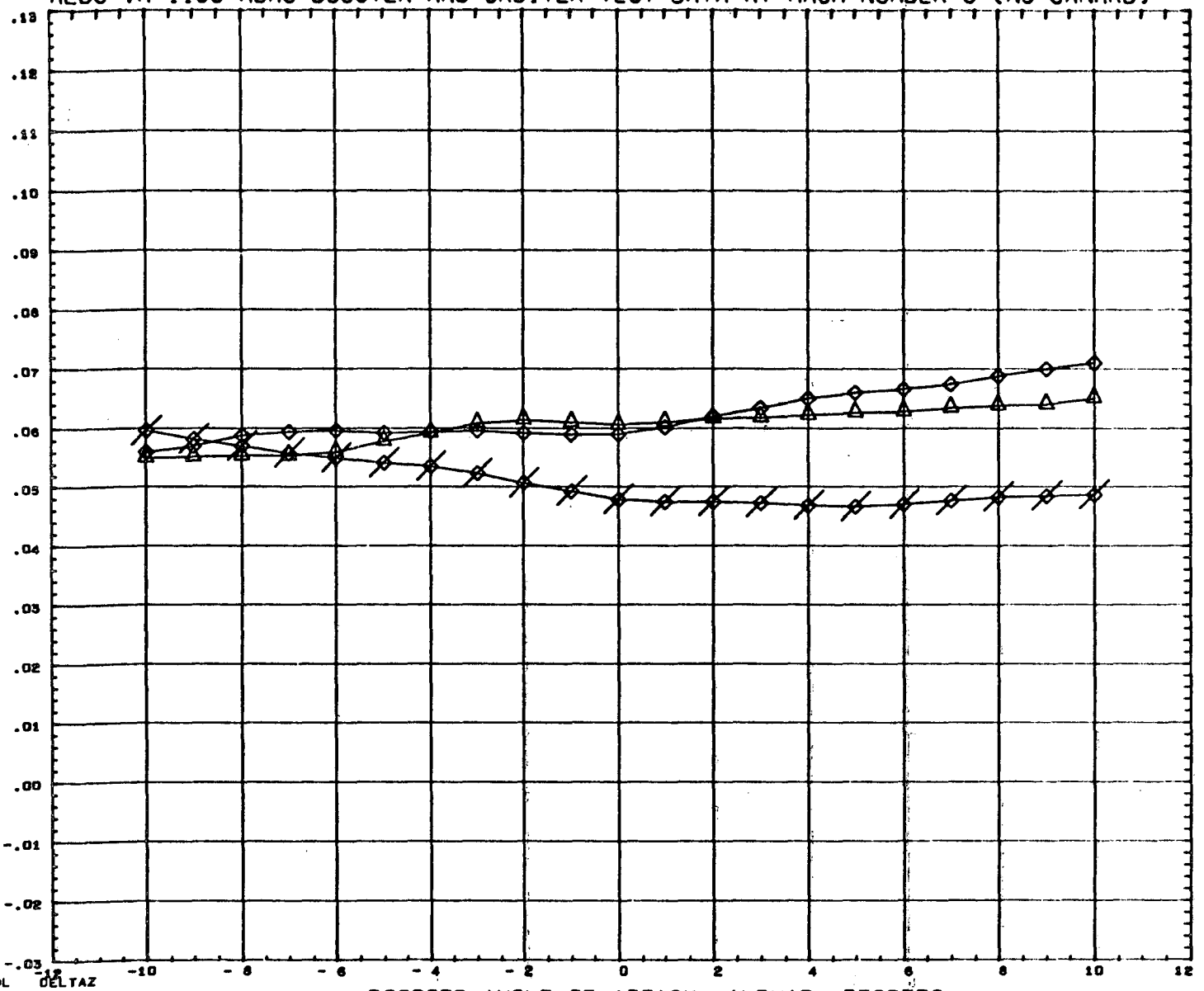
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5260	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA 1163 MDAC BOOSTER AND ORBITER TEST DATA AT MACH NUMBER 6 (NO CANARD)



SYMBOL	DELTAZ
△	0.120
◇	0.151
⊘	10.000

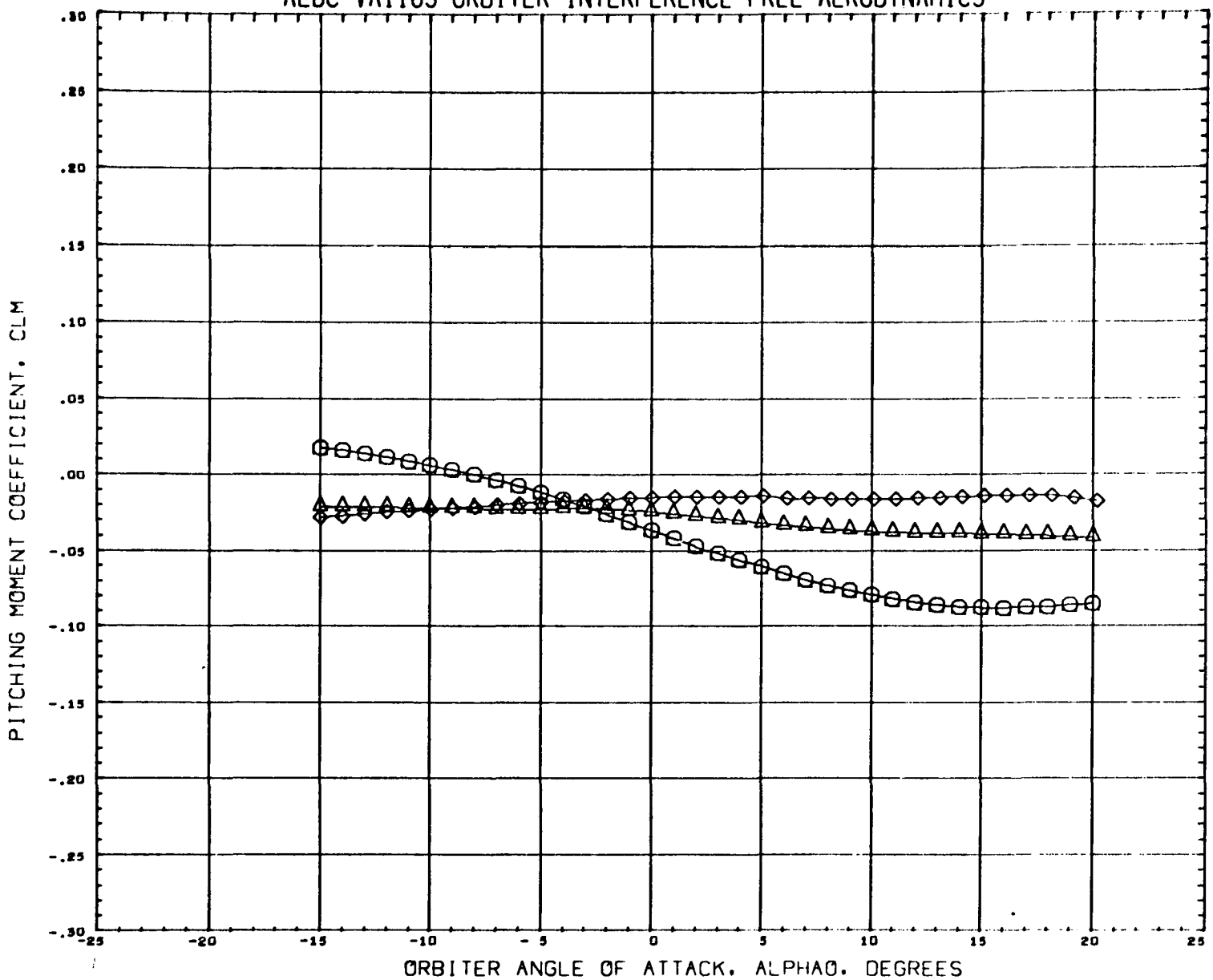
PARAMETRIC VALUES

BSTPOW	50.000	ORBPOW	100.000
DELTAX	0.522	ALPHAI	0.000
MACH	6.000	ELVBST	0.000
ELVORB	0.000	BETA	0.000
REFERENCE FILE			0

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



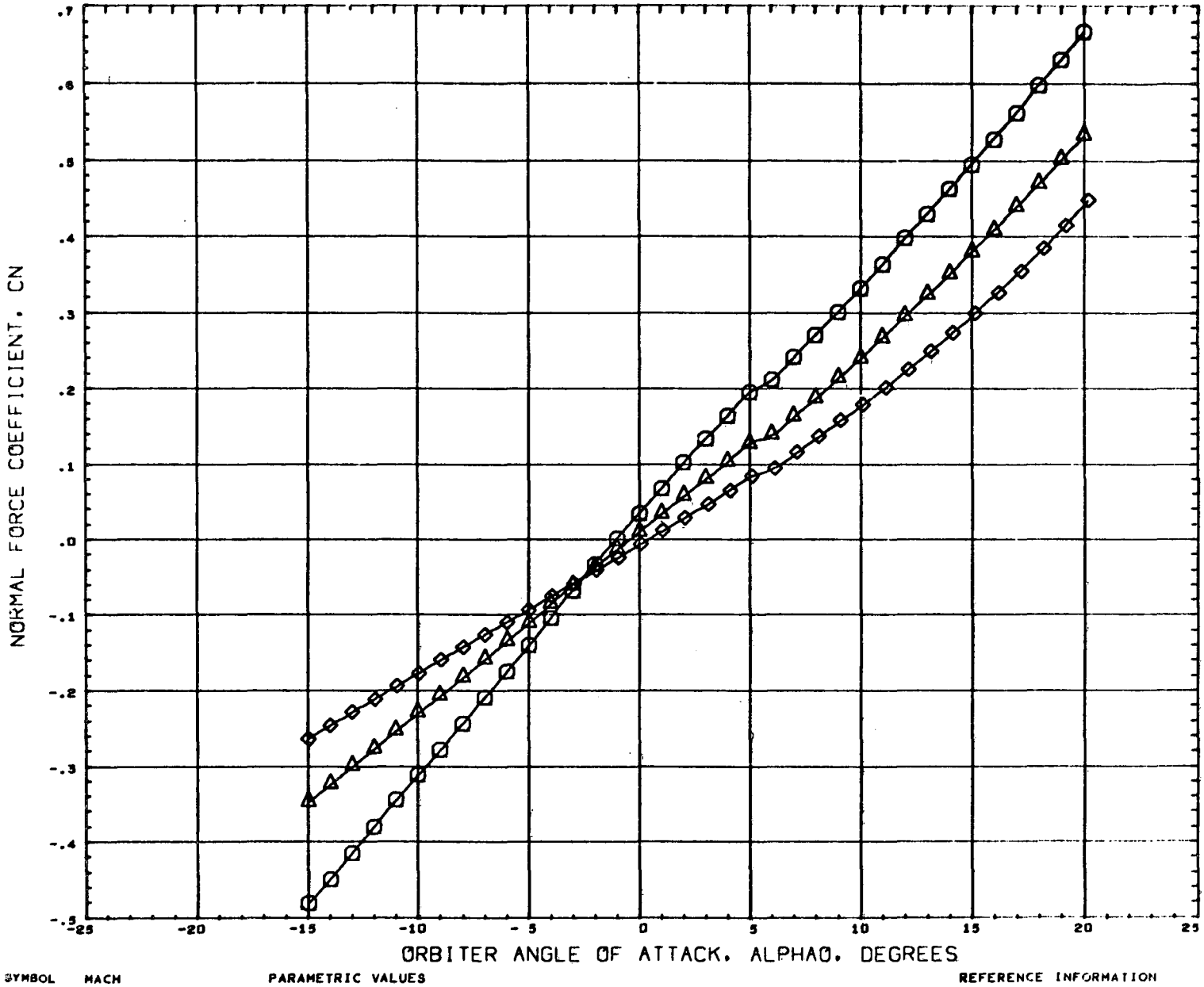
SYMBOL	MACH		PARAMETRIC VALUES			
○	2.000	ORBPOW	0.000	ELVORB	0.000	
△	3.000	BETA	0.000			
◇	5.000					

DATA HIST. CODE *AL*GM*GMS

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	6.9880	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS

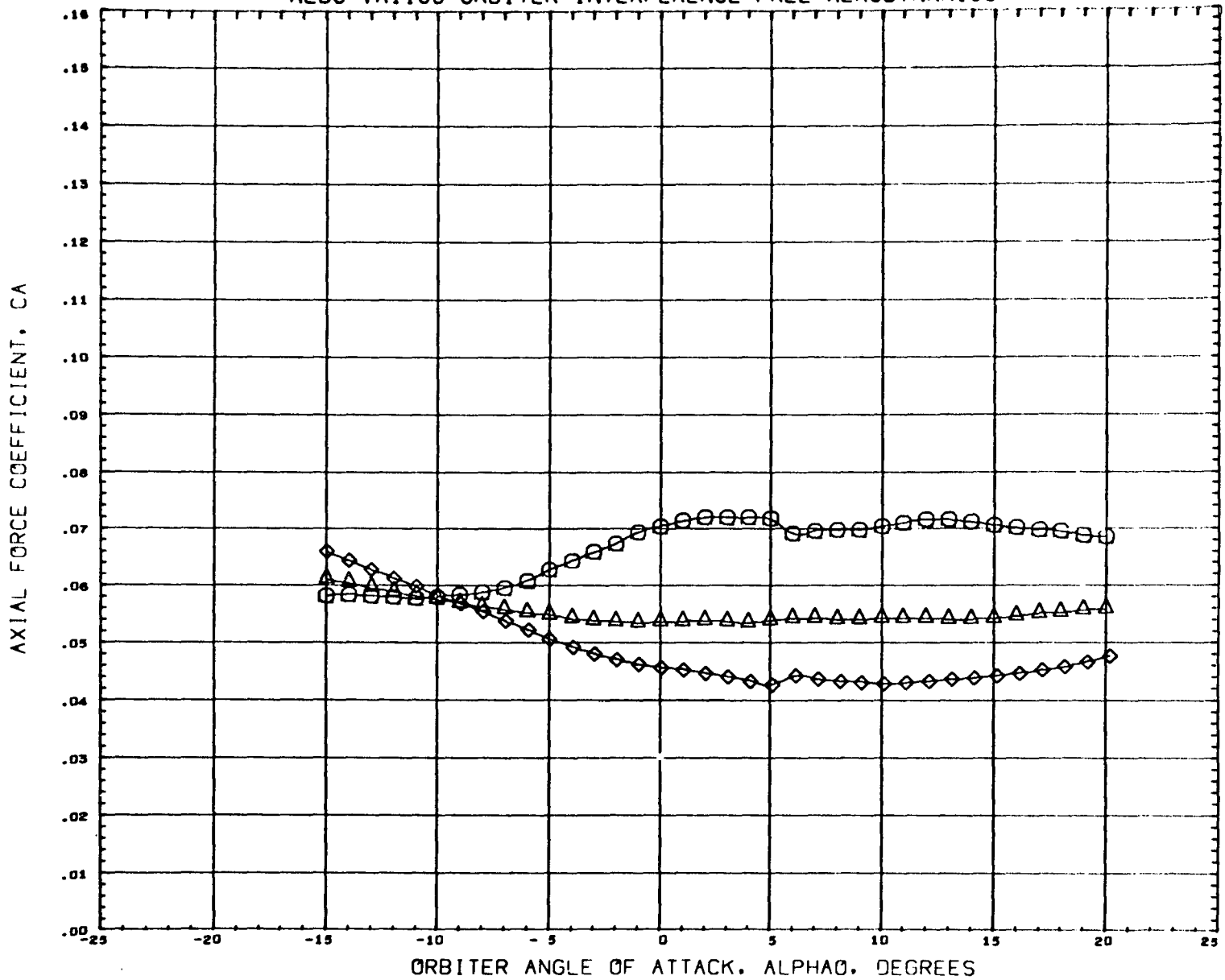


SYMBOL	MACH		PARAMETRIC VALUES		
○	2.000	ORBPOW	0.000	ELVORB	0.000
△	3.000	BETA	0.000		
◇	5.000				

DATA MIST. CODE *AL*GM*GMS

REFERENCE INFORMATION		
SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	6.9880	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



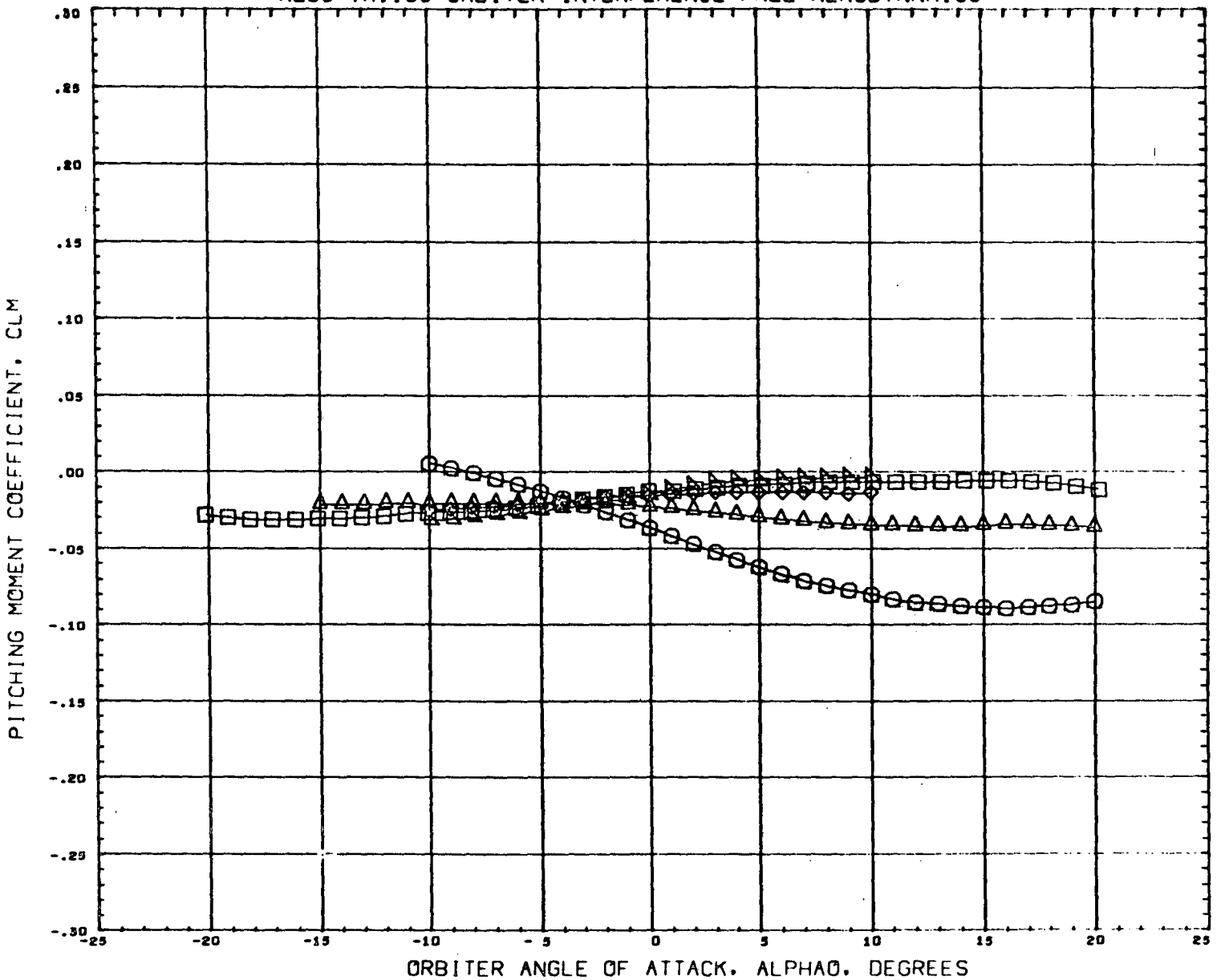
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DATA HIST. CODE *AL*GM*GMS

REFERENCE INFORMATION

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SCALE	0.0055	

AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



SYMBOL	MACH
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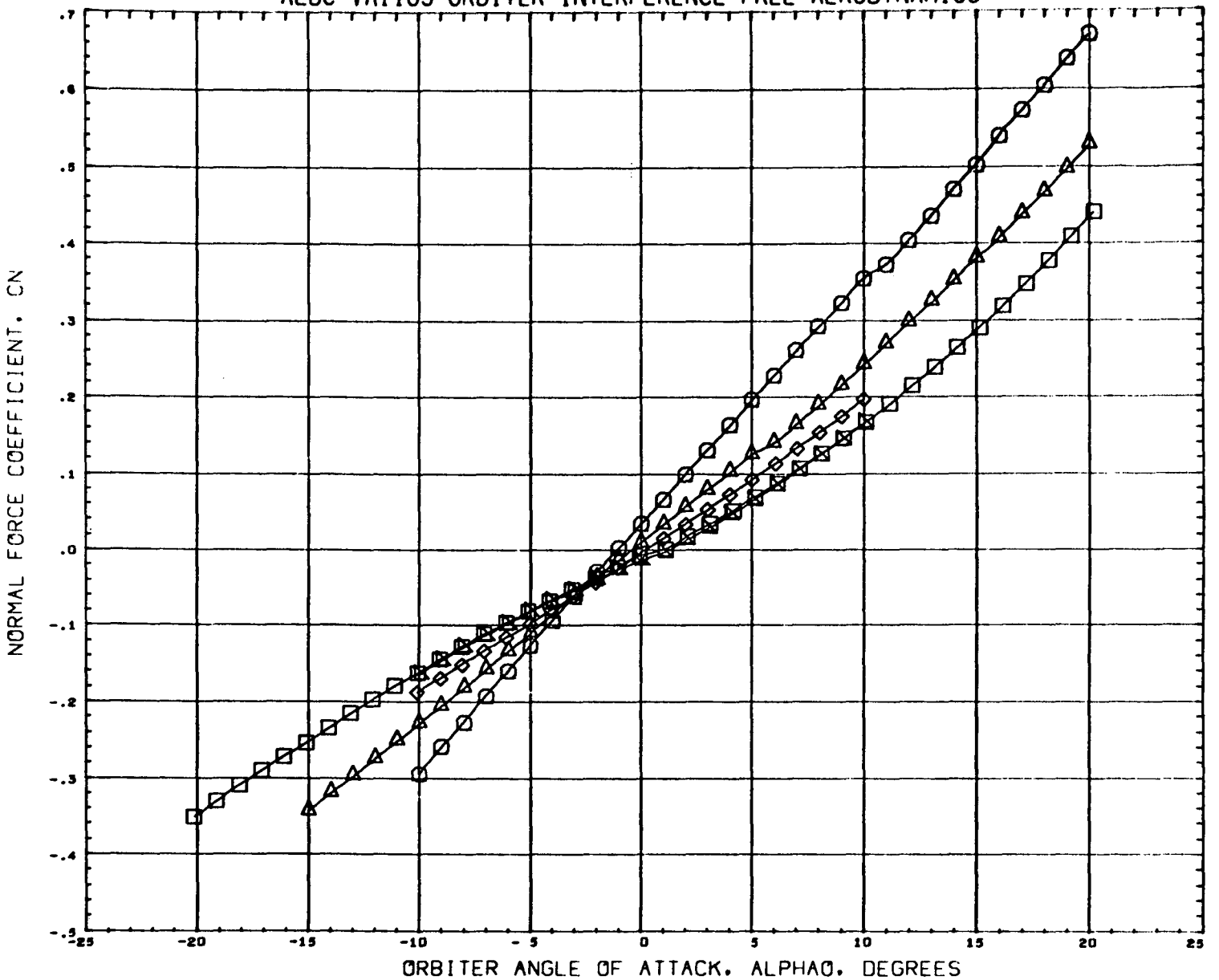
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AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



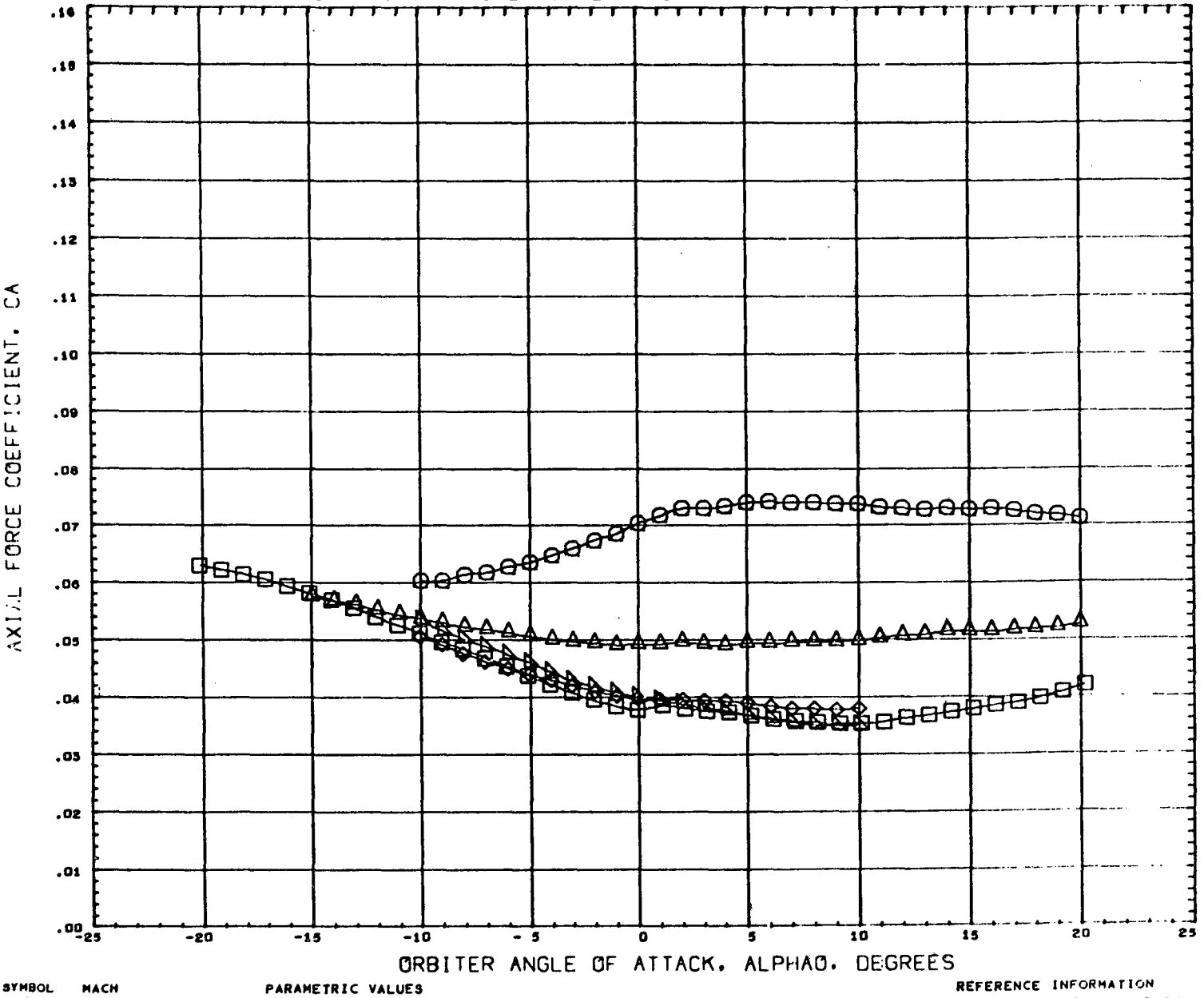
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DATA HIST. CODE *AL*GM*GMS

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AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



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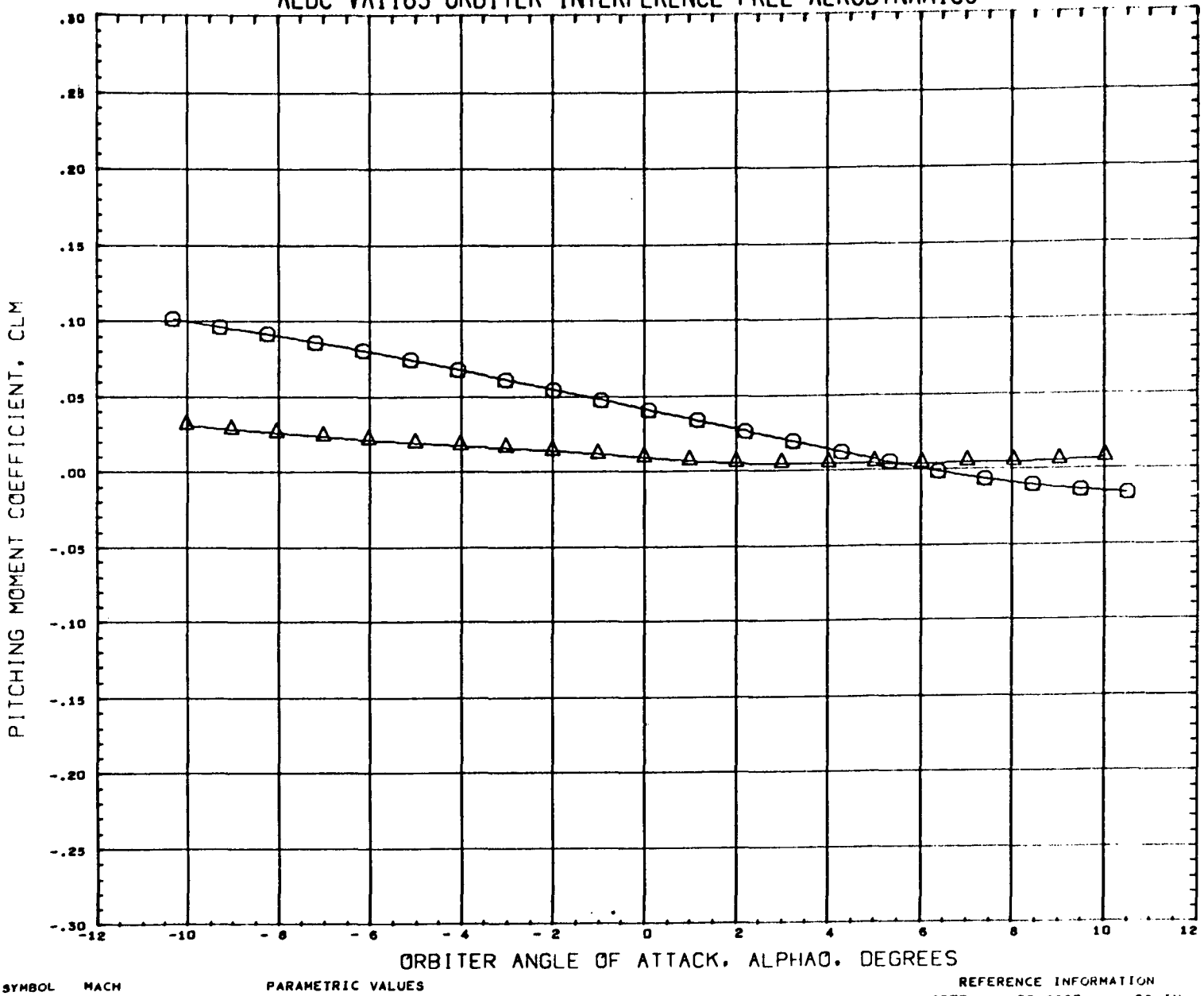
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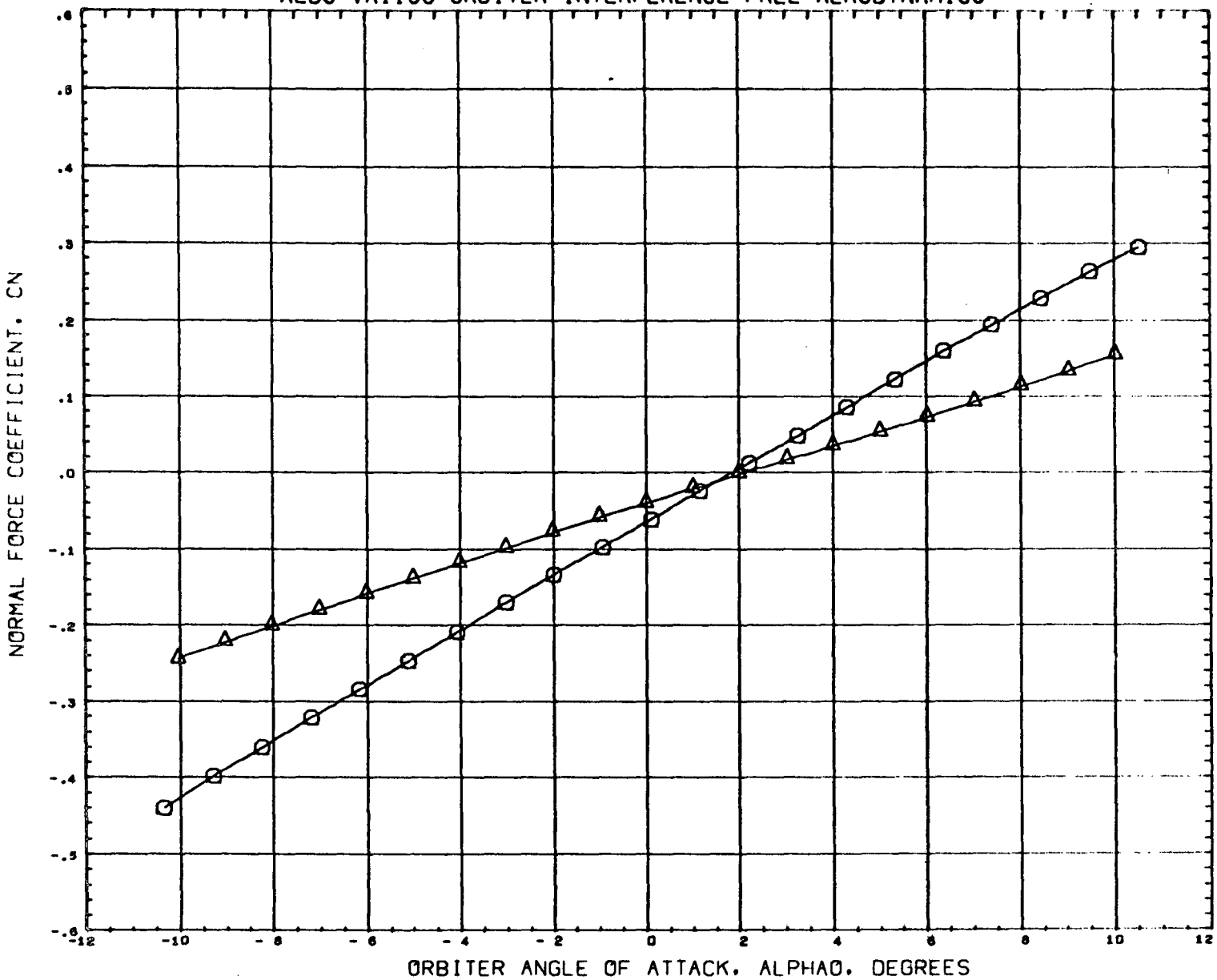
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AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



