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(NASA-CR-141800) RESULTS OF A 0.03- SCALE N75-33162  
AERODYNAMIC CHARACTERISTICS INVESTIGATION OF  
BOEING 747 CARRIER (MODEL NO. AX 1319 I-1).  
MATED WITH A SPACE SHUTTLE ORBITER (MODEL Unclas  
45-0) CONDUCTED IN THE BOEING TRANSONIC WIND G3/18 . 42994

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER  
HOUSTON, TEXAS

DATA Management services  
SPACE DIVISION  CHRYSLER CORPORATION

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VOLUME 1 of 3

RESULTS OF A 0.03-SCALE AERODYNAMIC CHARACTERISTICS  
INVESTIGATION OF A BOEING 747 CARRIER  
(MODEL NO. AX 1319 I-1) MATED WITH A SPACE  
SHUTTLE ORBITER (MODEL 45-0) CONDUCTED IN  
THE BOEING TRANSONIC WIND TUNNEL (CA5)

by

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and Wind Tunnel Test Group,  
Boeing Aerospace Company

Prepared under NASA Contract Number: NAS9-13247

by

Data Management Services  
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for

Engineering Analysis Division  
Johnson Space Center  
National Aeronautics and Space Administration  
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number; BTWT 1431  
NASA Series Number; CA5  
Model Number; AX 1319 I-1 (Carrier), 45-0 (Orbiter)  
Test Dates; September 20 through September 30, 1974  
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Chrysler Corporation Space Division assumes no responsibility for the data presented other than display characteristics.

RESULTS OF A 0.03-SCALE AERODYNAMIC CHARACTERISTICS  
INVESTIGATION OF A BOEING 747 CARRIER  
(MODEL NO. AX 1319 I-1) MATED WITH A SPACE  
SHUTTLE ORBITER (MODEL 45-0) CONDUCTED IN THE  
BOEING TRANSONIC WIND TUNNEL (CA5)

by

747 Aerodynamics, 747 Flight Controls and Wind Tunnel Test Group,  
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ABSTRACT

This report presents results of an experimental aerodynamic investigation of the Boeing 747/Space Shuttle Carrier aircraft conducted in the Boeing Transonic Wind Tunnel during September 1974. The objective of these tests was to determine performance, stability, and control characteristics of various carrier aircraft configurations. Aerodynamic characteristics of the carrier mated with the Orbiter, carrier alone, and Orbiter alone were investigated. Carrier support system tare and interference effects were determined.

Six-component force and moment data were recorded for the carrier and Orbiter. Buffet onset characteristics of the carrier vertical tail and horizontal tail were recorded. Angles of attack from  $-3^\circ$  through  $26^\circ$  and angles of sideslip between  $+12^\circ$  and  $-12^\circ$  were investigated at Mach numbers from 0.15 through 0.70.

This report for CA5 consists of three volumes: Volume 1 - data figures 1 to 200; Volume 2 - data figures 201 to 260; Volume 3 - tabulated source data.

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FIG. 131	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 2 DEG	ORB	C	494-496
FIG. 132	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6 DEG	TOTAL	C	497-499
FIG. 133	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6 DEG	747	D	500-502
FIG. 134	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6 DEG	ORB	C	503-505
FIG. 135	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPI = 6, RUD = 10/10	TOTAL	C	506-508
FIG. 136	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPI = 6, RUD = 10/10	747	D	509-511
FIG. 137	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPI = 6, RUD = 10/10	ORB	C	512-514
FIG. 138	747 + ORB (8 DEG) + TIP FINS, FLAPS UP LAUNCH, ALPHAI = 6 DEG	TOTAL	C	515-517

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE		COEFFICIENT SCHEDULE	PAGES
FIG. 139	747 + ORB (8 DEG) + TIP FINS, FLAPS UP LAUNCH, ALPHAI = 6 DEG	747	D	518-520
FIG. 140	747 + ORB (8 DEG) + TIP FINS, FLAPS UP LAUNCH, ALPHAI = 6 DEG	ORB	C	521-523
FIG. 141	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6, TC OFF	TOTAL	C	524-526
FIG. 142	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6, TC OFF	747	D	527-529
FIG. 143	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6, TC OFF	ORB	C	530-532
FIG. 144	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPUP LNCH, ALP = 6, TC OFF, R = 10/10	TOTAL	C	533-535
FIG. 145	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPUP LNCH, ALP = 6, TC OFF, R = 10/10	747	D	536-538
FIG. 146	747 + ORB (8 DEG) + TIP FINS + STD SPD BRK, FLAPUP LNCH, ALP = 6, TC OFF, R = 10/10	ORB	C	539-541
FIG. 147	747 + ORB (10 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6 DEG	TOTAL	C	542-544
FIG. 148	747 + ORB (10 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6 DEG	747	D	545-547
FIG. 149	747 + ORB (10 DEG) + TIP FINS + STD SPD BRK, FLAPS UP LAUNCH, ALPHAI = 6 DEG	ORB	C	548-550

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE		COEFFICIENT SCHEDULE	PAGES
FIG. 150	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAP UP LNCH, ALPHAI = 6, TC OFF	TOTAL	C	551-553
FIG. 151	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAP UP LNCH, ALPHAI = 6, TC OFF	747	D	554-556
FIG. 152	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAP UP LNCH, ALPHAI = 6, TC OFF	ORB	C	557-559
FIG. 153	747 + ORB (8 DEG) + TIP FINS + STD SP, FLAPS UP LNCH, ALPI = 6, ORB ELEV = 5	TOTAL	C	560-562
FIG. 154	747 + ORB (8 DEG) + TIP FINS + STD SP, FLAPS UP LNCH, ALPI = 6, ORB ELEV = 5	747	D	563-565
FIG. 155	747 + ORB (8 DEG) + TIP FINS + STD SP, FLAPS UP LNCH, ALPI = 6, ORB ELEV = 5	ORB	C	566-568
FIG. 156	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 2, DE = 0/0 (S = -1)	TOTAL	C	569-571
FIG. 157	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 2, DE = 0/0 (S = -1)	747	D	572-574
FIG. 158	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 2, DE = 0/0 (S = -1)	ORB	C	575-577
FIG. 159	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 6, DE = 0/0 (S = -1)	TOTAL	C	578-580
FIG. 160	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 6, DE = 0/0 (S = -1)	747	D	581-583

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE		COEFFICIENT SCHEDULE	PAGES
FIG. 161	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 6, DE = 0/0 (S = -1)	ORB	C	584-586
FIG. 162	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 6, DE = 0/0 (S = +1)	TOTAL	C	587-589
FIG. 163	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 6, DE = 0/0 (S = +1)	747	D	590-592
FIG. 164	747 + ORB (8 DEG) + STD SP, VERT TAIL OFF, FLAPS UP, ALPI = 6, DE = 0/0 (S = +1)	ORB	C	593-595
FIG. 165	747 + ORB (4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI = 2 (S = -2)	TOTAL	C	596-598
FIG. 166	747 + ORB (4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI = 2 (S = -2)	747	D	599-601
FIG. 167	747 + ORB (4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI = 2 (S = -2)	ORB	C	602-604
FIG. 168	747 + ORB (4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI = 6 (S = -2)	TOTAL	C	605-607
FIG. 169	747 + ORB (4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI = 6 (S = -2)	747	D	608-610
FIG. 170	747 + ORB (4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI = 6 (S = -2)	ORB	C	611-613
FIG. 171	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 8 (S = -2)	TOTAL	C	614-616

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE		COEFFICIENT SCHEDULE	PAGES
FIG. 172	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 8 (S = -2)	747	D	617-619
FIG. 173	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 8 (S = -2)	ORB	C	620-622
FIG. 174	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 2 (S = -3.2)	TOTAL	C	623-625
FIG. 175	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 2 (S = -3.2)	747	D	626-628
FIG. 176	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 2 (S = -3.2)	ORB	C	629-631
FIG. 177	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 6 (S = -3.2)	TOTAL	C	632-634
FIG. 178	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 6 (S = -3.2)	747	D	635-637
FIG. 179	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 6 (S = -3.2)	ORB	C	638-640
FIG. 180	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 8 (S = -3.2)	TOTAL	C	641-643
FIG. 181	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 8 (S = -3.2)	747	D	644-646
FIG. 182	747 + ORB (4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI = 8 (S = -3.2)	ORB	C	647-649

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE		COEFFICIENT SCHEDULE	PAGES
FIG. 183	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 2 (S = -3.2)	TOTAL	C	650-652
FIG. 184	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 2 (S = -3.2)	747	D	653-655
FIG. 185	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 2 (S = -3.2)	ORB	C	656-658
FIG. 186	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 6 (S = -3.2)	TOTAL	C	659-661
FIG. 187	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 6 (S = -3.2)	747	D	662-664
FIG. 188	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 6 (S = -3.2)	ORB	C	665-667
FIG. 189	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 8 (S = -3.2)	TOTAL	C	668-670
FIG. 190	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 8 (S = -3.2)	747	D	671-673
FIG. 191	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 8 (S = -3.2)	ORB	C	674-676
FIG. 192	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 6 (S = -2)	TOTAL	C	677-679
FIG. 193	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 6 (S = -2)	747	D	680-682



INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE		COEFFICIENT SCHEDULE	PAGES
FIG. 194	747 + ORB (4 DEG) + TIP FINS, FLAPS UP FERRY, ALPHAI = 6 (S = -2).	ORB	C	683-685
FIG. 195	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, RUDDER = 10/10	TOTAL	C	686-688
FIG. 196	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, RUDDER = 10/10	747	D	689-691
FIG. 197	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, RUDDER = 10/10	ORB	C	692-694
FIG. 198	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 2, RUDDER = 10/10	TOTAL	C	695-697
FIG. 199	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 2, RUDDER = 10/10.	747	D	698-700
FIG. 200	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 2, RUDDER = 10/10	ORB	C	701-703
<u>VOLUME 2</u>				
FIG. 201	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 8, RUDDER = 10/10	TOTAL	C	704-706
FIG. 202	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 8, RUDDER = 10/10	747	D	707-709
FIG. 203	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 8, RUDDER = 10/10	ORB	C	710-712
FIG. 204	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, RUDDER = 10/10	TOTAL	C	713-715

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE		COEFFICIENT SCHEDULE	PAGES
FIG. 205	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, RUDDER = 10/10	747	D	716-718
FIG. 206	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, RUDDER = 10/10	ORB	C	719-721
FIG. 207	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, TAIL CONE OFF	TOTAL	C	722-724
FIG. 208	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, TAIL CONE OFF	747	D	725-727
FIG. 209	747 + ORB (4 DEG) + TIP FINS, FLAPS UP, ALPHAI = 6, TAIL CONE OFF	ORB	C	728-730
FIG. 210	ORBITER ALONE, TAIL CONE OFF, ALPHAI = 8 DEG		C	731-733
FIG. 211	ORBITER ALONE, TAIL CONE OFF, ALPHAI = 15 DEG		C	734-736
FIG. 212	ORBITER ALONE, TAIL CONE ON, ALPHAI = 8 DEG		C	737-739
FIG. 213	ORBITER ALONE, TAIL CONE ON, ALPHAI = 15 DEG		C	740-742
FIG. 214	747 ALONE, EFFECT OF STD IN-FLIGHT SPEED BRAKES, FLAPS UP		A	743-750
FIG. 215	747 + ORB (8 DEG), EFFECT OF STD IN-FLIGHT SPEED BRAKES, FLAPS UP		A	751-766
FIG. 216	BASIC 747 + ORB (10 DEG), EFFECT OF FULL 45 DEG SPOILERS, FLAPS 20		A	767-778
FIG. 217	747 ALONE, EFFECT OF FULL 45 DEG SPOILERS, FLAPS 20		A	779-782

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE	COEFFICIENT SCHEDULE	PAGES
FIG. 218	747 + ORB (10 DEG), EFFECT OF STD BRAKES OR FULL 45 SPOILERS, FLAPS 20	A	783-794
FIG. 219	747 + ORB, EFFECT OF ORB INCIDENCE, FLAPS UP FERRY CONFIGURATION	A	795-810
FIG. 220	747 + ORB, EFFECT OF ORB INCIDENCE, FLAPS 20 LAUNCH CONFIGURATION	A	811-822
FIG. 221	747 + ORB, EFFECT OF ORB INCIDENCE, FLAPS UP LAUNCH CONFIGURATION	A	823-838
FIG. 222	747 + ORB (4 DEG), EFFECT OF TAIL CONE, FLAPS UP FERRY CONFIG.	A	839-854
FIG. 223	747 + ORB (8 DEG), EFFECT OF TAIL CONE, FLAPS UP LAUNCH CONFIG.	A	855-870
FIG. 224	747 ALONE, EFFECT OF HORIZ TIP FINS, FLAPS UP	A	871-890
FIG. 225	747 + ORB (4 DEG), EFFECT OF HORIZ TIP FINS, FLAPS UP FERRY	A	891-906
FIG. 226	747 ALONE, EFFECT OF HORIZ TIP FINS, FLAPS 20	A	907-922
FIG. 227	747 + ORB (10 DEG), EFFECT OF HORIZ TIP FINS, FLAPS 20 LAUNCH	A	923-934
FIG. 228	747 ALONE, EFFECT OF ORB SUPPORTS, FLAPS UP	A	935-950
FIG. 229	747 ALONE, STABILIZER EFFECT, FLAPS UP	A	951-970
FIG. 230	747 + ORB (8 DEG), STABILIZER EFFECT, FLAPS UP LAUNCH	A	971-990
FIG. 231	747 + ORB (4 DEG), STABILIZER EFFECT, FLAPS UP FERRY	A	991-1010

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE	COEFFICIENT SCHEDULE	PAGES
FIG. 232	747 + ORB (10 DEG), STABILIZER EFFECT, FLAPS 20 LAUNCH	A	1011-1022
FIG. 233	747 ALONE, ELEVATOR EFFECT FLAPS UP	A	1023-1026
FIG. 234	747 ALONE, EFFECT OF 5 DEG SIDESLIP, FLAPS UP	E	1027-1040
FIG. 235	747 ALONE, RUDDER EFFECT (BETA = 0), FLAPS UP	E	1041-1047
FIG. 236	747 + ORB (8 DEG), ELEVATOR EFFECT, FLAPS UP LAUNCH	A	1048-1063
FIG. 237	747 + ORB (8 DEG), ELEVATOR EFFECT, FLAPS UP LAUNCH, TAIL CONE OFF	A	1064-1079
FIG. 238	747 + ORB (4 DEG), ELEVATOR EFFECT, FLAPS UP FERRY	A	1080-1095
FIG. 239	747 ALONE, ELEVATOR EFFECT, FLAPS 20	A	1096-1099
FIG. 240	747 + ORB (8 DEG), EFFECT OF ORBITER ELEVON, FLAPS UP	A	1100-1107
FIG. 241	747 + ORB (8 DEG), STABILIZER EFFECT, FLAPS UP LAUNCH, TAIL CONE OFF	A	1108-1123
FIG. 242	BASIC 747 + ORB (4 DEG), STABILIZER EFFECT, FLAPS UP FERRY	A	1124-1139
FIG. 243	747 + ORB, EFFECT OF FLAPS ON LAUNCH CONFIG.	A	1140-1151
FIG. 244	747 ALONE, EFFECT OF HORIZ TIP FINS, FLAPS UP	C	1152-1166
FIG. 245	747 + ORB (4 DEG), EFFECT OF HORIZ TIP FINS, FLAPS UP FERRY	C	1167-1181
FIG. 246	747 ALONE, EFFECT OF HORIZ TIP FINS, FLAPS 20	C	1182-1190
FIG. 247	747 + ORB (10 DEG), EFFECT OF HORIZ TIP FINS, FLAPS 20 LAUNCH	C	1191-1199

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE	COEFFICIENT SCHEDULE	PAGES
FIG. 248	747 ALONE, RUDDER EFFECT WITH ORB SUPPORTS, FLAPS UP, ALPHA I = 6 DEG	C	1200-1205
FIG. 249	747 + ORB (4 DEG), RUDDER EFFECT, FLAPS UP FERRY, ALPHA I = 6 DEG	C	1206-1217
FIG. 250	747 + ORB (4 DEG), EFFECT OF ALPHA, FLAPS UP FERRY.	C	1218-1232
FIG. 251	747 + ORB (8 DEG), RUDDER EFFECT, FLAPS UP LAUNCH, ALPHA I = 6 DEG	C	1233-1244
FIG. 252	747 + ORB (8 DEG), RUDDER EFFECT, TAIL CONE OFF, FLAPS UP LAUNCH, ALPHA I = 6	C	1245-1256
24 FIG. 253	747 + ORB (8 DEG), EFFECT OF ORB ELEVONS, FLAPS UP LAUNCH	C	1257-1262
FIG. 254	747 + ORB (4 DEG), EFFECT OF TAIL CONE, FLAPS UP FERRY	C	1263-1274
FIG. 255	747 + ORB (8 DEG), EFFECT OF TAIL CONE, FLAPS UP LAUNCH	C	1275-1286
FIG. 256	747 + ORB, EFFECT OF ORB INCIDENCE, FLAPS UP LAUNCH	C	1287-1298
FIG. 257	747 + ORB, EFFECT OF ORB INCIDENCE, FLAPS 20 LAUNCH	C	1299-1307
FIG. 258	747 + ORB, EFFECT OF ORB INCIDENCE, FLAPS UP FERRY	C	1308-1319
FIG. 259	747 + ORB (10 DEG), RUDDER EFFECT, FLAPS 20 LAUNCH, ALPHA I = 6 DEG	C	1320-1328
FIG. 260	747 + ORB (10 DEG), EFFECT OF FULL 45 DEG SPOILERS, FLAPS 20	C	1329-1337

INDEX OF DATA FIGURES (Concluded)

COEFFICIENT SCHEDULE:

A: CL vs. ALPHAW; CL vs. CD; CL, ALPHAW vs. CLM

B: DCL vs. ALPHAW; DCL vs. DCD; DCL, ALPHAW vs. DCLM

C: CY, CLN, CSL vs. BETA

D: DCY, DCLN, DCSL vs. BETA

E: CL vs. ALPHAW; CL vs. CD; CL, ALPHAW vs. CLM;  
CY, CLN, CSL vs. ALPHAW

F: CL vs. ALPHA; CL vs. CD; CL, ALPHA vs. CLM

NOMENCLATURE  
General

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
a		speed of sound; m/sec, ft/sec
C <sub>p</sub>	CP	pressure coefficient; $(p_1 - p_\infty)/q$
M	MACH	Mach number; $V/a$
p		pressure; N/m <sup>2</sup> , psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$ , N/m <sup>2</sup> , psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
$\alpha$	ALPHA	angle of attack, degrees
$\beta$	BETA	angle of sideslip, degrees
$\psi$	PSI	angle of yaw, degrees
$\phi$	PHI	angle of roll, degrees
$\rho$		mass density; kg/m <sup>3</sup> , slugs/ft <sup>3</sup>
<u>Reference &amp; C.G. Definitions</u>		
A <sub>b</sub>		base area; m <sup>2</sup> , ft <sup>2</sup>
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
$\frac{l_{REF}}{c}$	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m <sup>2</sup> , ft <sup>2</sup>
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis
<u>SUBSCRIPTS</u>		
b		base
l		local
s		static conditions
t		total conditions
$\infty$		free stream

NOMENCLATURE (Continued)

Body-Axis System

<u>SYMBOL</u>	<u>FLOT SYMBOL</u>	<u>DEFINITION</u>
$C_N$	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
$C_A$	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
$C_Y$	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
$C_{A_b}$	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
$C_{A_f}$	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
$C_m$	CIM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
$C_n$	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
$C_l$	CEL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$

Stability-Axis System

$C_L$	CL	lift coefficient; $\frac{\text{lift}}{qS}$
$C_D$	CD	drag coefficient; $\frac{\text{drag}}{qS}$
$C_{D_b}$	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
$C_{D_f}$	CDF	forebody drag coefficient; $C_D - C_{D_b}$
$C_Y$	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
$C_m$	CIM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS l_{REF}}$
$C_n$	CIN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS b}$
$C_l$	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS b}$
L/D	L/D	lift-to-drag ratio; $C_L/C_D$
L/D <sub>f</sub>	L/DF	lift to forebody drag ratio; $C_L/C_{D_f}$

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NOMENCLATURE (Continued)  
Additions to Standard List

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
BSTA		carrier fuselage station, in.
BWL		carrier water line, in.
FS		fuselage station, in.
$i_{ORB}$	IORB	Orbiter incidence angle, deg.
MS		model station, in.
$S_{i-j}$	Si-j	spoiler nos. i through j deflection angle, deg.
WL		waterline, in.
WP		water plane, in.
Xc	XC	carrier longitudinal station, in.
Xo	XO	Orbiter longitudinal station, in.
Yc	YC	carrier lateral station, in.
Yo	YO	Orbiter lateral station, in.
Zc	ZC	carrier vertical station, in.
Zo	ZO	Orbiter vertical station, in.
$\alpha_c$	ALPHAC	carrier fuselage angle of attack, deg.
$\alpha_0$	ALPHA	Orbiter angle of attack, $\alpha_0 = i_{ORB} - 2^\circ + \alpha_w + \Delta i_{ORB}$ , deg.
$\alpha_w$	ALPHAW	carrier wing angle of attack, $\alpha_w = \alpha_c + 2^\circ$ , deg.
$\beta_c$	BETA	carrier sideslip angle, deg.
$\beta_0$	BETA	Orbiter sideslip angle, deg.

NOMENCLATURE (Continued)  
Additions to Standard List

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
$\delta C_L$	DCL	incremental lift force coefficient (stability axis), DCL
$\delta C_D$	DCD	incremental drag force coefficient (stability axis), DCD
$\delta C_m$	DCLM	incremental pitching moment coefficient (stability axis), DCLM
$\delta C_Y$	DCY	incremental side force coefficient (stability axis), DCY
$\delta C_n$	DCLN	incremental yawing moment coefficient (stability axis), DCLN
$\delta C_{\ell}$	DCSL	incremental rolling moment coefficient (stability axis), DCSL
$\delta e$	ORBELV	Orbiter elevator deflection angle, ORBELV, deg.
$\alpha_I$	ALPHAI	nominal value of ALPHAW, ALPHAI ALPHAI = ALPHAW - sting balance correction
$C_{LT}$	CL-T	main balance strut tare lift force coefficient, CL-T
$C_{DT}$	CD-T	main balance strut tare drag force coefficient, CD-T
$C_{mT}$	CLM-T	main balance strut tare pitching moment coefficient, CLM-T
$C_{YT}$	CY-T	main balance strut tare side force coefficient, CY-T
$C_{nT}$	CLN-T	yawing moment coefficient, CLN-T
$C_{\ell T}$	CSL-T	main balance strut tare rolling moment coefficient, CSL-T

NOMENCLATURE (Concluded)  
Additions to Standard List

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
$\Delta i_{ORB}$	DIORB	change in Orbiter incidence due to support strut and balance deflections, deg.
$\delta a_{IL}$	AIL-IL	carrier left inboard aileron deflection angle, deg.
$\delta a_{IR}$	AIL-IR	carrier right inboard aileron deflection angle, deg.
$\delta a_{OL}$	AIL-OL	carrier left outboard aileron deflection angle, deg.
$\delta a_{OR}$	AIL-OR	carrier right outboard aileron deflection angle, deg.
$\delta a$	AILRON	Orbiter aileron deflection angle, deg.
$\delta e_{IB}$	ELV-IB	carrier inboard elevator deflection, deg.
$\delta e_{OB}$	ELV-OB	carrier outboard elevator deflection, deg.
$\delta e$	ELEVON	Orbiter elevon deflection angle, deg.
$\delta_{BF}$	BDFLAP	Orbiter body flap deflection angle, deg.—
$\delta_{RL}$	RUD-L	carrier lower rudder panel deflection angle, deg.
$\delta_{RU}$	RUD-U	carrier upper rudder panel deflection angle, deg.
$\delta_R$	RUDDER	Orbiter rudder deflection angle, deg.
$\delta_{SB}$	SPDBRK	Orbiter speedbrake deflection angle, deg.
$\delta_{WPP}$	STAB	carrier horizontal stabilizer deflection angle, deg.

## CONFIGURATIONS INVESTIGATED

The test articles were 0.030-scale representations of the Boeing 747 carrier and Space Shuttle Orbiter vehicles. The carrier and Orbiter were tested both alone and mated. Carrier alone testing included a strut tare and interference investigation which utilized a dummy support strut. The BTWT external balance measured total force and moment data for the mated vehicle and carrier forces and moments for carrier alone testing. Orbiter forces and moments were measured by a six-component internal balance (660) mounted in the Orbiter.

The carrier model (no. AX 1319 I-1) represented the NASA 905 carrier aircraft which is a Boeing 747-100 aircraft with 200 ft.<sup>2</sup> vertical tip fins on the horizontal tail. Configuration designations used were:

$$K_1 = B_{27.8} M_{26.8}^{25} N_{57}^{58} T_{19} W_{44.1}$$

$$F_{20} = F_{8.1}^{20} F_{8.2}^{20} J_{11.10.2}^{60} J_{13.8.1}^{50} L_{9.8.3}^{70}$$

B <sub>27.8</sub>	fuselage
F <sub>0</sub>	all flaps retracted at 0° deflection
F <sub>8.1</sub> <sup>20</sup>	inboard flaps deflected 20°
F <sub>8.2</sub> <sup>20</sup>	outboard flaps deflected 20°
H <sub>15.1A</sub>	basic horizontal tail
H <sub>15.6</sub>	horizontal tail with 200 ft. <sup>2</sup> vertical tip fins
IS	image strut for support strut tare and interference studies
J <sub>11.10.2</sub> <sup>60</sup>	mid-span leading edge flaps deflected 60°
J <sub>13.8.1</sub> <sup>50</sup>	outboard leading edge flaps deflected 50°

CONFIGURATIONS INVESTIGATED (Continued)

L <sub>9.8.3</sub> <sup>70</sup>	inboard leading edge Kruegers deflected 70°
M <sub>25</sub>	inboard nacelle struts
M <sub>26.8</sub>	outboard nacelle struts
N <sub>57</sub>	inboard nacelle
N <sub>58</sub>	outboard nacelle
S <sub>1-12</sub>	spoilers
T <sub>19</sub>	flap track fairing
V <sub>9.1</sub>	vertical tail
W <sub>44.1</sub>	wing

The Orbiter model (no. 45-0) represented the space shuttle Orbiter configuration 140A/B lines. The following configuration designations were used:

ORB = AT<sub>39</sub> B<sub>26</sub> M<sub>16</sub> R<sub>5</sub> V<sub>8</sub> W<sub>116</sub> E<sub>44</sub>

AT <sub>38</sub>	Orbiter/carrier forward support strut
AT <sub>39</sub>	Orbiter/carrier aft support strut
B <sub>26</sub>	fuselage
M <sub>16</sub>	OMS pods
N <sub>24</sub>	MPS nozzles
N <sub>28</sub>	OMS nozzles
R <sub>5</sub>	rudder

CONFIGURATIONS INVESTIGATED (Concluded)

TC<sub>5</sub> tail cone fairing

V<sub>8</sub> vertical tail

W<sub>116</sub> wing

E<sub>44</sub> slotted elevon

C<sub>9</sub> canopy

F<sub>8</sub> body flap

## TEST FACILITY DESCRIPTION

The Boeing Transonic Wind Tunnel (BTWT) is a continuous flow, closed circuit, single return, atmospheric facility with the following characteristics:

Test Section Flow Parameters		Test Section Dimensions	
Freestream Condition	Range	Description	Value
Mach number	0 thru 1.15	Cross-section (minus corner fillets), ft.	8 x 12
Dynamic pressure, psia	0 thru 6.3		
Static pressure, psia	15 to 5.4	Length, ft.	14.5
Stagnation pressure	atmospheric	Area, ft <sup>2</sup>	88
Maximum unit Reynolds number, per foot	$4 \times 10^6$		
Maximum total temperature, °F	160		

The test section can be operated with either solid or slotted walls. The slotted wall configuration consists of 16 slots which can vary wall porosity from 3.5% to 11%.

Test data acquisition, recording, computations, and display are done by an XDS-9300 computer and Astro data sub-system.

## DATA REDUCTION

Aerodynamic forces and moments measured by the external balance were reduced to coefficient form in body and stability axis systems, utilizing carrier reference dimensions:

<u>Symbol</u>	<u>Description</u>	<u>Model Scale</u>	<u>Full Scale</u>
S	747 wing area, ft. <sup>2</sup>	4.95	5500
b	747 wing span, in.	70.44	2348
$\bar{c}$	747 wing mean aerodynamic chord, in.	9.834	327.8
X <sub>MRP</sub>	747 longitudinal moment reference point, in. X <sub>C</sub>	40.197	1339.91
Y <sub>MRP</sub>	747 lateral moment reference point, in. Y <sub>C</sub>	0.0	0.0
Z <sub>MRP</sub>	747 vertical moment reference point, in. Z <sub>C</sub>	5.7225	190.75

Aerodynamic forces and moments measured by the internal balance were reduced to coefficient form in body and stability axis systems utilizing both the carrier reference dimensions (described above) to create one set of data, and Orbiter reference dimensions to create a second set of data. Orbiter reference dimensions are:

<u>Symbol</u>	<u>Description</u>	<u>Model Scale</u>	<u>Full Scale</u>
S	Orbiter wing area, ft. <sup>2</sup>	2.42	2690
b	Orbiter wing span, in.	28.10	936.68
$\bar{c}$	Orbiter wing mean aerodynamic chord, in.	14.244	474.81
X <sub>MRP</sub>	Orbiter longitudinal moment reference point, in. X <sub>O</sub>	33.270	1109.0



DATA REDUCTION (Concluded)

		<u>Model</u> <u>Scale</u>	<u>Full</u> <u>Scale</u>
$Y_{MRP}$	Orbiter lateral moment reference point, in. $Y_0$	0.0	0.0
$Z_{MRP}$	Orbiter vertical moment reference point, in. $Z_0$	11.25	375.0

Support strut tare and interference corrections were applied to carrier data. These corrections (datasets RGMC01-RGMC18), were obtained by subtracting image strut in minus image strut out datasets (RGM001-RGM038).

Table IV summarizes the data set notation used for different types of data.

TABLE I

TEST : BTWT 1431 (CA5)		DATE : 4/25/75	
TEST CONDITIONS			
MACH NUMBER	REYNOLDS NUMBER (per foot)	DYNAMIC PRESSURE (pounds/sq.ft)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.15	$.98 \times 10^6$	32.8	106
0.30	$1.75 \times 10^6$	126.0	130
0.50	$2.75 \times 10^6$	312.1	145
0.60	$3.125 \times 10^6$	418.2	147.5
0.70	$3.575 \times 10^6$	523.3	148.5

BALANCE UTILIZED:		Main Bal - BTWT External Bal		COEFFICIENT TOLERANCE:
		Internal Bal - Boeing 660		
CAPACITY				
	MAIN	INTERNAL		
NF	10,000 lb	1780 lb	_____	
SF	5,000 lb	1335 lb	_____	
AF	1,000 lb	140 lb	_____	
PM	100,000 in-lb	4266 in-lb	_____	
RM	25,000 in-lb	2014 in-lb	_____	
YM	25,000 in-lb	2014 in-lb	_____	

COMMENTS:

TABLE II.

TEST: BTWT 1431 CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 7-1-75							
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										MACH NUMBERS					
		$\alpha$	$\beta$	STAB	RUD-U/L	ELV-IB/OB	S1,2	S3,4	S5-8	IORB						.15	.30	.50	.60
RGM001	$K_1 + F_0 H_{15.1A} V_{9.1} + IS$	1A	0	-2	0	0/3	0	0	0	—					31	17	16	15	13
02		2	△	-2	0											18	19	20	21
03		6	△	-2	0									30	25	24	23	22	
04	Y	8	△	-2	0	Y									29	28	27	26	
05	$K_1 + F_0 V_{9.1} + IS$	1A	0	—	0	—								34	38	37	36	35	
06	$K_1 + F_0 H_{15.1A} + IS$	2	△	-2	—	0/3									42	41	40	39	
07		6	△	-2	—									47	46	45	44	43	
08	Y	8	△	-2	—										51	50	49	48	
09	$K_1 + H_{15.1A} F_{20} + IS$	4	△	+1	—										57	56	55	54	
10		4	△	+1	—										61	60	59	58	
11		6	△	+1	—										65	64	63	62	
12	Y	8	△	+1	—	Y									69	68	67	66	
13	$K_1 + F_{20} V_{9.1} + IS$	1A	0	—	0	—									73	72	71	70	
14	$K_1 + F_{20} H_{15.1A} V_{9.1} + IS$	1A	0	+1	0	0/3								91	77/78	76	75/90	74	
15		-34	△	+1	0													79	
16		4.25	△	+1	0										83	82	81/85	80	
17		6	△	+1	0										89	88	87	86	
18	Y	8	△	+1	0	Y	Y	Y	Y	Y	Y				95	94	93	92	

INVERTED

TEST RUN NUMBERS

38

1 7 13 19 25 31 37 43 49 55 61 (BETA) 67 (ALPHA) 75 76

C4 CD CLM CY CLN CSL DIORB DCL DCD DCLM DCY DCLN DCSL CLT MACH ALPHAW

CDT, CLMT, CYT, CLNT, CSLT FOR R SECS.  $\alpha = \alpha_w = \Delta = 1A = -2 \rightarrow 12, \Delta = 1^\circ$  COEFFICIENTS  
 \* FOR A DATASETS,  $\alpha = \alpha_w = \Delta = 1A = -3 \rightarrow 21, \Delta = 1^\circ$

SCHEDULES.  $\beta = \Delta = -12, -10, -8, -6, -4, -3, -2, -1, 0, 1, 2, 3, 4, 6, 8, 10, 12$

$K_1 = W_{4.1} B_{27.8} M_{26.8}^{25} N_{87}^{58} T_{19} + TS \# 6.2$   
 $F_{20} = F_{8.1}^{20} F_{8.2}^{20} J_{11.10.2}^{60} J_{13.8.1}^{50} L_{9.8.3}^{70}$

$F_0$  = FLAPS RETRACTED  $0^\circ$ ;  $H_{15.1A}$  = BASIC HORIZ. TAIL;  $H_{15.6}$  = HORIZ. TAIL W/200 FT<sup>2</sup> VERT. TIP FINS;  $V_{9.1}$  = VERT. TAIL;  $AT_{28}$  = ORB/CARR. SUPPORT STRUTS  
 $TC_5$  = TAIL CONE FAIRING;  $N_{28}$  = OMS NOZZLES;  $N_{2A}$  = MRS NOZZLES; IS = IMAGE STRUTS; S = SPOILER DEFLECTIONS; IORB = ORB. INCIDENCE;  
 STAB = STAB. DEFLECTION; RUD-U/L = RUDDER DEFLECTION; ELV-IB/OB = ELV. DEFLECTION

TABLE II. - Continued.

TEST: BTWT 143/ CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 7-1-75											
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										MACH NUMBERS									
		$\alpha$	$\beta$	STAB	RUP- U/L	ELV- IB/OB	S <sub>1,2</sub> 1,1,2	S <sub>3,4</sub> 9,10	S <sub>5-8</sub>	IORB													
RGMO19	K <sub>1</sub> F <sub>20</sub> V <sub>9.1</sub> H <sub>15.1A</sub>	1A	0	+1	0	0/3	0	0	0	—								102	101	100	99	98	
20		4	△	+1	0														106	105	104	103	
21		6	△	+1	0														110	109	108	107	
22	Y	8	△	+1	0	Y													114	113	112	111	
23	K <sub>1</sub> F <sub>20</sub> V <sub>9.1</sub>	1A	0	—	0	—													119	118	117	115/116	
24	K <sub>1</sub> F <sub>20</sub> H <sub>15.1A</sub>	4	△	+1	—	0/3													123	122	121	120	
25		6	△	+1	—														127	126	125	124	
26	Y	8	△	+1	—														131	130	129	128	
27	K <sub>1</sub> F <sub>0</sub> H <sub>15.1A</sub>	2	△	+1	—														137	136	135	134	
28		6	△	+1	—														142	141	140	138	
29	Y	8	△	+1	—	Y													146	145	144	143	
30	K <sub>1</sub> F <sub>0</sub> V <sub>9.1</sub>	1A	0	—	0	—													151	150	149	148	147
31	K <sub>1</sub> F <sub>0</sub> V <sub>9.1</sub> H <sub>15.1A</sub>	1A	0	+1	0	0/3													156	155	154	153	152
32		1A	0	-2	0														161	160	159	158	157
33		2	△	-2	0														165	164	163	162	
34		6	△	-2	0														170	169	168	167	166
35	Y	8	△	-2	0														174	173	172	171	
36	K <sub>1</sub> F <sub>0</sub> H <sub>15.1A</sub>	2	△	-2	—	Y	Y	Y	Y	Y									178	177	176	175	

39

INVERTED

TEST RUN NUMBERS

7      13      19      25      31      37      43      49      55      61      67      73      76

α OR β \_\_\_\_\_ COEFFICIENTS \_\_\_\_\_ IC VAR 11 IC VAR 12 INDV

SCHEDULES \_\_\_\_\_

TABLE II. - Continued.

TEST: BTWT 1431 CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 7-1-75						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES								MACH NUMBERS						
		$\alpha$	$\beta$	STAB	RUD- U/L	ELY- F/OB	S <sub>1,2</sub> 11,12	S <sub>3,4</sub> 9,10	S <sub>5-8</sub>	IORB				.15	.3	.5	.6	.7
REM037	K1 F0 H15.1A	6	△	-2	—	0/3	0	0	0	—				183	182	181	180	179
38	↓	8	△	-2	—	0/3								187	186	185	184	
39	K1 F0 Y9.1	△	0	—	0	—							194	193	192	191	189	
40	K1 F0 Y9.1 H15.1A	△	0	-2		0/3							202	201	200	199	198	
41	↓	6	△	-2									207	206	205	204	203	
42	K1 F0 Y9.1 H15.6	△	0	-2									212	211	210	209	208	
43		6	△	-2									217	216	215	214	213	
44		△	0	+1				Y	Y				222	221	220	219	218	
45		△	0	+1				45	20						224	223		
46		△	+5	+1		Y									226	225		
47		△	0	+1		10/13										227		
48		△	0	+1	Y	-10/7										228		
49	↓	△	0	+1	15/15	0/3										229		
50	K1 F0 Y9.1 H15.6 AT38 AT39	6	△	+1	15/15	0/3									233	232		
51		6	△	+1	0	0/3									236	235	234	
52	↓	△	0	+1	0	0/3								240	239	238	237	
53	K1 F0 Y9.1 H15.6 AT38.1 AT39	△	0	+1	0	0/3	Y	Y	Y					244	243	242	241	
54	K1 F0 Y9.1 H15.6	△	0	-1.9	0	0/3	0	45	20	Y					246	245		

INVERTED

40

TEST RUN NUMBERS

13                      19                      25                      31                      37                      43                      49                      55                      61                      67                      73

COEFFICIENTS                      IC VAR 11      IC VAR 12      IC VAR 13

$\alpha$  OR  $\beta$  \_\_\_\_\_  
SCHEDULES \_\_\_\_\_

TABLE II. - Continued.

TEST: BTWT 1431 CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 7-1-75					
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES							MACH NUMBERS						
		$\alpha^*$	$\beta$	STAB	RUB- O/L	ELV- EB/OB	S <sub>1,2</sub>	S <sub>3,4</sub>	S <sub>5-8</sub>	TORB	.15	.3	.5	.6	.7		
RCM055	K <sub>1</sub> F <sub>0</sub> H <sub>15.1</sub> A	6	△	-1.9	—	0/3	0	0	0	—			251	250	249	248	247
56	K <sub>1</sub> F <sub>20</sub> H <sub>15.1</sub> A	6	△	+1	—	0/3									255	254	253
57	K <sub>1</sub> F <sub>20</sub> H <sub>15.1A</sub> V <sub>9.1</sub>	6	△	+1	0	0/3								259	258	257	256
58	↓	△	0	+1	0	0/3							264	263	<del>262</del> /265	261	260
59	K <sub>1</sub> F <sub>20</sub> H <sub>15.6</sub> V <sub>9.1</sub>	△	0	+1	0	0/3							269		268	267	266
60		6	△	+1	0	0/3	Y	Y	Y						272	271	270
61		△	0	+1	0	0/3	45	45	45						273		
62	Y	△	0	+1	0	10/13					Y				274		
63	K <sub>1</sub> F <sub>20</sub> H <sub>15.6</sub> V <sub>9.1</sub> + ORB	△	0	+1	0	10/13					9.7				277	278	279
64	+ TCS + AT 38.1	△	0	+1	0	10/13									282	281	280
65		△	0	+1	0	0/3										284	283
66		△	0	+1	0	0/3									285		
67		6	△	+1	0	0/3									288	287	286
68		△	0	-2	0	0/3									291	290	289
69		6	△	+1	10/10	0/3	Y		Y						296	295	294
70		△	0	+1	0	0/3	0	Y	20						299	298	297
71		△	0	+1	0	0/3	0	0	0						302	301	300
Y 72	Y	8	△	+1	0	0/3	0	0	0	Y			306		305	304	303

TEST RUN NUMBERS

41

13 19 25 31 37 43 49 55 61 67 73 79

COEFFICIENTS \_\_\_\_\_

SCHEDULES \_\_\_\_\_

ORB = W<sub>116</sub> B<sub>26</sub> V<sub>8</sub> R<sub>5</sub> M<sub>16</sub> AT<sub>39</sub> E<sub>44</sub> + TS<sub>ORB</sub>

ICLAR 111 IF AP 12 NDV

TABLE II. - Continued.

TEST: BTWT 1431 CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 7-1-75						
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										MACH NUMBERS					
		$\alpha$	$\beta$	STAB	RUP- U/L	BLV- FB/DB	S <sub>1,2</sub> U/L	S <sub>3,4</sub> U/L	S <sub>5-8</sub>	IORB	ORB BLV			.5	.3	.5	.6	.7	
REM073	K1F20H15.6V9.1 + ORB + TC5 + AT38.1	6	△	+1	0	0/3	0	0	0	9.7	—				310		309	308	307
74	K1F20H15.1AV9.1 + ORB + TC5 + AT38.1	△	0	+1	0	0/3	0	0	0	9.7							313	312	311
75		△	0	+1	0	0/3	45	45	45	9.7							316	315	314
76	↓	6	△	+1	0	0/3	45	45	45	9.7							319	318	317
77	K1F20V9.1 + ORB + TC5 + AT38.1	△	0	—	0	—	45	45	45	9.7						323	322	321	320
78	K1F20H15.1AV9.1 + ORB + TC5 + AT38.1	6	△	+1	—	0/3	45	45	45	9.7				327			326	325	324
79	K1F20H15.6V9.1 + ORB + TC5 + AT38.2	6	△	+1	0	0/3	45	45	45	7.85							330	329	328
80	↓	△	0	+1	0	0/3	45	45	45	7.85							333 335	332 334	331
81	K1F0H15.6V9.1 + ORB + TC5 + AT38.2	△	0	+1	0	0/3	0	45	20	7.85				340	339	338	337	336	
82		2	△	+1	0	0/3	0	45	20	7.85				345	344	343	342	341	
83		6	△	+1	0	0/3	0	45	20	7.85				350	349	348	347	346	
84		△	0	-2	0	0/3	0	45	20	7.85						354	353	352	351
85		△	0	+1	0	10/13	0	45	20	7.85						358	357	356	355
86	↓	6	△	+1	10/10	0/3	0	45	20	7.85	↓					362	361	360	359
87	K1F0H15.6V9.1 + ORB + TC5 + AT38.2	△	0	+1	0/0	0/3	0	45	20	7.85	5						364	363	
88		6	△	+1	0/0	0/3	0	45	20	7.85	5						366	365	
89		6	△	+1	0	0/3	0	0	0	7.85	0					370	369	368	367
90	↓	△	0	+1	0	0/3	0	0	0	7.85	0					374	373	372	371

TEST RUN NUMBERS

42

$\alpha$  OR  $\beta$   
SCHEDULES

COEFFICIENTS

IC, AR 11 IC, AR 12 ICV

TABLE II. - Continued.

TEST: BTWT 1431 CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 7-1-75									
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										MACH NUMBERS							
		$\alpha$	$\beta$	STAB	RUP- U/L	ELV- %OB	S <sub>1,2</sub>	S <sub>3,4</sub>	S <sub>5-8</sub>	ZORB					.15	.3	.5	.6	.7		
RGMO 91	K <sub>1</sub> FoH <sub>15.6</sub> Vg <sub>1</sub> +ORB +N <sub>28</sub> +N <sub>24</sub> +AT <sub>38.2</sub>	△	0	-2	0	0/3	0	45	20	7.85											
92		△	0	+1	0	0/3	0	45	20	7.85							378	377	376	375	
93		6	△	+1	0	0/3	0	45	20	7.85							386	385	384	383	
94		6	△	+1	10/10	0/3	0	45	20	7.85							390	389	388	387	
95	Y	△	0	+1	0	10/3	0	45	20	7.85							394	393	392	391	
96	K <sub>1</sub> FoH <sub>15.6</sub> Vg <sub>1</sub> +ORB+TC <sub>5</sub> +AT <sub>38.2</sub>	△	0	+1	0	0/0	0	45	20	9.7							398	397	396	395	
97	Y	6	△	+1	0	0/0	0	45	20	9.7							402	401	400	399	
98	K <sub>1</sub> FoVg <sub>1</sub> +ORB+TC <sub>5</sub> +AT <sub>38.2A</sub>	△	0	—	0	0/0	0	45	20	7.85				407	406	405	404	403			
99	K <sub>1</sub> FoVg <sub>1</sub> +ORB+AT <sub>38.2A</sub> +N <sub>28</sub> +N <sub>24</sub>	△	0	—	0	0/0	0	45	20	7.85							411	410	409	408	
100	K <sub>1</sub> FoH <sub>15.1A</sub> +ORB+AT <sub>38.2A</sub> +N <sub>28</sub> +N <sub>24</sub>	6	△	-1	—	0/0	0	45	20	7.85							415	414	413	412	
101	K <sub>1</sub> FoH <sub>15.1A</sub> +ORB+TC <sub>5</sub> +AT <sub>38.2A</sub>	2	△	-1	—	0/0	0	45	20	7.85							419	418	417	416	
102		6	△	-1	—	0/0	0	45	20	7.85				424	423	422	421	420			
103	Y	6	△	+1	—	0/0	0	45	20	7.85				429	428	427	426	425			
104	K <sub>1</sub> FoH <sub>15.1A</sub> +ORB+TC <sub>5</sub> +AT <sub>38.3</sub>	2	△	-2	—	0/3	0	0	0	4.0							435	434	433	432	
105		6	△	-2	—	0/3	0	0	0	4.0				440	439	438	437	436			
106	Y	8	△	-2	—	0/3	0	0	0	4.0							444	443	442	441	
107	K <sub>1</sub> FoVg <sub>1</sub> +ORB+TC <sub>5</sub> +AT <sub>38.3</sub>	△	0	—	0	0/0	0	0	0	4.0				449	448	447	446	445			
108	K <sub>1</sub> FoH <sub>15.1A</sub> Vg <sub>1</sub> +ORB+TC <sub>5</sub> +AT <sub>38.3</sub>	△	0	-3.2	—	0/3	0	0	0	4.0							453	452	451	450	
		7	13	19	25	31	37	43	49	55	61	67	73	79	85	91	97	103	109	115	
										COEFFICIENT		IDVAR 11		IDVAR 12							
α OR β		_____		_____		_____		_____		_____		_____		_____		_____		_____		_____	
SCHEDULES		_____		_____		_____		_____		_____		_____		_____		_____		_____		_____	

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TEST RUN NUMBERS



TABLE II. - Continued.

TEST: BTWT 1431 CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 7-1-75								
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES										MACH NUMBERS						
		$\alpha$	$\beta$	STAB	RUD- U/L	ELV- TR/OB	S <sub>1,2</sub> 11,12	S <sub>3,4</sub> 9,10	S <sub>5-8</sub>	IORB						.15	.3	.5	.6	.7
RGM109	K1FoH15.1AVq.1+ORB+TC5+AT <sub>38.3</sub>	2	△	-3.2	0	0/3	0	0	0	4.0										
110		6	△	-3.2	0	0/3														
111	Y	8	△	-3.2	0	0/3														
112	K1FoH15.6Vq.1+ORB+TC5+AT <sub>38.3</sub>	△	0	-3.2	0	0/3														
113		2	△	-3.2	0	0/3														
114		6	△	-3.2	0	0/3														
115		8	△	-3.2	0	0/3														
116		△	0	+1	0	0/3														
117		△	0	-2	0	0/3														
118		6	△	-2	0	0/3														
119		△	0	-2	0	<del>10/7</del>														
120		△	0	-2	0	10/13														
121		6	△	-2	10/10	0/3														
122		2	△	-2	10/10	0/3														
123		8	△	-2	10/10	0/3														
124	Y	6	△	-2	10/10	0/3														
125	K1FoH15.1AVq.1+ORB+TC5+AT <sub>38.3</sub>	△	0	-2	0/0	0/3														
126	K1FoH15.6Vq.1+ORB+AT <sub>38.3</sub> +N28+N24	△	0	-2	0/0	0/3	Y	Y	Y	Y										

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TEST RUN NUMBERS

1	7	13	19	25	31	37	43	49	55	61	67	73	76	
COEFFICIENTS												IND. AR (1)	IND. AR (2)	IND. AR (3)
α OR β														
SCHEDULES														

TABLE II. - Concluded.

TEST: BTNT 1431 CA-5		DATA SET/RUN NUMBER COLLATION SUMMARY											DATE: 7-1-75				
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES								MACH NUMBERS					
		$\alpha$	$\beta$	STAB	R/D U/L	E/L I/OB	S <sub>1,2</sub> 11,12	S <sub>3,4</sub> 9,10	S <sub>5-8</sub>	IORB	.15	.3	.5	.6	.7		
RGM127	K1 F0 H15.6 V9.1 +ORB + AT38.3 + N2R + N24	6	A	-2	0/0	0/3	0	0	0	4,0			538	537	536	535	
128	ORB + N2R + N24	A	0	---	---	---	---	---	---	---			543	542	541	540	
129		A	0										545	544			
130		8	B										549	548	547	546	
131	↓	15	A										553	552	551	550/550A	
132	ORB + TC5	A	0										558	557	556	555	
133	↓	8	B										562	561	560	559	
134	↓	15	B	Y	Y	Y	Y	Y	Y	Y			566	565	564	563	

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TEST RUN NUMBERS

7	13	19	25	31	37	43	49	55	61	67	73	79
<p><math>\alpha</math> OR <math>\beta</math> SCHEDULES</p>	<p>COEFFICIENTS</p>								<p>11 AR 11</p>	<p>12 AR 12</p>	<p>NDV</p>	
<p><math>\alpha(B) = +11. \rightarrow +26</math>  <math>\alpha(C) = -3 \rightarrow +20 \text{ BY } 1^0, 20 \rightarrow 26 \text{ BY } 2^0</math></p>												

TABLE III. MODEL DIMENSIONAL DATA

a. Carrier Model

MODEL COMPONENT: B<sub>27.8</sub>

GENERAL DESCRIPTION: BODY, 747 Project with A.P.V. exit.

MODEL SCALE: 0.03

DRAWING NUMBER: 65-69716

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length, in.	<u>2702</u>	<u>81.06</u>
Max. Width, in.	<u>255</u>	<u>7.65</u>
Max. Depth		
Fineness Ratio		
Area		
Max. Cross-Sectional	<u>        </u>	<u>        </u>
Planform	<u>        </u>	<u>        </u>
Wetted, ft <sup>2</sup>	<u>424</u>	<u>.3816</u>
Base	<u>        </u>	<u>        </u>

TABLE IIIa.- Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT F<sub>0</sub>

GENERAL DESCRIPTION Clean Wing

Flaps up

\_\_\_\_\_

\_\_\_\_\_

DRAWING NUMBER \_\_\_\_\_

DIMENSIONS	FULL SCALE	MODEL SCALE
Area	_____	_____
Span (equivalent)	_____	_____
Inb'd equivalent chord	_____	_____
Outb'd equivalent chord	_____	_____
Ratio movable surface chord/ total surface chord	_____	_____
At Inb'd equiv. chord	_____	_____
At Outb'd equiv. chord	_____	_____
Sweep Back Angles, degrees	_____	_____
Leading Edge	_____	_____
Trailing Edge	_____	_____
Hingeline	_____	_____
Area Moment (Normal to hinge line)	_____	_____

TABLE IIIa.- Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT	F <sup>20</sup> 8.1
GENERAL DESCRIPTION	Flap inboard deflected 20°
DRAWING NUMBER	5.0. 1319-4 thru - 10 & -38

DIMENSIONS	FULL SCALE	MODEL SCALE
Area		
Span (equivalent)		WBL 3.854 to WBL 13.351
Inb'd equivalent chord		
Outb'd equivalent chord		
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge		
Trailing Edge		
Hingeline		
Area Moment (Normal to hinge line)		

TABLE IIIa. - Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT : F<sup>20</sup><sub>8.2</sub>

GENERAL DESCRIPTION : Flap, Outbd deflected 20°

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DRAWING NUMBER 5.0 1319-20 thru -25 & -42

DIMENSIONS	FULL SCALE	MODEL SCALE
Area	_____	_____
Span (equivalent)	_____	WBL 15.450 to WBL 24.660.
Inb'd equivalent chord	_____	_____
Outb'd equivalent chord	_____	_____
Ratio movable surface chord/ total surface chord	_____	_____
At Inb'd equiv. chord	_____	_____
At Outb'd equiv. chord	_____	_____
Sweep Back Angles, degrees	_____	_____
Leading Edge	_____	_____
Trailing Edge	_____	_____
Hingeline	_____	_____
Area Moment (Normal to hinge line)	_____	_____

TABLE IIIa. - Continued.

MODEL COMPONENT: Horizontal Tail - H15.1A

GENERAL DESCRIPTION: Swept Horizontal Tail With  
Planform Radius Fillet at L.E. - Body Intersection.

MODEL SCALE= 0.03

DRAWING NUMBER: 65-66630, 69-49180, 1007-477

<u>DIMENSIONS:</u>	<u>Full Scale</u>	<u>Model Scale</u>
<u>EXPOSED DATA (one side)</u>		
Area- ft <sup>2</sup>	<u>736</u>	<u>0.6625</u>
Span- in.	<u>436.5</u>	<u>13.095</u>
Aspect Ratio	<u>          </u>	<u>          </u>
Taper Ratio	<u>          </u>	<u>          </u>
Dihedral Angle-deg.	<u>7</u>	<u>7</u>
Incidence Angle-deg.	<u>          </u>	<u>          </u>
Sweep Back Angle-deg. L. E.	<u>43.08</u>	<u>43.08</u>
Chords-in.		
Root	<u>388</u>	<u>11.64</u>
Tip	<u>97</u>	<u>2.91</u>
MAC	<u>          </u>	<u>          </u>
Apex Location-in.	<u>          </u>	<u>          </u>
X <sub>0</sub>	<u>          </u>	<u>          </u>
Y <sub>0</sub>	<u>          </u>	<u>          </u>
Z <sub>0</sub>	<u>          </u>	<u>          </u>
.25 MAC Location-in.		
X <sub>c</sub> Station	<u>2564</u>	<u>76.920</u>
Y <sub>0</sub>	<u>          </u>	<u>          </u>
Z <sub>0</sub>	<u>          </u>	<u>          </u>

TABLE IIIa. - Continued.

MODEL COMPONENT: Horizontal Tail H15.6

GENERAL DESCRIPTION: Horizontal tail with vertical fins  
on each tip at body B.L. 12.82

MODEL SCALE: 0.03

DRAWING NUMBER: \_\_\_\_\_

<u>DIMENSIONS:</u>	<u>Full Scale</u>	<u>Model Scale</u>
<u>Exposed Data (one side)</u>		
Area - ft <sup>2</sup>	<u>200</u>	<u>0.18</u>
Span - in.	_____	_____
Aspect Ratio	_____	_____
Taper Ratio	_____	_____
Dihedral Angle-deg.	_____	_____
Incidence Angle-deg.	_____	_____
Sweep Back Angle-deg.	_____	_____
Chords - in.	_____	_____



TABLE IIIa. - Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT : 60  
J11.10.2

GENERAL DESCRIPTION : Middle L.E. Stat deflected 60°

Model Scale: 0.03

DRAWING NUMBER 5.0.1319-26, & -44

DIMENSIONS :	FULL SCALE	MODEL SCALE
Area		
From WBL 15.389 to MAC Strut		
Span (equivalent), in.	<u>434</u>	<u>13.022</u>
Inb'd equivalent chord		
Chord	<u>31.6</u>	<u>948</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge		
Trailing Edge		
Hingeline		
Area Moment (Normal to hinge line)		

TABLE IIIa.- Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT J<sup>50</sup>  
13.8.1

GENERAL DESCRIPTION Outboard L.E. Slat deflected 50°

---

Model Scale: 0.03

DRAWING NUMBER 5.0 1319-26 & -44

DIMENSIONS	FULL SCALE	MODEL SCALE
Area (From WBL 26.374)		
Span (equivalent), in	360.5	10.814
Inb'd equivalent chord		
Outb'd equivalent chord, in	24.1	.722
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge		
Trailing Edge		
Hingeline		
Area Moment (Normal to hinge line)		

TABLE IIIa: - Continued.

MODEL COMPONENT: <sup>70</sup>L9.8.3

---

GENERAL DESCRIPTION: Inboard Leading edge Krueger flap, deflected 70°

Model Scale: 0.03

---

Drawing NUMBER: 5.0. 1319-26 -44

---

DIMENSIONS:

	<u>Full Scale</u>	<u>Model Scale</u>
Span from WBL 7.322 to Nacelle Strut, in	<u>304.8</u>	<u>9.144</u>
Inb'd equivalent chord, in	<u>315.3</u>	<u>9.46</u>

TABLE IIIa. - Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT: M<sub>25</sub>

GENERAL DESCRIPTION: Inboard 747, J<sub>T90</sub> Nacelle  
strut

Model Scale: 0.03

DRAWING NUMBER \_\_\_\_\_

DIMENSIONS :	FULL SCALE	MODEL SCALE
Wing B.L. of nacelle $\zeta$ , in.	<u>470.0</u>	<u>14.100</u>
Cont angle, deg. inboard	<u>2</u>	<u>2</u>

TABLE IIIa. - Continued.

MODEL COMPONENT:  $M_{26.8}$

---

GENERAL DESCRIPTION: Outboard 747, & J<sub>1</sub>T9D Nacelle

---

Strut

---

Model Scale: 0.03

---

DRAWING NUMBER 937-590

---

TABLE IIIa. - Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT: N<sub>57</sub>

GENERAL DESCRIPTION Inboard Fan Cowl and Primary  
747 Nacelle, flow thru type

Model Scale: 0.03

DRAWING NUMBER 5.0 1007-96, 97

TABLE IIIa. - Continued.

MODEL DIMENSIONAL DATA

MODEL COMPONENT: N<sub>58</sub>

GENERAL DESCRIPTION: Outboard fan cowl and primary

747 Nacelle, flow thru type

Model Scale: 0.03

DRAWING NUMBER 5.0. 1.007-96, -97

TABLE IIIa. - Continued.

MODEL COMPONENT: SPOILERS - S<sub>1-12</sub>

GENERAL DESCRIPTION: Multi-panel flight spoilers. Four outboard and two inboard spoilers per side. Subscript denotes spoiler panel S<sub>1</sub> is the most outboard L.H. panel and S<sub>12</sub> is most outboard R.H. panel.

747 MODEL SCALE: 0.030 MODEL: 1065

DRAWING NO.: 65-71450, S. O. 1065-51, -59, -81, -173

DIMENSIONS: (one panel)	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Outboard S <sub>1-4</sub> and S <sub>9-12</sub> (Ft <sup>2</sup> )	<u>21.48</u>	<u>0.0193</u>
Span (equivalent), in.	<u>6.25</u>	<u>0.1875</u>
Chord, in.	<u>3.44</u>	<u>0.1032</u>
Inboard S <sub>5-6</sub> and S <sub>7-8</sub> (Ft <sup>2</sup> )	<u>35.31</u>	<u>0.0318</u>
Span (equivalent), in.	<u>7.50</u>	<u>0.225</u>
Chord, in.	<u>4.71</u>	<u>0.1413</u>



TABLE IIIa. - Continued.

MODEL COMPONENT: T<sub>19</sub>GENERAL DESCRIPTION: Flap track fairings,4 on each side.Model Scale: 0.03DRAWING NUMBER 5.0. 1007-403

DIMENSIONS :	<u>Full Scale</u>	<u>Model Scale</u>
WBL of Track no. 1, in.	<u>235.3</u>	<u>7.06</u>
WBL of Track no. 2, in.	<u>353.</u>	<u>10.59</u>
WBL of Track no. 3, in.	<u>652.</u>	<u>19.56</u>
WBL of Track no. 4, in.	<u>743.6</u>	<u>22.31</u>
Distance from wing trailing edge to track trailing edge, in.	<u>50.</u>	<u>1.5</u>

TABLE IIIa. - Continued.

MODEL COMPONENT: V9.1  
 GENERAL DESCRIPTION: Swept Vertical Tail  
 Model Scale: 0.03  
 DRAWING NUMBER: 65-6.9716; 1007-26, -610; 937-319

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
TOTAL DATA		
Area (Theo)- Ft <sup>2</sup>	<u>830</u>	<u>.7470</u>
Planform	<u>                    </u>	<u>                    </u>
Span (Theo) - In.	<u>386.5</u>	<u>11.595</u>
Aspect Ratio	<u>                    </u>	<u>                    </u>
Rate of Taper	<u>                    </u>	<u>                    </u>
Taper Ratio	<u>                    </u>	<u>                    </u>
Sweep-Back Angles, Degrees	<u>                    </u>	<u>                    </u>
Leading Edge	<u>50.12</u>	<u>50.12</u>
Trailing Edge	<u>                    </u>	<u>                    </u>
0.25 Element Line	<u>                    </u>	<u>                    </u>
Chords:	<u>                    </u>	<u>                    </u>
Root (Theo) WP-in.	<u>461.67</u>	<u>13.85</u>
Tip (Theo) WP-in.	<u>157</u>	<u>4.71</u>
MAC	<u>                    </u>	<u>                    </u>
Fus. Sta. of .25 MAC	<u>2529.6</u>	<u>75.888</u>
W. P. of .25 MAC	<u>                    </u>	<u>                    </u>
B.L. of .25 MAC	<u>                    </u>	<u>                    </u>
Airfoil Section	<u>                    </u>	<u>                    </u>
Leading Wedge Angle-Deg.	<u>                    </u>	<u>                    </u>
Trailing Wedge Angle-Deg.	<u>                    </u>	<u>                    </u>
Leading Edge Radius	<u>                    </u>	<u>                    </u>
Void Area	<u>                    </u>	<u>                    </u>
Blanketed Area	<u>                    </u>	<u>                    </u>

TABLE IIIa. - Concluded.

MODEL COMPONENT: WING - W44.1

GENERAL DESCRIPTION: Swept 747 Wing

MODEL SCALE: 0.03

DWG. NO.: 65-89585

<u>DIMENSIONS:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
TOTAL		
Area (Theo.) Ft <sup>2</sup>	5500	4.95
Planform	2348	70.44
Span (Theo. In.)	6.96	6.96
Aspect Ratio		
Rate of Taper		
Taper Ratio	7	7
Dihedral Angle, degrees		
Incidence Angle, degrees		
Aerodynamic Twist, degrees		
Swept Back Angles, degrees		
Leading Edge		
Trailing Edge		
0.25 Element Line		
Chords:		
Root (Theo) B.P.O.O.		
Tip, (Theo) B.P.		
MAC	327.8	9.834
Fus. Sta. of .25 MAC	1339.91	40.197
W. P. of .25 MAC	190.75	5.7225
B. L. of .25 MAC		

TABLE III. MODEL DIMENSIONAL DATA

b. Orbiter Model

MODEL COMPONENT: ATTACH STRUCTURE - AT<sub>38</sub>

GENERAL DESCRIPTION: Orbiter forward attachment struts.

MODEL SCALE: 0.030

DRAWING NO.: Boeing 1319-43

DIMENSIONS:

HEIGHT OF ACTUATOR RED TIP ABOVE  
STRUT UPPER JUNCTION, IN.

<u>SYMBOL</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
AT <sub>38</sub>	15.5	0.465
AT <sub>38.1.</sub>	91.67	2.75
AT <sub>38.2</sub>	75.00	2.25
AT <sub>38.2A</sub>	75.0	2.25
AT <sub>38.3</sub>	ROD REMOVED	ROD REMOVED

TABLE IIIb. (Continued)

MODEL COMPONENT: ATTACH STRUCTURE - AT<sub>39</sub>

GENERAL DESCRIPTION: Orbiter aft attachment, pitch adjustable from 0 to 10 deg.

MODEL SCALE: 0.030

DRAWING NO.: Boeing 50 1319-37.

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Pivot location:		
In., X <sub>C</sub>	400.0	12.0
In., Z <sub>C</sub>	160.7	4.821
Equivalent Span: (At 0 deg iorb)		
Centerline orbiter, in.	521.0	15.63

TABLE IIIb. (Continued)

MODEL COMPONENT : BODY - B26

GENERAL DESCRIPTION : Configuration 140A/B orbiter fuselage.

NOTE: B26 is identical to B24, except underside of fuselage has been  
refaired to accept W116.

MODEL SCALE: 0.030

DRAWING NUMBER : VL70-000143B -000200, -000205, -006089, -000145,  
-000140A, -000140B

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (OML: Fwd Sta. $X_o=235$ ) In.	<u>1293.3</u>	<u>38.799</u>
Length (IML: Fwd Sta. $X_o=238$ ) In.	<u>1290.3</u>	<u>38.709</u>
Max Width (@ $X_o = 1528.3$ ) In.	<u>264.00</u>	<u>7.920</u>
Max Depth (@ $X_o = 1464$ ) In.	<u>250.00</u>	<u>7.500</u>
Fineness Ratio	<u>0.264</u>	<u>0.264</u>
Area - Ft <sup>2</sup>		
Max. Cross-Sectional	<u>340.88</u>	<u>0.3068</u>
Planform		
Wetted		
Base		

TABLE IIIb. (Continued)

MODEL COMPONENT : OMS POD - M16

GENERAL DESCRIPTION : Configuration 140C orbiter OMS pod - short pod.

MODEL SCALE: 0.030

DRAWING NUMBER : VL70-008401, -008410

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (OMS Fwd Sta. $X_0=1310.5$ ). In.	<u>258.50</u>	<u>7.755</u>
Max Width (@ $X_0 = 1511$ ), In.	<u>136.8</u>	<u>4.104</u>
Max Depth (@ $X = 1511$ ), In.	<u>74.70</u>	<u>2.241</u>
Fineness Ratio	<u>2.484</u>	<u>2.484</u>
Area - Ft <sup>2</sup>		
Max. Cross-Sectional	<u>58.864</u>	<u>0.053</u>
Planform		
Wetted		
Base		

TABLE IIIb. (Continued)

MODEL COMPONENT: MPS NOZZLES - N<sub>24</sub>

GENERAL DESCRIPTION: Configuration 140A/B Orbiter MPS Nozzles

MODEL SCALE: 0.030

MODEL DWG: SS-A00147, Release 12

DRAWING NUMBER: VL70-005030A, -000140A

DIMENSIONS:

	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length - In.		
Gimbal Point to Exit Plane	<u>157.0</u>	<u>4.71</u>
Throat to Exit Plane	<u>99.2</u>	<u>2.976</u>
Diameter - In.		
Exit	<u>91.000</u>	<u>2.73</u>
Throat	<u>          </u>	<u>          </u>
Inlet	<u>          </u>	<u>          </u>
Area - ft <sup>2</sup>		
Exit	<u>45.166</u>	<u>0.0407</u>
Throat	<u>          </u>	<u>          </u>
Gimbal Point (Station) - In.		
Upper Nozzle		
X	<u>1445.00</u>	<u>43.35</u>
Y	<u>0.0</u>	<u>0.0</u>
Z	<u>443.00</u>	<u>13.29</u>
Lower Nozzles		
X	<u>1468.170</u>	<u>44.045</u>
Y	<u>+ 53.000 +</u>	<u>1.59</u>
Z	<u>342.640</u>	<u>10.279</u>
Null Position - Deg.		
Upper Nozzle		
Pitch	<u>16</u>	<u>16</u>
Yaw	<u>0</u>	<u>0</u>
Lower Nozzle		
Pitch	<u>10</u>	<u>10</u>
Yaw	<u>3.5</u>	<u>3.5</u>



TABLE IIIb. (Continued)

MODEL COMPONENT: OMS NOZZLES - N28

GENERAL DESCRIPTION: Configuration 140A/B Orbiter OMS Nozzles

MODEL SCALE: 0.030

DRAWING NUMBER: VL70-000140A (Location), SS-A00106, Release 5 (Contour)

DIMENSIONS:	FULL SCALE	MODEL SCALE
Length - In.		
Gimbal Point to Exit Plane		
Throat to Exit Plane		
Diameter - In.		
Exit		
Throat		
Inlet		
Area - ft <sup>2</sup>		
<del>XXXX</del> Max. Cross-Sectional (1 nozzle)		
Throat		
Gimbal Point (Station) - In.		
Left <del>XXXX</del> Nozzle		
X <sub>o</sub>	1518.0	45.54
Y <sub>o</sub>	-88.0	- 2.64
Z <sub>o</sub>	492.0	14.76
Right <del>XXXX</del> Nozzles		
X <sub>o</sub>	1518.0	45.54
Y <sub>o</sub>	88.0	2.64
Z <sub>o</sub>	492.0	14.76
Null Position - Deg.		
Left <del>XXXX</del> Nozzle		
Pitch	15°49'	15°49'
Yaw	12°17'	12°17'
Right <del>XXXX</del> Nozzle		
Pitch	15°49'	15°49'
Yaw	12°17'	12°17'

TABLE IIIb. (Continued)

MODEL COMPONENT: RUDDER - R<sub>5</sub>

GENERAL DESCRIPTION: Configuration 140C orbiter rudder (identical to  
Configuration 140A/B rudder)

MODEL SCALE: 0.030

DRAWING NUMBER: VL70-000146B. -000095

<u>DIMENSIONS:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Area - Ft <sup>2</sup>	<u>100.15</u>	<u>0.090</u>
Span (equivalent). In.	<u>201.00</u>	<u>6.030</u>
Inb'd equivalent chord. In.	<u>91.585</u>	<u>2.748</u>
Outb'd equivalent chord . In.	<u>50.833</u>	<u>1.525</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Tailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
Area Moment (Product of I area & c) (Normal to hingeline). Ft. <sup>3</sup>	<u>610.92</u>	<u>0.165</u>
Mean Aerodynamic Chord, In.	<u>73.2</u>	<u>2.196</u>

TABLE IIIb. (Continued)

MODEL COMPONENT: TAIL CONE - TC<sub>5</sub>

GENERAL DESCRIPTION: Fairing mounted on orbiter fuselage base for ferry missions.

MODEL SCALE: 0.030

DRAWING NUMBER: Boeing Drawing 1319-71.

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length, in.	<u>445.83</u>	<u>13.375</u>
Max Width, in.	<u>303.33</u>	<u>9.10</u>
Max Height, in.	<u>265.00</u>	<u>7.95</u>
Fineness Ratio	<u></u>	<u></u>
Area - Ft <sup>2</sup>	<u></u>	<u></u>
Projected frontal area	<u>324.105</u>	<u>0.2917</u>
Max. Cross-Sectional	<u></u>	<u></u>
Planform	<u></u>	<u></u>
Wetted	<u></u>	<u></u>
Base	<u></u>	<u></u>

TABLE IIIb. (Continued)

MODEL COMPONENT: VERTICAL - V<sub>g</sub>

GENERAL DESCRIPTION: Configuration 140C orbiter vertical tail (identical to configuration 140A/B vertical tail).

MODEL SCALE: 0.030

DRAWING NUMBER: VL70-000140C -000146B

DIMENSIONS: FULL SCALE MODEL SCALE

TOTAL DATA

Area (Theo) - Ft <sup>2</sup>	<u>413.243</u>	<u>0.372</u>
Planform	<u>315.72</u>	<u>9.472</u>
Span (Theo) - In.	<u>1.675</u>	<u>1.675</u>
Aspect Ratio	<u>0.507</u>	<u>0.507</u>
Rate of Taper	<u>0.404</u>	<u>0.404</u>
Taper Ratio		
Sweep-Back Angles, Degrees.		
Leading Edge	<u>45.00</u>	<u>45.00</u>
Trailing Edge	<u>26.25</u>	<u>26.25</u>
0.25 Element Line	<u>41.13</u>	<u>41.13</u>
Chords:		
Root (Theo) WP	<u>268.50</u>	<u>8.055</u>
Tip (Theo) WP	<u>108.47</u>	<u>3.254</u>
MAC	<u>199.81</u>	<u>5.994</u>
Fus. Sta. of .25 MAC	<u>1463.35</u>	<u>43.901</u>
W.P. of .25 MAC	<u>635.52</u>	<u>19.066</u>
B.L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle - Deg.	<u>10.00</u>	<u>10.00</u>
Trailing Wedge Angle - Deg.	<u>14.92</u>	<u>14.92</u>
Leading Edge Radius	<u>2.00</u>	<u>0.060</u>
Void Area - Ft <sup>2</sup>	<u>13.17</u>	<u>0.</u>
Blanketed Area - Ft <sup>2</sup>	<u>0.0</u>	<u>0.0</u>

TABLE IIIb. (Continued)

MODEL COMPONENT: WING-W 116

GENERAL DESCRIPTION: Configuration 4

NOTE: Identical to W114, except airfoil thickness. Dihedral angle is along trailing edge of wing.

MODEL SCALE: 0.030

TEST NO.

DWG. NO. VL70-000140A, -000200

DIMENSIONS:

FULL-SCALE

MODEL SCALE

TOTAL DATA

Area (Theo.) Ft<sup>2</sup>

Planform

2690.00

2.421

Span (Theo In.

936.68

28.10

Aspect Ratio

2.265

2.265

Rate of Taper

1.177

1.177

Taper Ratio

0.200

0.200

Dihedral Angle, degrees

3.500

3.500

Incidence Angle, degrees

0.500

0.500

Aerodynamic Twist, degrees

3.000

3.000

Sweep Back Angles, degrees

Leading Edge

45.000

45.000

Trailing Edge

- 10.056

- 10.056

0.25 Element Line

35.209

35.209

Chords:

Root (Theo) B.P.O.O.

689.24

20.677

Tip, (Theo) B.P.

137.85

4.136

MAC

474.81

14.244

Fus. Sta. of .25 MAC

1136.83

34.105

W.P. of .25 MAC

290.58

8.717

B.L. of .25 MAC

182.13

5.464

EXPOSED DATA

Area (Theo) Ft<sup>2</sup>

1751.50

1.576

Span, (Theo) In. BP108

720.68

21.620

Aspect Ratio

2.059

2.059

Taper Ratio

0.245

0.245

Chords

Root BP108

562.09

16.863

Tip  $1.00 \frac{b}{2}$

137.85

4.136

MAC

392.83

11.785

Fus. Sta. of .25 MAC

1185.98

35.579

W.P. of .25 MAC

294.30

8.829

B.L. of .25 MAC

251.77

7.553

Airfoil Section (Rockwell Mod NASA)  
XXXX-64

Root  $\frac{b}{2} =$

0.113

0.113

Tip  $\frac{b}{2} =$

0.120

0.120

Data for (1) of (2) Sides

Leading Edge Cuff

Planform Area Ft<sup>2</sup>

113.18

0.102

Leading Edge Intersects Fus M. L. @ Sta

500.00

15.00

Leading Edge Intersects Wing @ Sta

1024.00

30.72

TABLE IIIb. (Continued)

MODEL COMPONENT: SLOTTED ELEVON (6 -INCH GAP) - E<sub>114</sub>

GENERAL DESCRIPTION: Configuration 140A/B Orbiter elevon.

NOTE: E<sub>114</sub> is a slotted version of E<sub>26</sub>. Data are for one side.

MODEL SCALE: 0.030

DRAWING NUMBER: VL70-000200, -006089, -006092

<u>DIMENSIONS:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Area - Ft <sup>2</sup>	<u>210.0</u>	<u>0.189</u>
Span (equivalent) In.	<u>349.2</u>	<u>10.476</u>
Inb'd equivalent chord In.	<u>118.004</u>	<u>3.540</u>
Outb'd equivalent chord In.	<u>55.192</u>	<u>1.656</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.2096</u>	<u>0.2096</u>
At Outb'd equiv. chord	<u>0.4004</u>	<u>0.4004</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Tailing Edge	<u>- 10.056</u>	<u>- 10.056</u>
Hingeline	<u>0.00</u>	<u>0.00</u>
Area Moment (Product of area and $\bar{c}$ ) (Normal to hingeline) Ft <sup>3</sup>	<u>1587.25</u>	<u>0.043</u>
Mean Aerodynamic Chord, In.	<u>90.7</u>	<u>2.721</u>

TABLE IIIb. (Continued)

MODEL COMPONENT : CANOPY - C9

GENERAL DESCRIPTION : Configuration 3A. Canopy used with fuselage

B26

MODEL SCALE: 0.030                      MODEL DWG: SS-A00147, Release 12

DRAWING NUMBER : VL70-000143A

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length ( $X_0 = 434.643$ to $578$ ), In.	<u>143.357</u>	<u>4.301</u>
Max Width (@ $X_0 = 513.127$ ), In.	<u>152.412</u>	<u>4.572</u>
Max Depth (@ $X_0 = 485.0$ ), In.	<u>25.00</u>	<u>0.750</u>
Fineness Ratio	<u>          </u>	<u>          </u>
Area	<u>          </u>	<u>          </u>
Max. Cross-Sectional	<u>          </u>	<u>          </u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

TABLE IIb. (Concluded)

MODEL COMPONENT : BODY FLAP - F<sub>g</sub>

GENERAL DESCRIPTION : Configuration 140A/B orbiter body flap

Hingeline located at X<sub>o</sub> = 1528.3, Z<sub>o</sub> = 284.3

MODEL SCALE: 0.030                      MODEL DWG: SS-AC0147. Release 12

DRAWING NUMBER : VL70-000140A, -000145

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (X <sub>o</sub> =1520 to X <sub>o</sub> =1613) In.	<u>93.00</u>	<u>2.79</u>
Max Width (In.)	<u>262.0</u>	<u>7.86</u>
Max Depth (@ X <sub>o</sub> = 1520), In.	<u>23.00</u>	<u>0.69</u>
Fineness Ratio	<u>          </u>	<u>          </u>
Area - Ft <sup>2</sup>	<u>          </u>	<u>          </u>
Max. Cross-Sectional	<u>          </u>	<u>          </u>
Planform	<u>150.525</u>	<u>0.135</u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>41.847</u>	<u>0.038</u>



TABLE IV. - CA5 DATASET DESCRIPTION

DATASET- TYPE	DESCRIPTION
RGMXXX	Main balance data which have been corrected for main balance mounting system tares and contain wall corrections.
AGMXXX	Orbiter (internal) balance "basic" data which contains "standard" wind tunnel corrections including a wall correction.
BGMXXX	Main balance data (corrected for main balance mounting system tares) minus orbiter (internal) balance "basic" data (RGMXXX-AGMXXX).
RGMCXX	Main balance mounting system tare data.

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

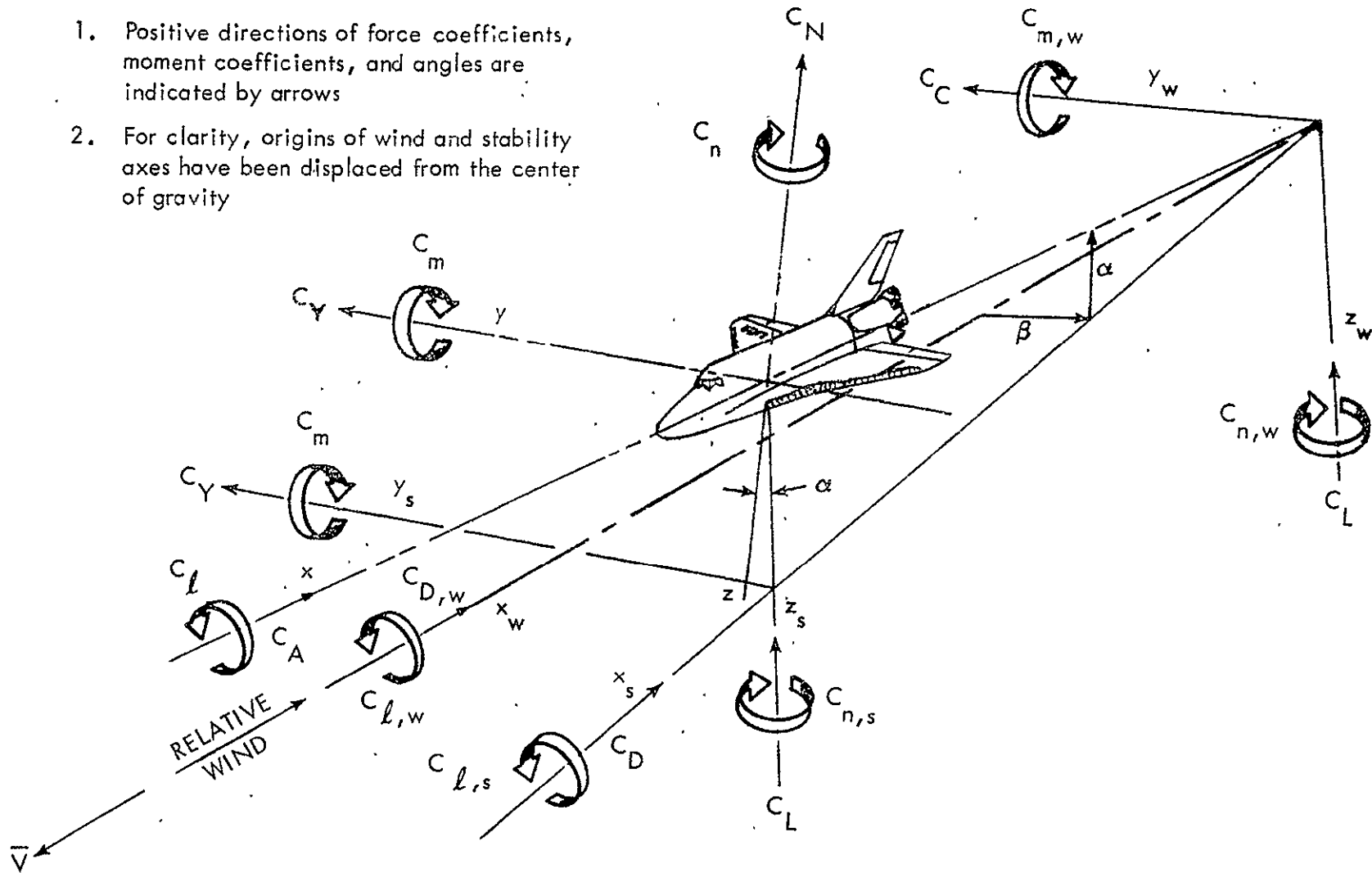
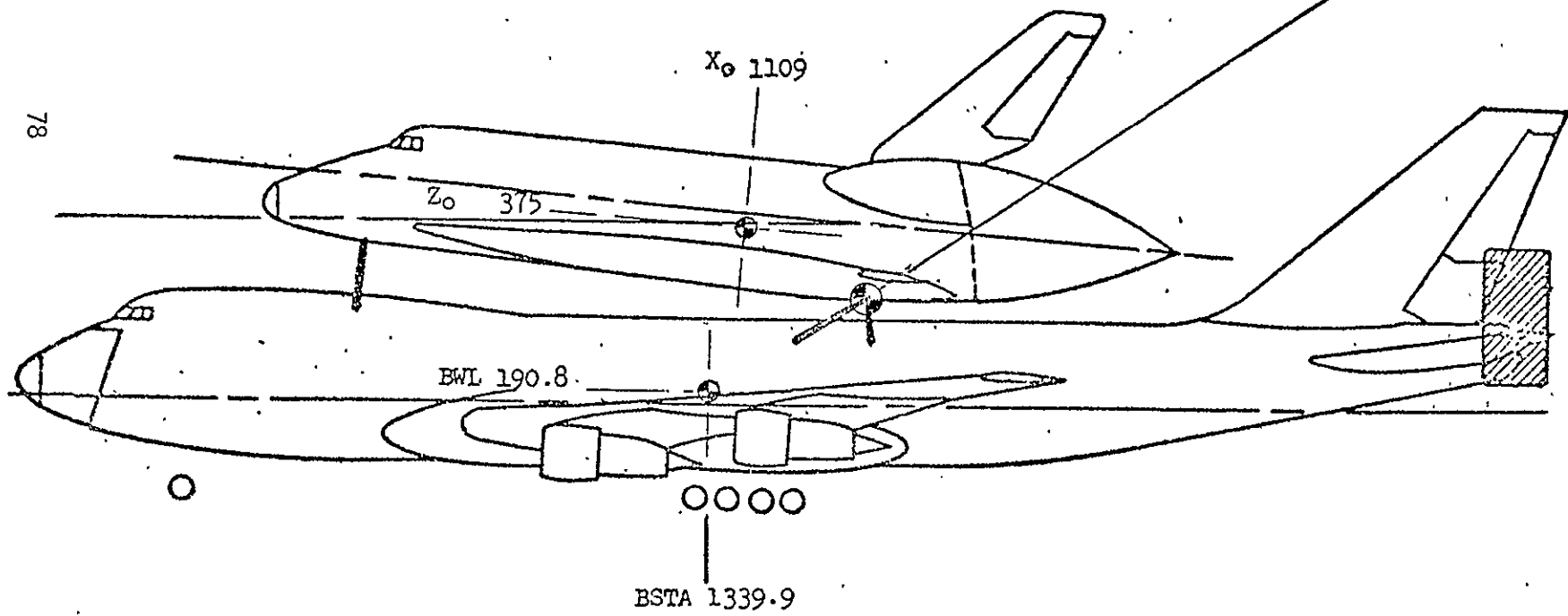


Figure A. - Axis systems.

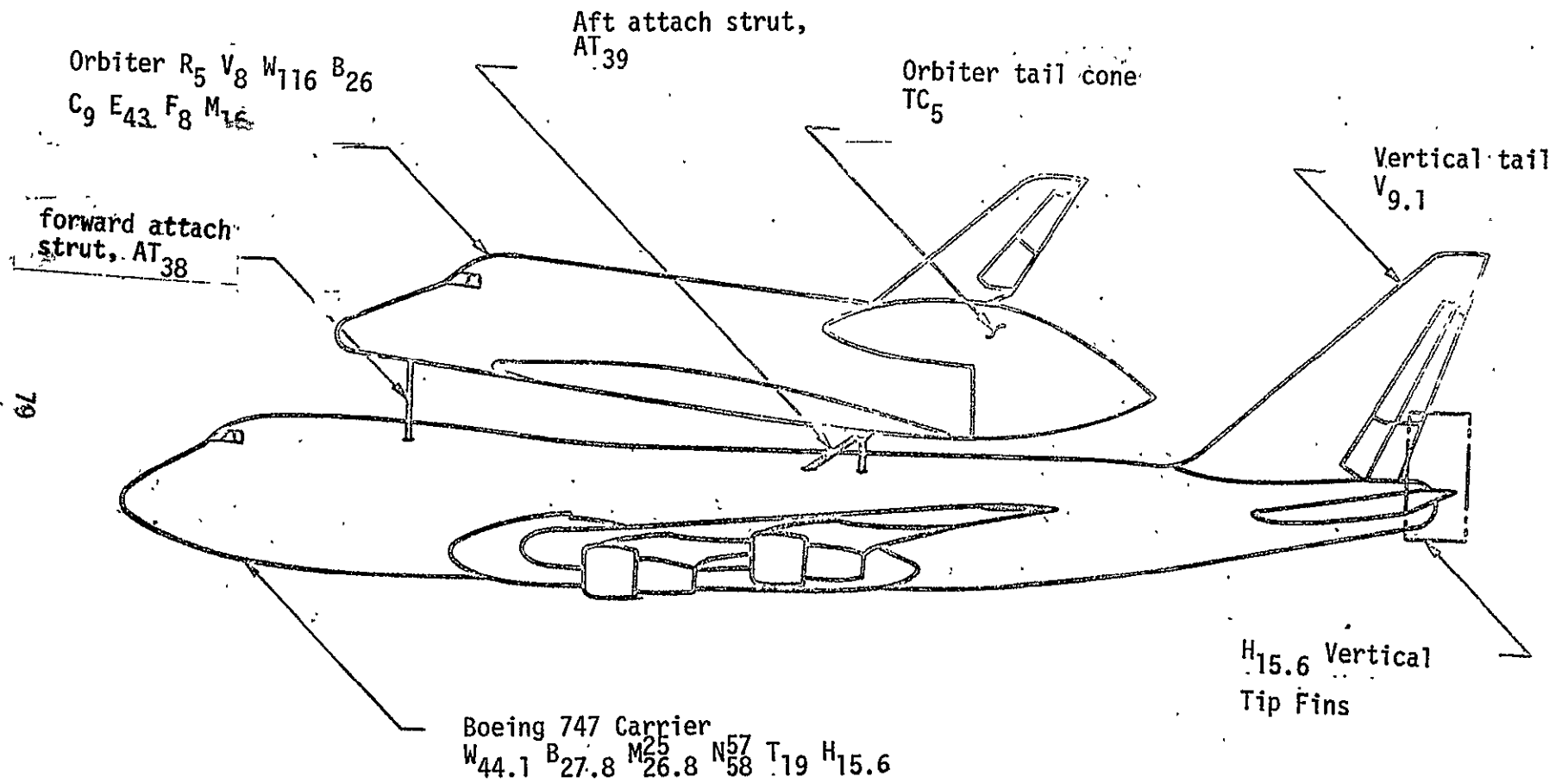
REFERENCE DIMENSIONS (FS)

	ORBITER	747 CARRIER
WING AREA ~ Ft <sup>2</sup>	2690	5500
MAC ( $\bar{c}$ ) ~ INCHES	474.81	327.78
SPAN (b) ~ INCHES	936.68	2348.04
MOMENT REFERENCE CENTER	67.5% LB	25.0 % $\bar{c}$
F.S. ~ INCHES	1109.0	1339.9
W.P. ~ INCHES	375.0	190.8

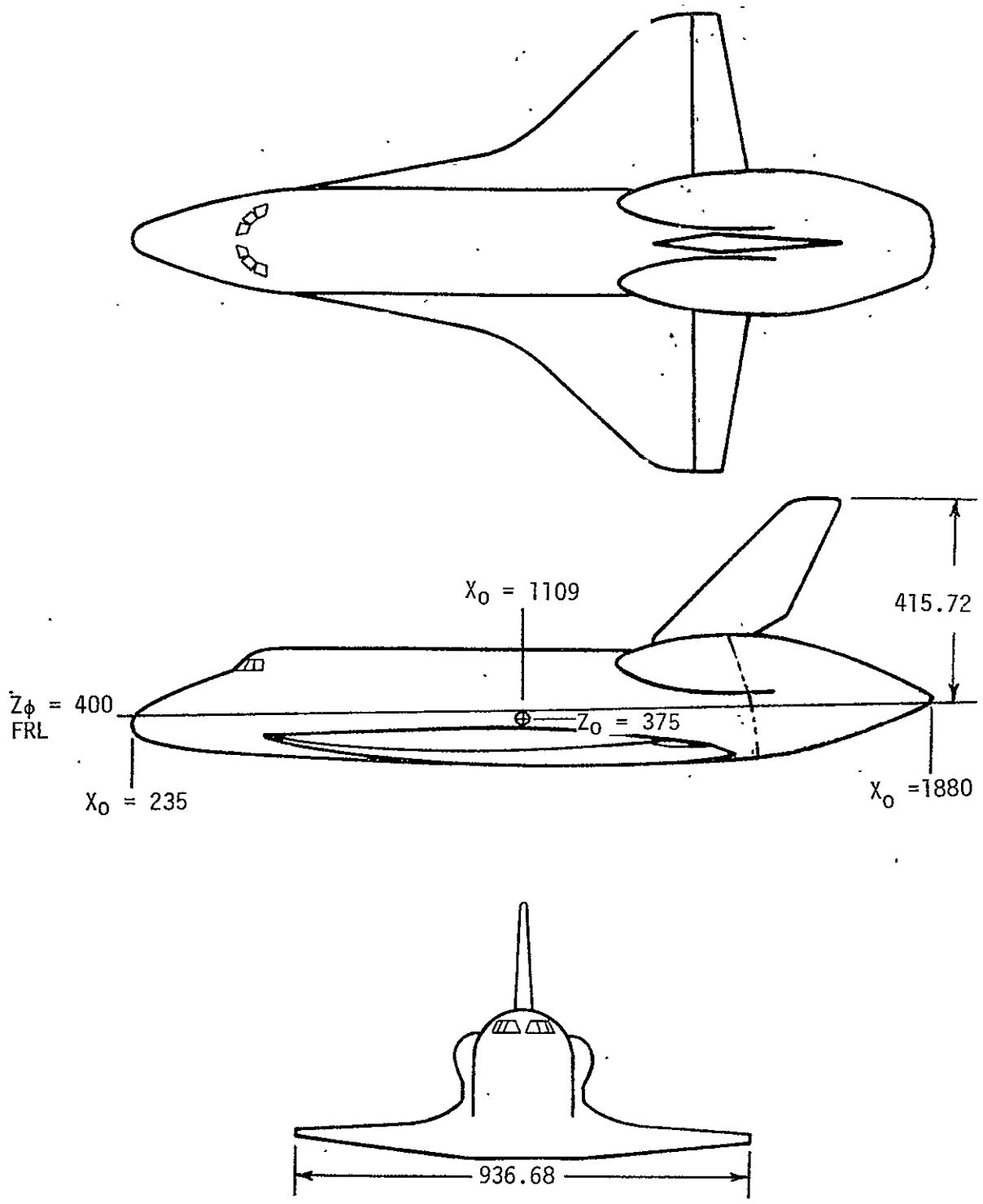
BWL 400 ( $X_o$  96 51)  
 BSTA 1607 ( $Z_o$  267.5)  
 ( $X_o$  1317)



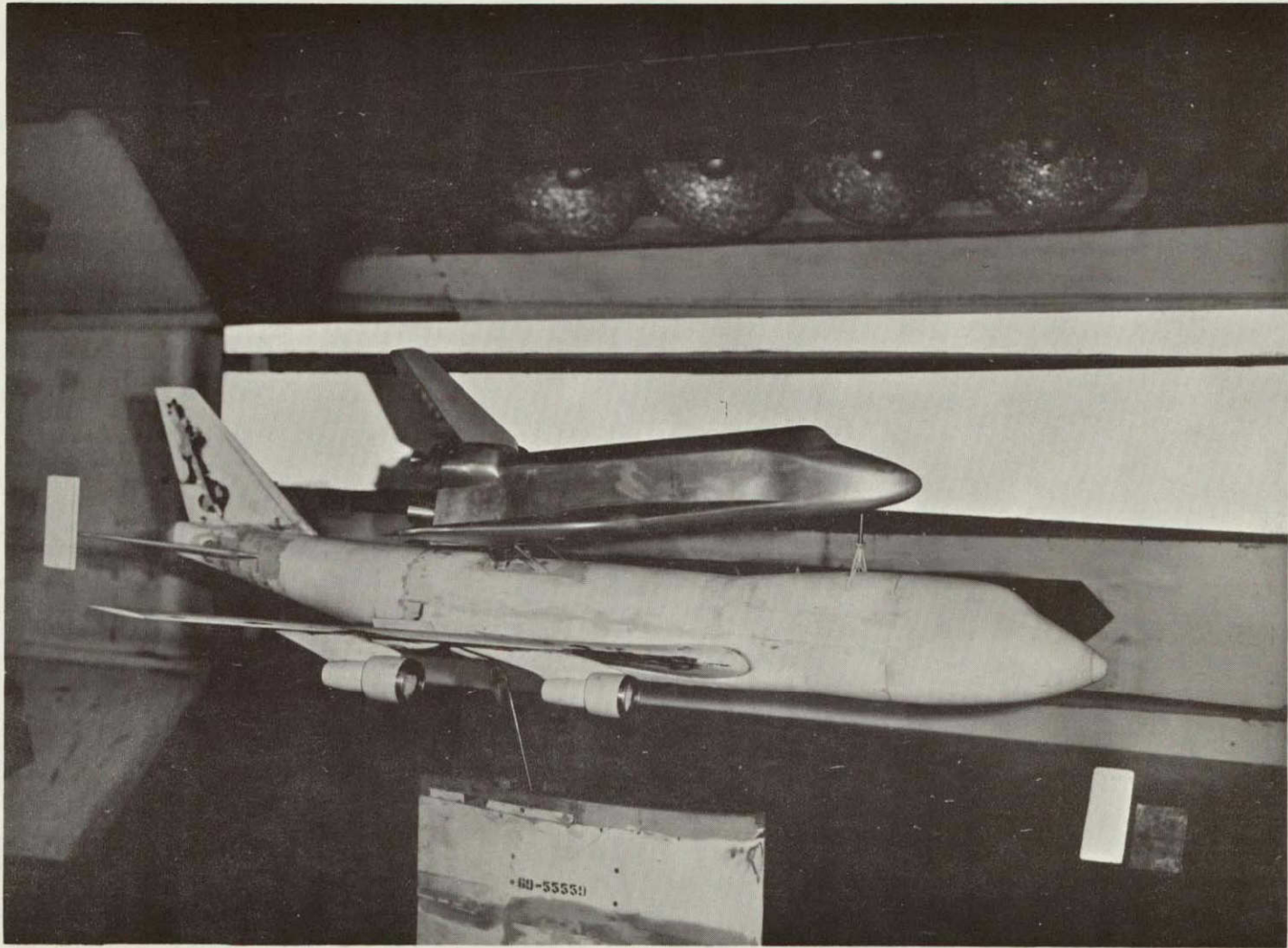
a. Orbiter/747 Flight Test Configuration Reference Dimensions  
 Figure B. - Model sketches.



b. Orbiter/Carrier Model Nomenclature  
Figure B. - Continued.



c. Orbiter Configuration  
Figure B. - Continued.

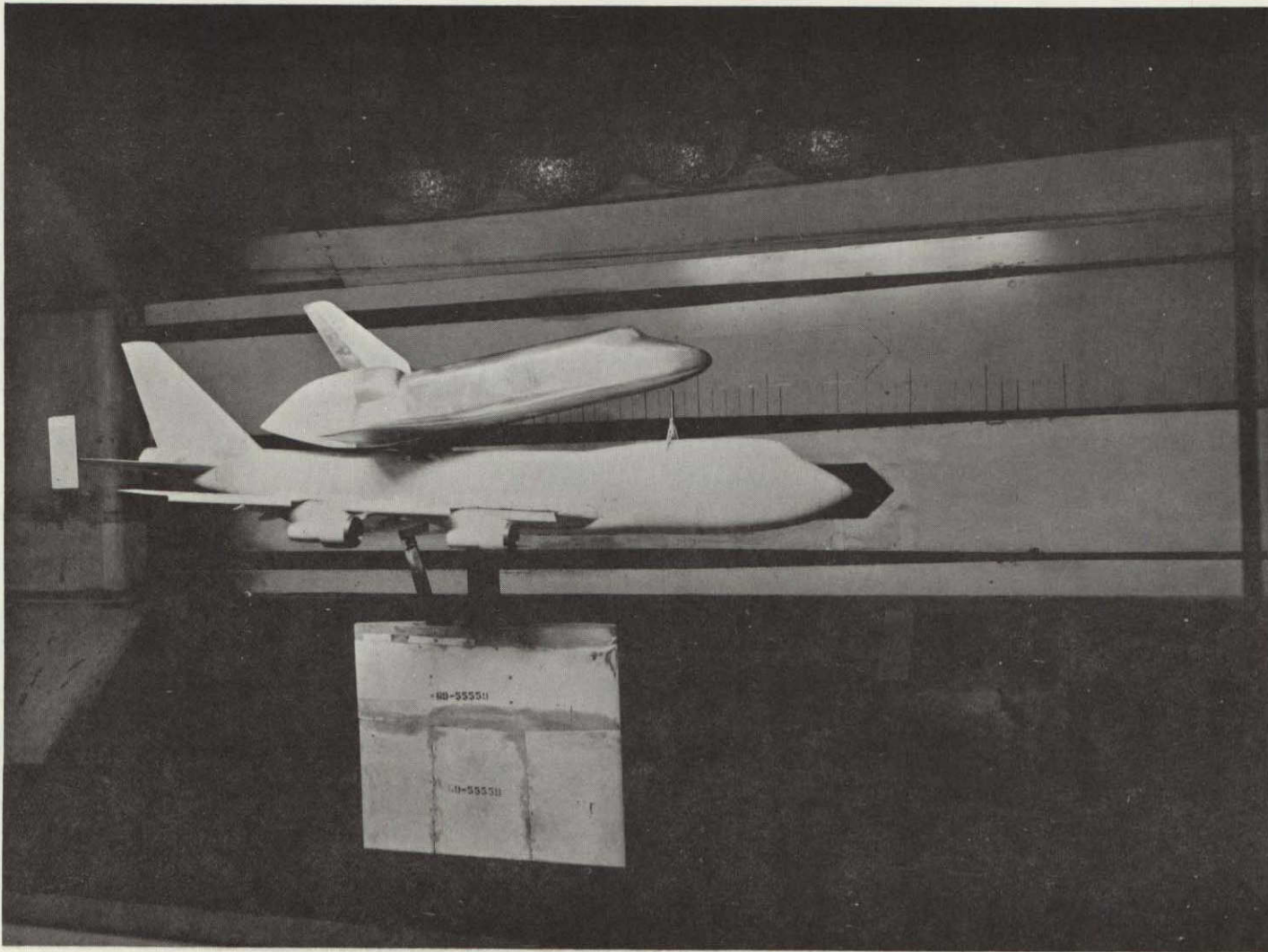


a. Orbiter/Carrier Mated Configuration Side View  $i_{ORB} = 8^\circ$ ,  
Orbiter without Tail Cone Fairing

Figure C. - Model photographs.

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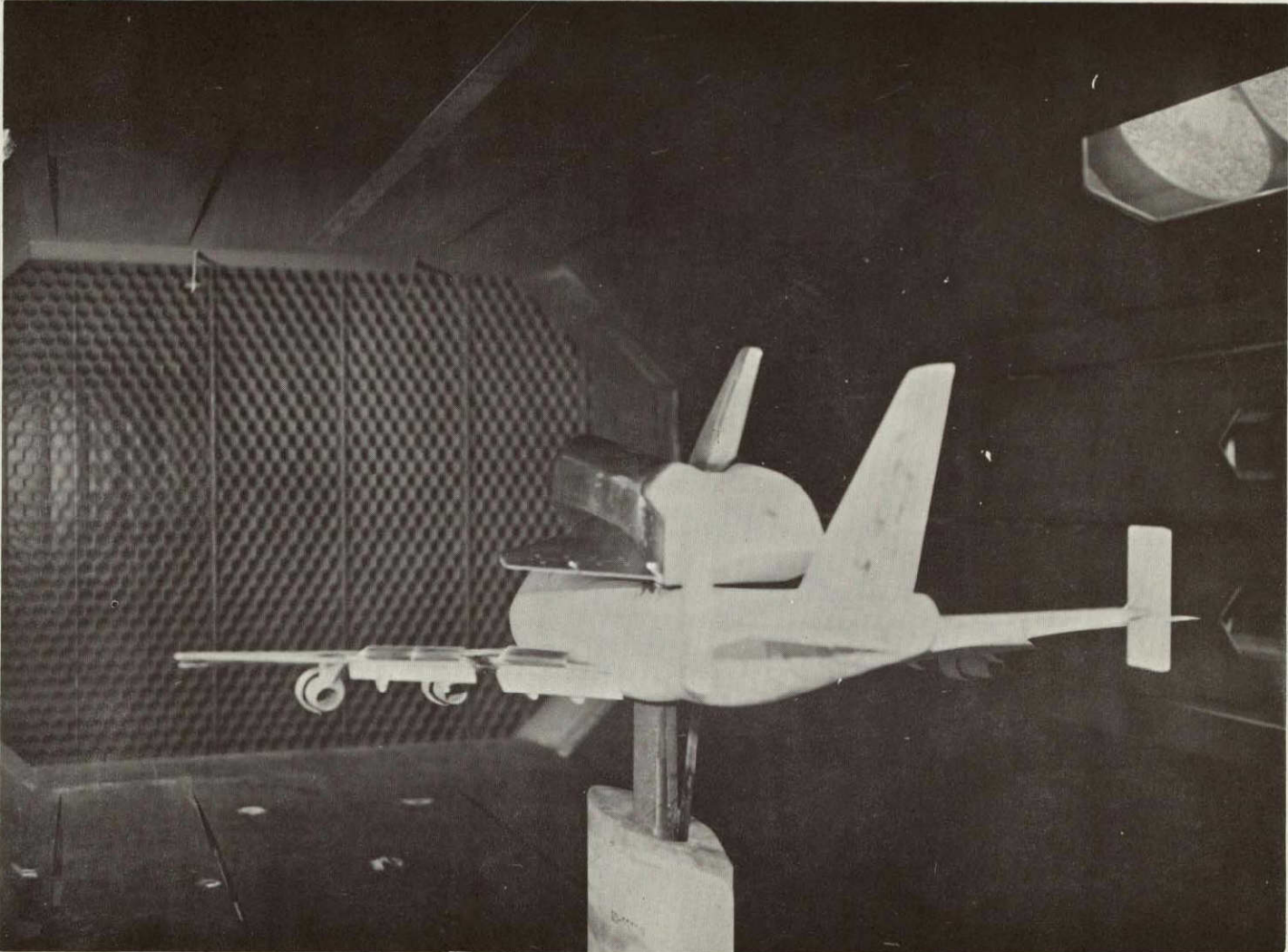


b. Orbiter/Carrier Mated Configuration Side View  $i_{ORB} = 10^\circ$ ,  
Orbiter with Tail Cone Fairing

Figure C. - Continued.

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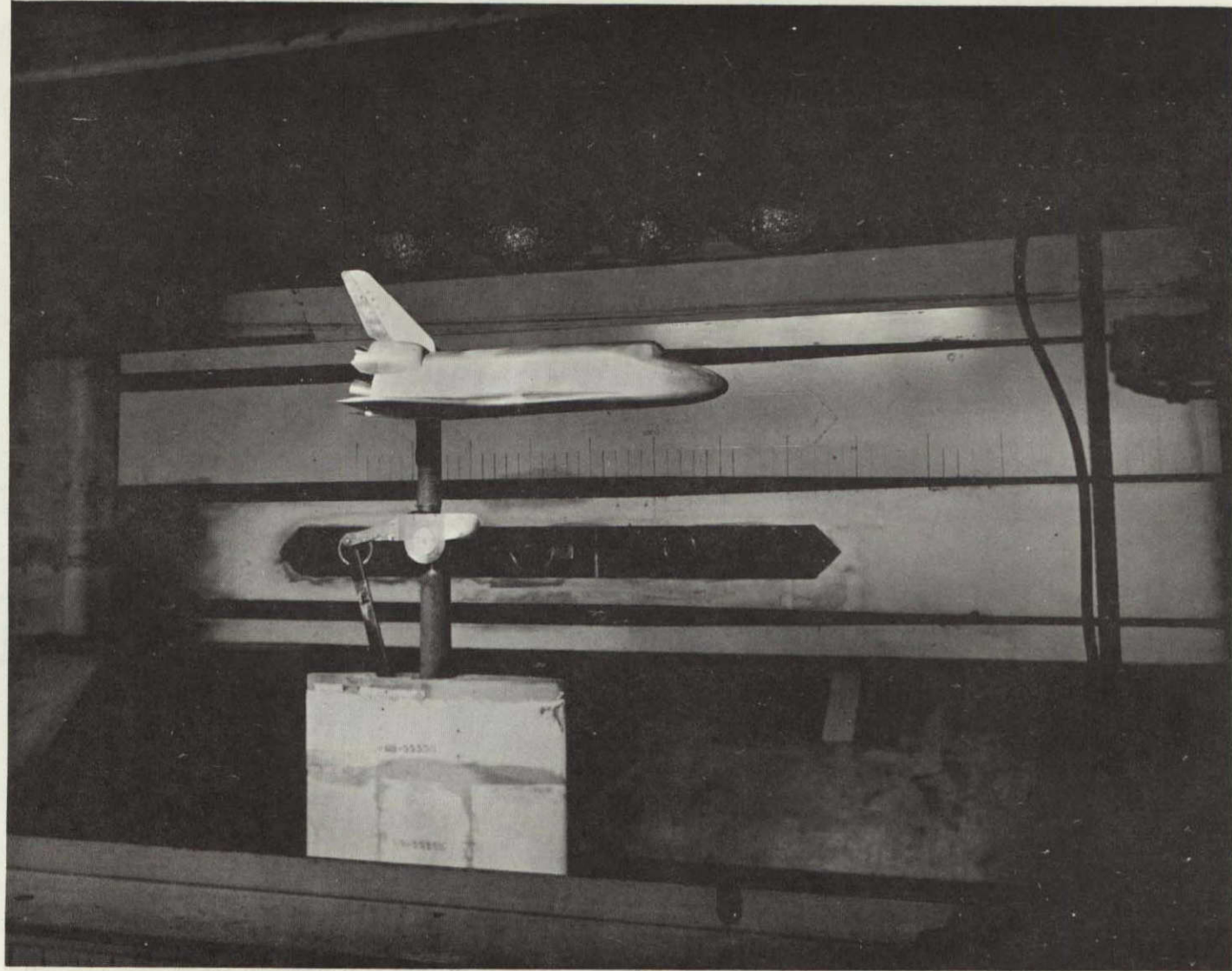
83



c. Orbiter/Carrier Rear View

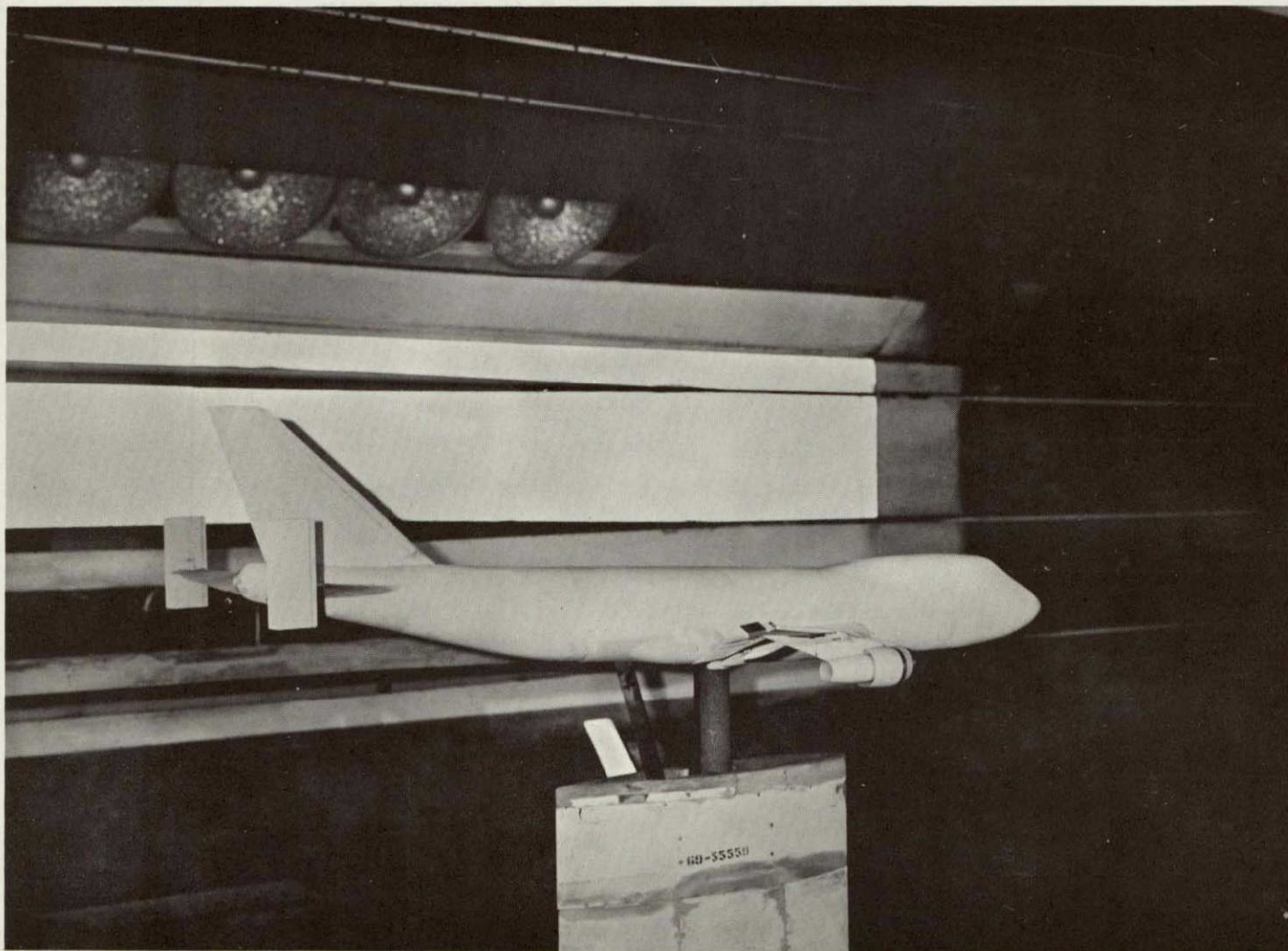
Figure C. - Continued.





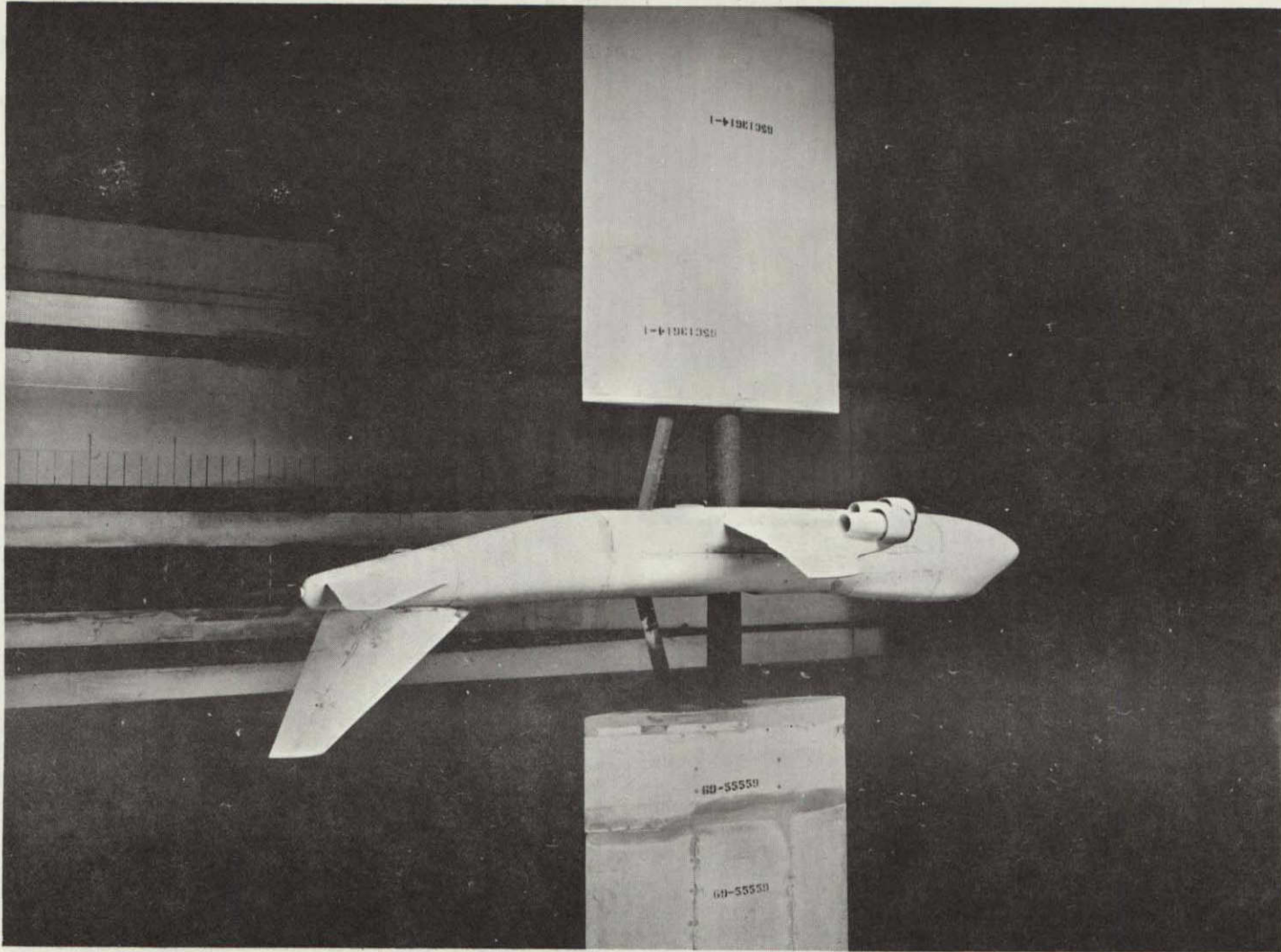
d. Orbiter Alone Installation

Figure C. - Continued.



e. Carrier Alone Installation

Figure C. - Continued.



f. Carrier Inverted with Image Strut for Determination  
of Wind Tunnel Strut Tare and Interference Effects

Figure C. - Concluded.

BTWT-1431CA5 K1 FO

V9.1

(RGM039)

SYMBOL  
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 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.299	RUD-L	.000	S1-2	.000
.500	S3-4	.000	S5-6	.000
.600				
.700				

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

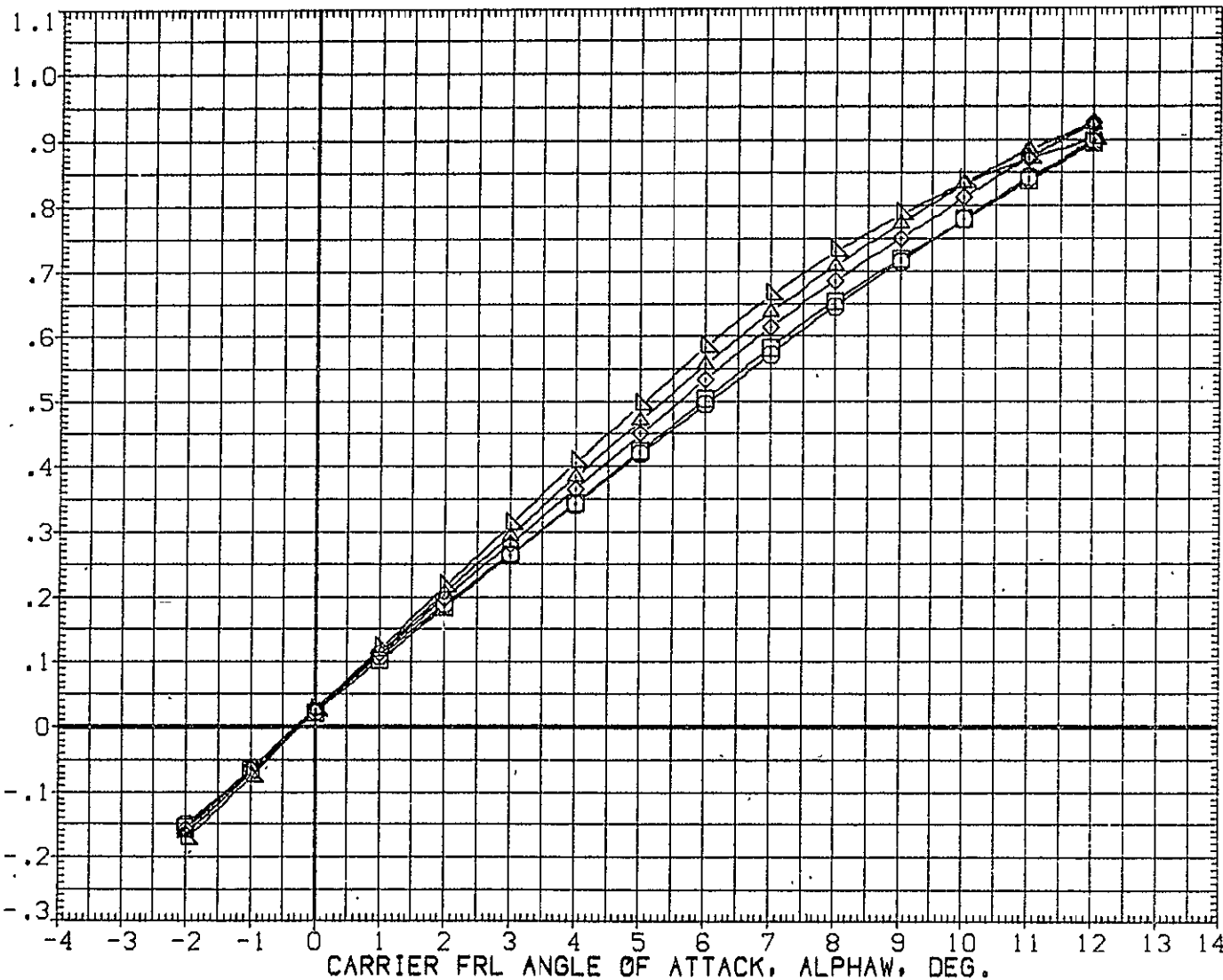


FIG. 1 747 ALONE, BASIC AIRPLANE FLAPS UP, HORIZ TAIL OFF

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SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	RUD-U	.000
◇	.299	RUD-L	.000	S1-2	.000
□	.500	S3-4	.000	S5-6	.000
△	.600				
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

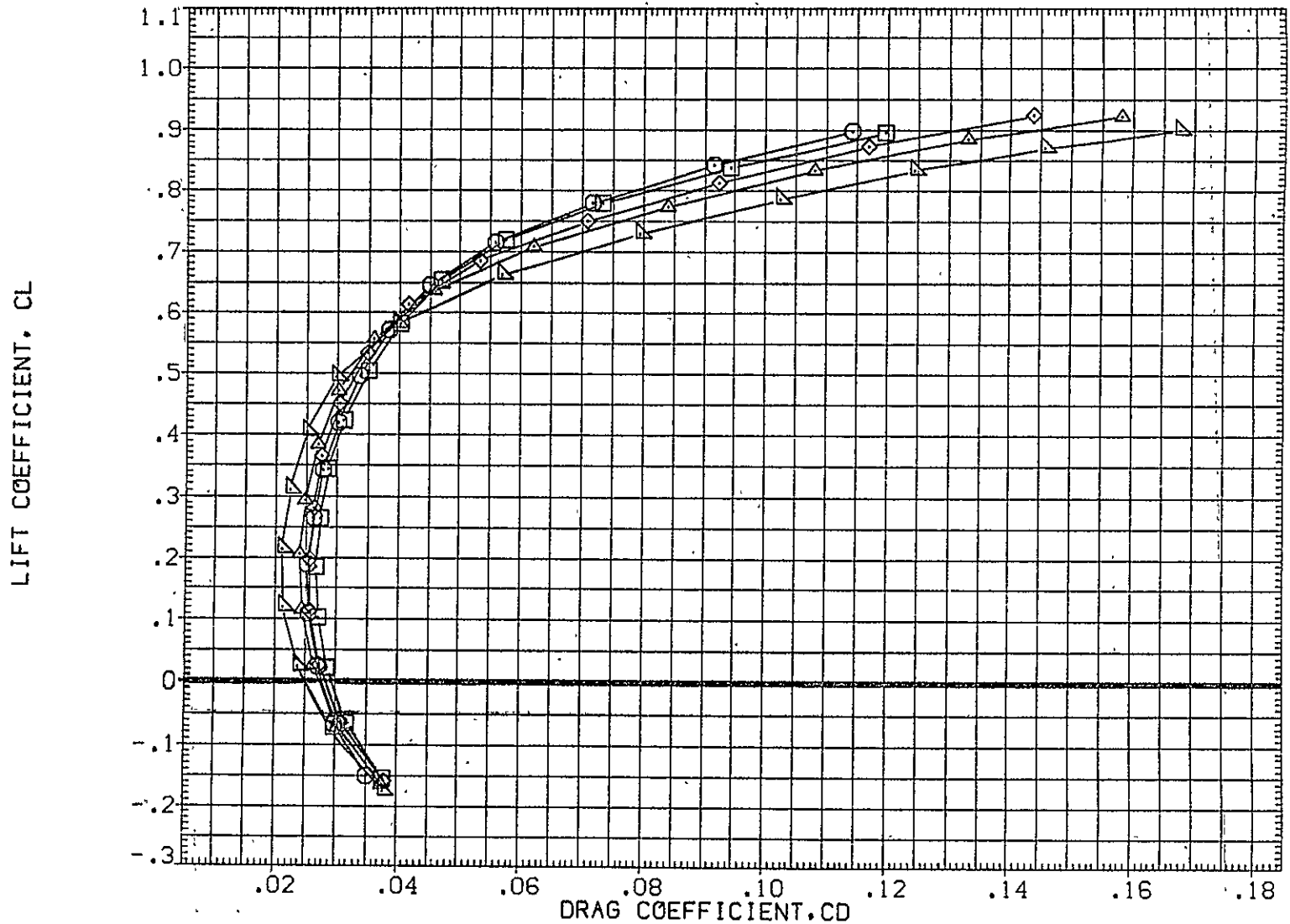


FIG. 1 747 ALONE, BASIC AIRPLANE FLAPS UP, HORIZ TAIL OFF

BTWT-1431CA5 K1 F0

V9.1

(RGM039)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	RUD-U	.000
□	.299	RUD-L	.000	S1-2	.000
◇	.500	S3-4	.000	S5-6	.000
△	.600				
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

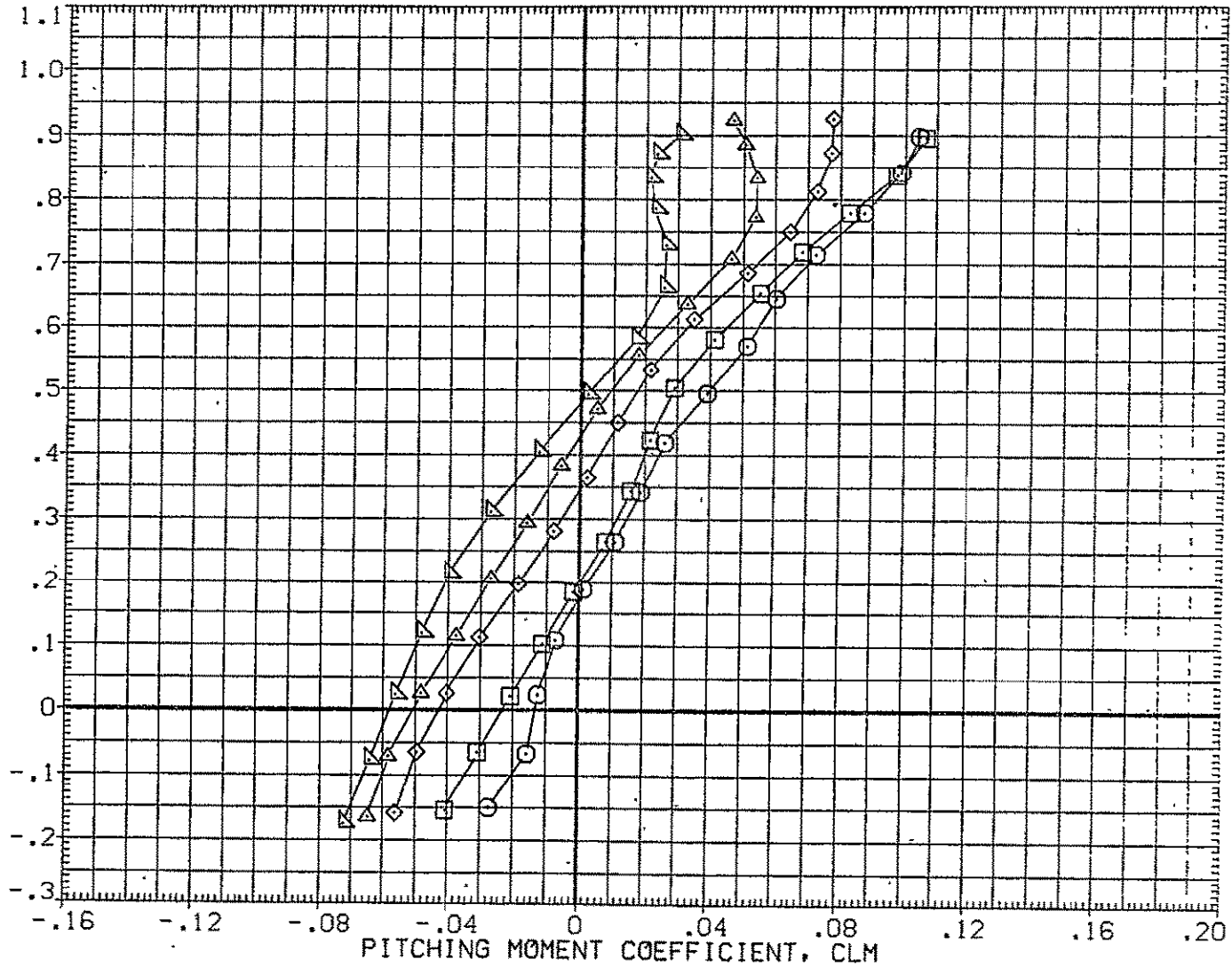


FIG. 1 747 ALONE, BASIC AIRPLANE FLAPS UP, HORIZ TAIL OFF

SYMBOL	MACH	PARAMETRIC VALUES			
○	.1150	BETA	.000	RUD-U	.000
◇	.299	RUD-L	.000	S1-2	.000
△	.500	S3-4	.000	S5-6	.000
▽	.600				
□	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

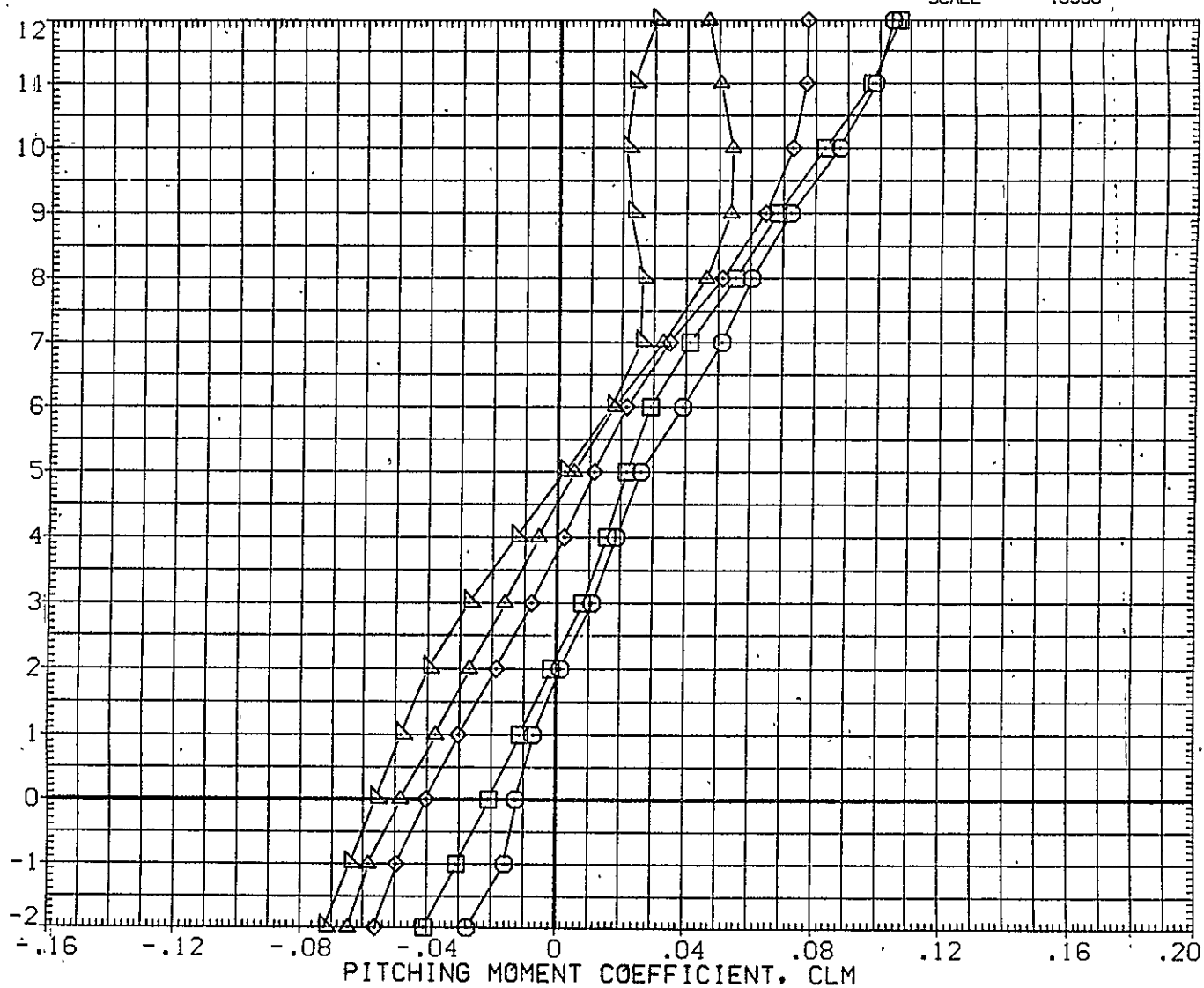


FIG. 1 747 ALONE, BASIC AIRPLANE FLAPS UP, HORIZ TAIL OFF

SYMBOL  
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MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-2.000
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

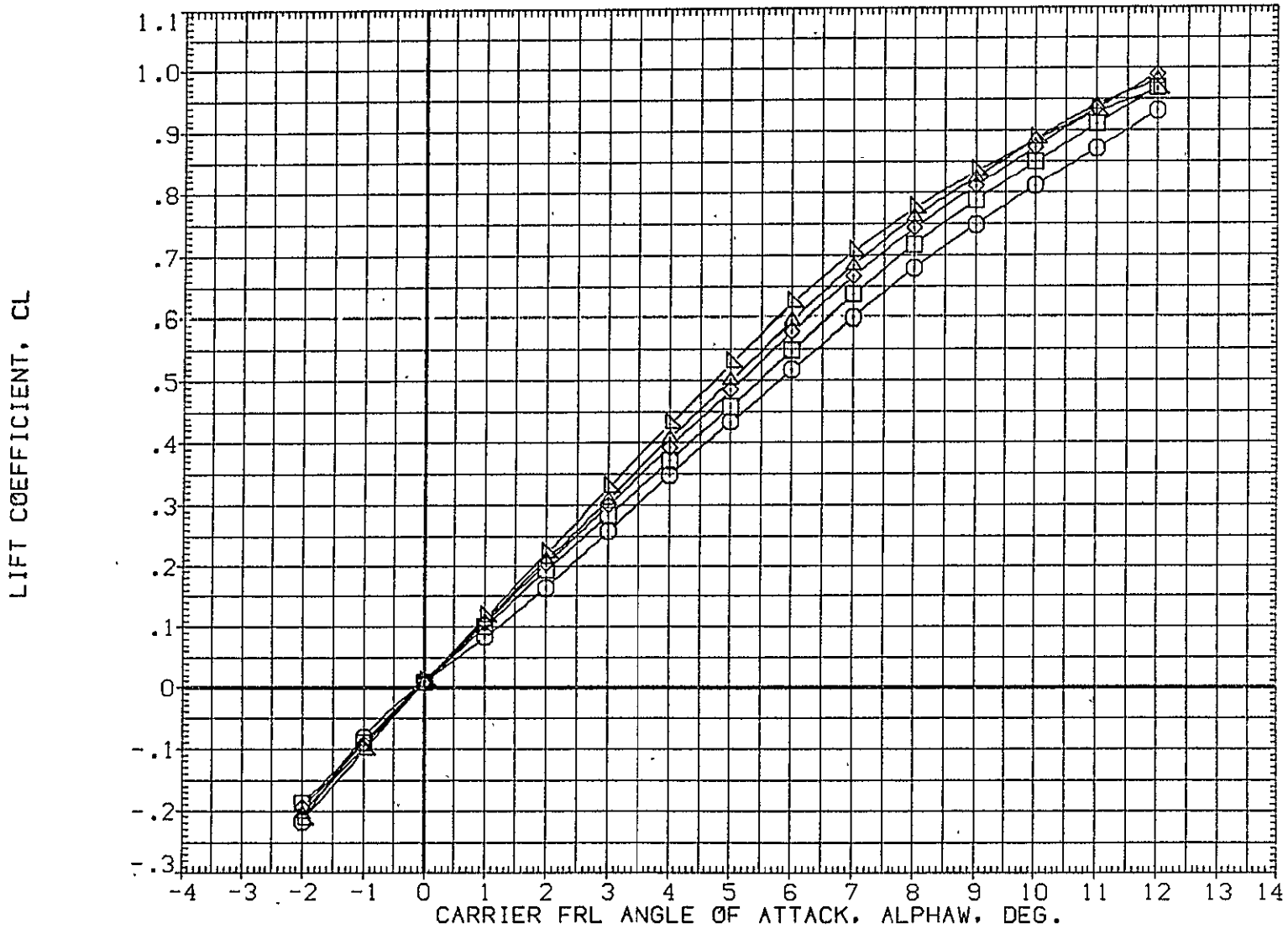


FIG. 2 747 ALONE, BASIC AIRPLANE FLAPS UP, TAIL ON(S=-2)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	STAB	-2.000
□	.300	RUD-U	.000	RUD-L	.000
◇	.500	ELV-1B	.000	ELV-0B	3.000
△	.600	S1-2	.000	S3-4	.000
▽	.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.6000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

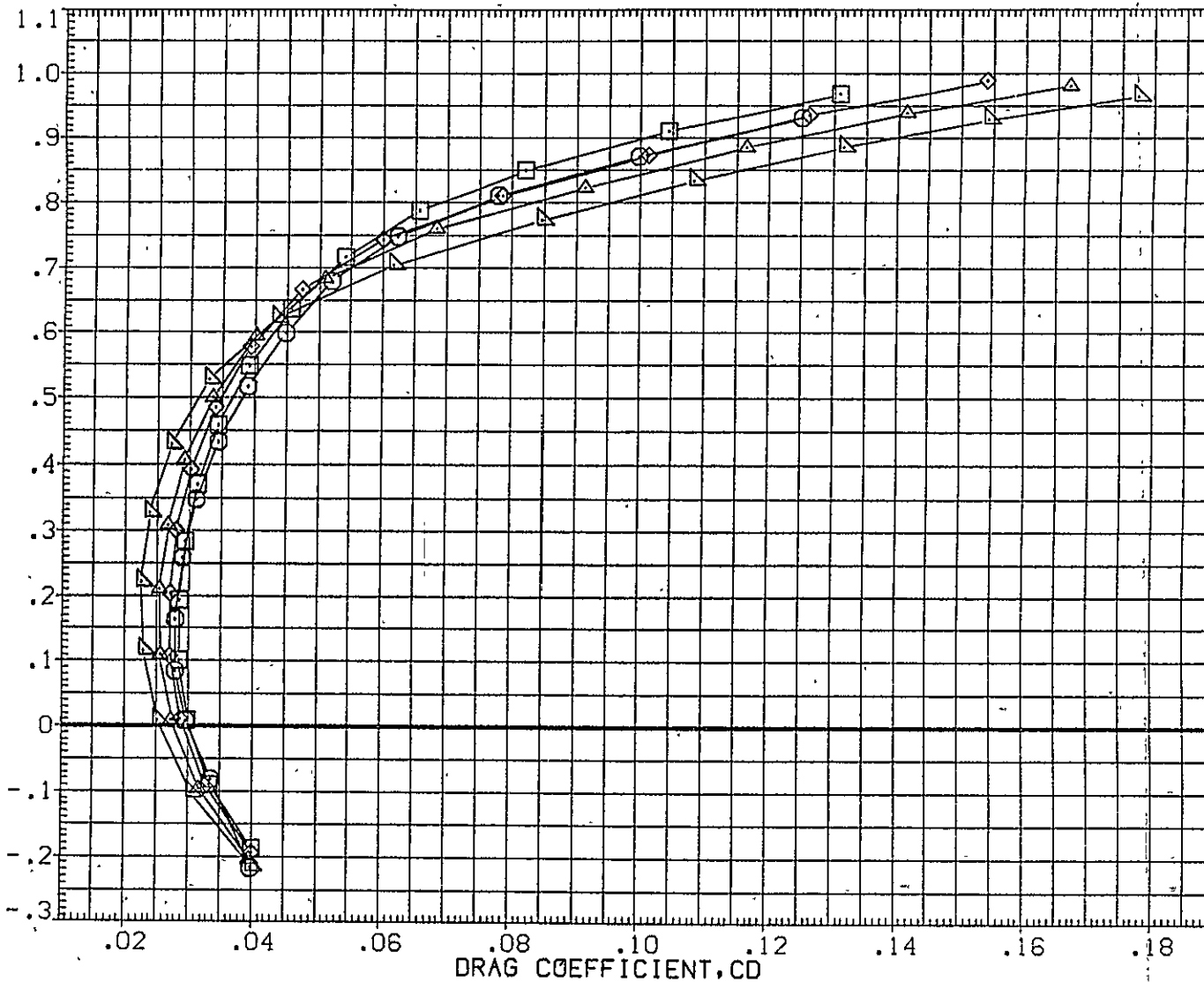


FIG. 2 747 ALONE, BASIC AIRPLANE FLAPS UP, TAIL ON(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

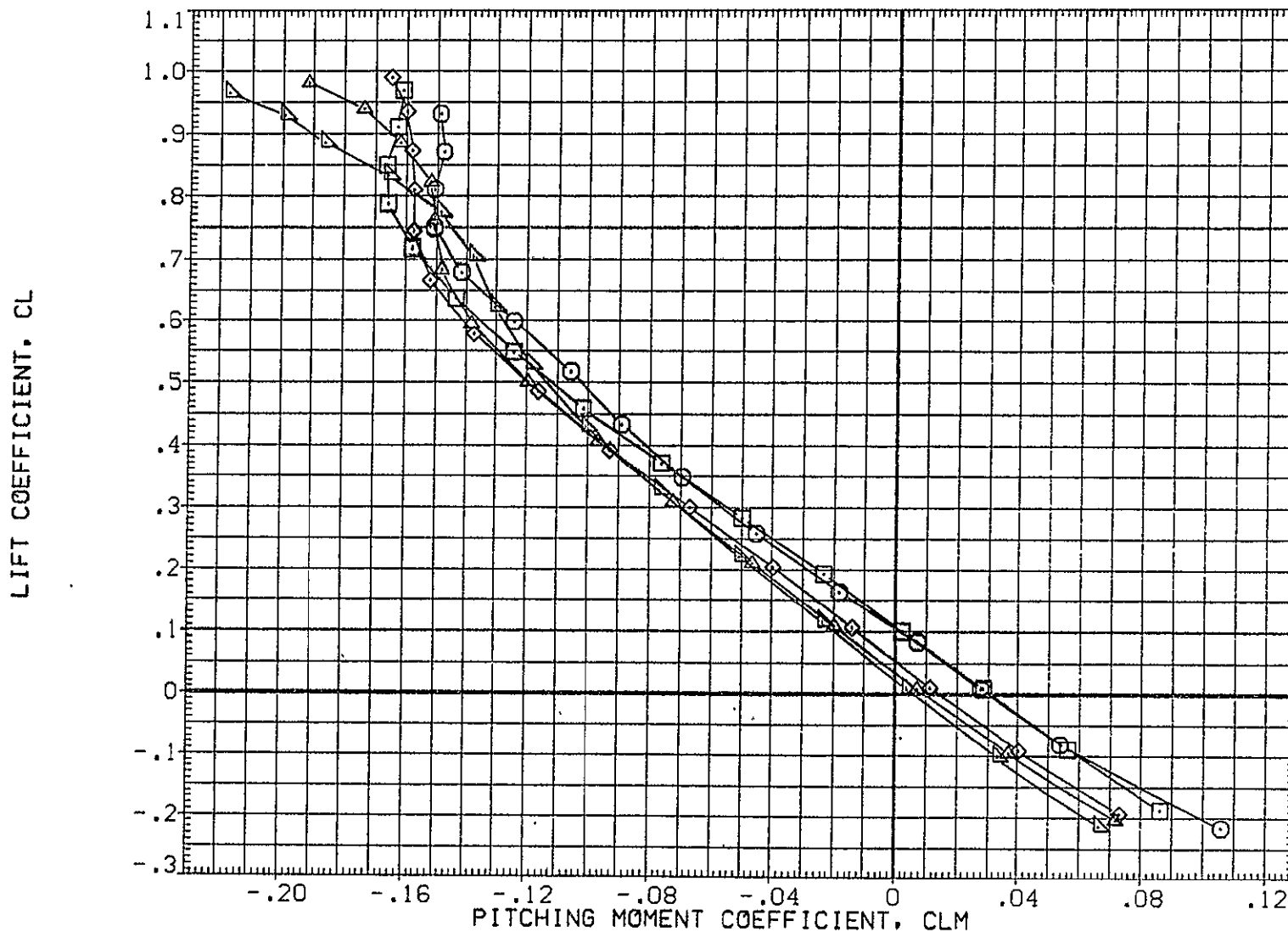


FIG. 2 747 ALONE, BASIC AIRPLANE FLAPS UP, TAIL ON(S=-2)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-2.000
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

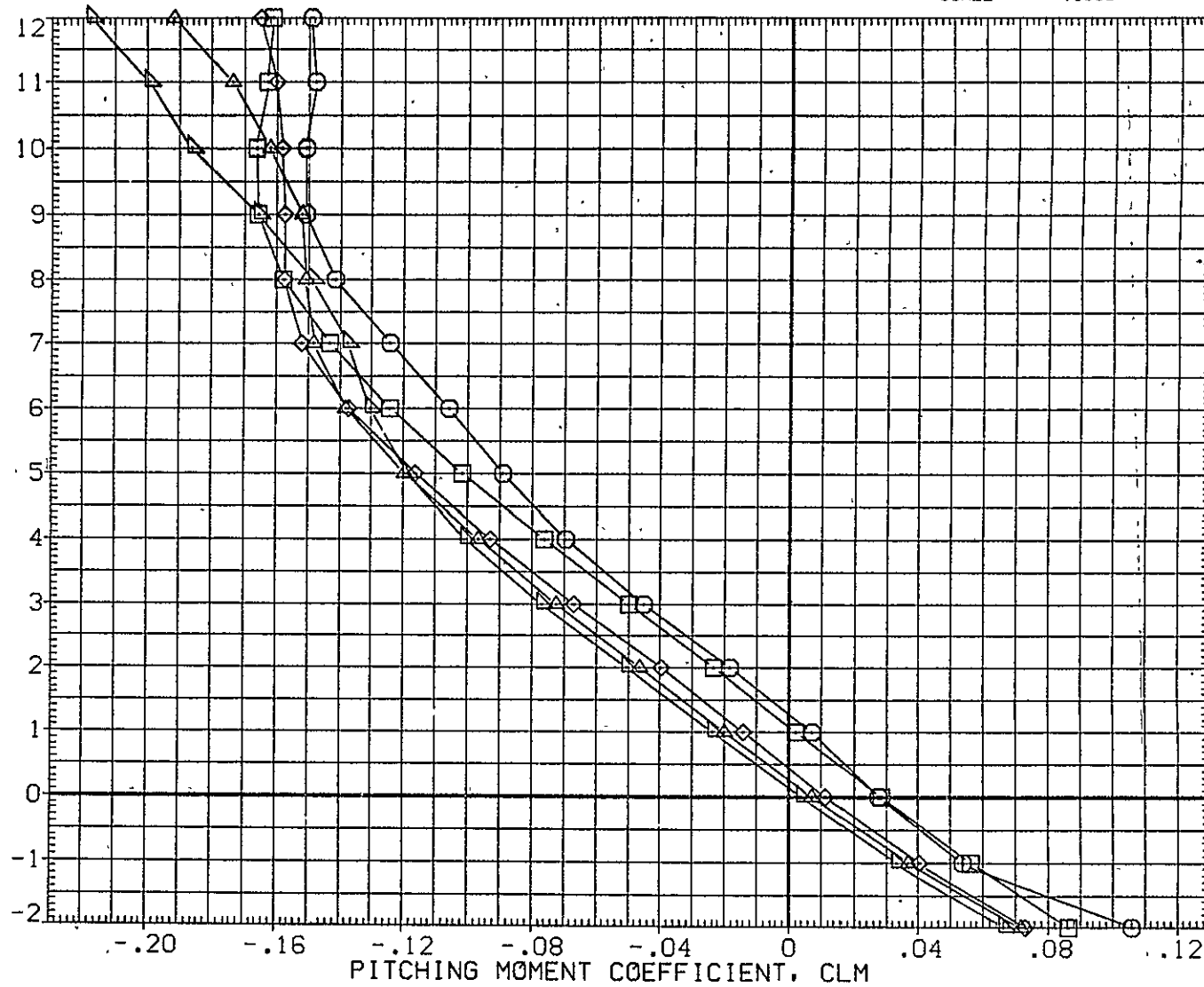


FIG. 2 747 ALONE, BASIC AIRPLANE FLAPS UP, TAIL ON(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	SS-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. YC
						SCALE	.0300	

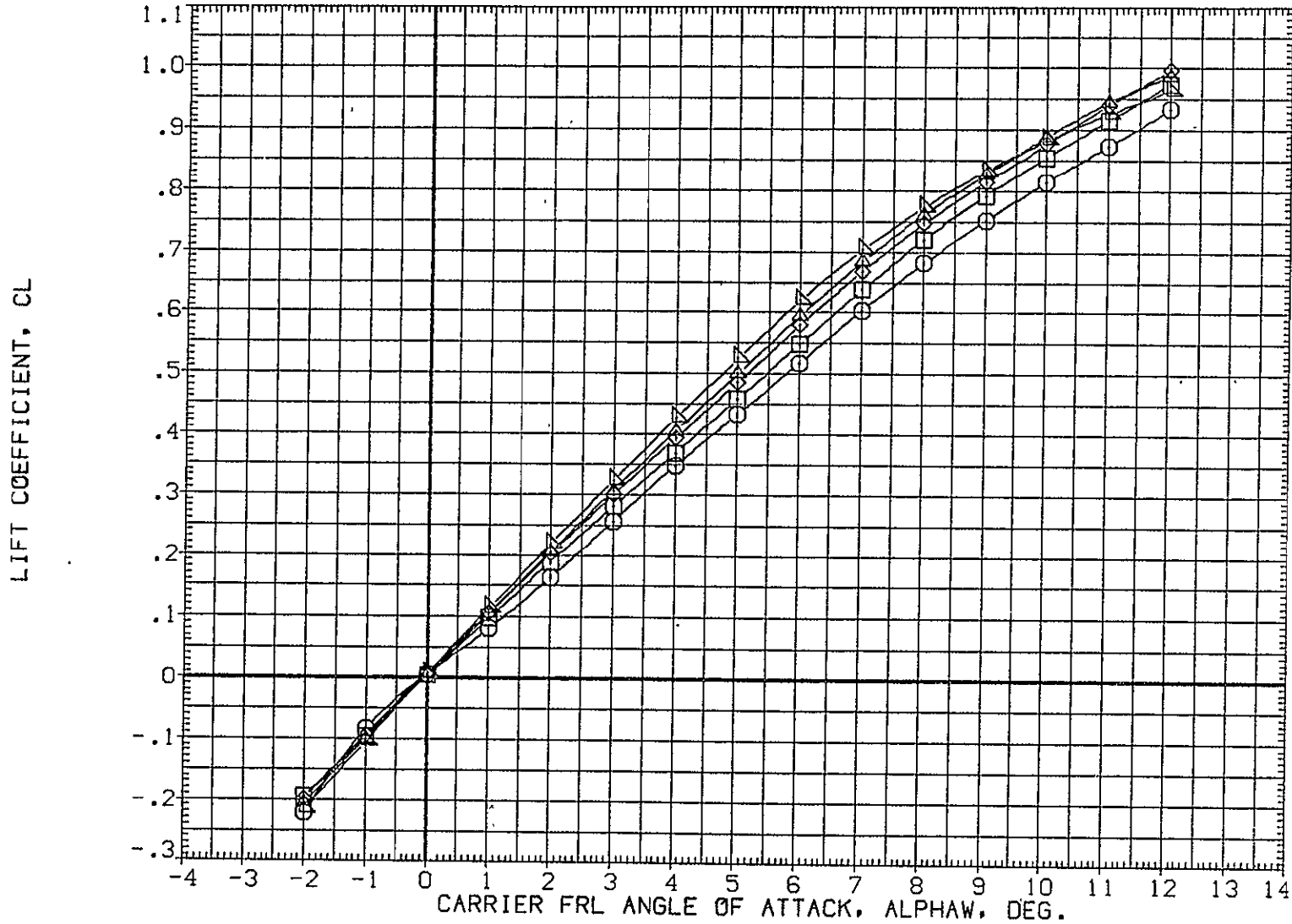


FIG. 3 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=-2)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-2.000
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

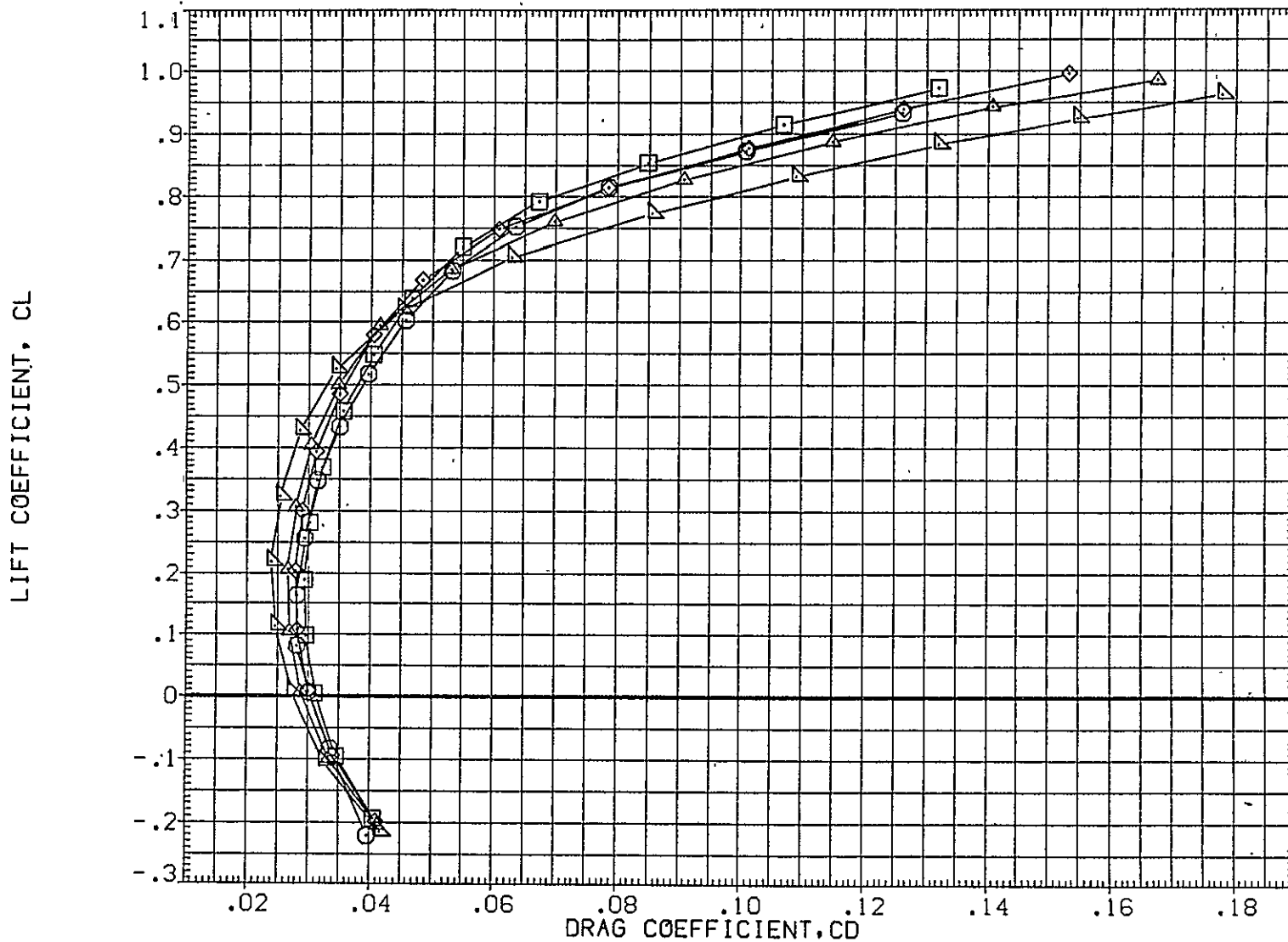


FIG. 3 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=-2)

BTWT-1431CA5 K1 FO H15.6 V9.1

(RGM042)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES				
.150	BETA	.000	STAB	-2.000	
.300	RUD-U	.000	RUD-L	.000	
.500	ELV-1B	.000	ELV-0B	3.000	
.600	S1-2	.000	S3-4	.000	
.700	SS-6	.000			

REFERENCE INFORMATION

SREF	5500.0000	SO.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

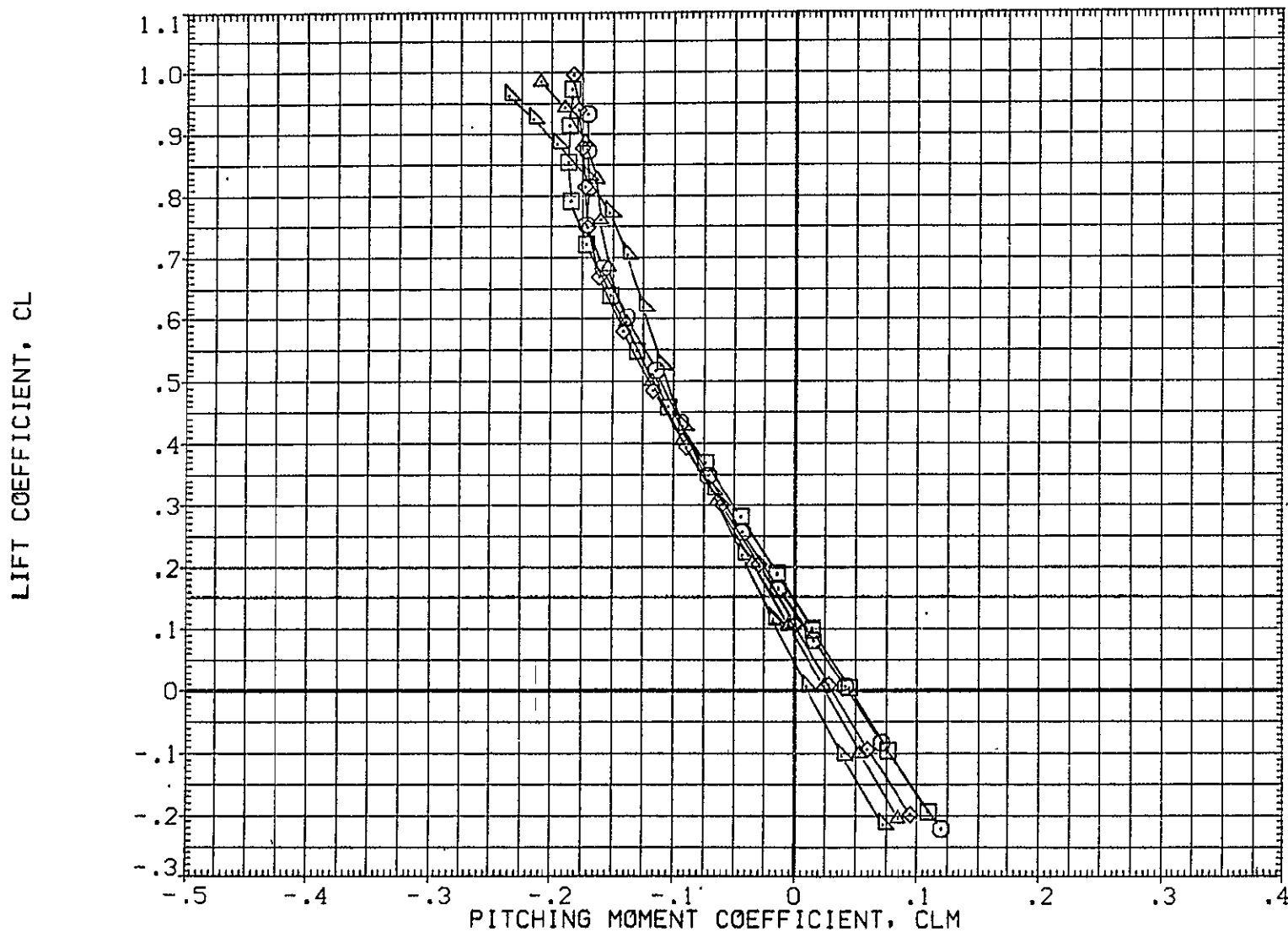


FIG. 3 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

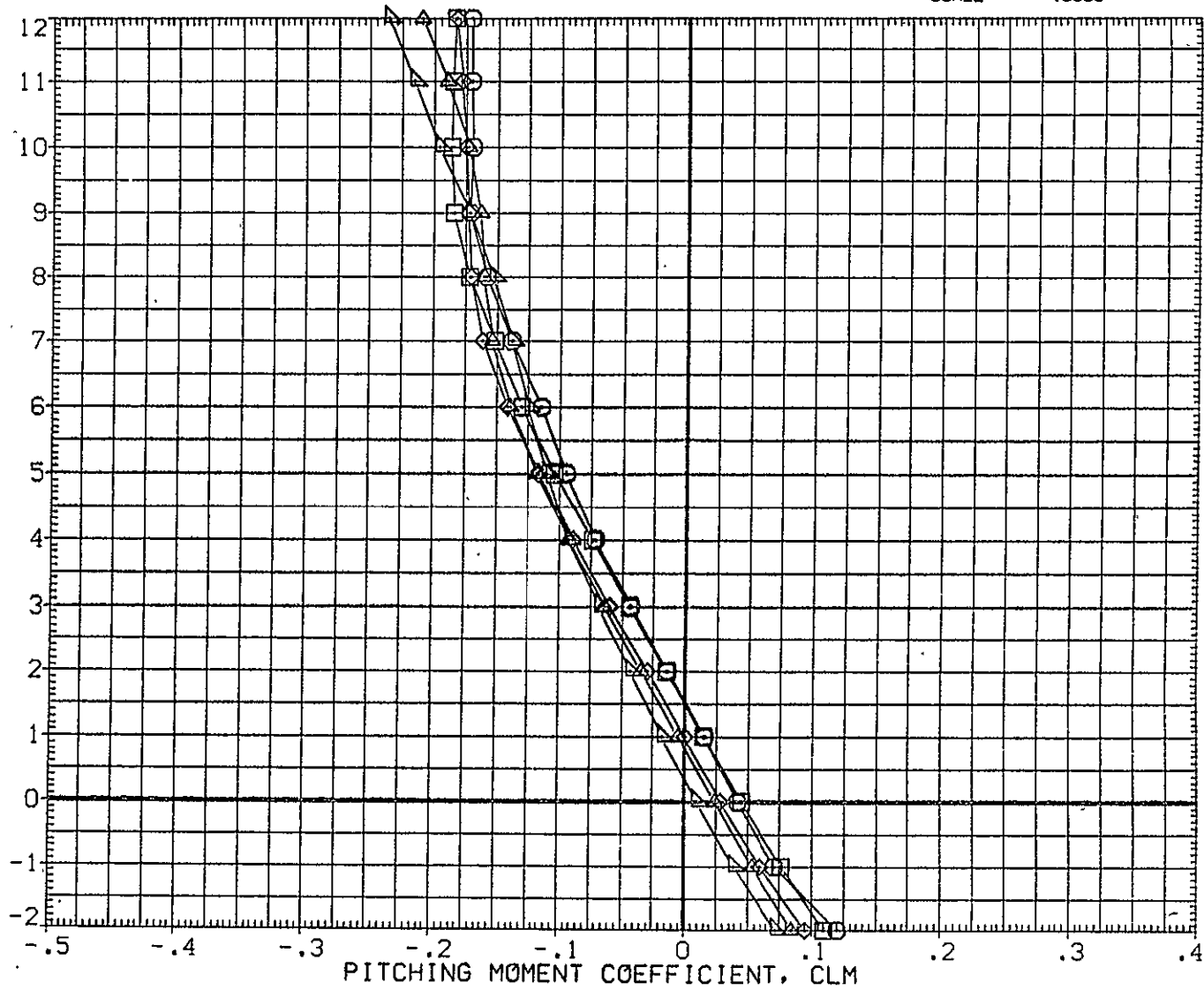


FIG. 3 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

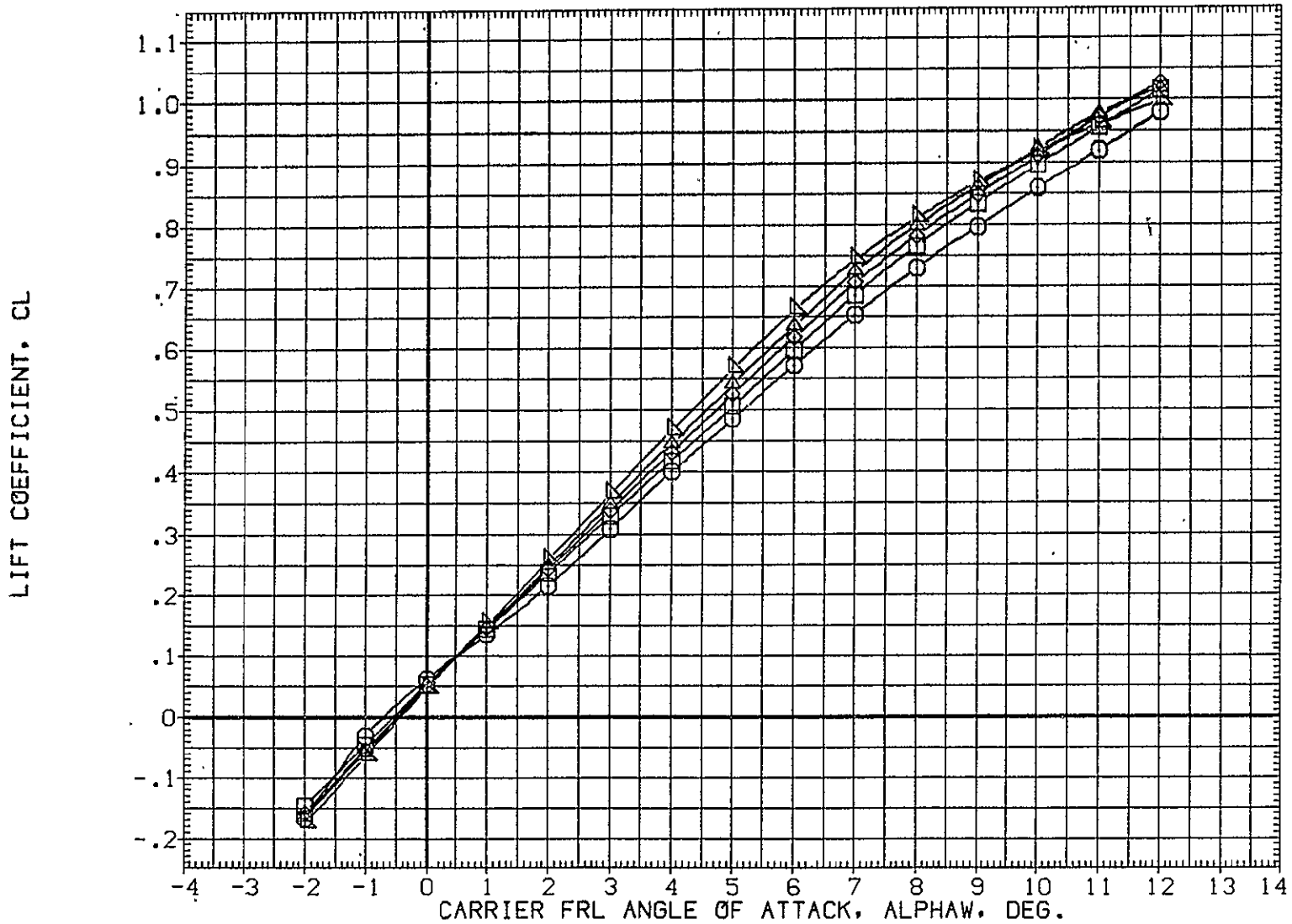


FIG. 4 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	STAB	1.000
◇	.300	RUD-U	.000	RUD-L	.000
□	.500	ELV-1B	.000	ELV-0B	3.000
△	.600	S1-2	.000	S3-4	.000
▽	.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

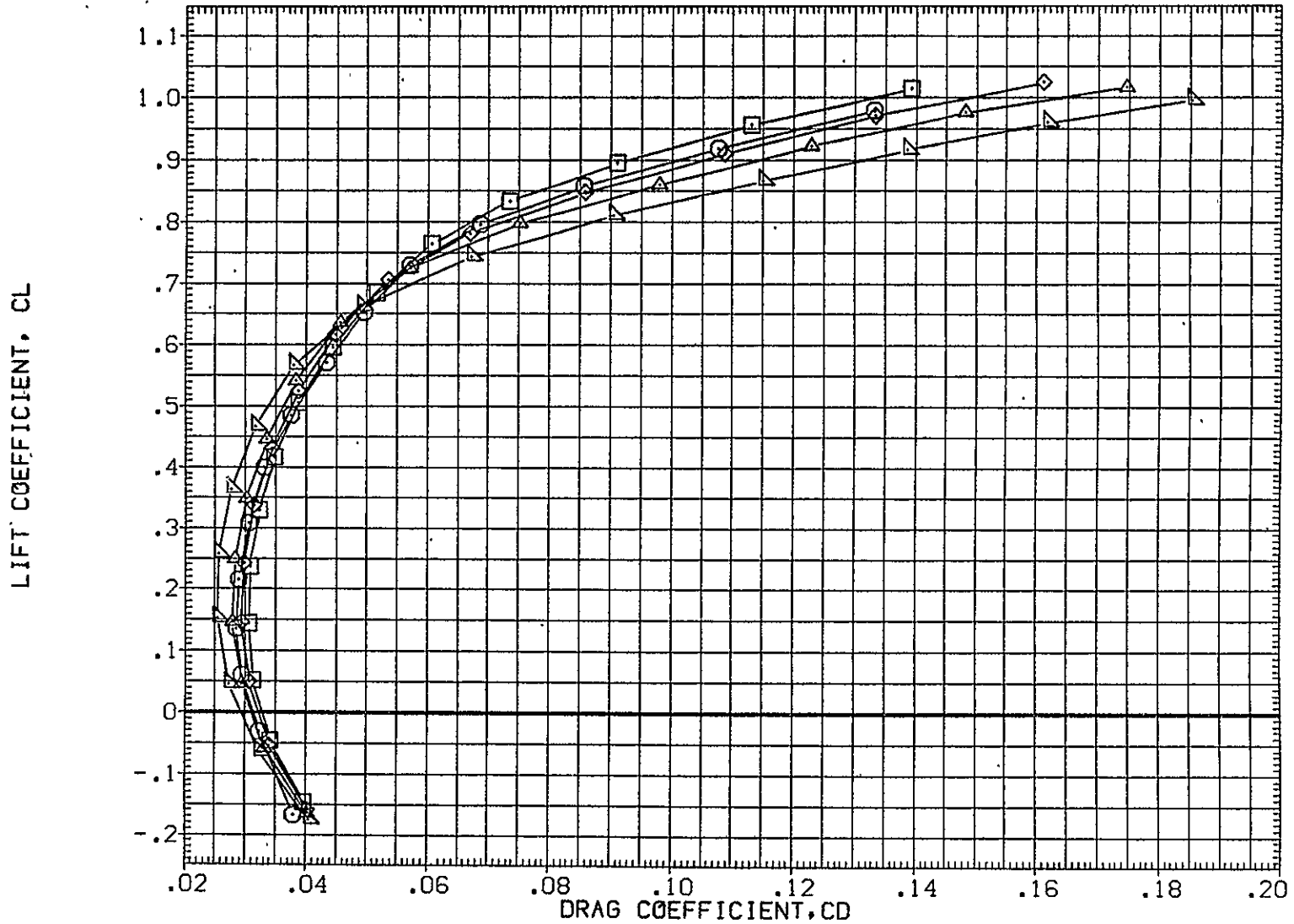


FIG. 4 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.150	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.300	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.500	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.600					YMRP	.0000	IN. YC
▽	.700	S5-6	.000			ZMRP	190.7500	IN. ZC
						SCALE	.0300	

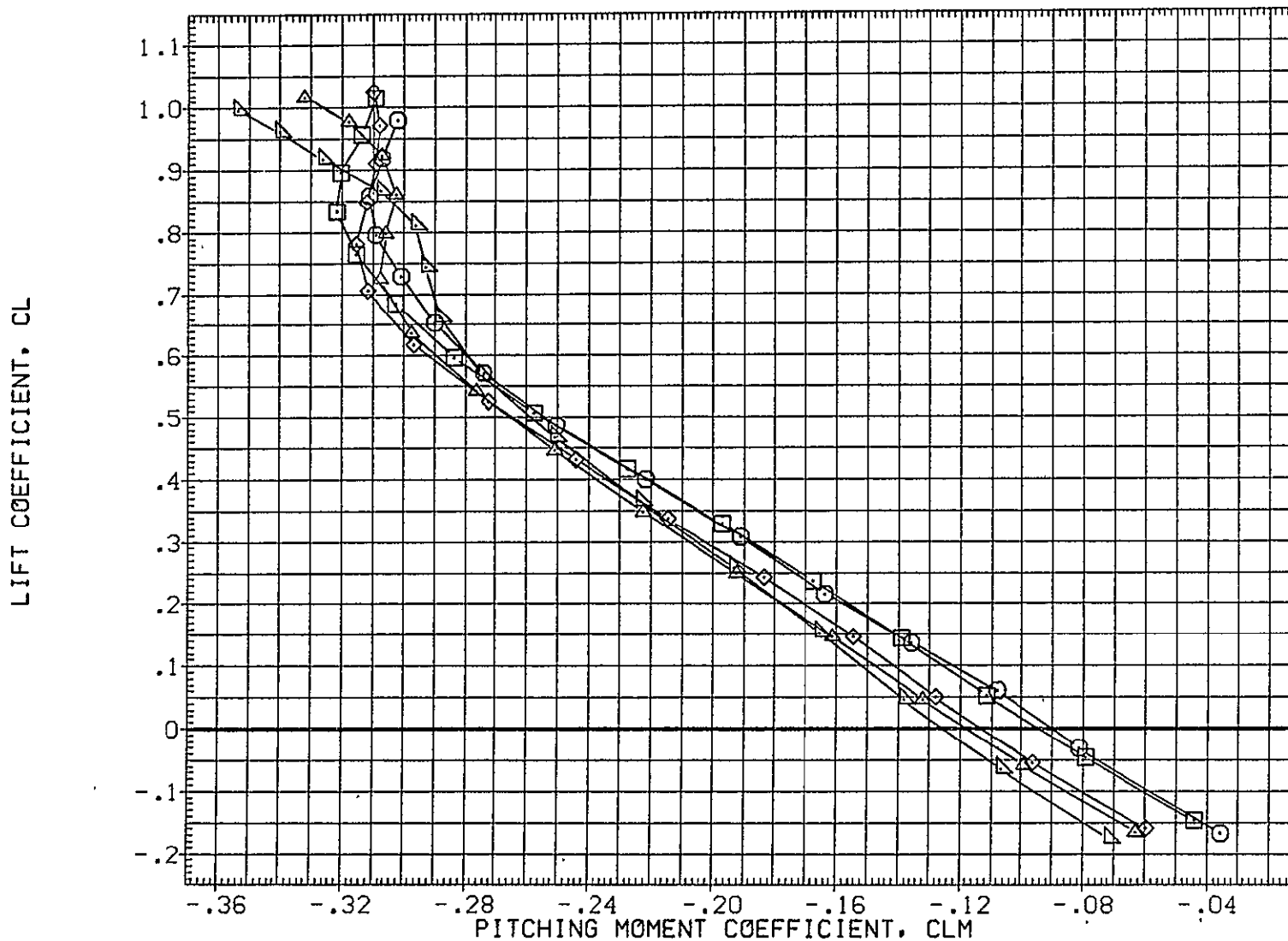


FIG. 4 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=+1)

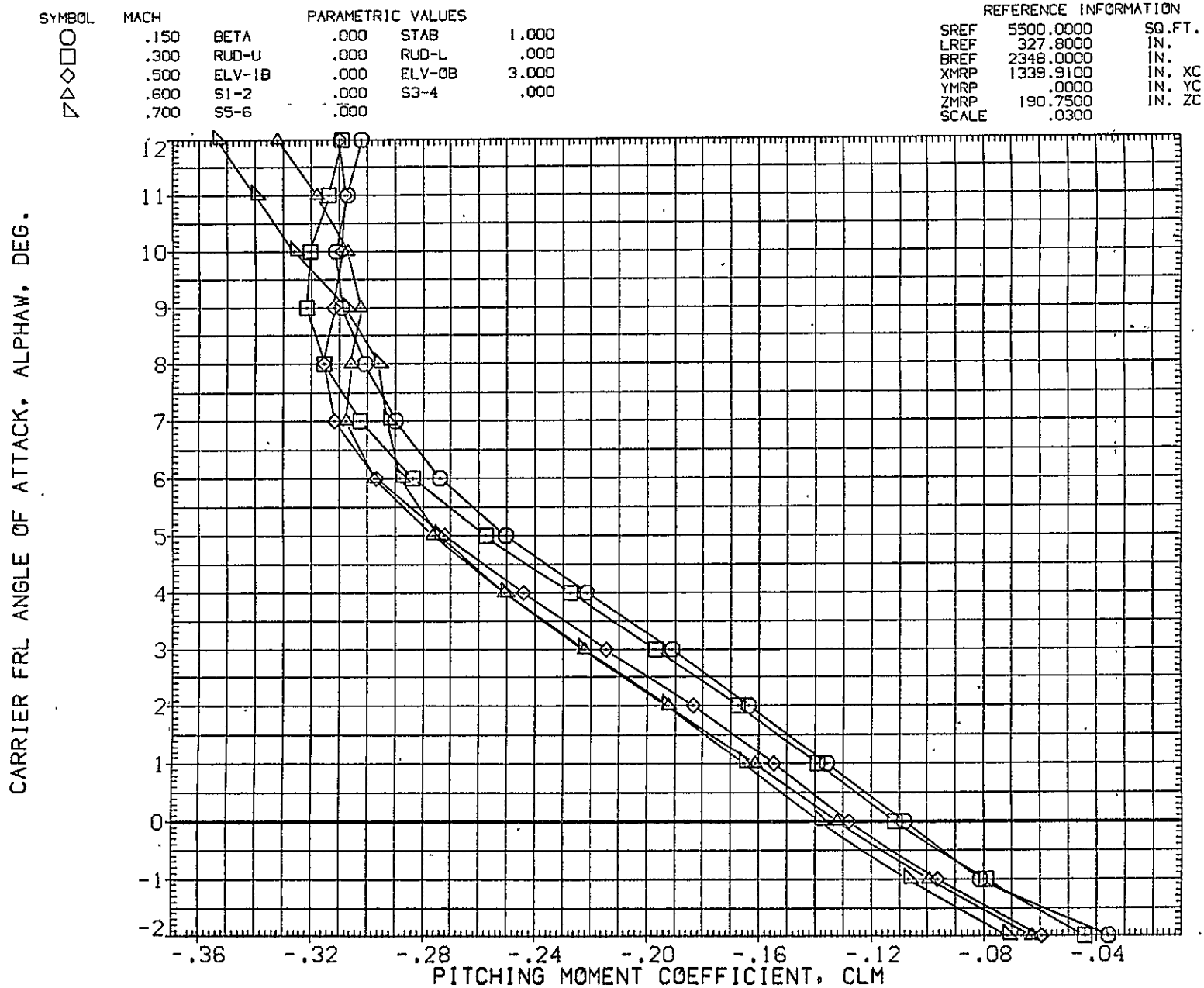


FIG. 4 747 ALONE+TIP FINS FLAPS UP, TAIL ON(S=+1)

BTWT-1431CA5 K1 F0 H15.6 V9.1

(RGM045)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
		ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

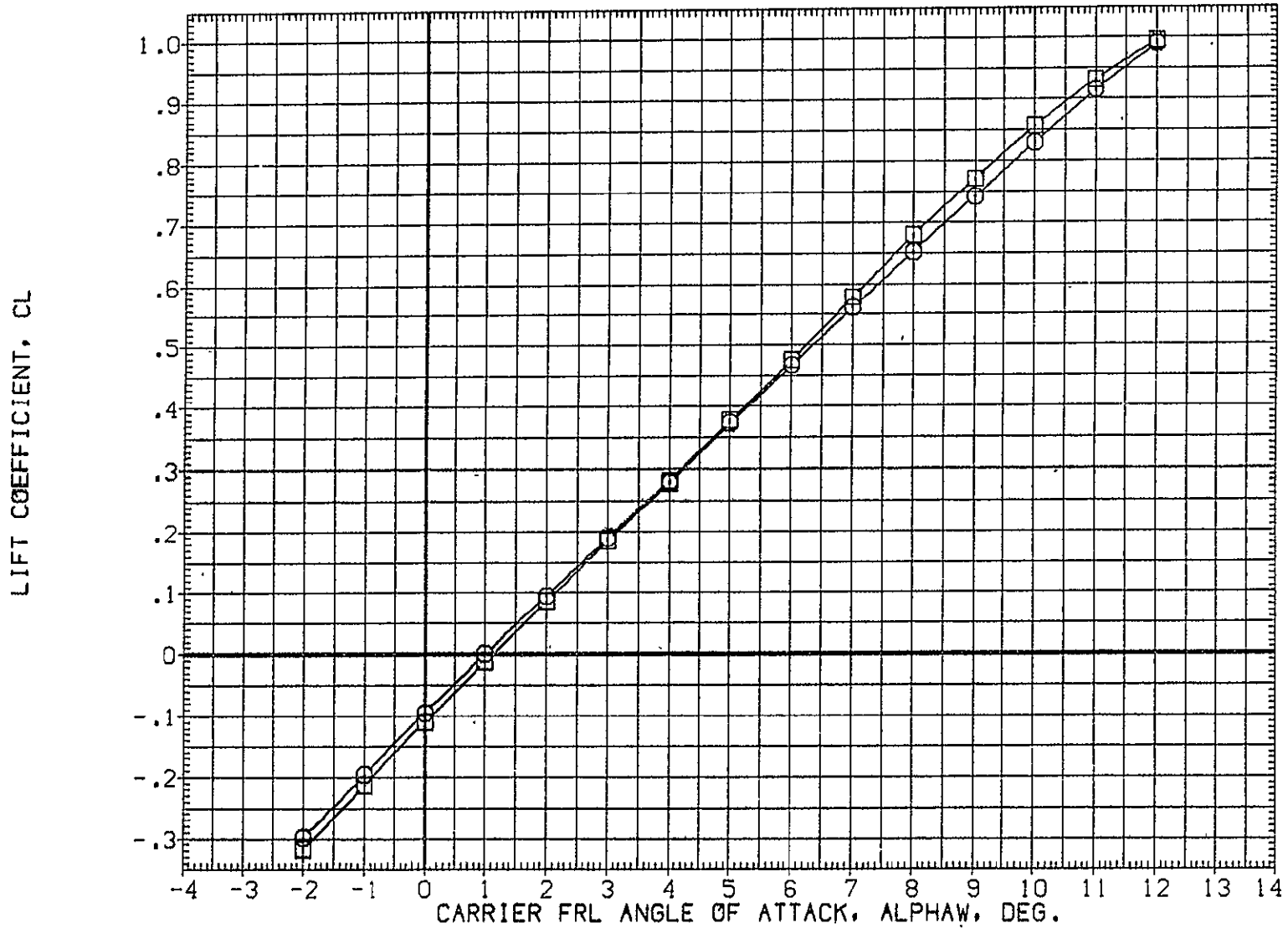


FIG. 5 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=+1)

SYMBOL

○  
□

MACH

.500  
.600

BETA  
RUD-U  
ELV-1B  
S1-2  
S5-6

PARAMETRIC VALUES

.000 STAB 1.000  
.000 RUD-L .000  
.000 ELV-OB 3.000  
.000 S3-4 45.000  
20.000

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
LREF 327.8000 IN.  
BREF 2348.0000 IN.  
XM RP 1339.9100 IN. XC  
YM RP .0000 IN. YC  
ZM RP 190.7500 IN. ZC  
SCALE .0300

LIFT COEFFICIENT, CL

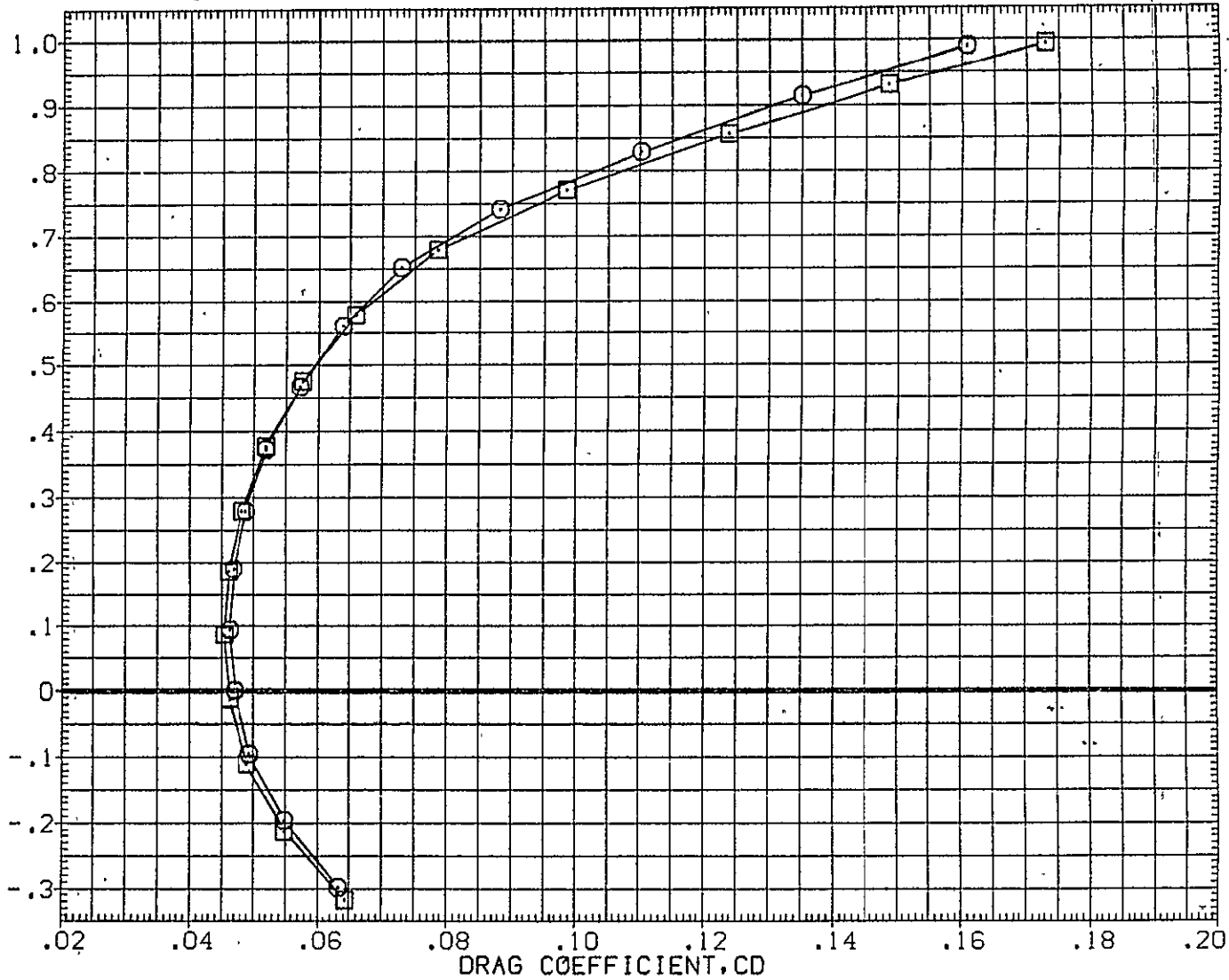


FIG. 5 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
		ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	45.000
		S5-6	-20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

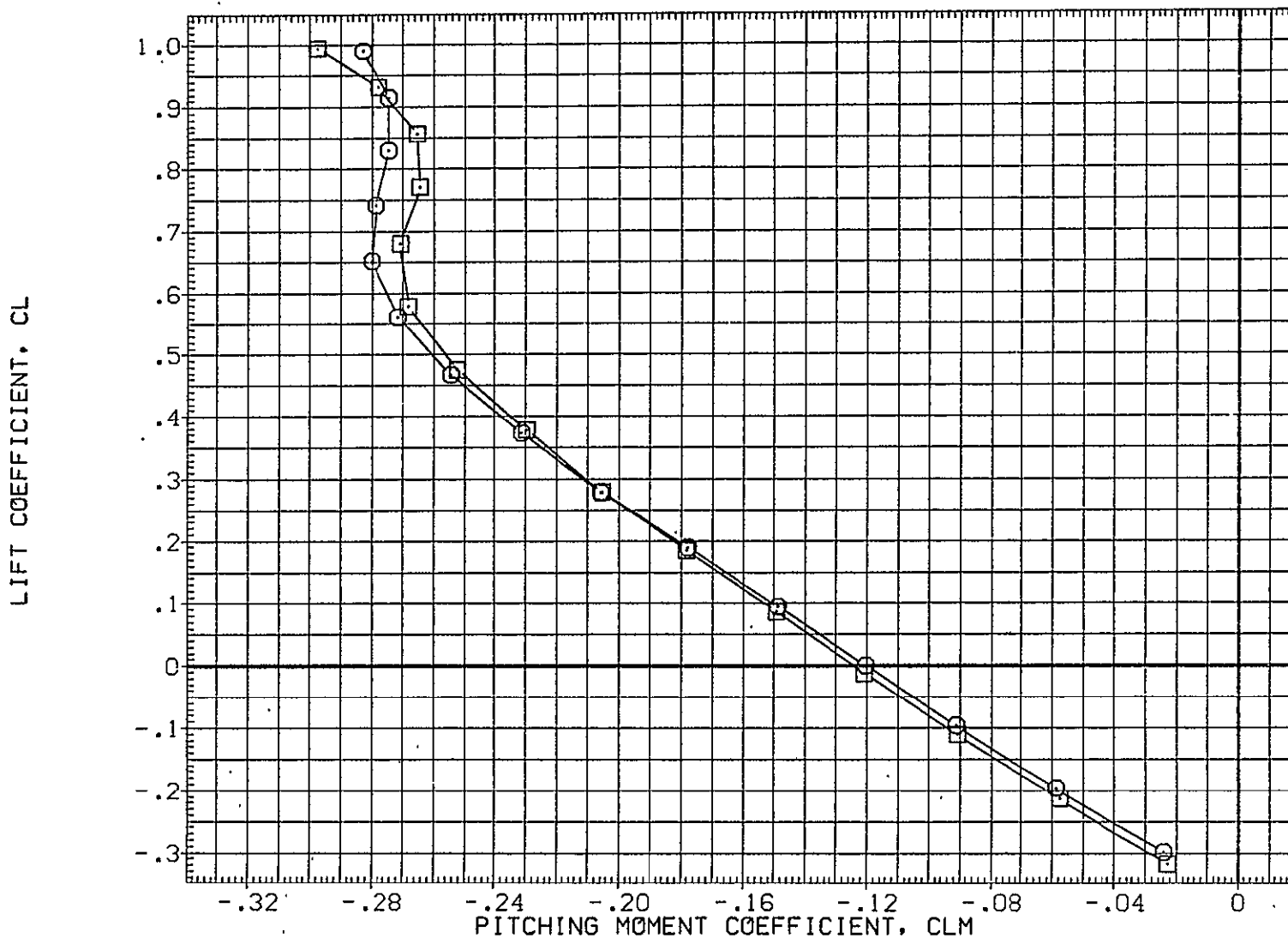


FIG. 5 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
		ELV-IB	.000	ELV-OB	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

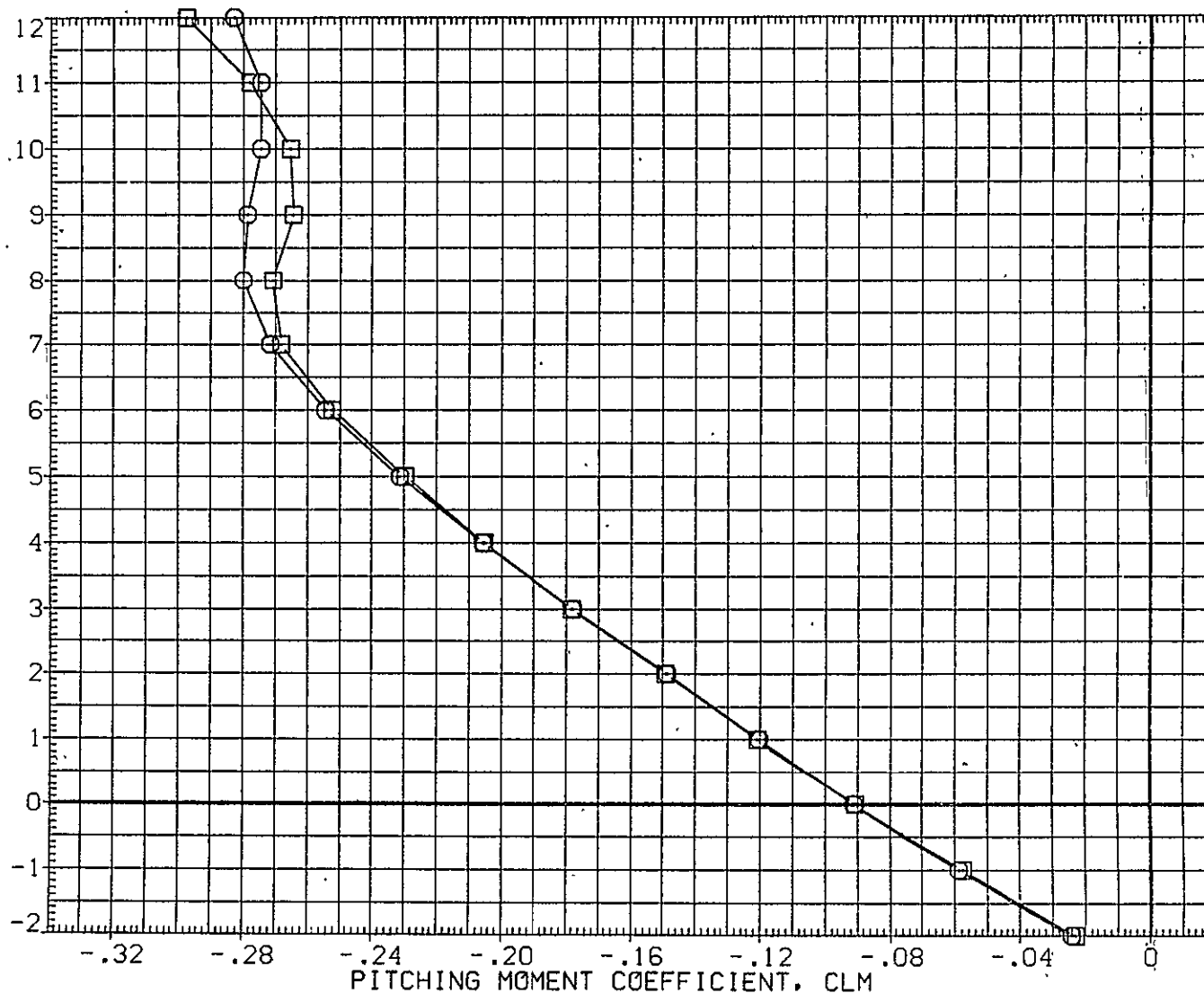


FIG. 5 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=+1)

BTWT-1431CA5 K1 FO H15.6 V9.1

(RGM054)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.499	BETA	.000	STAB	-1.900	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
		ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

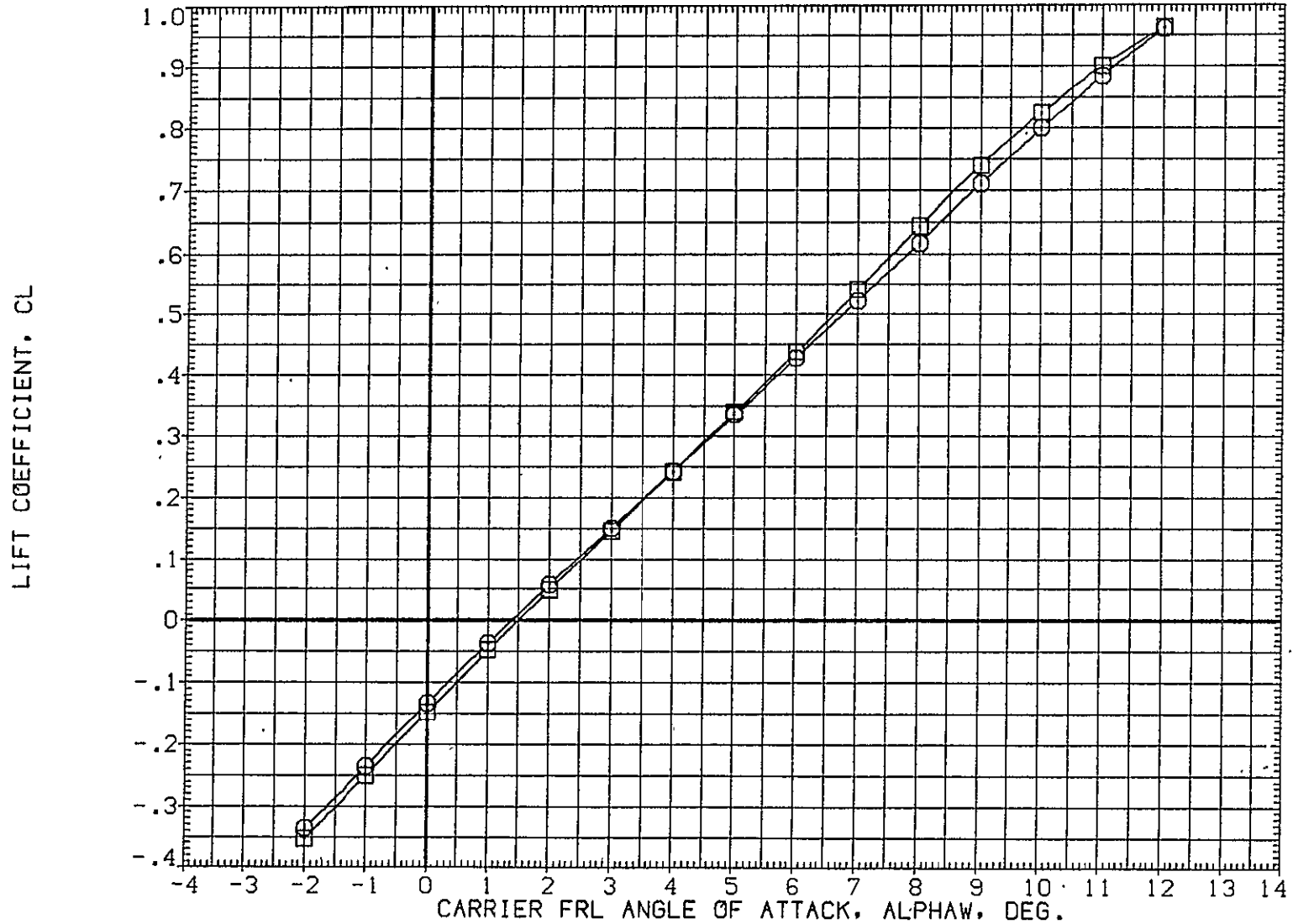


FIG. 6 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=-2)



SYMBOL  
○  
□

MACH	PARAMETRIC VALUES			
.499	BETA	.000	STAB	-1.900
.600	RUD-U	.000	RUD-L	.000
	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	45.000
	S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

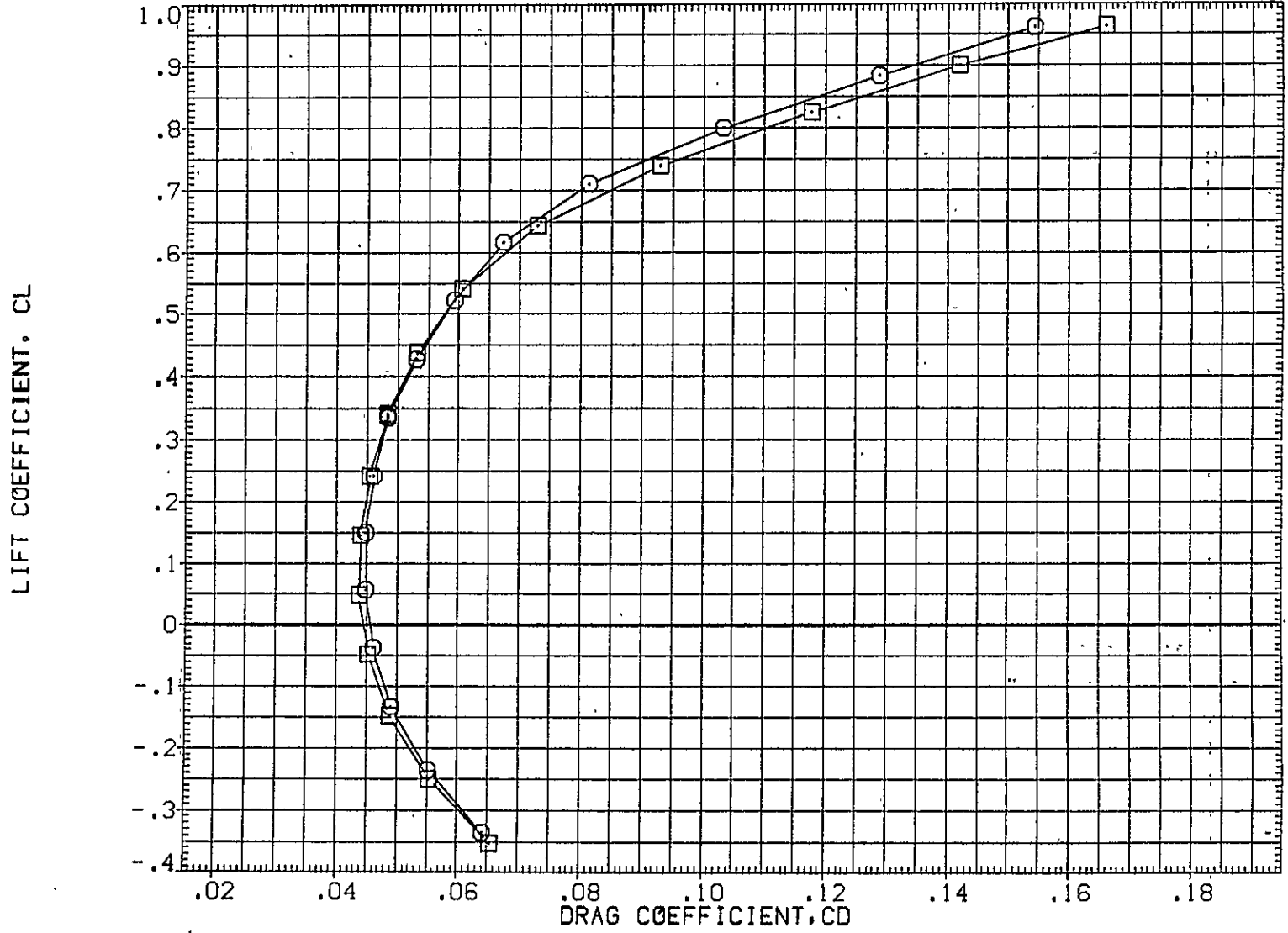


FIG. 6 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=-2)

BTWT-1431CA5 K1 F0 H15.6 V9.1

(RGM054)

SYMBOL  
 ○  
 □

MACH	PARAMETRIC VALUES			
.499	BETA	.000	STAB	-1.900
.600	RUD-U	.000	RUD-L	.000
	ELV-1B	.000	ELV-OB	3.000
	S1-2	.000	S3-4	45.000
	S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	



FIG. 6 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.499	BETA	.000	STAB	-1.900
□	.600	RUD-U	.000	RUD-L	.000
		ELV-IB	.000	ELV-OB	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

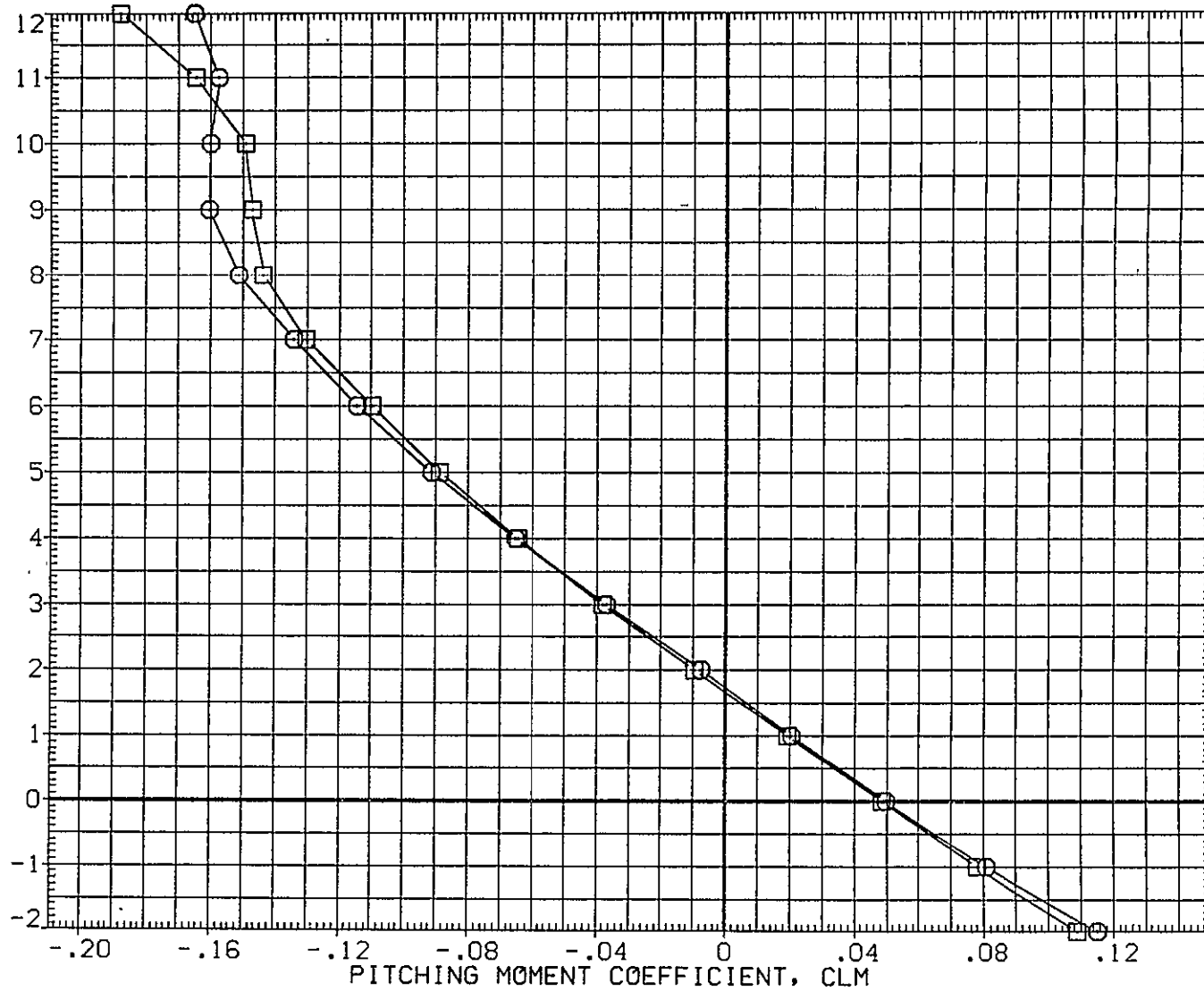


FIG. 6 747 ALONE+TIP FINS+STD SPD BRAKES FLAPS UP, TAIL ON(S=-2)

BTWT-1431CA5 K1 FO H15.6 V9.1 AT38 AT39

(RGM052)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

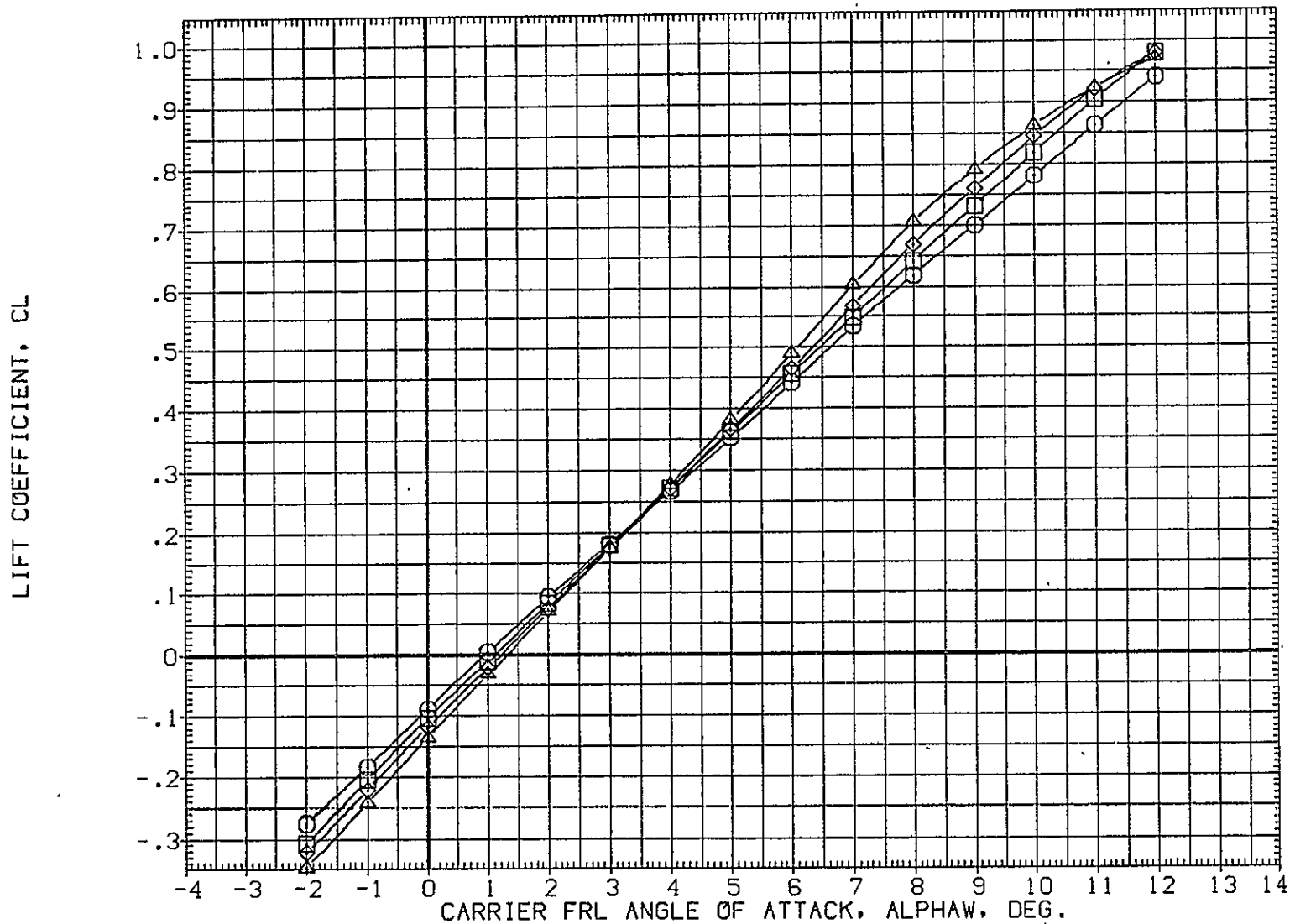


FIG. 7 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(L0)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2349.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

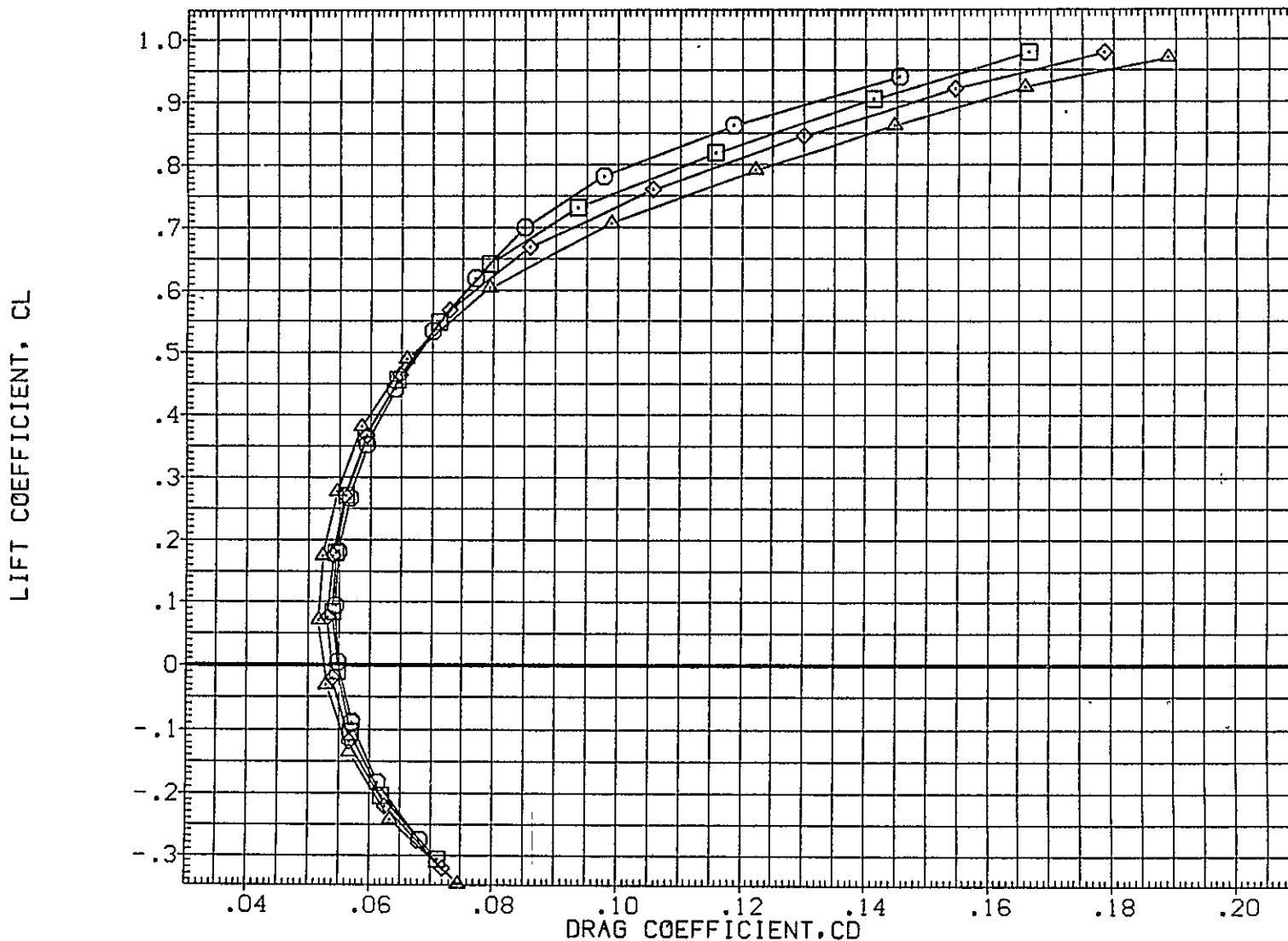


FIG. 7 : 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(L0)

BTWT-1431CA5 K1 FO H15.6 V9.1 AT38 AT39

(RGM052)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

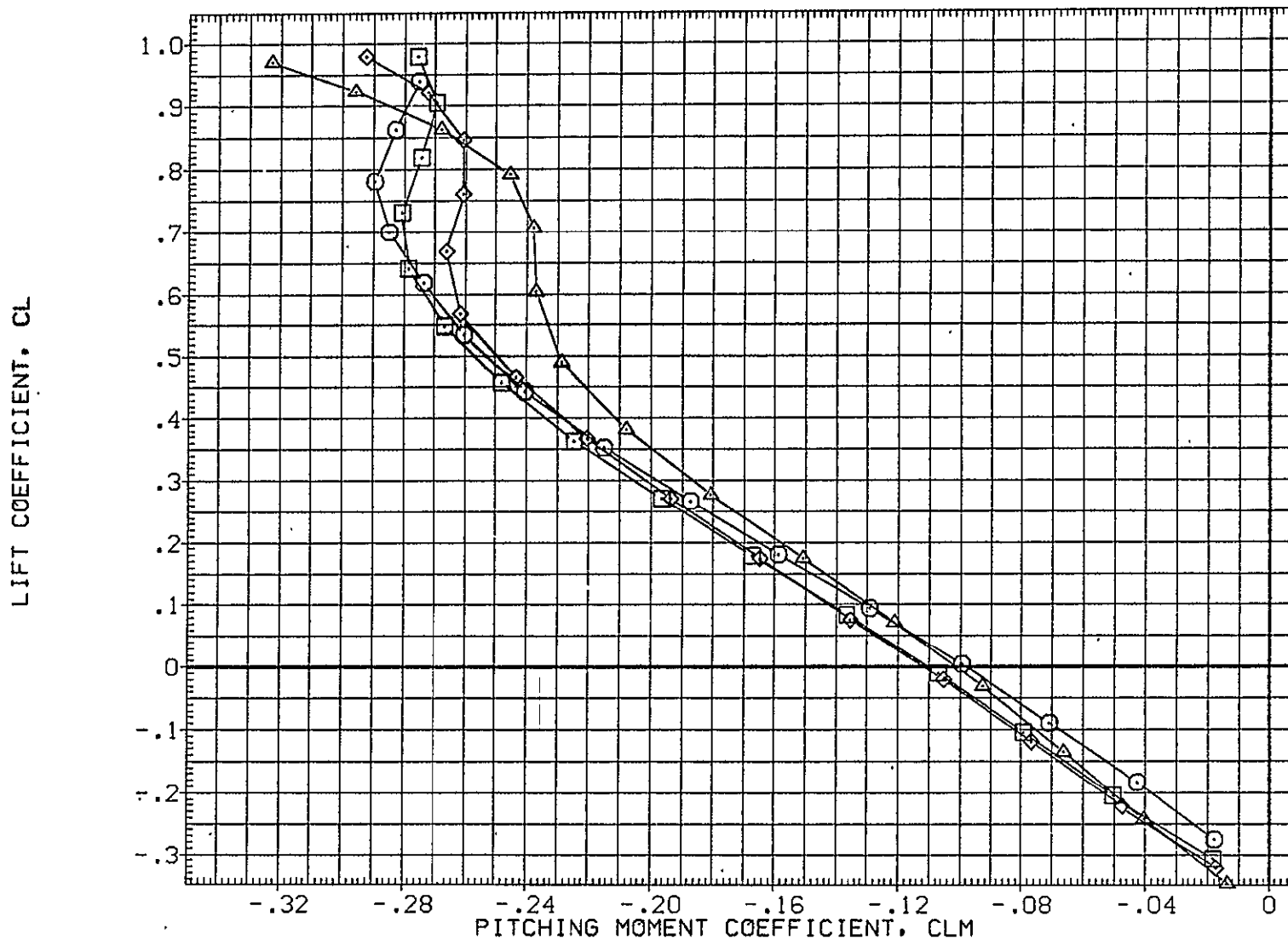


FIG. 7 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(L0)

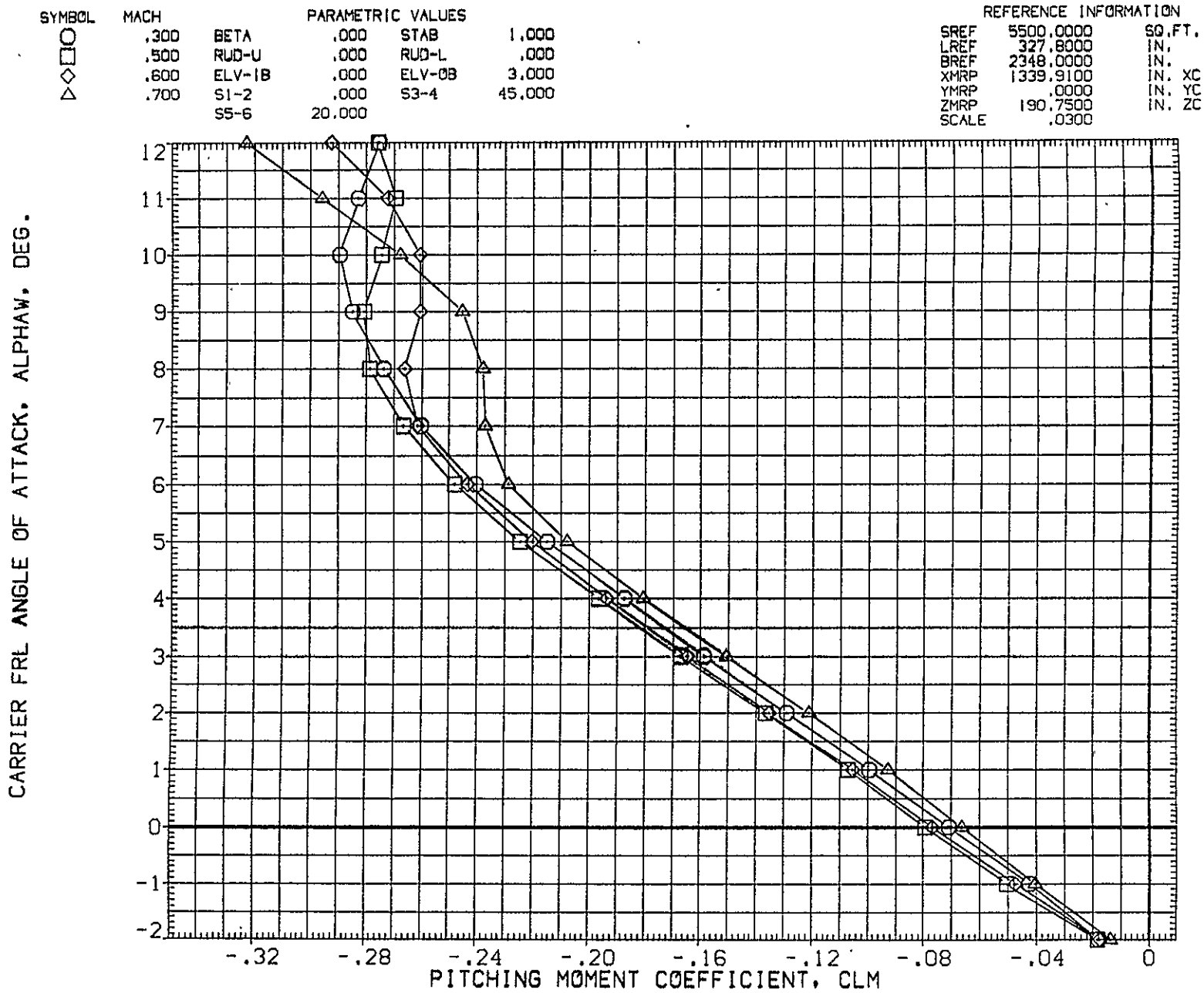


FIG. 7 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(L0)

BTWT-1431CA5 K1 FO H15.6 V9.1 AT38.1 AT39 (RGM053)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.300	BETA	.000	STAB	1.000	LREF	327.8000	IN.
□	.500	RUD-U	.000	RUD-L	.000	BREF	2348.0000	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	XMRP	1339.9100	IN. XC
△	.700	S1-2	.000	S3-4	45.000	YMRP	.0000	IN. YC
		S5-6	20.000			ZMRP	190.7500	IN. ZC
						SCALE	.0300	

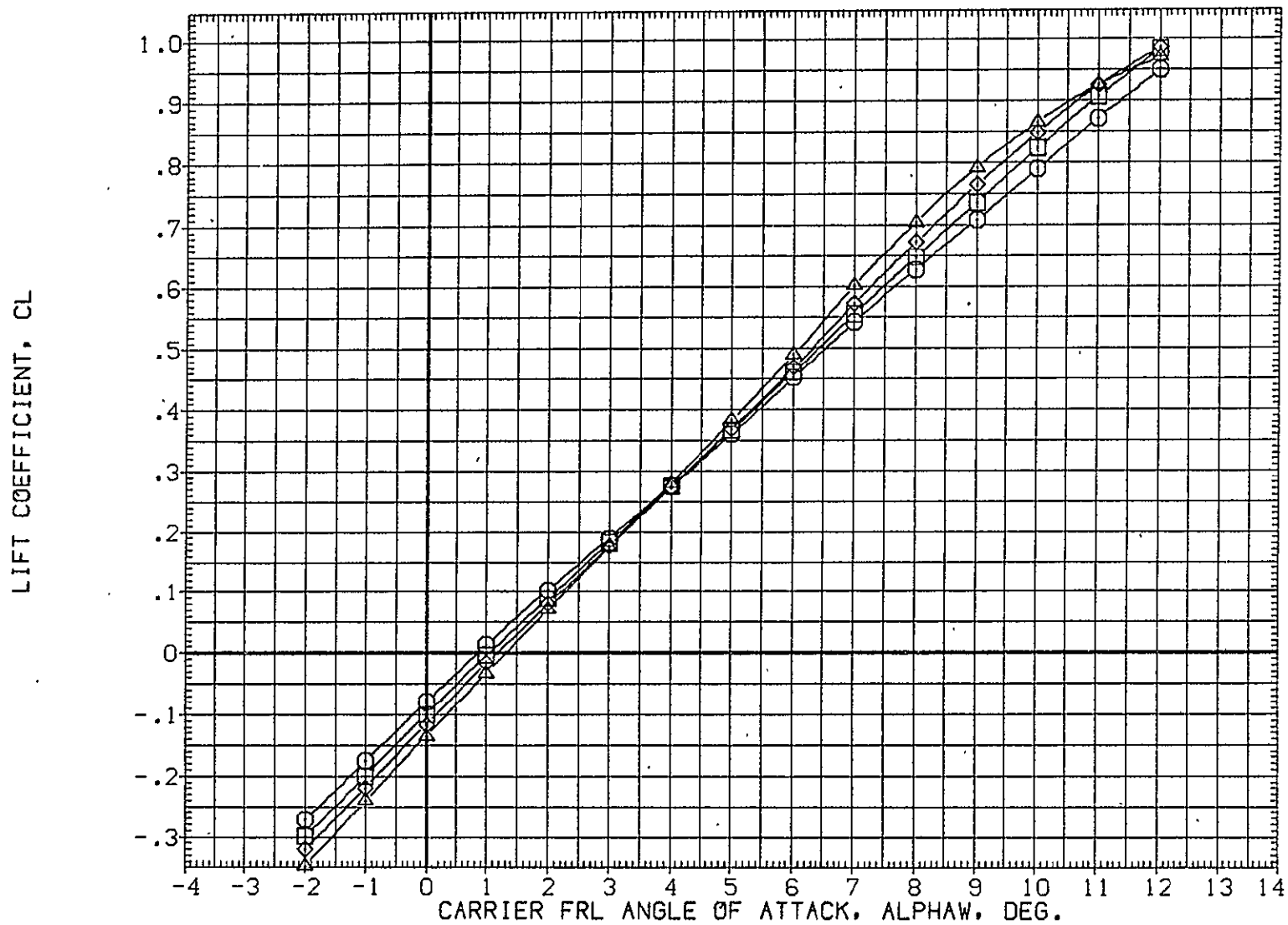


FIG. 8 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(HI)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.599	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

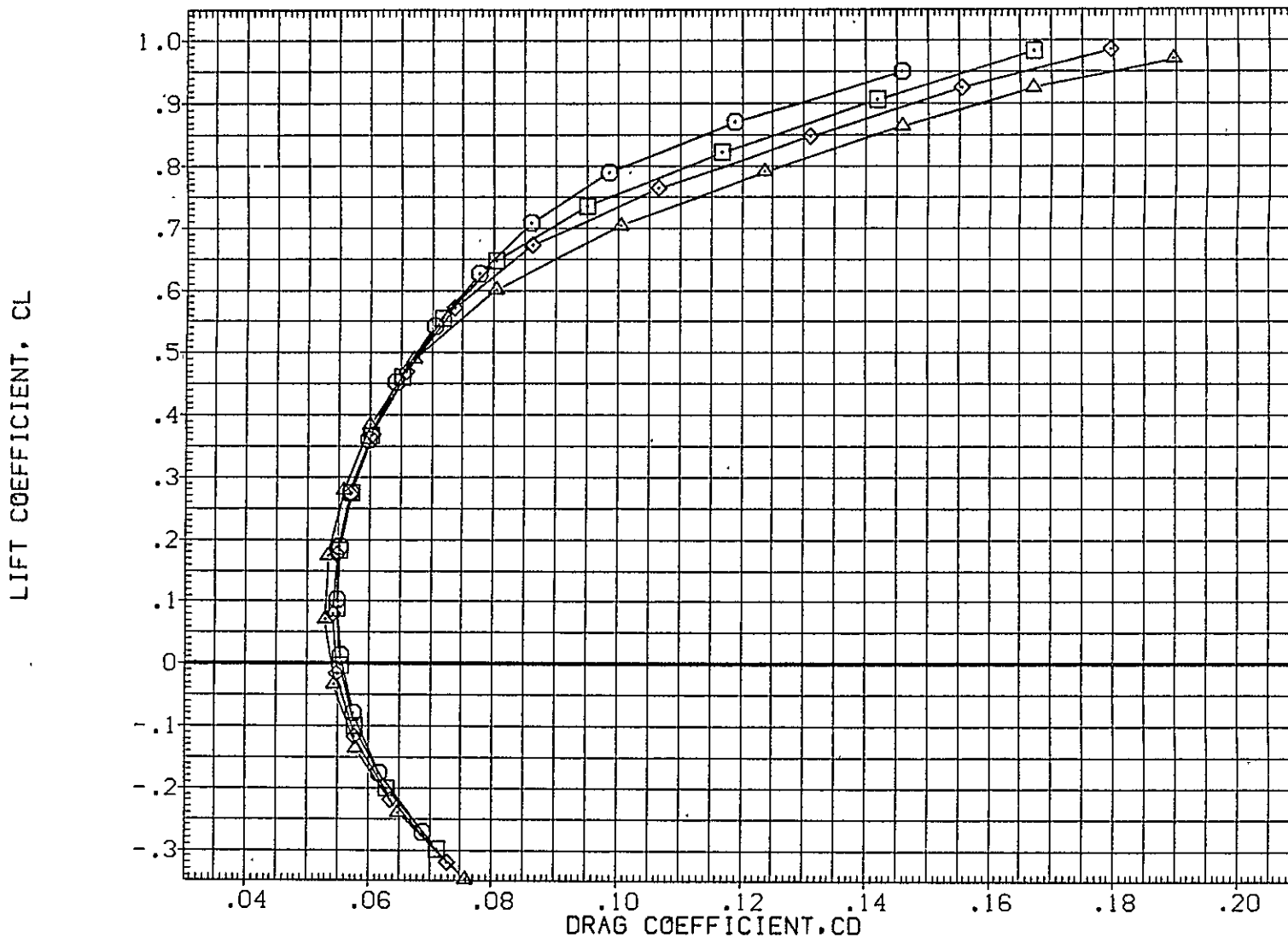


FIG. 8 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(HI)

BTWT-1431CA5 K1 FO H15.6 V9.1 AT38.1 AT39

(RGM053)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.599	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		SS-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

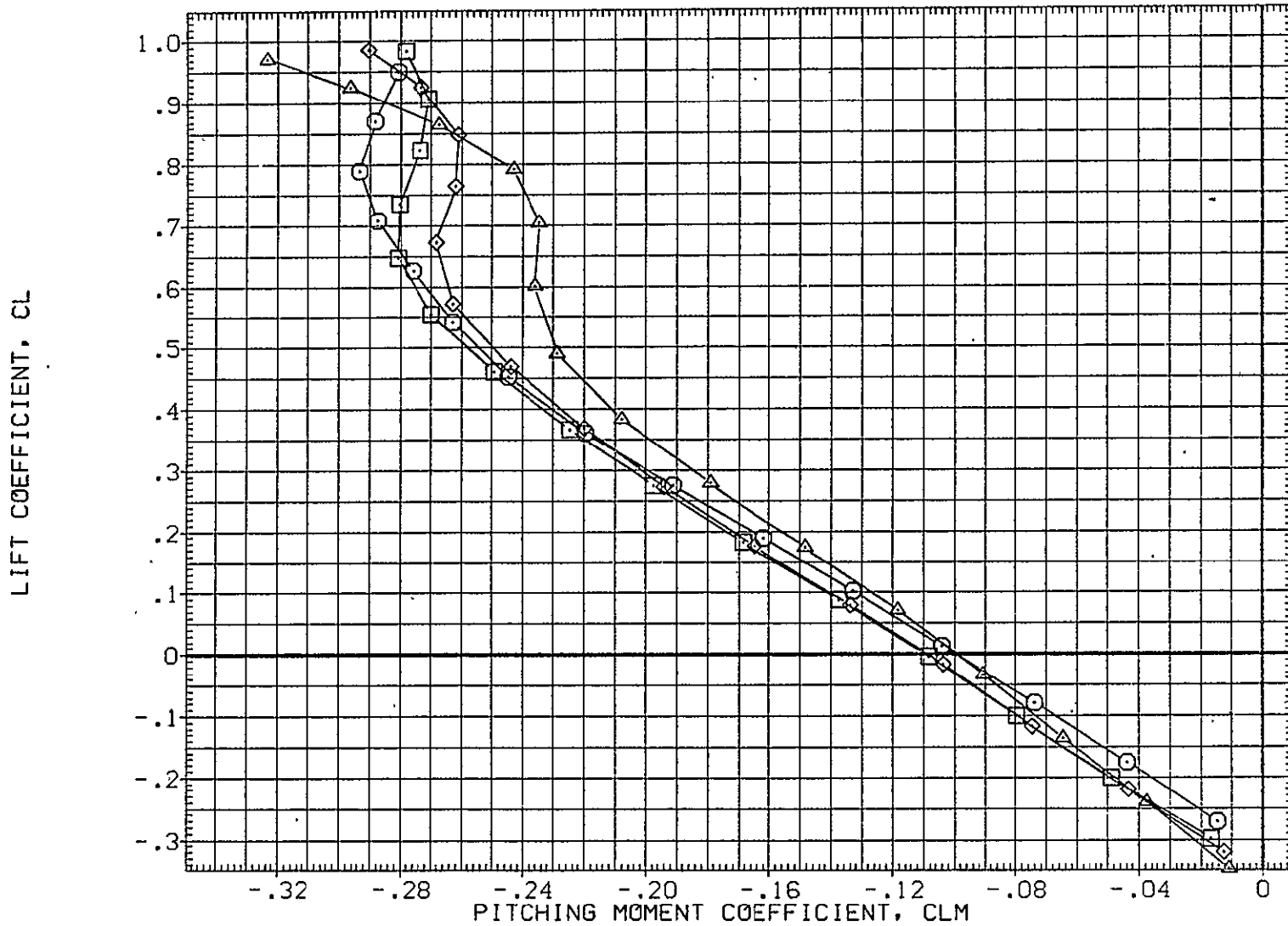


FIG. 8 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(HI)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.599	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

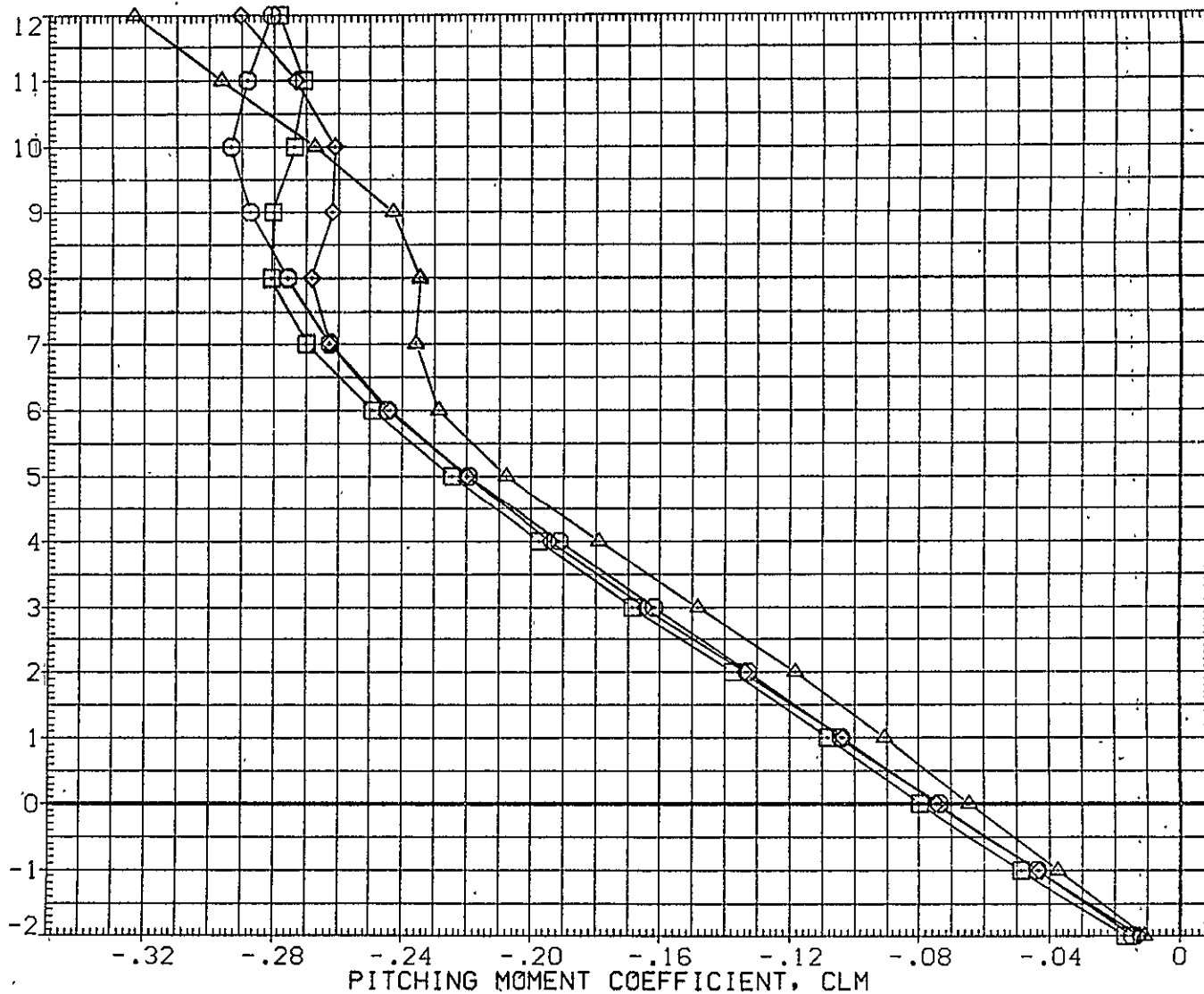


FIG. 8 747 ALONE+TIP FINS+STD SPD BRAKES+ORB SUPPORTS STRUTS(HI)

BTWT-1431CA5 K1 F20 H15.1A V9.1

(RGM058)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	.5500	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

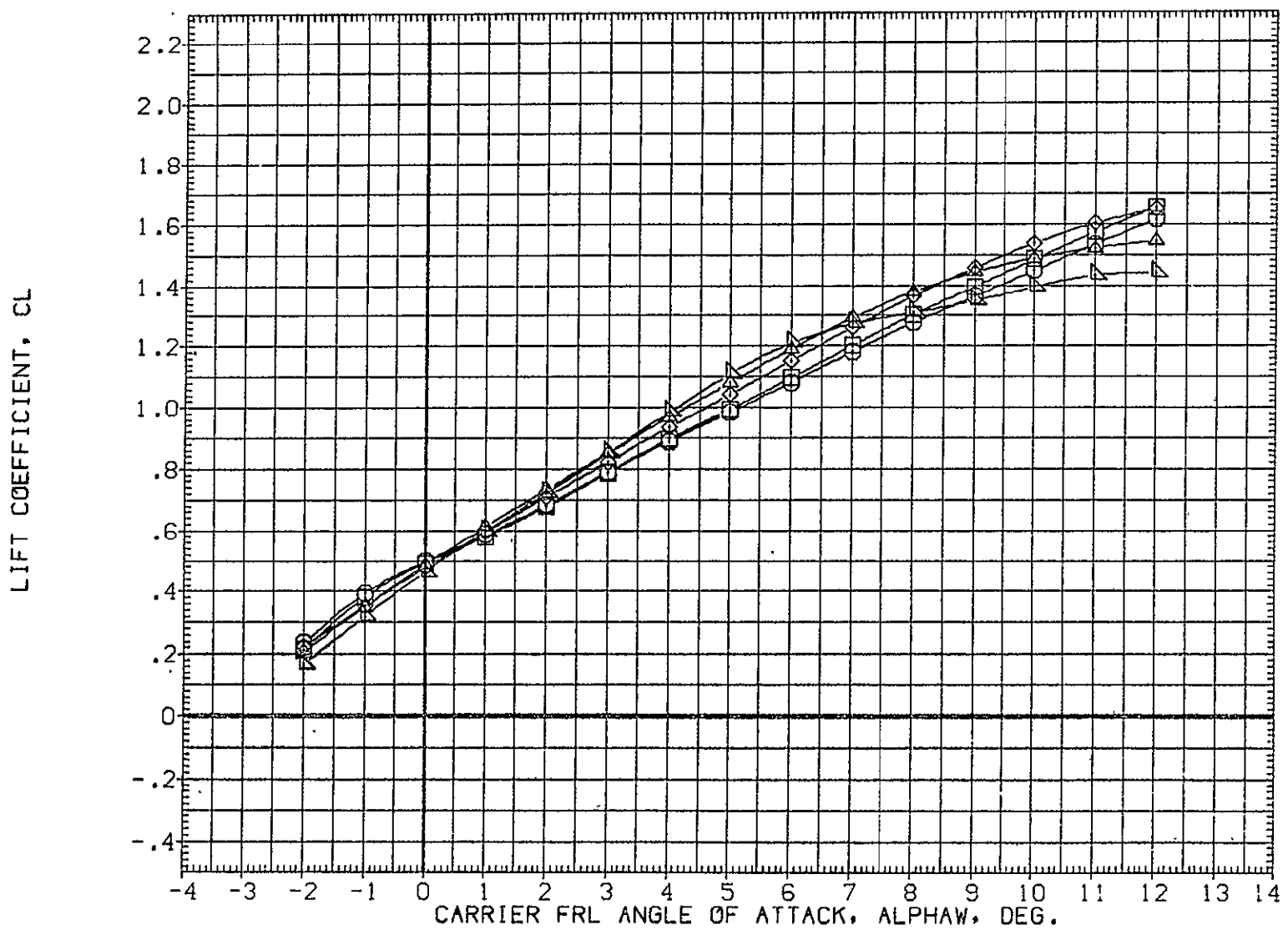


FIG. 9 747 ALONE, BASIC AIRPLANE FLAPS 20, TAIL ON(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	STAB	1.000
□	.300	RUD-U	.000	RUD-L	.000
◇	.500	ELV-1B	.000	ELV-0B	3.000
△	.600	S1-2	.000	S3-4	.000
▽	.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

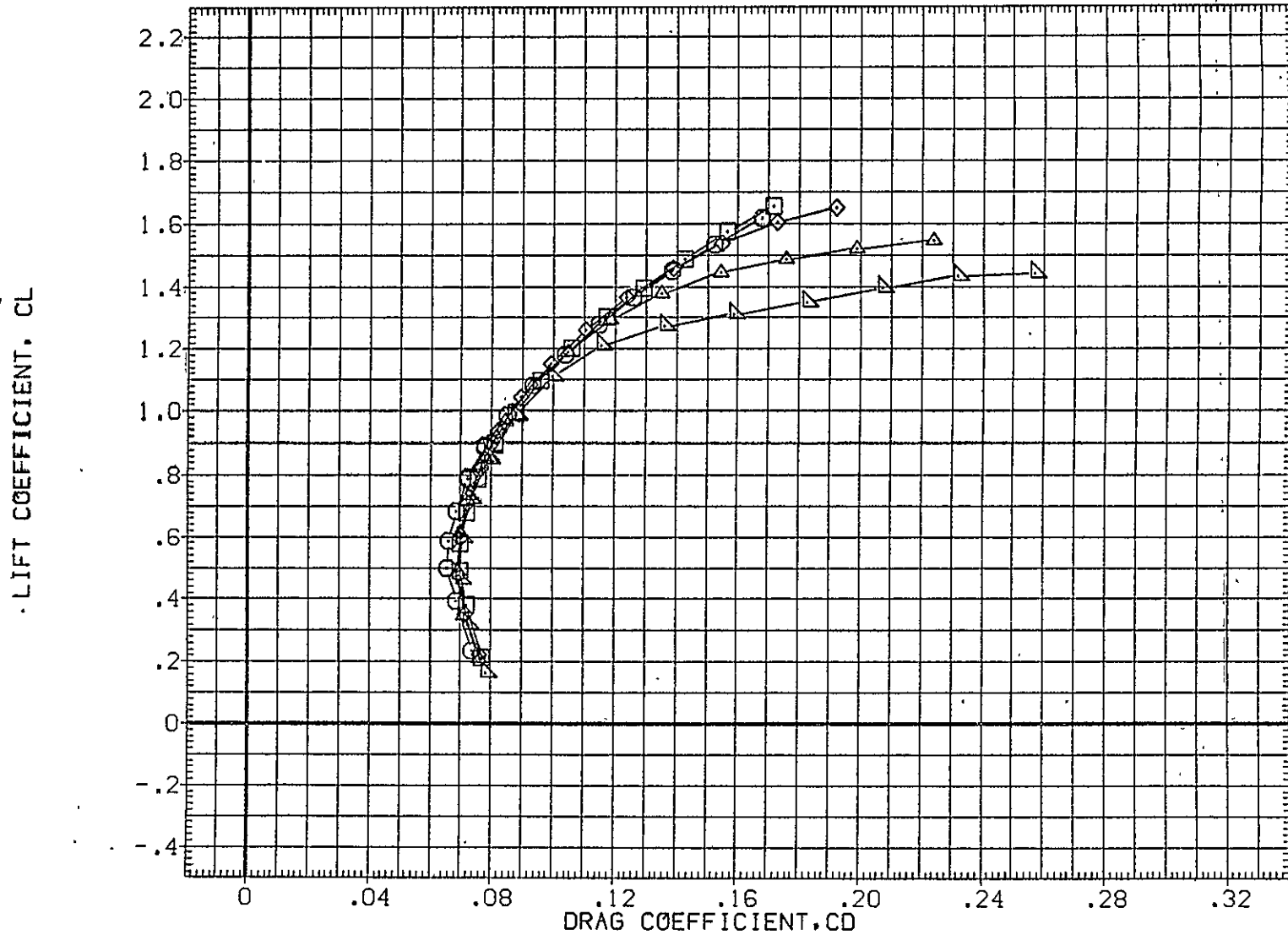


FIG. 9 747 ALONE, BASIC AIRPLANE FLAPS 20, TAIL ON(S=+1)

BTWT-1431CA5 K1 F20 H15.1A V9.1

(RGM058)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SG.FT.
○	.150	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.300	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
◇	.500	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.600	S5-6	.000			YMRP	.0000	IN. YC
▽	.700					ZMRP	190.7500	IN. ZC
						SCALE	.0300	

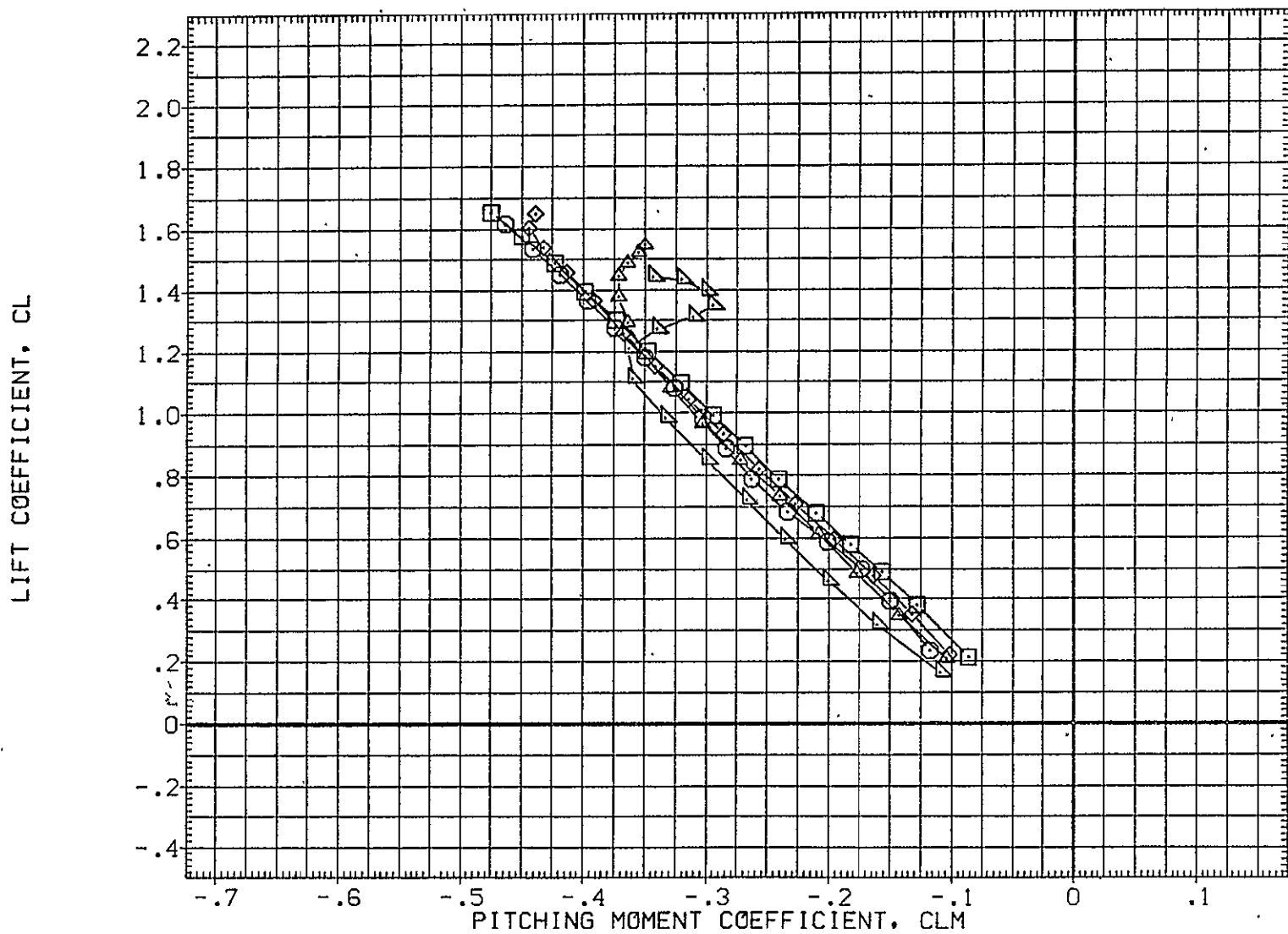


FIG. 9 747 ALONE, BASIC AIRPLANE FLAPS 20, TAIL ON(S=+1)

SYMBOL		MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○		.150	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□		.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇		.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△		.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽		.700	S5-6	.000			YMRP	.0000	IN. YC
							ZMRP	190.7500	IN. ZC
							SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

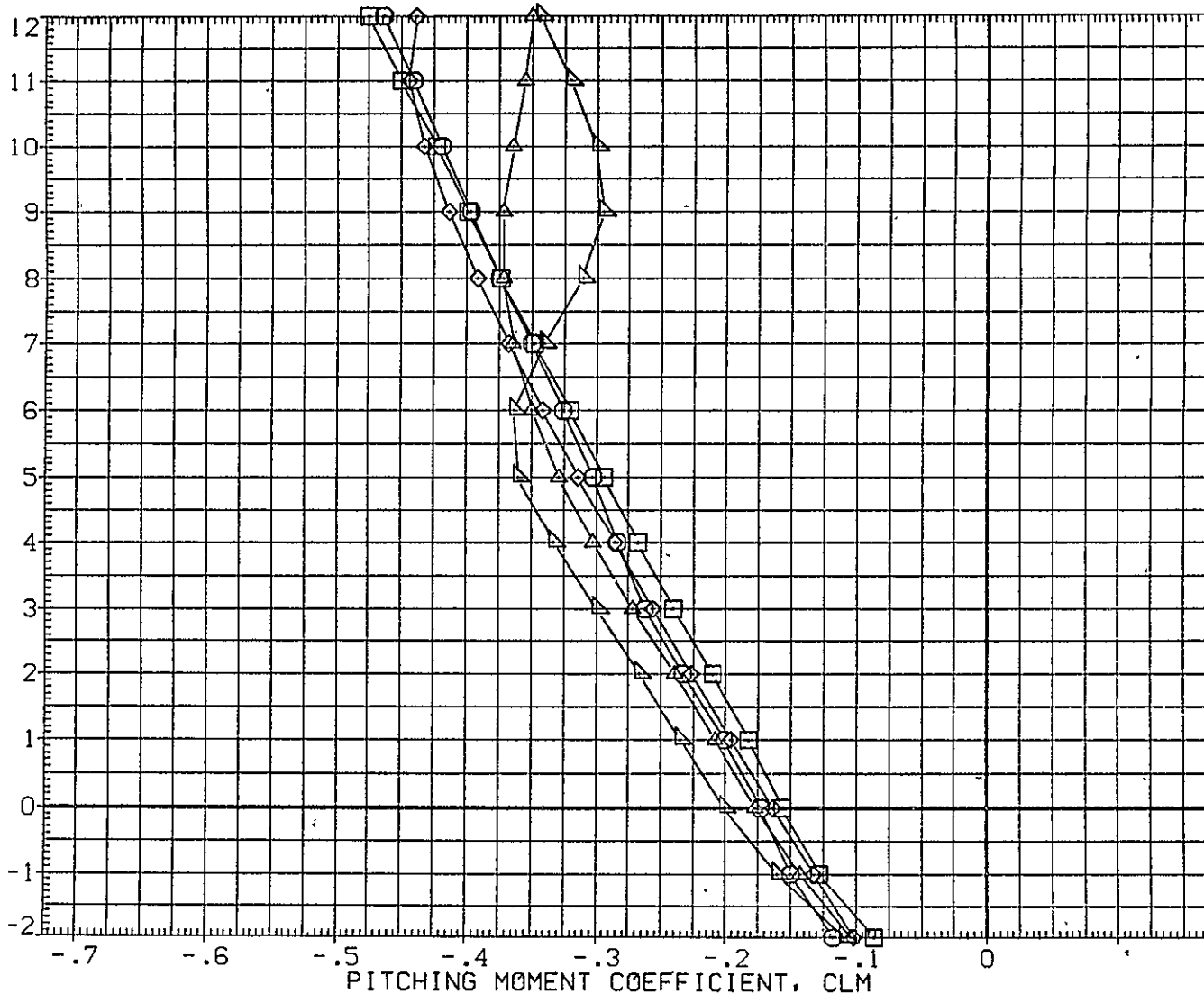


FIG. 9 747 ALONE, BASIC AIRPLANE FLAPS 20, TAIL ON(S=+1)

BTWT-1431CA5 K1 F20 H15.6 V9.1

(RGM059)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.172	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

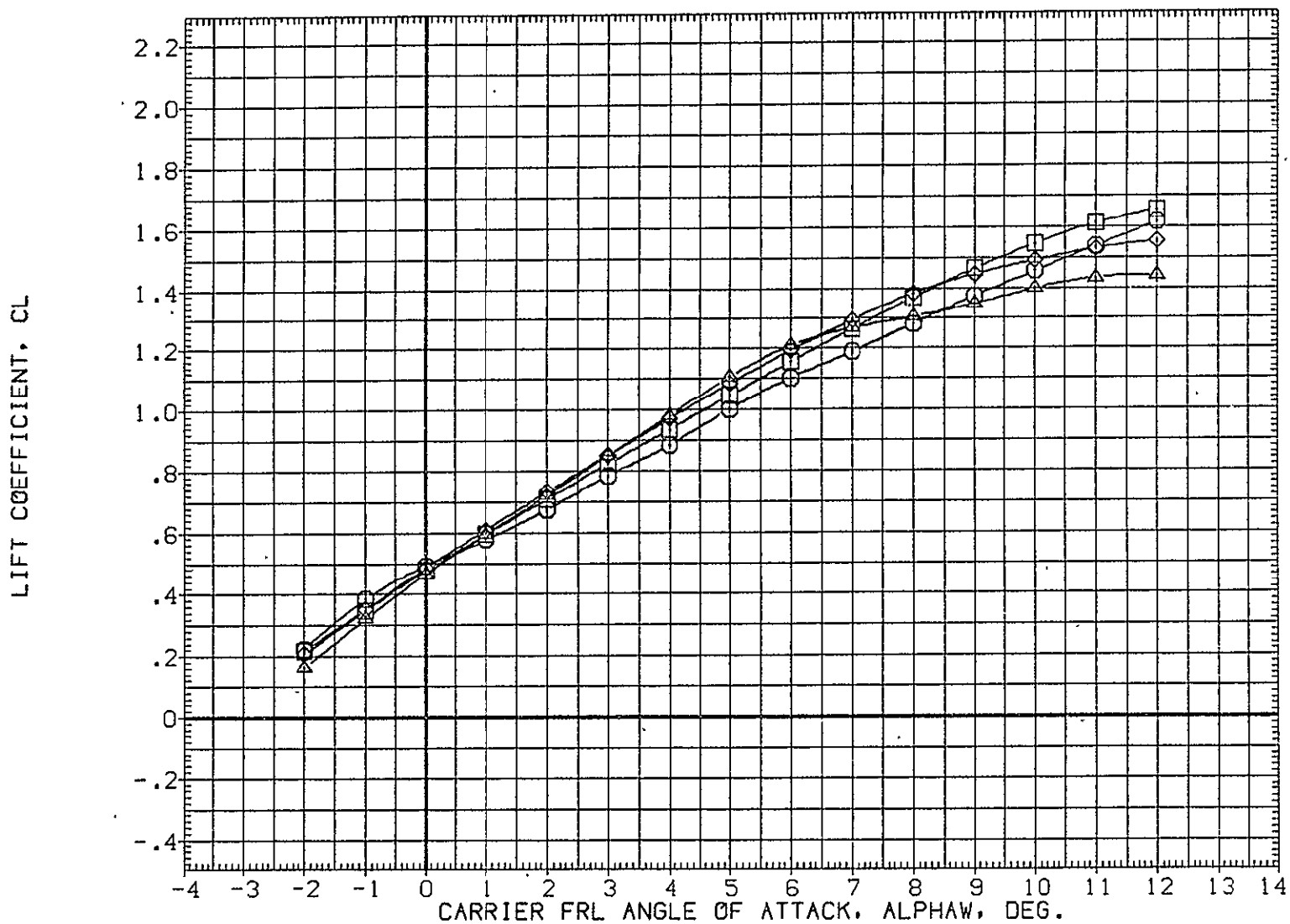


FIG. 10 747 ALONE+TIP FINS FLAPS 20, TAIL ON(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.172	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

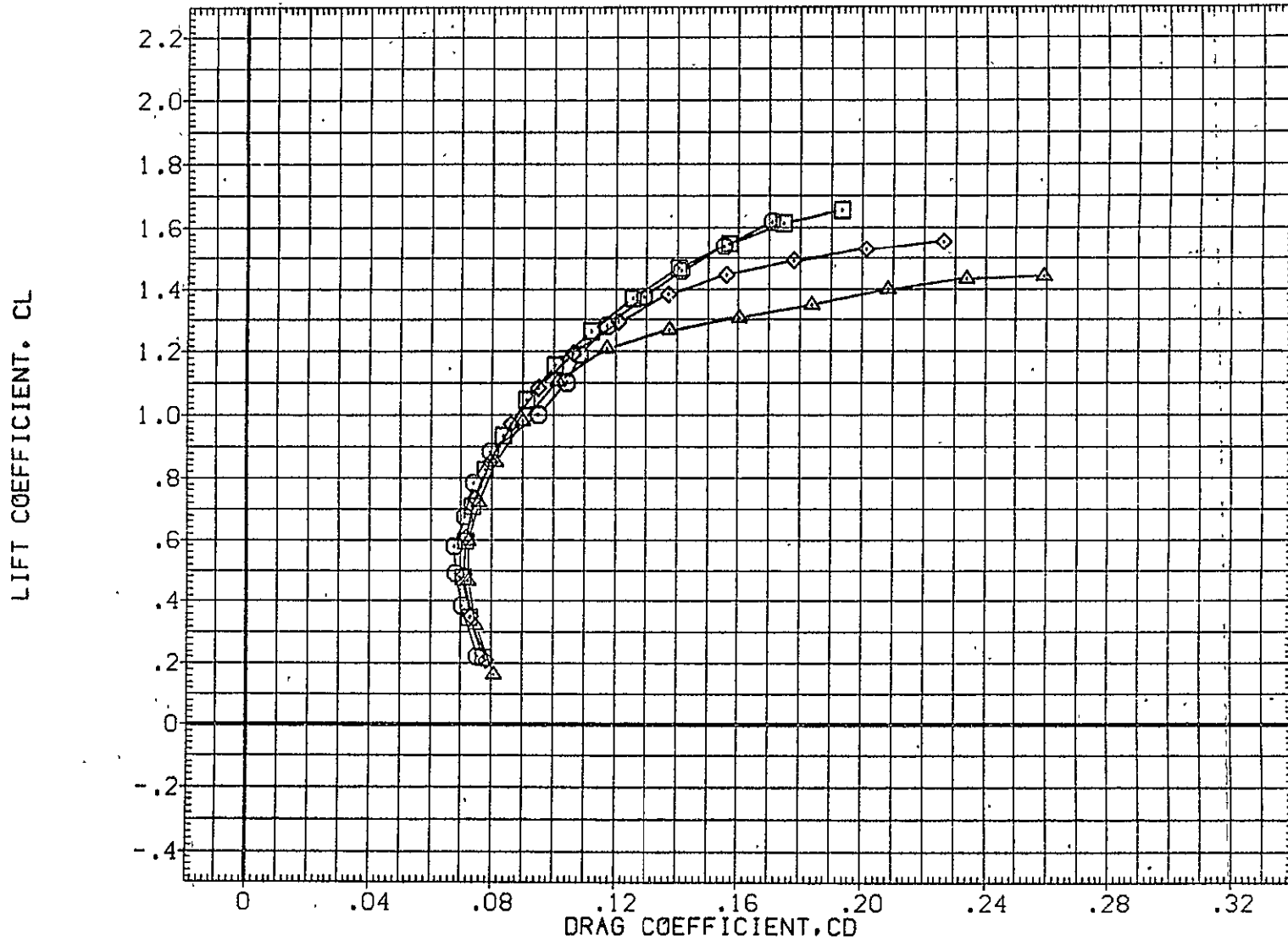


FIG. 10 747 ALONE+TIP FINS FLAPS .20, TAIL ON(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.172	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

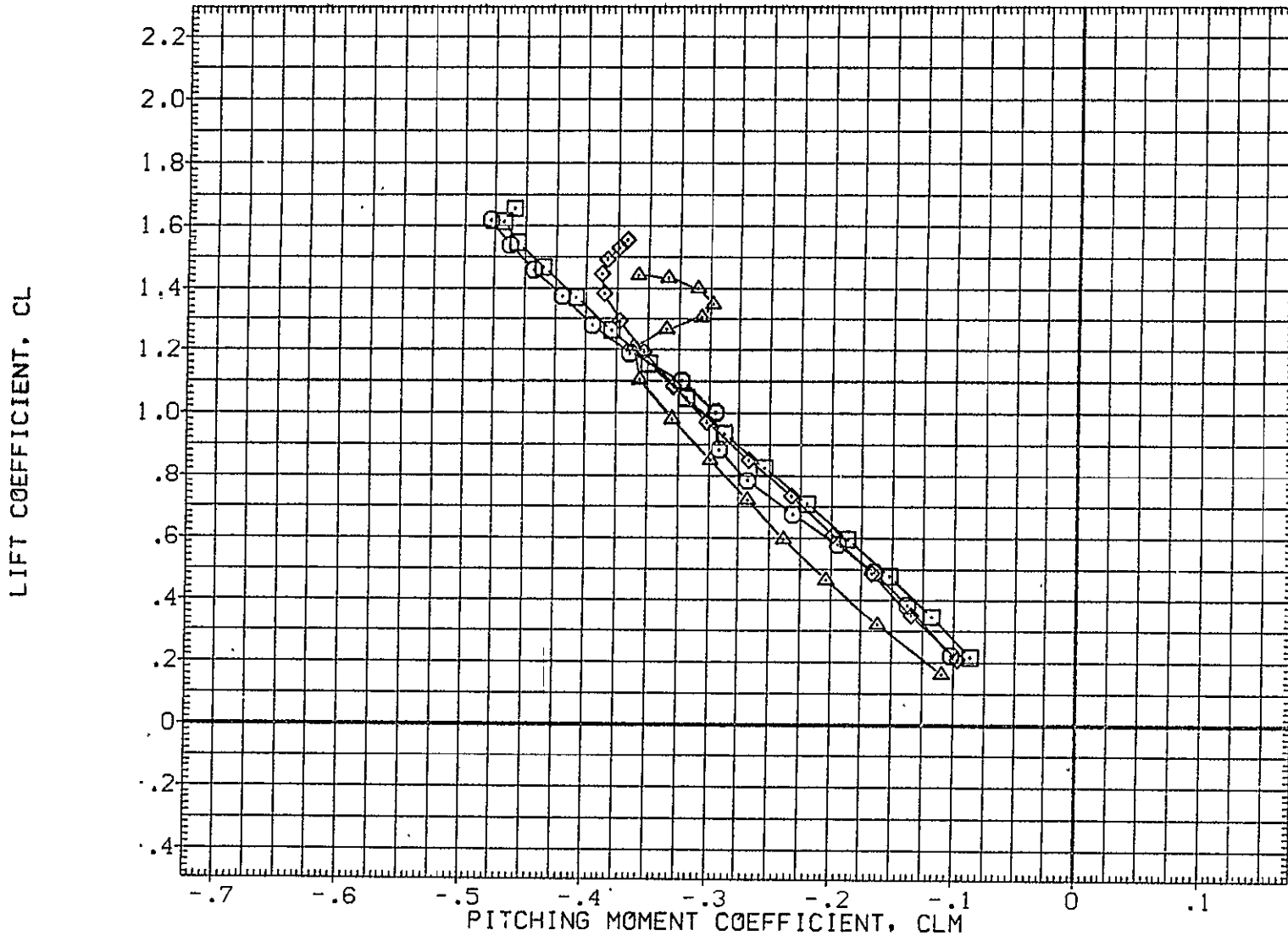


FIG. 10 747 ALONE+TIP FINS FLAPS 20, TAIL ON(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△		S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

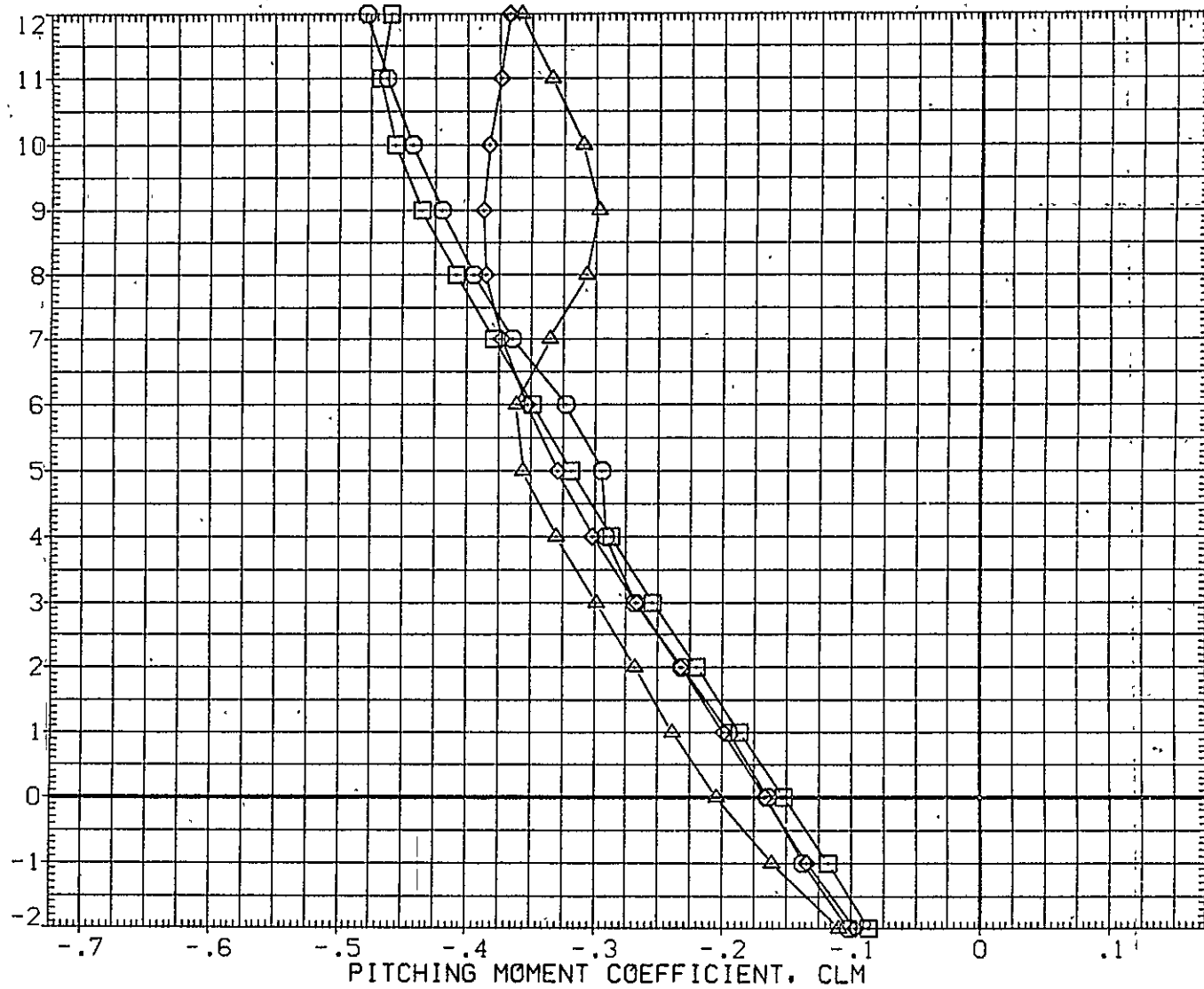


FIG. 10 747 ALONE+TIP FINS FLAPS 20, TAIL ON(S=+1)

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM064)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

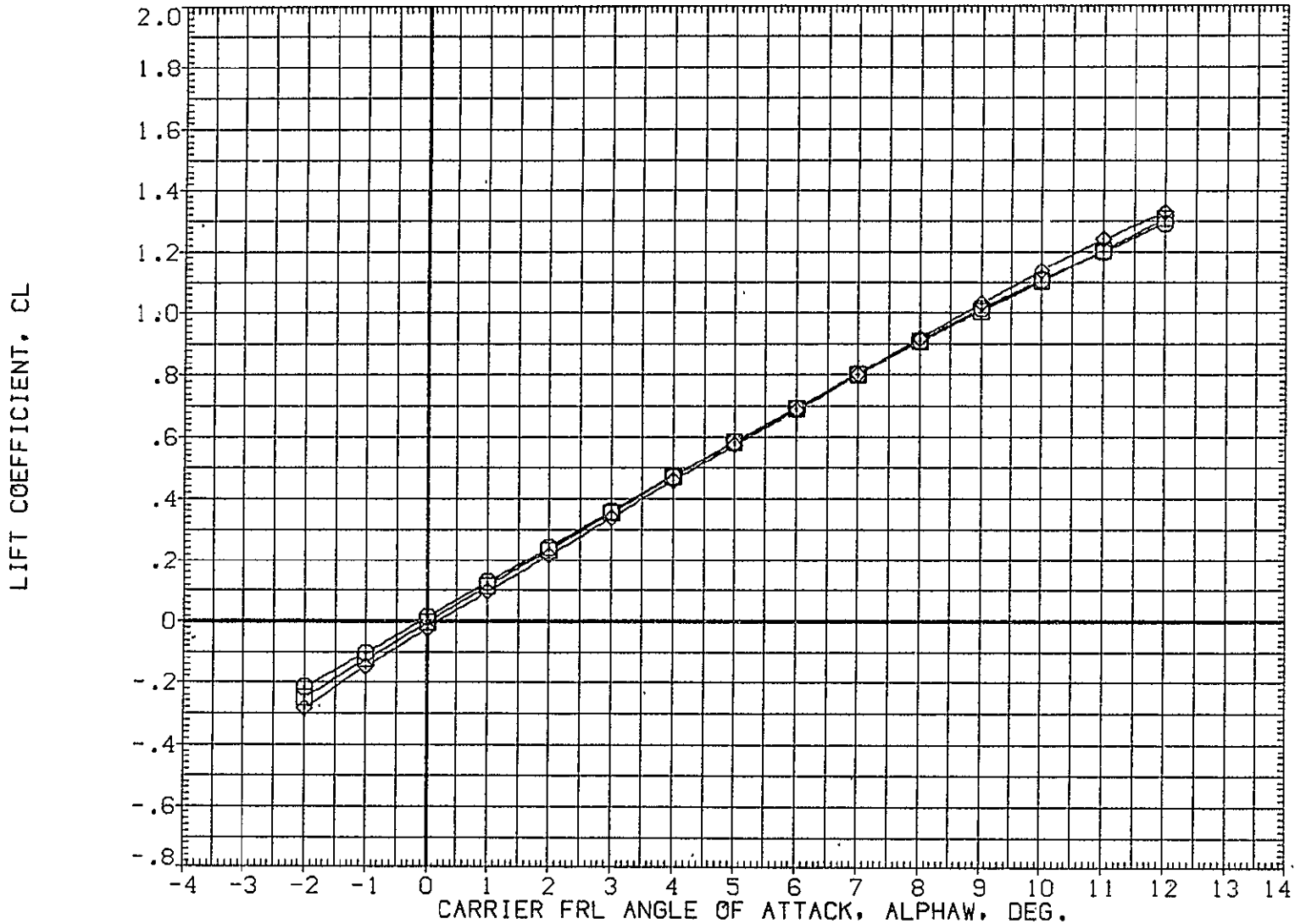


FIG. 11 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50. FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

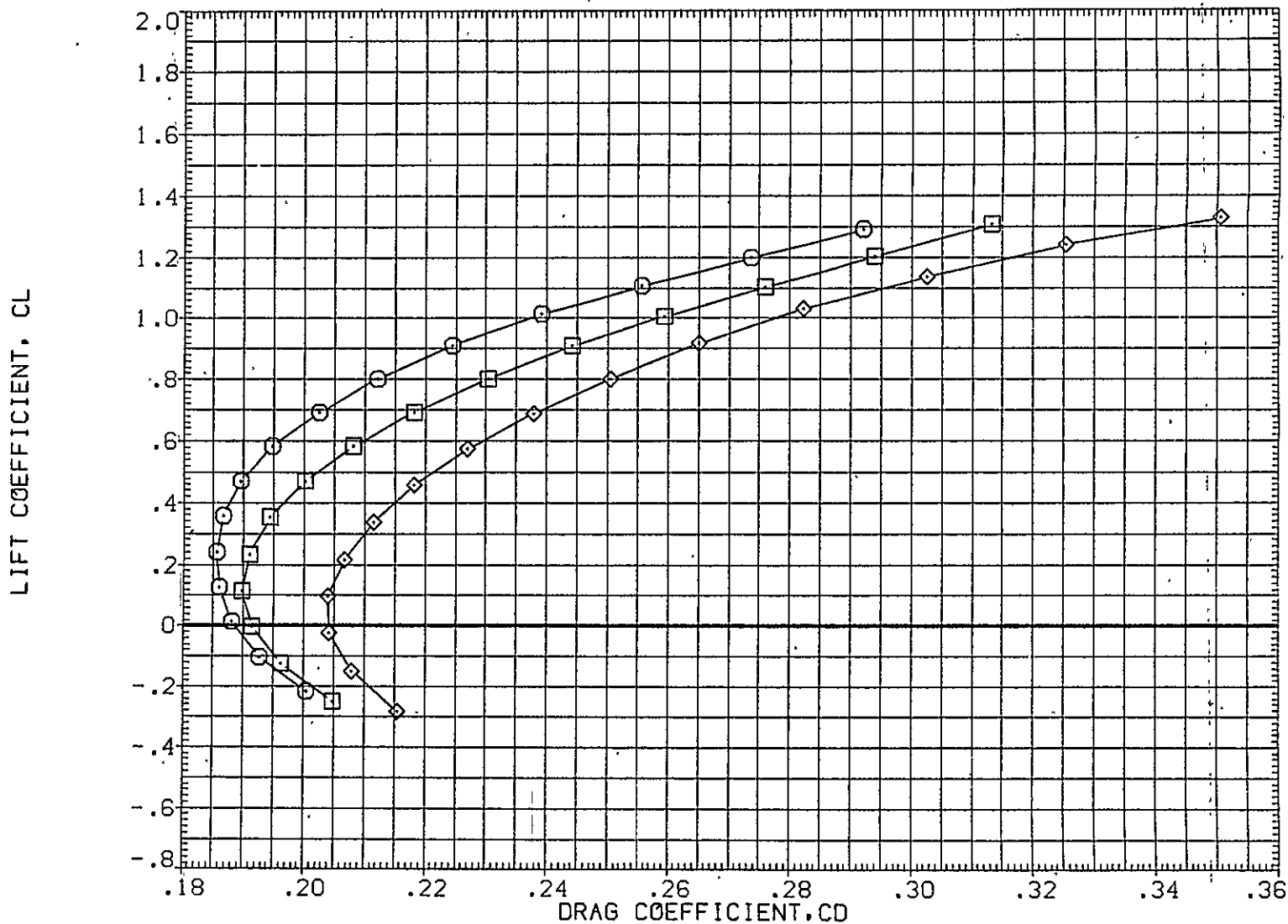


FIG. 11 747+0RB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG TOTAL

CA5 K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM064)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	10.000	ELV-0B	13.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

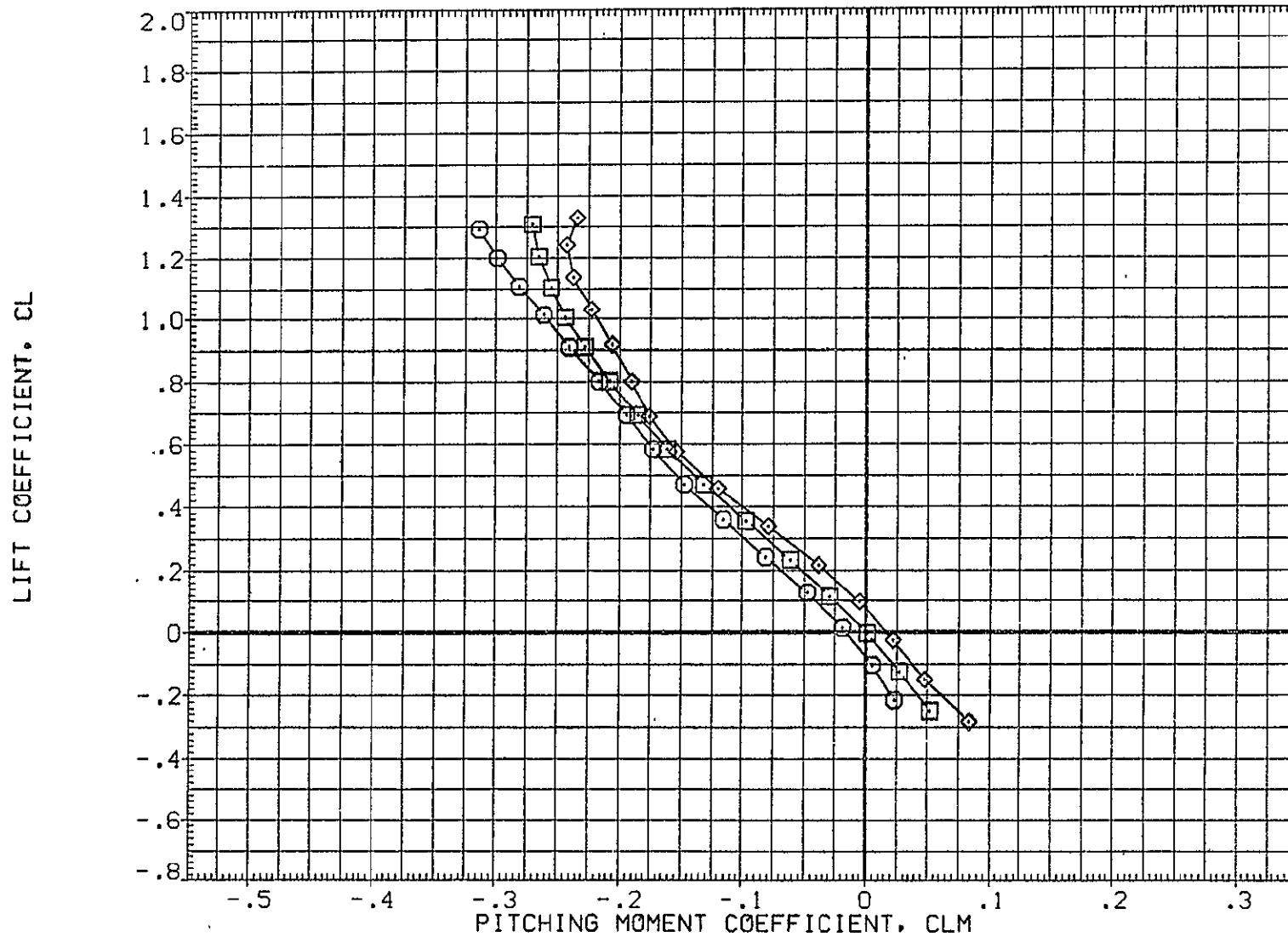


FIG. 11 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	10.000	ELV-0B	13.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SO.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

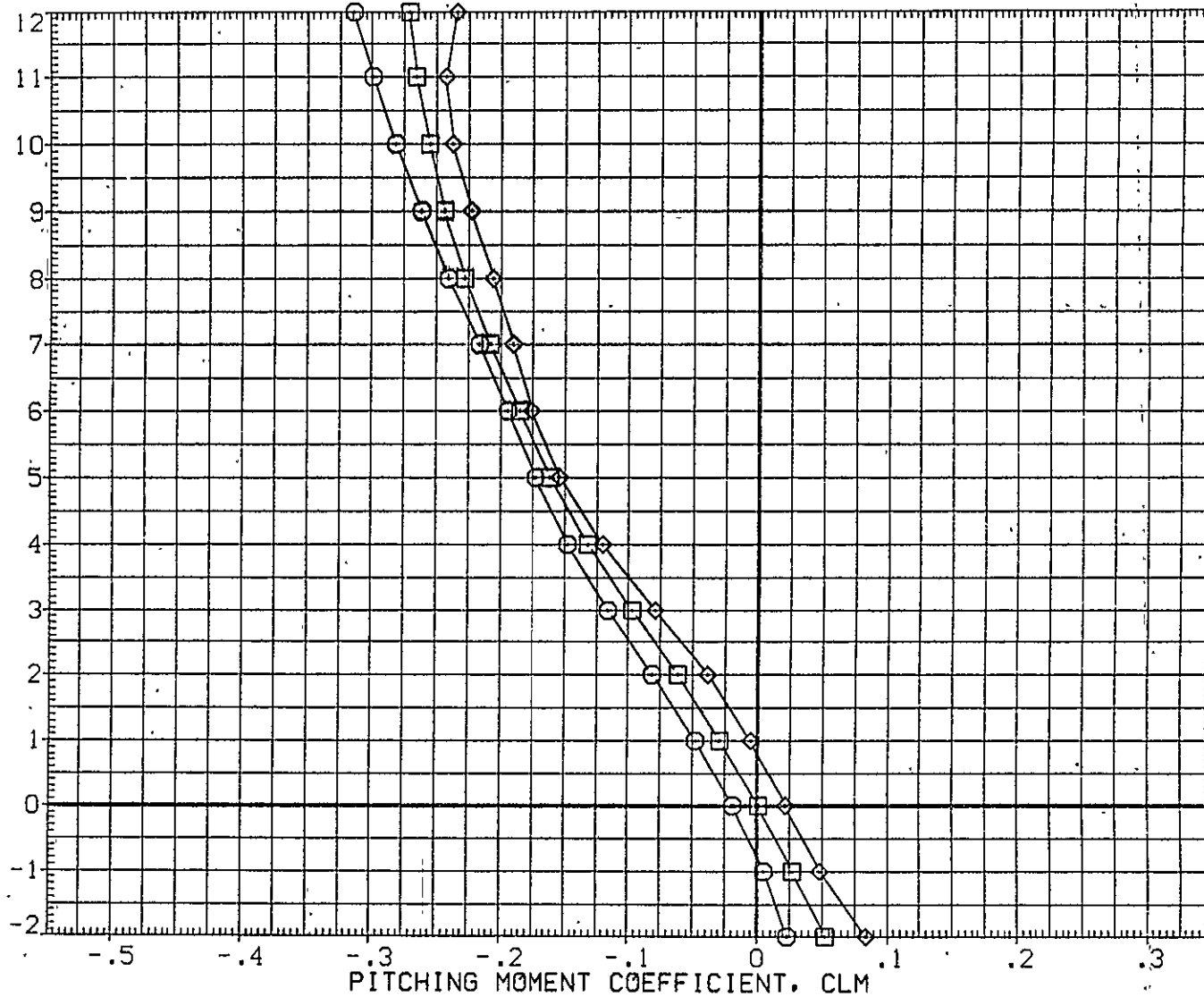


FIG. 11 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG TOTAL

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM064)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-IB	10.000	ELV-OB	13.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

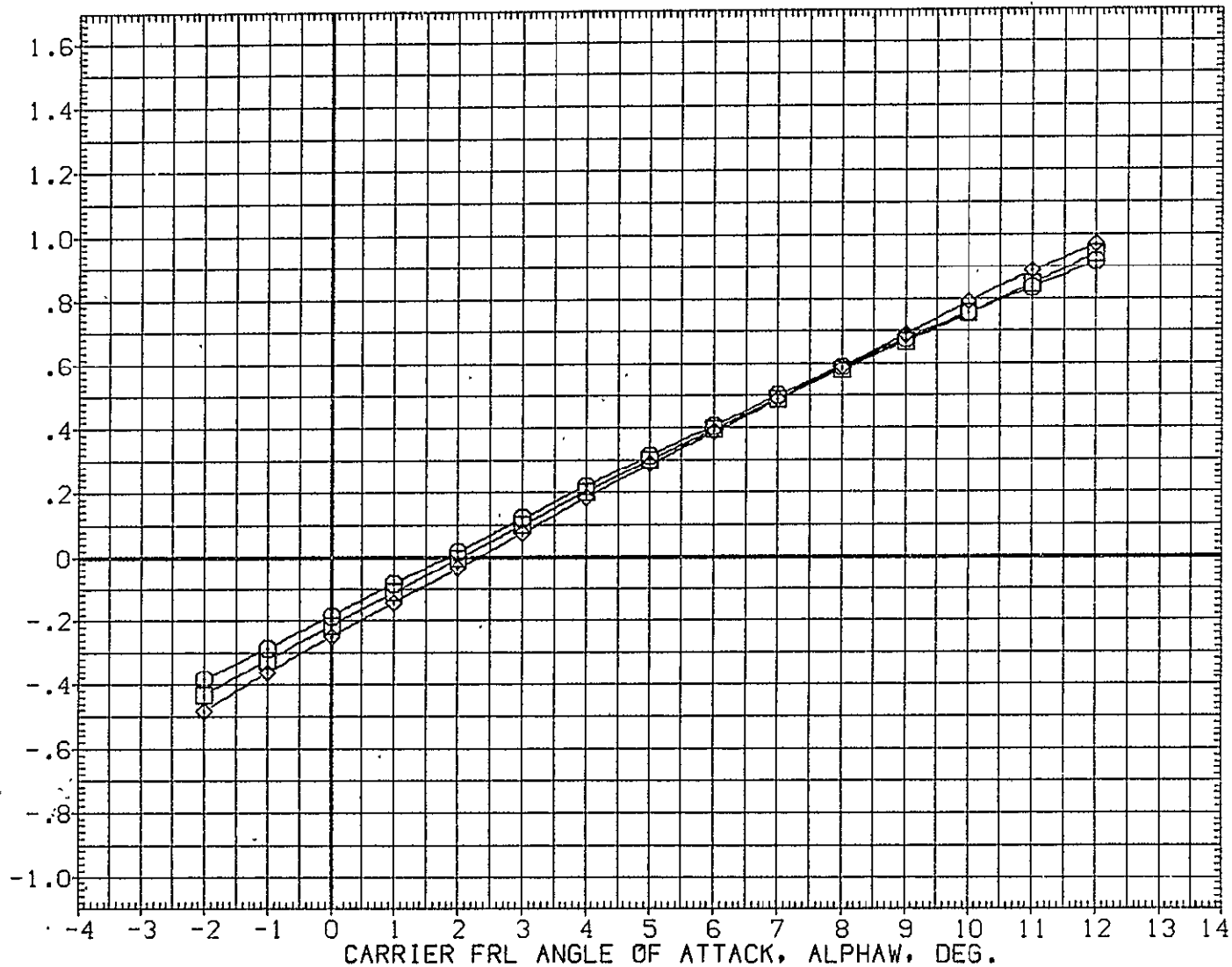


FIG. 12 747+ORB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG

747



SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	10.000	ELV-0B	13.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

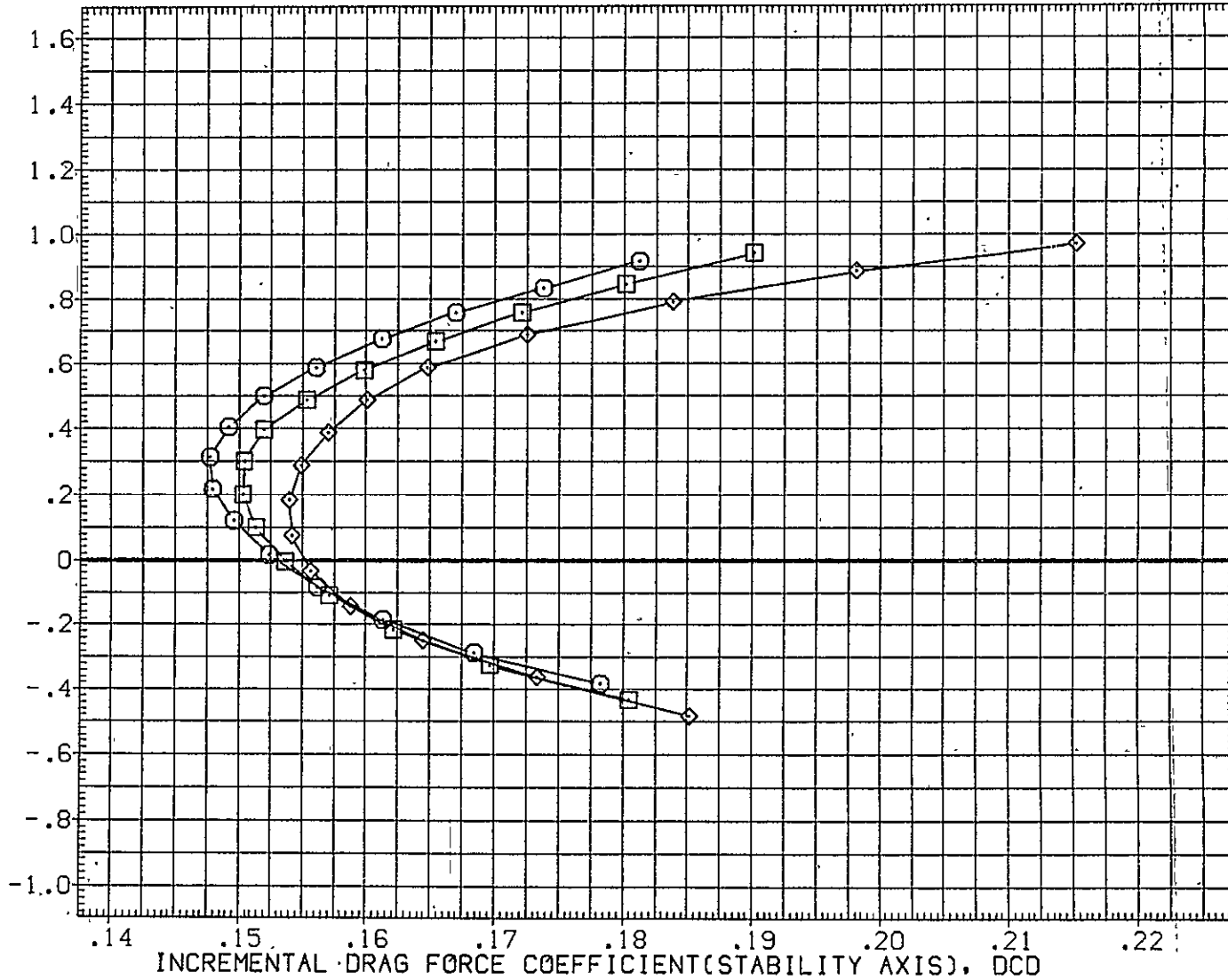


FIG. 12 747+ORB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG

CA5 K1 F20 H15.6 V9.1 MINUS 0RB TC5 AT38.1 (BGM064)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

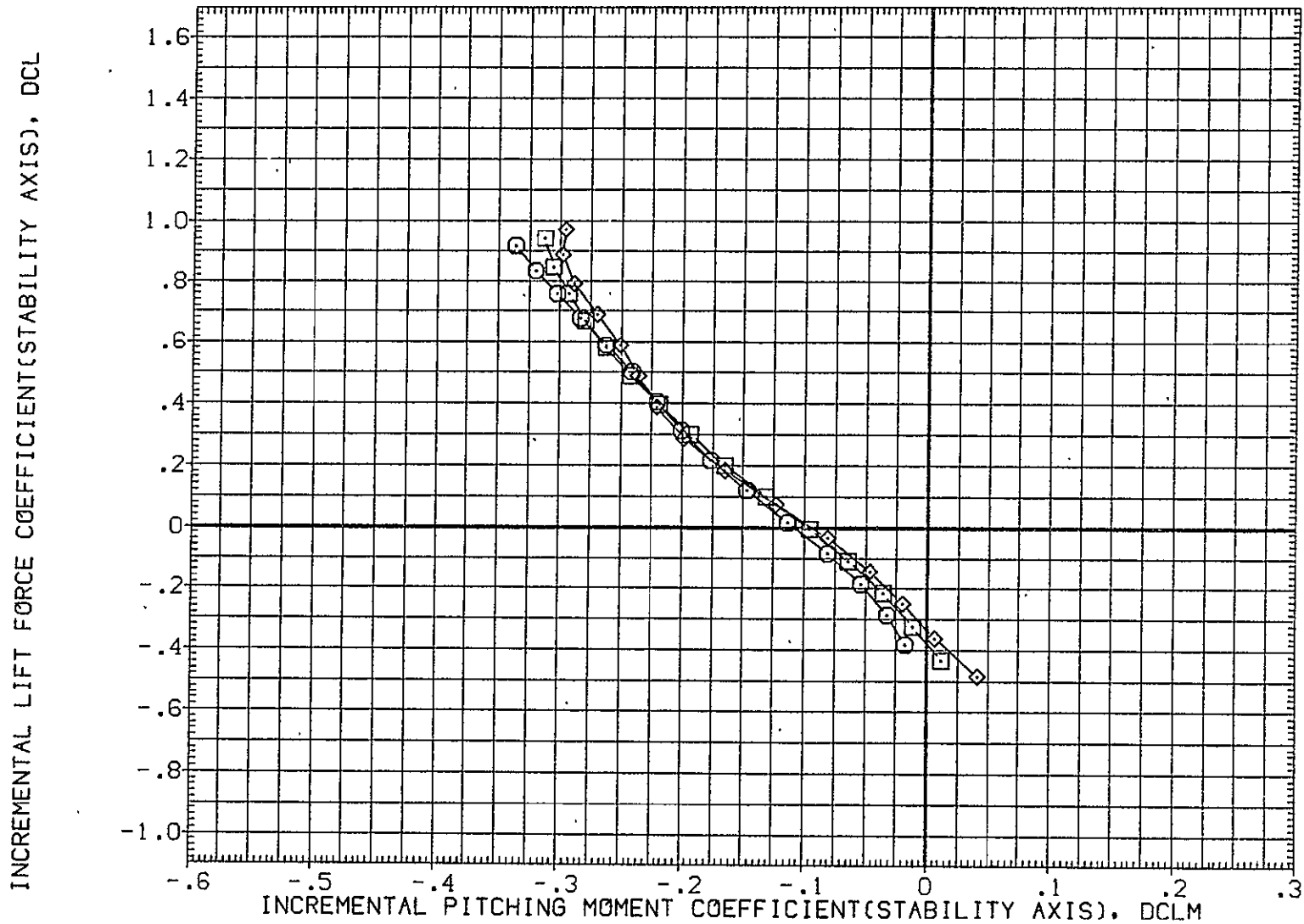


FIG. 12 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

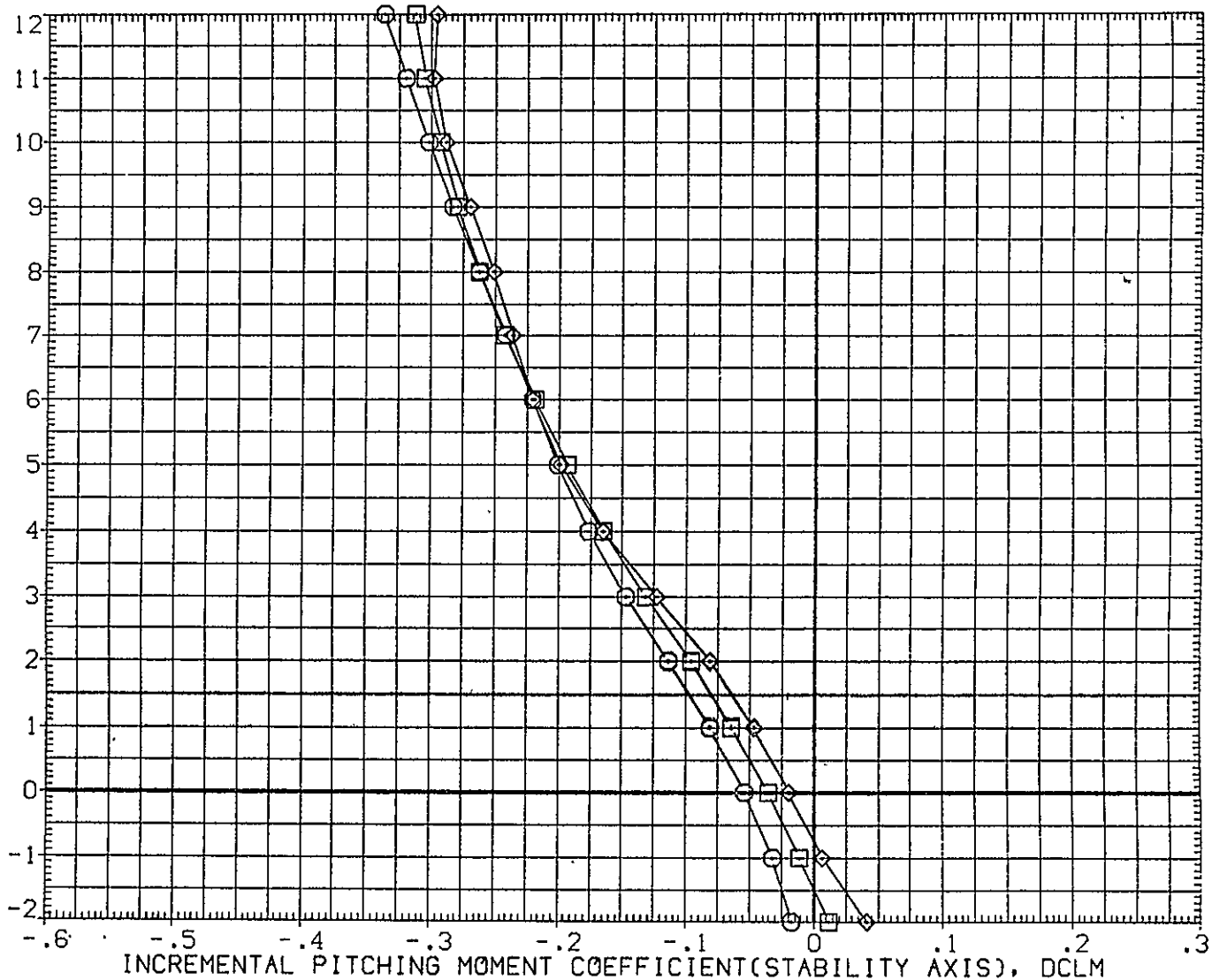


FIG. 12 747+0RB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG 747

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM064)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.601	RUD-U	.000	RUD-L	.000
.700	ELV-1B	10.000	ELV-0B	13.000
	S1-2	45.000	S3-4	45.000
	SS-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

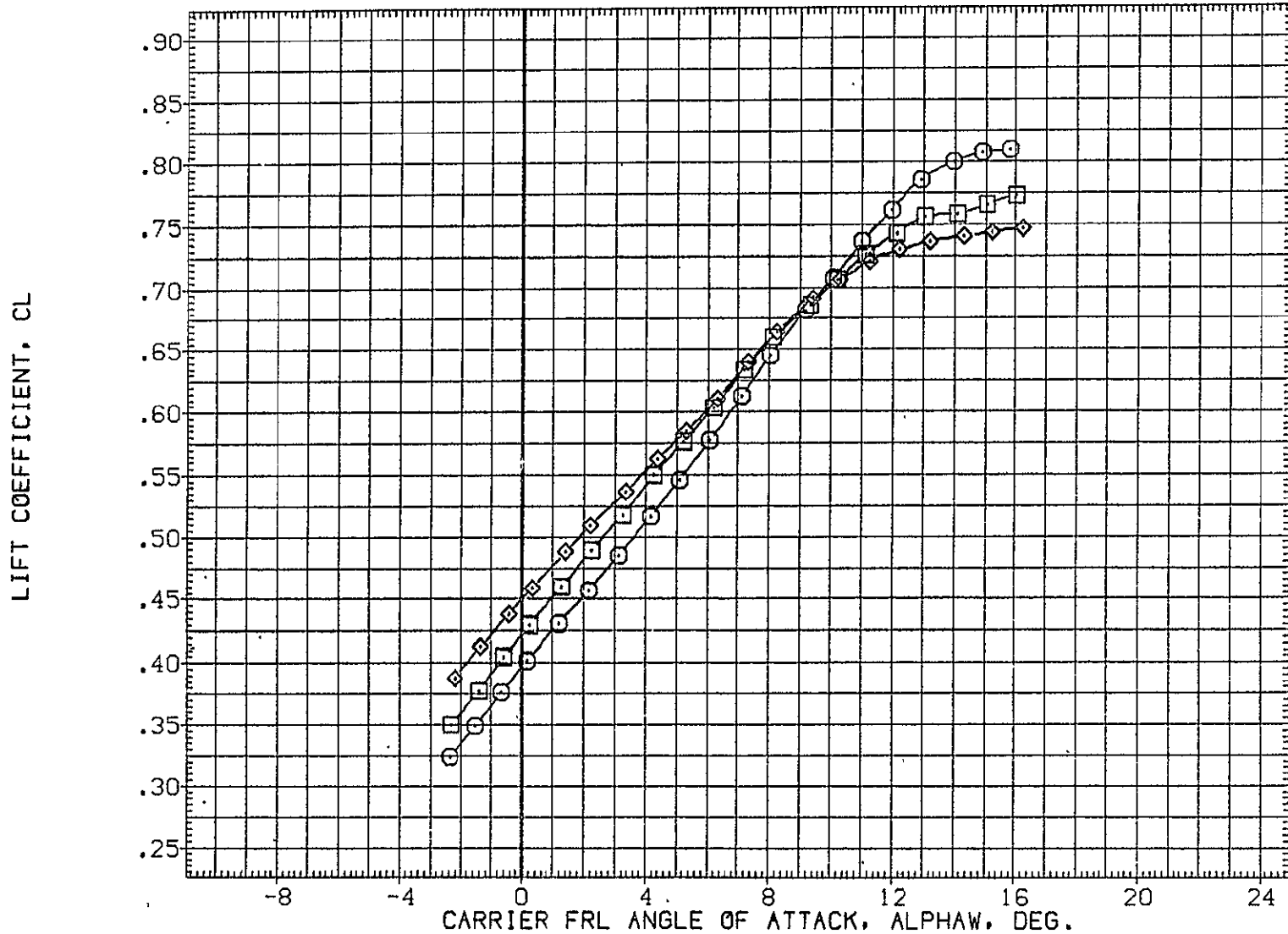


FIG. 13 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG 0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.601	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

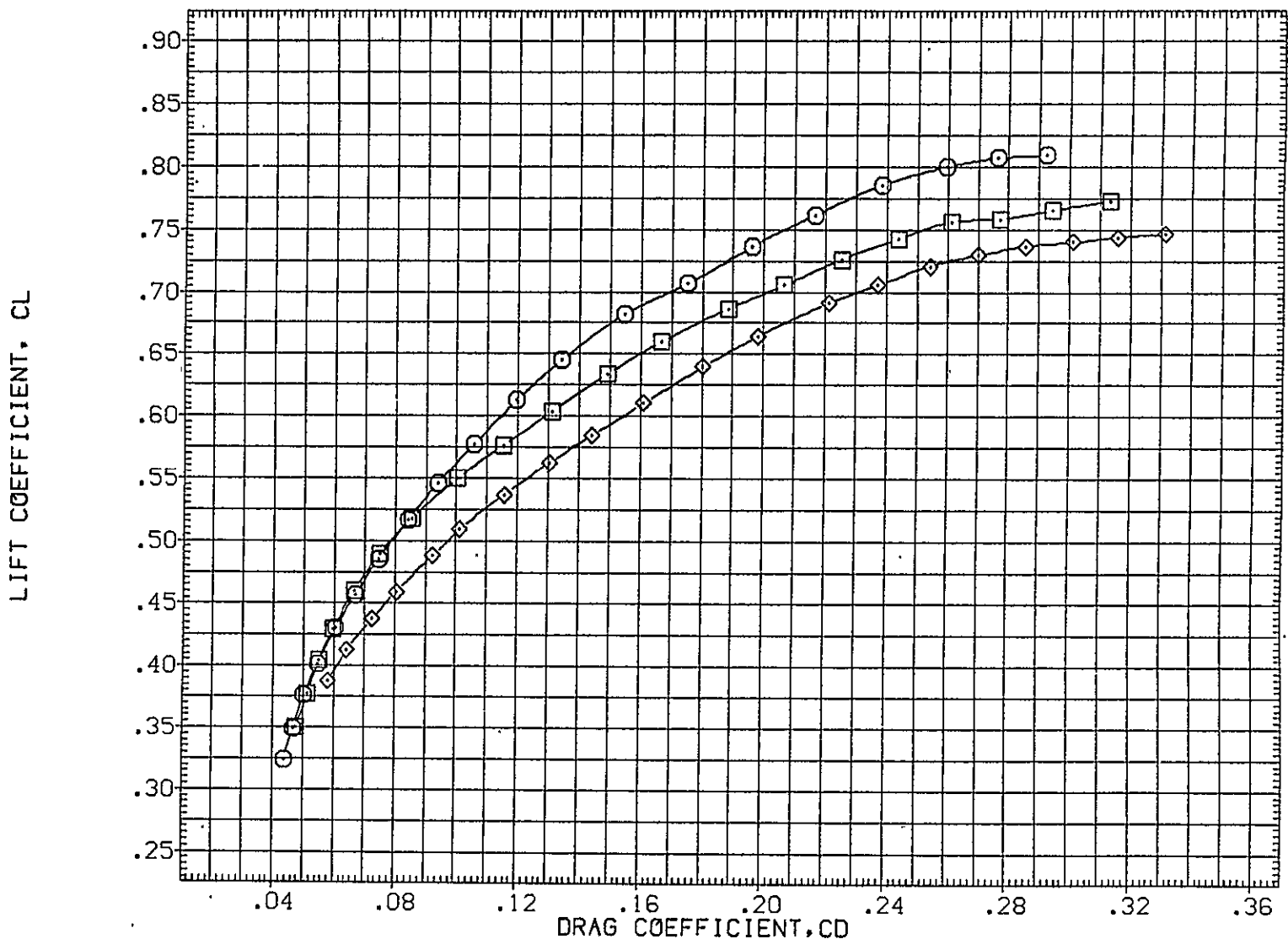


FIG. 13 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG ORB

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM064)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	2690.0000	SO.FT.
□	.601	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

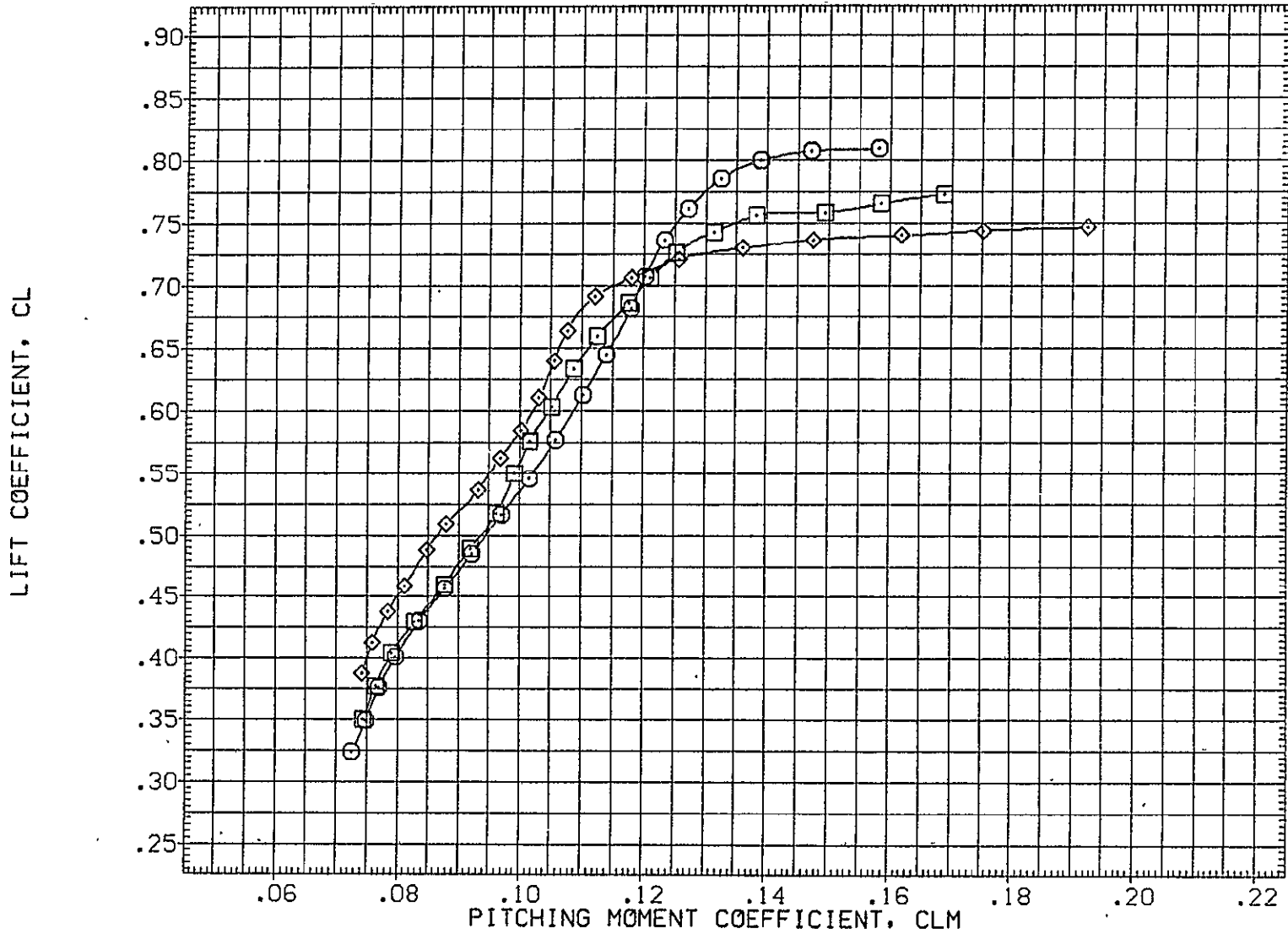


FIG. 13 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG 0RB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.601	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	10.000	ELV-0B	13.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

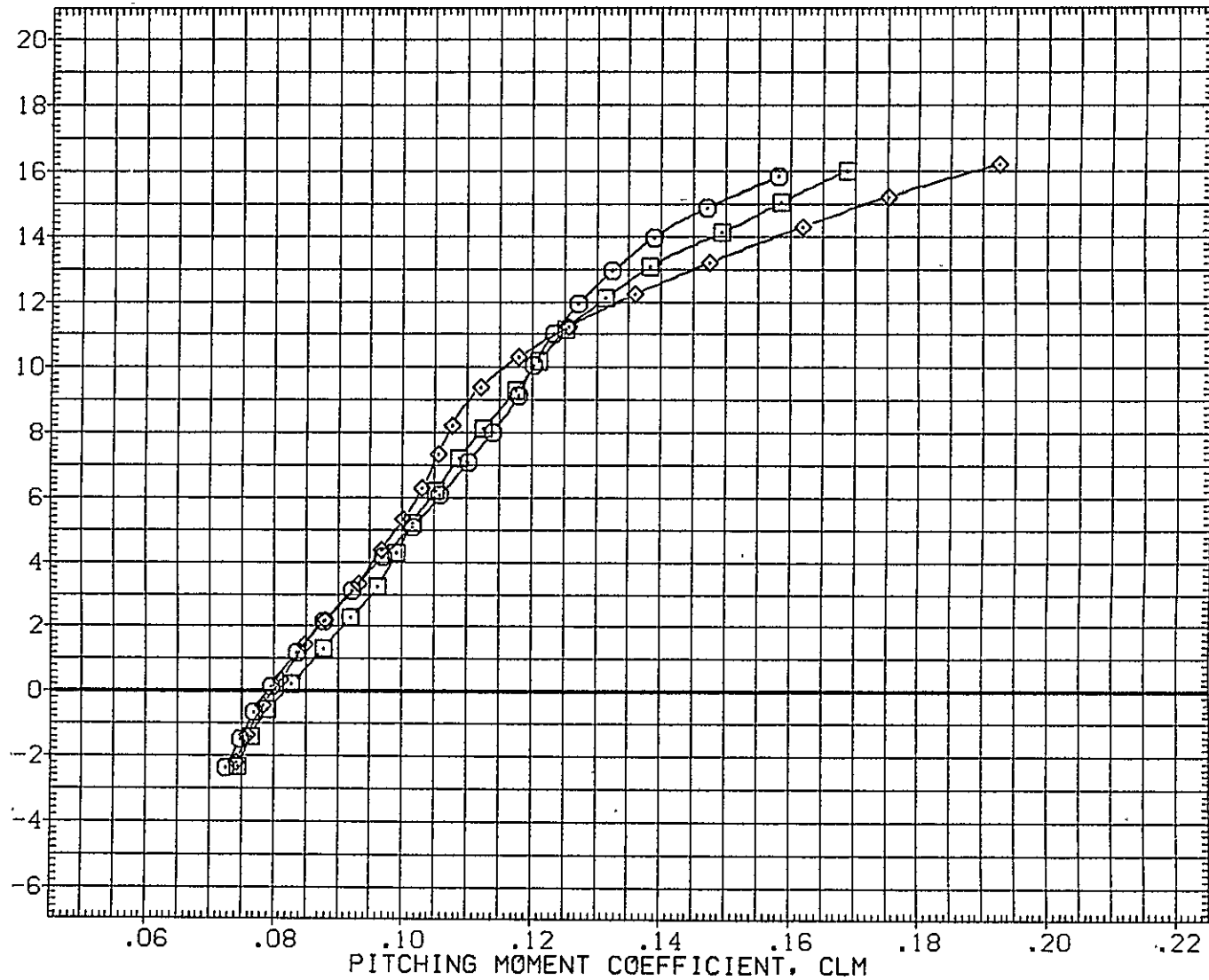


FIG. 13 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, ELEV=10 DEG 0RB

CA5 K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.1 )(FGM065)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION

SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

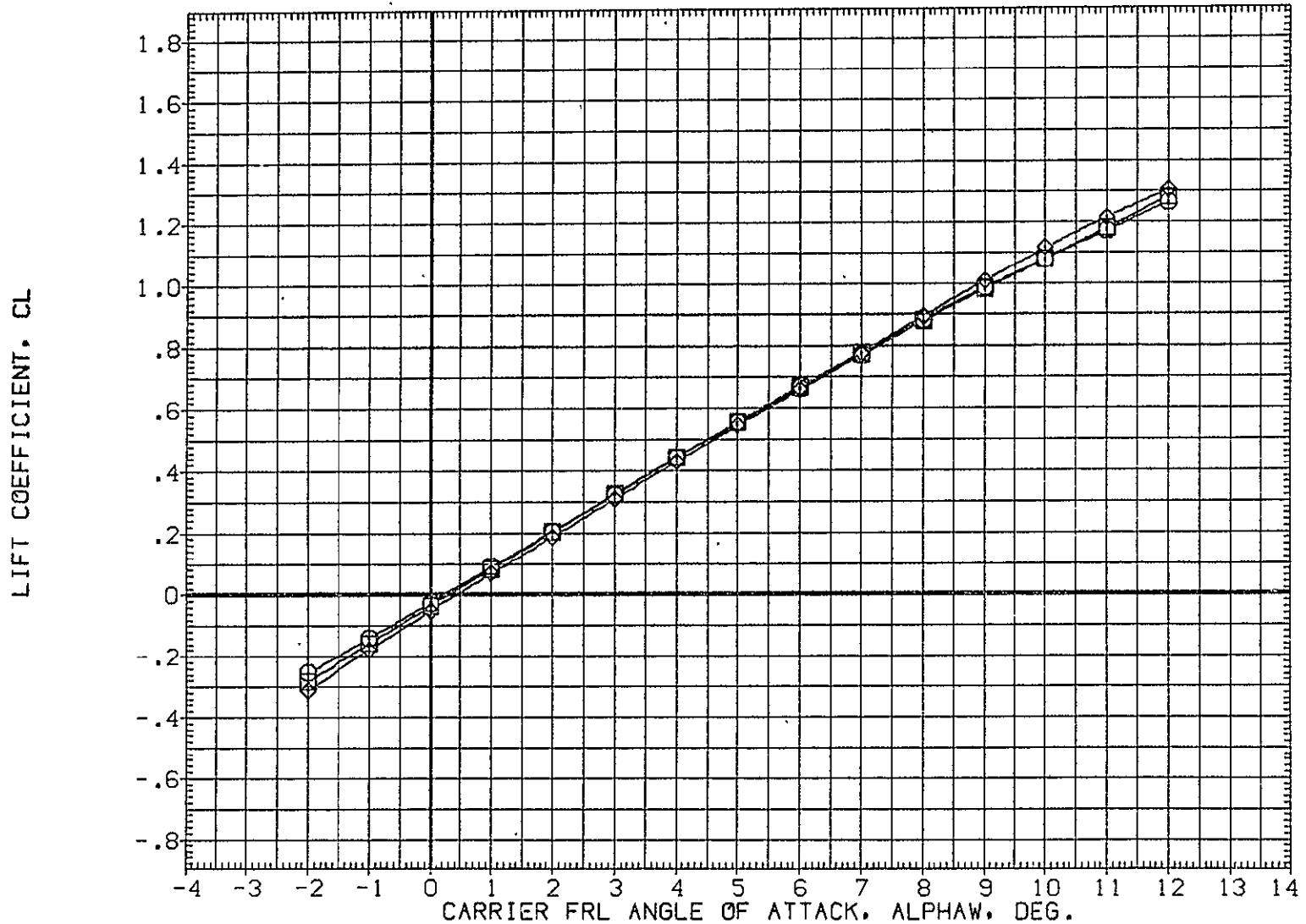


FIG. 14 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) TOTAL



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000.	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

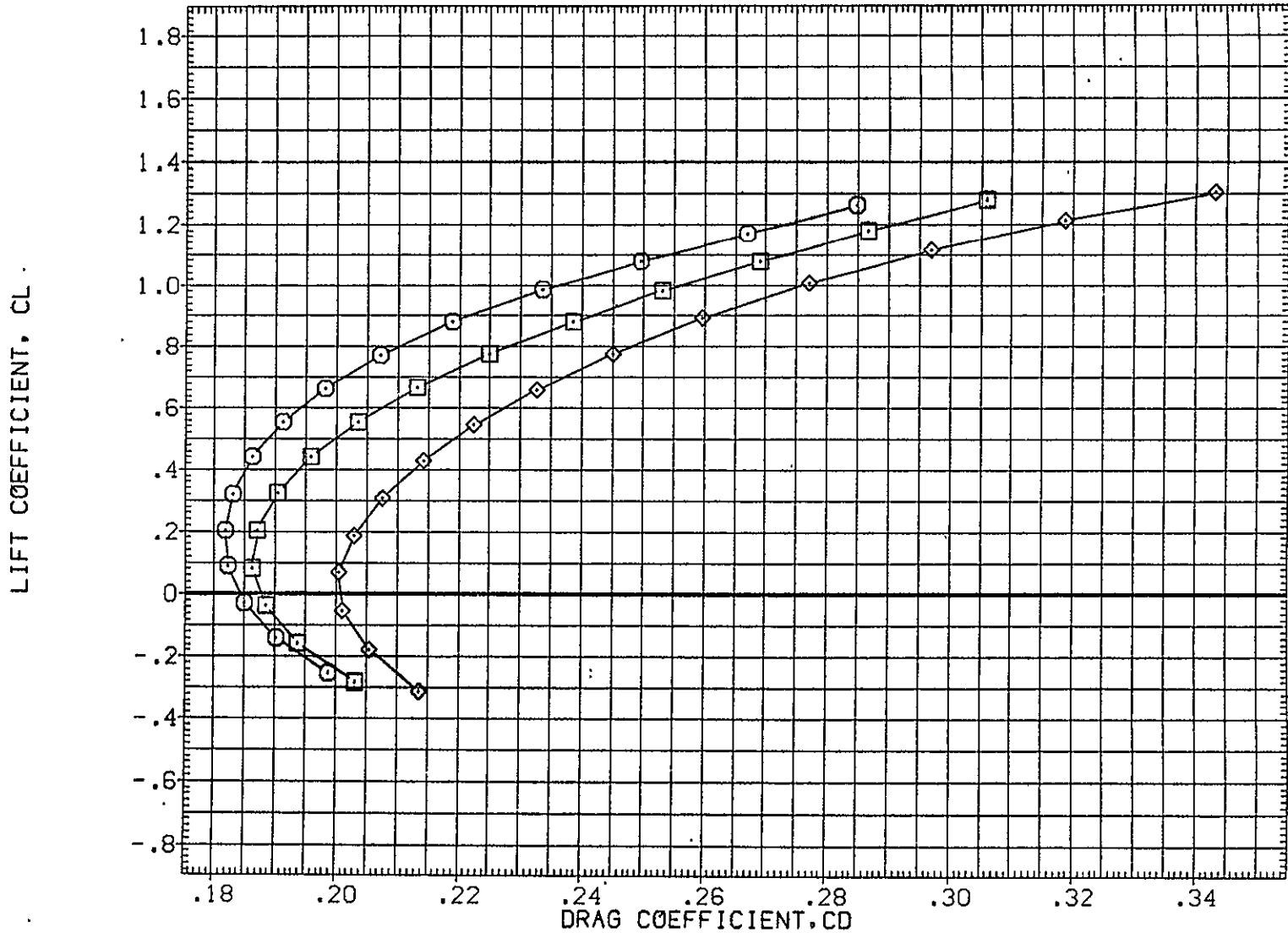


FIG. 14 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) TOTAL

CA5 K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.1 )(FGM065)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

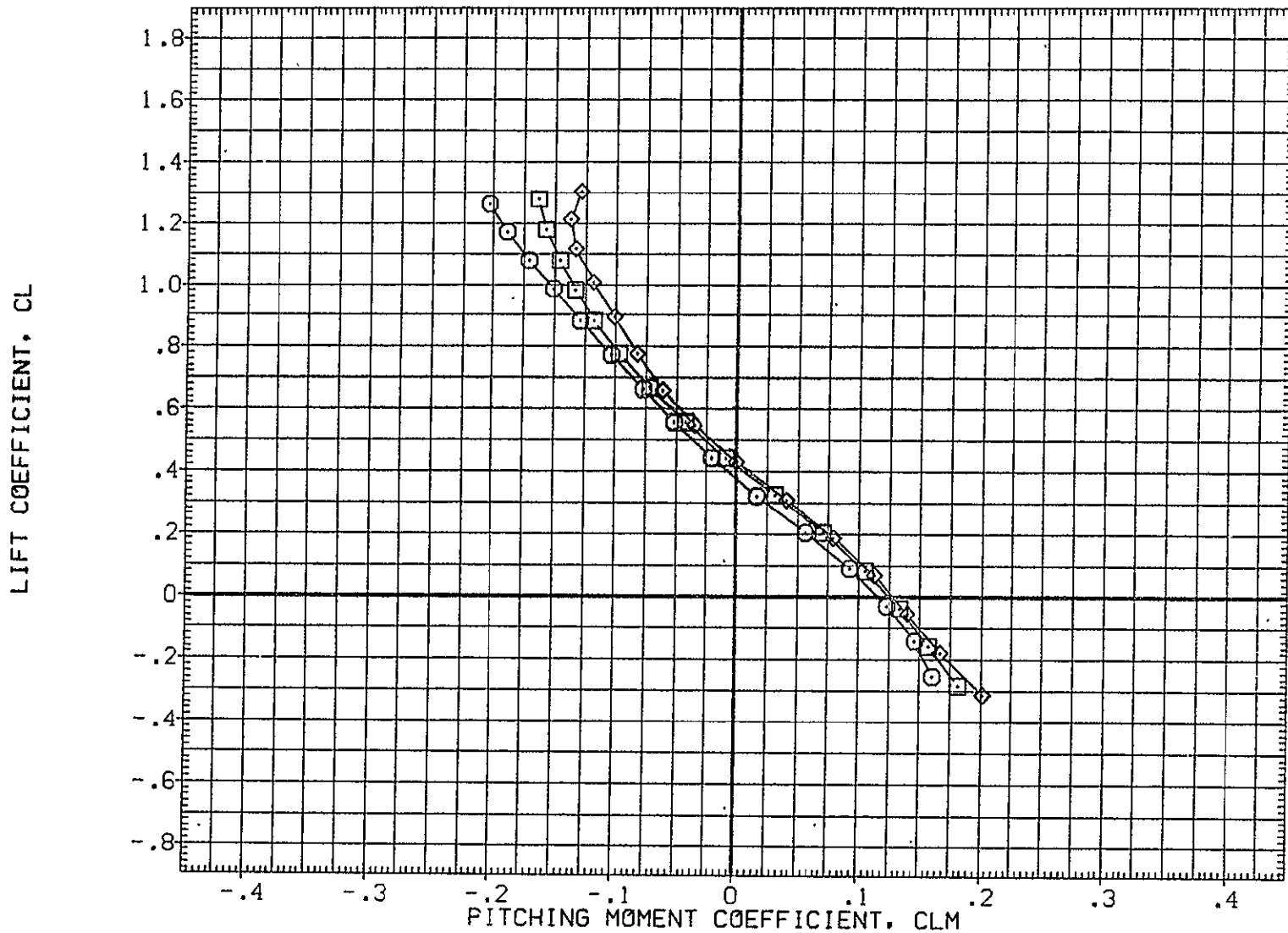


FIG. 14 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) TOTAL PAGE 55

SYMBOL		MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○		.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□		.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇		.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
			S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
			SS-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
							ZMRP	190.7500	IN. ZC
							SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

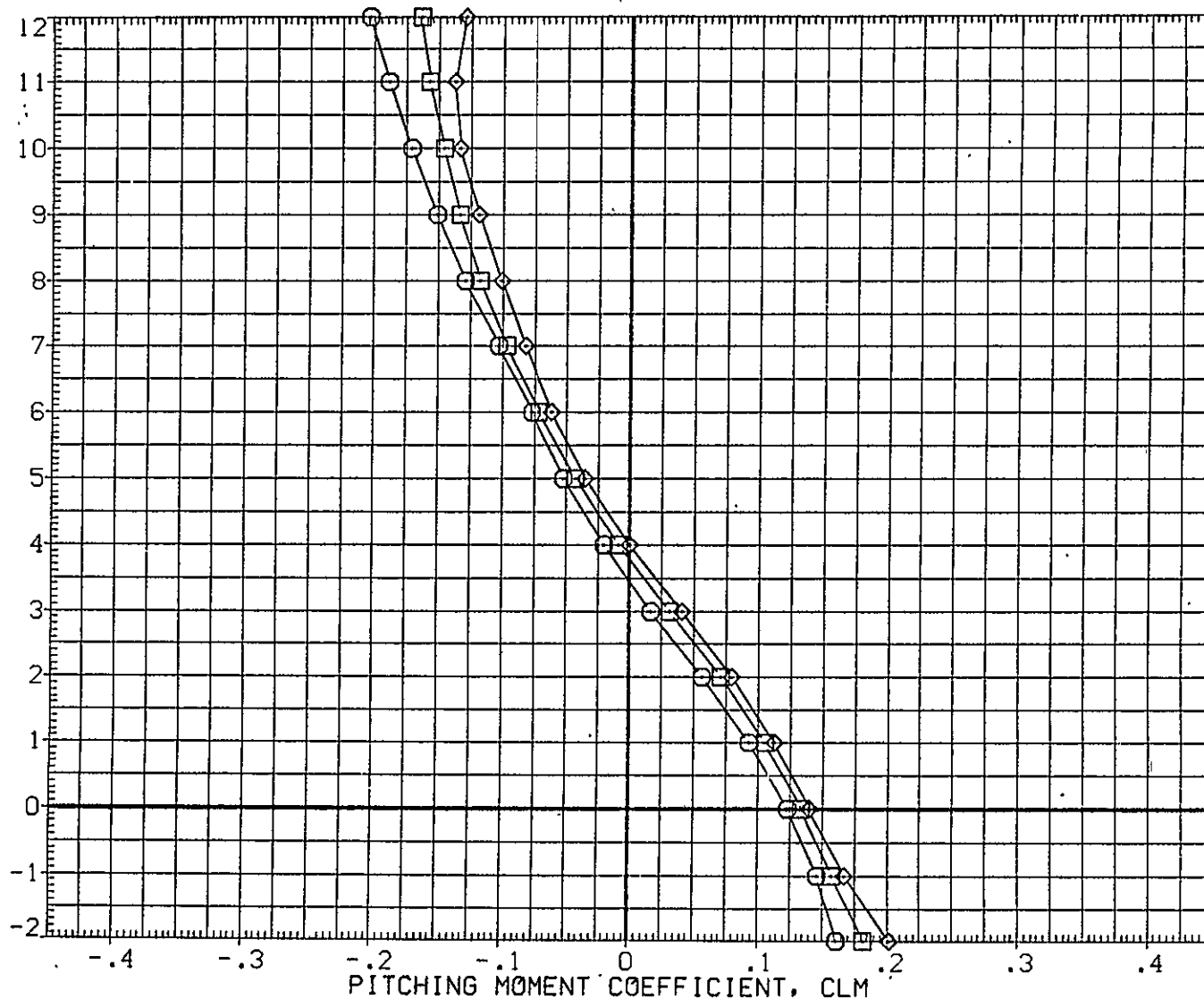


FIG. 14 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) TOTAL PAGE 56

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (EGM065)

SYMBOL		MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
◇ □ ○		.500	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
		.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
		.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
			S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
			S5-6	45.000	I0RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC	
						SCALE	.0300		

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

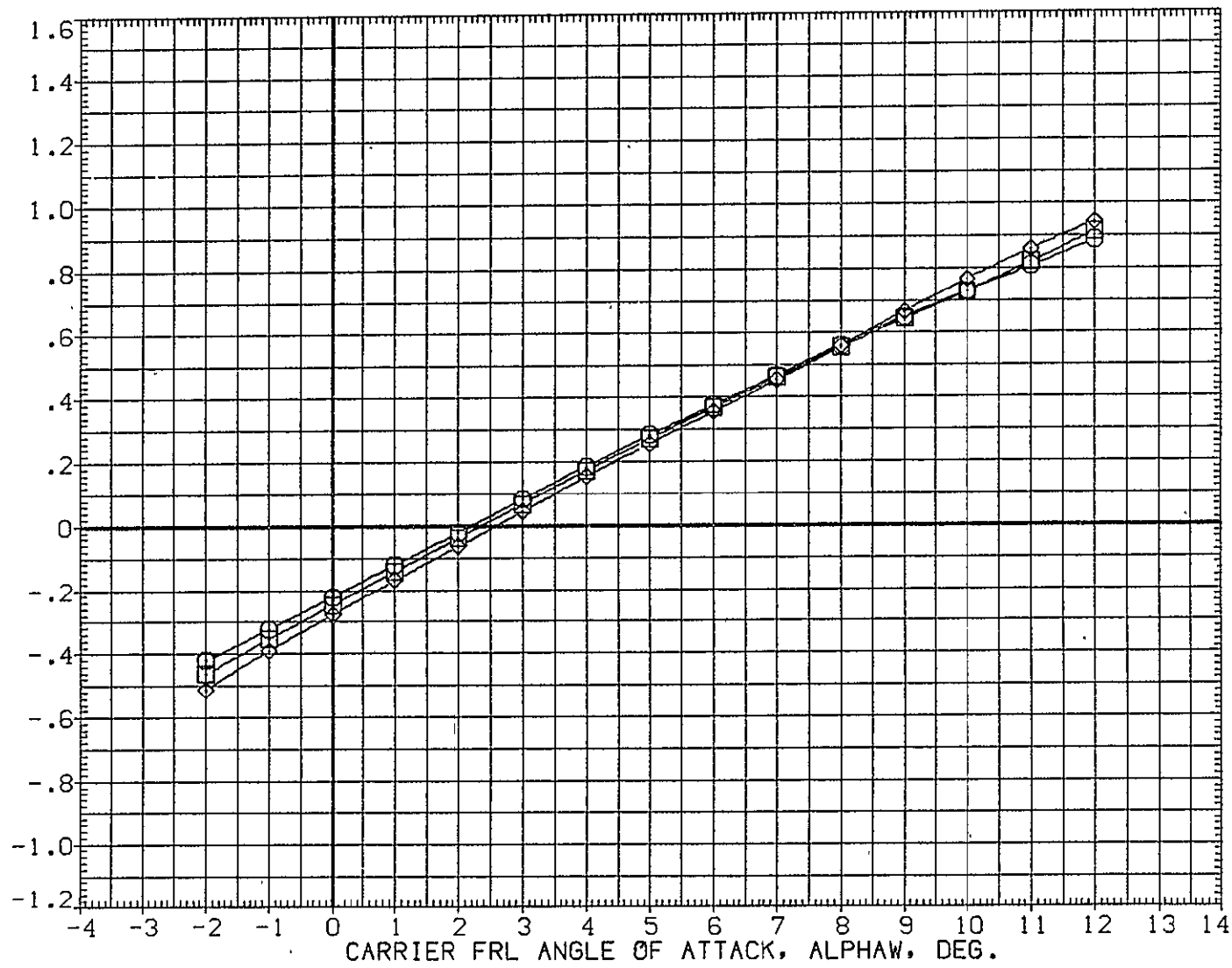


FIG. 15 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		SS-6	45.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

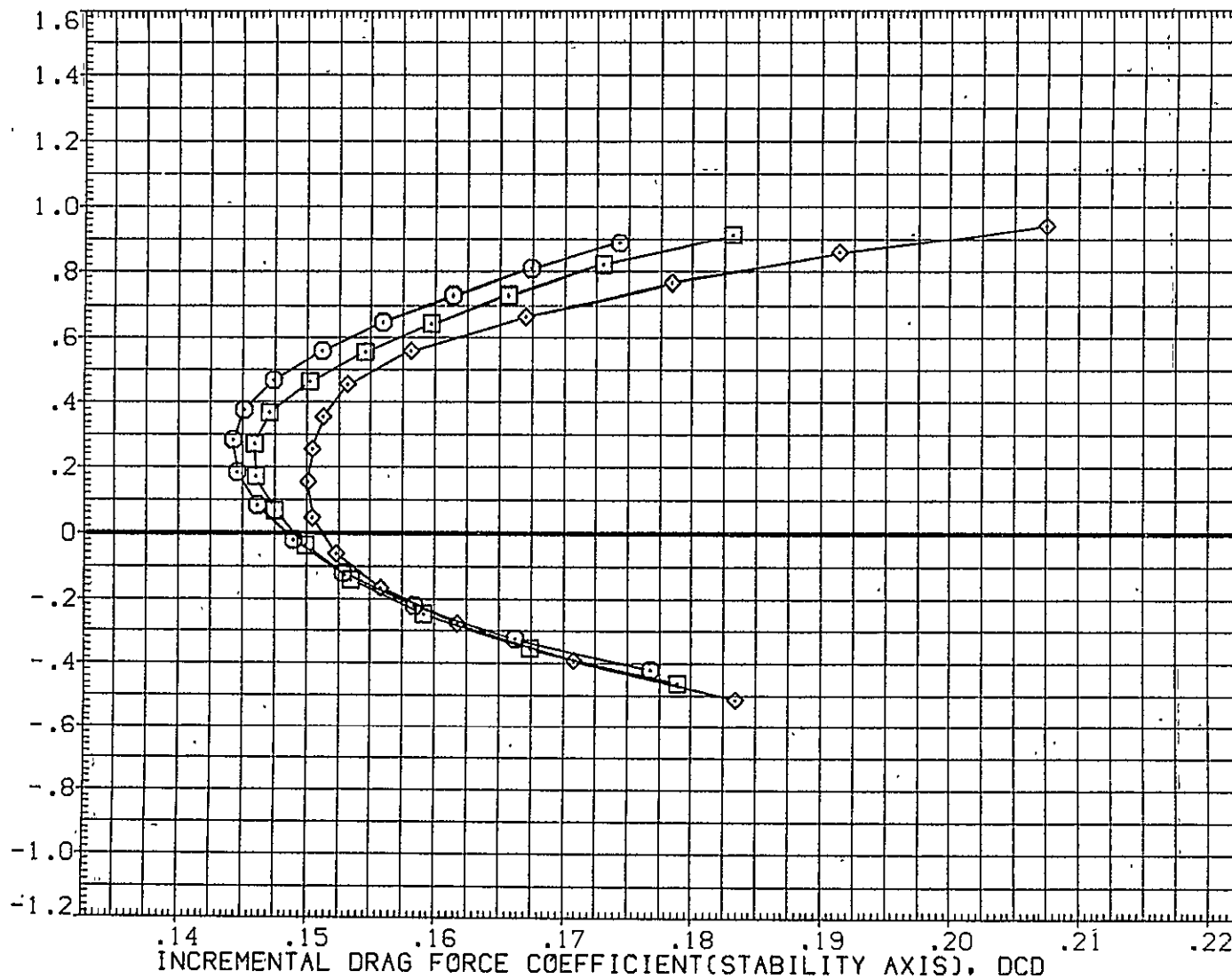


FIG. 15 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1)

CA5 K1 F20 H15.6 V9.1 MINUS 0RB TC5 AT38.1 (EGM065)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	ICRB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

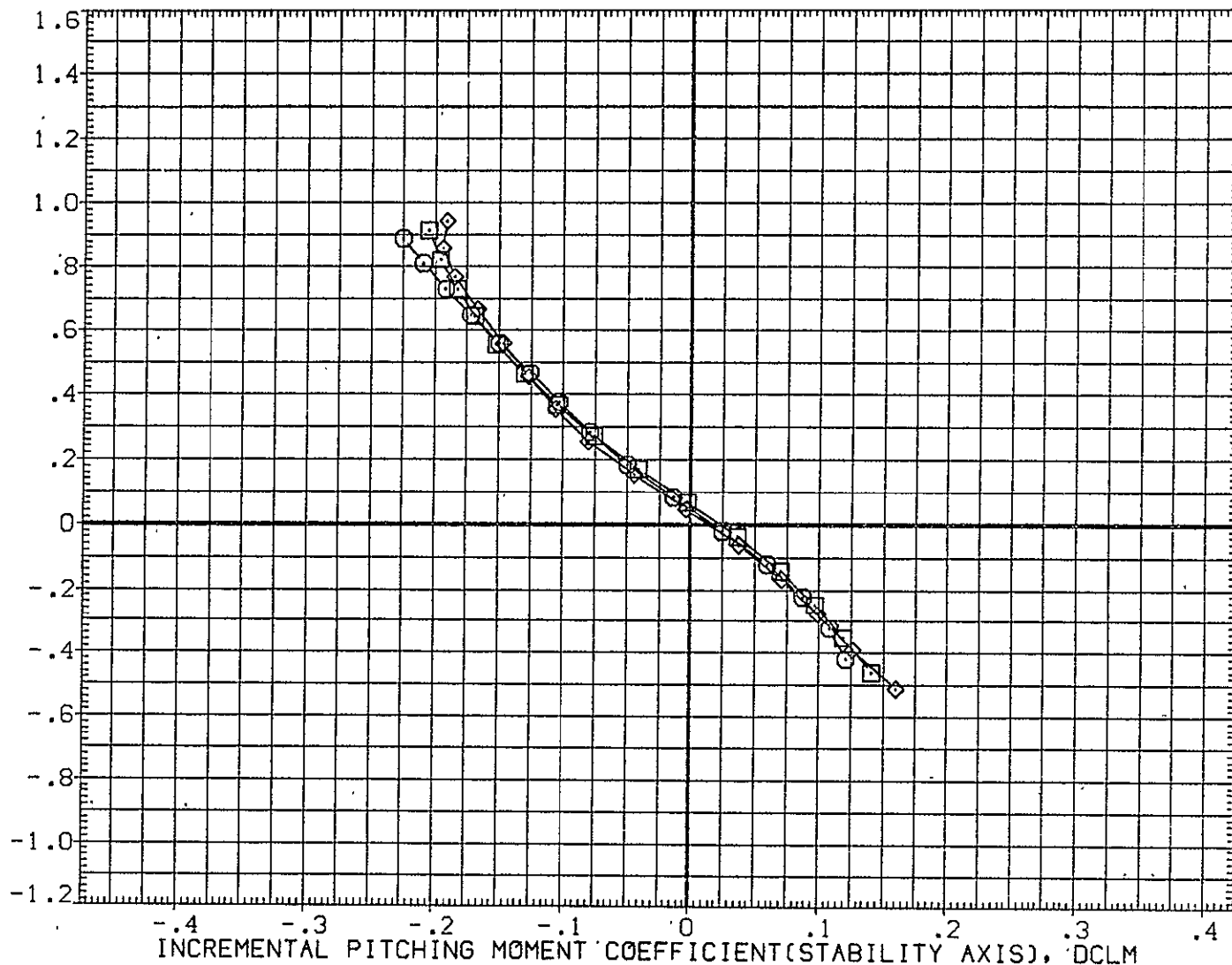


FIG. 15 747+0RB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

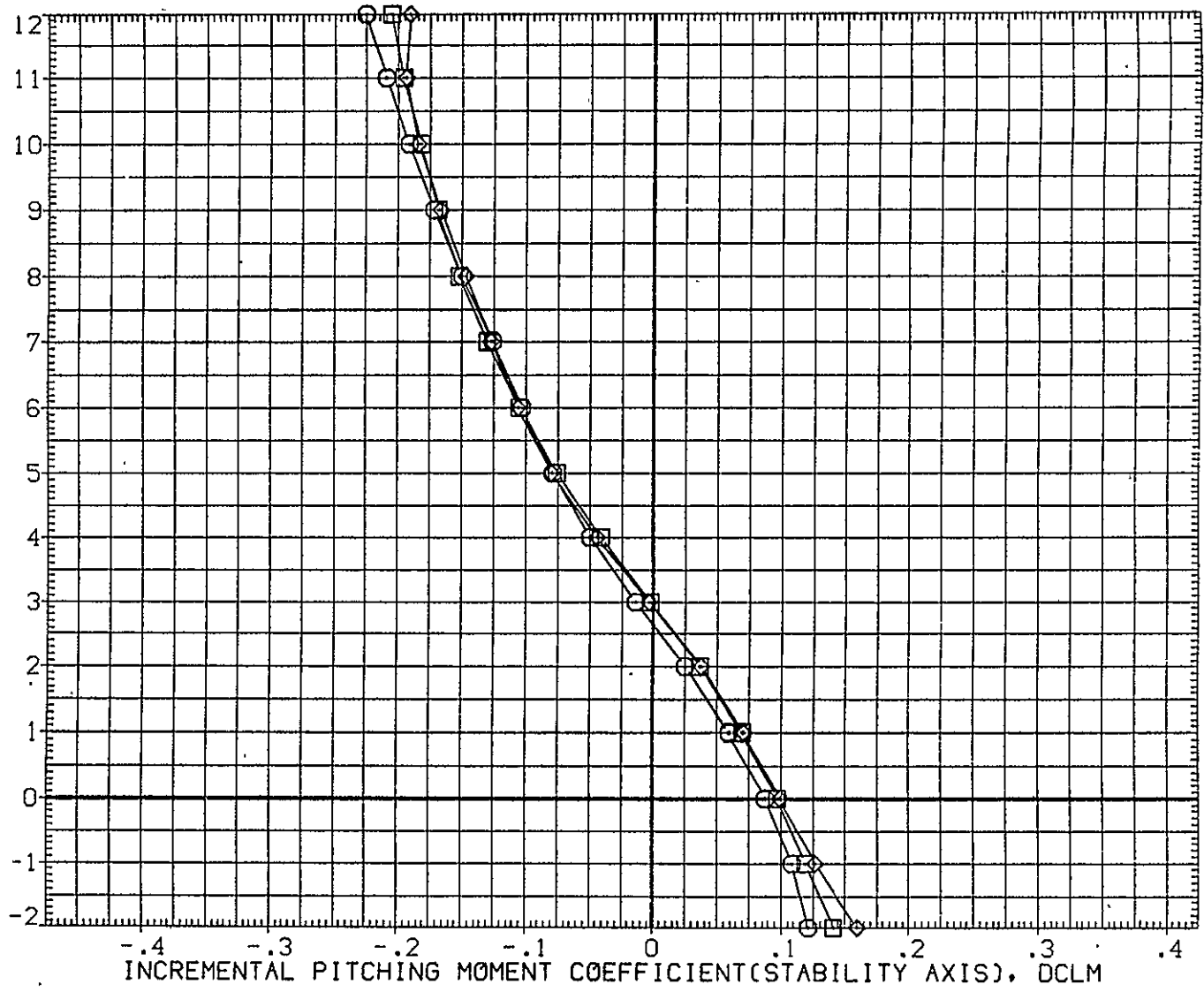


FIG. 15 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) 747

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(DGM065)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	SS-6	45.000	I0RB	9.700

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	474.8100 IN.
BREF	936.6800 IN.
XMRP	1109.0000 IN. X0
YMRP	.0000 IN. Y0
ZMRP	375.0000 IN. Z0
SCALE	.0300

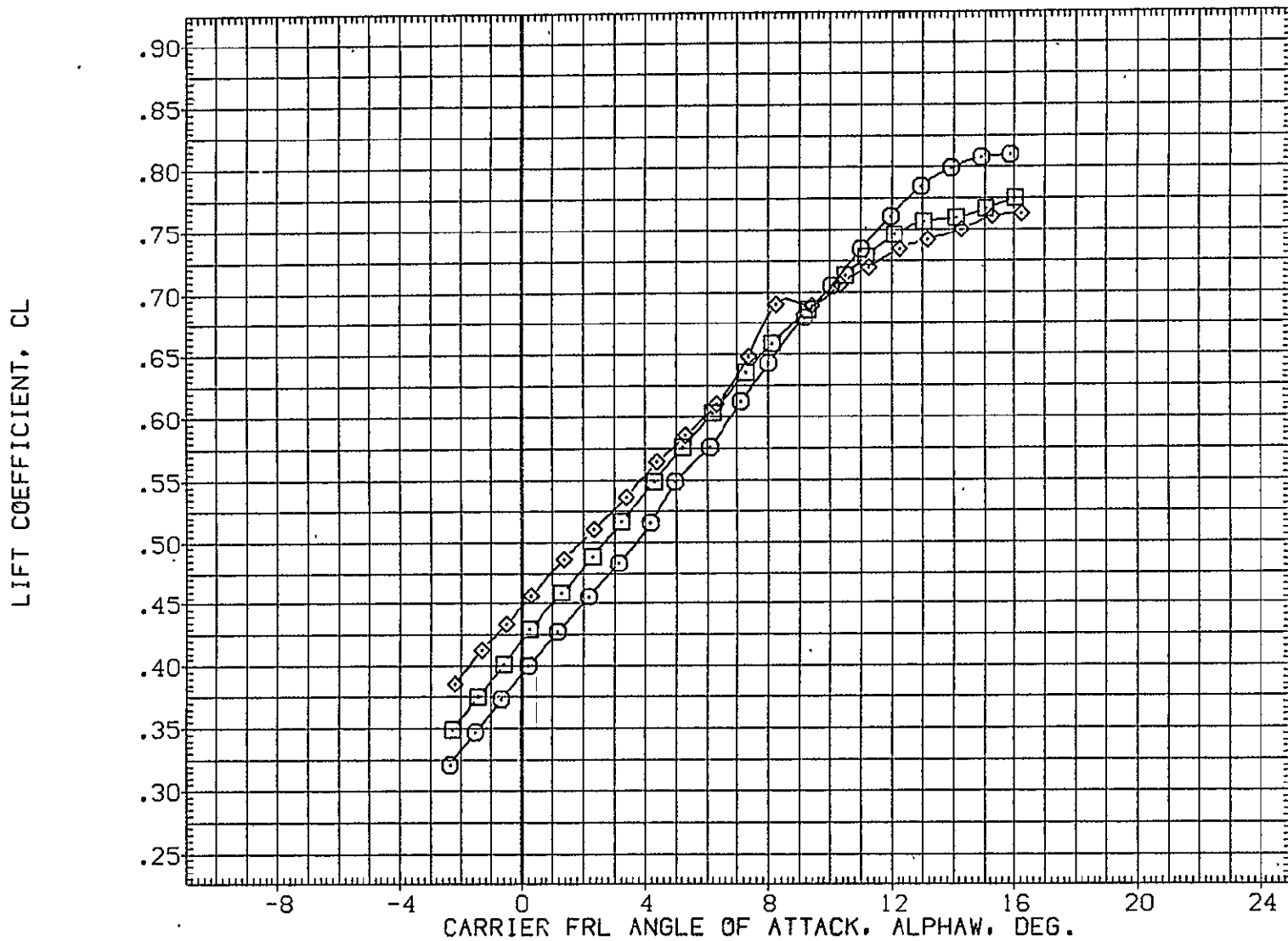


FIG. 16 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1)

0RB



SYMBOL		MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○		.500	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□		.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇		.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
			S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
			S5-6	45.000	IORB	9.700	YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

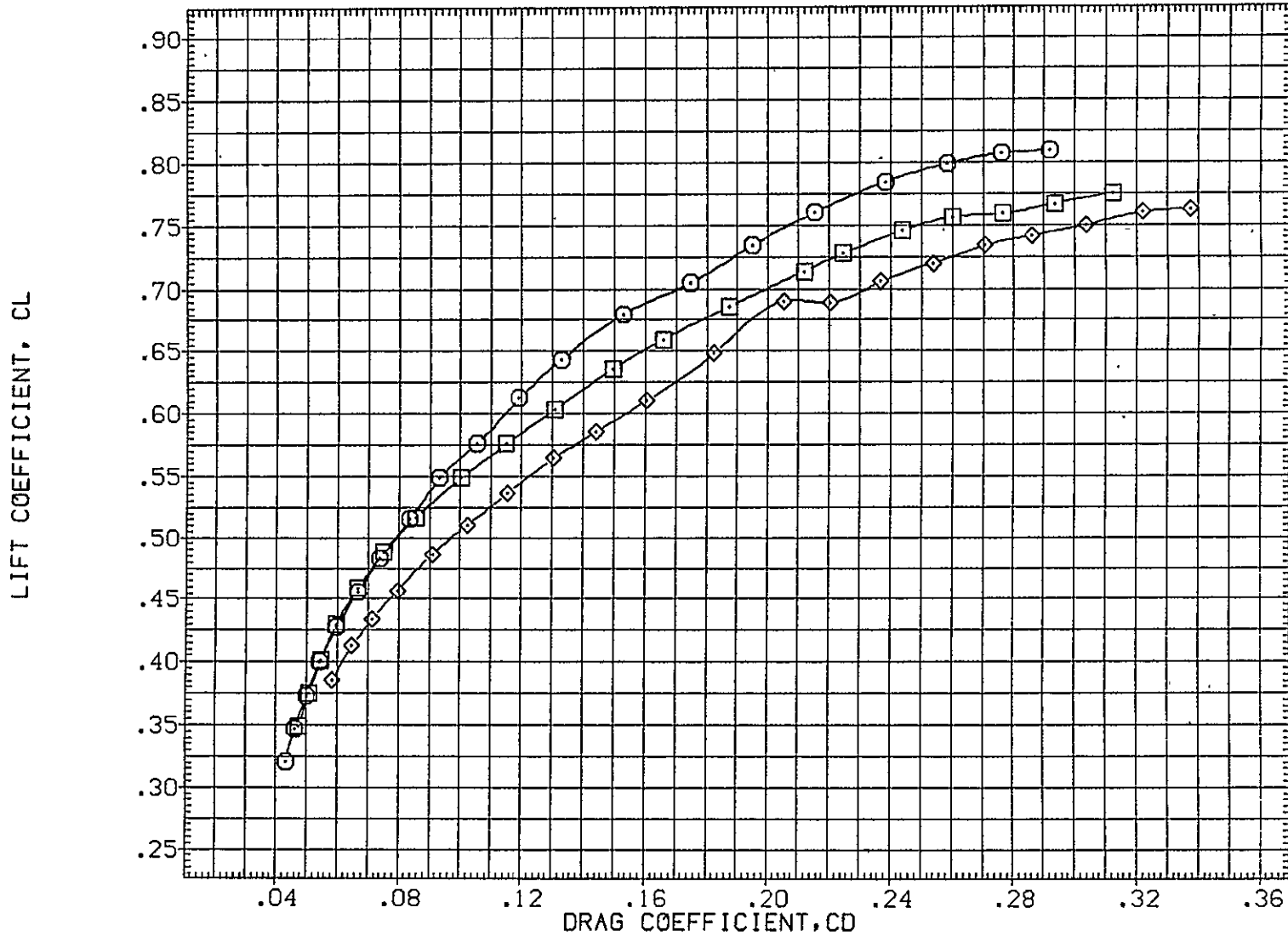


FIG. 16 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) ORB

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(DGM065)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELY-0B	3.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		SS-6	45.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

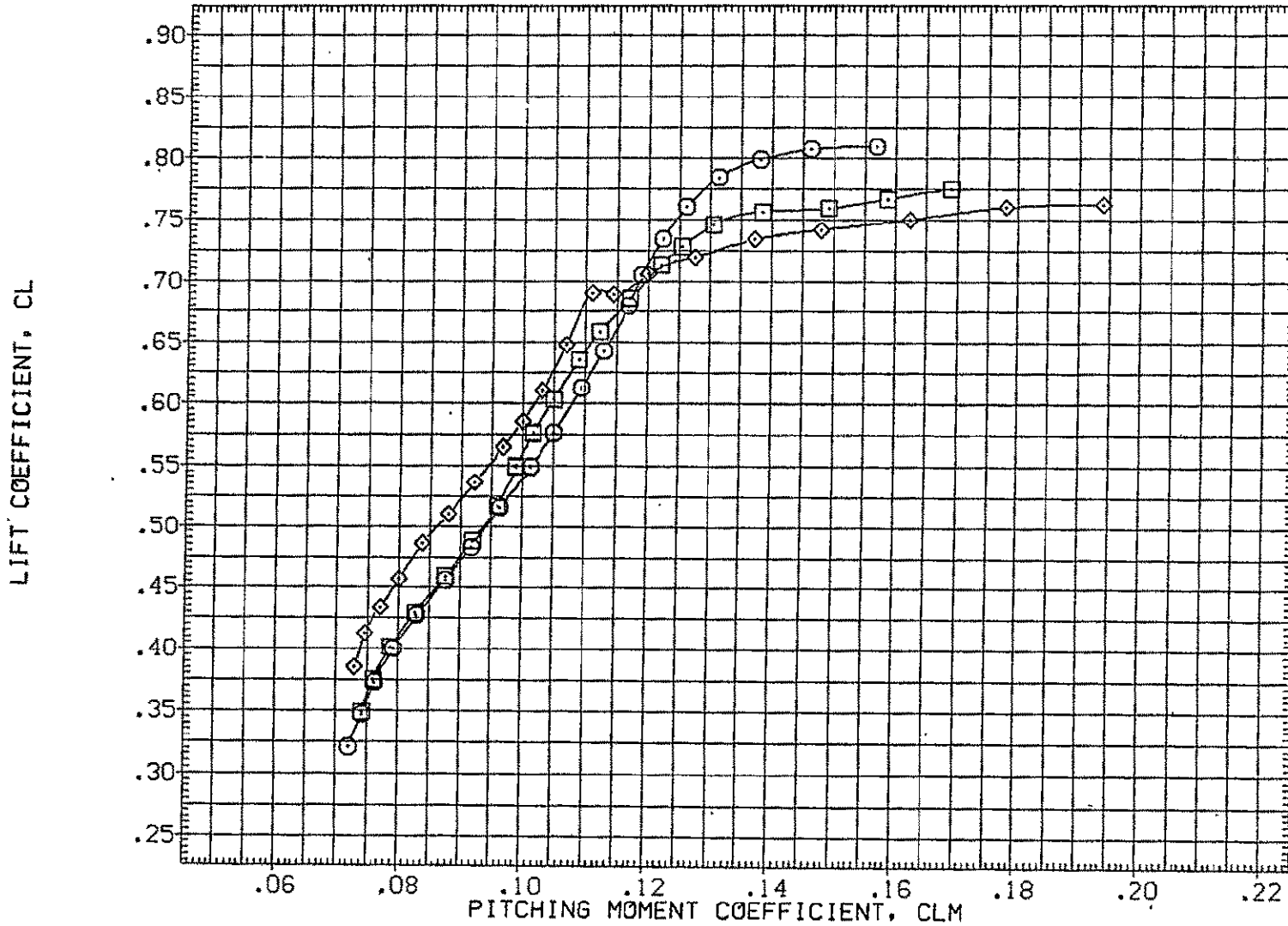


FIG. 16 747+ORB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) ORB

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

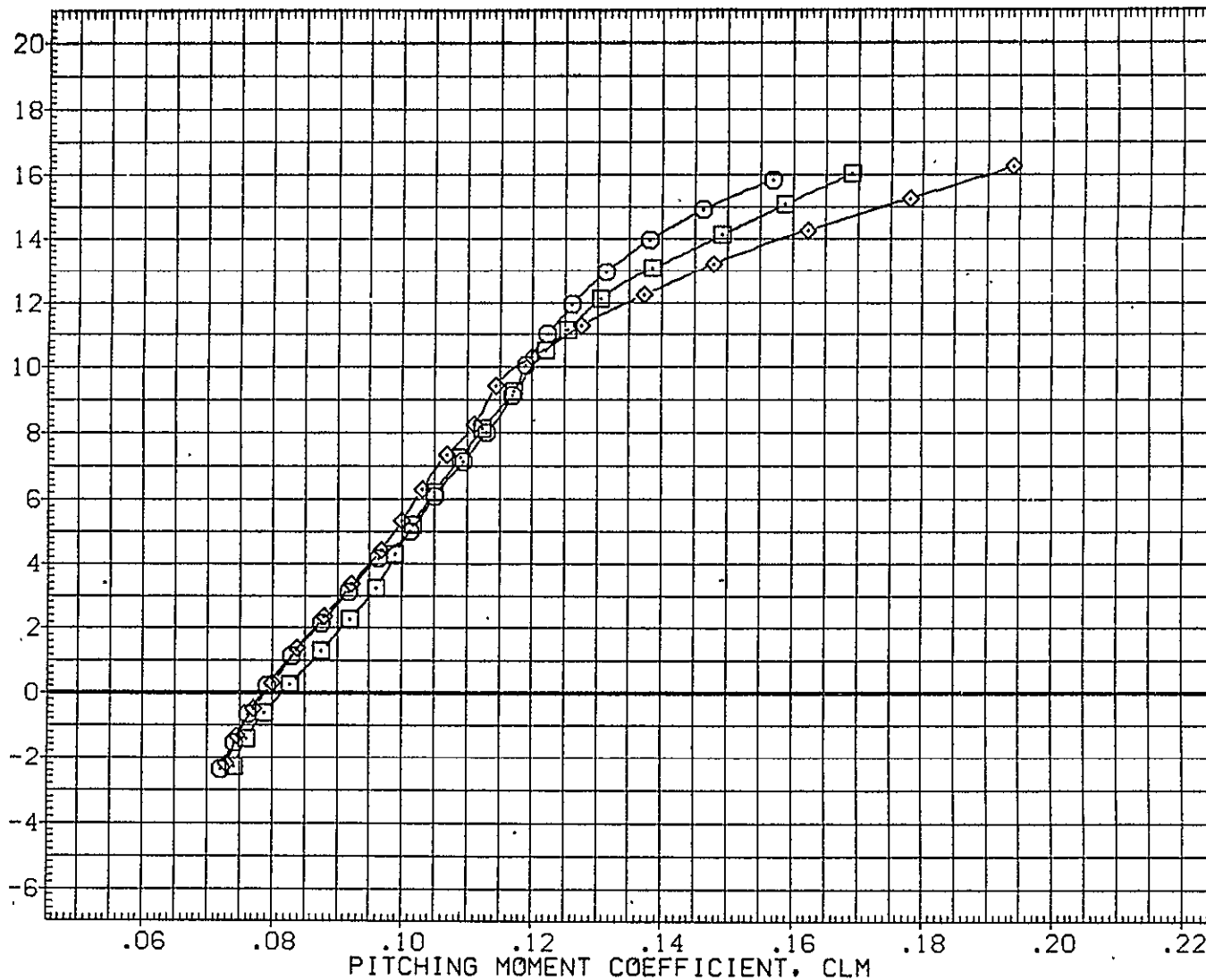


FIG. 16 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, BASELINE(S=+1) ORB

