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Volume 1 of 3

RESULTS OF THE TRANSATLANTIC ABORT MANEUVER TESTING USING THE 0.0175-SCALE 56-Ø AND 60-Ø, AND THE 0.04-SCALE 83-Ø THIN-SKIN THERMOCOUPLE MODELS IN THE AEDC VKF TUNNEL B HYPERSONIC WIND TUNNEL (ØH111)

SPACE SHUTTLE AEROTHERMODYNAMIC DATA REPORT

Data Management Services

HUNTSVILLE ELECTRONICS DIVISION CHRYSLER CORPORATION

September 1982

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by

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Prepared under NASA Contract Number NAS9-16283

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Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number:	C628VB/V41B-1C
NASA Series Number:	ØH111
Model Number:	56-Ø, 60-Ø, 83-Ø
Test Date:	Sept. 25 through Sept. 30, 1981
Test Hours:	40

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ABSTRACT

An experimental investigation (test ØH111) was conducted in the 50-inch diameter Hypersonic Wind Tunnel (B) at the Arnold Engineering Development Center's von Karman Gas Dynamics Facility, from September 25, 1981 to September 30, 1981.

The objective of wind tunnel test ØH111 was to obtain thin-skin heat transfer data on the space shuttle orbiter model at attitudes that would be encountered in a transatlantic abort maneuver.

Data were recorded at Mach 8 for nominal Reynolds numbers ranging from 0.5×10^6 to 1.5×10^6 per foot. The nominal model angles of attack ranged from 40 to 55 degrees with model yaw angles varying from -2 to 2 degrees. All thin-skin thermocouple data were obtained from three space shuttle orbiter models designated 56-Ø, 60-Ø, and 83-Ø.

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NOTE: Due to the volume of the plotted data, only representative plots from the first figure number in each category are presented in Volume 1. Complete plotted data, on microfiche only, are published in Volume 2.

NOMENCLATURE

Symbol	Mnemonic	Description
α	ALPHA	Angle of attack, deg
b		Model skin thickness, in. or ft. as noted
	B	Wing span, in. (see Fig. 1)
B_V	BV	Height of model vertical tail, in. (see Fig. 2)
β	BETA	Sideslip angle of model (deg)
$\lvert\beta\rvert$		Absolute value of sideslip angle, deg.
c_p		Model material specific heat, Btu/lbm-^oR
C	C	Local chord of wing or vertical tail, in. (see Fig. 2)
δ_e	ELEVON	Elevon deflection angle, deg
δ_{SB}	SPDBRK	Speed brake deflection angle, deg
dT_w/dt	DTW/DT	Derivative of the model wall temperature with respect to time, ^oR/sec
R	HAW/HT	Recovery factor = .85, .9, 1.0
h	H	Heat transfer coefficient, BTU/ft^2-sec-^oR
h_{ref}	HREF	Reference heat transfer coefficient based on Fay-Riddell Theory , BTU/ft^2-sec-^oR $HREF = [8.172(PO1)^{.5}(\mu_c)^{0.4}(1-P_\infty/PO1)^{0.25}] \times [0.2235+.0000135(T_o+560)]/R_N^{0.5}T_o^{0.1}$
$h(T_o)$	H(TT)	Heat transfer coefficient based on TT, QDOT/(TT-TW), Btu/ft^2-sec-^oR
	H/HREF	Ratio of H(TT) and HREF
$h_{.9T_o}/h_{ref}$		Ratio of H(TT) at a recovery factor of 0.9 and HREF

NOMENCLATURE (Continued)

Symbol	Mnemonic	Description
H(0.9TT)	H(9TT)	Heat transfer coefficient based on (0.9TT), QDOT/(0.9TT-TW), Btu/ft^2-sec-^{o}R
H(0.85TT)	H85TT	Heat transfer coefficient based on (0.85TT), QDOT/(0.85TT-TW), Btu/ft^2-sec-^{o}R
	L	Reference length, in. (see Fig. 1)
	LINE	Dimension used to locate canopy thermocouples (see Table VI)
MACH,M_∞	MACH	Free-stream Mach number
Me		Boundary layer edge Mach number
	MODEL	Orbiter model installed
μ_o	MU	Dynamic viscosity, lbf-sec/ft^2
P_∞	PO	Free-stream static pressure, psia
P_o	PT	Tunnel stilling chamber pressure, psia
	PO1	Stagnation pressure downstream of a normal shock, psia
	PHI	Radial angle location of thermocouple in model coordinates, deg (see Fig. 1)
	PHII	Indicated roll angle, deg
q_∞	Q	Free-stream dynamic pressure, psi
$\dot{q}$	QDOT	Heat-transfer rate, Btu/ft^2-sec
	RAY	Dimension used to locate canopy thermocouples (see Table VI)
RE,Re	RN/L	Free-stream unit Reynolds number, x10^{-6}, ft^{-1}

NOMENCLATURE (Continued)

Symbol	Mnemonic	Description
ρ_∞	RHO	Free-stream density, lbm/ft^3
R_N		Reference nose radius, (0.0175 ft or 0.04 ft, determined by model scale)
RUN	RUN	Tunnel run identification number
STN NO	STN NO	Stanton number based on reference conditions
t	t	Time from start of model injection cycle, sec
t_i	t_i	Time when initial model wall temperature was recorded before model injection, sec
T_{aw}	TAW	Adiabatic wall temperature, ^oR or ^oF
T/C	T/C NO	Thermocouple identification number
T_e		Boundary layer edge temperature, ^oR or ^oF
TIME		Elapsed time from lift-off, sec
TPC	TPC	Phase-change paint temperature, at which coating changes from solid to liquid, ^oR, or ^oF
TR	TR	Assumed recovery temperature, ^oR, or ^oF
T_o, T_t	TT	Tunnel stilling chamber temperature, ^oR of ^oF
T_w	TW	Model surface temperature, ^oR or ^oF
T_{wi}		Initial wall temperature before injection into the flow, ^oR or ^oF
T_∞	TO	Free-stream static temperature, ^oR or ^oF
V_∞	V	Free-stream velocity, ft/sec
W		Model material density, lbm/ft^3
	X	Model scale longitudinal coordinate from model nose or leading edge of wing or vertical tail (see Fig. 2 and 7), in.

NOMENCLATURE (Concluded)

Symbol	Mnemonic	Description
	XO	Full scale longitudinal coordinate from a point 235 in. ahead of the orbiter nose, (see Fig. 7), in.
X_B/L_B	X/L, XB/LB	Thermocouple longitudinal location as a ratio of model length from model nose tip
$(X/C)_V, X_V/C_V$	XV/CV	Thermocouple location as a ratio of vertical tail chord
$(X/C)_W, X_W/C_W$	XW/CW	Thermocouple location as a ratio of wing chord
	Y	Model scale lateral coordinate (see Fig. 2), in.
	YAW	Yaw angle of model, deg
	YO	Full scale lateral coordinate, in.
2Y/B	2Y/BW	Thermocouple location as a ratio of wing semi-span
	Z	Model scale vertical coordinate (see Fig. 2), in.
Z_O, Z_B	ZO, ZB	Full scale vertical coordinate, in. (measured from centerline of tank)
$(Z/B)_V, Z_V/B_V$	ZV/BV	Thermocouple location as a ratio of vertical tail height

INTRODUCTION

Wind tunnel test ØH111 used three models of the Space Shuttle Orbiter vehicle: the 0.0175-scale 56-Ø and 60-Ø models, and the 0.04-scale 83-Ø forebody model.

The models were tested in the Arnold Engineering Development Center's 50-inch diameter Hypersonic Wind Tunnel B, from September 25, 1981 to September 30, 1981, completing a total of 40 hours in the facility. The test objective was to obtain thin-skin heat transfer data on the Space Shuttle Orbiter model at attitudes that would be encountered in a transatlantic abort maneuver.

Data were obtained at Mach 8 for nominal Reynolds numbers ranging from 0.5 x 10^6 to 1.5 x 10^6 per foot. The nominal model angles of attack ranged from 40 to 55 degrees with model yaw angles varying from -2 to 2 degrees.

This report presents information on the conduct of the test, details of the model, facility and instrumentation and plotted and tabulated data.

CONFIGURATIONS INVESTIGATED

Three space shuttle orbiter models were used to obtain the thin-skin thermocouple data for this test. Two of the test articles were 0.0175-scale models of the full orbiter and were designated as the 60-Ø and 56-Ø models. The third model was a 0.04-scale of the front half of the orbiter and was identified as the 83-Ø model. All of the models were supplied by Rockwell International.

The 60-Ø model was a 0.0175 scale thin-skin thermocouple model of the Rockwell International Vehicle 5 configuration. The model was constructed of 17-4 PH stainless steel with a nominal skin thickness of 0.030 in. at the instrumented areas. All thermocouples were spot welded to the thin-skin inner surface.

A photograph of the 60-Ø model injected in the tunnel is shown in Figure 7a, A sketch of the 60-Ø model installation in the tunnel is shown in Figure 2b. The basic dimensions and coordinate definitions for the 0.0175 scale models are shown in the sketches presented in Figure 3. The deflection angles of the speedbrake, elevons, and bodyflaps were all set at zero throughout the test.

The 56-Ø model used for this test was model number 2B of the material "LH" 56-Ø phase change paint model series. This was a 0.0175-scale model with the same external contour as the 60-Ø model. The pilot side of the fuselage consisted of a thin-skin thermocouple insert contoured to the vehicle lines. This insert was constructed of 17-4 stainless steel with a nominal

skin thickness of 0.020 in. at the thermocouple locations. A photograph of the 56-Ø model injected in the tunnel is shown in Figure 7b. A sketch of the 56-Ø model installation is shown in Figure 2c. The dimensions and coordinate system presented in Figure 4 apply to the 0.0175 scale 56-Ø model.

The 83-Ø model was a 0.04-scale model of the forward half of the orbiter. This model was also constructed of 17-4 PH stainless steel with a nominal skin thickness of 0.030 in. A photograph of the 83-Ø model in the installation tank beneath the test section is shown in Figure 7c. The installation sketch of the 83-Ø model is shown in Figure 2d and the coordinate system and basic dimensions for the 83-Ø model are presented in Figure 5.

The components of the VL70-000140C double delta-wing orbiter models used for this test have been designated as follows:

Model 83-Ø	Model 60-Ø	Model 56-Ø	
B60	B62	B62	Fuselage (50-percent X/L for 83-Ø)
C10	C12	C12	Canopy
	M16	M16	OMS Pods
	W116	W127	Wing
	E52	E52	Elevon
	V8	V30	Vertical
	R18		Rudder
	F10	F10	Bodyflap

Pertinent geometric characteristics for the above mentioned components are given in Table III.

INSTRUMENTATION

The 60-Ø model was instrumented with 600 thirty-gauge iron-constantan and chromel-constantan thermocouples. Only 249 of these thermocouples were used on this test. Thermocouple locations for this model are illustrated in Figure 3; the dimensional locations and skin thickness for the thermocouples connected on this test are listed in Table IV. The thermocouples identified by a number only are iron-constantan. The thermocouples identified by a number followed by the letter A or C are chromel-constantan that were added to the model. The letter D after a thermocouple number designates an iron-constantan thermocouple in a new location on the OMS pod.

The 56-Ø model instrumentation consisted of 80 thirty-gauge chromel-constantan thermocouples located on the thin skin insert. All of these thermocouples were connected on this test. The thermocouple locations for this model are illustrated in Figure 4. The dimensional locations and skin thicknesses are listed in Table V.

For this test only 250 of the 482 thirty-gauge chromel-constantan thermocouples on the 83-Ø model were connected. The thermocouple locations for this model are illustrated in Figure 5. The dimensional locations and skin thicknesses for the thermocouples used on this test are listed in Table VI.

In the tabulated data (Appendix to Volume III), thermocouple numbers ending in A, C or D appear instead as 2000, 3000 or 4000 series numbers respectively.

TEST FACILITY DESCRIPTION

Tunnel B (Figure 6) is a closed-circuit hypersonic wind tunnel with a 50-inch diameter test section. Two axisymmetric contoured nozzles are available to provide Mach numbers of 6 or 8 and the tunnel may be operated continuously over a range of total pressure levels from 20 to 270 psia at Mach number 6, and 50 to 850 psia at Mach number 8, with air supplied by the VKF main compressor plant. Stagnation temperatures sufficient to avoid air liquefaction in the test section (up to 1350°R) are obtained through the use of a natural gas fired combustion heater. The entire tunnel (throat, nozzle, test section, and diffuser) is cooled by integral, external water jackets. The tunnel is equipped with a model injection system, which allows removal of the model from the test section while the tunnel remains in operation.

The tunnel pitch-roll sector mechanism provides the capability of obtaining pitch angles from -15° to +15° with some restrictions due to model position longitudinally in the test section. Roll limits are ±180°. Combinations of roll and pitch then produce required sideslip angles.

Tunnel general operating conditions are as follows:

TEST FACILITY DESCRIPTION (Concluded)

CLOSED-CIRCUIT OPERATING CONDITIONS

Tunnel	Nominal Mach Number	p_t psia		T_t °F	q, psia		Re/ft x 10^{-6}	
		Min.	Max	Max	Min	Max	Min	Max
B	6	20	270	390	0.3	4.1	0.3	4.7
	8	50	850	890	0.3	3.8	0.3	3.7

OPEN-CIRCUIT OPERATING CONDITIONS

Tunnel	Nominal Mach Number	pt psia	R_e/ft x 10^{-6}
B	6	25	0.5
		60	1.1
		175	3.1
	8	125	0.7
		250	0.7
		850	3.7

TEST PROCEDURES

Prior to each test run, the model temperatures were monitored to ensure that the model was nominally isothermal. The model was then injected at the desired test attitude as the data acquisition sequence commenced. The model remained on the tunnel centerline for about three seconds and was then retracted into the installation tank. The model was then cooled while being repositioned for the next injection.

A 256 channel multiplexing analog-to-digital converter was used in conjunction with a Digital Equipment Corporation (DEC) PDP-11 computer and a DEC-10 computer to record the temperature data. The system sampled the output of each thermocouple approximately 13 times per second.

Oil-flow testing was done on the 60-Ø model and the 83-Ø model. For oil-flow testing the models were painted black for contrast, and in general, a white oil with a viscosity of 25 centistokes was applied to the surface with a sponge for each run. The oil was applied differently on the first two runs of the 83-Ø model. On runs 77 and 78, coatings of 800 centistokes and 200 centistokes white oil were applied over a coating of clear Dow Corning oil with a viscosity of 100 centistokes. The model was positioned to the test attitude and injected into the tunnel flow for about 20 sec. During this time, four still cameras photographed the model at 2 second intervals. After the model was retracted from the tunnel flow, it was cooled and cleaned before oil was reapplied for the next test run.

DATA REDUCTION

The reduction of thin-skin thermocouple data normally involves only the calorimetric heat balance which, in coefficient form, is:

$$h = wbc_p \frac{dT_w/dt}{T_{aw} - T_w} = \frac{\dot{q}}{T_{aw} - T_w} \tag{1}$$

Radiation and conduction losses are neglected in this heat balance, and data reduction simply requires evaluation of dT_w/dt from the temperature-time data and determination of model properties. For this test, radiation effects were negligible; however, conduction effects were significant in several regions and improved evaluation of the data. The following procedure was used to correct the data for the conduction effects.

Separation of variables and integration of Eqn (1), assuming constant w, b, c_p, and T_{aw}, yields:

$$\frac{h}{wbc_p}(t - t_i) = \ln \left[\frac{T_{aw} - T_{wi}}{T_{aw} - T_w}\right] \tag{2}$$

Differentiation of Eqn (2) with respect to time, gives:

$$\frac{h}{wbc_p} = \frac{d}{dt} \ln \left[\frac{T_{aw} - T_{wi}}{T_{aw} - T_w}\right] \tag{3}$$

Since $\frac{h}{wbc_p}$ is a constant, plotting $\ln \left[\frac{T_{aw} - T_{wi}}{T_{aw} - T_w}\right]$ versus time gives a straight-line if conduction is negligible. Thus, deviations from a straight-line can be interpreted as conduction effects.

Heat transfer coefficients were calculated using three values of adiabatic wall temperature, T_{aw}. Two of the values, used for all thermocouples, were based on the freestream stagnation temperature, T_o.

$$R = \frac{T_{aw}}{T_o} \tag{4}$$

setting R equal to 1.0, 0.90, and 0.85 defines the first three adiabatic wall temperatures ($T_{aw} = T_o$, $T_{aw} = 0.90\ T_o$ and $T_{aw} = 0.85T_o$).

In practice, the value of c_p is not constant as assumed, and the relation:

$$c_p = 0.0797 + (5.556 \times 10^{-5})\ T_w, \text{(17-4 PH Stainless Steel)} \tag{5}$$

was used with the value of T_w at the midpoint of the curve fit. Maximum variation of c_p over any curve fit was less than 1.2 percent; thus, the assumption of constancy, was not grossly violated. A constant value of 490.0 lbm/ft^3 was used for w(17-4 PH stainless steel) with the measured values of b for each thermocouple.

REFERENCES

1. STS81-0535, "Pretest Information of the 0.0175-scale 56-Ø, 60-Ø, and 0.04-scale 83-Ø Thin Skin Thermocouple Models in the AEDC/VFK-B Wind Tunnel Test OH-111," dated September 1981.

2. AEDC-TSR-81-V36, "Test Results from the NASA/Rockwell International Space Shuttle Orbiter Abort Heating Test (OH-111)," dated November 1981.

3. Fay, J.A. and Riddell, F.R., "Theory of Stagnation Point Heat Transfer in Dissociated Air," Journal of Aeronautical Science. Vol. 25, No. 1, February 1958, pp.73-85.

TABLE I

TEST : ΦH 111

DATE : Sept.1981

TEST CONDITIONS

MACH NUMBER	REYNOLDS NUMBER (per unit length) $\times 10^{-6}$	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE
8.0	.5	.495	1250°R
↓	1.0	.9866	1290
↓	1.5	1.53	1320

BALANCE UTILIZED: NONE

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF			
SF			
AF			
PM			
RM			
YM			

COMMENTS:

TABLE II

SHEET 1 of 4

TEST: ØH-111 (C628VB)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: 1/20/82 (REV. A)

DATA SET IDENTIFIER	CONFIGURATION	α	RN/L	MACH	SIDESLIP ANGLE ~ β -2.0	-1.0	-0.5	0	0.5	1.0	2.0
RTGB01	MODEL 56-Ø	40	0.5	8	157	147	135	121	129	140	152
02		43			158	148	136	127	131	141	153
03		43						122		145	
04		45						128			
05		47			159	149	137	130	132	142	154
06		47				162		124			
07		50			160	150	138	125	133	143	155
08		45						123			
09		55			161	151	139	126	134	146	156
10		55					163	144			
11		40			171						
12		40	1.0			103	93	82	88	98	109
13		40						105	168		
14		40						113			
15		43			117	104	94	83	89	99	110
16		43						164	169		
17		45						84			
18		45						165			

TEST RUN NUMBERS

α OR β SCHEDULES

JEV

TABLE II (Continued)

SHEET 2 of 4

TEST: ØH-111 (C628VB)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: 1/20/82 (REV. A)

DATA SET IDENTIFIER	CONFIGURATION	α	RN/L	MACH	SIDESLIP ANGLE ~ β -2.0	-1.0	-0.5	0	0.5	1.0	2.0
RT6B19	MØDEL 56-Ø	47	1.0	8	118	106	95	85	90	100	111
20		47						166	170		
21		50			119	107	96	86	91	101	112
22		50						114			116
23		55						167			
24		55			120	108	97	87	92	102	115

TEST RUN NUMBERS

α OR β SCHEDULES

JEV

TABLE II (Continued)

SHEET 3 of 4

TEST: ØH-111 (C628VB)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: 1/20/82 (REV. A)

DATA SET IDENTIFIER	CONFIGURATION	K	RN/L	MACH	*		-2.0	-1.0	-0.5	0	0.5	1.0	2.0
RT6✿25	MØDEL 60-Ø	40	0.5	8			255	240	228	216	222	234	246
26		43					256	241	229	217	223	235	247
27		43									252		261
28		45					257	242	230	218	224	236	248
29		45										254	
30		47					258	243		219	225	237	249
31		47									253		
32		50					259	244	232	220	226	238	250
33		47									231		
34		55					260	245	233	221	227	239	251
35		40	1.0		262		208	195	184	172	178	190	202
36		40										214	
37		43			266		209	197	185	173	179	191	203
38		45			263		210	198	186	174	180	192	204
39		47			267		211	199		175	181	193	205
40		47									187		
41		50			264	**	212	200	188	176	182	194	206
42		55			265		213	201	189	177	183	196	207
43		55						215					

LIST RUN NUMBERS

✿ B - FUSELAGE
Ø - ØMS POD
U - UPPER WING
L - LOWER WING
V - VERTICAL TAIL

* OIL FLOW RUNS @ $\beta = 0°$

** OIL FLOW RUNS
268 $\beta = +.5°$
269 $\beta = +1.0°$

JEV

TABLE II (Concluded)

SHEET 4 of 4

TEST: ØH-111 (C628VB)

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE: 1/20/82 (REV. A)

DATA SET IDENTIFIER	CONFIGURATION	α	RN/L	MACH	*	ANGLE of SIDESLIP ~ β -2.0	-1.0	-0.5	0	0.5	1.0	2.0
RT6✿44	MØDEL 83-Ø	40	0.5	8					38			
45		40	0.5						39			
46		40	1.0		77	32	22	12	1	6	17	27
47		40							9			
48		43				33	23	13	2	7	18	28
49		47				34	24	14	3	8	19	29
50		50			80	35	25	15	4	10	20	30
51		55			78/81	36	26	16	5	11	21	31
52		55										37
53		40	1.5			71	61	50	40	45	56	66
54		43				72	62	51	41	46	57	67
55		47				73	63	52	42	47	58	68
56		50				74	64	53	43	48	59	69
57		55				75	65	54	44	49	60	70
58		55						55	76			
		45	1.0		79							

TEST RUN NUMBERS

✿ B - FUSELAGE
H - HINGES
C - CANOPY
N - FUSELAGE NOSE (LWR SURFACE)
R - UPPER RCS NOZZLE
W - ESCAPE HATCH & WINDOW

*OIL FLOW RUNS @ β = 0°

JEV

TABLE III MODEL DIMENSIONAL DATA

MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - B_{60}

GENERAL DESCRIPTION : 50% orbiter forebody, vehicle 140C.

NOTE: This body includes a small portion of the wing glove.

MODEL SCALE: 0.040 (83-0 MODEL)

DRAWING NUMBER : VL70-000140C

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length	645.15	25.80
Max Width	330.00	13.20
Max Depth		
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. (Continued)
MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - B_{62}

GENERAL DESCRIPTION : Configuration 140C orbiter fuselage, MCR 200-R4. Similar to 140A/B fuselage except aft body revised and improved midbody-wing-boot fairing, X_o = 940 to X_o = 1040.

MODEL SCALE: 0.0175 (56-0 & 60-0 MODELS)

DRAWING NUMBER : VL70-000140C, -000202C, -000205A
VL70-000200B, -000203

DIMENSIONS :

	FULL SCALE	MODEL SCALE
Length (IML: FWD Sta X_o=238), In.	1290.3	22.58
Length (OML: Fwd Sta X_o=235), In.	1293.3	22.63
Max Width (At X_o = 1528.3), In.	264.0	4.62
Max Depth (At X_o = 1464), In.	250.0	4.38
Fineness Ratio	4.899	4.899
Area - Ft^2		
Max. Cross-Sectional	340.885	0.104
Planform		
Wetted		
Base		

TABLE III (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT : CANOPY - C_{10}

GENERAL DESCRIPTION : Configuration 4 canopy and windshield as used with B_{25}, six glass panes in windshield.

MODEL SCALE: 0.040 , (83-0 MODEL)

DRAWING NUMBER : VL70-000140B, 140C, 202B

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (X_o =434.643 to 670), In.	235.357	9.414
Max Width		
Max Depth (Glass, In.	28.00	1.12
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		
Nose/windshield intersection, X_o =	434.643	17.386

TABLE III. (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT : CANOPY - C_{12}

GENERAL DESCRIPTION : Configuration 140C orbiter canopy. Vehicle cabin No. 31 updated to MCR 200-R4. Used with fuselage B_{62}.

MODEL SCALE: 0.0175 (56-0 & 60-0 MODELS)

DRAWING NUMBER : VL70-000140C, -000202B, -000204

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (X_o = 434.643 to 578), In.	143.357	2.508
Max Width (At X_o = 513.127), In.	152.412	2.667
Max Depth (Z_o = 501 to 449.39), In.	51.61	0.903
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT: ELEVON - E_{52}

GENERAL DESCRIPTION: Elevon for configuration 140C. Hingeline at X_o = 1387, elevon split line Y_o = 312.5, 6.0", beveled edges, and centerbodies.

MODEL SCALE: 0.0175, (56-0 & 60-0 MODELS)

DRAWING NUMBER: VL70-000140C, -006089, -006092

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - Ft^2	210.0	0.064
Span (equivalent) - In.	349.2	6.111
Inb'd equivalent chord- In.	118.0	2.065
Outb'd equivalent chord	55.19	0.966
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.2096	0.2096
At Outb'd equiv. chord	0.4004	0.4004
Sweep Back Angles, degrees		
Leading Edge	0.0	0.0
Tailing Edge	- 10.056	- 10.056
Hingeline	0.0	0.0
Area Moment (Product of area & $\bar{c}$) ~~(Normal to Hinge Line)~~ Ft^3	1587.25	0.008
Mean Aerodynamic Chord, In.	90.7	1.587
Hingeline dihedral (origin at Z_o = 261.3509), deg.	5.229	5.229

TABLE III(Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY FLAP - F_{10}

GENERAL DESCRIPTION : Configuration 140C body flap. Hingeline located at X_o = 1532, Z_o = 287.

MODEL SCALE: 0.0175, (56-0 & 60-0 MODELS)

DRAWING NUMBER : VL70-000140C, -355114

DIMENSIONS :

		FULL SCALE	MODEL SCALE
Length (X_o = 1525.5 to X_o = 1613),	In.	87.50	1.531
Max Width (At L.E., X_o = 1525.5),	In.	256.00	4.480
Max Depth (X_o = 1532),	In.	19.798	0.346
Fineness Ratio			
Area - Ft^2			
Max. Cross-Sectional (At H.L.)		35.196	0.011
Planform		135.00	0.041
Wetted			
Base (X_o = 1613)		4.89	0.0015

TABLE III (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT : OMS POD - M_{16}

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

MODEL SCALE: 0.0175 , (56-0 & 60-0 MODEL)

DRAWING NUMBER : VL70-008401, -008410

DIMENSIONS :

	FULL SCALE	MODEL SCALE
Length (OMS Fwd Sta X_o = 1310.5), In.	258.50	4.524
Max Width (At X_o = 1511), In.	136.8	2.394
Max Depth (At X_o = 1511), In.	74.70	1.307
Fineness Ratio	2.484	2.484
Area = Ft^2		
Max. Cross-Sectional	58.864	0.018
Planform		
Wetted		
Base		

TABLE III. (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT: RUDDER - R_{18}

GENERAL DESCRIPTION: The rudder is a secondary movable airfoil at the trailing edge of the vertical fin that imparts yaw forces. This dimensional data was calculated from the OML master dimensions.

MODEL SCALE: 0.0175 (60-0 MODEL)

DRAWING NUMBER: Vehicle 5 Configuration MCR 200, Rev. 7

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - Ft^2	97.84	0.030
Span (equivalent) - In.	198.614	3.476
Inb'd equivalent chord - In.	97.07	1.699
Outb'd equivalent chord - In.	50.80	0.889
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.400	0.400
At Outb'd equiv. chord	0.400	0.400
Sweep Back Angles, degrees		
Leading Edge	34.833	34.833
Tailing Edge	26.249	26.249
Hingeline	34.833	34.833
Area Moment (Product of Area & $\bar{c}$), ~~Normabotuxkiogeoline~~ Ft^3	593.889	.0032
Mean Aerodynamic Chord, In.	72.840	1.275

TABLE III. (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT: VERTICAL - V_8

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

MODEL SCALE: 0.0175 (60-0 MODEL)

DRAWING NUMBER: VL70-000140C, -000146B

DIMENSIONS:

	FULL SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) - Ft^2	413.253	0.127
Planform	315.72	5.530
Span (Theo) - In.	1.675	1.675
Aspect Ratio	0.507	0.507
Rate of Taper	0.404	0.404
Taper Ratio		
Sweep-Back Angles, Degrees.		
Leading Edge	45.000	45.000
Trailing Edge	26.25	26.25
0.25 Element Line	41.13	41.13
Chords:		
Root (Theo) WP	268.50	4.699
Tip (Theo) WP	108.47	1.898
MAC	199.81	3.497
Fus. Sta. of .25 MAC	1463.35	25.609
W.P. of .25 MAC	635.52	11.122
B.L. of .25 MAC	0.0	0.0
Airfoil Section		
Leading Wedge Angle - Deg.	10.00	10.00
Trailing Wedge Angle - Deg.	14.92	14.92
Leading Edge Radius	2.00	2.00
Void Area	13.17	0.0040
Blanketed Area	0.0	0.0

TABLE III (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT: VERTICAL - V_{30}

GENERAL DESCRIPTION: Slab sided vertical tail with extended span

MODEL SCALE: 0.0175, (56-0 MODEL)

DIMENSIONS:

	FULL SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) - Ft^2 Planform	442.299	0.135
Span - In.	358.57	6.275
Aspect Ratio	2.019	2.019
Rate of Taper	0.507	0.507
Taper Ratio	0.323	0.323
Sweep-Back Angles, Degrees		
Leading Edge	45.000	45.000
Trailing Edge	26.25	26.25
0.25 Element Line	41.13	41.13
Chords:		
Root (Theo) WP	268.50	4.699
Tip (Theo) WP	86.75	1.518
MAC	193.12	3.380
Fus. Sta. of .25 MAC	1474.87	25.810
W.P. of .25 MAC	648.71	11.352
B.L. of .25 MAC	0.0	0.0
Airfoil Section		
Leading Wedge Angle - Deg.	11.75	11.75
Trailing Wedge Angle - Deg	0.0	0.0
Leading Edge Radius	0.0	0.0
Void Area	0.0	0.0
Blanketed Area	0.0	0.0

TABLE III. (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT: WING-W_{116}

GENERAL DESCRIPTION: Configuration 5

NOTE: Identical to W_{114} except airfoil thickness. Dihedral angle is along trailing edge of wing. Geometric twist = 0.

MODEL SCALE: 0.0175, (60-0 MODEL)

TEST NO.

DWG. NO. VL70-000140A, -000200

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo.) Ft^2		
Planform	2690.0	0.824
Span (Theo.) In.	936.68	16.392
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		
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	12.062
Tip, (Theo) B.P.	137.85	2.412
MAC	474.81	8.309
Fus. Sta. of .25 MAC	1136.83	19.895
W.P. of .25 MAC	290.58	5.085
B.L. of .25 MAC	182.13	3.187
EXPOSED DATA		
Area (Theo) Ft^2	1751.50	0.536
Span, (Theo) In. BP108	720.68	12.612
Aspect Ratio	2.059	2.059
Taper Ratio	0.245	0.245
Chords		
Root BP108	562.09	9.837
Tip 1.00 $\frac{b}{2}$	137.85	2.412
MAC	392.83	6.875
Fus. Sta. of .25 MAC	1185.98	20.755
W.P. of .25 MAC	294.30	5.150
B.L. of .25 MAC	251.77	4.406
Airfoil Section (Rockwell Mod NASA) XXXX-64		
Root t/c =	0.113	0.113
Tip t/c =	0.120	0.120
Data for (1) of (2) Sides		
Leading Edge Cuff		
Planform Area Ft^2	113.18	0.035
Leading Edge Intersects Fus M. L. @ Sta	500.00	8.750
Leading Edge Intersects Wing @ Sta	1024.00	17.920

TABLE III (Concluded)
MODEL DIMENSIONAL DATA

MODEL COMPONENT: WING-W_{127}

GENERAL DESCRIPTION: Configuration 140C orbiter wing, MCR 200-R4. Similar to 140A/B wing W_{116} but with refinements: improved wing-boot-midbody fairing (X_o = 940 to X_o = 1040). Elevon split line relocated from Y_o = 281 to Y_o = 312.5).

MODEL SCALE: 0.0175, (56-0 MODEL)

TEST NO. DWG. NO. VL70-000140C, -000200B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo.) Ft^2		
Planform	2690.00	0.824
Span (Theo In.	936.68	16.392
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	- 10.065	- 10.065
0.25 Element Line	35.209	35.209
Chords:		
Root (Theo) B.P.O.O.	689.24	12.062
Tip, (Theo) B.P.	137.85	2.412
MAC	474.81	8.309
Fus. Sta. of .25 MAC	1136.83	19.895
W.P. of .25 MAC	290.58	5.085
B.L. of .25 MAC	182.18	3.187
EXPOSED DATA		
Area (Theo) Ft^2	1751.50	0.536
Span, (Theo) In. BP108	720.68	12.612
Aspect Ratio	2.059	2.059
Taper Ratio	0.245	0.245
Chords		
Root BP108	562.09	9.837
Tip 1.00 $\frac{b}{2}$	137.85	2.412
MAC	392.83	6.875
Fus. Sta. of .25 MAC	1185.98	20.755
W.P. of .25 MAC	294.30	5.150
B.L. of .25 MAC	251.77	4.406
Airfoil Section (Rockwell Mod NASA) XXXX-64		
Root t/c =	0.113	0.113
Tip t/c =	0.120	0.120
Data for (1) of (2) Sides		
Leading Edge Cuff		
Planform Area Ft^2	113.18	0.035
Leading Edge Intersects Fus M. L. @ Sta	500.00	8.750
Leading Edge Intersects Wing @ Sta	1024.0	17.920

TABLE IV 60-0 Model Thermocouple Coordinates

Vertical Tail			
T/C	$(X/C)_V$	$(Z/B)_V$	b, in.
340	0.1	0.1	0.032
341	0.3	0.1	0.031
342	0.5	0.1	0.030
344	0.2	0.2	0.030
345	0.4	0.2	0.031
346	0.6	0.2	0.031
347	0.8	0.2	0.032
349	0.2	0.3	0.031
350	0.4	0.3	0.031
351	0.5	0.3	0.032
352	0.9	0.3	0.030
354	0.2	0.4	0.032
355	0.4	0.4	0.032
356	0.5	0.4	0.031
357	0.7	0.4	0.029
361	0.9	0.5	0.032
363	0.1	0.6	0.030
364	0.2	0.6	0.030
365	0.4	0.6	0.032
366	0.5	0.6	0.032
367	0.7	0.6	0.028
368	0.9	0.6	0.030
371	0.9	0.7	0.029
373	0.1	0.8	0.029
374	0.4	0.8	0.031

Vertical Tail			
T/C	$(X/C)_V$	$(Z/B)_V$	b, in.
375	0.5	0.8	0.033
376	0.7	0.8	0.028
379	0.3	0.9	0.031
381	0.7	0.9	0.031
382	0.9	0.9	0.030
384	0.5	0.95	0.032
385	0.9	0.95	0.033

OMS Pod				
T/C	XO, in.	YO, in.	ZO, in.	b, in.
1D	1312.5	103.47	437.62	0.039
2D	1312.5	105.65	451.57	0.025
3D	1313.4	93.92	463.35	0.041
4D	1314.2	90.04	474.41	0.043
5D	1315.4	81.42	485.17	0.028
6D	1316.2	69.87	492.87	0.027
8D	1319.2	42.82	495.98	0.031
9D	1322.7	113.14	434.29	0.023
10D	1322.9	113.90	446.10	0.033
11D	1323.2	115.62	459.73	0.029
12D	1323.4	110.38	472.01	0.036
13D	1324.9	101.55	482.44	0.031
14D	1326.3	92.10	492.89	0.024
15D	1327.3	80.93	501.43	0.026
16D	1328.5	68.91	508.10	0.029
17D	1331.3	54.30	510.38	0.029
18D	1332.4	41.74	504.13	0.028
19D	1336.5	114.14	437.45	0.027
20D	1336.1	120.76	449.66	0.034
21D	1336.0	124.01	462.41	0.026
22D	1335.5	119.09	475.11	0.028
23D	1336.8	110.33	485.84	0.030
24D	1337.4	99.43	495.69	0.029
25D	1338.4	88.08	504.61	0.031

OMS Pod				
T/C	XO, in.	YO, in.	ZO, in.	b, in.
26D	1339.9	76.58	512.79	0.030
27D	1341.3	64.09	517.49	0.026
28D	1343.2	50.13	514.51	0.030
29D	1344.6	38.66	506.42	0.029
30D	1348.9	111.69	427.05	0.015
31D	1344.0	119.71	438.95	0.023
32D	1346.9	126.40	451.59	0.029
34D	1347.9	123.26	478.95	0.029
35D	1348.6	114.89	488.55	0.031
36D	1350.0	104.37	498.45	0.031
37D	1350.9	93.15	507.16	0.032
38D	1351.9	81.63	515.29	0.031
39D	1353.3	68.97	521.19	0.029
40D	1355.5	55.02	520.43	0.033
41D	1356.8	42.84	512.69	0.028
42D	1360.9	115.72	428.93	0.016
43D	1360.7	124.34	441.15	0.023
44D	1359.7	130.58	452.74	0.032
45D	1359.5	133.66	466.33	0.033
46D	1359.8	128.57	479.54	0.031
47D	1360.0	119.66	489.71	0.029
48D	1361.1	109.53	499.35	0.026
49D	1362.4	98.70	508.42	0.027
50D	1363.8	86.87	516.86	0.029

TABLE IV Continued

OMS Pod				
T/C	XO, in.	YO, in.	ZO, in.	b, in.
51D	1365.3	74.61	524.20	0.030
52D	1367.4	60.48	524.50	0.034
53D	1369.0	48.26	518.62	0.030
54D	1370.3	36.90	508.92	0.027
55D	1373.1	120.67	431.05	0.019
56D	1372.1	128.48	442.97	0.024
57D	1371.2	134.78	454.73	0.033
58D	1371.1	137.31	467.72	0.037
59D	1372.0	132.02	481.22	0.034
60D	1372.9	122.88	491.72	0.032
61D	1373.7	112.41	501.33	0.029
62D	1375.3	100.96	510.86	0.026
63D	1376.4	89.49	519.21	0.024
64D	1378.0	77.00	525.93	0.032
65D	1379.7	63.26	527.07	0.036
67D	1382.4	38.65	512.32	0.027
68D	1385.0	115.78	421.02	0.020
69D	1385.0	123.25	431.09	0.020
70D	1383.9	131.73	443.72	0.025
71D	1383.9	137.99	455.55	0.031
72D	1383.2	140.31	469.43	0.036
73D	1383.3	134.47	482.96	0.033
74D	1384.2	125.48	493.31	0.031
75D	1385.5	114.84	503.23	0.026

OMS Pod				
T/C	XO, in.	YO, in.	ZO, in	b, in.
76D	1386.9	104.23	511.85	0.025
77D	1396.2	140.63	456.75	0.034
78D	1395.7	142.72	471.17	0.040
79D	1300.4	137.55	483.60	0.035
80D	1407.8	143.07	458.22	0.035
81D	1408.2	144.85	472.53	0.040
82D	1408.3	138.82	486.10	0.035
83D	1420.8	145.46	460.82	0.035
84D	1420.3	146.41	474.10	0.040
85D	1420.7	140.53	487.50	0.034
86D	1433.1	147.19	461.84	0.034
87D	1432.7	147.95	474.98	0.038
88D	1433.3	142.34	488.33	0.031
89D	1486.4	115.78	421.03	0.027
90D	1494.5	123.25	431.10	0.029
91D	1502.7	115.78	421.03	0.025

Upper Fuselage			
T/C	X/L	PHI, deg	b, in.
182	0.4	180	0.026
183	0.45	180	0.026
185	0.55	180	0.026
186	0.60	180	0.025
187	0.65	180	0.024
188	0.70	180	0.025
189	0.75	180	0.0255
223	0.40	157.5	0.034
224	0.45	157.5	0.034
225	0.50	157.5	0.034
226	0.55	157.5	0.035
227	0.60	157.5	0.034
228	0.65	157.5	0.0325
230	0.75	157.5	0.03
231	0.80	157.5	0.032
234	0.40	135.0	0.03
235	0.45	135.0	0.03
236	0.50	135.0	0.036
237	0.55	135	0.035
238	0.6	135	0.031
239	0.65	135	0.032
240	0.7	135	0.03
241	0.75	135	0.032
242	0.8	135	0.032
388	0.4	114	0.031
389	0.45	114	0.033

Upper Fuselage			
T/C	X/L	PHI, deg	b, in.
390	0.5	114	0.036
391	0.55	114	0.035
392	0.6	114	0.034
394	0.7	114	0.034
395	0.75	114	0.036
T/C	X/L	Y, in.	b, in.
124A	0.397	1.128	0.031
125A	0.396	2.68	0.029
139A	0.496	1.584	0.034
410A	0.695	1.572	0.033
155A	0.790	1.572	0.031
156A	0.790	0.868	0.026
157A	0.819	1.582	0.031
158A	0.819	1.218	0.025
159A	0.819	0.868	0.028
160A	0.819	0.308	0.031
36A	0.817	0.014	0.028

Forward Fuselage Side			
T/C	X/L	ZO, in.	b, in.
205	0.05	376.4	0.033
210	0.10	410.0	0.037
206	0.076	350	0.035

TABLE IV Concluded

Forward Fuselage Side			
T/C	X/L	Y, in.	b, in.
207	0.10	0.086	0.038
88A	0.247	1.101	0.026
89A	0.248	0.672	0.031
102A	0.296	1.638	0.023
103A	0.236	2.067	0.015
79A	0.199	1.881	0.030
45A	0.099	1.041	0.028
46A	0.099	--	0.030
47A	0.099	1.23	0.031
107A	0.400	0.780	0.024

Lower Centerline			
T/C	X/L	PHI, deg	b, in.
2	0.005	0	0.032
4	0.020	0	0.040
7	0.050	0	0.033
12	0.10	0	0.037
16	0.150	0	0.036
21	0.200	0	0.035
26	0.400	0	0.034
27C	0.450	0	0.033
29C	0.550	0	0.030
30C	0.600	0	0.030
33C	0.700	0	0.029
34C	0.800	0	0.030
36C	0.900	0	0.031

Lower Centerline			
T/C	X/L	PHI, deg	b, in.
38C	0.980	0	0.027
39C	0.975	0	0.023
40	1.015	0	0.030
42	1.045	0	0.028

Lower Wing			
T/C	X/L	YO, in.	b, in.
50C	0.5	46.8	0.028
51C	0.6	46.8	0.025
52C	0.7	46.8	0.030
53C	0.8	46.8	0.030
54C	0.9	46.8	0.028
56C	0.975	46.8	0.028
58	1.030	46.8	0.030
60	1.06	46.8	0.031
62C	0.5	93.6	0.031
64C	0.7	93.6	0.029
T/C	$(X/C)_W$	2Y/B	b, in.
75C	0.1	0.3	0.026
80C	0.6	0.3	0.030
83	0.[illegible]	0.3	0.030
84	0.95	0.3	0.031
87C	0.05	0.4	0.031
96	0.9	0.4	0.026
113C	0.1	0.6	0.031
114C	0.2	0.6	0.031

Lower Wing			
T/C	$(X/C)_W$	2Y/B	b, in.
116C	0.4	0.6	0.032
117C	0.5	0.6	0.032
118C	0.6	0.6	0.032
129C	0.8	0.7	0.036
130C	0.4	0.7	0.035
107	0.9	0.5	0.029
120	0.8	0.6	0.030
121	0.85	0.6	0.0305
122	0.9	0.6	0.030
123	0.95	0.6	0.030
138	0.3	0.75	0.035
143	0.9	0.75	0.0305
144	0.95	0.75	0.030
147	0.4	0.80	0.031
148	0.9	0.80	0.0305
153	0.1	0.90	0.030
158	0.8	0.90	0.029
159	0.9	0.90	0.028
163	0.2	0.95	0.032
165	0.5	0.95	0.030
167	0.8	0.95	0.030
168	0.9	0.95	0.030

Upper Wing			
T/C	$(X/C)_W$	2Y/B	b, in.
246	0.08	0.40	0.024
248	0.40	0.40	0.024
251	0.80	0.40	0.029
250	0.75	0.40	0.030
252	0.95	0.40	0.025
253	0.025	0.6	0.009
466	0.67	0.75	0.027
467	0.66	0.78	0.024
468	0.65	0.80	0.024
469	0.64	0.83	0.024
473	0.45	0.98	0.020
476	0.60	0.70	0.030
478	0.10	0.80	0.031
479	0.30	0.80	0.032
480	0.40	0.80	0.032
481	0.50	0.80	0.032
482	0.73	0.80	0.025

TABLE V 56-0 Model Thermocouple Coordinates

Fuselage Side			
T/C	X/L	ZO, in.	b, in.
1	.275	437.5	.0215
2	.300	442.0	.0210
3	.325	445.0	.0217
4	.350	445.0	.0215
5	.375	445.0	.0212
6	.400	445.0	.0217
7	.425	445.0	.0215
8	.450	445.0	.0218
9	.475	445.0	.0219
10	.300	445.0	.0220
11	.525	445.0	.0220
12	.550	445.0	.0222
13	.600	445.0	.0220
14	.650	445.0	.0220
15	.700	445.0	.0228
16	.750	445.0	.0220
17	.800	445.0	.0230
18	.288	420.0	.0190
19	.337	420.0	.0189
20	.390	420.0	.0189
21	.426	420.0	.0190
22	.478	420.0	.020
23	.530	420.0	.020
24	.567	420.0	.0205
25	.620	420.0	.0205

Fuselage Side			
T/C	X/L	ZO, in.	b, in.
26	.670	420.0	.0205
27	.705	420.0	.0207
28	.750	420.0	.0203
29	.800	420.0	.0202
30	.824	420.0	.0160
31	.200	400.0	.0210
32	.225	400.0	.0199
33	.250	400.0	.0199
34	.275	400.0	.0186
35	.300	400.0	.0180
36	.325	400.0	.0190
37	.350	400.0	.0192
38	.375	400.0	.0190
39	.400	400.0	.0189
40	.425	400.0	.0188
41	.450	400.0	.0195
42	.475	400.0	.0200
43	.500	400.0	.0200
44	.525	400.0	.0190
45	.550	400.0	.0200
46	.600	400.0	.0205
47	.650	400.0	.0210
48	.700	400.0	.0202
49	.750	400.0	.0205
50	.800	400.0	.0208

Fuselage Side			
T/C	X/L	ZO, in.	b, in.
51	.850	400.0	.0180
52	.875	400.0	.0180
53	.900	400.0	.0160
54	.925	400.0	.0170
55	.950	400.0	.0220
56	.300	372.5	.0170
57	.325	372.5	.0170
58	.350	372.5	.0170
59	.375	372.5	.0170
60	.400	372.5	.0170
61	.425	372.5	.0170
62	.450	372.5	.0172
63	.475	372.5	.0175
64	.500	372.5	.0180
65	.525	372.5	.0180
66	.550	372.5	.0190
67	.600	372.5	.0198
68	.650	372.5	.0190
69	.700	327.2	.0200
70	.750	372.5	.0200
71	.200	355	.0195
72	.225	355	.0190
73	.250	355	.0190
74	.275	355	.0180
75	.800	355	.0185

Fuselage Side			
T/C	X/L	ZO, in.	b, in.
76	.850	355	.0188
77	.875	355	.0170
78	.900	355	.0172
79	.925	355	.0180
80	.950	355	.0190

TABLE VI 83-0 Model Thermocouple Coordinates

Canopy				
T/C	RAY	LINE	YO, in	b, in.
177	1.0	4.0	0.0	.030
178	1.0	6.0	0.0	.044
179	2.0	6.0	0.0	.047
180	3.0	3.0	14.0	.029
181	3.0	4.0	15.0	.030
182	3.0	5.0	17.0	.032
183	4.0	1.0	0.0	.028
184	4.0	2.0	0.0	.031
185	4.0	3.0	22.0	.027
186	4.0	4.0	22.0	.028
187	4.0	5.0	22.0	.030
188	4.0	6.0	0.0	.059
189	5.0	3.0	30.0	.032
190	5.0	4.0	30.0	.032
191	5.0	5.0	29.0	.034
192	6.0	2.0	0.0	.032
193	6.0	6.0	0.0	.043
194	7.0	3.0	41.0	.029
195	7.0	4.0	41.0	.028
196	7.0	5.0	40.0	.029
197	8.0	1.0	0.0	.022
198	8.0	2.0	0.0	.026
199	8.0	3.0	51.0	.030
200	8.0	4.0	47.0	.032
201	8.0	5.0	44.0	.032