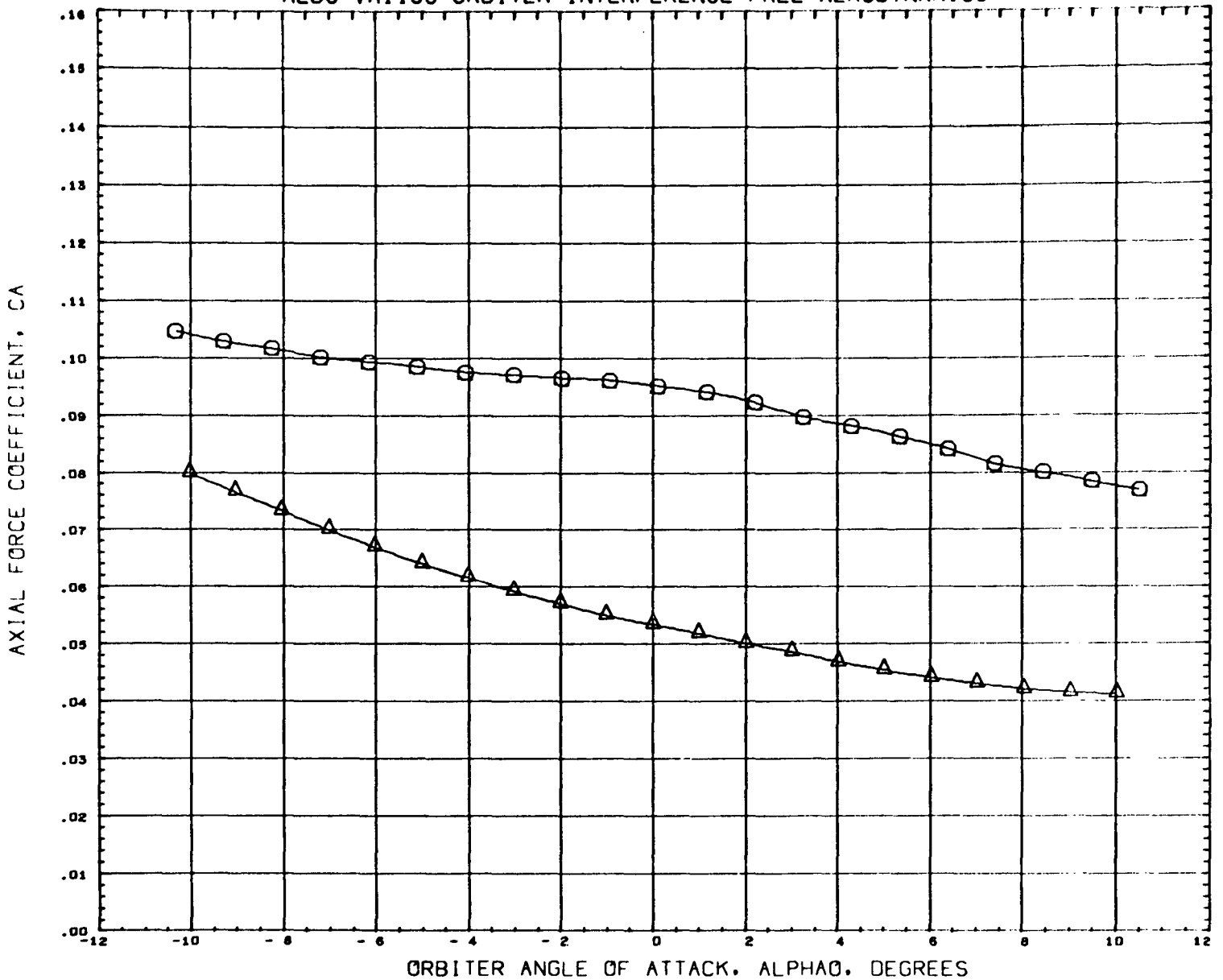
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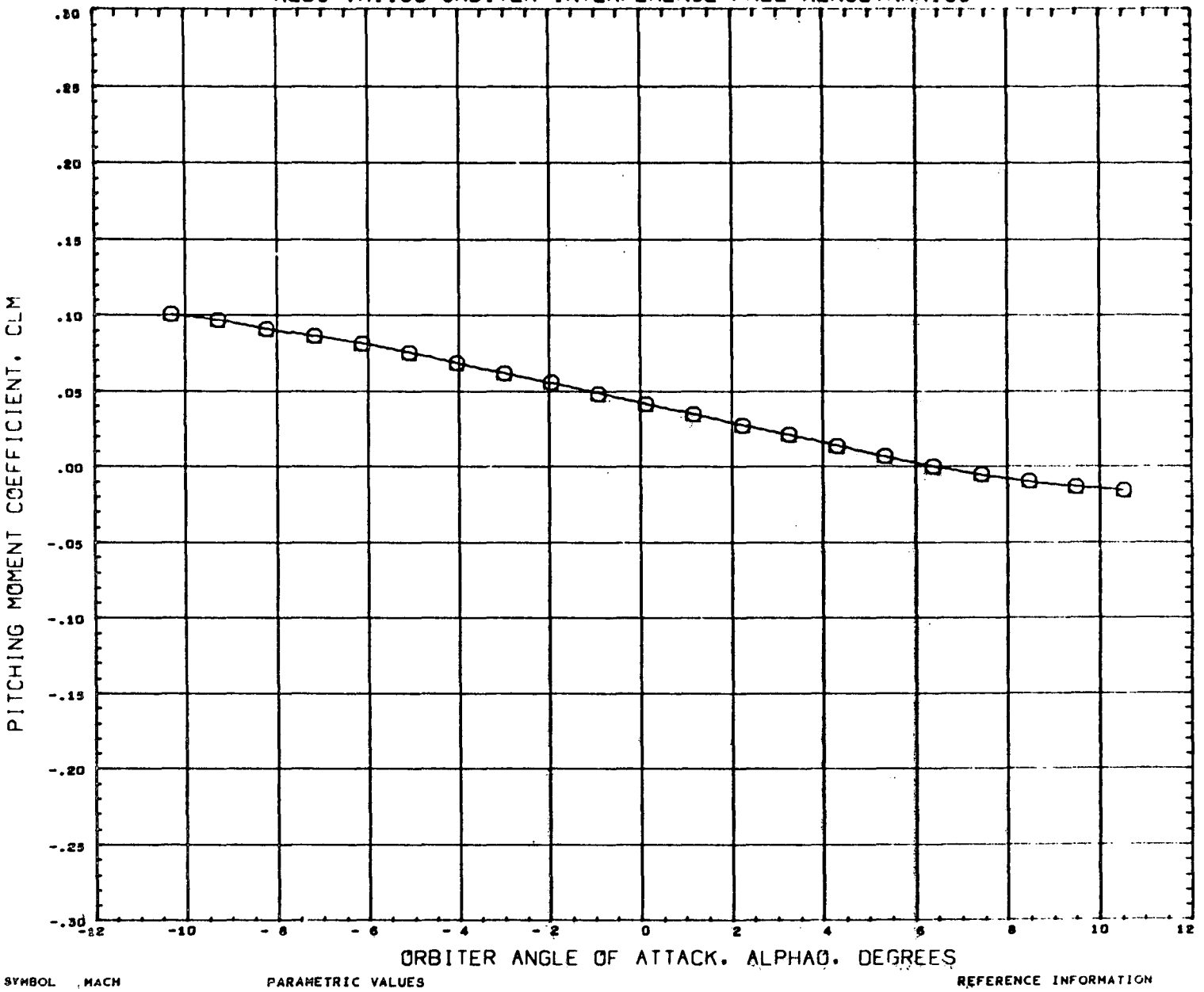
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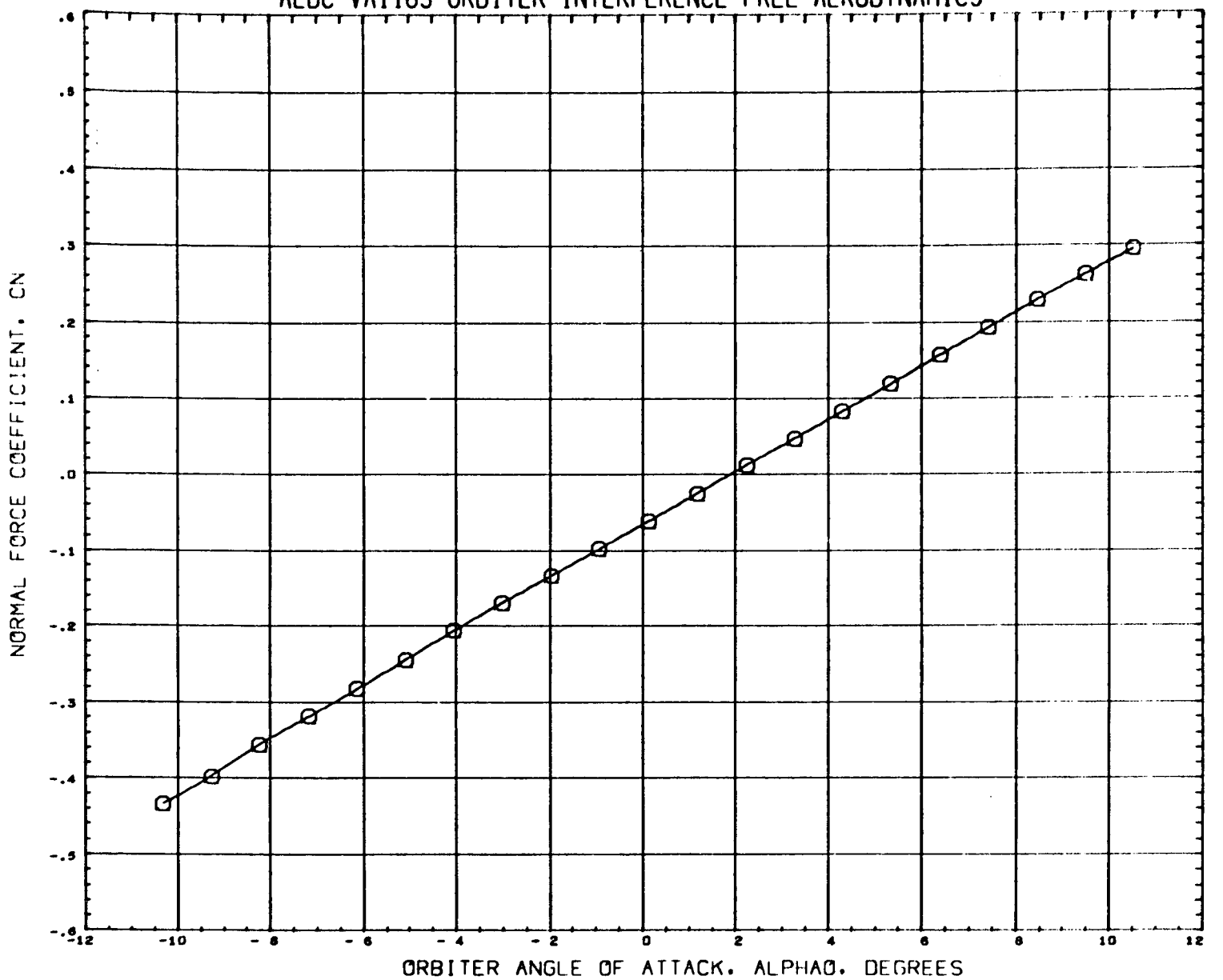


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AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



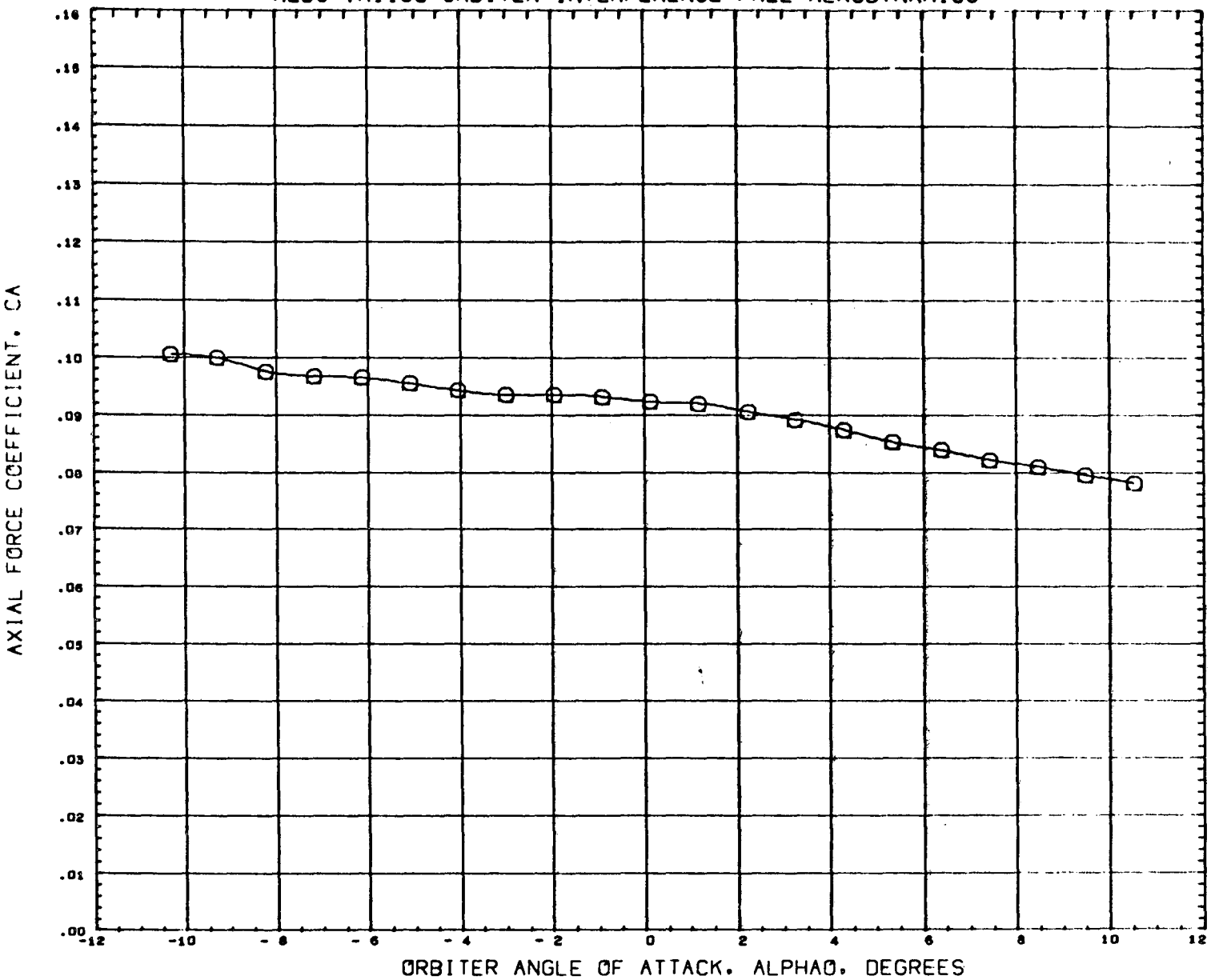
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AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



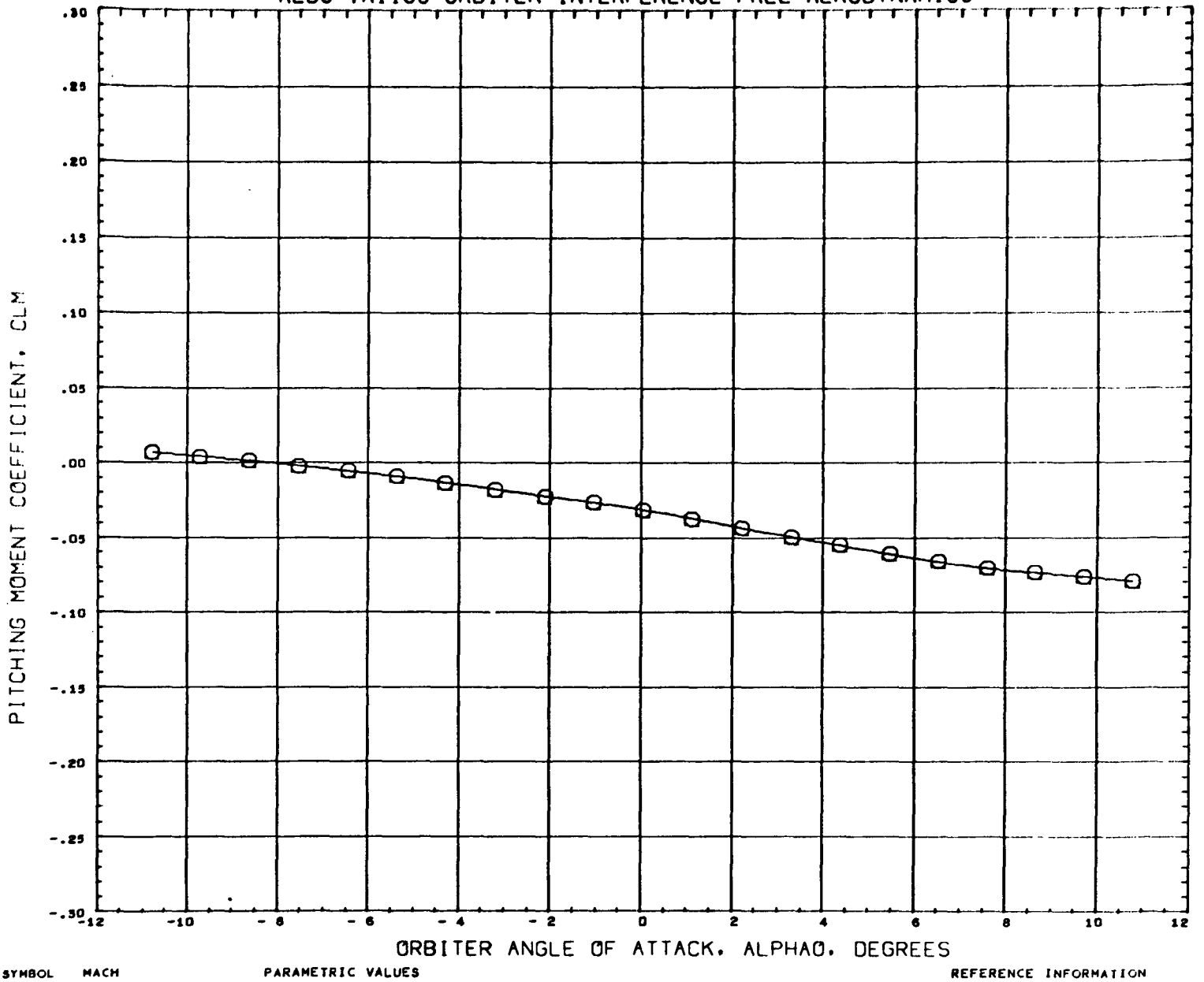
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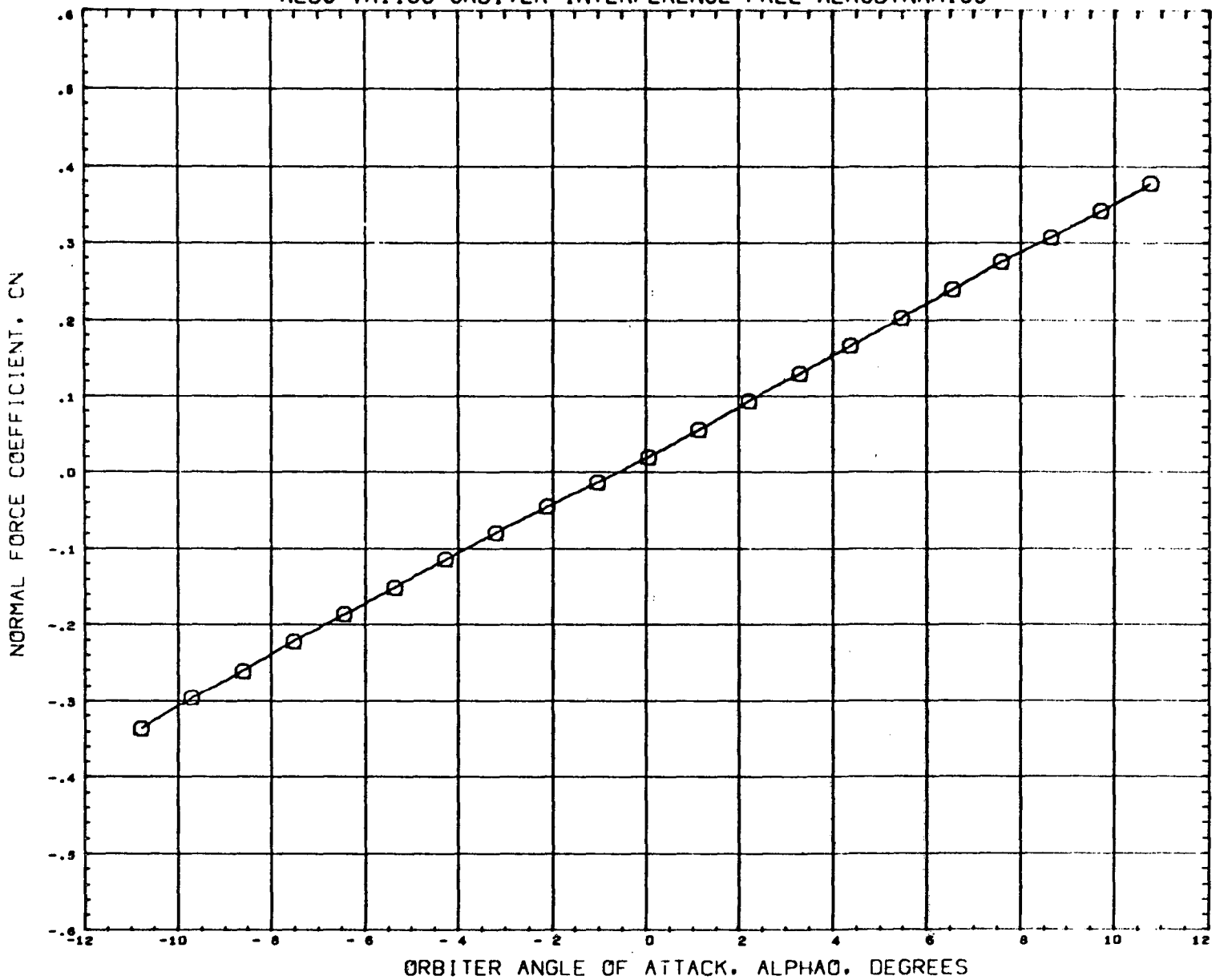
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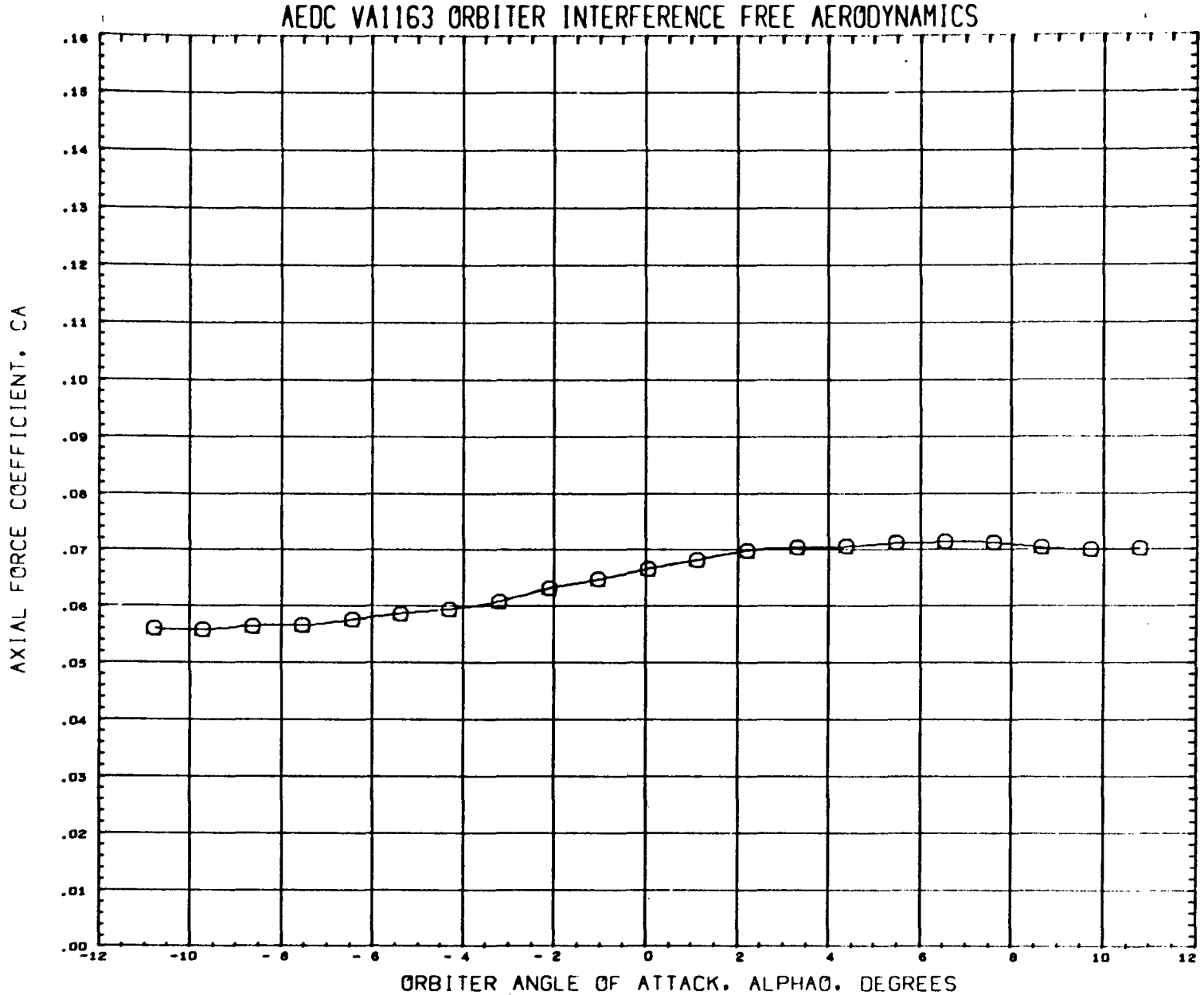


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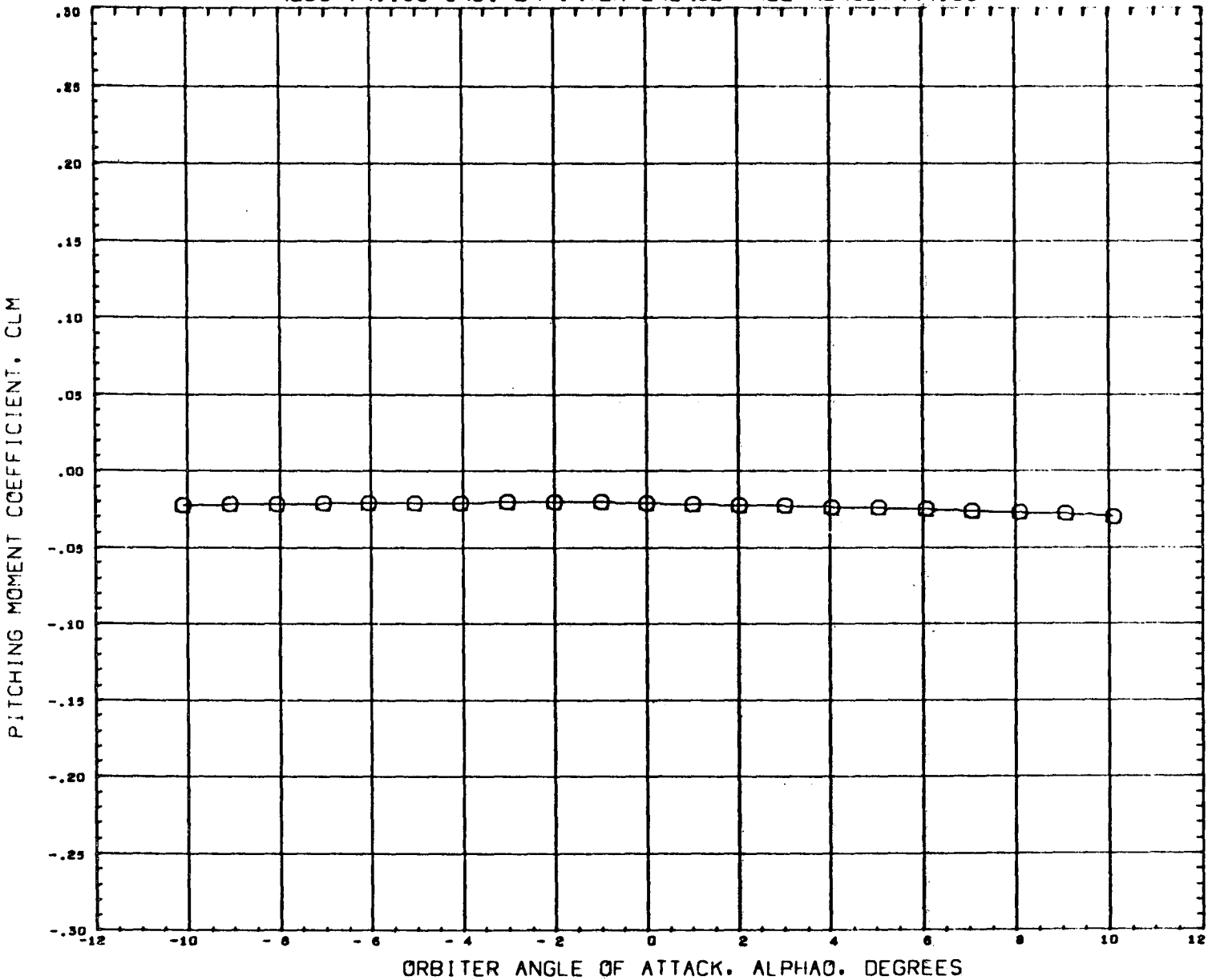
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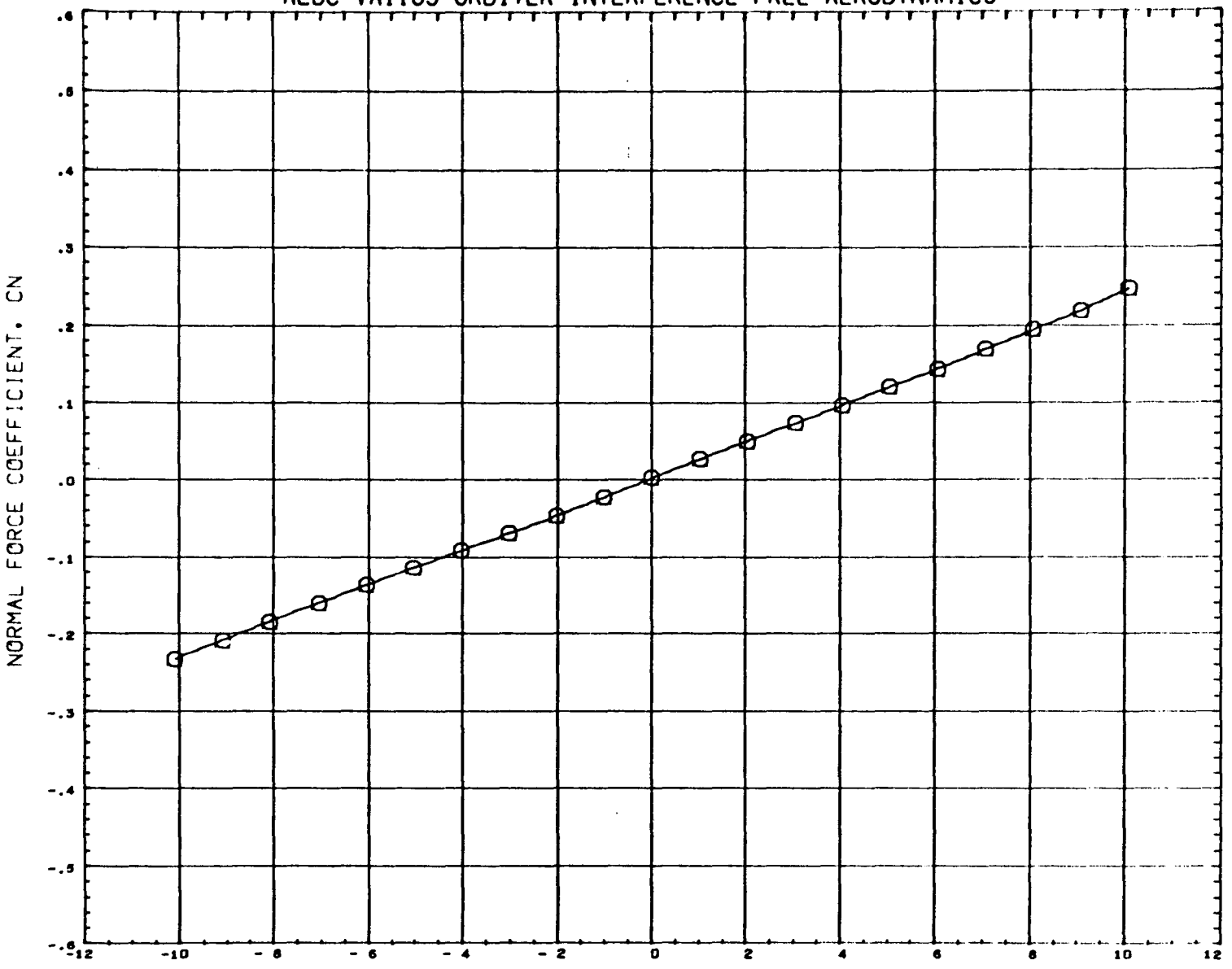
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AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



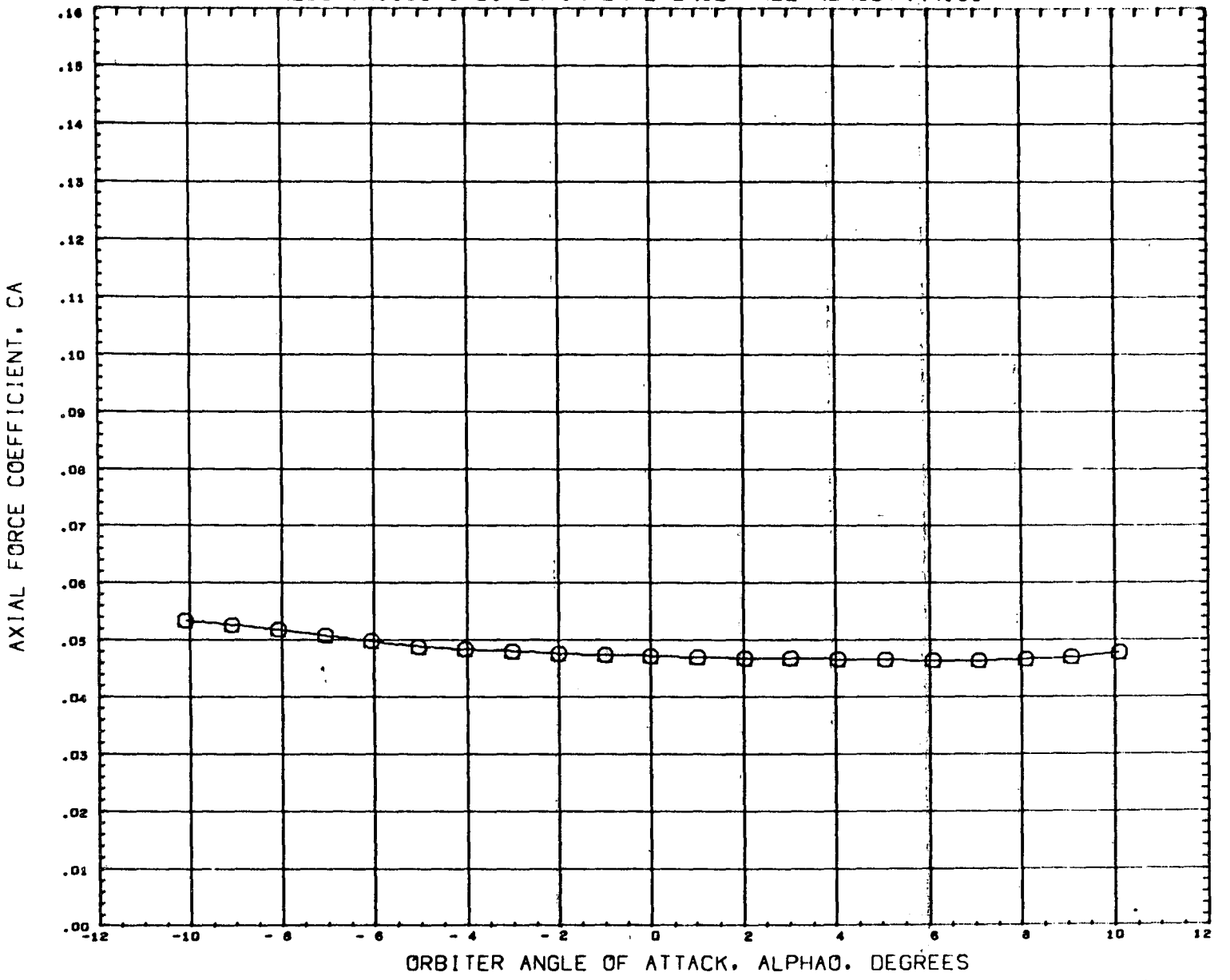
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BREF	6.5000	IN
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AEDC VA1163 ORBITER INTERFERENCE FREE AERODYNAMICS