CA5 K1 F20 H15.6 V9.1 (PLUS, ORB TC5 AT38.1 )(RGM068)

SYMBOL  
○  
□  
◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	-2.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

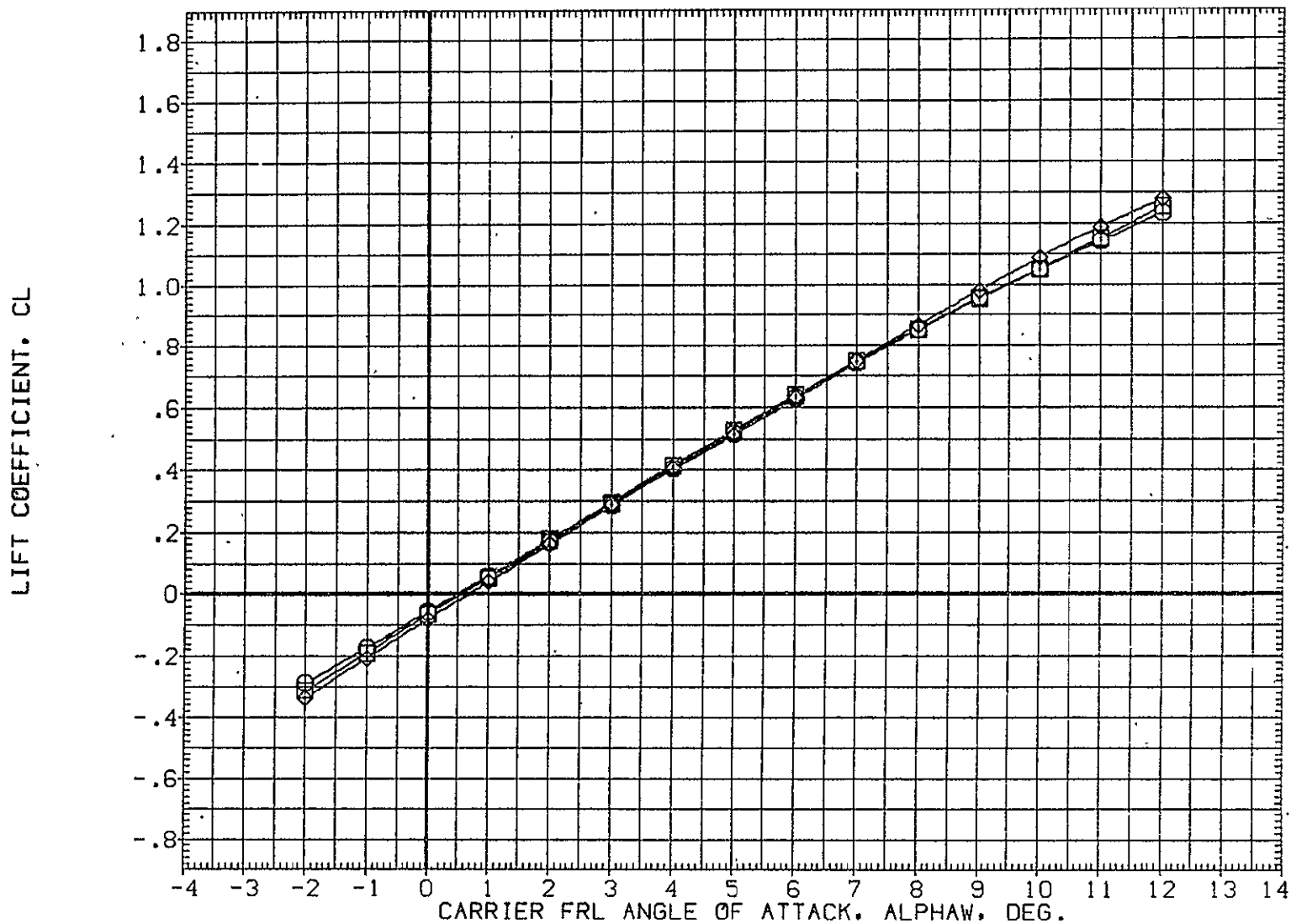


FIG. 17 747+ORB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

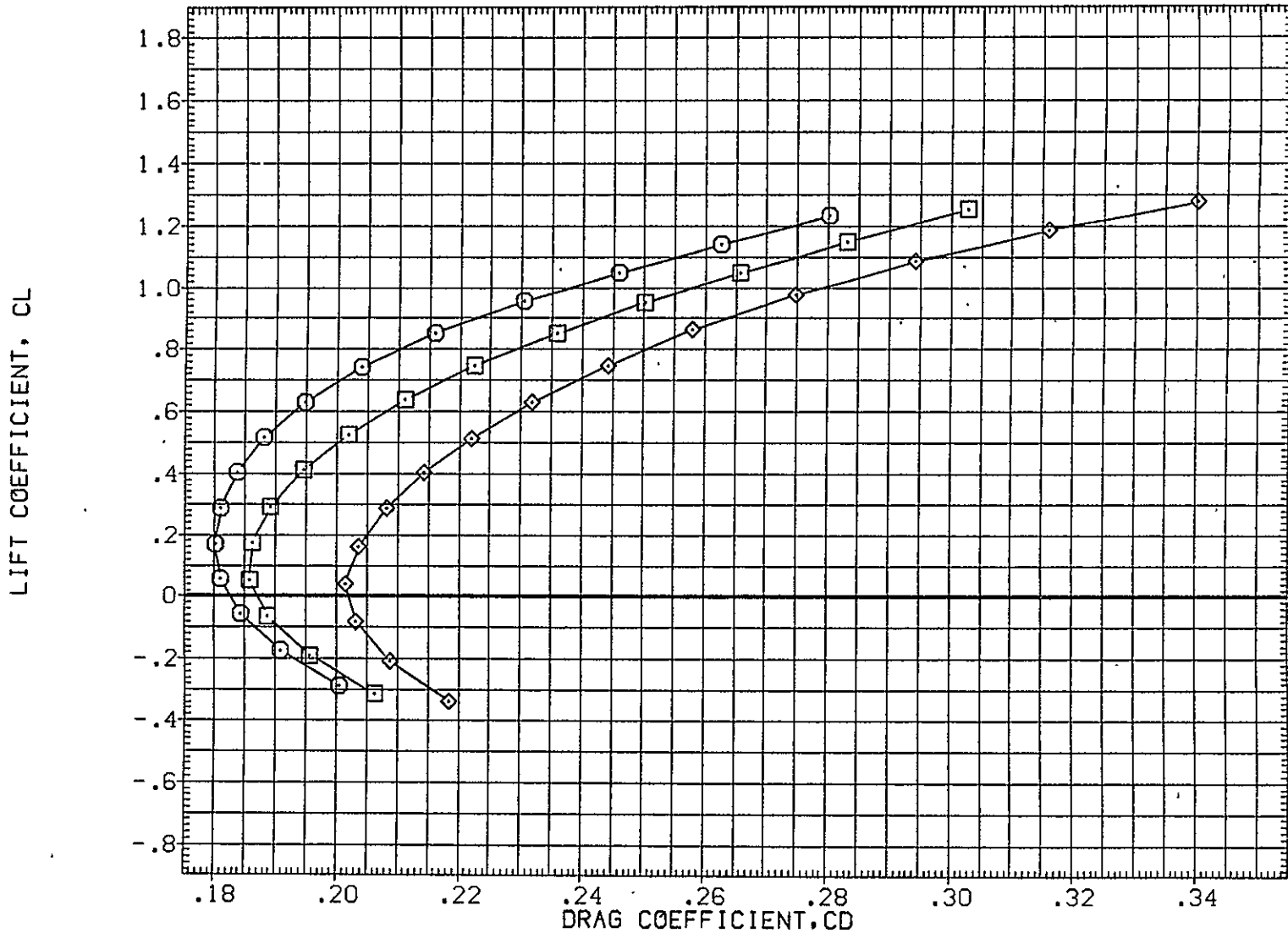


FIG. 17 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM068)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-U	RUD-L	SREF	SG.FT.	LREF
○	.500	.000	-2.000	.000	.000	5500.0000	IN.	327.8000
□	.600	.000	.000	.000	.000	2348.0000	IN.	1339.9100
◇	.700	.000	3.000	.000	.000	.0000	IN. XC	190.7500
		45.000	45.000	45.000	45.000	.0300	IN. YC	
		S5-6	10RB	9.700			IN. ZC	

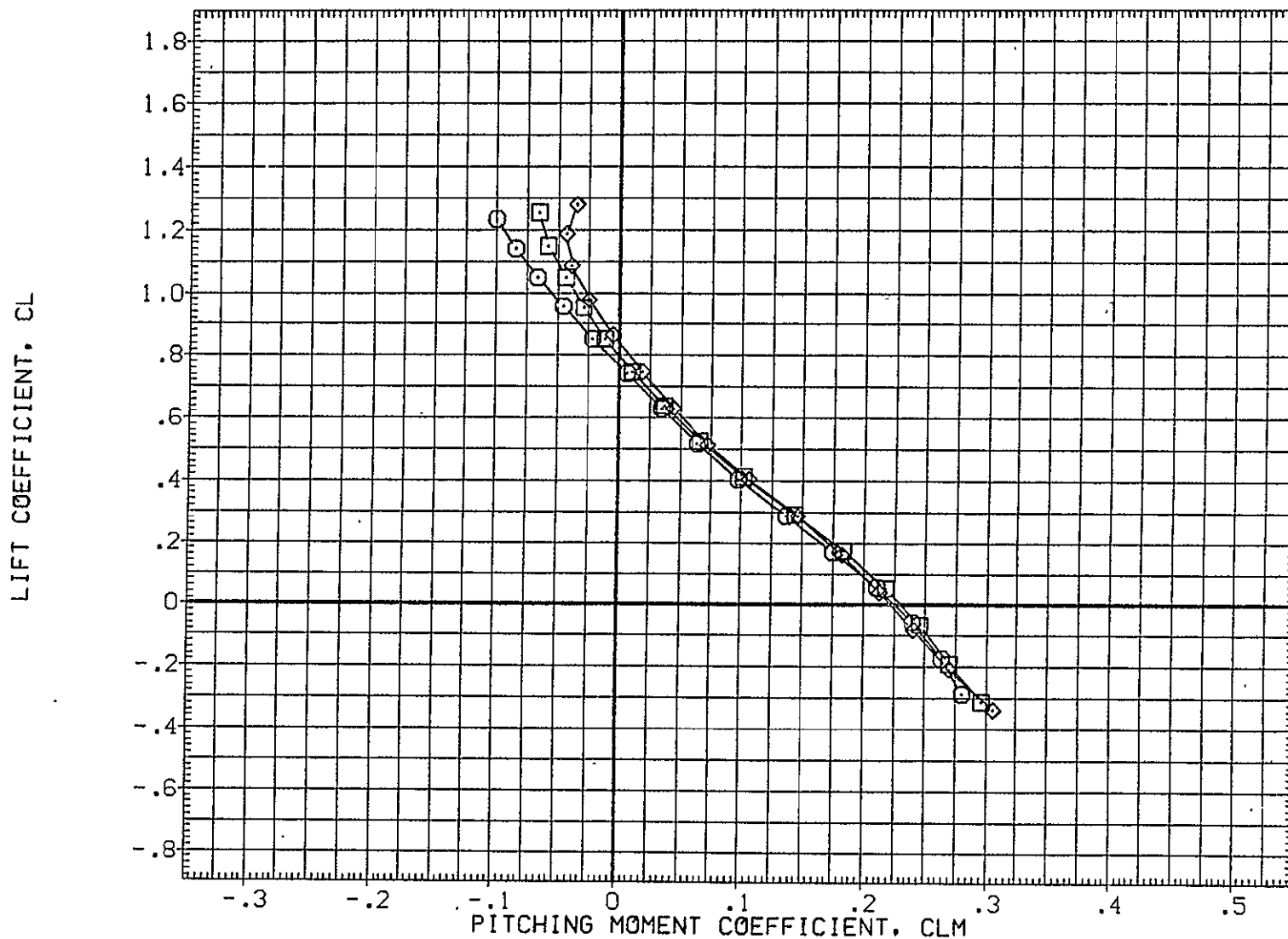


FIG. 17 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	-2.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

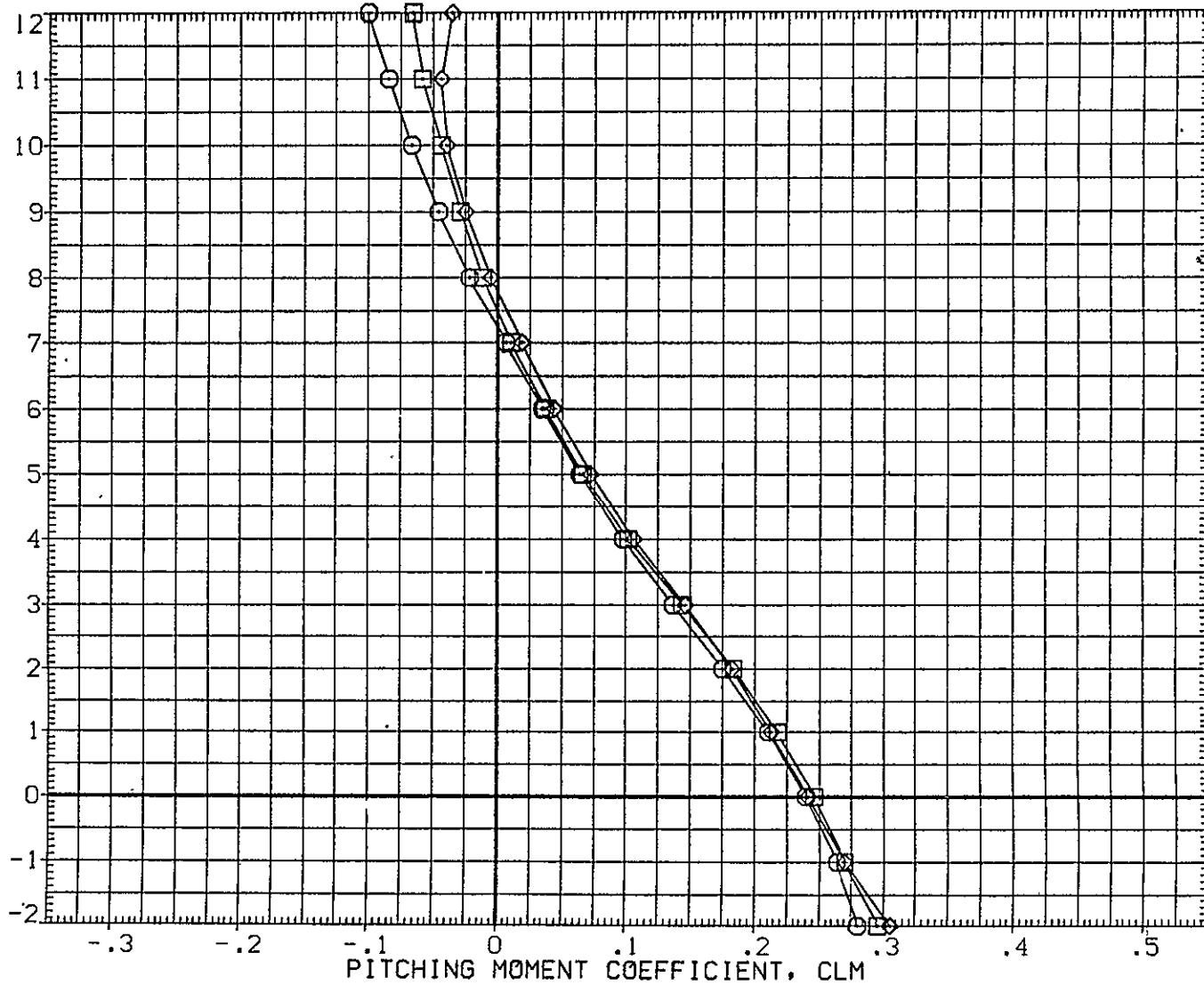


FIG. 17 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM068)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	-2.000	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

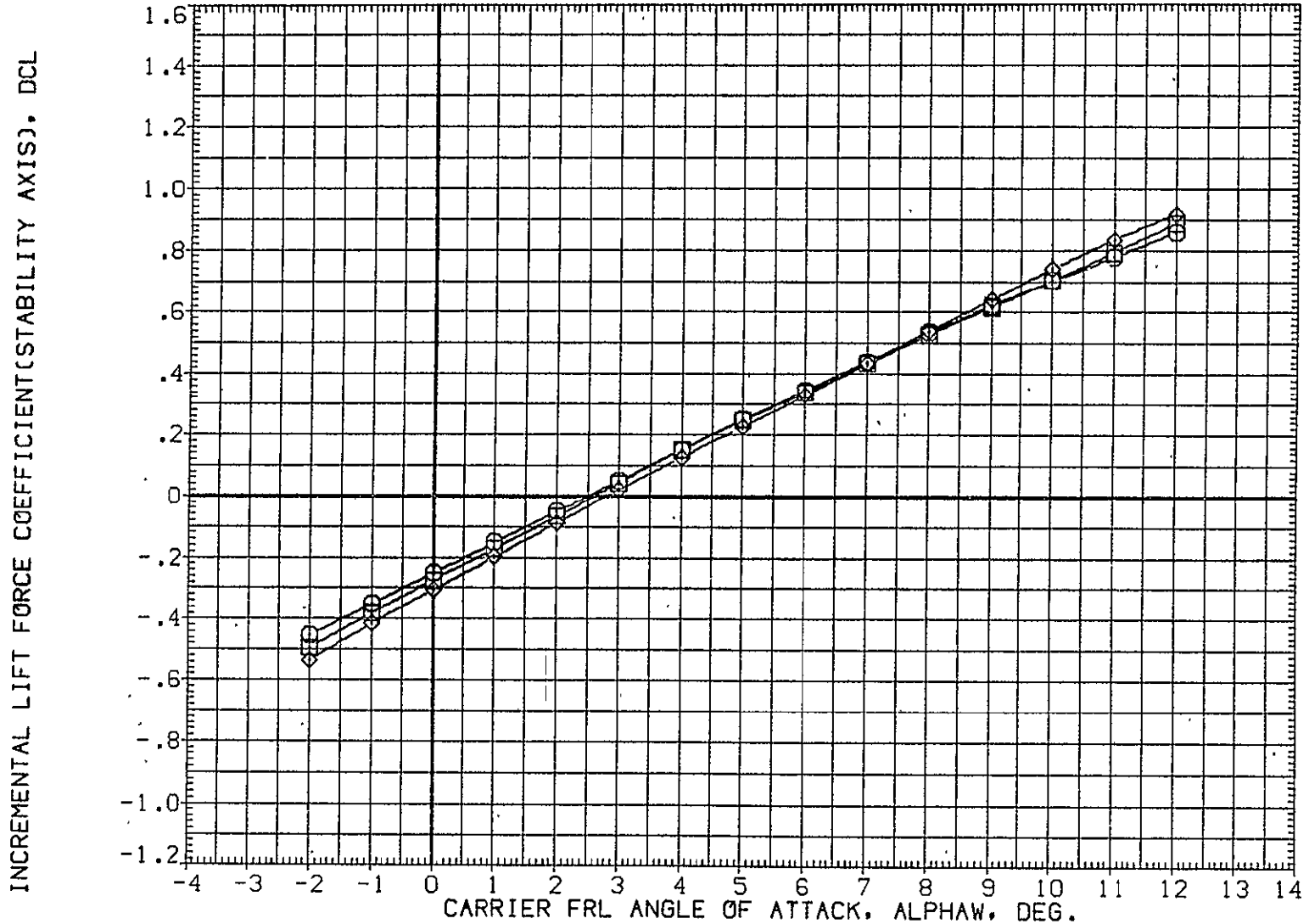


FIG. 18 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

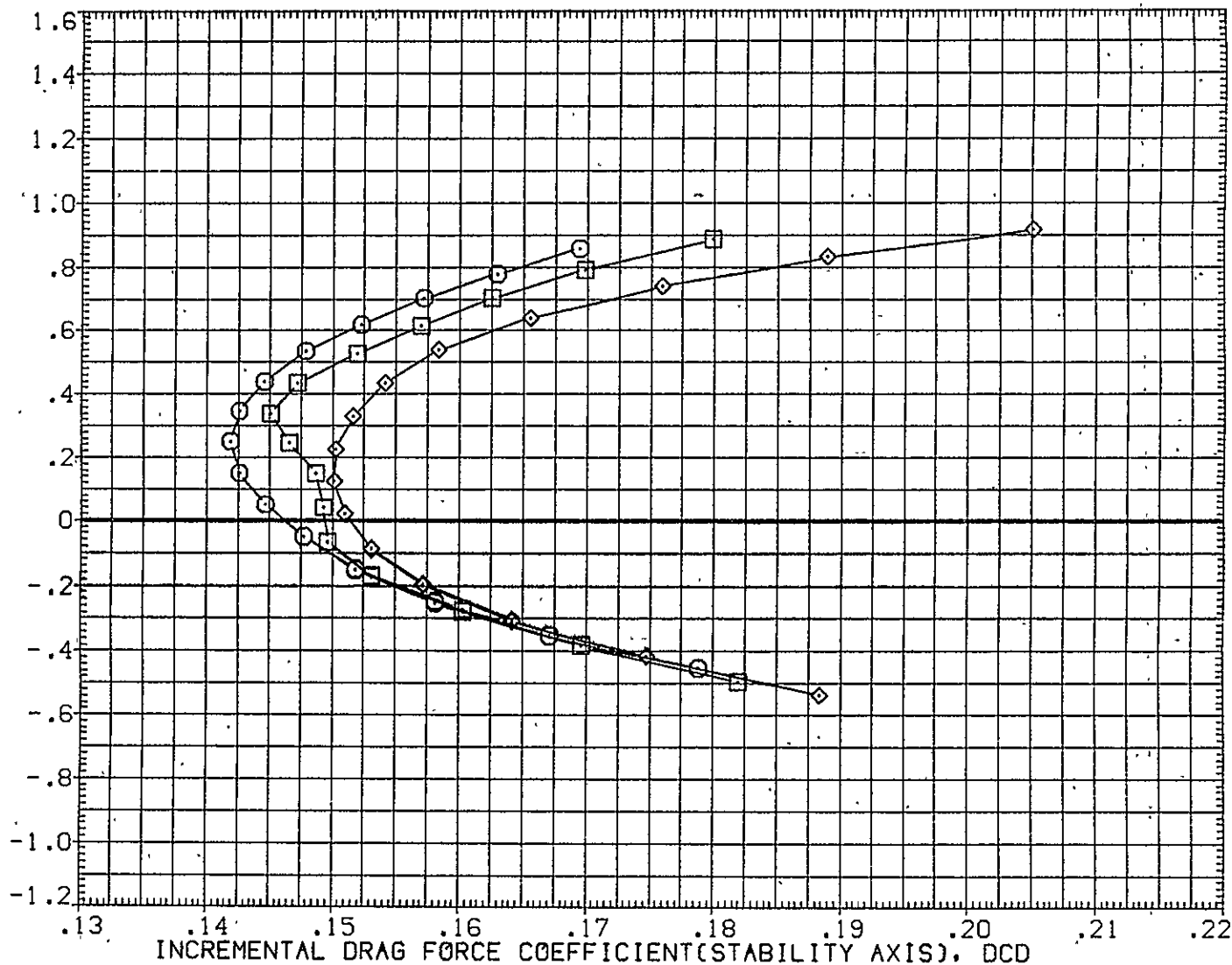


FIG. 18 747+ORB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

CA5 K1 F20 H15.6 V9.1 MINUS 0RB TC5 AT38.1 (BGM068)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ. FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

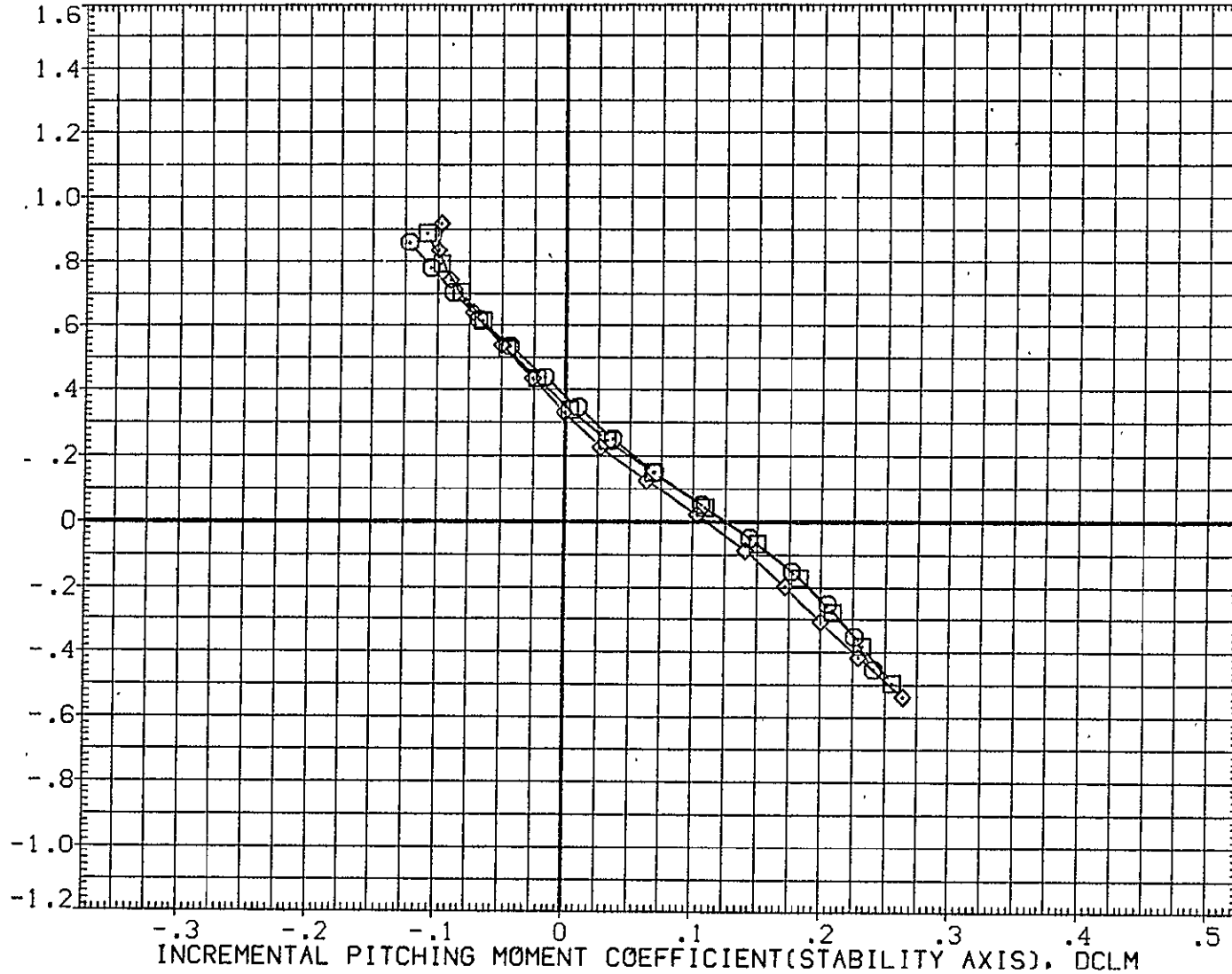


FIG. 18 747+0RB(10 DEG), +TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	-2.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

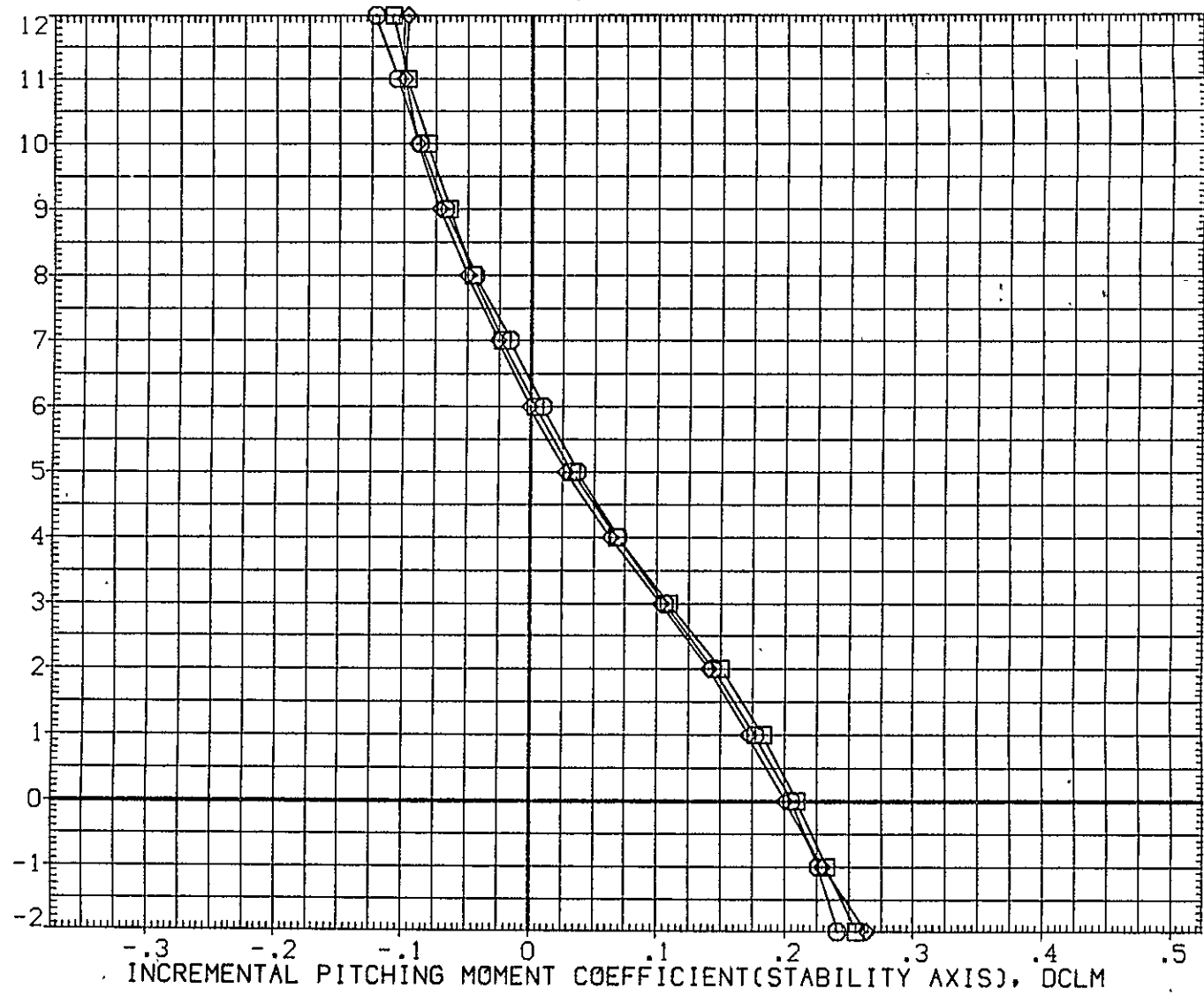


FIG. 18 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM068)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION												
		BETA	STAB	RUD-L	ELV-0B	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.	IN.
○	.501	.000	-2.000	.000	3.000	2690.0000	474.8100	936.6800	1109.0000	.0000	375.0000	.0300						
□	.600	.000	.000	.000	45.000													
◇	.700	.000	.000	.000	45.000													
		S1-2	S3-4	10RB	9.700													

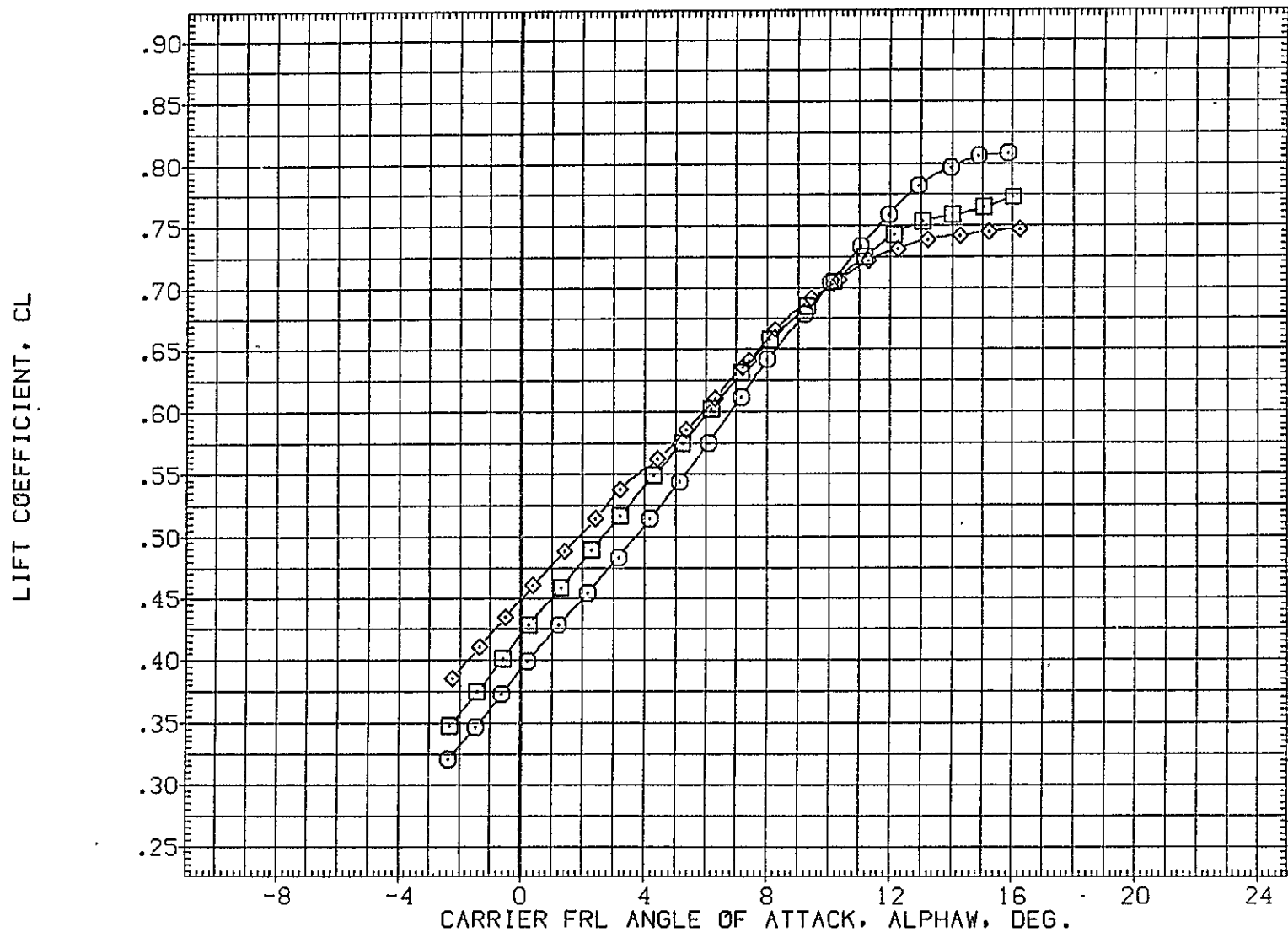


FIG. 19 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

0RB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.501	BETA	.000	STAB	-2.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-OB	3.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SO, FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

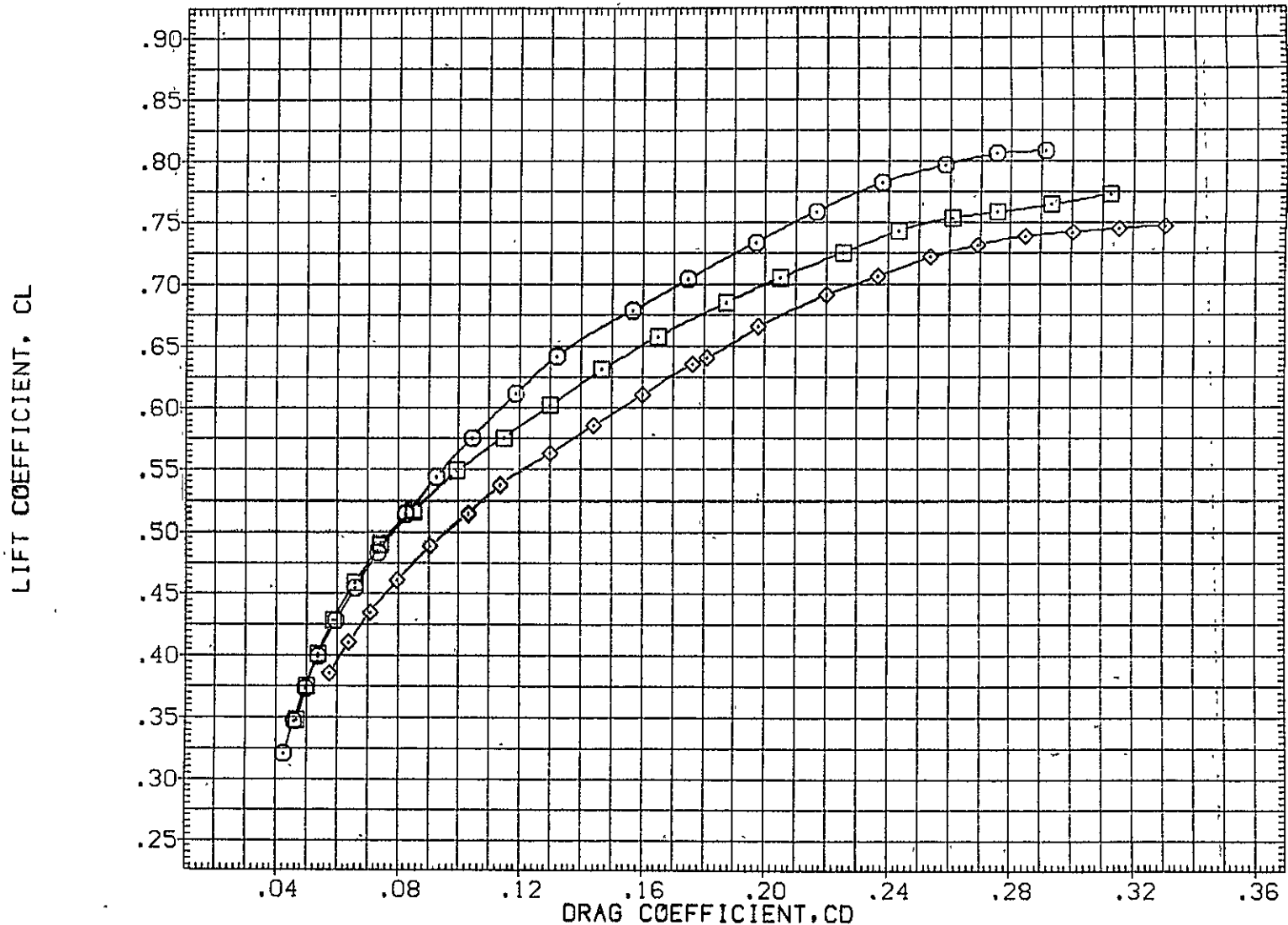


FIG. 19 747+ORB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

ORB

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM068)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-2.000	SREF	2690.0000	50.FT.
○	.501	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

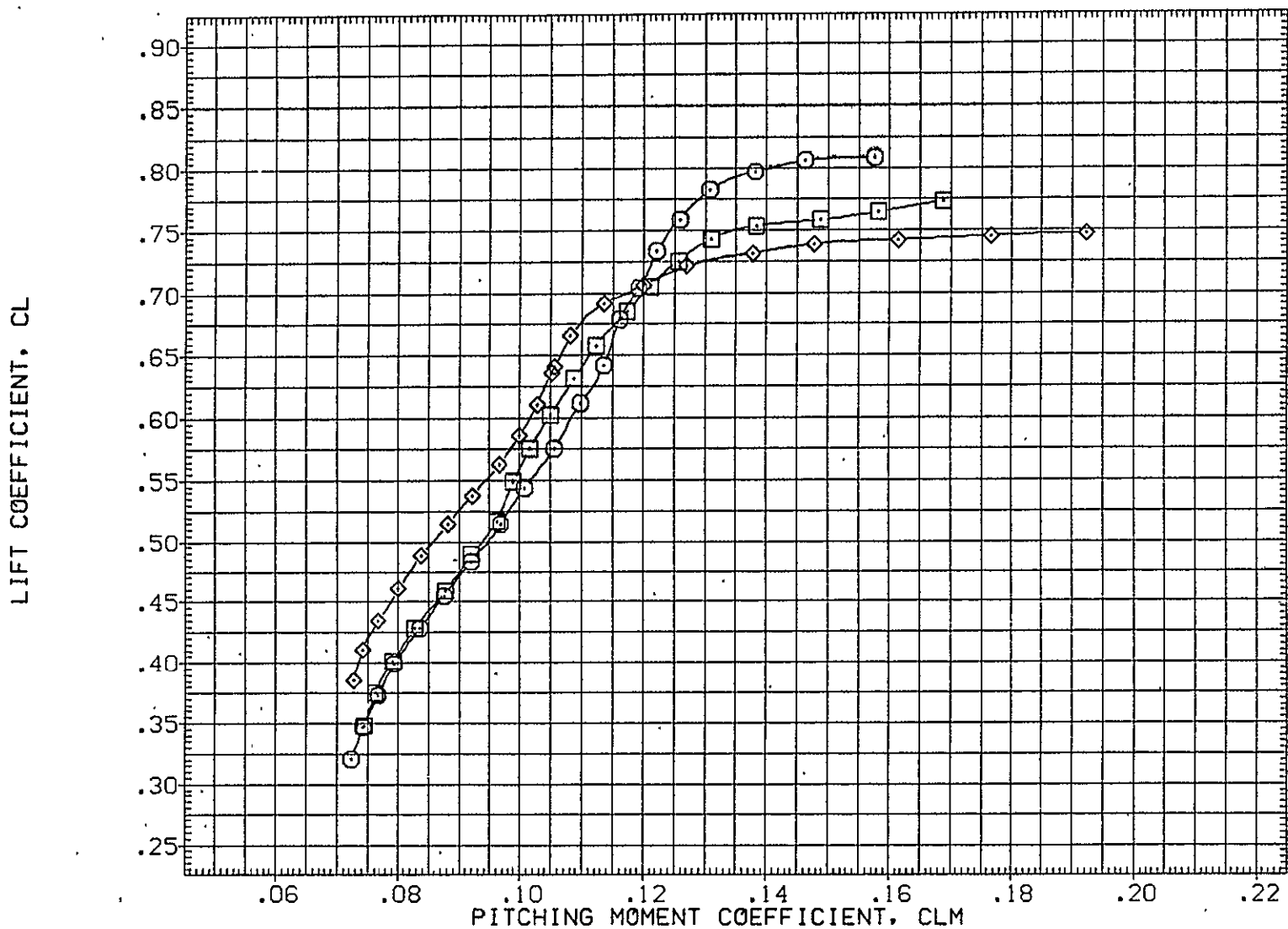


FIG. 19 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-L	RUD-U	SQ.FT.	IN.	IN.
○	.501	.000	-2.000	.000	.000	SREF 2690.0000	IN.	IN.
□	.600	.000	.000	.000	.000	LREF 474.8100	IN.	IN.
◇	.700	.000	3.000	.000	.000	BREF 936.6800	IN.	IN.
		ELV-1B	ELV-0B	SI-2	S3-4	XMRP 1109.0000	IN. X0	IN. Y0
		45.000	45.000	45.000	45.000	YMRP .0000	IN. Y0	IN. Z0
		SS-6	10RB	9.700		ZMRP 375.0000	IN. Z0	
						SCALE .0300		

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

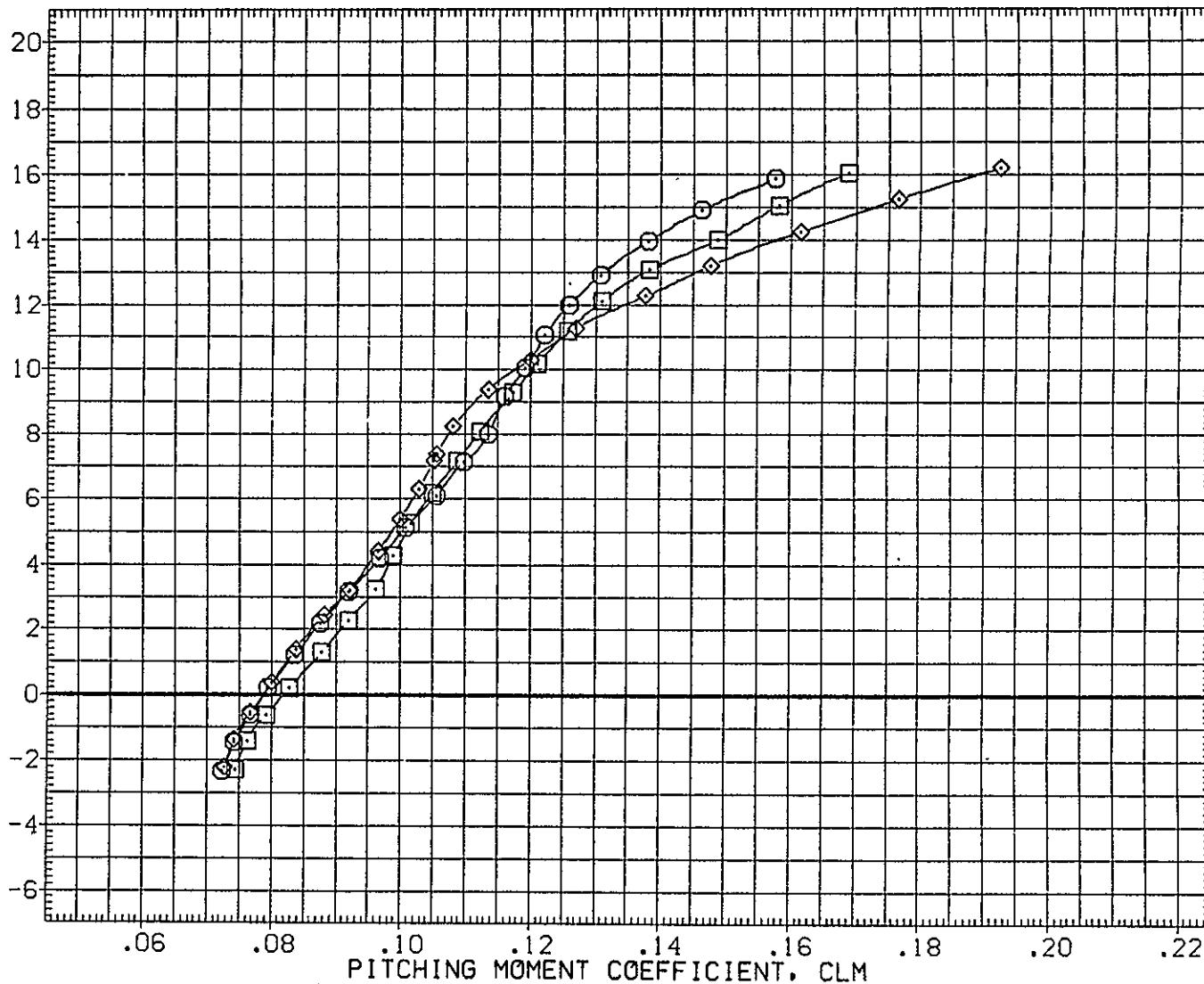


FIG. 19 747+0RB(10 DEG),+TIP FINS +SP45 FLAPS 20 LAUNCH, (S=-2)

0RB

CAS K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM070)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

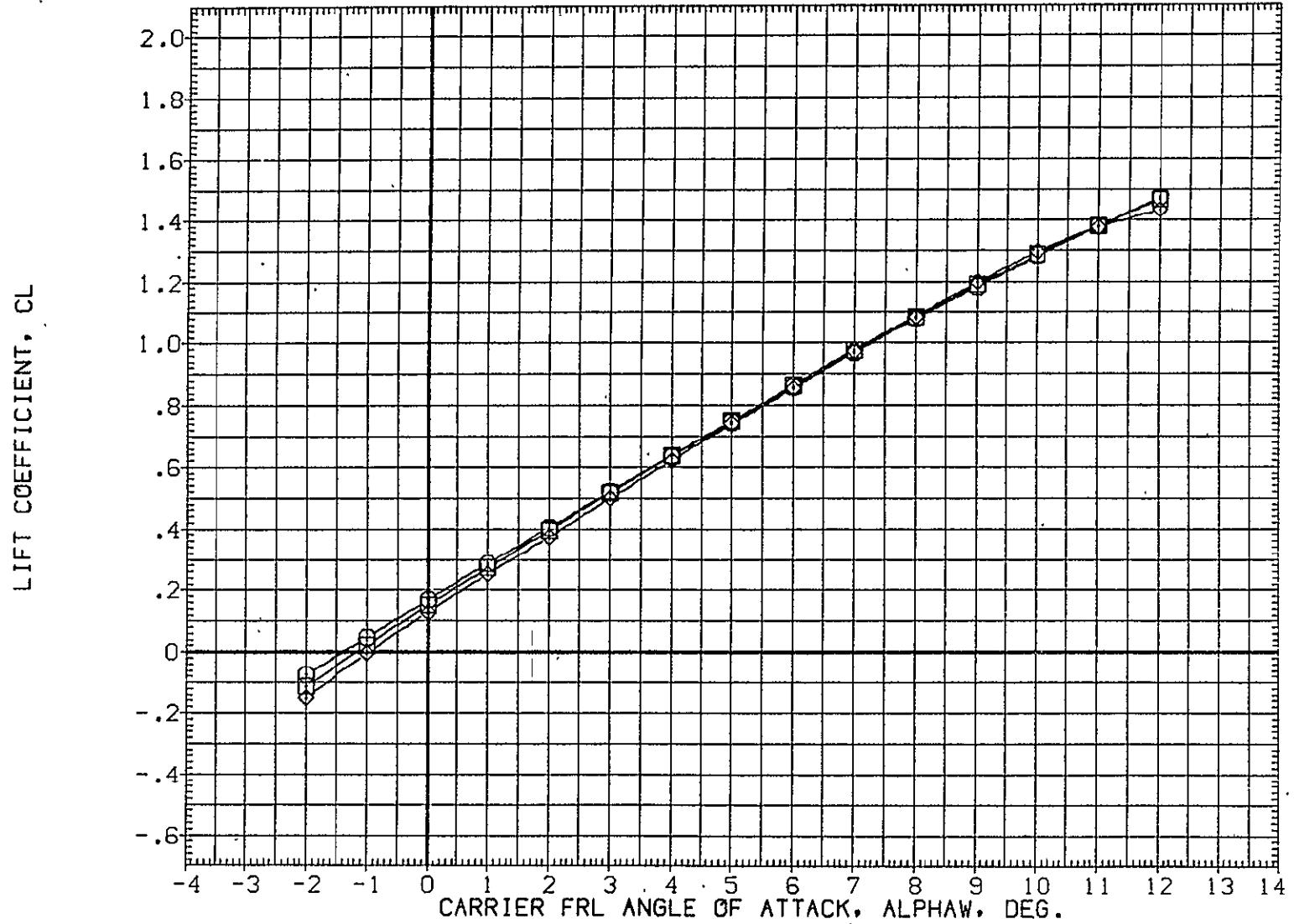


FIG. 20 747+0RB(10 DEG),+TIP FINS +STD SPD BRAKES,FLAPS 20 LAUNCH(S=+1) TOTAL



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		SS-6	20.000	ICRB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	



FIG. 20 747+0RB(10 DEG),+TIP FINS +STD SPD BRAKES,FLAPS 20 LAUNCH(S=+1) TOTAL  
PAGE 78

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM070)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	45.000
	SS-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

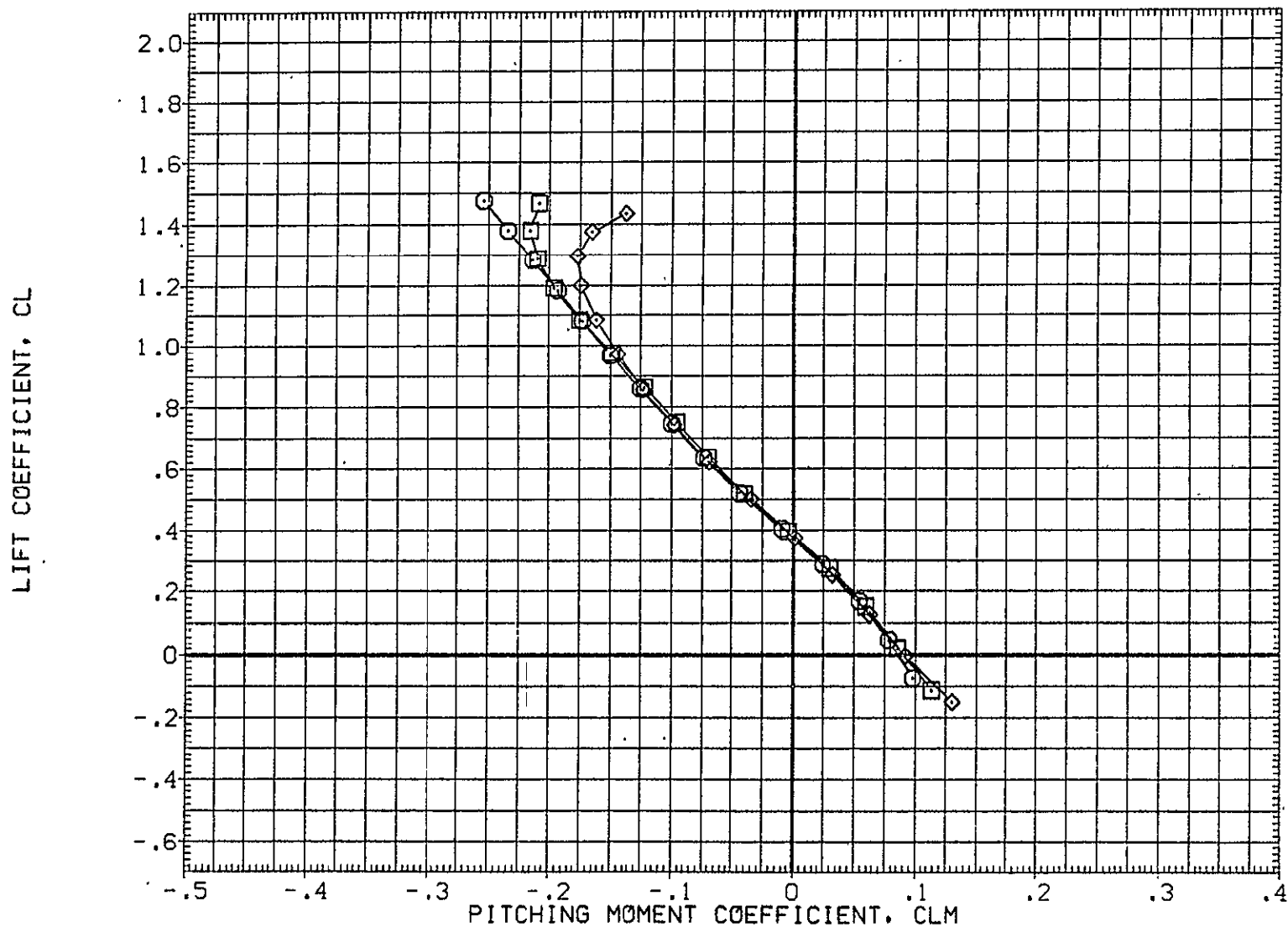


FIG. 20 747+ORB(10 DEG),+TIP FINS +STD SPD BRAKES,FLAPS 20 LAUNCH(S=+1)

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-OB	3.000
		Si-2	.000	S3-4	45.000
		S5-6	20.000	IORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

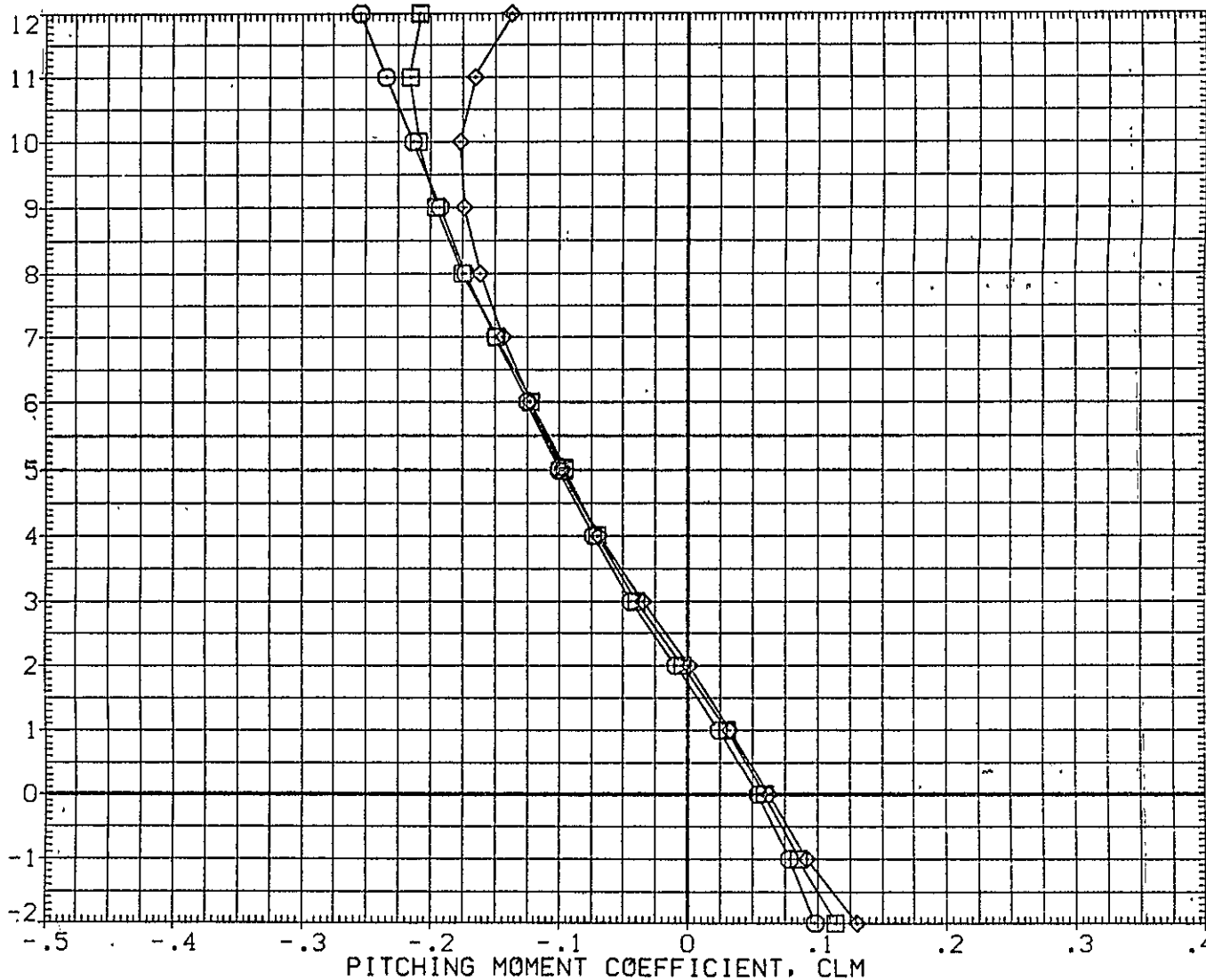


FIG. 20 747+ORB(10 DEG), +TIP FINS +STD SPD BRAKES, FLAPS 20 LAUNCH(S=+1) TOTAL

CA5 K1 F20 H15.6 V9.1 MINUS 0RB TC5 AT38.1 (BGM070)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

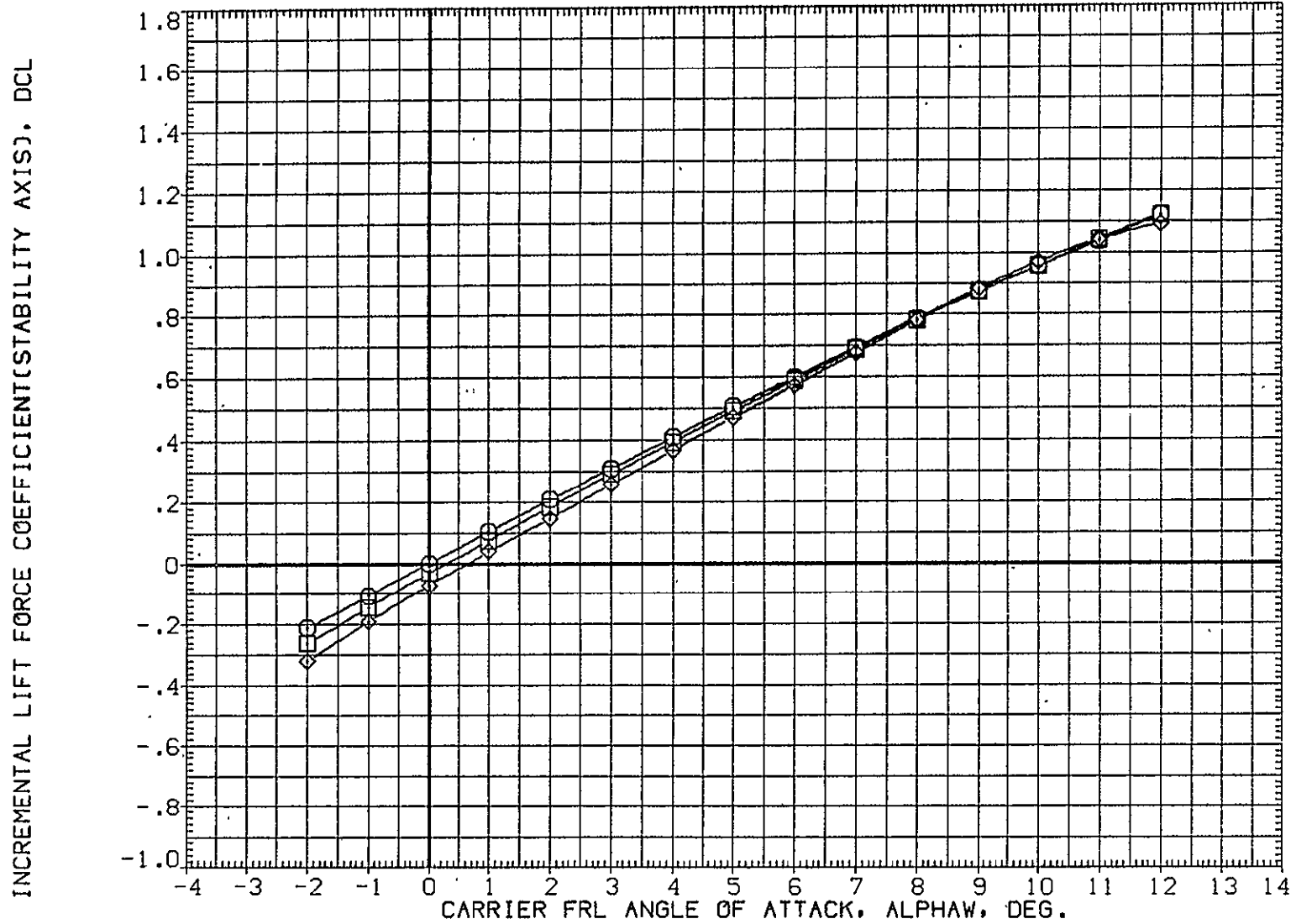


FIG. 21 747+0RB(10 DEG),+TIP FINS +STD SPD BRAKES,FLAPS 20 LAUNCH(S=+1)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	45.000
	S5-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

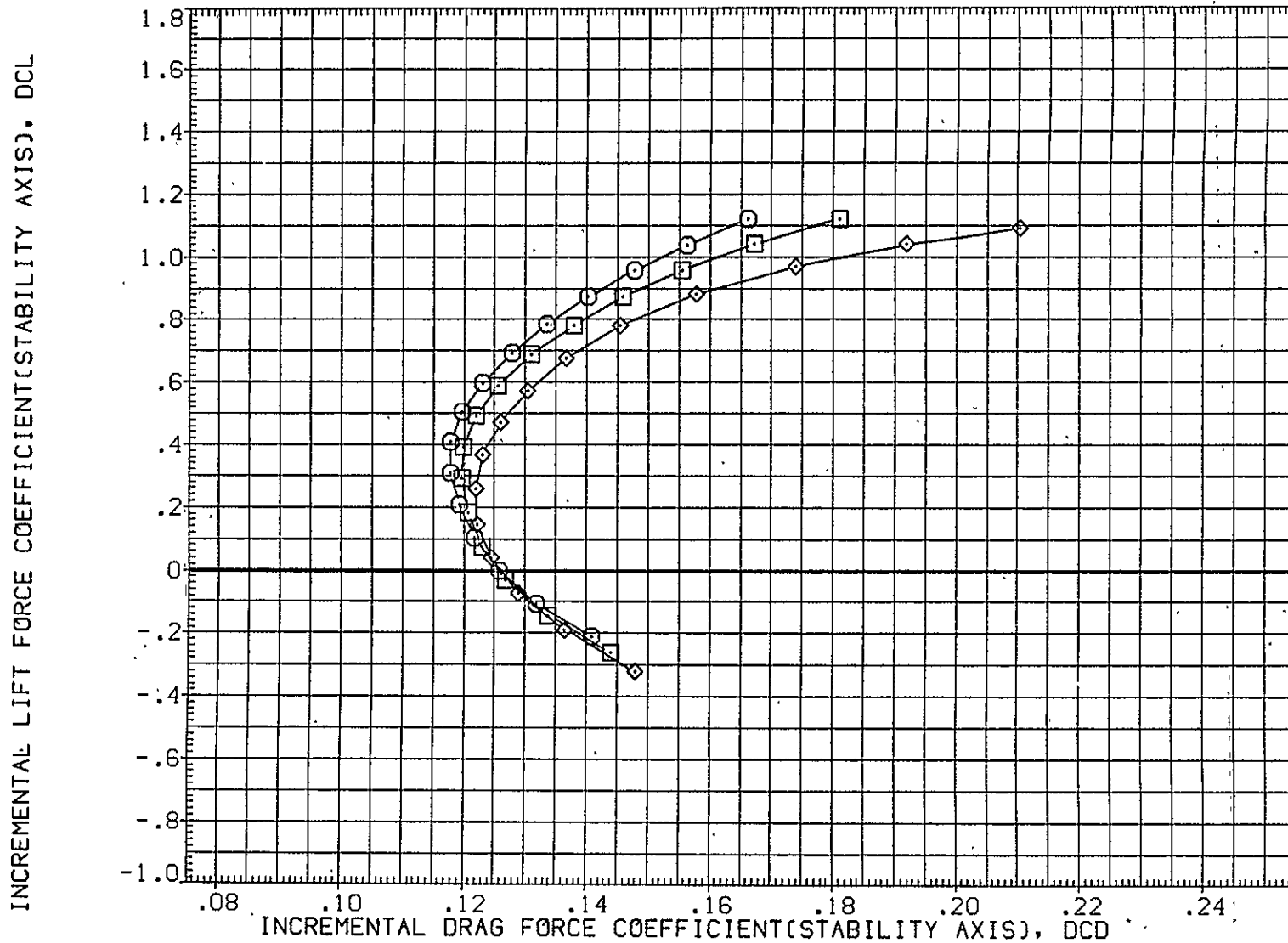


FIG. 21 747+0RB(10 DEG), +TIP FINS +STD SPD BRAKES, FLAPS 20 LAUNCH(S=+1)

CA5 K1 F20 H15.6 V9.1 MINUS .0RB TC5 AT38.1 (BGM070)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	45.000
	S5-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

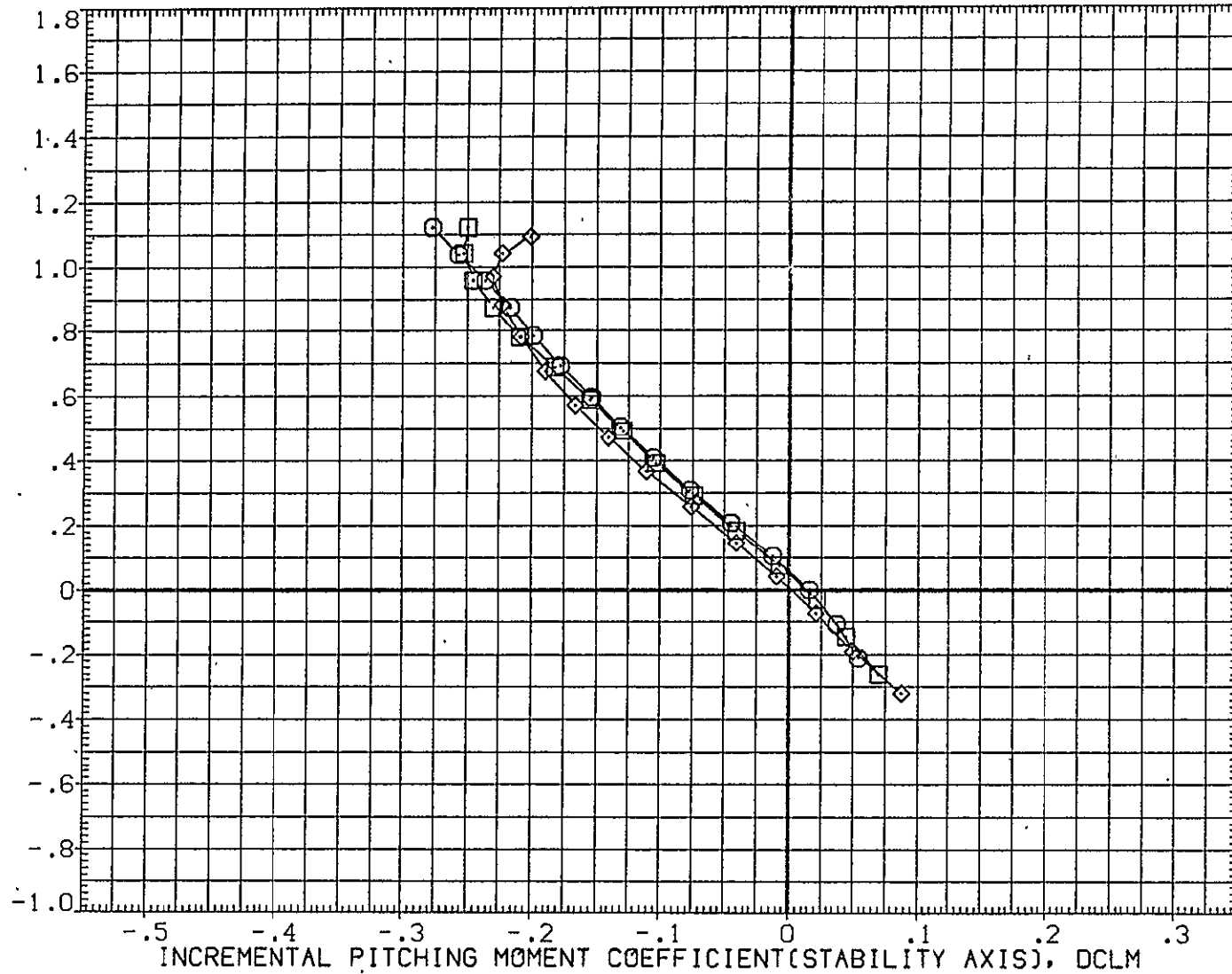


FIG. 21 747+0RB(10 DEG), +TIP FINS +STD SPD BRAKES, FLAPS 20 LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		SS-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

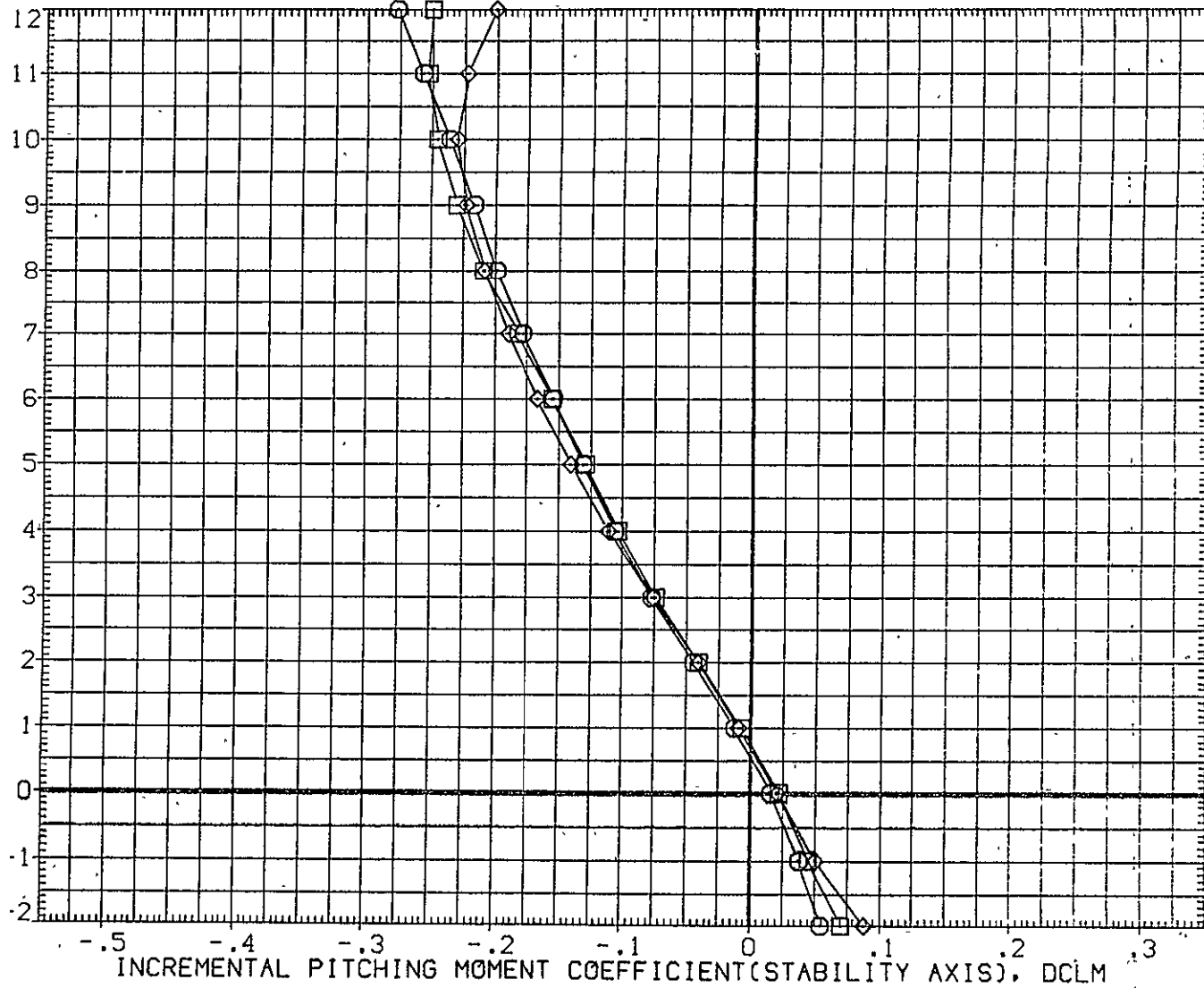


FIG. 21 747+0RB(10 DEG), +TIP FINS +STD SPD BRAKES, FLAPS 20 LAUNCH(S=+1) 747

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM070)

SYMBOL

◇ □ ○

MACH

.499  
.599  
.701

BETA  
RUD-U  
ELV-IB  
S1-2  
S5-6

PARAMETRIC VALUES

.000 STAB 1.000  
.000 RUD-L .000  
.000 ELV-OB 3.000  
.000 S3-4 45.000  
20.000 IORB 9.700

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
LREF 474.8100 IN.  
BREF 936.6800 IN.  
XMRP 1109.0000 IN. X0  
YMRP .0000 IN. Y0  
ZMRP 375.0000 IN. Z0  
SCALE .0300

LIFT COEFFICIENT, CL

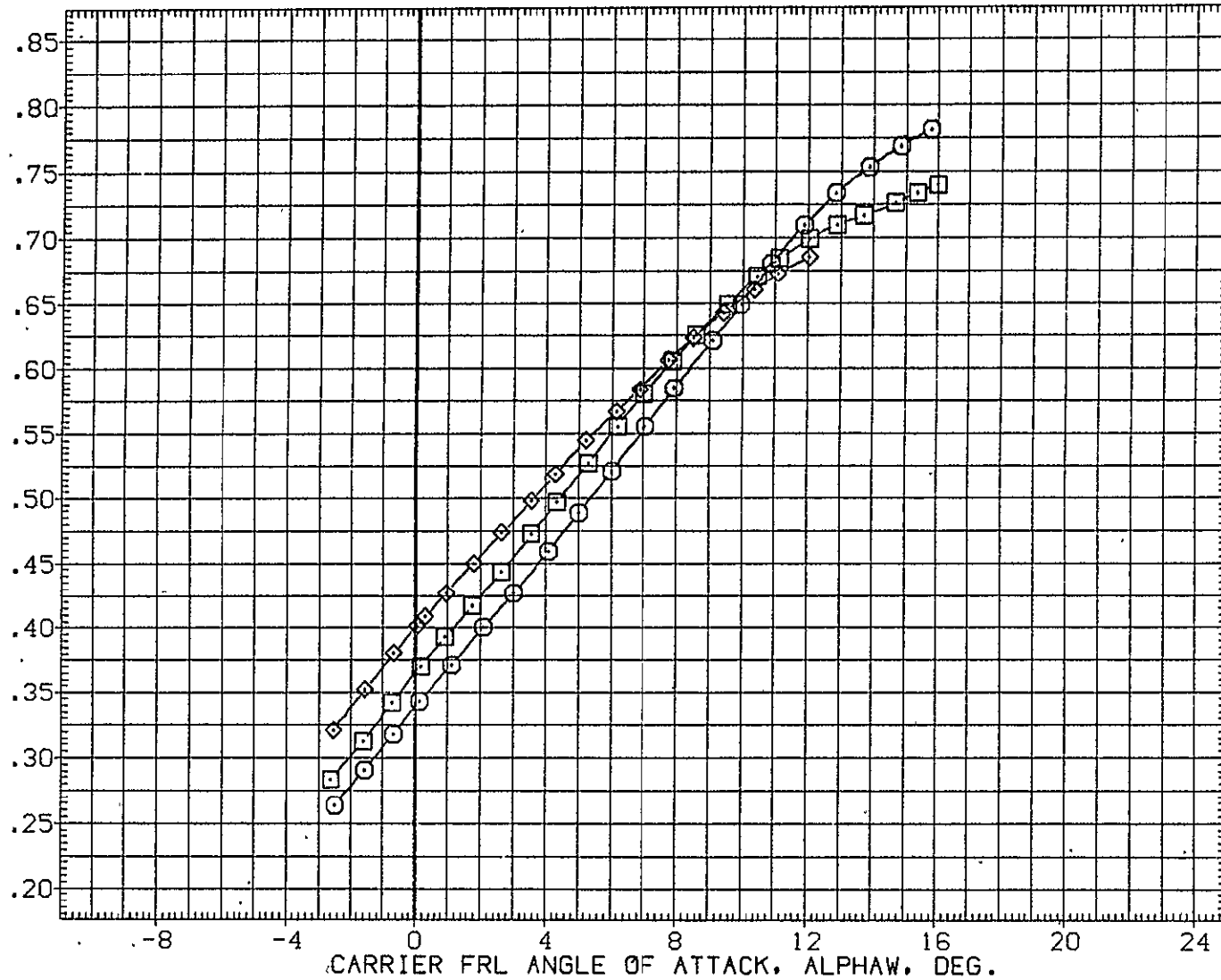


FIG. 22 747+0RB(10 DEG),+TIP FINS +STD SPD BRAKES,FLAPS 20 LAUNCH(S=+1)

0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	STAB	STAB	SREF	SO.FT.	
○	.499	.000	1.000			2690.0000		
◇	.599	.000	.000			474.8100	IN.	
◇	.701	.000	3.000			936.6800	IN.	
		ELV-1B	ELV-0B			XMRP	1109.0000	IN. X0
		S1-2	S3-4	45.000		YMRP	.0000	IN. Y0
		S5-6	10RB	9.700		ZMRP	375.0000	IN. Z0
						SCALE	.0300	

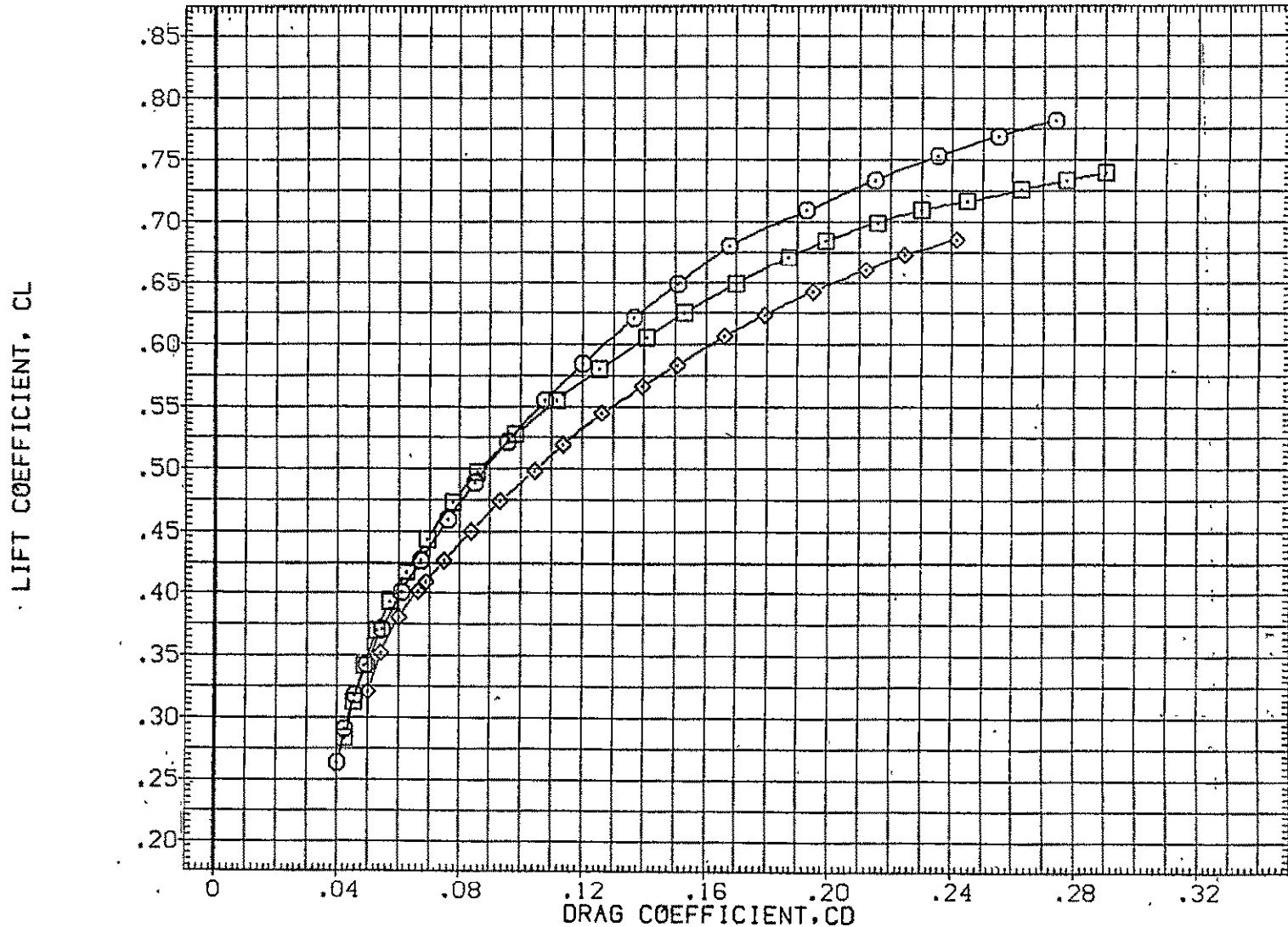


FIG. 22 747+ORB(10 DEG),+TIP FINS +STD SPD BRAKES,FLAPS 20 LAUNCH(S=+1) ORB

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM070)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.499	BETA	.000	STAB	1.000
.599	RUD-U	.000	RUD-L	.000
.701	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	45.000
	S5-6	20.000	10RB	9.700

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

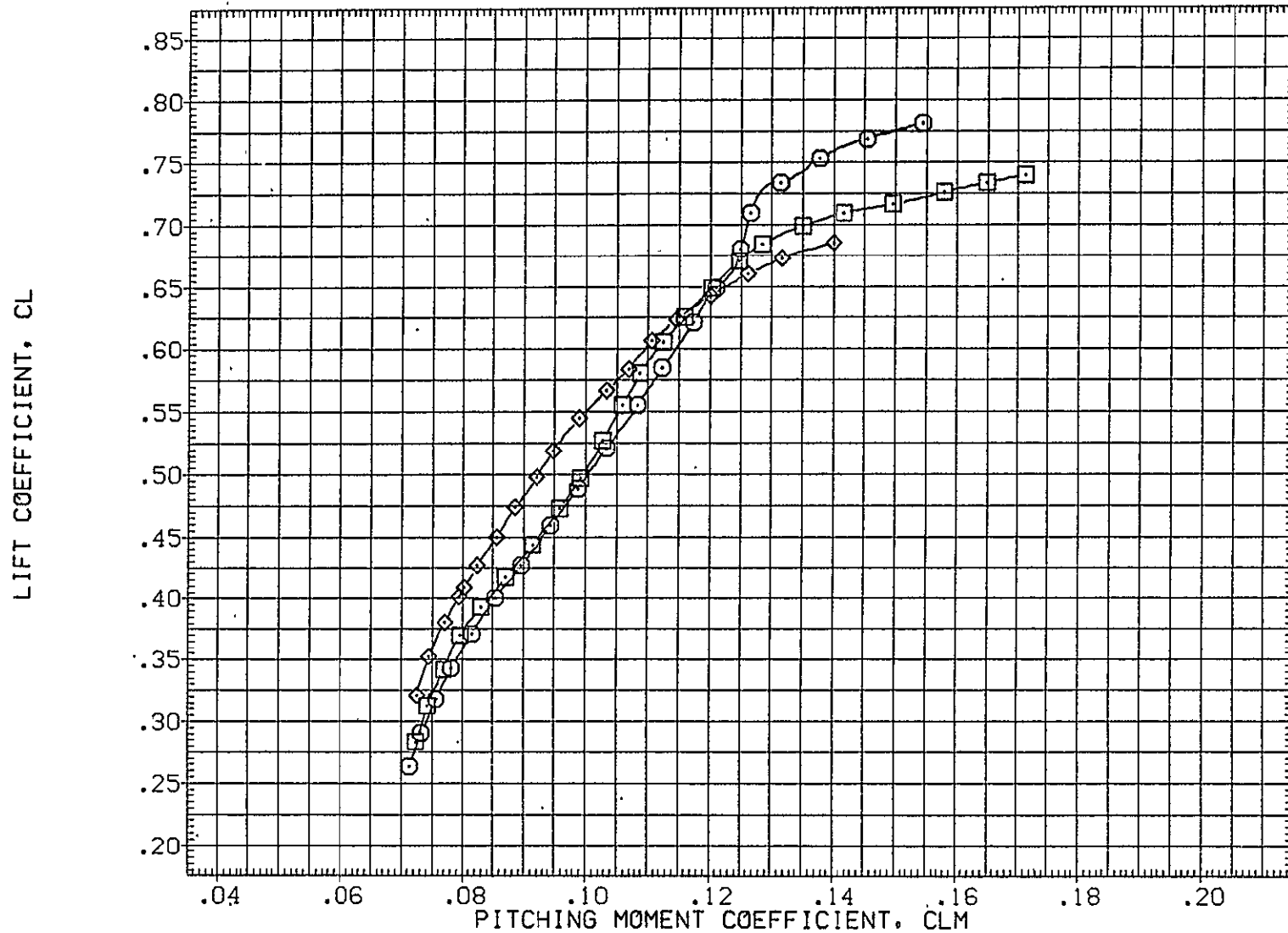


FIG. 22 747+0RB(10 DEG),+TIP FINS +STD SPD BRAKES,FLAPS 20 LAUNCH(S=+1)

0RB

SYMBOL  
 ○ □ ◇

MACH	PARAMETRIC VALUES			
.499	BETA	.000	STAB	1.000
.599	RUD-U	.000	RUD-L	.000
.701	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	45.000
	S5-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

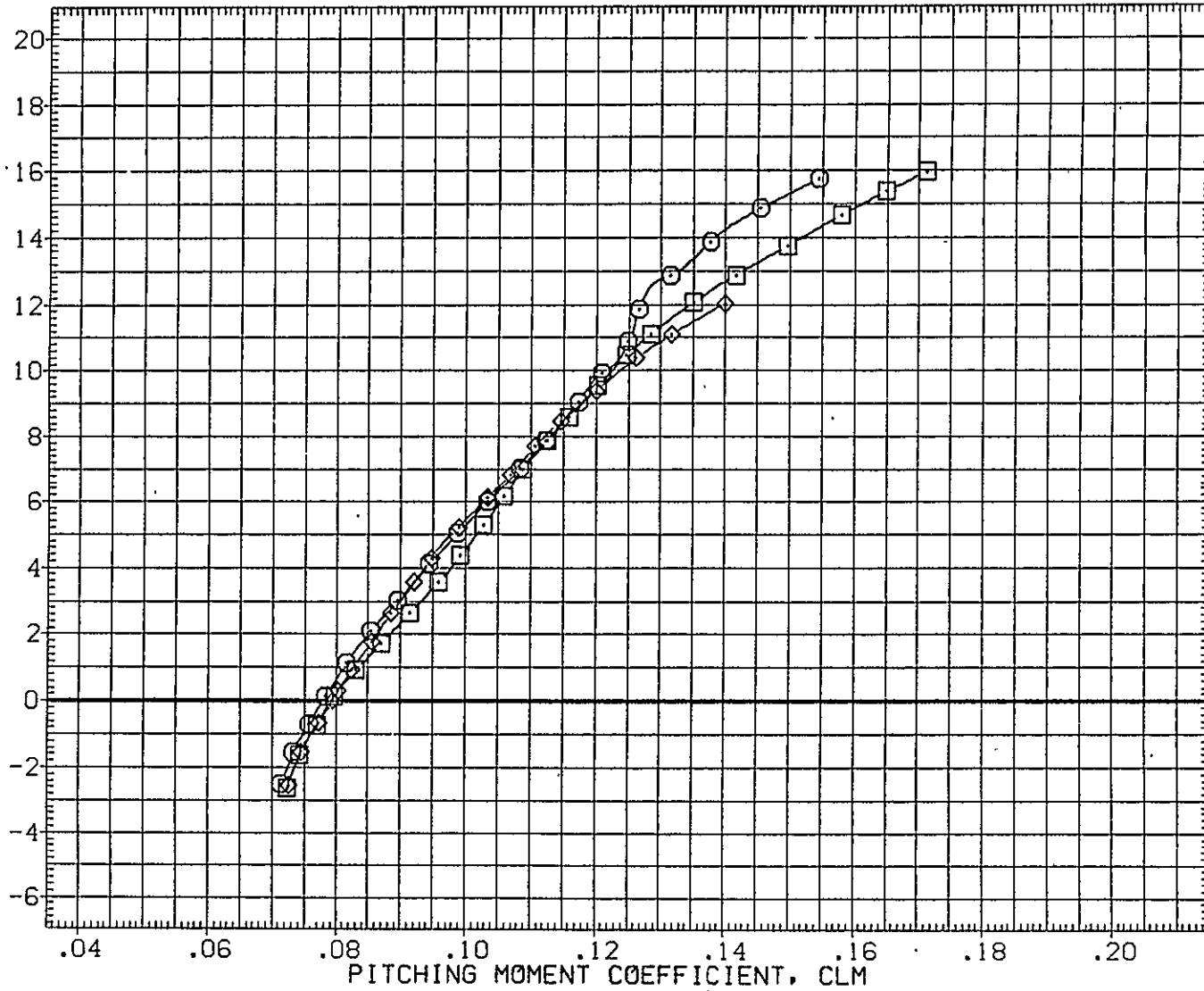


FIG. 22 747+ORB(10 DEG), +TIP FINS +STD SPD BRAKES, FLAPS 20 LAUNCH(S=+1)

ORB

CA5 K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM071)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	1.000	SREF	5500.0000	SQ.FT.	
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

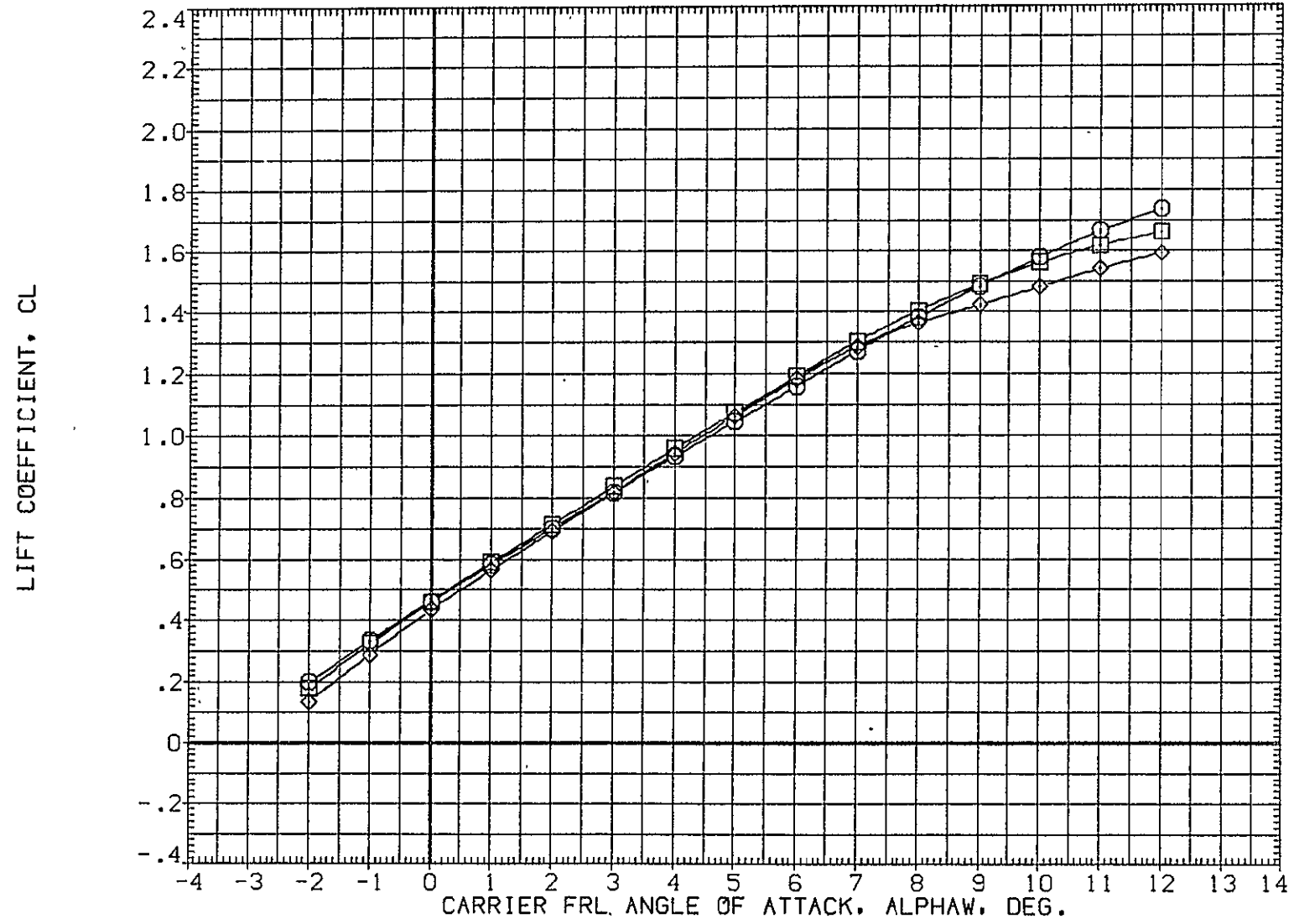


FIG. 23 747+0RB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-OB	3.000
		S1-2	.000	S3-4	.000
		S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

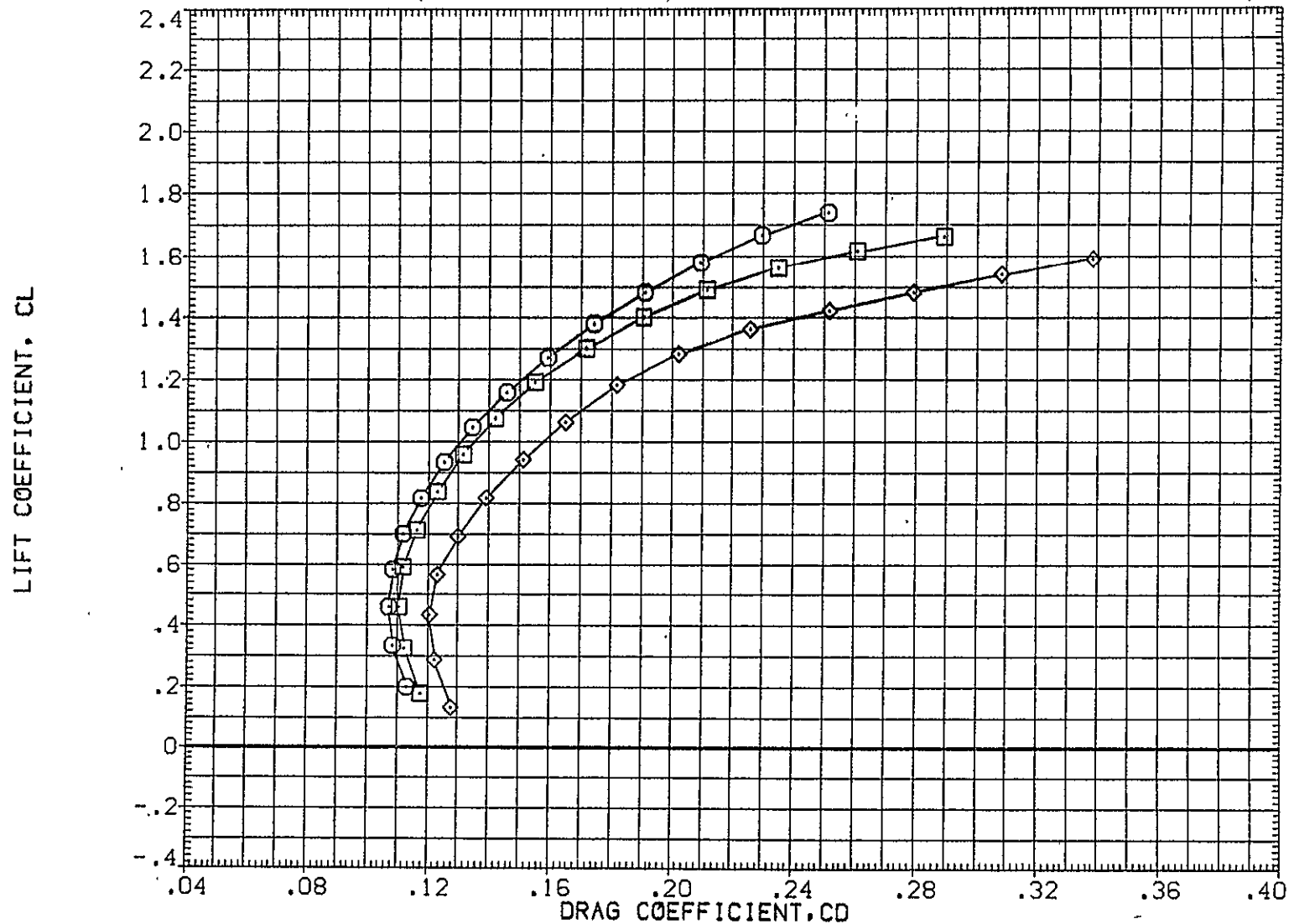


FIG. 23 747+ORB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

TOTAL

CA5 K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM071)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		SS-6	.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

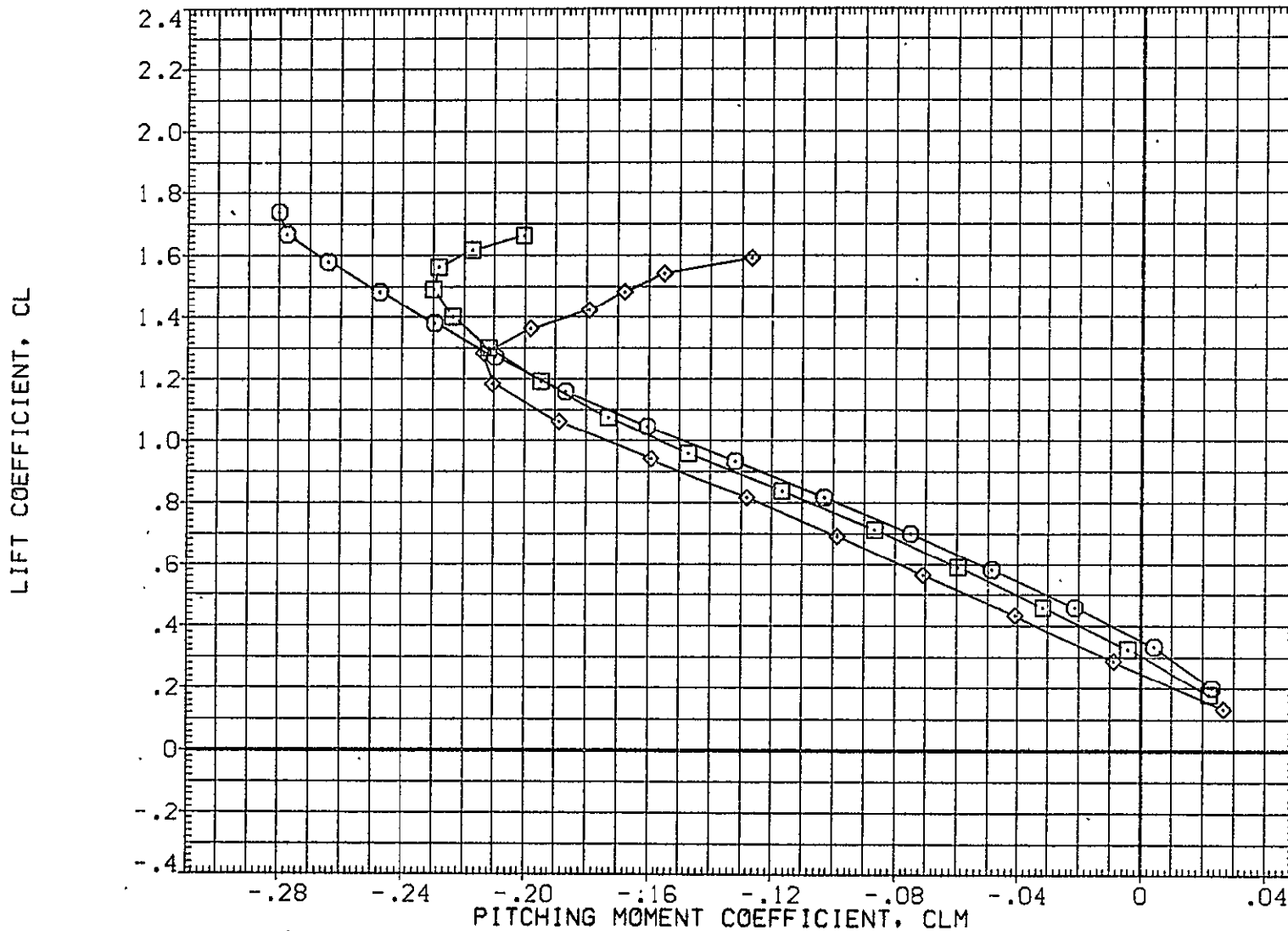


FIG. 23 747+0RB(10 DEG)+TIP FINS,NO SPOILERS,FLAPS 20 LAUNCH(S=+1)

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

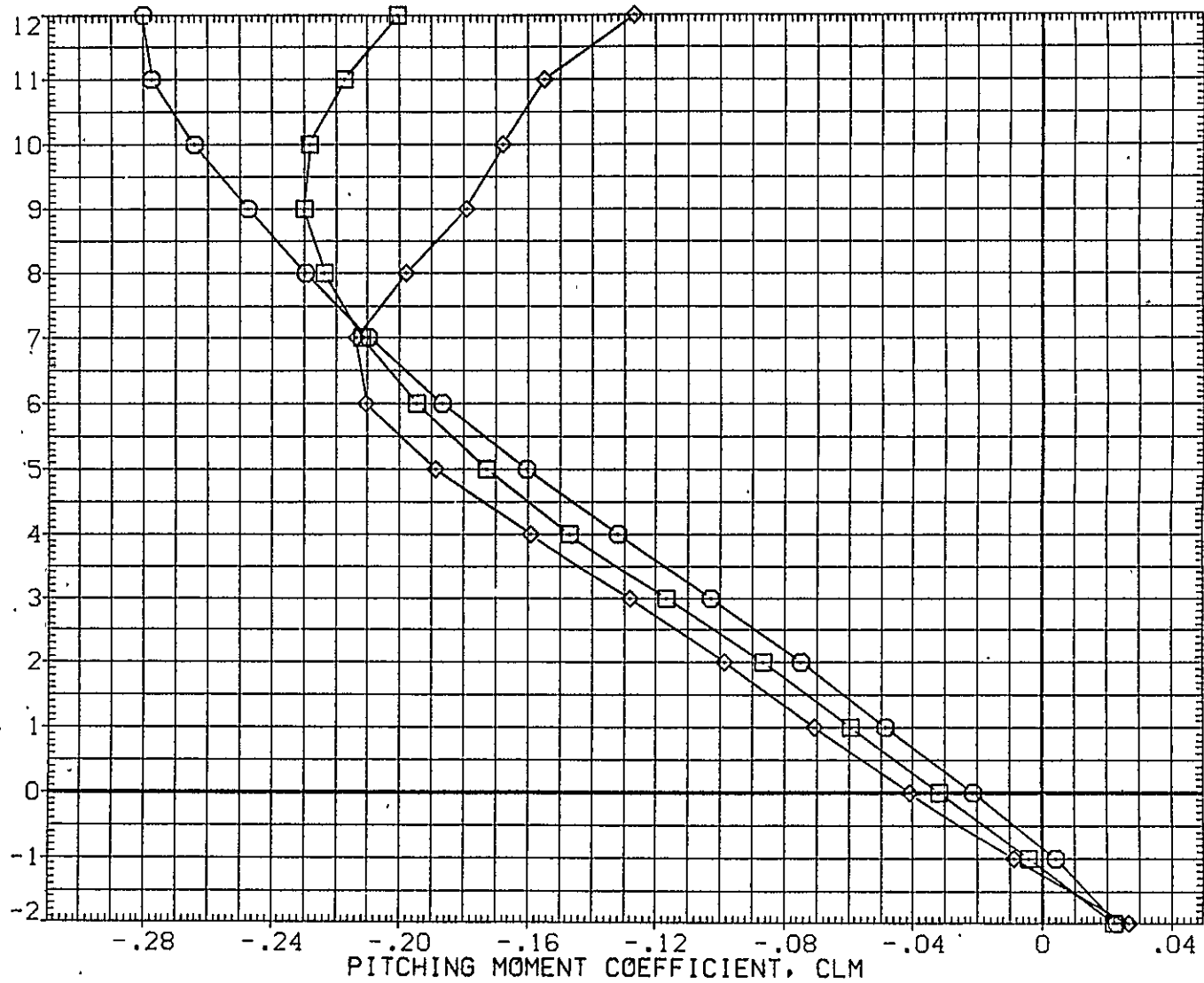


FIG. 23 747+0RB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

TOTAL

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM071)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

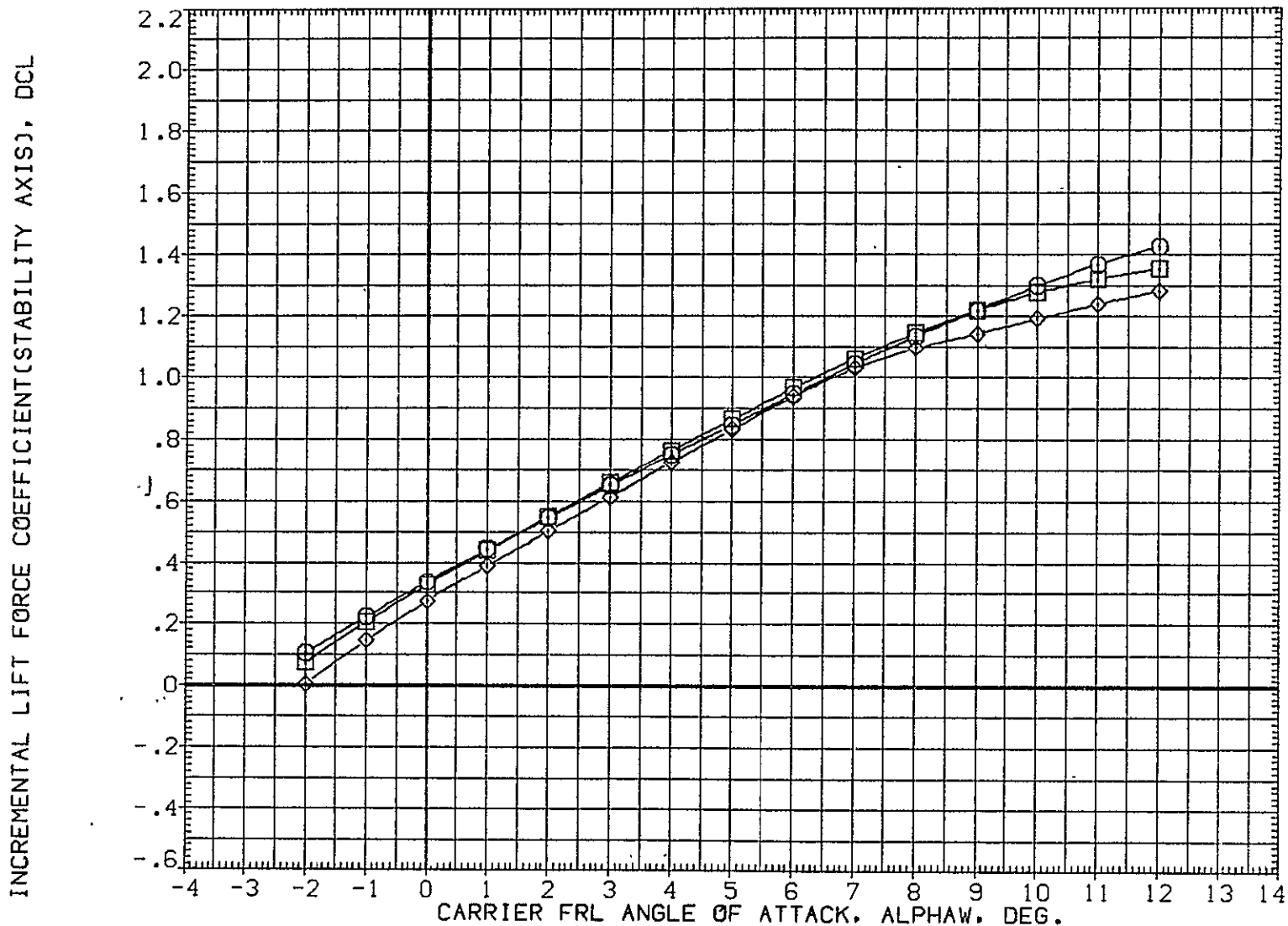


FIG. 24 747+ORB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

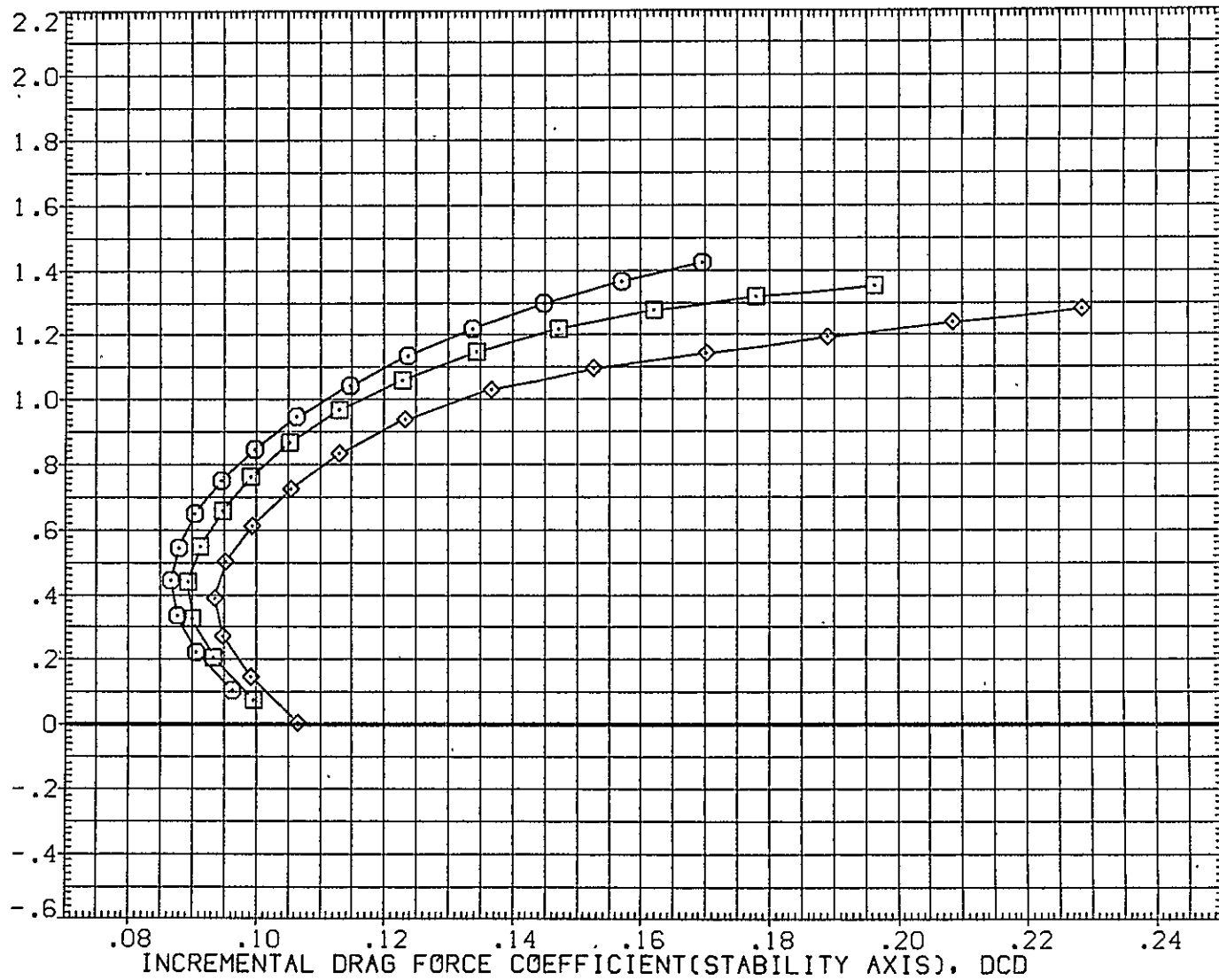


FIG. 24 747+ORB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM071)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

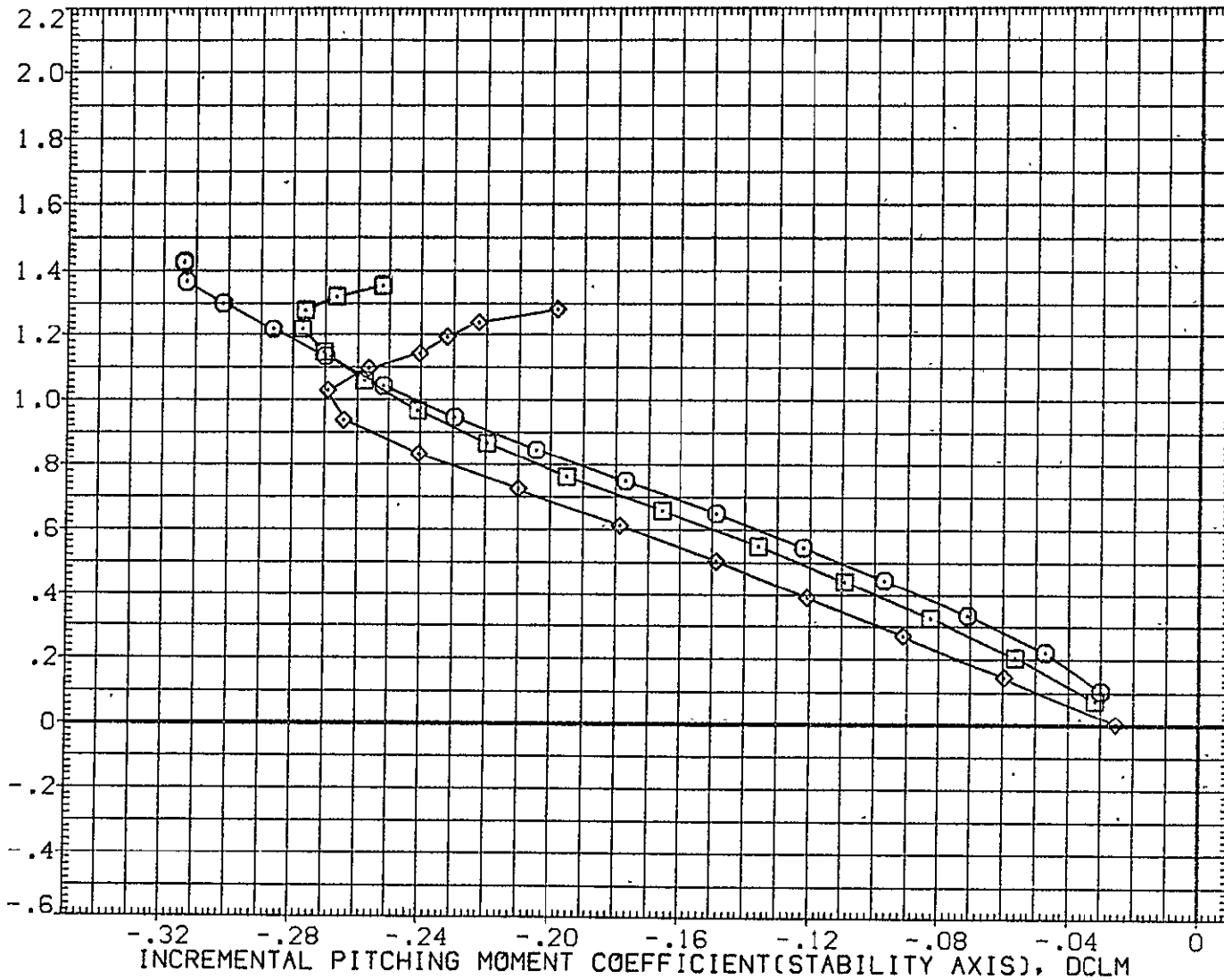


FIG. 24 747+ORB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	ICRB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

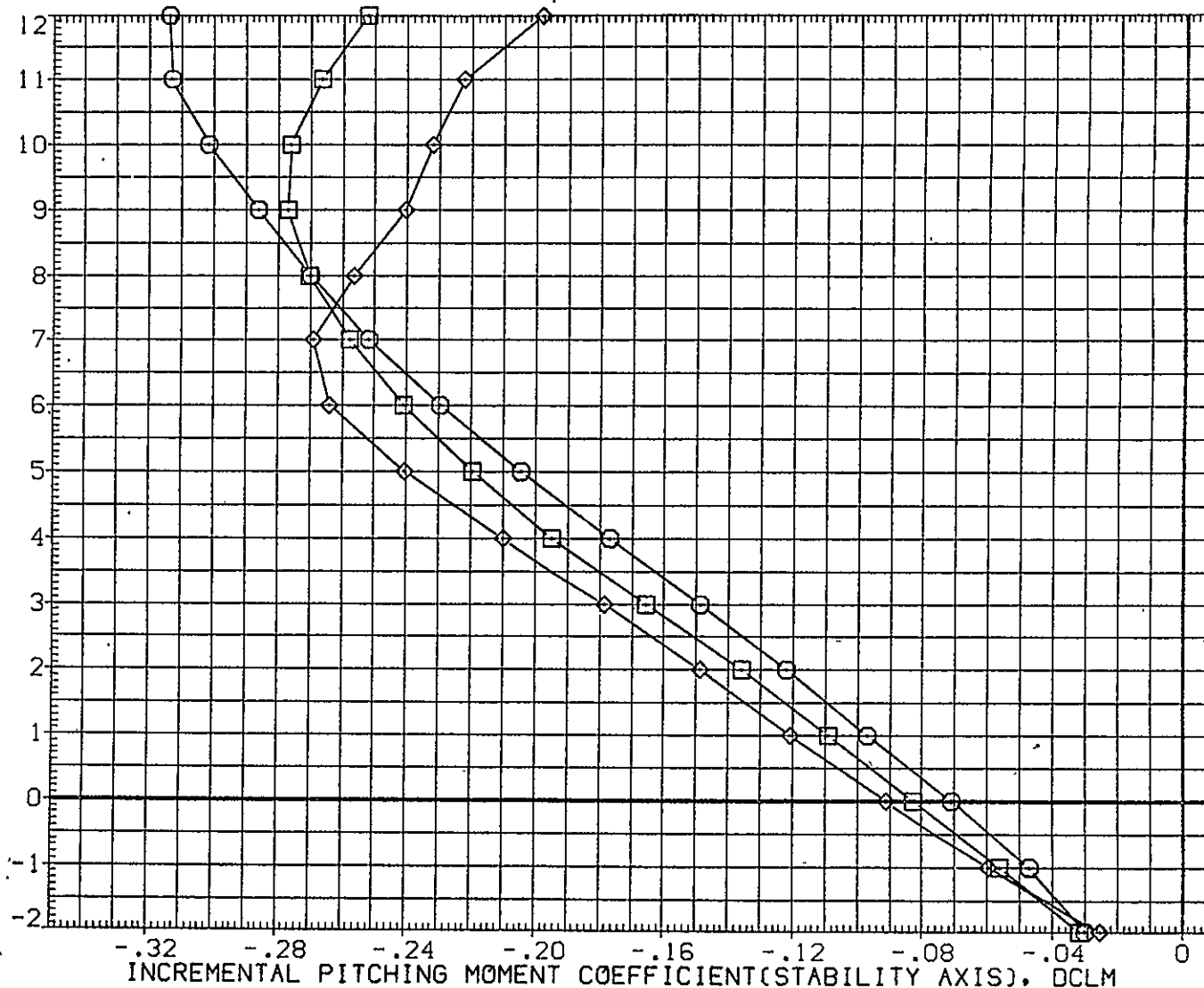


FIG. 24 747+0RB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM071)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.499	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
		S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

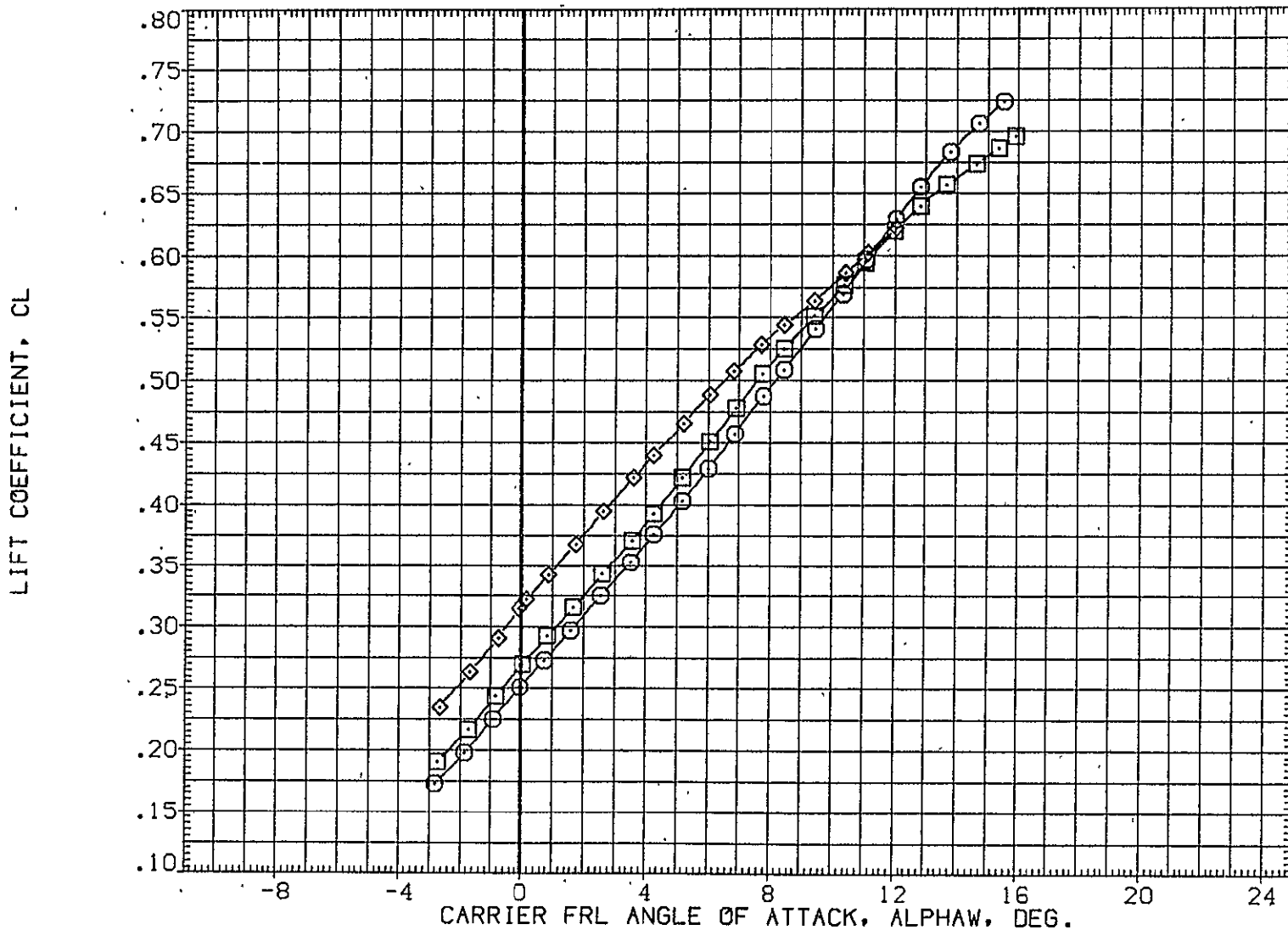


FIG. 25 747+ORB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

ORB

SYMBOL  
 ○ □ ◇

MACH	PARAMETRIC VALUES			
.499	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

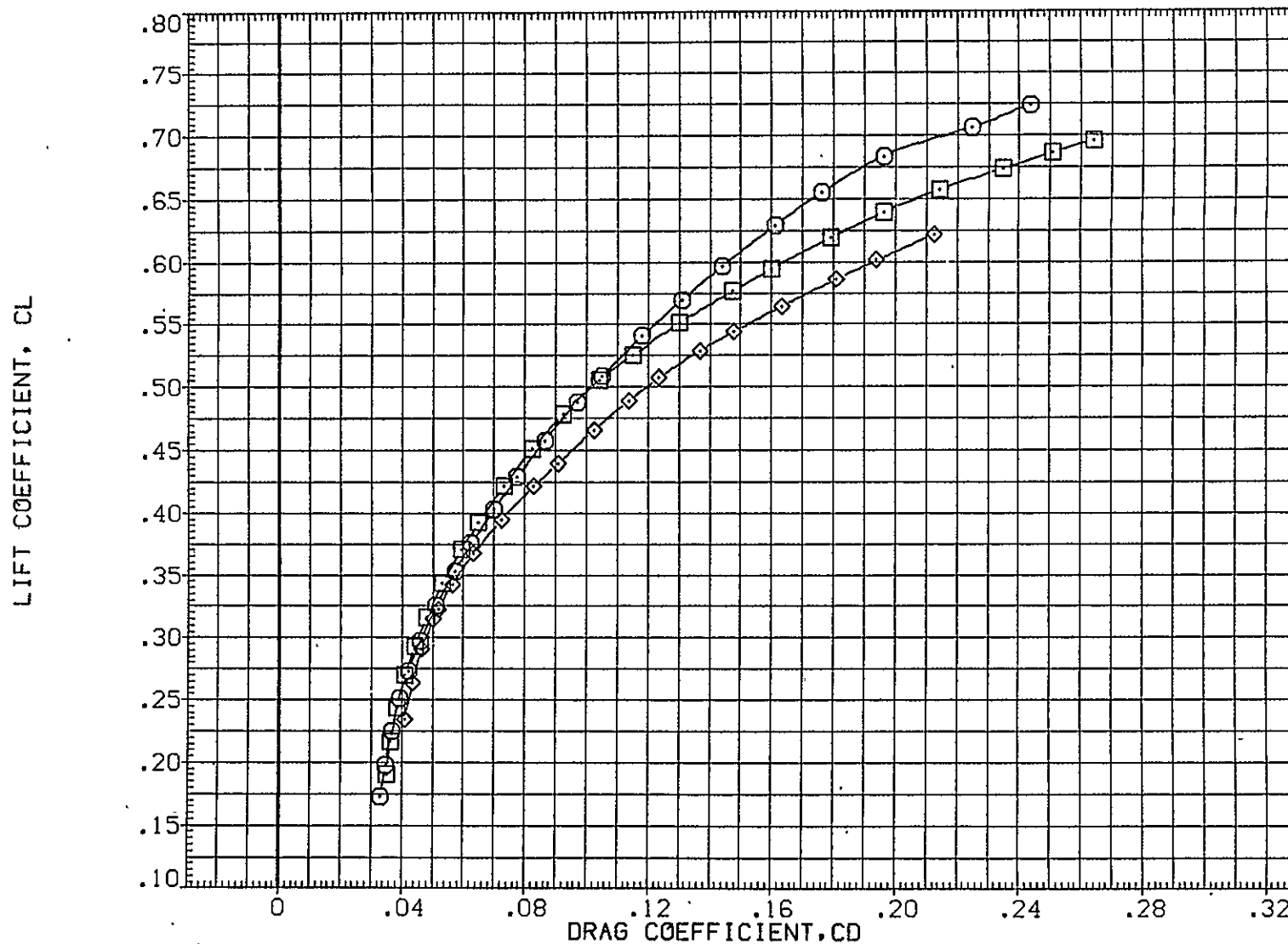


FIG. 25 747+ORB(10 DEG)+TIP FINS,NO SPOILERS,FLAPS 20 LAUNCH(S=+1)

ORB

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(YGM071)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.499	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	.000
		S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

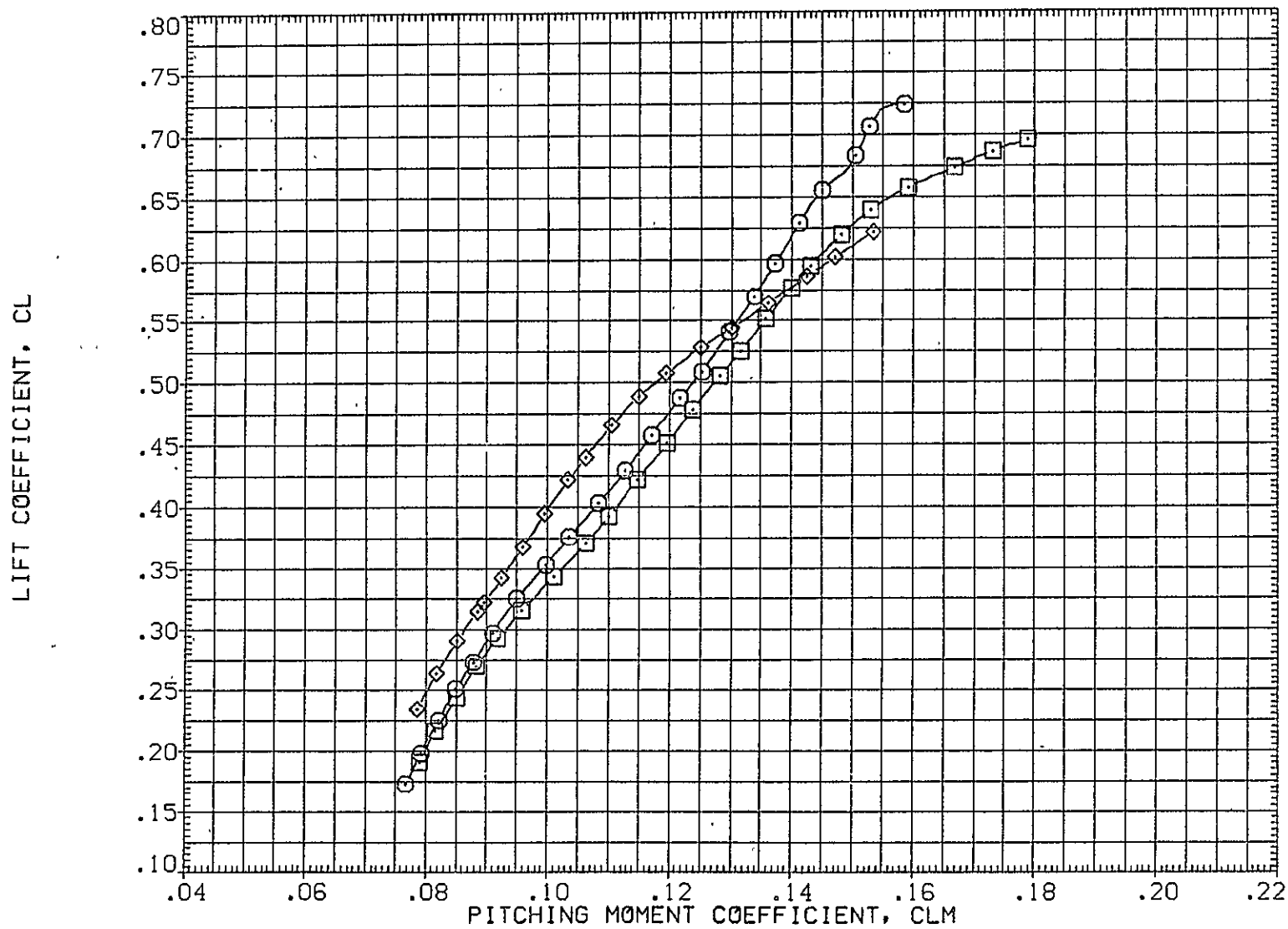


FIG. 25 747+0RB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	IORB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

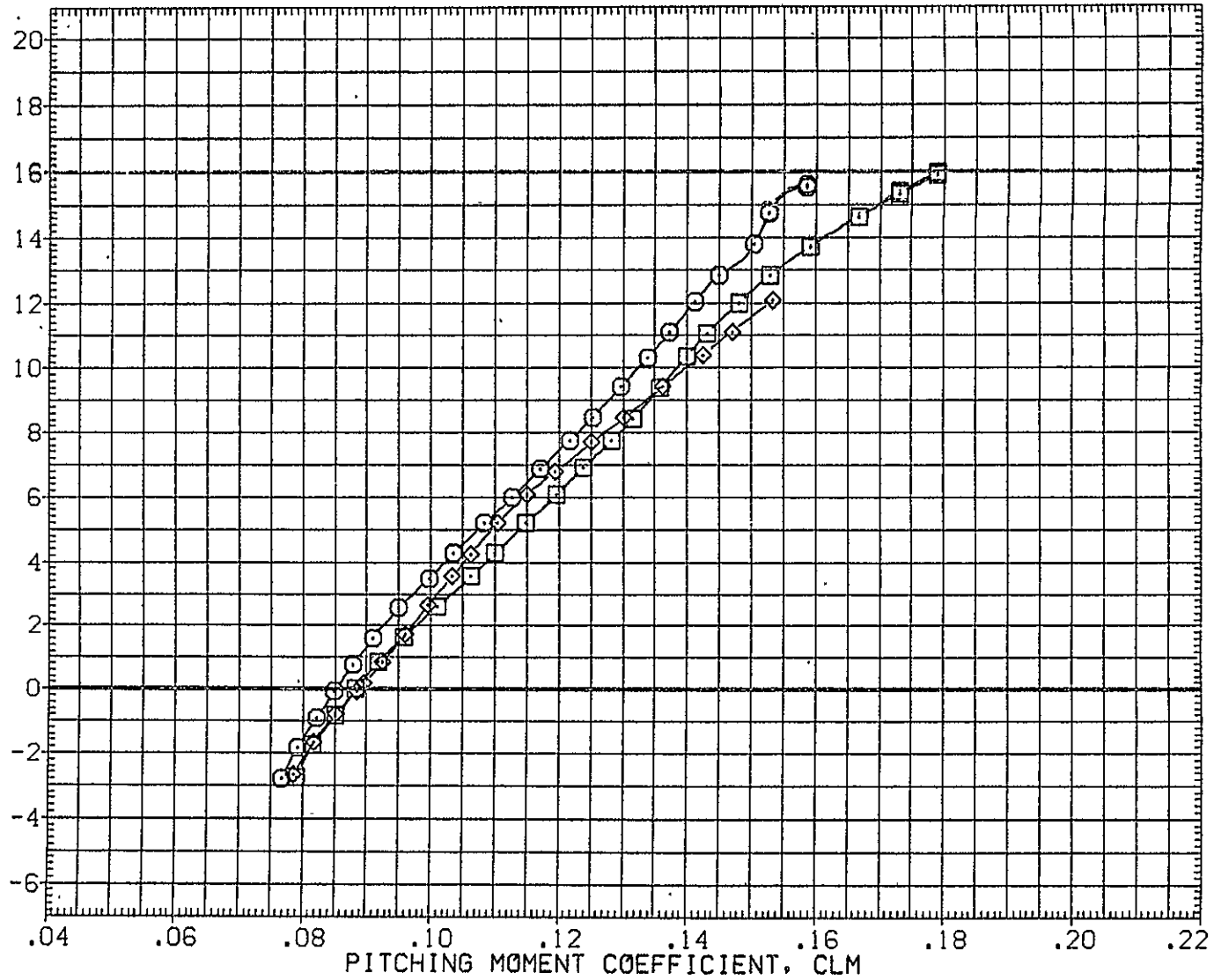


FIG. 25 747+ORB(10 DEG)+TIP FINS, NO SPOILERS, FLAPS 20 LAUNCH(S=+1)

ORB

CAS K1 F20 H15.1A V9.1 (PLUS. ORB TC5 AT38.1 )(RGM074)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	ICRB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

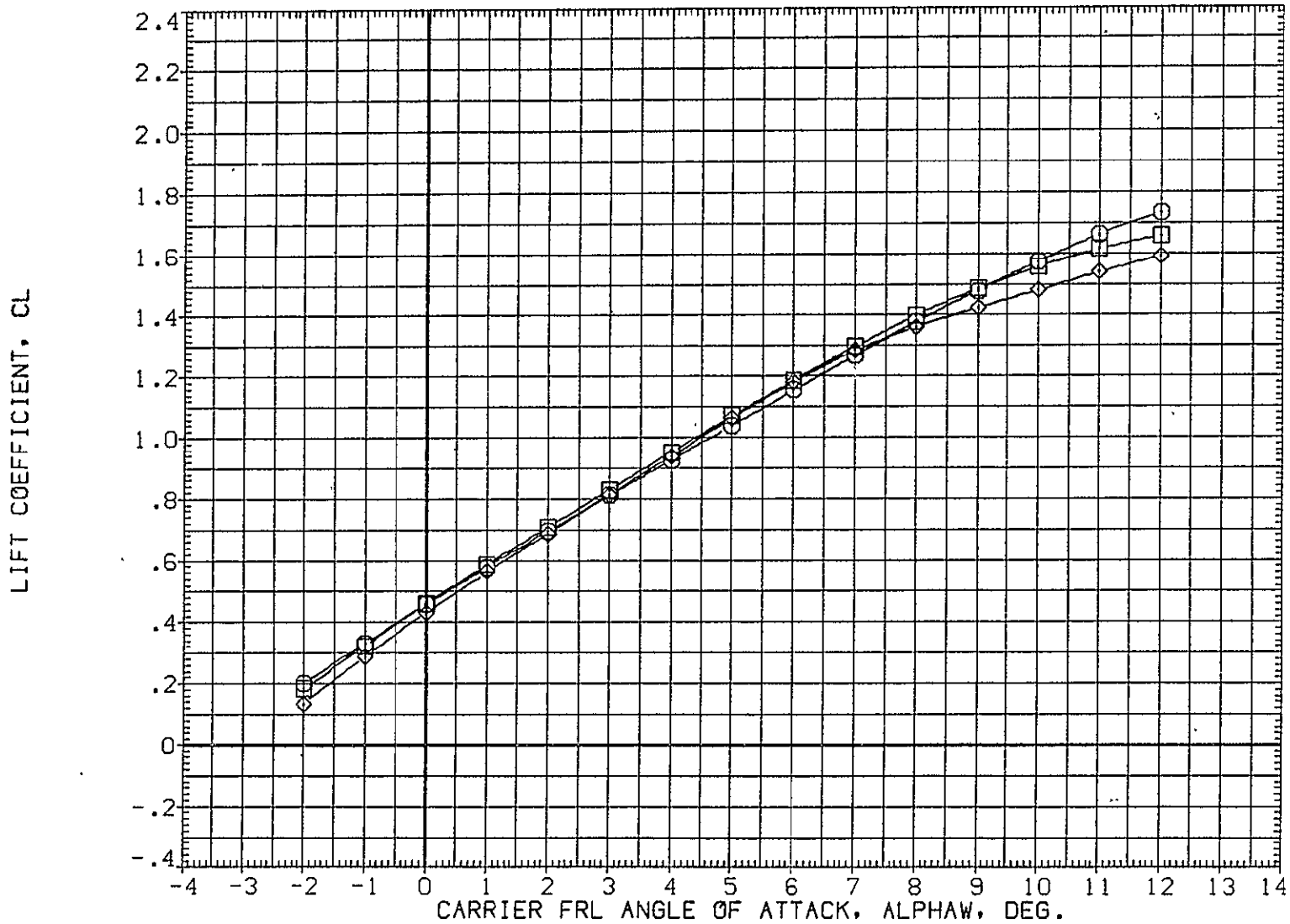


FIG. 26 747+ORB(10 DEG),BASIC TAIL, FLAPS 20 LAUNCH(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

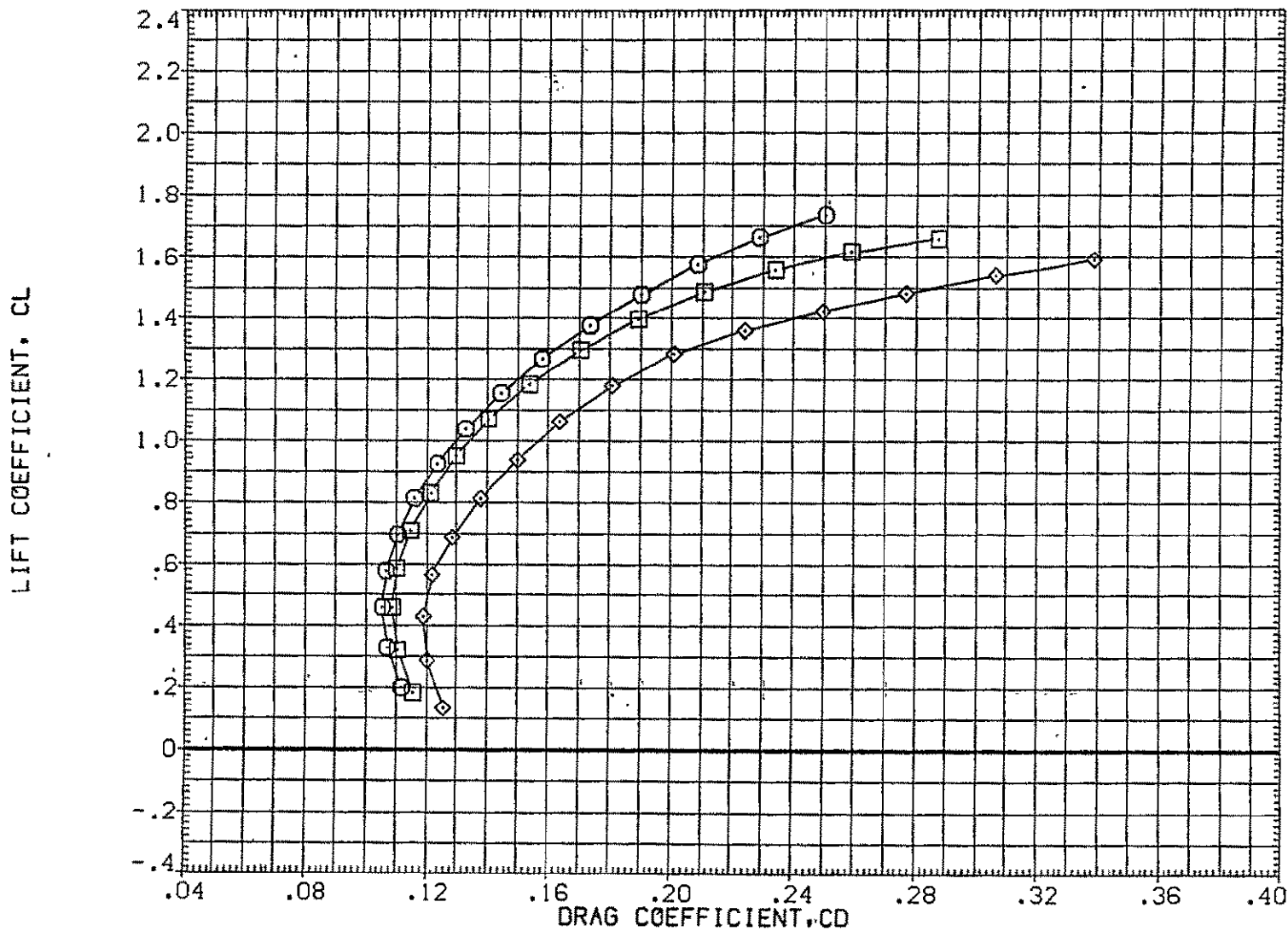


FIG. 26 747+0RB(10 DEG),BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

2-3

CA5 K1 F20 H15.1A V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM074)

SYMBOL  
 ○ □ ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

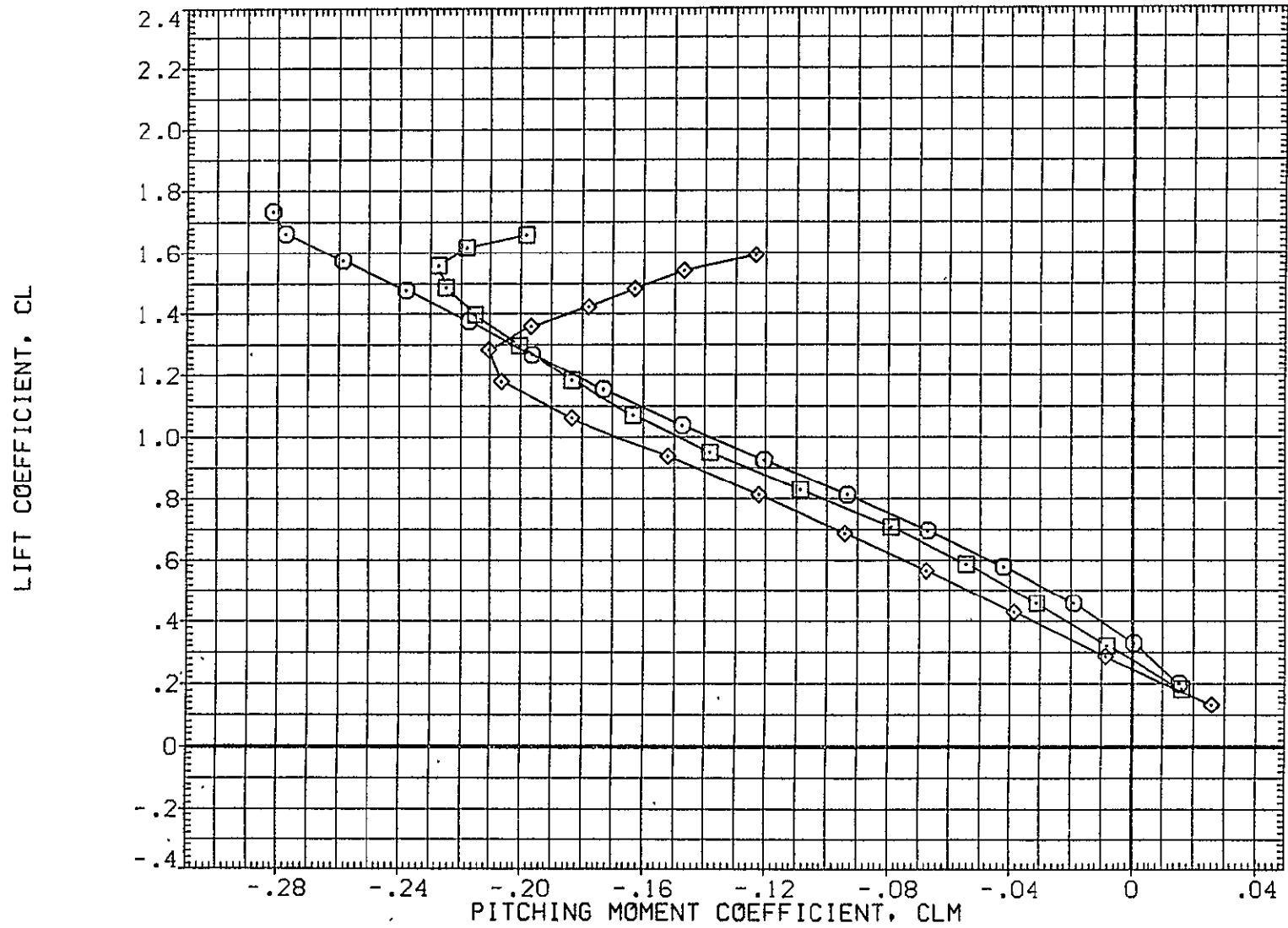


FIG. 26 747+0RB(10 DEG),BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK. ALPHA. DEG.

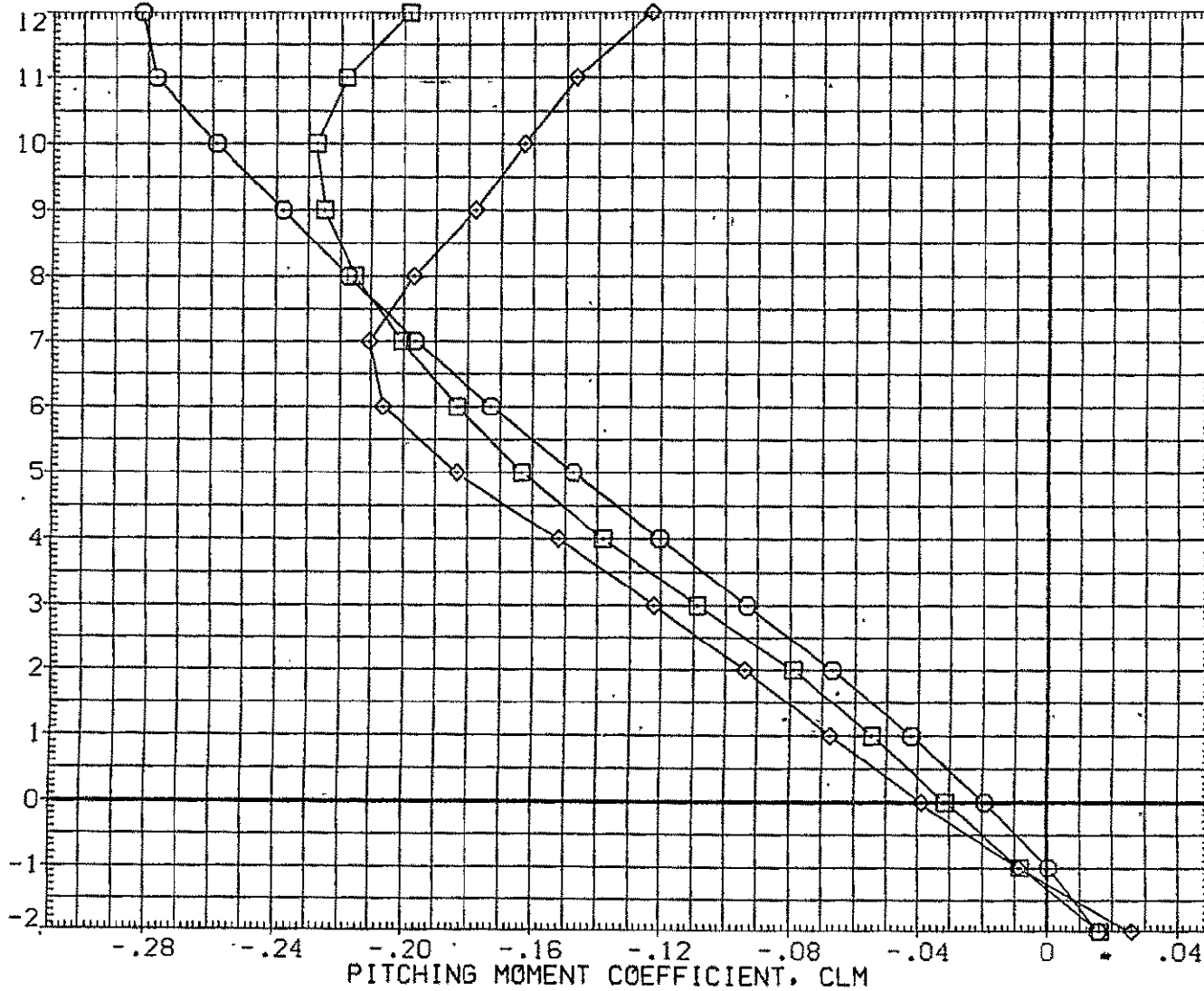


FIG. 26 747+0RB(10 DEG), BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

CA5 K1 F20 H15.1A V9.1 MINUS 0RB TC5 AT38.1 (BGMO74)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	SS-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	50 FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

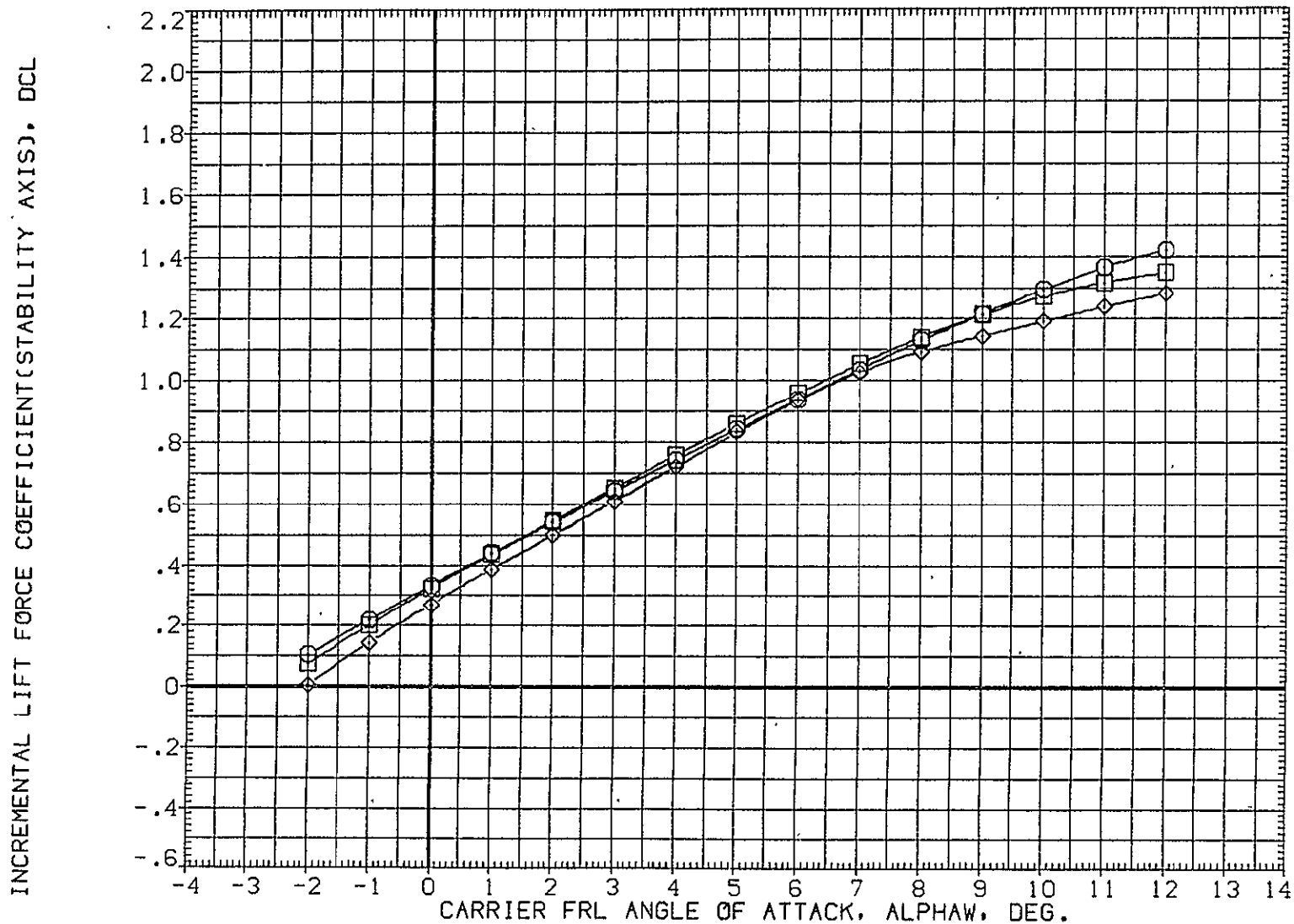


FIG. 27 747+0RB(10 DEG), BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-OB	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	IORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

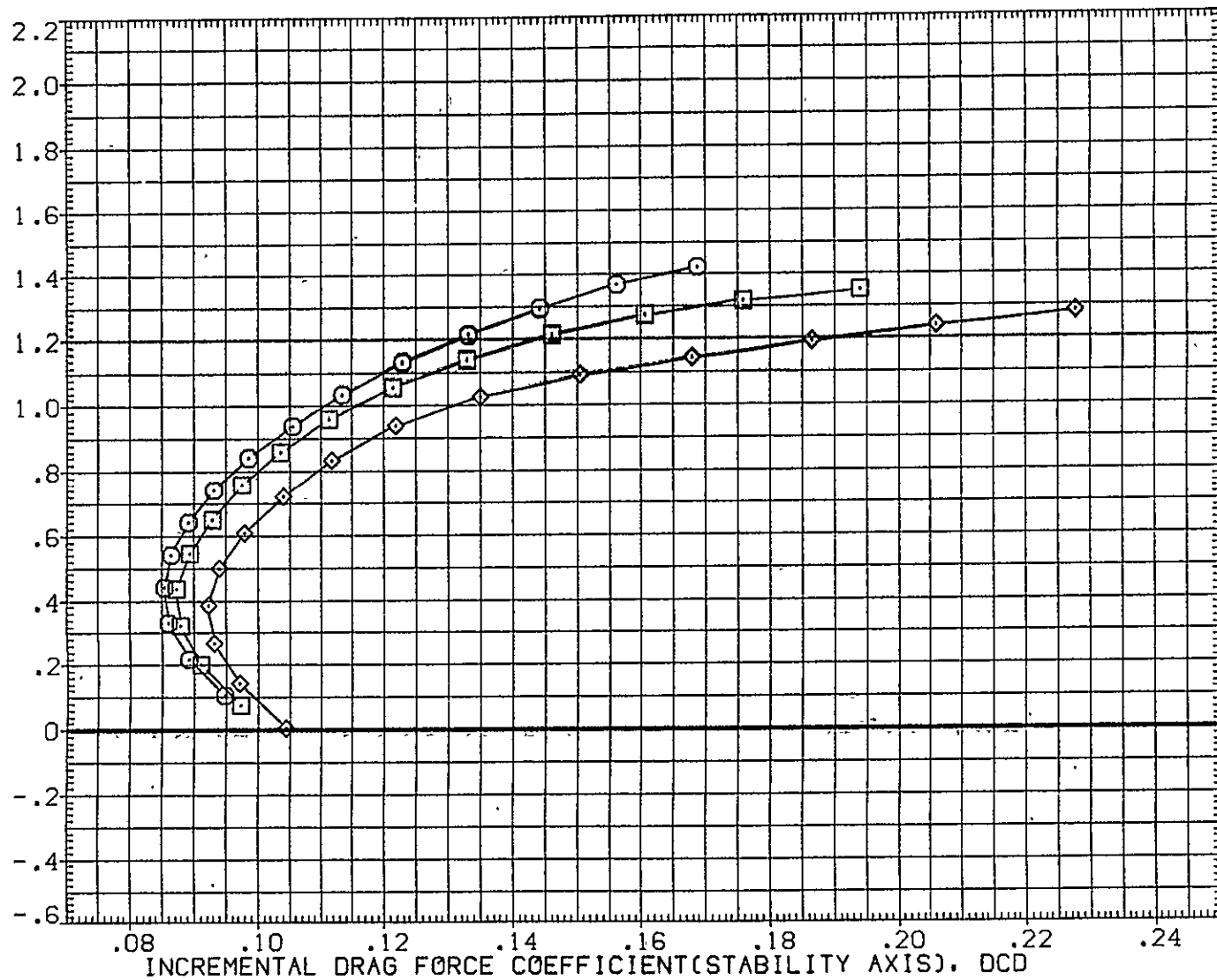


FIG. 27 747+ORB(10 DEG), BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

CA5 K1 F20 H15.1A V9.1 MINUS 0RB TC5 AT38.1 (BGM074)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	I0RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

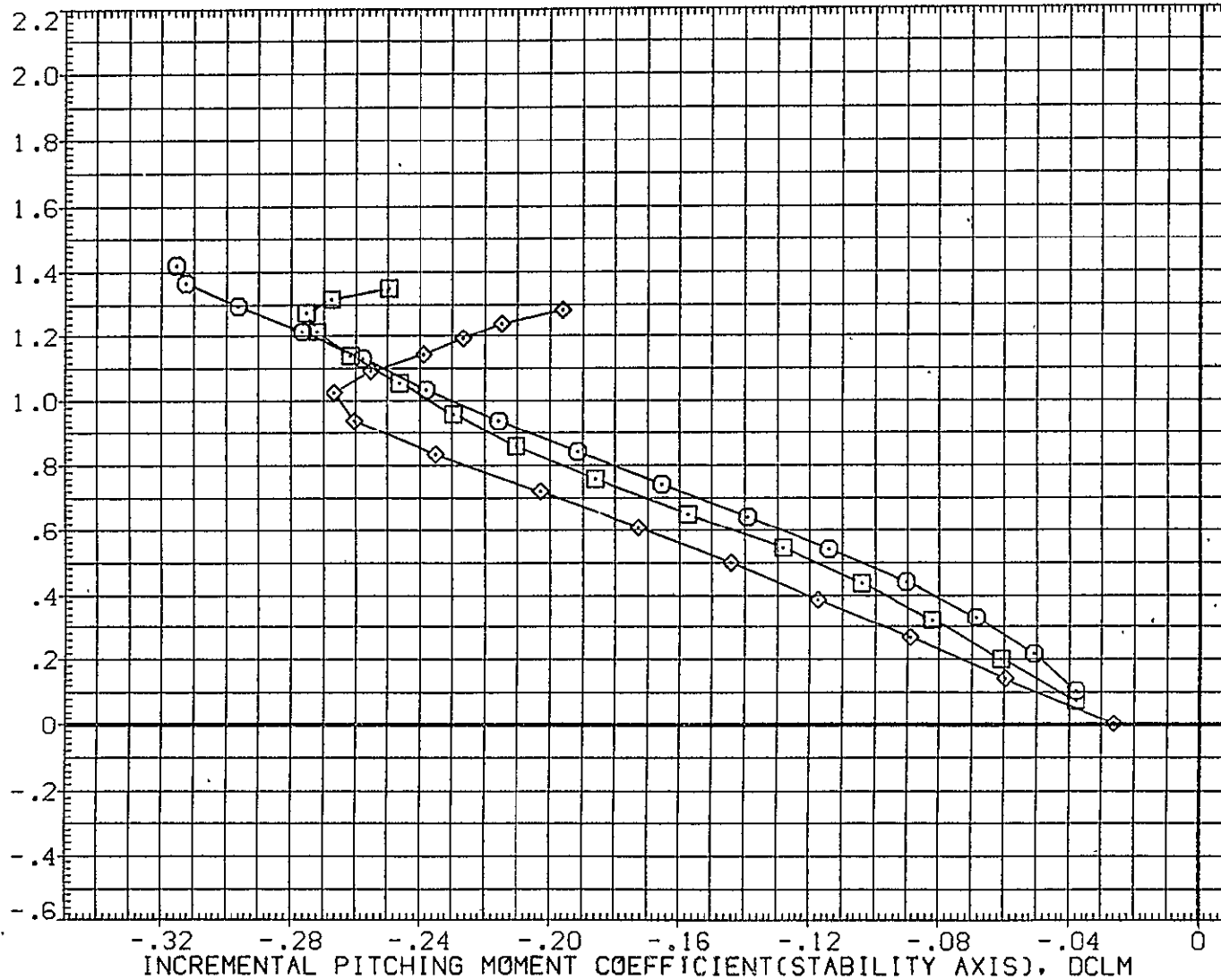


FIG. 27 747+0RB(10 DEG), BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

747

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-IB	.000	ELV-OB	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	I0RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

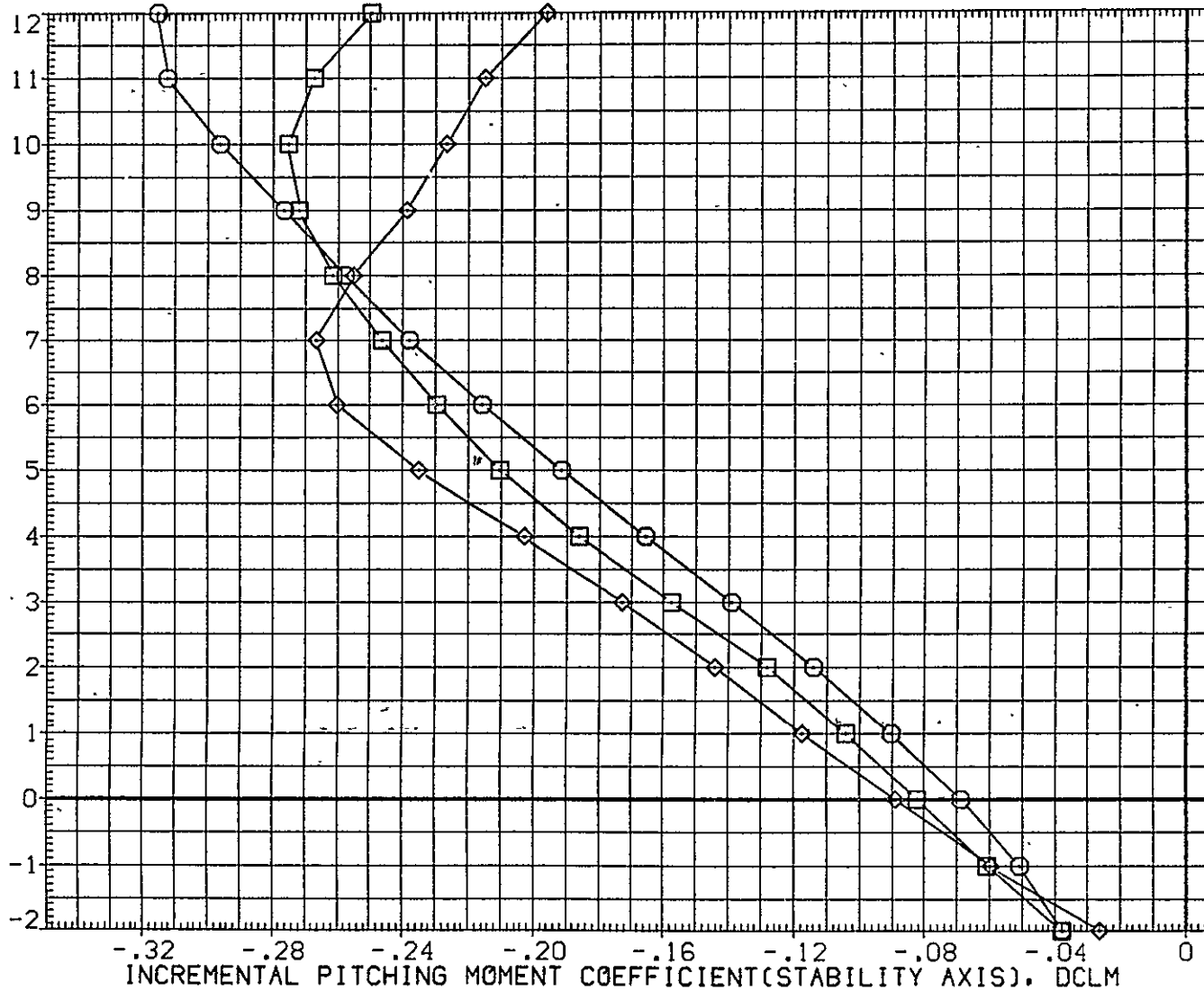


FIG. 27 747+0RB(10 DEG), BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.1A V9.1)(YGM074)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	2690.0000	50. FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN
		S1-2	.000	S3-4	.000	XMRP	1109.0000	IN XC
		S5-6	.000	10RB	9.700	YMRP	.0000	IN YO
						ZMRP	375.0000	IN ZO
						SCALE	.0300	

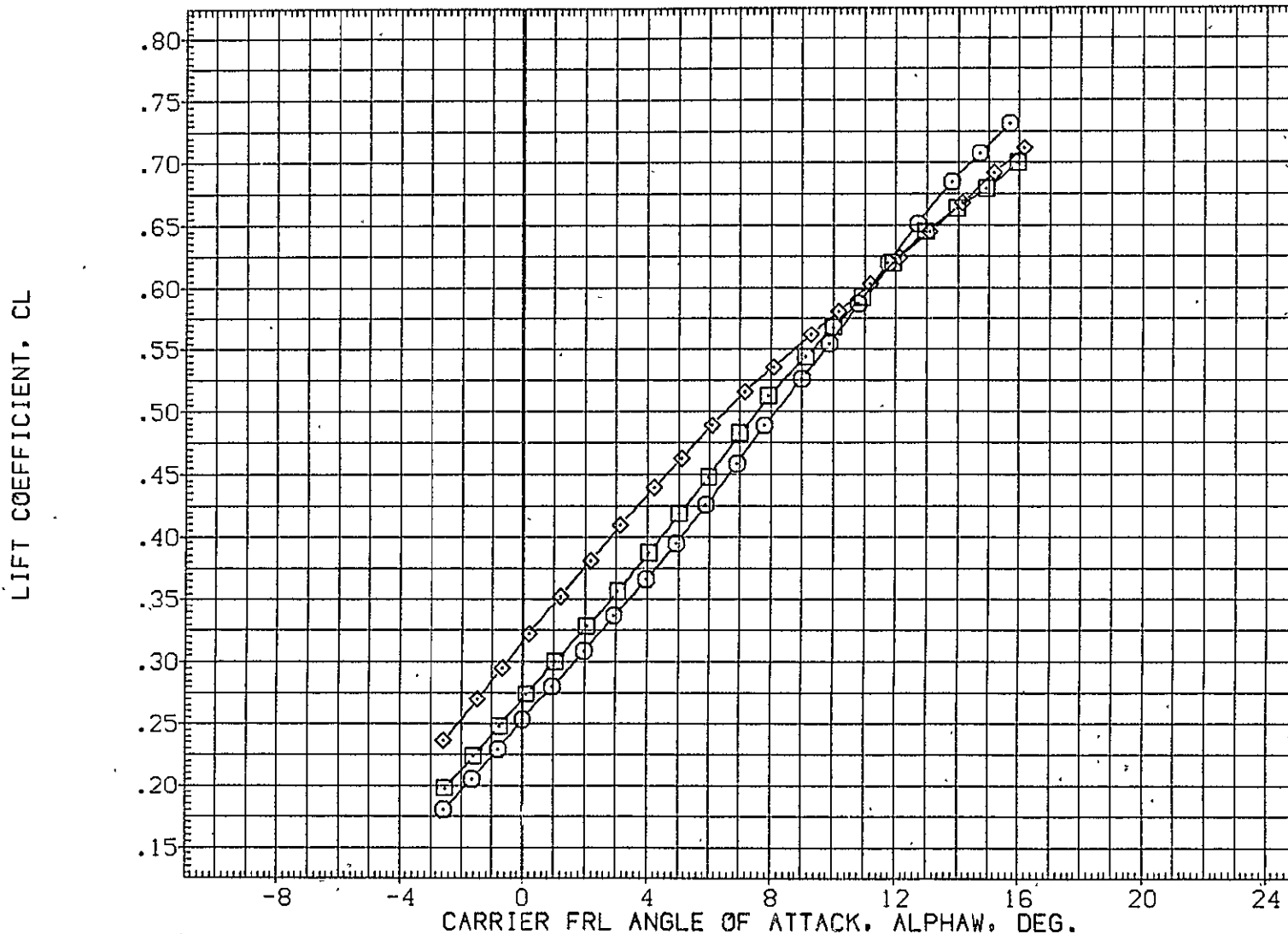


FIG. 28 747+0RB(10 DEG), BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	-174.8100	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
		S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

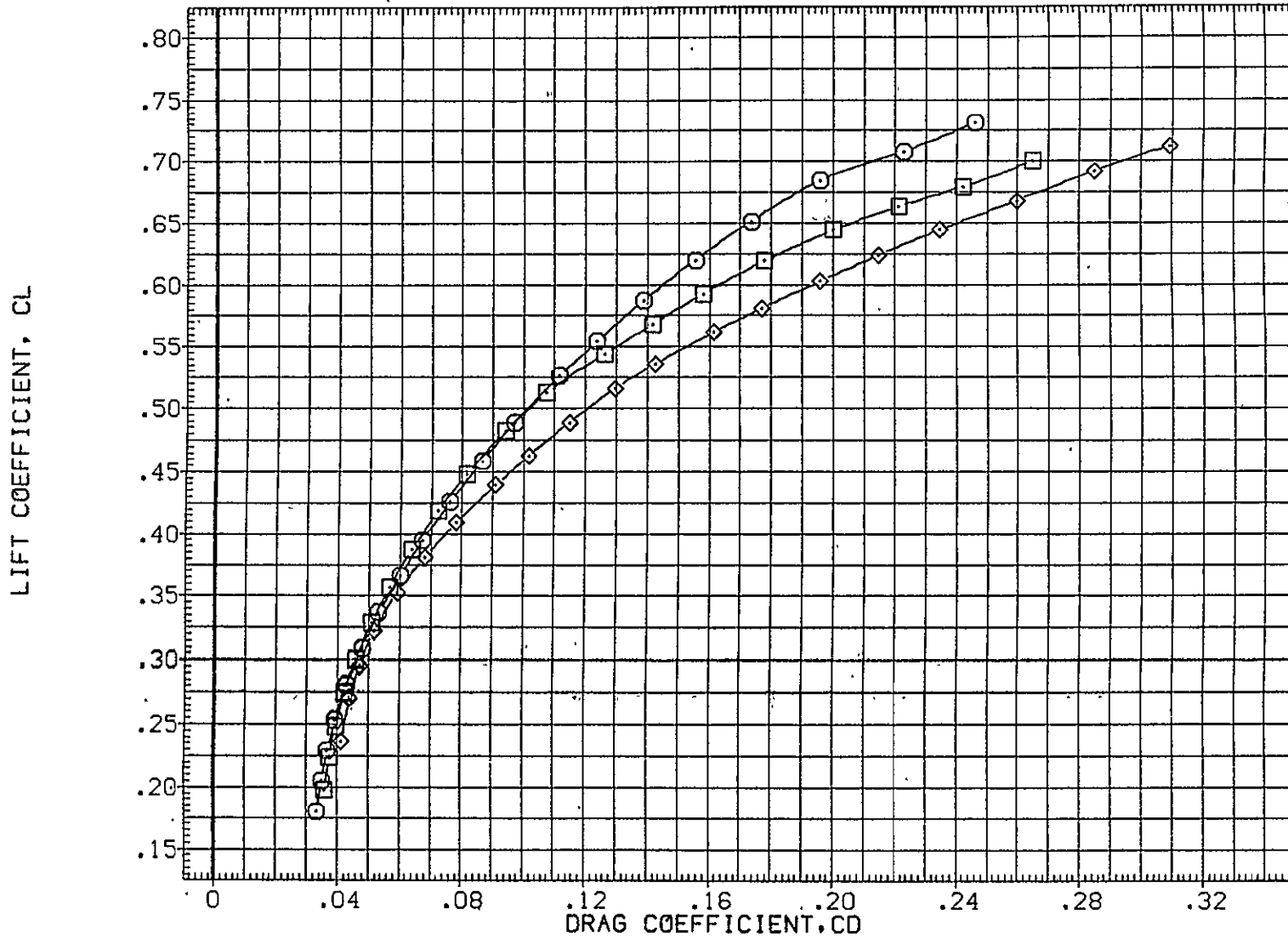


FIG. 28 747+ORB(10 DEG),BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

ORB

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.1A V9.1)(YGM074)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8100	IN.
BREF	936.8800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

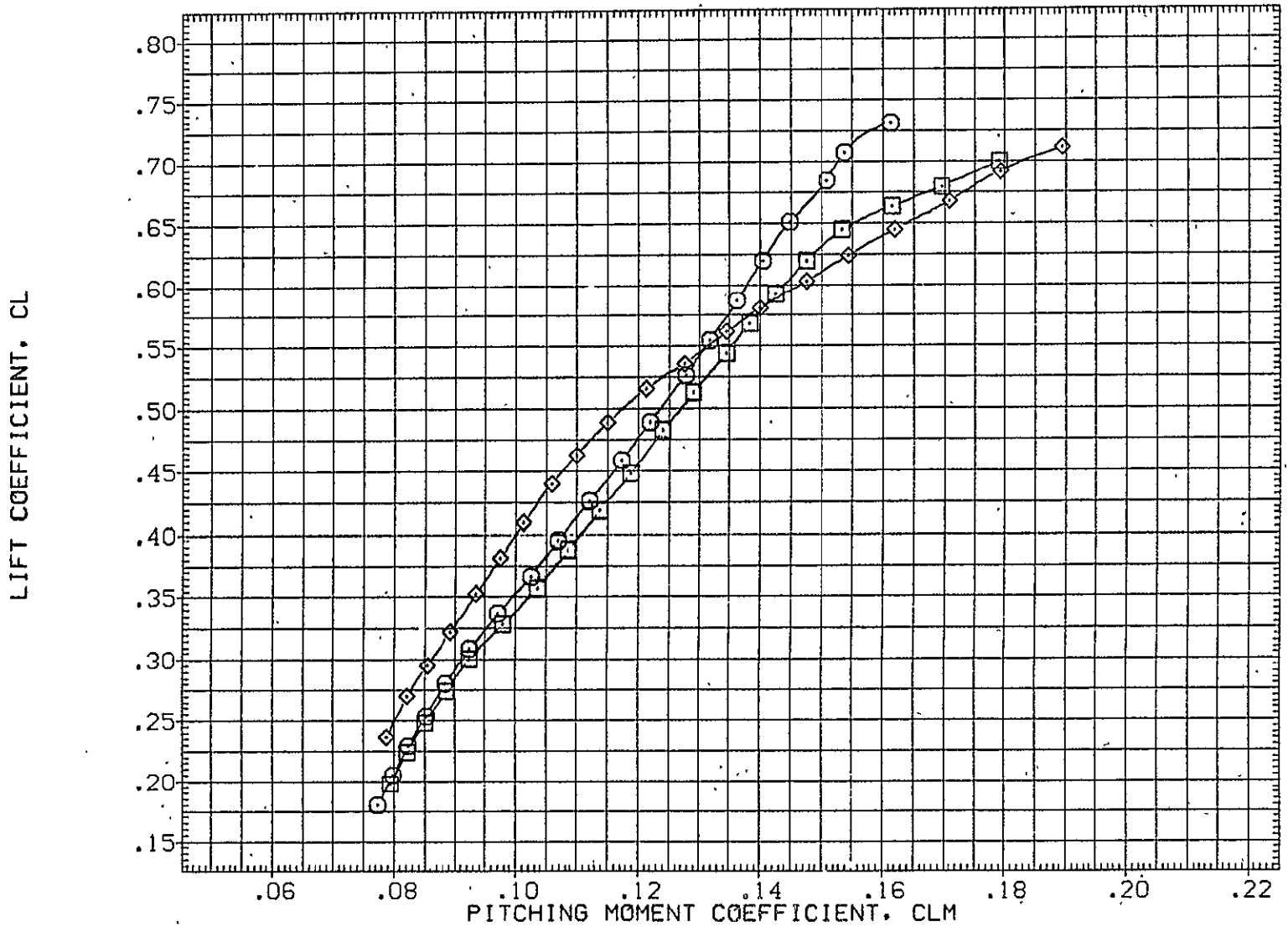


FIG. 28 747+0RB(10 DEG), BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

0RB

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	I0RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

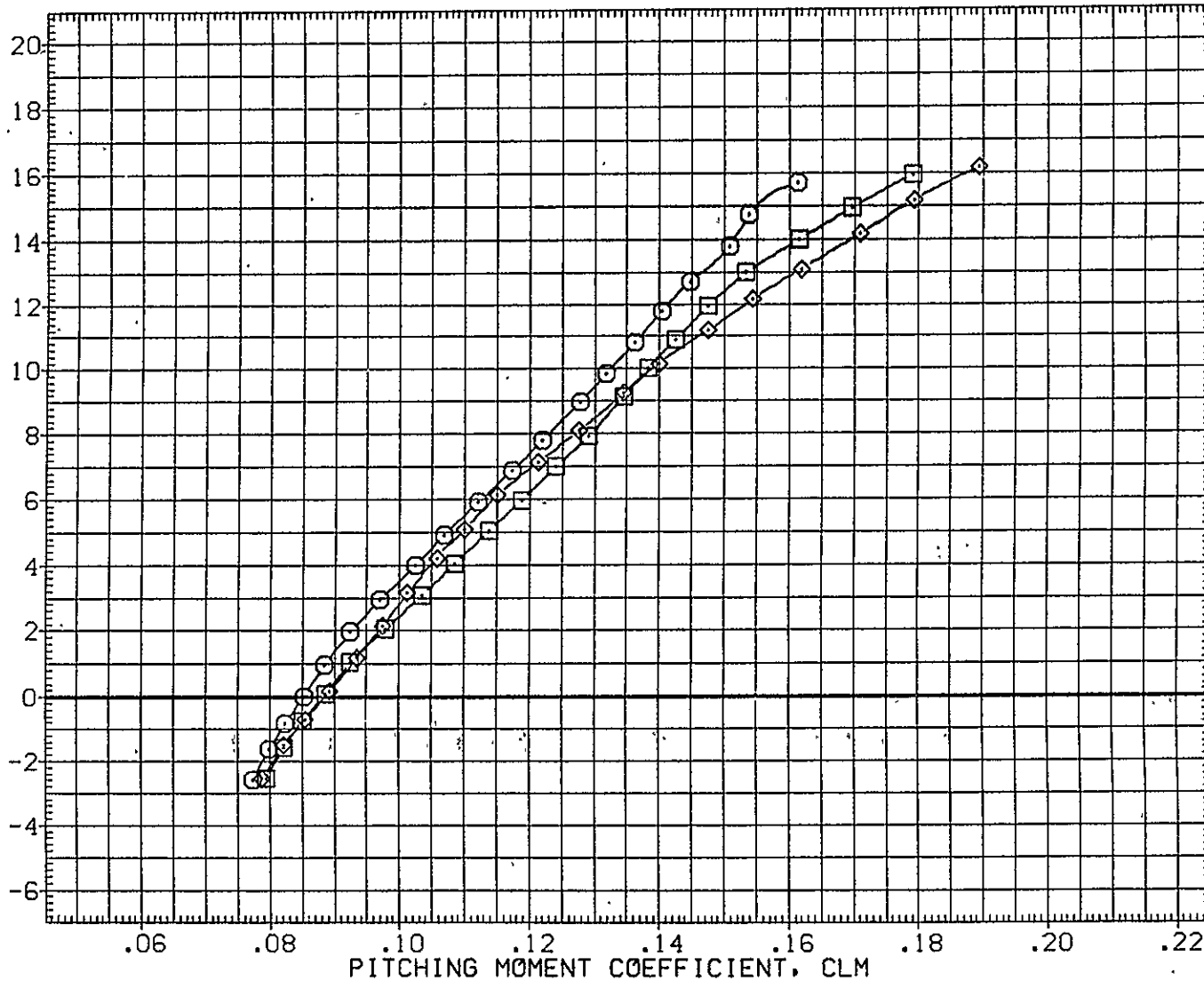


FIG. 28 747+0RB(10 DEG),BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

0RB

CA5 K1 F20 H15.1A V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM075)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-L	ELV-0B	SREF	SQ.FT.	
○	.500	.000	1.000	.000	3.000	5500.0000	IN.	
□	.600	.000	.000	.000	3.000	327.8000	IN.	
◇	.700	.000	3.000	.000	45.000	2348.0000	IN.	
		45.000	45.000	45.000	9.700	1339.9100	IN. XC	
		S1-2	S3-4			YMRP	IN. YC	
		S5-6	10RB			ZMRP	IN. ZC	
						SCALE	.0300	

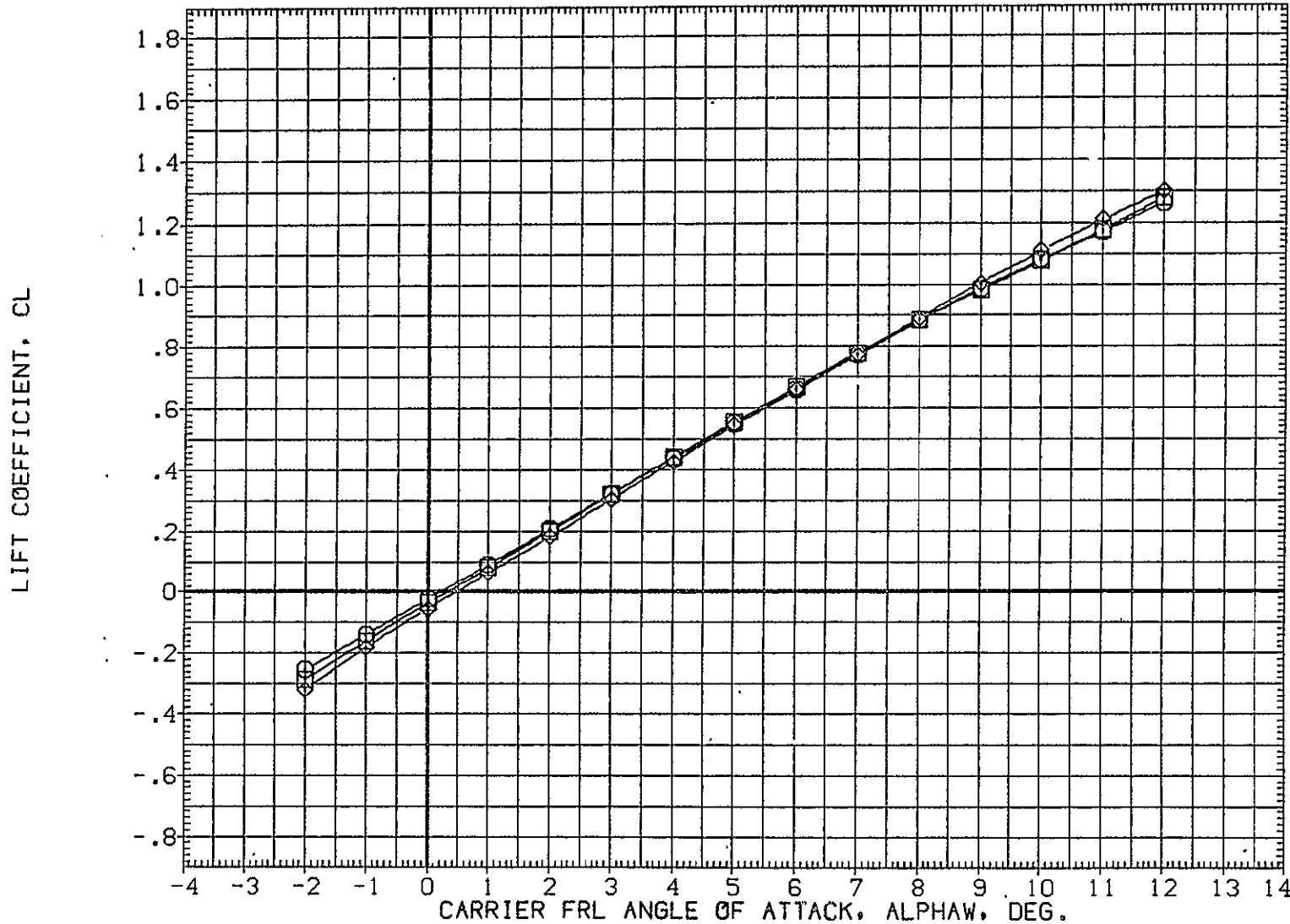


FIG. 29 747+0RB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	0RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

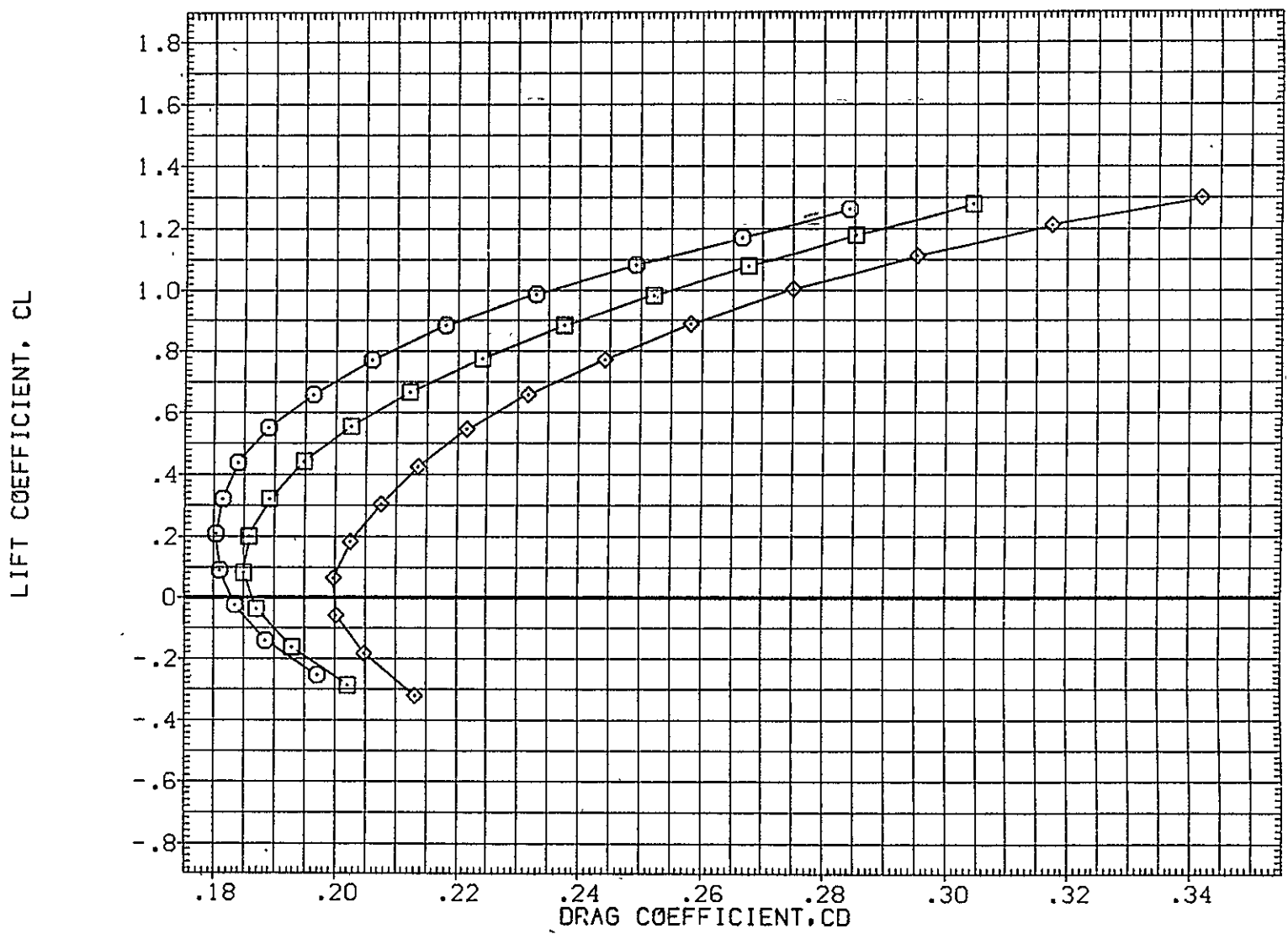


FIG. 29 747+0RB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

CA5 K1 F20 H15.1A V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM075)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

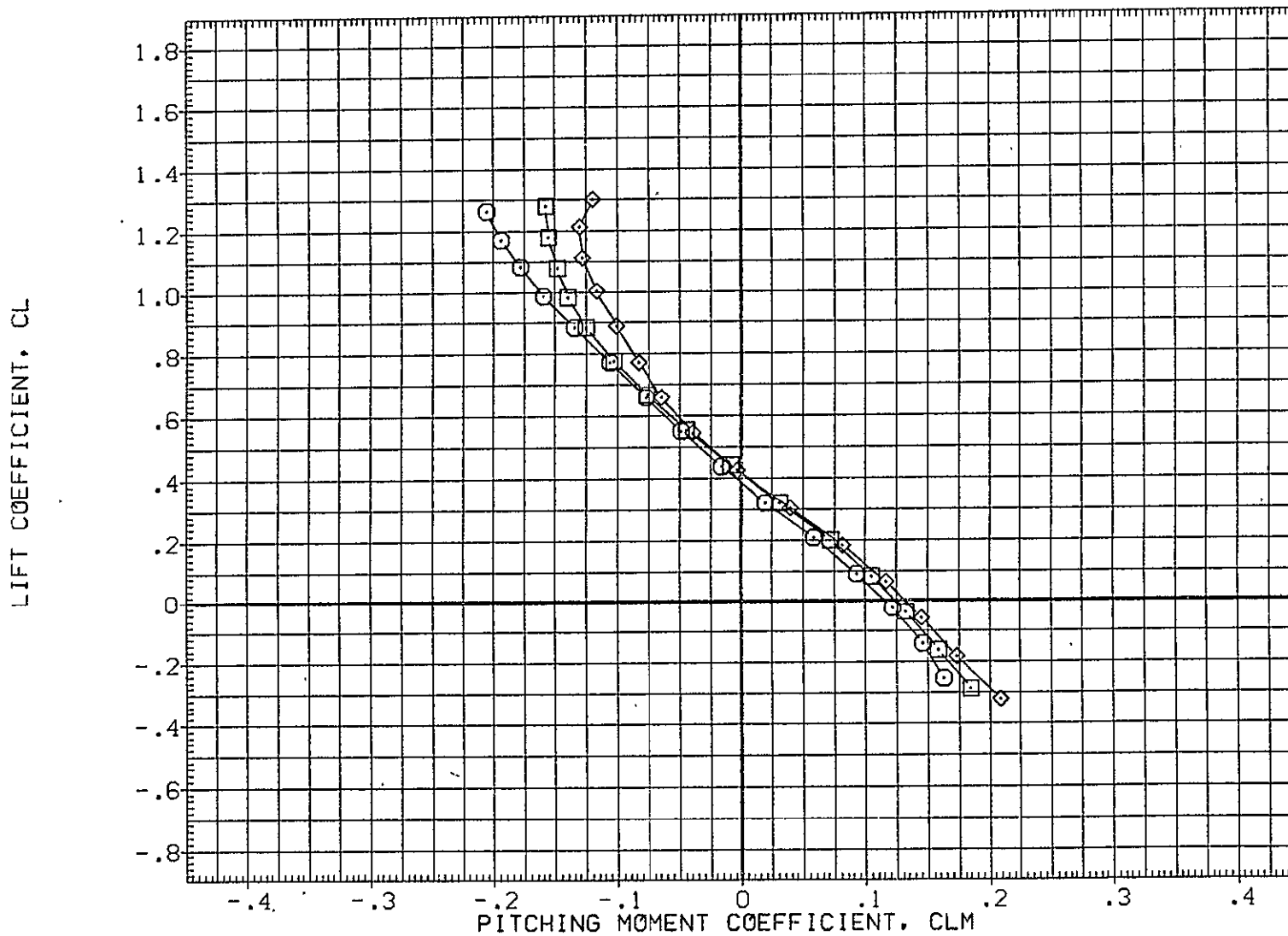


FIG. 29 747+0RB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

SYMBOL

○  
□  
◇

MACH

.500  
.600  
.700

BETA  
RUD-U  
ELV-1B  
S1-2  
S5-6

PARAMETRIC VALUES

.000 STAB 1.000  
.000 RUD-L .000  
.000 ELV-0B 3.000  
45.000 S3-4 45.000  
45.000 10RB 9.700

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
LREF 327.8000 IN.  
BREF 2348.0000 IN.  
XMRP 1339.9100 IN. XC  
YM RP .0000 IN. YC  
ZMRP 190.7500 IN. ZC  
SCALE .0300

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

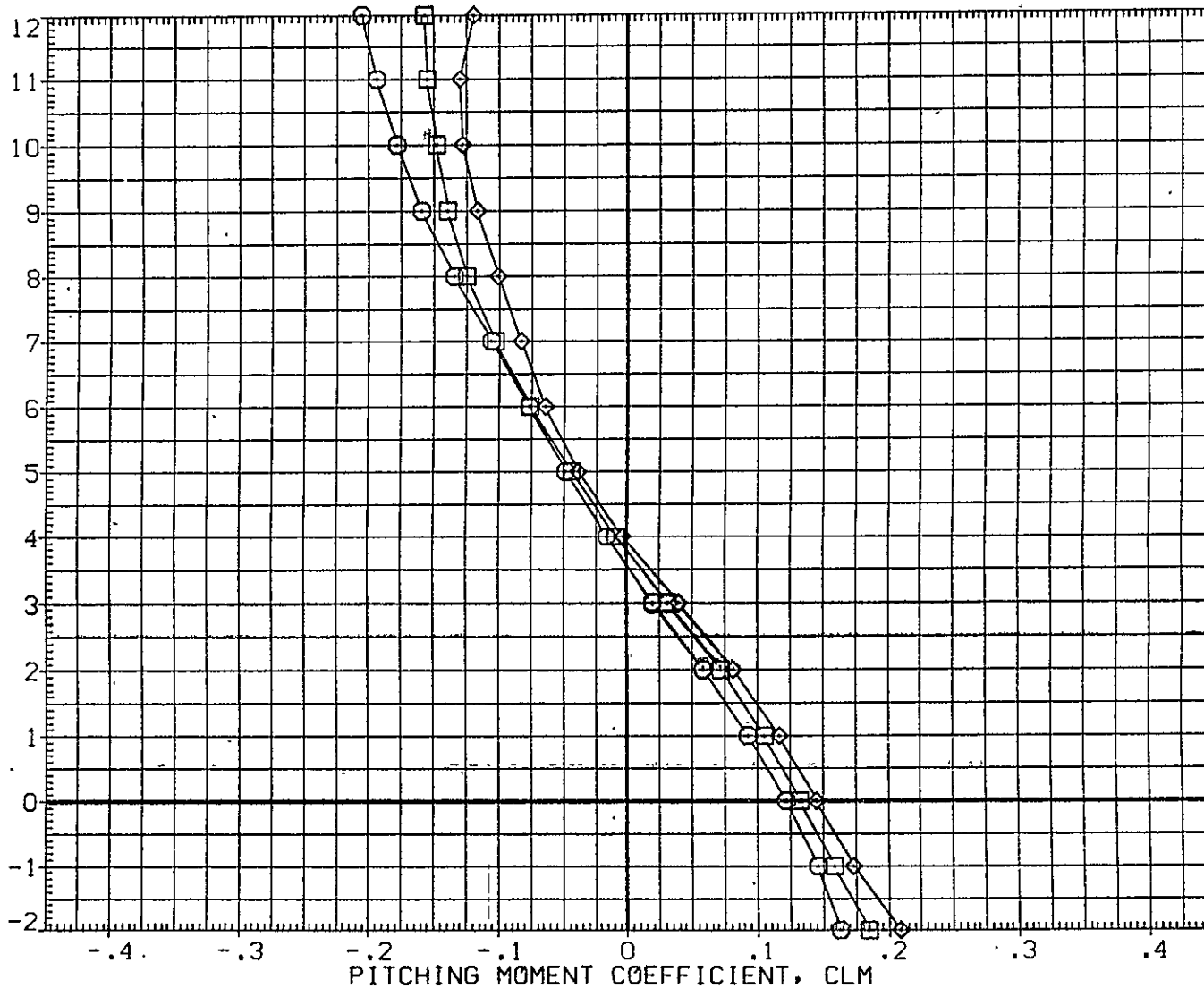


FIG. 29 747+0RB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

CA5 K1 F20 H15.1A V9.1 MINUS ORB TC5 AT38.1 (BGM075)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

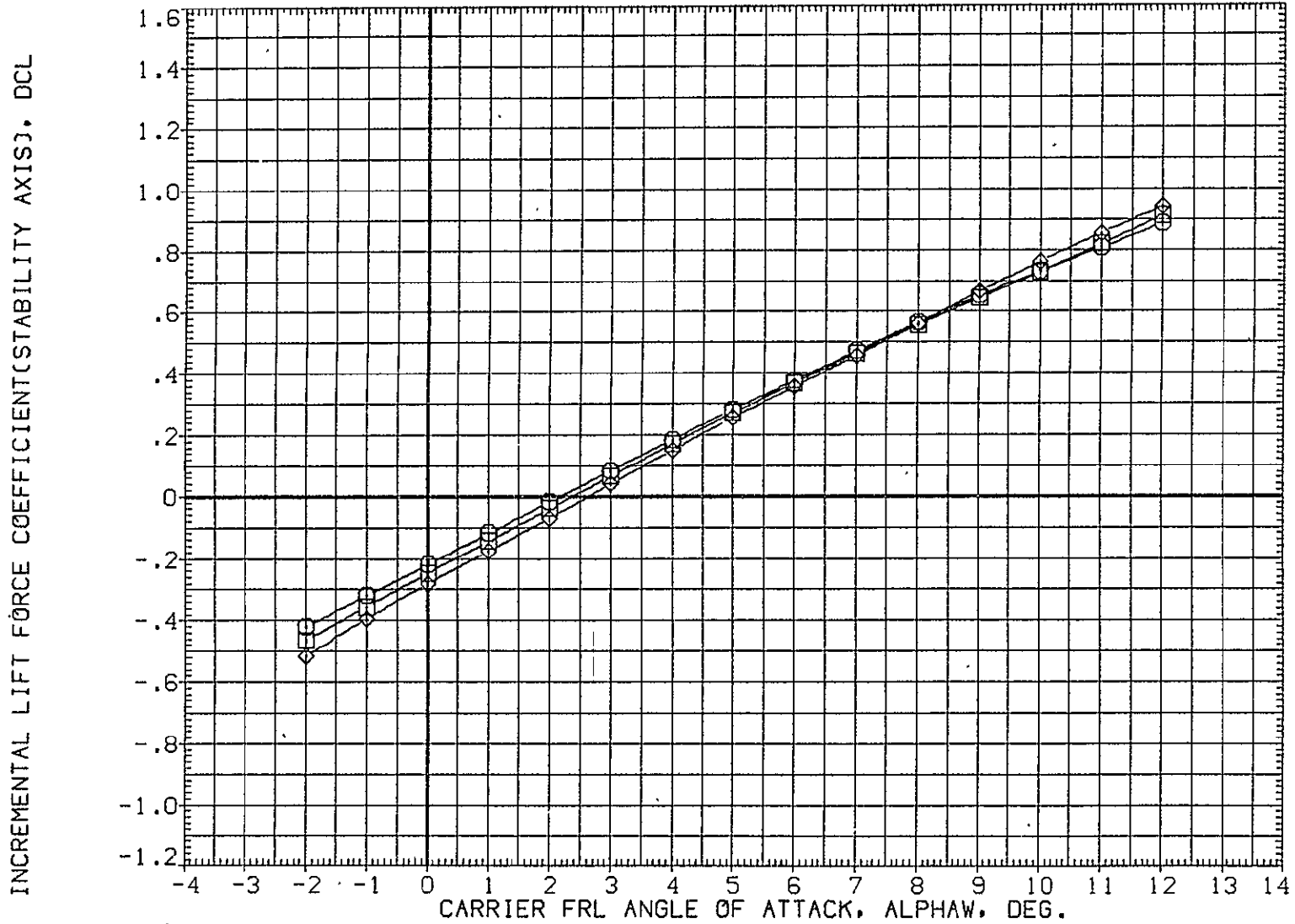


FIG. 30 747+0RB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	STAB	STAB	SREF	SO.FT.	SO.FT.
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SO.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

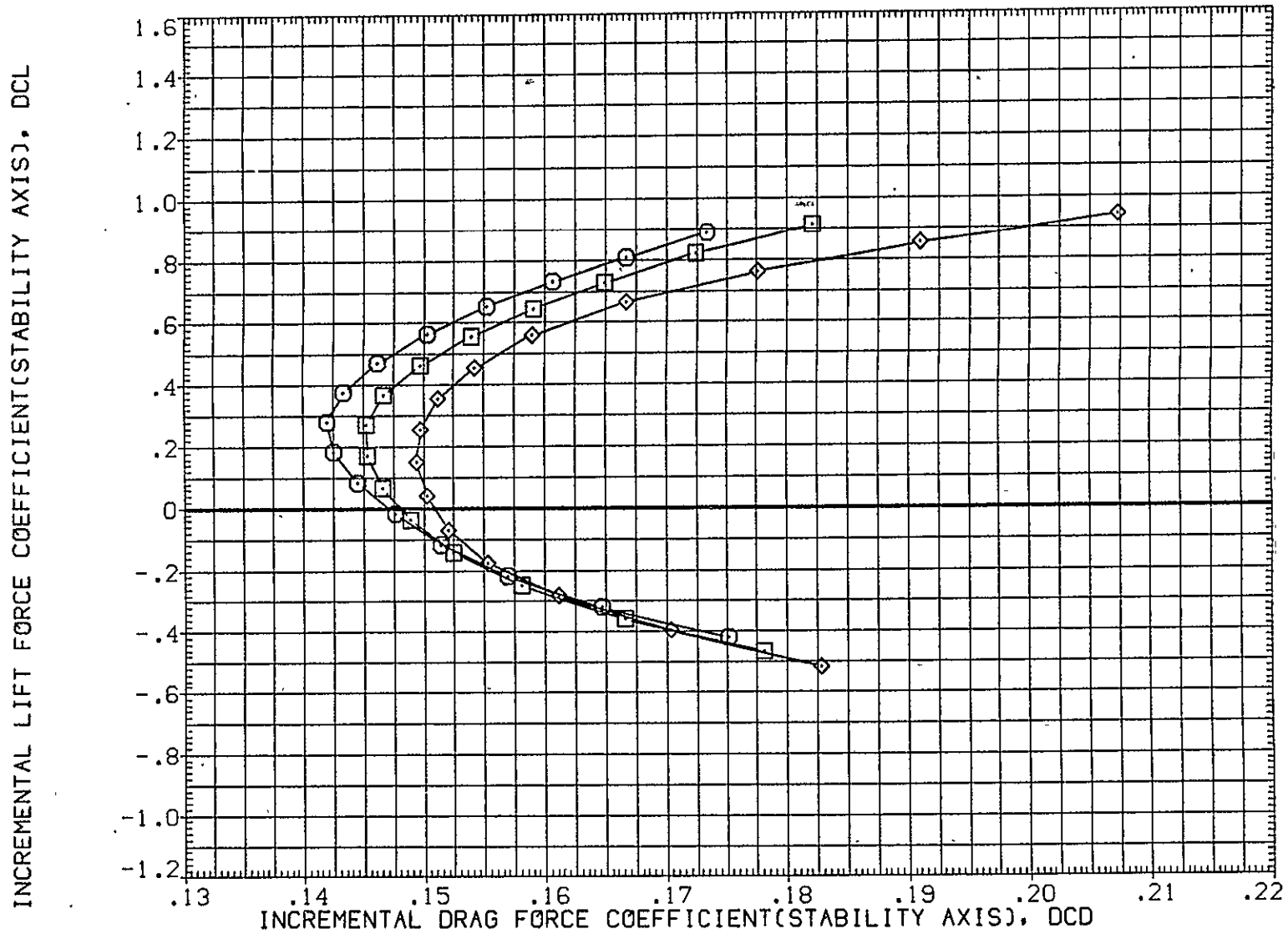


FIG. 30 747+ORB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

CA5 K1 F20 H15.1A V9.1 MINUS. ORB TC5 AT38.1 (BGM075)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-OB	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	ORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

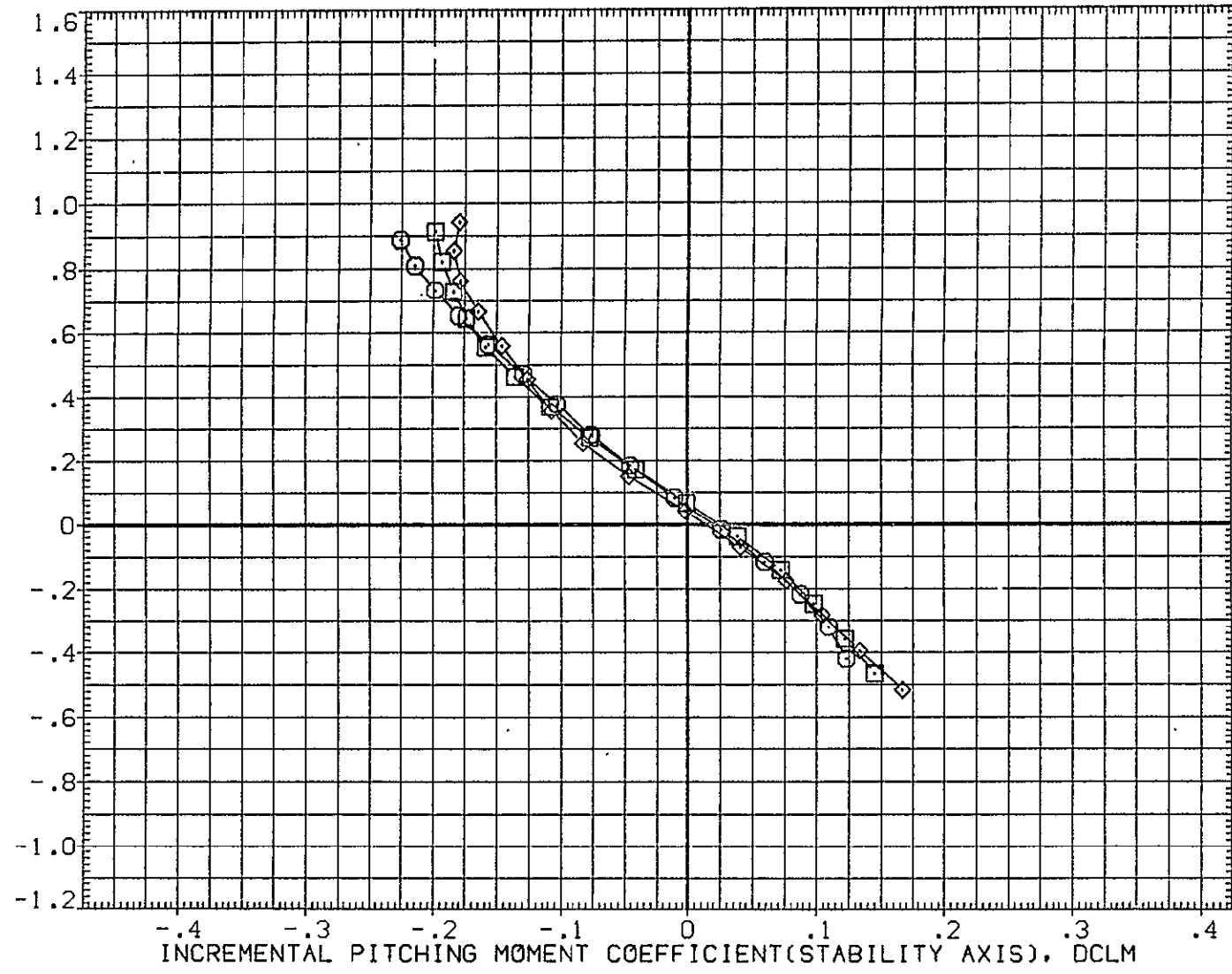


FIG. 30 747+ORB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	SS-6	45.000	IORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

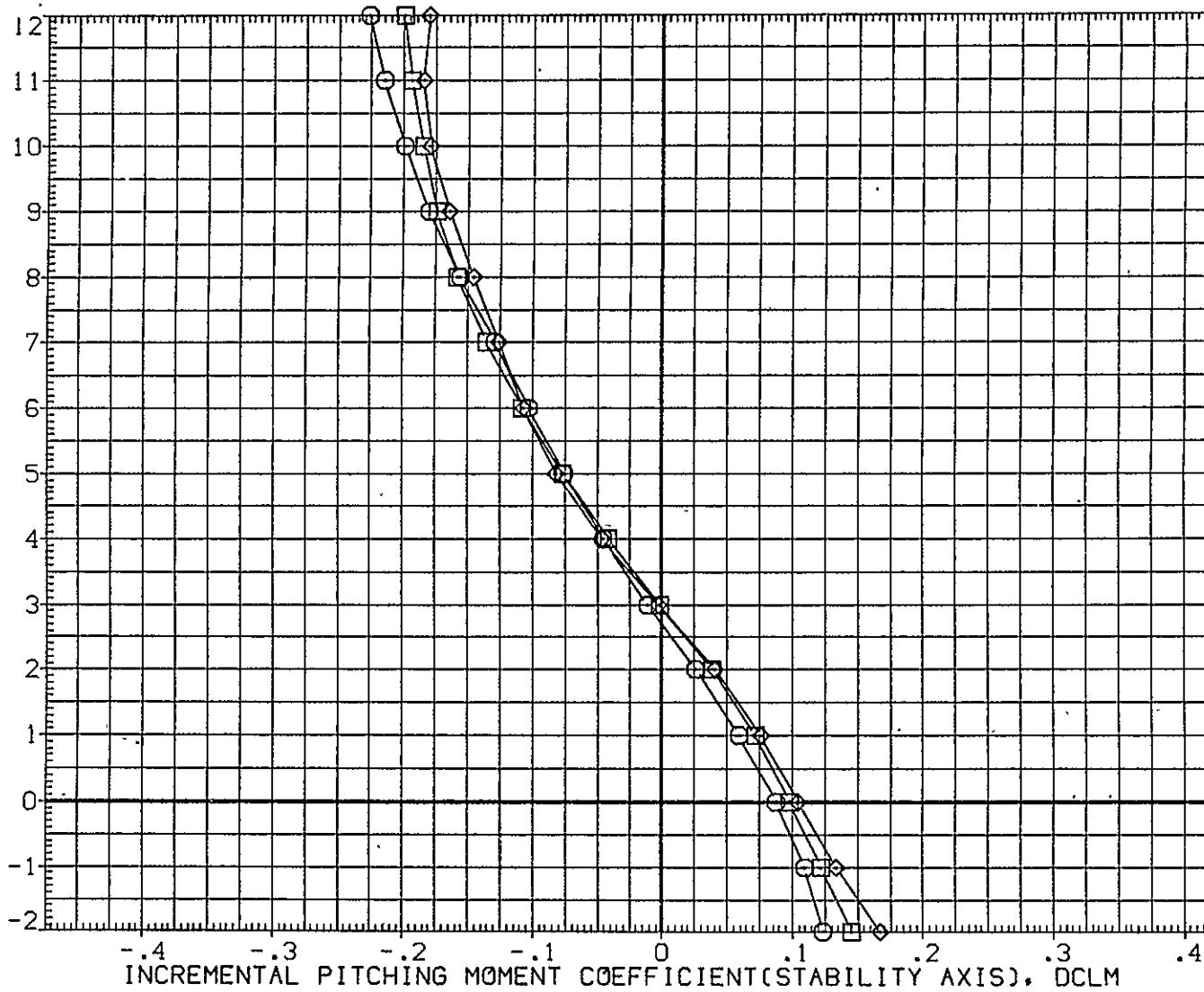


FIG. 30 747+0RB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.1A V9.1)(YGM075)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

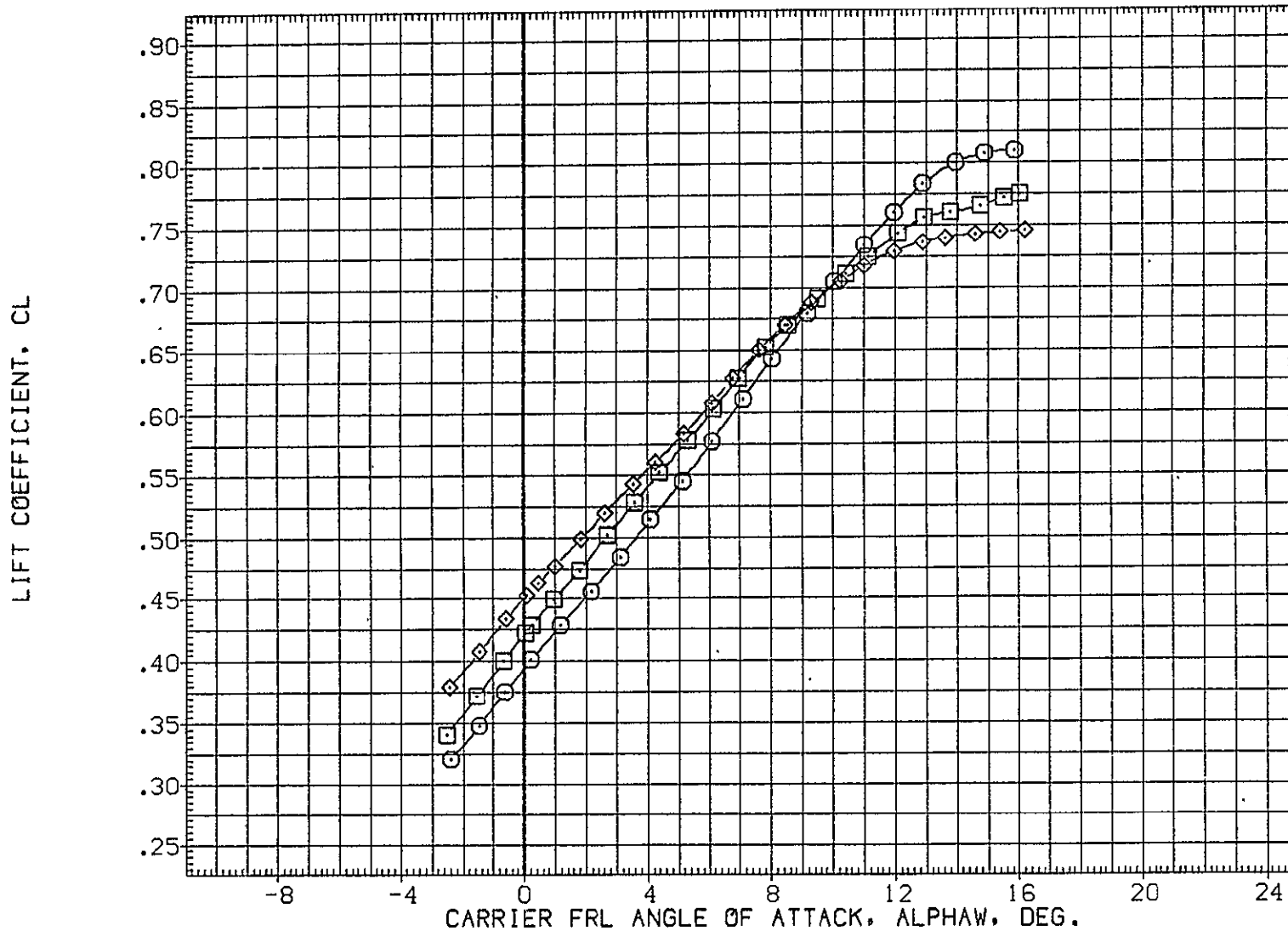


FIG. 31 747+ORB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	50.FT.
○	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.599	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

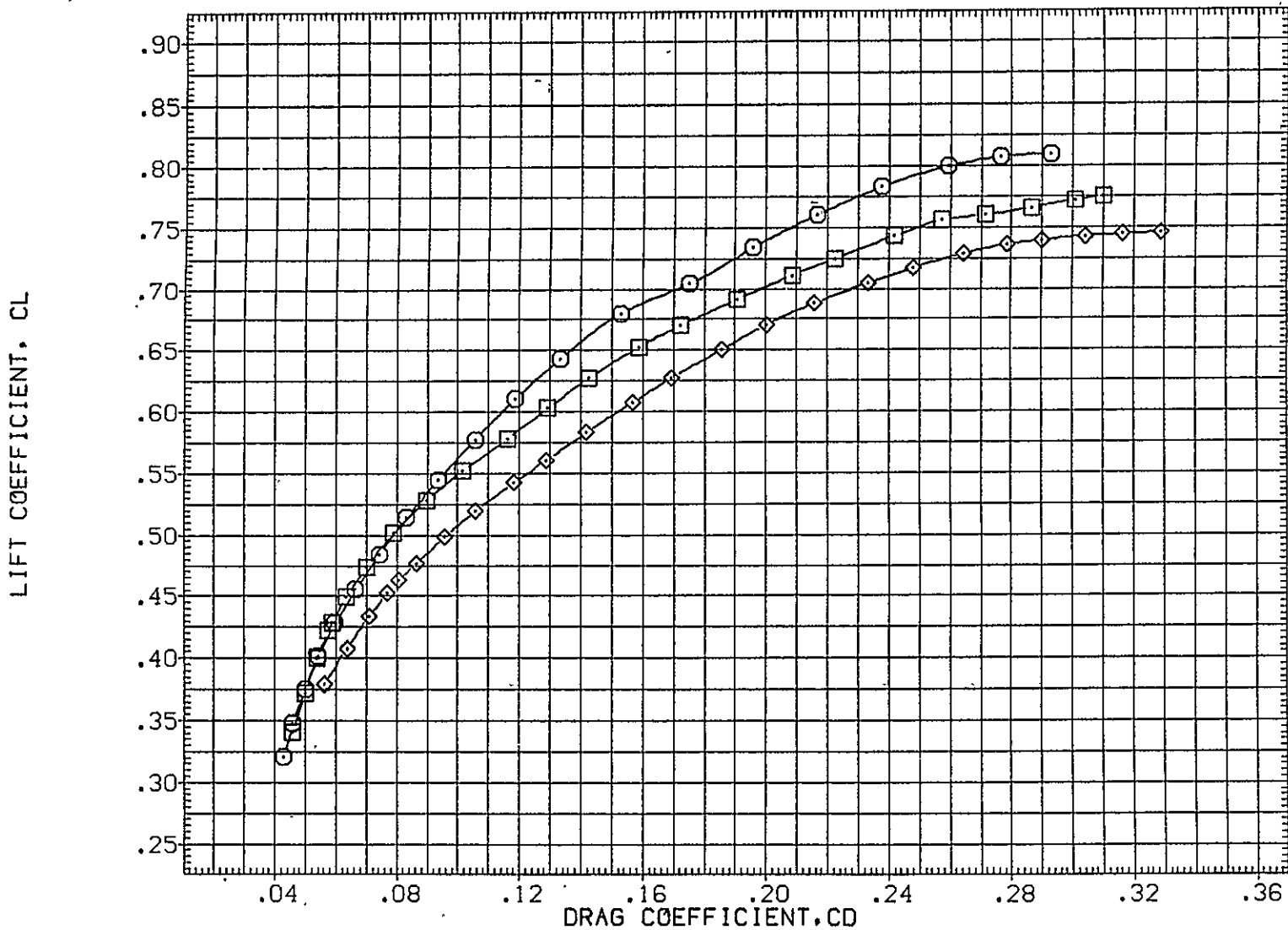


FIG. 31 747+ORB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

ORB

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.1A V9.1)(YGM075)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-L	ELV-0B	SREF	SO.FT.	
○	.499	.000	1.000	.000	3.000	2690.0000	50.FT.	
□	.599	.000	.000	.000	3.000	474.8100	IN.	
◇	.700	.000	.000	.000	3.000	936.6800	IN.	
		ELV-1B	ELV-0B	S1-2	S3-4	XMRP	IN. X0	
		45.000	45.000	45.000	45.000	.0000	IN. Y0	
		S5-6	10RB		9.700	375.0000	IN. Z0	
						SCALE	.0300	

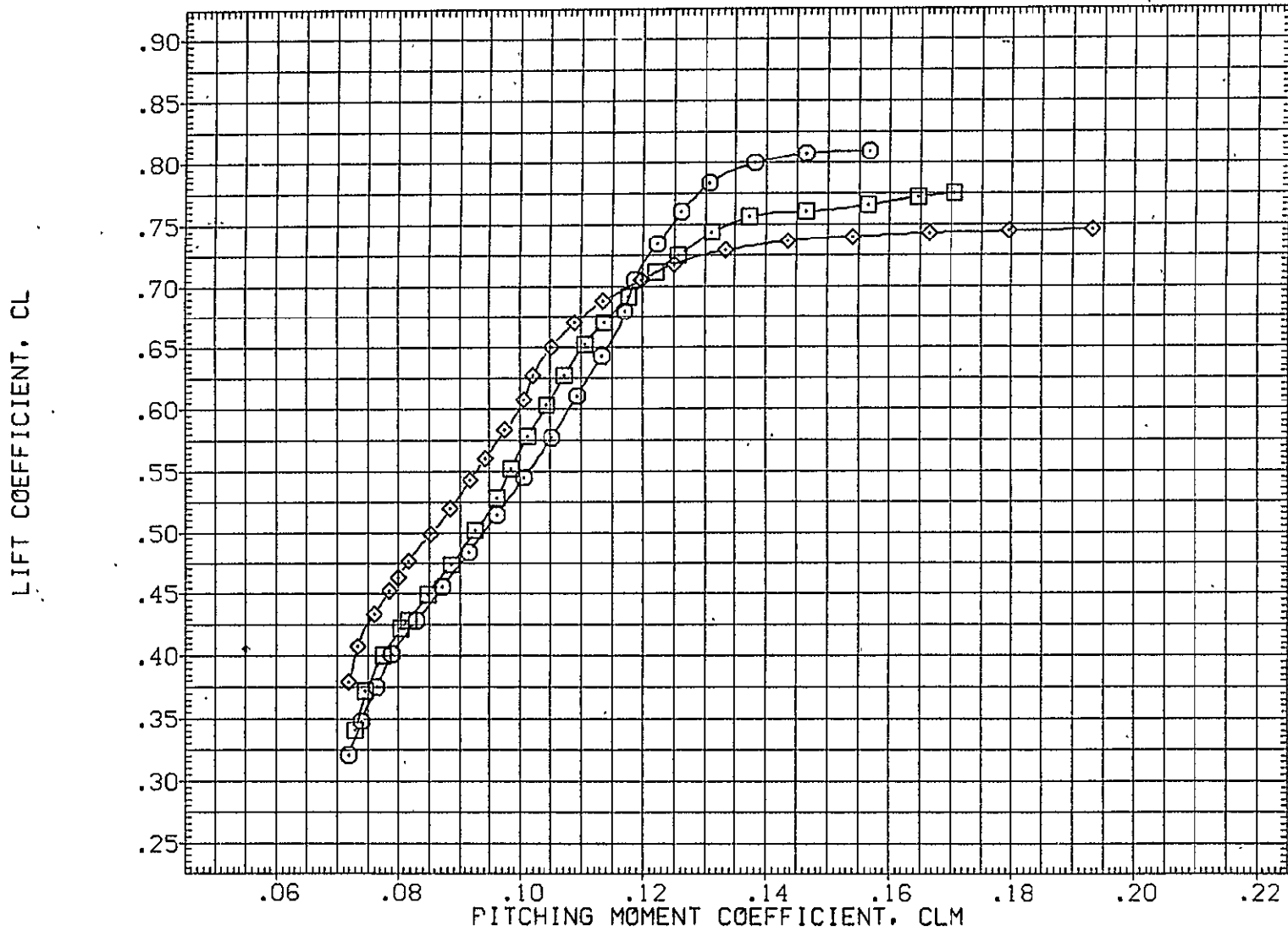


FIG. 31 747+0RB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

0RB

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.499	BETA	.000	STAB	1.000
.599	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

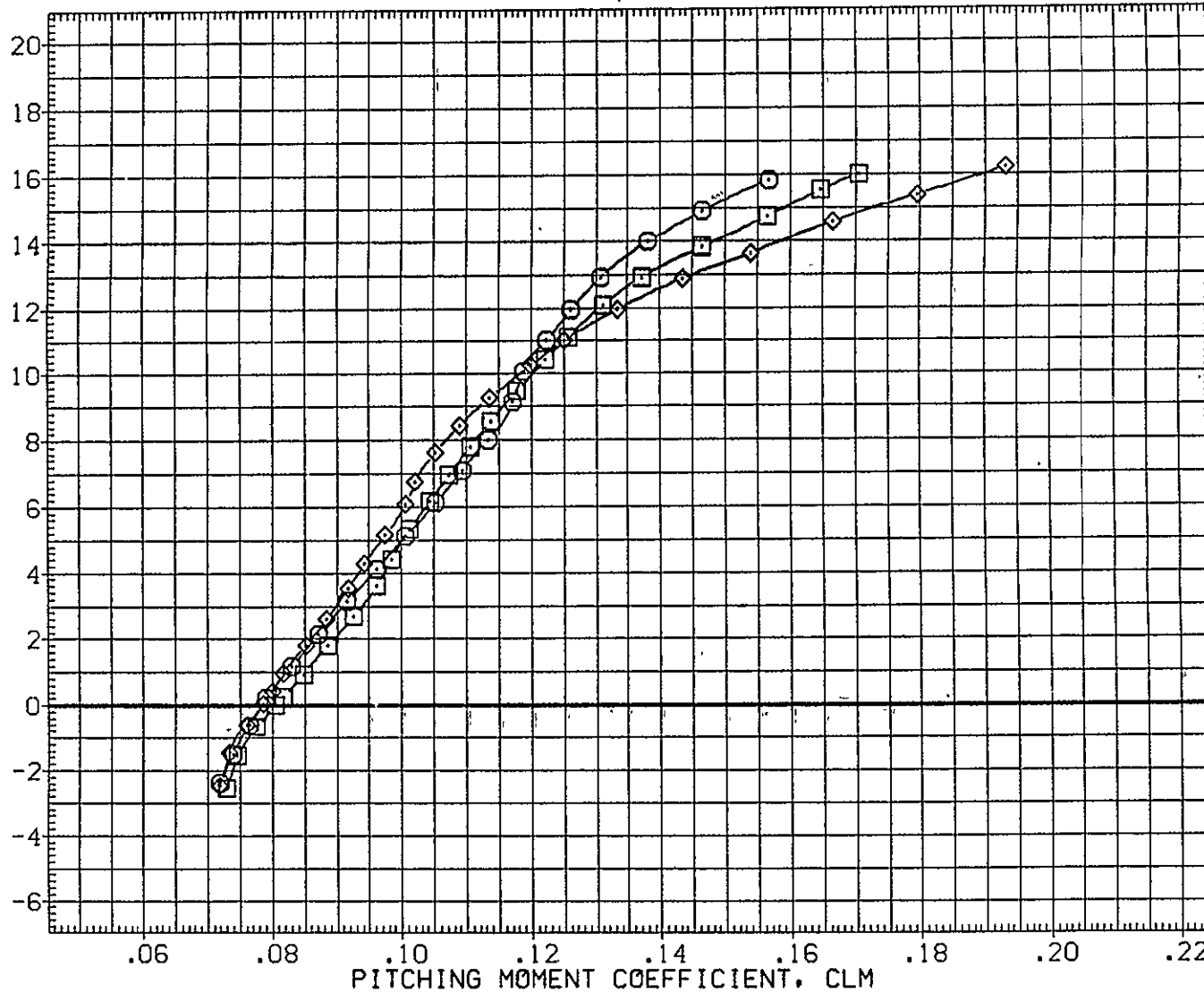


FIG. 31 747+ORB(10 DEG)+SP45,BASIC TAIL, FLAPS 20 LAUNCH(S=+1)

ORB

CA5 K1 F20 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM077)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	ICRB	9.700		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

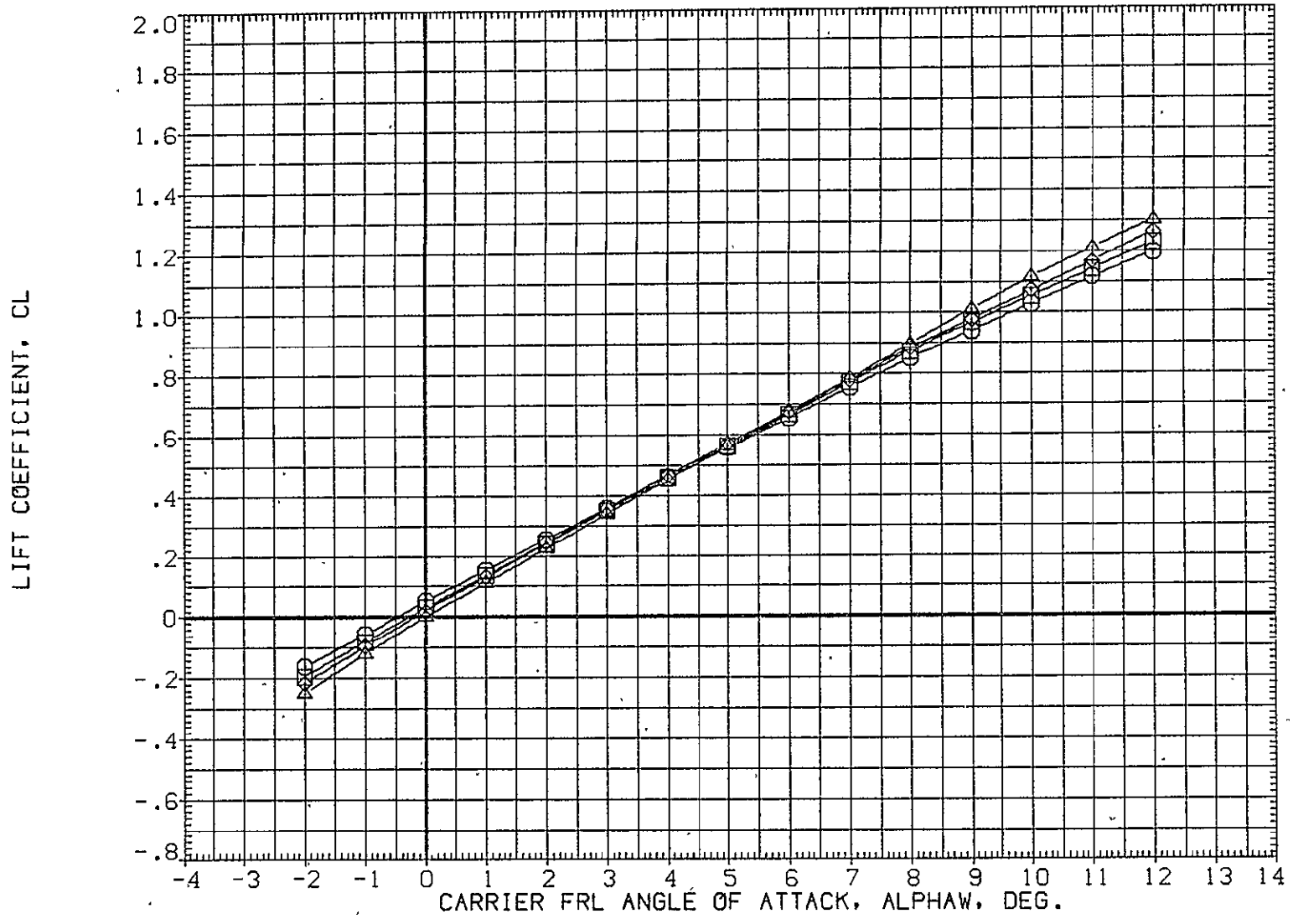


FIG. 32 747+ORB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH



SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.300		.000	RUD-U	.000
□	.499		.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	10RB	9.700		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

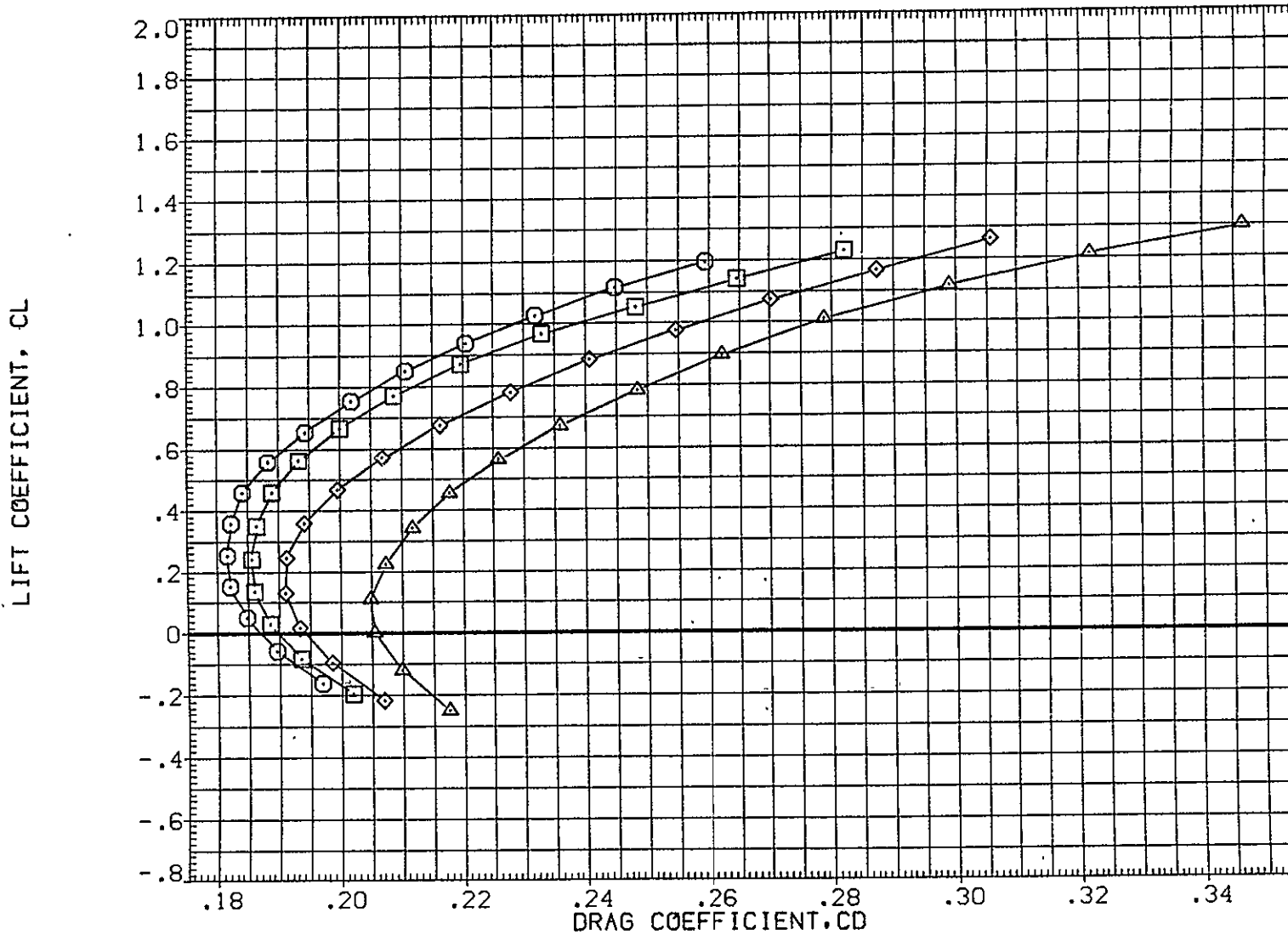


FIG. 32 747+ORB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

CA5 K1 F20

V9.1 (PLUS. ORB TC5 AT38.1 )(RGM077)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	IORB	9.700		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	



FIG. 32 747+ORB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

TOTAL

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH

BETA  
 .300  
 .499  
 .600  
 .700

PARAMETRIC VALUES

.000 RUD-U .000  
 .000 S1-2 45.000  
 45.000 S5-6 45.000  
 9.700

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
 LREF 327.8000 IN.  
 BREF 2348.0000 IN.  
 XMRP 1339.9100 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 190.7500 IN. ZC  
 SCALE .0300

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

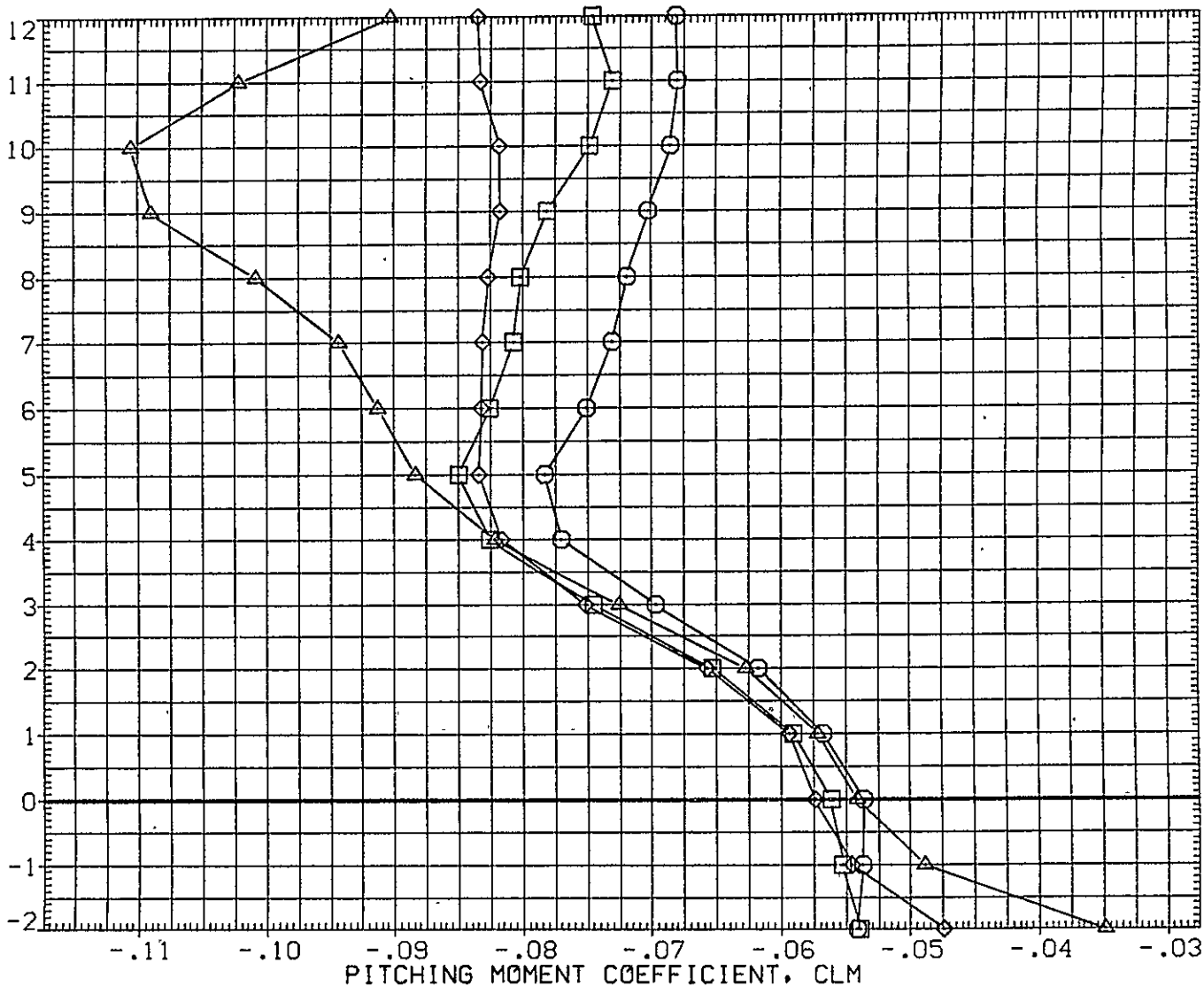


FIG. 32 747+ORB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

TOTAL

CA5 K1 F20

V9.1 MINUS 0RB TC5 AT38.1 (BGMO77)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	10RB	9.700		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT (STABILITY AXIS), DCL

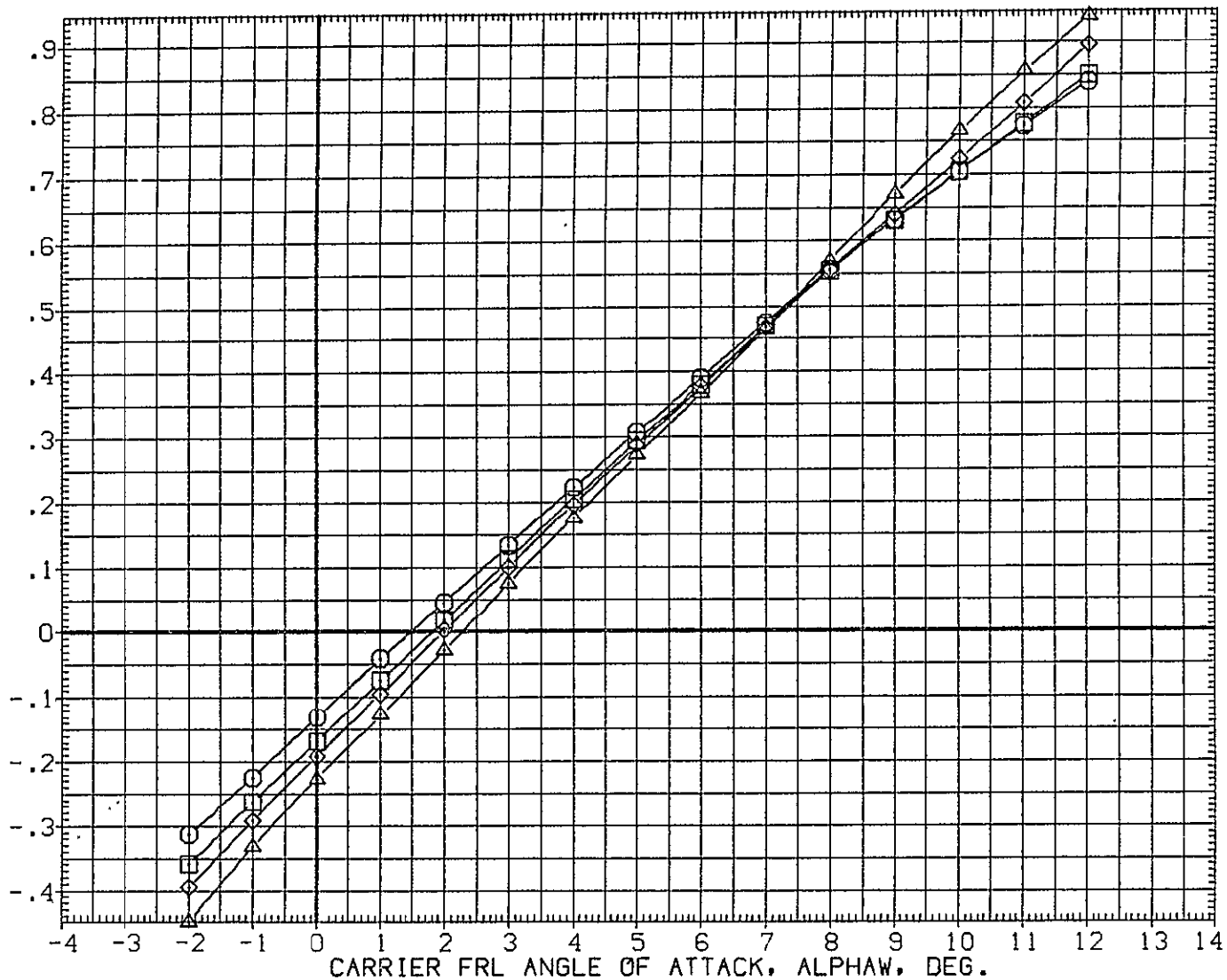


FIG. 33 747+0RB(10 DEG)+SP45, HORIZ OFF, FLAPS 20 LAUNCH

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	ICRB	9.700		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

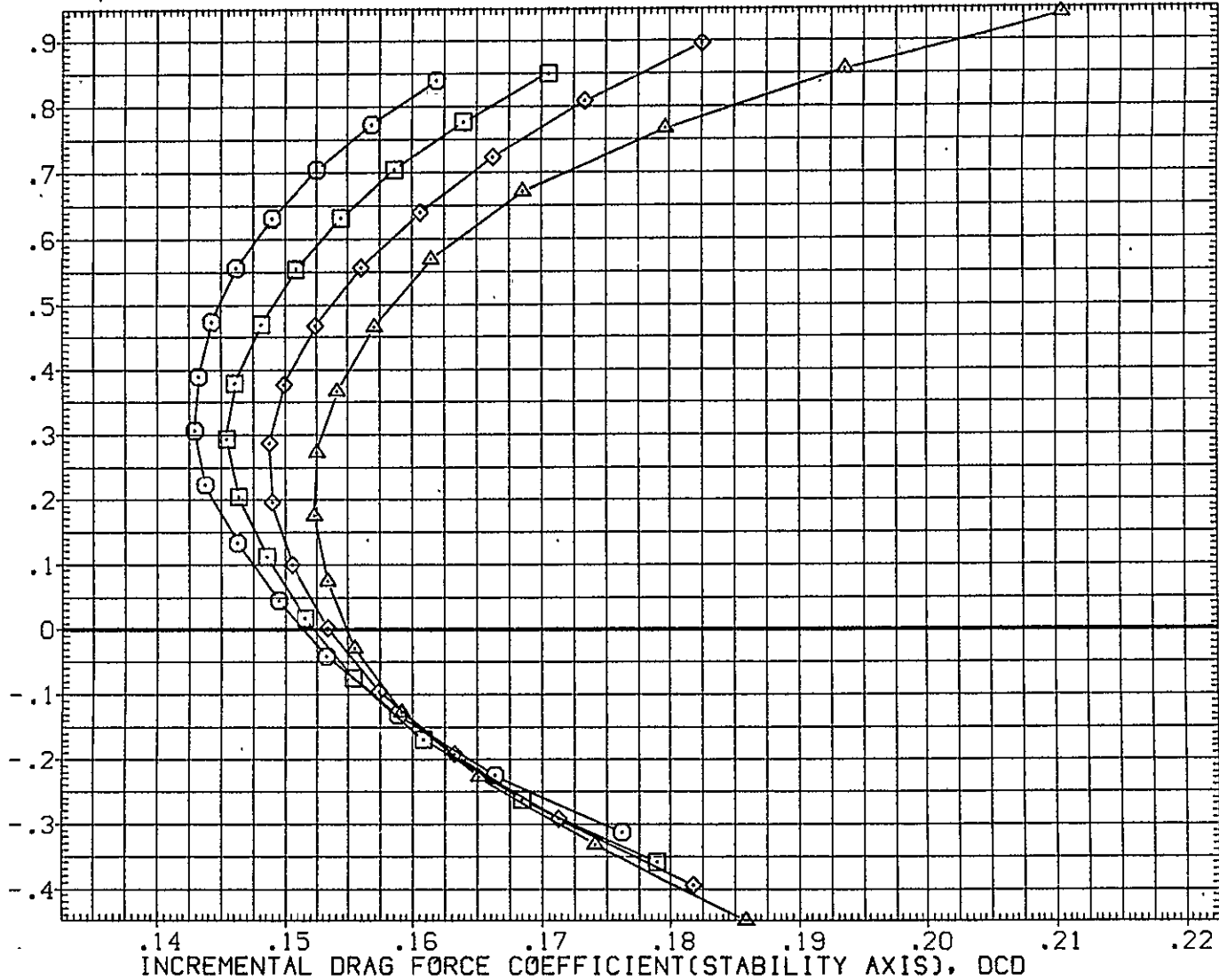


FIG. 33 747+ORB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

CA5 K1 F20

V9.1 MINUS ORB TC5 AT38.1 (BGMO77)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	IORB	9.700		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

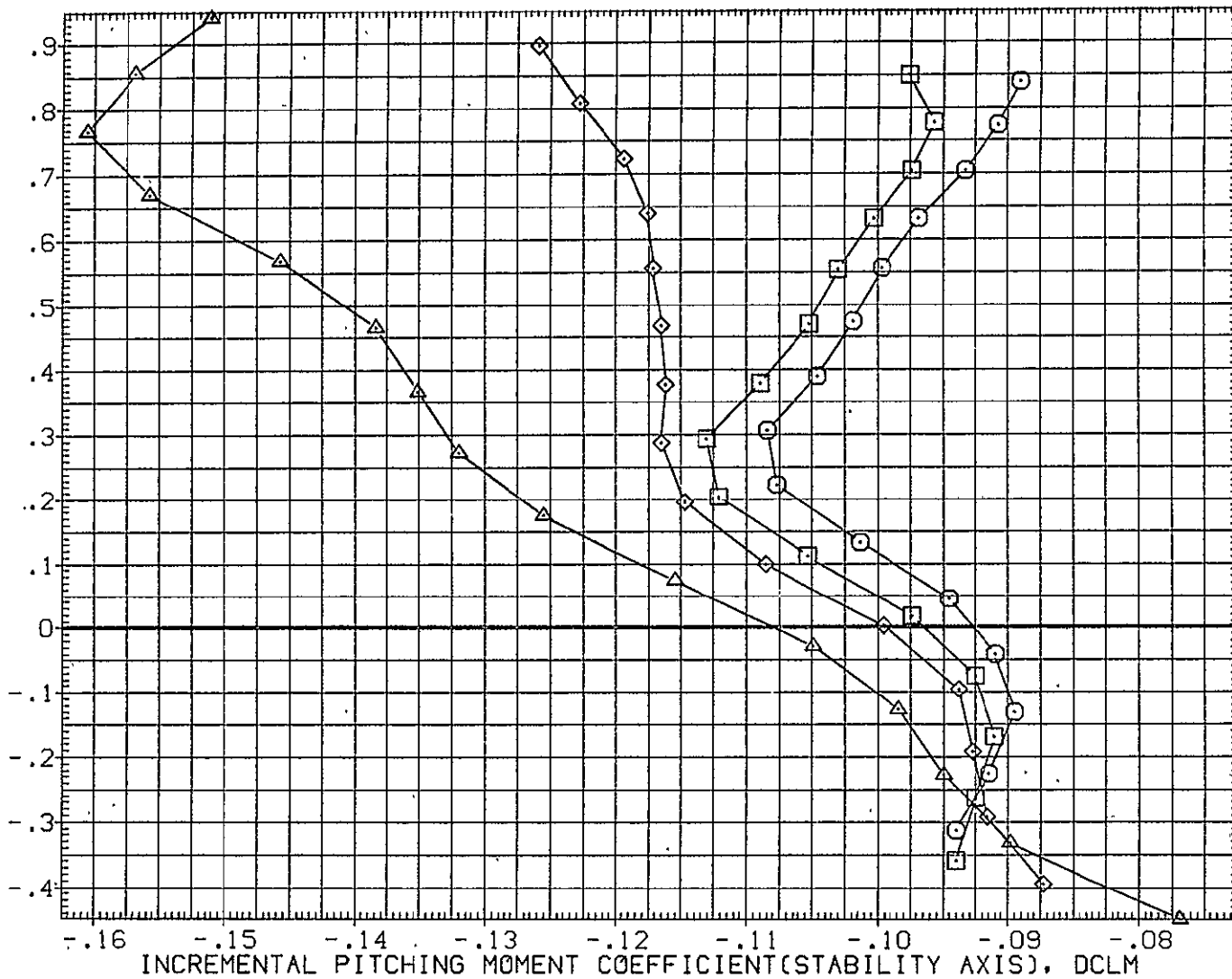


FIG. 33 747+ORB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45,000
◇	.600	S3-4	45,000	S5-6	45,000
△	.700	IORB	9,700		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

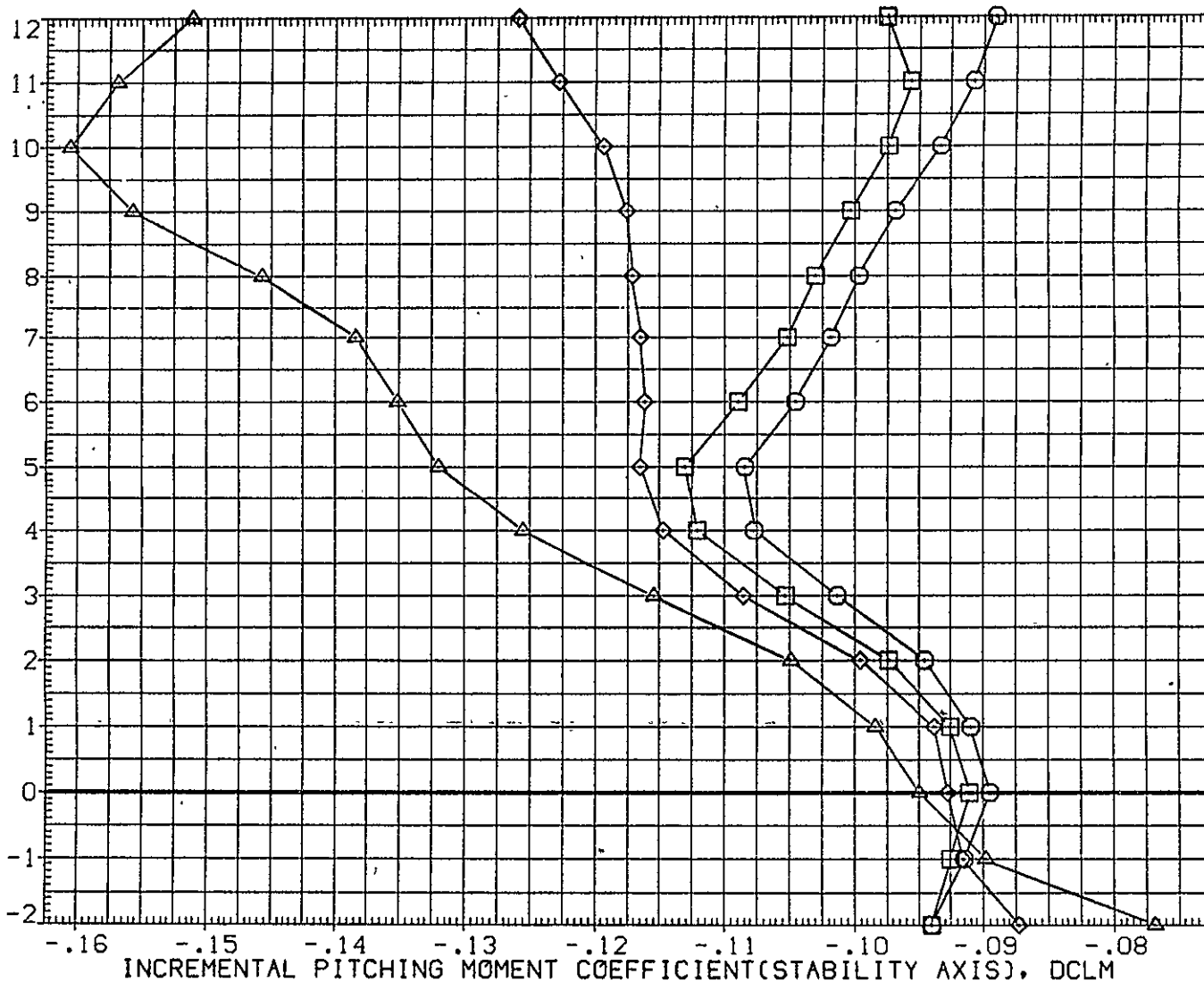


FIG. 33 747+ORB(10 DEG)+SP45, HORIZ OFF, FLAPS 20 LAUNCH

CA5 0RB TC5 AT38.1 (PRES. K1 F20

V9.1)(YGM077)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	IORB	9.700		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

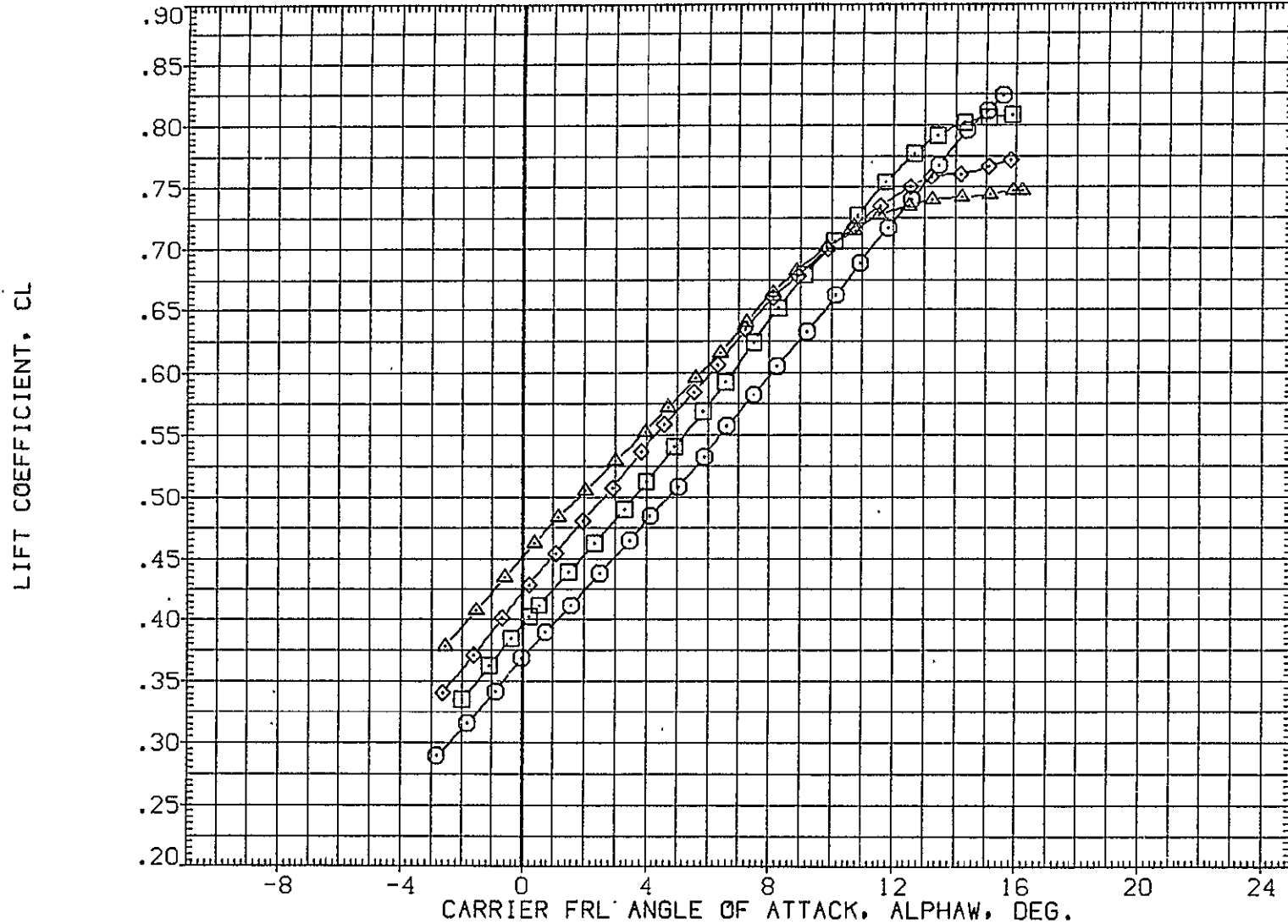


FIG. 34 747+0RB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

0RB



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	10RB	9.700		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

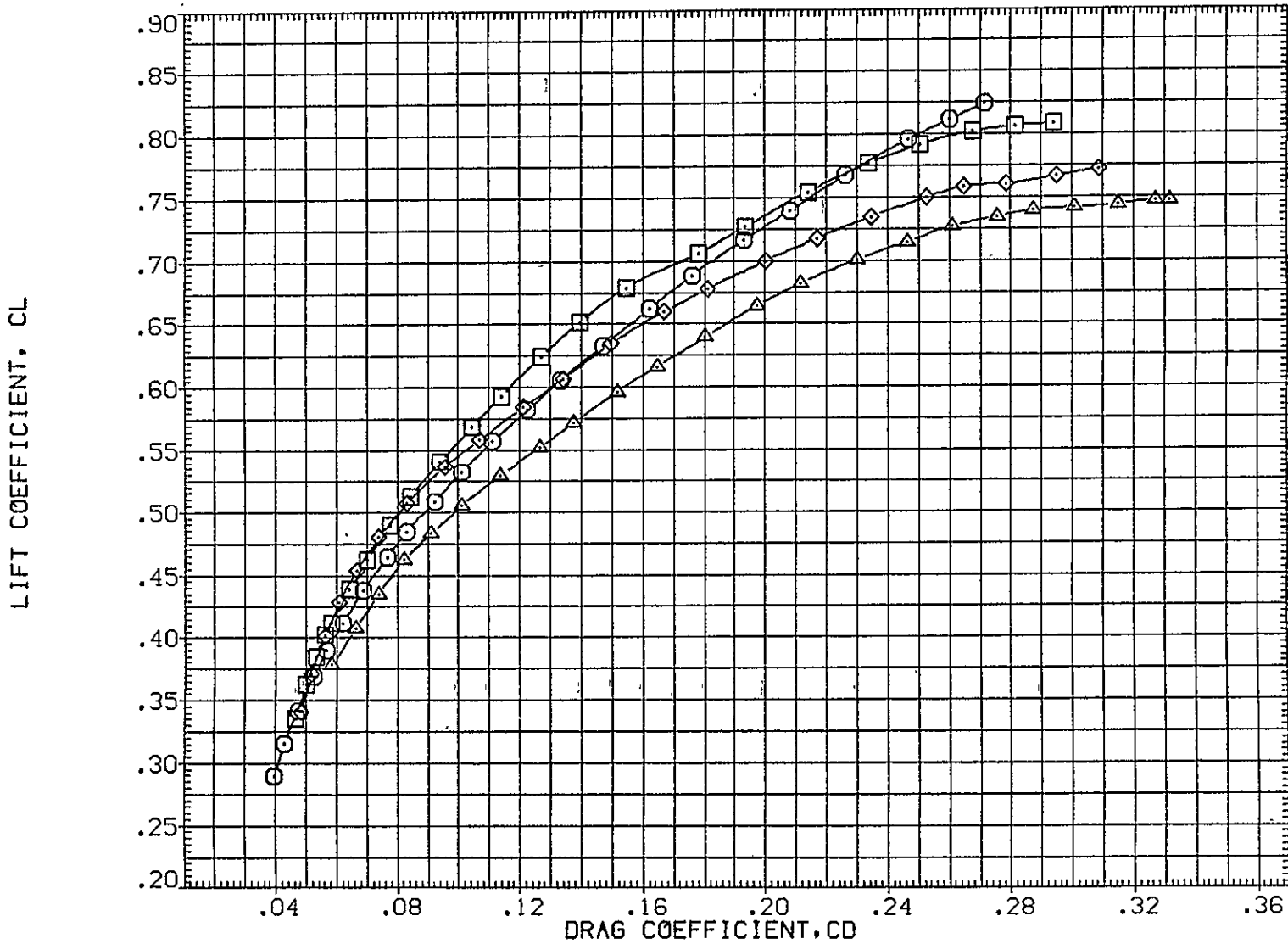


FIG. 34 747+0RB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

0RB

. CAS 0RB TC5 AT38.1 (PRES. K1 F20

V9.1)(YGM077)

SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.300		.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	10RB	9.700		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YM RP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

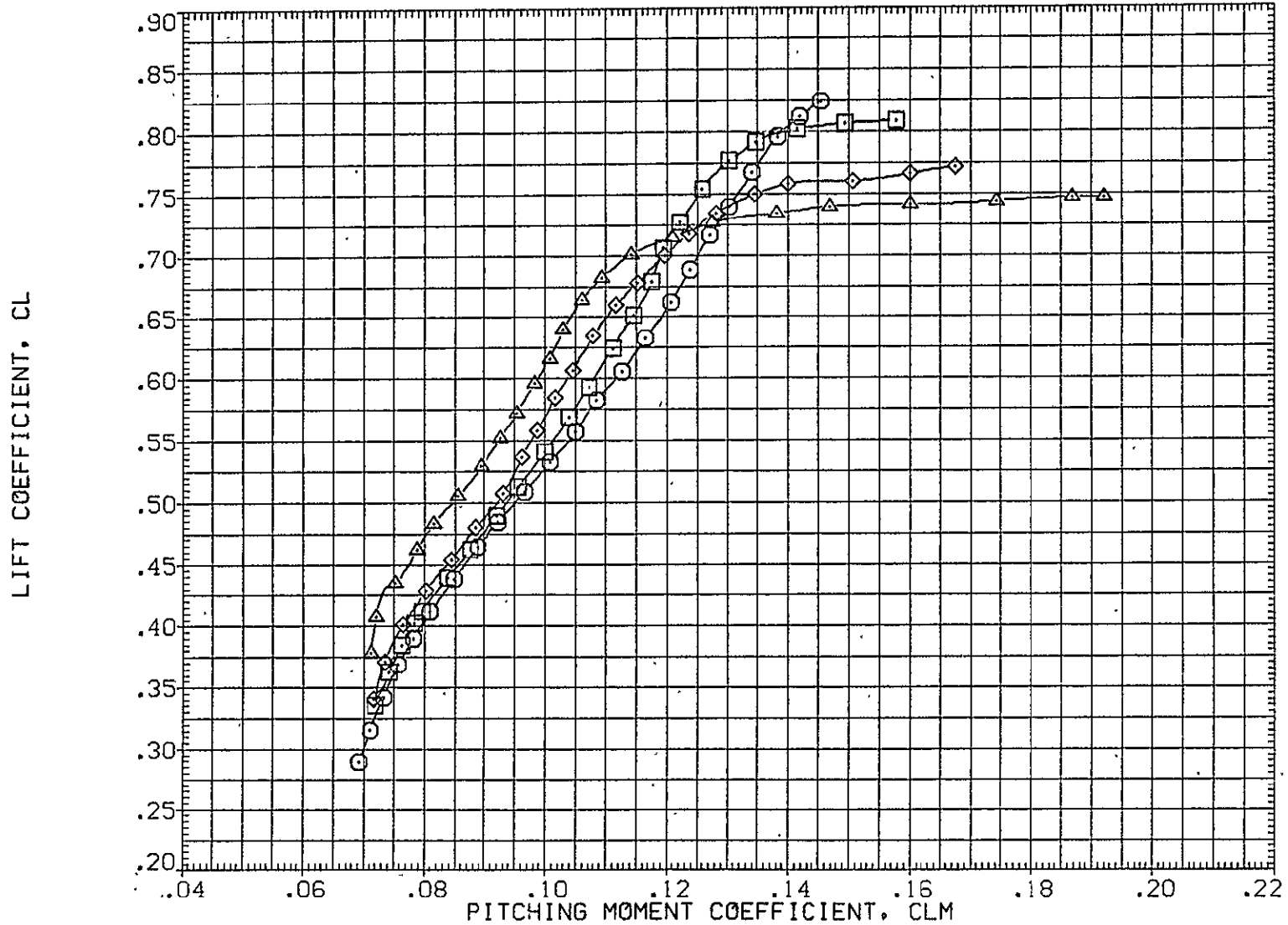


FIG. 34 747+0RB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

0RB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.499	RUD-L	.000	S1-2	45.000
◇	.600	S3-4	45.000	S5-6	45.000
△	.700	10RB	9.700		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XM RP	1109.0000	IN. X0
YM RP	.0000	IN. Y0
ZM RP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

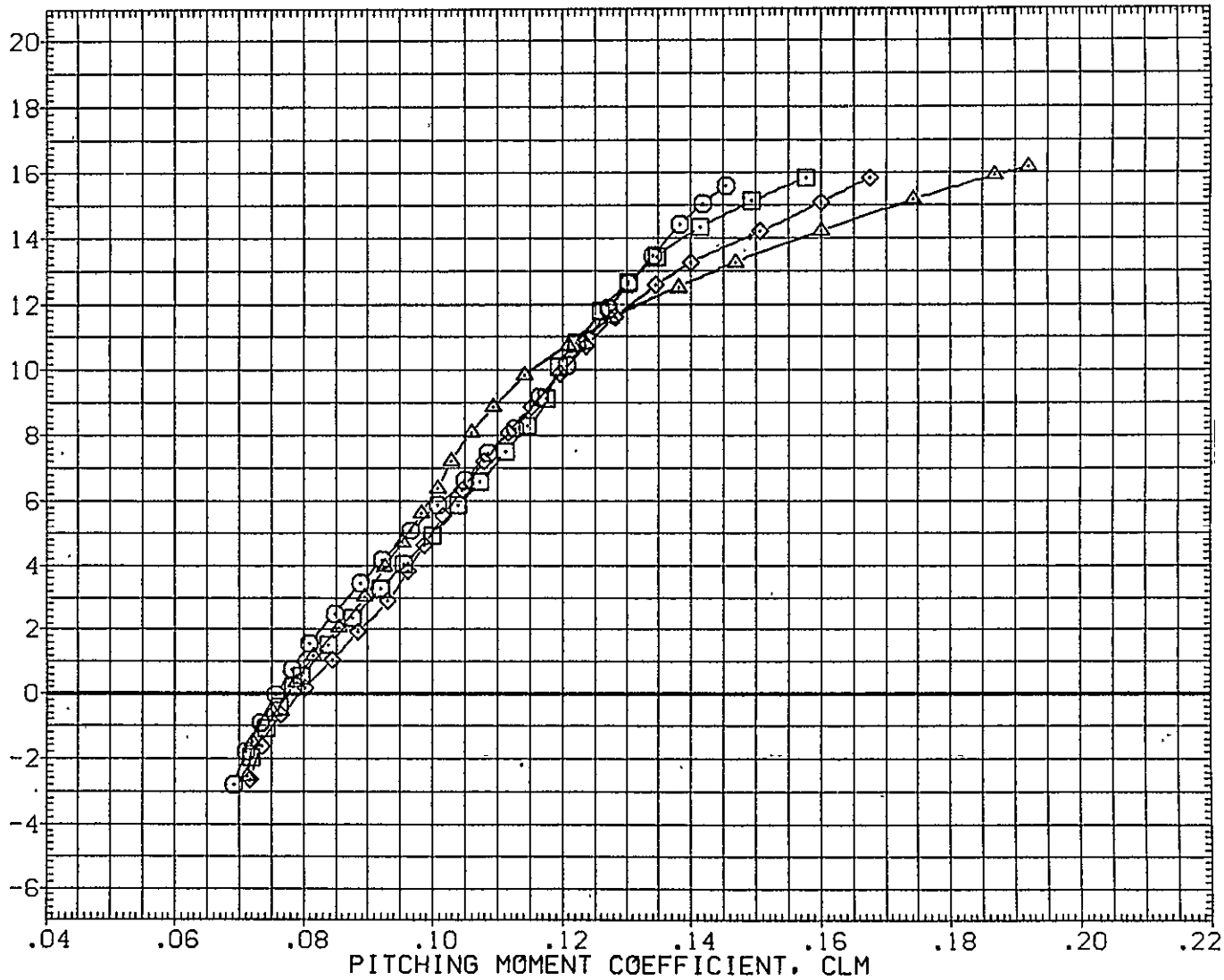


FIG. 34 747+0RB(10 DEG)+SP45,HORIZ OFF, FLAPS 20 LAUNCH

0RB

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM080)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50. FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

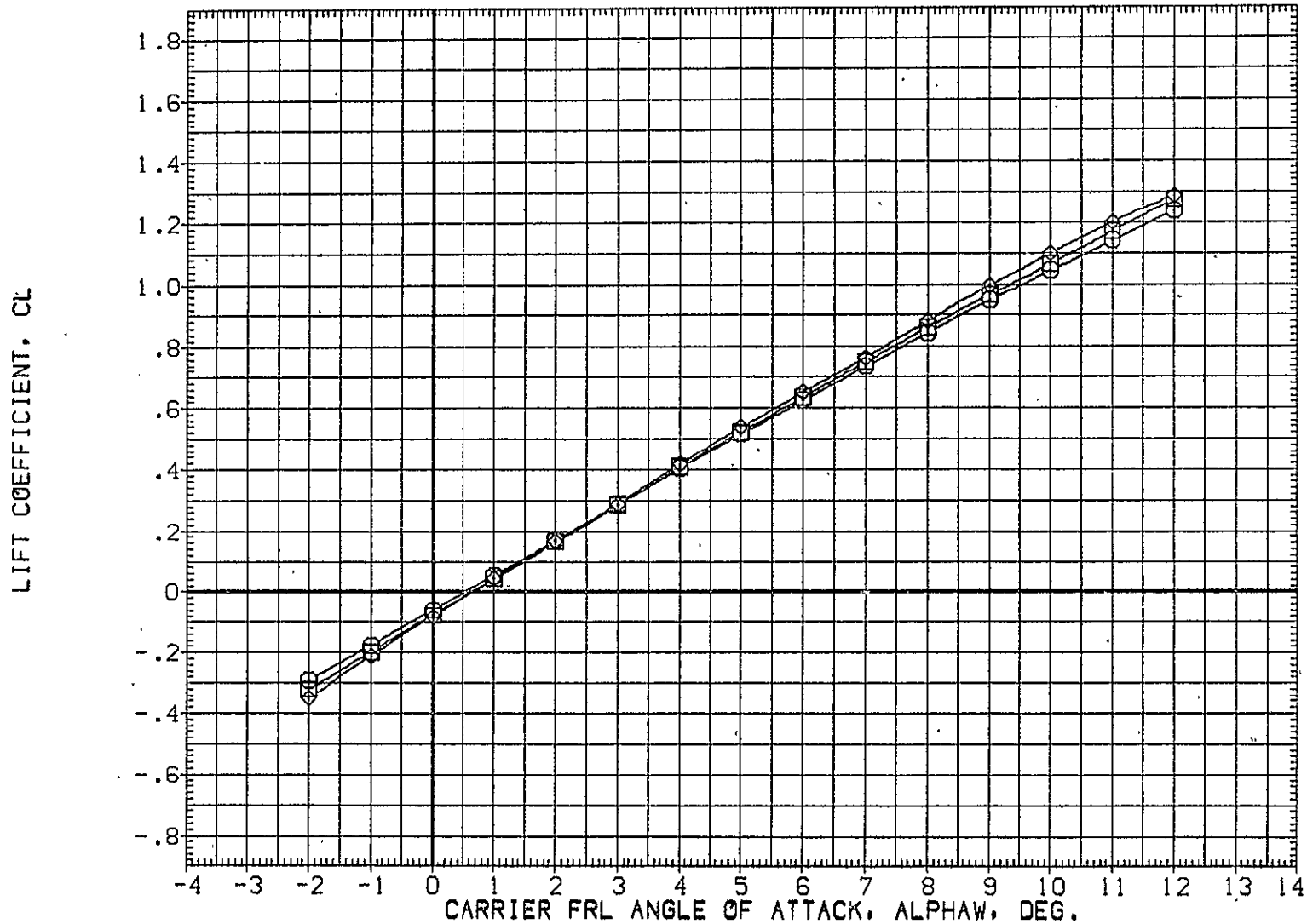


FIG. 35 747+ORB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

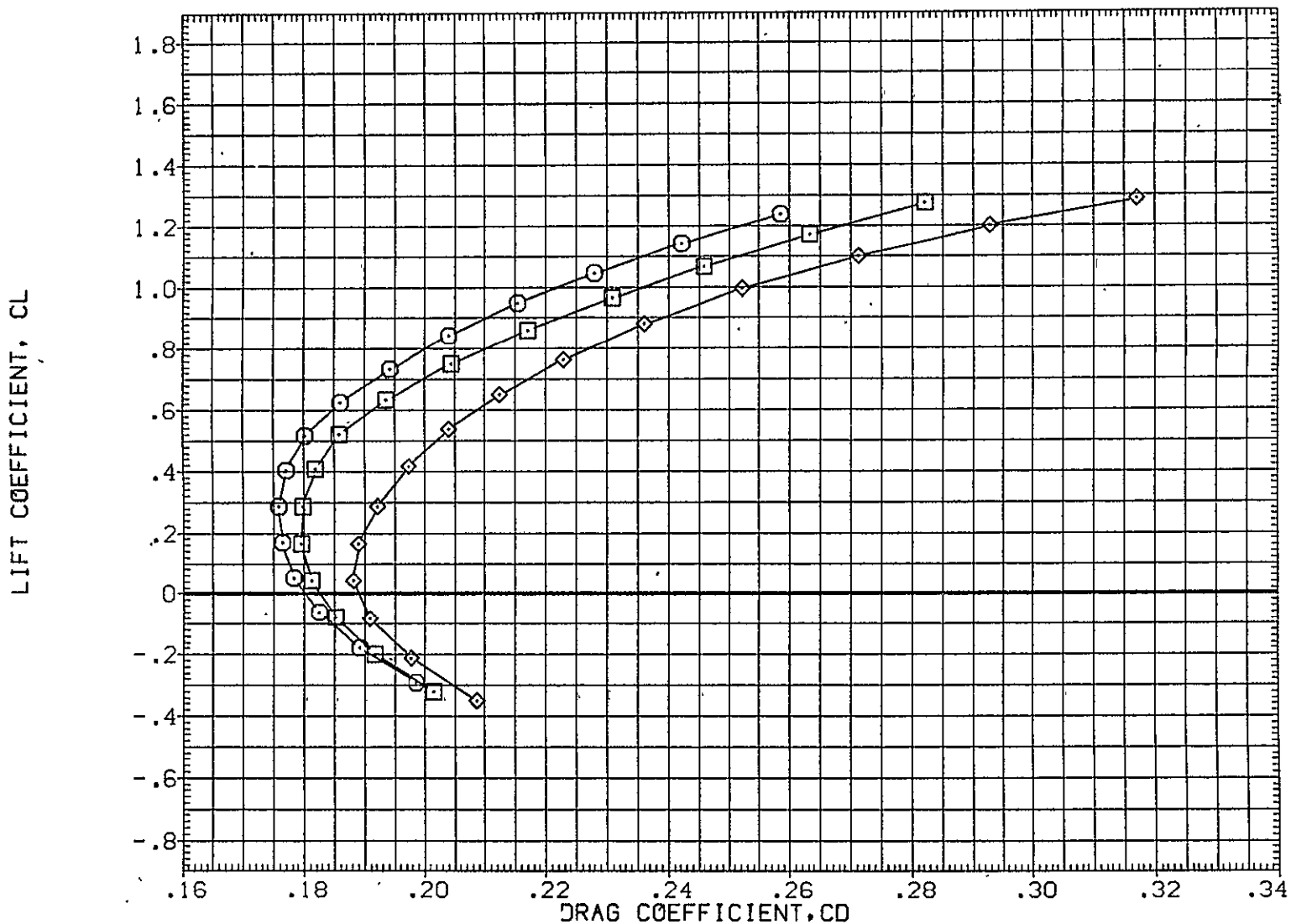


FIG. 35 747+0RB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

TOTAL

CA5 K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM080)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		SS-6	45.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

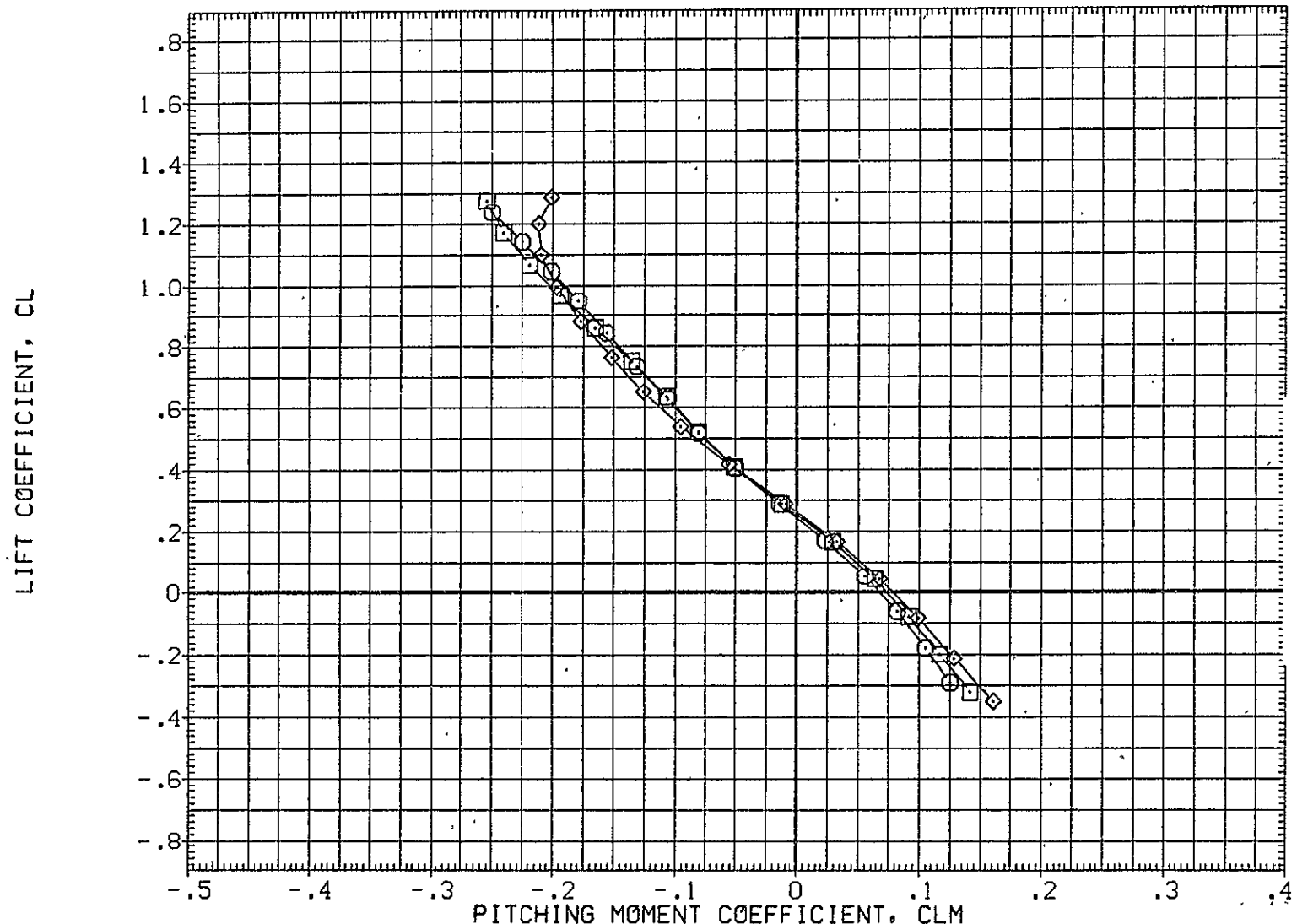


FIG. 35 747+0RB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	ICRB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

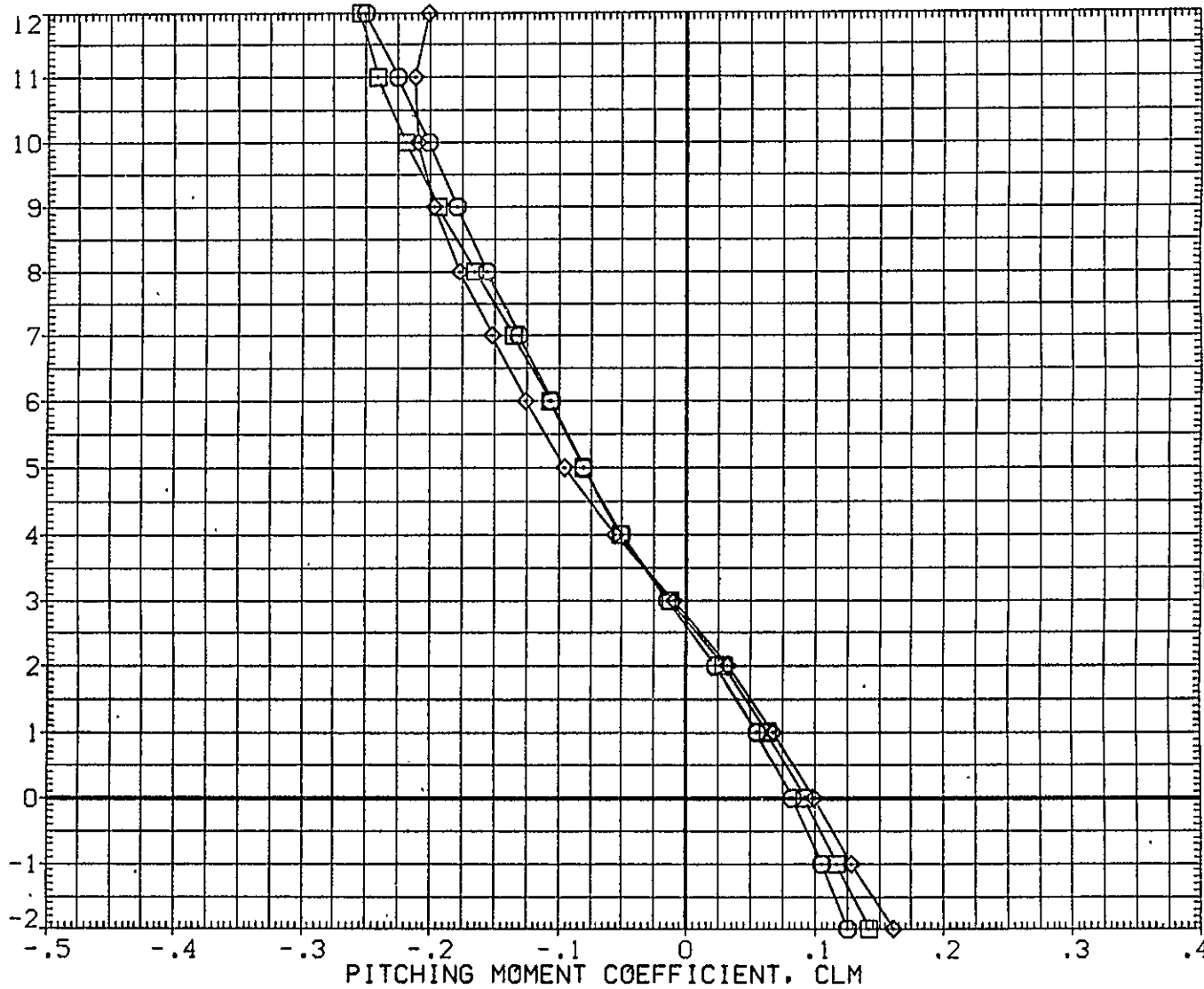


FIG. 35 747+0RB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

CA5 K1 F20 H15.6 V9.1 MINUS 0RB TC5 AT38.2 (BGM080)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

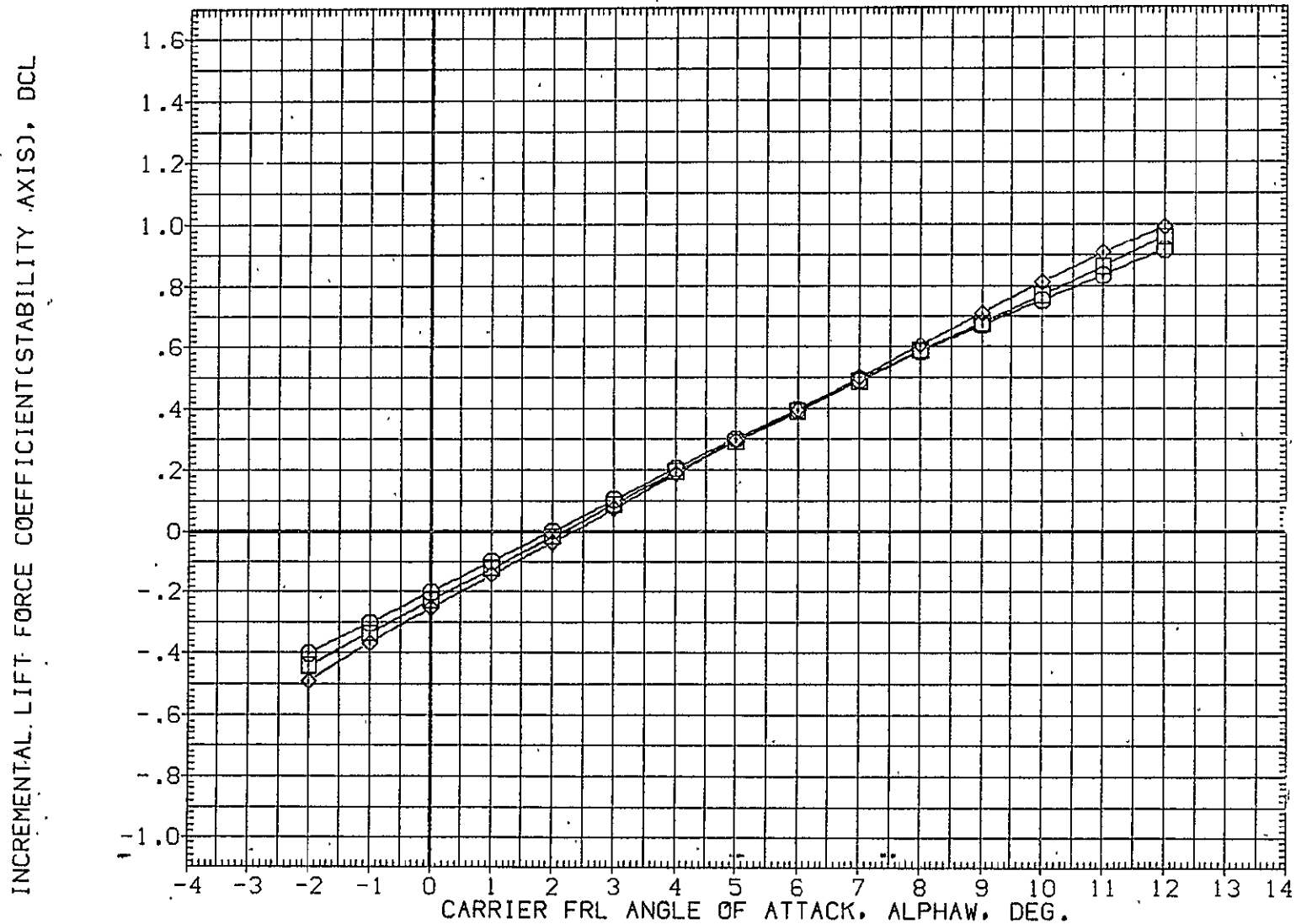


FIG. 36 747+0RB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	BETA	.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	45.000	S3-4	45.000
		SS-6	45.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

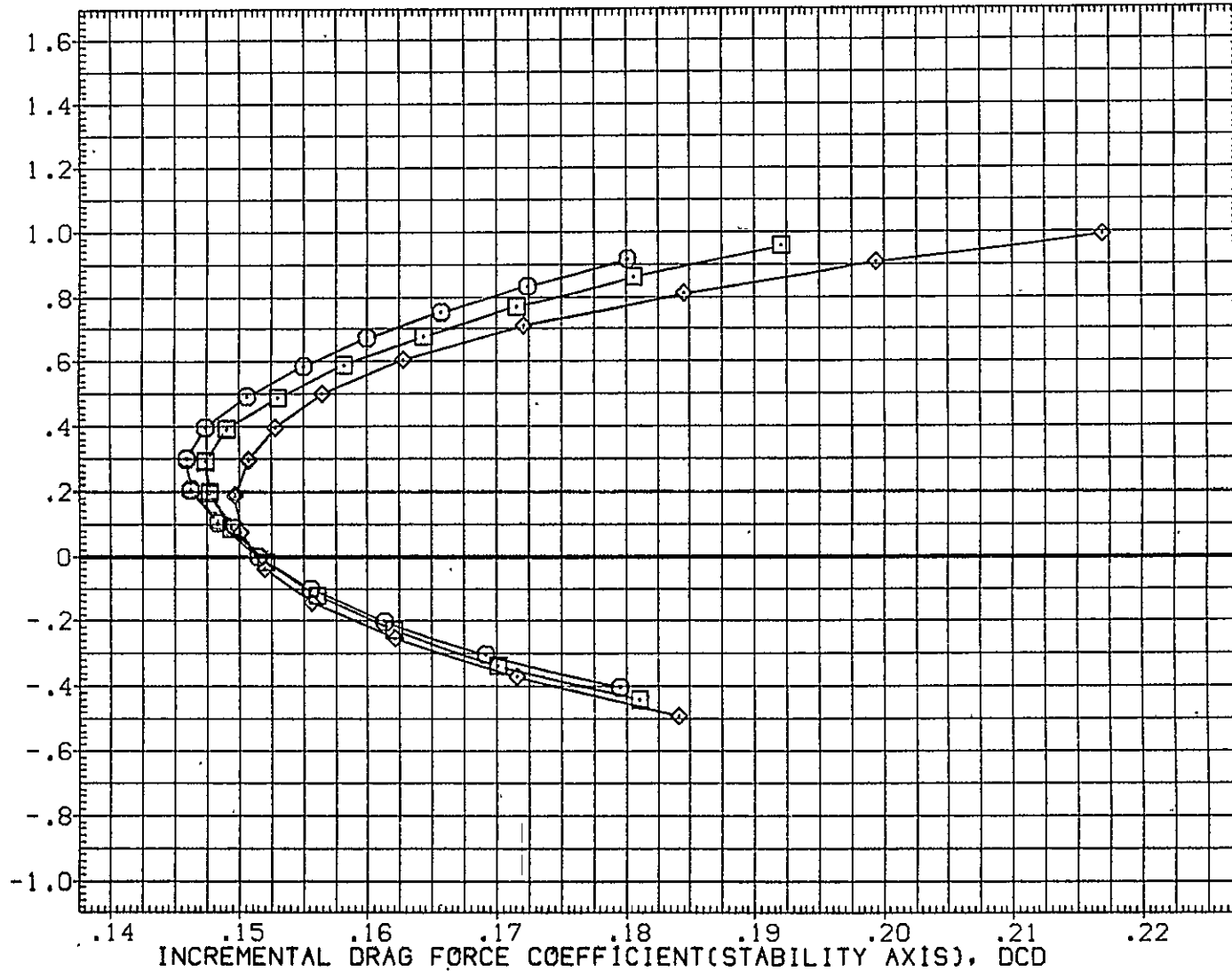


FIG. 36 747+ORB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM080)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IGRB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

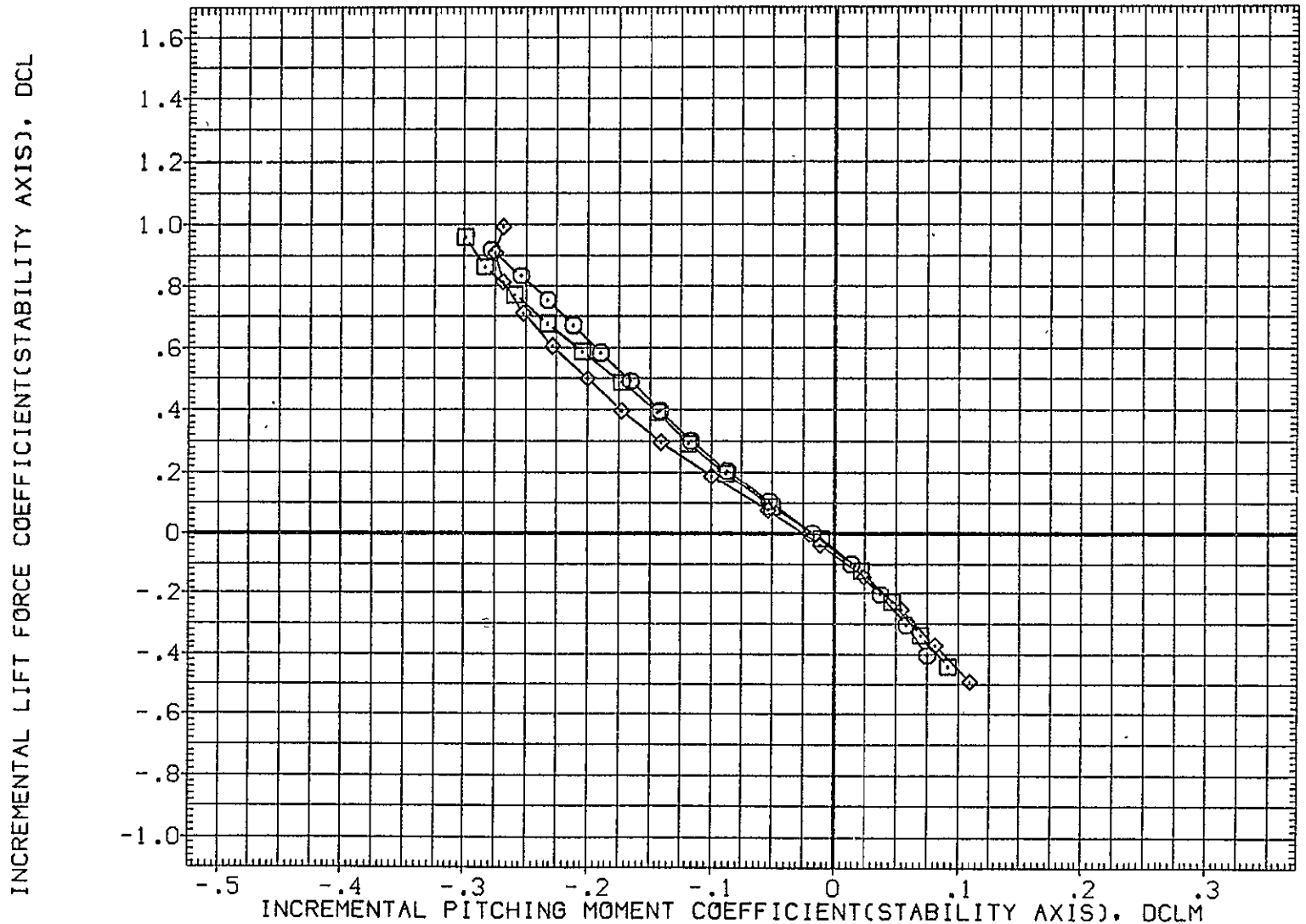


FIG. 36 747+ORB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	ICRB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

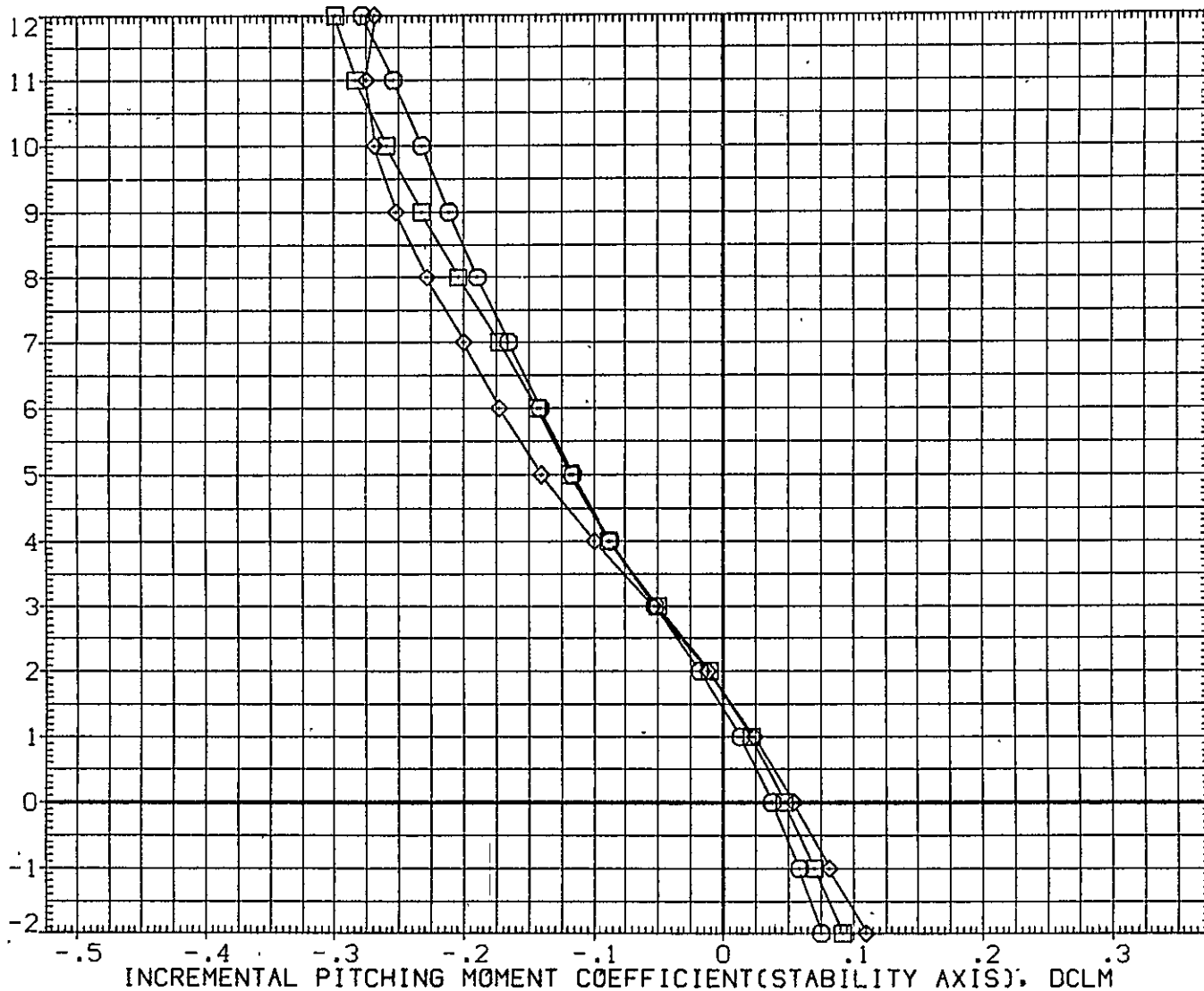


FIG. 36 747+ORB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

CA5 ORB TC5 AT38.2 (PRES. K1 F20 H15.6 V9.1)(YGM080)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.501	BETA	.000	STAB	1.000	SREF	2690.0000	50.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

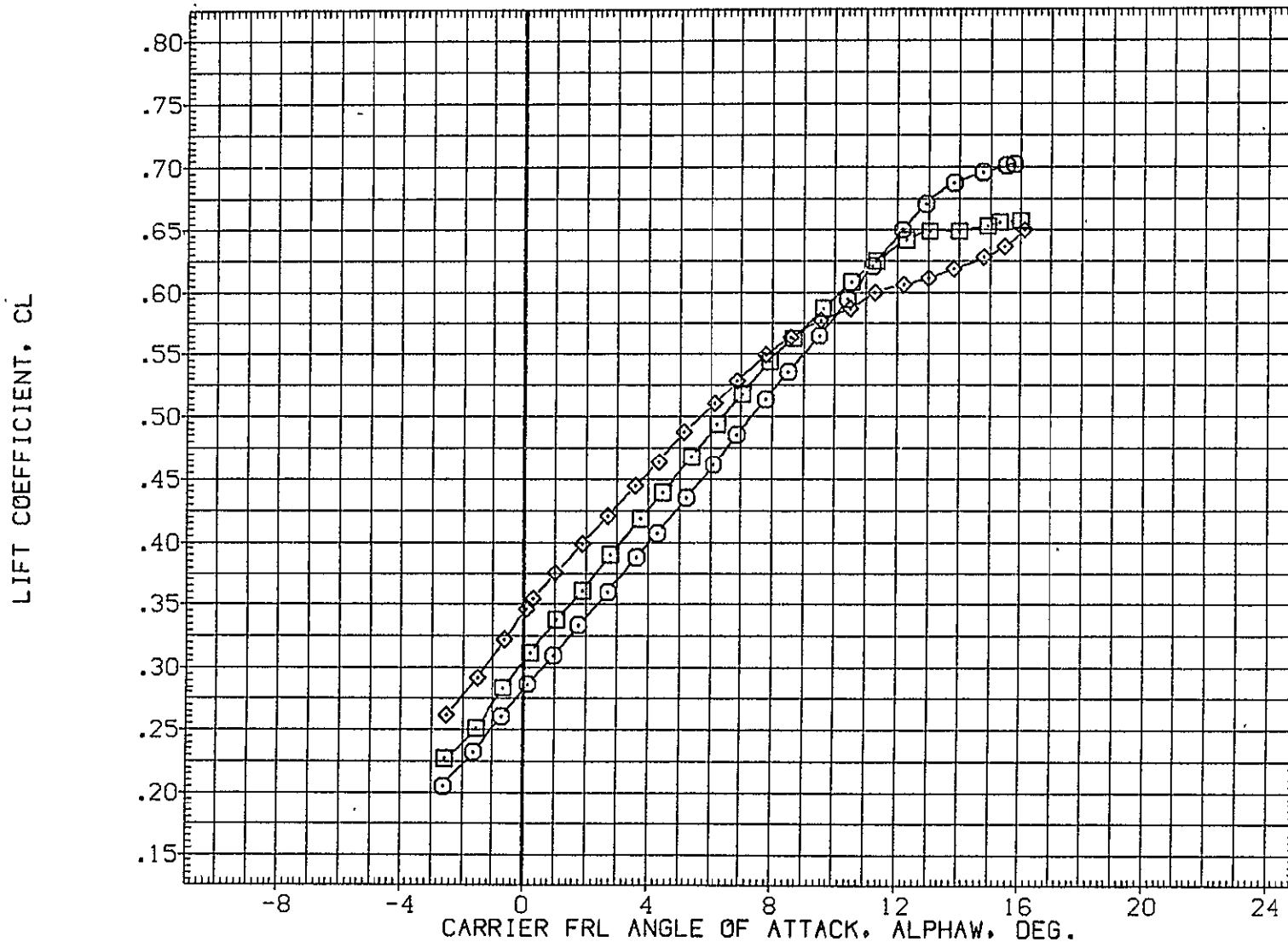


FIG. 37 747+ORB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

ORB

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.501	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

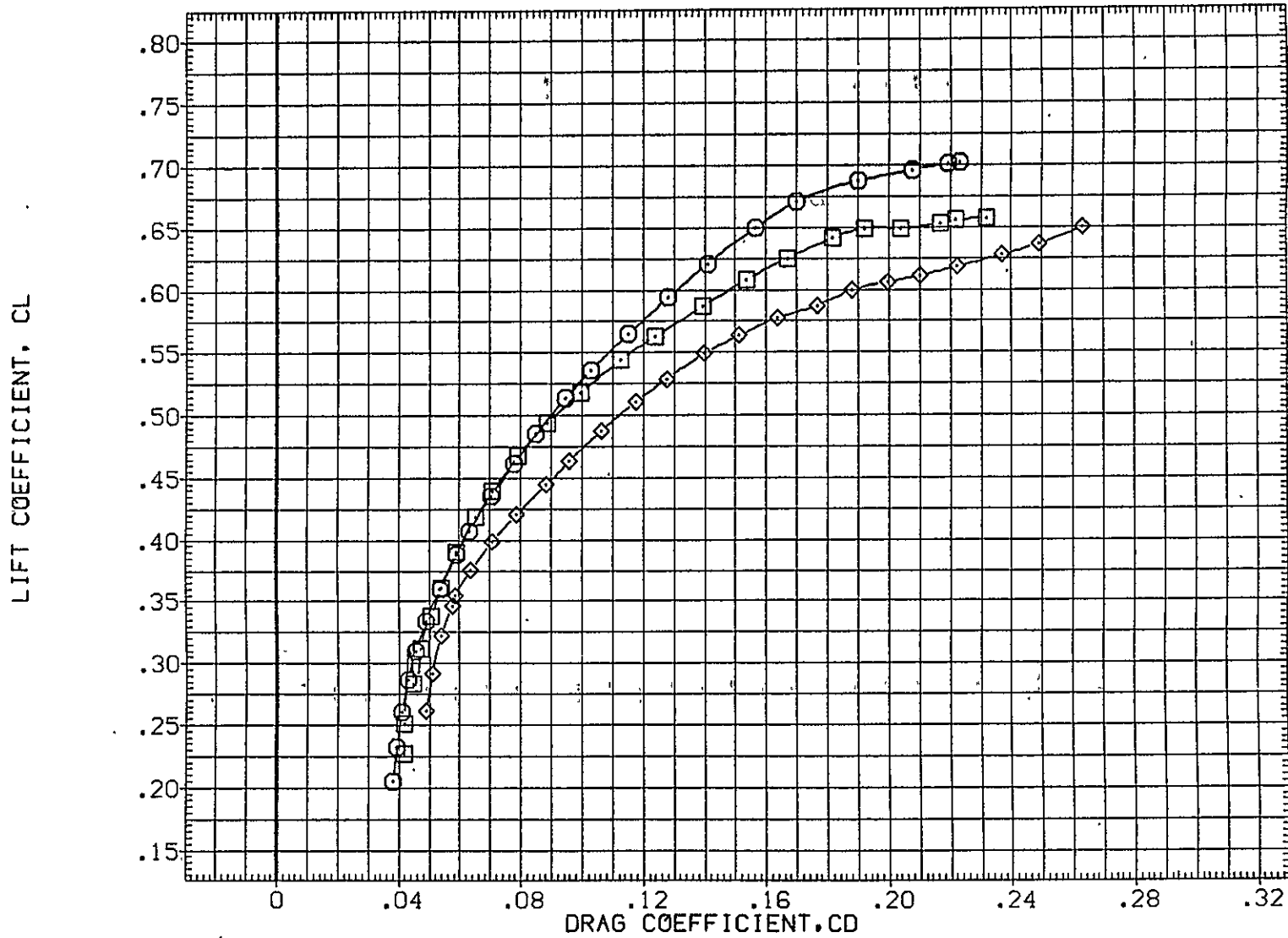


FIG. 37 747+0RB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

0RB

CA5 ORB TC5 AT38.2 (PRES. K1 F20 H15.6 V9.1)(YGM080)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.501	BETA	.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

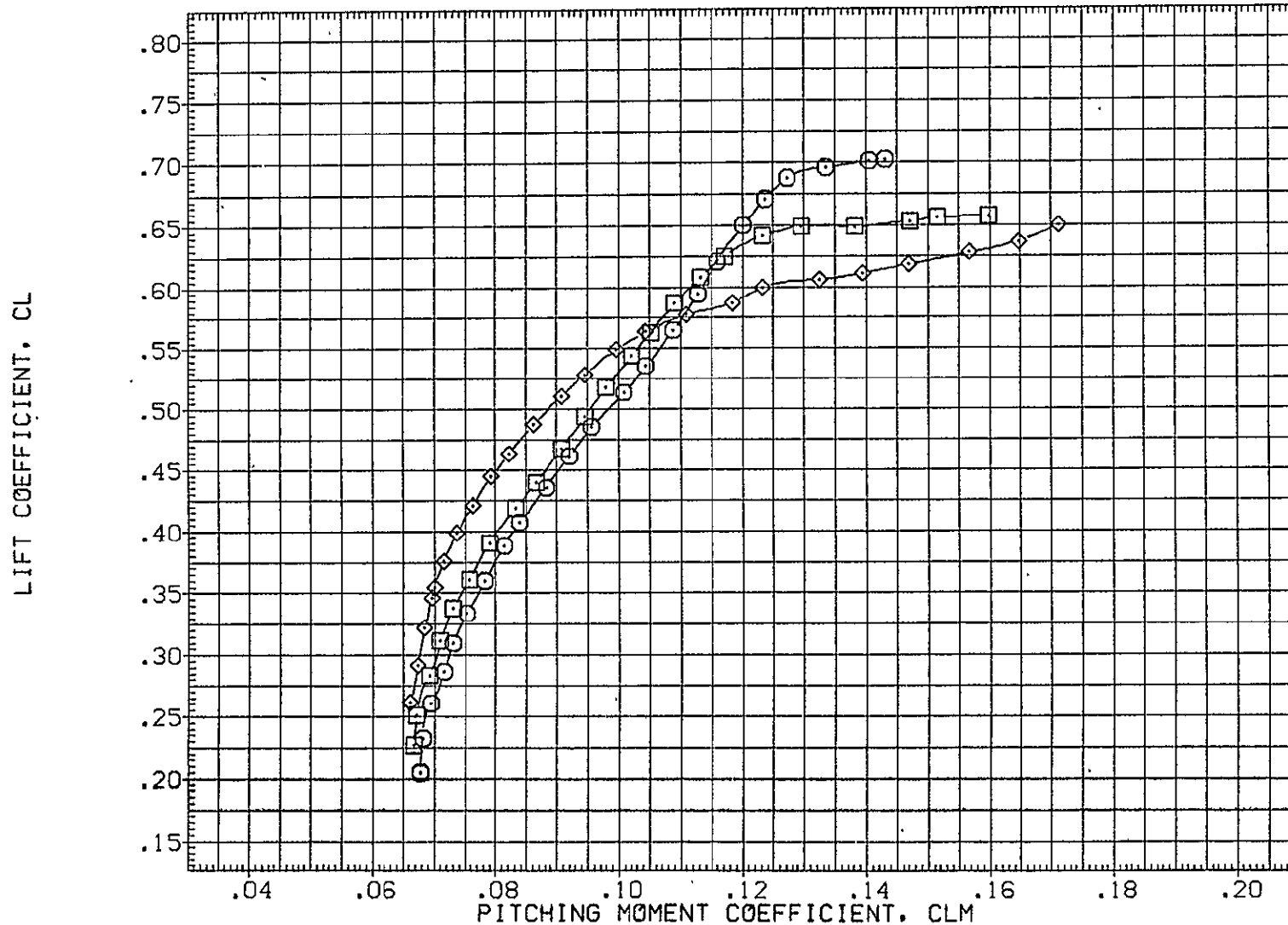


FIG. 37 747+ORB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.501	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		SS-6	45.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

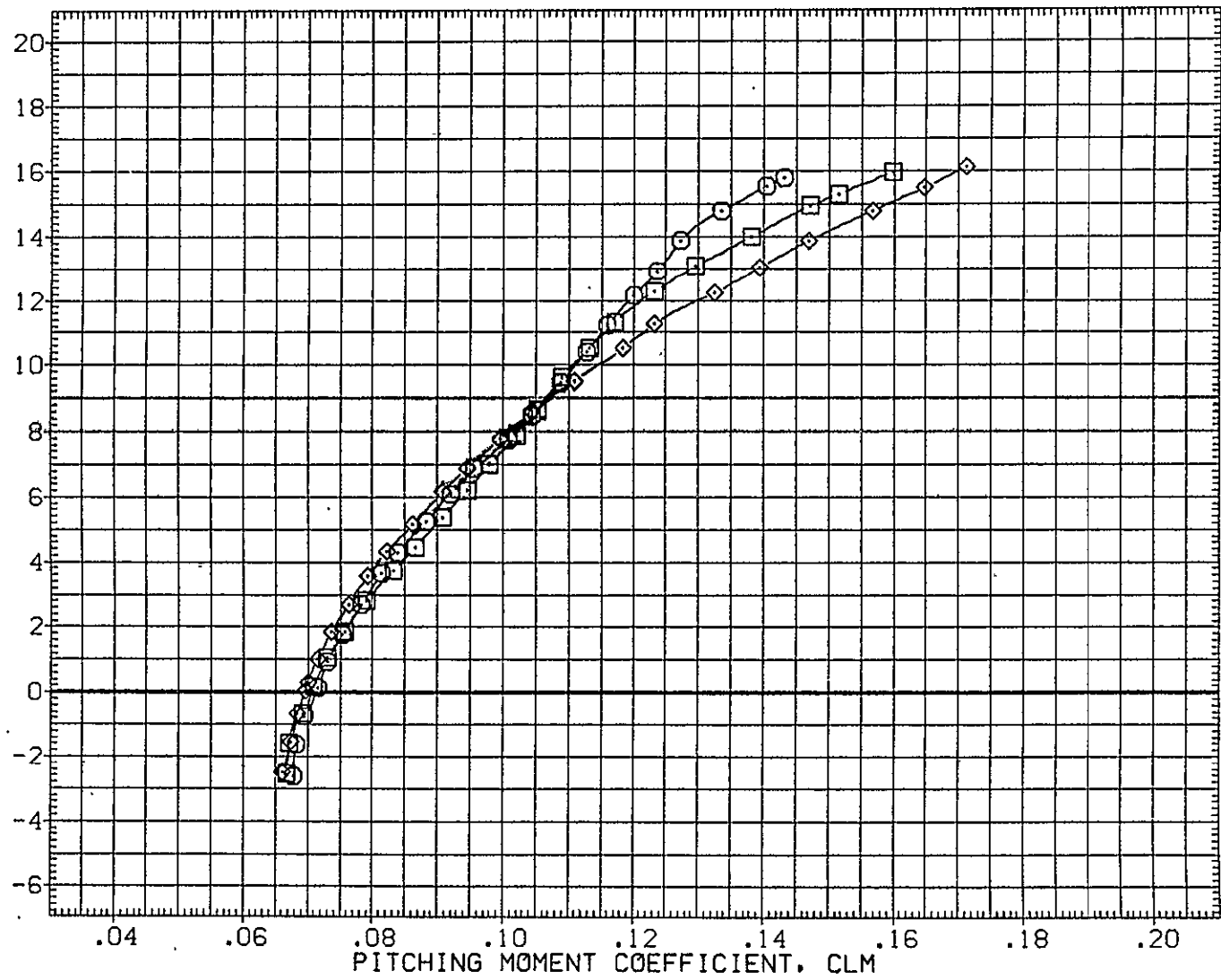


FIG. 37 747+0RB(8 DEG)+TIP FINS+SP45, FLAPS UP LAUNCH(S=+1)

0RB



CA5 K1 FO H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM081)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.299	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	.000	S3-4	45.000	XMRP	1339.9100	IN. XC	
▽	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

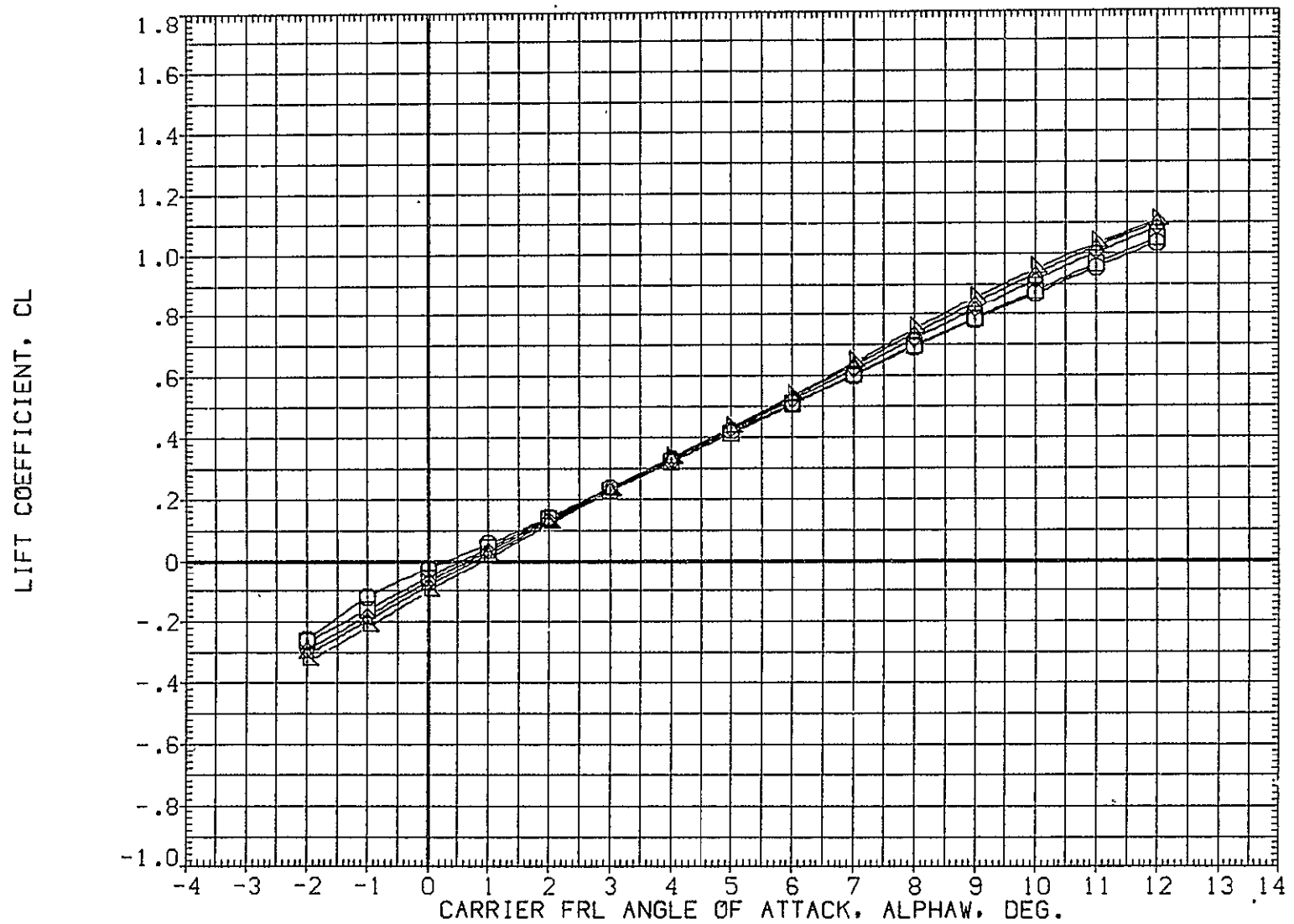


FIG. 38 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) TOTAL  
 PAGE 149



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	STAB	STAB	SREF	SG.FT.	
○	.150	.000	1.000		5500.0000			
◇	.299	.000	.000		327.8000	IN.		
□	.500	.000	3.000		2348.0000	IN.		
△	.600	.000	45.000		1339.9100	IN. XC		
▽	.700	20.000	7.850		YMRP .0000	IN. YC		
					ZMRP 190.7500	IN. ZC		
					SCALE .0300			

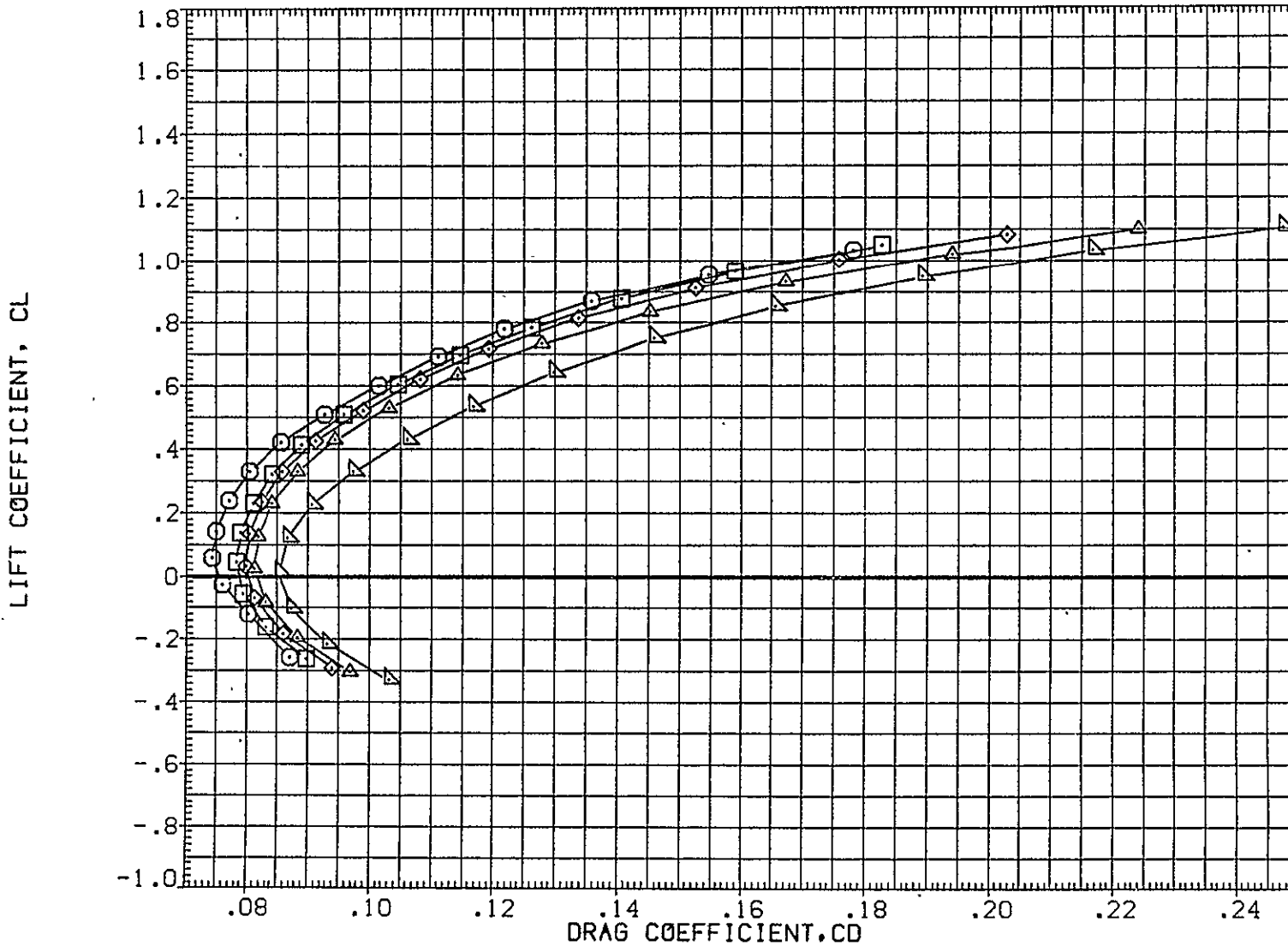


FIG. 38 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) TOTAL

CA5 K1 FO H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM081)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	1.000	SREF	5500.0000	SG.FT.	
○	.150	BETA	.000	STAB	1.000	LREF	327.8000	IN.
□	.299	RUD-U	.000	RUD-L	.000	BREF	2348.0000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	XMRP	1339.9100	IN. XC
△	.600	S1-2	.000	S3-4	45.000	YMRP	.0000	IN. YC
▽	.700	SS-6	20.000	10RB	7.950	ZMRP	190.7500	IN. ZC
						SCALE	.0300	

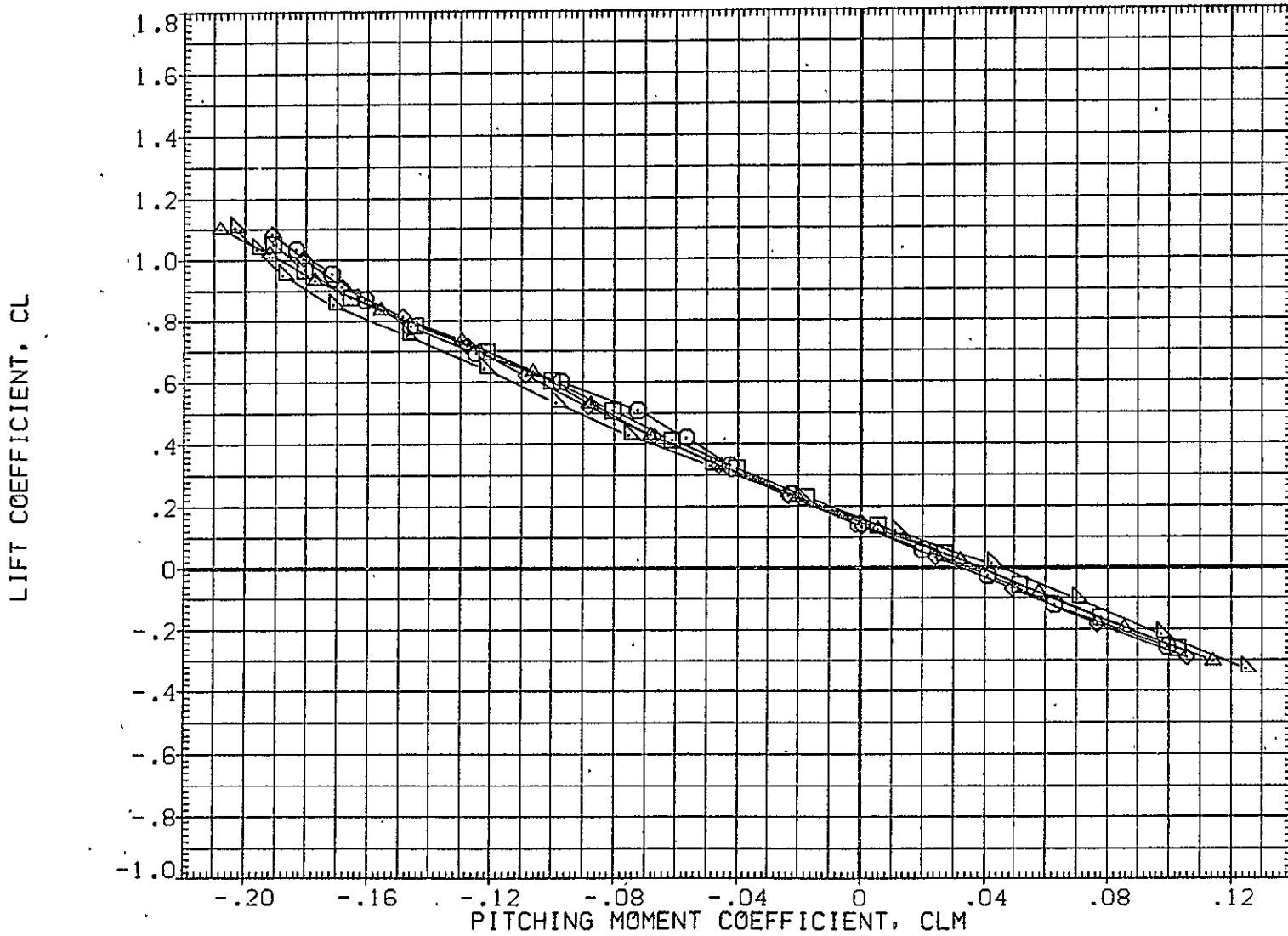


FIG. 38 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.299	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	20.000	I0RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

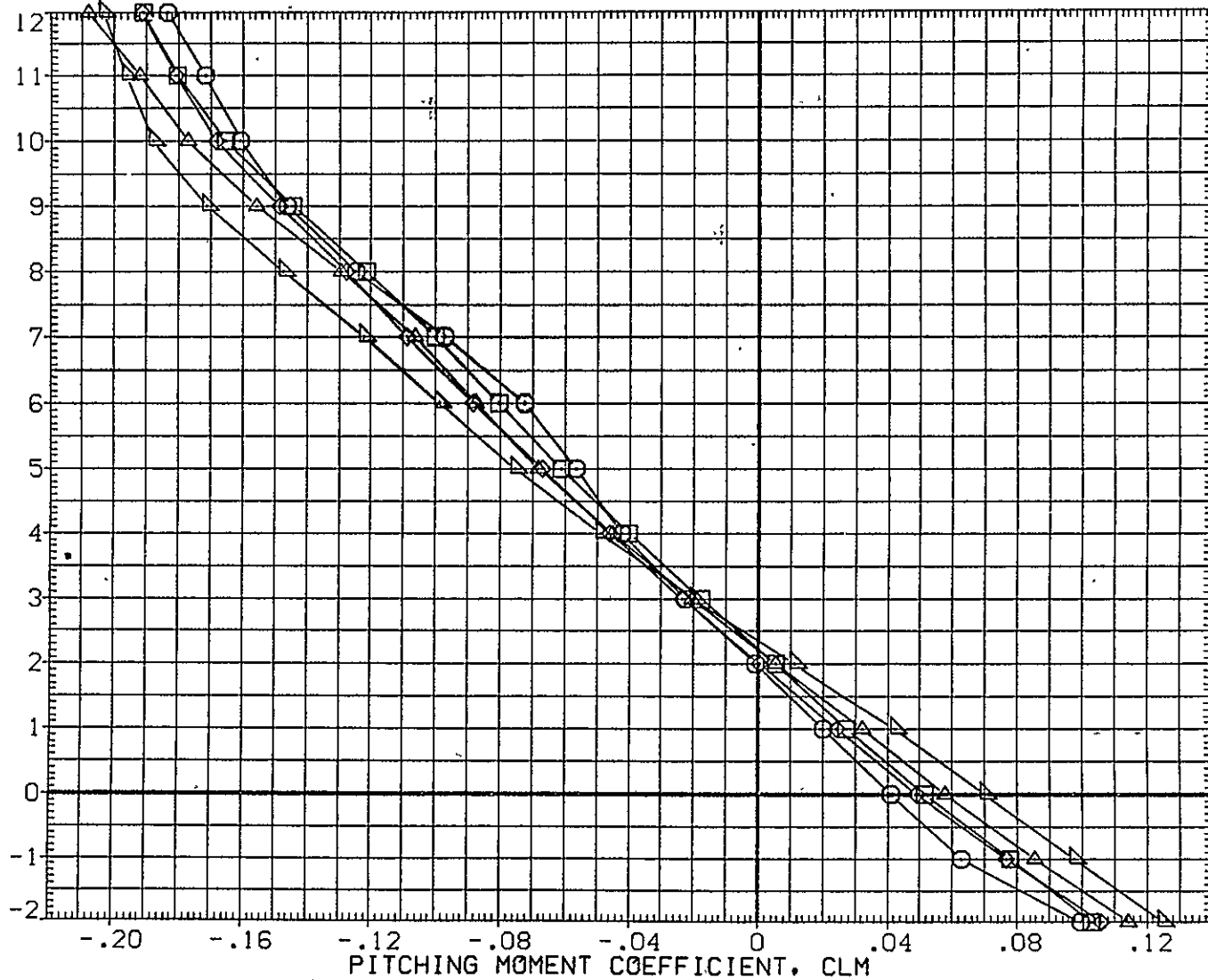


FIG. 38 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP. LAUNCH, BASELINE(S=1) TOTAL

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM081)

SYMBOL  
 ○ □ ◇ △

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	1.000
.299	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	45.000
.700	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

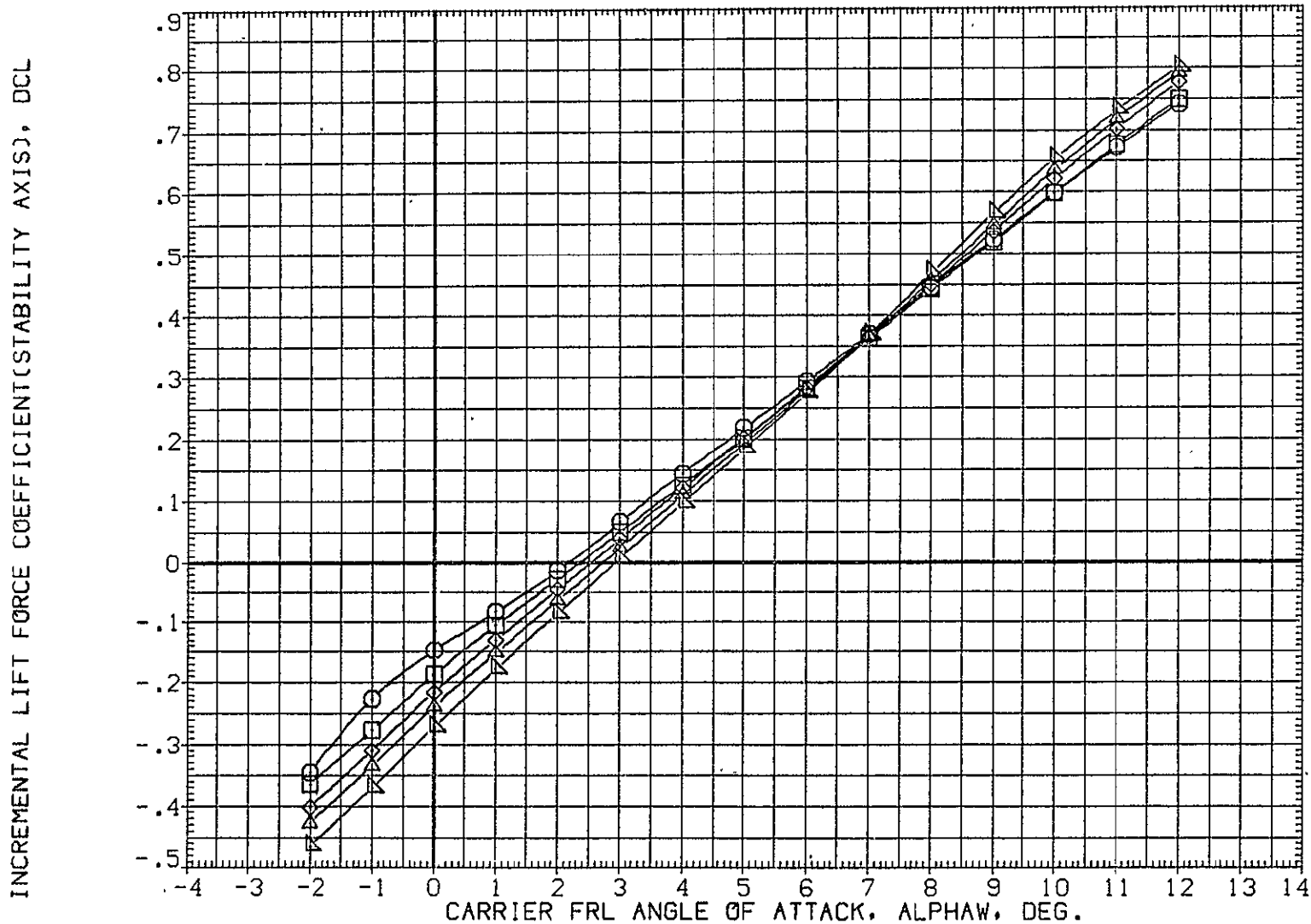


FIG. 39 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, BASELINE(S=1) 747

SYMBOL  
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 △  
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MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	1.000
.299	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	45.000
.700	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

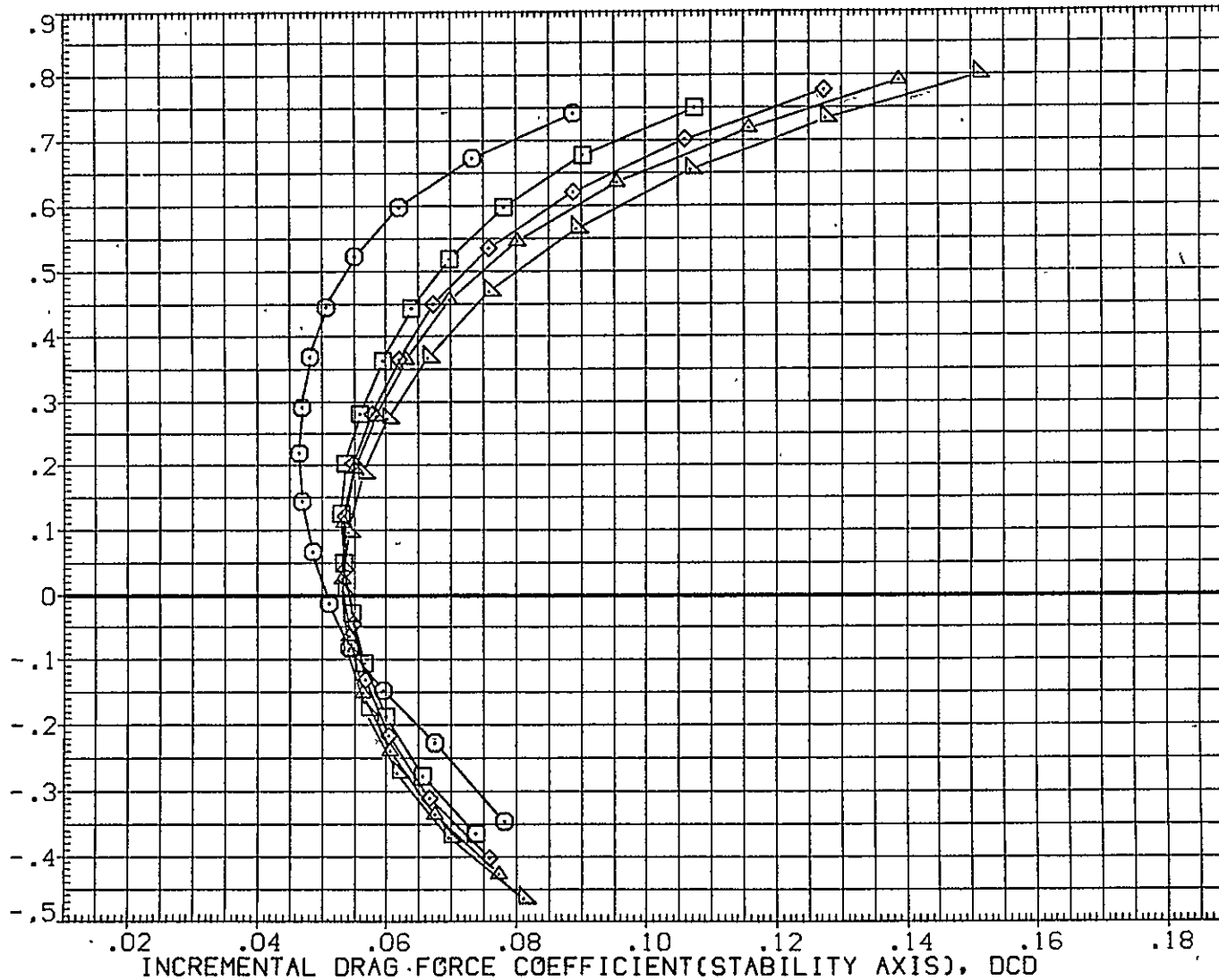


FIG. 39 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) 747

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.2 (BGM081)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SG.FT.
○	.150	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.299	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.500	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.600	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
▽	.700					ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

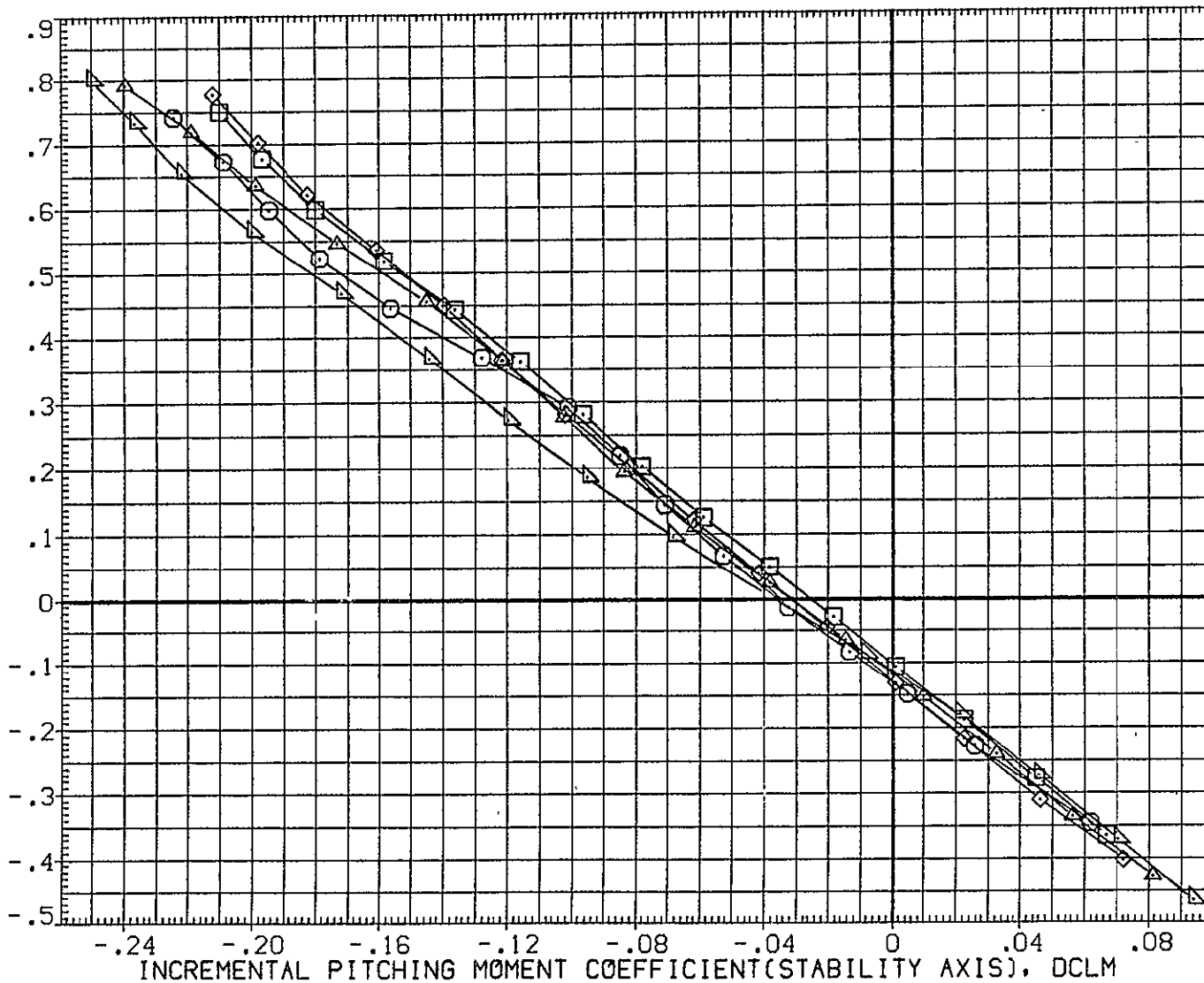


FIG. 39 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, BASELINE(S=1) 747

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	1.000
.299	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	45.000
.700	S5-6	20.000	ICRB	7.850

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

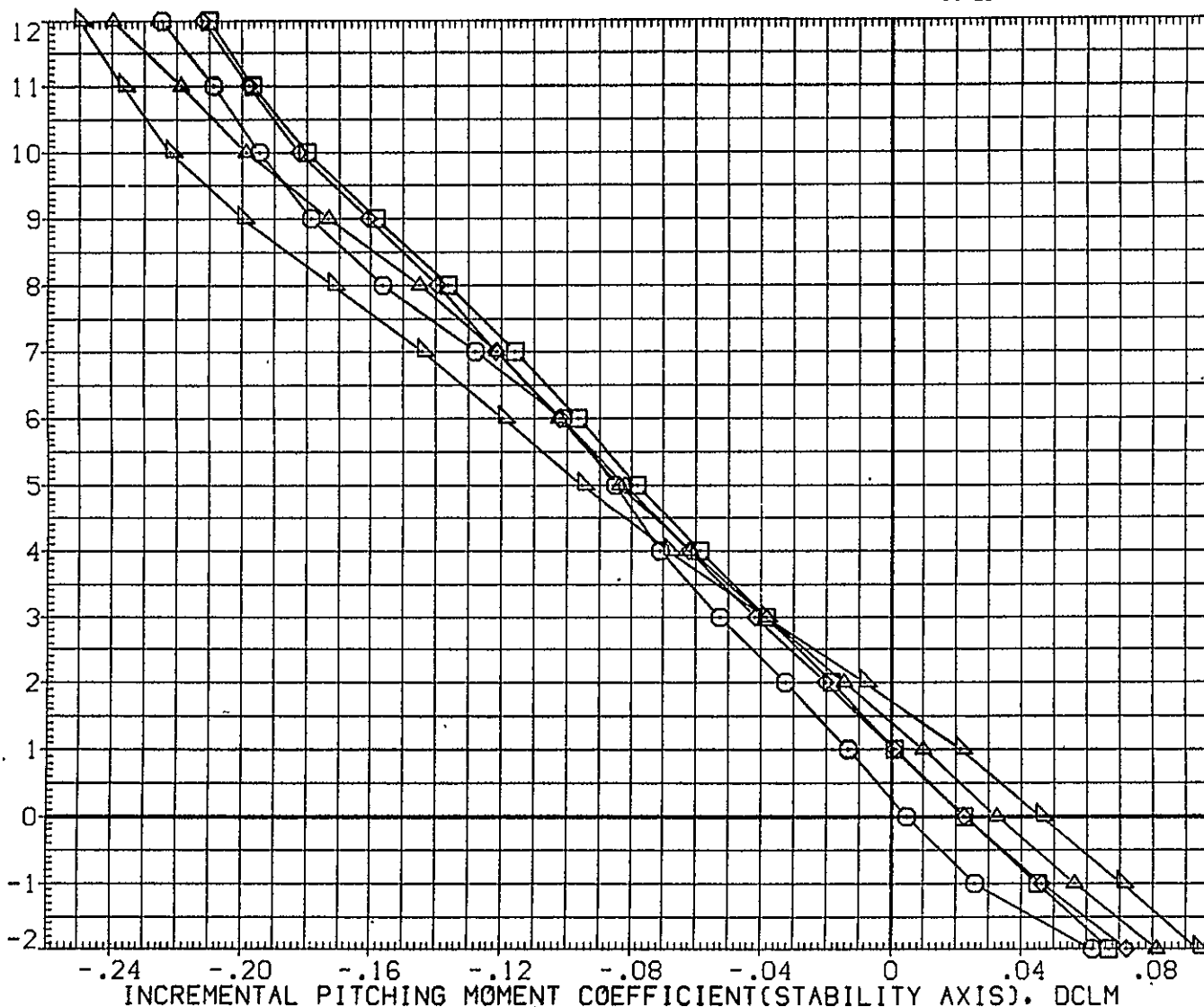


FIG. 39 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, BASELINE(S=1) 747

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM081)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.151	BETA	.000	STAB	1.000	SREF	2690.0000 SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100 IN.
◇	.501	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800 IN.
△	.600	S1-2	.000	S3-4	45.000	XMRP	1109.0000 IN. X0
▽	.699	S5-6	20.000	IORB	7.850	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0300

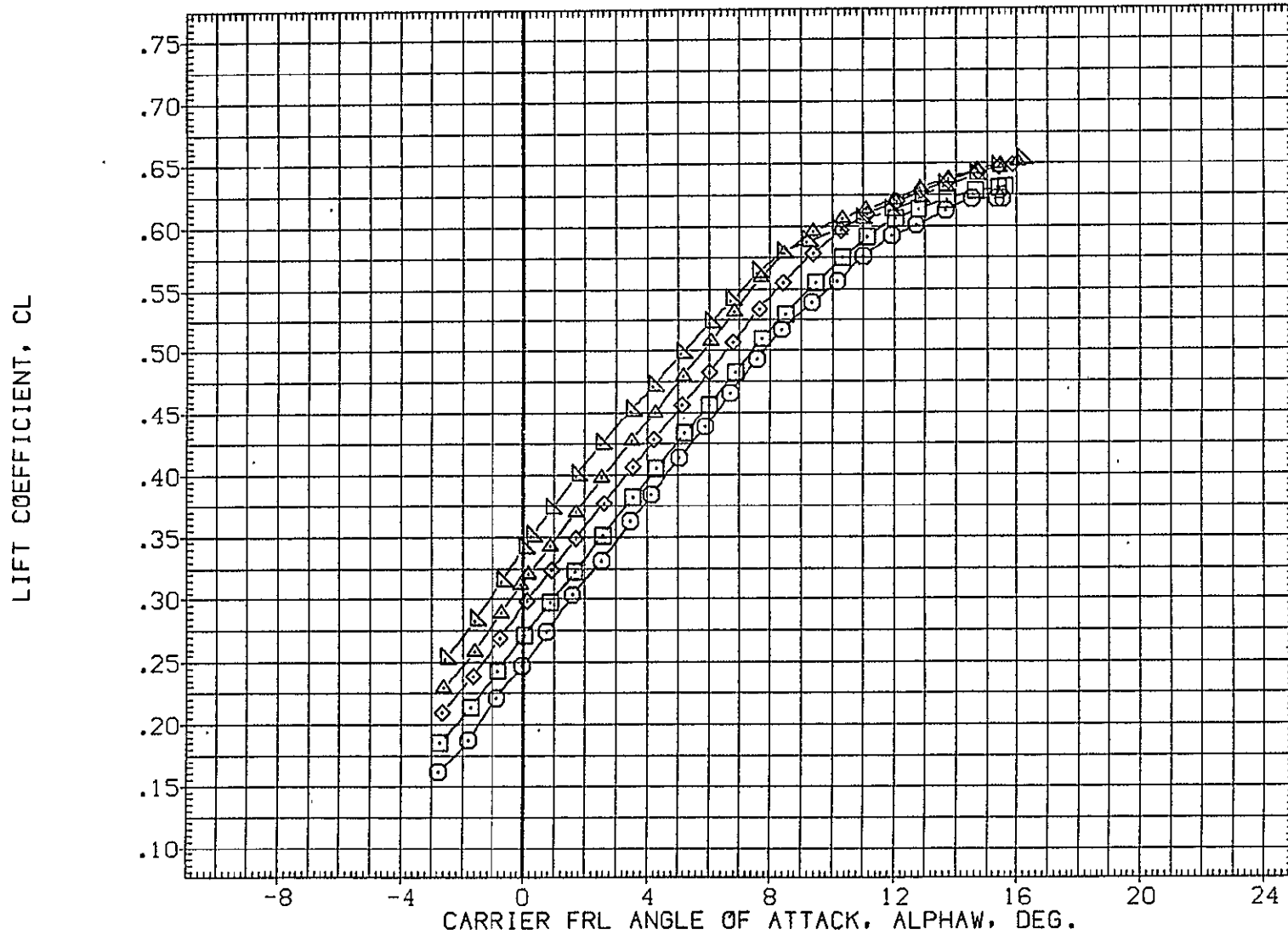


FIG. 40 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) ORB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.151	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.300	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
◇	.501	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
△	.600	SS-6	20.000	IORB	7.850	YMRP	.0000	IN. Y0
▽	.699					ZMRP	375.0000	IN. Z0
						SCALE	.0300	