Canopy				
T/C	RAY	LINE	YO, in	b, in.
202	8.0	6.0	0.0	.028
203	9.0	3.0	62.0	.028
204	9.0	4.0	56.0	.035
205	9.0	5.0	49.0	.035
206	10.0	2.0	0.0	.030
207	10.0	6.0	0.0	.030
208	11.0	3.0	71.0	.030
209	11.0	4.0	64.0	.031
211	12.0	1.0	0.0	.028
212	12.0	2.0	0.0	.030
213	12.0	3.0	70.0	.030
215	12.0	5.0	0.0	.032
216	12.0	6.0	0.0	.032
217	12.0	7.0	0.0	.032
218	13.0	3.0	69.0	.031
219	13.0	4.0	65.0	.032
220	13.0	5.0	62.0	.031
222	14.0	2.0	0.0	.028
223	14.0	6.0	0.0	.030
* 210	11.0	5.0		

Canopy			
T/C	X/L	ZO, in	b, in.
224	.192	485.0	.023
225	.197	490.0	.027
226	.192	485.0	.024
227	.197	490.0	.033
228	.193	485.0	.029
229	.197	490.0	.029
230	.242	--	.031
231	.251	--	.032
233	.261	572.0	.034
234	.242	547.5	.031
235	.251	559.5	.031
236	.257	567.0	.033

Cargo Bay Hinges			
T/C	XO, in.	ZO, in.	b, in.
238	602.3	420.0	.030
239	602.3	420.0	.030
243	602.3	405.0	.027
244	602.3	405.0	.028
245	669.8	420.0	.032
246	669.8	420.0	.032
247	669.8	415.0	.033
248	669.8	415.0	.033
249	669.8	415.0	.033
250	669.8	405.0	.028

Cargo Bay Hinges			
T/C	XO, in.	ZO, in.	b, in.
251	669.8	405.0	.028
253	737.3	420.0	.033
254	737.3	415.0	.034
255	737.3	--	.034
256	737.3	--	.034
258	737.3	405.0	.031
260	783.5	--	.032
261	783.5	--	.033
264	783.5	--	.030
265	783.5	--	.030
266	850.6	--	.032
267	850.6	--	.032
268	850.6	--	.032
269	850.6	--	.032
270	850.6	--	.032
271	850.6	--	.029
272	850.6	--	.030

Lower Fuselage			
T/C	X/L	PHI, deg	b, in.
426	.025	350	.021
427	.025	343	.022
428	.025	335	.024
429	.025	324	.026
430	.025	320	.026
432	.025	303	.029

* no good data were recorded by T/C 210

TABLE VI Continued

Lower Fuselage			
T/C	X/L	PHI,deg	b,in.
280	.023	0	.021
434	.025	281.5	.029
435	.025	280	.029
436	.025	273	.030
437	.051	352.5	.025
438	.05	347	.026
439	.05	339	.025
440	.05	334	.024
441	.05	327.5	.024
442	.05	321.5	.028
443	.05	318	.028
445	.05	306	.026
446	.05	300	.025
447	.05	295	.023
448	.05	289	.028
449	.05	284	.026
452	.20	351	.023
453	.20	346	.023
454	.20	342	.023
455	.20	338	.023
456	.20	333	.023
457	.20	330	.023
458	.20	326	.024
459	.20	322	.026
460	.20	320	.026

Lower Fuselage			
T/C	X/L	PHI,deg	b,in.
461	.20	317	.027
462	.20	313.5	.027
463	.20	310.5	.026
464	.20	307	.025
465	.20	305	.026
466	.20	303	.027
467	.20	300.5	.027
468	.20	298	.025
469	.20	295	.028
470	.20	292	.023
471	.20	290	.023
472	.20	287	.021
473	.20	284	.028
474	.20	278	.023
475	.20	275.5	.023
476	.20	273	.024

Upper Fuselage			
T/C	X/L	PHI,deg	b,in.
367	.0	180	.026
368	.001	↓	.028
369	.002		.026
371	.006		.022
373	.012		.029
376	.022		.030
378	.028		.026

Upper Fuselage			
T/C	X/L	PHI,deg	b,in.
379	.061	180	.028
380	.065	↓	.023
381	.068		.029
383	.076		.030
384	.079[illegible]		.031
386	.09[illegible]		.027
387	.102		.028
388	.116		.021
389	.119		.033
391	.127		.036
392	.131		.038
395	.141		.034
398	.152		.032
399	.156		.030
400	.158		.030
401	.161		.029
403	.166		.027
404	.169		.027
406	.175		.027
407	.177		.0289
408	.180		.033
410	.186		.032
411	.189		.037
412	.193		.031
413	.197		.030

Upper Fuselage			
T/C	X/L	PHI,deg	b,in.
414	.205	180	.030
415	.225	↓	.022
416	.25		.026
417	.275		.033
418	.300		.035
419	.325		.033
420	.350		.032
422	.400		.033
423	.425		.032
421	.375		.033
425	.475		.034

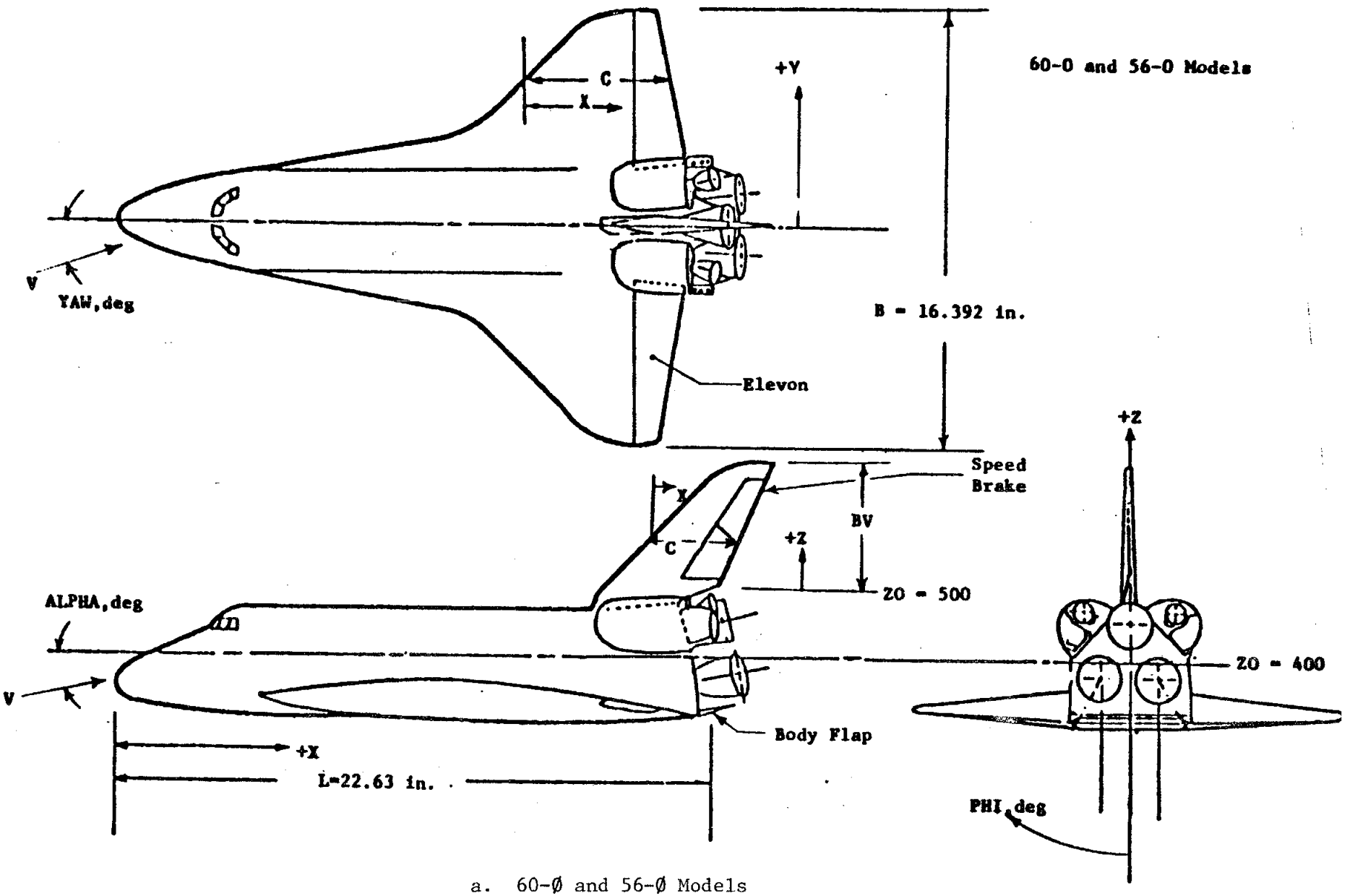
Upper RCS Nozzles			
T/C	X/L	YO,in.	b,in.
161	.062	-7.5	.027
162	.071	↓	.021
163	.081		.028
164	.094		.029
165	.098		.028
166	.101		.029
167	.062	-15.0	.030
168	.071	↓	.024
169	.081		.027
170	.094		.028
171	.098		.027
172	.101		.029

TABLE VI Concluded

Upper RCS Nozzle			
T/C	X/L	YO, in.	b, in.
173	.081	-22.5	.030
174	.094	-22.5	.026
175	.098	-22.5	.032
176	.101	-22.5	.031
Fuselage Right Side			
T/C	X/L	ZO, in.	b, in.
296	.025	-	.029
297	.05	-	.027
298	.075	-	.027
299	.10	-	.028
307	.325	-	.025
301	.15	-	.028
302	.175	-	.031
303	.20	-	.028
304	.225	-	.021
305	.250	-	.028
306	.275	-	.034
310	-	-	.027
311	.200	355	.023
312	.225	355	.025
313	.250	355	.030
314	.275	355	.0279
315	.300	355	.031
317	.350	355	.031
323	.200	378	.026

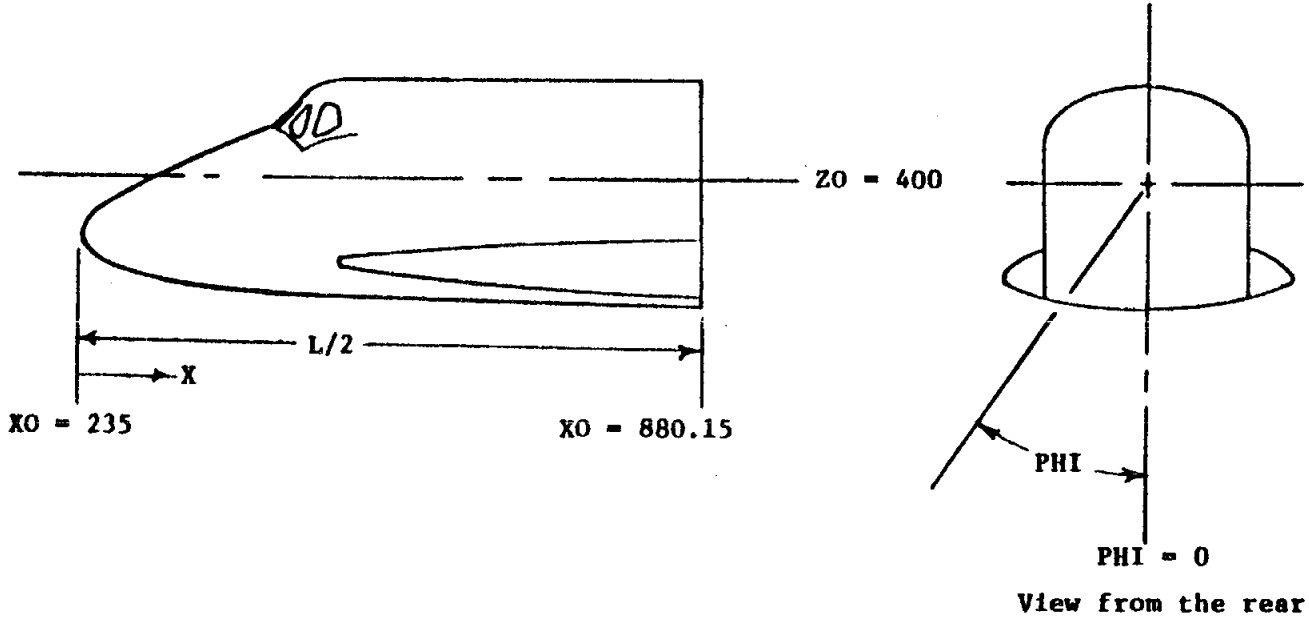
Fuselage Right Side			
T/C	X/L	ZO, in.	b, in.
324	.225	378	.027
325	-	-	.028
326	.275	378	.026
327	.300	378	.029
328	.325	378	.025
334	.225	400	.026
335	.250	400	.029
336	.275	400	.026
337	.300	400	.031
338	.325	400	.027
344	.325	425	.031
345	.350	425	.030
346	.375	425	.030
347	.400	425	.030
349	-	425	.031
351	.05	-	.027
352	.075	-	.027
353	.10	-	.026
354	.125	-	.027
355	.15	-	.027
356	.175	-	.031
357	.20	-	.026
358	.275	-	.032
359	.30	-	.031
360	.325	-	.030

Fuselage Right Side			
T/C	X/L		b, in.
361	.35	-	.031
362	.375	-	.030
363	.40	-	.032
364	.425	-	.032
Lower Centerline			
T/C	X/L	PHI, deg	b, in.
273	.001	0	.029
274	.0018	↓	.029
275	.004	↓	.031
277	.010	↓	.029
281	.026	↓	.029
282	.0299	↓	.029
283	.034	↓	.030
285	.0414	↓	.029
286	.0452	↓	.027
288	.10	↓	.021
289	.15	↓	.033
291	.25	↓	.036



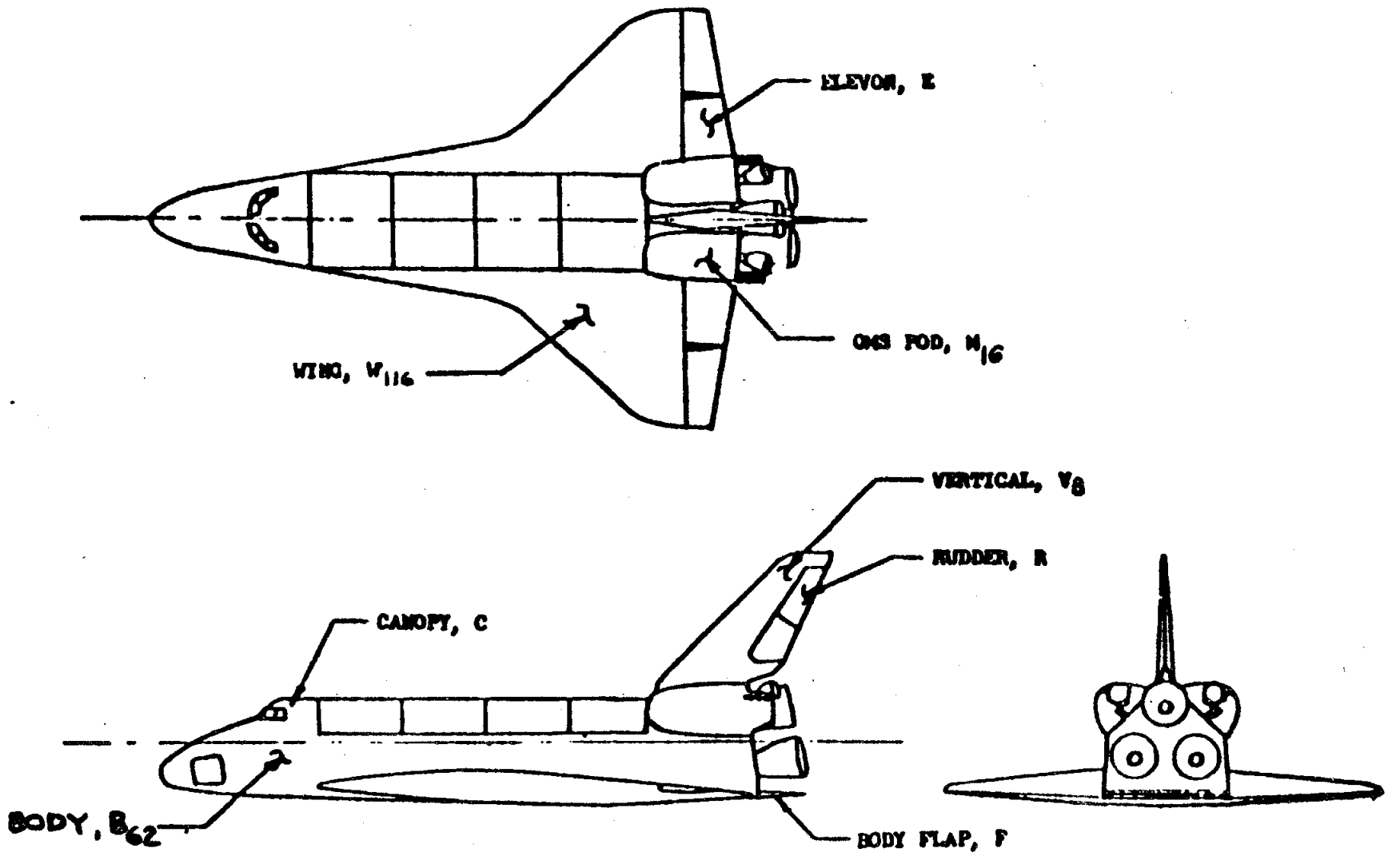
a. 60-Ø and 56-Ø Models

Figure 1. Axis Systems and General Arrangements



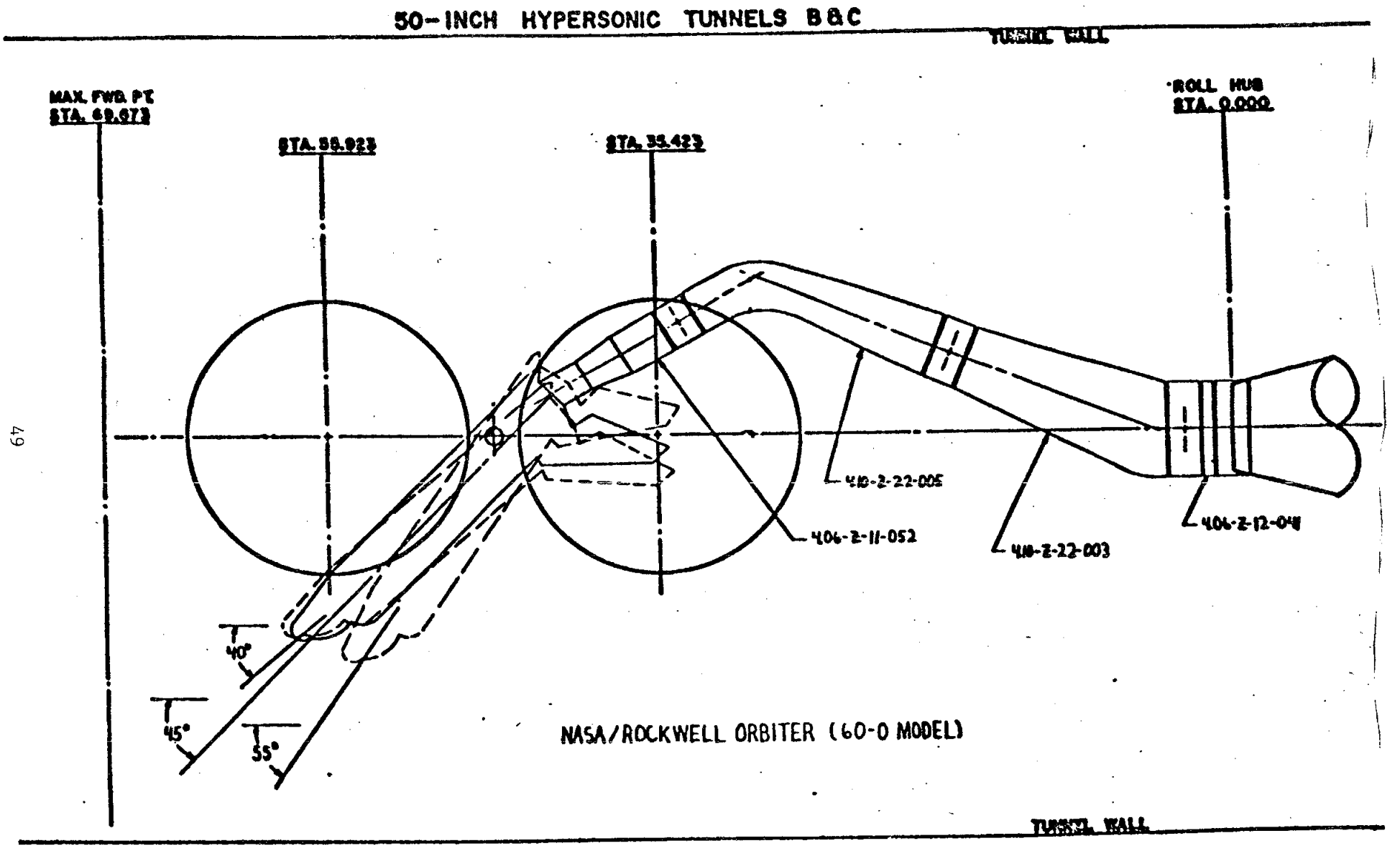
b. 83-Ø Model

Figure 1 (Concluded)



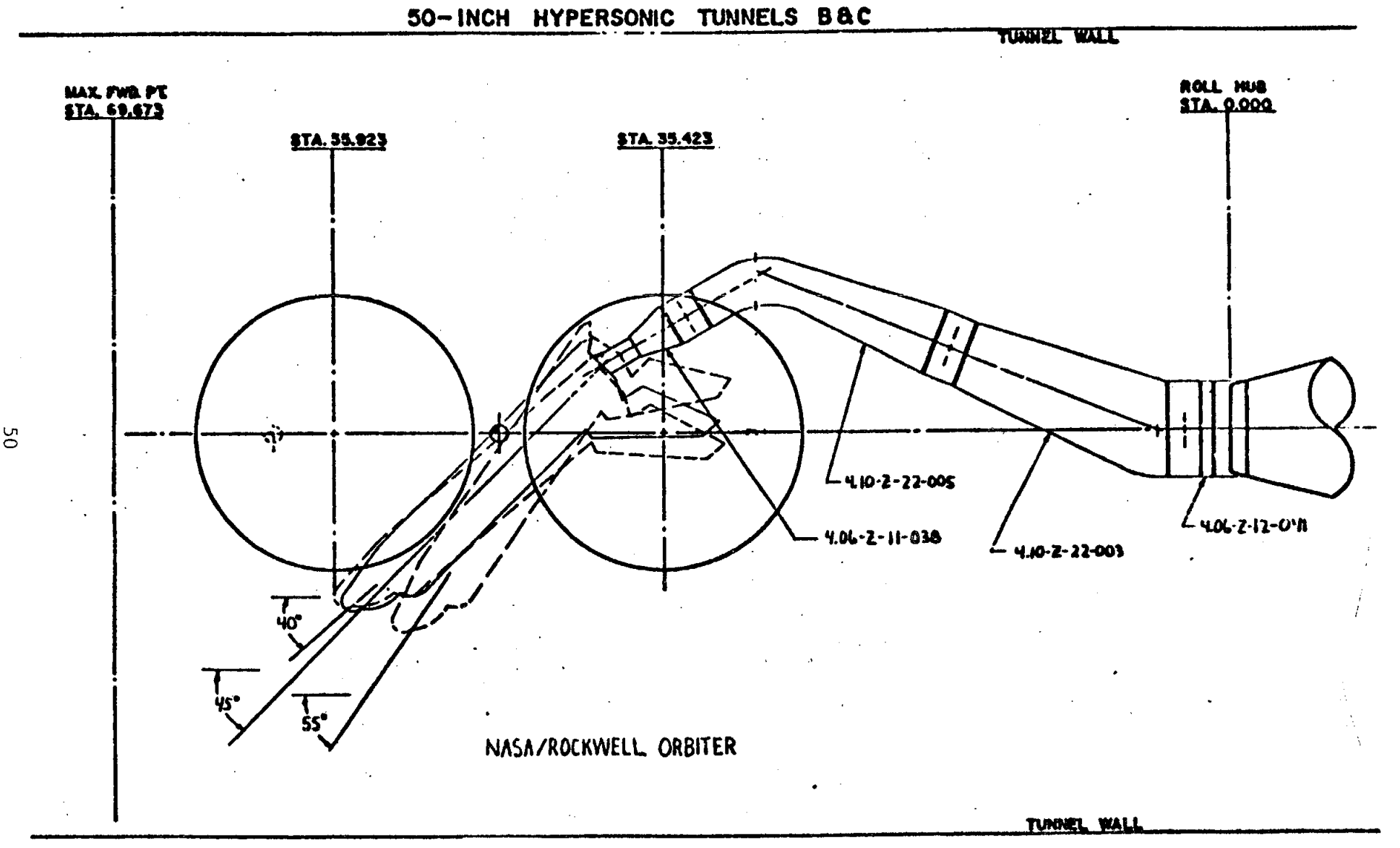
a. Orbiter General Arrangement

Figure 2. Model Sketches



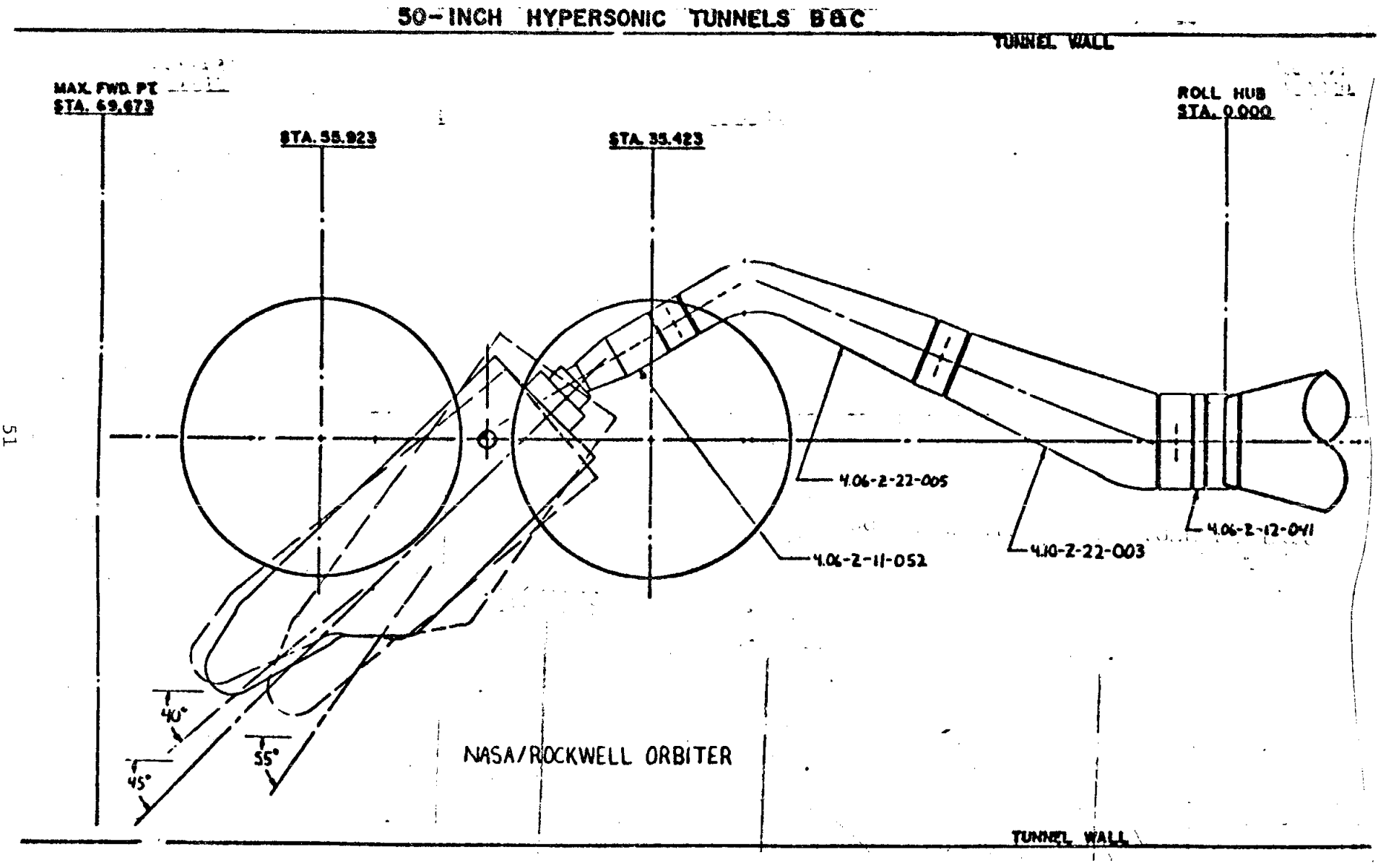
b. Model 60-Ø Installation

Figure 2 (Continued)



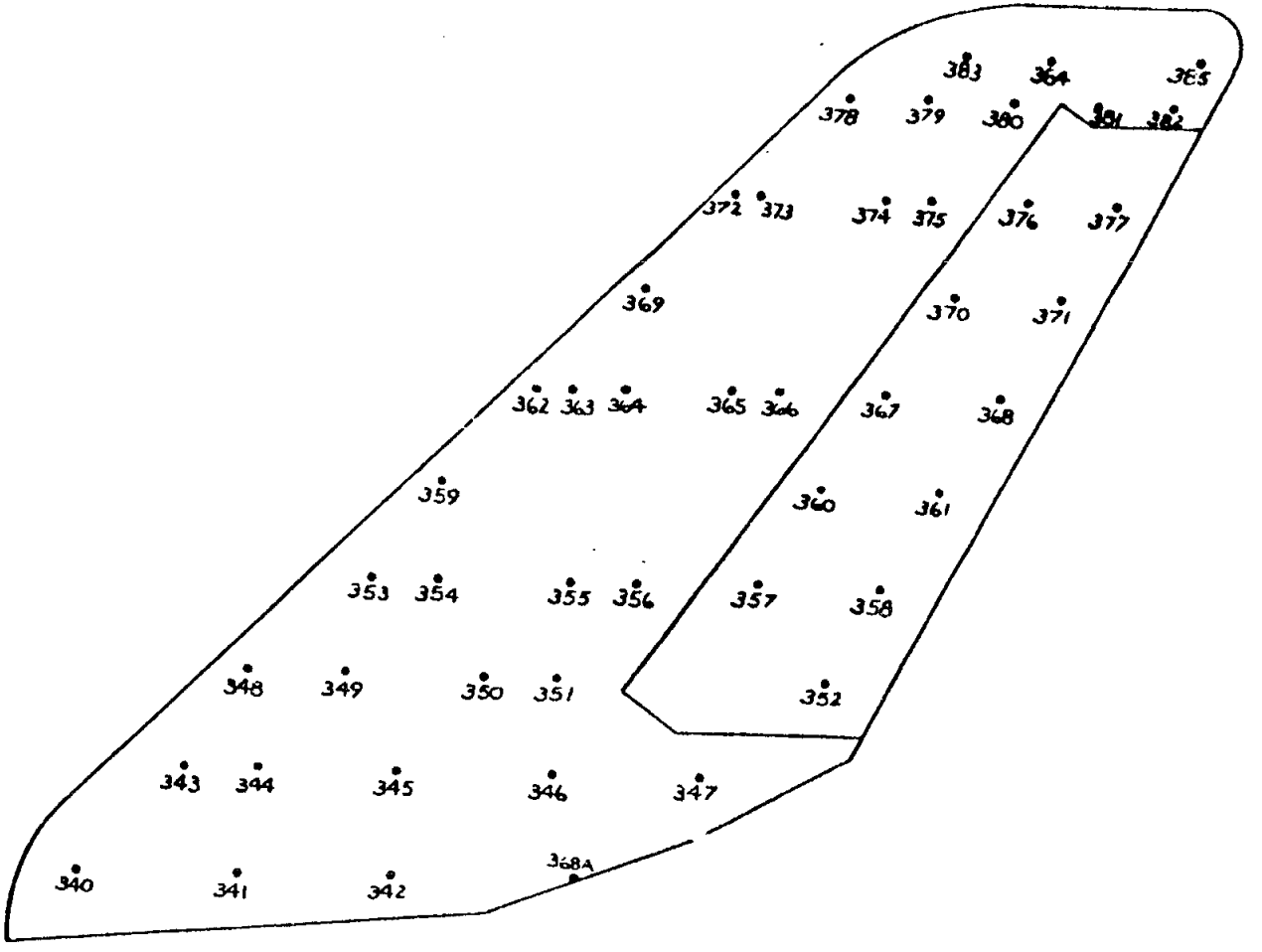
c. Model 56-Ø Installation

Figure 2 (Continued)



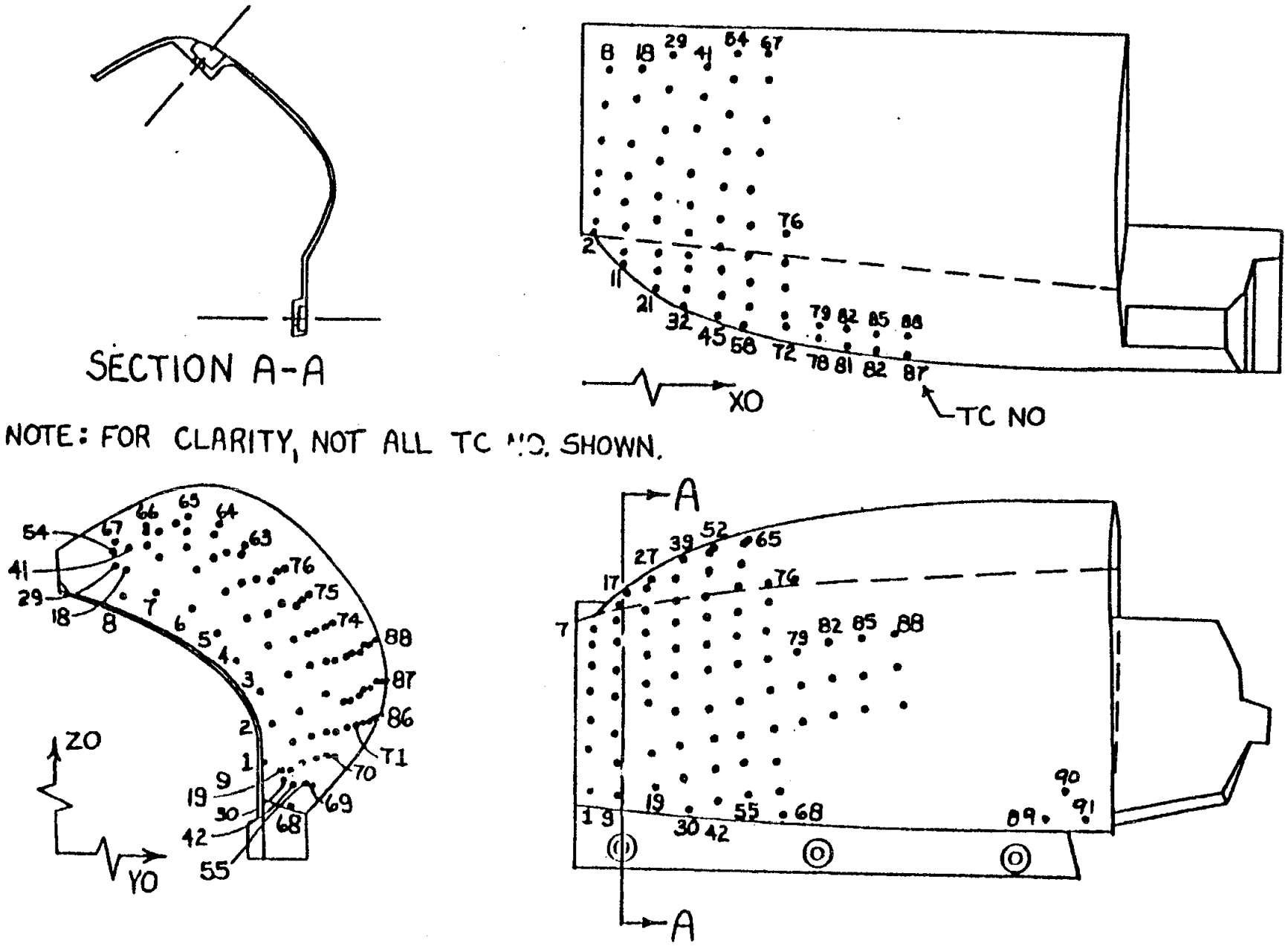
d. Model 83-Ø Installation

Figure 2 (Concluded)