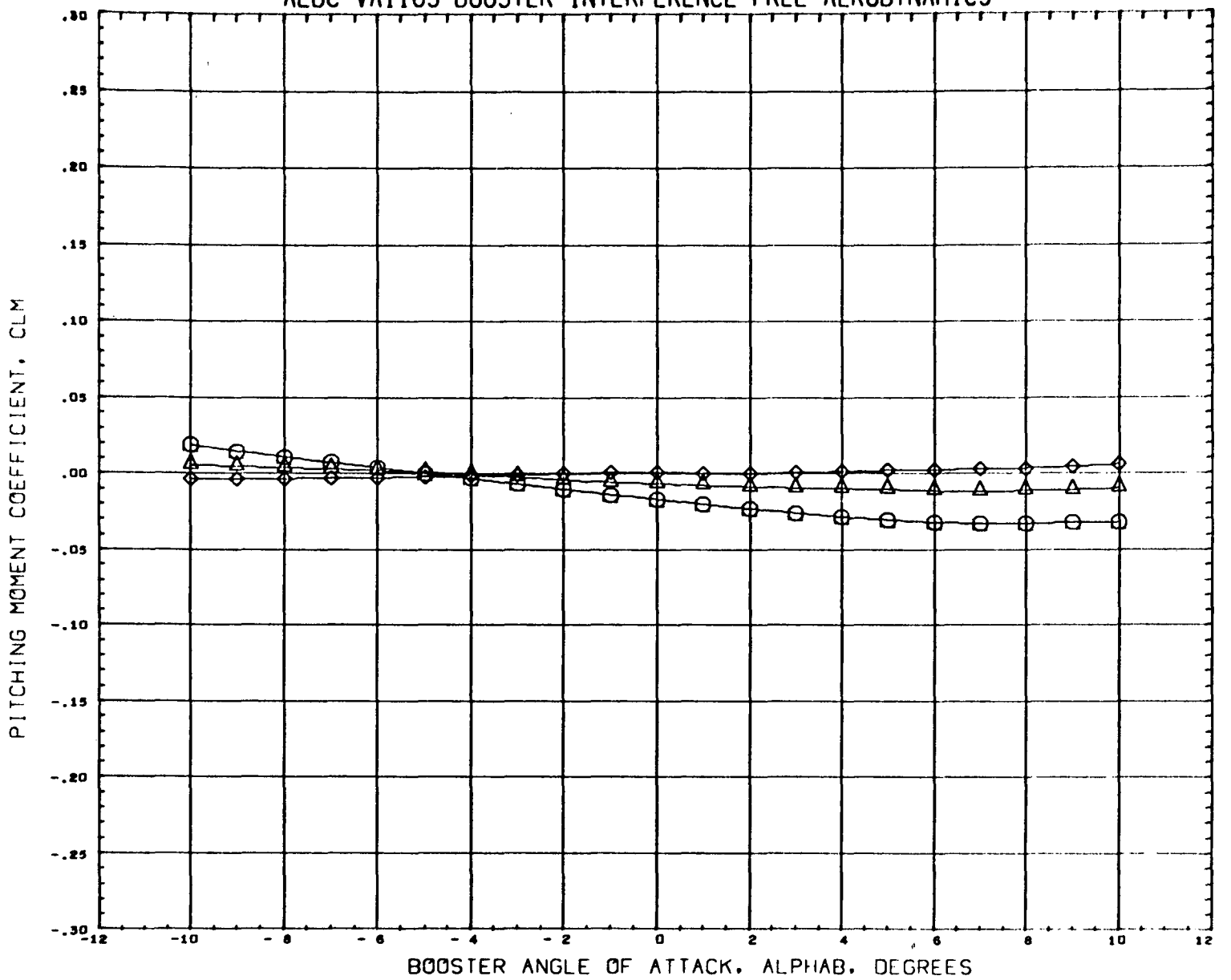
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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



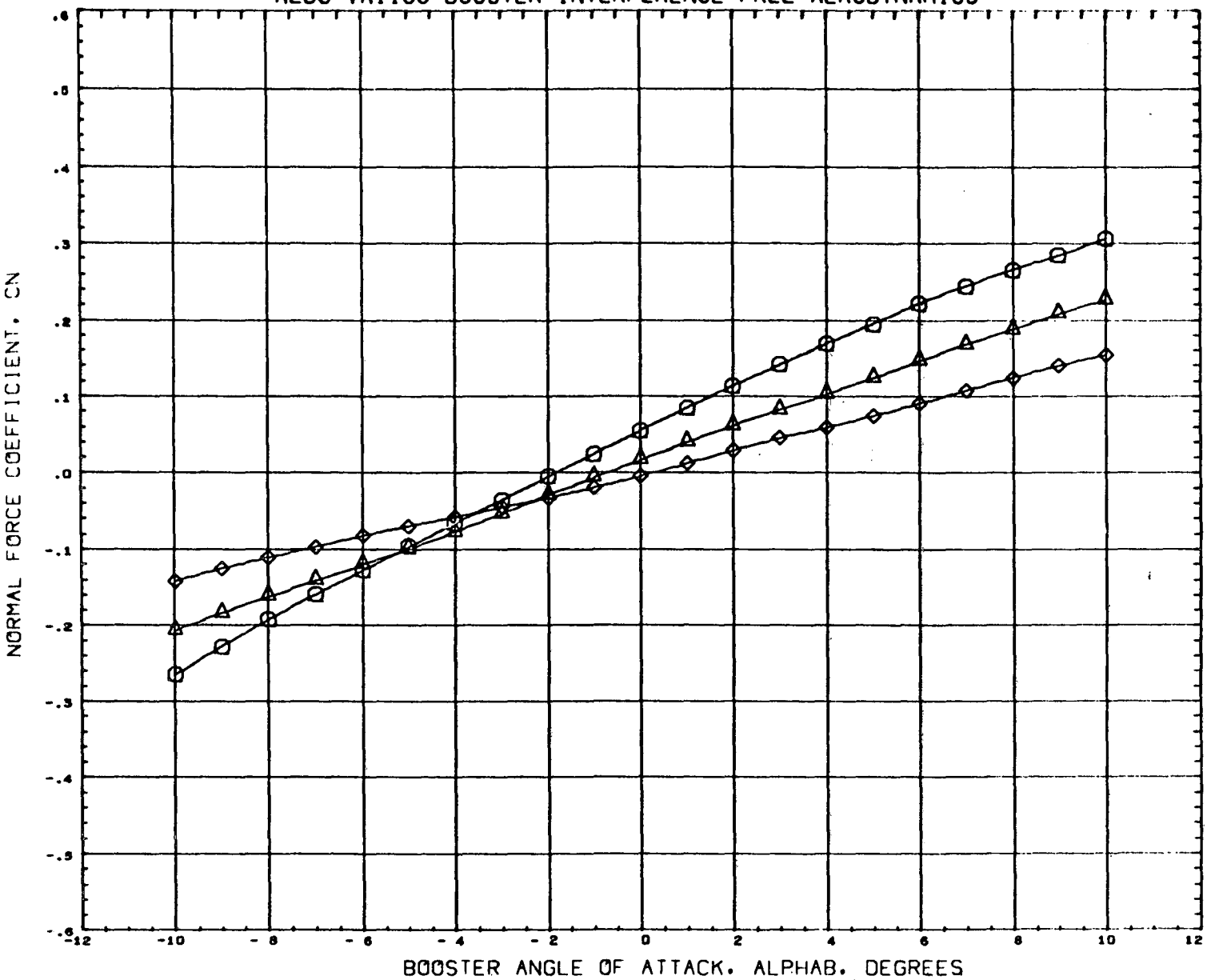
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DATA HIST. CODE *AM*GMS

REFERENCE INFORMATION

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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



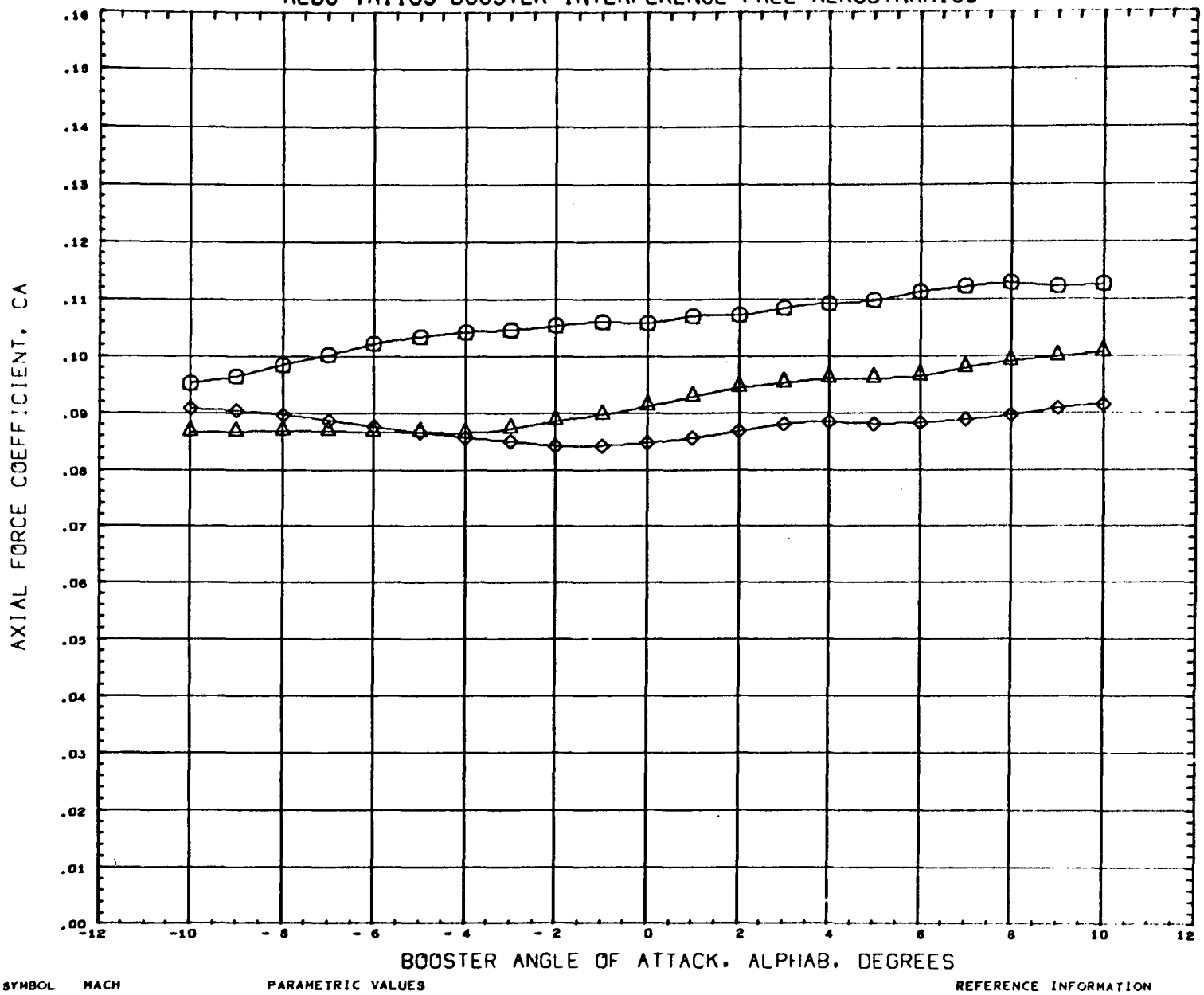
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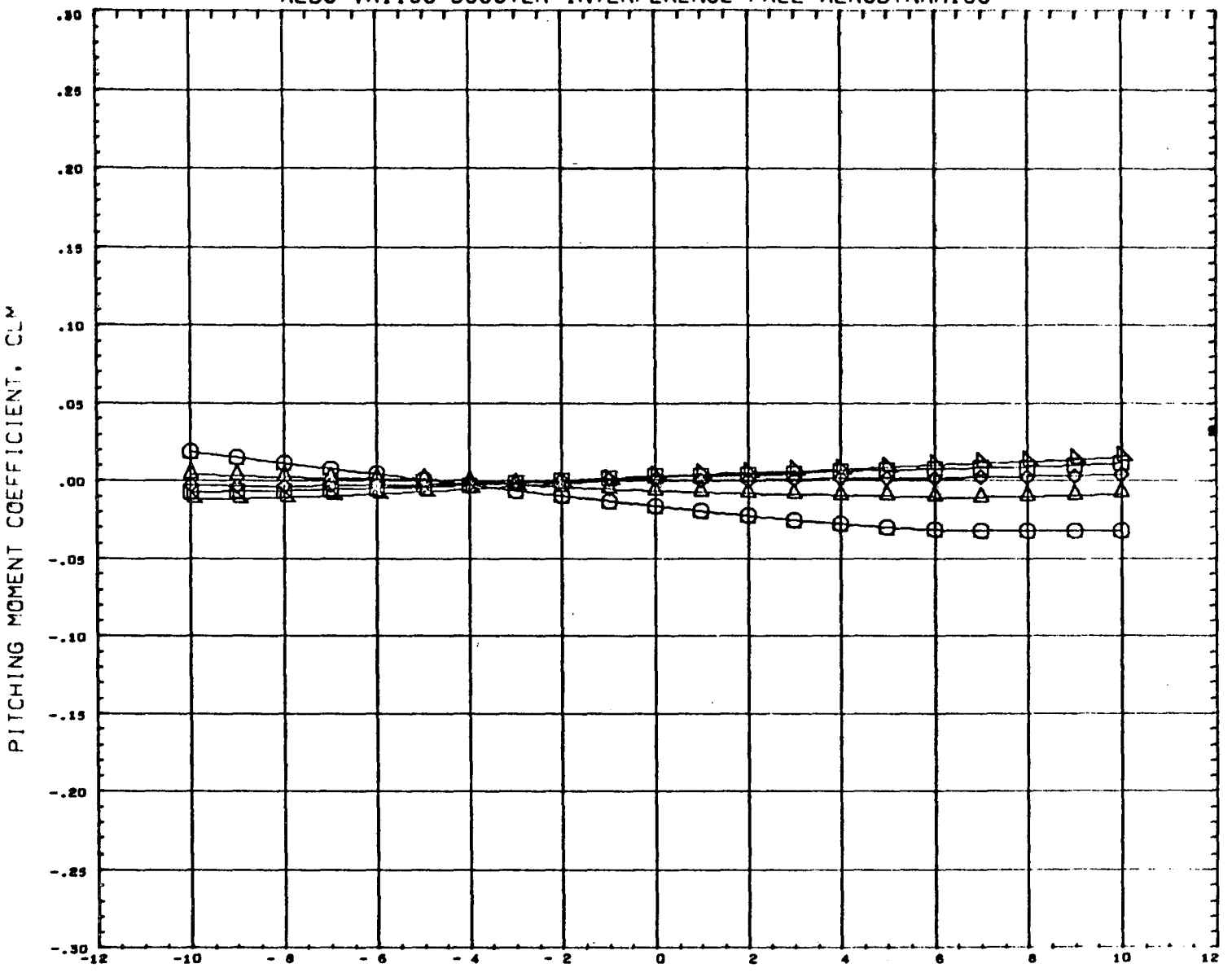


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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



SYMBOL	MACH
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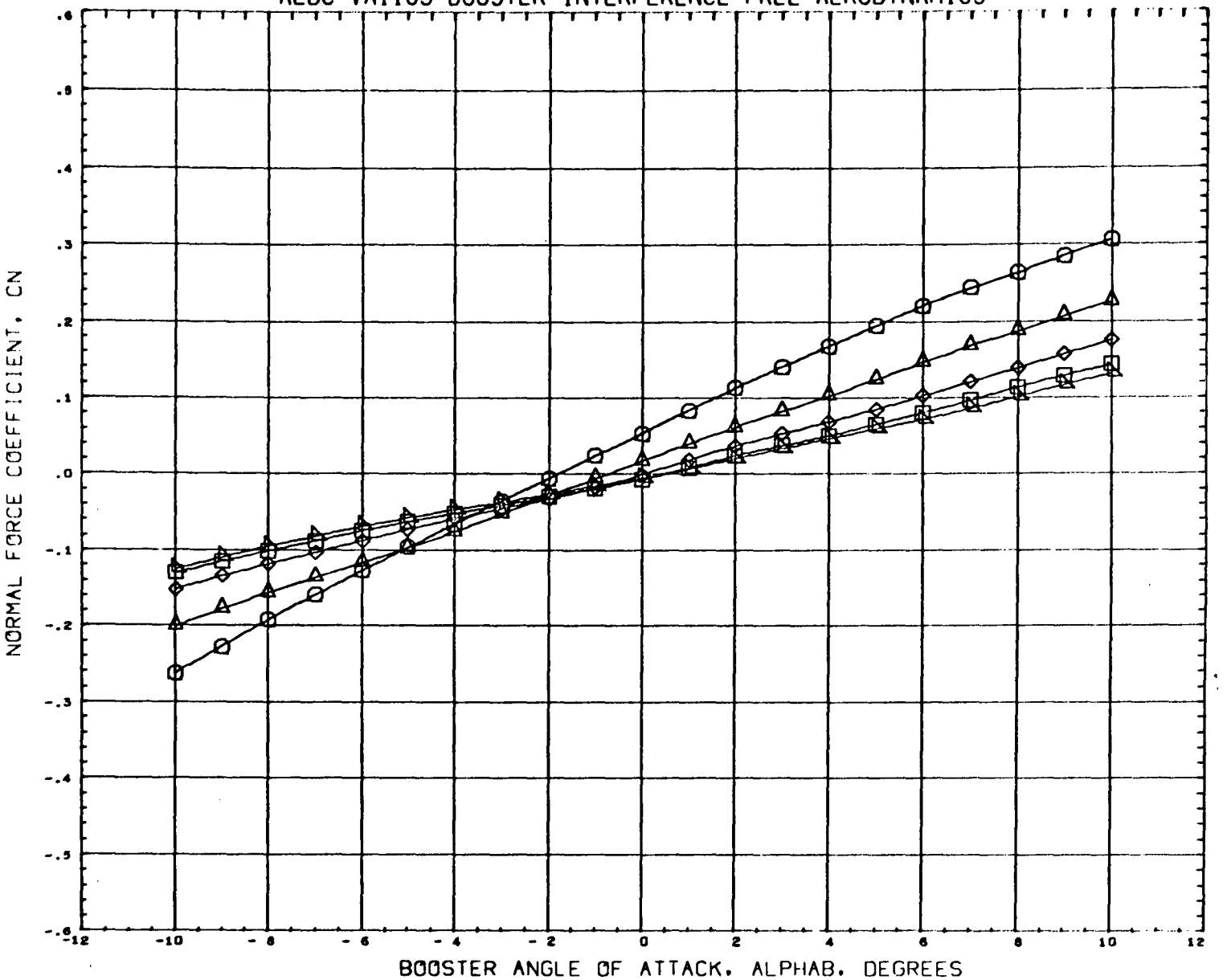
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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



SYMBOL	MACH
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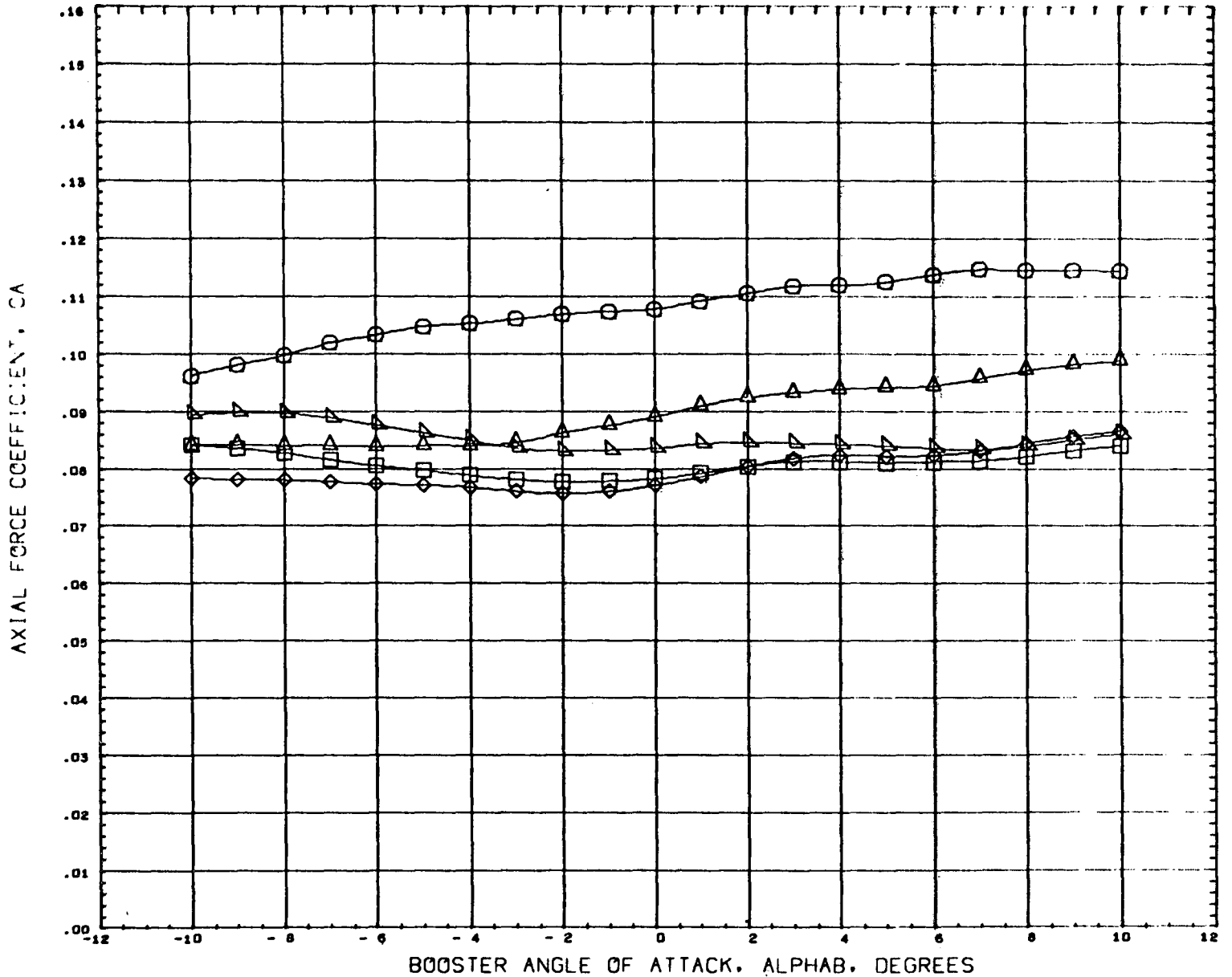
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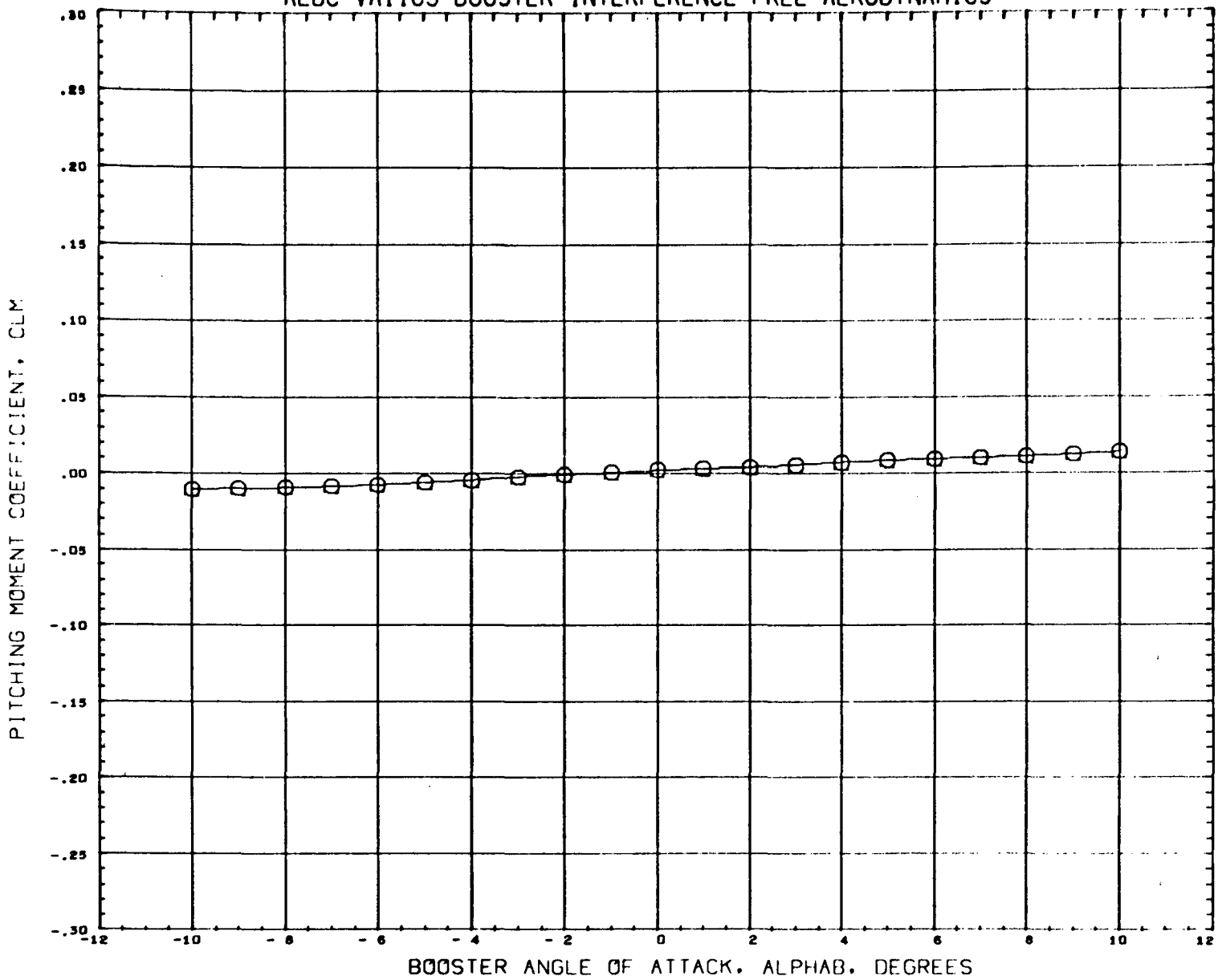
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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



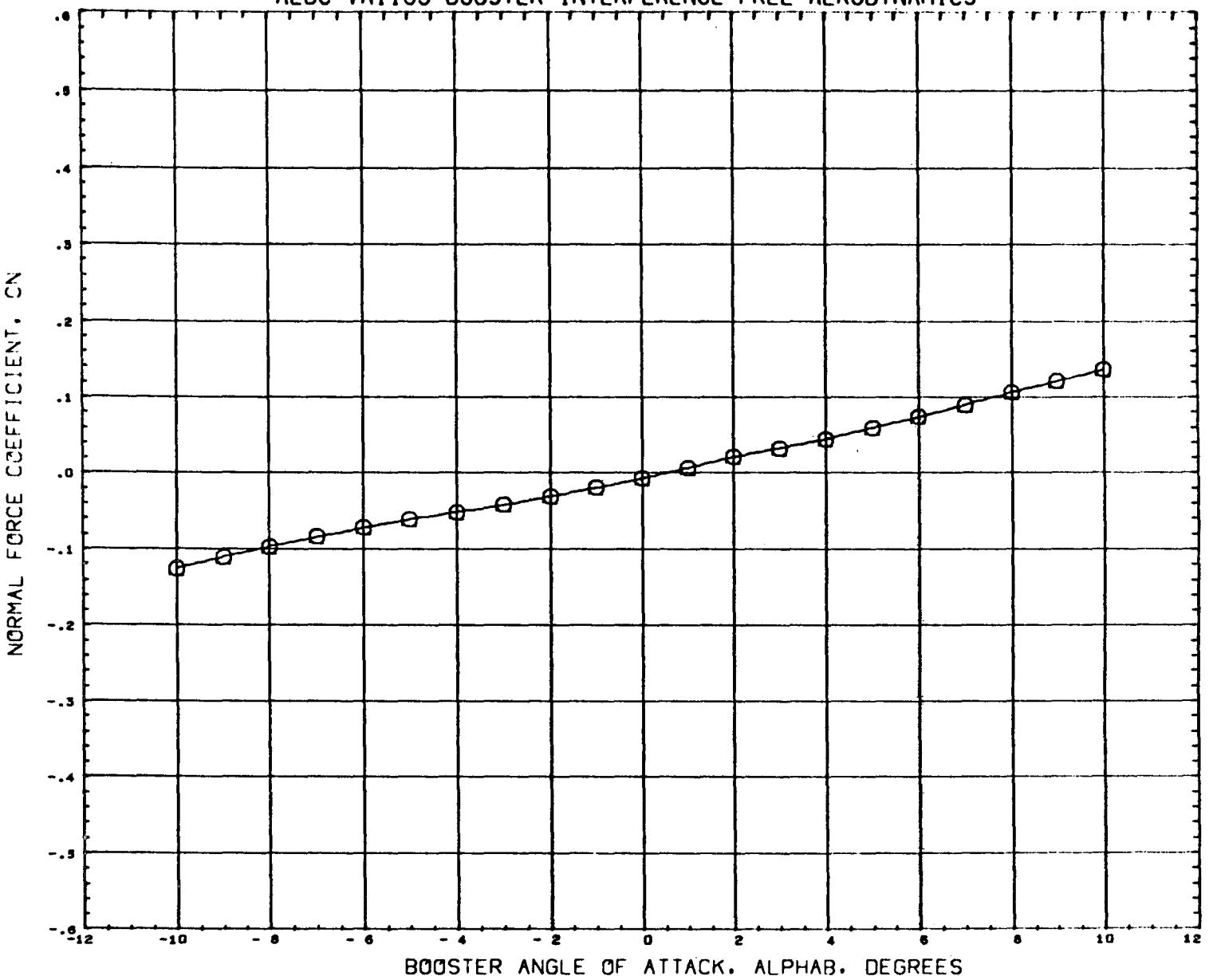
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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



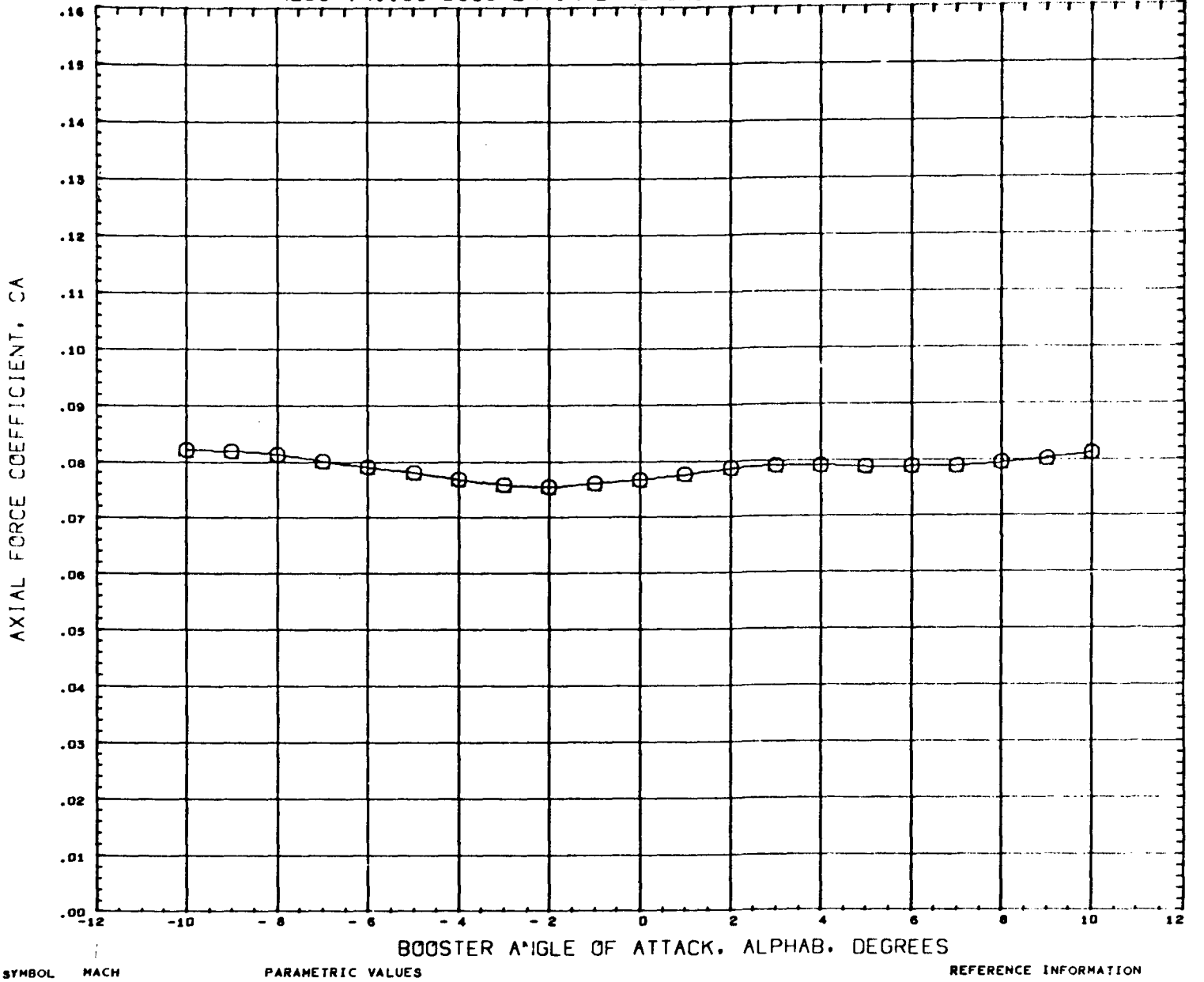
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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