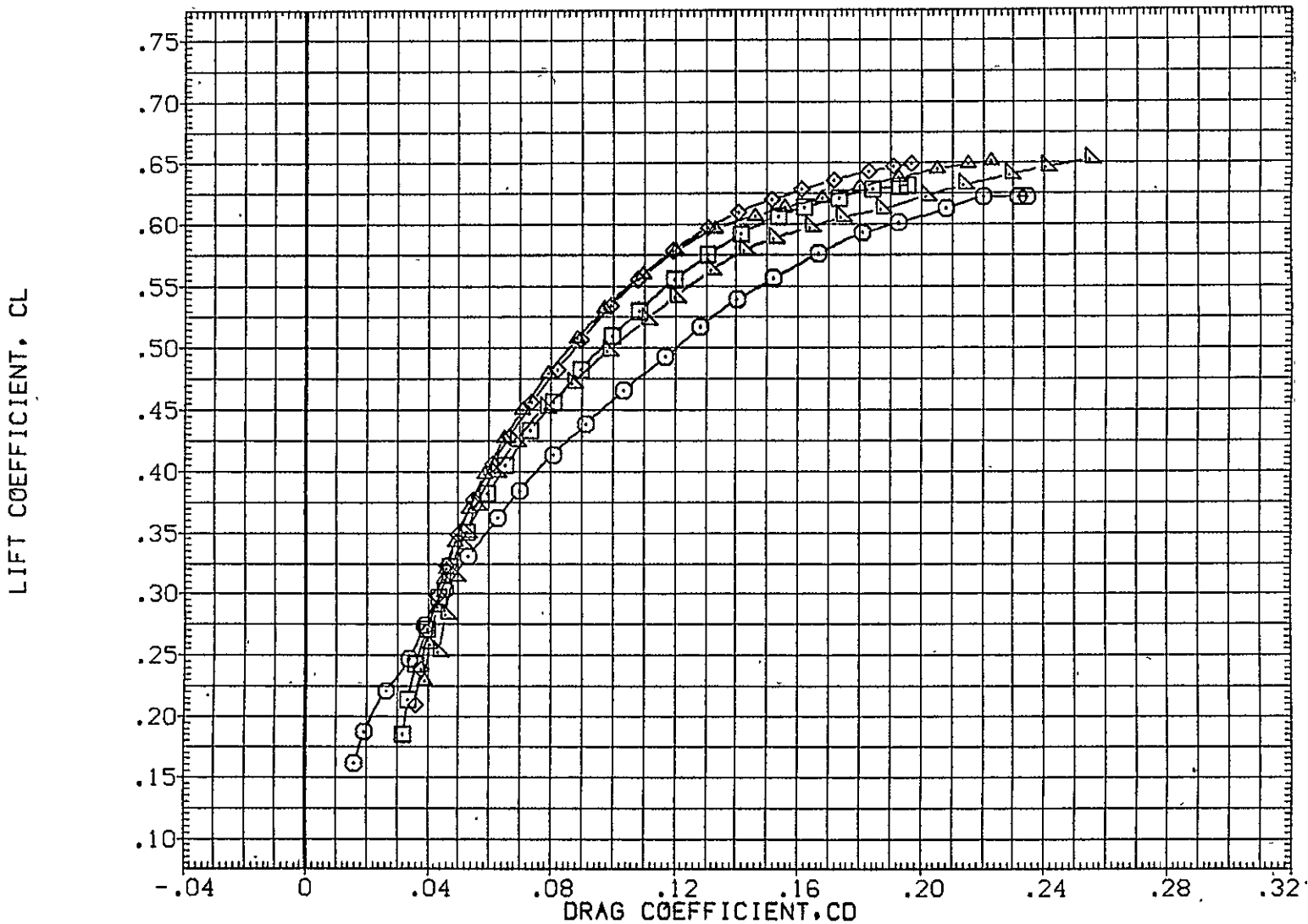


FIG. 40 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) ORB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM081)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.151	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.501	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.600	.000	S3-4	45.000	XMRP	1109.0000	IN. X0	
▽	.699	S5-6	20.000	I0RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

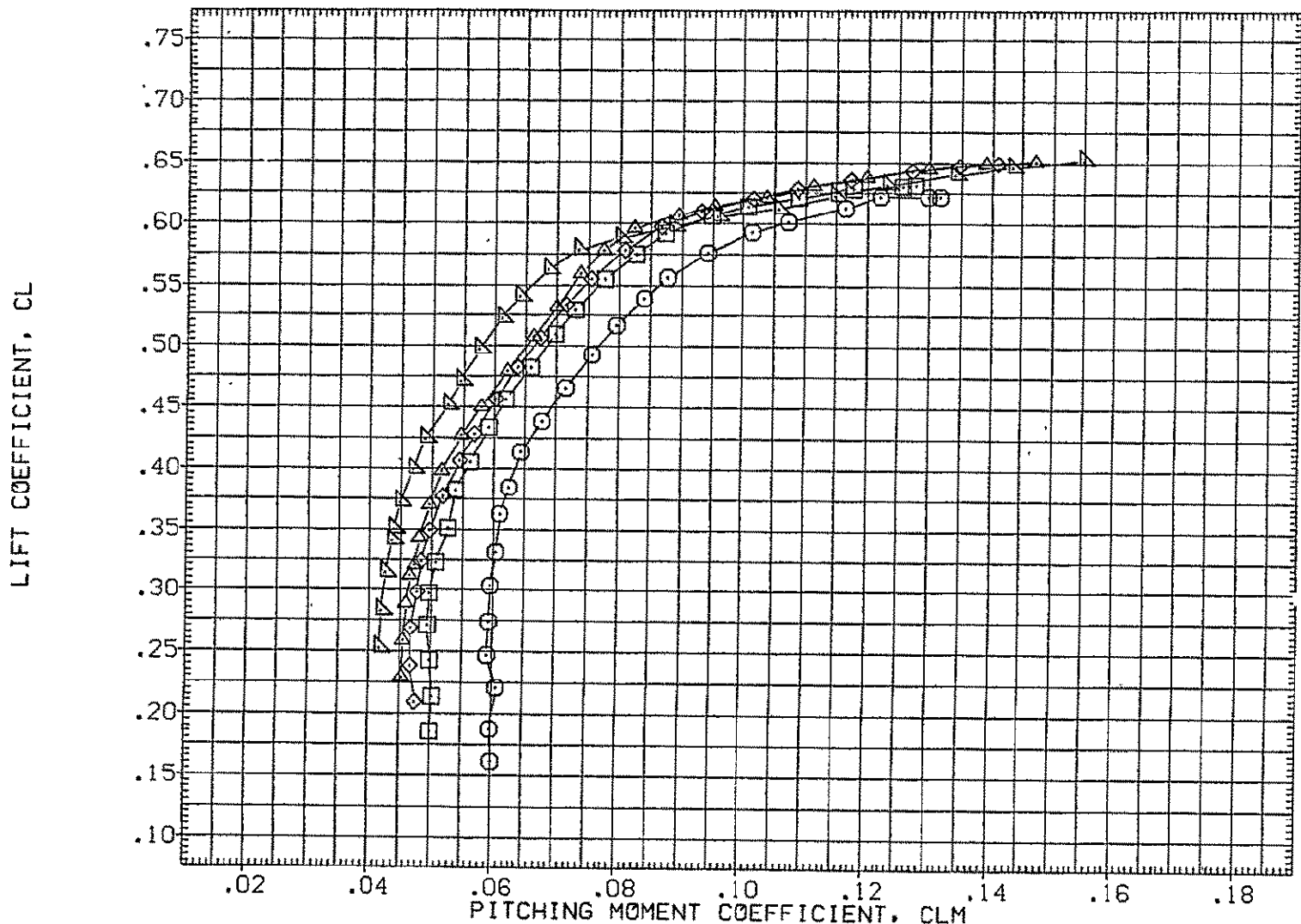


FIG. 40 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION																			
		BETA	RUD-U	ELV-1B	S1-2	S5-6	STAB	RUD-L	ELV-0B	S3-4	10RB	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SO.FT.	IN.	IN.	IN. X0	IN. Y0	IN. Z0	
○	.151	.000	.000	.000	.000	1.000						2690.0000	474.8100	936.6800	1109.0000	.0000	375.0000	.0300							
□	.300	.000	.000	.000	.000	.000																			
◇	.501	.000	.000	.000	.000	3.000																			
△	.600	.000	.000	.000	.000	45.000																			
▽	.699	.000	.000	.000	.000	7.850																			

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

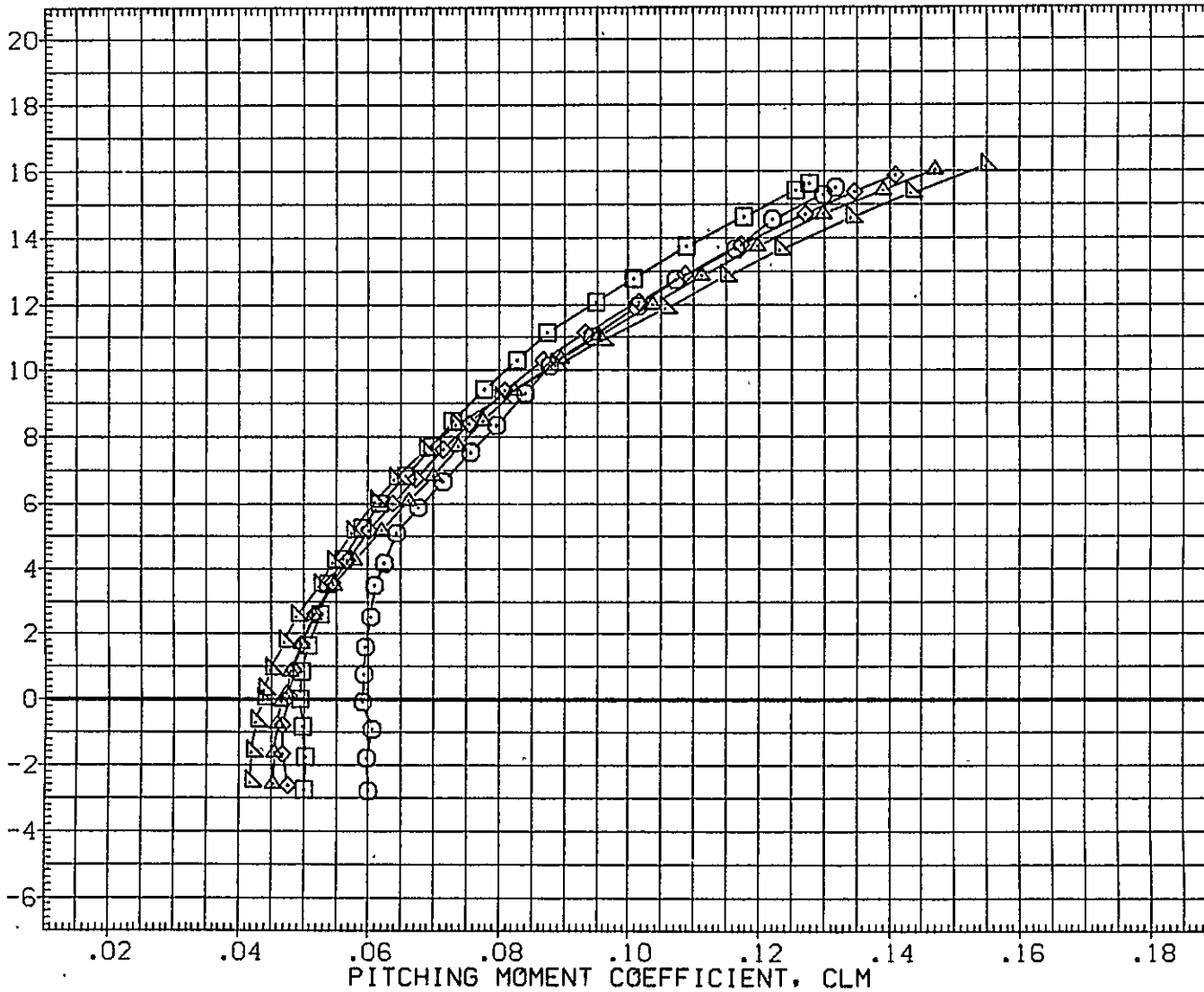


FIG. 40 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,BASELINE(S=1) 0RB

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 ) (RGM084)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	ORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

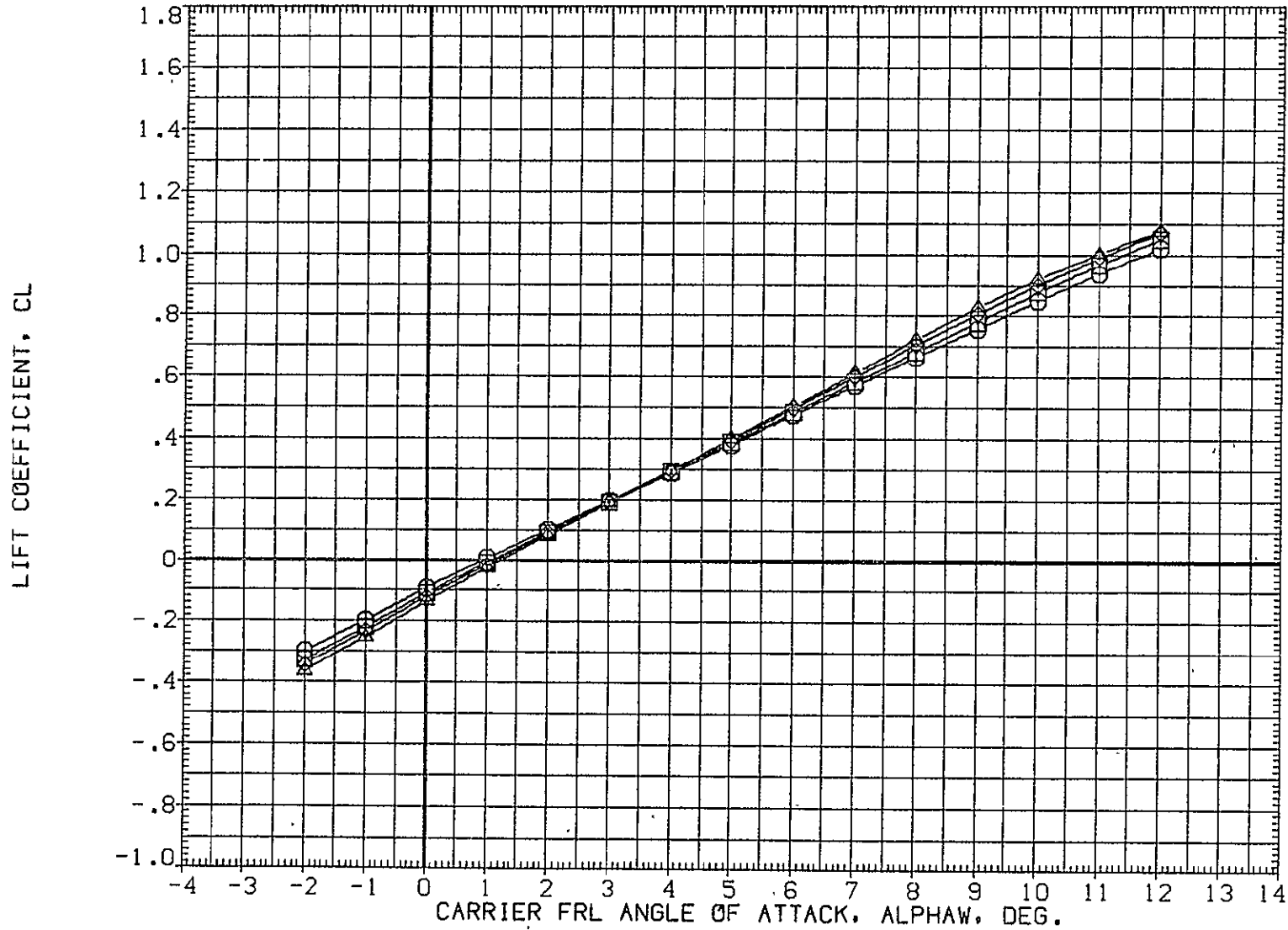


FIG. 41 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-IB	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

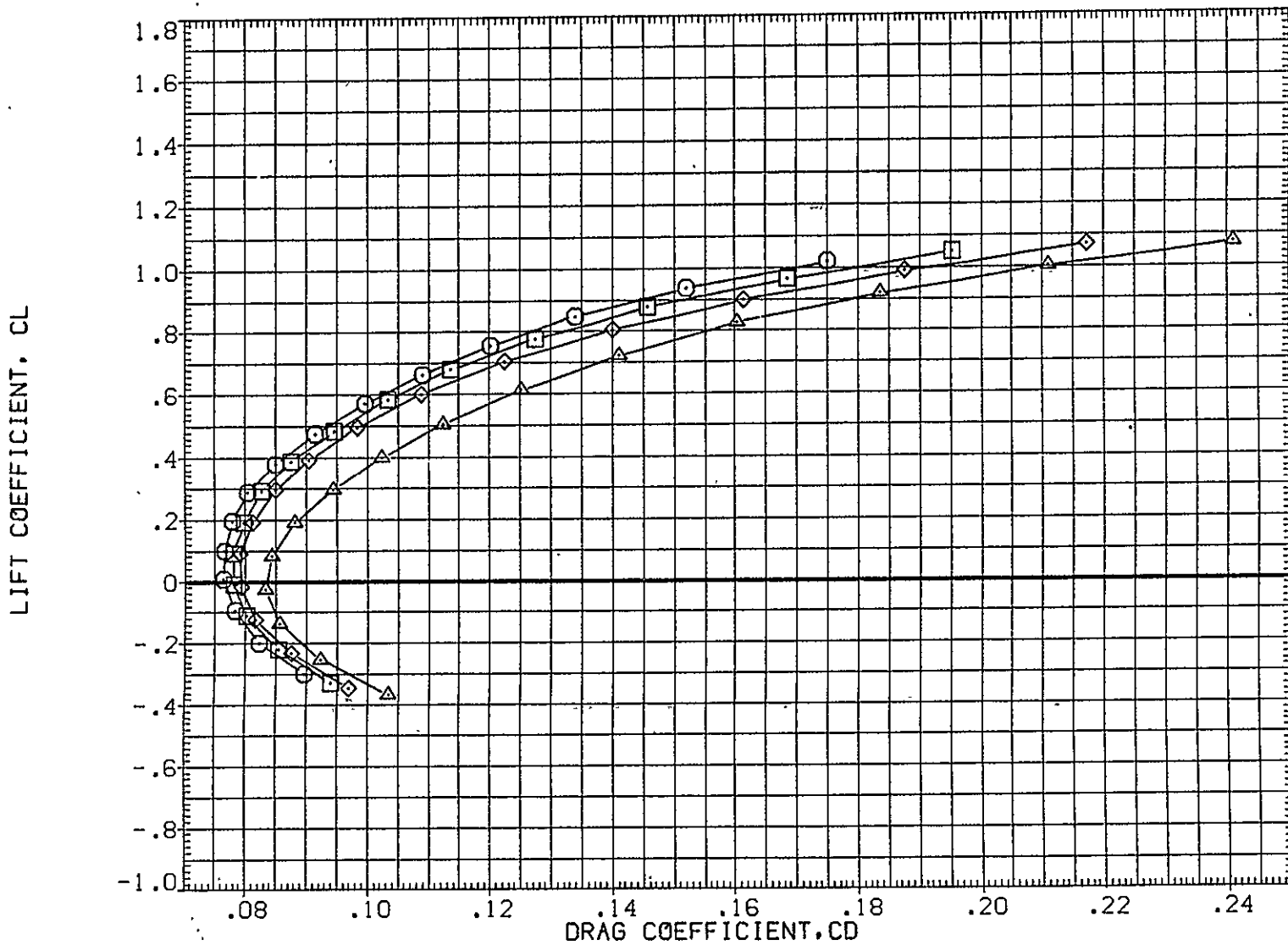


FIG. 41 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM084)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		SS-6	20.000	1CRB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

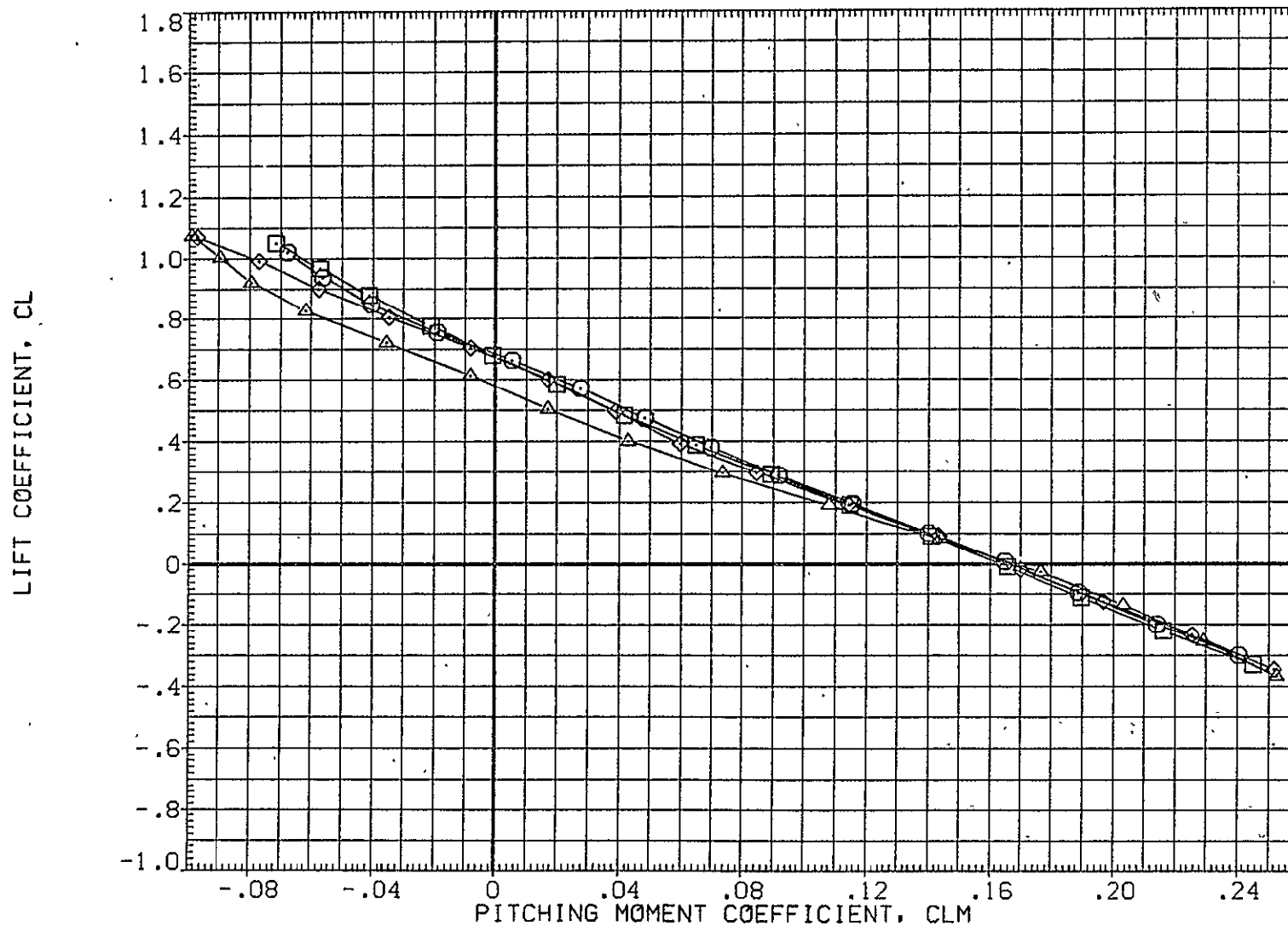


FIG. 41 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

TOTAL

SYMBOL  
 ○ □ ◇ △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	-2.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-IB	.000	ELV-OB	3.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

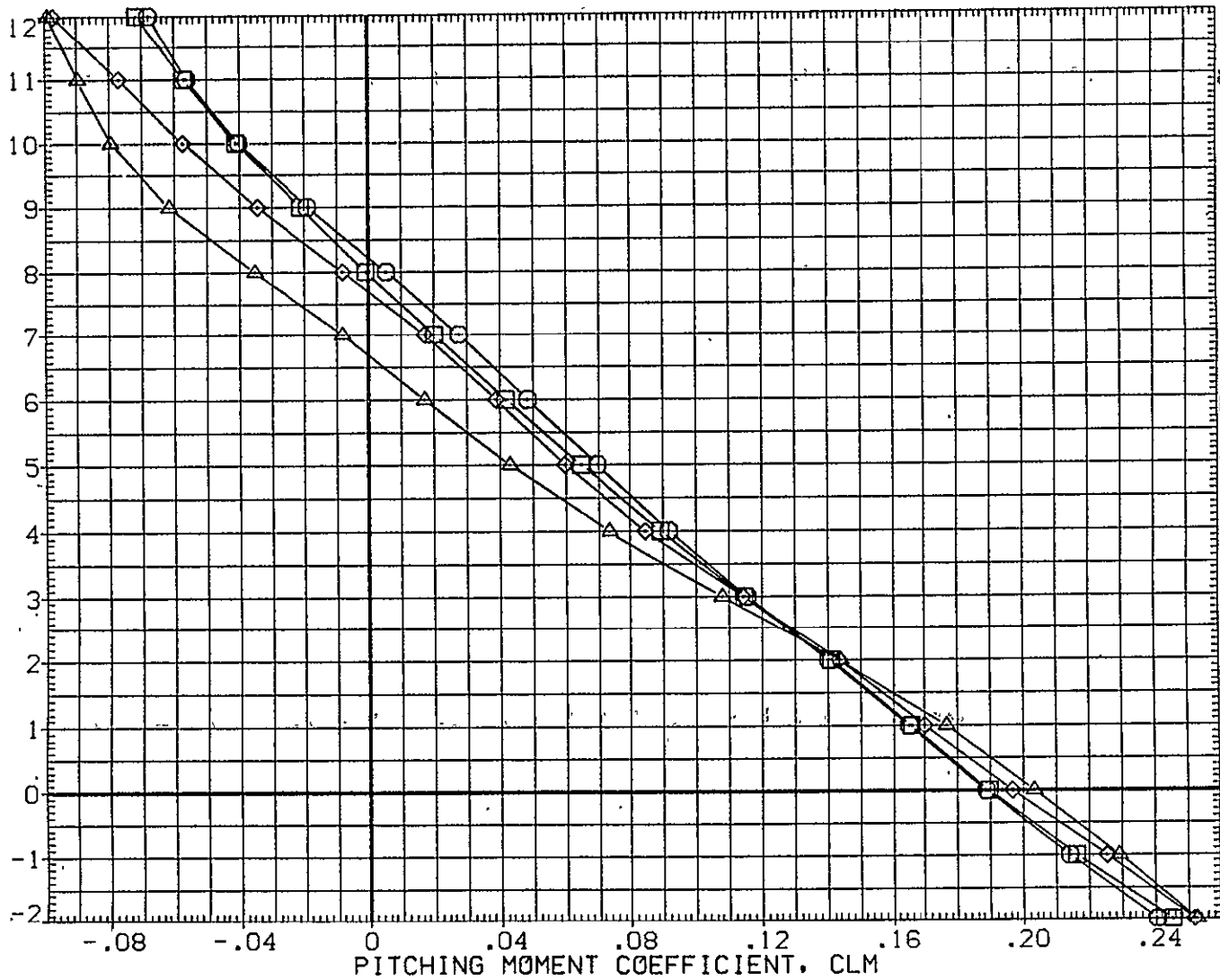


FIG. 41 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM084)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH  
 .300  
 .500  
 .600  
 .700

PARAMETRIC VALUES  
 BETA .000 STAB -2.000  
 RUD-U .000 RUD-L .000  
 ELV-1B .000 ELV-0B 3.000  
 S1-2 .000 S3-4 45.000  
 S5-6 20.000 IORB 7.850

REFERENCE INFORMATION  
 SREF 5500.0000 SQ.F  
 LREF 327.8000 IN.  
 BREF 2348.0000 IN.  
 XMRP 1339.9100 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 190.7500 IN. ZC  
 SCALE .0300

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

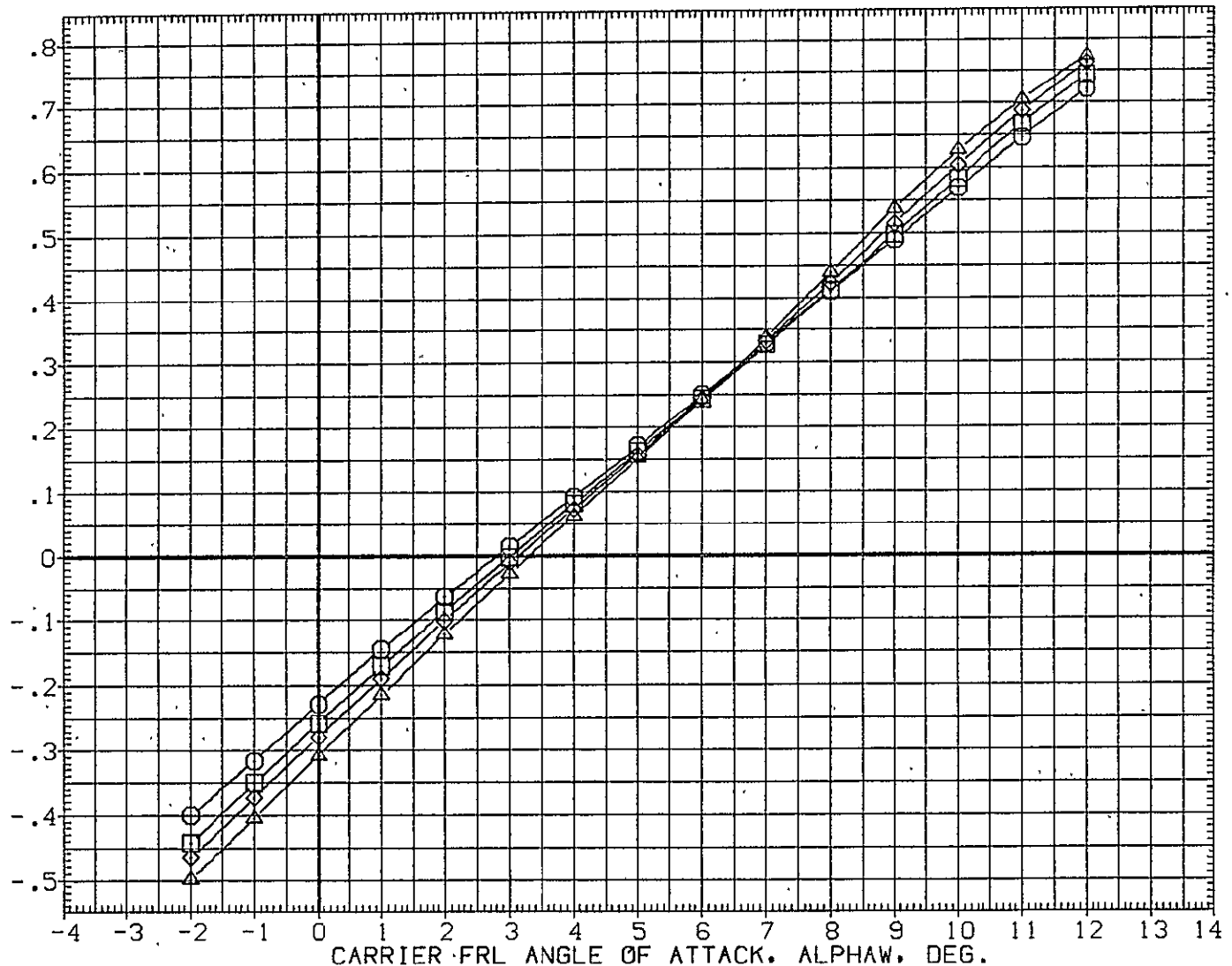


FIG. 42 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

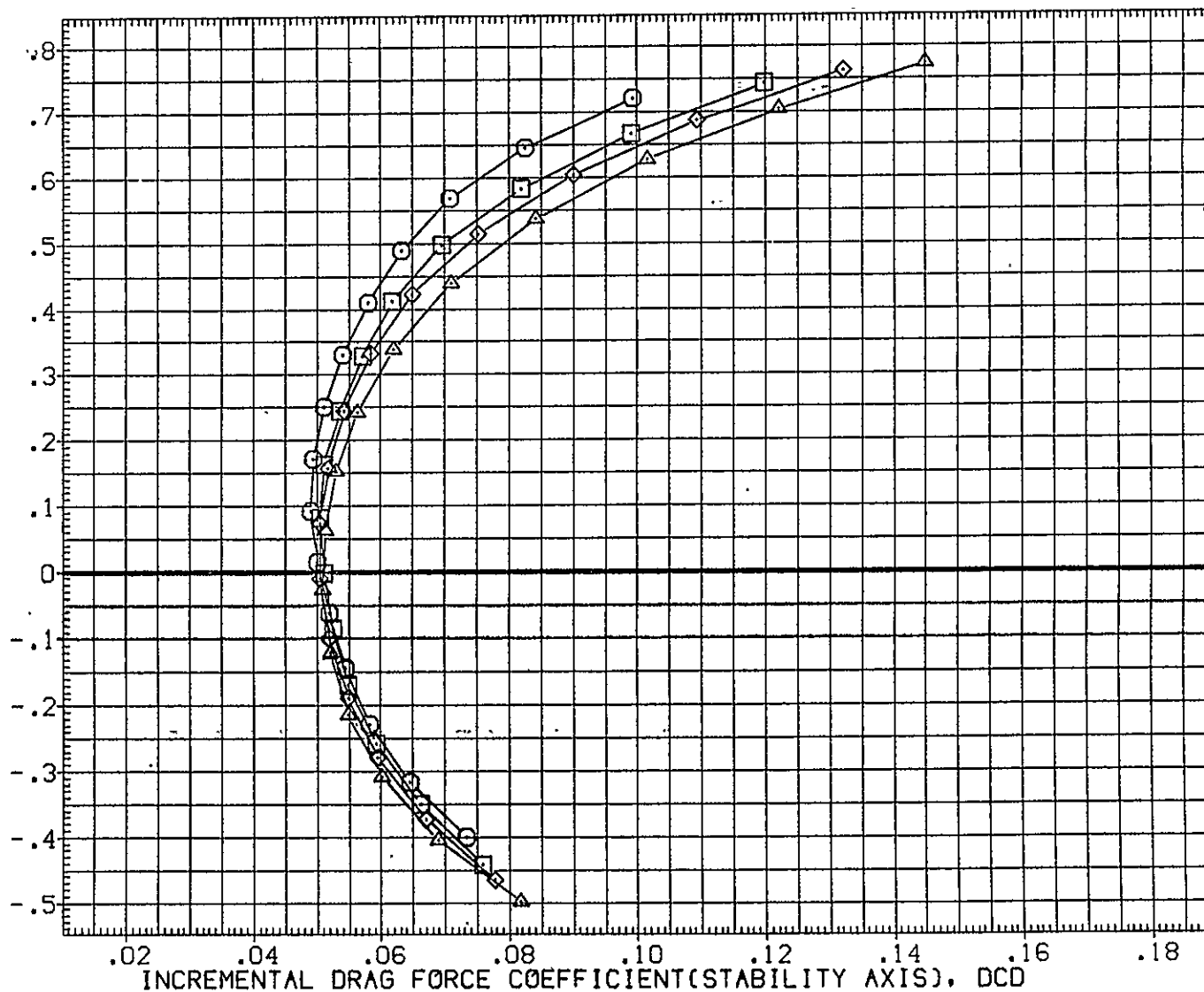


FIG. 42 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM084)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	-2.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

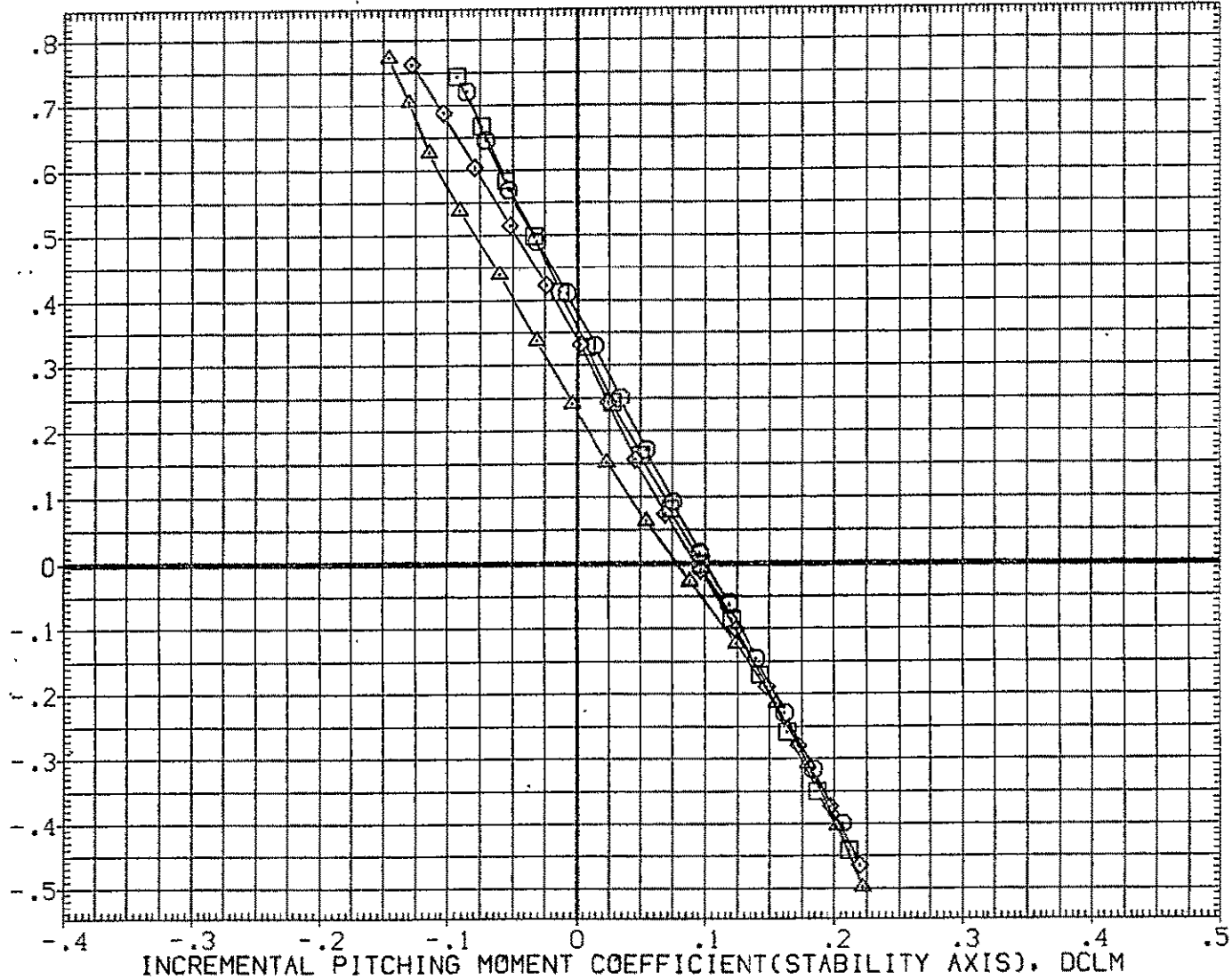


FIG. 42 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION												
		BETA	STAB	RUD-L	ELV-0B	SREF	LRREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.	IN.
○	.300	.000	-2.000	.000	3.000	5500.0000	327.8000	2348.0000	1339.9100	.0000	190.7500	.0300						
□	.500	.000	.000	.000	3.000													
◇	.600	.000	.000	.000	3.000													
△	.700	.000	.000	.000	3.000													
		S1-2	S3-4	S5-6	10RB													

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

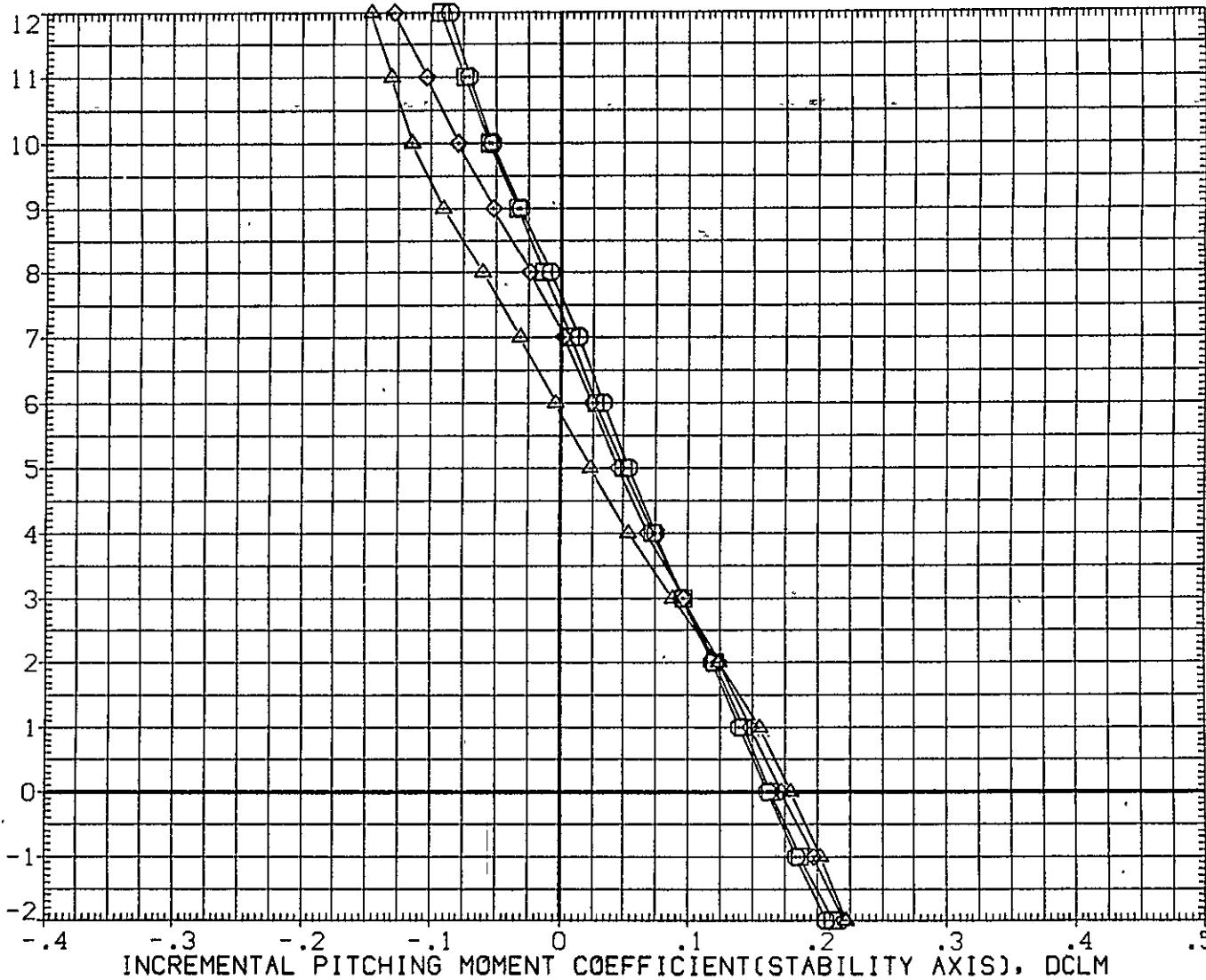


FIG. 42 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM084)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	2690.0000	50.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	.000	S3-4	45.000	XMRP	1109.0000	IN. X0	
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

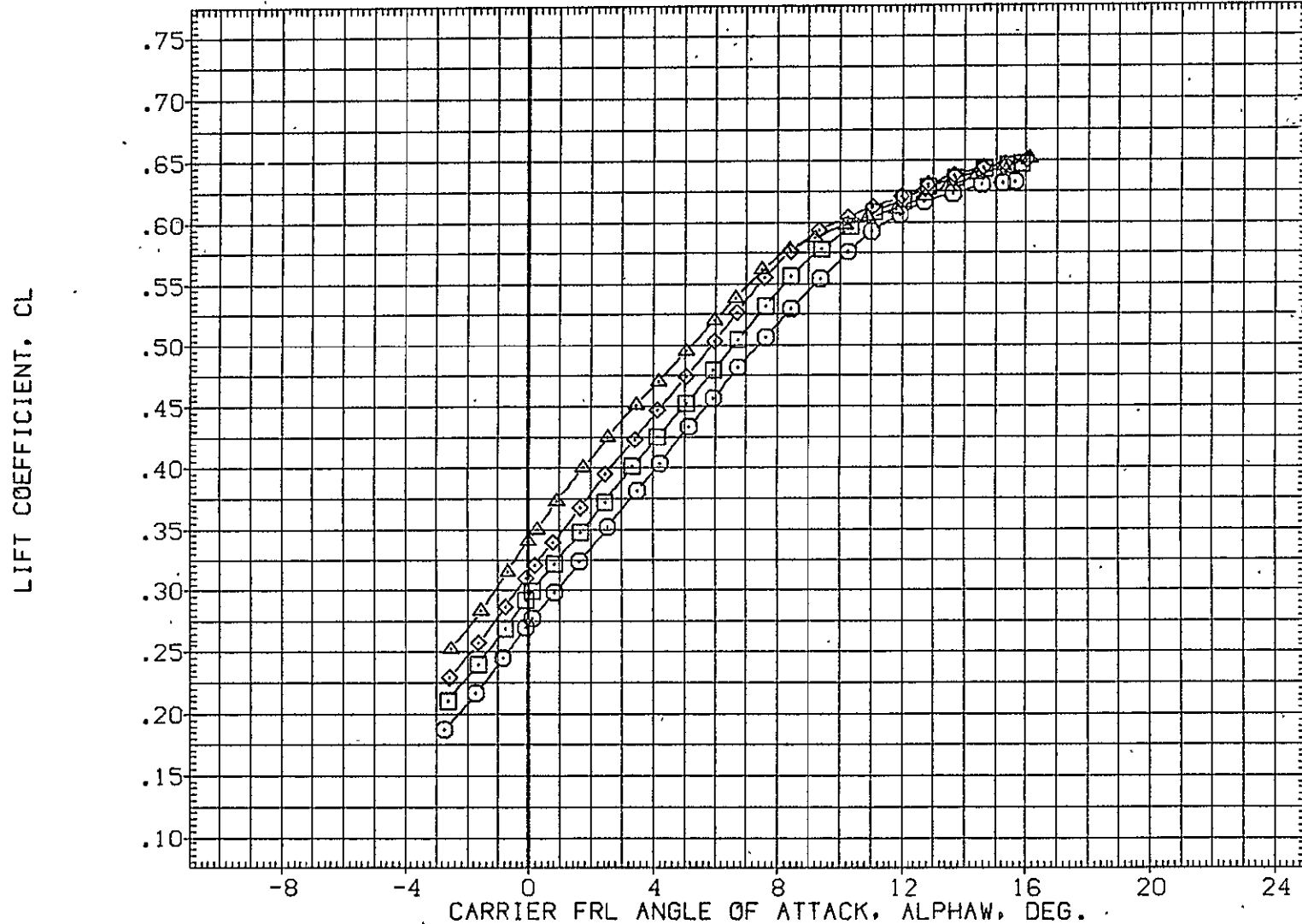


FIG. 43 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

ORB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM084)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

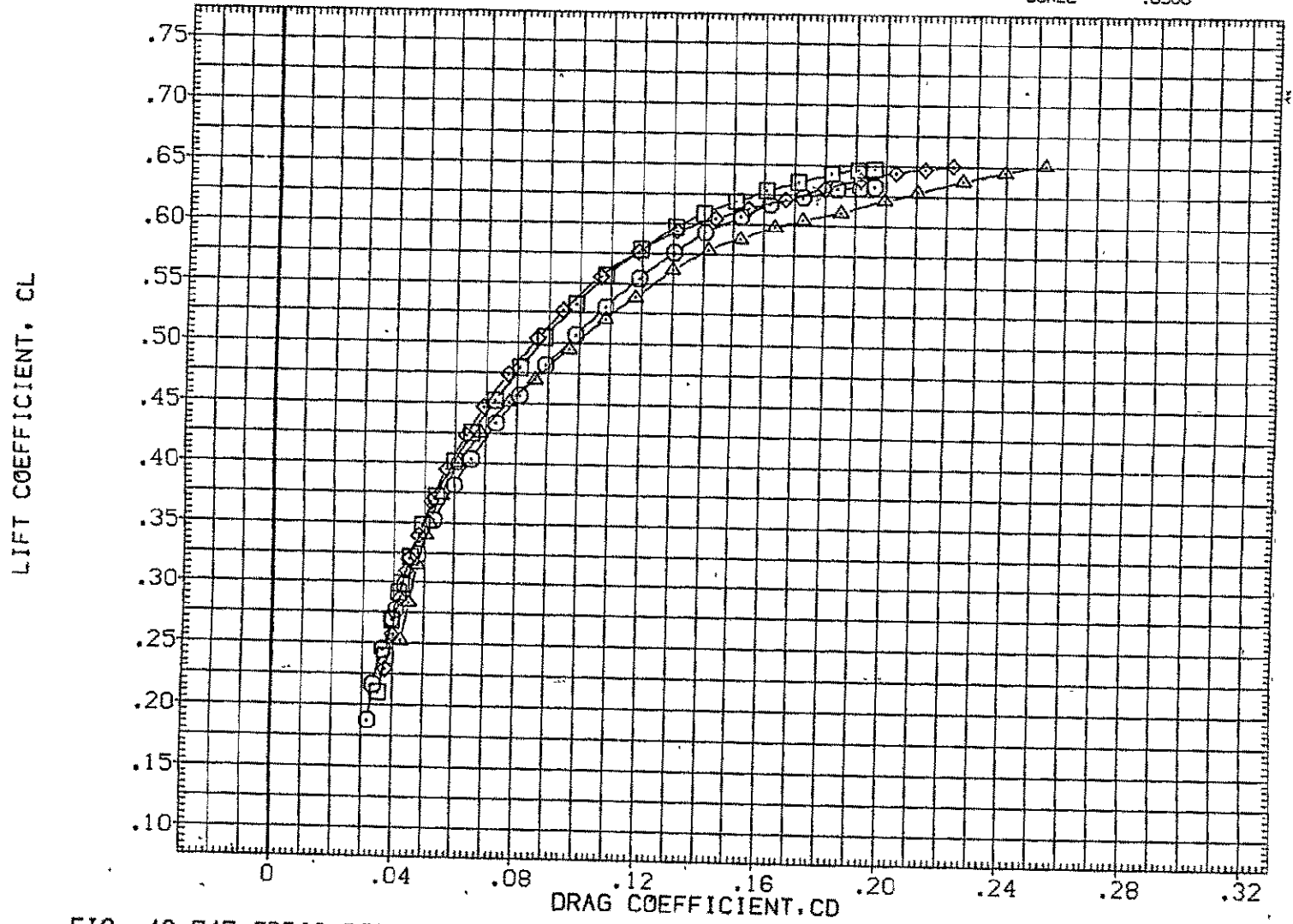


FIG. 43 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

ORB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM084)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		BETA	STAB	RUD-L	ELV-OB	SREF	SQ.FT.
○	.300	.000	-2.000	.000	.000	2690.0000	IN.
□	.499	.000	.000	.000	.000	474.8100	IN.
◇	.599	.000	3.000	.000	.000	936.6800	IN.
△	.699	.000	45.000	.000	.000	1109.0000	IN. X0
		20.000	7.850			YMRP .0000	IN. Y0
						ZMRP 375.0000	IN. Z0
						SCALE .0300	

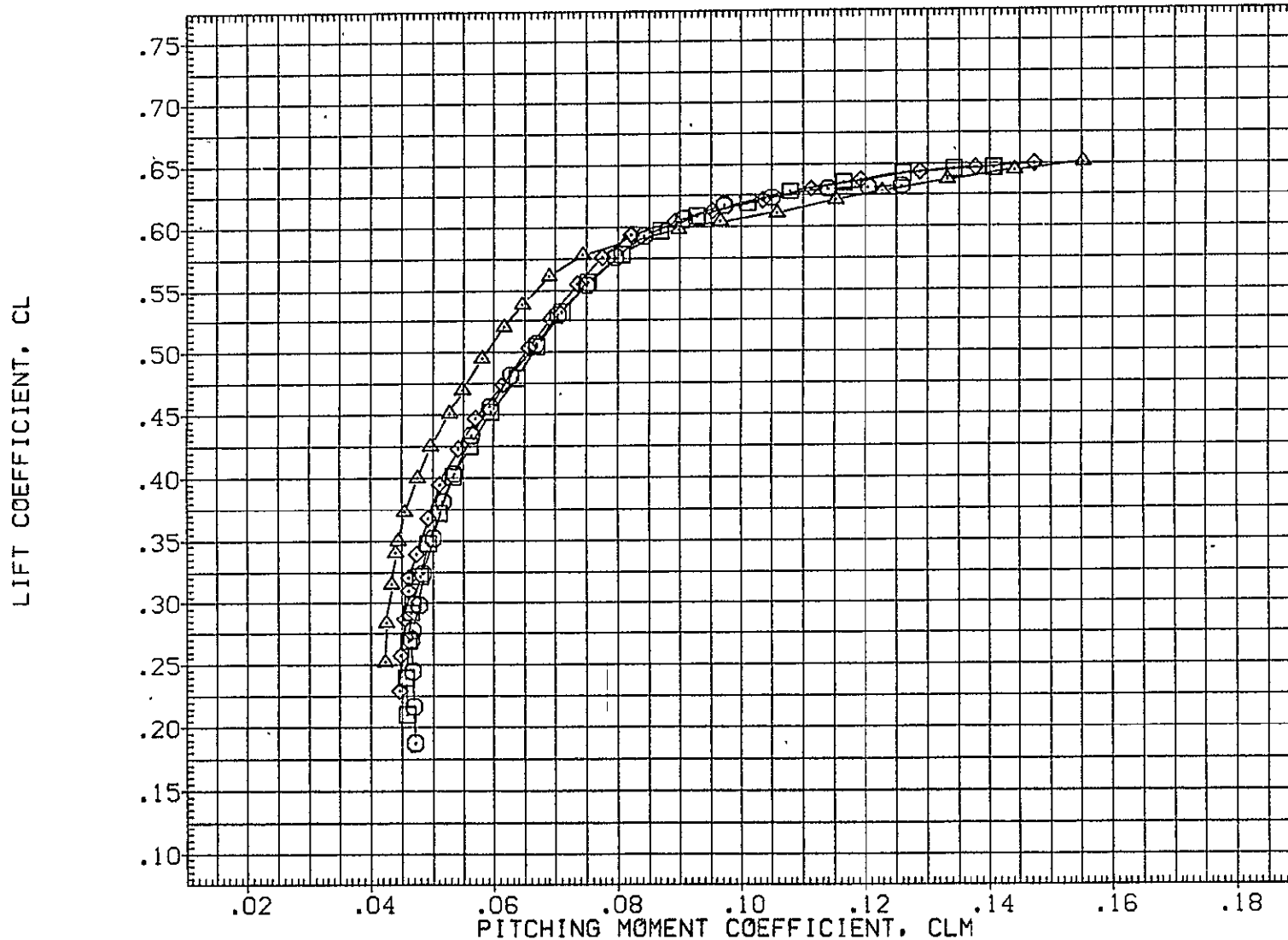


FIG. 43 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,(S=-2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	2690.0000	SG.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

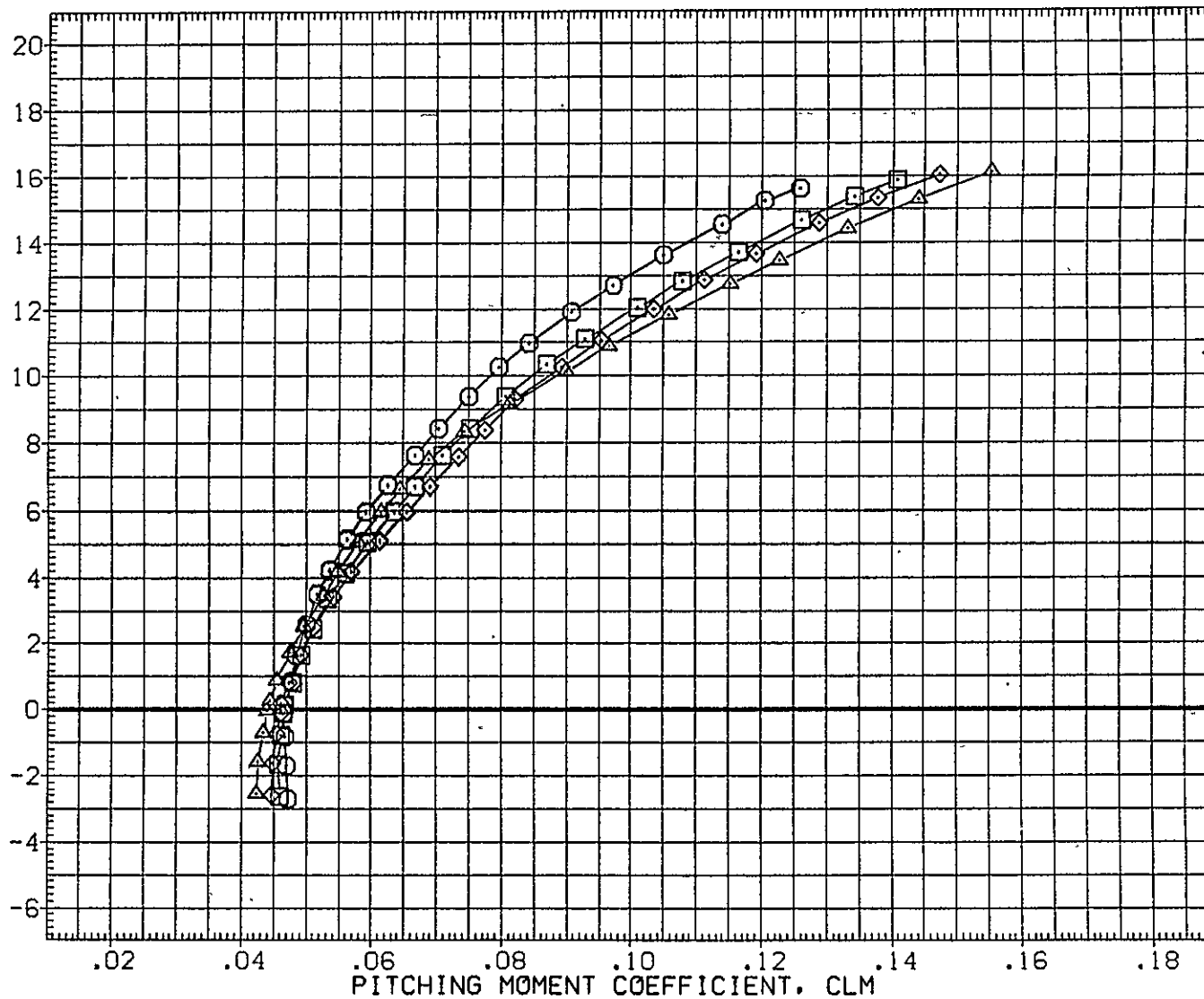


FIG. 43 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, (S=-2)

ORB

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM085)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-U	RUD-L	SREF	SO, FT.	LREF
○	.300	.000	1.000	.000	.000	5500.0000	IN.	BREF
□	.500	.000	.000	.000	.000	327.8000	IN.	XMRP
◇	.600	10.000	13.000	ELV-1B	ELV-0B	2348.0000	IN.	YMRP
△	.700	.000	45.000	S1-2	S3-4	1339.9100	IN. XC	ZMRP
		20.000	7.850	S5-6	10RB	190.7500	IN. YC	SCALE
						.0300	IN. ZC	

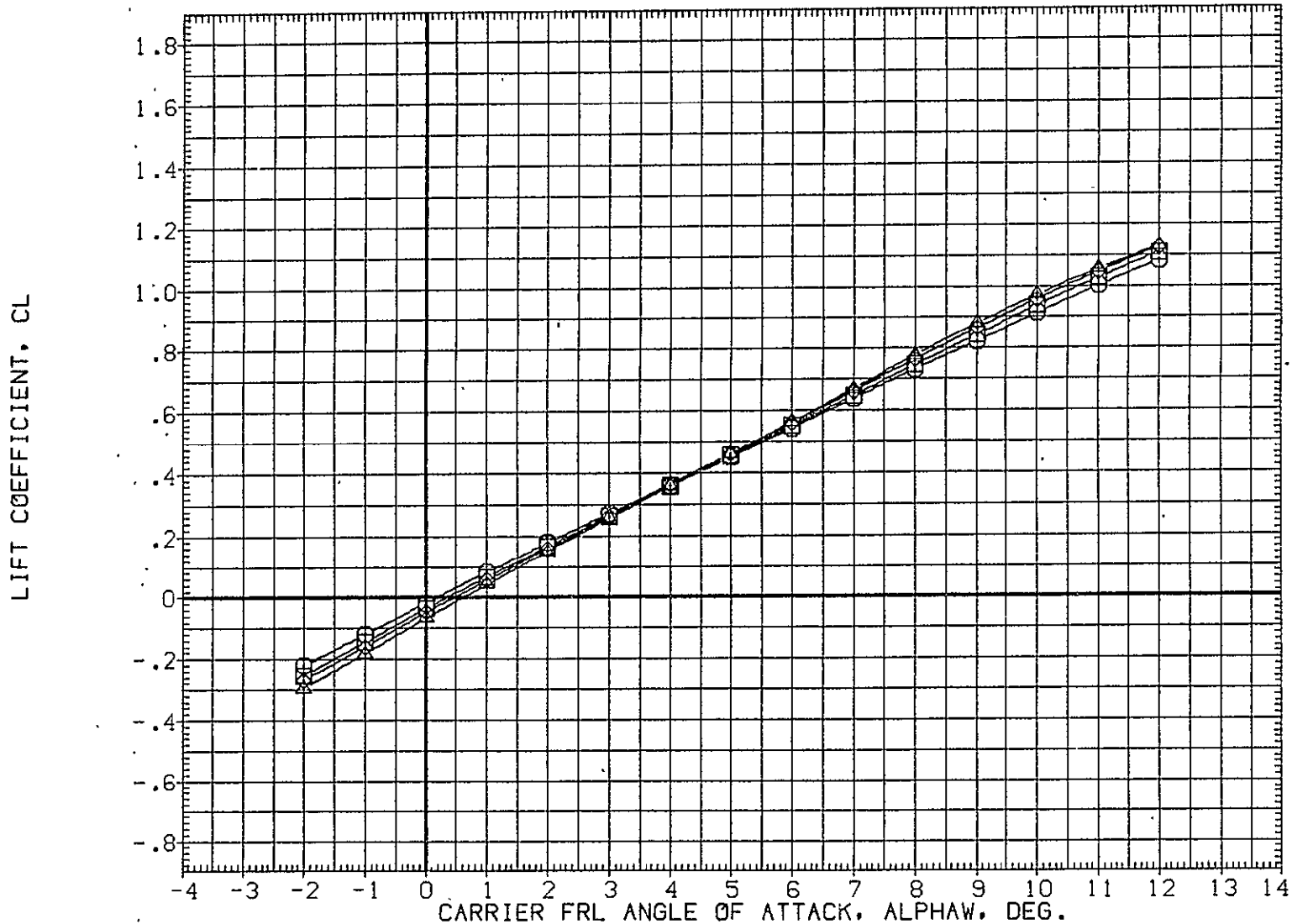


FIG. 44 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG TOTAL



SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	1.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	10.000	ELV-0B	13.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

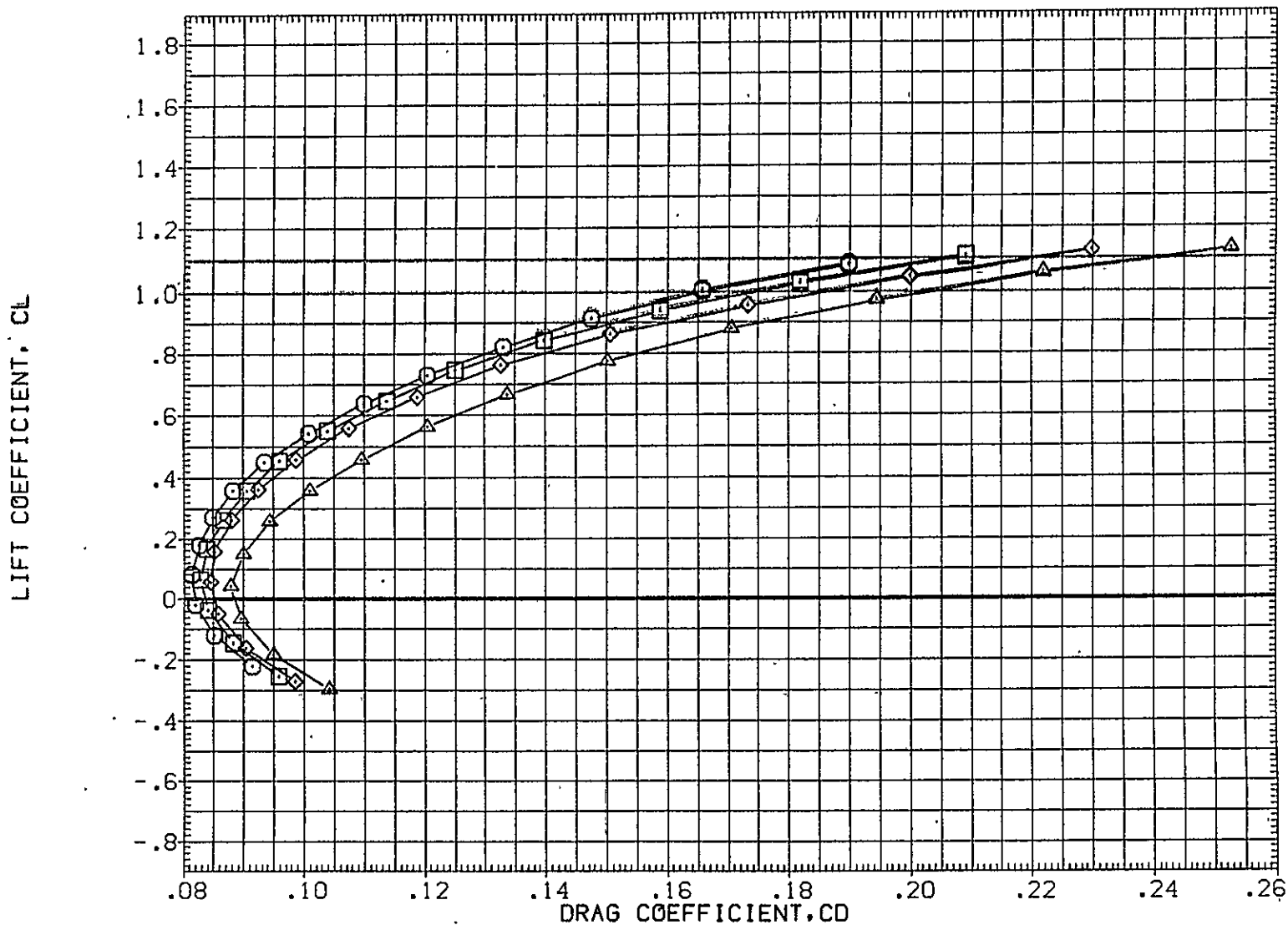


FIG. 44 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG TOTAL  
 PAGE 174

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM085)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. AC
		S5-6	20.000	I0RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

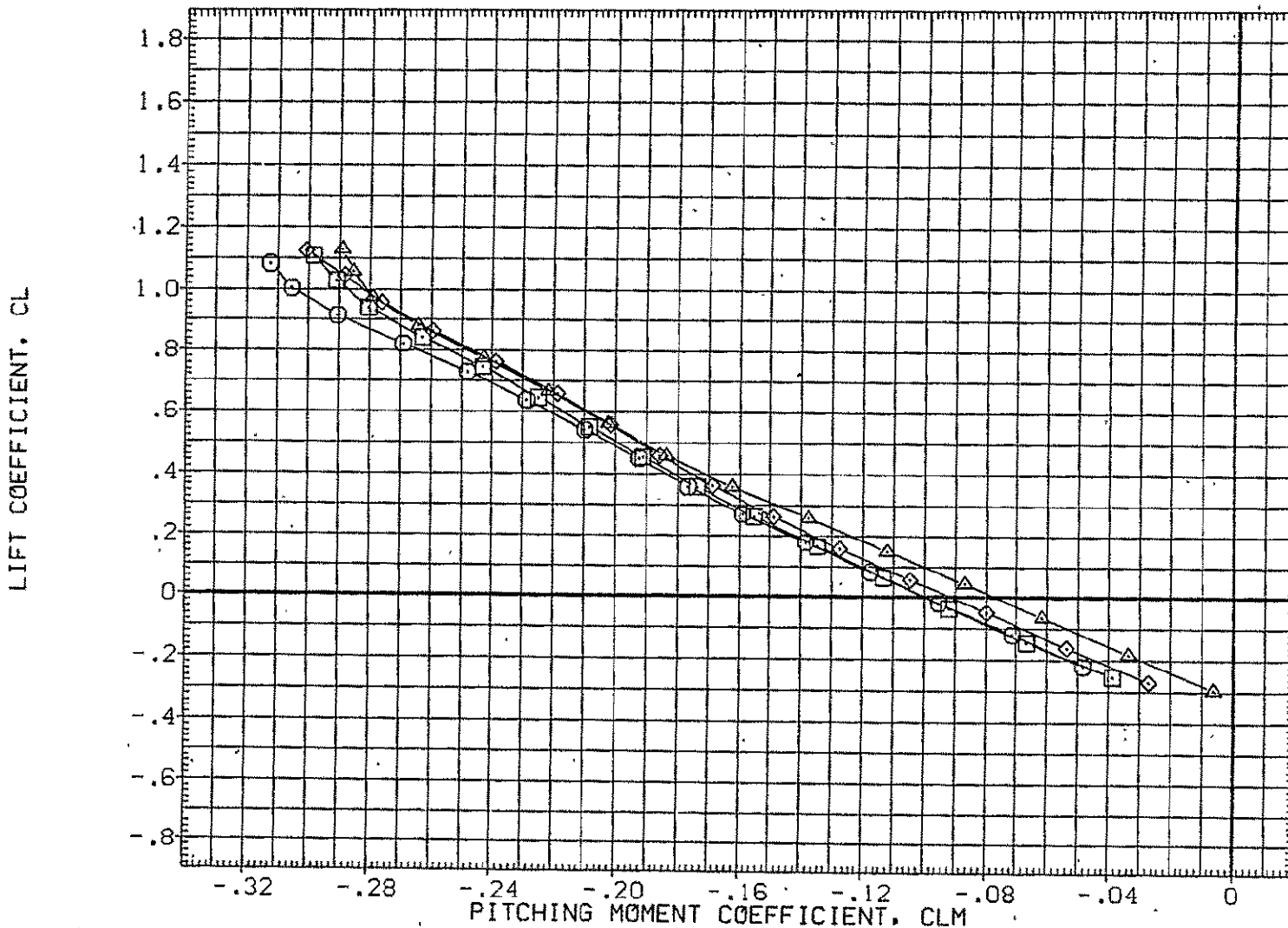


FIG. 44 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

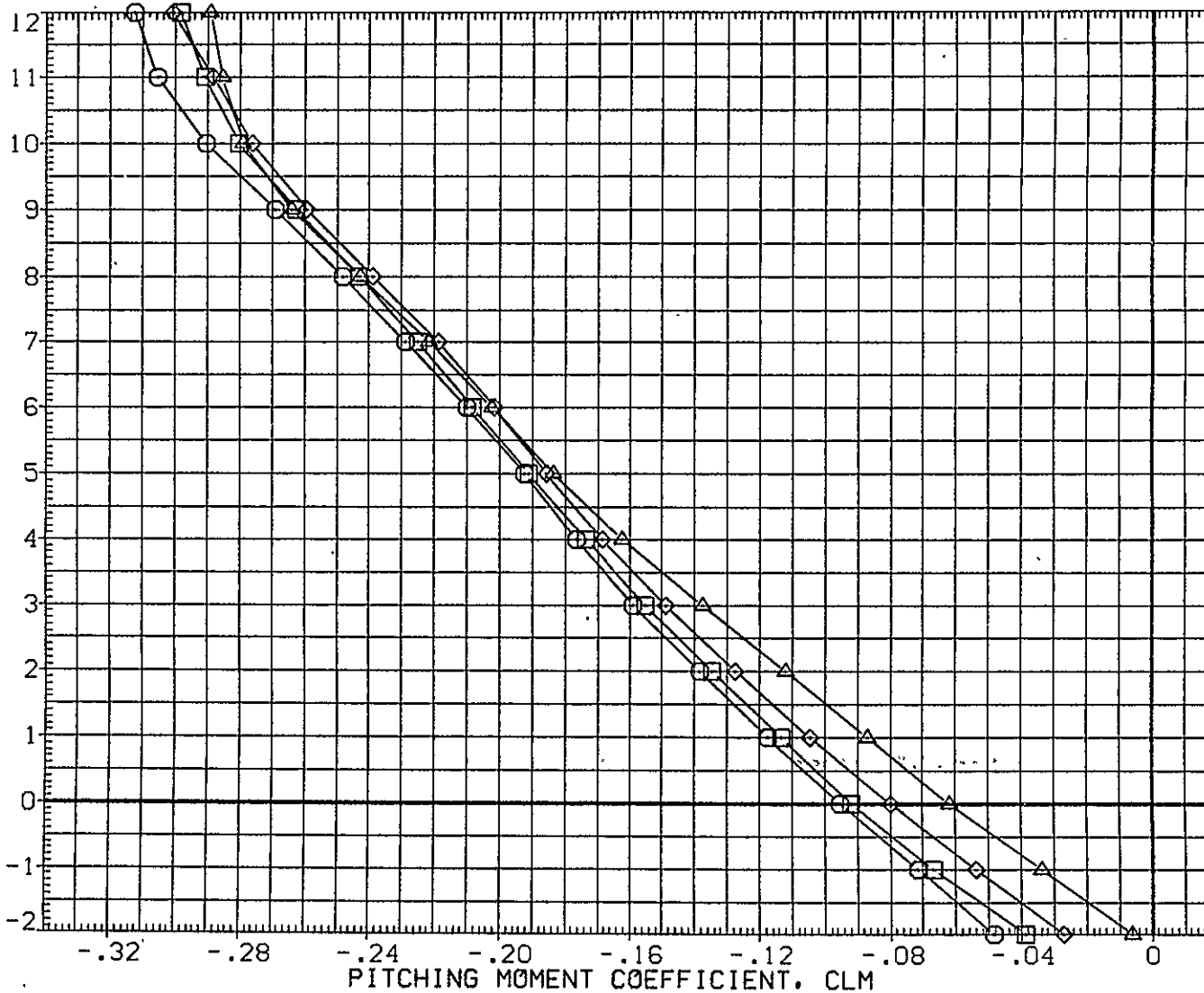


FIG. 44 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG TOTAL  
PAGE 176

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM085)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT (STABILITY AXIS), DCL

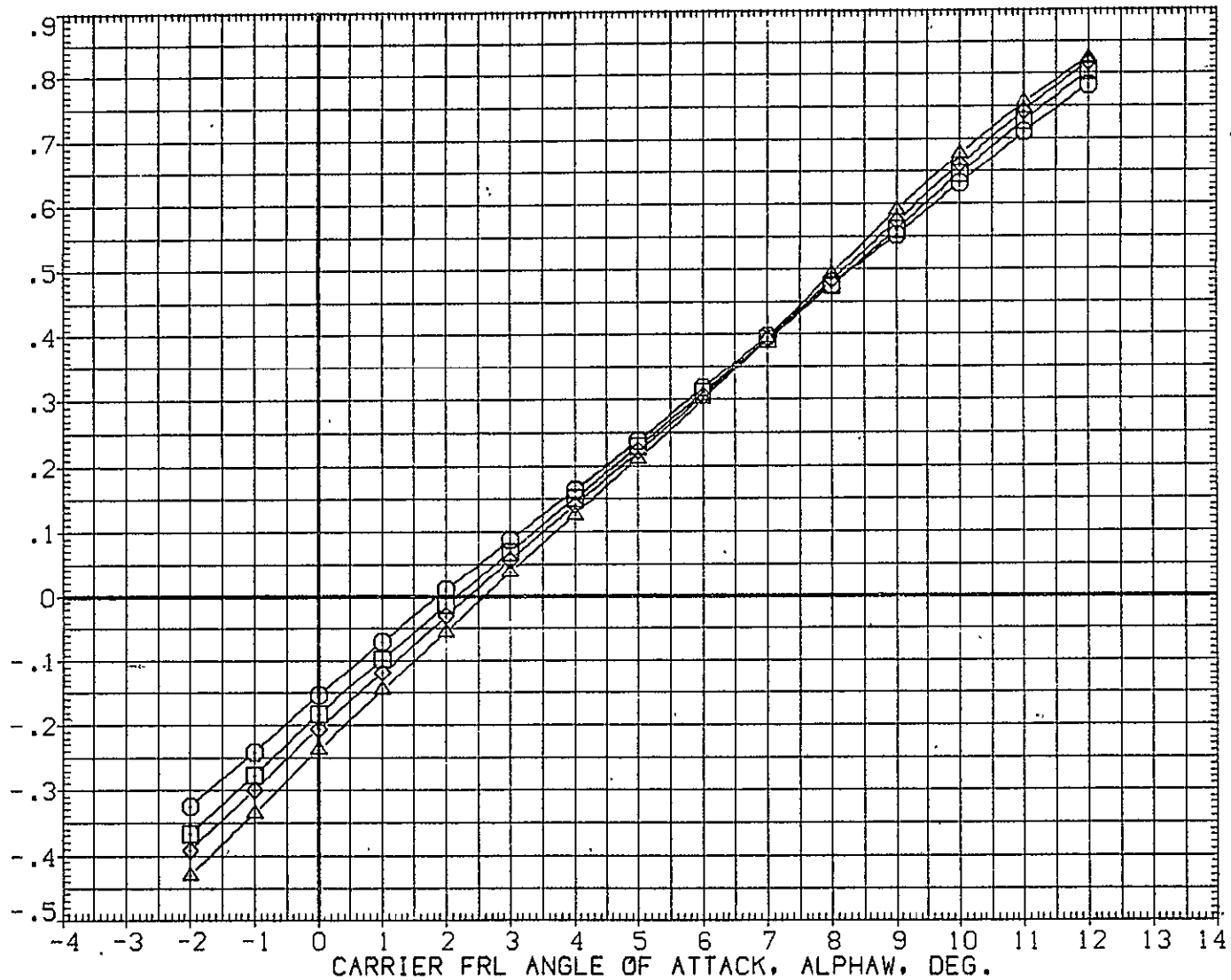


FIG. 45 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

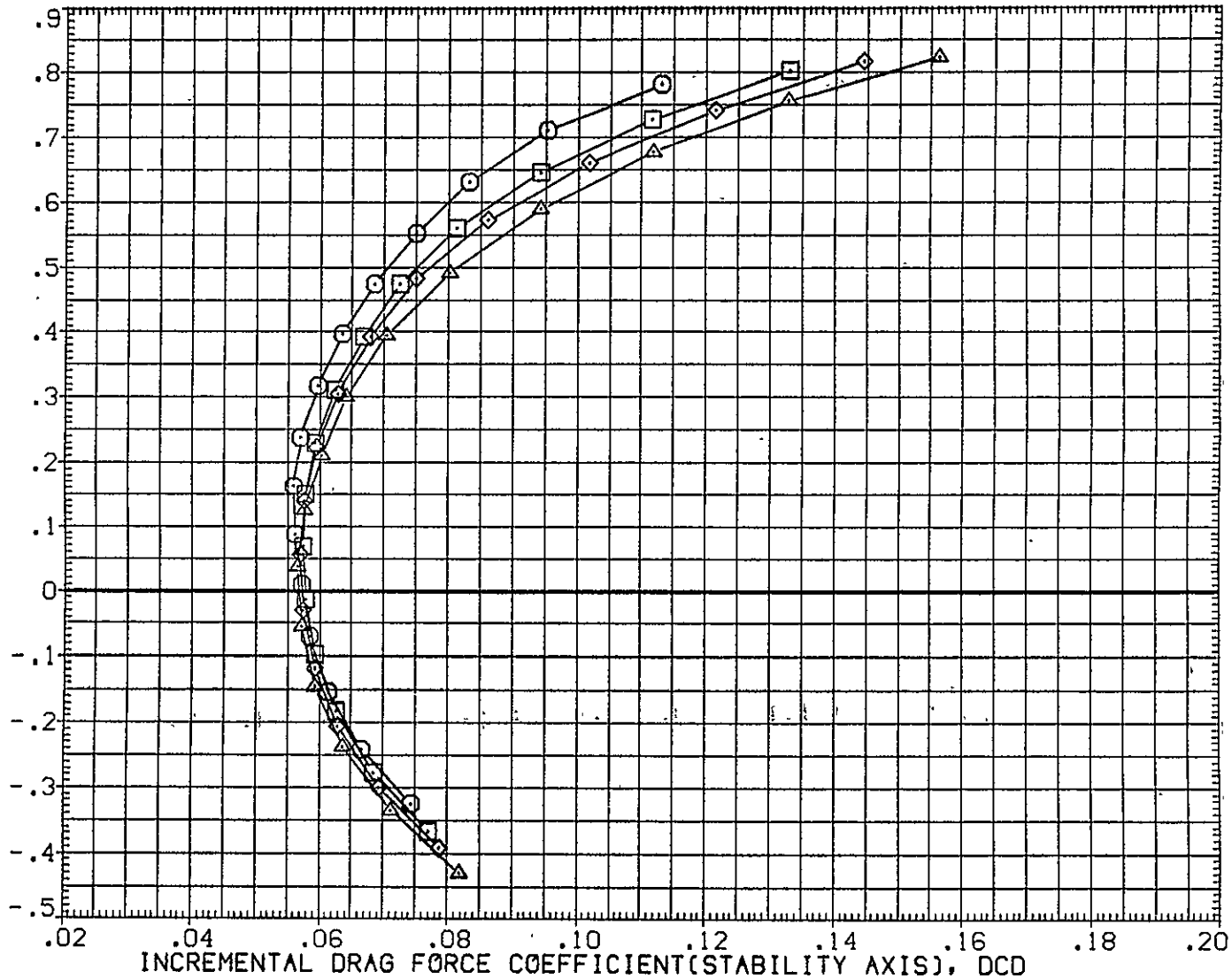


FIG. 45 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG

747

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM085)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH  
 .300  
 .500  
 .600  
 .700

PARAMETRIC VALUES  
 BETA .000 STAB 1.000  
 RUD-U .000 RUD-L .000  
 ELV-1B 10.000 ELV-0B 13.000  
 S1-2 .000 S3-4 45.000  
 S5-6 20.000 IORB 7.850

REFERENCE INFORMATION  
 SREF 5500.0000 SQ.FT.  
 LREF 327.8000 IN.  
 BREF 2348.0000 IN.  
 XMRP 1339.9100 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 190.7500 IN. ZC  
 SCALE .0300

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

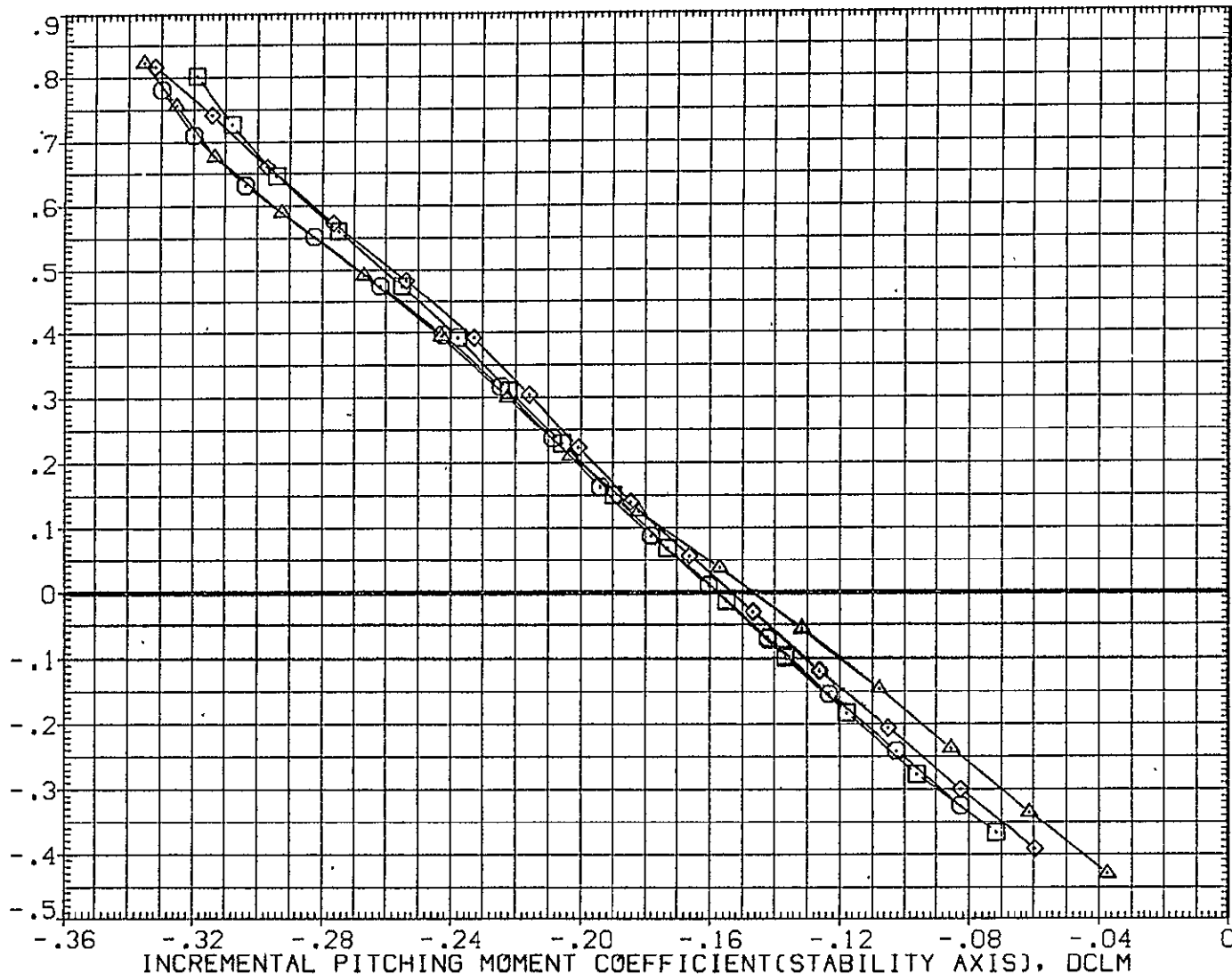


FIG. 45 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG

747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-18	10.000	ELV-08	13.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

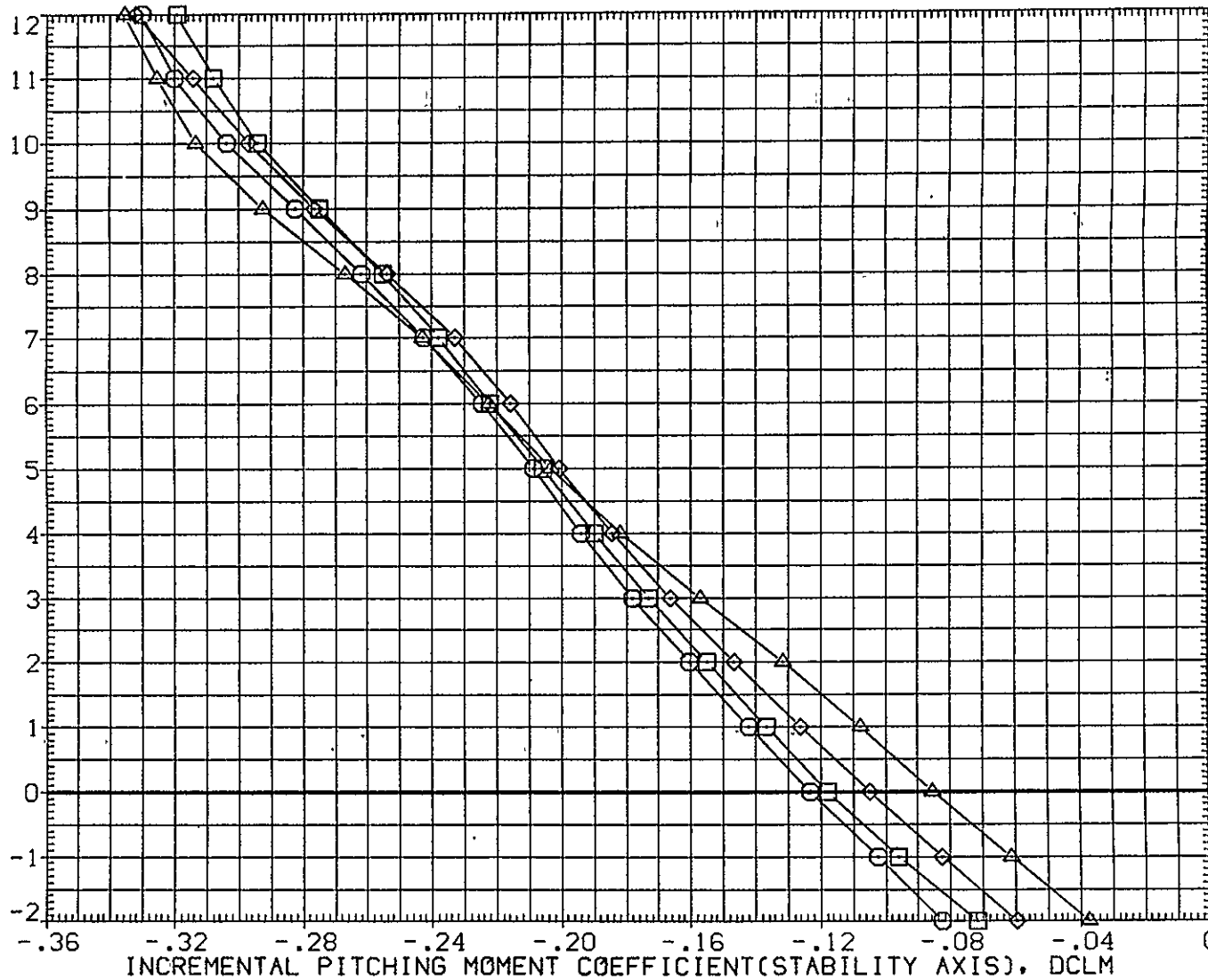


FIG. 45 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG

747

CA5 0RB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM085)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.500	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
◇	.601	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
△	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

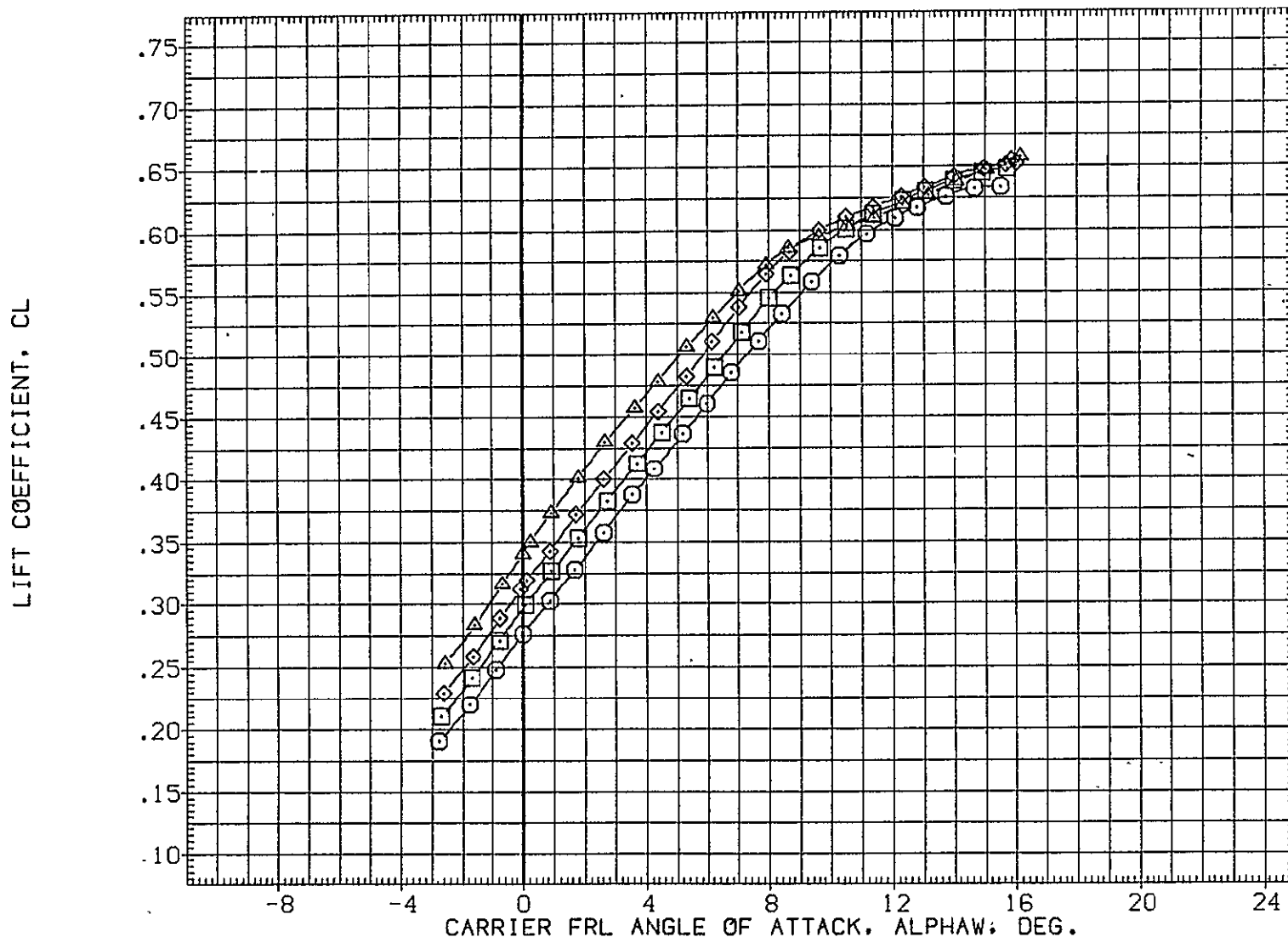


FIG. 46 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG 0RB



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.601	ELV-1B	10.000	ELV-0B	13.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	ICRB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

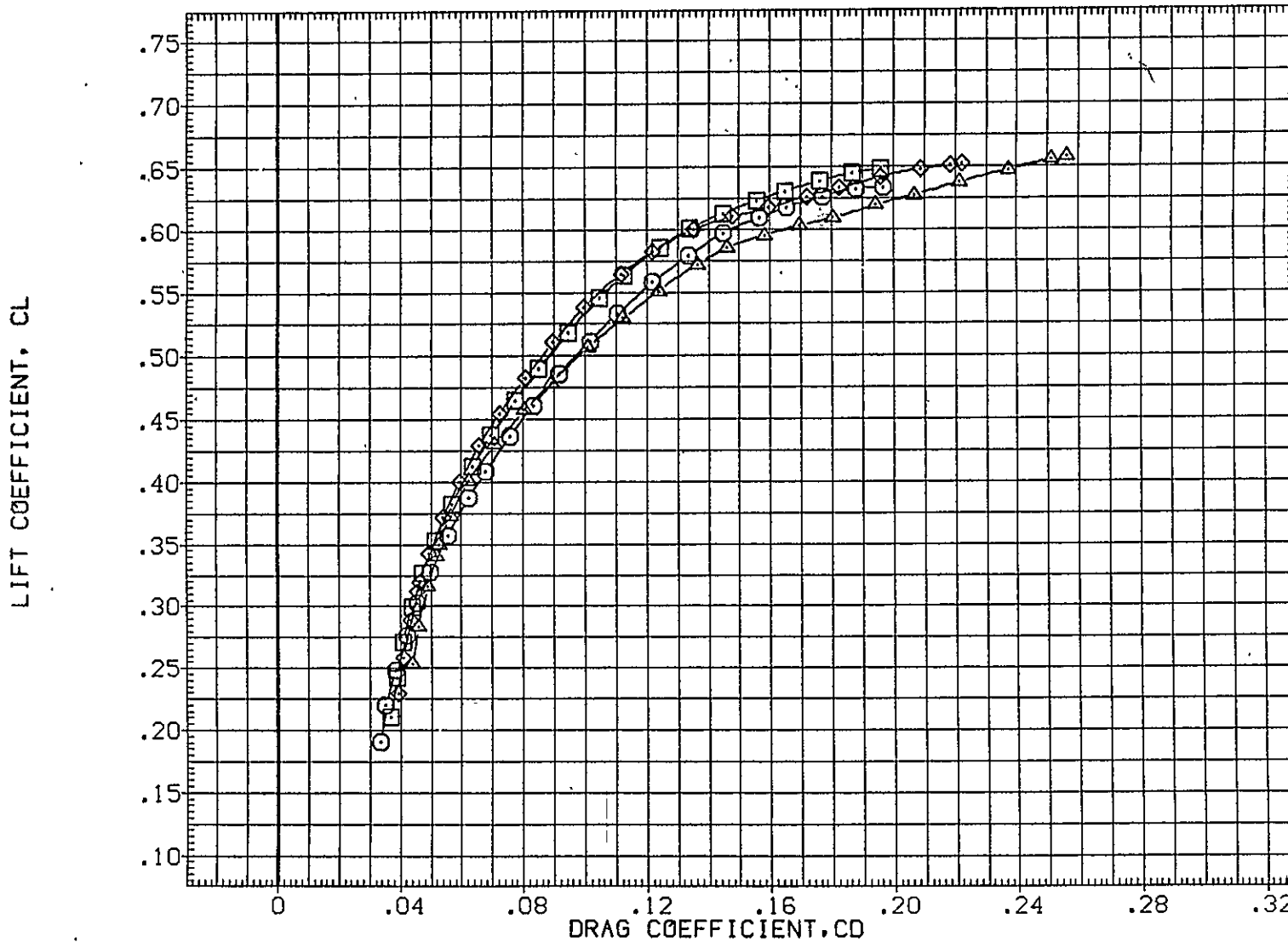


FIG. 46 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ELEV=10 DEG ORB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM085)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	2690.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.601	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		SS-6	20.000	IORB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

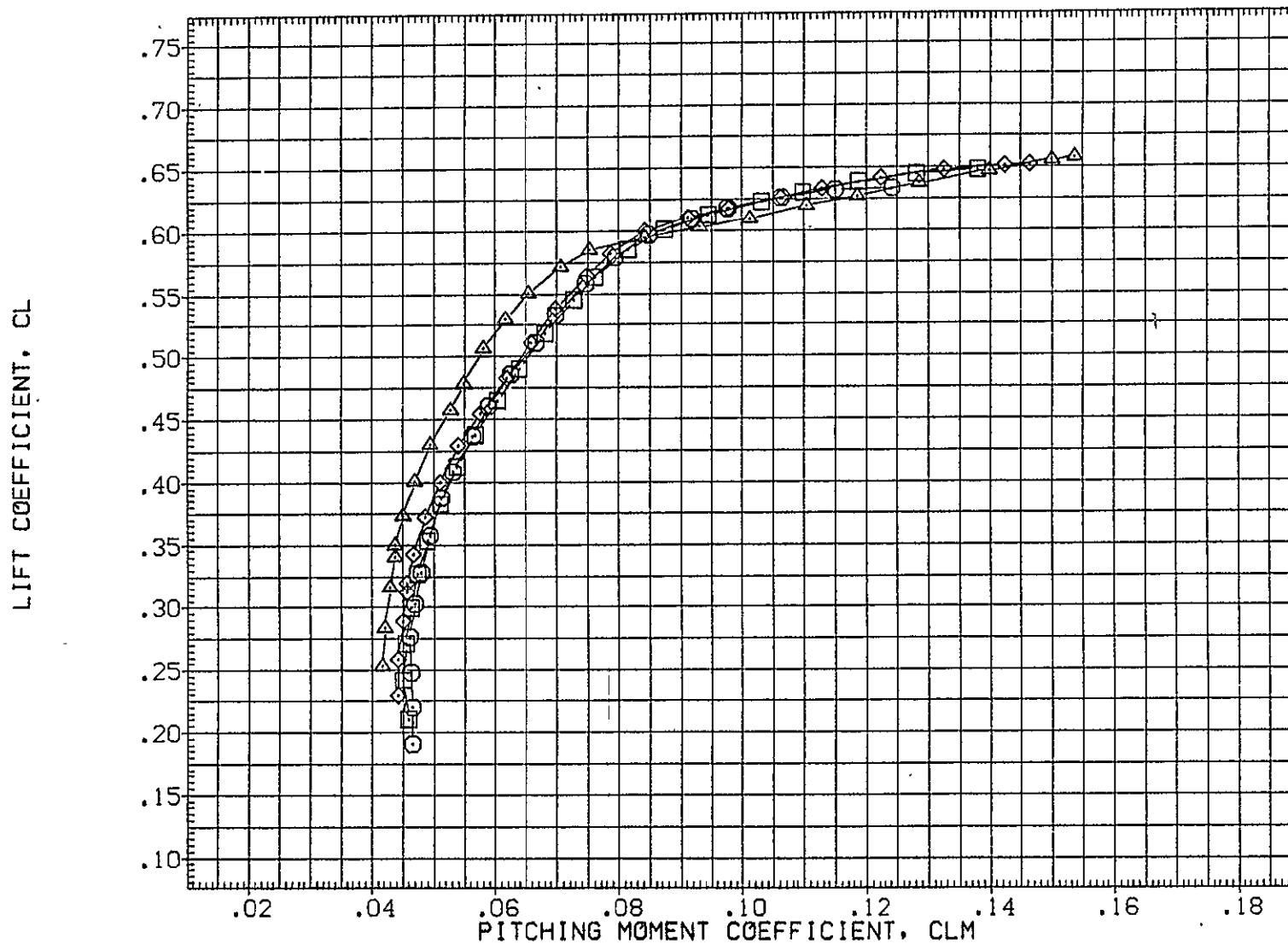


FIG. 46 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG ORB

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH  
 .300  
 .500  
 .601  
 .700

PARAMETRIC VALUES  
 BETA .000 STAB 1.000  
 RUD-U .000 RUD-L .000  
 ELV-1B 10.000 ELV-0B 13.000  
 S1-2 .000 S3-4 45.000  
 S5-6 20.000 10RB 7.850

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8100 IN.  
 BREF 936.6800 IN.  
 XMRP 1109.0000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

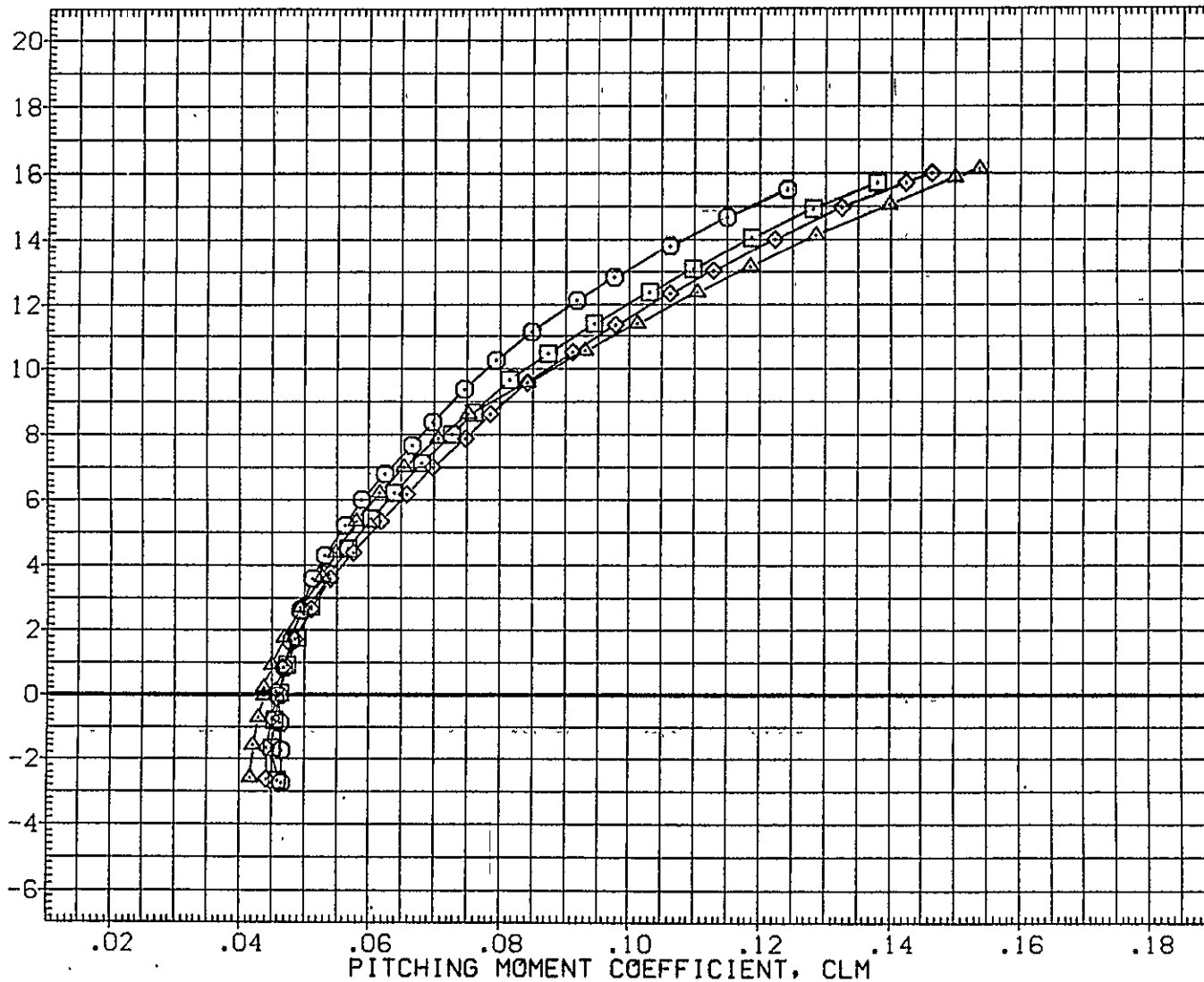


FIG. 46 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ELEV=10 DEG 0RB

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM087)

SYMBOL

○  
□

MACH

.500  
.600

PARAMETRIC VALUES

BETA	.000	STAB	1.000
RUD-U	.000	ELV-1B	.000
ELV-0B	3.000	S1-2	.000
S3-4	45.000	S5-6	20.000
ICRB	7.850	ORBELV	5.000

REFERENCE INFORMATION

SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

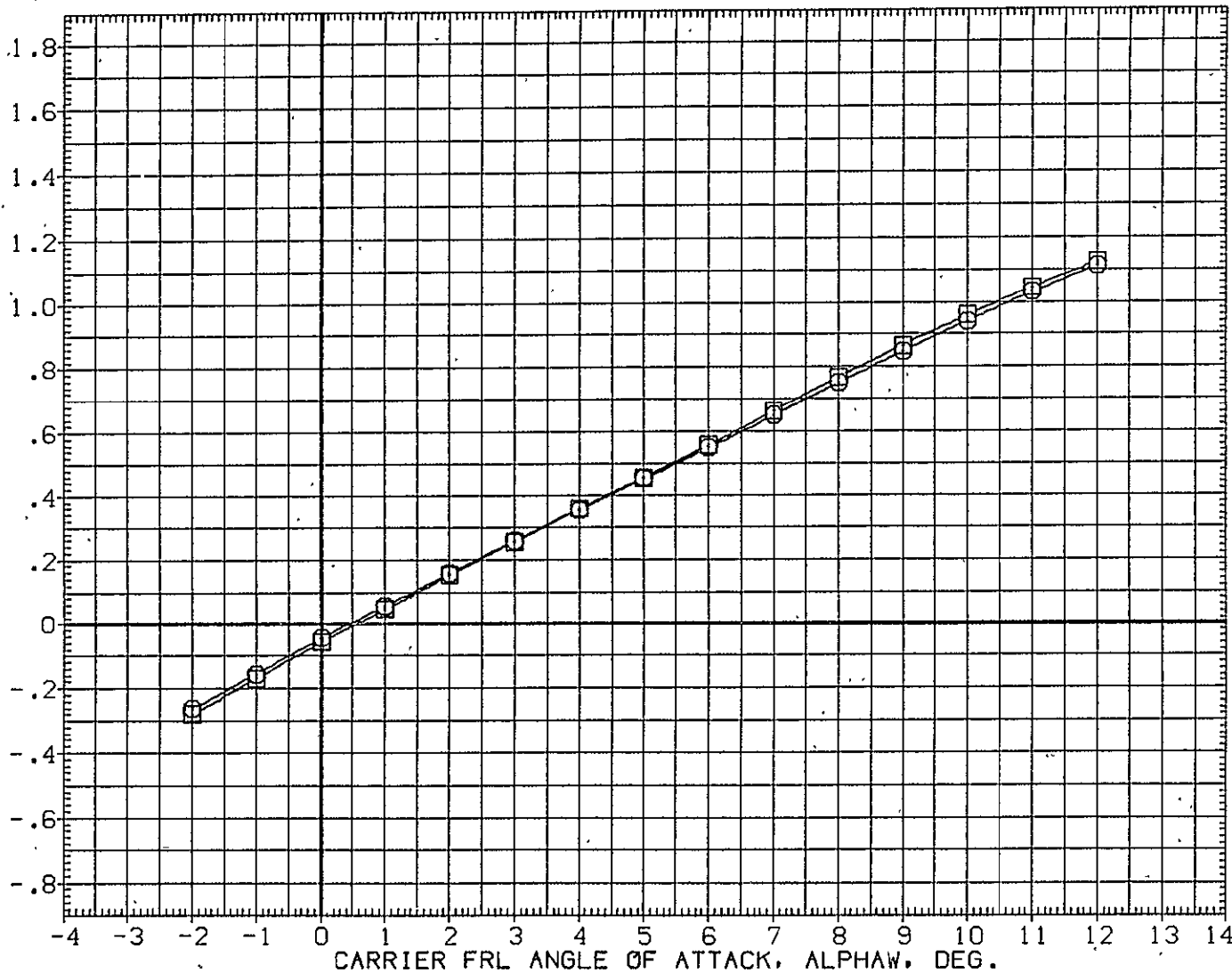


FIG. 47 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

SYMBOL  
 ○  
 □

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	ELV-1B	.000
	ELV-OB	3.000	S1-2	.000
	S3-4	45.000	S5-6	20.000
	IORB	7.850	ORBELV	5.000

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

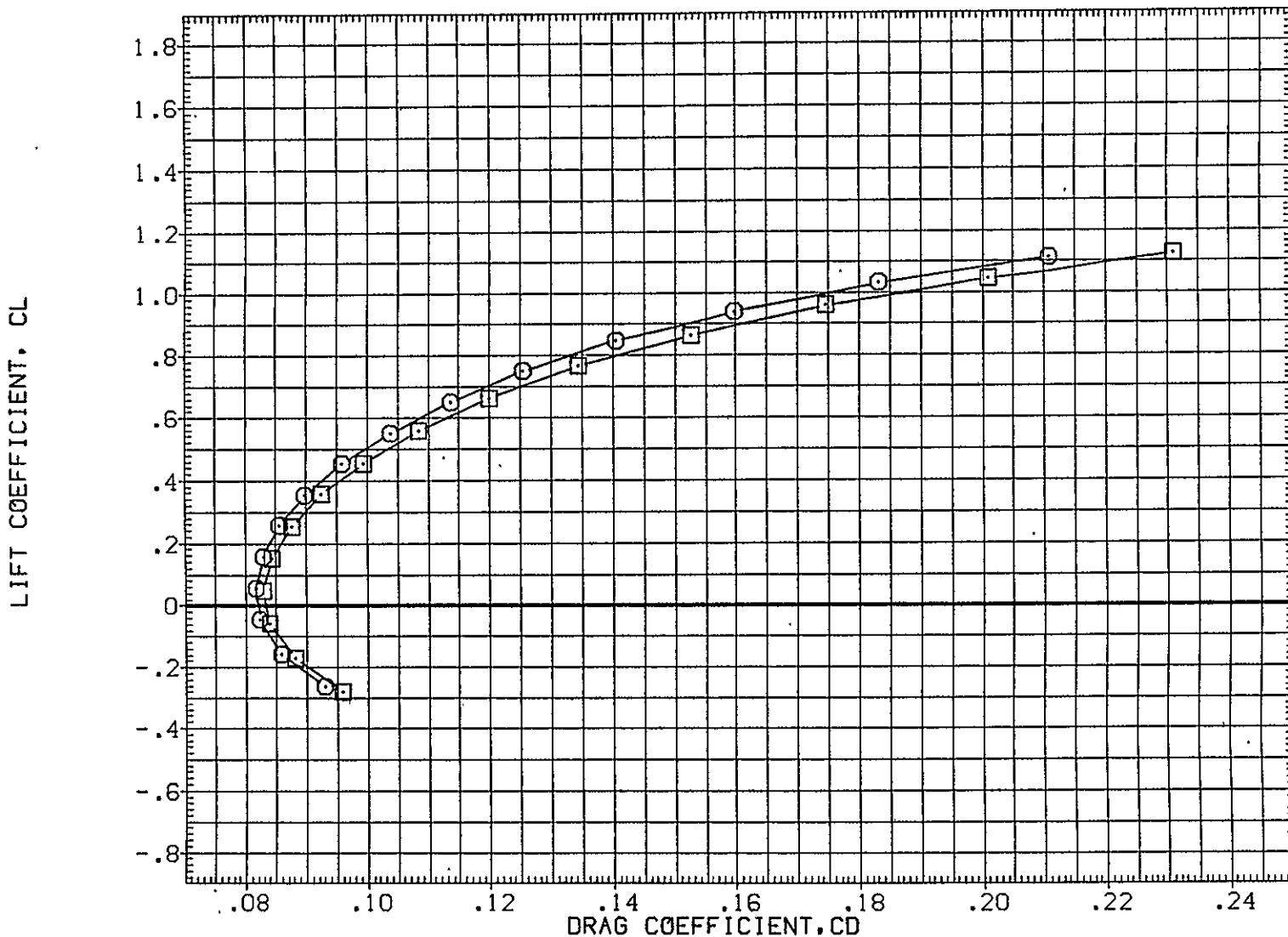


FIG. 47 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM087)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.600	RUD-U	.000	ELV-18	.000	LREF	327.8000	IN.
		ELV-08	3.000	S1-2	.000	BREF	2348.0000	IN.
		S3-4	45.000	S5-6	20.000	XMRP	1338.9100	IN. XC
		10RB	7.850	ORBELV	5.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

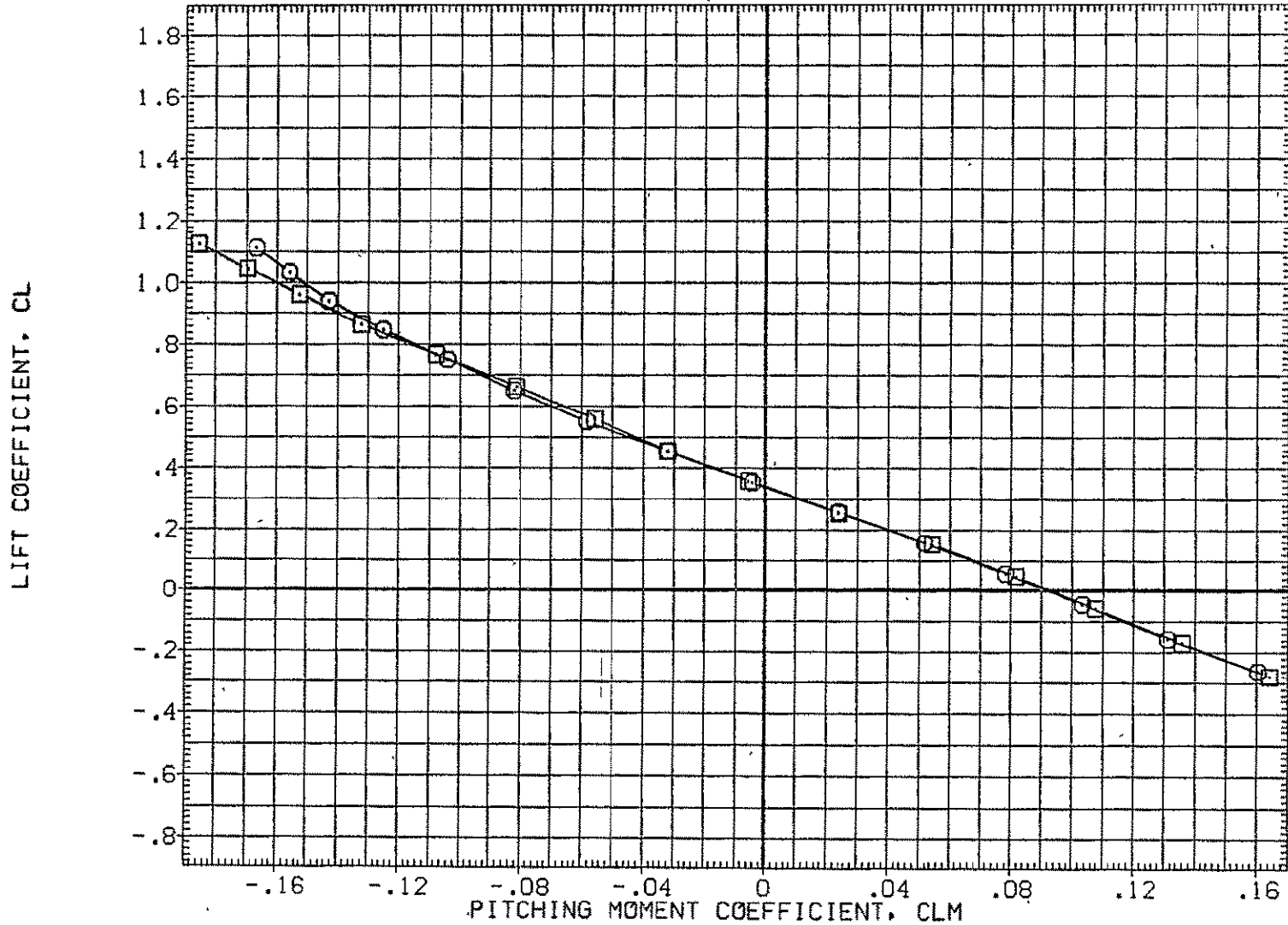


FIG. 47 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

TOTAL

SYMBOL  
□ ○

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	ELV-1B	.000
	ELV-OB	3.000	SI-2	.000
	S3-4	45.000	S5-6	20.000
	IORB	7.850	ORBELV	5.000

REFERENCE INFORMATION		
SREF	.5500,0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

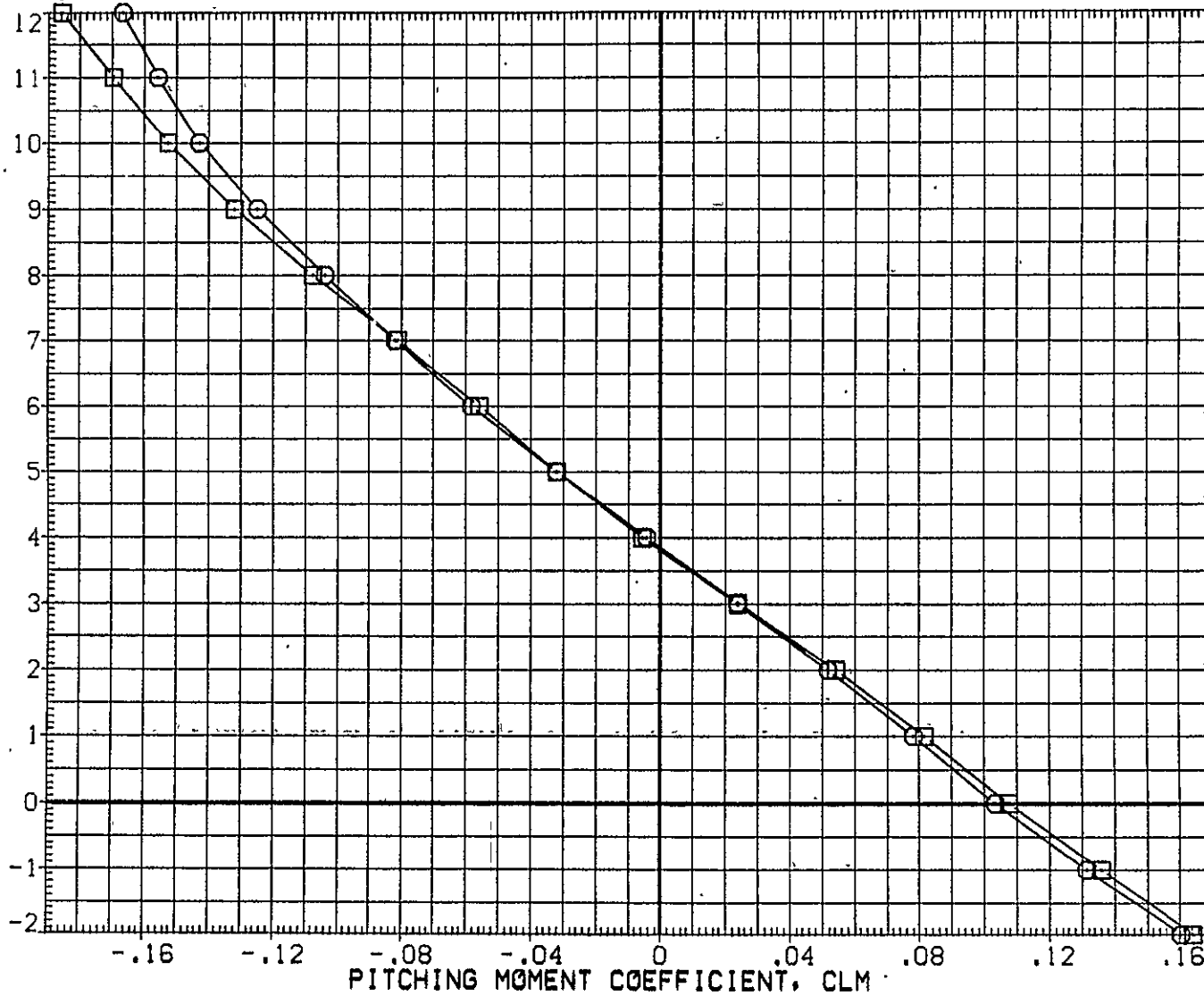


FIG. 47 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

TOTAL

PAGE

188

CA5 K1.F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM087)

SYMBOL  
○  
□

MACH

BETA  
.500  
.600  
RUD-U  
ELV-OB  
S3-4  
IORB

PARAMETRIC VALUES

.000 STAB 1.000  
.000 ELV-1B .000  
3.000 S1-2 .000  
45.000 S5-6 20.000  
7.850 ORBELV 5.000

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
LREF 327.8000 IN.  
BREF 2348.0000 IN.  
XMRP 1339.9100 IN. XC  
YMRP .0000 IN. YC  
ZMRP 190.7500 IN. ZC  
SCALE .0300

INCREMENTAL LIFT FORCE COEFFICIENT (STABILITY AXIS), DCL

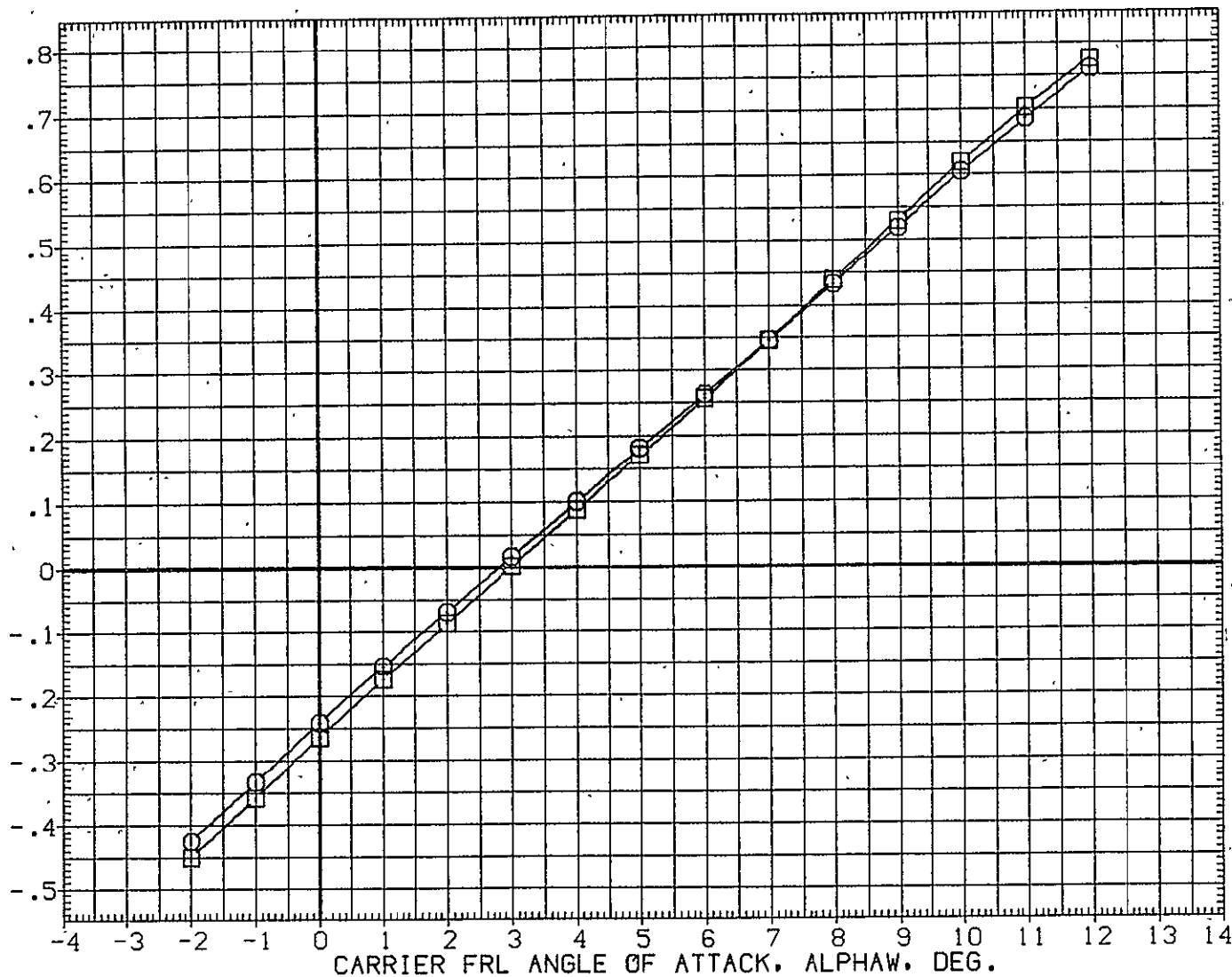


FIG. 48 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG



SYMBOL  
 ○  
 □

MACH

.500  
 .600

PARAMETRIC VALUES

BETA	.000	STAB	1.000
RUD-U	.000	ELV-1B	.000
ELV-OB	3.000	S1-2	.000
S3-4	45.000	S5-6	20.000
ORB	7.850	ORBELV	5.000

REFERENCE INFORMATION

SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	-190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

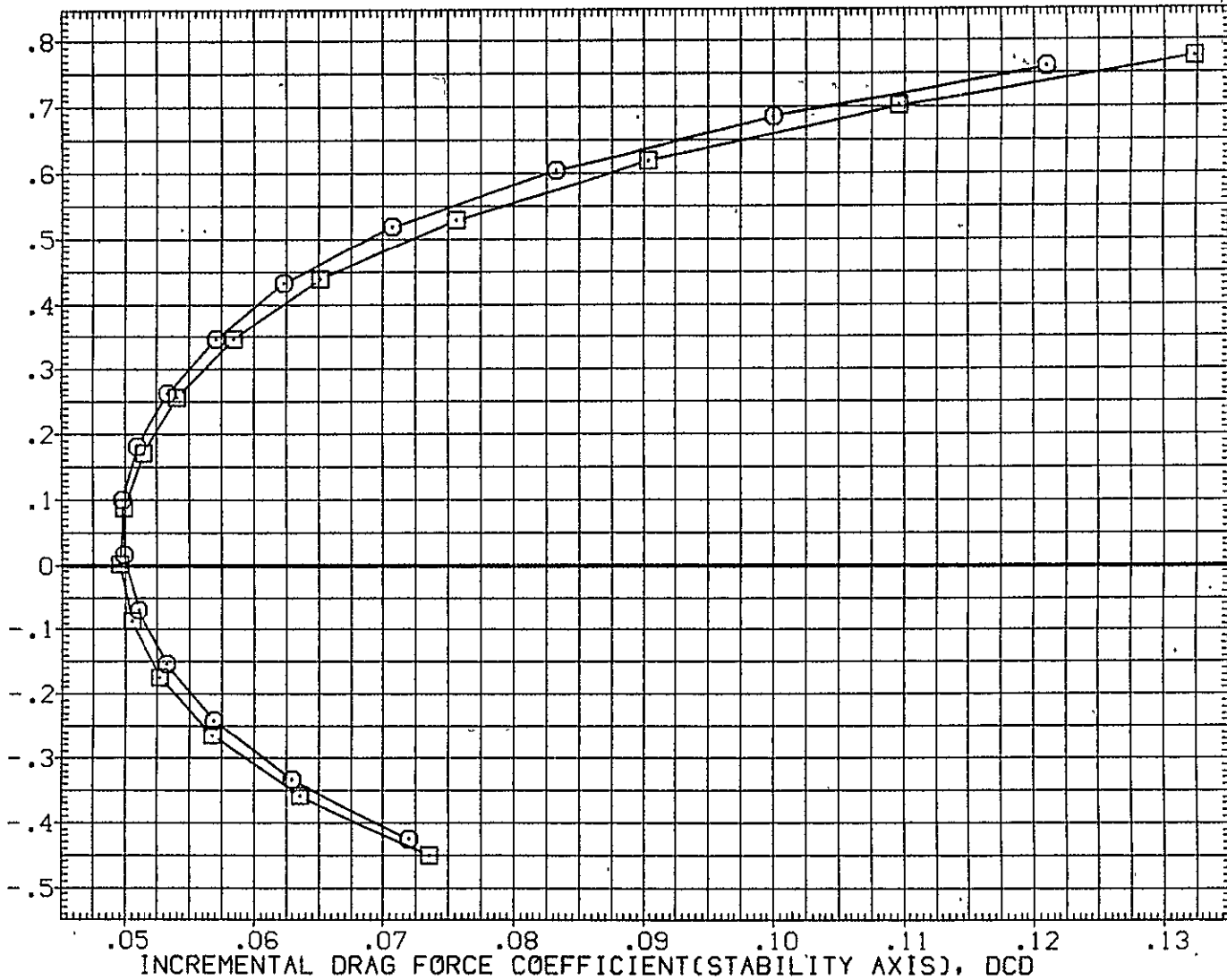


FIG. 48 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM087)

SYMBOL  
 ○  
 □

MACH	PARAMETRIC VALUES			
.500	BETA	.000	STAB	1.000
.600	RUD-U	.000	ELV-1B	.000
	ELV-OB	3.000	S1-2	.000
	S3-4	45.000	S5-6	20.000
	IORB	7.850	ORBELV	5.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

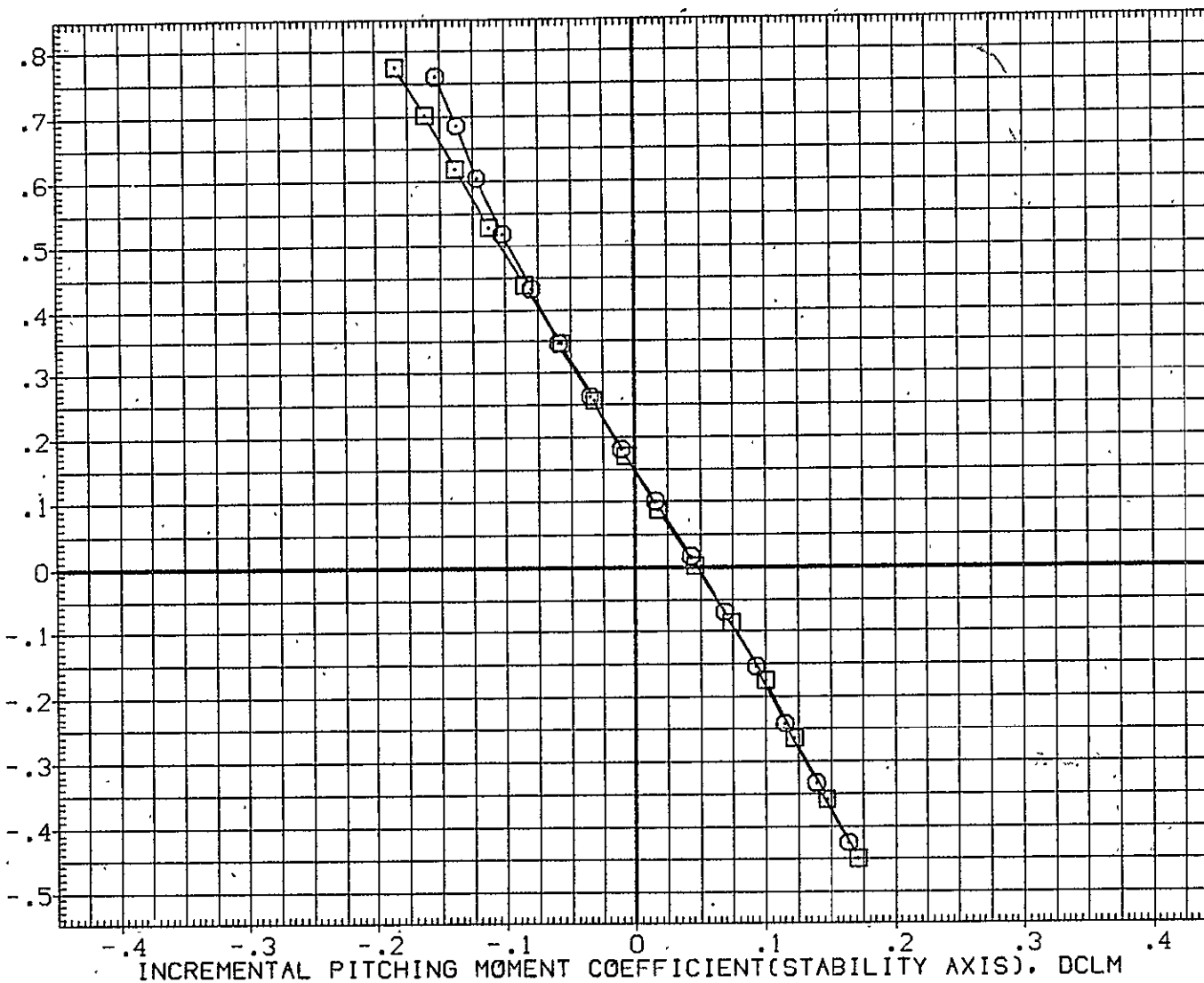


FIG. 48 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
□	.600	ELV-OB	3.000	S1-2	.000	BREF	2348.0000	IN.
		S3-4	45.000	S5-6	20.000	XMRP	1339.9100	IN. XC
		IDRB	7.850	ORBELV	5.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

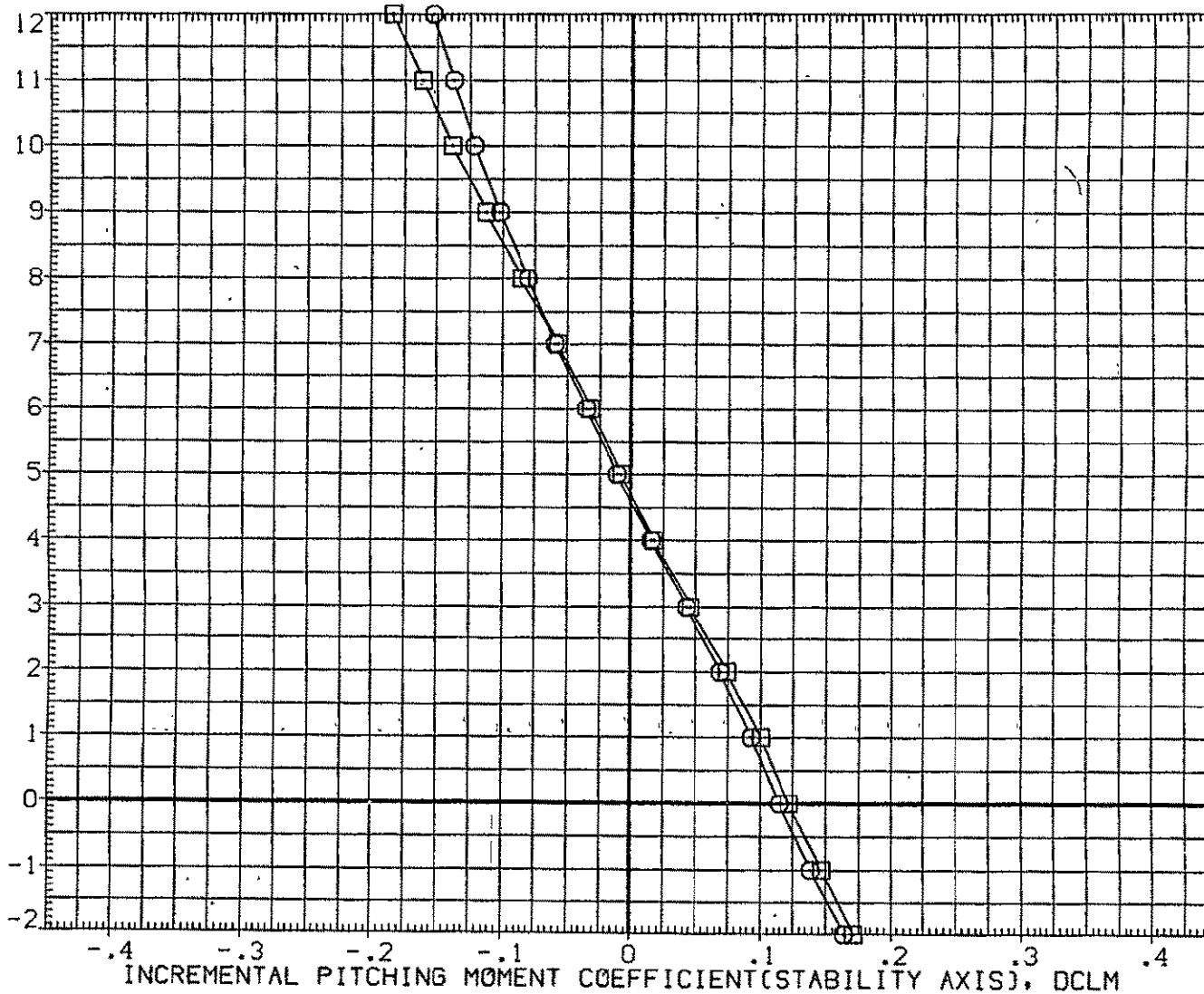


FIG. 48 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM087)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	ELV-1B	ELV-2	SREF	LREF	BREF
○	.499	.000	1.000	.000	.000	2690.0000	474.8100	936.6800
□	.600	.000	.000	3.000	.000	1109.0000	.0000	.0000
		45.000	20.000	55-6	5.000			
		7.850		ORBELV				

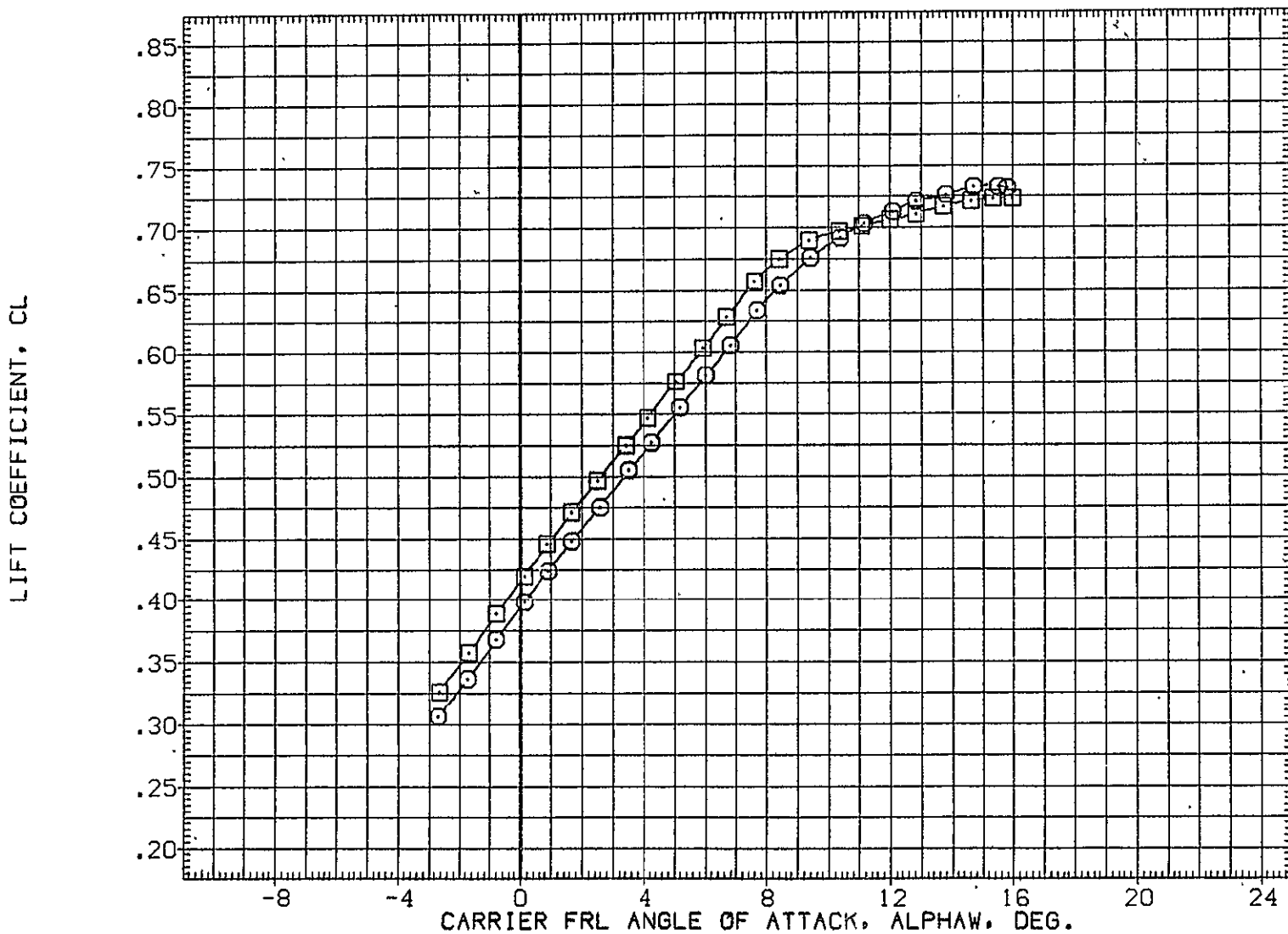


FIG. 49 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

ORB

SYMBOL  
 ○  
 □

MACH

.499

.600

BETA

RUD-U

ELV-OB

S3-4

10RB

PARAMETRIC VALUES

.000

.000

3.000

45.000

7.850

STAB

ELV-18

S1-2

S5-6

ORBELV

1.000

.000

.000

20.000

5.000

REFERENCE INFORMATION

SREF

LREF

BREF

XMRP

YMRP

ZMRP

SCALE

2690.0000

474.8100

936.6800

1109.0000

.0000

375.0000

.0300

SQ. FT.

IN.

IN.

IN. X0

IN. Y0

IN. Z0

LIFT COEFFICIENT, CL

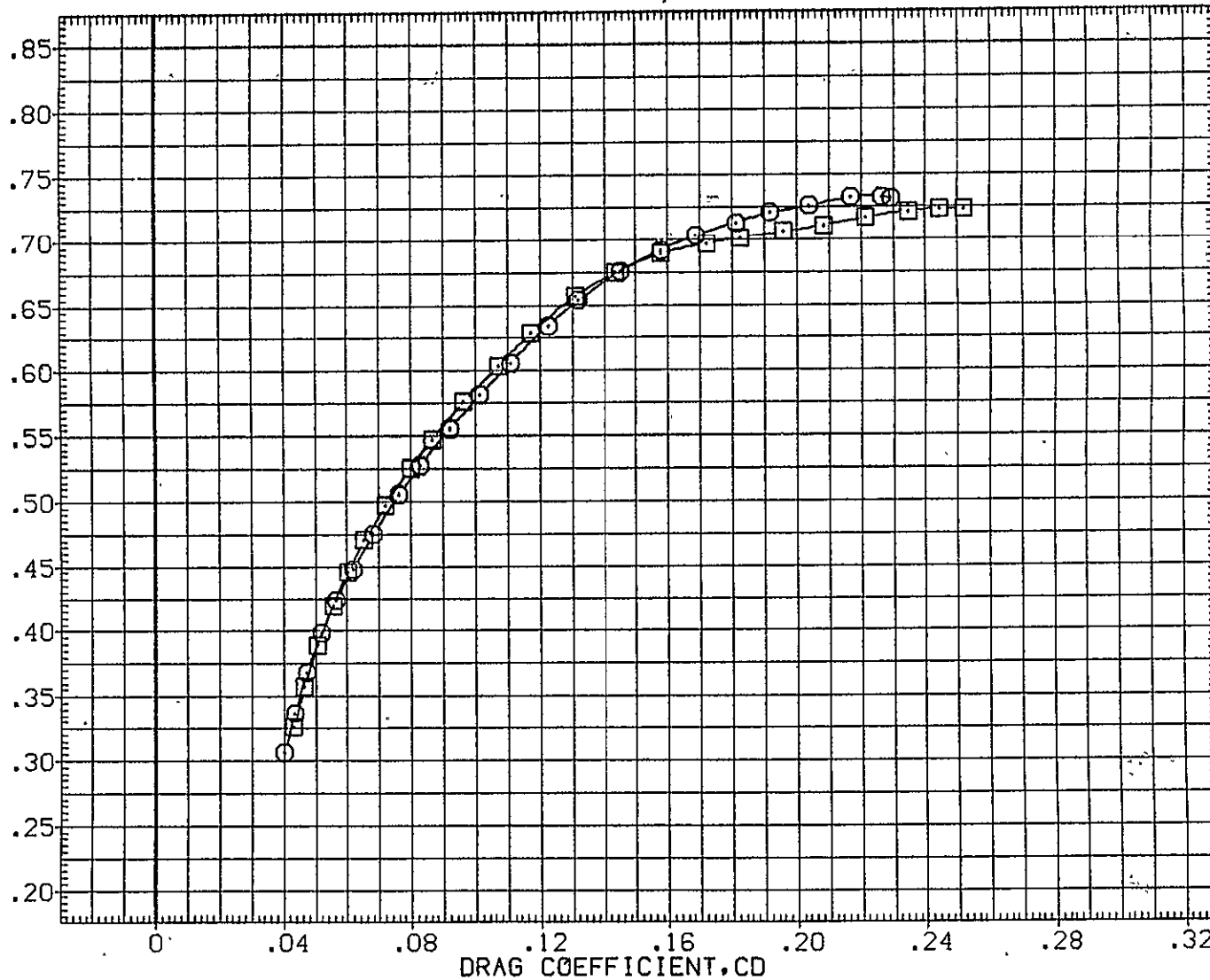


FIG. 49 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

ORB

CA5 0RB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM087)

SYMBOL  
 ○  
 □

MACH  
 .499  
 .600

PARAMETRIC VALUES  
 BETA .000 STAB 1.000  
 RUD-U .000 ELV-1B .000  
 ELV-0B 3.000 S1-2 .000  
 S3-4 45.000 S5-6 20.000  
 10RB 7.850 0RBELV 5.000

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8100 IN.  
 BREF 936.6800 IN.  
 XMRP 1109.0000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

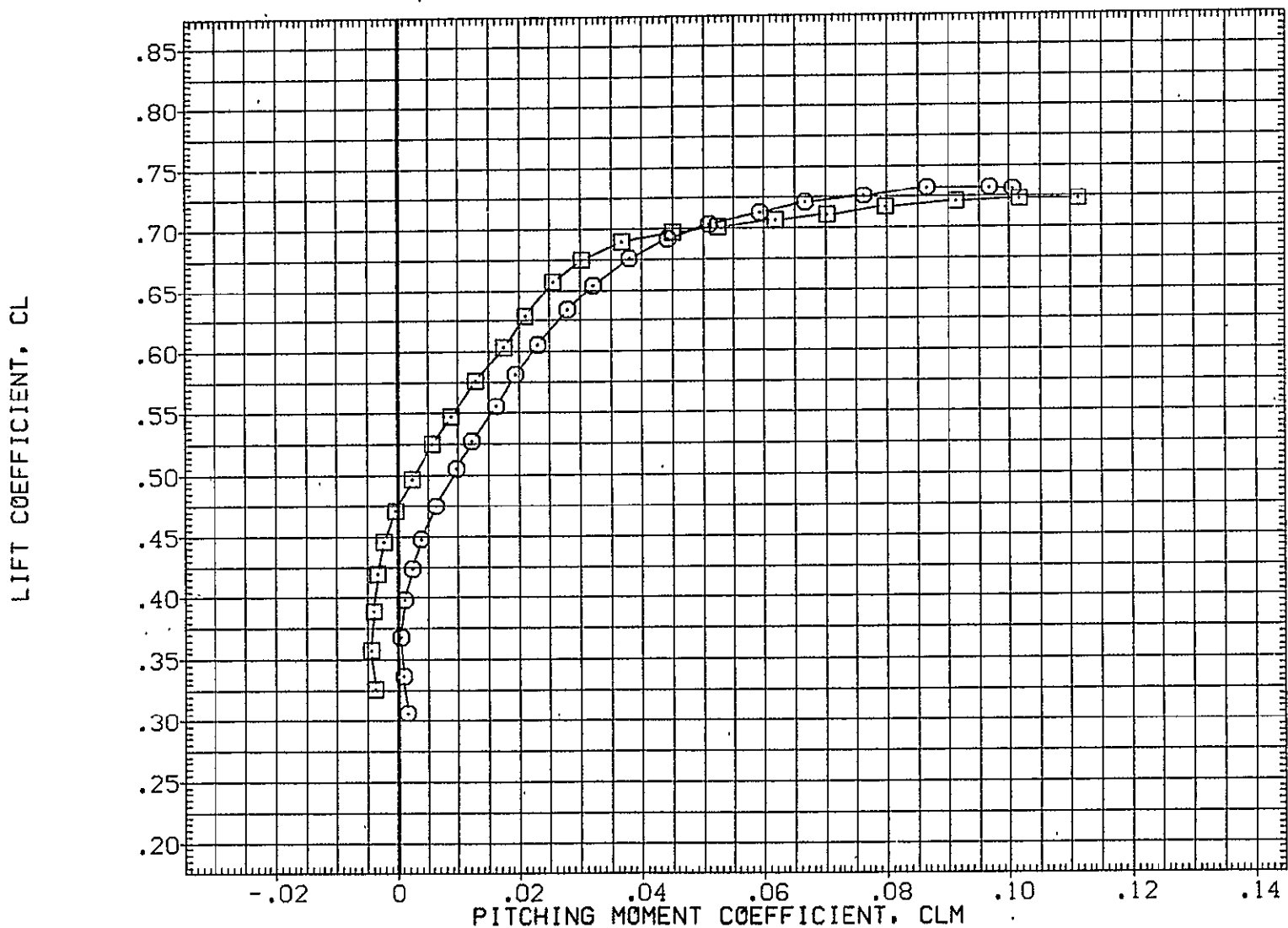


FIG. 49 747+0RB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, 0RB ELEVON=5 DEG

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.499	RUD-U	.000	ELV-1B	.000	LREF	474.8100	IN.
□	.600	ELV-0B	3.000	S1-2	.000	BREF	936.6800	IN.
		S3-4	45.000	S5-6	20.000	XMRP	1109.0000	IN. X0
		IORB	7.850	ORBELV	5.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

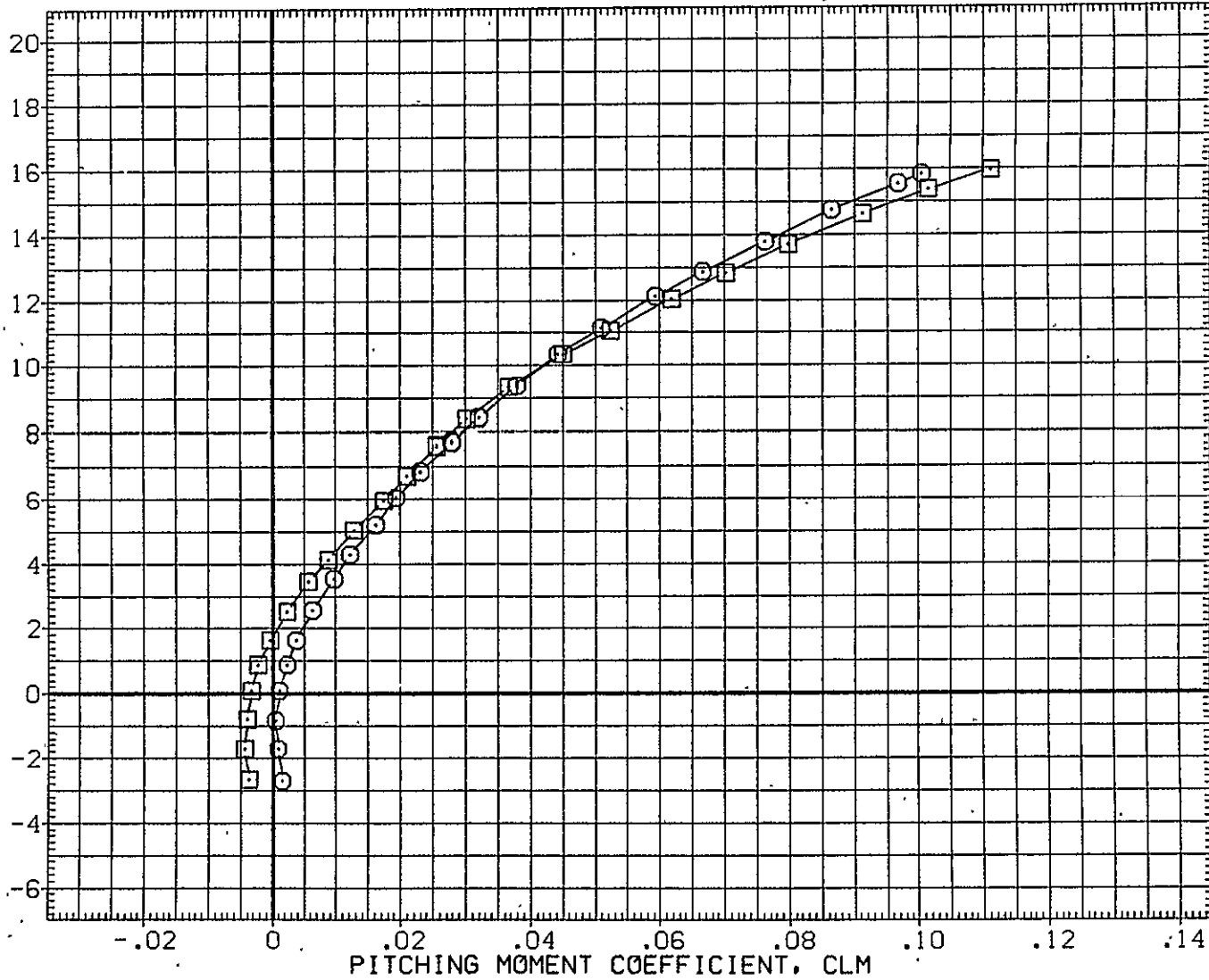


FIG. 49 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, ORB ELEVON=5 DEG

CA5 K1 FO H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM090)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
◇	.600	ELV-OB	3.000	S1-2	.000	BREF	2348.0000	IN.
△	.700	S3-4	.000	S5-6	.000	XMRP	1339.9100	IN. XC
		IORB	7.850	ORBELV	.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

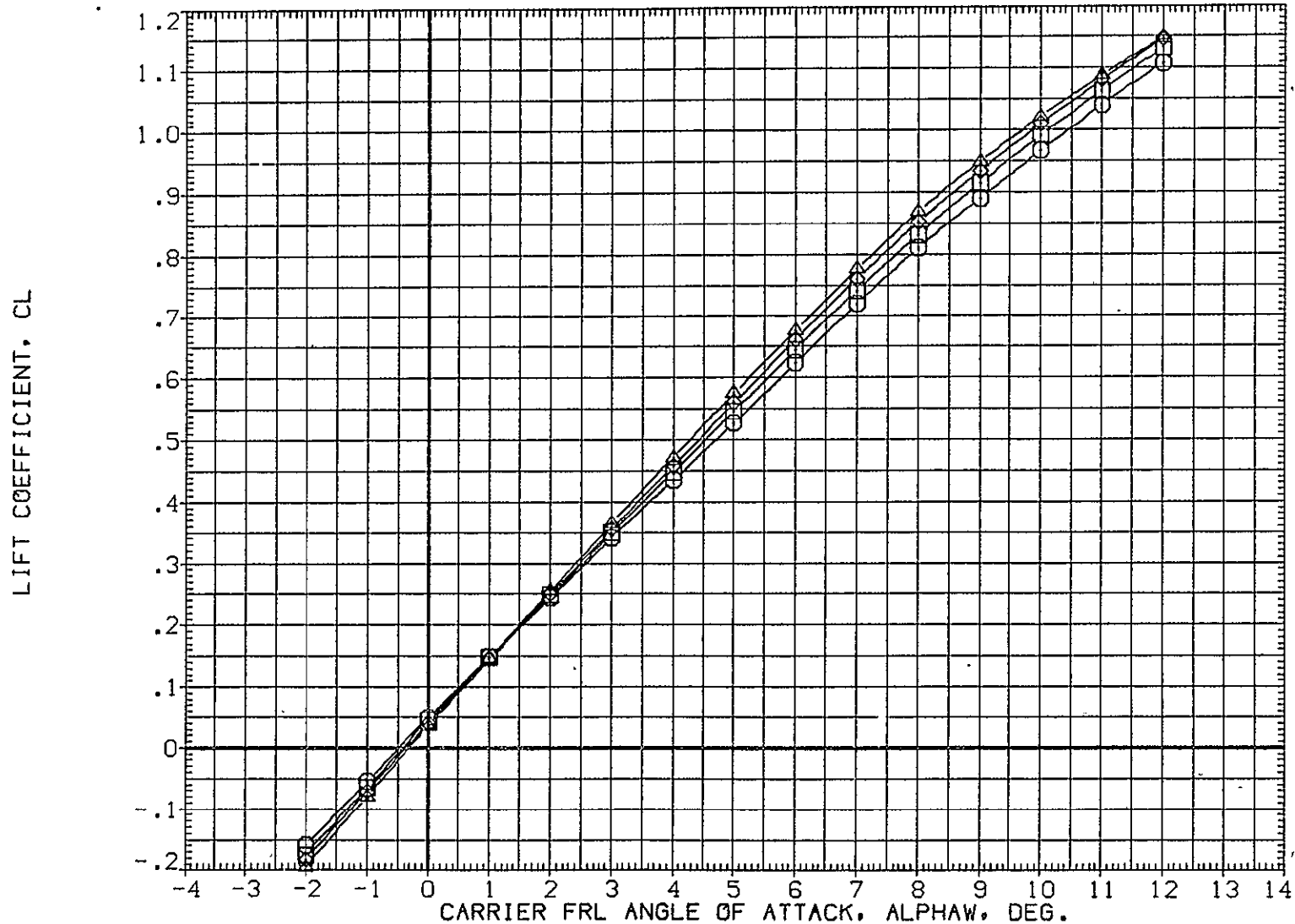


FIG. 50 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

TOTAL



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
◇	.600	ELV-OB	3.000	S1-2	.000	BREF	2348.0000	IN.
△	.700	S3-4	.000	S5-6	.000	XMRP	1339.9100	IN. XC
		IORB	7.850	ORBELV	.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

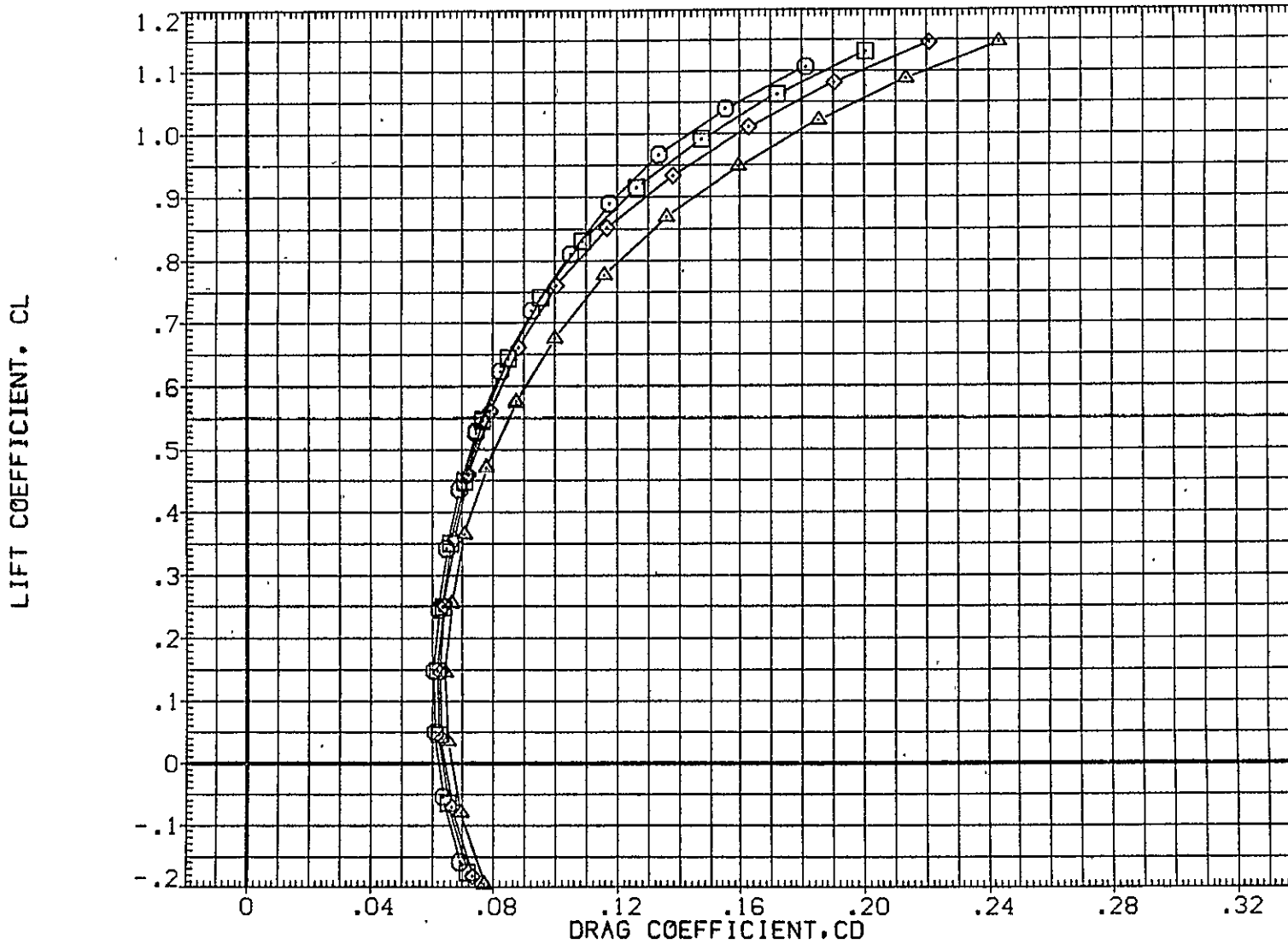


FIG. 50 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM090)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
◇	.600	ELV-0B	3.000	S1-2	.000	BREF	2348.0000	IN.
△	.700	S3-4	.000	S5-6	.000	XMRP	1339.9100	IN. XC
		IORB	7.850	ORBELV	.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

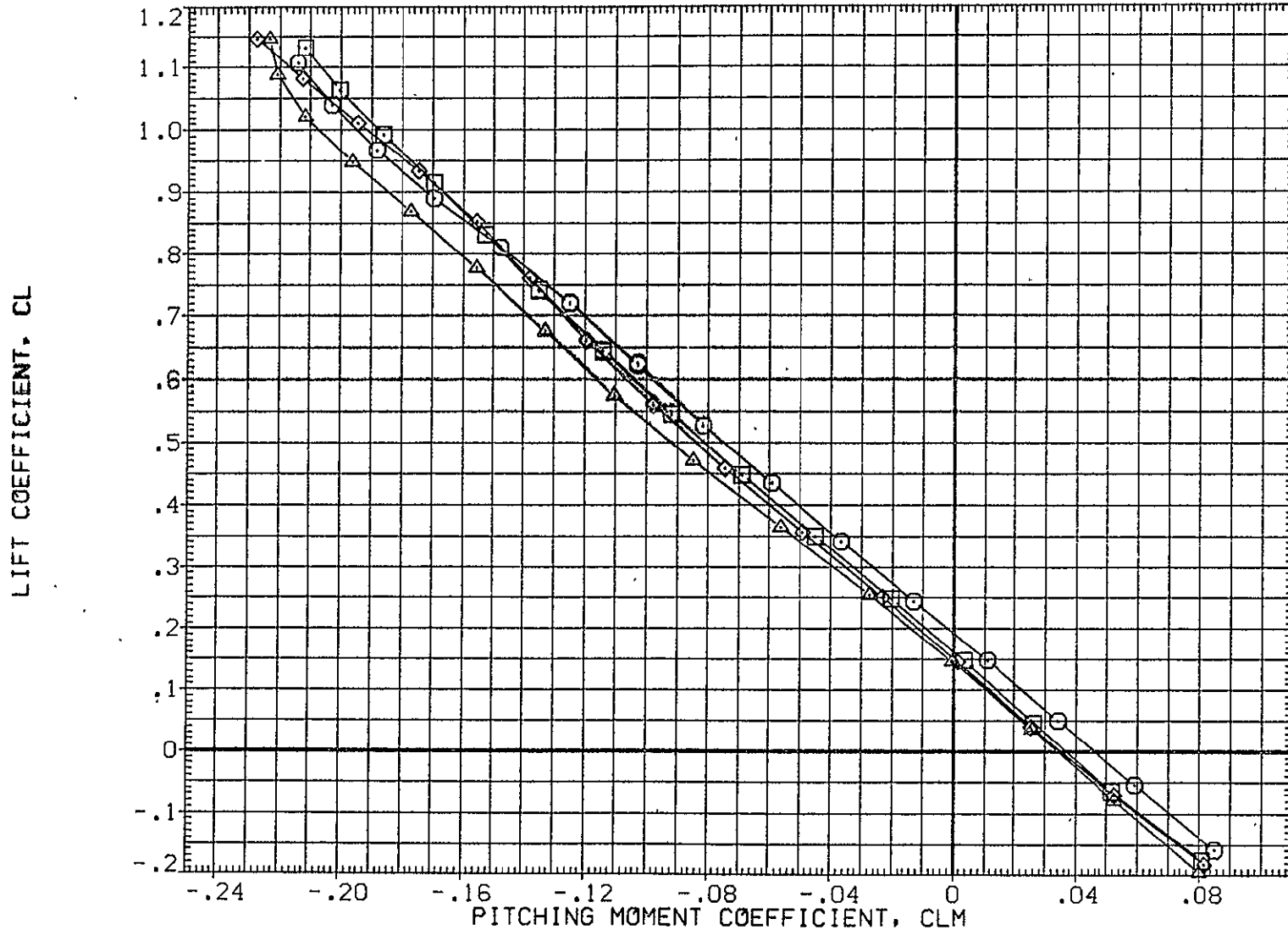


FIG. 50 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

4-7

SYMBOL  
 ○  
 ◊  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	1.000
.500	RUD-U	.000	ELV-1B	.000
.600	ELV-OB	3.000	SI-2	.000
.700	S3-4	.000	S5-6	.000
	ICRB	7.850	ORBELV	.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

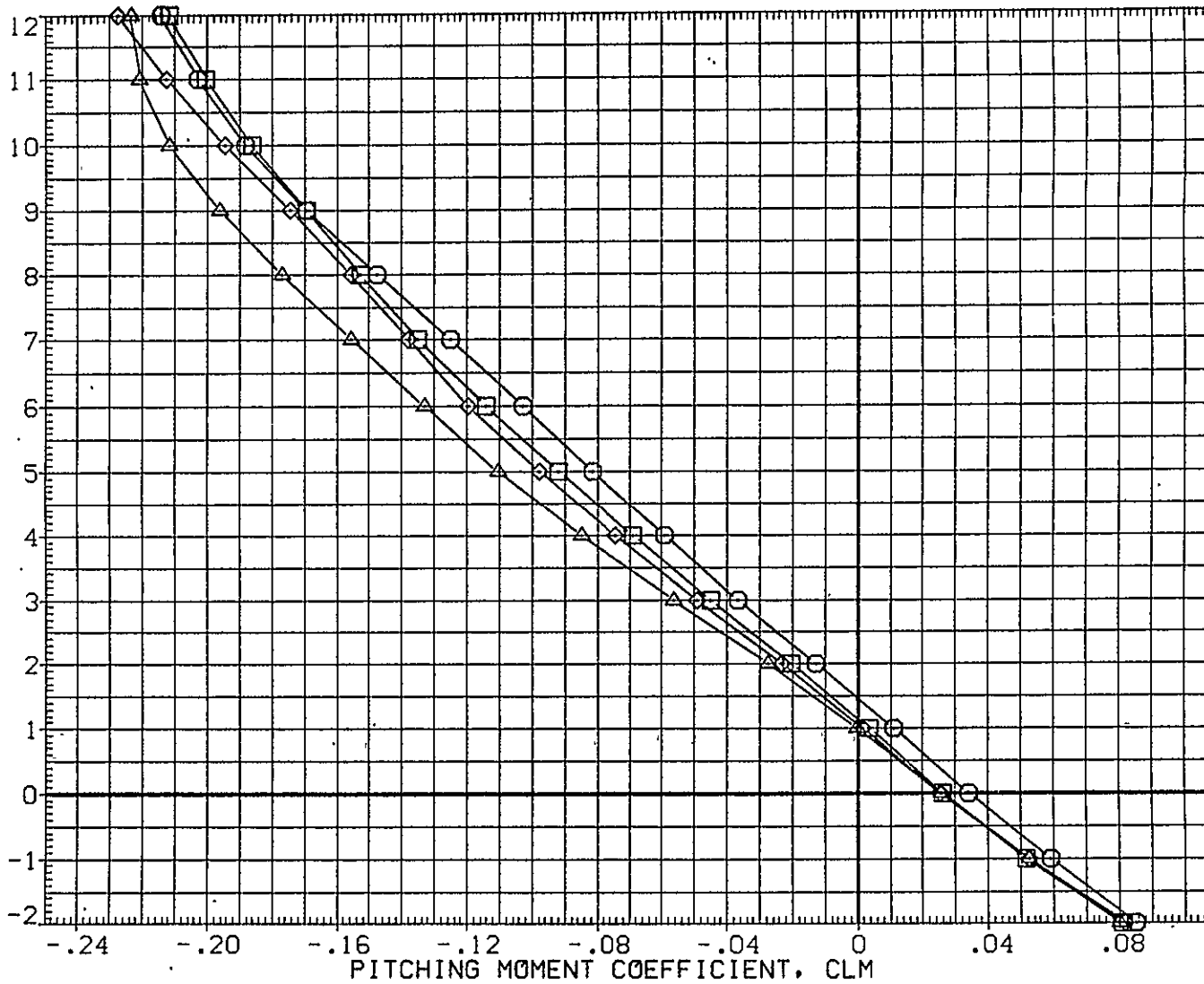


FIG. 50 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

TOTAL

PAGE

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CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM090)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	ELV-1B	.000
◇	.600	ELV-0B	3.000	S1-2	.000
△	.700	S3-4	.000	S5-6	.000
		10RB	7.850	ORBELV	.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

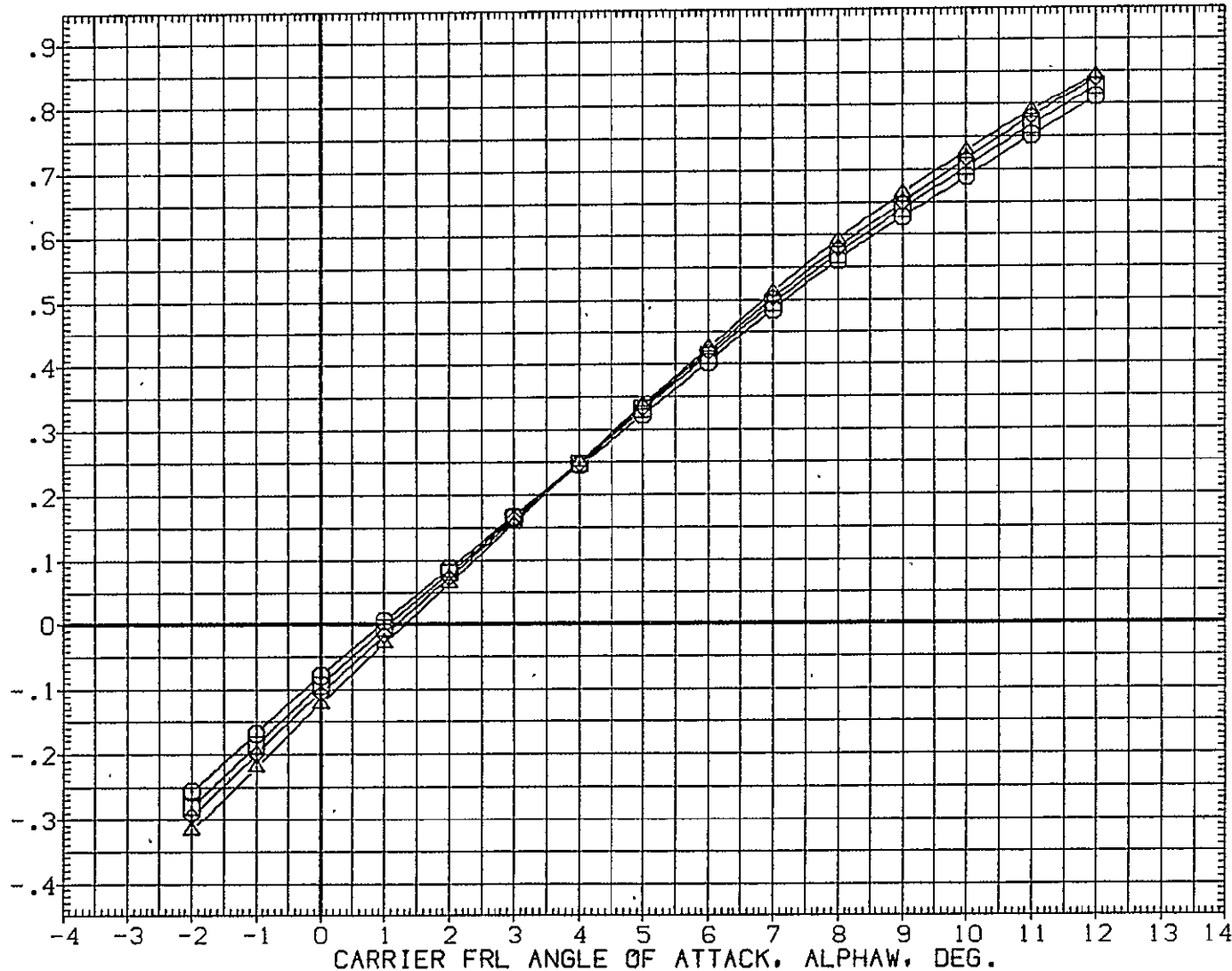


FIG. 51 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

SYMBOL		MACH	PARAMETRIC VALUES			REFERENCE INFORMATION			
○		.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□		.500	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
◇		.600	ELV-OB	.3000	S1-2	.000	BREF	2348.0000	IN.
△		.700	S3-4	.000	S5-6	.000	XMRP	1339.9100	IN. XC
			10RB	7.850	ORBELV	.000	YMRP	.0000	IN. YC
							ZMRP	180.7500	IN. ZC
							SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

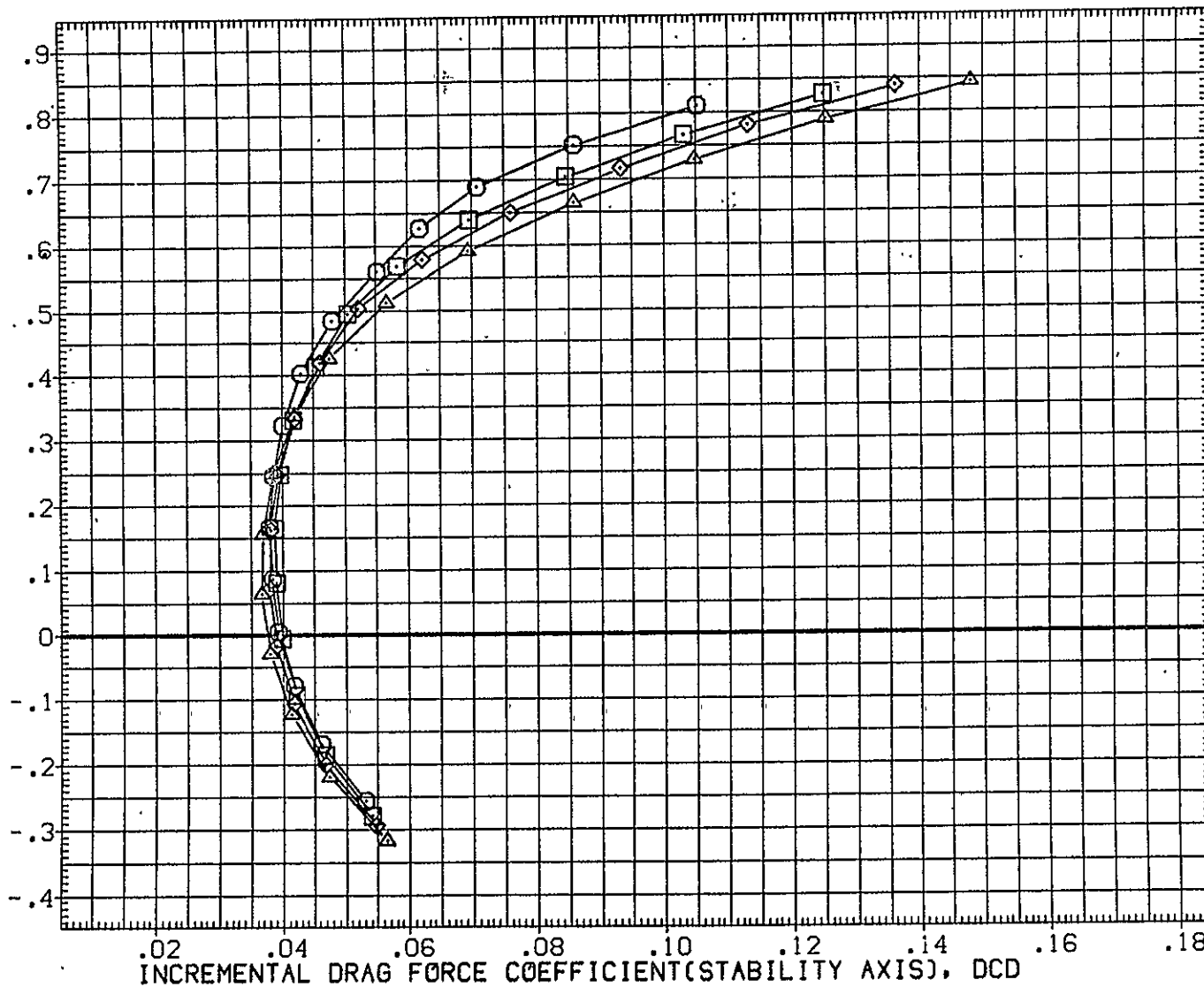


FIG. 51 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM090)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	ELV-1B	.000
◇	.600	ELV-0B	3.000	S1-2	.000
△	.700	S3-4	.000	S5-6	.000
		IORB	7.850	ORBELV	.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

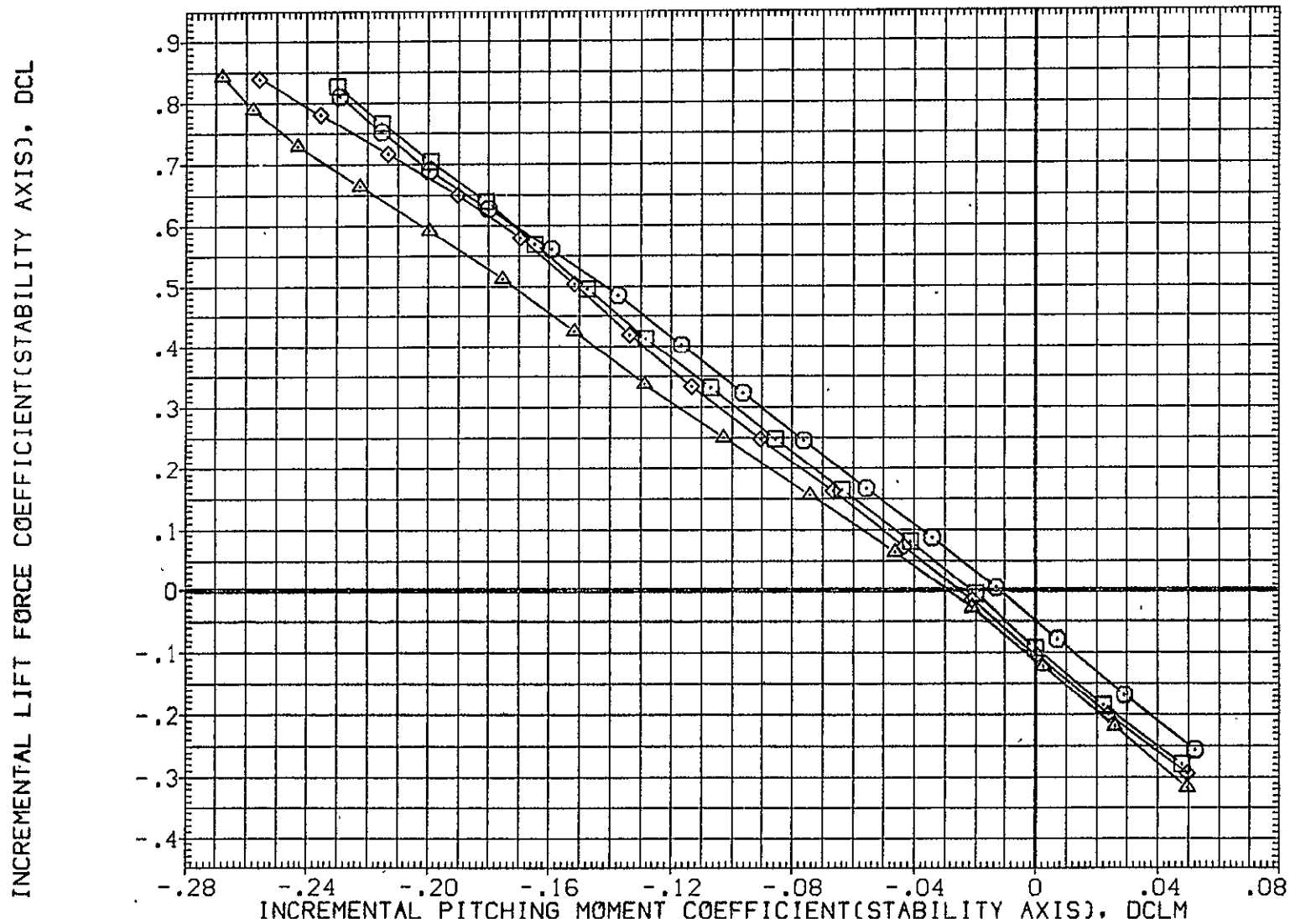


FIG. 51 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SO.FT.
○	.300	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
□	.500	ELV-OB	3.000	S1-2	.000	BREF	2348.0000	IN.
◇	.600	S3-4	.000	S5-6	.000	XMRP	1339.9100	IN. XC
△	.700	IORB	7.850	ORBELV	.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

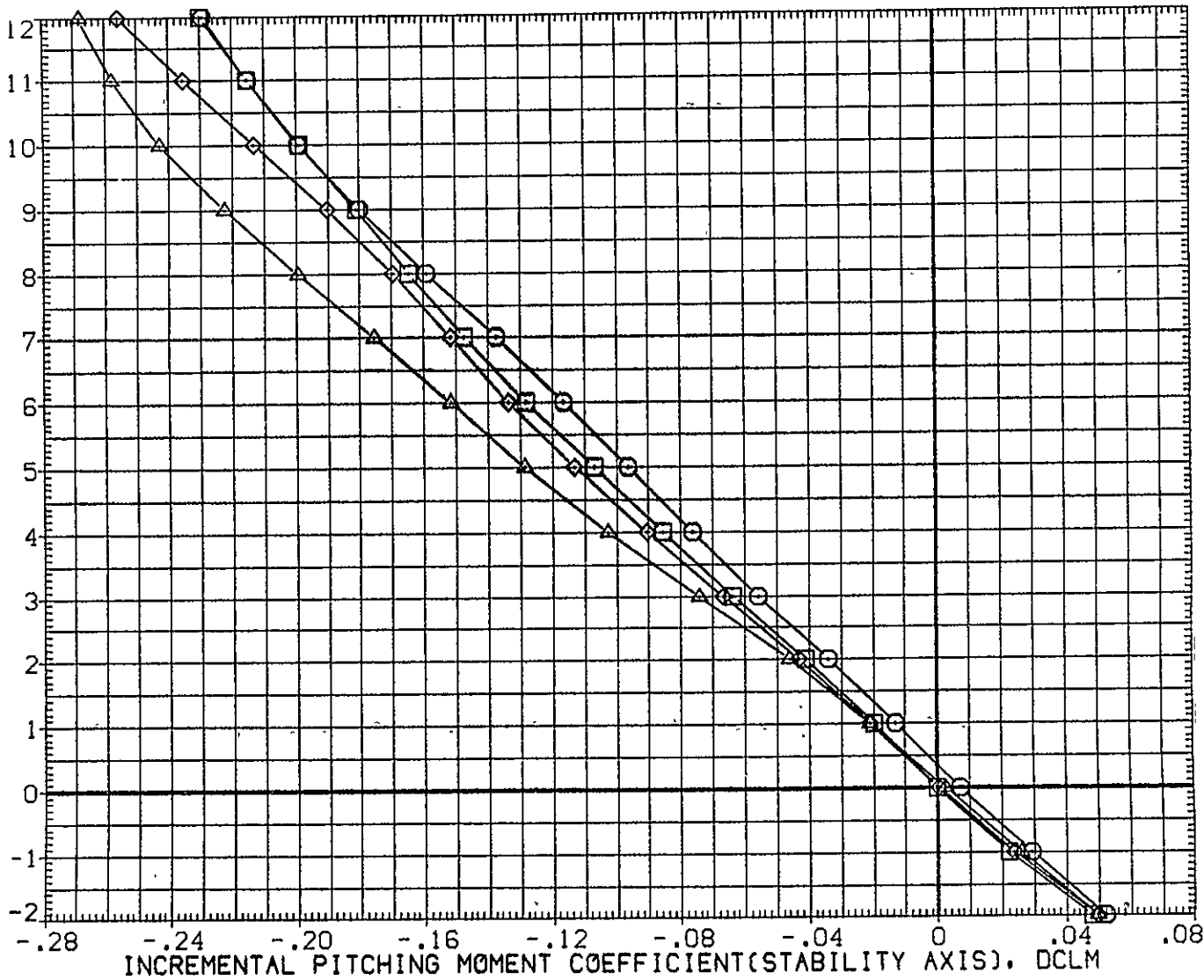


FIG. 51 747+ORB(8 DEG)+TIP FINS; FLAPS UP LAUNCH, NO SPEED BRAKES

CA5 0RB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM090)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	STAB	1.000
□	.501	RUD-U	.000	ELV-1B	.000
◇	.600	ELV-0B	3.000	S1-2	.000
△	.700	S3-4	.000	S5-6	.000
		10RB	7.850	0RBELV	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

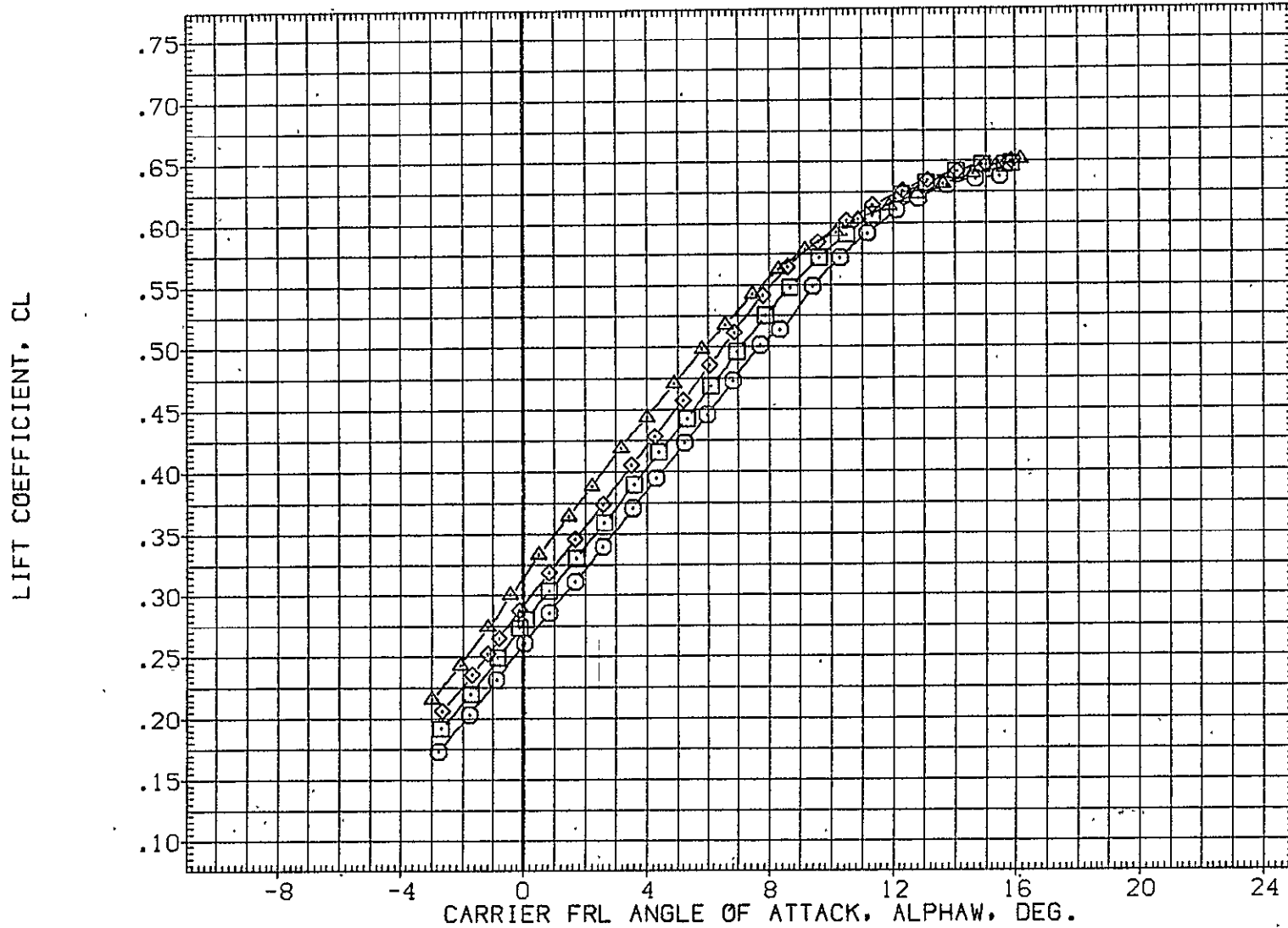


FIG. 52 747+0RB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.301	RUD-U	.000	ELV-1B	.000	LREF	474.8100	IN.
□	.501	ELV-0B	3.000	S1-2	.000	BREF	936.6800	IN.
◇	.600	S3-4	.000	S5-6	.000	XMRP	1109.0000	IN. X0
△	.700	10RB	7.850	0RBELV	.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

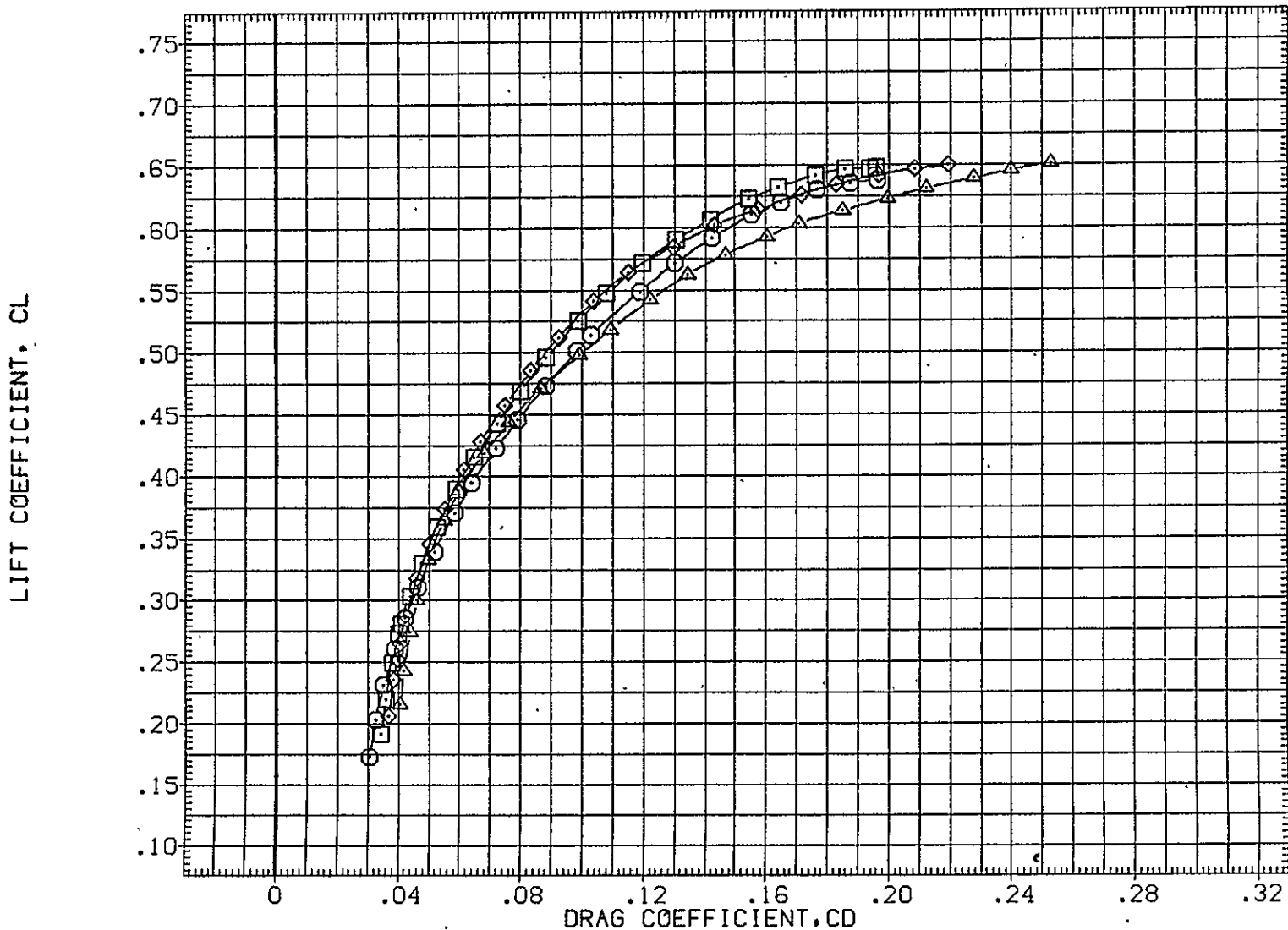


FIG. 52 747+0RB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

0RB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM090)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	STAB	1.000
□	.501	RUD-U	.000	ELV-1B	.000
◇	.600	ELV-OB	3.000	S1-2	.000
△	.700	S3-4	.000	SS-6	.000
		IORB	7.850	ORBELV	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

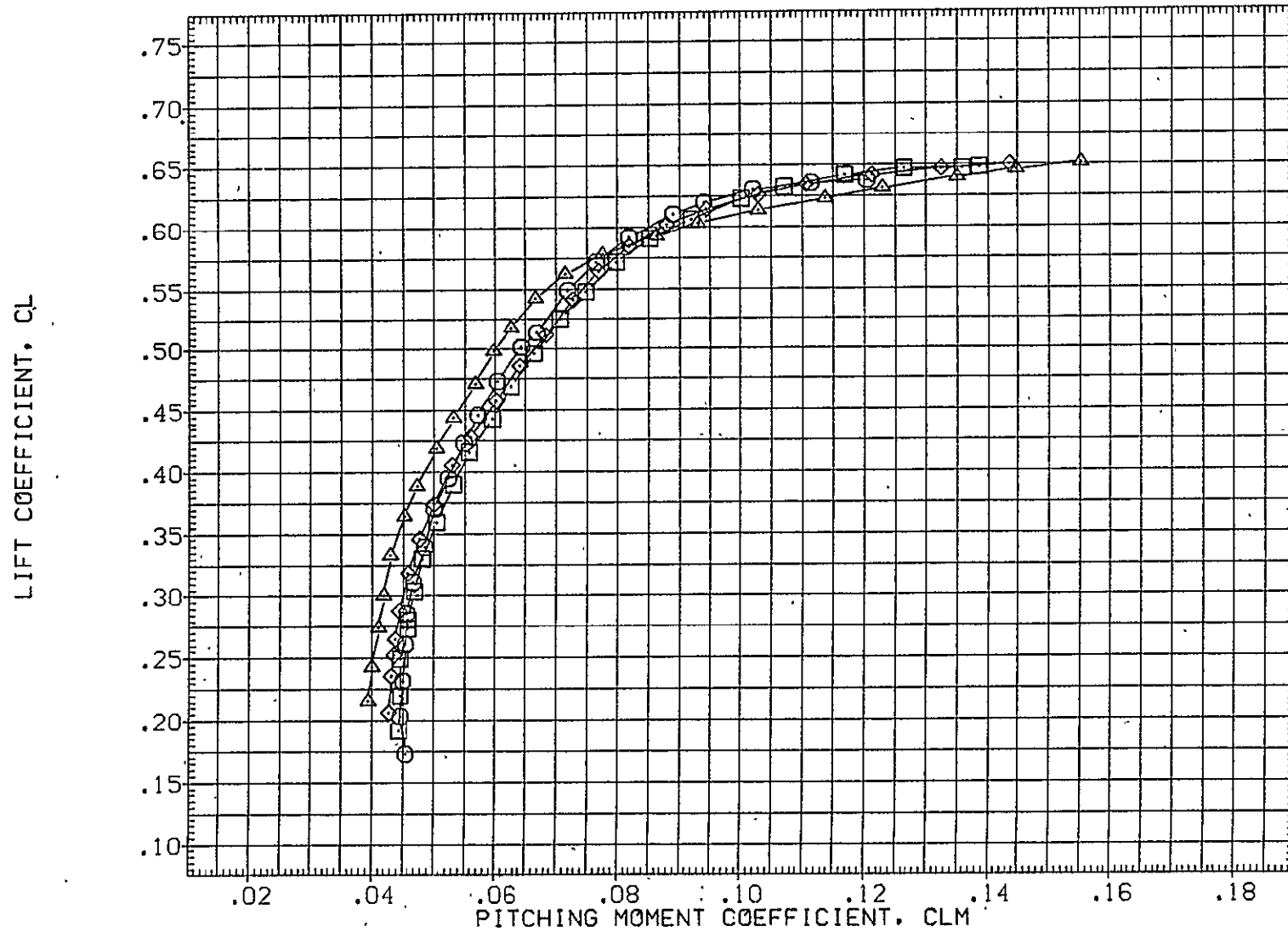


FIG. 52 747+ORB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.301	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.501	RUD-U	.000	ELV-1B	.000	LREF	474.8100	IN.
◇	.600	ELV-0B	3.000	S1-2	.000	BREF	936.6800	IN.
△	.700	S3-4	.000	S5-6	.000	XMRP	1109.0000	IN. X0
		10RB	7.850	0RBELV	.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

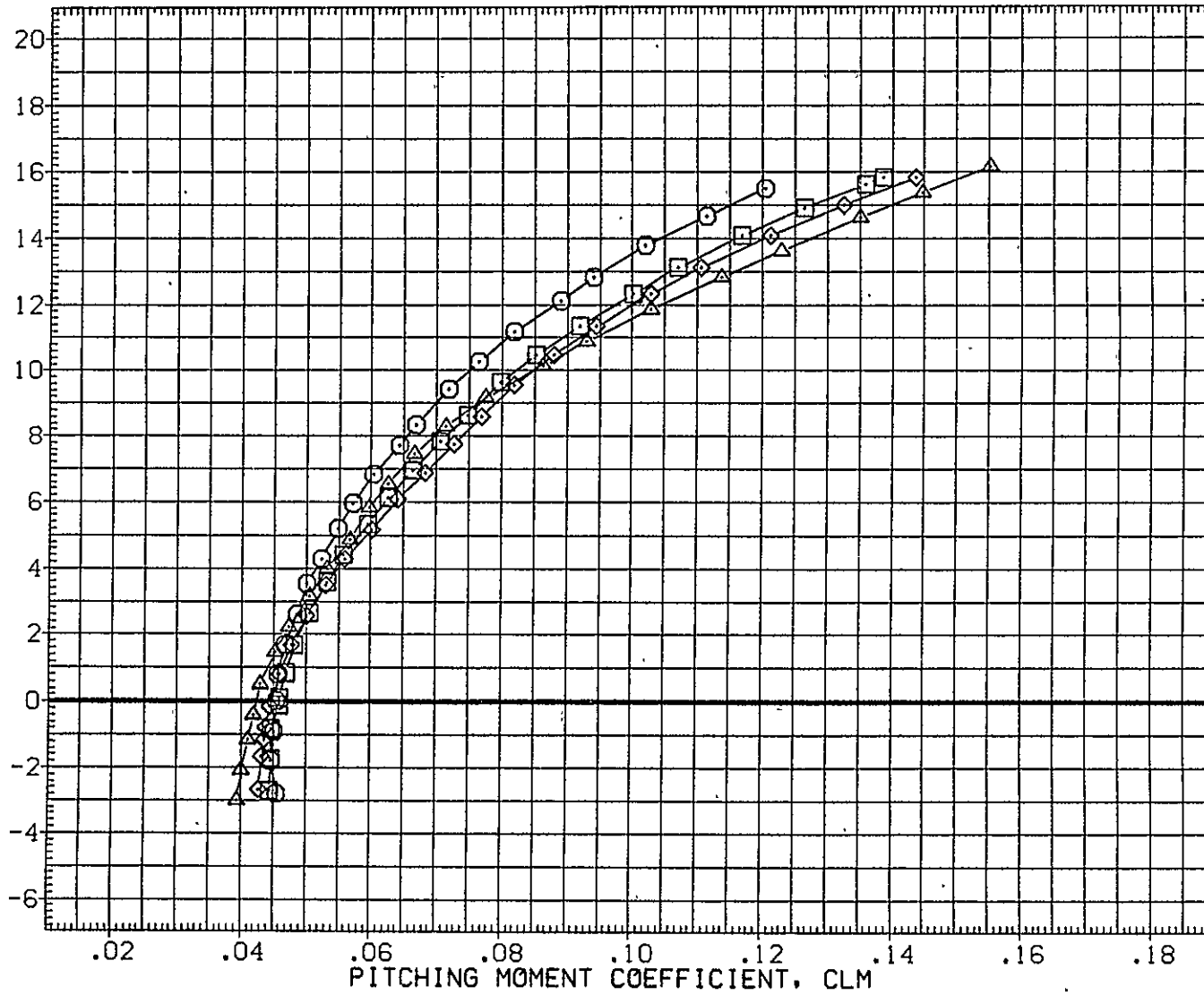


FIG. 52 747+0RB(8 DEG)+TIP FINS, FLAPS UP LAUNCH, NO SPEED BRAKES

0RB

CA5 K1 F0 H15.6 V9.1 (PLUS, 0RB NOZ AT38.2 )(RGM091)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

LIFT COEFFICIENT, CL

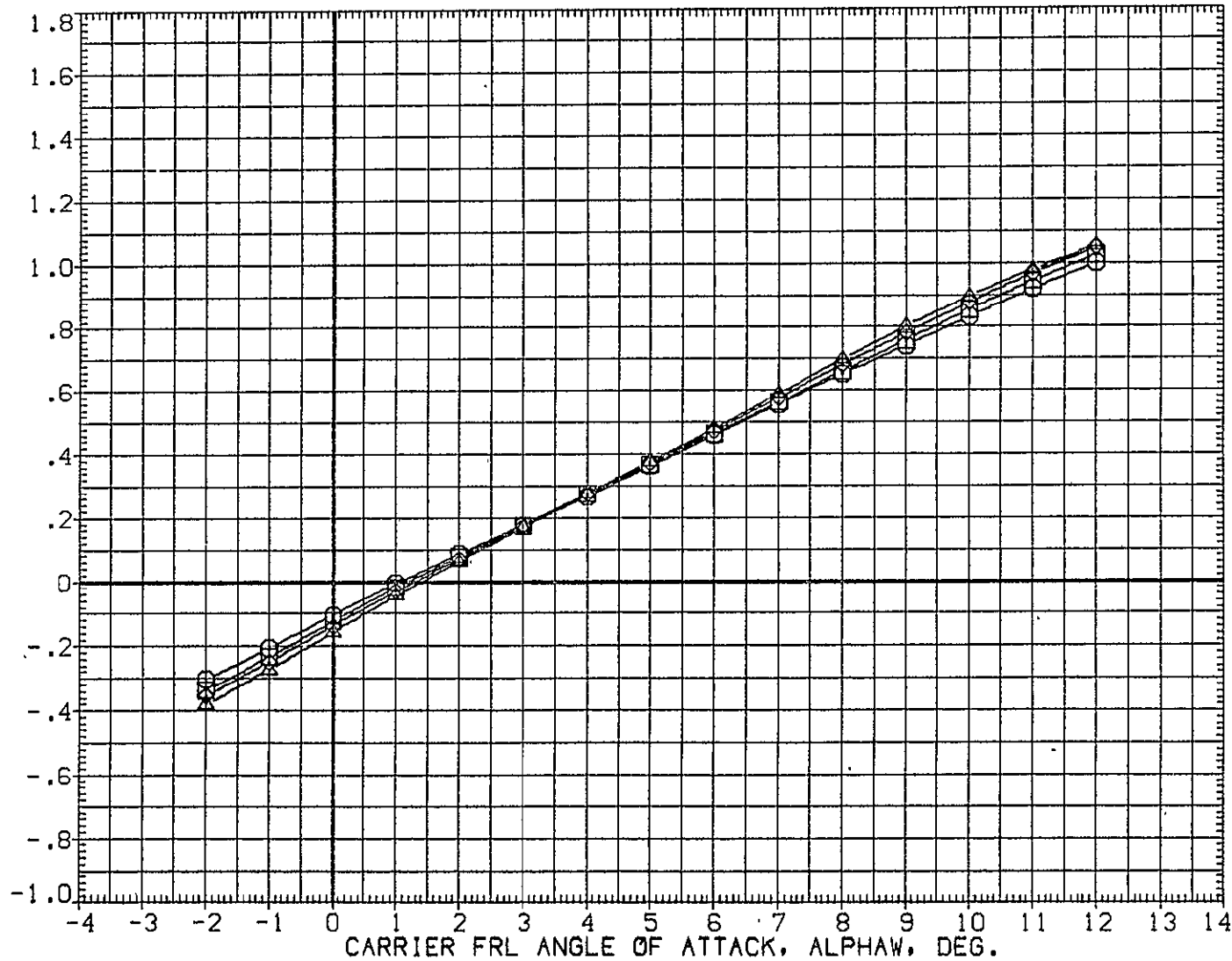


FIG. 53 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF TOTAL PAGE 209

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	-2.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-OB	3.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	IORB	7.850

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

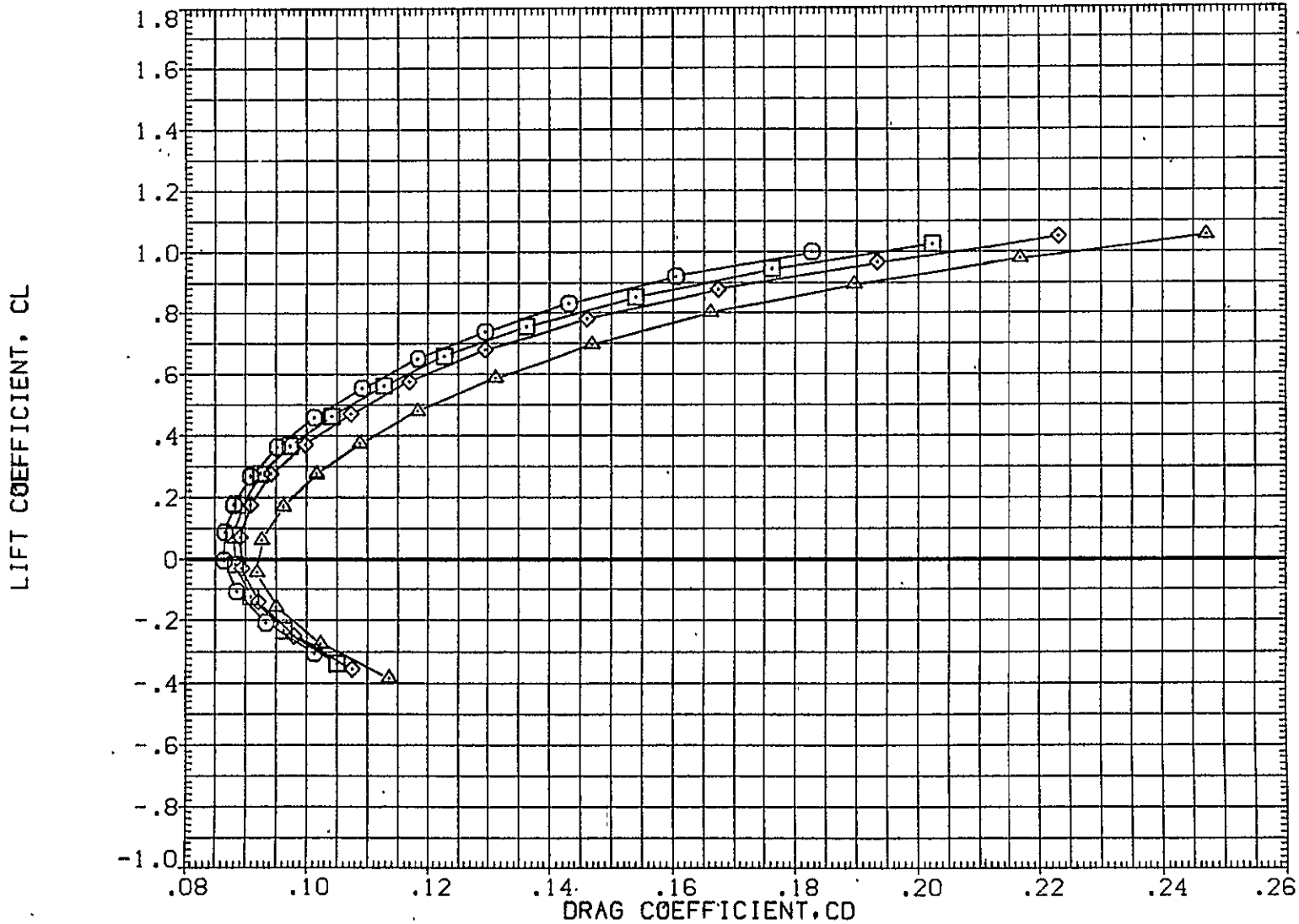


FIG. 53 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP(S=-2) TAIL CONE OFF TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB NOZ AT38.2 )(RGM091)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	50. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.950	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

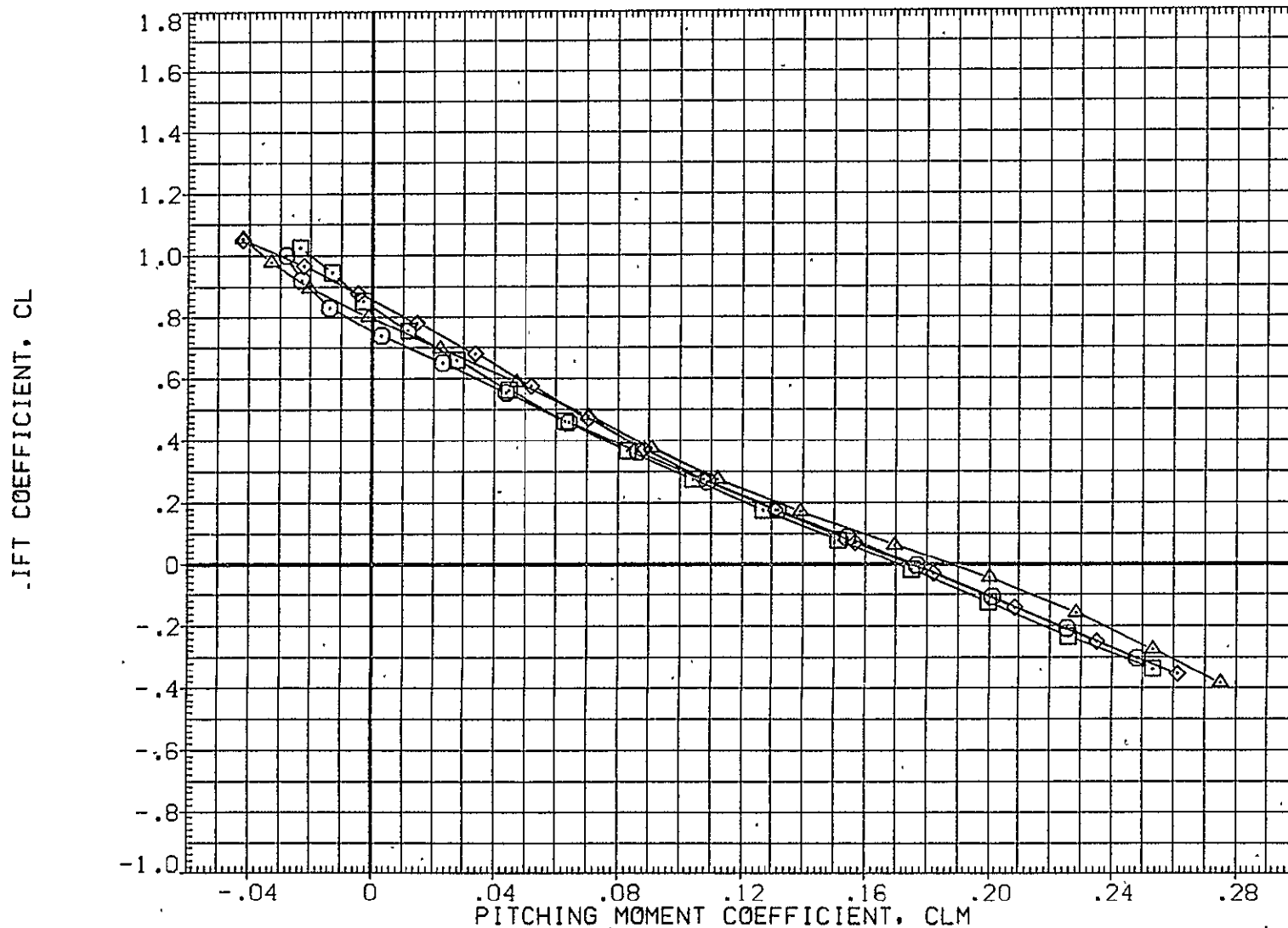


FIG. 53 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YM RP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.



FIG. 53 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF TOTAL

CAS K1 F0 H15.6 V9.1 MINUS 0RB N0Z AT38.2 (BGM091)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT (STABILITY AXIS), DCL

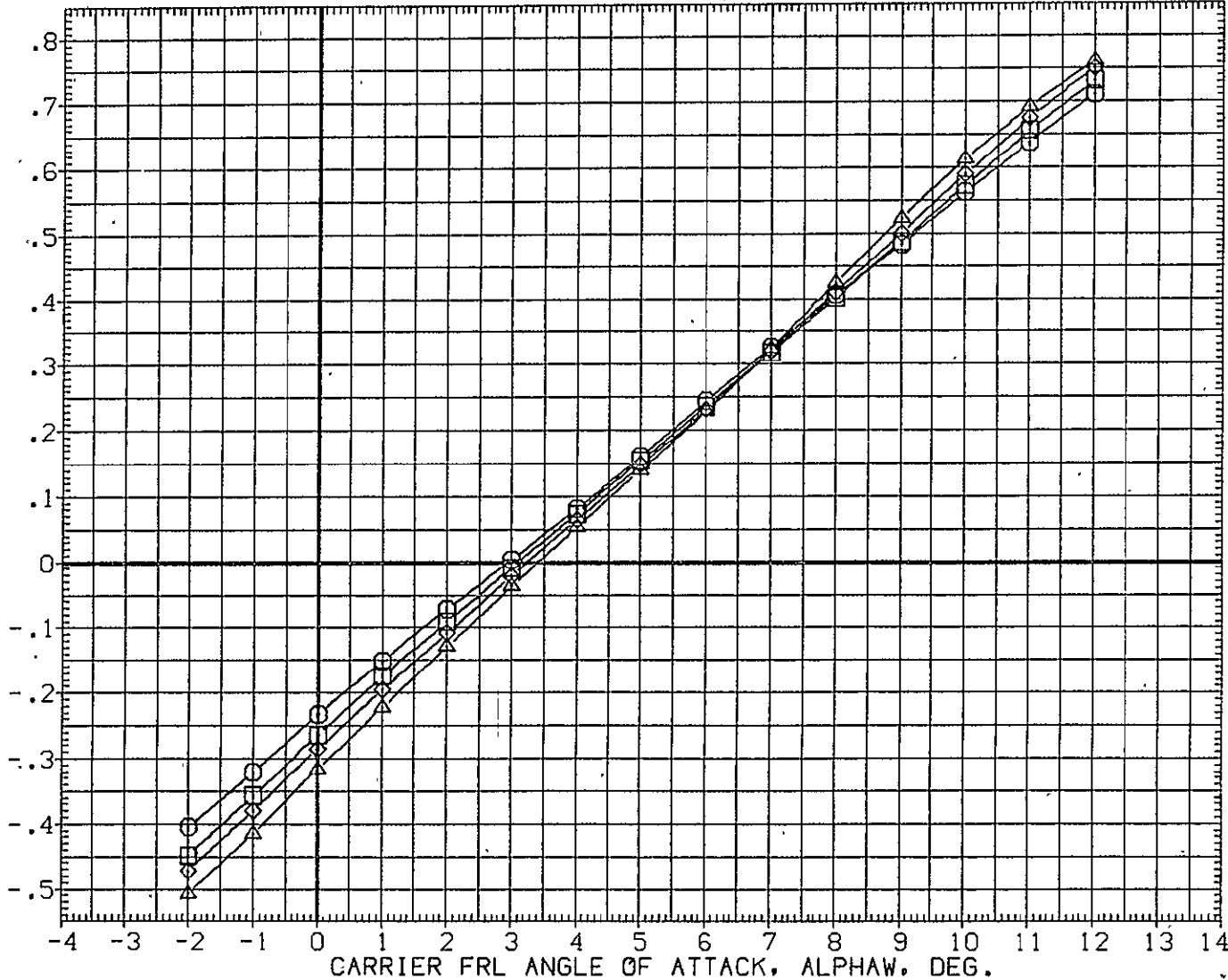


FIG. 54 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF 747



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

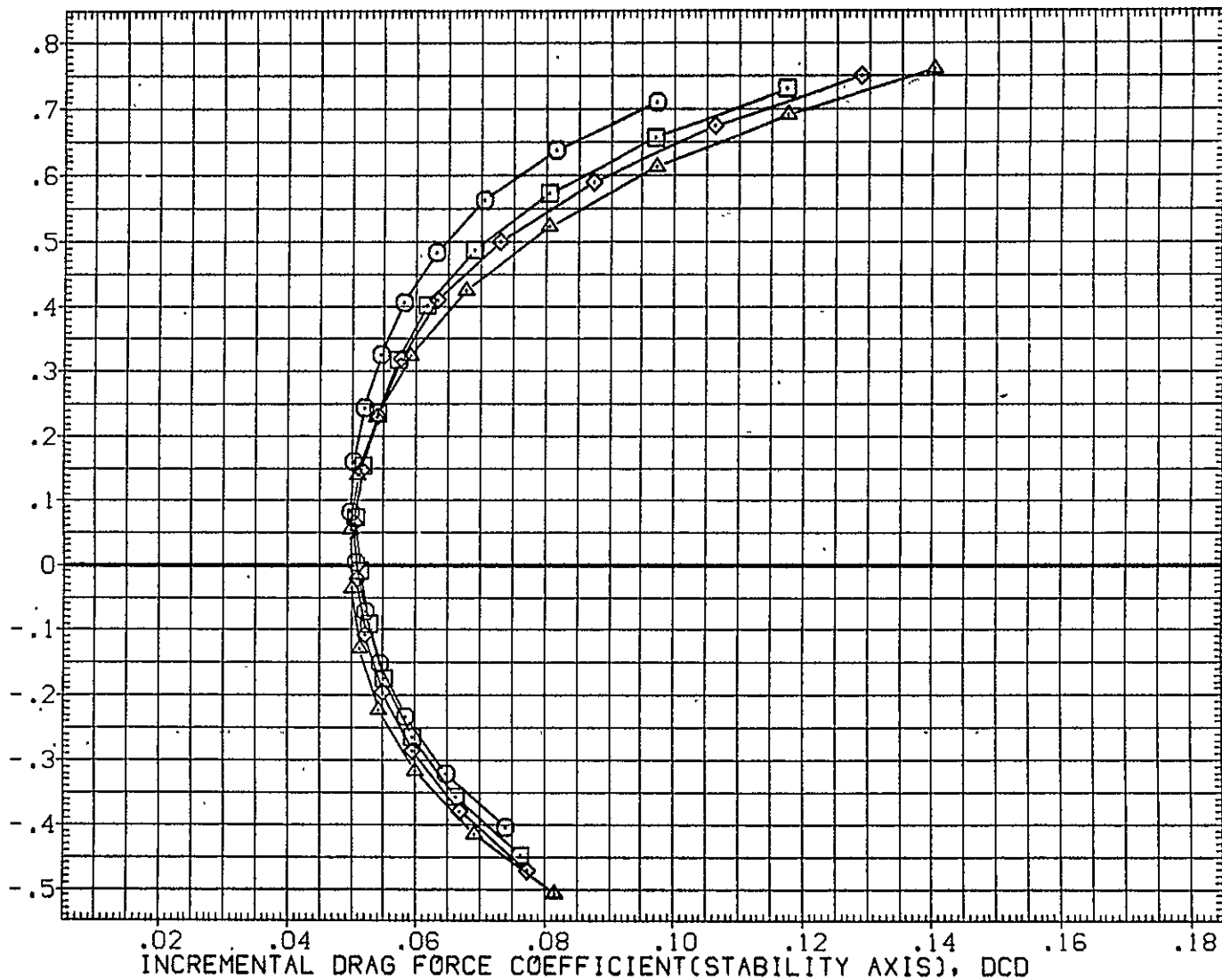


FIG. 54 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF 747

CA5 K1 F0 H15.6 V9.1 MINUS 0RB N0Z AT38.2 (BGM091)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	I0RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

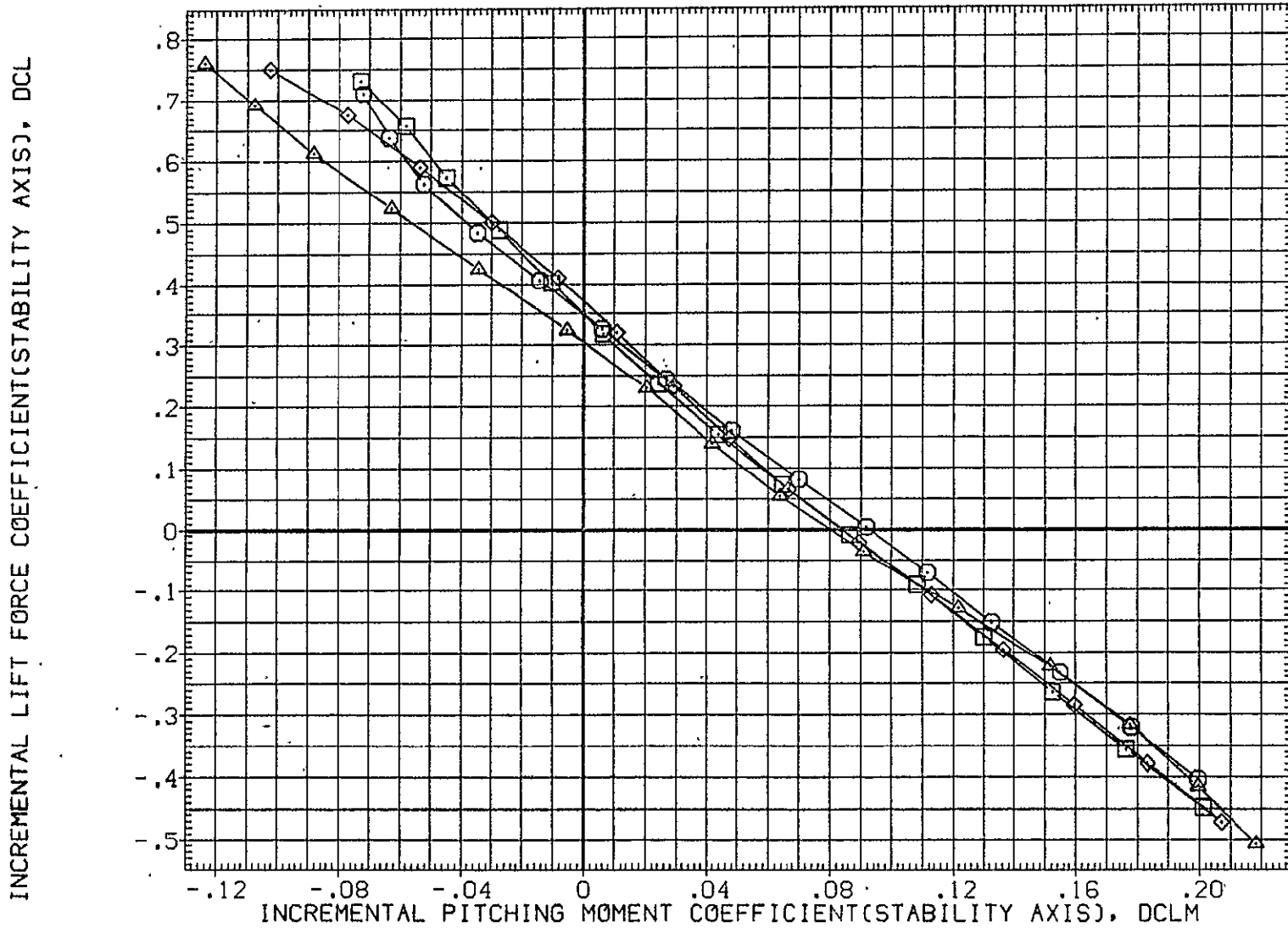


FIG. 54 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	STAB	STAB	SREF	SQ.FT.	SQ.FT.
○	.300	.000	-2.000	.000	.000	5500.0000	IN.	IN.
◇	.500	.000	.000	.000	.000	327.8000	IN.	IN.
□	.600	.000	3.000	.000	.000	2348.0000	IN.	IN.
△	.700	.000	45.000	.000	.000	1339.9100	IN.	IN.
		S1-2	S3-4	S5-6	10RB	YMRP	IN.	IN.
		20.000	7.850			ZMRP	IN.	IN.
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

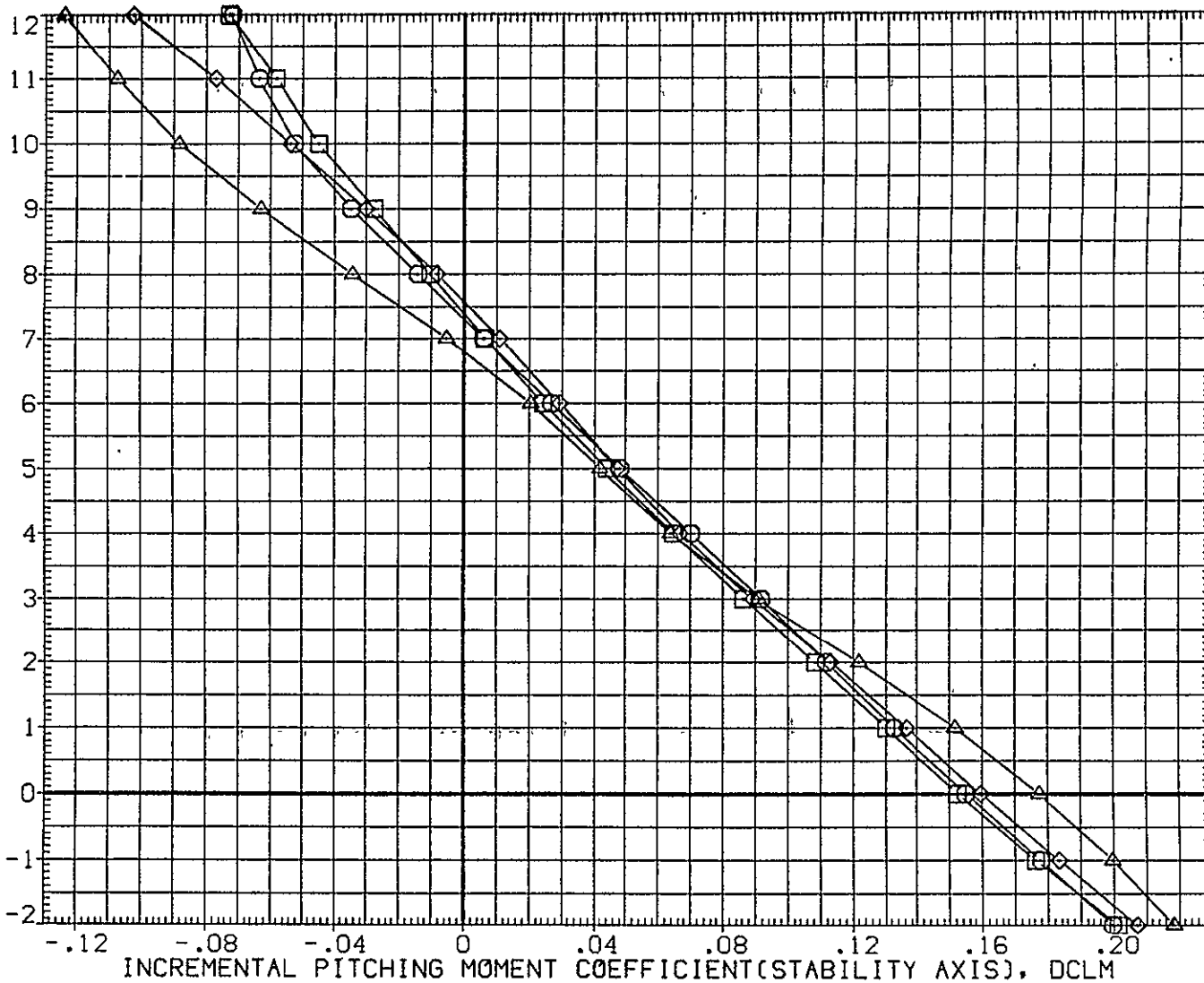


FIG. 54 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF 747

CA5 0RB NOZ AT38.2 (PRES..K1 FO H15.6 V9.1)(YGM091)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.301	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.601	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	.000	S3-4	45.000	XMRP	1109.0000	IN. X0	
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

LIFT COEFFICIENT, CL

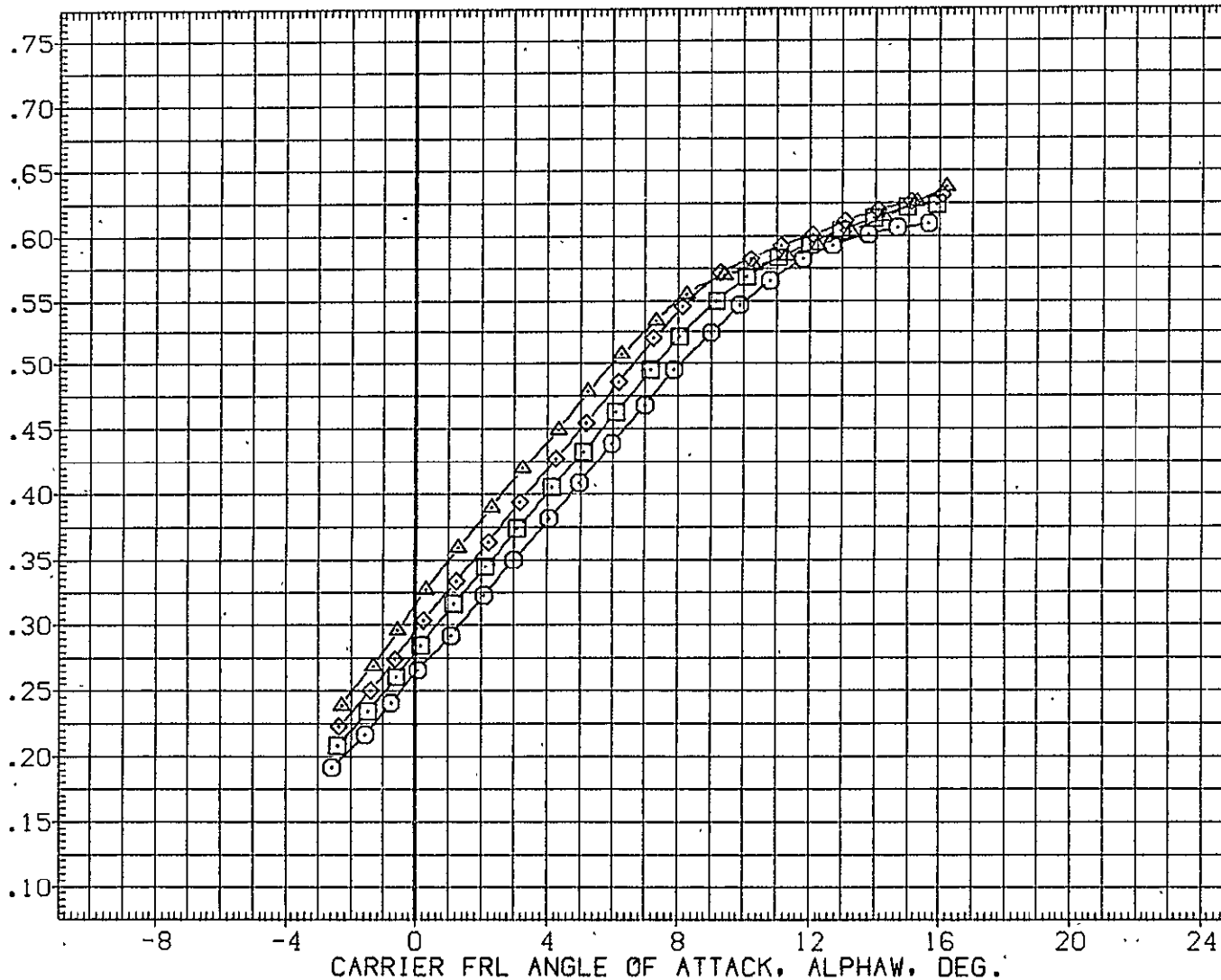


FIG. 55 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF 0RB

SYMBOL  
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MACH	PARAMETRIC VALUES			
.301	BETA	.000	STAB	-2.000
.500	RUD-U	.000	RUD-L	.000
.601	ELV-1B	.000	ELV-0B	3.000
.699	S1-2	.000	S3-4	45.000
	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SO, FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

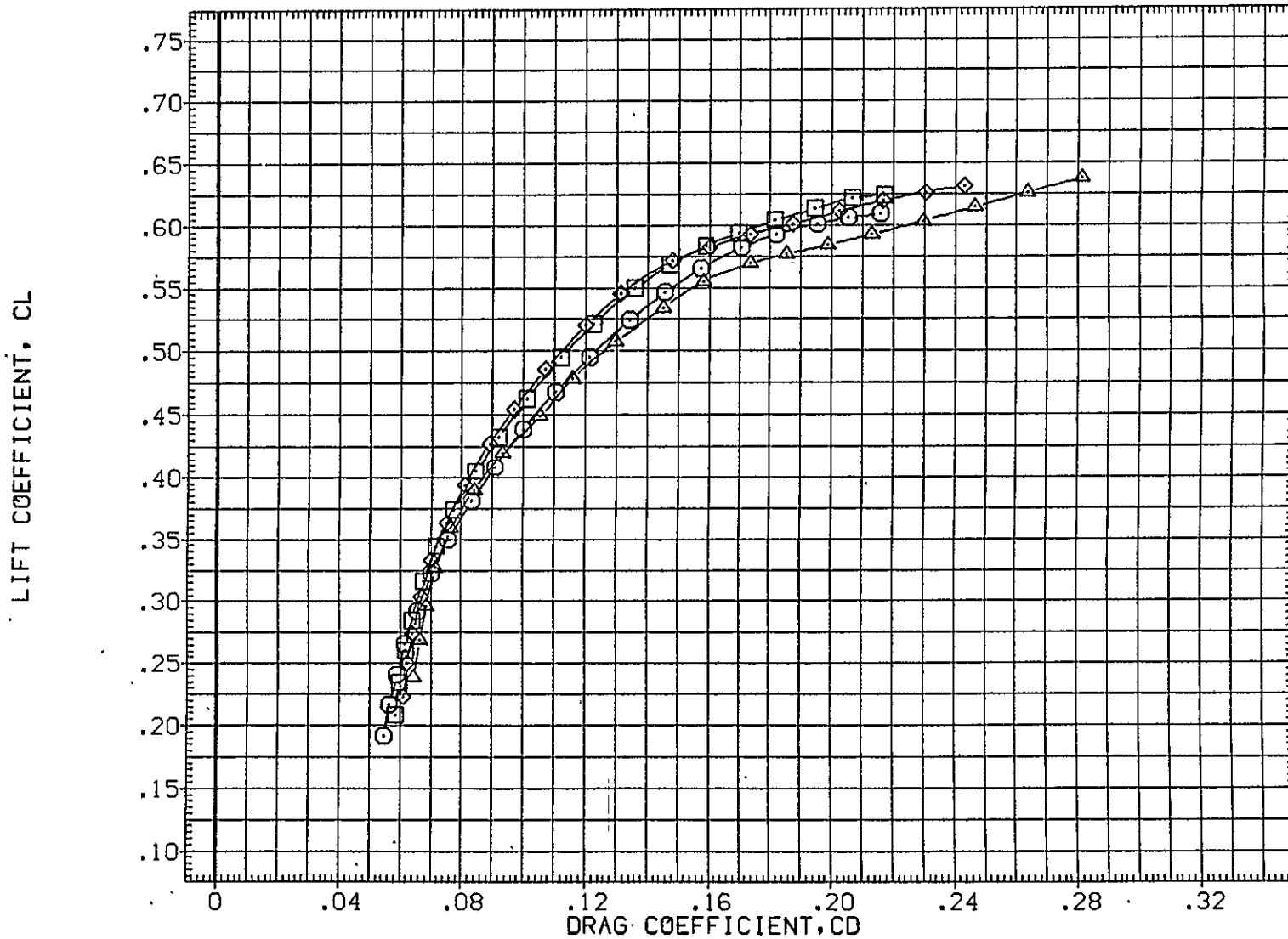


FIG. 55 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP(S=-2) TAIL CONE OFF 0RB

CA5 ORB NOZ AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM091)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.301	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.601	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

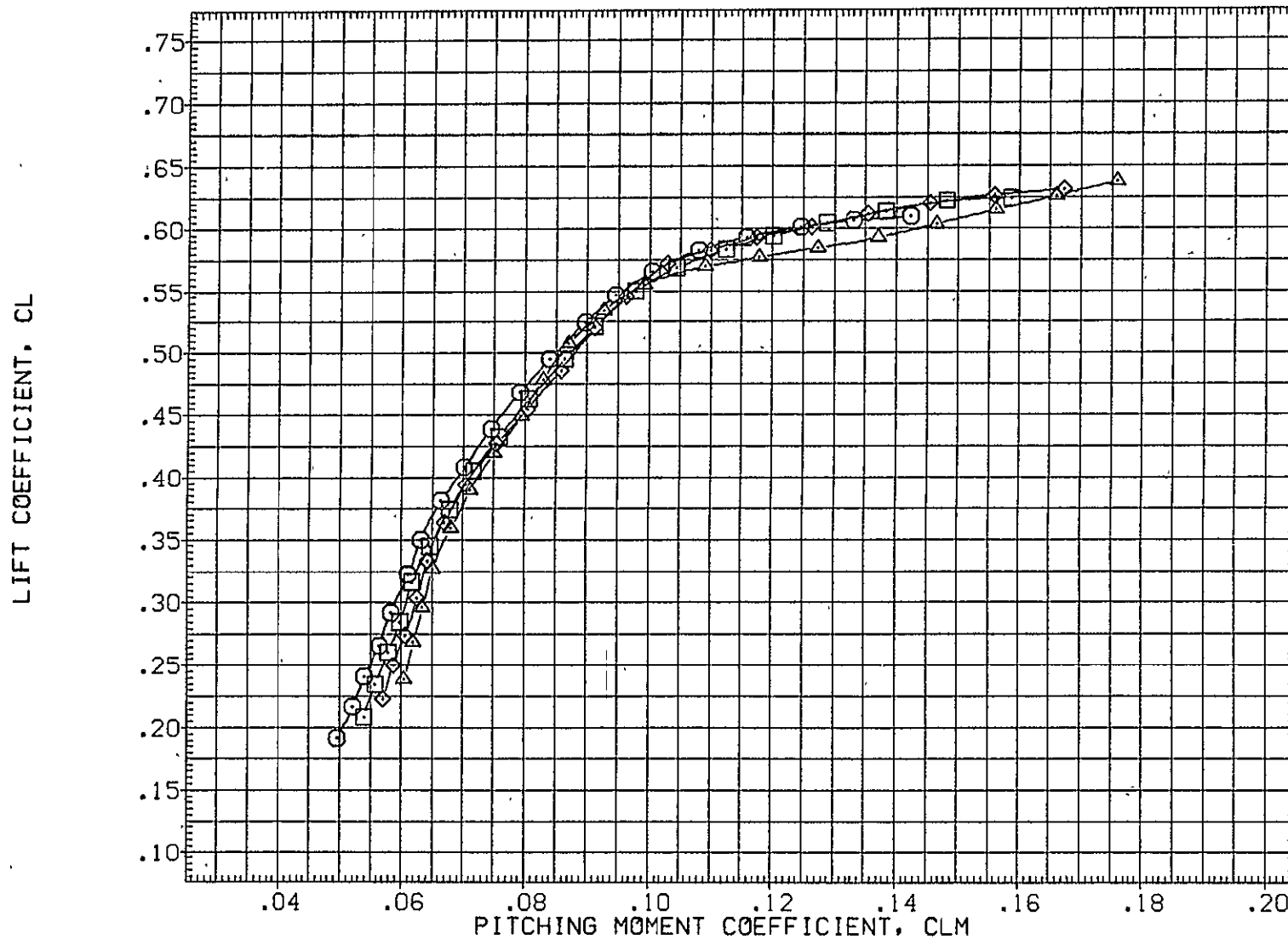


FIG. 55 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP(S=-2) TAIL CONE OFF ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.301	BETA	.000	STAB	-2.000	SREF	2690.0000 SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100 IN.
◇	.601	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800 IN.
△	.699	S1-2	.000	S3-4	45.000	XMRP	1109.0000 IN. X0
		S5-6	20.000	10RB	7.850	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0300

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

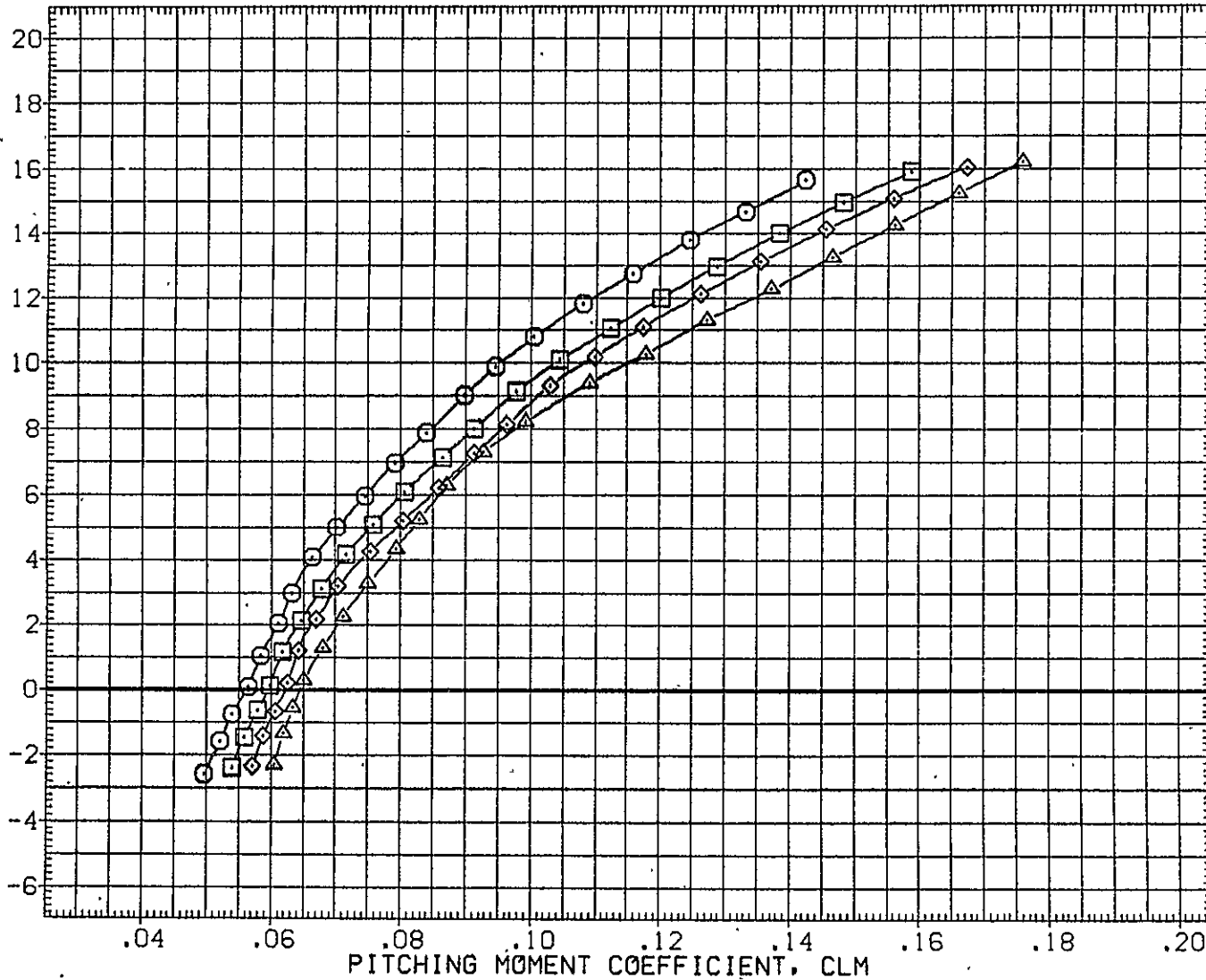


FIG. 55 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP(S=-2) TAIL CONE OFF 0RB

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB NOZ AT38.2 )(RGM092)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

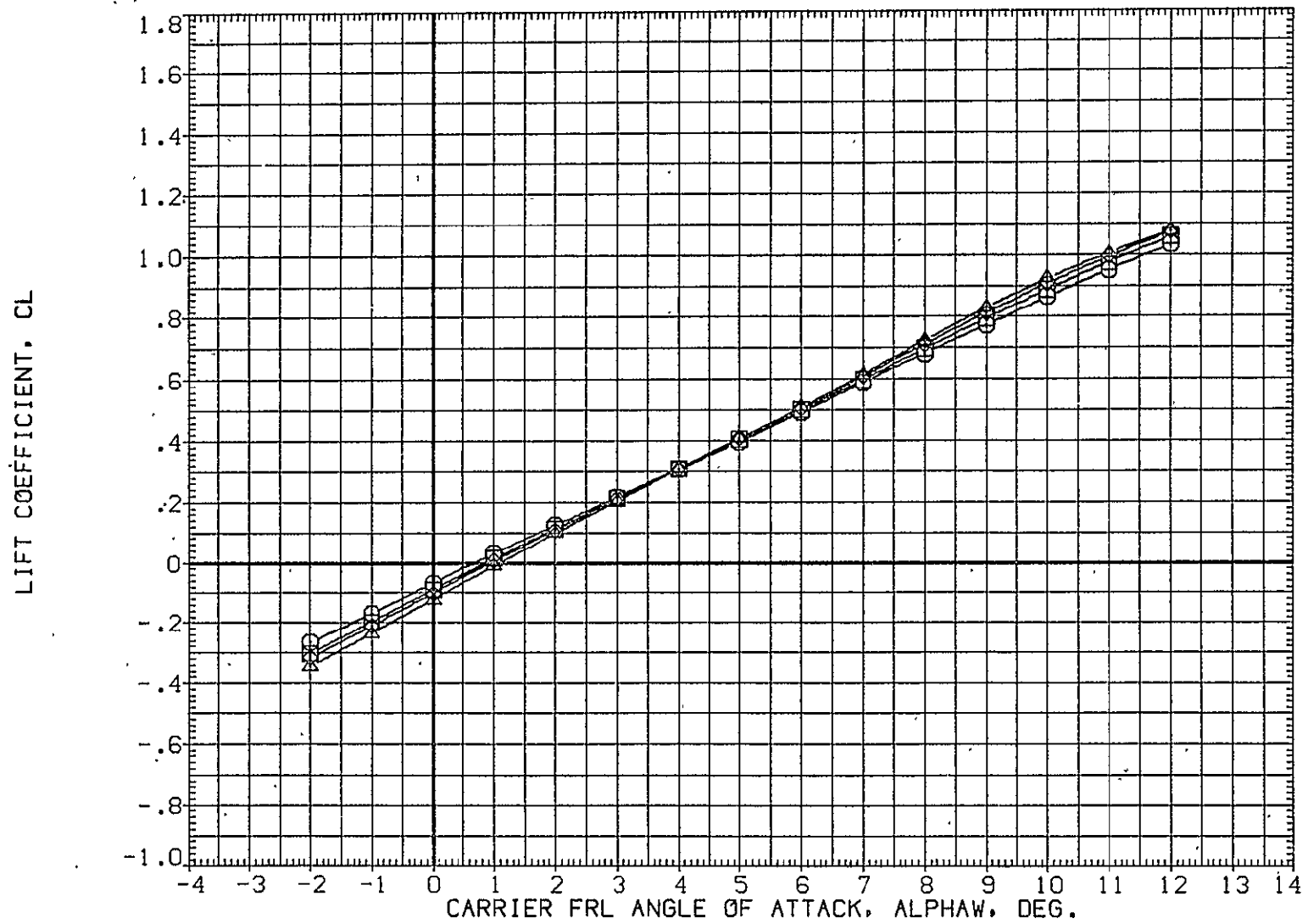


FIG. 56 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH (S=+1)

TOTAL



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

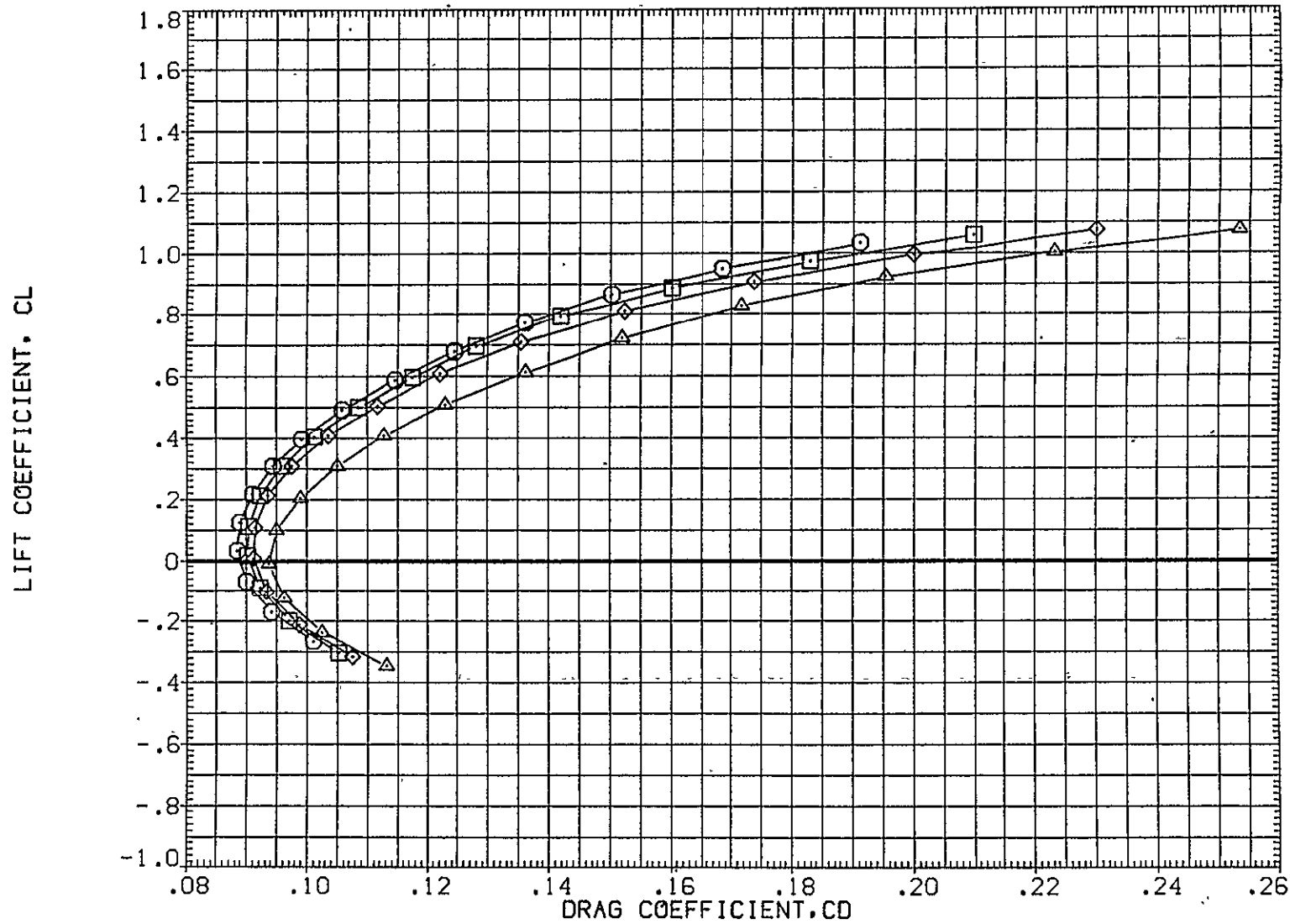


FIG. 56 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH (S=+1)

TOTAL

CA5 K1 FO H15.6 V9.1 (PLUS. ORB NOZ AT38.2 )(RGM092)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

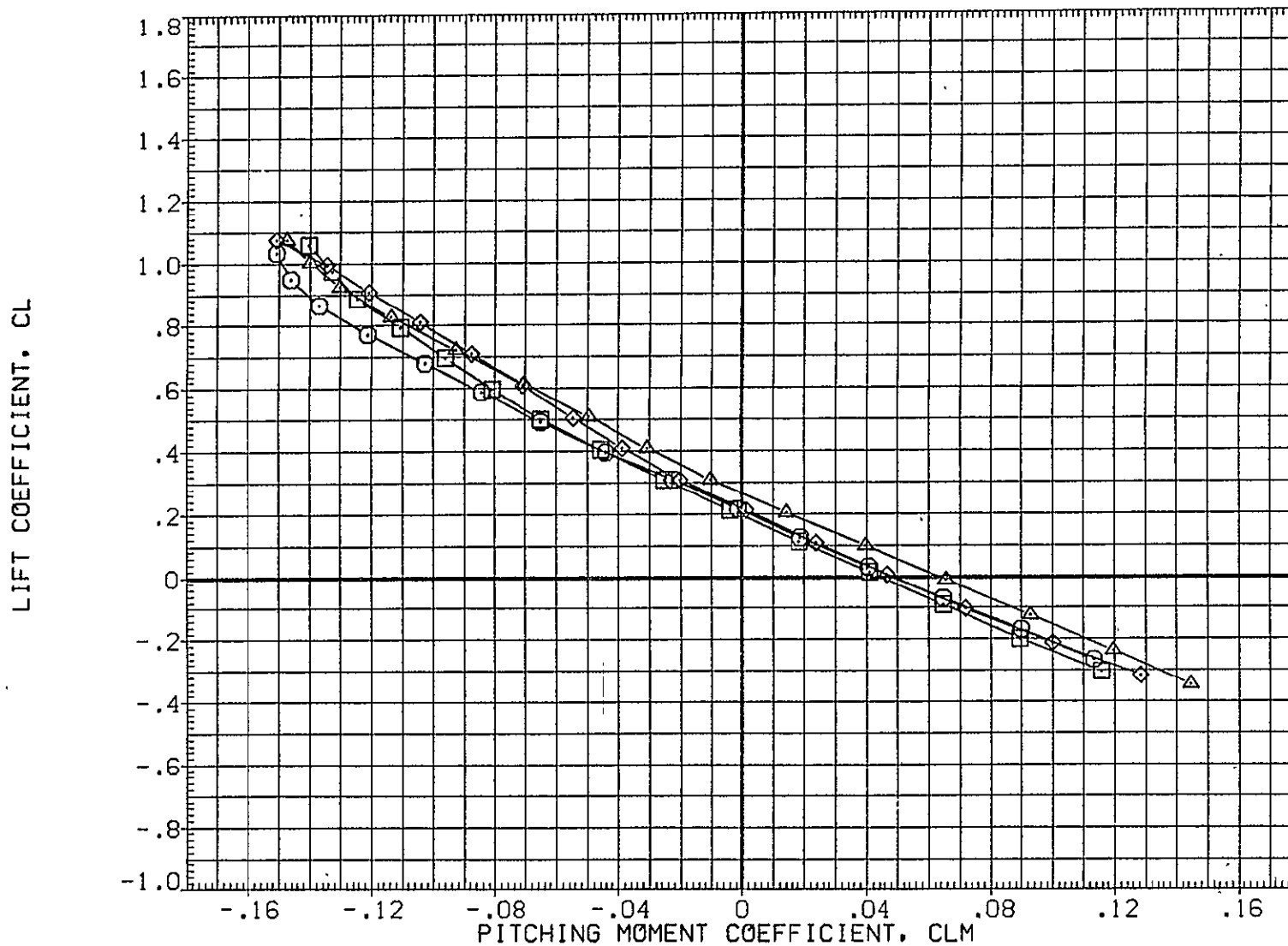


FIG. 56 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH (S=+1)

TOTAL

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH

PARAMETRIC VALUES

.300	BETA	.000	STAB	1.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION

SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

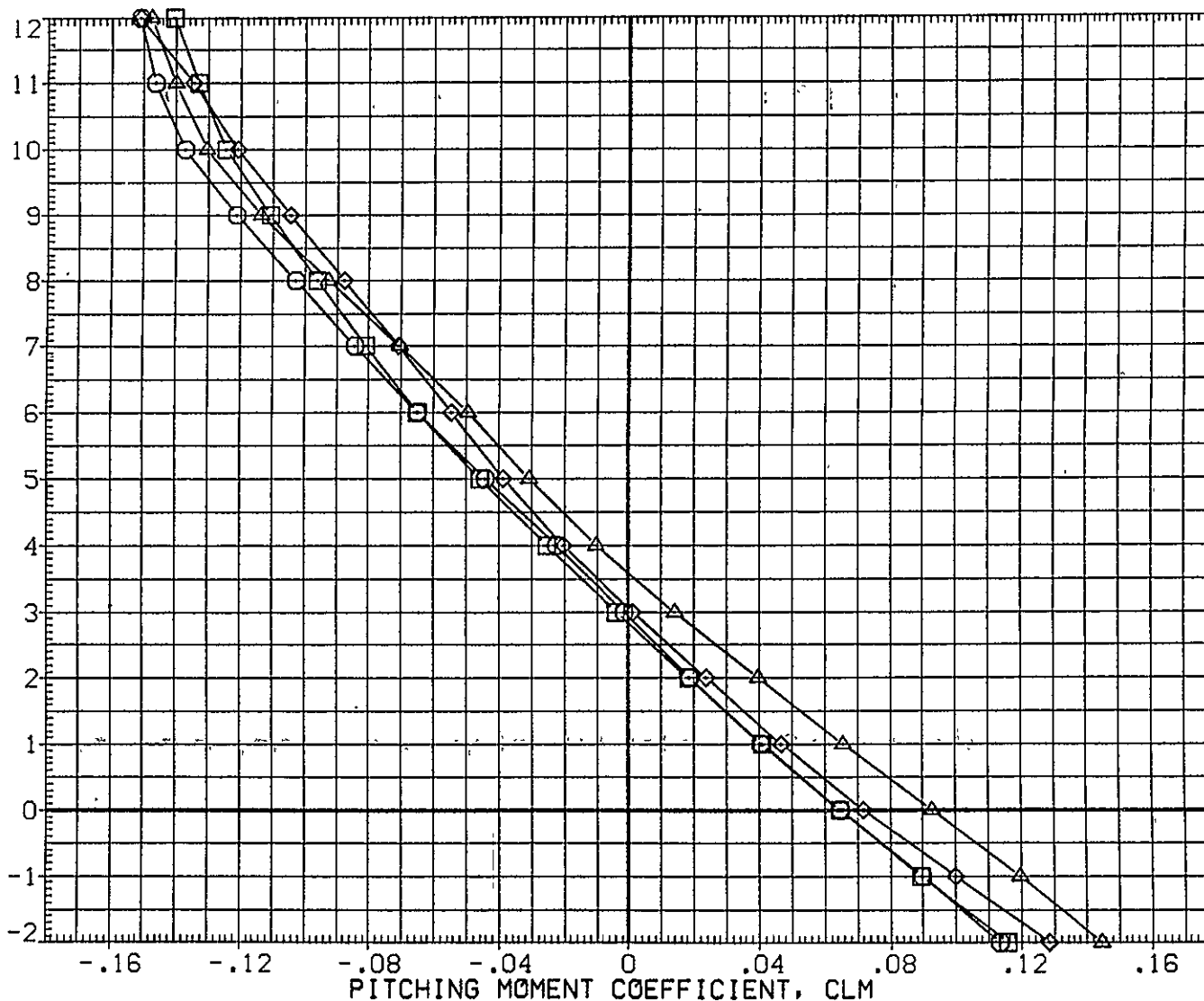


FIG. 56 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH (S=+1)

TOTAL

CA5 K1 F0 H15.6 V9.1 MINUS 0RB NOZ AT38.2 (BGM092)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

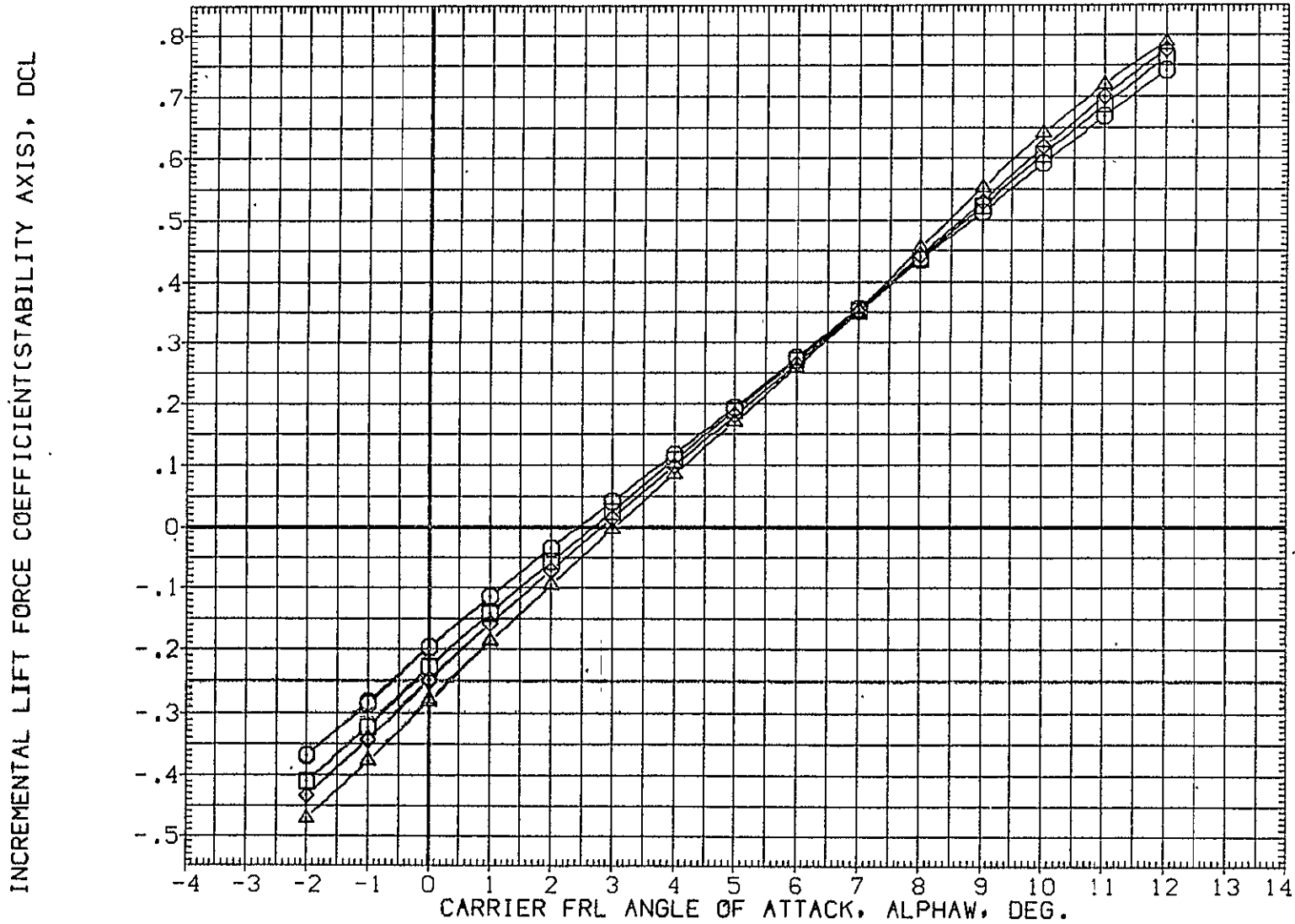


FIG. 57 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH (S=+1)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

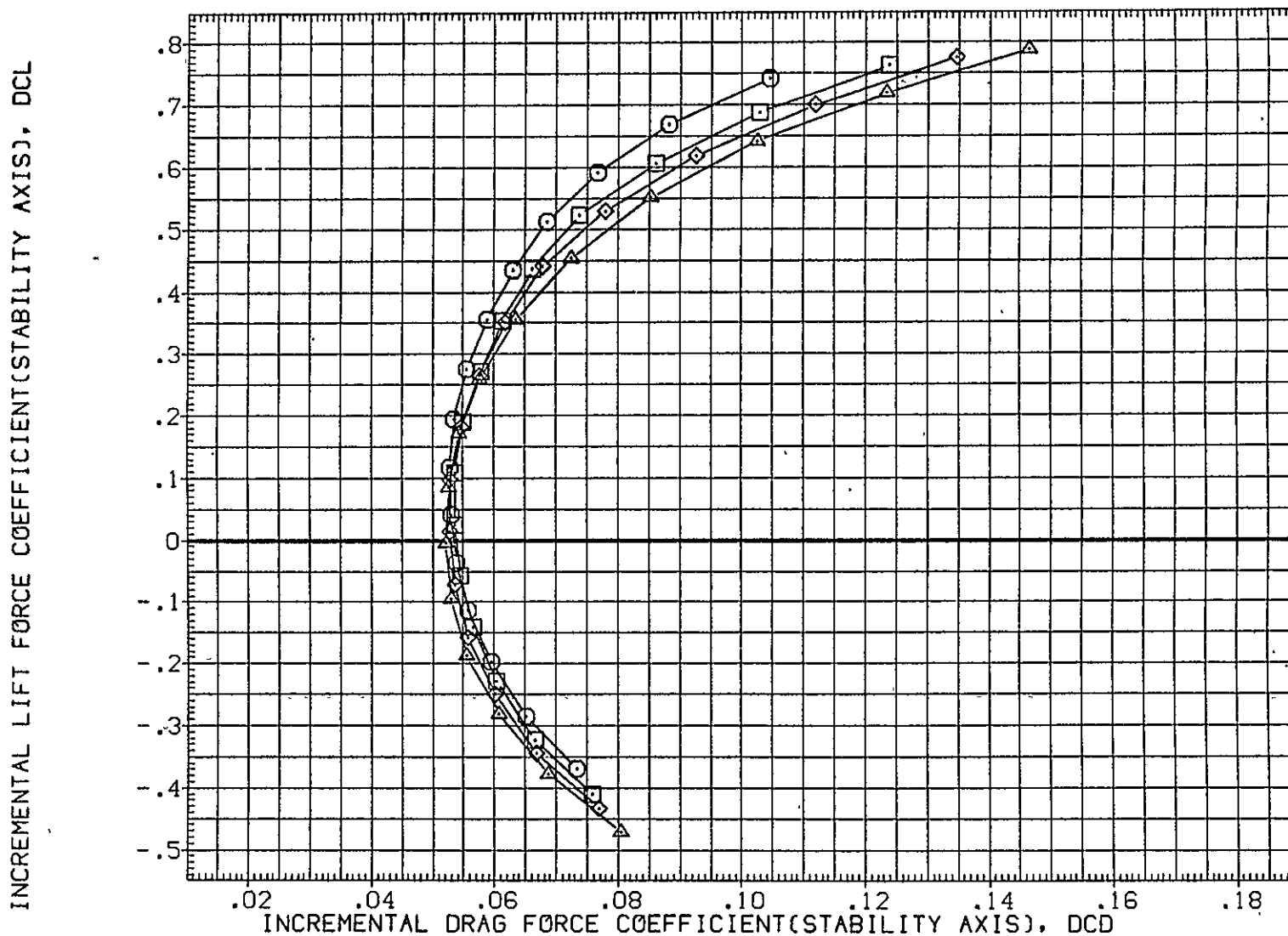


FIG. 57 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH (S=+1)

CA5 K1 F0 H15.6 V9.1 MINUS ORB NOZ AT38.2 (BGM092)

SYMBOL  
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 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	1.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

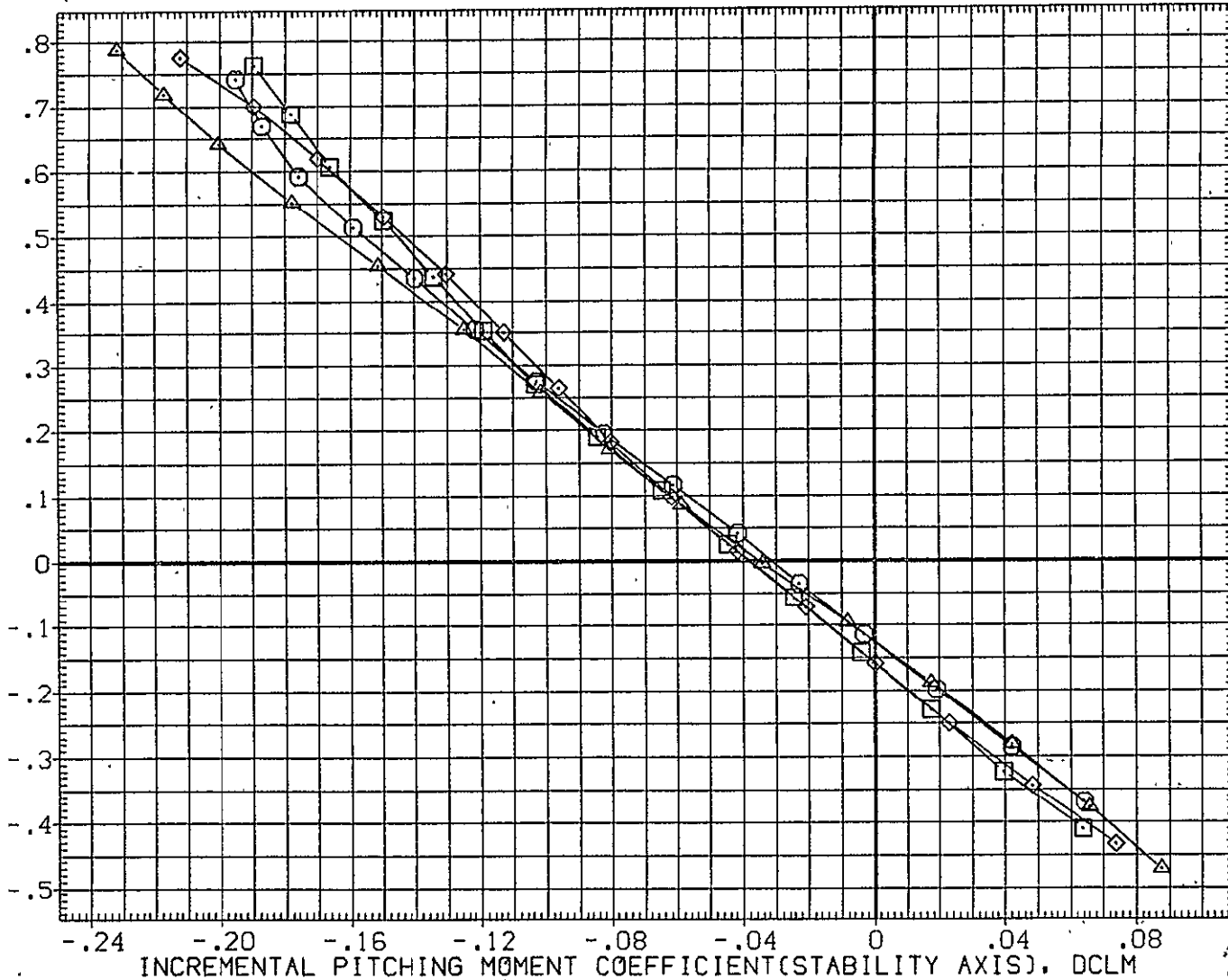


FIG. 57 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH (S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	IN. ZC

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

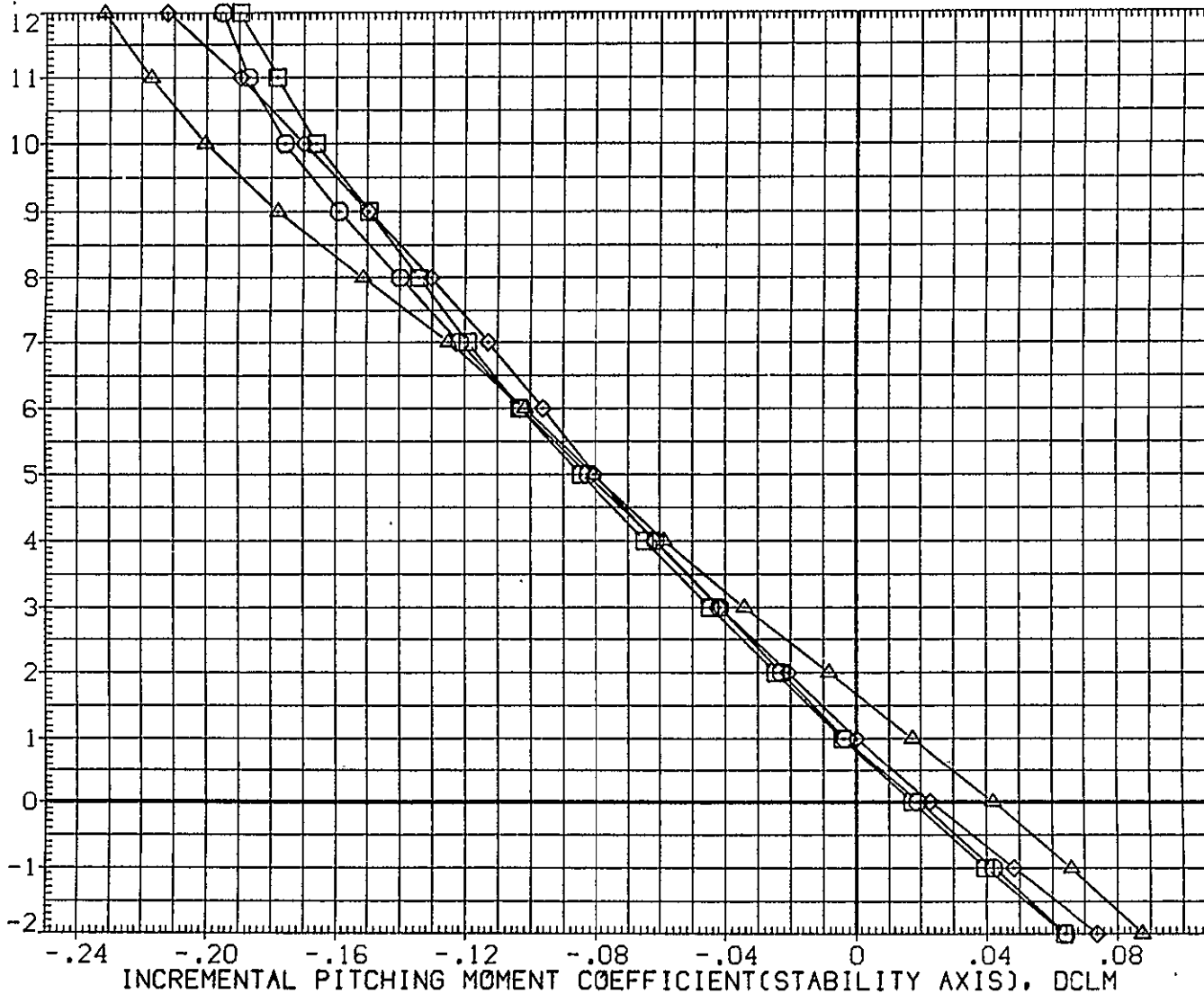


FIG. 57 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH (S=+1)

CAS 0RB N0Z AT38.2 (PRES. K1 F0 H15.6 V9.1)(YGM092)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.301	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.601	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
△	.699	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

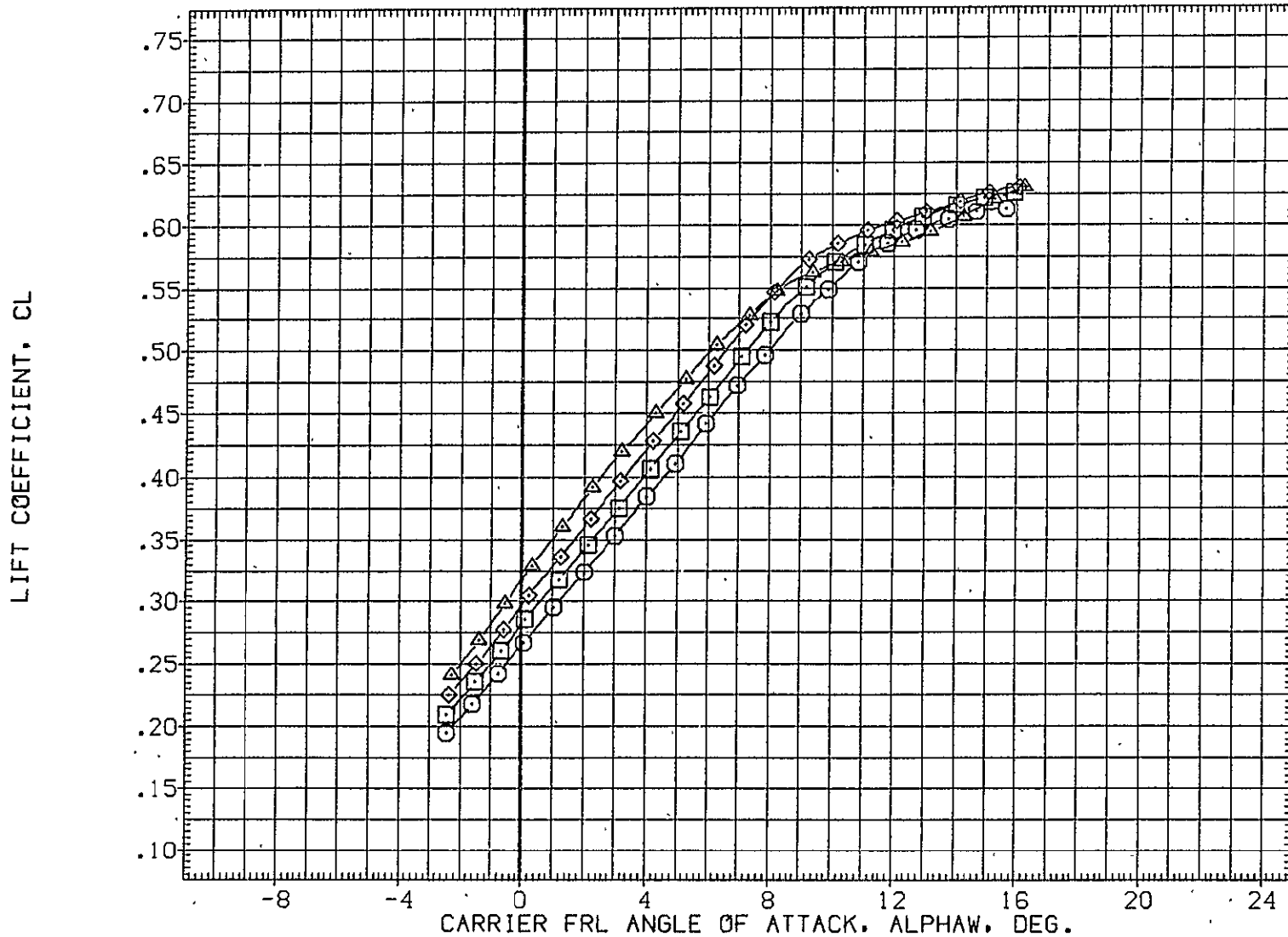


FIG. 58 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH (S=+1)

0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-L	ELV-OB	SREF	SO.FT.	
○	.301	.000	1.000	.000	3.000	2690.0000	50. FT.	
□	.500	.000	-.000	.000	3.000	474.8100	IN.	
◇	.601	ELV-1B	.000	ELV-OB	3.000	936.6800	IN.	
△	.699	S1-2	.000	S3-4	45.000	1109.0000	IN. X0	
		S5-6	20.000	10RB	7.850	YMRP	IN. Y0	
						ZMRP	IN. Z0	
						SCALE	.0300	

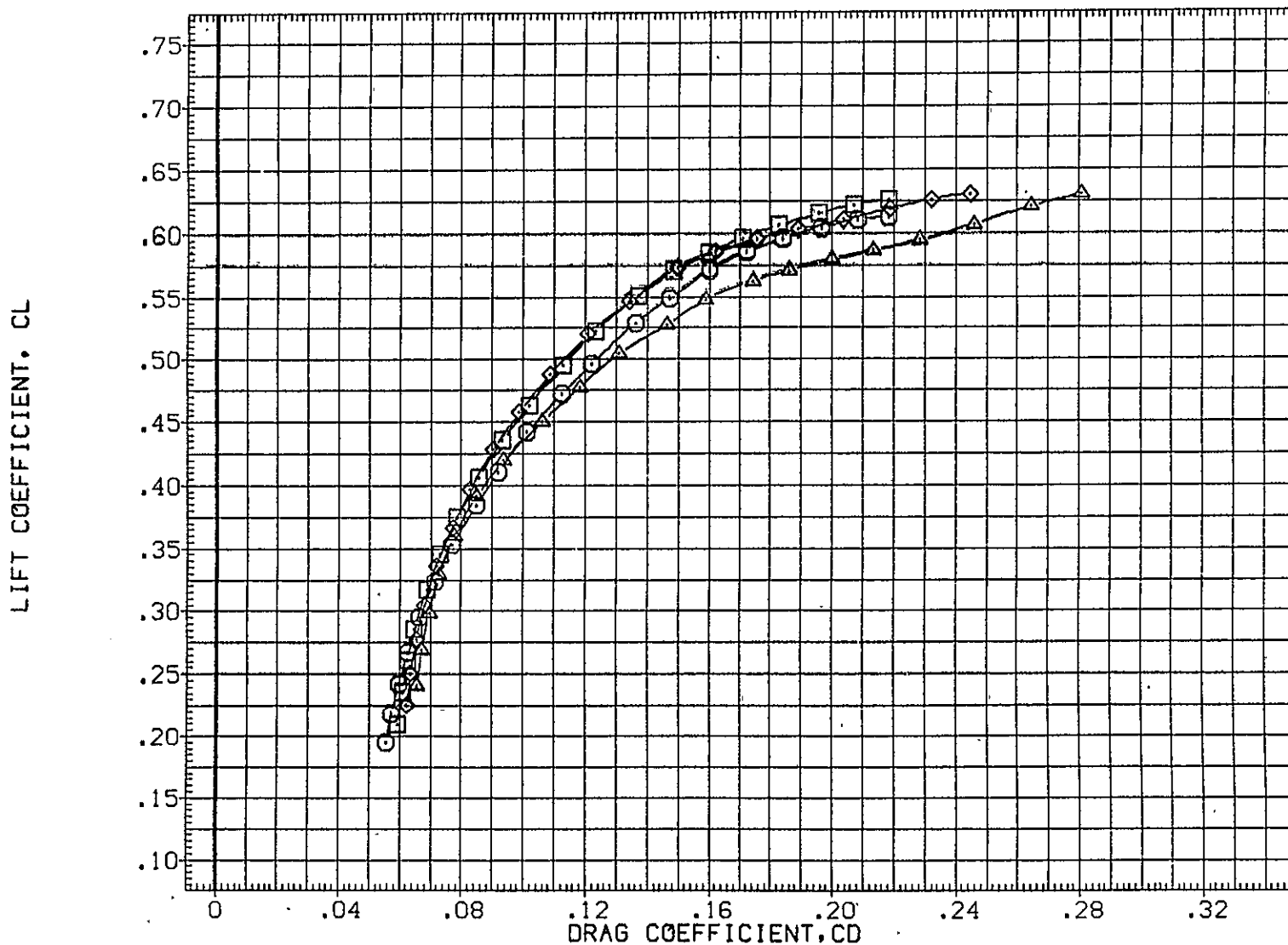


FIG. 58.747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH (S=+1)

0RB

CAS 0RB NOZ AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM092)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.601	ELV-1B	.000	ELV-0B	3.000
△	.699	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XM RP	1109.0000	IN. X0
YM RP	.0000	IN. Y0
ZM RP	375.0000	IN. Z0
SCALE	.0300	

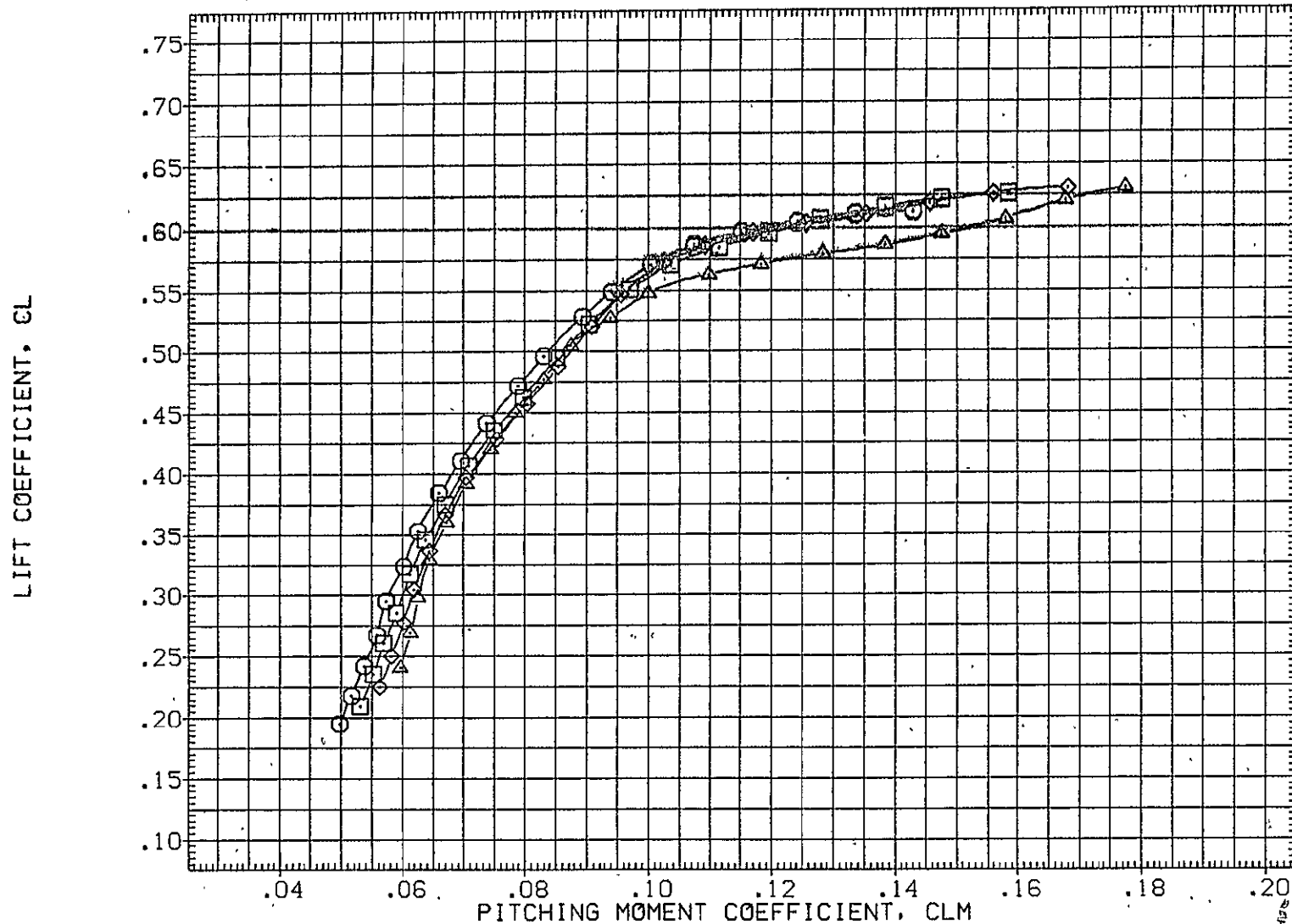


FIG. 58 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH (S=+1)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.301	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.601	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	I0RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

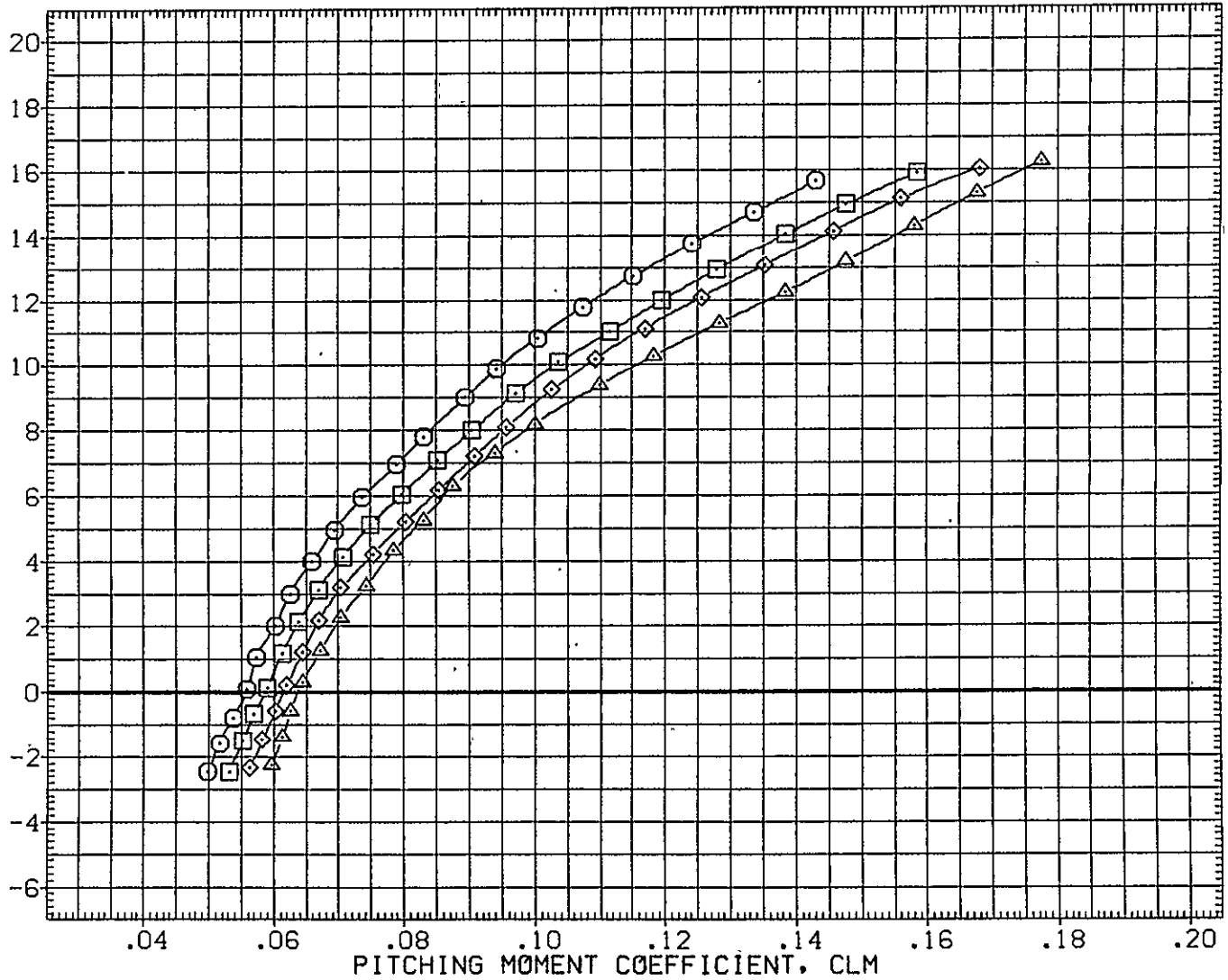


FIG. 58 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH (S=+1)

0RB

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB N0Z AT38.2 )(RGM095)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	1.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	10.000	ELV-0B	13.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	ICRB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

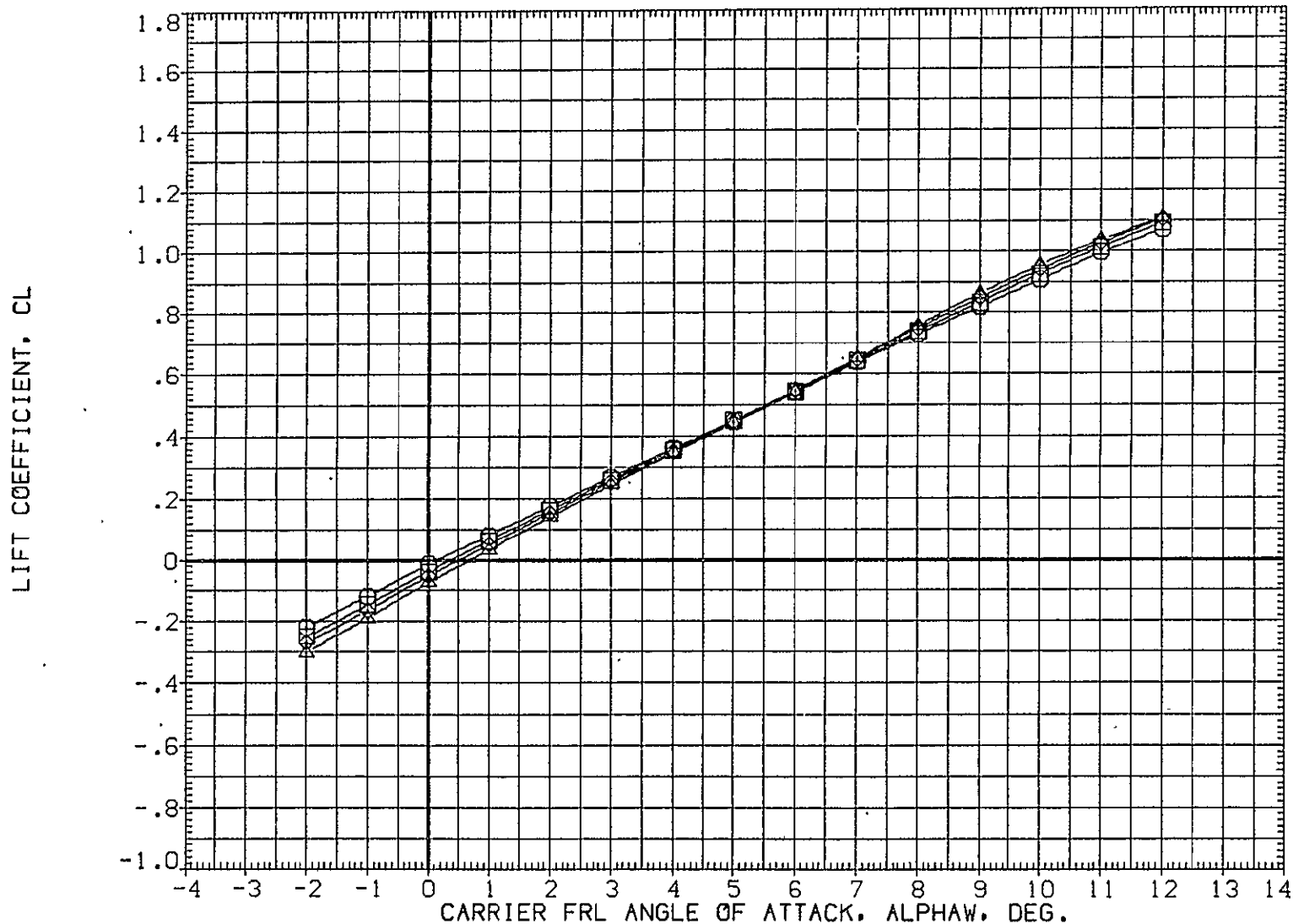


FIG. 59 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP,TAIL CONE OFF,DE=10 TOTAL PAGE 233

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

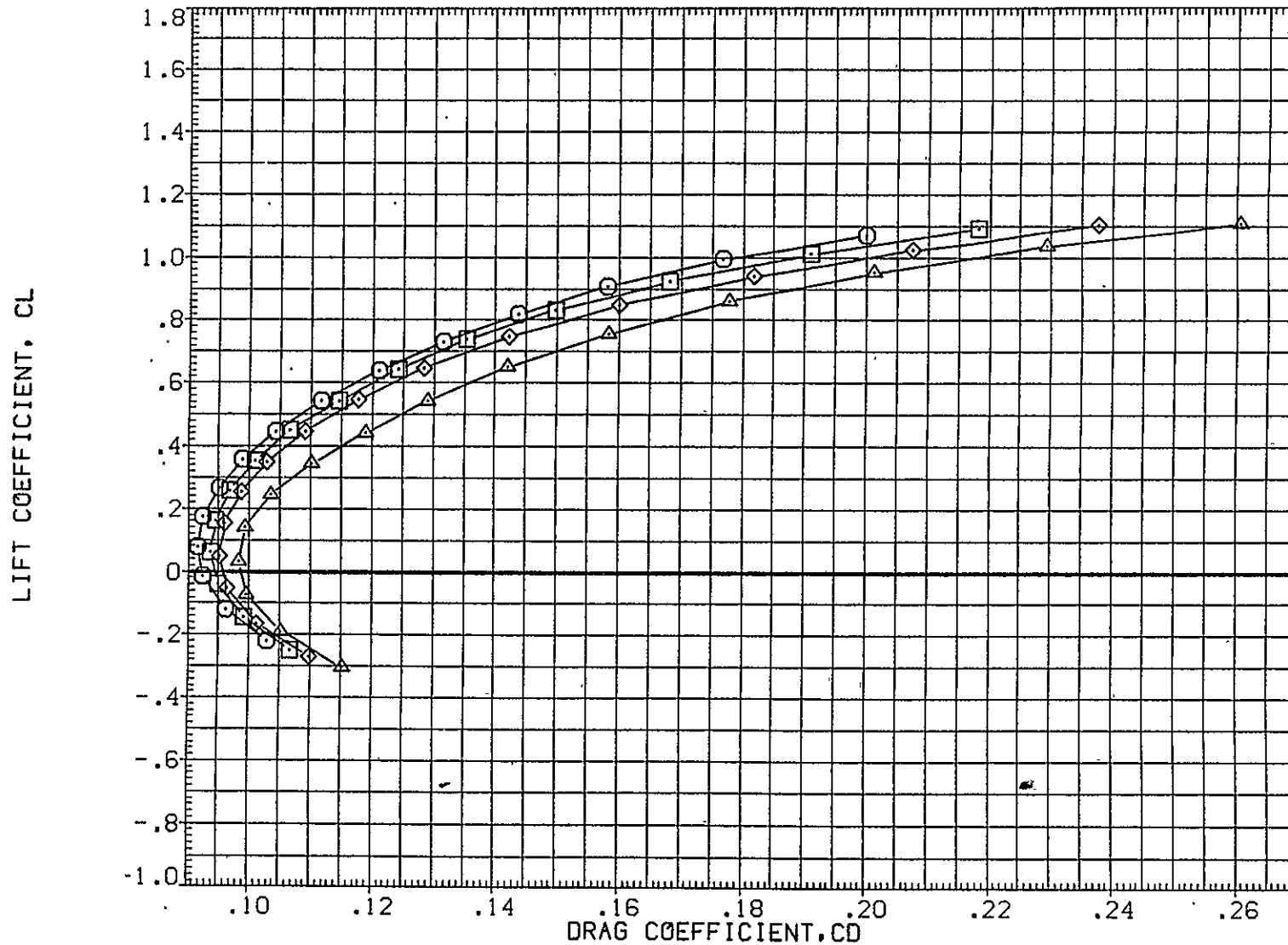


FIG. 59 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP,TAIL CONE OFF,DE=10 TOTAL  
PAGE 234

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB N0Z AT38.2 )(RGM095)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500 0000	50.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	20.000	I0RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

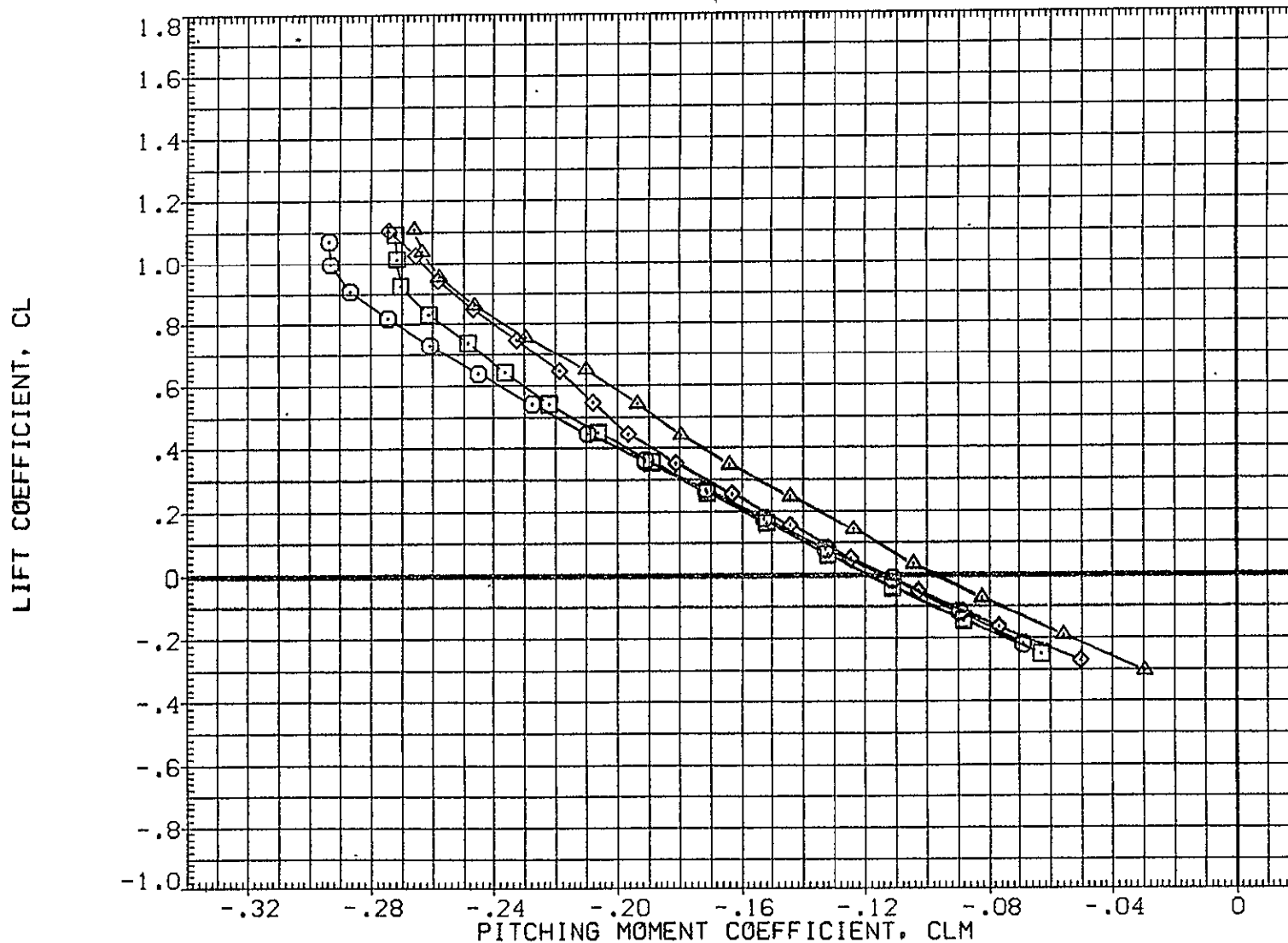


FIG. 59 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP, TAIL CONE OFF; DE=10 TOTAL  
PAGE 235

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
◇	.600	SI-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

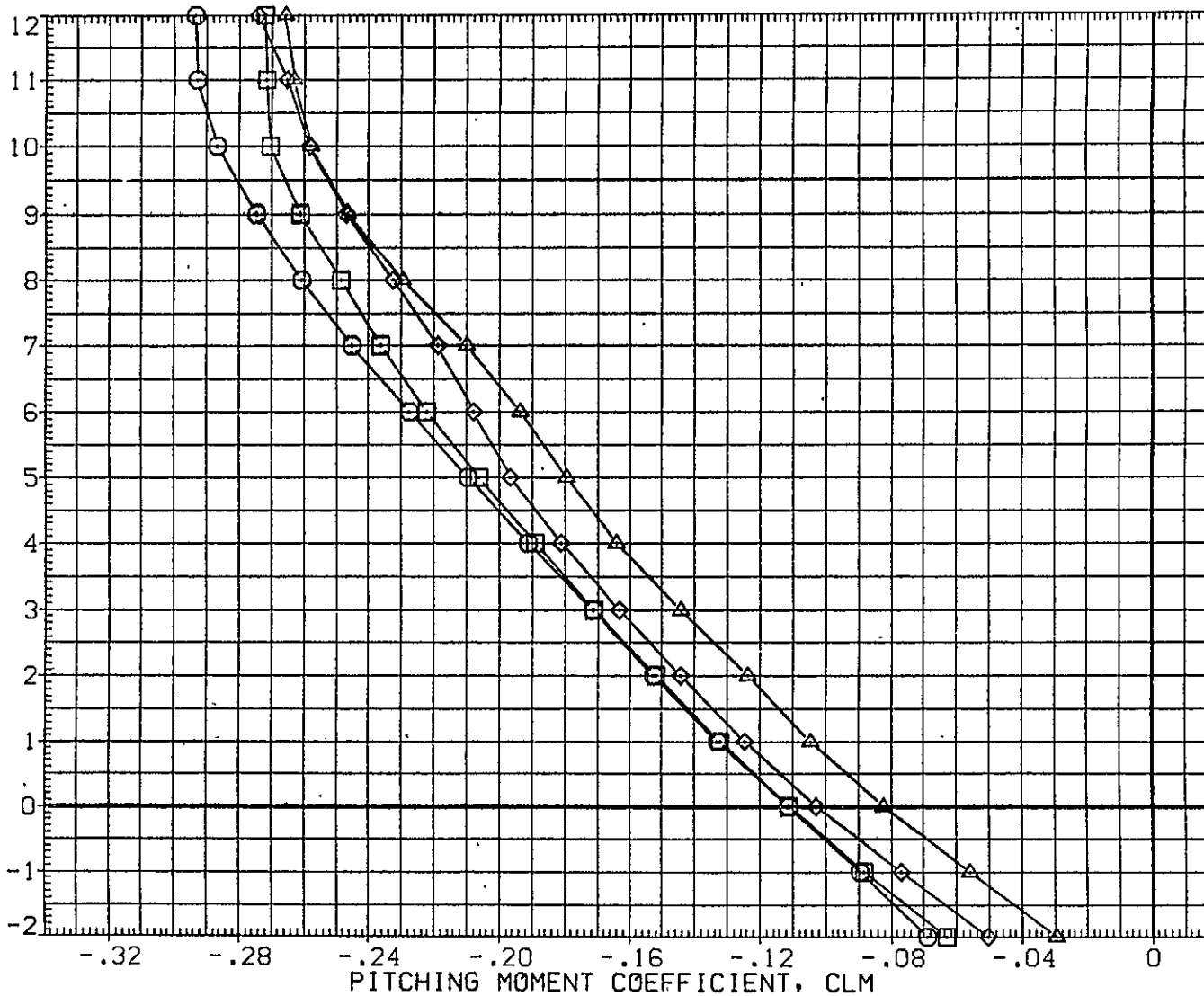


FIG. 59 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP,TAIL CONE OFF,DE=10 TOTAL

CA5 K1 F0 H15.6 V9.1 MINUS 0RB N0Z AT38.2 (BGM095)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	10.000	ELV-OB	13.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	I0RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT (STABILITY AXIS), DCL

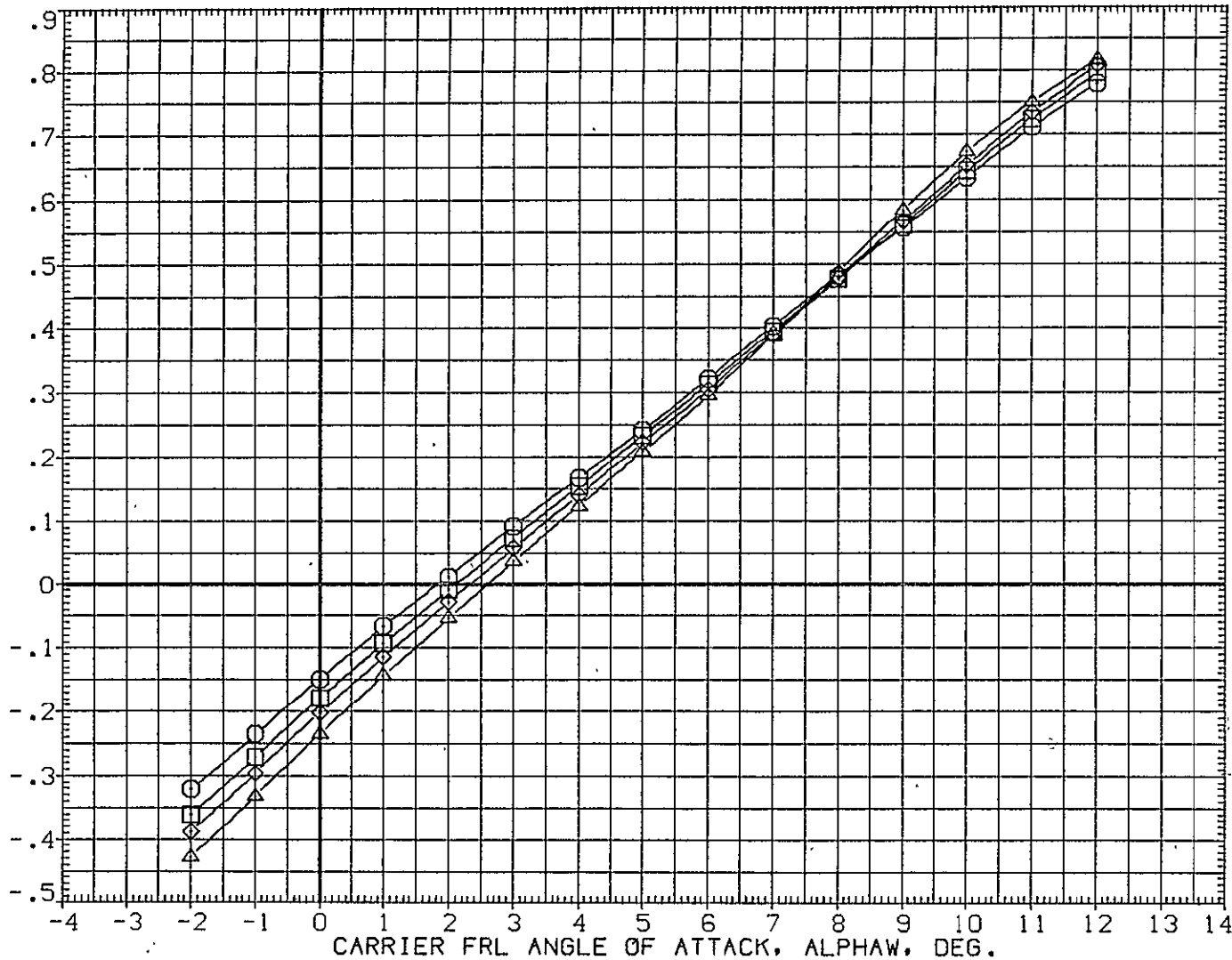


FIG. 60 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP, TAIL CONE OFF, DE=10 747



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	10.000	ELV-0B	13.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

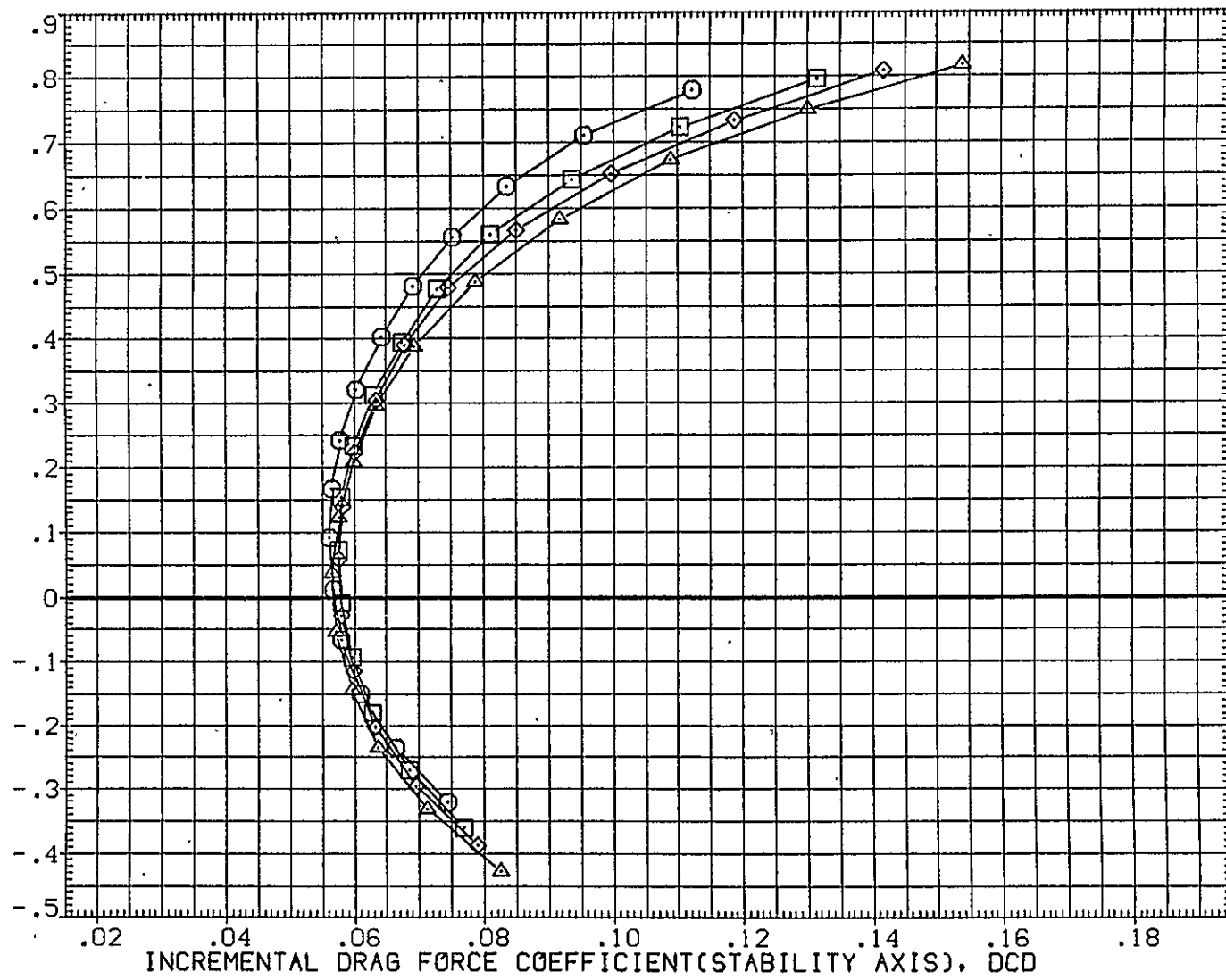


FIG. 60 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP,TAIL CONE OFF,DE=10 747  
PAGE 238

CA5 K1 F0 H15.6 V9.1 MINUS 0RB N0Z AT38.2 (BGM095)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

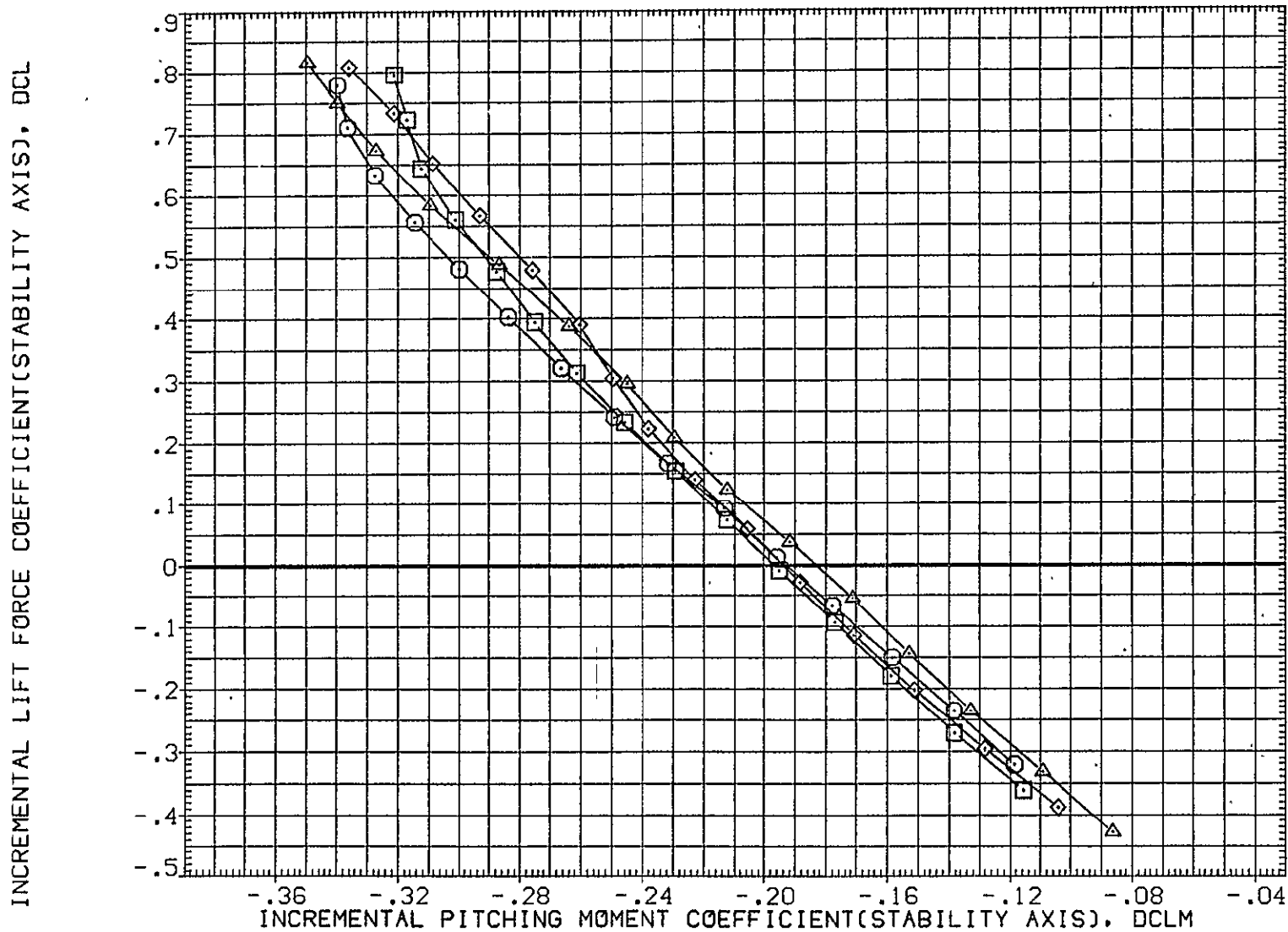


FIG. 60 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP, TAIL CONE. OFF, DE=10 747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	10.000	ELV-OB	13.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

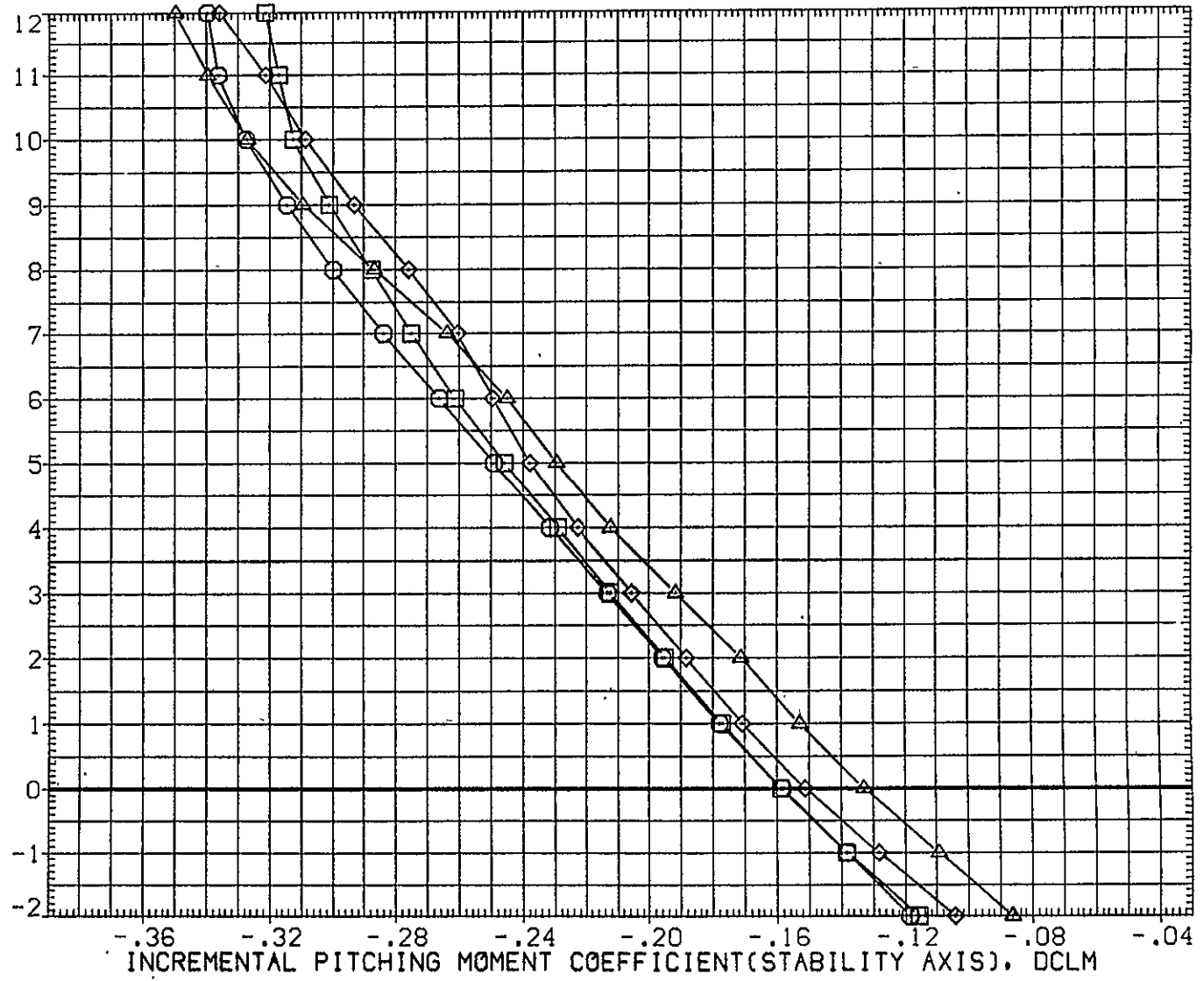


FIG. 60 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP, TAIL CONE OFF, DE=10 747  
PAGE 240

CA5 ORB NOZ AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM095)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-L	ELV-OB	SREF	SQ.FT.	
○	.301	.000	1.000	.000	13.000	2690.0000		
□	.499	.000	.000	.000		474.8100	IN.	
◇	.600	10.000	13.000			936.6800	IN.	
△	.701	.000	45.000			1109.0000	IN. X0	
		S1-2	S3-4	S5-6	10RB	YMRP	IN. Y0	
		.000	7.850			ZMRP	IN. Z0	
		20.000				SCALE	.0300	

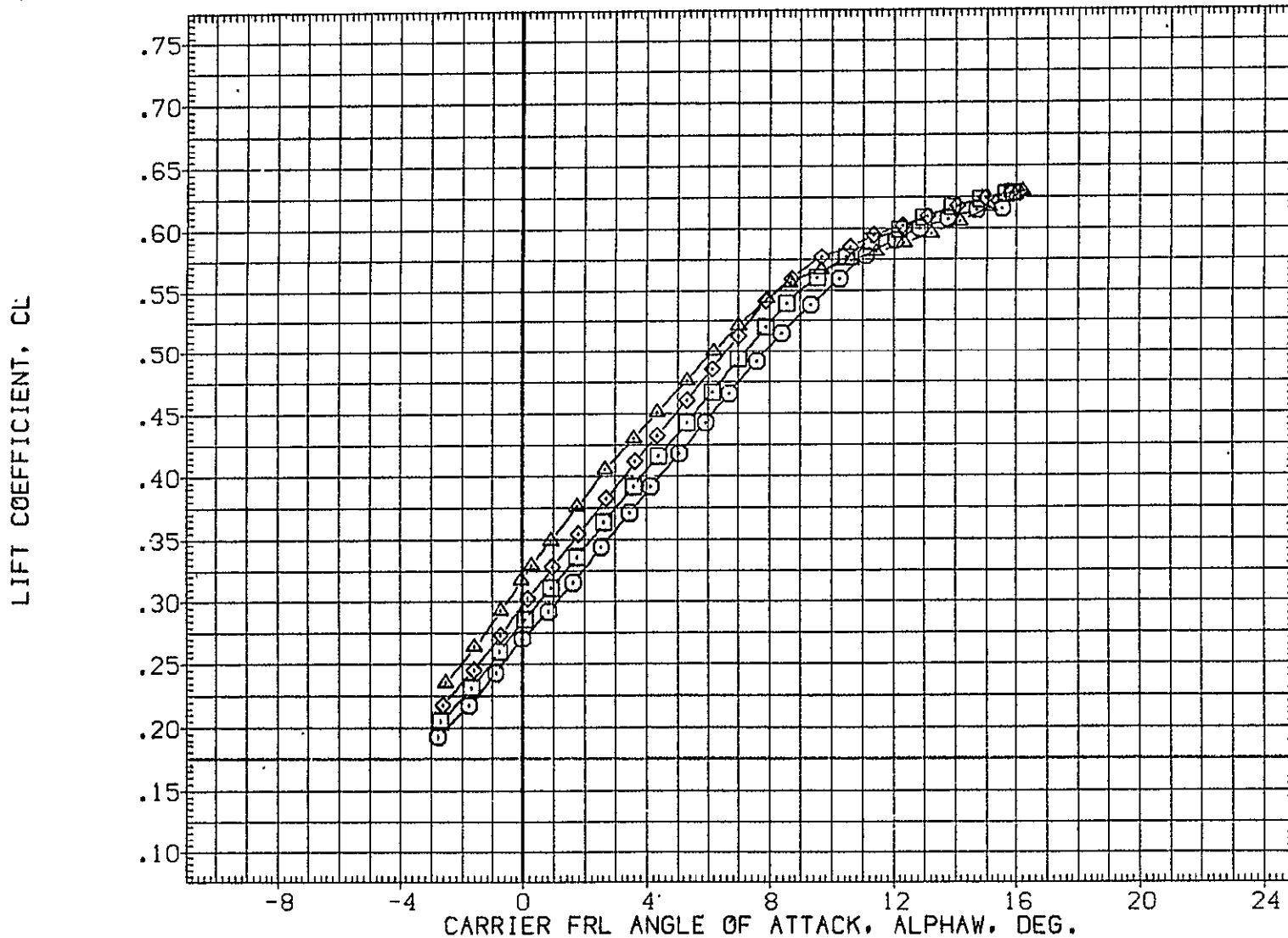


FIG. 61 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP, TAIL CONE OFF, DE=10 ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	STAB	1.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	10.000	ELV-0B	13.000
△	.701	S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

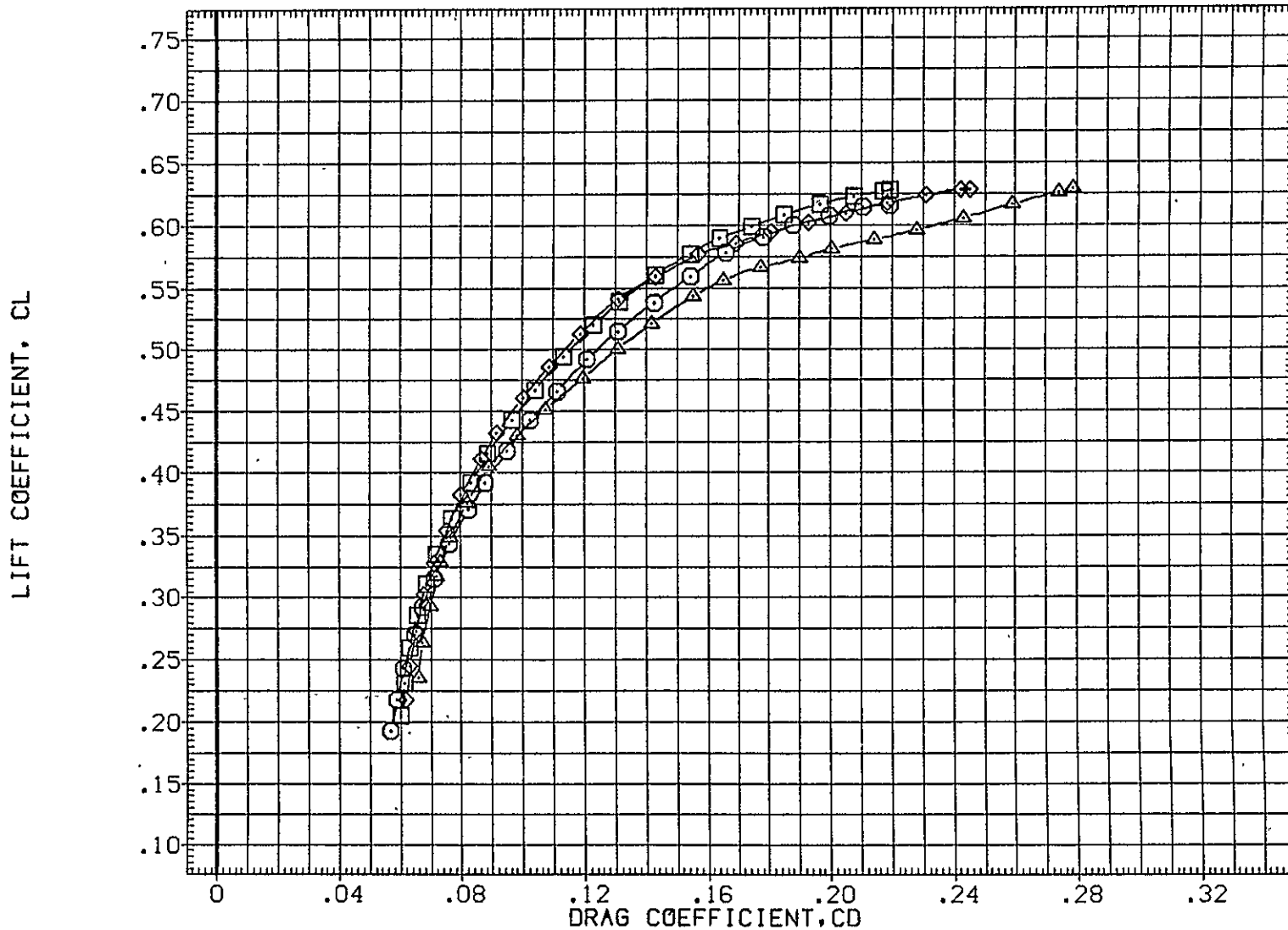


FIG. 61 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP, TAIL CONE OFF, DE=10 ORB

CA5 0RB N0Z AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM095)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.301	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
△	.701	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

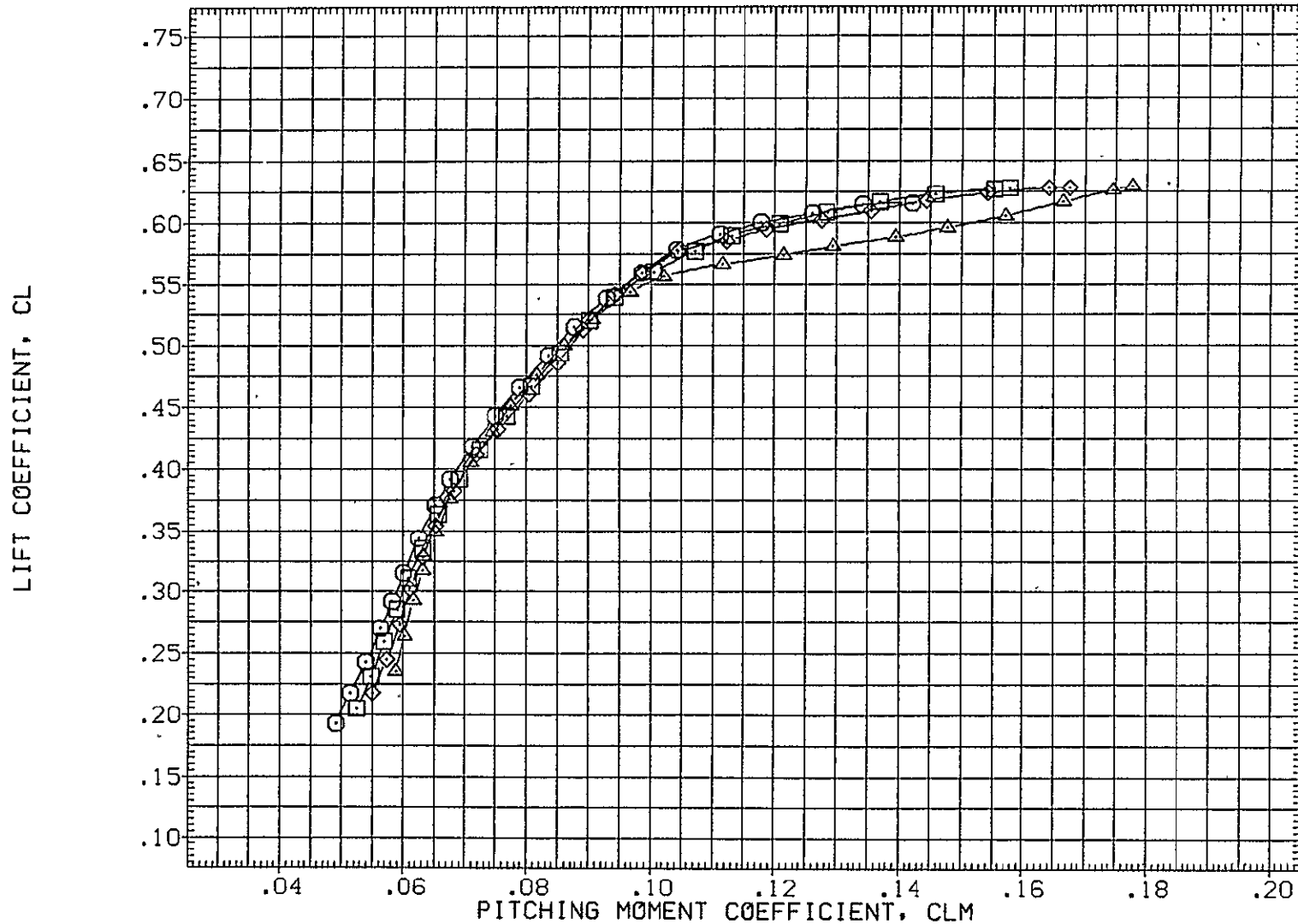


FIG. 61 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP,TAIL CONE OFF,DE=10 0RB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	STAB	1.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	10.000	ELV-0B	13.000
△	.701	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

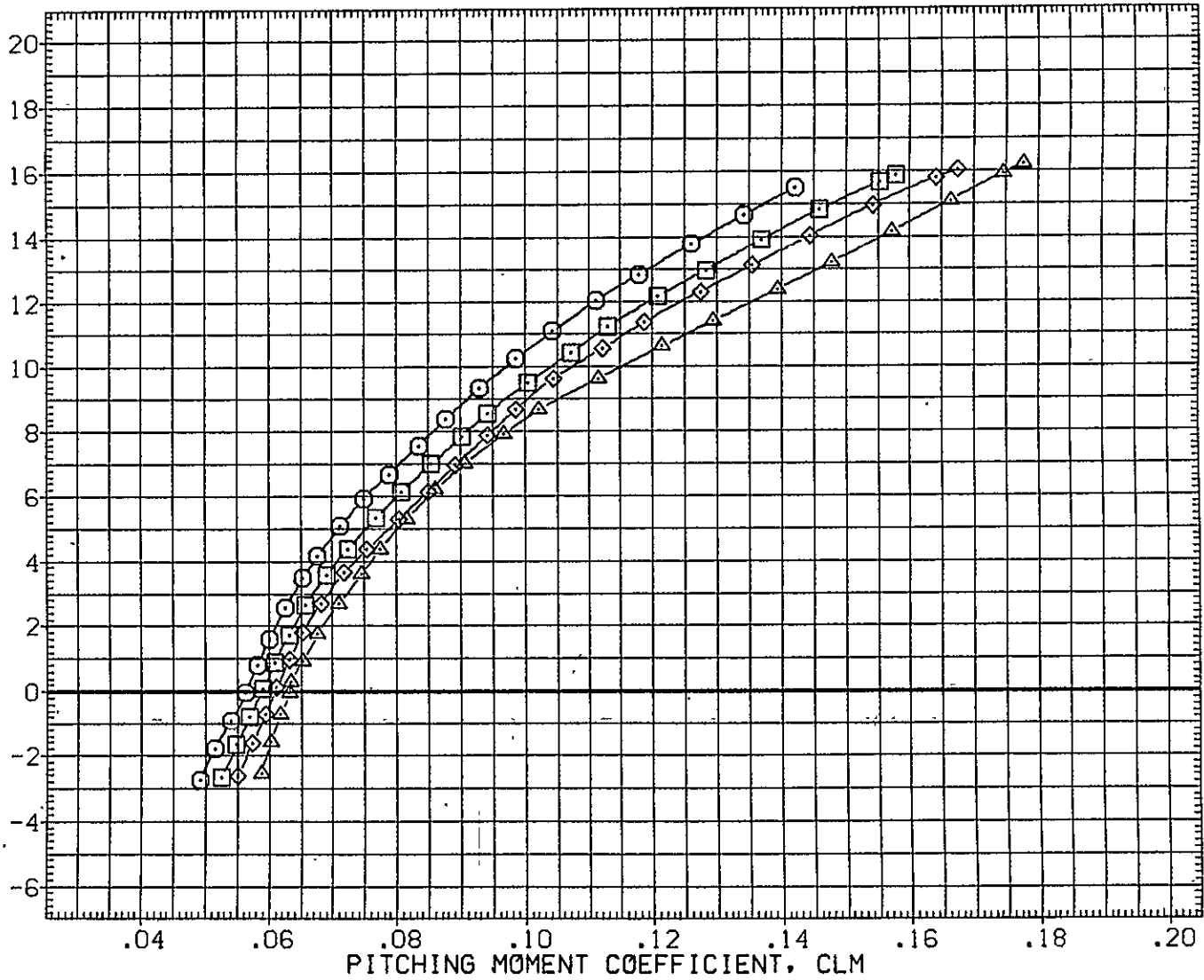


FIG. 61 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP,TAIL CONE OFF,DE=10 0RB

CA5 K1 FO H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM096)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-0B	.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

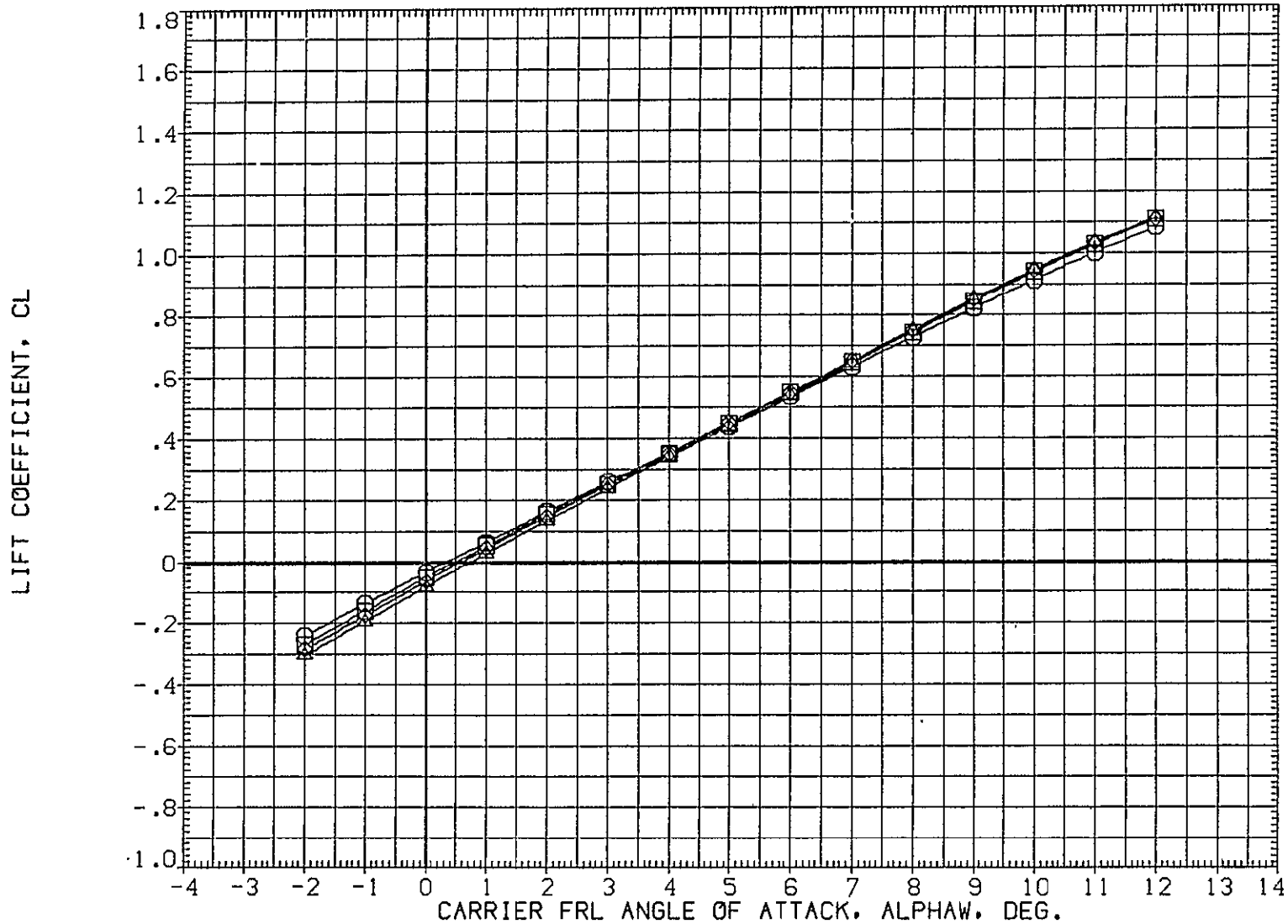


FIG. 62 747+0RB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-0B	.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

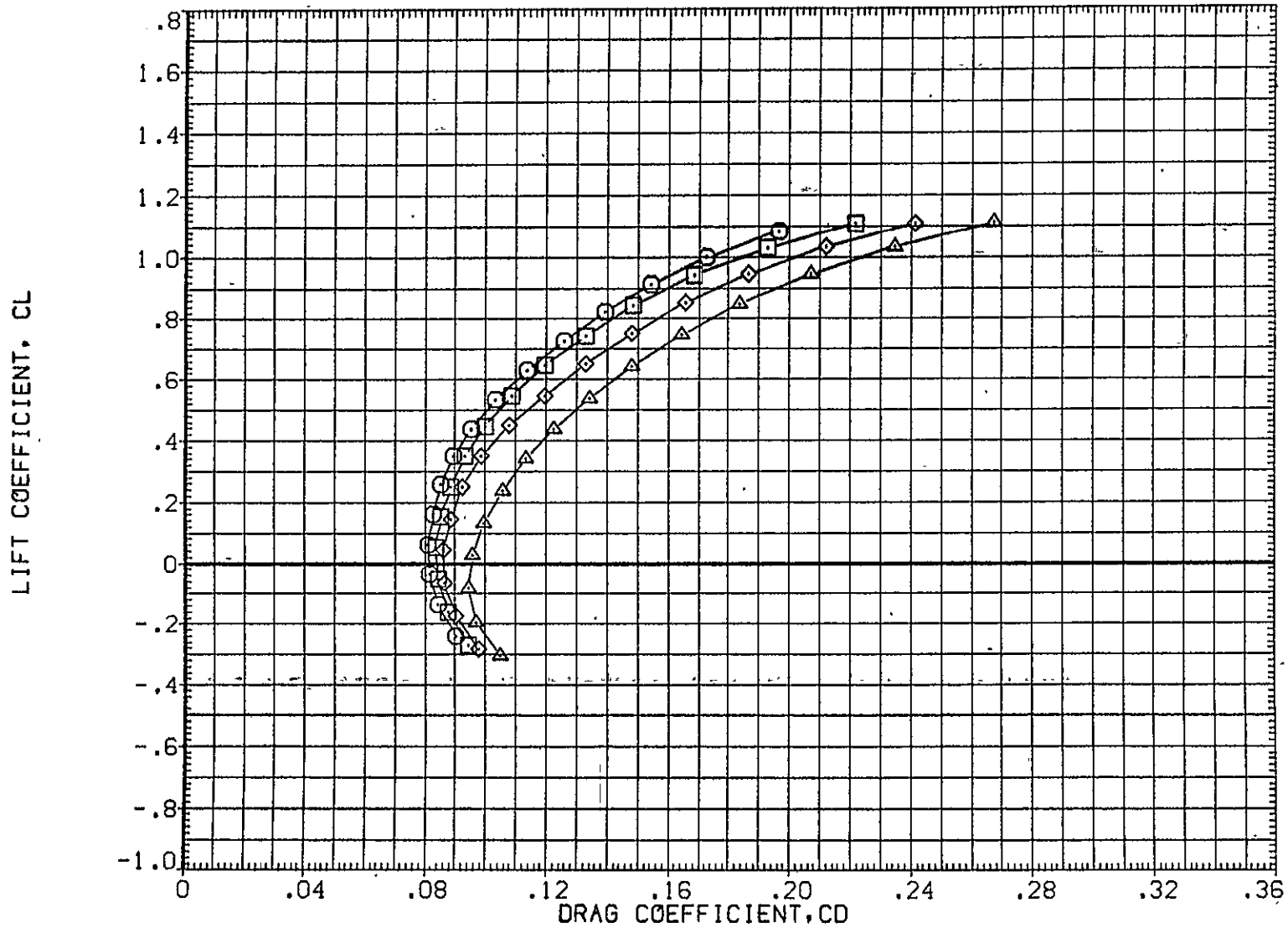


FIG. 62 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH(S=+1)

TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM096)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-0B	.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

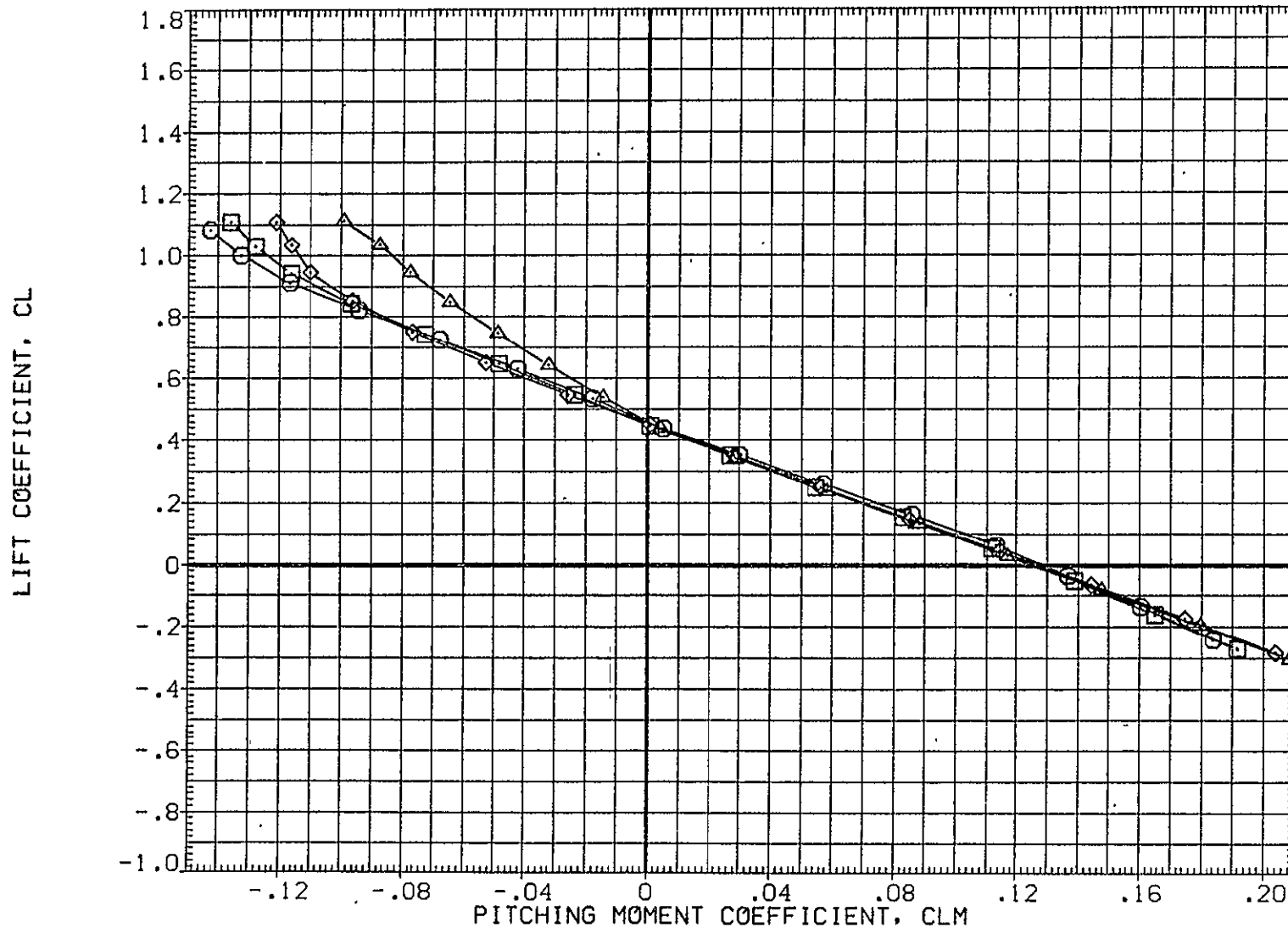


FIG. 62 747+0RB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH(S=+1)

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	.000	ELV-OB	.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

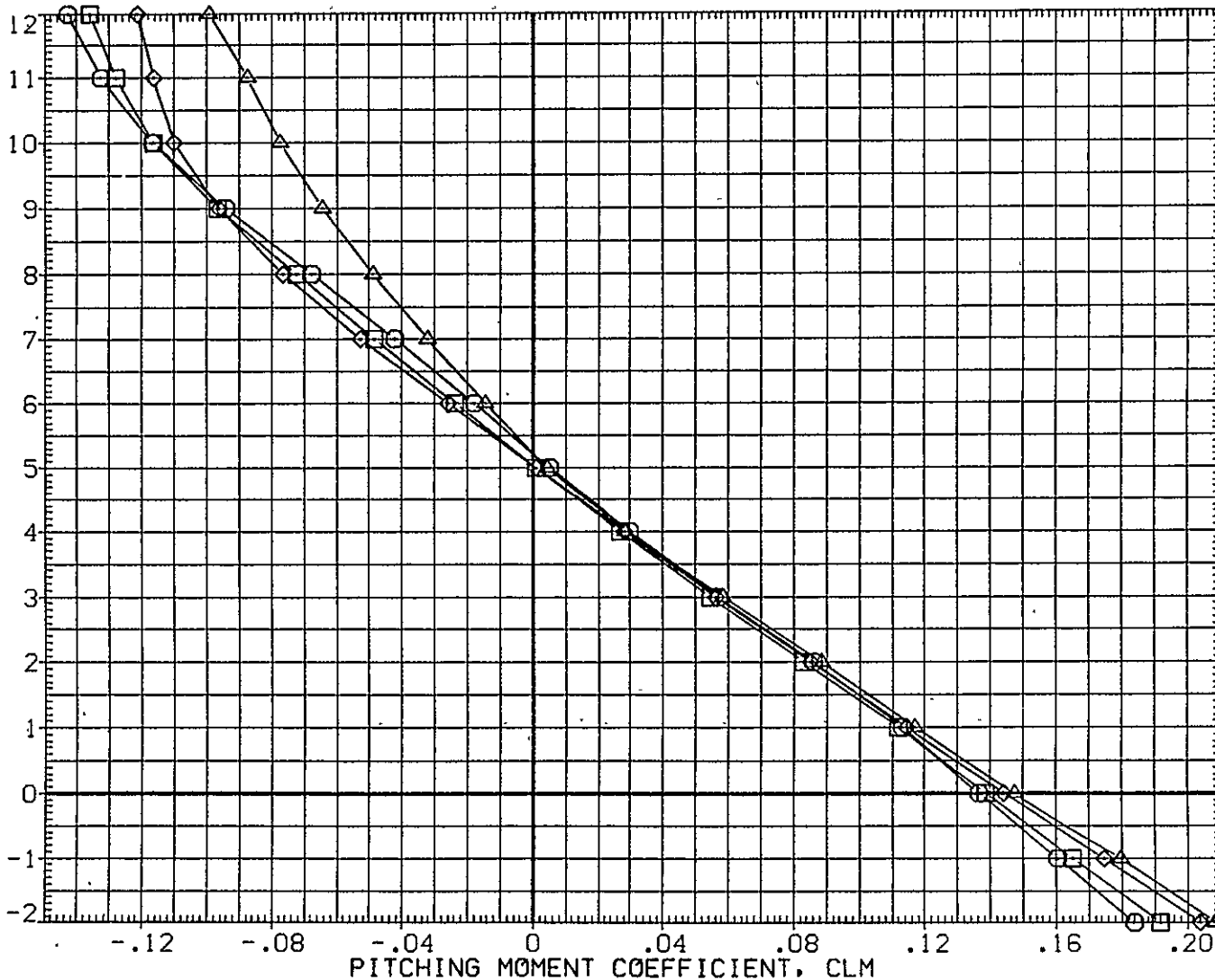


FIG. 62 747+0RB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)

TOTAL

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.2 (BGM096)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	.000
△	.700	S1-2	.000	S3-4	45.000
		SS-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