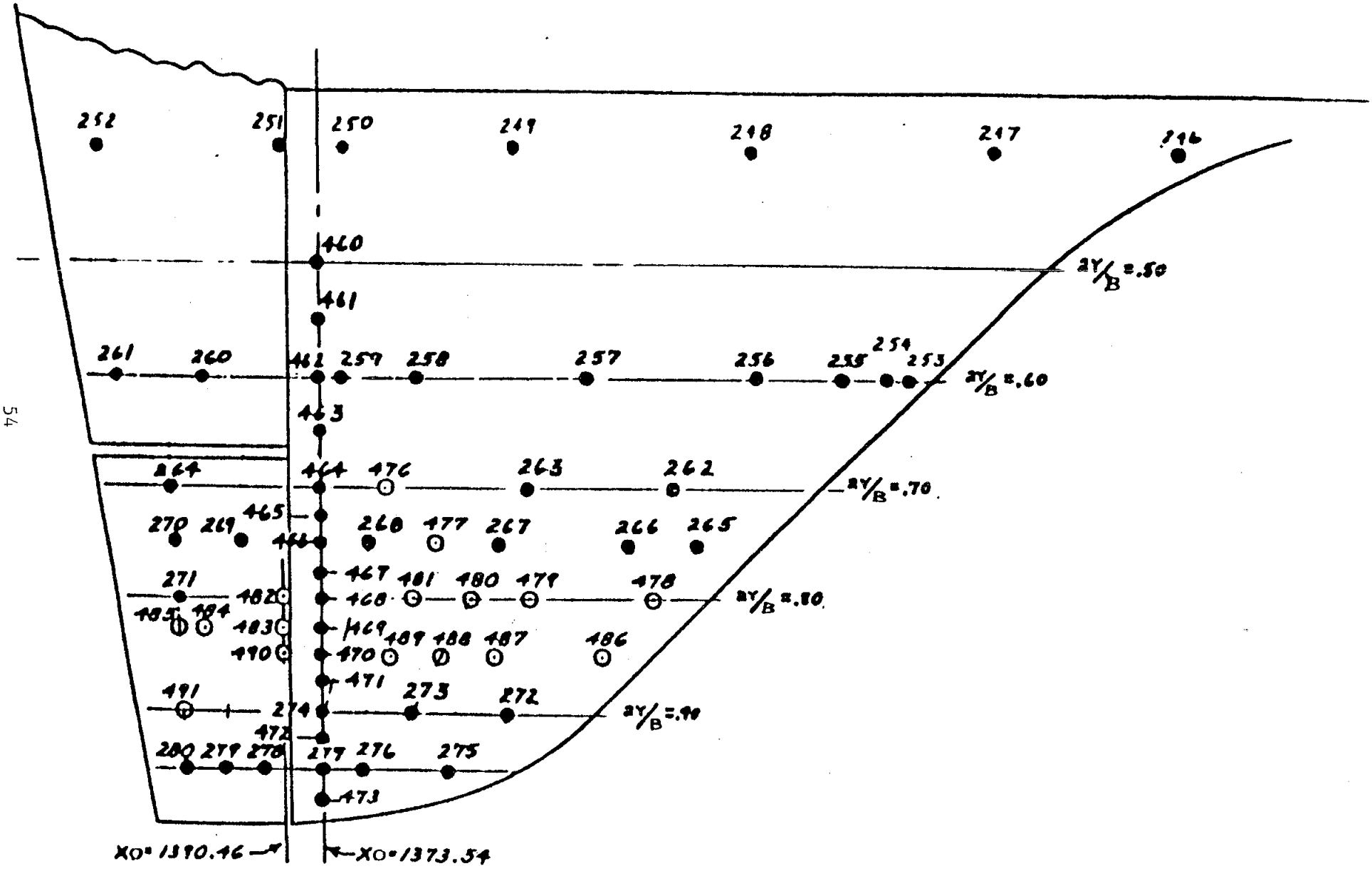
a. Vertical Tail

Fig. 3 Thermocouple Locations on 60-0 Model



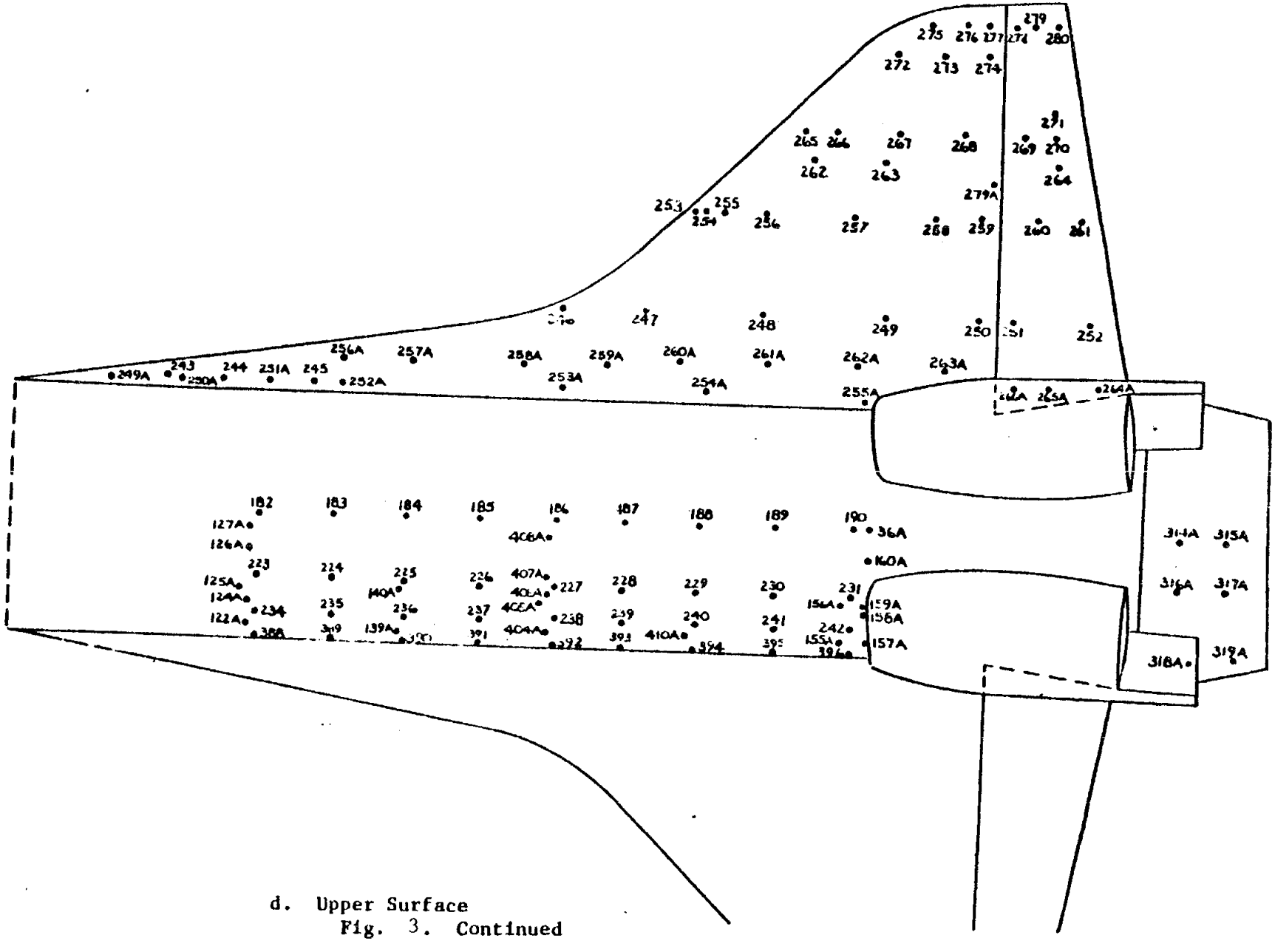
b. OMS Pod

Fig. 3. Continued

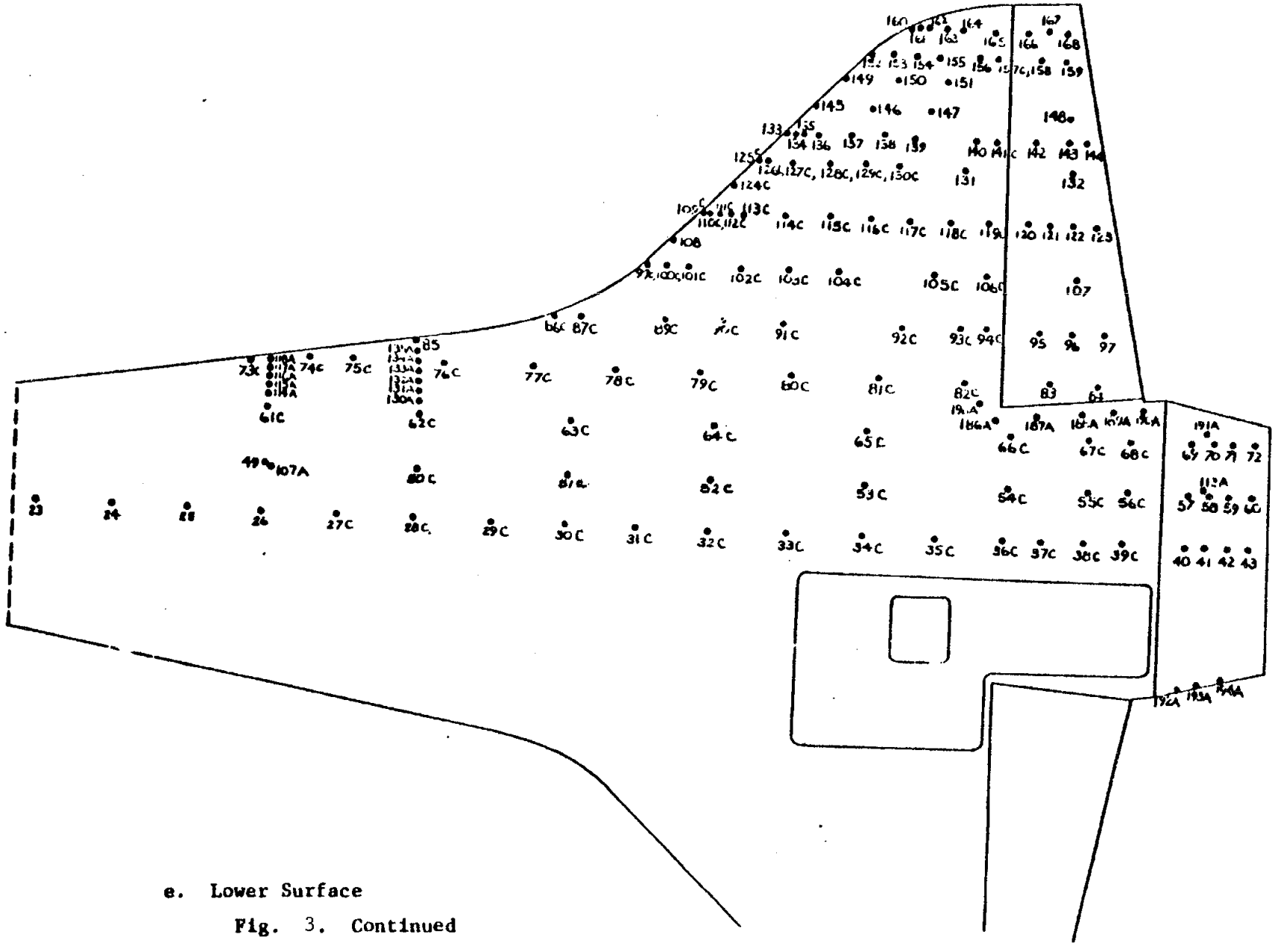


c. Upper Right Wing

Fig. 3. Continued

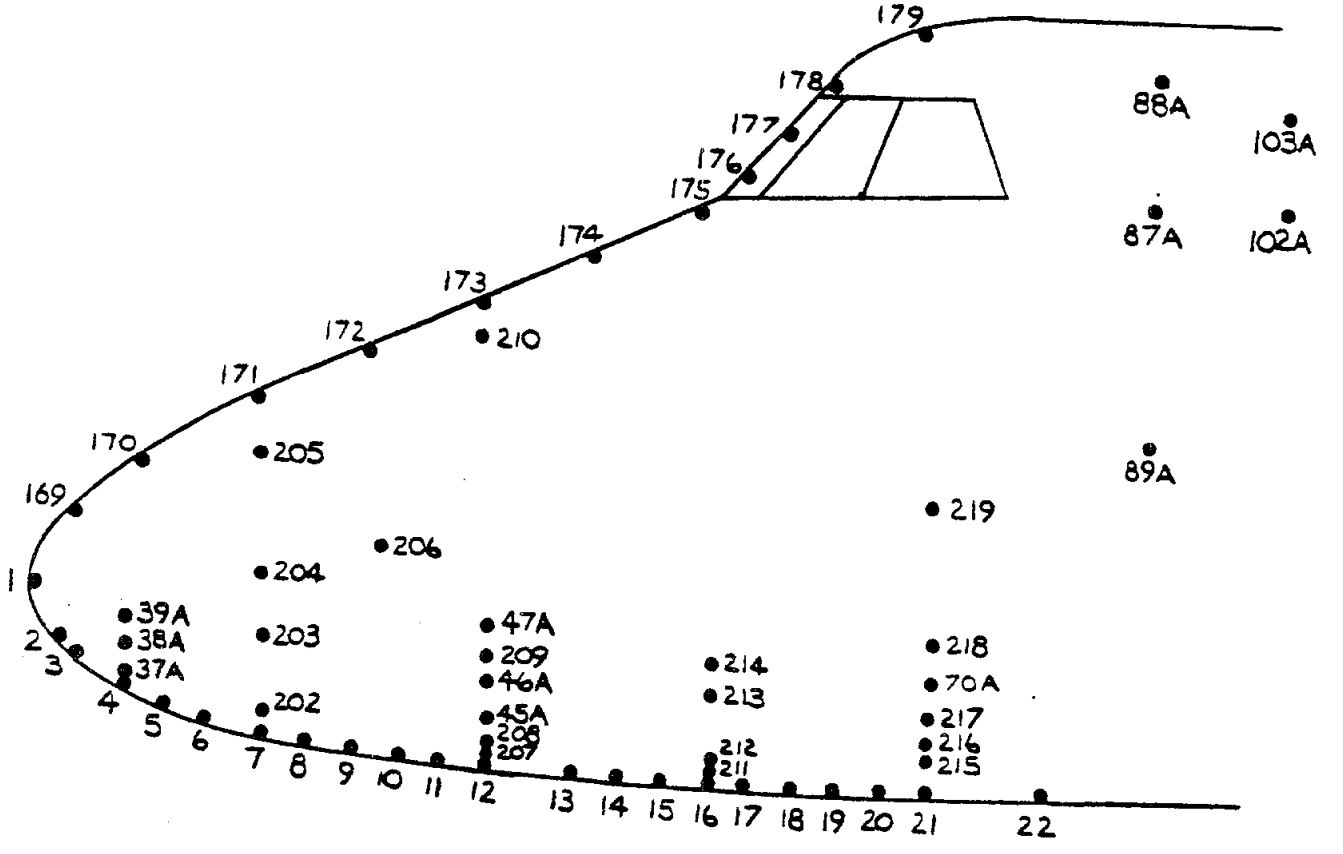


d. Upper Surface
Fig. 3. Continued



e. Lower Surface

Fig. 3. Continued



f. Forward Fuselage Side

Fig. 3. Concluded

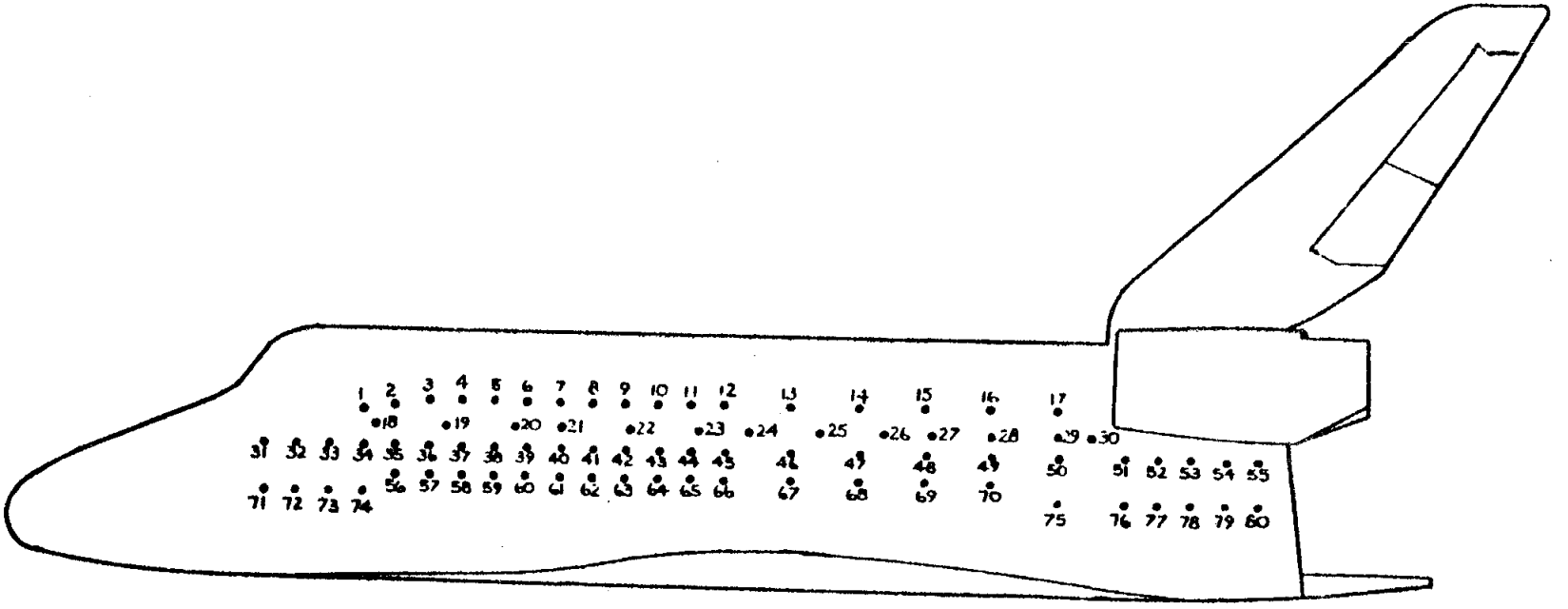
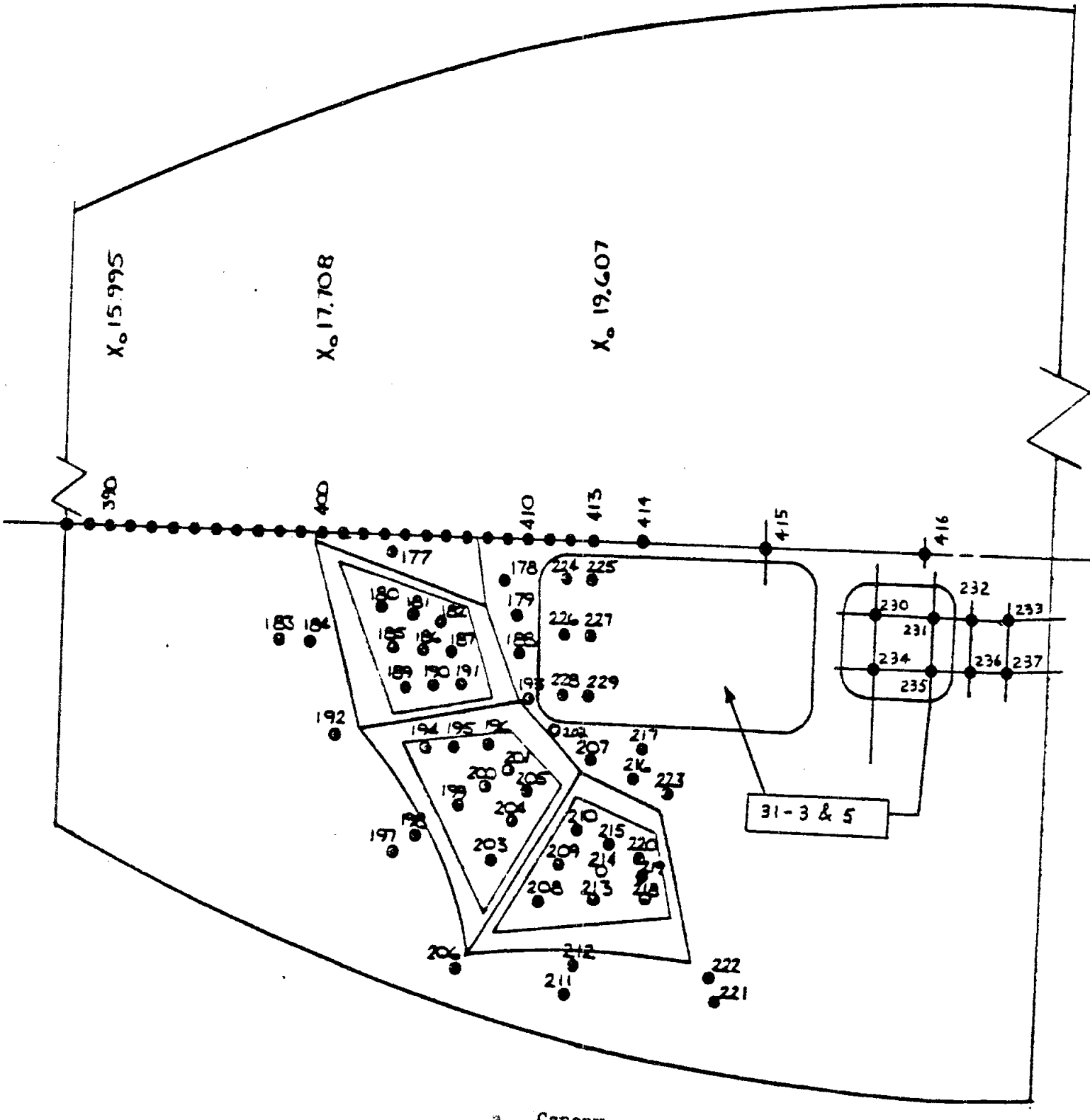


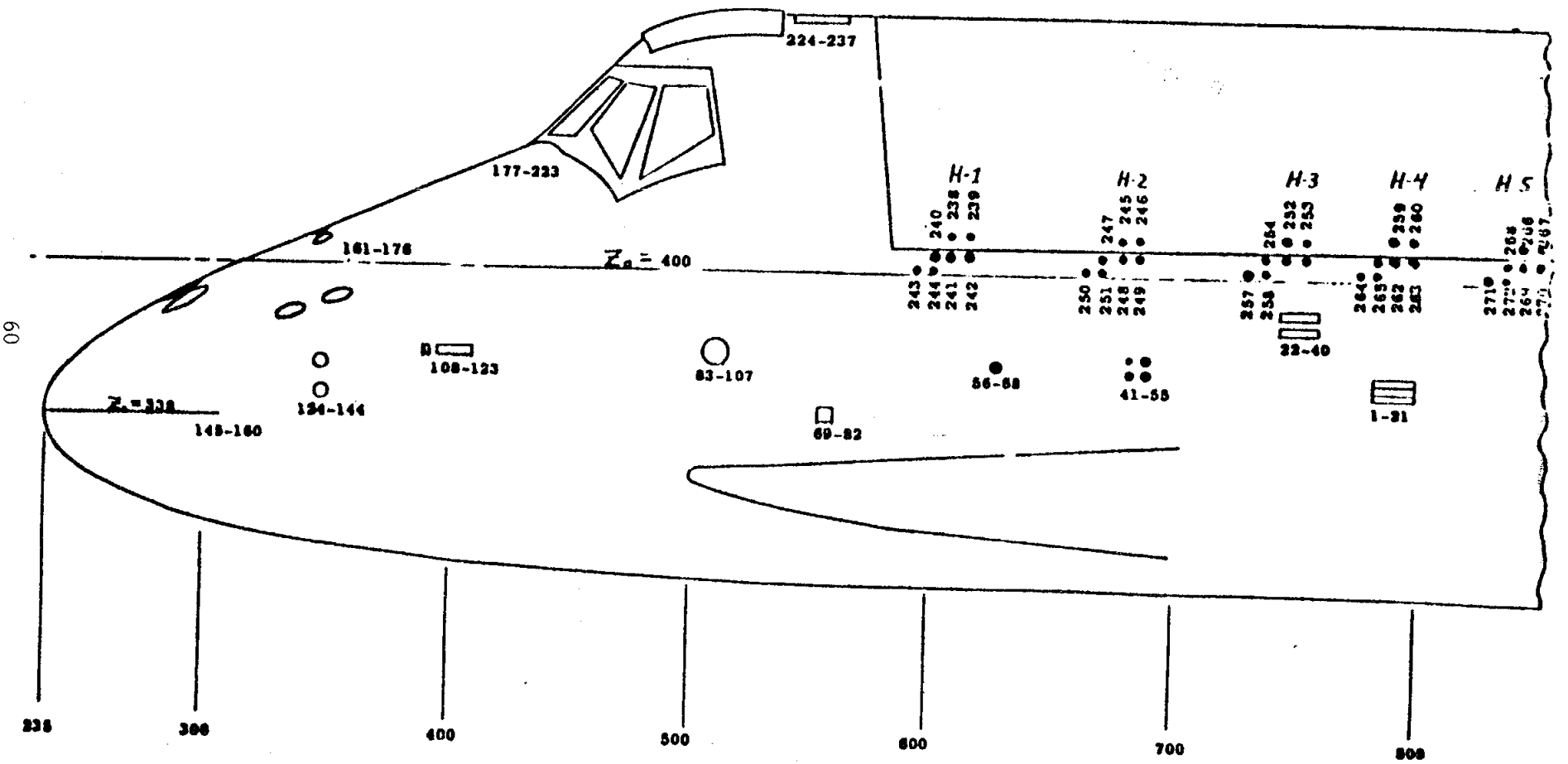
Fig. 4. Thermocouple Locations on 56-0 Model



a. Canopy

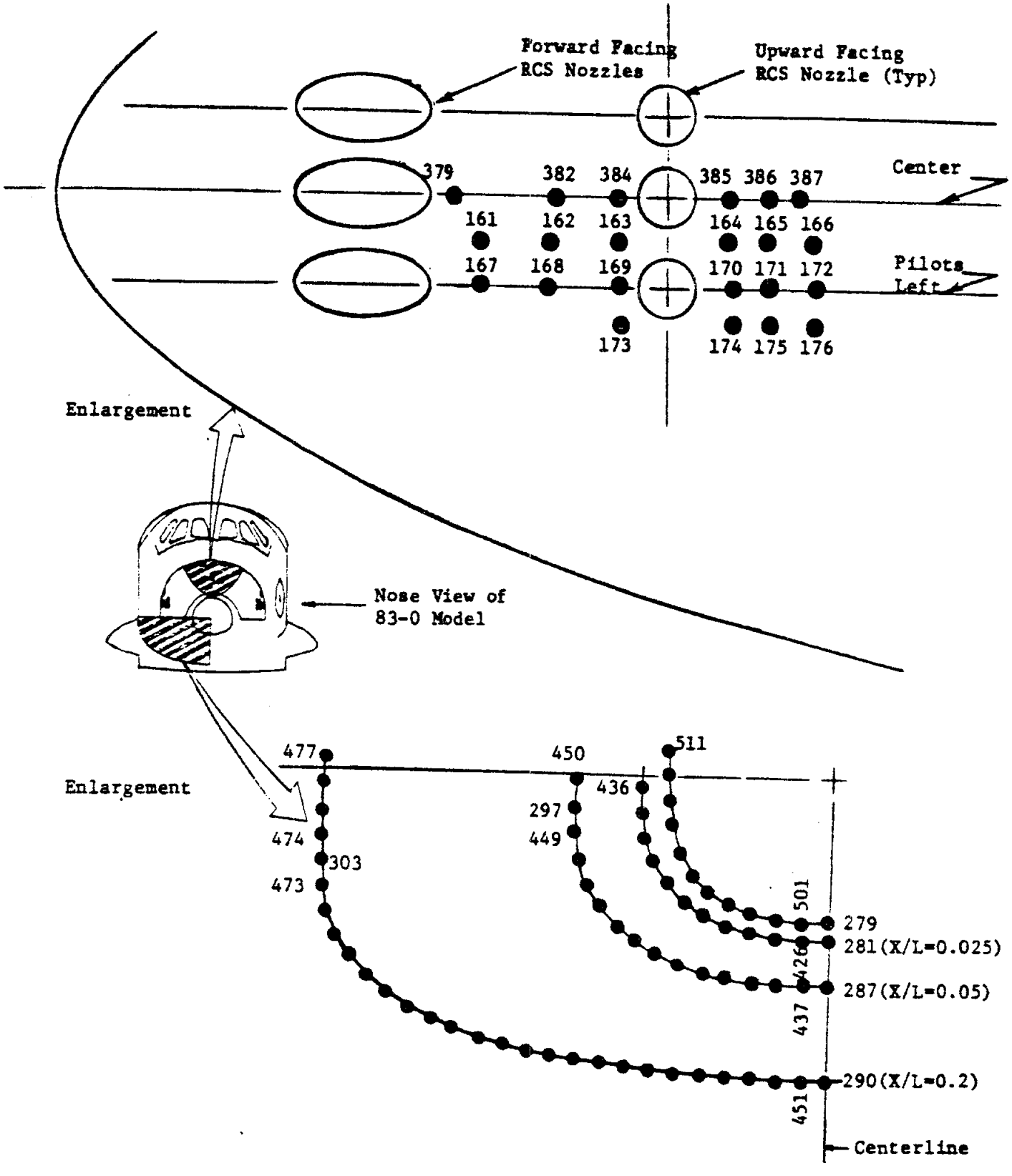
Fig. 5. Thermocouple Locations on 83-0 Model

MODEL 83-0
(Pilot Side)



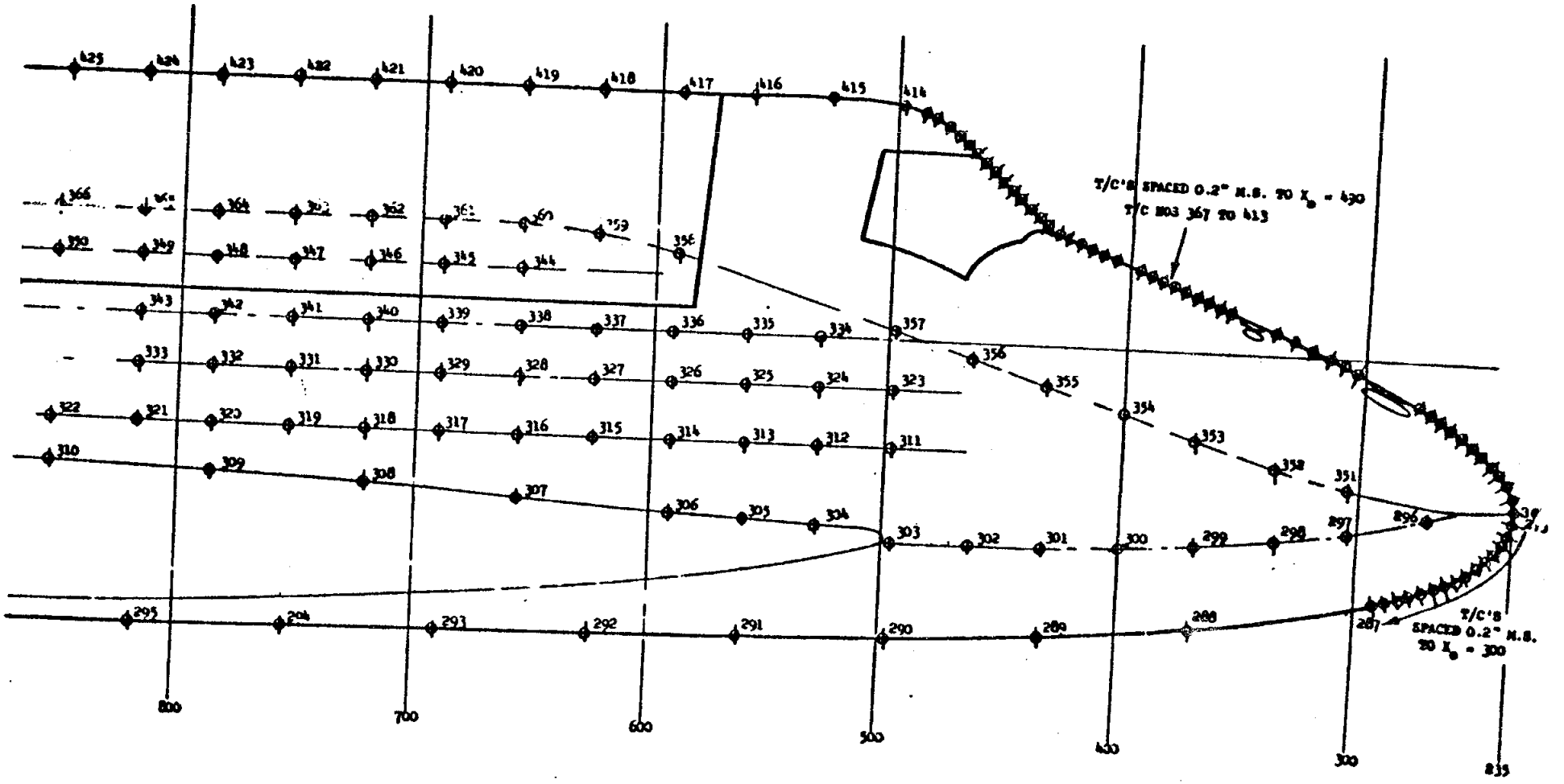
b. Pilot Side

Fig. 5. Continued



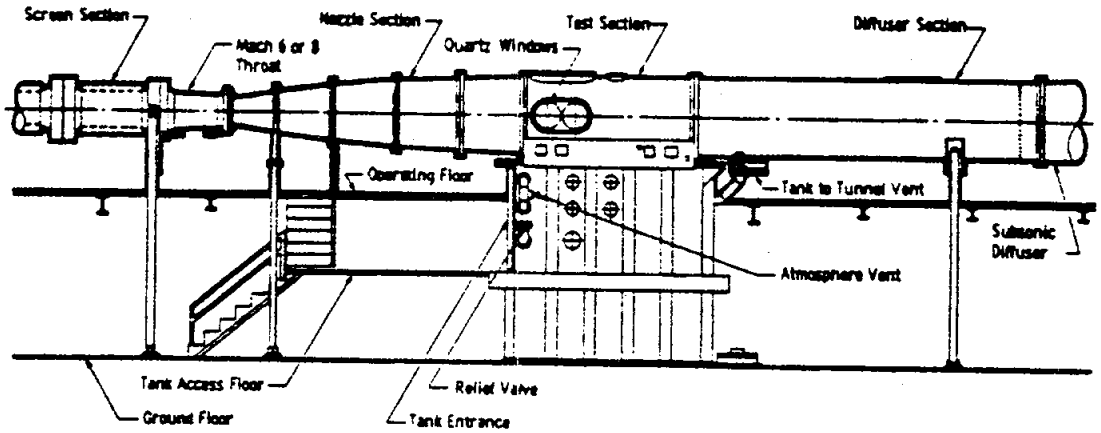
c. Upper RCS Nozzles and Lower Fuselage

Figure 5 (Continued)

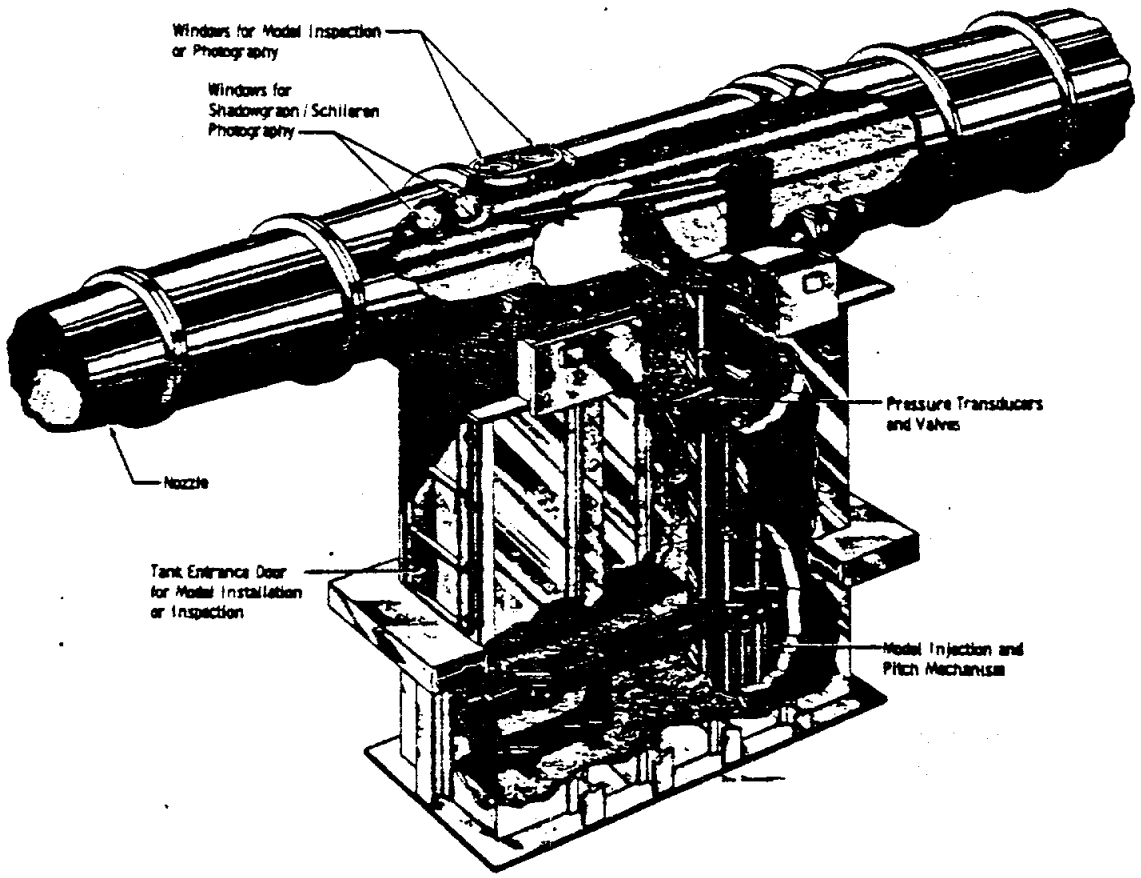


d. Copilot Side

Figure 5 (Concluded)

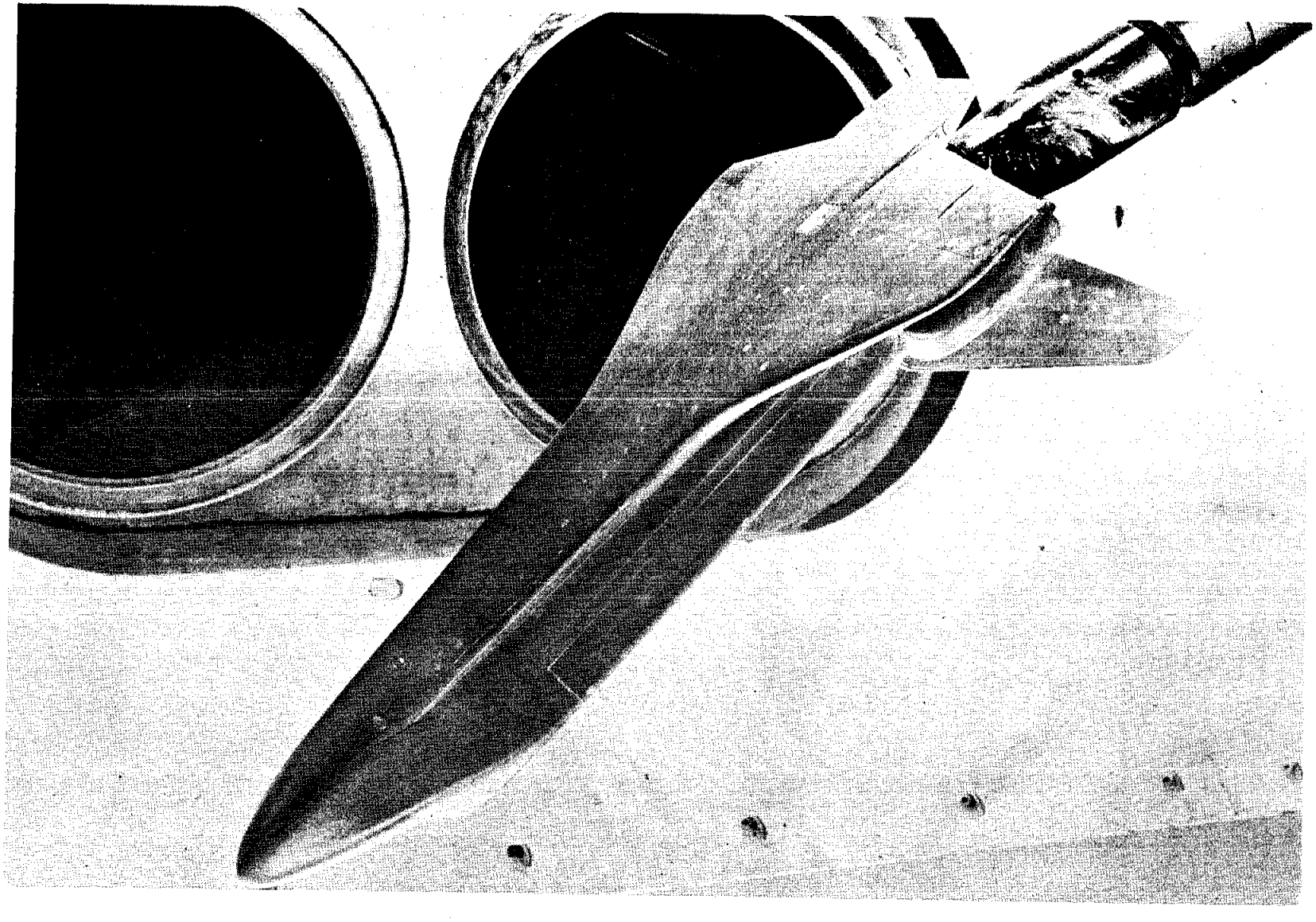


a. Tunnel assembly



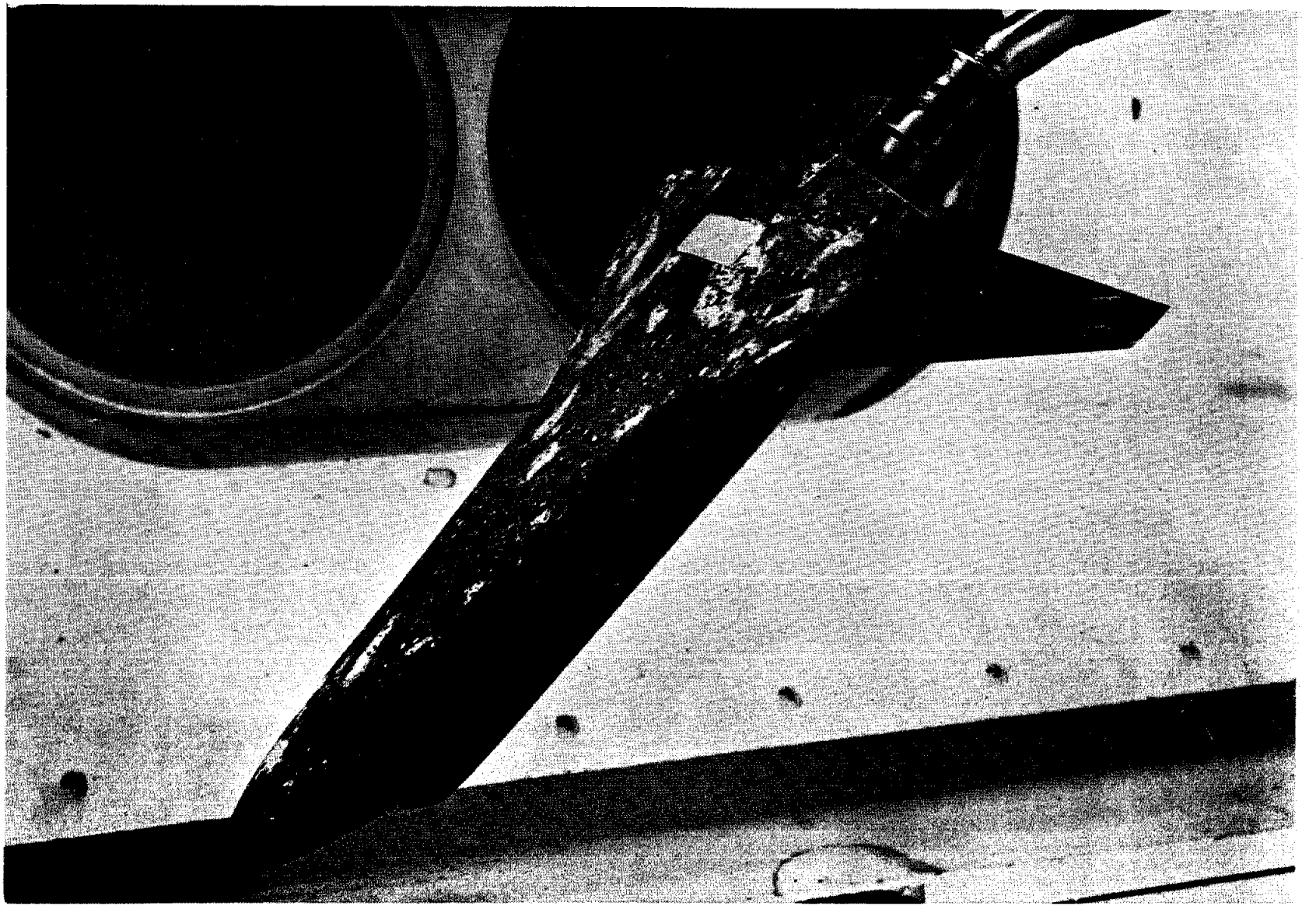
b. Tunnel test section

Fig. 6. Tunnel B



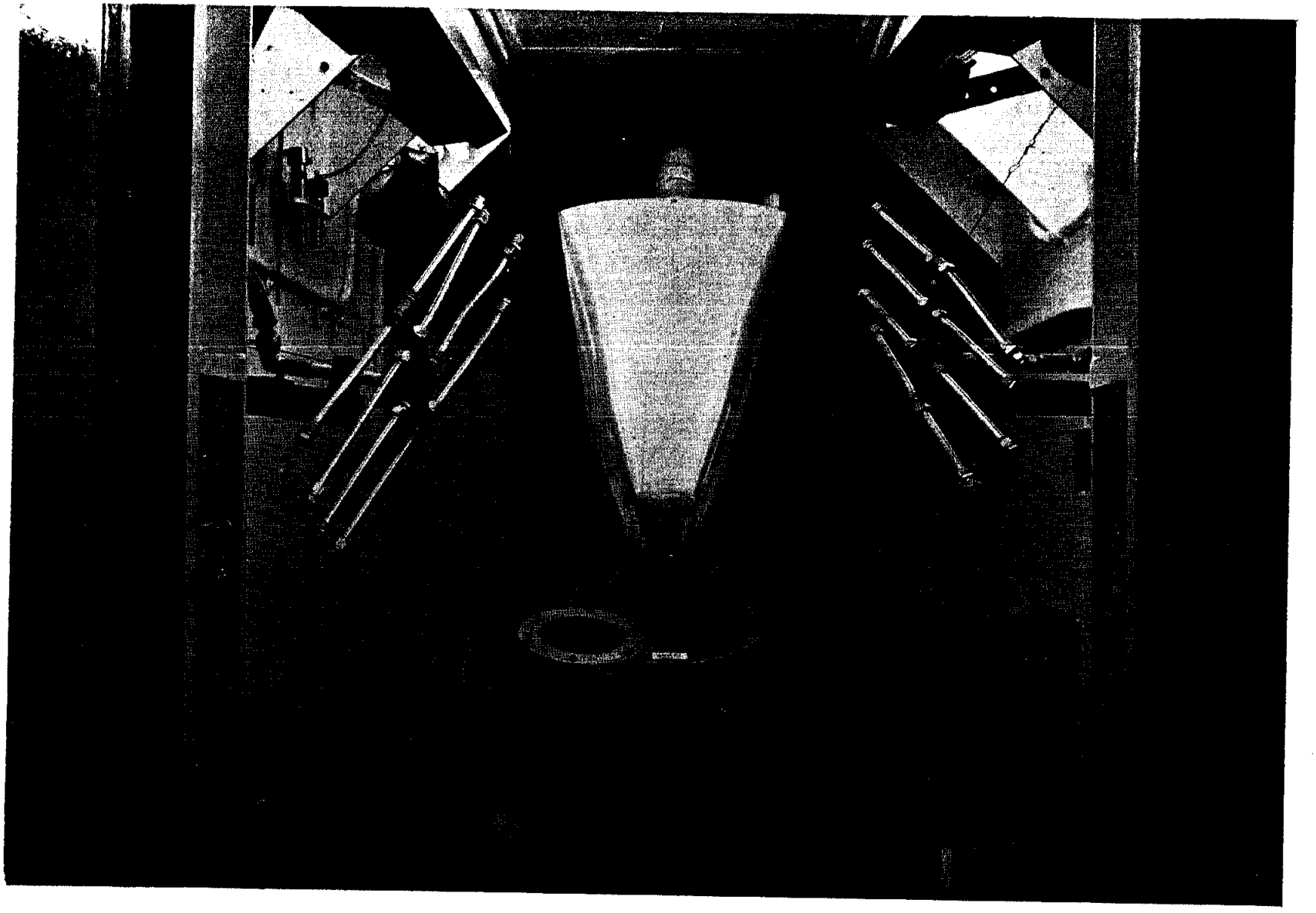
a. Installation Photograph of 60-Ø Model

Figure 7. Model Photographs



b. Installation Photograph of 56-Ø Model

Figure 7. (Continued)



c. Installation Photograph of 83-Ø Model

Figure 7. (Concluded)

Sample Plotted Data

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(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.835	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPOBRK	.000
RN/L	.500		

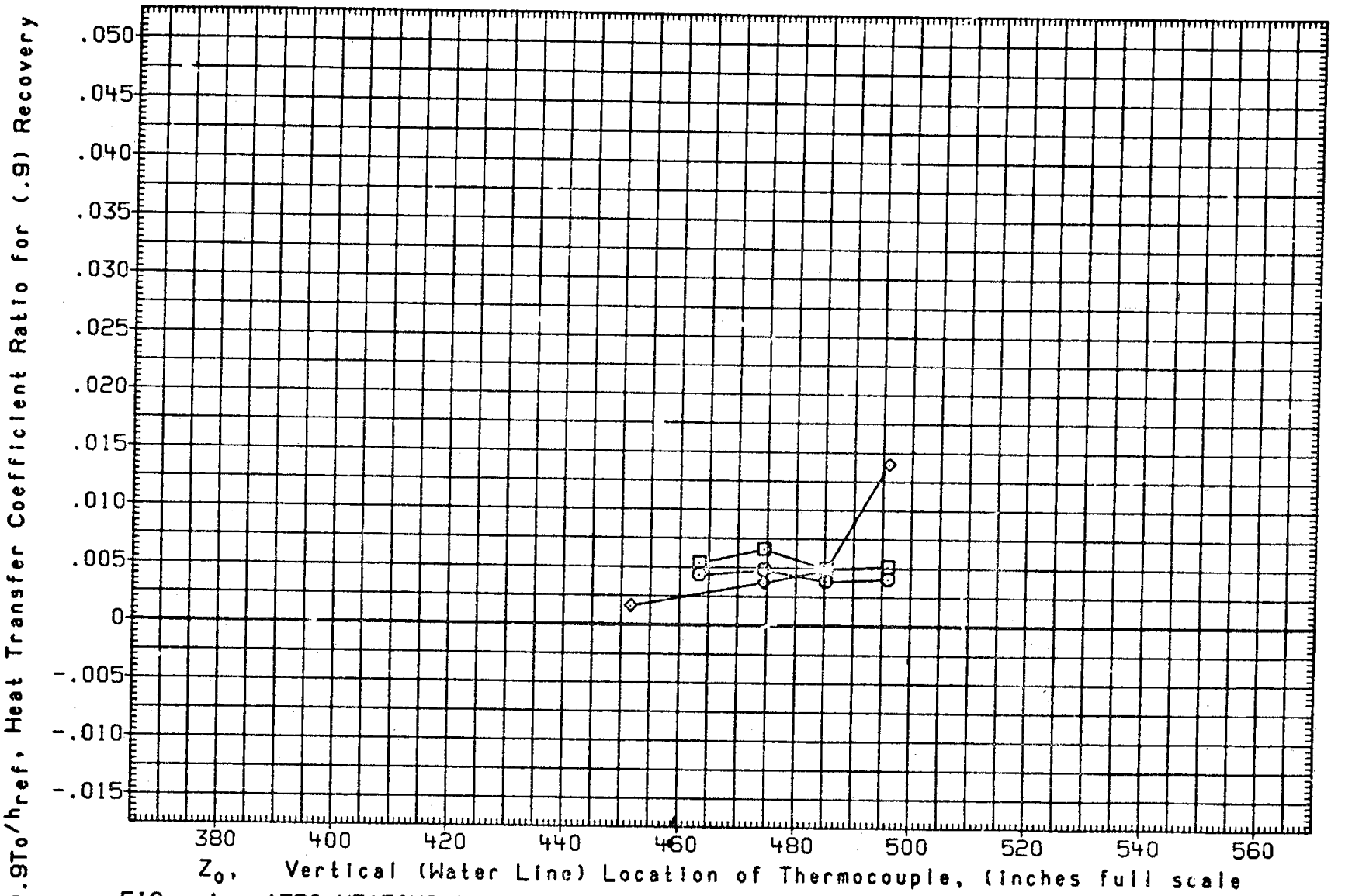


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.835	.900
□	-.995		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

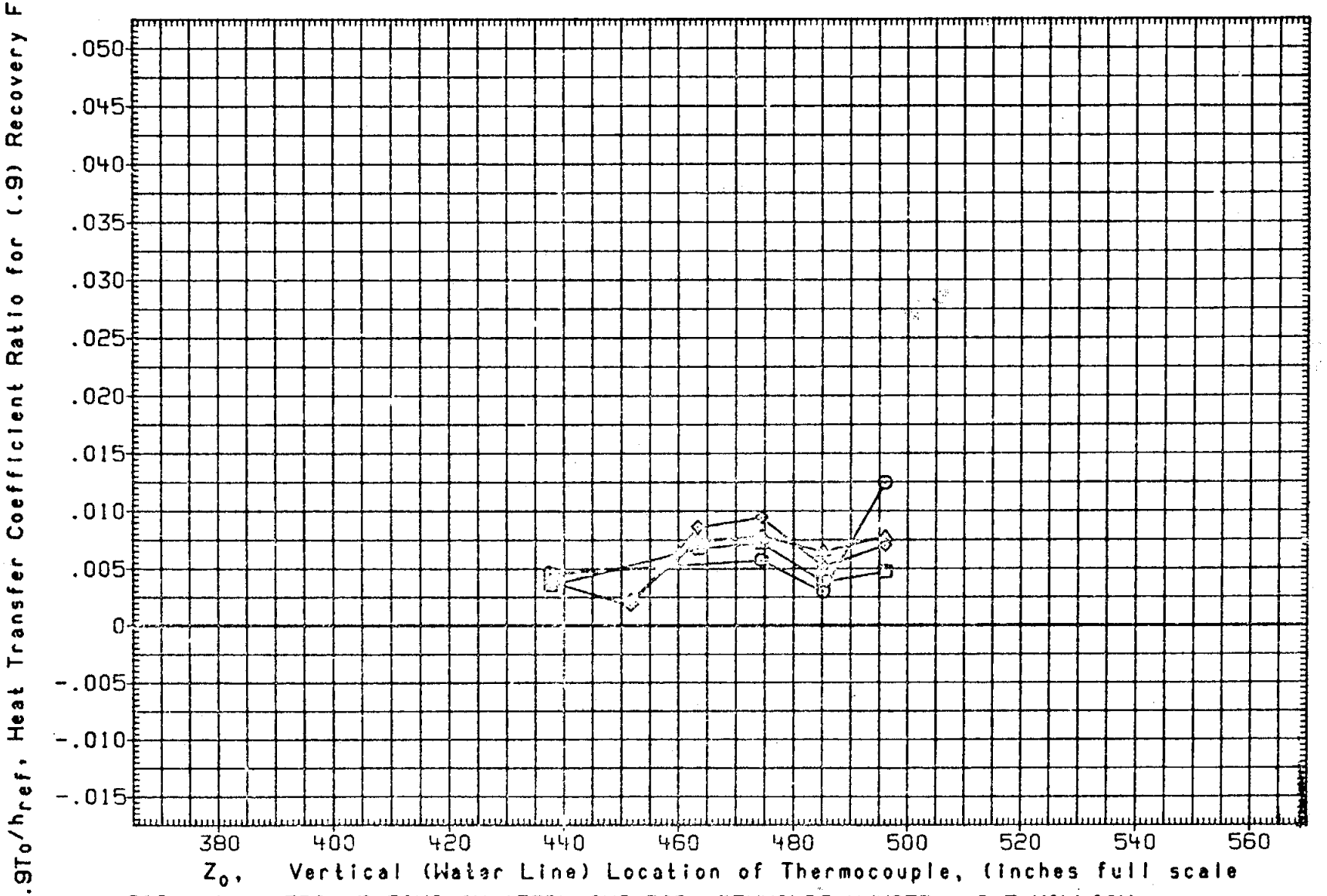


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.843	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

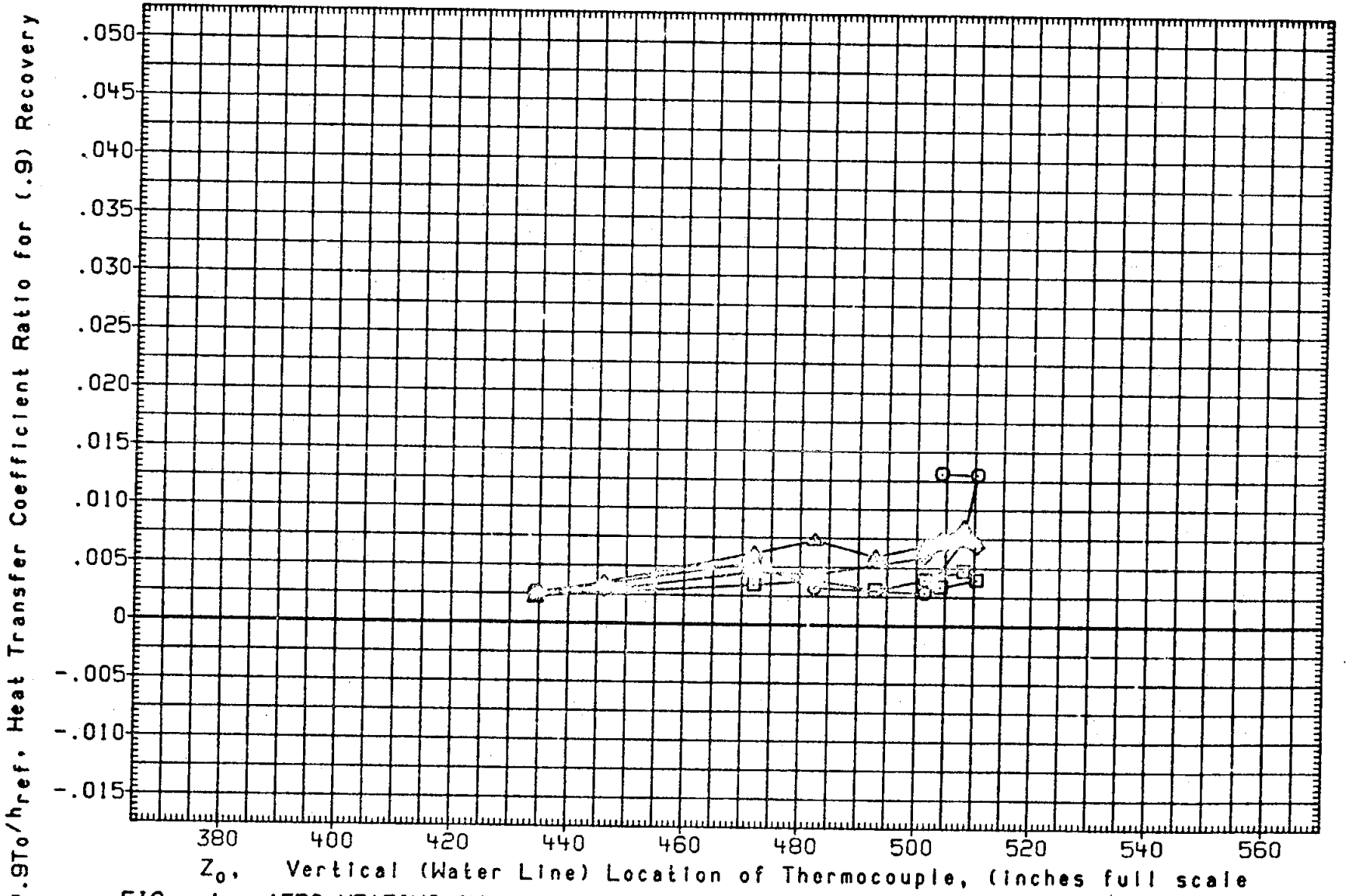


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.843	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