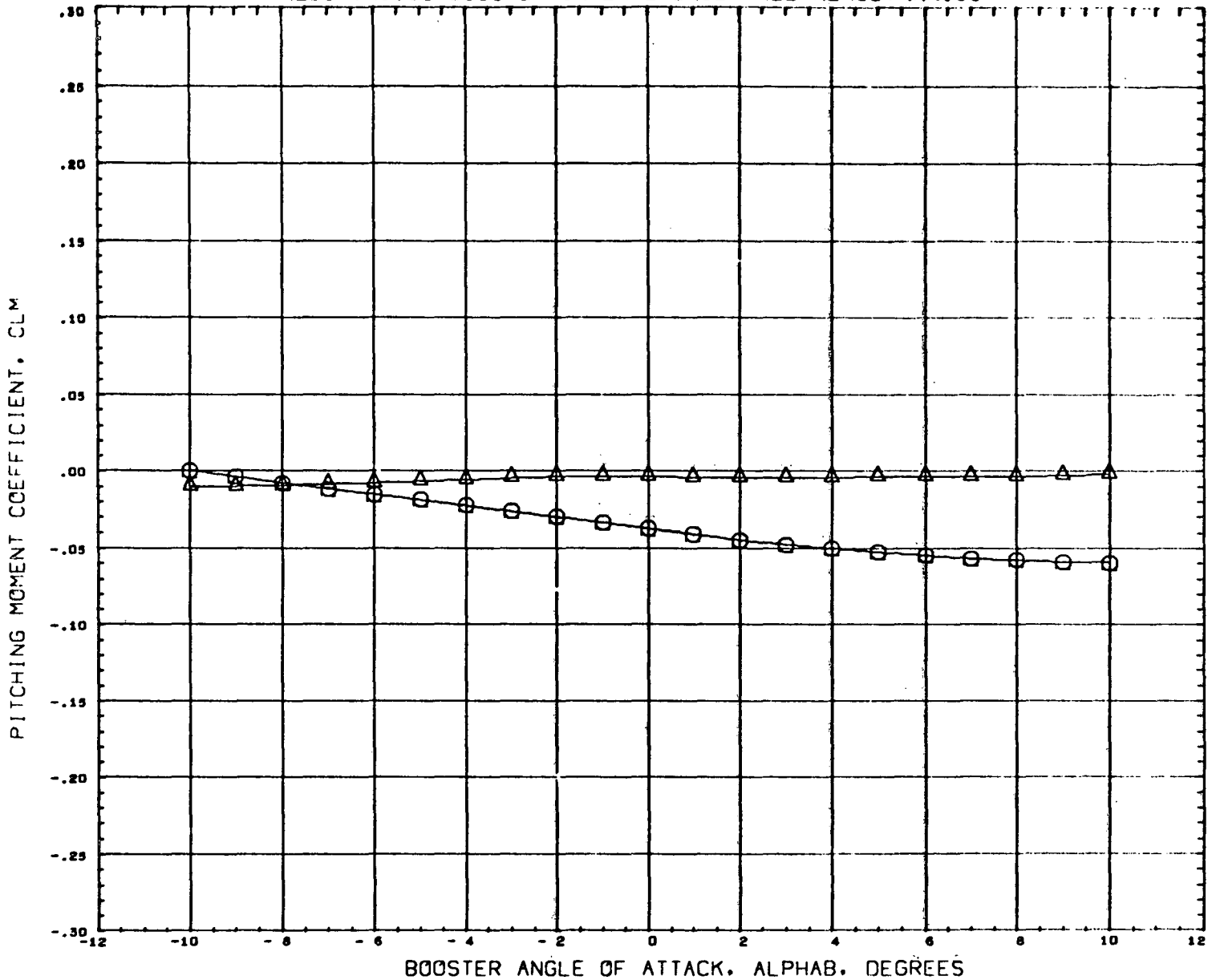
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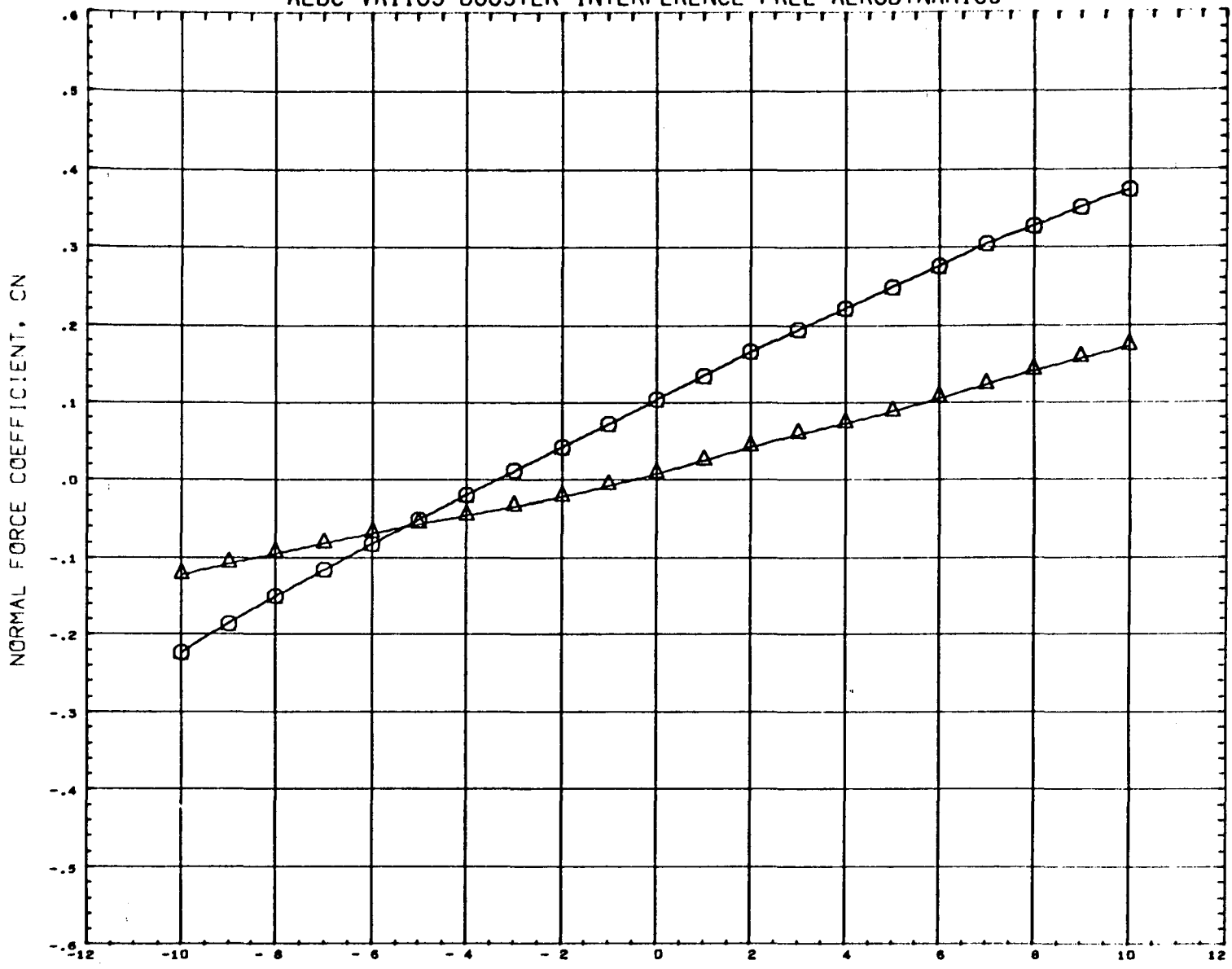
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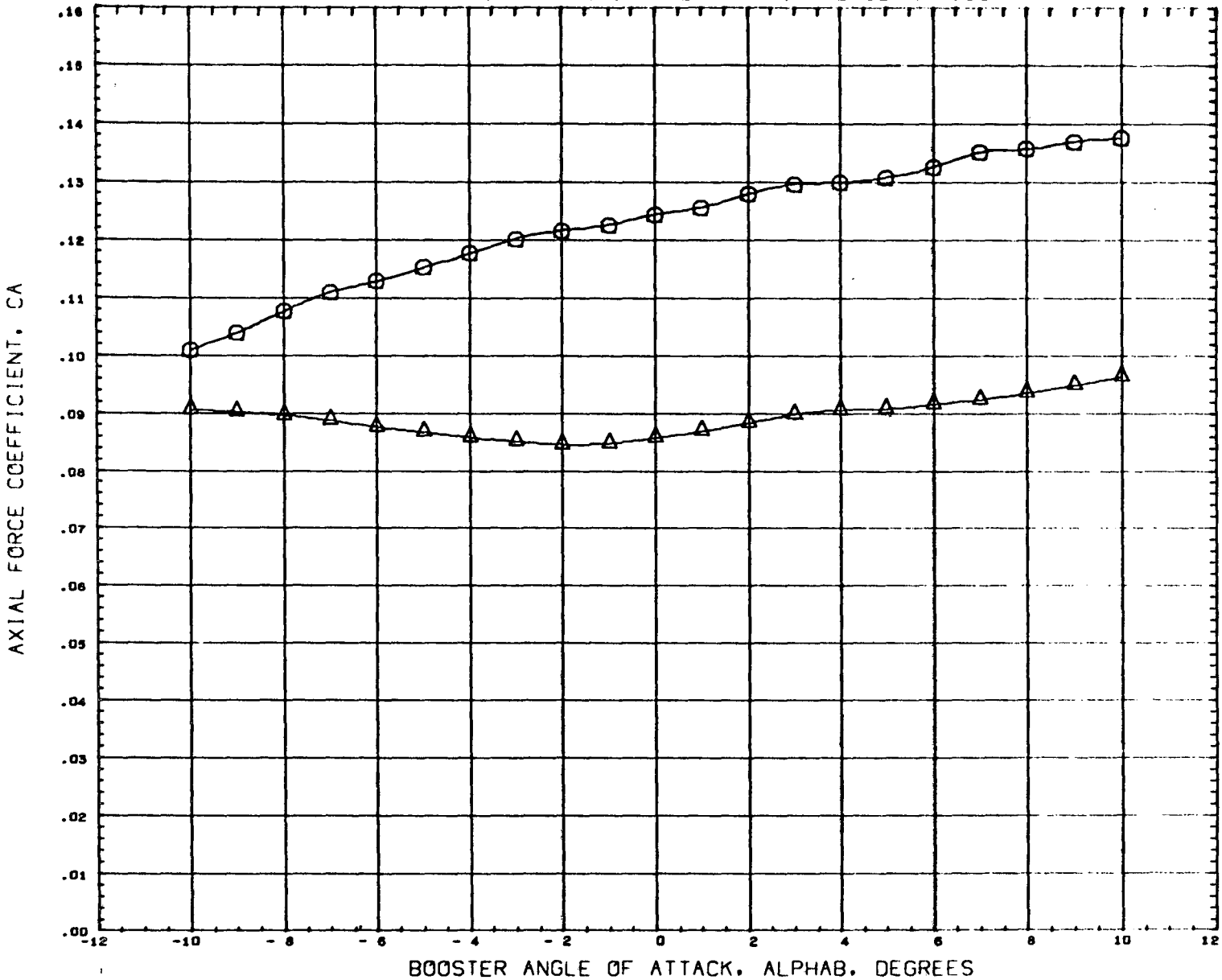
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XMRP	10.8433	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



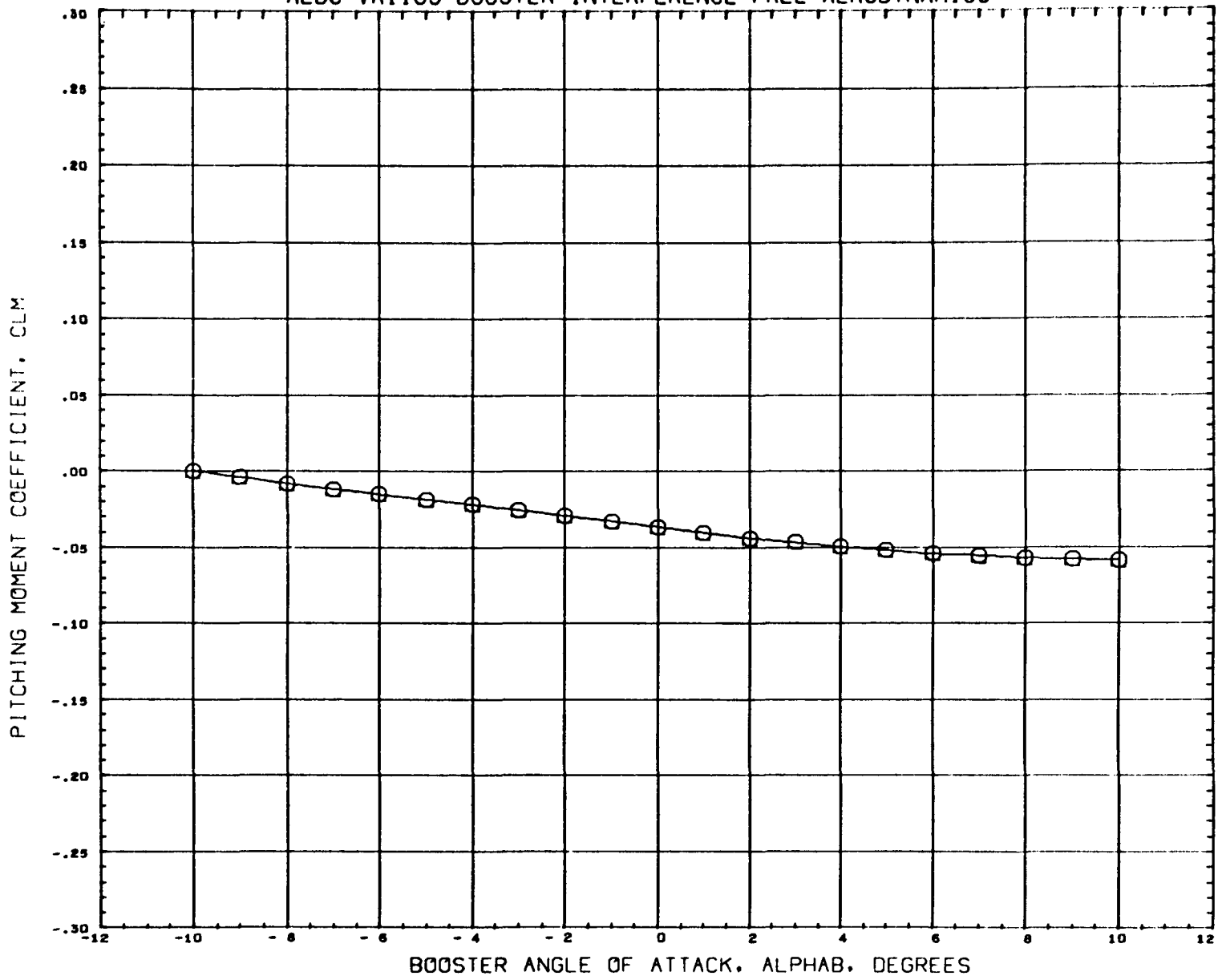
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REFERENCE INFORMATION

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BREF	13.3330	IN
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SCALE	0.0055	

DATA HIST. CODE *AM*GMS

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



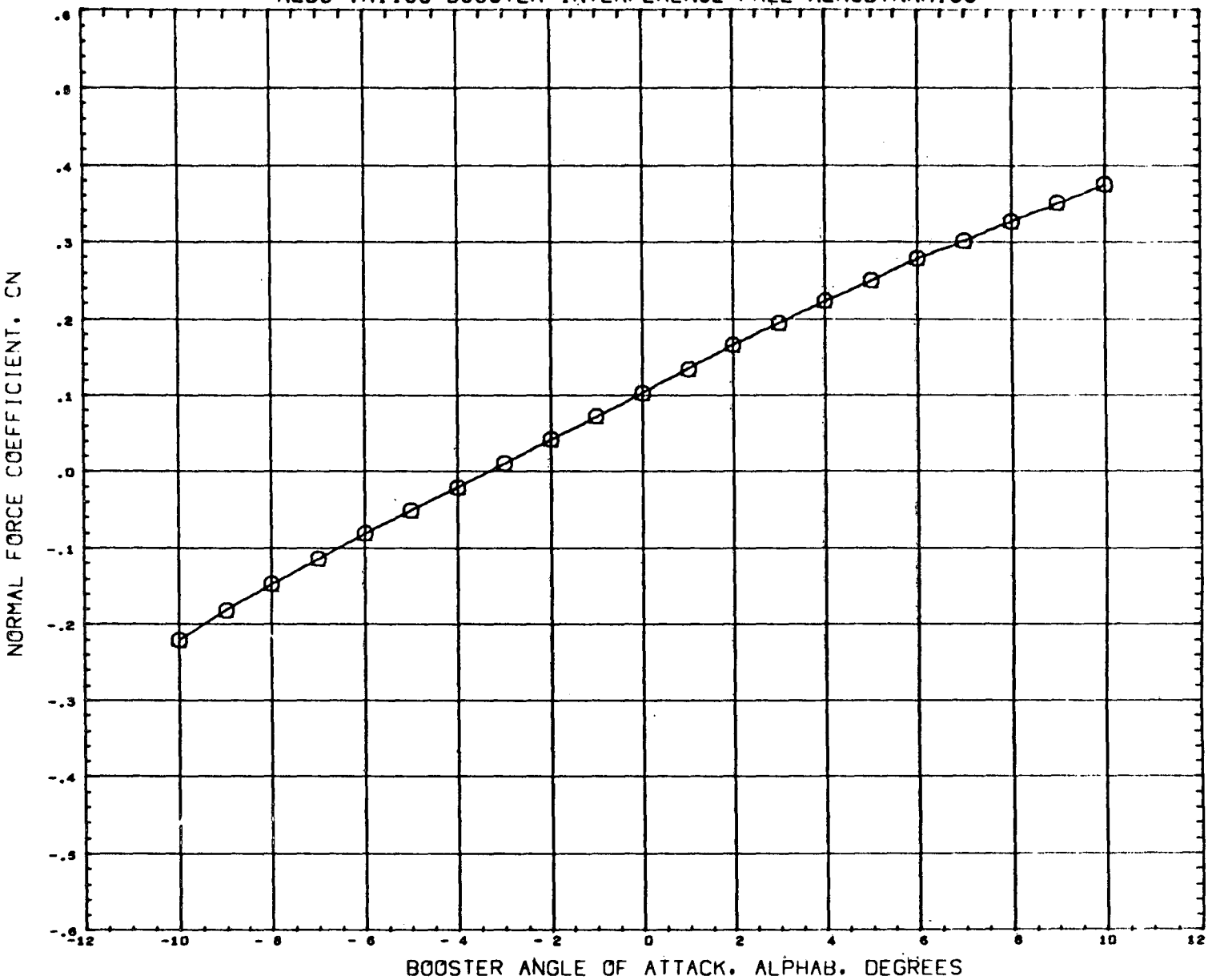
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DATA HIST. CODE *AMMS

REFERENCE INFORMATION

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BREF	13.3330	IN
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YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



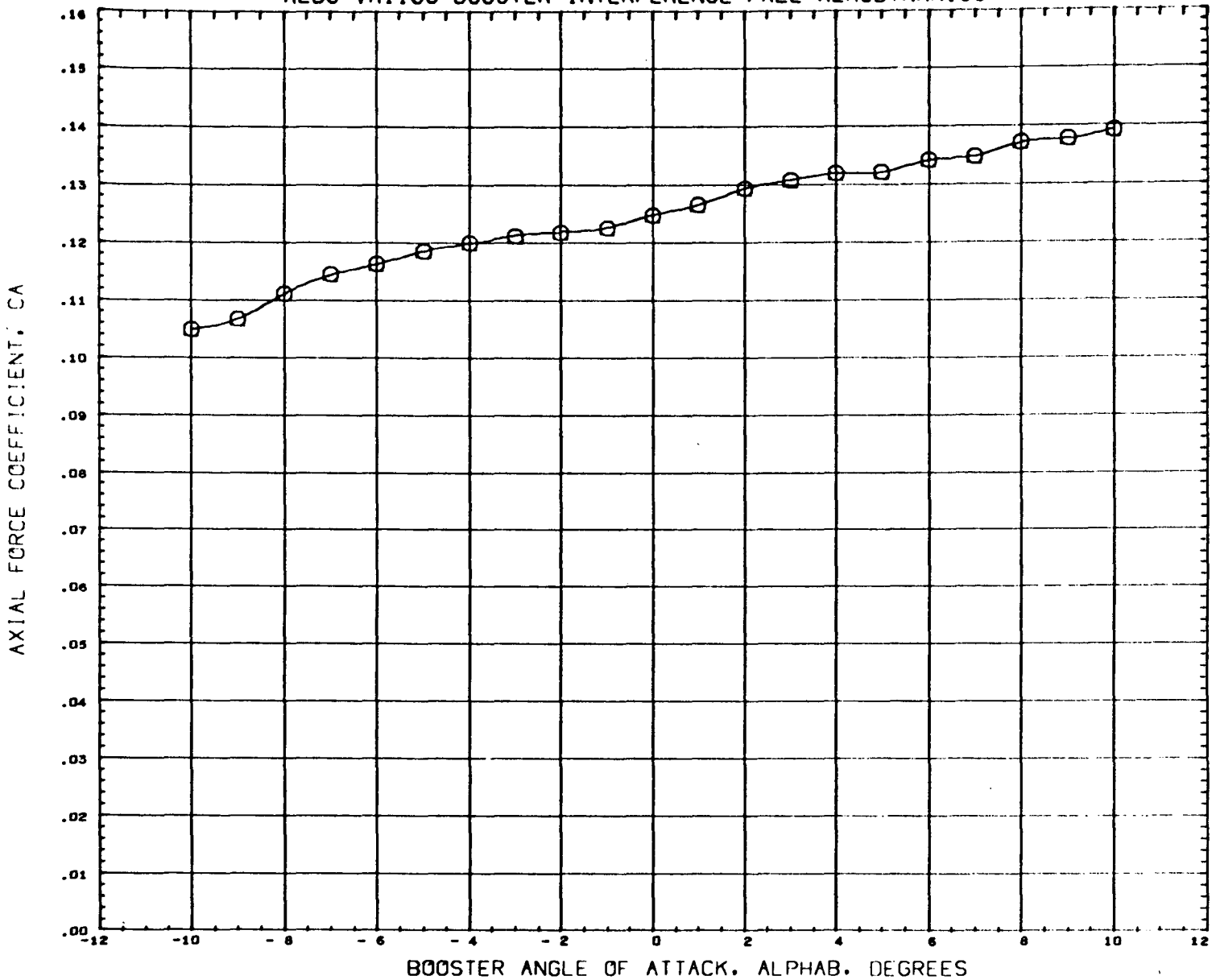
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DATA HIST. CODE *AHMS

REFERENCE INFORMATION

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BREF	13.3330	IN
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ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



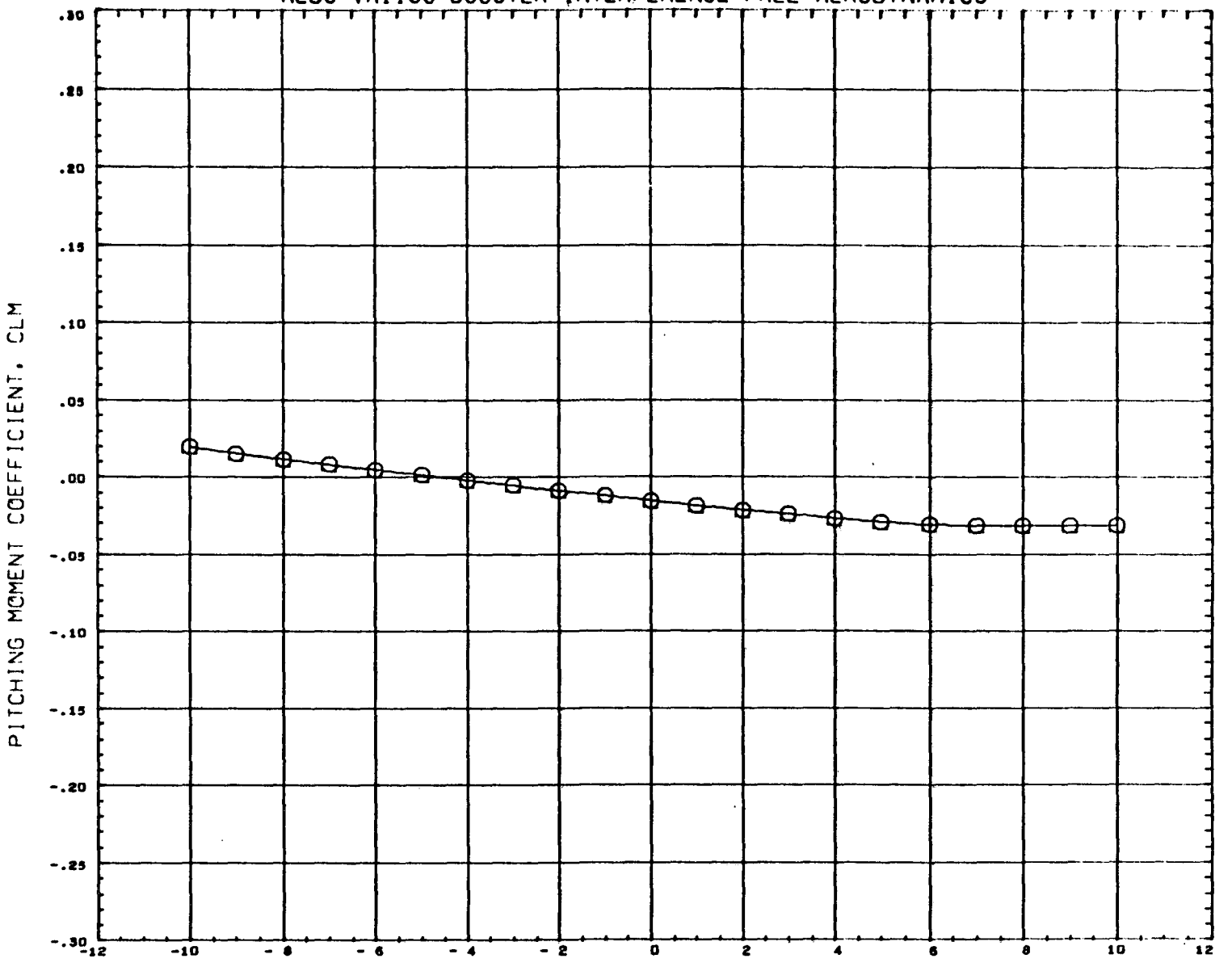
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DATA HIST. CODE #AMMS

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BREF	13.3330	IN
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SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



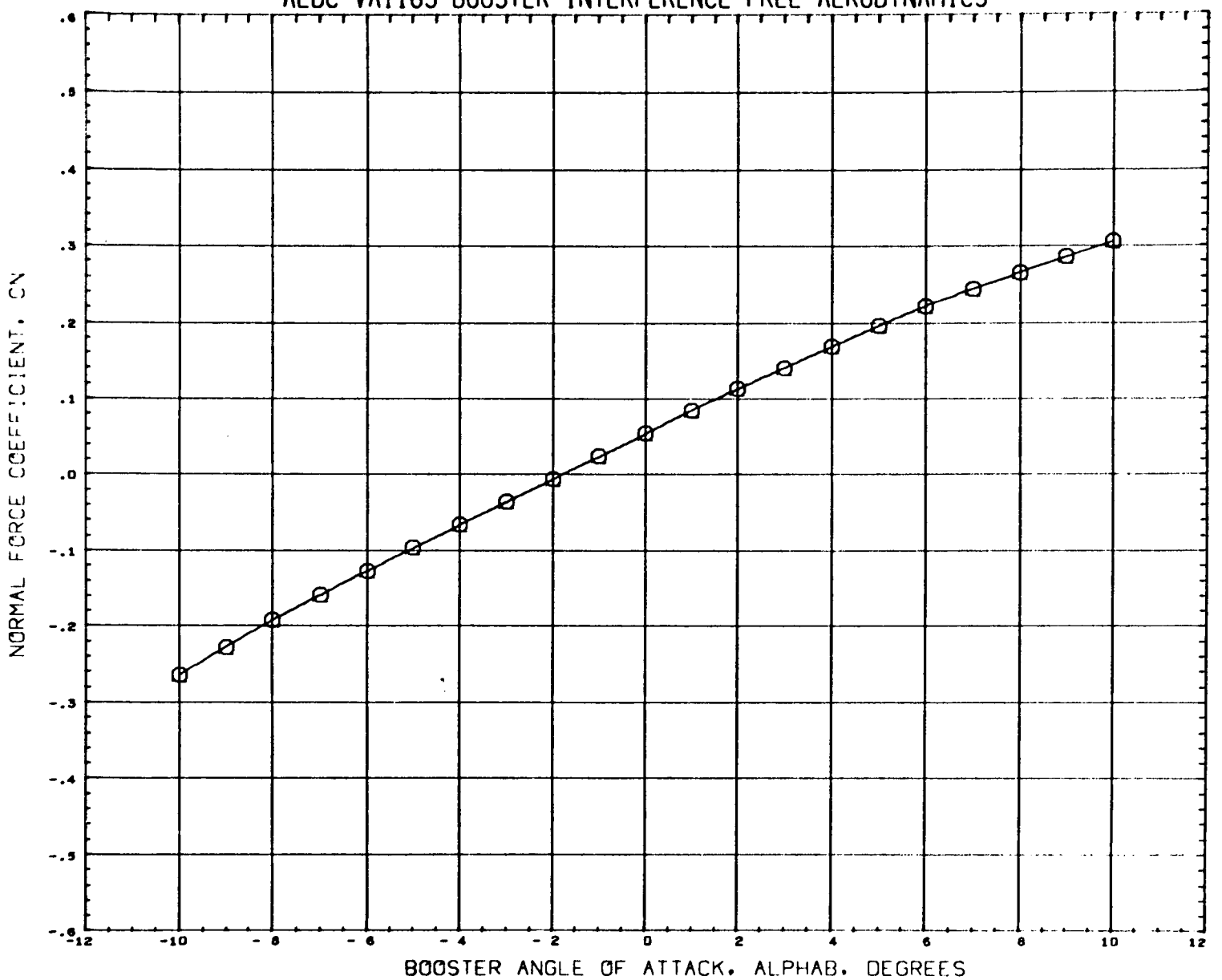
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DATA HIST. CODE *AMMS

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BREF	13.3330	IN
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SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



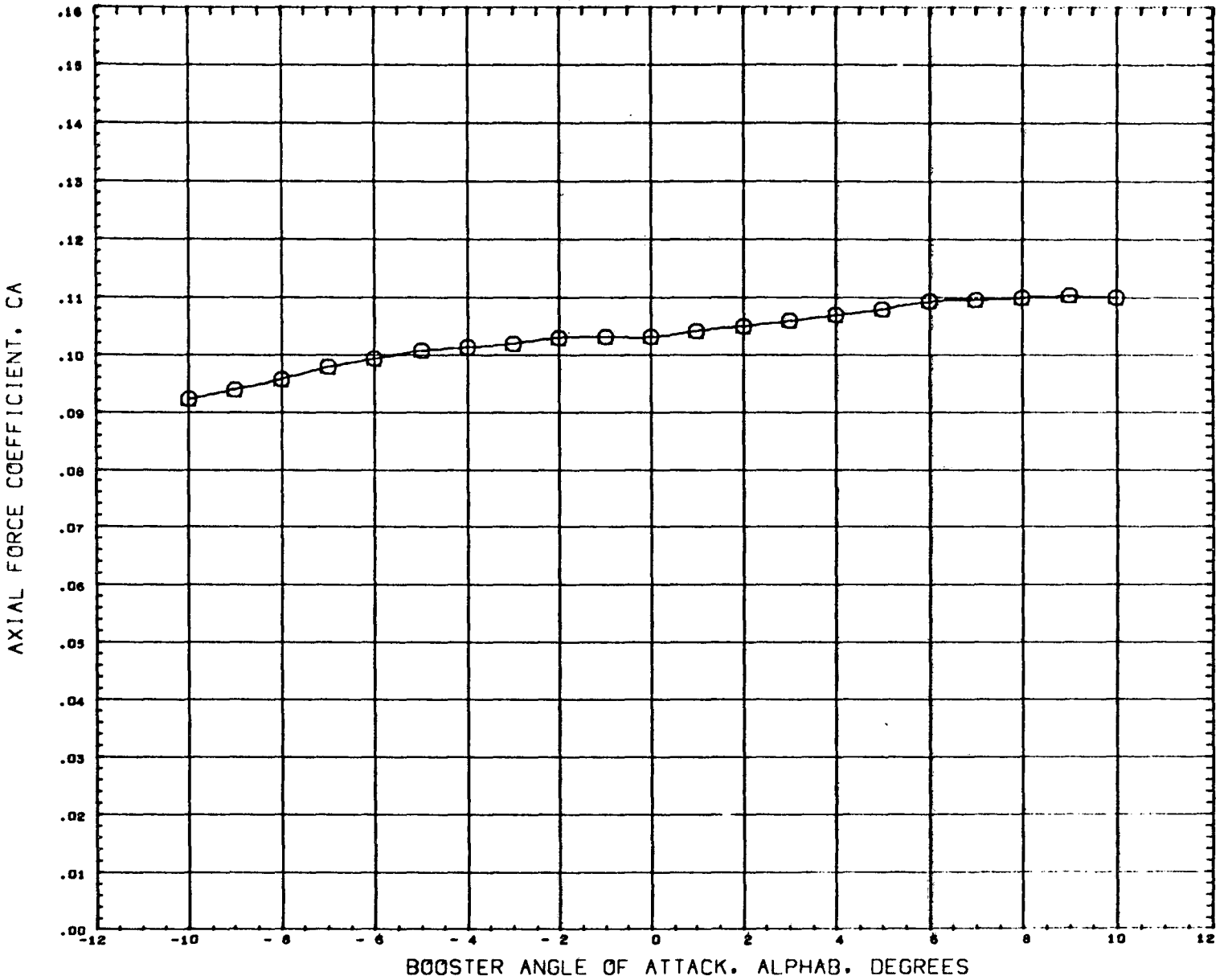
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DATA HIST. CODE *AMMS

REFERENCE INFORMATION

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BREF	13.3330	IN
XMRP	10.8433	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



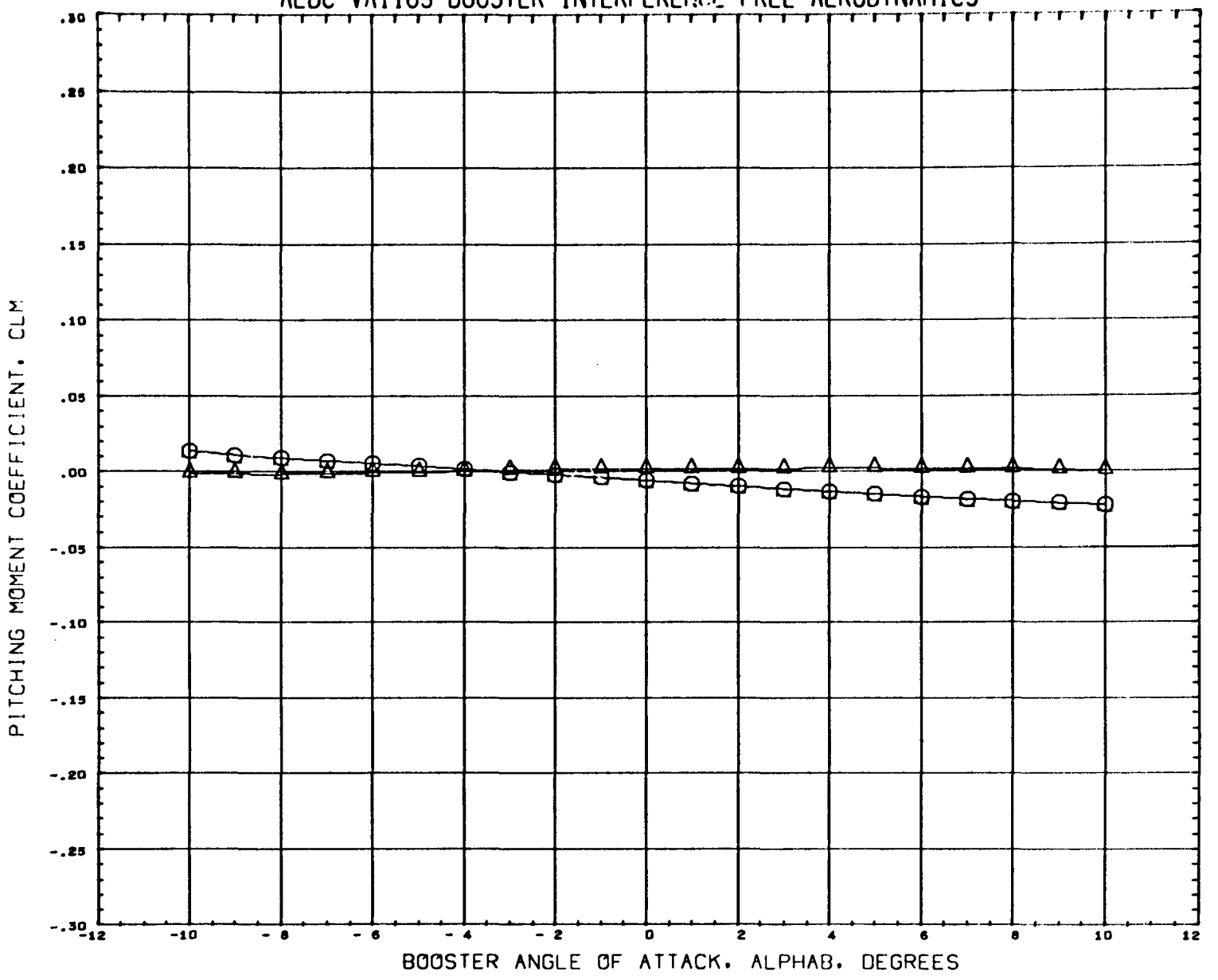
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DATA HIST. CODE *AMMS