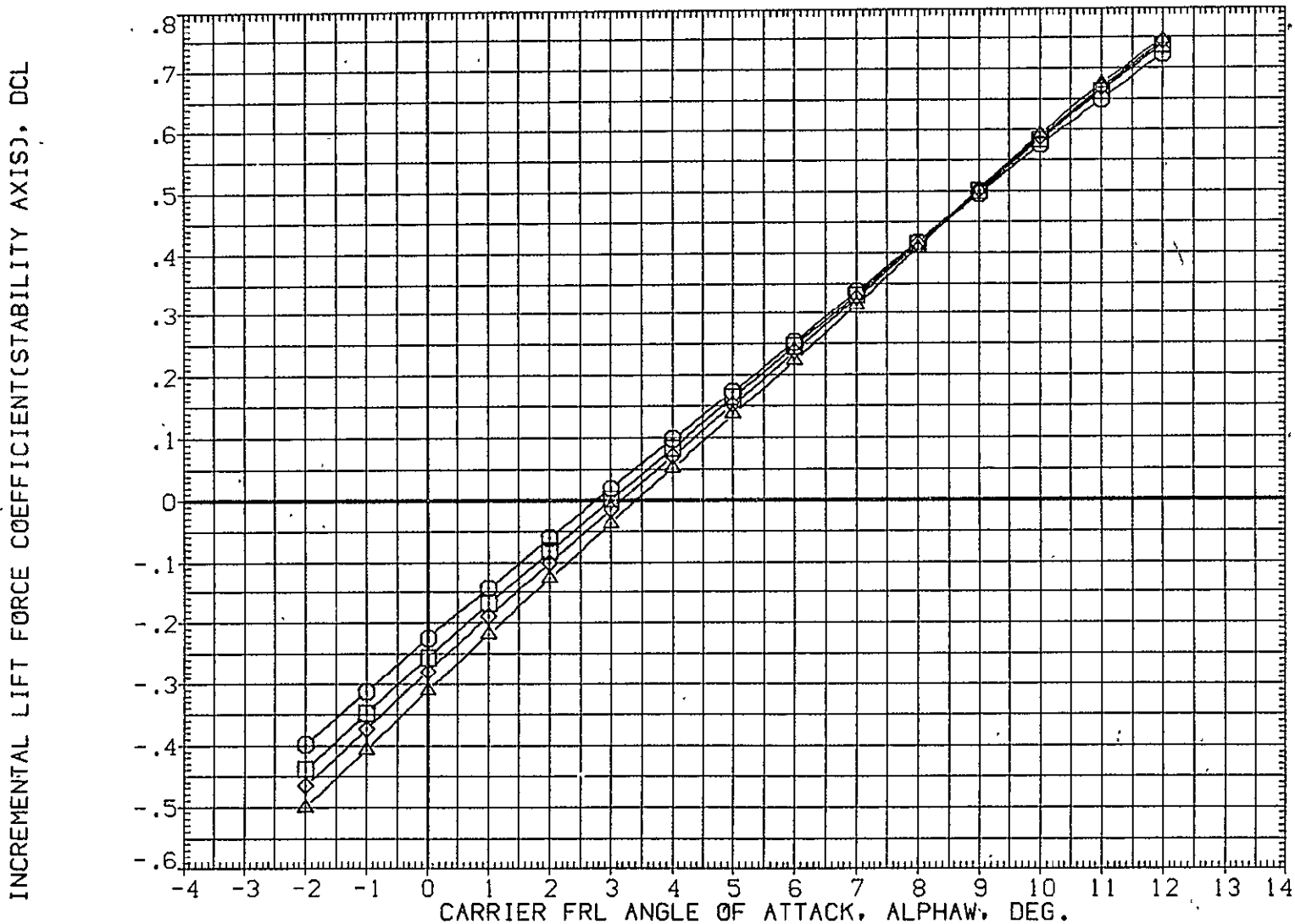


FIG. 63 747+0RB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)

SYMBOL  
 ○ □ ◇ △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	1.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-OB	.000
.700	S1-2	.000	S3-4	45.000
	S5-6	20.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

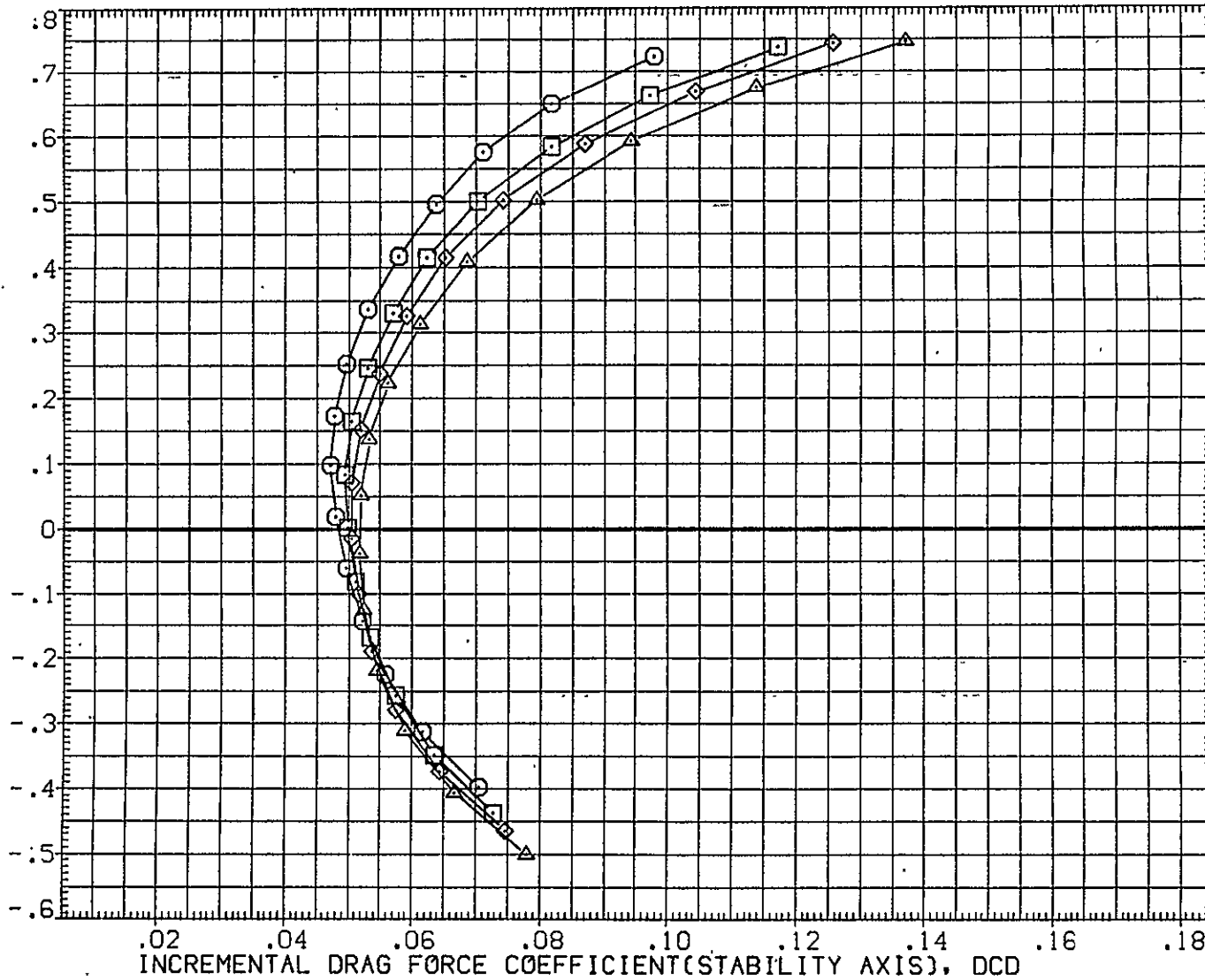


FIG. 63 747+ORB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.2 (BGM096)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

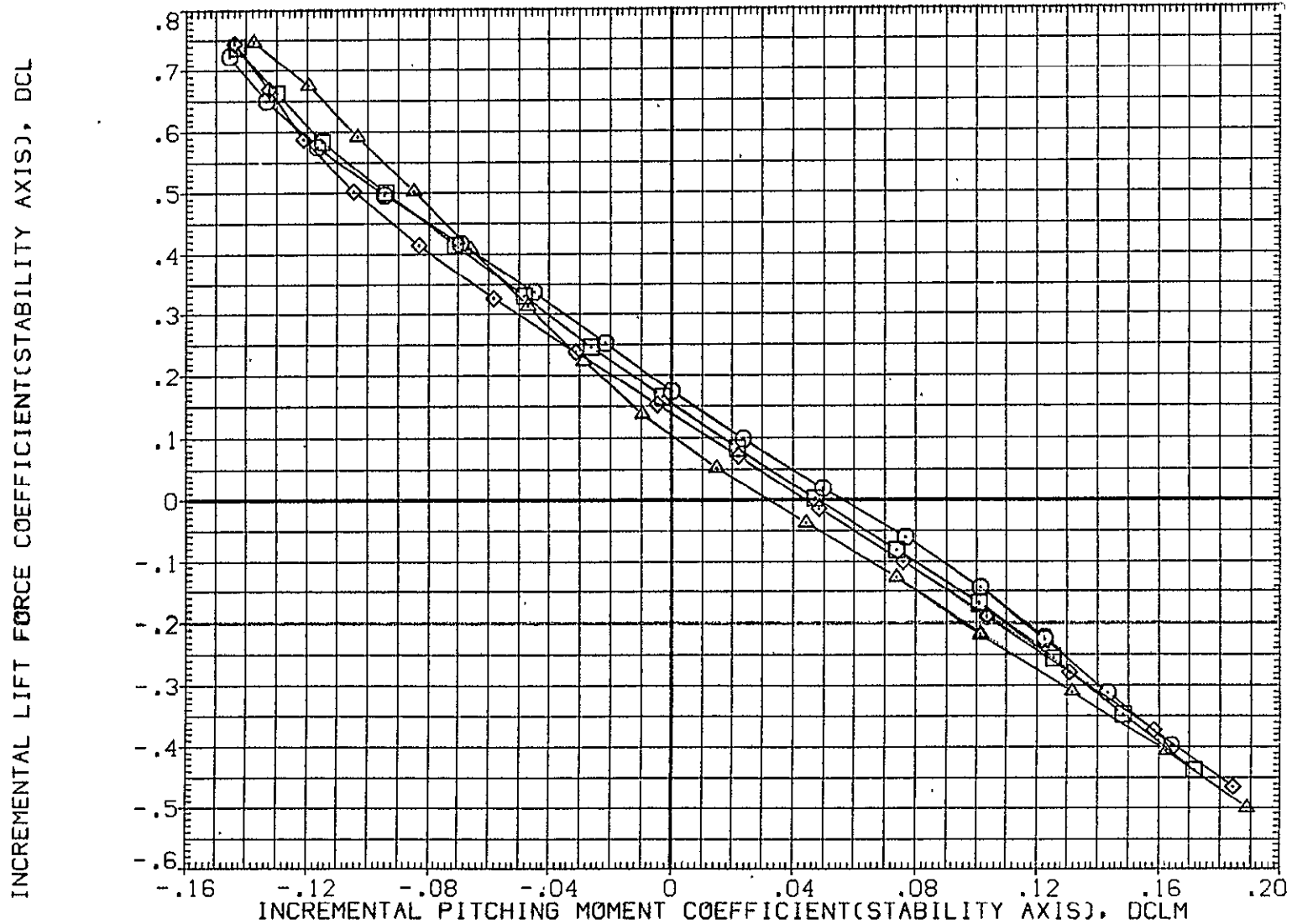


FIG. 63 747+0RB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION																				
		BETA	RUD-U	ELV-IB	SI-2	S5-6	STAB	RUD-L	ELV-0B	S3-4	10RB	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.	IN.	IN.	
○	.300	.000	.000	.000	.000	1.000	.000	.000	.000	45.000	9.700	5500.0000	327.8000	2348.0000	1339.9100	.0000	190.7500	.0300								
□	.500																									
◇	.600																									
△	.700																									

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

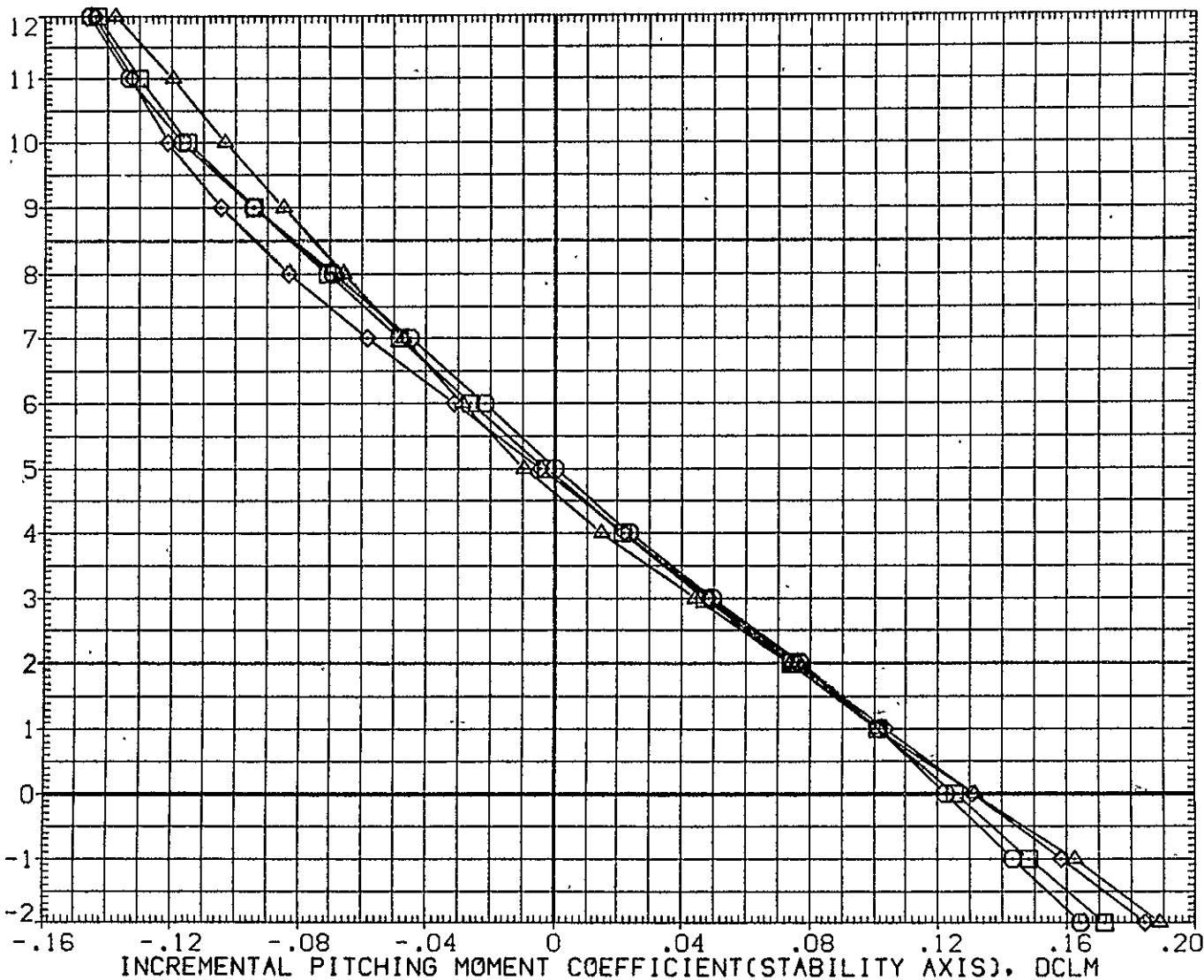


FIG. 63 747+0RB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH(S=+1)

CA5 0RB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM096)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.601	ELV-1B	.000	ELV-0B	.000	BREF	936.6800	IN.
△	.701	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

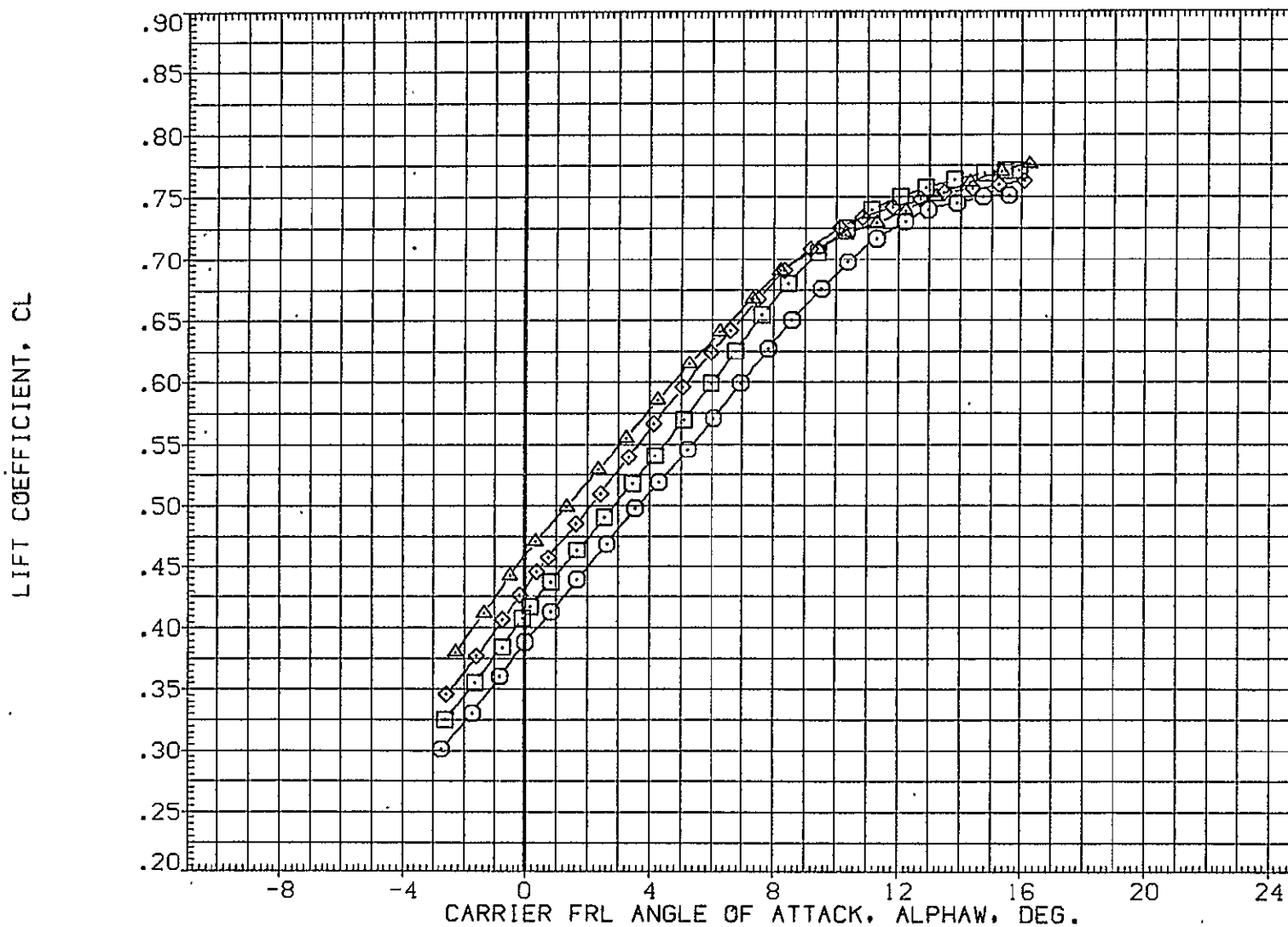


FIG. 64 747+0RB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)

0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.299	BETA	.000	STAB	1.000	LREF	474.8100	IN.
□	.499	RUD-U	.000	RUD-L	.000	BREF	936.6800	IN.
◇	.601	ELV-1B	.000	ELV-0B	.000	XMRP	1109.0000	IN. X0
△	.701	S1-2	.000	S3-4	45.000	YMRP	.0000	IN. Y0
		S5-6	20.000	10RB	9.700	ZMRP	375.0000	IN. Z0
						SCALE	.0300	

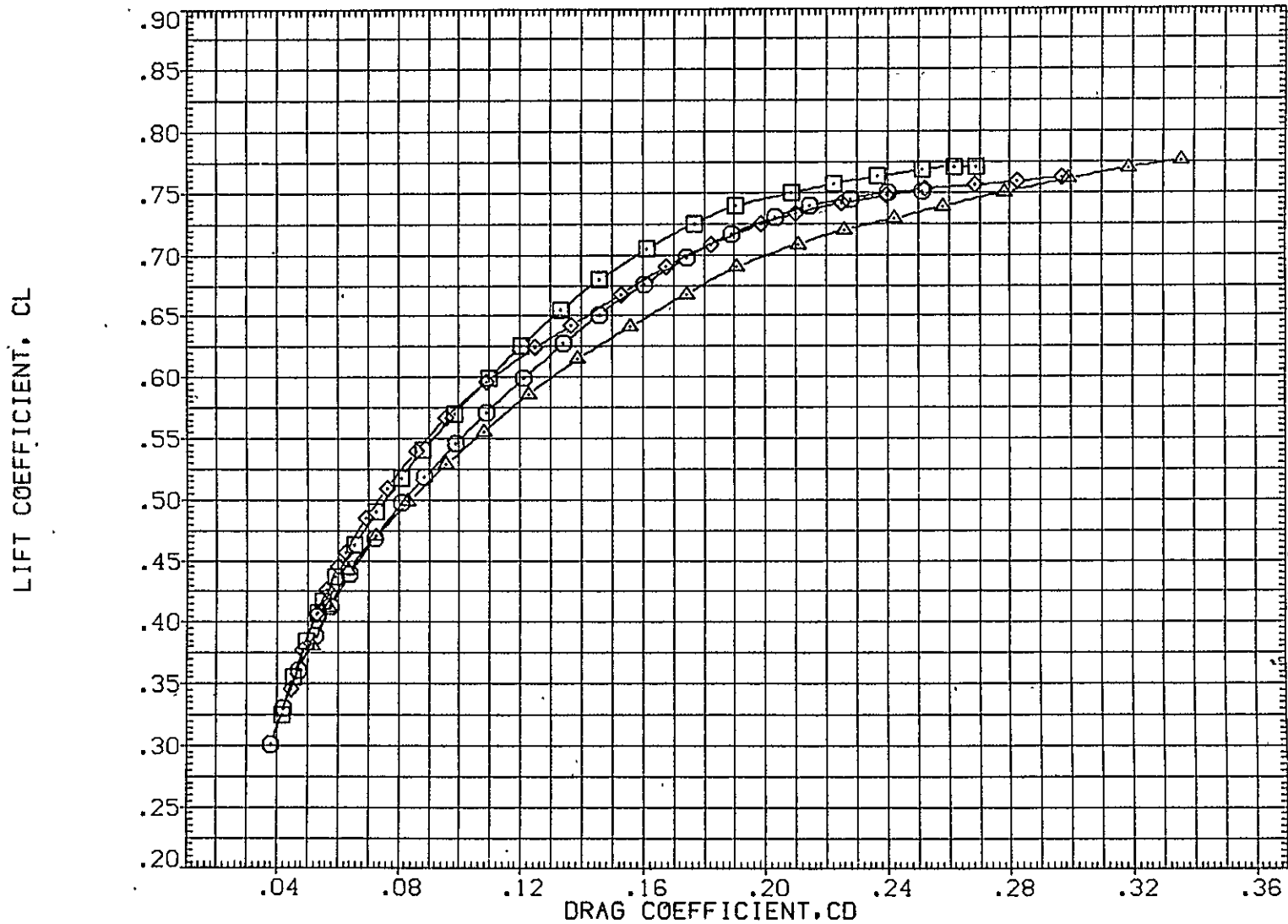


FIG. 64 747+ORB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)

ORB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(YGM096)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	BETA	.000	STAB	1.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.601	ELV-IB	.000	ELV-OB	.000
△	.701	S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

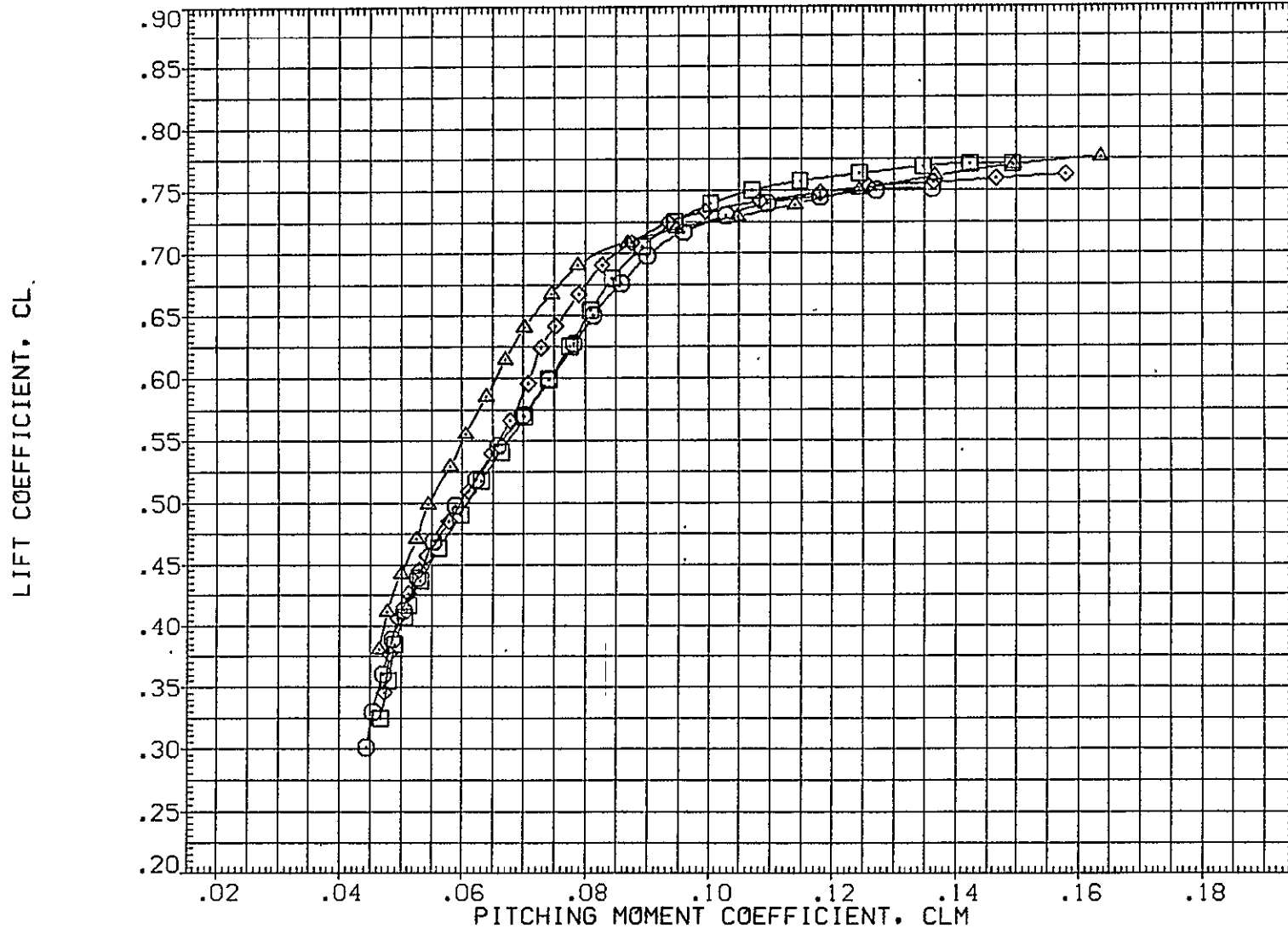


FIG. 64 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH(S=+1)

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	BETA	.000	STAB	1.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.601	ELV-1B	.000	ELV-0B	.000
△	.701	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

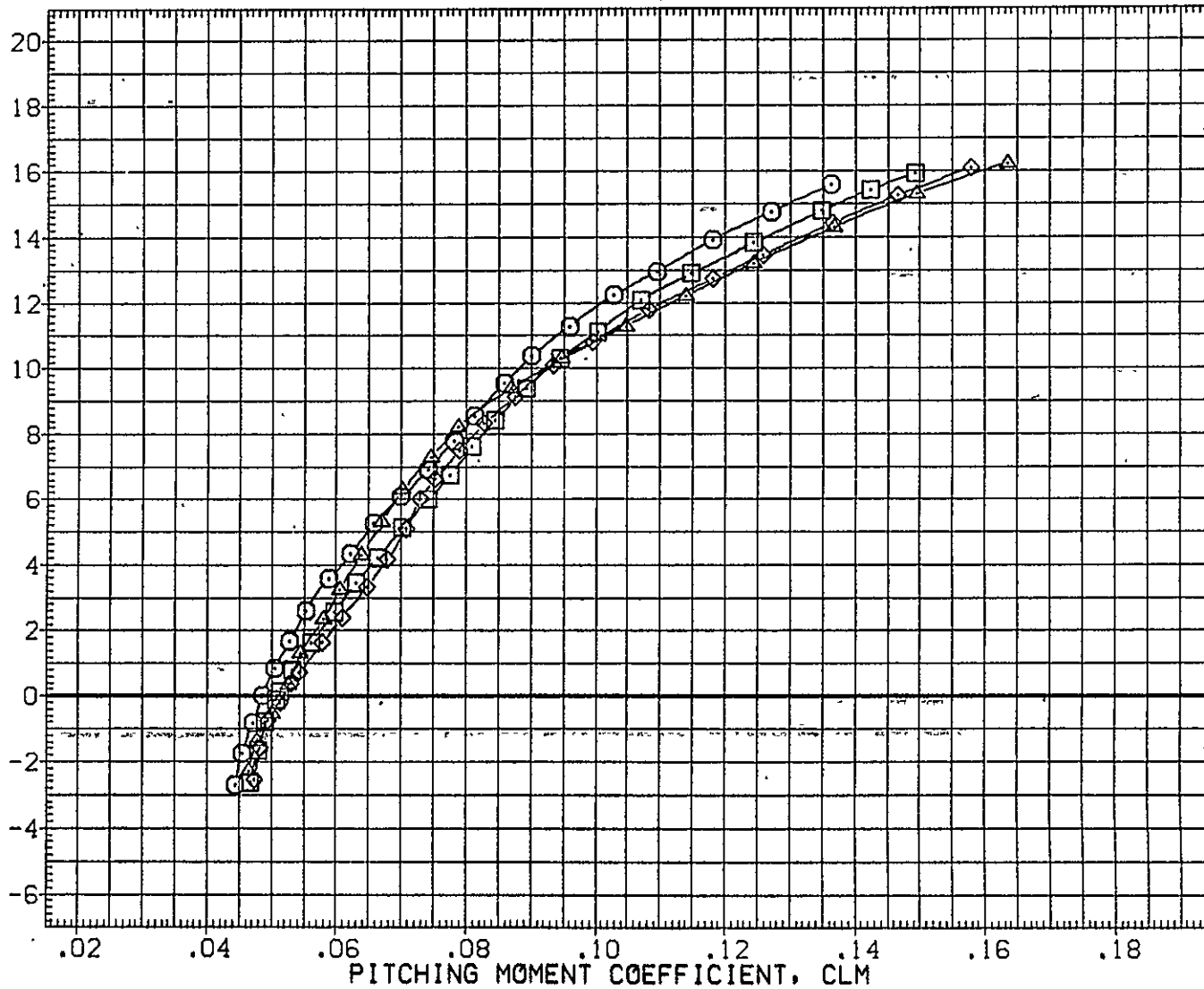


FIG. 64 747+0RB(10 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH(S=+1)

0RB

CA5 K1 F0 V9.1 (PLUS. ORB TC5 AT38.2A) (RGM098)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION													
		BETA	RUD-L	S3-4	IORB	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.	IN.	
○	.150	.000	.000	.000	.000	5500.0000	327.8000	2348.0000	1339.9100	.0000	190.7500	.0300							
□	.300	.000	.000	.000	.000														
◇	.500	45.000	S5-6	20.000															
△	.600	7.850																	
▽	.700																		

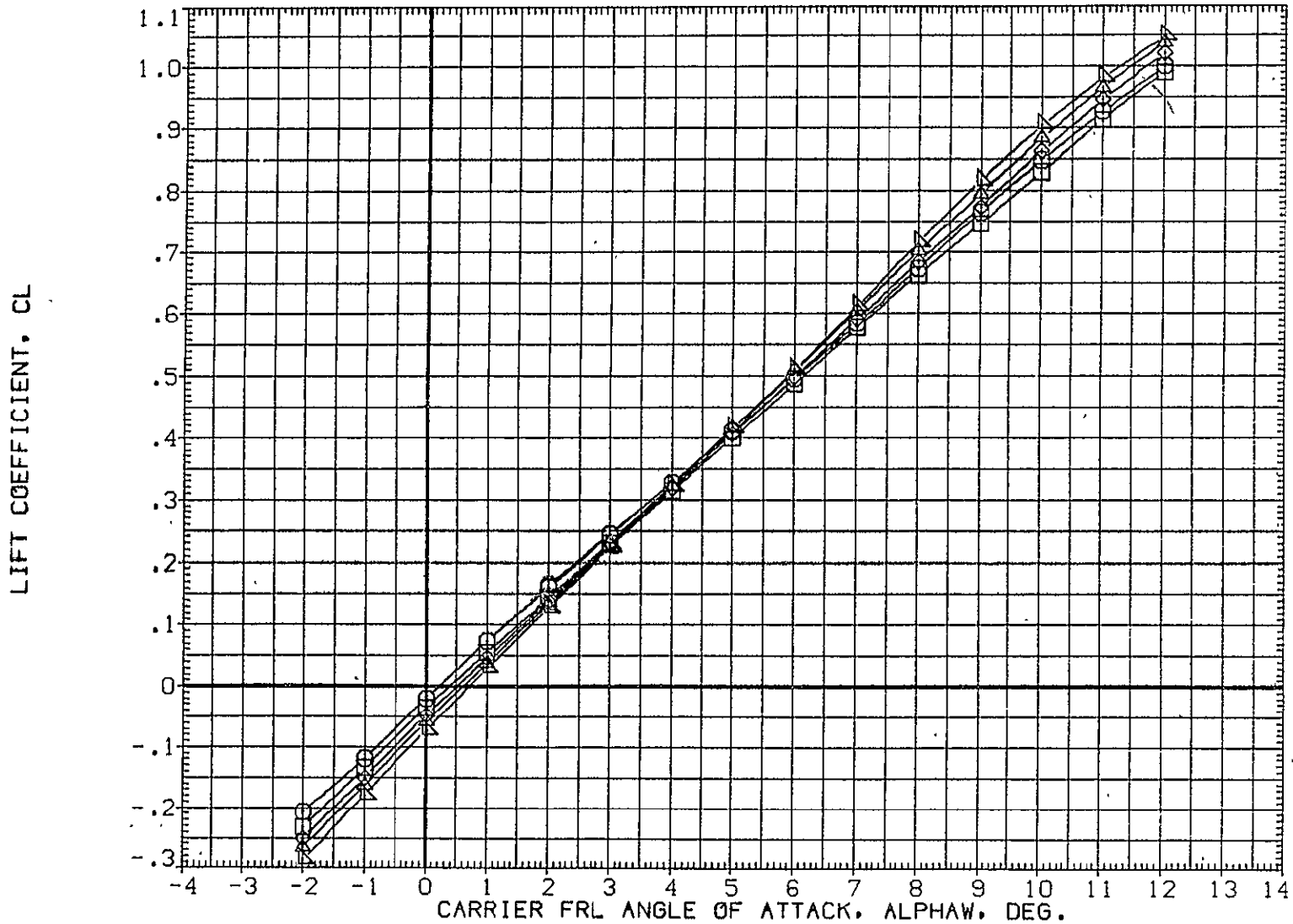


FIG. 65 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

TOTAL

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.300	RUD-L	.000	S1-2	.000
.500	S3-4	45.000	S5-6	20.000
.600	10RB	7.850		
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

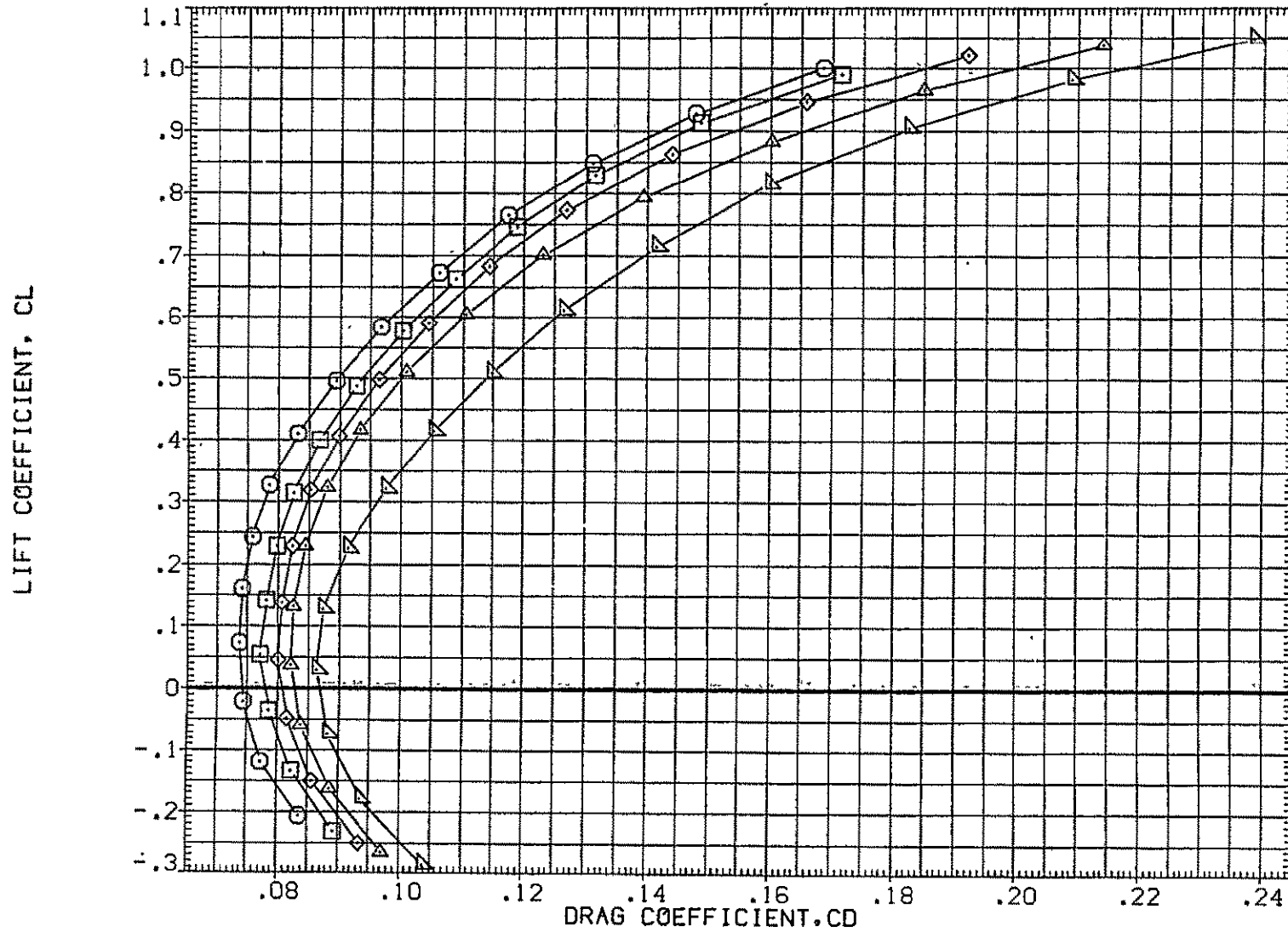


FIG. 65 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

CA5 K1 F0

V9.1 (PLUS. 0RB TC5 AT38.2A)(RGM098)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.300	RUD-L	.000	S1-2	.000
.500	S3-4	45.000	S5-6	20.000
.600	10RB	7.850		
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

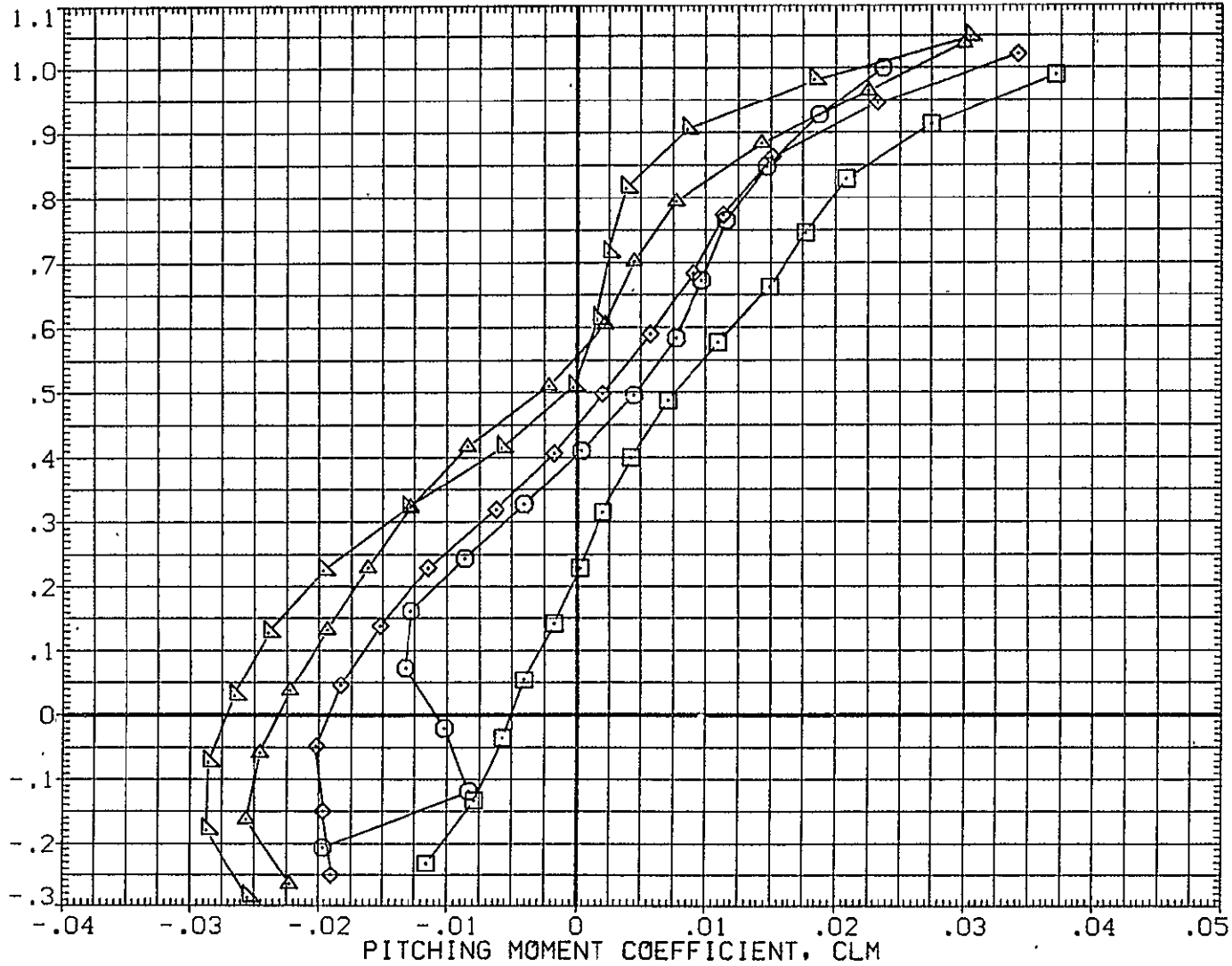


FIG. 65 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.300	RUD-L	.000	S1-2	.000
.500	S3-4	45.000	S5-6	20.000
.600	10RB	7.850		
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

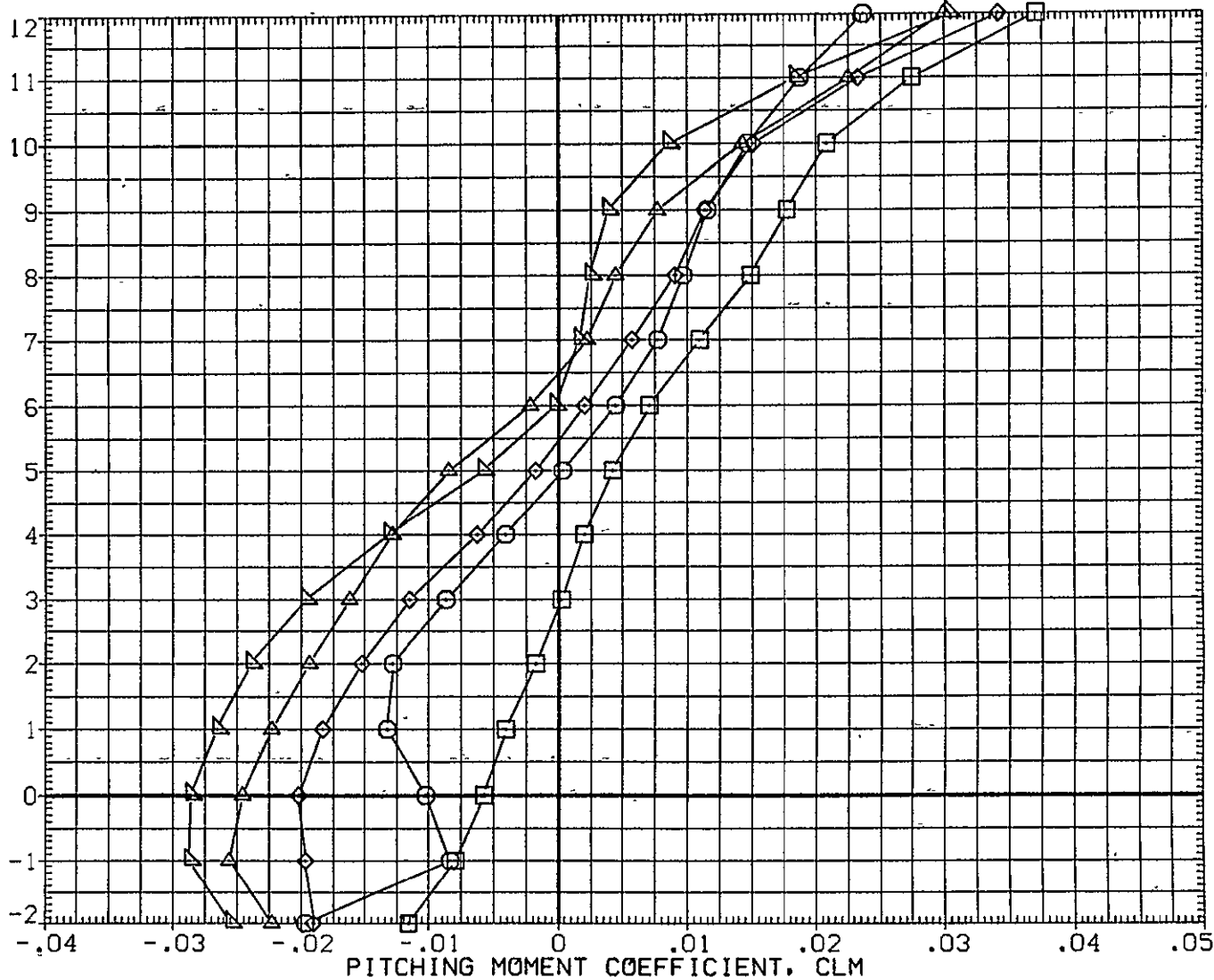


FIG. 65 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

CA5 K1 F0

V9.1 MINUS 0RB TC5 AT38.2A (BGM098)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	RUD-U	.000
□	.300	RUD-L	.000	S1-2	.000
◇	.500	S3-4	45.000	S5-6	20.000
△	.600	ICRB	7.850		
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

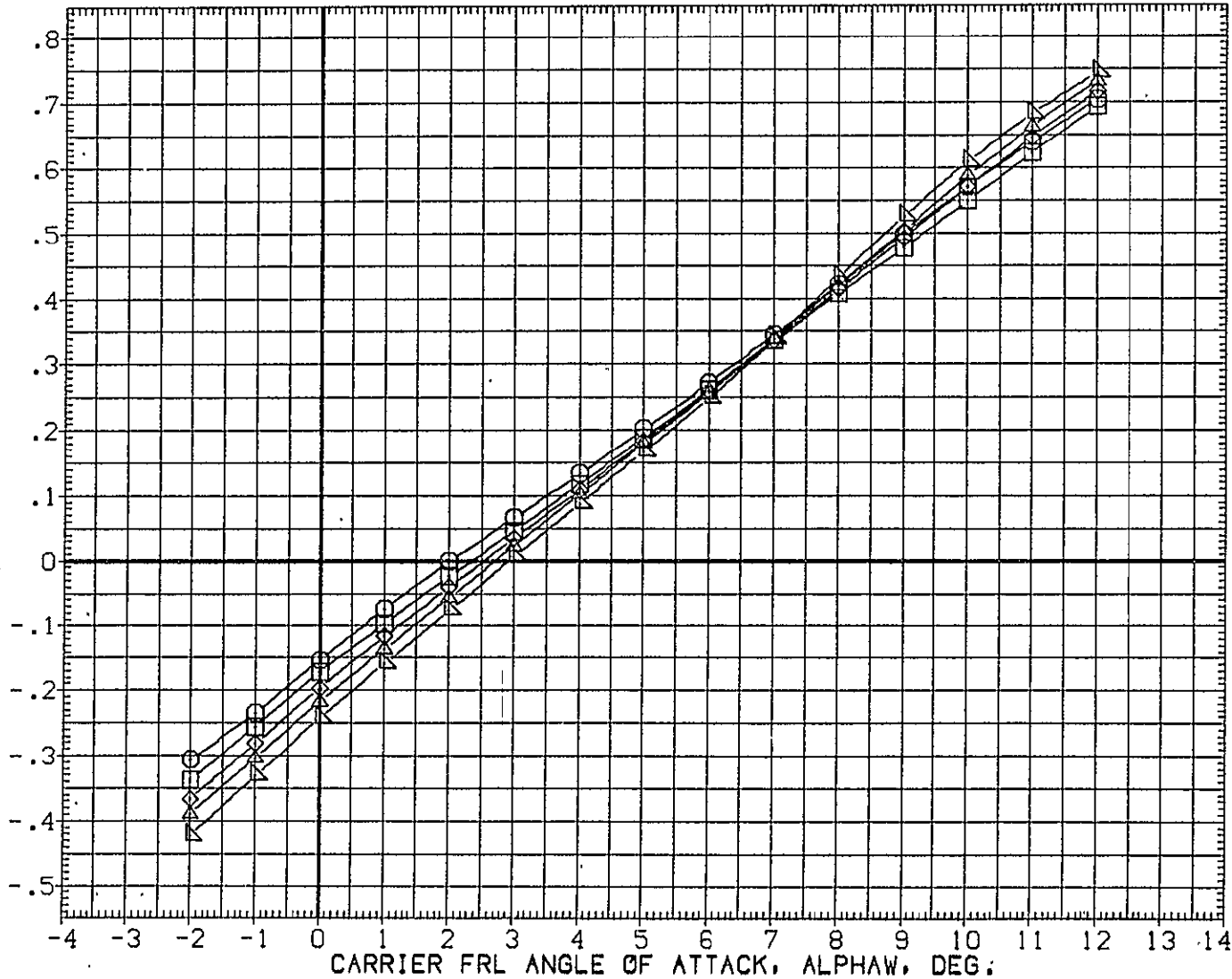


FIG. 66 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF



SYMBOL  
 ○ □ ◇ △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.300	RUD-L	.000	S1-2	.000
.500	S3-4	45.000	S5-6	20.000
.600	IORB	7.850		
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

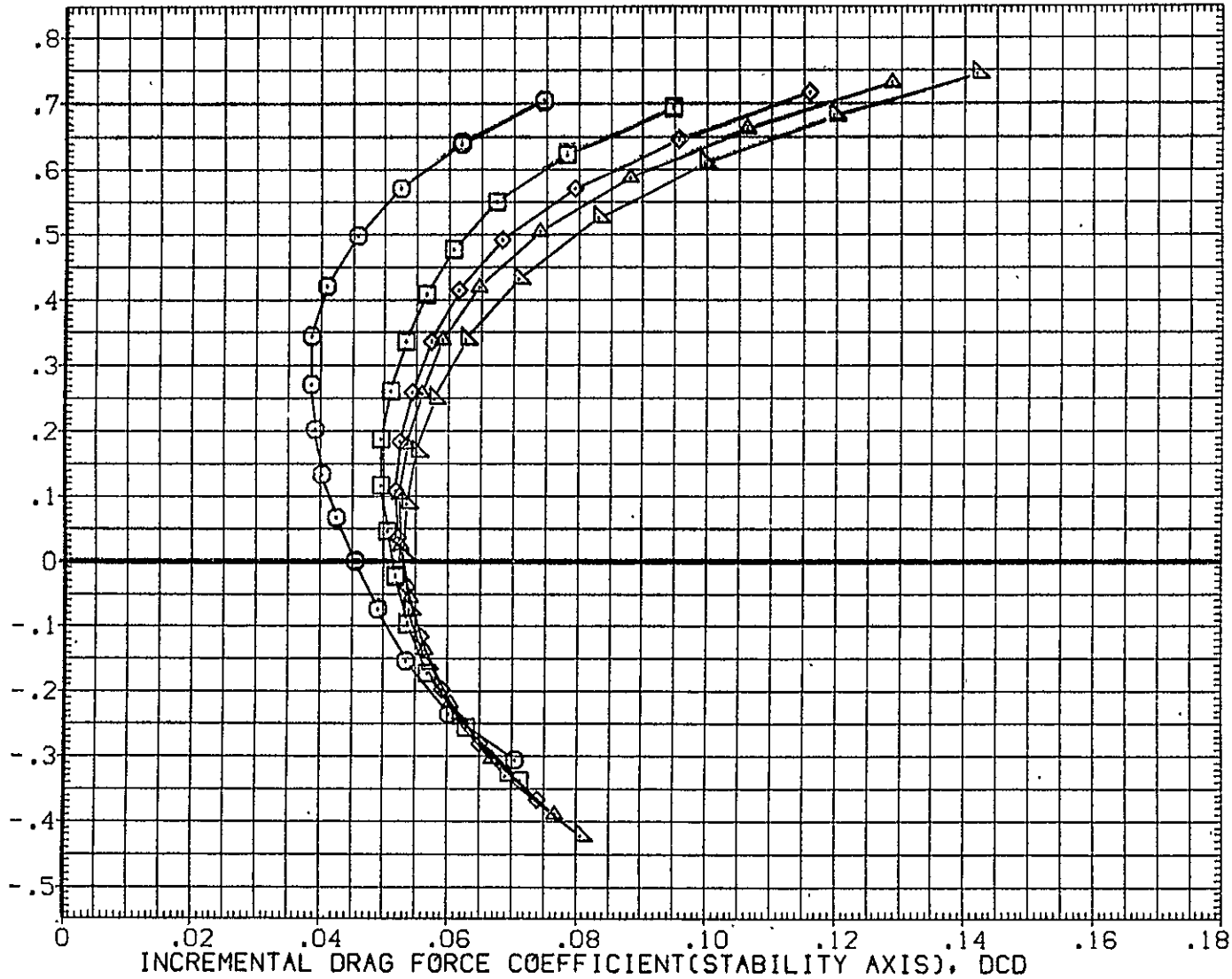


FIG. 66 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

CA5 K1 FO V9.1 MINUS ORB TC5 AT38.2A (BGM098)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	RUD-U	.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-L	.000	S1-2	.000	LREF	327.8000	IN.
◇	.500	S3-4	45.000	S5-6	20.000	BREF	2348.0000	IN.
△	.600	IORB	7.850			XMRP	1339.9100	IN. XC
▽	.700					YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

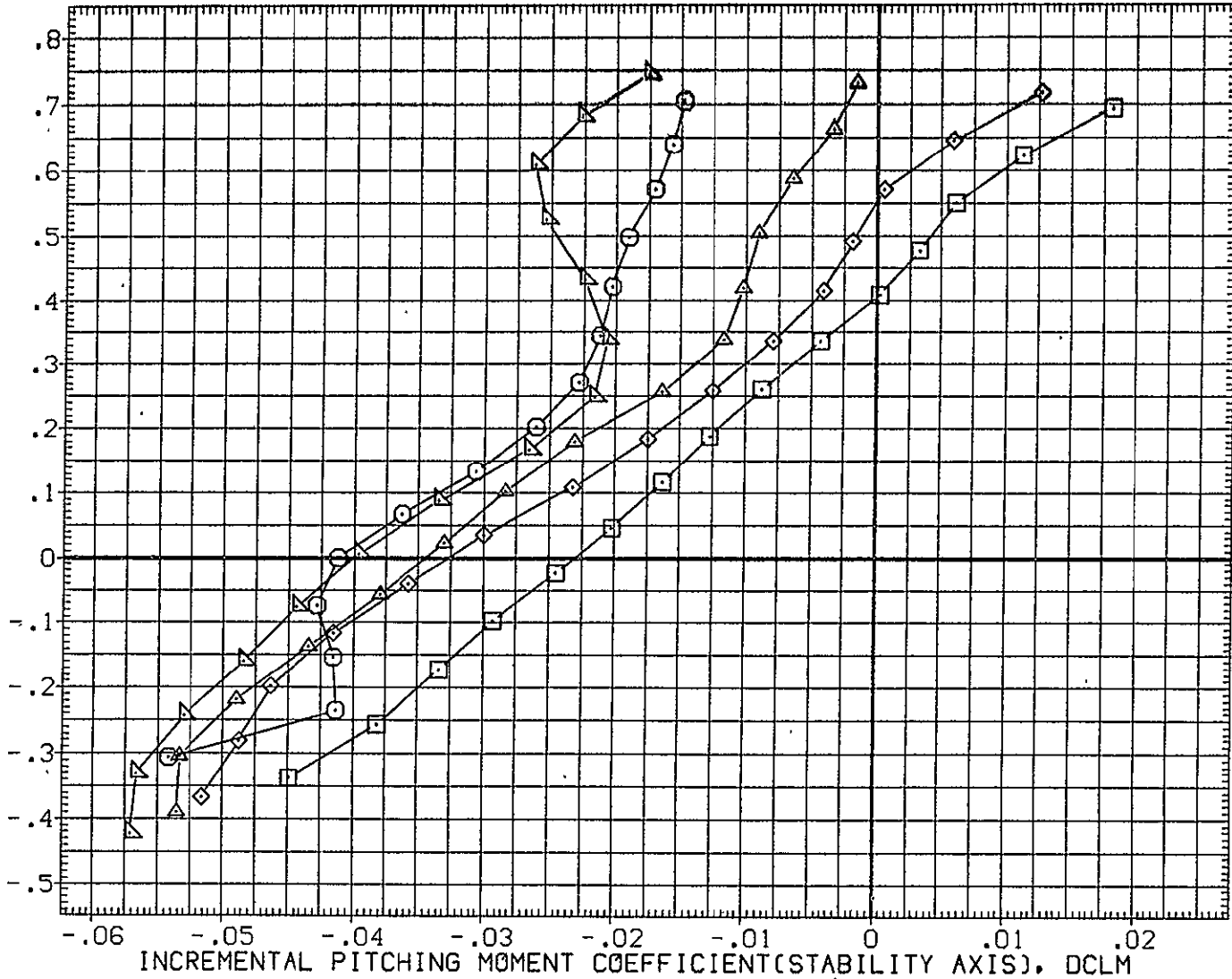


FIG. 66 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

SYMBOL  
 ▽ ◊ □ ○

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.300	RUD-L	.000	S1-2	.000
.500	S3-4	45.000	S5-6	20.000
.600	IORB	7.850		
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

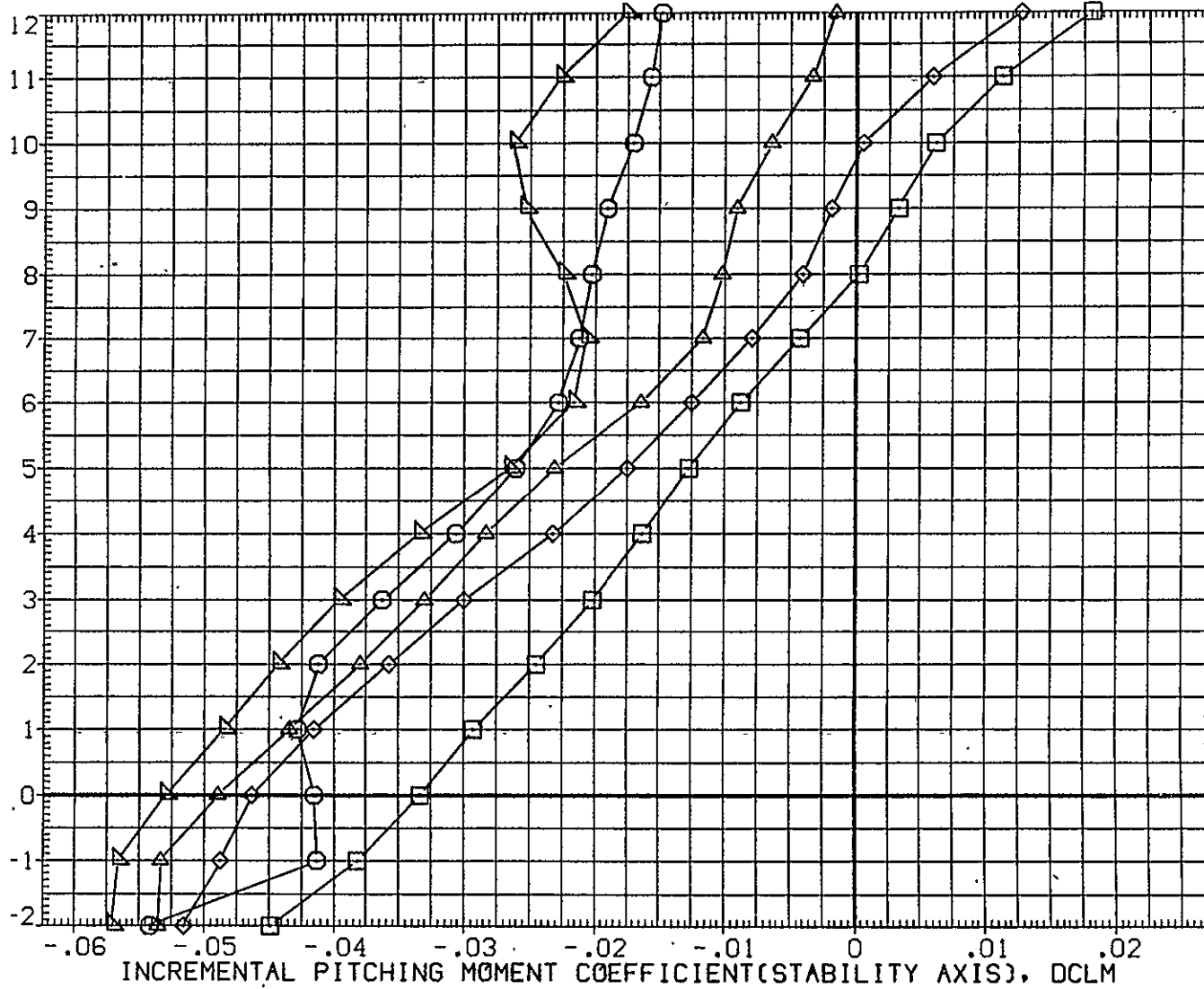


FIG. 66 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

CA5 ORB TC5 AT38.2A (PRES. K1 FO

V9.1)(YGM098)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.149	BETA	.000	RUD-U	.000
□	.299	RUD-L	.000	S1-2	.000
◇	.500	S3-4	45.000	S5-6	20.000
△	.599	IORB	7.850		
▽	.700				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

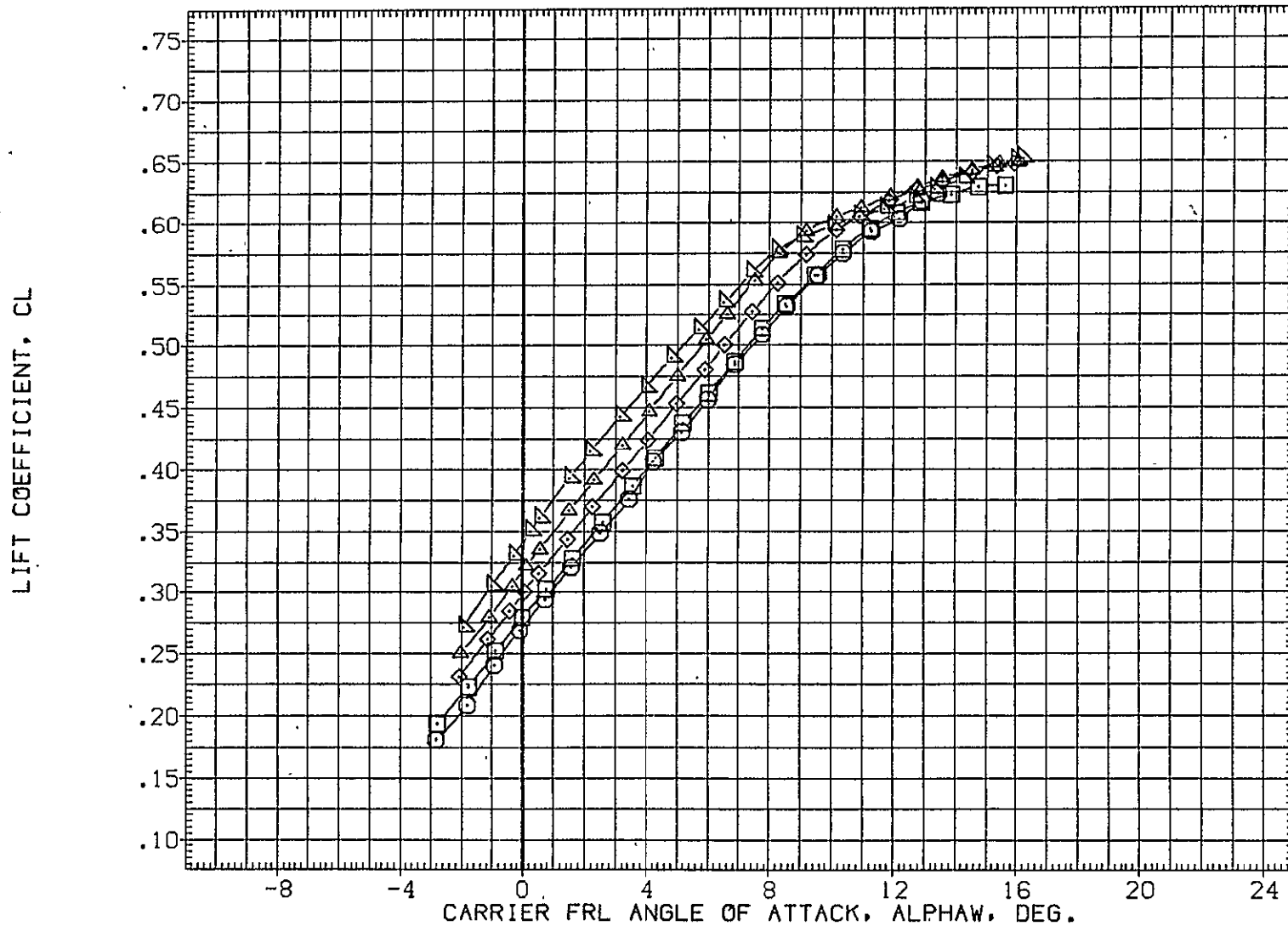


FIG. 67 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

ORB

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH  
 .149  
 .299  
 .500  
 .599  
 .700

BETA  
 RUD-L  
 S3-4  
 IORB

PARAMETRIC VALUES  
 .000 RUD-U  
 .000 S1-2  
 45.000 S5-6  
 7.850

.000  
 .000  
 20.000

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
 LREF 474.8100 IN.  
 BREF 936.6800 IN.  
 XMRP 1109.0000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

LIFT COEFFICIENT, CL

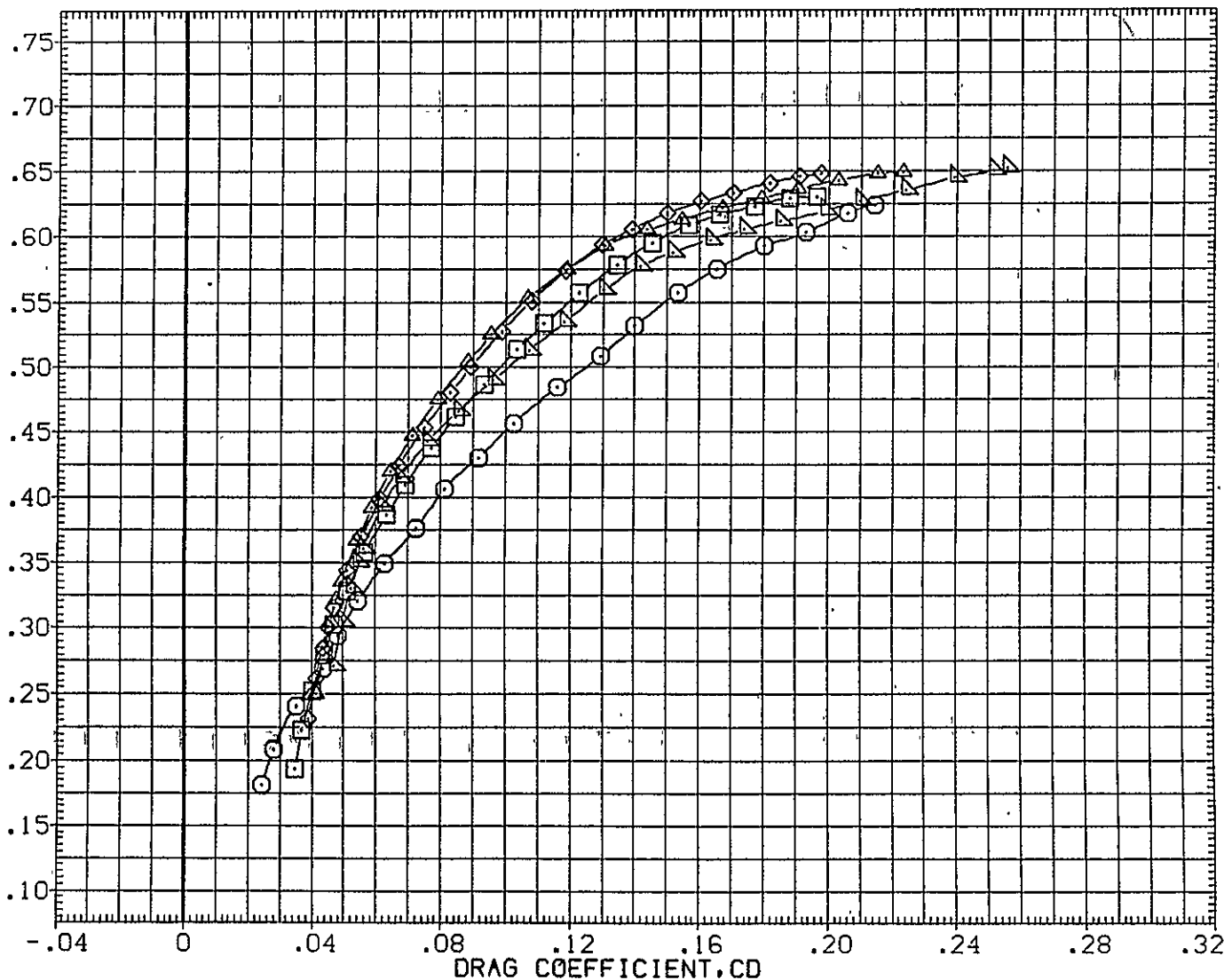


FIG. 67 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

ORB

CA5 ORB TC5 AT38.2A (PRES. K1 FO

V9.1)(YGM098)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH  
 .149  
 .299  
 .500  
 .599  
 .700

PARAMETRIC VALUES  
 BETA .000 RUD-U .000  
 RUD-L .000 S1-2 .000  
 S3-4 45.000 S5-6 20.000  
 10RB 7.850

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8100 IN.  
 BREF 936.6800 IN.  
 XMRP 1109.0000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

LIFT COEFFICIENT, CL

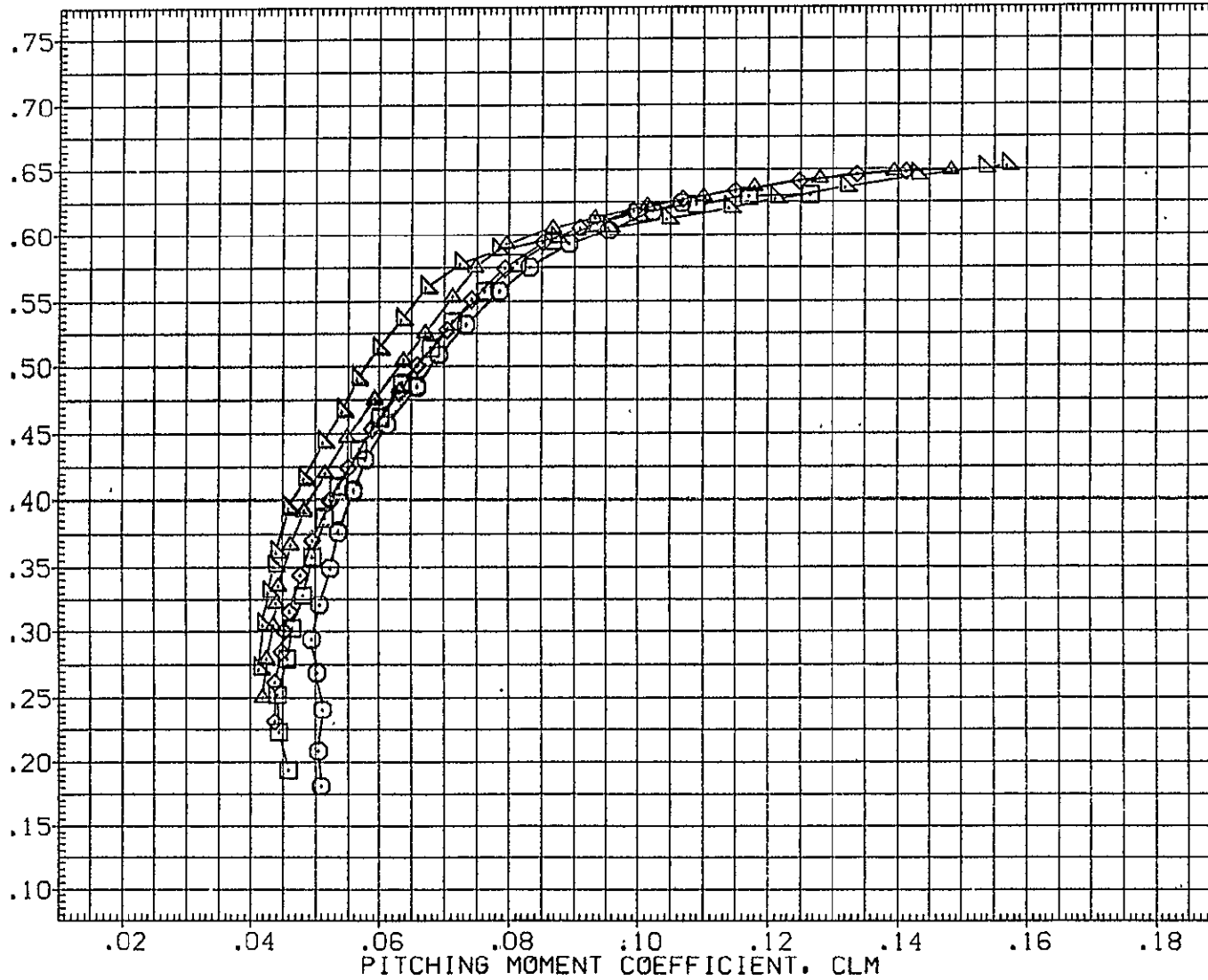


FIG. 67 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.149	BETA	.000	RUD-U	.000
□	.299	RUD-L	.000	S1-2	.000
◇	.500	S3-4	45.000	S5-6	20.000
△	.599	IORB	7.850		
▽	.700				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

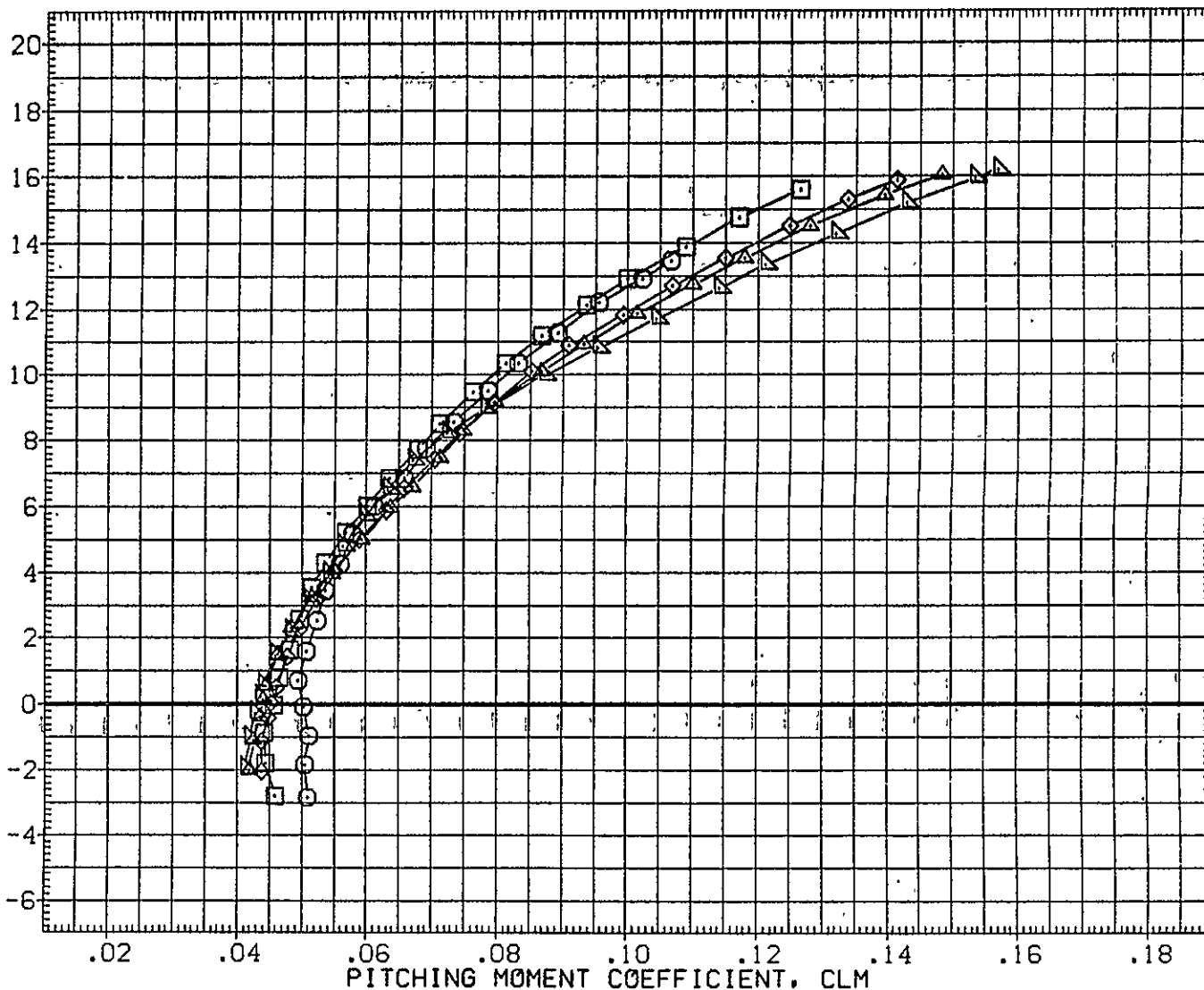


FIG. 67 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HORIZ OFF

0RB

CA5 K1 F0

V9.1 (PLUS. 0RB N0Z AT38.2A) (RGM099)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.600	S3-4	45.000	S5-6	20.000
△	.700	I0RB	7.850		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

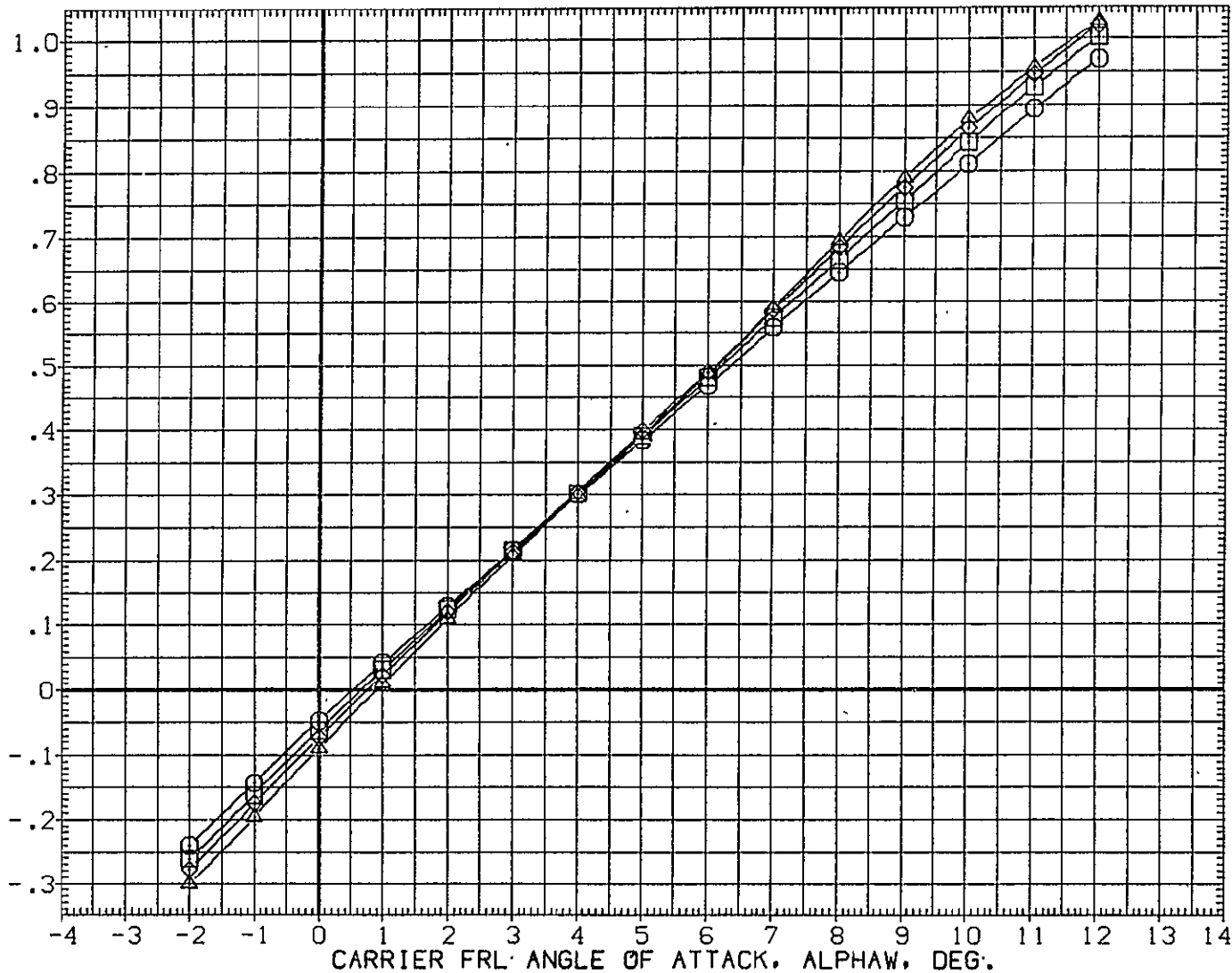


FIG. 68 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF TOTAL



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.600	S3-4	45.000	S5-6	20.000
△	.700	10RB	.7.850		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

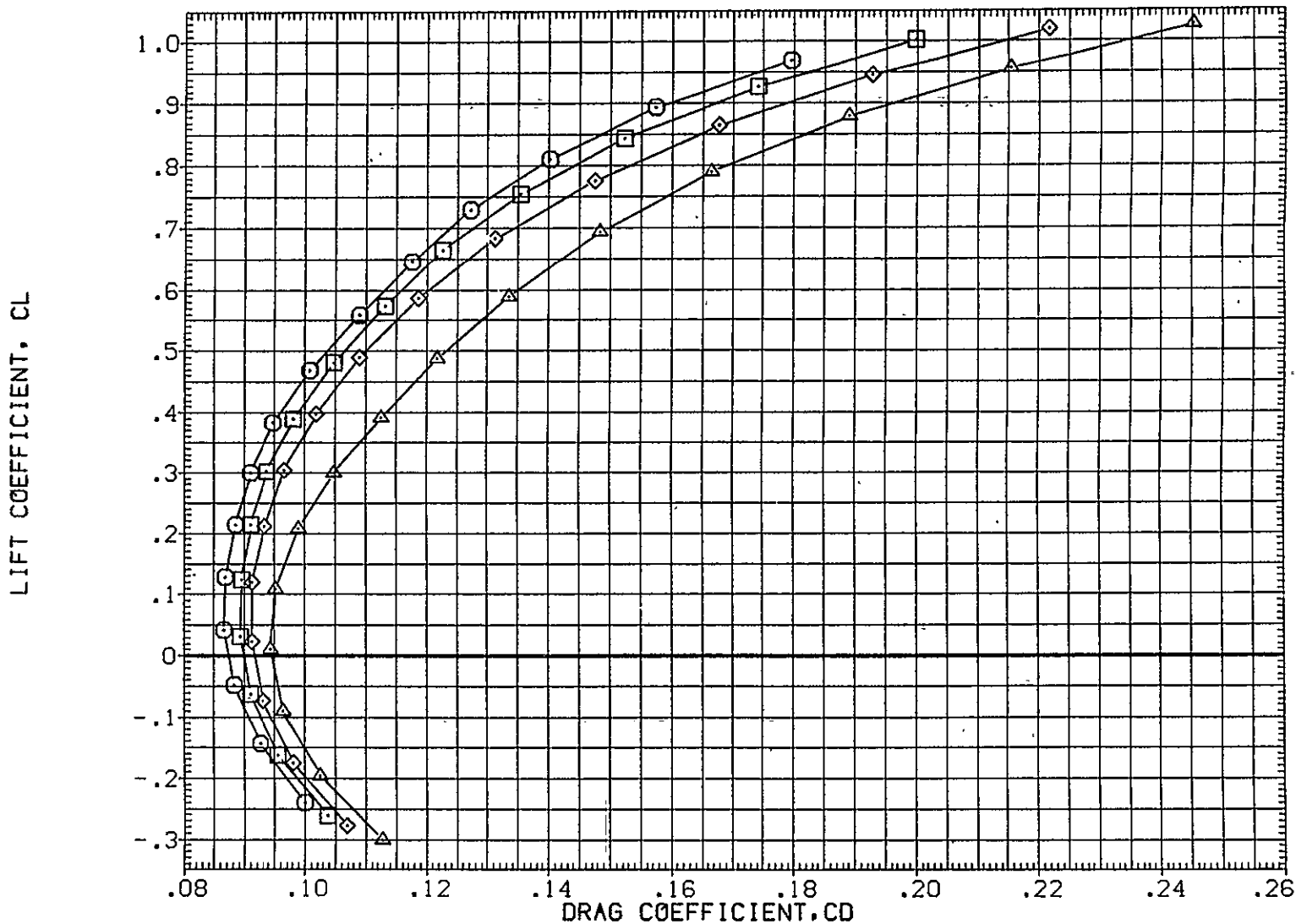


FIG. 68 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF TOTAL

CA5 K1 F0 V9.1 (PLUS. 0RB N0Z AT38.2A) (RGM099)

SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.300		.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.600	S3-4	45.000	S5-6	20.000
△	.700	10RB	7.850		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

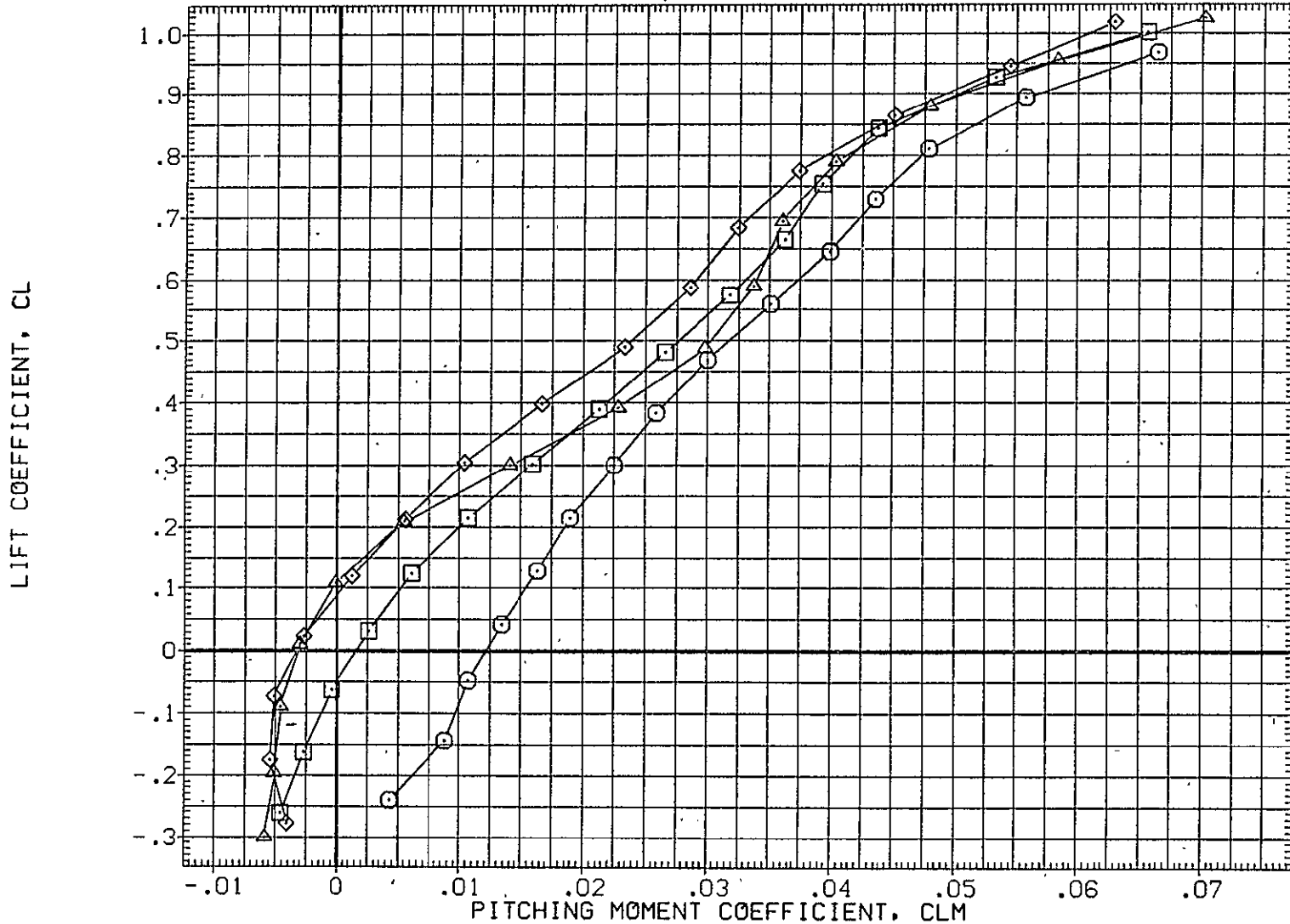


FIG. 68 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF TOTAL

SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.300		.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.600	S3-4	45.000	S5-6	20.000
△	.700	IORB	7.850		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

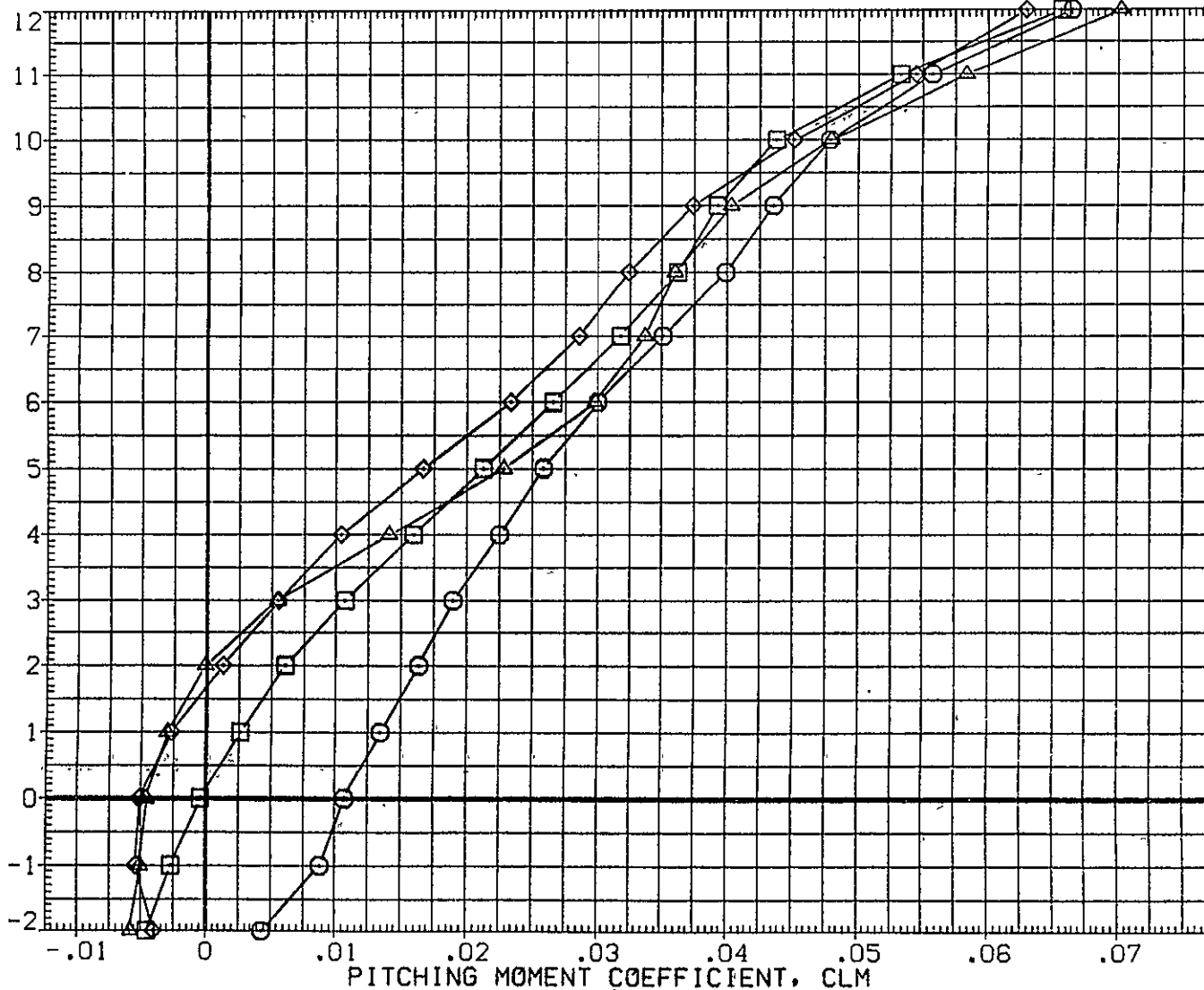


FIG. 68 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF TOTAL

CA5 K1 F0 V9.1 MINUS ORB NOZ AT38.2A (BGM099)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.600	S3-4	45.000	S5-6	20.000
△	.700	IORB	7.850		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

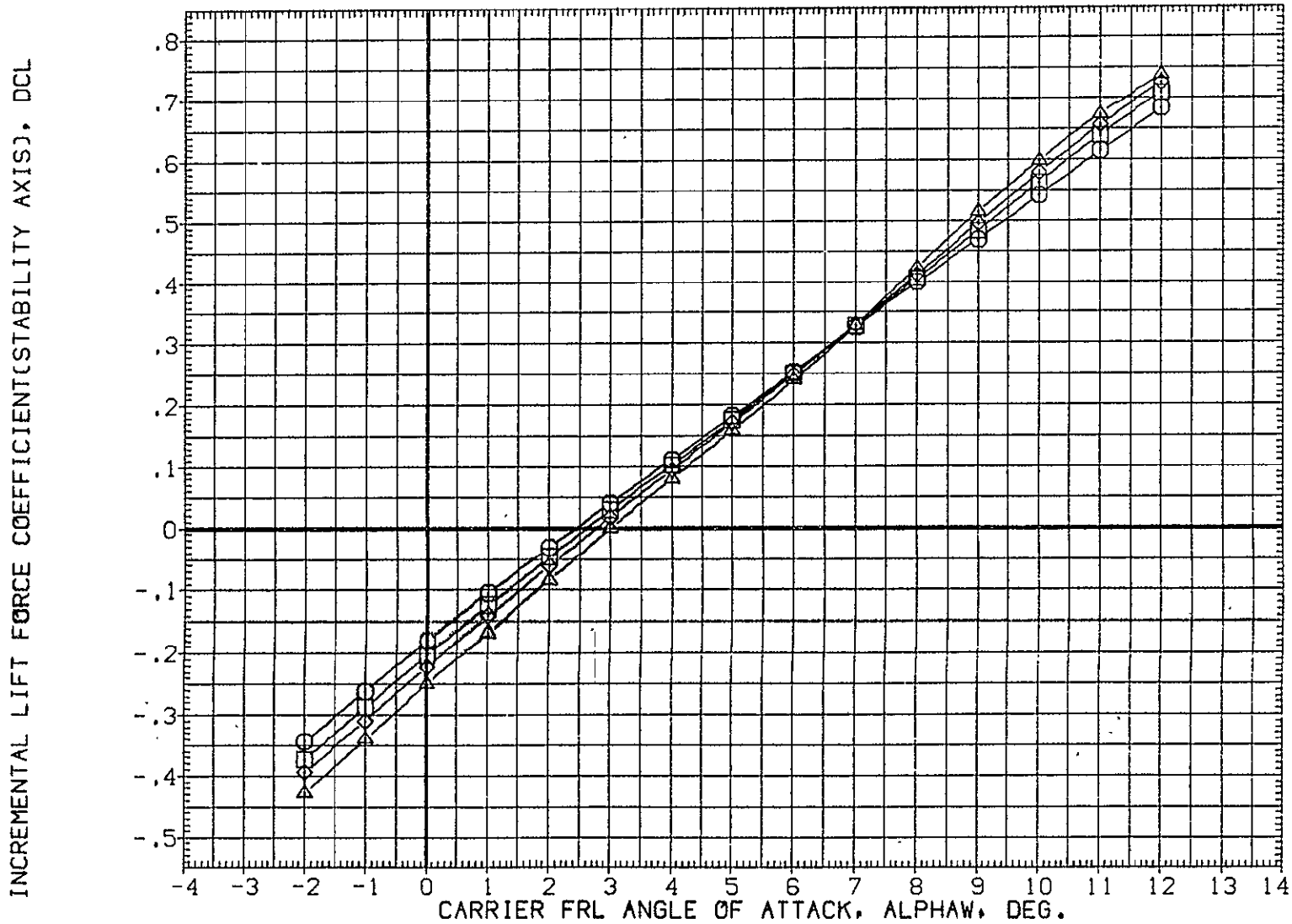


FIG. 69 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF 747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.600	S3-4	45.000	S5-6	20.000
△	.700	IORB	7.850		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

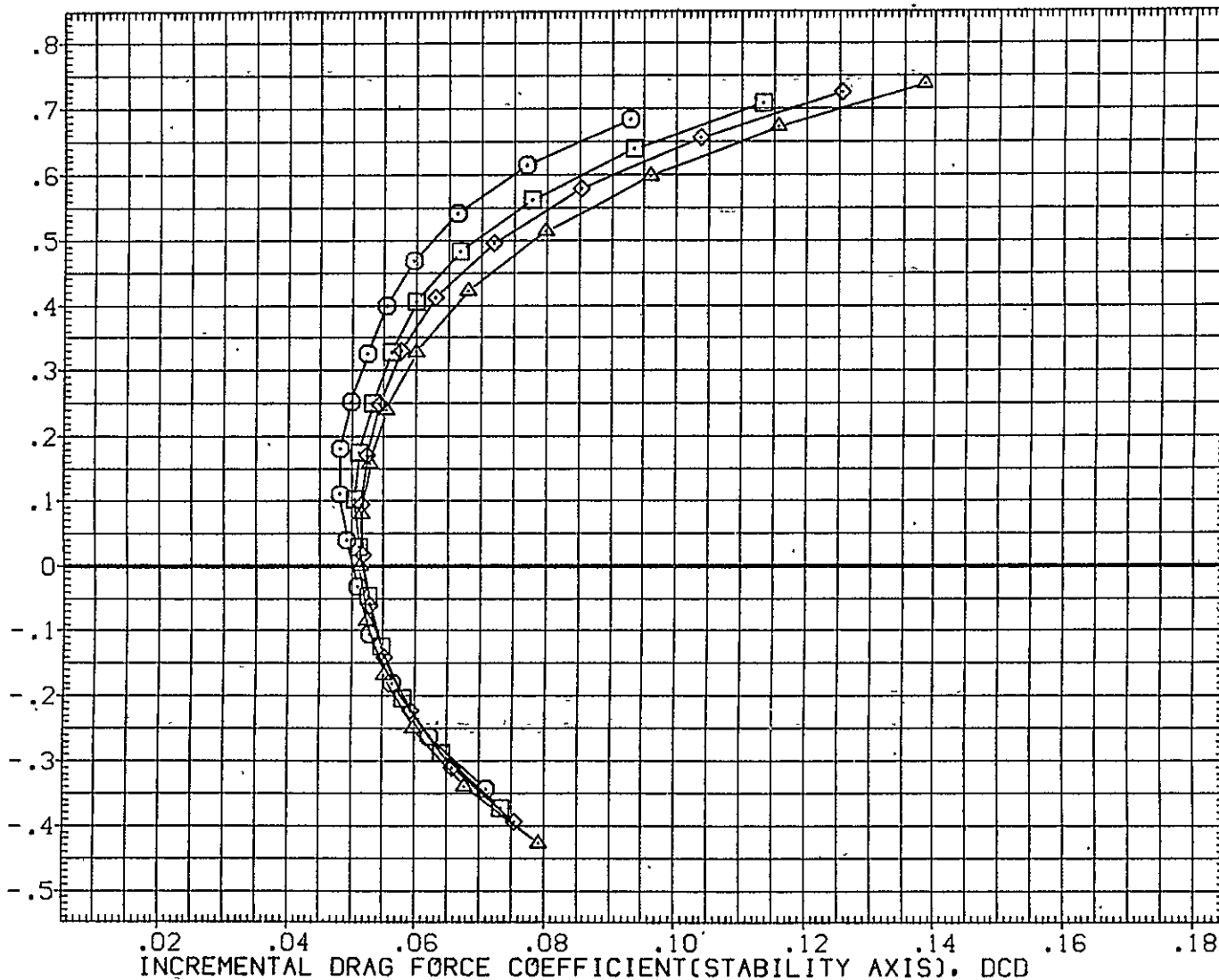


FIG. 69 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF 747

CA5 K1 F0

V9.1 MINUS 0RB N0Z AT38.2A (BGM099)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.600	S3-4	45.000	S5-6	20.000
△	.700	IORB	7.850		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

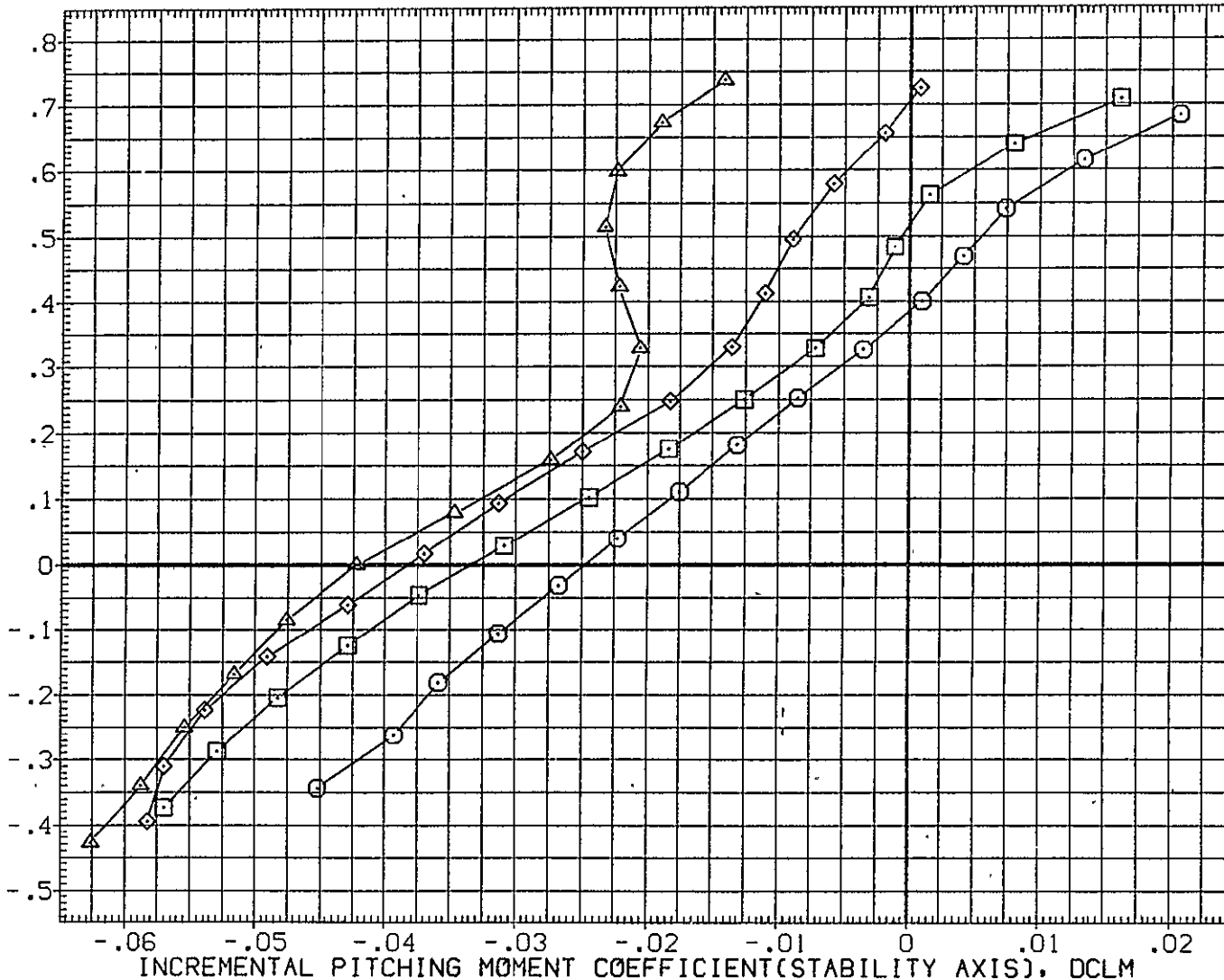


FIG. 69 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF 747

SYMBOL:  
 ○  
 □  
 ◇  
 △

MACH  
 .300  
 .500  
 .600  
 .700

PARAMETRIC VALUES  
 BETA .000  
 RUD-L .000  
 S3-4 45.000  
 IORB 7.850  
 RUD-U .000  
 S1-2 .000  
 S5-6 20.000

REFERENCE INFORMATION  
 SREF 5500.0000 SQ.FT.  
 LREF 327.8000 IN.  
 BREF 2348.0000 IN.  
 XMRP 1339.9100 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 190.7500 IN. ZC  
 SCALE .0300

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

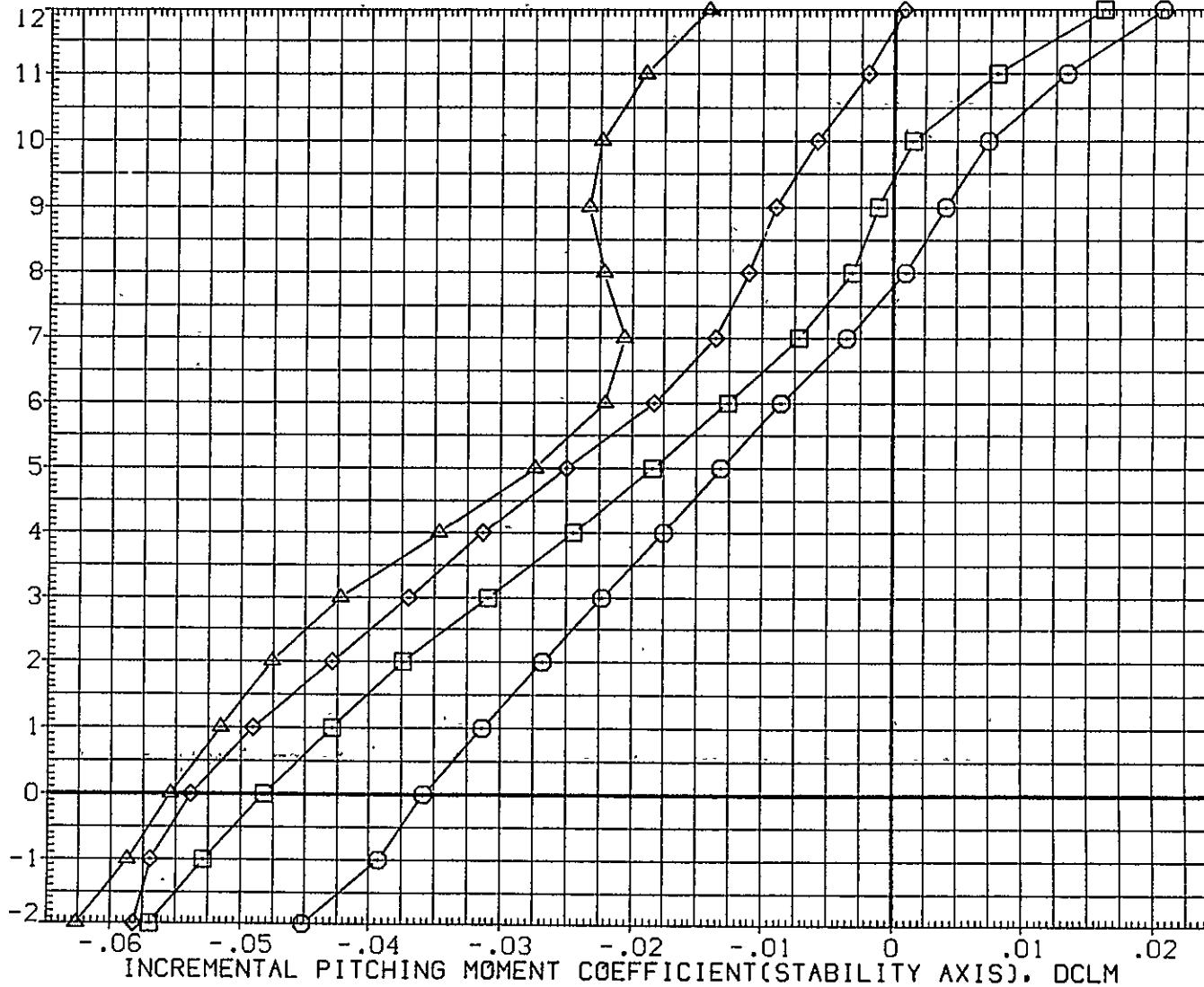


FIG. 69 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF 747

CA5 0RB N0Z AT38.2A (PRES. K1 FO

V9.1.) (YGM099)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.599	S3-4	45.000	S5-6	20.000
△	.701	10RB	7.850		

REFERENCE INFORMATION		
SREF	2600.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

LIFT COEFFICIENT, CL

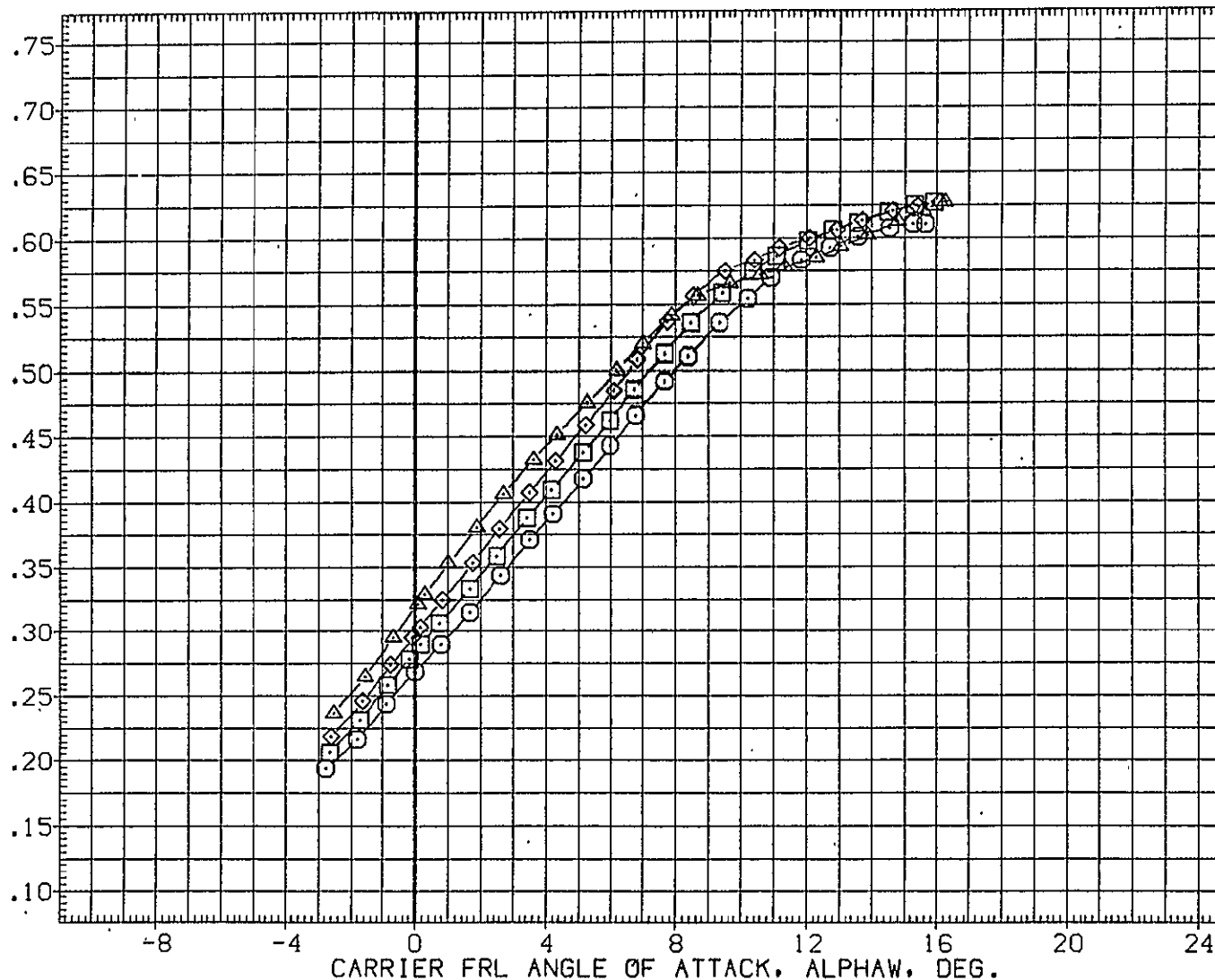


FIG. 70 747+0RB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF 0RB



SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.301		.000	RUD-U	.000
□	.500		.000	S1-2	.000
◇	.599	S3-4	45.000	S5-6	20.000
△	.701	IORB	7.850		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

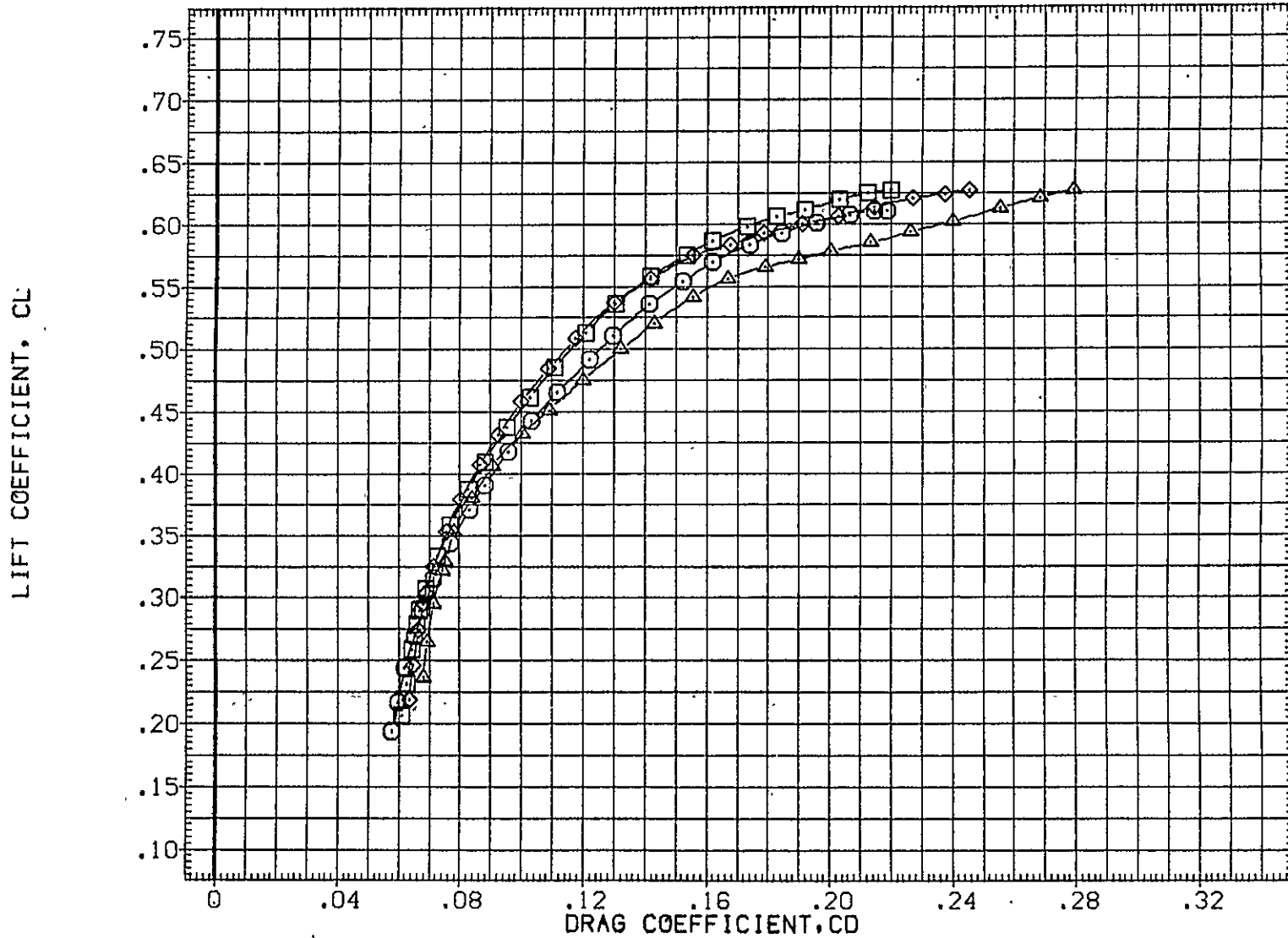


FIG. 70 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF ORB

CA5 ORB NOZ AT38.2A (PRES. K1 FO

V9.1)(YGM099)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.599	S3-4	45.000	S5-6	20.000
△	.701	IORB	7.850		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

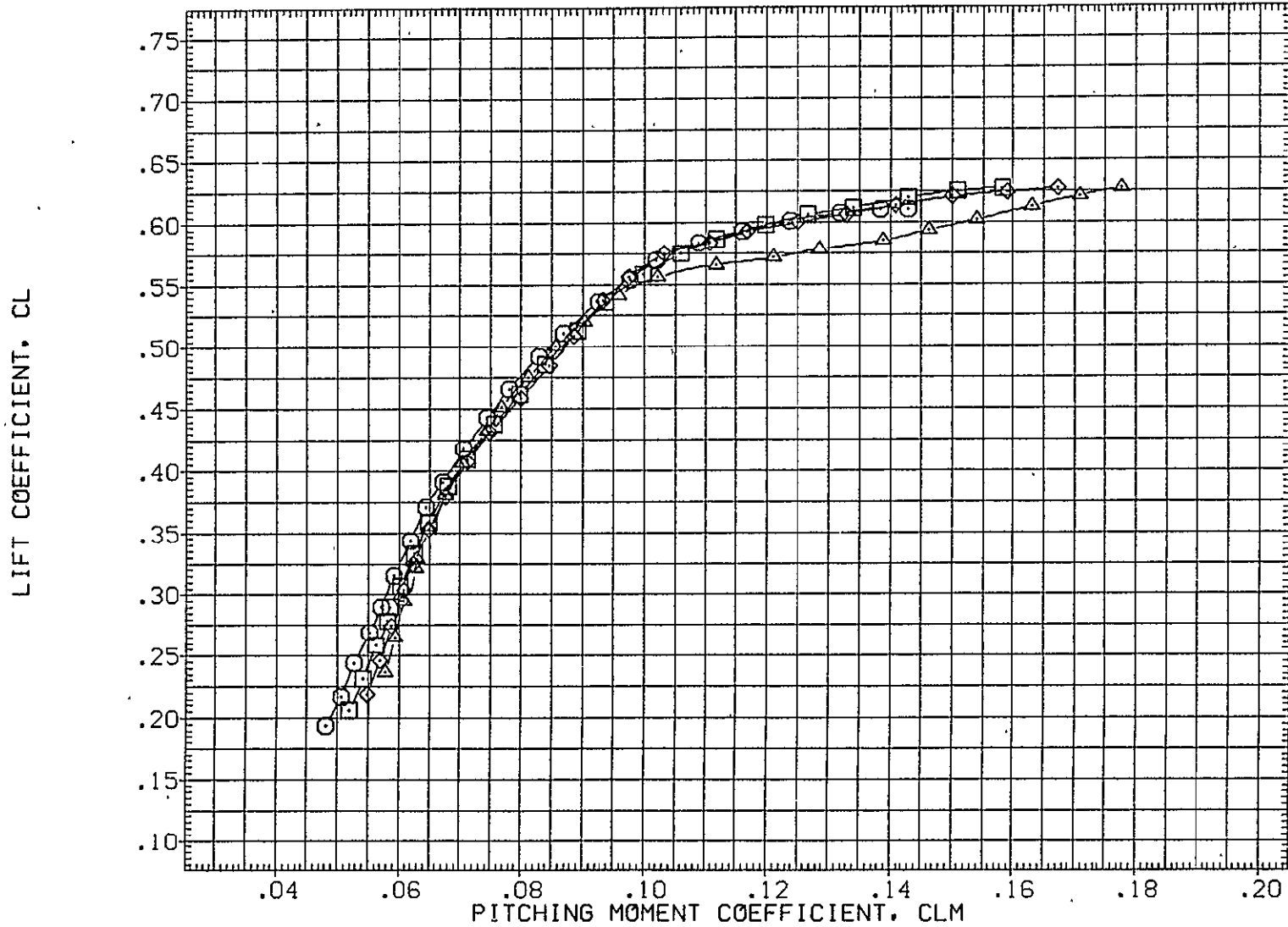


FIG. 70 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	RUD-U	.000
□	.500	RUD-L	.000	S1-2	.000
◇	.599	S3-4	45.000	S5-6	20.000
△	.701	I0RB	7.850		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

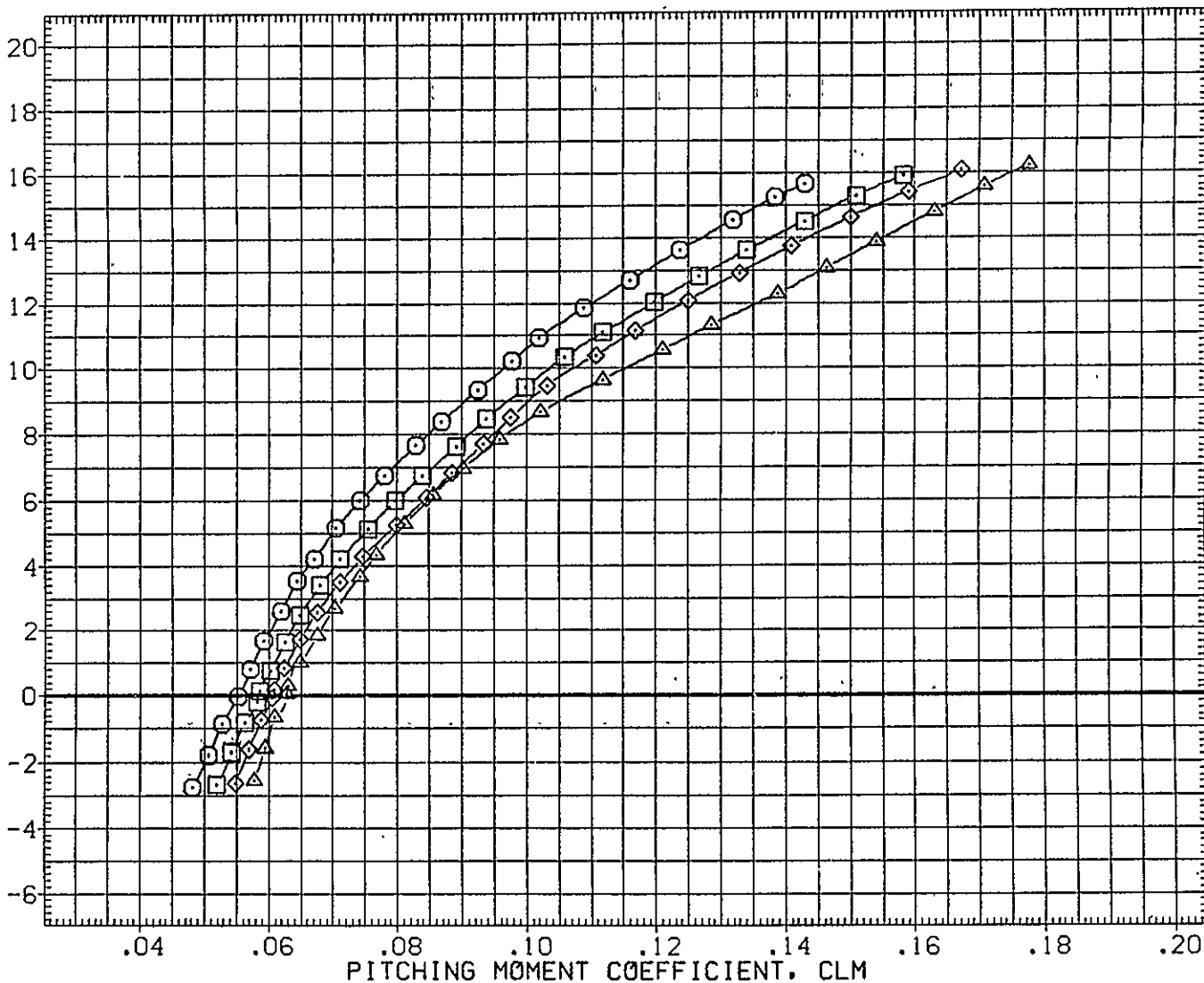


FIG. 70 747+ORB(8 DEG)+STD SPD BRK, FLAPS UP LAUNCH, HOR OFF, TAIL CONE OFF ORB

CA5 K1 F0 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM107)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	RUD-U	.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-L	.000	S1-2	.000	LREF	327.8000	IN.
◇	.500	S3-4	.000	S5-6	.000	BREF	2348.0000	IN.
△	.600	IORB	4.000			XMRP	1339.9100	IN. XC
▽	.700					YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

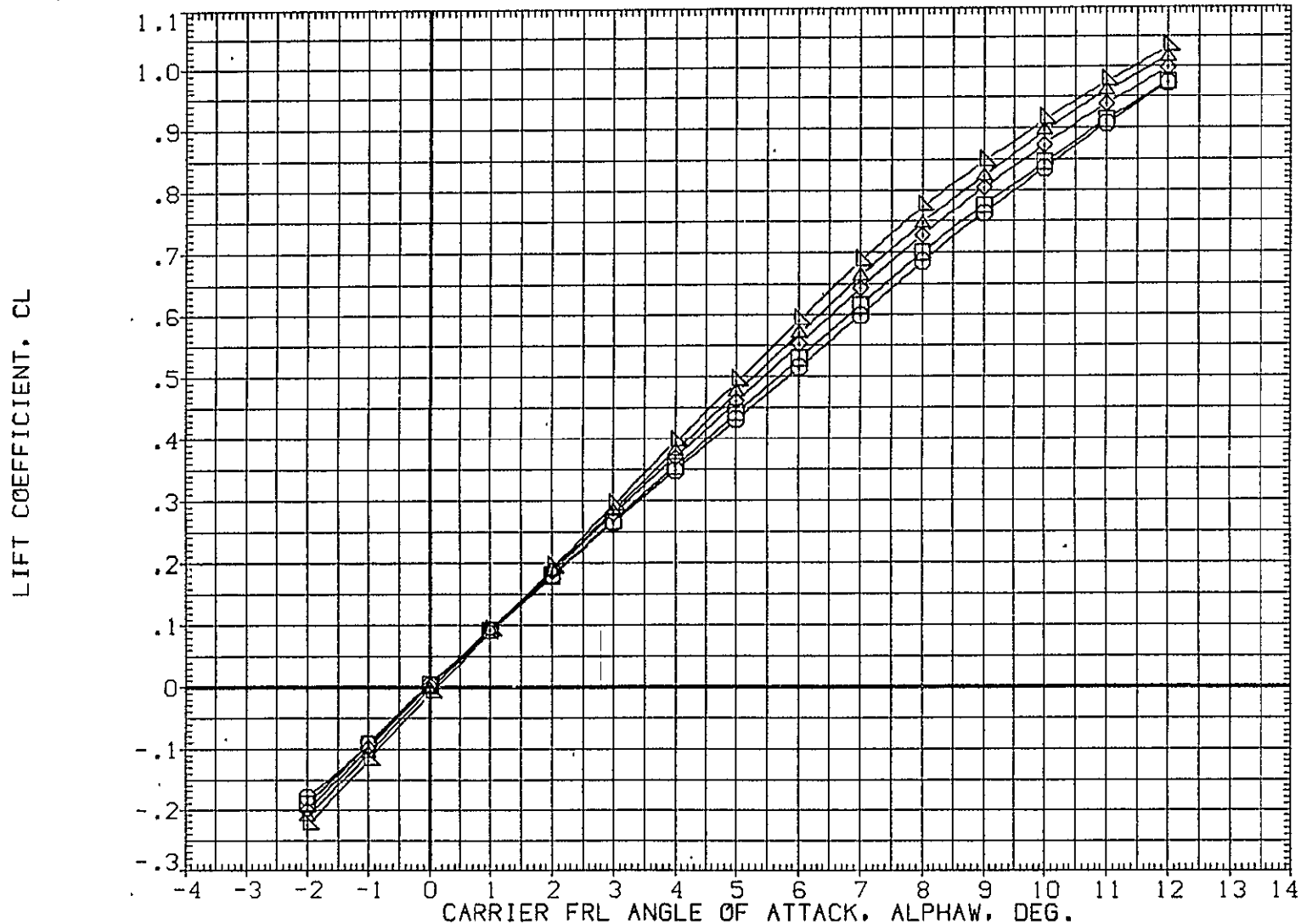


FIG. 71 747+0RB(4 DEG), HORIZ OFF, FLAPS UP FERRY

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.300	RUD-L	.000	S1-2	.000
.500	S3-4	.000	S5-6	.000
.600	IORB	4.000		
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

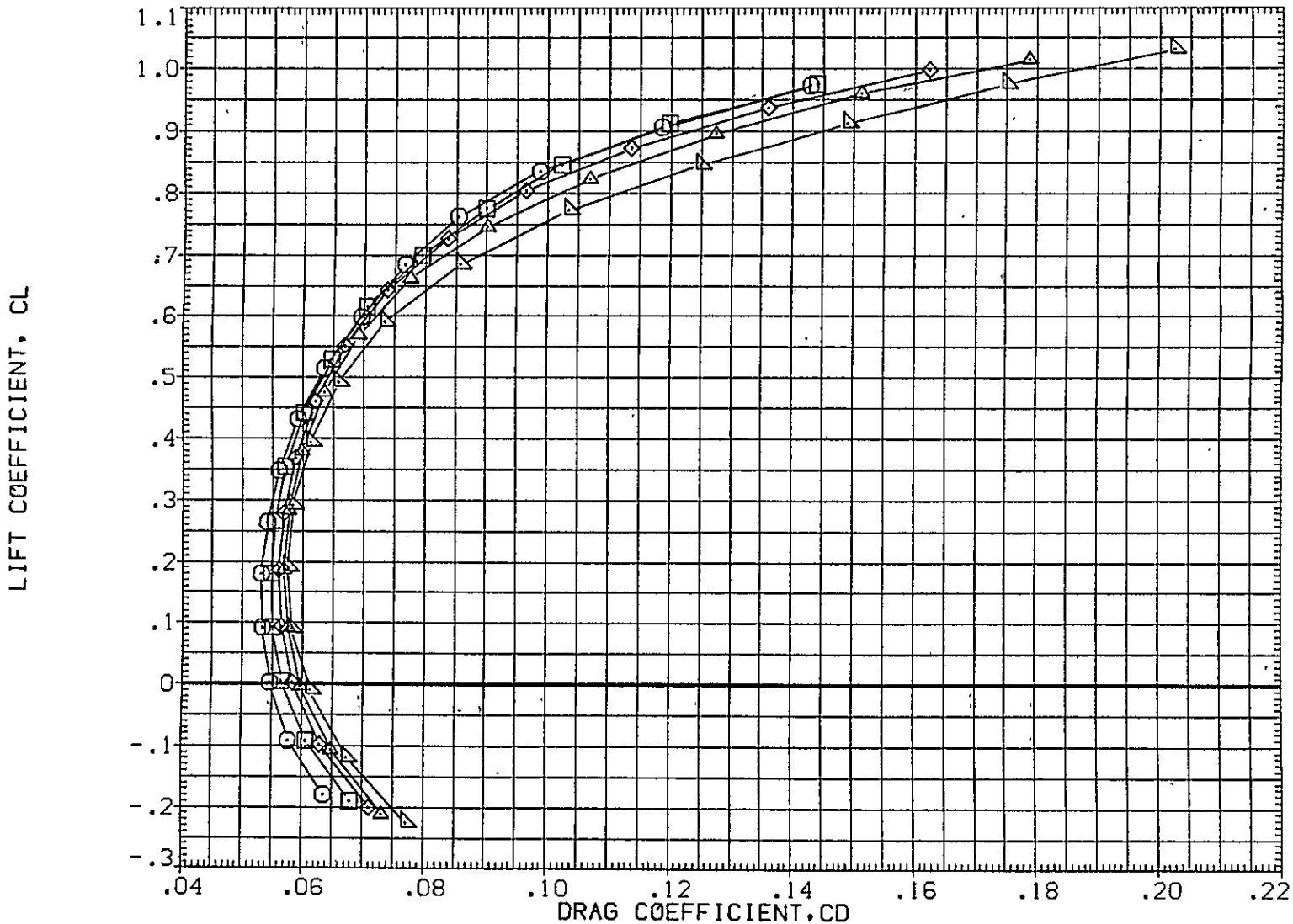


FIG. 71 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

CA5 K1 F0

V9.1 (PLUS. ORB TC5 AT38.3 )(RGM107)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	RUD-U	.000
□	.300	RUD-L	.000	S1-2	.000
◇	.500	S3-4	.000	S5-6	.000
△	.600	10RB	4.000		
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

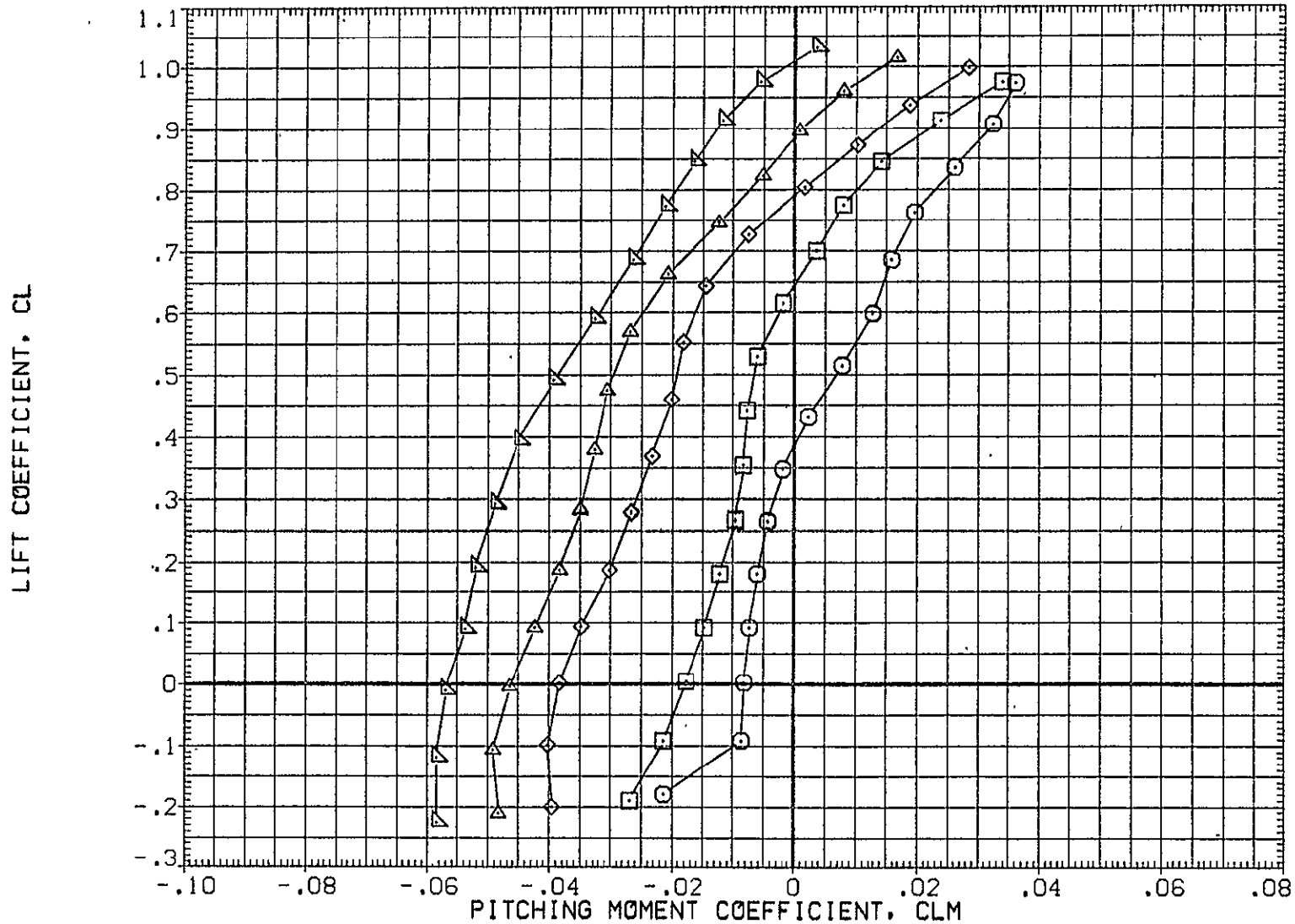


FIG. 71 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	BETA	PARAMETRIC VALUES	
.150	BETA	.000	RU0-U .000
.300	RUD-L	.000	S1-2 .000
.500	S3-4	.000	S5-6 .000
.600	10RB	4.000	
.700			

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

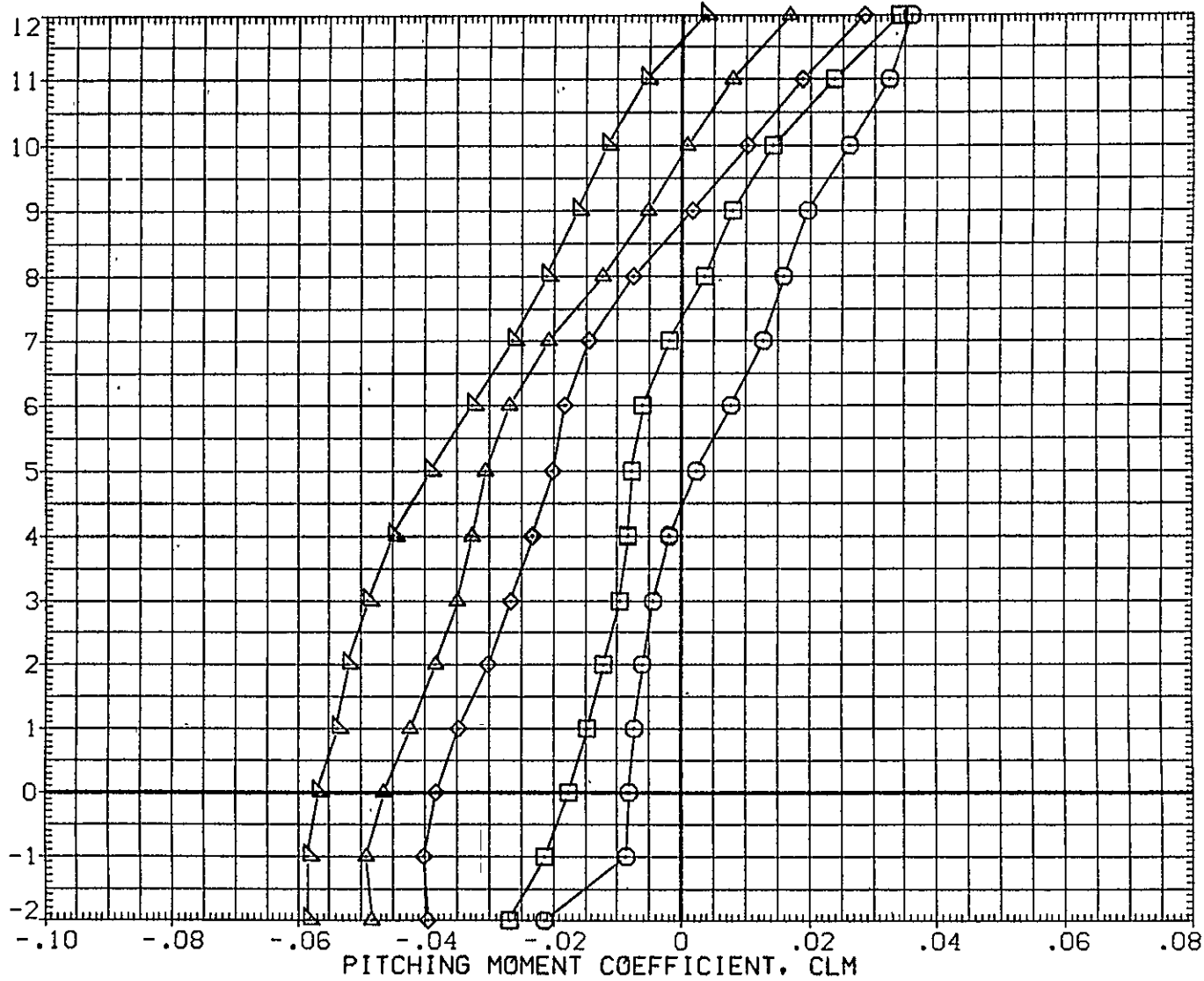


FIG. 71 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

CA5 K1 F0 V9.1 MINUS ORB TC5 AT38.3 (BGM107)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.150	BETA	.000	RUD-U	.000	SREF	5500.0000 SQ.FT.
□	.300	RUD-L	.000	S1-2	.000	LREF	327.8000 IN.
◇	.500	S3-4	.000	S5-6	.000	BREF	2348.0000 IN.
△	.600	IORB	4.000			XMRP	1339.9100 IN. XC
▽	.700					YMRP	.0000 IN. YC
						ZMRP	190.7500 IN. ZC
						SCALE	.0300

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

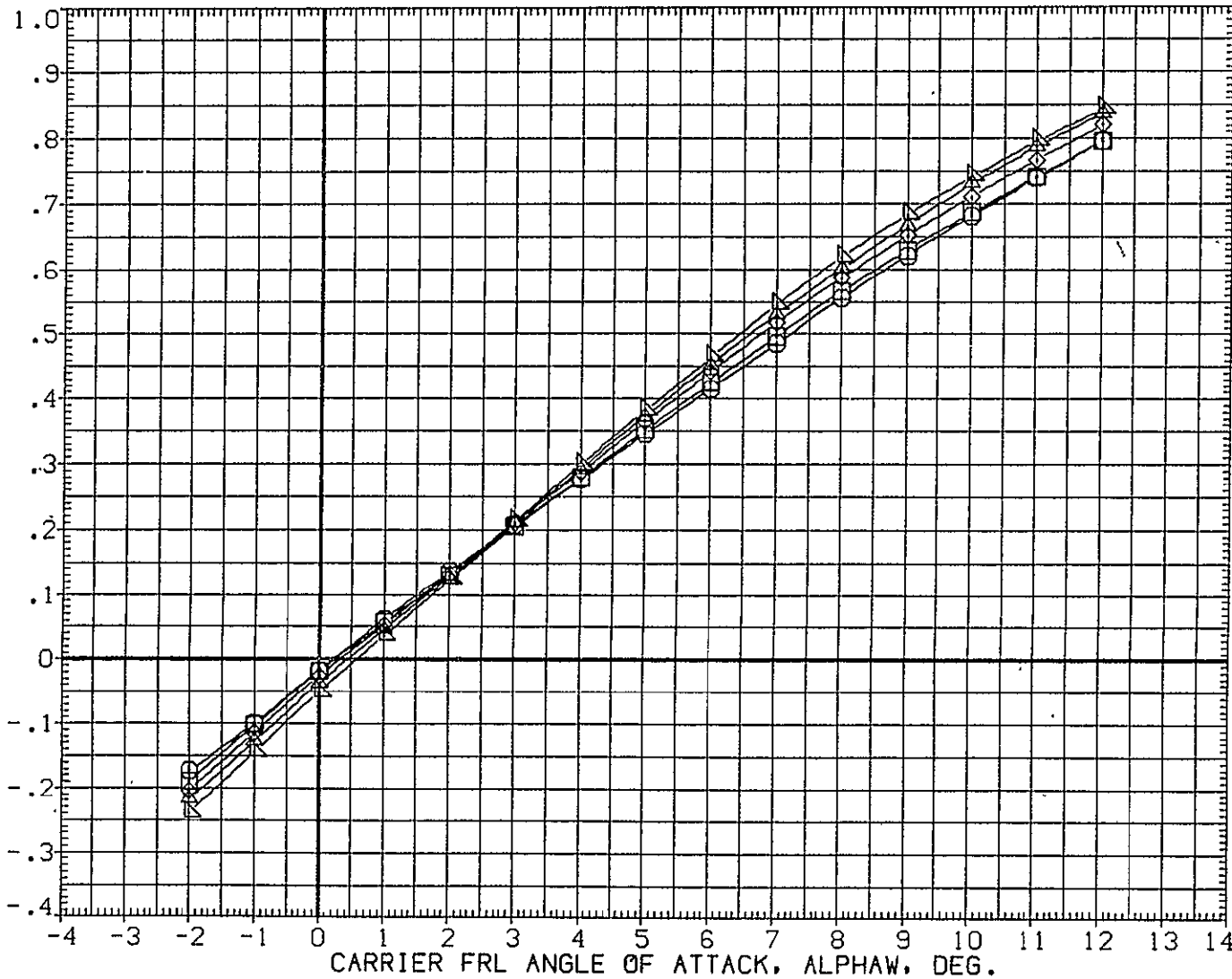


FIG. 72 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION												
		BETA	RUD-L	S3-4	ICRB	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.	IN.
○	.150	.000	.000	.000	.000	5500.0000	327.8000	2348.0000	1339.9100	.0000	190.7500	.0300						
□	.300	.000	.000	.000	.000													
◇	.500	.000	.000	.000	.000													
△	.600	4.000																
▽	.700																	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

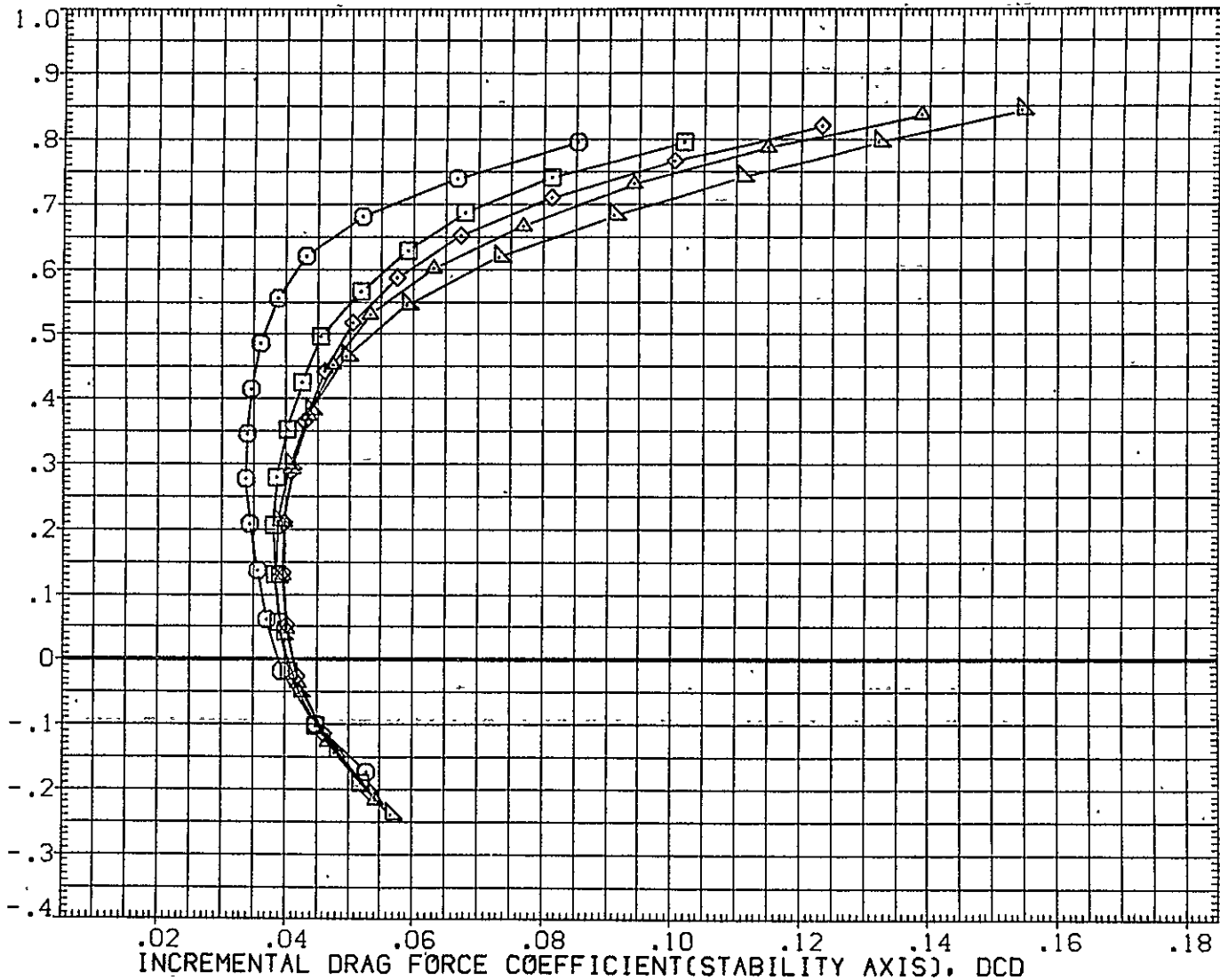


FIG. 72 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

CA5 K1 F0 V9.1 MINUS ORB TC5 AT38.3 (BGM107)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	RUD-U	.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-L	.000	S1-2	.000	LREF	327.8000	IN.
◇	.500	S3-4	.000	S5-6	.000	BREF	2348.0000	IN.
△	.600	IORB	4.000			XMRP	1339.9100	IN. XC
▽	.700					YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

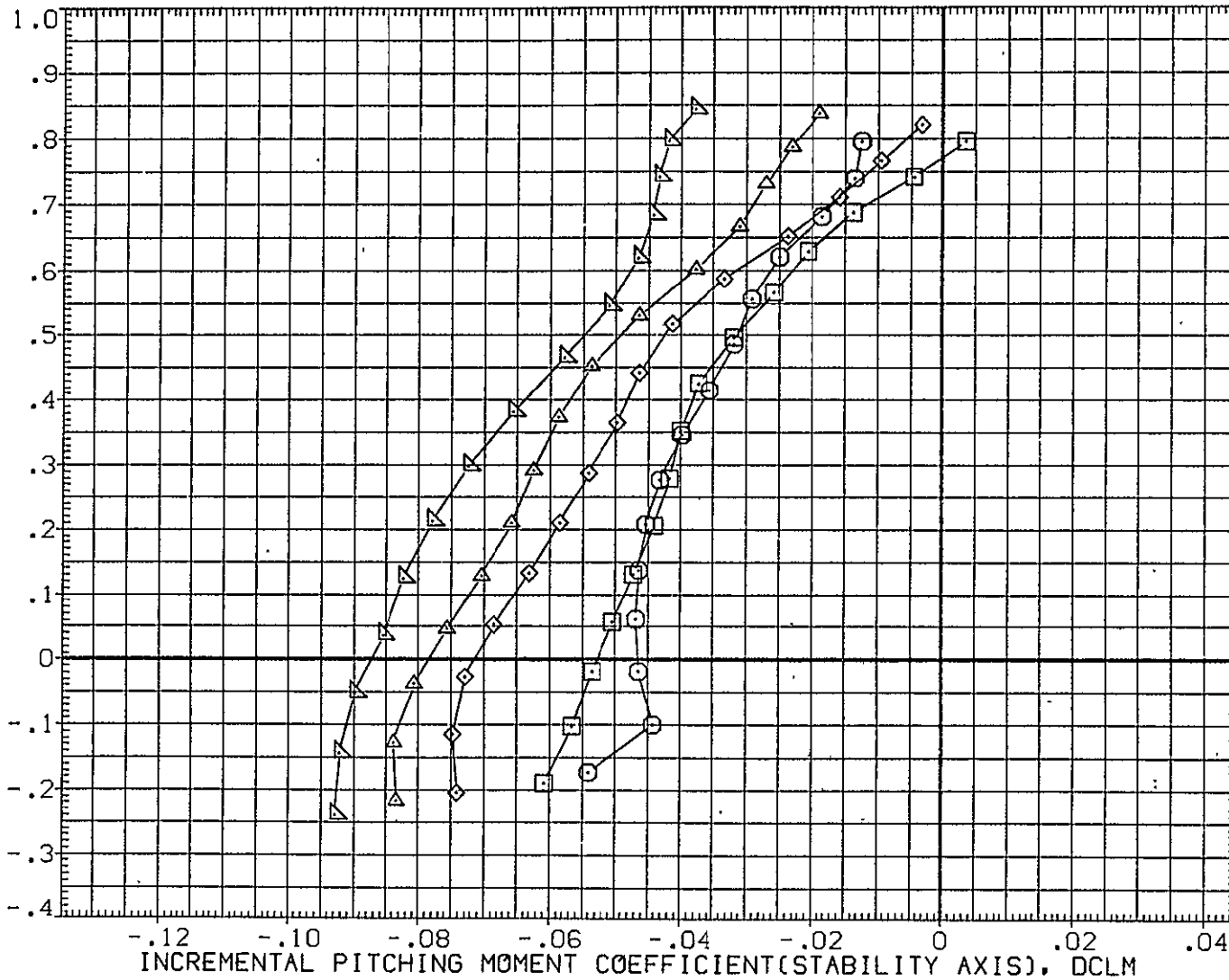


FIG. 72 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

SYMBOL  
 ○  
 ◇  
 △  
 ▽

MACH  
 .150  
 .300  
 .500  
 .600  
 .700

BETA  
 RUD-L  
 S3-4  
 10RB

PARAMETRIC VALUES  
 .000  
 .000  
 .000  
 4.000

RUD-U  
 S1-2  
 S5-6

.000  
 .000  
 .000

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
 LREF 327.8000 IN.  
 BREF 2348.0000 IN.  
 XMRP 1339.9100 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 190.7500 IN. ZC  
 SCALE .0300

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

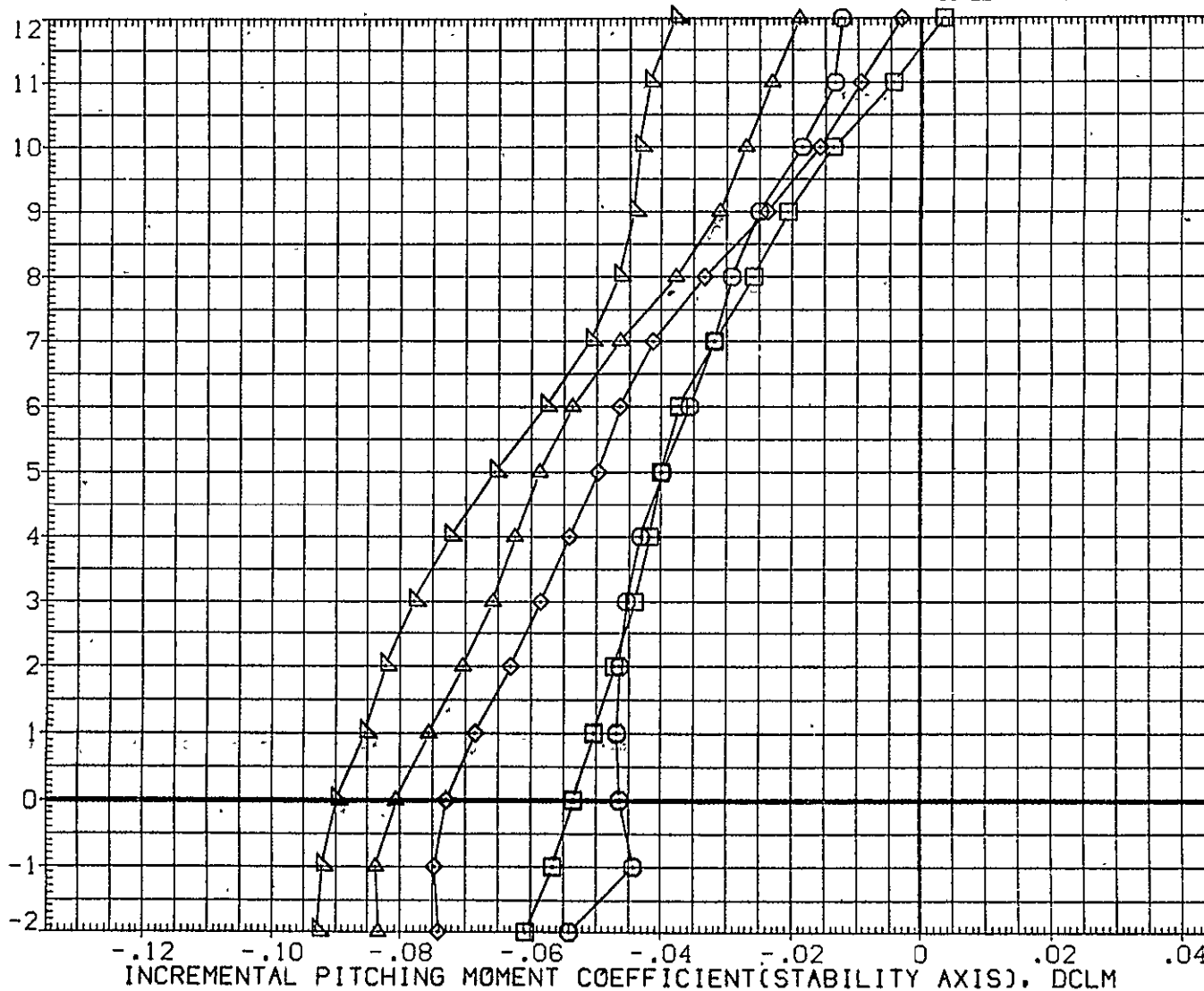


FIG. 72 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

CA5 ORB TC5 AT38.3 (PRES. K1 F0

V9.1)(YGM107)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	RUD-U	.000
.300	RUD-L	.000	S1-2	.000
.500	S3-4	.000	S5-6	.000
.600	IORB	4.000		
.700				

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

LIFT COEFFICIENT, CL

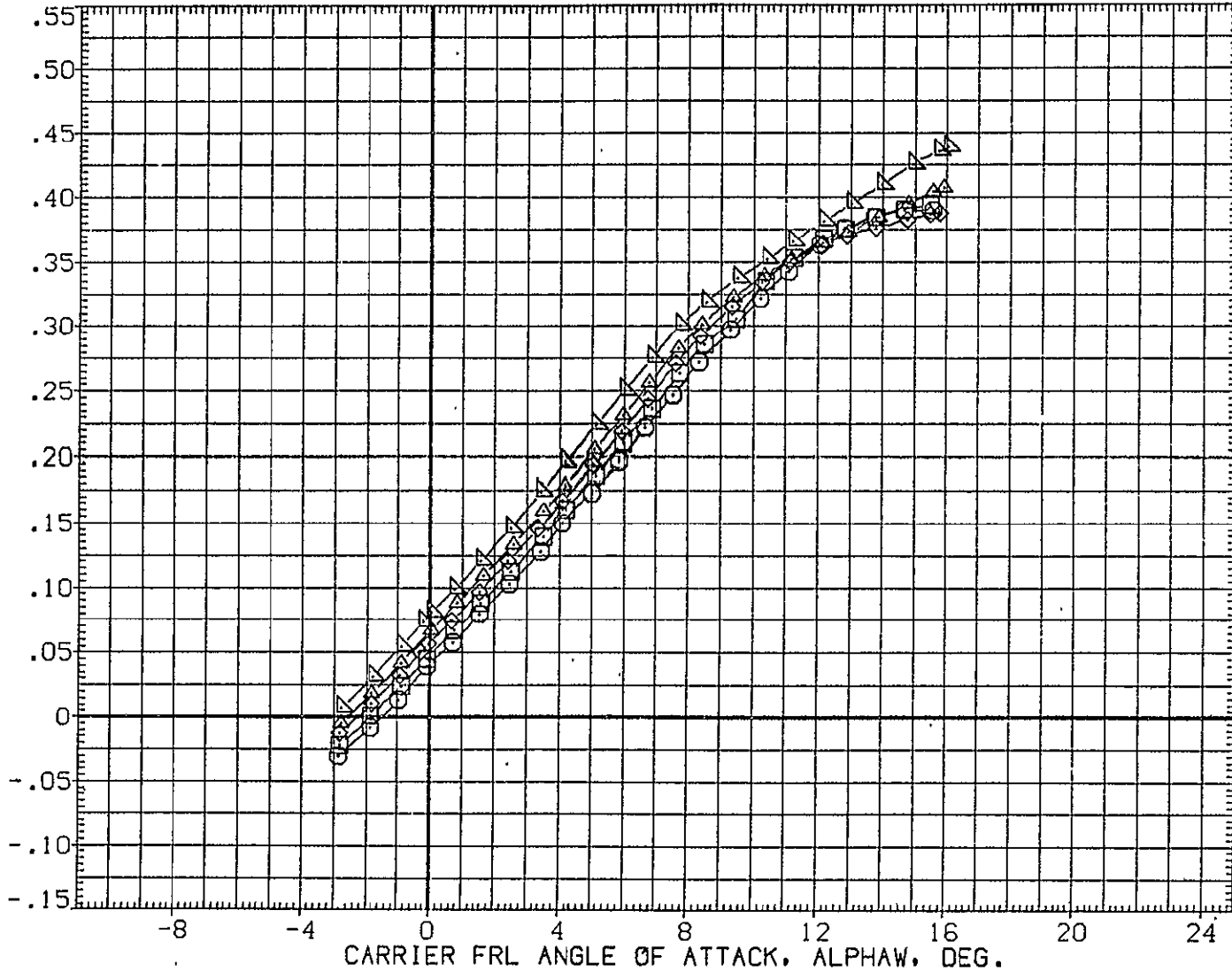


FIG. 73 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	RUD-U	.000
□	.300	RUD-L	.000	SI-2	.000
◇	.500	S3-4	.000	S5-6	.000
△	.600	IORB	4.000		
▽	.700				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. XD
YMRP	.0000	IN. YO
ZMRP	375.0000	IN. ZO
SCALE	.0300	

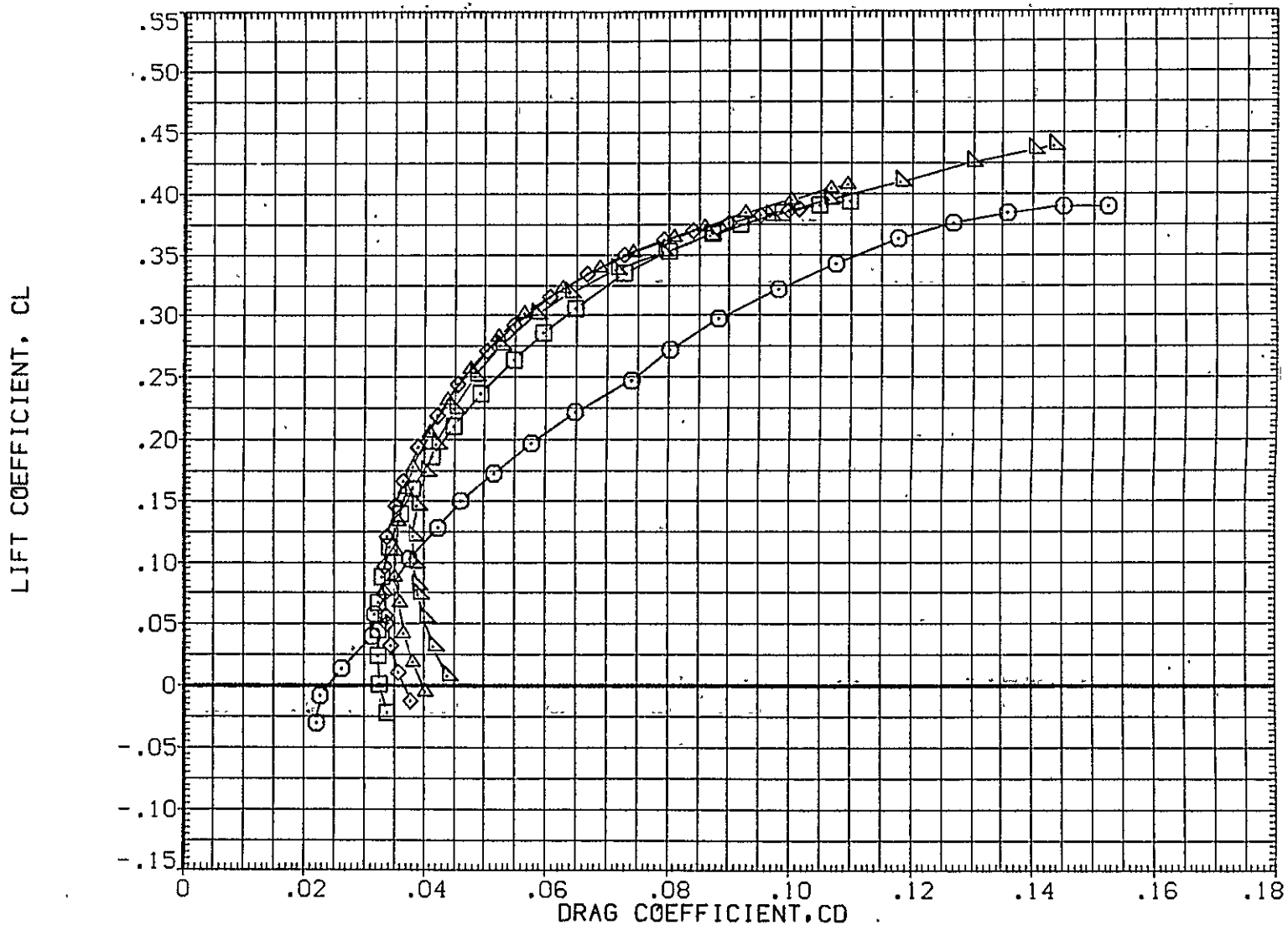


FIG. 73 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	RUD-U	.000
□	.300	RUD-L	.000	S1-2	.000
◇	.500	S3-4	.000	S5-6	.000
△	.600	ICRB	4.000		
▽	.700				

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

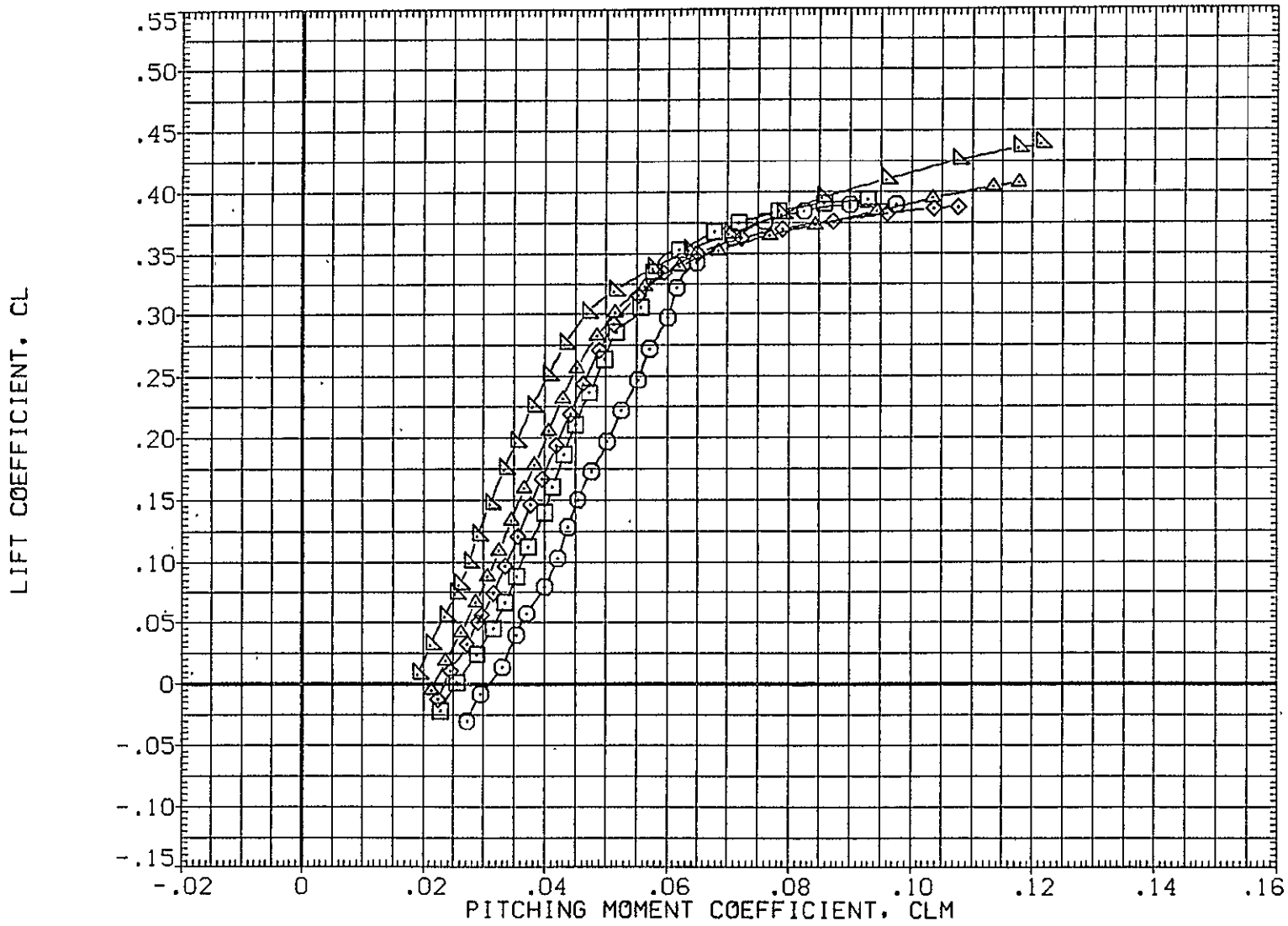


FIG. 73 747+ORB(4 DEG), HORIZ OFF, FLAPS UP FERRY

ORB

SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.150	BETA	.000	RUD-U	.000
□	.300	RUD-L	.000	S1-2	.000
◇	.500	S3-4	.000	S5-6	.000
△	.600	IORB	4.000		
▽	.700				

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

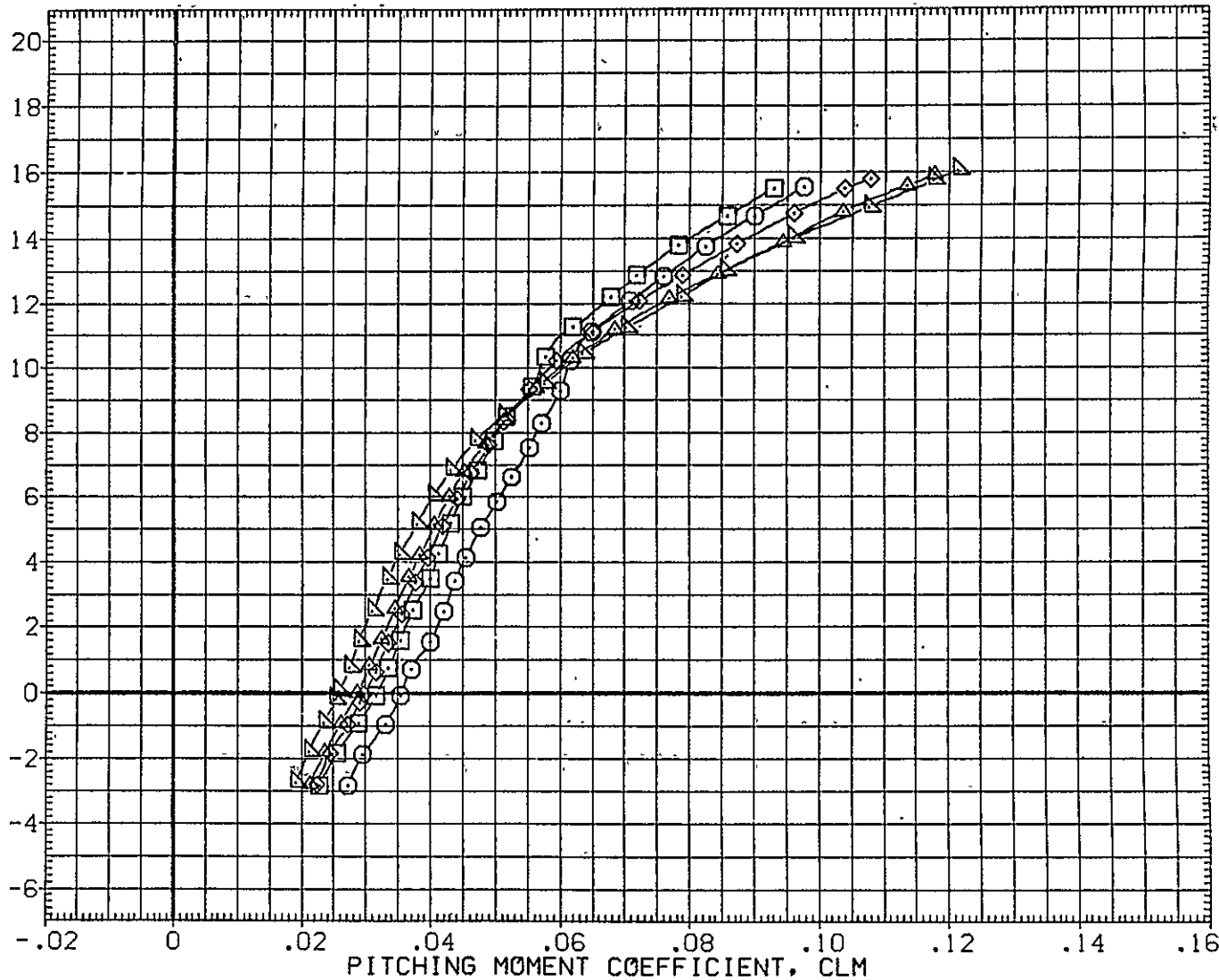


FIG. 73 747+0RB(4 DEG), HORIZ OFF, FLAPS UP FERRY

0RB

CA5 K1 FO H15.1A V9.1 (PLUS. ORB TC5 AT38.3 )(RGM108)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	ORB	4.000

REFERENCE INFORMATION		
SREF	5'00.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	0300	

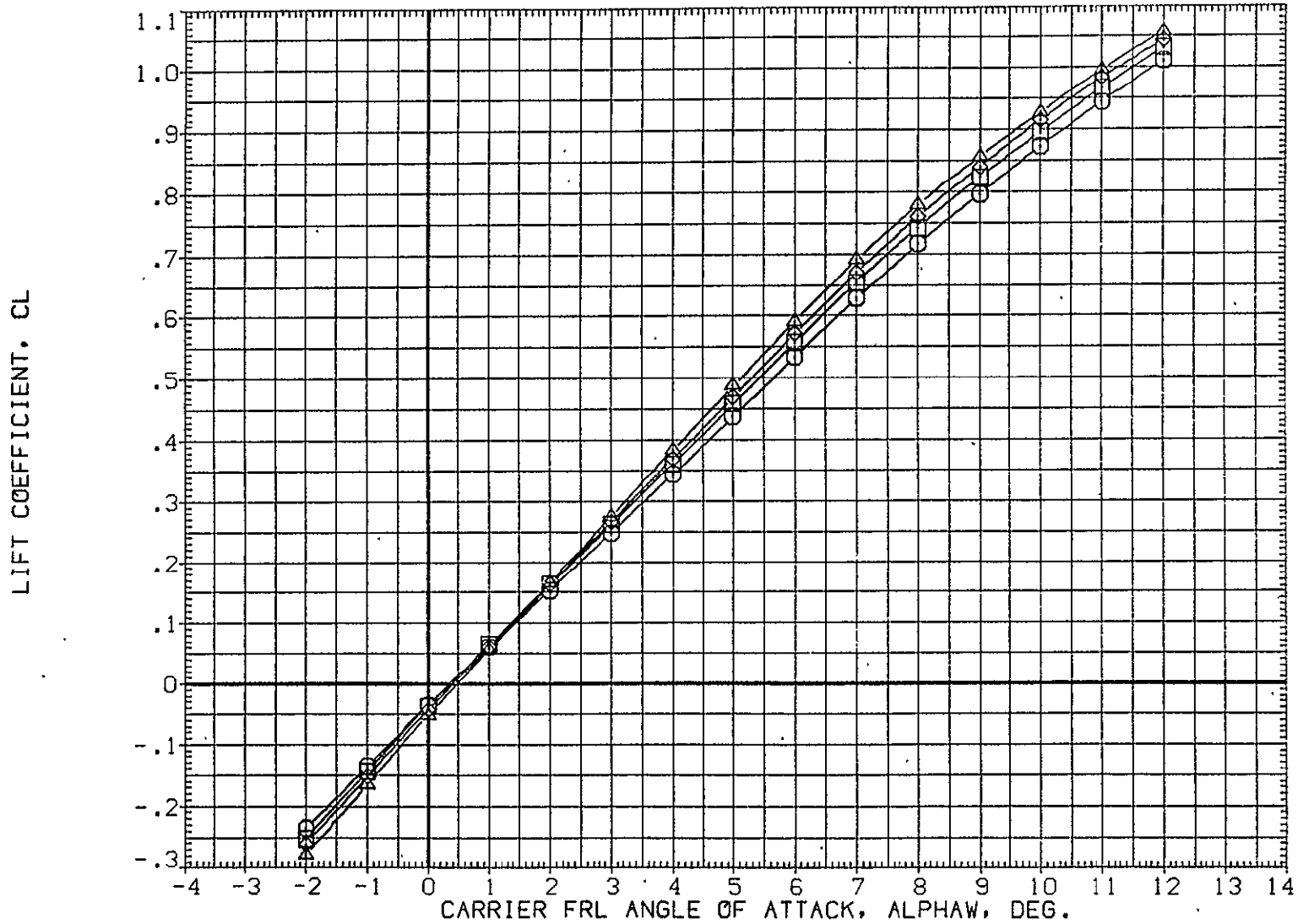


FIG. 74 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)



SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.300		.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-OB	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	ICRB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

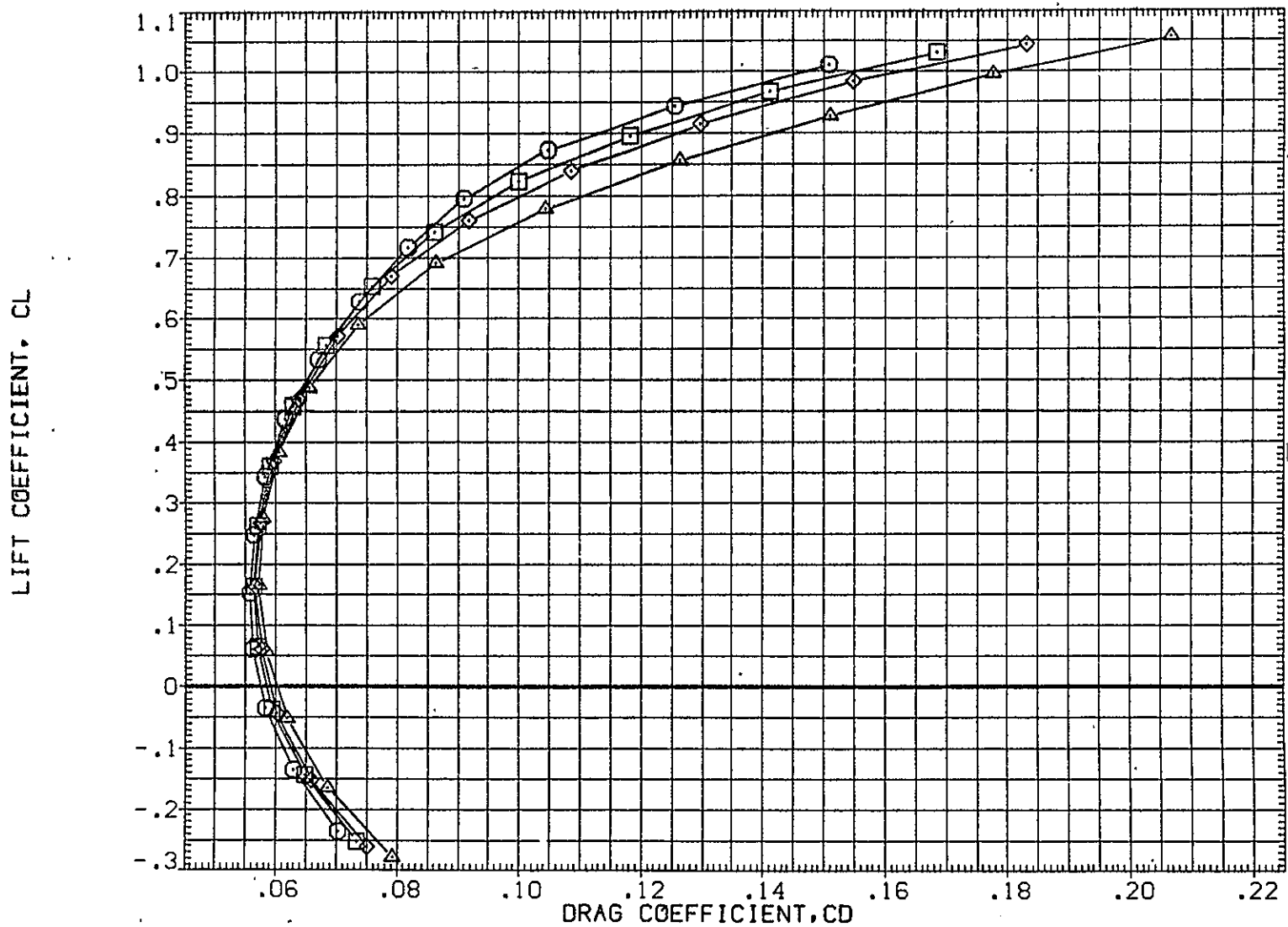
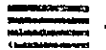


FIG. 74 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)



CA5 K1 FO H15.1A V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM108)

SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.300		.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

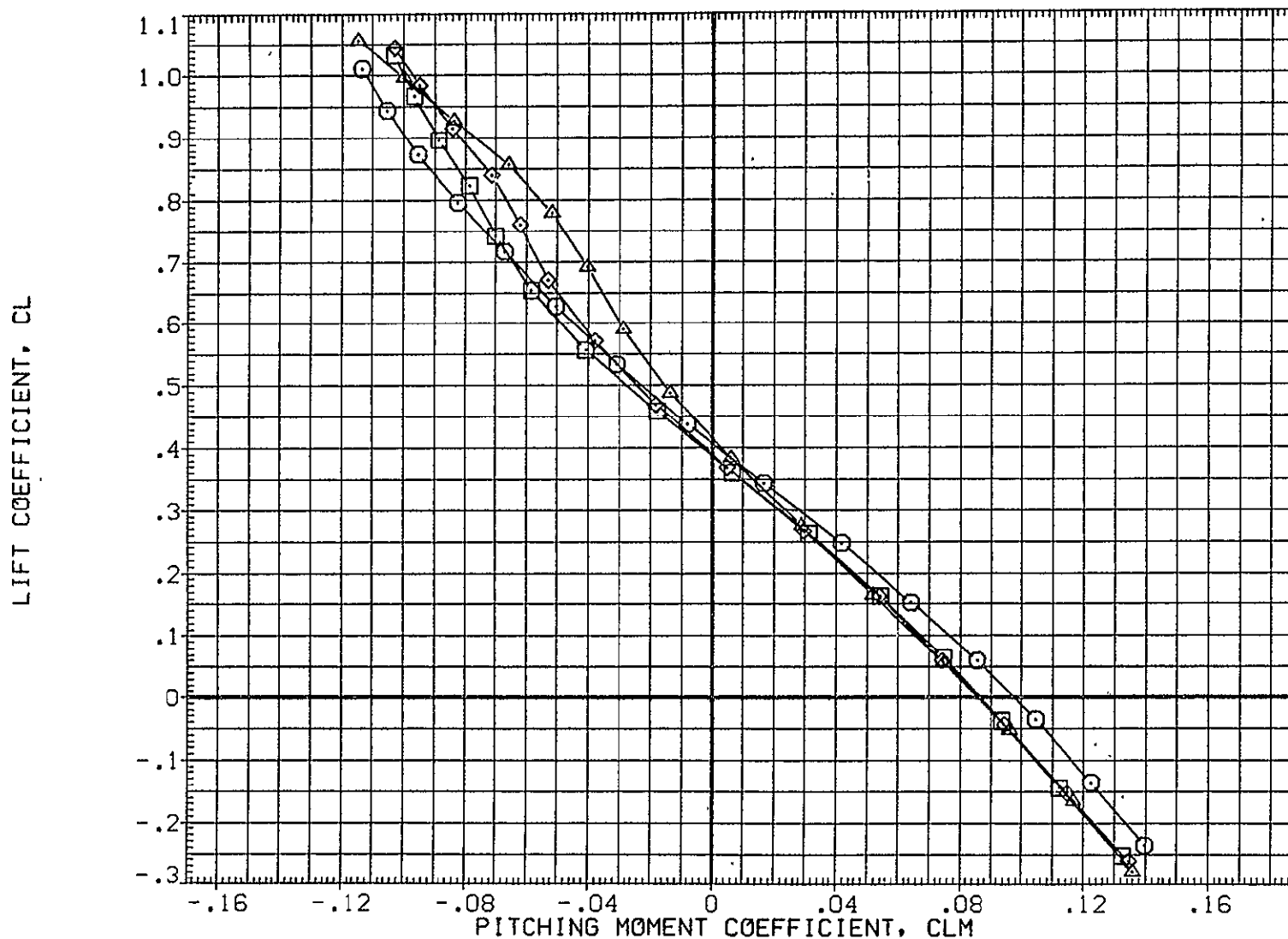


FIG. 74 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

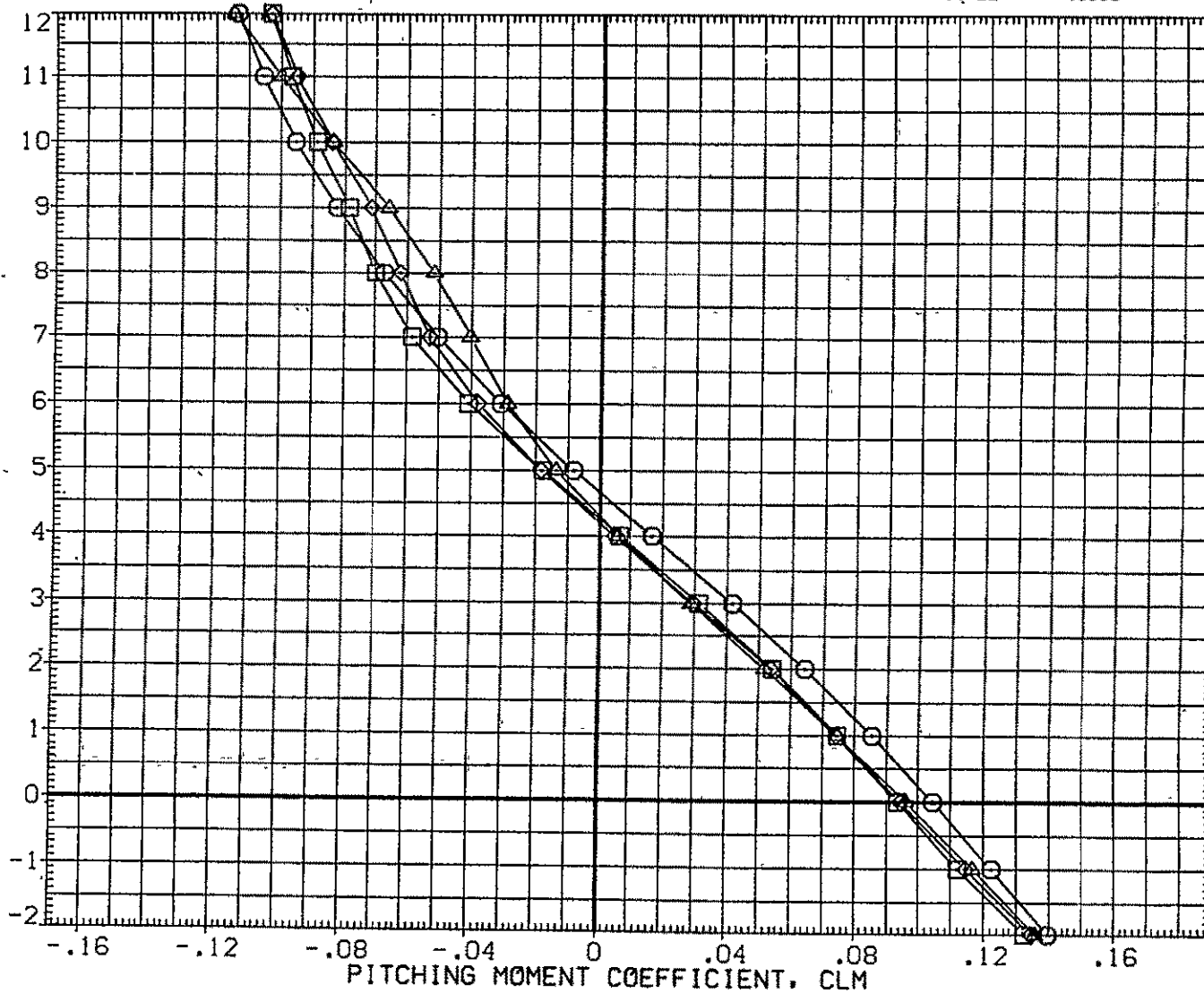


FIG. 74 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

2-5

CA5 K1 F0 H15.1A V9.1 MINUS ORB TC5 AT38.3 (BGM108)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	ELV-1B	.000	ELV-0B	3.000	LREF	327.8000	IN.
◇	.600	S1-2	.000	S3-4	.000	BREF	2348.0000	IN.
△	.700	SS-6	.000	10RB	4.000	XMRP	1339.9100	IN. XC
						YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

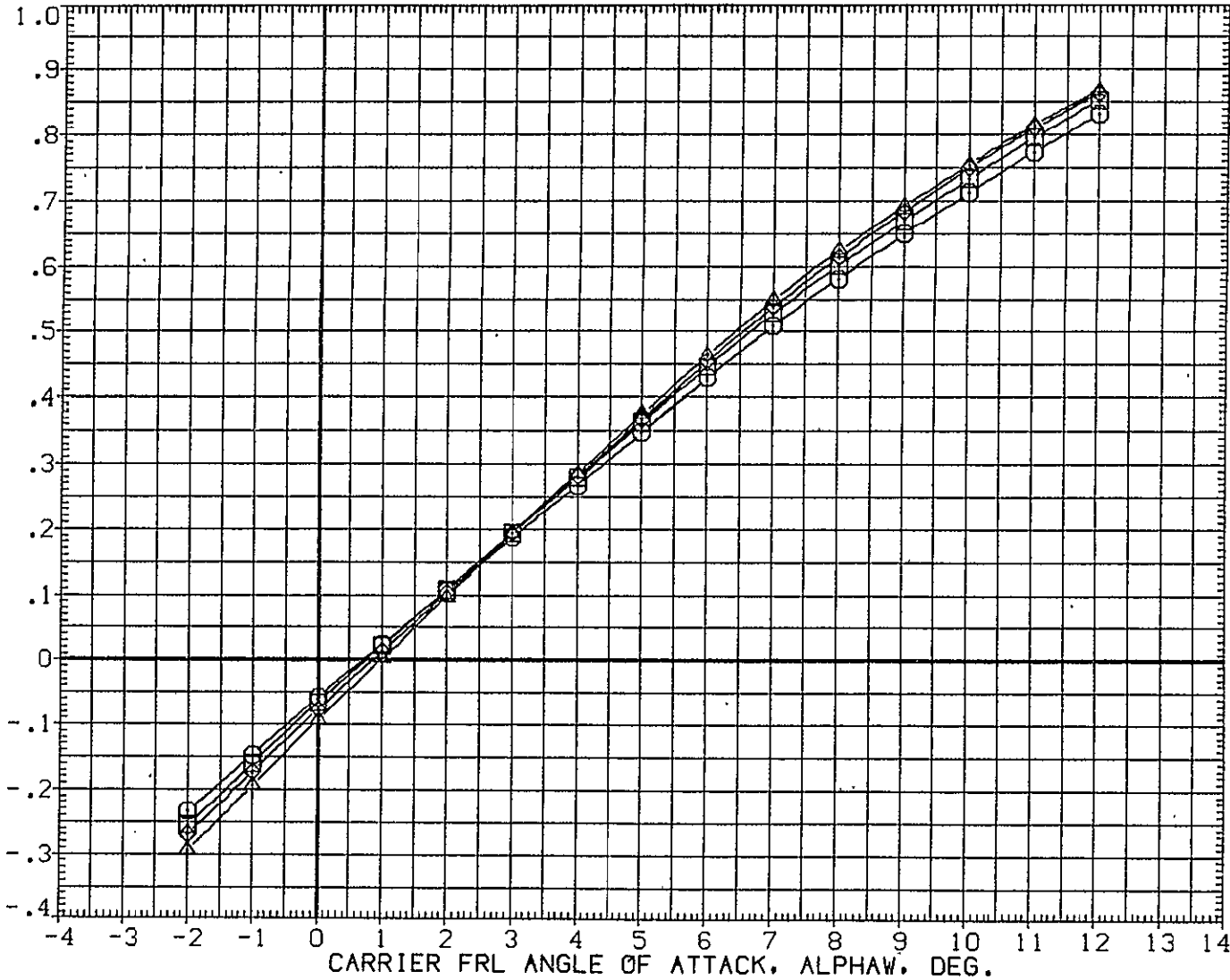


FIG. 75 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	ELV-1B	.000	ELV-0B	3.000	LREF	327.8000	IN.
◇	.600	S1-2	.000	S3-4	.000	BREF	2348.0000	IN.
△	.700	.000	10RB	4.000	XMRP	1339.9100	IN. XC	
						YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

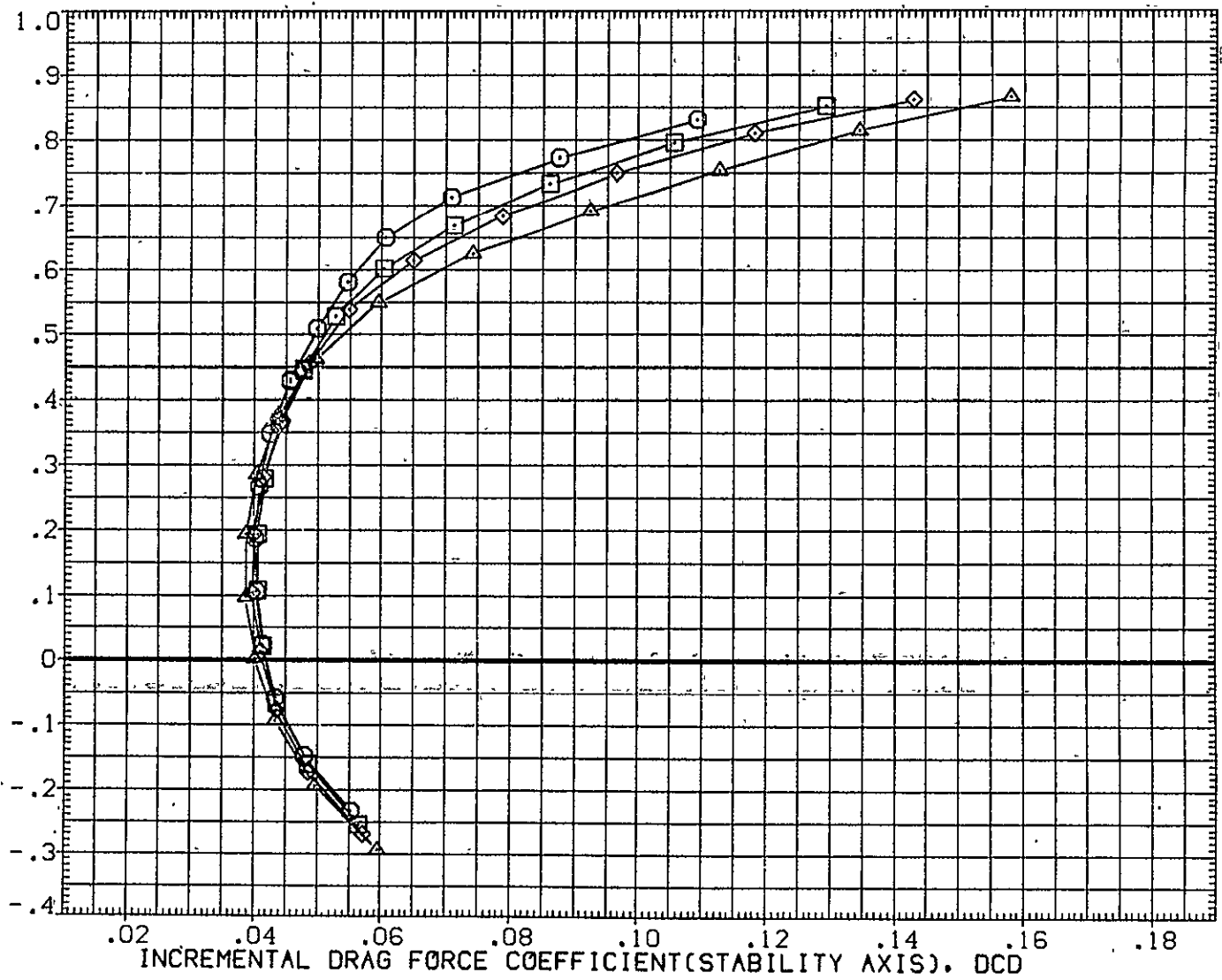


FIG. 75 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

CA5 K1 F0 H15.1A V9.1 MINUS 0RB TC5 AT38.3 (BGM108)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

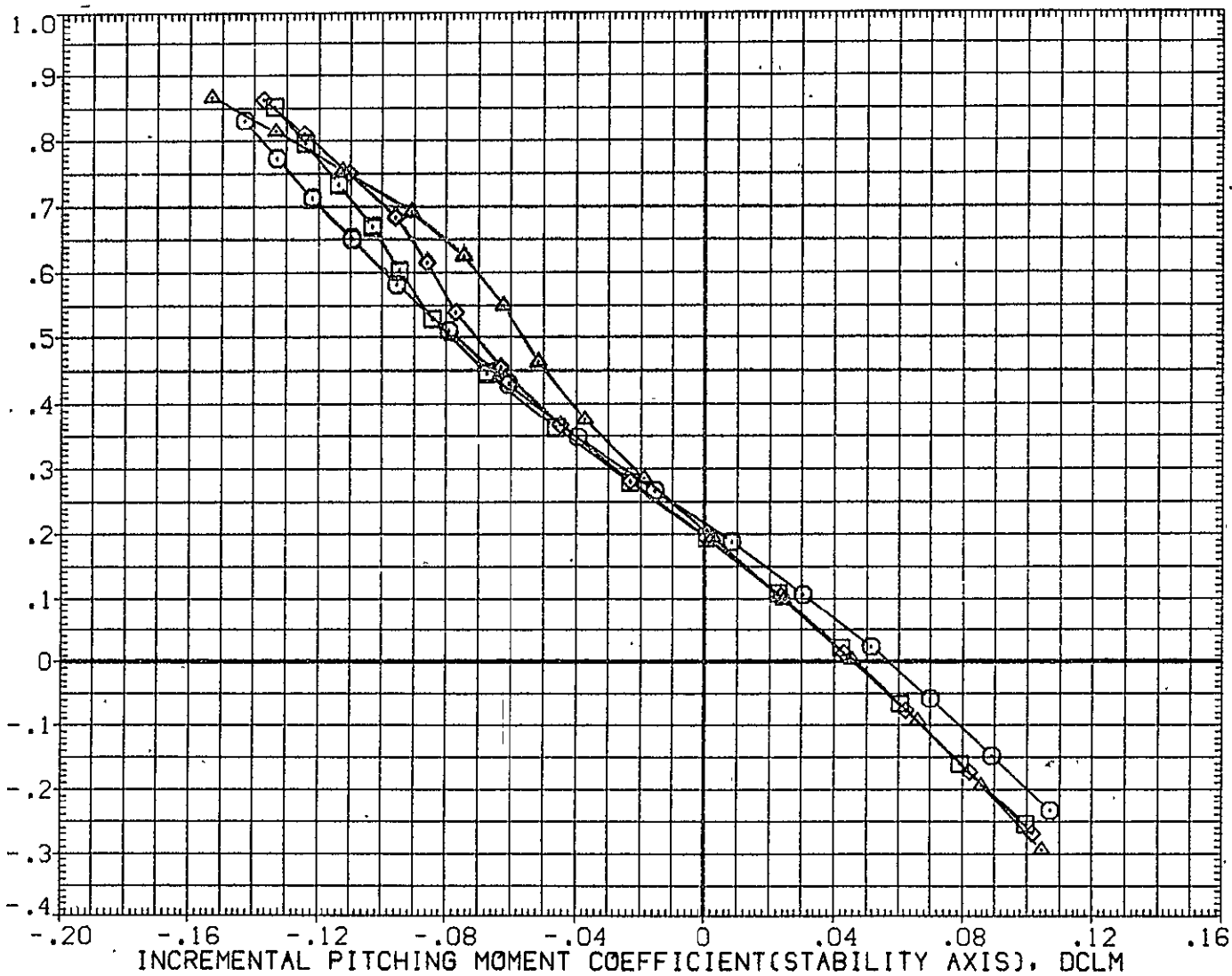


FIG. 75 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

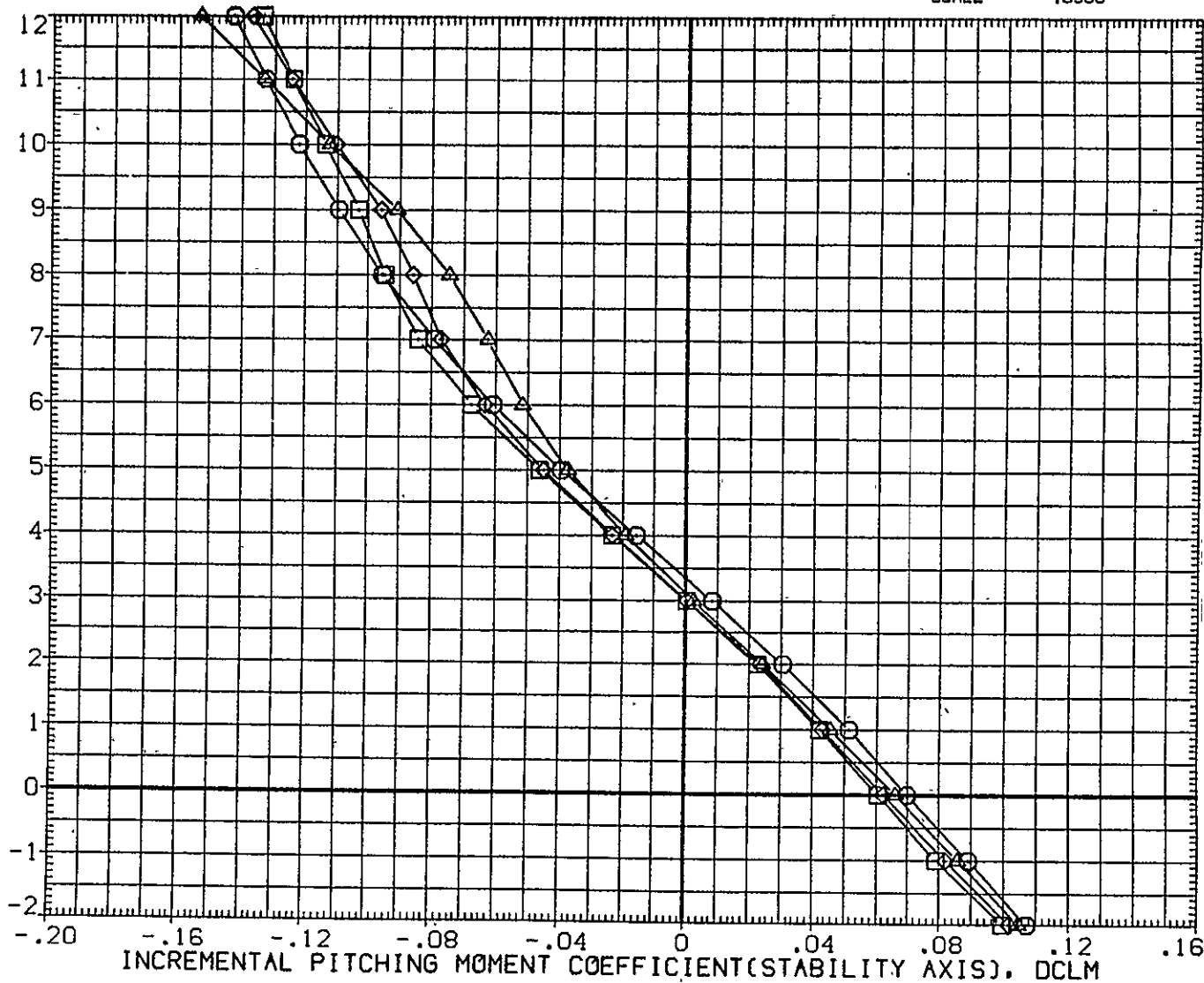


FIG. 75 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

CAS 0RB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(YGM108)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.601	S1-2	.000	S3-4	.000
△	.701	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

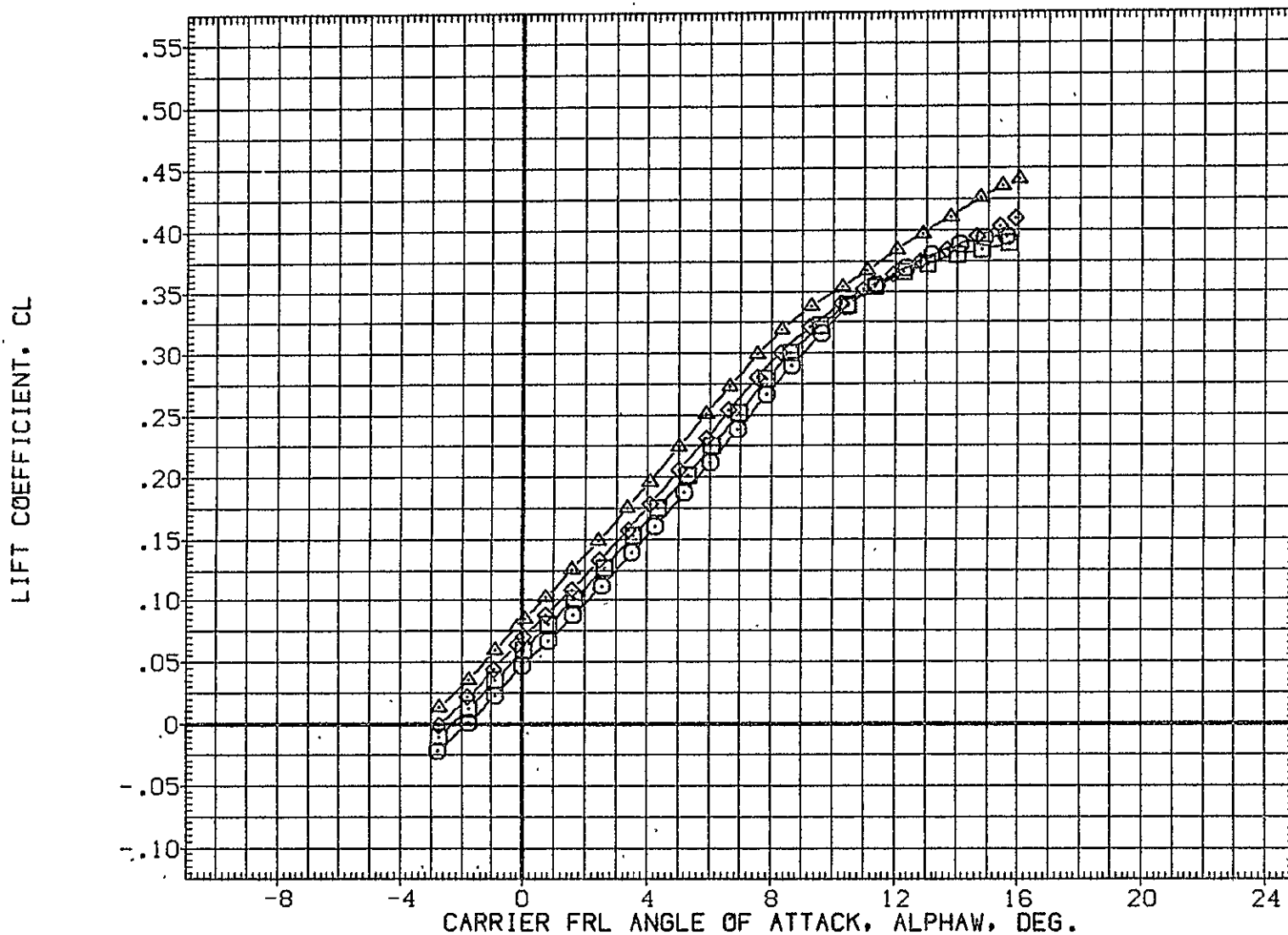


FIG. 76 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

0RB



SYMBOL	MACH	BETA	PARAMETRIC VALUES		
○	.300	BETA	.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.601	S1-2	.000	S3-4	.000
△	.701	.000	ICRB	4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

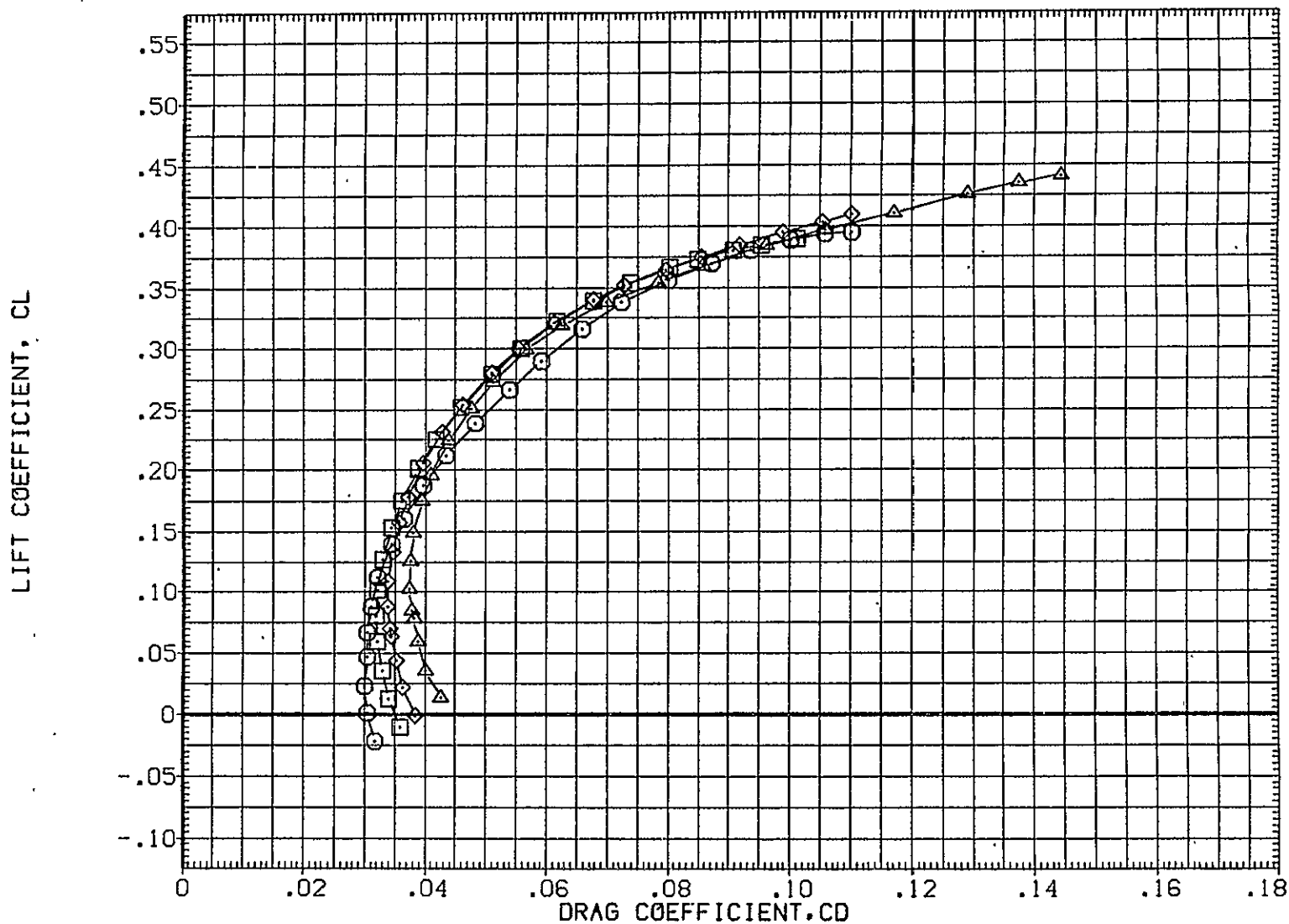


FIG. 76 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

ORB

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(YGM108)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-3.200
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.601	S1-2	.000	S3-4	.000
△	.701	.000	IORB	4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

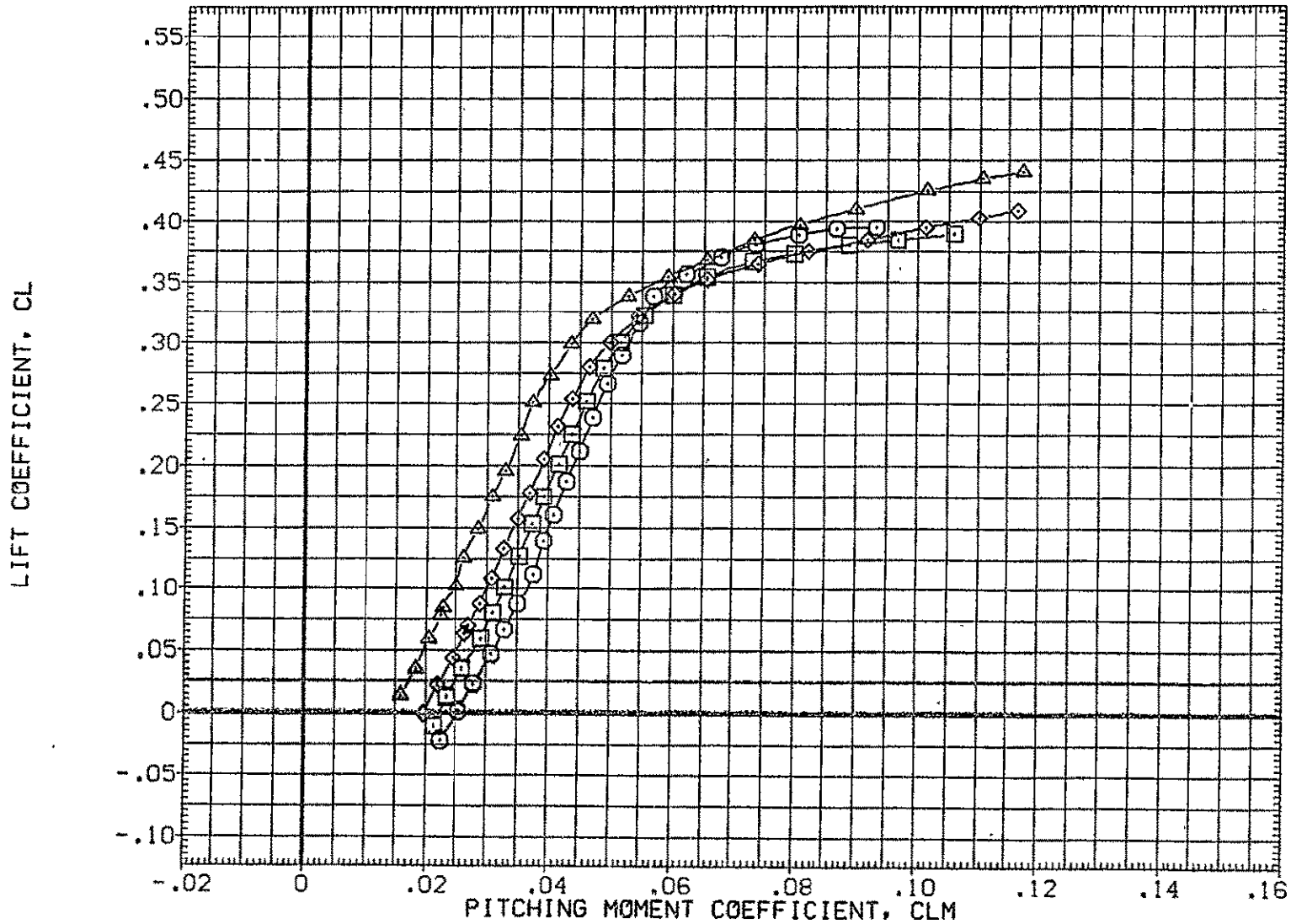


FIG. 76 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-3.200	SREF	2690.0000	SQ.FT.
○	.300	BETA	.000	STAB	-3.200	LREF	474.8100	IN.
□	.500	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
◇	.601	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
△	.701	.000	10RB	4.000	YMRP	.0000	IN. Y0	
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

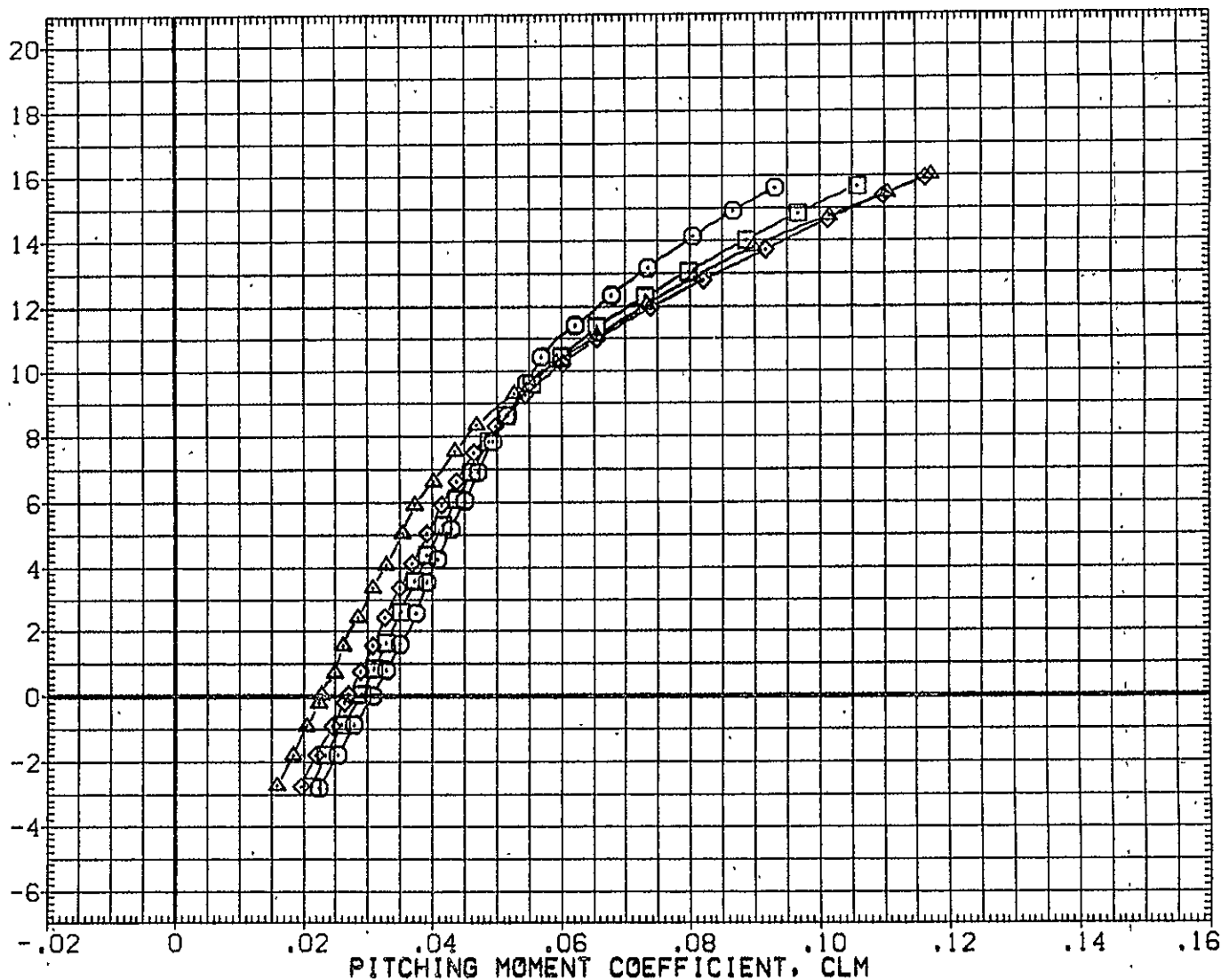


FIG. 76 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-3.2)

ORB

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM112)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
▽						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

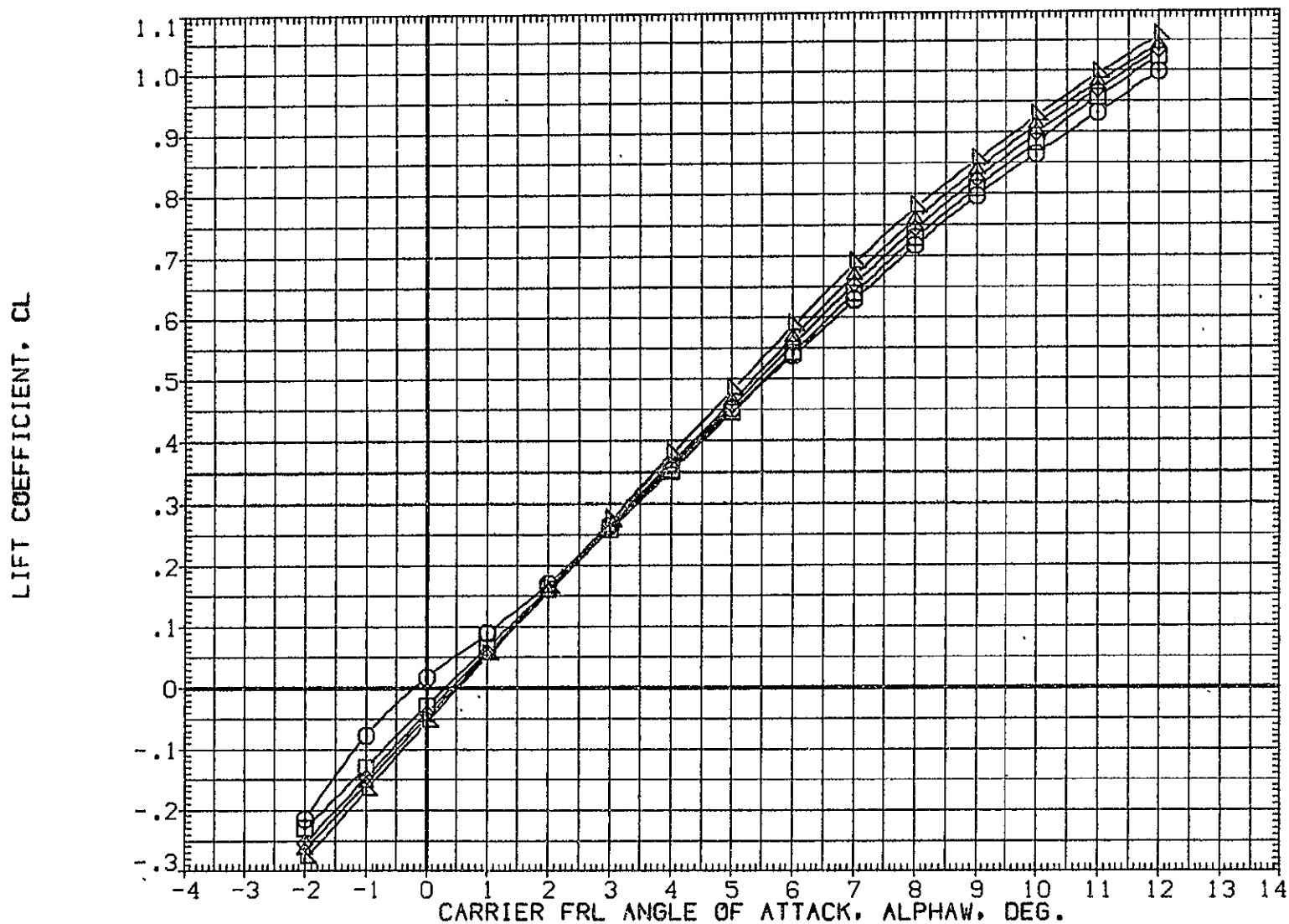


FIG. 77 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-3.200
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-OB	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

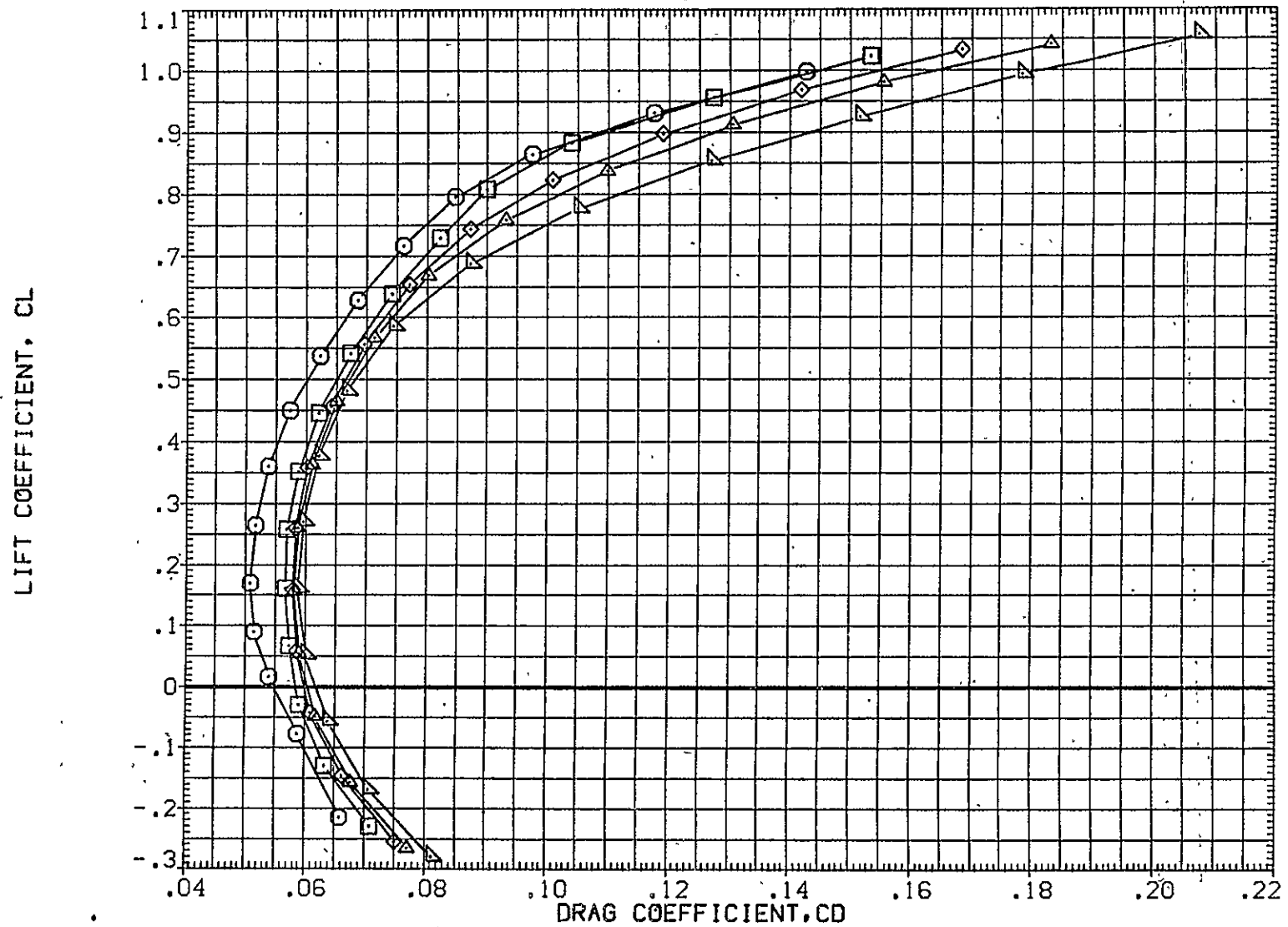


FIG. 77 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM112)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-3.200
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION

SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

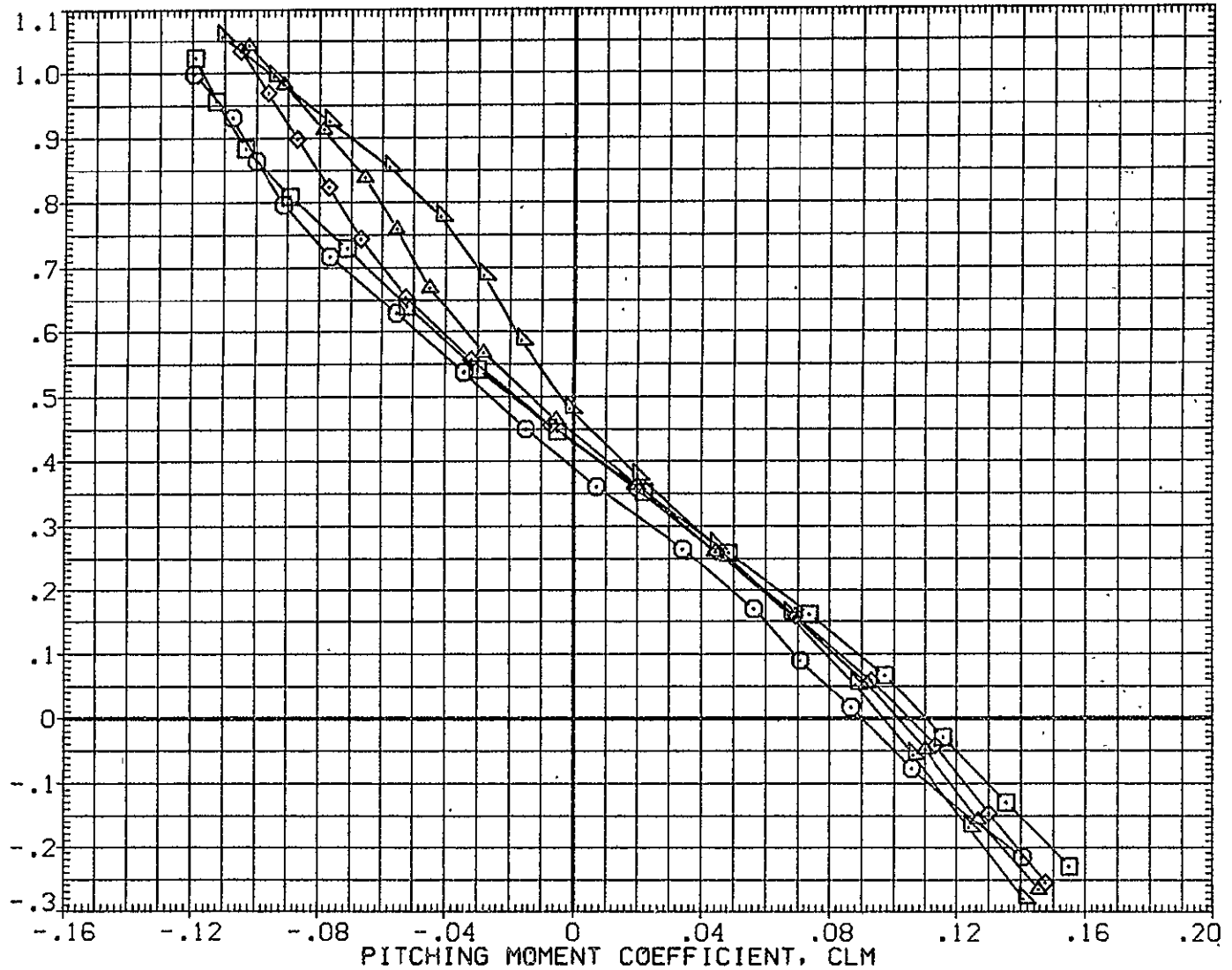
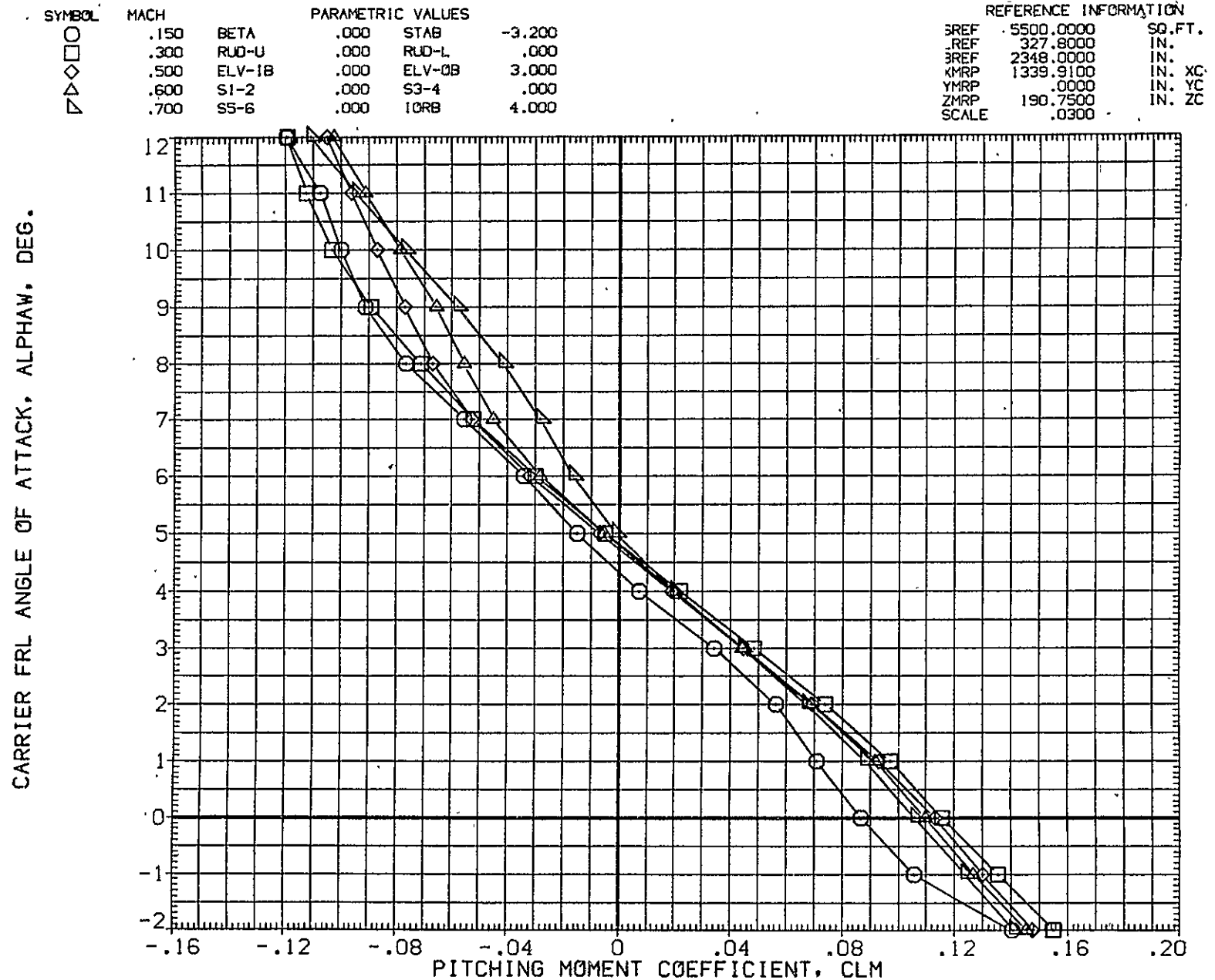


FIG. 77 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

TOTAL



CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

FIG. 77 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

TOTAL

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM112)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT (STABILITY AXIS), DCL

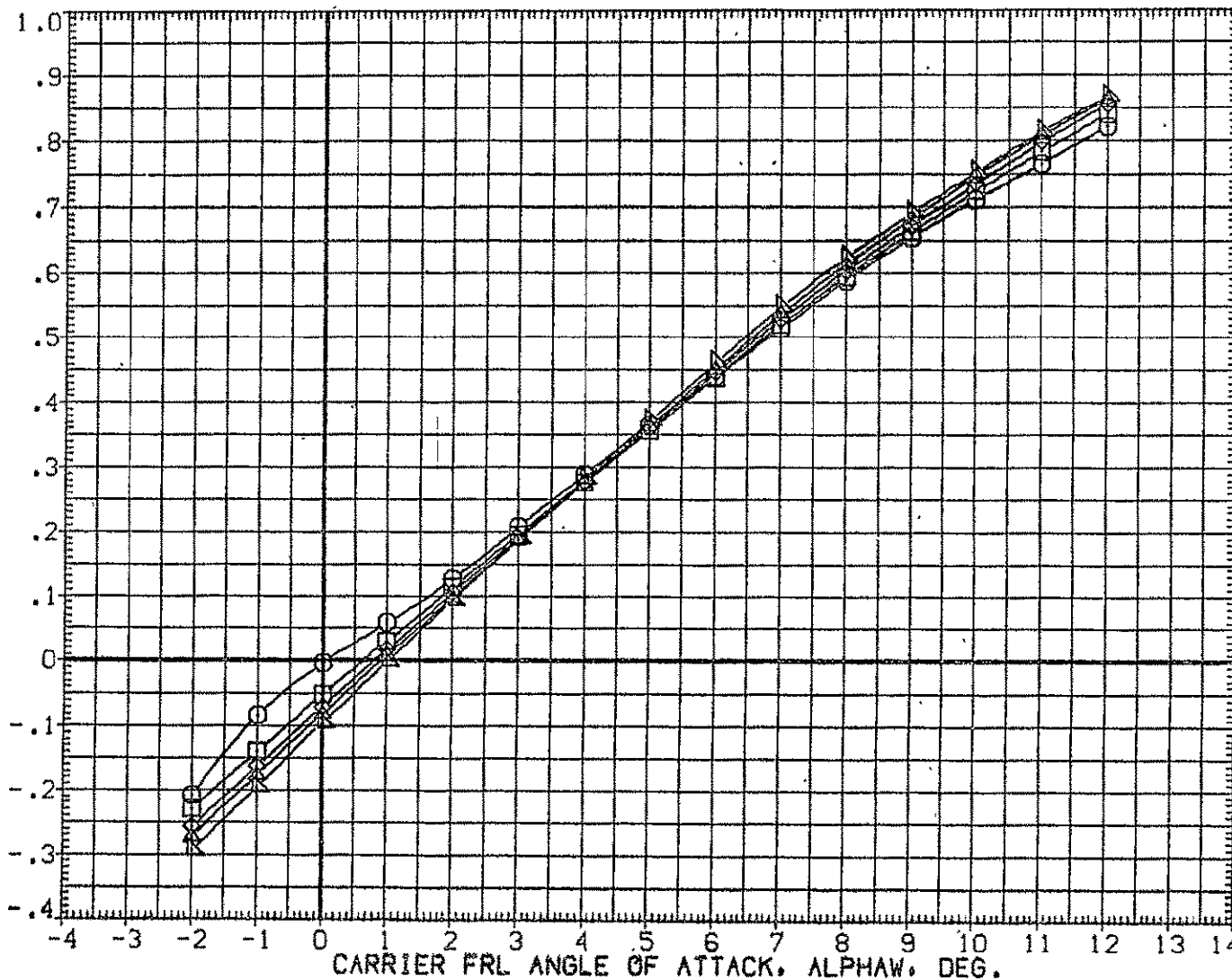


FIG. 78 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)



SYMBOL  
 ○ □ ◇ △ ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-3.200
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

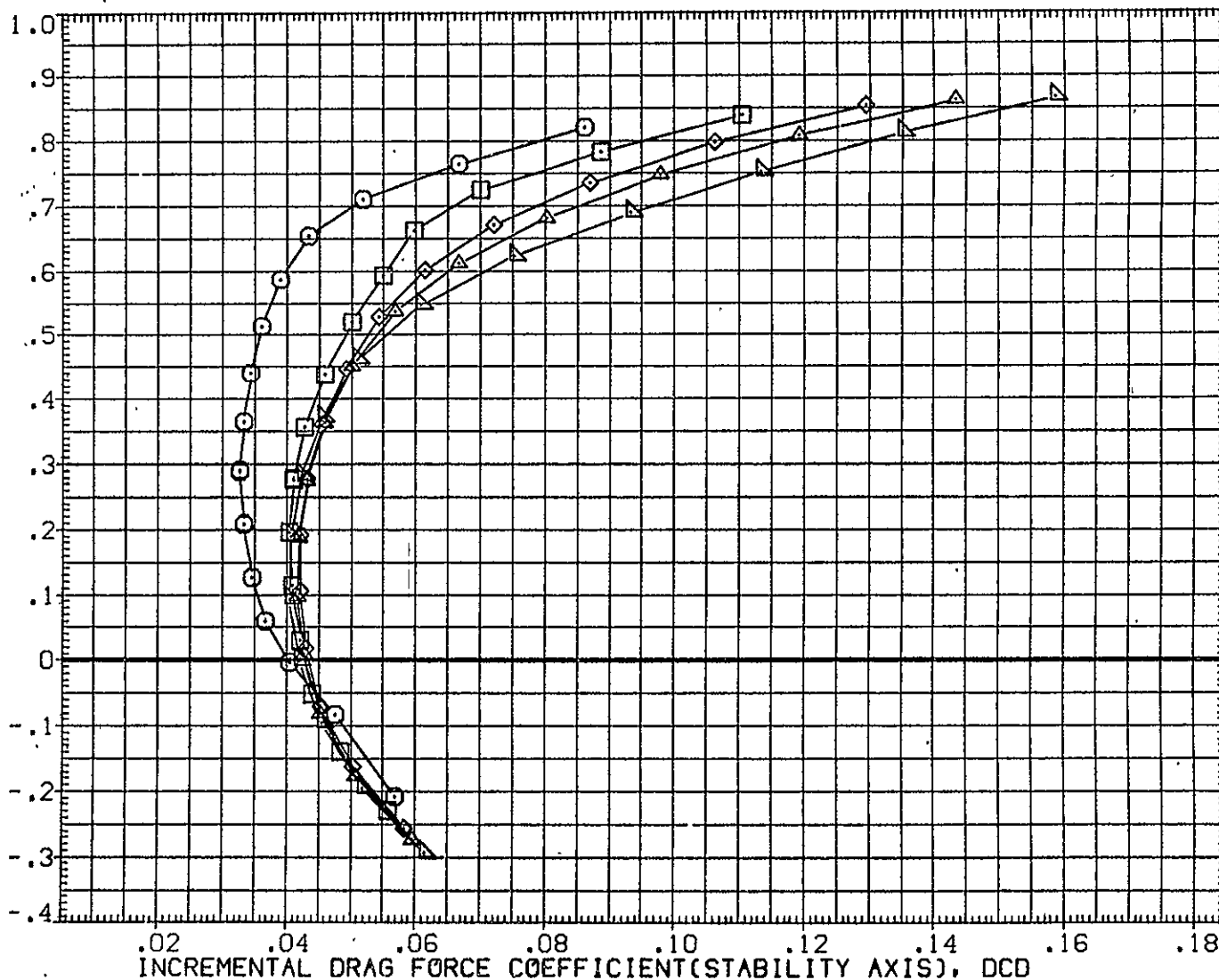


FIG. 78 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM112)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	-3.200	SREF	5500.0000	50. FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

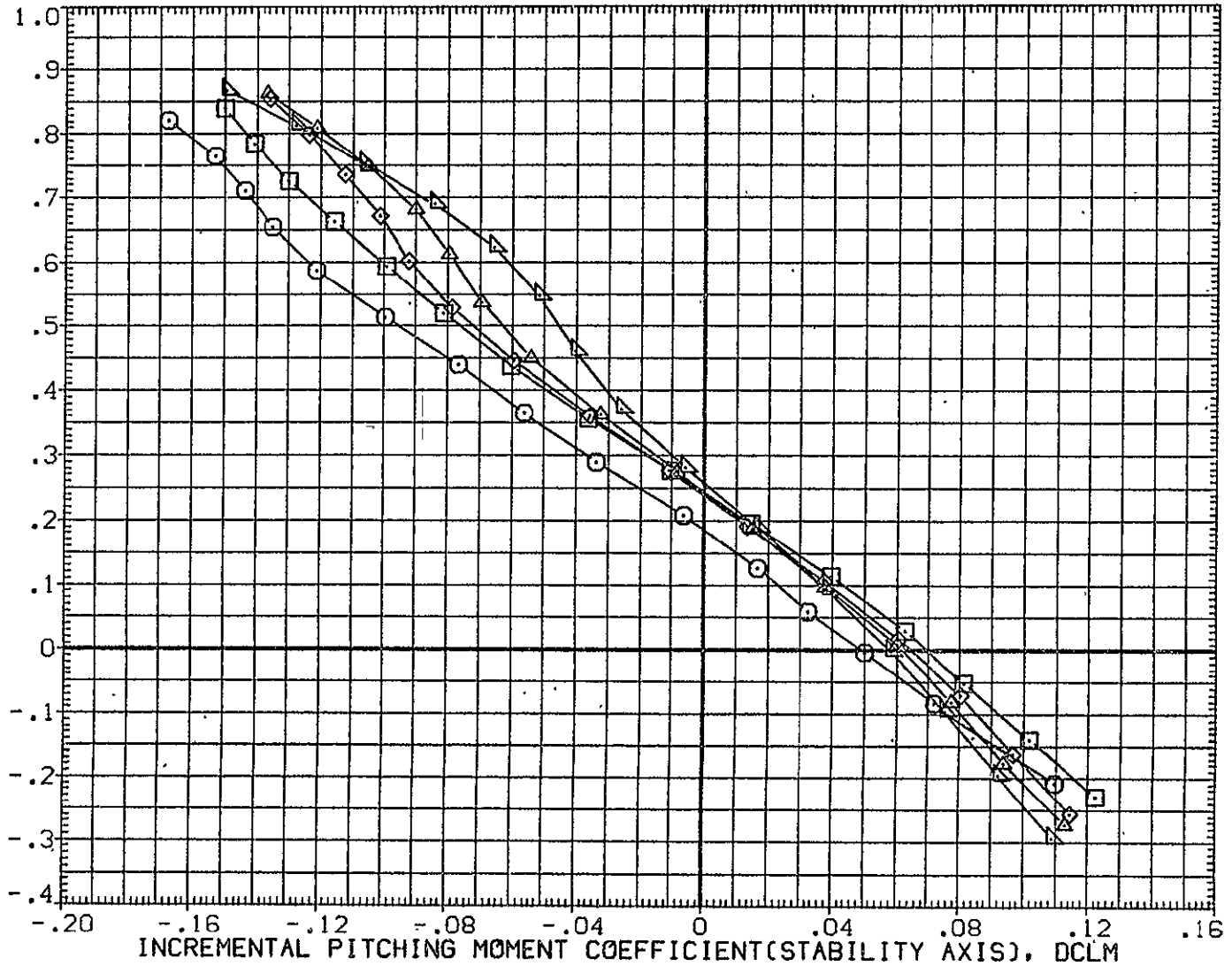


FIG. 78 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION																				
		BETA	RUD-U	ELV-IB	S1-2	S5-6	STAB	RUD-L	ELV-OB	S3-4	IORB	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.	IN.	IN.	
○	.150	.000	.000	.000	.000	-3.200	.000	3.000	.000	.000	4.000	5500.0000	327.8000	2348.0000	1339.9100	.0000	190.7500	.0300								
□	.300																									
◇	.500																									
△	.600																									
▽	.700																									

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

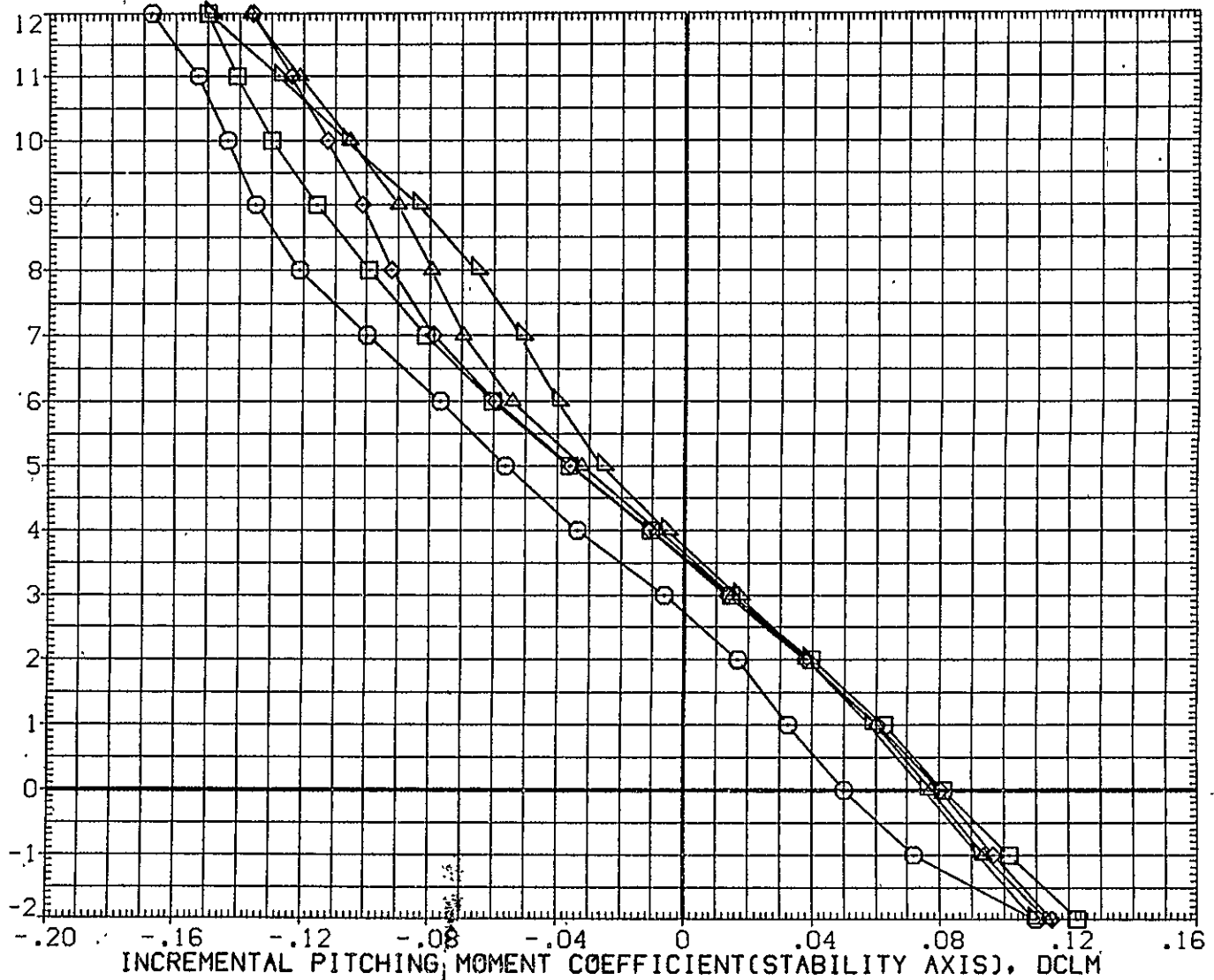


FIG. 78 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM112)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		BETA	STAB	RUD-U	RUD-L	SREF	SG.FT.
○	.150	.000	-3.200	.000	.000	2690.0000	IN.
□	.300	.000	.000	.000	.000	474.8100	IN.
◇	.499	.000	.000	.000	.000	936.6800	IN. X0
△	.600	.000	.000	.000	.000	1109.0000	IN. Y0
▽	.700	.000	.000	.000	.000	375.0000	IN. Z0
						SCALE	.0300

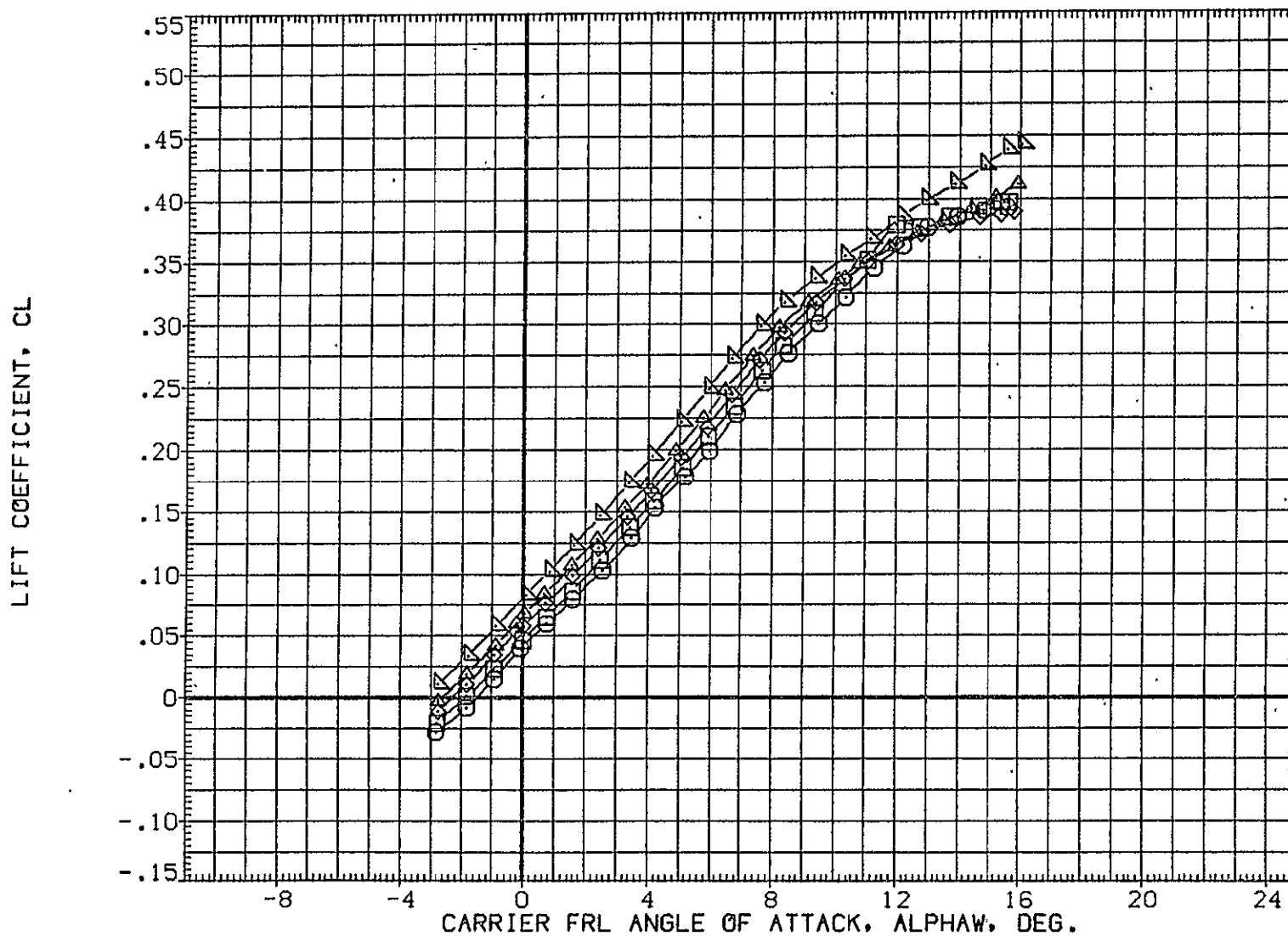


FIG. 79 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION			
		BETA	RUD-U	RUD-L	STAB	SREF	LREF	BREF	SQ.FT.
○	.150	.000	.000	.000	-3.200	2690.0000	474.8100	936.6800	IN.
□	.300	.000	.000	.000	.000	1109.0000	.0000	.0000	IN. X0
◇	.499	.000	.000	.000	3.000	375.0000	.0300		IN. Y0
△	.600	.000	.000	.000	.000				IN. Z0
▽	.700	.000	.000	.000	4.000				

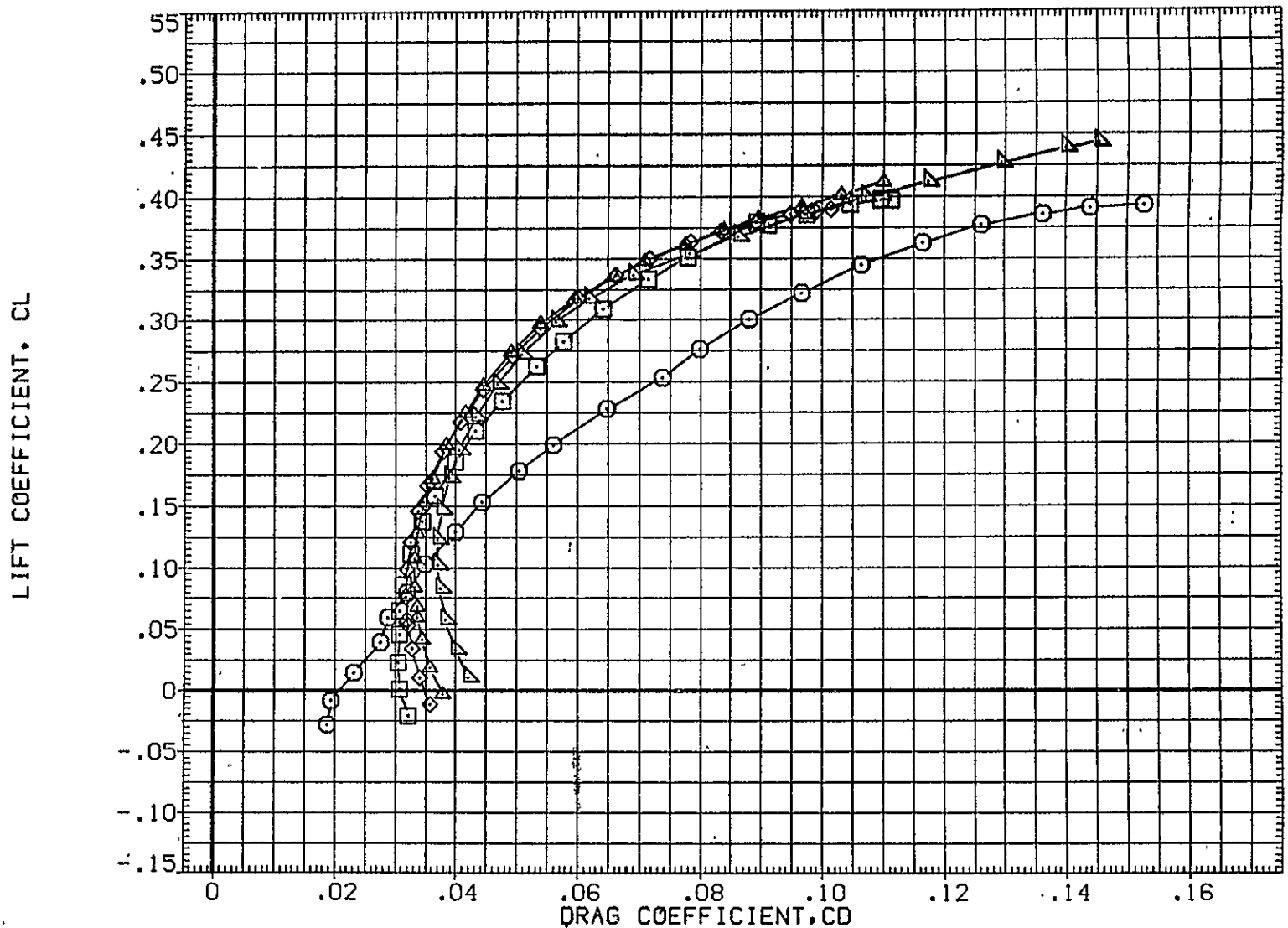


FIG. 79 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

ORB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM112)

SYMBOL	MACH	PARAMETRIC VALUES					REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	-3.200	SREF	2690.0000	SQ.FT.	
□	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.	
◇	.499	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.	
△	.600	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0	
▽	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0	
						ZMRP	375.0000	IN. Z0	
						SCALE	.0300		

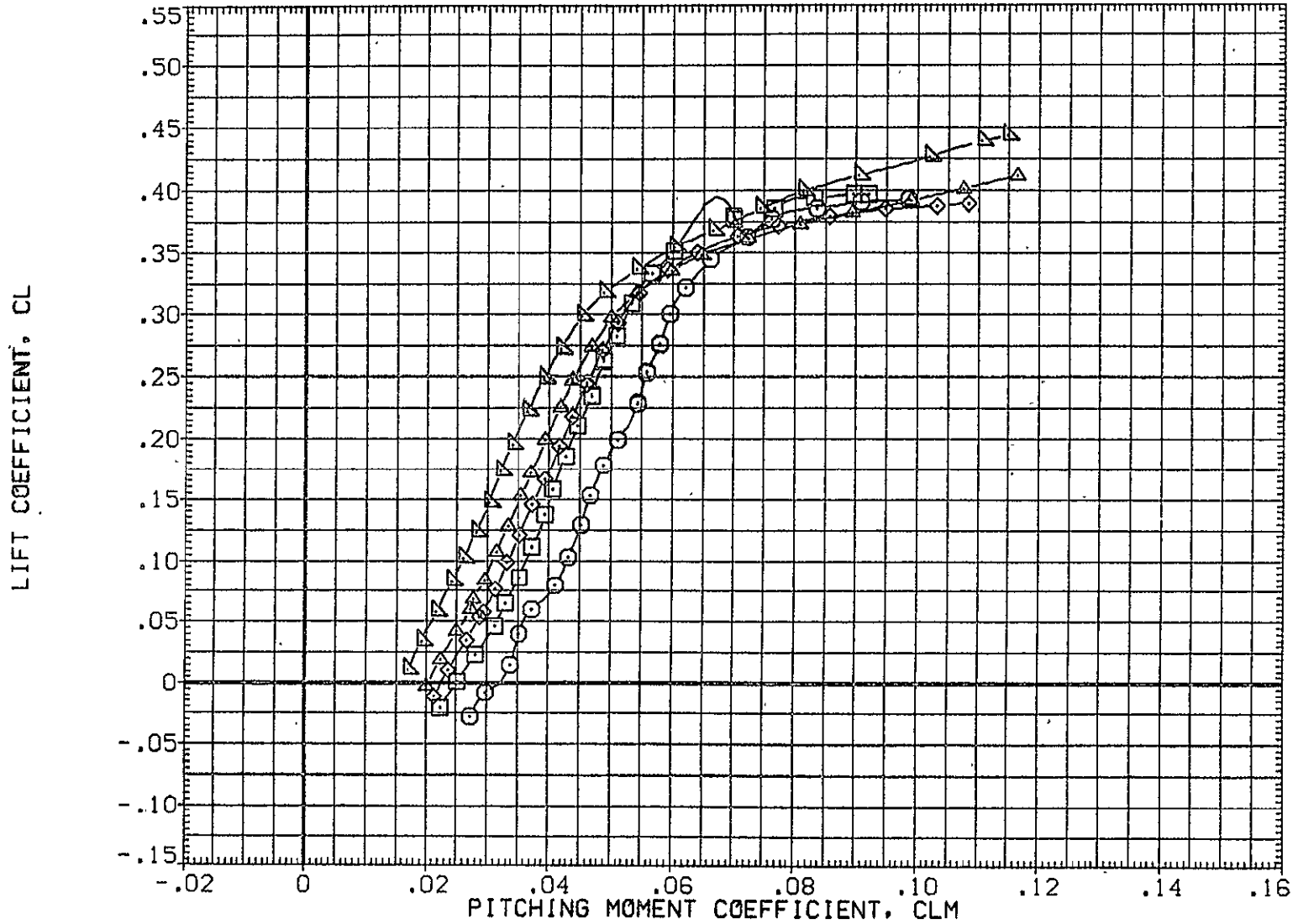


FIG. 79 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION											
		BETA	STAB	RUD-L	RUD-L	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.
○	.150	BETA	.000	STAB	-3.200	2690.0000	474.8100	936.6800	1109.0000	.0000	375.0000	.0300					
□	.300	RUD-U	.000	RUD-L	.000												
◇	.499	ELV-1B	.000	ELV-OB	3.000												
△	.600	S1-2	.000	S3-4	.000												
▽	.700	S5-6	.000	1ORB	4.000												

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

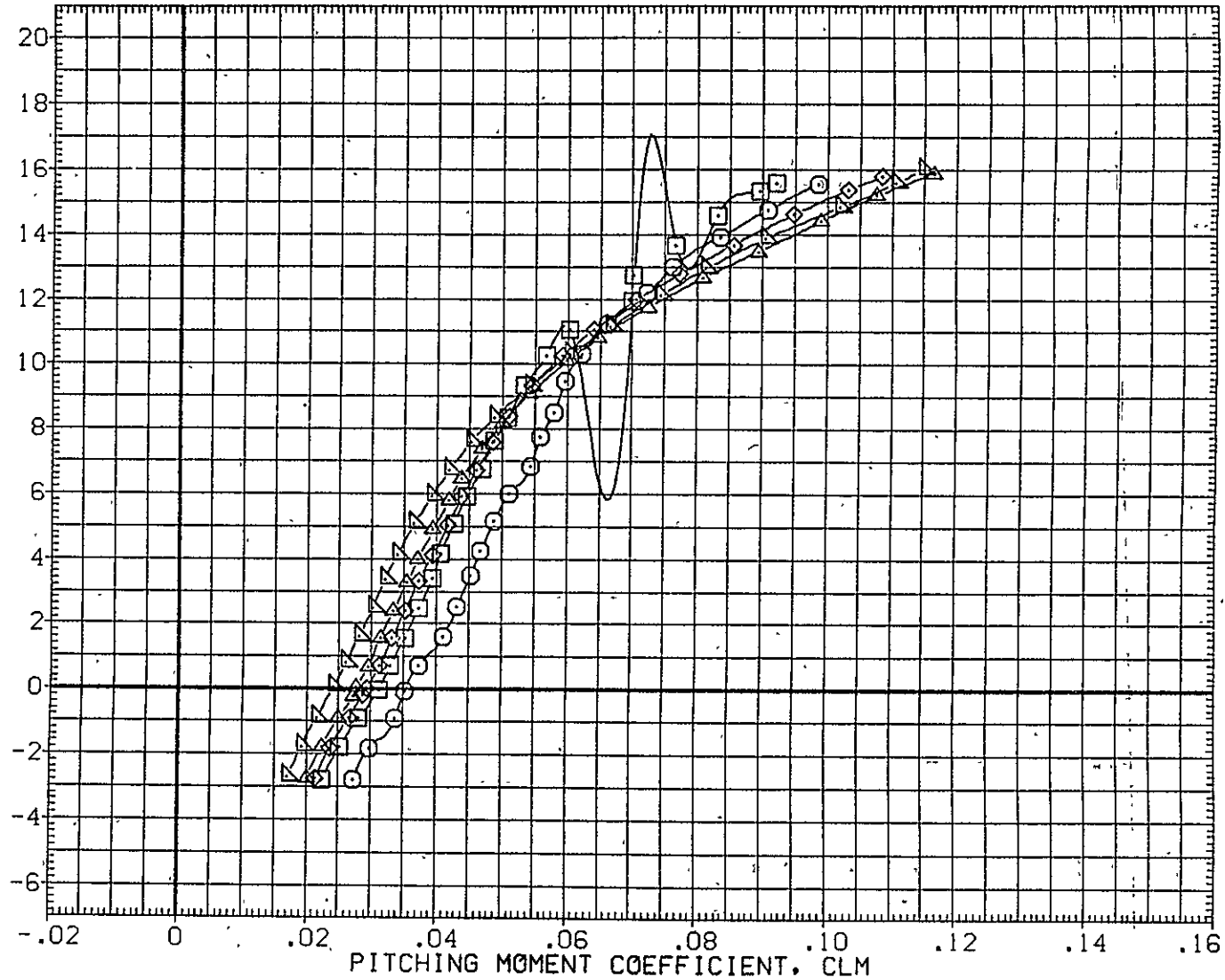


FIG. 79 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=-3.2)

ORB

CA5 K1 FO H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM116)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

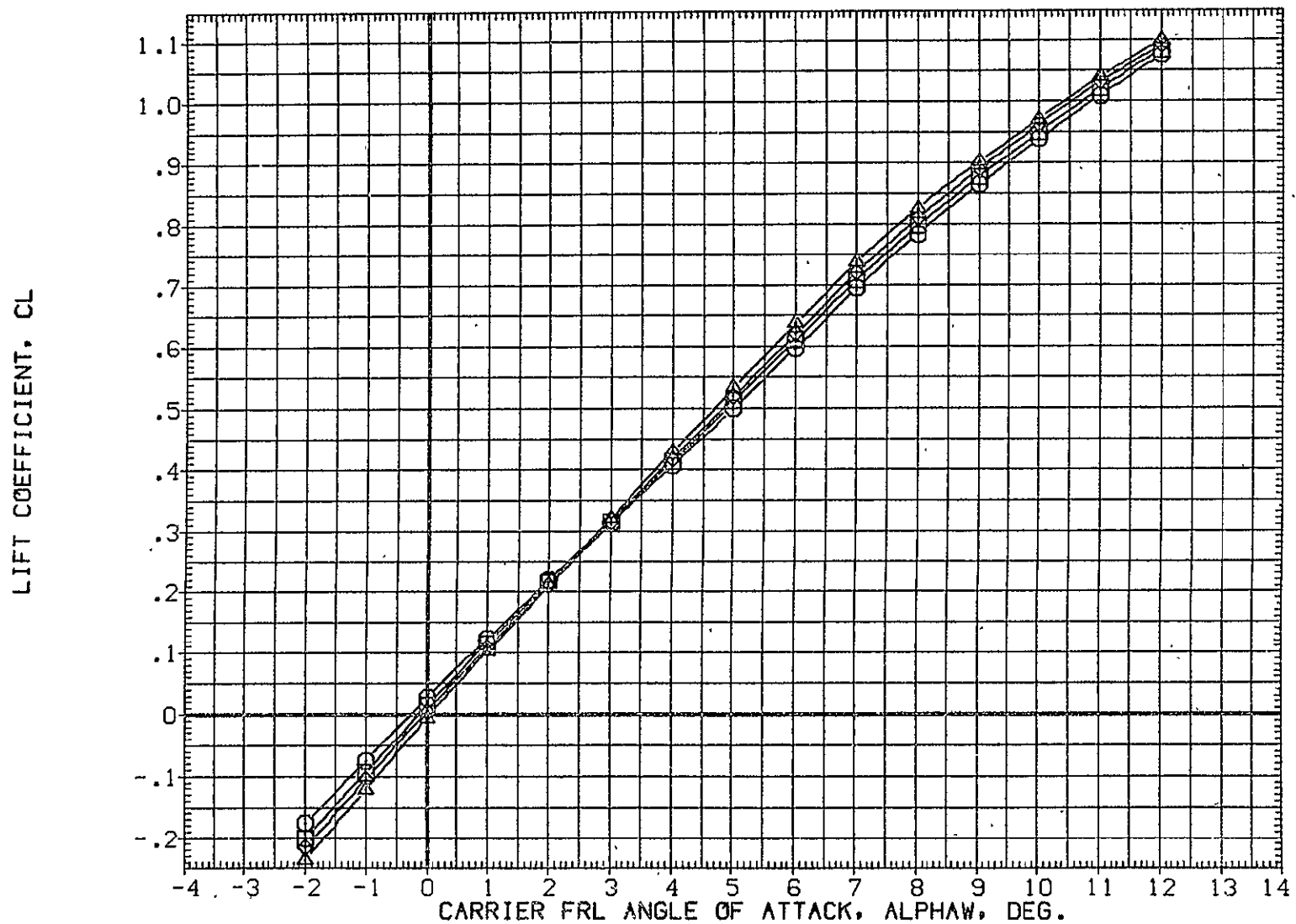


FIG. 80 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

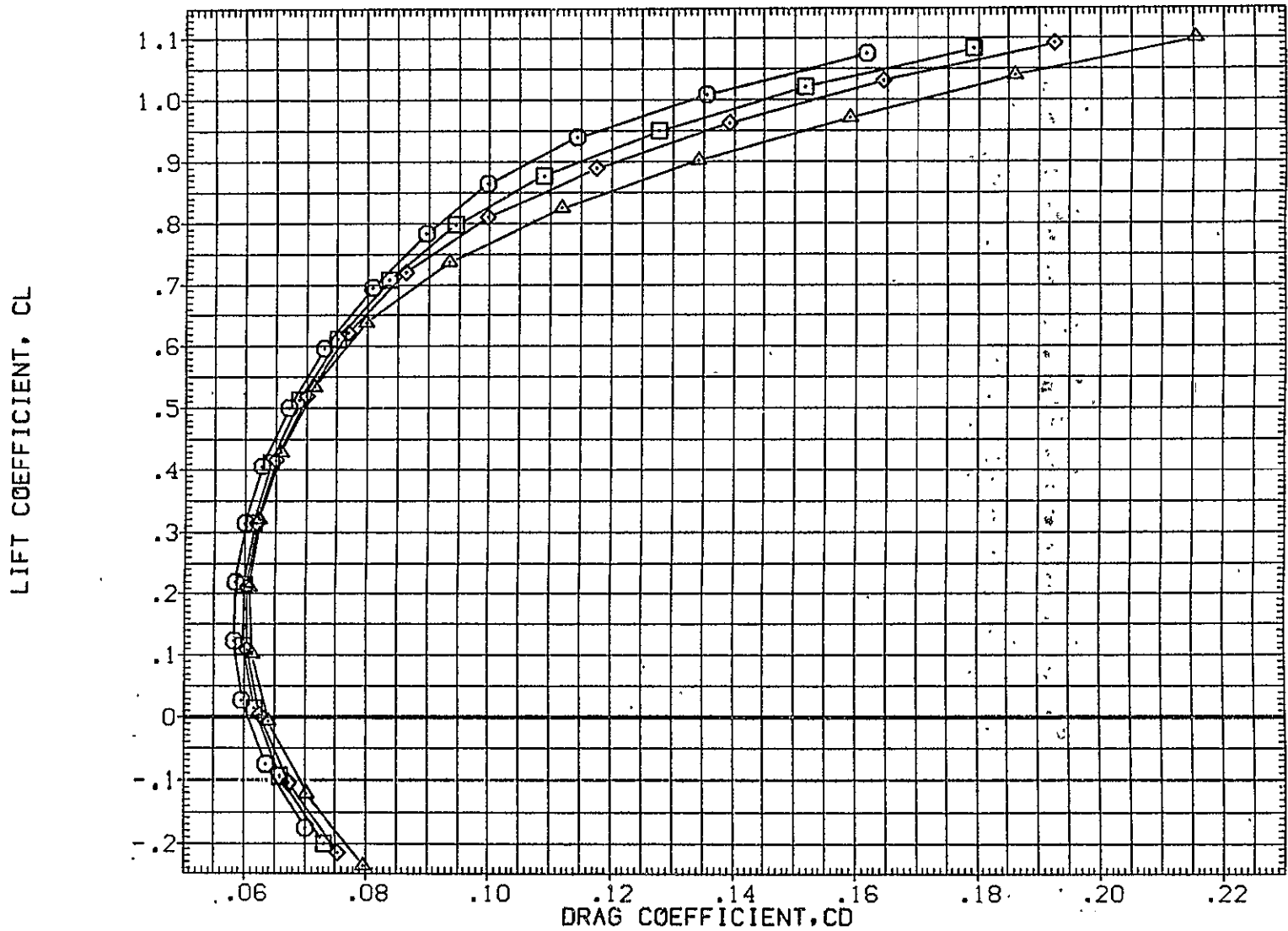


FIG. 80 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM116)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	ICRB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	



FIG. 80 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

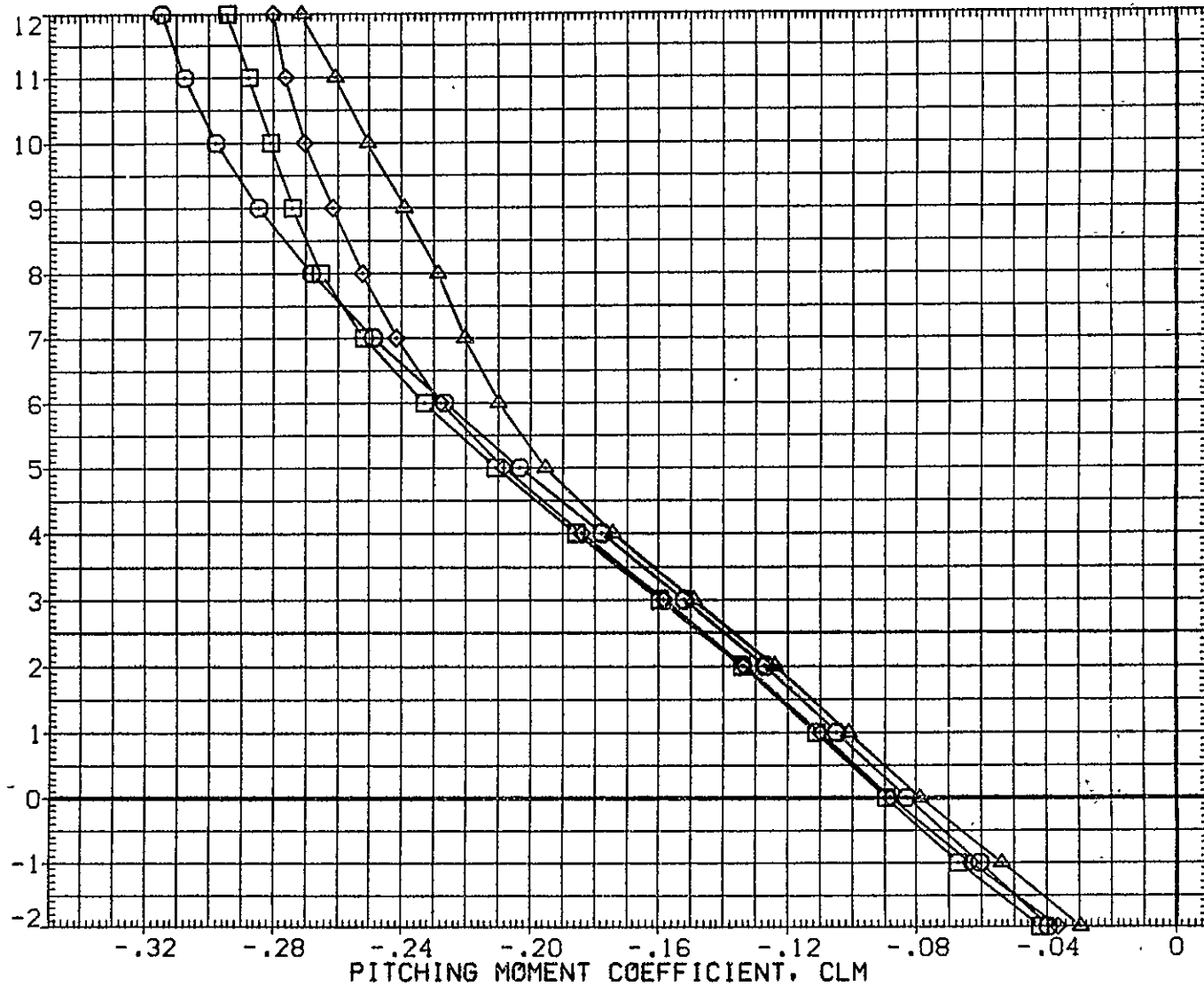


FIG. 80 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

CA5 K1 FO H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM116)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

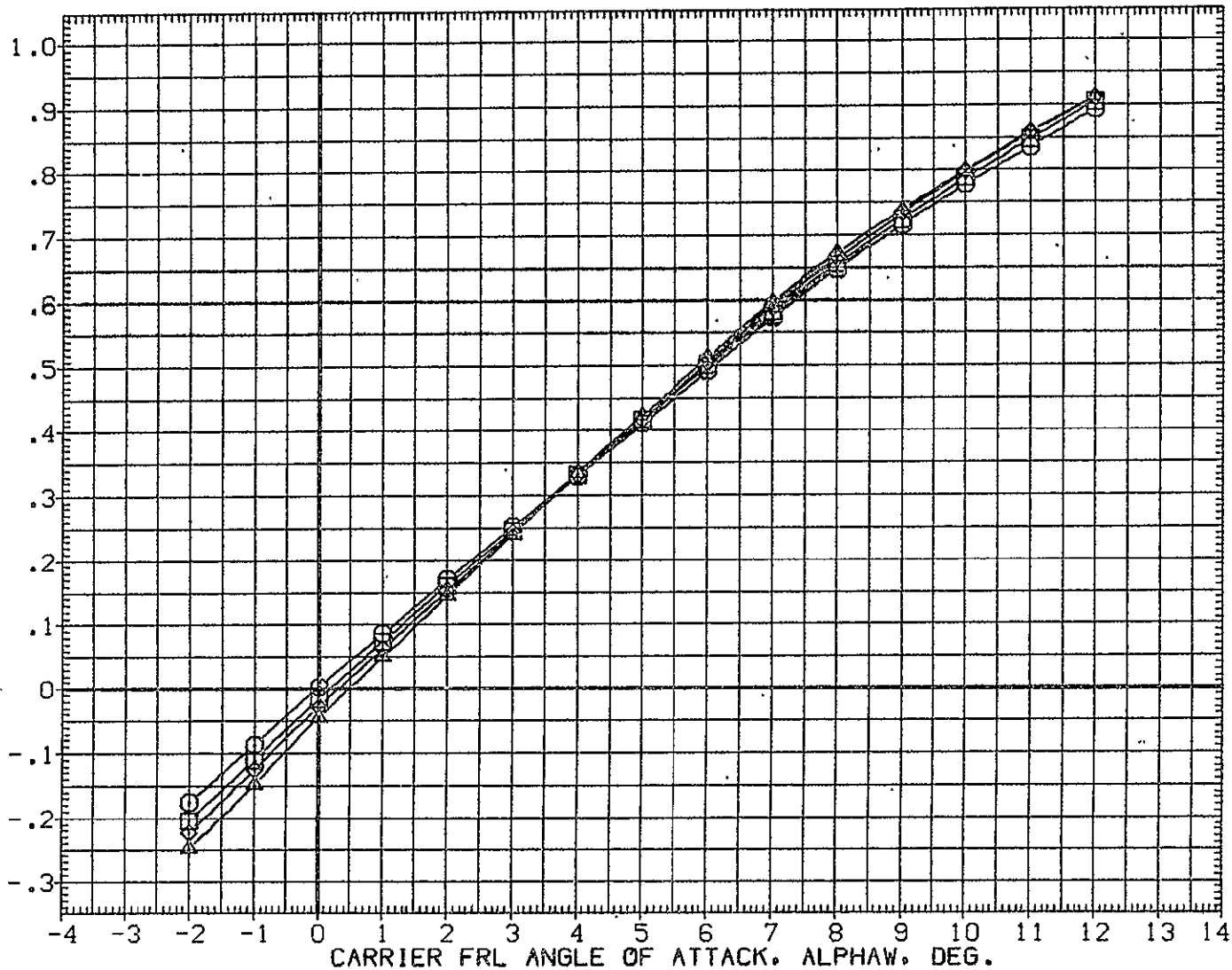


FIG. 81 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	ICRB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

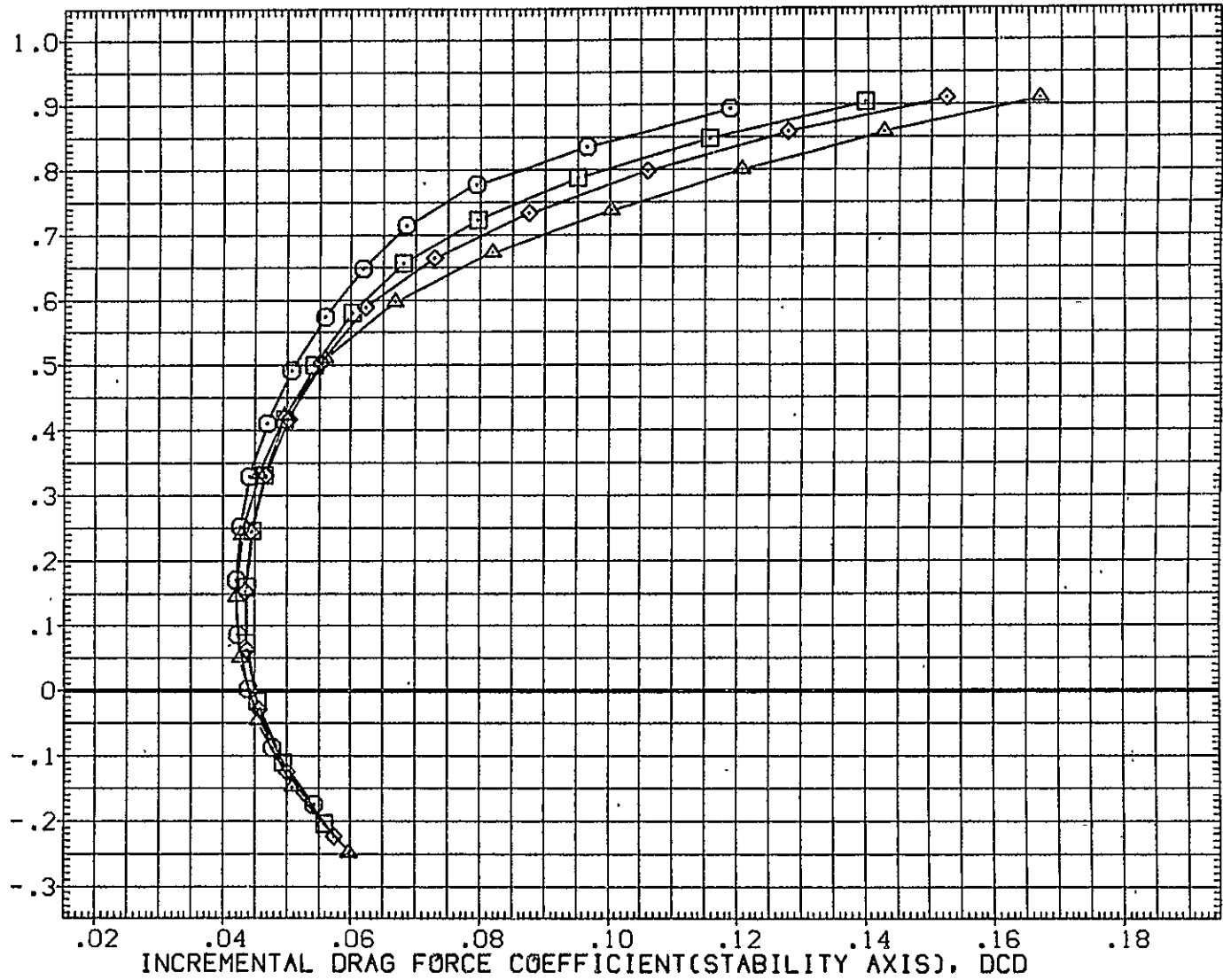


FIG. 81 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

CA5 K1 FO H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM116)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-9B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

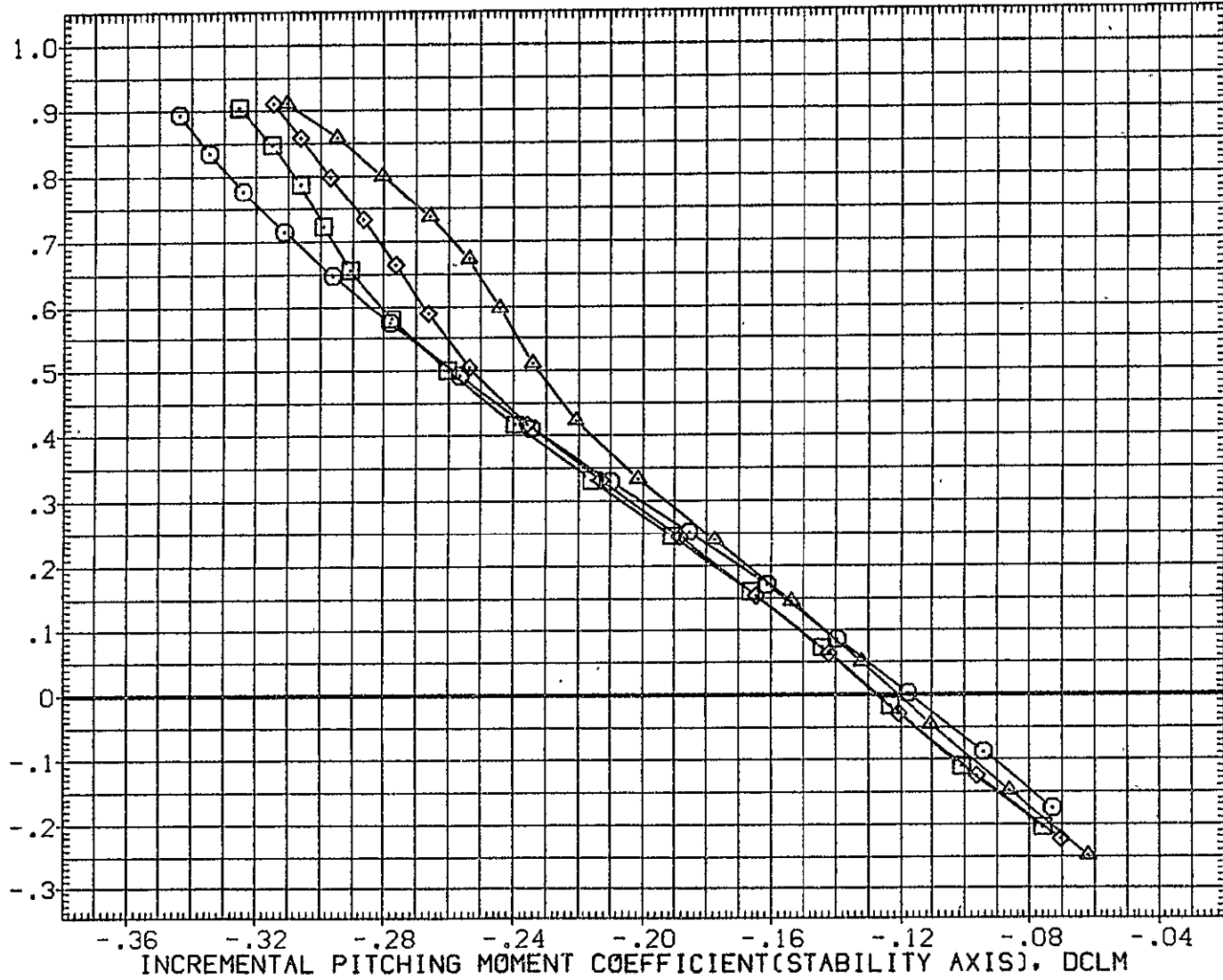


FIG. 81 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

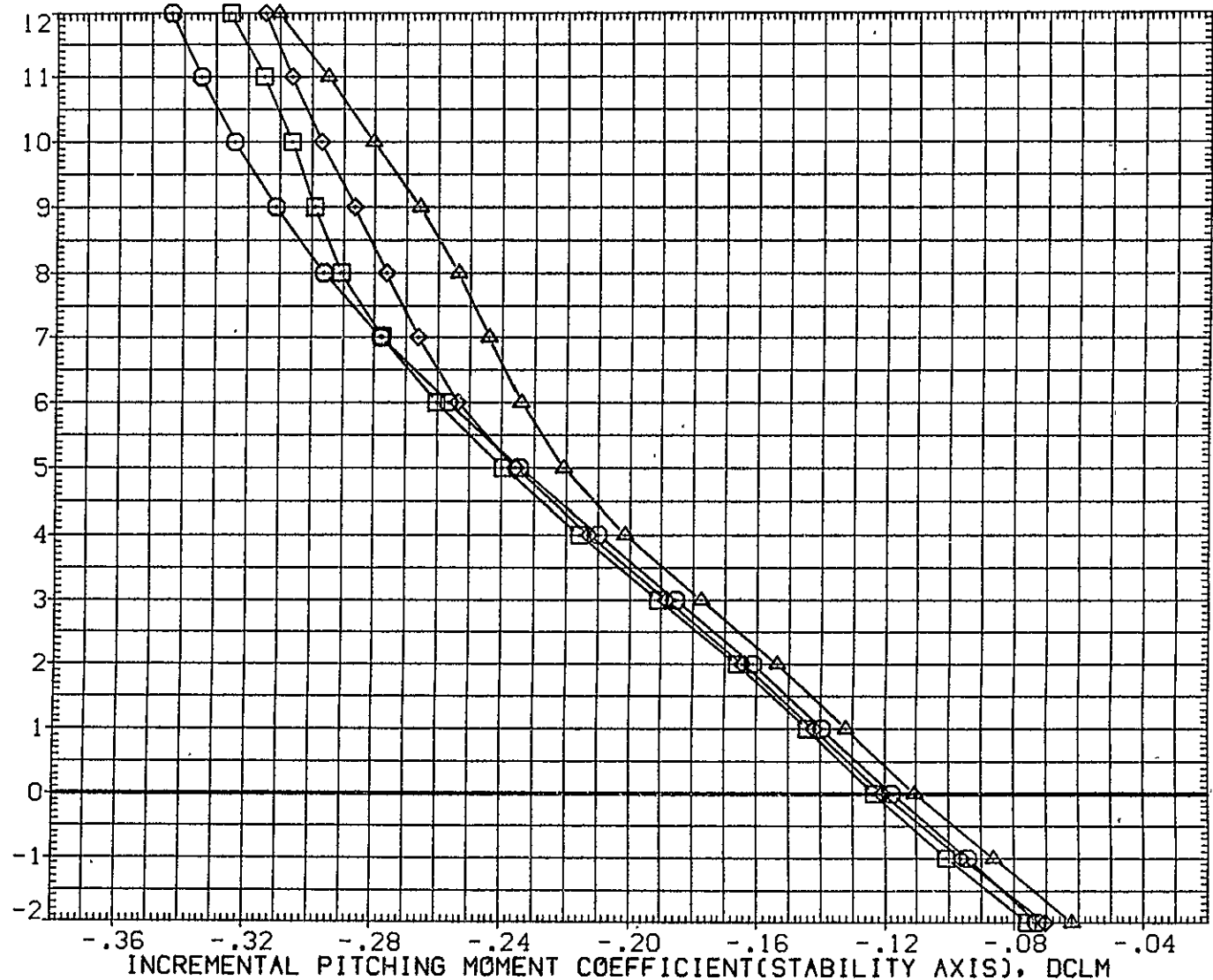


FIG. 81 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM116)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-U	RUD-L	SREF	SG.FT.	LREF
○	.300	.000	1.000	.000	.000	2690.0000	IN.	474.8100
□	.500	.000	.000	.000	.000	936.6800	IN.	936.6800
◇	.600	.000	3.000	.000	.000	1109.0000	IN. X0	1109.0000
△	.700	.000	.000	.000	.000	YMRP	IN. Y0	.0000
		SS-6	10RB	4.000	ZMRP	IN. Z0	375.0000	
					SCALE	.0300		

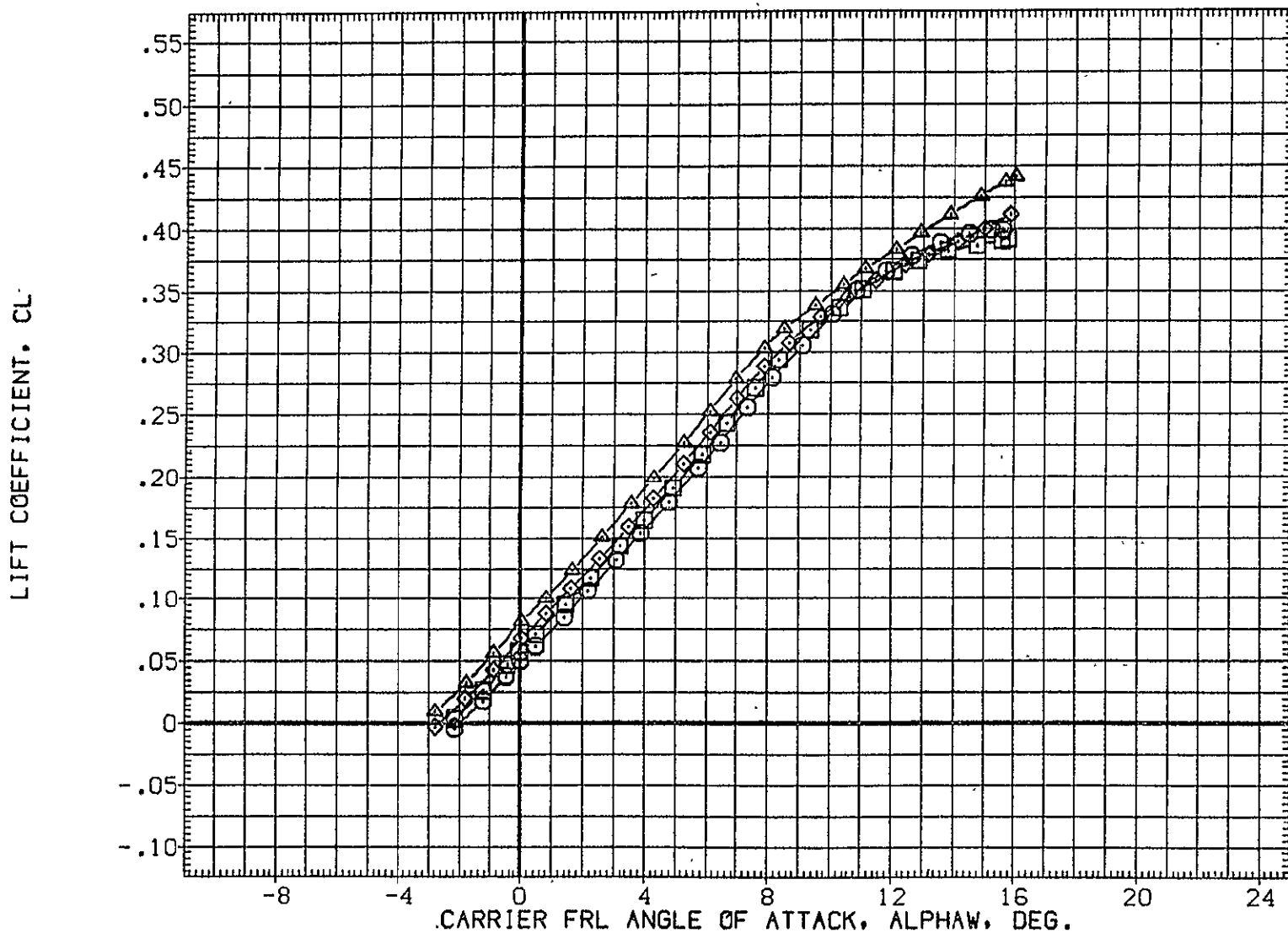


FIG. 82 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

0RB



SYMBOL		MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○		.300	BETA	.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□		.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇		.600	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
△		.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
			S5-6	.000	IORB	4.000	YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

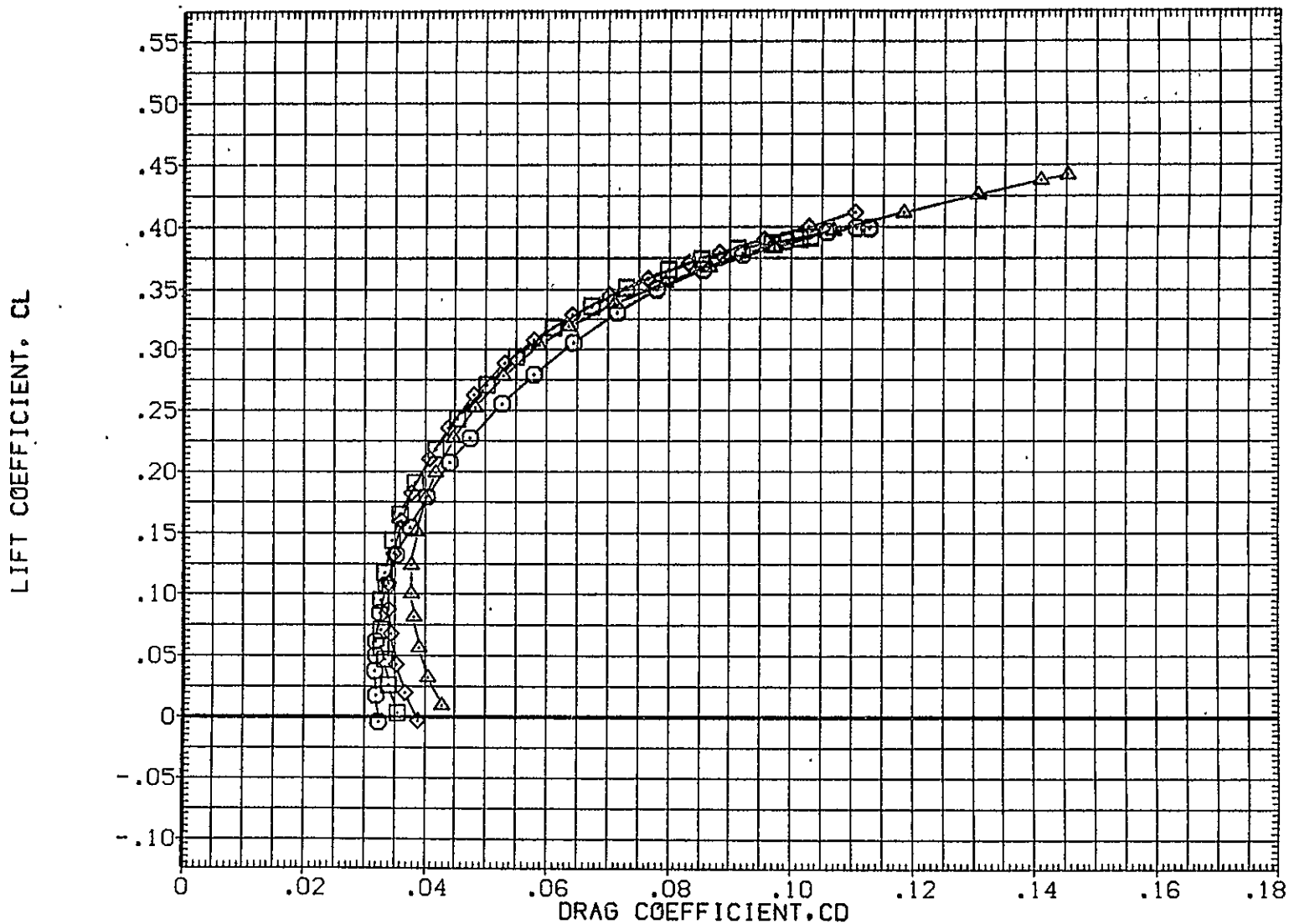


FIG. 82 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

ORB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM116)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	1.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	IORB	4.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

LIFT COEFFICIENT, CL

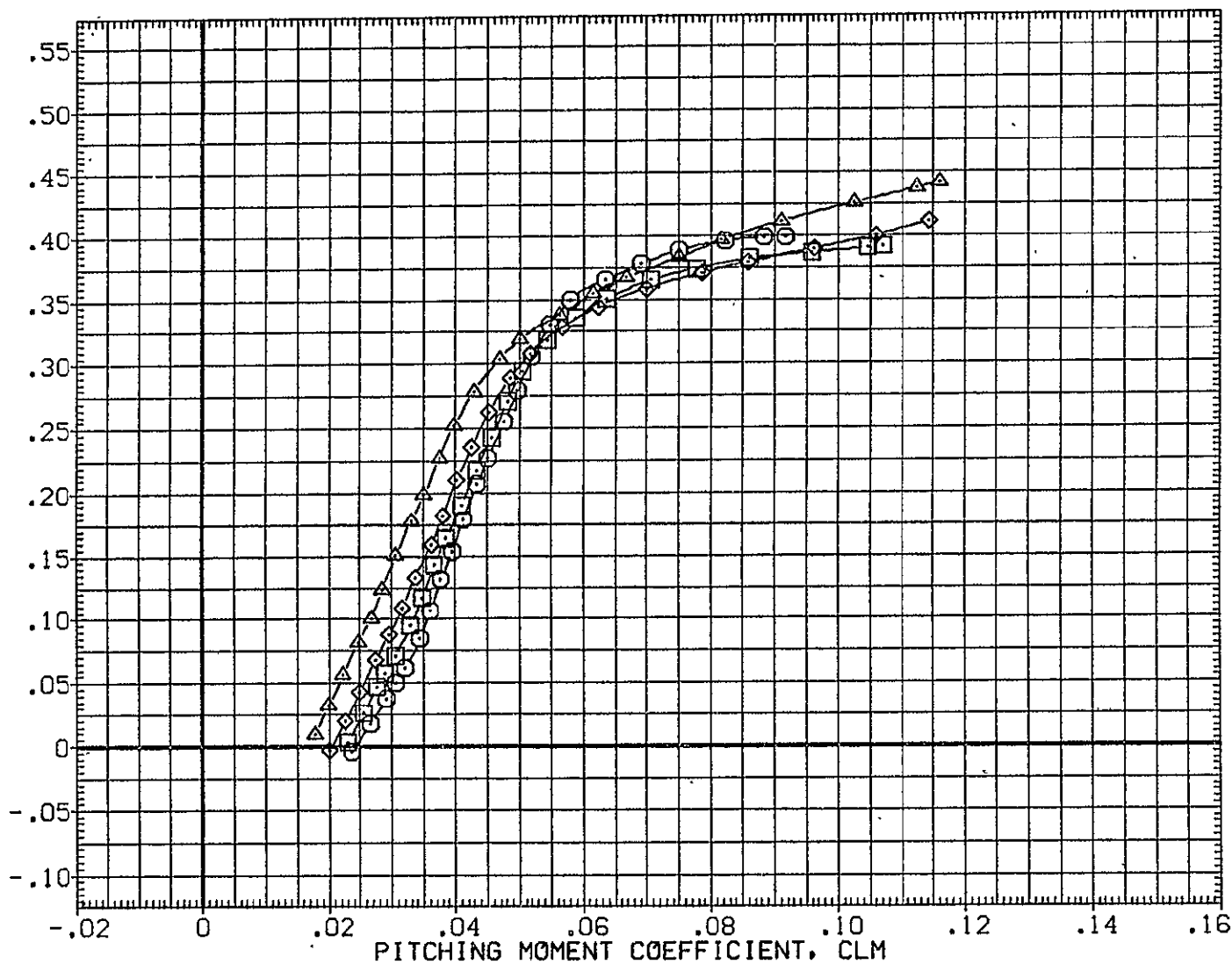


FIG. 82 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	1.000	SREF	2690.0000	SQ.F.T.
○	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.600	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
△	.700	S5-6	.000	IORB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

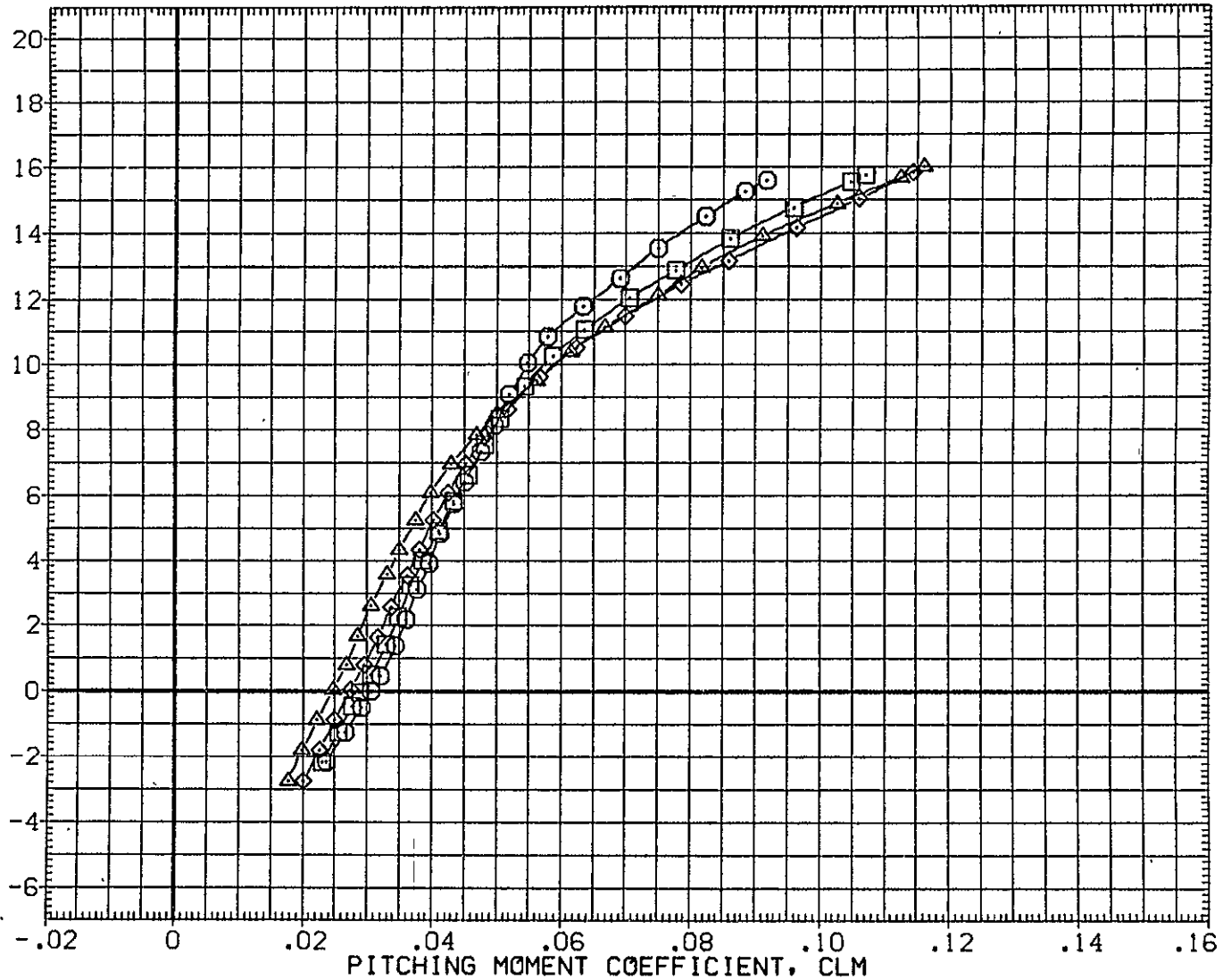


FIG. 82 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY(S=+1)

0RB

CA5 .K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM117)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

LIFT COEFFICIENT, CL

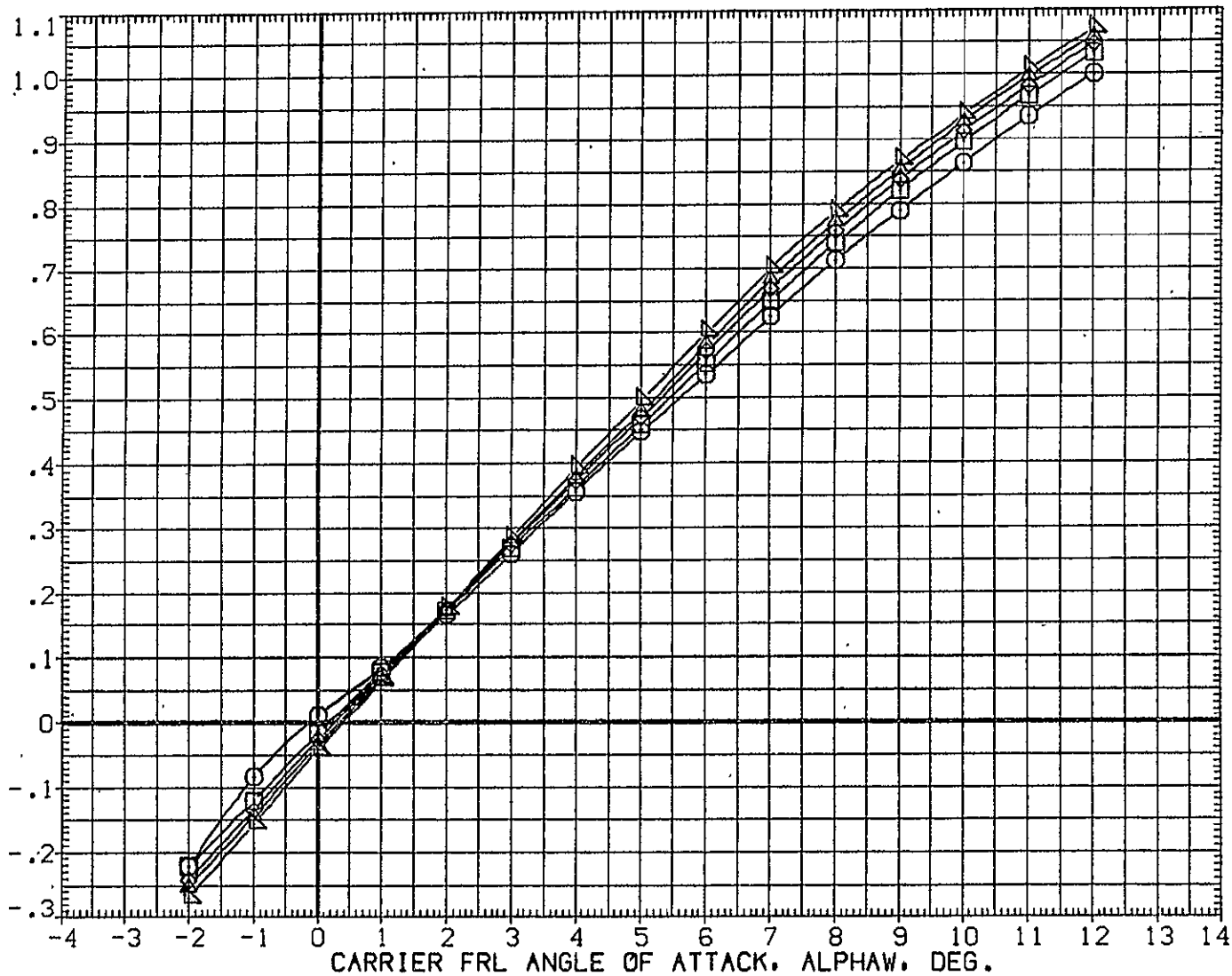


FIG. 83 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

TOTAL

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-2.000
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-OB	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

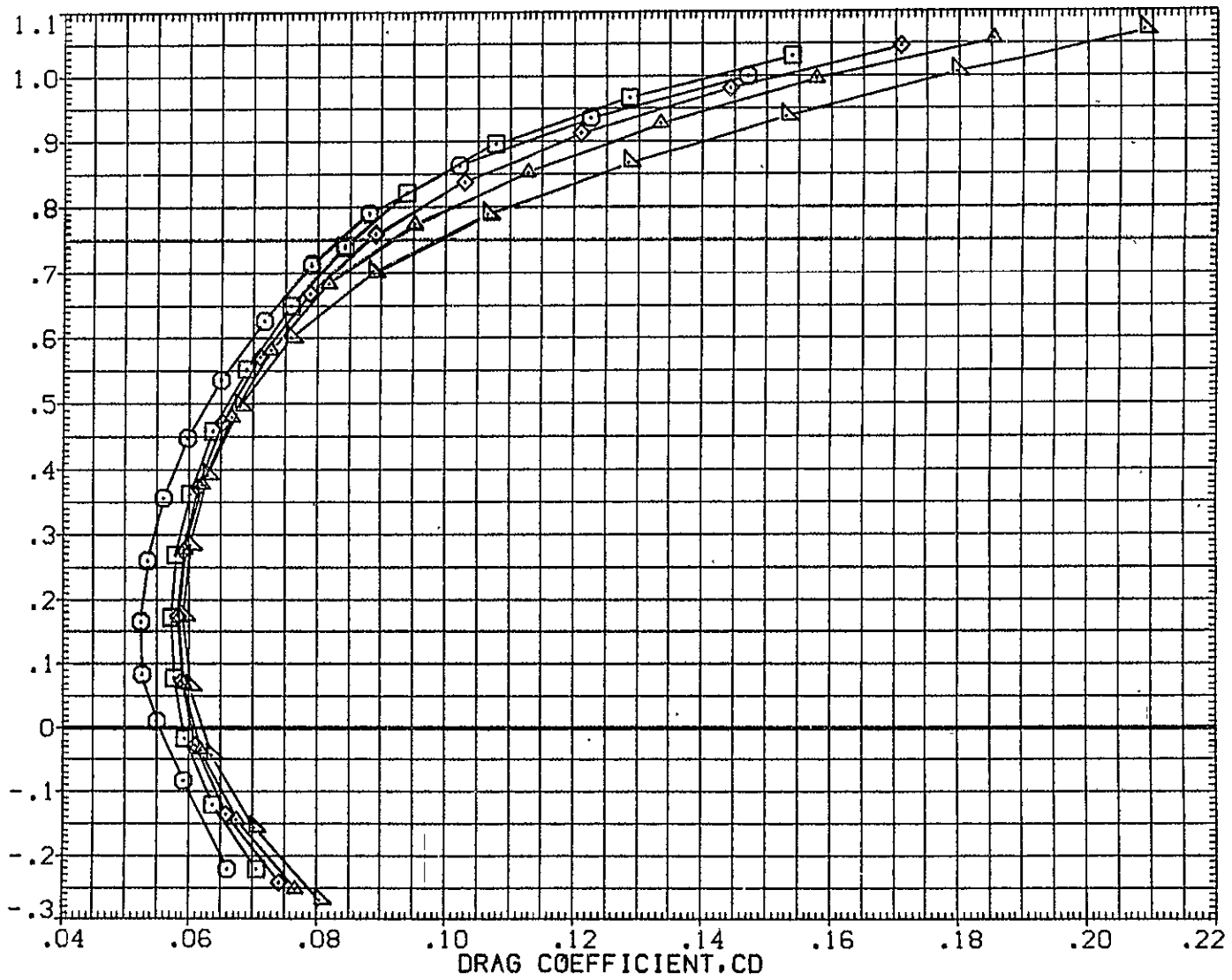


FIG. 83 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM117)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-2.000
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

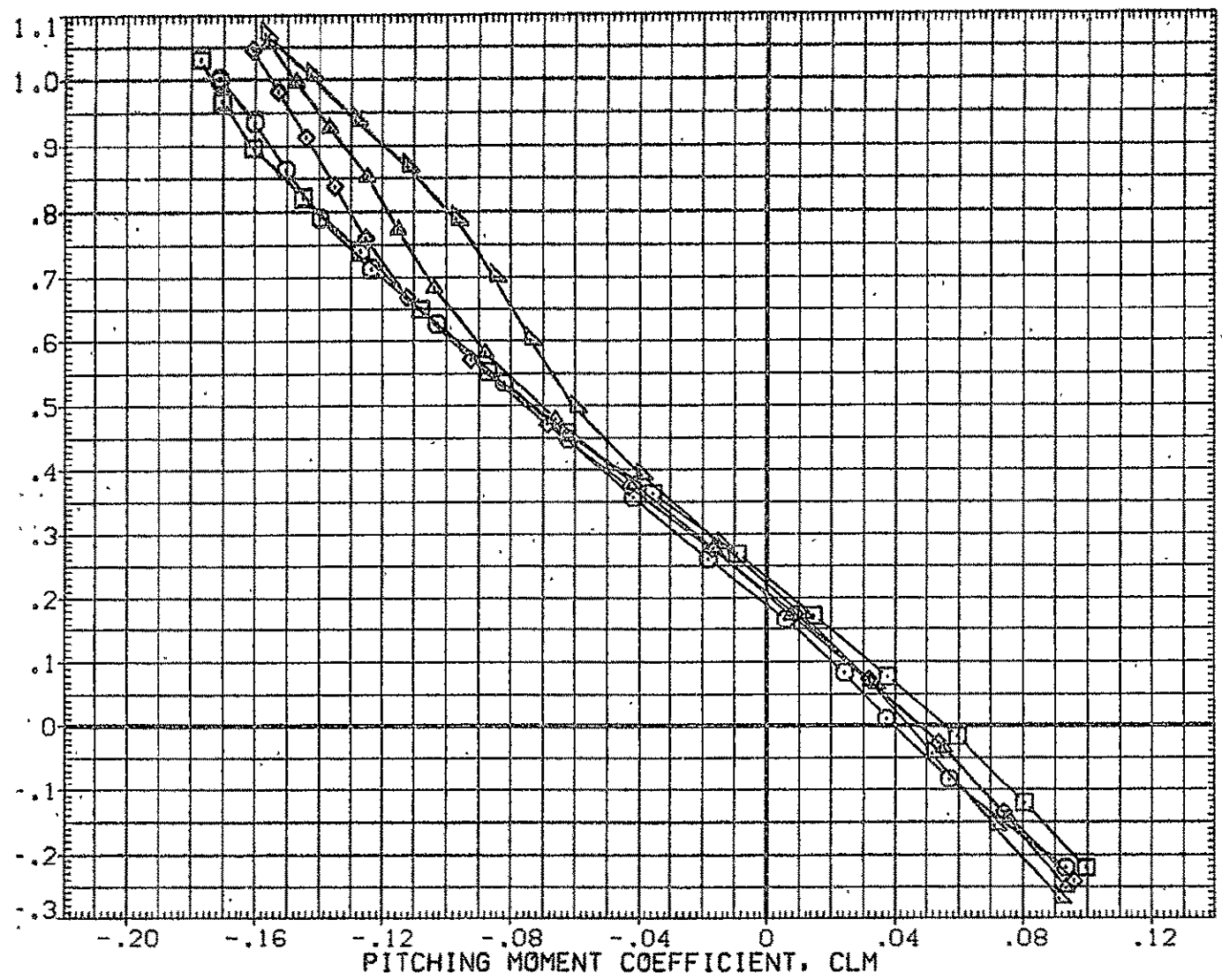


FIG. 83 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-2.000
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

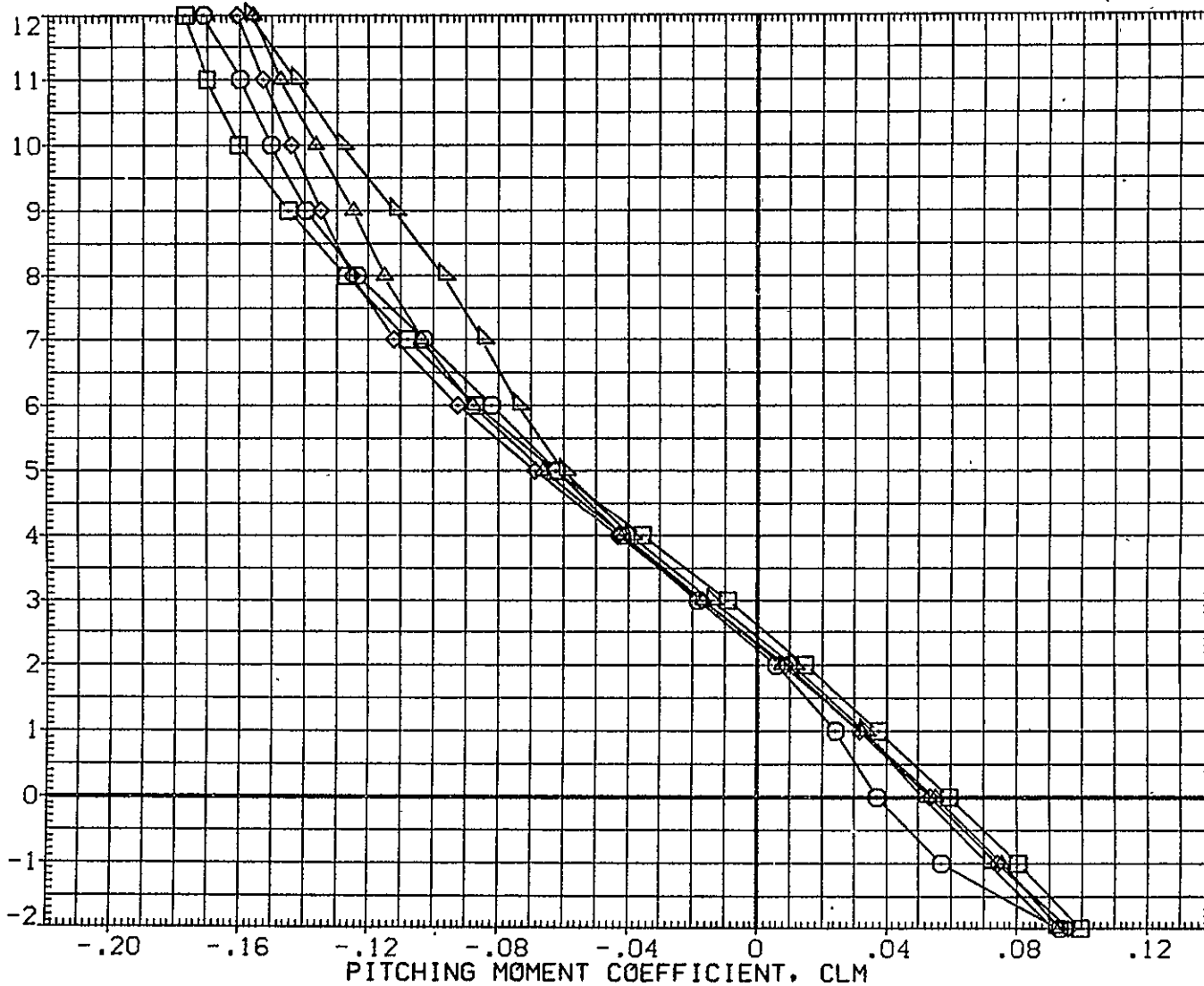


FIG. 83 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

TOTAL

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM117)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	ICRB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

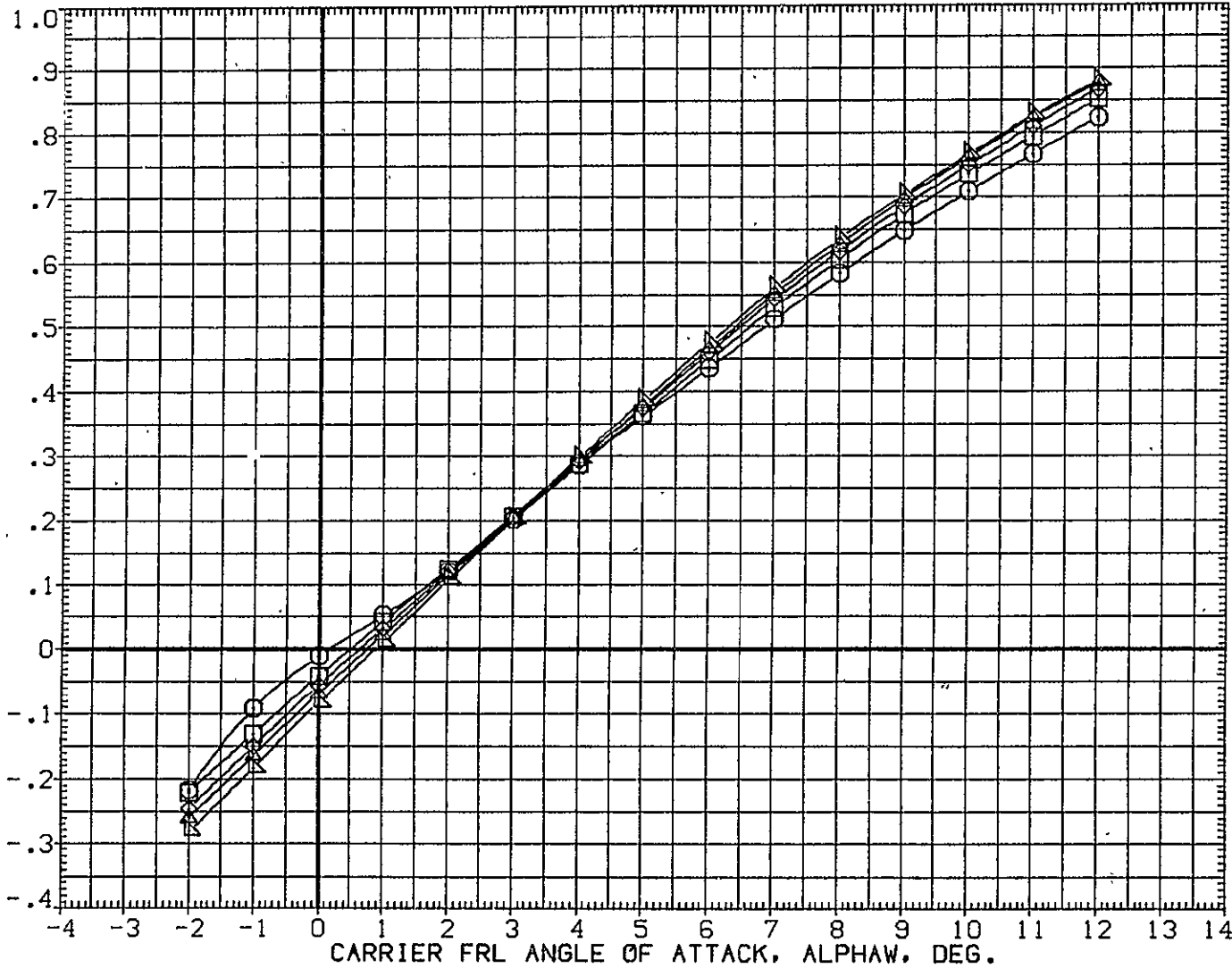


FIG. 84 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	STAB	-2.000
□	.300	RUD-U	.000	RUD-L	.000
◇	.500	ELV-1B	.000	ELV-0B	3.000
○	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

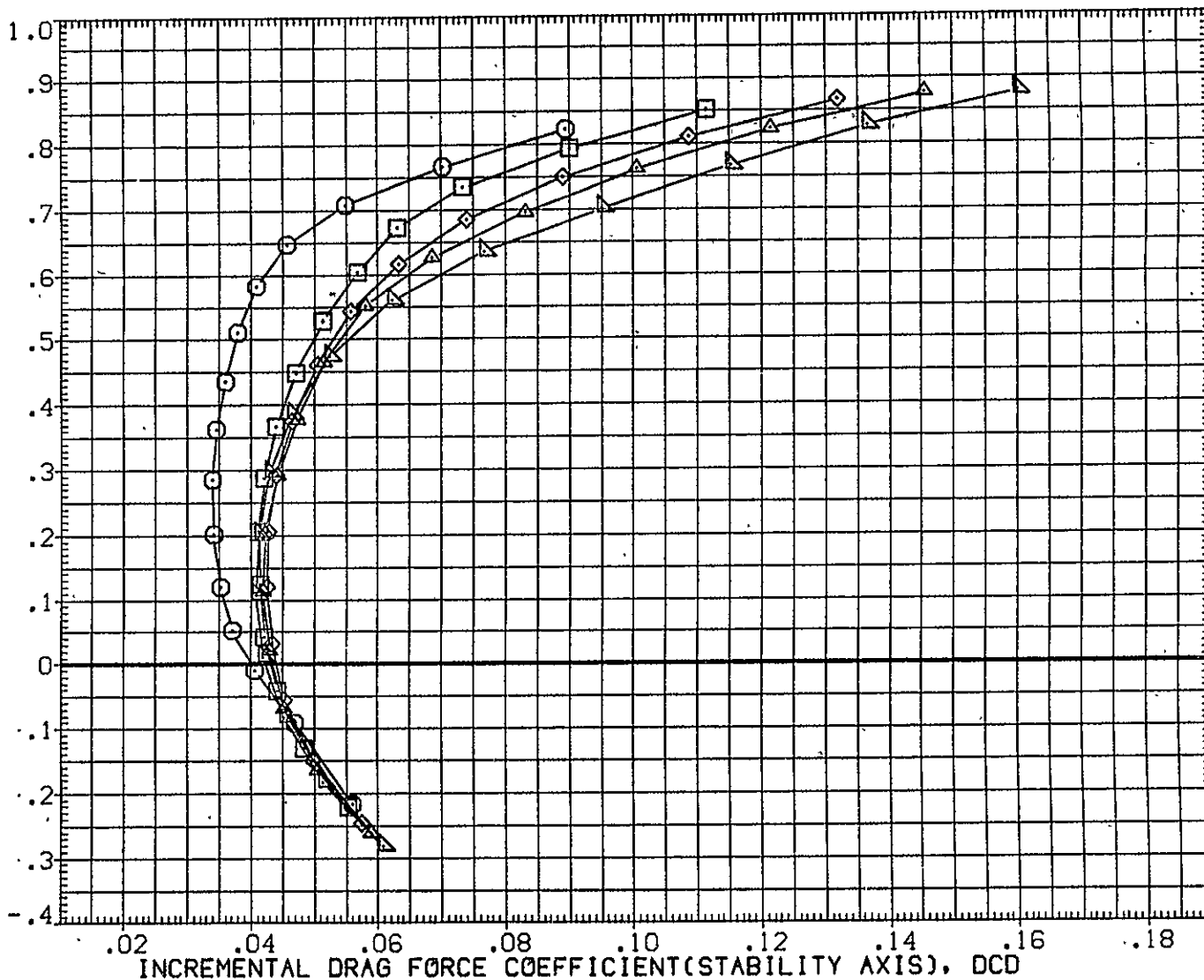


FIG. 84 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

747

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM117)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	BETA	.000	STAB	-2.000
□	.300	RUD-U	.000	RUD-L	.000
◇	.500	ELV-1B	.000	ELV-0B	3.000
△	.600	S1-2	.000	S3-4	.000
▽	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

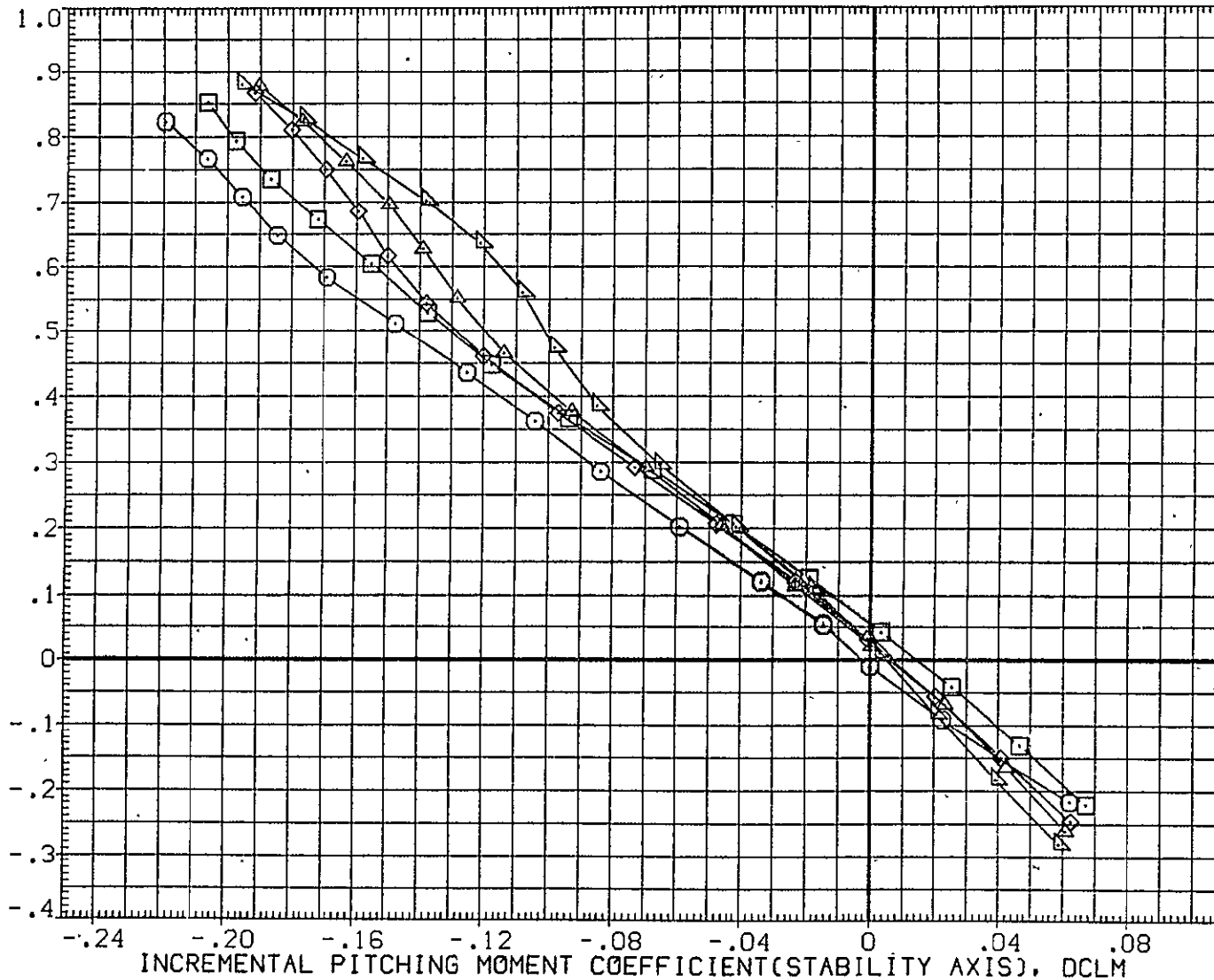


FIG. 84 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

SYMBOL  
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 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	BETA	.000	STAB	-2.000
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

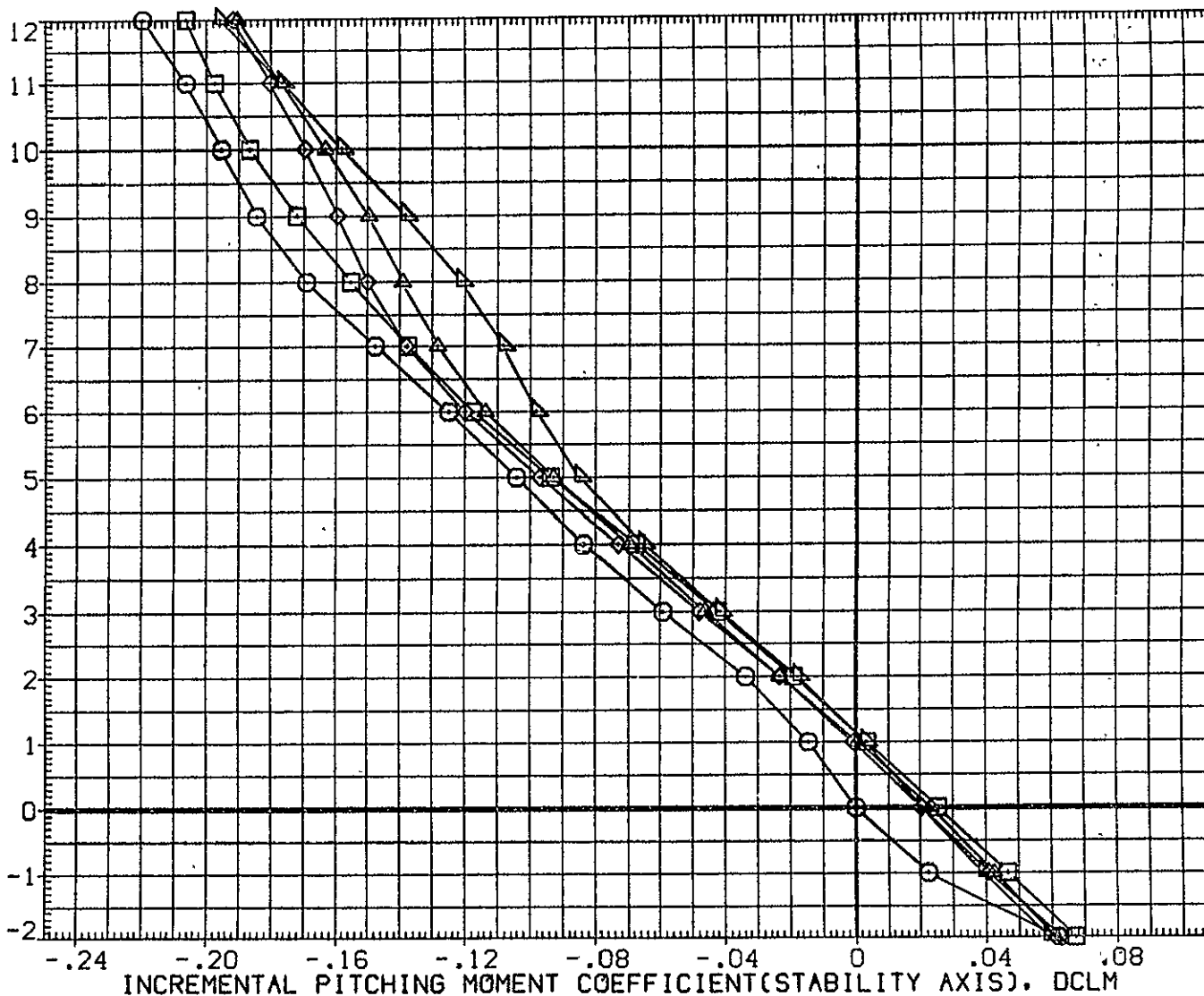


FIG. 84 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM117)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES				
.149	BETA	.000	STAB	-2.000	
.301	RUD-U	.000	RUD-L	.000	
.500	ELV-1B	.000	ELV-OB	3.000	
.601	S1-2	.000	S3-4	.000	
.700	S5-6	.000	1ORB	4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

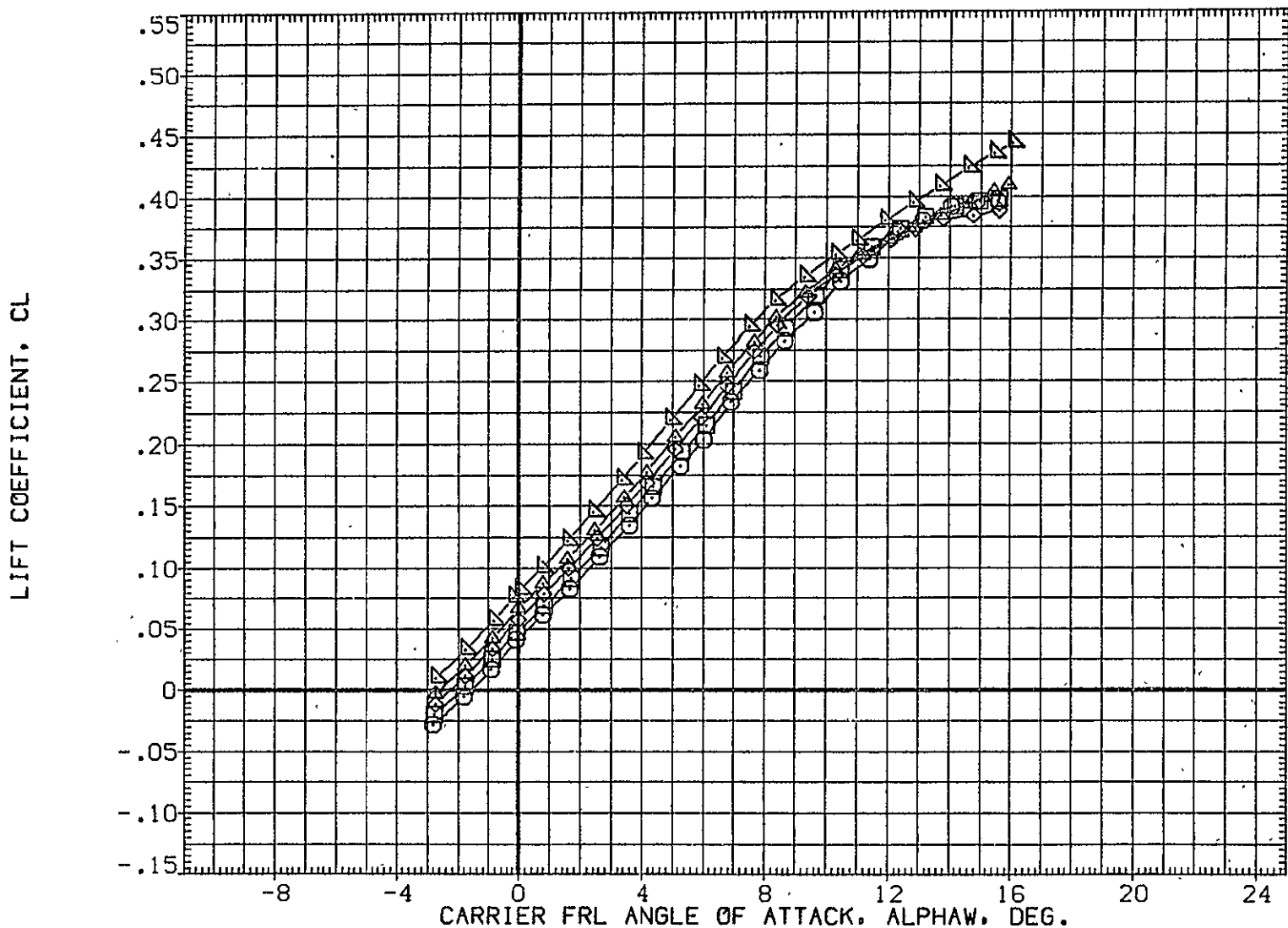


FIG. 85 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.149	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.301	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.601	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
▽	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

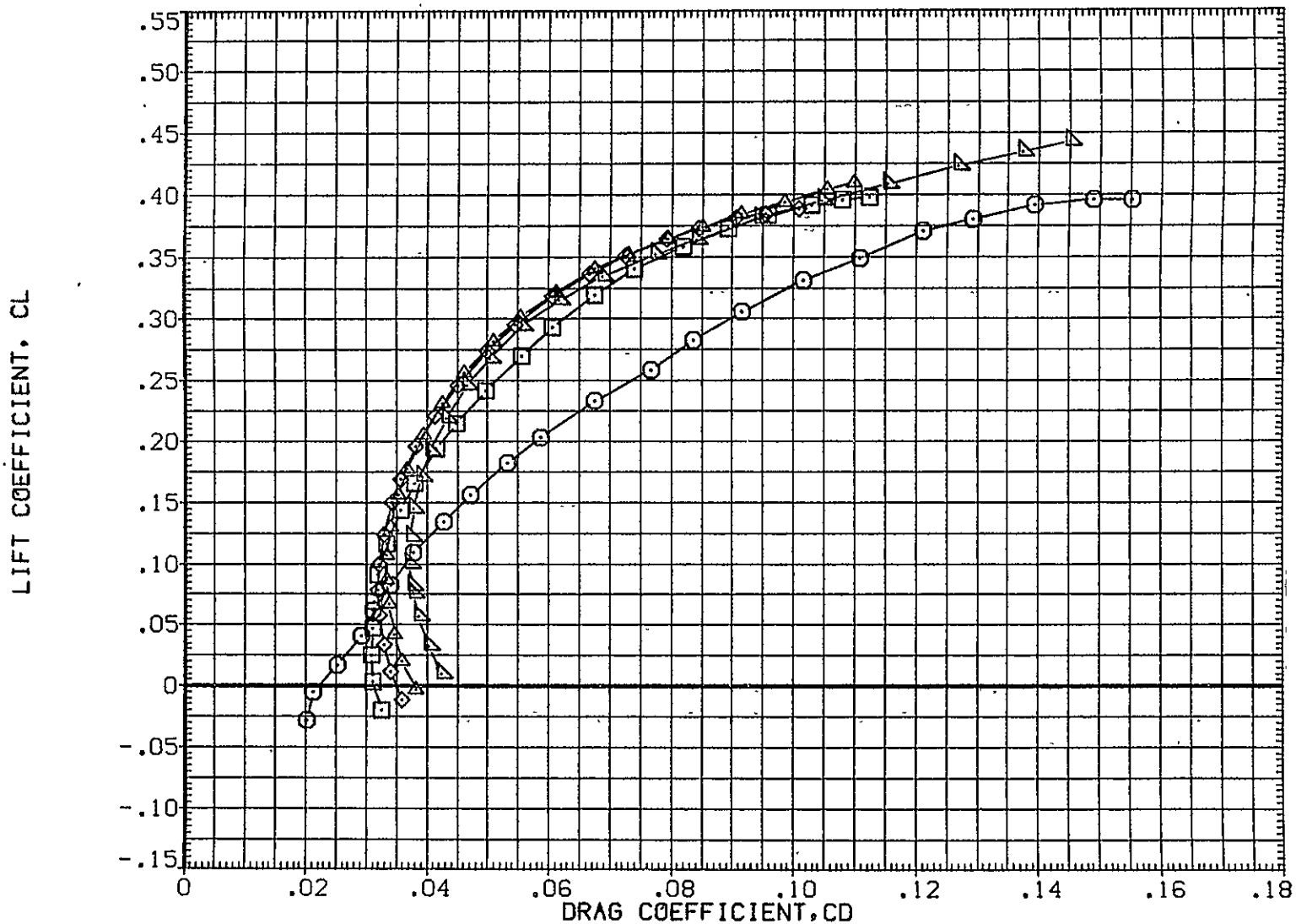


FIG. 85 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

ORB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM117)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
○	.149	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.301	ELV-1B	.000	ELV-0B	3.000	BREF	935.6800	IN.
◇	.500	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
△	.601	S5-6	.000	IORB	4.000	YMRP	.0000	IN. Y0
▽	.700					ZMRP	375.0000	IN. Z0
						SCALE	.0300	

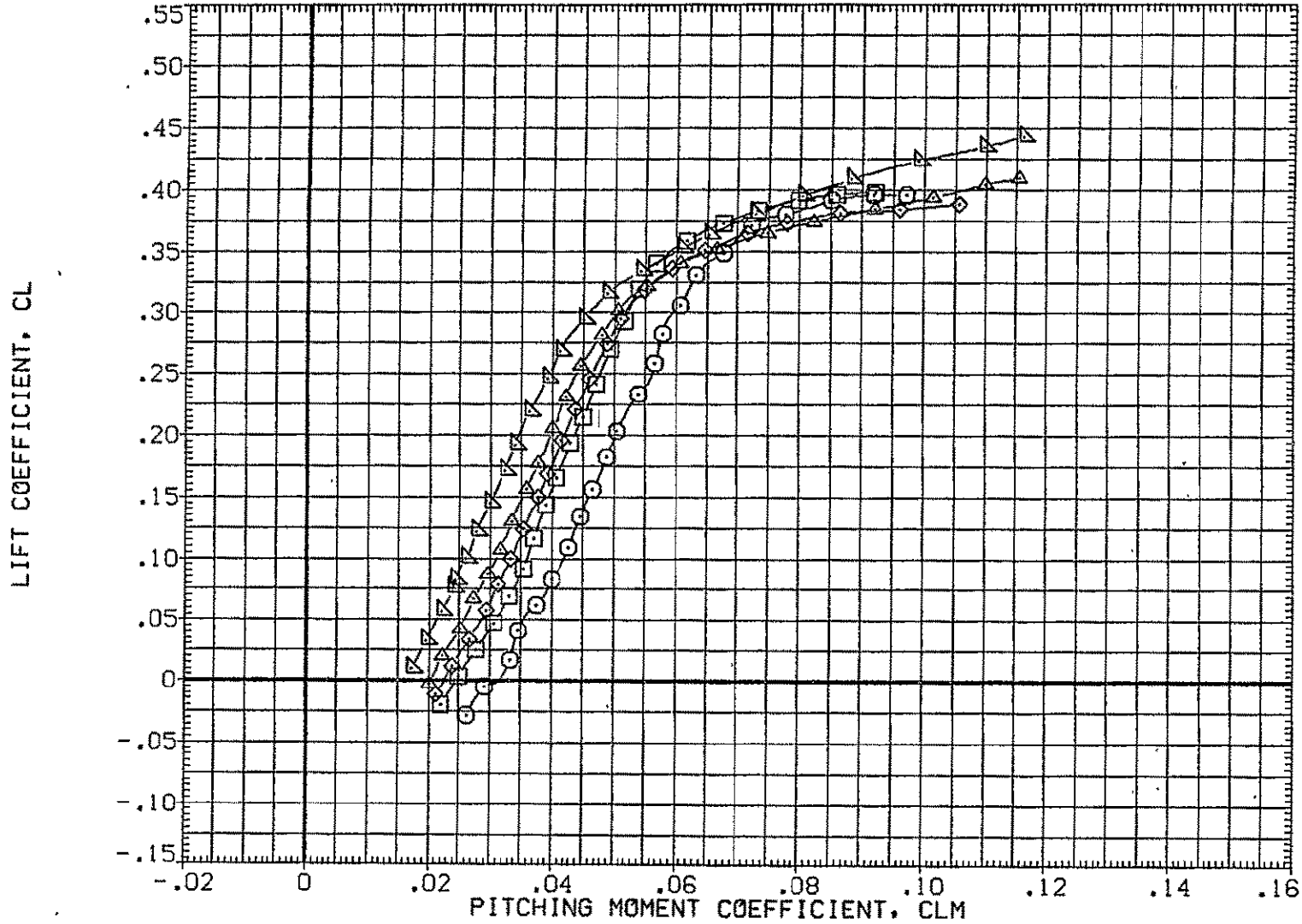


FIG. 85 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

0RB

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.149	BETA	.000	STAB	-2.000
.301	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.601	S1-2	.000	S3-4	.000
.700	SS-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT:
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

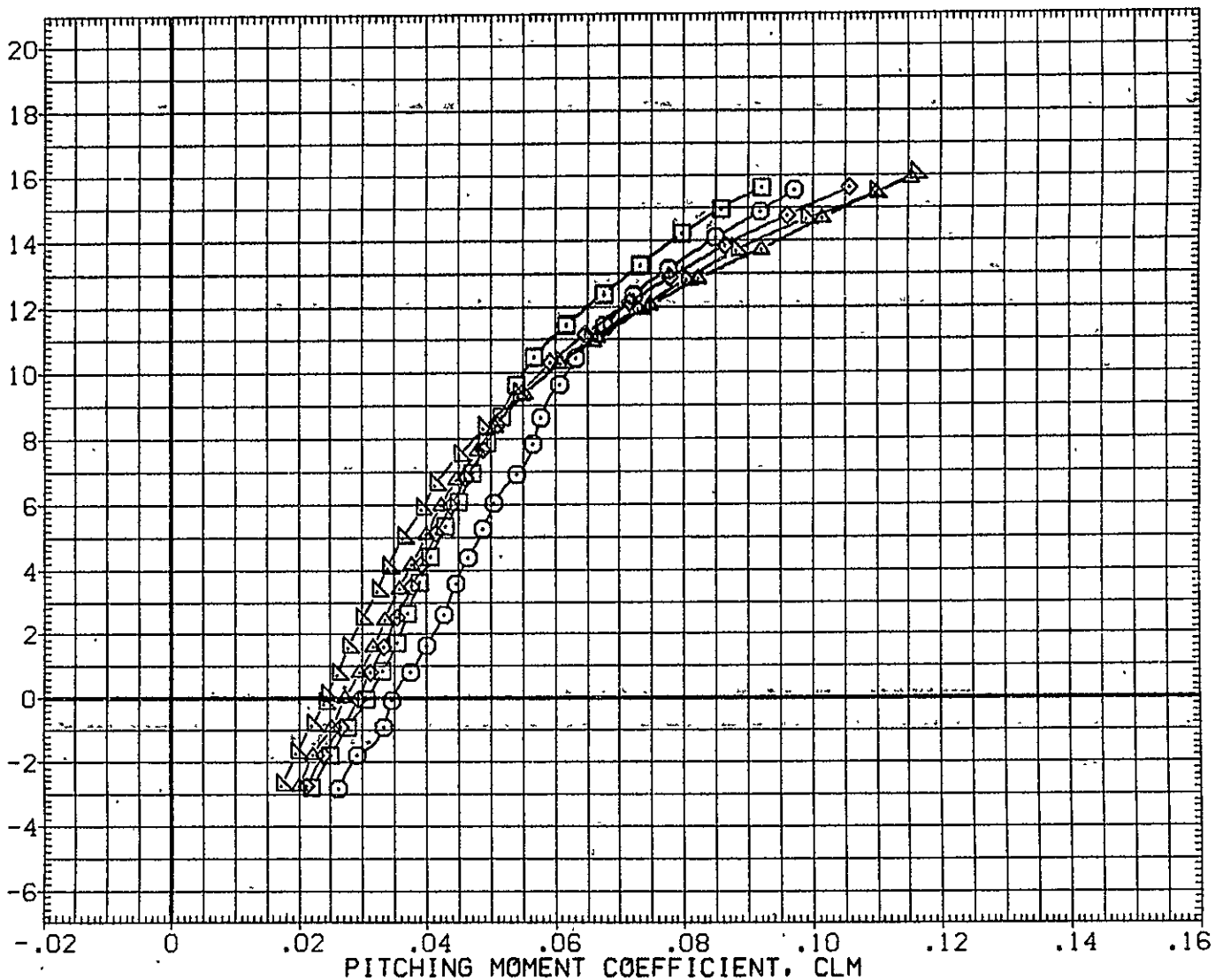


FIG. 85 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, BASELINE, (S=-2)

ORB

CA5 K1 FO H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM119)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	-2.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-IB	-10.000	ELV-OB	-7.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	ICRB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

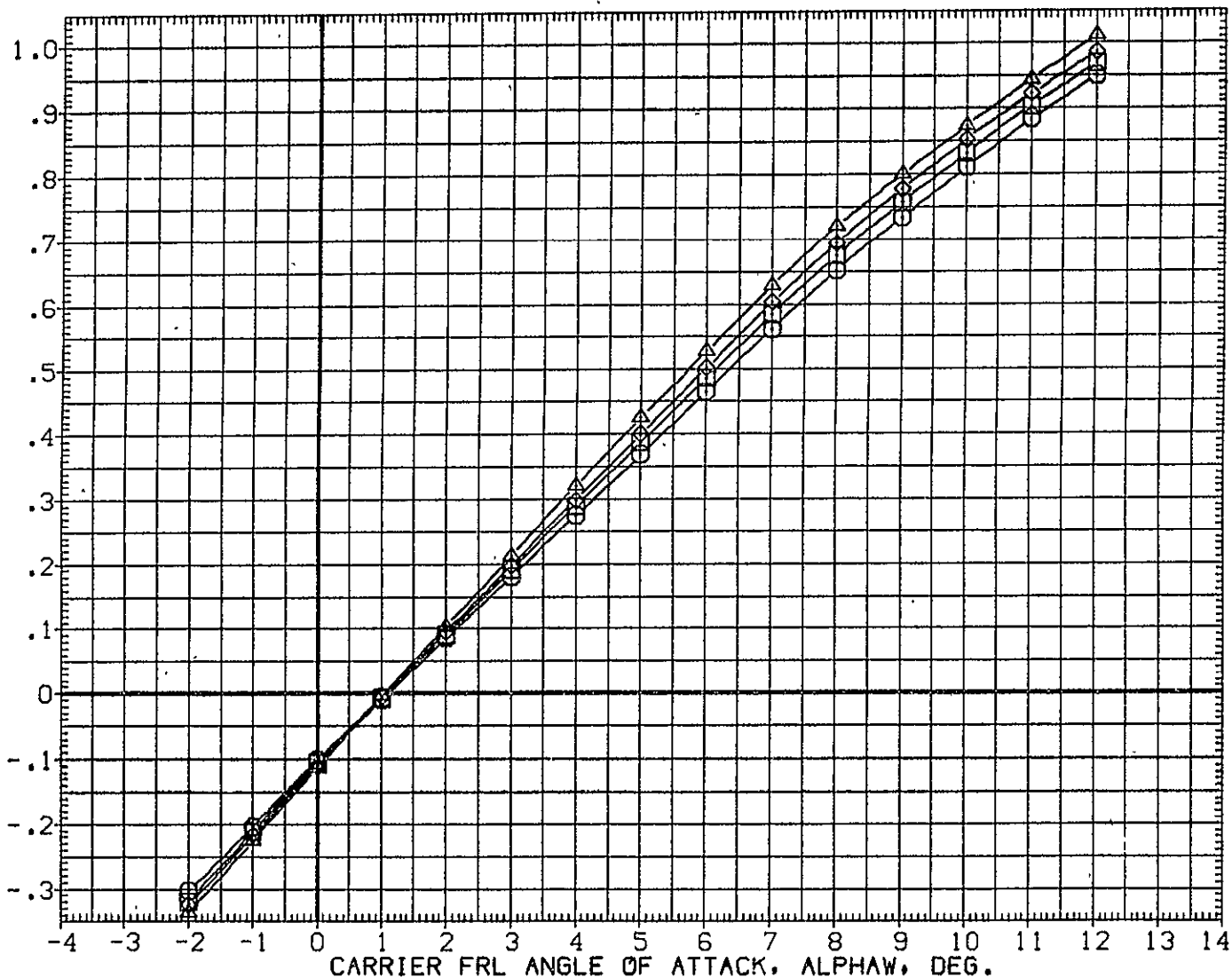


FIG. 86 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	-10.000	ELV-0B	-7.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