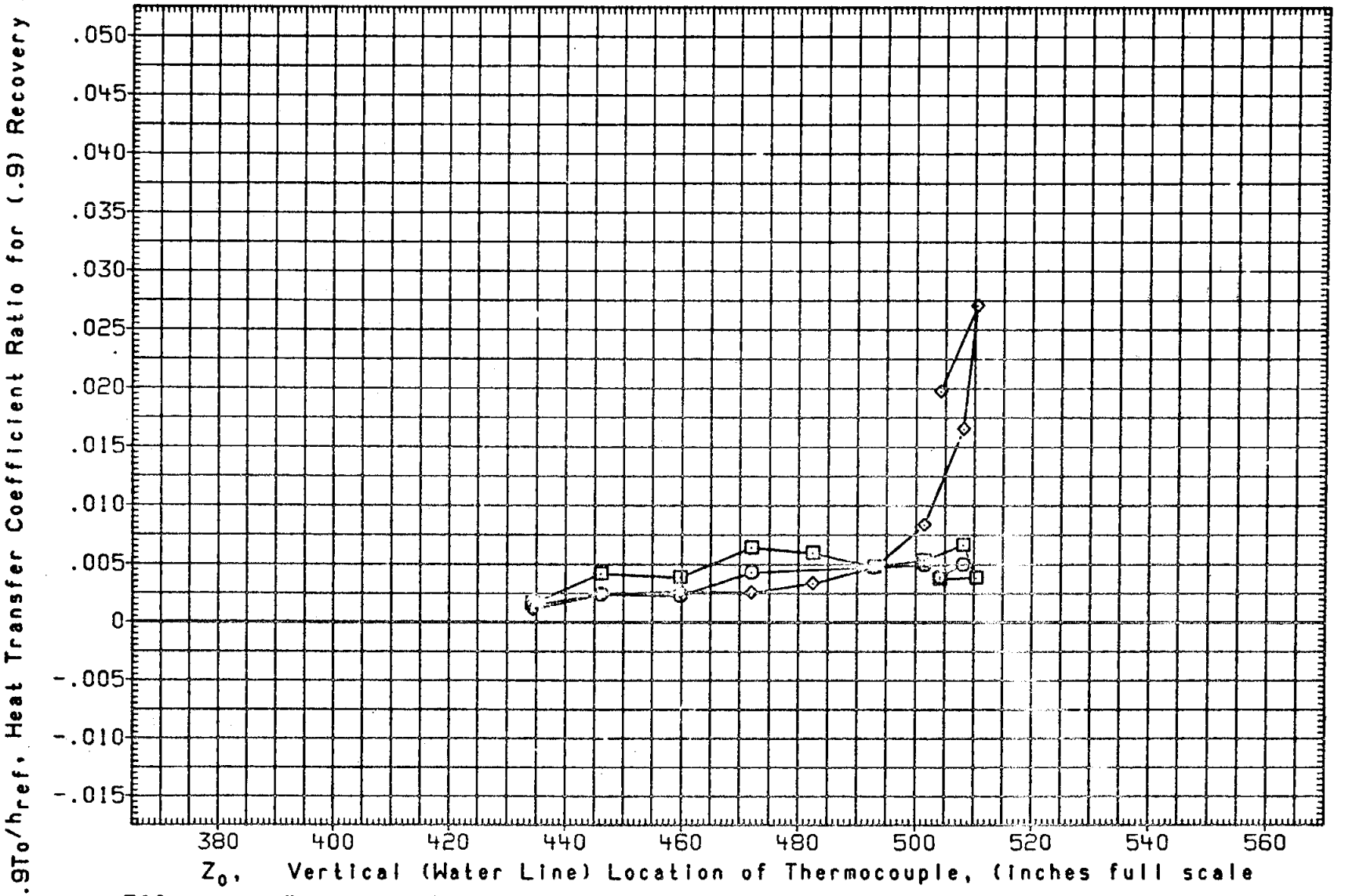


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.854	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

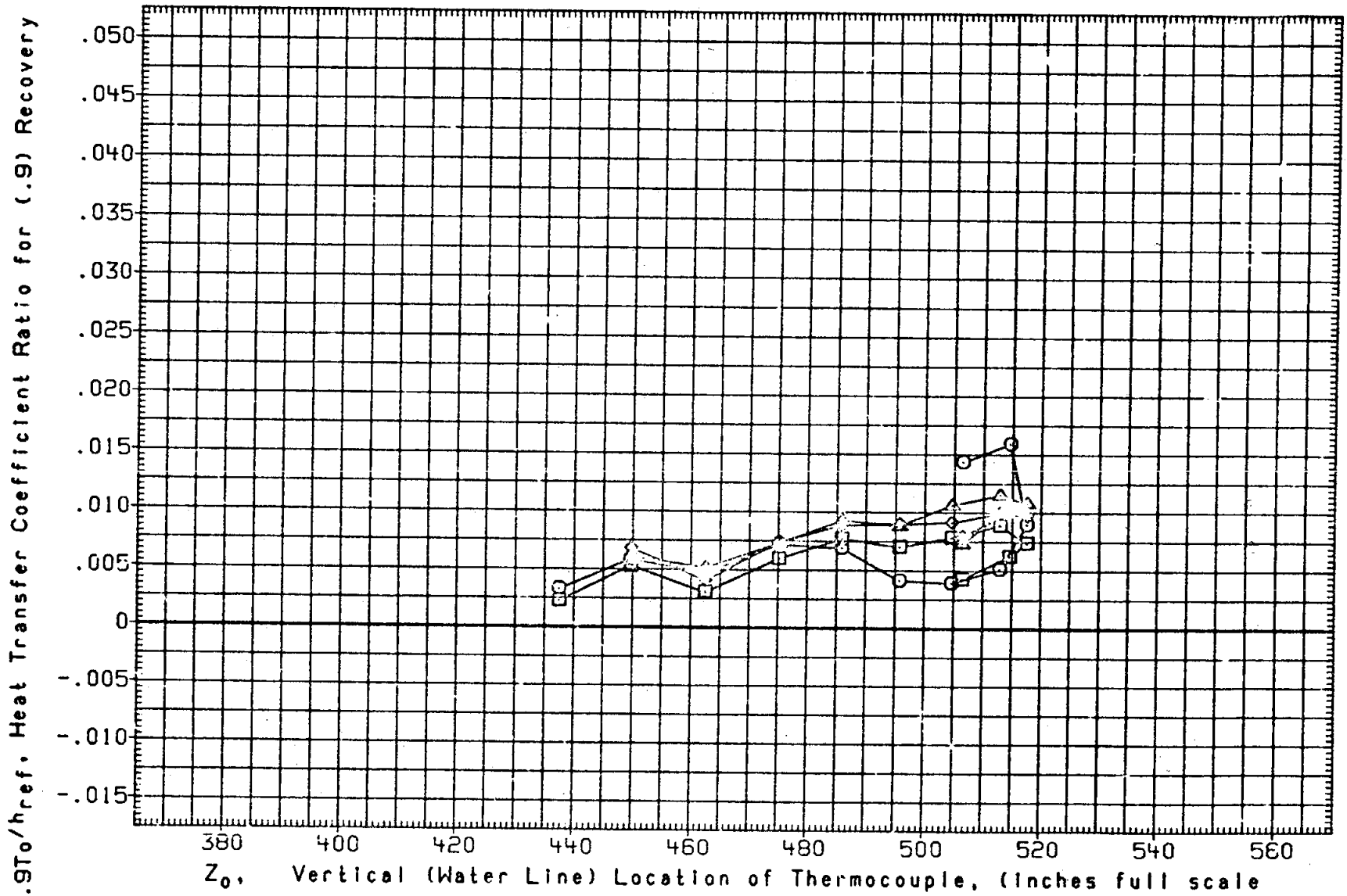


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.854	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPOBRK	.000
RN/L	.500		

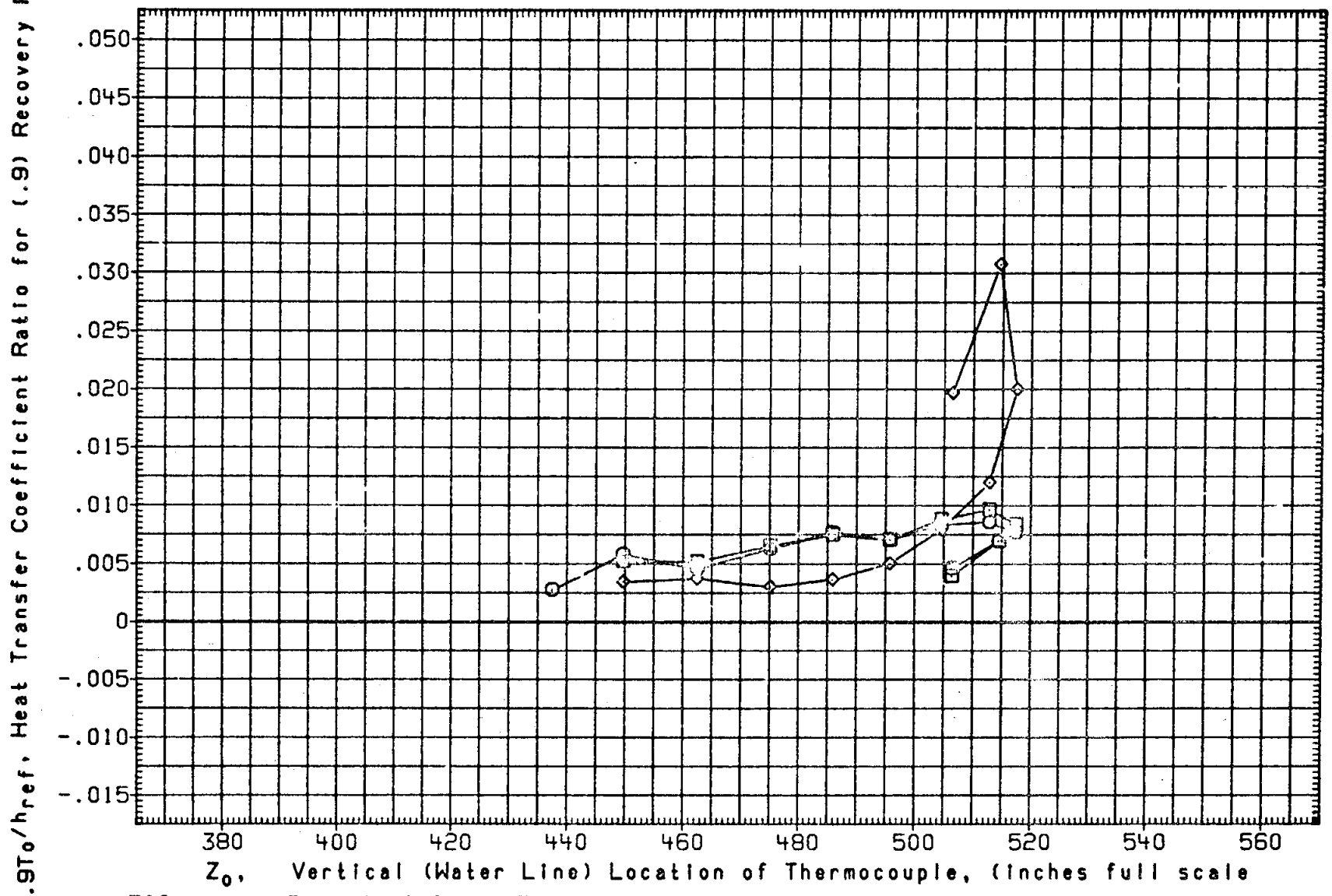


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.862	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

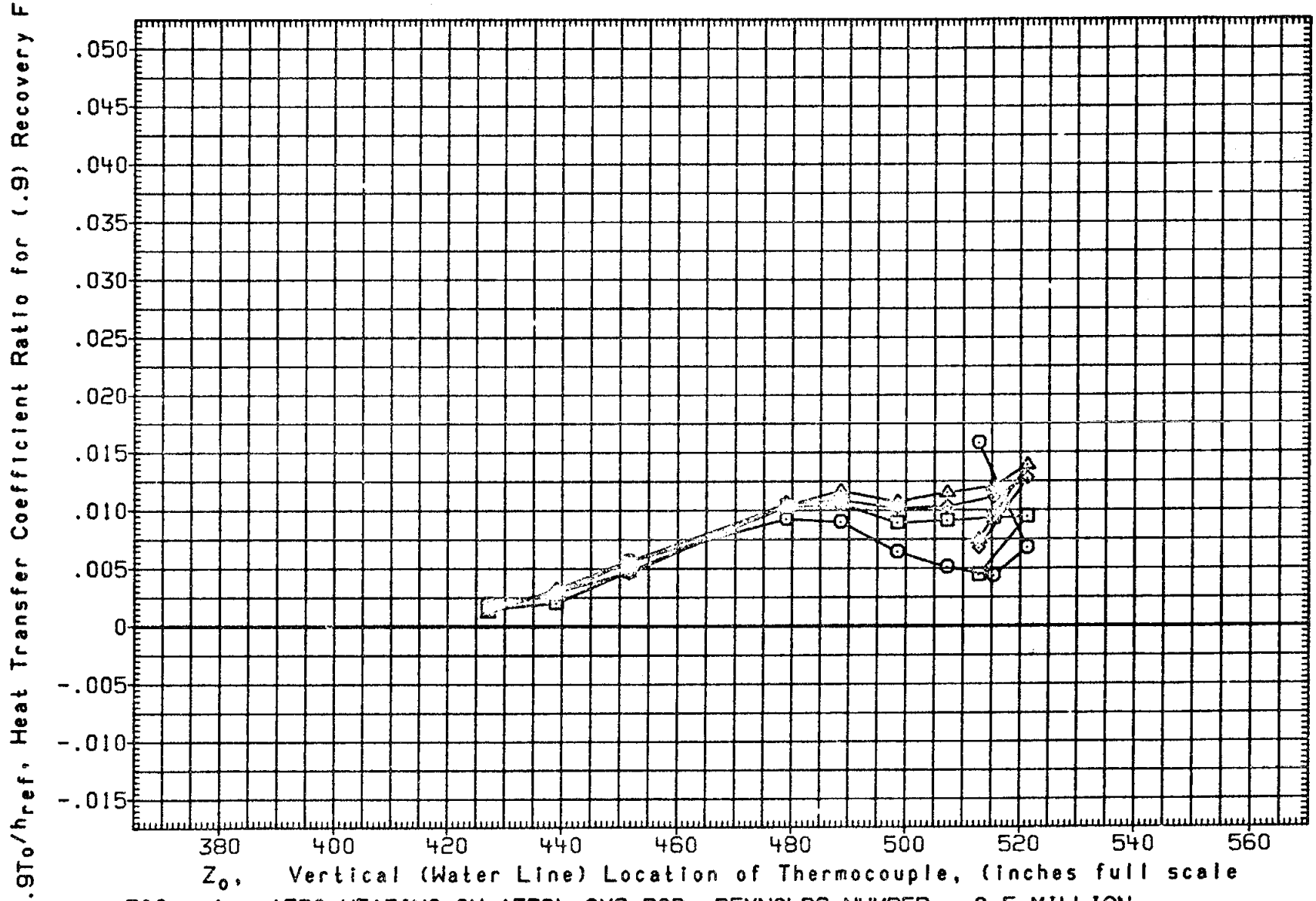


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.862	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

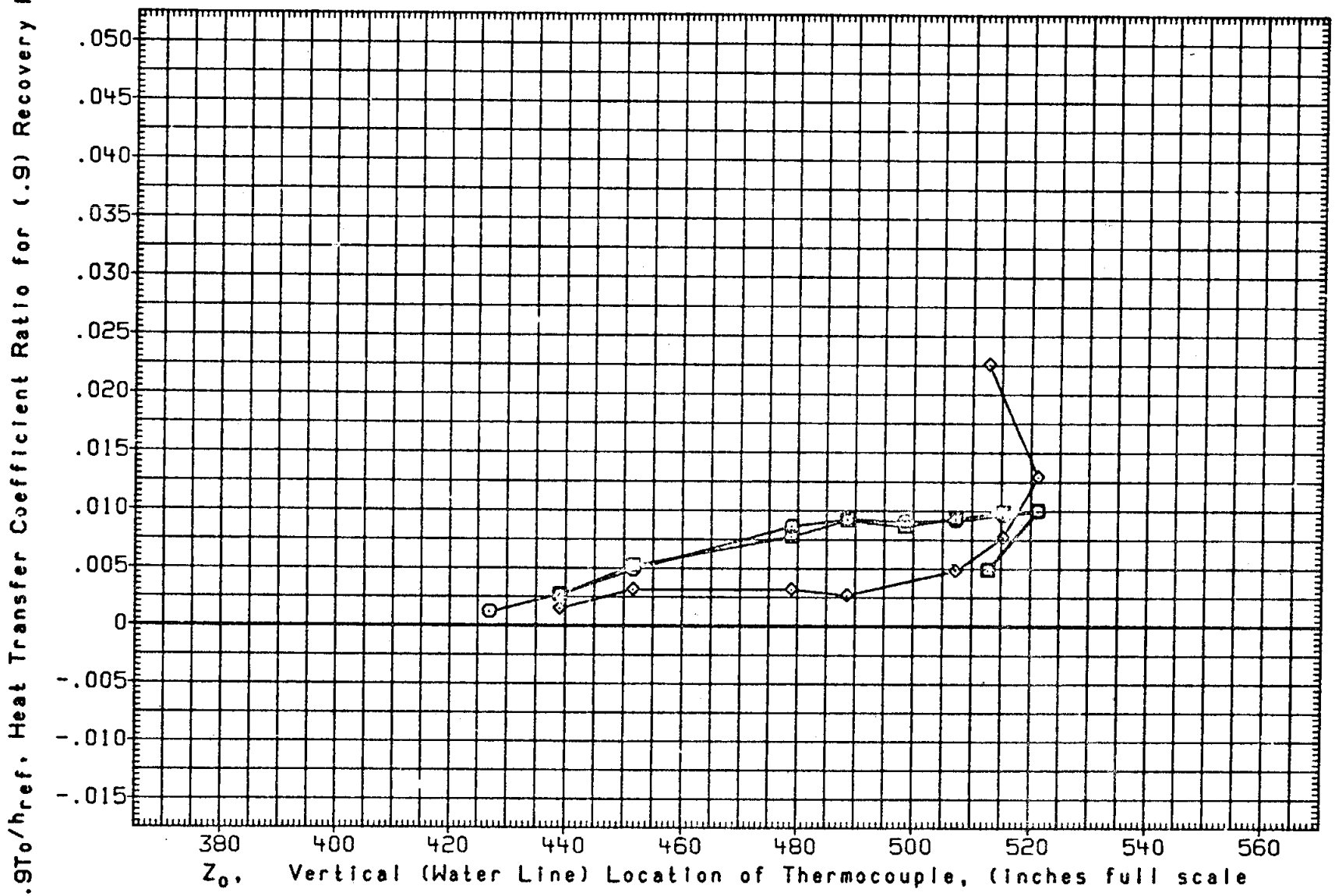


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.872	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

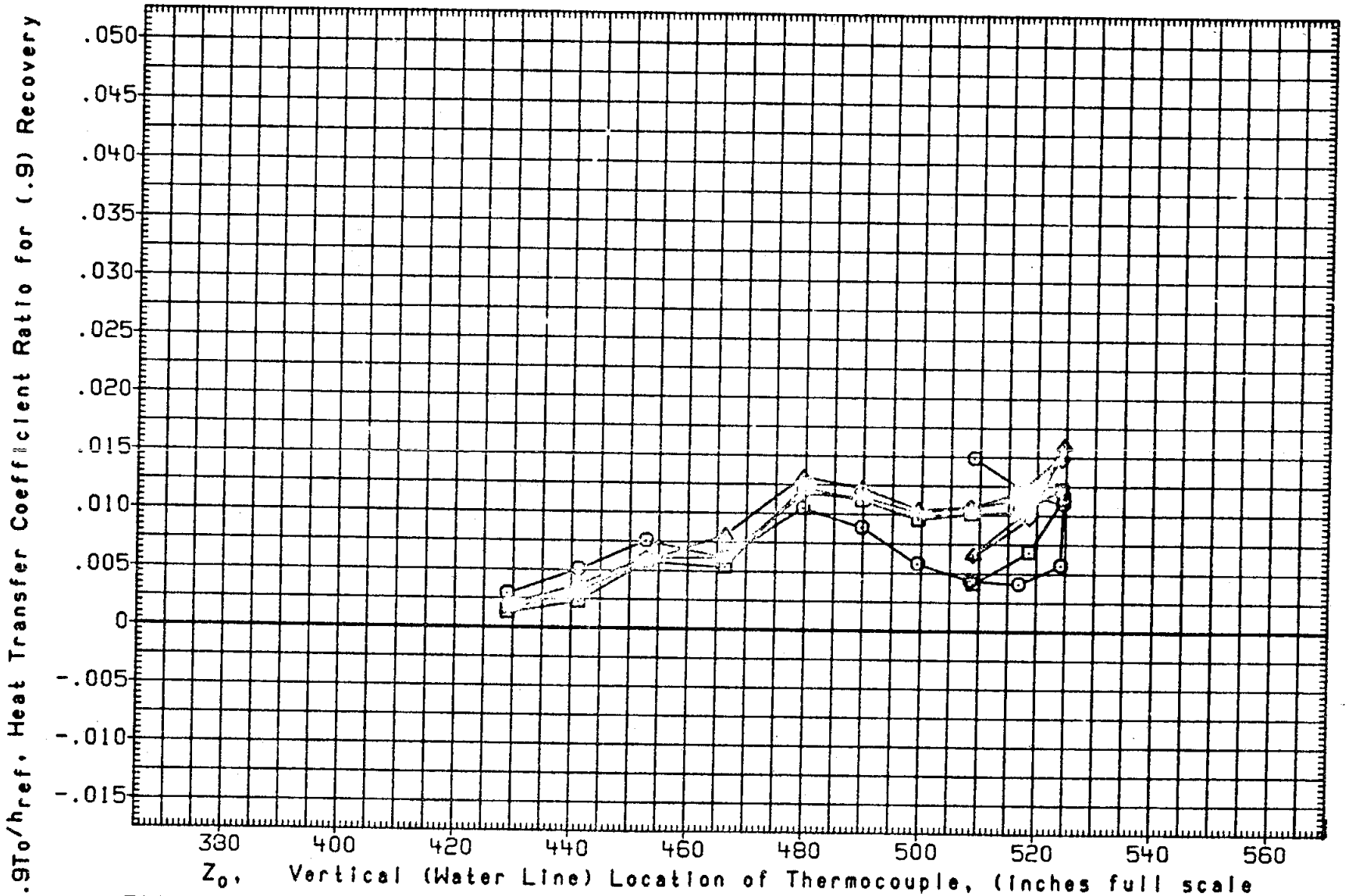


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.872	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

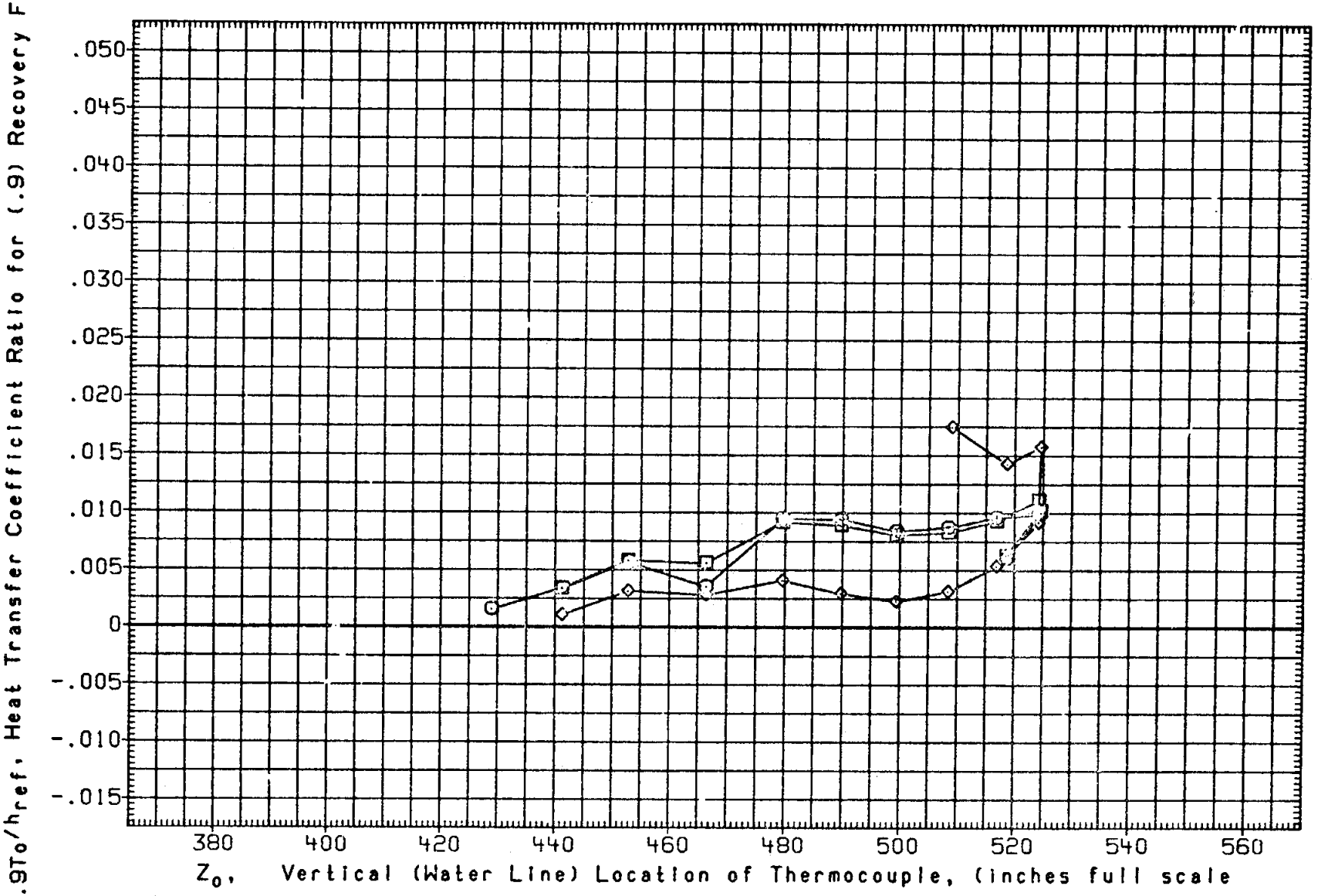


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.881	.900
□	-.395		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

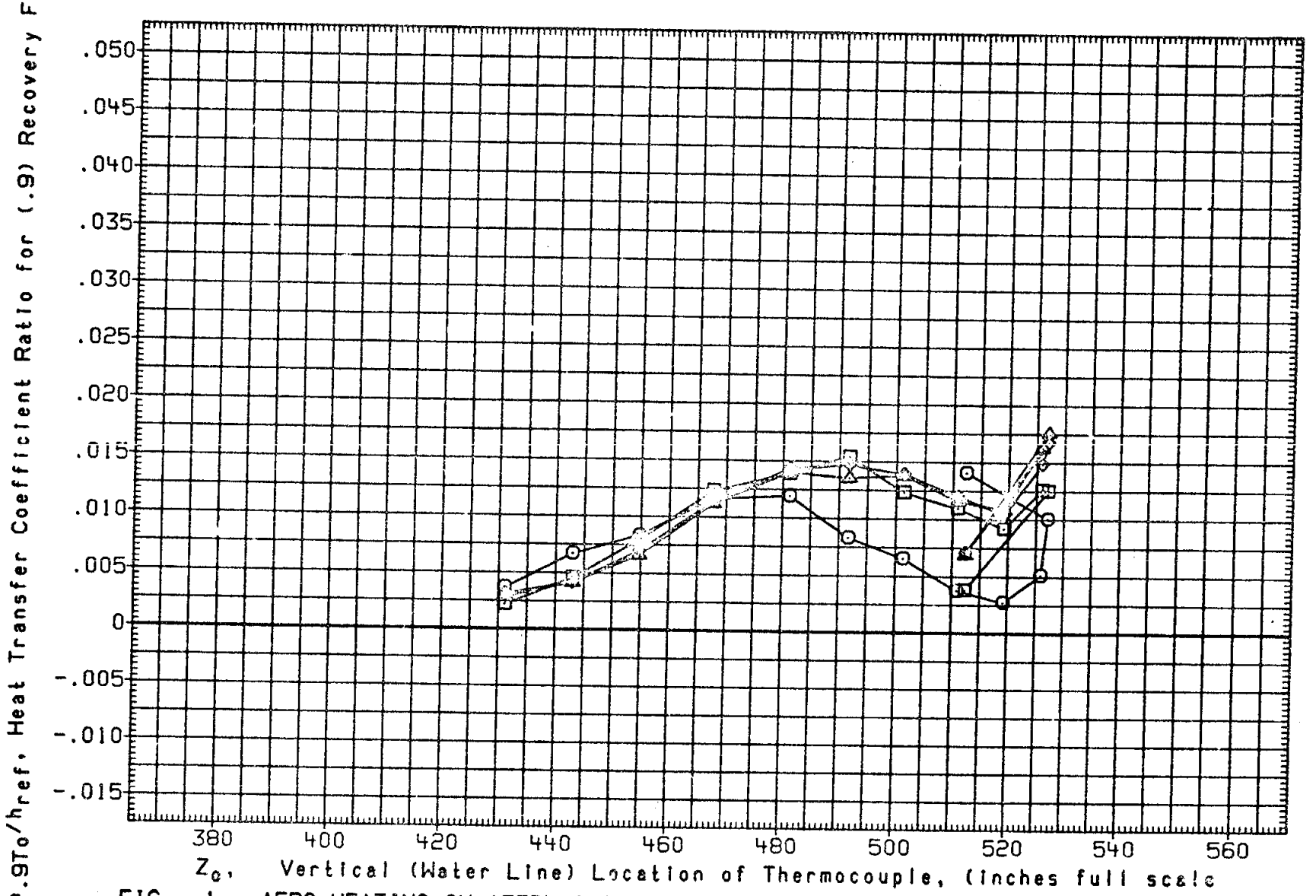


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.881	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

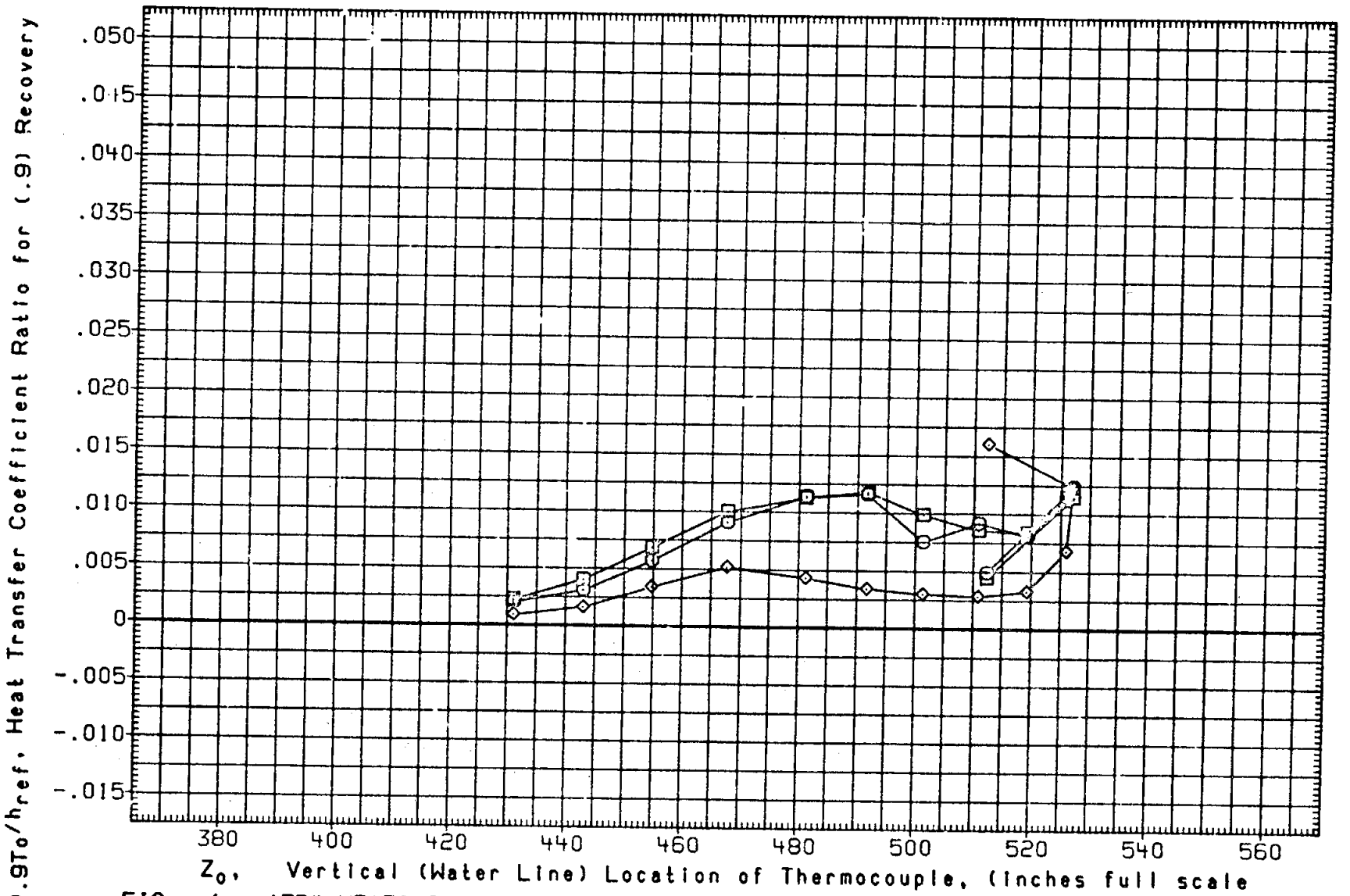


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.889	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPOBRK	.000
RN/L	.500		

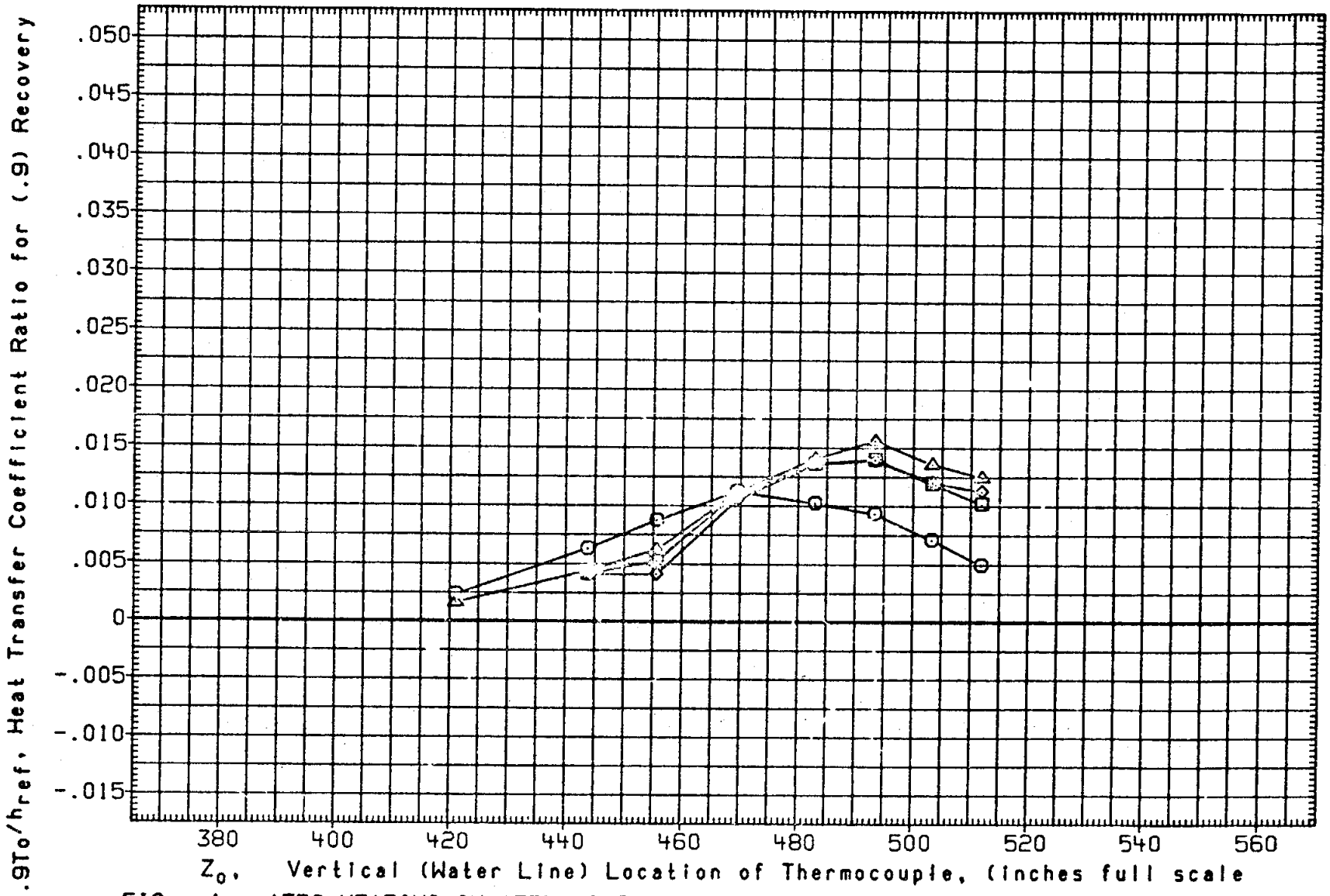


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.889	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

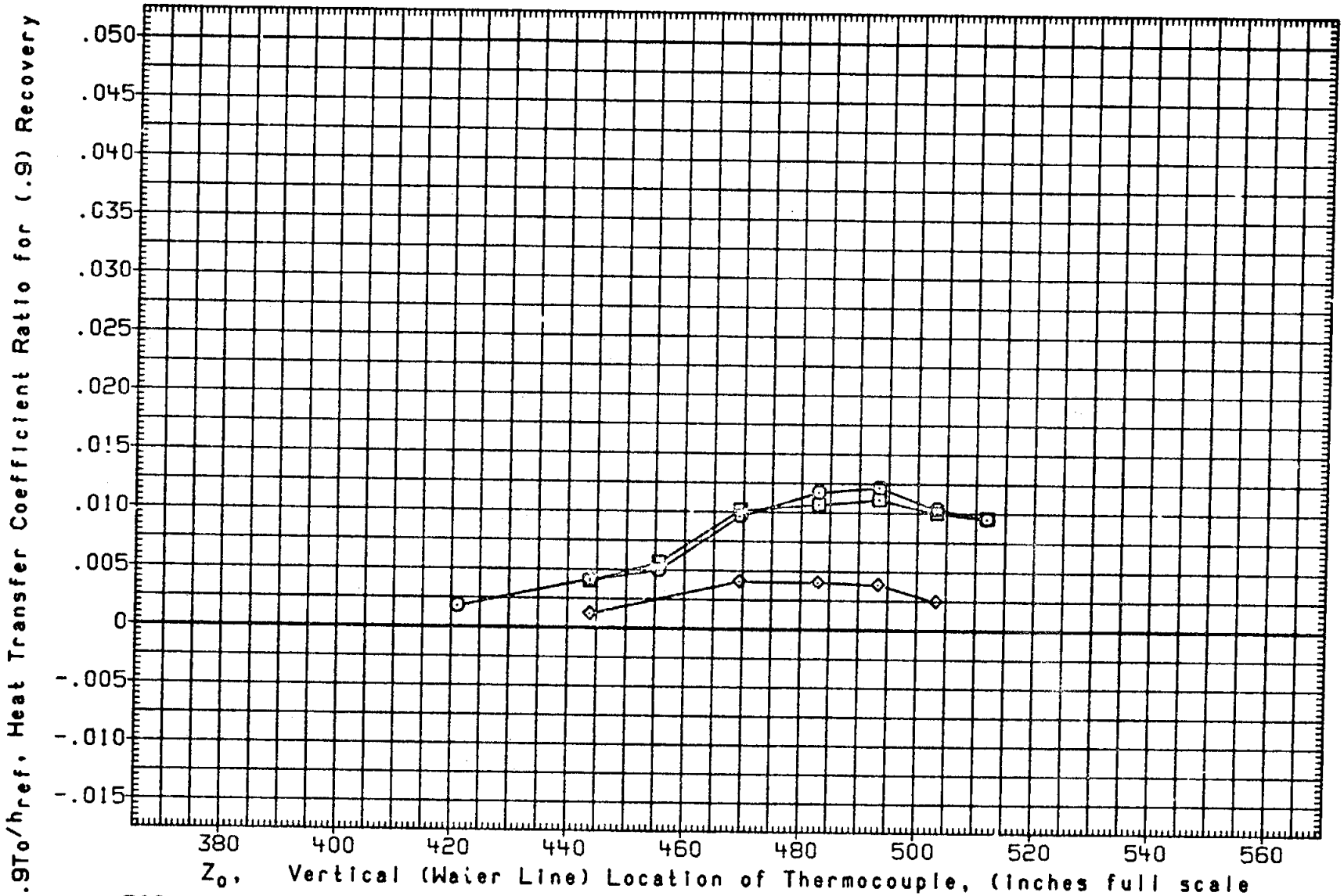


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.898	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

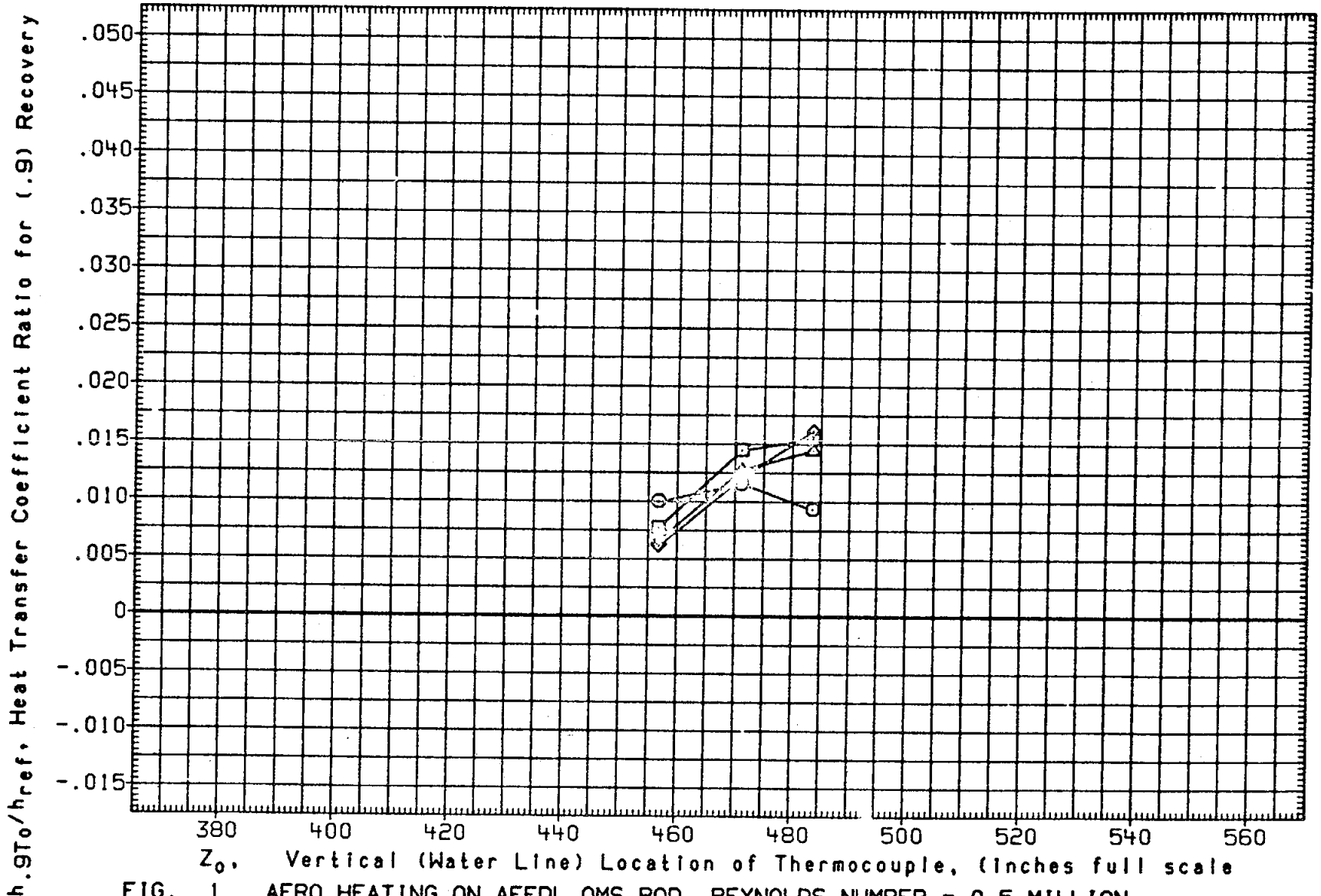


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.898	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