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SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
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YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



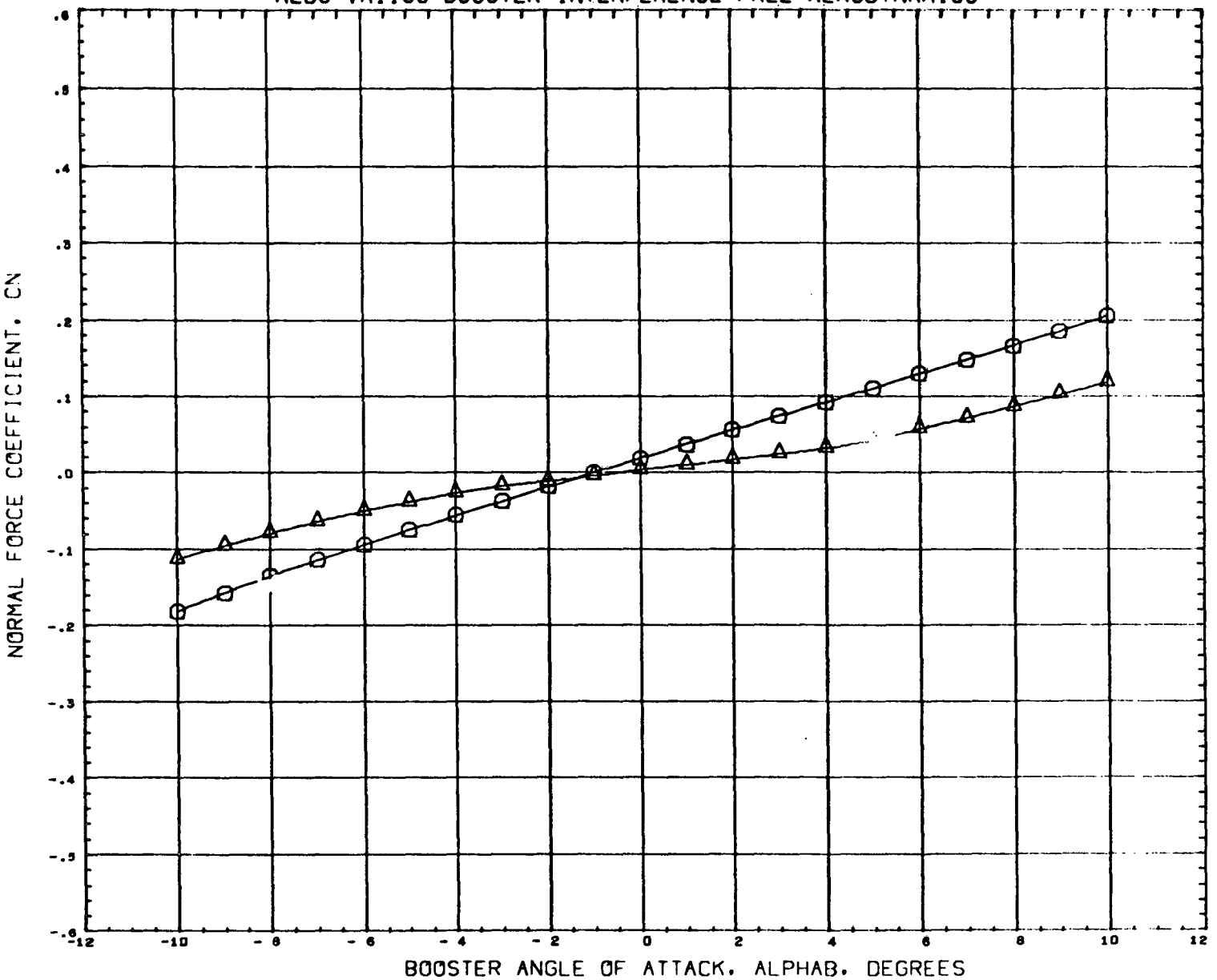
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DATA HIST. CODE *AM*GMS

REFERENCE INFORMATION

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BREF	13.3330	IN
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ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



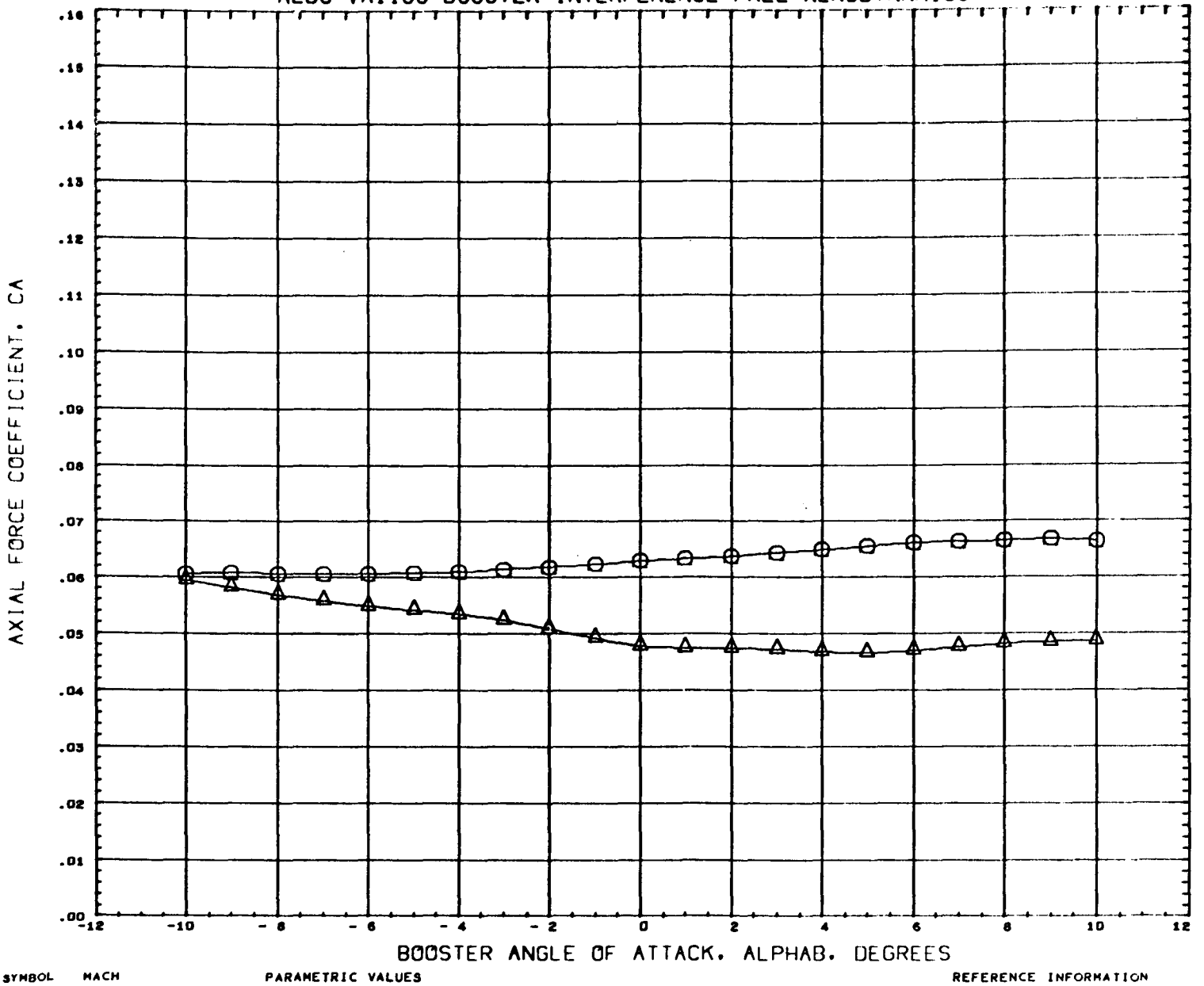
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DATA HIST. CODE *AM*GMS

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SCALE	0.0055	

AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



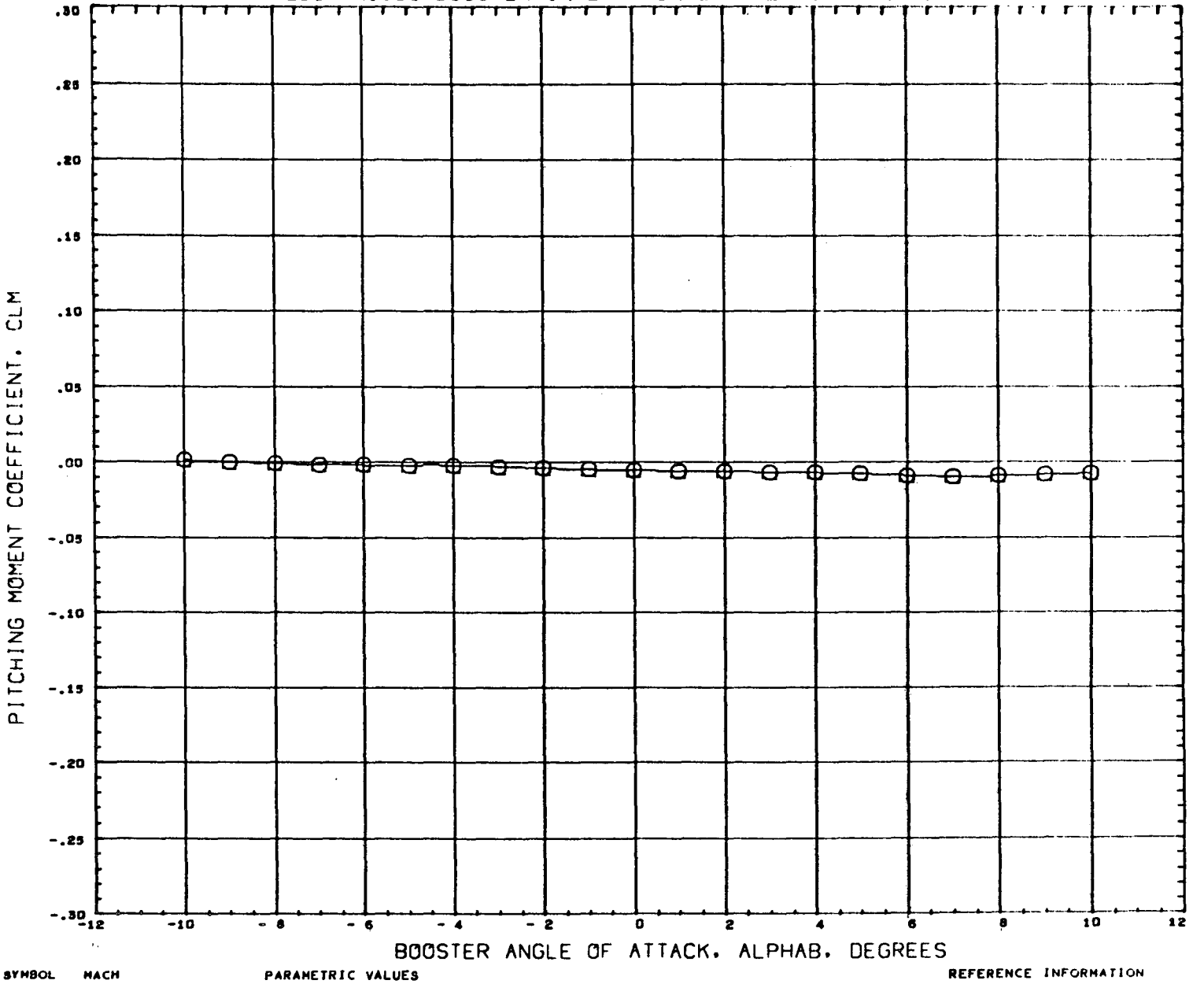
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DATA HIST. CODE *AM*GMS

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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



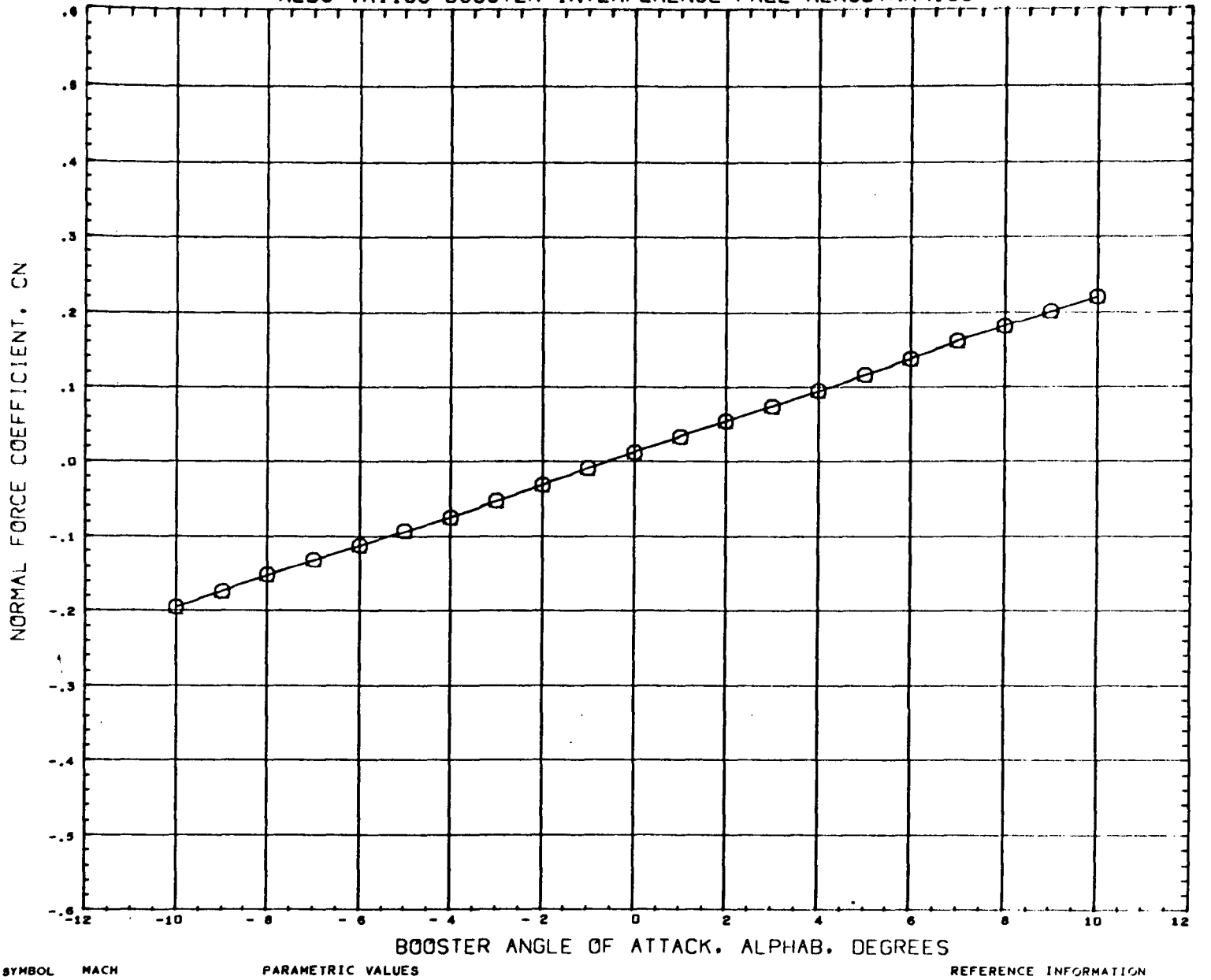
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DATA HIST. CODE *AHMS

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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



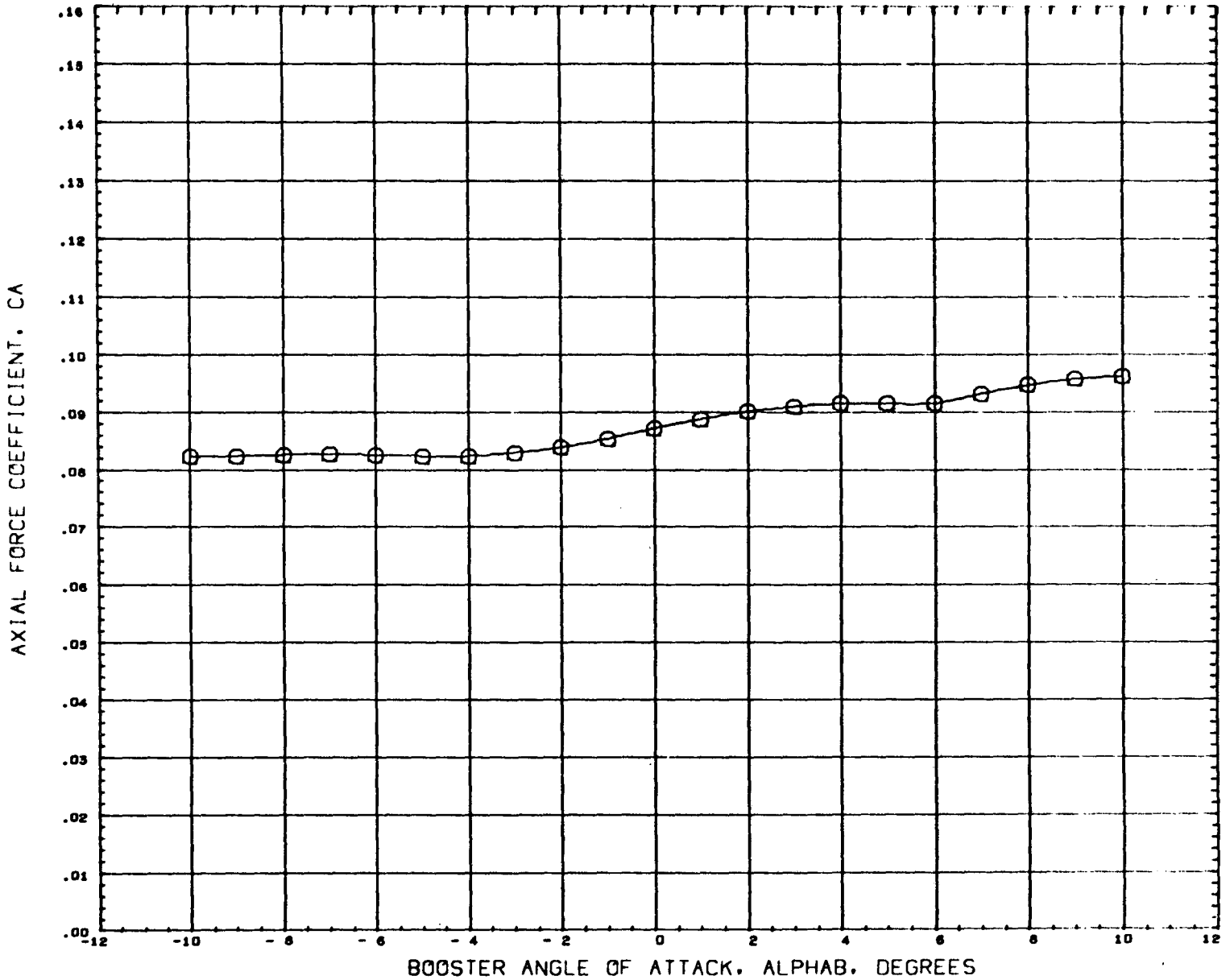
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		BETA	0.000		

DATA HIST. CODE *AMMS

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
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ZMRP	1.1940	IN
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AEDC VA1163 BOOSTER INTERFERENCE FREE AERODYNAMICS



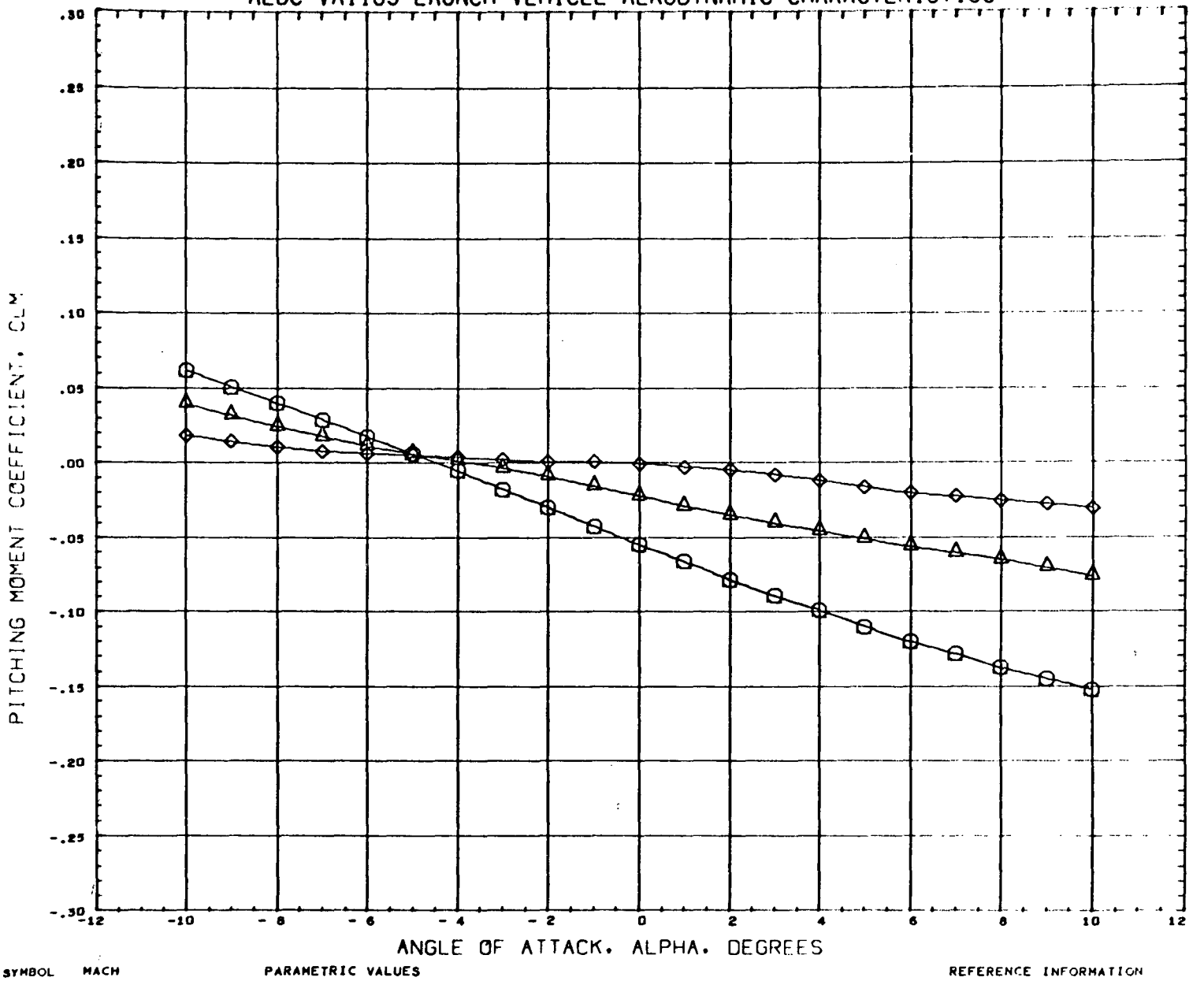
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		BETA	0.000		

DATA HIST. CODE *AMMS

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BREF	13.3330	IN
XMRP	10.8433	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH
○	2.000
△	3.000
◇	5.010

PARAMETRIC VALUES

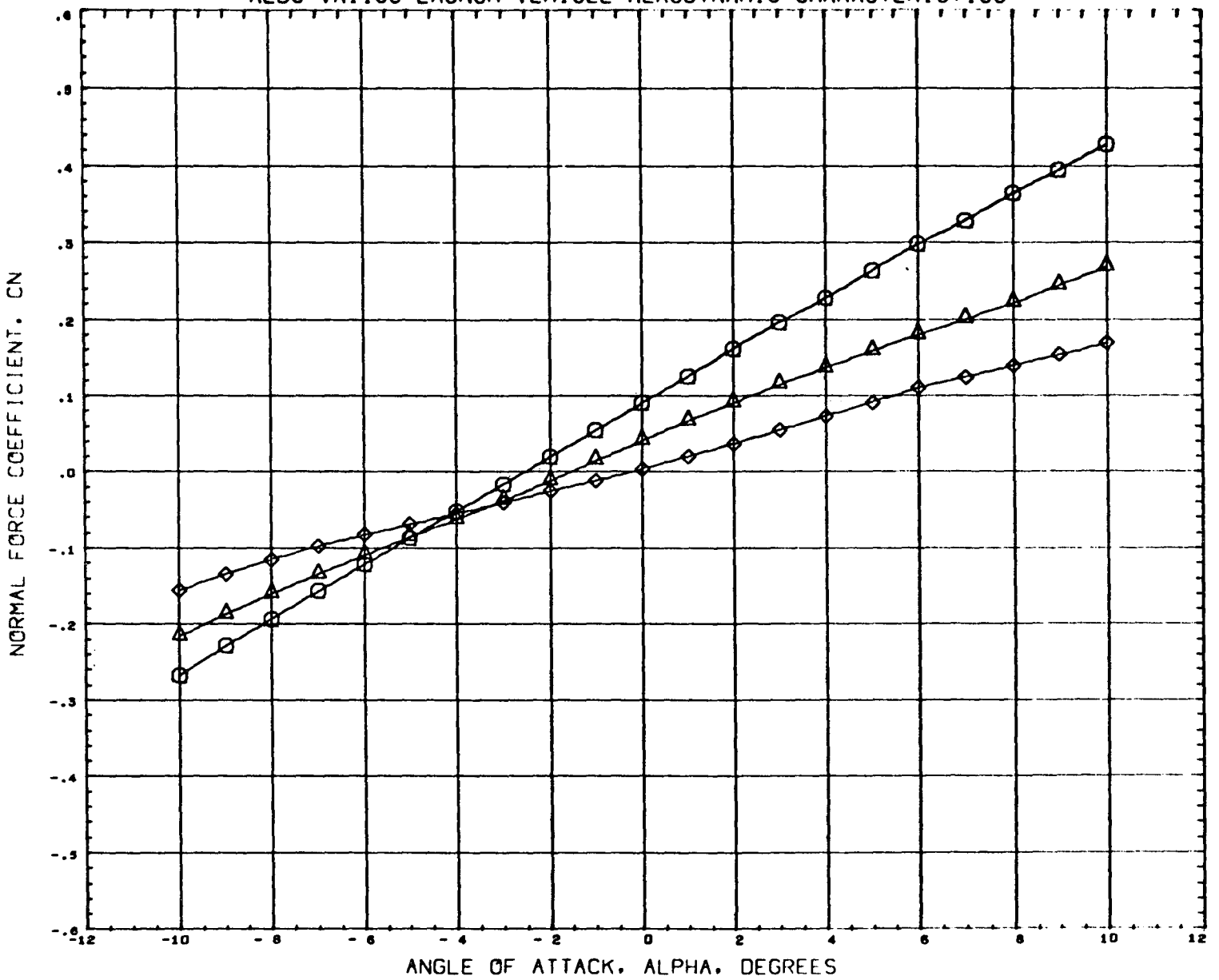
BSTPOW	100.000	ORBPOW	0.000
DELTAX	0.104	ALPHAI	0.000
ELVBST	0.000	ELVORB	0.000
BETA	0.000	DELTAZ	0.105

REFERENCE FILE 000

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.1110	IN
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ZMRP	1.6880	IN
SCALE	0.0055	

AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS

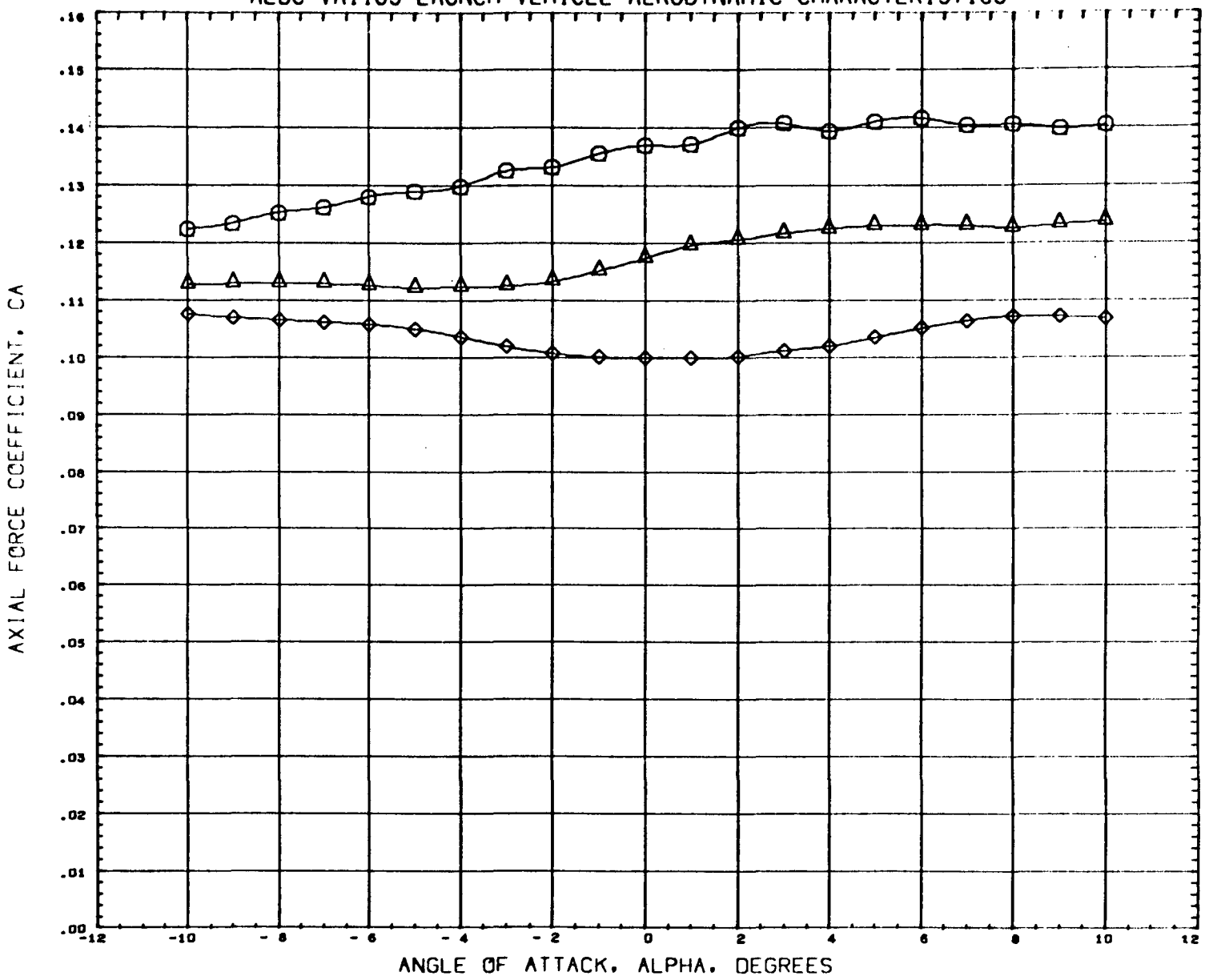


SYMBOL	MACH		PARAMETRIC VALUES		
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△	3.000	DELTAX	0.104	ALPHAI	0.000
◇	5.010	ELVBST	0.000	ELVORB	0.000
		BETA	0.000	DELTAZ	0.105

REFERENCE FILE 000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.1110	IN
YMRP	0.0000	IN
ZMRP	1.6880	IN
SCALE	0.0055	

AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH
○	2.000
△	3.000
◇	5.010

PARAMETRIC VALUES

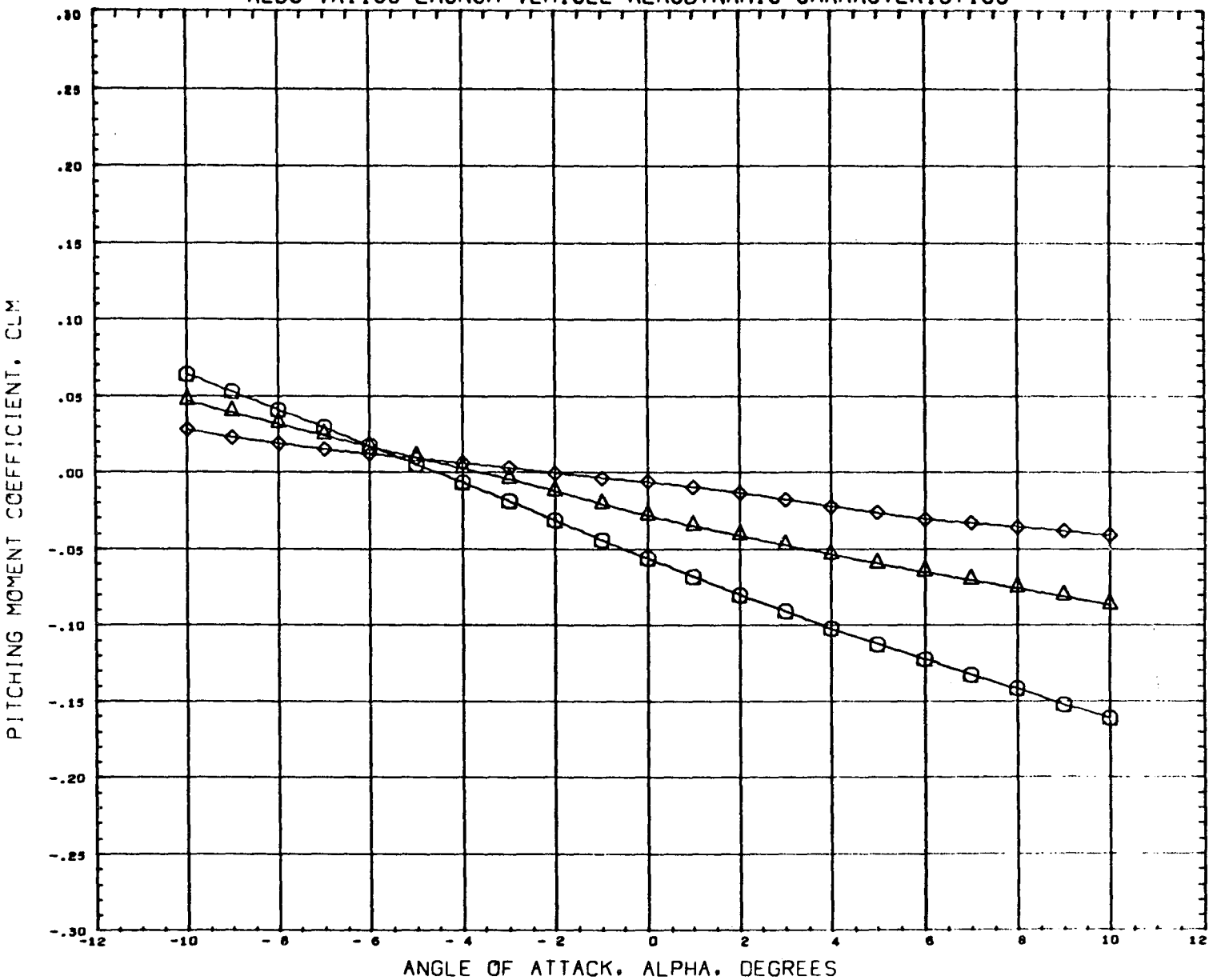
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BETA	0.000	DELTAZ	0.105