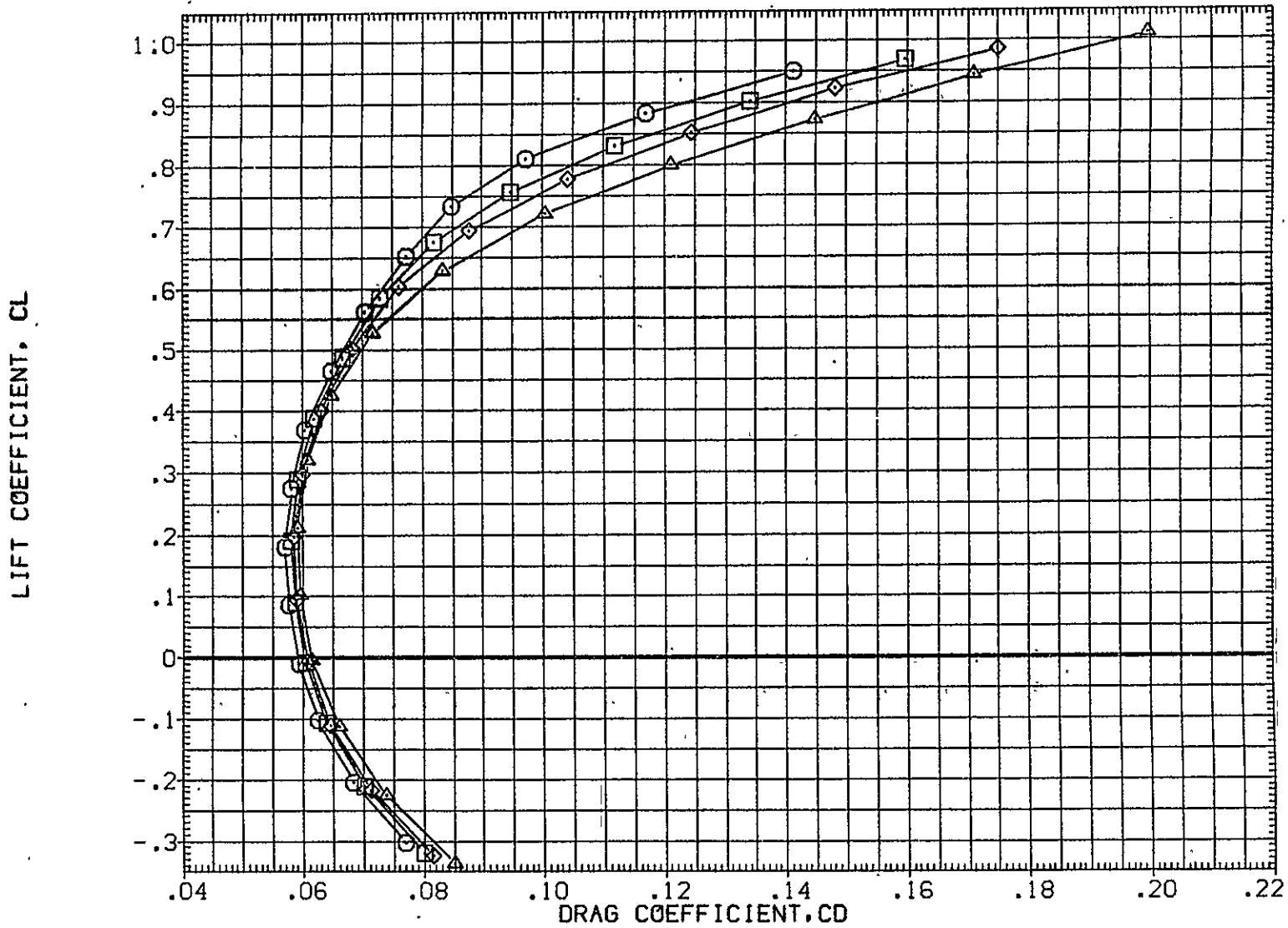


FIG. 86 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM119)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-IB	-10.000	ELV-OB	-7.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

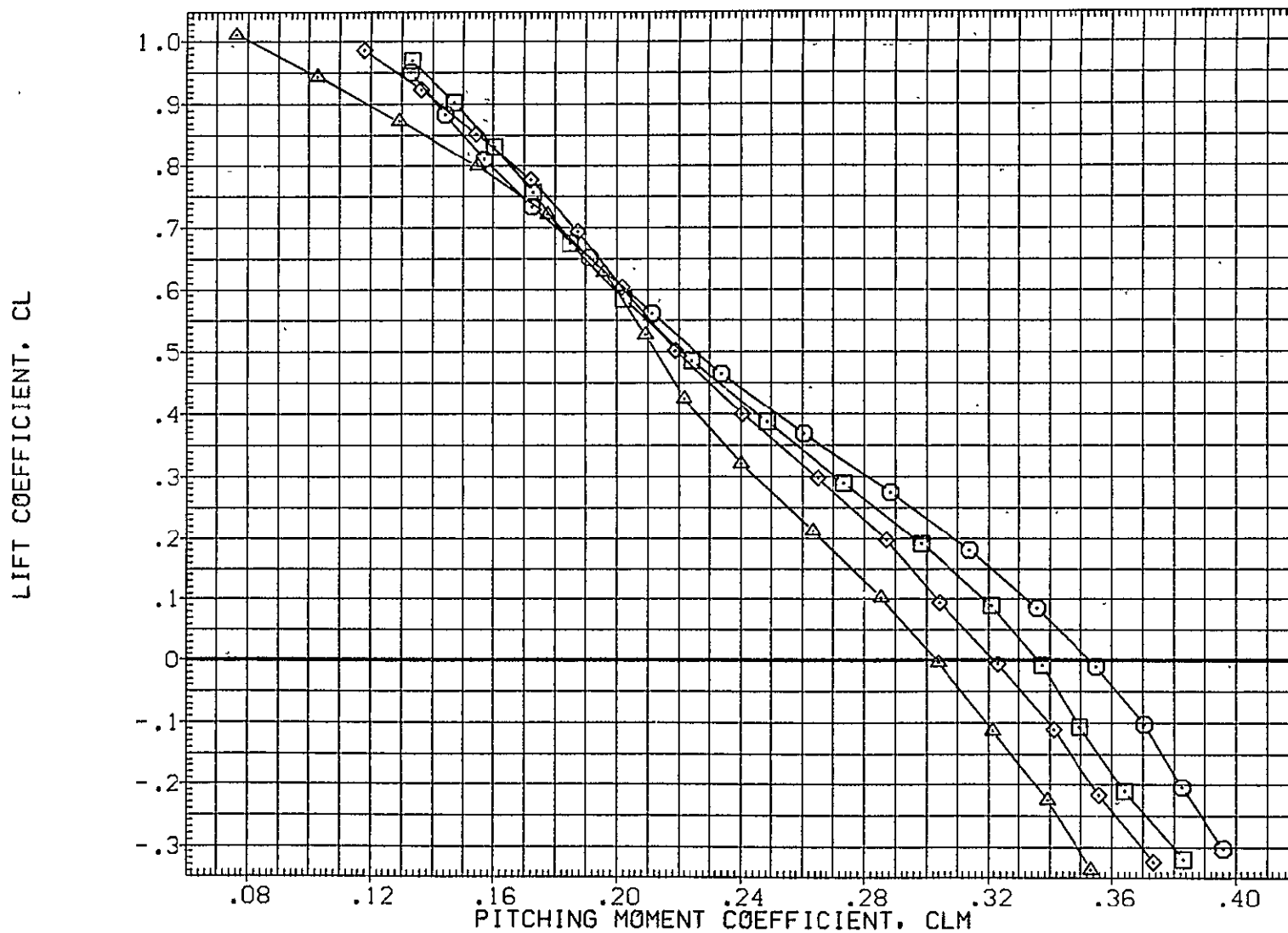


FIG. 86 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

SYMBOL  
 ◊ ◻ ○  
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MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	-2.000
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	-10.000	ELV-OB	-7.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

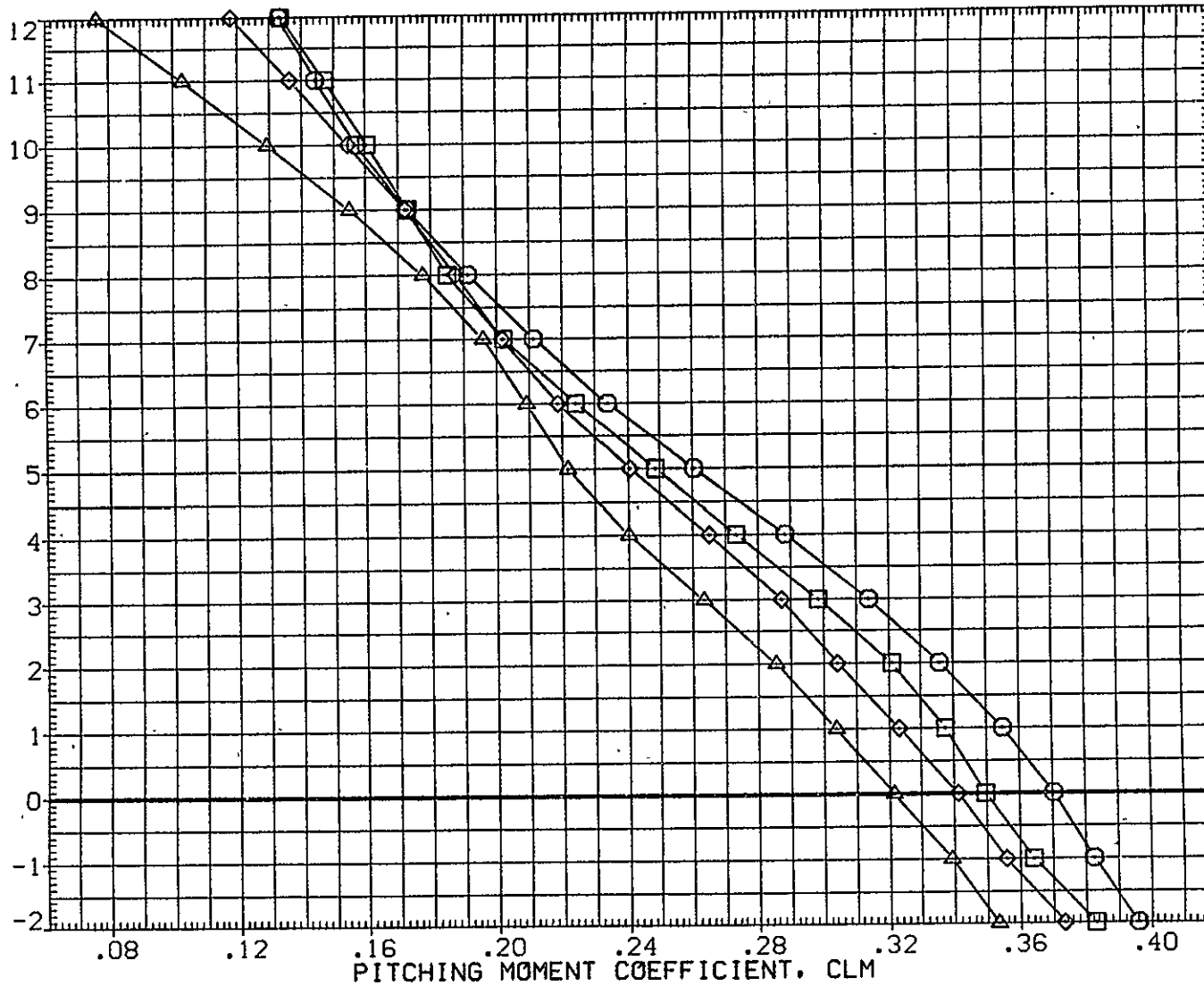


FIG. 86 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM119)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	-10.000	ELV-OB	-7.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	ICRB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

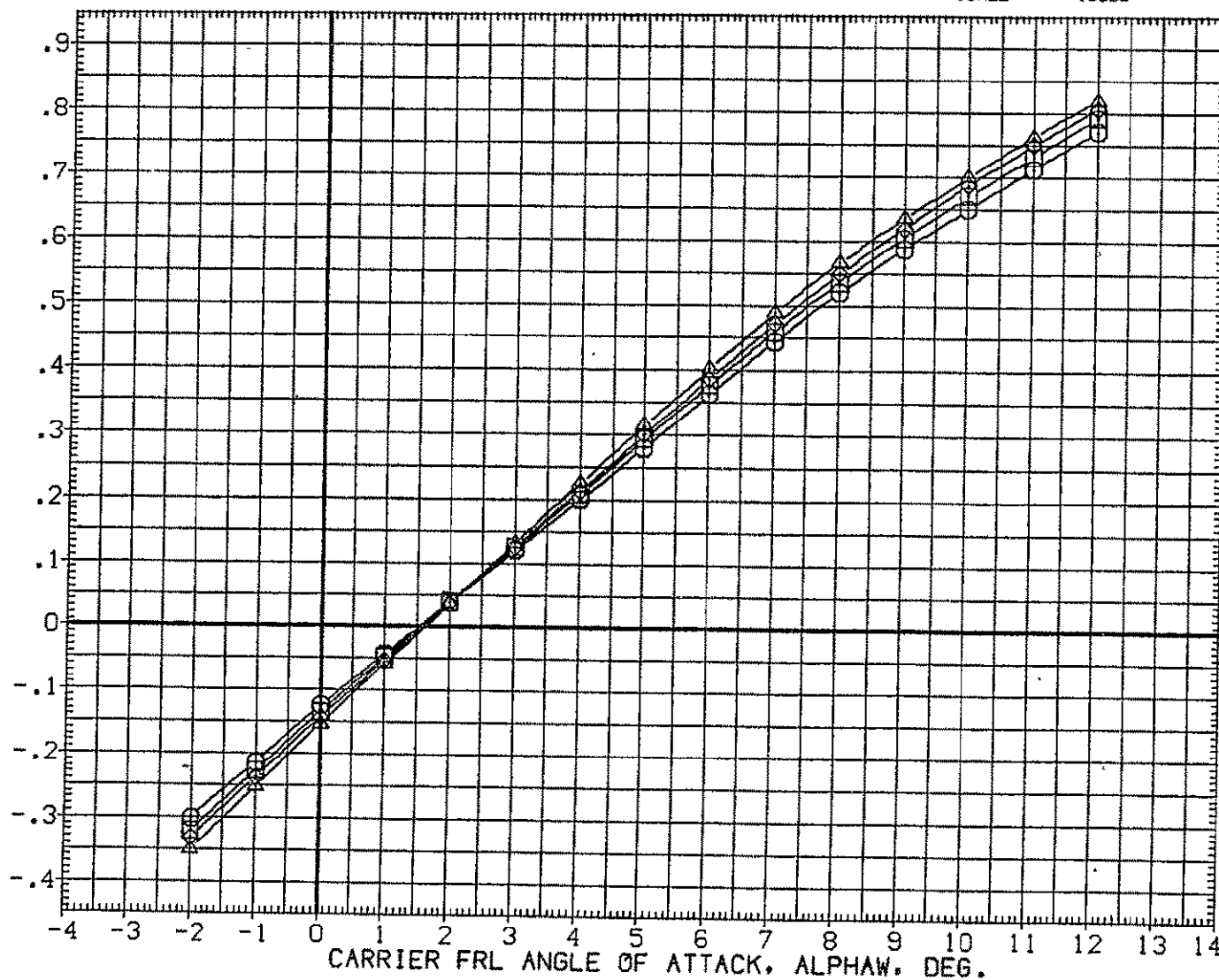


FIG. 87 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-L	RUD-L	SREF	SQ.FT.	
○	.300	.000	-2.000	.000	.000	5500.0000	50. FT.	
◇	.500	.000	.000	.000	.000	327.8000	IN.	
□	.600	-10.000	-7.000	.000	.000	2348.0000	IN.	
△	.700	SI-2	S3-4	.000	.000	1339.9100	IN. XC	
		S5-6	IORB	4.000	.000	190.7500	IN. ZC	
						SCALE	.0300	

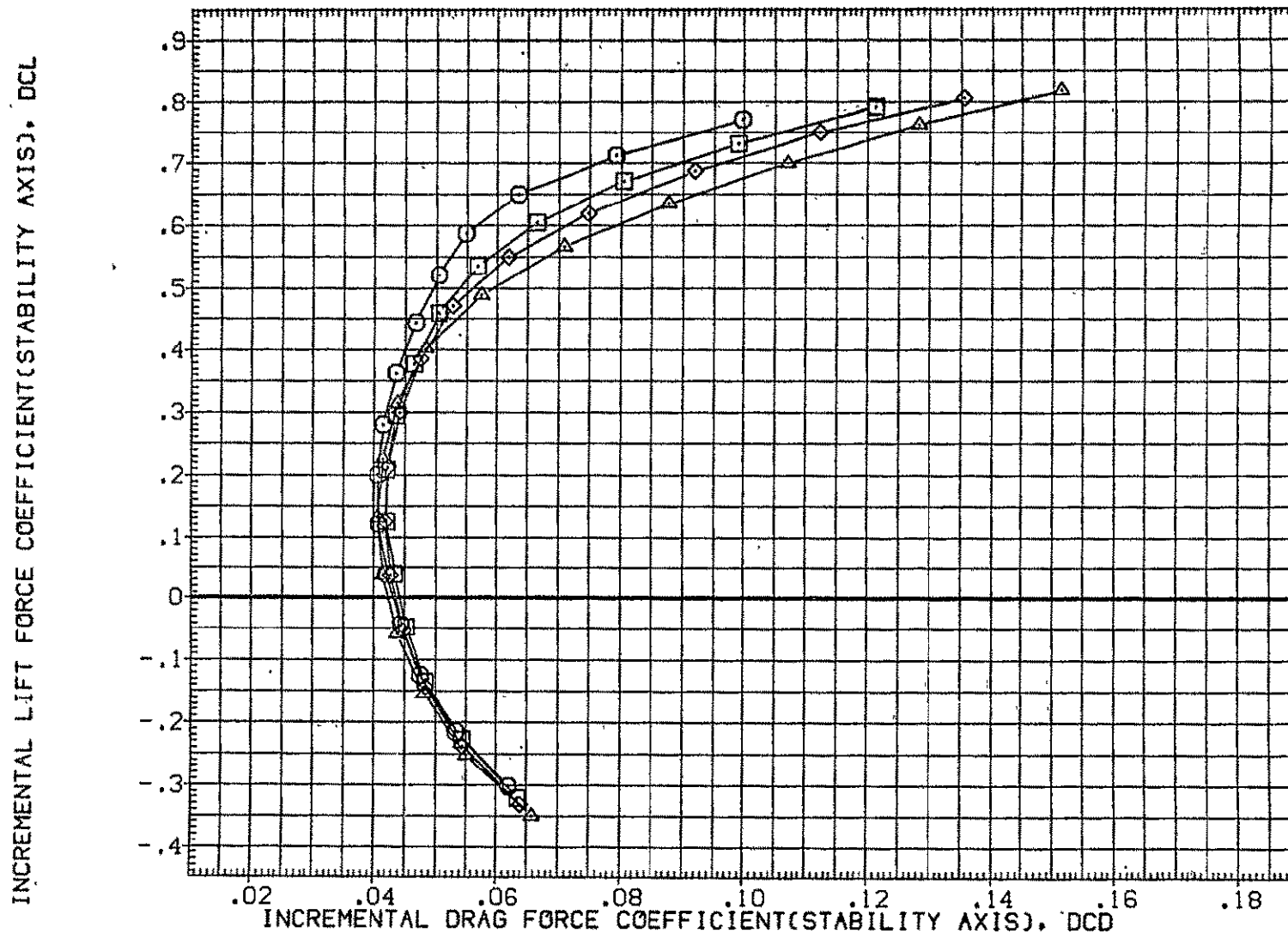


FIG. 87 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.3 (BGM119)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	-10.000	ELV-0B	-7.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

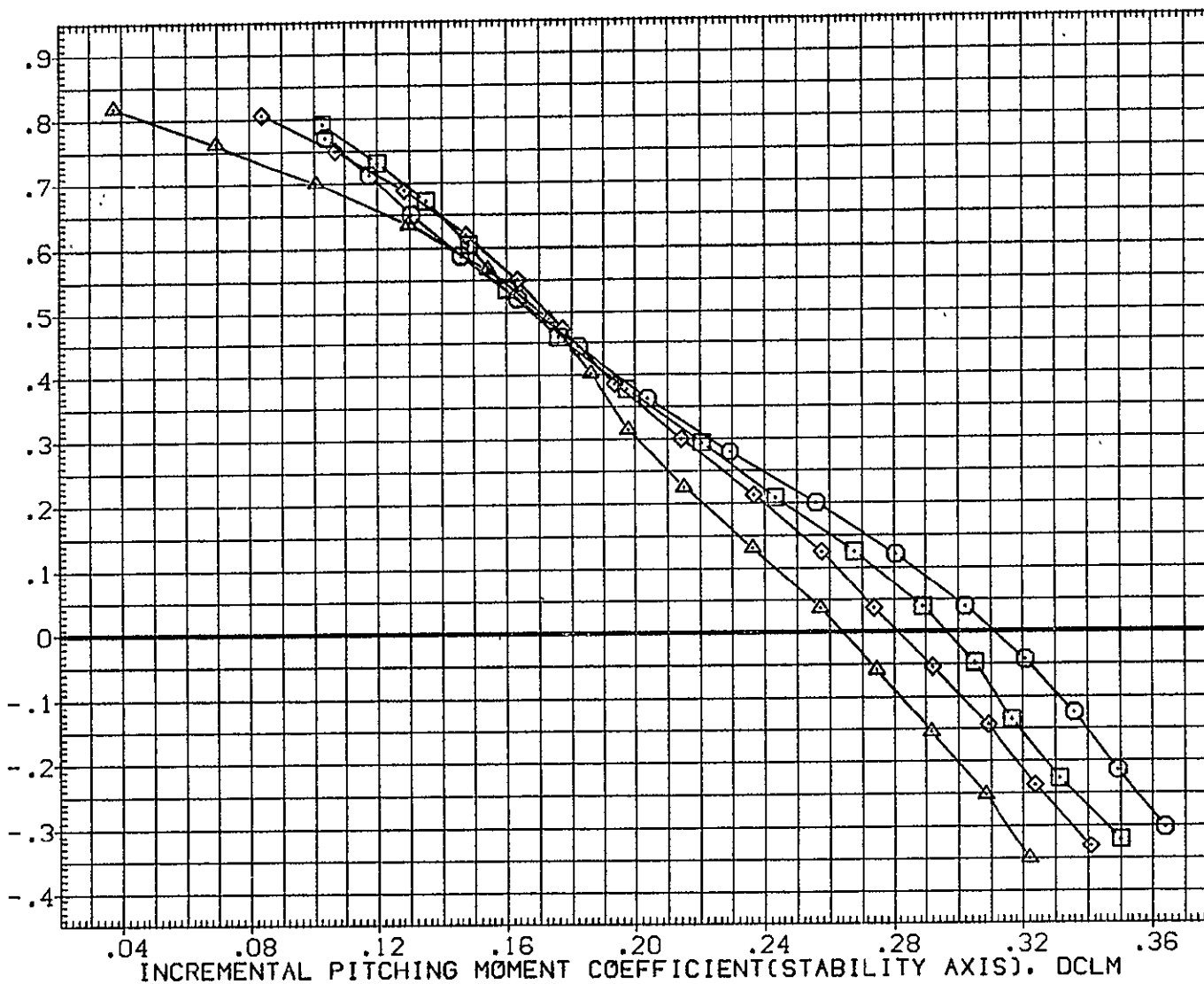


FIG. 87-747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	STAB	STAB	SREF	SG.FT.	SG.FT.
○	.300	.000	-2.000			5500.0000	IN.	
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	-10.000	ELV-0B	-7.000	BREF	2348.0000	IN. XC
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. YC
		S5-6	.000	ORB	4.000	ZMRP	190.7500	IN. ZC
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

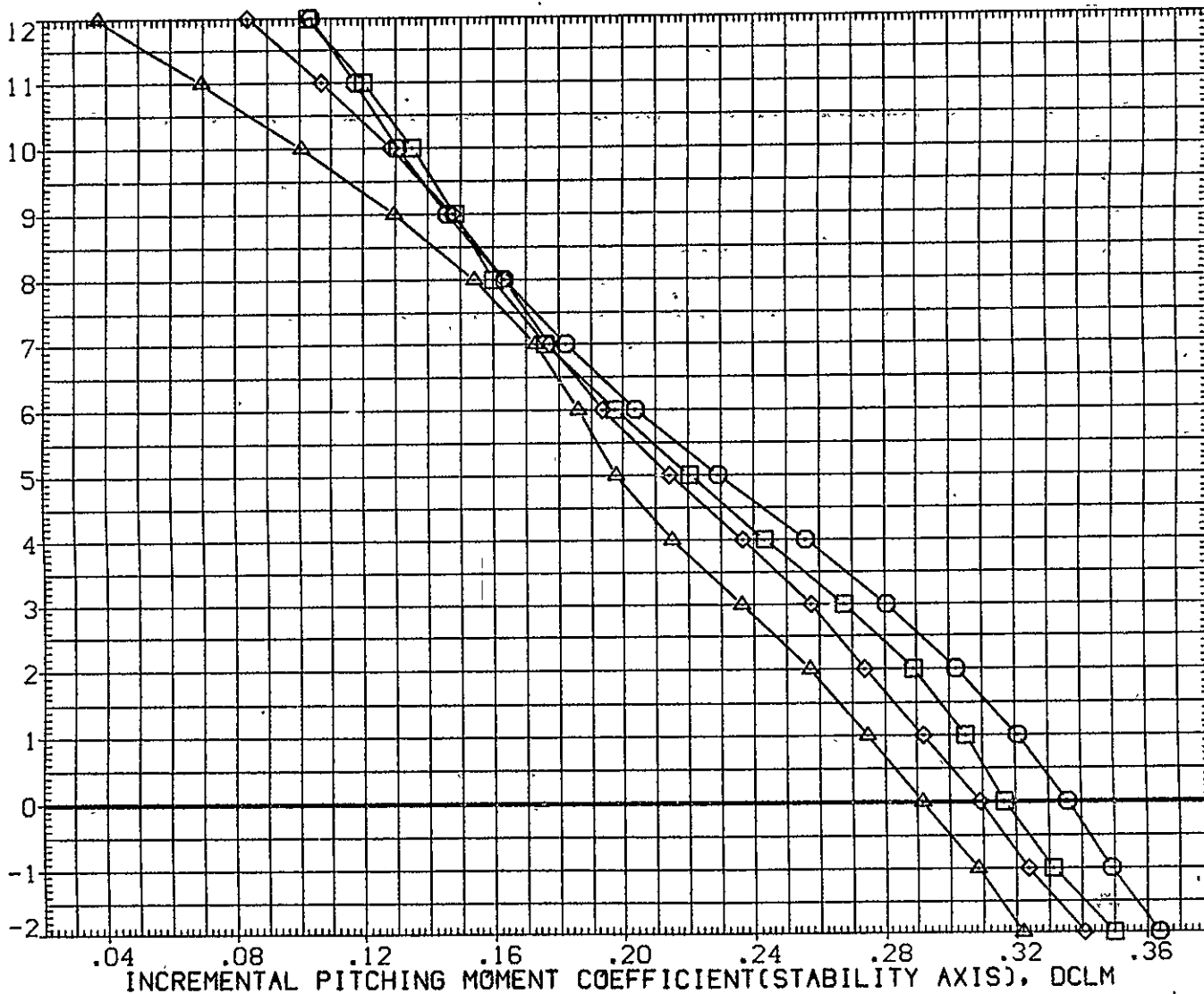


FIG. 87 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM119)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	BETA	.000	STAB	-2.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	-10.000	ELV-0B	-7.000
△	.700	S1-2	.000	S3-4	.000
		SS-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

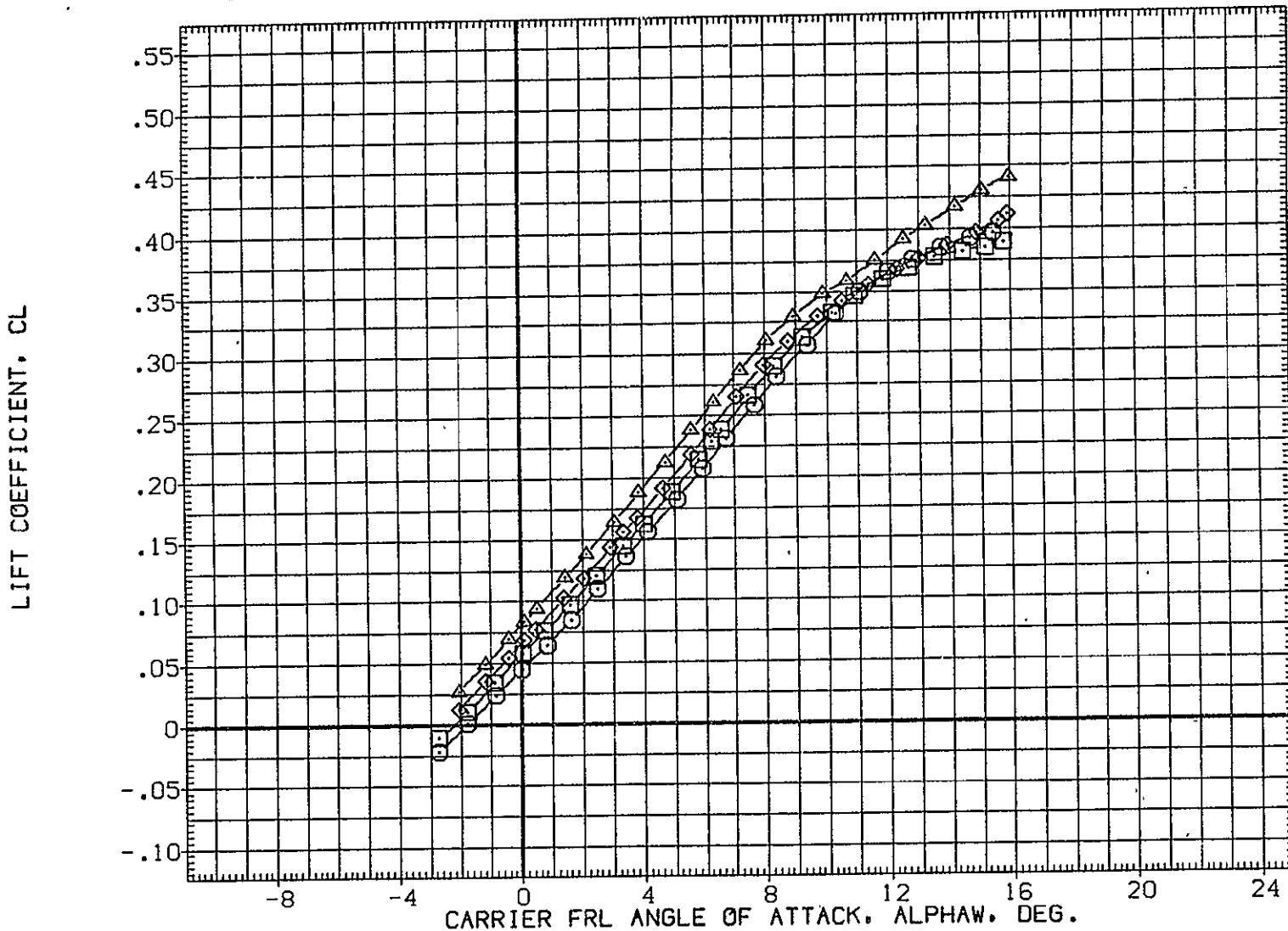


FIG. 88 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

ORB



SYMBOL  
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MACH	BETA	PARAMETRIC VALUES			
.301		.000	STAB	-2.000	
.499	RUD-U	.000	RUD-L	.000	
.600	ELV-1B	-10.000	ELV-0B	-7.000	
.700	S1-2	.000	S3-4	.000	
	S5-6	.000	10RB	4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

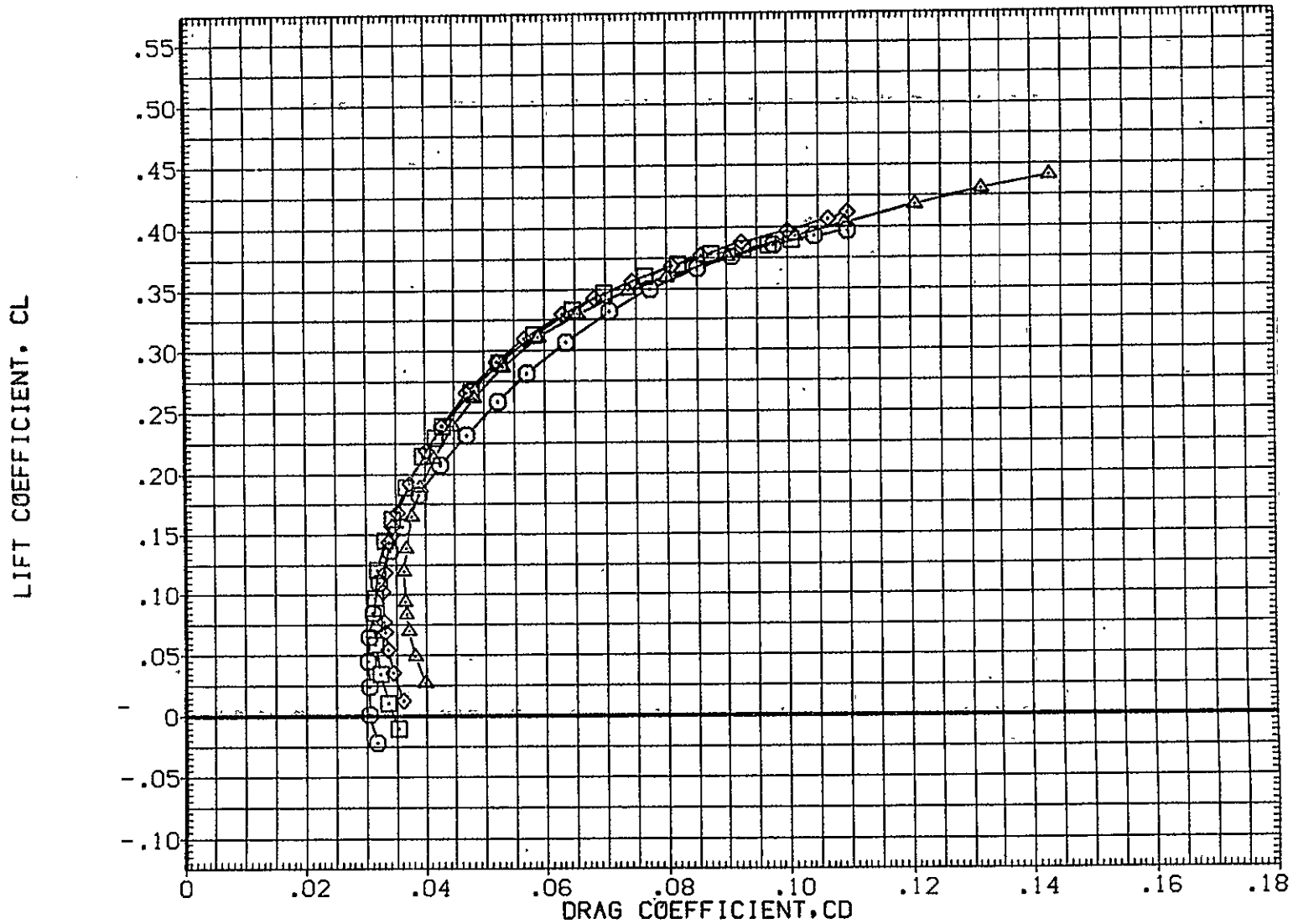


FIG. 88 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

0RB

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM119)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	STAB	RUD-L	ELV-OB	SREF	LREF	BREF
○	.301	.000	-2.000	.000	.000	2690.0000	474.8100	936.6800
□	.499	.000	.000	-10.000	-7.000	1109.0000	.0000	375.0000
◇	.600	.000	.000	.000	4.000	.0300		
△	.700	.000	.000					

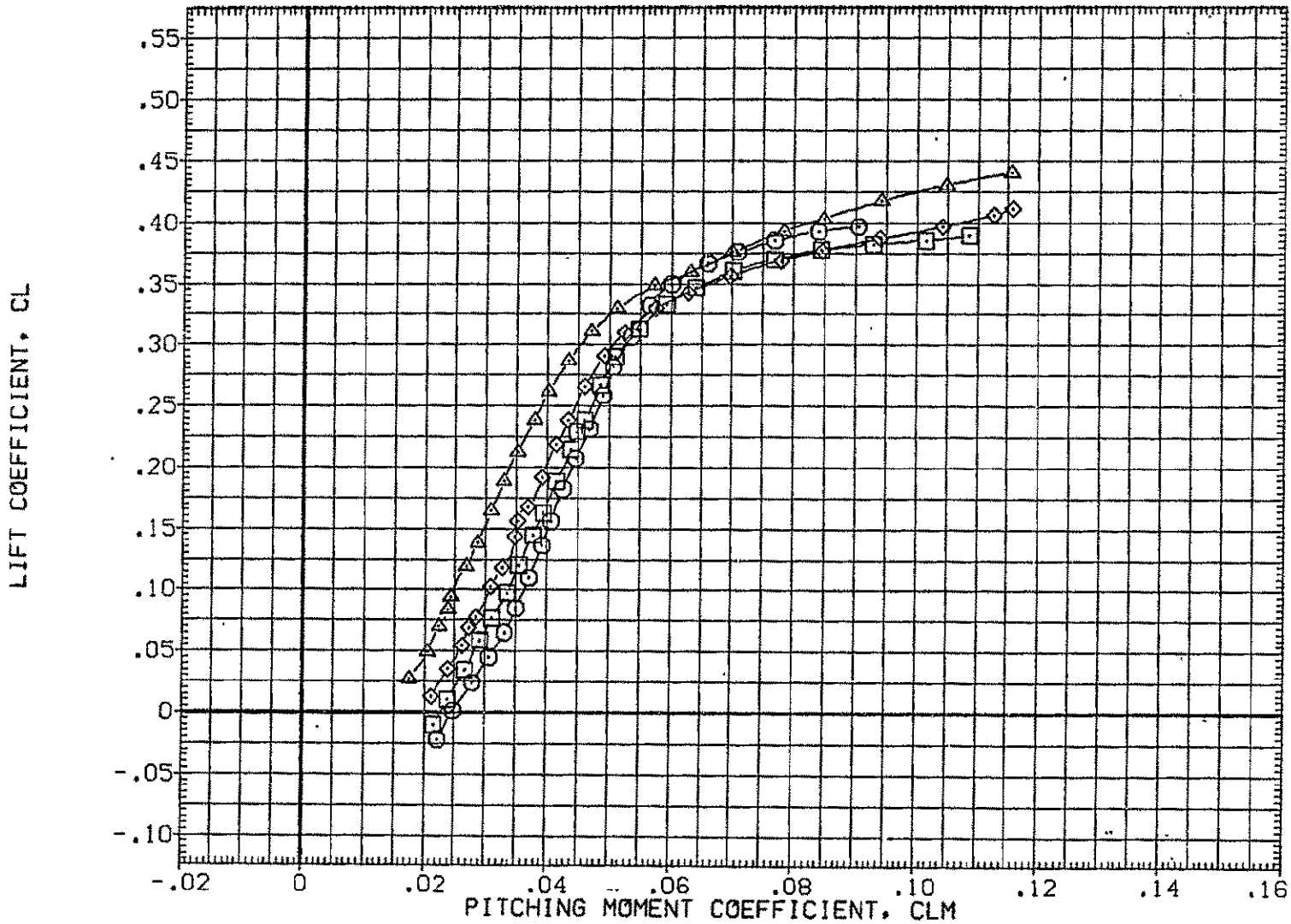


FIG. 88 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION																	
		BETA	RUD-U	ELV-IB	S1-2	S5-6	STAB	RUD-L	ELV-OB	S3-4	1ORB	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN. X0	IN. Y0	IN. Z0
○	.301	.000	.000	-10.000	.000	.000	-2.000	.000	.000	.000	2690.0000	474.8100	936.6800	1109.0000	.0000	375.0000	.0300						
□	.499	.000	.000	-10.000	.000	.000	-2.000	.000	.000	.000													
◇	.600	.000	.000	-10.000	.000	.000	-2.000	.000	.000	.000													
△	.700	.000	.000	-10.000	.000	.000	-2.000	.000	.000	.000													

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

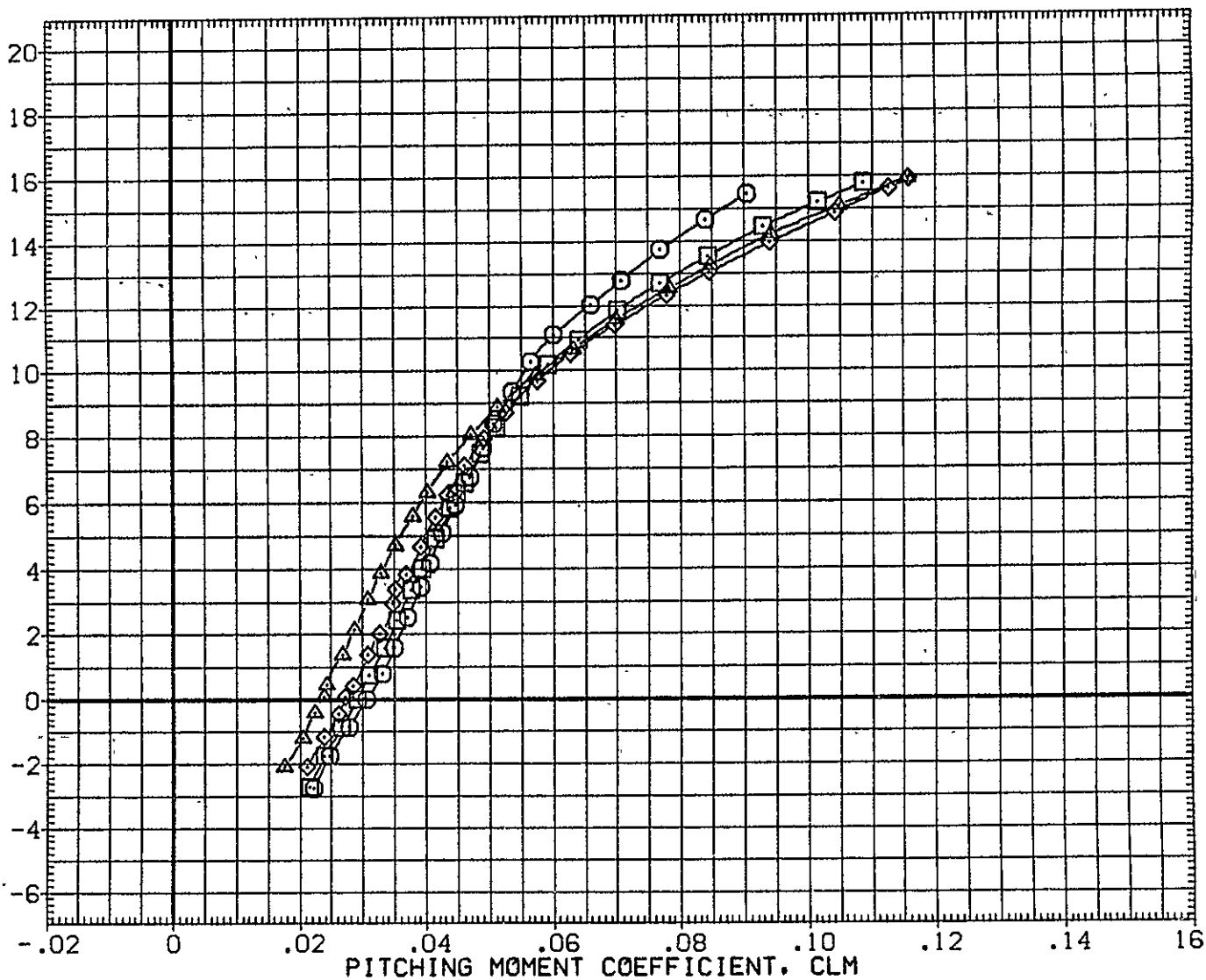


FIG. 88 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=-10 DEG

ORB

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM120)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	10.000	ELV-0B	13.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

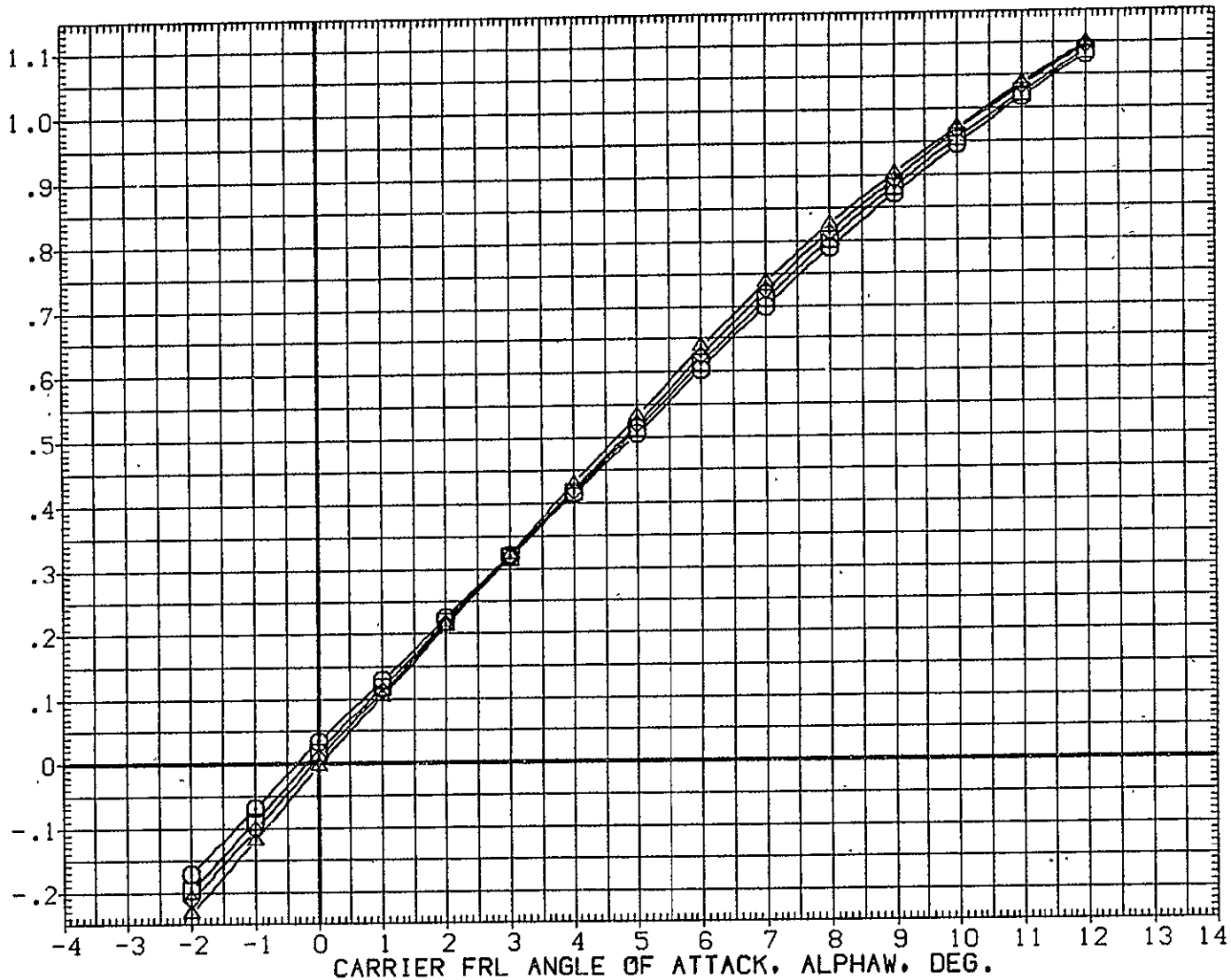


FIG. 89 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	10.000	ELV-0B	13.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

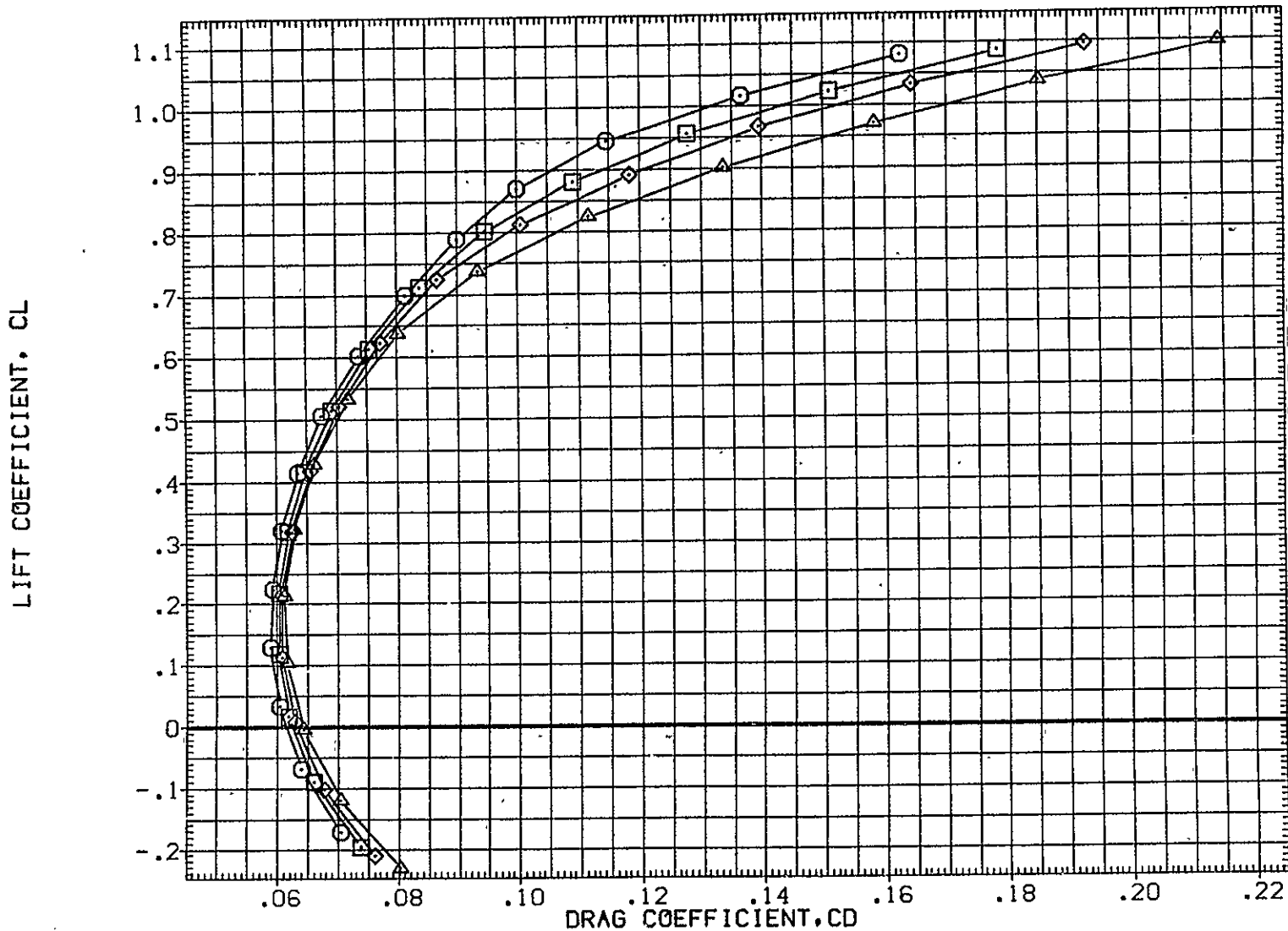


FIG. 89 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM120)

SYMBOL  
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MACH  
 .300  
 .499  
 .600  
 .700

PARAMETRIC VALUES  
 BETA .000 STAB -2.000  
 RUD-U .000 RUD-L .000  
 ELV-1B 10.000 ELV-0B 13.000  
 S1-2 .000 S3-4 .000  
 S5-6 .000 10RB 4.000

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
 LREF 327.8000 IN.  
 BREF 2348.0000 IN.  
 XMRP 1339.9100 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 190.7500 IN. ZC  
 SCALE .0300

LIFT COEFFICIENT, CL

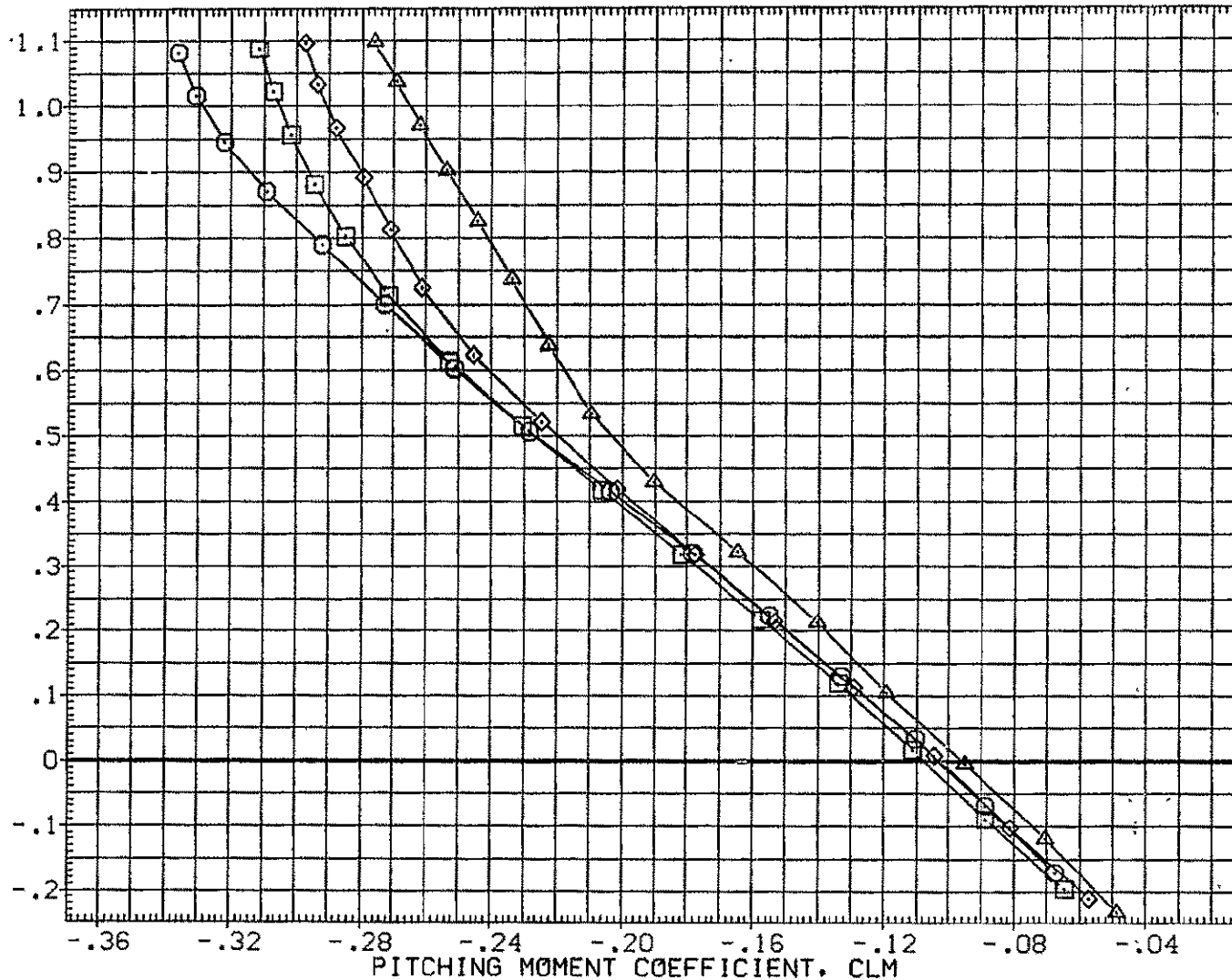


FIG. 89 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

SYMBOL  
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MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	-2.000
.499	RUD-U	.000	RUD-L	.000
.600	ELV-IB	10.000	ELV-OB	13.000
.700	S1-2	.000	S3-4	.000
	SS-6	.000	ICRB	4.000

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

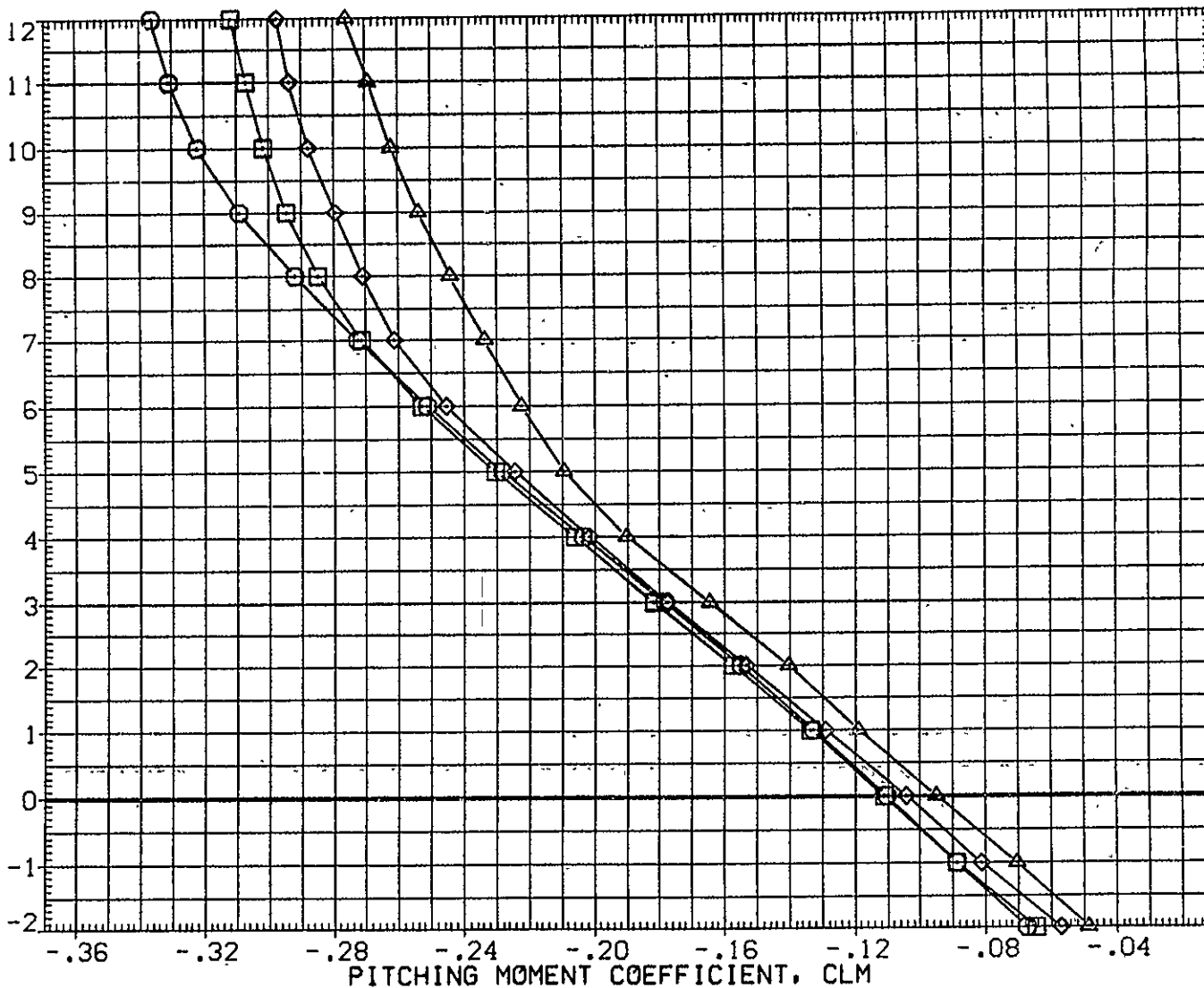


FIG. 89 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

CA5 K1 FO H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM120)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-IB	10.000	ELV-OB	13.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT (STABILITY AXIS), DCL

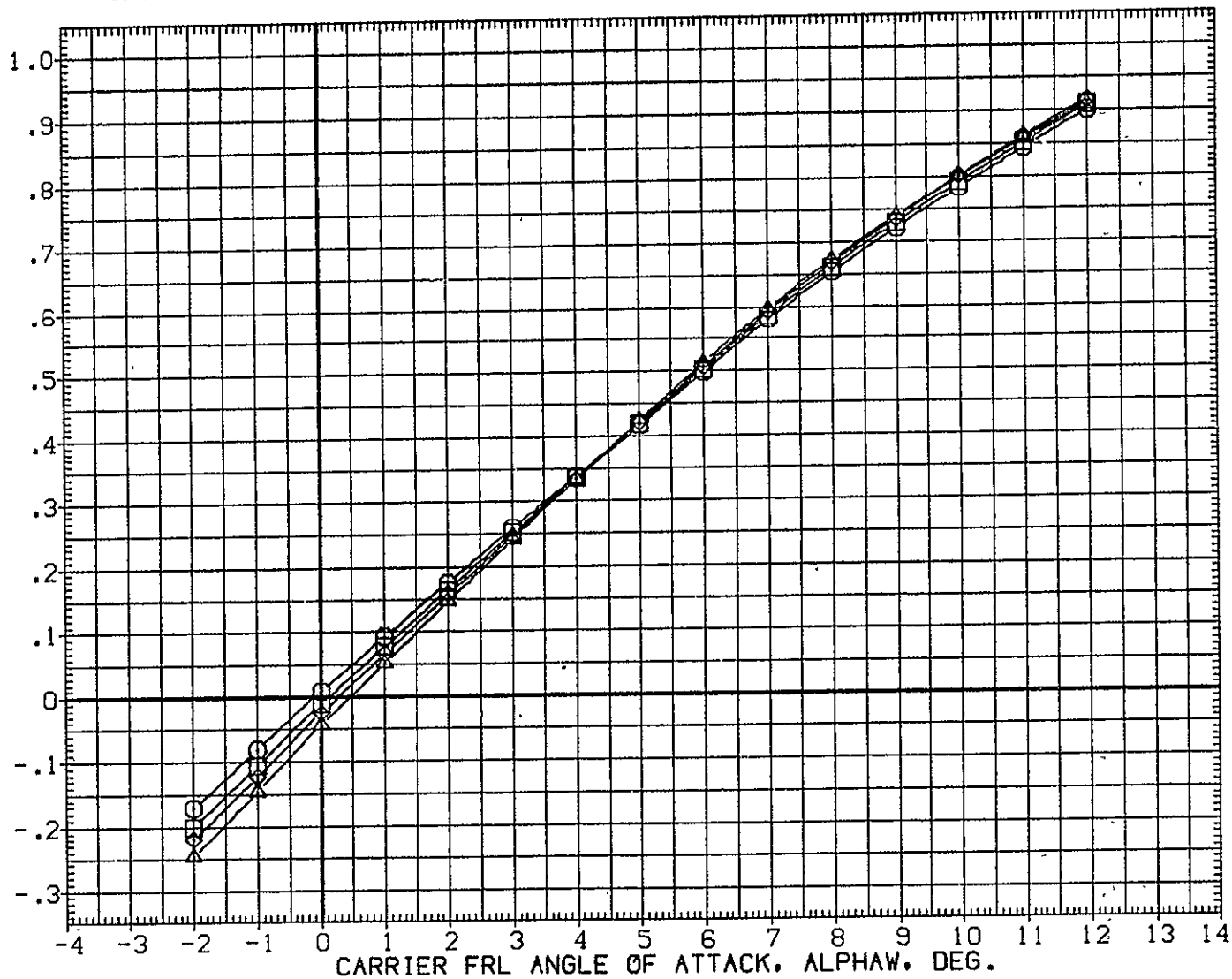


FIG. 90 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-IB	10.000	ELV-OB	13.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

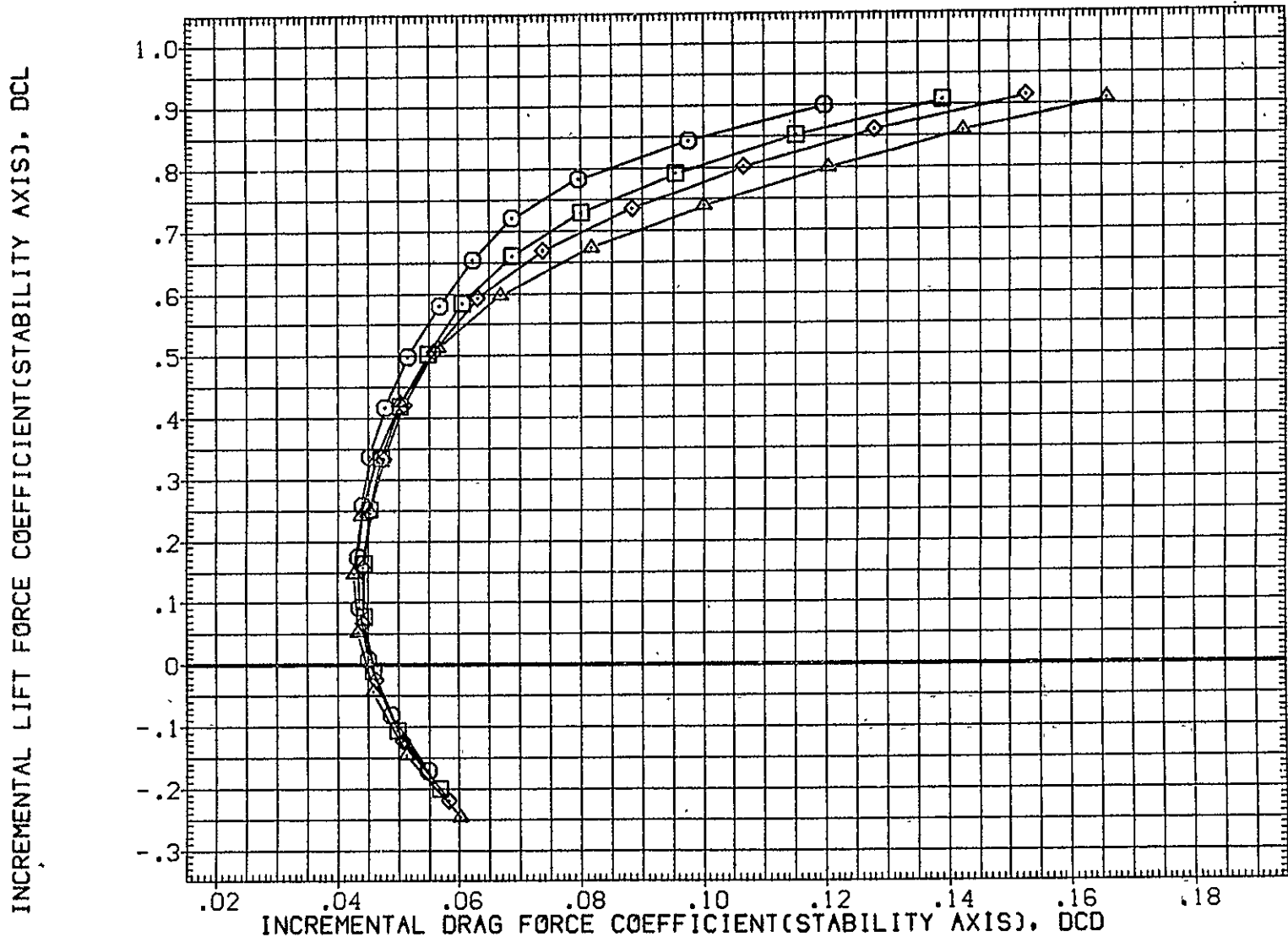


FIG. 90 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

CA5 K1 FO H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM120)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.499	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	10.000	ELV-OB	13.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

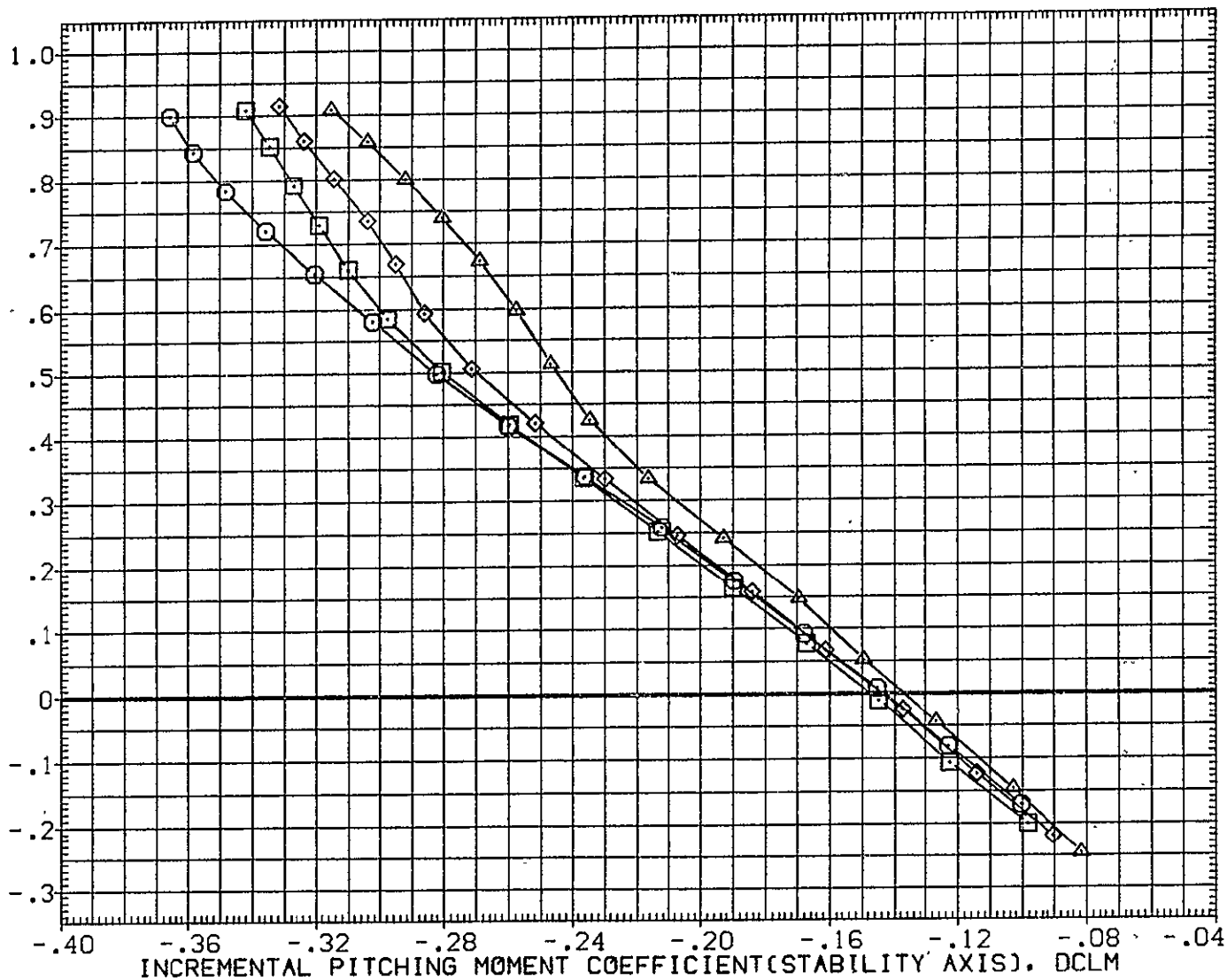


FIG. 90 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

SYMBOL  
 ○  
 ◇  
 □  
 △

MACH	PARAMETRIC VALUES			
.300	BETA	.000	STAB	-2.000
.499	RUD-U	.000	RUD-L	.000
.600	ELV-1B	10.000	ELV-0B	13.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

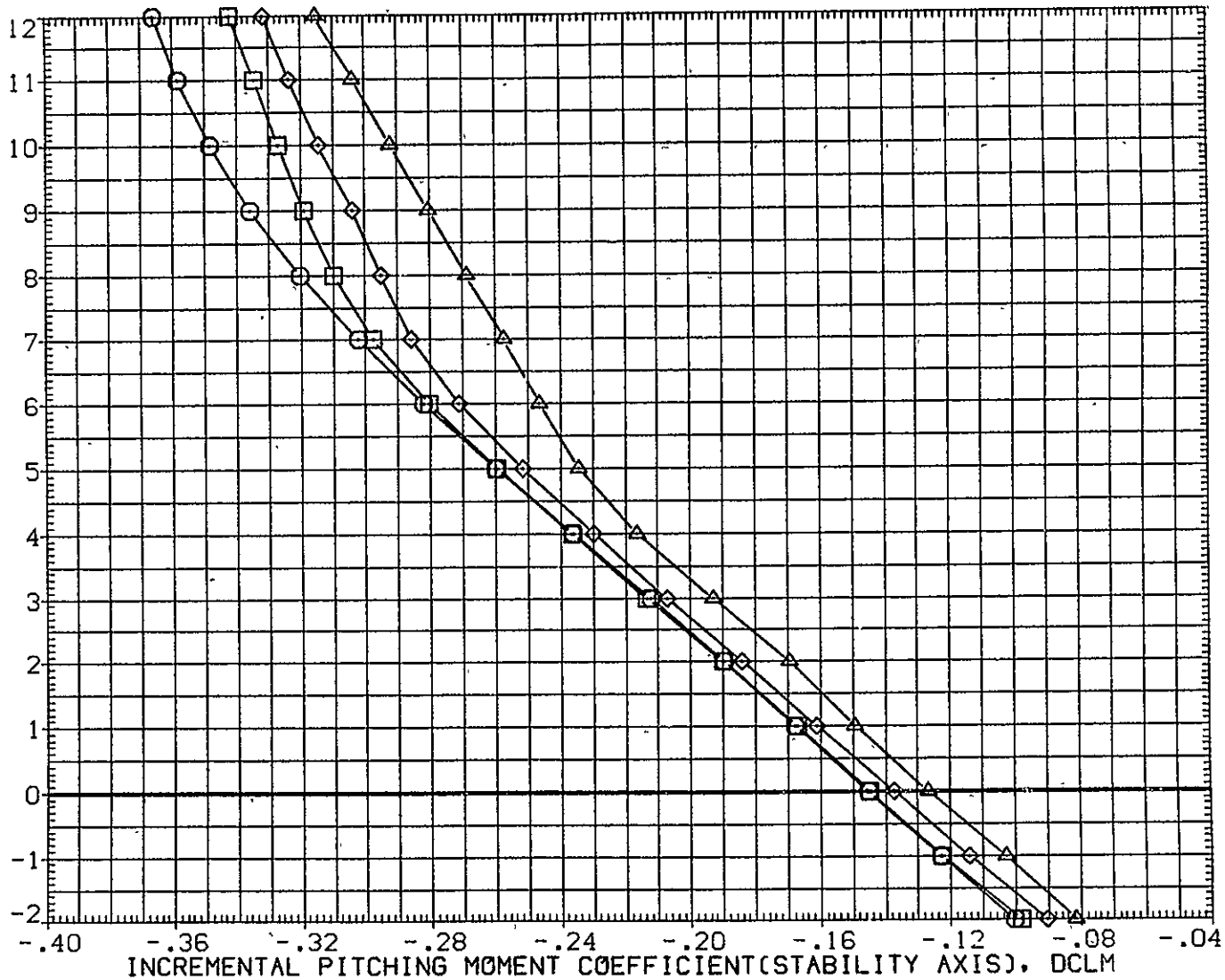


FIG. 90 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

747

CAS 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM120)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	IORB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0308	

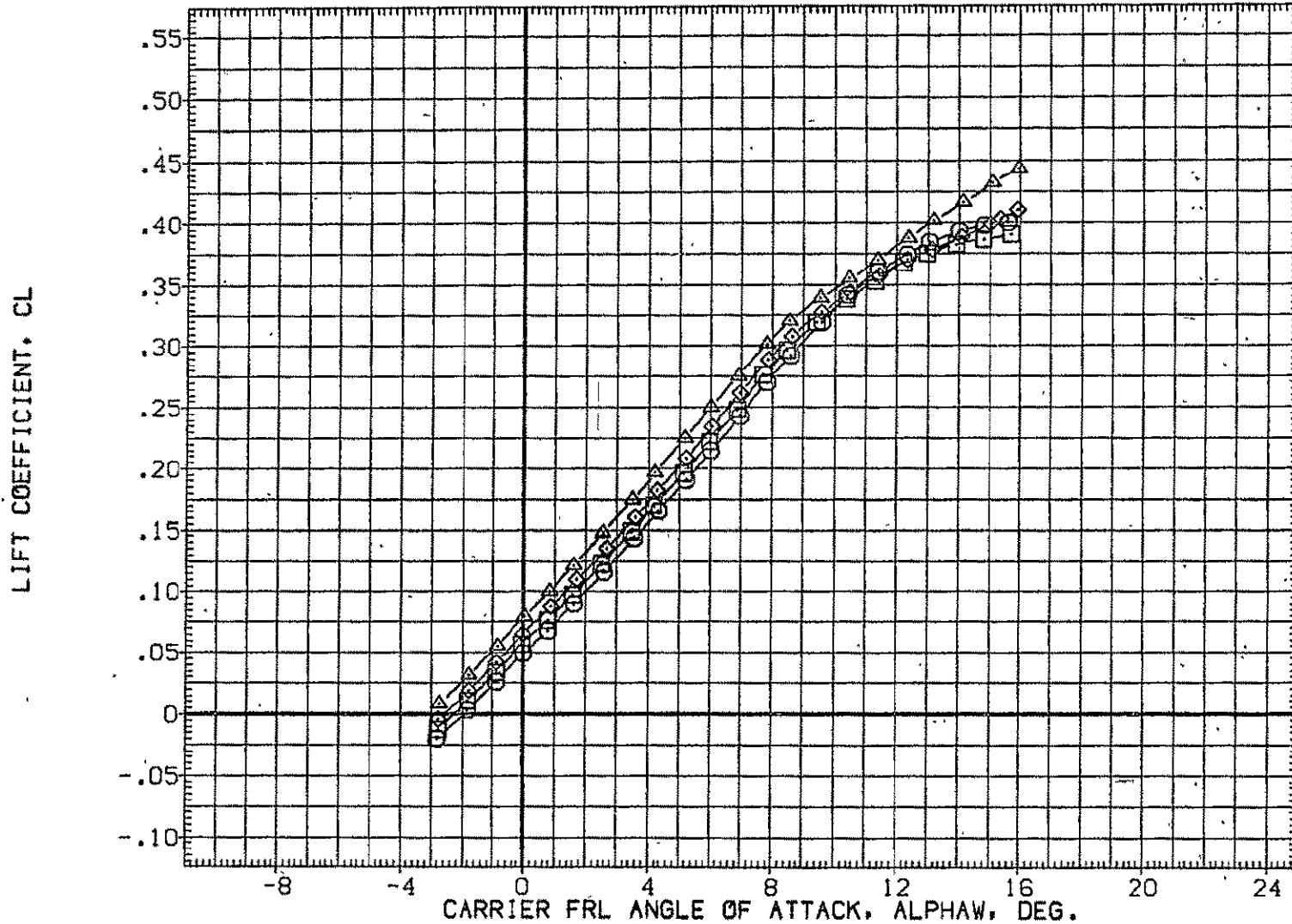


FIG. 91 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		BETA	STAB	RUD-L	ELV-0B	SREF	SQ.FT.
○	.299	.000	-2.000	.000	.000	2690.0000	
◇	.499	.000	.000	.000	.000	474.8100	IN.
□	.600	10.000	13.000	.000	.000	936.6800	IN.
△	.700	.000	.000	.000	.000	1109.0000	IN. X0
		S1-2	S3-4			YMRP	IN. Y0
		S5-6	10RB	4.000		ZMRP	IN. Z0
						SCALE	.0300

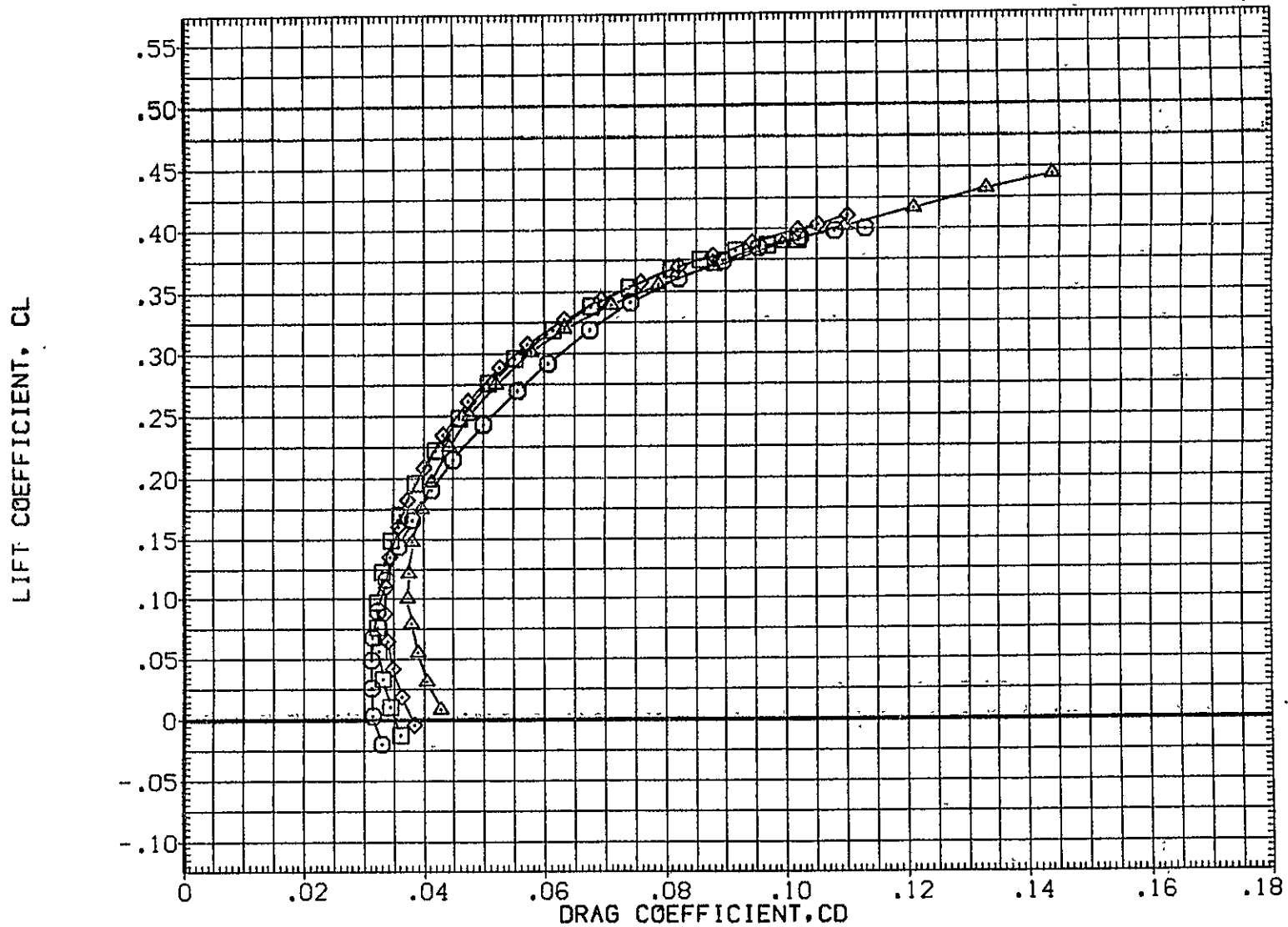


FIG. 91 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

0RB

CAS 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1) (YGM120)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	BETA	.000	STAB	-2.000	SREF	2690.0000	50. FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

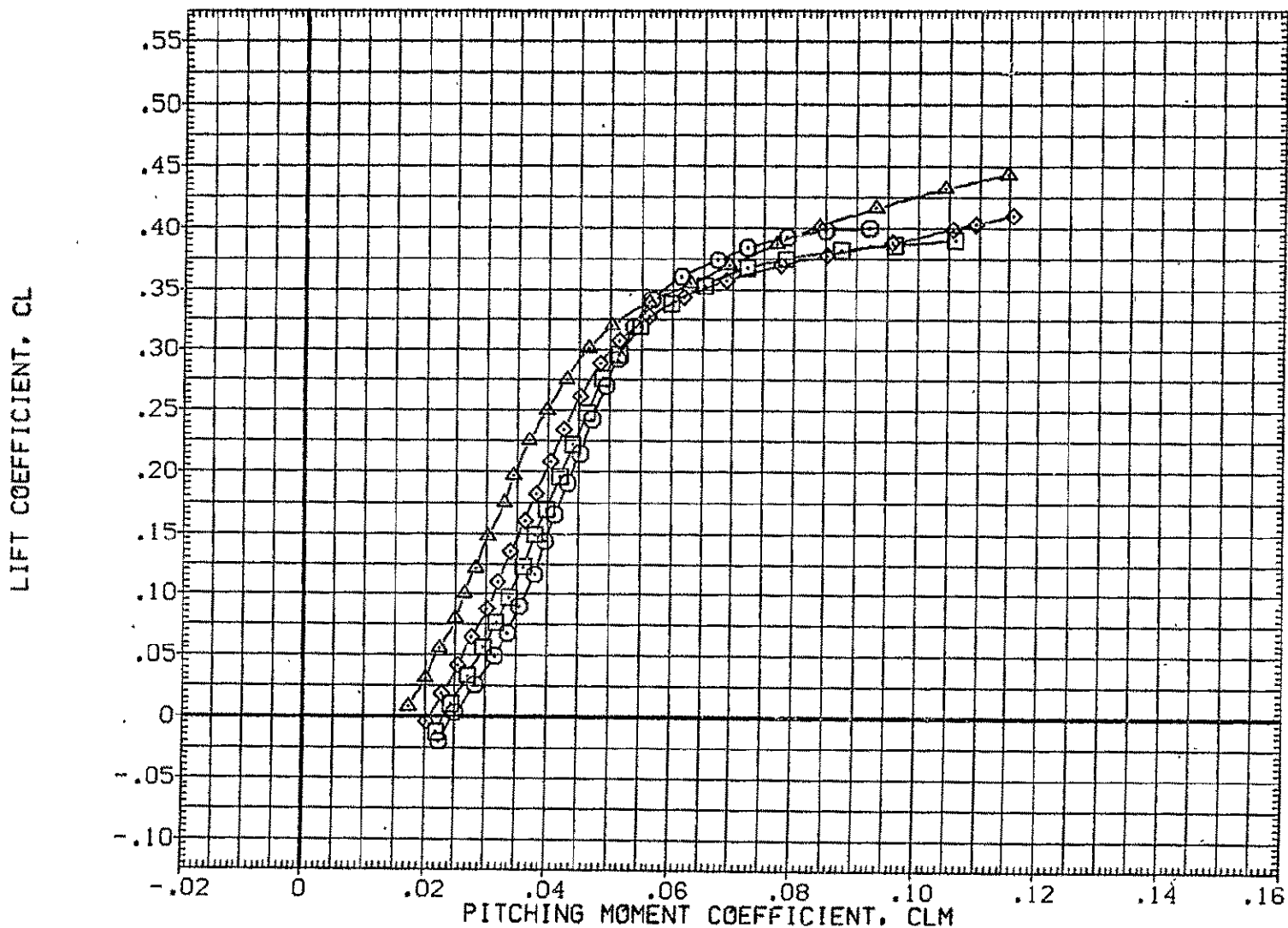


FIG. 91 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

0RB

SYMBOL		MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○		.299	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□		.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇		.600	ELV-1B	10.000	ELV-0B	13.000	BREF	936.6800	IN.
△		.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
			S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0
							ZMRP	375.0000	IN. Z0
							SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

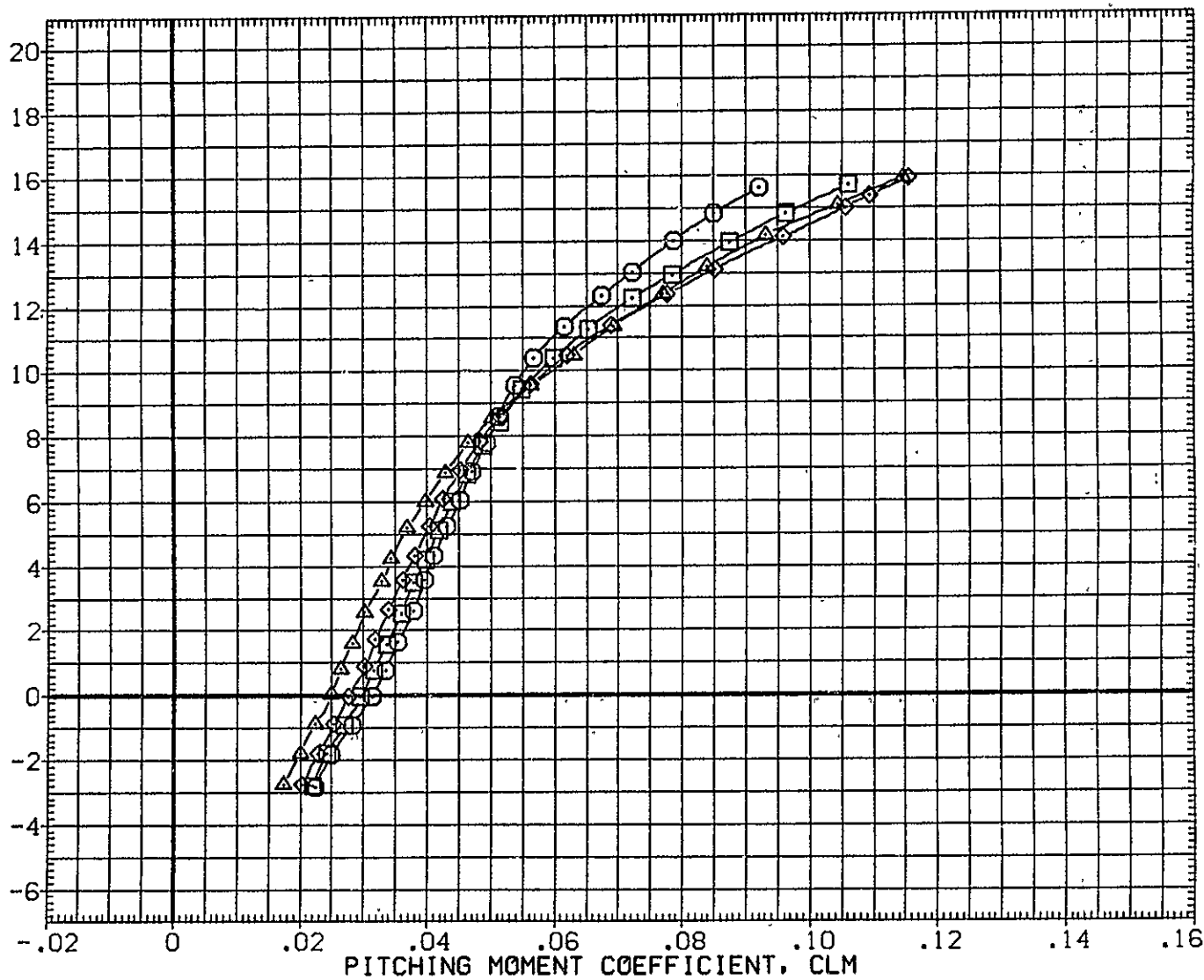


FIG. 91 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ELEV=+10 DEG

ORB

CA5 K1 F0 H15.1A V9.1 (PLUS. ORB TC5 AT38.3 )(RGM125)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SG.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	TORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

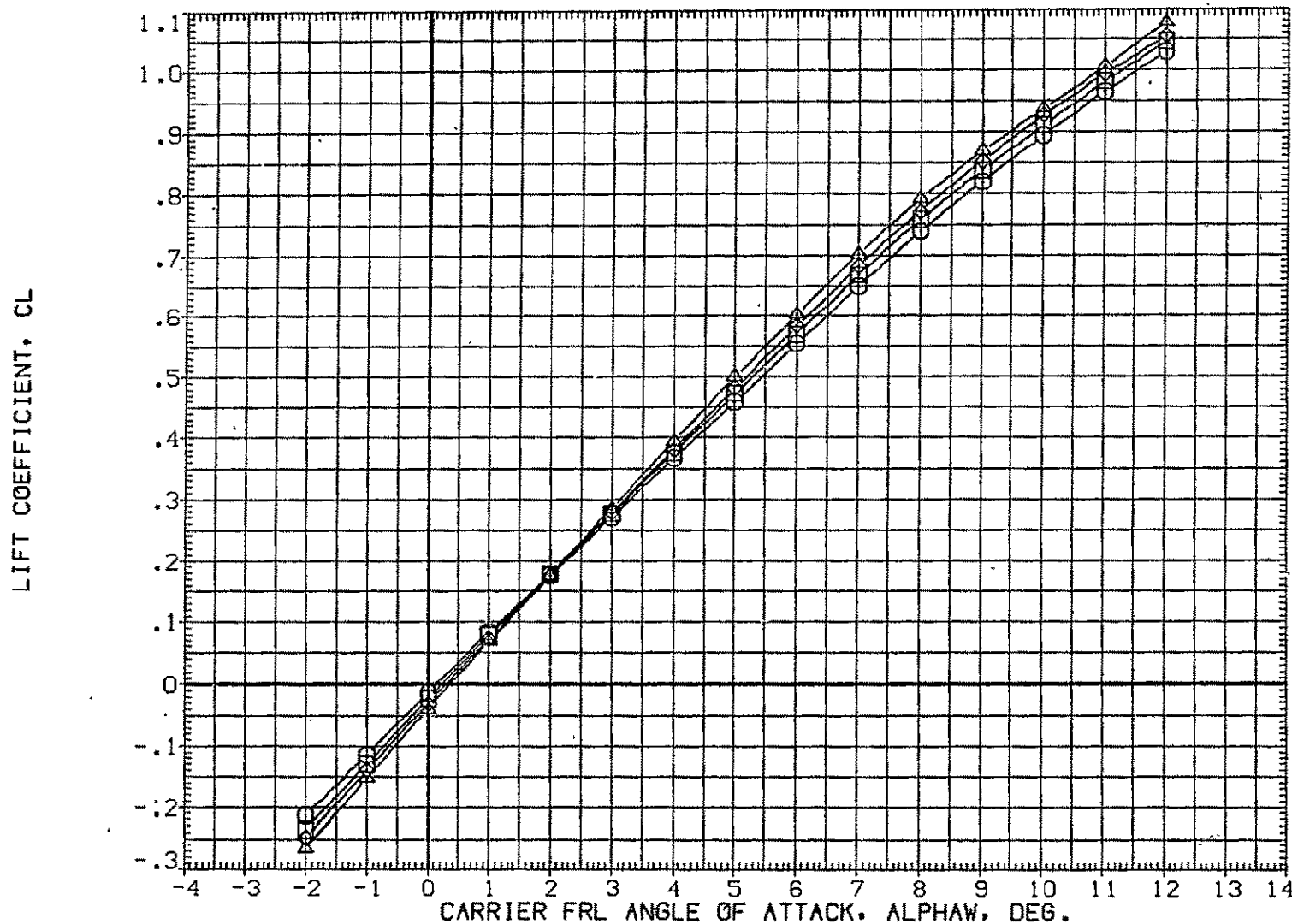


FIG. 92 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

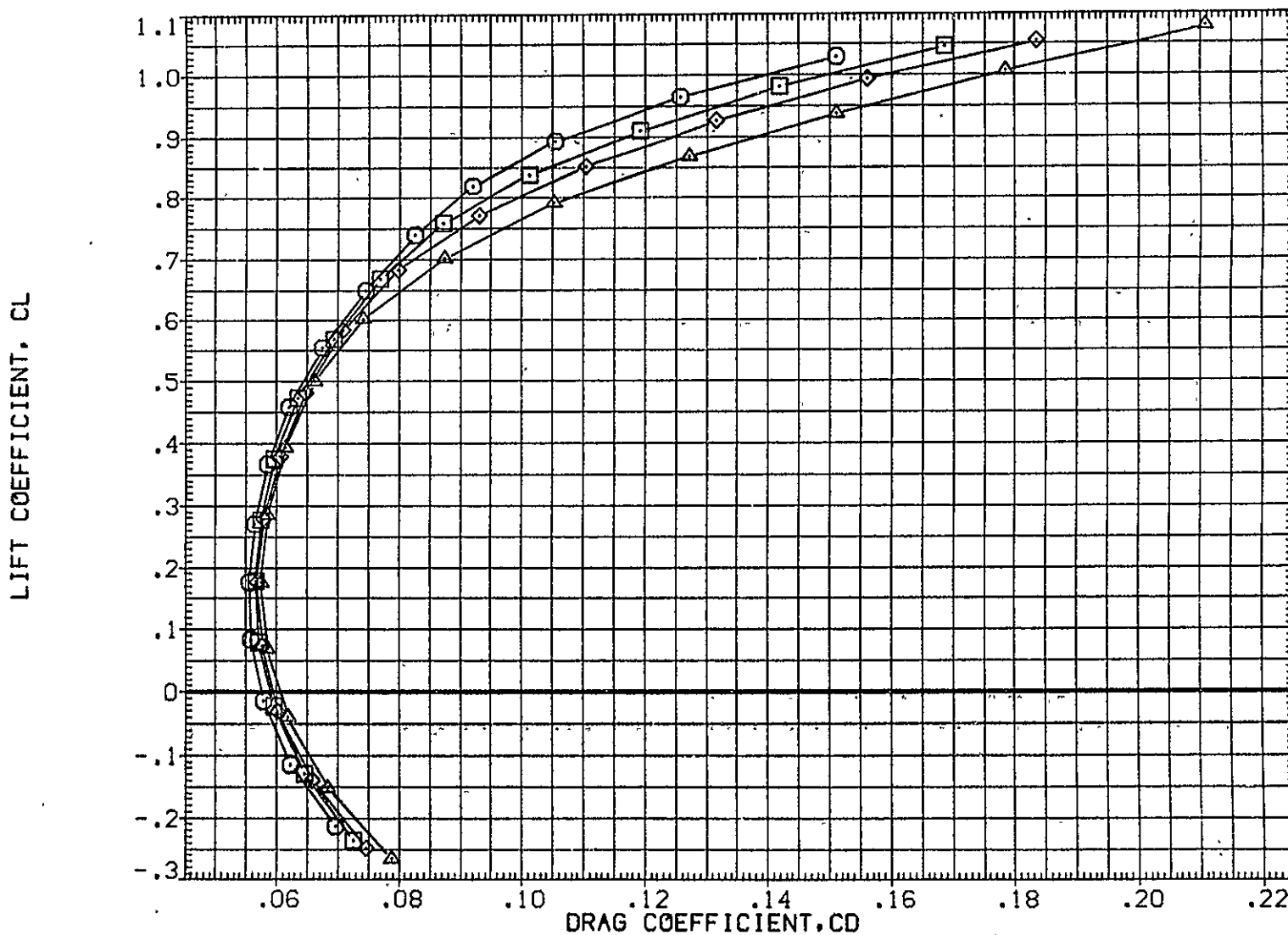


FIG. 92 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

CA5 K1 FO H15.1A V9.1 (PLUS. ORB TC5 AT38.3 )(RGM125)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	50. FT.
□	.500	RUD-L	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	ORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

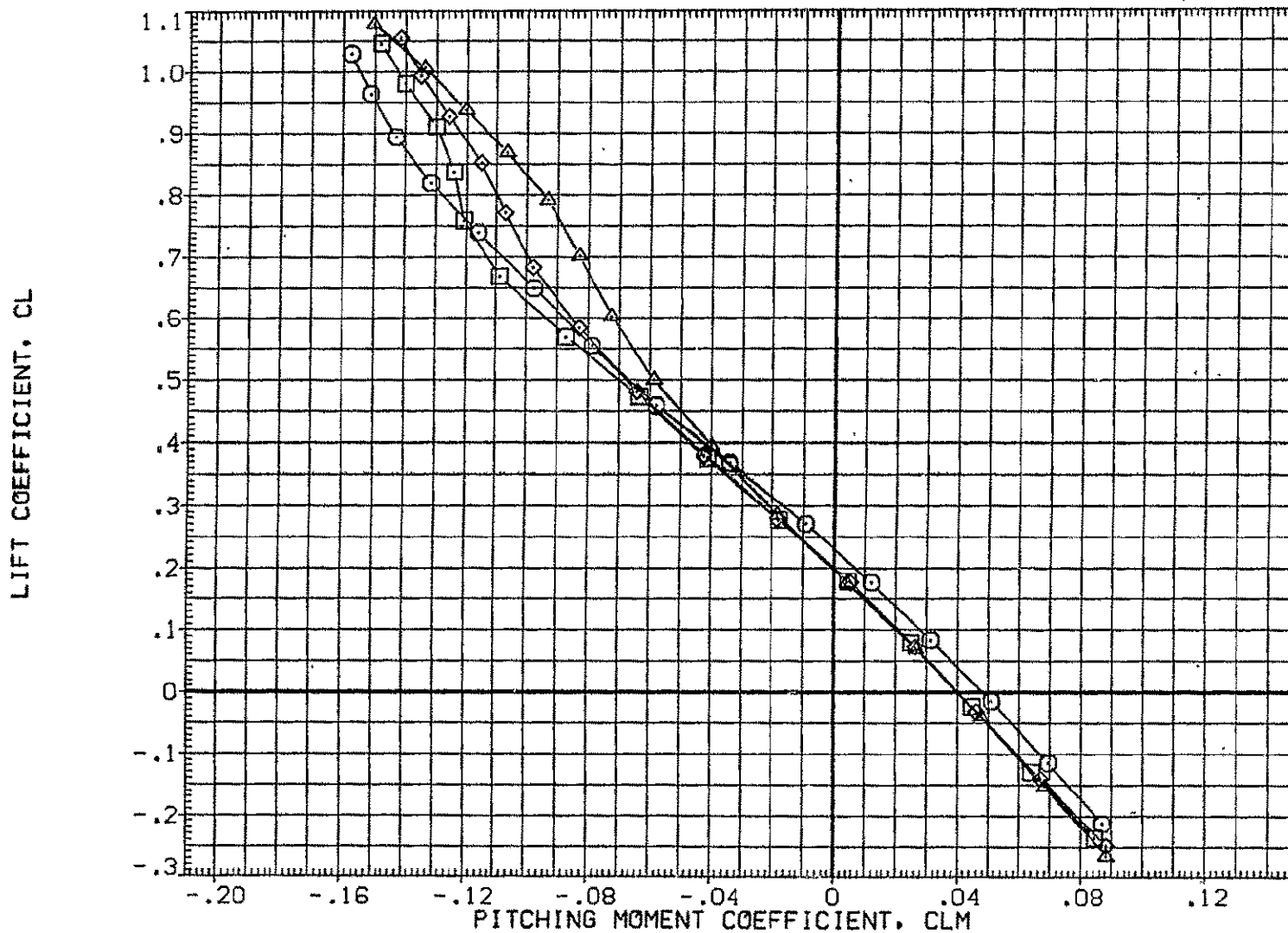


FIG. 92 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	RUD-U	RUD-L	STAB	SREF	LREF	BREF
○	.300	.000	.000	.000	-2.000	5500.0000	327.8000	2348.0000
◇	.500	.000	.000	.000	.000	5500.0000	327.8000	2348.0000
□	.600	.000	.000	.000	3.000	1339.9100	1339.9100	1339.9100
△	.700	.000	.000	.000	.000	.0000	.0000	.0000
		S5-6	S3-4	0RB	4.000	ZMRP	190.7500	SCALE
							.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

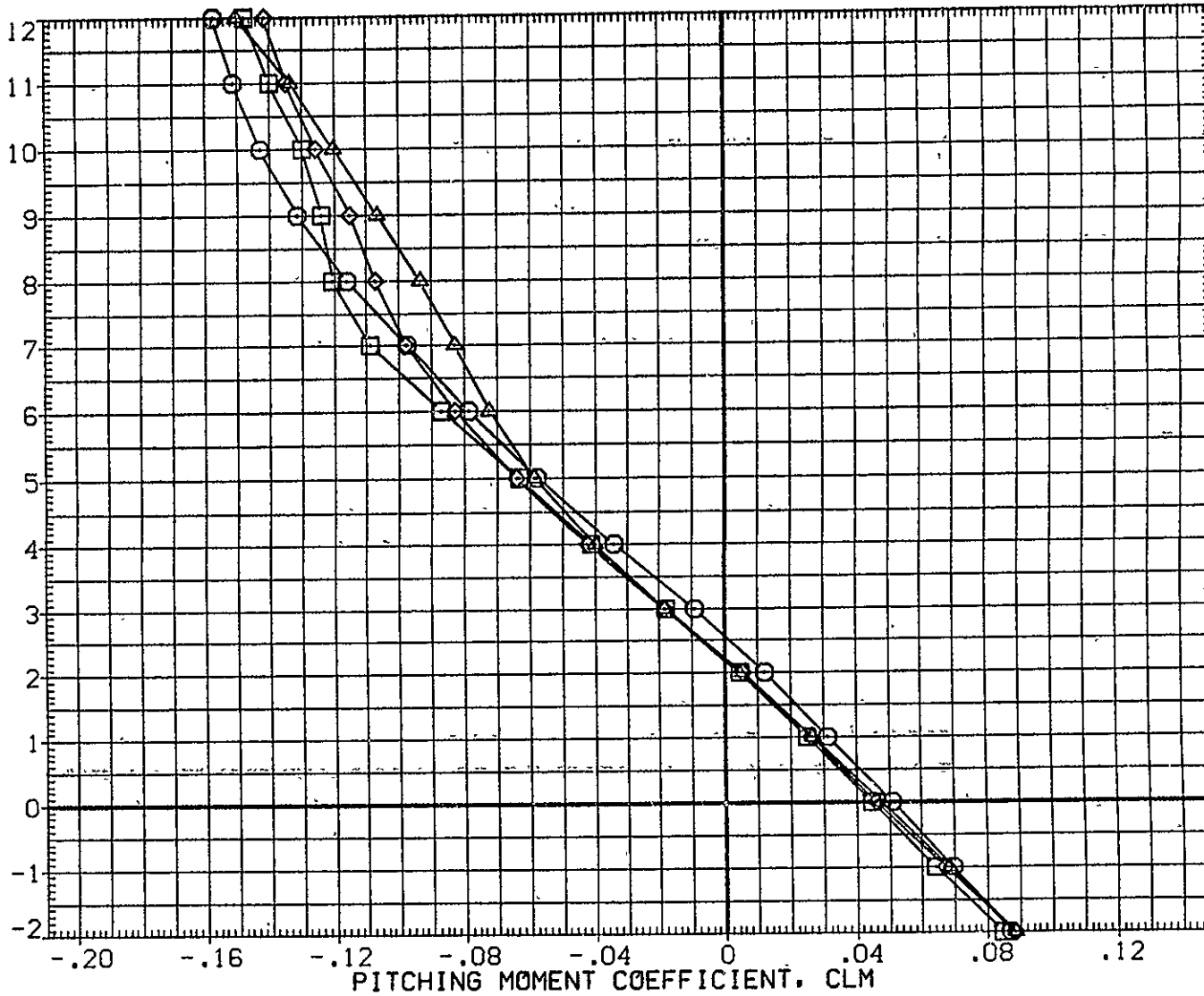


FIG. 92 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

CA5 K1 F0 H15.1A V9.1 MINUS 0RB TC5 AT38.3 (BGM125)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-.2.000	SREF	5500.0000	SO.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

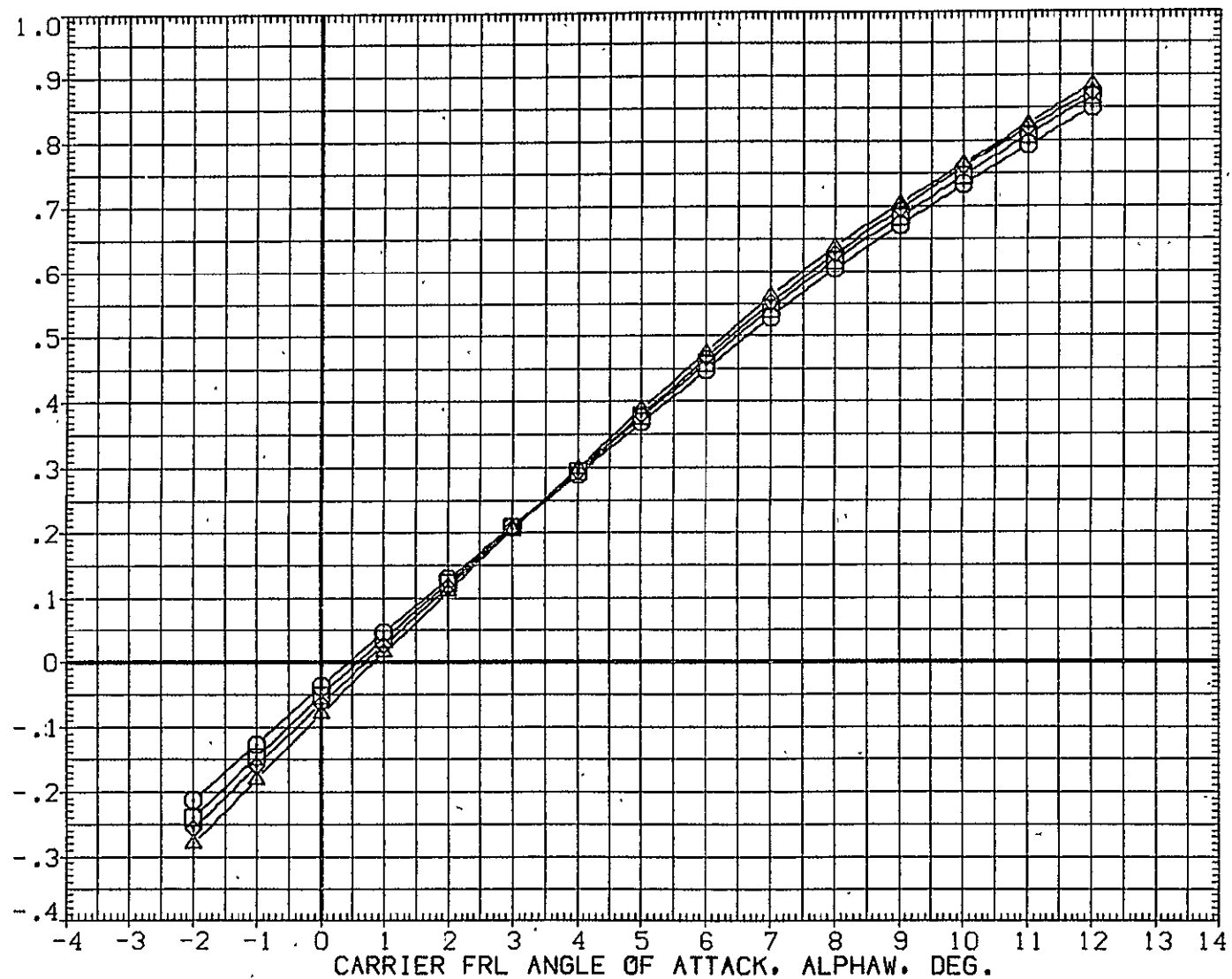


FIG. 93 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

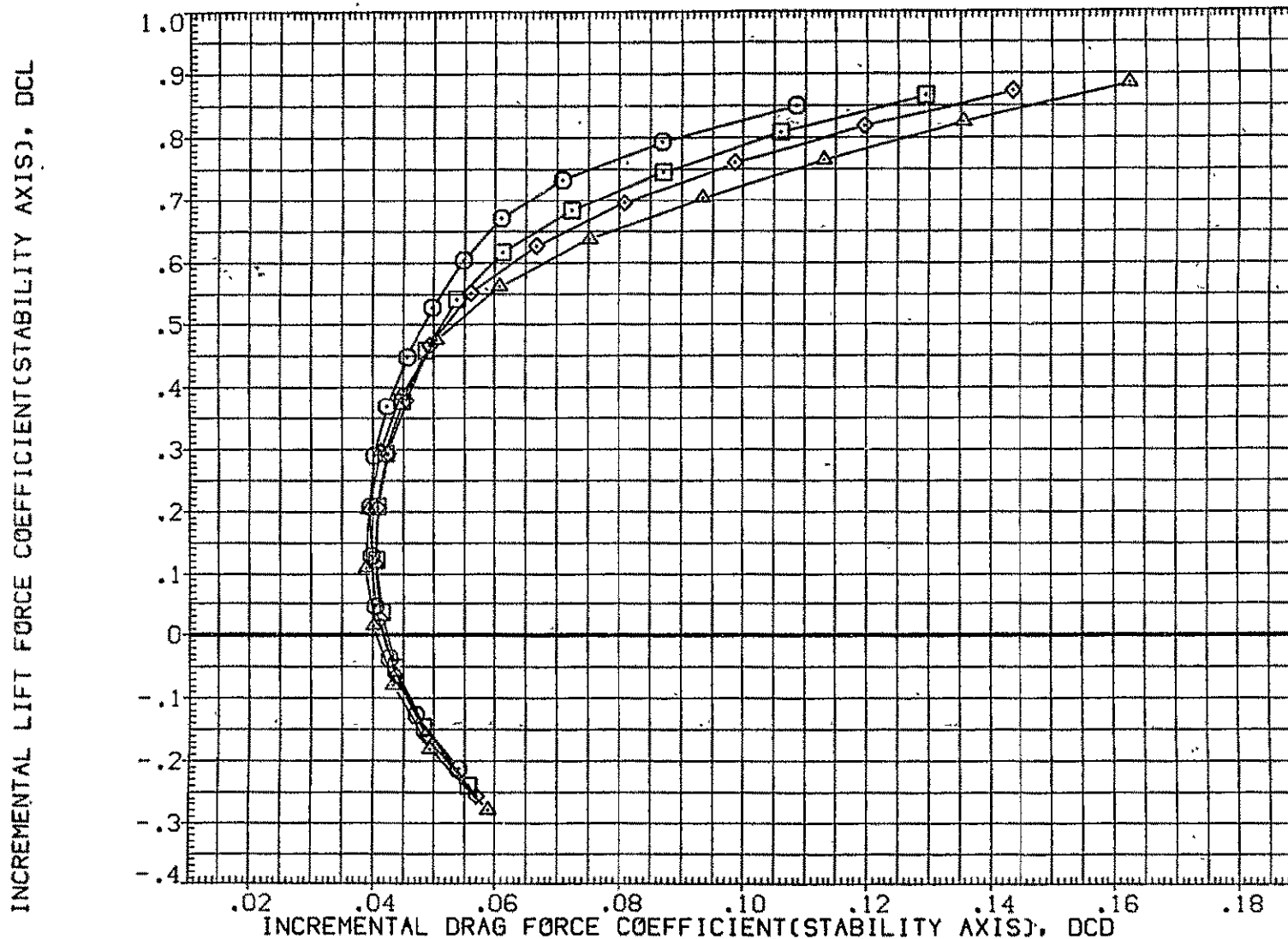


FIG. 93 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

CA5 K1 F0 H15.1A V9.1 MINUS 0RB TC5 AT38.3 (BGM125)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-IB	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

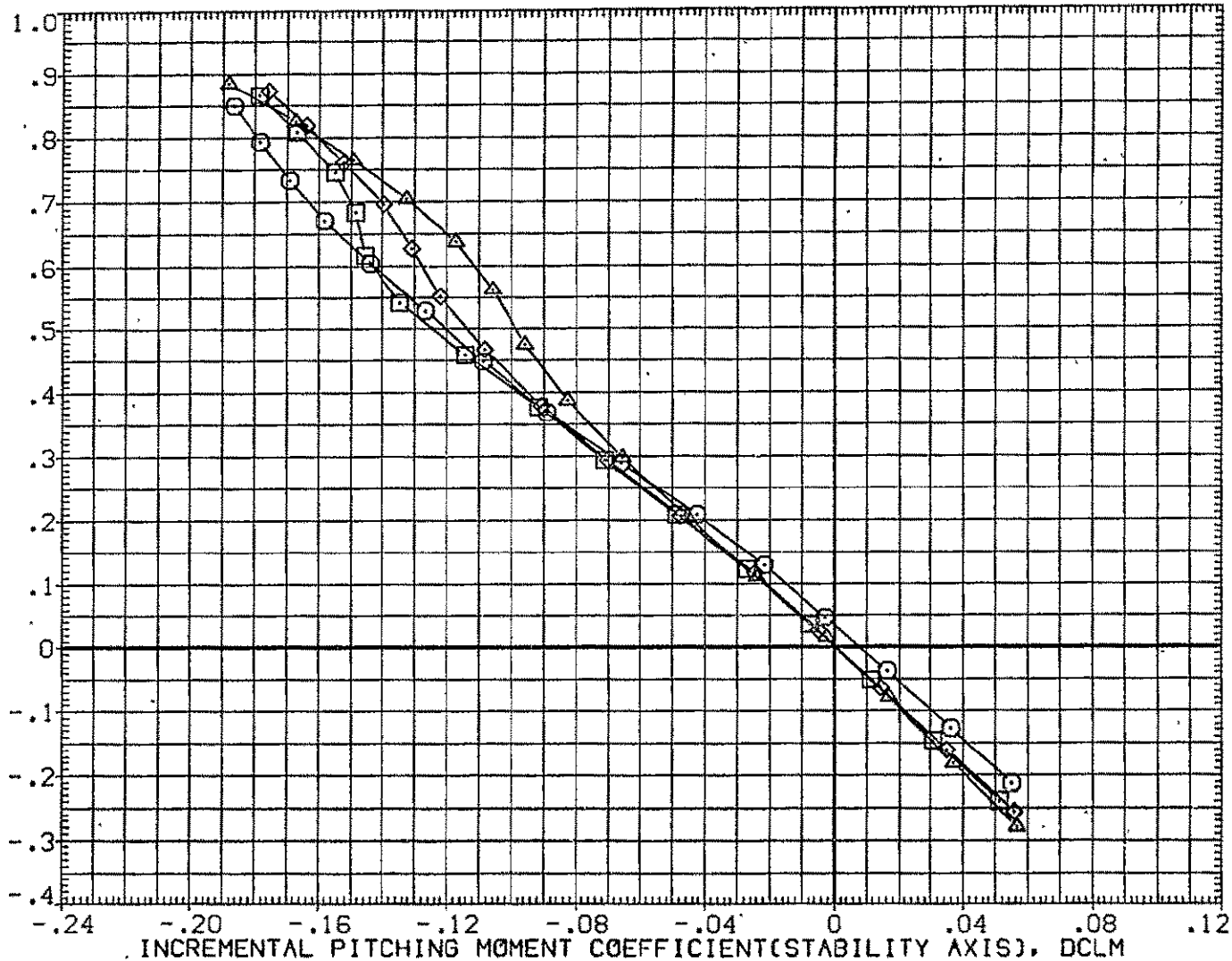


FIG. 93 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	I0RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

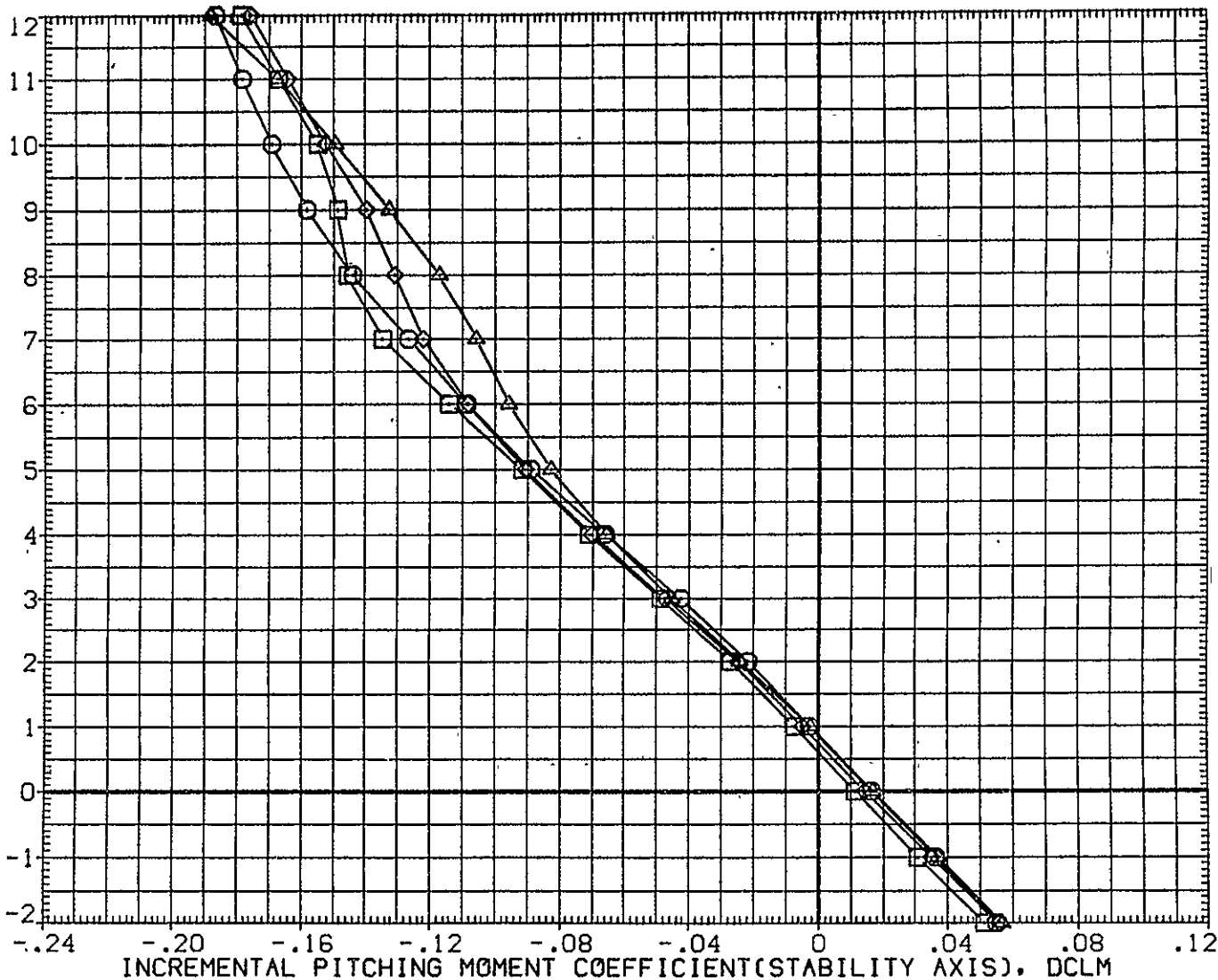


FIG. 93 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(YGM125)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	BETA	.000	STAB	-2.000	SREF	2690.0000	50. FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

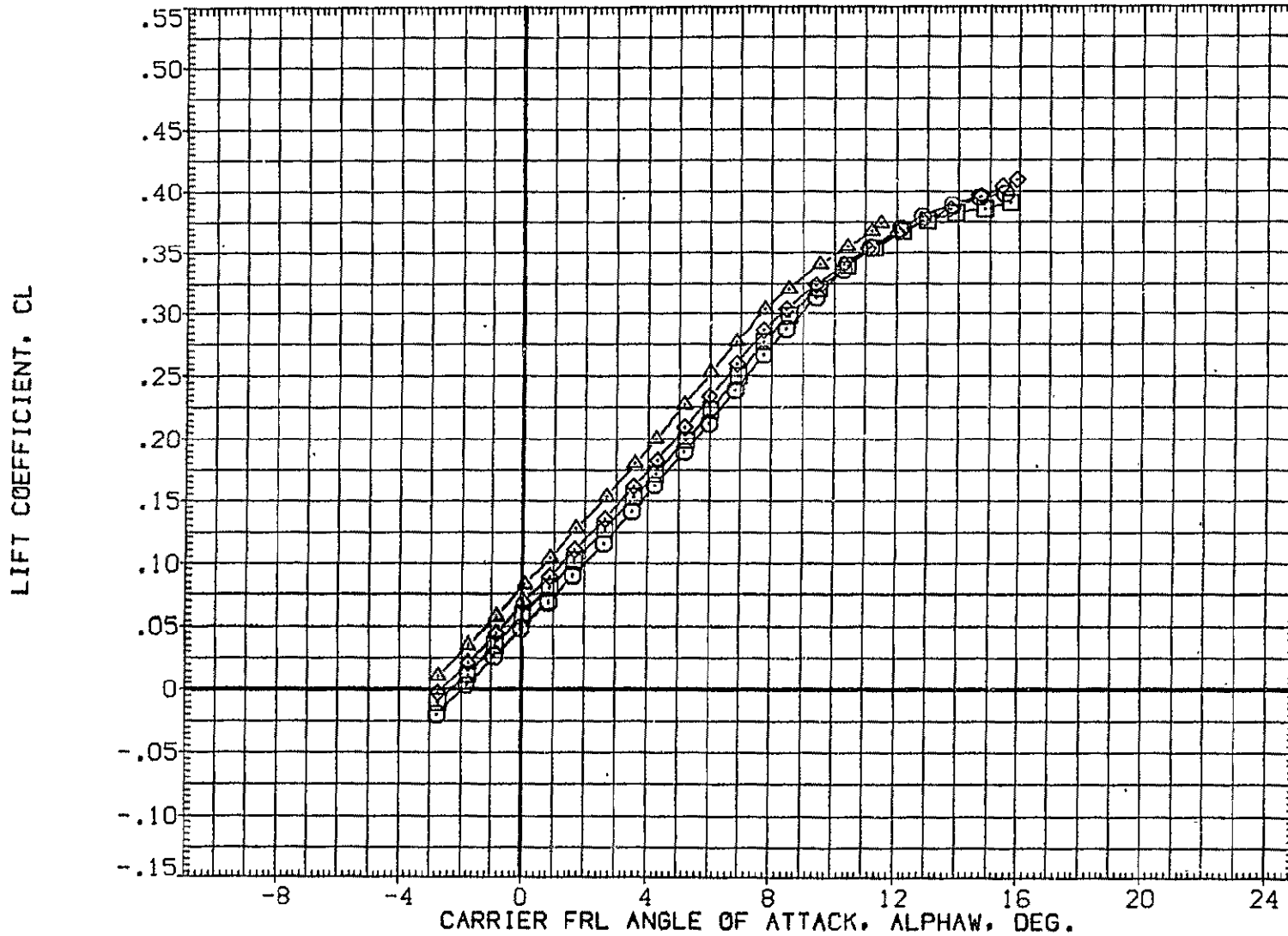


FIG. 94 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
○	.299	BETA	.000	STAB	-2.000	LREF	474.8100	IN.
□	.499	RUD-U	.000	RUD-L	.000	BREF	936.6800	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	XMRP	1109.0000	IN. X0
△	.699	S1-2	.000	S3-4	.000	YMRP	.0000	IN. Y0
		S5-6	.000	IORB	4.000	ZMRP	375.0000	IN. Z0
						SCALE	.0300	

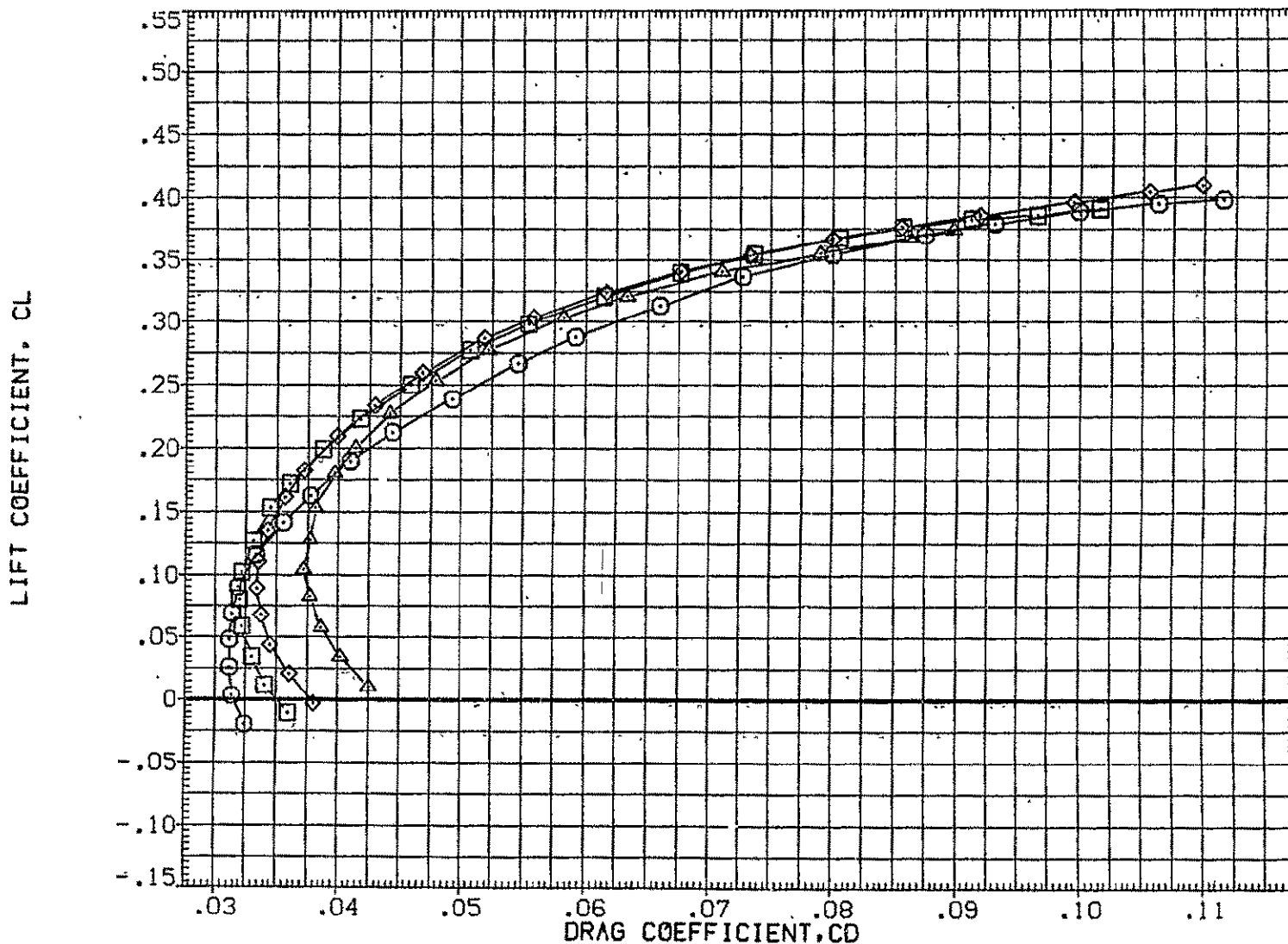


FIG. 94 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

ORB

CA5 ORB TC5 AT38.3 (PRES. K1 F0 H15.1A V9.1)(YGM125)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	ICRB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

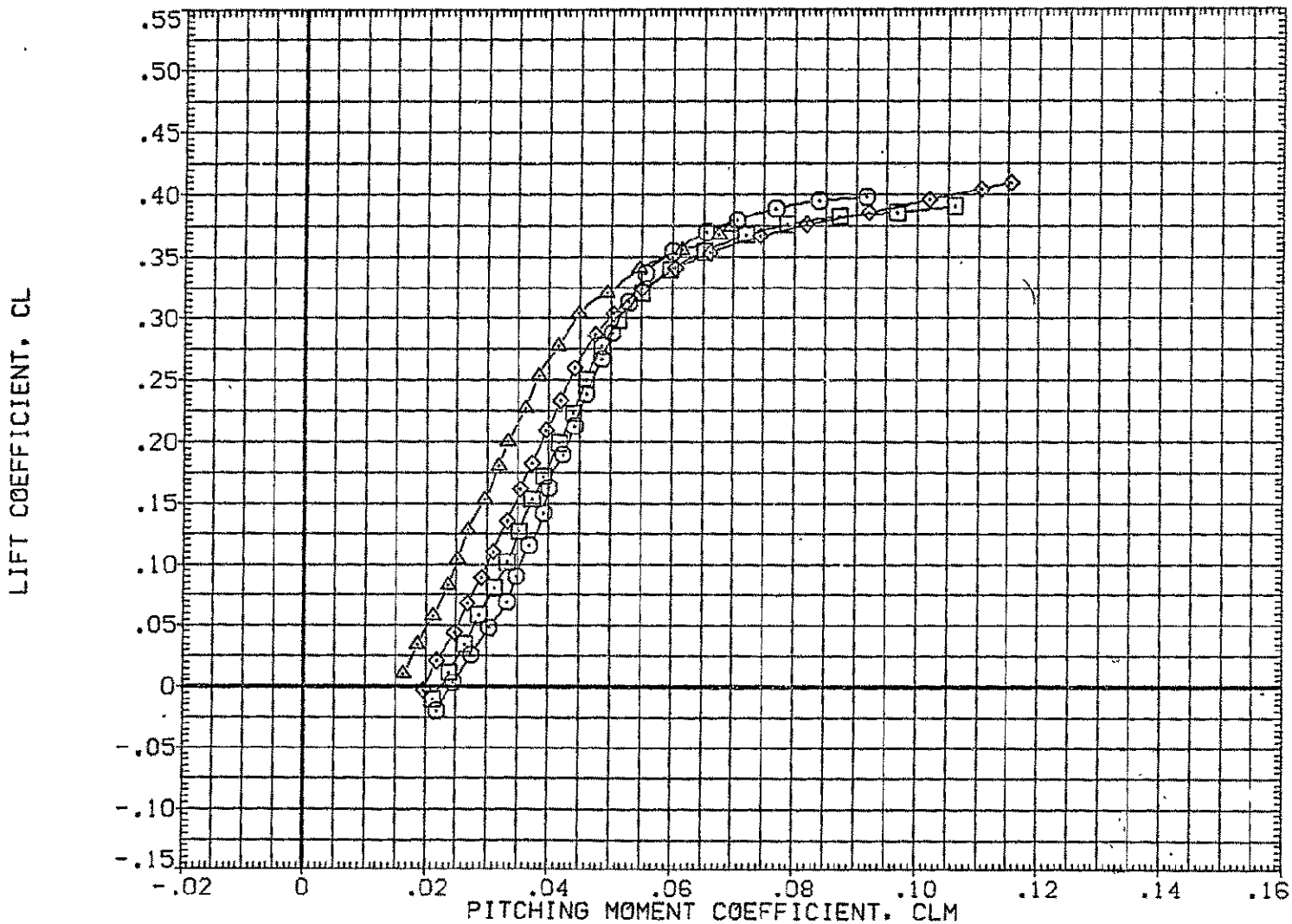


FIG. 94 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ. FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	.000	XM RP	1109.0000	IN. X0
		SS-6	.000	10RB	4.000	YM RP	.0000	IN. Y0
						ZM RP	375.0000	IN. Z0
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

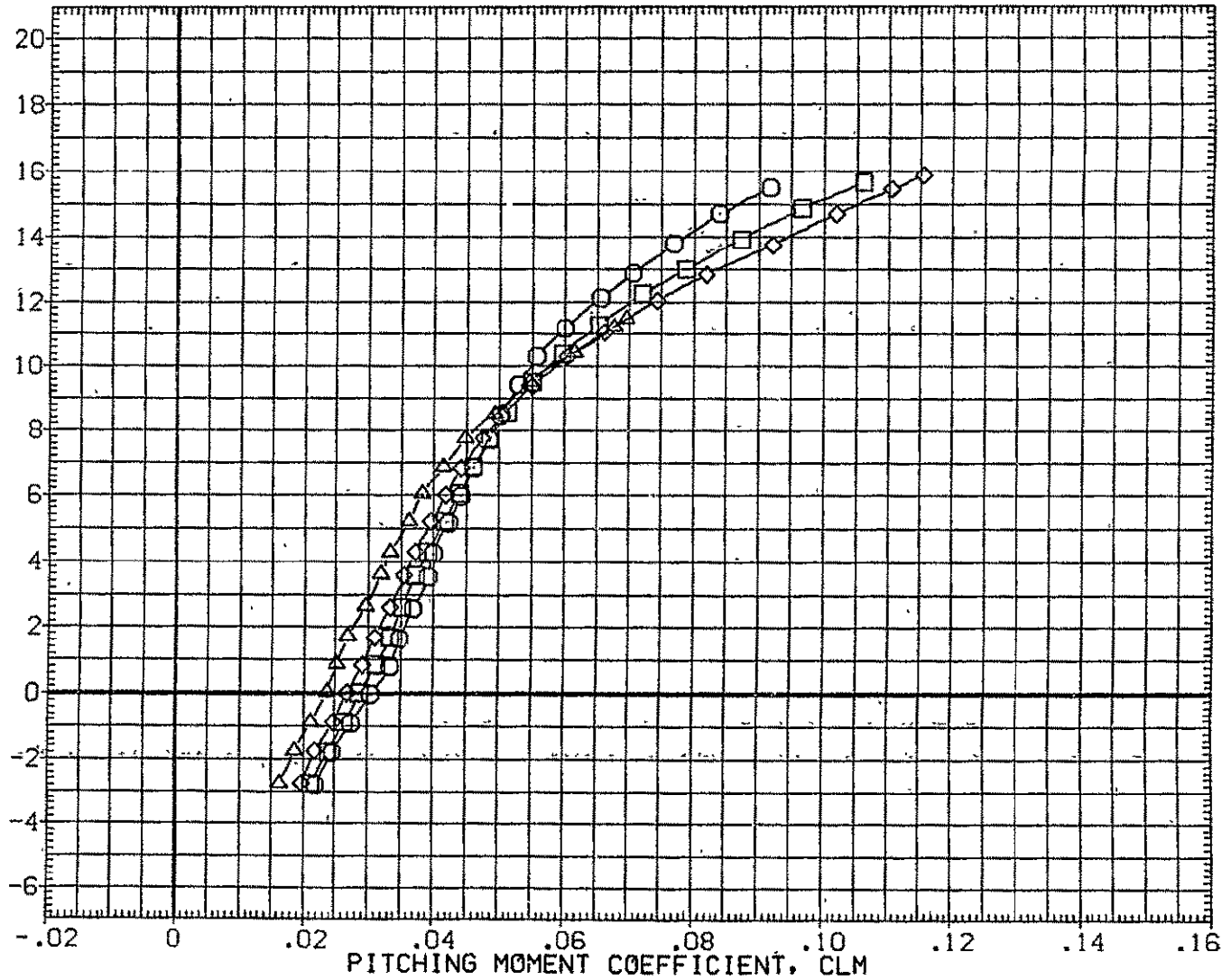


FIG. 94 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY(S=-2)

ORB

CAS K1 FO H15.6 V9.1 (PLUS. ORB NOZ AT38.3 )(RGM126)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-TR	.000	ELV-OR	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

LIFT COEFFICIENT, CL

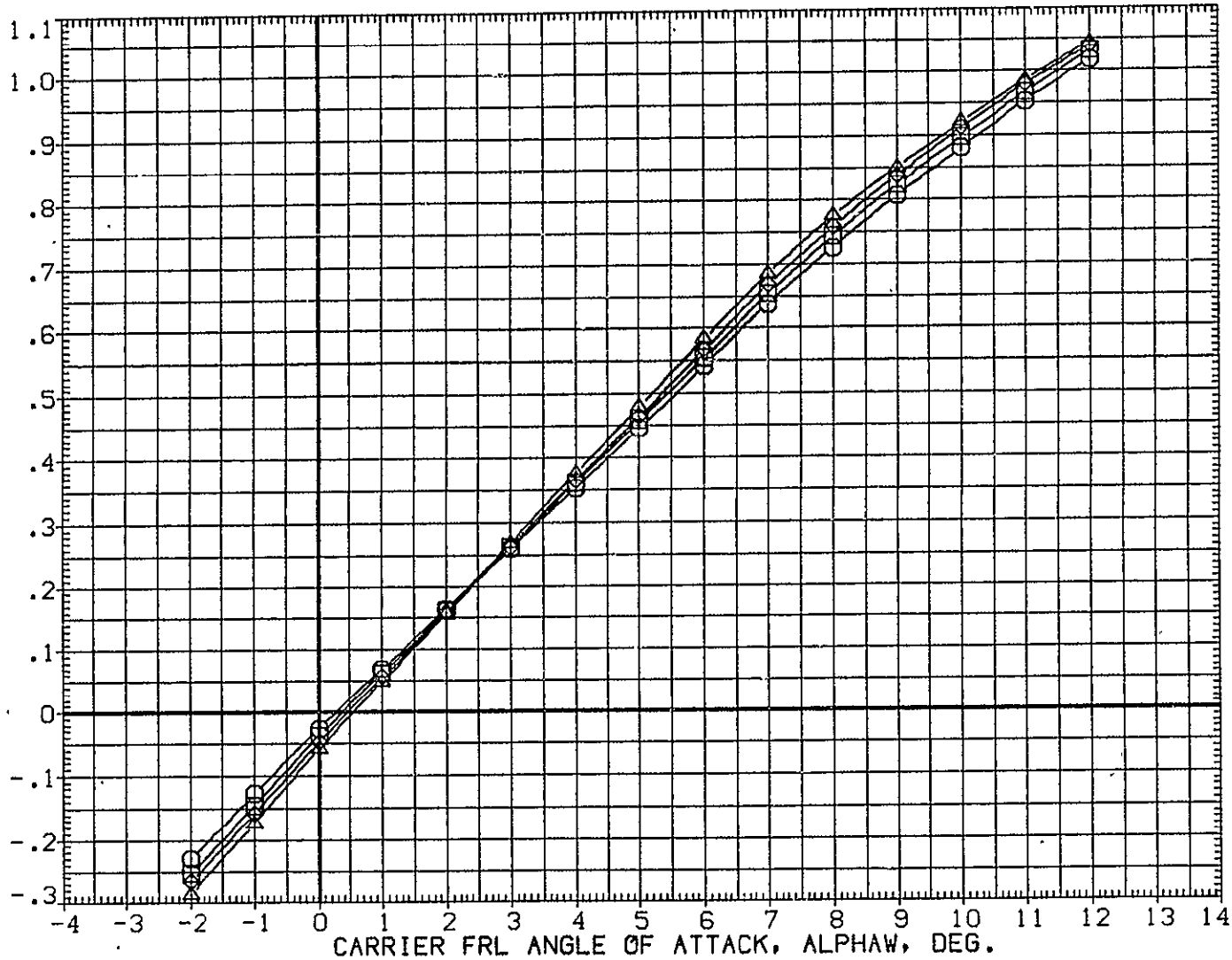


FIG. 95 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ, FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

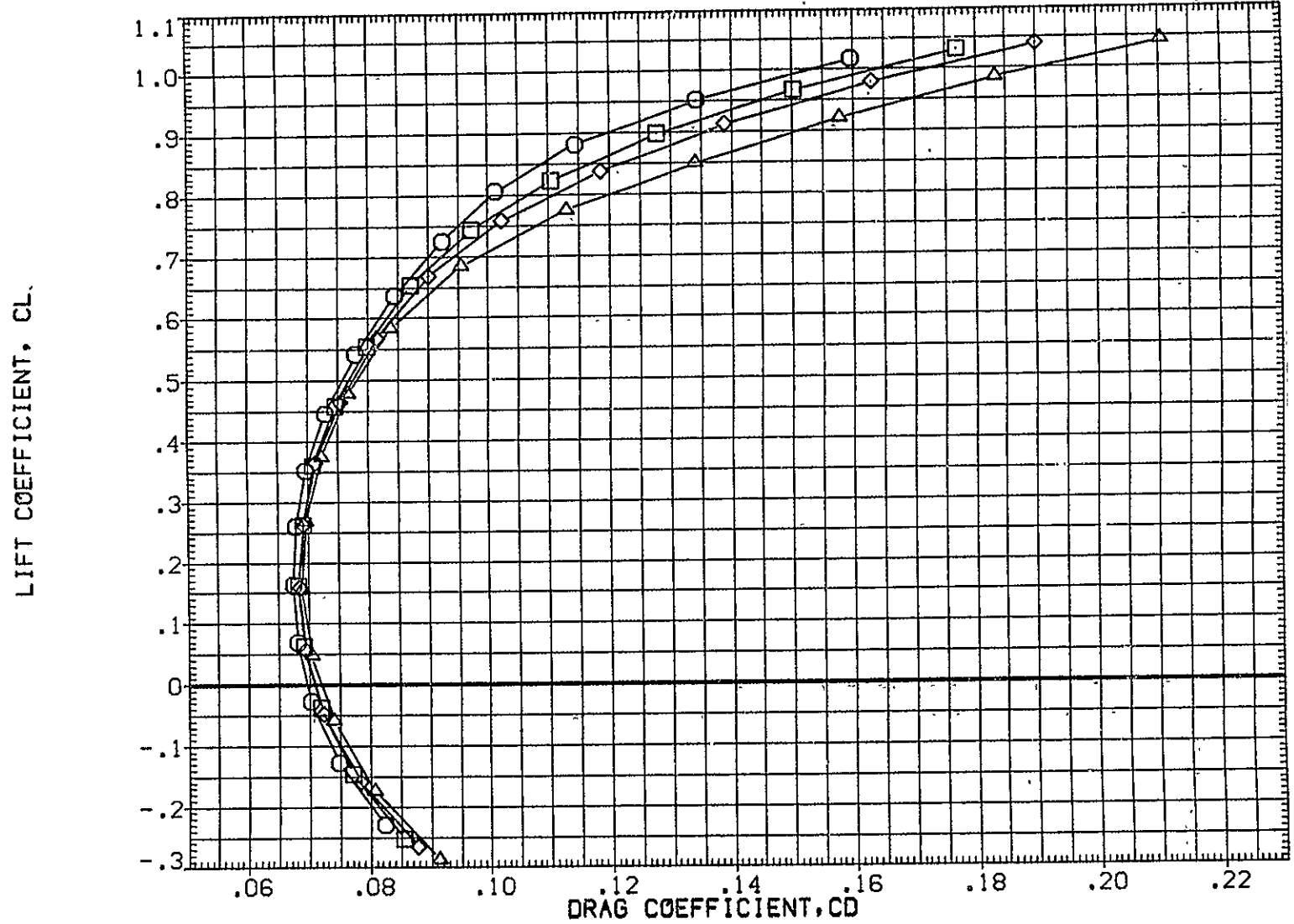


FIG. 95 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

CA5 K1 FO H15.6 V9.1 (PLUS. 0RB N0Z AT38.3 )(RGM126)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

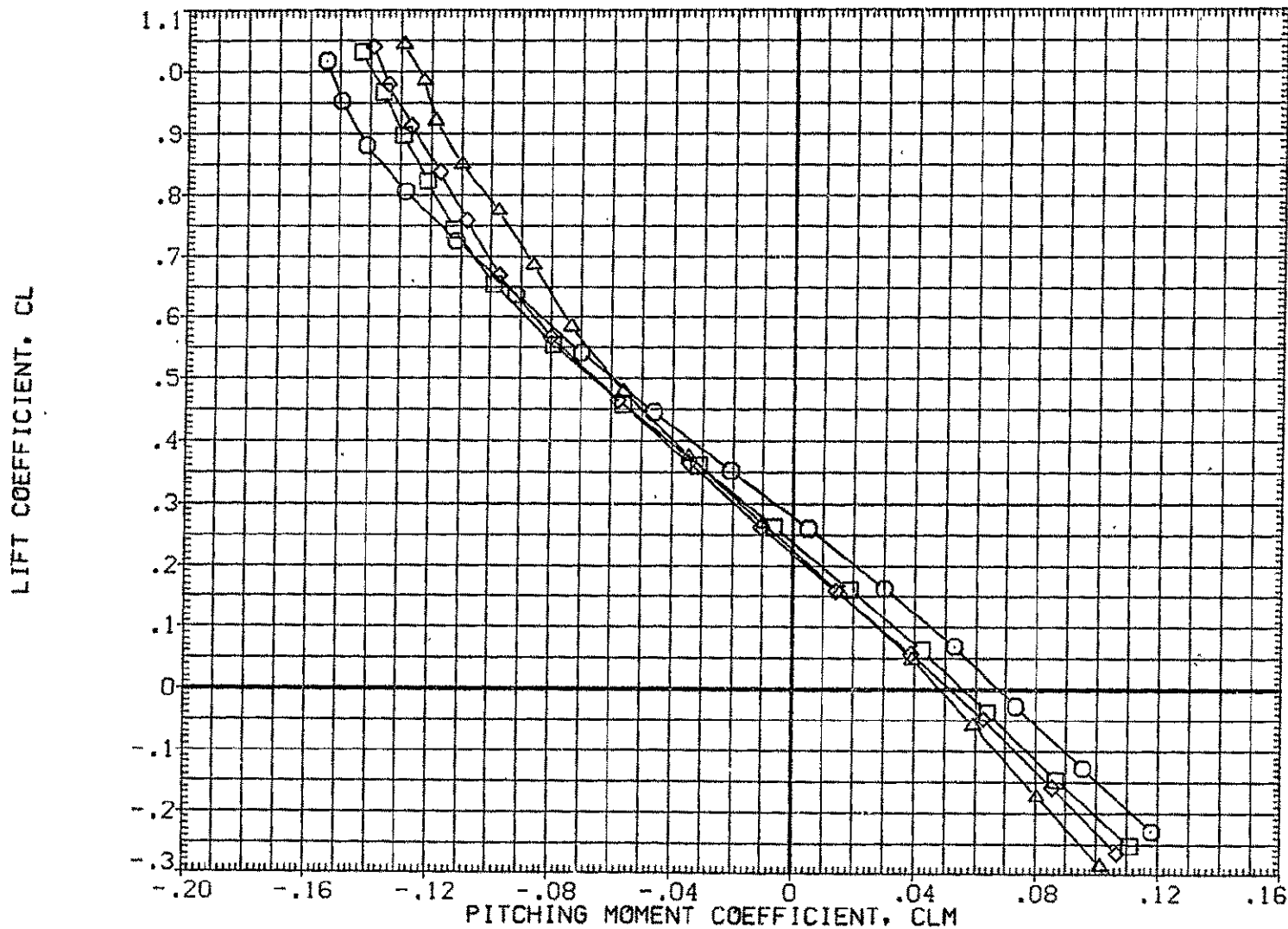


FIG. 95 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. >
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. >
						ZMRP	190.7500	IN. >
						SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

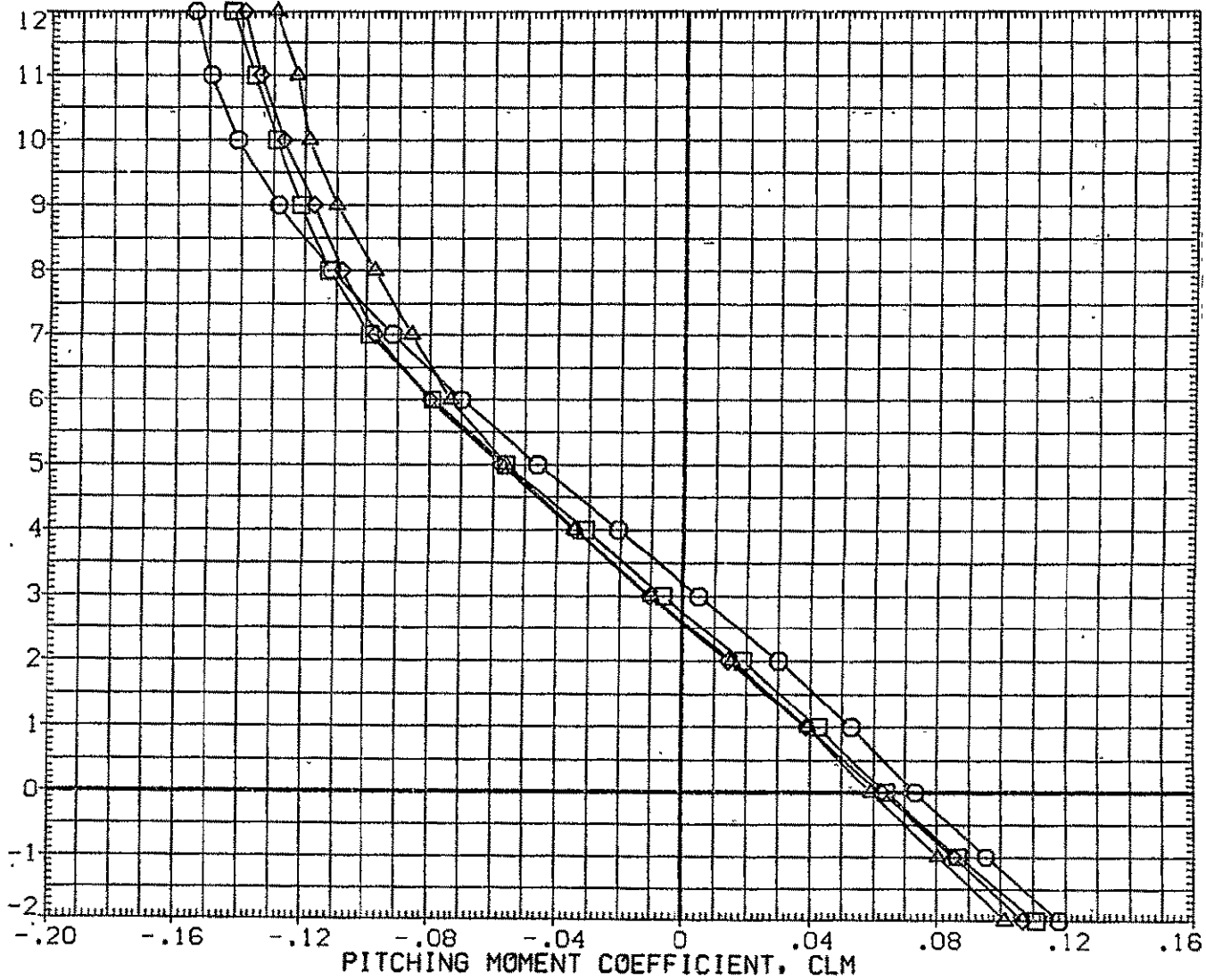


FIG. 95 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

CA5 K1 FO H15.6 V9.1 MINUS ORB NOZ AT38.3 (BGM126)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		SS-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

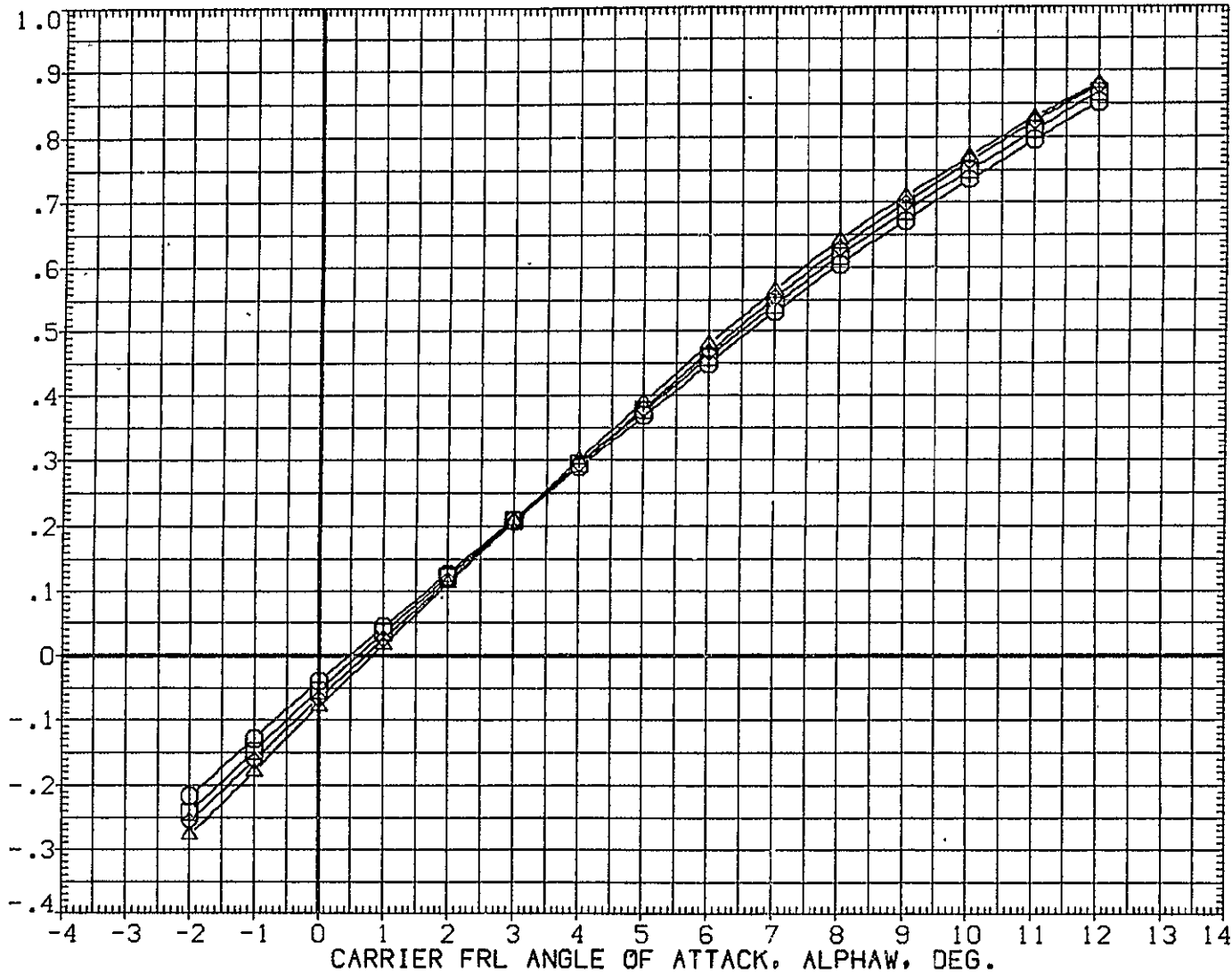


FIG. 96 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA .000	STAB -2.000		
□	.500	RUD-U .000	RUD-L .000		
◇	.600	ELV-1B .000	ELV-0B 3.000		
△	.700	S1-2 .000	S3-4 .000		
		S5-6 .000	10RB 4.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

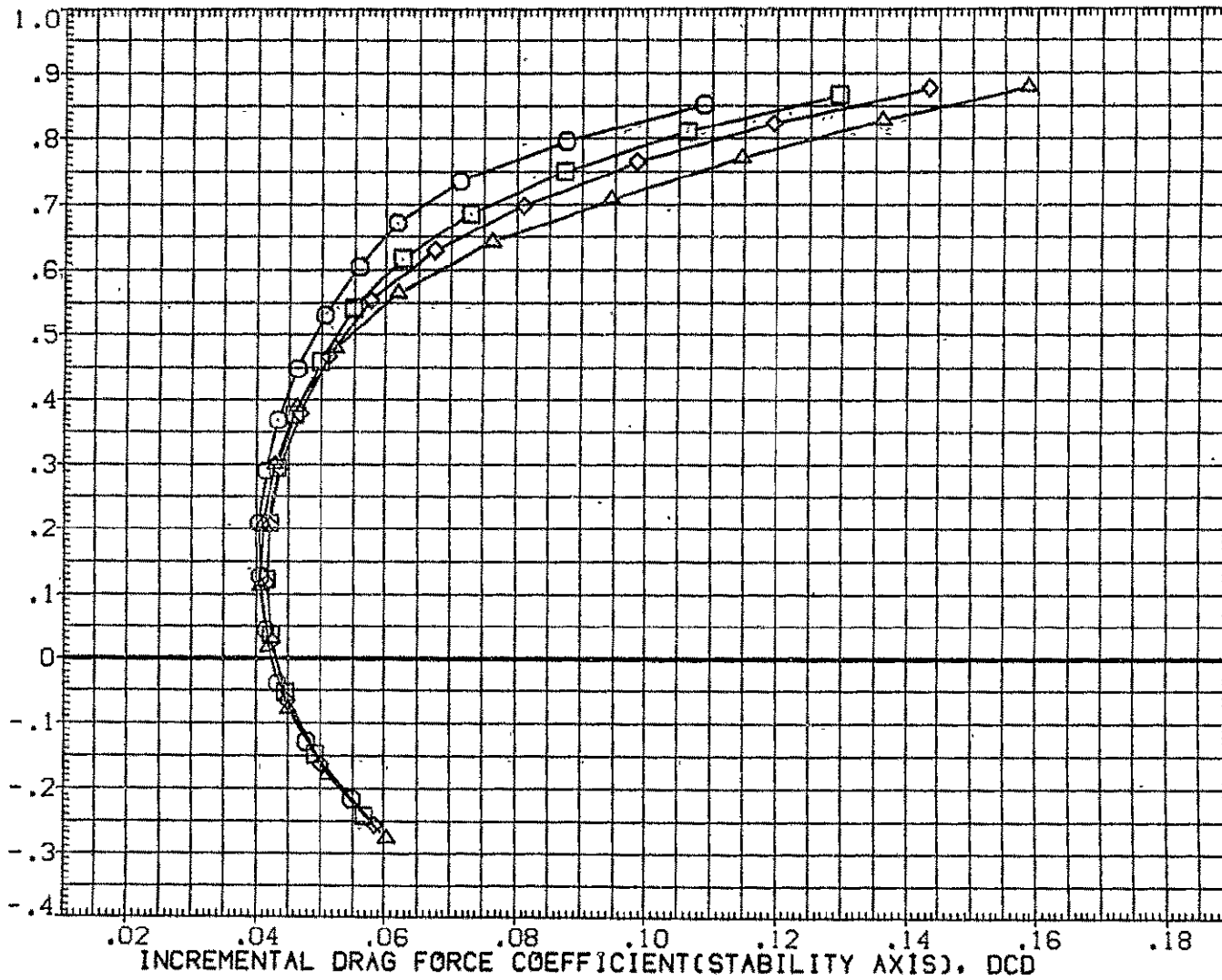


FIG. 96 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

CA5 K1 FO H15.6 V9.1 MINUS ORB NOZ AT38.3 (BGM126)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	BETA	.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	1ORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL LIFT FORCE COEFFICIENT(STABILITY AXIS), DCL

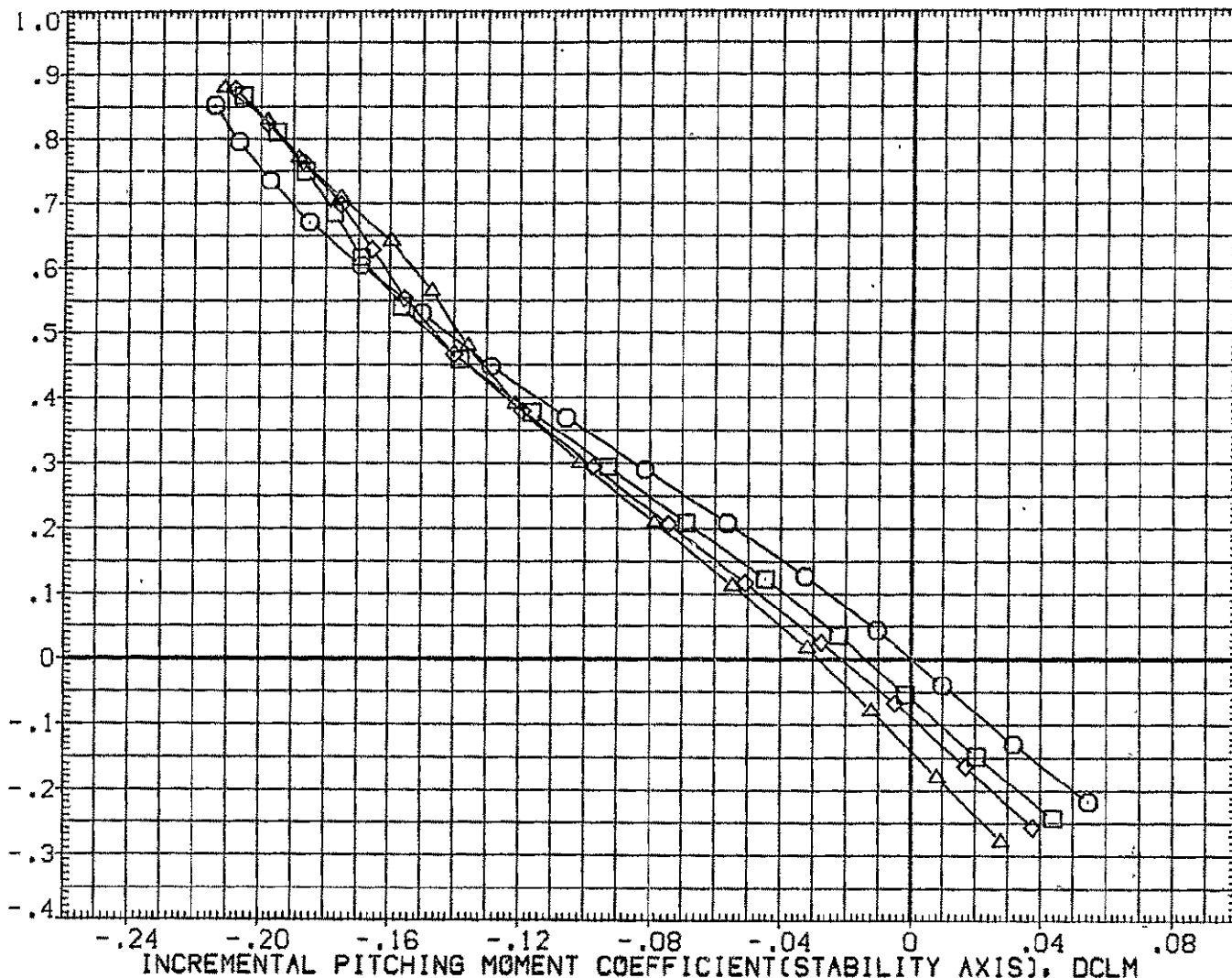


FIG. 96 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-IB	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		SS-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHA, DEG.

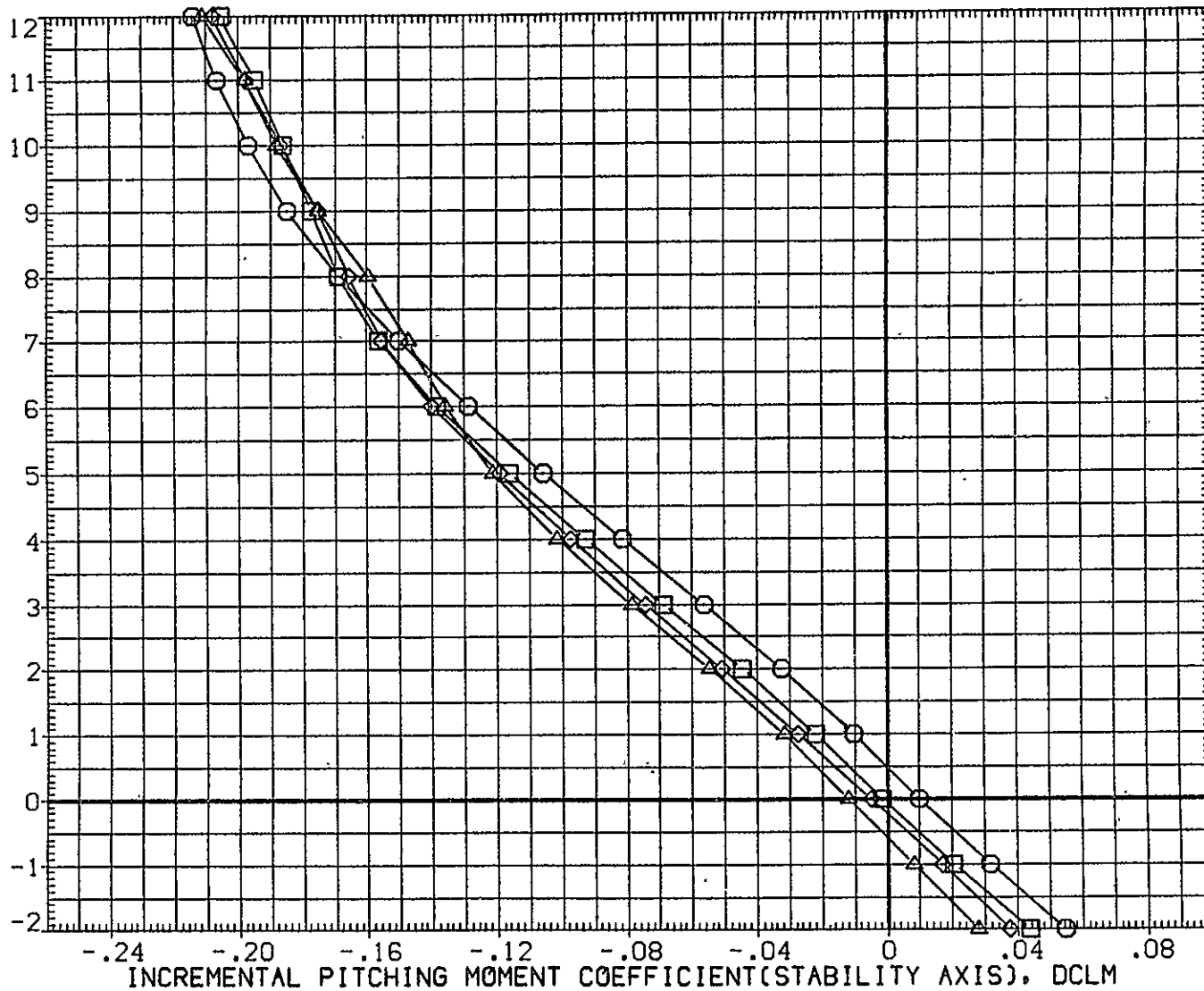


FIG. 96 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

747

CA5 ORB NOZ AT38.3 (PRES. K1 FO H15.6 V9.1)(YGM126)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	BETA	.000	STAB	-2.000	SREF	2690.0000	SQ. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-IB	.000	ELV-OB	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	ICRB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

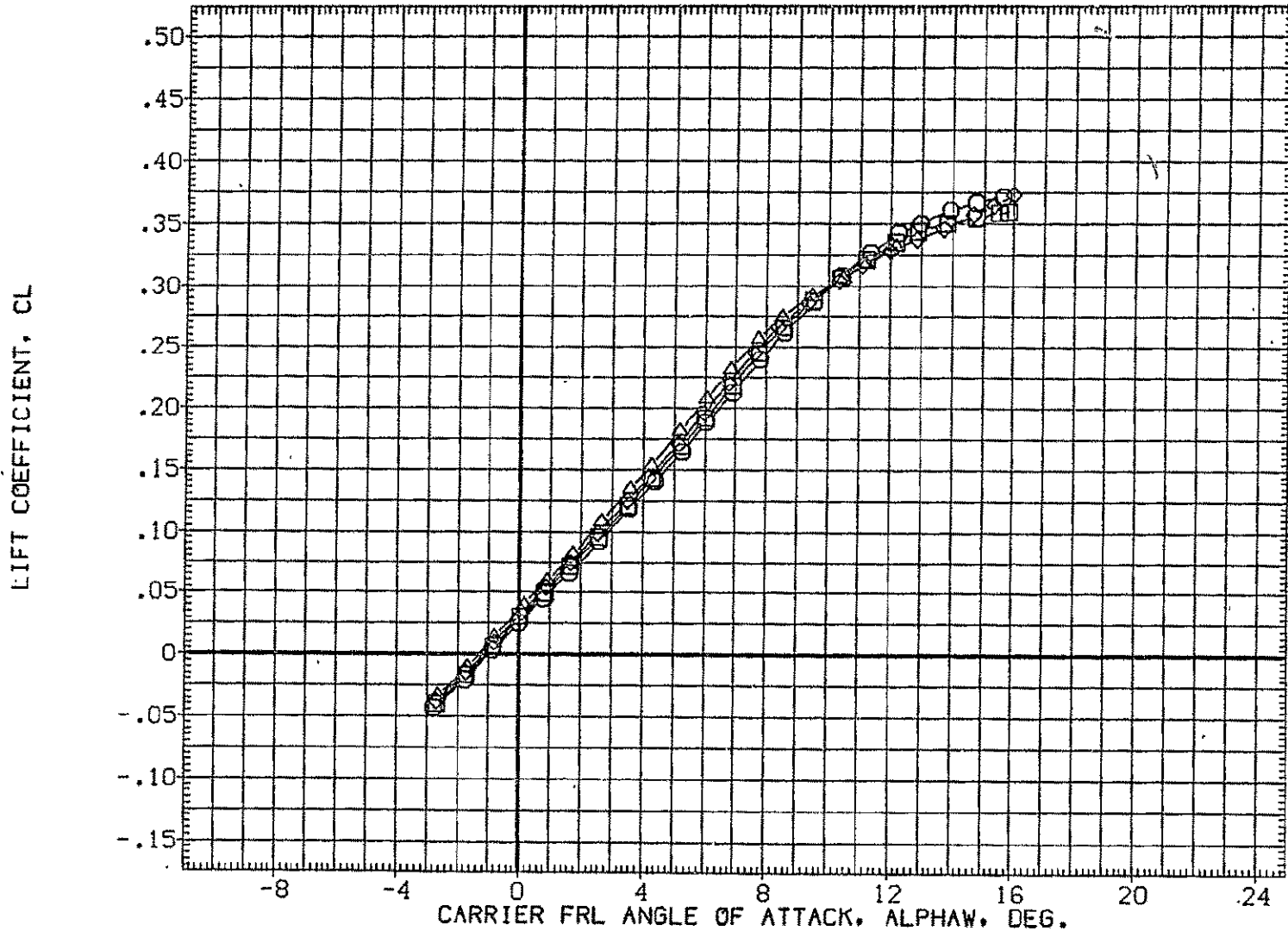


FIG. 97 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.699	S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

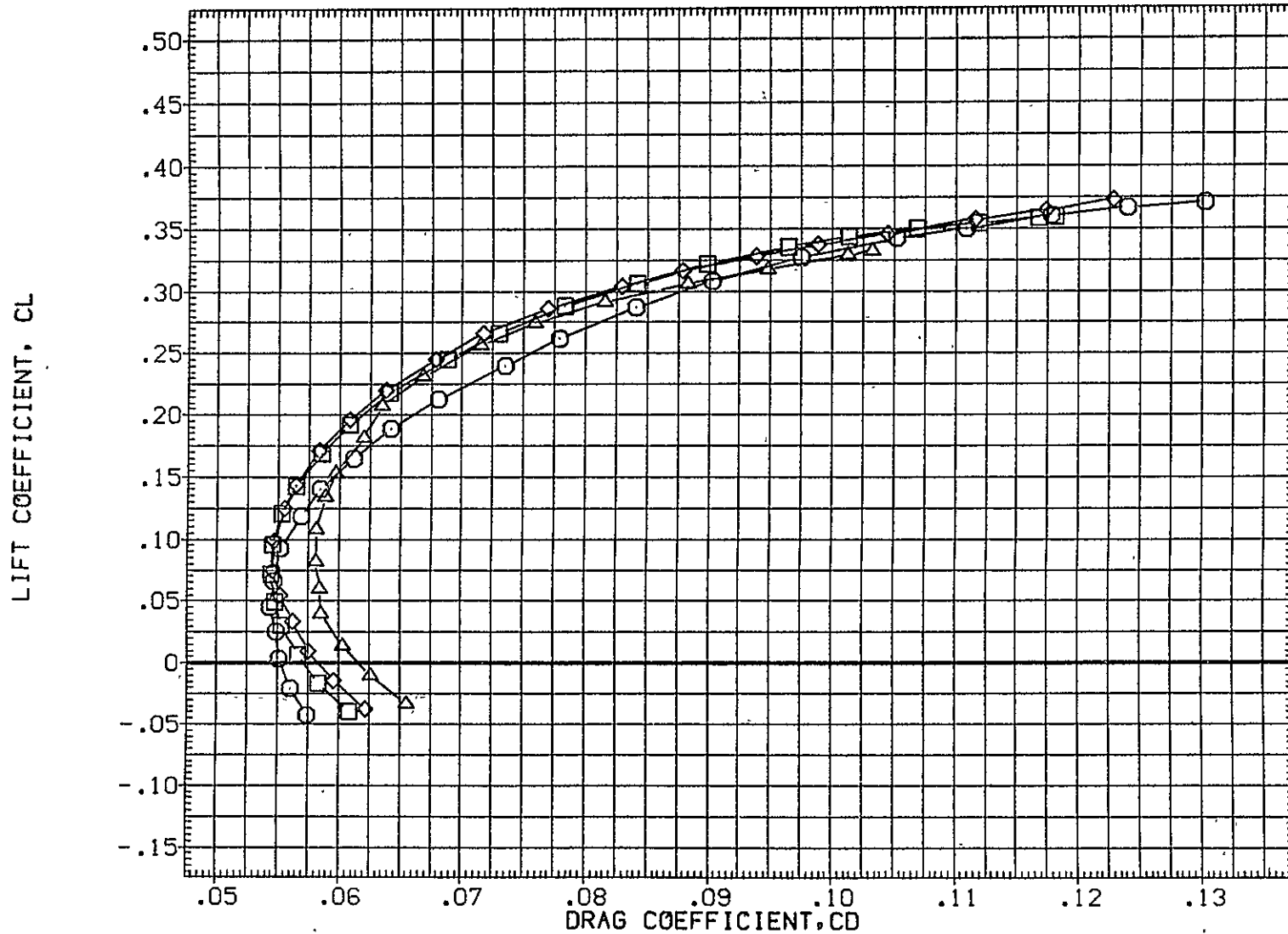


FIG. 97 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

ORB

CA5 0RB N0Z AT38.3 (PRES. K1 F0 H15.6 V9.1)(YGM126)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.699	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

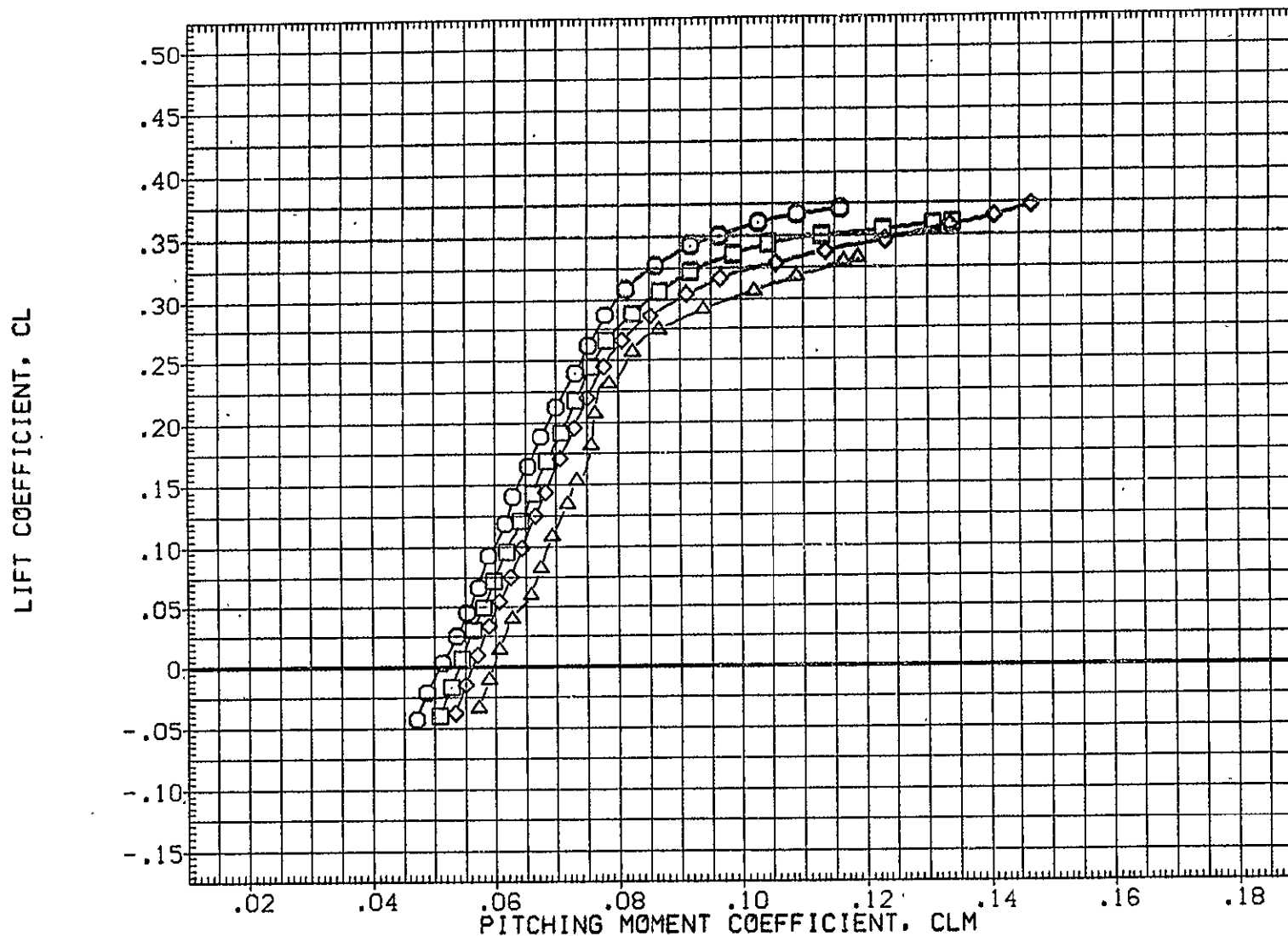


FIG. 97 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

0RB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	BETA	.000	STAB	-2.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.699	S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

CARRIER FRL ANGLE OF ATTACK, ALPHAW, DEG.

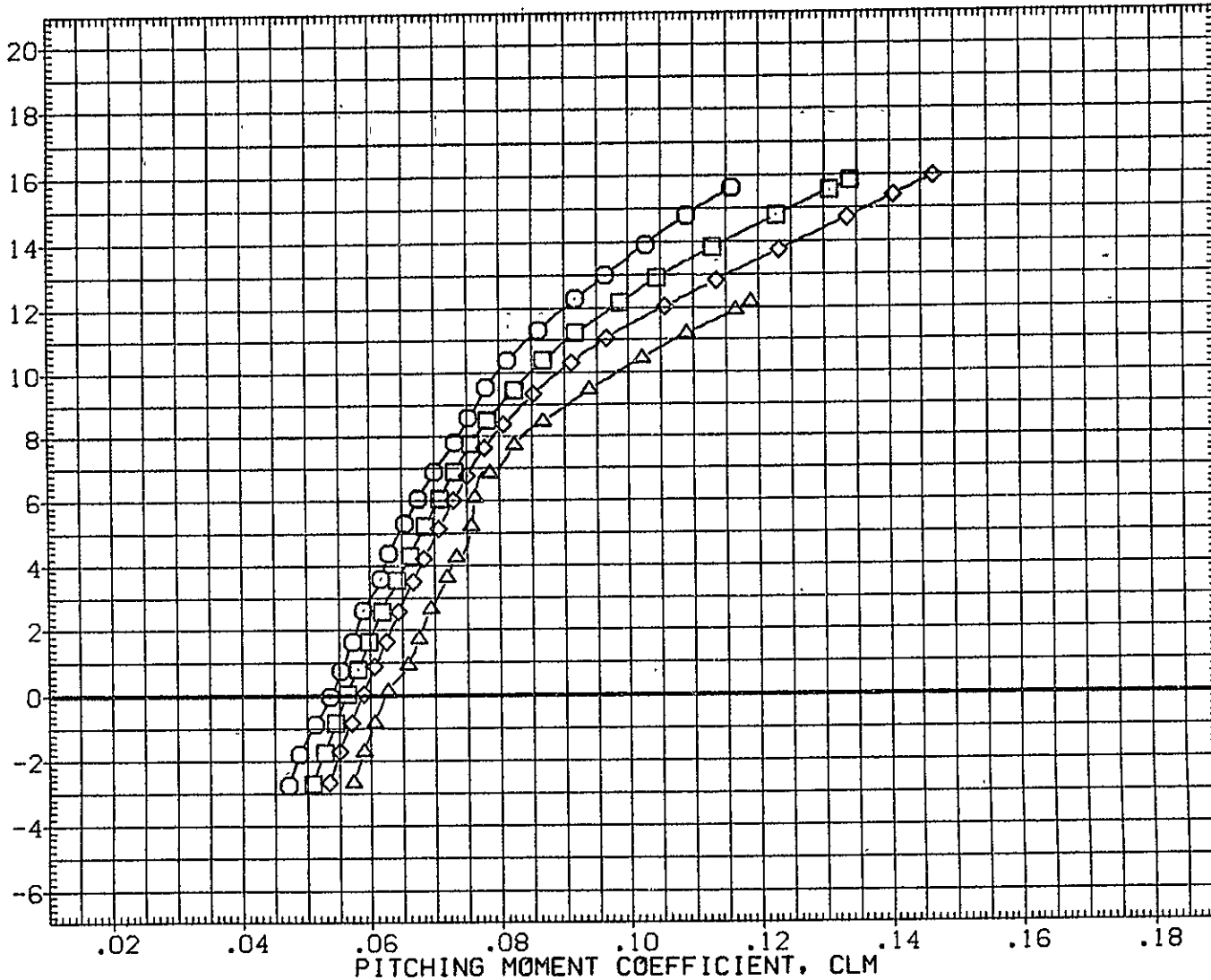


FIG. 97 747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, TAIL CONE OFF

0RB

CAS ORB N28 N24

(AGM128)

SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.300		.000
□	.499		
◇	.600		
△	.700		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

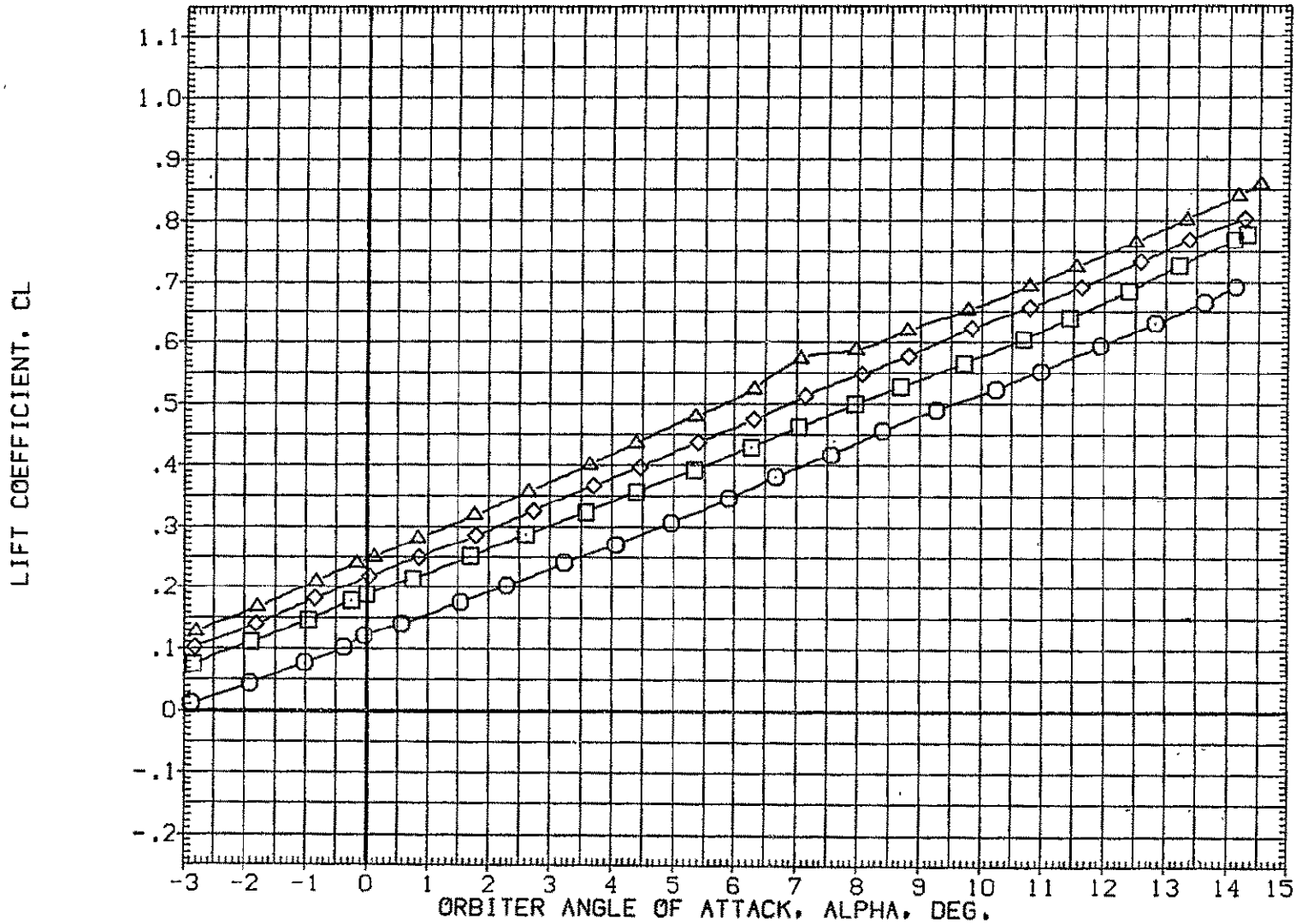


FIG. 98 ORBITER ALONE, TAIL CONE OFF



SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.300		.000
□	.499		
◇	.600		
△	.700		

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

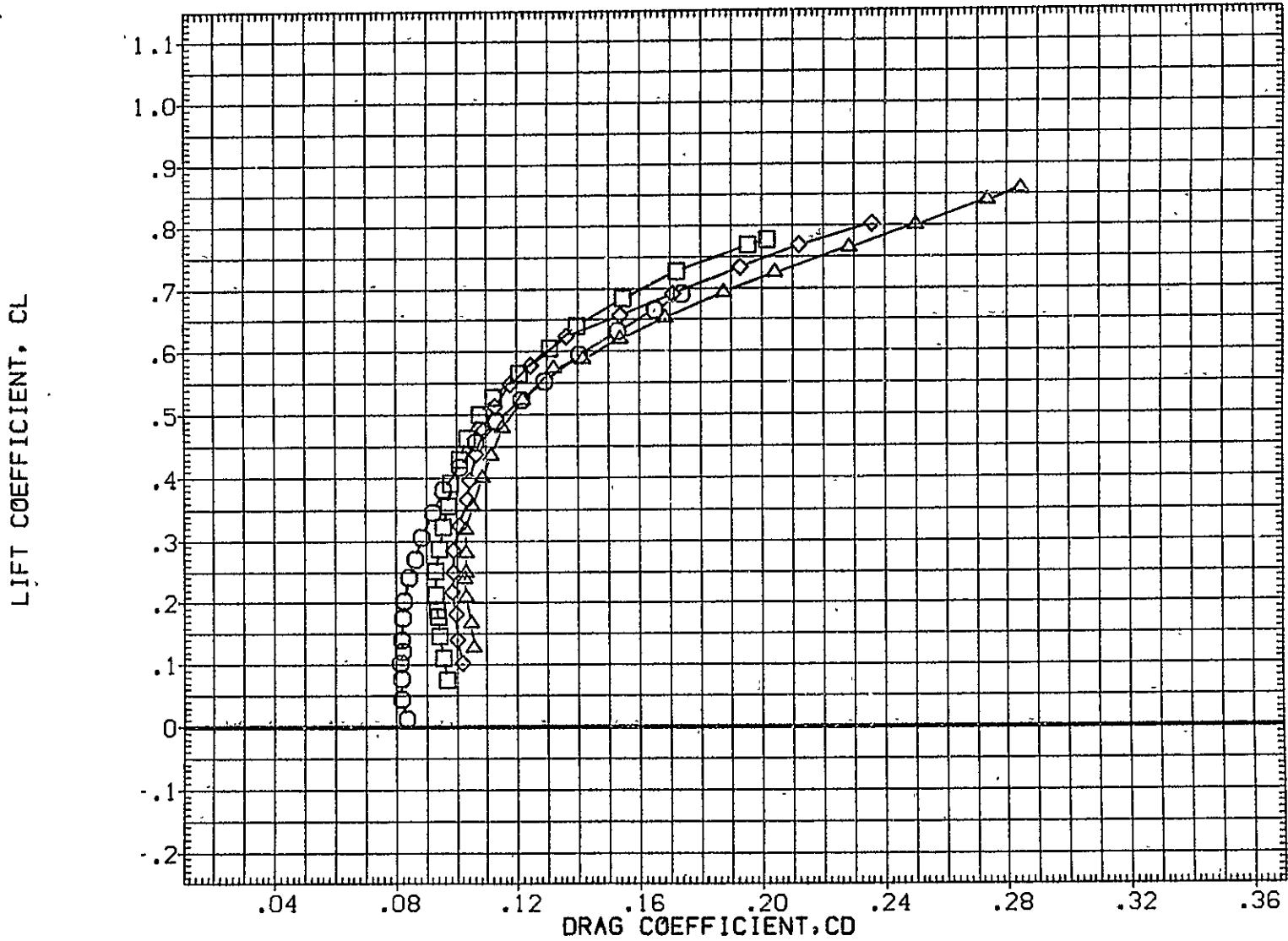


FIG. 98 ORBITER ALONE, TAIL CONE OFF

CA5 ORB N28 N24

(AGM128)

SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.300		.000
□	.499		
◇	.600		
△	.700		

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

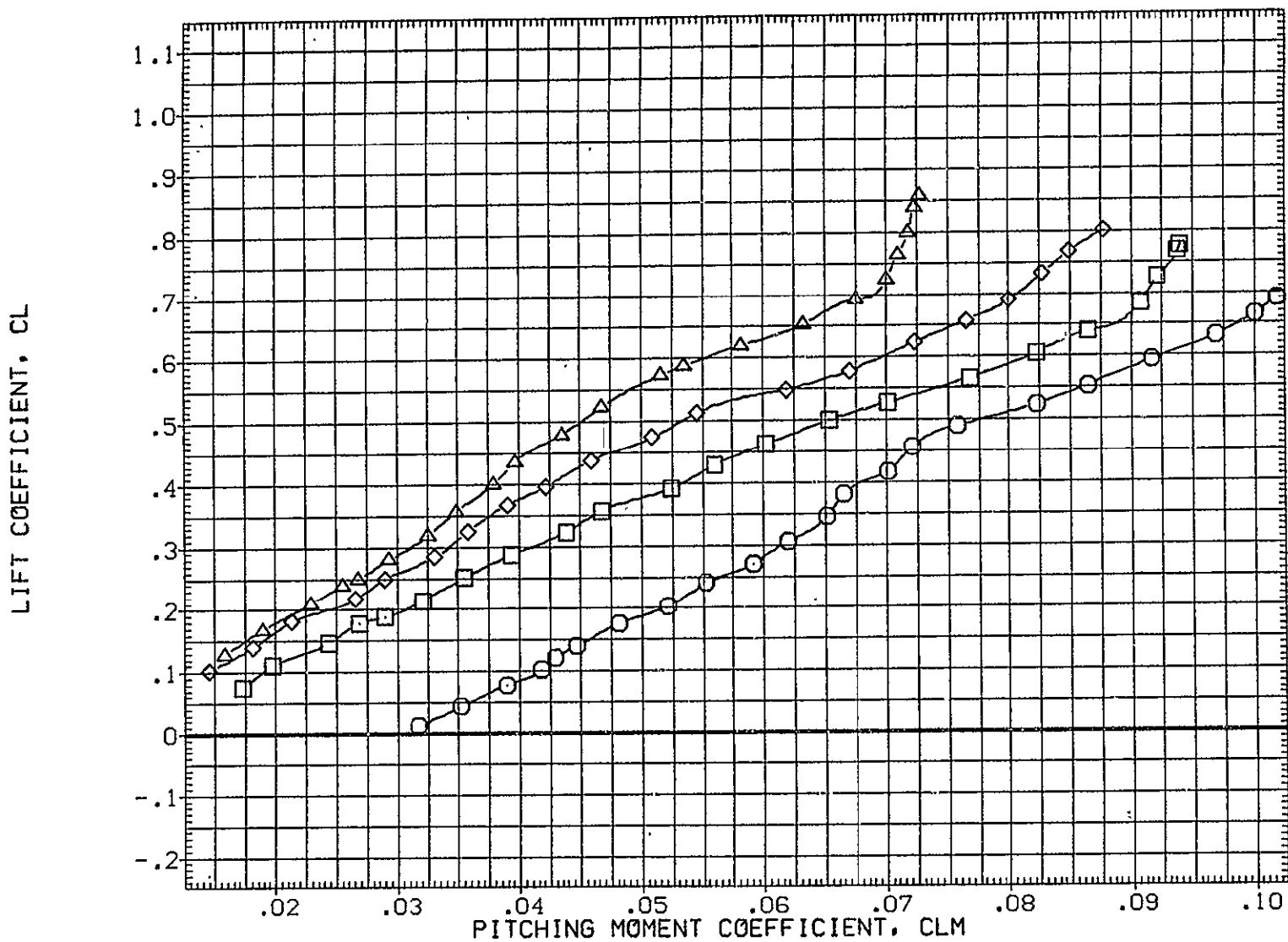


FIG. 98 ORBITER ALONE, TAIL CONE OFF

SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.300		.000
□	.499		
◇	.600		
△	.700		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

ORBITER ANGLE OF ATTACK, ALPHA, DEG.

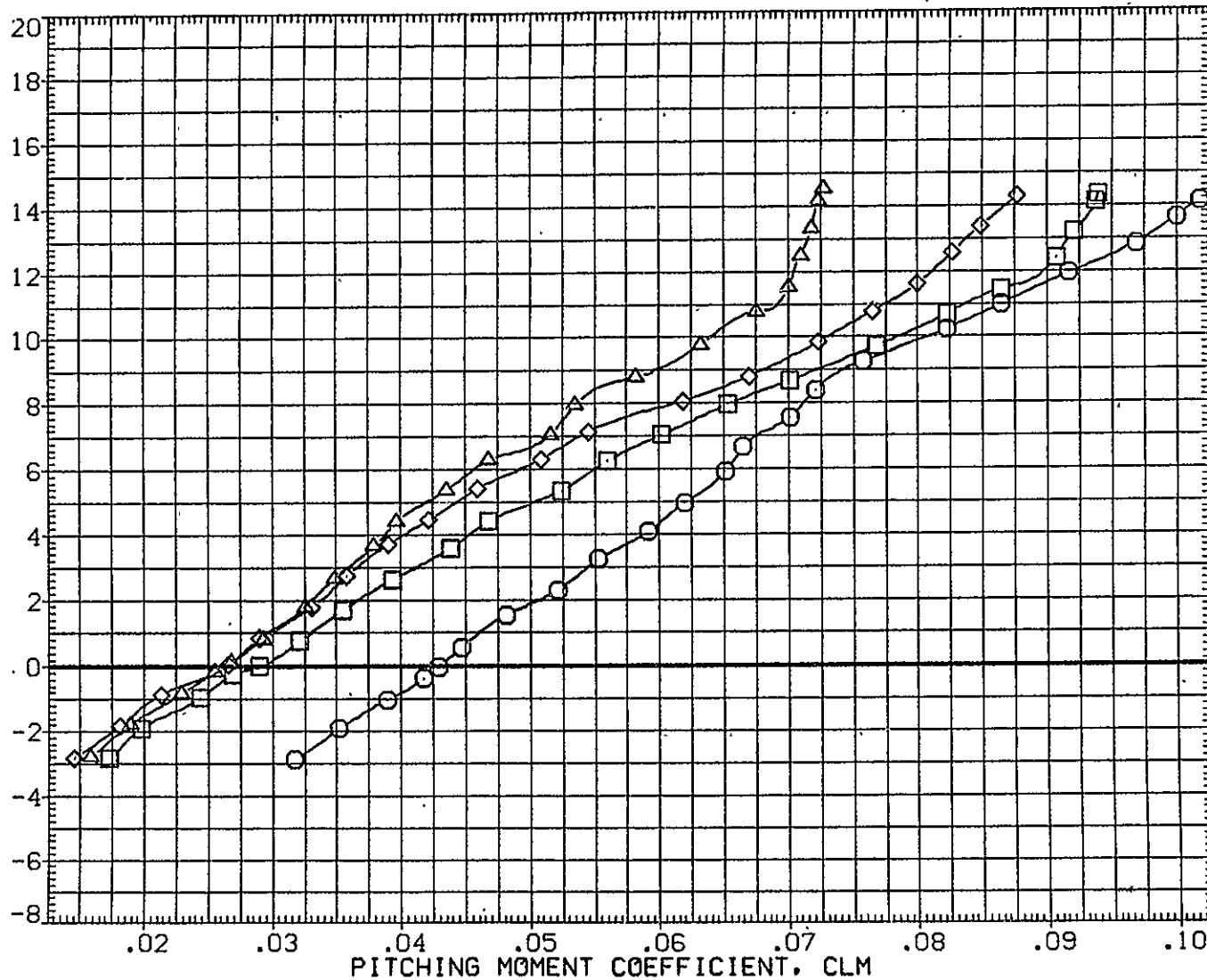


FIG. 98 ORBITER ALONE, TAIL CONE OFF

CA5 ORB N28 N24

(AGM129)

SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.500		.000
□	.600		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

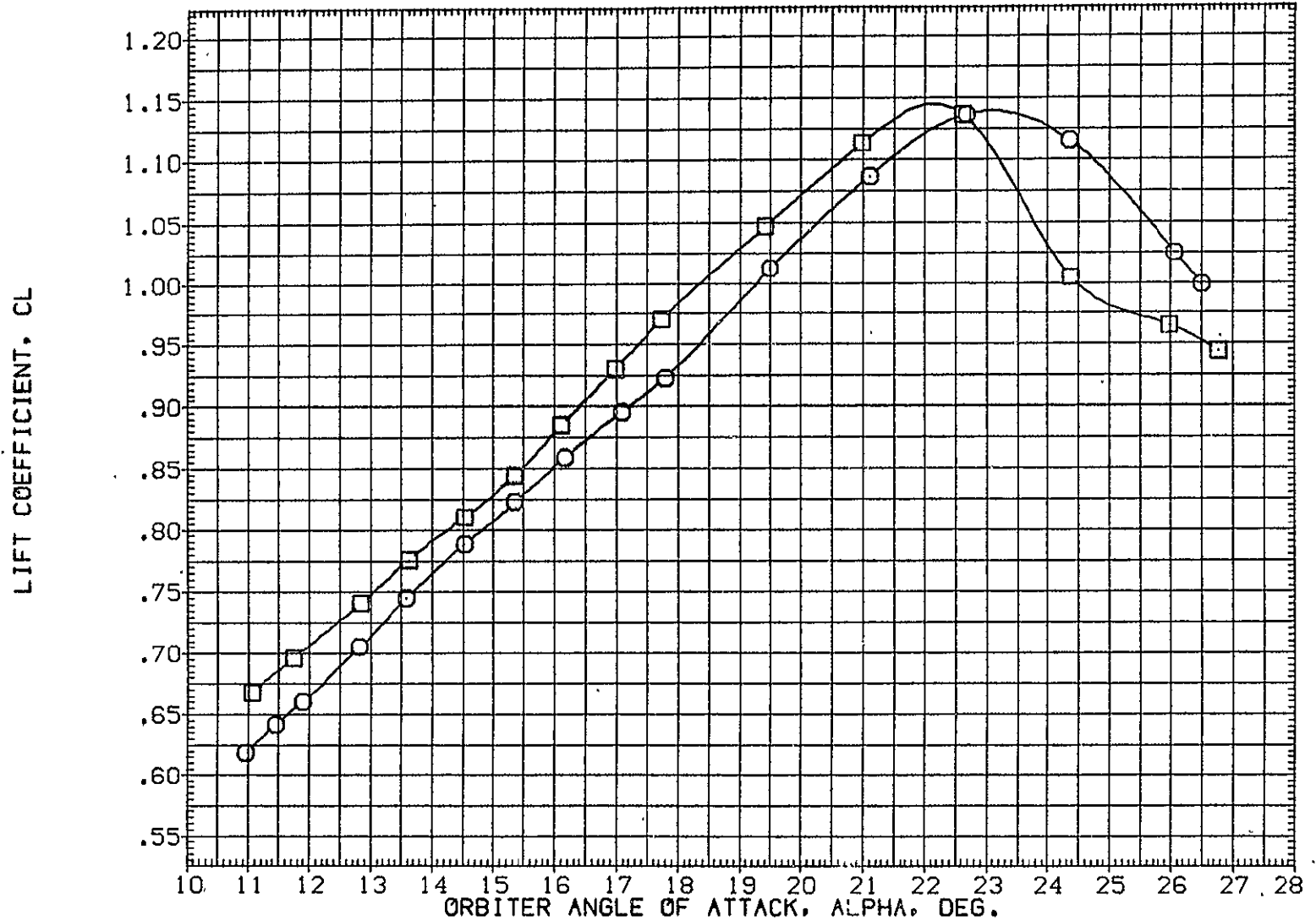


FIG. 98 ORBITER ALONE, TAIL CONE OFF

SYMBOL MACH BETA PARAMETRIC VALUES  
 ○ .500  
 □ .600

REFERENCE INFORMATION

SREF 2690.0000 SQ.FT.  
 LREF 474.8100 IN.  
 BREF 936.6800 IN.  
 XMRP 1109.0000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

LIFT COEFFICIENT, CL



FIG. 98 ORBITER ALONE, TAIL CONE OFF

CA5 ORB N28 N24

(AGM129)

SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.500		.000
□	.600		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

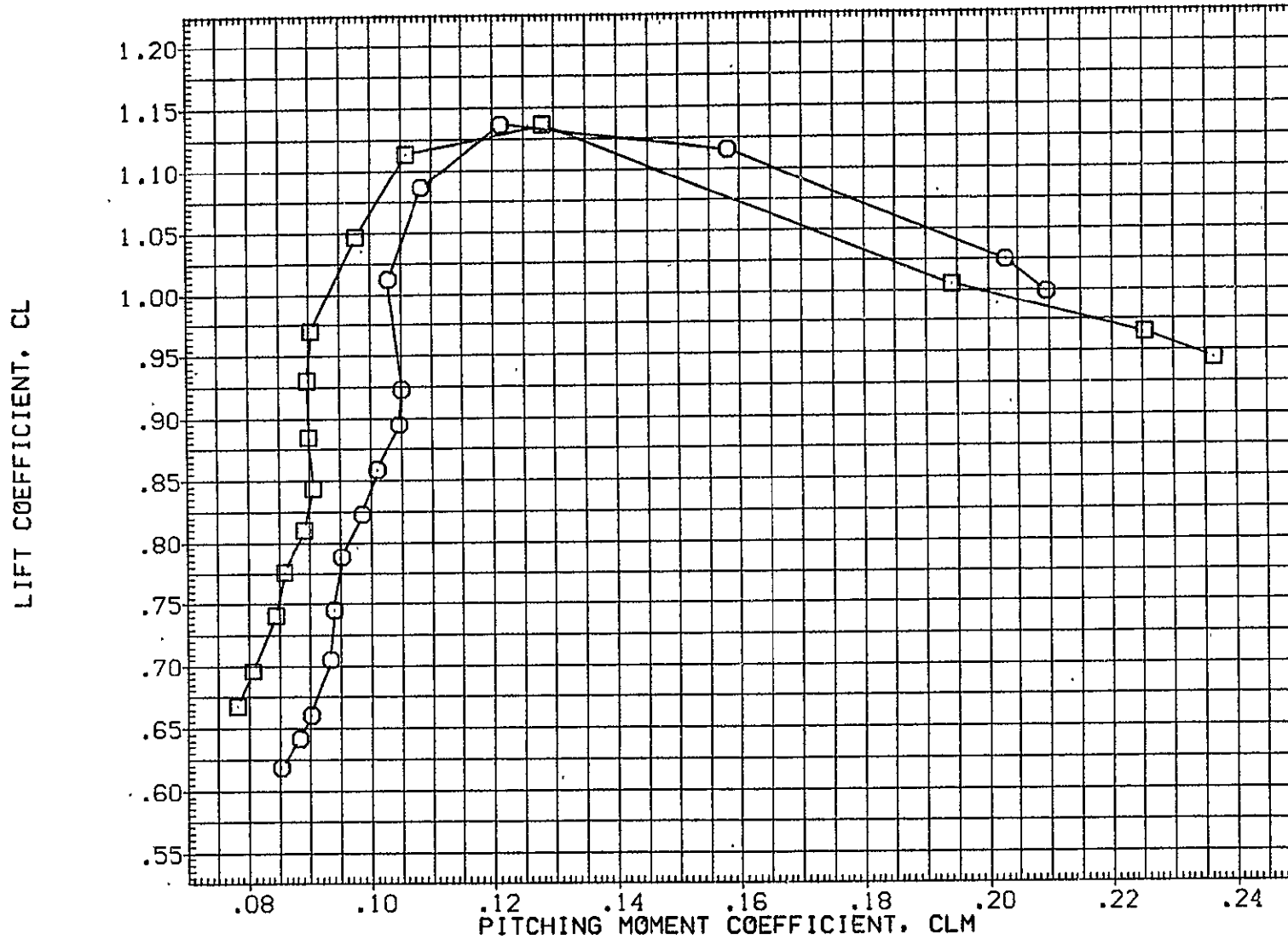


FIG. 98 ORBITER ALONE, TAIL CONE OFF

SYMBOL MACH BETA PARAMETRIC VALUES  
 ○ .500  
 □ .600

REFERENCE INFORMATION

SREF	2690.0000	50. FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

ORBITER ANGLE OF ATTACK, ALPHA, DEG.

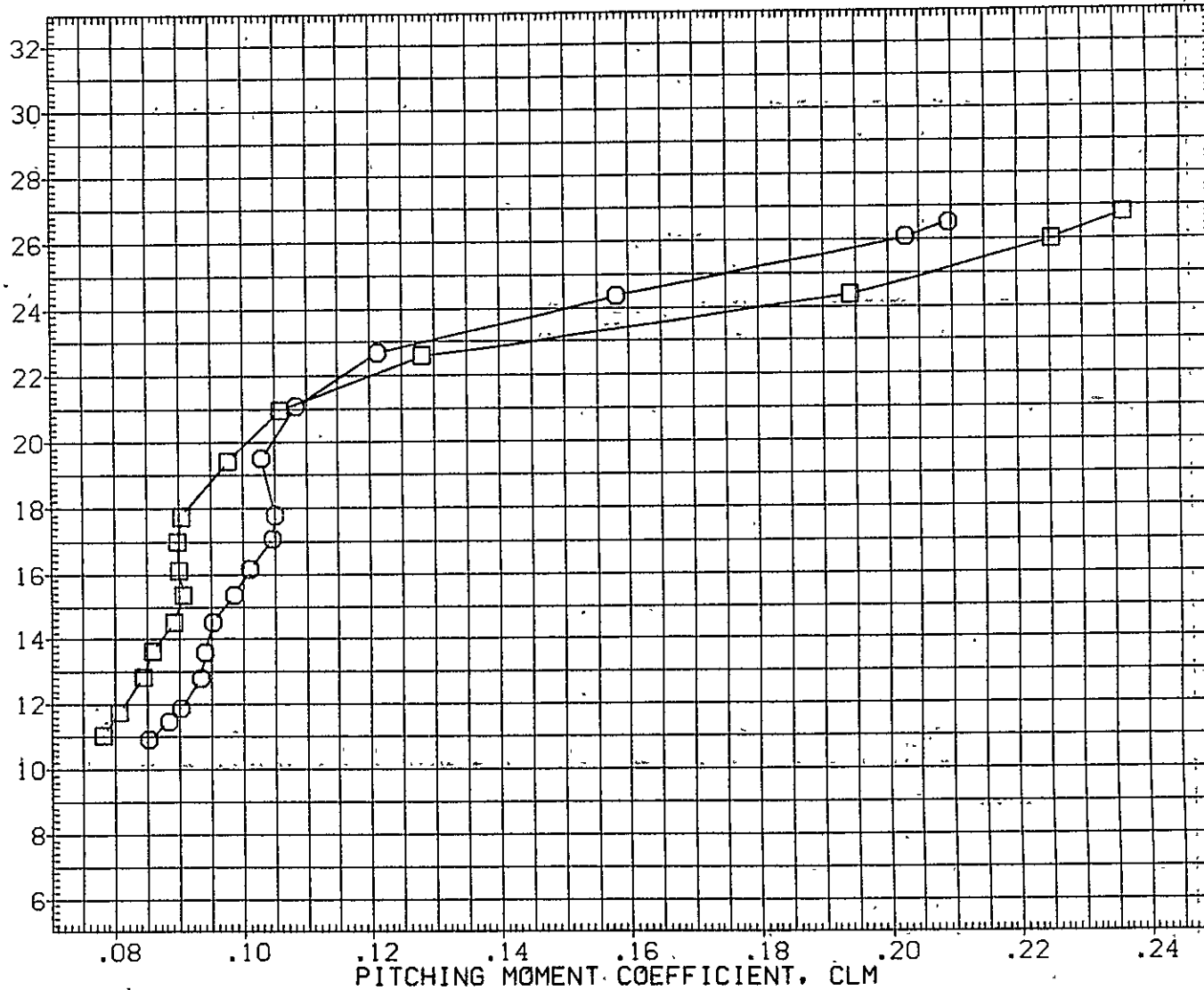


FIG. 98 ORBITER ALONE, TAIL CONE OFF

CA5 ORB TC5

(AGM132)

SYMBOL	MACH	BETA	PARAMETRIC VALUES.
○	.301		.000
□	.501		
◇	.601		
△	.699		

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

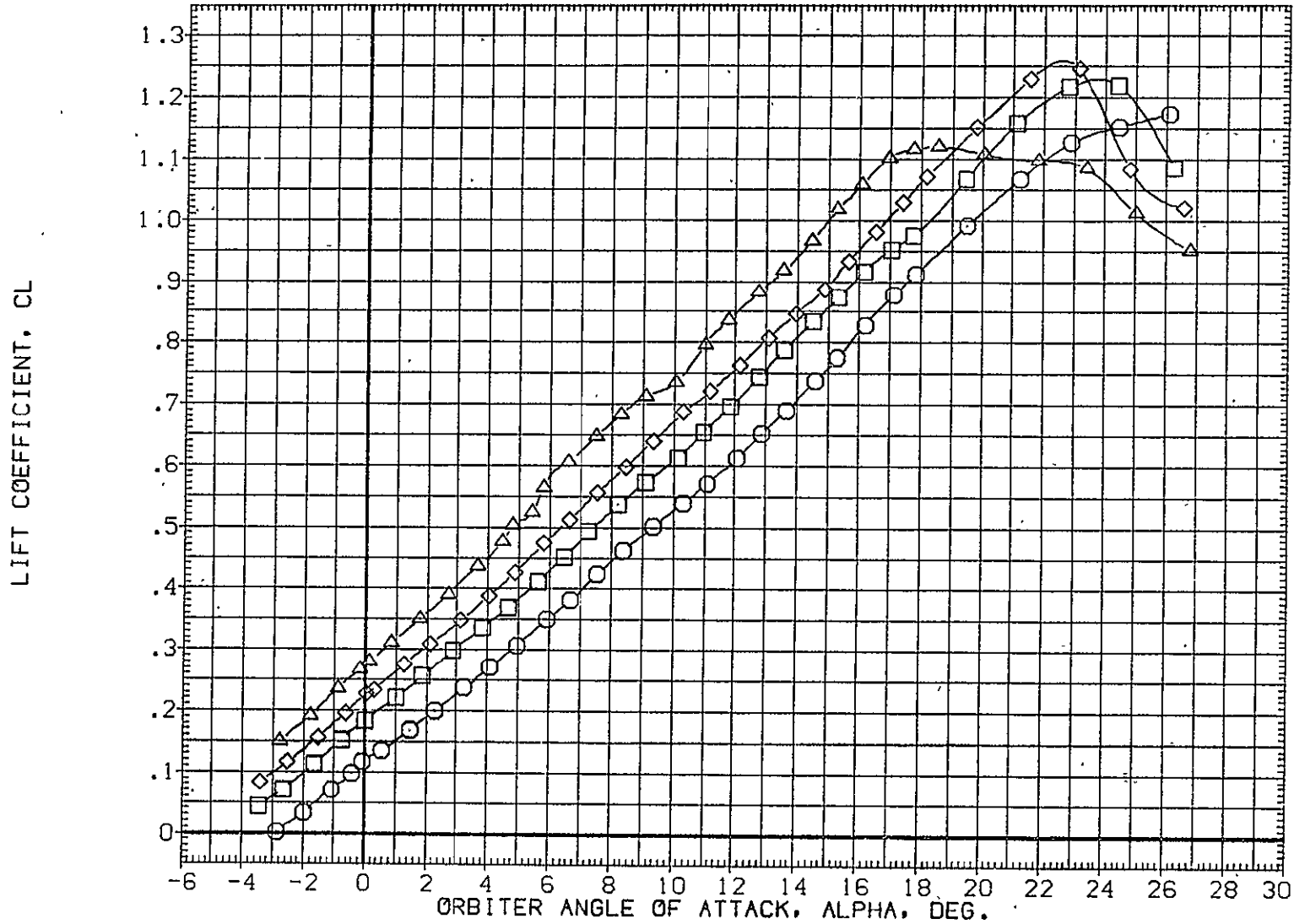


FIG. 99 ORBITER ALONE, TAIL CONE ON



SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.301		.000
□	.501		
◇	.601		
△	.699		

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

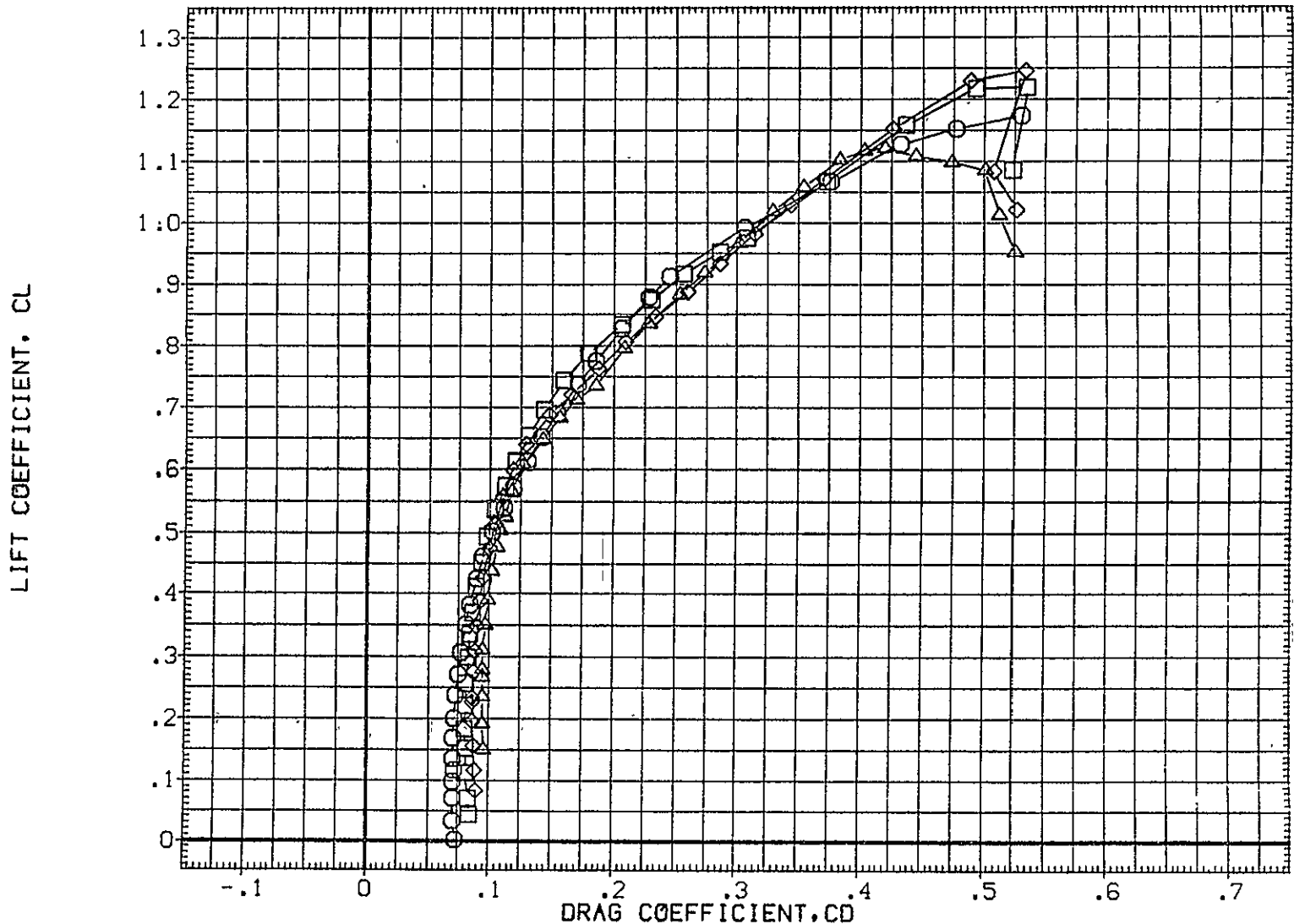


FIG. 99 ORBITER ALONE, TAIL CONE ON

CA5 ORB TC5

(AGM132)

SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.301		.000
□	.501		
◇	.601		
△	.699		

REFERENCE INFORMATION	
SREF	2690.0000 SQ.FT.
LREF	474.8100 IN.
BREF	936.6800 IN.
XMRP	1109.0000 IN. X0
YMRP	.0000 IN. Y0
ZMRP	375.0000 IN. Z0
SCALE	.0300

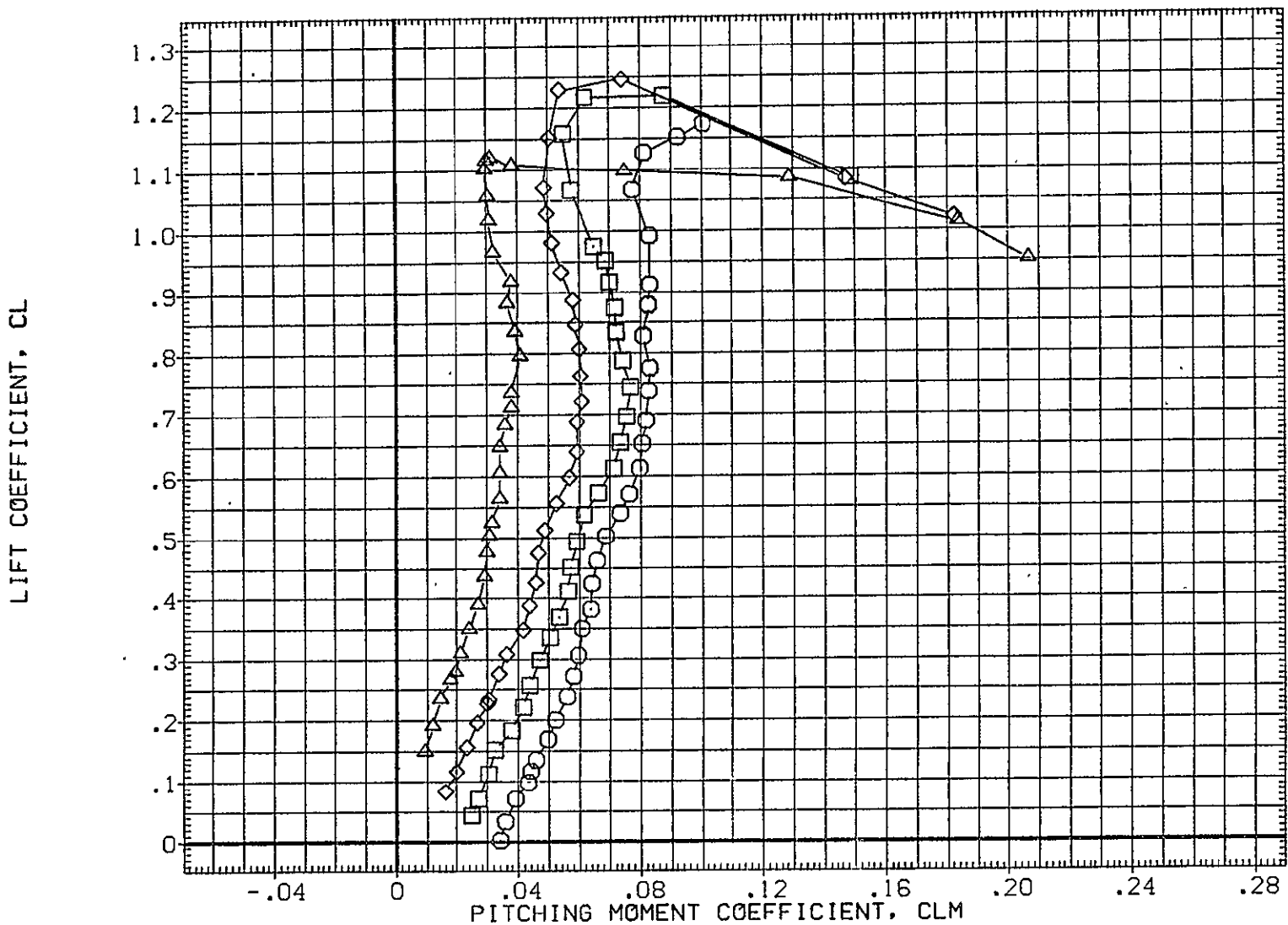


FIG. 99 ORBITER ALONE, TAIL CONE ON

SYMBOL	MACH	BETA	PARAMETRIC VALUES
○	.301		.000 --
□	.501		
◇	.601		
△	.699		

REFERENCE INFORMATION		
SREF	2690.0000	SQ. FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

ORBITER ANGLE OF ATTACK, ALPHA, DEG.

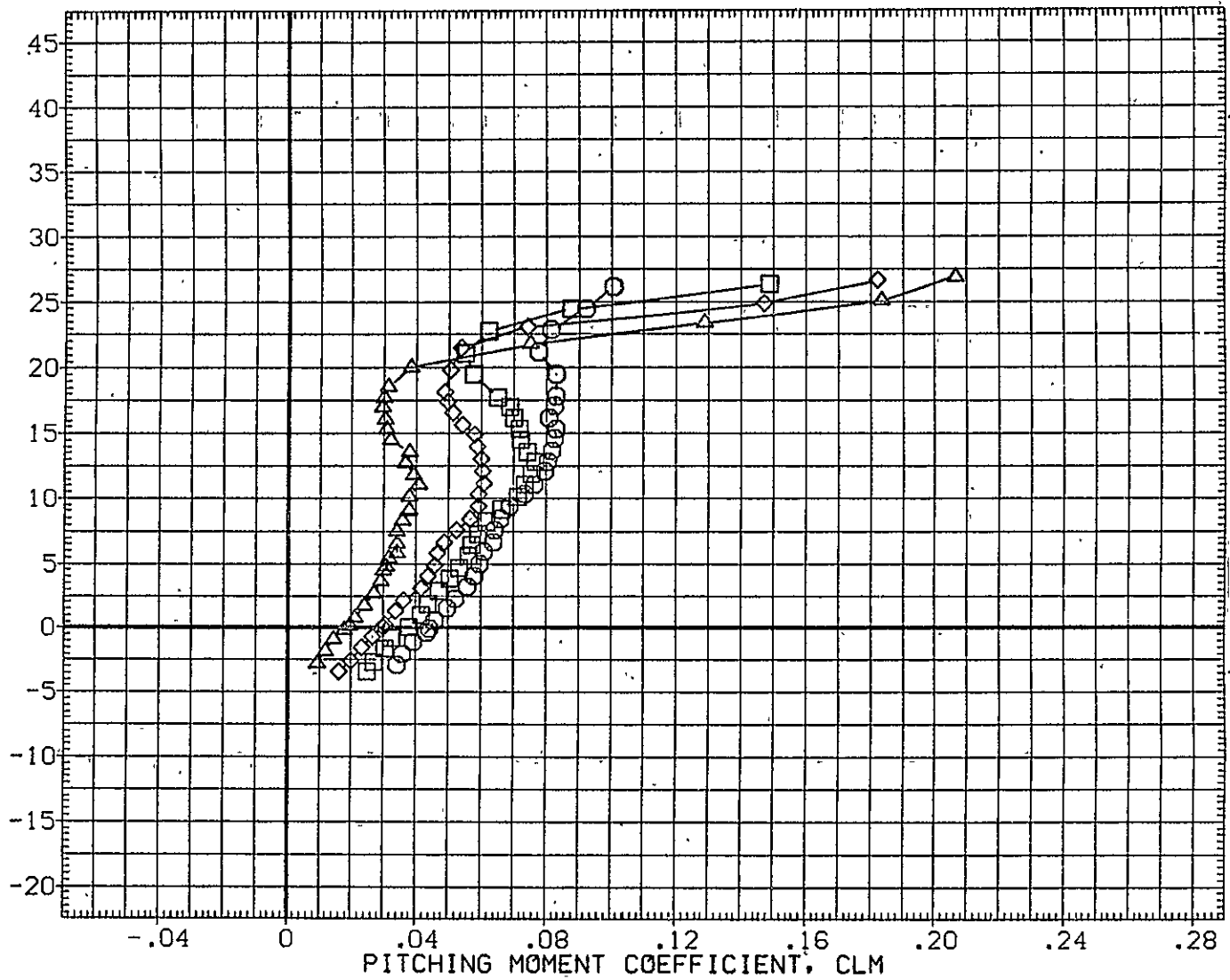


FIG. 99 ORBITER ALONE, TAIL CONE ON

BTWT-1431CA5 K1 FO H15.1A V9.1

(RGM041)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	ALPHA I	PARAMETRIC VALUES			
.150		6.000	STAB	-2.000	
.300		.000	RUD-U	RUD-L	.000
.500		.000	ELV-1B	ELV-0B	3.000
.600	S1-2	.000	S3-4		.000
.700	S5-6	.000			

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	137.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

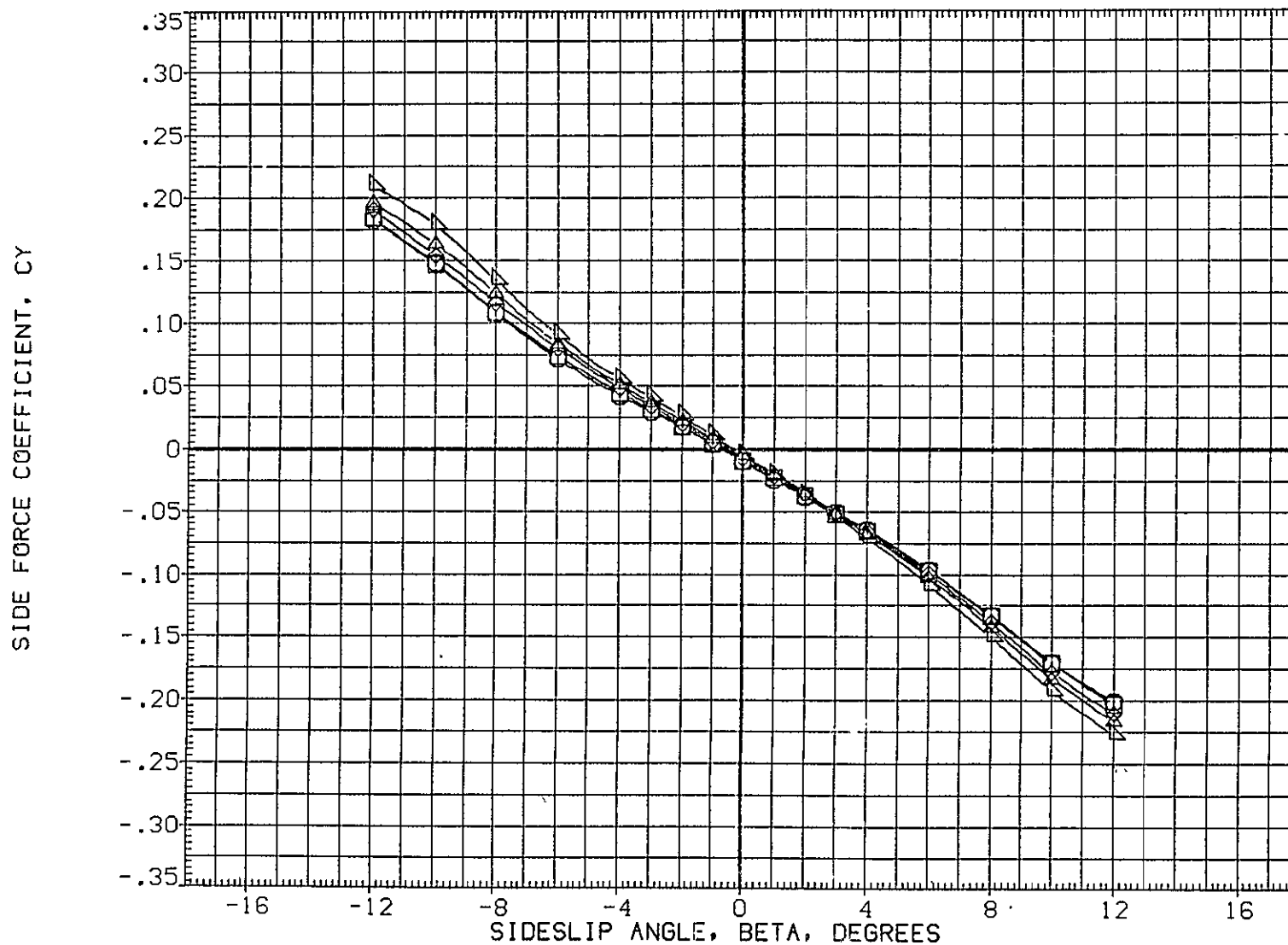


FIG.100 747 ALONE, BASIC AIRPLANE, FLAPS UP, TAIL ON, ALPHA I=6 DEG

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.150	ALPHA1	6.000	STAB	-2.000
□	.300	RUD-U	.000	RUD-L	.000
◇	.500	ELV-1B	.000	ELV-0B	3.000
△	.600	S1-2	.000	S3-4	.000
▽	.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

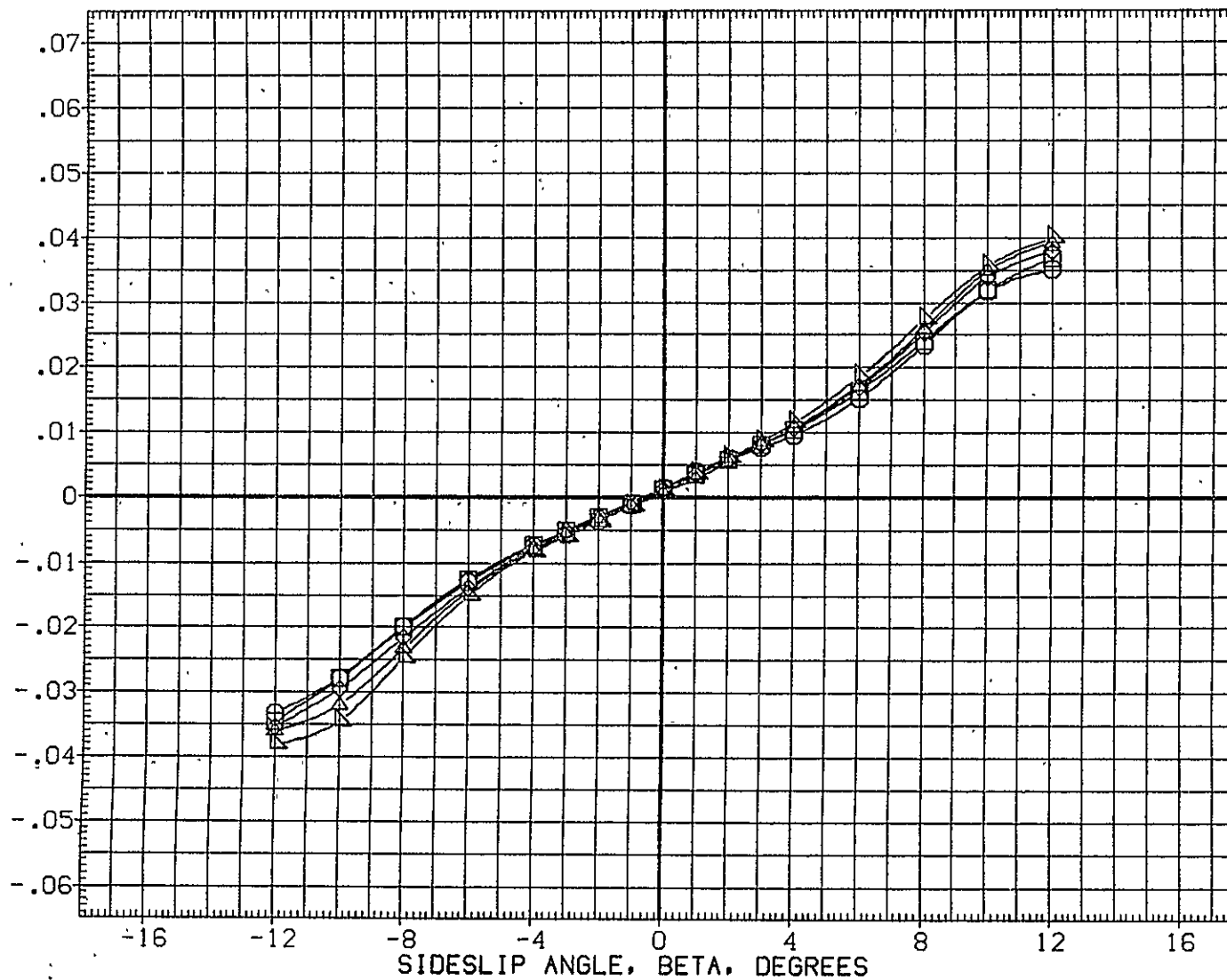


FIG.100 747 ALONE, BASIC AIRPLANE, FLAPS UP, TAIL ON, ALPHA1=6 DEG

BTWT-1431CA5 K1 F0 H15.1A V9.1

(RGM041)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		ALPHA1	STAB	RUD-L	ELV-08	SREF	SQ.FT.
○	.150	6.000	-2.000	.000	.000	5500.0000	IN.
◇	.300	.000	.000	.000	.000	327.8000	IN.
□	.500	.000	3.000	.000	.000	2348.0000	IN.
△	.600	.000	.000	.000	.000	1339.9100	IN. XC
▽	.700	.000	.000	.000	.000	.0000	IN. YC
						ZMRP	IN. ZC
						SCALE	.0300

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

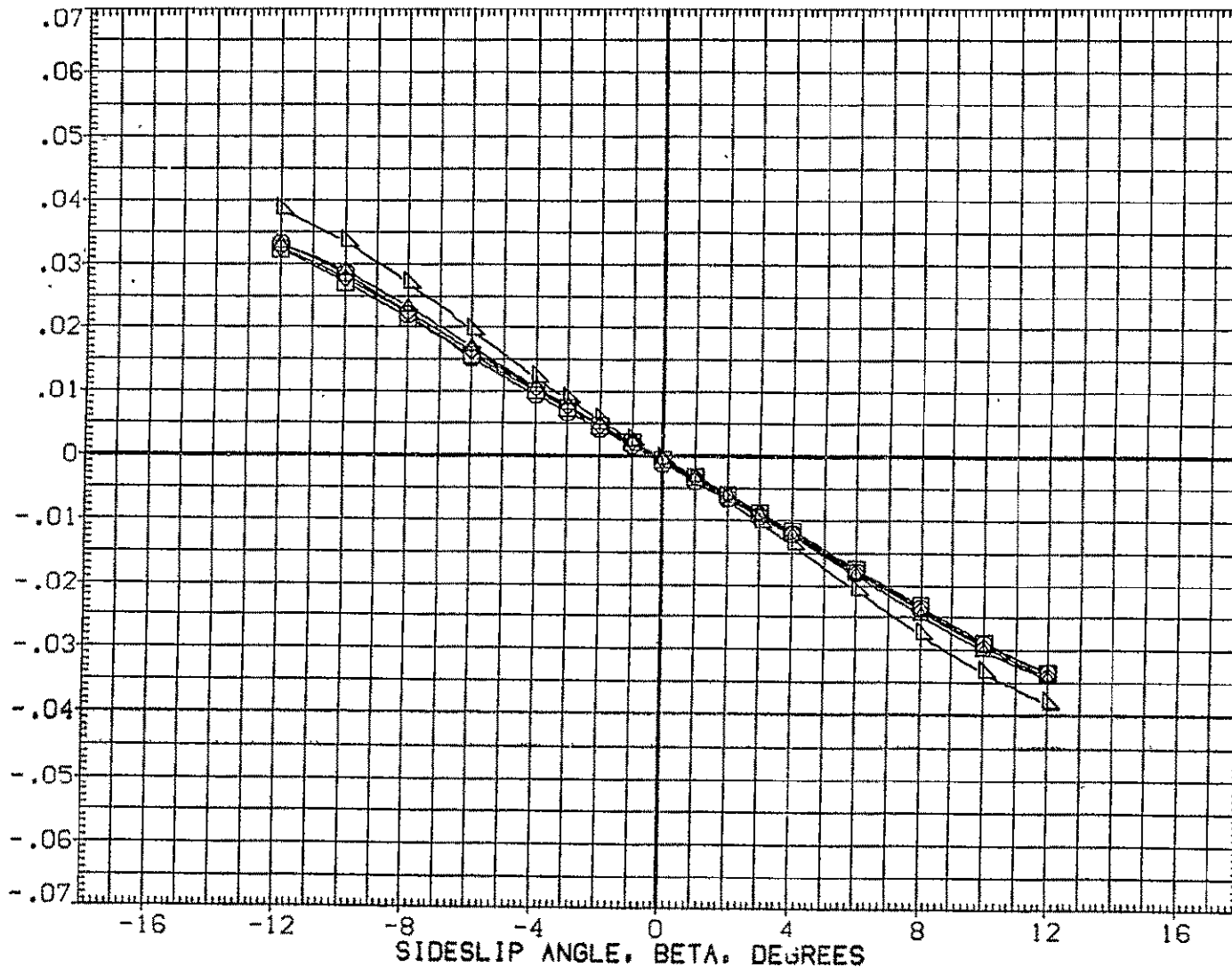


FIG.100 747 ALONE, BASIC AIRPLANE, FLAPS UP, TAIL ON, ALPHA1=6 DEG

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.150	ALPHA1	6.000	STAB	-2.000
◇	.300	RUD-U	.000	RUD-L	.000
□	.500	ELV-1B	.000	ELV-0B	3.000
△	.600	S1-2	.000	S3-4	.000
▽	.700	S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

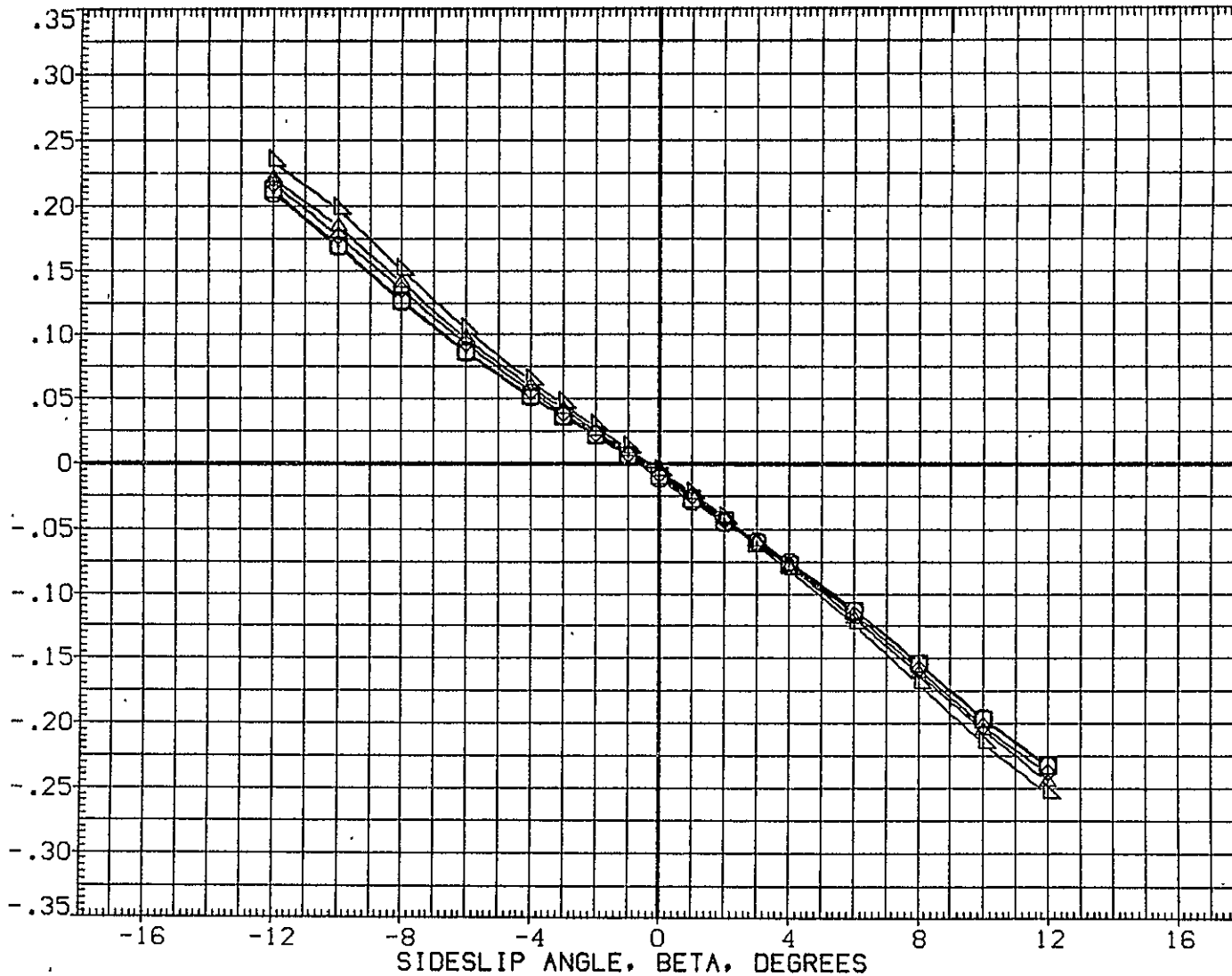


FIG.101 747 ALONE+ TIP FINS, FLAPS UP, TAIL ON, ALPHA1= 6 DEG

BTWT-1431CA5 K1 F0 H15.6 V9.1

(RGM043)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA I	6.000	STAB	-2.000	SREF	5500.0000	SQ. FT.
◇	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

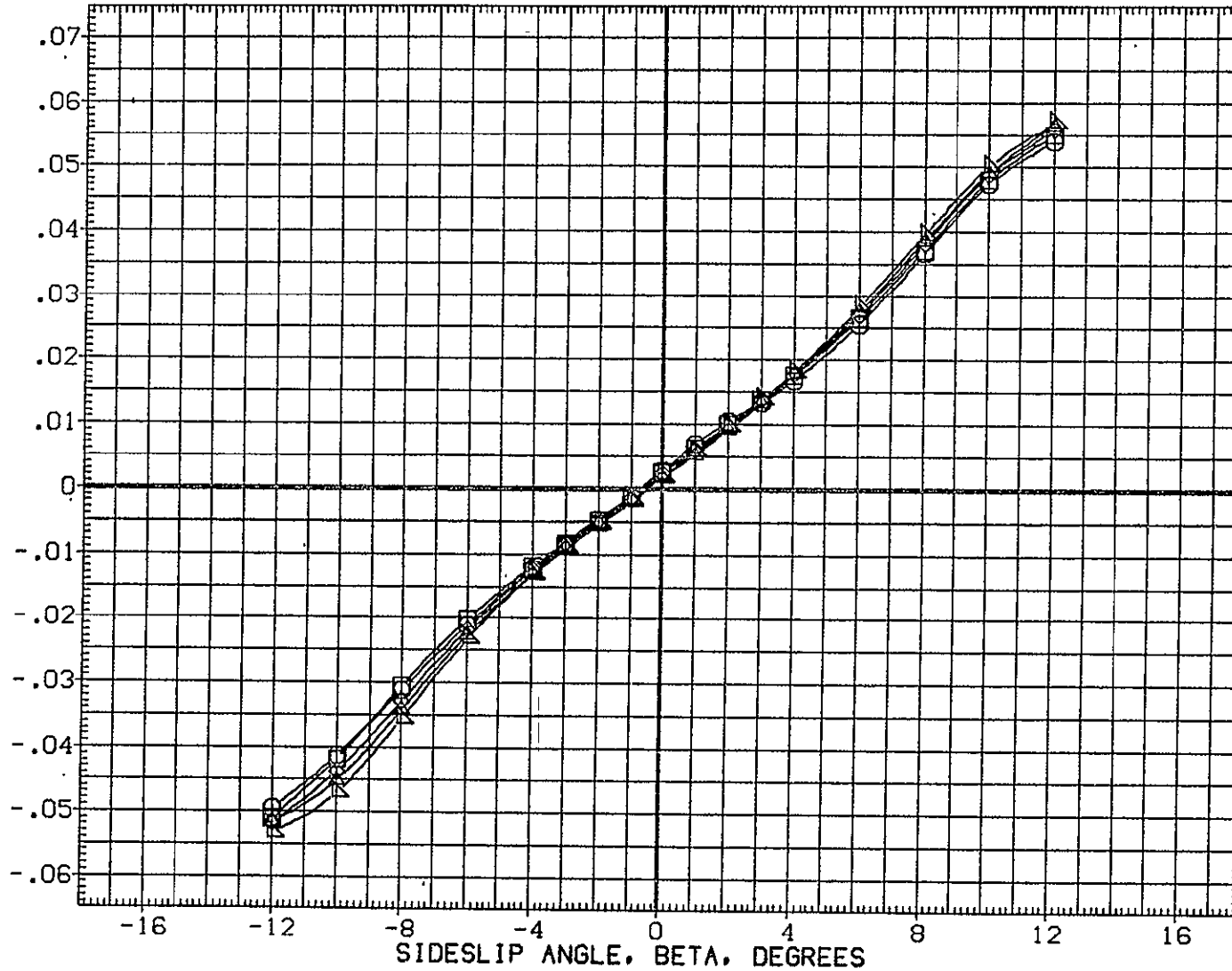


FIG.101 747 ALONE+ TIP FINS, FLAPS UP, TAIL ON, ALPHA I= 6 DEG



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	6.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
○	.150	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.300	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.500	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.600	S5-6	.000			YMRP	.0000	IN. YC
	.700					ZMRP	190.7500	IN. ZC
						SCALE	.0300	

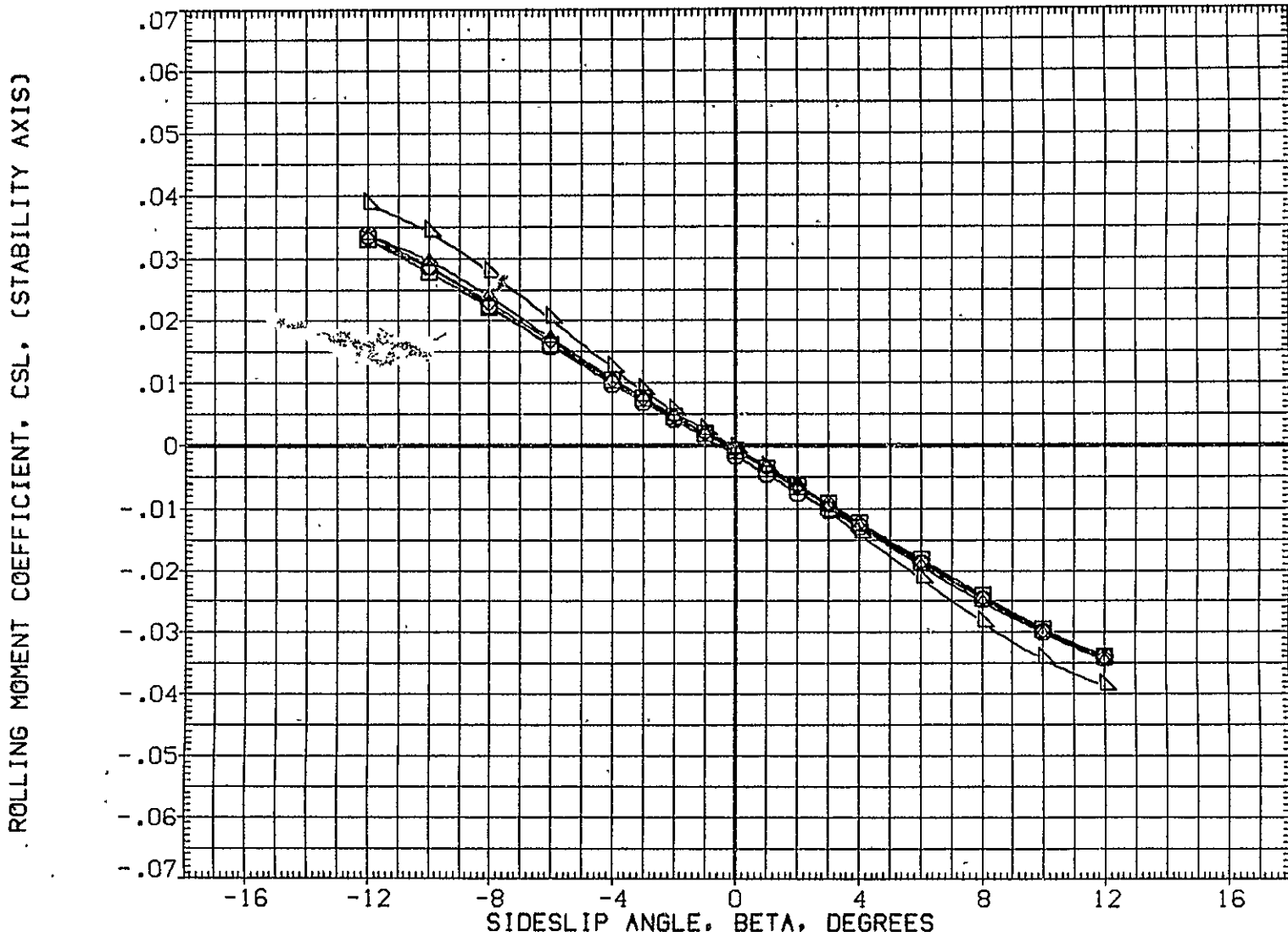


FIG.101 747 ALONE+ TIP FINS, FLAPS UP, TAIL ON, ALPHA1= 6 DEG

BTWT-1431CA5 K1 F0 H15.6 V9.1 AT38 AT39

(RGM050)

SYMBOL

○  
□

MACH

.500

ALPHA1

RUD-U

ELV-1B

S1-2

S5-6

PARAMETRIC VALUES

6.000

15.000

.000

.000

20.000

STAB

RUD-L

ELV-0B

S3-4

1.000

15.000

3.000

45.000

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

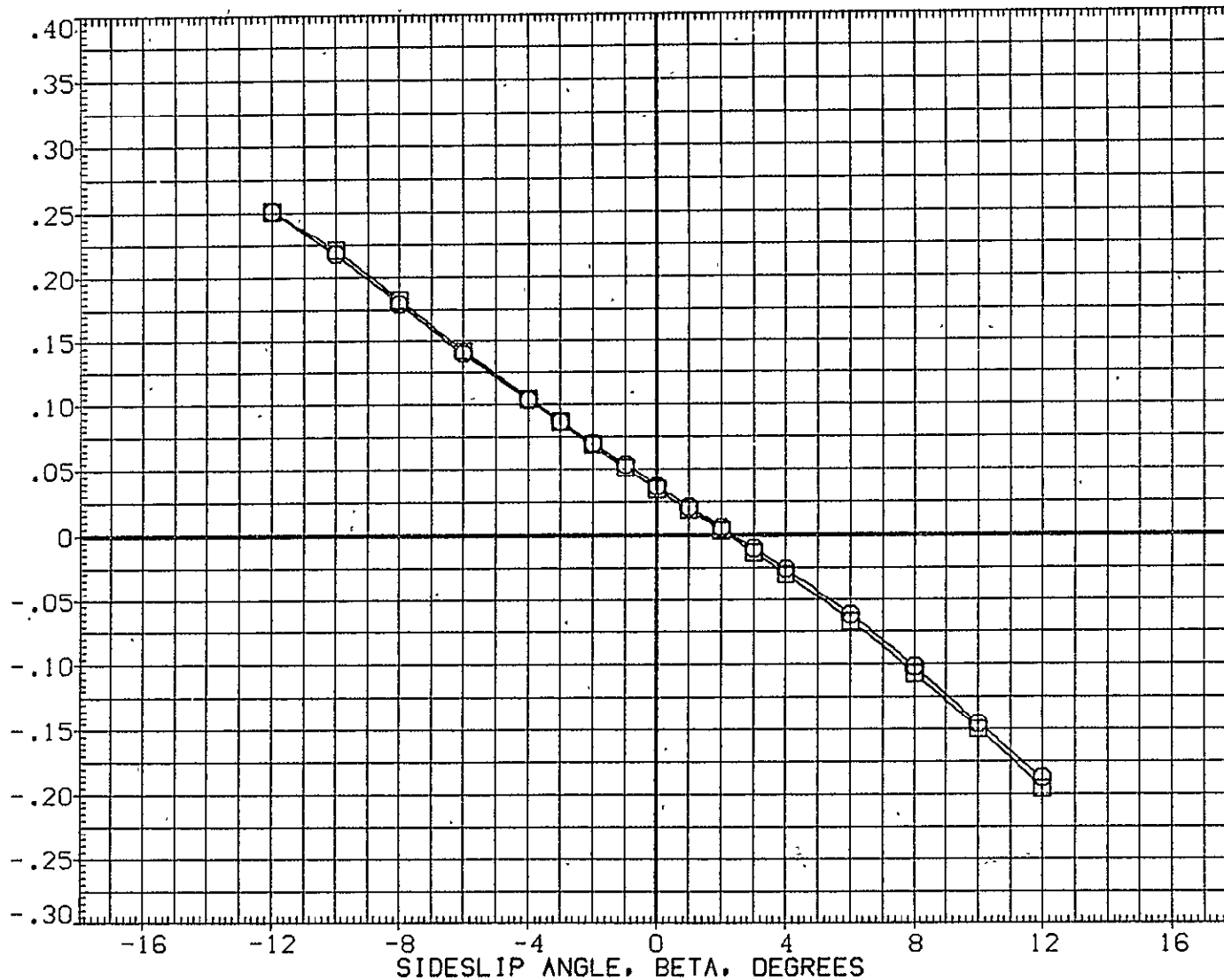


FIG.102 747 ALONE+ TIP FINS+STD SPD BRK+ORB SUPPORTS, FLAPS UP, RUDDER=15/15

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	RUD-U	15.000	RUD-L	15.000
		ELV-1B	7.000	ELV-0B	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

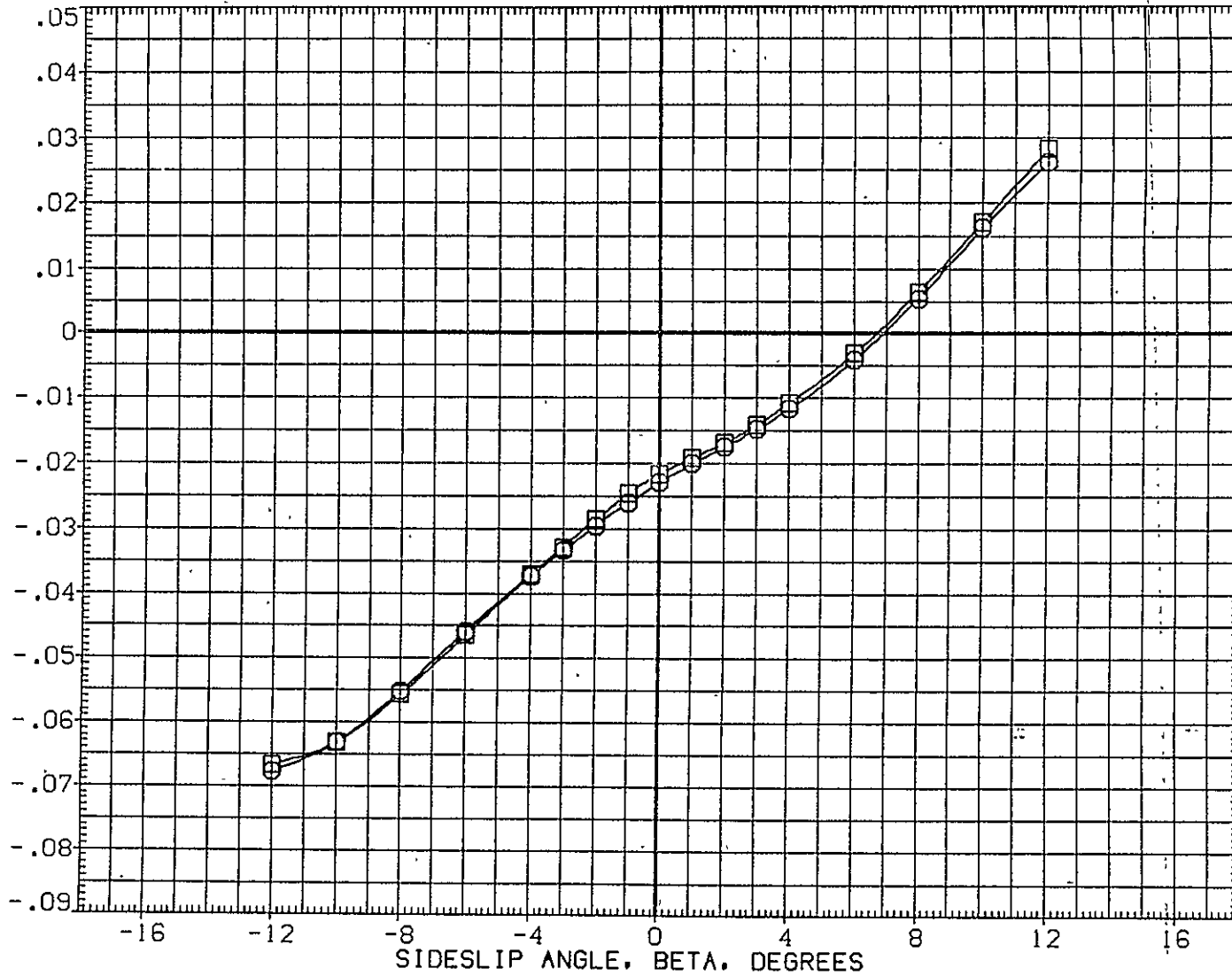


FIG.102 747 ALONE+ TIP FINS+STD SPD BRK+ORB SUPPORTS, FLAPS UP, RUDDER=15/15

BTWT-1431CA5 K1 FO H15.6 V9.1 AT38 AT39

(RGM050)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
	.600	RUD-U	15.000	RUD-L	15.000
		ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

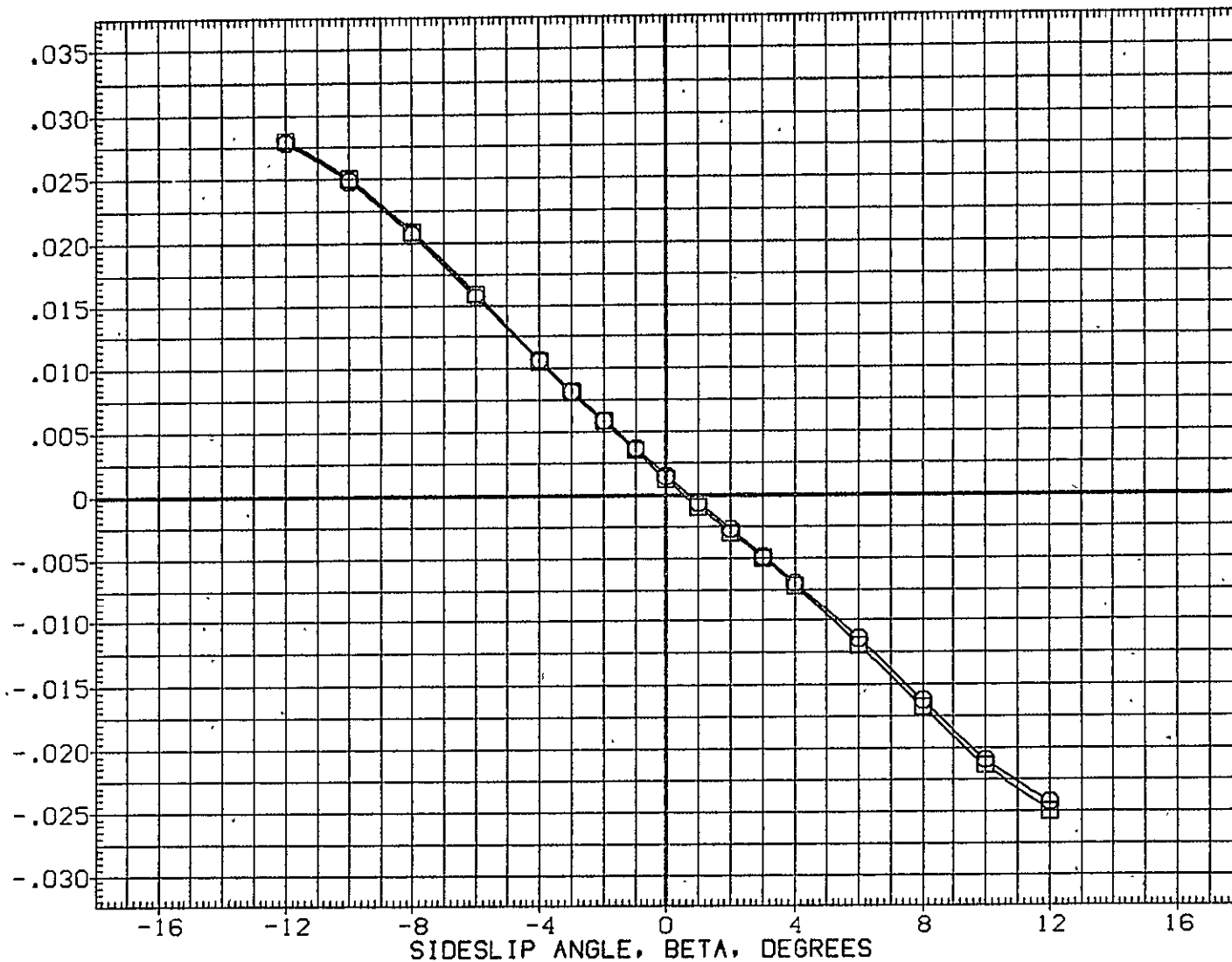


FIG.102 747 ALONE+ TIP FINS+STD SPD BRK+ORB SUPPORTS, FLAPS UP, RUDDER=15/15

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.699	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

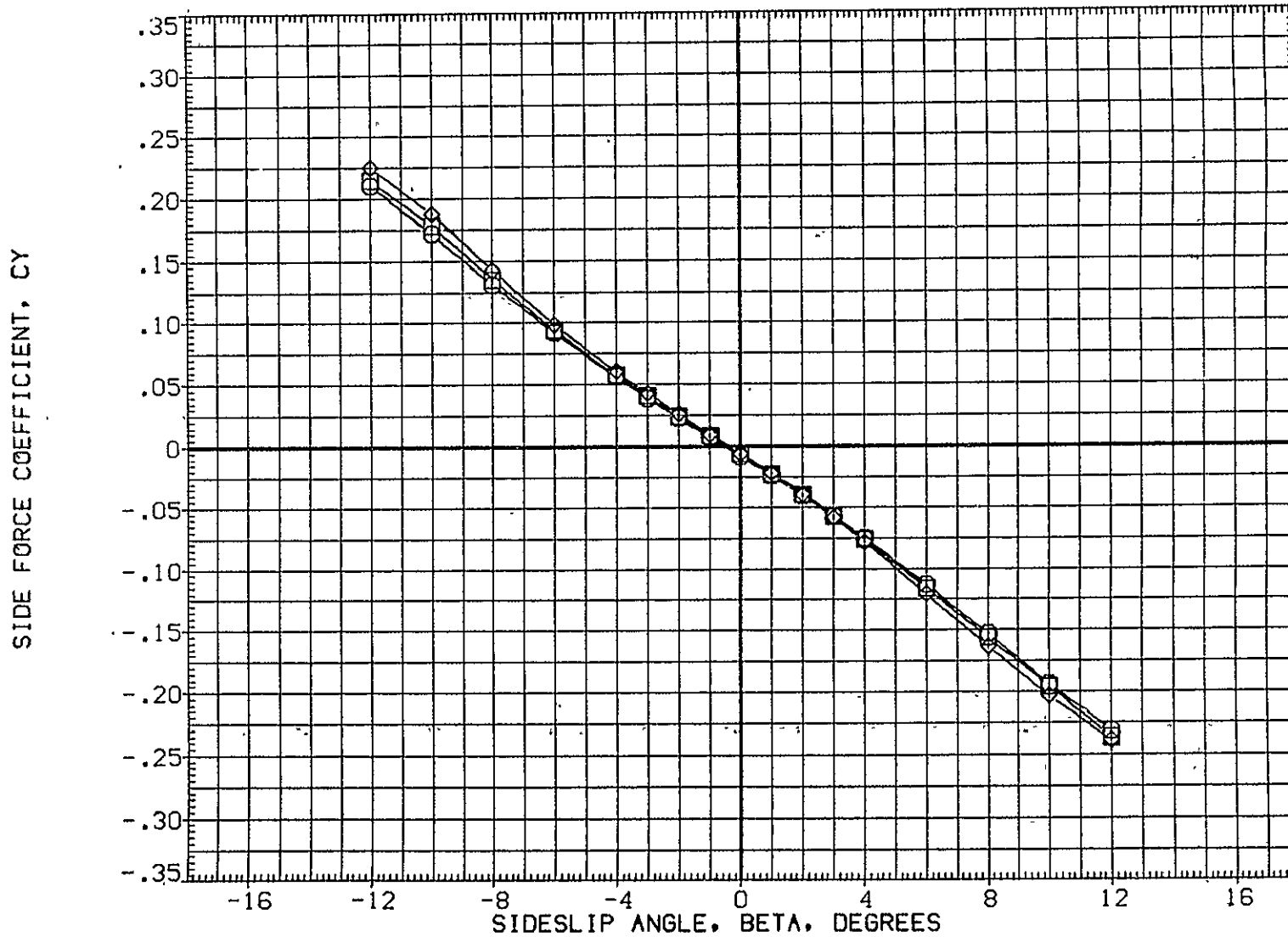


FIG.103 747 ALONE+ TIP FINS+STD SPD BRK+ORB SUPPORTS, FLAPS UP, ALPHA1= 6 DEG



BTWT-1431CA5 K1 FO H15.6 V9.1 AT38 AT39

(RGM051)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.699	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	45.000
	S5-6	20.000		

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

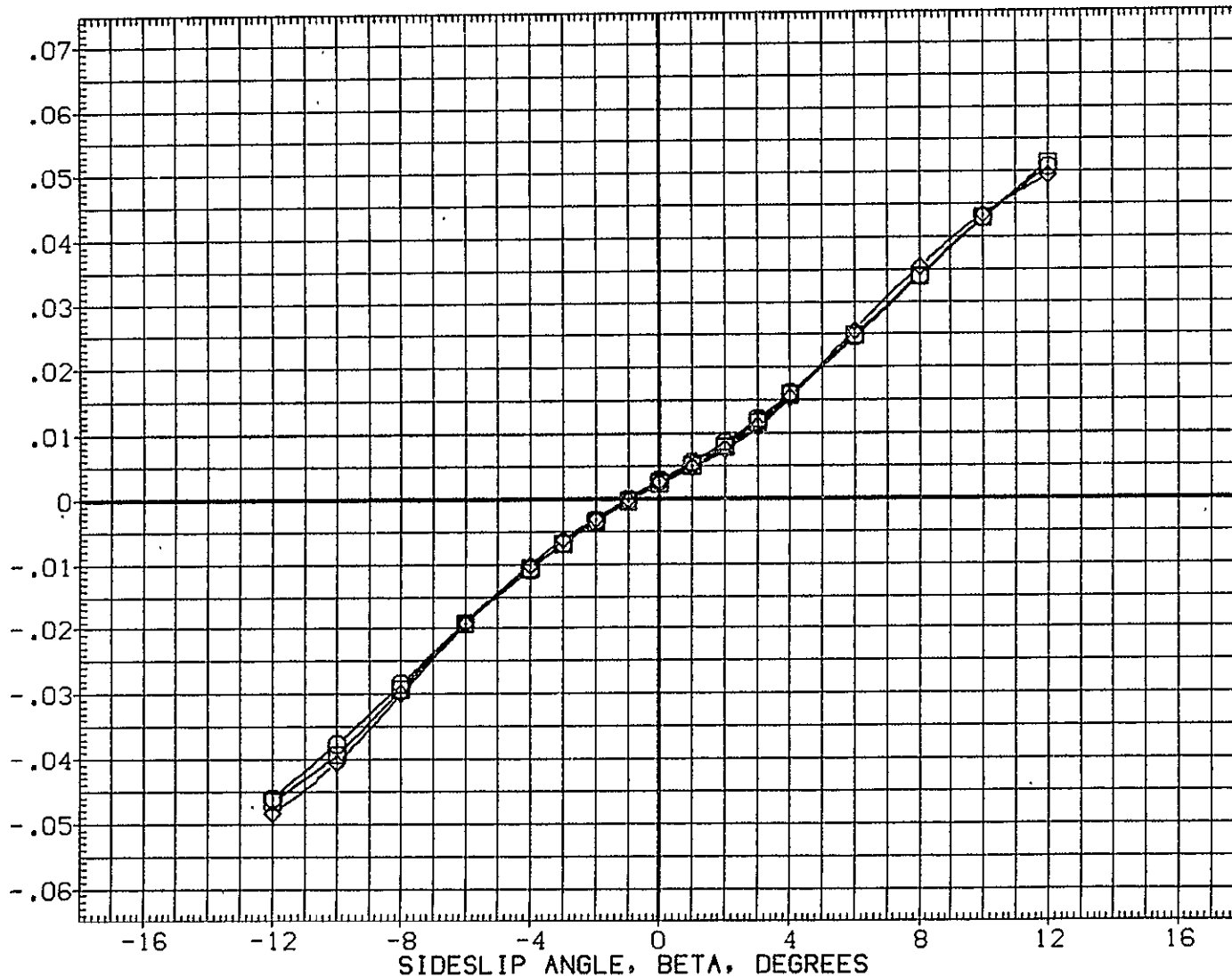


FIG.103 747 ALONE+ TIP FINS+STD SPD BRK+ORB SUPPORTS, FLAPS UP, ALPHA1= 6 DEG

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.699	ELV-IB	.000	ELV-OB	3.000
		S1-2	.000	S3-4	45.000
		S5-6	20.000		

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

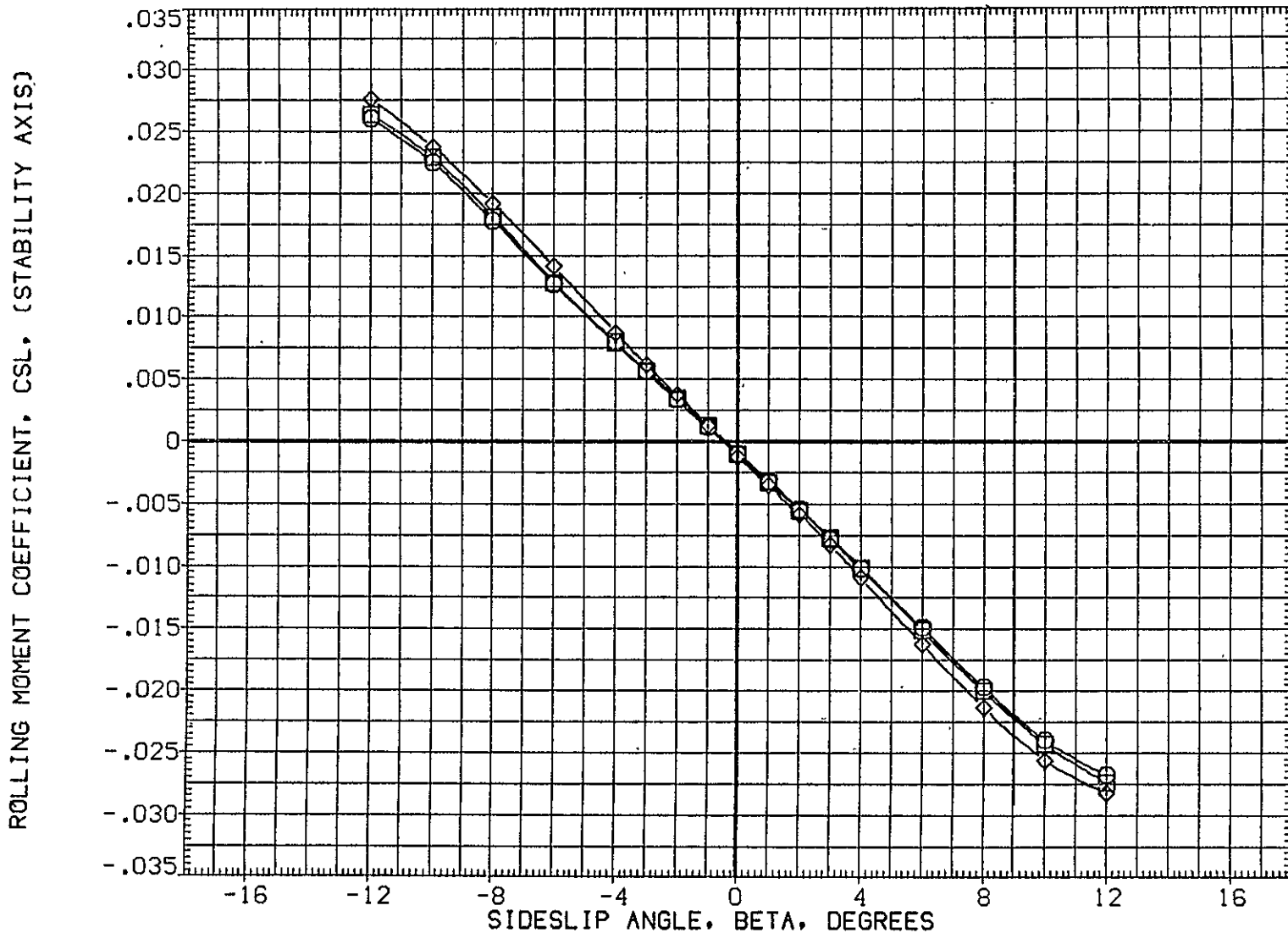


FIG.103 747 ALONE+ TIP FINS+STD SPD BRK+ORB SUPPORTS, FLAPS UP, ALPHA= 6 DEG

BTWT-1431CA5 K1 FO H15.1A

(RGM055)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	ALPHA1	6.000	STAB	-1.900
□	.300	ELV-1B	.000	ELV-0B	3.000
◇	.500	S1-2	.000	S3-4	.000
△	.600	S5-6	.000		
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

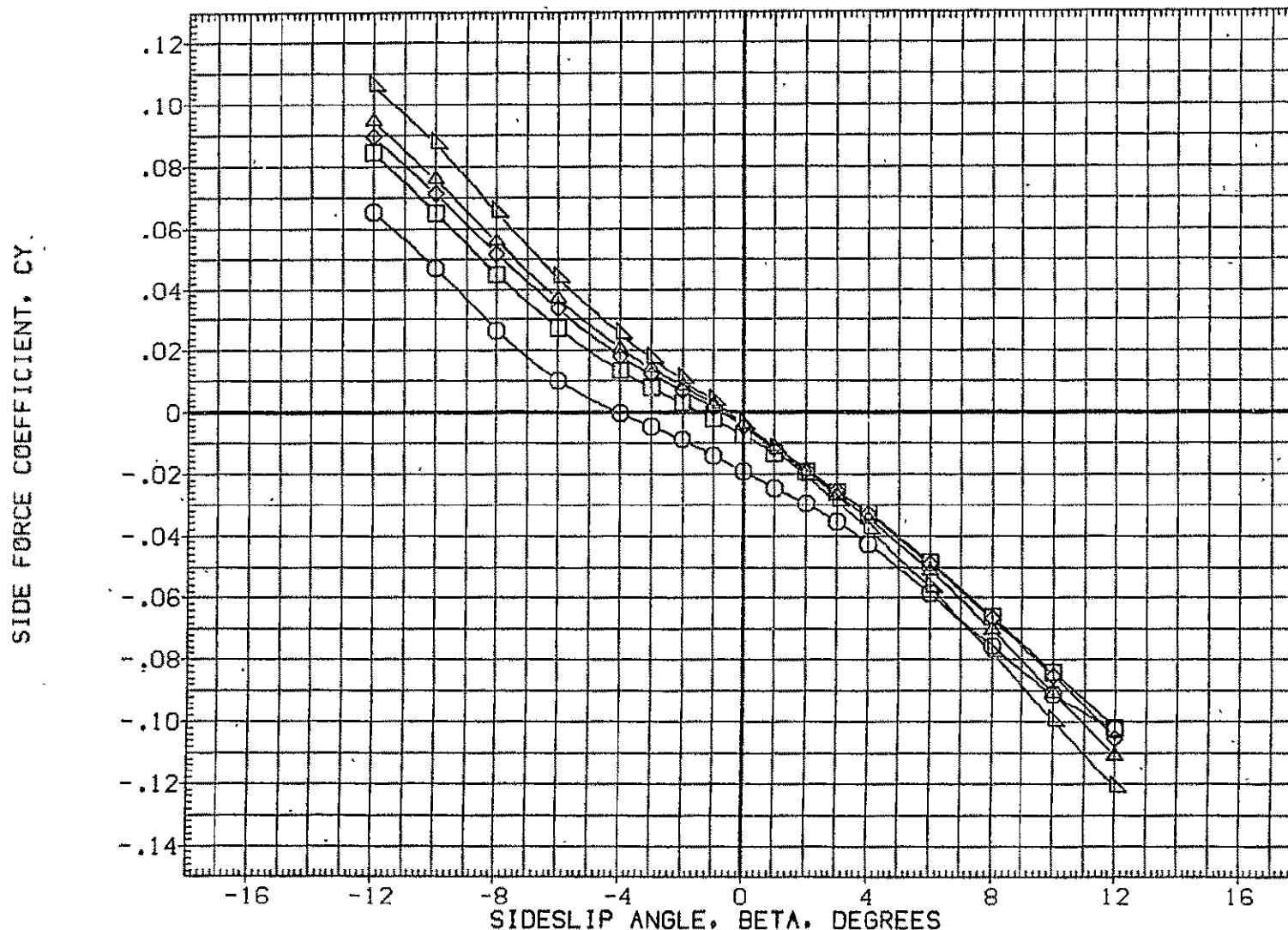


FIG.104 747 ALONE, VERTICAL TAIL OFF, FLAPS 20, ALPHA1= 6 DEG (S=-1.9)



SYMBOL	MACH	PARAMETRIC VALUES
○	.150	ALPHA1 6.000 STAB -1.900
□	.300	ELV-1B .000 ELV-0B 3.000
◇	.500	S1-2 .000 S3-4 .000
△	.600	S5-6 .000
▽	.700	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

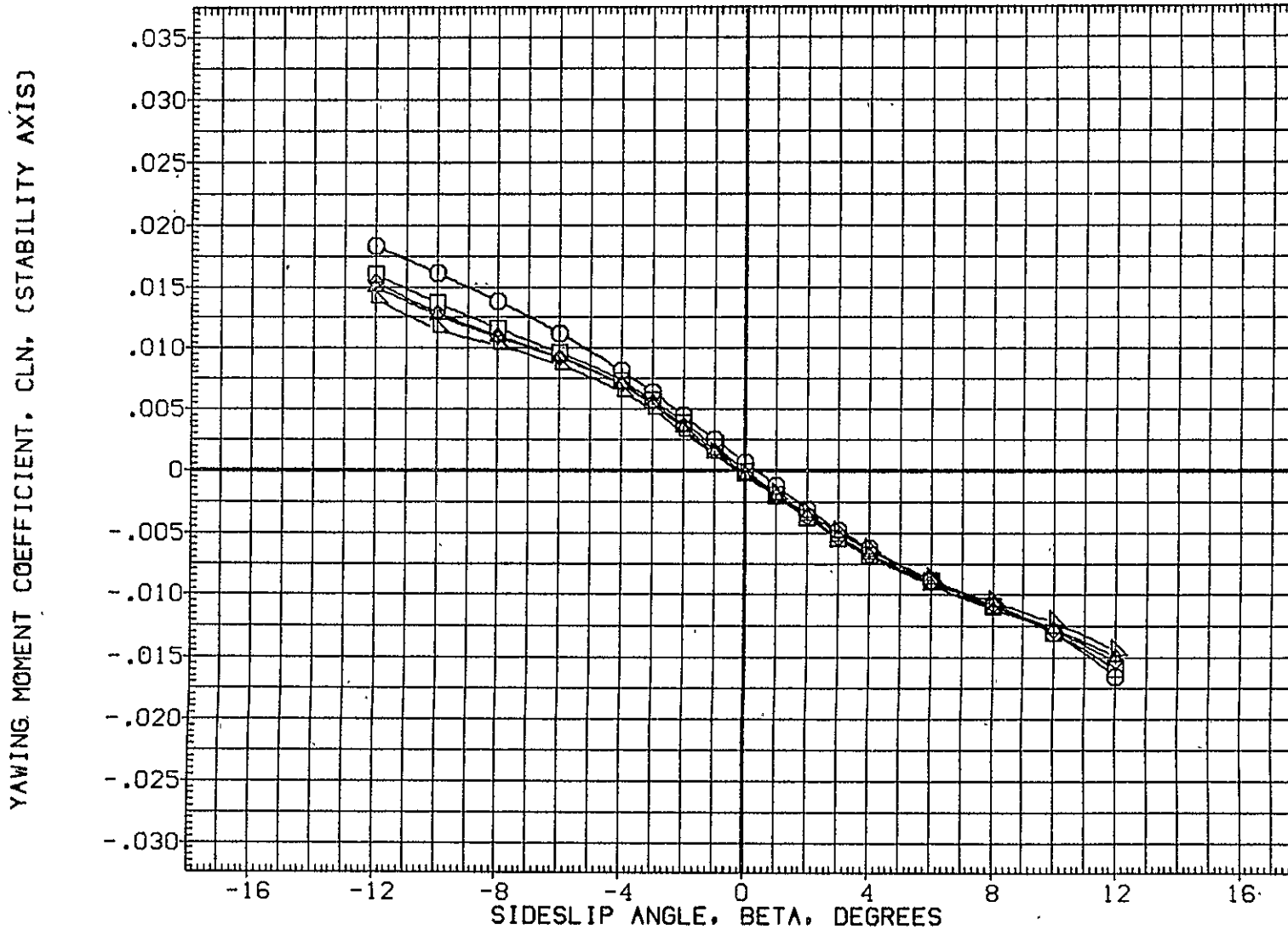


FIG.104 747 ALONE, VERTICAL TAIL OFF, FLAPS 20, ALPHA1= 6 DEG (S=-1.9)

BTWT-1431CA5 K1 FO H15.1A

(RGM055)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	ELV-1B	ELV-0B	SREF	SQ.FT.	
○	.150	6.000	-1.900	.000	3.000	5500.0000		
□	.300	.000	3.000	.000		327.8000	IN.	
◇	.500	S1-2	.000	S3-4	.000	2348.0000	IN.	
△	.600	S5-6	.000			1339.9100	IN. XC	
▽	.700					YMRP .0000	IN. YC	
						ZMRP 190.7500	IN. ZC	
						SCALE .0300		

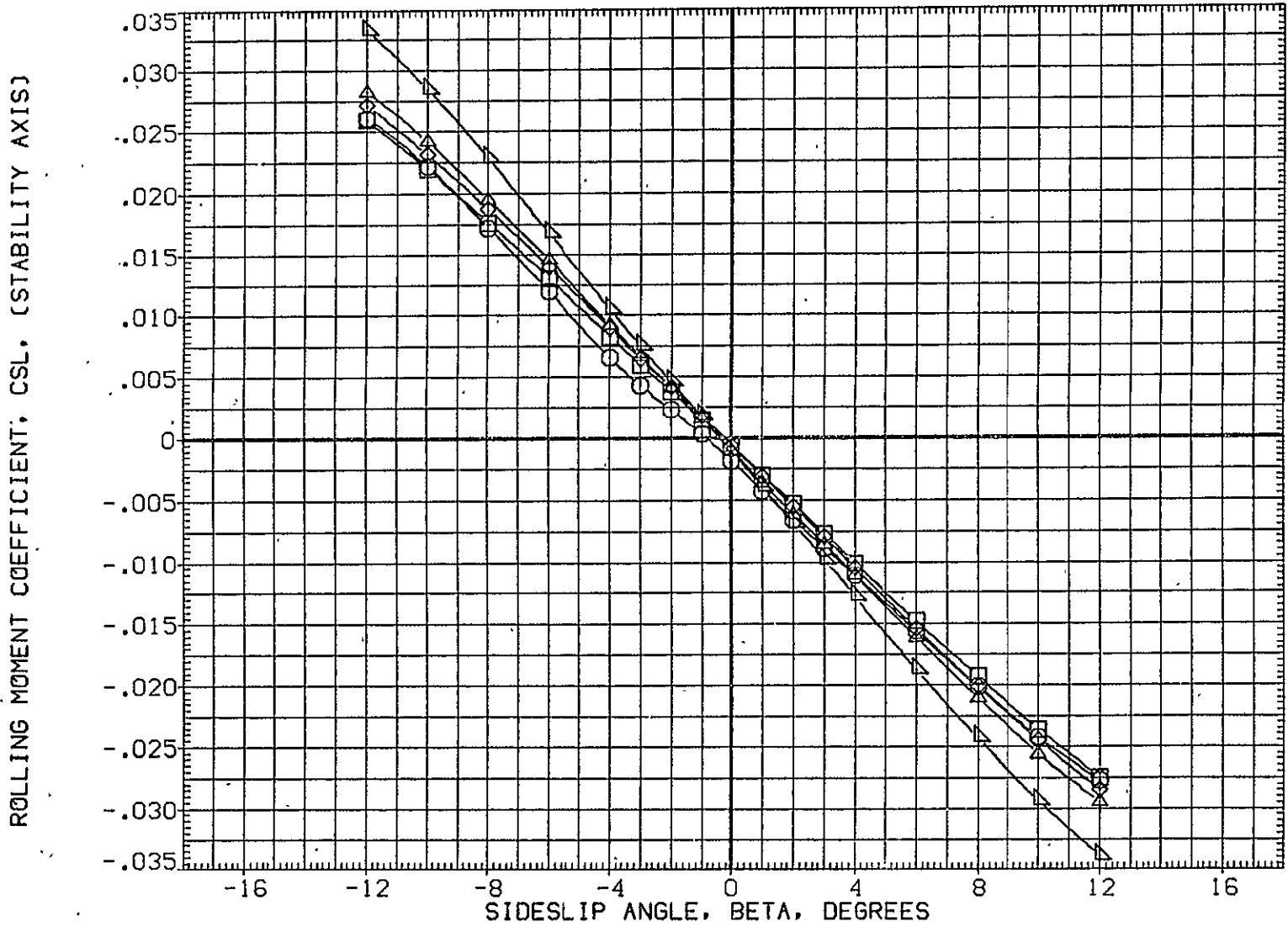


FIG.104 747 ALONE, VERTICAL TAIL OFF, FLAPS 20, ALPHA1= 6 DEG (S=-1.9)

SYMBOL	MACH	ALPHA I	PARAMETRIC VALUES		
○	.500	6.000	STAB	1.000	
□	.600	ELV-1B	.000	ELV-0B	3.000
◇	.700	S1-2	.000	S3-4	.000
		S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

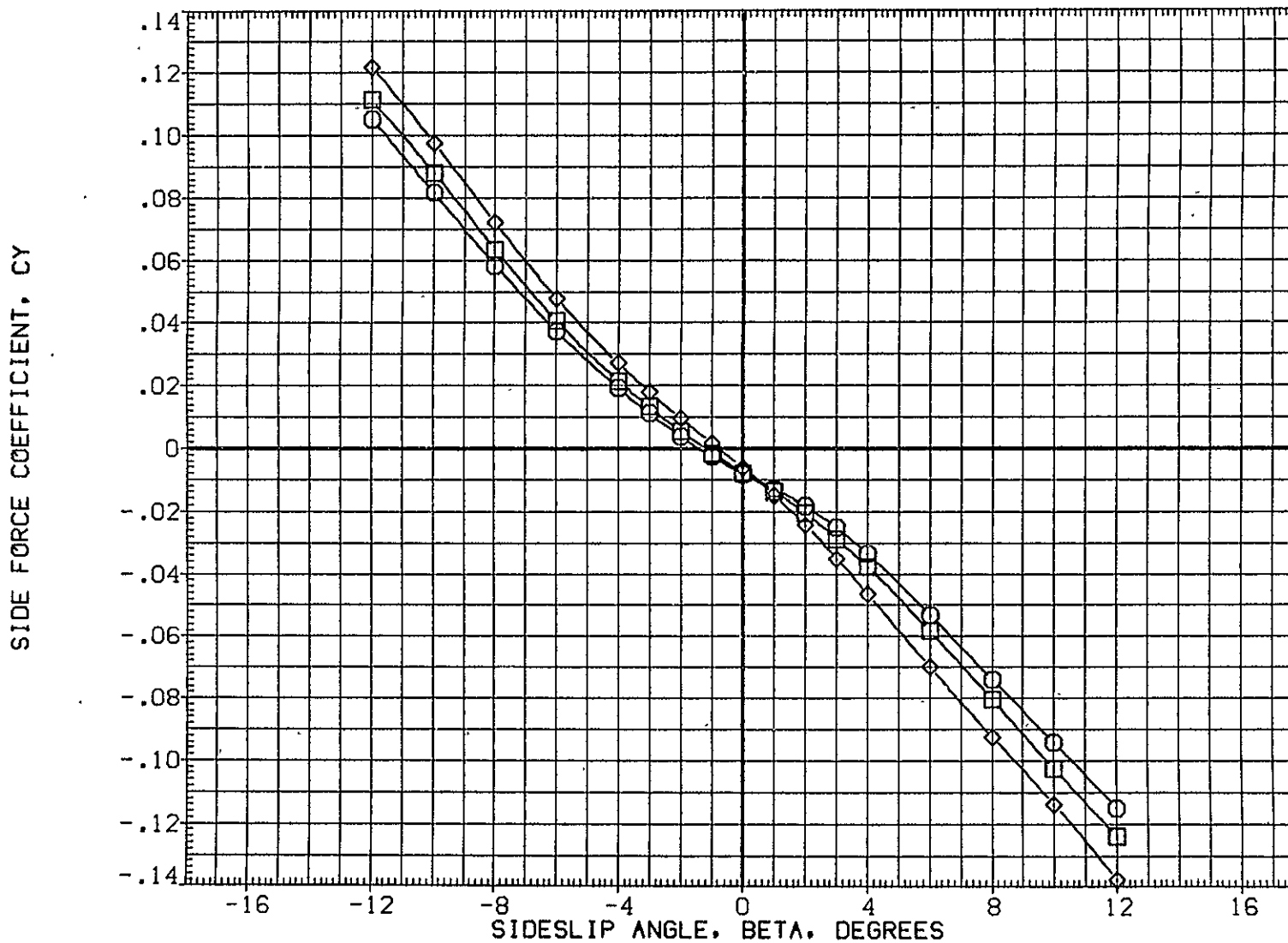


FIG.105 747 ALONE, VERTICAL TAIL OFF, FLAPS 20, ALPHA I= 6 DEG (S=+1)

BTWT-1431CA5 K1 F20 H15.1A

(RGM056)

SYMBOL	MACH	ALPHA	PARAMETRIC VALUES	
○	.500	ALPHA1	6.000	STAB 1.000
□	.600	ELV-1B	.000	ELV-OB 3.000
◇	.700	S1-2	.000	S3-4 .000
		S5-6	.000	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

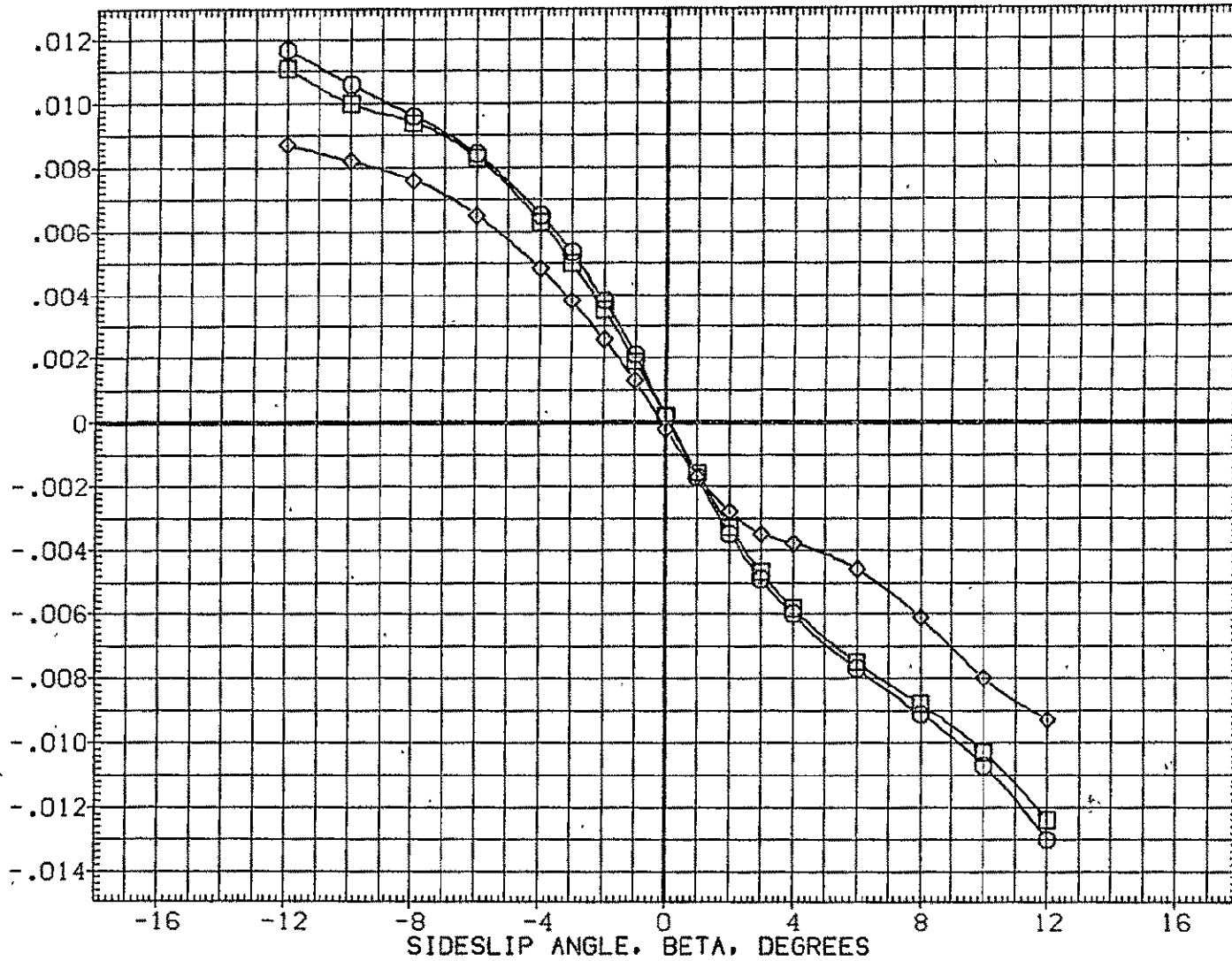


FIG.105 747 ALONE, VERTICAL TAIL OFF, FLAPS 20, ALPHA1= 6 DEG (S=+1)

SYMBOL	MACH	PARAMETRIC VALUES
○	.500	ALPHA1 6.000 STAB 1.000
□	.600	ELV-1B .000 ELV-0B 3.000
◇	.700	S1-2 .000 S3-4 .000
		S5-6 .000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

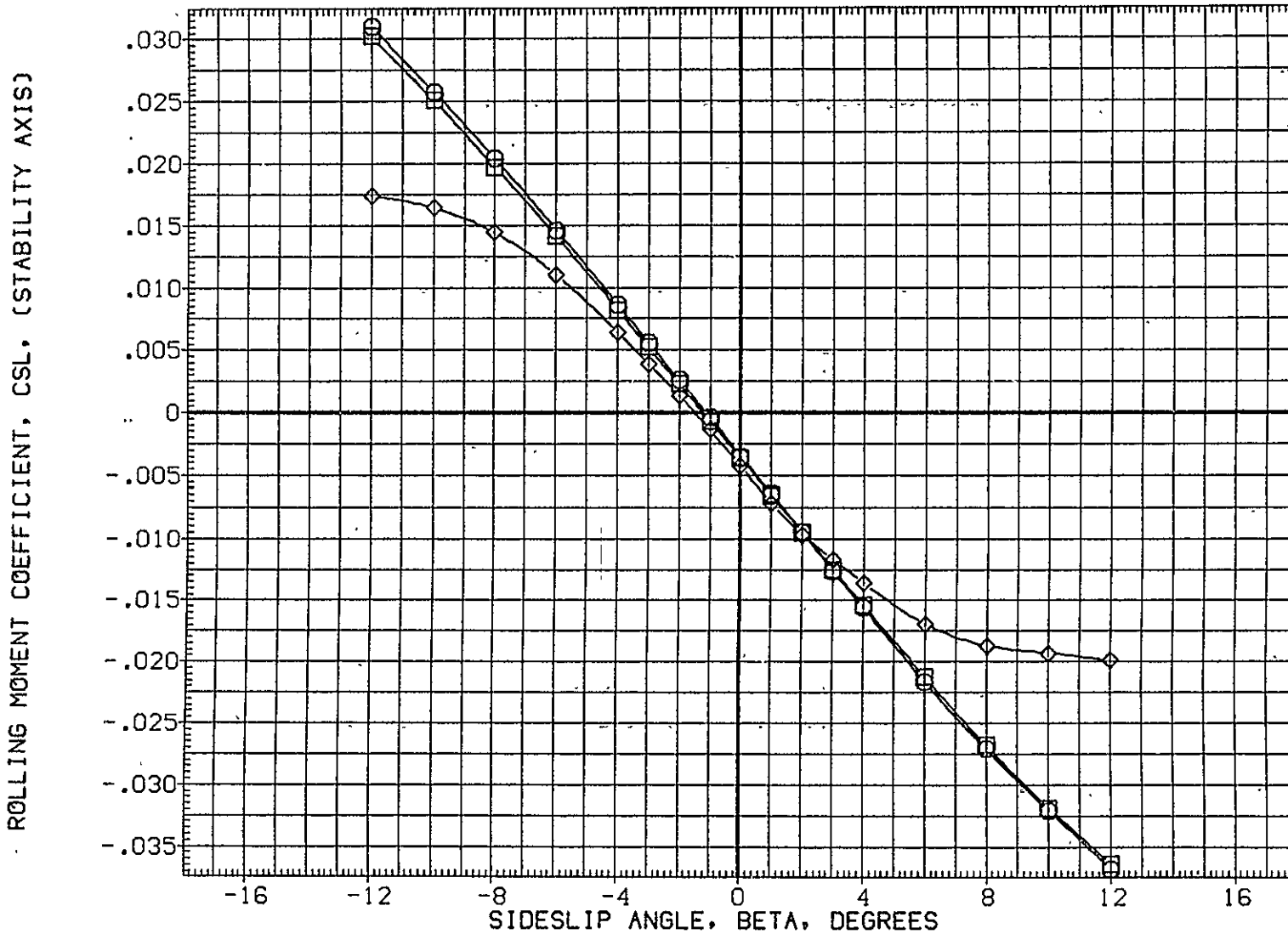


FIG.105 747 ALONE, VERTICAL TAIL OFF, FLAPS 20, ALPHA1= 6 DEG (S=+1)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

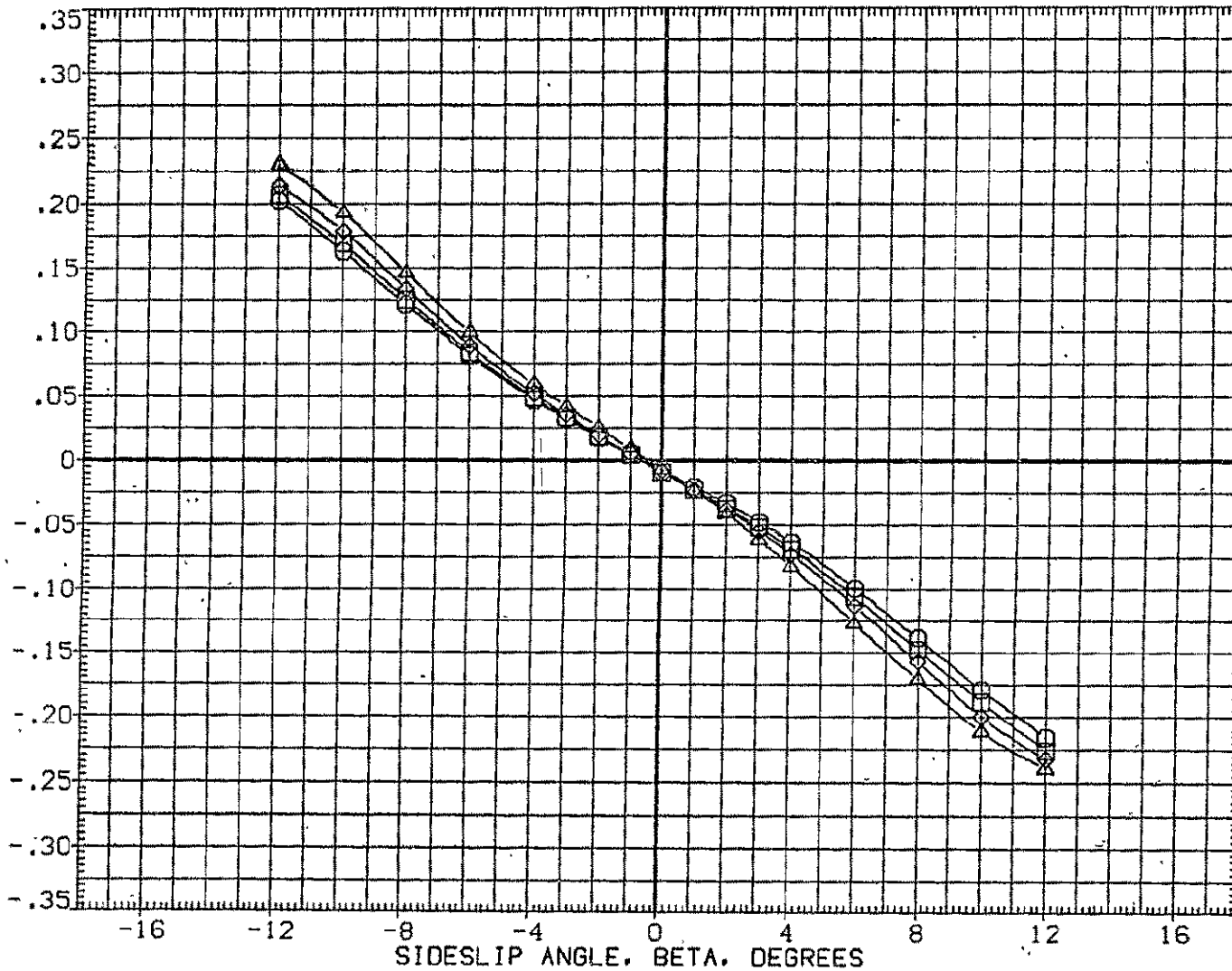


FIG.106 747 ALONE, BASIC AIRPLANE, FLAPS 20, ALPHA1= 6 DEG (S=+1)

SYMBOL	MACH	ALPHA I	PARAMETRIC VALUES		
○	.300	6.000	STAB	1.000	
□	.500	.000	RUD-U	.000	
◇	.600	.000	RUD-L	.000	
△	.700	.000	ELV-1B	3.000	
		.000	ELV-0B	.000	
		.000	S1-2	.000	
		.000	S3-4	.000	
		.000	S5-6	.000	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

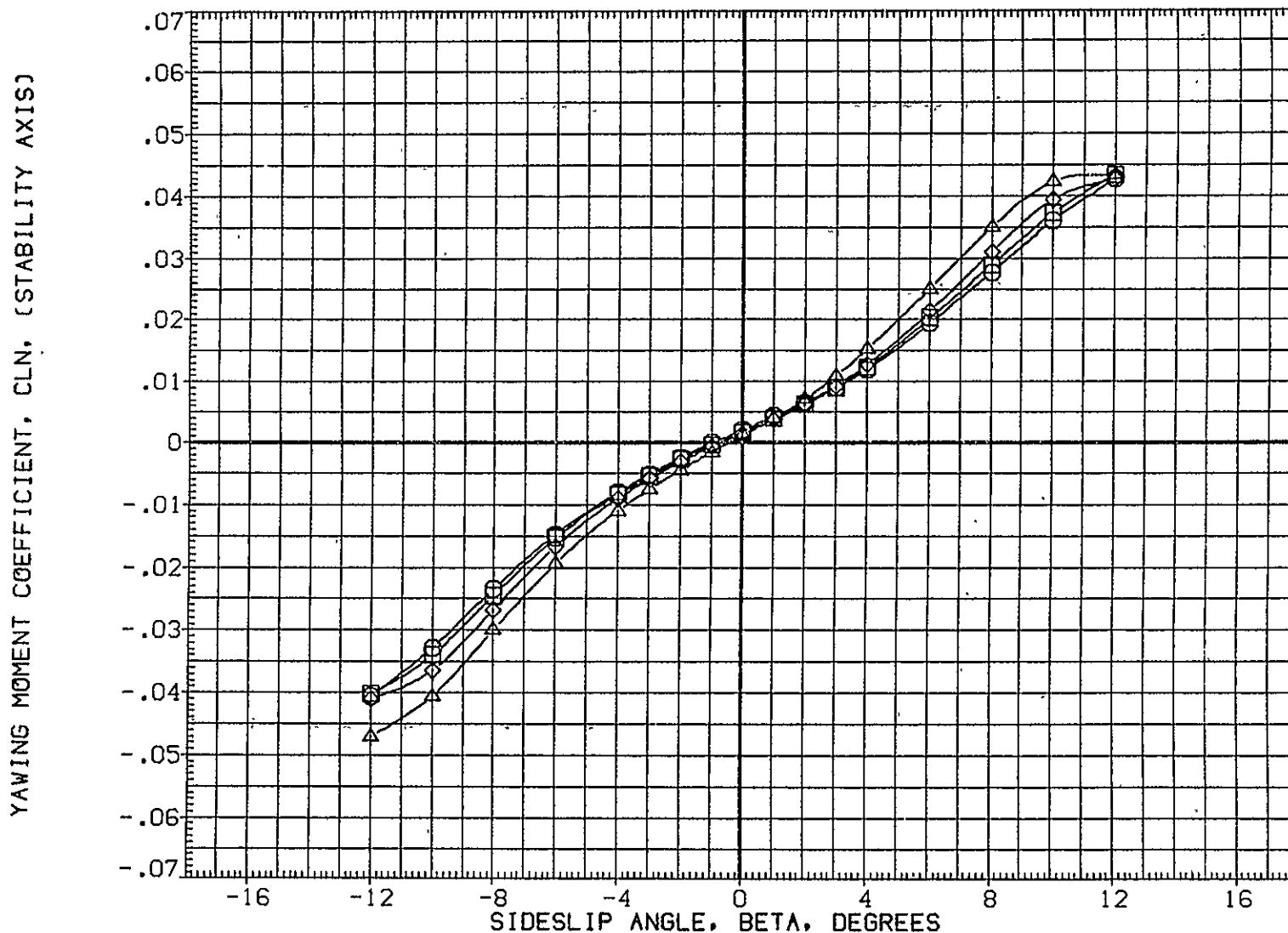


FIG.106 747 ALONE, BASIC AIRPLANE, FLAPS 20, ALPHA I= 6 DEG (S=+1)

BTWT-1431CA5 K1 F20 H15.1A V9.1

(RGM057)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	.000			YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

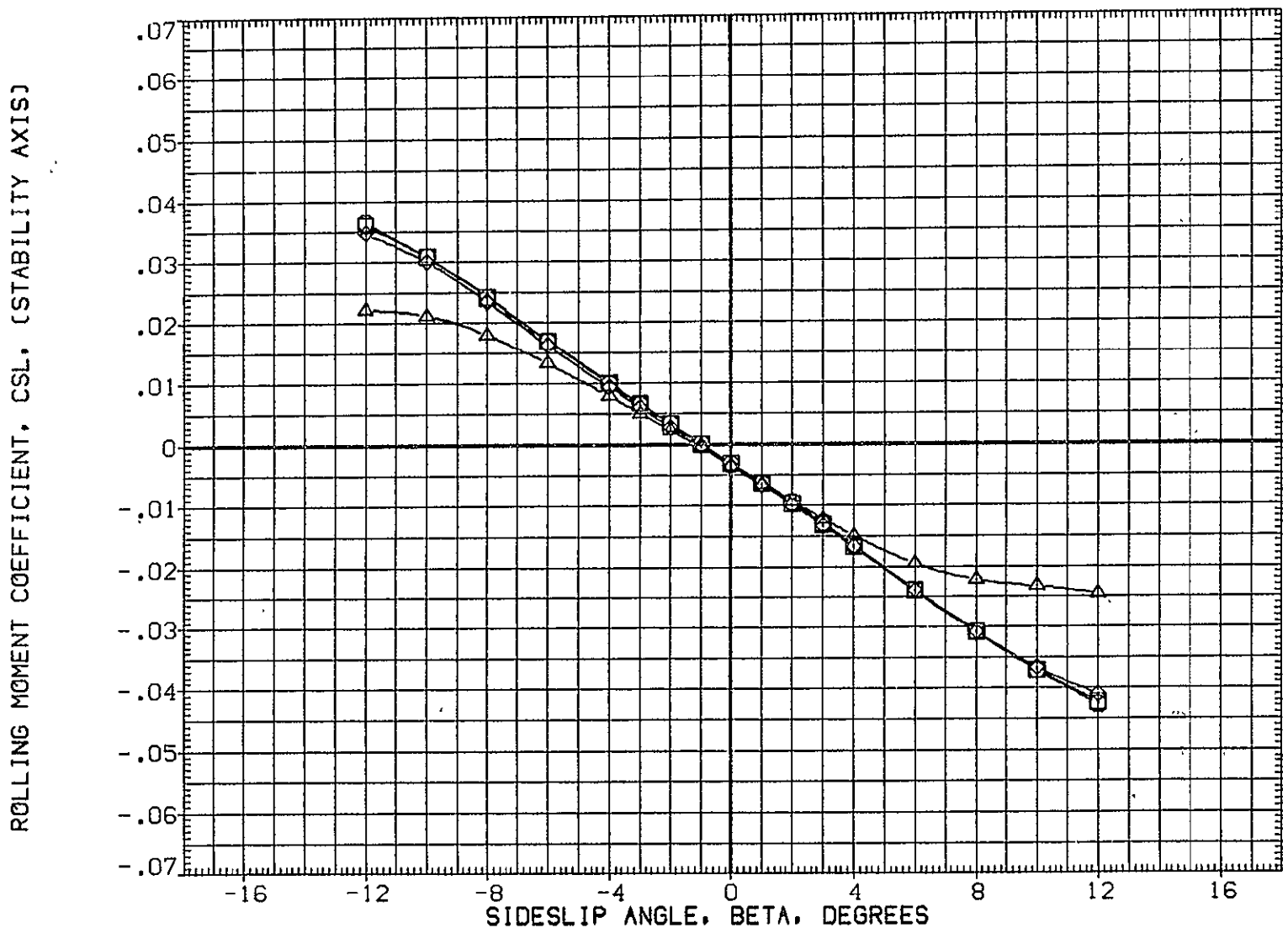


FIG.106 747 ALONE, BASIC AIRPLANE, FLAPS 20, ALPHA1= 6 DEG (S=+1)



SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	.000
		S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

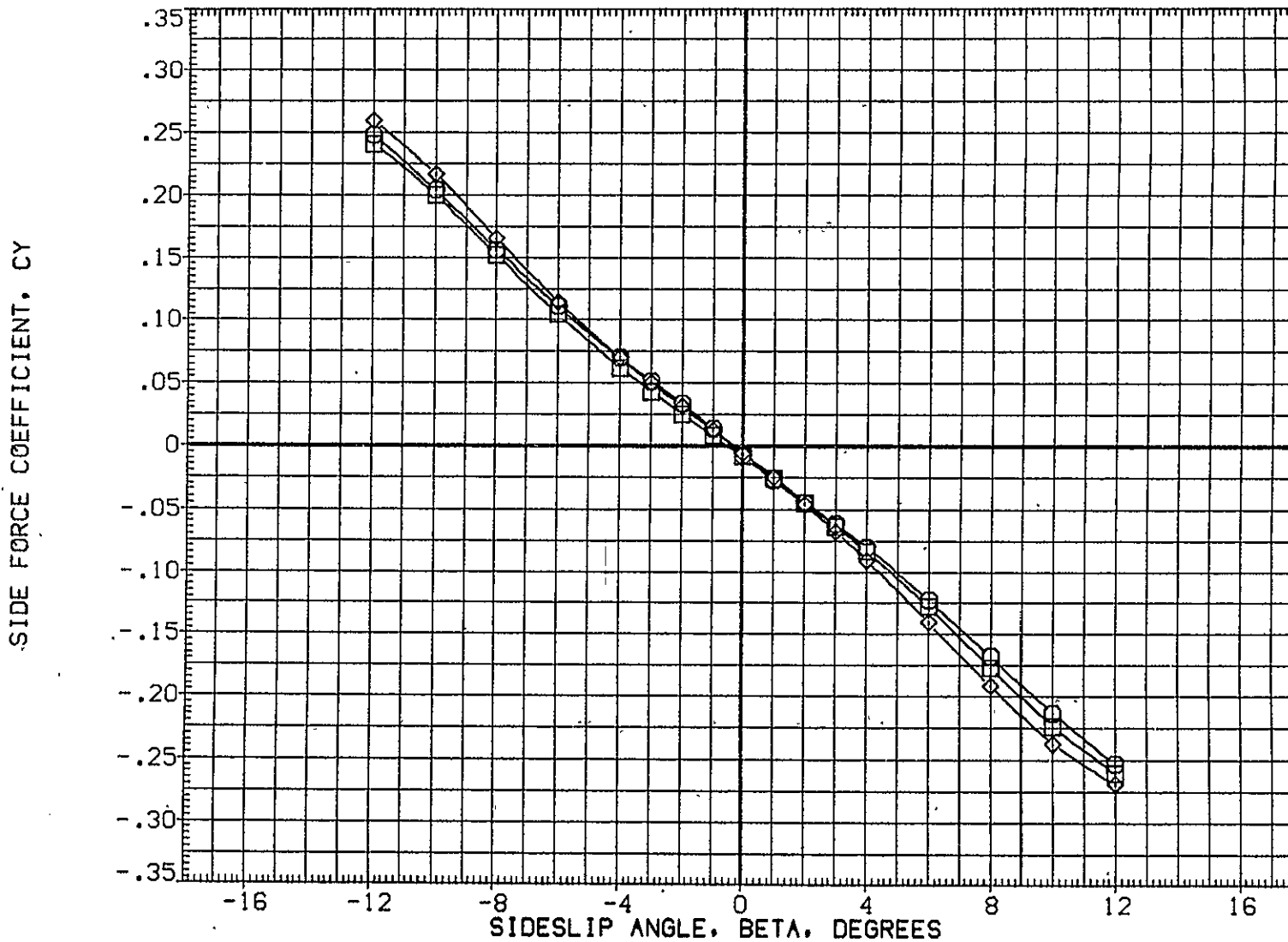


FIG.107 747 ALONE+ TIP FINS, FLAPS 20, ALPHA1= 6 DEG (S=+1)

BTWT-1431CA5 K1 F20 H15.6 V9.1

(RGM060)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	.000
		S5-6	.000		

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

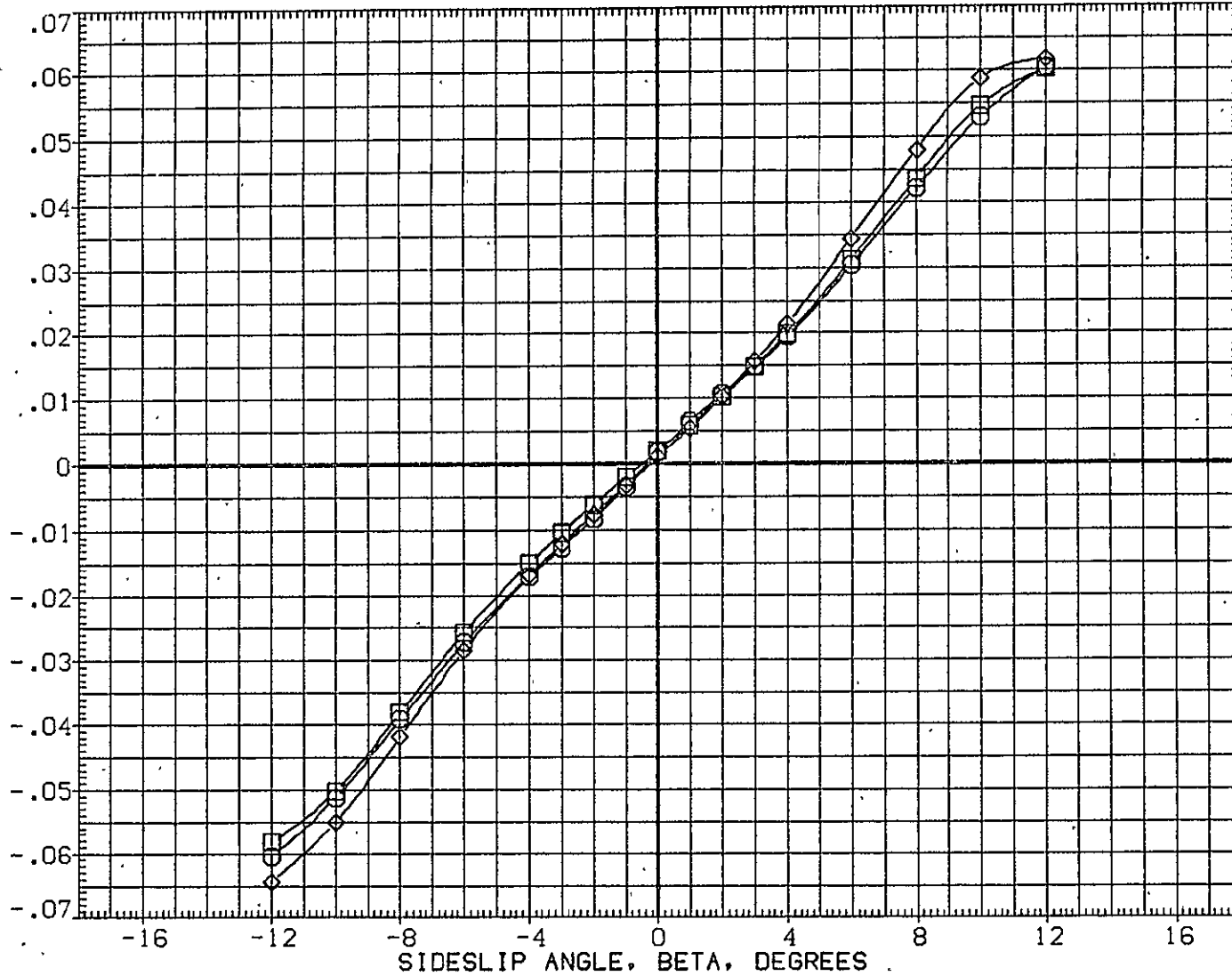


FIG.107 747 ALONE+ TIP FINS, FLAPS 20, ALPHA1= 6 DEG (S=+1)

SYMBOL	MACH	PARAMETRIC VALUES
○	.500	ALPHA1 6.000 STAB 1.000
□	.600	RUD-U .000 RUD-L .000
◇	.700	ELV-1B .000 ELV-0B 3.000
		S1-2 .000 S3-4 .000
		SS-6 .000

REFERENCE INFORMATION		
SREF	5500.0000	SG, FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	.190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

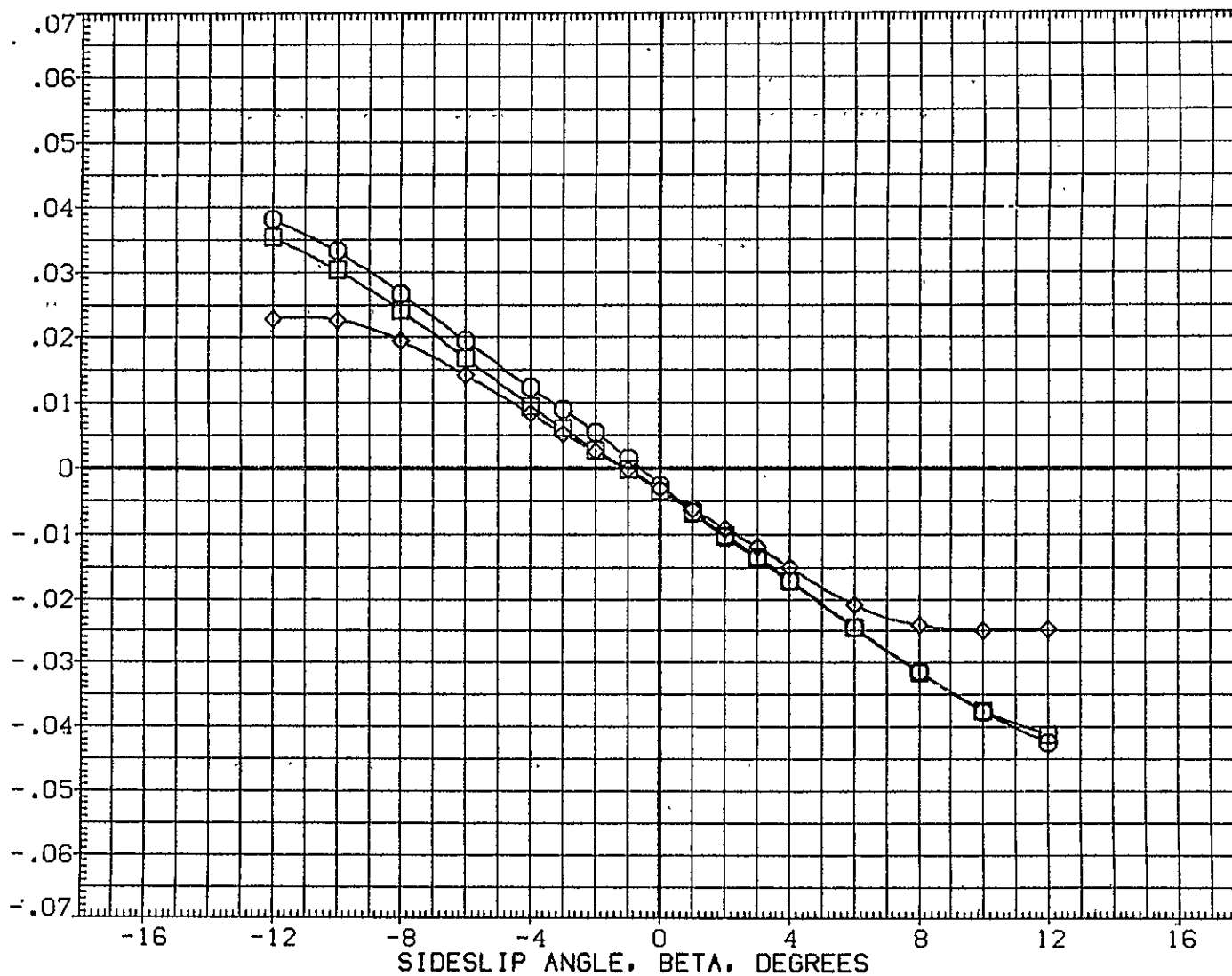


FIG.107 747 ALONE+ TIP FINS, FLAPS 20, ALPHA1= 6 DEG (S=+1)

CA5 K1 F20 H15.6 V9.1 (PLUS. 0RB TC5 AT38.1 )(RGM067)

SYMBOL  
 ◊ □ ○

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	IORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

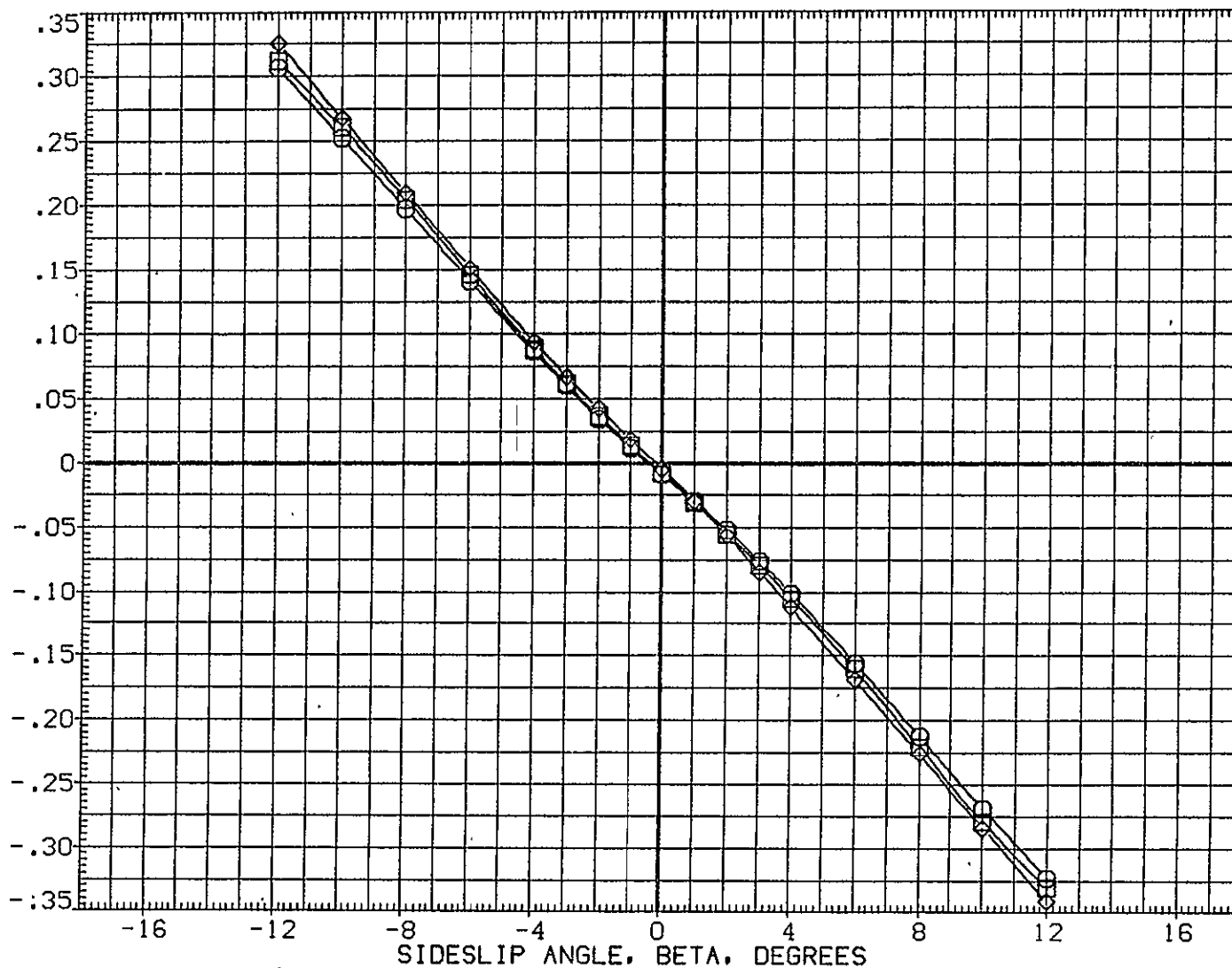


FIG.108 747+0RB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHA1= 6 TOTAL

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA I	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-IB	.000	ELV-OB	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

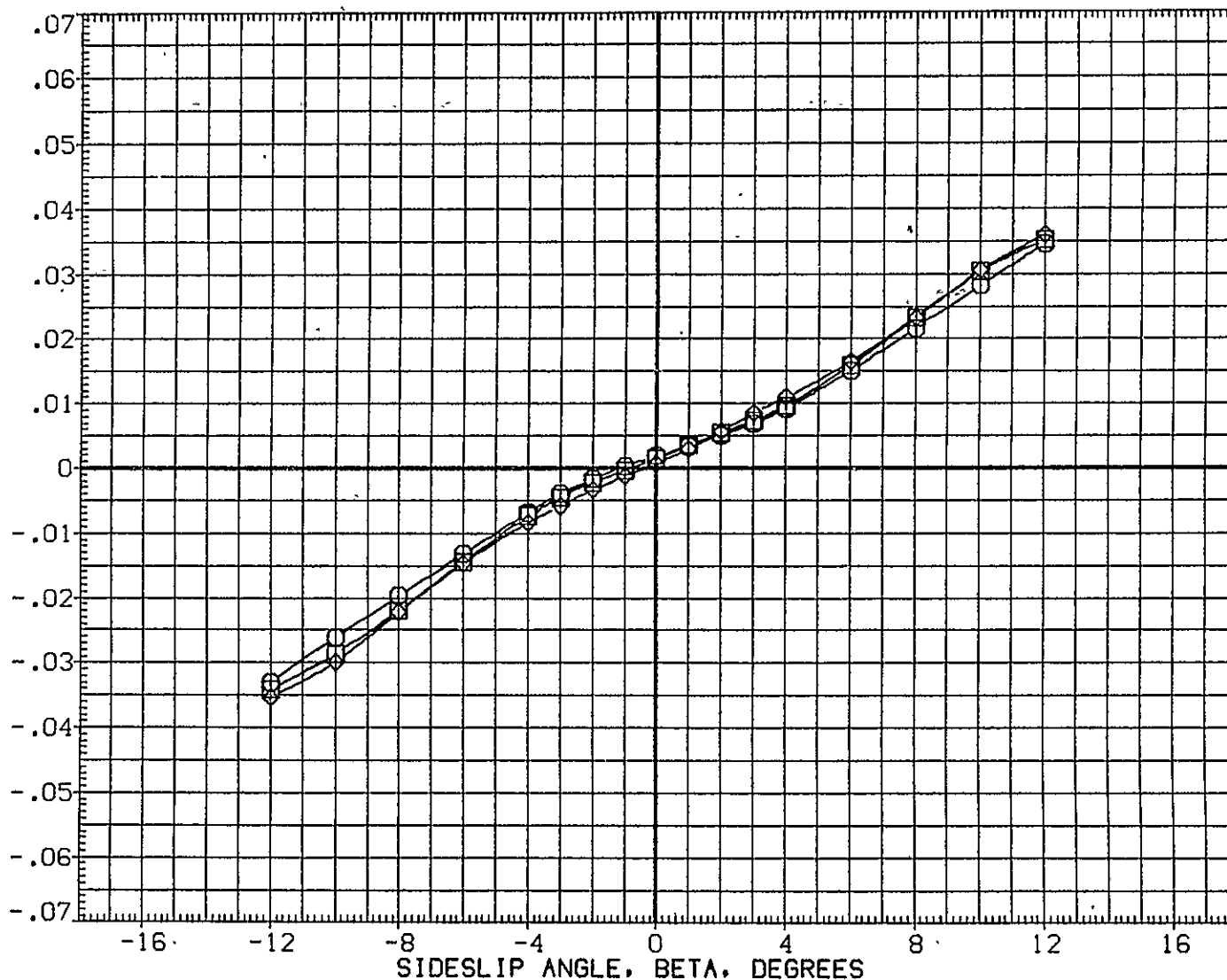


FIG.108 747+0RB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHA I= 6 TOTAL  
 PAGE 426

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM067)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.500	ALPHA1	6.000	STAB	1.000	SREF	5500.0000 SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000 IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000 IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100 IN. XC
		S5-6	45.000	10RB	9.700	YMRP	.0000 IN. YC
						ZMRP	190.7500 IN. ZC
						SCALE	.0300



FIG.108 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHA1= 6 TOTAL

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA I	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

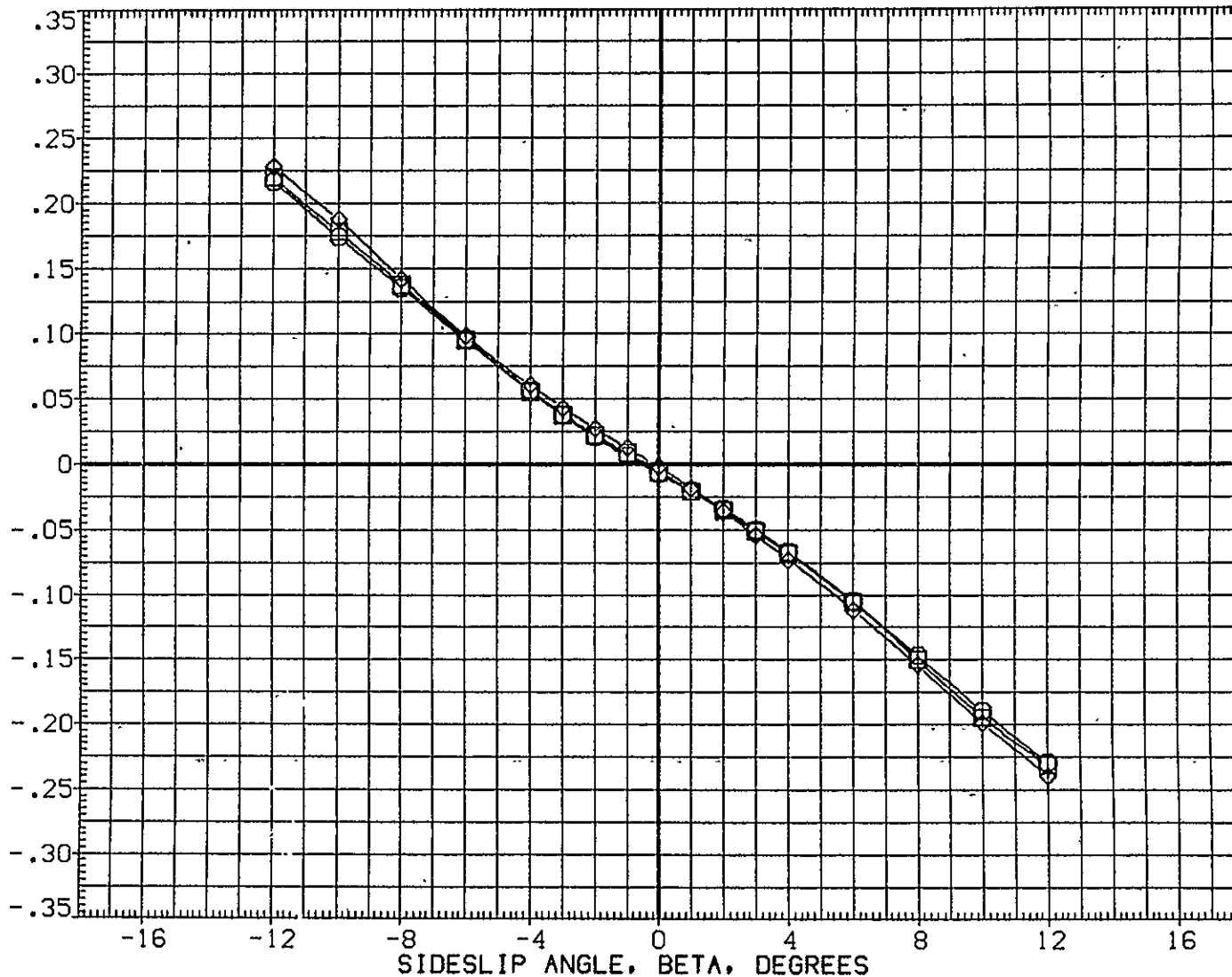


FIG.109 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20. LAUNCH,BASELINE,ALPHA I= 6 747

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM067)

SYMBOL  
 ○ □ ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA I	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	IORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. YC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

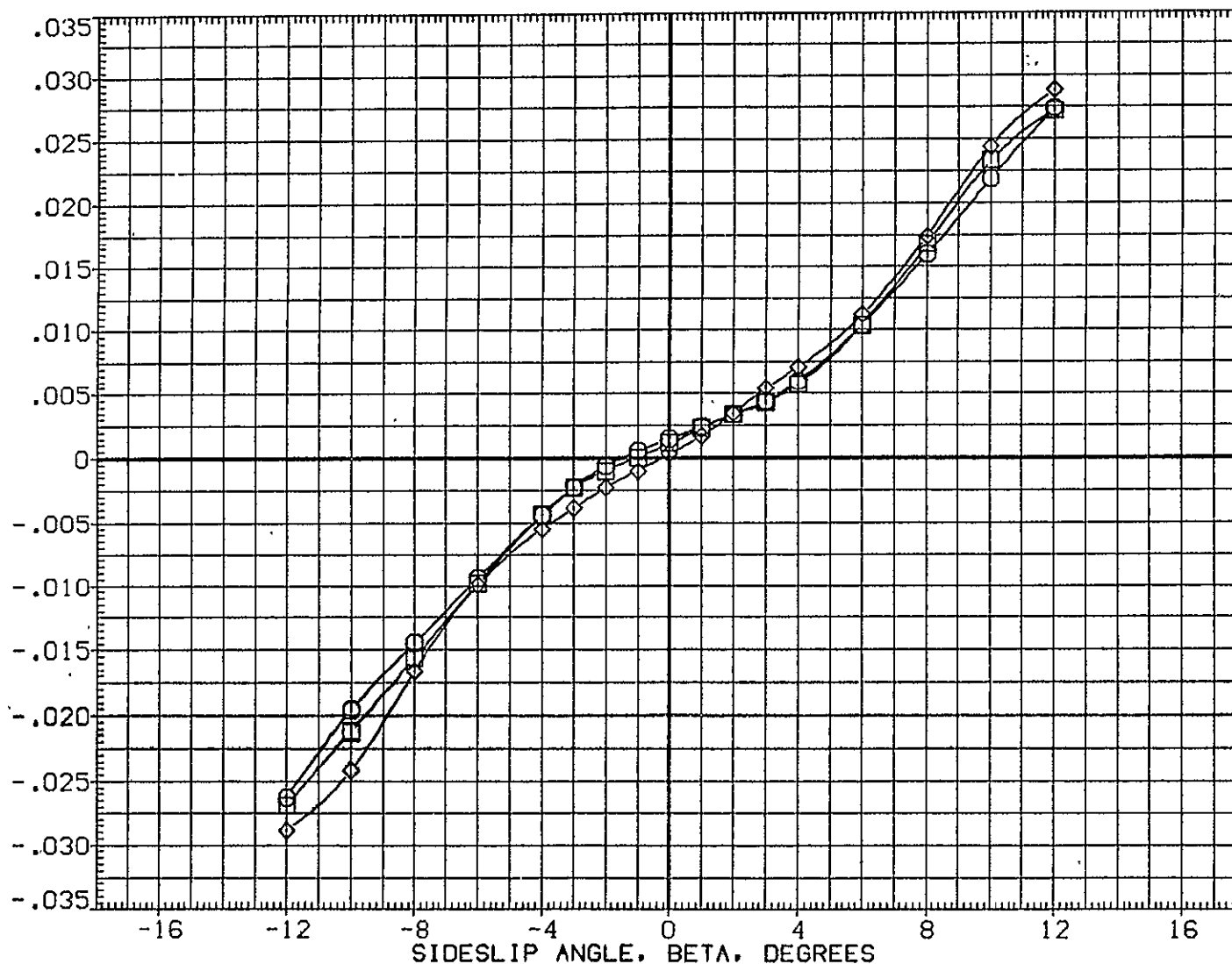


FIG.109 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHA I= 6 747



SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	.500	ALPHA1 6.000 STAB 1.000	SREF 5500.0000 SQ.FT.
□	.600	RUD-U .000 RUD-L .000	LREF 327.8000 IN.
◇	.700	ELV-1B .000 ELV-0B 3.000	BREF 2348.0000 IN.
		S1-2 45.000 S3-4 45.000	XMRP 1339.9100 IN. XC
		S5-6 45.000 10RB 9.700	YMRP .0000 IN. YC
			ZMRP 190.7500 IN. ZC
			SCALE .0300

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

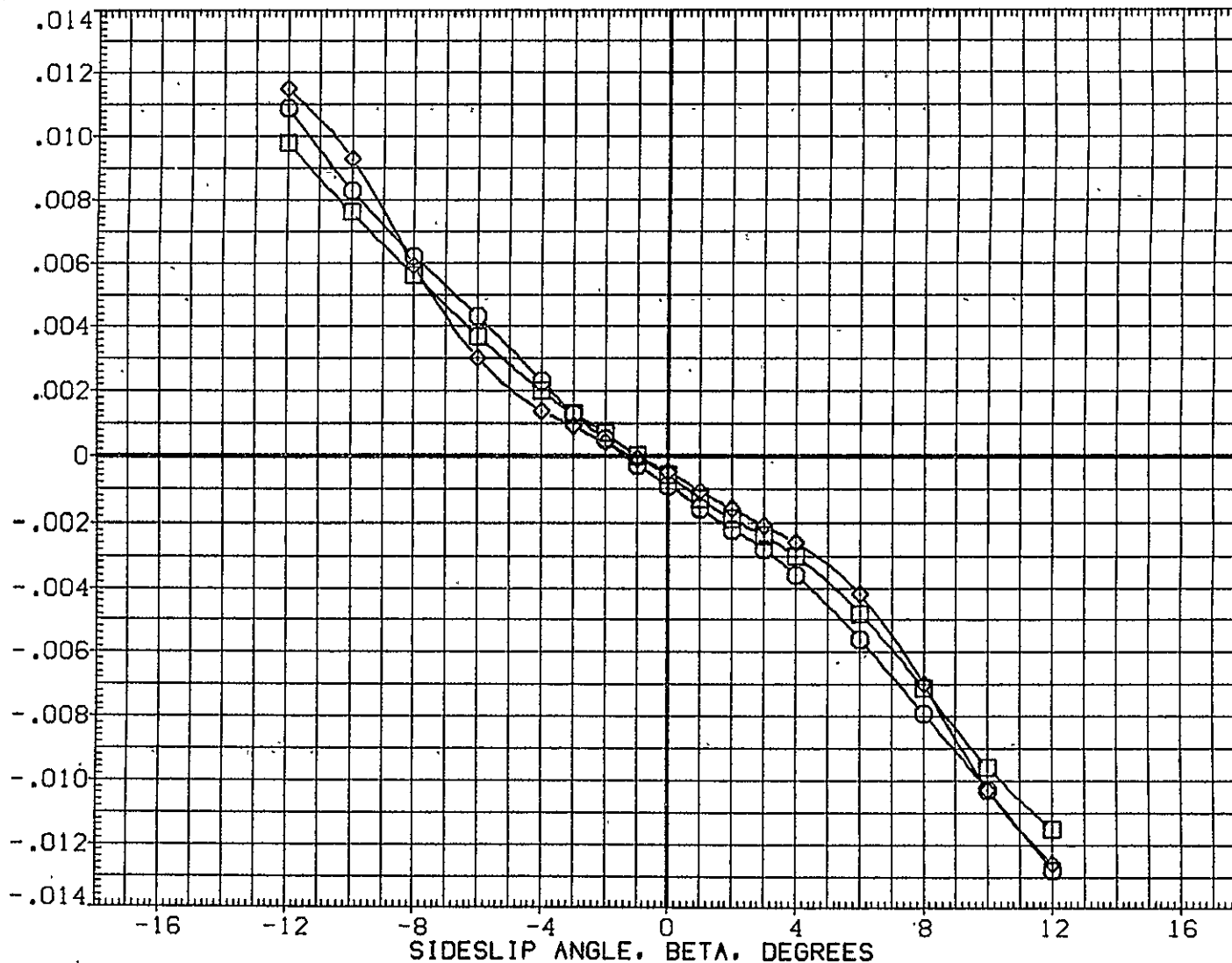


FIG.109 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHA1= 6 747

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(XGM067)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.499	ALPHA I	6.000	STAB	1.000	SREF	2690.0000	SG.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	1ORB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

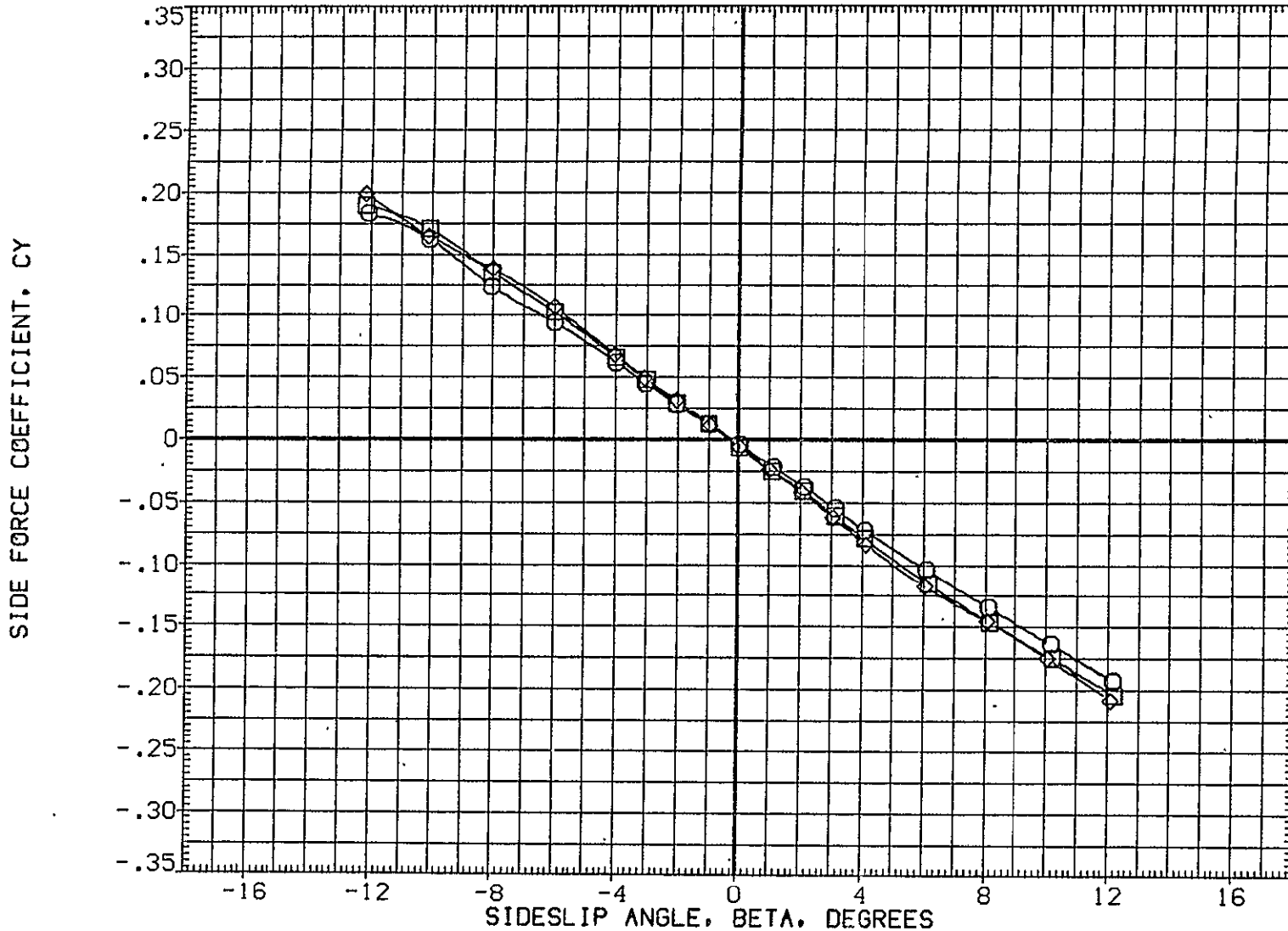


FIG.110 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHA I= 6 ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	STAB	STAB	SREF	SQ.FT.	
○	.499	6.000	1.000		2690.0000			
□	.600	.000	.000		474.8100	IN.		
◇	.700	.000	.000		936.6800	IN.		
		ELV-1B	ELV-0B	3.000	1109.0000	IN. X0		
		S1-2	S3-4	45.000	.0000	IN. Y0		
		S5-6	10RB	9.700	375.0000	IN. Z0		
					SCALE	.0300		

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

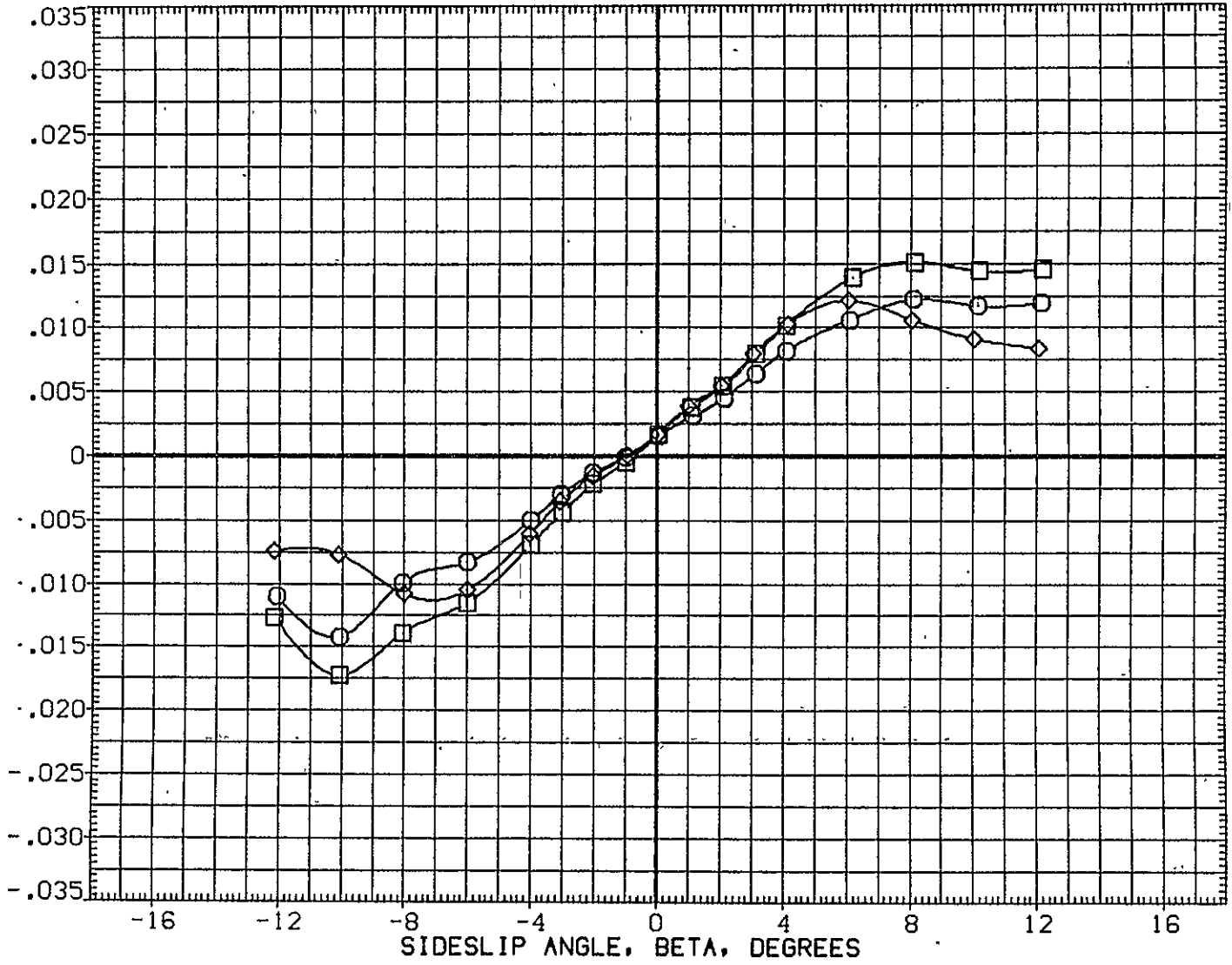


FIG.110 747+0RB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHA1= 6 0RB

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(XGM067)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.499	ALPHAI	6.000	STAB	1.000	SREF	2690.0000 SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100 IN.
◇	.700	ELV-IB	.000	ELV-OB	3.000	BREF	936.6800 IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000 IN. X0
		S5-6	45.000	ICRB	9.700	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0300

ROLLING MOMENT COEFFICIENT, CSL. (STABILITY AXIS)

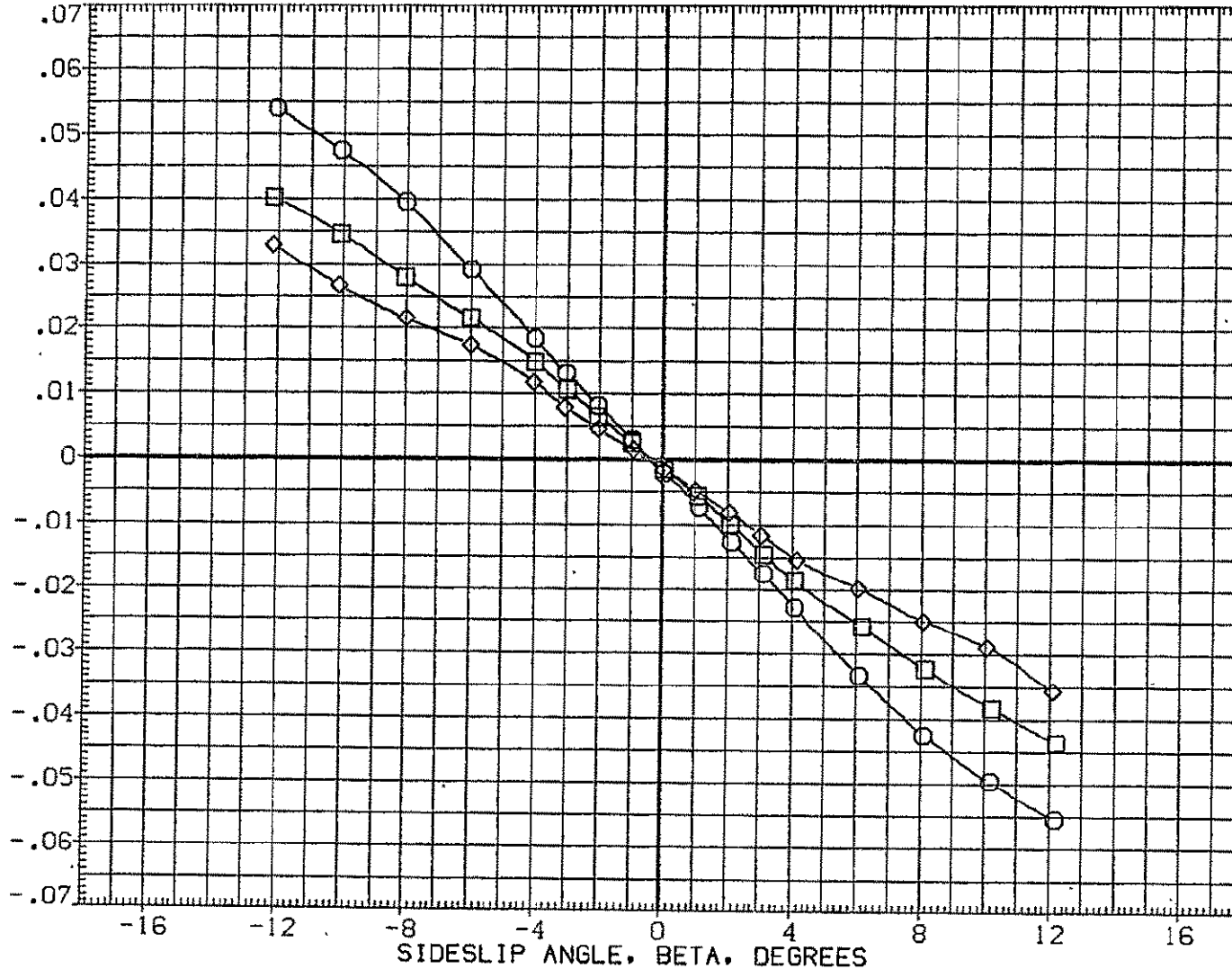


FIG.110 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,BASELINE,ALPHAI= 6 ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	RUD-U	10.000	RUD-L	10.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	45.000	S3-4	45.000
		SS-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