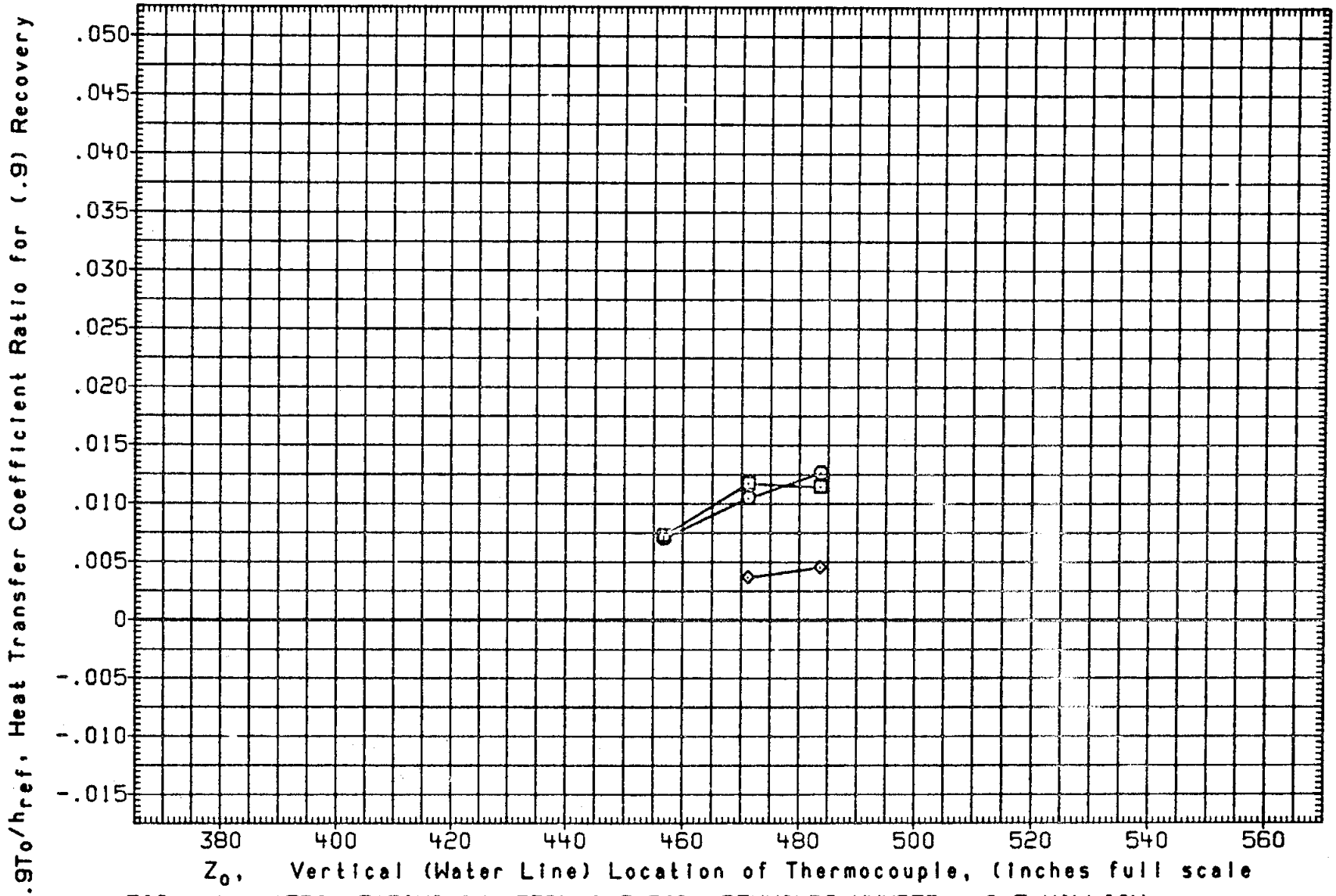


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.907	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

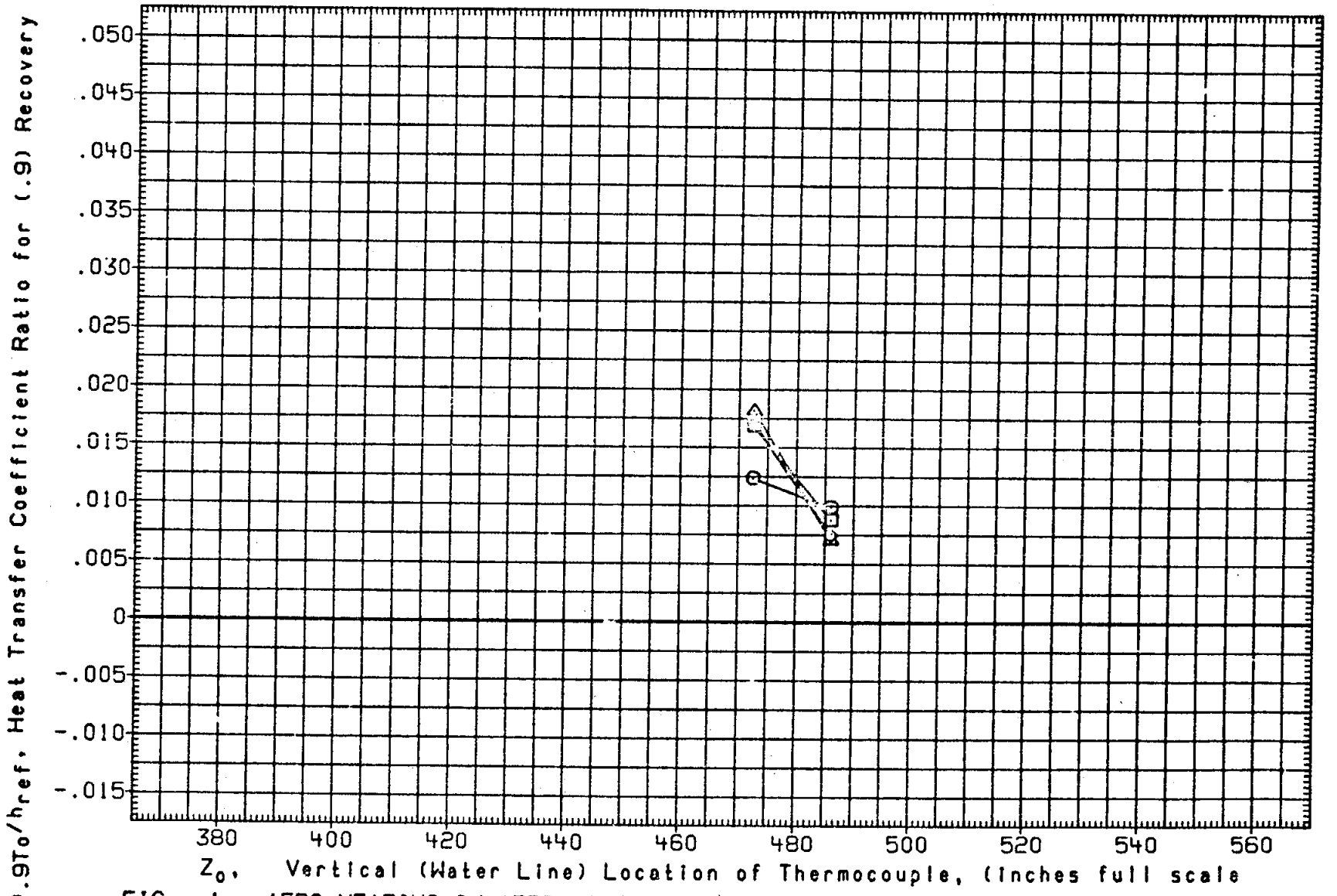


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.907	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

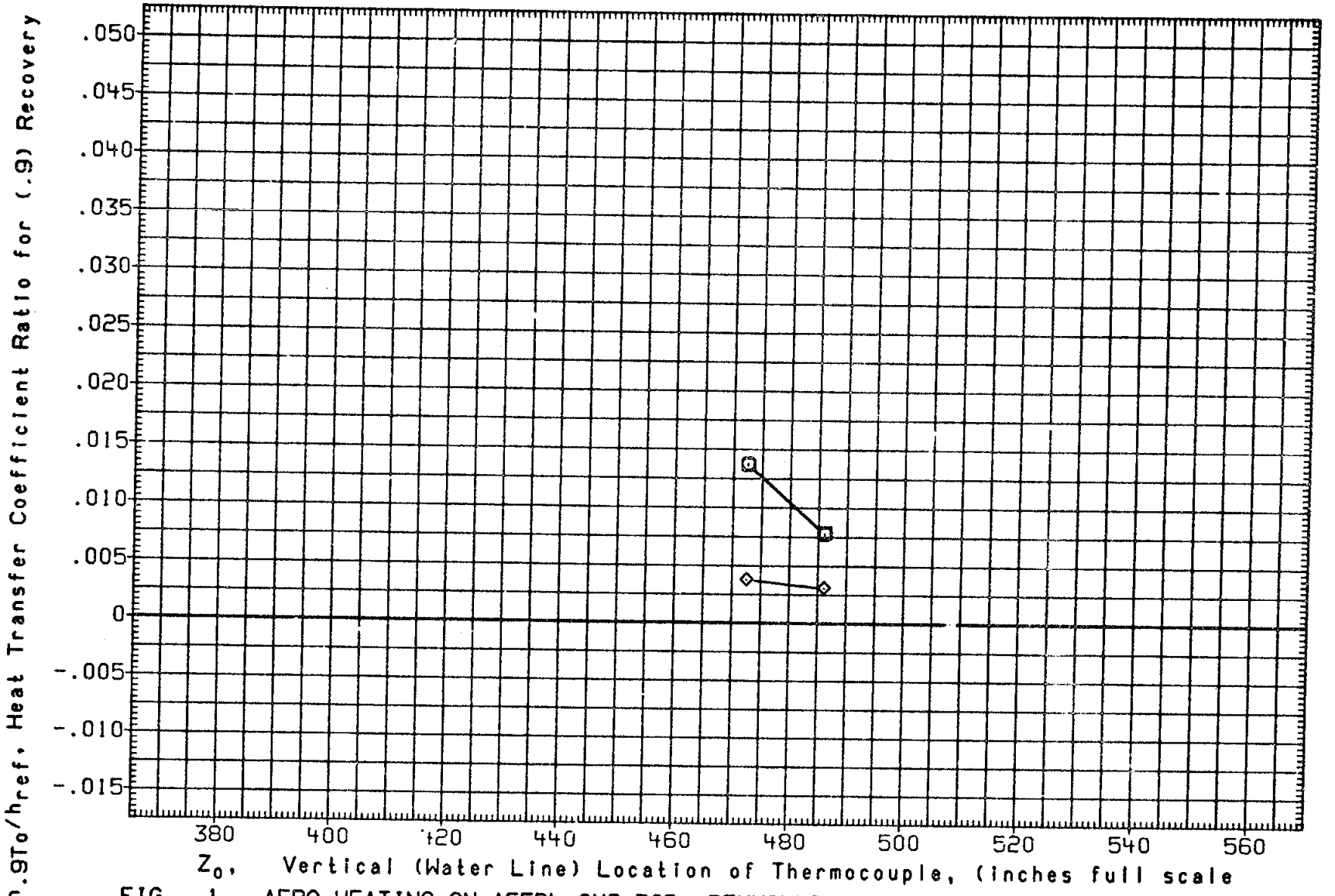


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.916	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

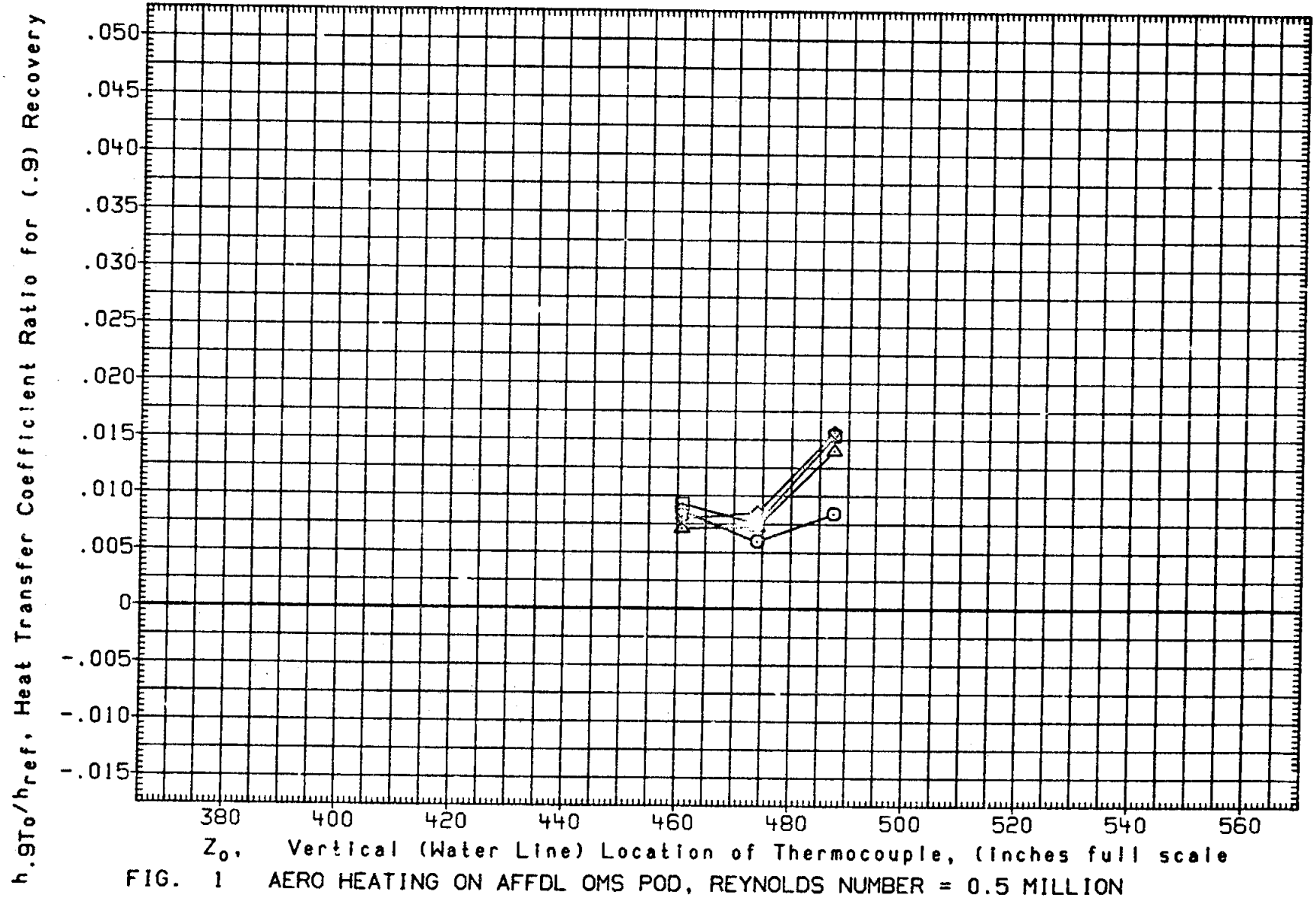


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.916	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

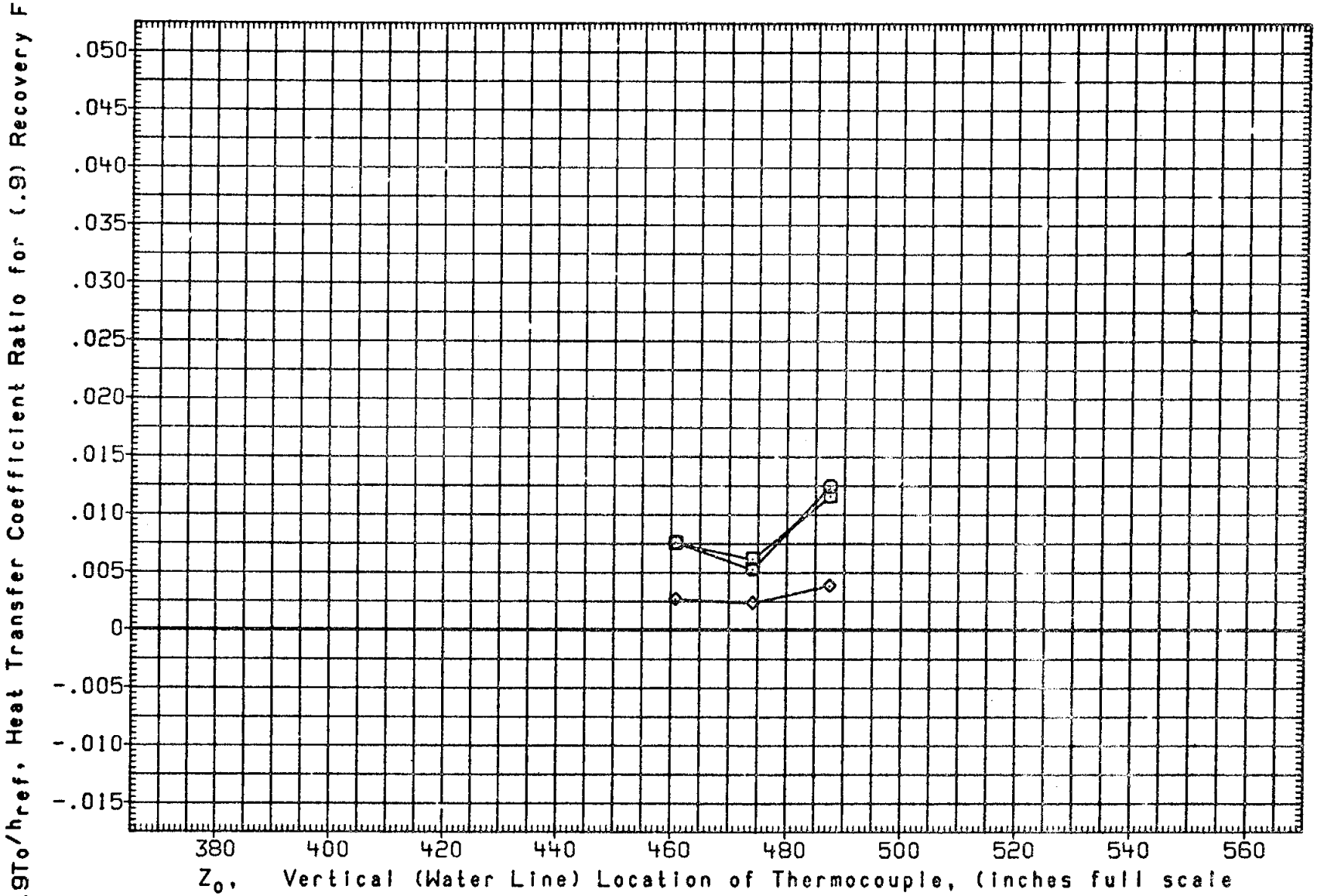


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.926	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

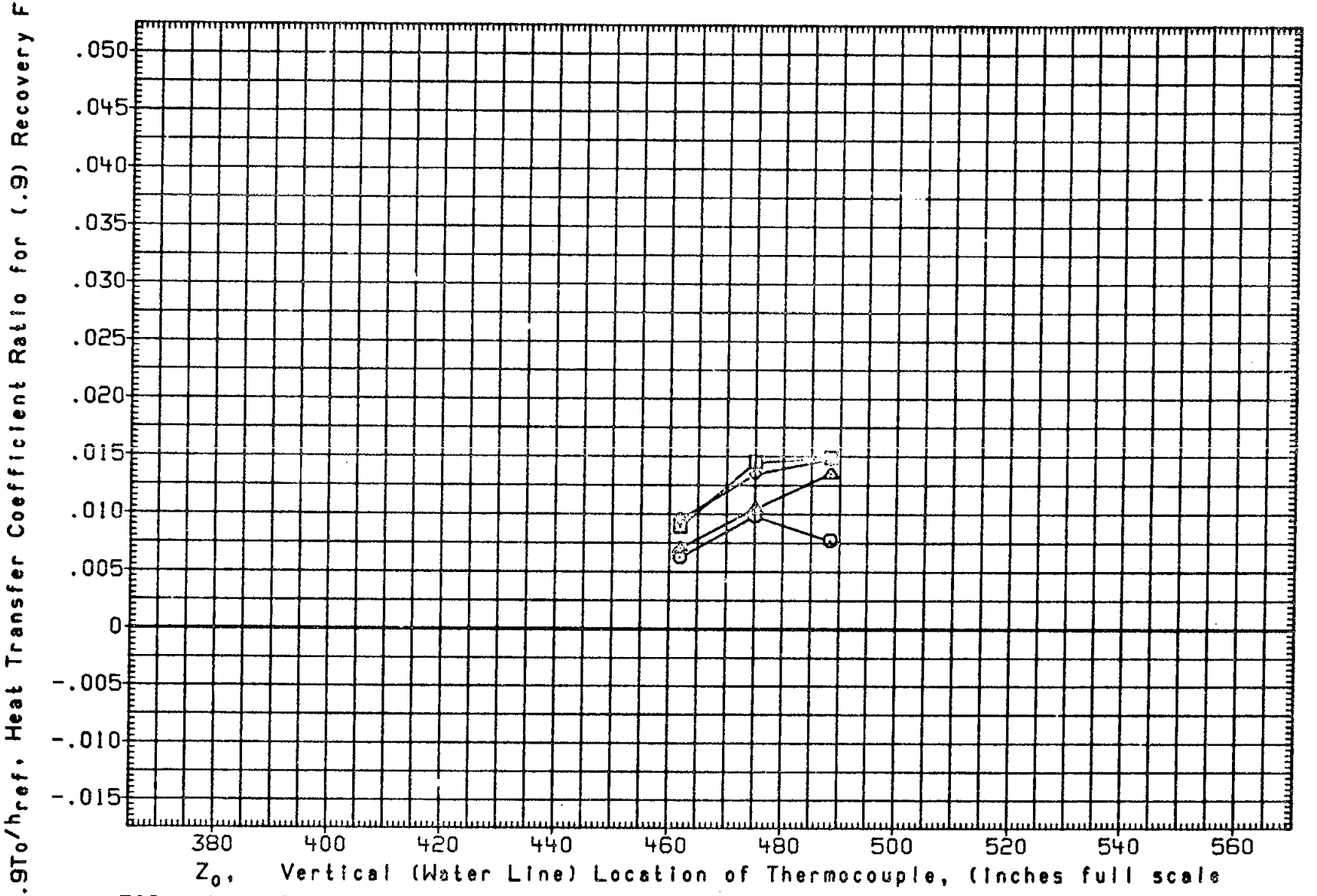


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.926	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

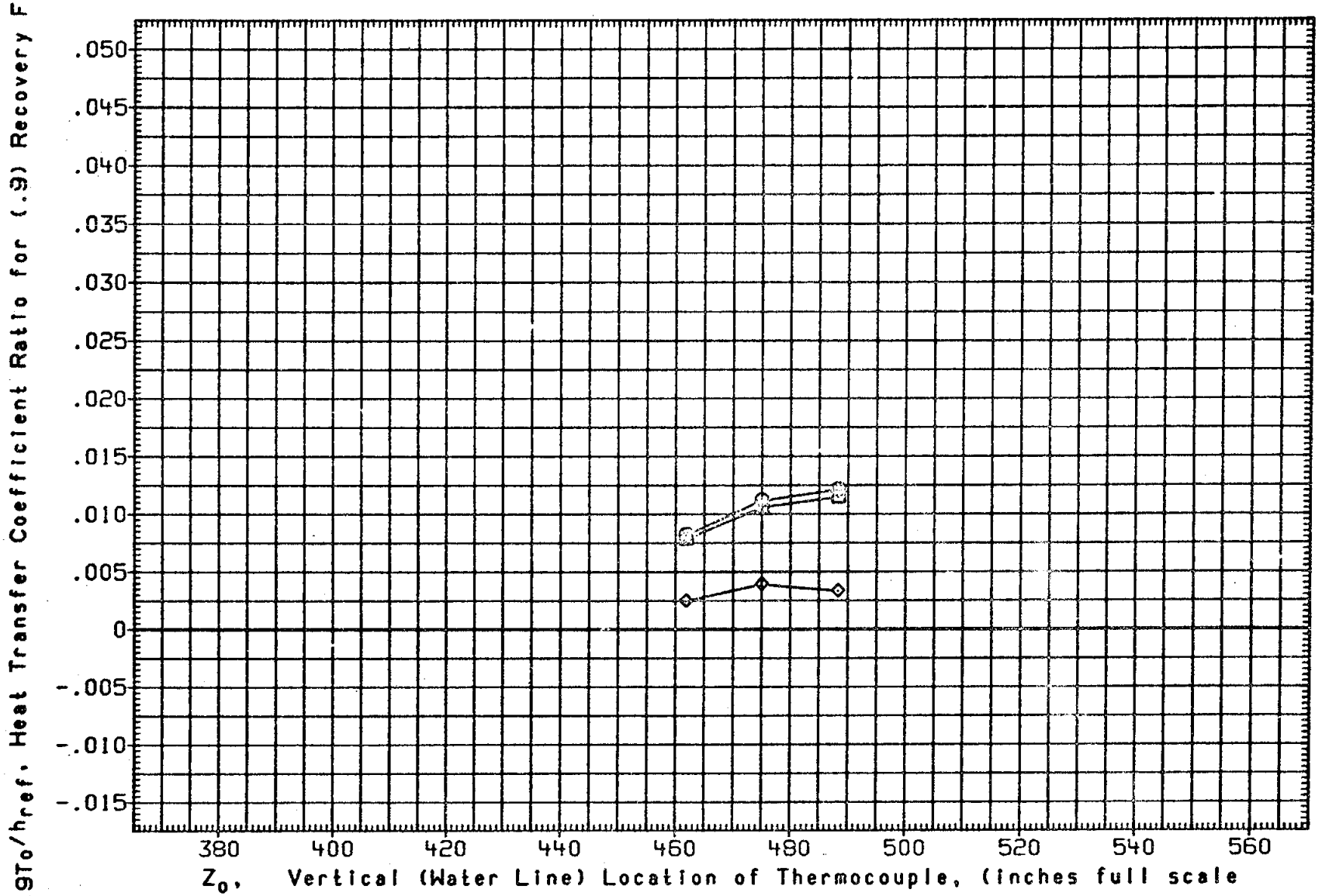


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.967	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

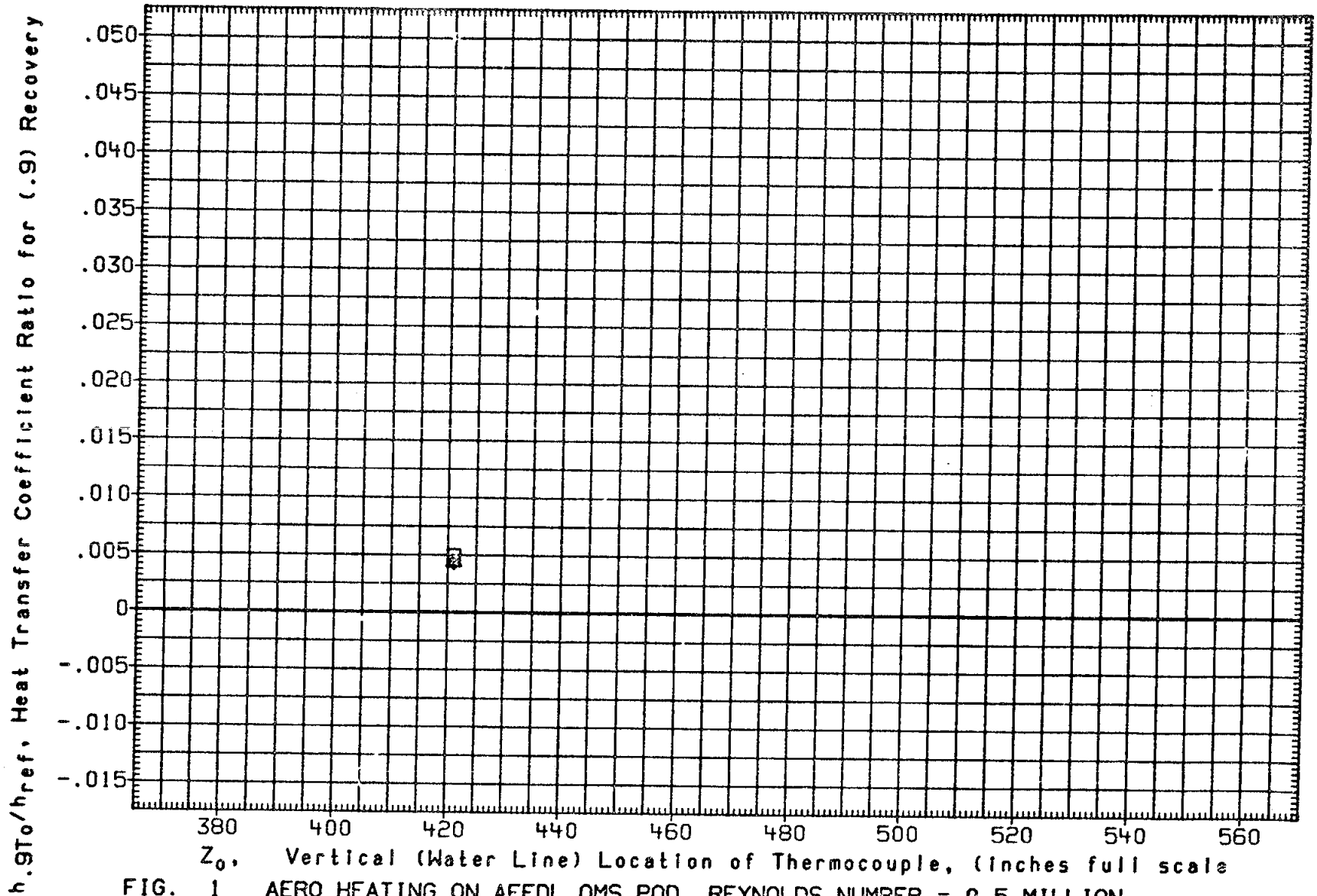


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.967	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

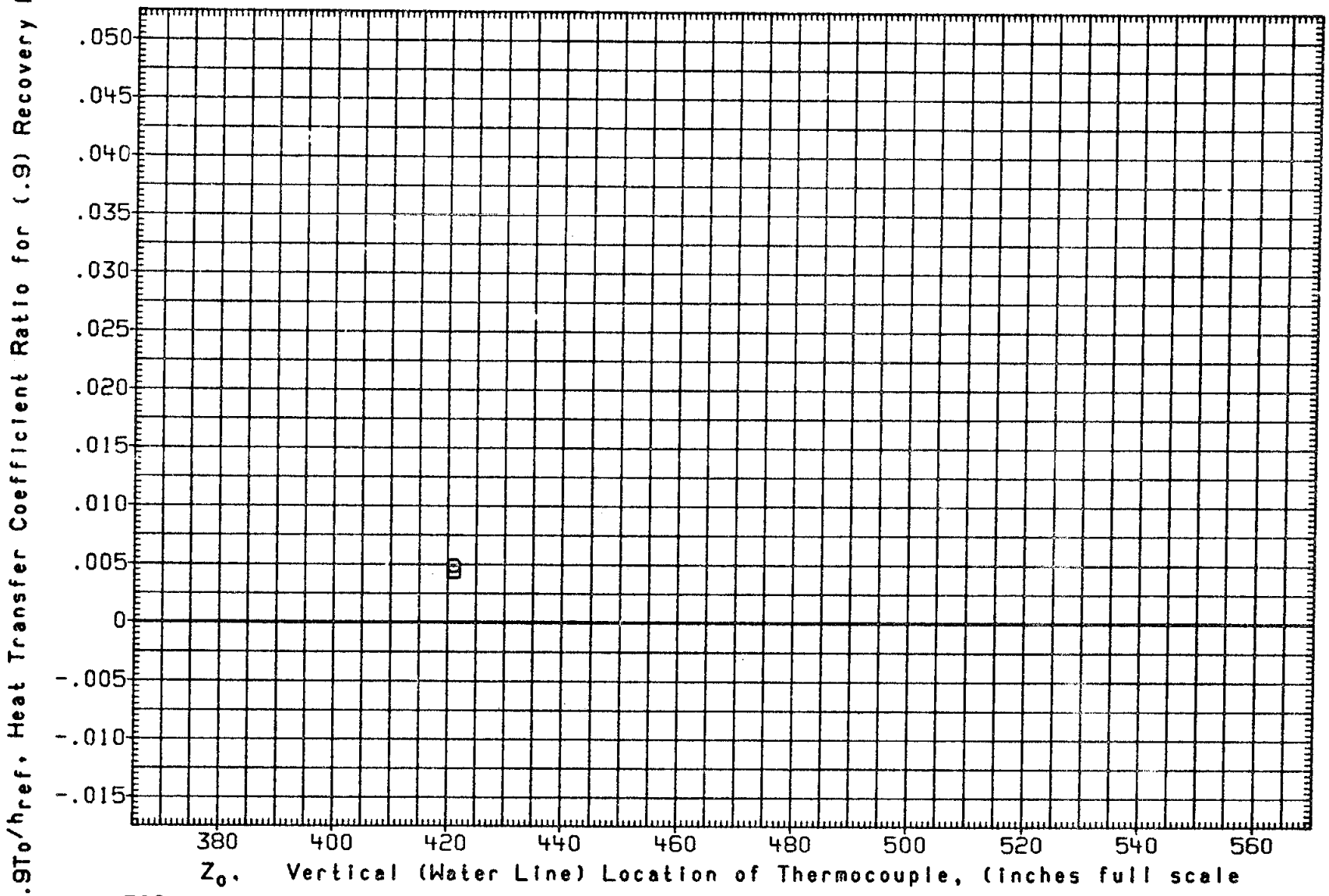


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 6G-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.974	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

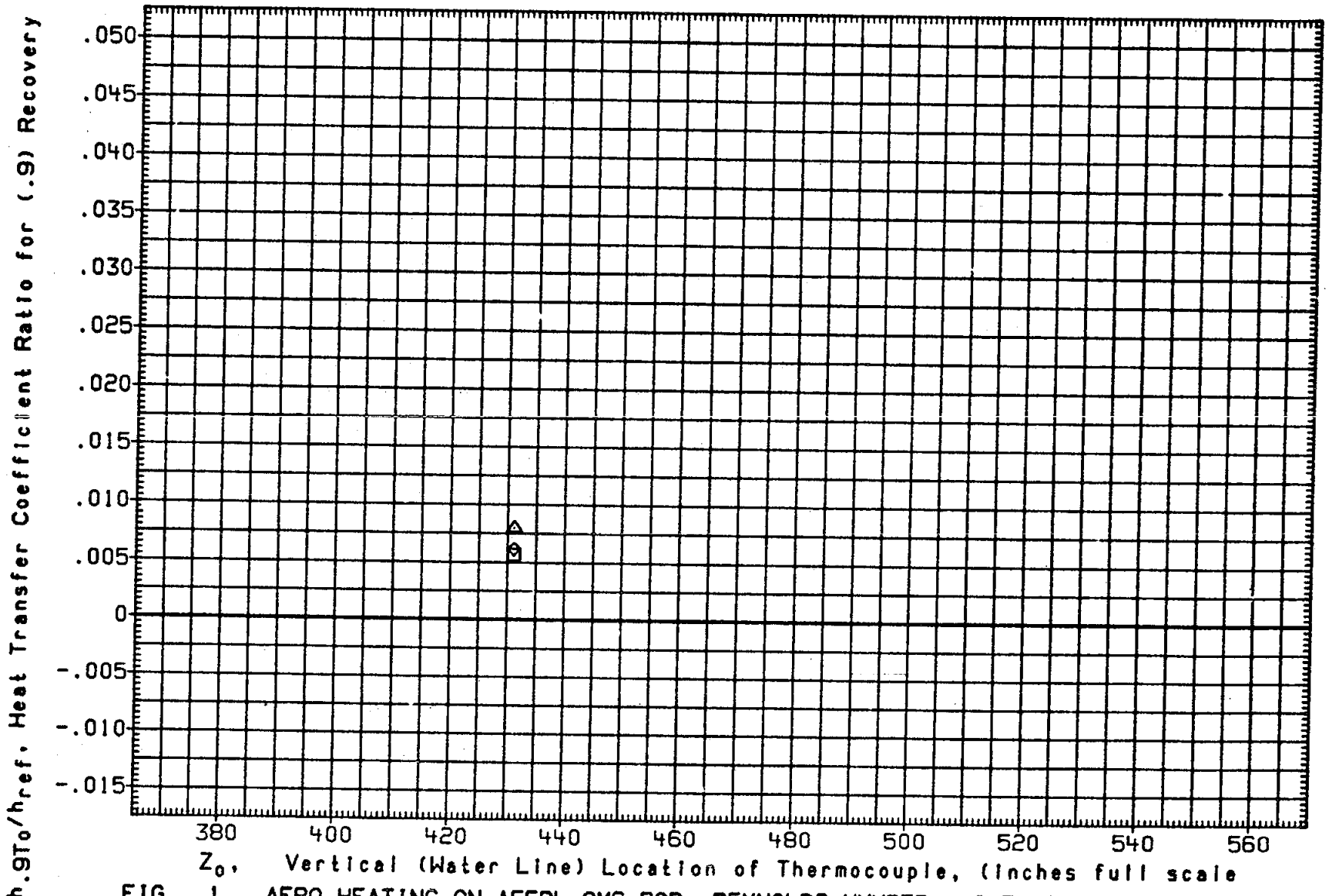


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-O, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.974	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

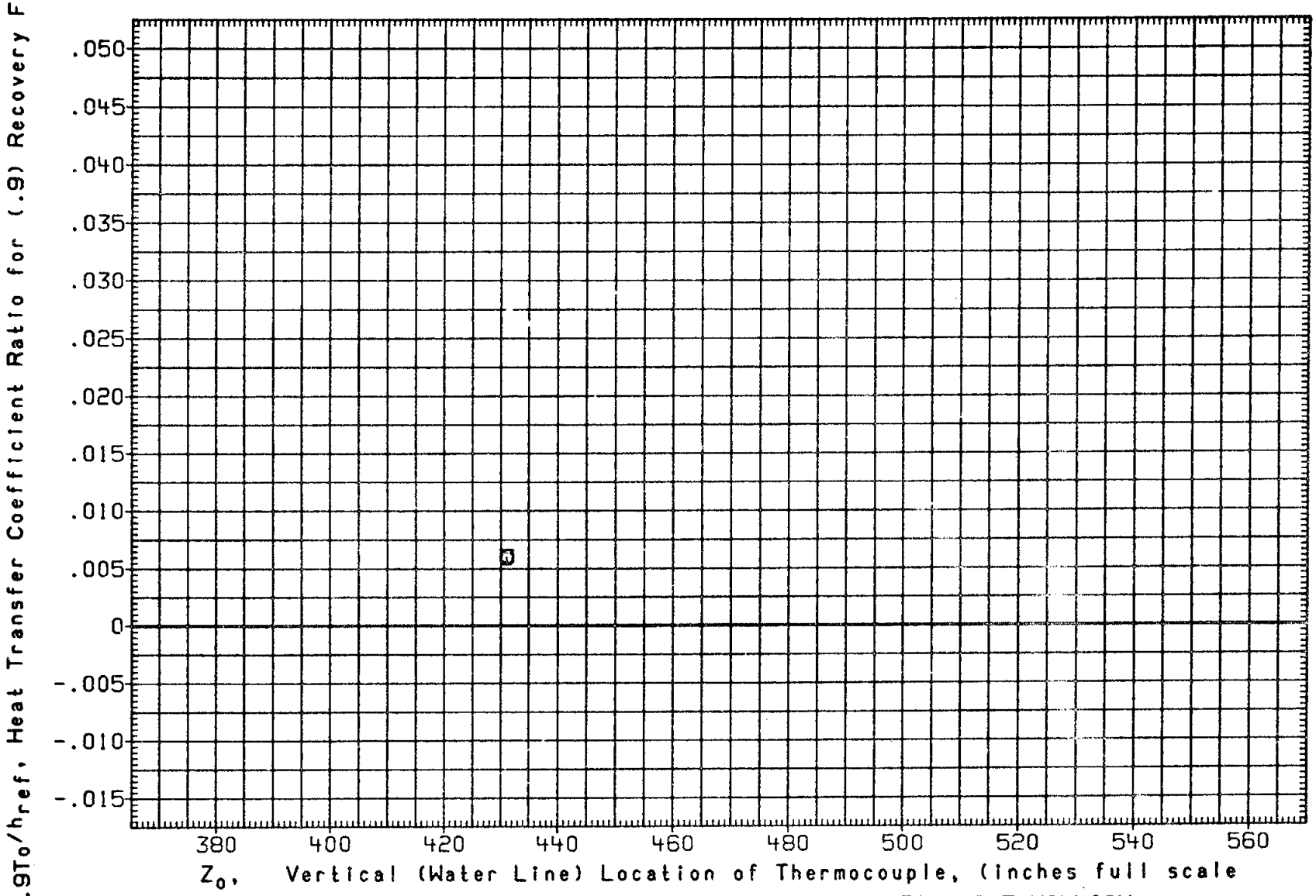


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	-1.967	.980	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPOBRK	.000
RN/L	.500		

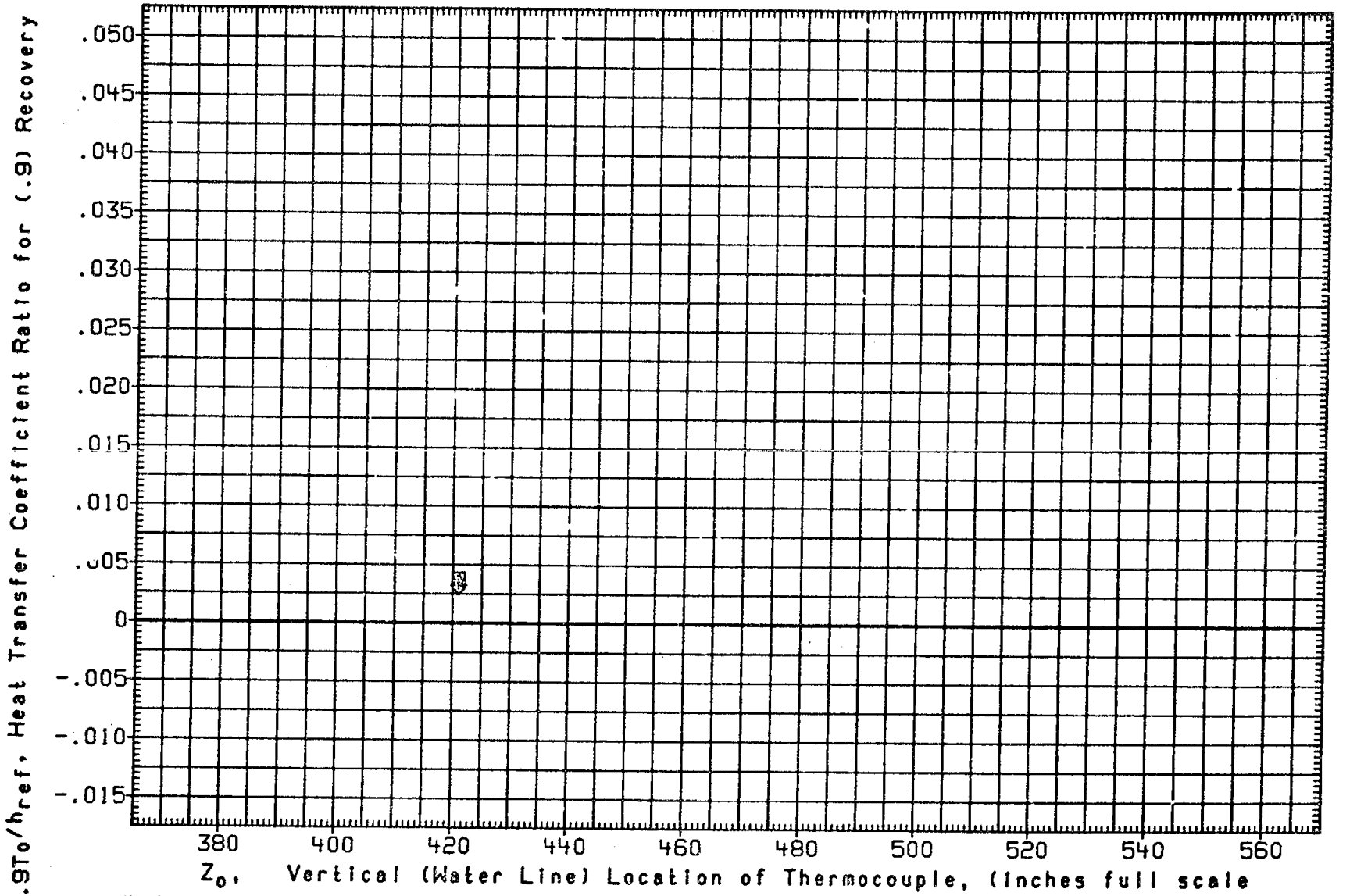


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

(ST6025) OH111, MODEL 60-0, LH AFFDL OMS POD

SYMBOL	BETA	XB/LB	HAW/HT
○	.483	.980	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

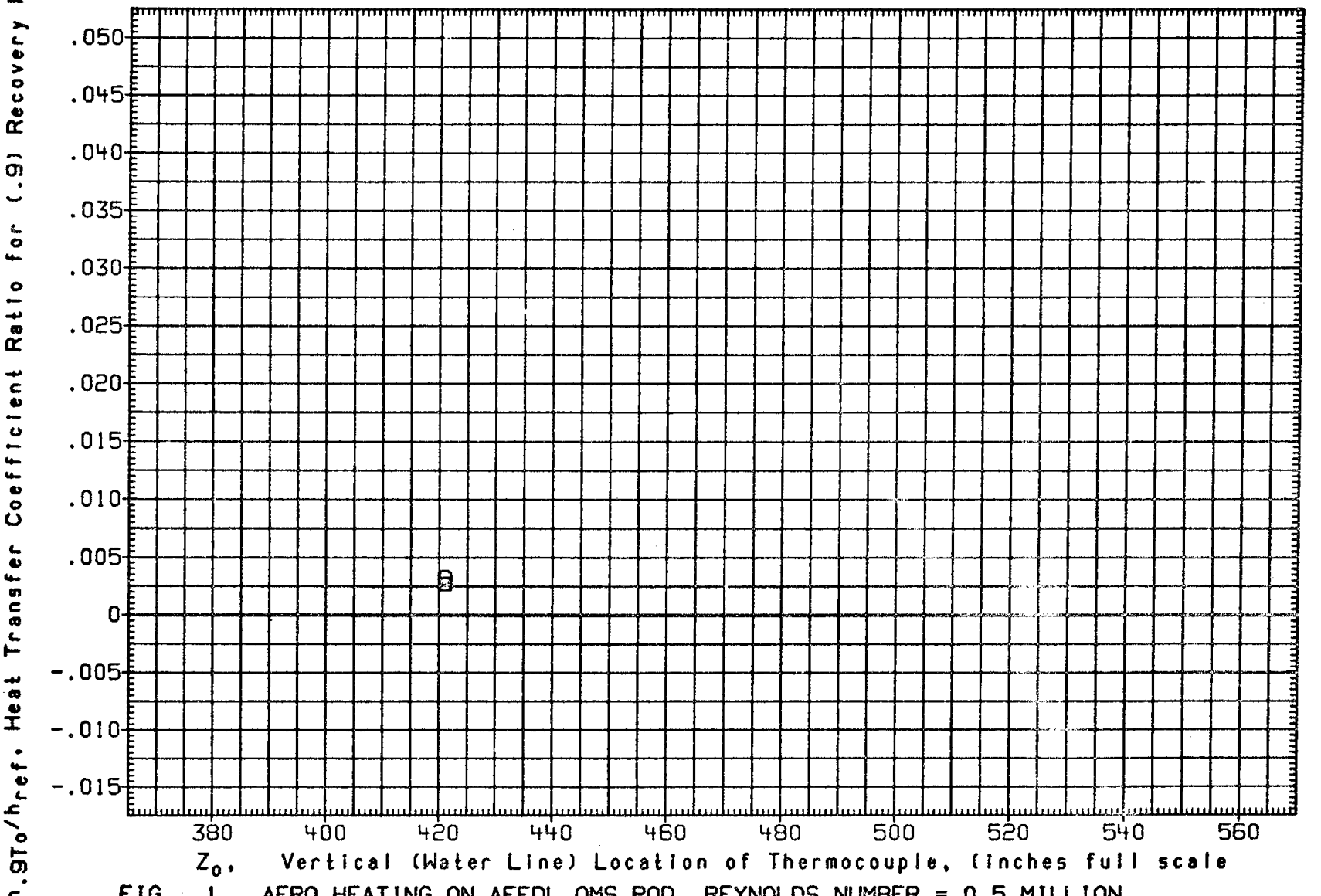


FIG. 1 AERO HEATING ON AFFDL OMS POD, REYNOLDS NUMBER = 0.5 MILLION

DATE 26 JAN 82

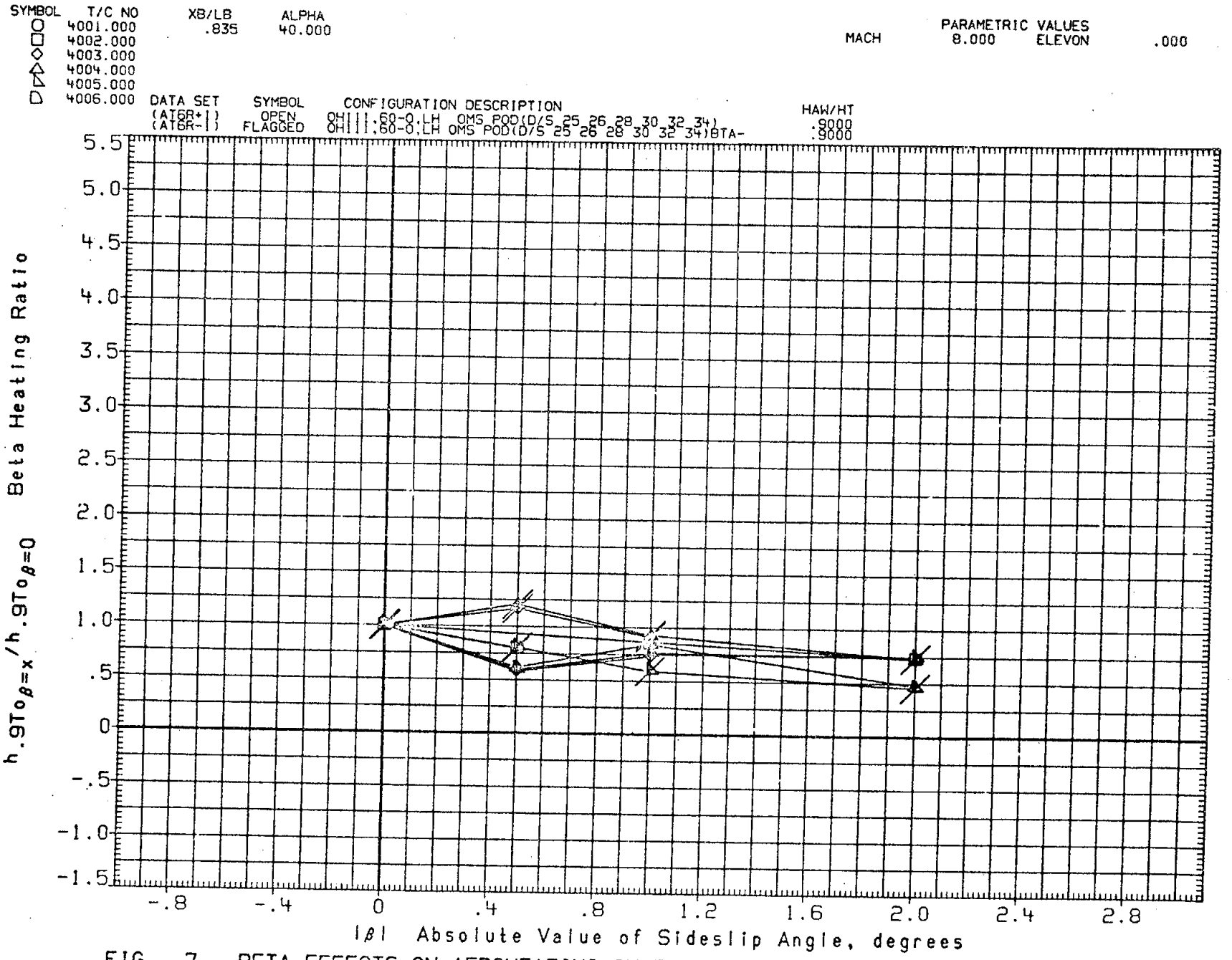


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4008.000	.835	40.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATGR+1)	OPEN	OH111,60-0,LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATGR-1)	FLAGGED	OH111,60-0,LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