REFERENCE FILE 000

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
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SCALE	0.0055	

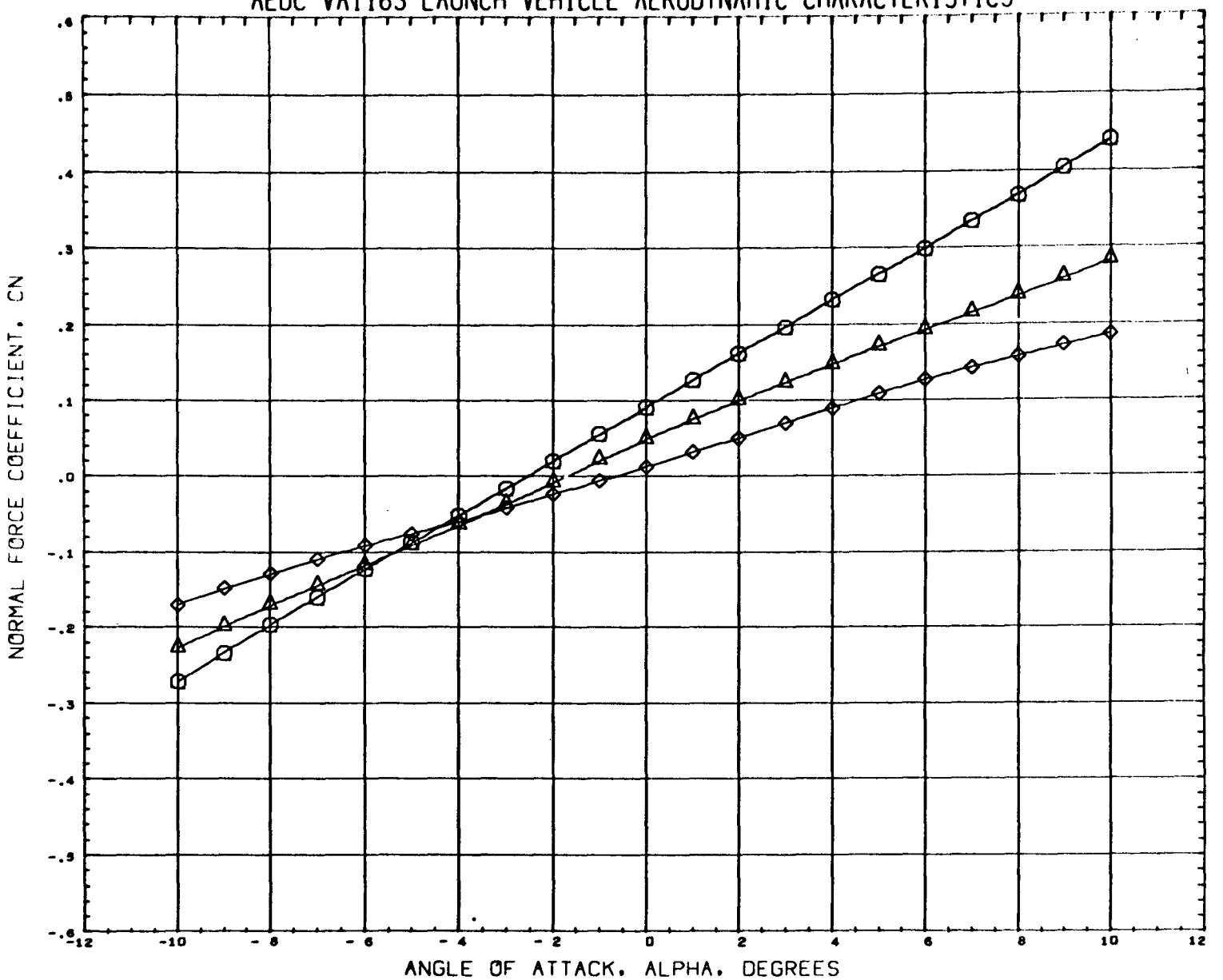
AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH		PARAMETRIC VALUES		
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△	3.000	DELTAX	0.104	ALPHAI	0.000
◇	5.010	ELVBST	0.000	ELVORB	0.000
		BETA	0.000	DELTAZ	0.105
		REFERENCE FILE			000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.1110	IN
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ZMRP	1.6880	IN
SCALE	0.0055	

AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS

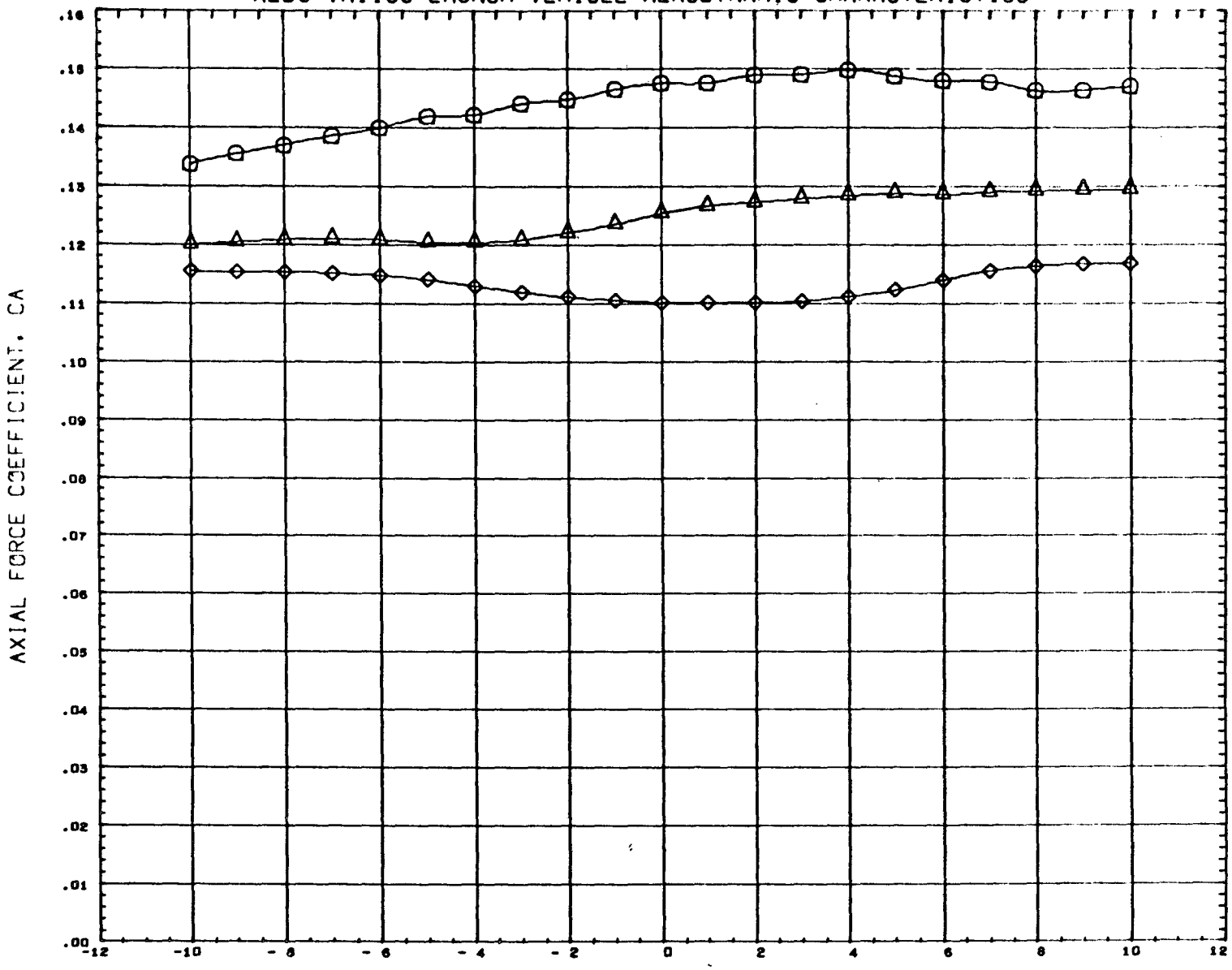


SYMBOL	MACH		PARAMETRIC VALUES		
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		BETA	0.000	DELTAZ	0.105

REFERENCE FILE . 000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
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BREF	13.3330	IN
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ZMRP	1.6880	IN
SCALE	0.0055	

AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS

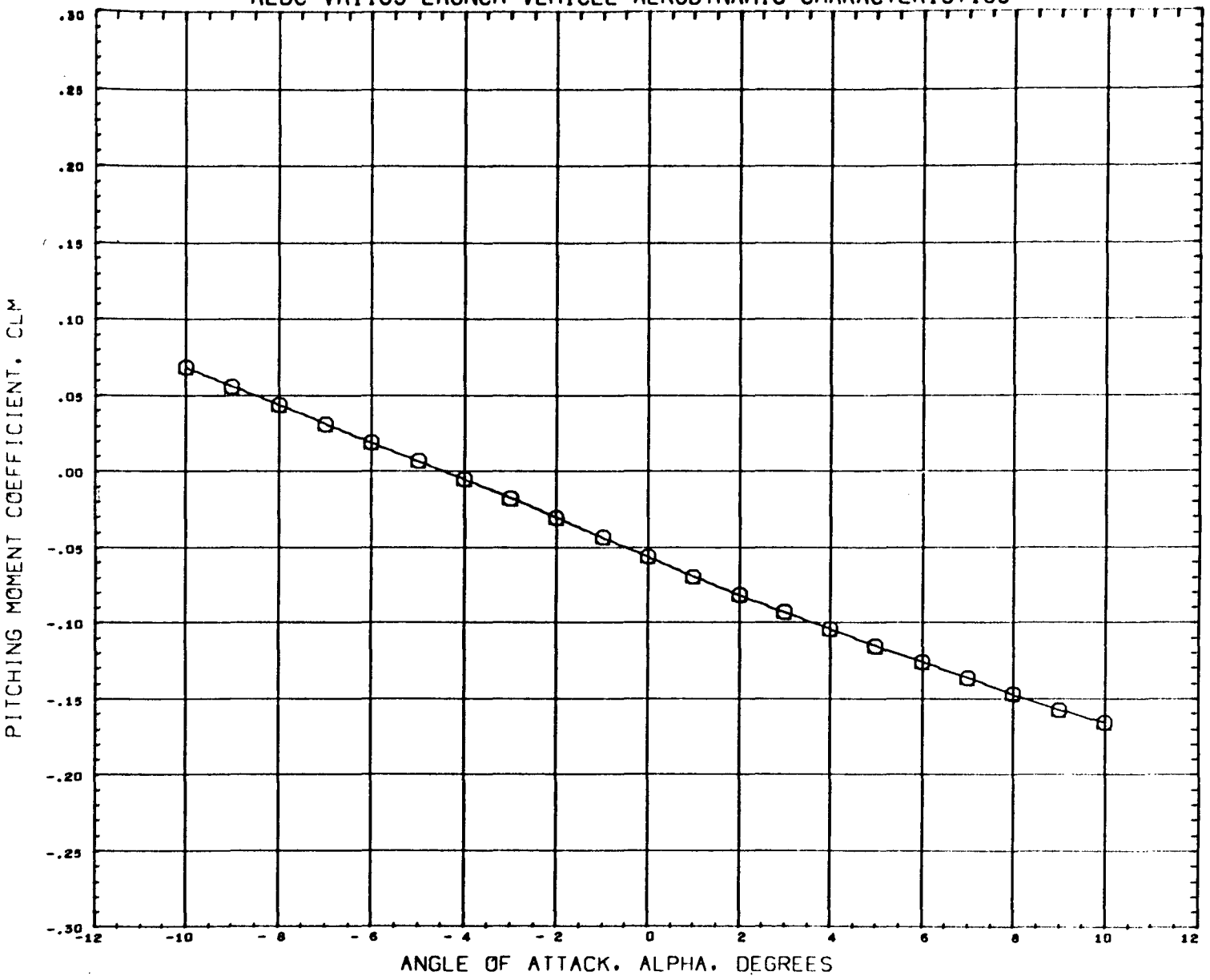


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◇	5.010	ELVBST	0.000	ELVORB	0.000
		BETA	0.000	DELTAZ	0.105

REFERENCE FILE 000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.1110	IN
YMRP	0.0000	IN
ZMRP	1.6880	IN
SCALE	0.0055	

AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH
○	2.000

PARAMETRIC VALUES

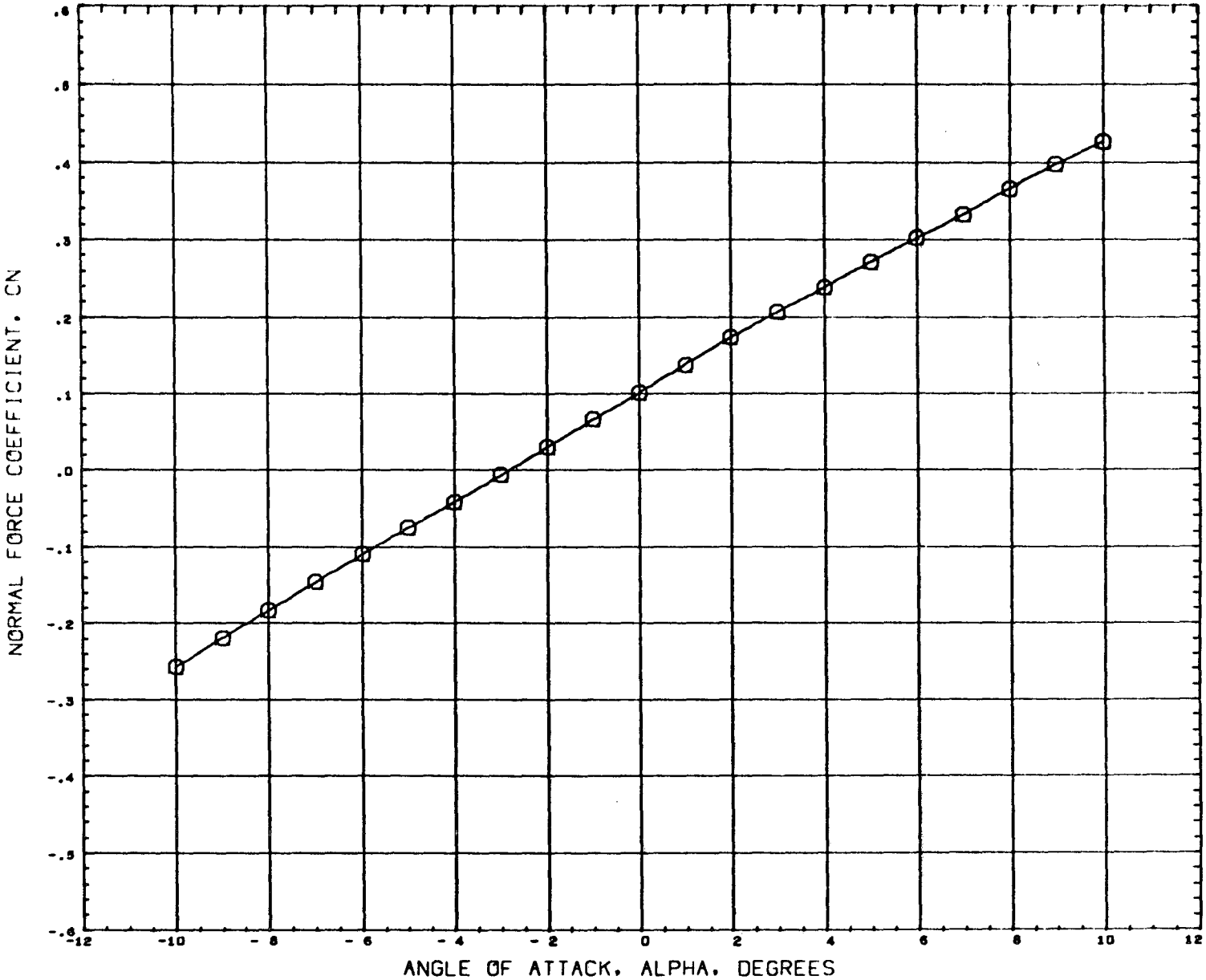
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BETA	0.000	DELTAZ	0.105

REFERENCE FILE 000

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
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XMRP	7.1110	IN
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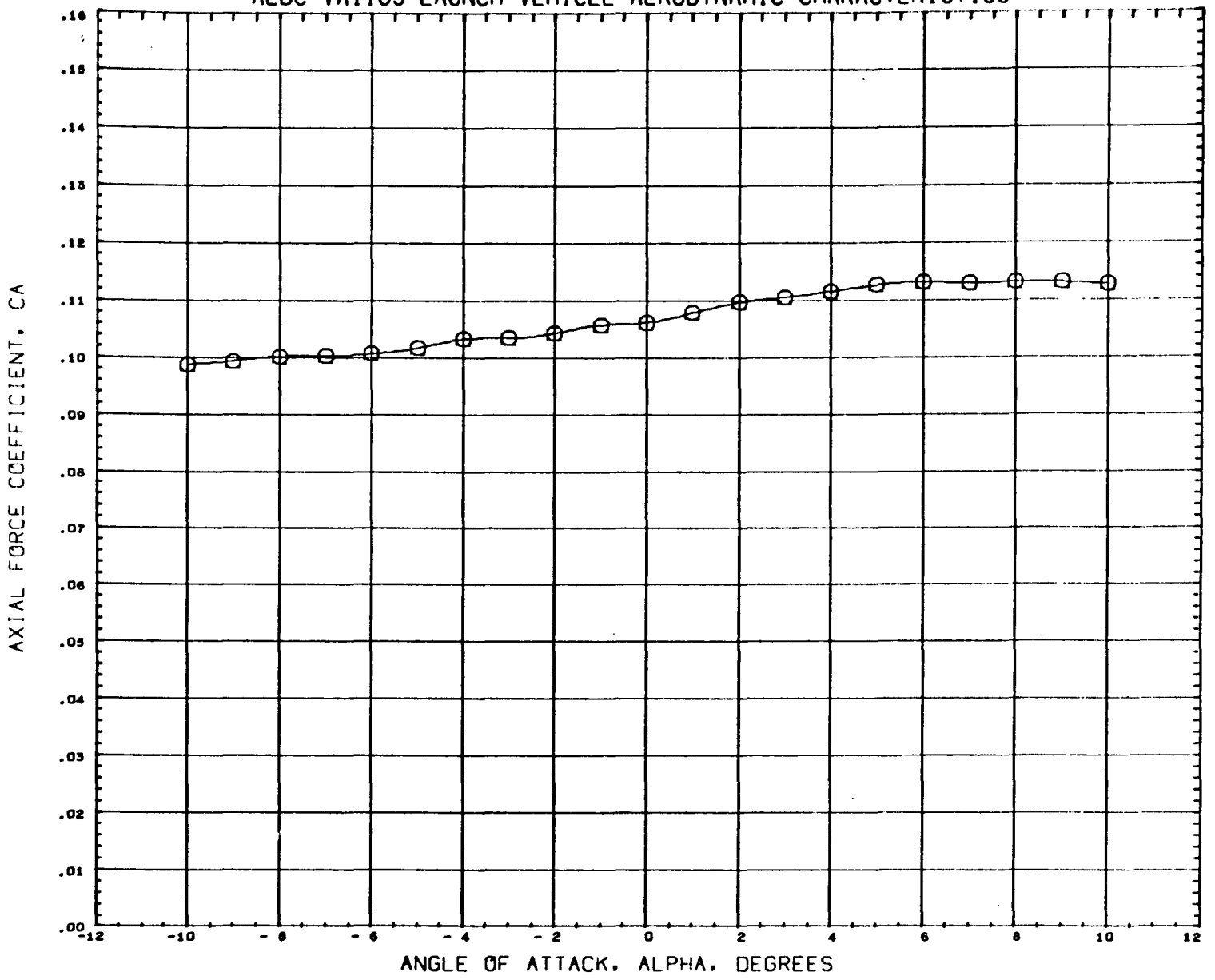
AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH		PARAMETRIC VALUES		
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		DELTAX	0.104	ALPHAI	0.000
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		BETA	0.000	DELTAZ	0.105
		REFERENCE FILE			000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
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XMRP	7.1110	IN
YMRP	0.0000	IN
ZMRP	1.6880	IN
SCALE	0.0055	

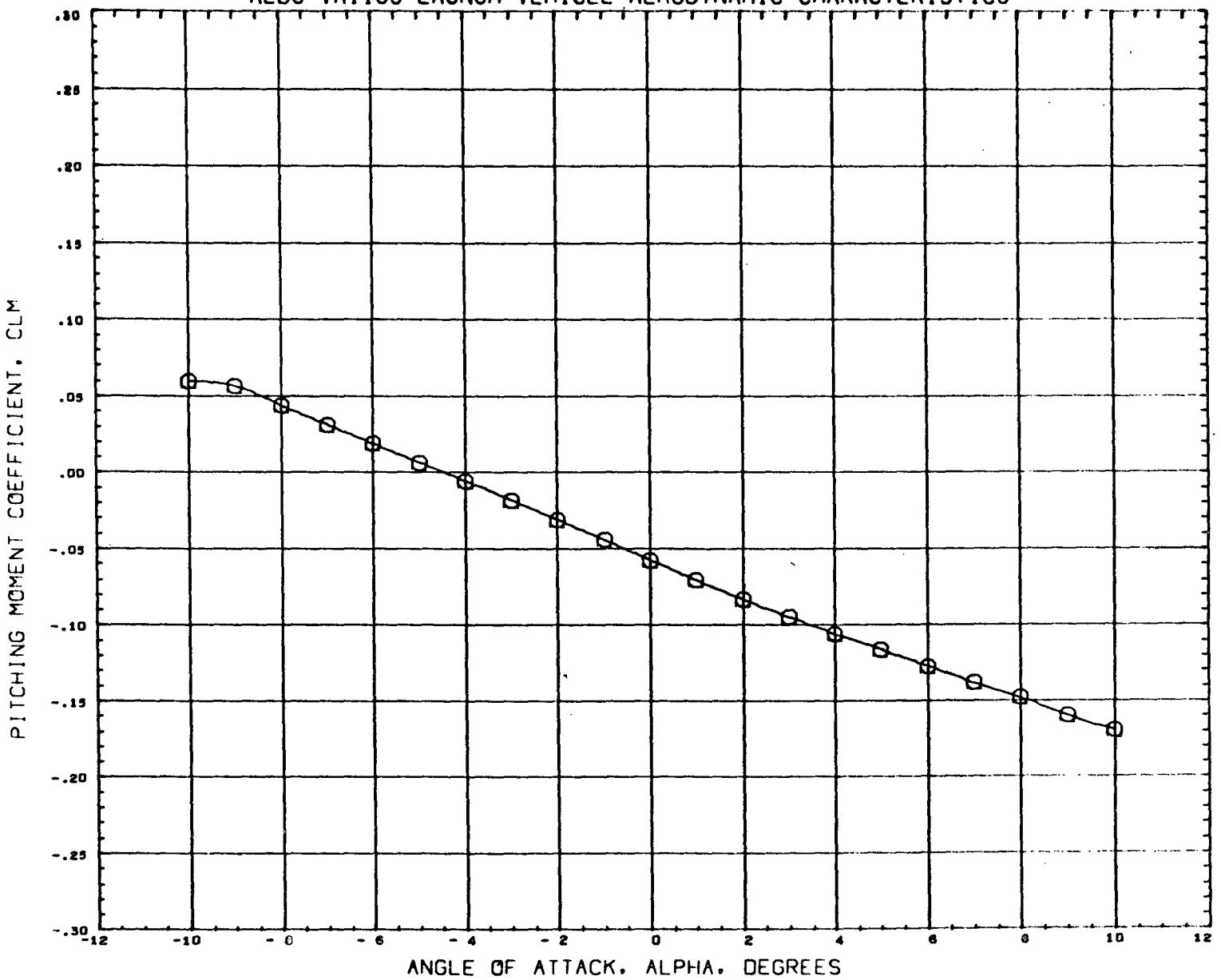
AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH		PARAMETRIC VALUES		
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		DELTAX	0.104	ALPHAI	0.000
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		BETA	0.000	DELTAZ	0.105
		REFERENCE FILE			000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
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YMRP	0.0000	IN
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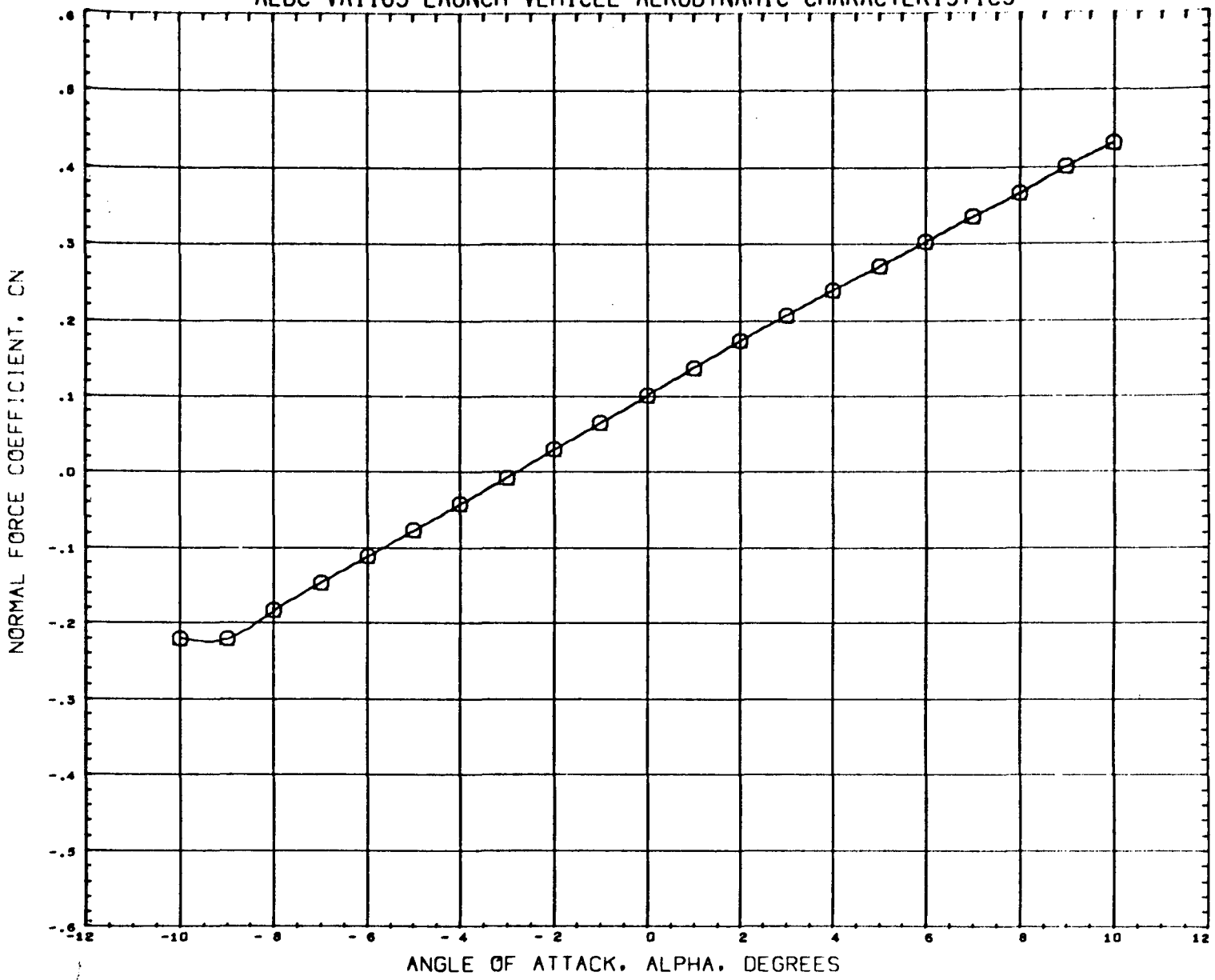
AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH	PARAMETRIC VALUES			
O	2.000	BSTPOW	0.000	ORBPOW	0.000
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		BETA	0.000	DELTAZ	0.105
		REFERENCE FILE			000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
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YMRP	0.0000	IN
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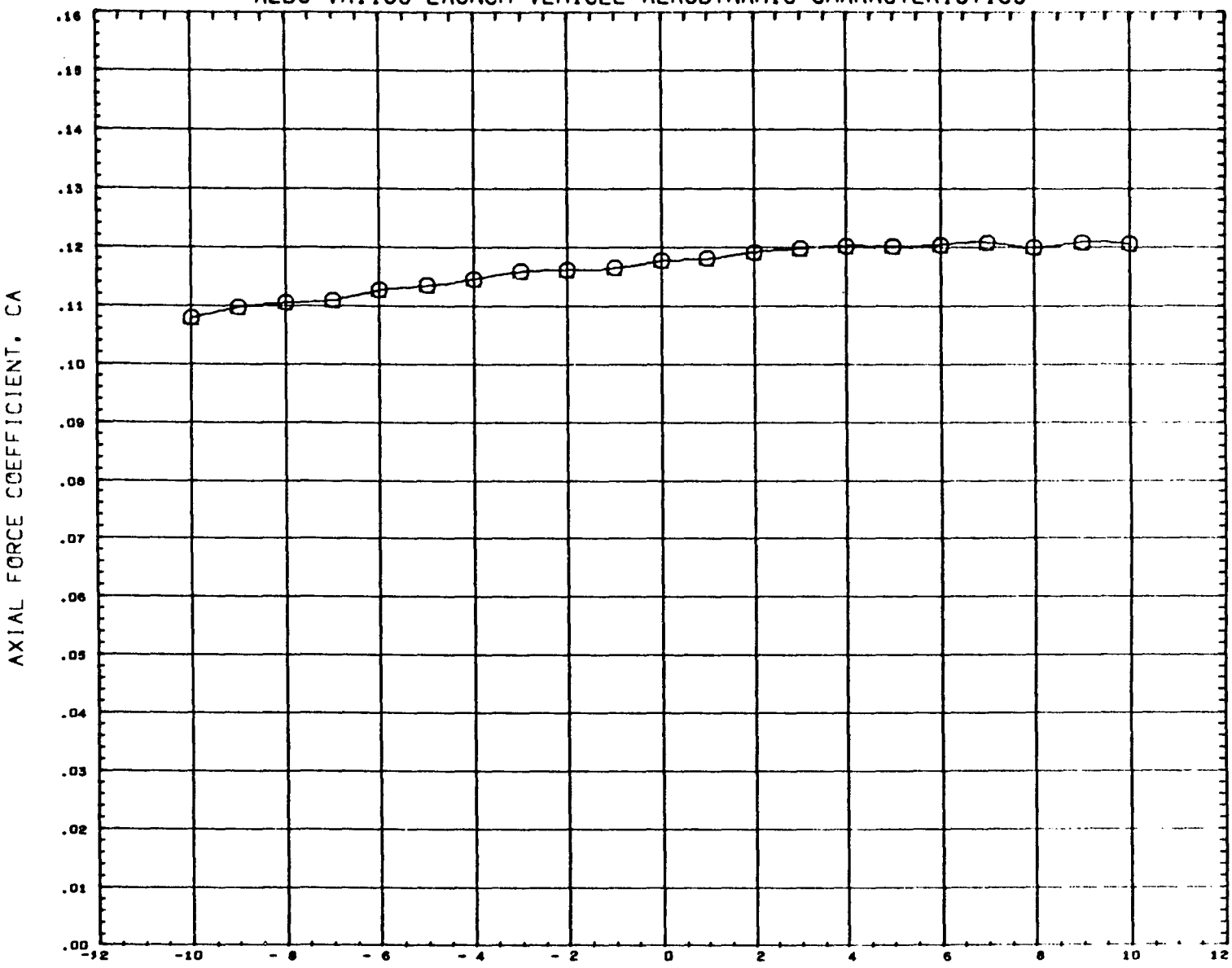
AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH	PARAMETRIC VALUES			
○	2.000	BSTPOW	0.000	ORBPOW	0.000
		DELTAX	0.104	ALPHAI	0.000
		ELVBST	0.000	ELVORB	0.000
		BETA	0.000	DELTAZ	0.105
		REFERENCE FILE			000

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
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YMRP	0.0000	IN
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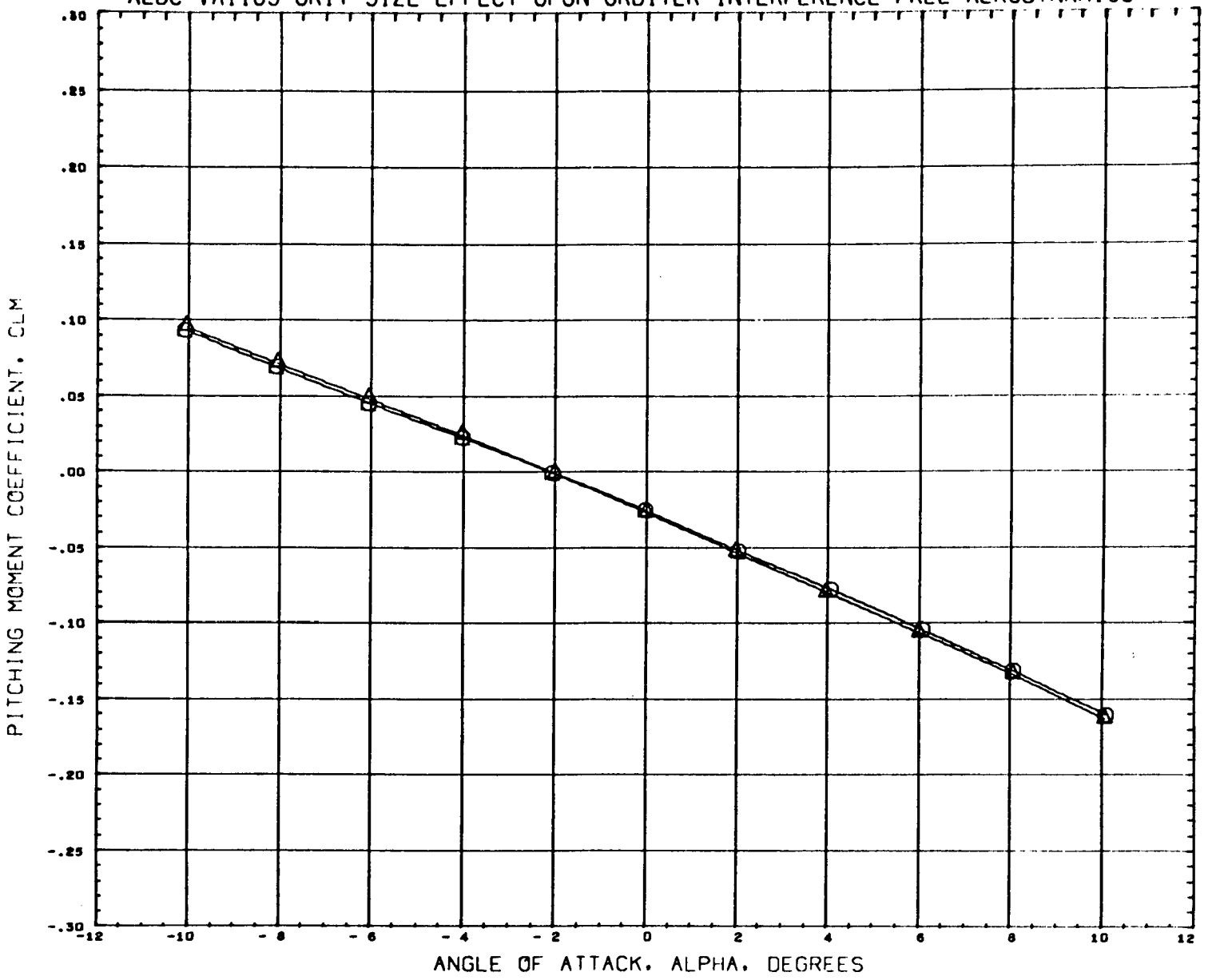
AEDC VA1163 LAUNCH VEHICLE AERODYNAMIC CHARACTERISTICS