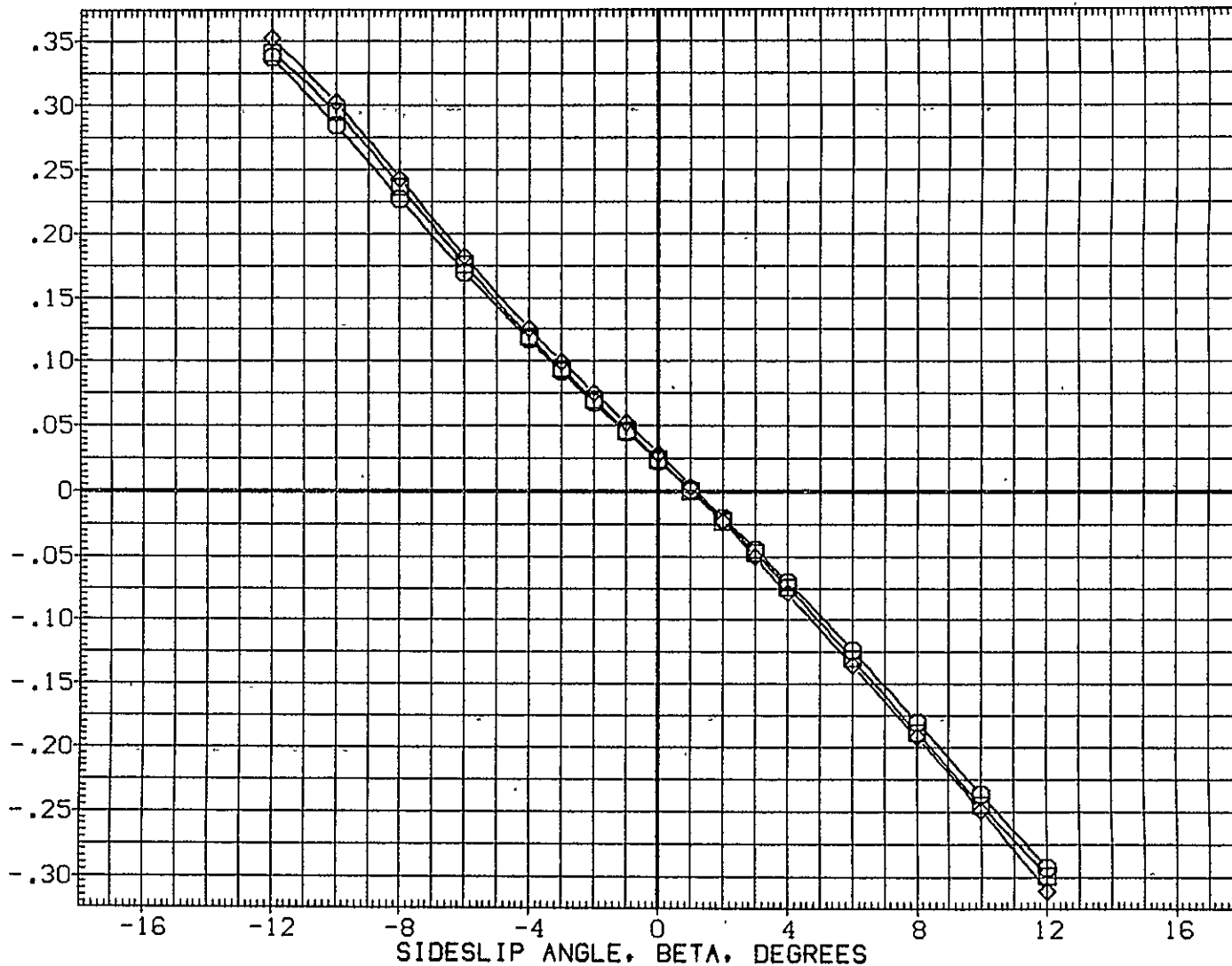


FIG.111 747+0RB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA1=6,RUDDER=10/10 TOTAL

CA5 K1-F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM069)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	10.000	RUD-L	10.000
.700	ELV-1B	.000	ELV-OB	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

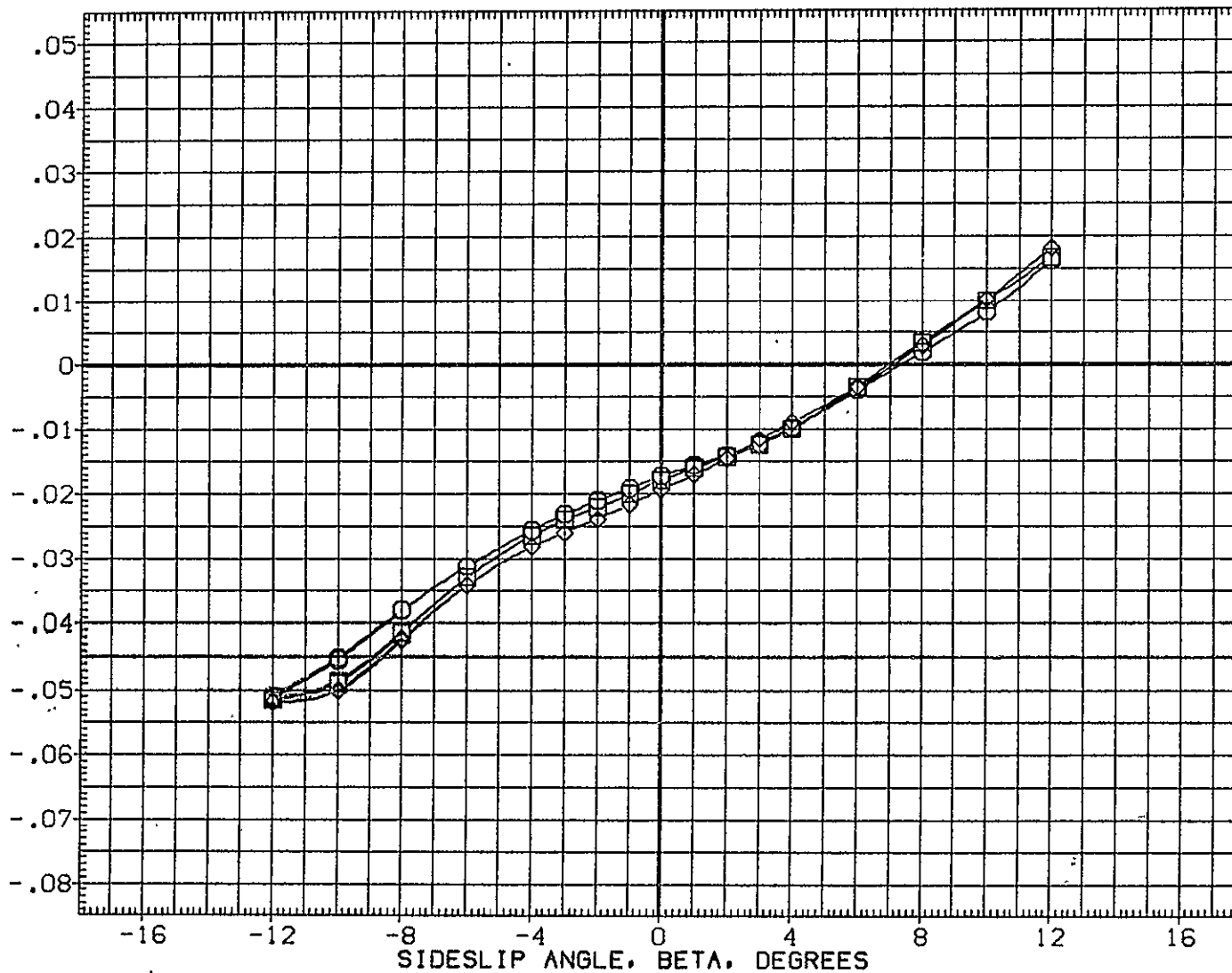


FIG.111 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA1=6,RUDDER=10/10 TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
		ALPHA1	STAB	RUD-L	ELV-OB
○	.500	6.000	1.000		
□	.600	10.000	10.000		
◇	.700	.000	3.000		
		S1-2	S3-4		
		45.000	45.000		
		S5-6	10RB	9.700	

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

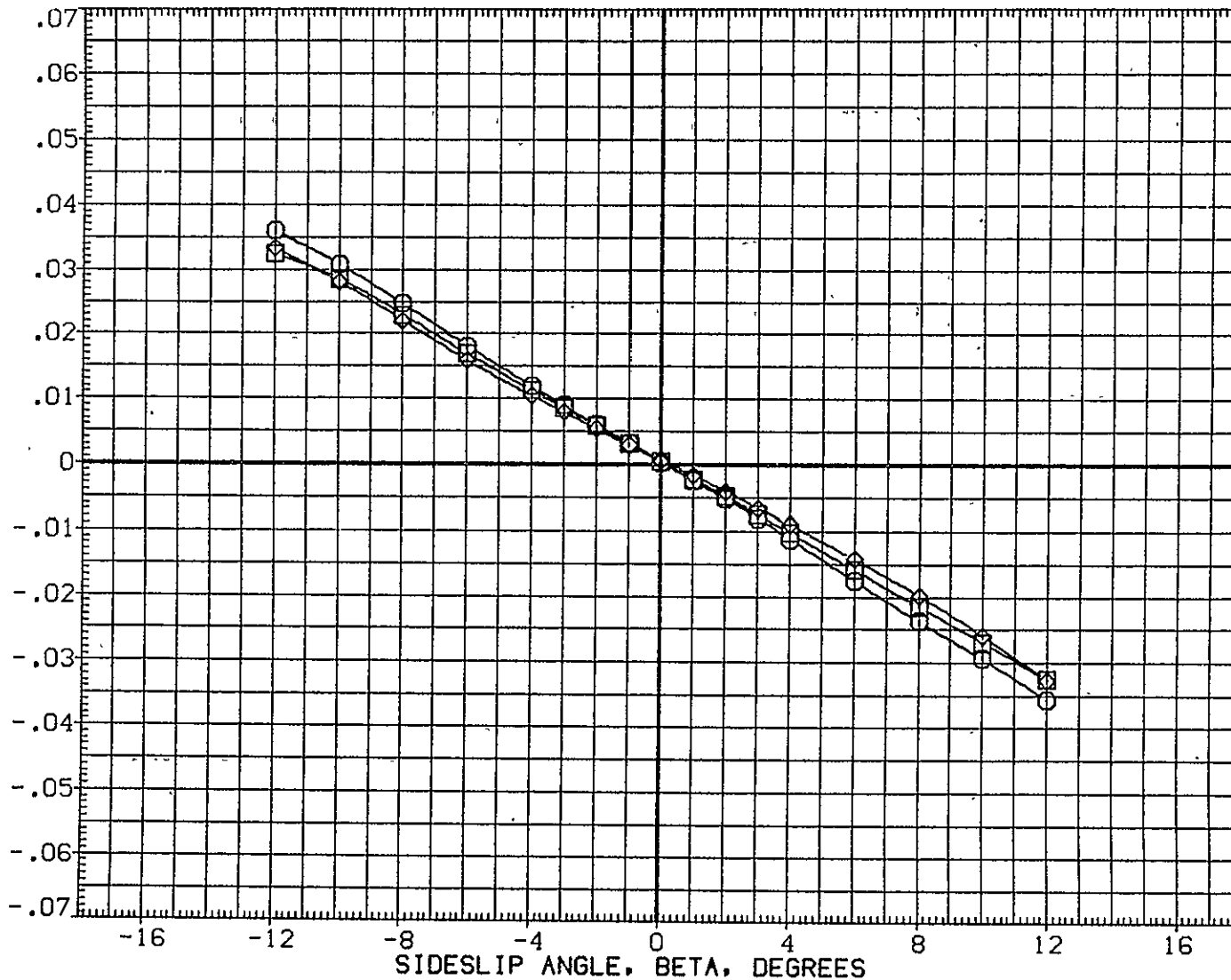


FIG.111 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA1=6,RUDDER=10/10 TOTAL

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM069)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	10.000	RUD-L	10.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

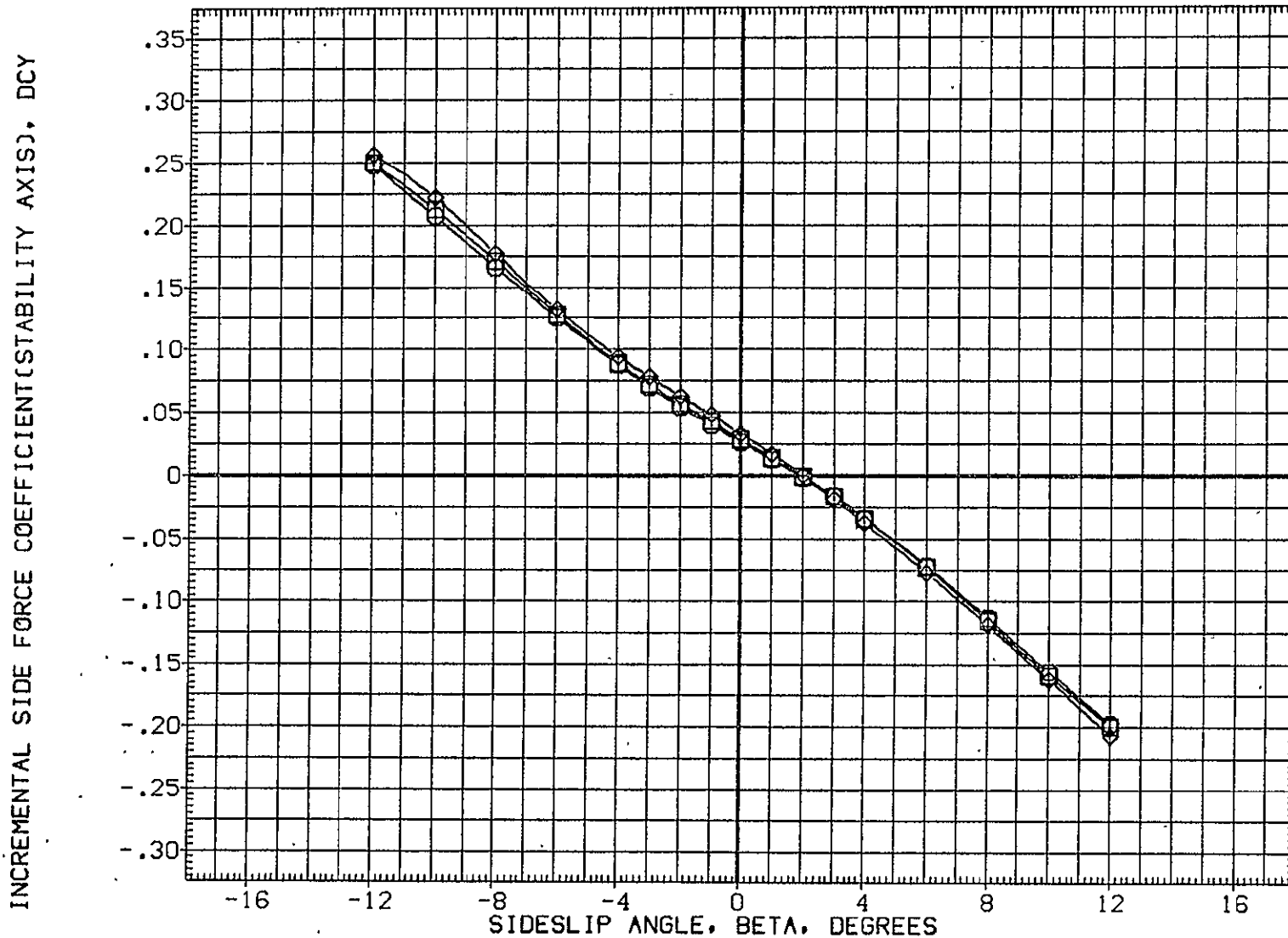


FIG.112 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA1=6,RUDDER=10/10 747



SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	RUD-U	10.000	RUD-L	10.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

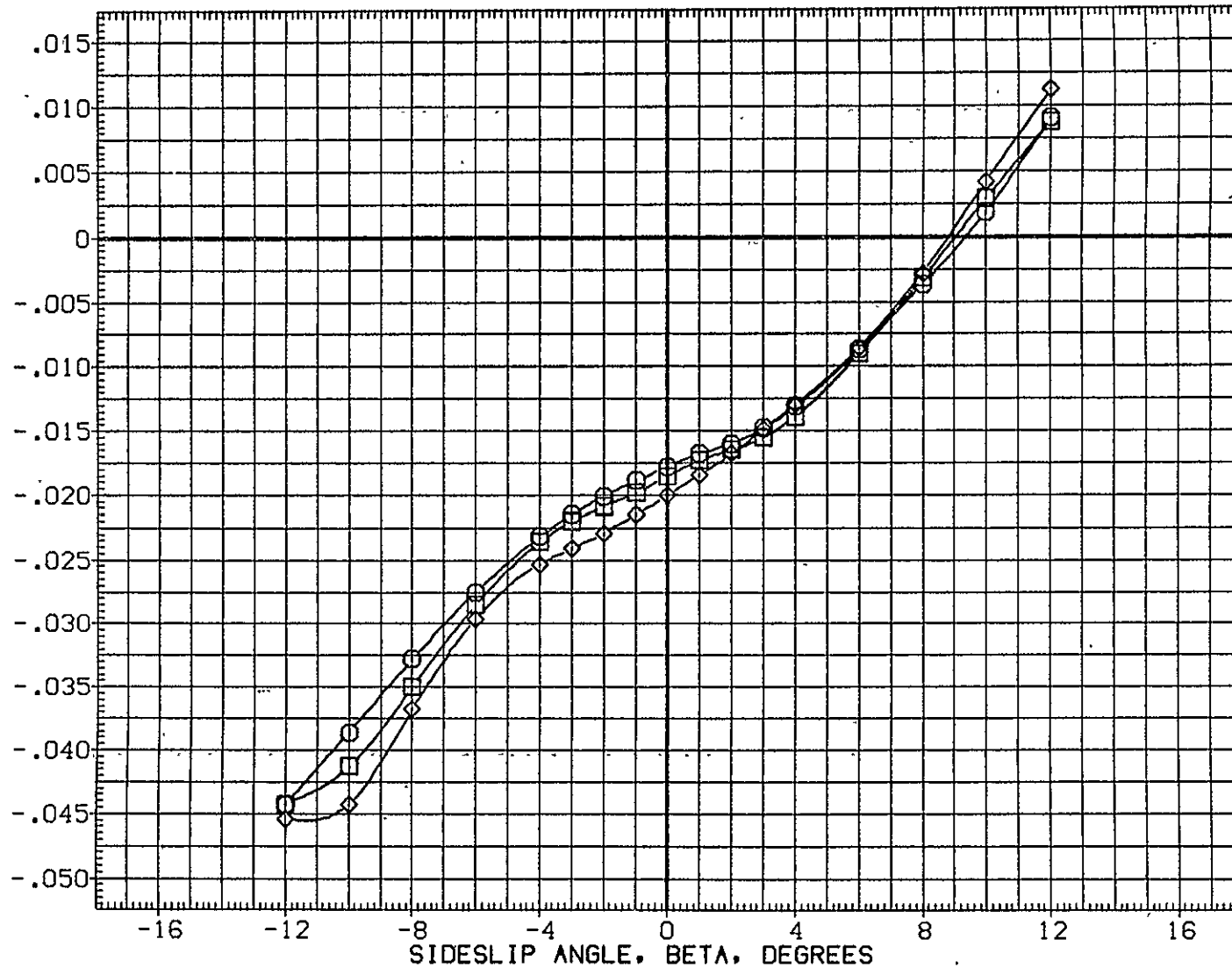


FIG.112 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA1=6,RUDDER=10/10 747

CAS K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM069)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA I	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	10.000	RUD-L	10.000	LREF	327.8000	IN.
◇	.700	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	YMRP	1339.9100	IN. XC
		SS-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DC SL

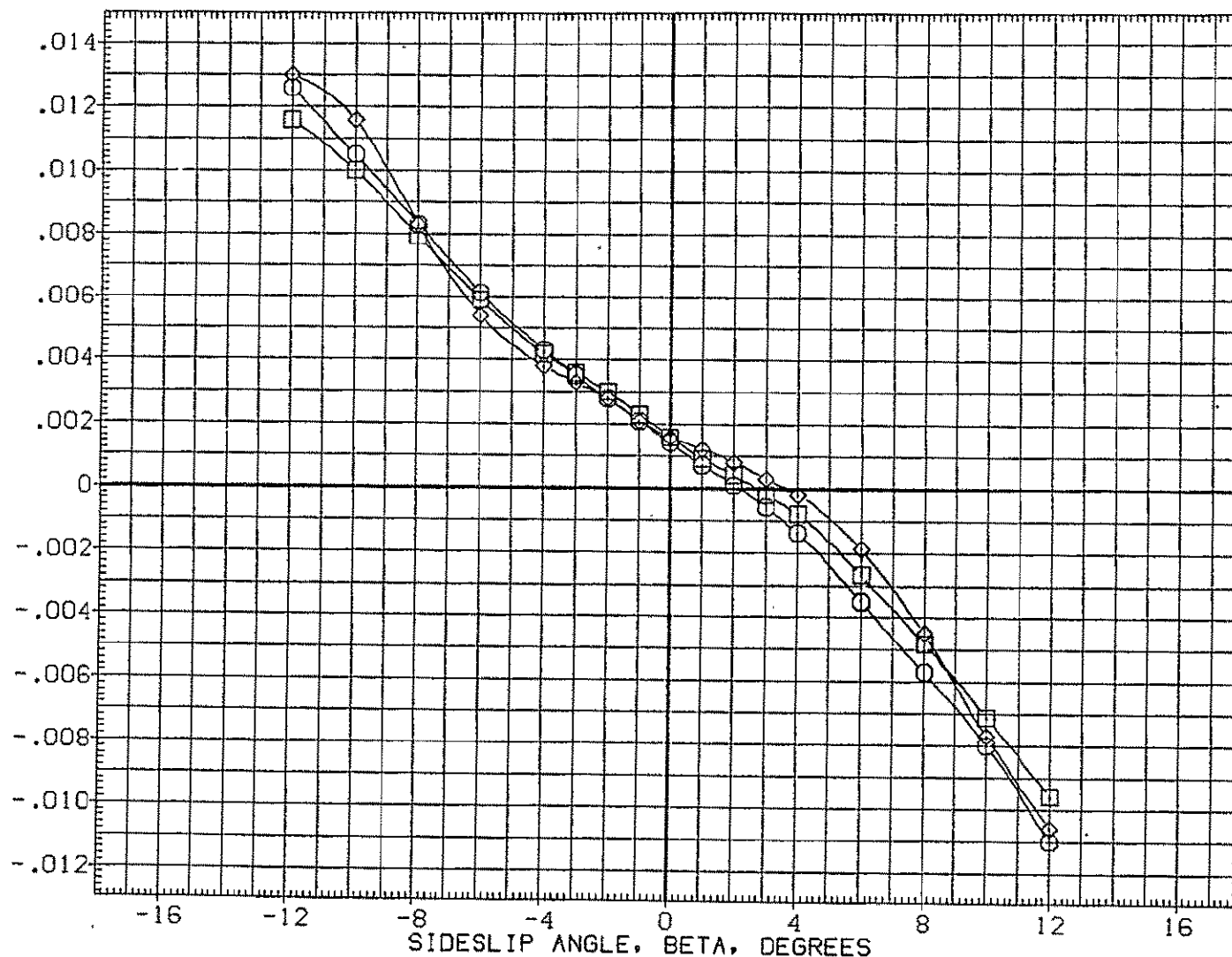


FIG.112 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA I=6,RUDDER=10/10 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	1.000	SREF	2690.0000	SQ.FT.	
○	.500	RUD-U	10.000	RUD-L	10.000	LREF	474.8100	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.700	S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

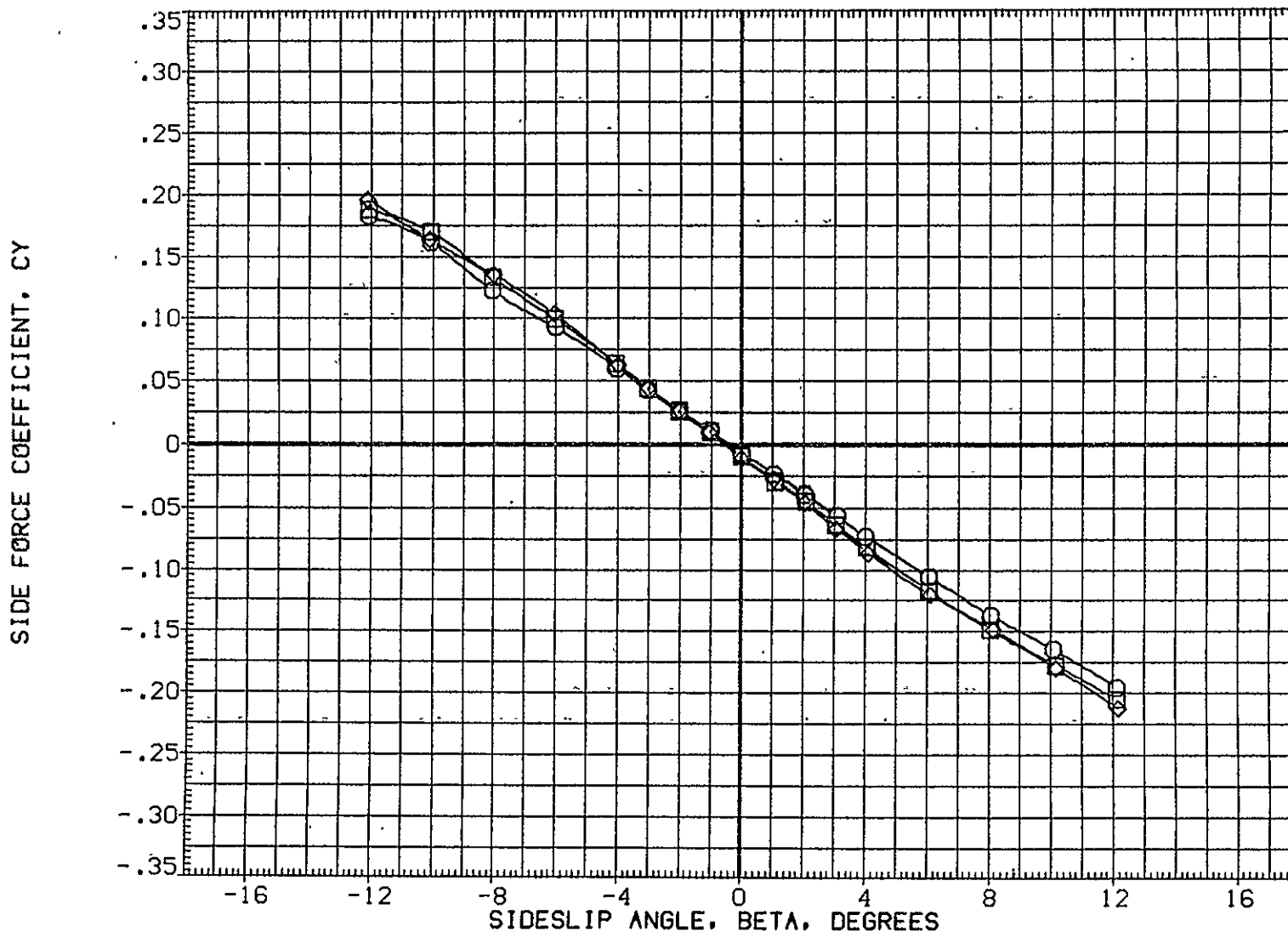


FIG.113 747+ORB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA1=6,RUDDER=10/10 ORB

CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(XGM069)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	RUD-L	RUD-U	SREF	SO, FT.	
○	.500	6.000	1.000	10.000	10.000	2690.0000	IN.	
□	.600	10.000	3.000	3.000	3.000	474.8100	IN.	
◇	.700	.000	45.000	45.000	45.000	936.6800	IN.	X0
		SI-2	S3-4	SI-2	S3-4	1109.0000	IN.	Y0
		S5-6	I0RB	S5-6	I0RB	375.0000	IN.	Z0
						SCALE	.0300	

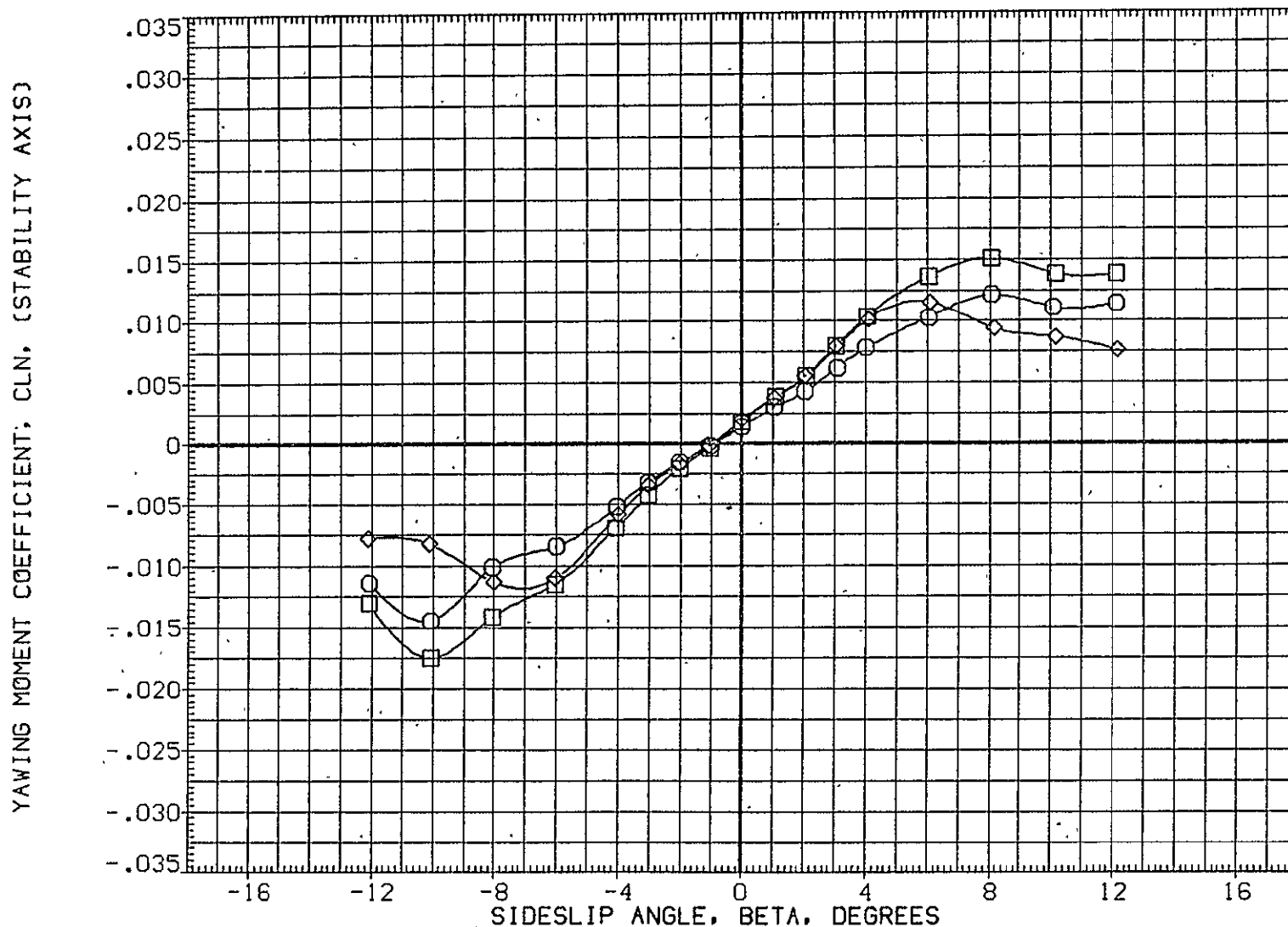


FIG.113 747+0RB(10 DEG)+TIP FINS+SP45, FLAPS 20 LNCH, ALPHA1=6, RUDDER=10/10 0RB

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	10.000	RUD-L	10.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

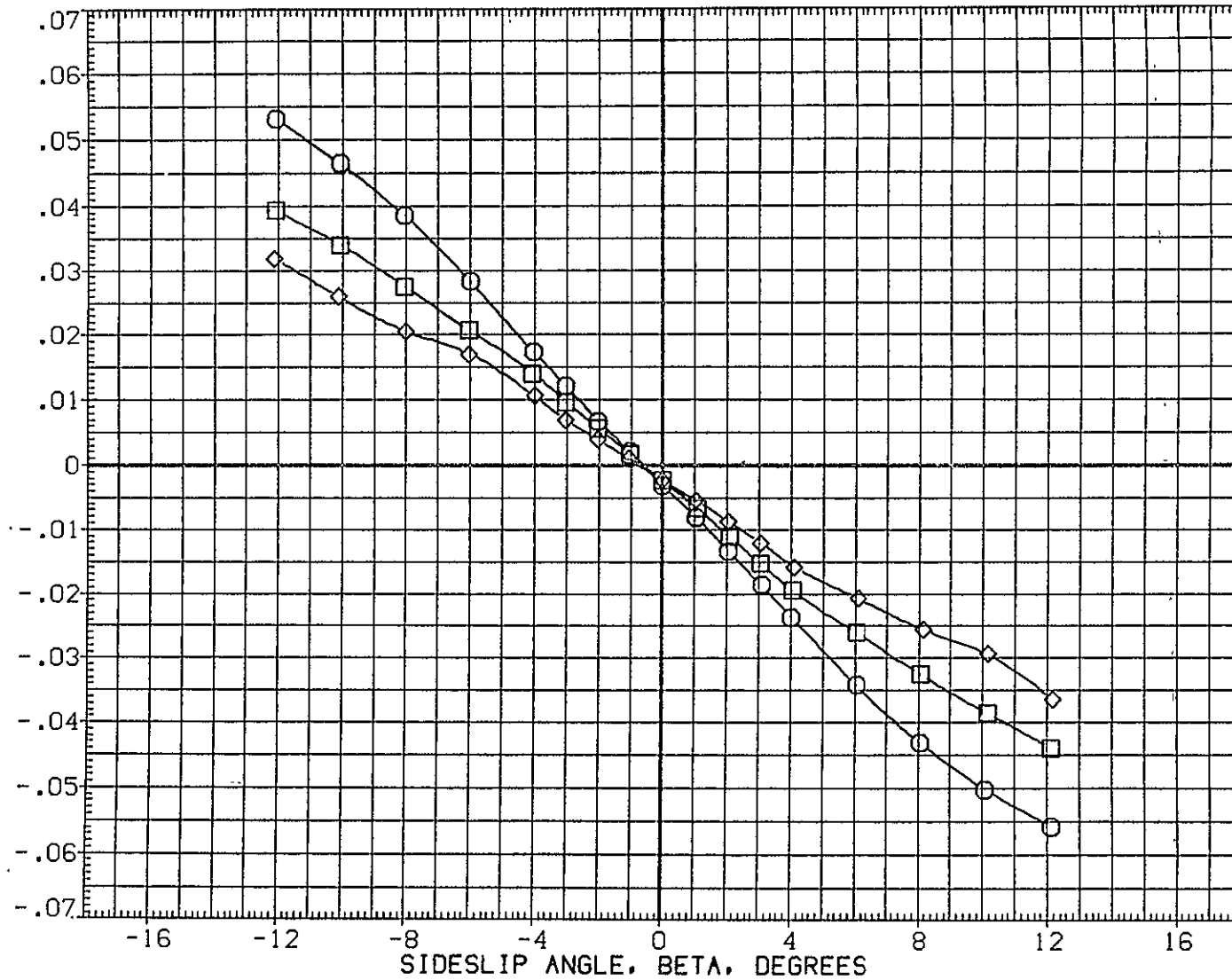


FIG.113 747+0RB(10 DEG)+TIP FINS+SP45,FLAPS 20 LNCH,ALPHA1=6,RUDDER=10/10 0RB

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM072)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	RUD-L	RUD-L	SREF	SQ.FT.	
○	.500	8.000	1.000			5500.0000		
□	.600	.000	.000			327.8000	IN.	
◇	.700	ELV-1B	3.000			2348.0000	IN.	
		S1-2	.000			XMRP	1339.9100	IN. XC
		S5-6	.000			YMRP	.0000	IN. YC
			10RB	9.700		ZMRP	190.7500	IN. ZC
						SCALE	.0300	

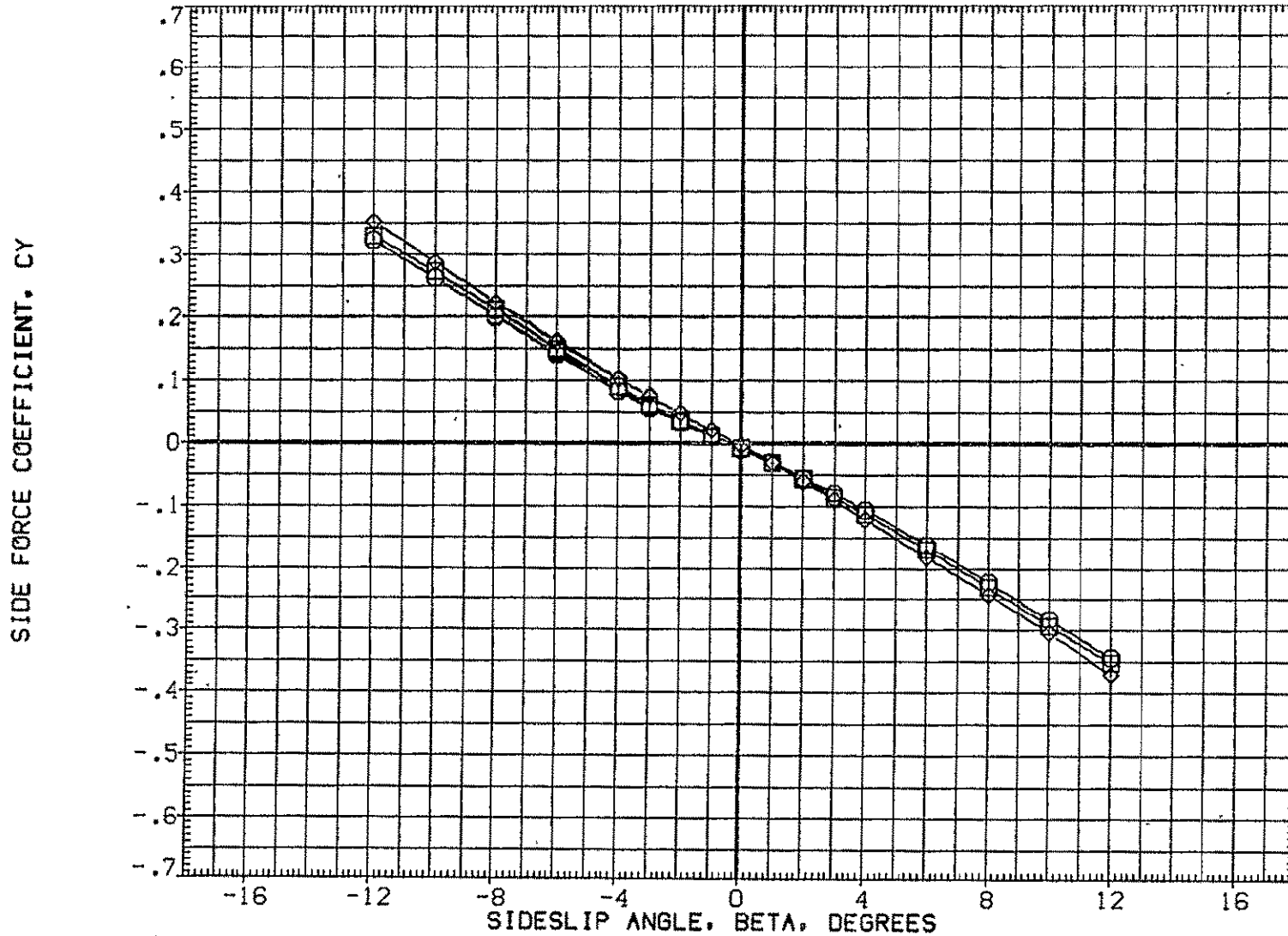


FIG.114 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 8 DEG

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	8.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

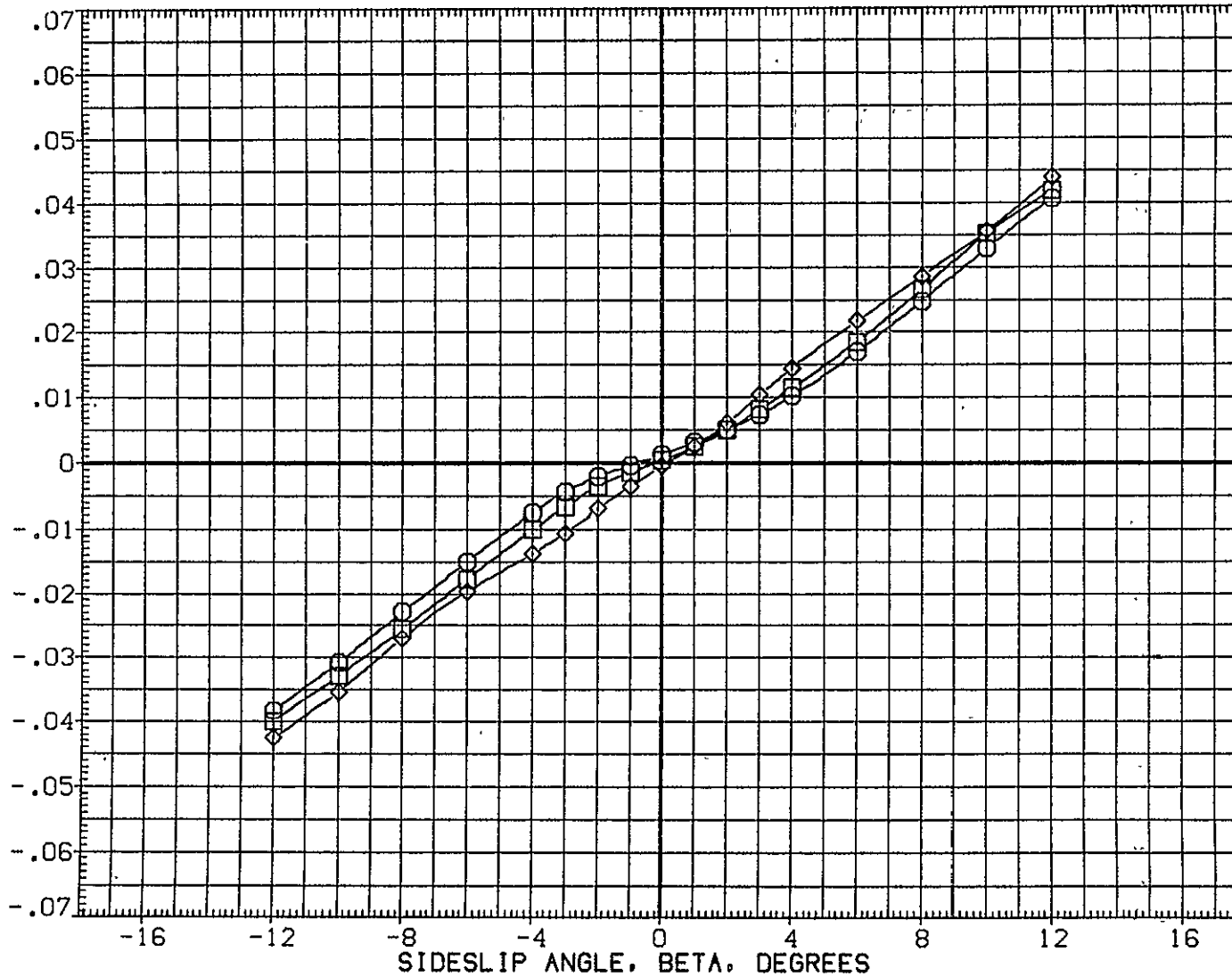


FIG.114 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 8 DEG

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM072)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	RUD-L	ELV-OB	SREF	IN.	SQ.FT.
○	.500	8.000	1.000	.000	5500.0000	327.8000	IN.	
□	.600	.000	.000	3.000	2349.0000	1339.9100	IN.	IN. XC
◇	.700	.000	.000	.000	YMRP	190.7500	IN.	IN. YC
		S1-2	S3-4		ZMRP		IN.	ZC
		S5-6	10RB	9.700	SCALE	.0300		

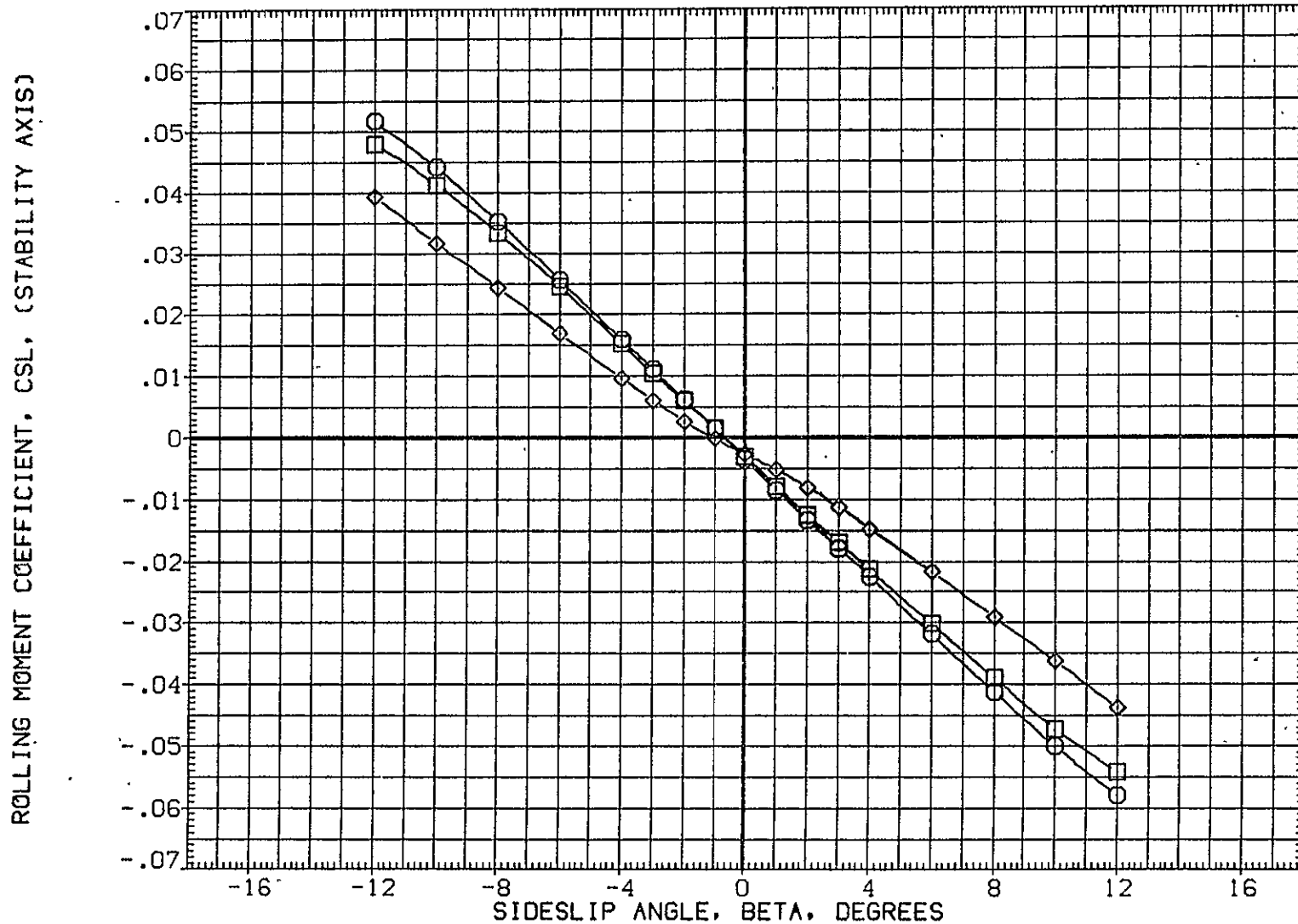


FIG.114 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA I= 8 DEG

TOTAL



SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	8.000	STAB	1.000
◇	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	



FIG.115 747+0RB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 8 DEG

747

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM072)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	8.000	STAB	1.000	SREF	5500.0000	SQ.FT.
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		SS-6	.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

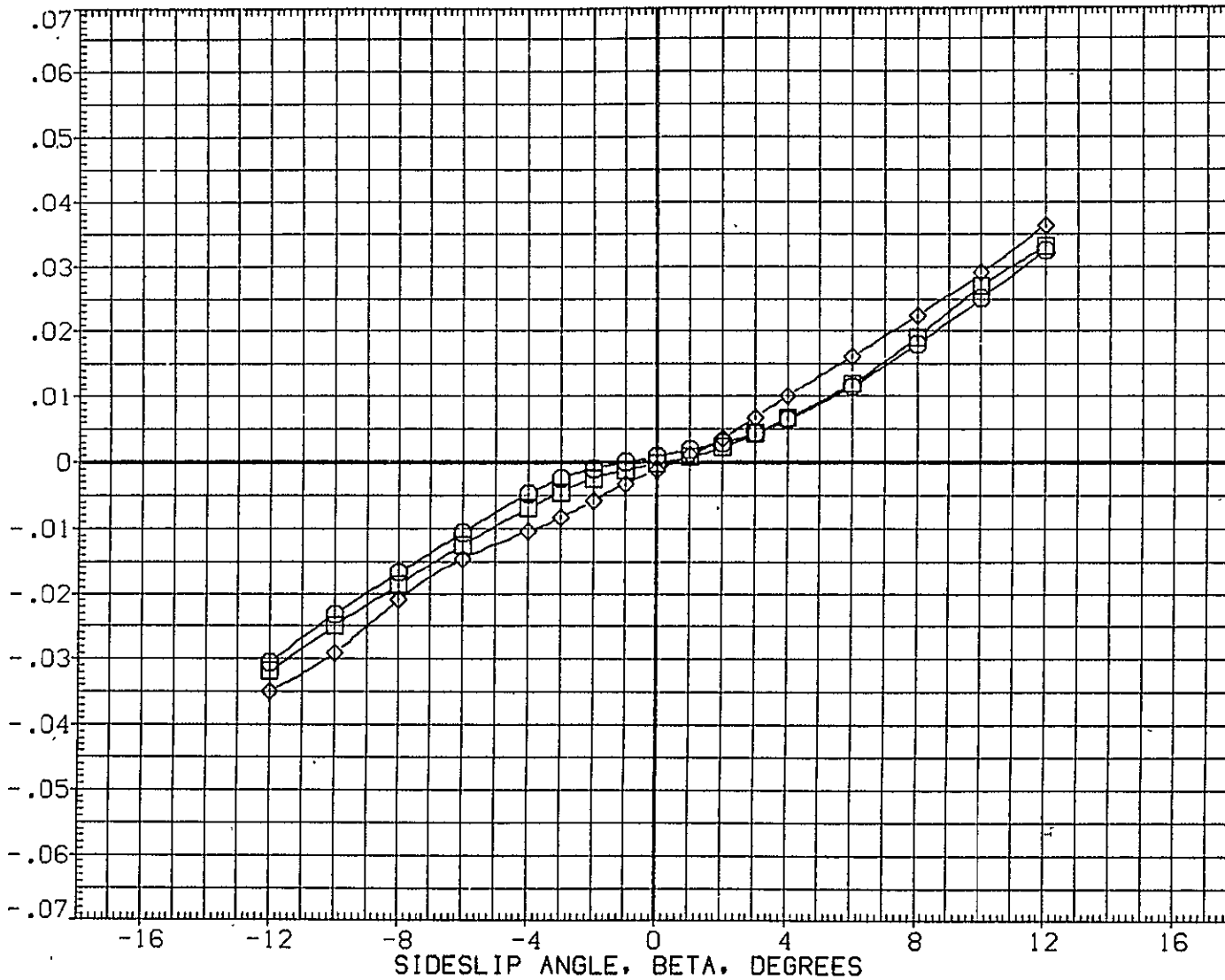


FIG.115 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA I= 8 DEG

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	8.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

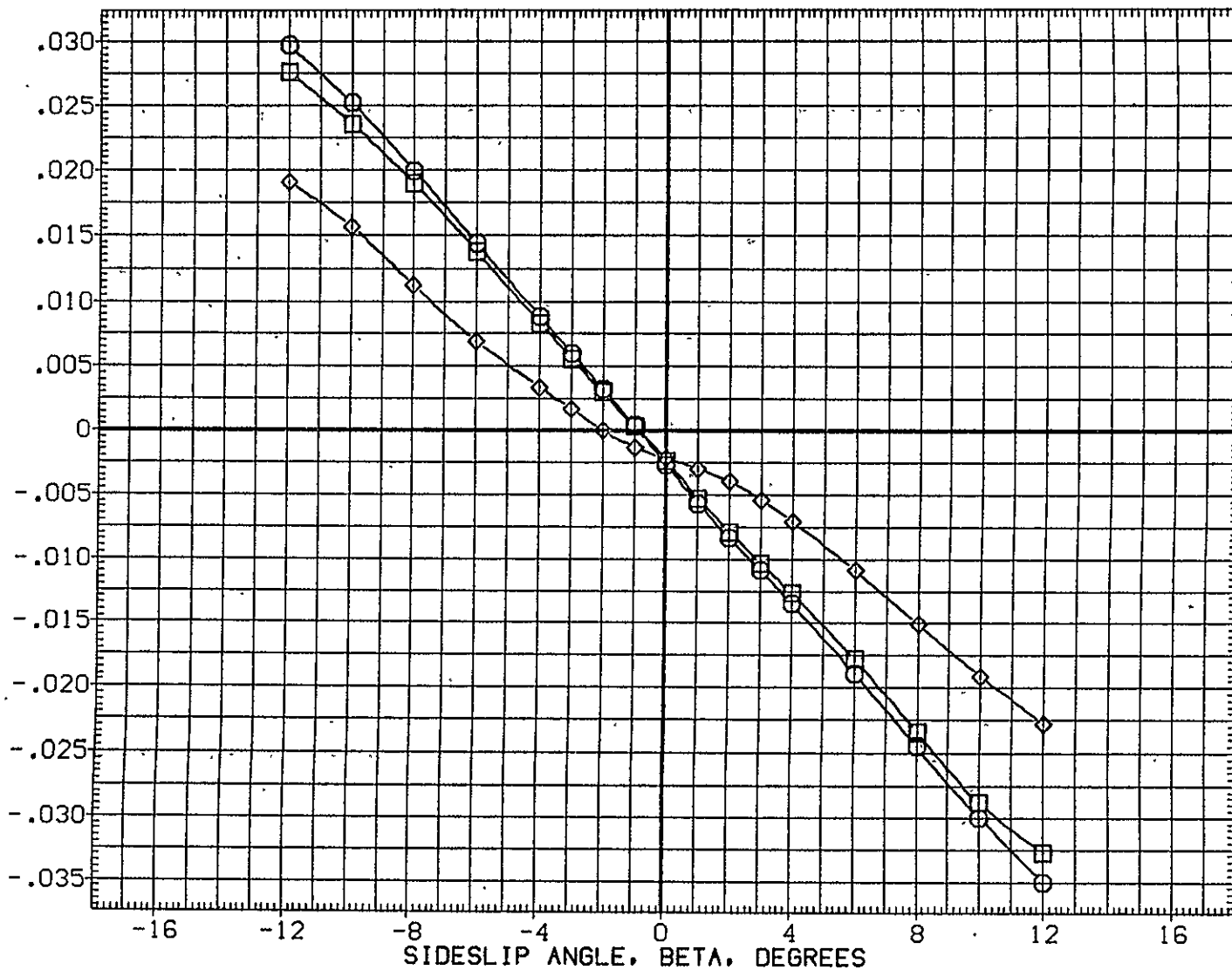


FIG.115 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 8 DEG

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(XGM072)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA I	8.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
△	.699	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	IORB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

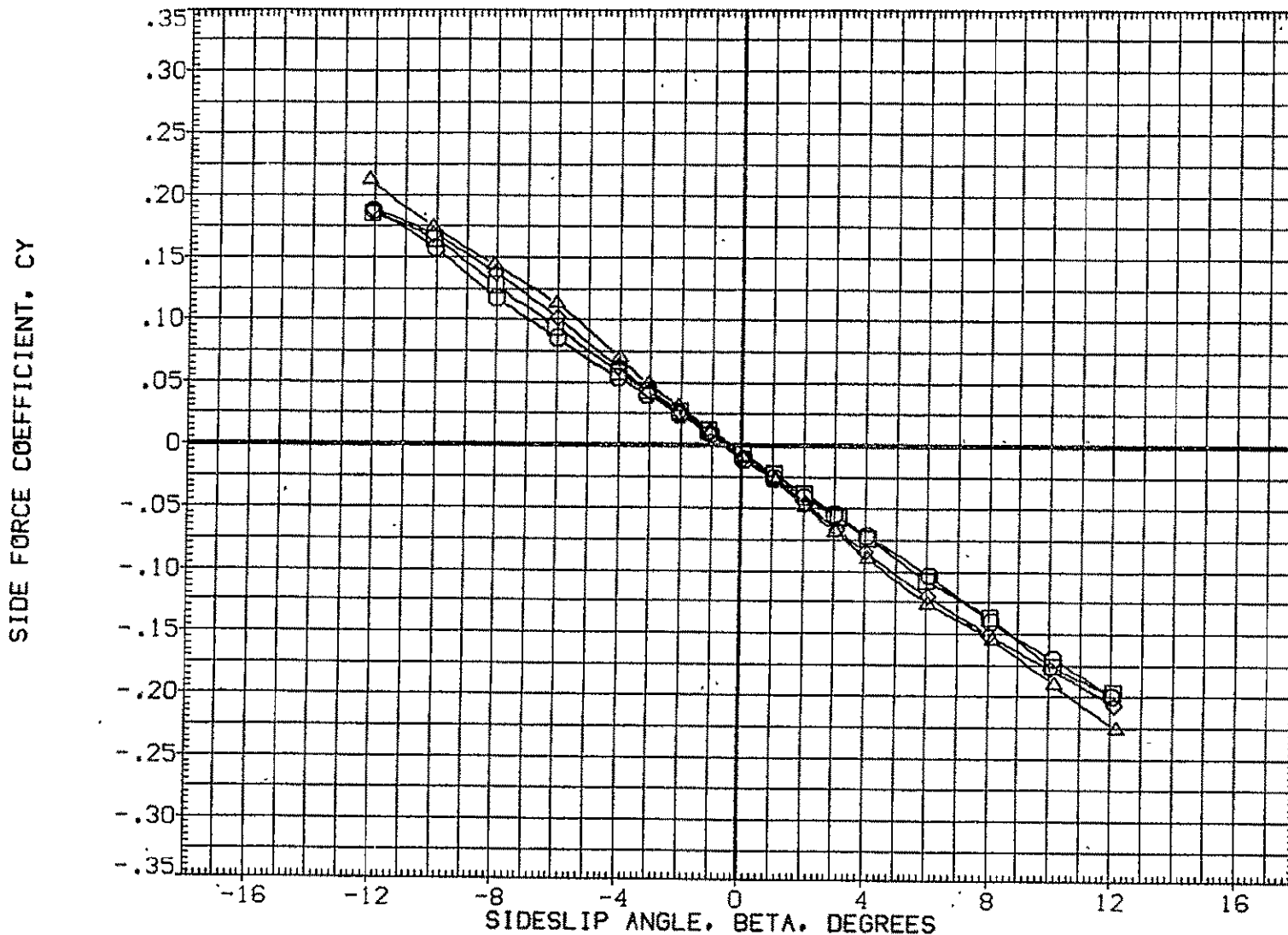


FIG.116 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA I= 8 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHAI	STAB	RUD-U	RUD-L	SREF	SG.FT.	
○	.150	8.000	1.000			2690.0000	IN.	
□	.500	.000	.000			474.8100	IN.	
◇	.600	.000	3.000			936.6800	IN. X0	
△	.699	.000	.000			1109.0000	IN. Y0	
		S1-2	S3-4	S5-6		ZMRP	IN. Z0	
			10RB			375.0000		
						SCALE	.0300	

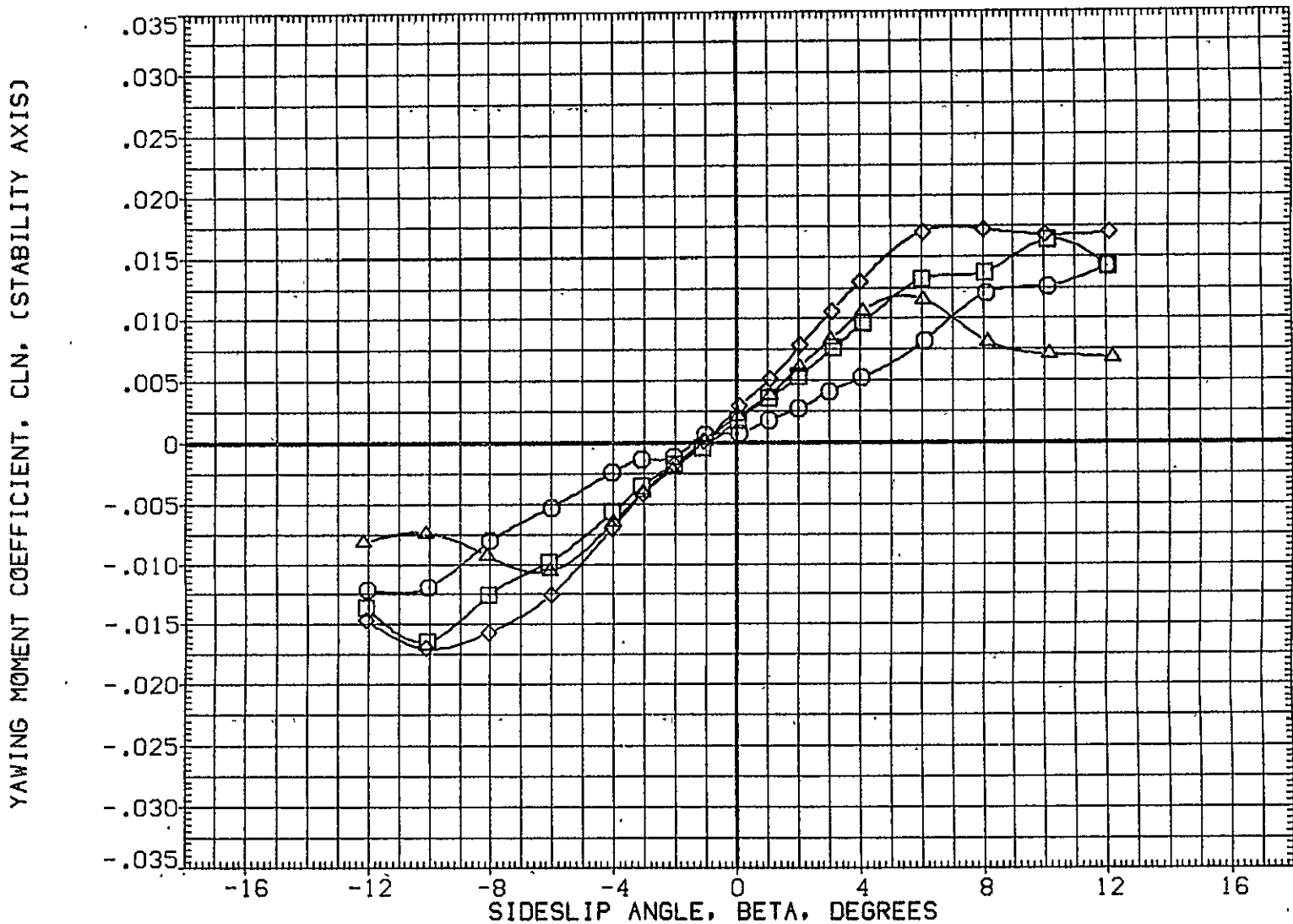


FIG.116 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHAI= 8 DEG

ORB

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(XGM072)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA	8.000	STAB	1.000	SREF	2690.0000	SG.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.699	.000	S3-4	.000	XMRP	1109.0000	IN. X0	
		S5-6	.000	IORB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

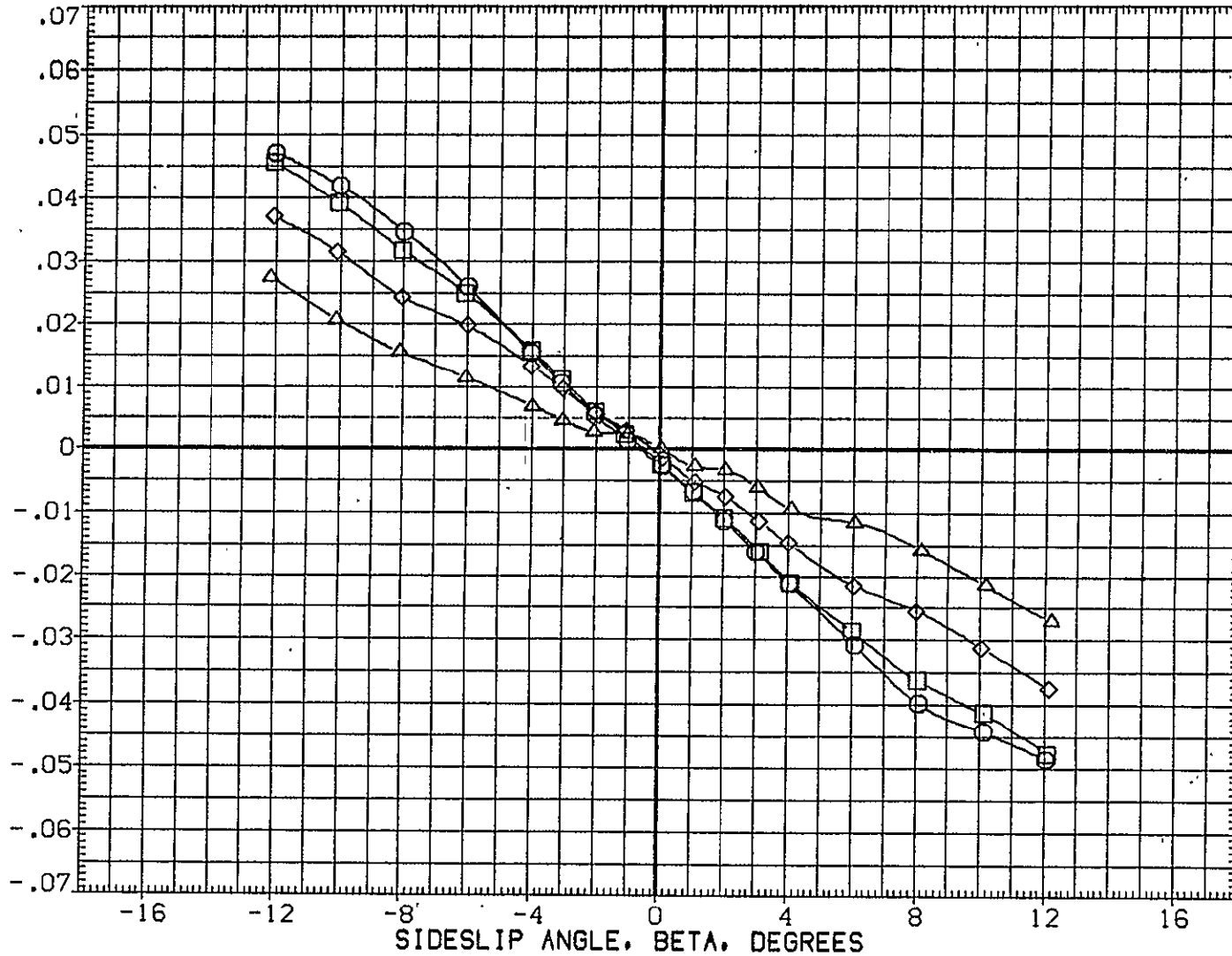


FIG.116 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA= 8 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	STAB	STAB	SREF	SQ.FT.	SQ.FT.
○	.500	6.000	1.000			5500.0000		
□	.600	.000	.000			327.8000		
◇	.700	.000	3.000			2348.0000		
		S1-2	S3-4			1339.9100		IN. XC
		S5-6	10RB	9.700		.0000		IN. YC
						190.7500		IN. ZC
						SCALE	.0300	

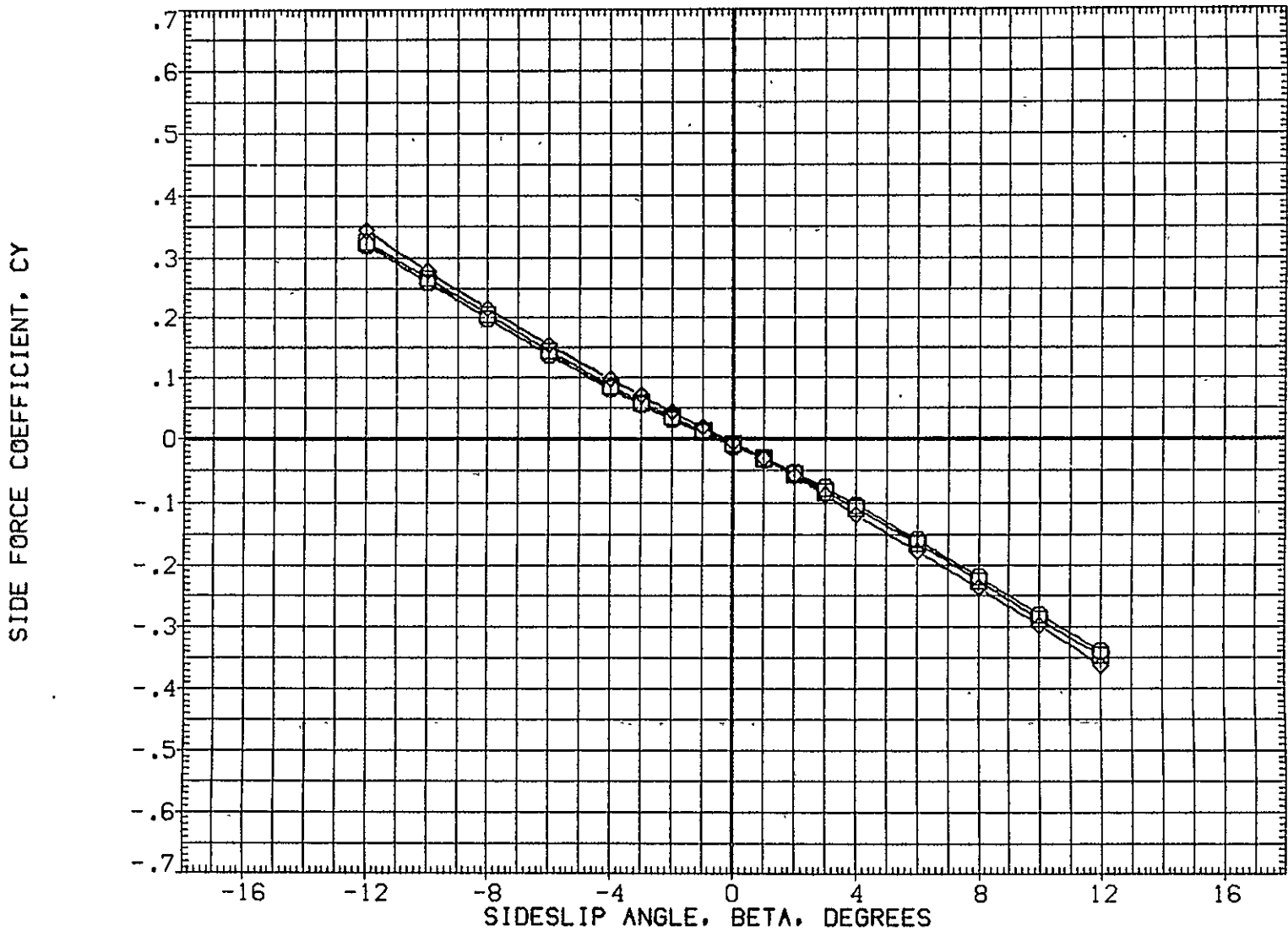


FIG.117 747+0RB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.1 )(RGM073)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA	STAB	RUD-L	RUD-U	SREF	IN.	SQ.FT.
○	.500	6.000	1.000	.000	.000	5500.0000	327.8000	IN.
□	.600	.000	.000	.000	.000	2348.0000	1339.9100	IN.
◇	.700	ELV-1B	ELV-0B	3.000	.000	YMRP	ZMRP	IN. XC
		S1-2	S3-4	.000	.000	.0000	190.7500	IN. YC
		S5-6	1ORB	.000	9.700	SCALE	.0300	IN. ZC

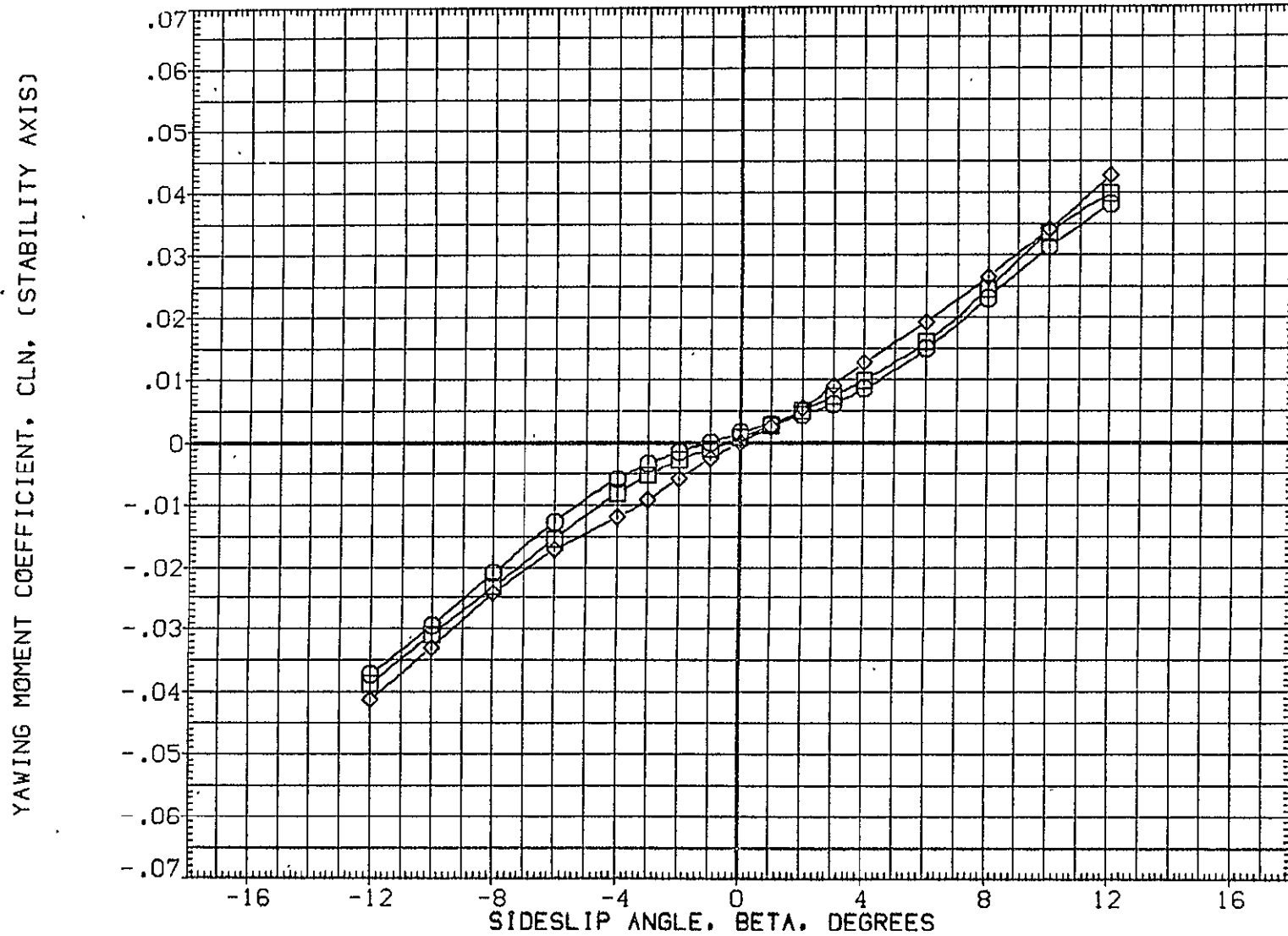


FIG.117 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA= 6 DEG

TOTAL



SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SO.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

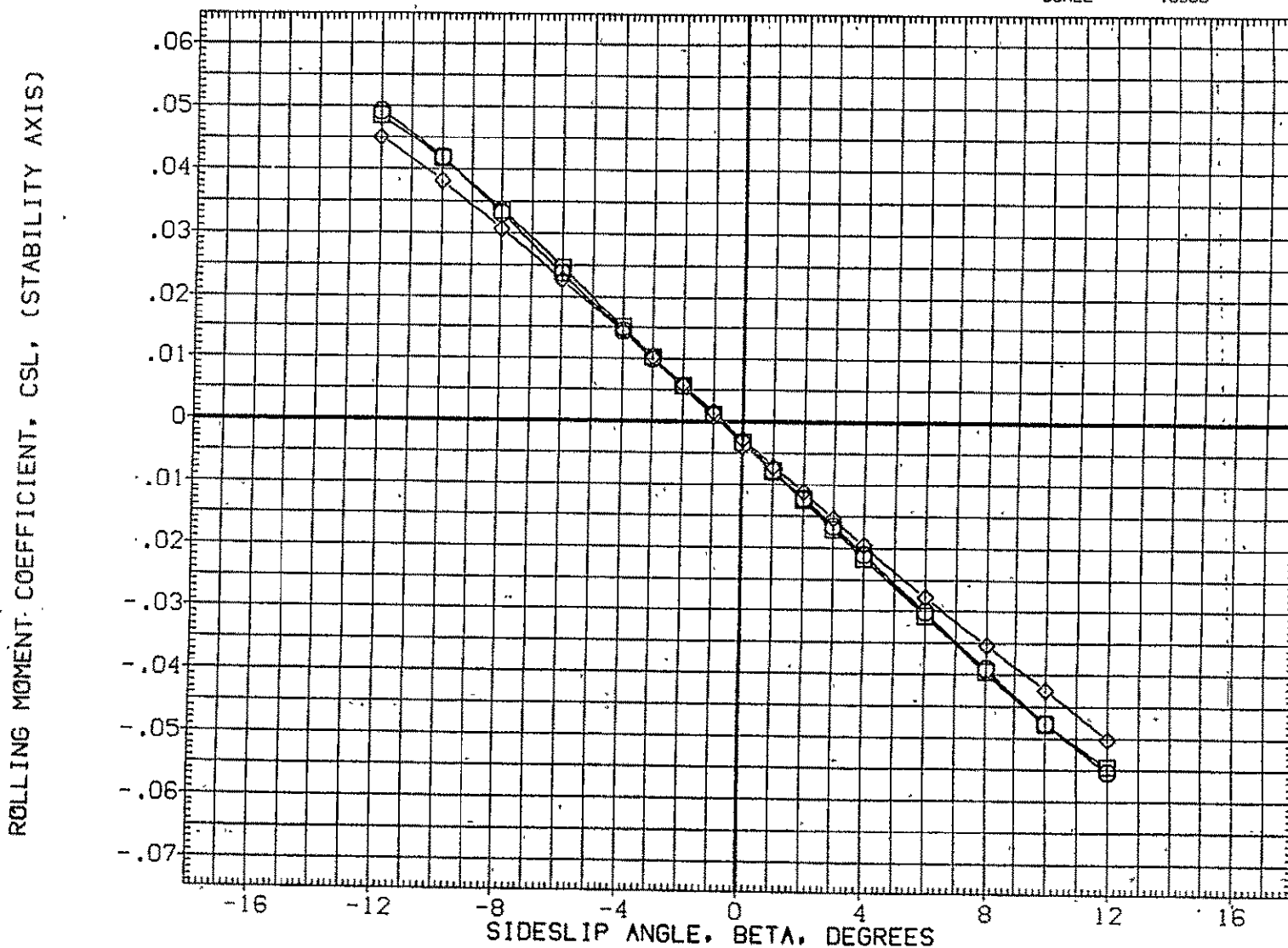


FIG.117 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH; ALPHA1= 6 DEG

CA5 K1 F20 H15.6 V9.1 MINUS 0RB TC5 AT38.1 (BGM073)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	1.000	SREF	5500.0000	50. FT.	
○	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT (STABILITY AXIS), DCY

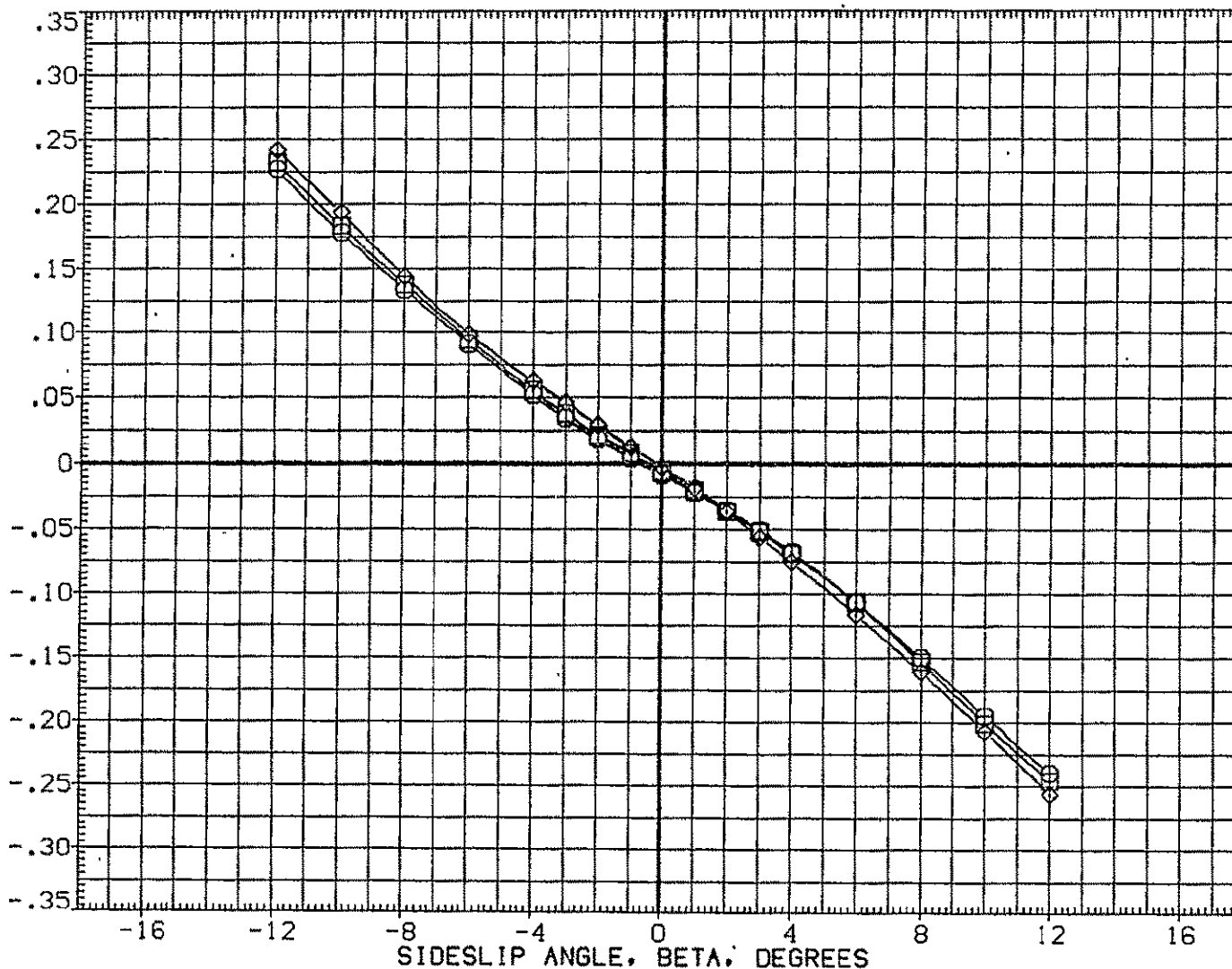


FIG.118 747+0RB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA I= 6 DEG

SYMBOL  
 ○ □ ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

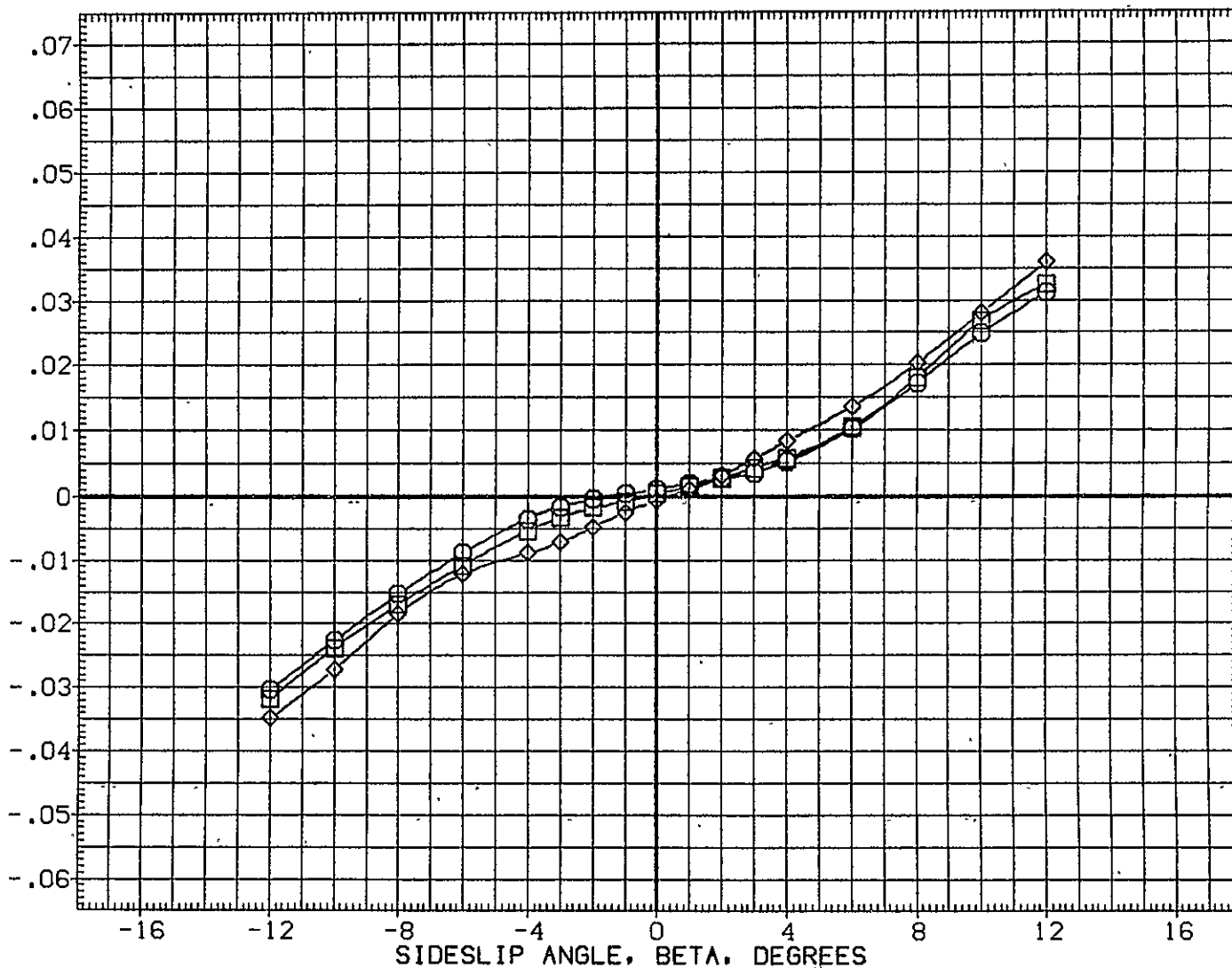


FIG.118 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.1 (BGM073)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA:	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

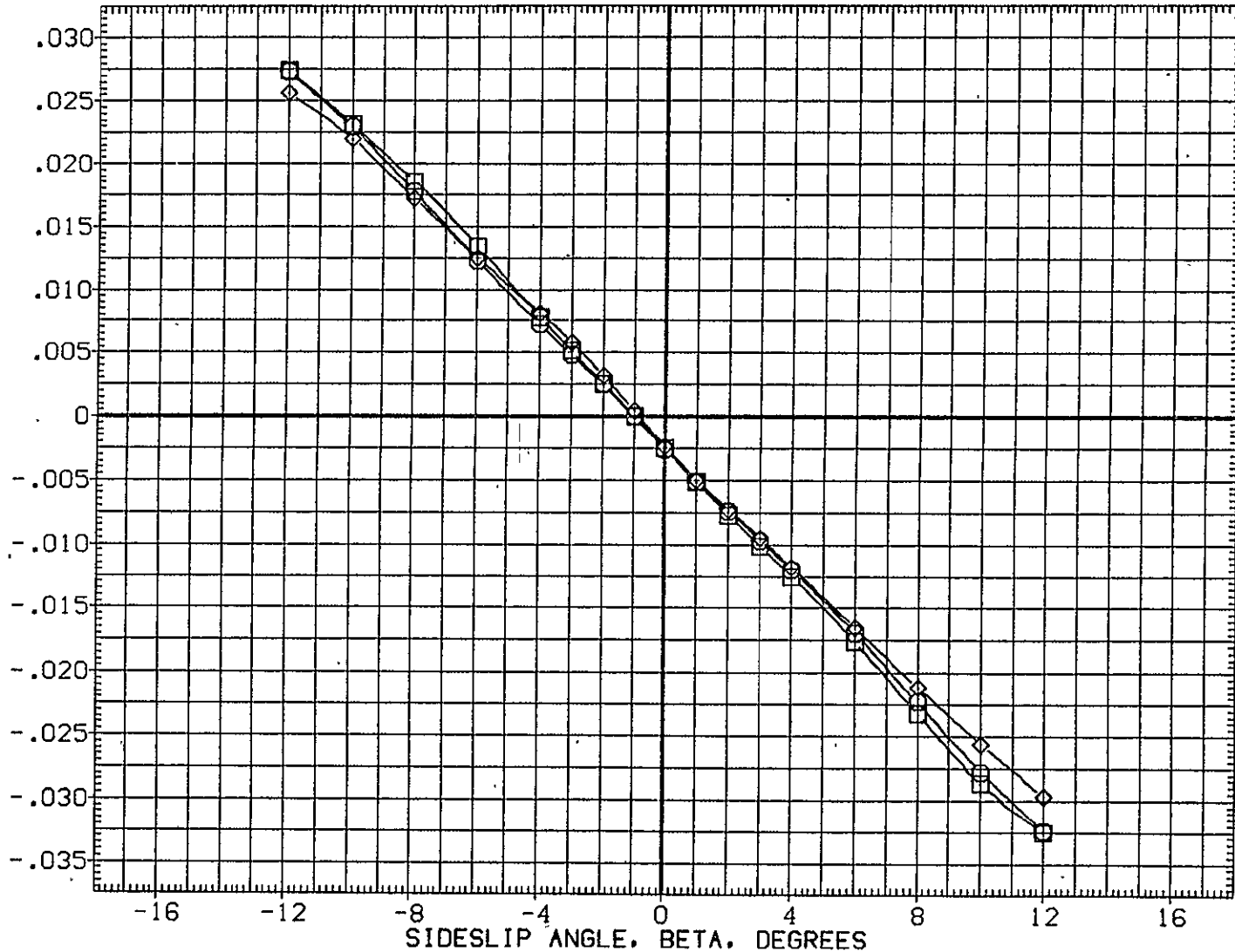


FIG.118 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	1.000	SREF	SQ.FT.		
○	.151	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.501	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.601	ELV-1B	.000	ELV-0B	3.000	BREF	936.6900	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	



FIG.119 747+0RB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

0RB

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.6 V9.1)(XGM073)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	.151	ALPHA1 6.000 STAB 1.000	SREF 2690.0000 SQ.FT.
□	.501	RUD-U .000 RUD-L .000	LREF 474.8100 IN.
◇	.601	ELV-1B .000 ELV-OB 3.000	BREF 936.6800 IN.
△	.700	S1-2 .000 S3-4 .000	XMRP 1109.0000 IN. X0
		SS-6 .000 TORB 9.700	YMRP .0000 IN. Y0
			ZMRP 375.0000 IN. Z0
			SCALE .0300

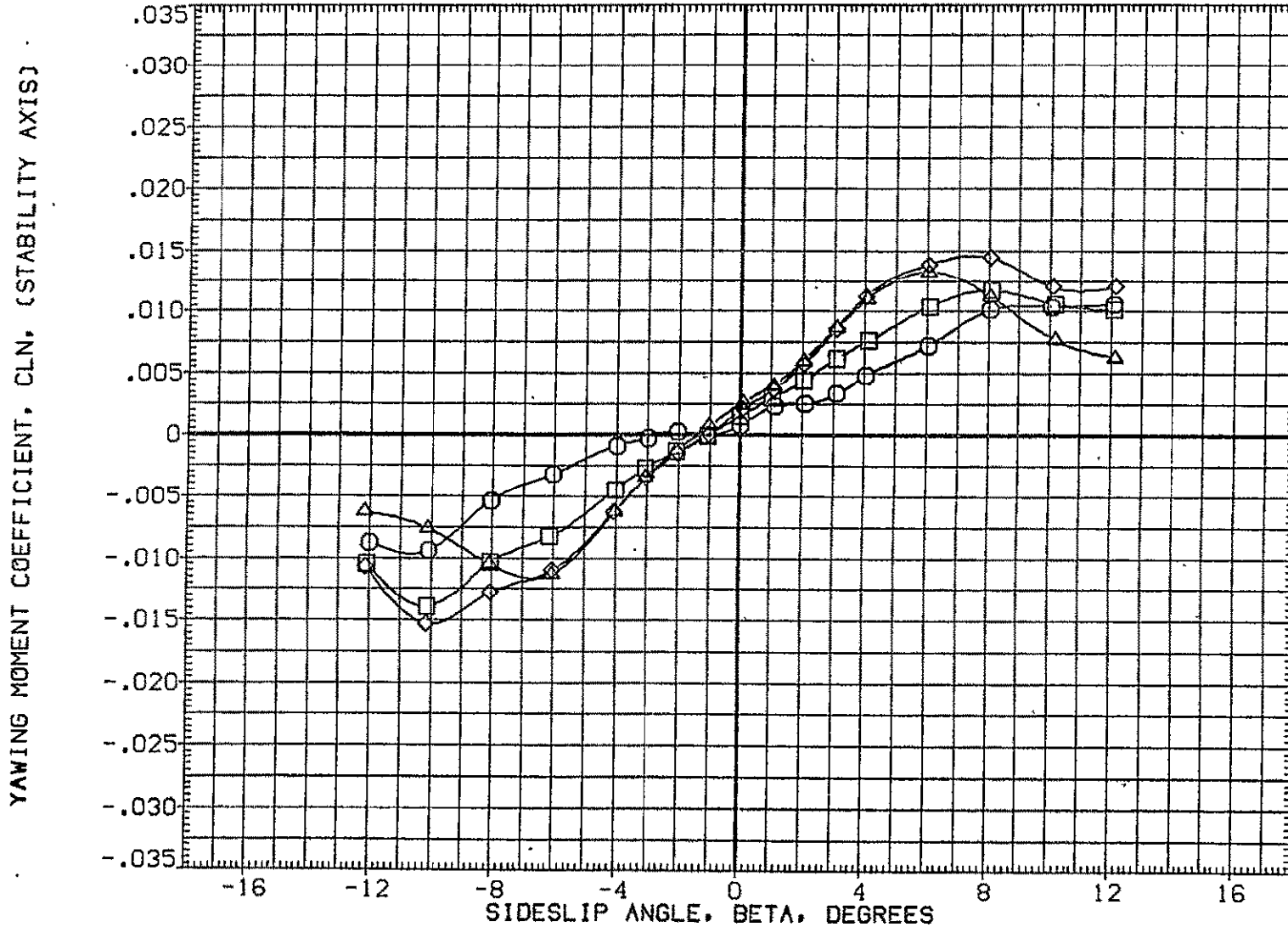


FIG.119 747+ORB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES
○	.151	ALPHA1 6.000 STAB 1.000
□	.501	RUD-U .000 RUD-L .000
◇	.601	ELV-1B .000 ELV-0B 3.000
△	.700	S1-2 .000 S3-4 .000
		SS-6 .000 IORB 9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

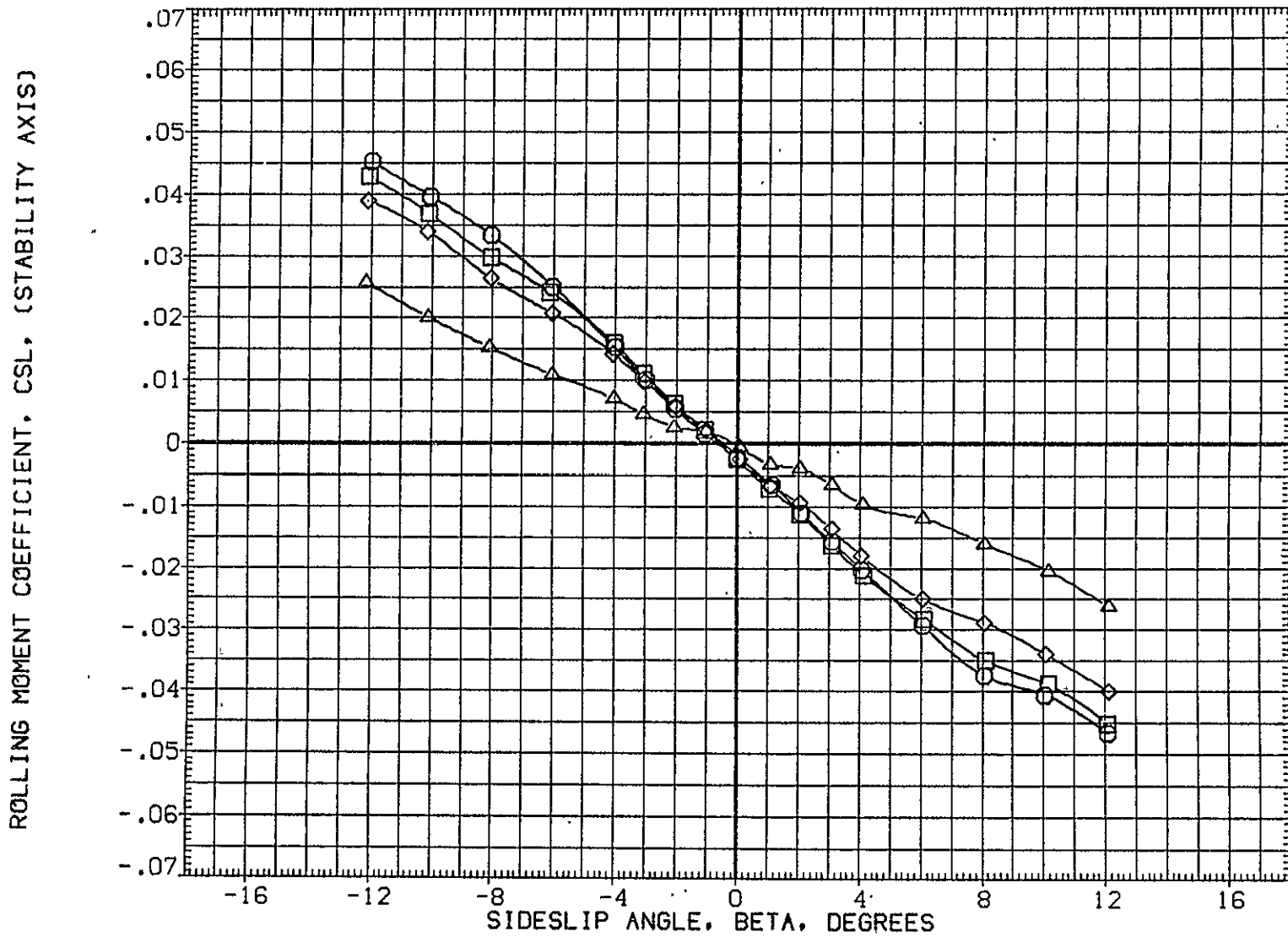


FIG.119 747+0RB(10 DEG)+TIP FINS, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

0RB

CA5 K1 F20 H15.1A V9.1 (PLUS. ORB TC5 AT38.1 )(RGM076)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA	6.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRF	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

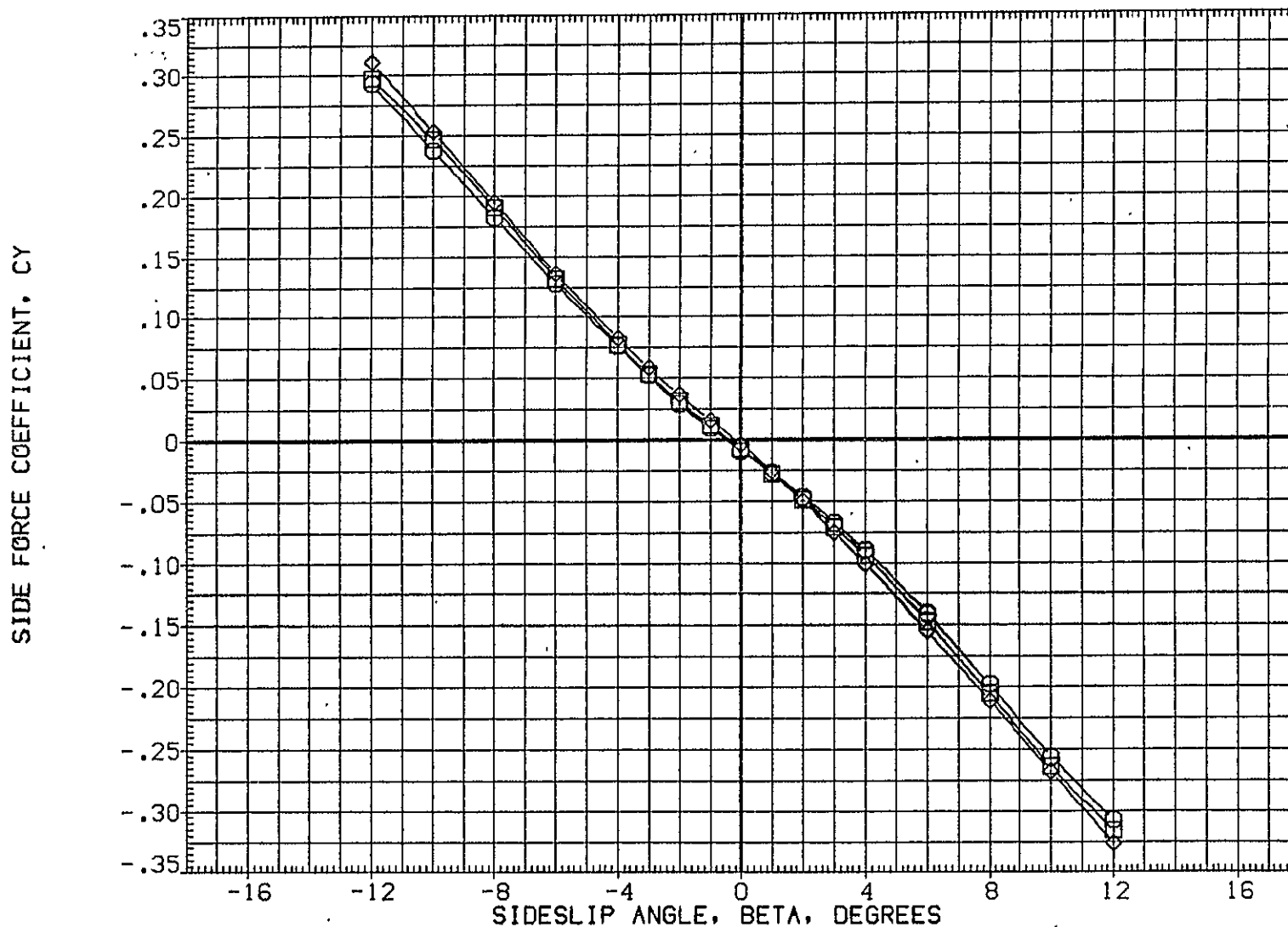


FIG.120 747+ORB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA= 6 DEG



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	STAB	STAB	SREF	SQ.FT.	SQ.FT.
○	.500	6.000	1.000		5500.0000			
□	.600	RUD-U	.000	RUD-L	327.8000		IN.	
◇	.700	ELV-1B	.000	ELV-0B	2348.0000		IN.	
		S1-2	45.000	S3-4	1339.9100		IN. XC	
		S5-6	45.000	10RB	.0000		IN. YC	
					ZMRP	190.7500	IN. ZC	
					SCALE	.0300		

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

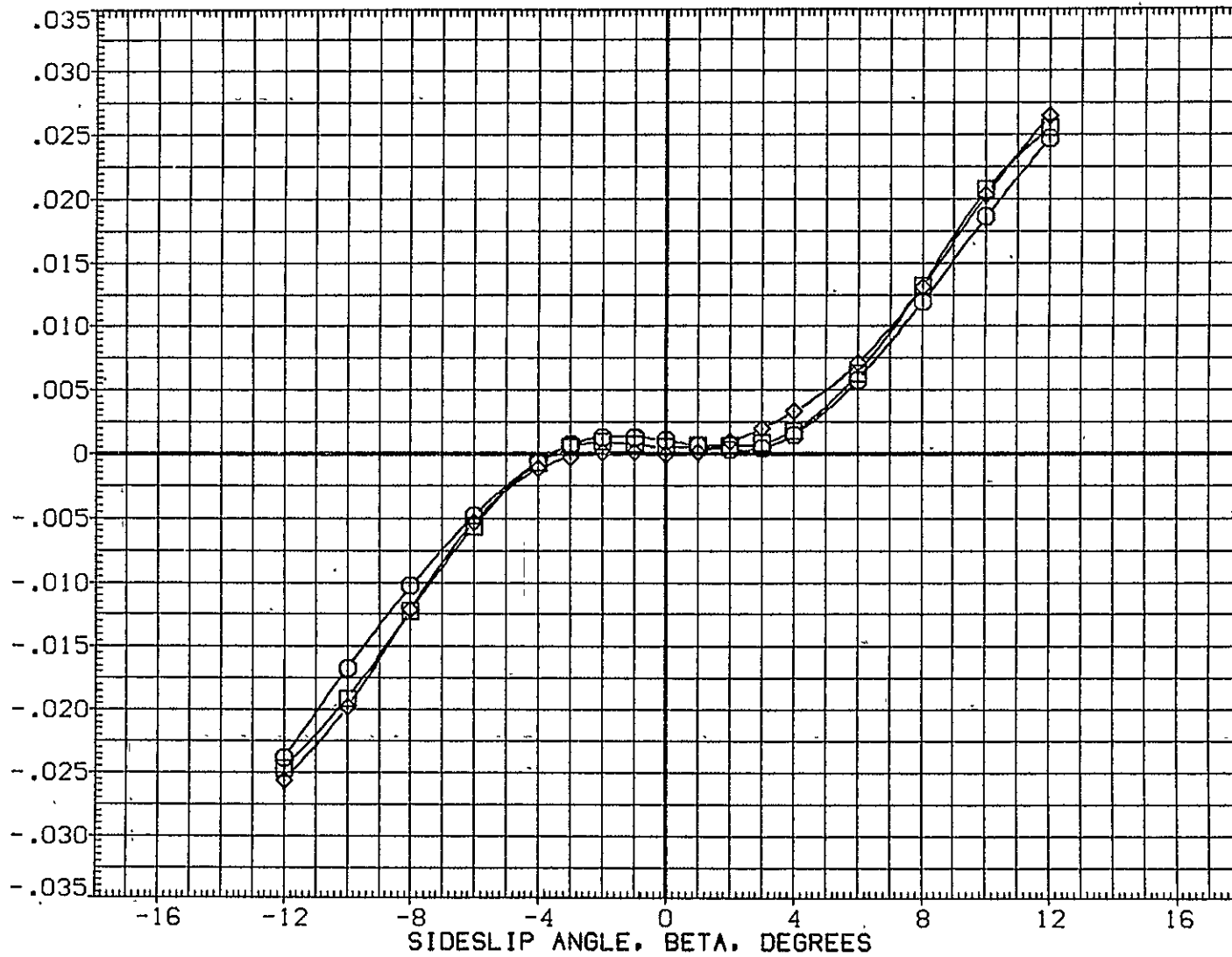


FIG.120 747+ORB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

CA5 K1 F20 H15.1A V9.1 (PLUS. 0RB TC5 AT38.1 ) (RGM076)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA I	6.000	STAB	1.000	SREF	5500.0000	SG, FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

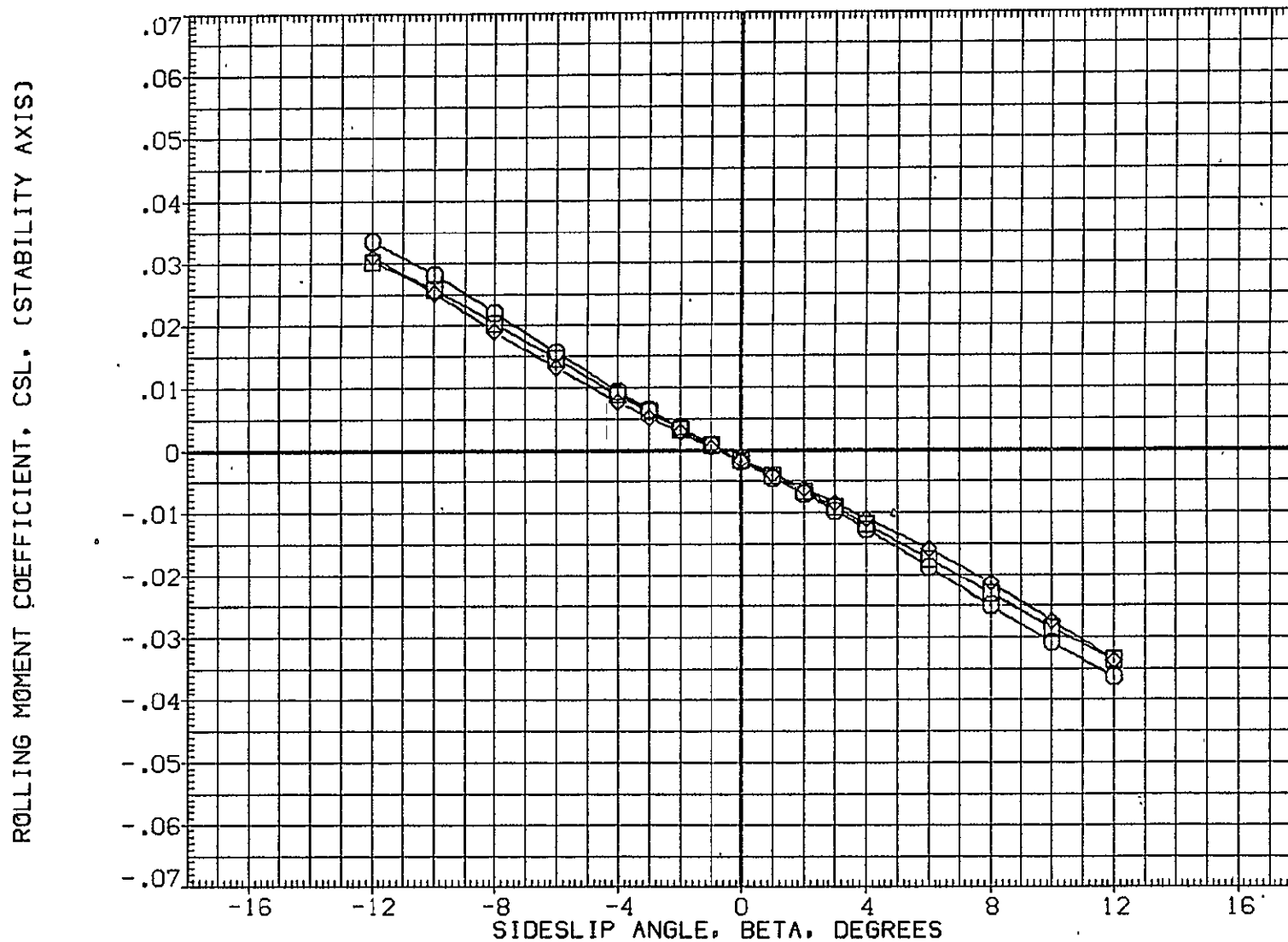


FIG.120 747+0RB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA I= 6 DEG

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	STAB	STAB	SREF	SQ.FT.	SQ.FT.
○	.500	6.000	1.000			5500.0000		
□	.600	.000	.000			327.8000		
◇	.700	.000	3.000			2348.0000		
		ELV-1B	ELV-0B			1339.9100		
		S1-2	S3-4			.0000		
		S5-6	10RB			190.7500		
						.0300		

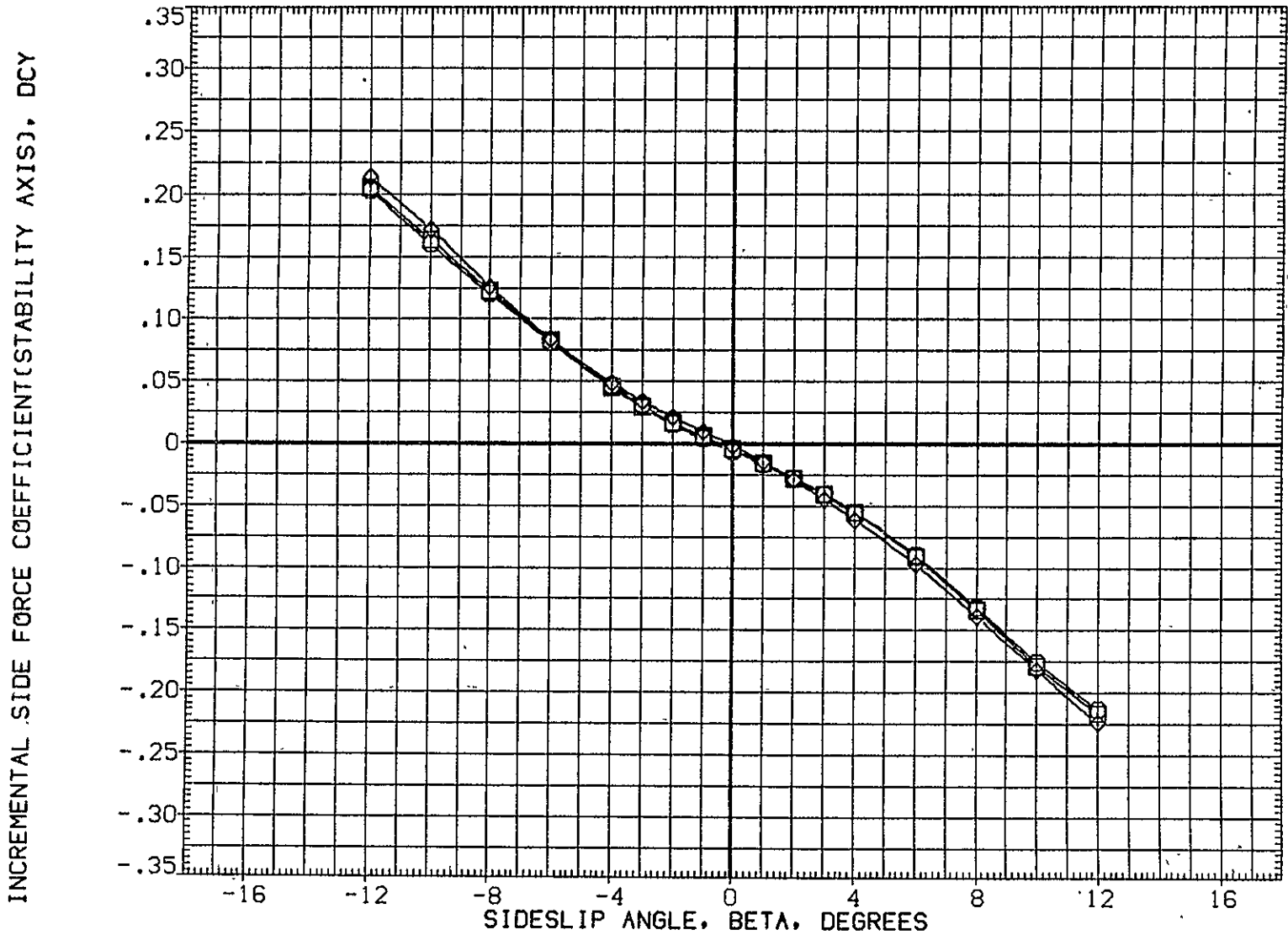


FIG.121 747+0RB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

CA5 K1 F20 H15.1A V9.1 MINUS ORB TC5 AT38.1 (BGM076)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA I	6.000	STAB	1.000
□	.600	RUD-U	.000	RUD-L	.000
◇	.700	ELV-1B	.000	ELV-0B	3.000
		S1-2	45.000	S3-4	45.000
		S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

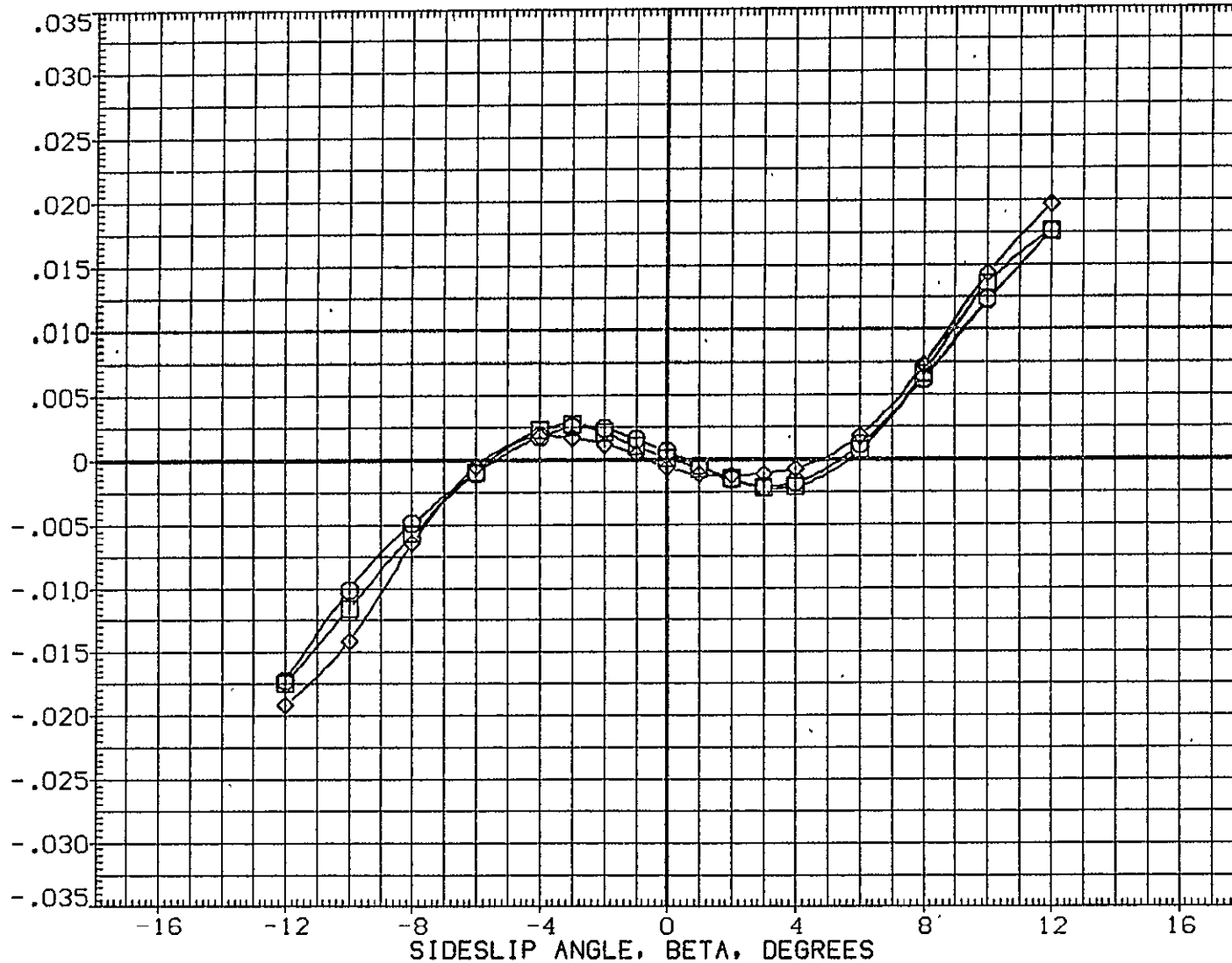


FIG.121 747+ORB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA I= 6 DEG

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

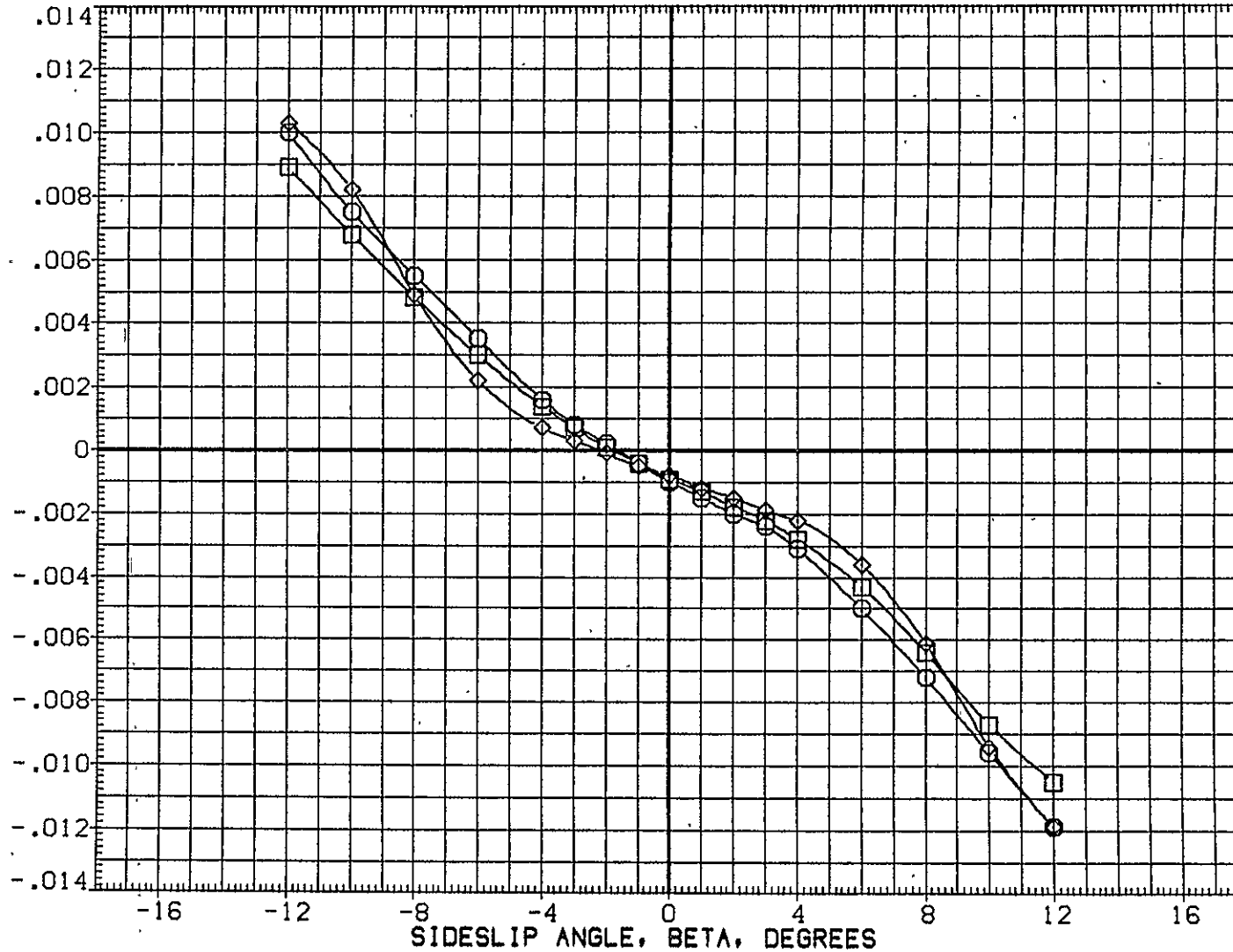


FIG.121 747+ORB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA1= 6 DEG



CA5 0RB TC5 AT38.1 (PRES. K1 F20 H15.1A V9.1)(XGM076)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA I	6.000	STAB	1.000	SREF	2690.0000	50. FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	IORB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

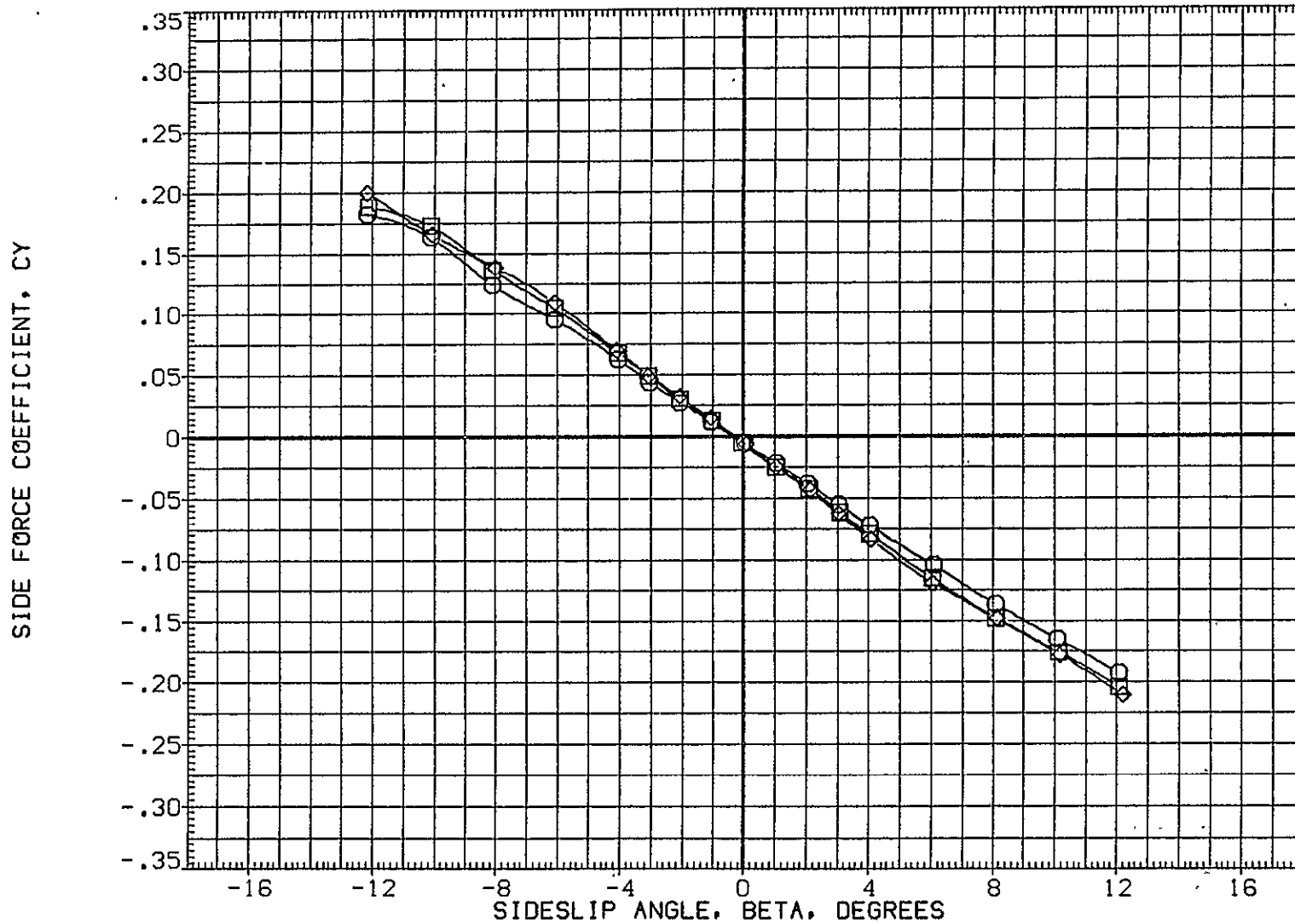


FIG.122 747+0RB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA I= 6 DEG

0RB

SYMBOL  
 ○  
 □  
 ◇

MACH	ALPHA1	PARAMETRIC VALUES			
.500	6.000	STAB	1.000		
.600	RUD-U	.000	RUD-L	.000	
.700	ELV-1B	.000	ELV-OB	3.000	
	S1-2	45.000	S3-4	45.000	
	S5-6	45.000	IORB	9.700	

REFERENCE INFORMATION

SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

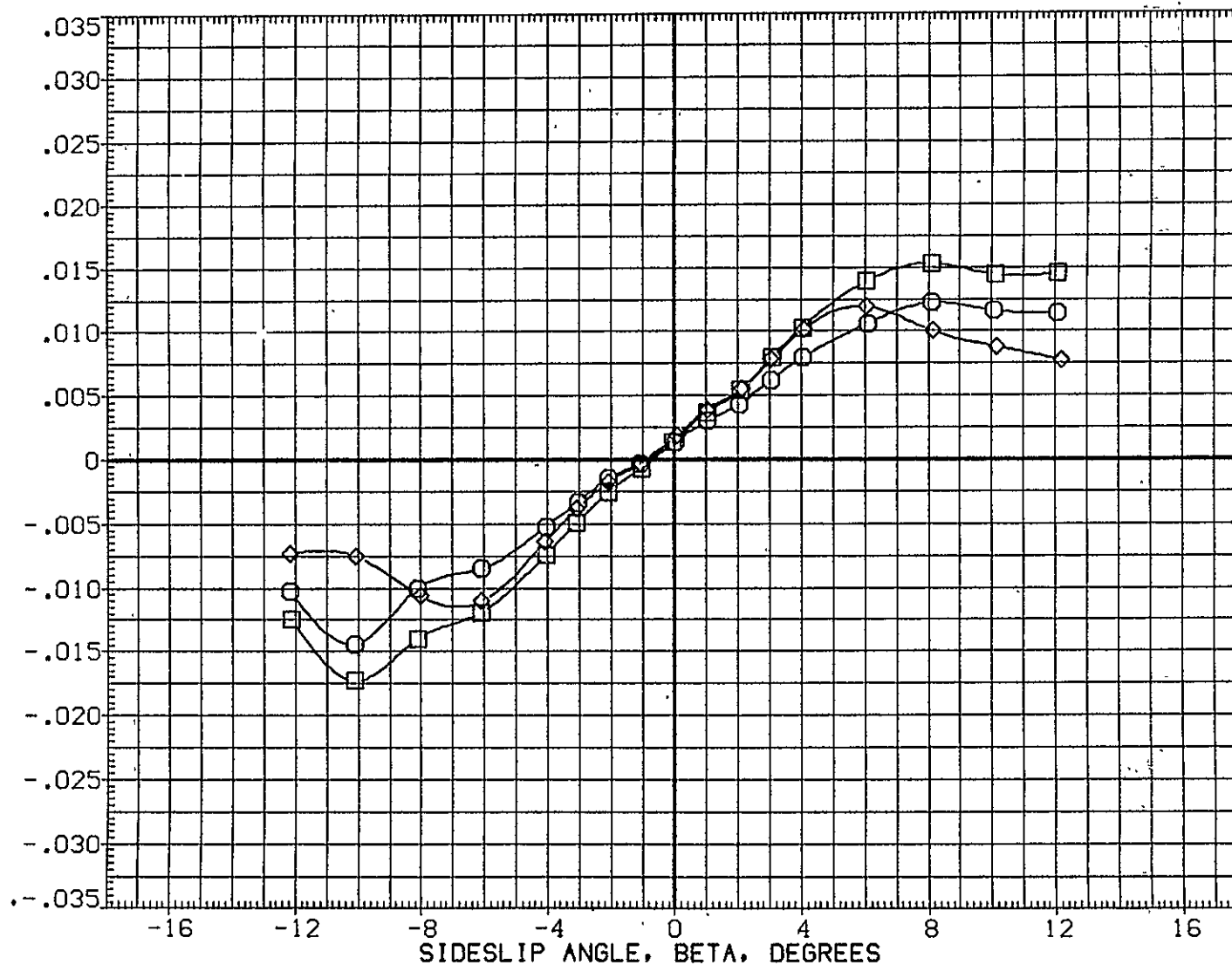


FIG.122 747+ORB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

ORB

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.1A V9.1)(XGM076)

SYMBOL  
 ◊ ◻ ○

MACH  
 .500  
 .600  
 .700

PARAMETRIC VALUES  
 ALPHA1 6.000 STAB 1.000  
 RUD-U .000 RUD-L .000  
 ELV-1B .000 ELV-OB 3.000  
 S1-2 45.000 S3-4 45.000  
 S5-6 45.000 IORB 9.700

REFERENCE INFORMATION  
 SREF 2690.0000 SQ.FT.  
 LREF 474.8100 IN.  
 BREF 936.6800 IN.  
 XMRP 1109.0000 IN. X0  
 YMRP .0000 IN. Y0  
 ZMRP 375.0000 IN. Z0  
 SCALE .0300

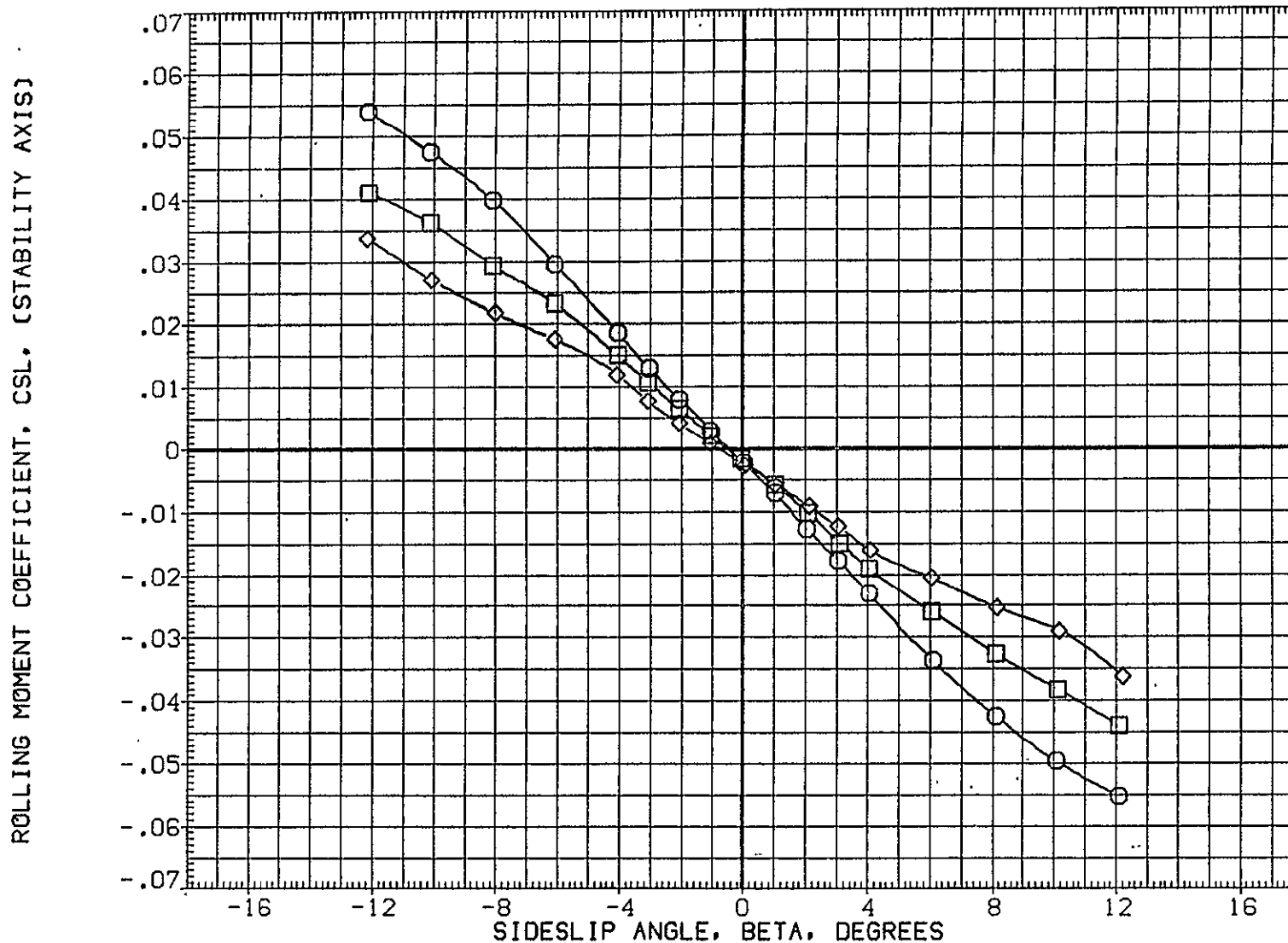


FIG.122 747+ORB(10 DEG)+SP45, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

ORB



SYMBOL

○  
□  
◇

MACH

.500  
.600  
.700

ALPHA1  
ELV-1B  
SI-2  
S5-6

PARAMETRIC VALUES

6.000 STAB 1.000  
.000 ELV-0B 3.000  
45.000 S3-4 45.000  
45.000 10RB 9.700

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
LREF 327.8000 IN.  
BREF 2348.0000 IN.  
XMRP 1339.9100 IN. XC  
YMRP .0000 IN. YC  
ZMRP 190.7500 IN. ZC  
SCALE .0300

SIDE FORCE COEFFICIENT, CY

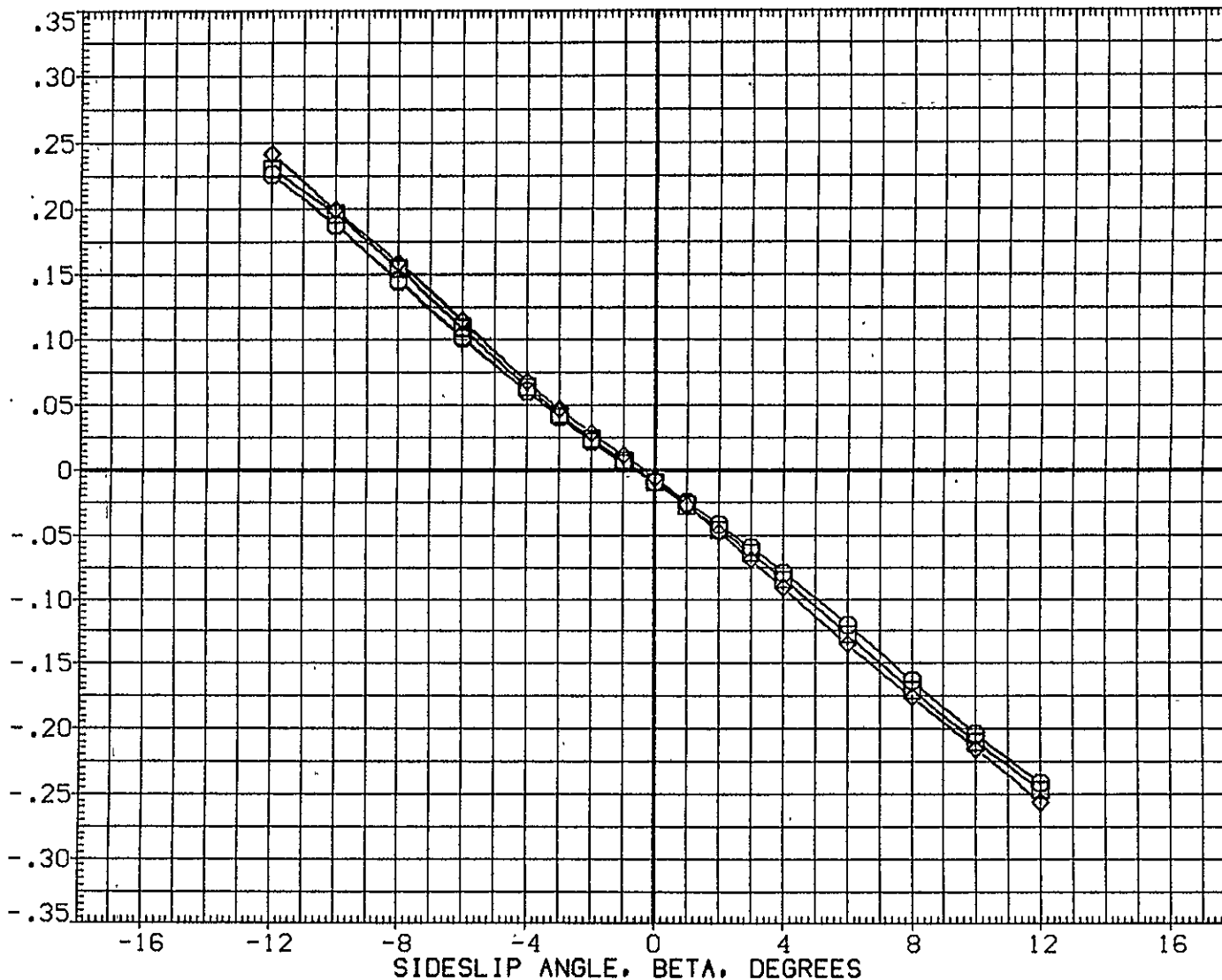


FIG.123 747+0RB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA1= 6 DEG TOTAL

CA5 K1 F20 H15.1A

(PLUS, ORB TC5 AT38.1 )(RGM078)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES
.500	ALPHA 6.000 STAB 1.000
.600	ELV-1B .000 ELV-0B 3.000
.700	S1-2 45.000 S3-4 45.000
	S5-6 45.000 IORB 9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

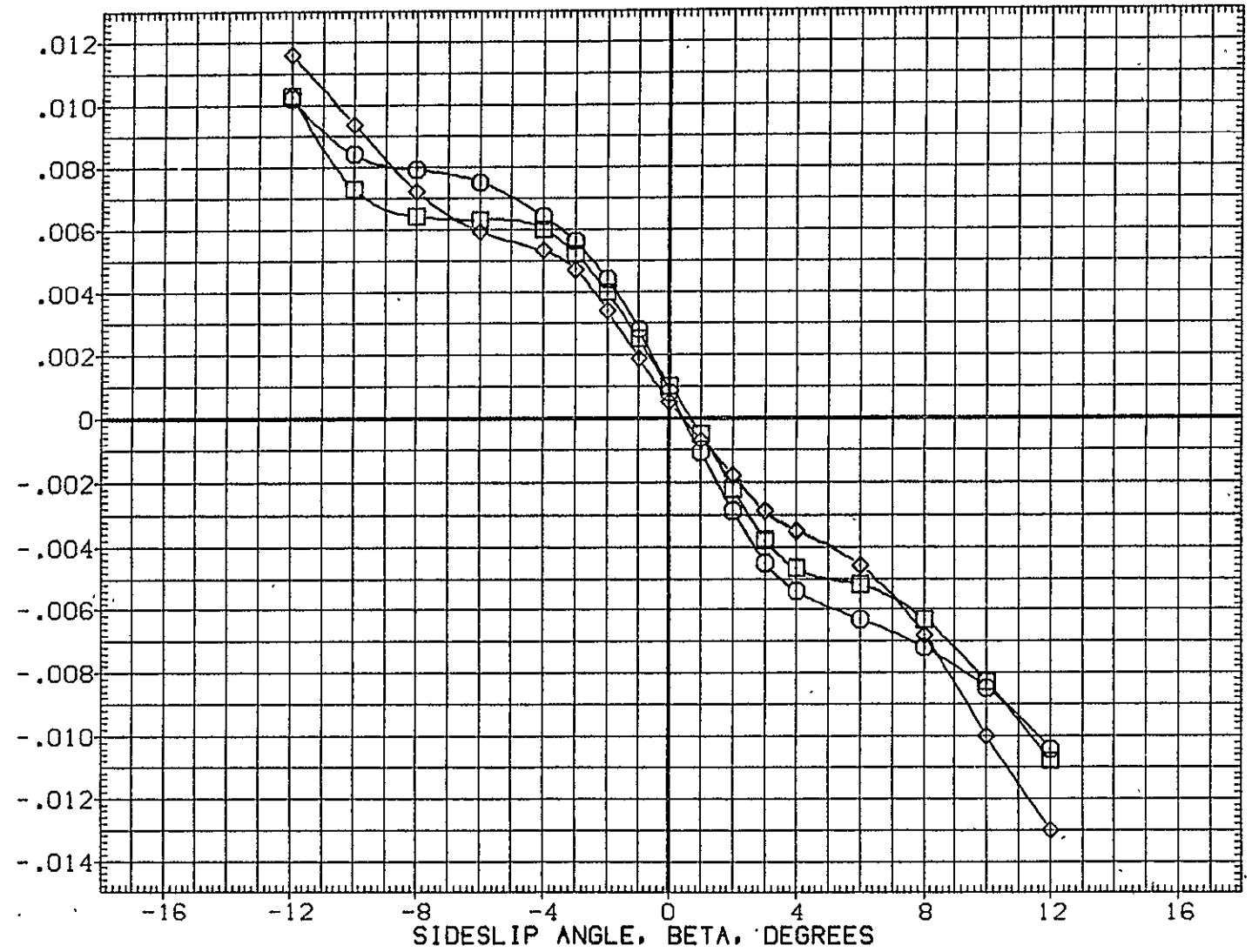


FIG.123 747+ORB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA1= 6 DEG TOTAL  
 PAGE 471

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.500	6.000	STAB	1.000	
□	.600	ELV-1B	.000	ELV-0B	3.000
◇	.700	S1-2	45.000	S3-4	45.000
		S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

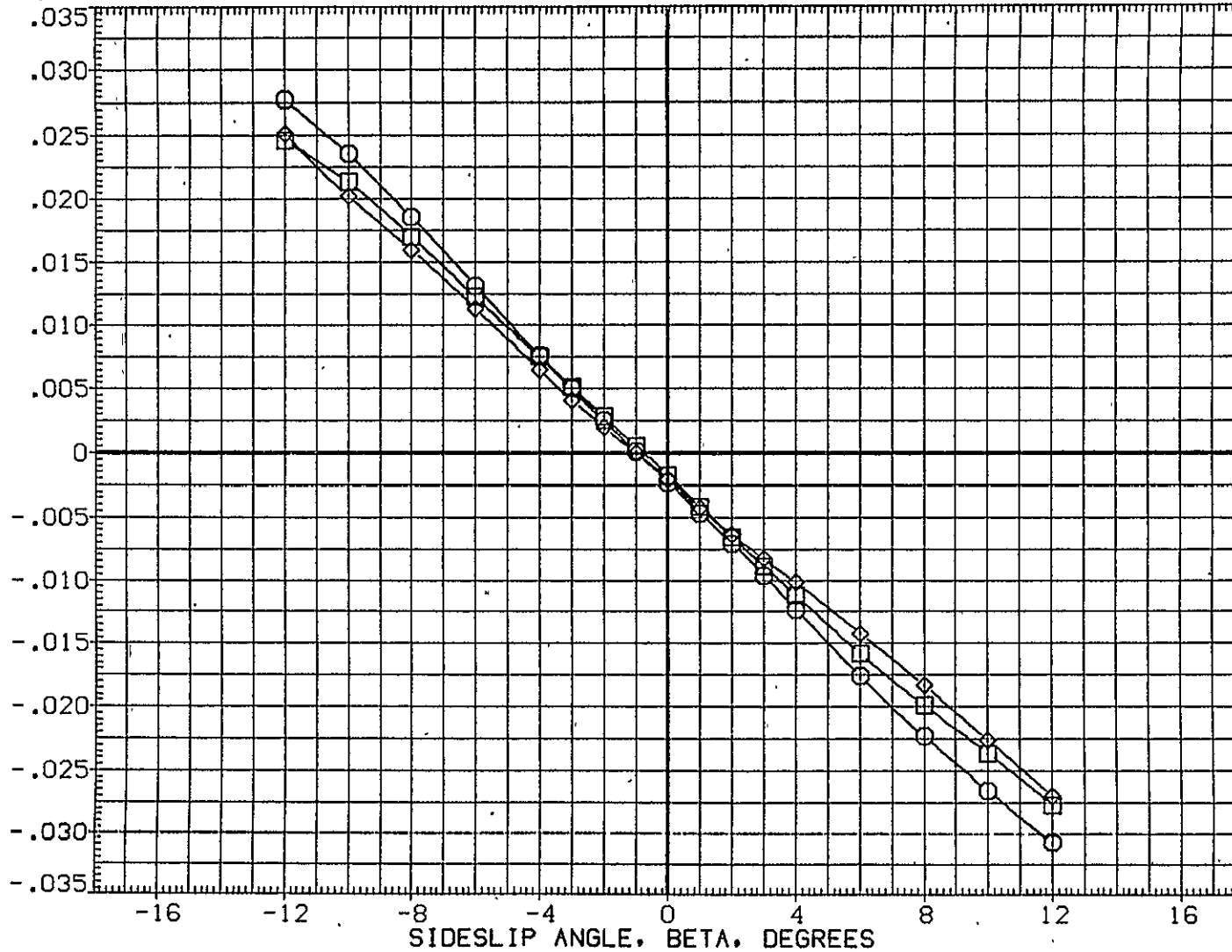


FIG.123 747+0RB(10 DEG)+SP45,VERT TAIL OFF,FLAPS 20 LAUNCH,ALPHA1= 6 DEG TOTAL

CA5 K1 F20 H15.1A

MINUS ORB TC5 AT38.1 (BGM078)

SYMBOL  
 ○  
 □  
 ◇

MACH	ALPHA	PARAMETRIC VALUES		
.500	6.000	STAB	1.000	
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

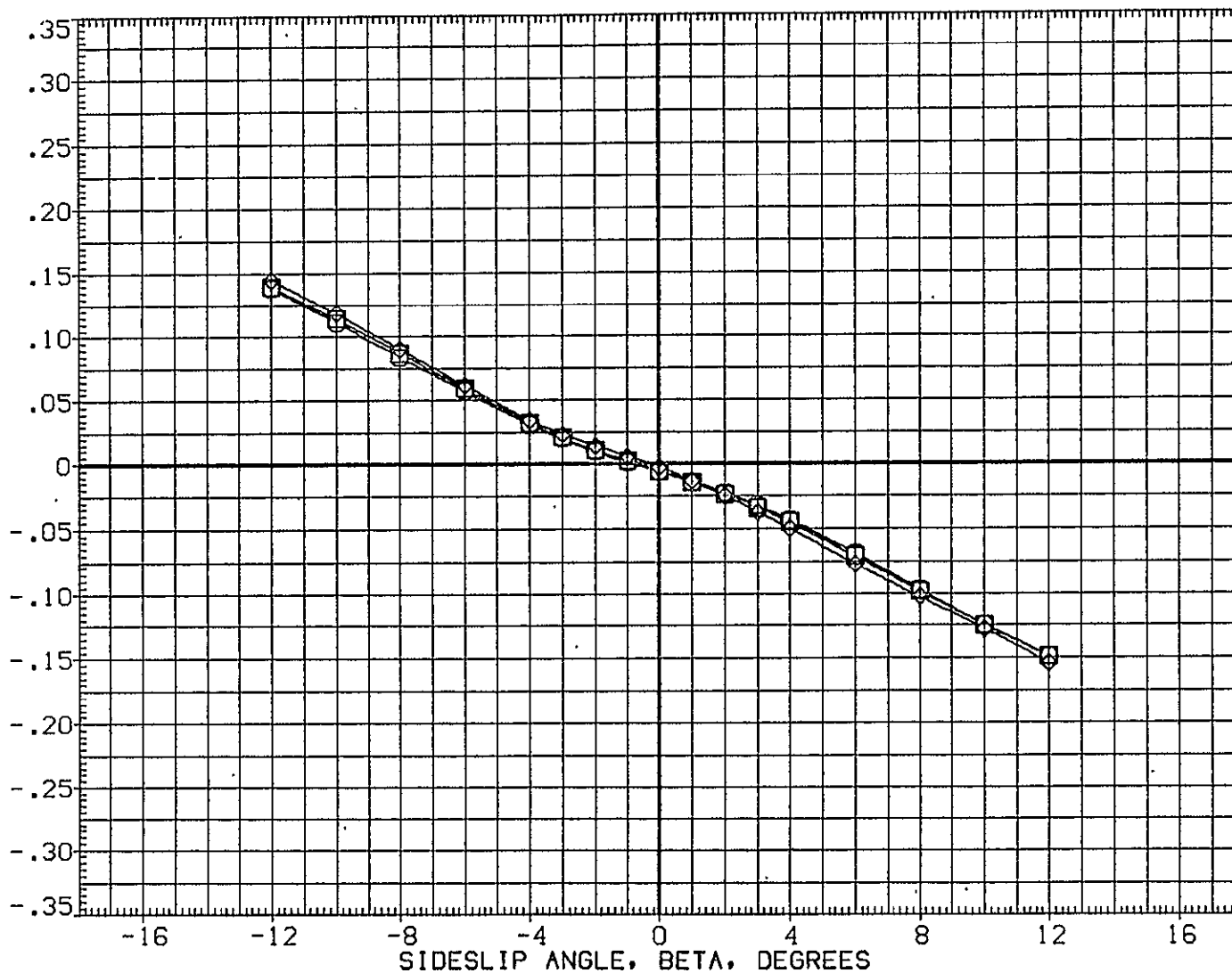


FIG.124 747+ORB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA= 6 DEG 747

SYMBOL	MACH	PARAMETRIC VALUES
○	.500	ALPHA1 6.000 STAB 1.000
□	.600	ELV-1B .000 ELV-OB 3.000
◇	.700	S1-2 45.000 S3-4 45.000
		S5-6 45.000 IORB 9.700

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

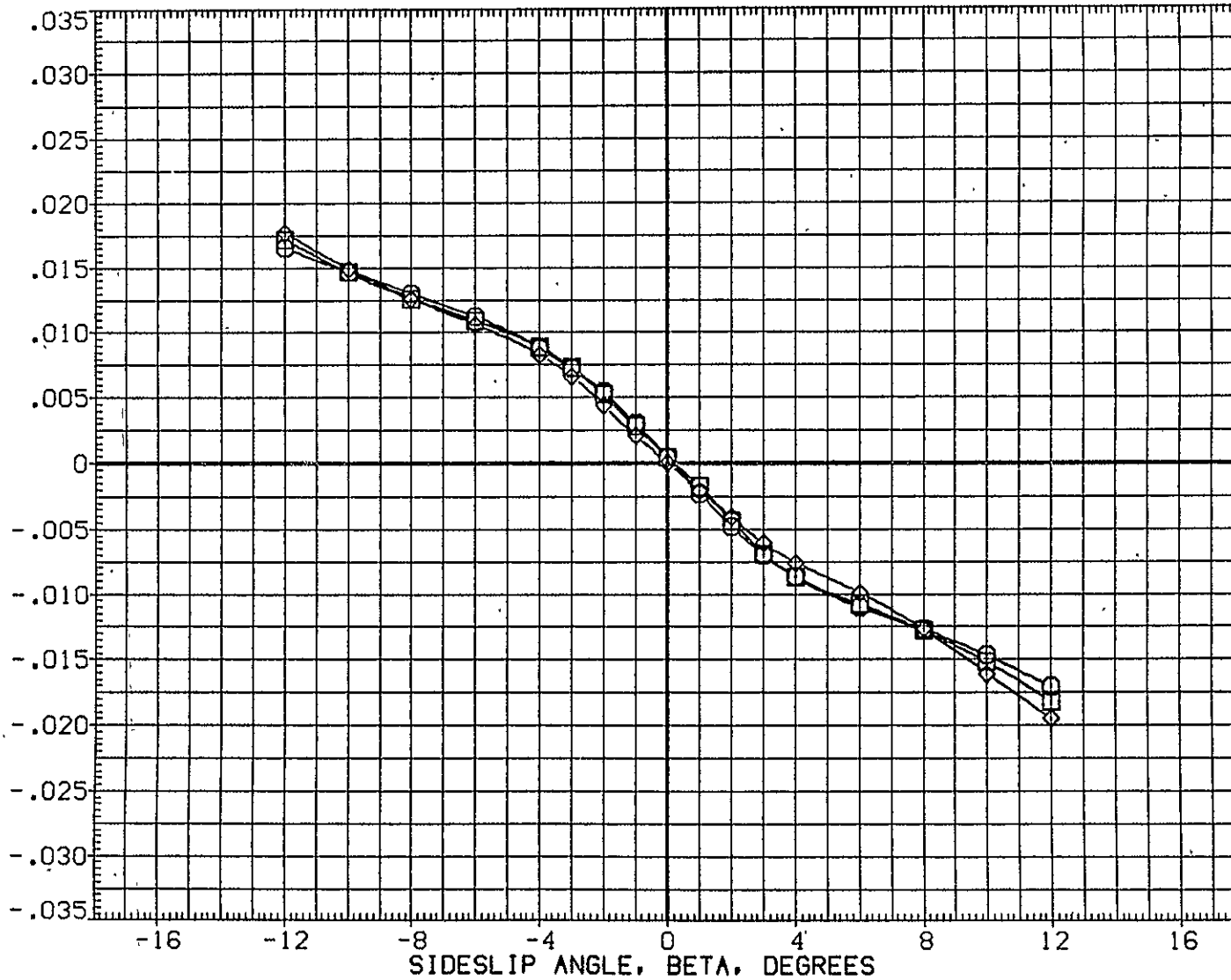


FIG.124 747+ORB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA1= 6 DEG 747

CA5 K1 F20 H15.1A

MINUS ORB TC5 AT38.1 (BGM078)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA1	6.000	STAB	1.000
□	.600	ELV-1B	.000	ELV-0B	3.000
◇	.700	S1-2	45.000	S3-4	45.000
		S5-6	45.000	1ORB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DC SL

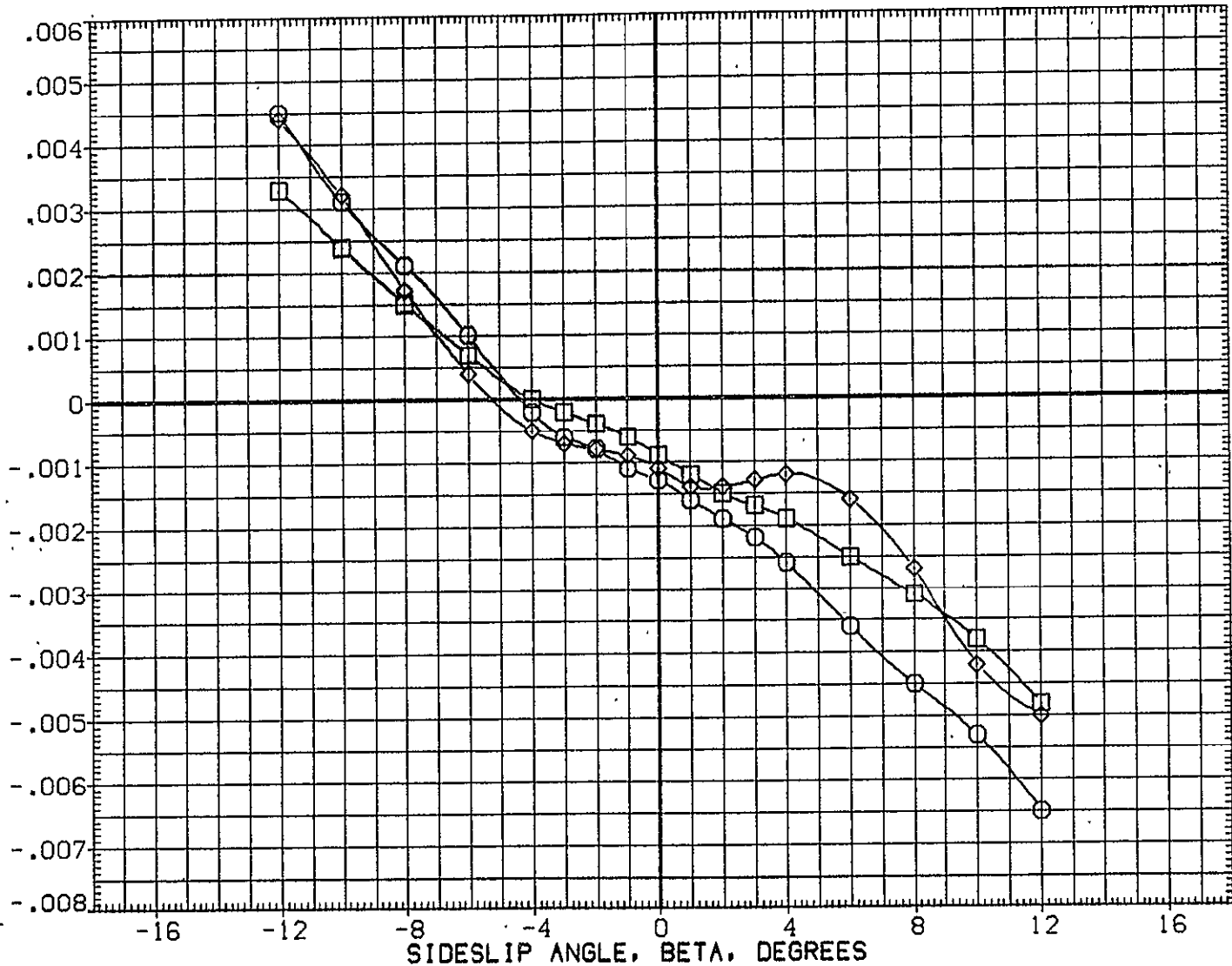


FIG.124 747+ORB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

SYMBOL	MACH	PARAMETRIC VALUES
○	.149	ALPHA1 6.000 STAB 1.000
□	.499	ELV-1B .000 ELV-OB 3.000
◇	.600	S1-2 45.000 S3-4 45.000
△	.701	S5-6 45.000 IORB 9.700

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

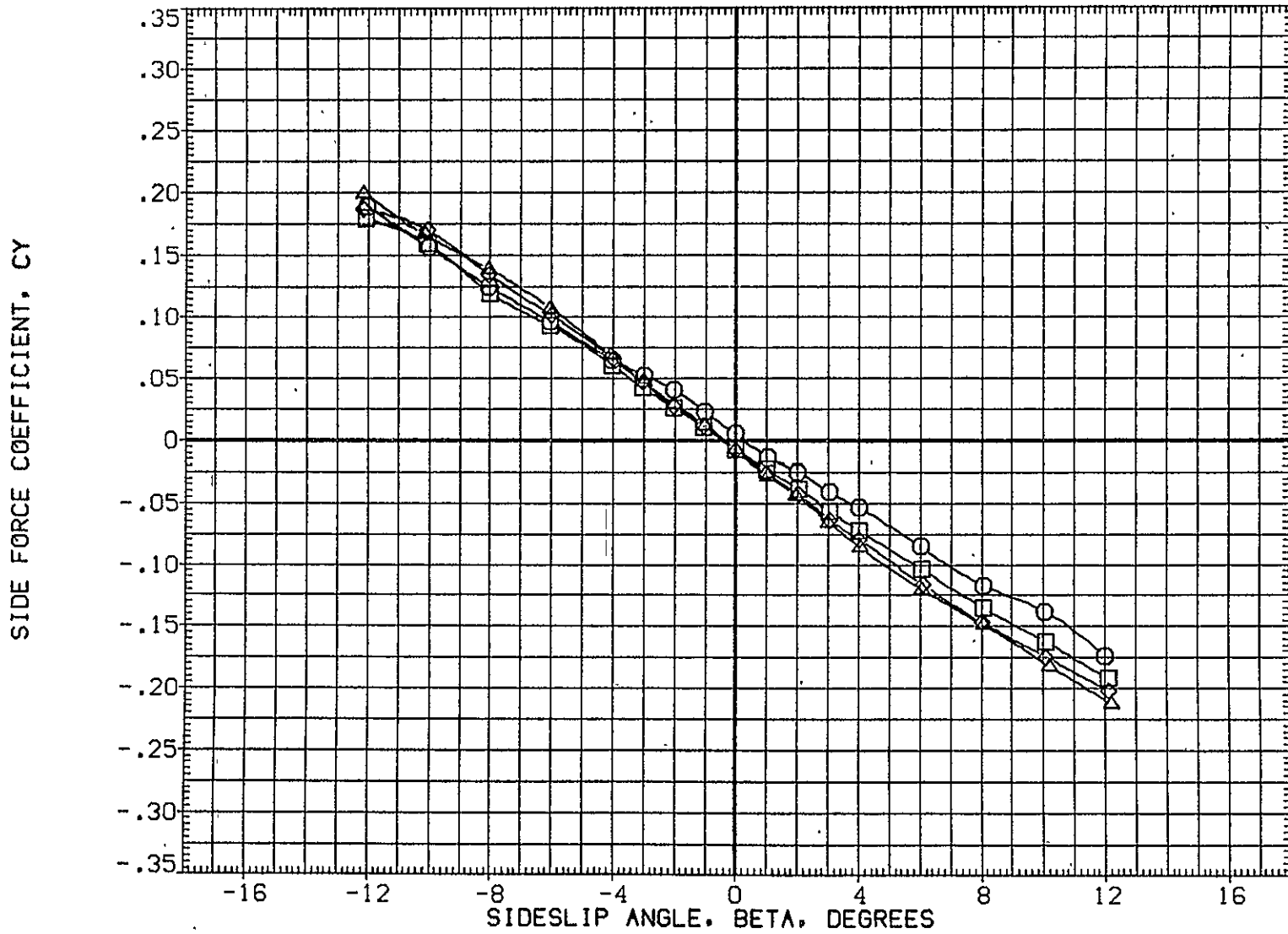


FIG.125 747+ORB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA1= 6 DEG ORB

CA5 ORB TC5 AT38.1 (PRES. K1 F20 H15.1A )(XGM078)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.149	ALPHA I	6.000	STAB	1.000
□	.499	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	45.000	S3-4	45.000
△	.701	S5-6	45.000	ICRB	9.700

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

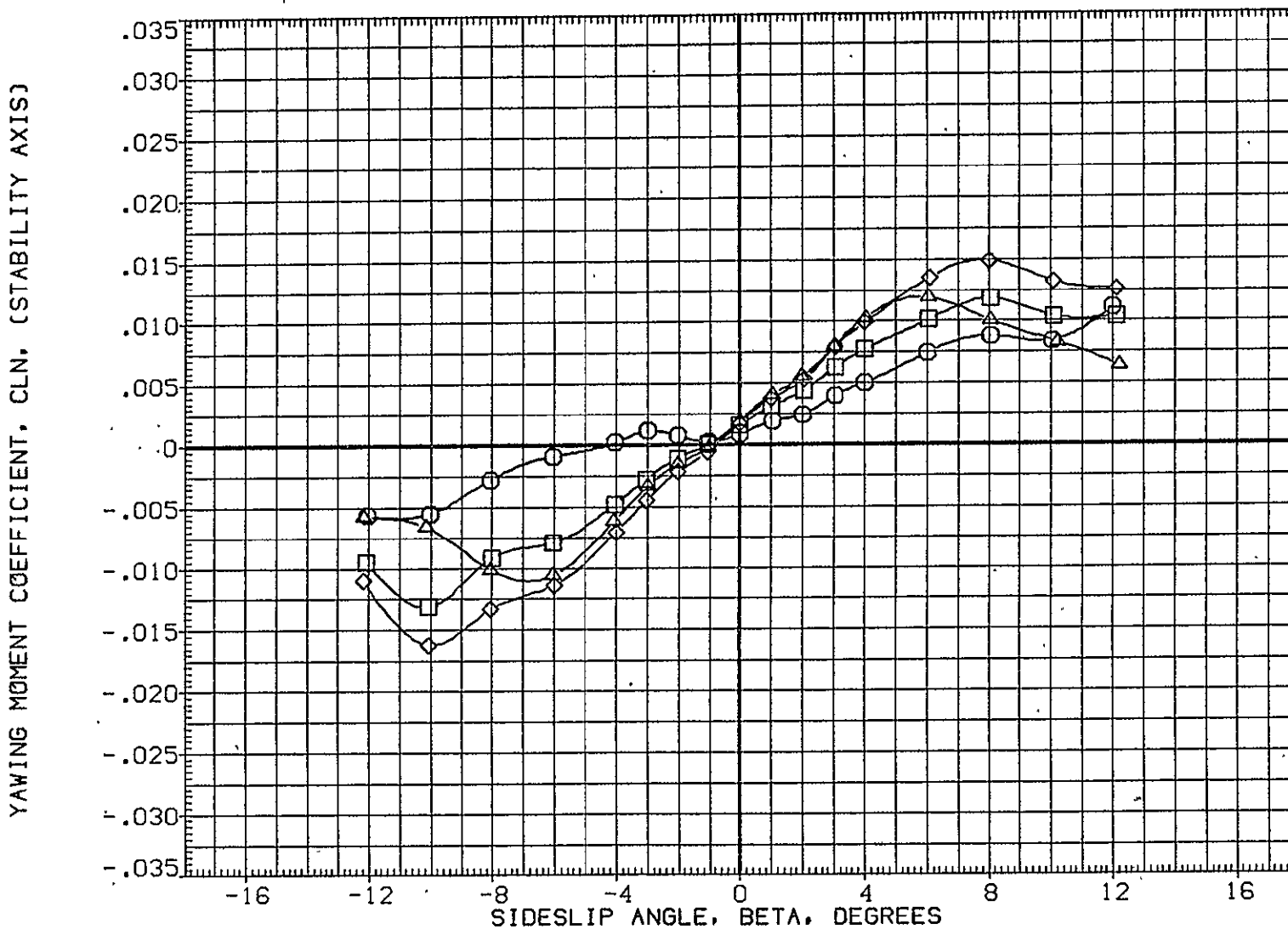


FIG.125 747+ORB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA I= 6 DEG ORB



SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES			
○	.149	ALPHA1	6.000	STAB	1.000	
□	.499	ELV-1B	.000	ELV-0B	3.000	
◇	.600	S1-2	45.000	S3-4	45.000	
△	.701	45.000	10RB	9.700		

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

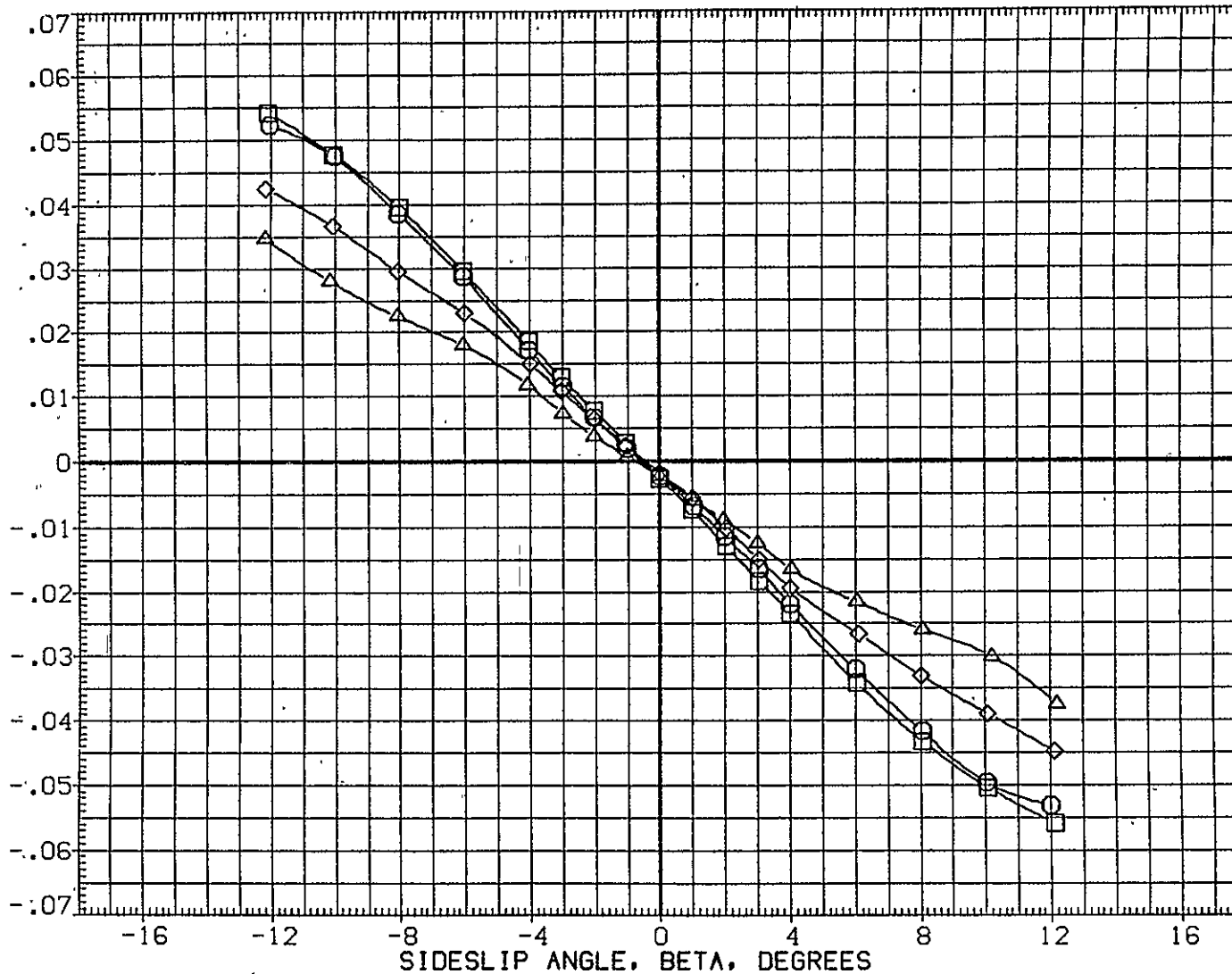


FIG.125 747+0RB(10 DEG)+SP45, VERT TAIL OFF, FLAPS 20 LAUNCH, ALPHA1= 6 DEG 0RB

CA5 K1 F20 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM079)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-OB	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	ORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.6000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

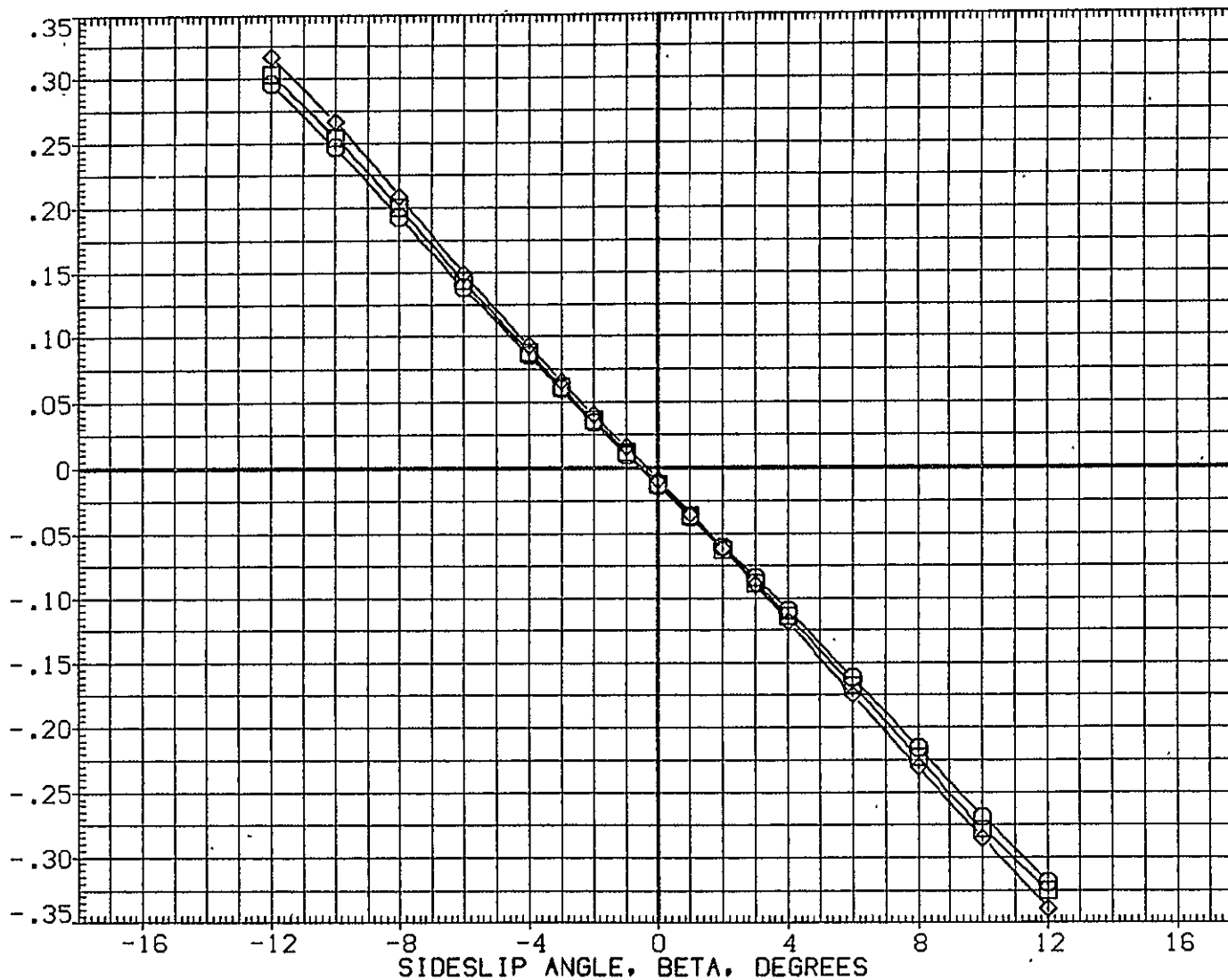


FIG.126 747+ORB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHA1= 6 DEG

SYMBOL  
 ○  
 □  
 ◇

MACH	ALPHA	PARAMETRIC VALUES			
.500	6.000	STAB	1.000		
.600	RUD-U	.000	RUD-L	.000	
.700	ELV-1B	.000	ELV-0B	3.000	
	S1-2	45.000	S3-4	45.000	
	S5-6	45.000	10RB	7.850	

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

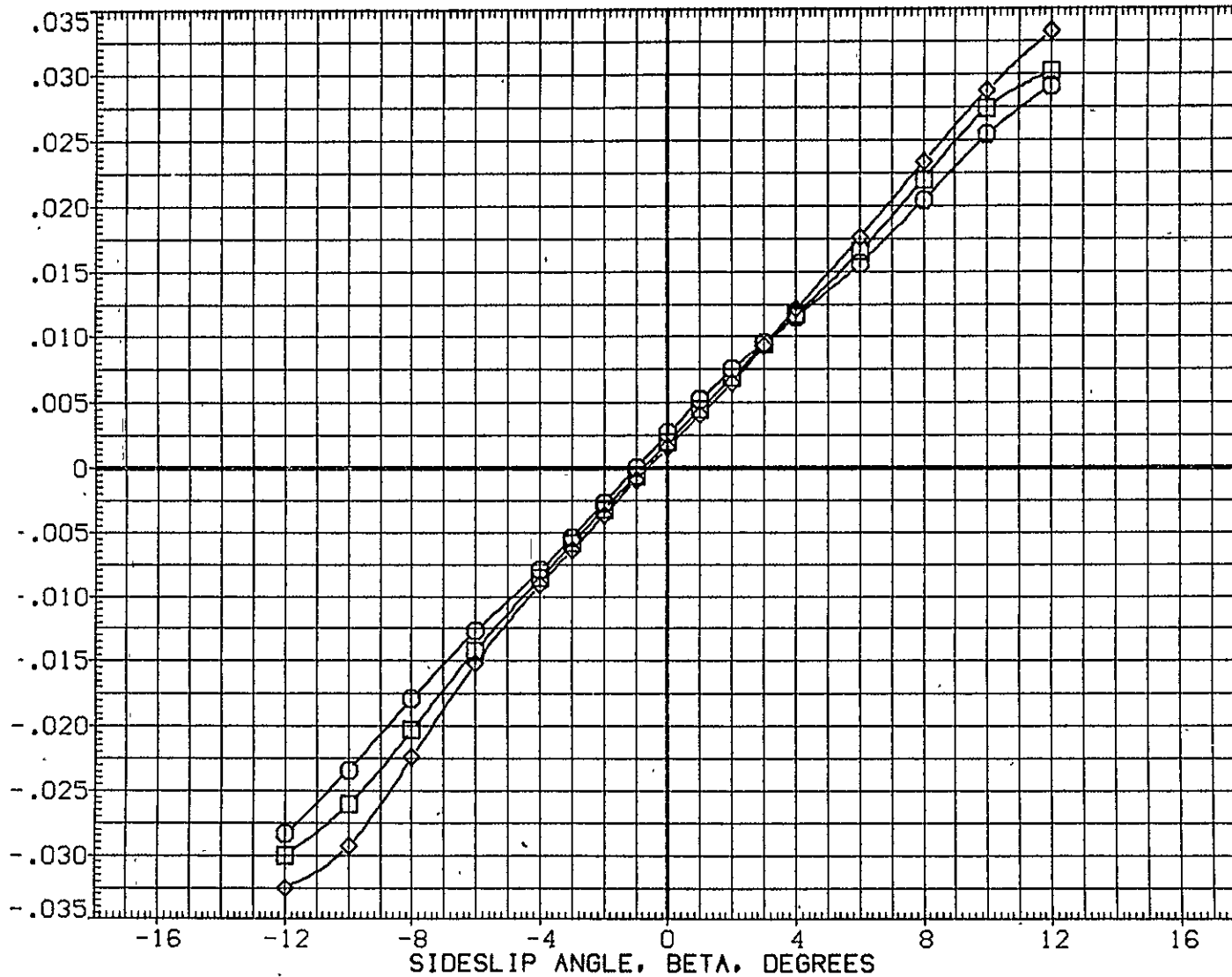


FIG.126 747+0RB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHA= 6 DEG

TOTAL

CA5 K1 F20 H15,6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM079)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHAI	STAB	RUD-L	ELV-OB	SREF	LREF	BREF
○	.500	6.000	1.000	.000	3.000	5500.0000	327.8000	2348.0000
□	.600	.000	.000	45.000	45.000	1339.9100	.0000	190.7500
◇	.700	ELV-1B	ELV-OB	S3-4	ICRB	SCALE		
		S1-2	S3-4	45.000	7.850			
		S5-6	ICRB	45.000	7.850			

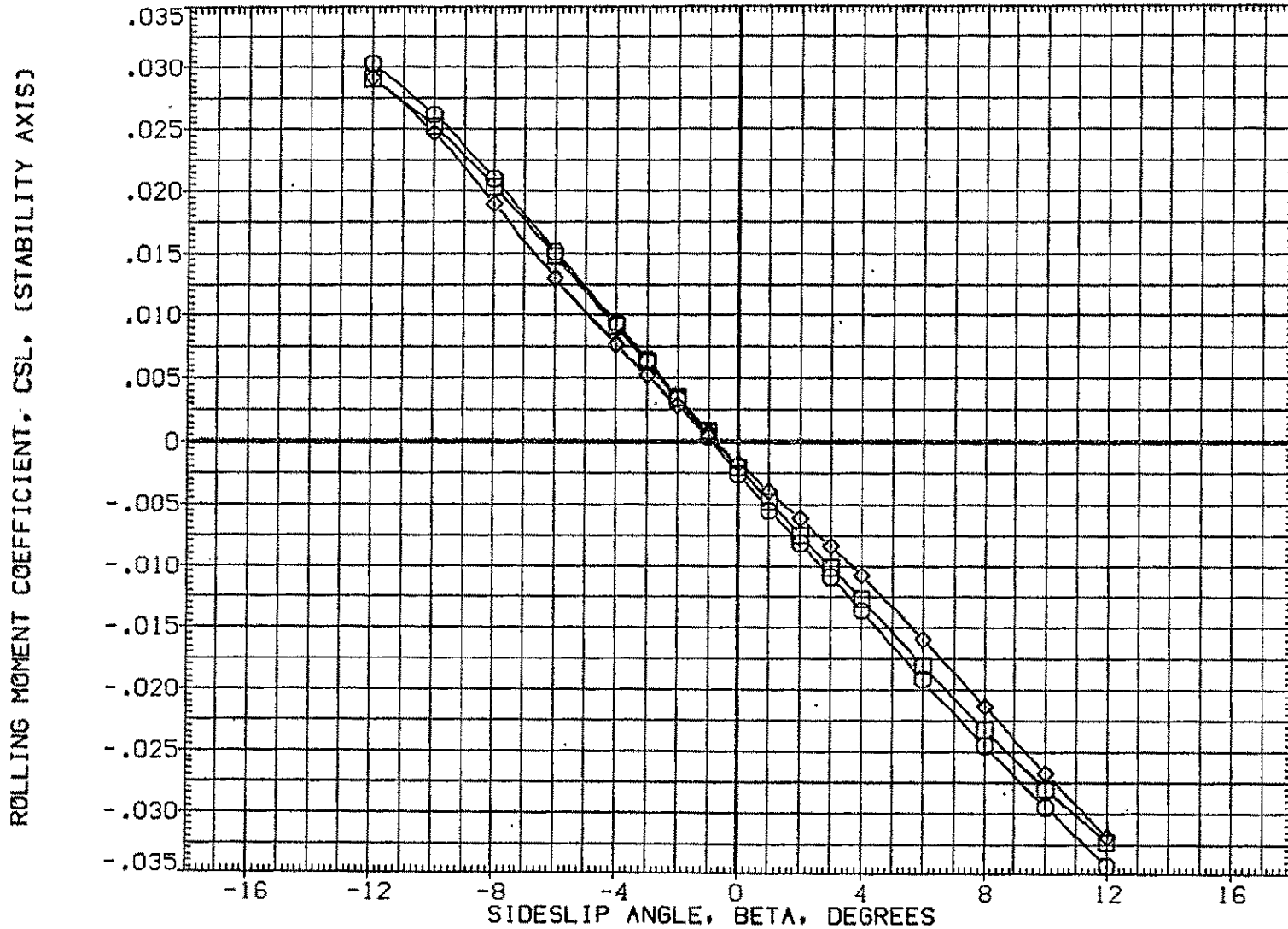


FIG.126 747+ORB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHAI= 6 DEG

TOTAL

SYMBOL  
 ○  
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 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-0B	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

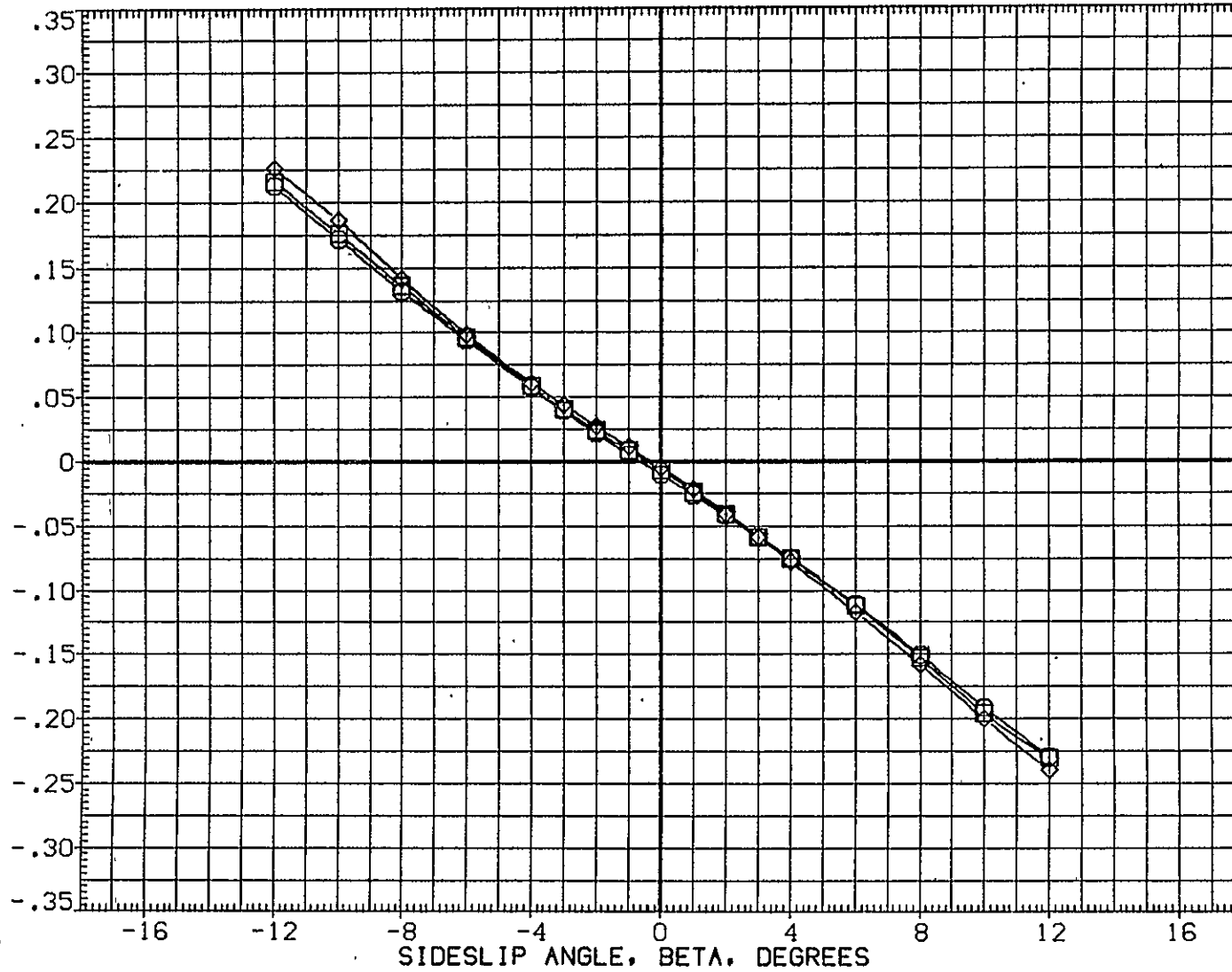


FIG.127 747+ORB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHA1= 6 DEG

CA5 K1 F20 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM079)

SYMBOL  
 ○  
 □  
 ◇

MACH	PARAMETRIC VALUES			
.500	ALPHA1	6.000	STAB	1.000
.600	RUD-U	.000	RUD-L	.000
.700	ELV-1B	.000	ELV-OB	3.000
	S1-2	45.000	S3-4	45.000
	S5-6	45.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

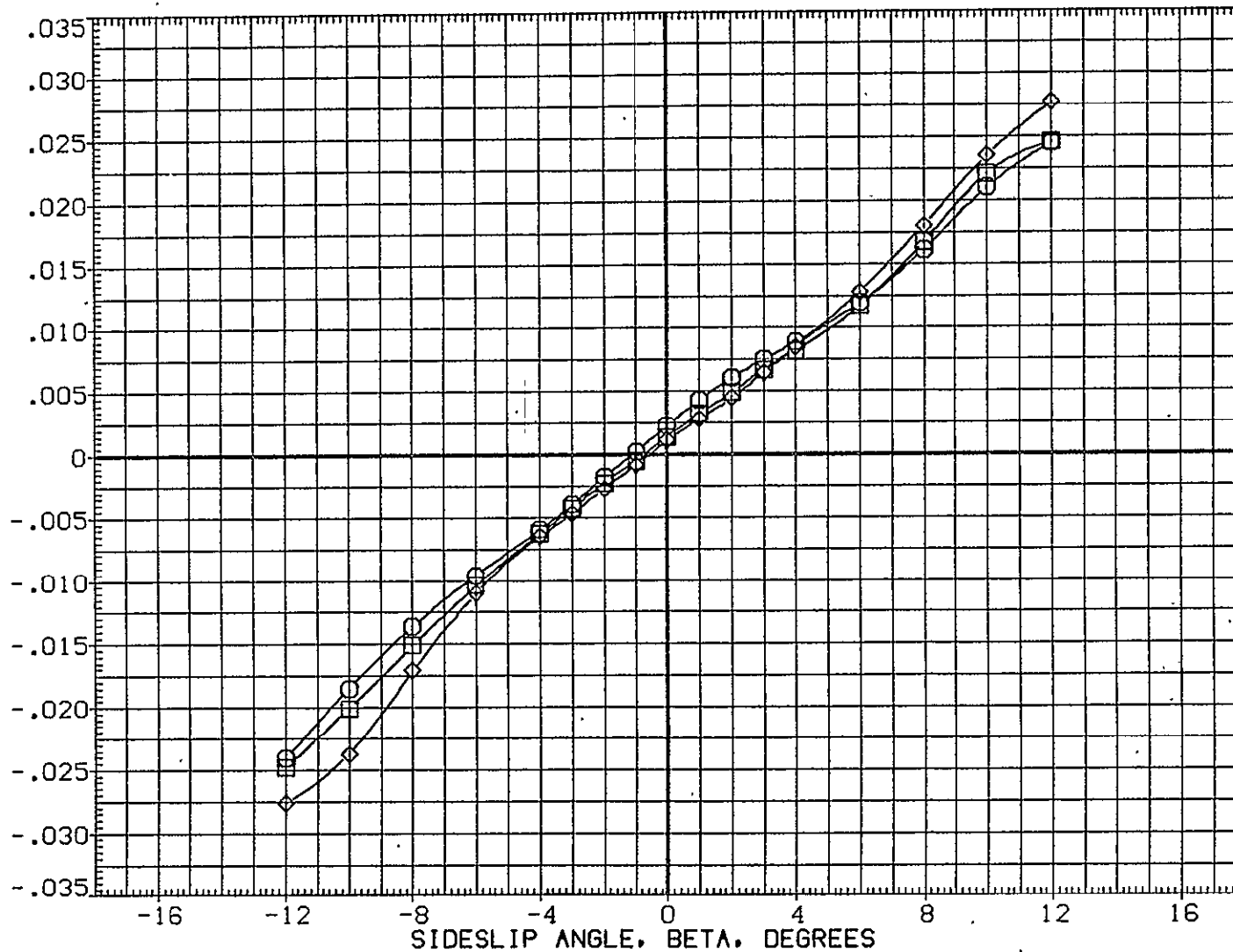


FIG.127 747+ORB(8 DEG)+TIP FINS+SP45, FLAPS 20 LAUNCH, ALPHA1= 6 DEG

SYMBOL  
 ◊ □ ○

MACH	ALPHAI	PARAMETRIC VALUES			
.500	6.000	STAB	1.000		
.600	RUD-U	.000	RUD-L	.000	
.700	ELV-1B	.000	ELV-OB	3.000	
	S1-2	45.000	S3-4	45.000	
	S5-6	45.000	ICRB	7.850	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DC SL

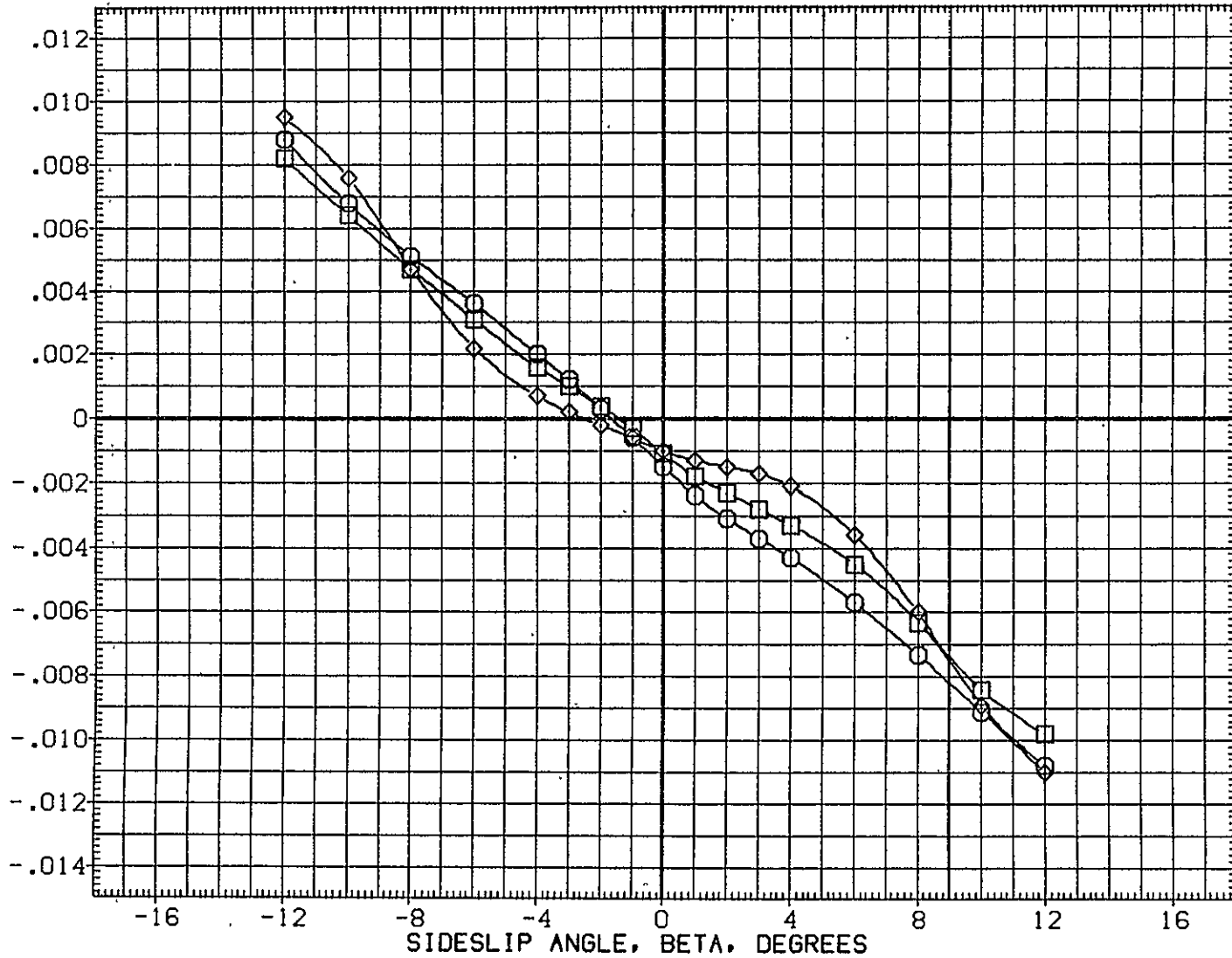


FIG.127 747+ORB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHAI= 6 DEG

747

CA5 0RB TC5 AT38.2 (PRES. K1 F20 H15.6 V9.1)(XGM079)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	RUD-L	ELV-08	SREF	SQ.FT.	
○	.499	6.000	1.000	.000	3.000	2690.0000	IN.	
□	.600	.000	.000	.000	3.000	474.8100	IN.	
◇	.700	.000	3.000	.000	3.000	936.6800	IN.	
		ELV-1B	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S1-2	45.000	10RB	7.850	YMRP	.0000	IN. Y0
		S5-6	45.000			ZMRP	375.0000	IN. Z0
						SCALE	.0300	

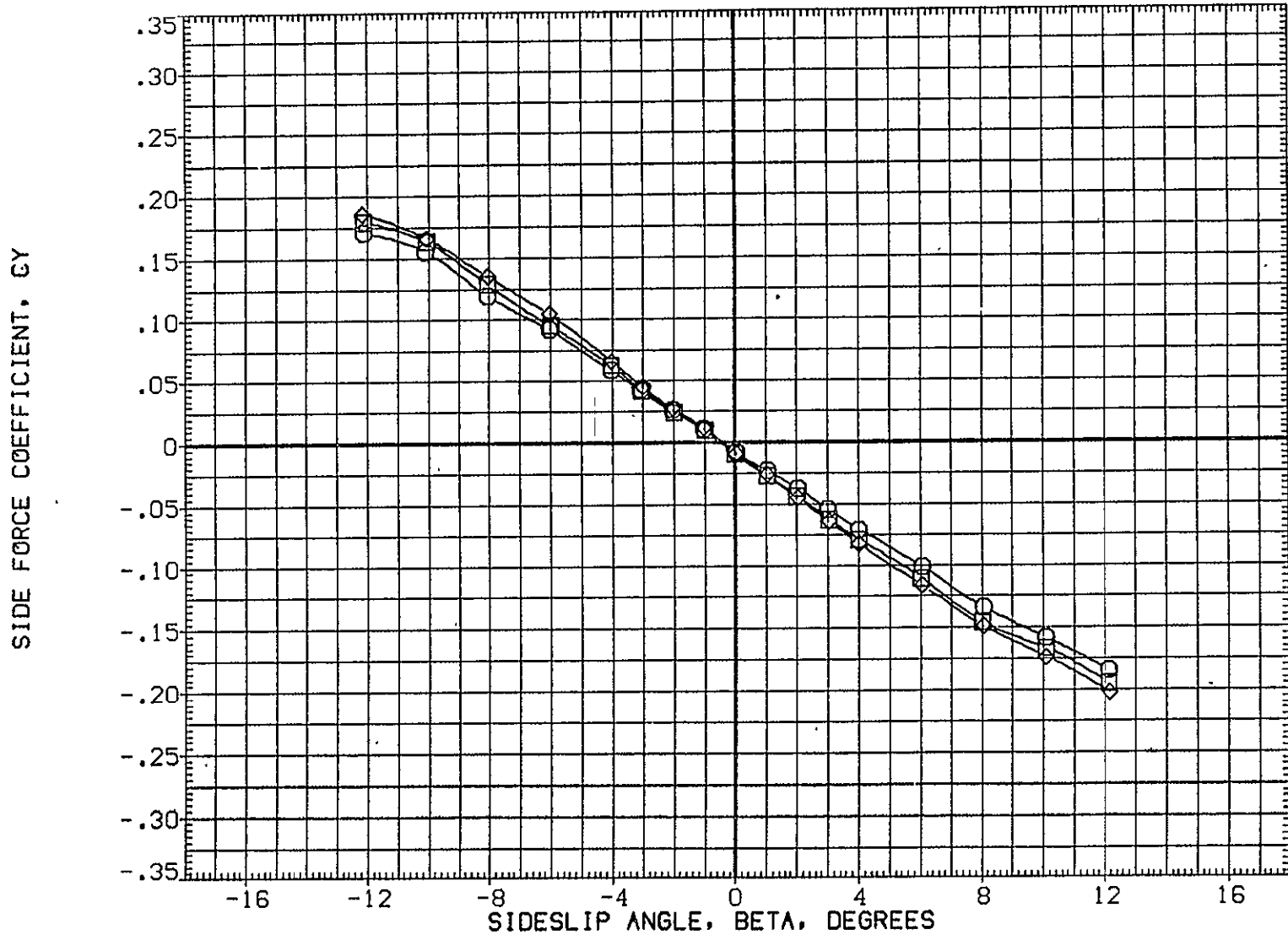


FIG.128 747+0RB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHA1= 6 DEG

0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.499	ALPHA	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	ICRB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

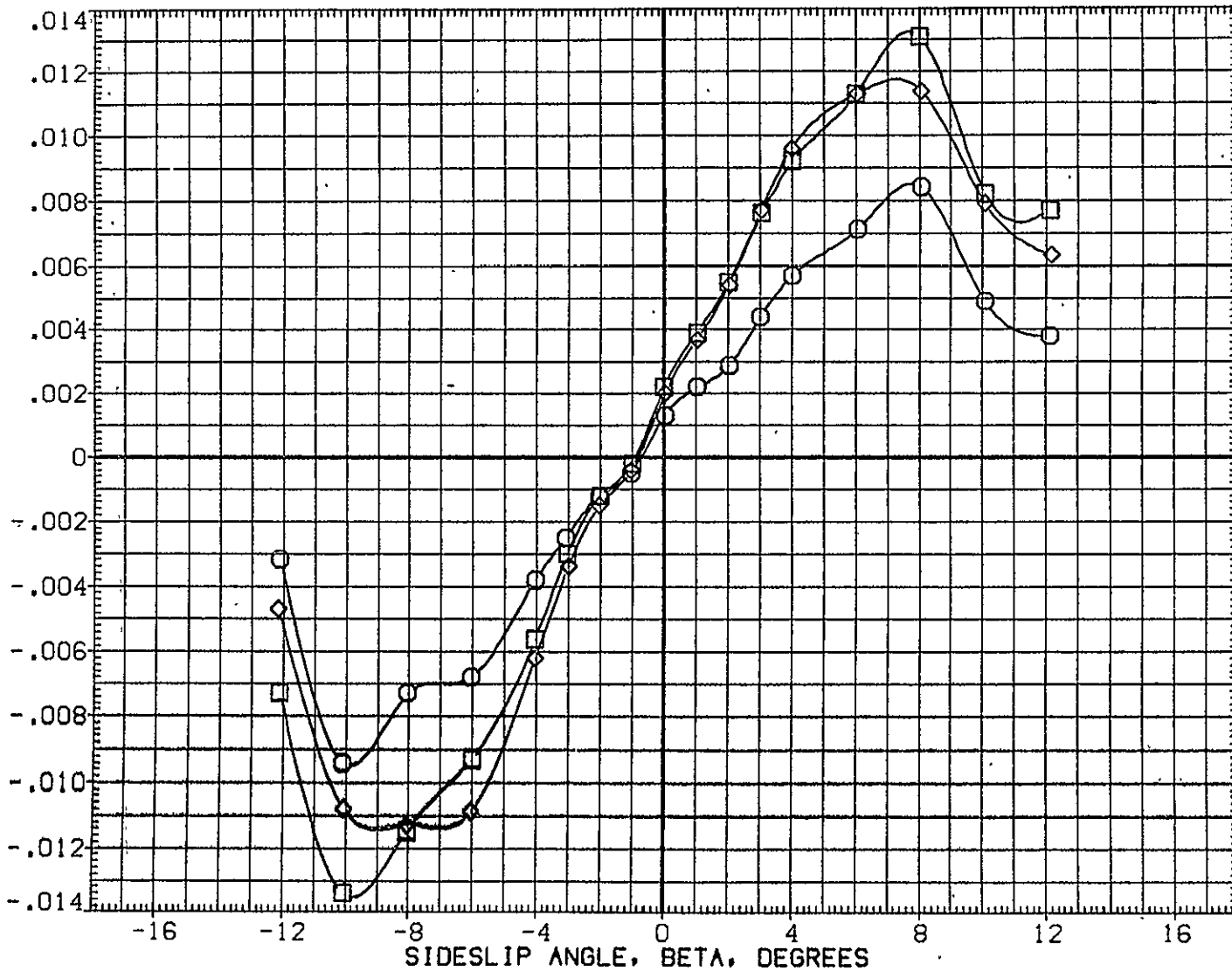


FIG.128 747+ORB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHA= 6 DEG

ORB

CA5 ORB TC5 AT38.2 (PRES. K1 F20 H15.6 V9.1)(XGM079)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.499	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.600	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.700	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
		S1-2	45.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	45.000	ICRB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

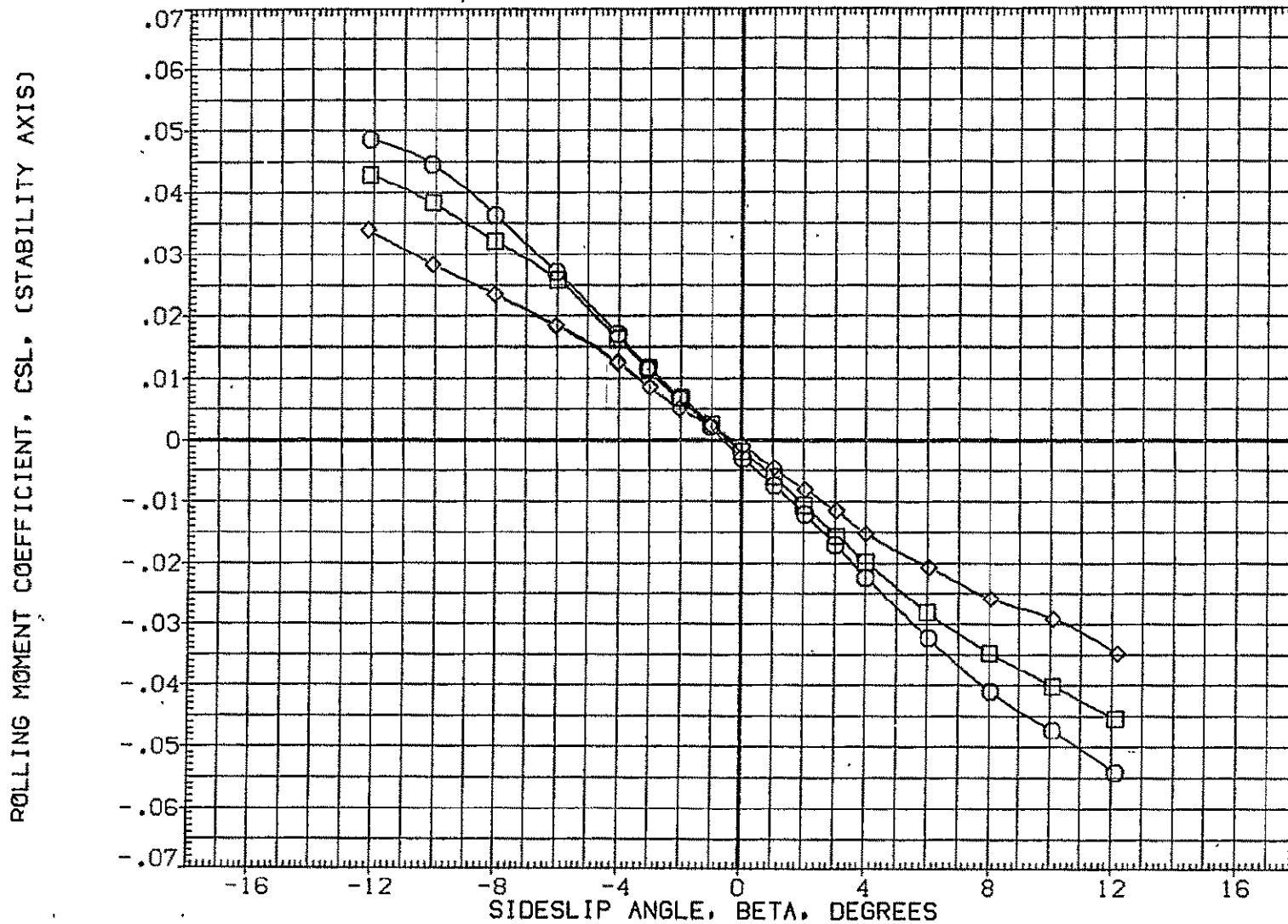


FIG.128 747+ORB(8 DEG)+TIP FINS+SP45,FLAPS 20 LAUNCH,ALPHA1= 6 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

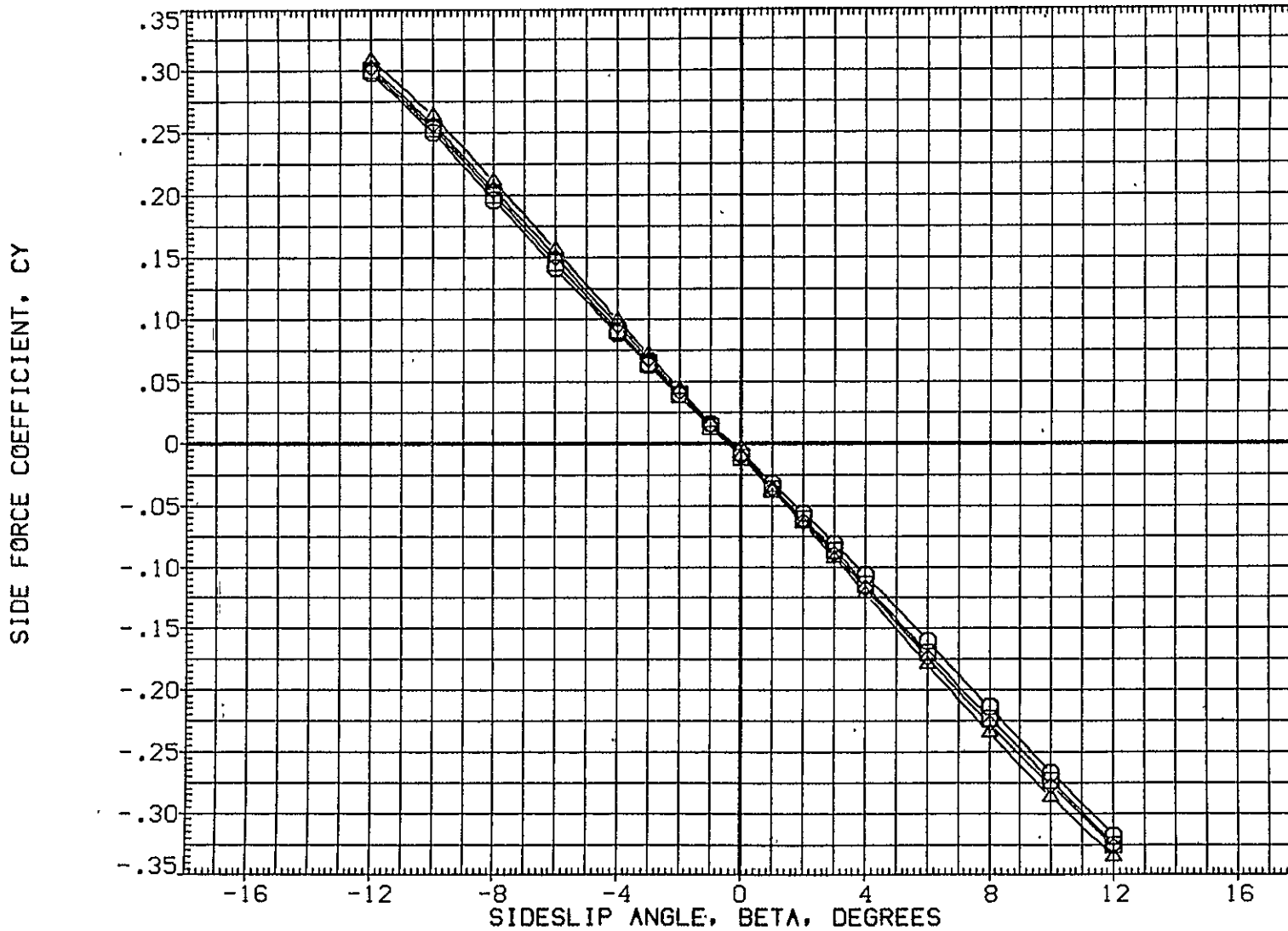


FIG.129 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 2 DEG TOTAL

CAS K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM082)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	.300	ALPHA1 2.000 STAB 1.000	SREF 5500.0000 SQ.FT.
□	.500	RUD-U .000 RUD-L .000	LREF 327.8000 IN.
◇	.600	ELV-1B .000 ELV-0B 3.000	BREF 2348.0000 IN.
△	.700	S1-2 .000 S3-4 45.000	XMRP 1339.9100 IN. XC.
		S5-6 20.000 10RB 7.850	YMRP .0000 IN. YC.
			ZMRP 190.7500 IN. ZC.
			SCALE .0300

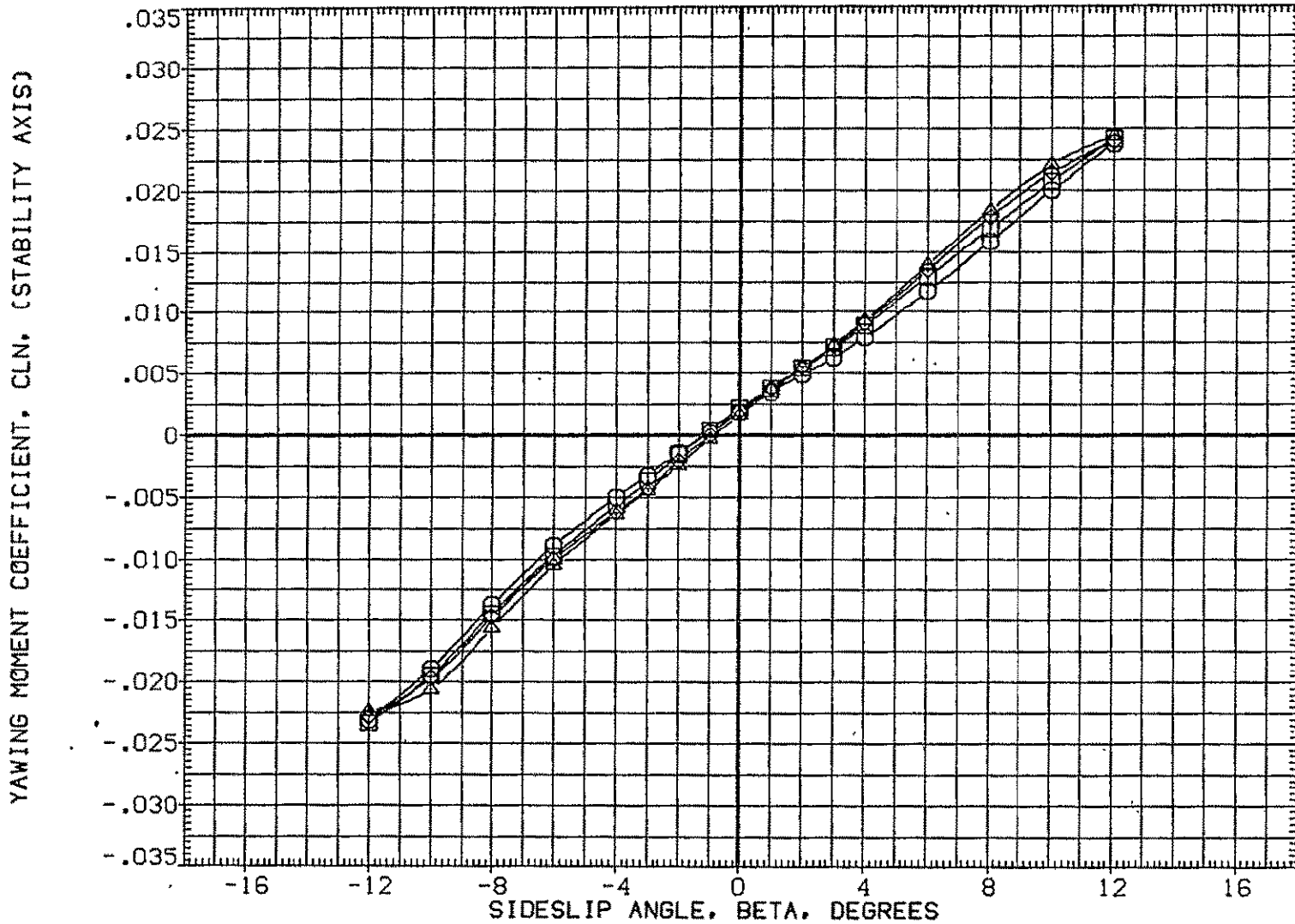


FIG.129 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 2 DEG TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

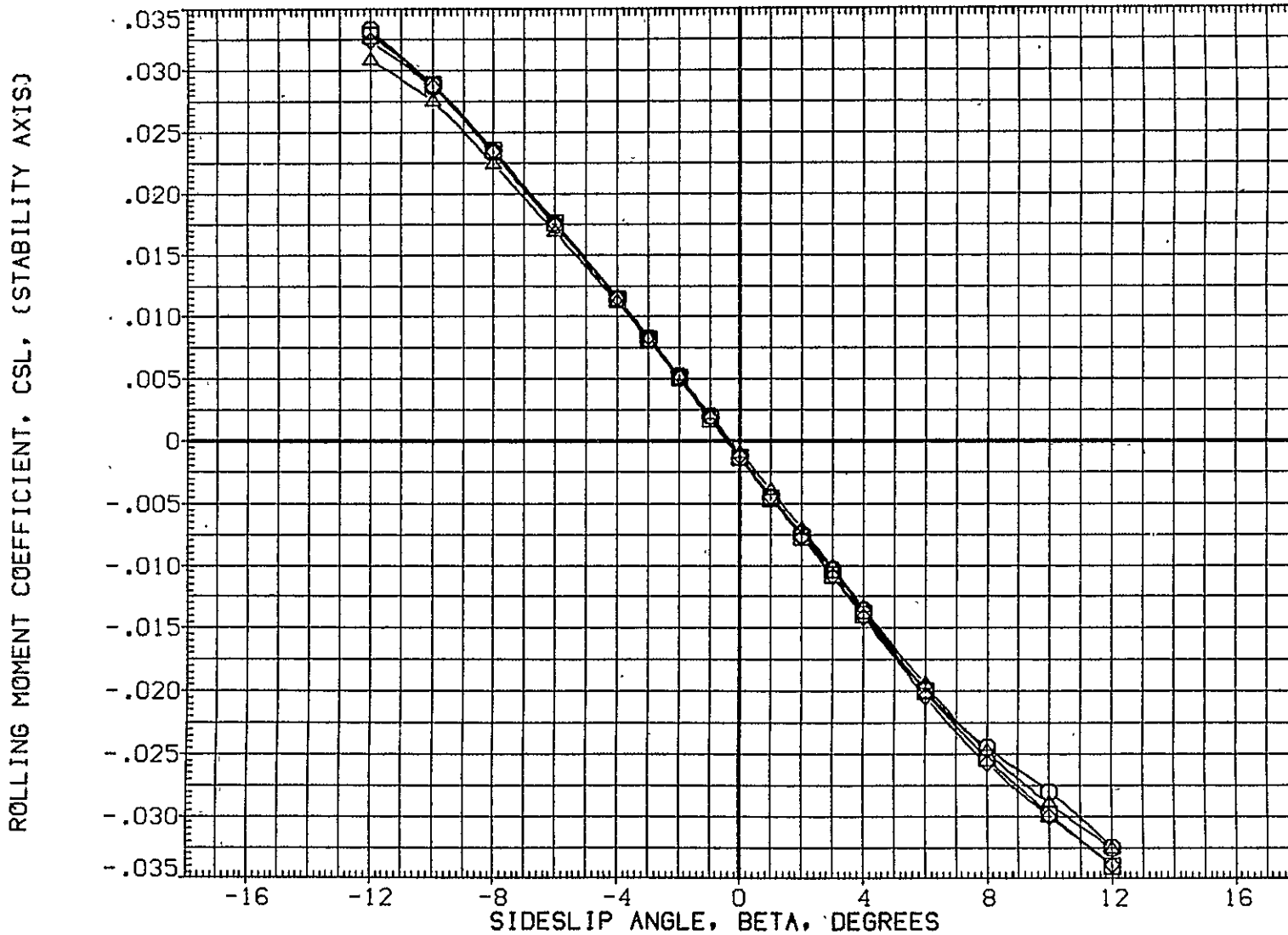


FIG.129 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 2 DEG TOTAL

6-7

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM082)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	RUD-L	ELV-OB	SREF	SG.FT.	
□	.300	2.000	1.000	.000	3.000	5500.0000	IN.	
◇	.500	.000	3.000	.000	45.000	327.8000	IN.	
△	.600	.000	45.000	.000	7.850	2348.0000	IN.	
	.700	S1-2	S3-4	S5-6	10RB	1339.9100	IN. XC	
						YMRP .0000	IN. YC	
						ZMRP 190.7500	IN. ZC	
						SCALE .0300		

INCREMENTAL SIDE FORCE COEFFICIENT (STABILITY AXIS), DCY

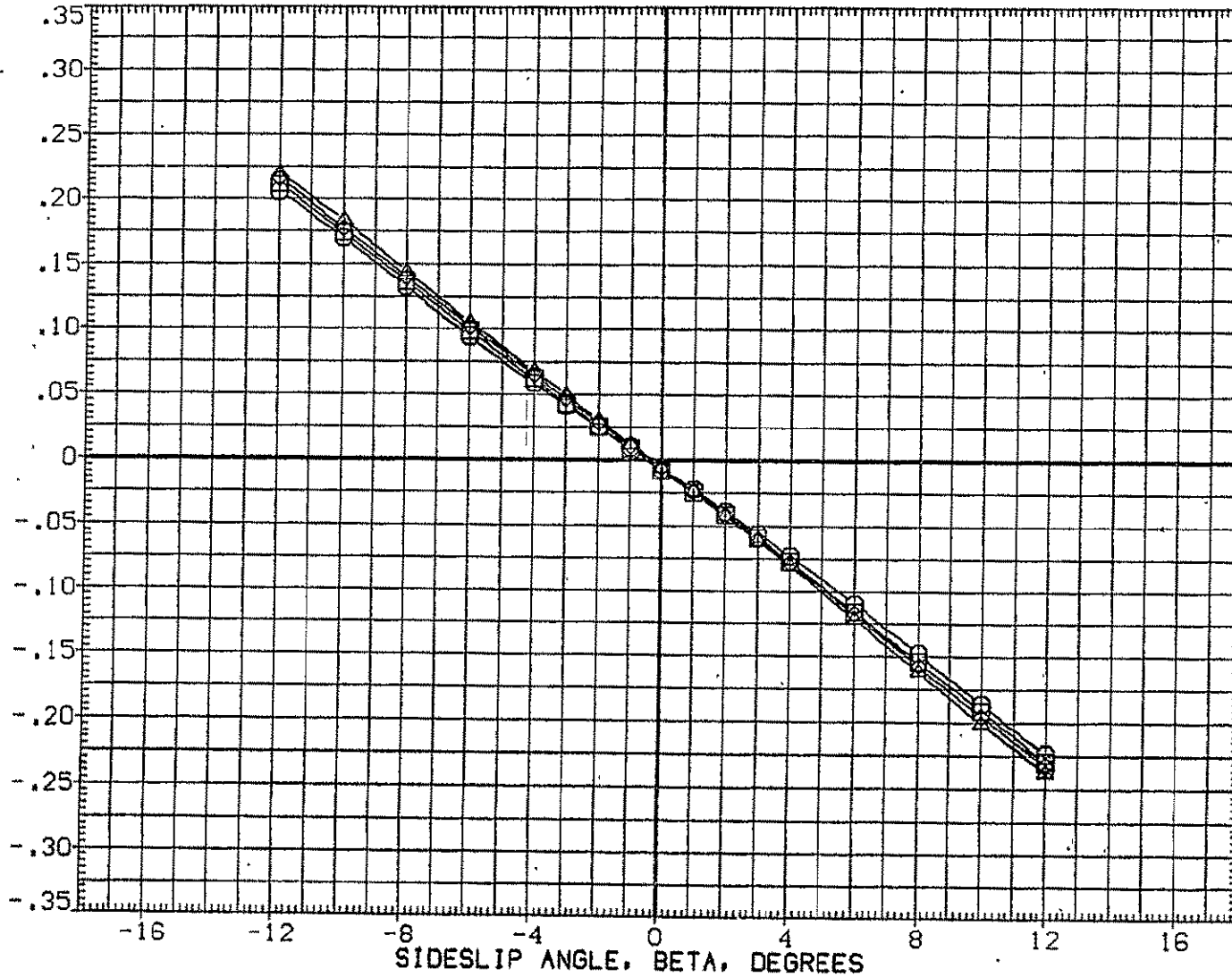


FIG.130 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA I= 2 DEG 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	1.000	SREF	5500.0000	50.FT.	
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
□	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

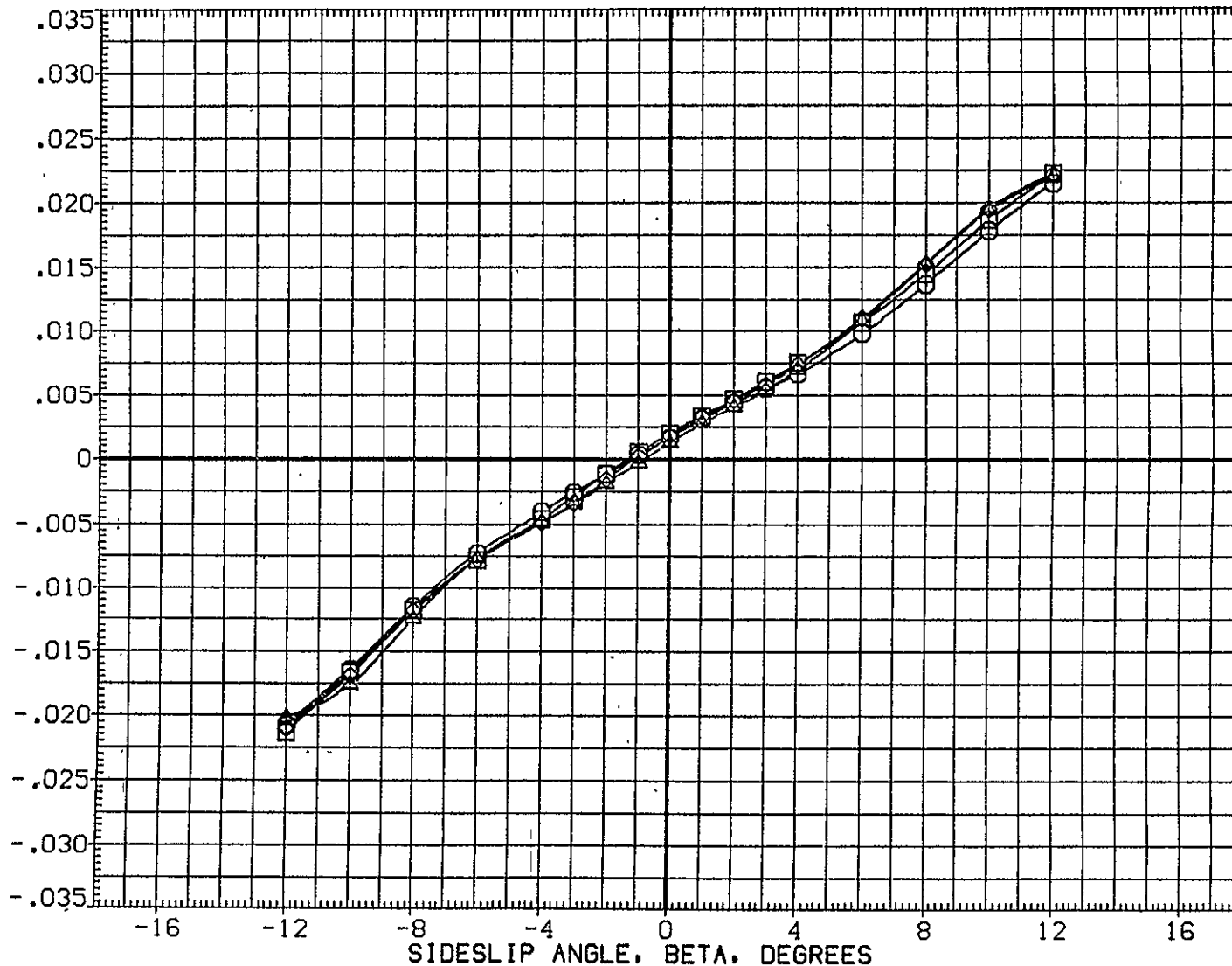


FIG.130 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 2 DEG 747

CAS K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM082)

SYMBOL  
 ◻  
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 ◯  
 △

MACH  
 .300  
 .500  
 .600  
 .700

PARAMETRIC VALUES  
 ALPHA1 2.000  
 RUD-U .000  
 ELV-1B .000  
 S1-2 .000  
 S5-6 20.000

STAB 1.000  
 RUD-L .000  
 ELV-0B 3.000  
 S3-4 45.000  
 TORB 7.850

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
 LREF 327.8000 IN.  
 BREF 2348.0000 IN.  
 XMRP 1339.9100 IN. XC  
 YMRP .0000 IN. YC  
 ZMRP 190.7500 IN. ZC  
 SCALE .0300

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

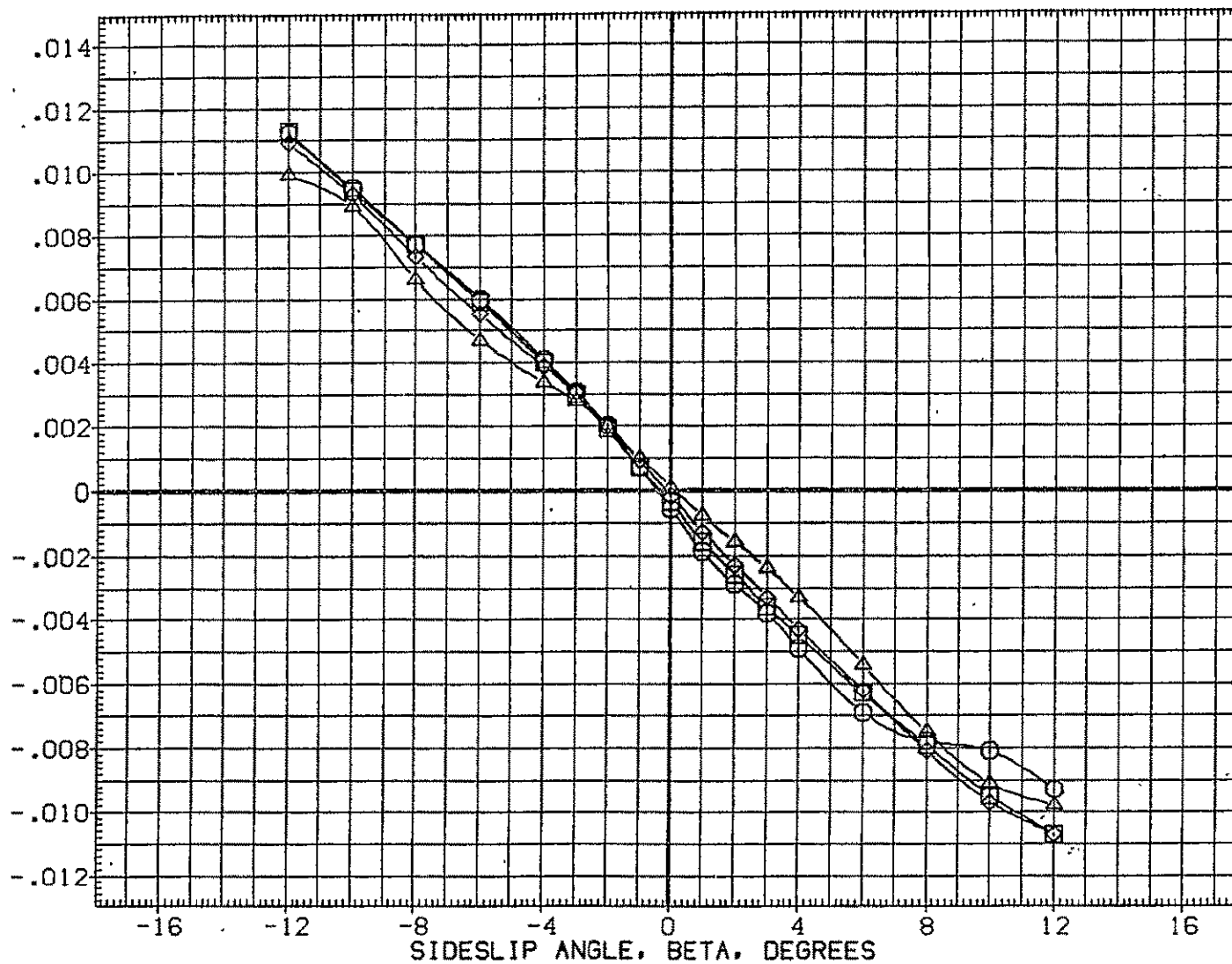


FIG.130 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 2 DEG 747



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		ALPHA I	STAB	RUD-L	ELV-OB	SREF	SQ.FT.
○	.150	2.000	1.000	.000	3.000	2690.0000	
□	.299	.000	.000	.000	.000	474.8100	IN.
◇	.500	.000	3.000	.000	.000	936.6800	IN.
△	.600	.000	45.000	.000	.000	1109.0000	IN. X0
▽	.700	20.000	7.850	.000	.000	375.0000	IN. Y0
						SCALE	IN. Z0
							.0300

SIDE FORCE COEFFICIENT, CY

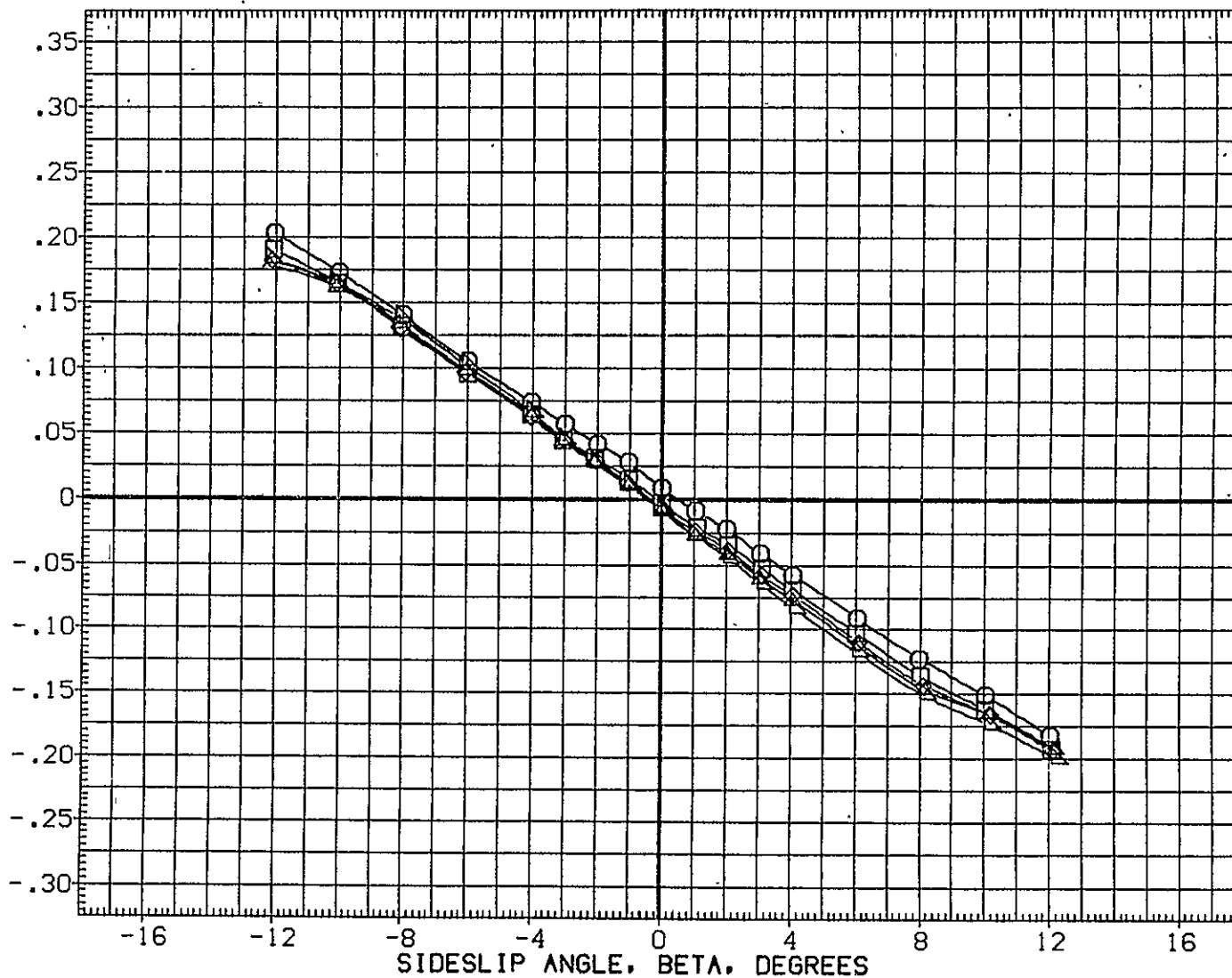


FIG.131 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA I= 2 DEG 0RB

CA5 0RB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(XGM082)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	2.000	STAB	1.000	SREF	2690.0000	50.FT.
□	.299	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.600	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
▽	.700	SS-6	20.000	I0RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

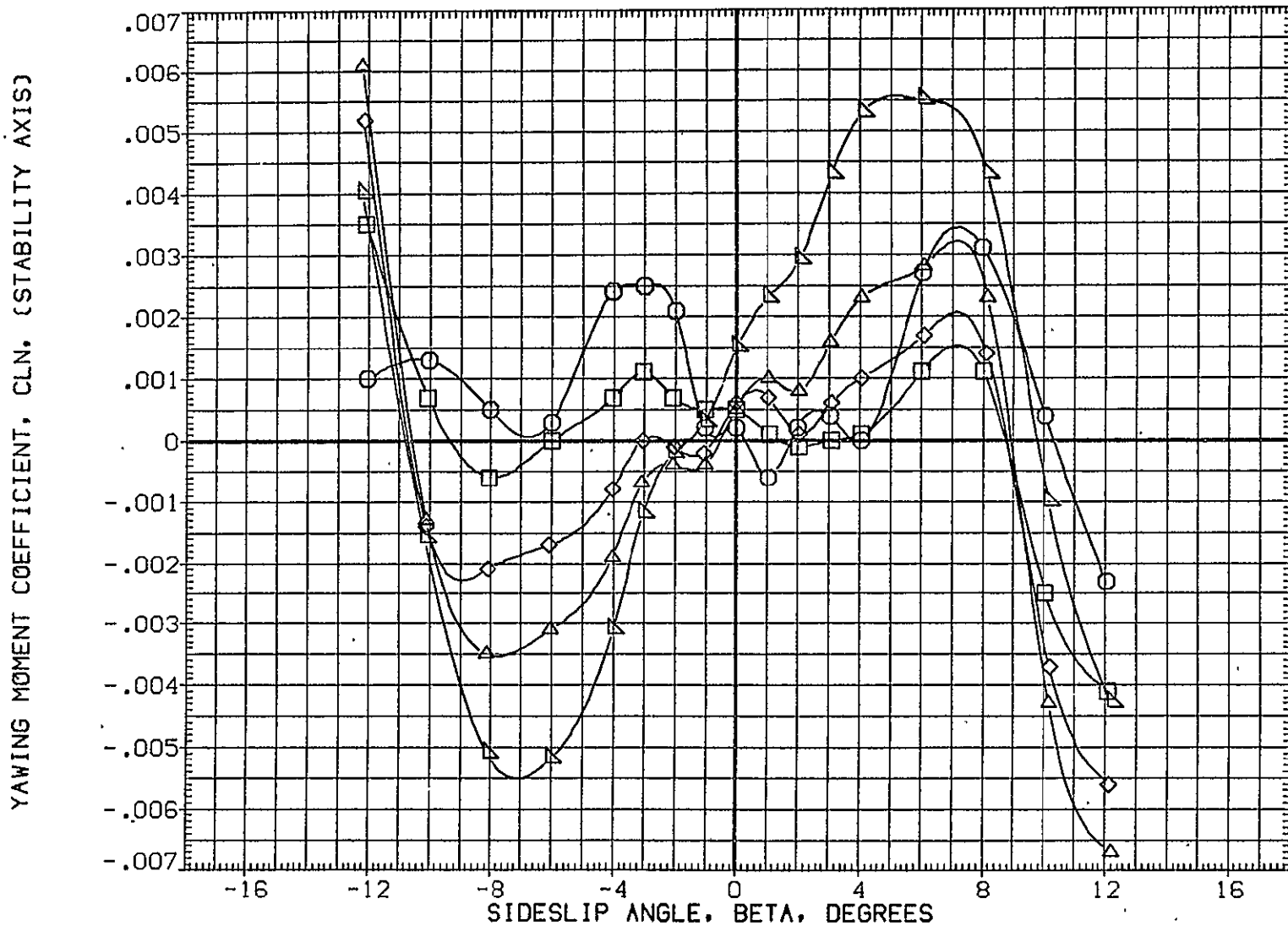


FIG.131 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 2 DEG 0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	2.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.299	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.600	.000	S3-4	45.000	XMRP	1109.0000	IN. X0	
▽	.700	S5-6	20.000	10RB	7.850	YM RP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

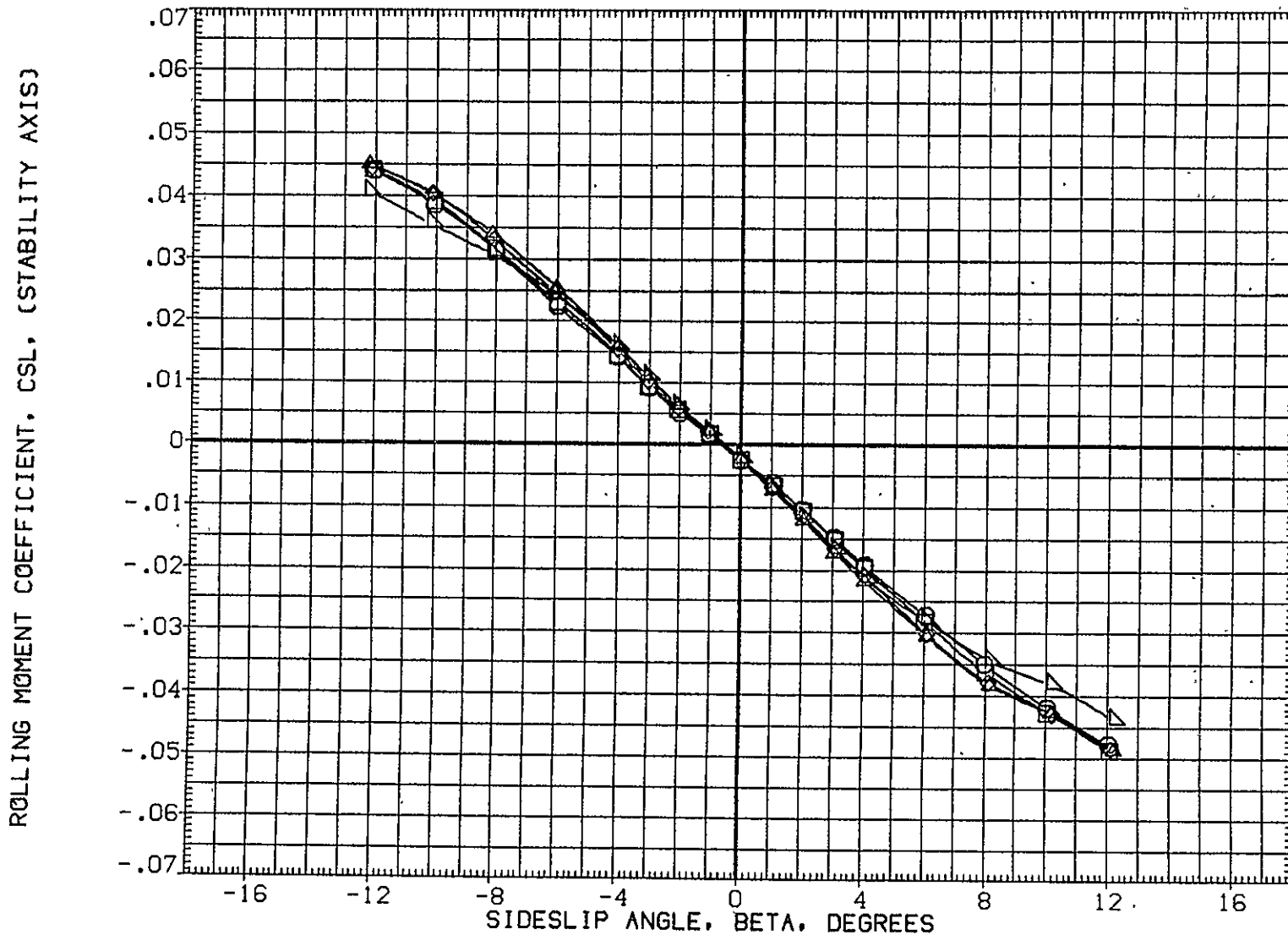


FIG.131 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 2 DEG 0RB

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM083)

SYMBOL	MACH	ALPHA	PARAMETRIC VALUES	
○	.150	ALPHA1	6.000	STAB 1.000
□	.300	RUD-U	.000	RUD-L .000
◇	.500	ELV-1B	.000	ELV-OB. 3.000
△	.600	S1-2	.000	S3-4 45.000
▽	.700	S5-6	20.000	1ORB 7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

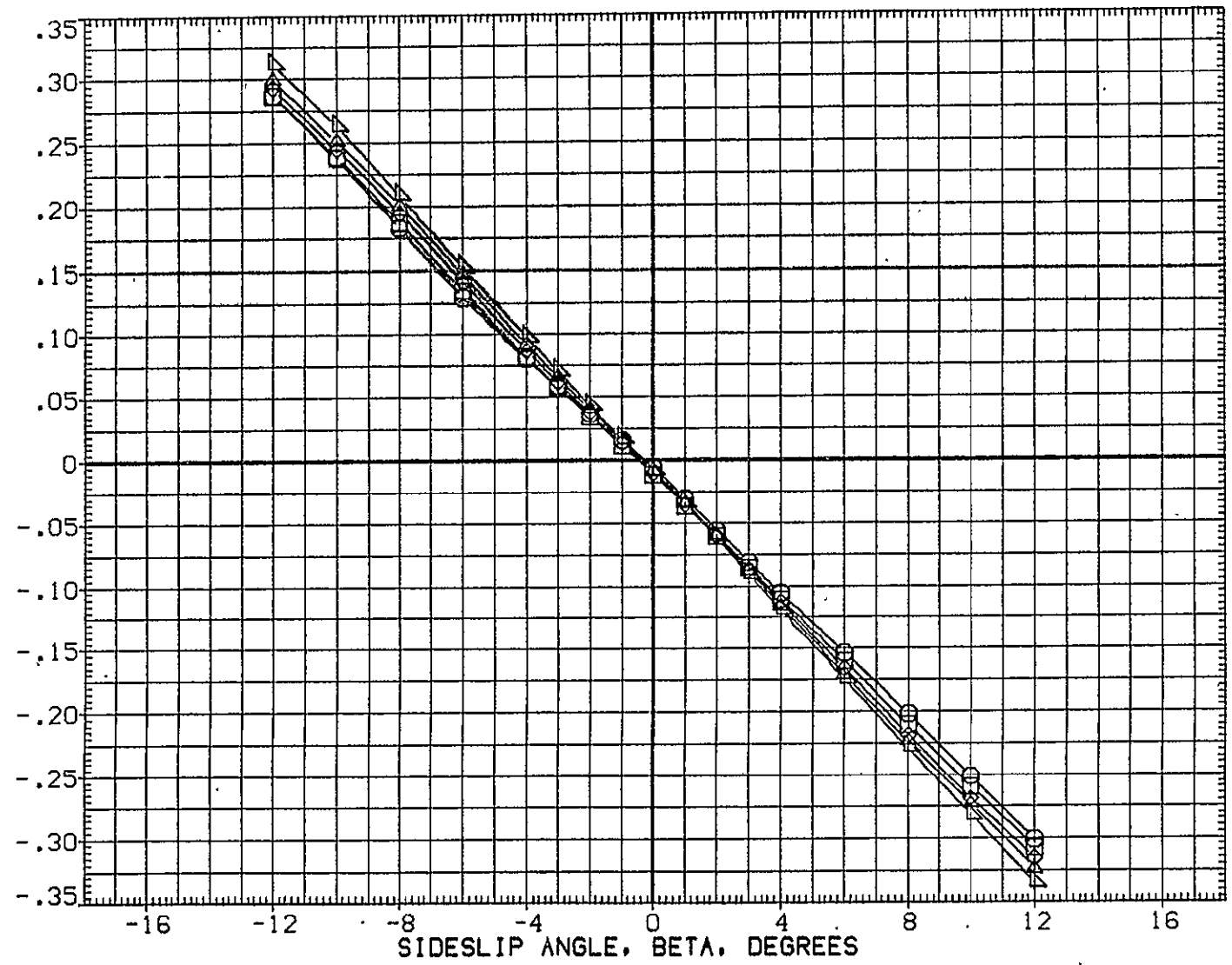


FIG.132 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG TOTAL  
PAGE 497

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	RUD-L	ELV-OB	SREF	SO.F1	
○	.150	6.000	1.000	.000	3.000	5500.0000	IN.	
□	.300	.000	.000	.000	.000	327.8000	IN.	
◇	.500	.000	3.000	.000	.000	2348.0000	IN.	
△	.600	.000	45.000	.000	.000	1339.9100	IN.	XC
▽	.700	20.000	7.850	.000	.000	.0000	IN.	YC
						190.7500	IN.	ZC
						SCALE		.0300

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

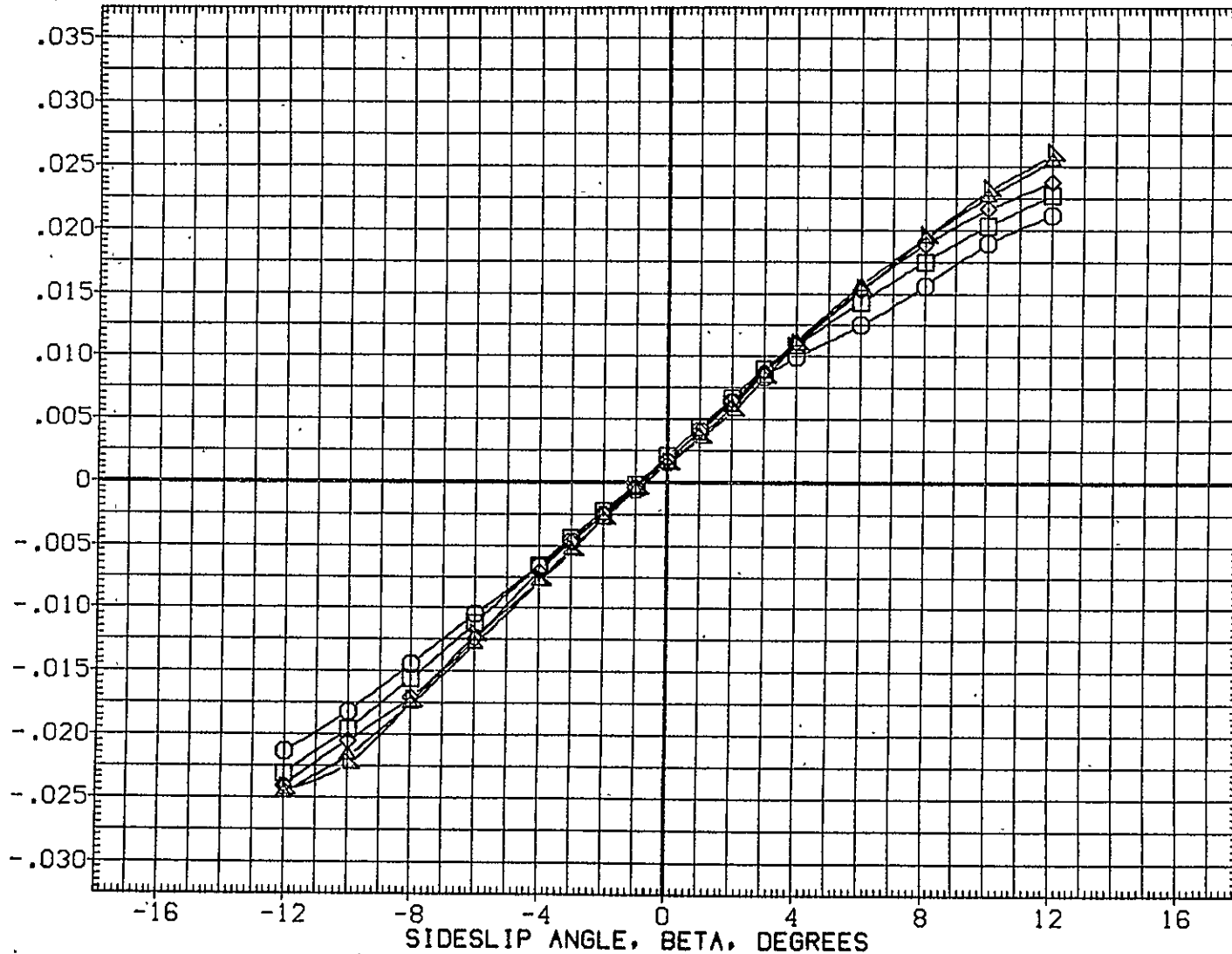


FIG.132 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA I= 6 DEG TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM083)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		ALPHA1	STAB	STAB	STAB	SREF	SQ.FT.
□	.150	6.000	1.000		5500.0000		
◇	.300	.000	.000		327.8000	IN.	
△	.500	.000	3.000		2348.0000	IN.	
▽	.600	.000	45.000		1339.9100	IN. XC	
○	.700	20.000	7.850		.0000	IN. YC	
					190.7500	IN. ZC	
					.0300		

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

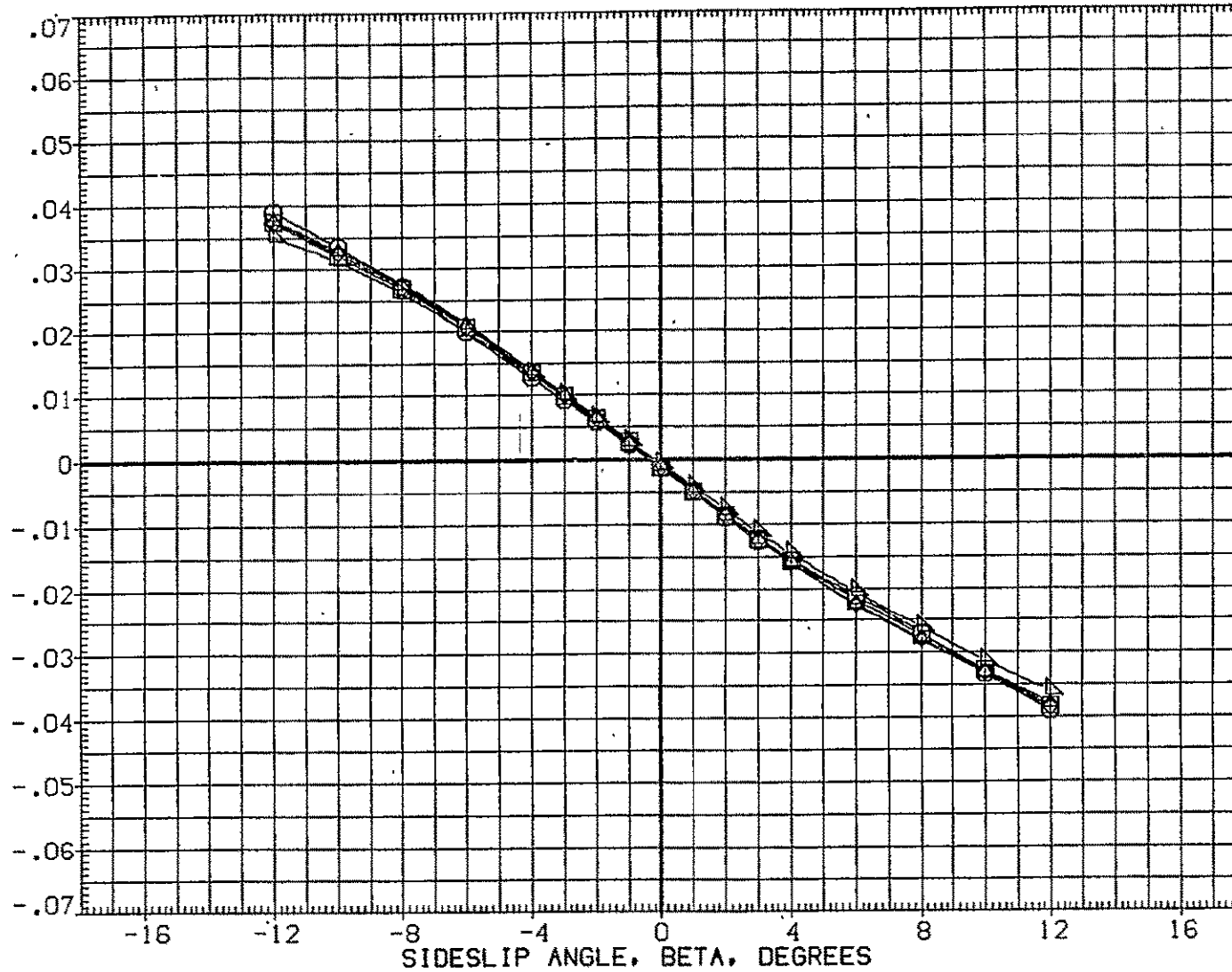


FIG.132 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ALPHA1= 6 DEG TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	6.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.150	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.300	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.500	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
▽	.600	S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
	.700					ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT (STABILITY AXIS), DCY

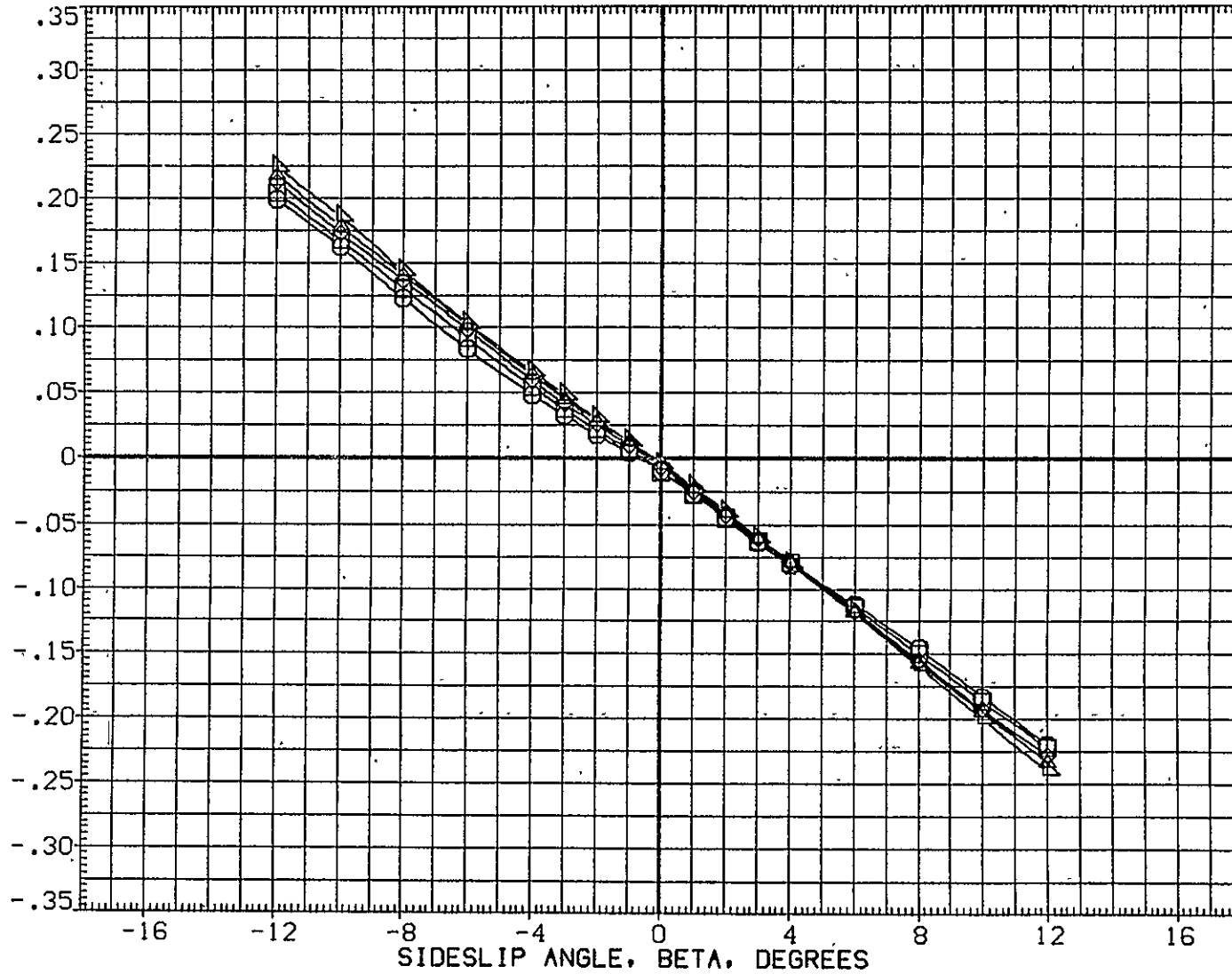


FIG.133 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ALPHA I= 6 DEG 747

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.2 (BGM083)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

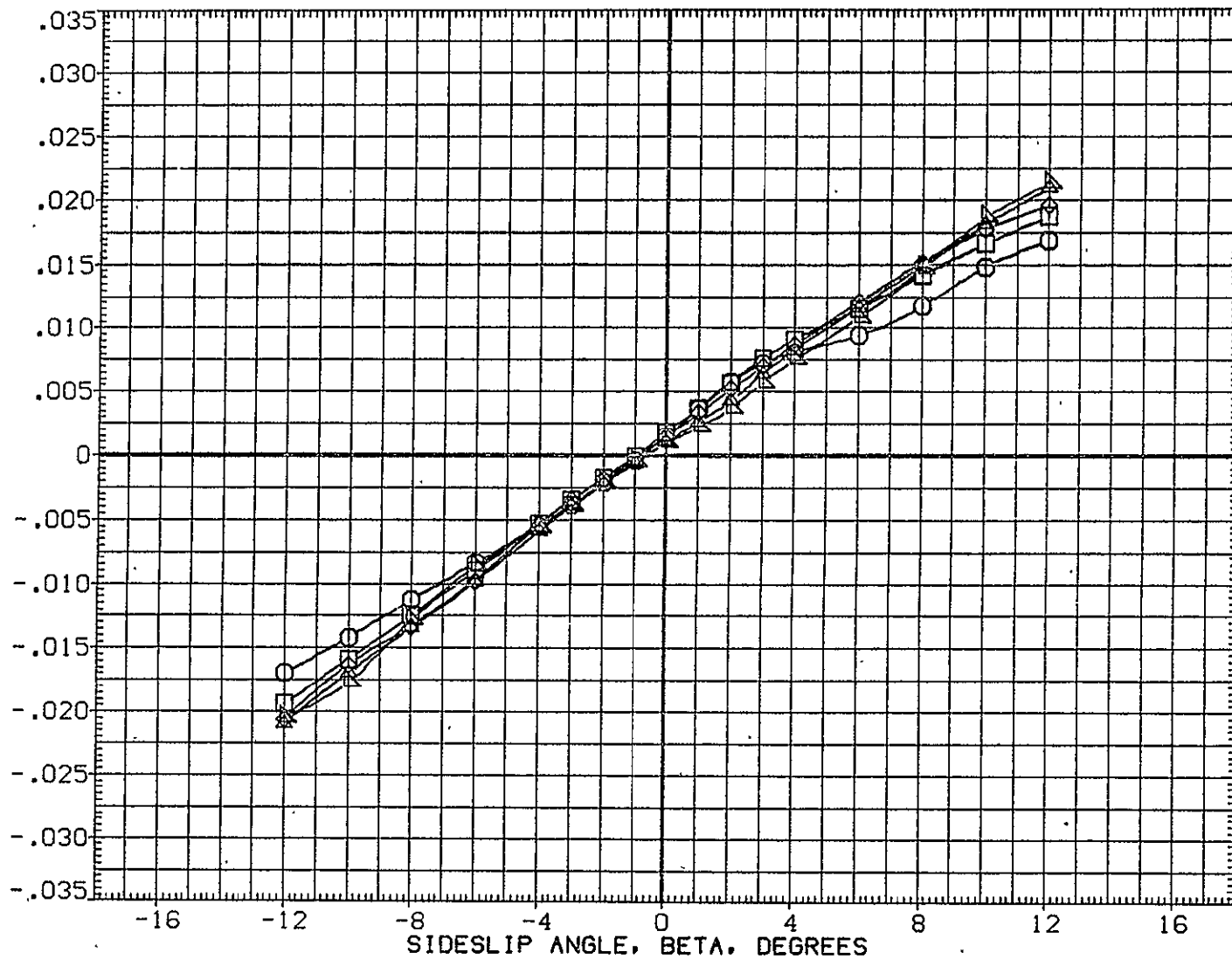


FIG.133 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG 747



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DC SL

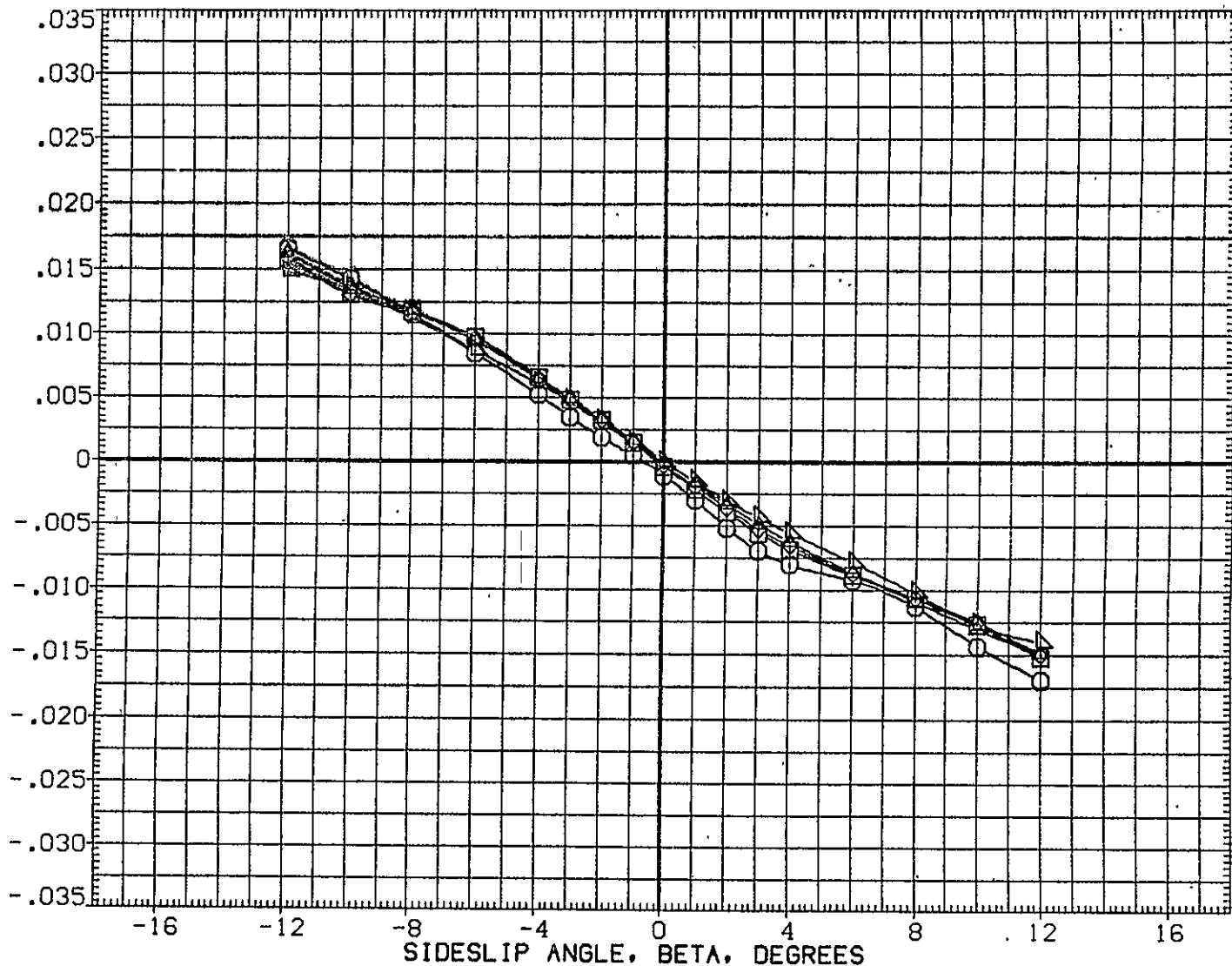


FIG.133 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP.LAUNCH,ALPHA1= 6 DEG 747

CA5 0RB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(XGM083)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHAI	6.000	STAB	1.000	SREF	2690.0000	SG.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.499	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.601	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
△	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

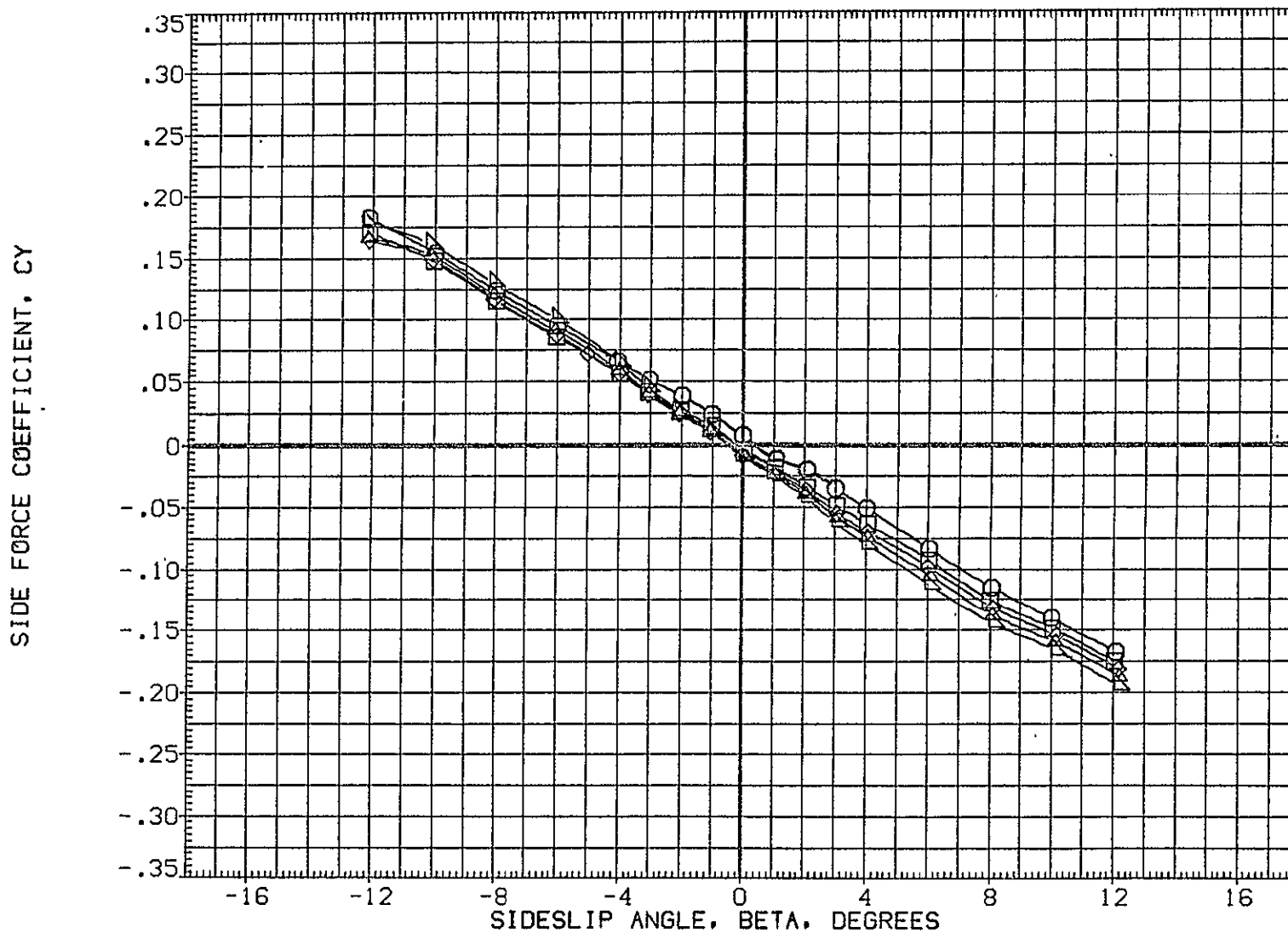


FIG.134 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHAI= 6 DEG 0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	6.000	STAB	1.000	SREF	2690.0000	50.FT.
○	.150	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.300	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
◇	.499	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
△	.601	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
▽	.700					ZMRP	375.0000	IN. Z0
						SCALE	.0300	

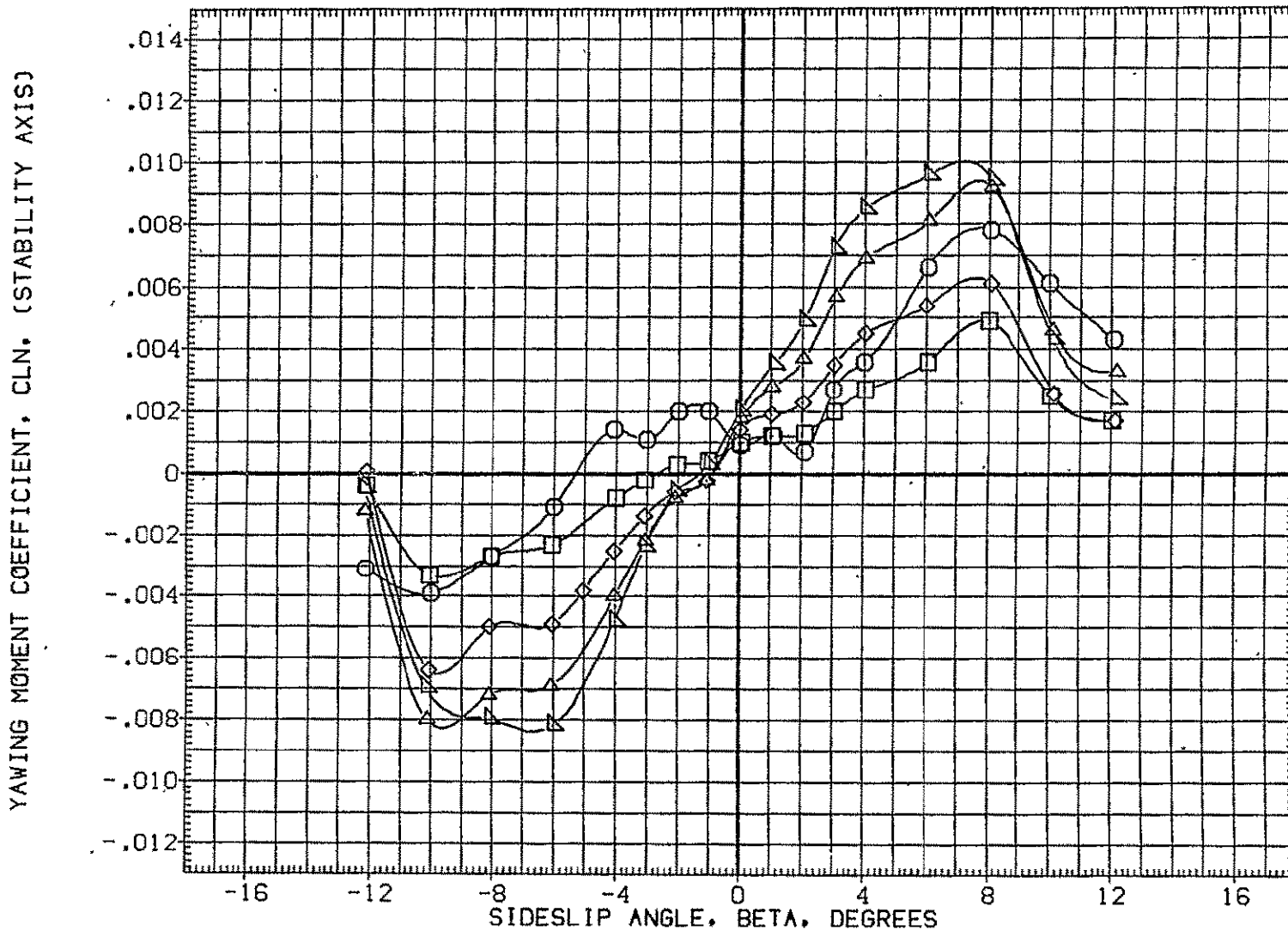


FIG.134 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG ORB

CA5 ORB TC5 AT38.2 (PRES. K1 F0 H15.6 V9.1)(XGM083)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.499	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.601	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
▽	.700	20.000	10RB	7.850	YMRP	.0000	IN. Y0	
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

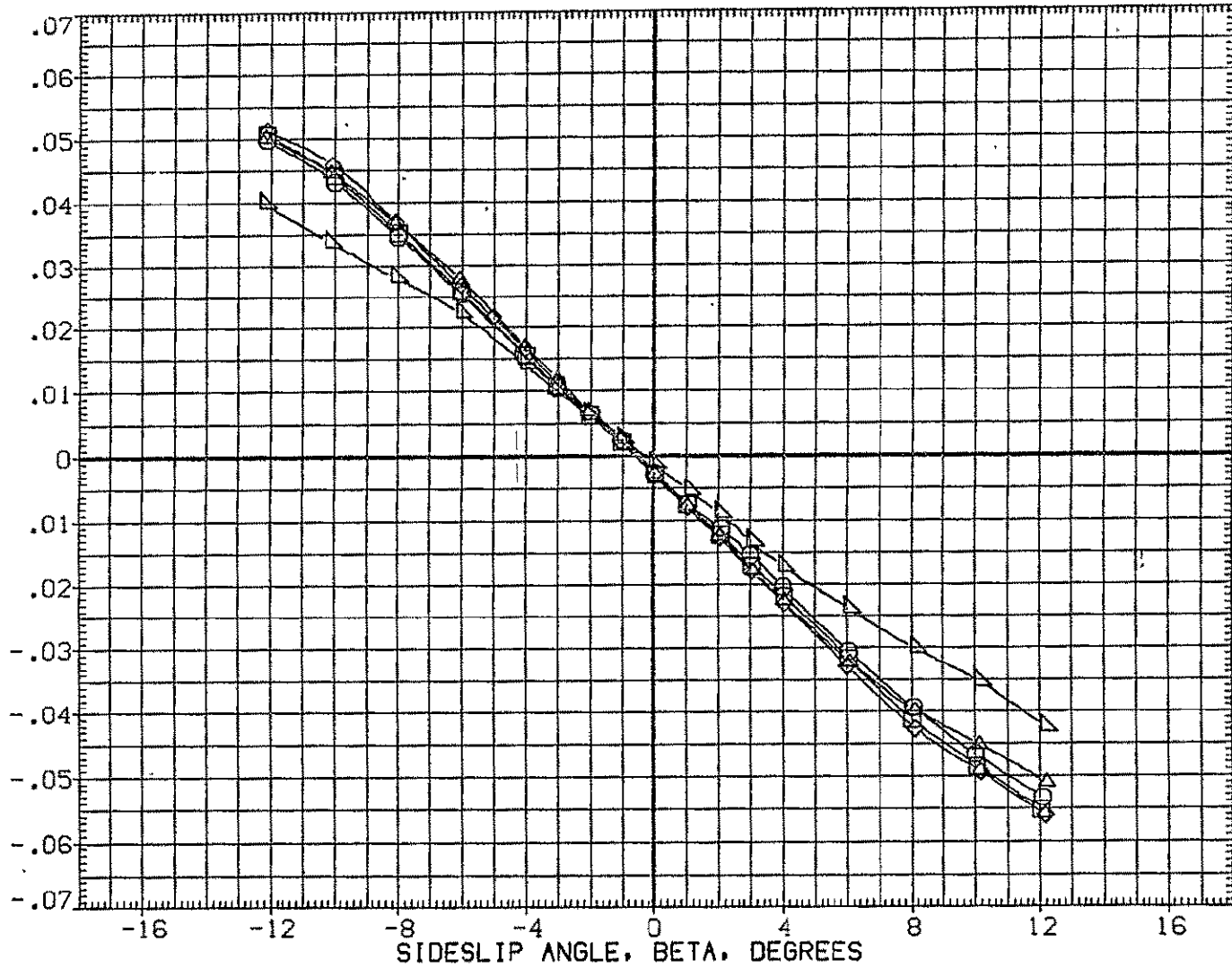


FIG.134 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA= 6 DEG ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	1.000
□	.500	RUD-U	10.000	RUD-L	10.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

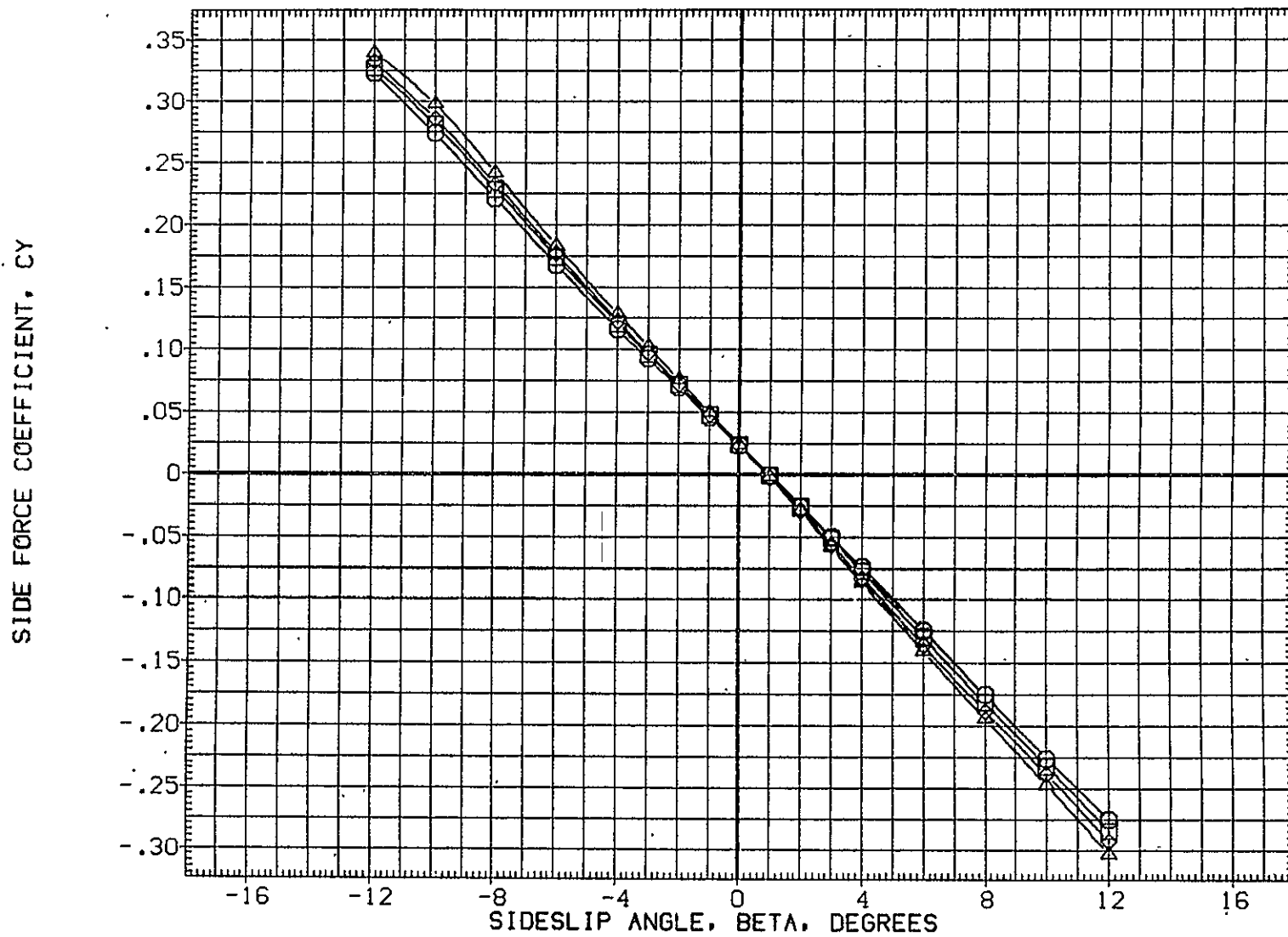


FIG.135 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 TOT

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM086)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	50. FT.
□	.500	RUD-U	10.000	RUD-L	10.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	ICRB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

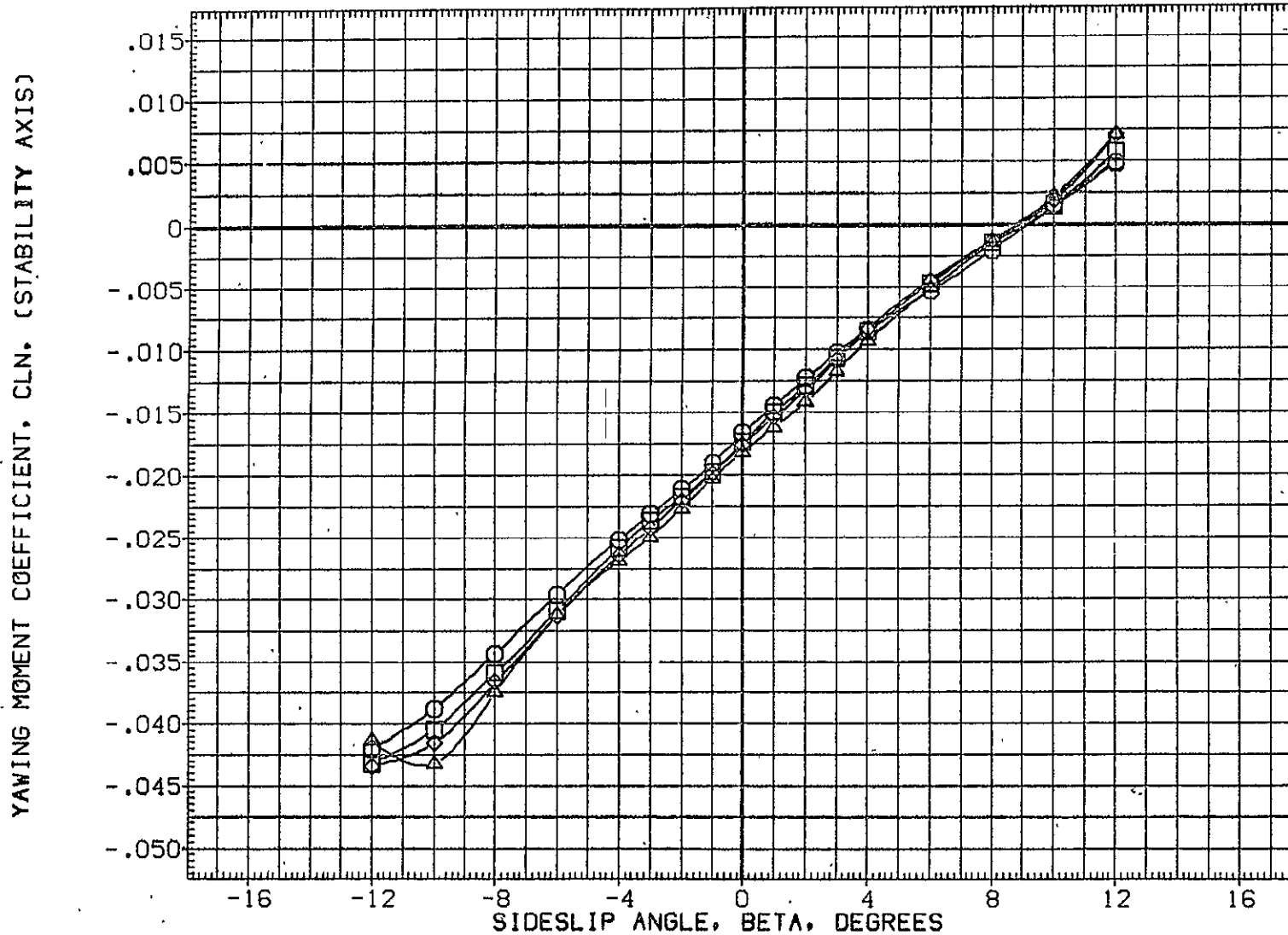


FIG.135 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 TOT

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA I	6.000	STAB	1.000	SREF	5500.0000	SQ. FT.
□	.500	RUD-U	10.000	RUD-L	10.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	SI-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

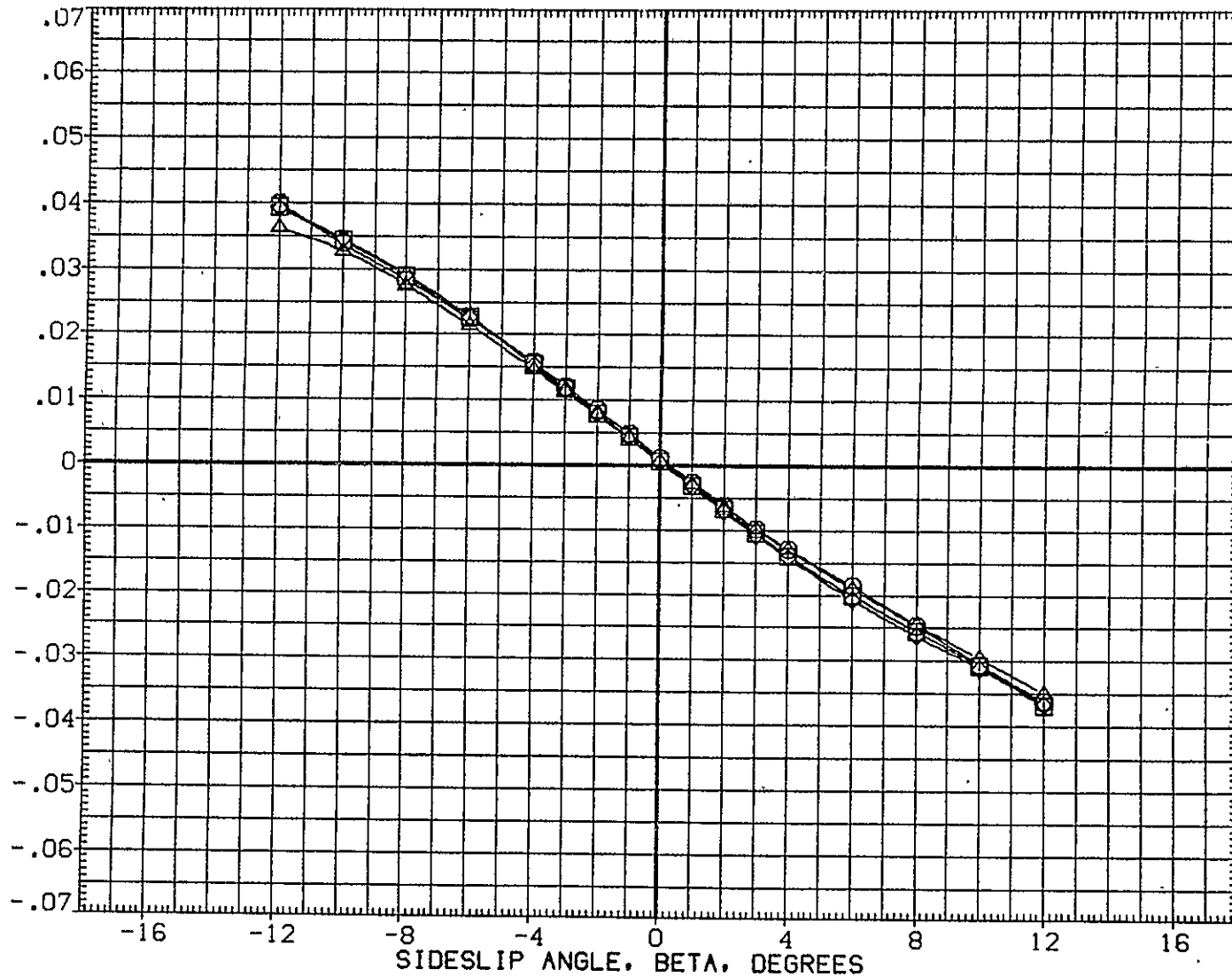


FIG.135 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 TOT

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM086)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	1.000
□	.500	RUD-U,	10.000	RUD-L	10.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	ICRB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

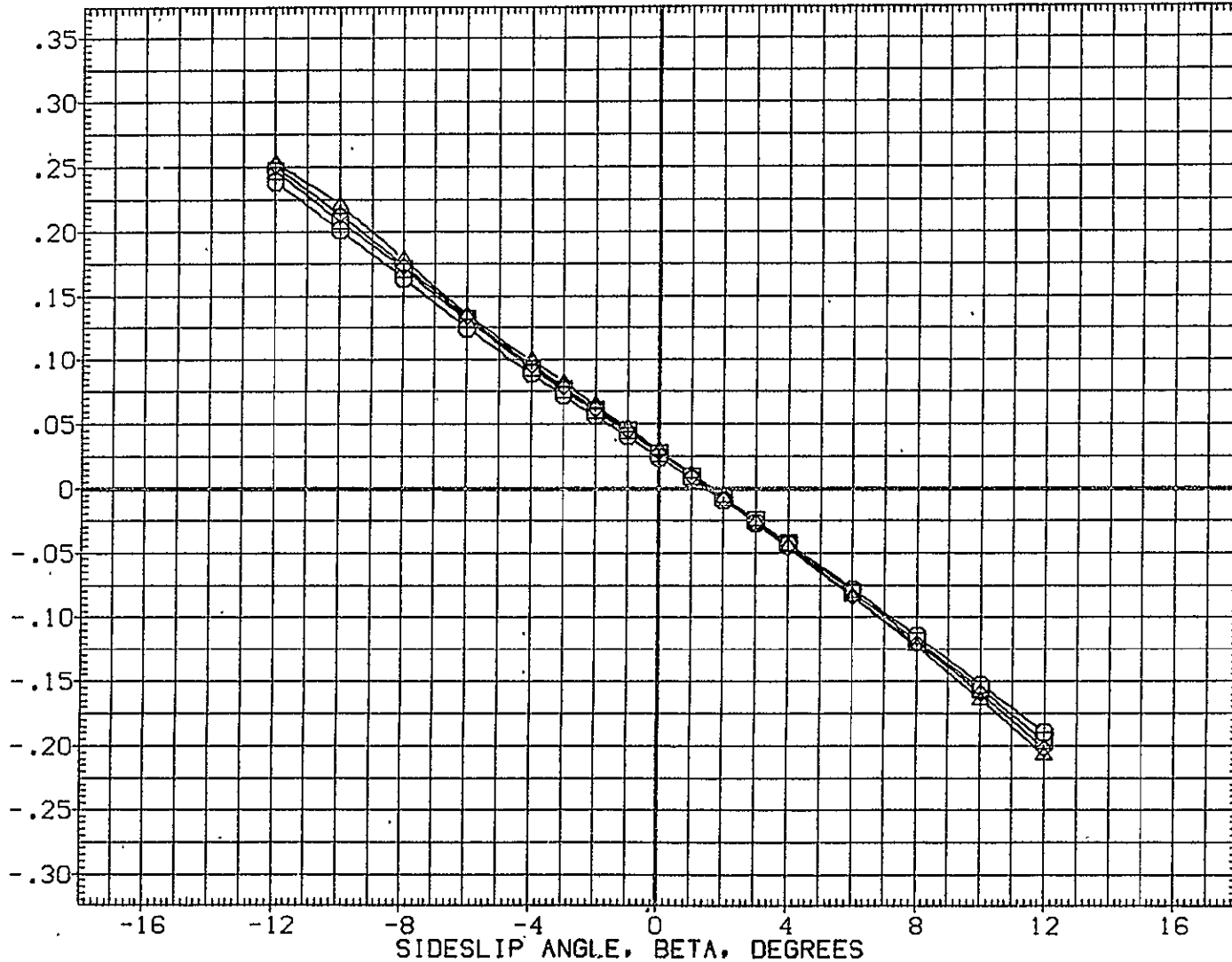


FIG.136 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 747



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA I	6.000	STAB	1.000
□	.500	RUD-U	10.000	RUD-L	10.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LRCF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

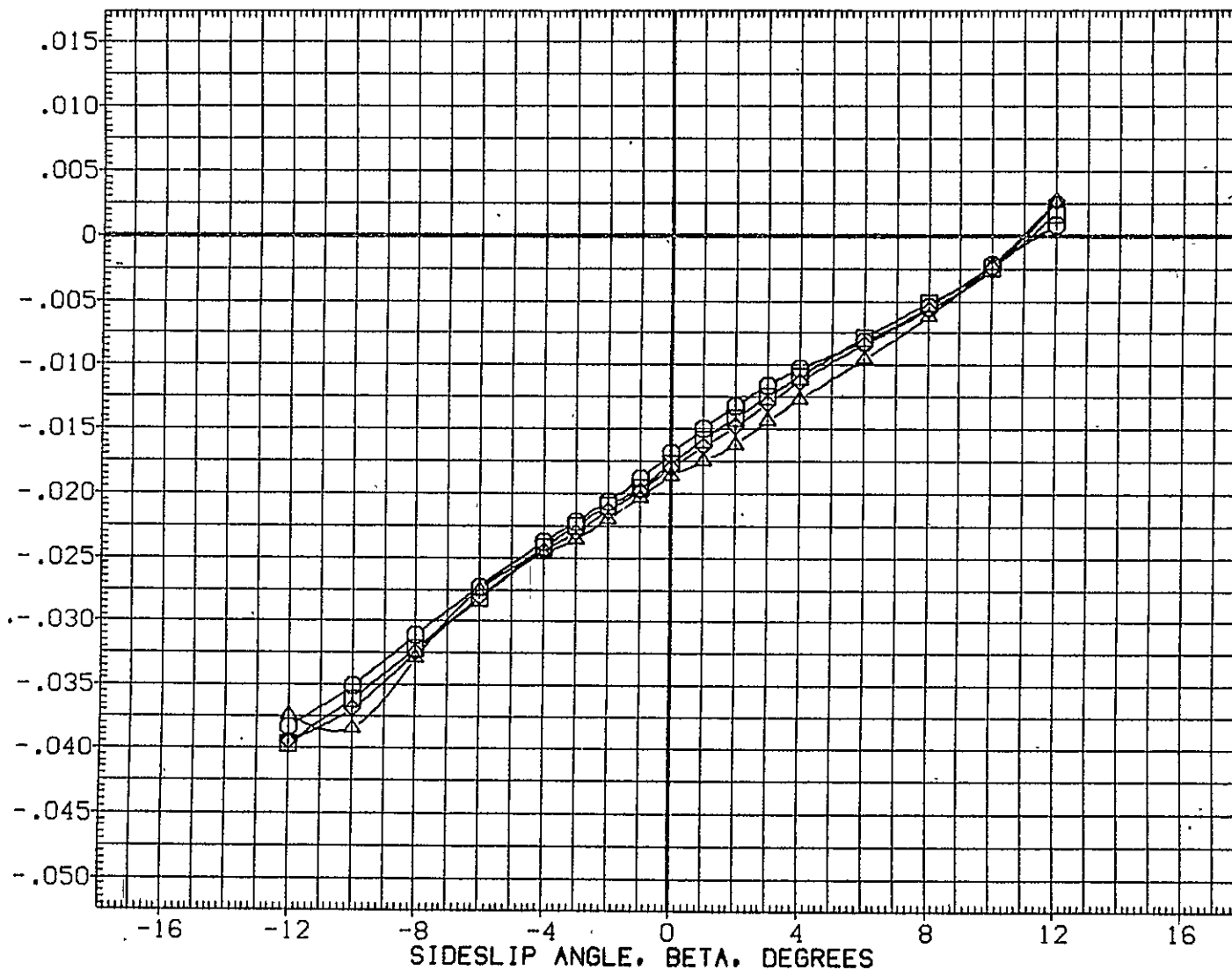


FIG.136 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 747

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM086)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	RUD-L	RUD-L	SREF	SO.FT.	
○	.300	6.000	1.000	10.000	10.000	5500.0000	50.FT.	
□	.500	10.000	10.000	10.000	10.000	327.8000	IN.	
◇	.600	.000	3.000	ELV-0B	3.000	2348.0000	IN.	
△	.700	.000	45.000	S3-4	45.000	1339.9100	IN. XC	
		S1-2	20.000	10RB	7.850	YMRP	.0000	IN. YC
		S5-6				ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DC SL

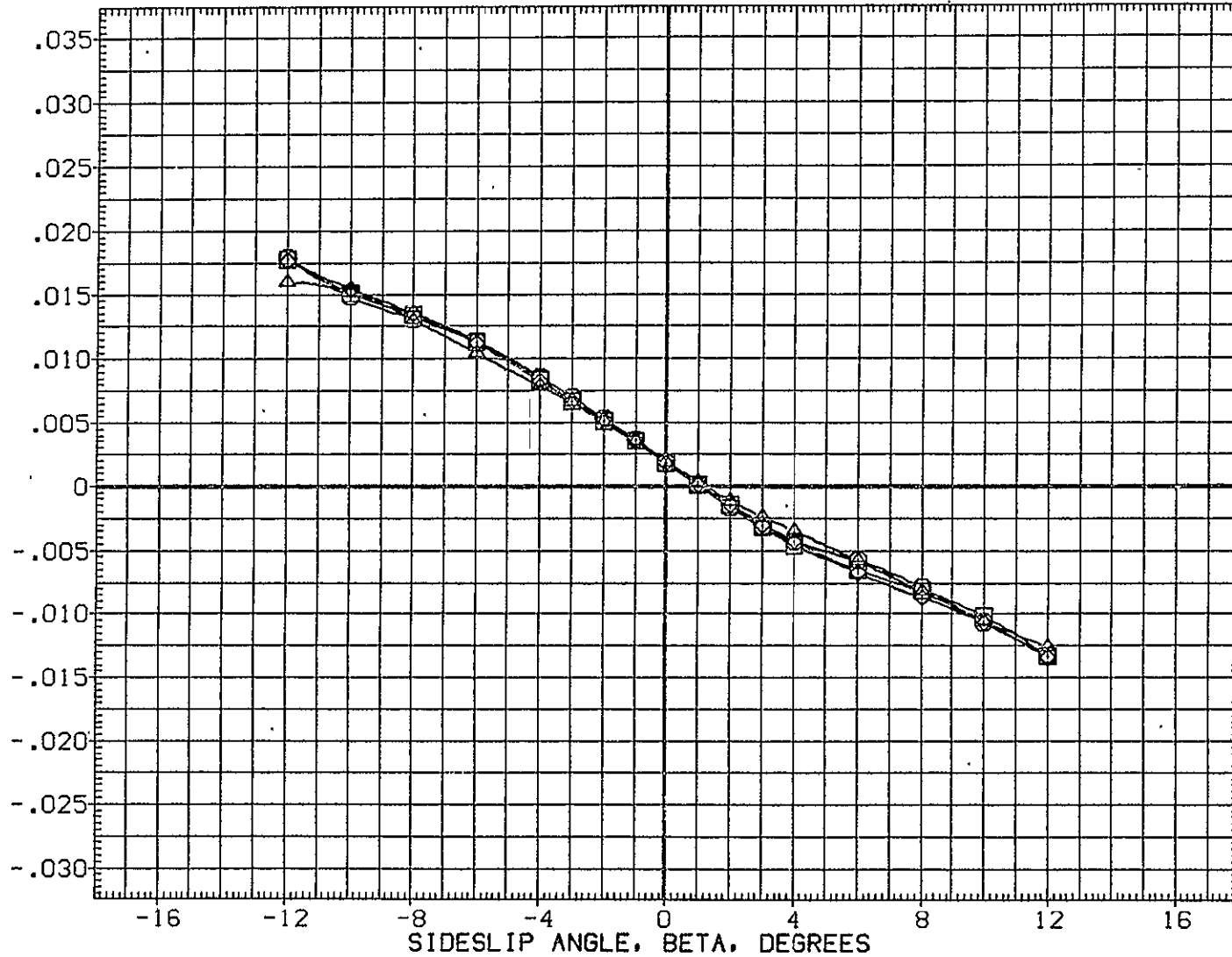


FIG.136 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	RUD-U	RUD-L	SREF	LREF	BREF
○	.300	6.000	1.000	10.000	10.000	2690.0000	474.8100	936.6800
□	.499	10.000	10.000	10.000	10.000	1109.0000	1109.0000	1109.0000
◇	.600	.000	3.000	10.000	10.000	.0000	.0000	.0000
△	.700	.000	45.000	10.000	10.000	375.0000	375.0000	375.0000
		S5-6	20.000	10RB	7.850	SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

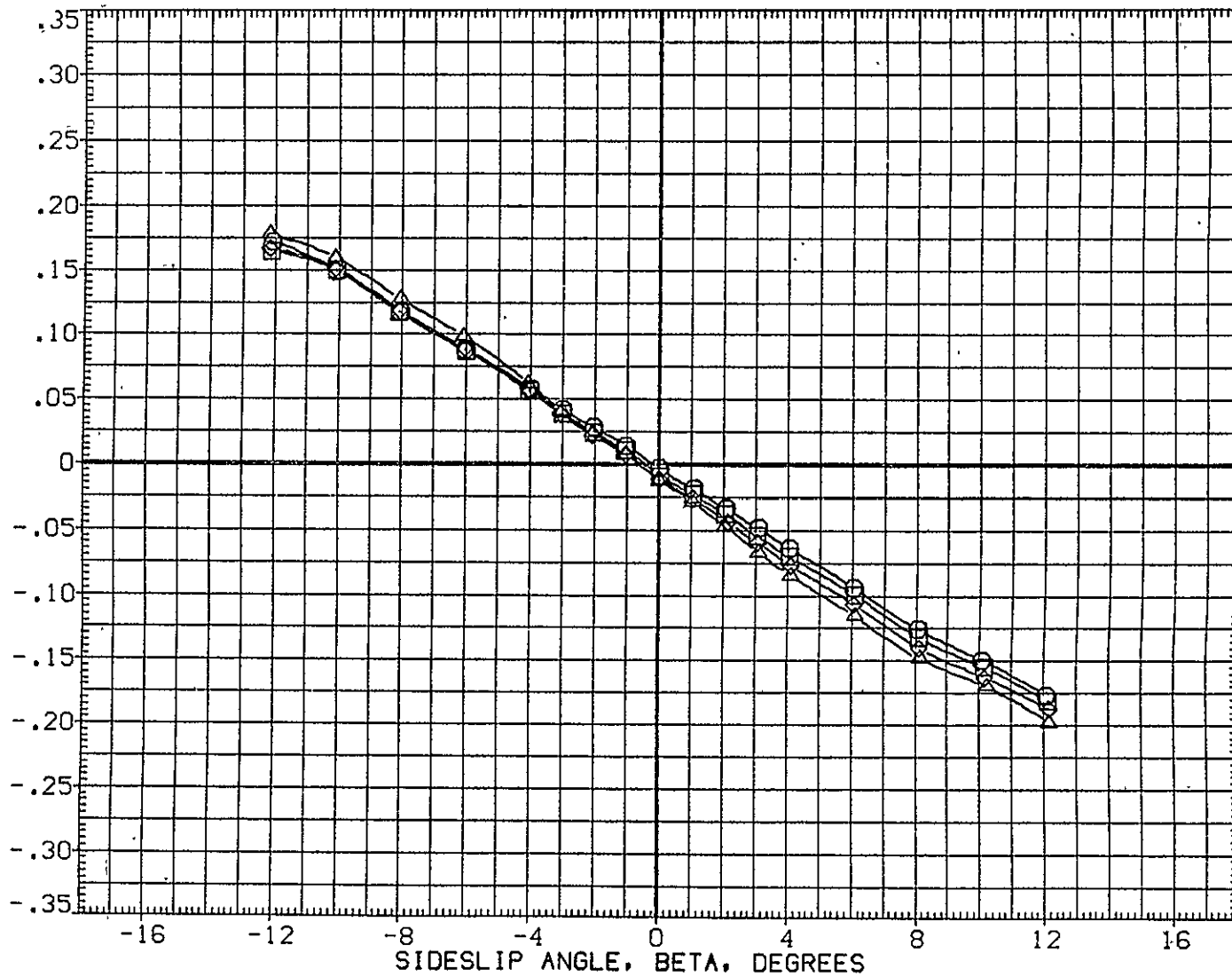


FIG.137 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 ORB

CA5 ORB TC5 AT38.2 (PRES. K1 F0 H15.6 V9.1)(XGM086)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.499	RUD-U	10.000	RUD-L	10.000	LREF	474.8100	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

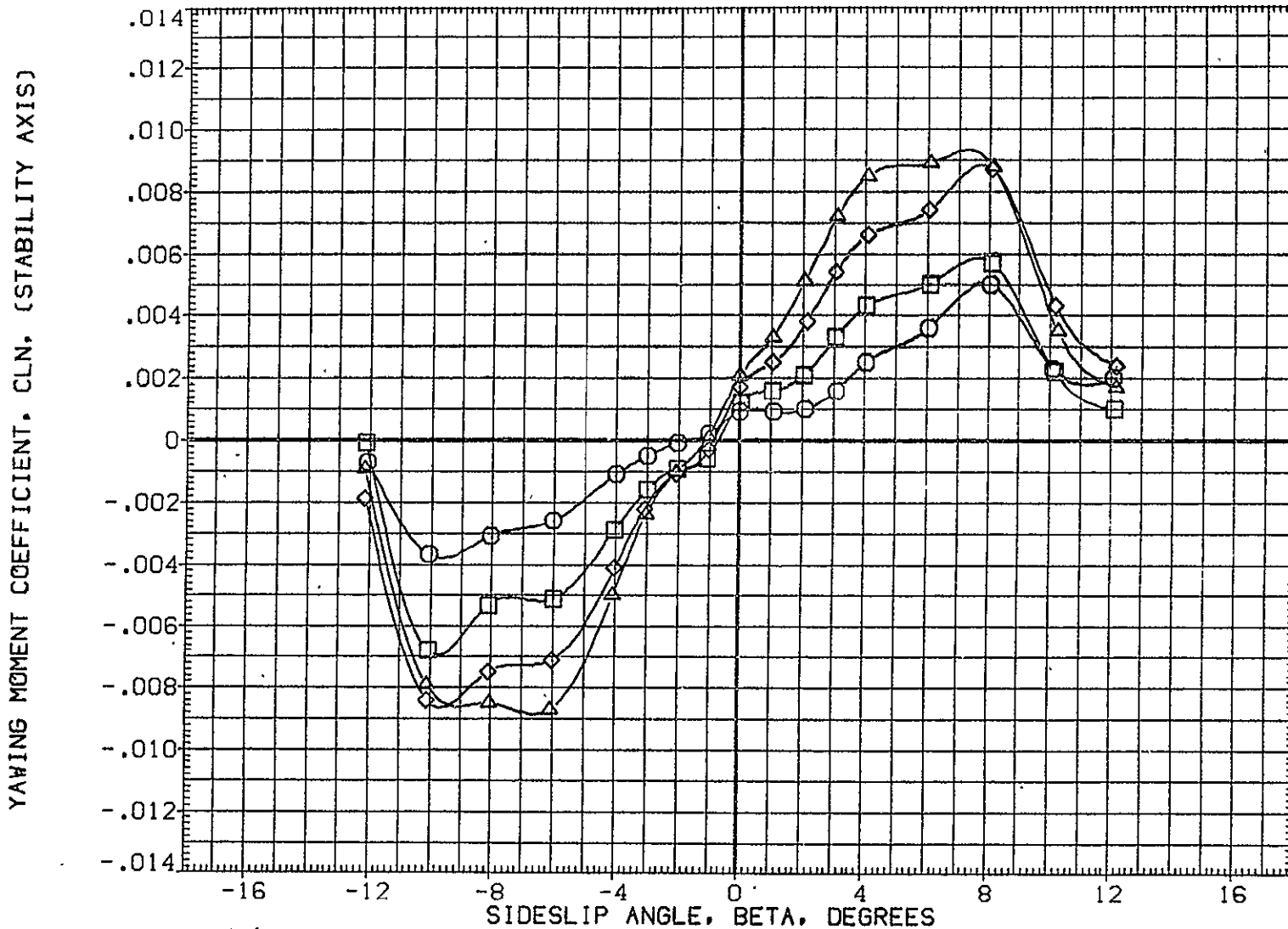


FIG.137 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10,10 ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA	STAB	STAB	STAB	SREF	SQ.FT.	SQ.FT.
○	.300	6.000	1.000			2690.0000		
□	.499	10.000	10.000			474.8100	IN.	
◇	.600	.000	3.000			936.6800	IN.	
△	.700	20.000	7.850			1109.0000	IN. X0	
						.0000	IN. Y0	
						375.0000	IN. Z0	
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

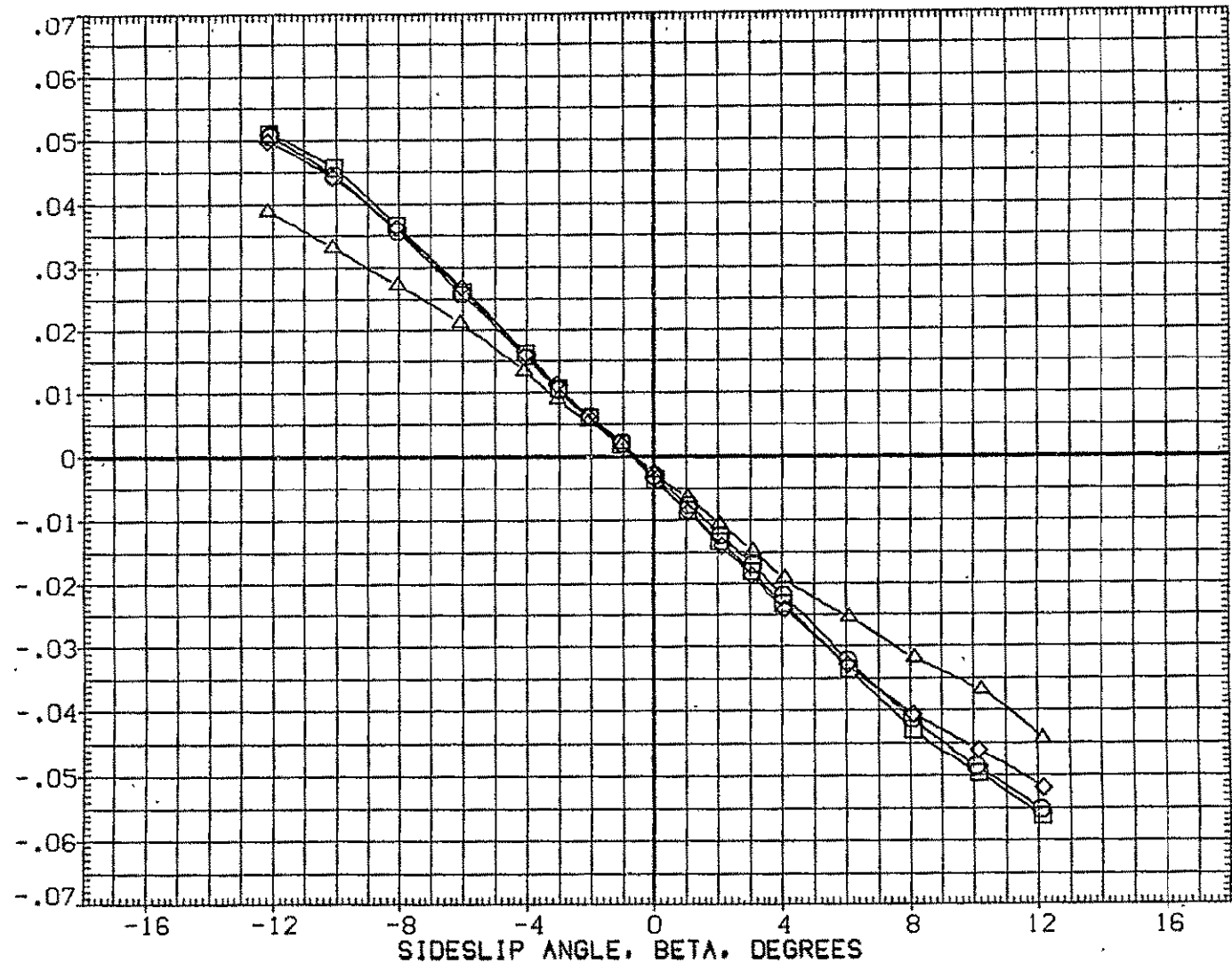


FIG.137 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPI=6,RUD=10/10 ORB

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM089)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION														
		ALPHA1	STAB	ELV-1B	S1-2	S5-6	0RBELV	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SQ.FT.	IN.	IN.	IN.	IN.	IN.
○	.300	6.000	1.000	.000	.000	.000	.000	5500.0000	327.8000	2348.0000	1339.9100	.0000	190.7500	.0300						
□	.500	.000	.000	.000	.000	.000	.000													
◇	.600	3.000	.000	.000	.000	.000	.000													
△	.700	S3-4	.000	.000	.000	.000	.000													
		10RB	7.850	0RBELV	.000															

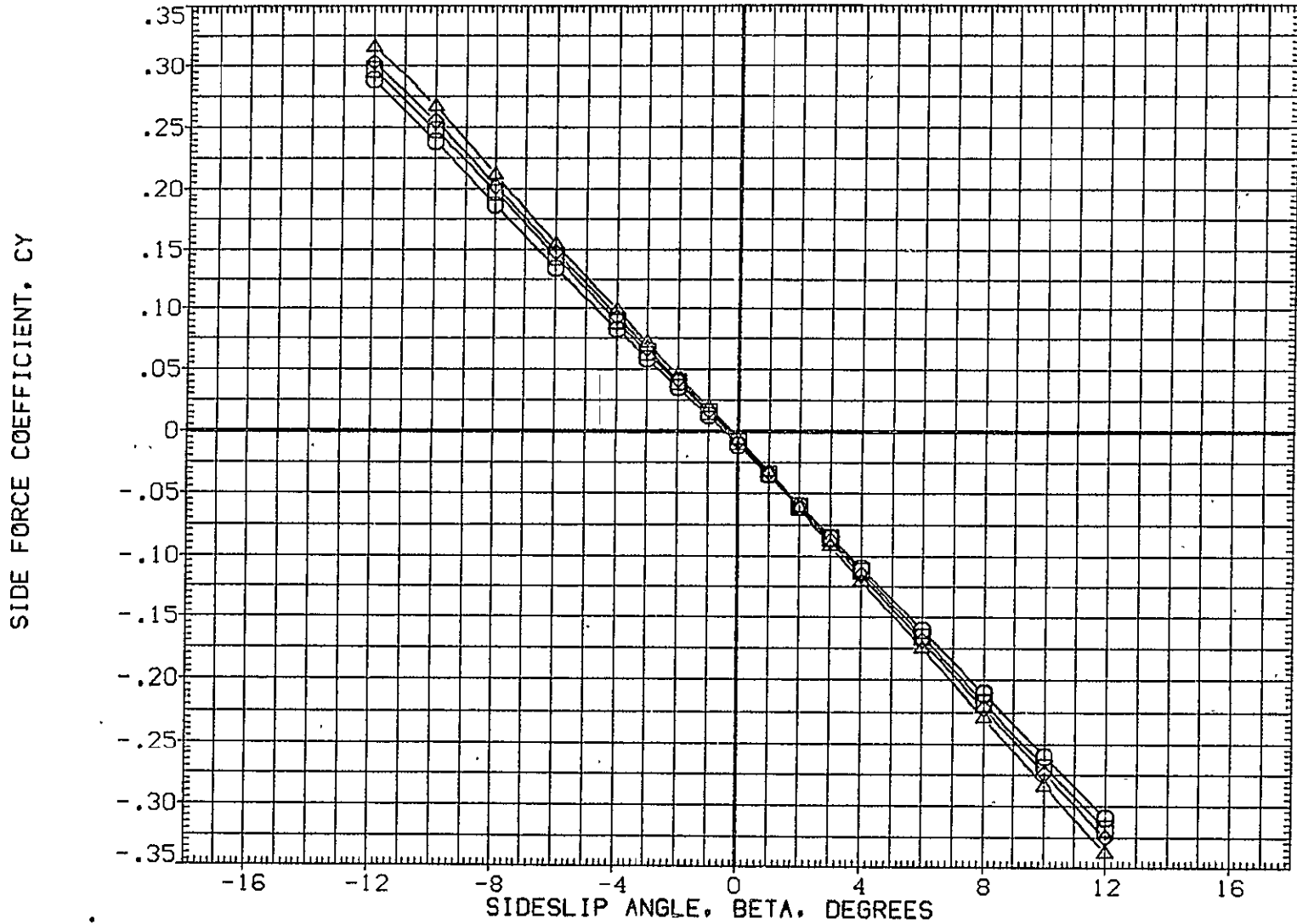


FIG.138 747+0RB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA1= 6 DEG

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	ELV-1B	ELV-08	SREF	SO.FT.	
○	.300	6.000	1.000	.000	5500.0000	IN.		
□	.500	.000	.000	2348.0000	327.8000	IN.		
◇	.600	3.000	.000	1339.9100	2348.0000	IN.		
△	.700	S3-4	S5-6	.000	1339.9100	IN. XC		
		10RB	ORBELV	.000	YMRP	IN. YC		
					ZMRP	IN. ZC		
					SCALE	.0300		

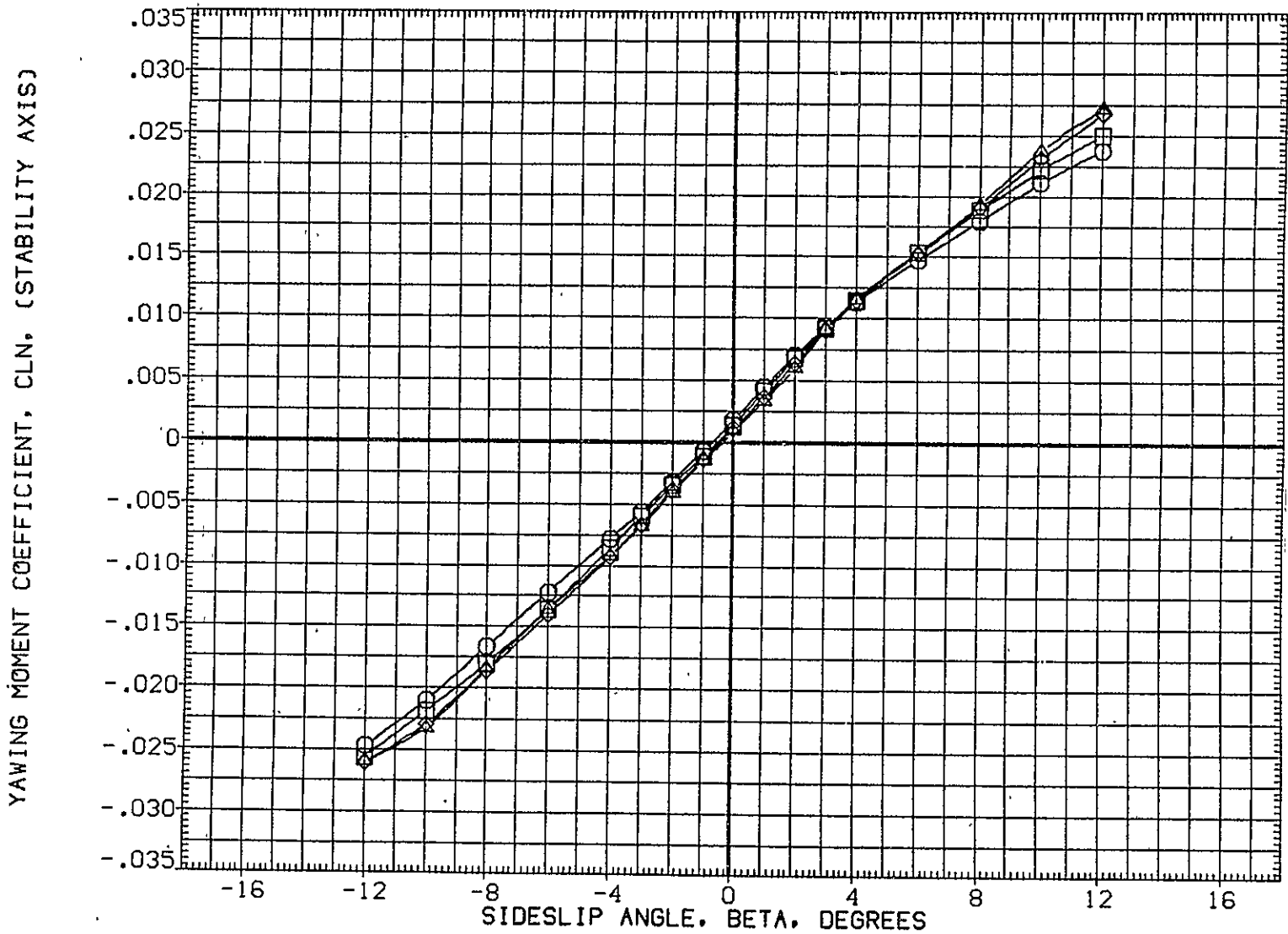


FIG.138 747+ORB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA1= 6 DEG

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.2 )(RGM089)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SG.FT.
□	.500	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
◇	.600	ELV-0B	3.000	SI-2	.000	BREF	2348.0000	IN.
△	.700	S3-4	.000	S5-6	.000	YMRP	1339.9100	IN. XC
		10RB	7.850	0RBELV	.000	ZMRP	190.7500	IN. YC
						SCALE	.0300	IN. ZC

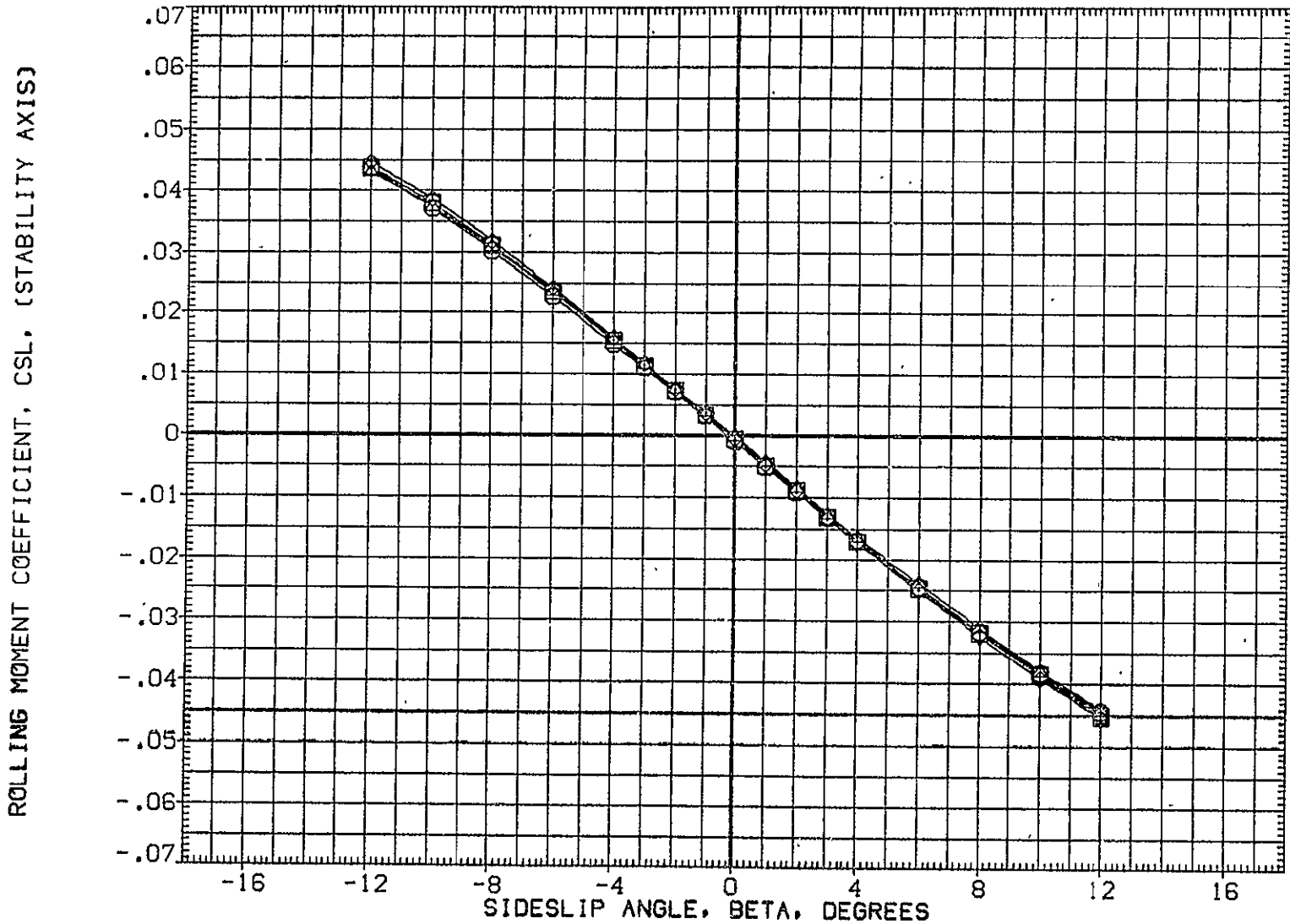


FIG.138 747+0RB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA1= 6 DEG



SYMBOL	MACH	PARAMETRIC VALUES
○	.300	ALPHA1 6.000 STAB 1.000
□	.500	RUD-U .000 ELV-1B .000
◇	.600	ELV-0B 3.000 S1-2 .000
△	.700	S3-4 .000 S5-6 .000
		10RB 7.850 ORBELV .000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

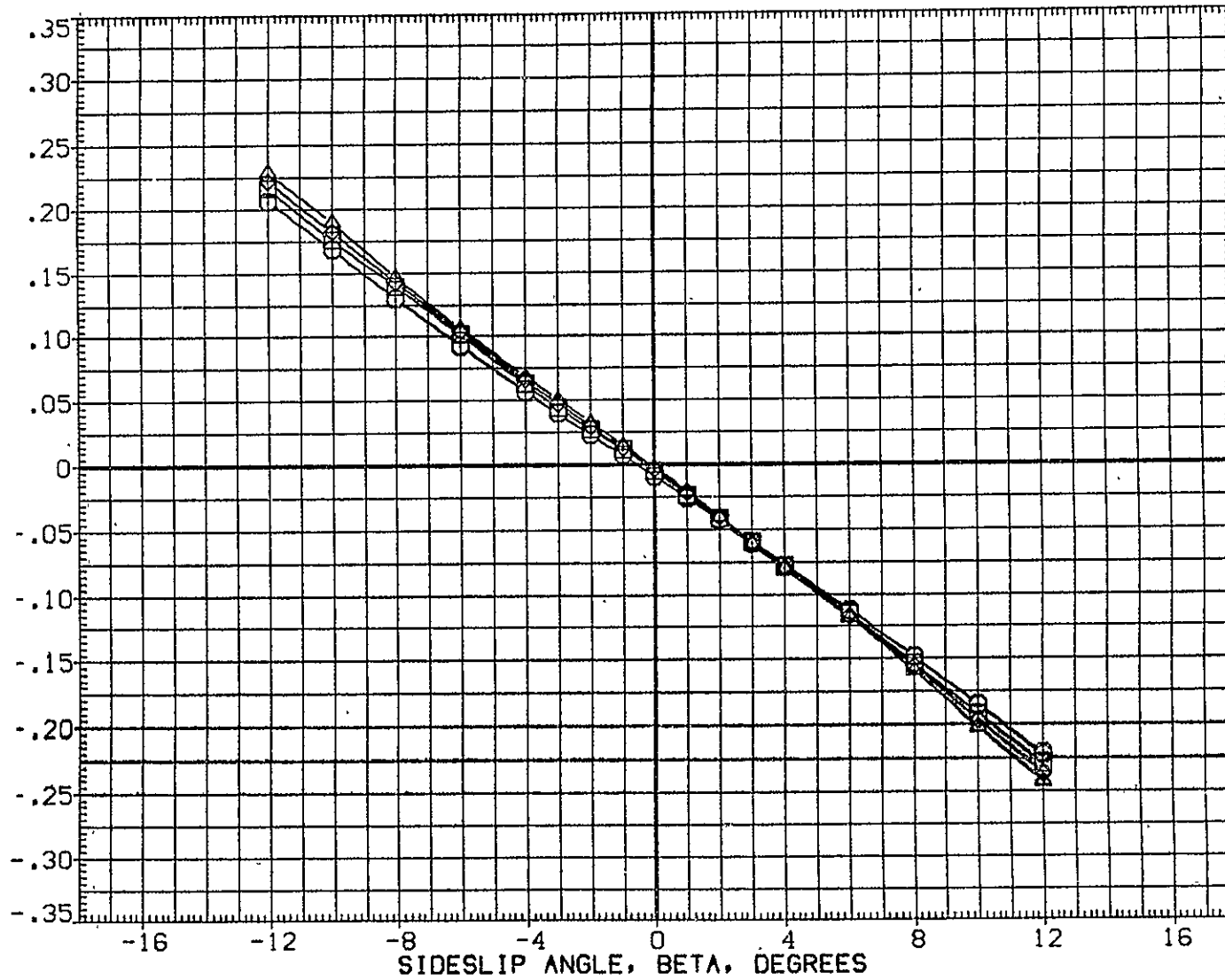


FIG.139 747+ORB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA1= 6 DEG

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM089)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA I	6.000	STAB	1.000
□	.500	RUD-U	.000	ELV-1B	.000
◇	.600	ELV-0B	3.000	S1-2	.000
△	.700	S3-4	.000	S5-6	.000
		10RB	7.850	ORBELV	.000

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2349.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

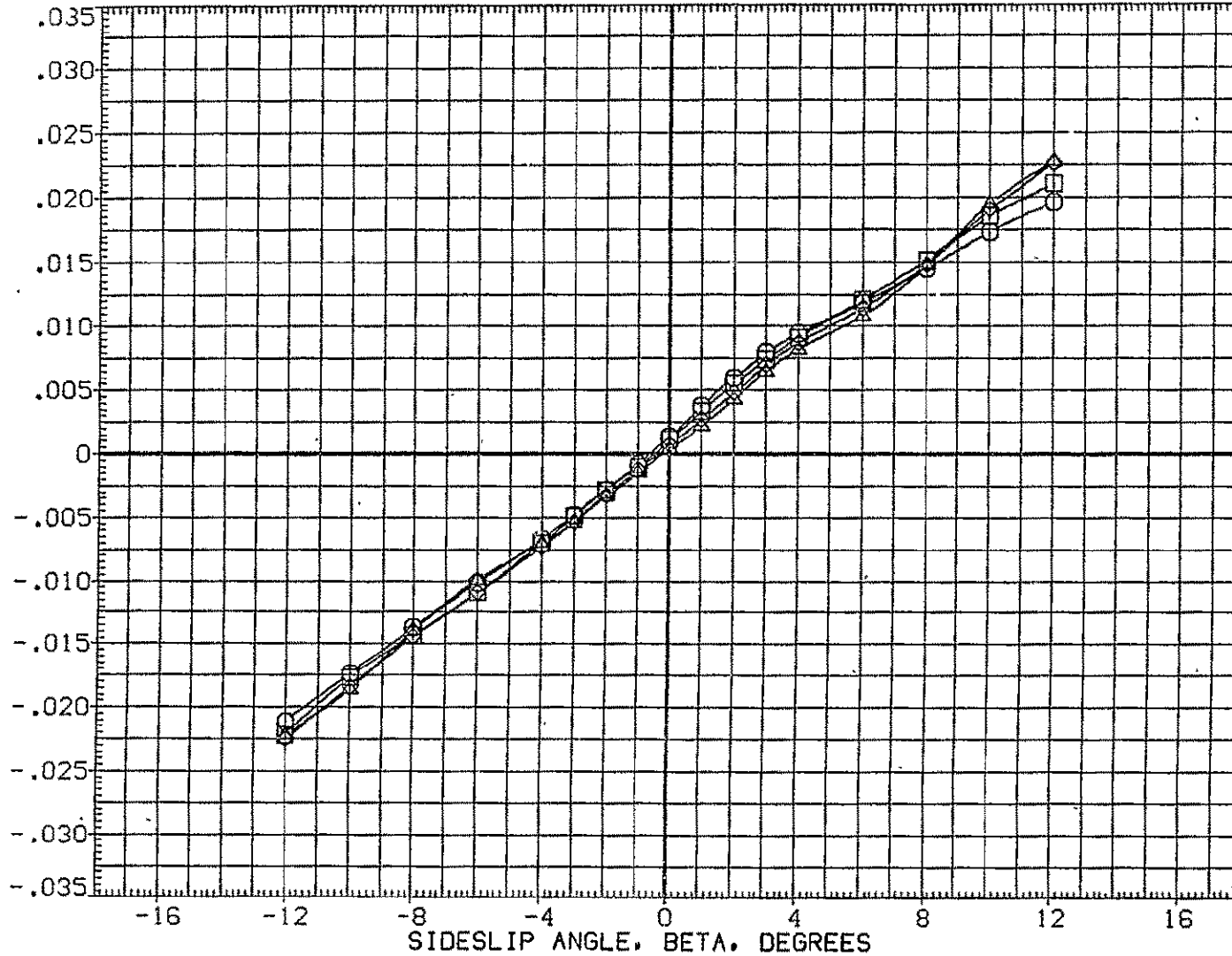


FIG.139 747+ORB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA I= 6 DEG .