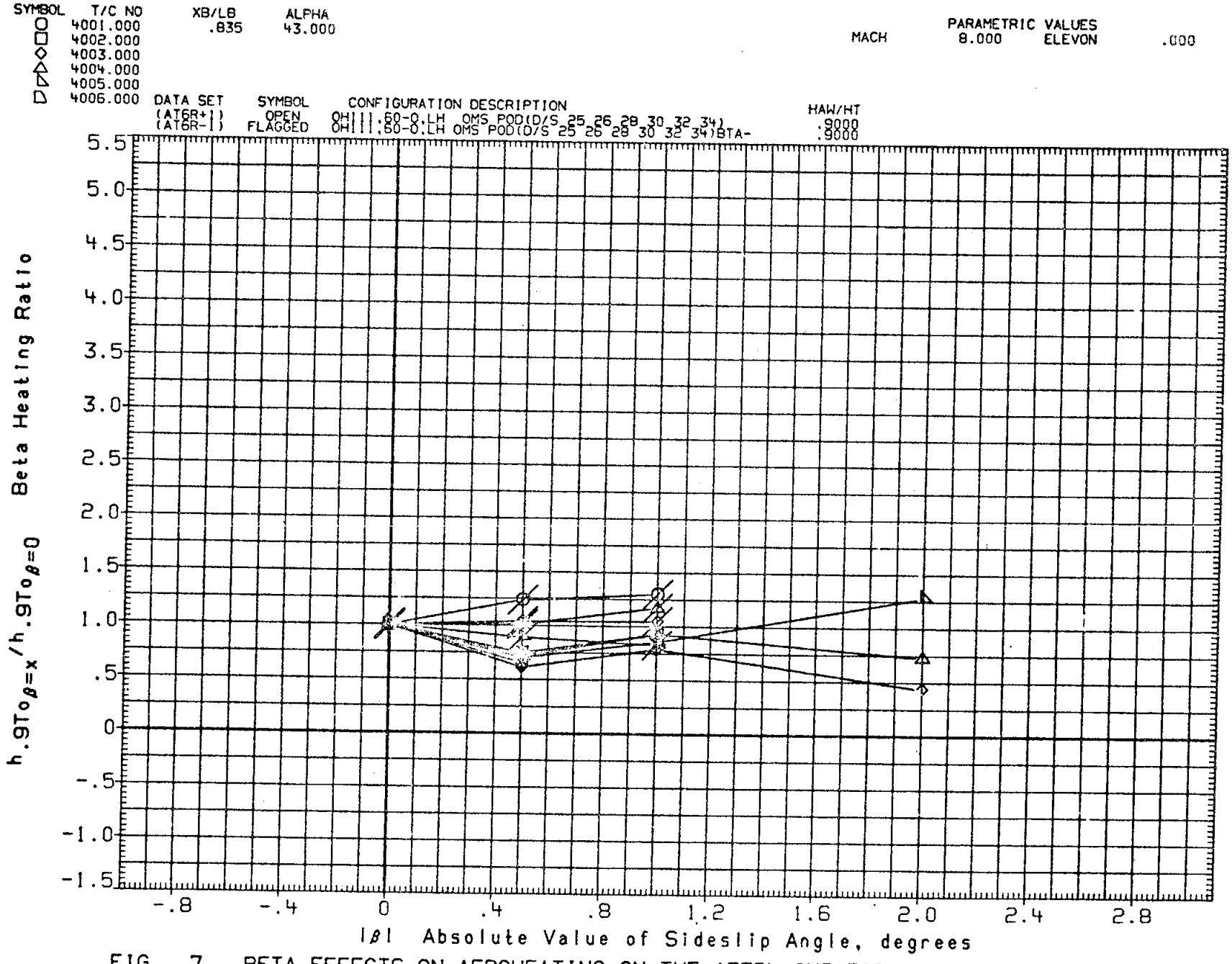


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4008.000	.835	43.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATGR+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATGR-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

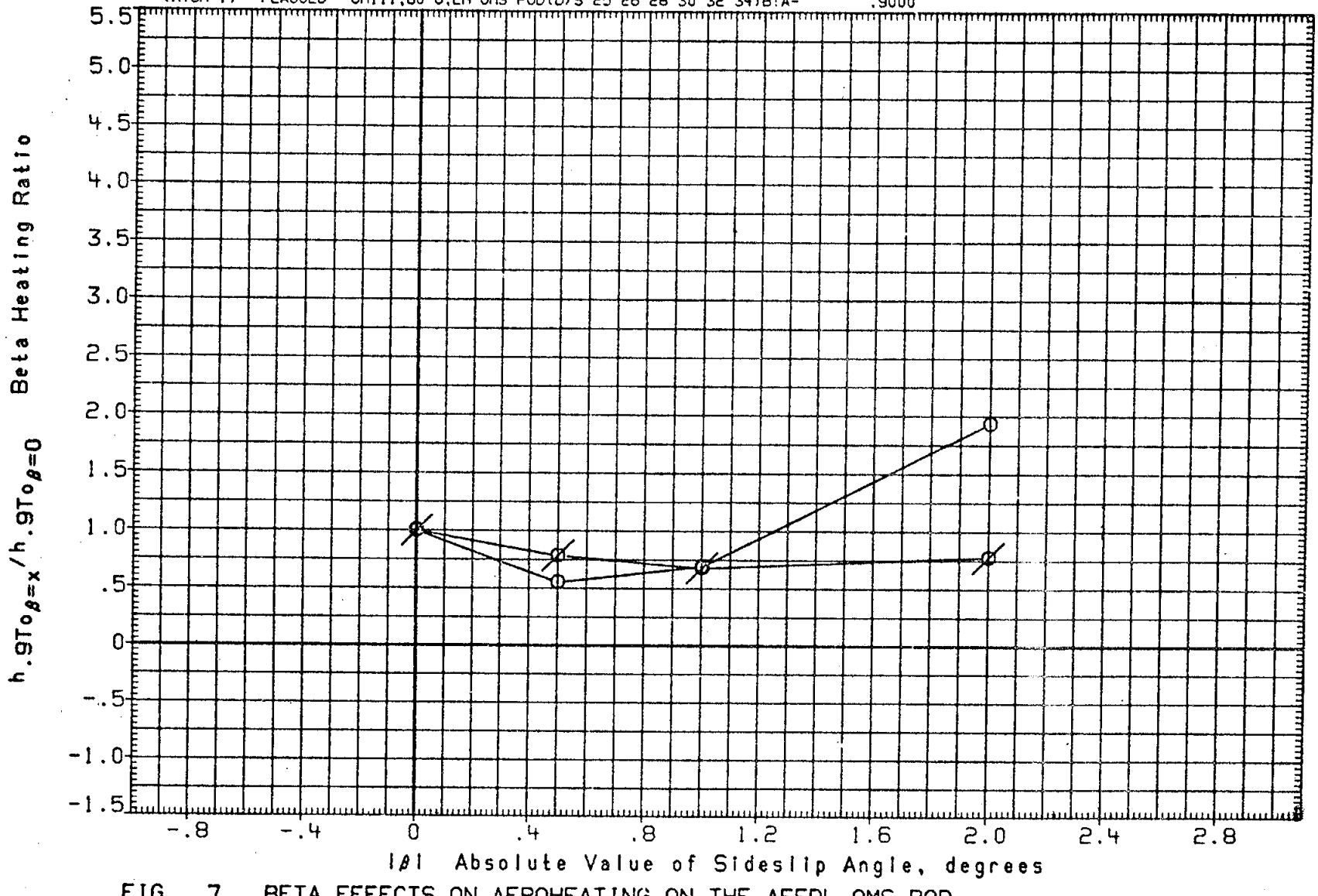


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

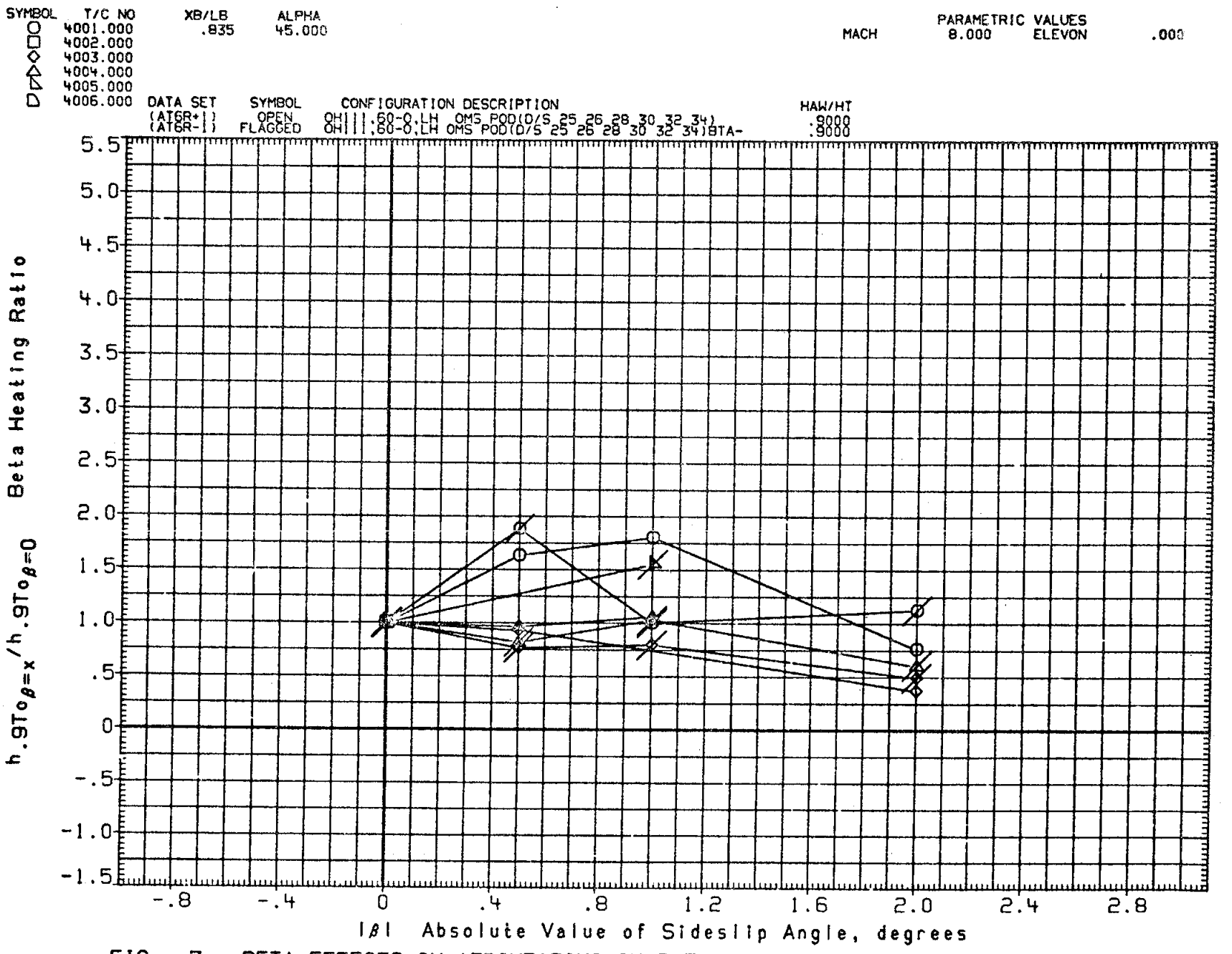


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4008.000	.835	45.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATGR+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATGR-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

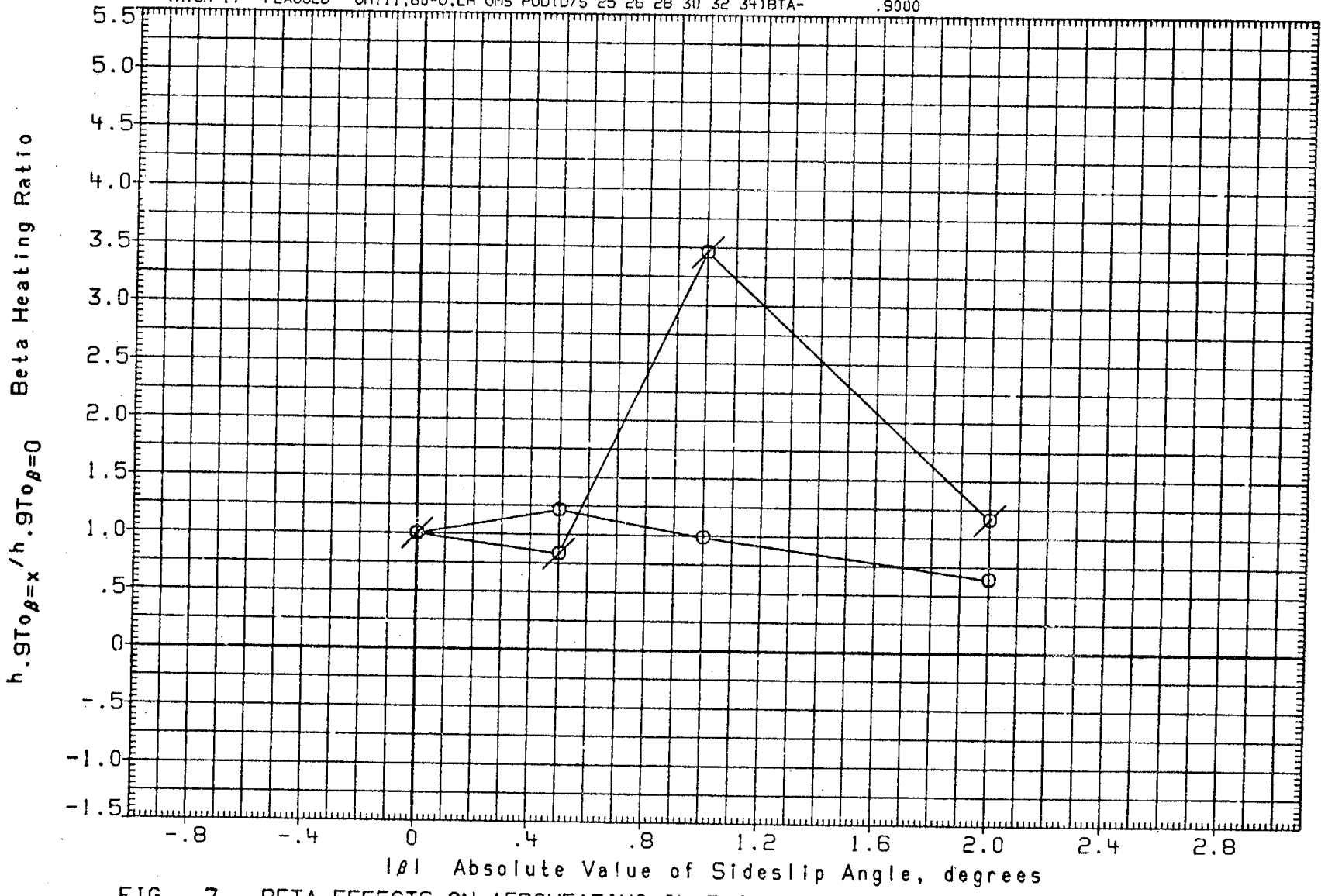


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

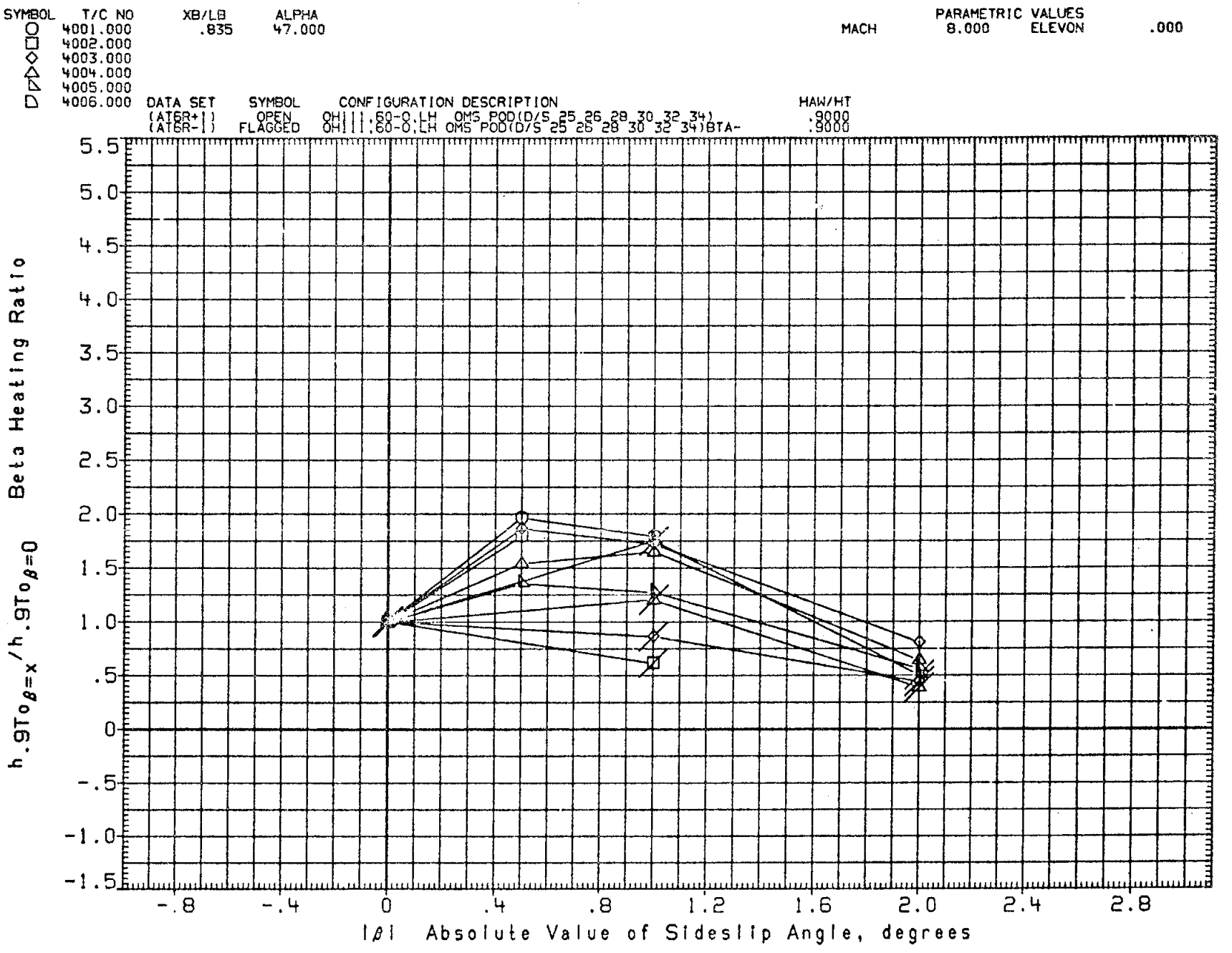


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4008.000	.835	47.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+!)	OPEN	OH!!!.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-!)	FLAGGED	OH!!!.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

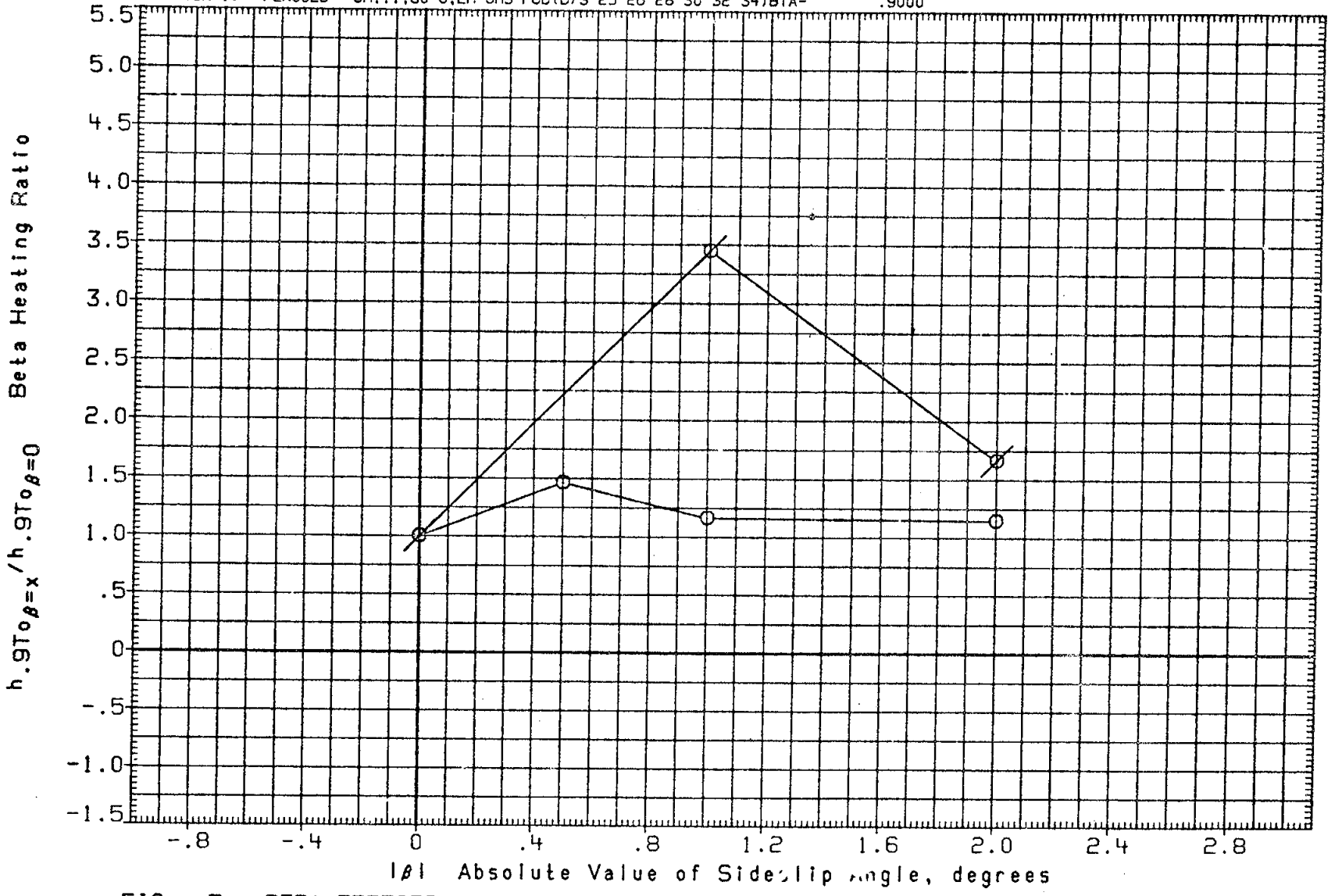


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

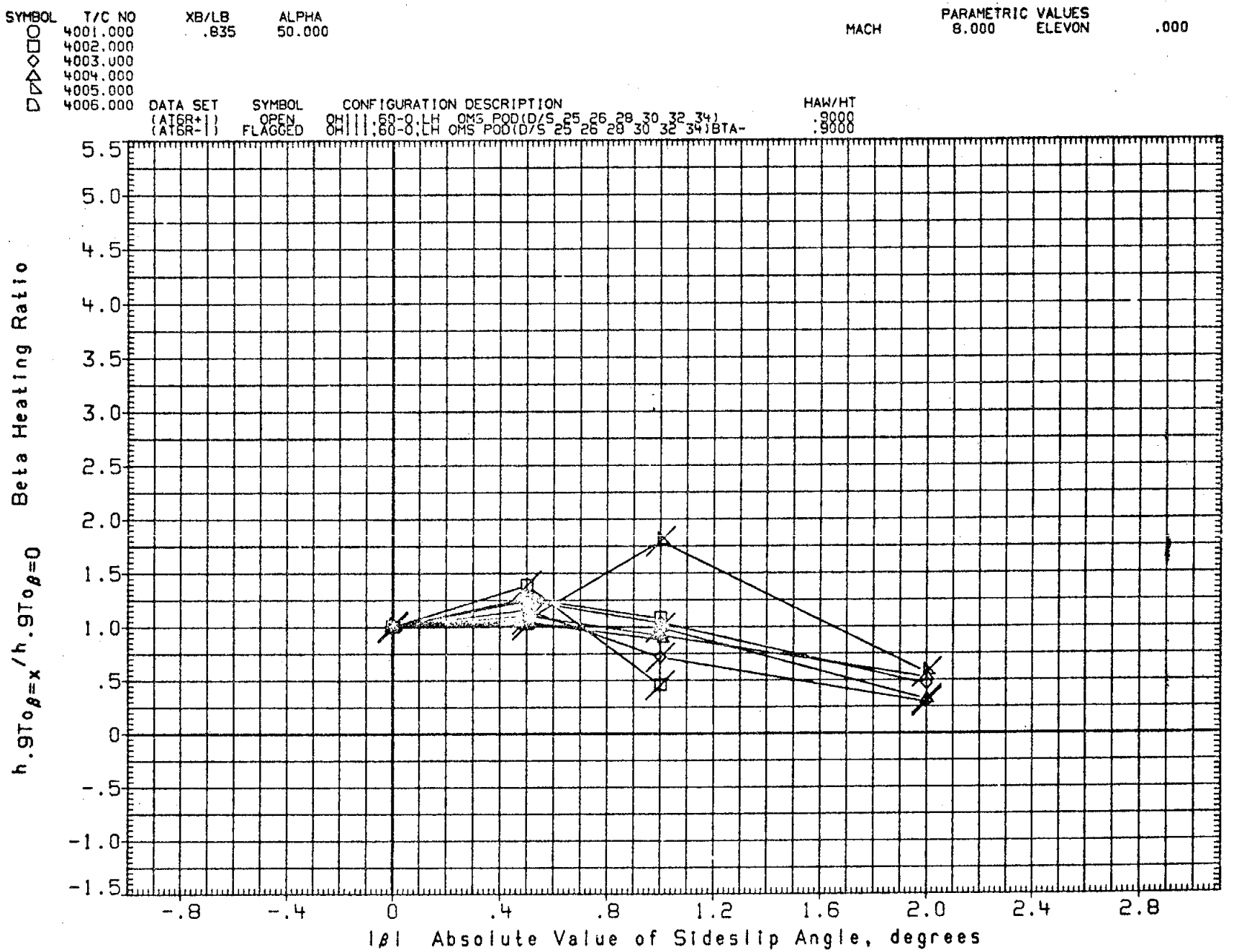


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4008.000	.835	50.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+1)	OPEN	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-1)	FLAGGED	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

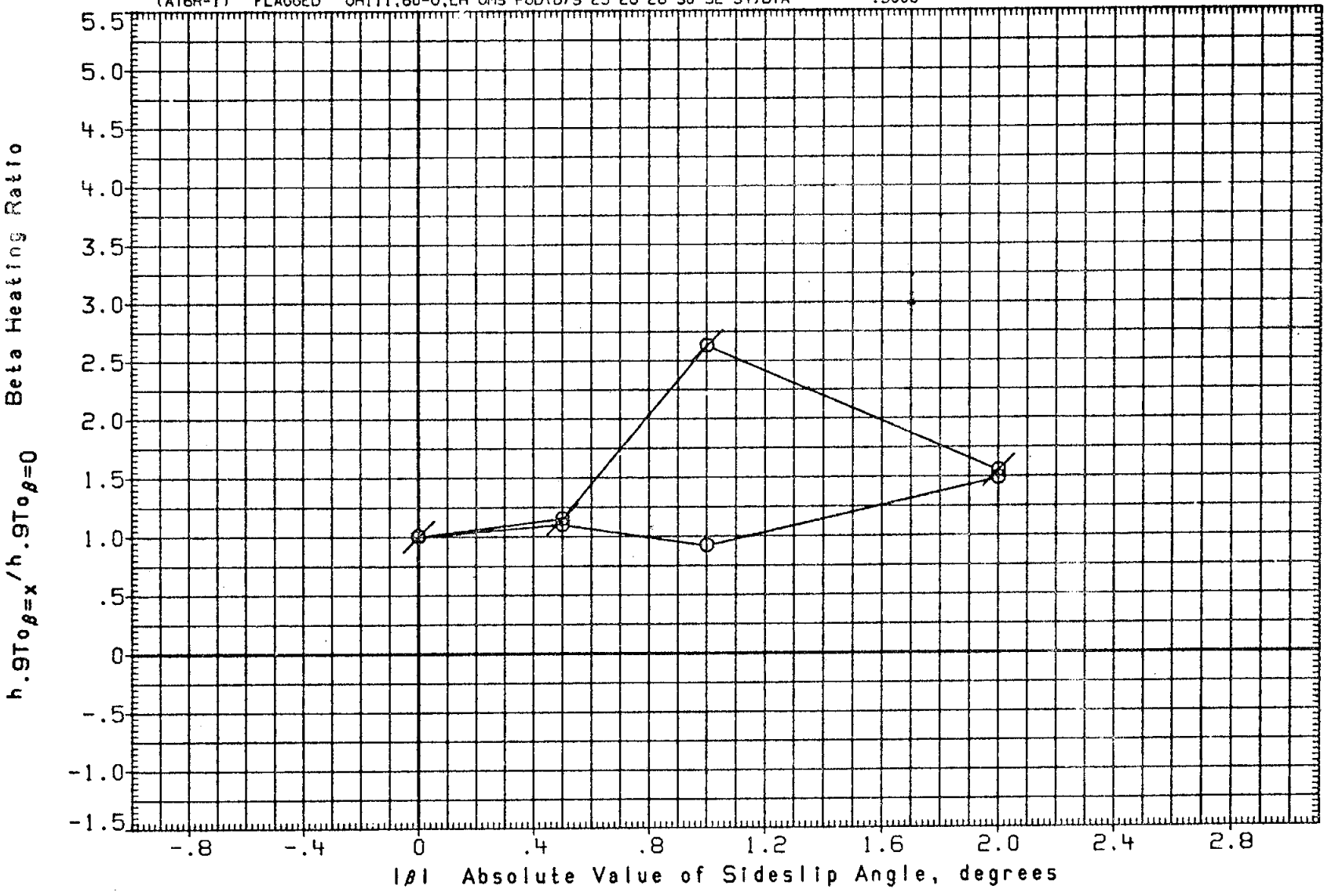


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

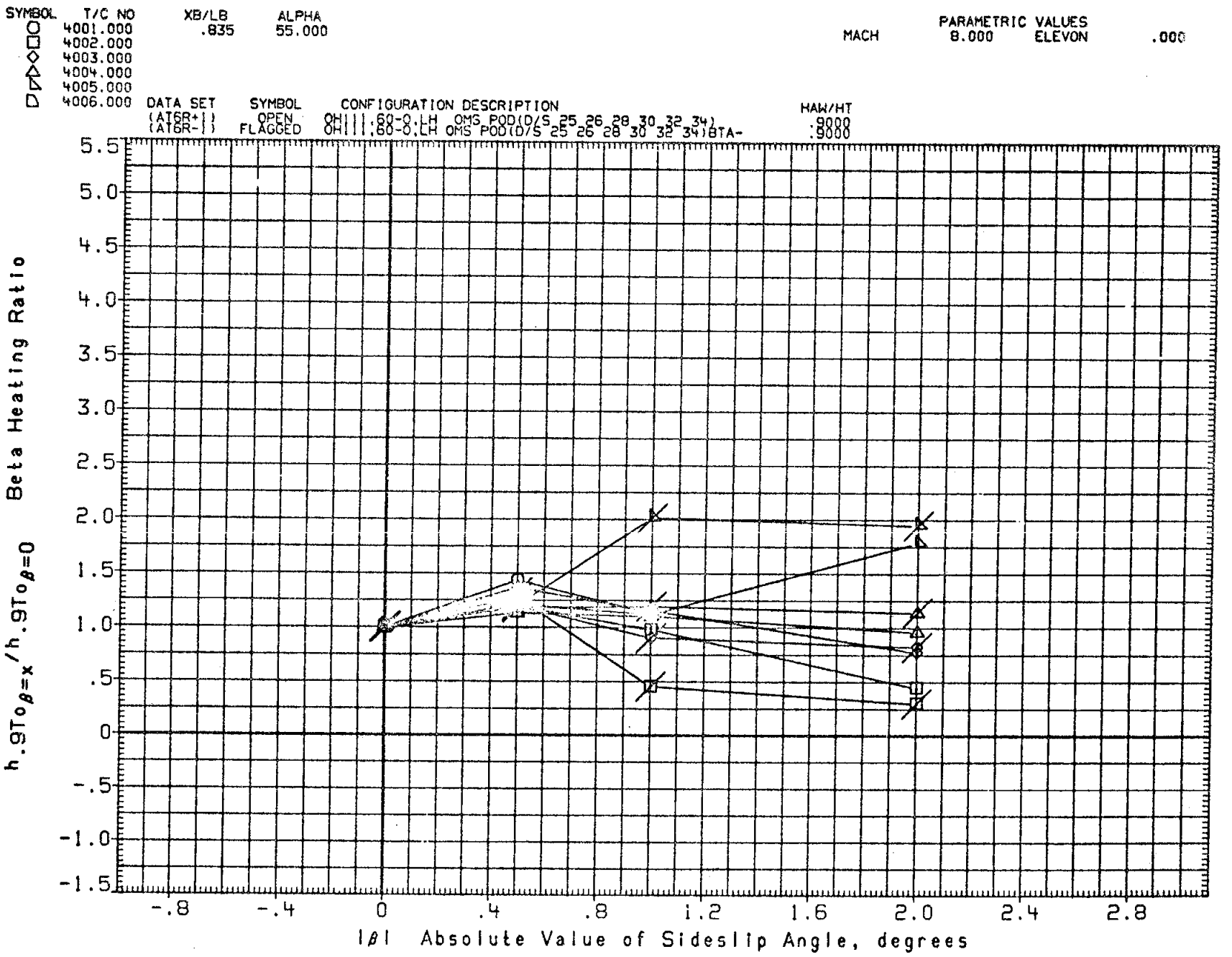


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4008.000	.835	55.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATGR+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATGR-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