SYMBOL	MACH		PARAMETRIC VALUES		
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		DELTAX	0.104	ALPHAI	0.000
		ELVBST	0.000	ELVORB	0.000
		BETA	0.000	DELTAZ	0.105
		REFERENCE FILE			000

REFERENCE INFORMATION		
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BREF	13.3330	IN
XMRP	7.1110	IN
YMRP	0.0000	IN
ZMRP	1.6880	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS



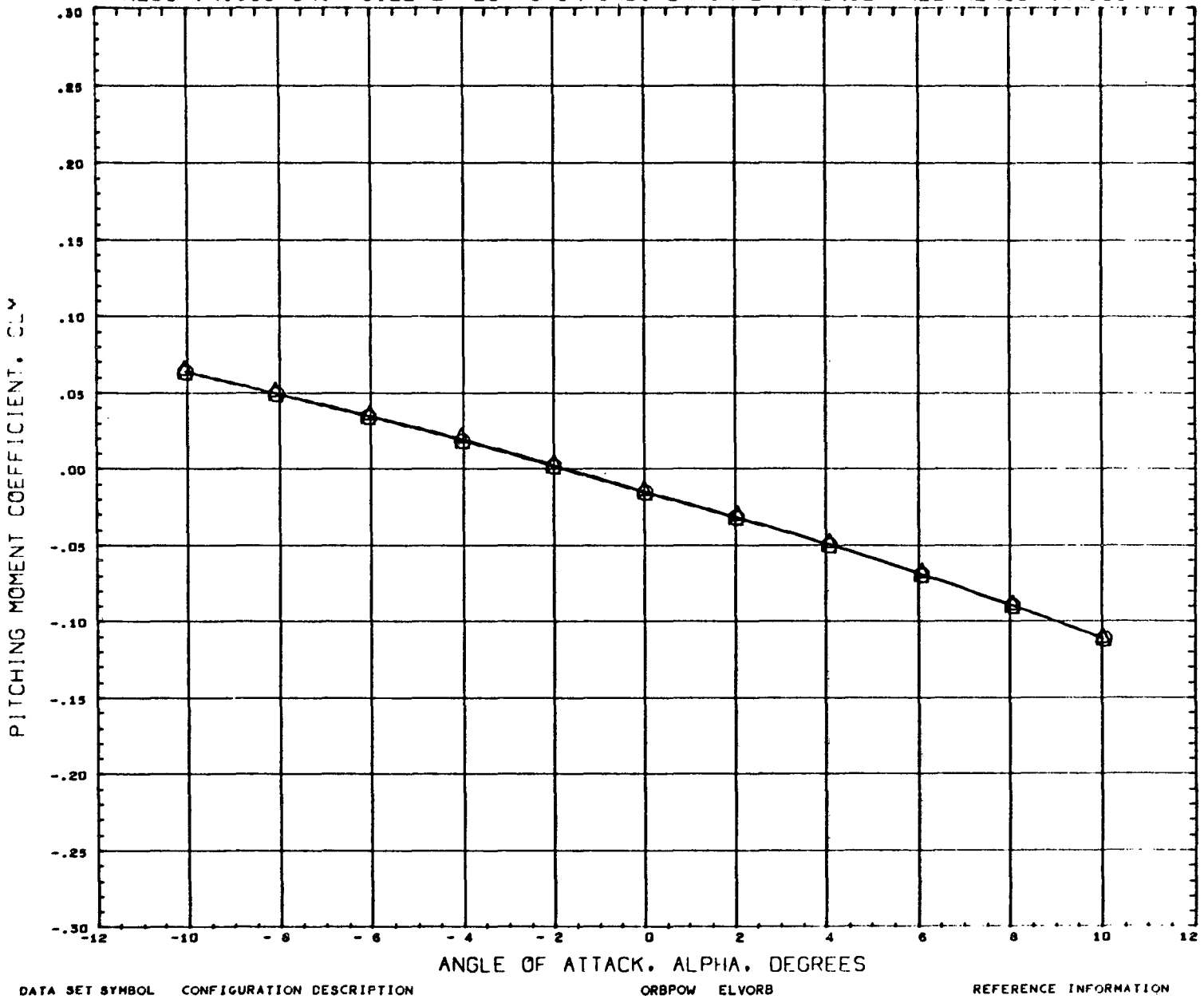
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT8876)		AEDC VA1163 MADAC ORBITER ALONE (NO GRIT)	0.000	0.000
(RT8877)		AEDC VA1163 MADAC ORBITER ALONE (GRIT ON)	0.000	0.000

MACH 3.000

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS



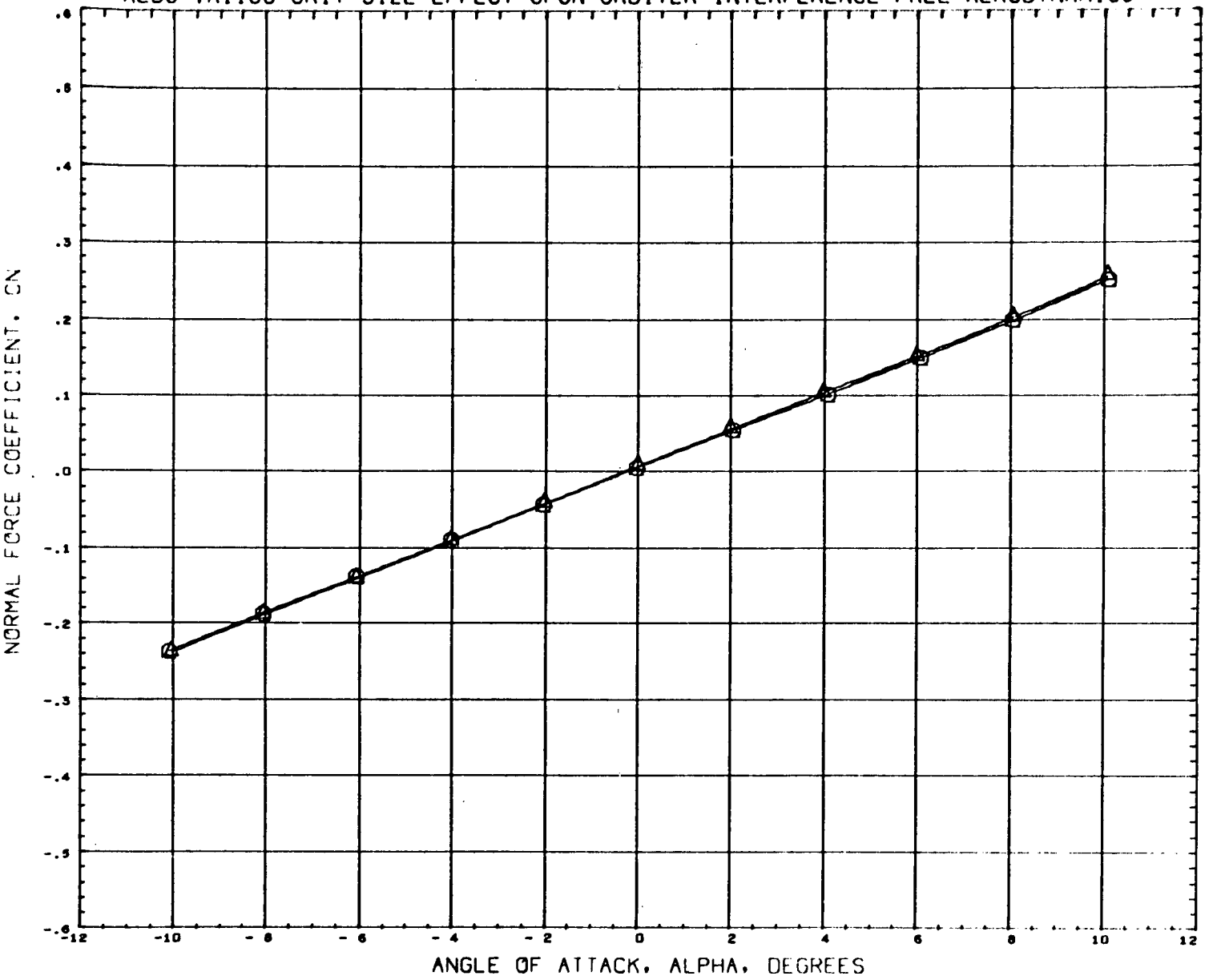
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT0676)		AEDC VA1163 MADAC ORBITER ALONE (NO GRIT)	0.000	0.000
(RT0677)		AEDC VA1163 MADAC ORBITER ALONE (GRIT ON)	0.000	0.000

MACH 5.010

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS



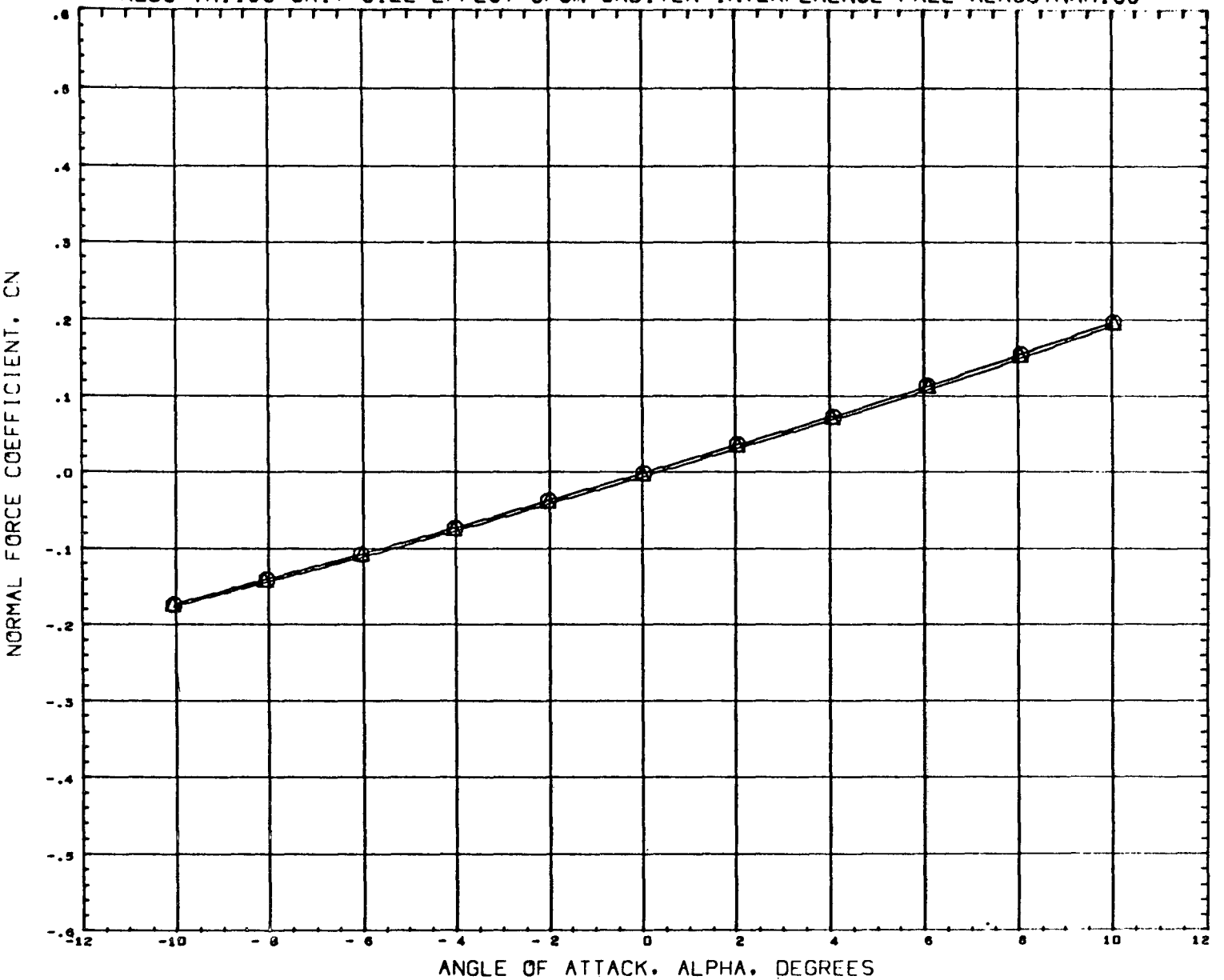
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT8676)	○	AEDC VA1163 MADAC ORBITER ALONE (NO GRIT)	0.000	0.000
(RT8677)	△	AEDC VA1163 MADAC ORBITER ALONE (GRIT ON)	0.000	0.000

MACH 3.000

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS



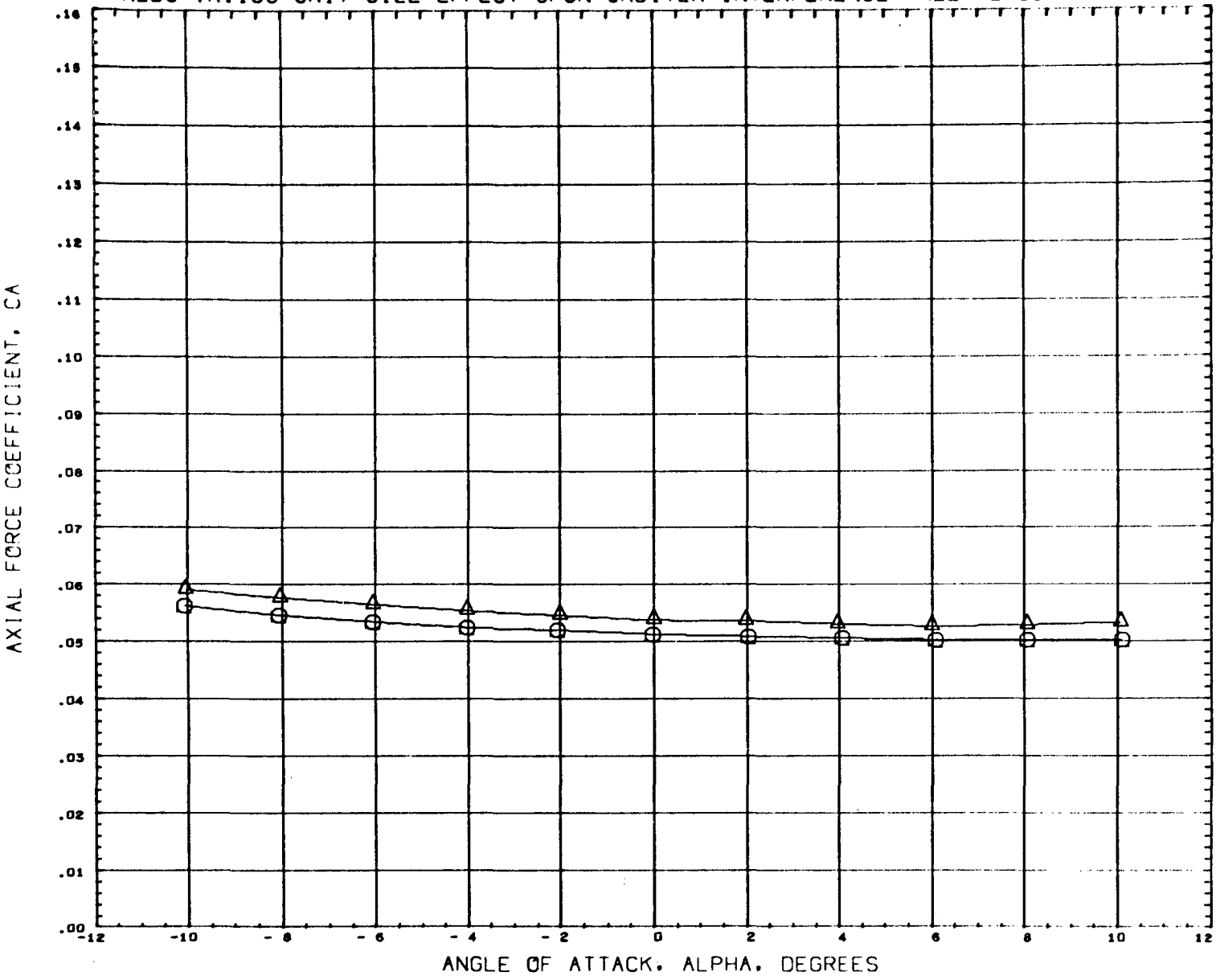
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT8876)		AEDC VA1163 MADAC ORBITER ALONE (NO GRIT)	0.000	0.000
(RT8877)		AEDC VA1163 MADAC ORBITER ALONE (GRIT ON)	0.000	0.000

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

MACH 5.010

AEDC VA1163 GRIT SIZE EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS



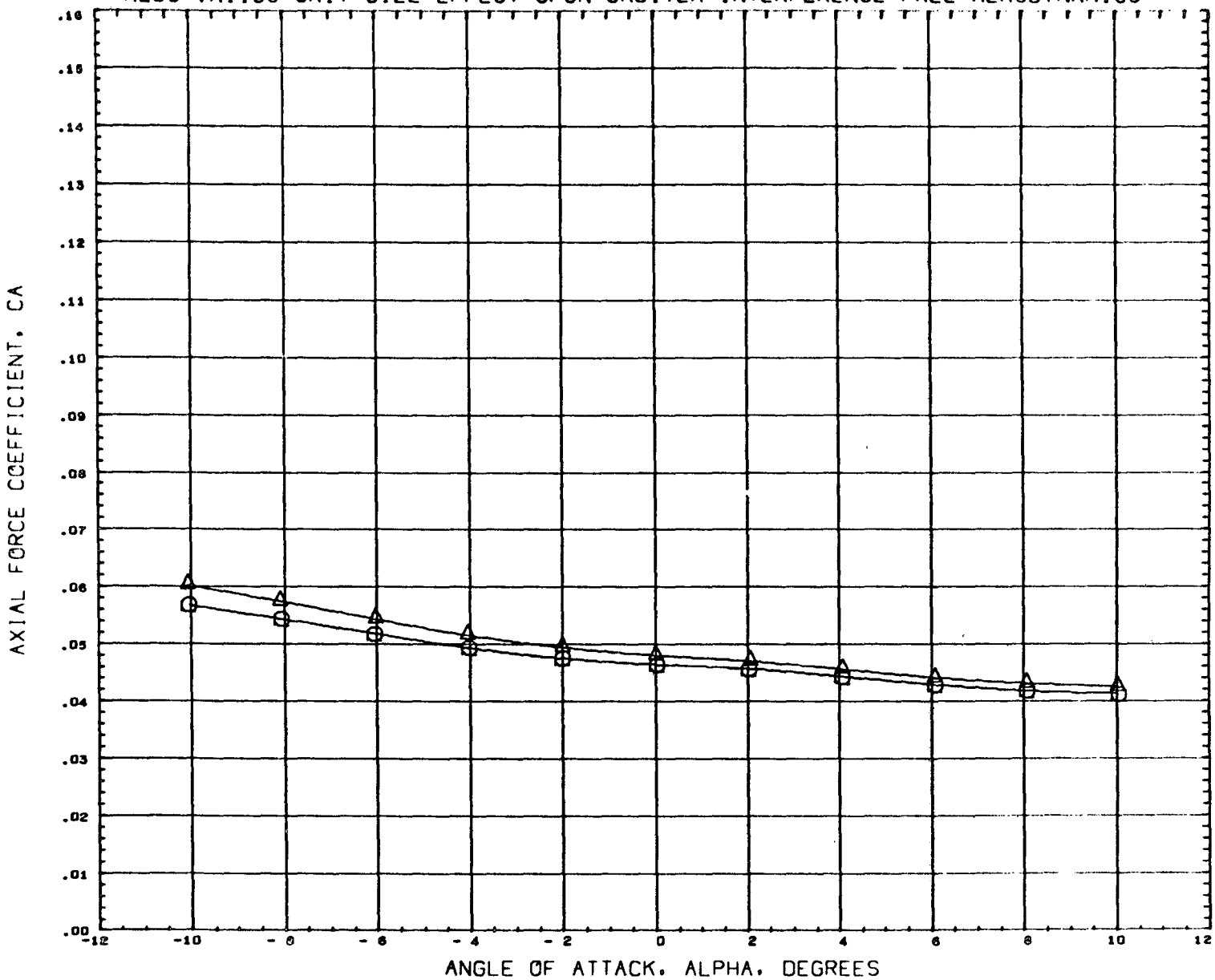
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT8876)		AEDC VA1163 MADAC ORBITER ALONE (NO GRIT)	0.000	0.000
(RT8877)		AEDC VA1163 MADAC ORBITER ALONE (GRIT ON)	0.000	0.000

MACH 3.000

REFERENCE INFORMATION

SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS

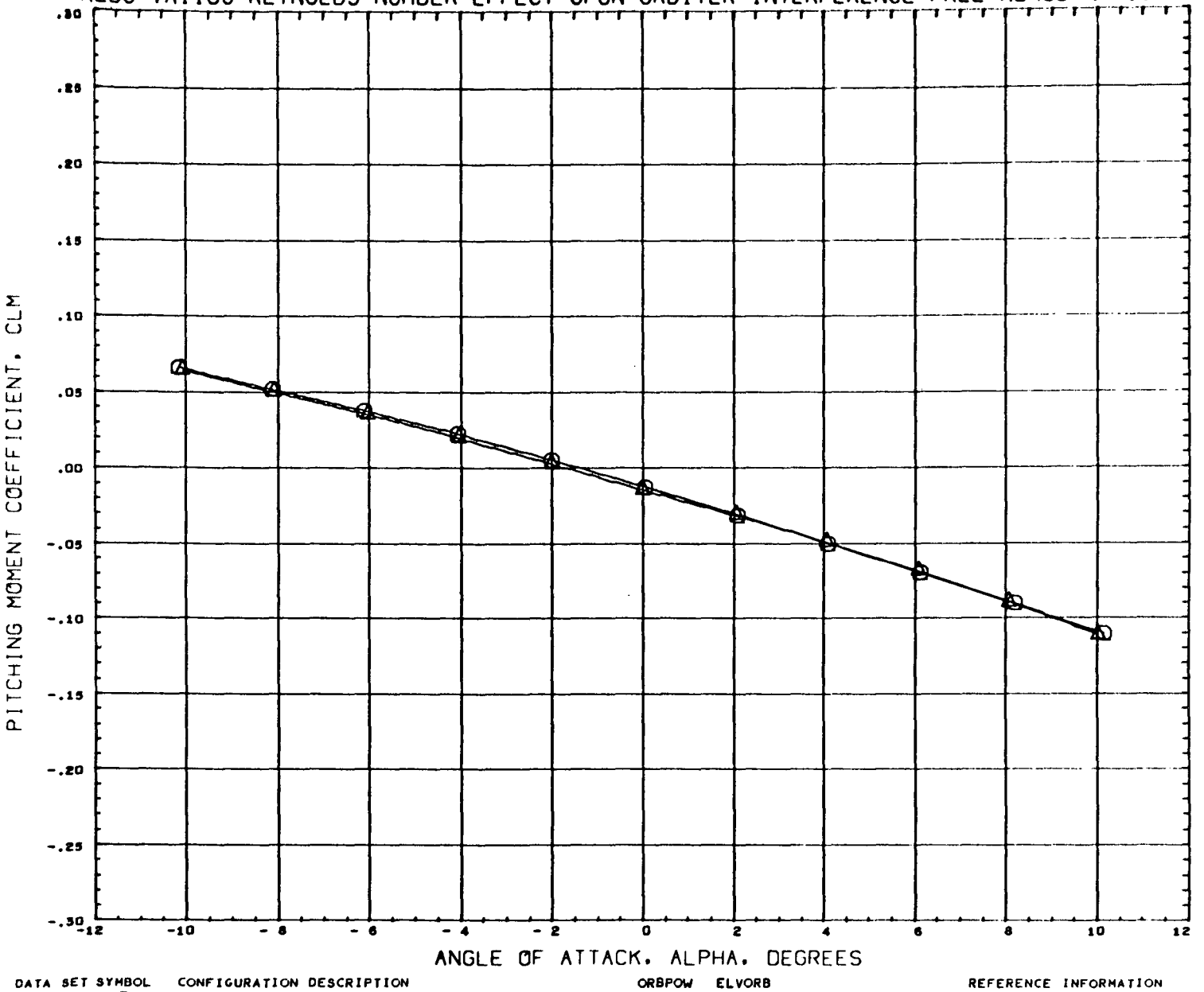


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT8676)	○	AEDC VA1163 MADAC ORBITER ALONE (NO GRIT)	0.000	0.000
(RT8677)	△	AEDC VA1163 MADAC ORBITER ALONE (GRIT ON)	0.000	0.000

MACH 5.010

REFERENCE INFORMATION		
SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 REYNOLDS NUMBER EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS

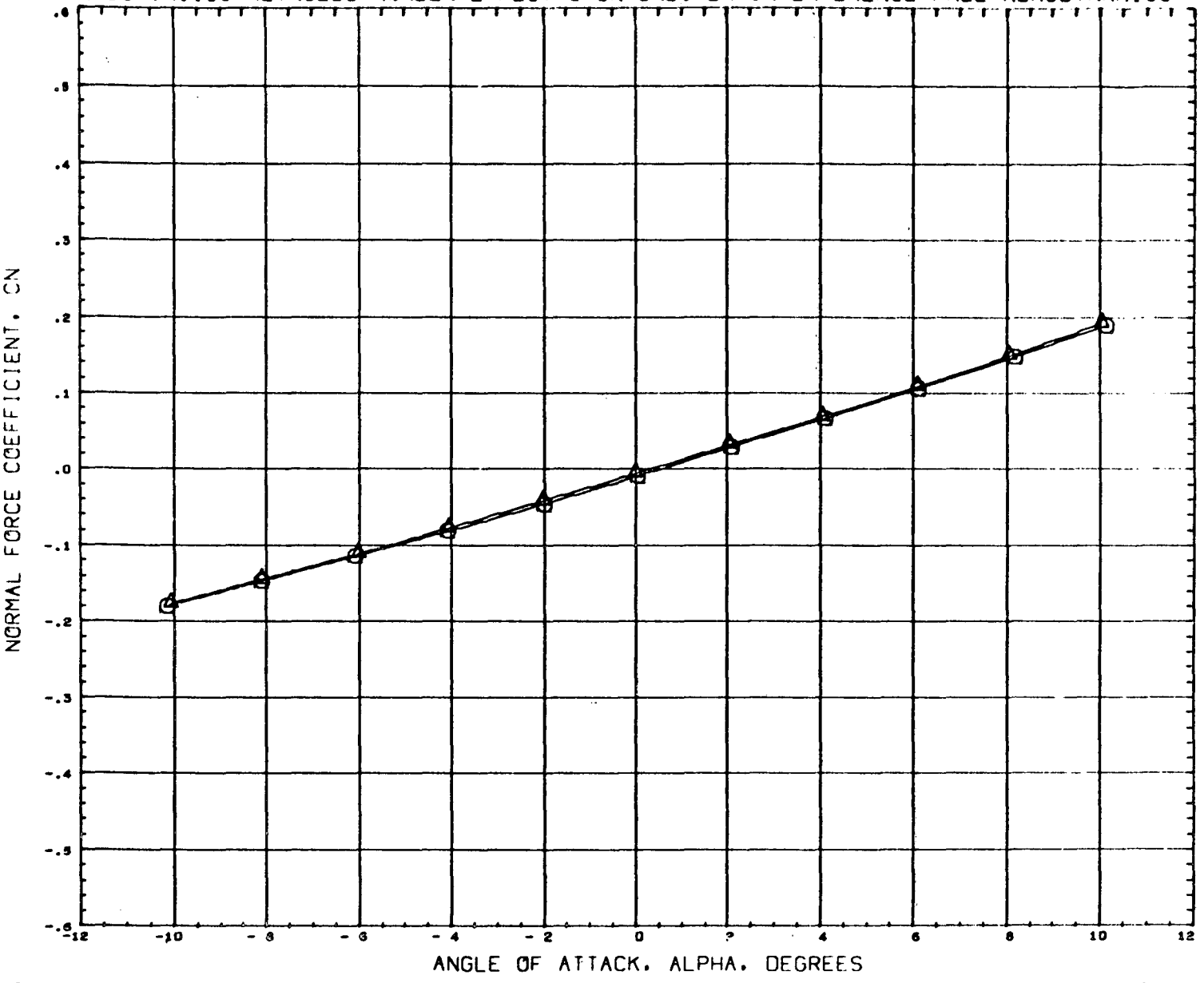


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT8678)	○	AEDC VA1163 MADAC ORBITER ALONE (R=1.0 X E6)	0.000	0.000
(RT8679)	△	AEDC VA1163 MADAC ORBITER ALONE (R=4.0 X E6)	0.000	0.000

MACH 5.020

REFERENCE INFORMATION		
SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 REYNOLDS NUMBER EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS

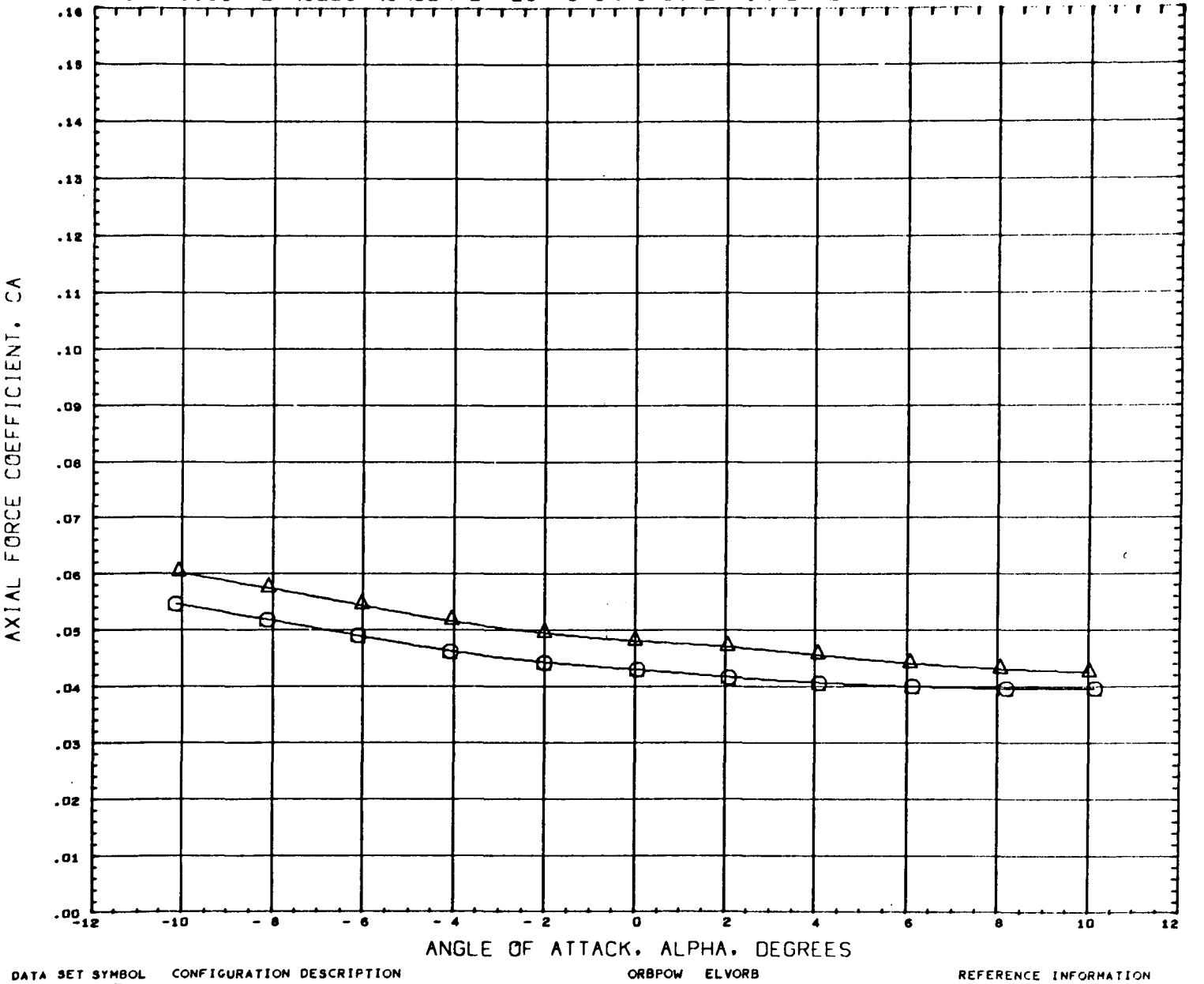


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT8678)	○	AEDC VA1163 MADAC ORBITER ALONE (R=1.0 X E6)	0.000	0.000
(RT8679)	△	AEDC VA1163 MADAC ORBITER ALONE (R=4.0 X E6)	0.000	0.000

MACH 5.020

REFERENCE INFORMATION		
SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 REYNOLDS NUMBER EFFECT UPON ORBITER INTERFERENCE FREE AERODYNAMICS