747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	1.000
□	.500	RUD-U	.000	ELV-1B	.000
◇	.600	ELV-OB	3.000	S1-2	.000
△	.700	S3-4	.000	S5-6	.000
		IGRB	7.850	ORBELV	.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

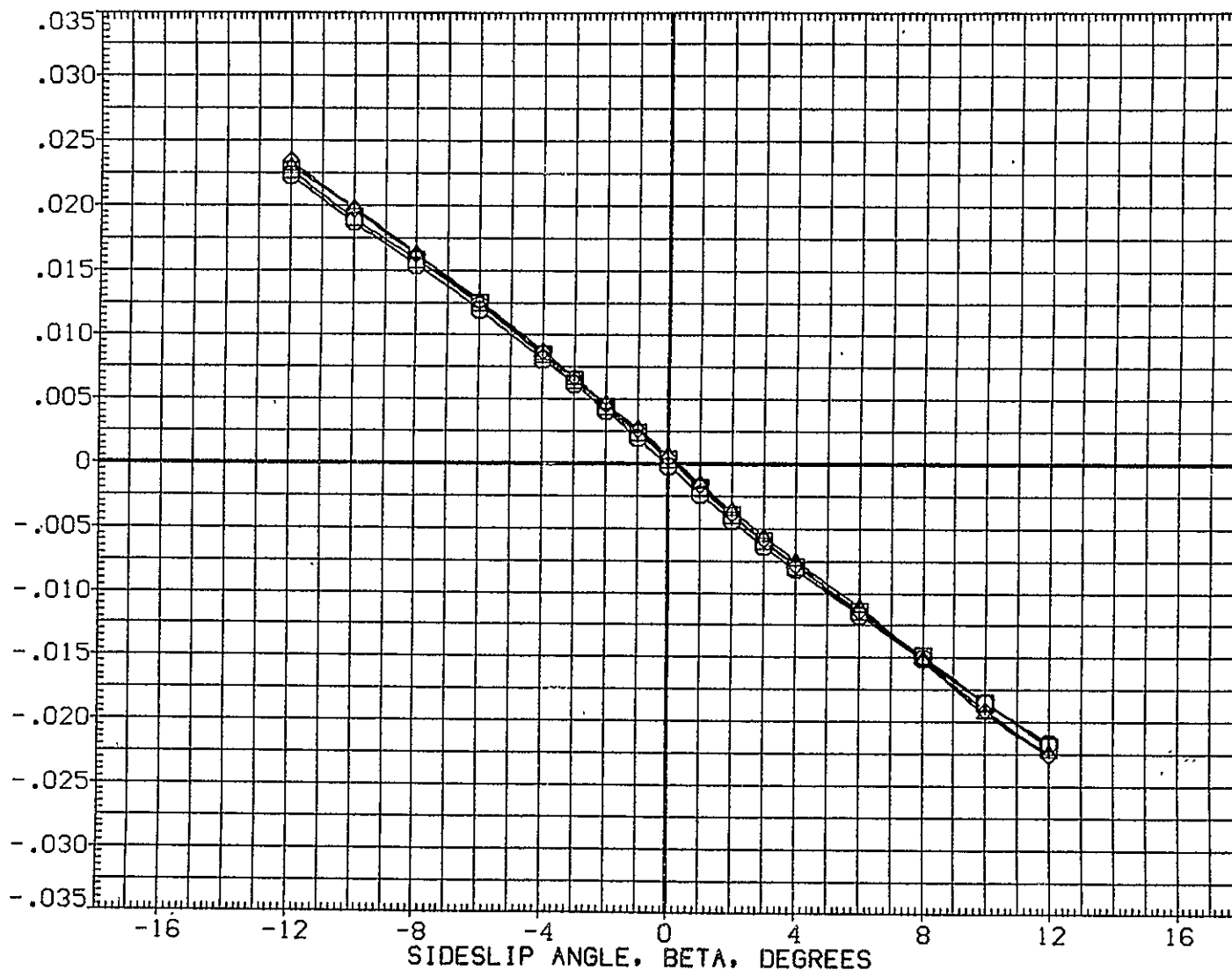


FIG.139 747+ORB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA1= 6 DEG

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(XGM089)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION														
		ALPHA1	STAB	ELV-18	SI-2	S5-6	ORBELV	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE	SO.FT.	IN.	IN.	IN. X0	IN. Y0	IN. Z0
○	.300	6.000	1.000	.000	.000	.000	.000	2690.0000	474.8100	936.6800	1109.0000	.0000	375.0000	.0300						
□	.499	.000	.000	3.000	7.850	.000	.000													
◇	.600	ELV-08																		
△	.700	S3-4																		
		10RB																		

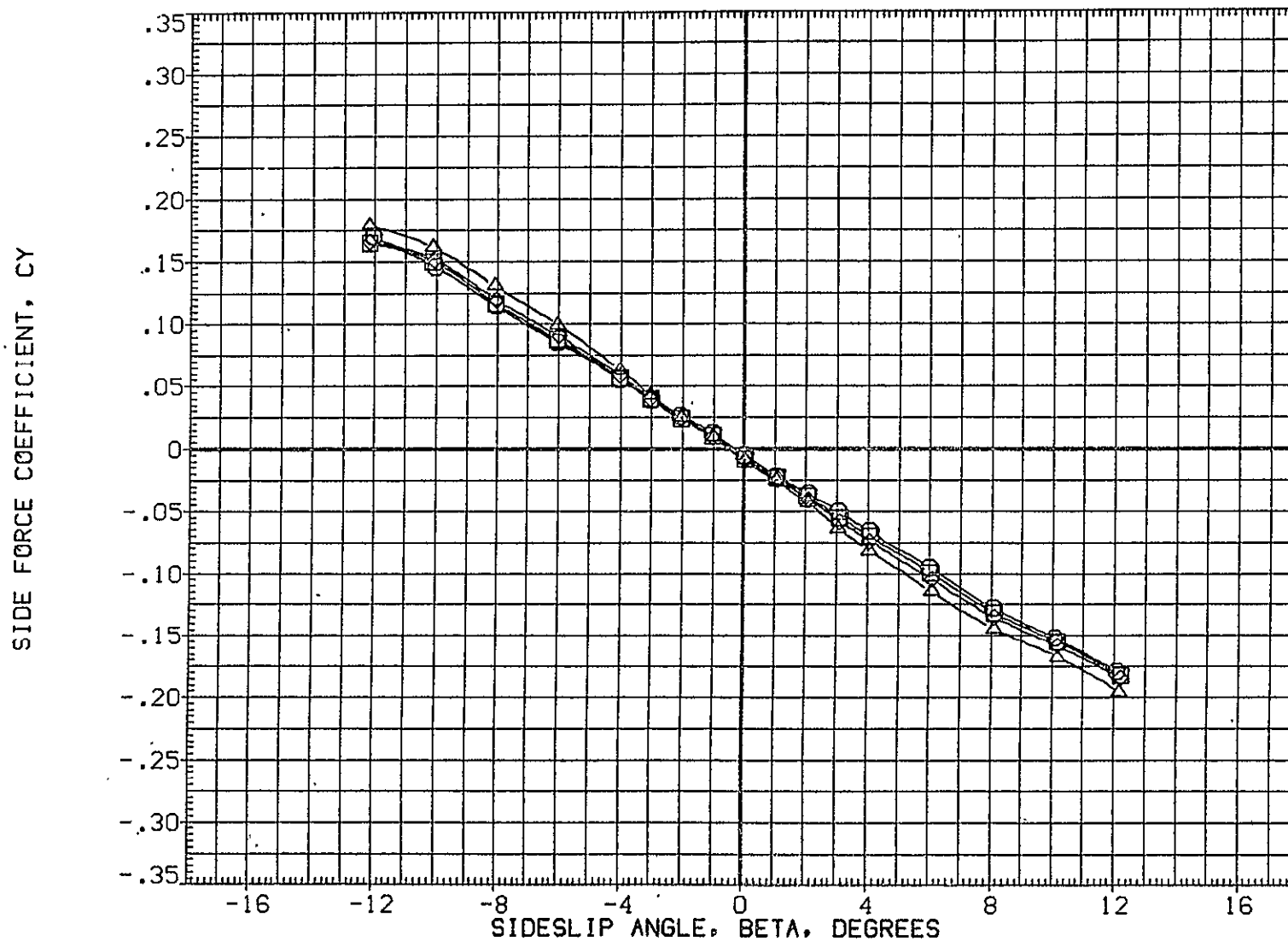


FIG.140 747+ORB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA1= 6 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
◇	.499	RUD-U	.000	ELV-1B	.000	LREF	474.8100	IN.
□	.600	3.000	SI-2	.000	BREF	936.6800	IN.	
△	.700	S3-4	.000	S5-6	.000	XMRP	1109.0000	IN. X0
		10RB	7.850	ORBELV	.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

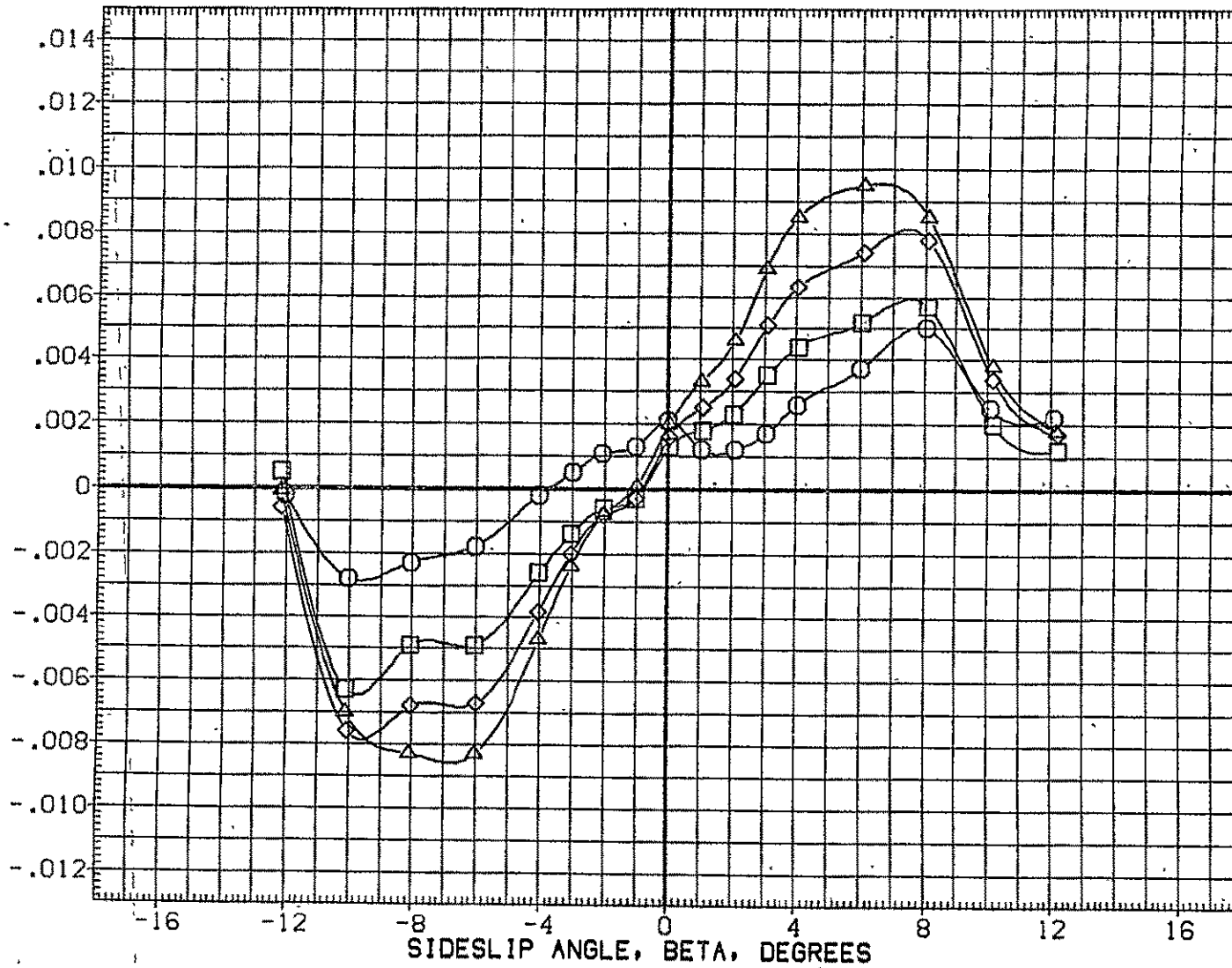


FIG.140 747+ORB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA= 6 DEG

ORB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(XGM089)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	50.FT.
□	.499	RUD-U	.000	ELV-1B	.000	LREF	474.8100	IN.
◇	.600	ELV-0B	3.000	S1-2	.000	BREF	936.6800	IN.
△	.700	S3-4	.000	S5-6	.000	XMRP	1109.0000	IN. X0
		10RB	7.850	ORBELV	.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

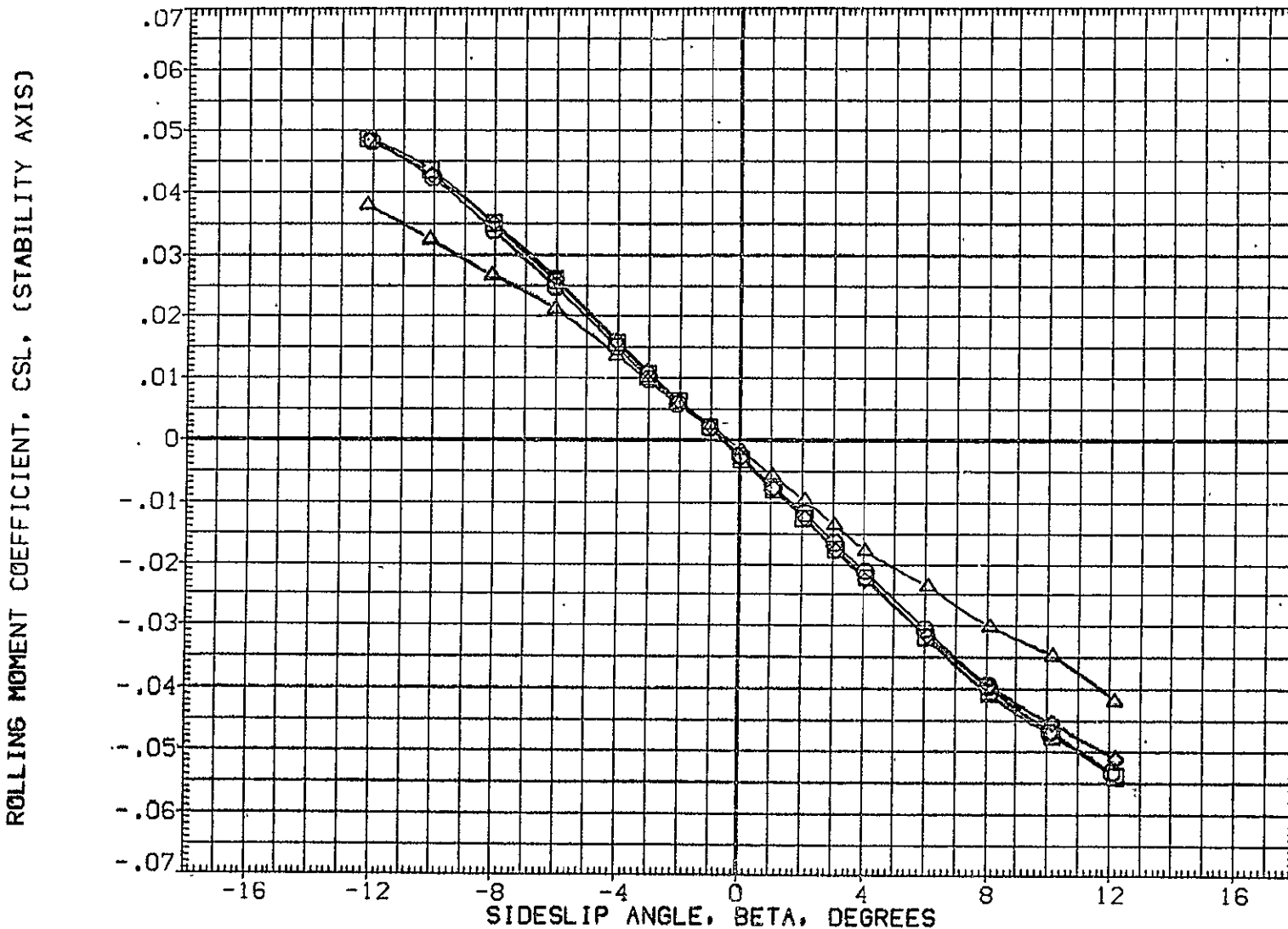


FIG.140 747+ORB(8 DEG)+TIP FINS,FLAPS UP LAUNCH,ALPHA1= 6 DEG

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	STAB	STAB	SREF	SG.FT.	
○	.300	6.000	1.000		5500.0000			
□	.500	RUD-U	.000	RUD-L	327.8000	IN.		
◇	.600	ELV-1B	.000	ELV-OB	2348.0000	IN.		
△	.700	S1-2	.000	S3-4	1339.9100	IN.	XC	
		S5-6	20.000	1ORB	45.0000	IN.	YC	
					190.7500	IN.	ZC	
					SCALE	.0300		

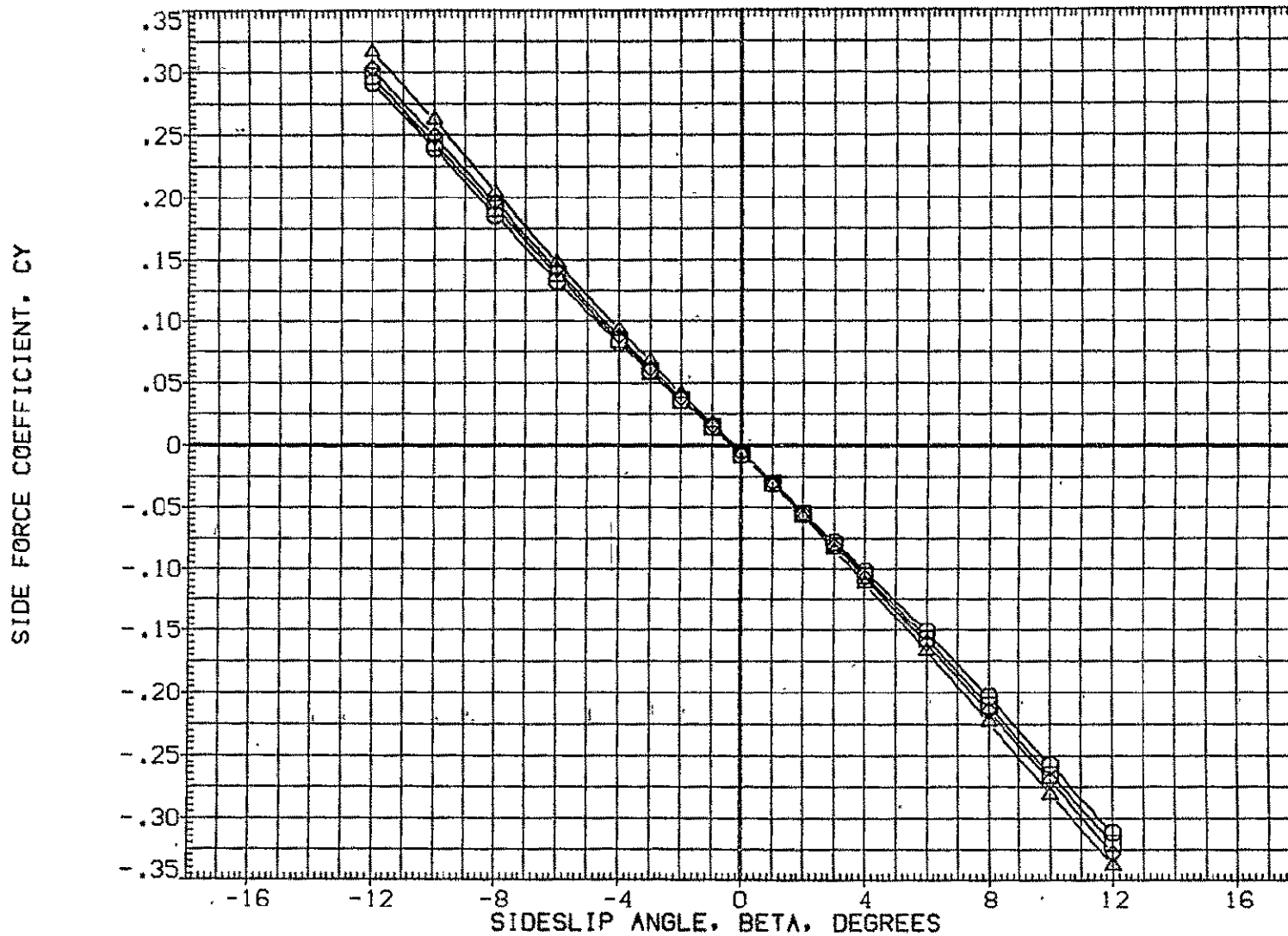


FIG.141 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1=6,TC OFF TOT

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB NOZ AT38.2 )(RGM093)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SG.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

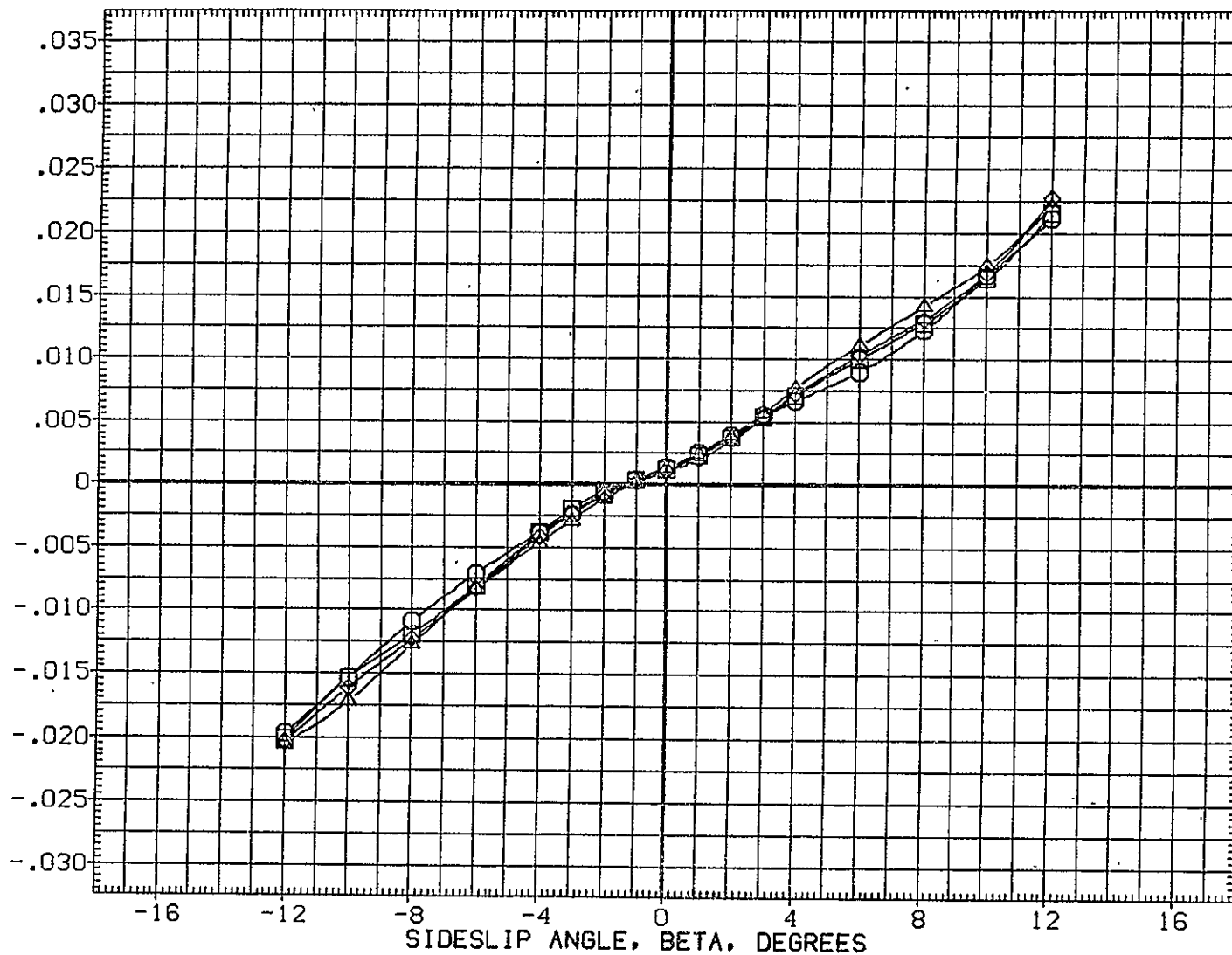


FIG.141 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1=6,TC OFF TOT



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHAI	6.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	1ORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

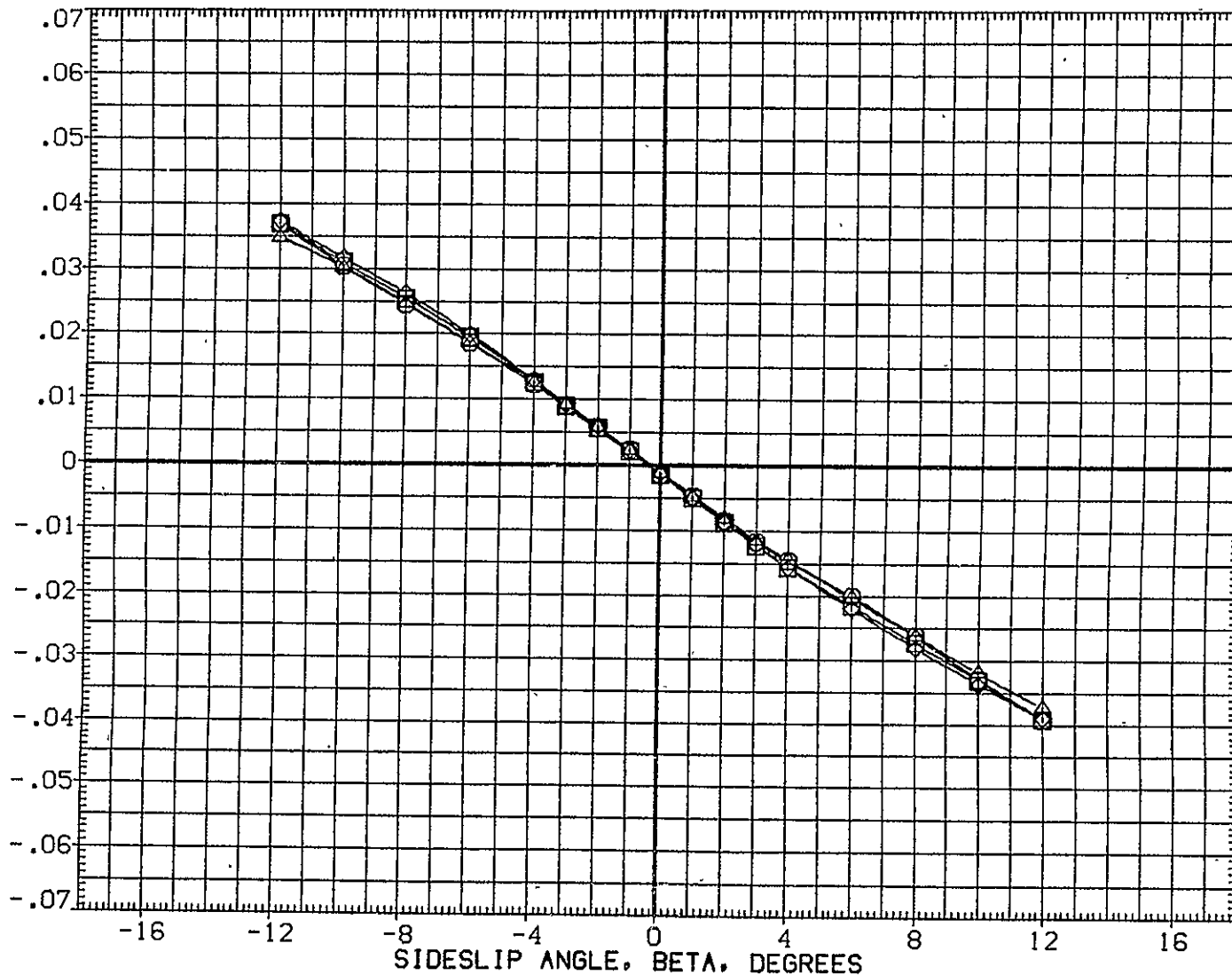


FIG.141 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHAI=6,TC OFF TOT

CA5 K1 F0 H15.6 V9.1 MINUS 0RB N0Z AT38.2 (BGM093)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

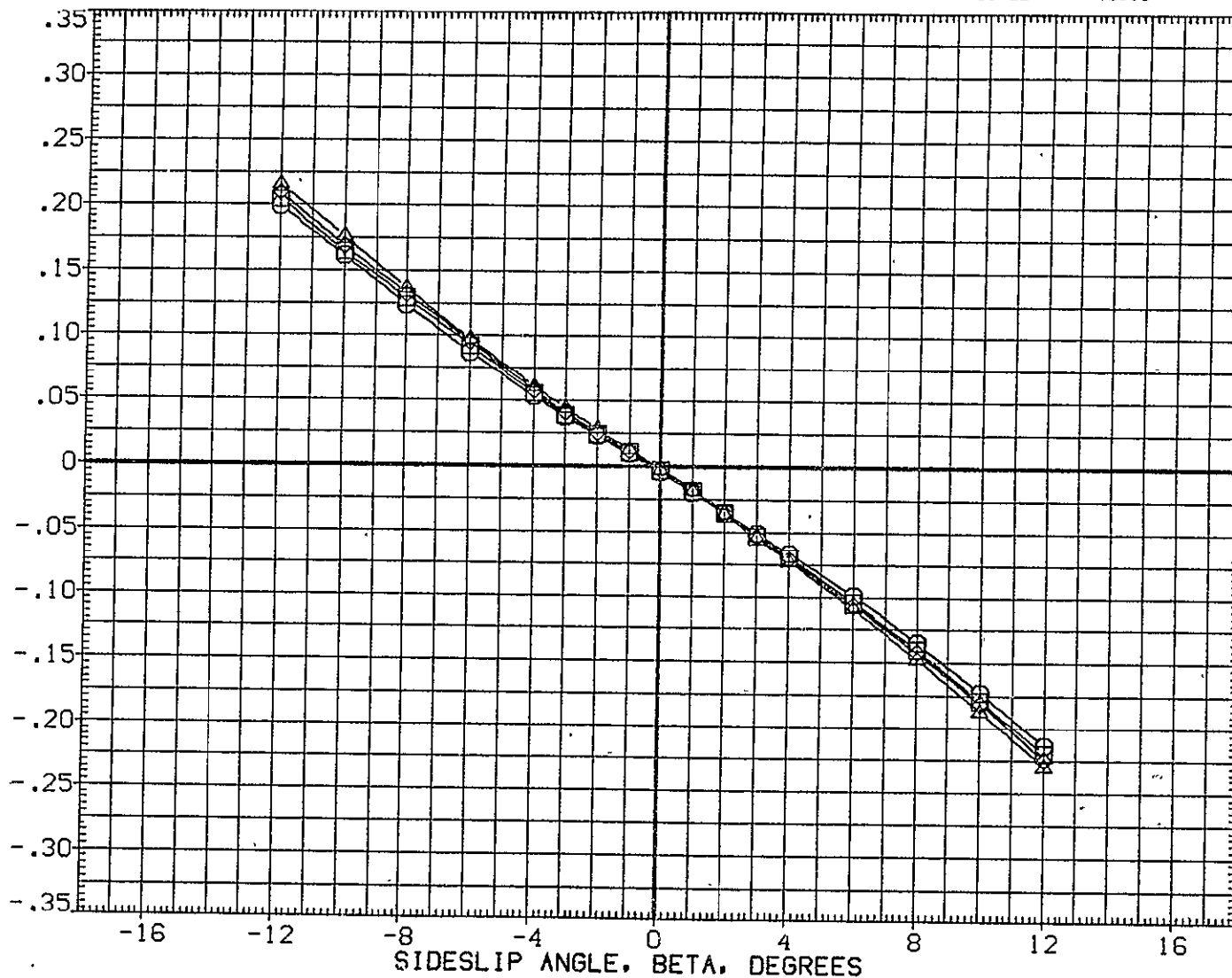


FIG.142 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1=6,TC OFF 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2349.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

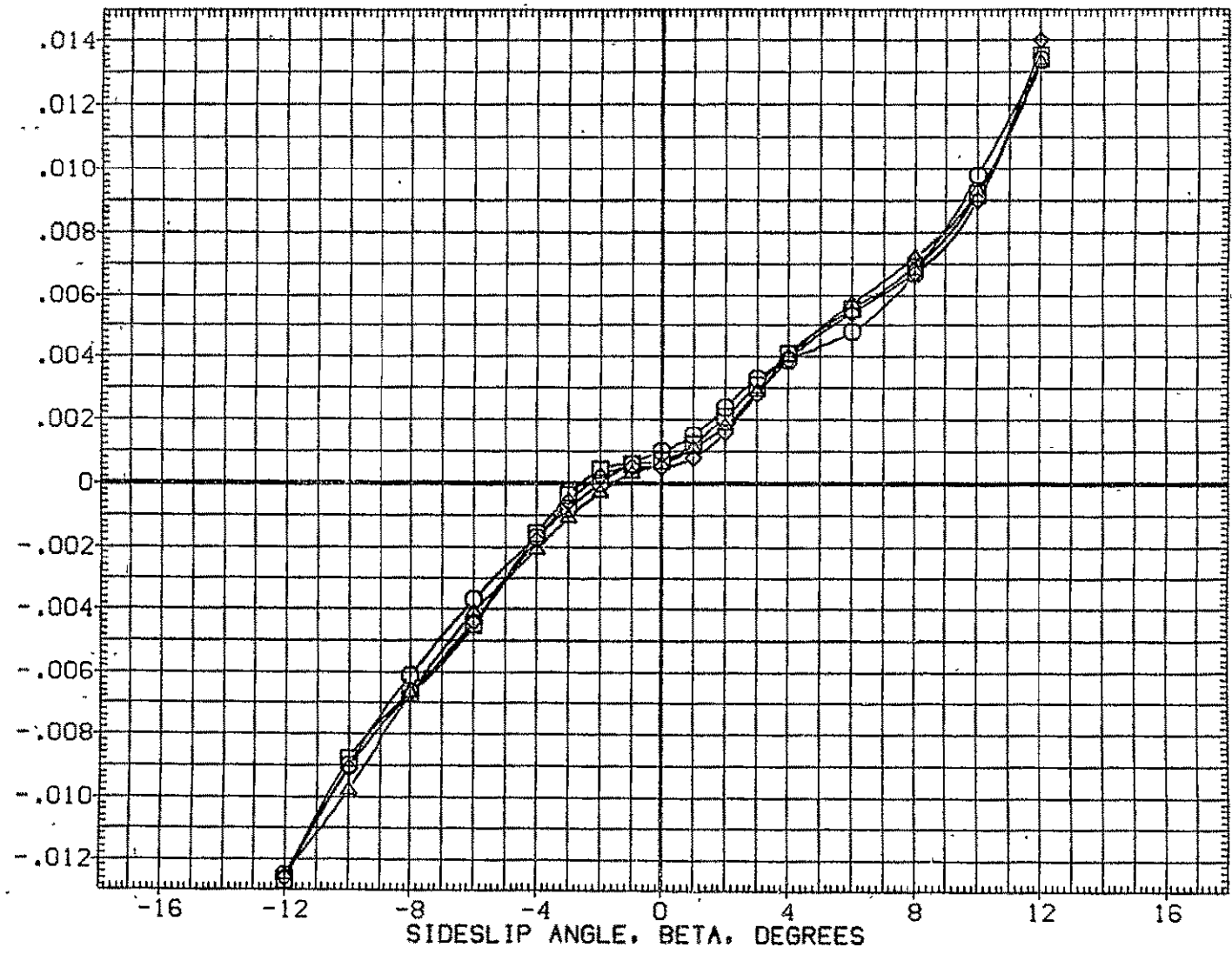


FIG.142 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1=6,TC OFF 747

CA5 K1 F0 H15.6 V9.1 MINUS ORB N0Z AT38.2 (BGM093)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	ICRB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

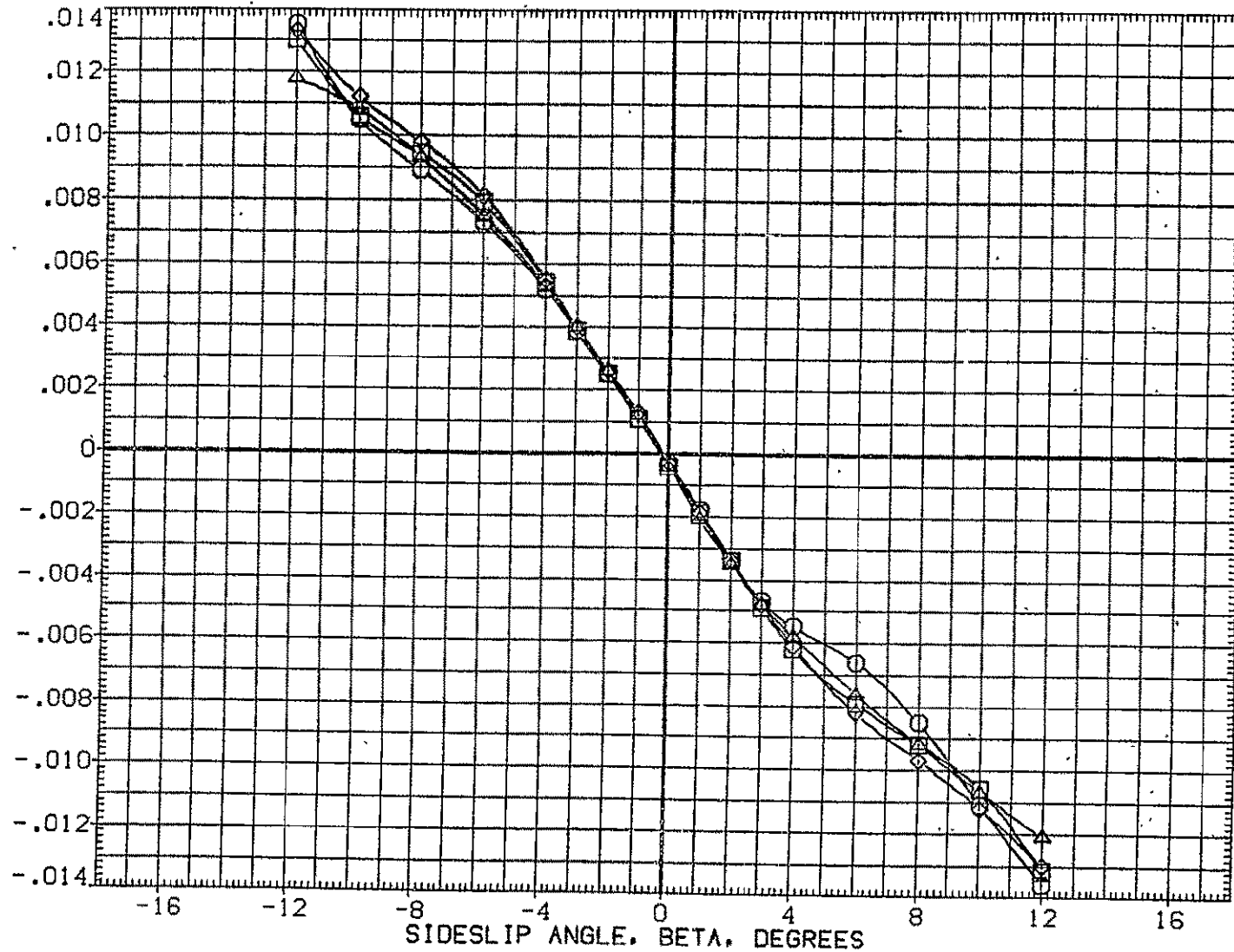


FIG.142 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ALPHA1=6, TC OFF 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.300	ALPHA1	6.000	STAB	1.000	SREF	2690.0000 SQ.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100 IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800 IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1109.0000 IN. X0
		S5-6	20.000	10RB	7.850	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0300

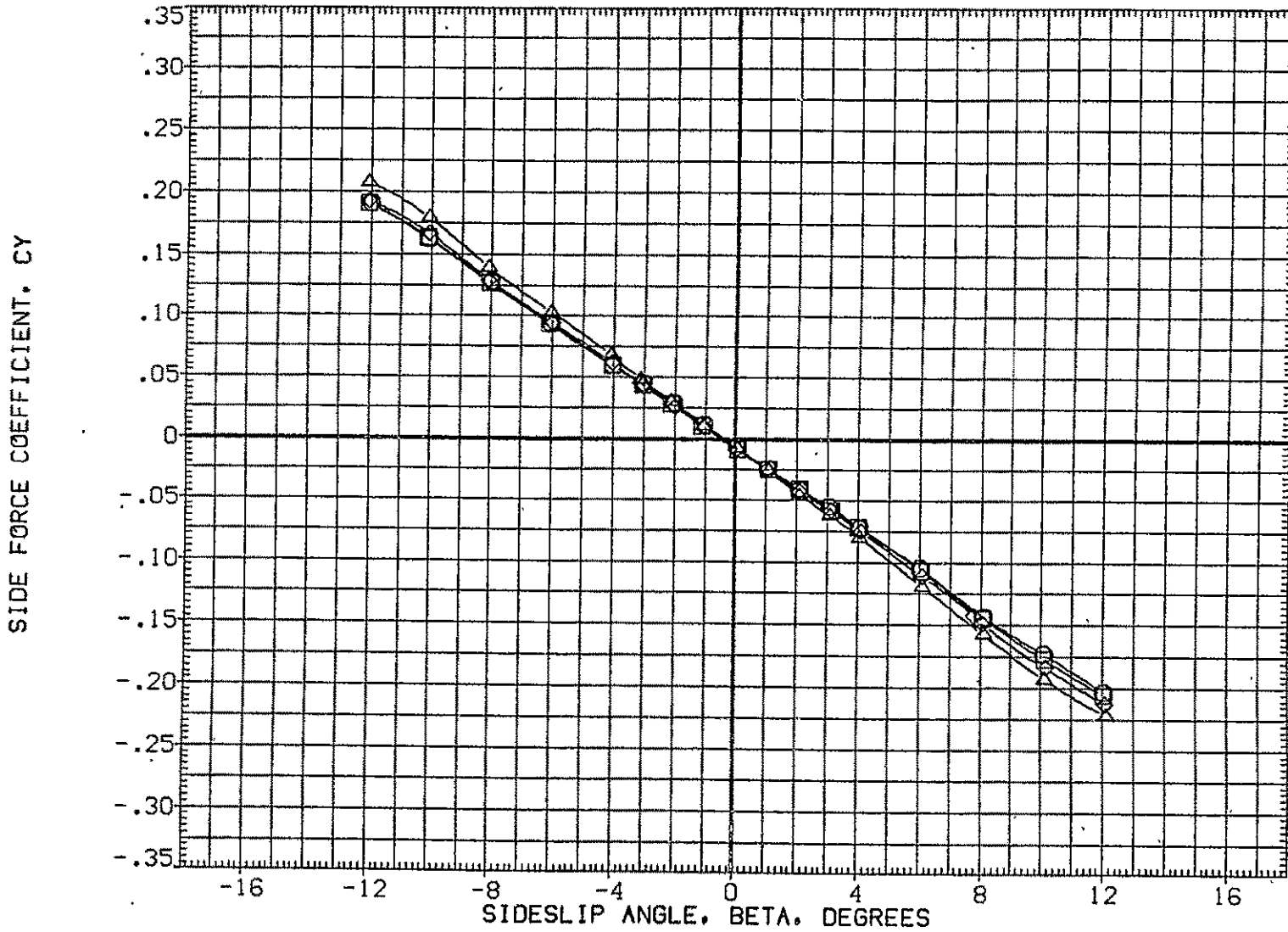


FIG.143 747+0RB(8 DEG)+TIP FINS+STD SPD BRK, FLAPS UP LAUNCH, ALPHA1=6, TC OFF 0RB

CA5 ORB NOZ AT38.2 (PRES. K1 FO H15.6 V9.1)(XGM093)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA	S	STAB	1.000	SREF	2690.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
□	.499	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
△	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

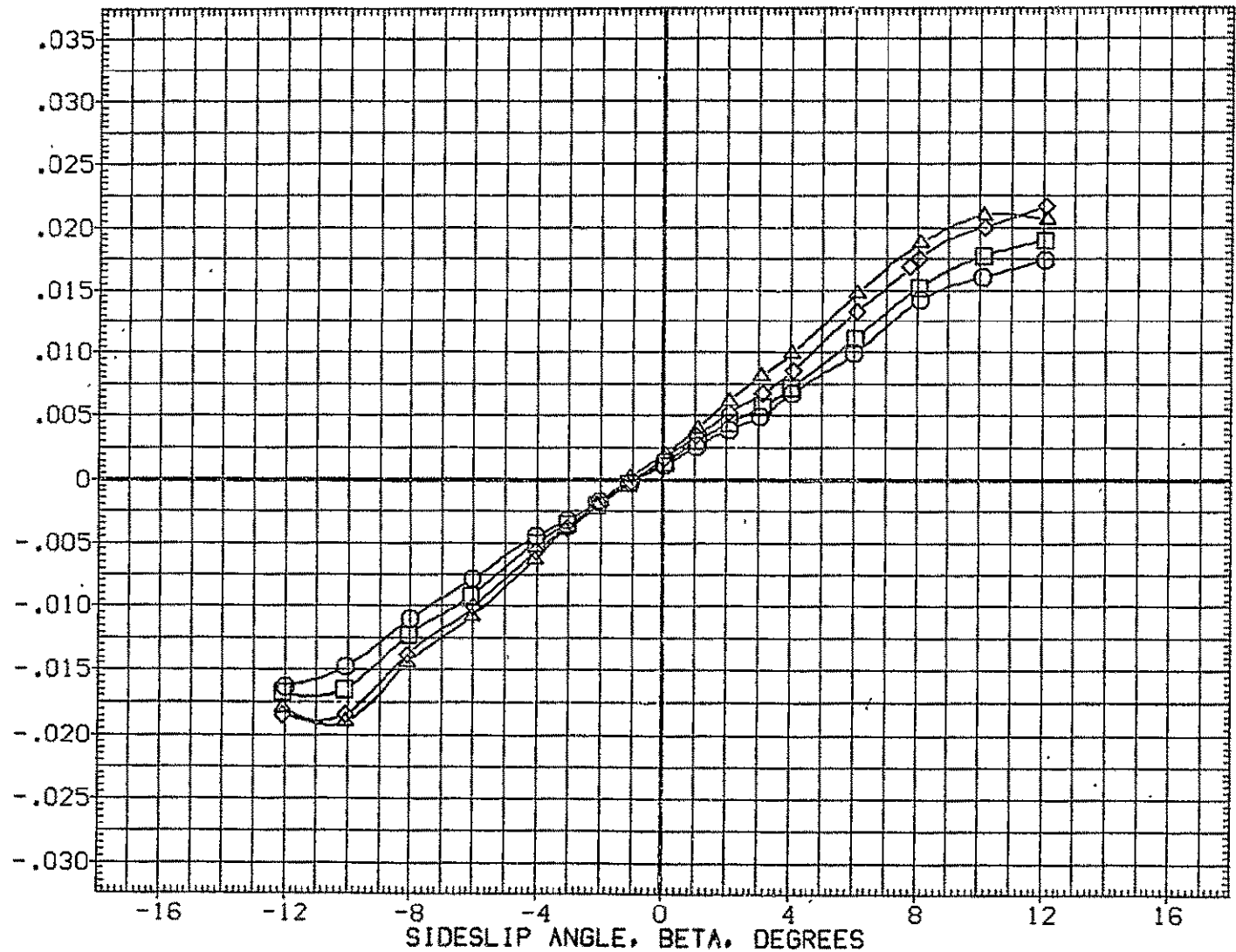


FIG.143 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1=6,TC OFF ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	SG.FT.
□	.499	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

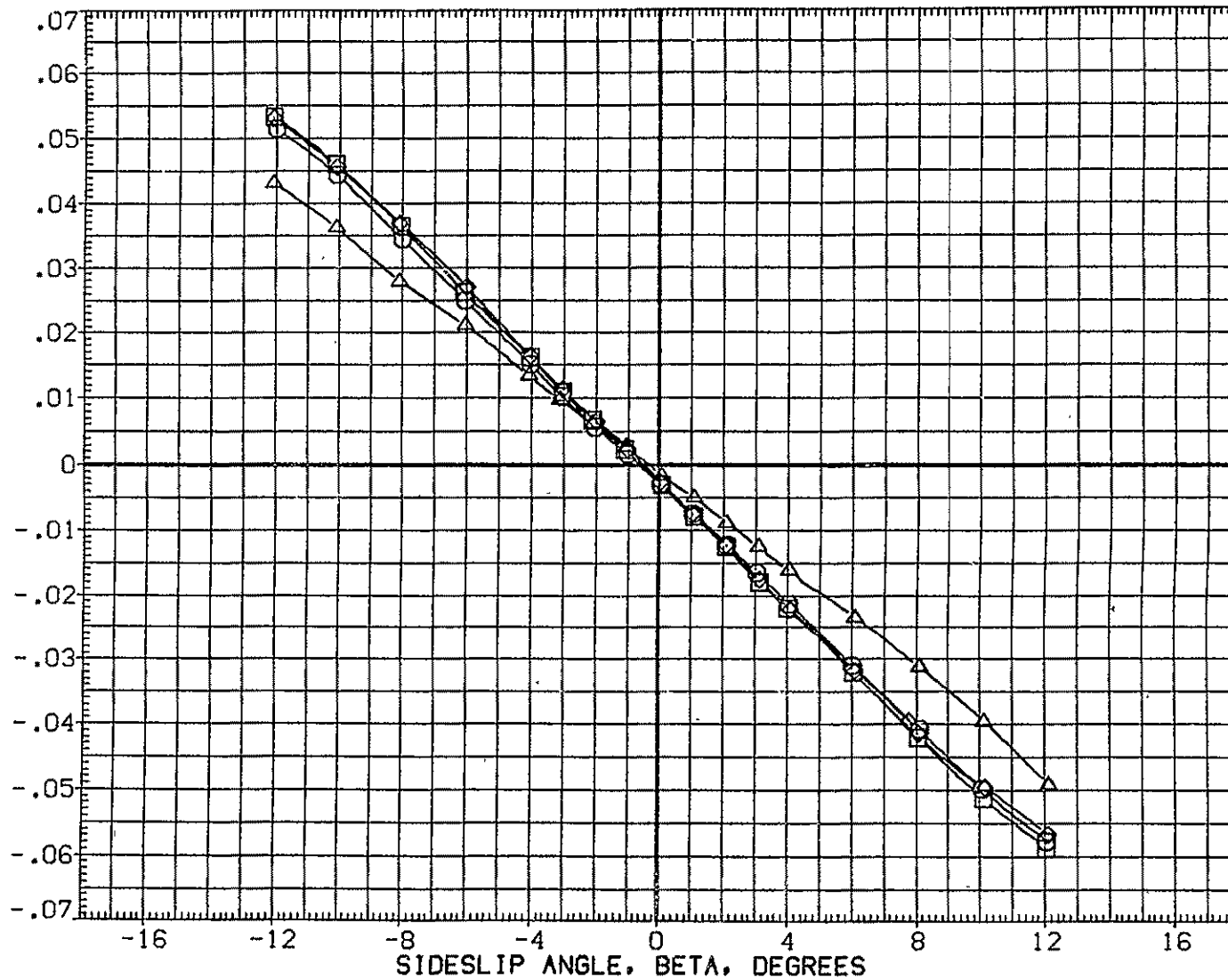


FIG.143 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1=6,TC OFF ORB

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB NOZ AT38.2 )(RGM094)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	10.000	RUD-L	10.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	1CRB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

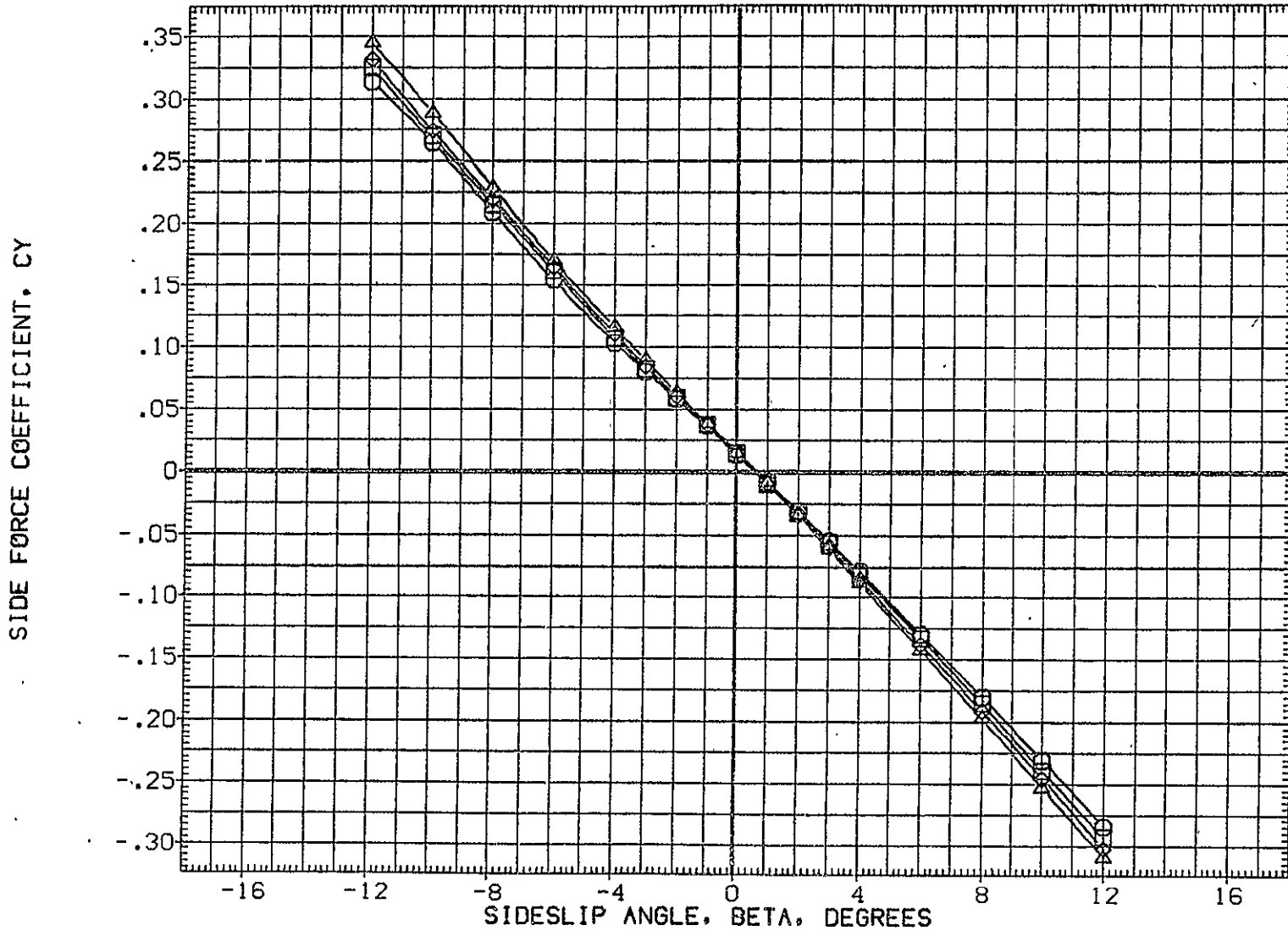


FIG.144 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPUP LNCH,ALP=6,TC OFF,R=10/10 TOT



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	10.000	RUD-L	10.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

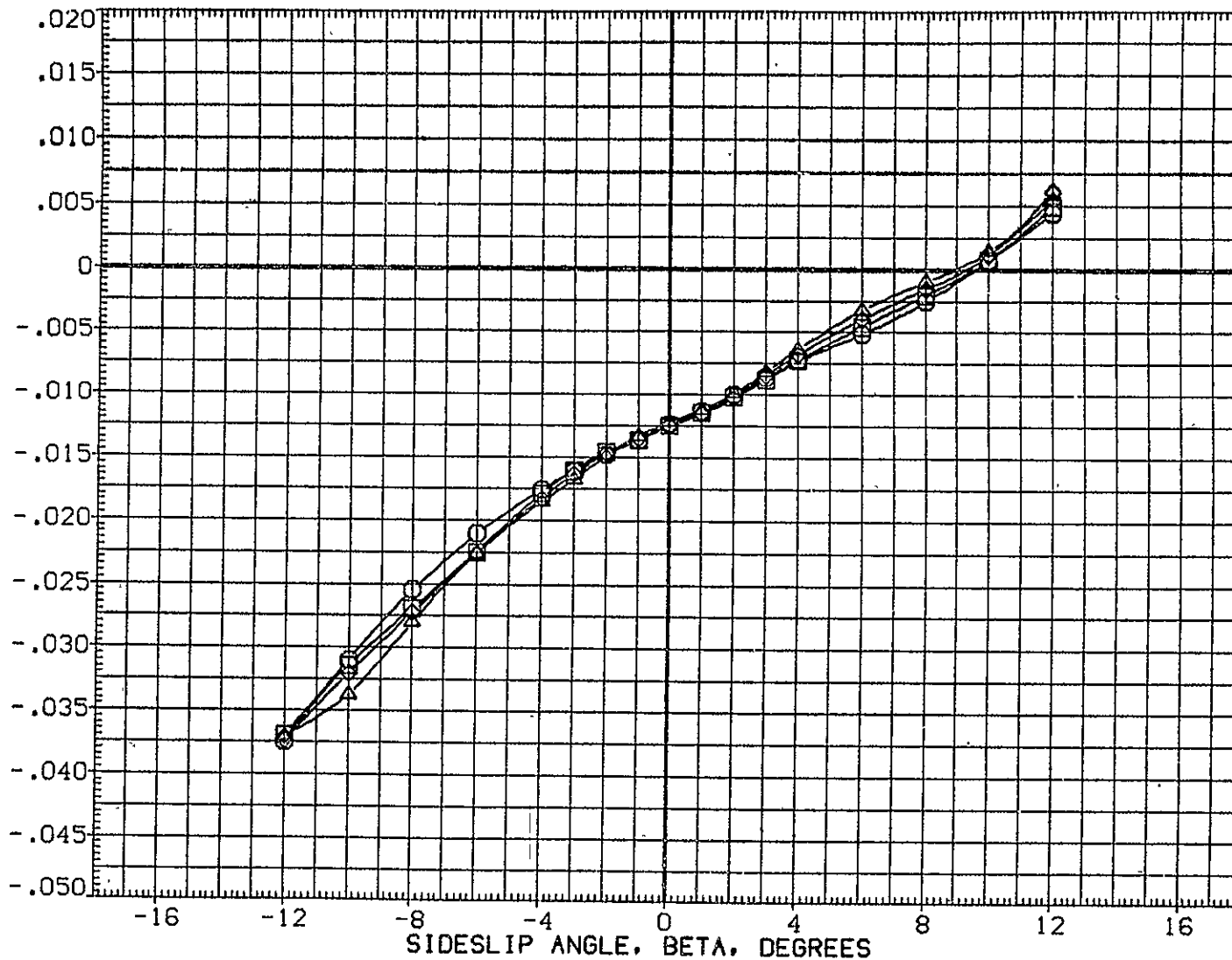


FIG.144 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPUP LNCH,ALP=6,TC OFF,R=10/10 TOT

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB NOZ AT38.2 )(RGM094)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	1.000
□	.500	RUD-U	10.000	RUD-L	10.000
◇	.600	ELY-1B	.000	ELY-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL. (STABILITY AXIS)

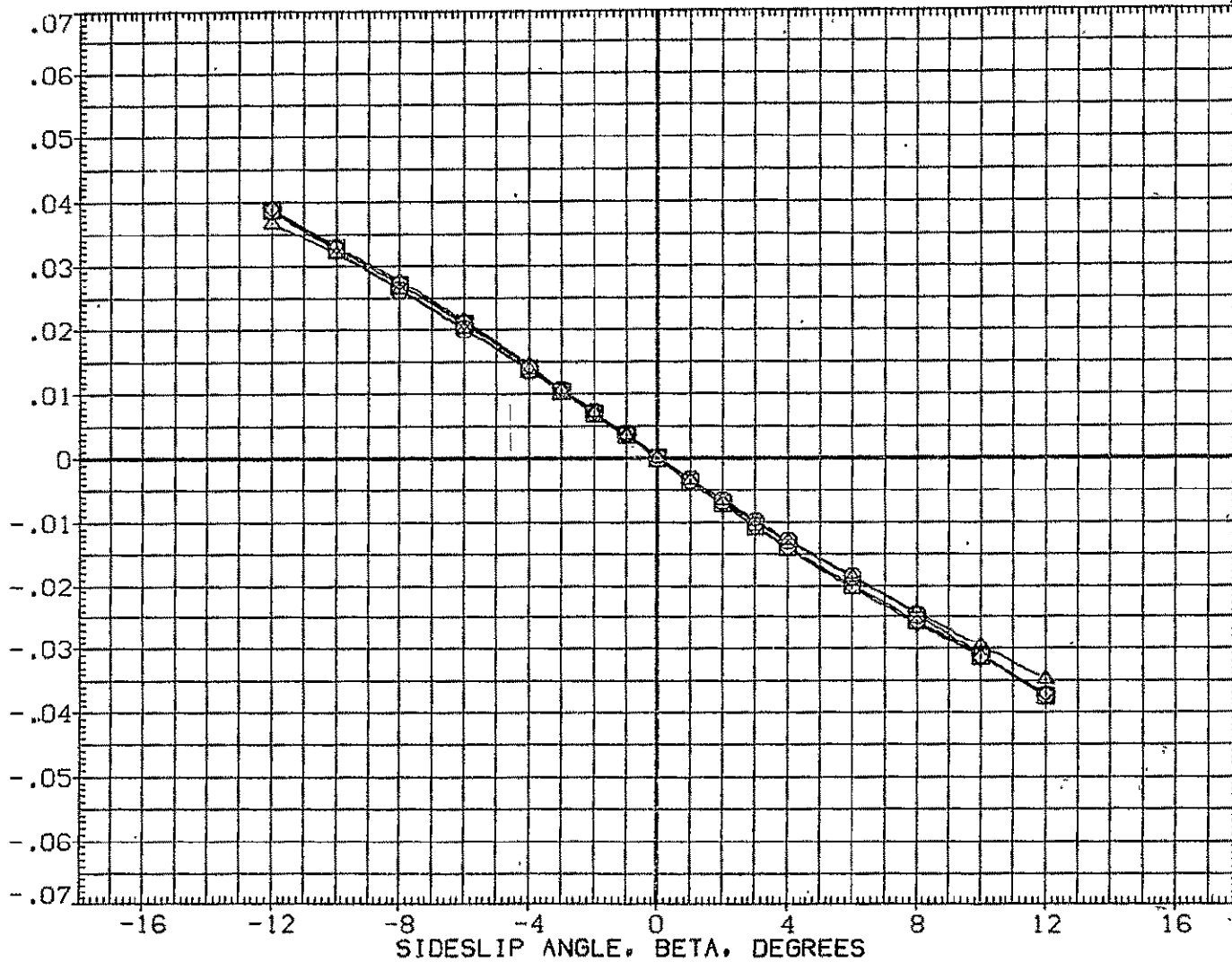


FIG.144 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPUP LNCH,ALP=6,TC OFF,R=10/10 TOT

SYMBOL	MACH	PARAMETRIC VALUES
○	.300	ALPHA1 6.000 STAB 1.000
□	.500	RUD-U 10.000 RUD-L 10.000
◇	.600	ELV-1B .000 ELV-0B .3.000
△	.700	S1-2 .000 S3-4 45.000
		S5-6 20.000 TORB 7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

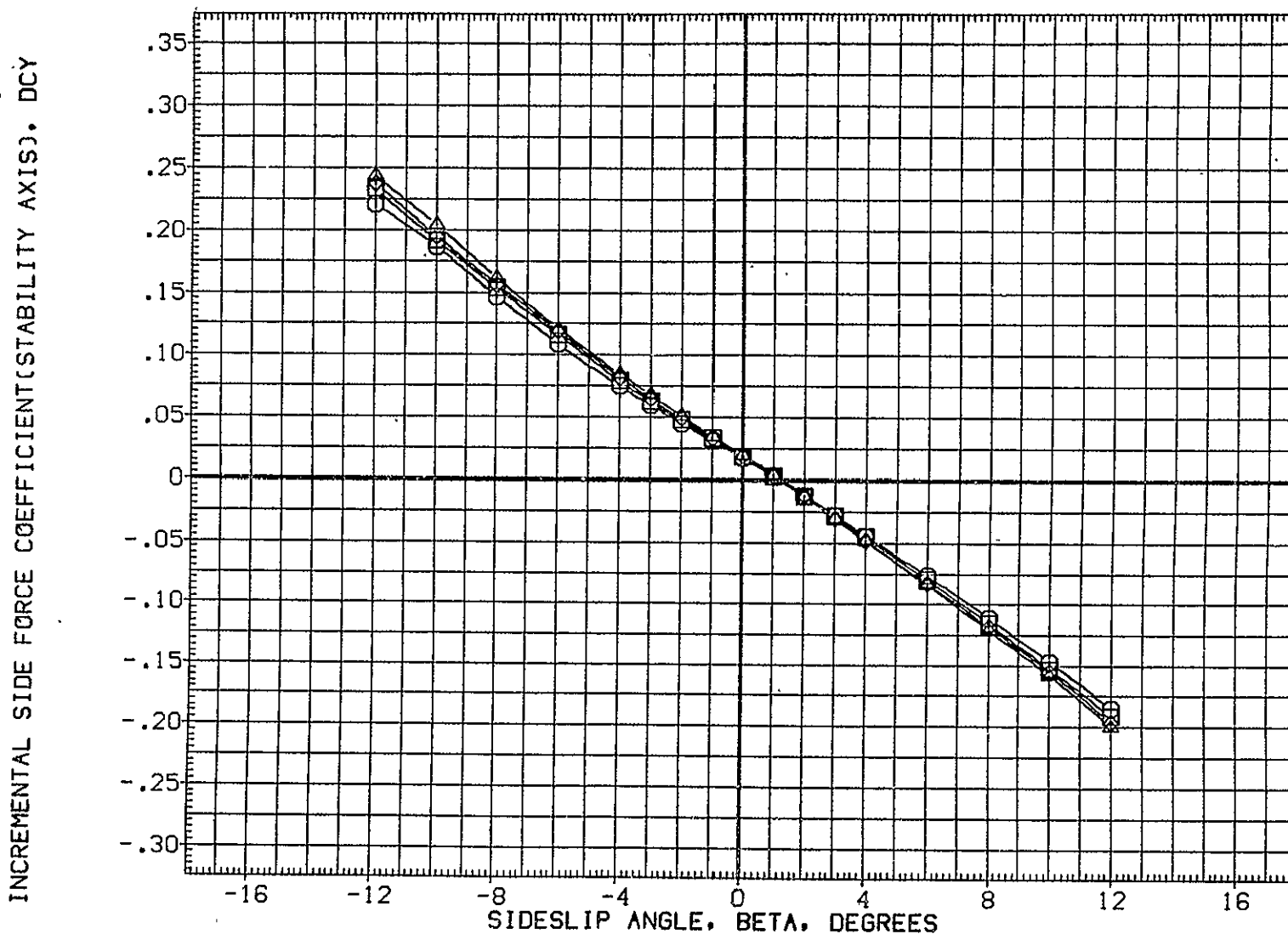


FIG.145 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPUP LNCH,ALP=6,TC OFF,R=10/10 747

CA5 K1 F0 H15.6 V9.1 MINUS 0RB N0Z AT38.2 (BGM094)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	1.000
□	.500	RUD-U	10.000	RUD-L	10.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN.

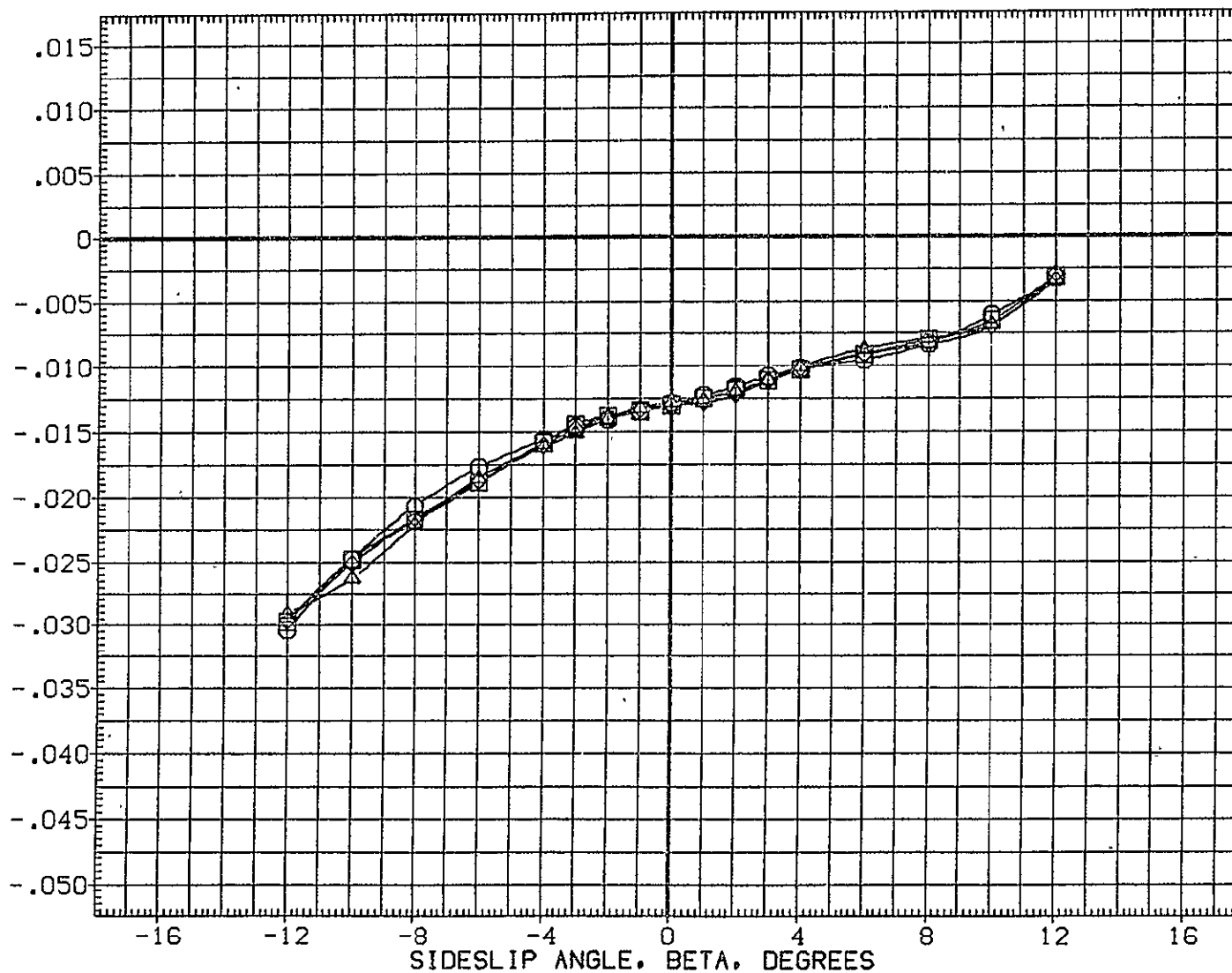


FIG.145 747+0RB(8 DEG)+TIP FINS+STD SPD BRK,FLAPUP LNCH,ALP=6,TC OFF,R=10/10 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA	STAB	RUD-L	ELV-OB	SREF	SO.FT.	
○	.300	6.000	1.000	10.000	5500.0000	50.FT.		
□	.500	10.000	10.000	3.000	327.8000	IN.		
◇	.600	.000	3.000	45.000	2348.0000	IN.		
△	.700	20.000	7.850		1339.9100	IN. XC		
					.0000	IN. YC		
					190.7500	IN. ZC		
					.0300			

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DC SL

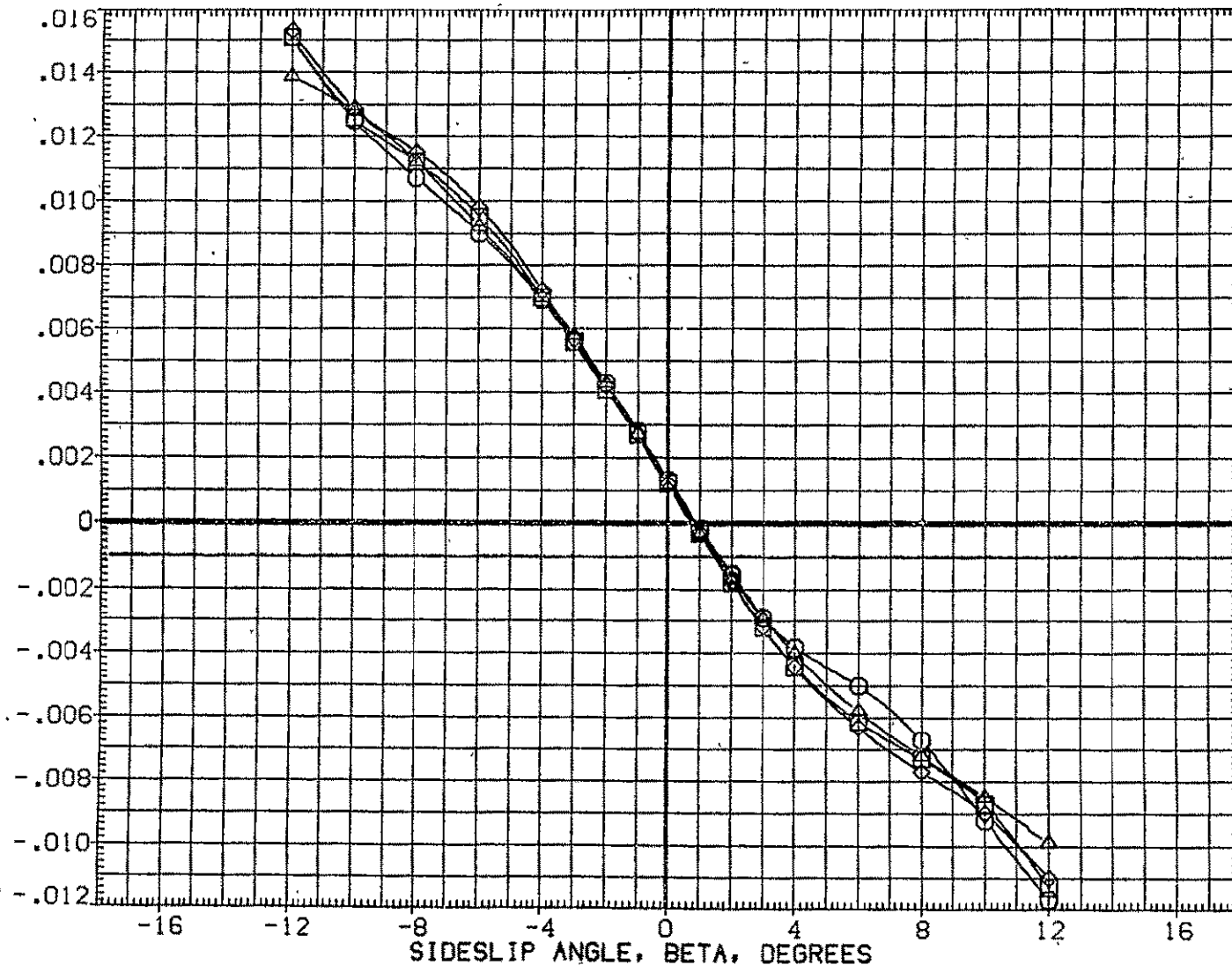


FIG.145 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPUP LNCH, ALP=6, TC OFF, R=10/10 747

CA5 ORB NOZ AT38.2 (PRES. K1 FO H15.6 V9.1)(XGM094)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	50. FT.
□	.500	RUD-U	10.000	RUD-L	10.000	LREF	474.8100	IN.
◇	.601	ELV-IB	.000	ELV-OB	3.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		SS-6	20.000	IORB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

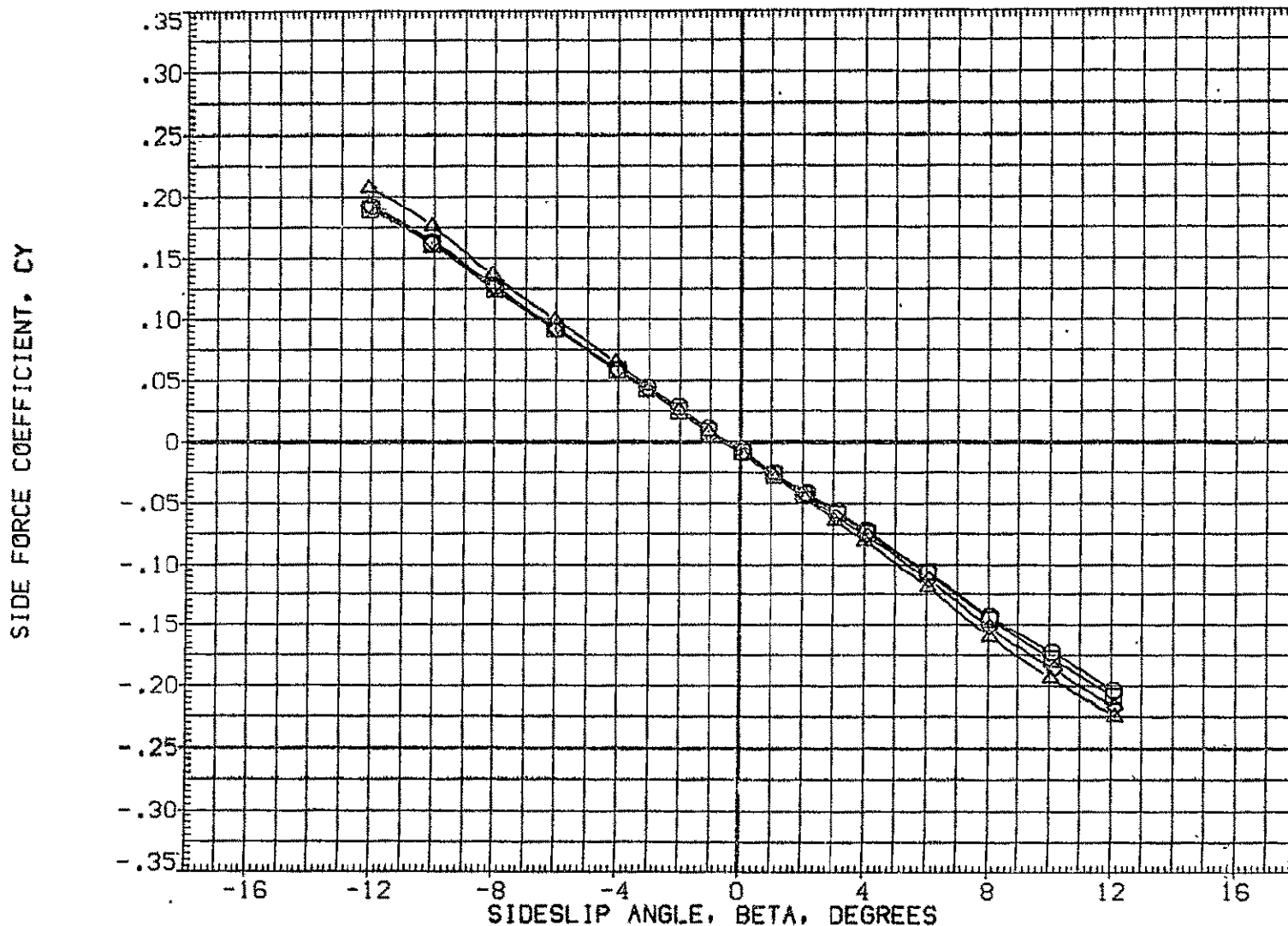


FIG.146 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPUP LNCH, ALP=6, TC OFF, R=10/10 ORB

SYMBOL	MACH	ALPHA	PARAMETRIC VALUES			
○	.299	6.000	STAB	1.000		
□	.500	RUD-U	10.000	RUD-L	10.000	
◇	.601	ELV-1B	.000	ELV-0B	3.000	
△	.700	S1-2	.000	S3-4	45.000	
		SS-6	20.000	10RB	7.850	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

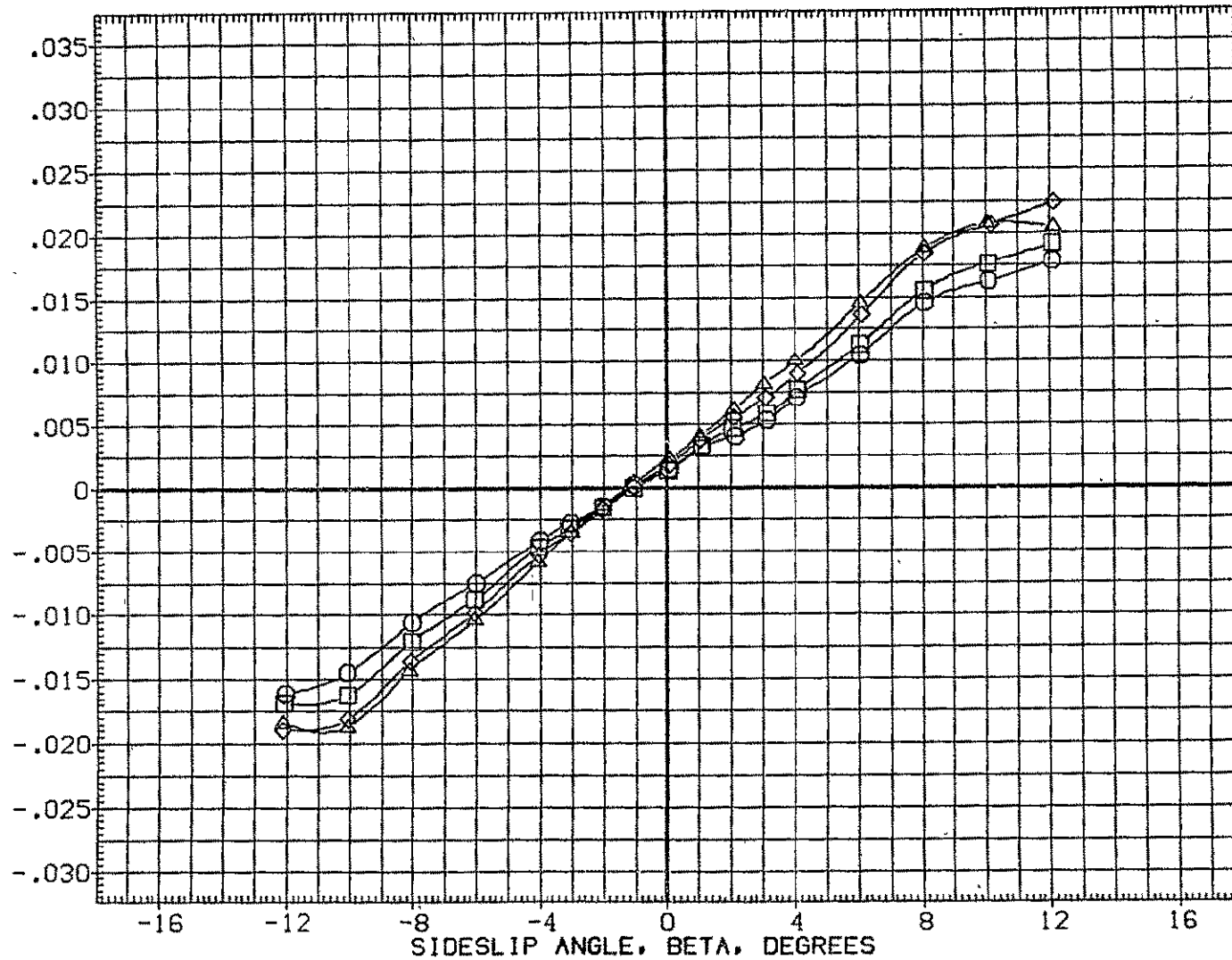


FIG.146 747+ORB(8 DEG)+TIP FINS+STD SPD BRK,FLAPUP LNCH,ALP=6,TC OFF,R=10/10 ORB

CA5 ORB NOZ AT38.2 (PRES. K1 FO H15.6 V9.1)(XGM094)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
△	.299	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.500	RUD-U	10.000	RUD-L	10.000	LREF	474.6100	IN.
◇	.601	ELV-IB	.000	ELV-OB	3.000	BREF	936.6800	IN.
○	.700	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	IORB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

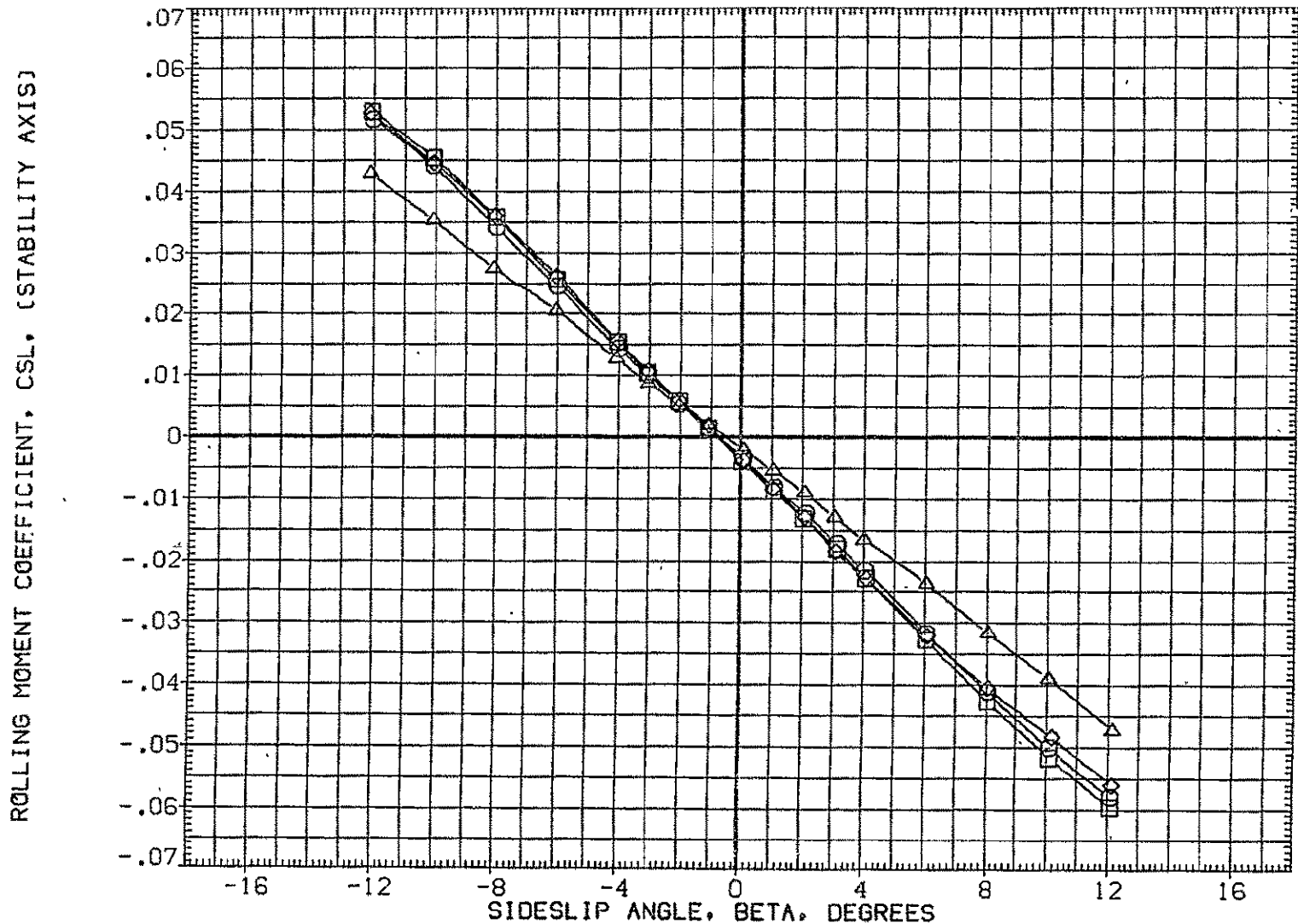


FIG.146 747+ORB(8 DEG)+TIP FINS+STD SPD BRK, FLAPUP LNCH, ALP=6, TC OFF, R=10/10 ORB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SG.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	.000	ELV-OB	.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	IORB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

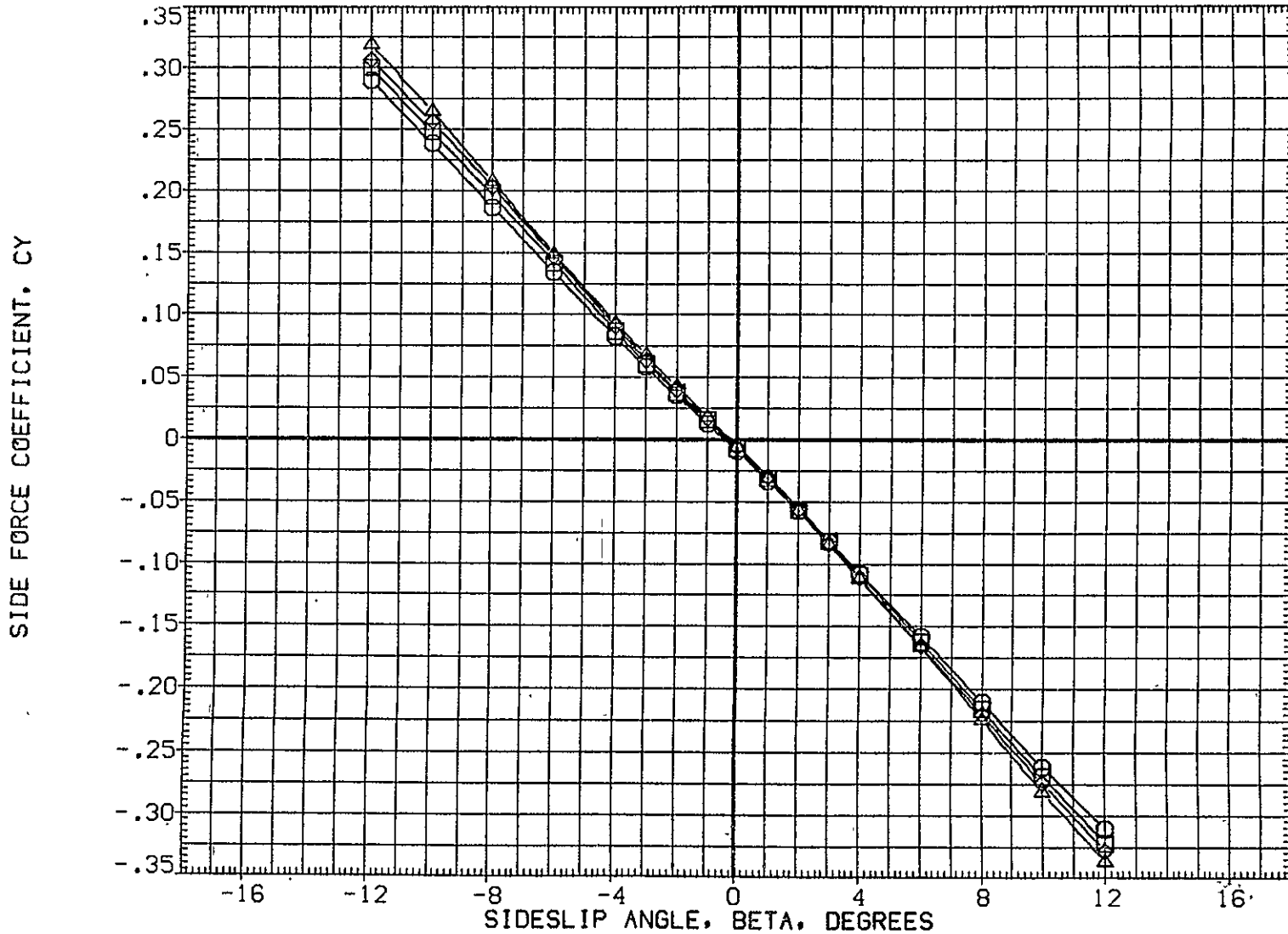


FIG.147 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM097)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	CLV-1B	.000	ELV-0B	.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	ICRB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

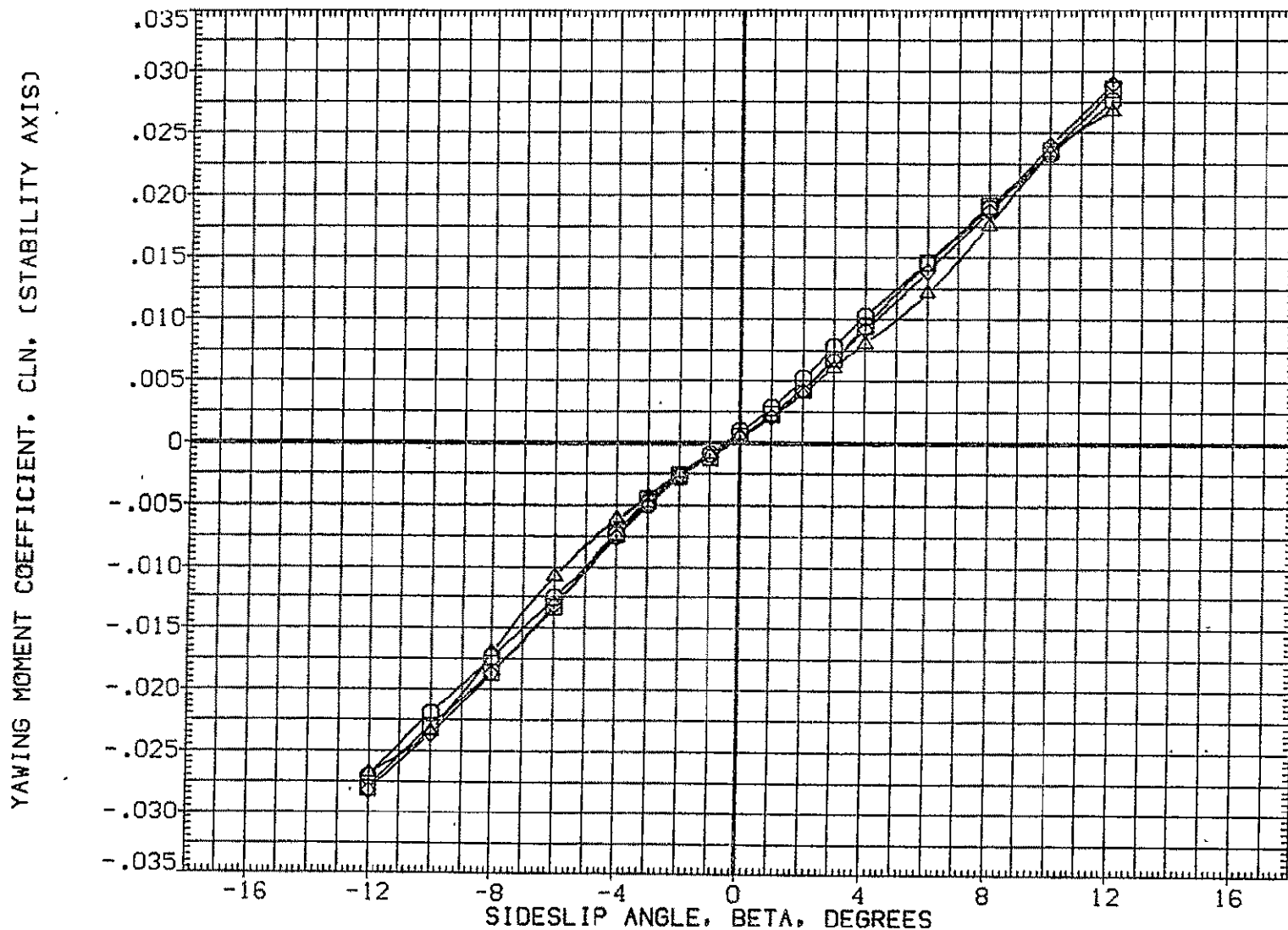


FIG.147 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA I	6.000	STAB	1.000	SREF	5500.0000	SQ. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL. (STABILITY AXIS)

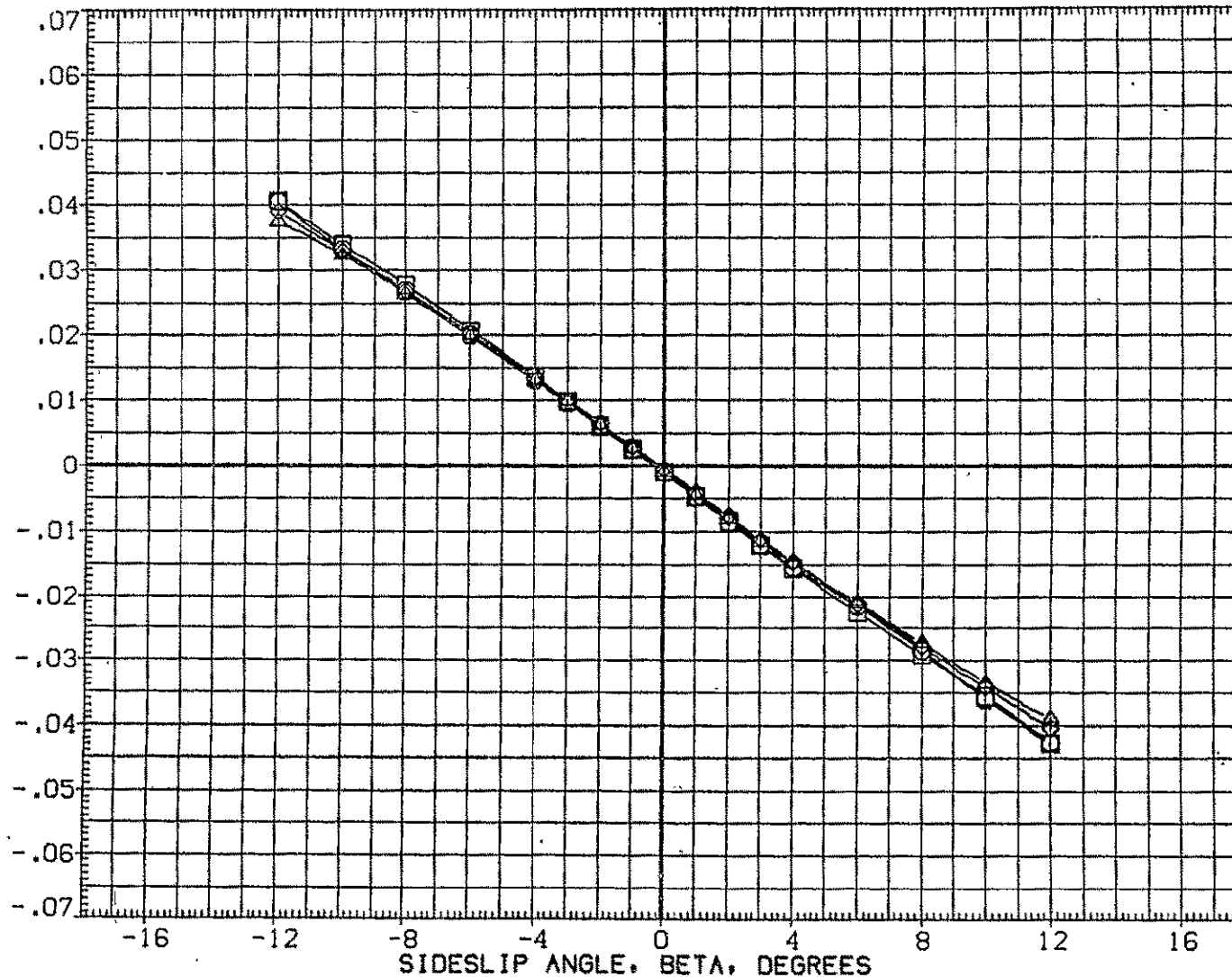


FIG.147 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA I= 6 DEG TOTAL

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM097)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		S5-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

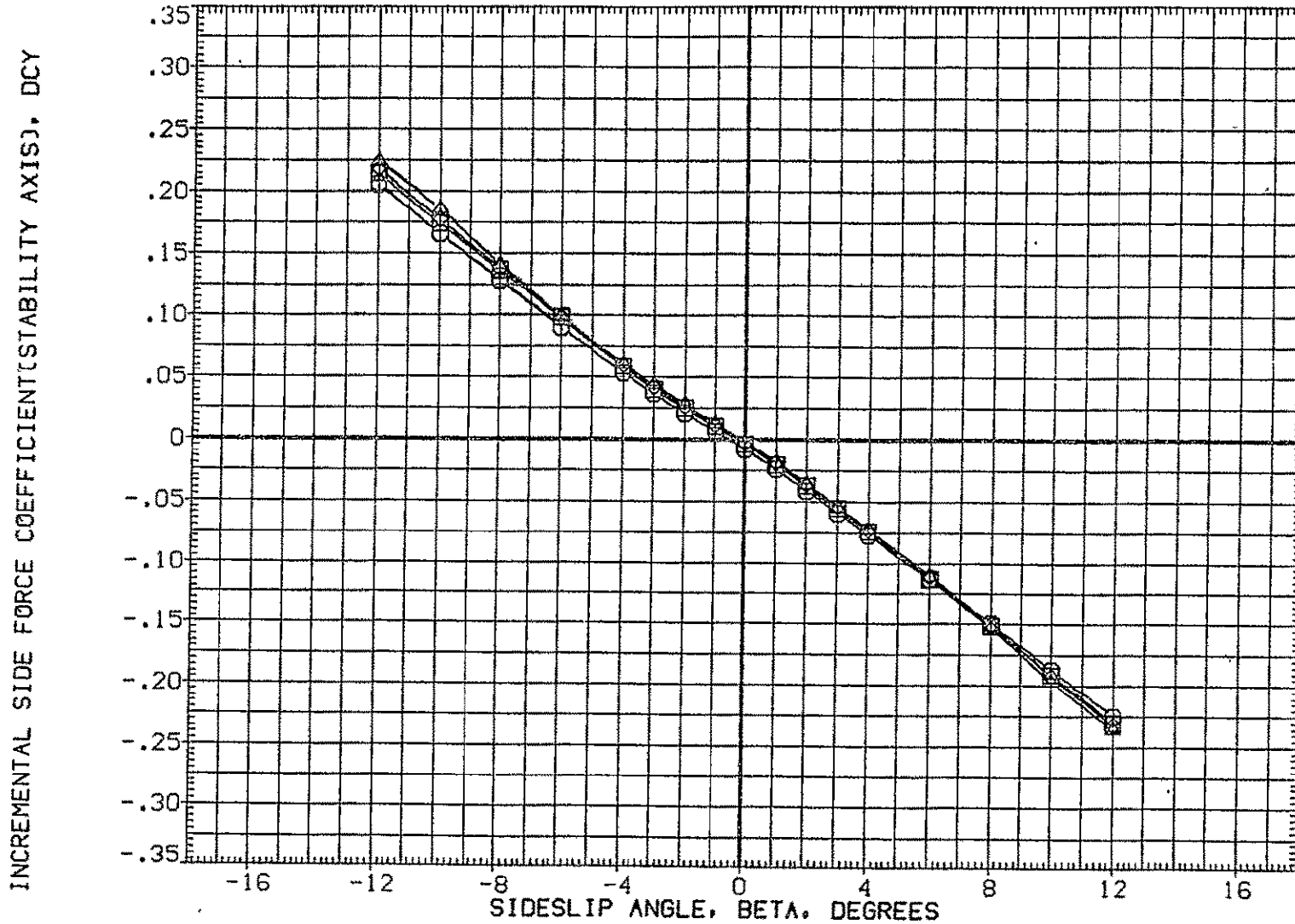


FIG.148 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG 747

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	1.000
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	.000
△	.700	S1-2	.000	S3-4	45.000
		S5-6	20.000	10RB	9.700

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

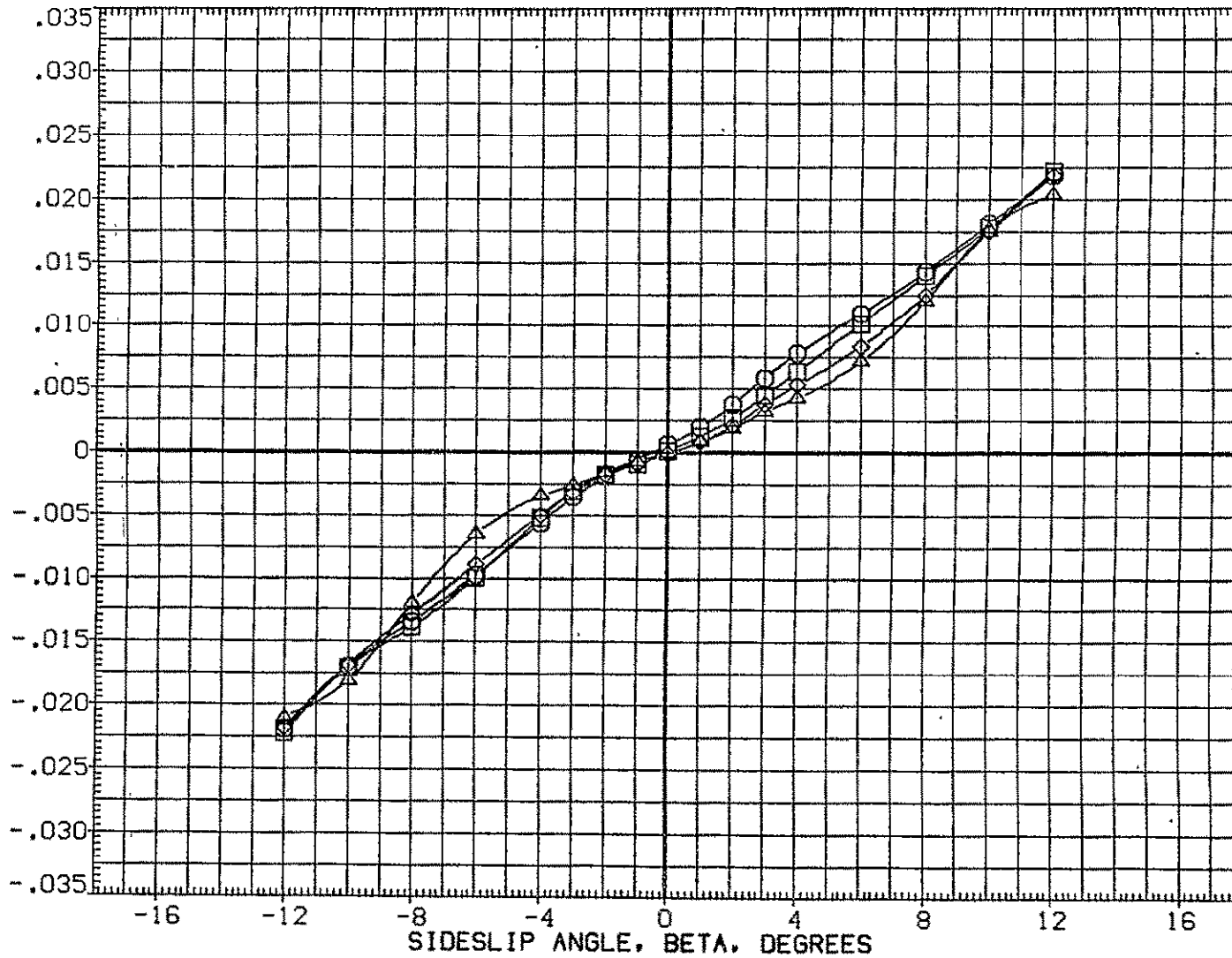


FIG.148 747+0RB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG 747

CAS K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM097)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	45.000	XMRP	1339.9100	IN. XC
		SS-6	20.000	10RB	9.700	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

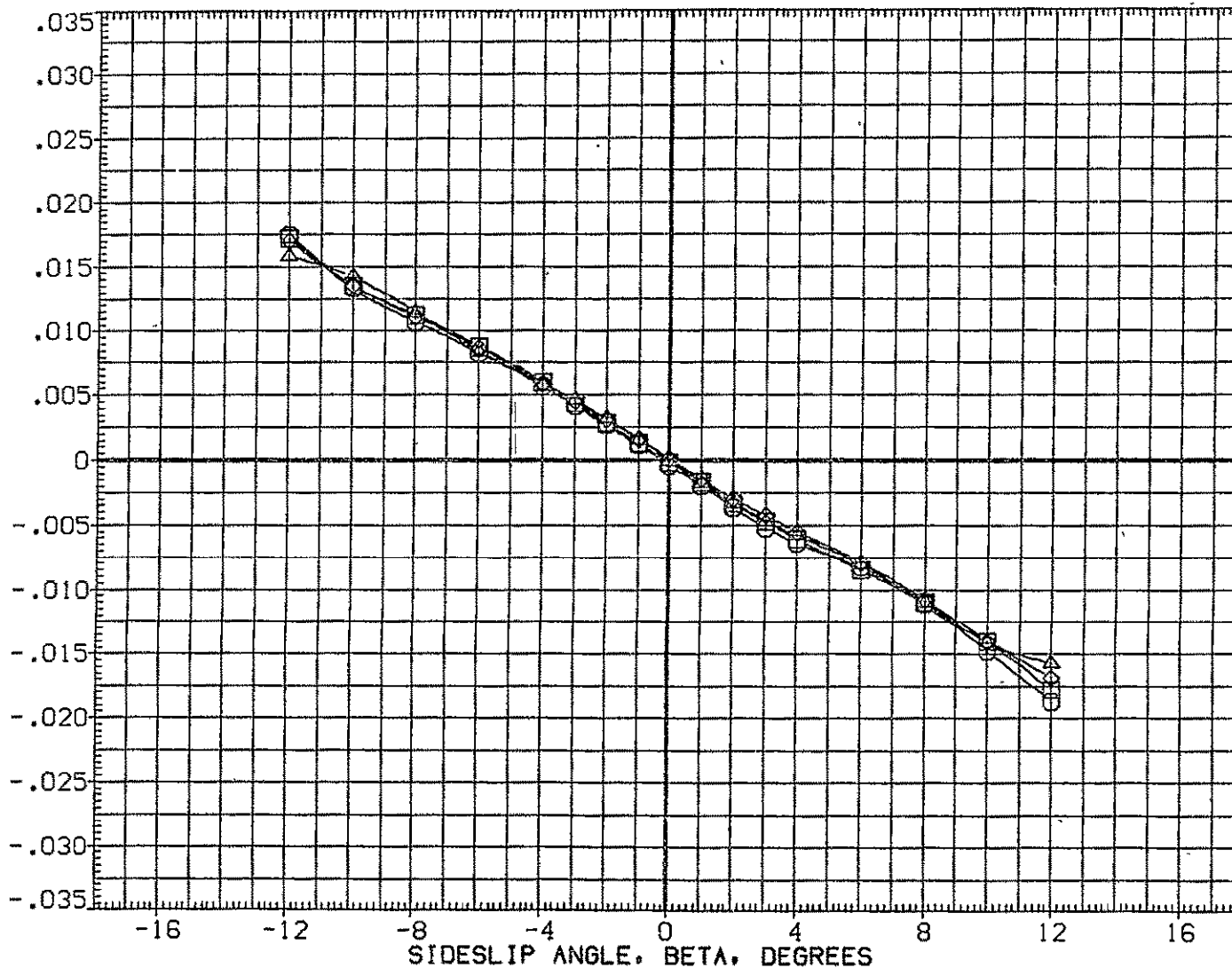


FIG.148 747+0RB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG 747

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	.000	ELV-OB	.000	BREF	936.6800	IN.
△	.701	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
		S5-6	20.000	10RB	9.700	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

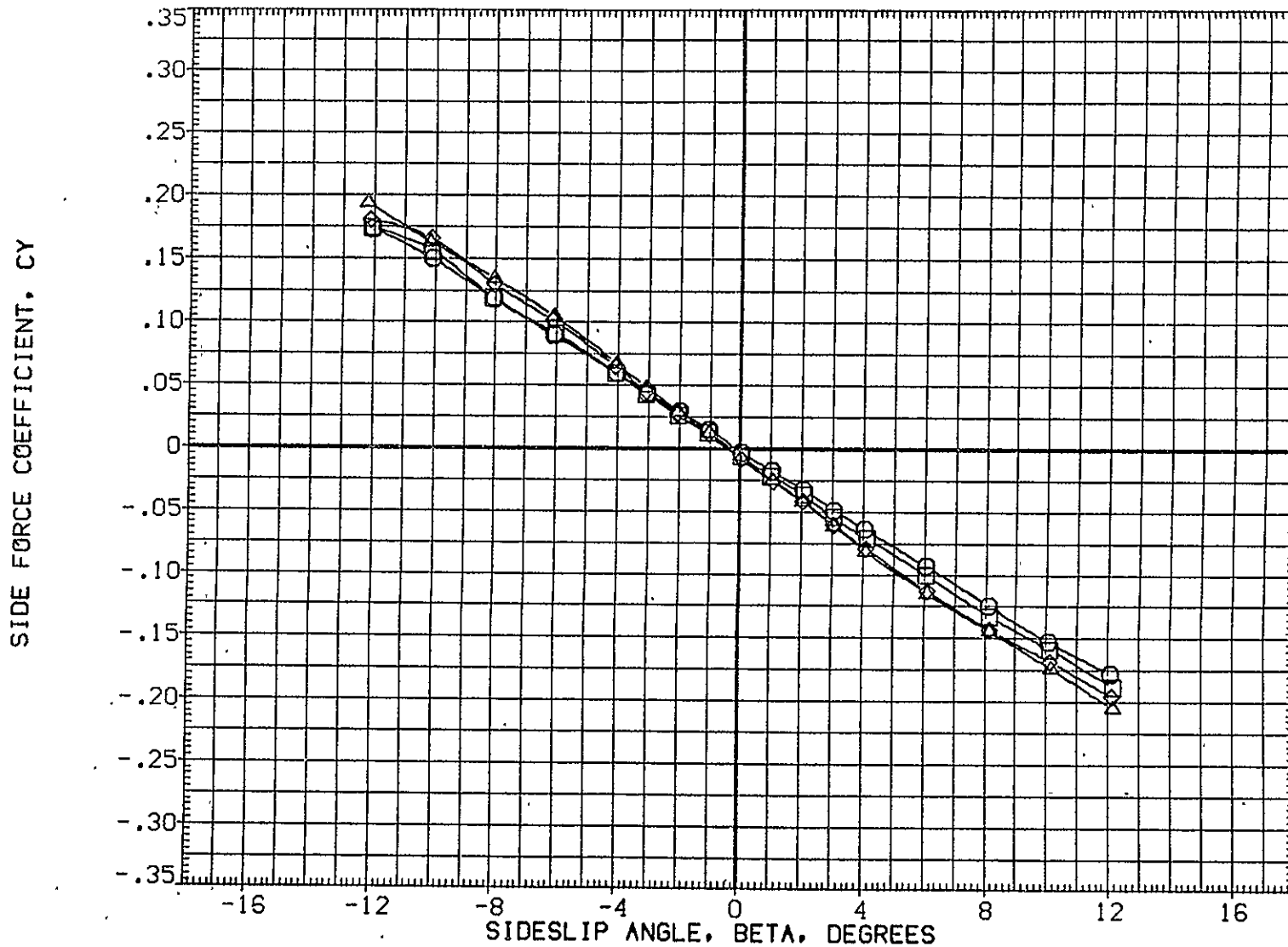


FIG.149 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG ORB

CA5 ORB TC5 AT38.2 (PRES. K1 F0 H15.6 V9.1)(XGM097)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	S1-2	S3-4	10RB	SREF	LREF	BREF
○	.300	6.000	.000	.000	1.000	2690.0000	474.8100	936.6800
□	.500	.000	.000	.000	.003	1109.0000	.0000	.0000
◇	.600	.000	.000	.000	.000	375.0000	.0300	
△	.701	20.000	10RB	9.700				

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

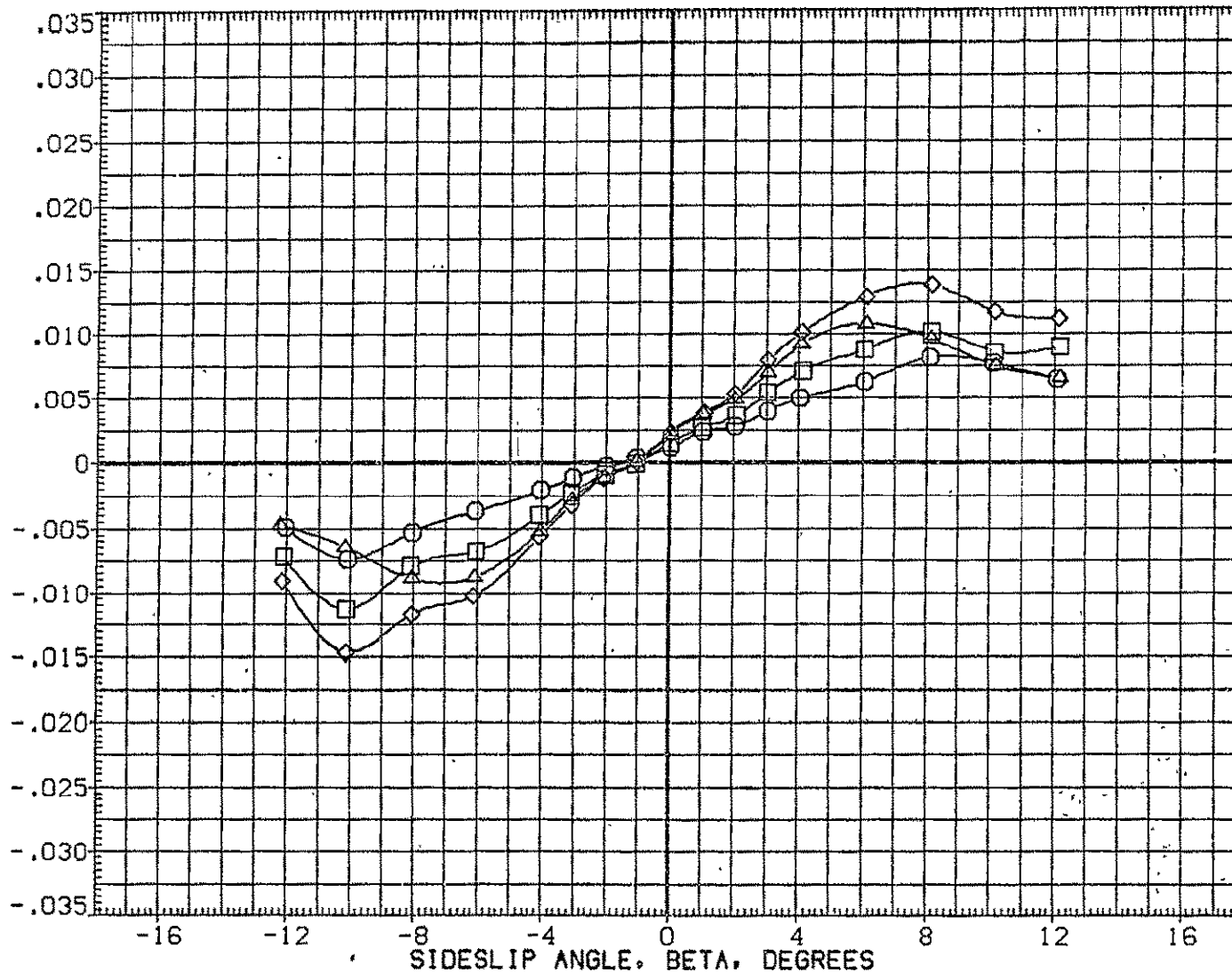


FIG.149 747+ORB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA1= 6 DEG ORB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	STAB	STAB	SREF	SG.FT.	SG.FT.
○	.300	ALPHA I	6.000	STAB	1.000	2690.0000	IN.	IN.
□	.500	RUD-U	.000	RUD-L	.000	474.8100	IN.	IN.
◇	.600	ELV-1B	.000	ELV-0B	.000	936.6800	IN.	IN. X0
△	.701	S1-2	.000	S3-4	45.000	1109.0000	IN.	IN. Y0
		S5-6	20.000	10RB	9.700	ZMRP	375.0000	IN. Z0
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

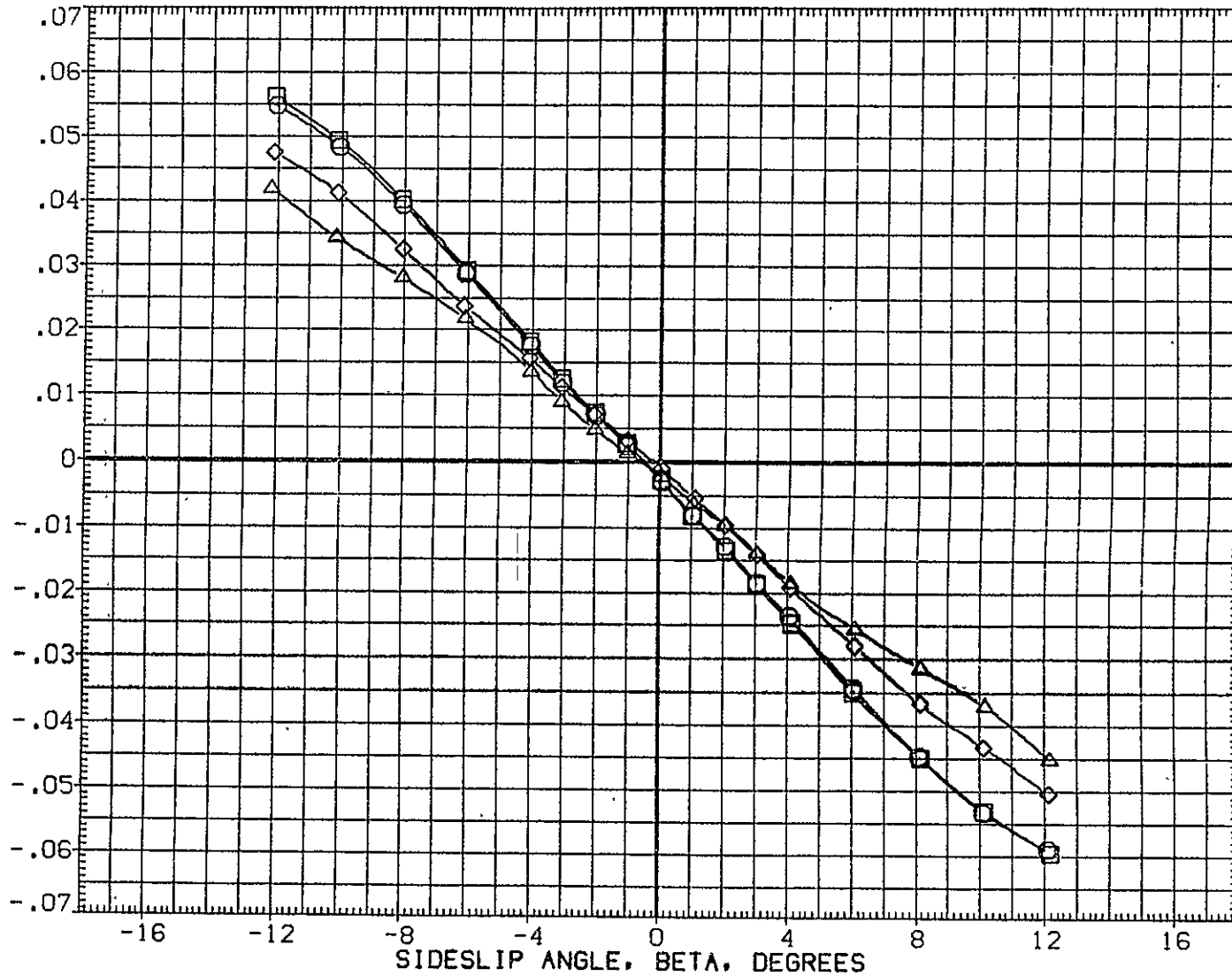


FIG.149 747+0RB(10 DEG)+TIP FINS+STD SPD BRK,FLAPS UP LAUNCH,ALPHA I= 6 DEG ORB

CA5 K1 FO H15.1A

(PLUS. 0RB N0Z AT38.2A)(RGM100)

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.301	6.000	STAB	-1.000	
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.601	S1-2	.000	S3-4	45.000
△	.700	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

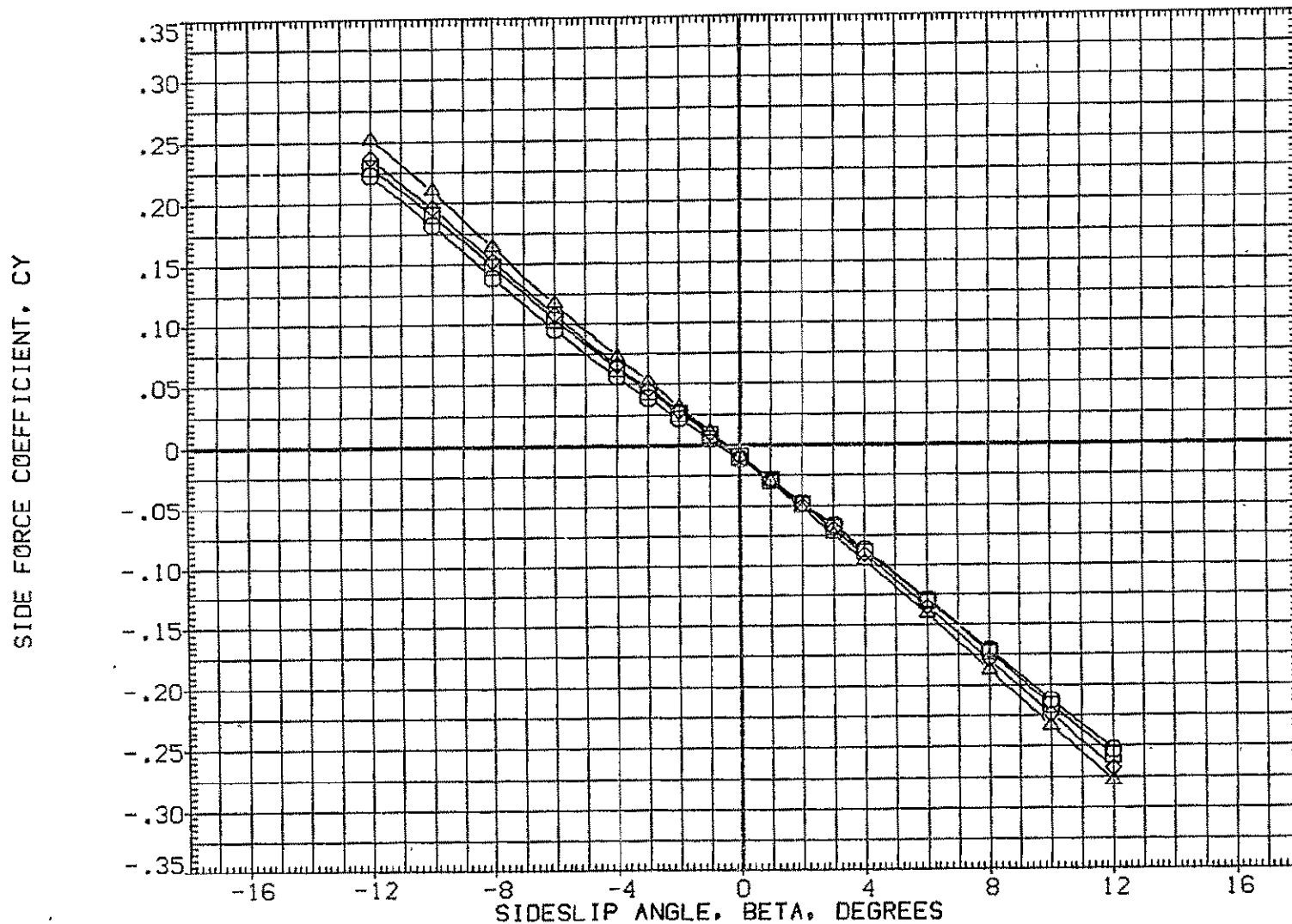


FIG.150 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAP UP LNCH,ALPHA1= 6,TC OFF TOTAL

SYMBOL	MACH	PARAMETRIC VALUES
○	.301	ALPHA1 6.000 STAB -1.000
□	.500	ELV-1B .000 ELV-0B .000
◇	.601	S1-2 .000 S3-4 45.000
△	.700	S5-6 20.000 1ORB 7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

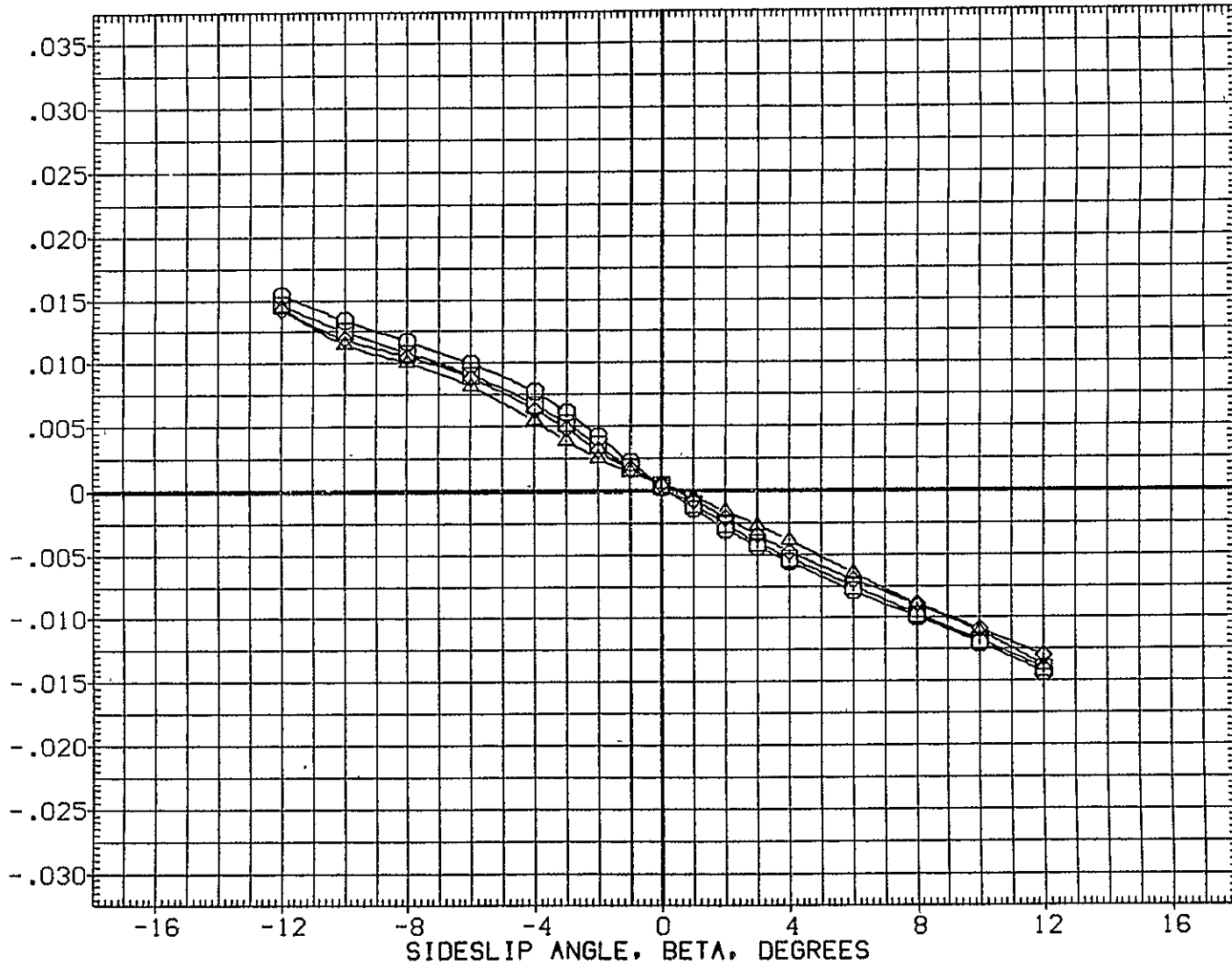


FIG.150 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAP UP LNCH,ALPHA1= 6,TC OFF TOTAL

CA5 K1 F0 H15.1A (PLUS. ORB NOZ AT38.2A) (RGM100)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	.301	ALPHA1 6.000 STAB -1.000	SREF 5500.0000 SQ.FT.
□	.500	ELV-1B .000 ELV-OB .000	LREF 337.8000 IN.
◇	.601	S1-2 .000 S3-4 45.000	BREF 2348.0000 IN.
△	.700	XM RP 1339.9100 IN. XC	
			YM RP .0000 IN. YC
			ZM RP 190.7500 IN. ZC
			SCALE .0300

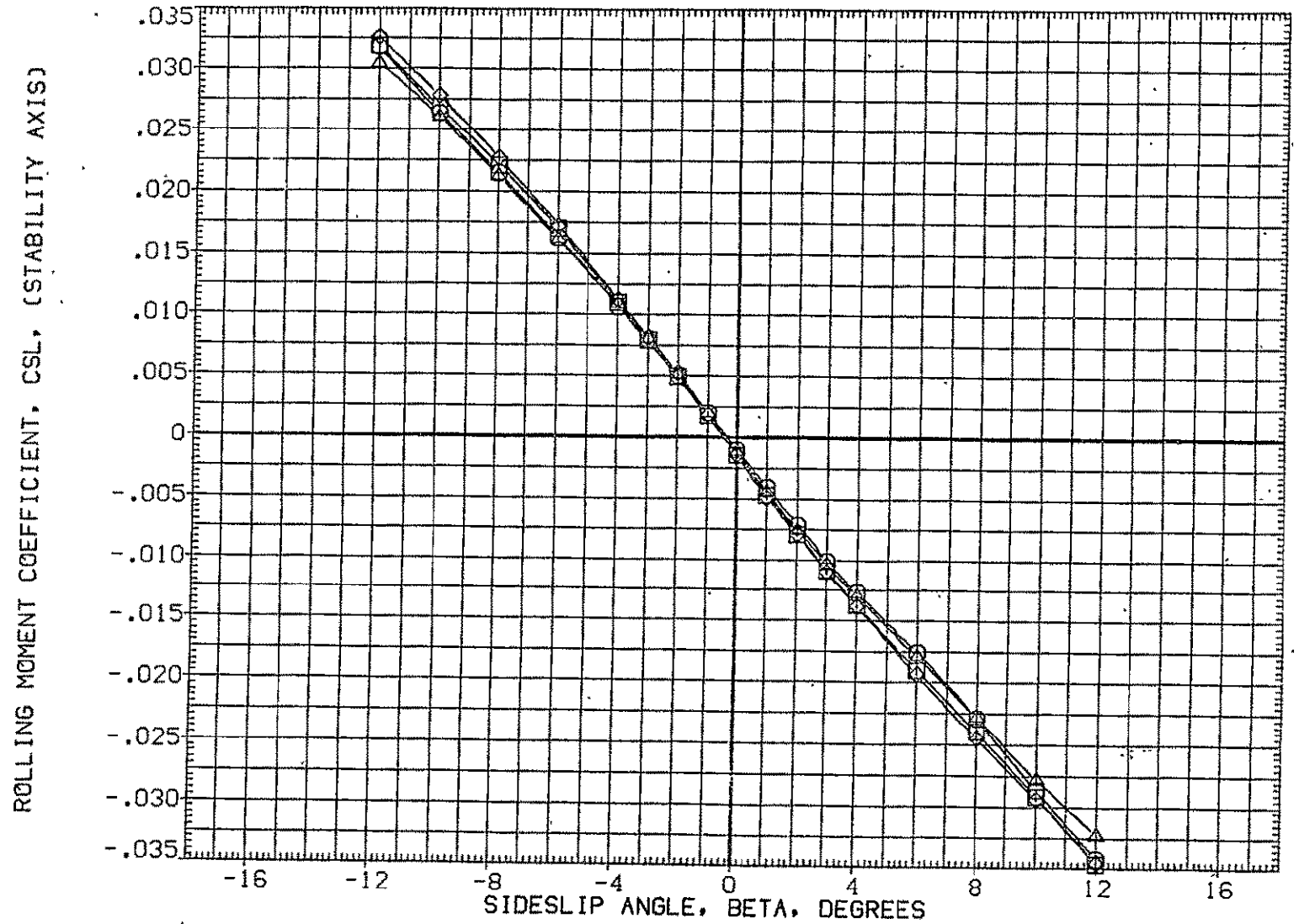


FIG.150 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAP UP LNCH,ALPHA1= 6,TC OFF TOTAL

SYMBOL	MACH	PARAMETRIC VALUES
○	.301	ALPHA1 6.000 STAB -1.000
□	.500	ELV-1B .000 ELV-0B .000
◇	.601	S1-2 .000 S3-4 45.000
△	.700	S5-6 20.000 10RB 7.850

REFERENCE INFORMATION		
SREF	5500.0000	50. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT (STABILITY AXIS), DCY

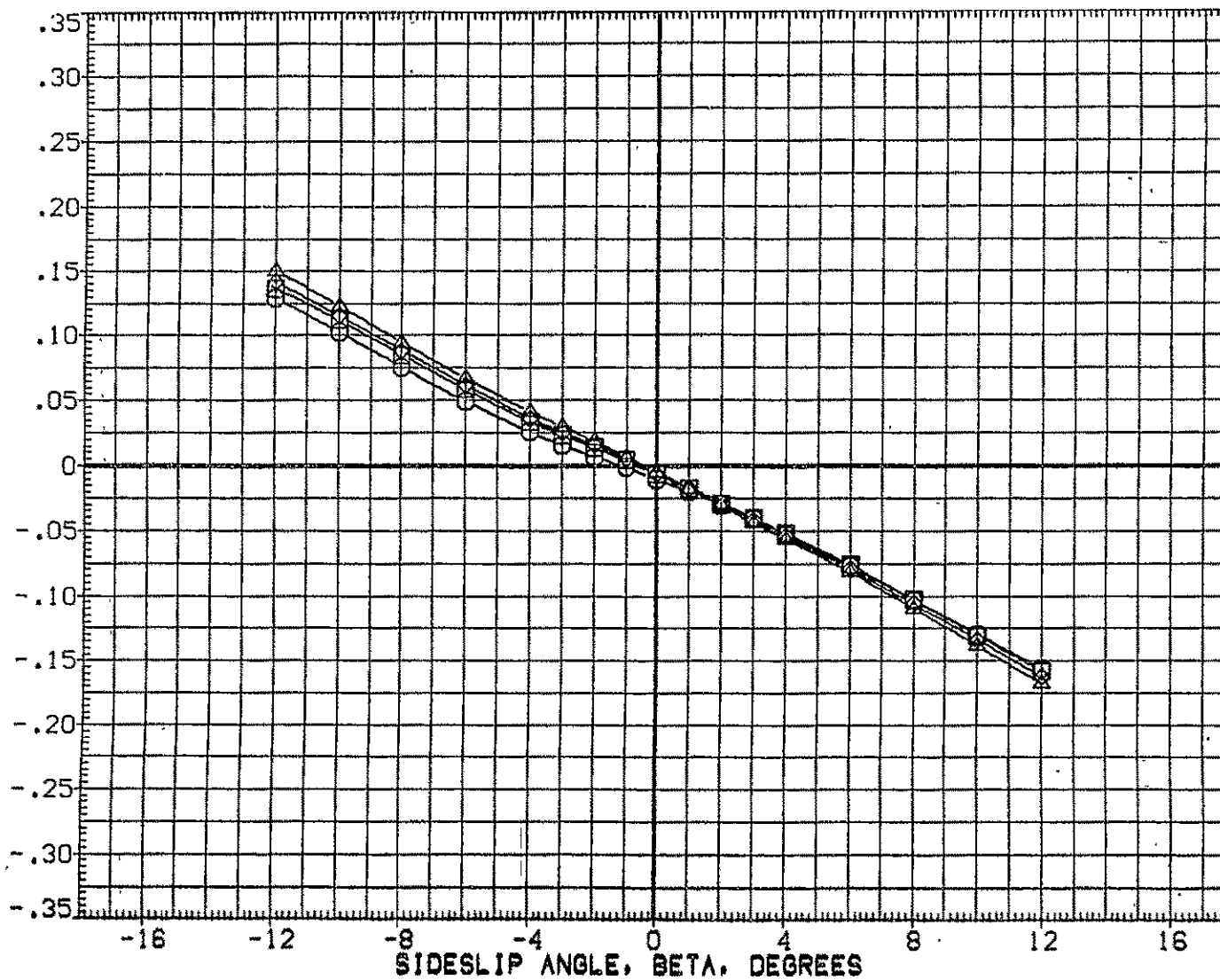


FIG.151 747+ORB(8 DEG)+STD SP, VERT TAIL OFF, FLAP UP LNCH, ALPHA1= 6, TC OFF 747

CA5 K1 FO H15.1A

MINUS ORB NOZ

(BGM100)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	ALPHA1	6.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.601	S1-2	.000	S3-4	45.000
△	.700	20.000	10RB	7.850	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

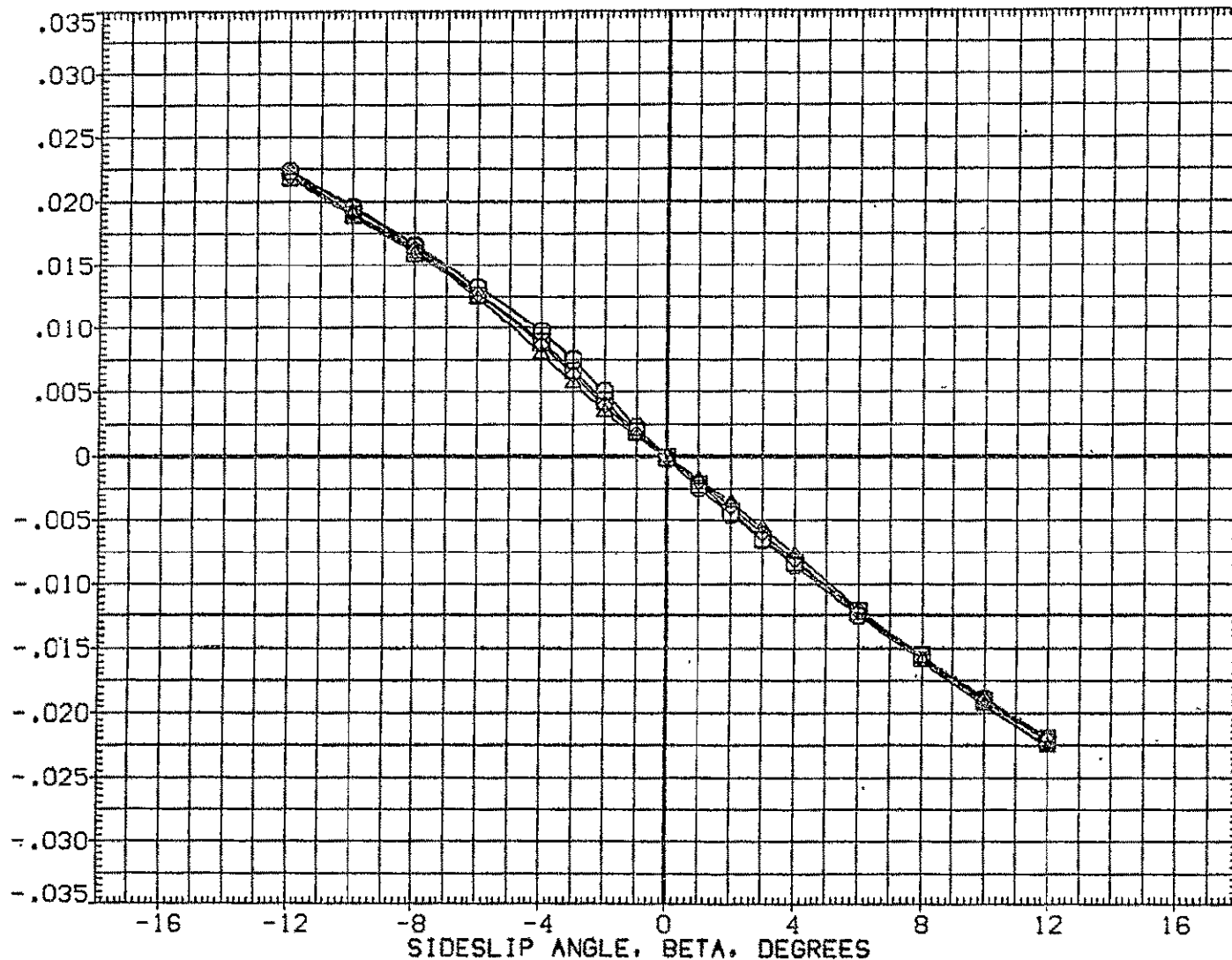


FIG.151 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAP UP LNCH,ALPHA1= 6,TC OFF 747

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.301	ALPHA1	6.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.601	S1-2	.000	S3-4	45.000
△	.700	20.000	10RB	7.850	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DC SL

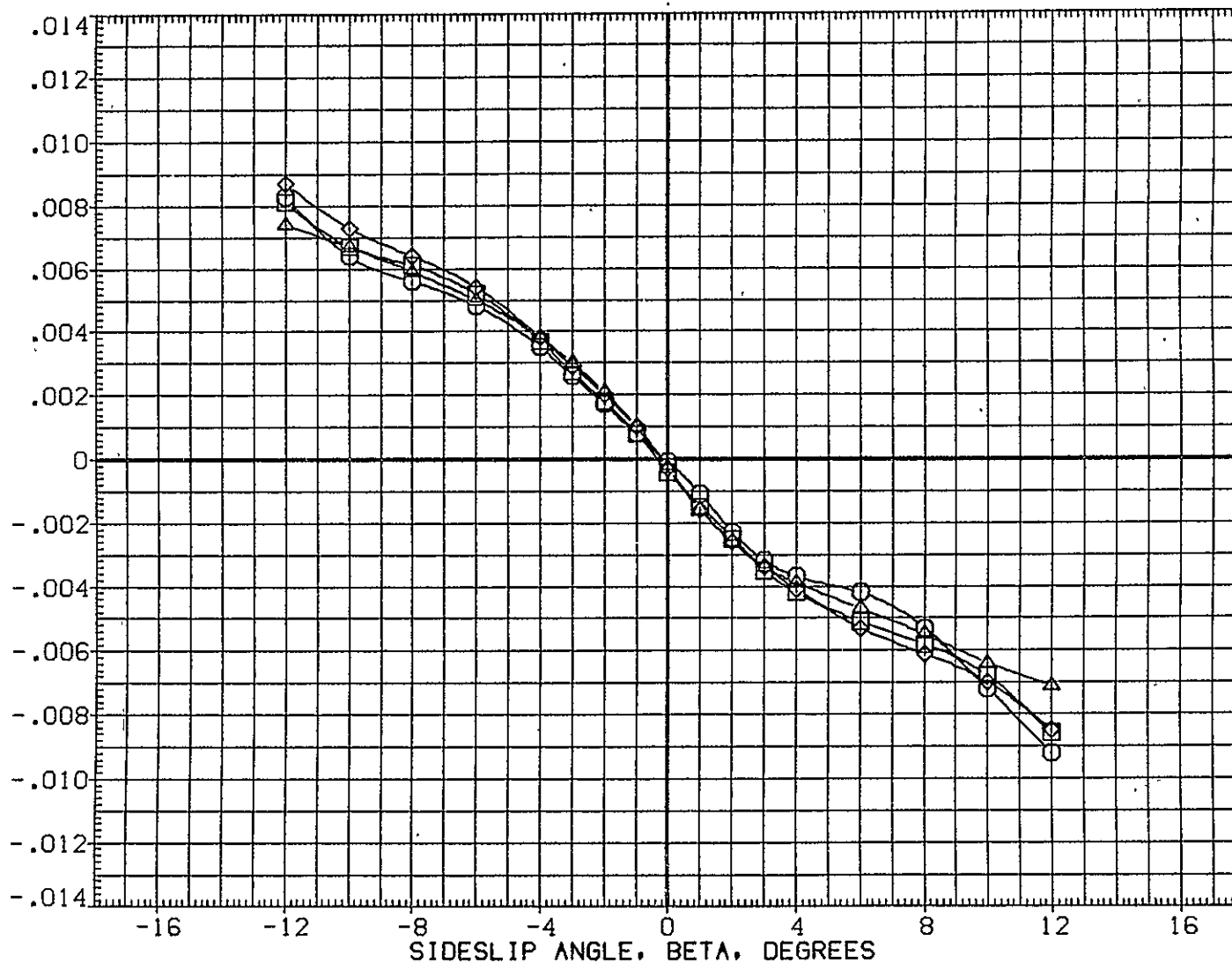


FIG.151 747+0RB(8 DEG)+STD SP, VERT TAIL OFF, FLAP UP LNCH, ALPHA1= 6, TC OFF 747

CA5 0RB NOZ AT38.2A (PRES. K1 FO H15.1A (XGM100)

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.301	6.000	STAB	-1.000	
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.699	20.000	10RB	7.850	

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

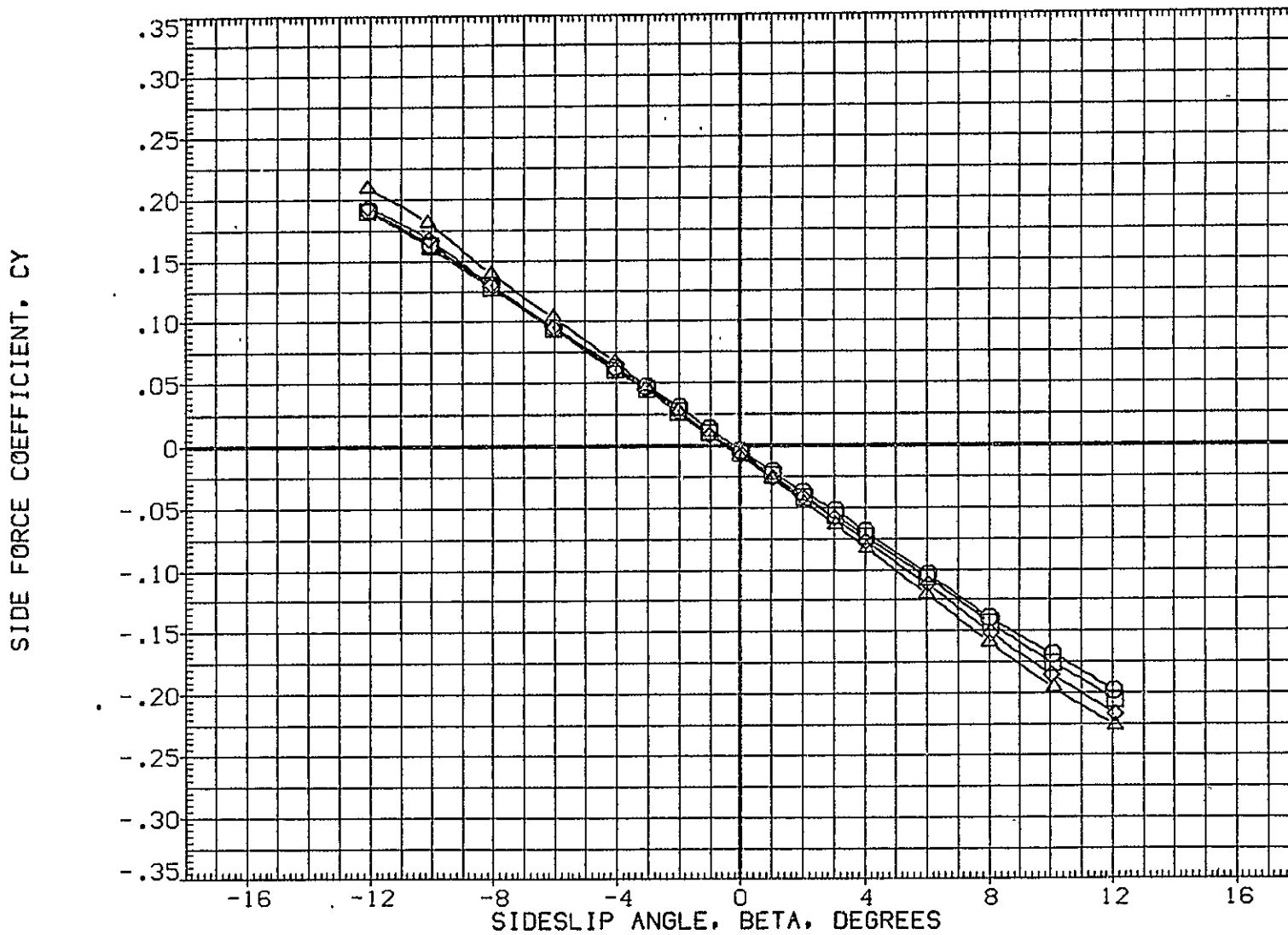


FIG.152 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAP UP LNCH,ALPHA1= 6,TC OFF 0RB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	6.000	STAB	-1.000	SREF	2690.0000	SQ.FT.
○	.301	ALPHA1	6.000	STAB	-1.000	LREF	474.8100	IN.
□	.500	ELV-1B	.000	ELV-0B	.000	BREF	935.6800	IN.
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0
△	.699	S5-6	20.000	1CRB	7.850	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

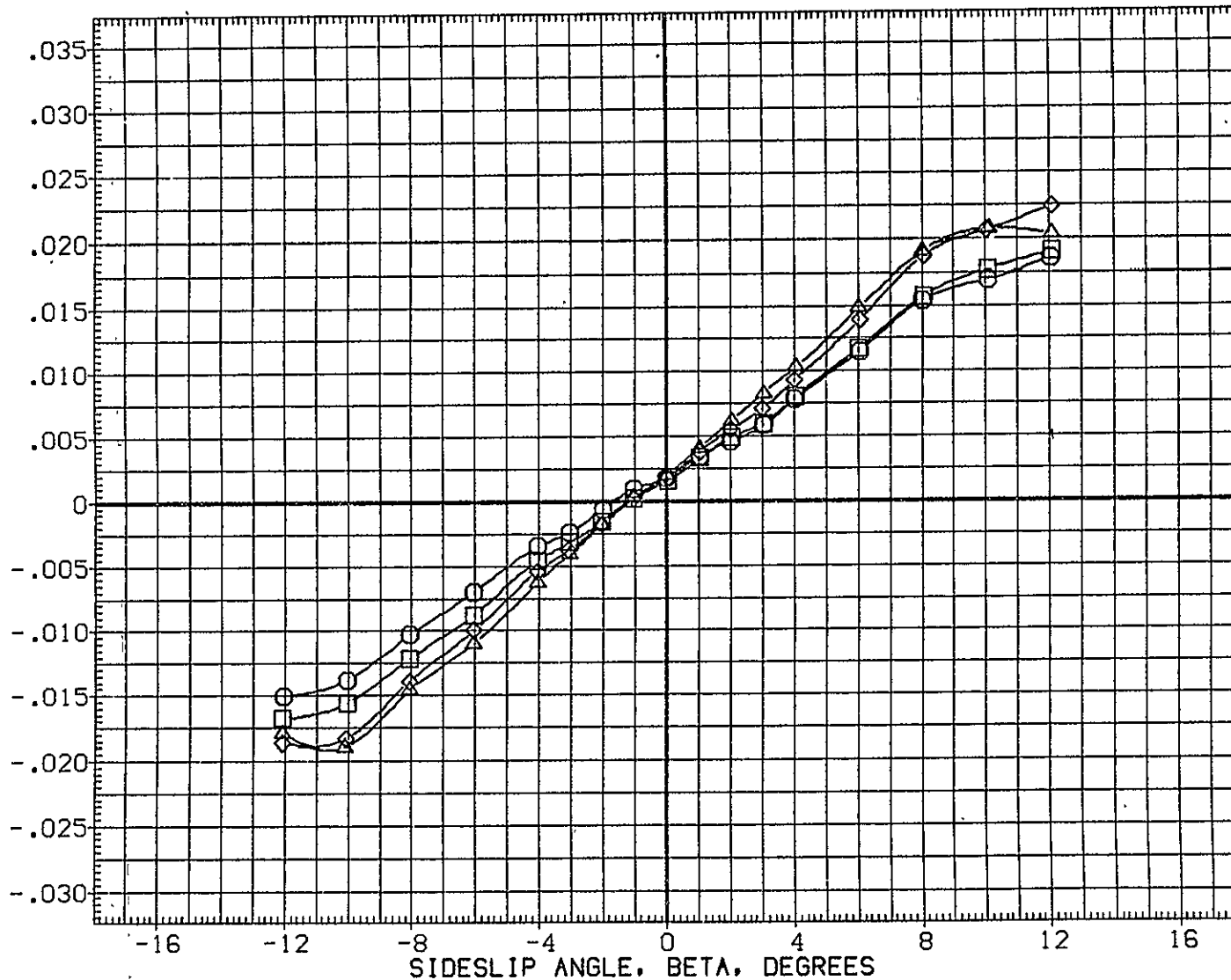


FIG.152 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAP UP LNCH,ALPHA1= 6,TC OFF ORB

CA5 0RB N0Z AT38.2A (PRES. K1 FO H15.1A (XGM100)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.301	ALPHA1	6.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.699	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

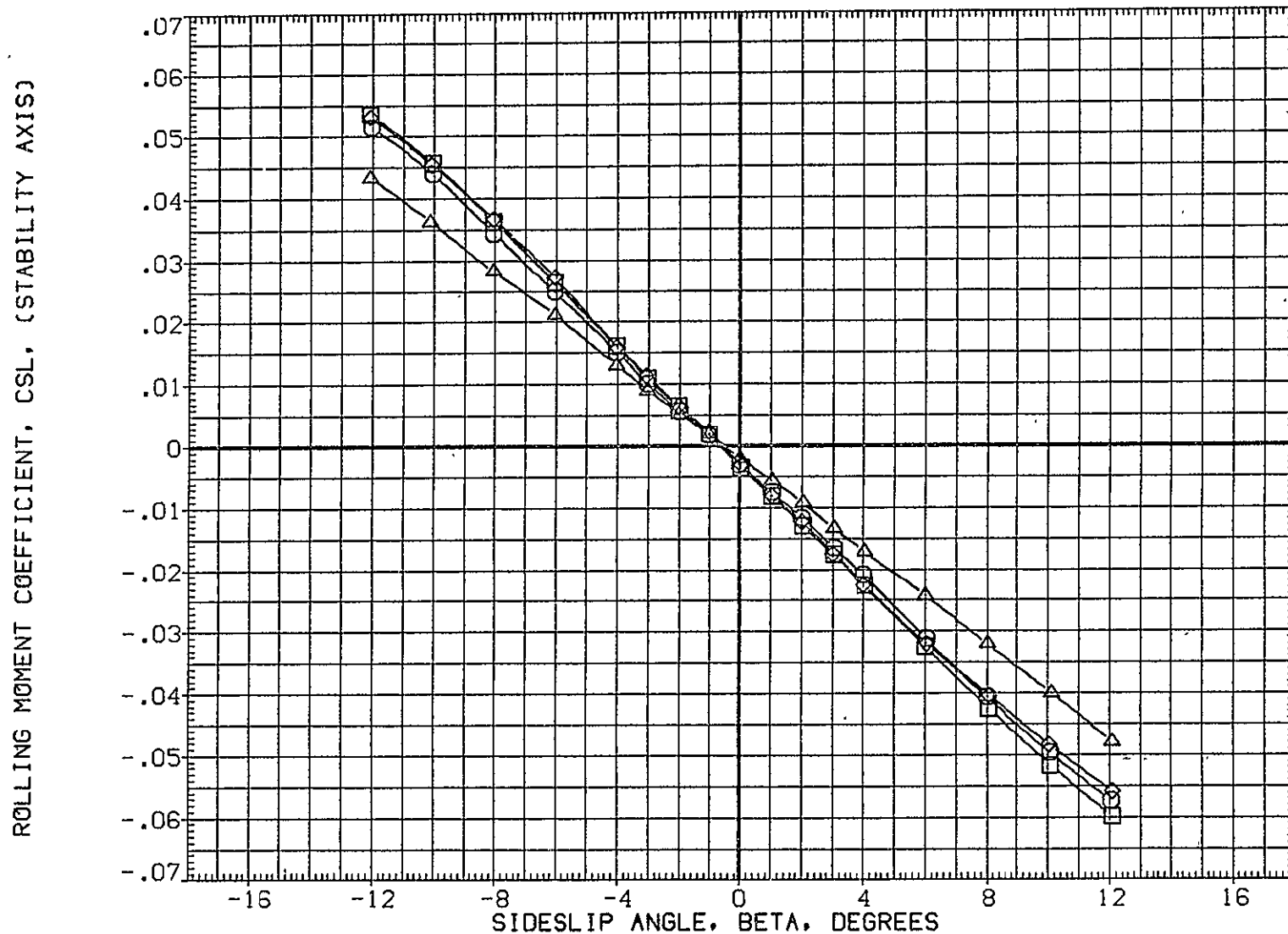


FIG.152 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAP UP LNCH,ALPHA1= 6,TC OFF 0RB

SYMBOL	MACH	PARAMETRIC VALUES			
□	.500	ALPHA I	6.000	STAB	1.000
○	.600	RUD-U	.000	ELV-1B	.000
		ELV-OB	3.000	SI-2	.000
		S3-4	45.000	SS-6	20.000
		IORB	7.850	ORBELV	5.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

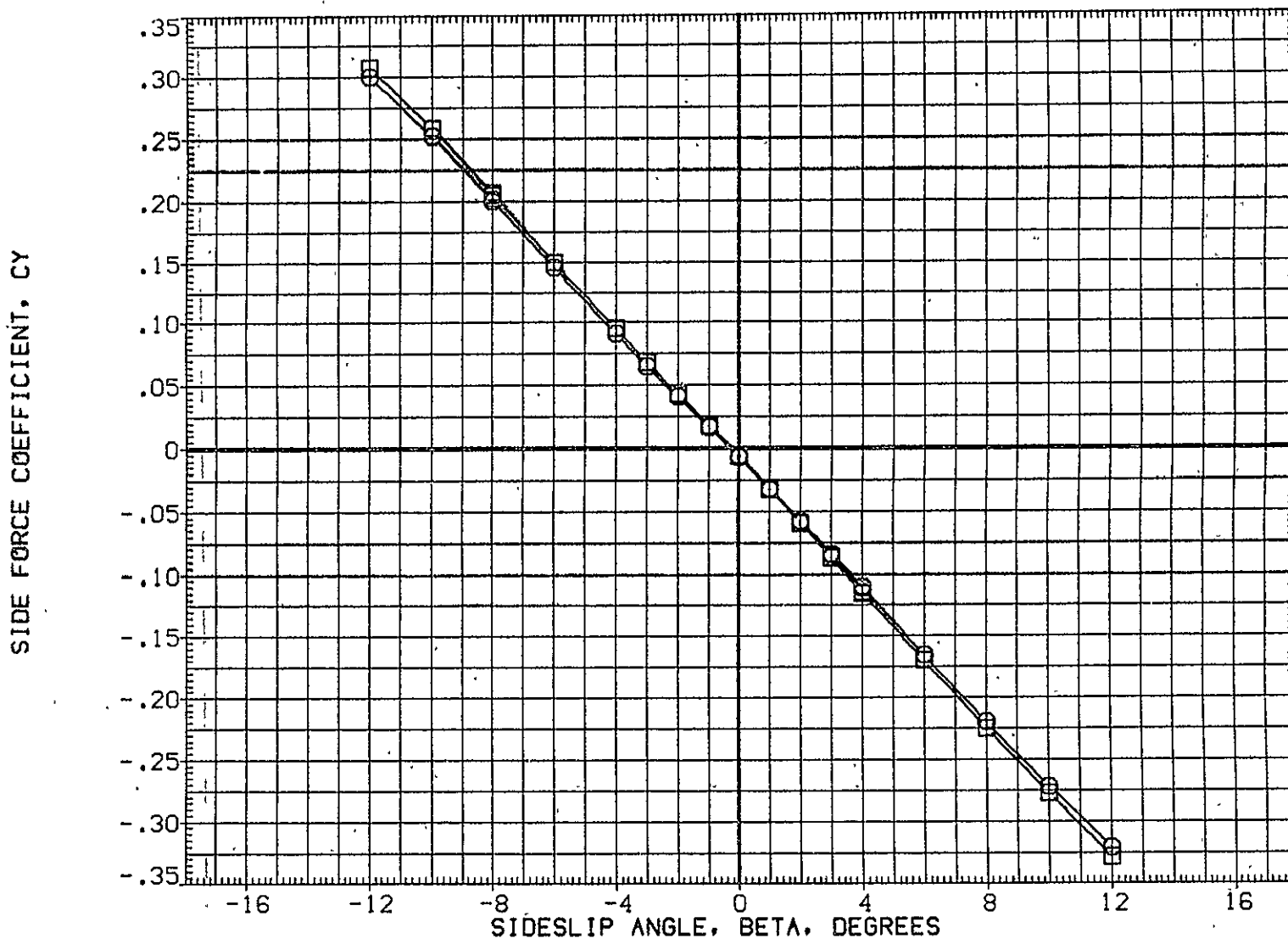


FIG.153 747+ORB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,ORB ELEV=5 TOTAL

CA5 K1 FO H15.6 V9.1 (PLUS. ORB TC5 AT38.2 )(RGM088)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.500	ALPHA I	6.000	STAB	1.000
□	.600	RUD-U	.000	ELV-1B	.000
		ELV-0B	3.000	S1-2	.000
		S3-4	45.000	S5-6	20.000
		IORB	7.850	ORBELV	5.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

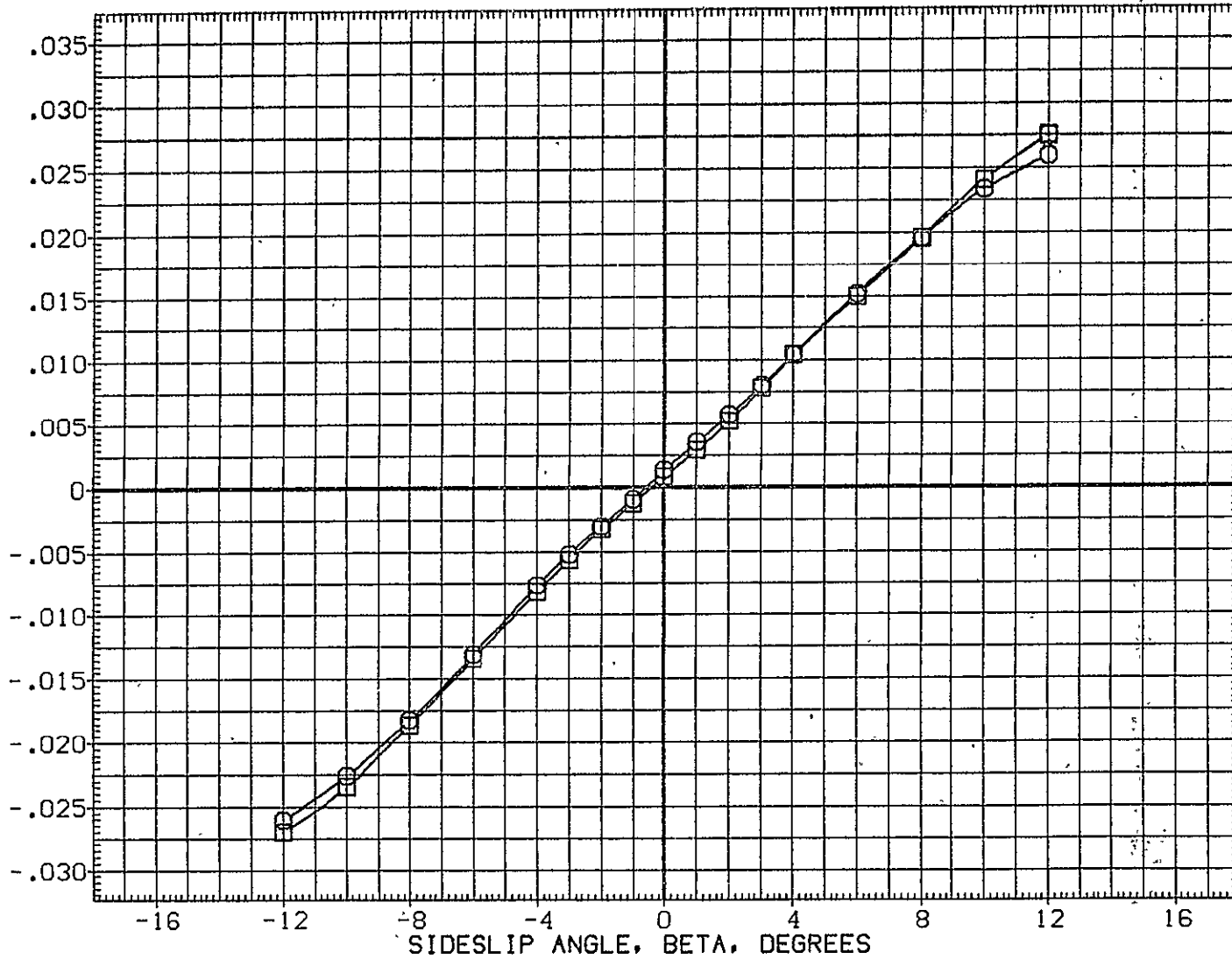


FIG.153 747+ORB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,ORB ELEV=5 TOTAL

SYMBOL

□

MACH

.500  
.600

ALPHA I  
RUD-U  
ELV-0B  
S3-4  
I0RB

PARAMETRIC VALUES

6.000 STAB 1.000  
.000 ELV-1B .000  
3.000 S1-2 .000  
45.000 S5-6 20.000  
7.850 0RBELV 5.000

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
LREF 327.8000 IN.  
BREF 2348.0000 IN.  
XMRP 1339.9100 IN. XC  
YMRP .0000 IN. YC  
ZMRP 190.7500 IN. ZC  
SCALE .0300

ROLLING MOMENT COEFFICIENT, CSL. (STABILITY AXIS)

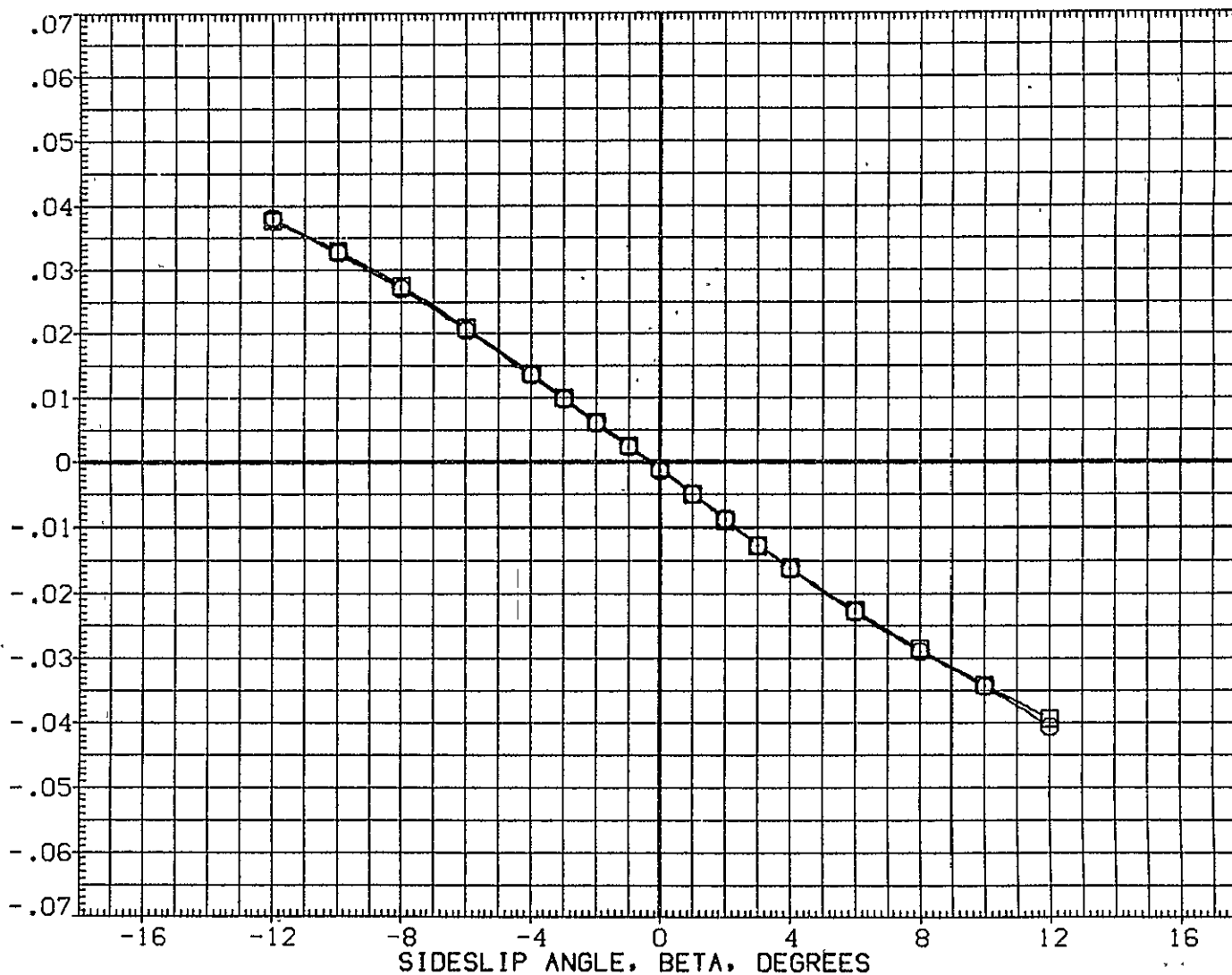


FIG.153 747+0RB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,0RB ELEV=5 TOTAL PAGE 562



CA5 K1 FO H15.6 V9.1 MINUS ORB TC5 AT38.2 (BGM088)

SYMBOL  
 □ ○

MACH	PARAMETRIC VALUES			
.500	ALPHA I	6.000	STAB	1.000
.600	RUD-U	.000	ELV-1B	.000
	ELV-0B	3.000	S1-2	.000
	S3-4	45.000	S5-6	20.000
	10RB	7.850	0RELV	5.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

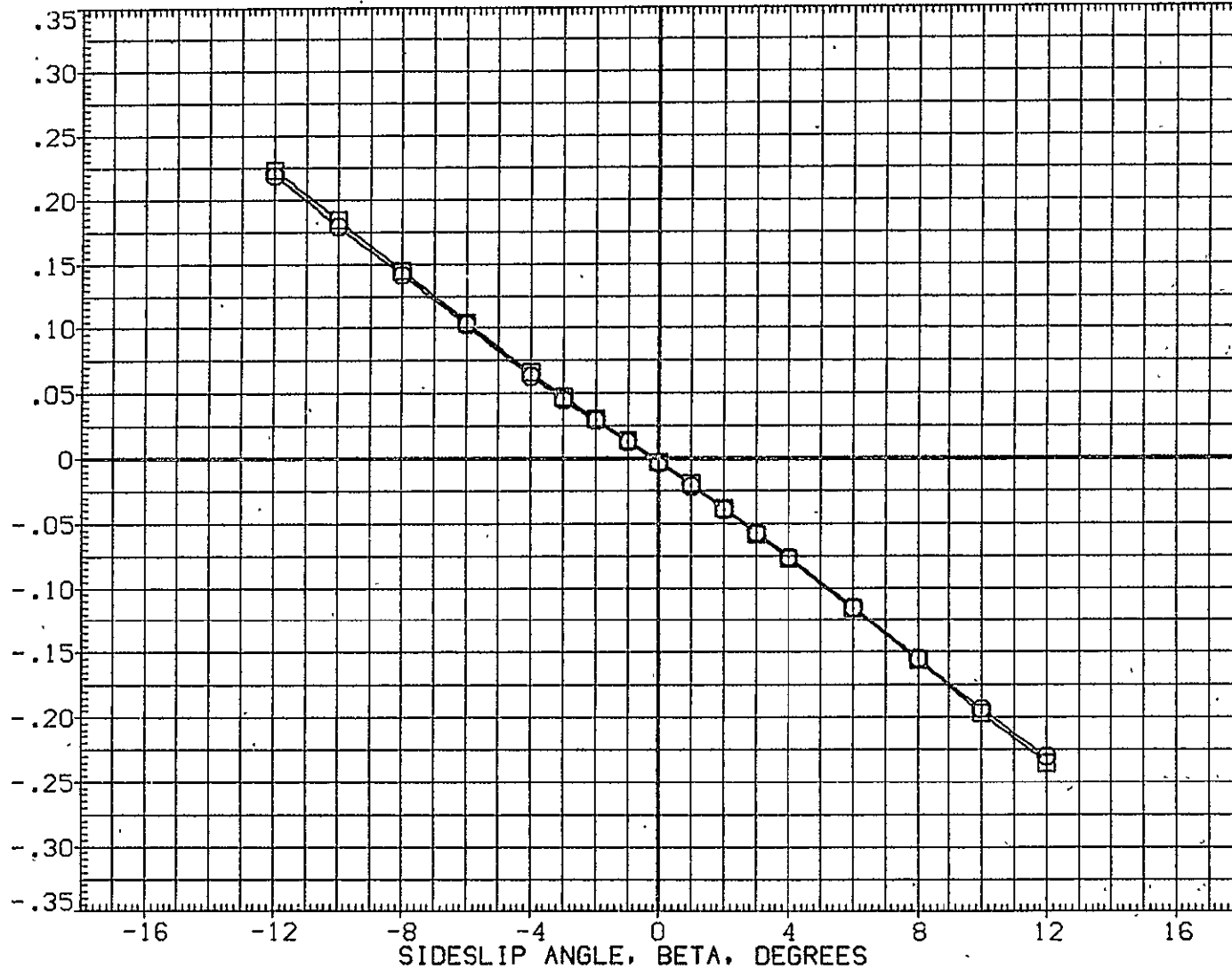


FIG.154 747+ORB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,ORB ELEV=5

747

SYMBOL  
 ○  
 □

MACH	PARAMETRIC VALUES			
.500	ALPHA I	6.000	STAB	1.000
.600	RUD-U	.000	ELV-1B	.000
	ELV-0B	3.000	S1-2	.000
	S3-4	45.000	S5-6	20.000
	IORB	7.850	ORBELV	5.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

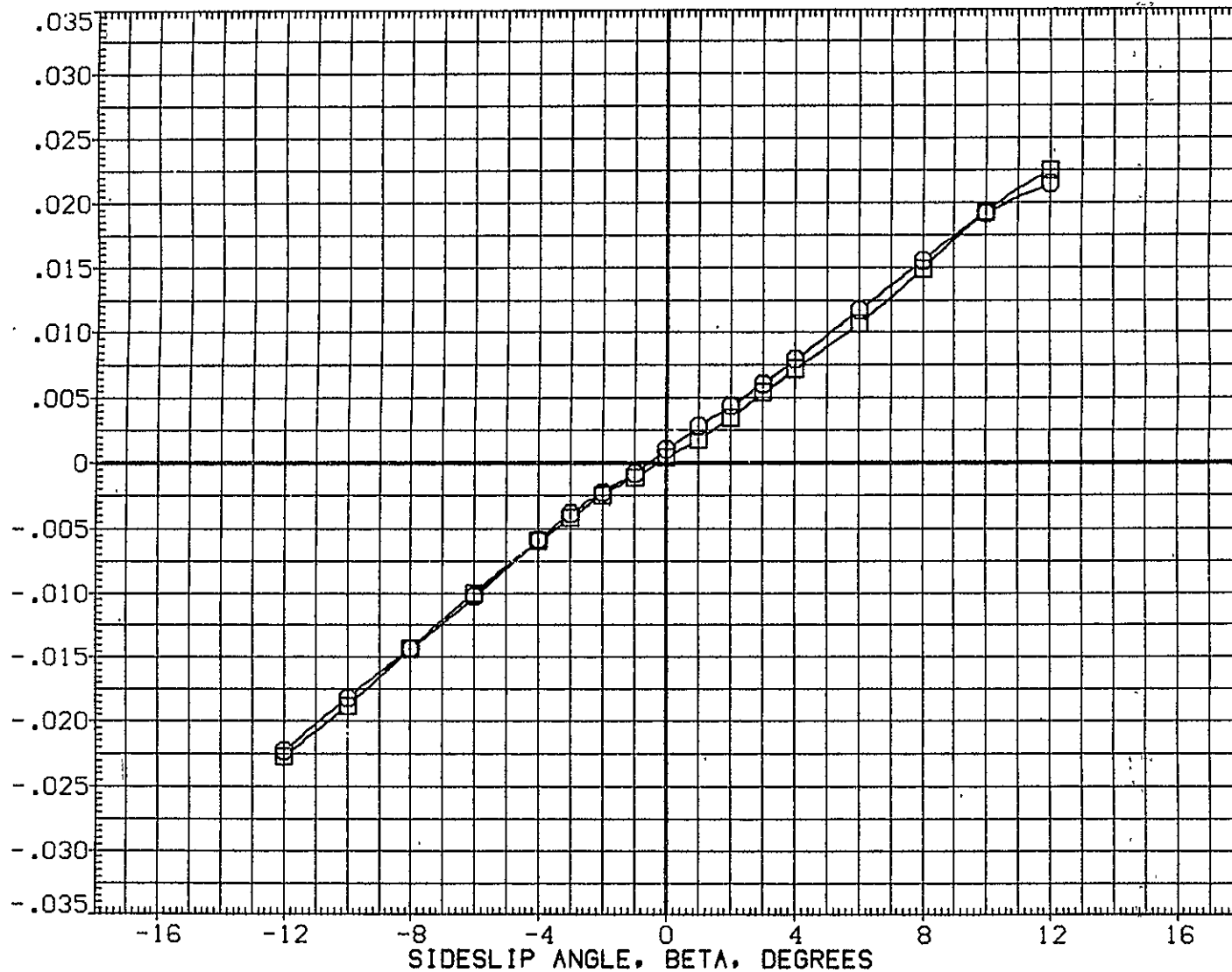


FIG.154 747+ORB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,ORB ELEV=5 747

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.2 (BGM088)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA I	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.600	RUD-U	.000	ELV-1B	.000	LREF	327.8000	IN.
		ELV-0B	3.000	S1-2	.000	BREF	2348.0000	IN.
		S3-4	45.000	S5-6	20.000	XMRP	1339.9100	IN. XC
		I0RB	7.850	0RBELV	5.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

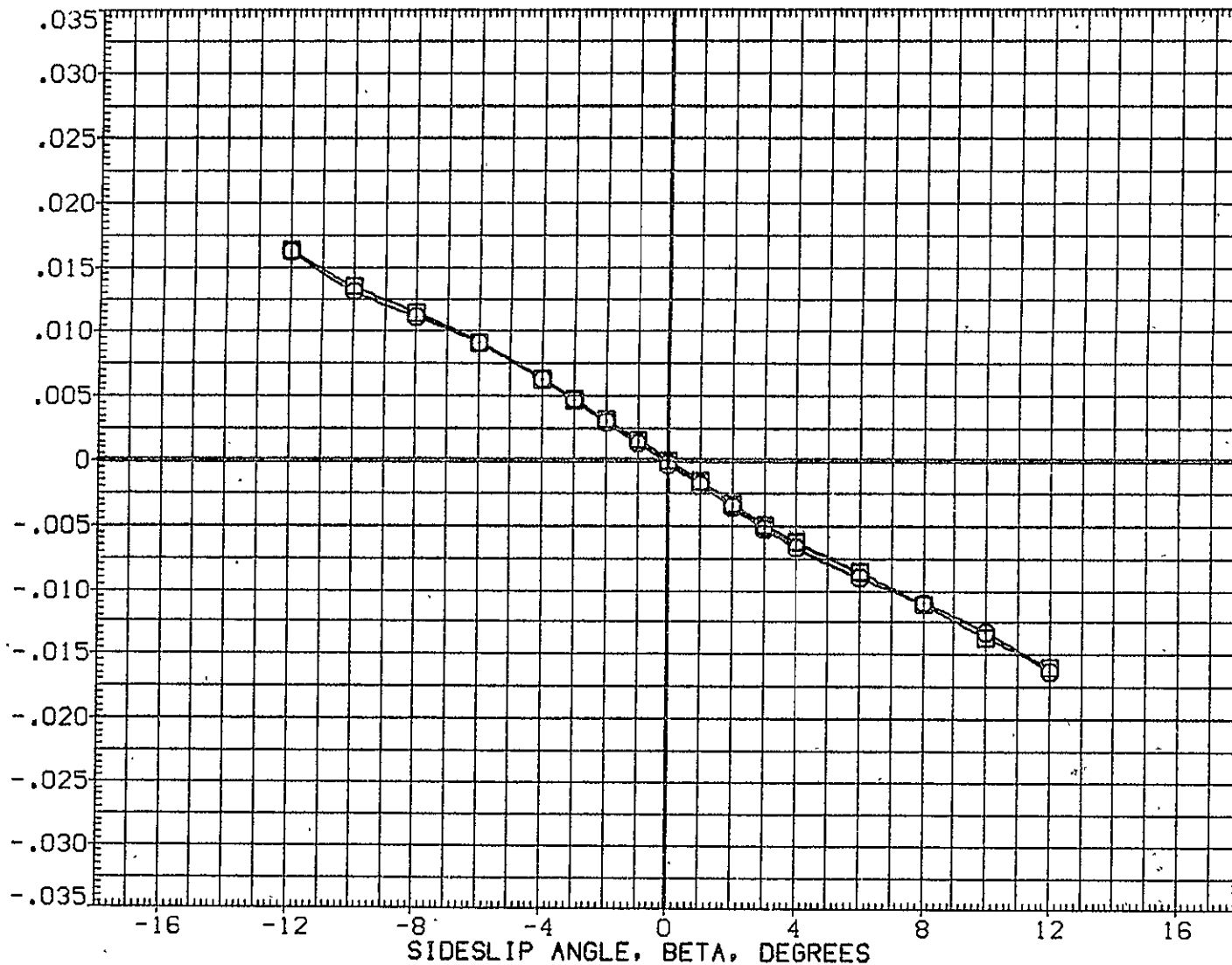


FIG.154 747+0RB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,0RB ELEV=5

747



SYMBOL  
 ○  
 □

MACH	PARAMETRIC VALUES			
.500	ALPHA I	6.000	STAB	1.000
.599	RUD-U	.000	ELV-1B	.000
	ELV-OB	3.000	S1-2	.000
	S3-4	45.000	S5-6	20.000
	10RB	7.850	ORBELV	5.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

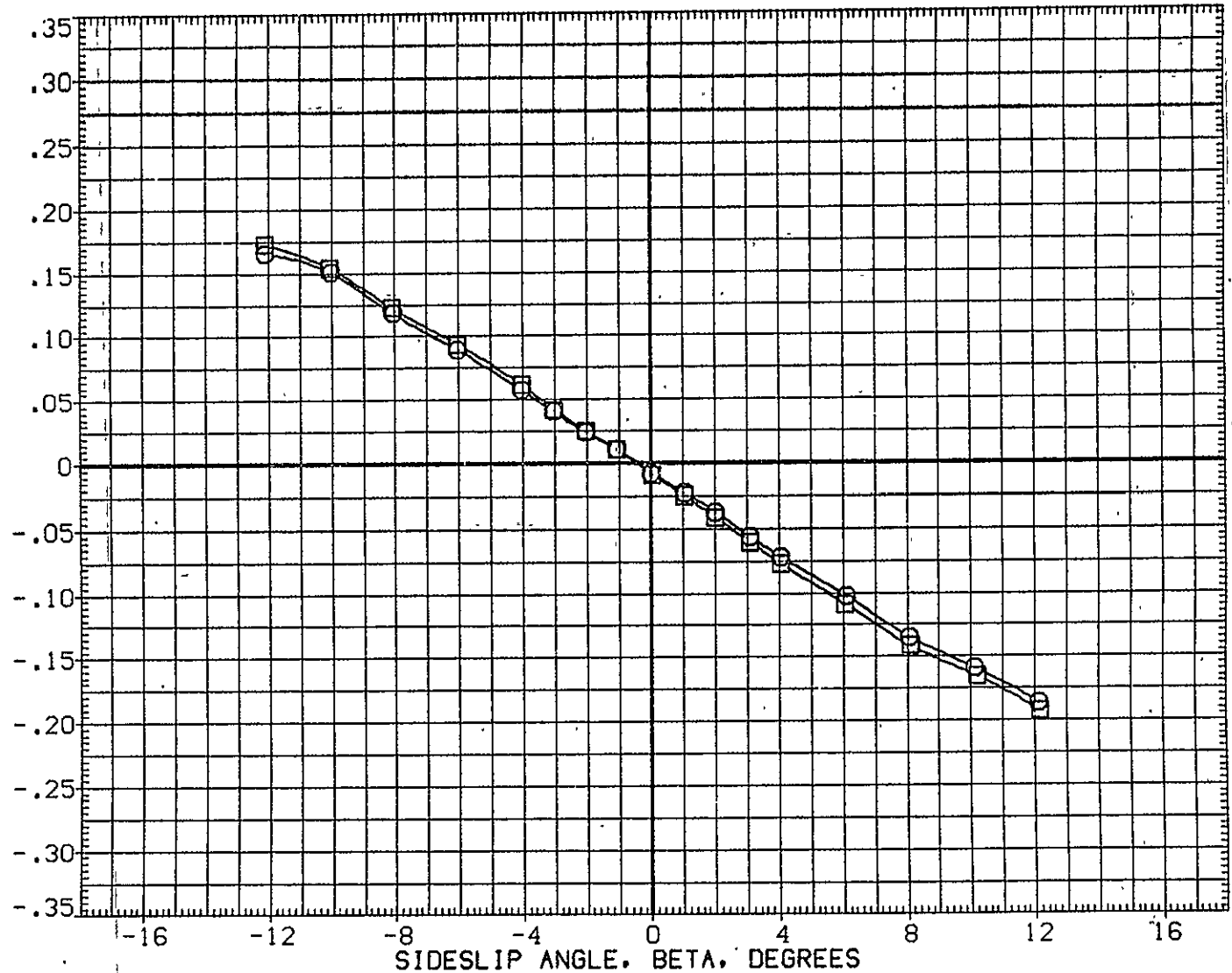


FIG.155 747+ORB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,ORB ELEV=5 ORB

CA5 ORB TC5 AT38.2 (PRES. K1 FO H15.6 V9.1)(XGMO88)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA I	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.599	RUD-U	.000	ELV-1B	.000	LREF	474.8100	IN.
		ELV-OB	3.000	S1-2	.000	BREF	936.6800	IN.
		S3-4	45.000	S5-6	20.000	XMRP	1109.0000	IN. X0
		IORB	7.850	ORBELV	5.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

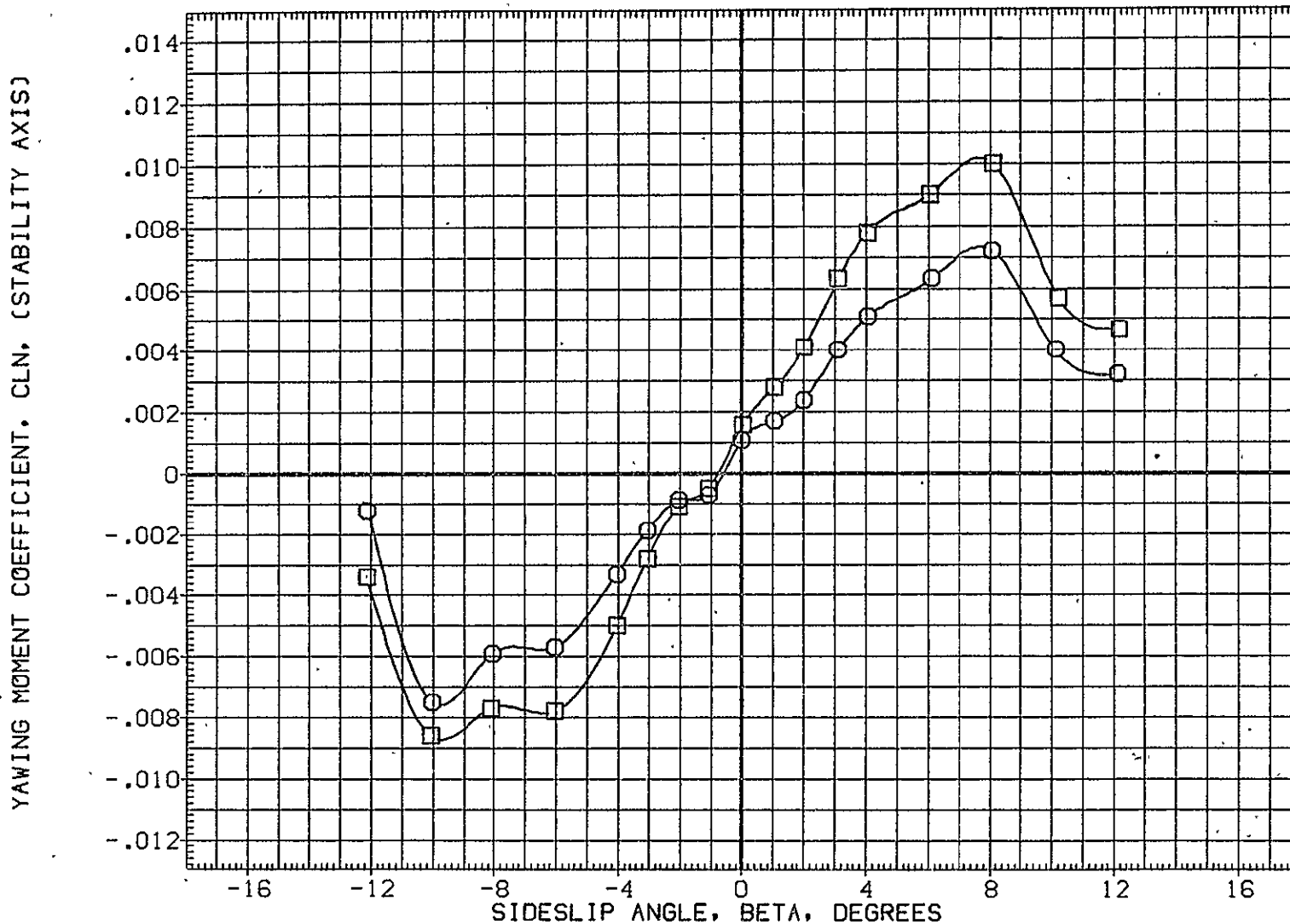


FIG.155 747+ORB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,ORB ELV=5 ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.500	ALPHA	6.000	STAB	1.000	SREF	2690.0000	SO.FT.
□	.599	RUD-U	.000	ELV-1B	.000	LREF	474.8100	IN.
		ELV-0B	3.000	S1-2	.000	BREF	936.6800	IN.
		S3-4	45.000	S5-6	20.000	XMRP	1109.0000	IN. X0
		10RB	7.850	ORBELV	5.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

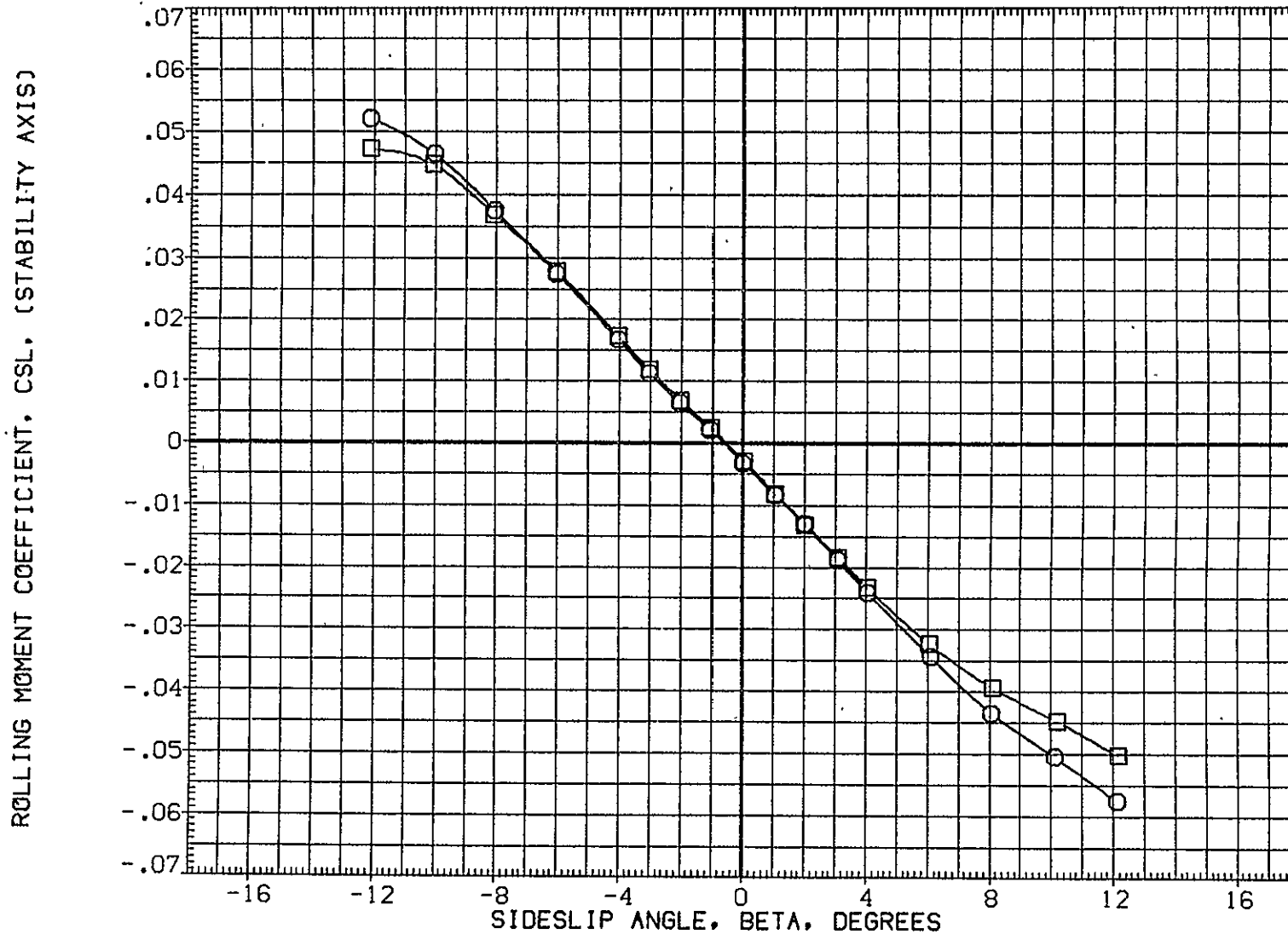


FIG.155 747+ORB(8 DEG)+TIP FINS+STD SP,FLAPS UP LNCH,ALPI=6,ORB ELEV=5 ORB

CA5 K1 F0 H15.1A

(PLUS. ORB TC5 AT38.2A)(RGM101)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.700	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

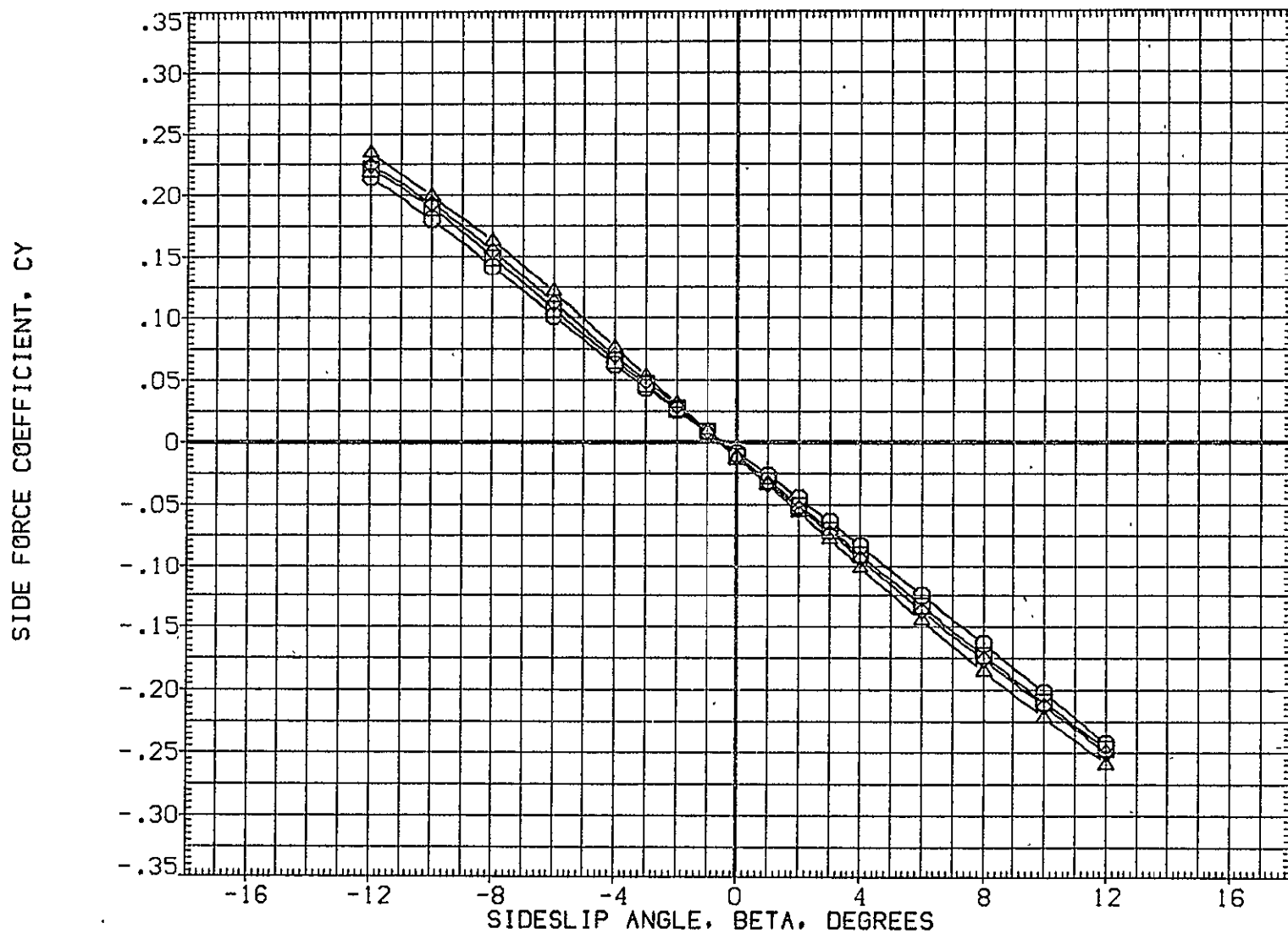


FIG.156 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.700	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

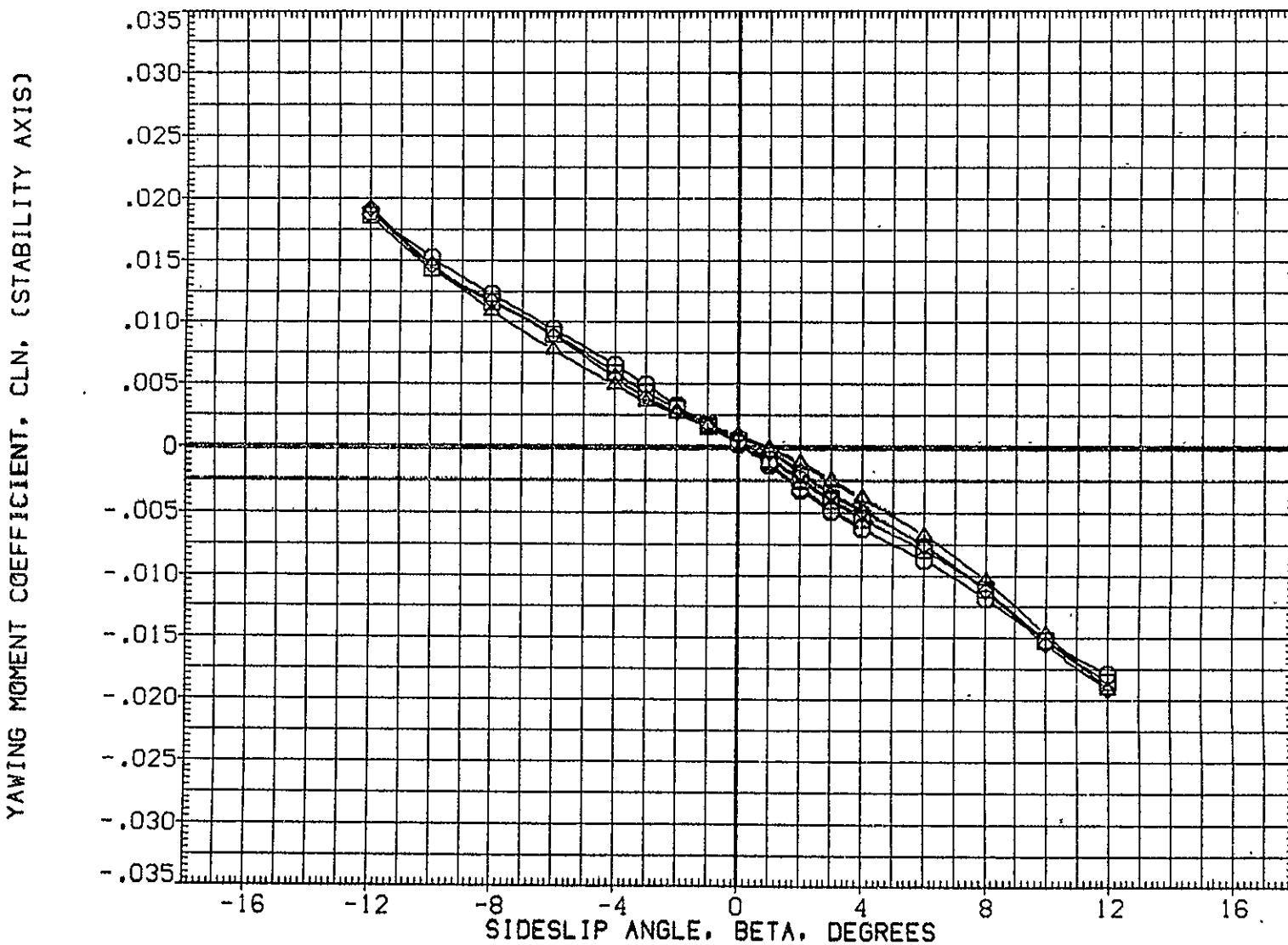


FIG.156 747+ORB(8 DEG)+STD SP, VERT TAIL OFF, FLAPS UP, ALPI=2, DE=0/0 (S=-1) TOTAL

CA5 K1 FO H15.1A

(PLUS. ORB TC5 AT38.2A)(RGM101)

SYMBOL	MACH	ALPHA	PARAMETRIC VALUES	STAB	
○	.300	ALPHA1	2.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.700	20.000	10RB	7.850	

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

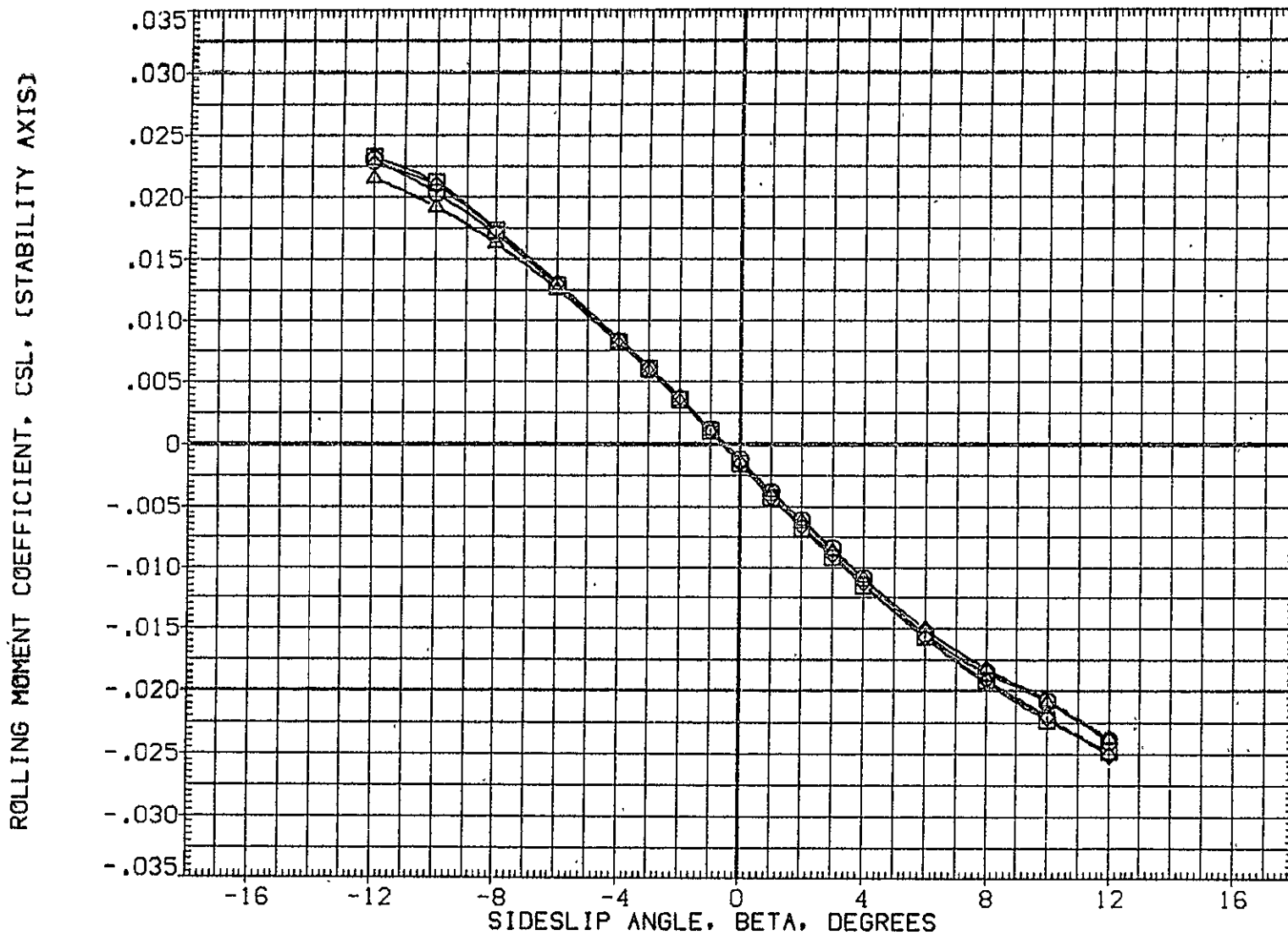


FIG.156 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) TOTAL

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.700	S5-6	20.000	10RB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

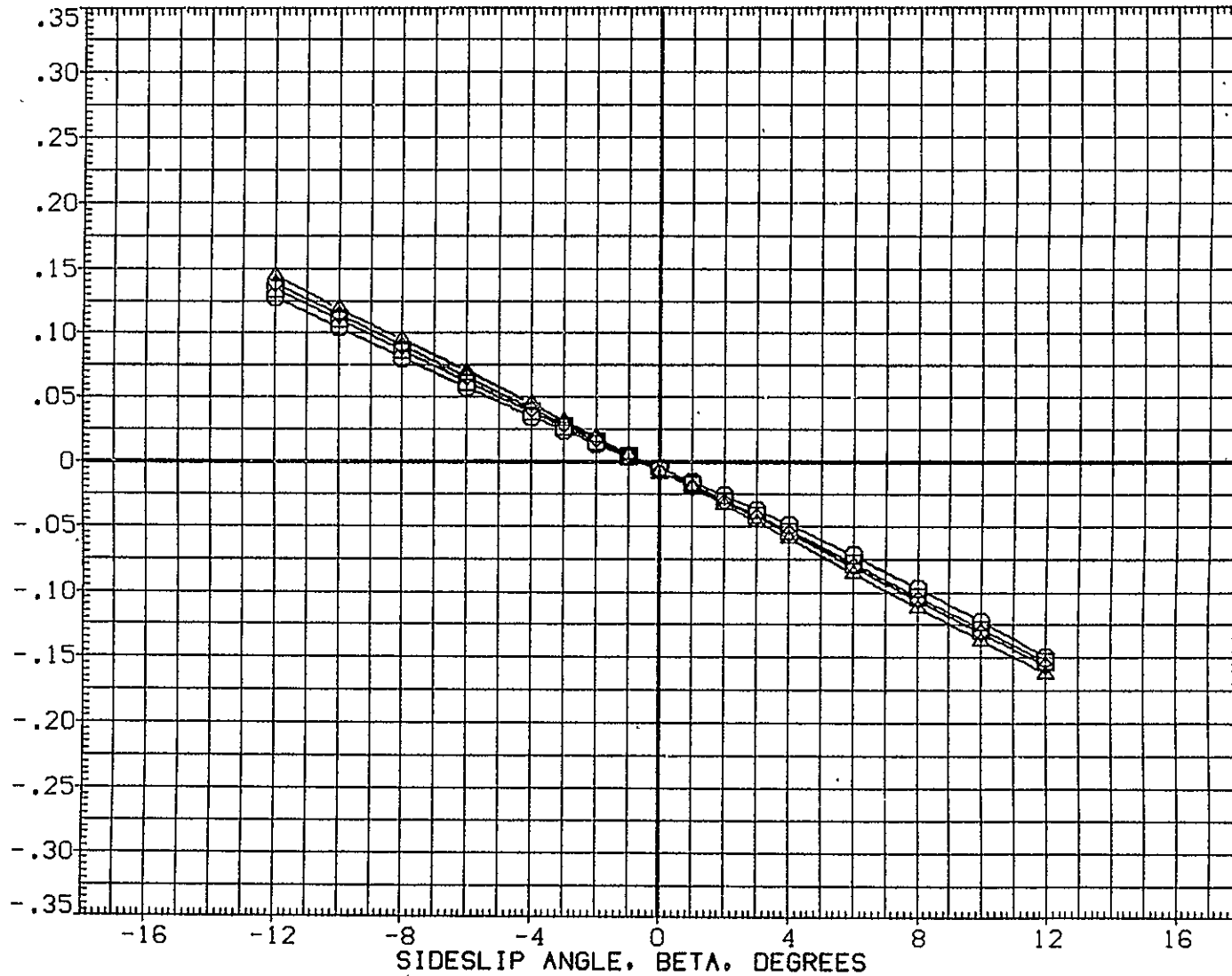


FIG.157 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) 747

CA5 K1 F0 H15.1A

MINUS 0RB TC5

(BGM101)

SYMBOL	MACH	PARAMETRIC VALUES
○	.300	ALPHA: 2.000 STAB -1.000
□	.500	ELV-1B .000 ELV-0B .000
◇	.600	S1-2 .000 S3-4 45.000
△	.700	S5-6 20.000 10RB 7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

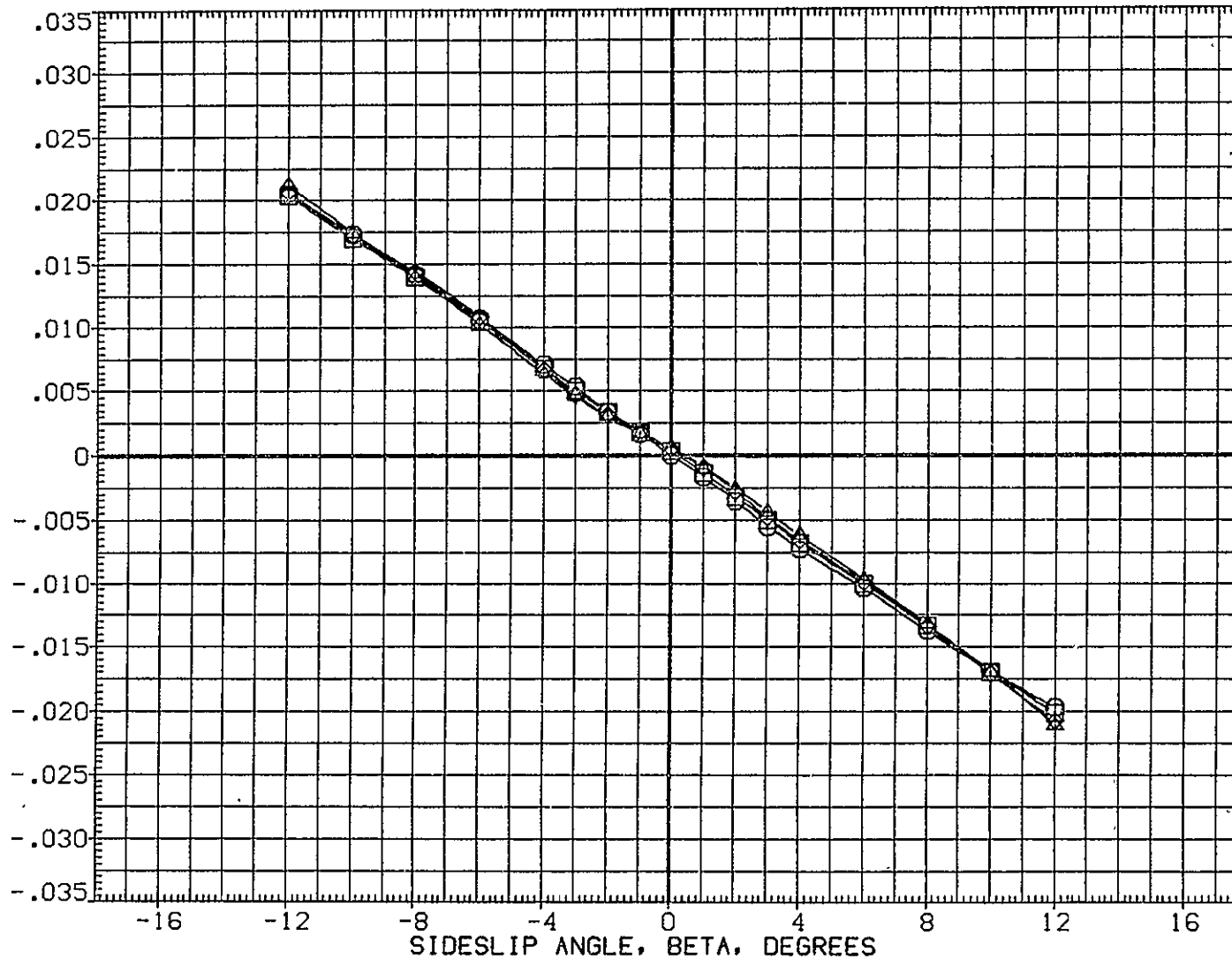


FIG.157 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) 747



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-OB	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.700	S5-6	20.000	ICRB	7.850

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

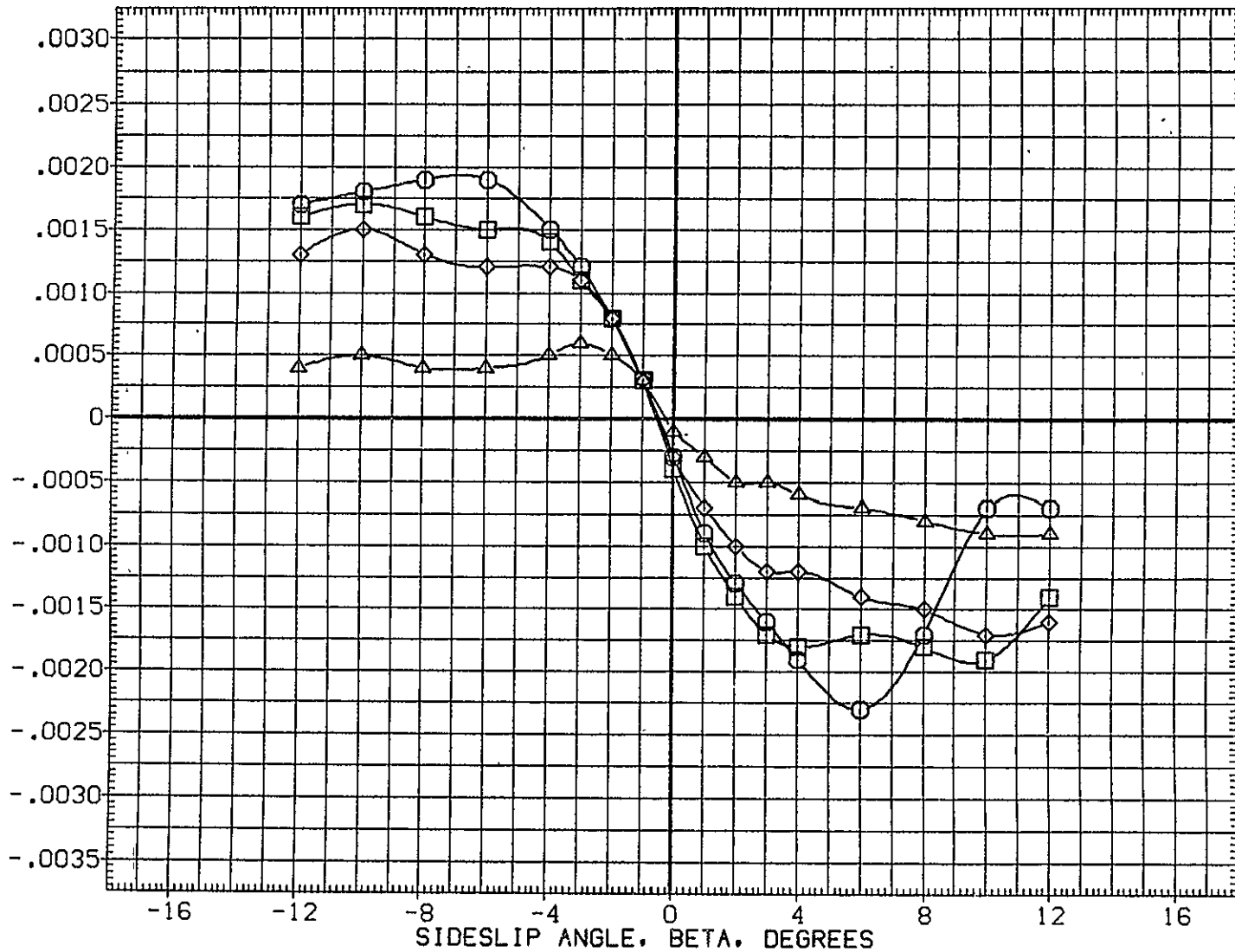


FIG.157 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) 747

CA5 ORB TC5 AT38.2A (PRES. K1 FO H15.1A (XGM101)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	ALPHA1	2.000	STAB	-1.000	SREF	2690.0000	SQ.FT.
□	.500	ELV-1B	.000	ELV-0B	.000	LREF	474.8100	IN.
◇	.600	S1-2	.000	S3-4	45.000	BREF	936.6800	IN.
△	.700	S5-6	20.000	10RB	7.850	XMRP	1109.0000	IN. X0
						YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

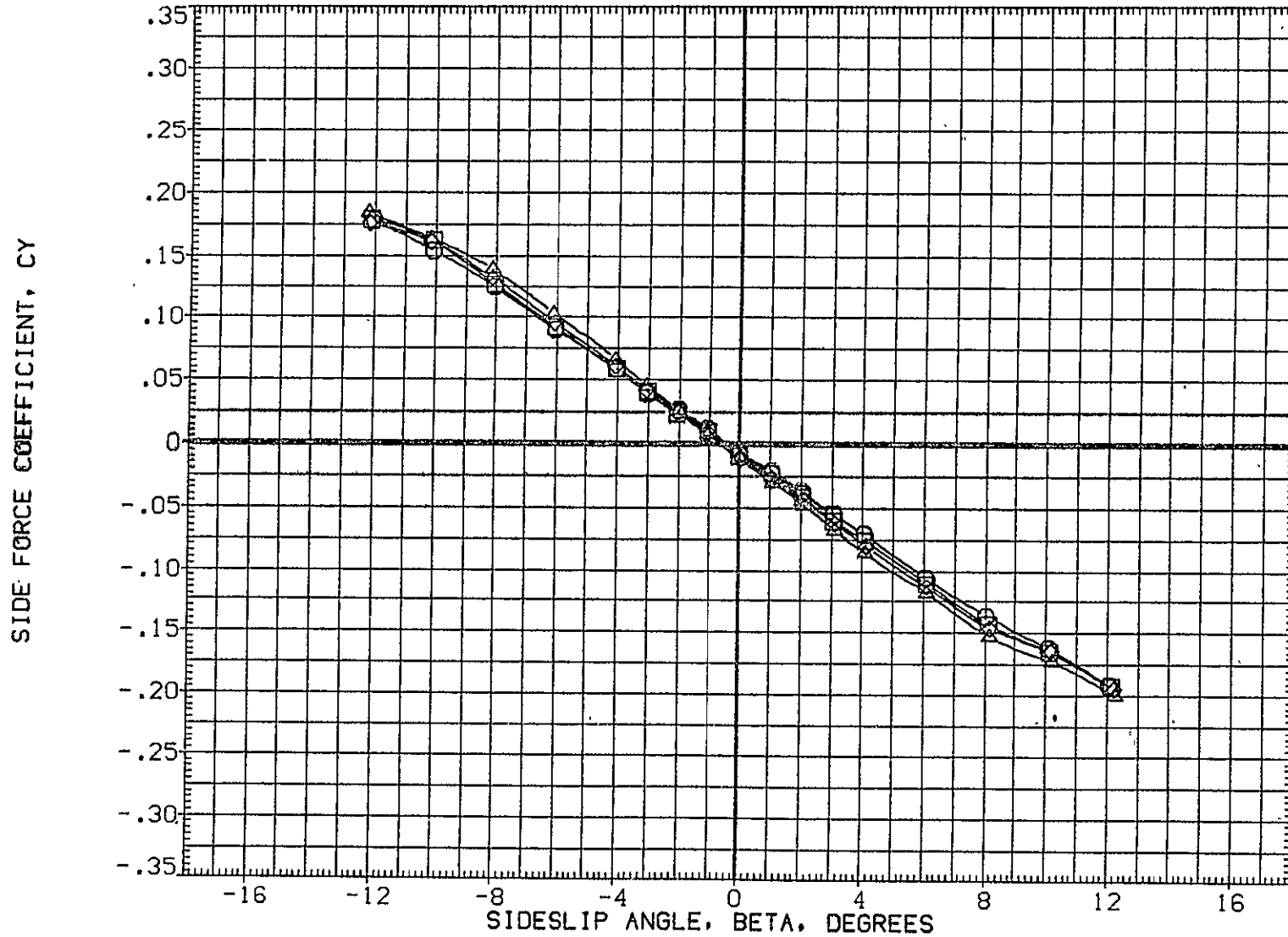


FIG.158 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) ORB

SYMBOL	MACH	PARAMETRIC VALUES					REFERENCE INFORMATION		
		ALPHA I	2.000	STAB	-1.000	SREF	2690.0000	SQ.FT.	
○	.299	ALPHA I	2.000	STAB	-1.000	LREF.	474.8100	IN.	
□	.500	ELV-1B	.000	ELV-0B	.000	BREF	936.6800	IN.	
◇	.600	S1-2	.000	S3-4	45.000	XMRP	1109.0000	IN. X0	
△	.700	S5-6	20.000	10RB	7.850	YMRP	.0000	IN. Y0	
						ZMRP	375.0000	IN. Z0	
						SCALE	.0300		

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

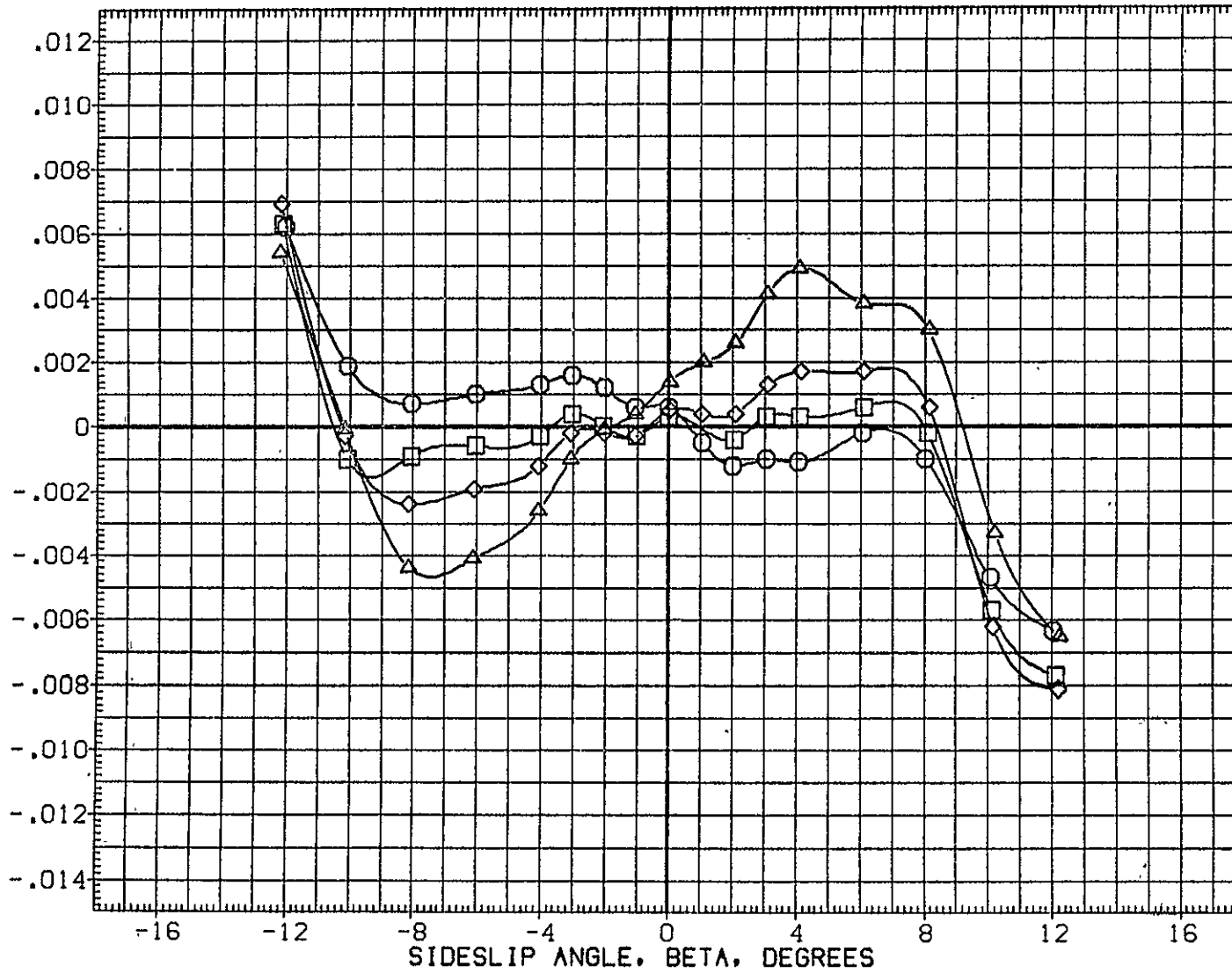


FIG.158 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) ORB

CA5 ORB TC5 AT38.2A (PRES. K1 FO H15.1A (XGM101)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	ALPHA1	2.000	STAB	-1.000
□	.500	ELV-1B	.000	ELV-0B	.000
◇	.600	S1-2	.000	S3-4	45.000
△	.700	S5-6	20.000	IORB	7.850

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

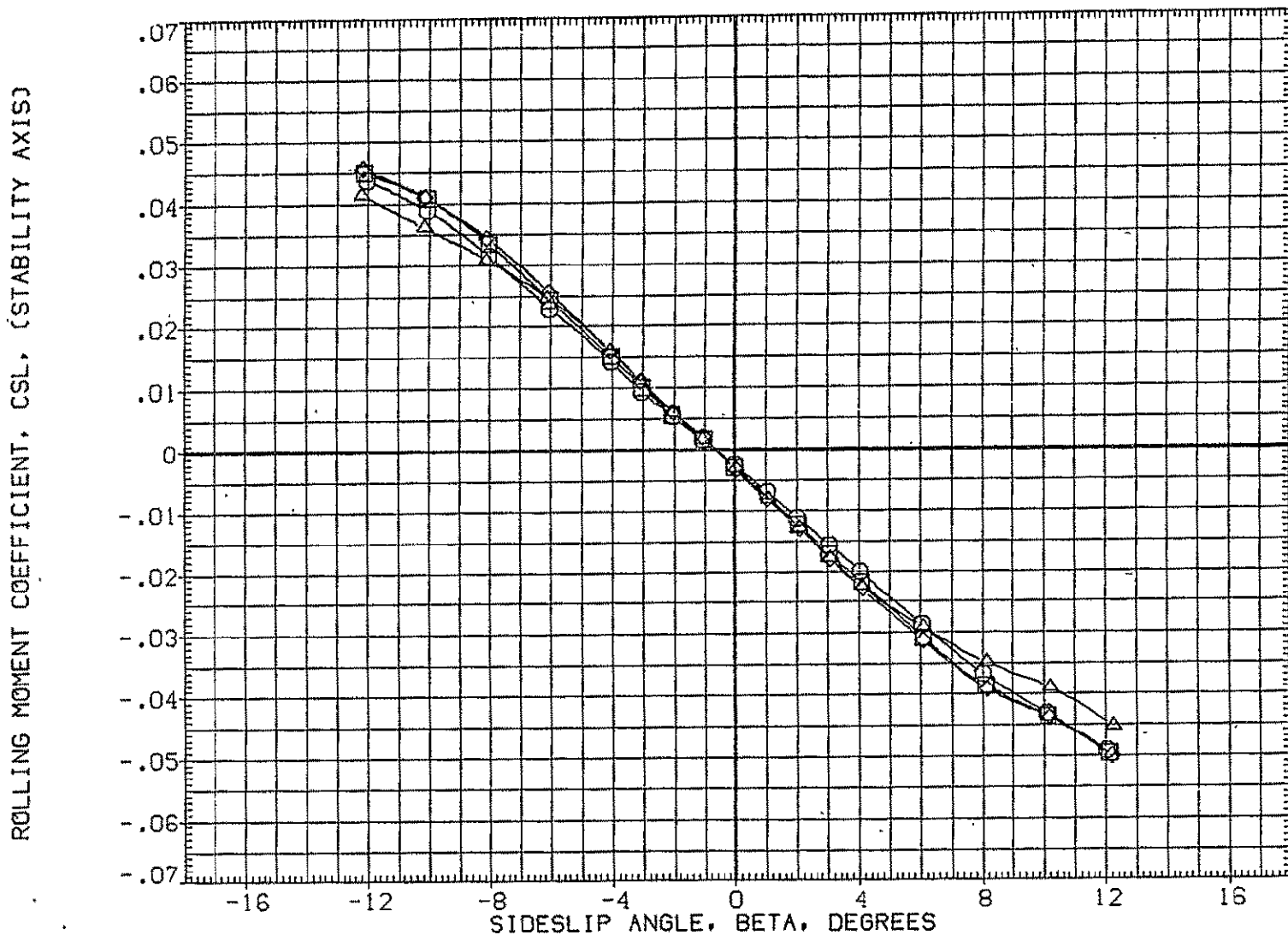


FIG.158 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=2,DE=0/0 (S=-1) ORB

SYMBOL

○  
◇  
□  
△  
▽

MACH

.150  
.300  
.500  
.600  
.700

PARAMETRIC VALUES

ALPHA1 6.000 STAB -1.000  
ELV-1B .000 ELV-0B .000  
S1-2 .000 S3-4 45.000  
S5-6 20.000 10RB 7.850

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
LREF 327.8000 IN.  
BREF 2348.0000 IN.  
XMRP 1339.9100 IN. XC  
YMRP .0000 IN. YC  
ZMRP 190.7500 IN. ZC  
SCALE .0300

SIDE FORCE COEFFICIENT, CY

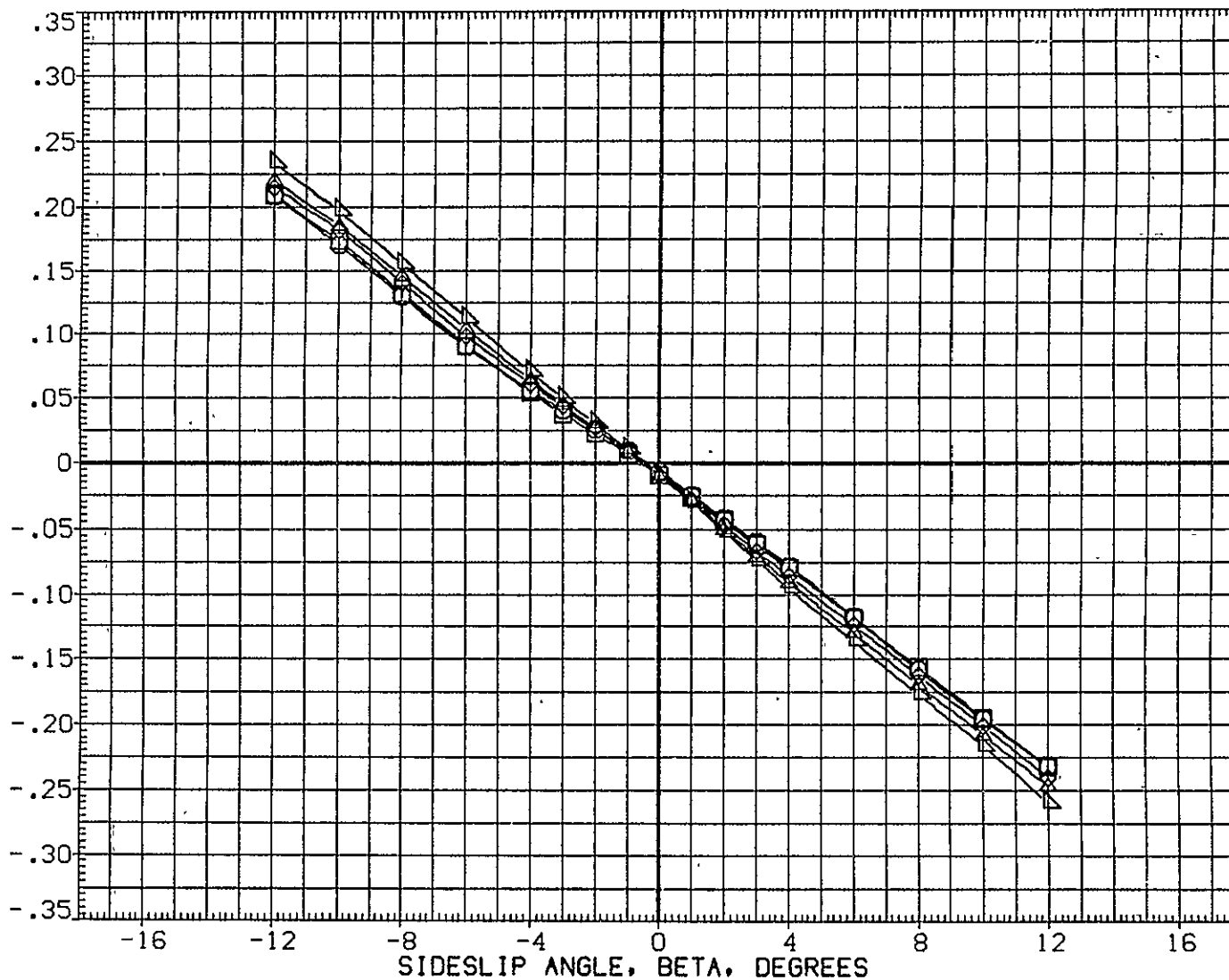


FIG.159 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) TOTAL

CA5 K1 F0 H15.1A (PLUS. 0RB TC5 AT38.2A)(RGM102)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	-1.000	SREF	5500.0000	50.FT.
□	.300	ELV-1B	.000	ELV-0B	.000	LREF	327.8000	IN.
◇	.500	S1-2	.000	S3-4	45.000	BREF	2348.0000	IN.
△	.600	S5-6	20.000	10RB	7.850	XMRP	1339.9100	IN. XC
▽	.700					YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

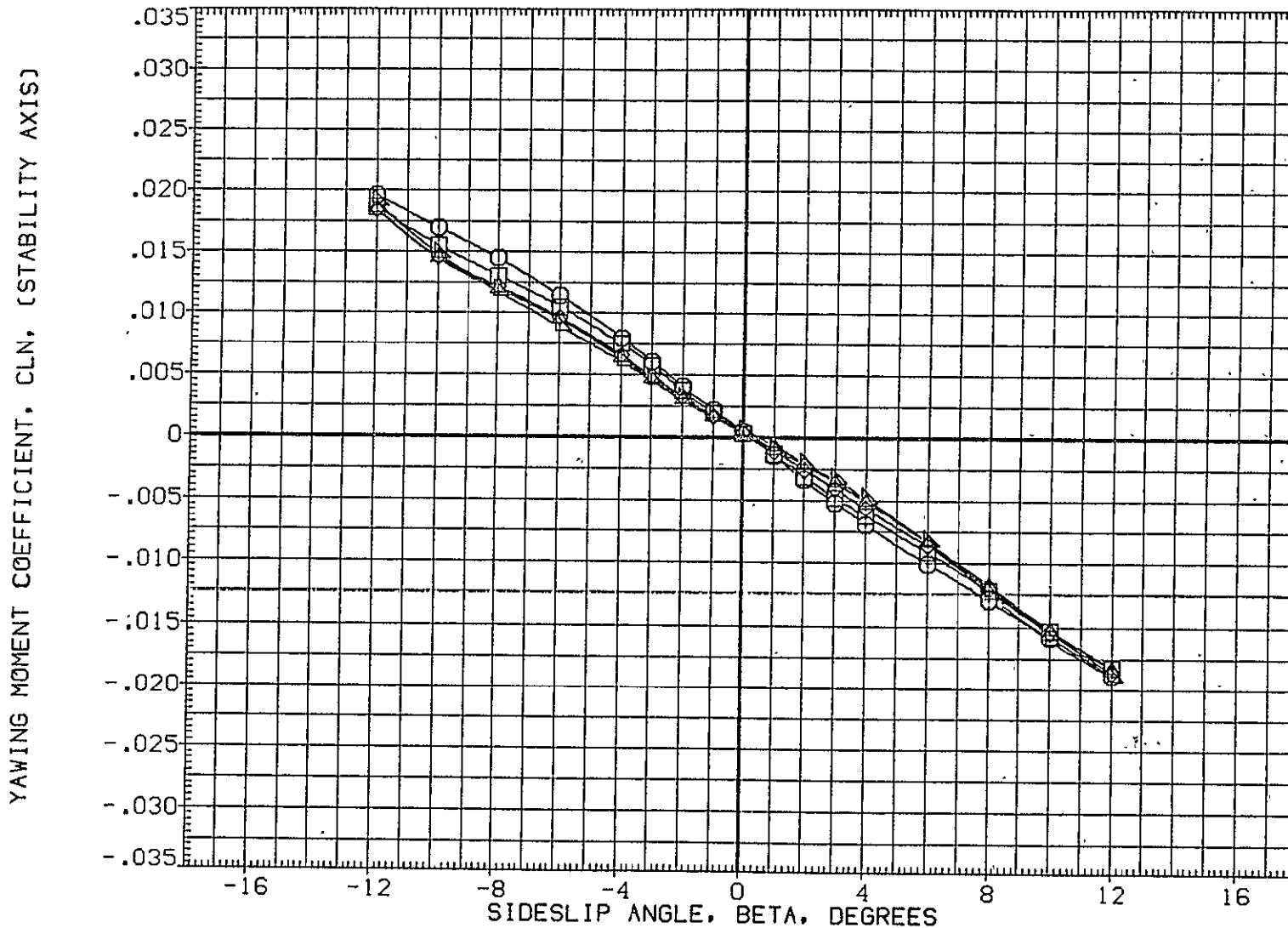


FIG.159 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) TOTAL

SYMBOL	MACH	PARAMETRIC VALUES
○	.150	ALPHA1 6.000 STAB -1.000
□	.300	ELV-1B .000 ELV-0B .000
◇	.500	S1-2 .000 S3-4 45.000
△	.600	S5-6 20.000 10RB 7.850
▽	.700	

REFERENCE INFORMATION		
SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

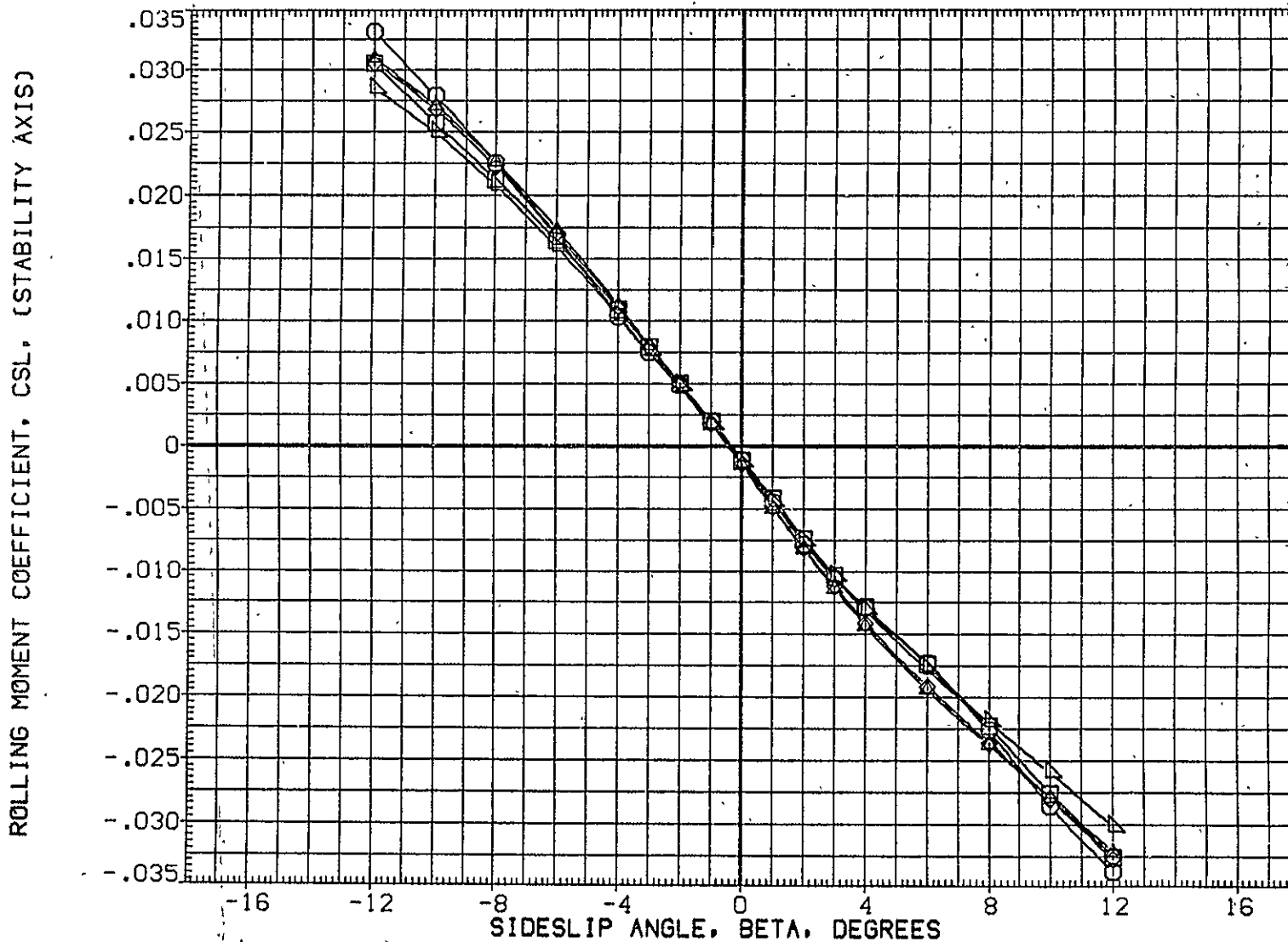


FIG.159 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALP1=6,DE=0/0 (S=-1) TOTAL

CA5 K1 F0 H15.1A

MINUS ORB TC5

(BGM102)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	ALPHA1	6.000	STAB	-1.000
.300	ELV-1B	.000	ELV-OB	.000
.500	S1-2	.000	S3-4	45.000
.600	S5-6	20.000	ICRB	7.850
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

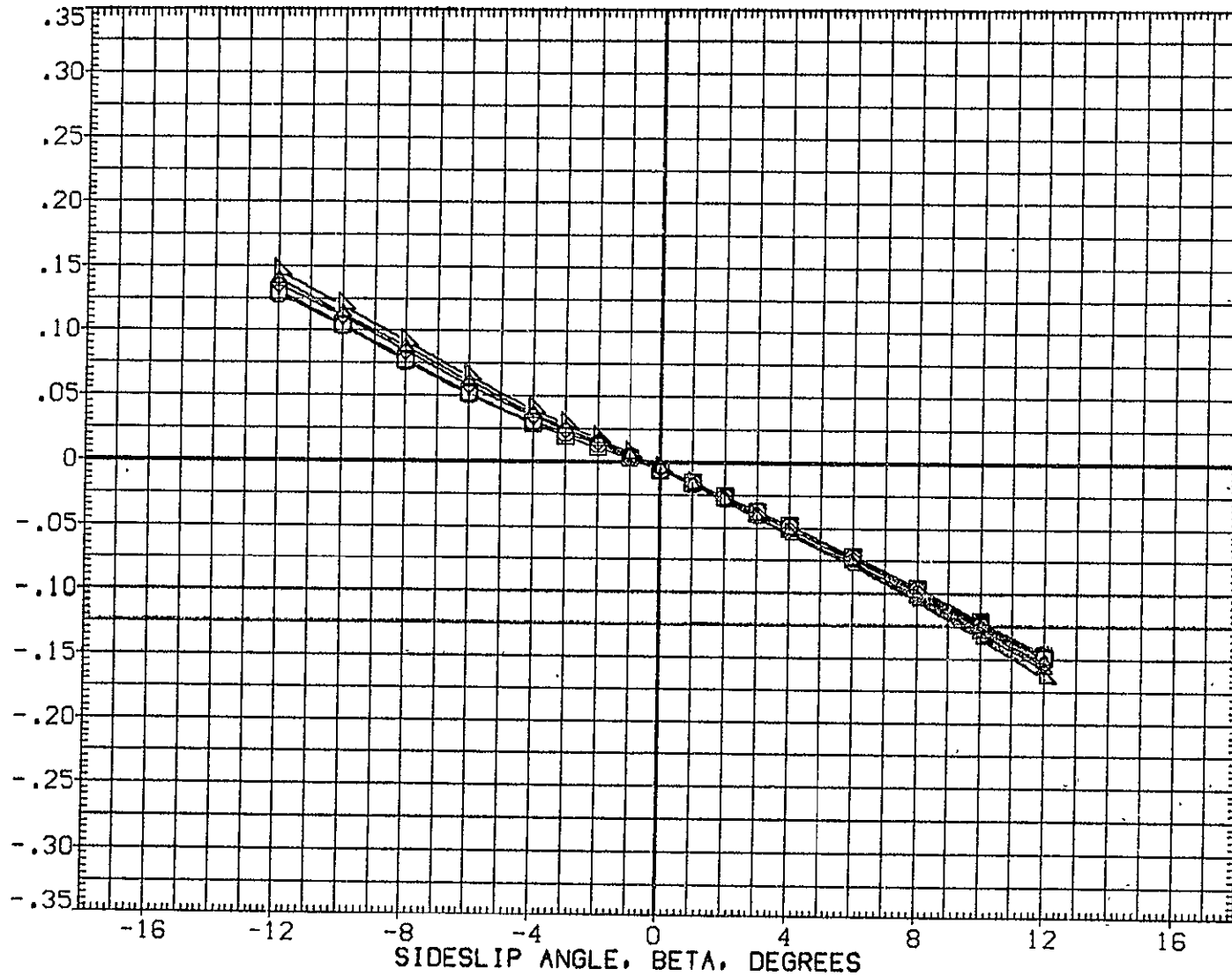


FIG.160 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) 747



SYMBOL	MACH	PARAMETRIC VALUES
○	.150	ALPHA1 6.000 STAB -1.000
□	.300	ELV-1B .000 ELV-0B .000
◇	.500	S1-2 .000 S3-4 45.000
△	.600	S5-6 20.000 10RB 7.850
▽	.700	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

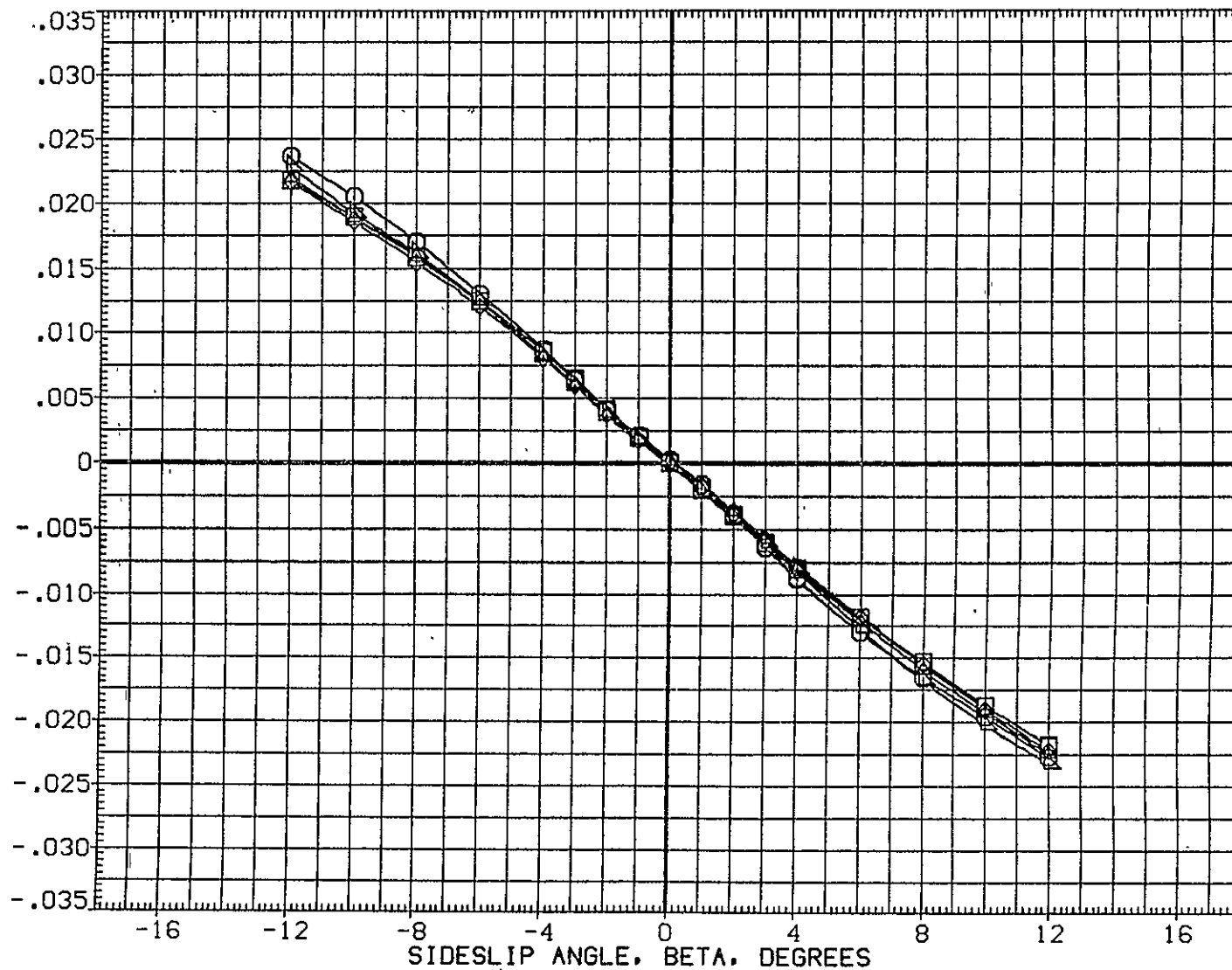


FIG.160 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) 747

CAS K1 FO H15.1A

MINUS ORB TC5

(BGM102)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	ALPHA1	6.000	STAB	-1.000
□	.300	ELV-1B	.000	ELV-0B	.000
◇	.500	S1-2	.000	S3-4	45.000
△	.600	S5-6	20.000	10RB	7.850
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

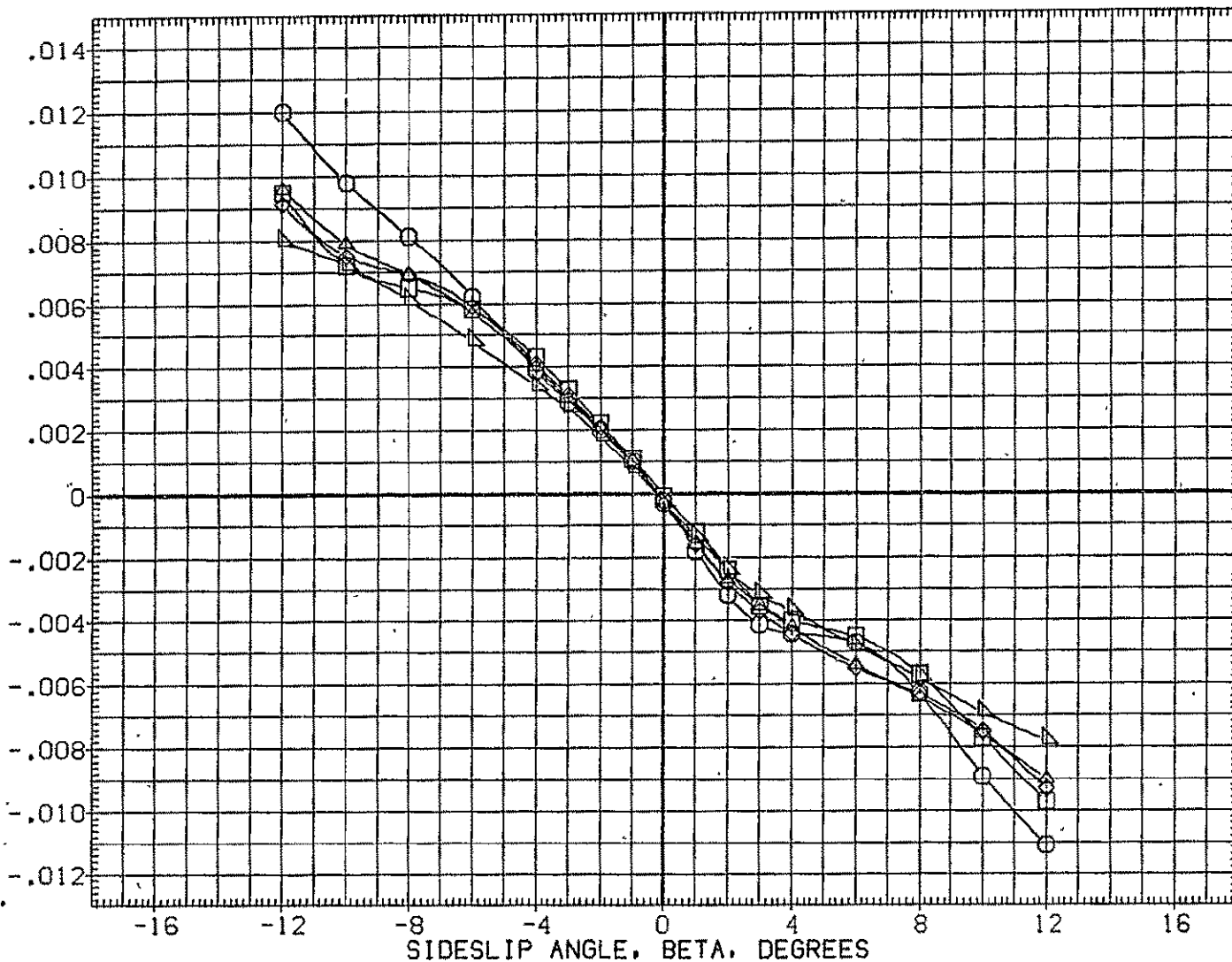


FIG.160 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) 747

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	.151	ALPHA I 6.000 STAB -1.000	SREF 2690.0000 SQ.FT.
□	.300	ELV-1B .000 ELV-0B .000	LREF 474.8100 IN.
◇	.500	S1-2 .000 S3-4 45.000	BREF 936.6800 IN.
△	.600	S5-6 20.000 I0RB 7.850	XMRP 1109.0000 IN. X0
▽	.700		YMRP .0000 IN. Y0
			ZMRP 375.0000 IN. Z0
			SCALE .0300

SIDE FORCE COEFFICIENT, CY

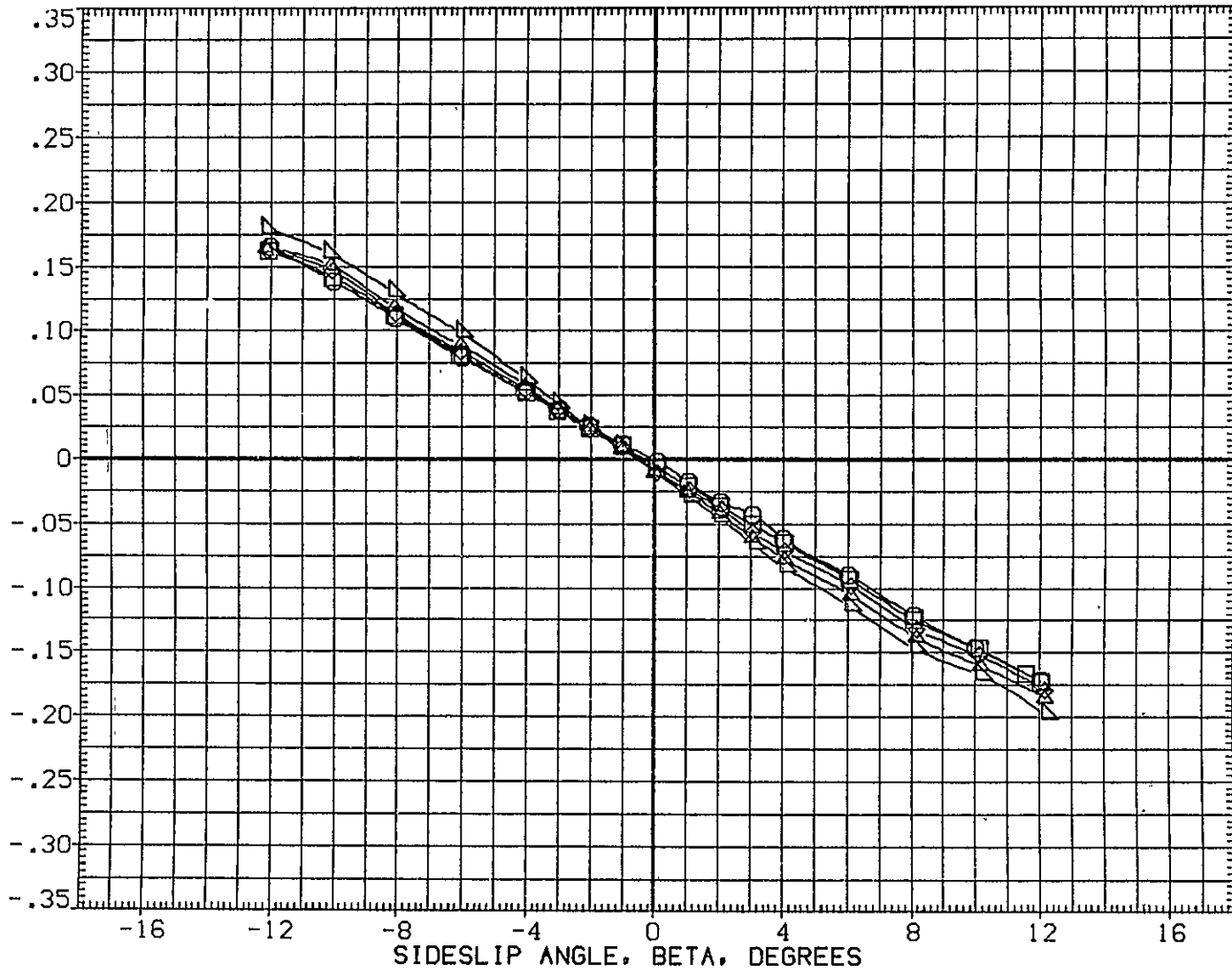


FIG.161 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) 0RB

CA5 ORB TC5 AT38.2A' (PRES..K1 FO H15.1A

(XGM102)

SYMBOL	MACH	PARAMETRIC VALUES
○	.151	ALPHA1 6.000 STAB -1.000
□	.300	ELV-1B .000 ELV-08 .000
◇	.500	SI-2 .000 S3-4 45.000
△	.600	SS-6 20.000 10RB 7.850
▽	.700	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. XC
YMRP	.0000	IN. YC
ZMRP	375.0000	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

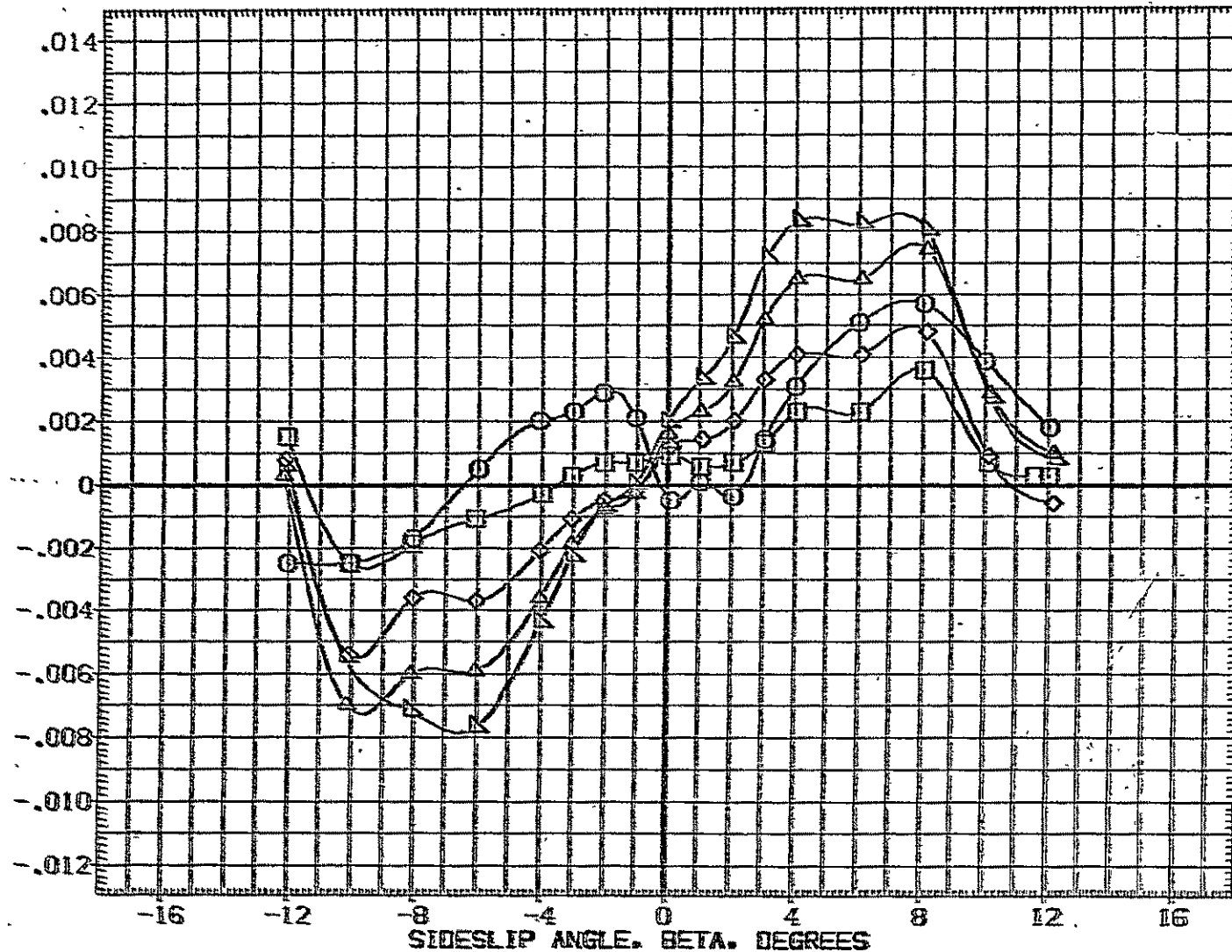


FIG.161 747+ORB(8 DEG)+STD SP.VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	6.000	STAB	-1.000	SREF	2690.0000	SQ.FT.
○	.151	ELV-1B	.000	ELV-0B	.000	LREF	474.8100	IN.
□	.300	S1-2	.000	S3-4	45.000	BREF	936.6800	IN.
◇	.500	S5-6	20.000	10RB	7.850	XMRP	1109.0000	IN. X0
△	.600					YMRP	.0000	IN. Y0
▽	.700					ZMRP	375.0000	IN. Z0
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL. (STABILITY AXIS)

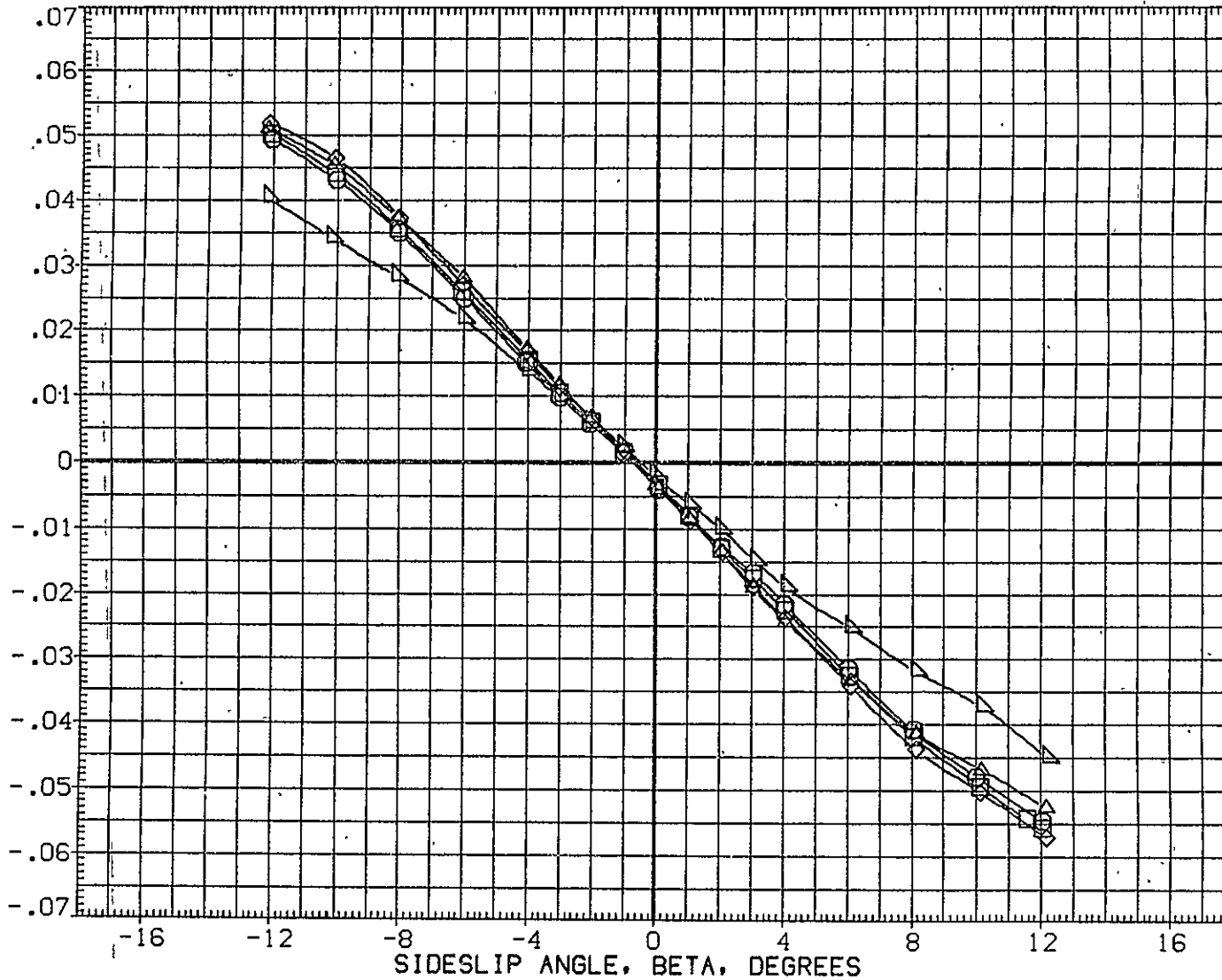


FIG.161 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=-1) 0RB

CA5 K1 F0 H15.1A

(PLUS. 0RB TC5 AT38.2A)(RGM103)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	ALPHAI	PARAMETRIC VALUES			
.150	6.000	STAB	1.000		
.300	ELV-1B	.000	ELV-0B	.000	
.500	S1-2	.000	S3-4	45.000	
.600	S5-6	20.000	10RB	7.850	
.700					

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

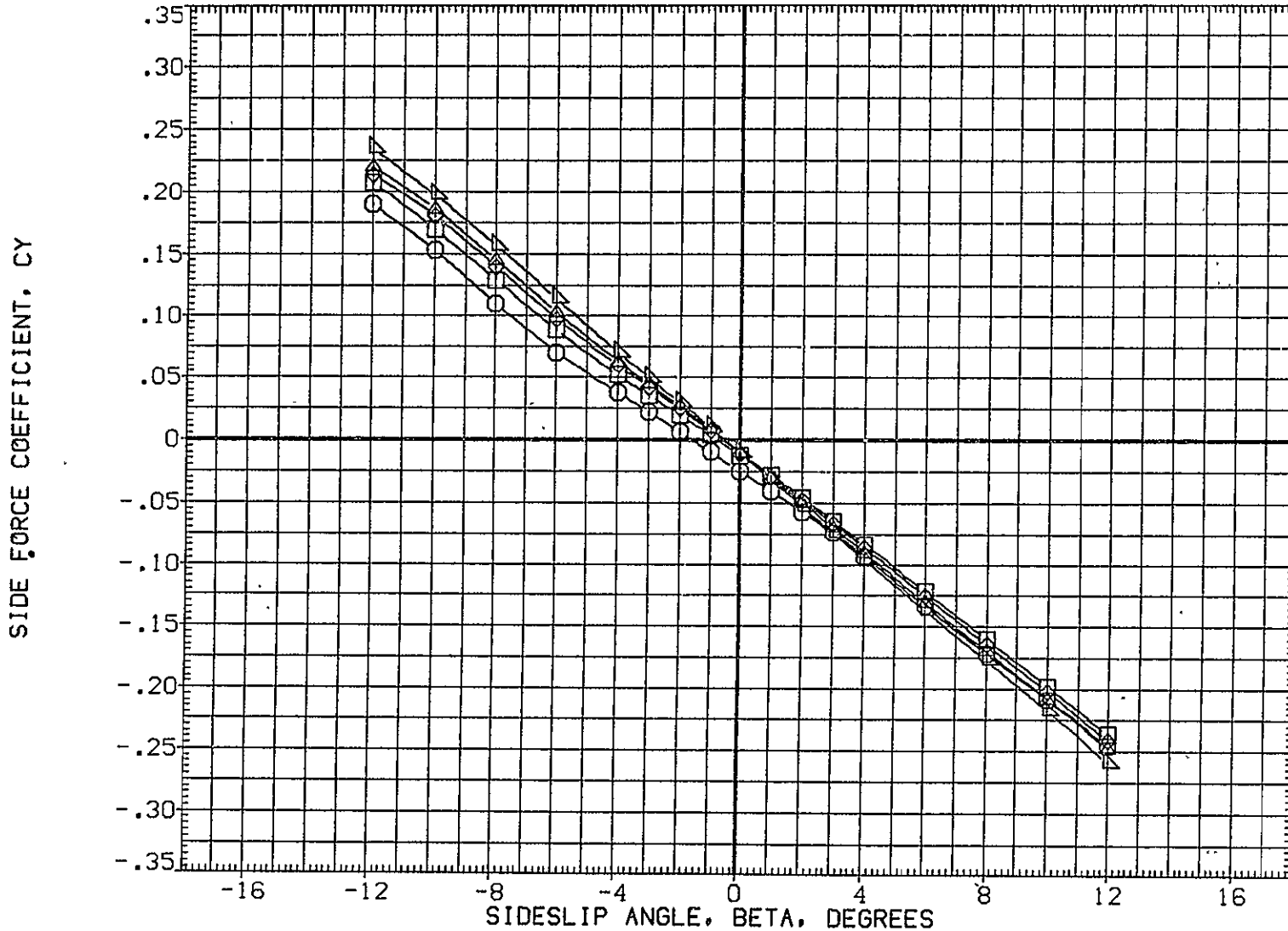


FIG.162 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=+1) TOTAL

8-7

CA5 K1 F0 H15.1A

(PLUS. 0RB TC5 AT38.2A)(RGM103)

SYMBOL	MACH	PARAMETRIC VALUES
○	.150	ALPHA1 6.000 STAB 1.000
◇	.300	ELV-1B .000 ELV-0B .000
□	.500	S1-2 .000 S3-4 45.000
△	.600	S5-6 20.000 10RB 7.850
▽	.700	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

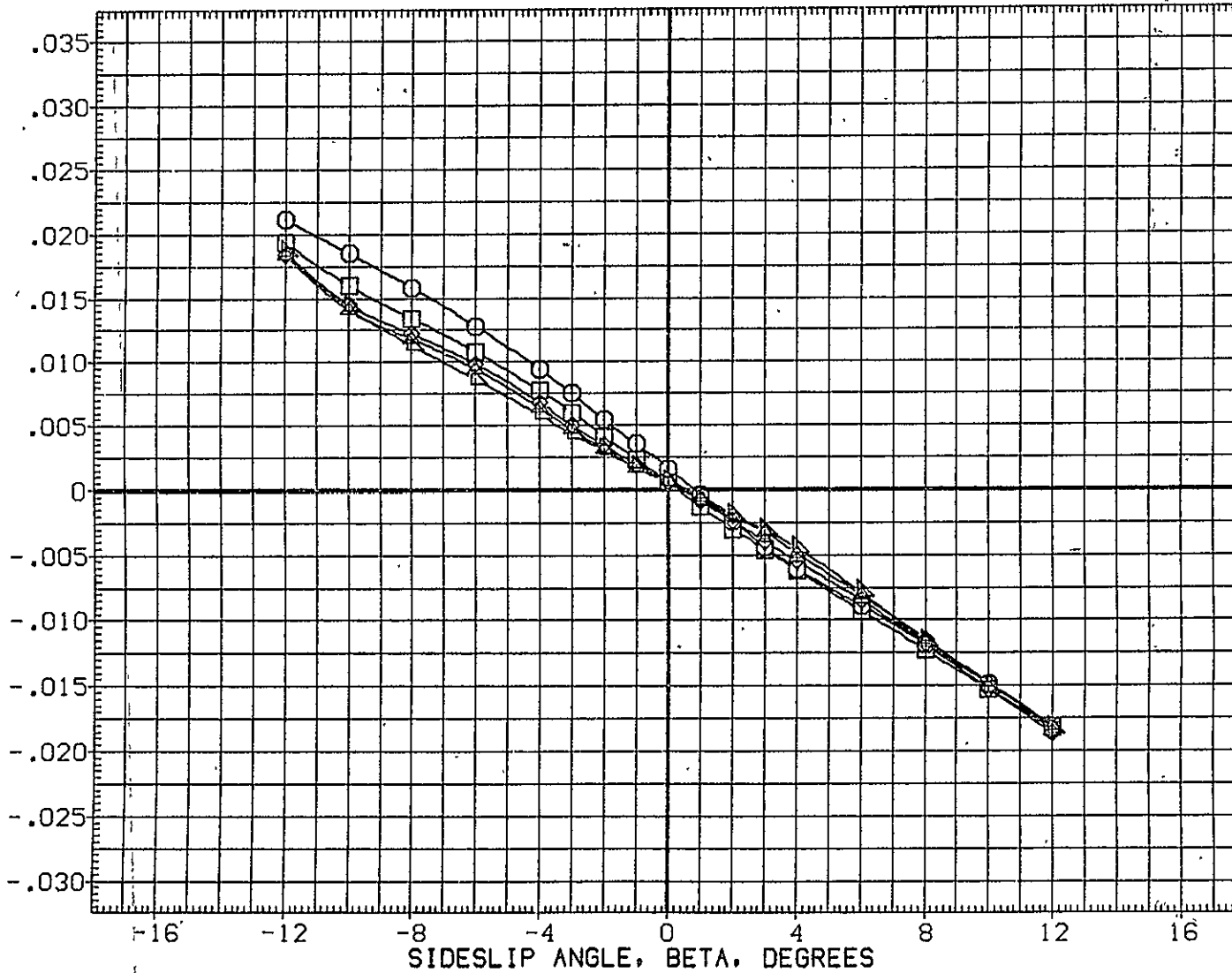


FIG.162 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALP1=6,DE=0/0 (S=+1) TOTAL

CA5 K1 F0 H15.1A

(PLUS. ORB TC5 AT38.2A)(RGM103)

SYMBOL	MACH	ALPHA	PARAMETRIC VALUES			
○	.150	ALPHA1	6.000	STAB	1.000	
□	.300	ELV-1B	.000	ELV-OB	.000	
◇	.500	S1-2	.000	S3-4	45.000	
△	.600	20.000	1ORB	7.850		
	.700					

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

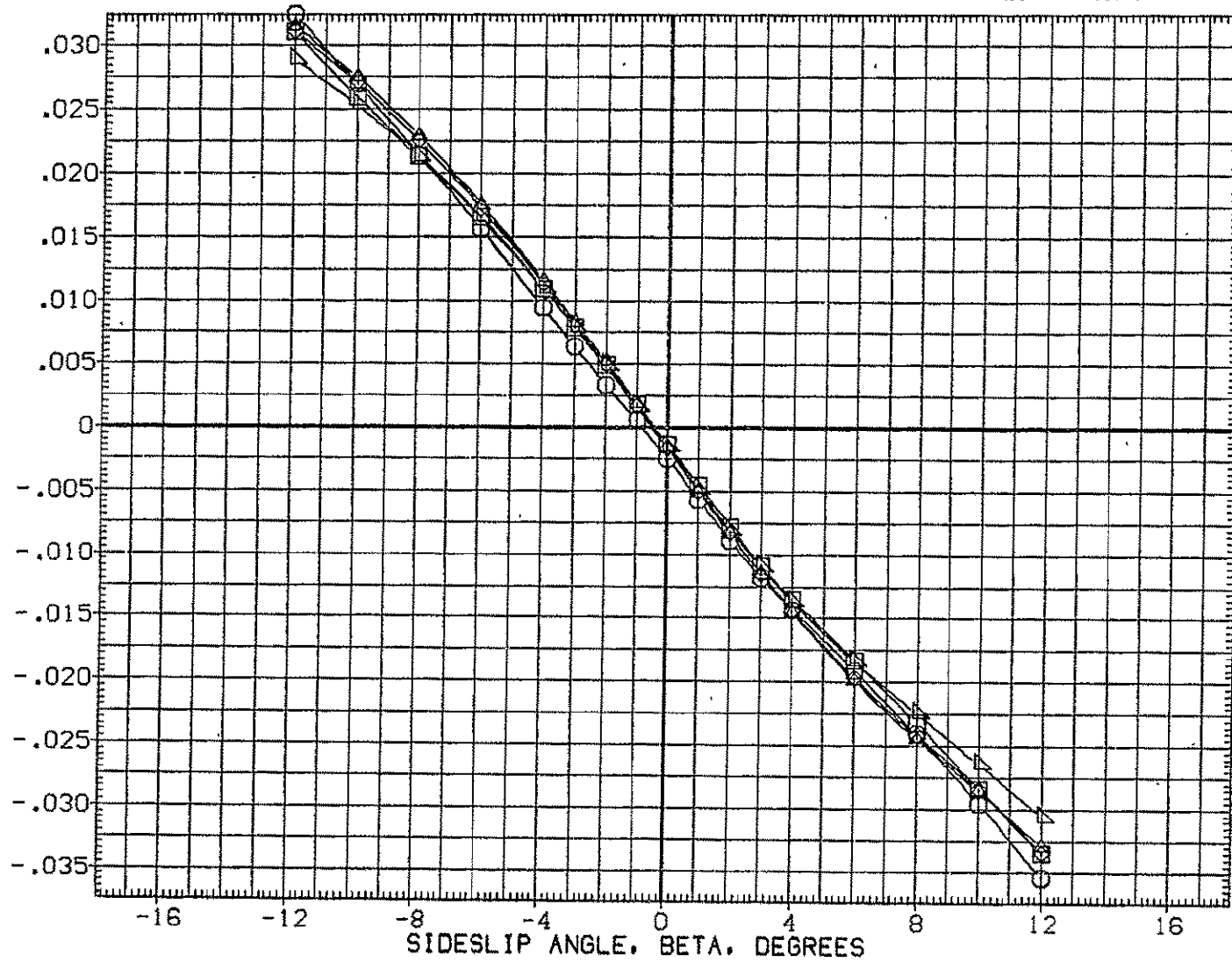


FIG.162 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=+1) TOTAL



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	1.000	SREF	5500.0000	SQ.FT.
□	.300	ELV-1B	.000	ELV-0B	.000	LREF	327.8000	IN.
◇	.500	S1-2	.000	S3-4	45.000	BREF	2348.0000	IN.
△	.600	S5-6	20.000	10RB	7.850	XMRP	1339.9100	IN. XC
▽	.700					YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

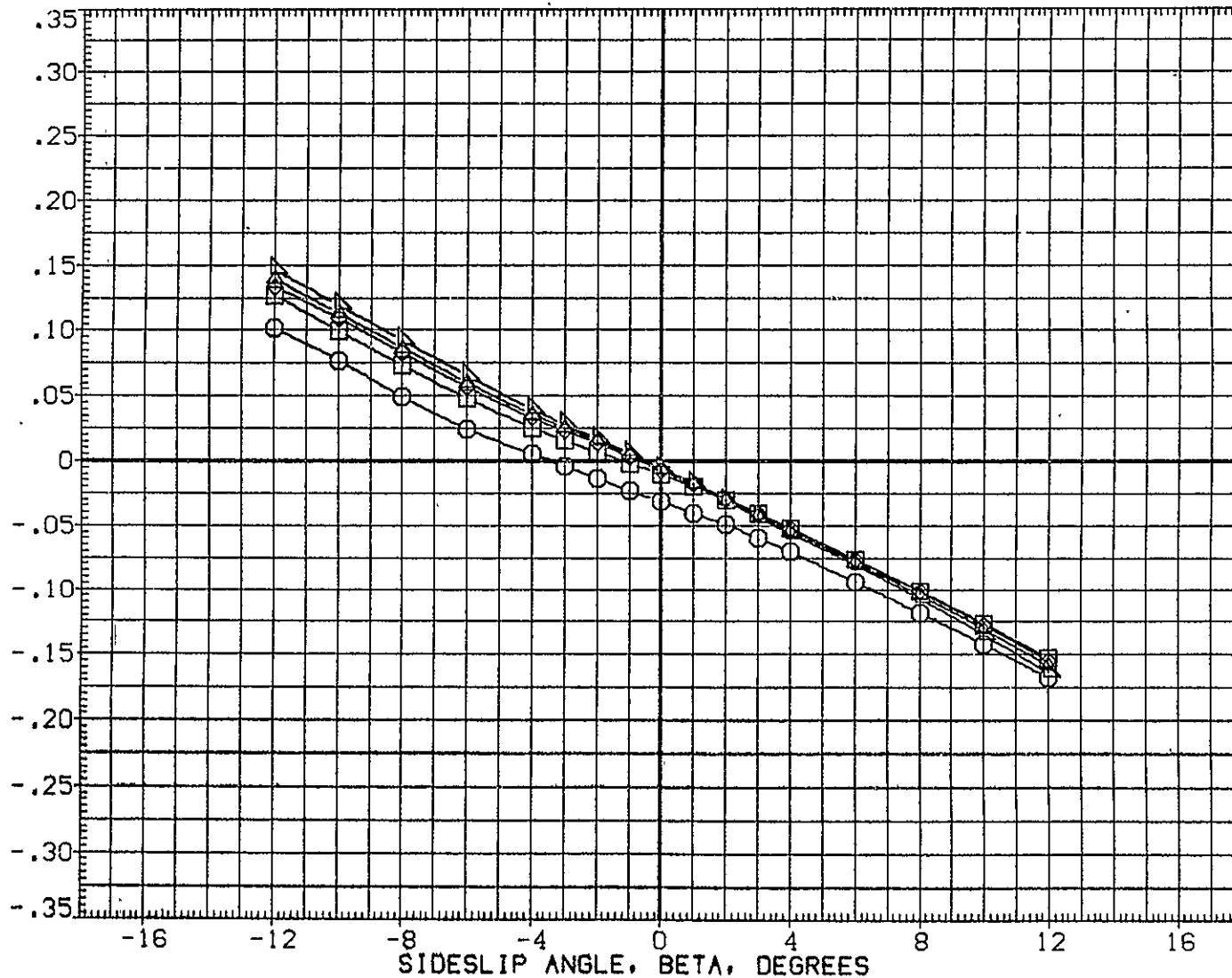


FIG.163 747+0RB(8 DEG)+STD SP, VERT TAIL OFF, FLAPS UP, ALPI=6, DE=0/0 (S=+1) 747

CA5 KI FO H15.1A

MINUS ORB TC5 AT38.2A (BGM103)

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.150	ALPHA	6.000	STAB	1.000
.300	ELV-1B	.000	ELV-0B	.000
.500	S1-2	.000	S3-4	45.000
.600	S5-6	20.000	IORB	7.850
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

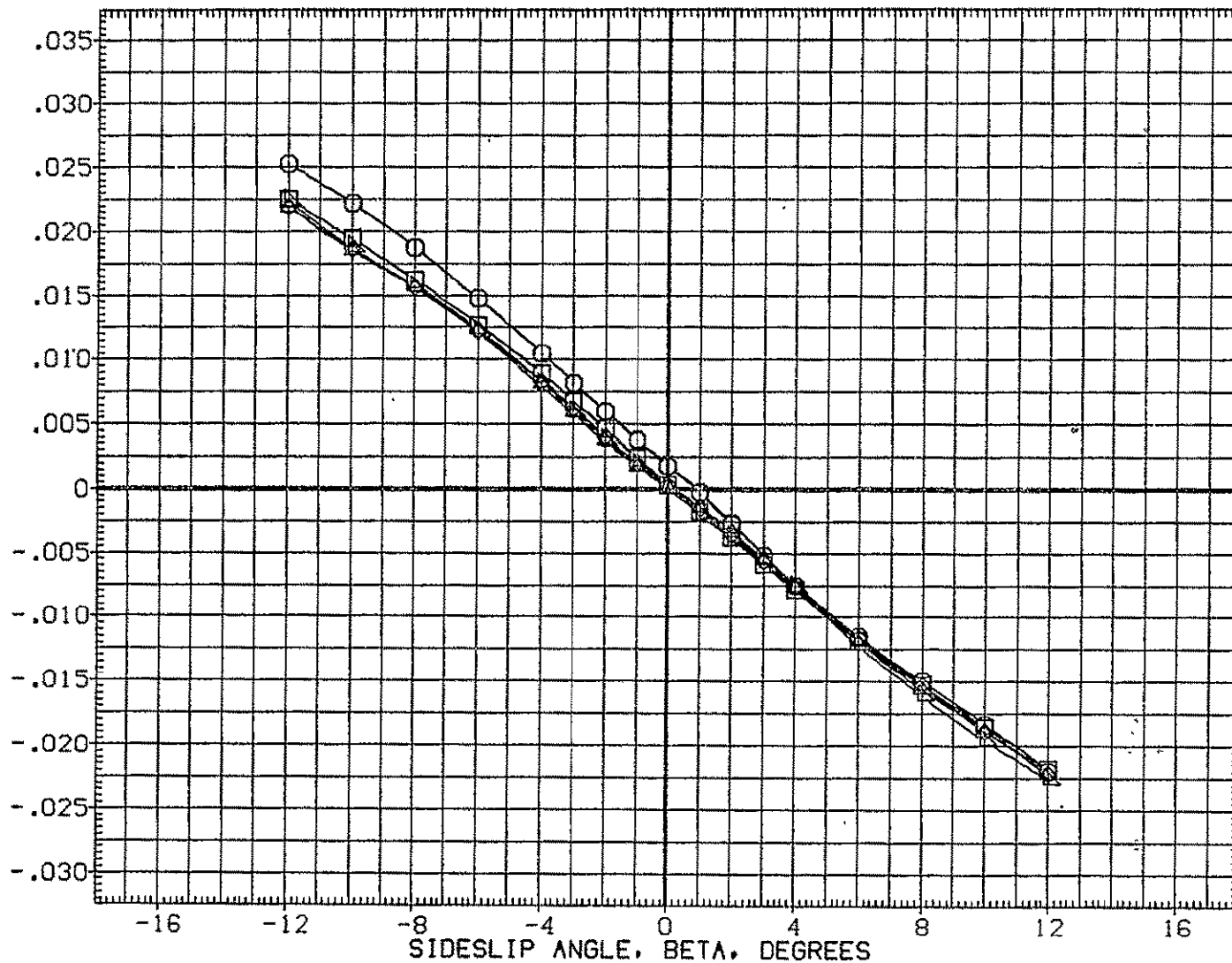


FIG.163 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=+1) 747

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	ALPHAI	PARAMETRIC VALUES	STAB	
.150	ALPHAI	6.000	STAB	1.000
.300	ELV-1B	.000	ELV-0B	.000
.500	S1-2	.000	S3-4	45.000
.600	S5-6	20.000	10RB	7.850
.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

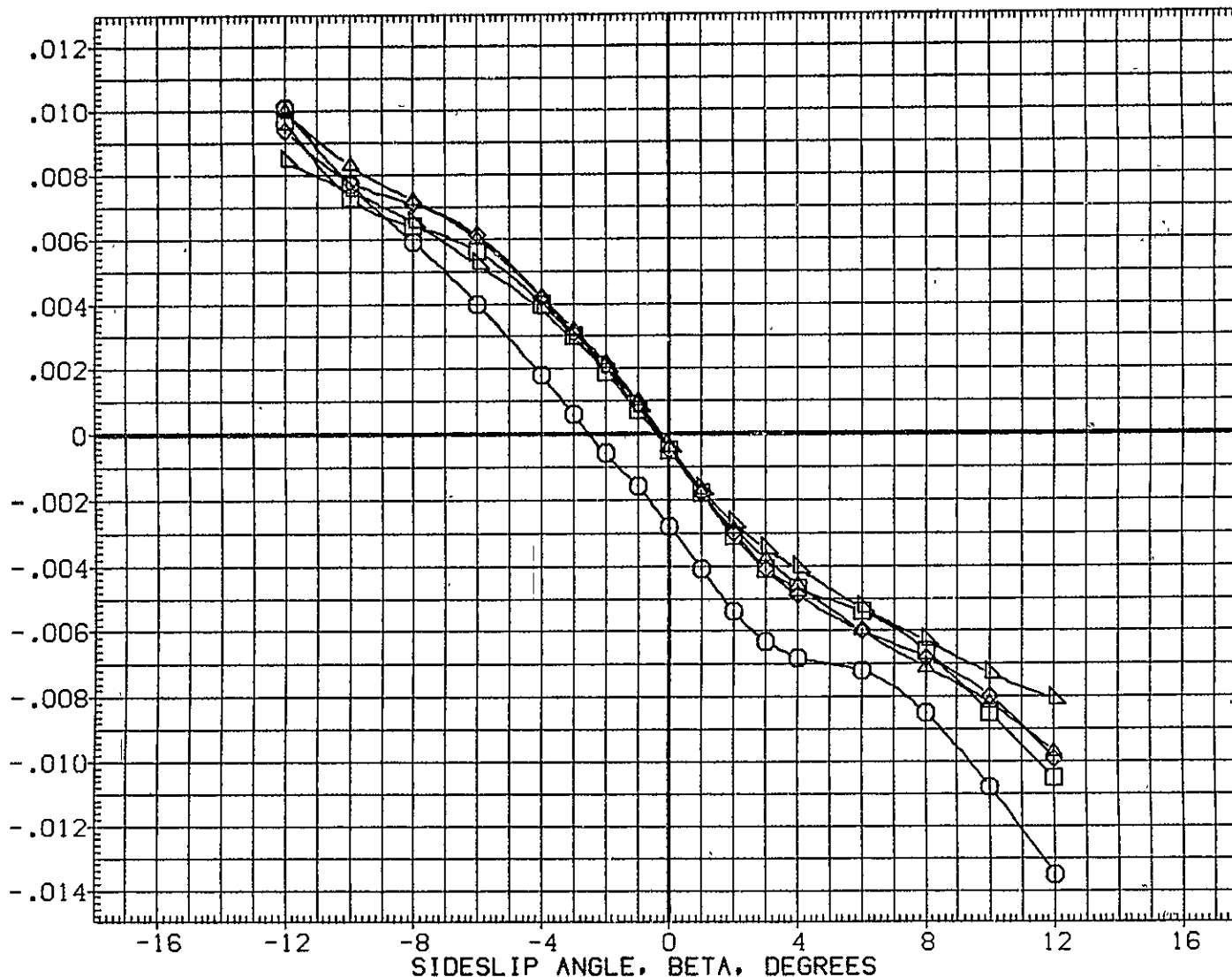


FIG.163 747+0RB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=+1) 747

CAS 0RB TC5, AT38.2A (PRES. K1 FO H15.1A (XGM103)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	6,000	STAB	1,000	SREF	2690.0000	50, FT.
○	.149	ELV-1B	.000	ELV-0B	.000	LREF	474.8100	IN.
□	.301	S1-2	.000	S3-4	45,000	BREF	936.6800	IN.
◇	.501	S5-6	20,000	10RB	7,850	XMRP	1109.0000	IN. X0
△	.600					YMRP	.0000	IN. Y0
▽	.700					ZMRP	375.0000	IN. Z0
						SCALE	.0300	

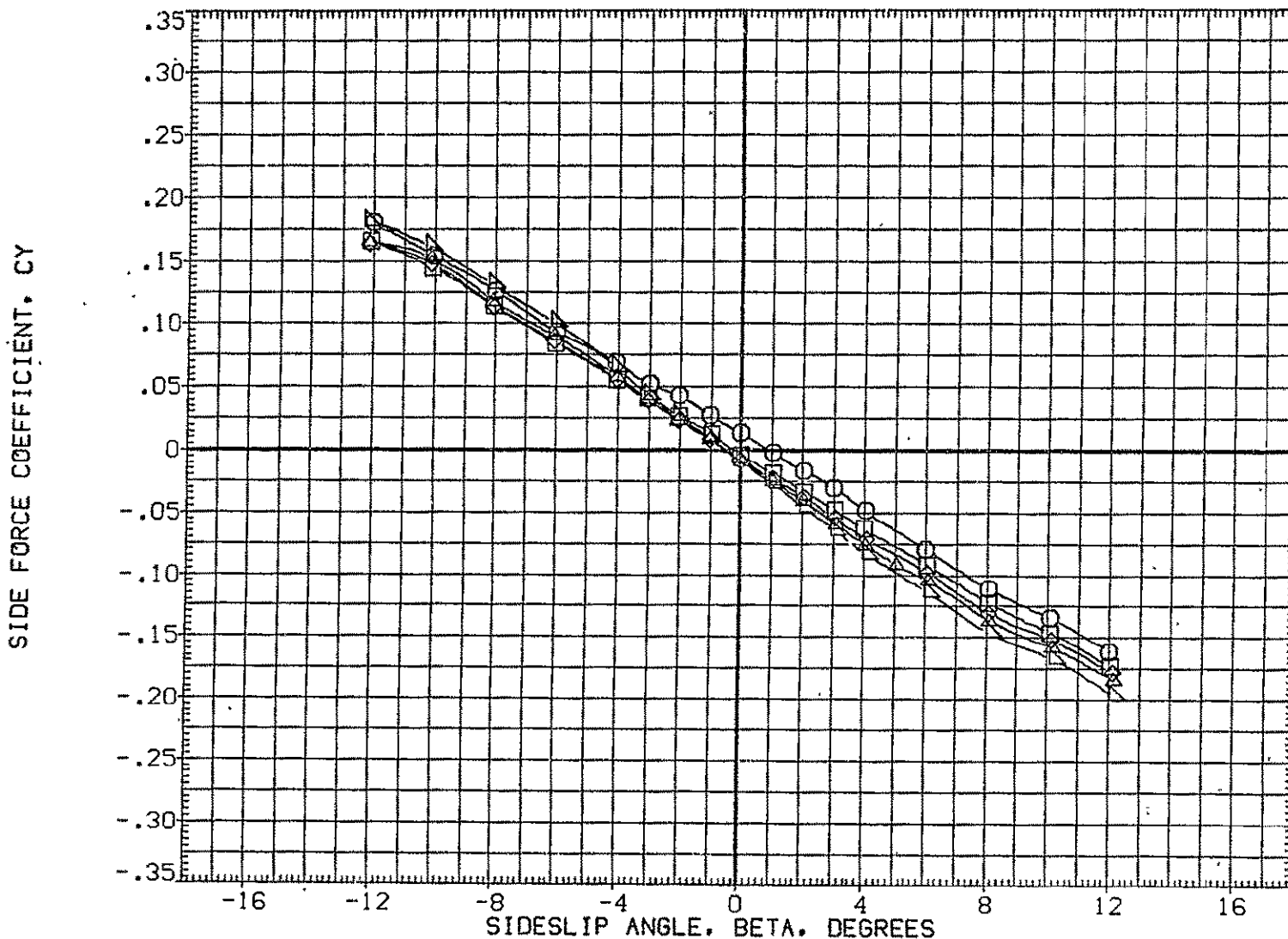


FIG.164 747+0RB(8 DEG)+STD SP, VERT TAIL OFF, FLAPS UP, ALPI=6, DE=0/0 (S=+1) 0RB

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES			REFERENCE INFORMATION		
○	.149	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	SQ.FT.
□	.301	ELV-1B	.000	ELV-0B	.000	LREF	474.8100	IN.
◇	.501	S1-2	.000	S3-4	45.000	BREF	936.6600	IN.
△	.600	20.000	10RB	7.850	XMRP	1109.0000	IN. X0	
▽	.700					YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

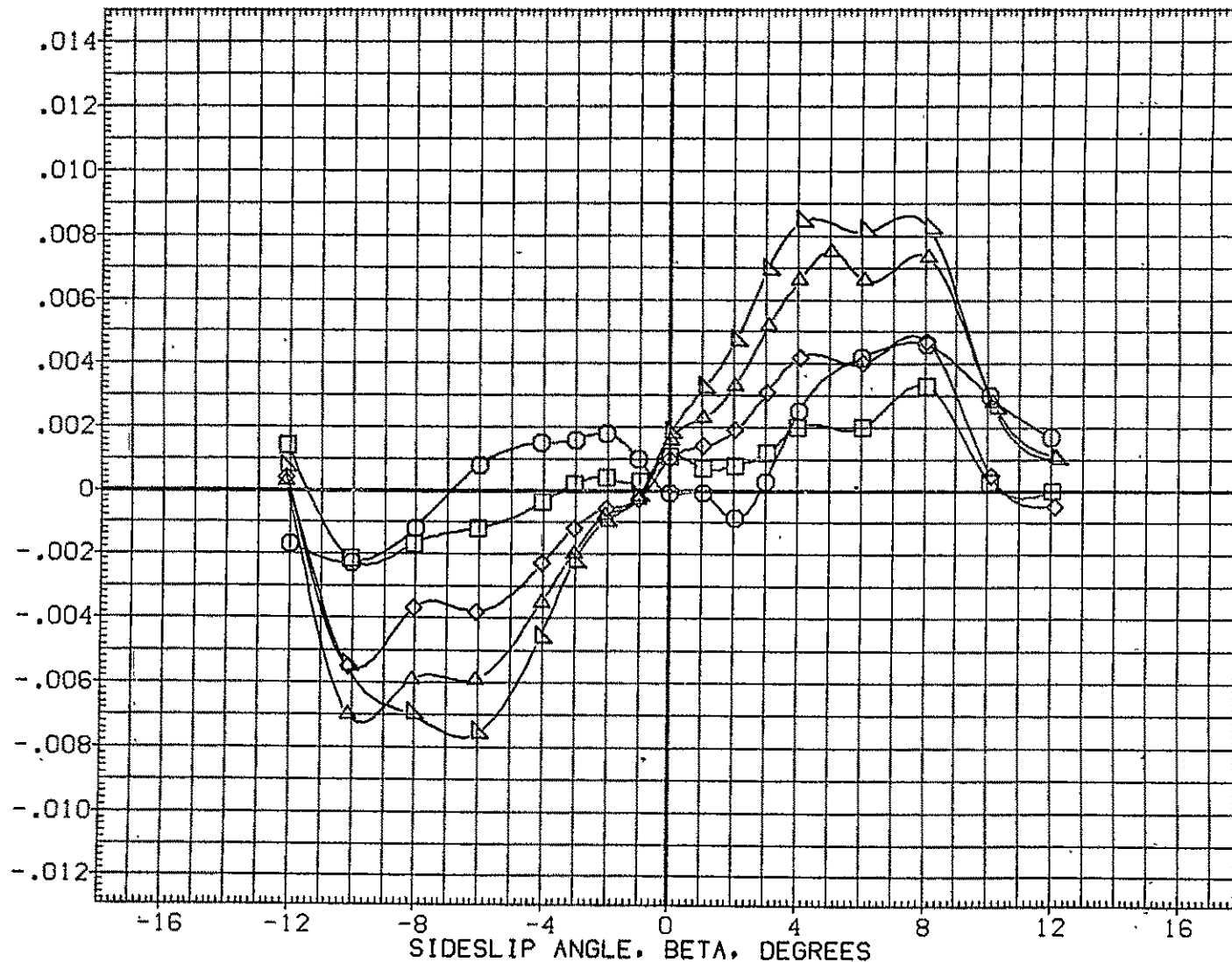


FIG.164 747+ORB(8 DEG)+STD SP,VERT TAIL OFF,FLAPS UP,ALPI=6,DE=0/0 (S=+1) ORB

CA5 ORB TC5 AT38.2A (PRES. K1 FO H15.1A (XGM103)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.149	ALPHA1	6.000	STAB	1.000	SREF	2690.0000	SG, FT.
◇	.301	ELV-1B	.000	ELV-OB	.000	LREF	474.8100	IN.
□	.501	S1-2	.000	S3-4	45.000	BREF	936.6800	IN.
△	.600	S5-6	20.000	IORB	7.850	XMRP	1109.0000	IN. X0
▽	.700					YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

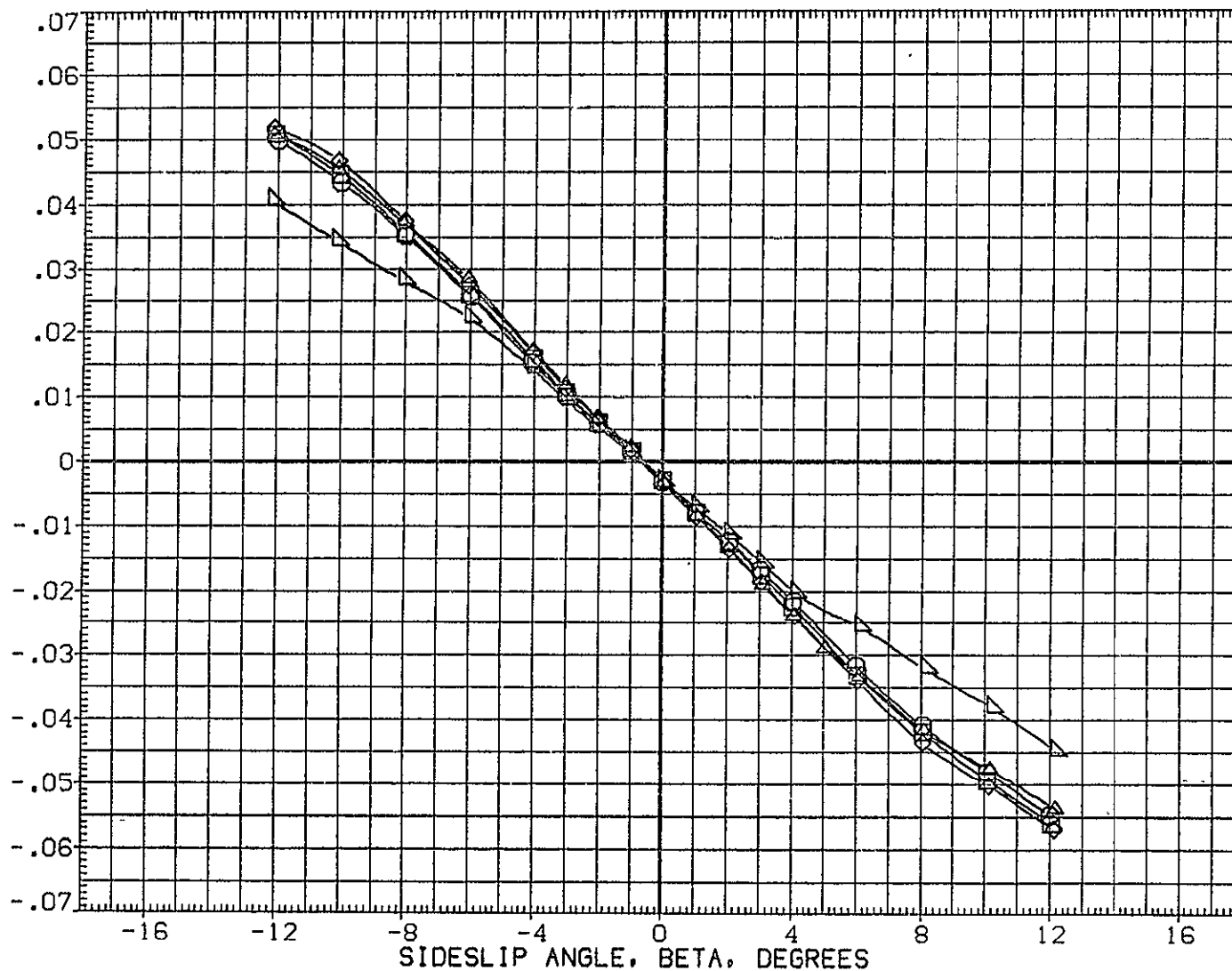


FIG.164 747+ORB(8 DEG)+STD SP, VERT TAIL OFF, FLAPS UP, ALPI=6, DE=0/0 (S=+1) ORB

SYMBOL	MACH	PARAMETRIC VALUES
○	.300	ALPHA1 2.000 STAB -2.000
□	.500	ELV-1B .000 ELV-0B 3.000
◇	.600	S1-2 .000 S3-4 .000
△	.700	S5-6 .000 IORB 4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

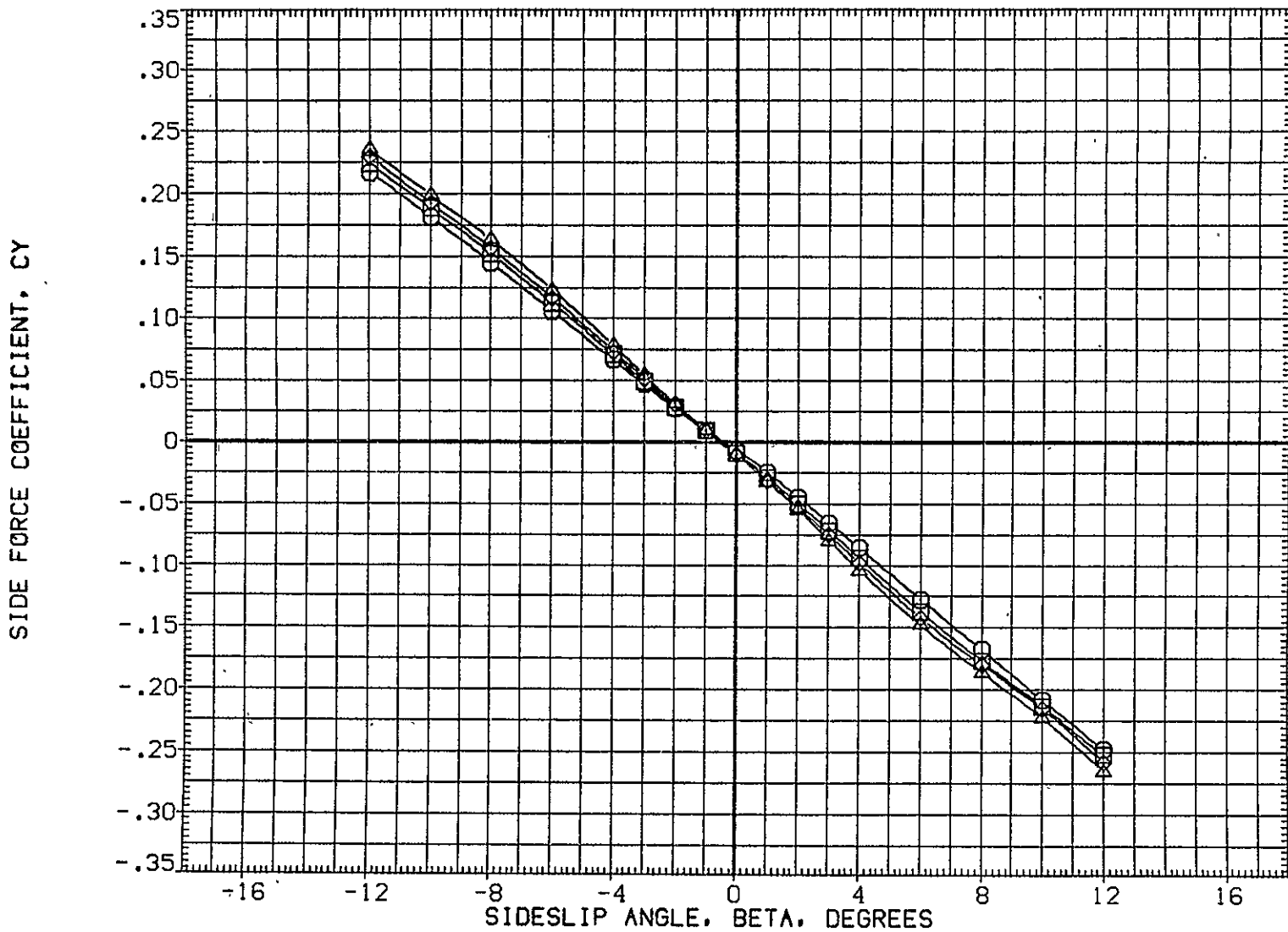


FIG.165 747+ORB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=2 (S=-2)

CA5 K1 FO H15.1A

(PLUS. 0RB TC5 AT38.3 )(RGM104)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-2.000
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	.000	10RB	4.000	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

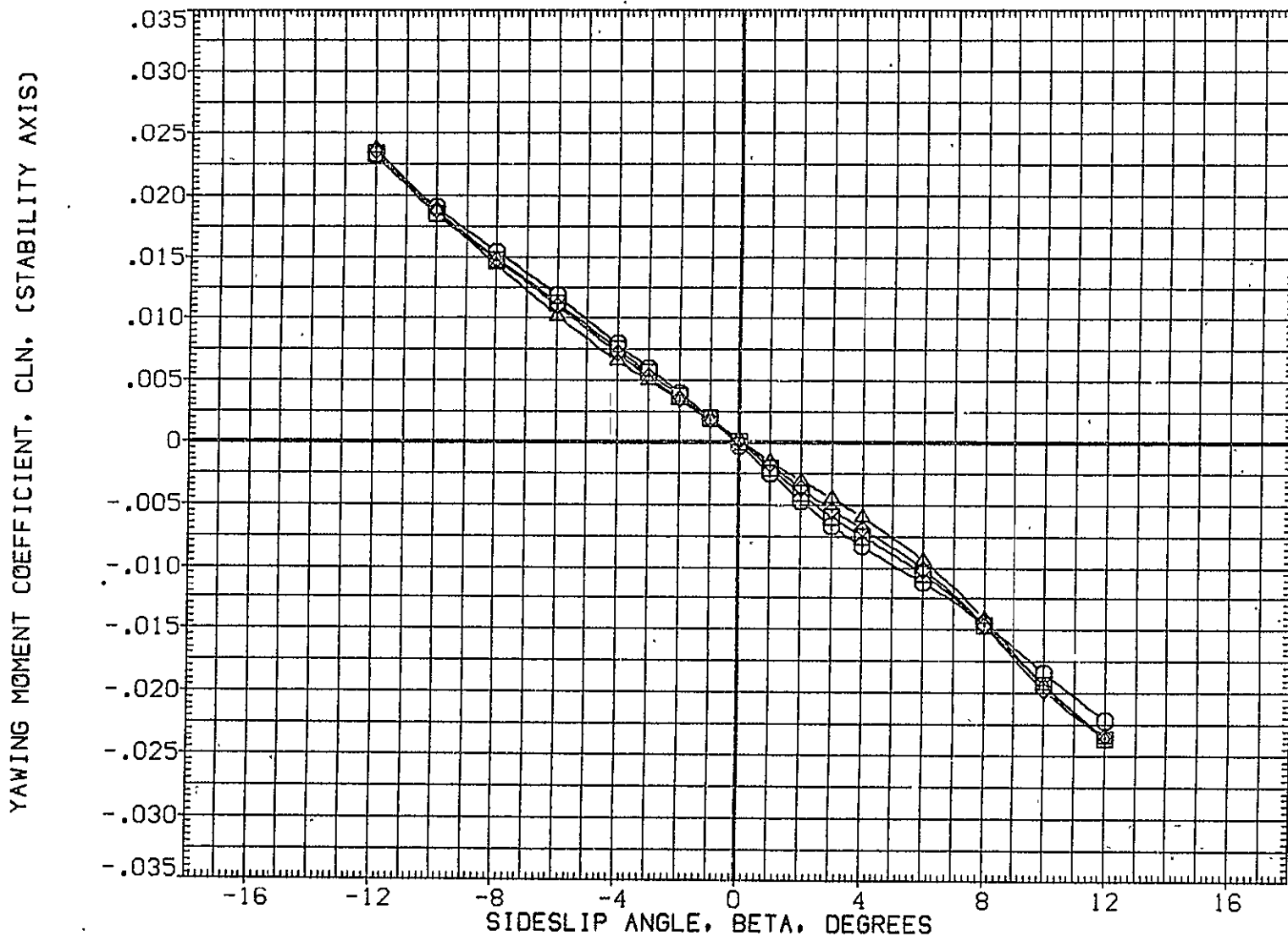


FIG.165 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=2 (S=-2)

TOTAL



SYMBOL	MACH	PARAMETRIC VALUES
○	.300	ALPHA1 2.000 STAB -2.000
□	.500	ELV-1B .000 ELV-0B 3.000
◇	.600	S1-2 .000 S3-4 .000
△	.700	S5-6 .000 10RB 4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

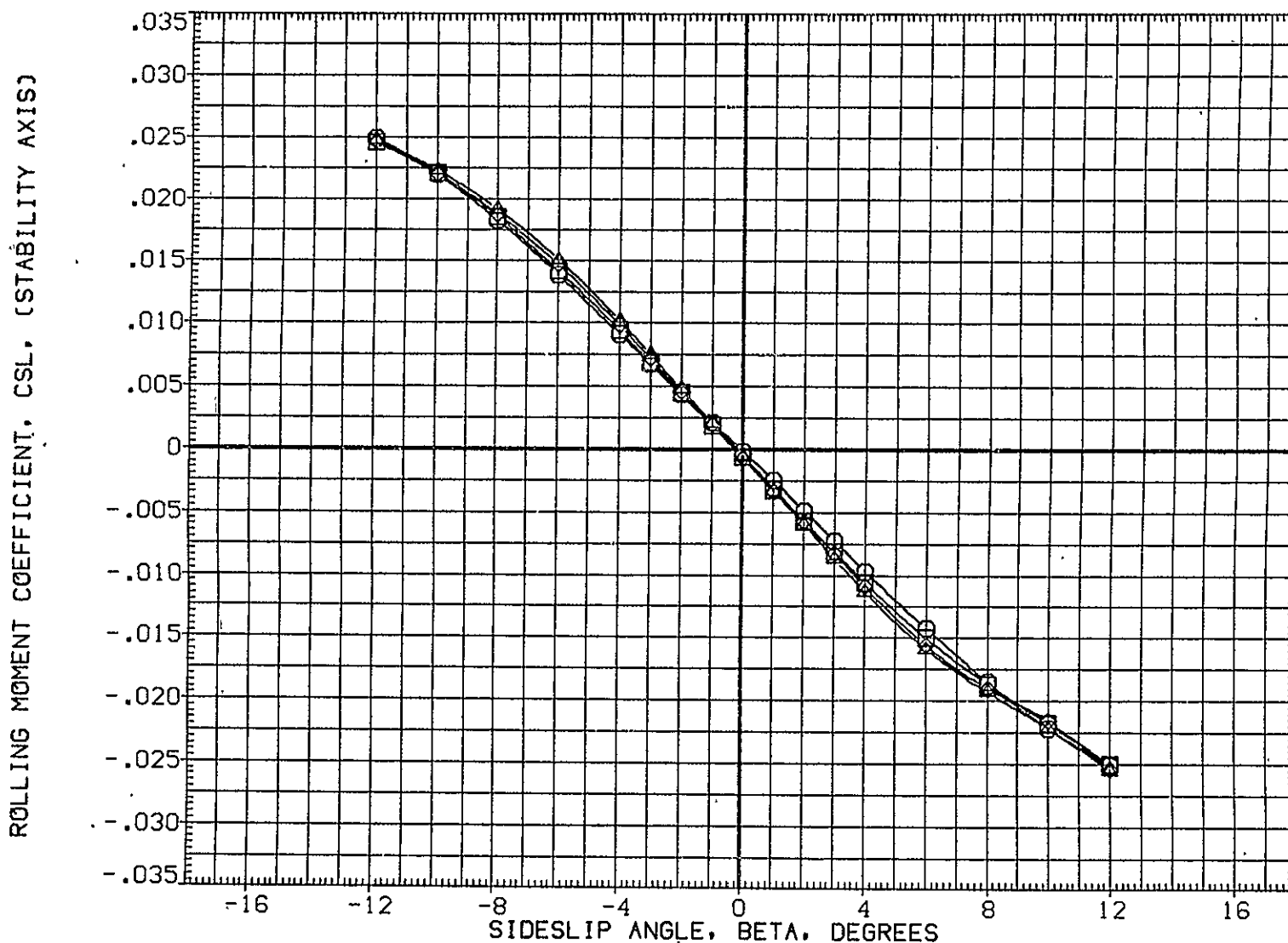


FIG.165 747+0RB(4 DEG),VERT TAIL OFF,FLAPS UP FERRY,ALPHA1=2 (S=-2)

TOTAL

CA5 K1 FO H15.1A

MINUS 0RB TC5 AT38.3 (BGM104)

SYMBOL	MACH	PARAMETRIC VALUES
○	.300	ALPHA1 2.000 STAB -2.000
□	.500	ELV-1B .000 ELV-0B 3.000
◇	.600	S1-2 .000 S3-4 .000
△	.700	S5-6 .000 10RB 4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

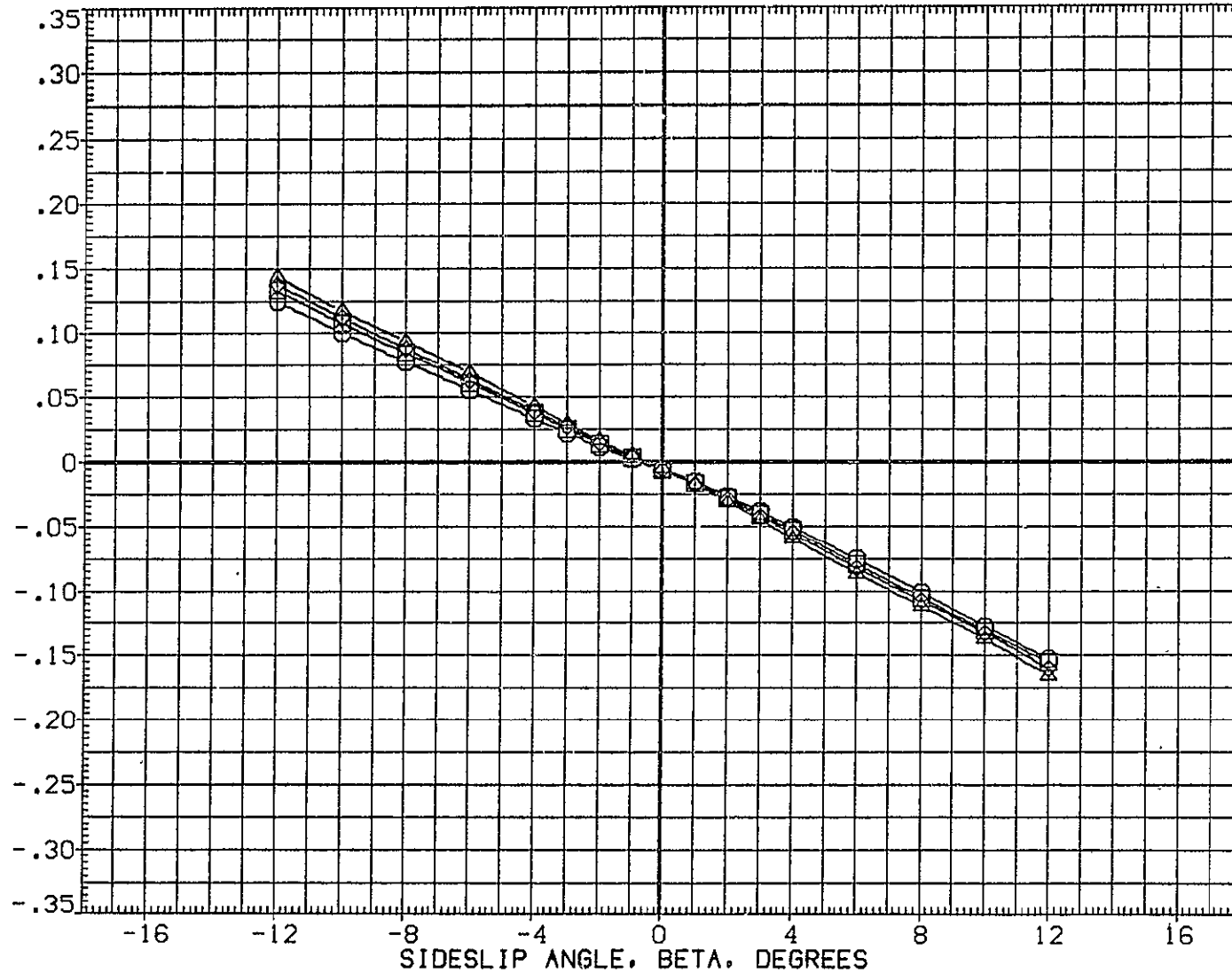


FIG.166 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=2 (S=-2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-2.000
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SO, FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

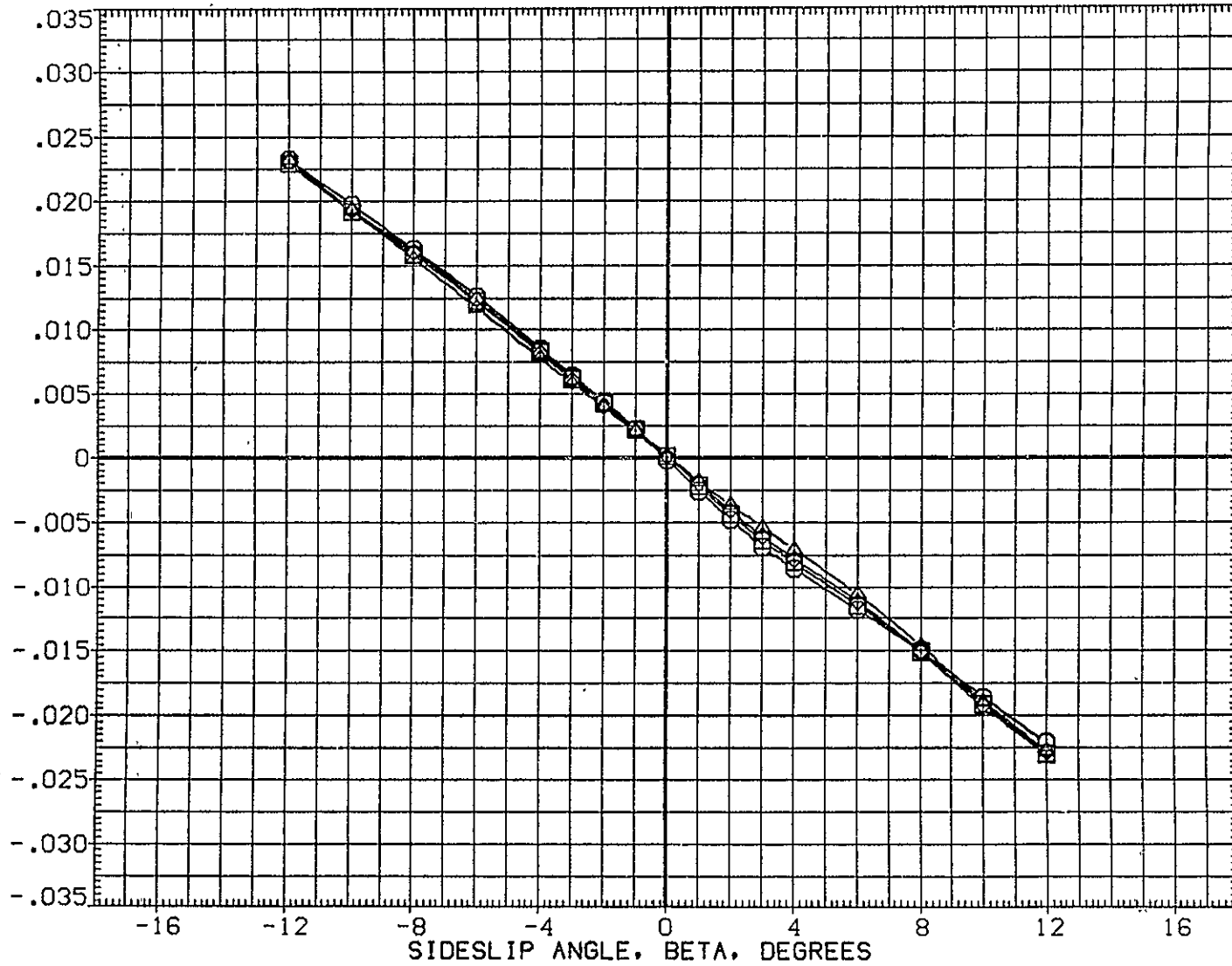


FIG.166 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=2 (S=-2)

CA5 K1 FO H15.1A MINUS ORB TC5 AT38.3 (BGM104)

SYMBOL	MACH	PARAMETRIC VALUES
○	.300	ALPHA1 2.000 STAB -2.000
□	.500	ELV-1B .000 ELV-OB 3.000
◇	.600	S1-2 .000 S3-4 .000
△	.700	

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

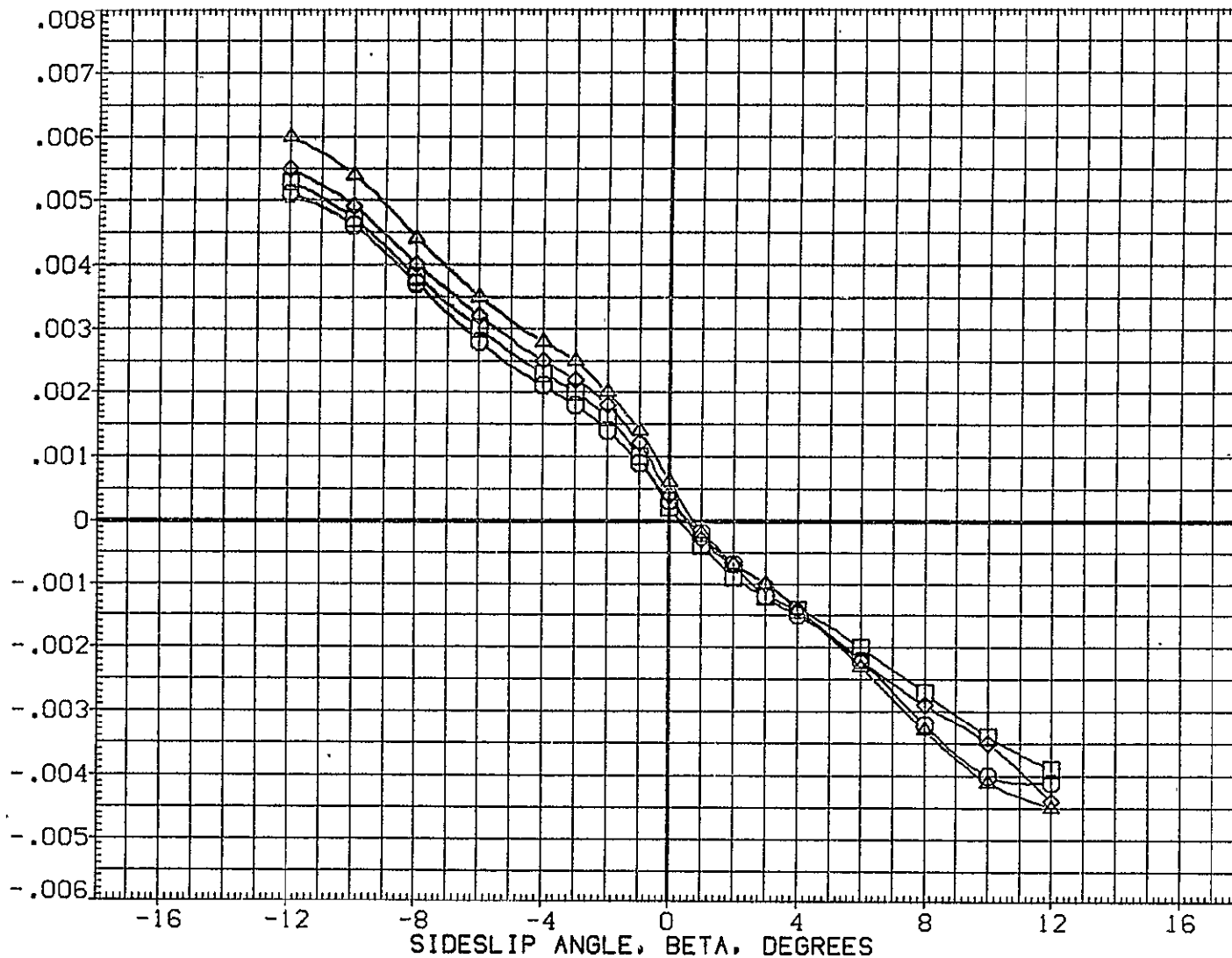


FIG.166 747+ORB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=2 (S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHAI	STAB	ELV-0B	ELV-0B	SREF	SG.FT.	
○	.299	2.000	-2.000			2690.0000		
□	.500	.000	3.000			474.8100	IN.	
◇	.601	.000	.000			936.6800	IN.	
△	.700	.000	4.000			1109.0000	IN. X0	
						YMRP	IN. Y0	
						ZMRP	IN. Z0	
						SCALE	.0300	

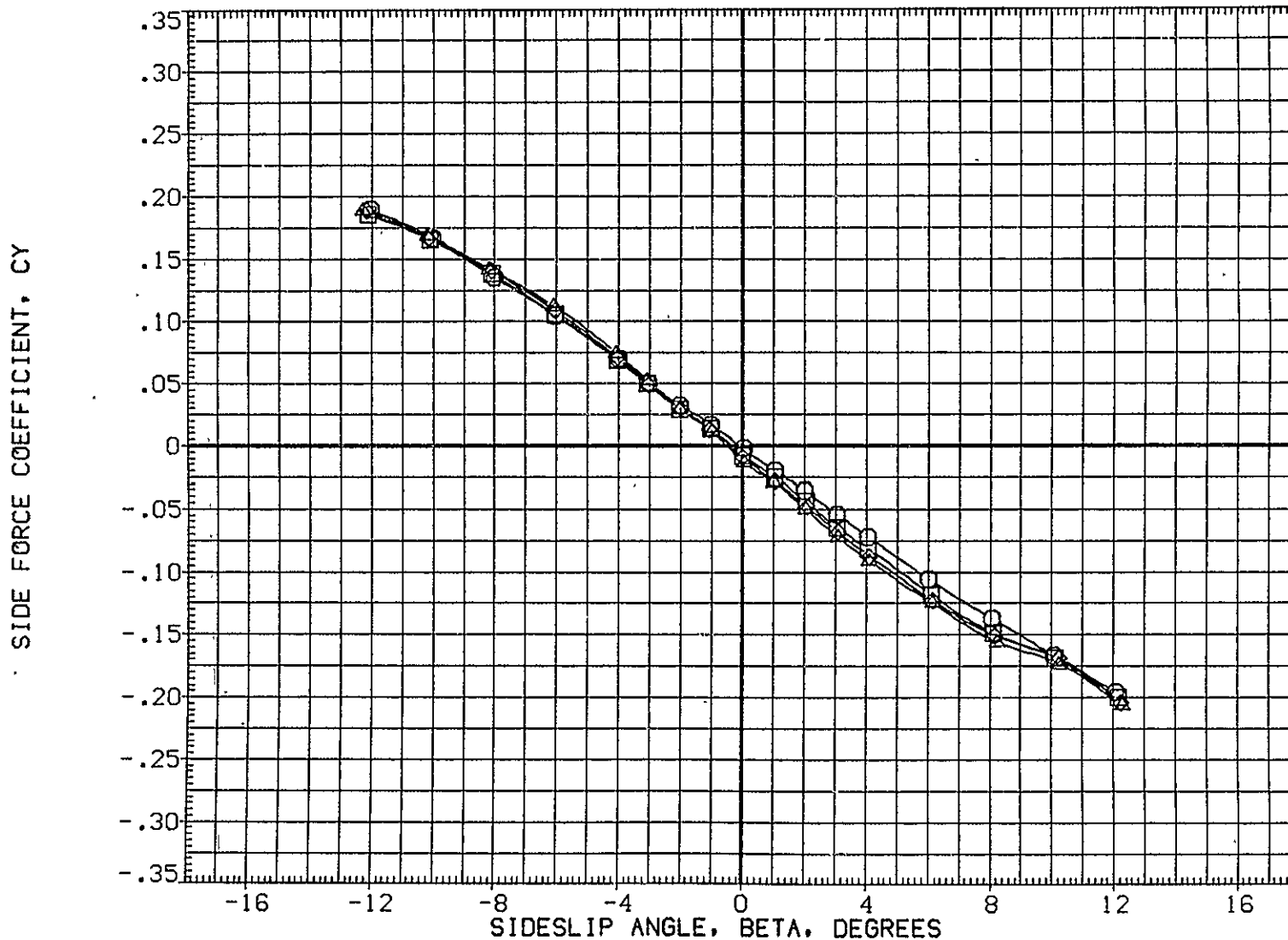


FIG.167 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI=2 (S=-2) 0RB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.1A (XGM104)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	ALPHA1	2.000	STAB	-2.000
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.601	S1-2	.000	S3-4	.000
△	.700	.000	10RB	4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XM RP	1109.0000	IN. X0
YM RP	.0000	IN. Y0
ZM RP	375.0000	IN. Z0
SCALE	.0300	

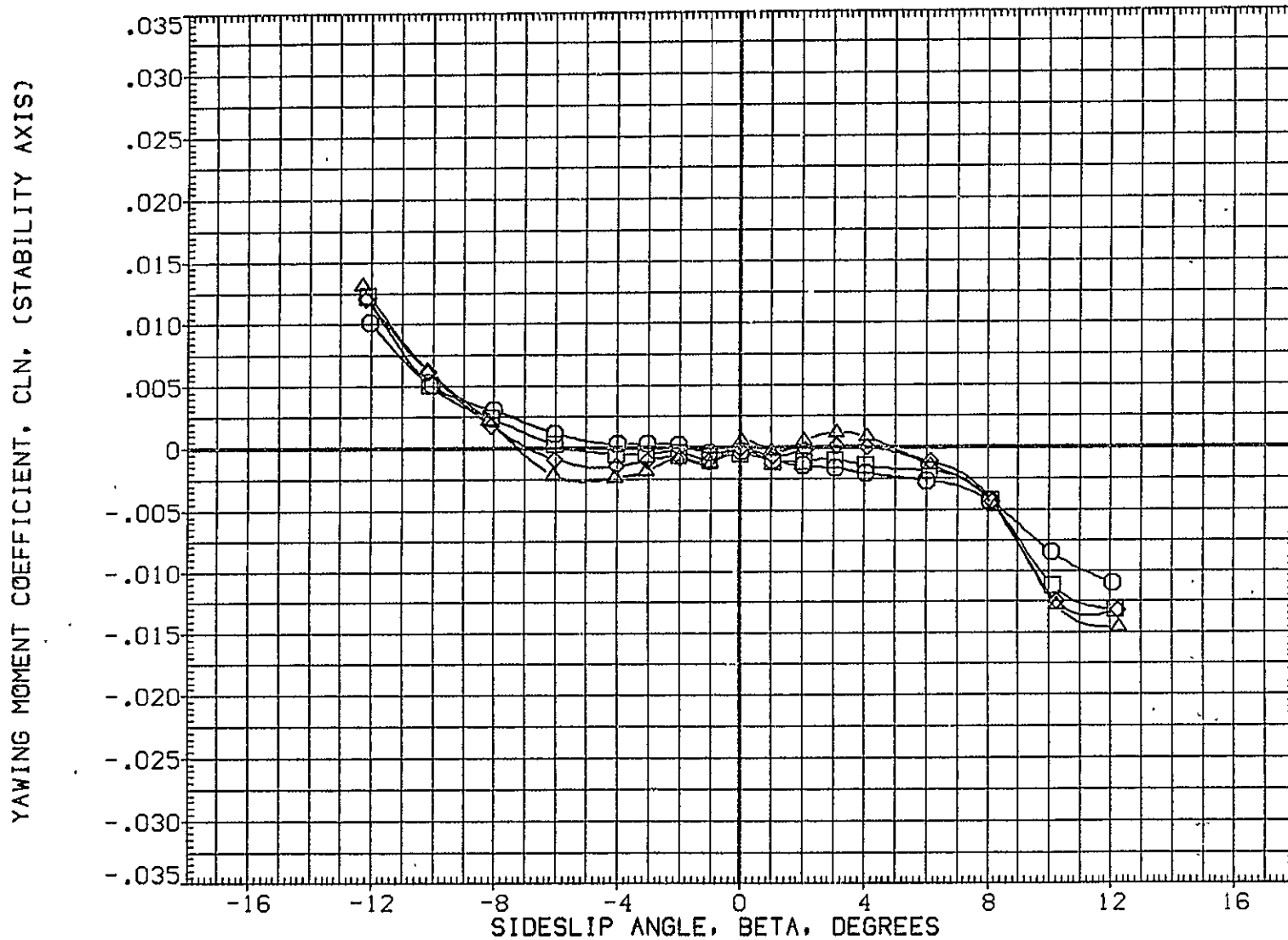


FIG.167 747+0RB(4 DEG),VERT TAIL OFF,FLAPS UP FERRY,ALPHA1=2 (S=-2)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.299	ALPHA1	2.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.500	ELV-1B	.000	ELV-0B	3.000	LREF	474.8100	IN.
◇	.601	S1-2	.000	S3-4	.000	BREF	936.6800	IN.
△	.700	.000	10RB	4.000	XM RP	1109.0000	IN. X0	
						YM RP	.0000	IN. Y0
						ZM RP	375.0000	IN. Z0
						SCALE	.0300	

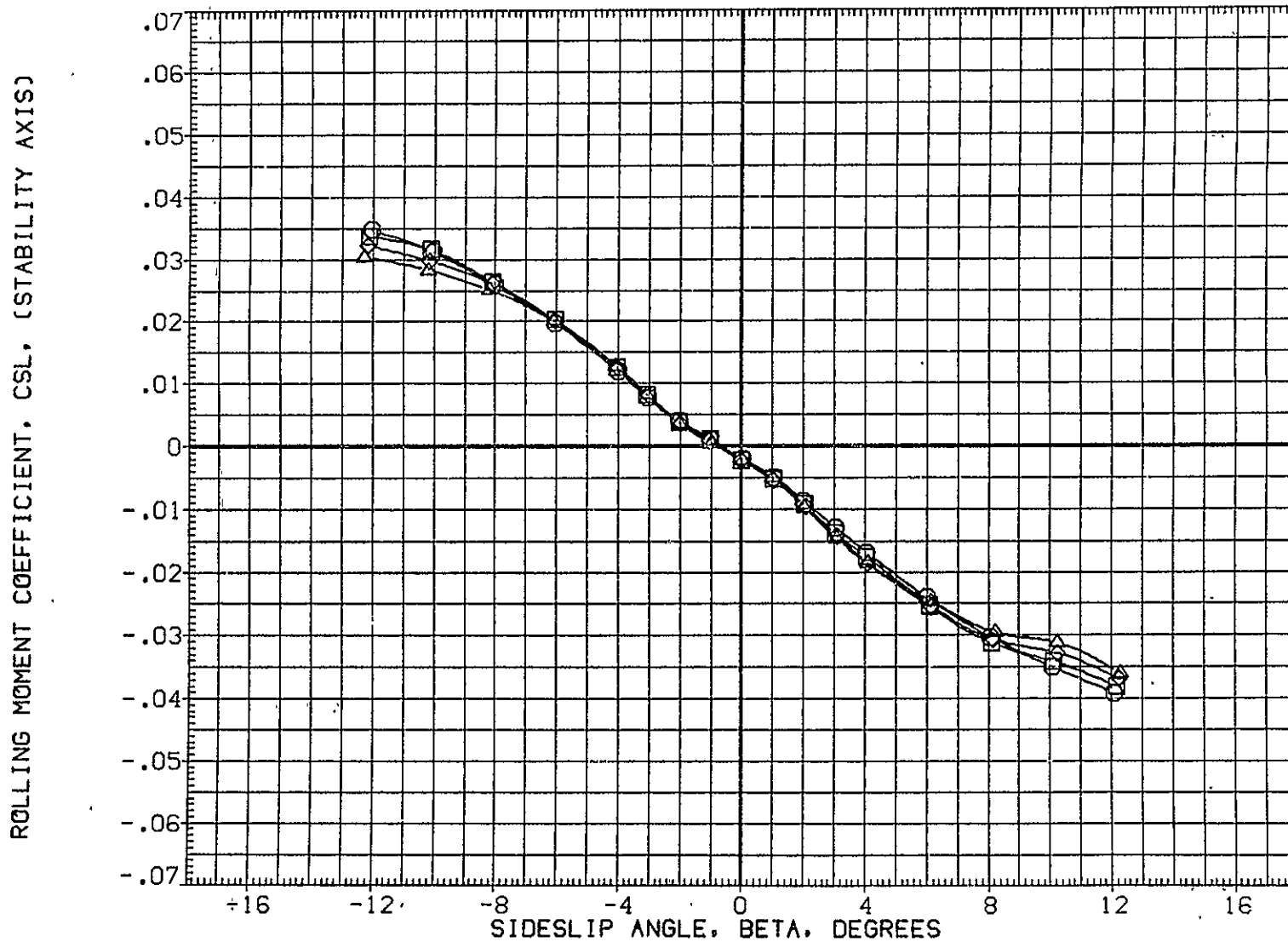


FIG.167 747+ORB(4 DEG),VERT TAIL OFF,FLAPS UP FERRY,ALPHA1=2 (S=-2)

ORB

CA5 K1 F0 H15.1A

(PLUS, 0RB TC5 AT38.3 )(RGM105)

SYMBOL  
○  
□  
◇  
△  
▽

MACH	ALPHA	PARAMETRIC VALUES			
.150	ALPHA1	6.000	STAB	-2.000	
.300	ELV-1B	.000	ELV-0B	3.000	
.500	S1-2	.000	S3-4	.000	
.600	S5-6	.000	10RB	4.000	
.700					

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

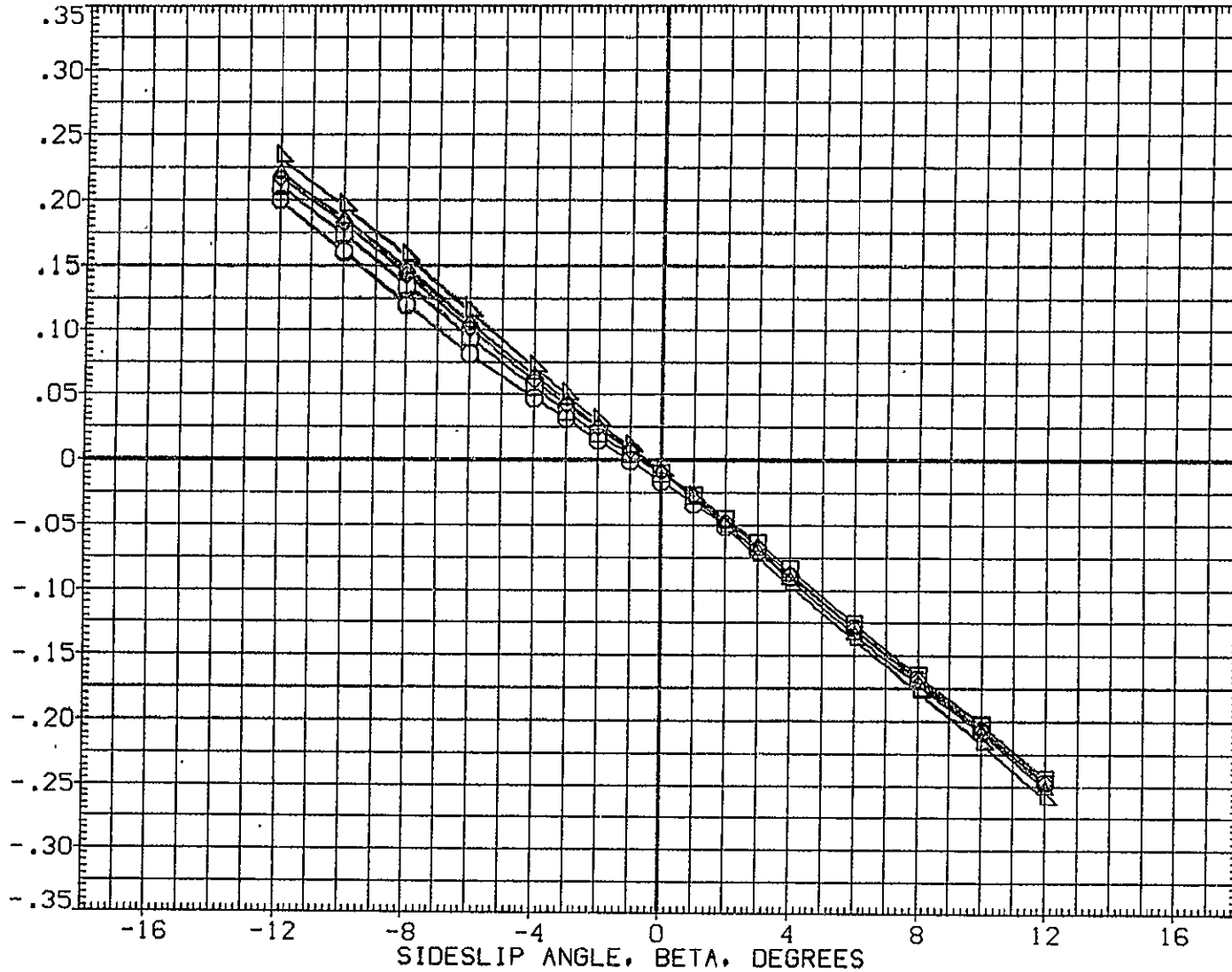


FIG.168 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=6(S=-2)

TOTAL



SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	ALPHA1	6.000	STAB	-2.000
□	.300	ELV-1B	.000	ELV-0B	3.000
◇	.500	S1-2	.000	S3-4	.000
△	.600	S5-6	.000	10RB	4.000
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT. CLN, (STABILITY AXIS)

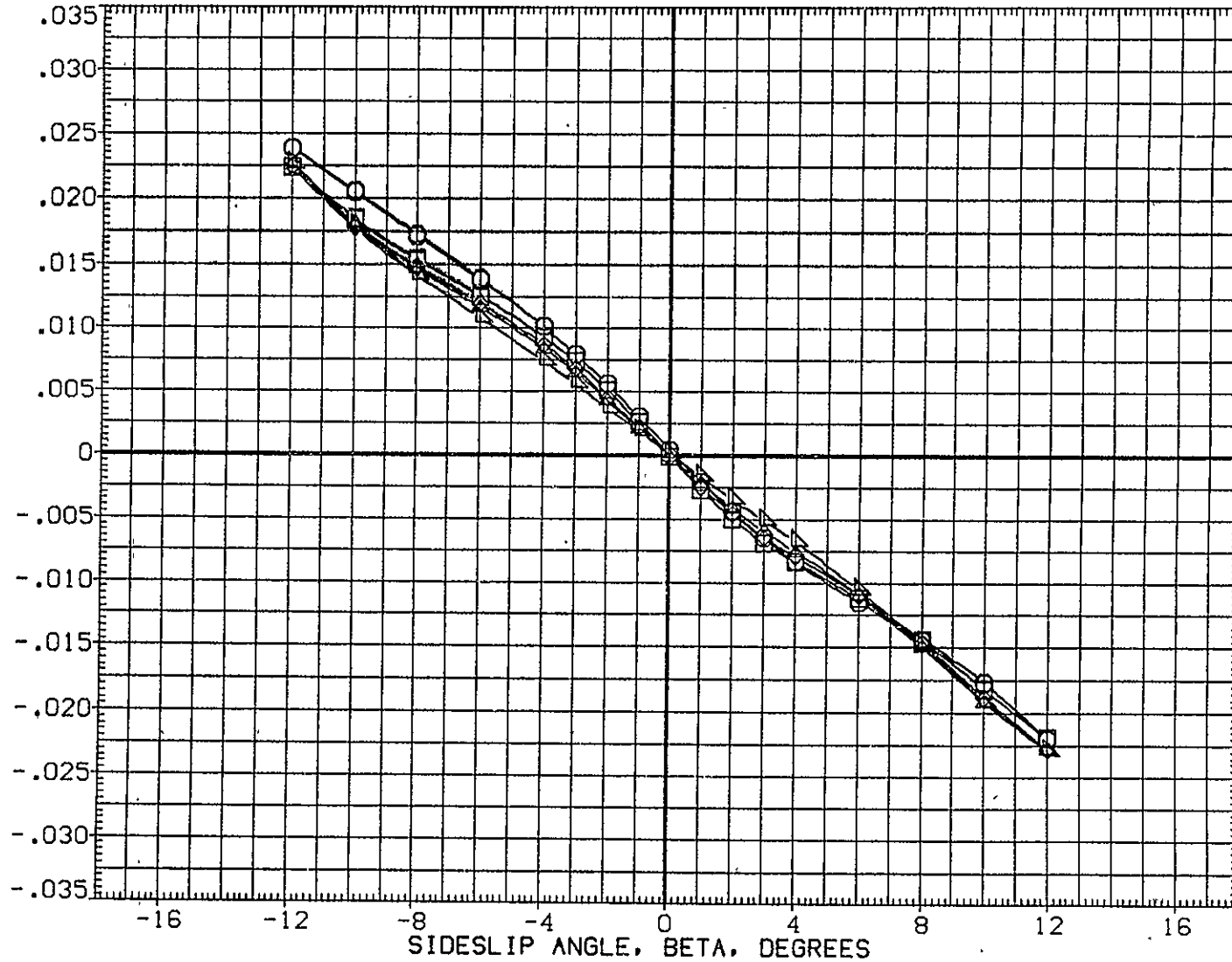


FIG.168 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=6(S=-2)

TOTAL

CA5 KI FO H15.1A (PLUS. 0RB TC5 AT38.3 )(RGM105)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	-2.000	SREF	5500.0000	50.FT.
□	.300	ELV-1B	.000	ELV-0B	3.000	LREF	327.8000	IN.
◇	.500	S1-2	.000	S3-4	.000	BREF	2348.0000	IN.
△	.600	S5-6	.000	10RB	4.000	XMRP	1339.9100	IN. XC
▽	.700					YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

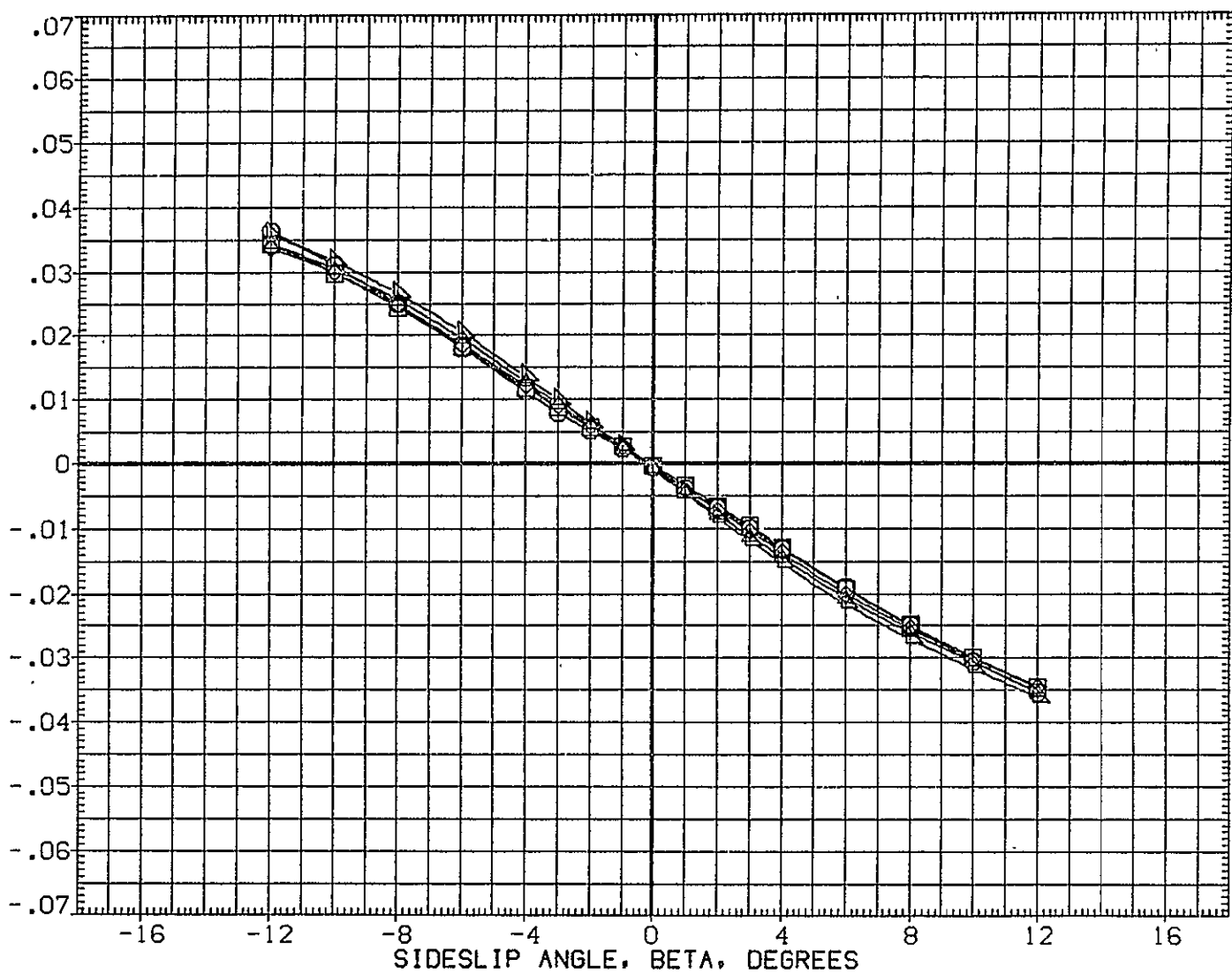


FIG.168 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=6(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	ALPHA1	6.000	STAB	-2.000
□	.300	ELV-1B	.000	ELV-0B	3.000
◇	.500	S1-2	.000	S3-4	.000
△	.600	S5-6	.000	10RB	4.000
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

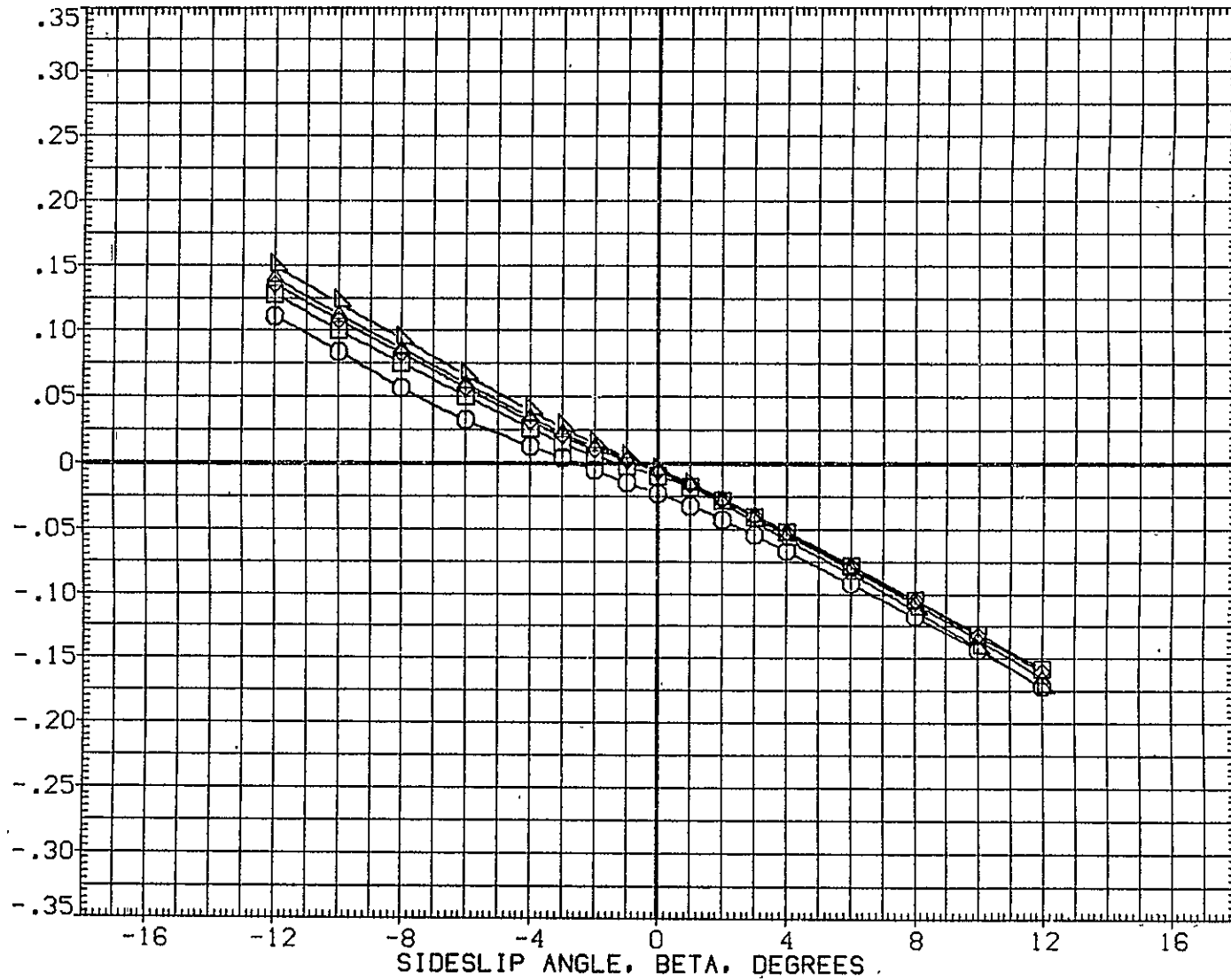


FIG.169 747+ORB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=6(S=-2)

CA5 K1 F0 H15.1A

MINUS 0RB TC5 AT38.3 (BGM105)

SYMBOL	MACH	ALPHA	PARAMETRIC VALUES	
○	.150	6.000	STAB	-2.000
□	.300	ELV-1B	.000	ELV-0B
◇	.500	S1-2	.000	S3-4
△	.600	S5-6	.000	ICRB
	.700			4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN



FIG.169 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=6(S=-2)

SYMBOL  
 ○  
 □  
 ◇  
 ▲  
 ▼

MACH	PARAMETRIC VALUES
.150	ALPHA1 6.000 STAB -2.000
.300	ELV-1B .000 ELV-OB 3.000
.500	S1-2 .000 S3-4 .000
.600	S5-6 .000 TORB 4.000
.700	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DC SL

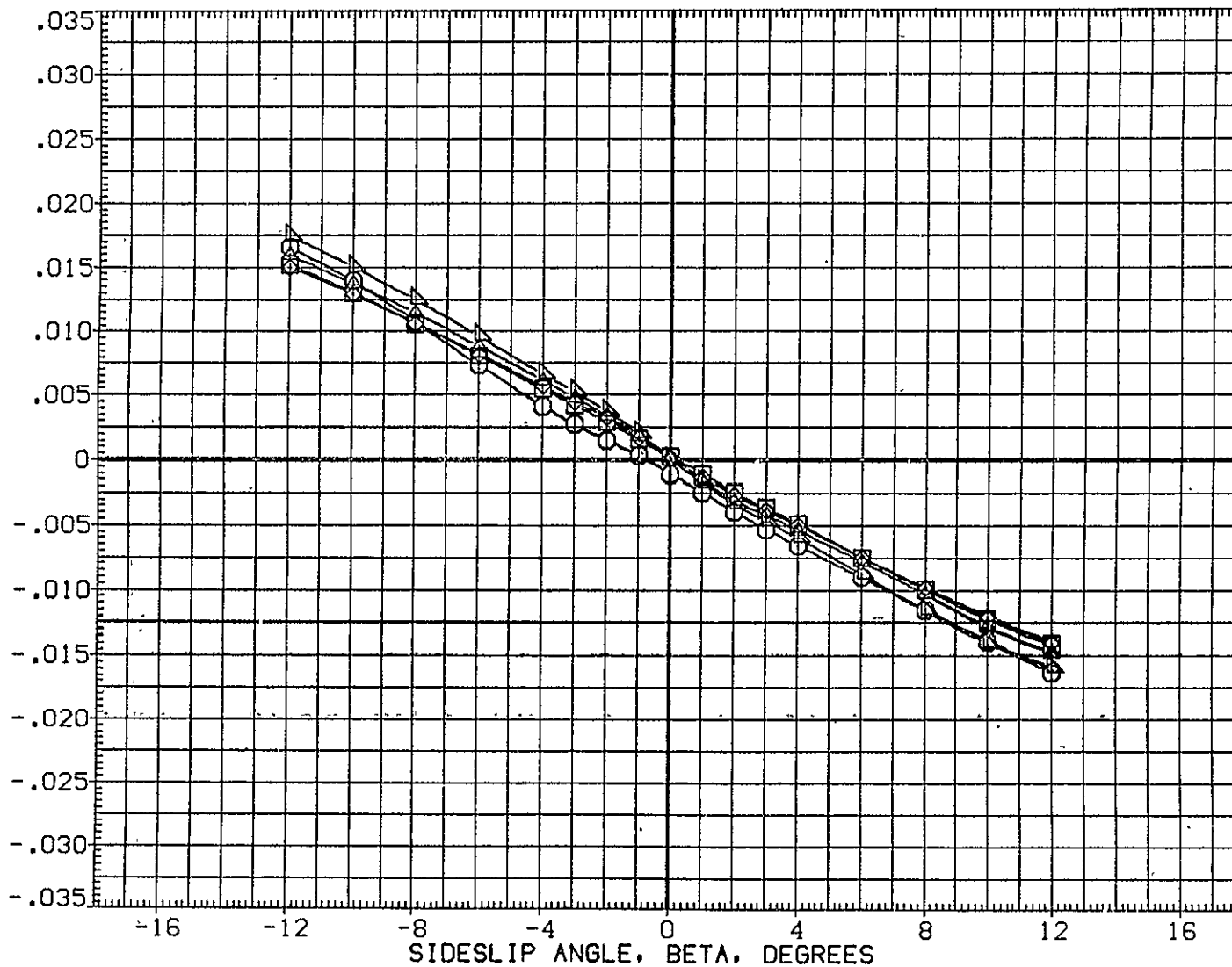


FIG.169 747+ORB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=6(S=-2)

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.1A (XGM105)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHAI	STAB	ELV-OB	ELV-OB	SREF	IN.	SQ.FT.
○	.150	6.000	-2.000	3.000	2690.0000	474.8100	IN.	
□	.300	.000	3.000	.000	936.6800	1109.0000	IN.	X0
◇	.500	.000	.000	4.000	.0000	375.0000	IN.	Y0
△	.601	.000	4.000				IN.	Z0
▽	.701							

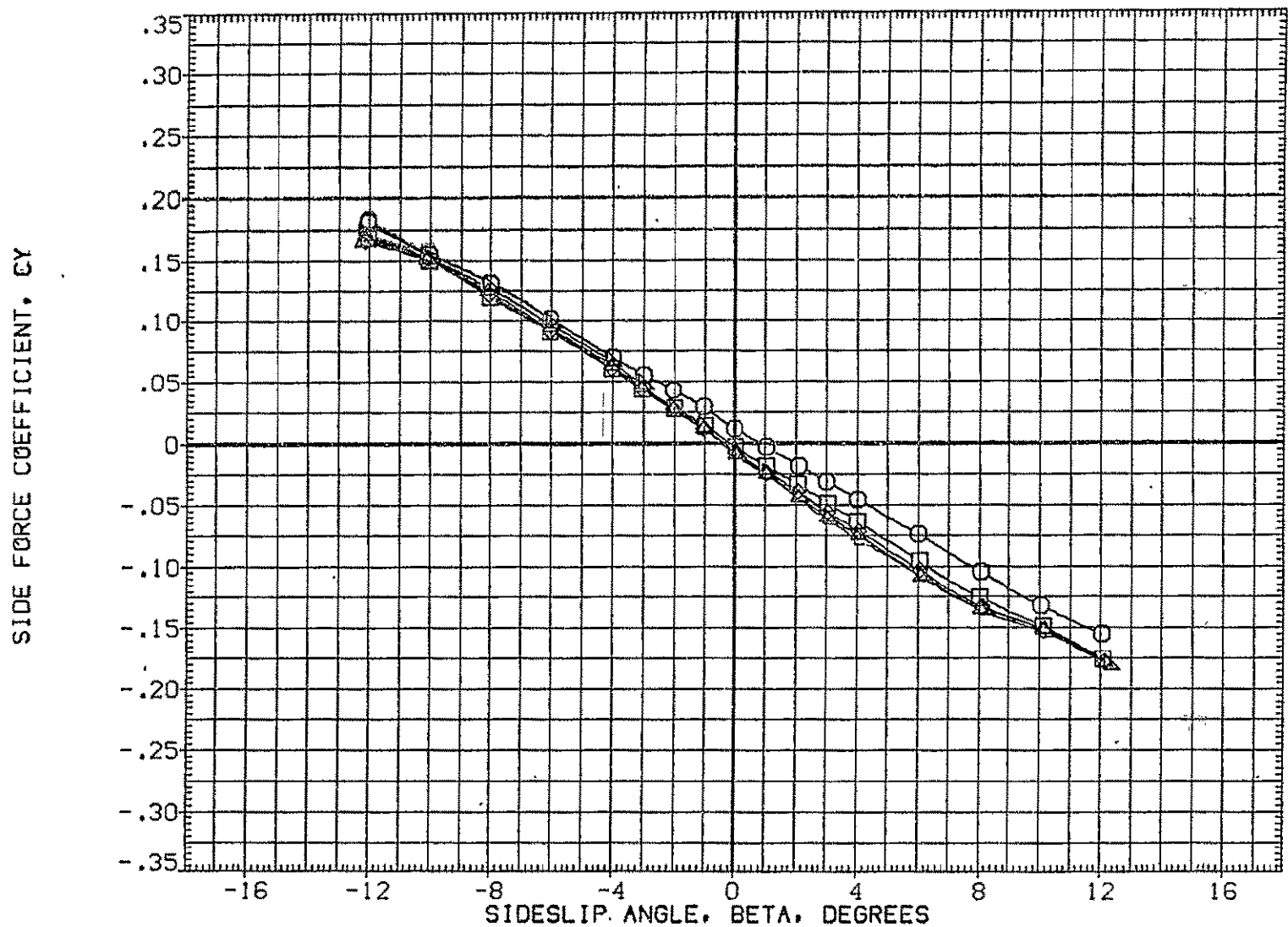


FIG.170 747+ORB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHAI=6(S=-2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.300	ELV-1B	.000	ELV-0B	3.000	LREF	474.8100	IN.
◇	.500	S1-2	.000	S3-4	.000	BREF	936.6800	IN.
△	.601	S5-6	.000	10RB	4.000	XMRP	1109.0000	IN. X0
▽	.701					YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

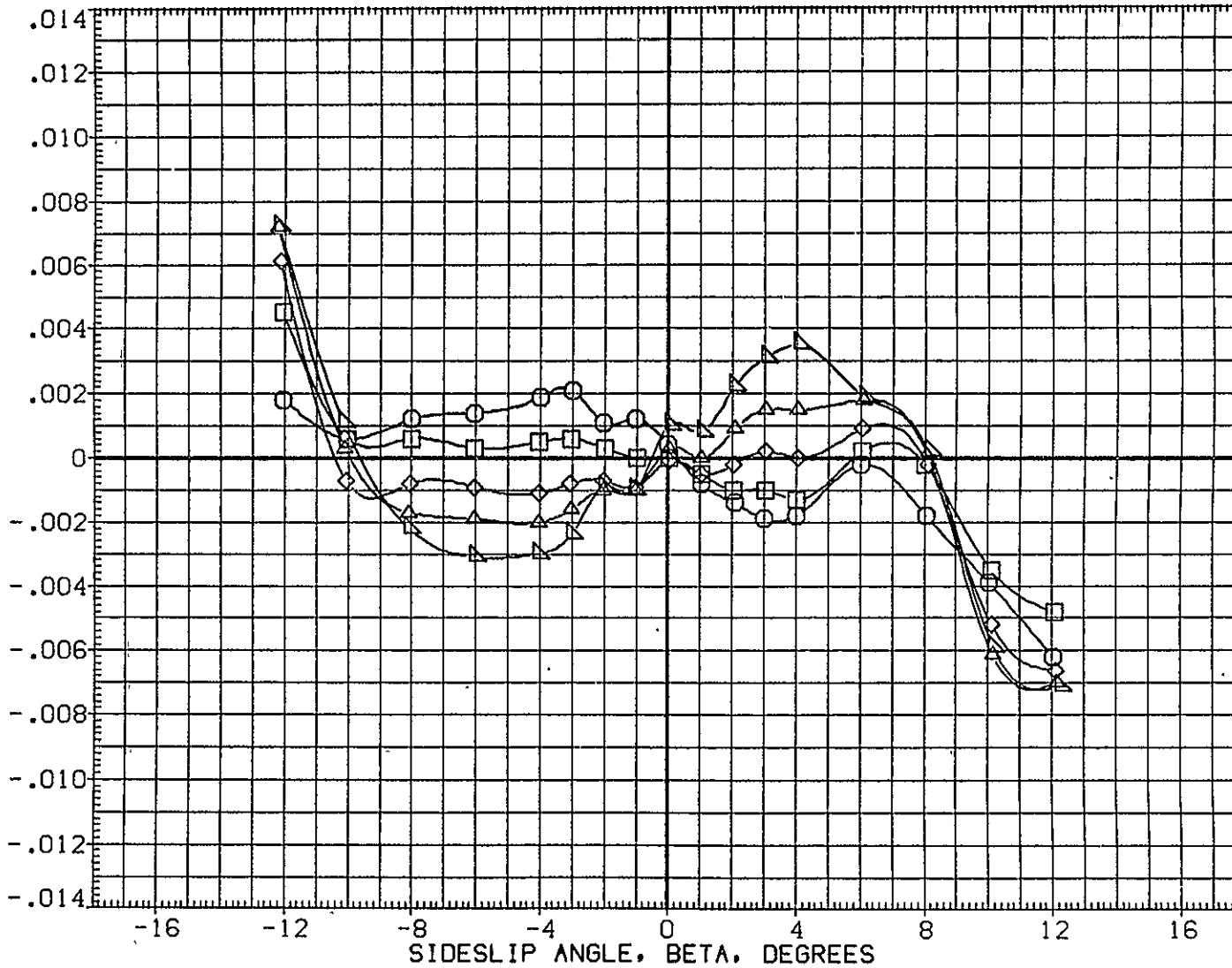


FIG.170 747+0RB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA1=6(S=-2)

ORB

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.1A (XGM105)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	6.000	STAB	-2.000	SREF	2690.0000	SQ.FT.
□	.300	ELV-1B	.000	ELV-0B	3.000	LREF	474.8100	IN.
◇	.500	S1-2	.000	S3-4	.000	BREF	-936.6800	IN.
△	.601	S5-6	.000	ICRB	4.000	XMRP	1109.0000	IN. X0
▽	.701					YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