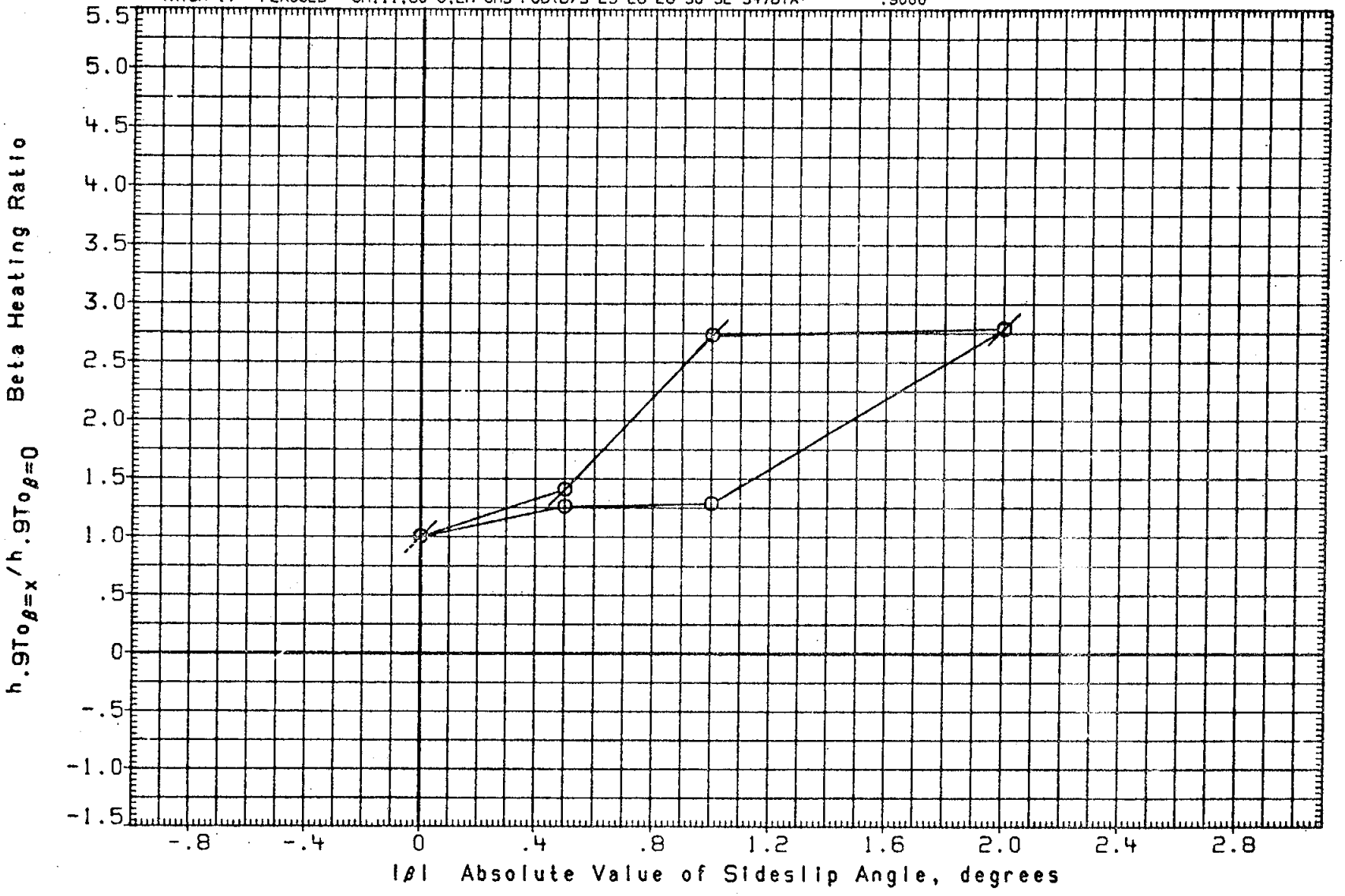


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

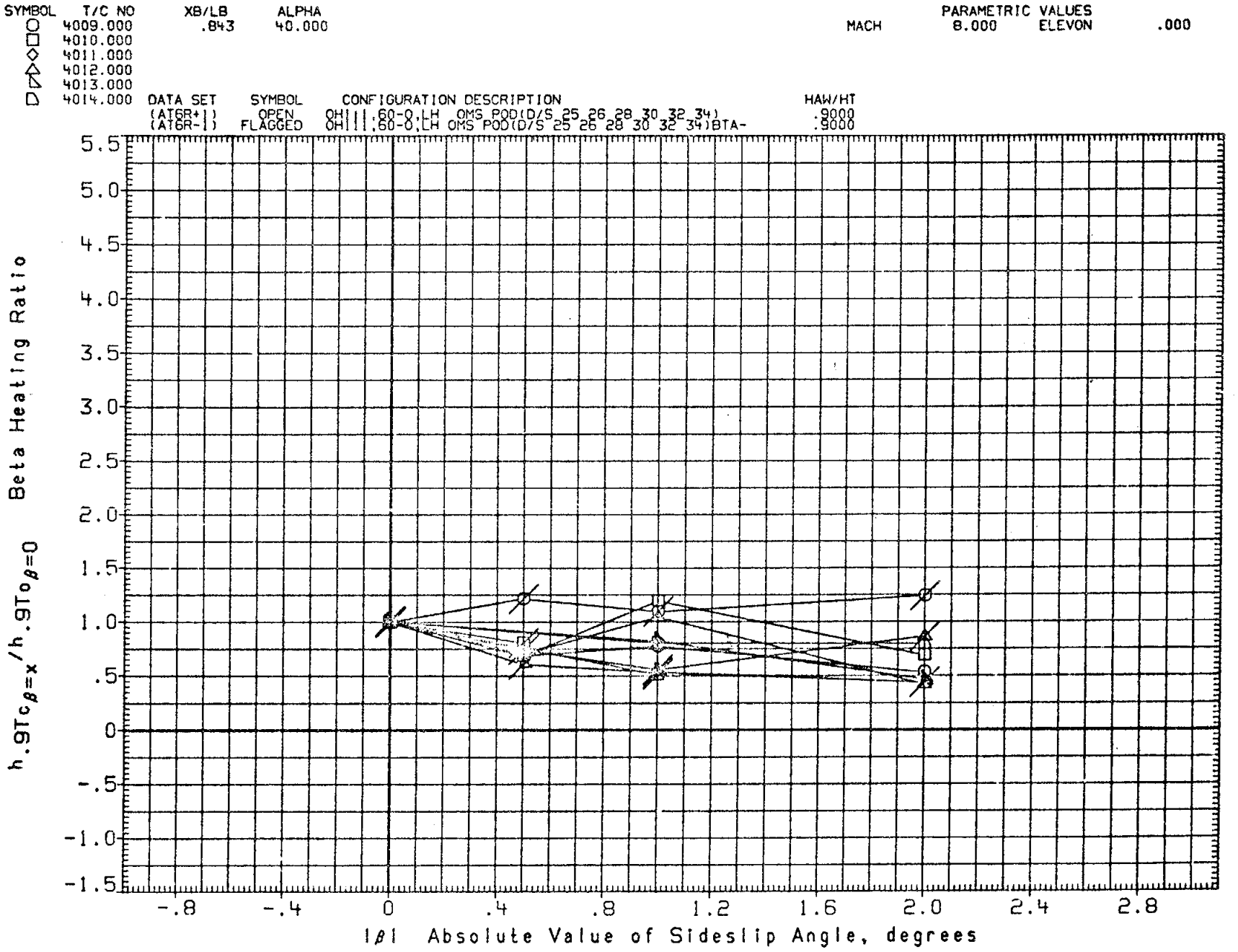


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

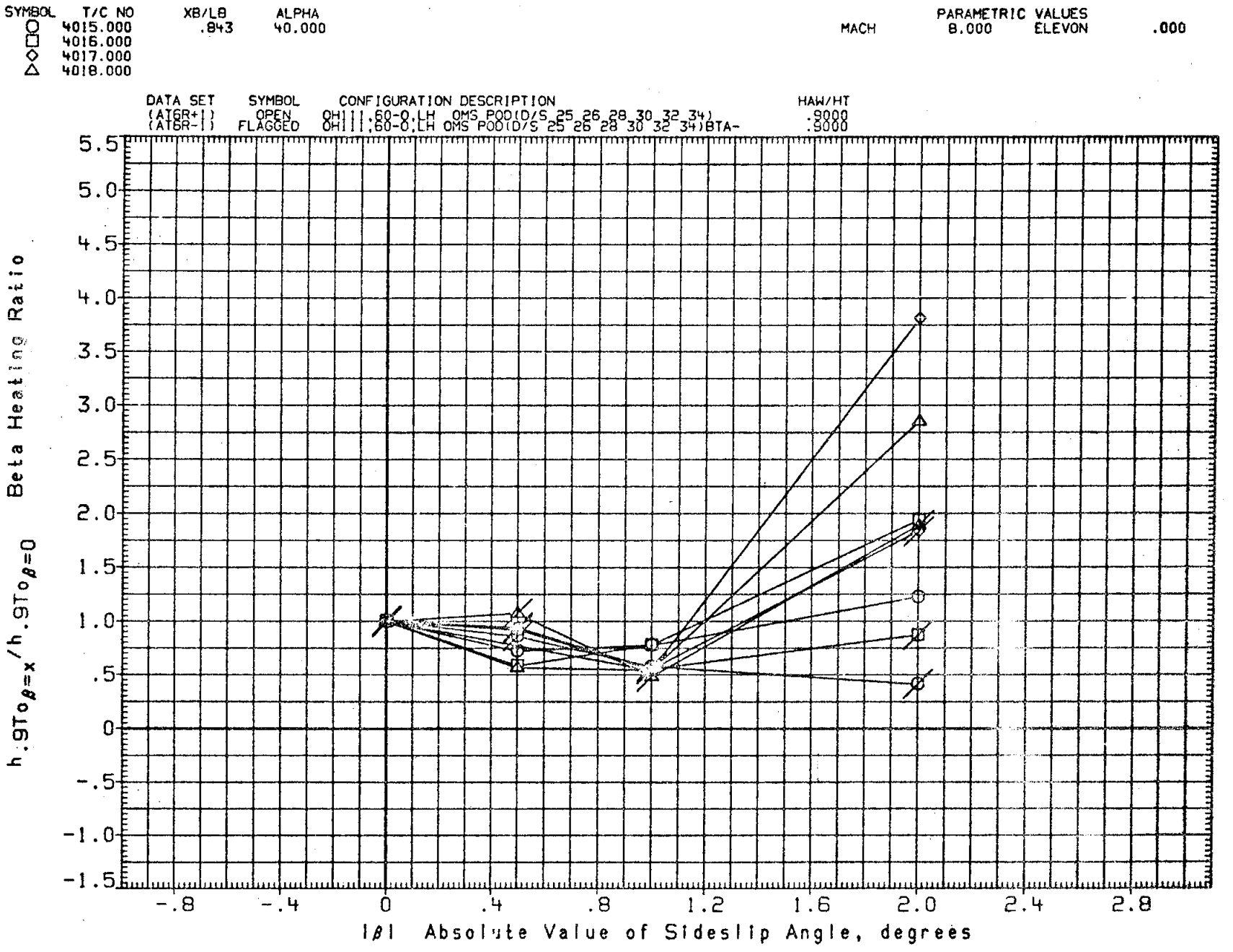


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

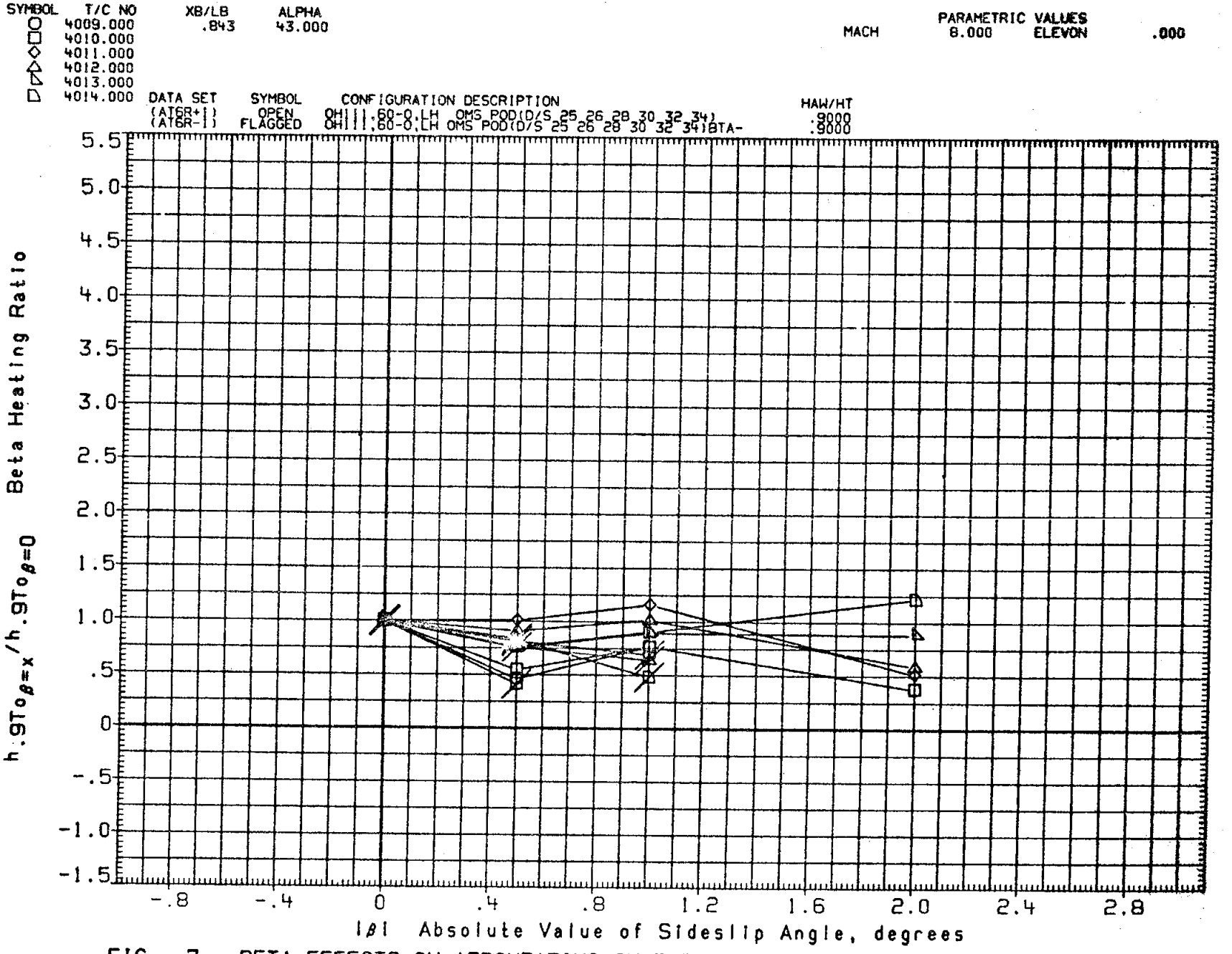


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

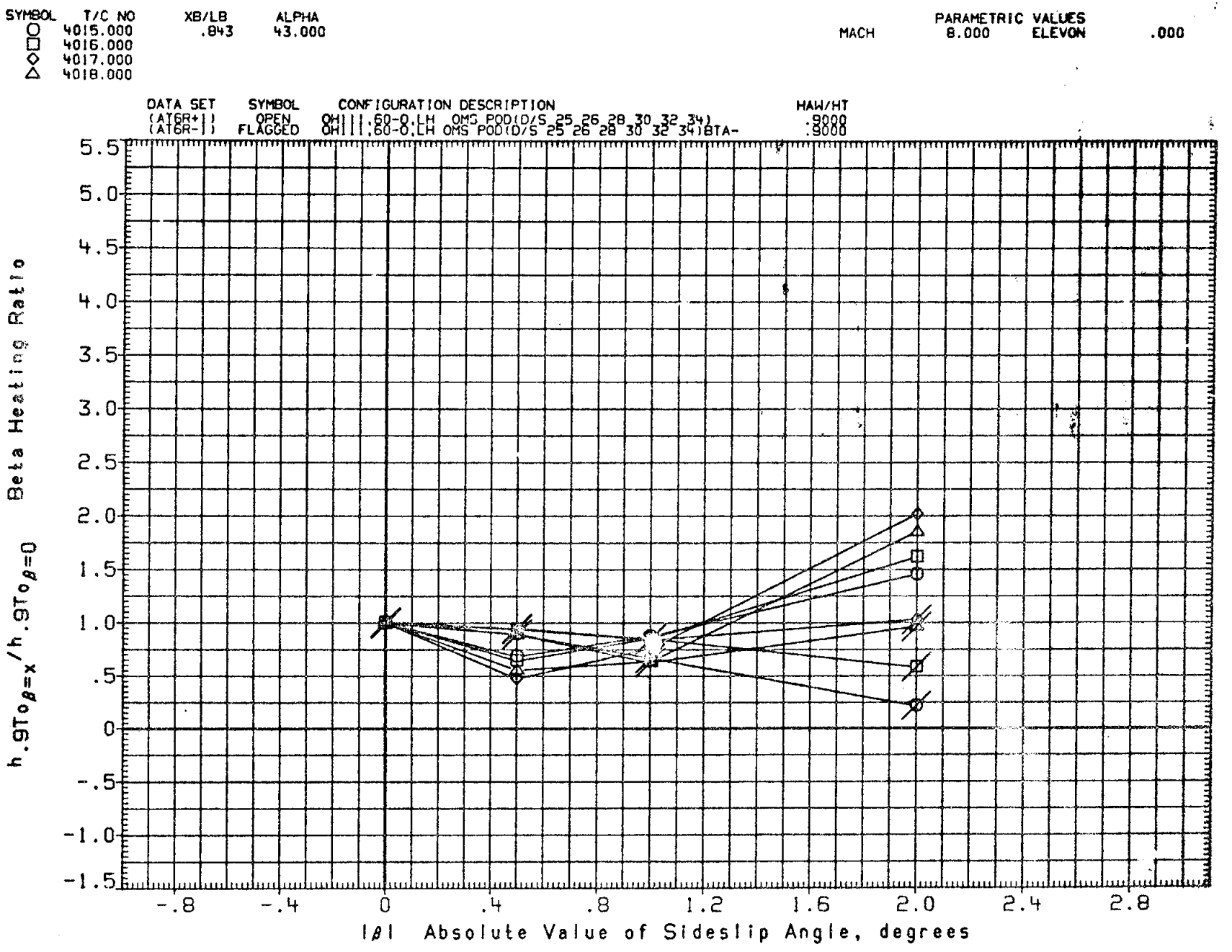


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

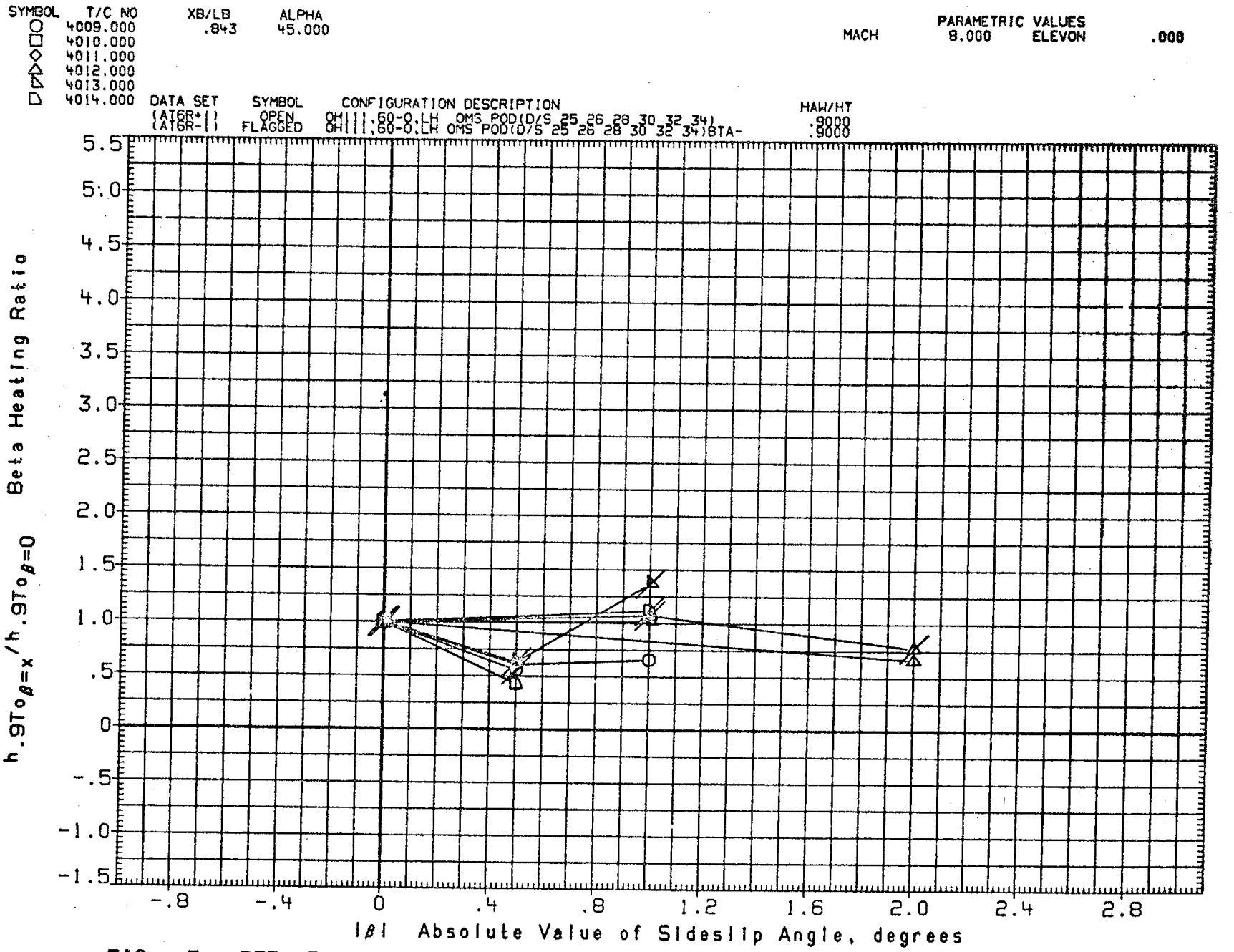


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

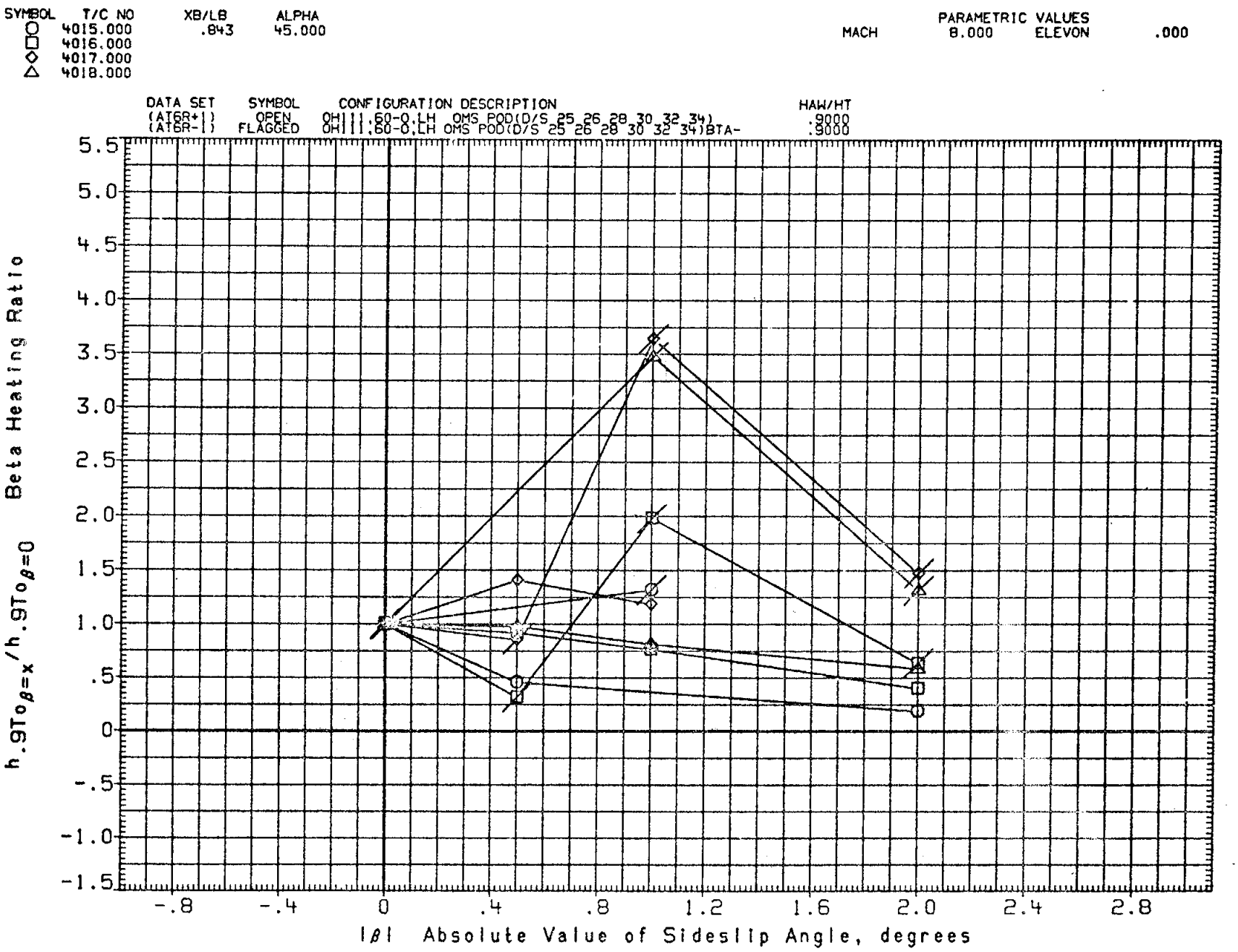


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

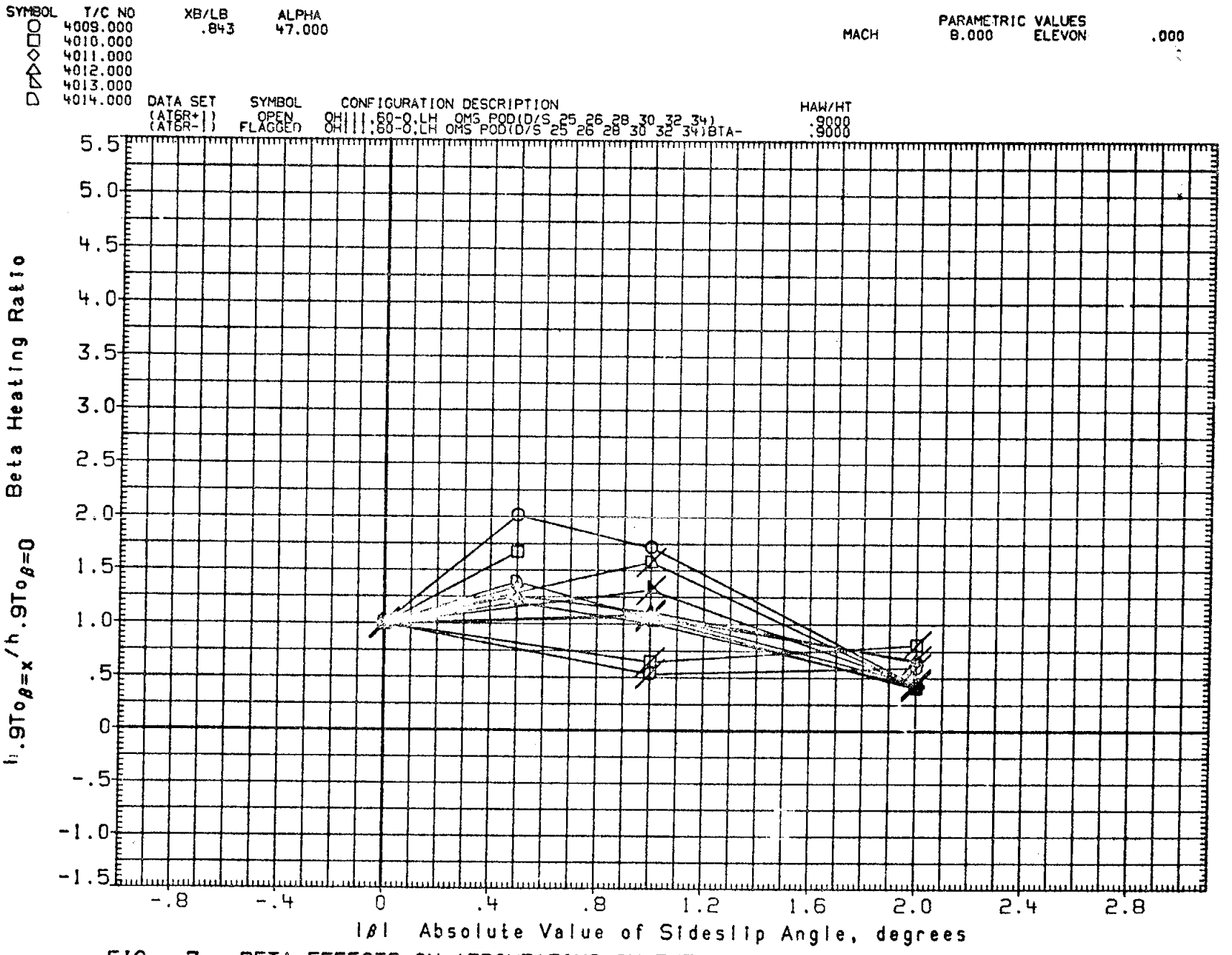


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

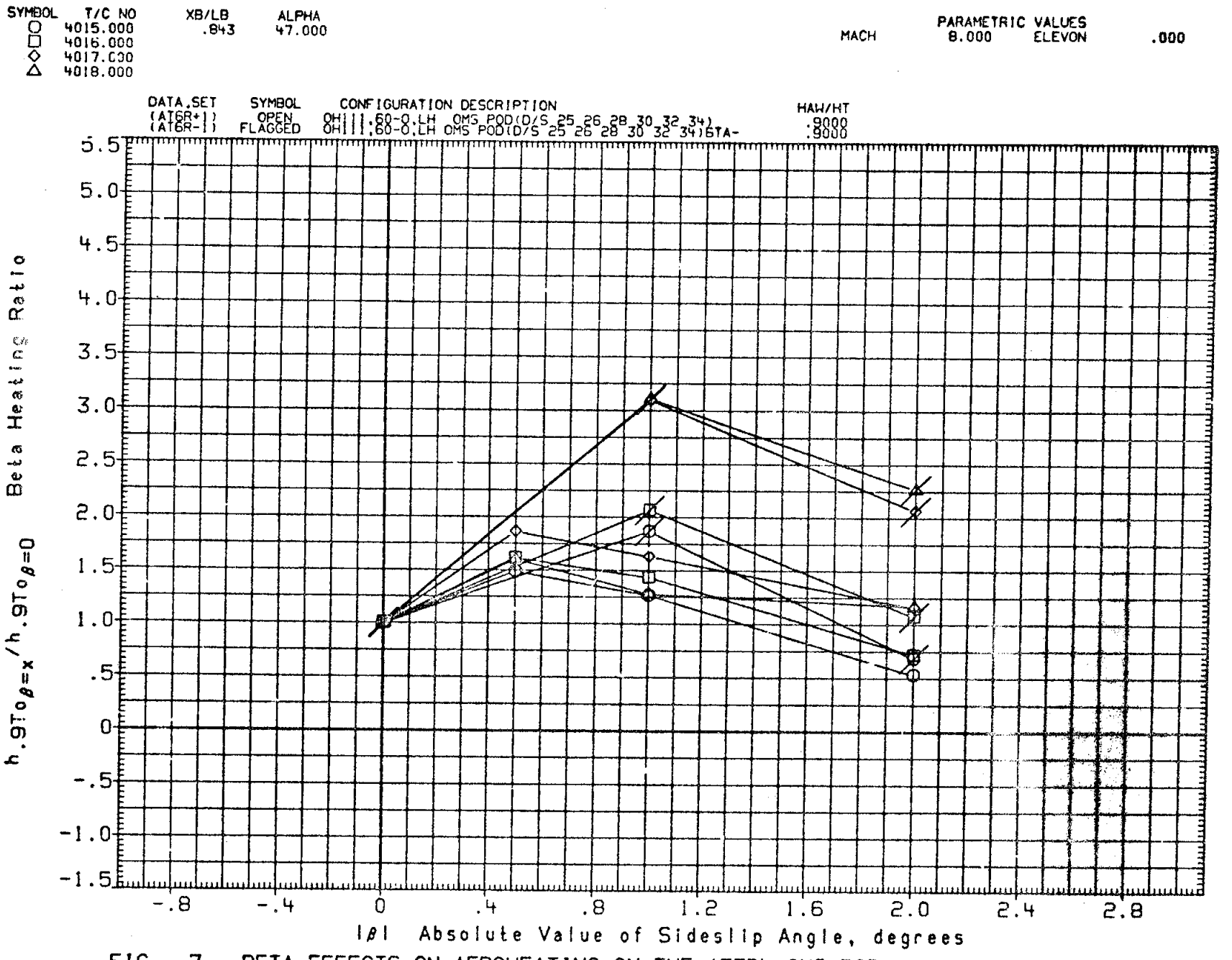


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

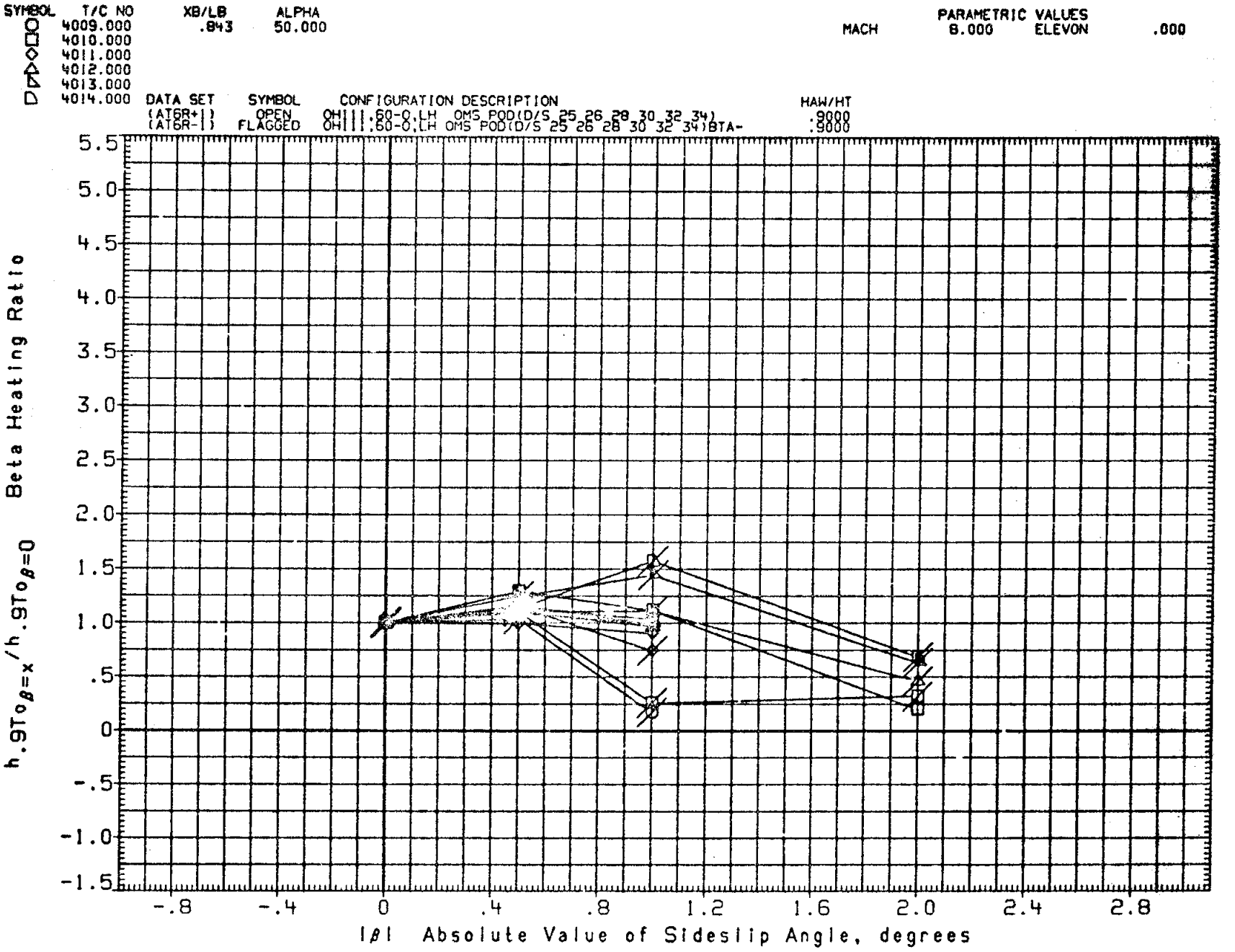


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4015.000	.843	50.000
□	4016.000		
◇	4017.000		
△	4018.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATGR+1)	OPEN	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATGR-1)	FLAGGED	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

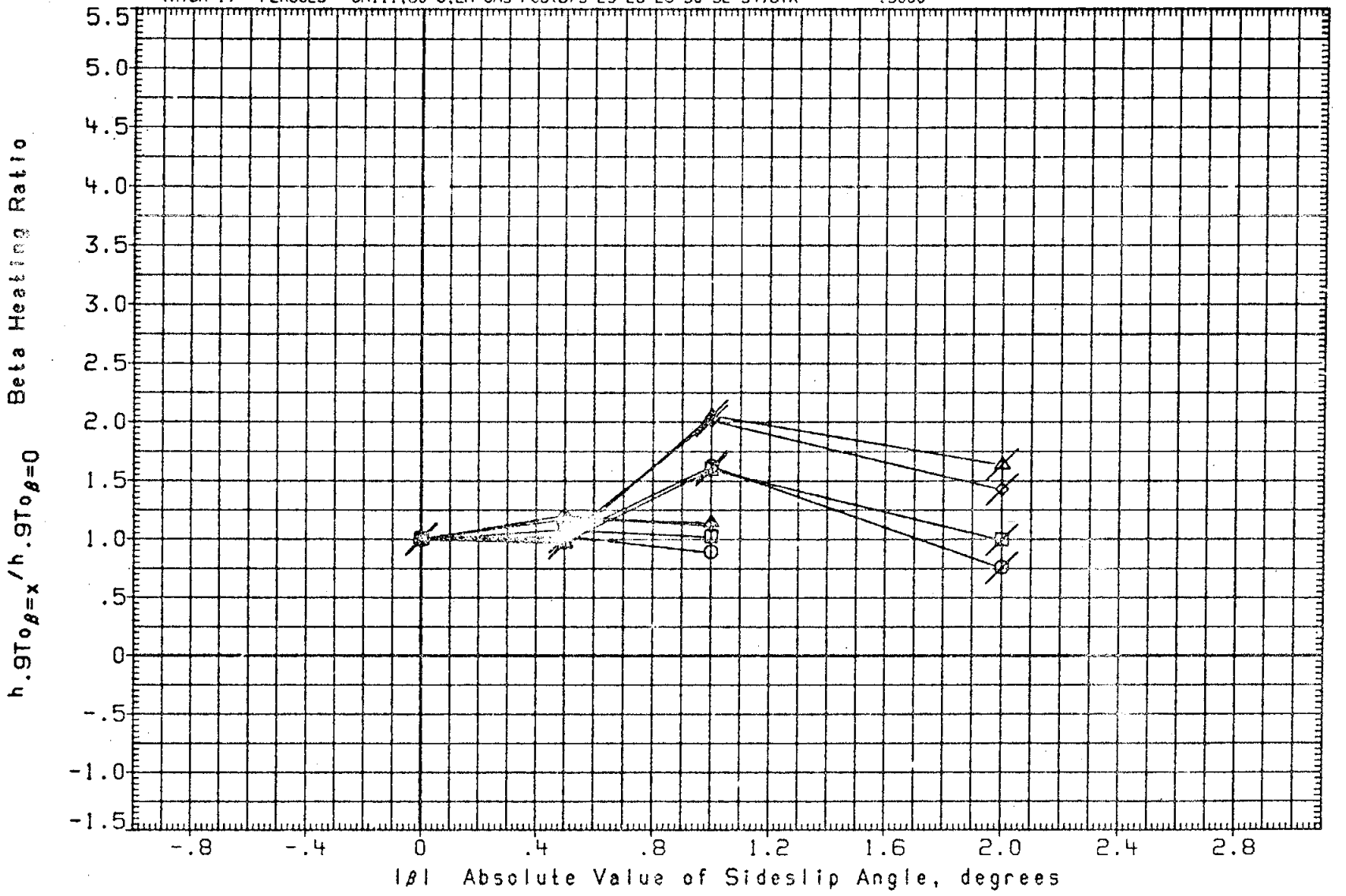


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

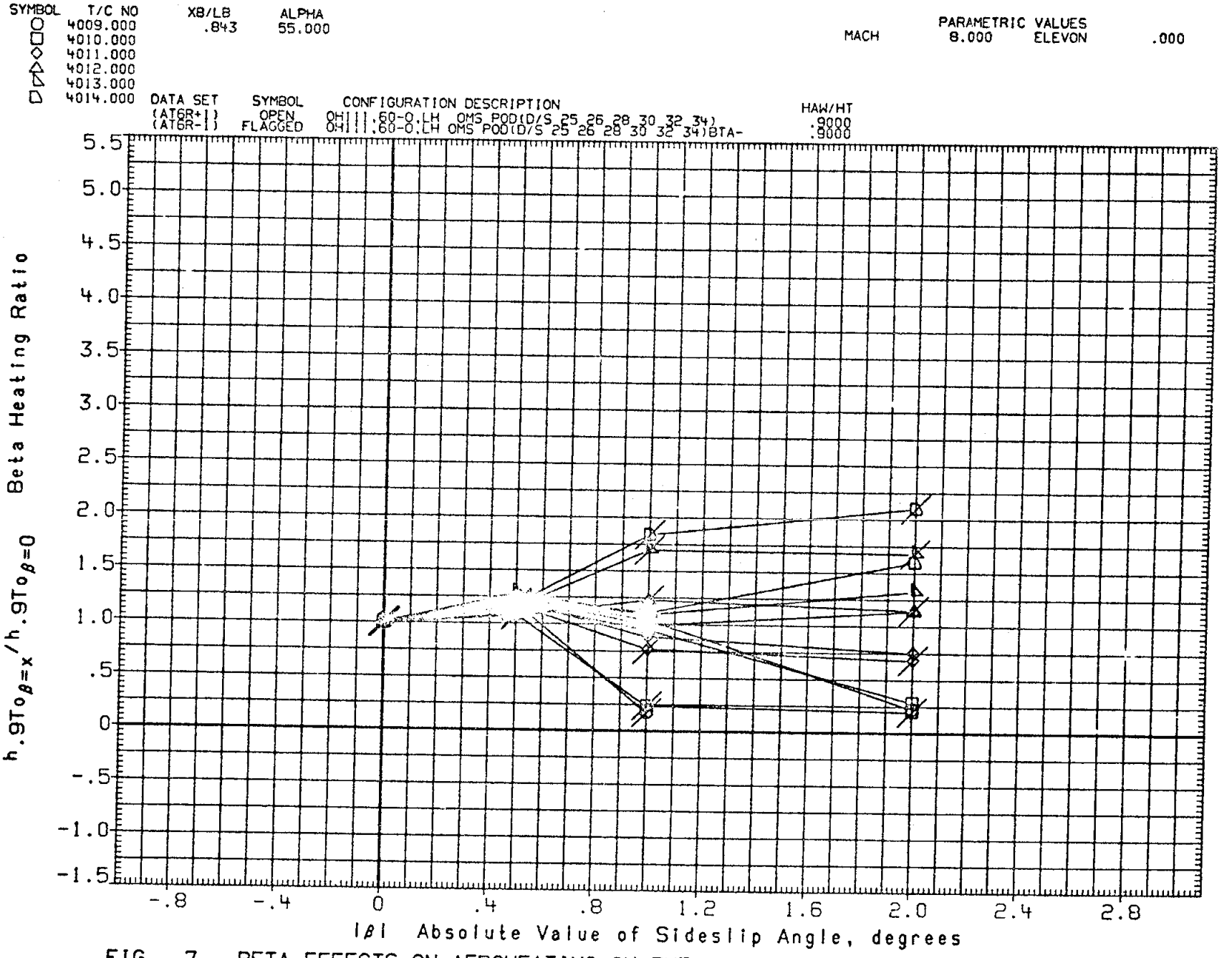
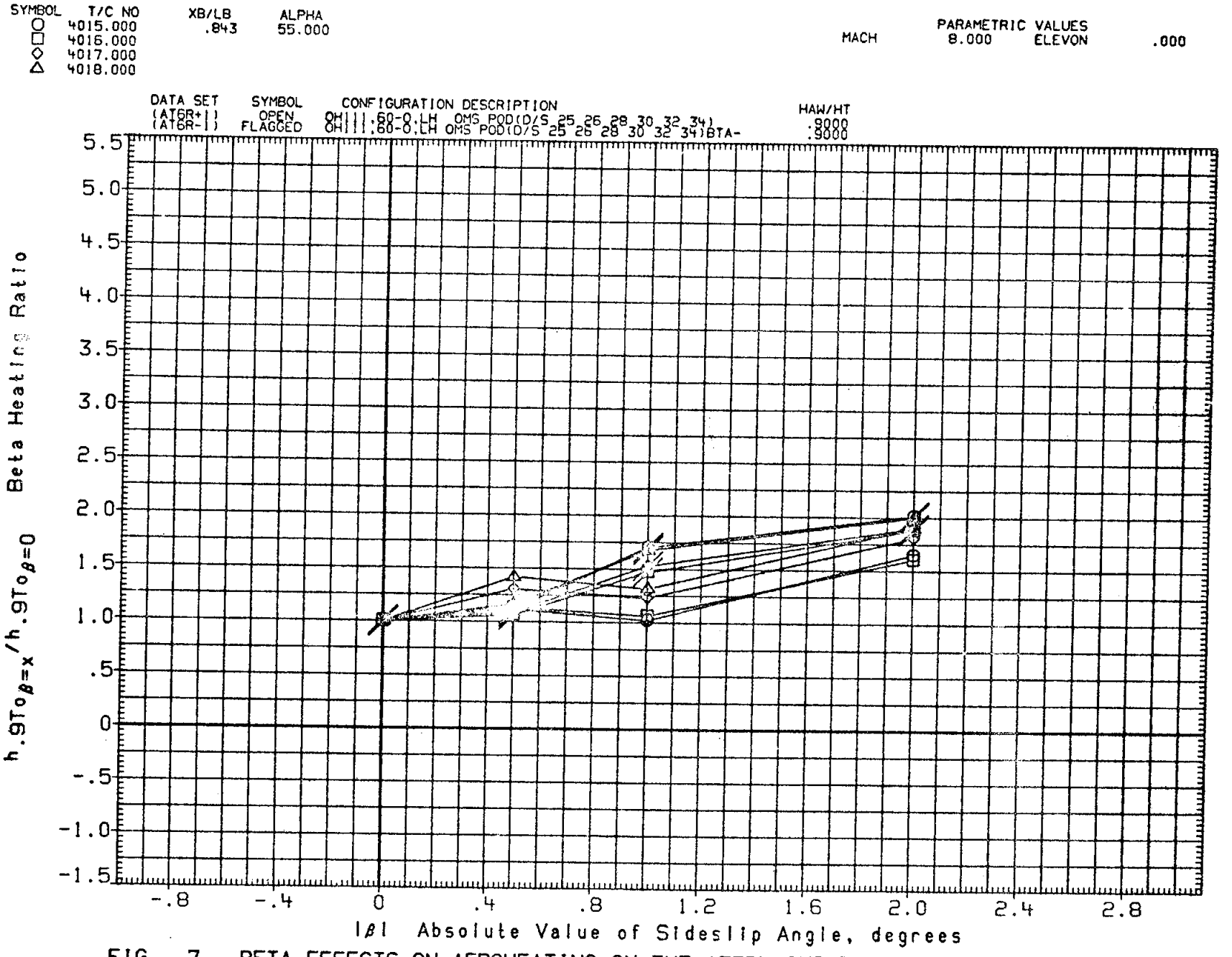


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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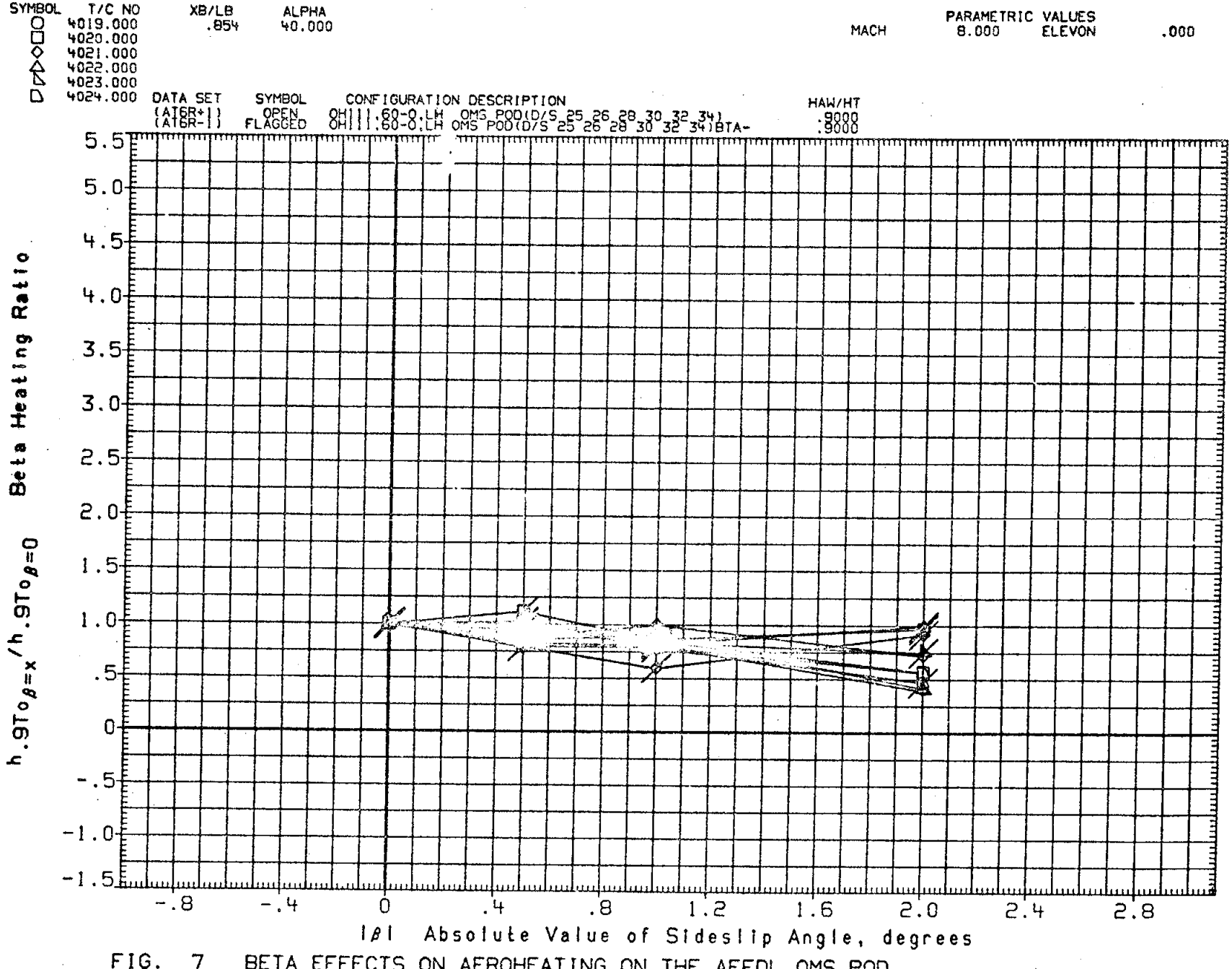
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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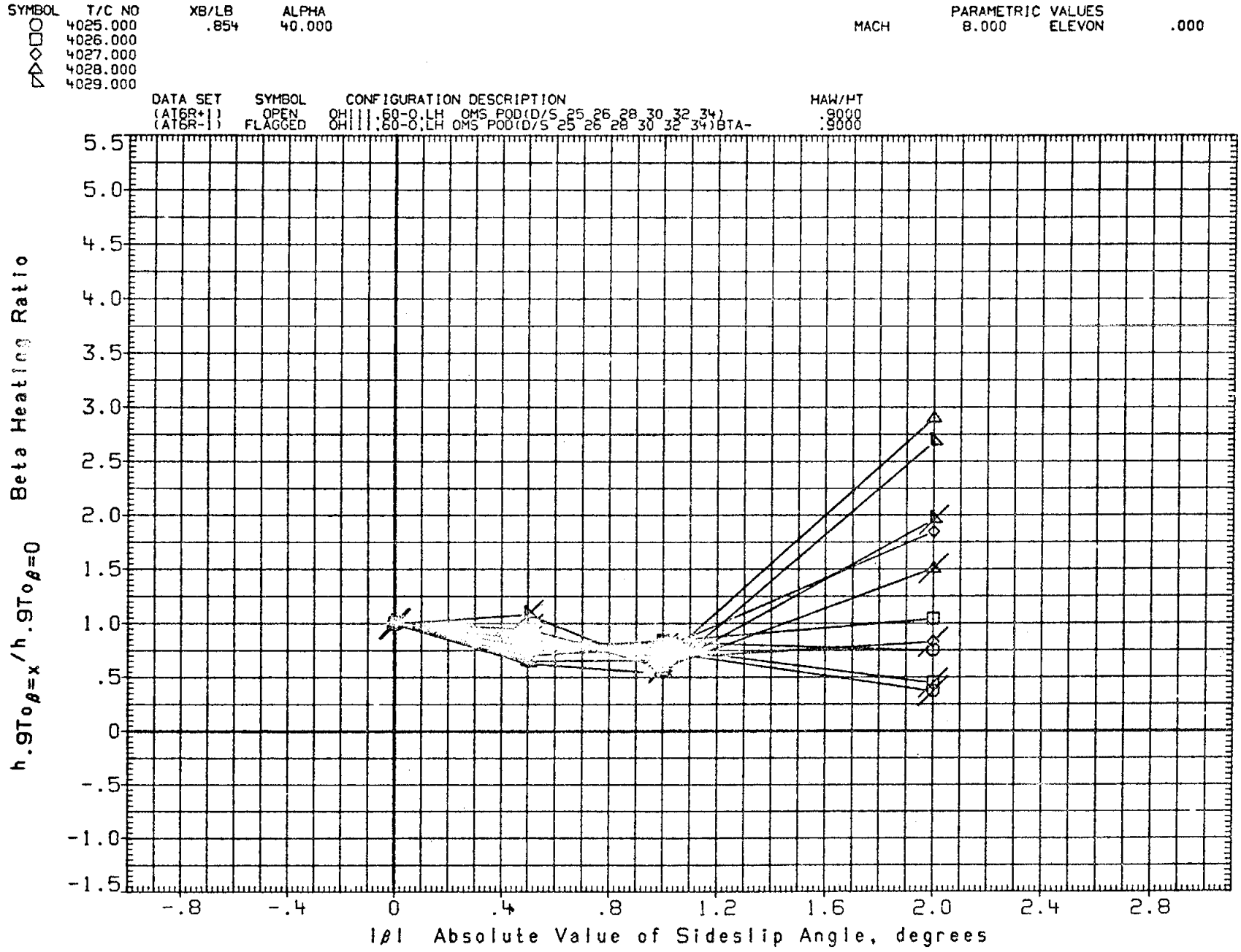
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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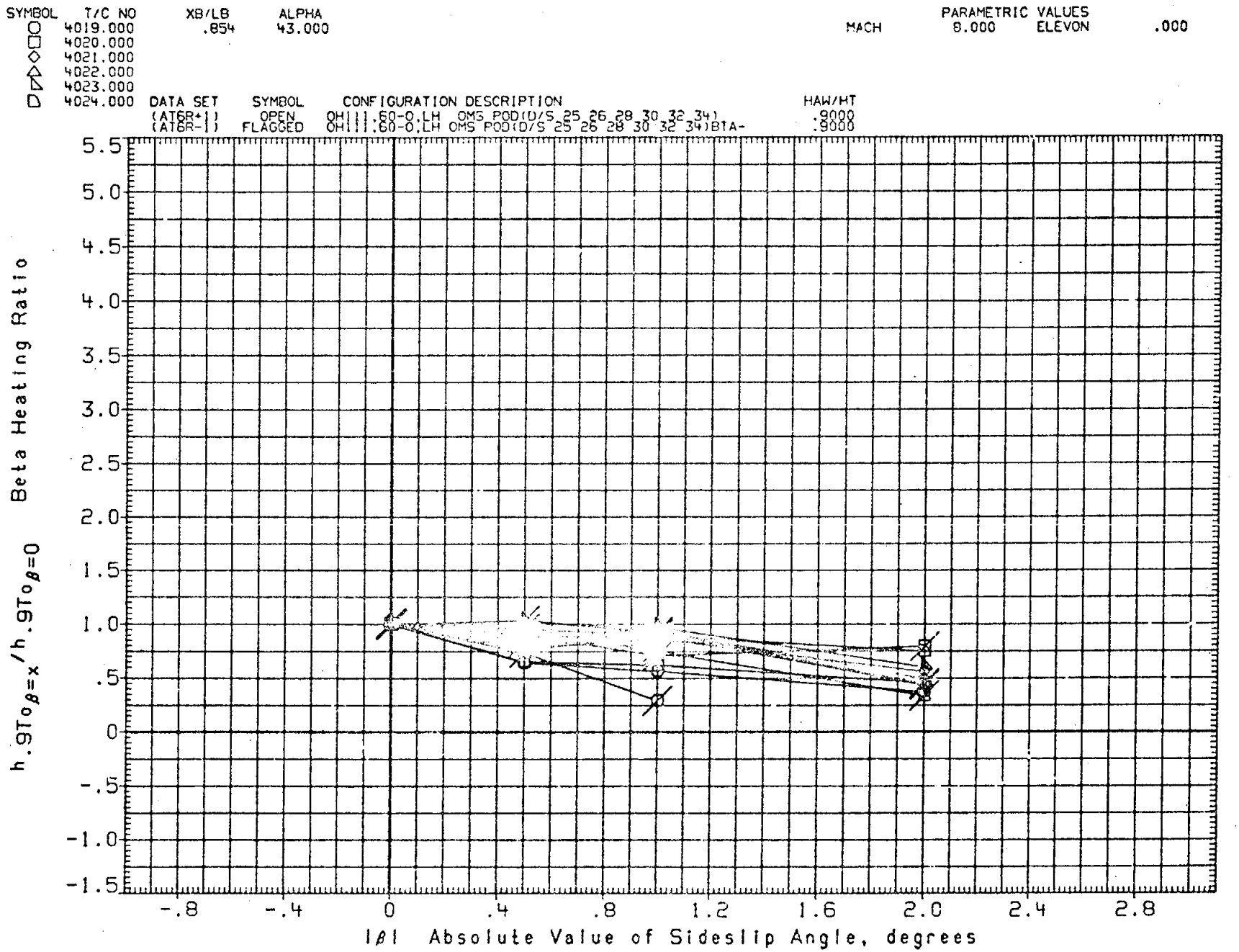
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