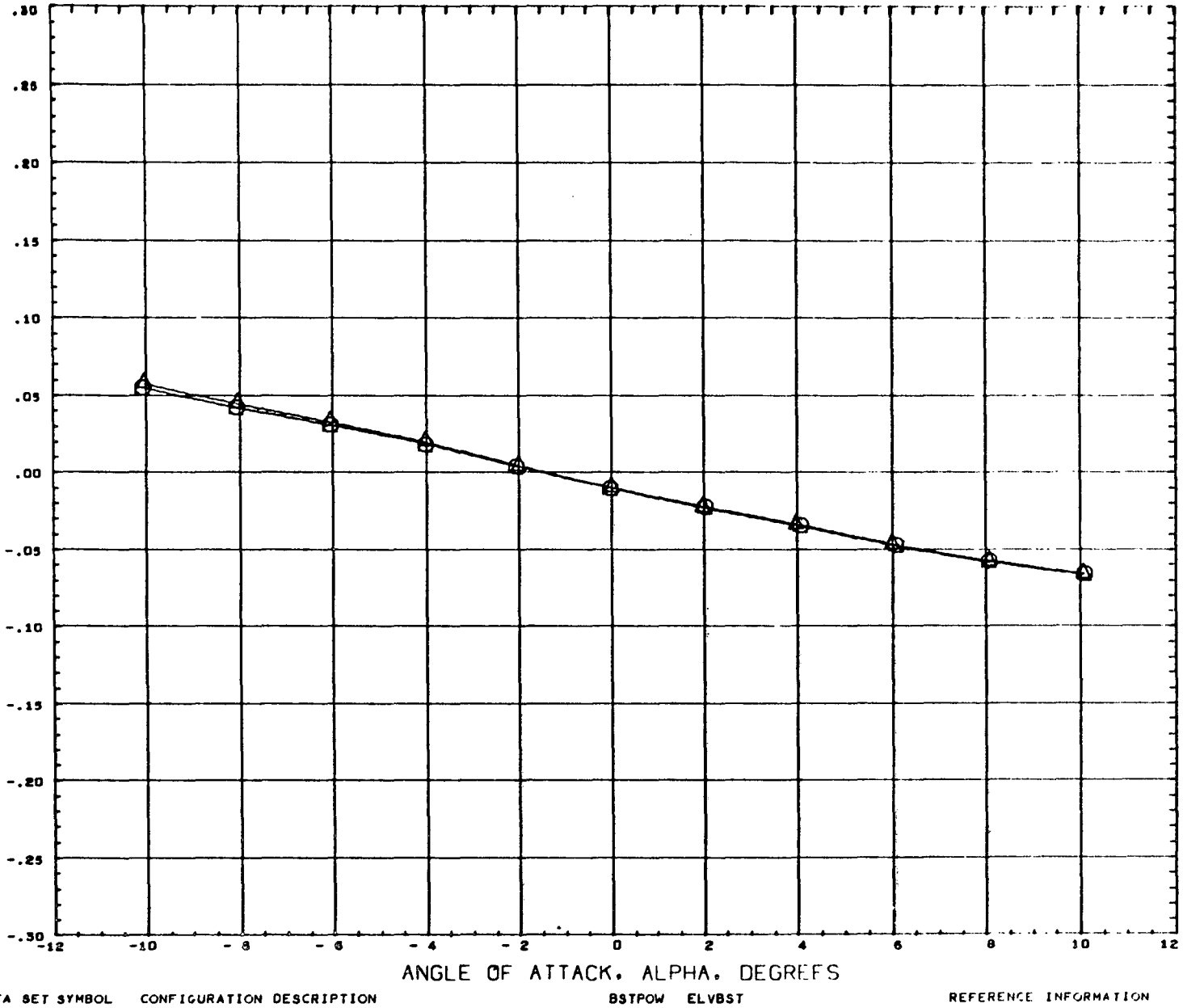


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBPOW	ELVORB
(RT6878)	○	AEDC VA1163 MADAC ORBITER ALONE (R=1.0 X E6)	0.000	0.000
(RT6879)	△	AEDC VA1163 MADAC ORBITER ALONE (R=4.0 X E6)	0.000	0.000

MACH 5.020

REFERENCE INFORMATION		
SREF	23.6890	SQ IN
LREF	4.1930	IN
BREF	6.5000	IN
XMRP	4.9170	IN
YMRP	0.0000	IN
ZMRP	1.3900	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



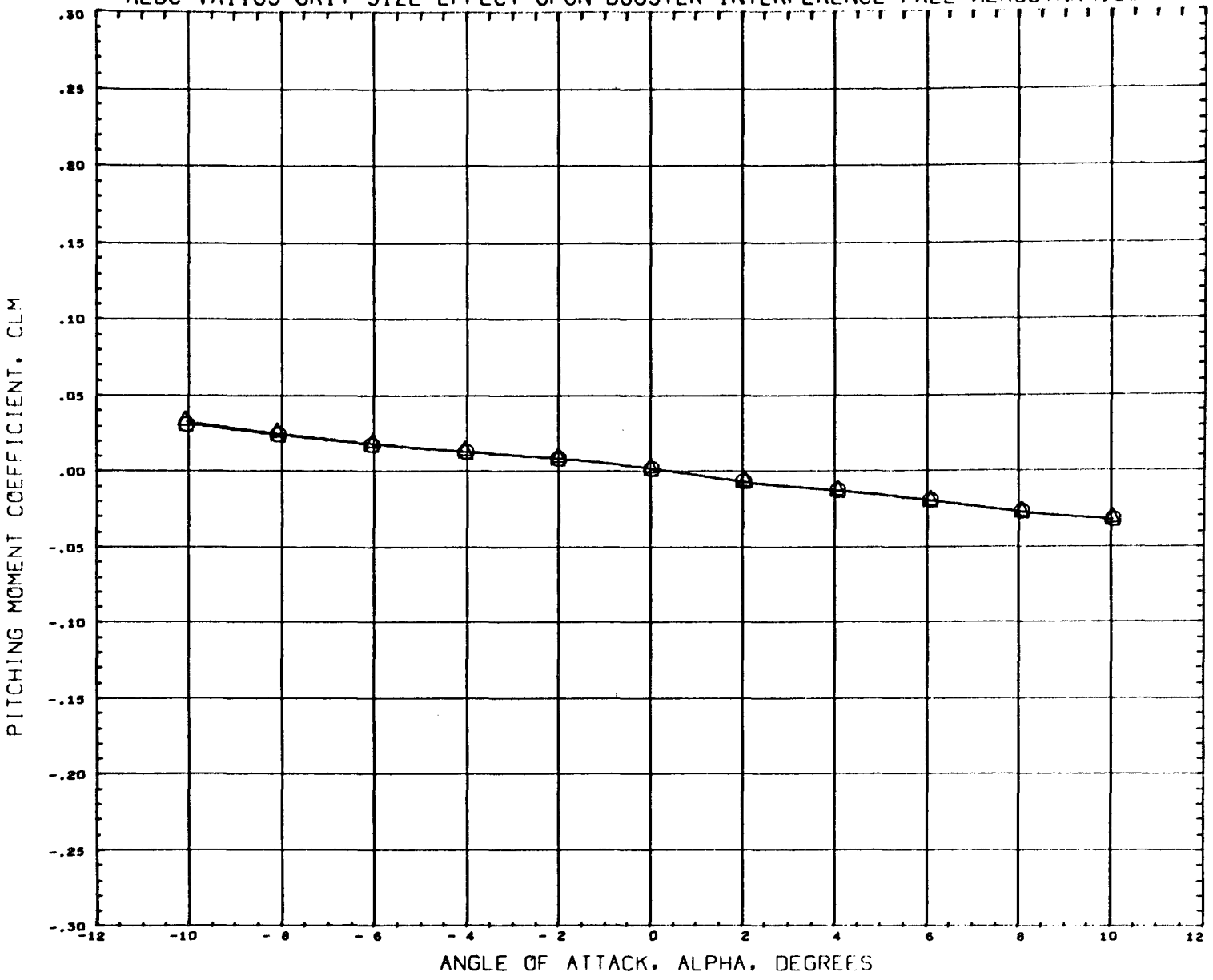
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8680)		AEDC VA1163 MADAC BOOSTER ALONE (NO GRIT)	0.000	0.000
(RT8681)		AEDC VA1163 MADAC BOOSTER ALONE (GRIT ON)	0.000	0.000

MACH 3.000

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



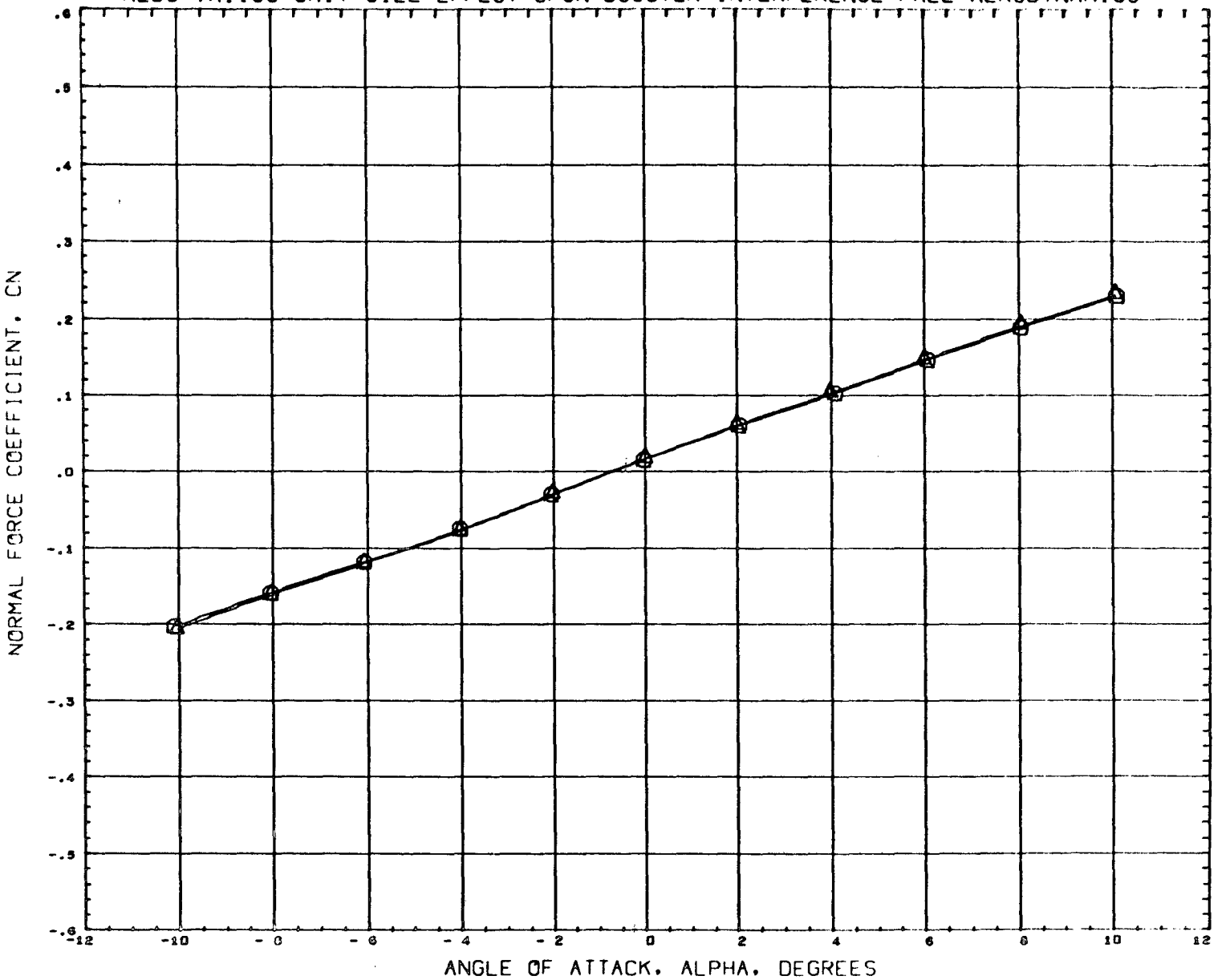
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8680)		AEDC VA1163 MADAC BOOSTER ALONE (NO GRIT)	0.000	0.000
(RT8681)		AEDC VA1163 MADAC BOOSTER ALONE (GRIT ON)	0.000	0.000

MACH 5.010

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



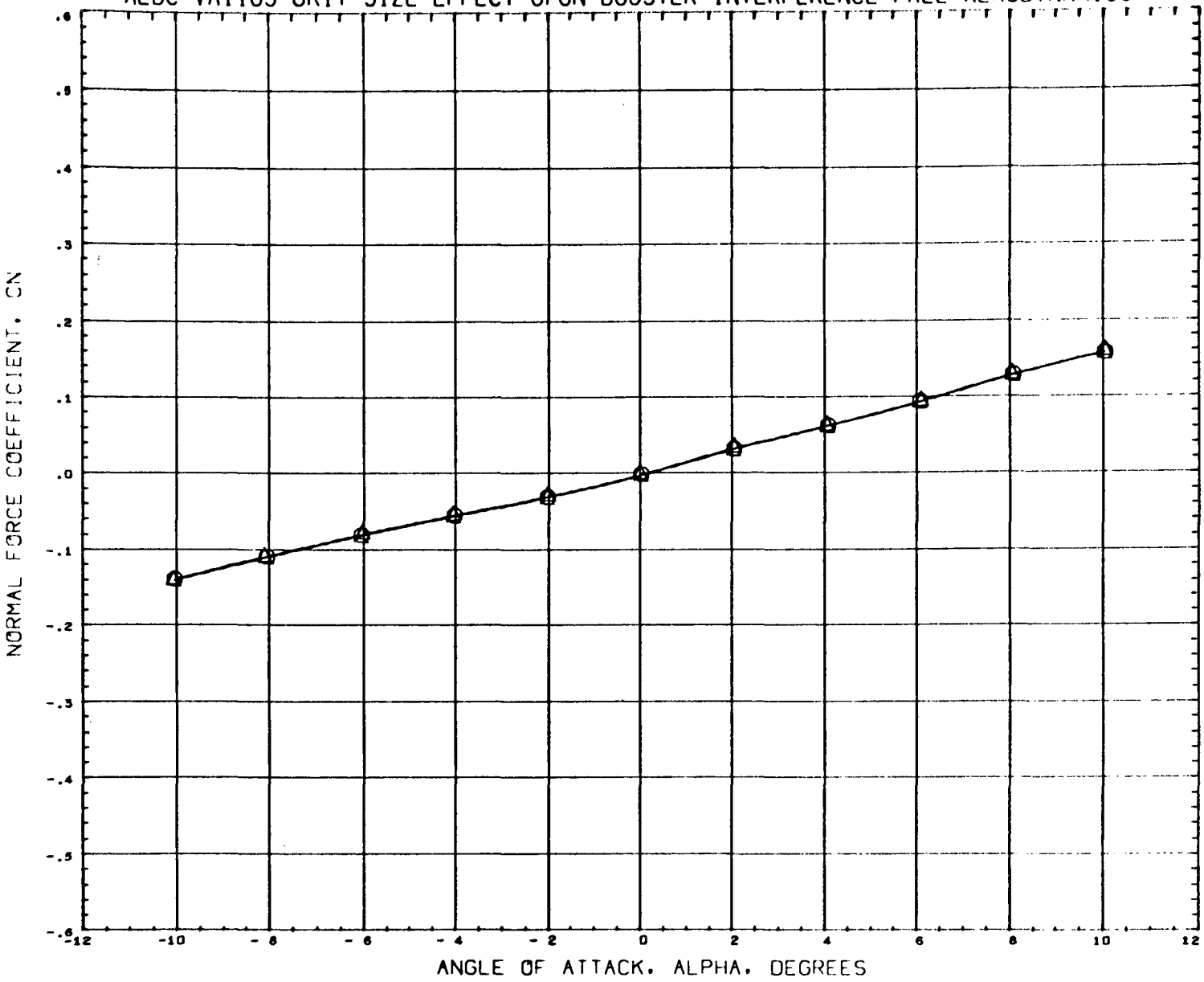
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8680)	○	AEDC VA1163 MADAC BOOSTER ALONE (NO GRIT)	0.000	0.000
(RT8681)	△	AEDC VA1163 MADAC BOOSTER ALONE (GRIT ON)	0.000	0.000

MACH 3.000

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



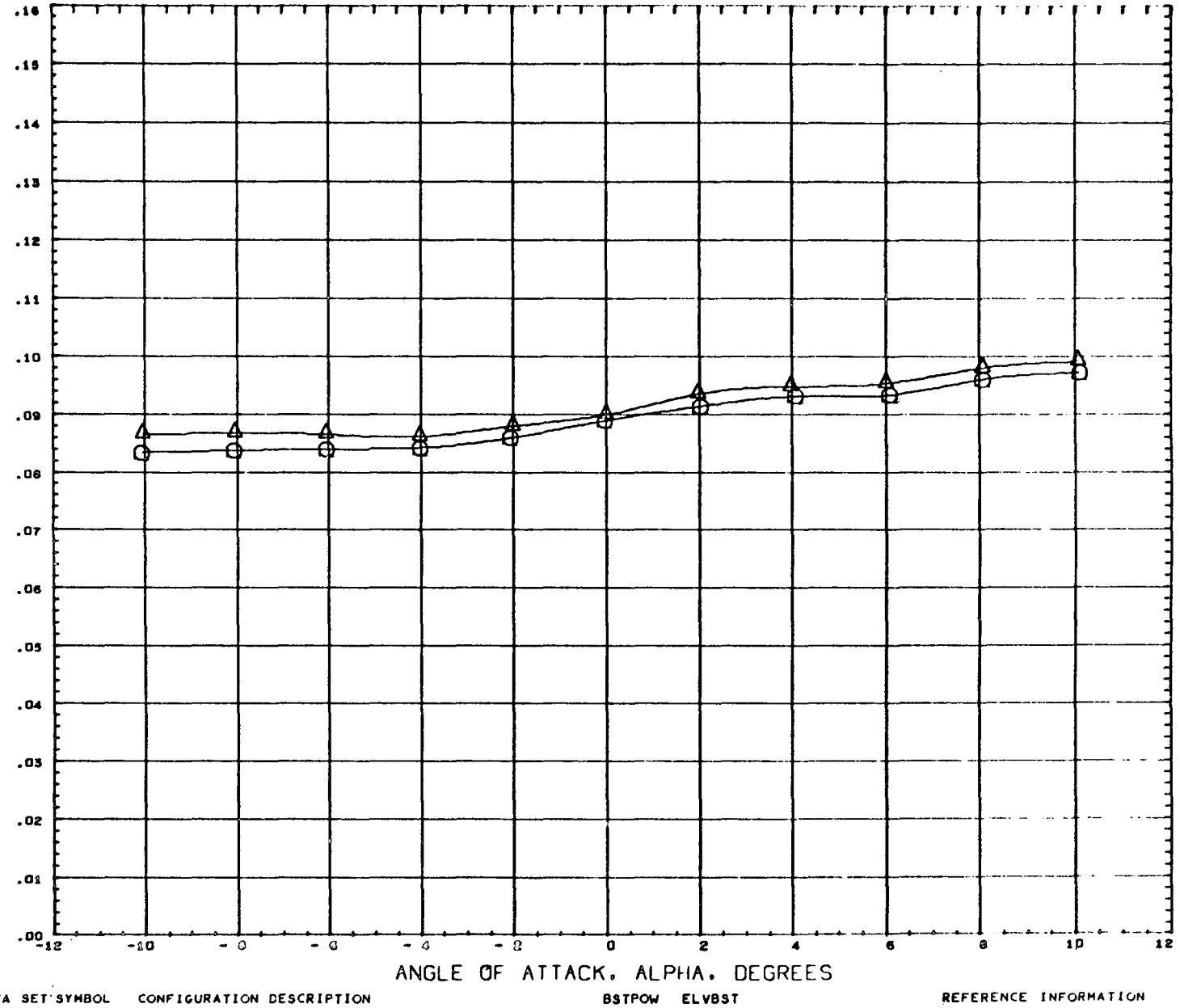
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8880)		AEDC VA1163 MADAC BOOSTER ALONE (NO GRIT)	0.000	0.000
(RT8881)		AEDC VA1163 MADAC BOOSTER ALONE (GRIT ON)	0.000	0.000

MACH 5.010

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



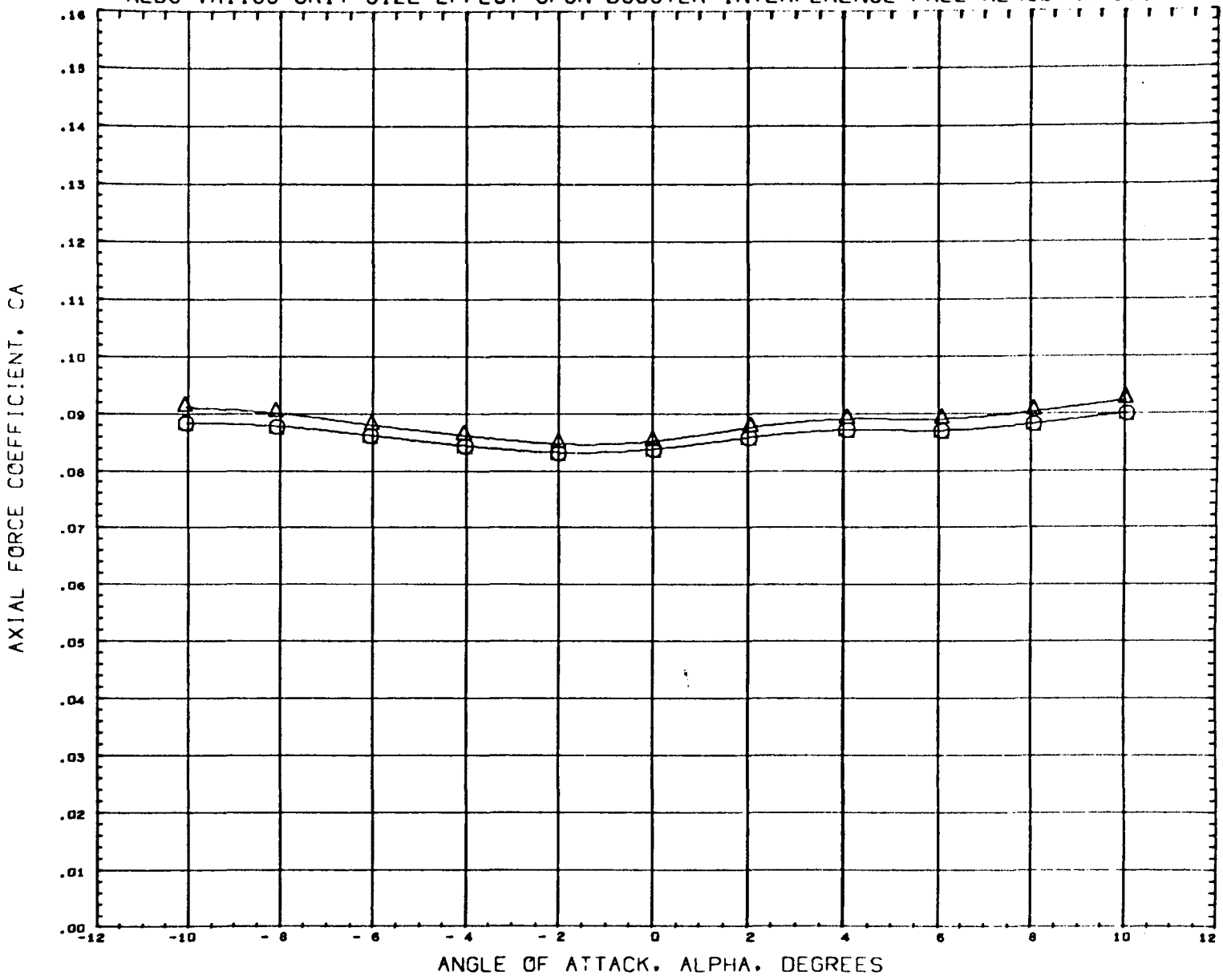
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8680)		AEDC VA1163 MADAC BOOSTER ALONE (NO GRIT)	0.000	0.000
(RT8681)		AEDC VA1163 MADAC BOOSTER ALONE (GRIT ON)	0.000	0.000

MACH 3.000

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 GRIT SIZE EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS

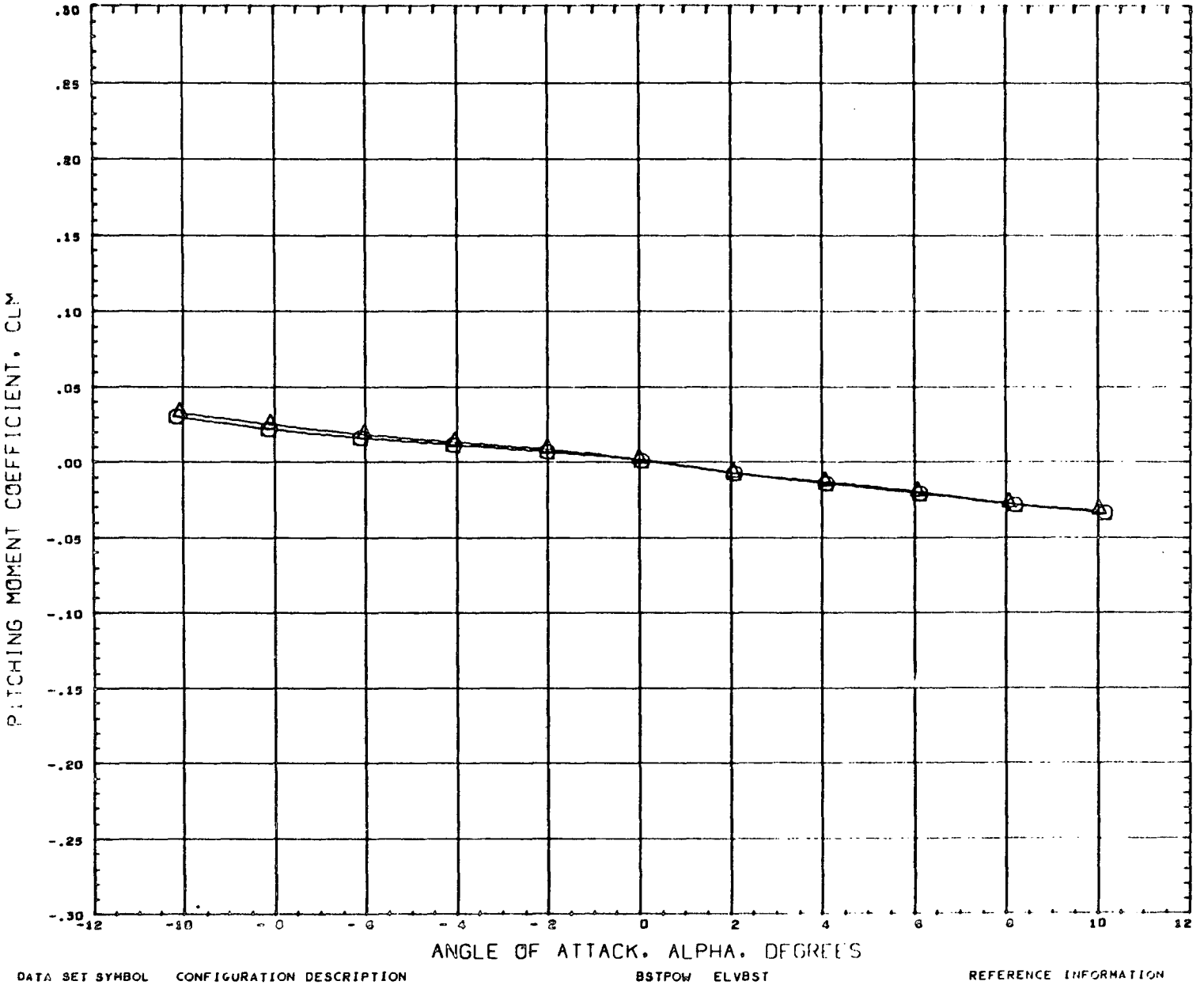


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8680)		AEDC VA1163 MADAC BOOSTER ALONE (NO GRIT)	0.000	0.000
(RT8681)		AEDC VA1163 MADAC BOOSTER ALONE (GRIT ON)	0.000	0.000

MACH 5.010

REFERENCE INFORMATION		
SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 REYNOLDS NUMBER EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



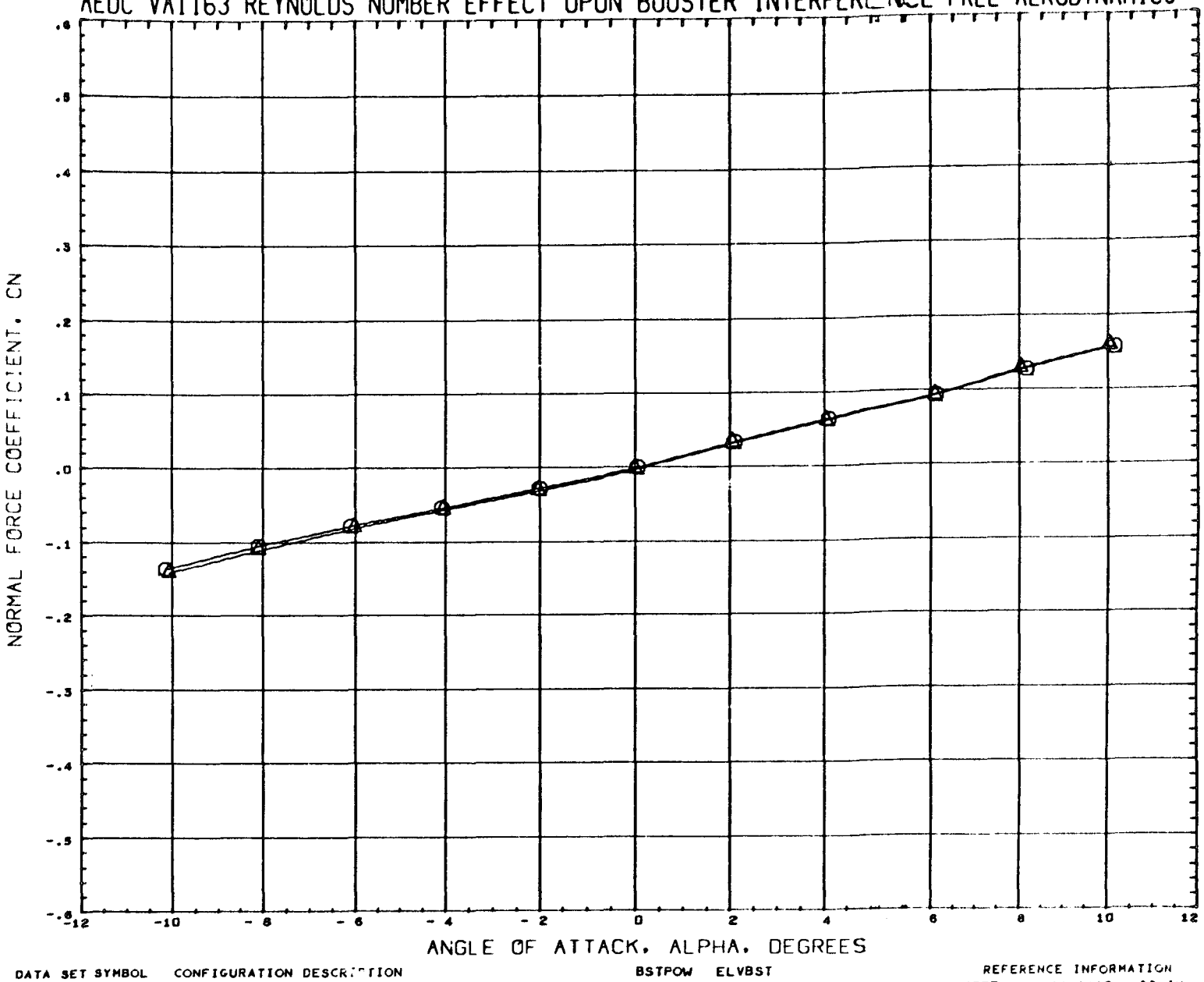
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8882)		AEDC VA1163 MADAC BOOSTER ALONE (R=1.0 X E6)	0.000	0.000
(RT8883)		AEDC VA1163 MADAC BOOSTER ALONE (R=4.0 X E6)	0.000	0.000

MACH 5.020

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 REYNOLDS NUMBER EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



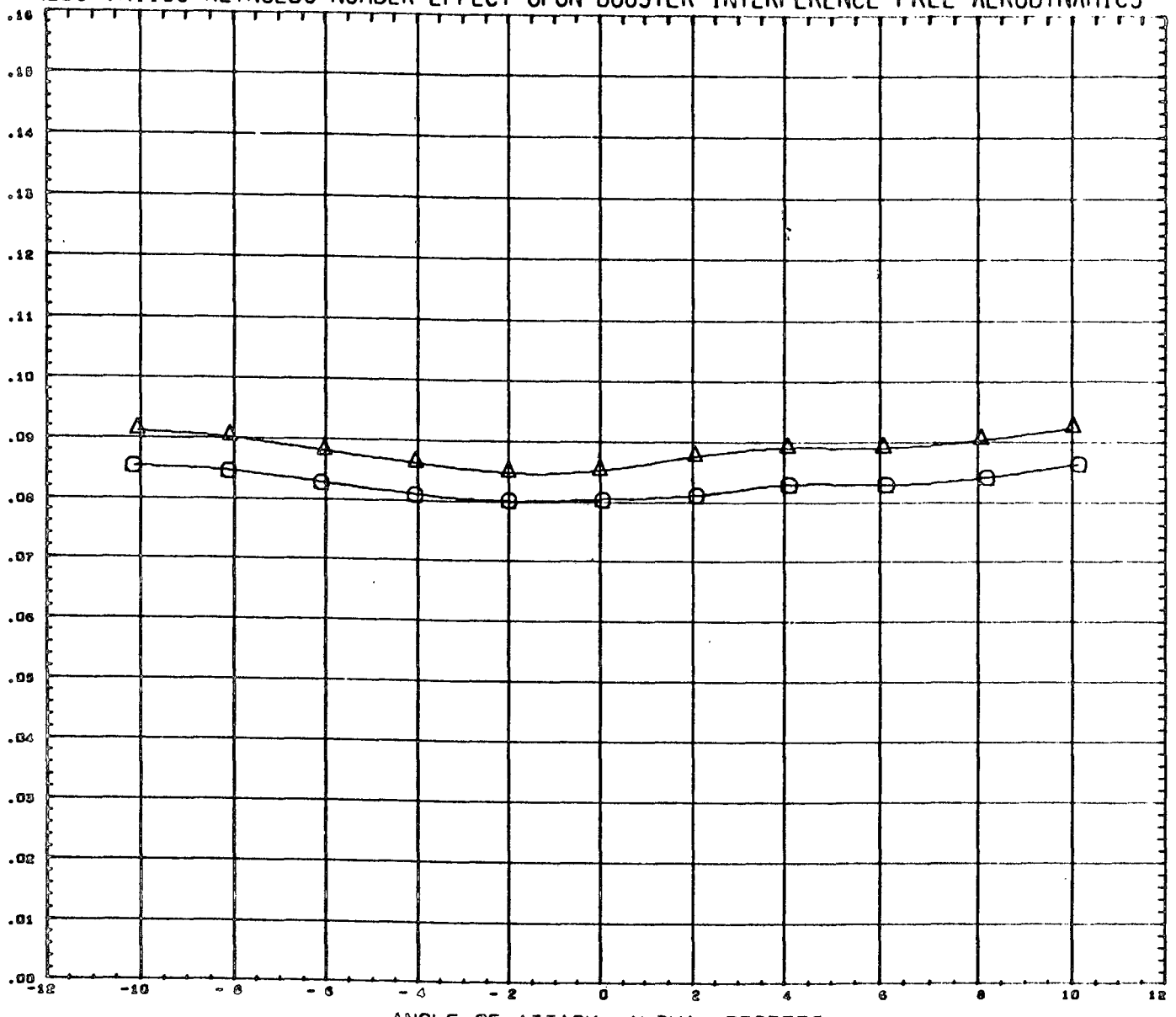
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT8882)		AEDC VA1163 MADAC BOOSTER ALONE (R=1.0 X E6)	0.000	0.000
(RT8883)		AEDC VA1163 MADAC BOOSTER ALONE (R=4.0 X E6)	0.000	0.000

MACH 5.020

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	

AEDC VA1163 REYNOLDS NUMBER EFFECT UPON BOOSTER INTERFERENCE FREE AERODYNAMICS



DATA SET SYMBOL		CONFIGURATION DESCRIPTION	BSTPOW	ELVBST
(RT0002)	○	AEDC VA1163 MADAC BOOSTER ALONE (R=1.0 X E6)	0.000	0.000
(RT0003)	△	AEDC VA1163 MADAC BOOSTER ALONE (R=4.0 X E6)	0.000	0.000

MACH 5.020

REFERENCE INFORMATION

SREF	44.4440	SQ IN
LREF	13.3330	IN
BREF	13.3330	IN
XMRP	7.5280	IN
YMRP	0.0000	IN
ZMRP	1.1940	IN
SCALE	0.0055	