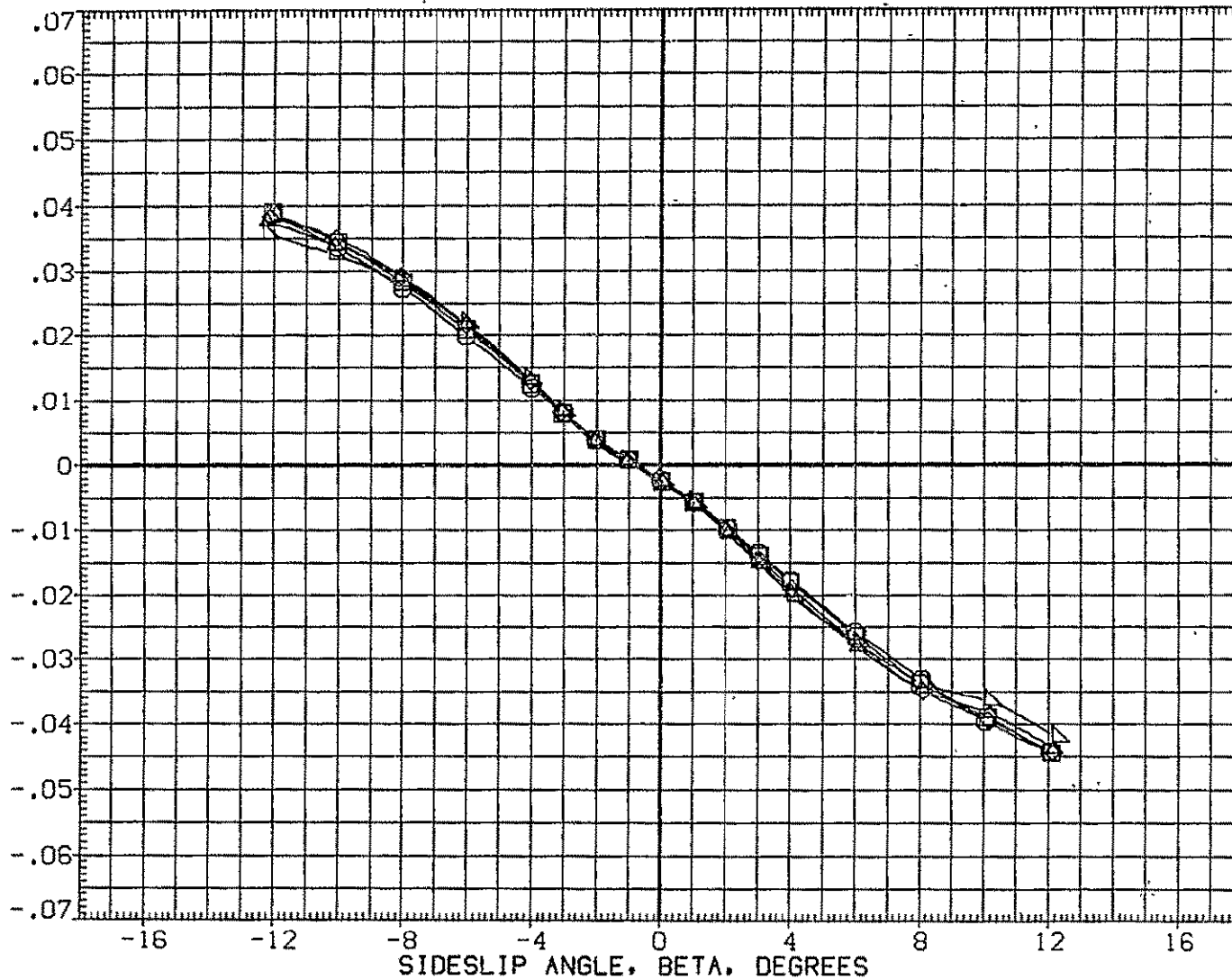


FIG.170 747+ORB(4 DEG), VERT TAIL OFF, FLAPS UP FERRY, ALPHA I=6(S=-2)

ORB



SYMBOL	MACH	ALPHAI	PARAMETRIC VALUES		
○	.300	ALPHAI	8.000	STAB	-2.000
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	.000	10RB	4.000	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XM RP	1339.9100	IN. XC
YM RP	.0000	IN. YC
ZM RP	190.7500	IN. ZC
SCALE	.0300	

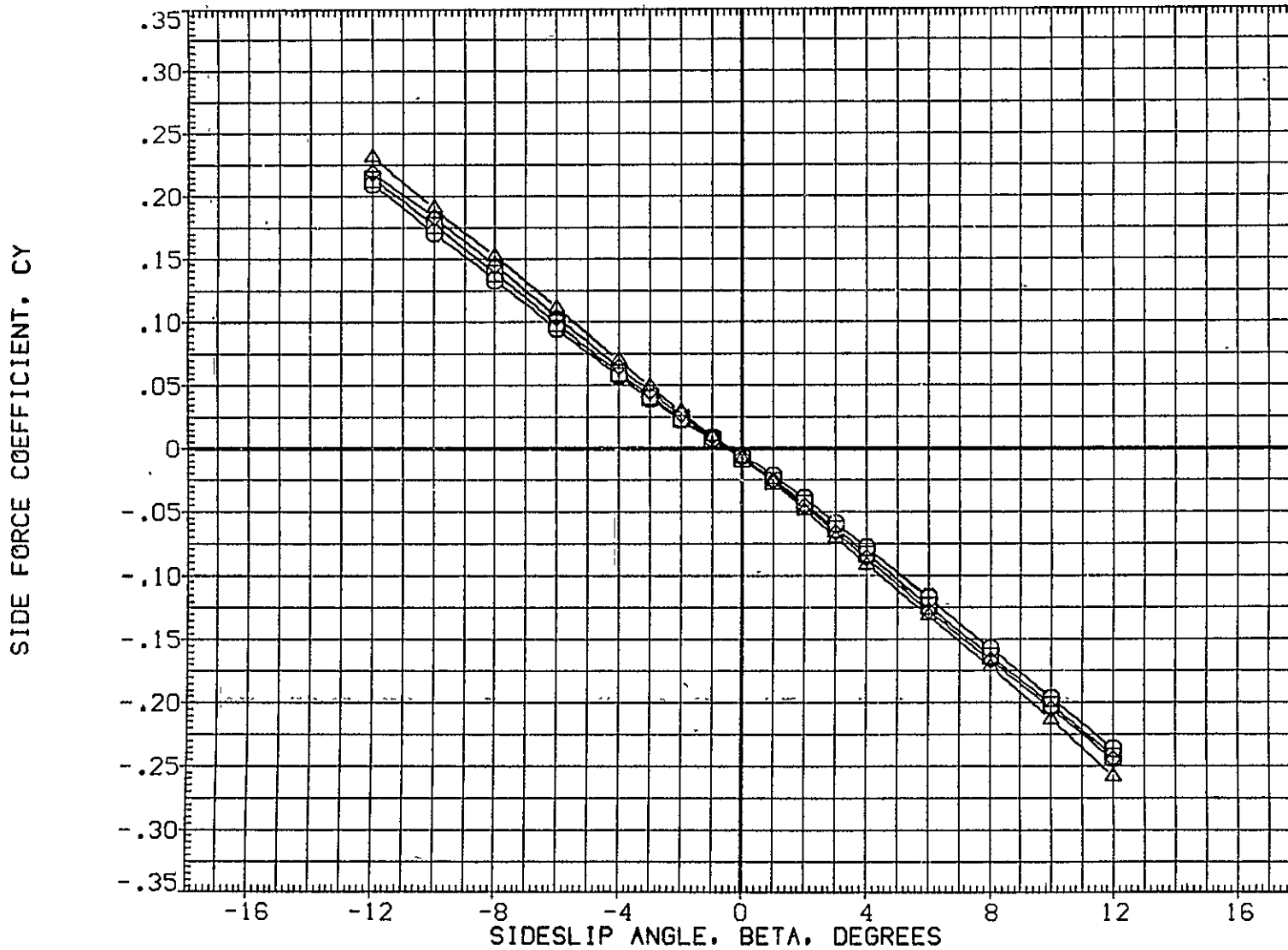


FIG.171 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHAI=8(S=-2)

CA5 K1 F0 H15.1A

(PLUS. ORB TC5 AT38.3 )(RGM106)

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.300	ALPHA1	B.000	STAB	-2.000
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SO, FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

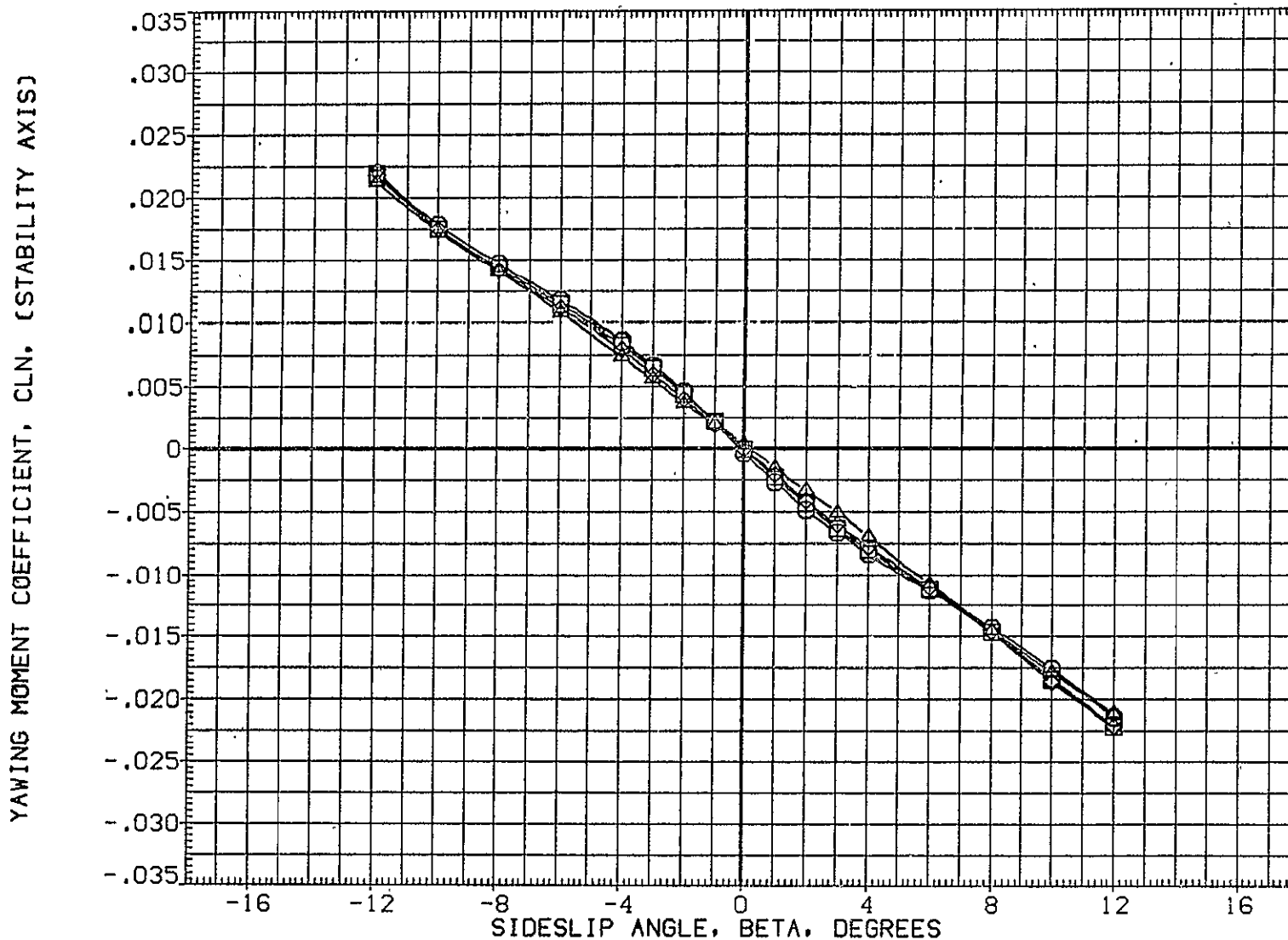


FIG.171 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-2)

SYMBOL	MACH	ALPHA1	PARAMETRIC VALUES		
○	.300	8.000	STAB	-2.000	
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

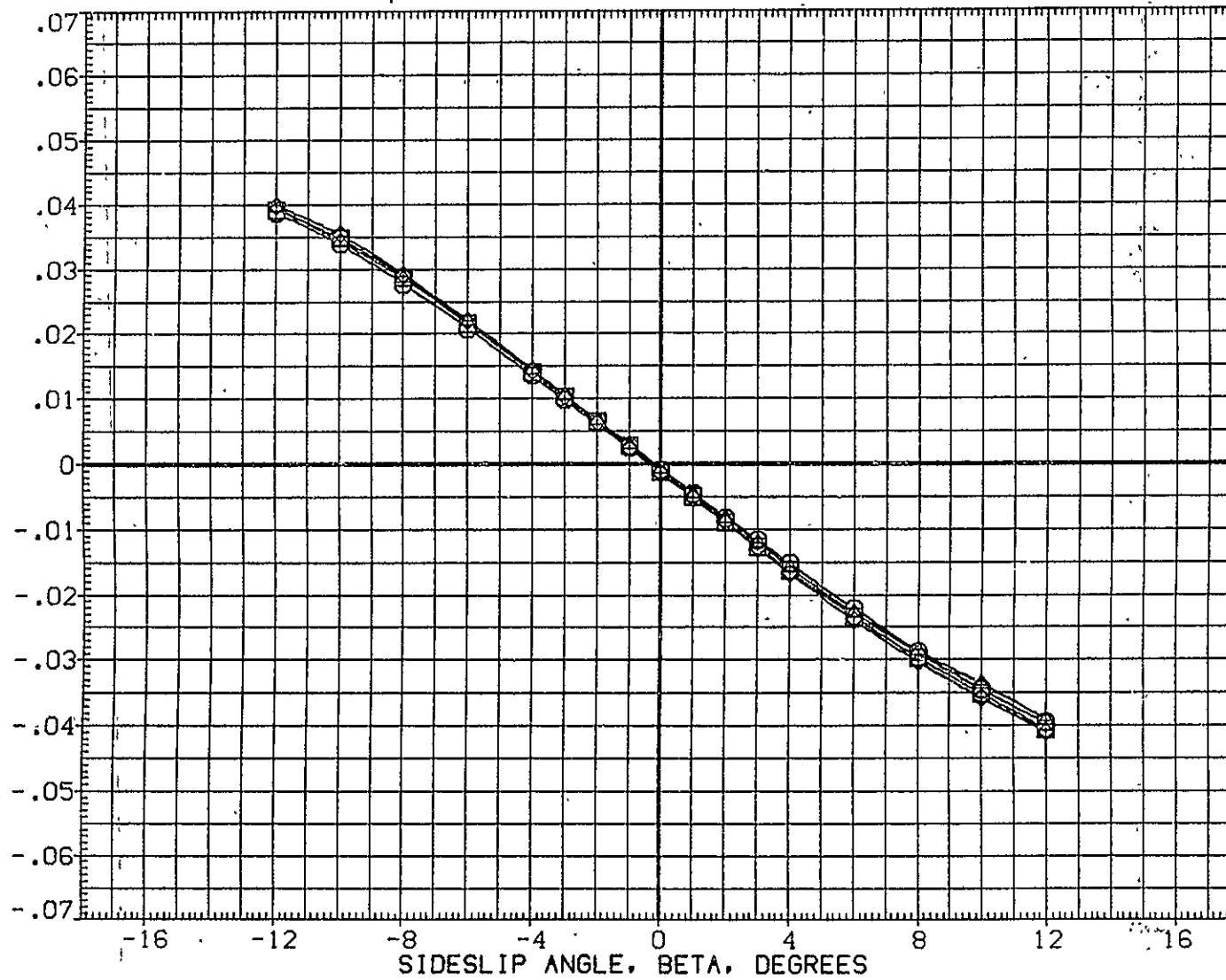


FIG.171 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-2)

TOTAL

CA5 K1 F0 H15.1A MINUS ORB TC5 AT38.3 (BGM106)

SYMBOL	MACH	PARAMETRIC VALUES	REFERENCE INFORMATION
○	.300	ALPHA I 8.000 STAB -2.000	SREF 5500.0000 SQ.FT.
□	.500	ELV-1B .000 ELV-OB 3.000	LREF 327.8000 IN.
◇	.600	S1-2 .000 S3-4 .000	BREF 2348.0000 IN.
△	.700	S5-6 .000 TORB 4.000	XMRP 1339.9100 IN. XC
			YMRP .0000 IN. YC
			ZMRP 190.7500 IN. ZC
			SCALE .0300

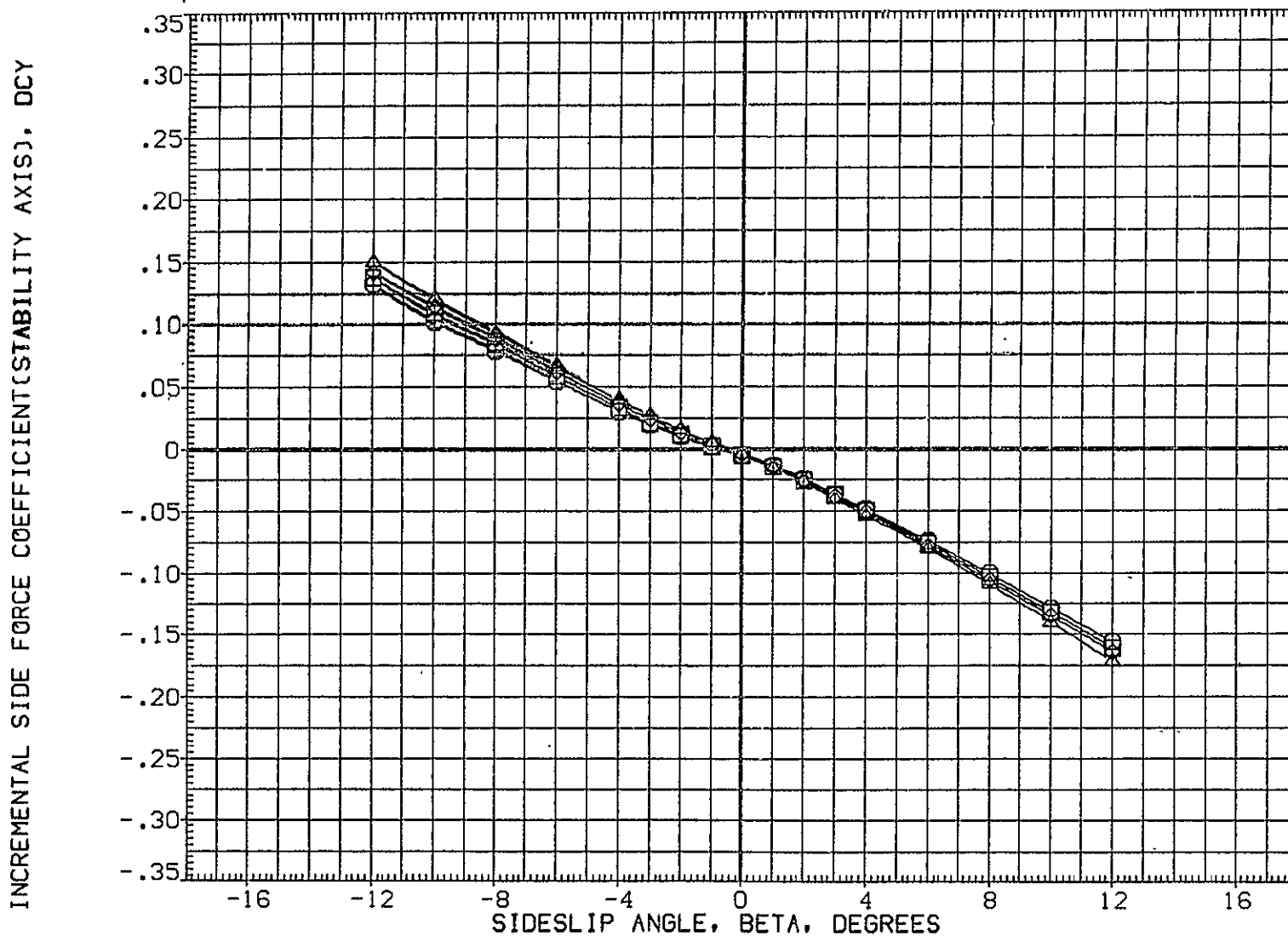


FIG.172 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA I=8(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	8.000	STAB	-2.000
□	.500	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

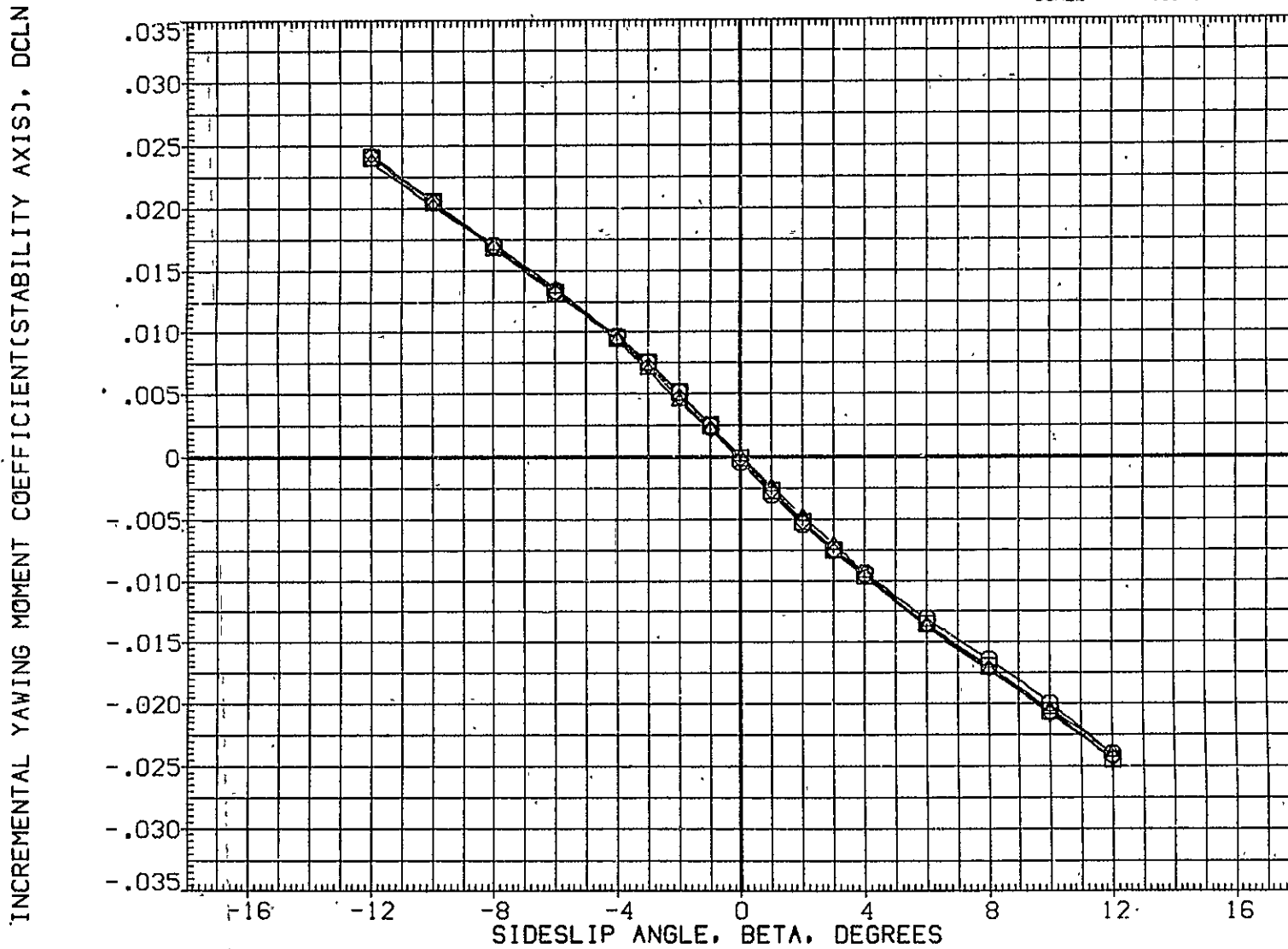


FIG.172 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-2)

CA5 K1 FO H15.1A MINUS ORB TC5 AT38.3 (BGM106)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	8.000	STAB	-2.000
□	.500	ELV-1B	.000	ELV-OB	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	S5-6	.000	ICRB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
YMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

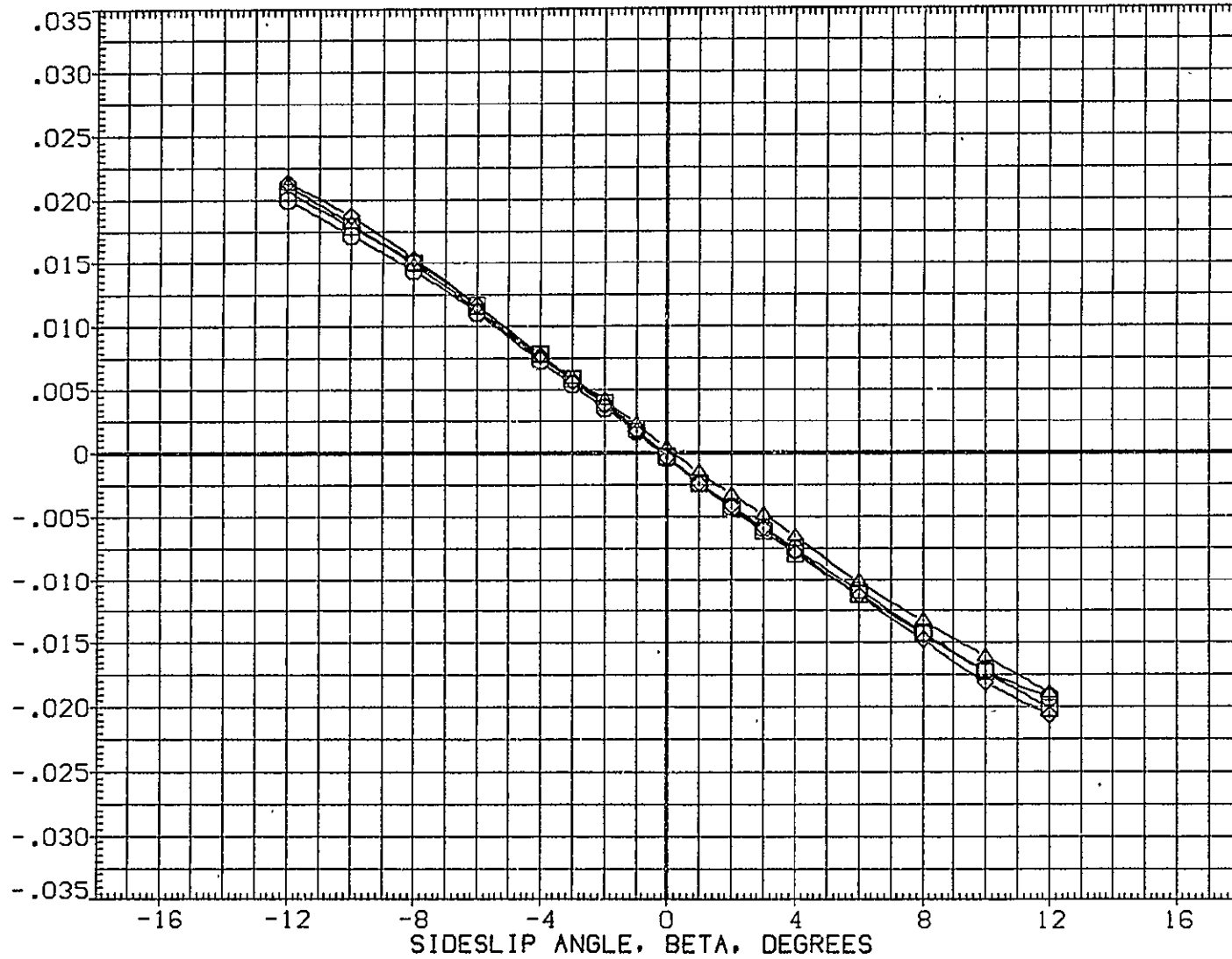


FIG.172 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES
○	.299	ALPHA1 8.000 STAB -2.000
□	.499	ELV-1B .000 ELV-OB 3.000
◇	.600	S1-2 .000 S3-4 .000
△	.700	S5-6 .000 10RB 4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

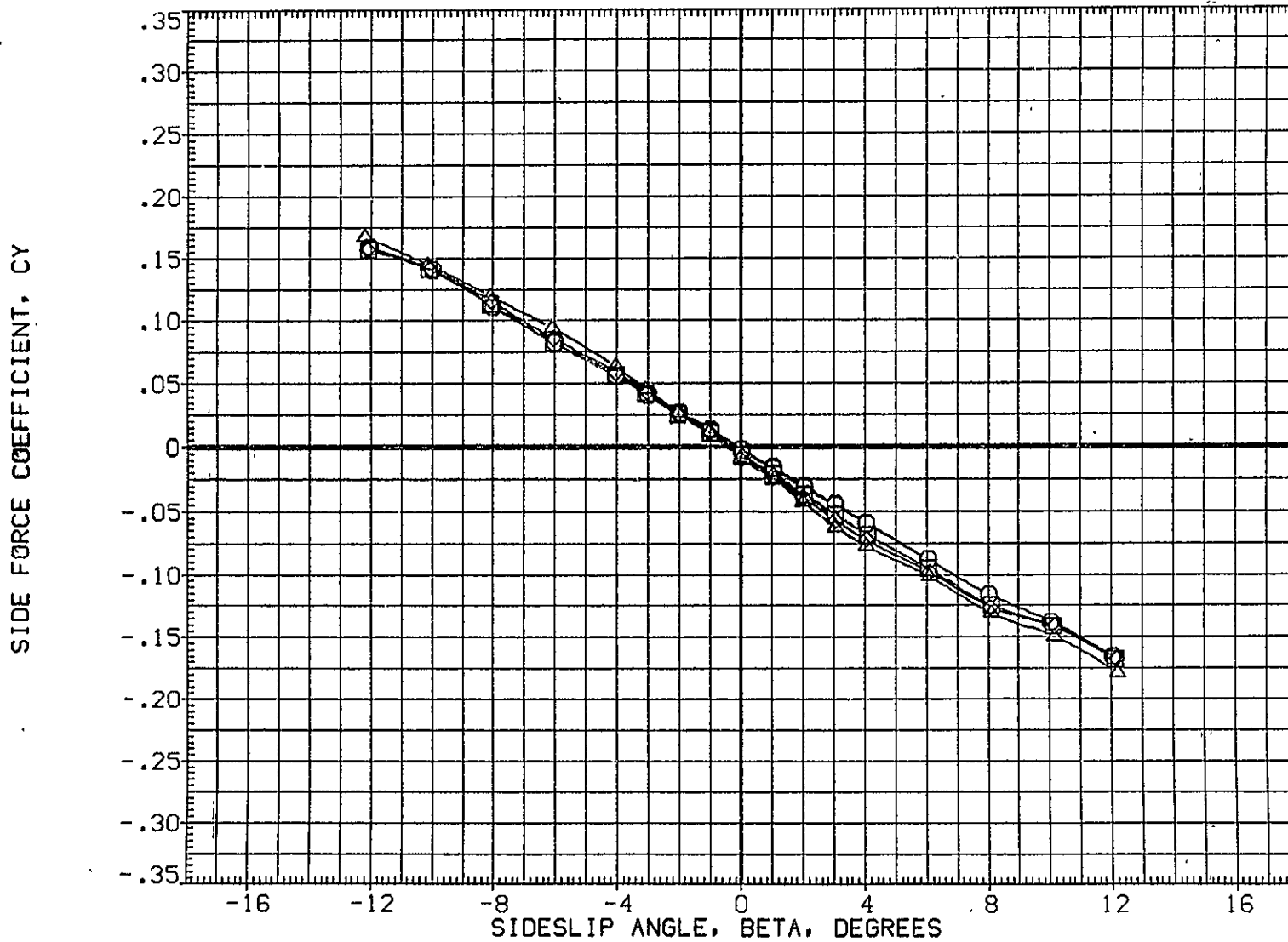


FIG.173 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-2)

ORB

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.1A (XGM106)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	ALPHA1	8.000	STAB	-2.000
□	.499	ELV-1B	.000	ELV-0B	3.000
◇	.600	S1-2	.000	S3-4	.000
△	.700	.000	10RB	4.000	

REFERENCE INFORMATION		
SREF	2690.0000	SG.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

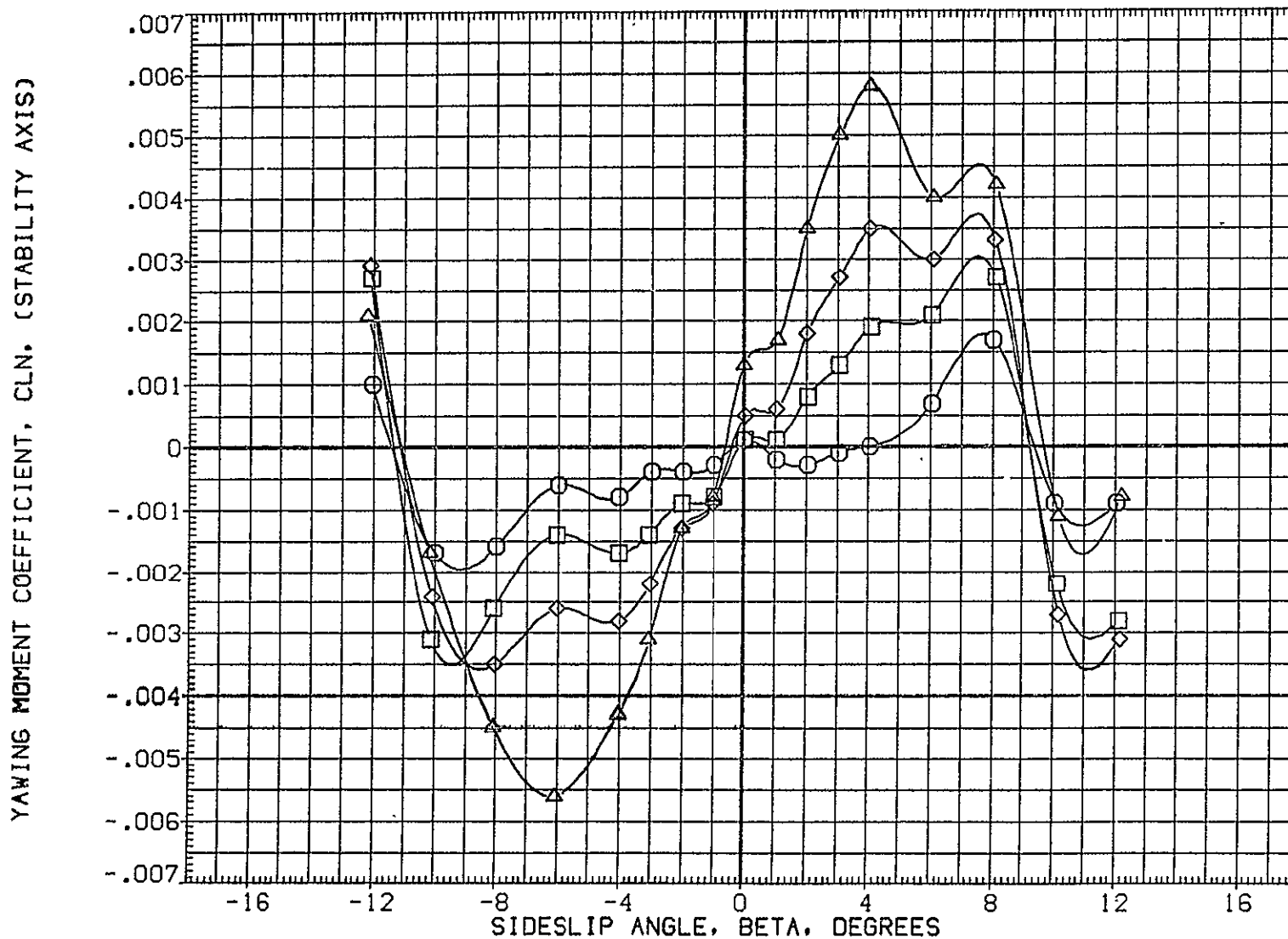


FIG.173 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-2)

ORB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	ELV-0B	S3-4	SREF	SQ.FT.	
○	.299	8.000	-2.000			2690.0000		
□	.499	.000	3.000			474.8100	IN.	
◇	.600	.000	.000			936.6800	IN.	
△	.700	.000	4.000			1109.0000	IN. X0	
						.0000	IN. Y0	
						375.0000	IN. Z0	
						.0300		

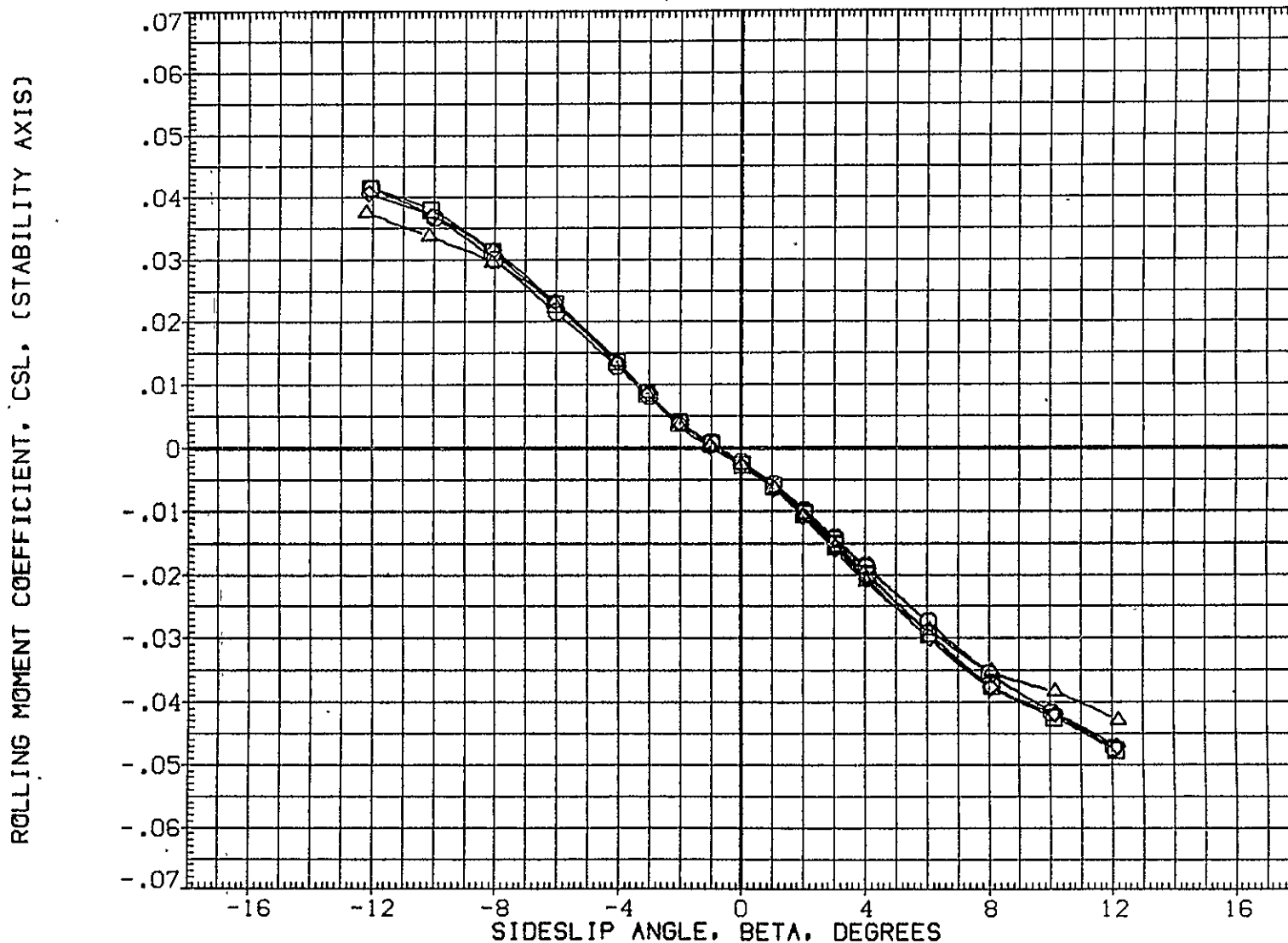


FIG.173 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-2)

0RB

CA5 K1 FO H15.1A V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM109)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA I	2.000	STAB	-3.200	SREF	5500.0000	SQ. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

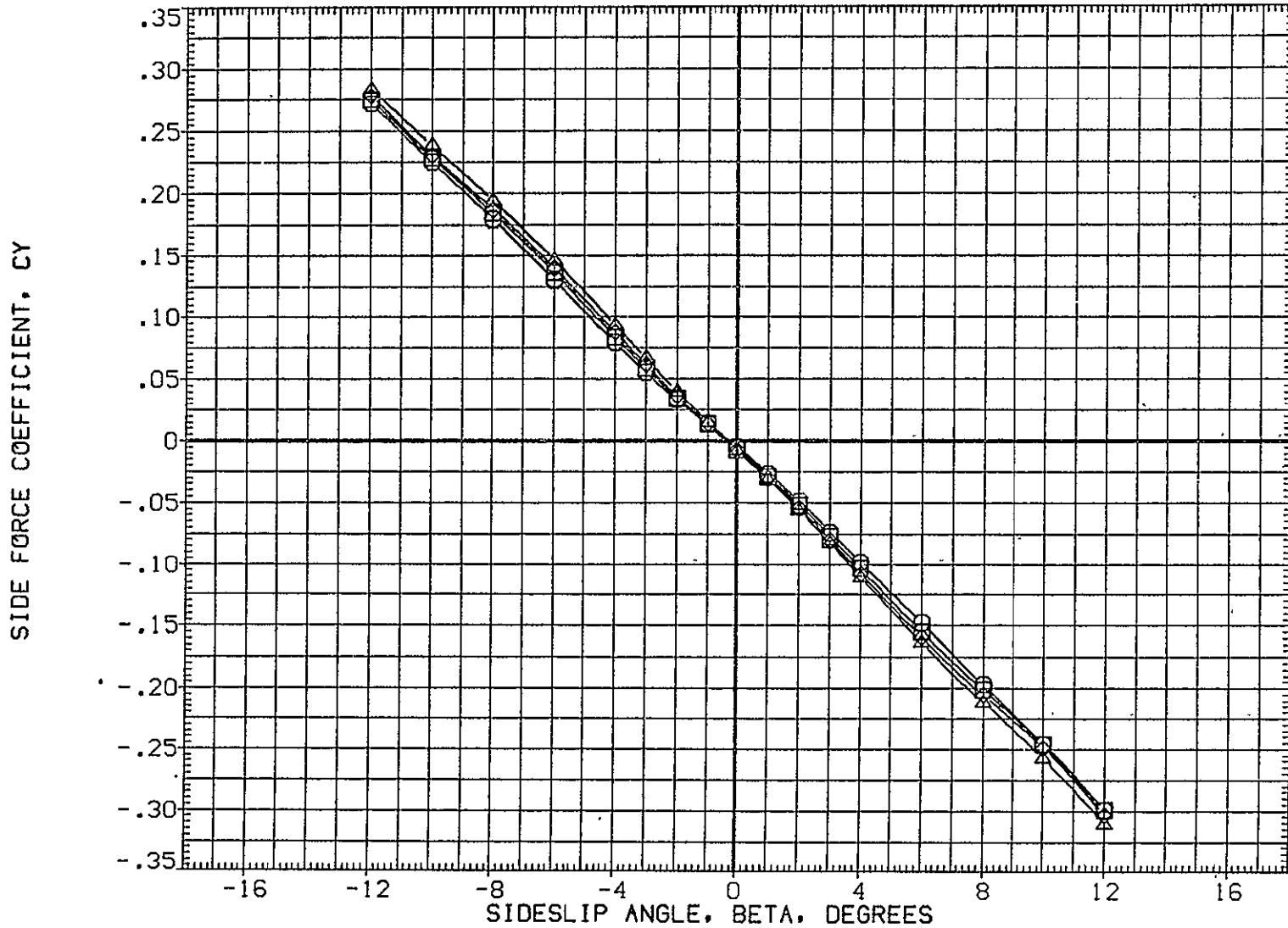


FIG.174 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA I=2(S=-3.2)

TOTAL

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	2.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

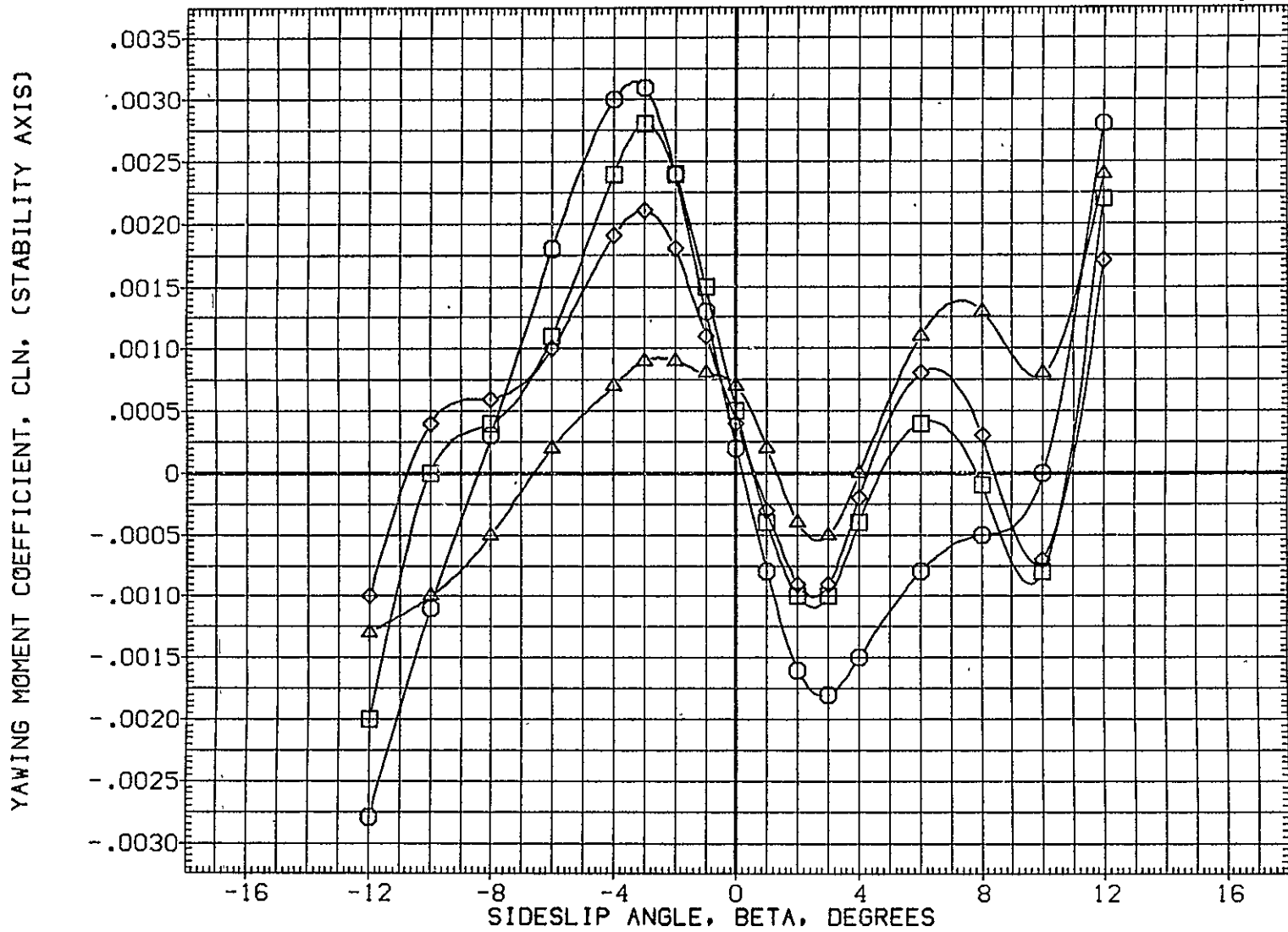


FIG.174 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

CA5 K1 F0 H15.1A V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM109)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	2.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	I0RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

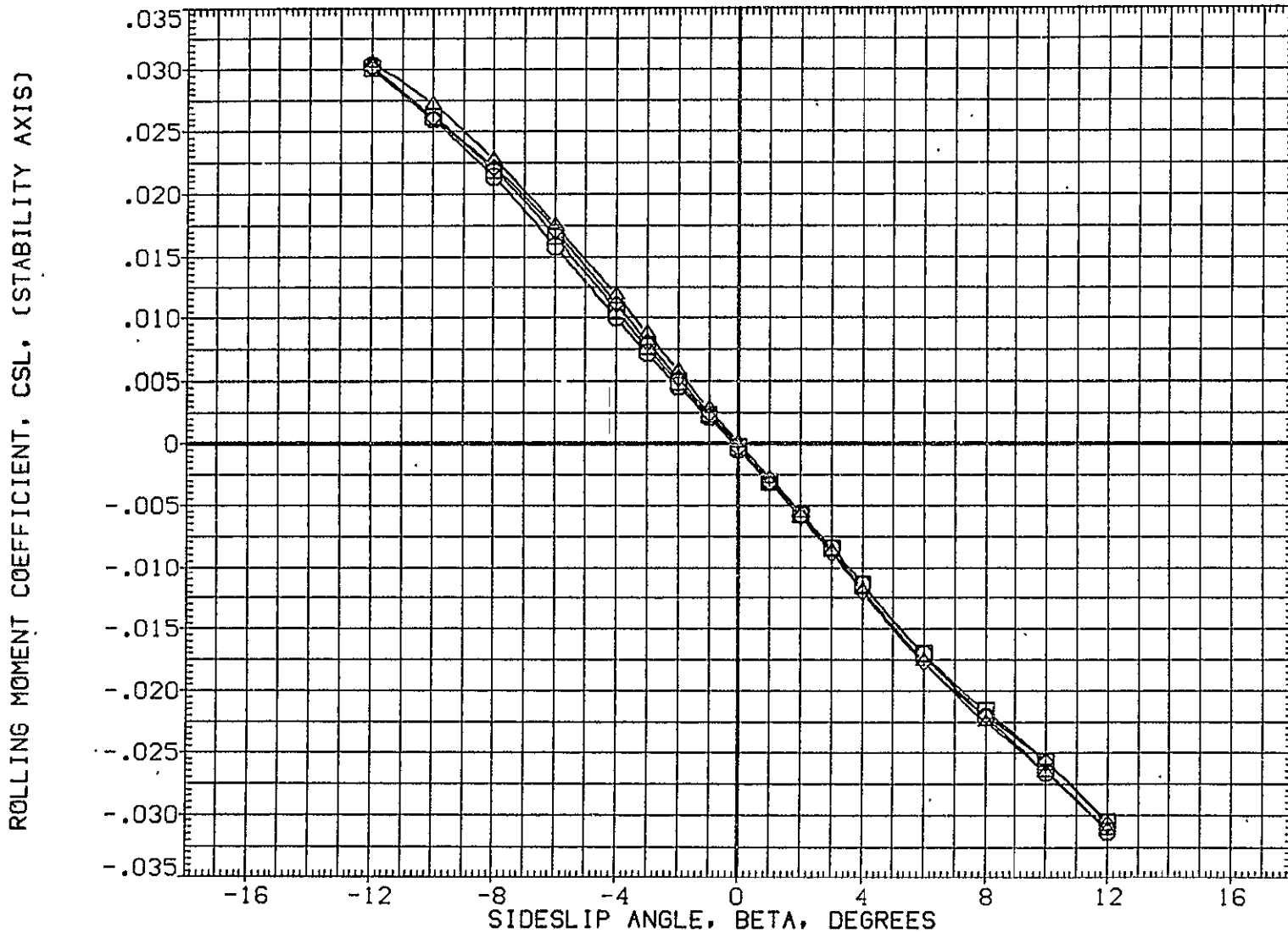


FIG.174 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	ALPHAI	PARAMETRIC VALUES			
.300	ALPHAI	2.000	STAB	-3.200	
.500	RUD-U	.000	RUD-L	.000	
.600	ELV-1B	.000	ELV-CB	3.000	
.700	S1-2	.000	S3-4	.000	
	S5-6	.000	IORB	4.000	

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

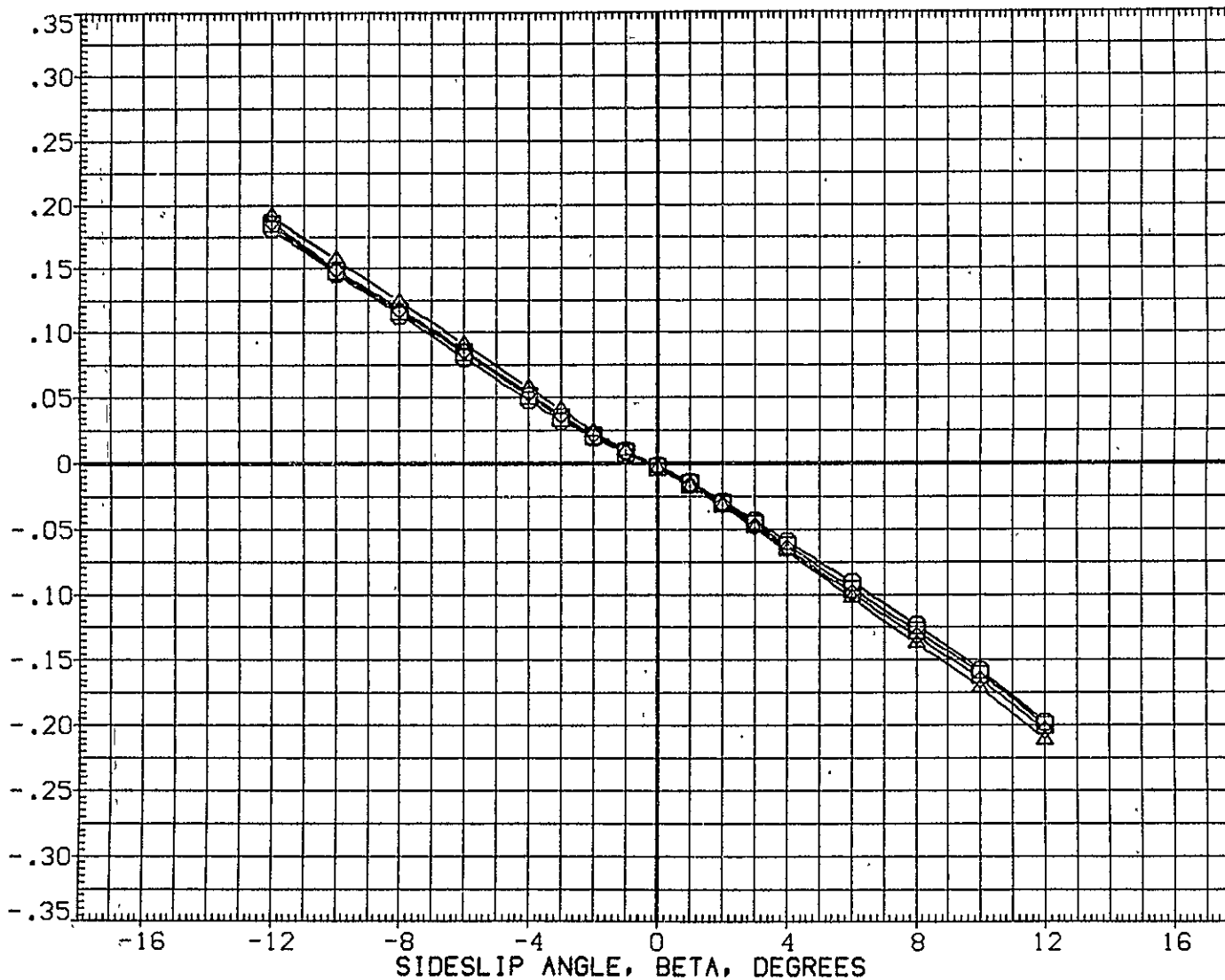


FIG.175 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI=2(S=-3.2)

CA5 K1 F0 H15.1A V9.1 MINUS ORB TC5 AT38.3 (BGM109)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT(STABILITY AXIS), DCLN

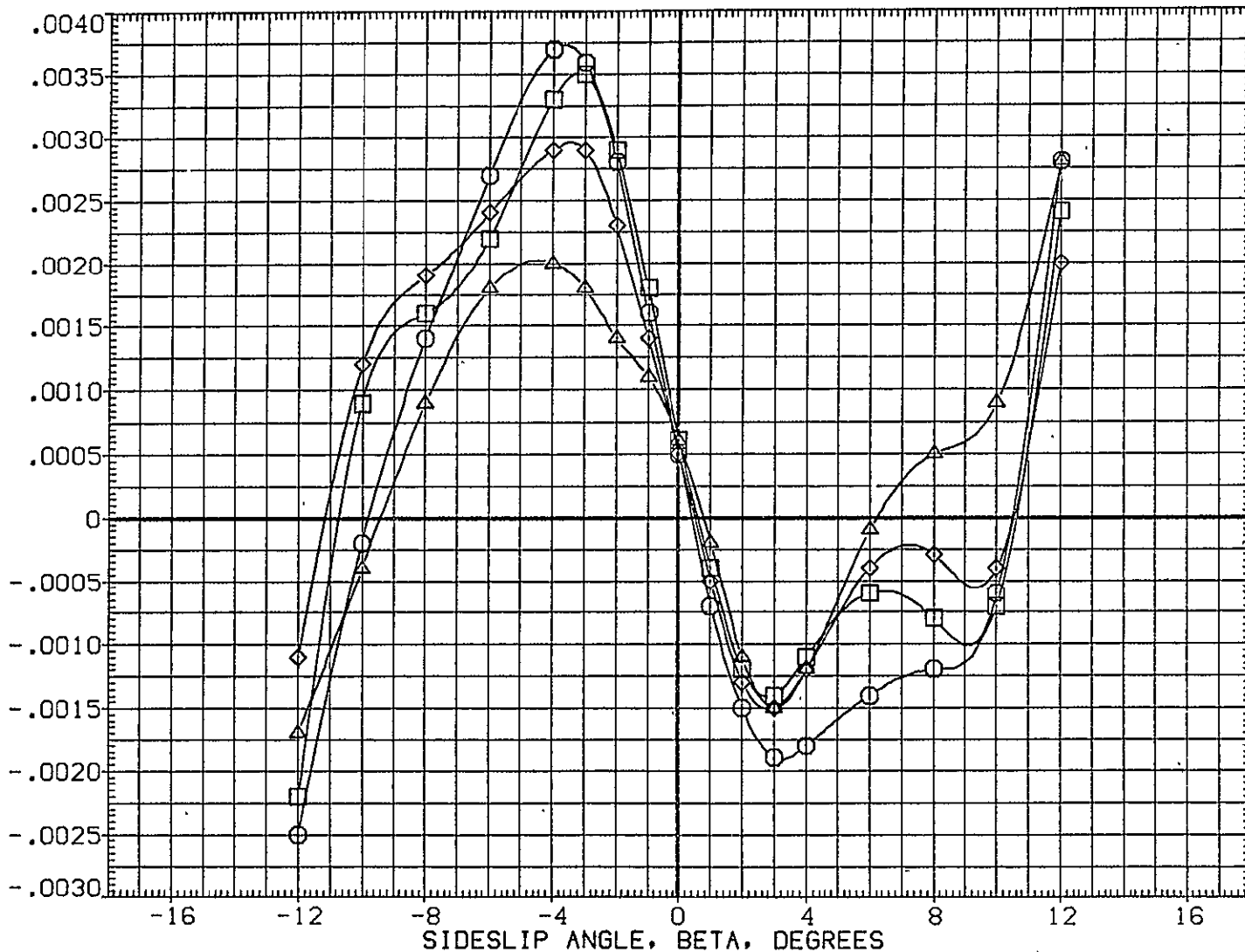


FIG.175 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	2.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DC SL

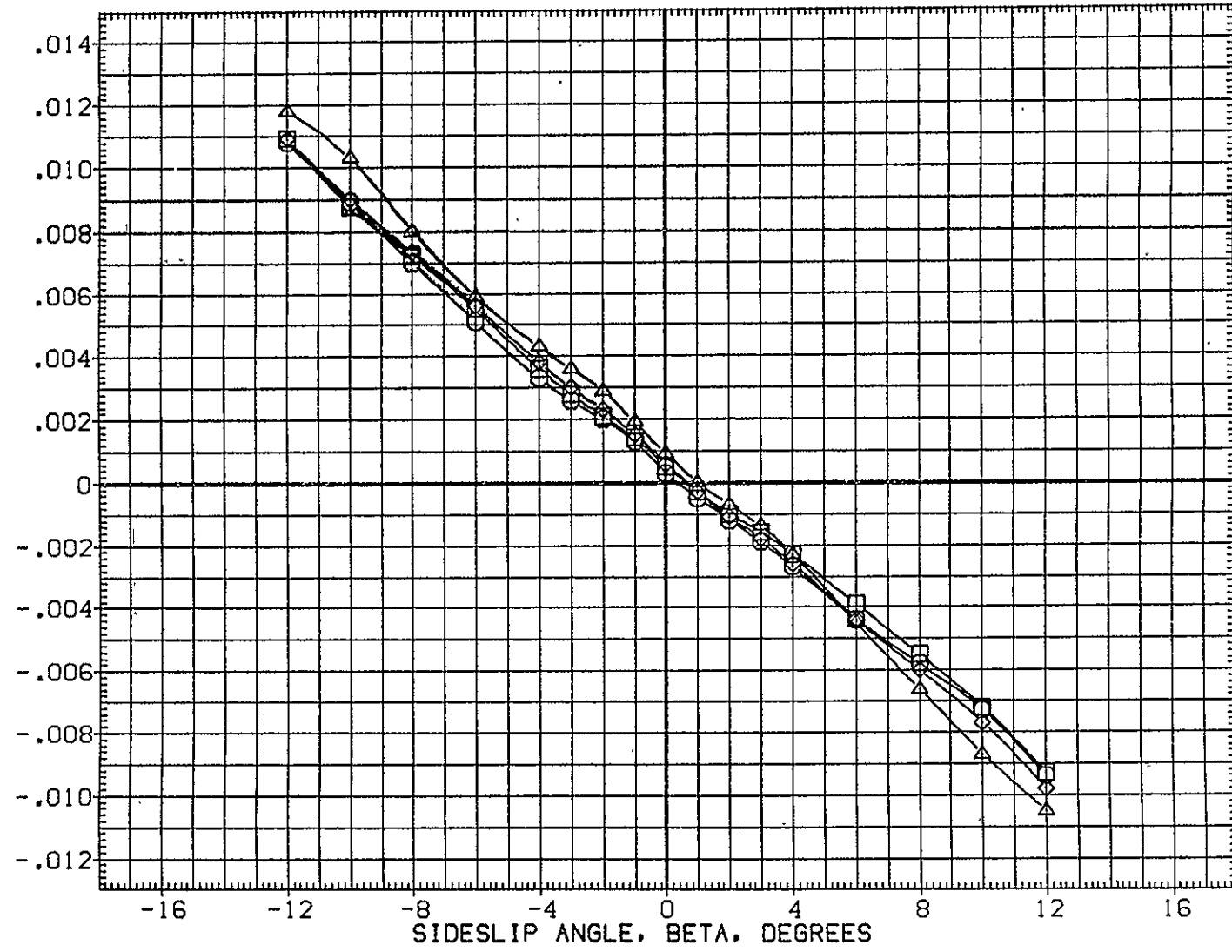


FIG.175 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(XGM109)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	ALPHA1	2.000	STAB	-3.200
.501	RUD-U	.000	RUD-L	.000
.599	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	4.000

REFERENCE INFORMATION

SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

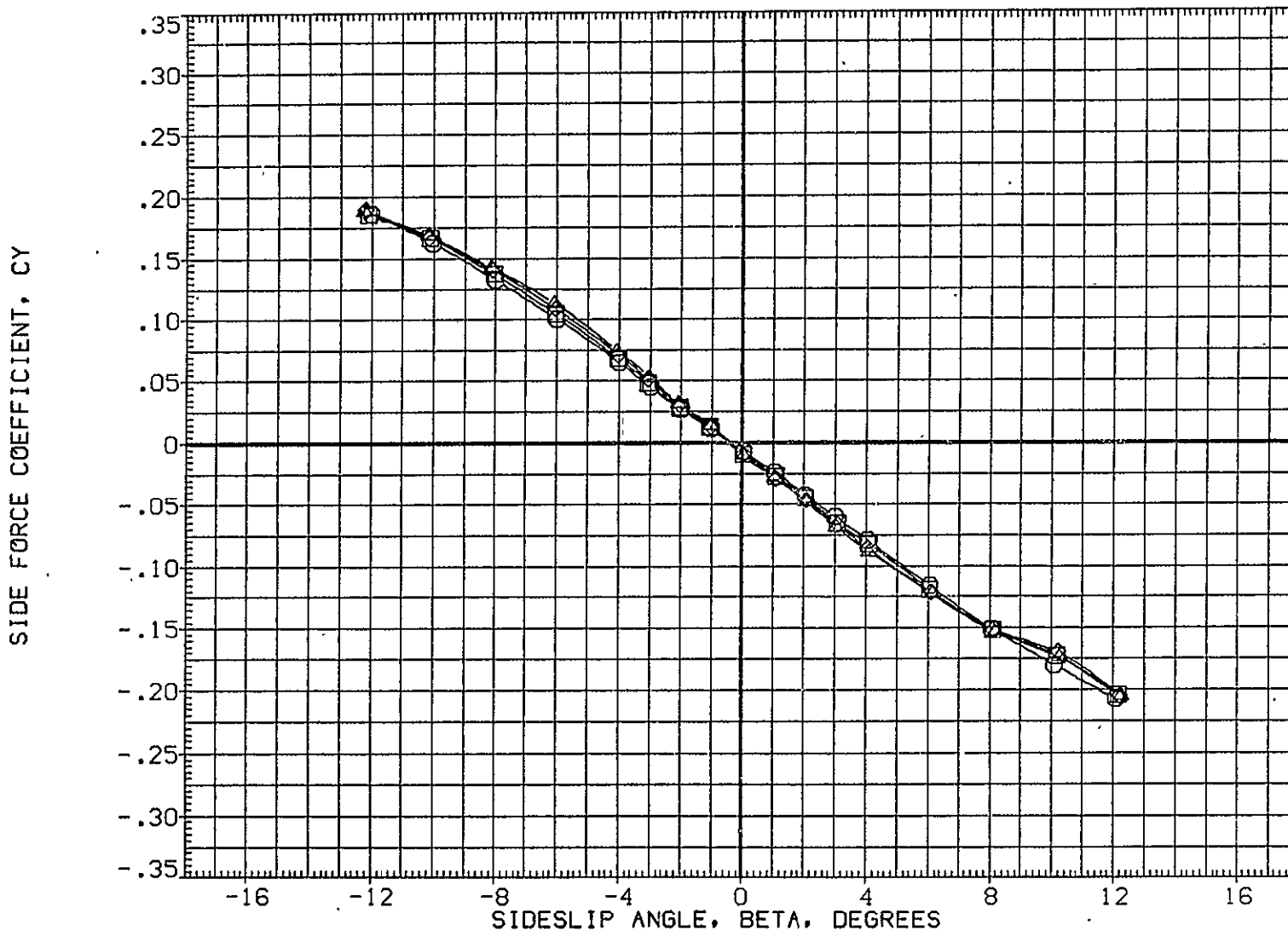


FIG.176 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

ORB



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	2.000	STAB	-3.200	SREF	2690.0000	SQ.FT.
□	.501	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.599	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

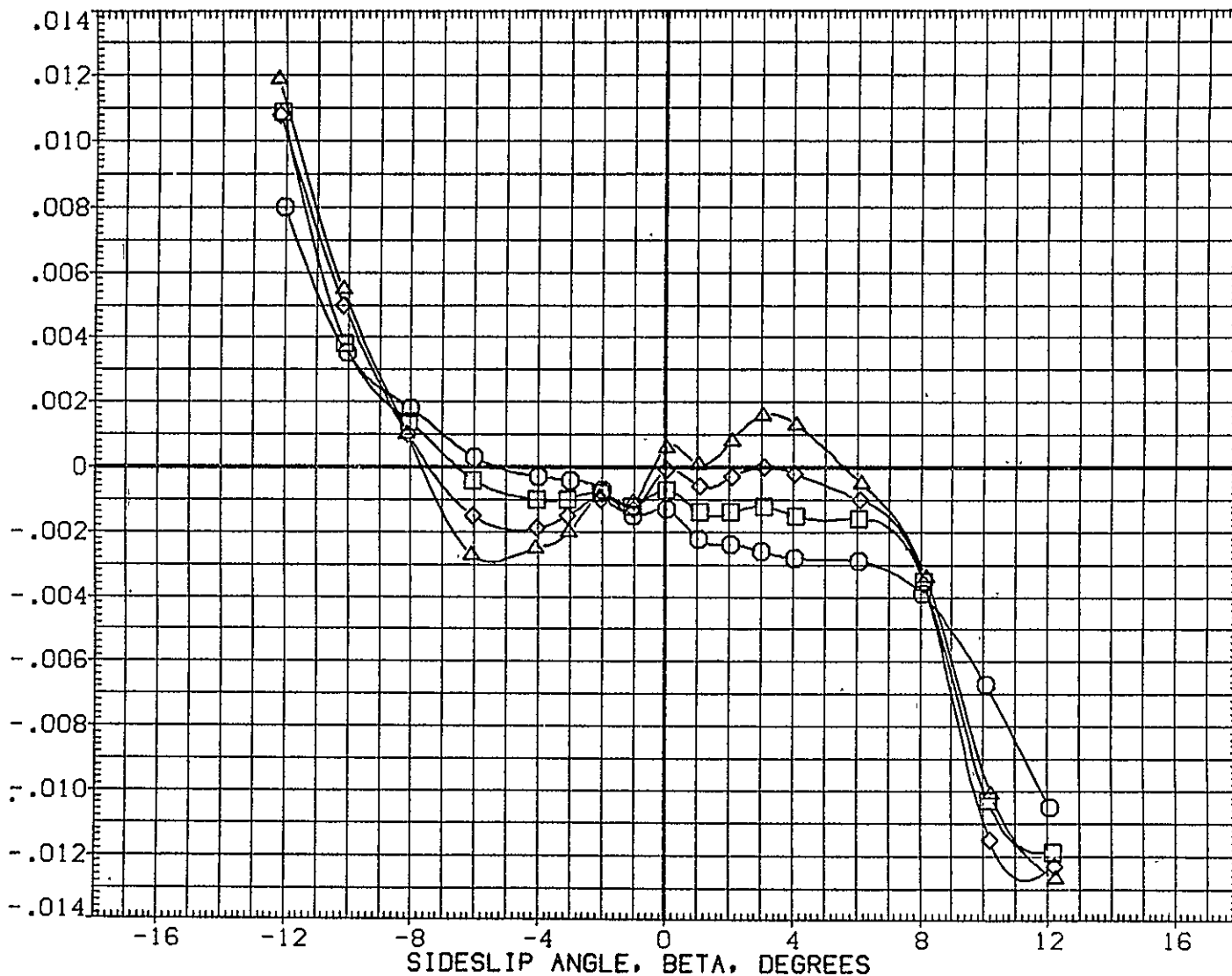


FIG.176 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

ORB

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(XGM109)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	RUD-L	ELV-OB	SREF	SO.FT.	
○	.300	2.000	-3.200	.000	3.000	2690.0000	50. FT.	
□	.501	.000	.000	.000	.000	474.8100	IN.	
◇	.599	.000	.000	.000	.000	936.6800	IN.	
△	.700	.000	.000	.000	.000	1109.0000	IN. X0	
		S1-2	S3-4			YMRP	IN. Y0	
		S5-6	IORB	4.000		ZMRP	IN. Z0	
						SCALE	.0300	

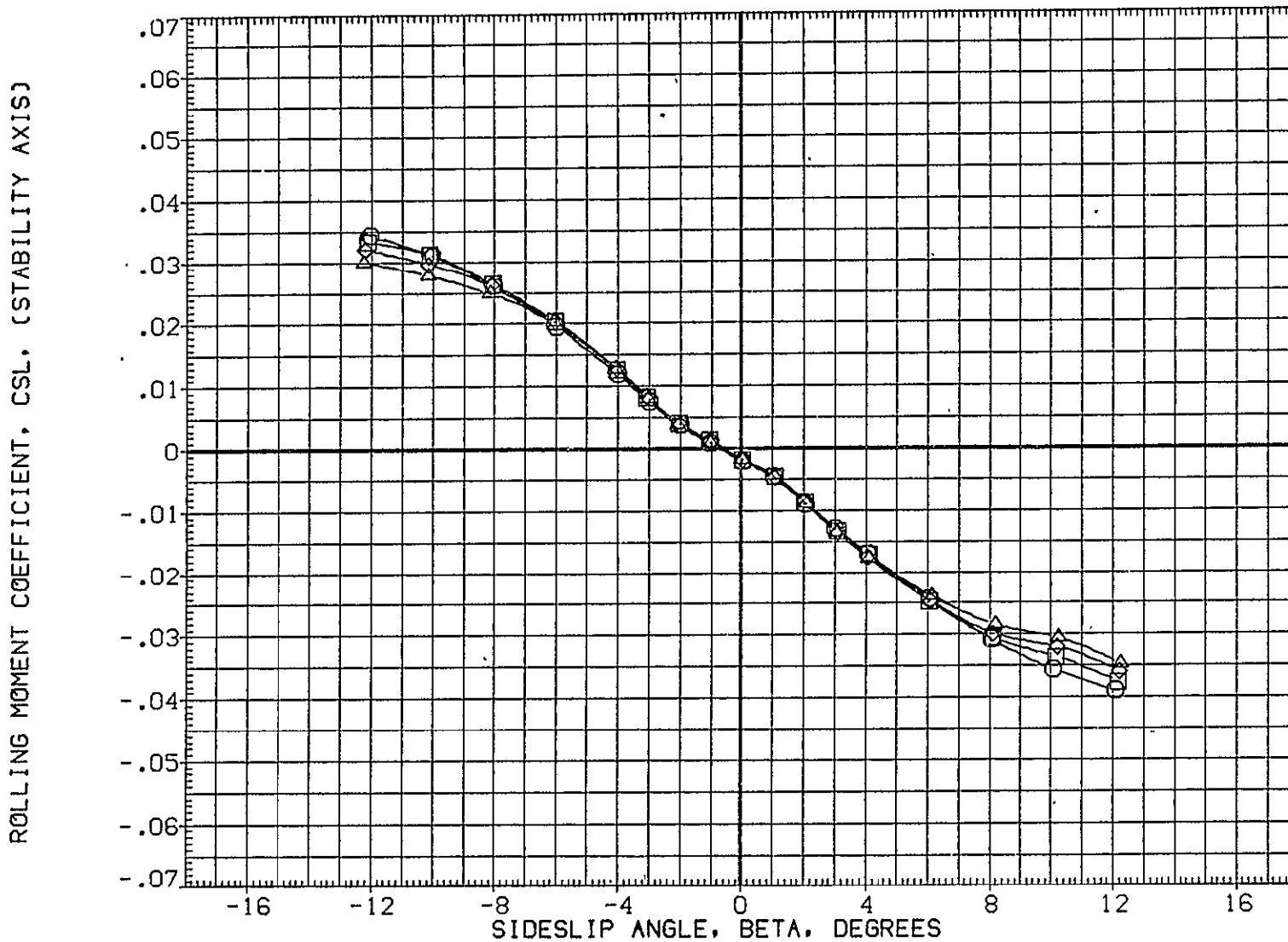


FIG.176 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	I0RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

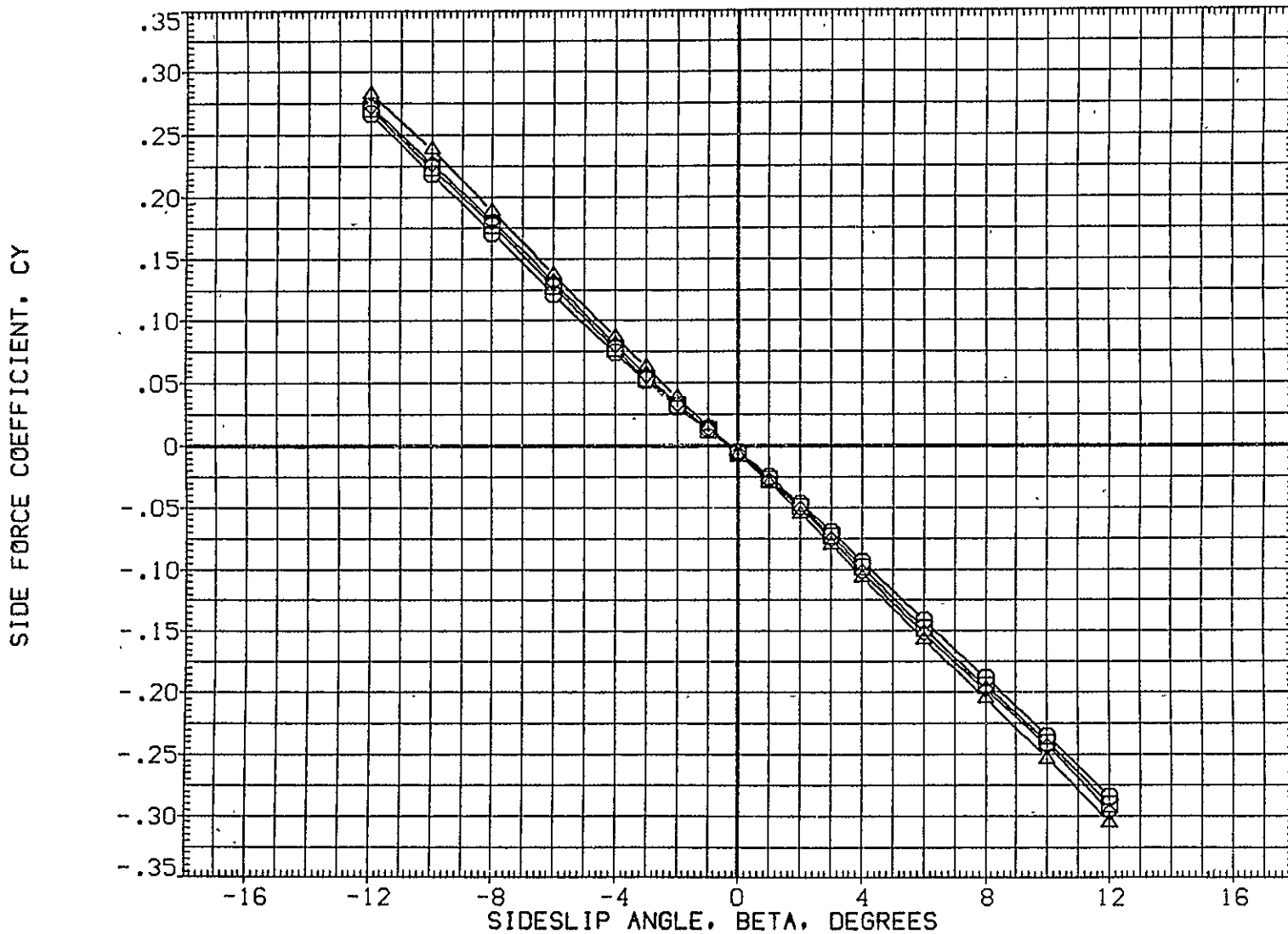


FIG.177 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

CA5 K1 F0 H15.1A V9.1 (PLUS. ORB TC5 AT38.3 )(RGM110)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	6.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

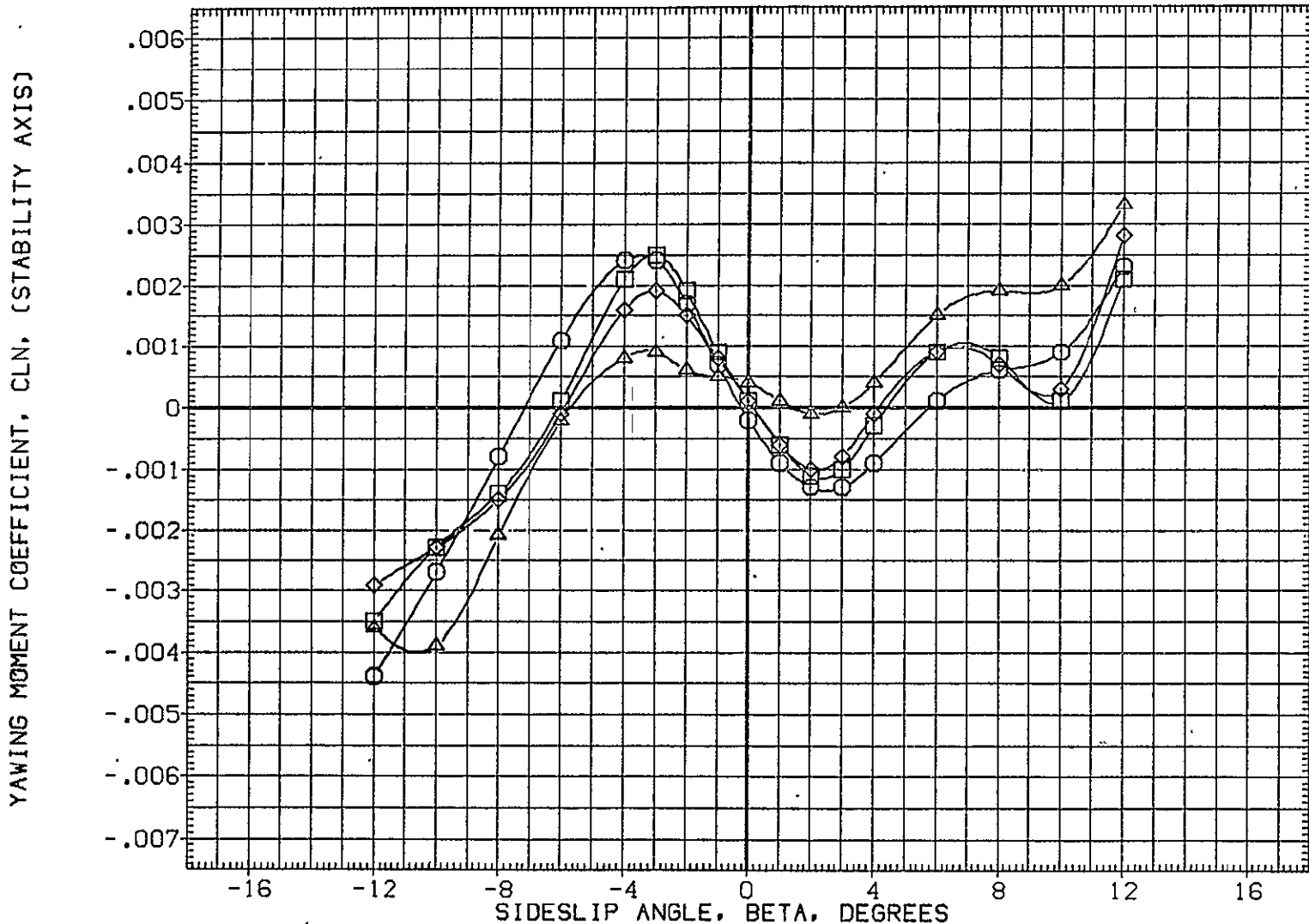


FIG.177 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	ALPHA1	6.000	STAB	-3.200
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

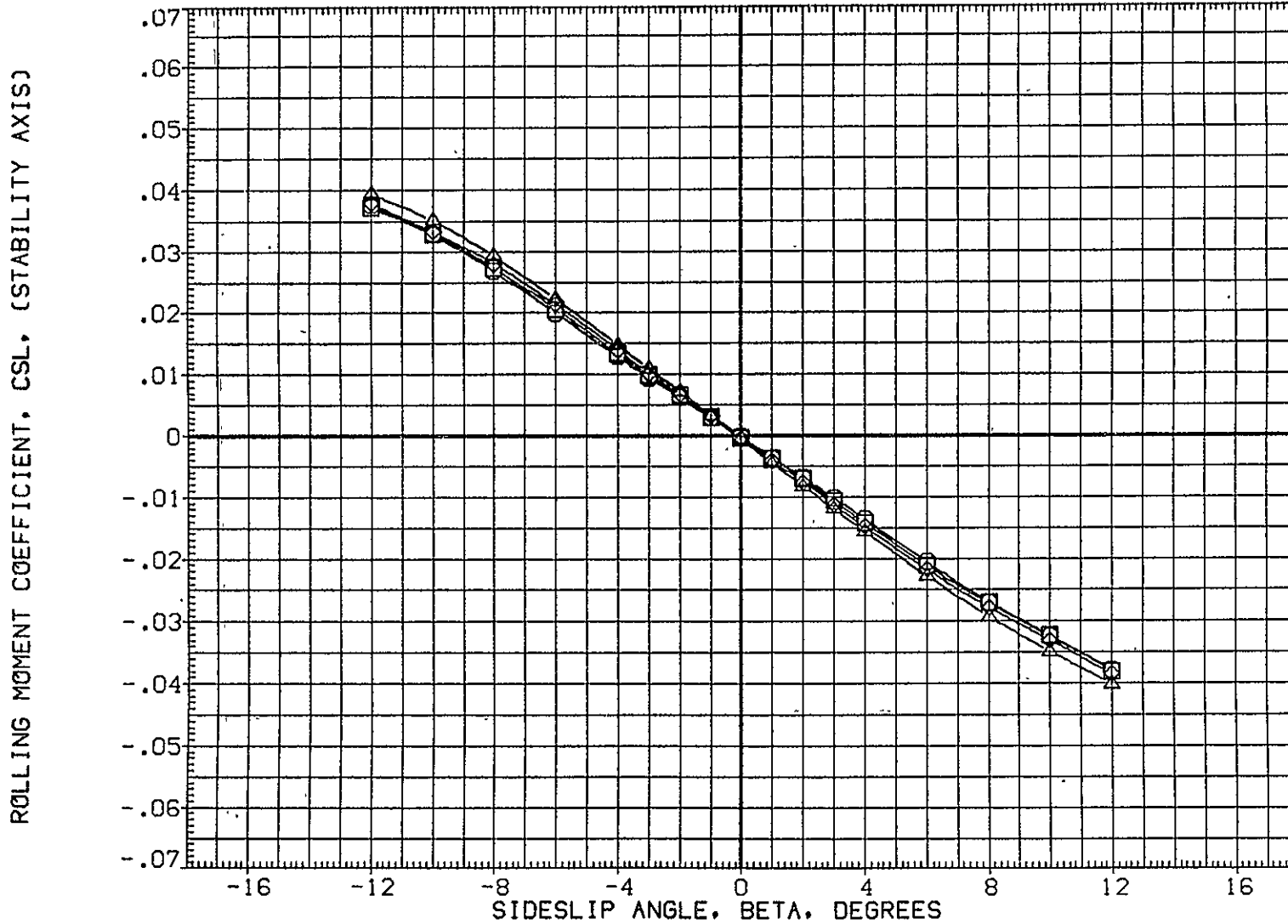


FIG.177 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

CA5 K1 FO H15.1A V9.1 MINUS ORB TC5 AT38.3 (BGM110)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		ALPHA I	STAB	STAB	STAB		
○	.300	6.000	-3.200		SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	YMRP	.0000	IN. YC
					ZMRP	190.7500	IN. ZC
					SCALE	.0300	

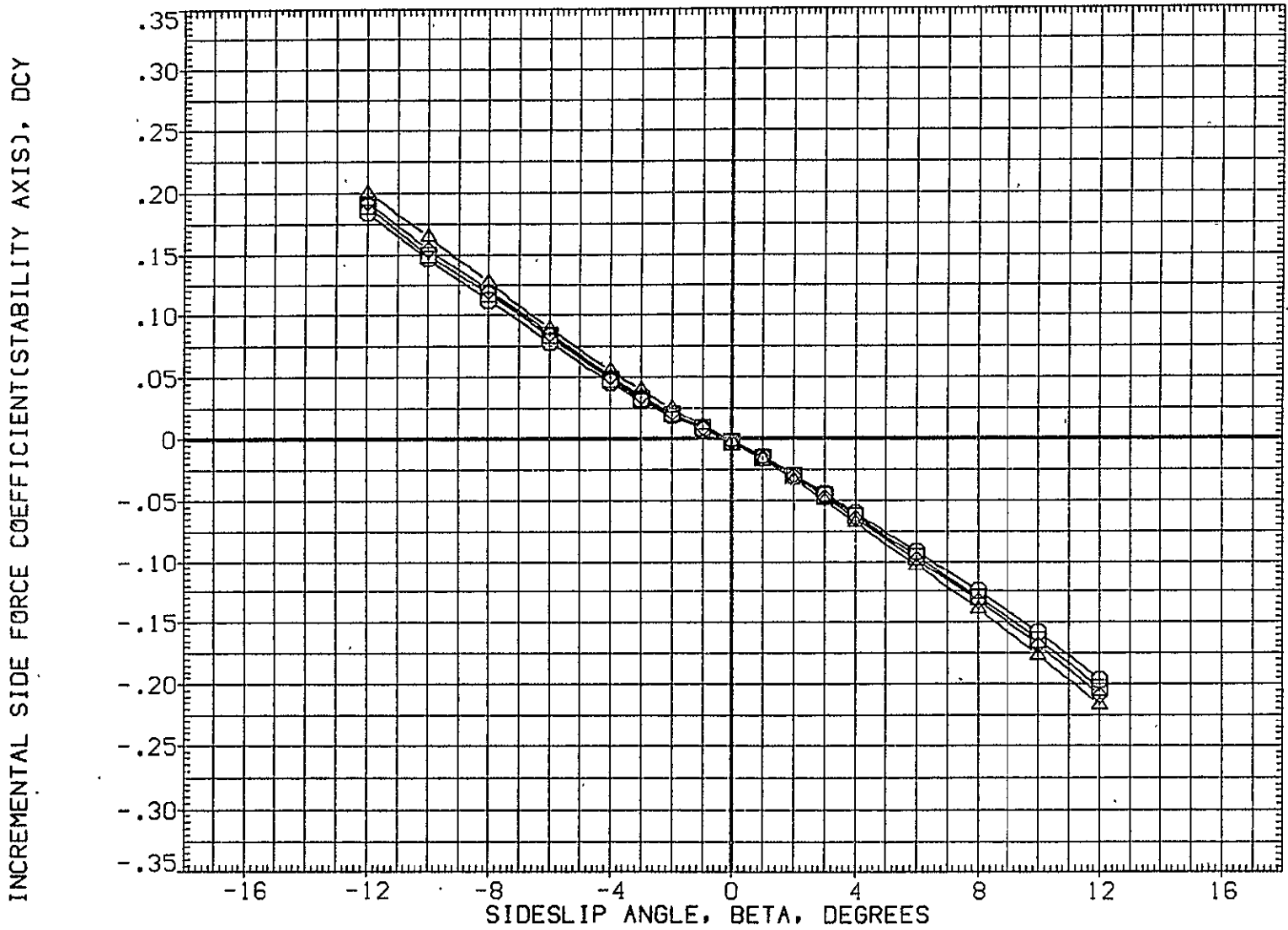


FIG.178 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA I=6(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHAI	6.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		SS-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SG.Ft.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

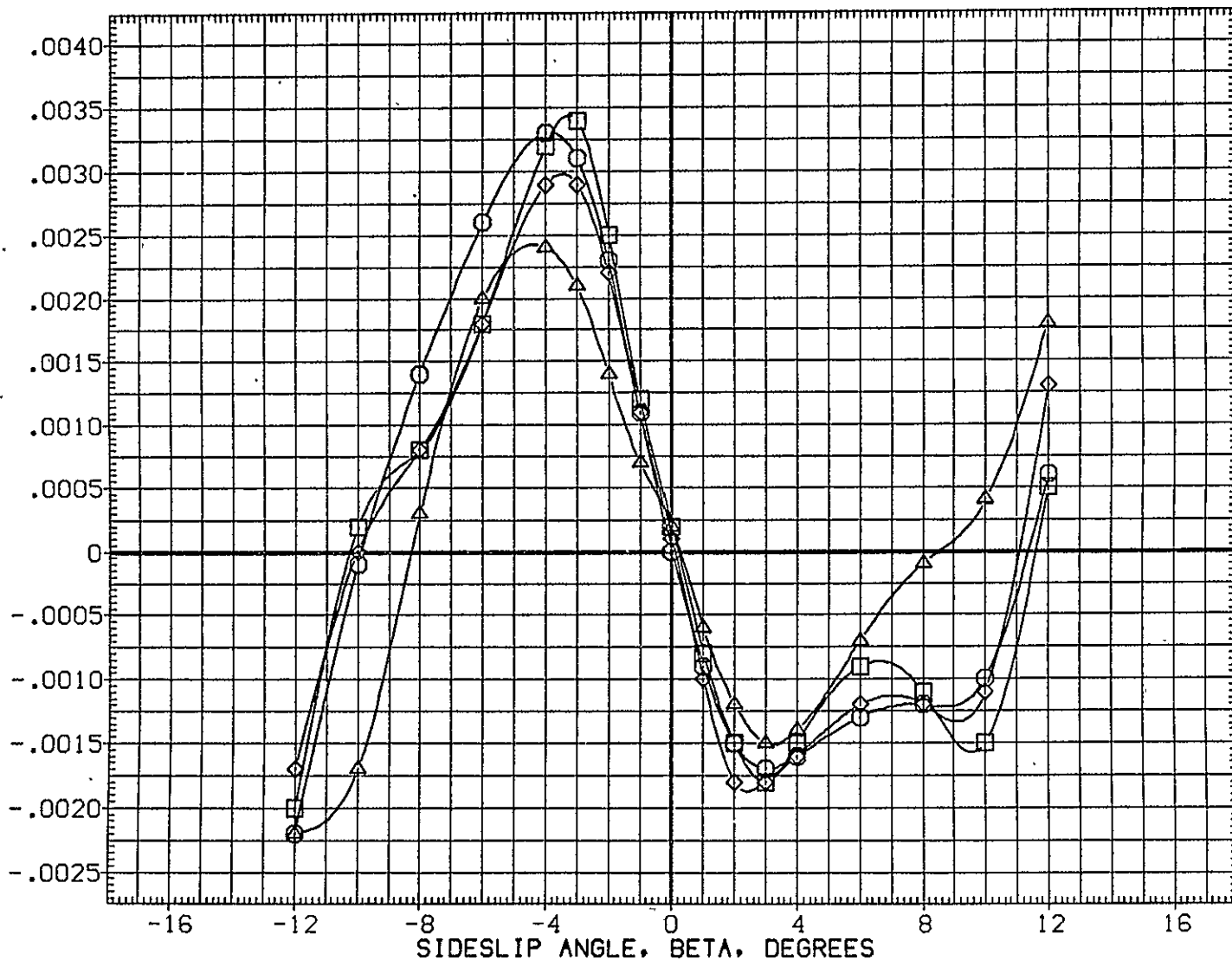


FIG.178 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI=6(S=-3.2)

CA5 K1 F0 H15.1A V9.1 MINUS 0RB TC5 AT38.3 (BGM110)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHAI	6.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

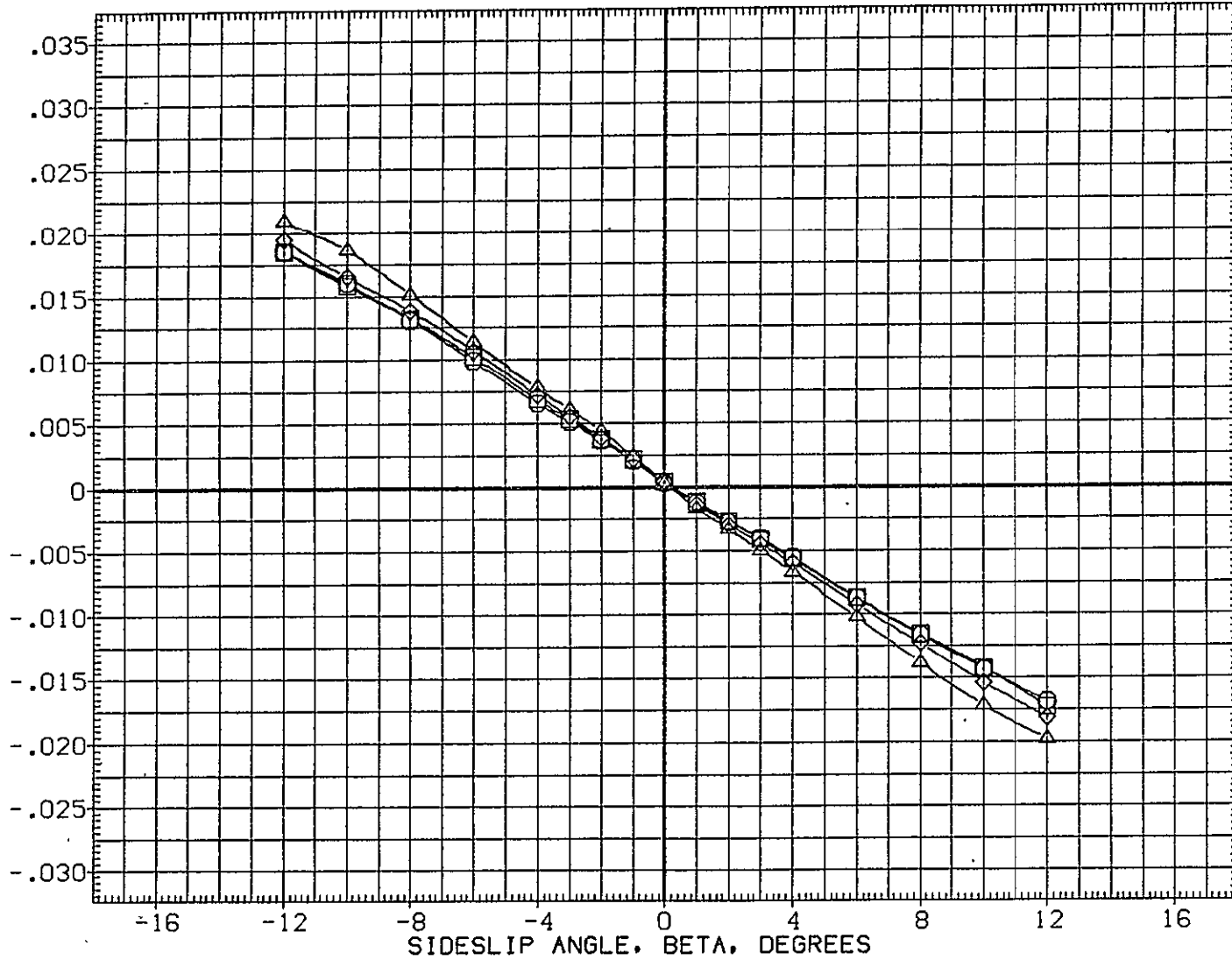


FIG.178 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHAI=6(S=-3.2)

747



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.601	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

SIDE FORCE COEFFICIENT, CY

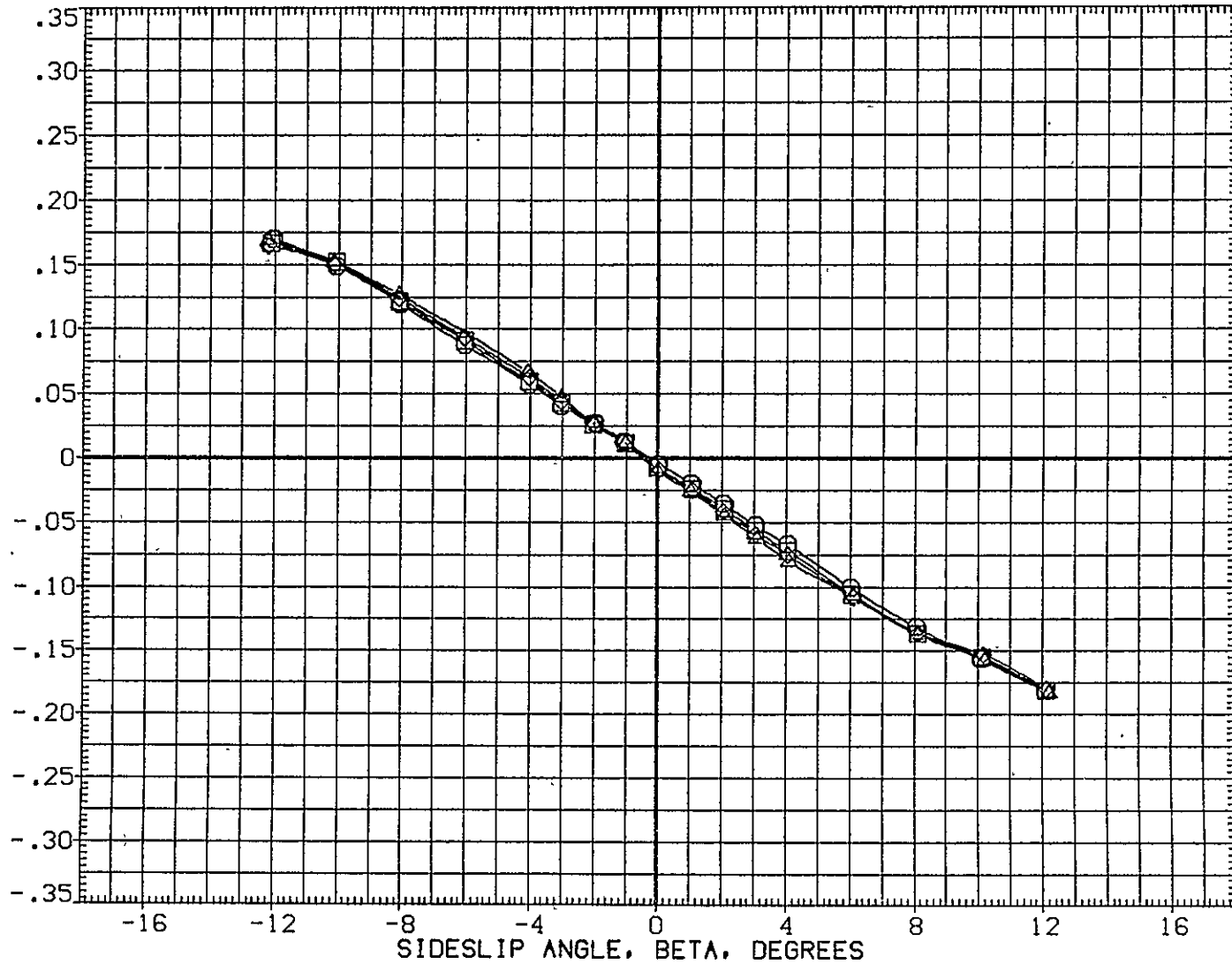


FIG.179 747+0RB(4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHA1=6(S=-3.2)

0RB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(XGM110)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	ALPHA1	6.000	STAB	-3.200
.500	RUD-U	.000	RUD-L	.000
.601	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	50.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

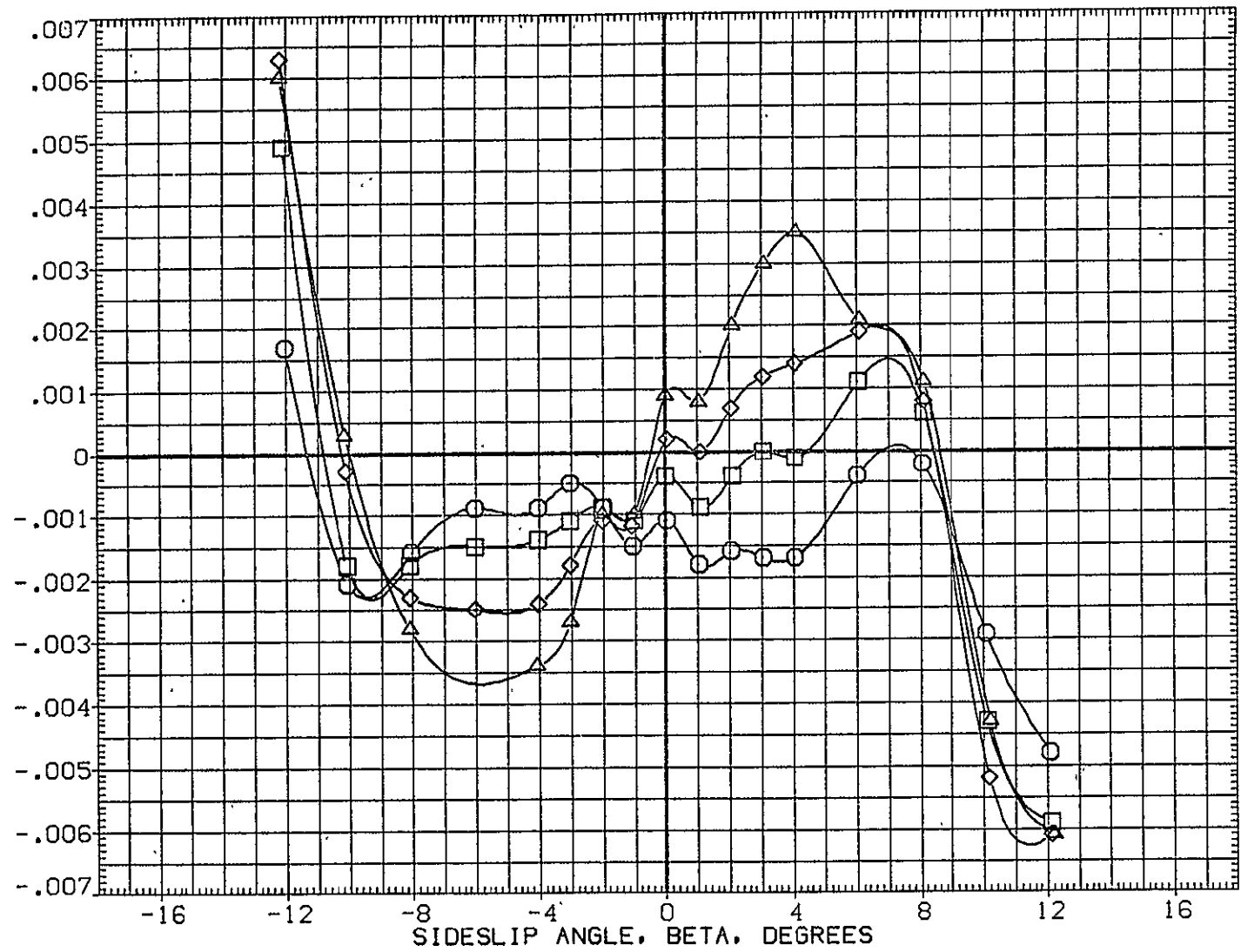


FIG.179 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

0RB

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	ALPHA1	6.000	STAB	-3.200
.500	RUD-U	.000	RUD-L	.000
.601	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XM RP	1109.0000	IN. X0
YM RP	.0000	IN. Y0
ZM RP	375.0000	IN. Z0
SCALE	.0300	

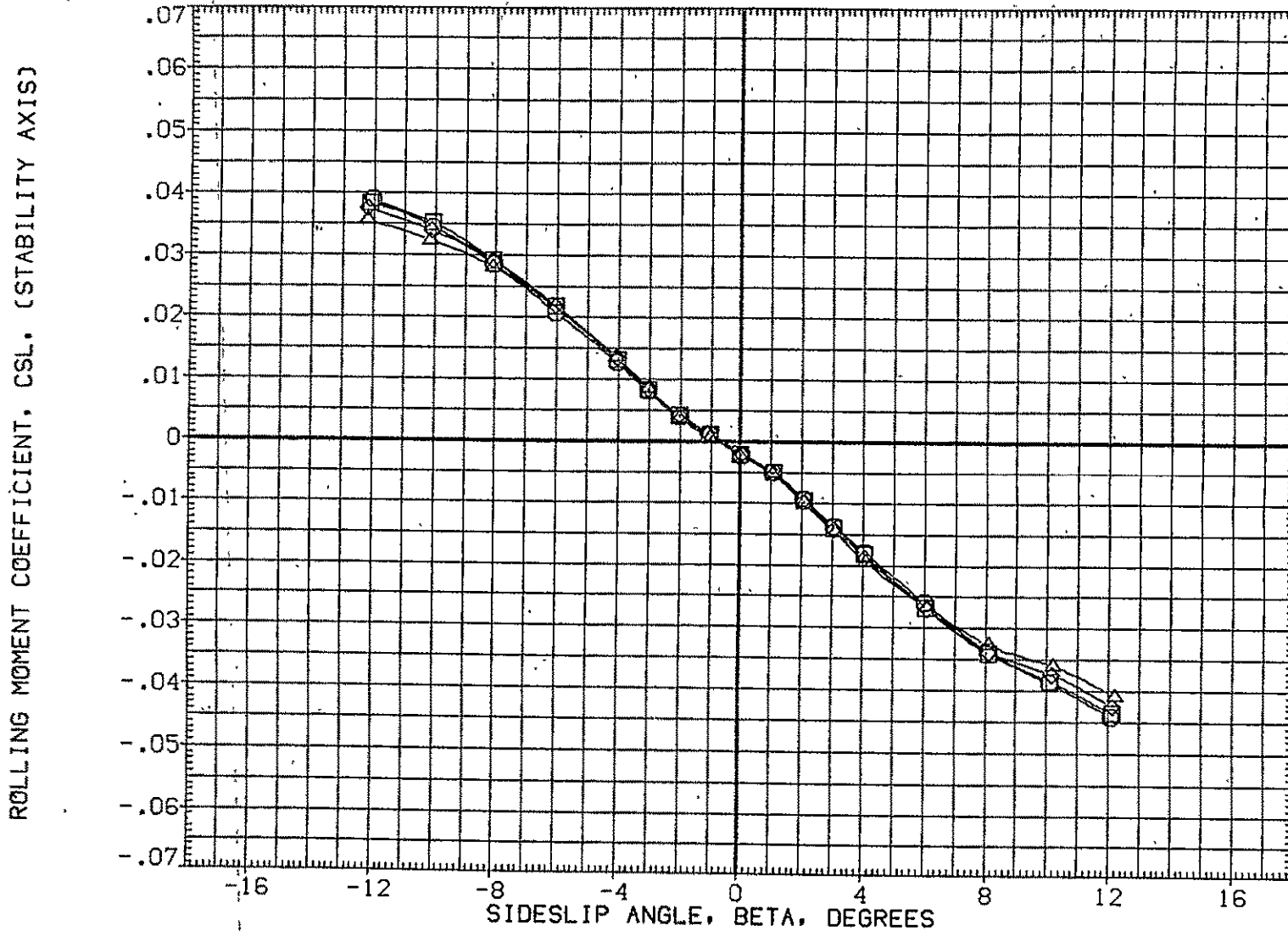


FIG.179 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

ORB

CA5 K1 F0 H15.1A V9.1 (PLUS. ORB TC5 AT38.3 )(RGM111)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES
.300	ALPHA1 8.000 STAB -3.200
.500	RUD-U .000 RUD-L .000
.600	ELV-1B .000 ELV-OB 3.000
.700	S1-2 .000 S3-4 .000
	S5-6 .000 IORB 4.000

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

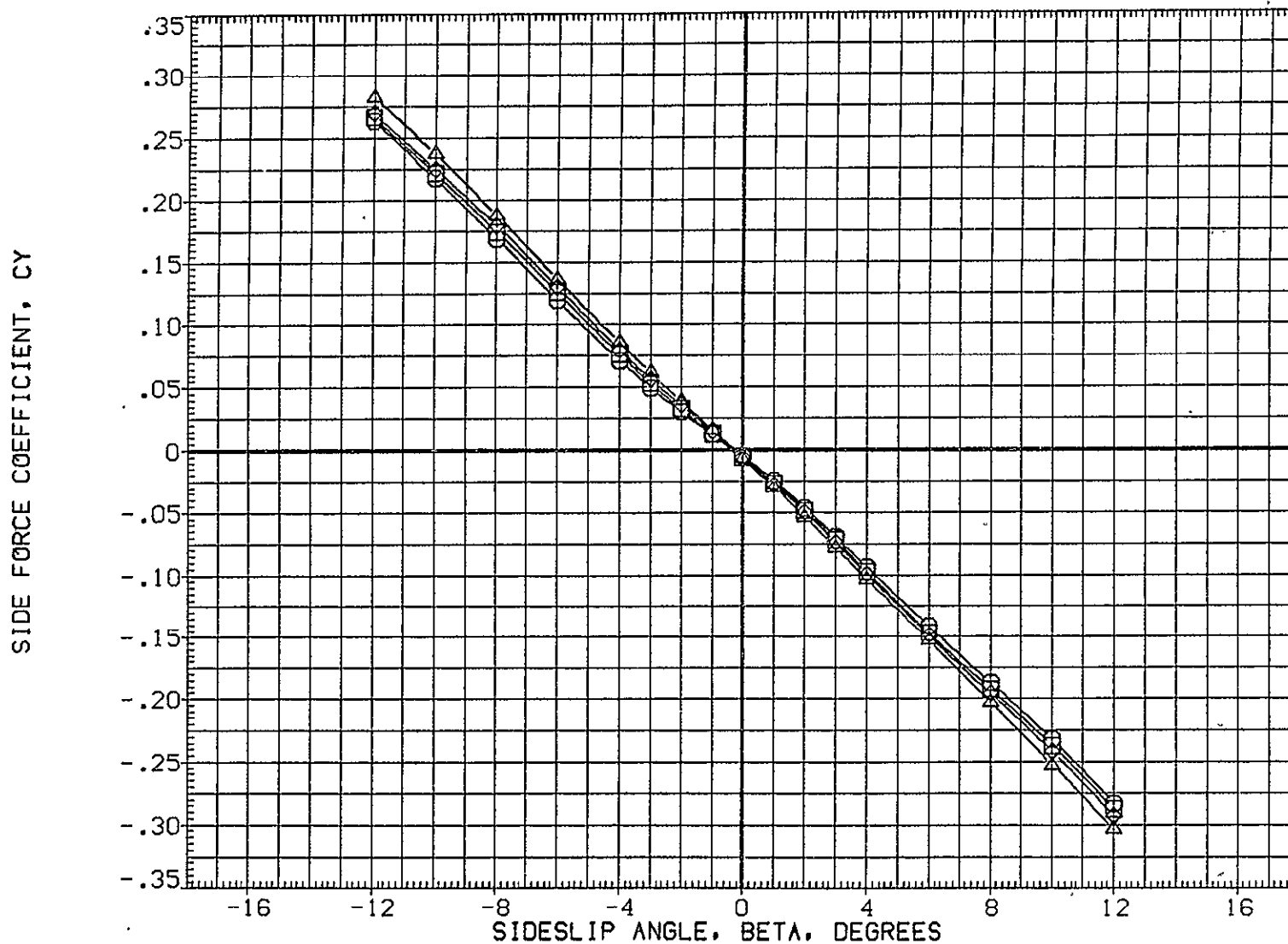


FIG.180 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	8.000	STAB	-3.200	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		SS-6	.000	ICRB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

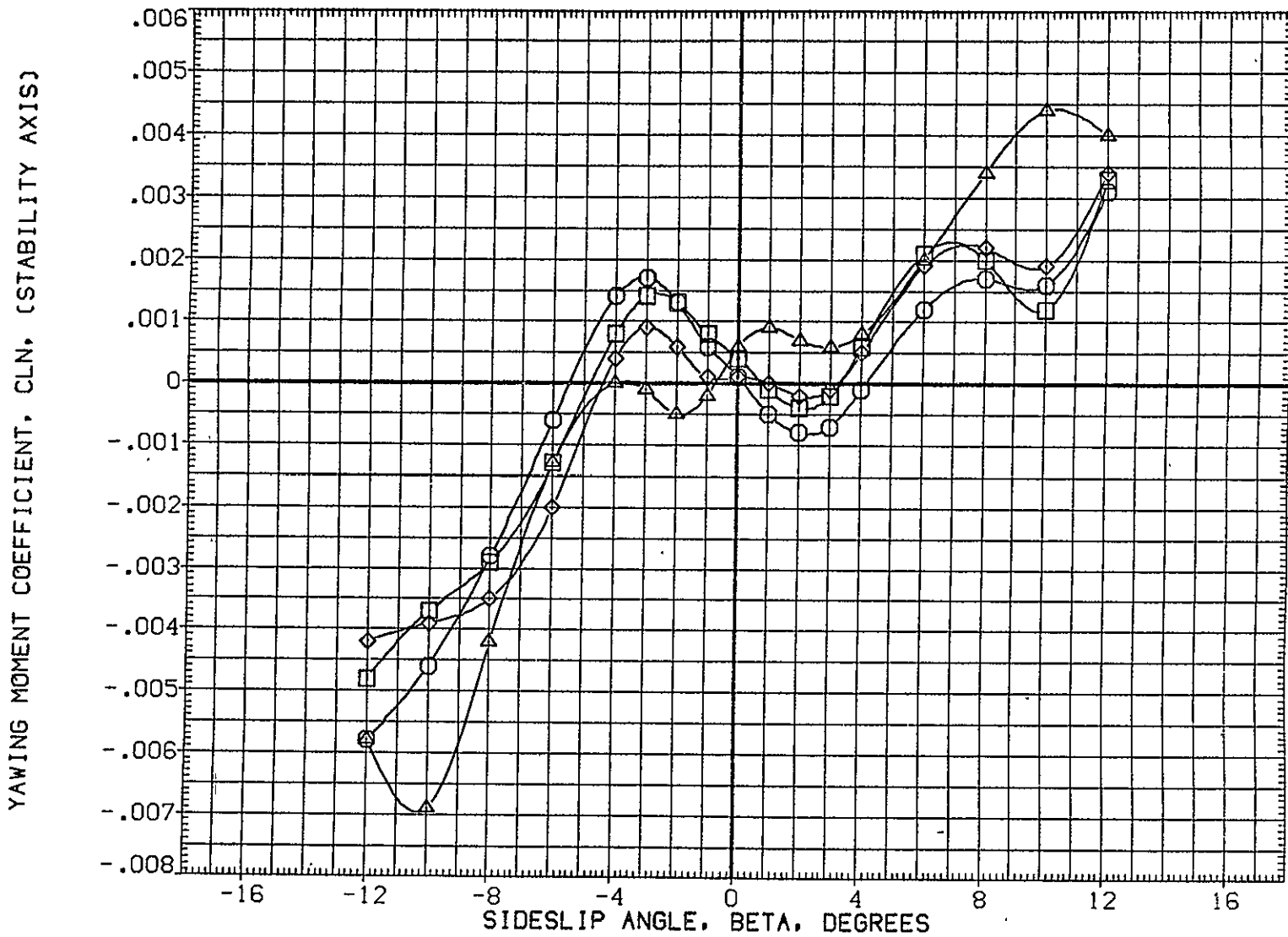


FIG.180 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

CA5 K1 FO H15.1A V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM111)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHAI	STAB	STAB	STAB	SREF	IN.	IN.
○	.300	8.000	-3.200			5500.0000	50. FT.	
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	



FIG.180 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHAI=8(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA I	8.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

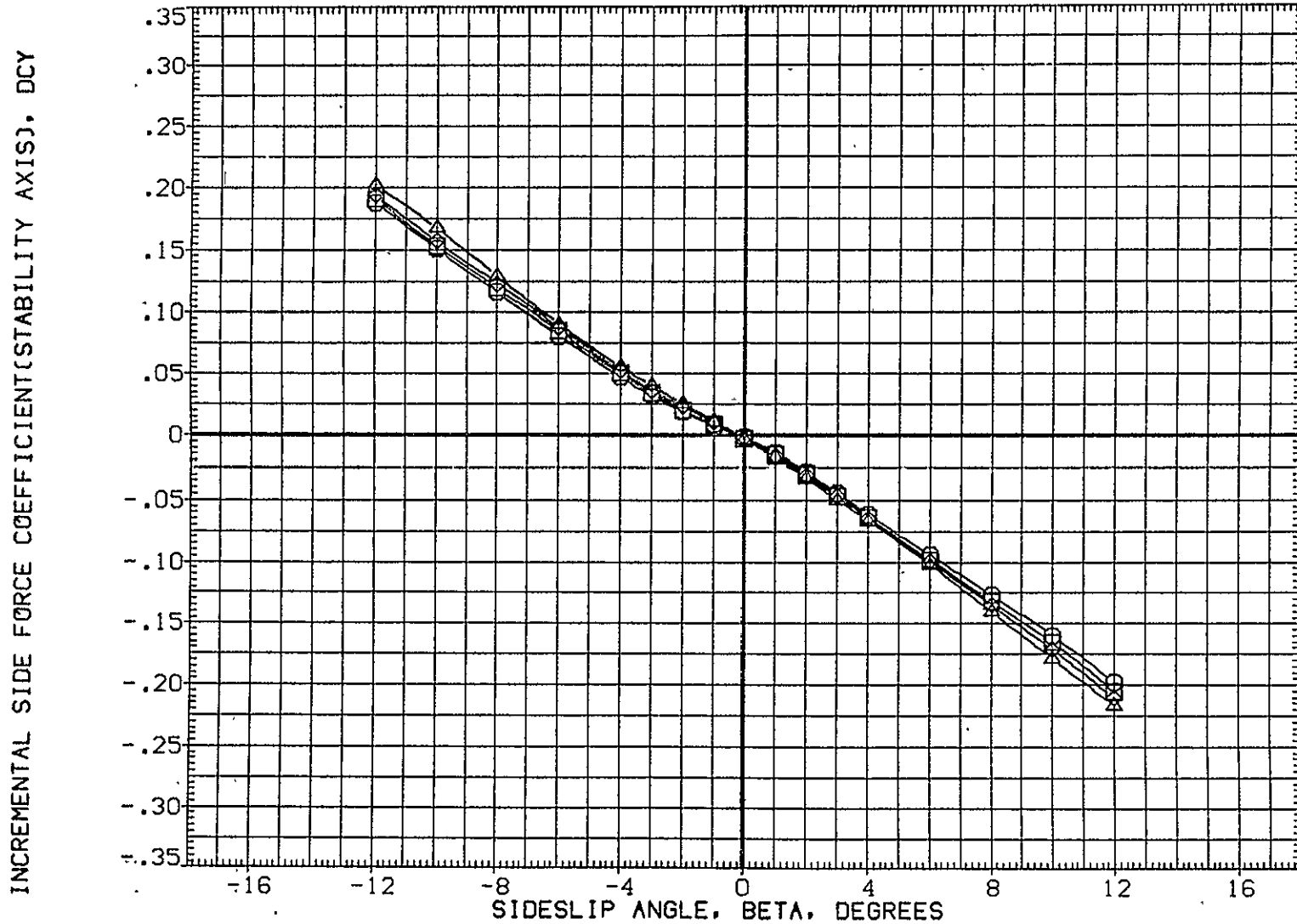


FIG.181 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA I=8(S=-3.2)

CA5 K1 F0 H15.1A V9.1 MINUS ORB TC5 AT38.3 (BGM111)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	8.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

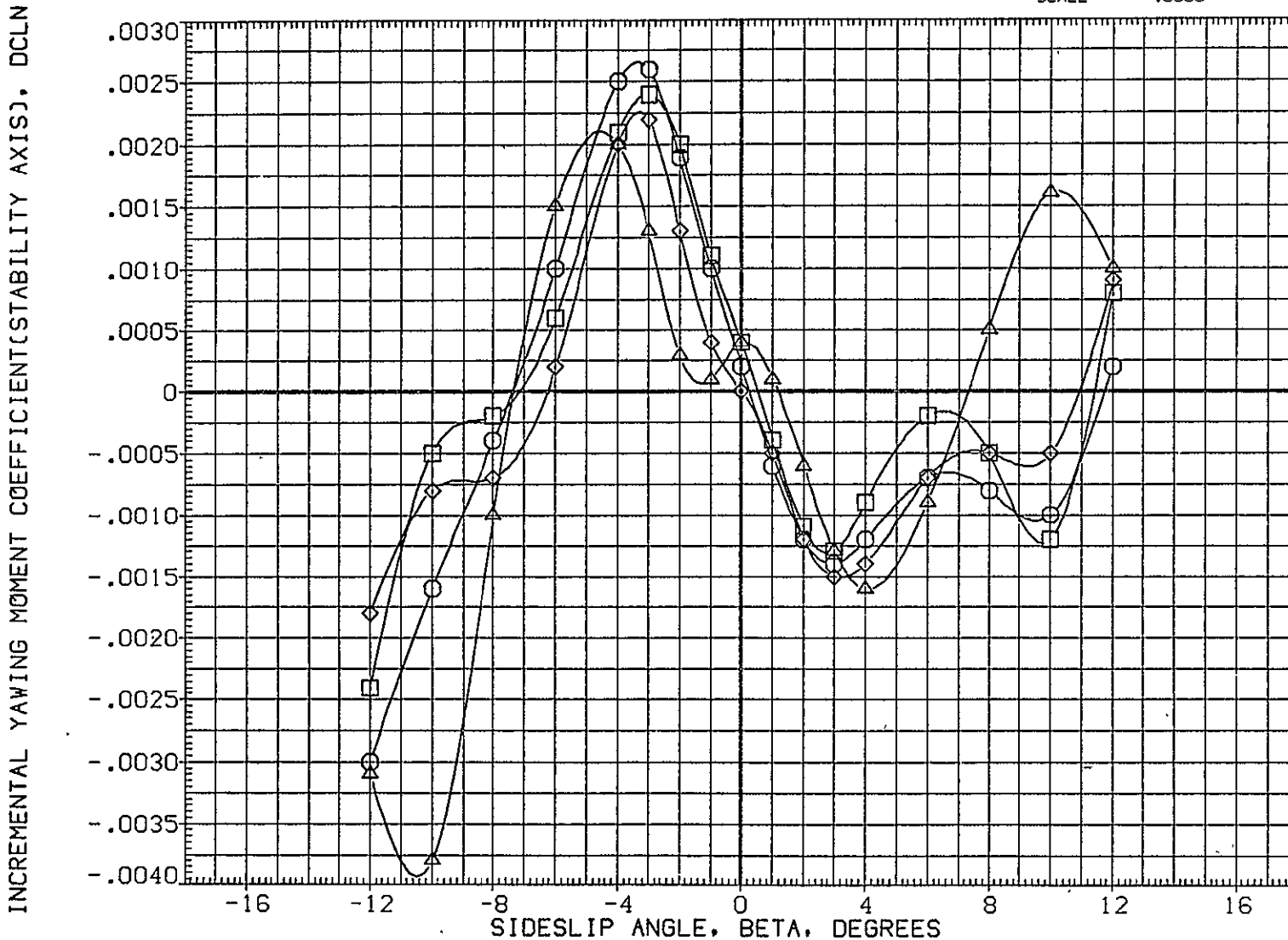


FIG.181 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-3.2)



SYMBOL  
 ○  
 □  
 ◇  
 △

MACH  
 .300  
 .500  
 .600  
 .700

ALPHAI  
 RUD-U  
 ELV-1B  
 S1-2  
 S5-6

PARAMETRIC VALUES

8.000	STAB	-3.200
.000	RUD-L	.000
.000	ELV-OB	3.000
.000	S3-4	.000
.000	10RB	4.000

REFERENCE INFORMATION

SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DC SL

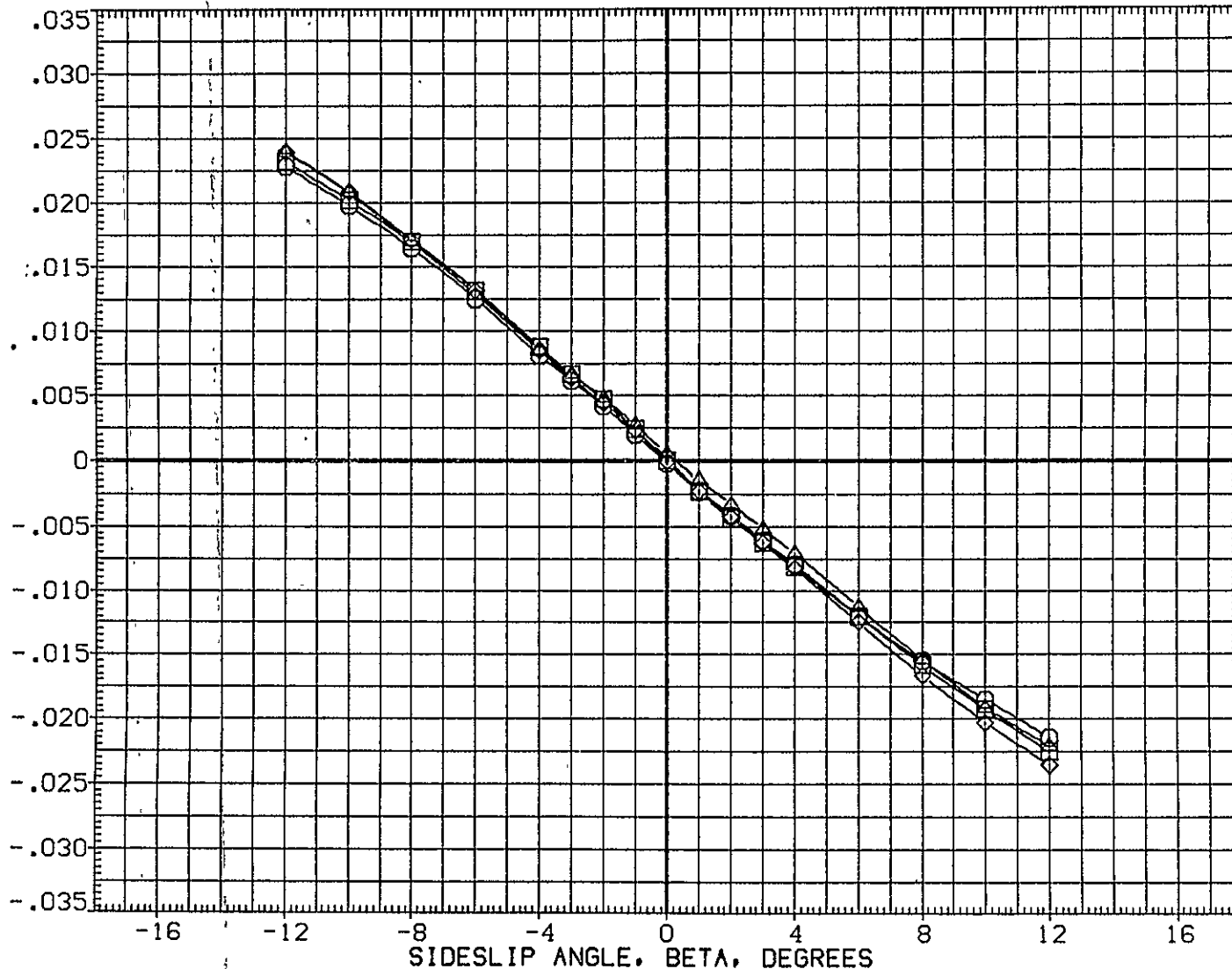


FIG.181 747+ORB(4 DEG), BASIC TAIL, FLAPS UP FERRY, ALPHAI=8(S=-3.2)

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(XGM111)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	8.000	STAB	-3.200	SREF	2690.0000	SG.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		SS-6	.000	IORB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

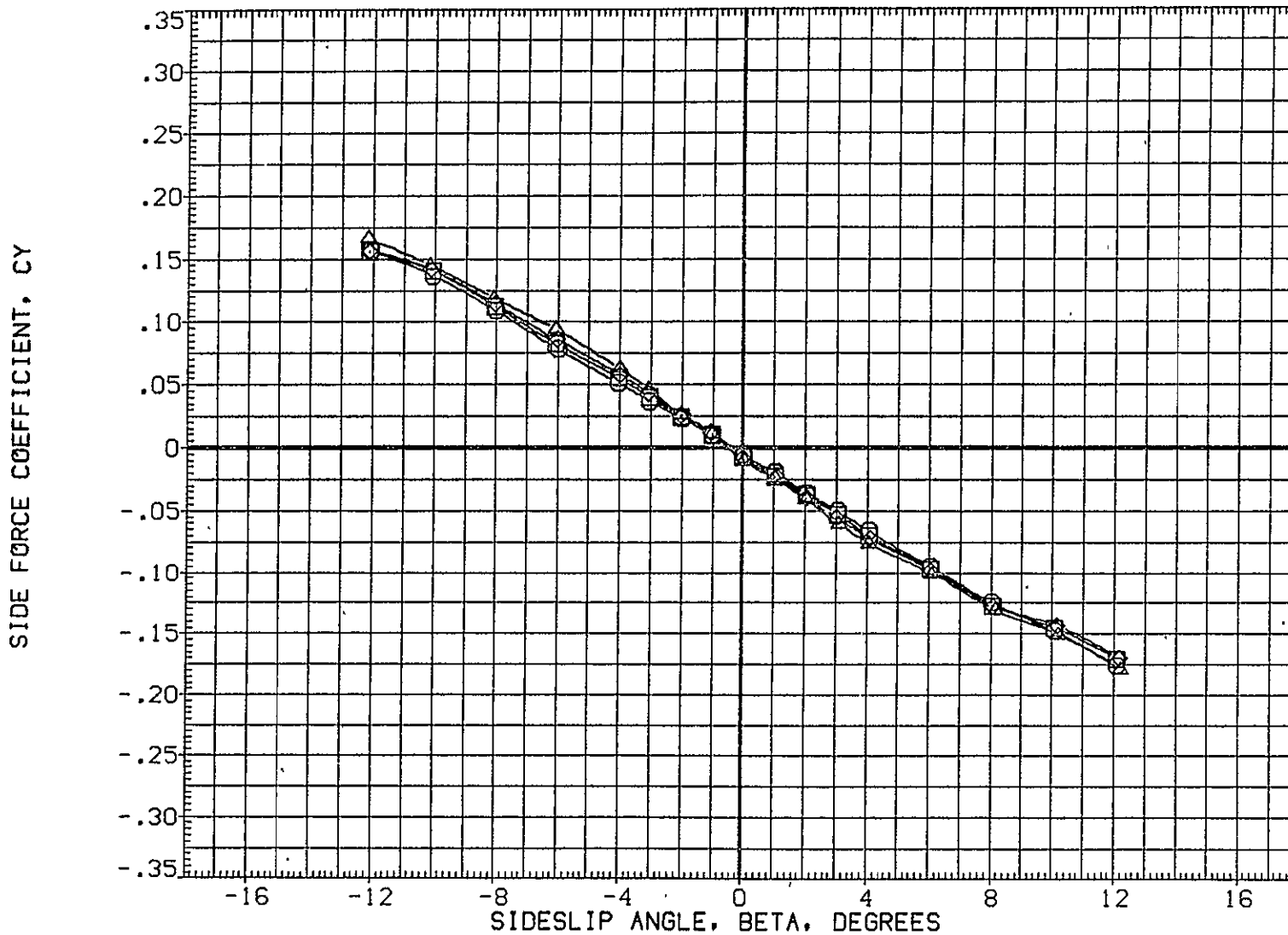


FIG.182 747+ORB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHAI	8.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELY-1B	.000	ELY-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	ICRB	4.000

REFERENCE INFORMATION	
SREF	.2690:0000 -- SQ.FT.
LREF	474.8100 IN.
BREF	936.6800 IN.
XMRP	1109.0000 IN. X0
YMRP	.0000 IN. Y0
ZMRP	375.0000 IN. Z0
SCALE	.0300

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

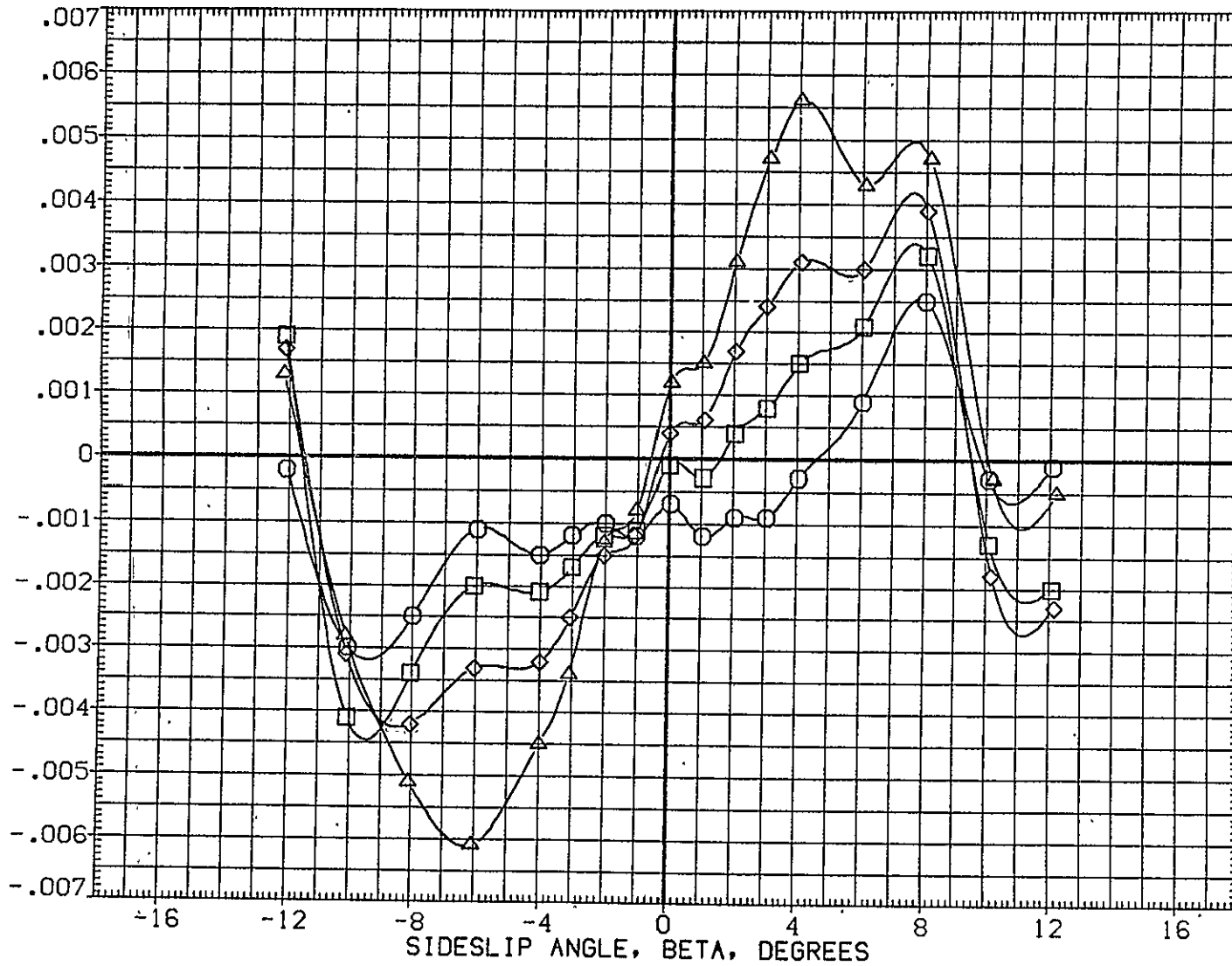


FIG.182 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHAI=8(S=-3.2)

0RB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.1A V9.1)(XGM111)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.300	ALPHAI	8.000	STAB	-3.200	SREF	2690.0000 SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100 IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800 IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000 IN. X0
		S5-6	.000	10RB	4.000	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0300

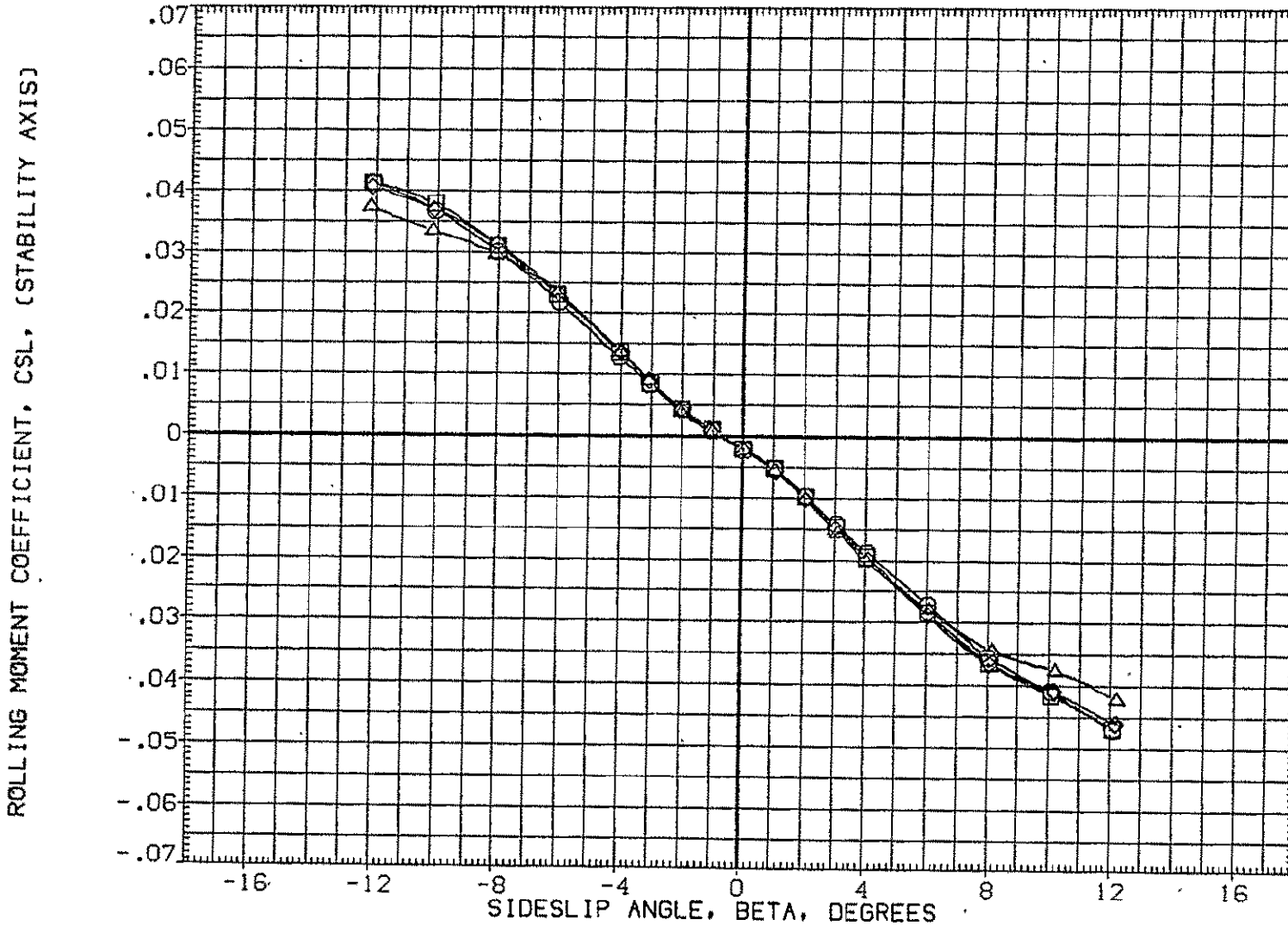


FIG.182 747+0RB(4 DEG),BASIC TAIL,FLAPS UP FERRY,ALPHAI=8(S=-3.2)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	2.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	-1339.9100	IN. -XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

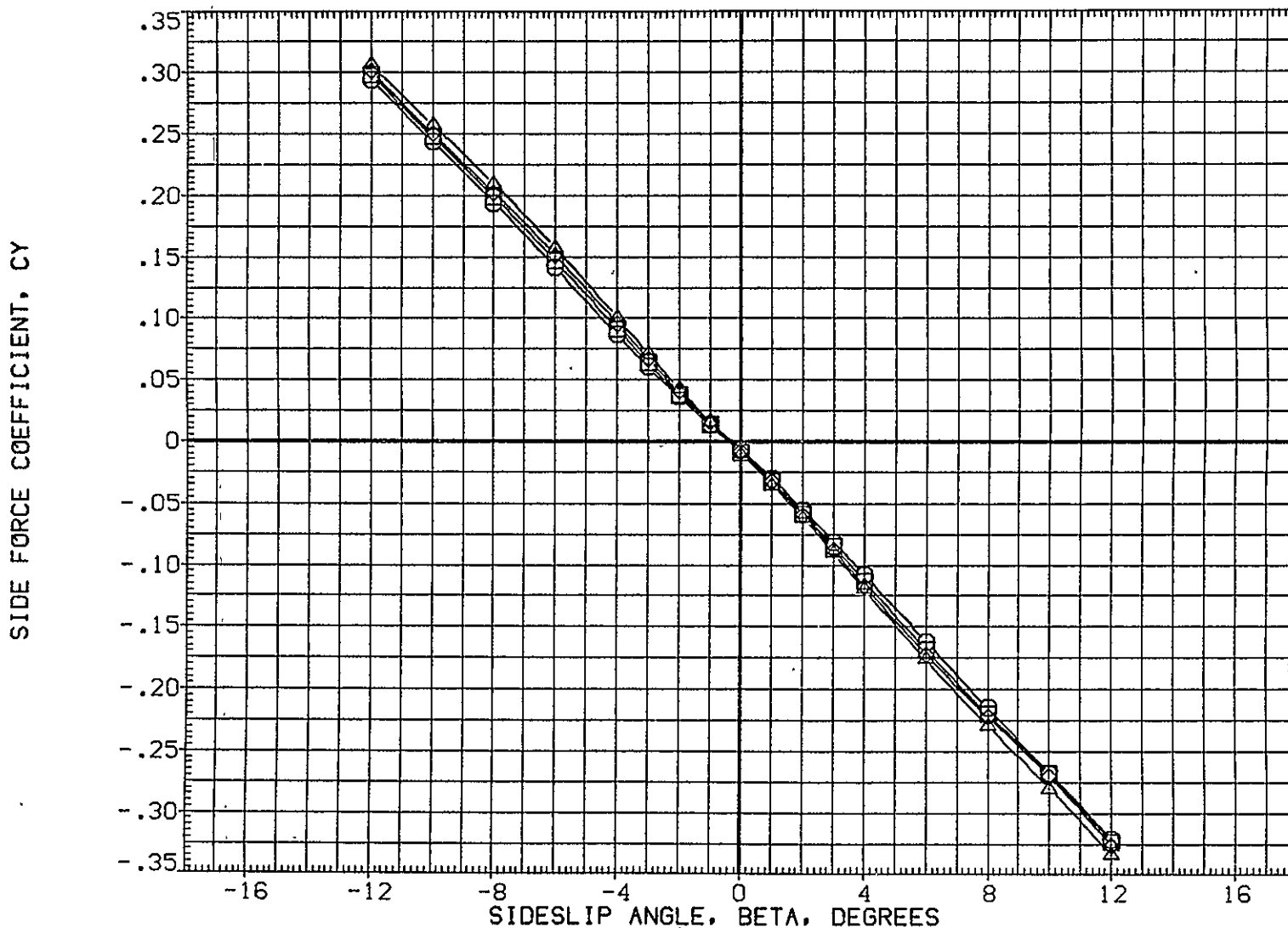


FIG.183 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=2(S=-3.2)



CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM113)

SYMBOL  
 ○  
 □  
 ◇  
 △

MACH	PARAMETRIC VALUES			
.300	ALPHA1	2.000	STAB	-3.200
.500	RUD-U	.000	RUD-L	.000
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

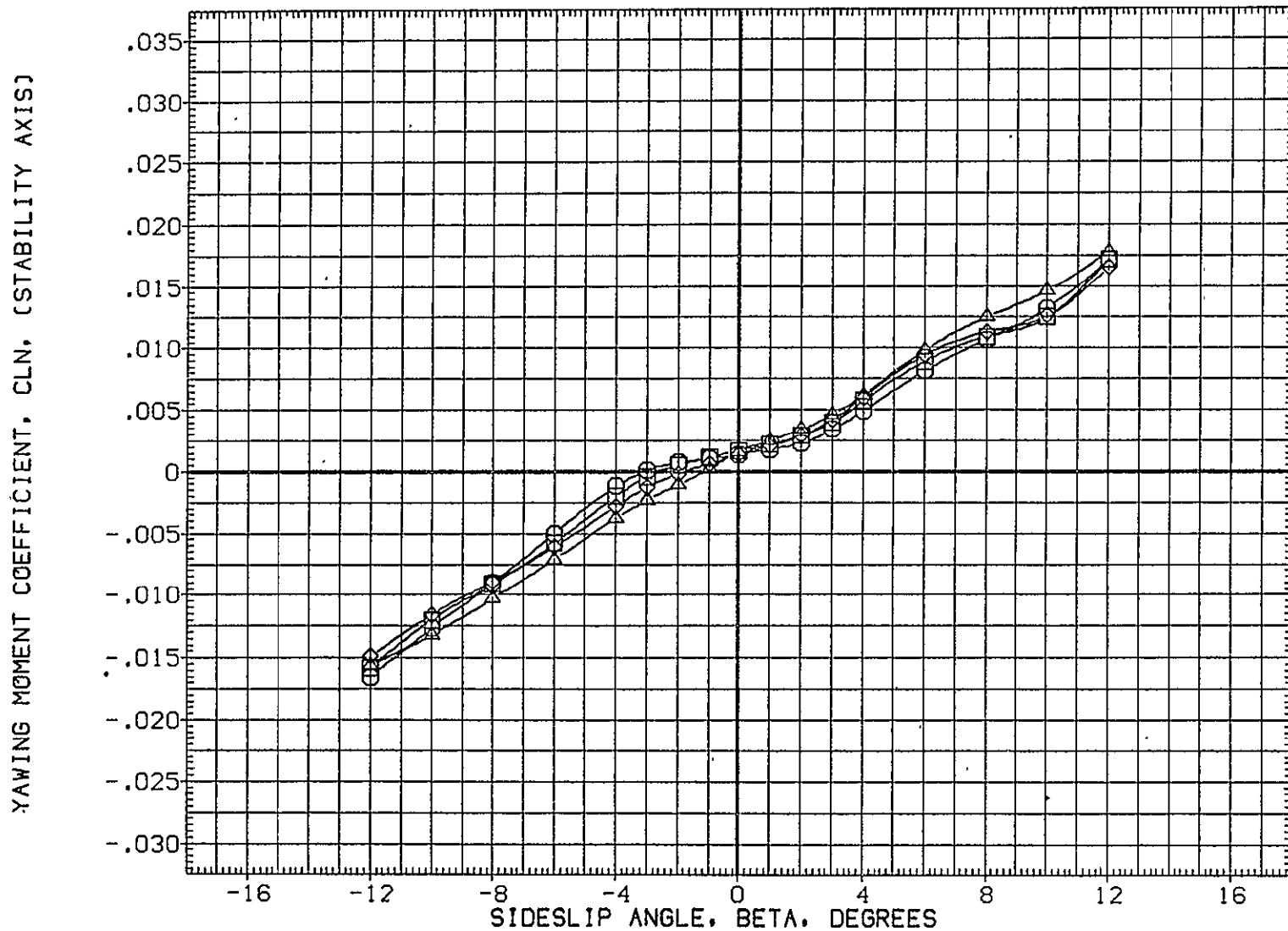


FIG.183 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

TOTAL

SYMBOL	MACH	ALPHA I	PARAMETRIC VALUES		
○	.300	ALPHA I	2.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL. (STABILITY AXIS)

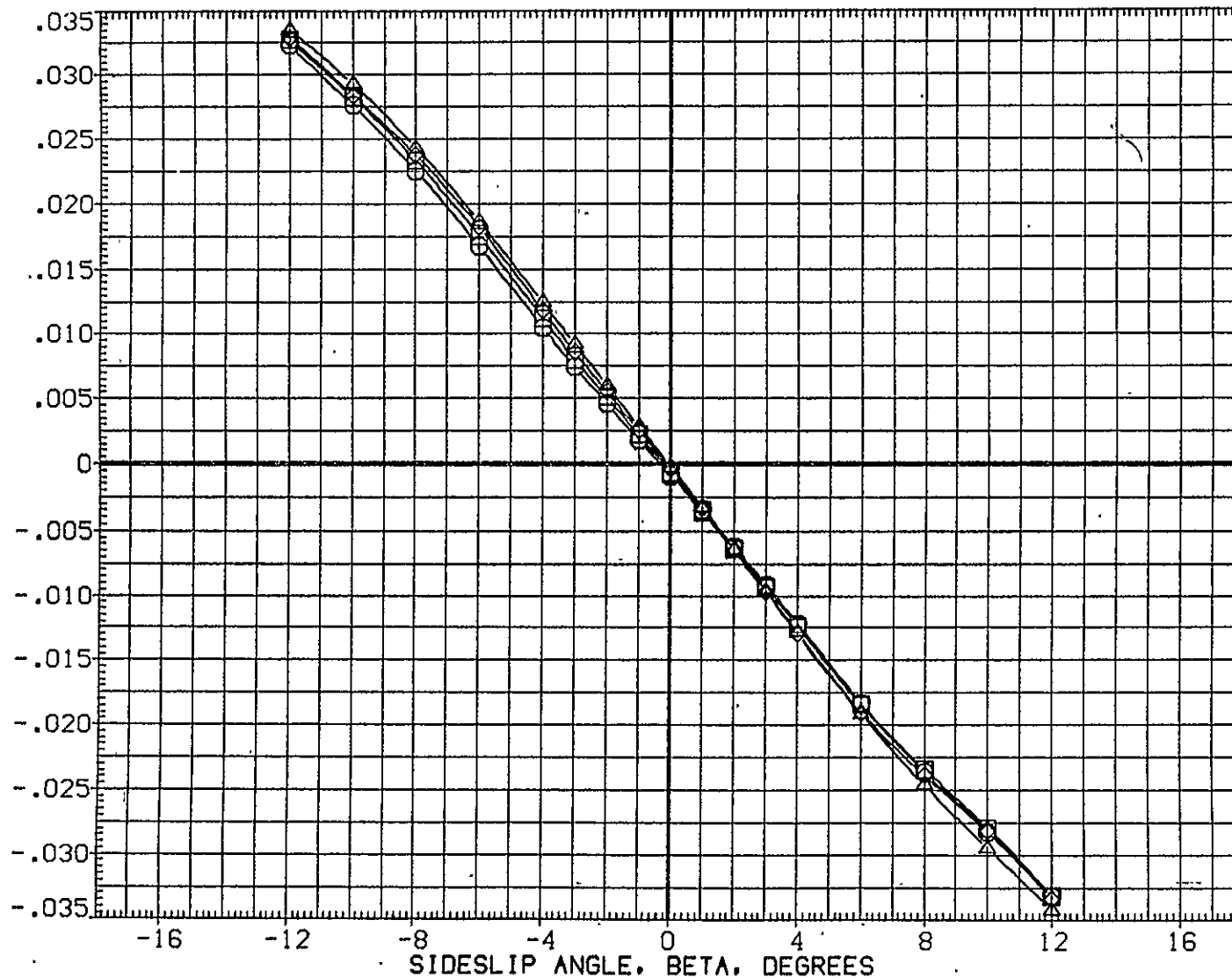


FIG.183 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA I=2(S=-3.2)

CA5 K1 FO H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM113)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA)	2.000	STAB	-3.200	SREF	5500.0000	50.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

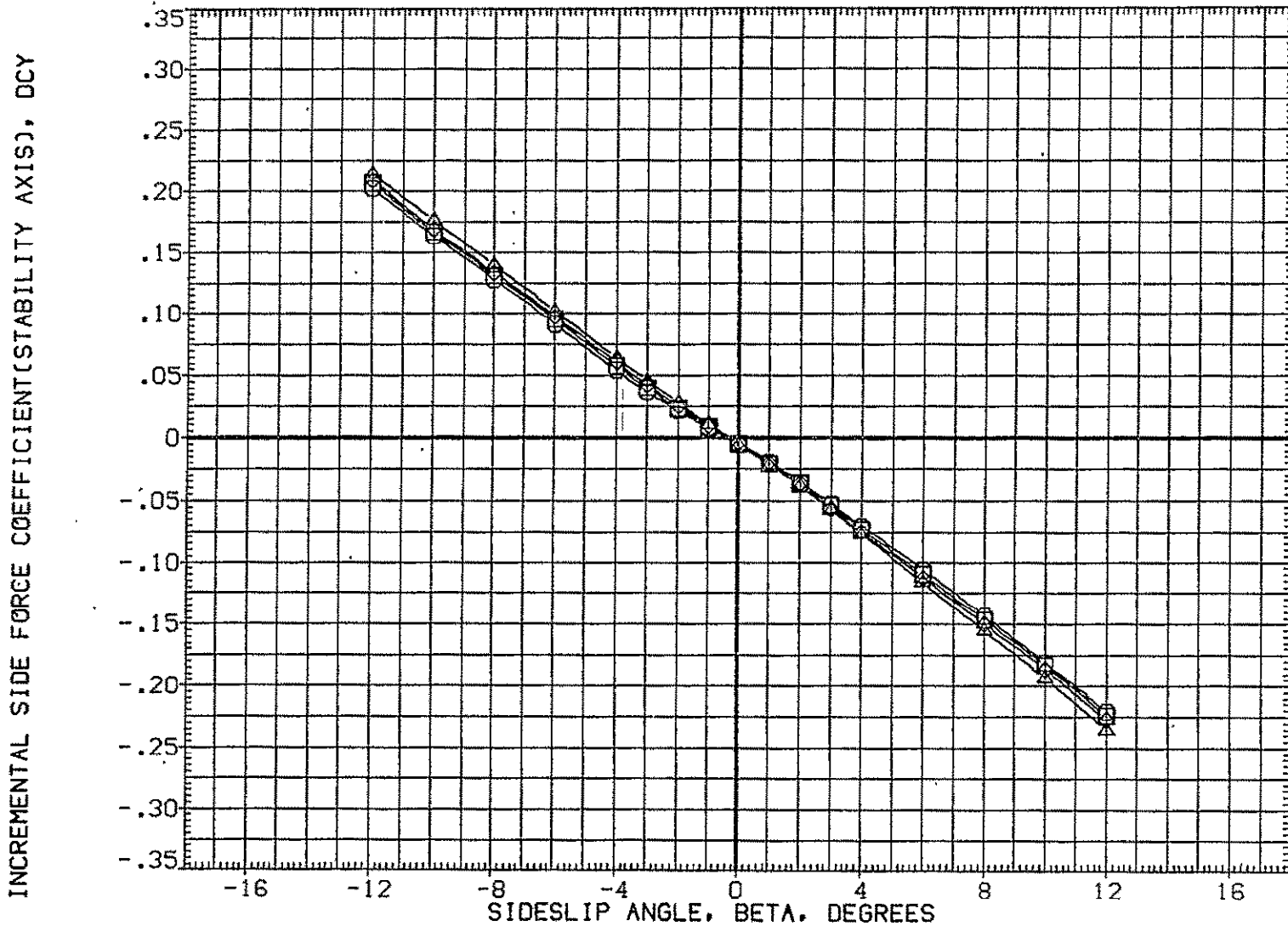


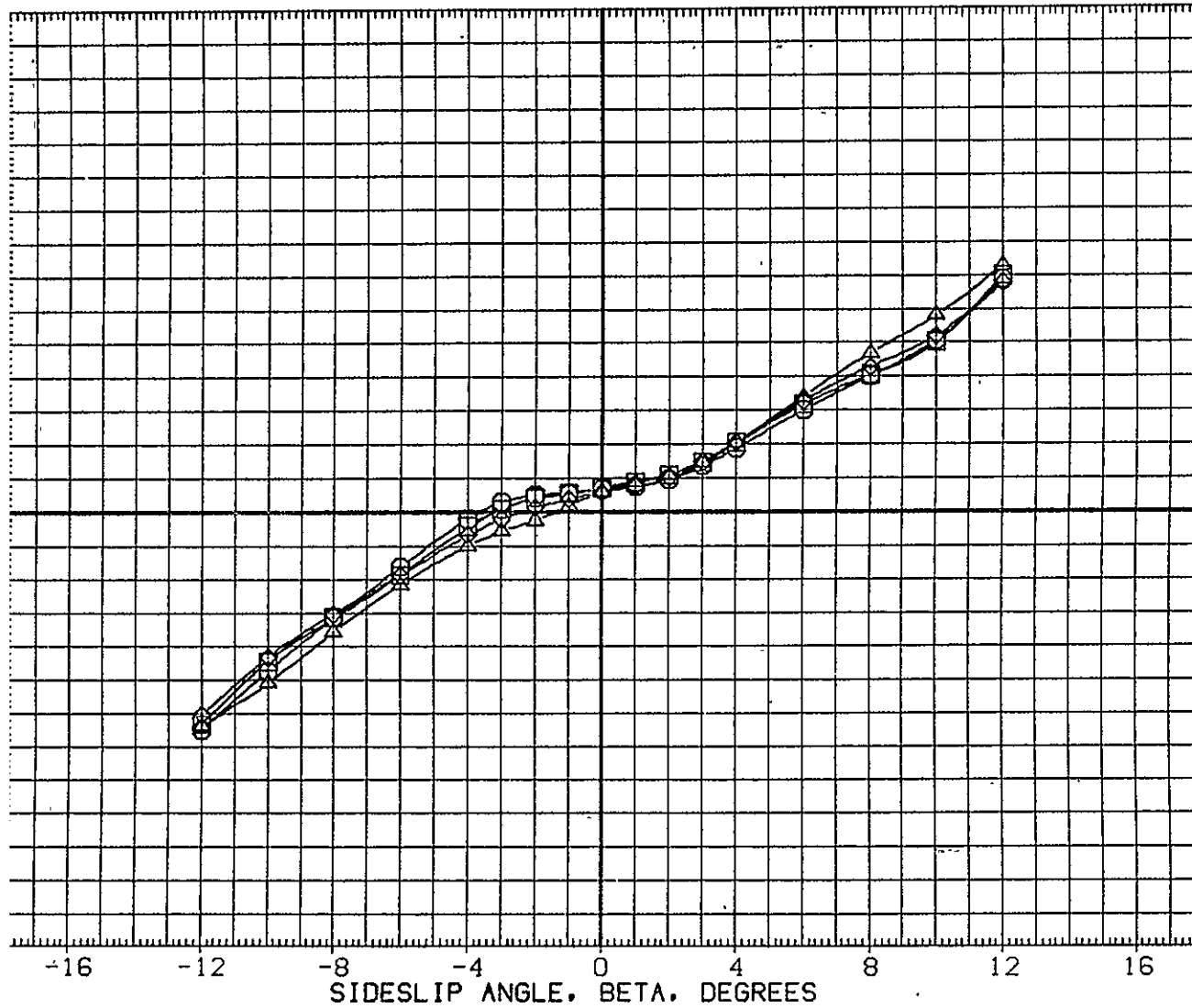
FIG.184 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA=2(S=-3.2)

747



PARAMETRIC VALUES			
ALPHAI	2.000	STAB	-3.200
RUD-U	.000	RUD-L	.000
ELV-1B	.000	ELV-0B	3.000
S1-2	.000	S3-4	.000
S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SG.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN..XC
YMRP	.0000	IN..YC
ZMRP	190.7500	IN..ZC
SCALE	.0300	



747+0RB(4 DEG)+TIP FINS, FLAPS UP FERRY, ALPHAI=2(S=-3.2)

747

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM113)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA	2.000	STAB	-3.200	SREF	5500.0000	SO.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-IB	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	ICRB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

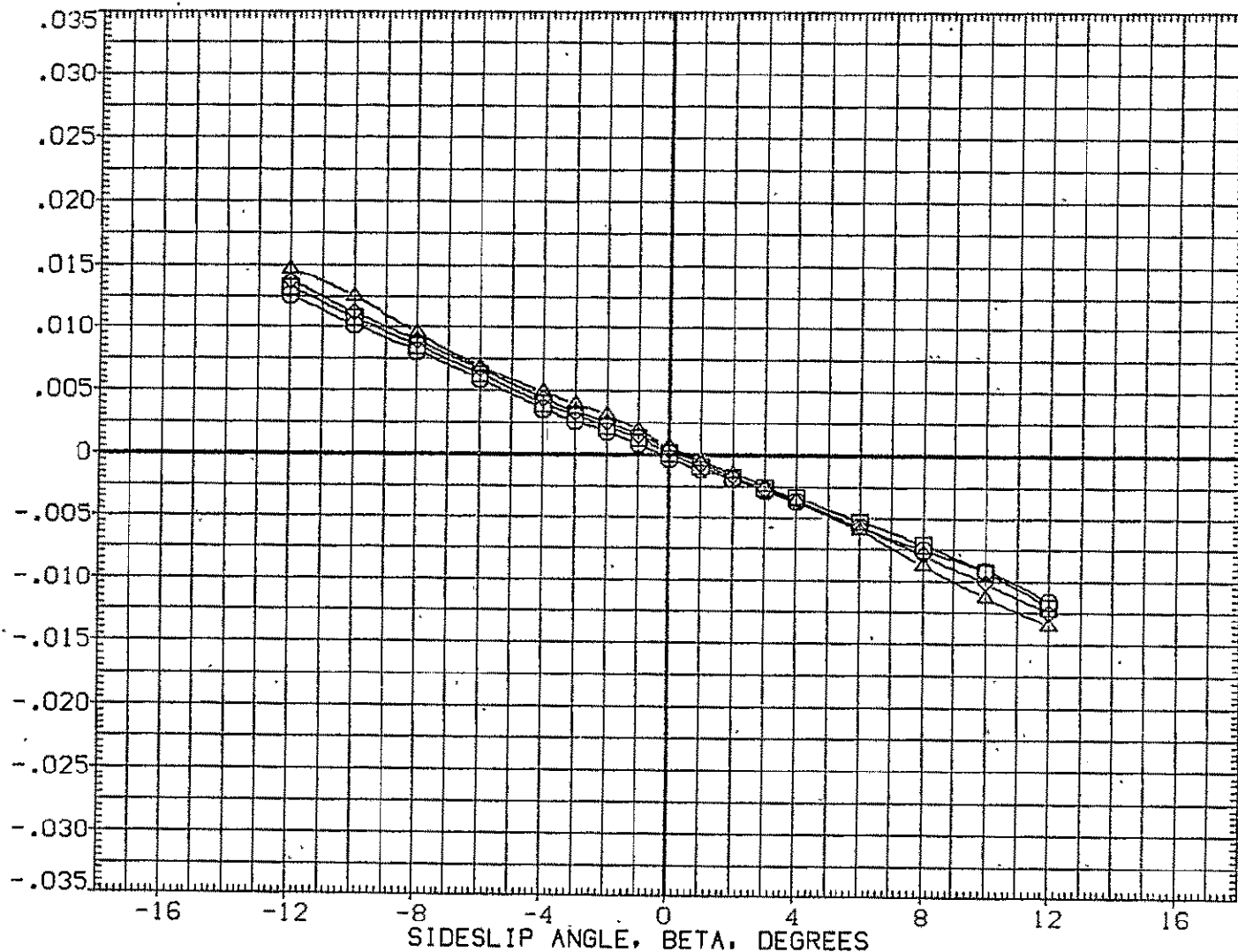


FIG.184 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA=2(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES			
		ALPHA I	STAB	RUD-L	ELV-OB
○	.149	2.000	-3.200	.000	3.000
□	.299	.000	.000	.000	.000
◇	.499	.000	.000	.000	.000
△	.600	.000	.000	.000	.000
▽	.701	.000	.000	.000	.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

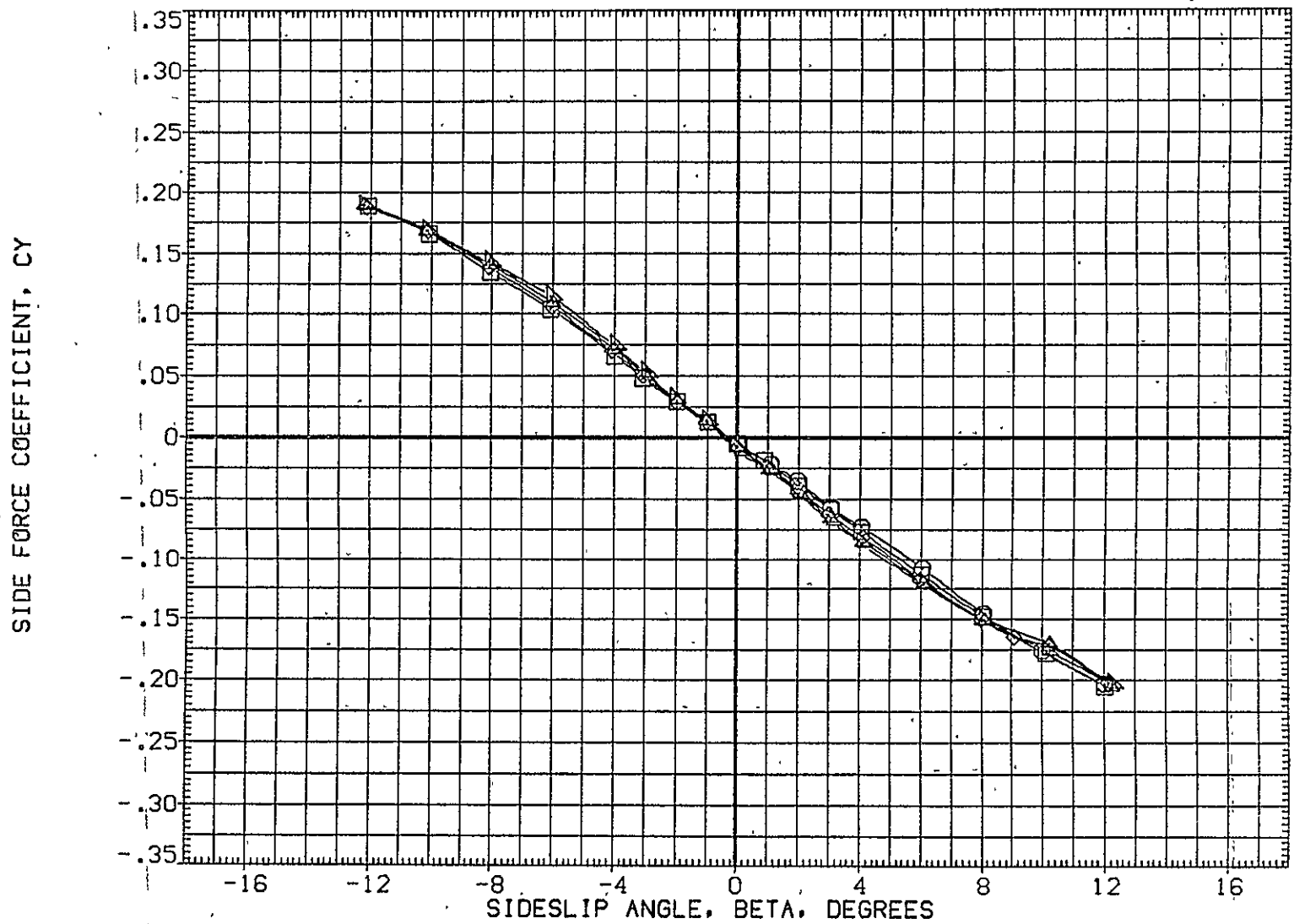


FIG.185 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA I=2(S=-3.2)

ORB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM113)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.149	ALPHA1	2.000	STAB	-3.200	SREF	2690.0000	SO.FT.
□	.299	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.499	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.600	.000	S3-4	.000	XMRP	1109.0000	IN. X0	
▽	.701	S5-6	.000	ICRB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

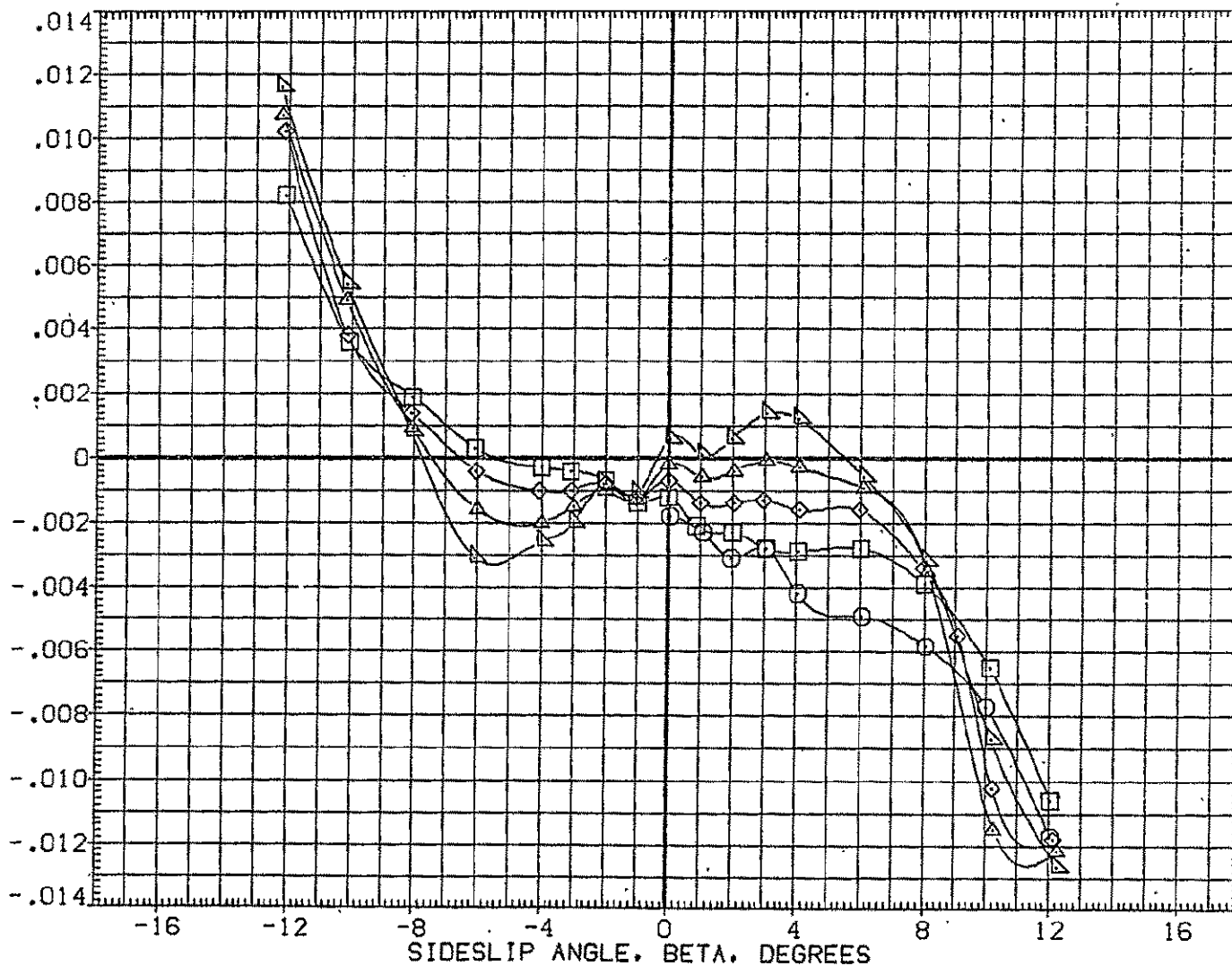


FIG.185 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

0RB

SYMBOL  
 ○  
 □  
 ◇  
 △  
 ▽

MACH	PARAMETRIC VALUES			
.149	ALPHA1	2.000	STAB	-3.200
.299	RUD-U	.000	RUD-L	.000
.499	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.701	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

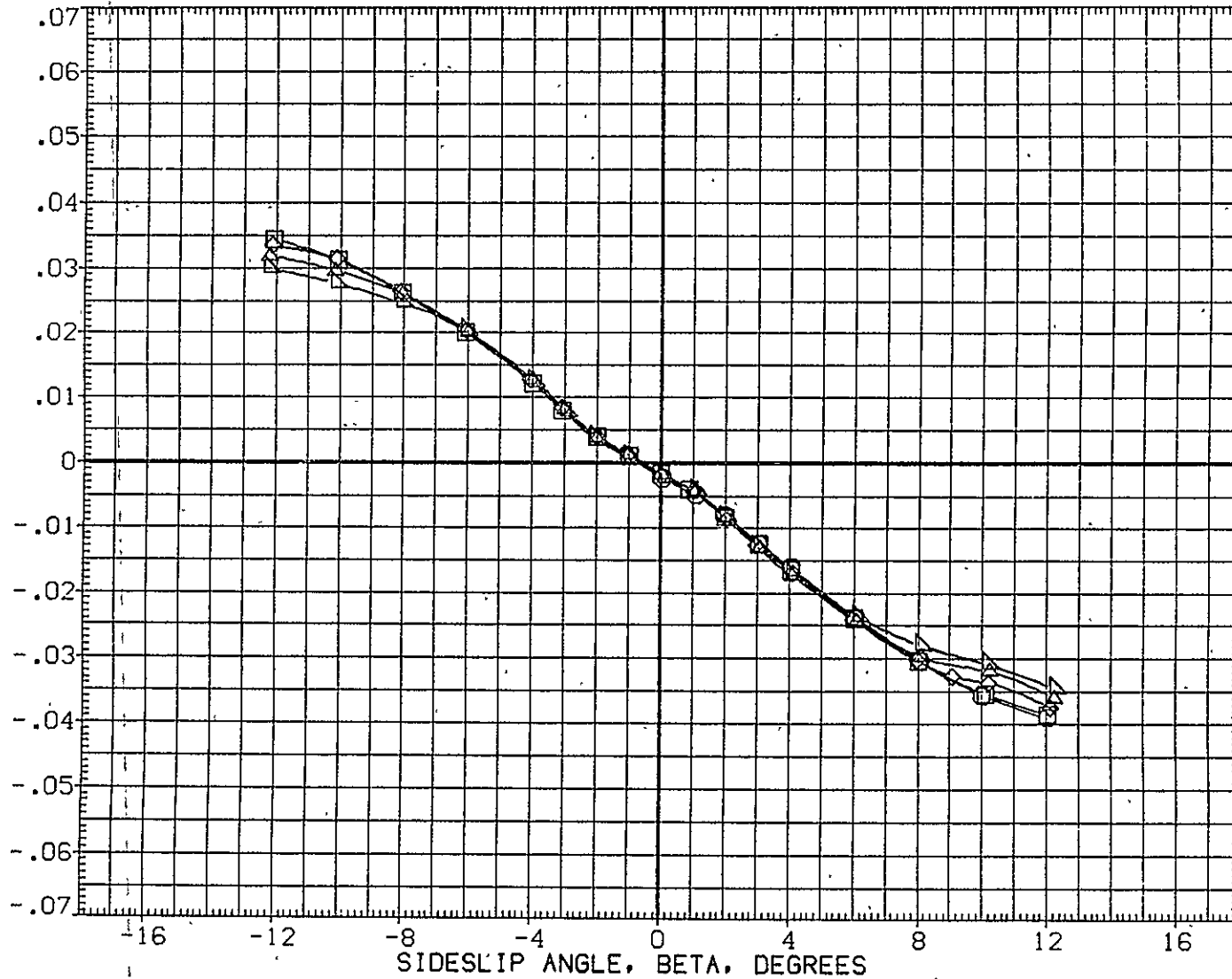


FIG.185 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=2(S=-3.2)

ORB

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM114)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA I	6.000	STAB	-3.200	SREF	5500.0000	50. FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.6000	IN.
◇	.500	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

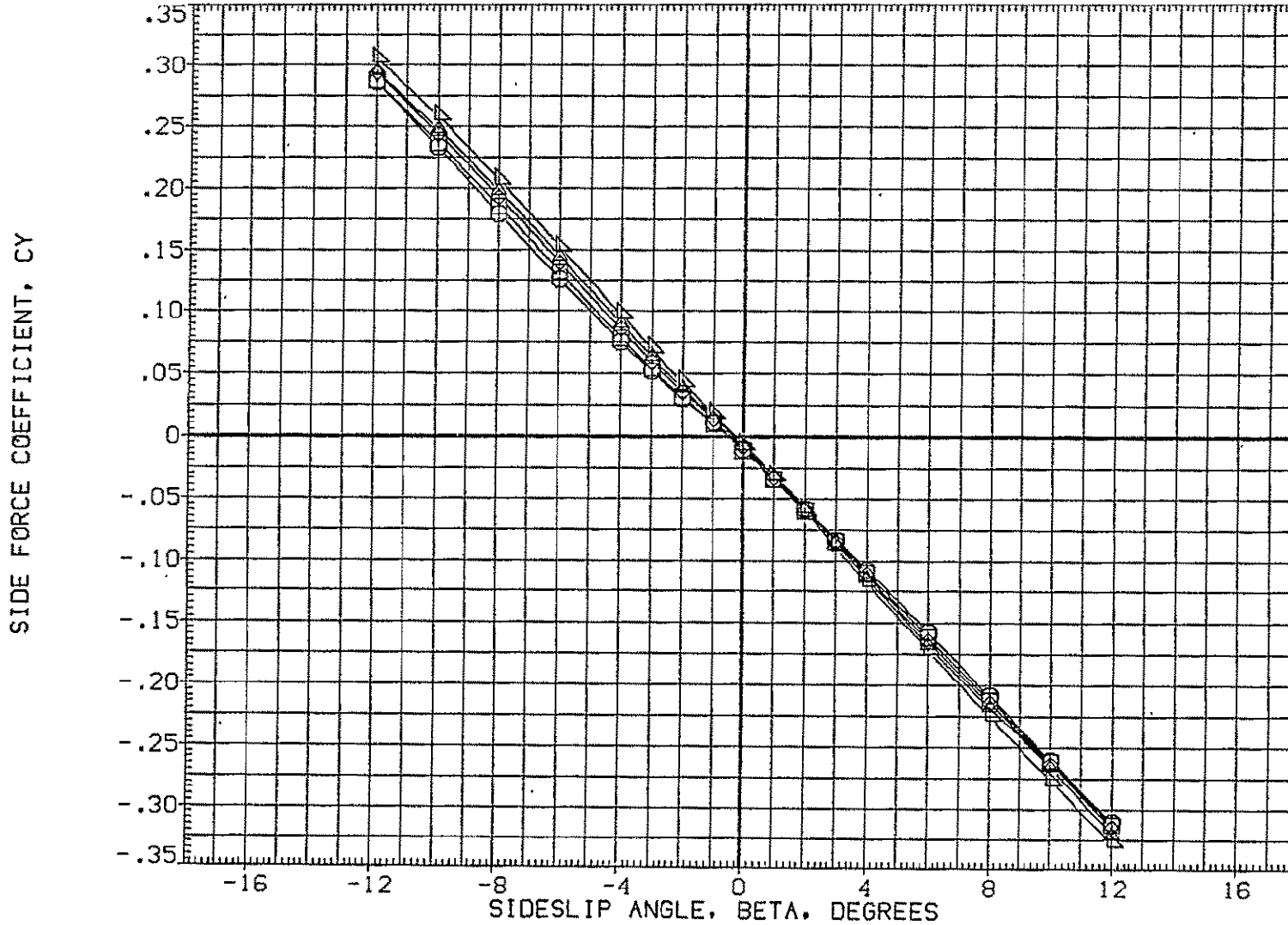


FIG.186 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA I=6(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	6.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

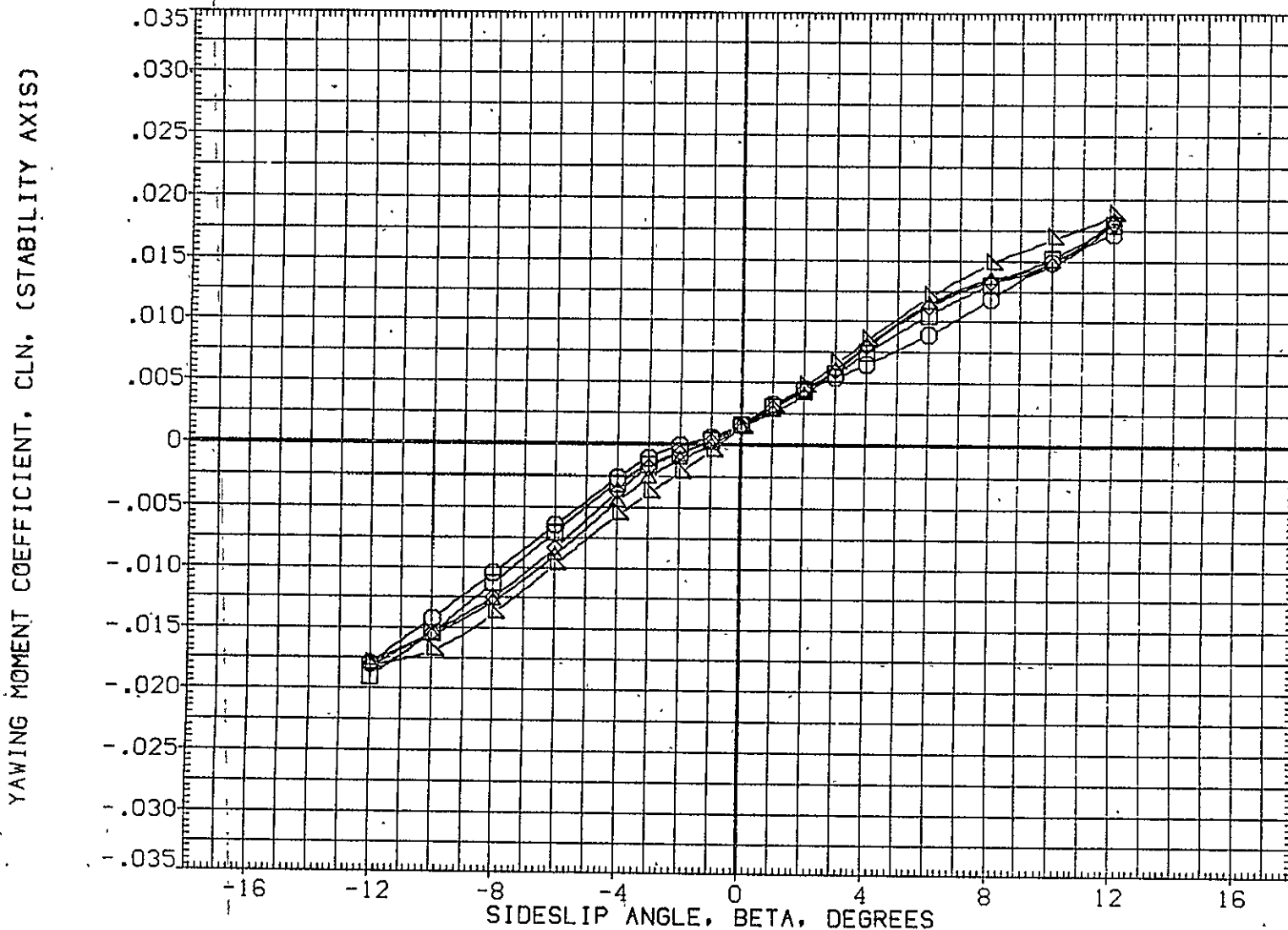


FIG.186 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

CA5 K1 FO H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM114)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	SS-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

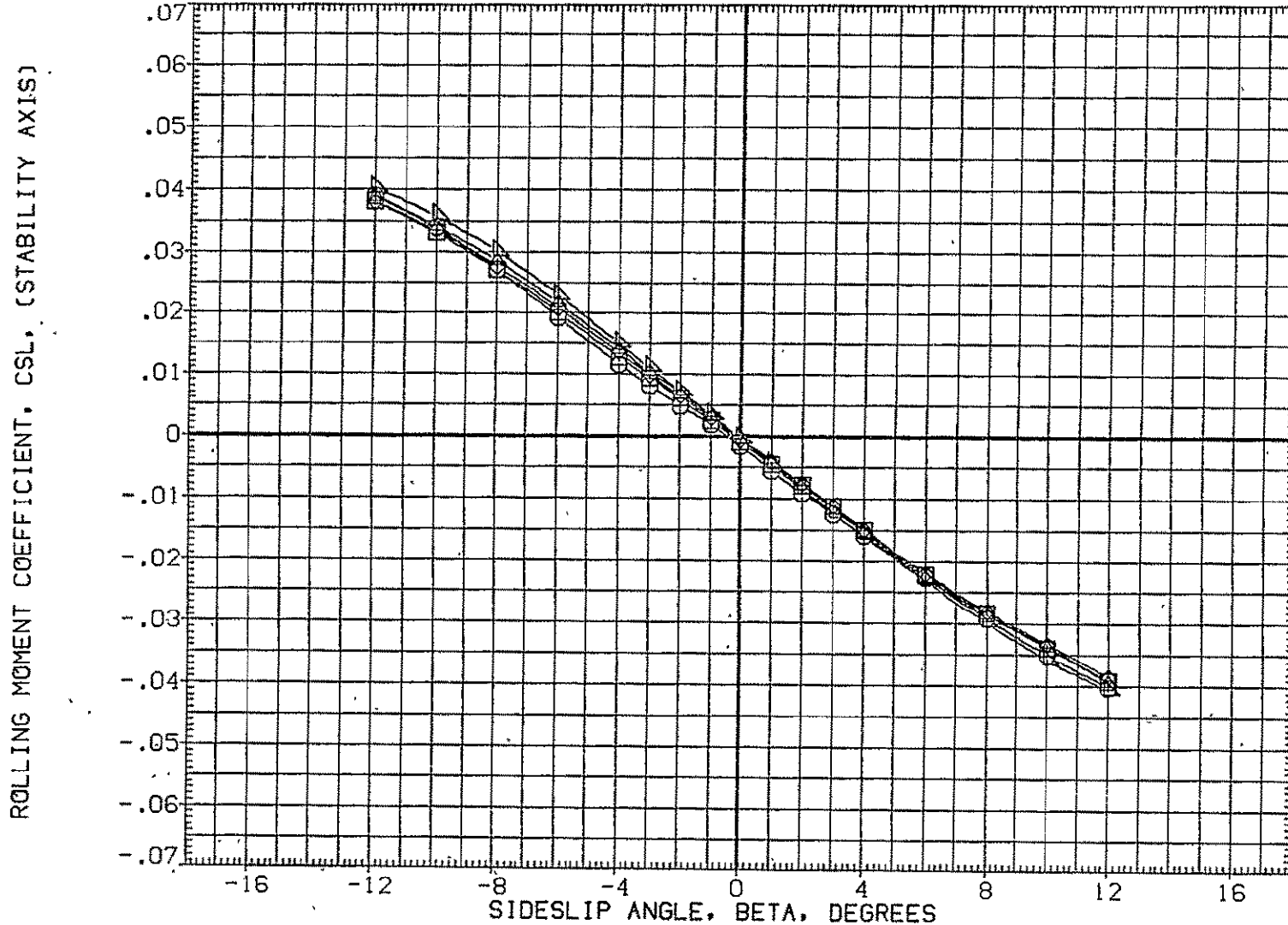


FIG.186 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

TOTAL



SYMBOL	MACH	PARAMETRIC VALUES			
○	.150	ALPHA1	6.000	STAB	-3.200
□	.300	RUD-U	.000	RUD-L	.000
◇	.500	ELV-1B	.000	ELV-OB	3.000
△	.600	S1-2	.000	S3-4	.000
▽	.700	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

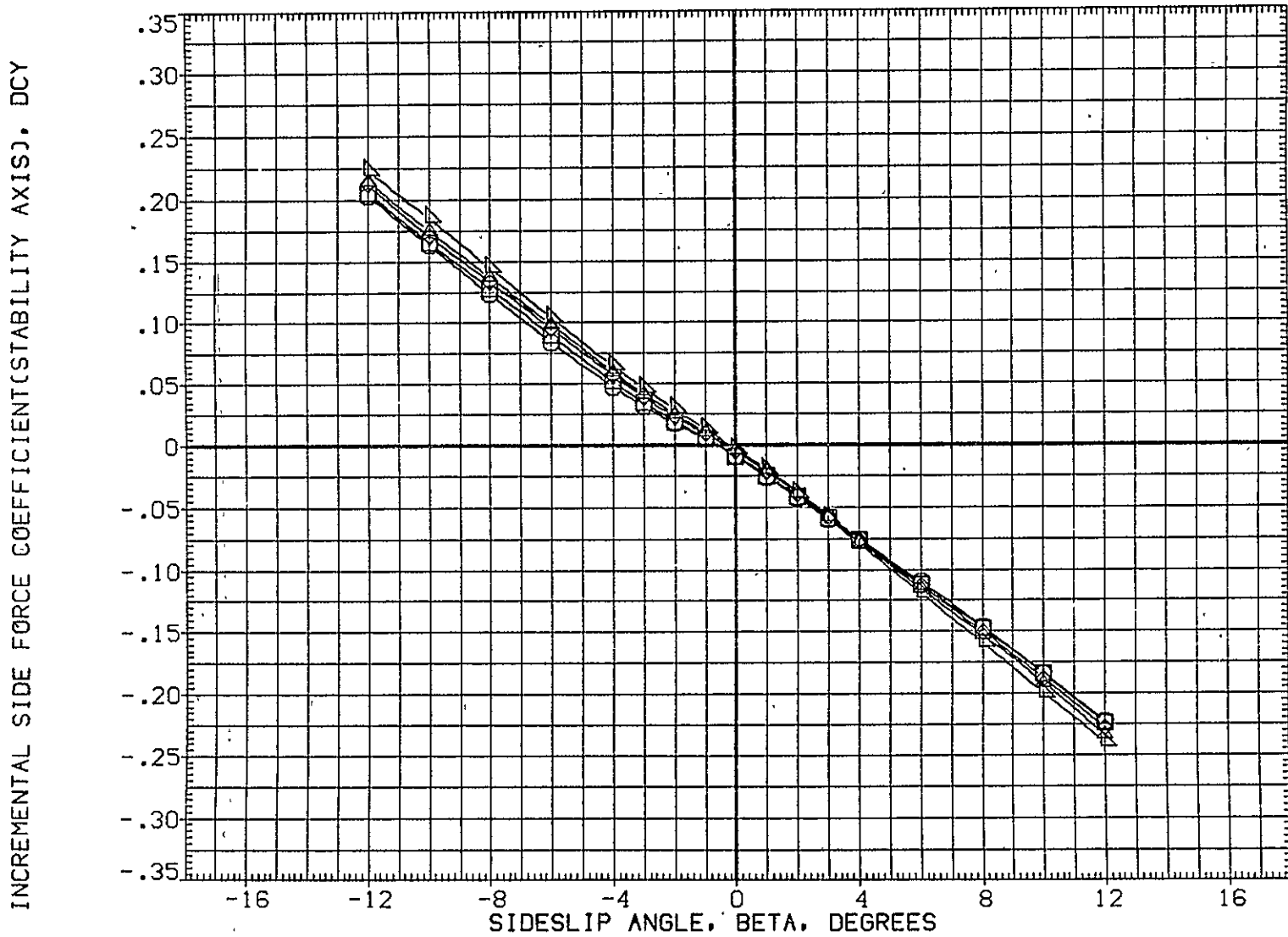


FIG.187 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM114)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
		ALPHA1	STAB	RUD-L	RUD-R	SQ.FT.	
○	.150	6.000	-3.200	.000	.000	5500.0000	
□	.300	.000	.000	.000	.000	327.8000	IN.
◇	.500	.000	3.000	.000	.000	2348.0000	IN.
△	.600	.000	.000	.000	.000	1339.9100	IN. XC
▽	.700	.000	4.000	.000	.000	190.7500	IN. YC
						SCALE	.0300

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

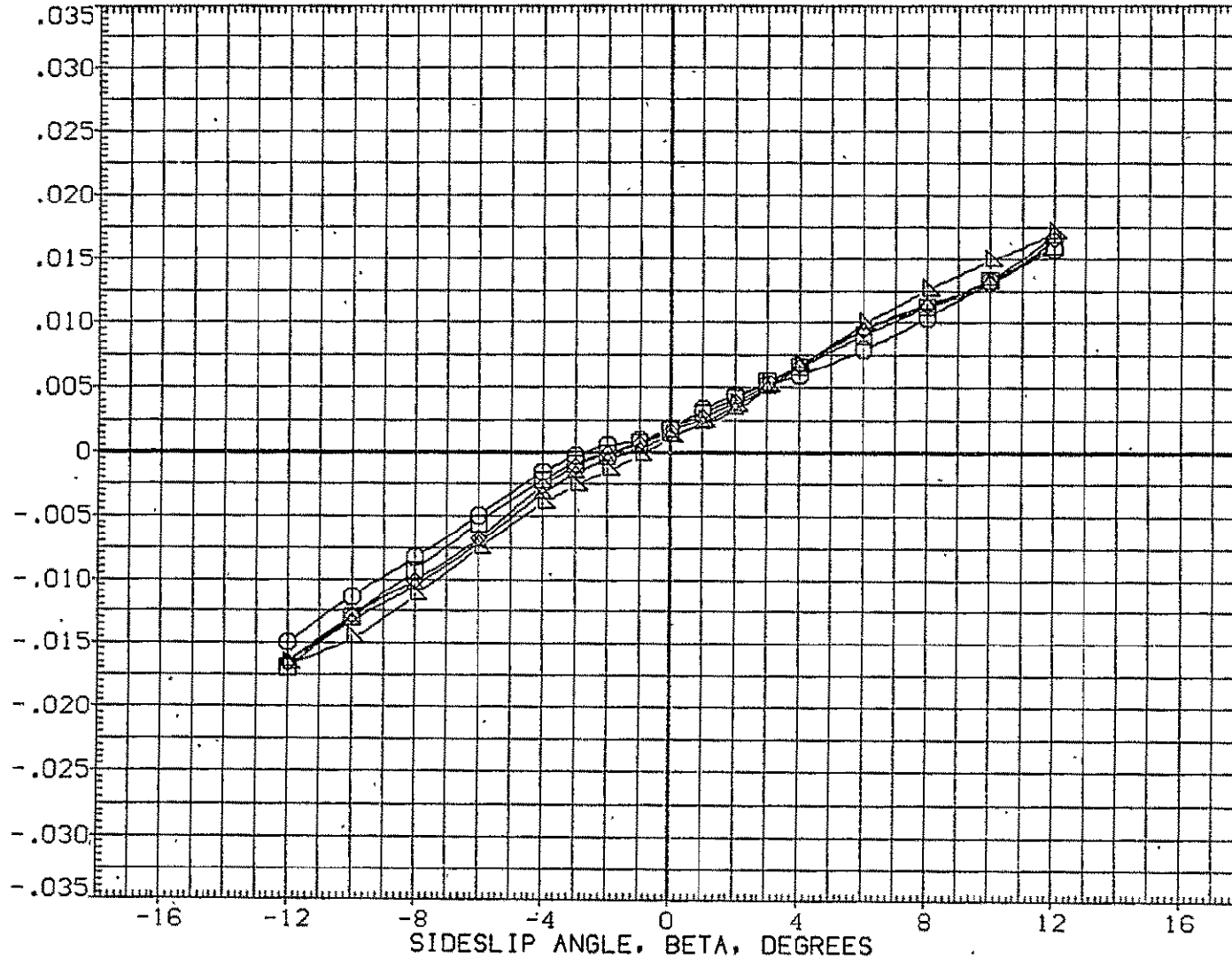


FIG.187 747+ORB(4 DEG)+TIP FINS, FLAPS UP FERRY, ALPHA1=6(S=-3.2)

SYMBOL  
 ○  
 ◇  
 □  
 △

MACH	PARAMETRIC VALUES			
.150	ALPHA1	6.000	STAB	-3.200
.300	RUD-U	.000	RUD-L	.000
.500	ELV-1B	.000	ELV-0B	3.000
.600	S1-2	.000	S3-4	.000
.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

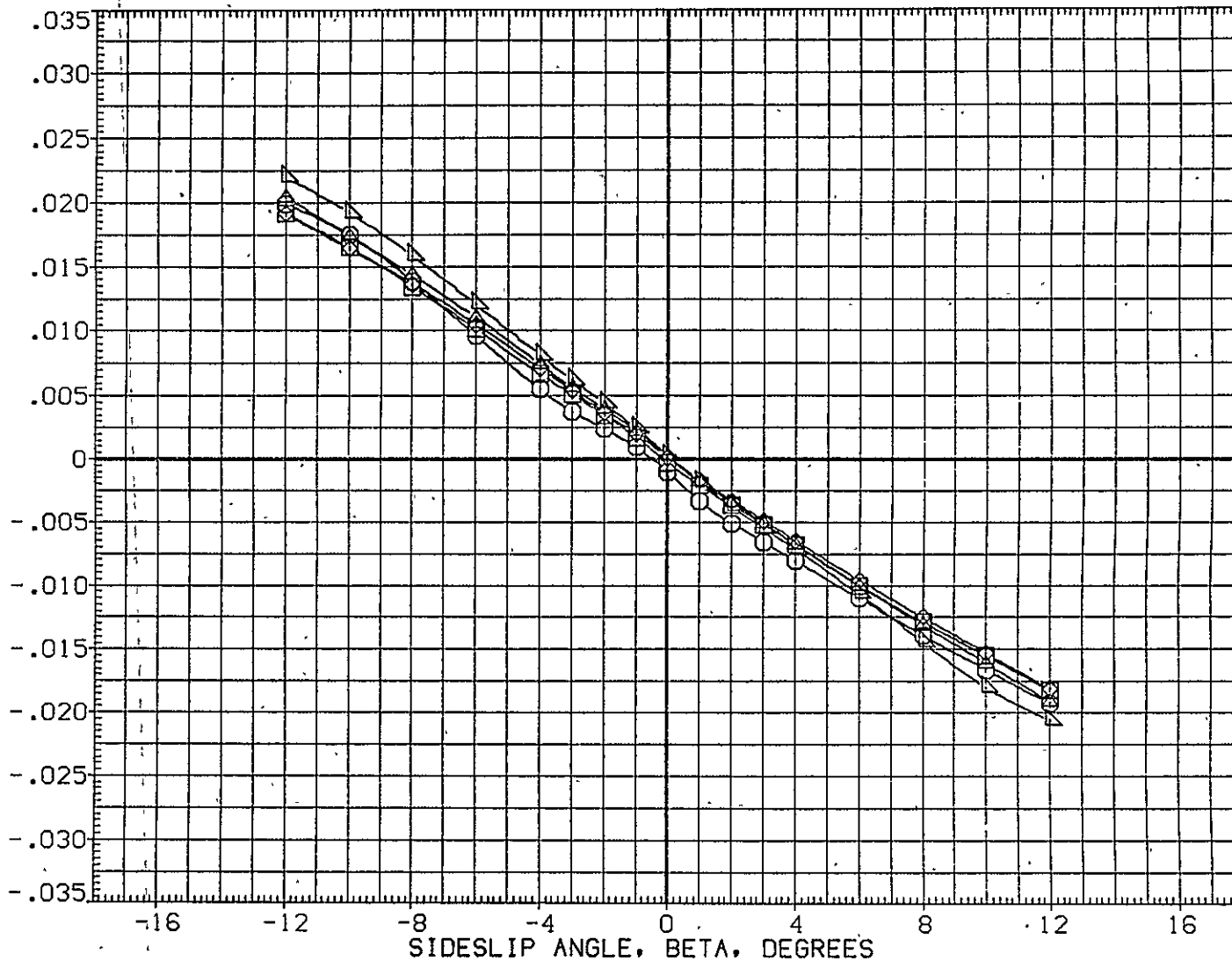


FIG.187 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-3.2)



CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM114)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.149	ALPHA1	6.000	STAB	-3.200	SREF	2690.0000	SQ.FT.
□	.299	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
▽	.699	S5-6	.000	1ORB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

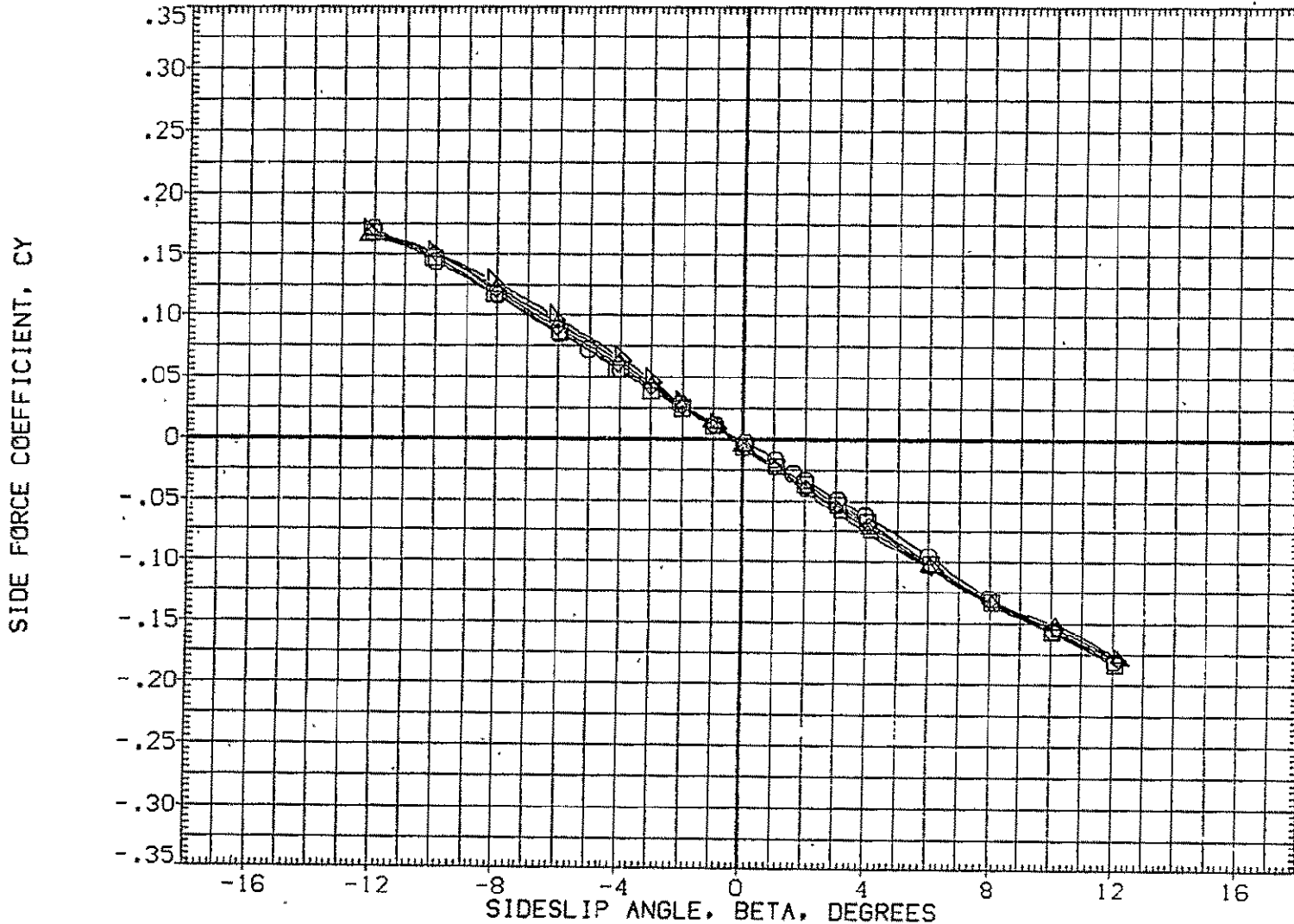


FIG.188 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.149	ALPHA1	6.000	STAB	-3.200	SREF	2690.0000	SQ.FT.
□	.299	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.600	.000	S3-4	.000	XMRP	1109.0000	IN. YO	
▽	.699	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YO
						ZMRP	375.0000	IN. ZO
						SCALE	.0300	

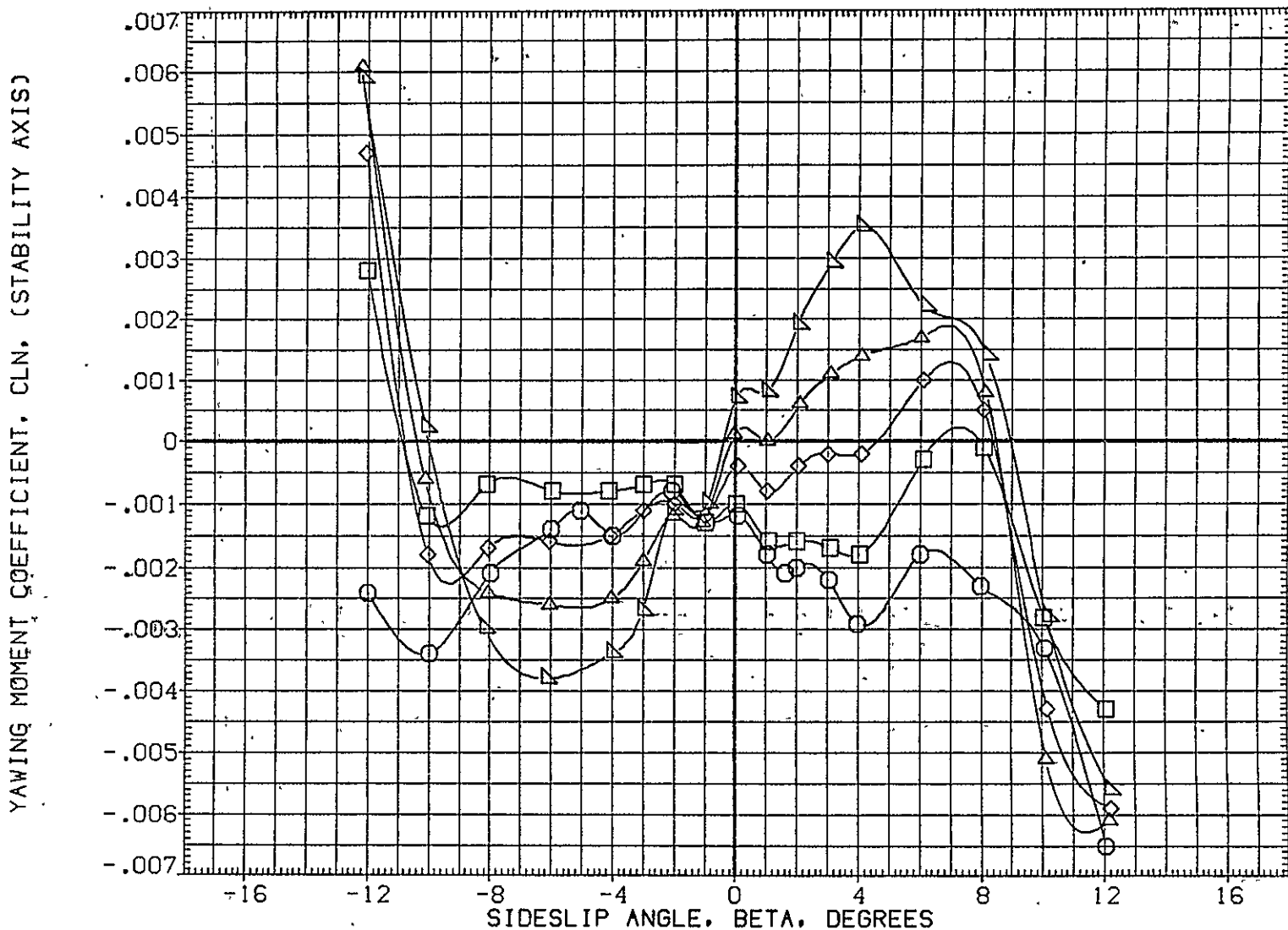


FIG.188 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-3.2)

0RB

CA5 0RB TC5 AT38.3 (PRES. KI FO H15.6 V9.1)(XGM114)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA I	STAB	RUD-L	RUD-U	SQ.FT.	IN.	IN.
○	.149	6.000	-3.200	.000	.000	2690.0000	474.8100	936.6800
□	.299	.000	.000	3.000	.000	1109.0000	.0000	.0300
◇	.500	.000	4.000	.000	.000			
△	.600	.000	.000	.000	.000			
▽	.699	.000	.000	.000	.000			

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

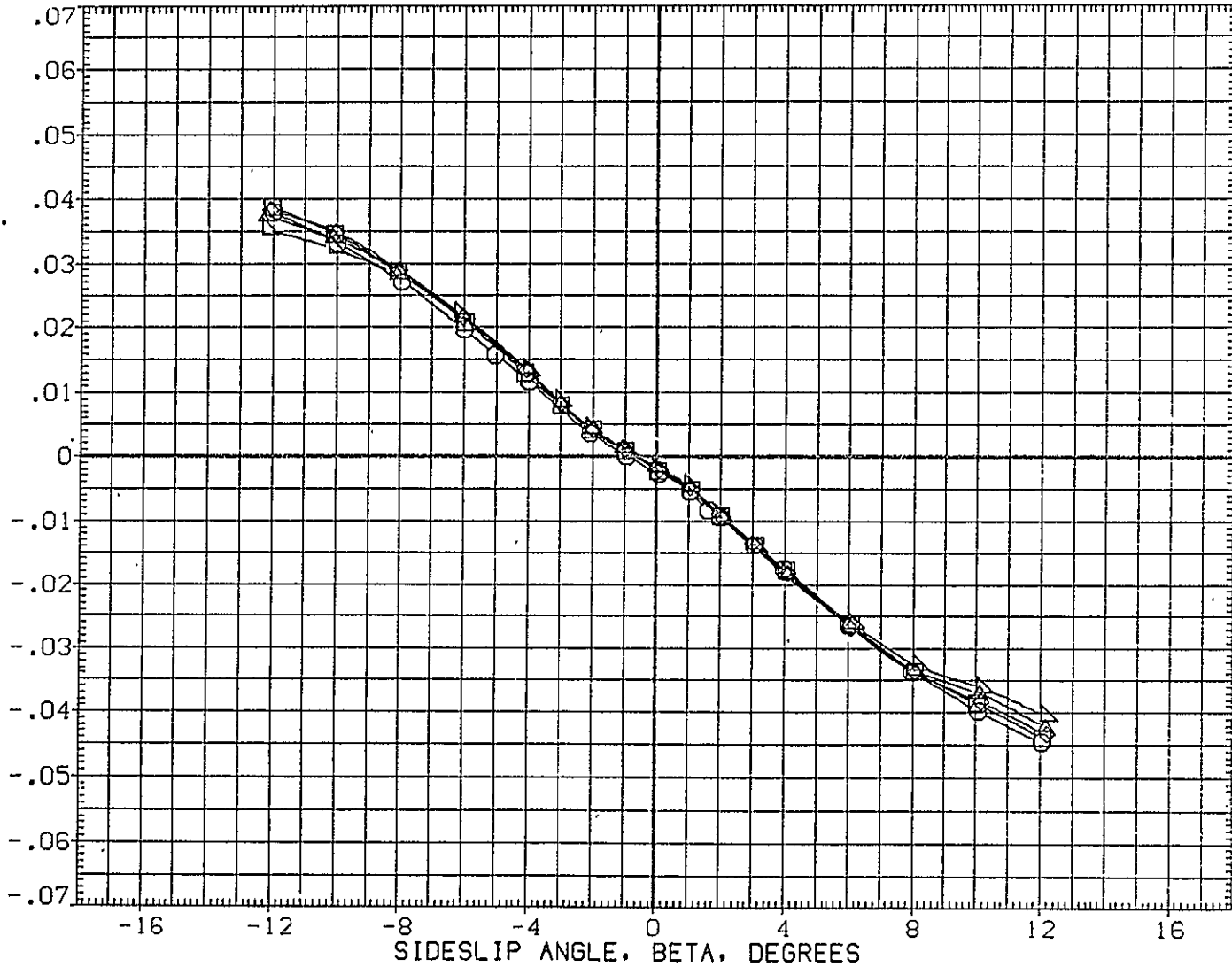


FIG.188 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA I=6(S=-3.2)

0RB

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	8.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

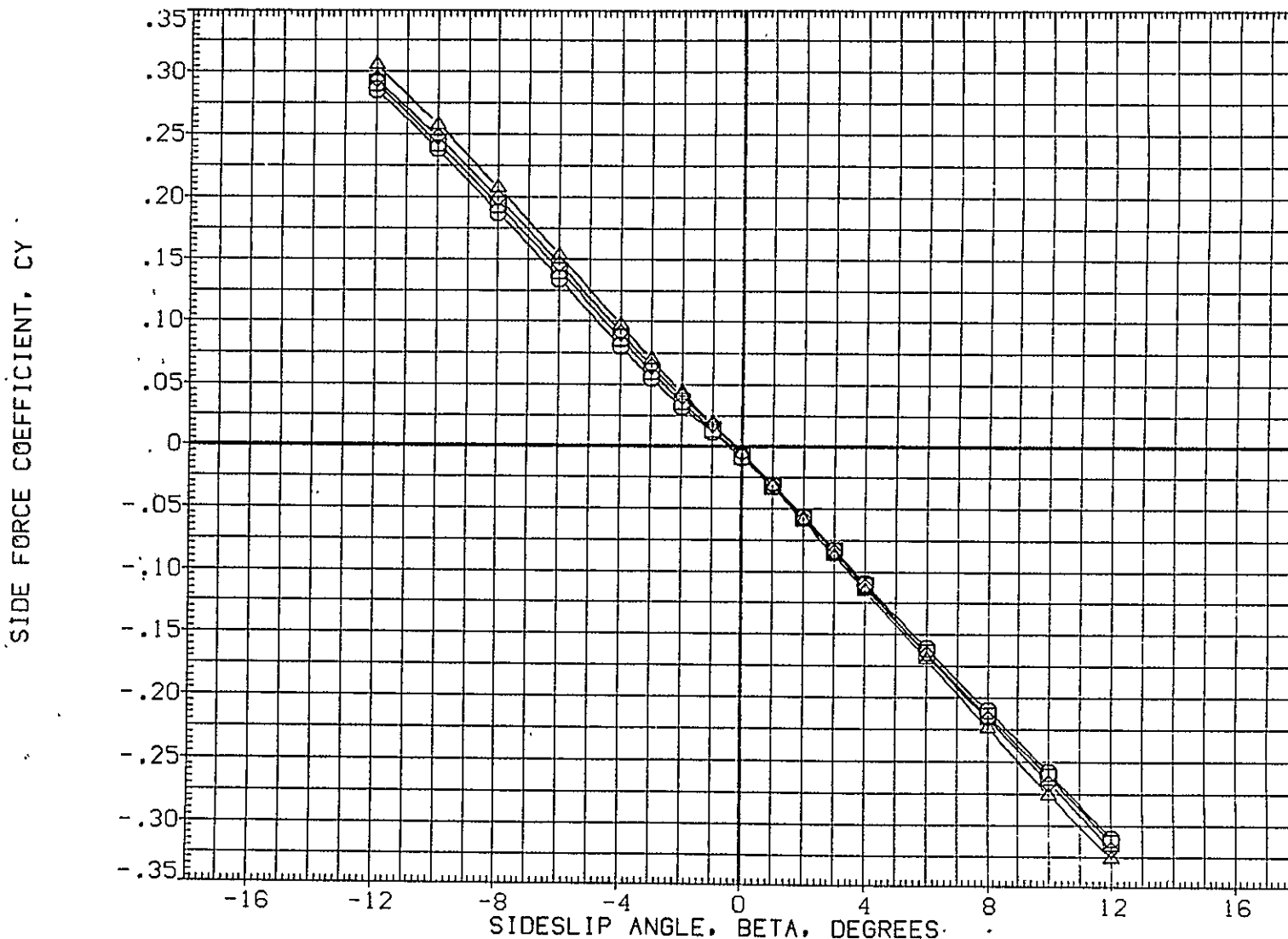


FIG.189 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM115)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	8.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	



FIG.189 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=8(S=-3.2)



SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	8.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	



FIG.189 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

CA5 K1 FO H15.6 V9.1 MINUS 0RB TC5 AT38.3 (BGM115)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHAI	8.000	STAB	-3.200
□	.500	RUD=U	.000	RUD=L	.000
◇	.600	ELV=1B	.000	ELV=0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

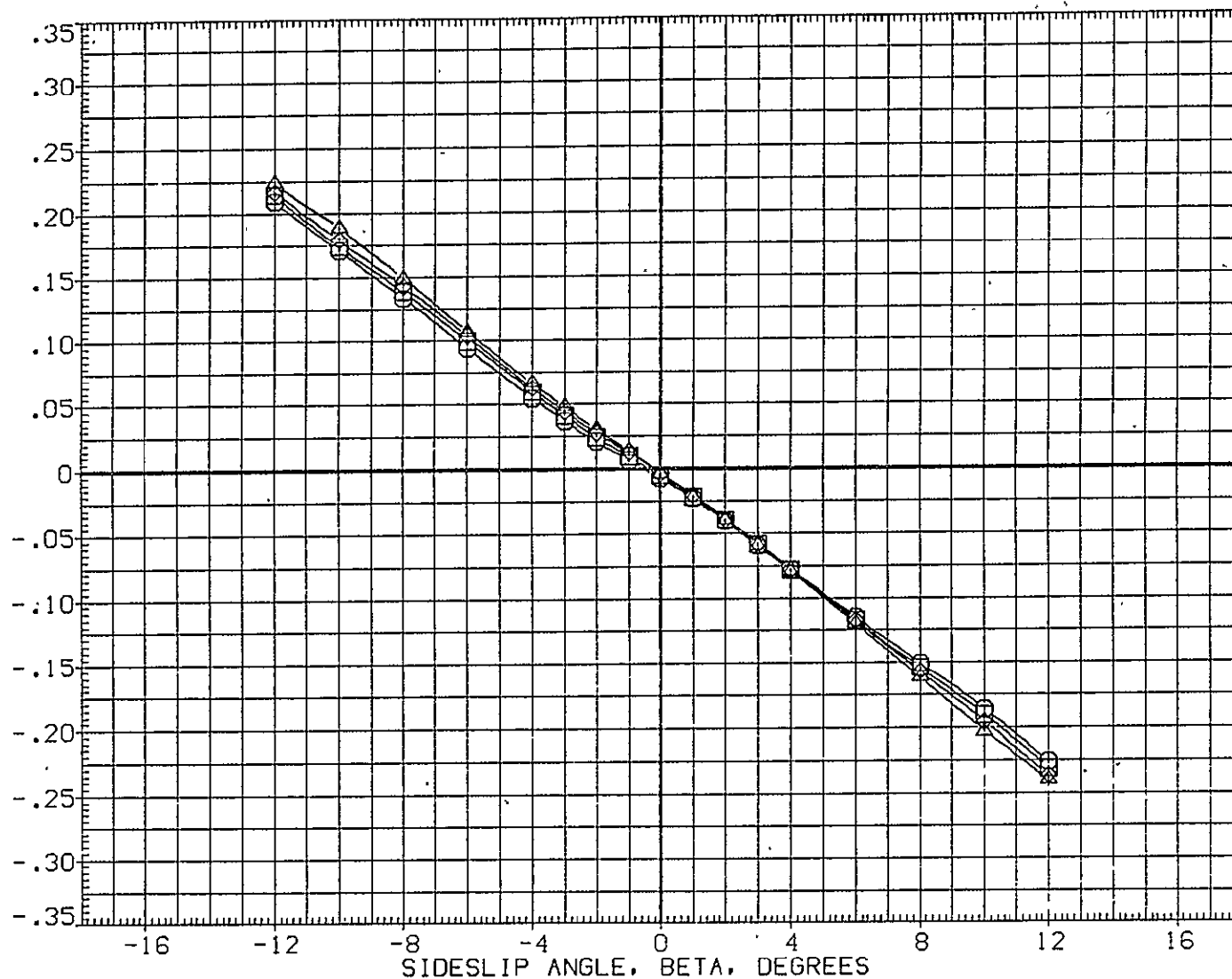


FIG.190 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHAI=8(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA I	8.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.600	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
		S5-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

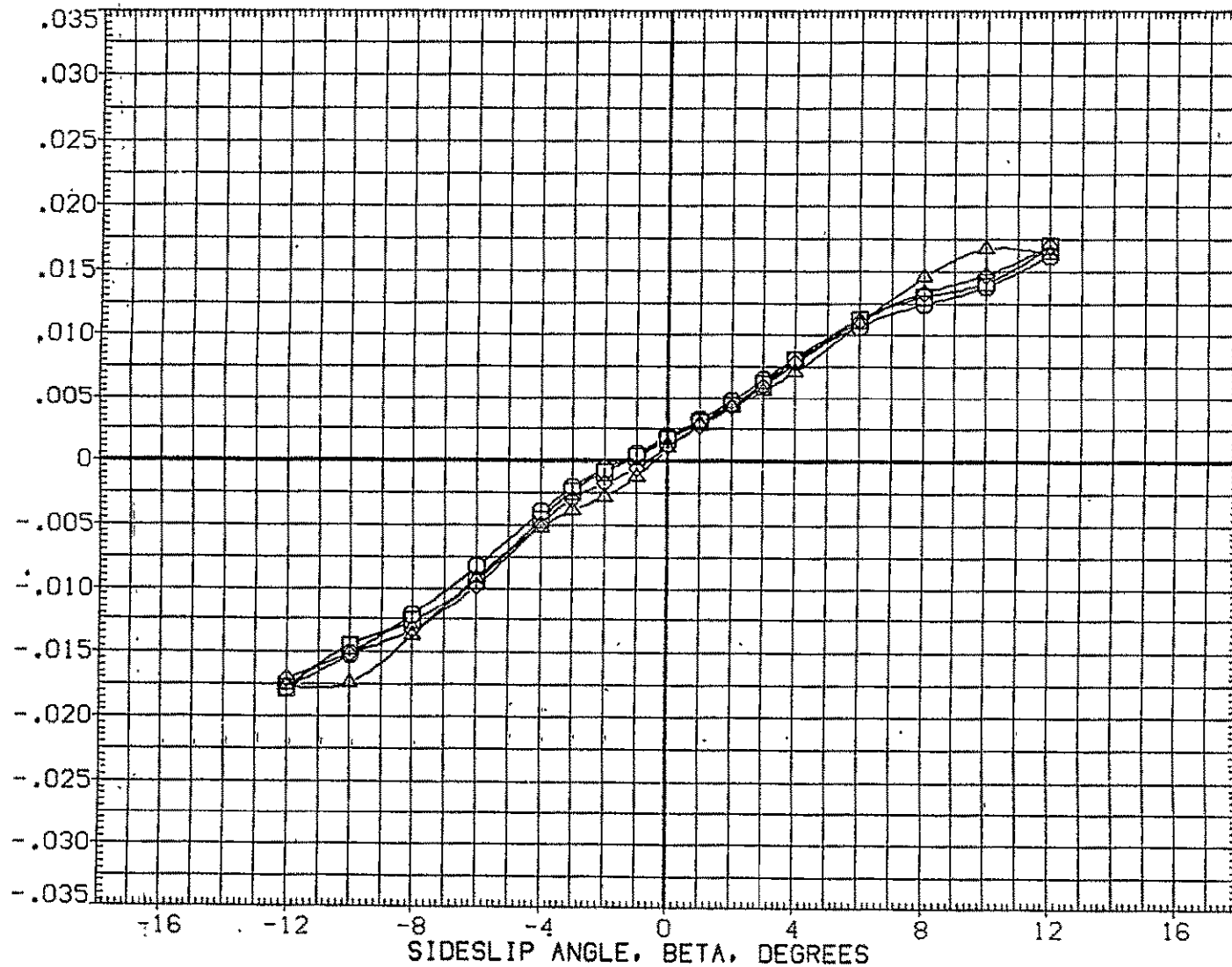


FIG.190 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA I=8(S=-3.2)

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.3 (BGM115)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA	8.000	STAB	-3.200	SREF	5500.0000	SQ.FT.
○	.300	RUD-U	.000	RUD-L	.000	LREF	327.9000	IN.
□	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
◇	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
△	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

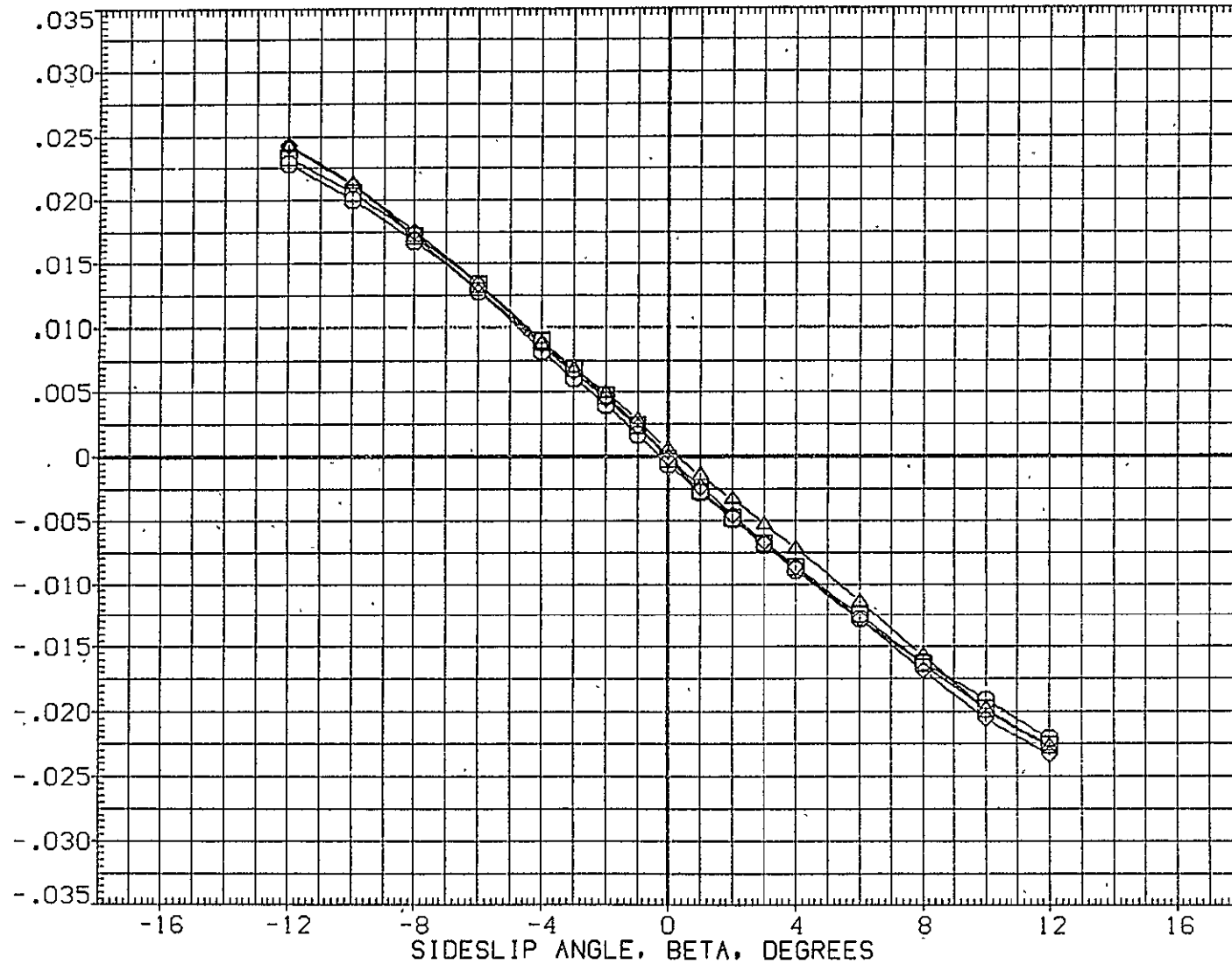


FIG.190 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA=8(S=-3.2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.300	ALPHA1	8.000	STAB	-3.200	SREF	2690.0000	50. FT.
□	.500	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.600	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
		S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. Z0
						SCALE	.0300	

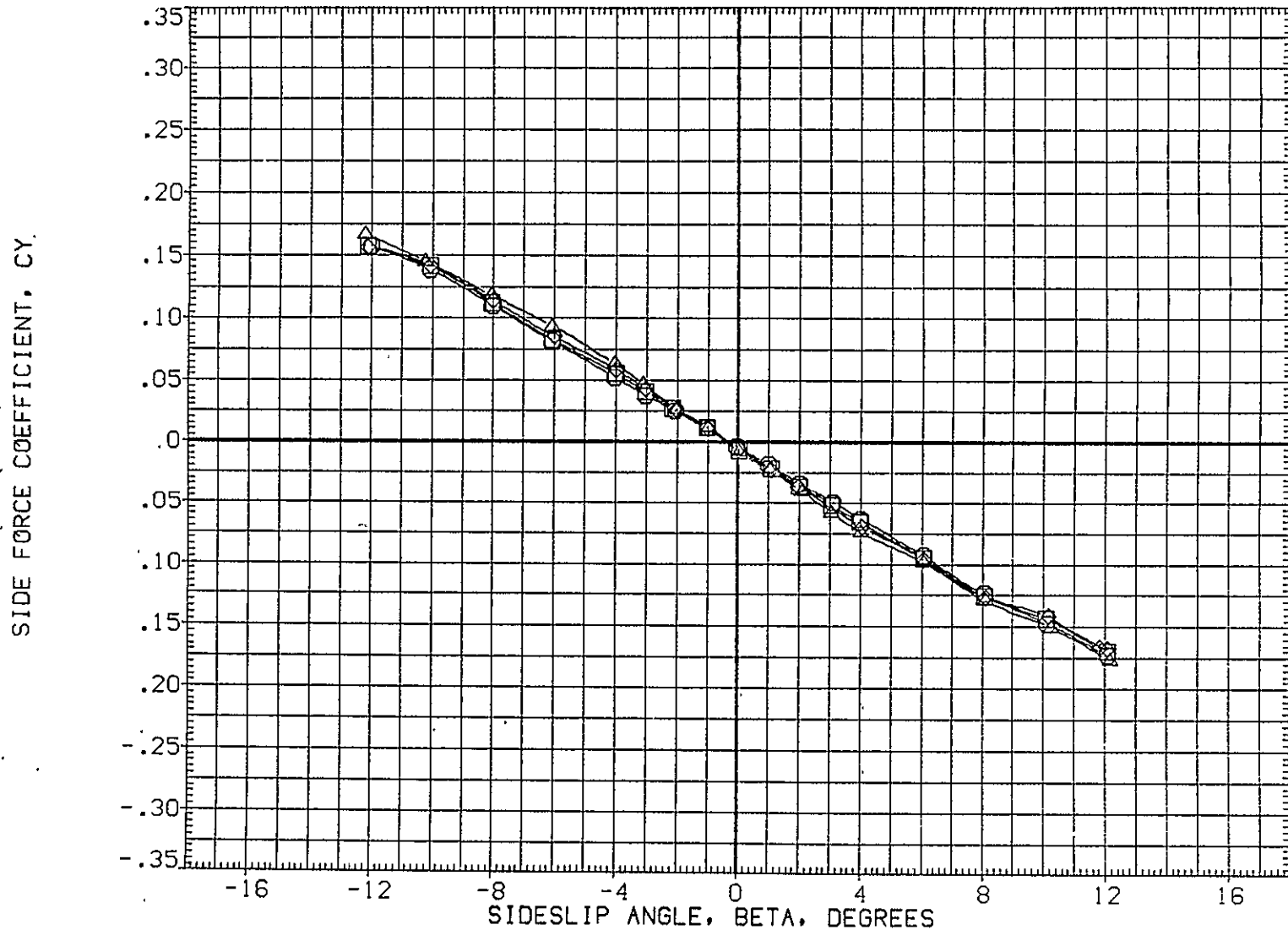


FIG.191 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

0RB

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM115)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	8.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	50. FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

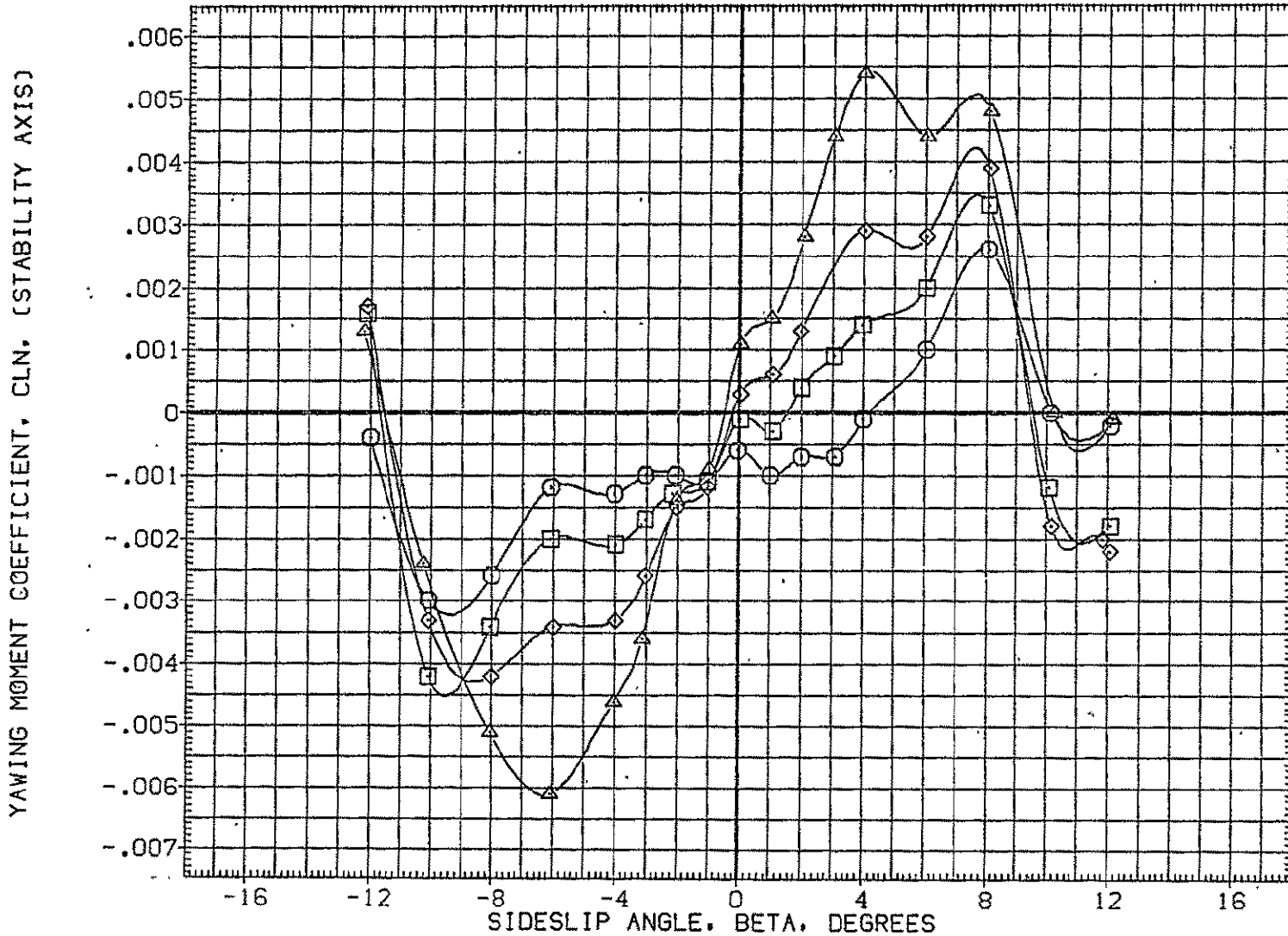


FIG.191 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

0RB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	8.000	STAB	-3.200
□	.500	RUD-U	.000	RUD-L	.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XM RP	1109.0000	IN. X0
YM RP	.0000	IN. Y0
ZM RP	375.0000	IN. Z0
SCALE	.0300	

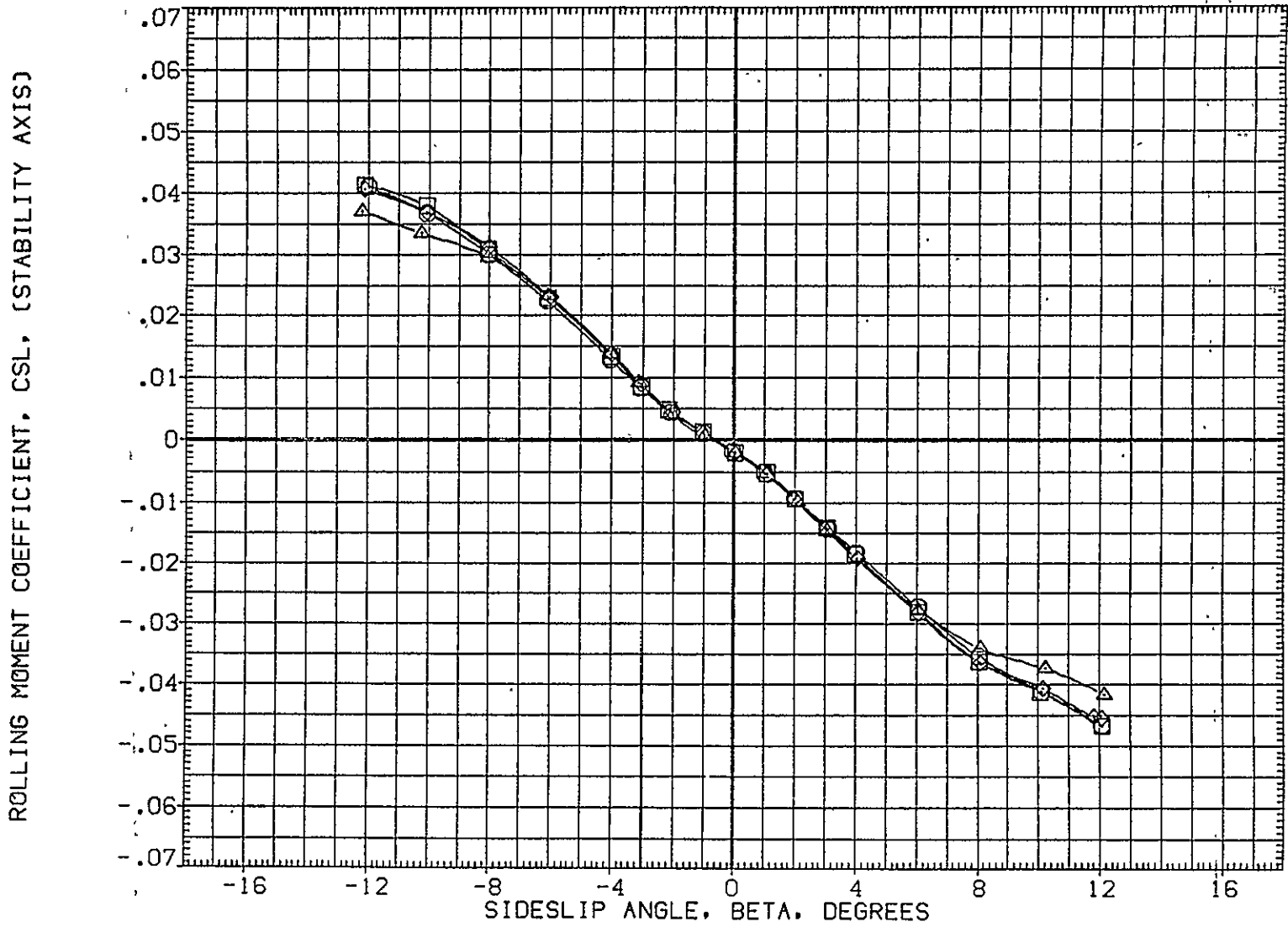


FIG.191 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=8(S=-3.2)

ORB

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM118)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	IORB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

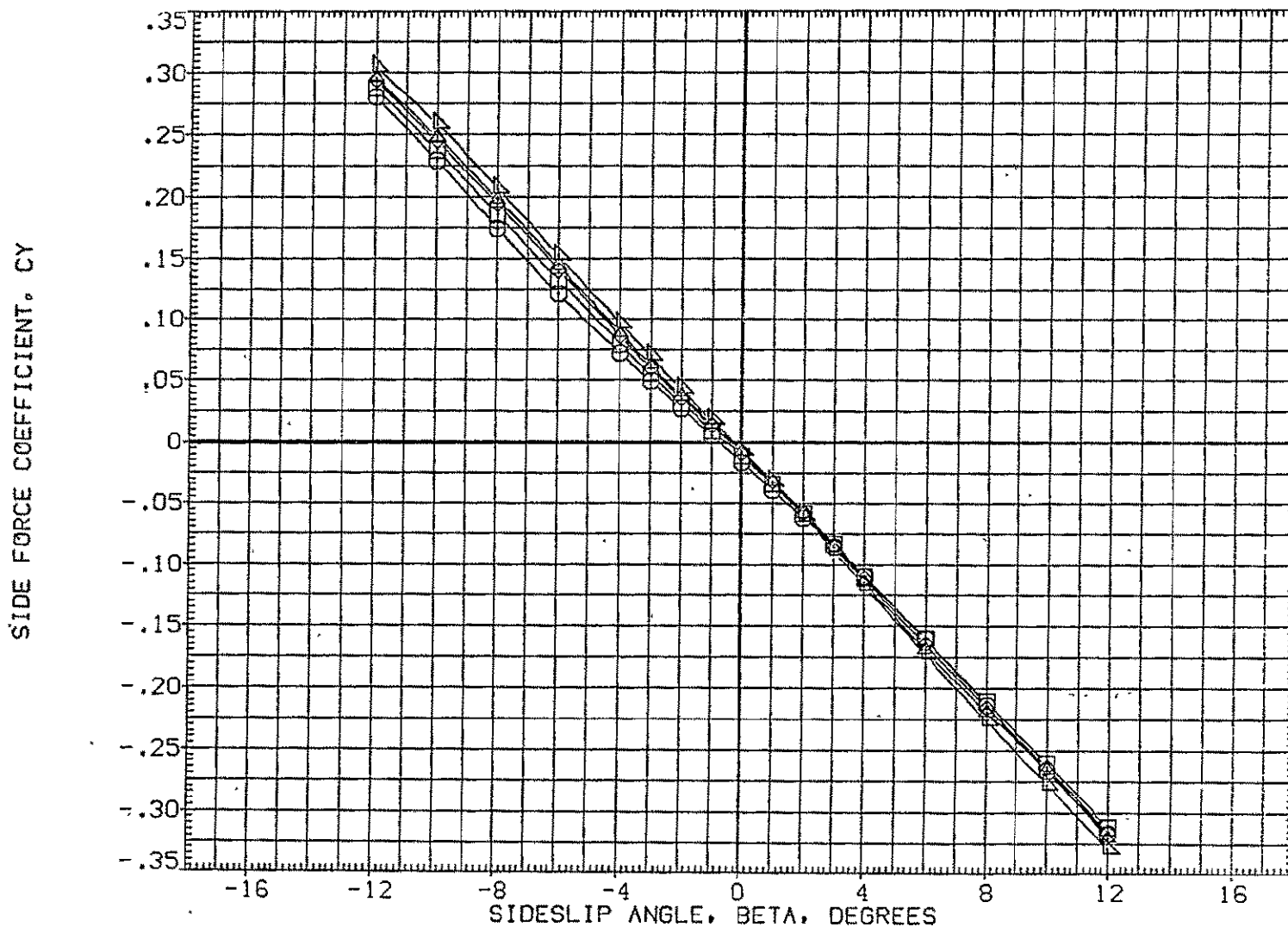


FIG.192 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-2)

TOTAL



SYMBOL	MACH	PARAMETRIC VALUES			
		ALPHAI	6.000	STAS	-2.000
○	.150	RUD-U	.000	RUD-L	.000
◇	.300	ELV-1B	.000	ELV-OB	3.000
△	.500	S1-2	.000	S3-4	.000
▽	.600	S5-6	.000	10RB	4.000
□	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

YAWING MOMENT COEFFICIENT, CLN. (STABILITY AXIS)

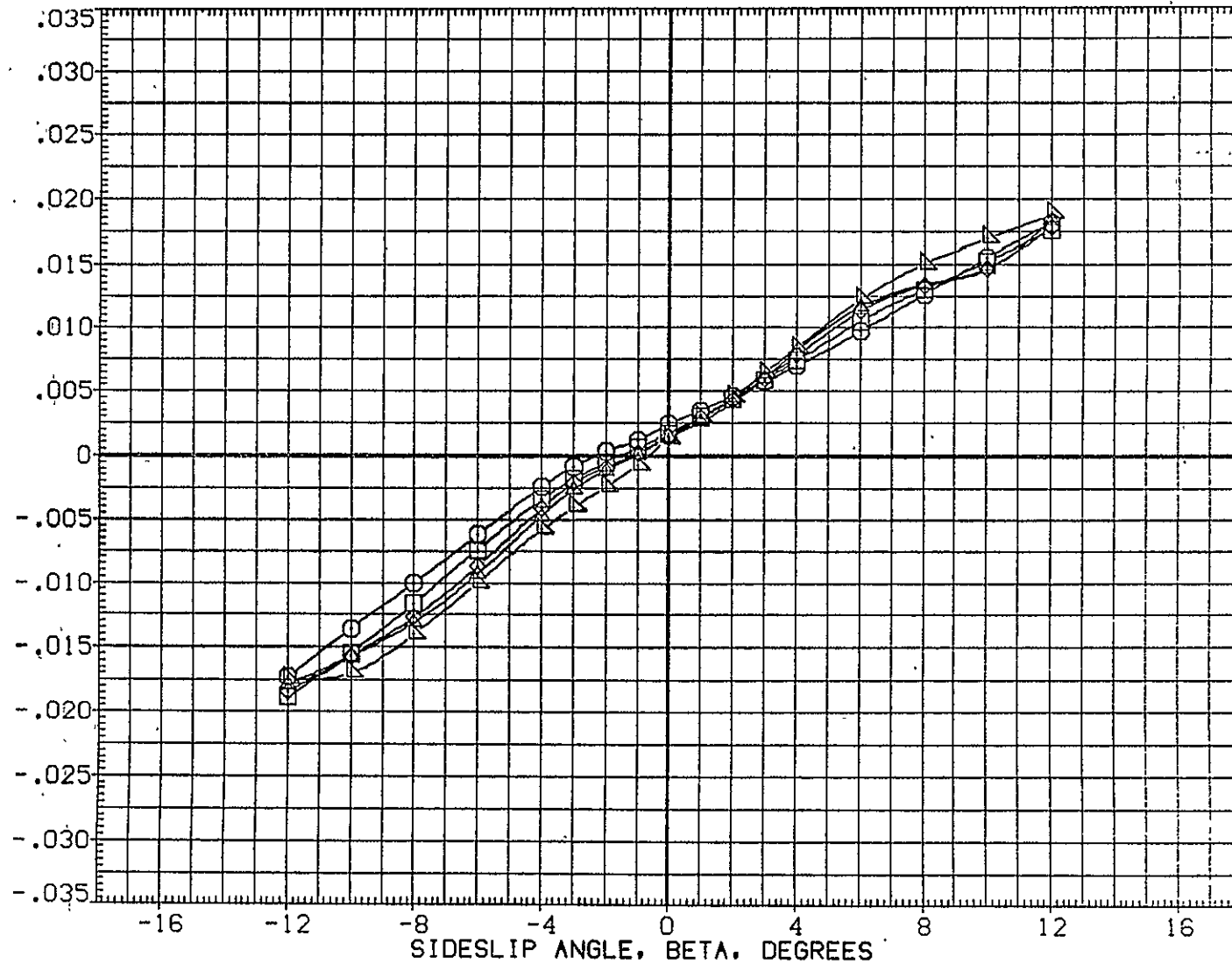


FIG.192 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHAI=6(S=-2)

CA5 K1 FO H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM118)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	-2.000	SREF	5500.0000	SQ.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	.000	10RB	4.000	YMRP	.0000	IN. YC	
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

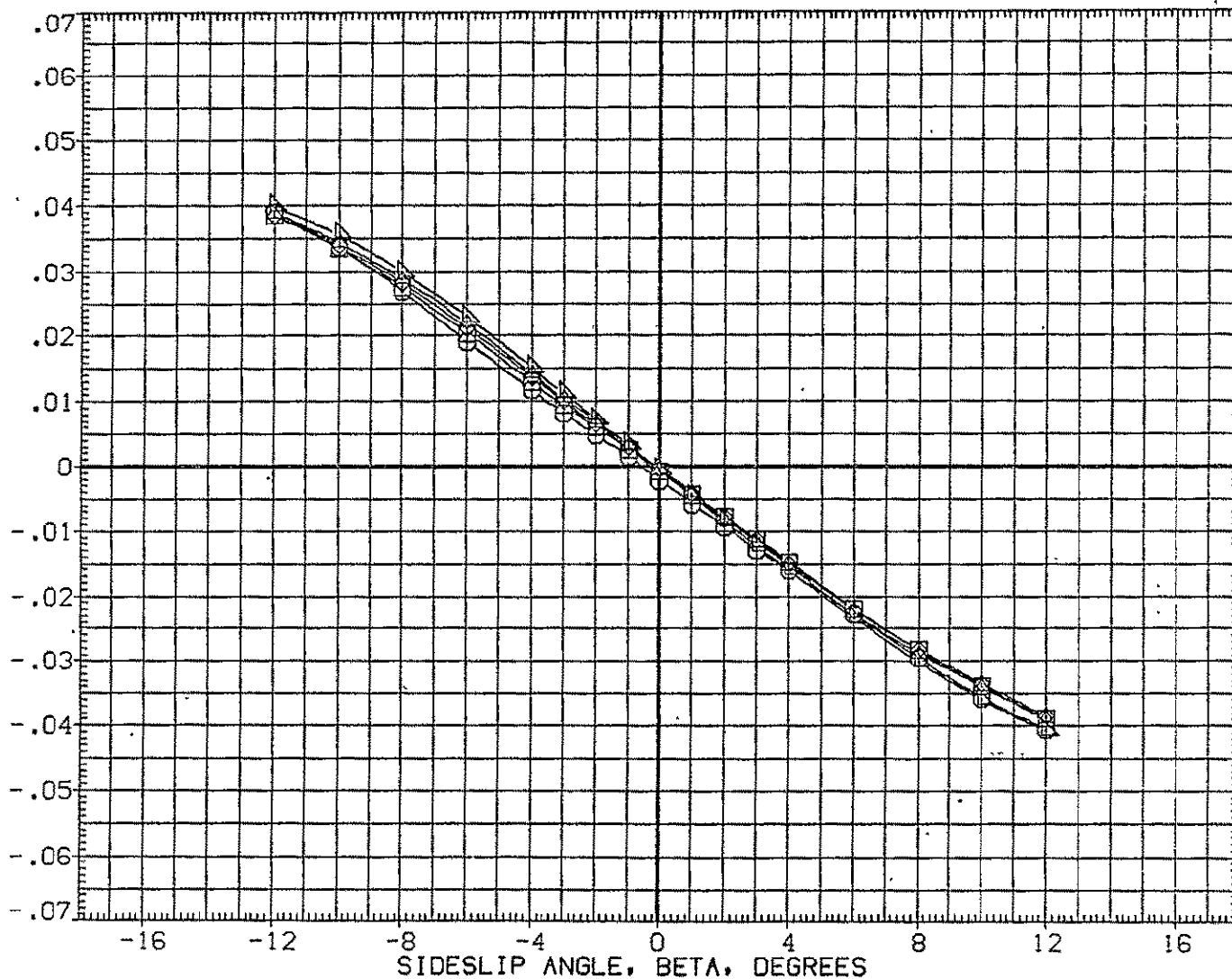


FIG.192 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-2)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	.150	ALPHA1	6.000	STAB	-2.000	SREF	5500.0000	50.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇	.500	ELV-1B	.000	ELV-OB	3.000	BREF	2348.0000	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽	.700	S5-6	.000	ICRB	4.000	YMRP	.0000	IN. YC
						ZMRP	190.7500	IN. ZC
						SCALE	.0300	

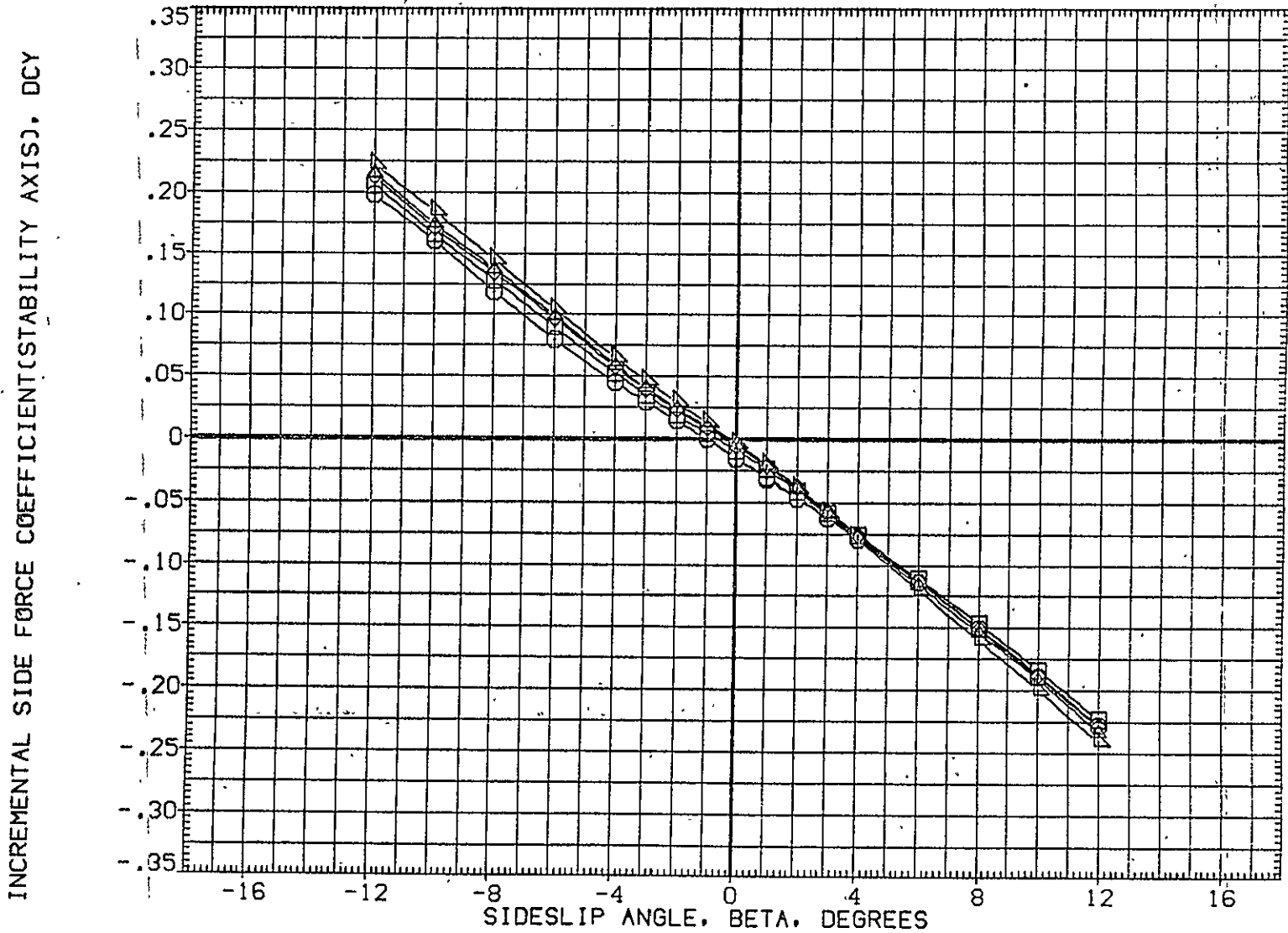


FIG.193 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-2)

CA5 K1 FO H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM118)

SYMBOL	MACH	PARAMETRIC VALUES			
		ALPHA1	6.000	STAB	-2.000
○	.150	RUD-U	.000	RUD-L	.000
◇	.300	ELV-1B	.000	ELV-0B	3.000
□	.500	S1-2	.000	S3-4	.000
△	.600	S5-6	.000	IORB	4.000
▽	.700				

REFERENCE INFORMATION		
SREF	5500.0000	SQ. FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

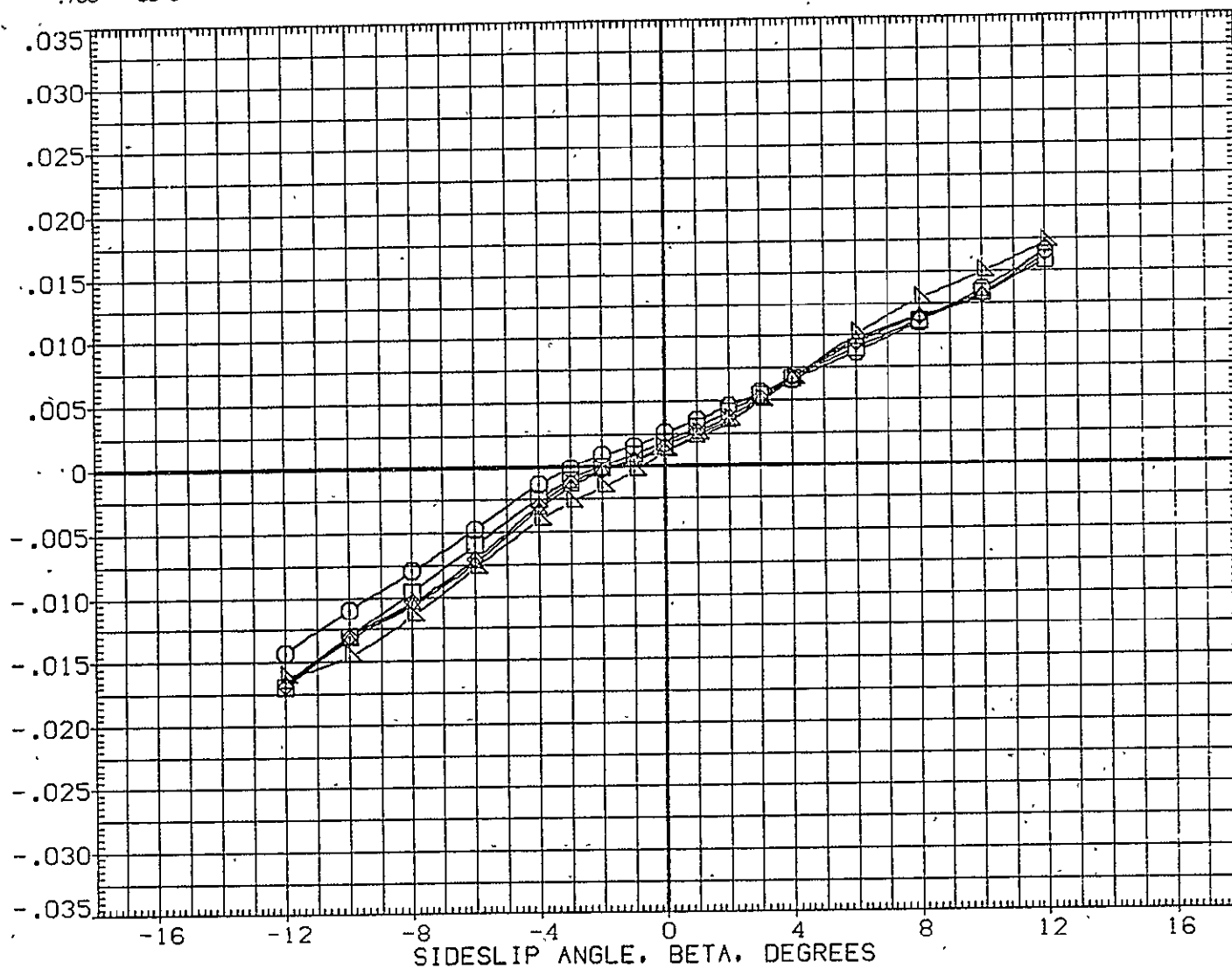


FIG.193 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-2)

SYMBOL		MACH	PARAMETRIC VALUES			REFERENCE INFORMATION			
○		.150	ALPHA I	6.000	STAB	-2.000	SREF	5500.0000	SG.FT.
□		.300	RUD-U	.000	RUD-L	.000	LREF	327.8000	IN.
◇		.500	ELV-1B	.000	ELV-0B	3.000	BREF	2348.0000	IN.
△		.600	S1-2	.000	S3-4	.000	XMRP	1339.9100	IN. XC
▽		.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. YC
							ZMRP	190.7500	IN. ZC
							SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT (STABILITY AXIS), DCSL

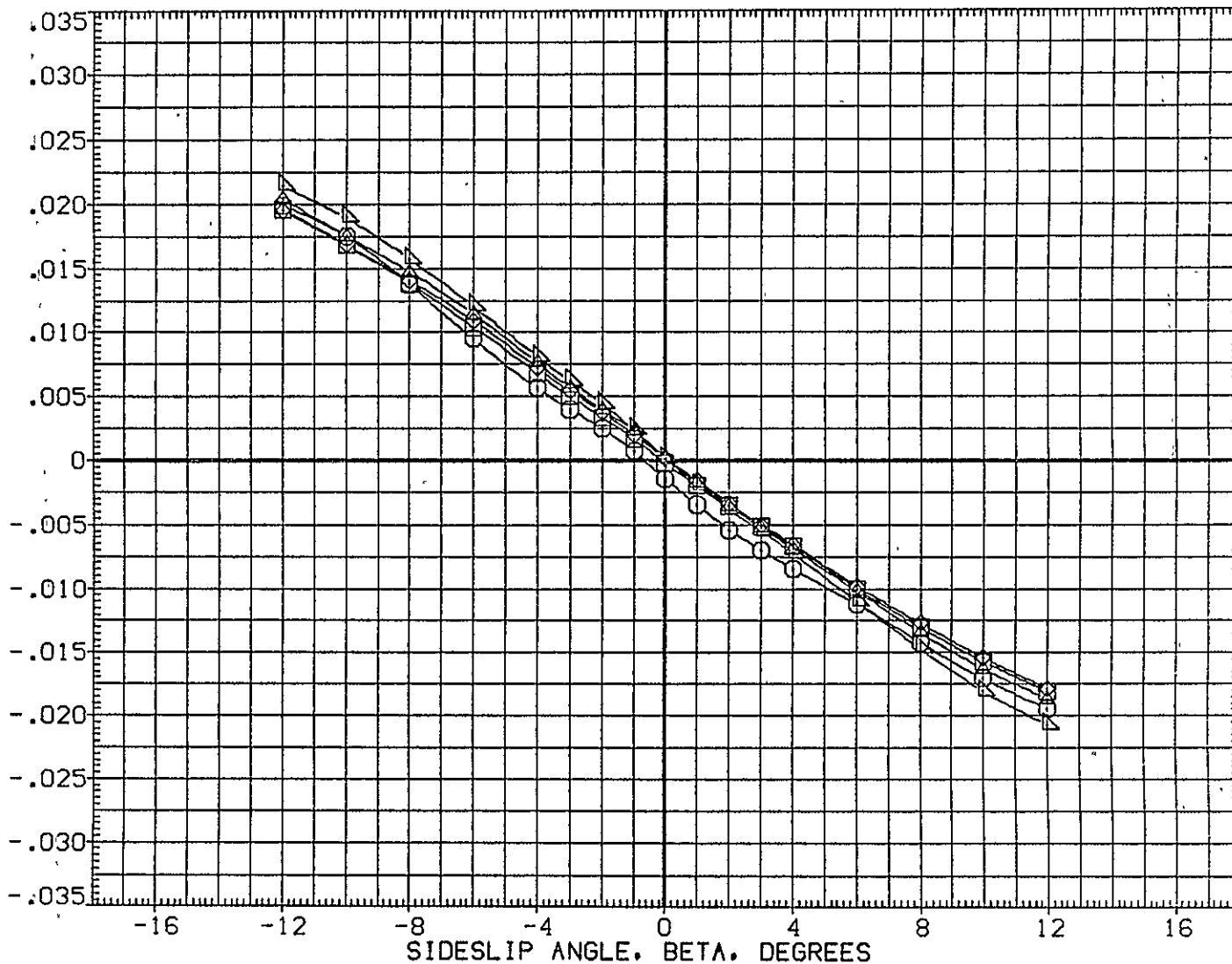


FIG.193 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA I=6(S=-2)

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM118)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION			
		ALPHA I	STAB	RUD-L	ELV-OB	SREF	LREF	BREF	SQ.FT.
○	.149	6.000	-2.000	.000	.000	2690.0000	474.8100	936.6800	IN.
□	.300	.000	.000	.000	.000	1109.0000	.0000	.0000	IN. X0
◇	.500	.000	3.000	.000	.000	375.0000	.0300		IN. Y0
△	.600	.000	.000	.000	.000				IN. Z0
▽	.700	.000	4.000	.000	.000				

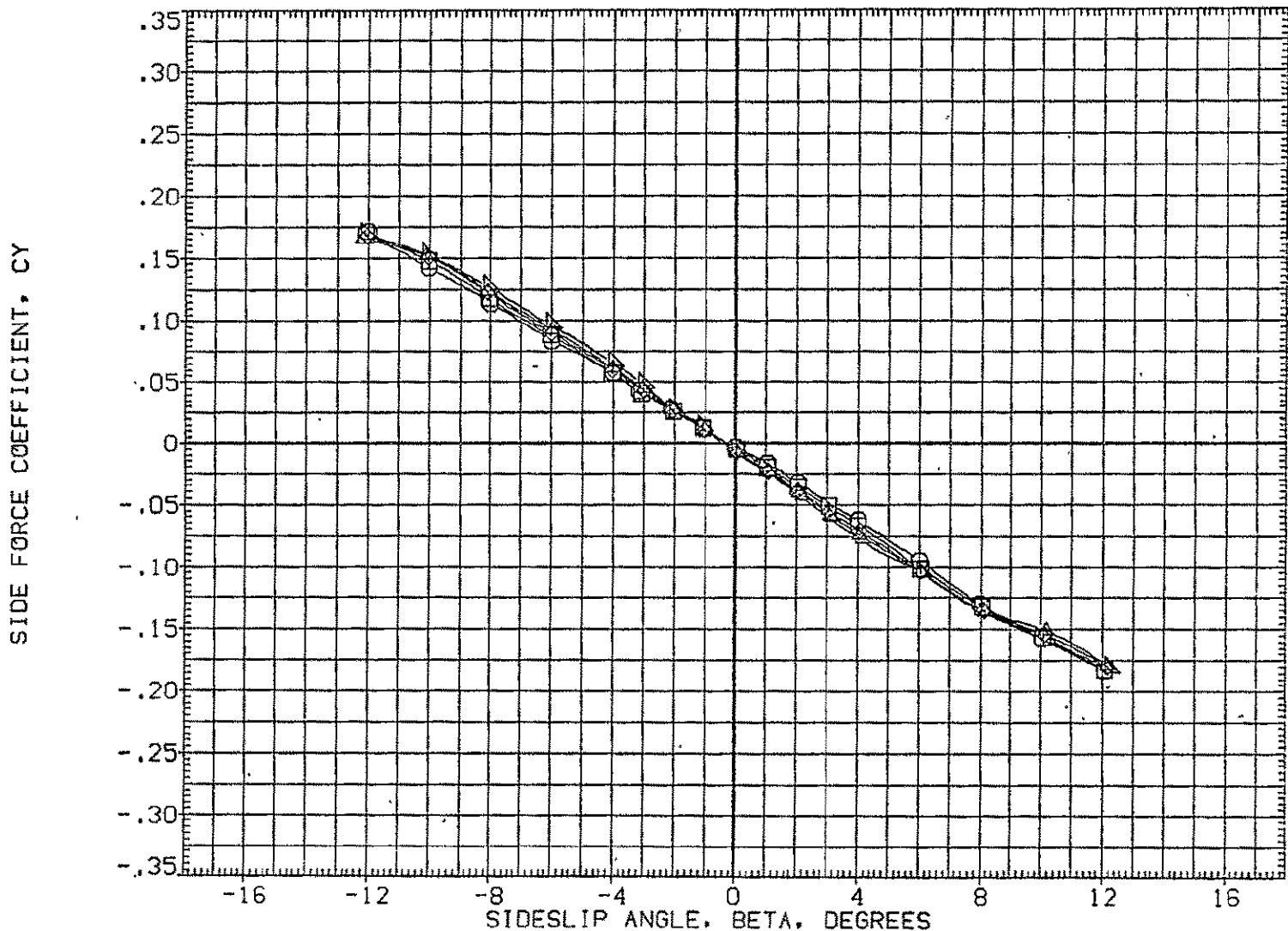


FIG.194 747+ORB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA I=6(S=-2)

ORB

SYMBOL	MACH	PARAMETRIC VALUES			
○	.149	ALPHA1	6.000	STAB	-2.000
◇	.300	RUD-U	.000	RUD-L	.000
△	.500	ELV-1B	.000	ELV-0B	3.000
▽	.600	S1-2	.000	S3-4	.000
	.700	S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

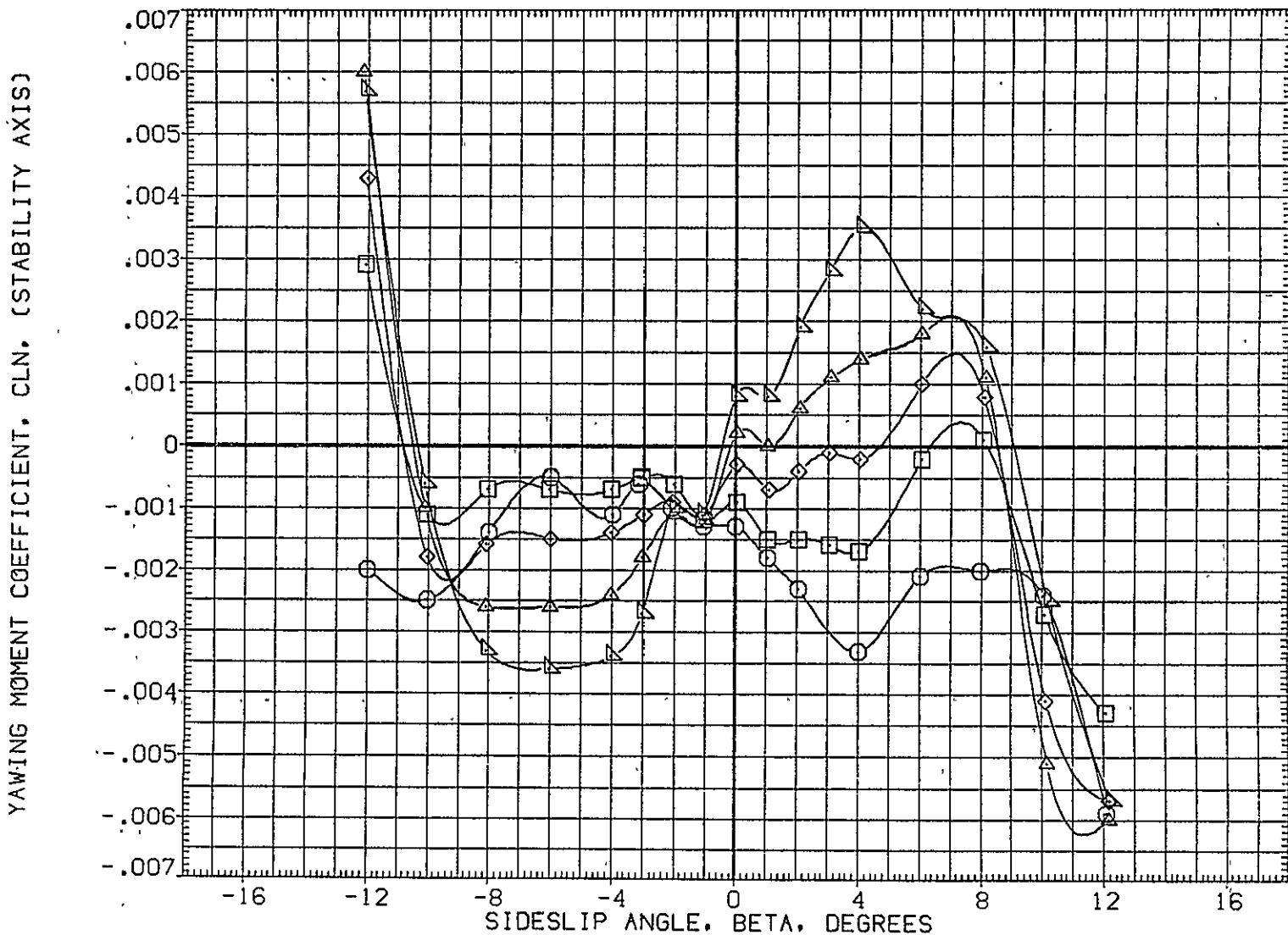


FIG.194 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-2)

0RB

6.7

CA5 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM118)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	6.000	STAB	-2.000	SREF	2690.0000	SO.FT.
□	.300	RUD-U	.000	RUD-L	.000	LREF	474.8100	IN.
◇	.500	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800	IN.
△	.600	S1-2	.000	S3-4	.000	XMRP	1109.0000	IN. X0
▽	.700	S5-6	.000	10RB	4.000	YMRP	.0000	IN. Y0
						ZMRP	375.0000	IN. ZC
						SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

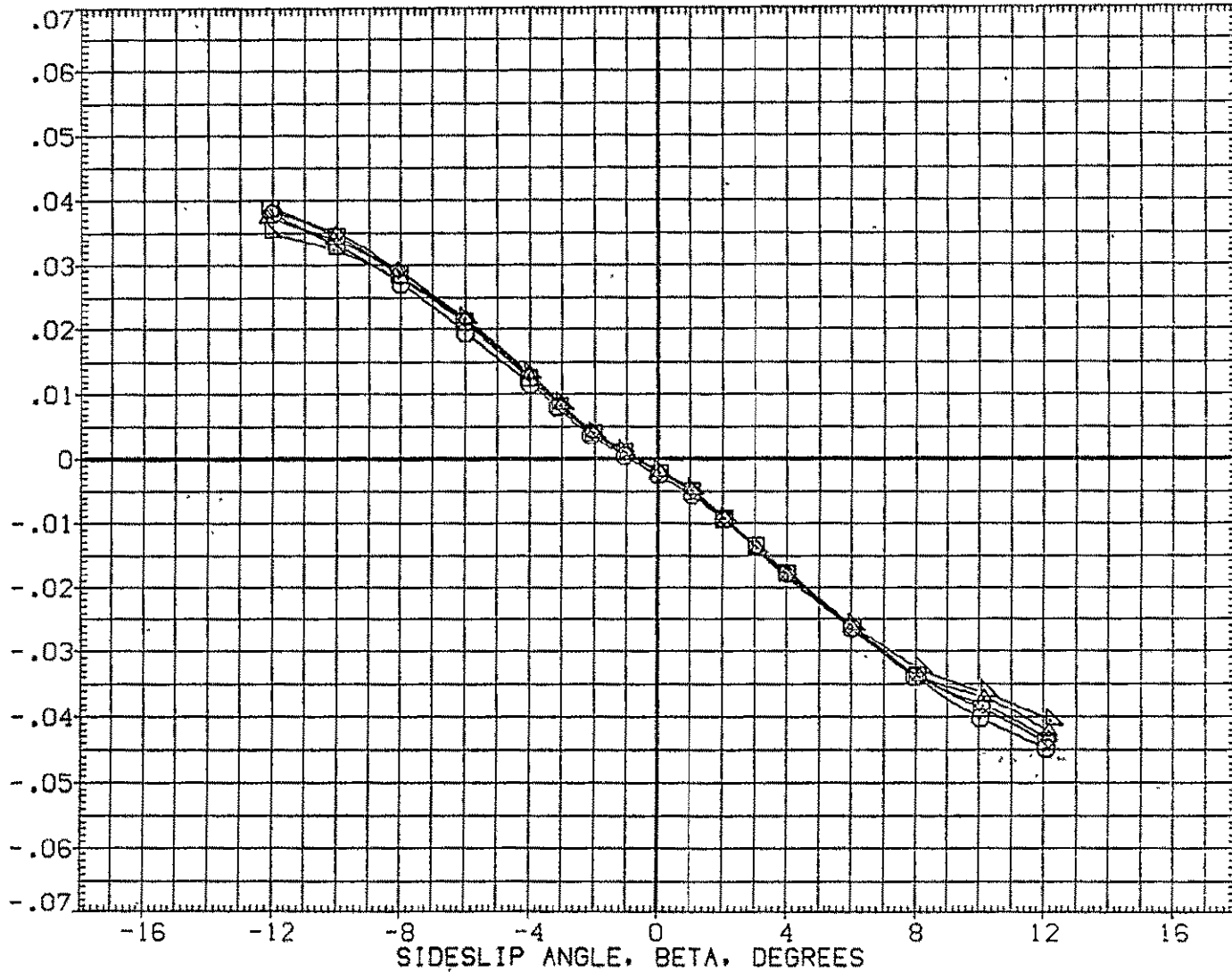


FIG.194 747+0RB(4 DEG)+TIP FINS,FLAPS UP FERRY,ALPHA1=6(S=-2)

0RB



SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	-2.000
□	.499	RUD-U	10.000	RUD-L	10.000
◇	.600	ELV-1B	.000	ELV-OB	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

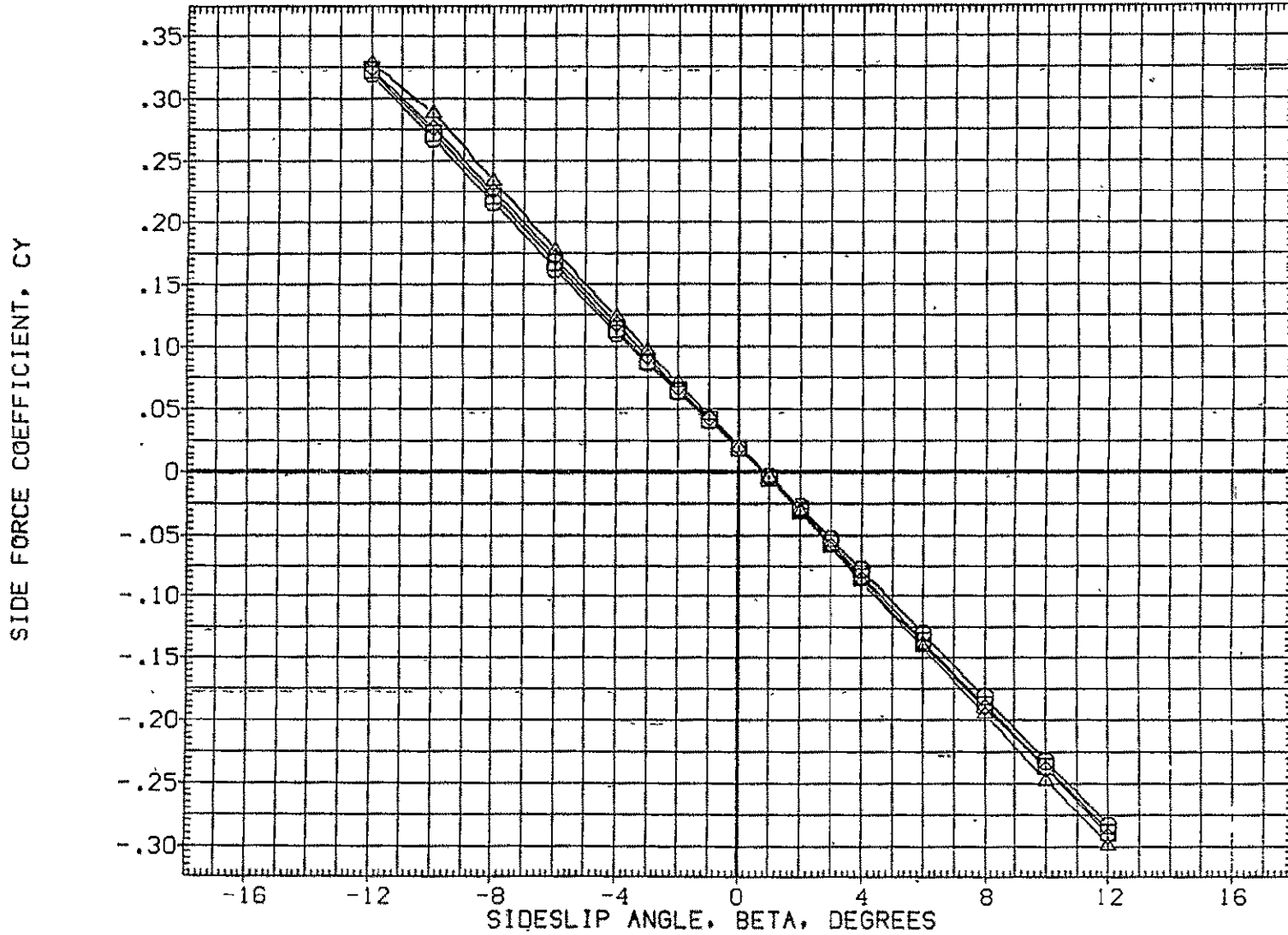


FIG.195 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=6,RUDDER=10/10

CA5 K1 F0 H15.6 V9.1 (PLUS. 0RB TC5 AT38.3 )(RGM121)

SYMBOL	MACH	PARAMETRIC VALUES			
○	.300	ALPHA1	6.000	STAB	-2.000
□	.499	RUD-U	10.000	RUD-L	10.000
◇	.600	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SO.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

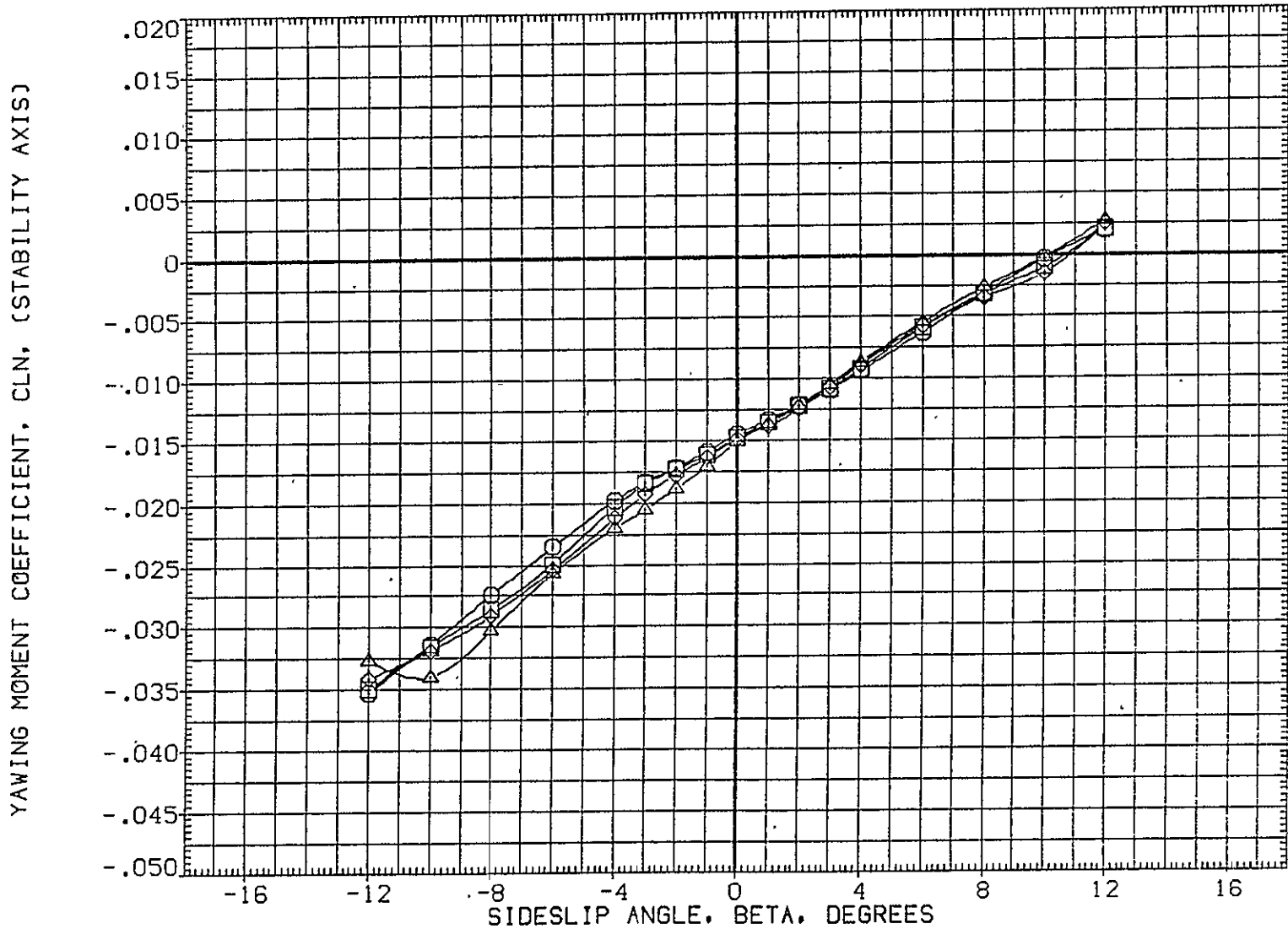


FIG.195 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=6,RUDDER=10/10

TOTAL

SYMBOL  
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MACH	PARAMETRIC VALUES			
.300	ALPHA-I	6.000	STAB	-2.000
.499	RUD-U	10.000	RUD-L	10.000
.600	ELV-1B	.000	ELV-0B	3.000
.700	S1-2	.000	S3-4	.000
	S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	5500.0000	SQ.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

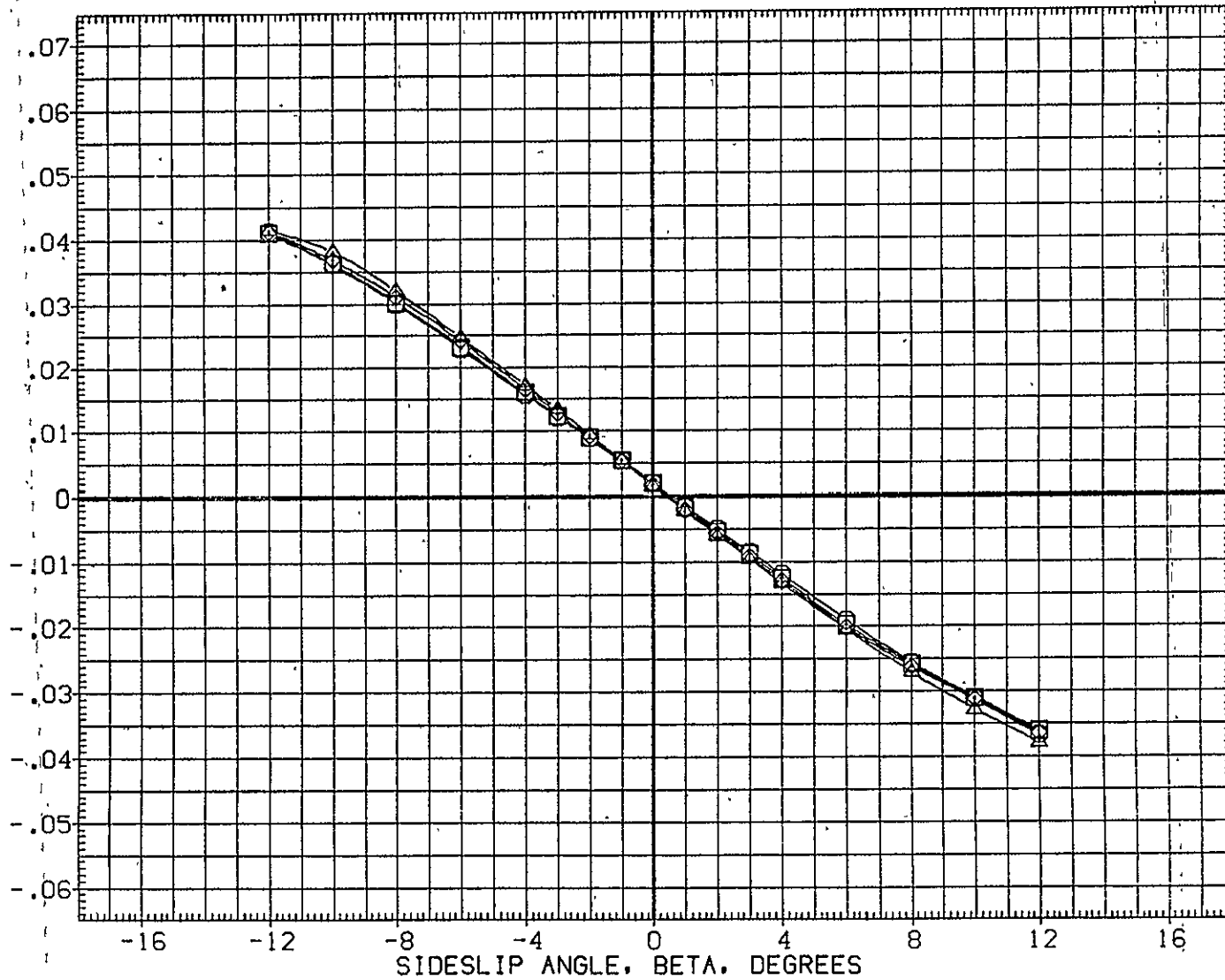


FIG.195 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA I=6,RUDDER=10/10

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CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.3 (BGM121)

SYMBOL  
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MACH	ALPHA1	PARAMETRIC VALUES			
.300	ALPHA1	6.000	STAB	-2.000	
.499	RUD-U	10.000	RUD-L	10.000	
.600	ELV-1B	.000	ELV-0B	3.000	
.700	S1-2	.000	S3-4	.000	
	S5-6	.000	10RB	4.000	

REFERENCE INFORMATION		
SREF	5500.0000	50.FT.
LREF	327.8000	IN.
BREF	2348.0000	IN.
XMRP	1339.9100	IN. XC
YMRP	.0000	IN. YC
ZMRP	190.7500	IN. ZC
SCALE	.0300	

INCREMENTAL SIDE FORCE COEFFICIENT (STABILITY AXIS), DCY

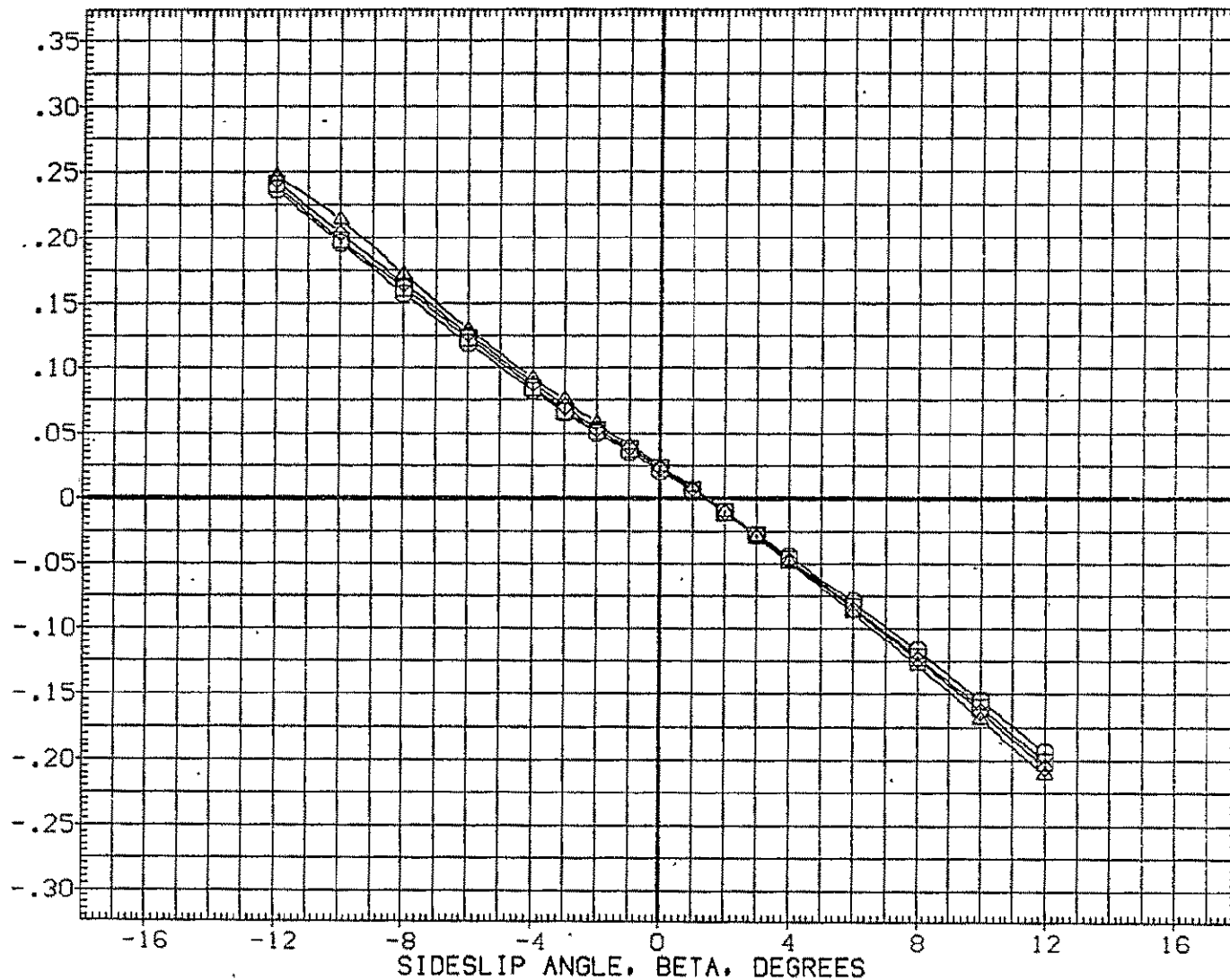


FIG.196 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=6,RUDDER=10/10

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHAI	STAB	RUD-L	ELV-OB	SREF	SO, FT.	
○	.300	6.000	-2.000	10.000	5500.0000	IN.		
□	.499	10.000	10.000	3.000	327.8000	IN.		
◇	.600	.000	3.000	.000	2348.0000	IN.	XC	
△	.700	.000	.000	.000	1339.9100	IN.	YC	
		S5-6	10RB	4.000	YMRP	.0000	IN.	ZC
					ZMRP	190.7500	IN.	
					SCALE	.0300		

INCREMENTAL YAWING MOMENT COEFFICIENT (STABILITY AXIS), DCLN

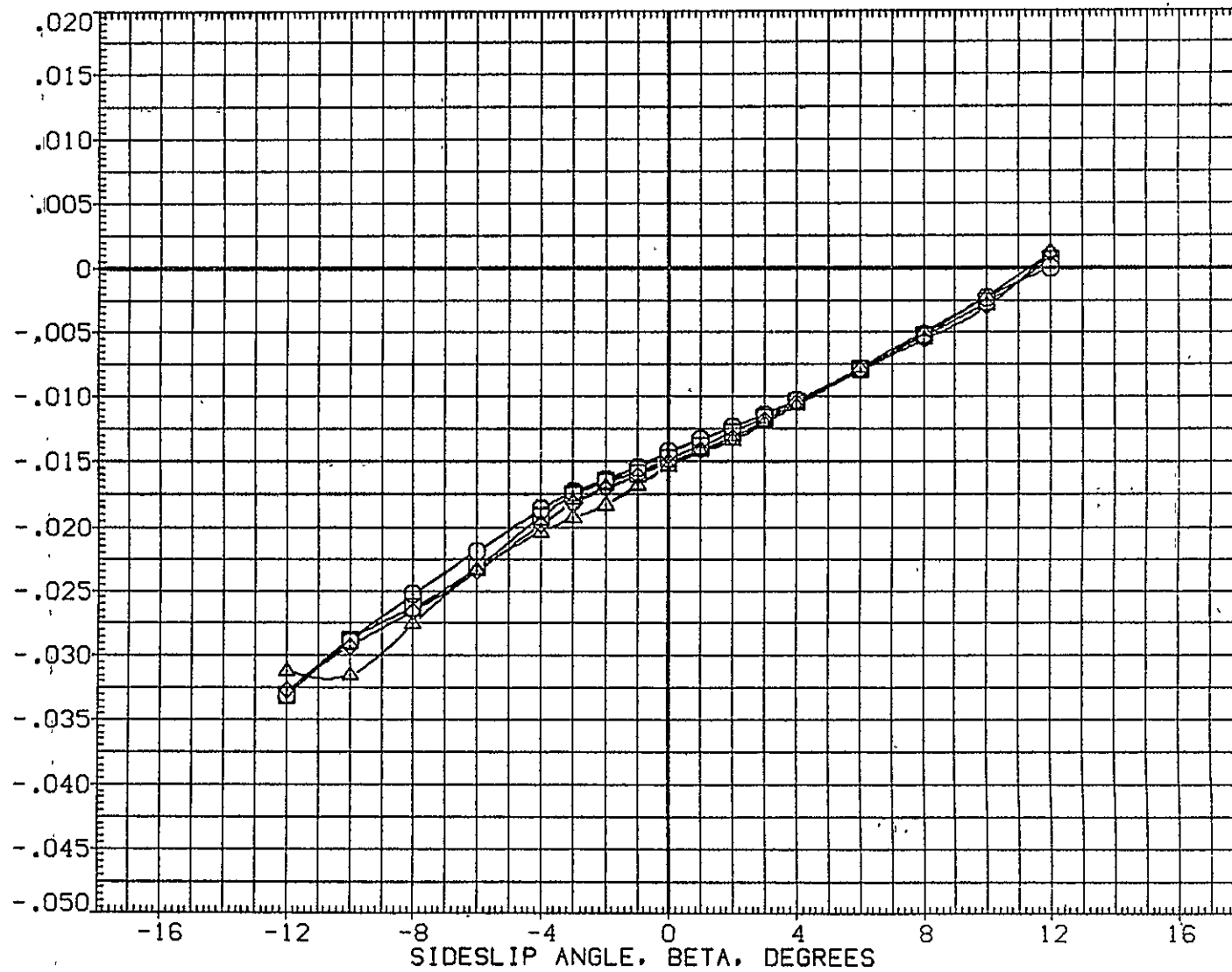


FIG.196 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHAI=6,RUDDER=10/10

V100030304000000000  
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 1000000000000000000000

CA5 K1 F0 H15.6 V9.1 MINUS ORB TC5 AT38.3 (BGM121)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION		
		ALPHA1	STAB	RUD-L	RUD-U	SREF	SG.FT.	
○	.300	6.000	-2.000	10.000	10.000	5500.0000	IN.	
□	.499	10.000	10.000	3.000	3.000	327.8000	IN.	
◇	.600	.000	3.000	10.000	10.000	2348.0000	IN.	
△	.700	.000	4.000	10.000	10.000	1339.9100	IN. XC	
		S1-2	S3-4	S5-6	10RS	YMRP	IN. YC	
		.000	.000	.000		ZMRP	IN. ZC	
		.000	4.000			SCALE	.0300	

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

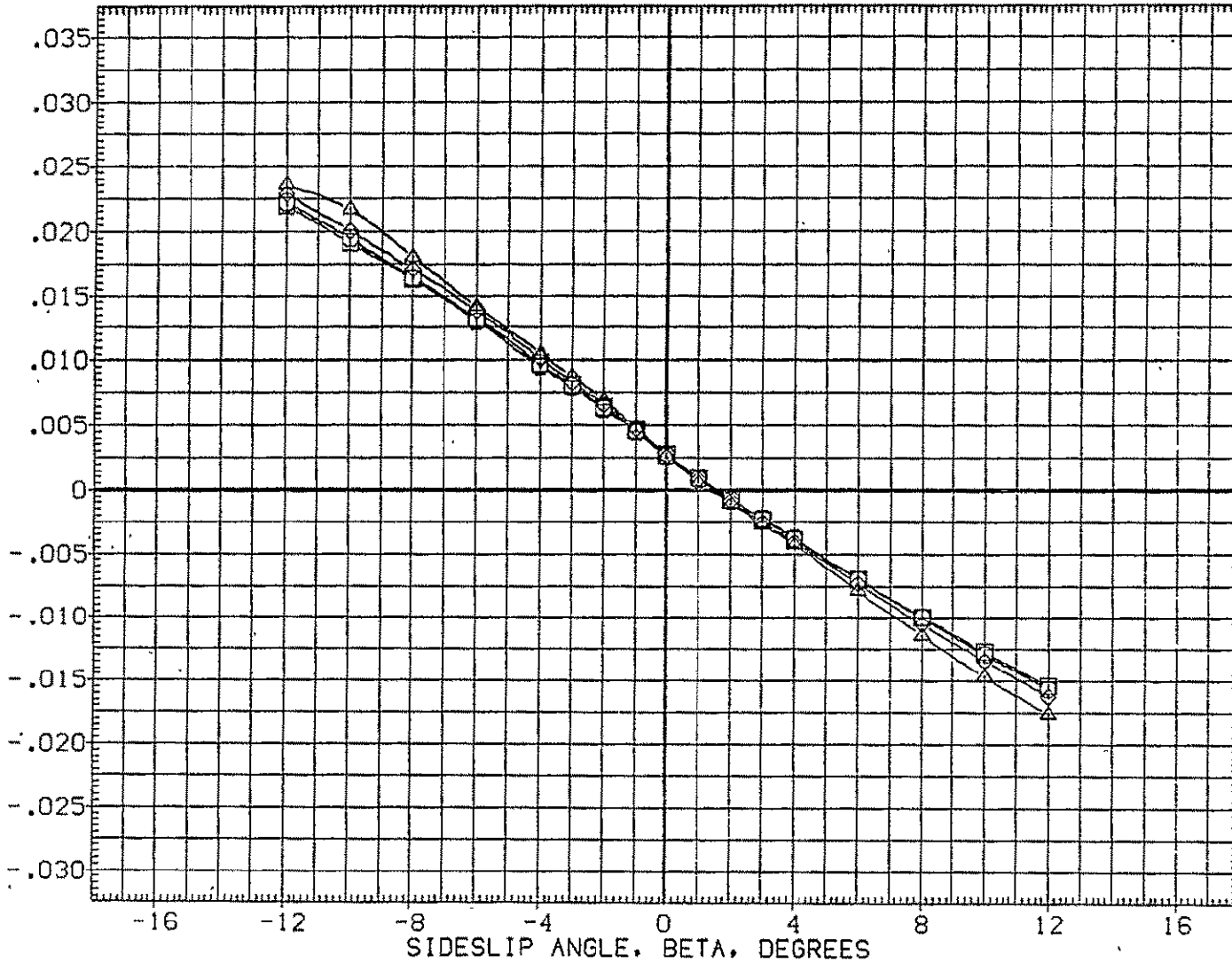


FIG.196 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=6,RUDDER=10/10

SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	ALPHA1	6.000	STAB	-2.000
□	.499	RUD-U	10.000	RUD-L	10.000
◇	.601	ELV-1B	.000	ELV-0B	3.000
△	.700	S1-2	.000	S3-4	.000
		S5-6	.000	IORB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SQ.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

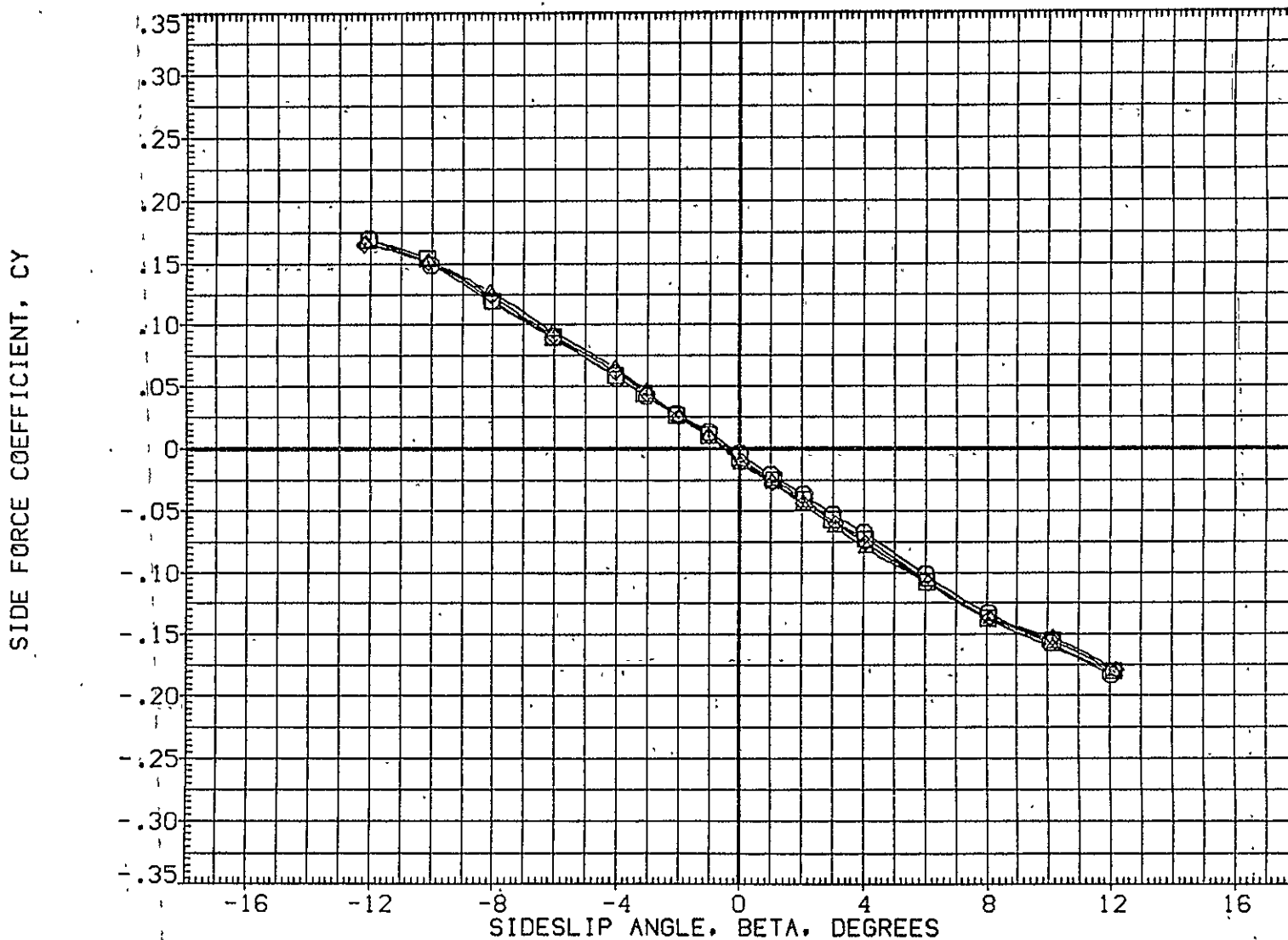


FIG.197 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=6,RUDDER=10/10

ORB

CA5 · 0RB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM121)

SYMBOL	MACH	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	.299	ALPHA1	6.000	STAB	-2.000	SREF	2690.0000 SQ.FT.
□	.499	RUD-U	10.000	RUD-L	10.000	LREF	474.8100 IN.
◇	.601	ELV-1B	.000	ELV-0B	3.000	BREF	936.6800 IN.
△	.700	S1-2	.000	S3-4	.000	XMRP	1109.0000 IN. X0
		S5-6	.000	10RB	4.000	YMRP	.0000 IN. Y0
						ZMRP	375.0000 IN. Z0
						SCALE	.0300

YAWING MOMENT COEFFICIENT, CLN, (STABILITY AXIS)

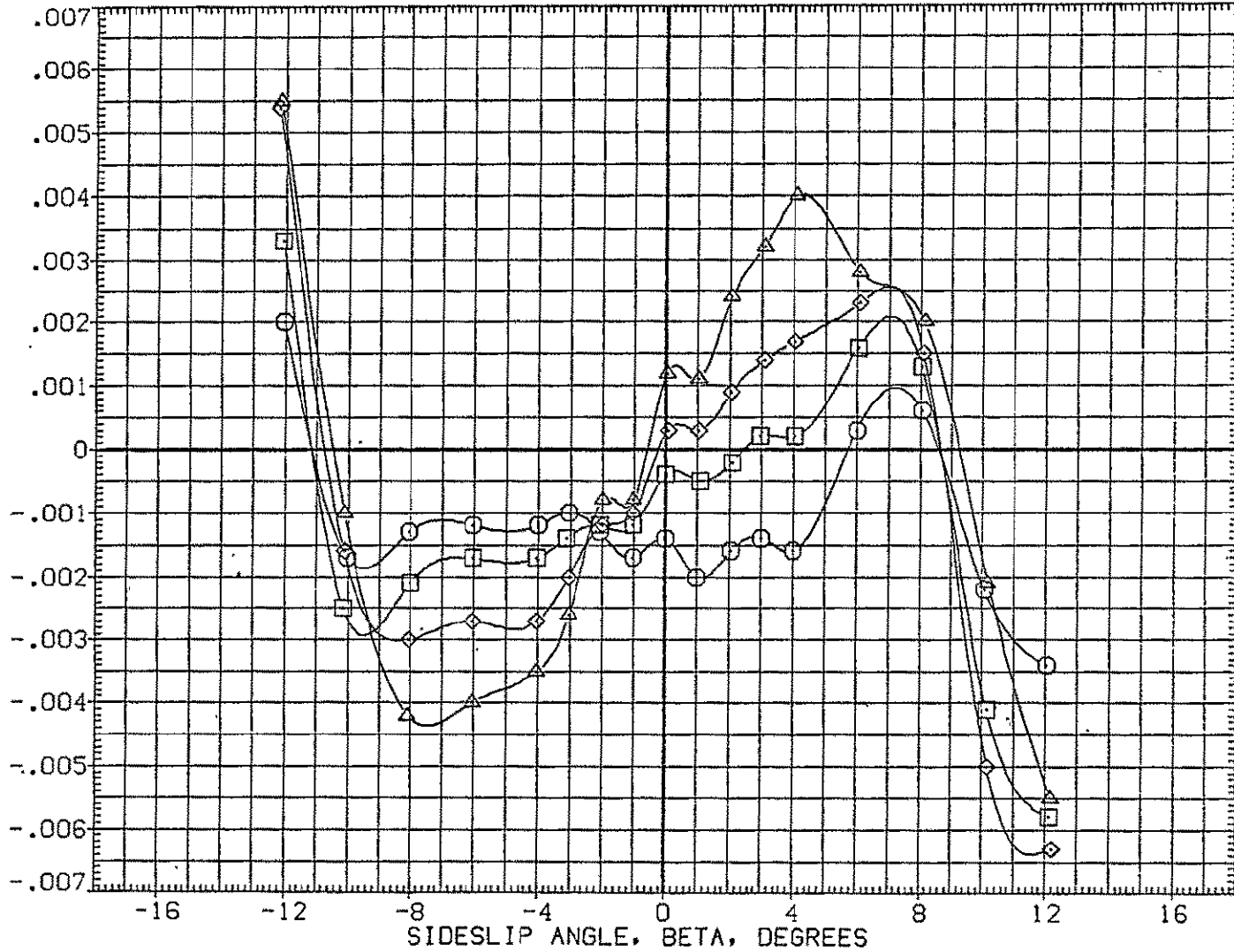


FIG.197 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=6,RUDDER=10/10

0RB



SYMBOL	MACH	PARAMETRIC VALUES			
○	.299	ALPHA1	6.000	STAB	-2.000
□	.499	RUD-U	10.000	RUD-L	10.000
◇	.601	ELV-1B	.000	ELV-0B	3.000
△	.700	.000	S3-4	.000	
		SS-6	.000	10RB	4.000

REFERENCE INFORMATION		
SREF	2690.0000	SO.FT.
LREF	474.8100	IN.
BREF	936.6800	IN.
XMRP	1109.0000	IN. X0
YMRP	.0000	IN. Y0
ZMRP	375.0000	IN. Z0
SCALE	.0300	

ROLLING MOMENT COEFFICIENT, CSL, (STABILITY AXIS)

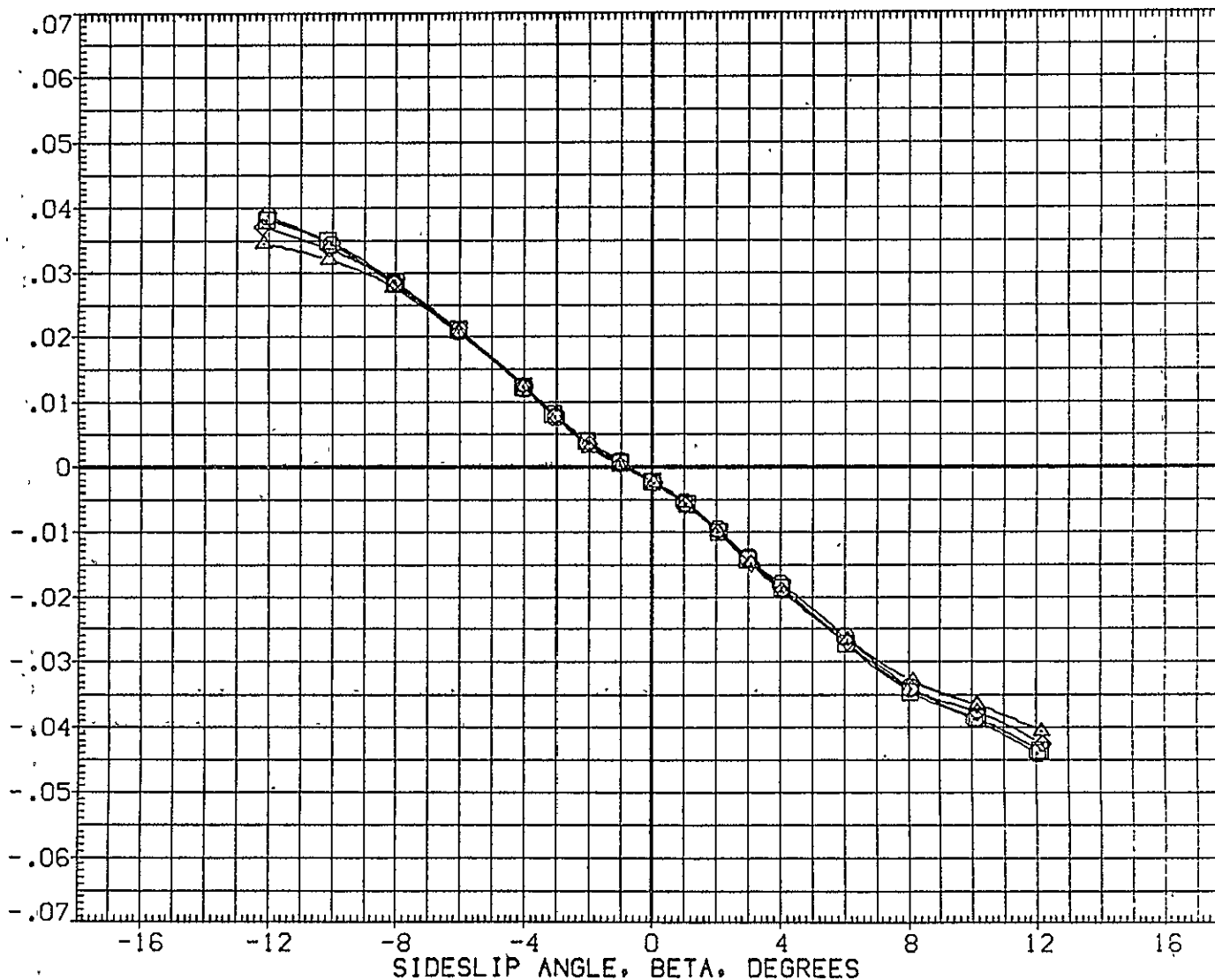


FIG.197 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=6,RUDDER=10/10

ORB

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM122)

| SYMBOL |  | MACH | PARAMETRIC VALUES |        |        |        | REFERENCE INFORMATION |           |        |
|--------|--|------|-------------------|--------|--------|--------|-----------------------|-----------|--------|
| ○      |  | .300 | ALPHA1            | 2.000  | STAB   | -2.000 | SREF                  | 5500.0000 | SQ.FT. |
| □      |  | .500 | RUD-U             | 10.000 | RUD-L  | 10.000 | LREF                  | 327.8000  | IN.    |
| ◇      |  | .600 | ELV-IB            | .000   | ELV-OB | 3.000  | BREF                  | 2348.0000 | IN.    |
| △      |  | .700 | S1-2              | .000   | S3-4   | .000   | XMRP                  | 1339.9100 | IN. XC |
|        |  |      | S5-6              | .000   | IORB   | 4.000  | YMRP                  | .0000     | IN. YC |
|        |  |      |                   |        |        |        | ZMRP                  | 190.7500  | IN. ZC |
|        |  |      |                   |        |        |        | SCALE                 | .0300     |        |

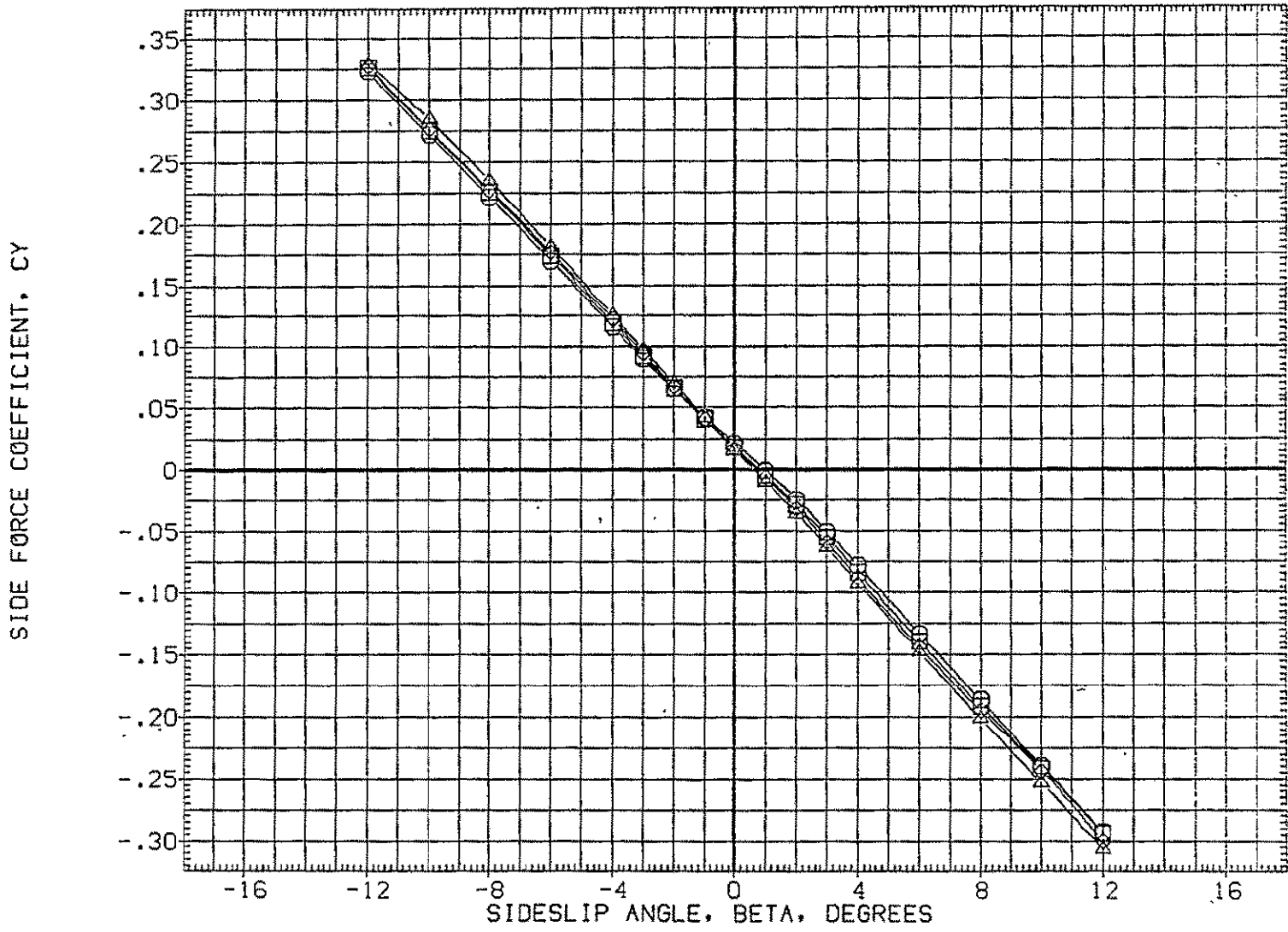


FIG.198 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10

| SYMBOL | MACH | PARAMETRIC VALUES |        |        |        | REFERENCE INFORMATION |           |        |
|--------|------|-------------------|--------|--------|--------|-----------------------|-----------|--------|
|        |      | ALPHA1            | 2.000  | STAB   | -2.000 | SREF                  | 5500.0000 | SQ.FT. |
| ○      | .300 | ALPHA1            | 2.000  | STAB   | -2.000 | LREF                  | 327.8000  | IN.    |
| □      | .500 | RUD-U             | 10.000 | RUD-L  | 10.000 | BREF                  | 2348.0000 | IN.    |
| ◇      | .600 | ELV-1B            | .000   | ELV-0B | 3.000  | XMRP                  | 1339.9100 | IN. XC |
| △      | .700 | S1-2              | .000   | S3-4   | .000   | YMRP                  | .0000     | IN. YC |
|        |      | S5-6              | .000   | 10RB   | 4.000  | ZMRP                  | 190.7500  | IN. ZC |
|        |      |                   |        |        |        | SCALE                 | .0300     |        |

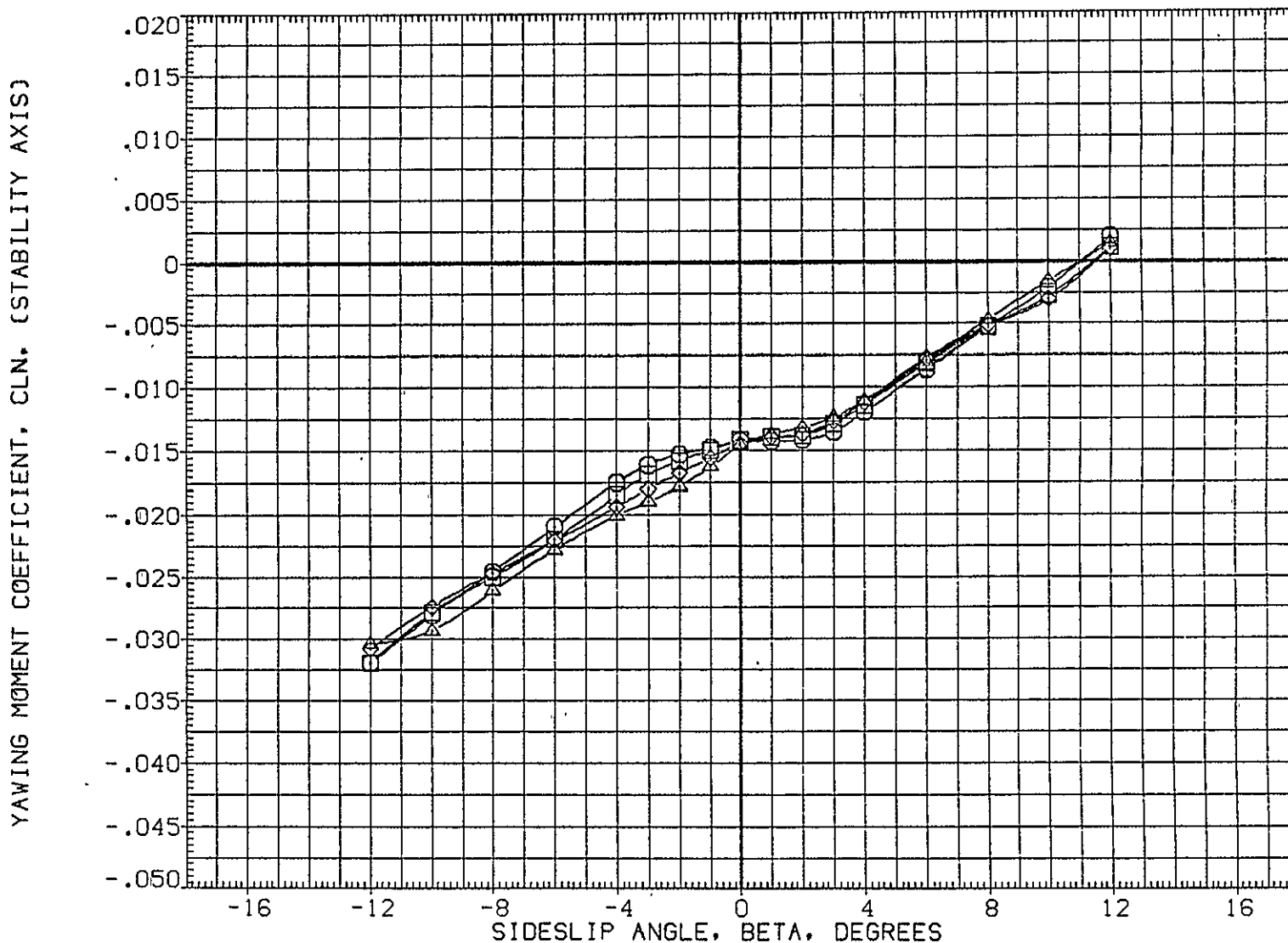


FIG.198 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10

TOTAL

CA5 K1 F0 H15.6 V9.1 (PLUS. ORB TC5 AT38.3 )(RGM122)

| SYMBOL | MACH | PARAMETRIC VALUES |        |        |        | REFERENCE INFORMATION |           |        |
|--------|------|-------------------|--------|--------|--------|-----------------------|-----------|--------|
| ○      | .300 | ALPHA1            | 2.000  | STAB   | -2.000 | SREF                  | 5500.0000 | 50.FT. |
| □      | .500 | RUD-L             | 10.000 | RUD-L  | 10.000 | LREF                  | 327.8000  | IN.    |
| ◇      | .600 | ELV-1B            | .000   | ELV-0B | 3.000  | BREF                  | 2348.0000 | IN.    |
| △      | .700 | S1-2              | .000   | S3-4   | .000   | XMRP                  | 1339.9100 | IN. XC |
|        |      | S5-6              | .000   | IORB   | 4.000  | YMRP                  | .0000     | IN. YC |
|        |      |                   |        |        |        | ZMRP                  | 190.7500  | IN. ZC |
|        |      |                   |        |        |        | SCALE                 | .0300     |        |

ROLLING MOMENT COEFFICIENT, CSL. (STABILITY AXIS)

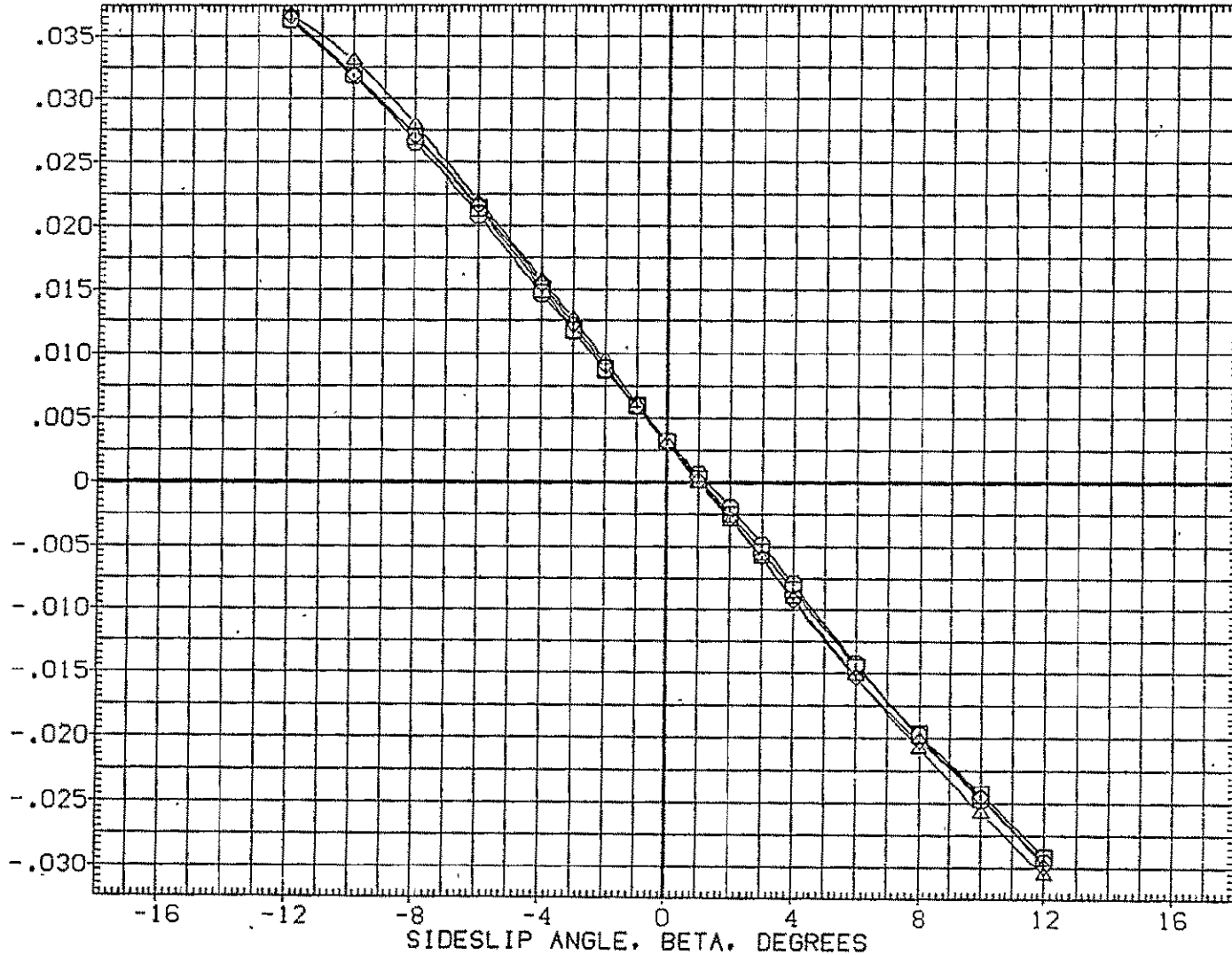


FIG.198 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10

SYMBOL

○  
◇  
□  
△

MACH

.300  
.500  
.600  
.700

ALPHA1  
RUD-U  
ELV-1B  
S1-2  
S5-6

PARAMETRIC VALUES

2.000 STAB -2.000  
10.000 RUD-L 10.000  
.000 ELV-0B 3.000  
.000 S3-4 .000  
.000 10RB 4.000

REFERENCE INFORMATION

SREF 5500.0000 SQ.FT.  
LREF 327.8000 IN.  
BREF 2348.0000 IN.  
XMRP 1339.9100 IN. XC  
YMRP .0000 IN. YC  
ZMRP 190.7500 IN. ZC  
SCALE .0300

INCREMENTAL SIDE FORCE COEFFICIENT(STABILITY AXIS), DCY

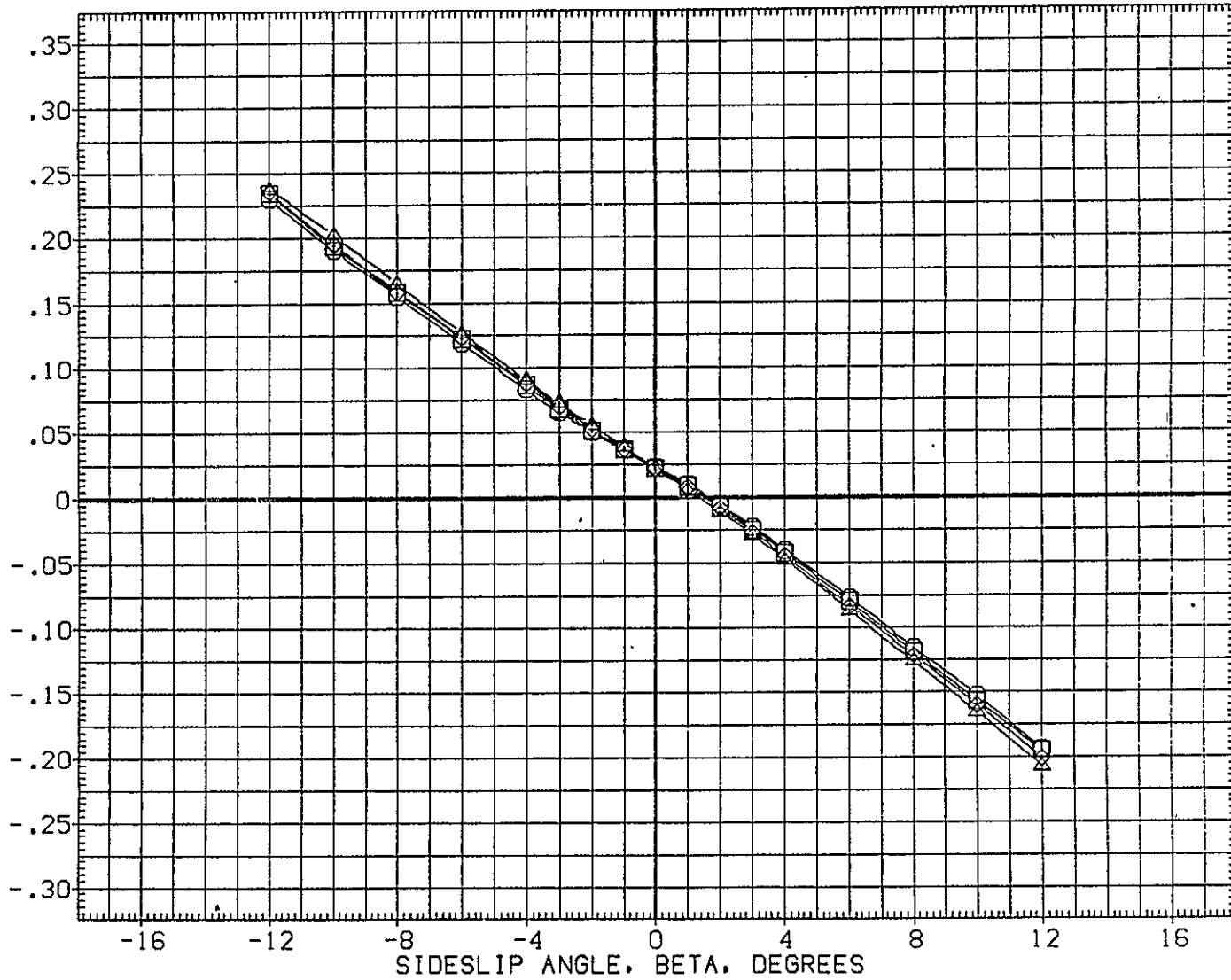


FIG.199 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10

CA5 K1 F0 H15.6 V9.1 MINUS 0RB TC5 AT38.3 (BGM122)

| SYMBOL | MACH | PARAMETRIC VALUES |        |        |        | REFERENCE INFORMATION |           |        |
|--------|------|-------------------|--------|--------|--------|-----------------------|-----------|--------|
| ○      | .300 | ALPHA1            | 2.000  | STAB   | -2.000 | SREF                  | 5500.0000 | 50.FT. |
| □      | .500 | RUD-U             | 10.000 | RUD-L  | 10.000 | LREF                  | 327.8000  | IN.    |
| ◇      | .600 | ELV-IB            | .000   | ELV-OB | 3.000  | BREF                  | 2348.0000 | IN.    |
| △      | .700 | S1-2              | .000   | S3-4   | .000   | XM RP                 | 1339.9100 | IN. XC |
|        |      | S5-6              | .000   | 1CRB   | 4.000  | YM RP                 | .0000     | IN. YC |
|        |      |                   |        |        |        | ZM RP                 | 190.7500  | IN. ZC |
|        |      |                   |        |        |        | SCALE                 | .0300     |        |

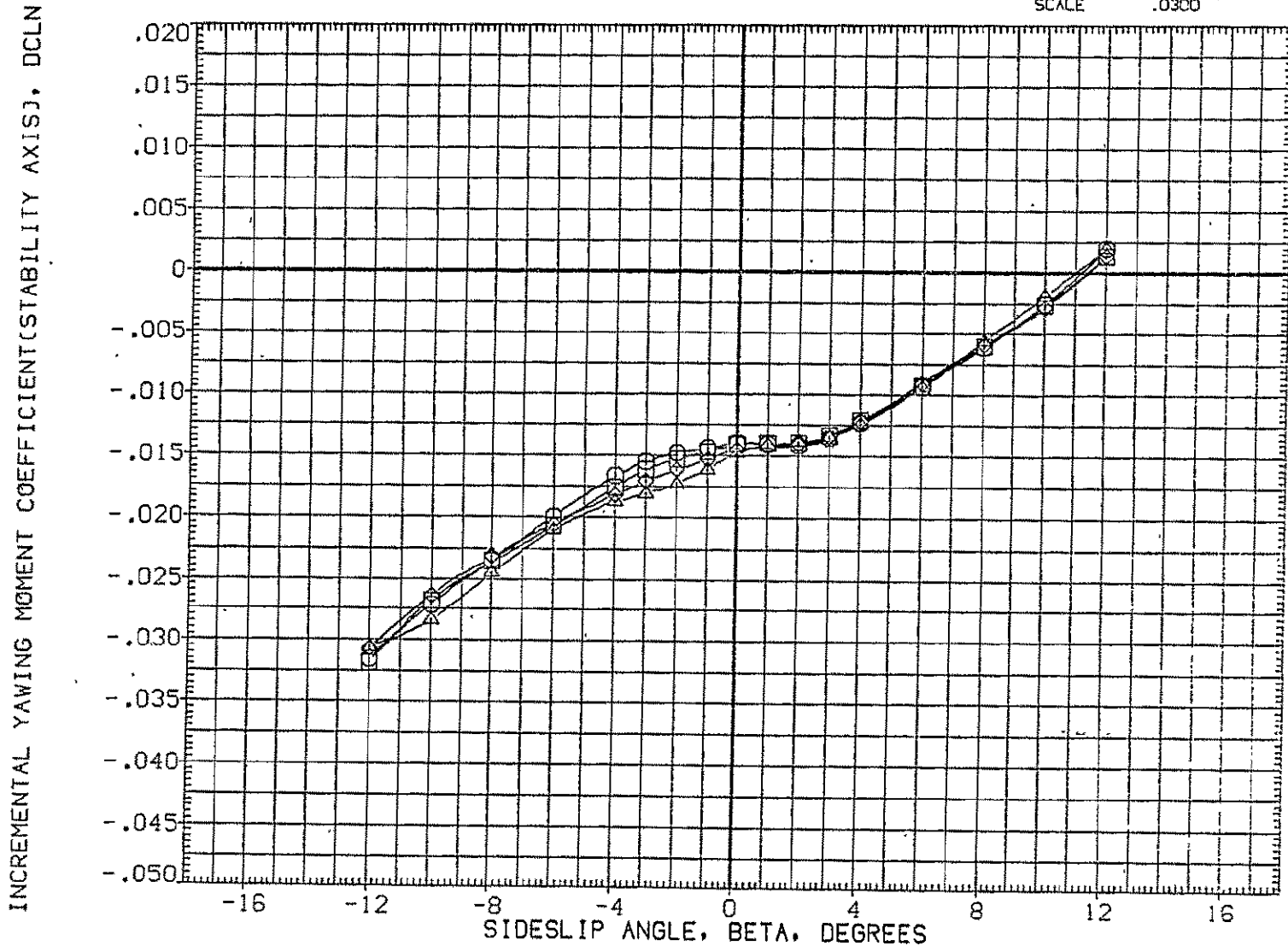


FIG.199 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RÜDDER=10/10

SYMBOL  
 ○  
 □  
 ◇  
 △

| MACH | PARAMETRIC VALUES |        |        |        |
|------|-------------------|--------|--------|--------|
| .300 | ALPHA1            | 2.000  | STAB   | -2.000 |
| .500 | RUD-U             | 10.000 | RUD-L  | 10.000 |
| .600 | ELV-1B            | .000   | ELV-0B | 3.000  |
| .700 | S1-2              | .000   | S3-4   | .000   |
|      | S5-6              | .000   | T0RB   | 4.000  |

| REFERENCE INFORMATION |           |        |
|-----------------------|-----------|--------|
| SREF                  | 5500.0000 | SQ.FT. |
| LREF                  | 327.8000  | IN.    |
| BREF                  | 2348.0000 | IN.    |
| XMRP                  | 1339.9100 | IN. XC |
| YMRP                  | .0000     | IN. YC |
| ZMRP                  | 190.7500  | IN. ZC |
| SCALE                 | .0300     |        |

INCREMENTAL ROLLING MOMENT COEFFICIENT(STABILITY AXIS), DCSL

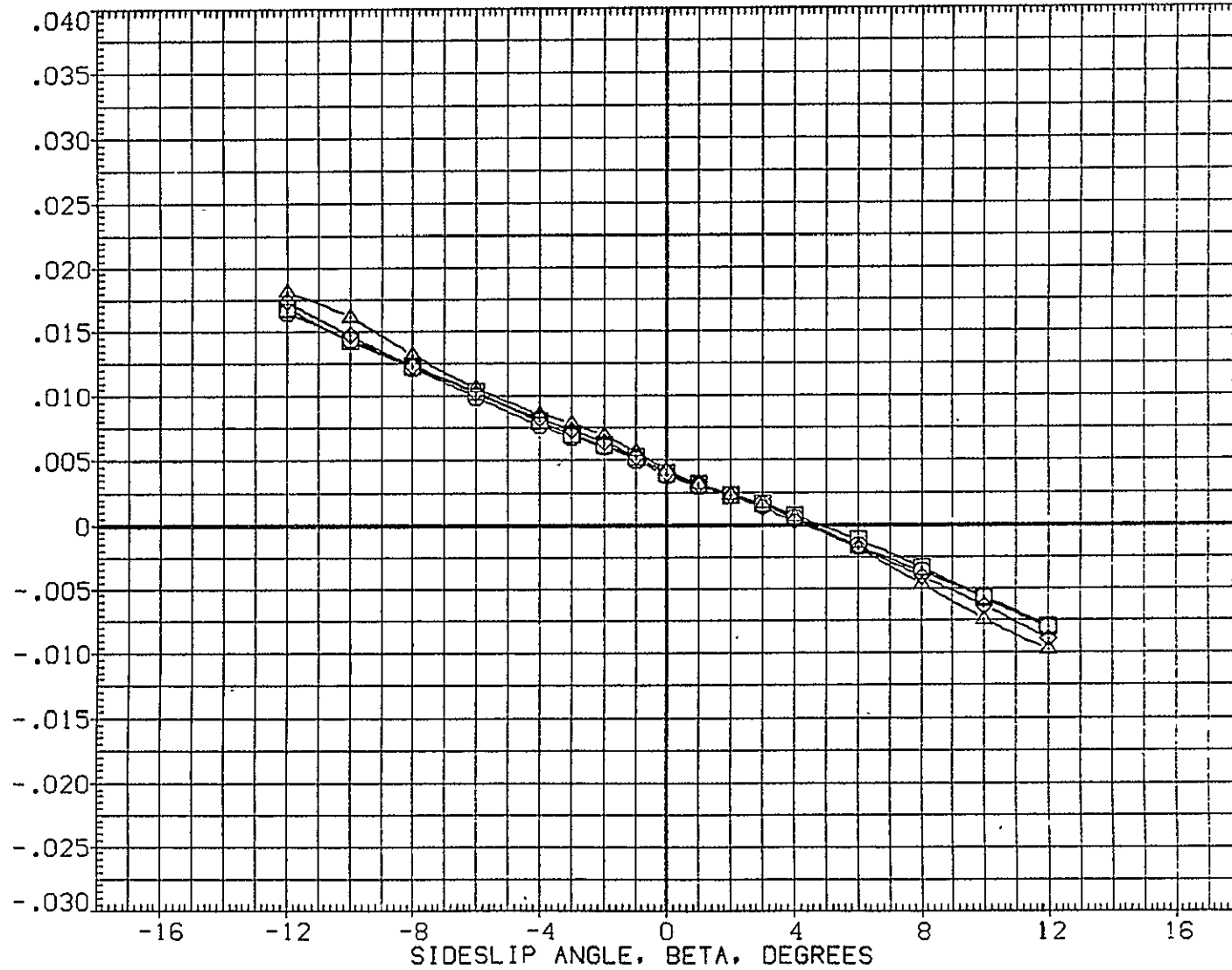


FIG.199 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM122)

| SYMBOL | MACH | PARAMETRIC VALUES |        |        |        | REFERENCE INFORMATION |                  |
|--------|------|-------------------|--------|--------|--------|-----------------------|------------------|
| ○      | .301 | ALPHA1            | 2.000  | STAB   | -2.000 | SREF                  | 2690.0000 SQ.FT. |
| □      | .499 | RUD-U             | 10.000 | RUD-L  | 10.000 | LREF                  | 474.8100 IN.     |
| ◇      | .600 | ELV-1B            | .000   | ELV-0B | 3.000  | BREF                  | 936.6800 IN.     |
| △      | .700 | S1-2              | .000   | S3-4   | .000   | XMRP                  | 1109.0000 IN. X0 |
|        |      | S5-6              | .000   | ICRB   | 4.000  | YMRP                  | .0000 IN. Y0     |
|        |      |                   |        |        |        | ZMRP                  | 375.0000 IN. Z0  |
|        |      |                   |        |        |        | SCALE                 | .0300            |

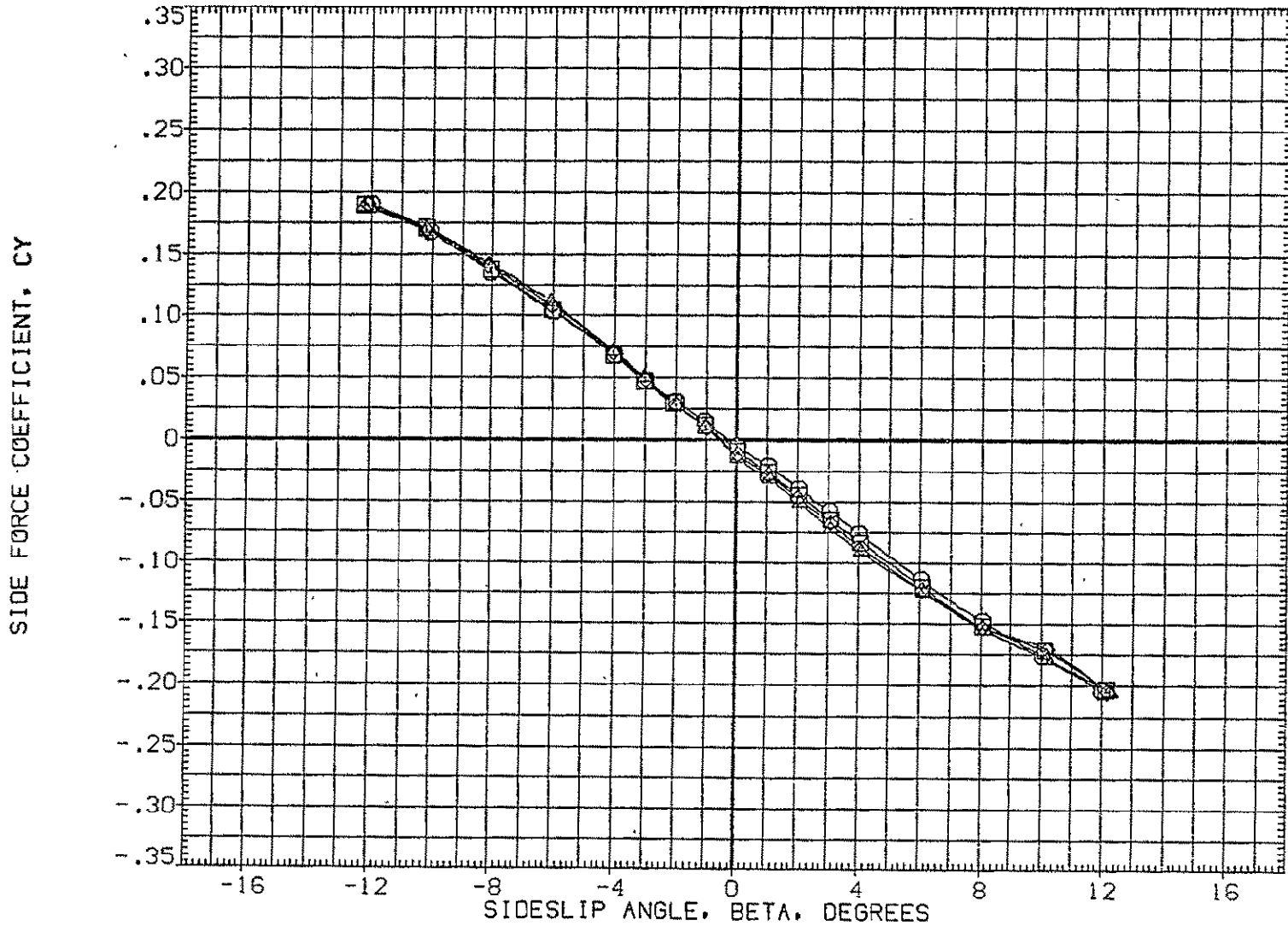


FIG.200 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10

ORB



| SYMBOL | MACH | PARAMETRIC VALUES |        |       |        |
|--------|------|-------------------|--------|-------|--------|
| ○      | .301 | ALPHA1            | 2.000  | STAB  | -2.000 |
| □      | .499 | RUD-U             | 10.000 | RUD-L | 10.000 |
| ◇      | .600 | .000              | ELV-0B | 3.000 |        |
| △      | .700 | S1-2              | .000   | S3-4  | .000   |
|        |      | S5-6              | .000   | 10RB  | 4.000  |

| REFERENCE INFORMATION |           |        |
|-----------------------|-----------|--------|
| SREF                  | 2690.0000 | SQ.FT. |
| LREF                  | 474.8100  | IN.    |
| BREF                  | 936.6800  | IN.    |
| XMRP                  | 1109.0000 | IN. X0 |
| YMRP                  | .0000     | IN. Y0 |
| ZMRP                  | 375.0000  | IN. Z0 |
| SCALE                 | .0300     |        |

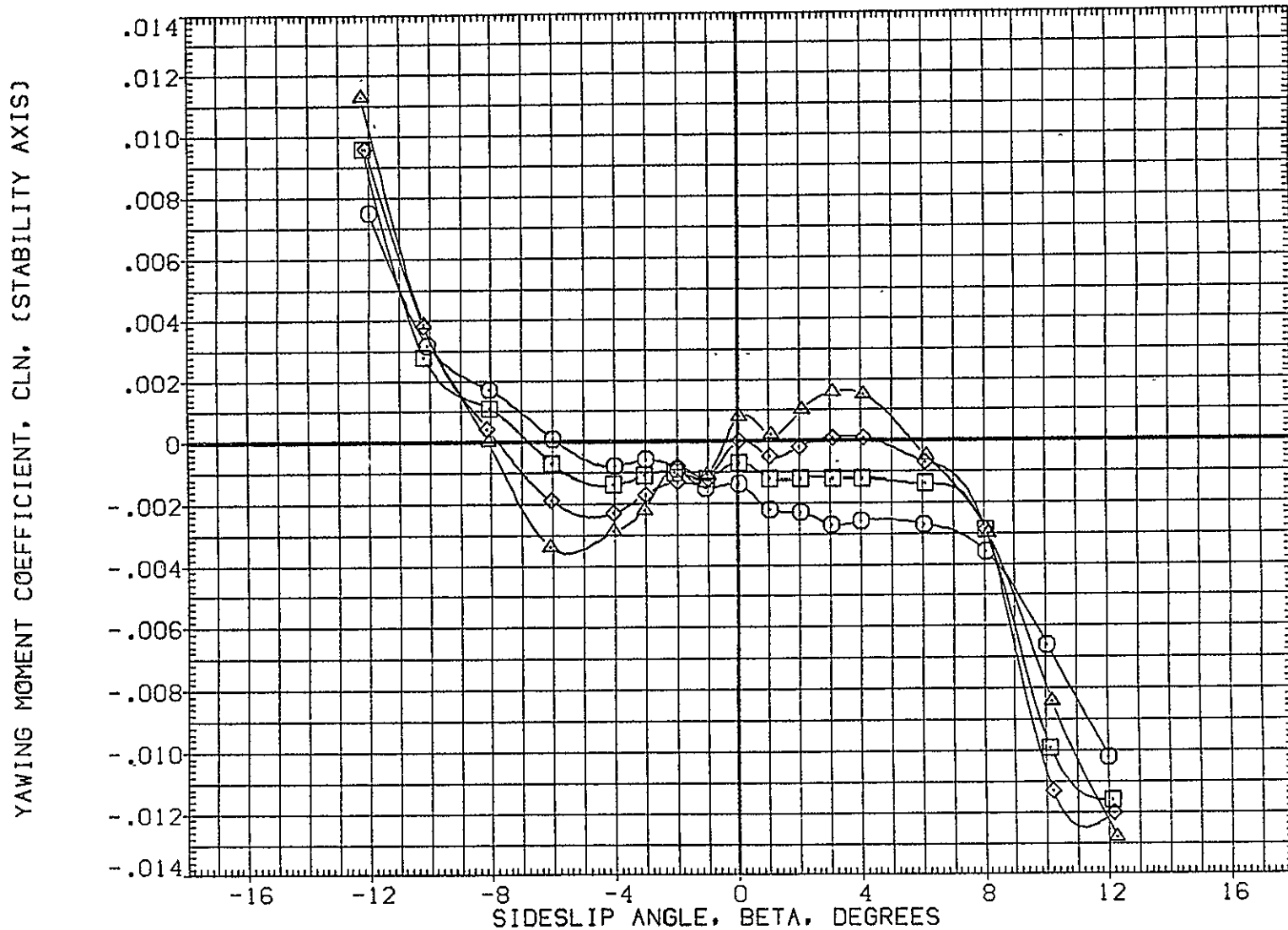


FIG.200 747+0RB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10

0RB

CA5 ORB TC5 AT38.3 (PRES. K1 FO H15.6 V9.1)(XGM122)

| SYMBOL |  | MACH | PARAMETRIC VALUES |        |        |        | REFERENCE INFORMATION |           |        |
|--------|--|------|-------------------|--------|--------|--------|-----------------------|-----------|--------|
| ○      |  | .301 | ALPHA1            | 2.000  | STAB   | -2.000 | SREF                  | 2690.0000 | SQ.FT. |
| □      |  | .499 | RUD-U             | 10.000 | RUD-L  | 10.000 | LREF                  | 474.8100  | IN.    |
| ◇      |  | .600 | ELV-1B            | .000   | ELV-0B | 3.000  | BREF                  | 936.6800  | IN.    |
| △      |  | .700 | S1-2              | .000   | S3-4   | .000   | XMRP                  | 1109.0000 | IN. X0 |
|        |  |      | S5-6              | .000   | 10RB   | 4.000  | YMRP                  | .0000     | IN. Y0 |
|        |  |      |                   |        |        |        | ZMRP                  | 375.0000  | IN. Z0 |
|        |  |      |                   |        |        |        | SCALE                 | .0300     |        |

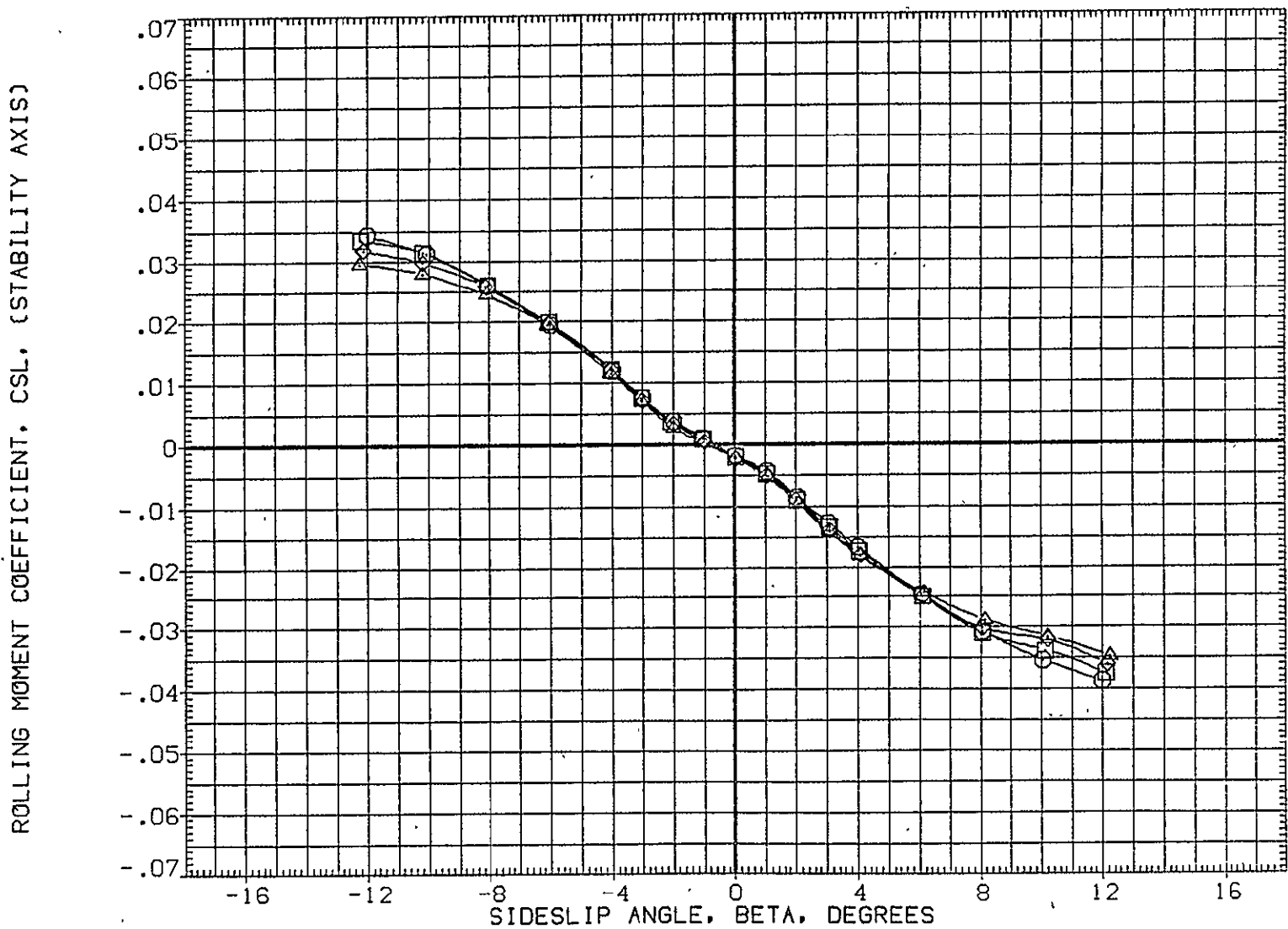


FIG.200 747+ORB(4 DEG)+TIP FINS,FLAPS UP,ALPHA1=2,RUDDER=10/10 ORB  
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