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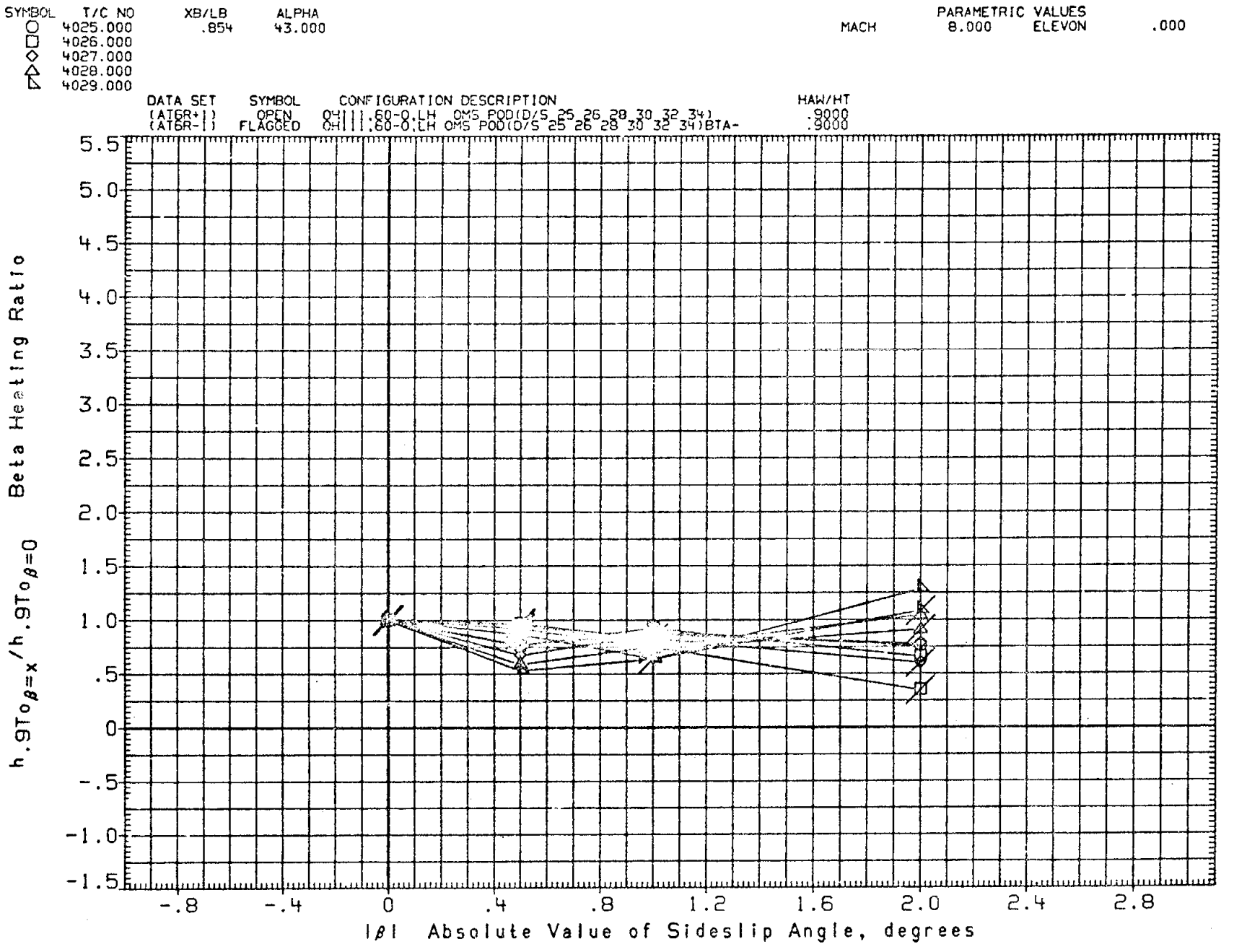

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REYNOLDS NUMBER = 0.5

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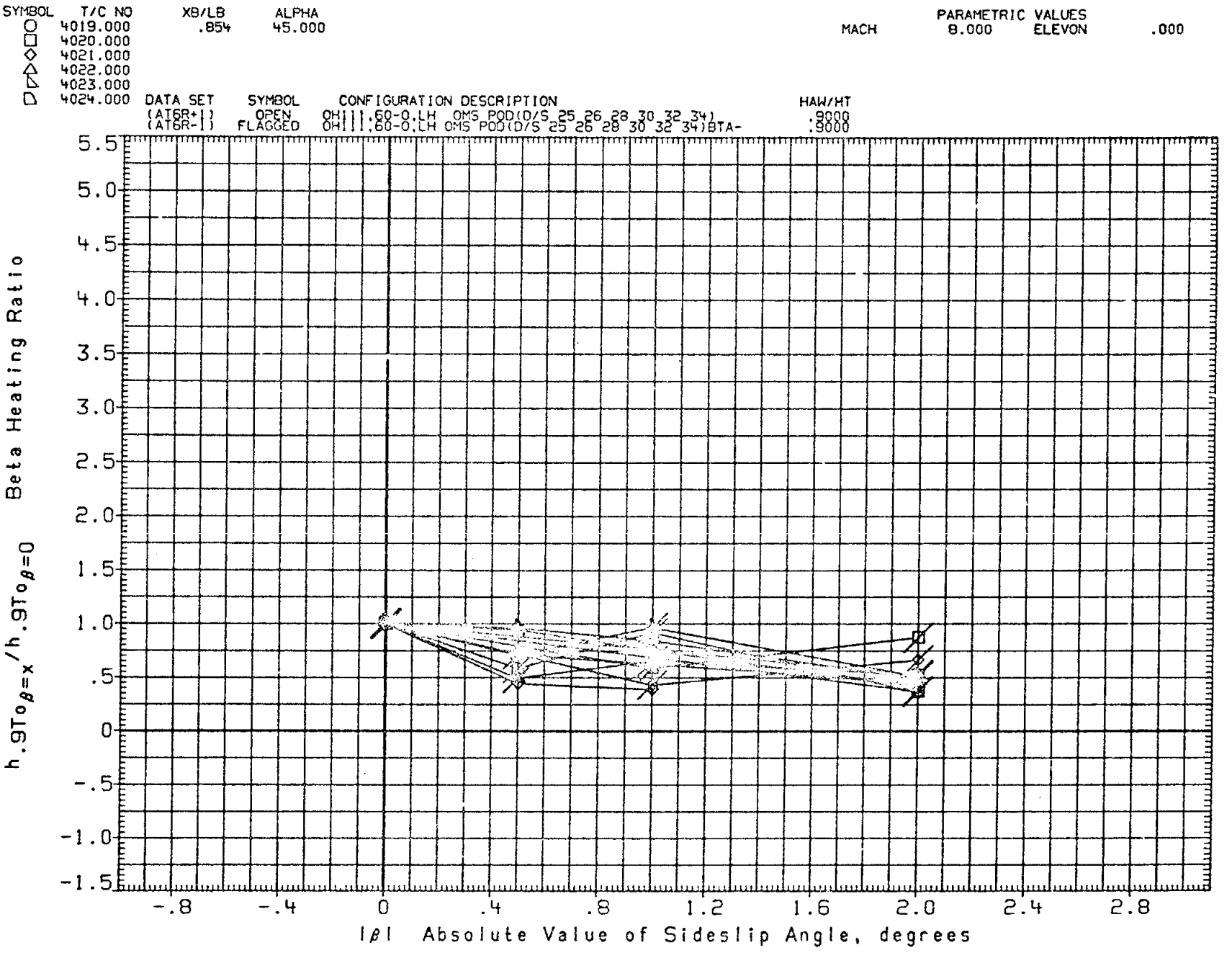

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REYNOLDS NUMBER = 0.5

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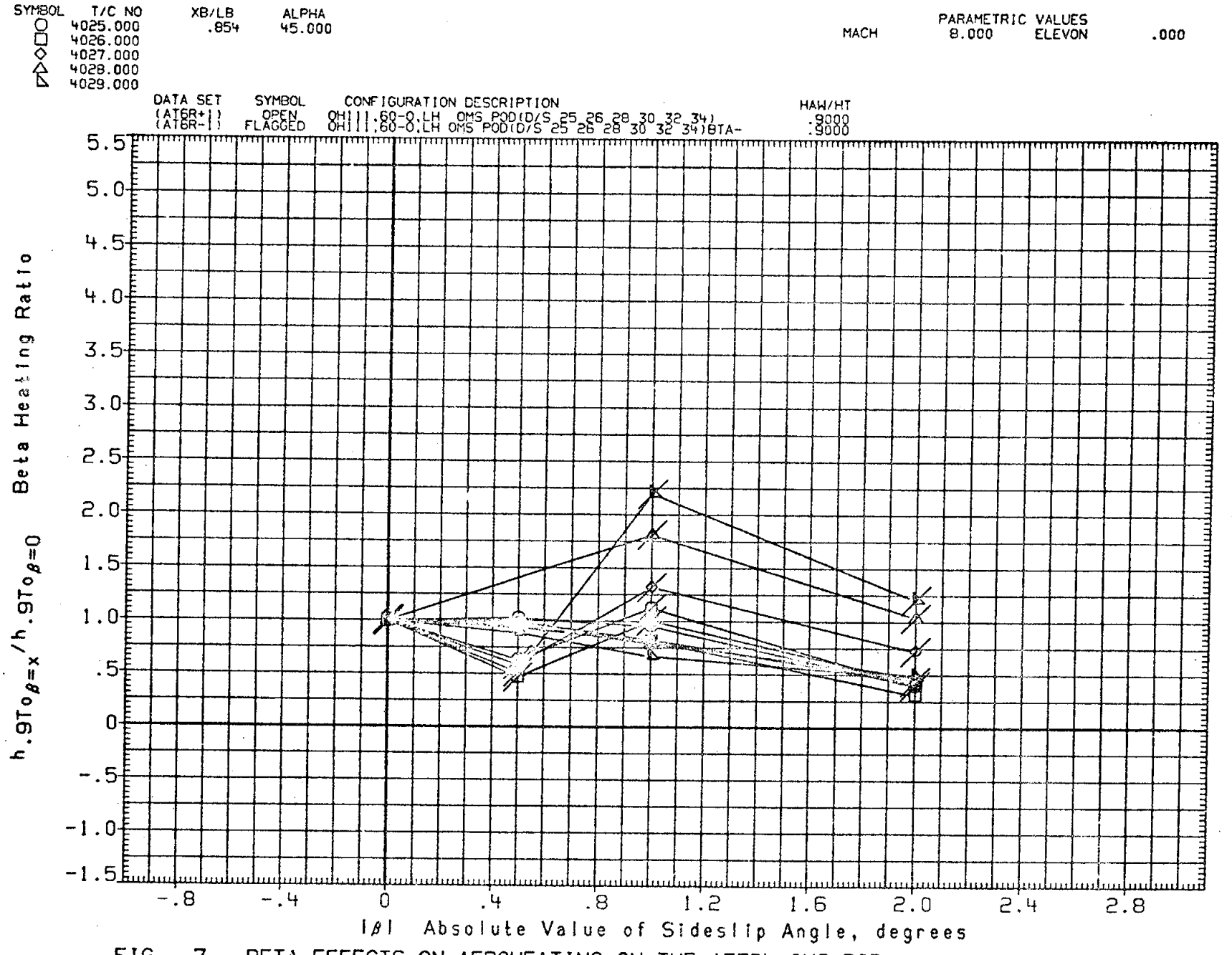

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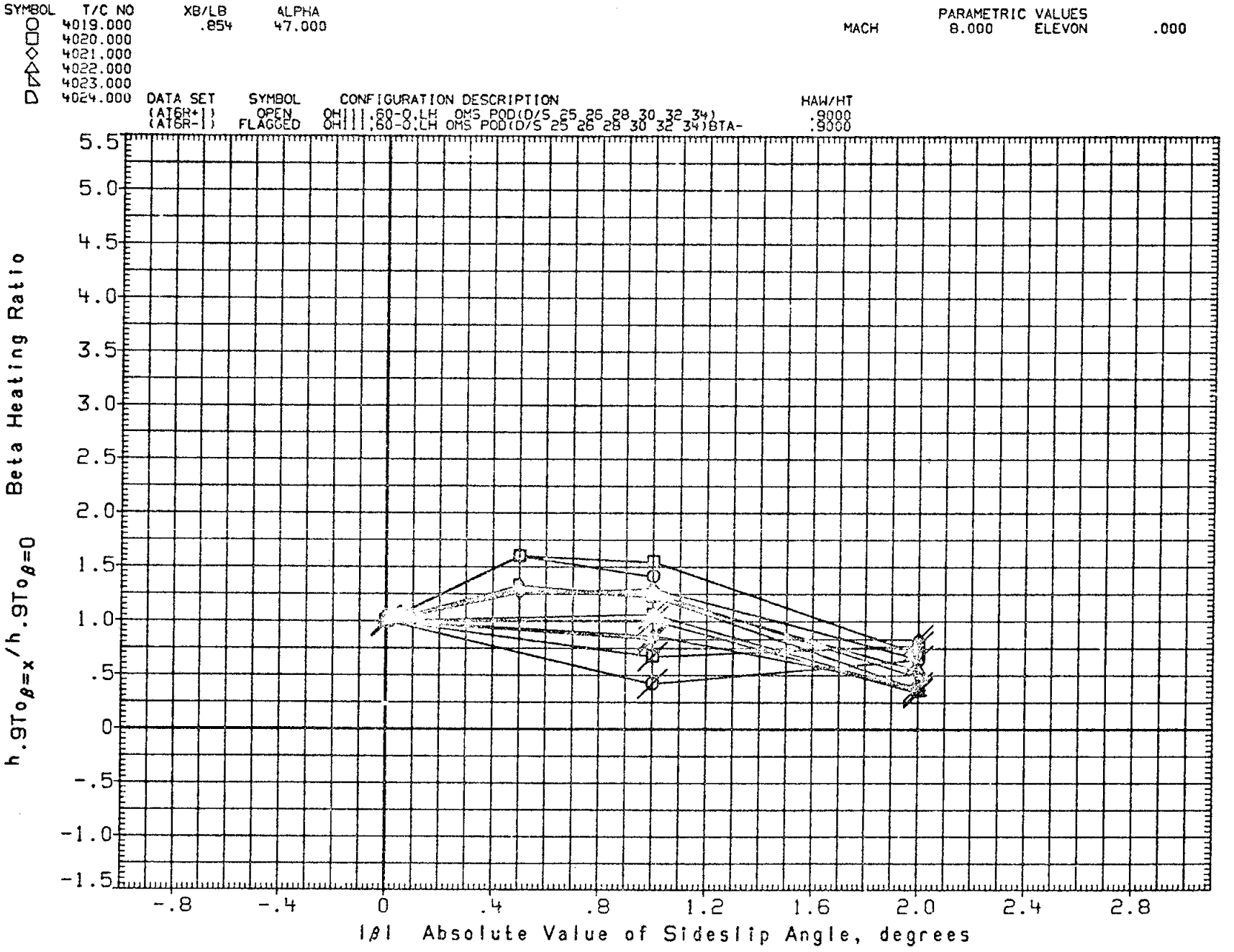
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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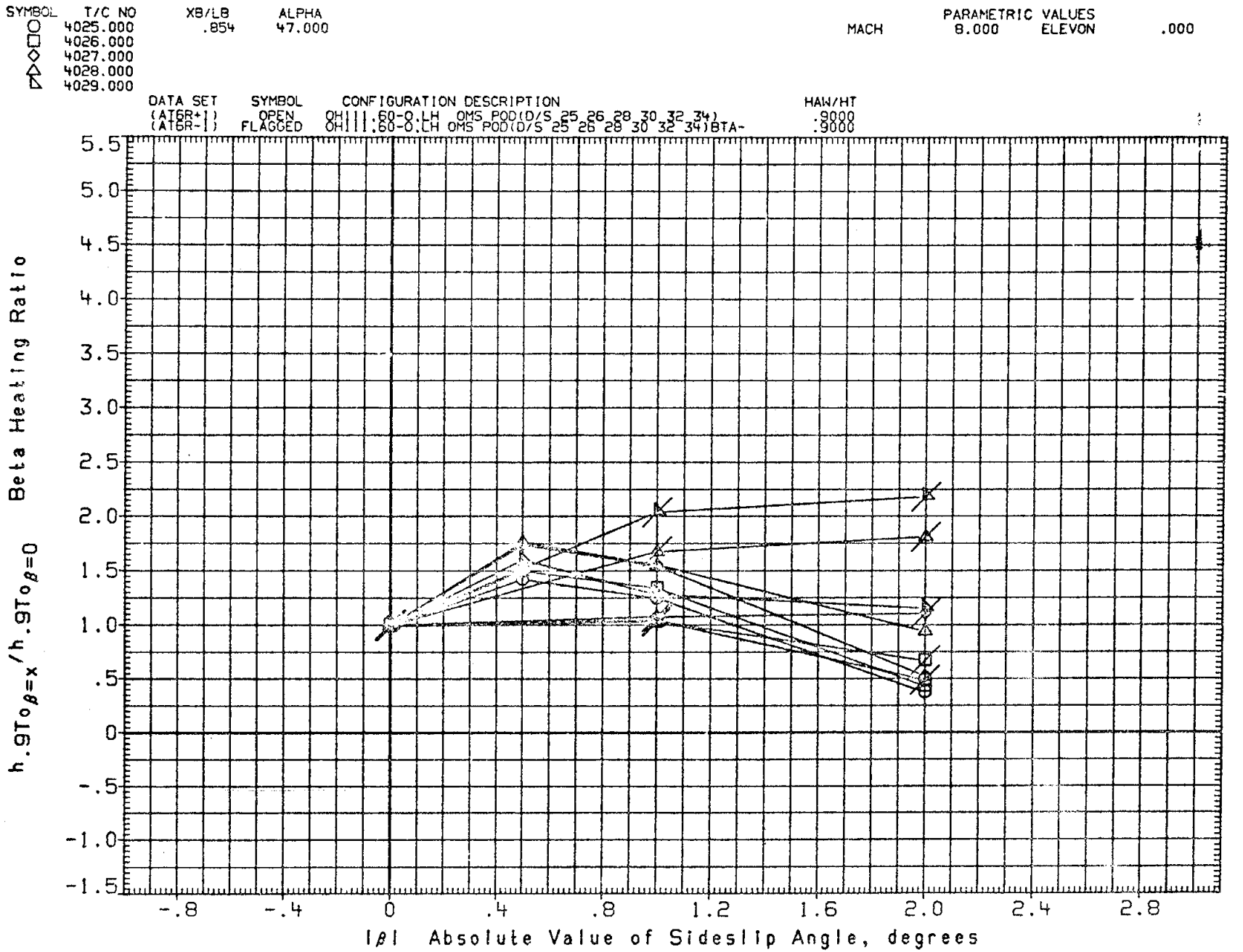
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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DATE 28 JAN 82

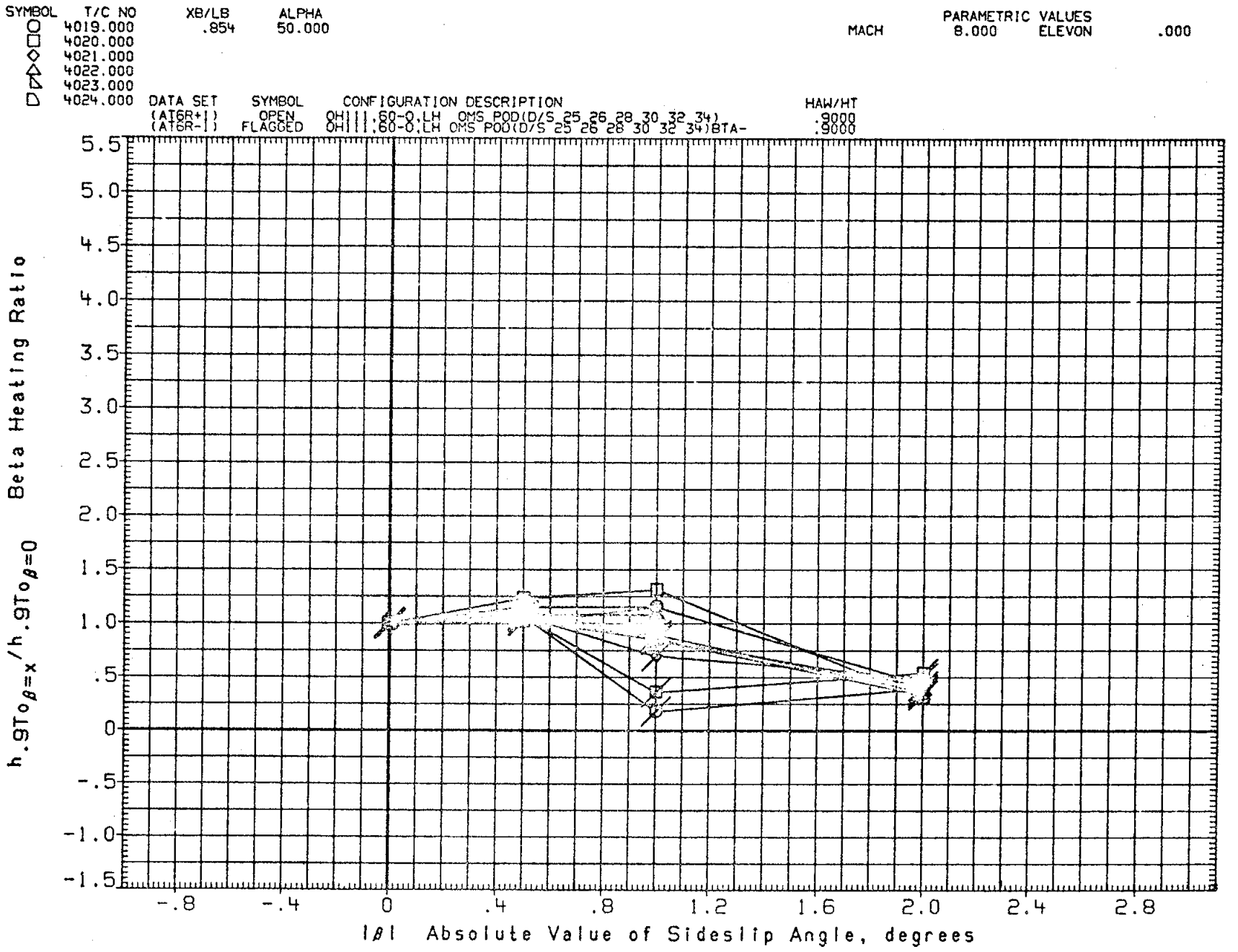
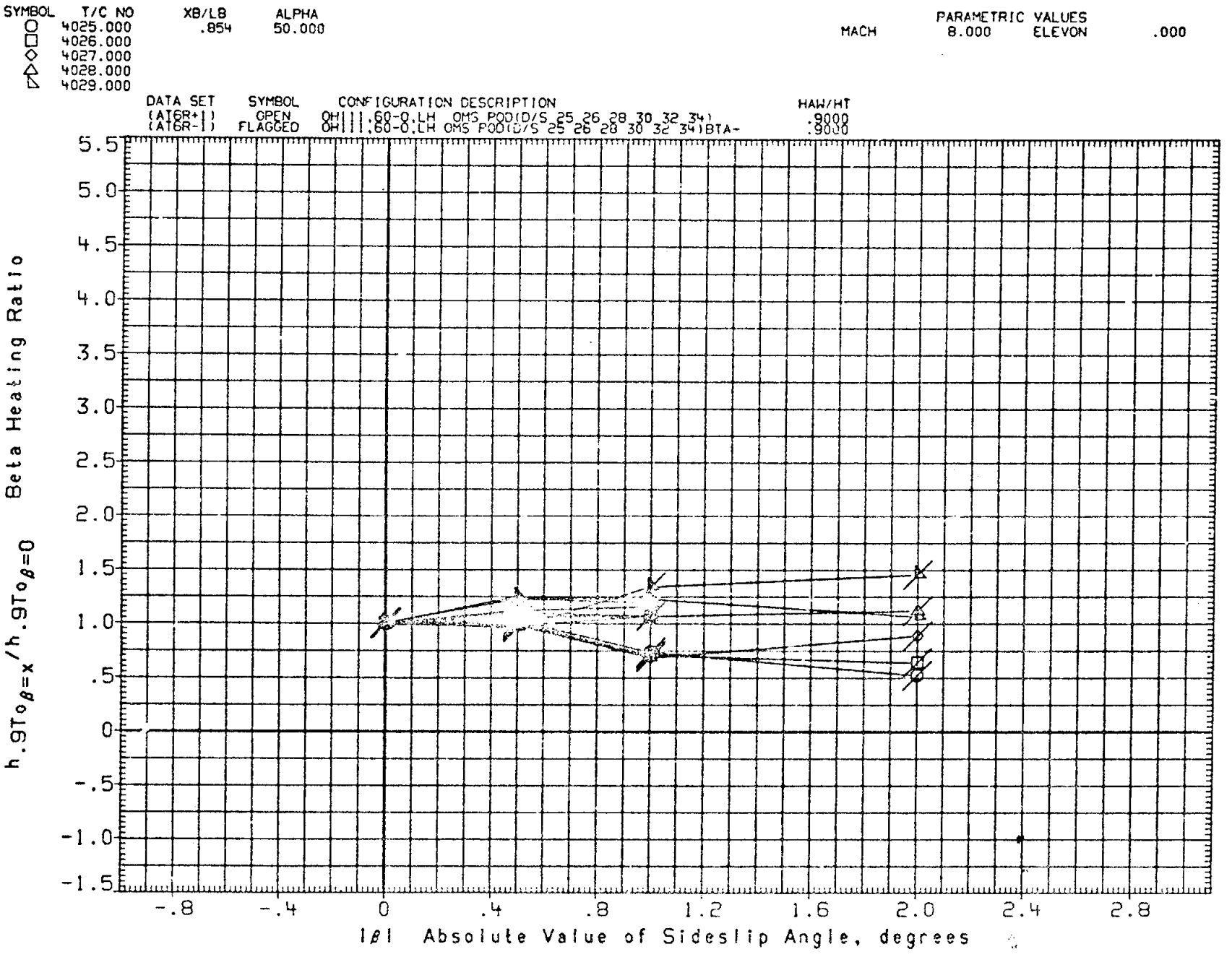


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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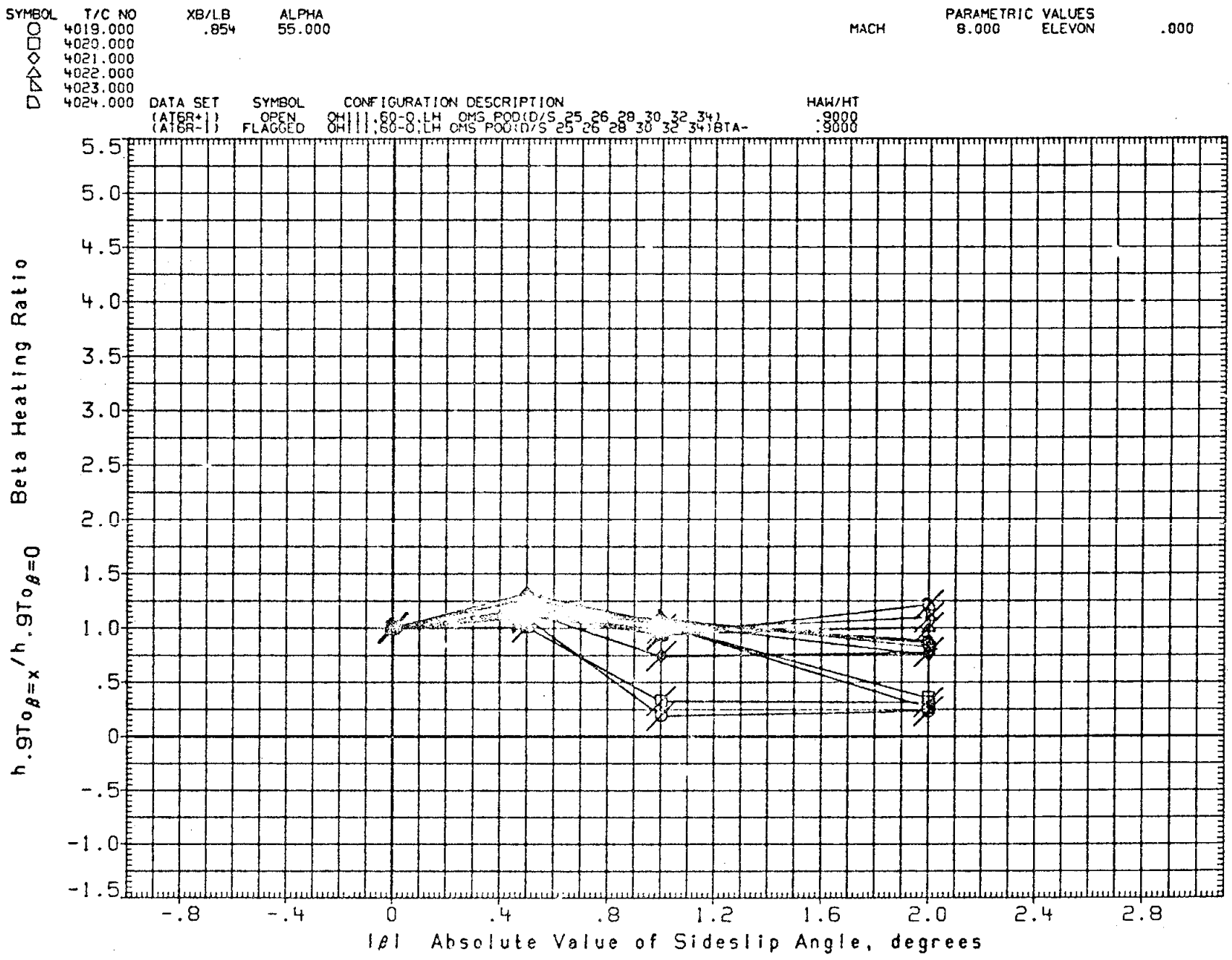
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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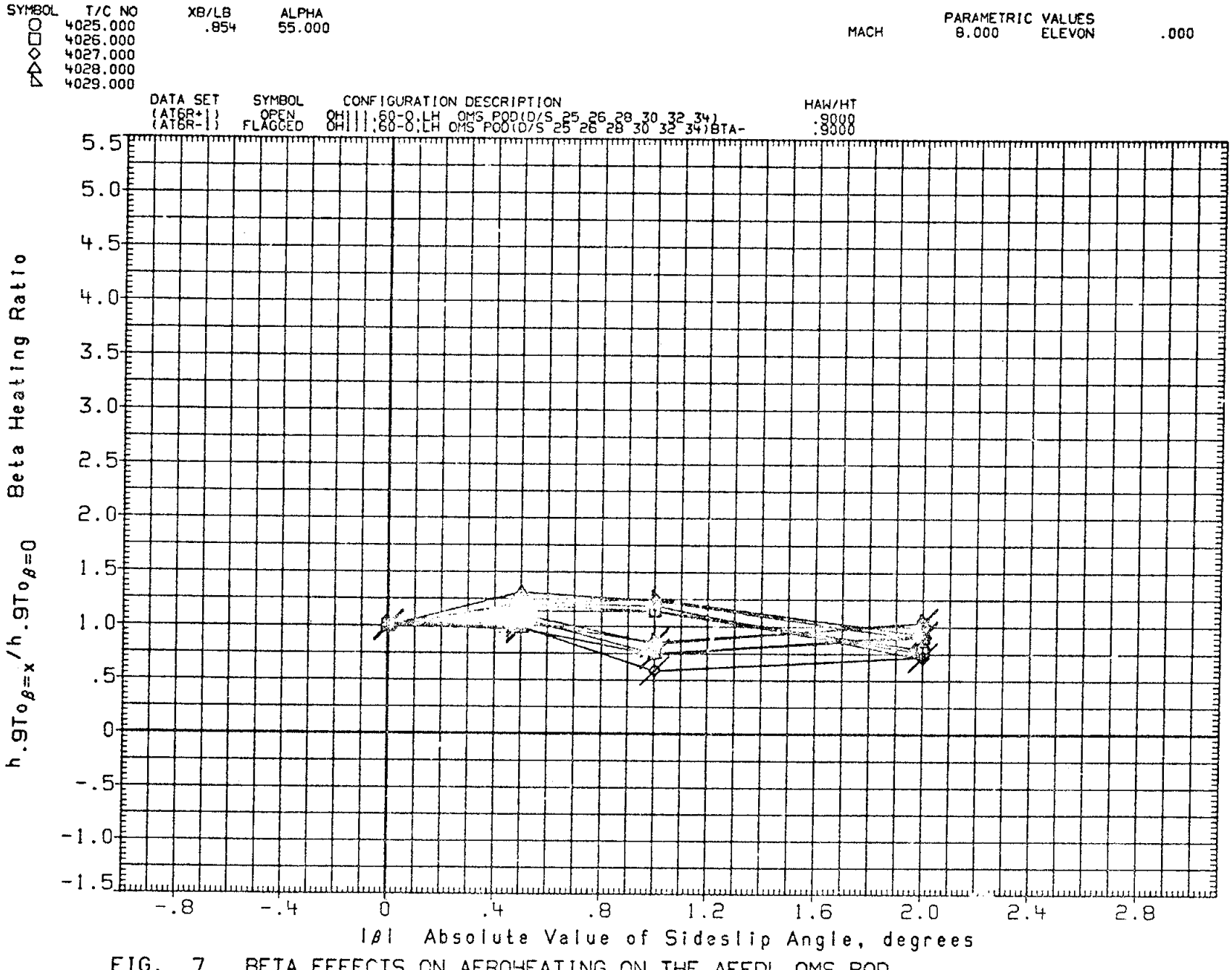
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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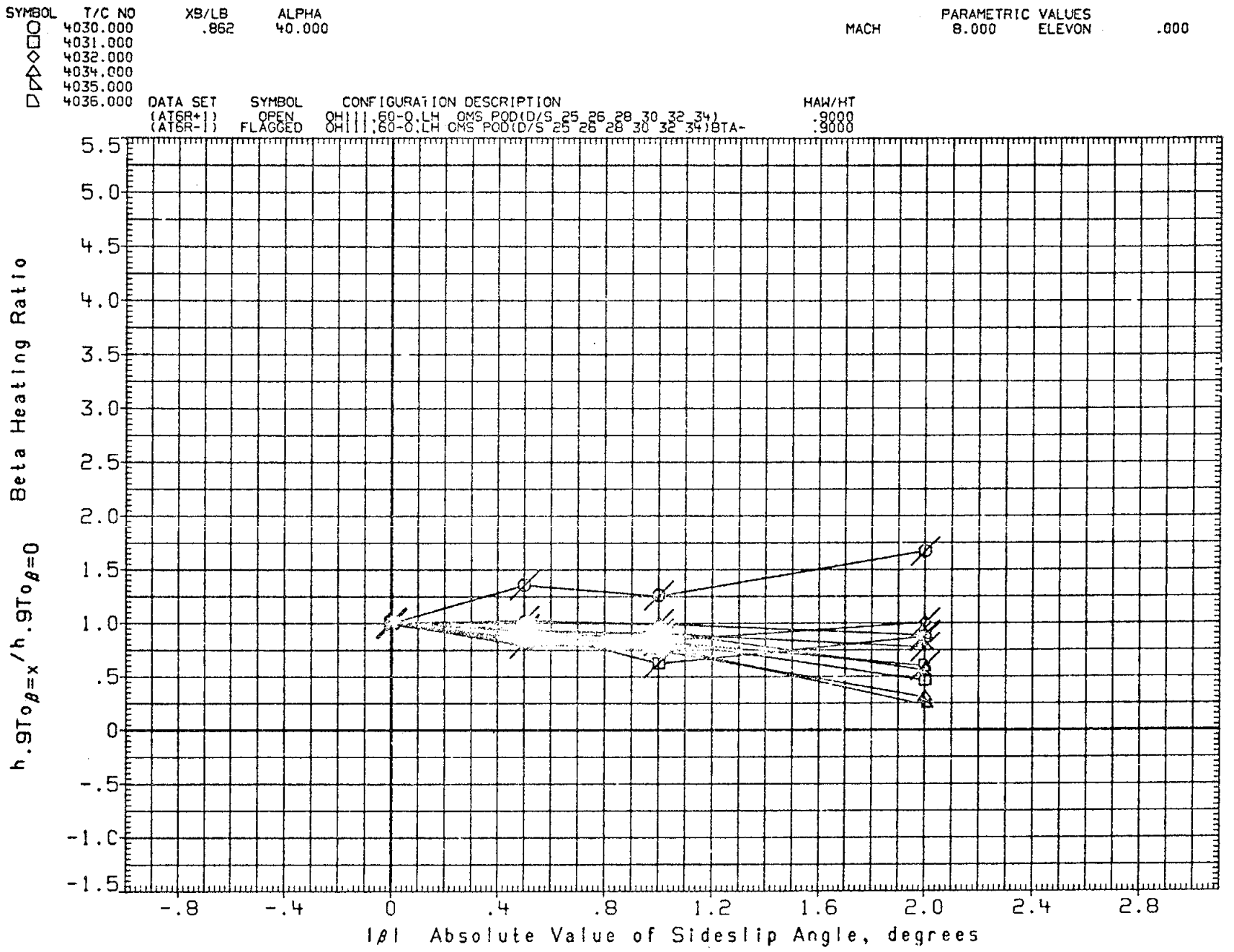
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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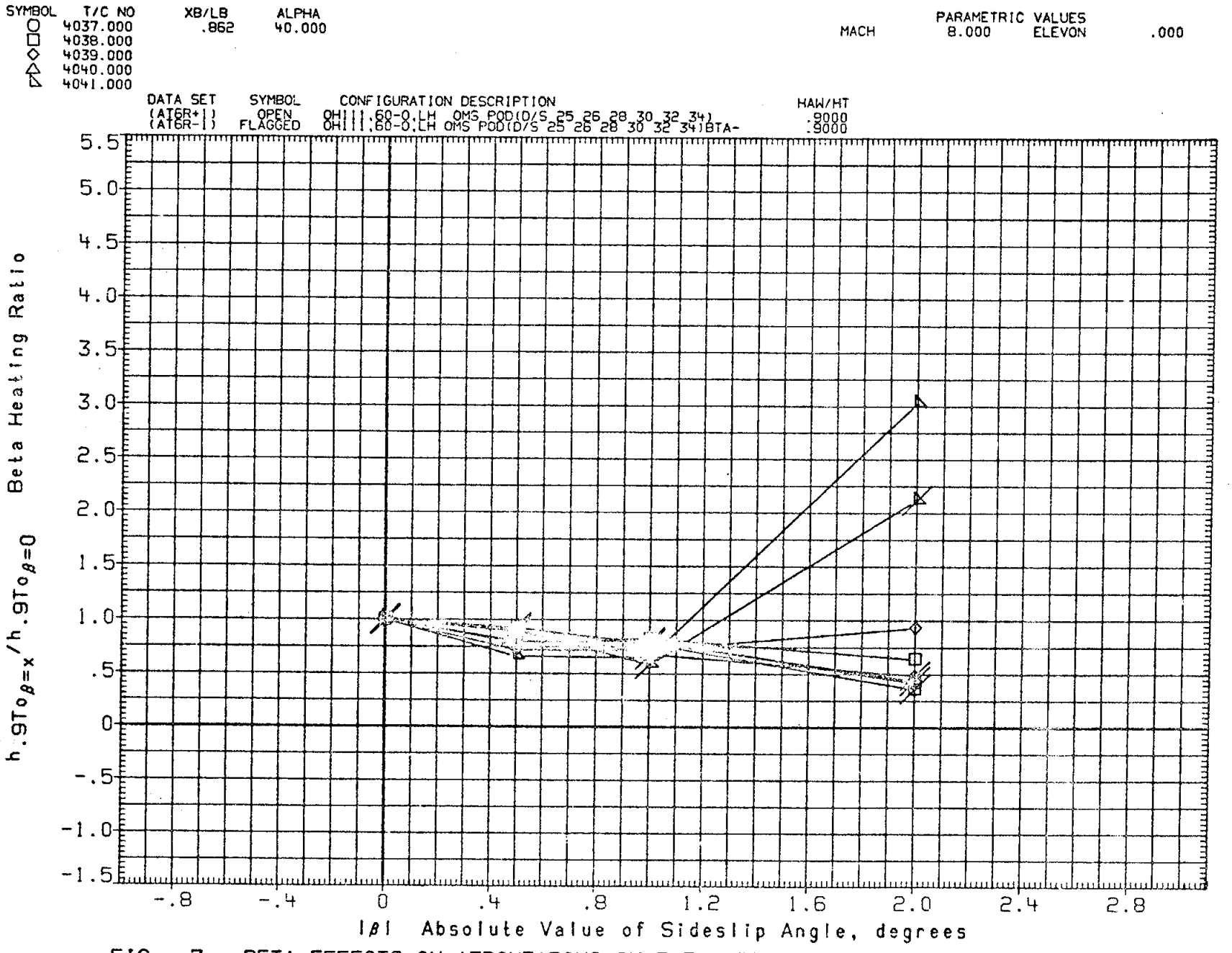
DATE 28 JAN 82



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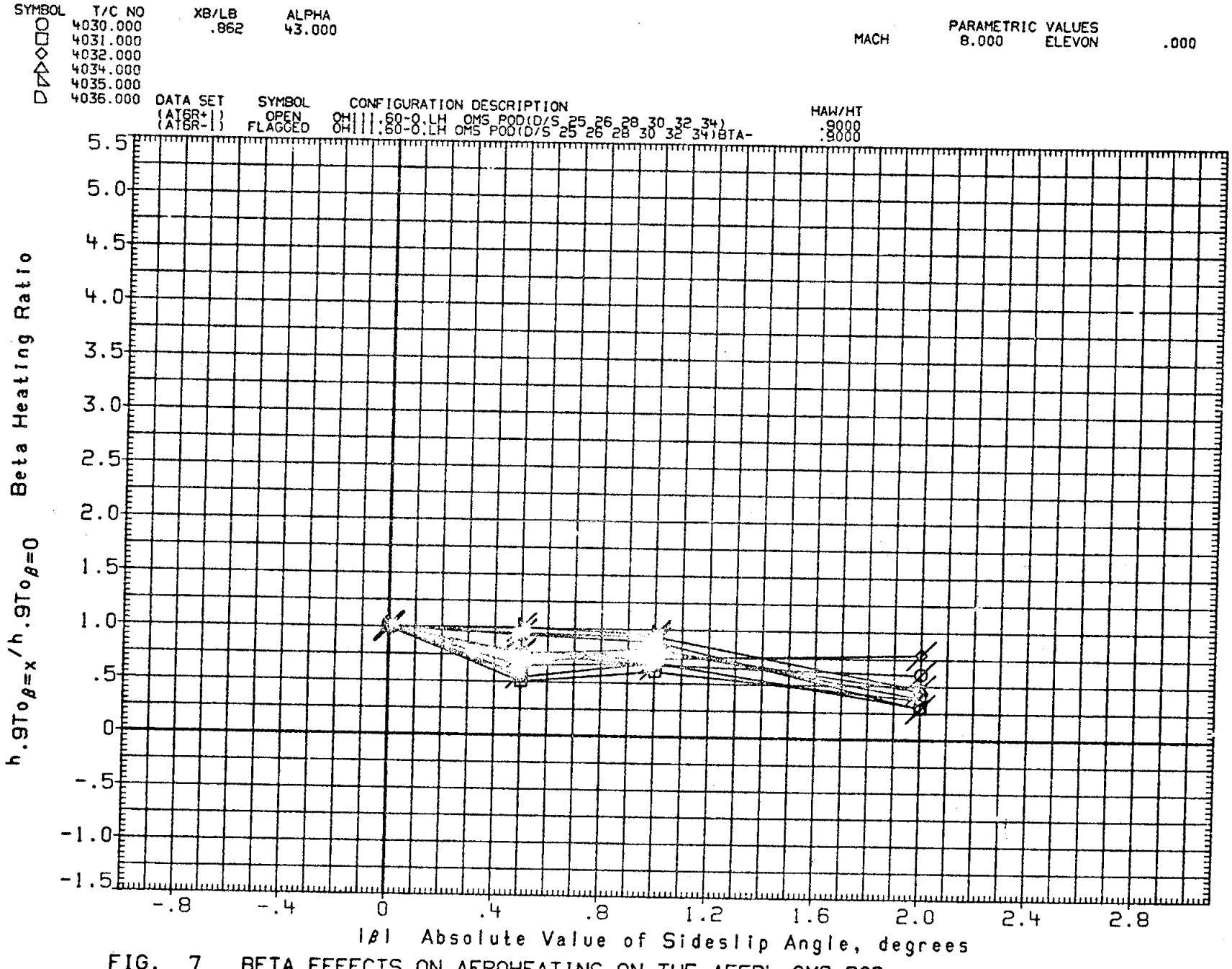
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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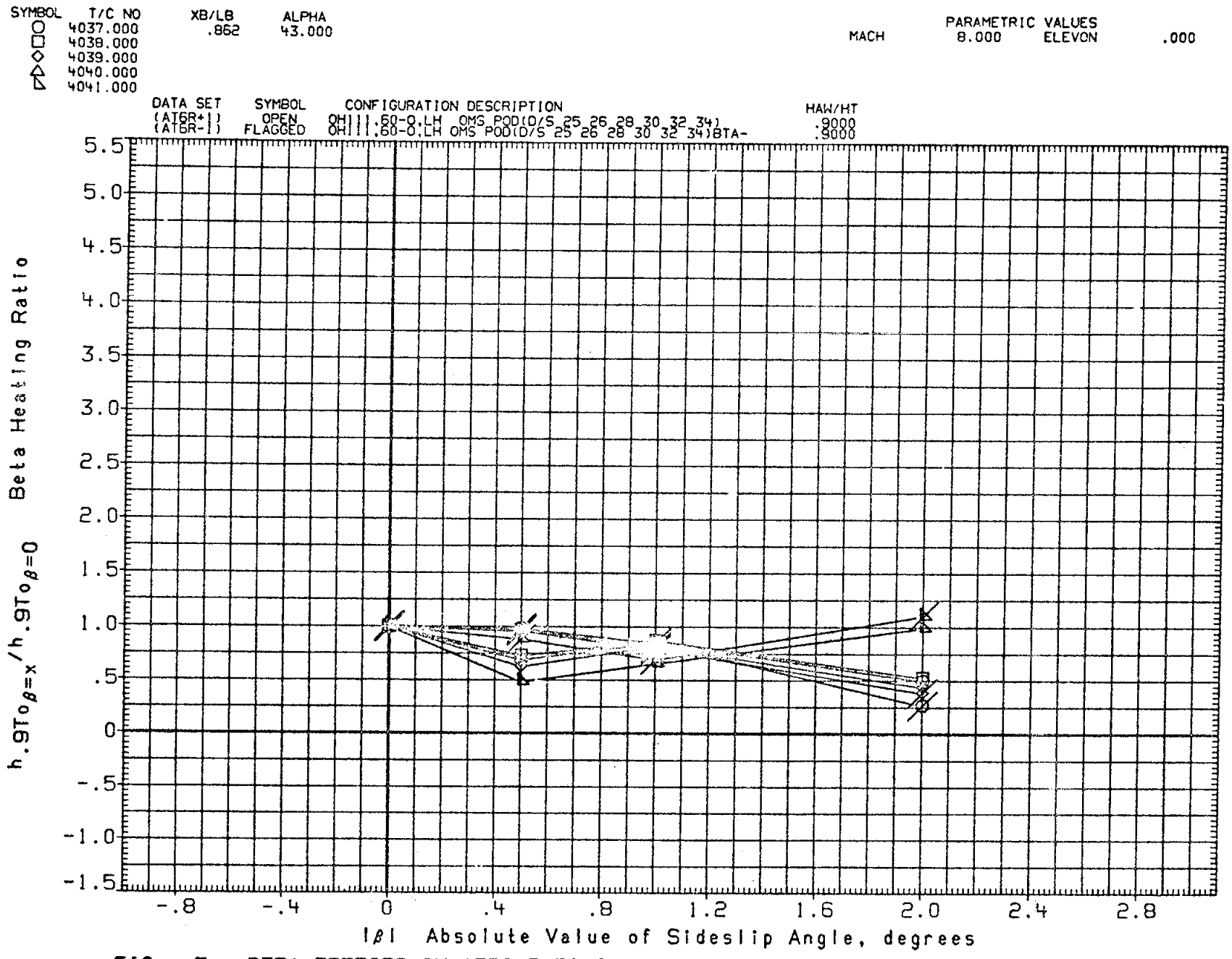
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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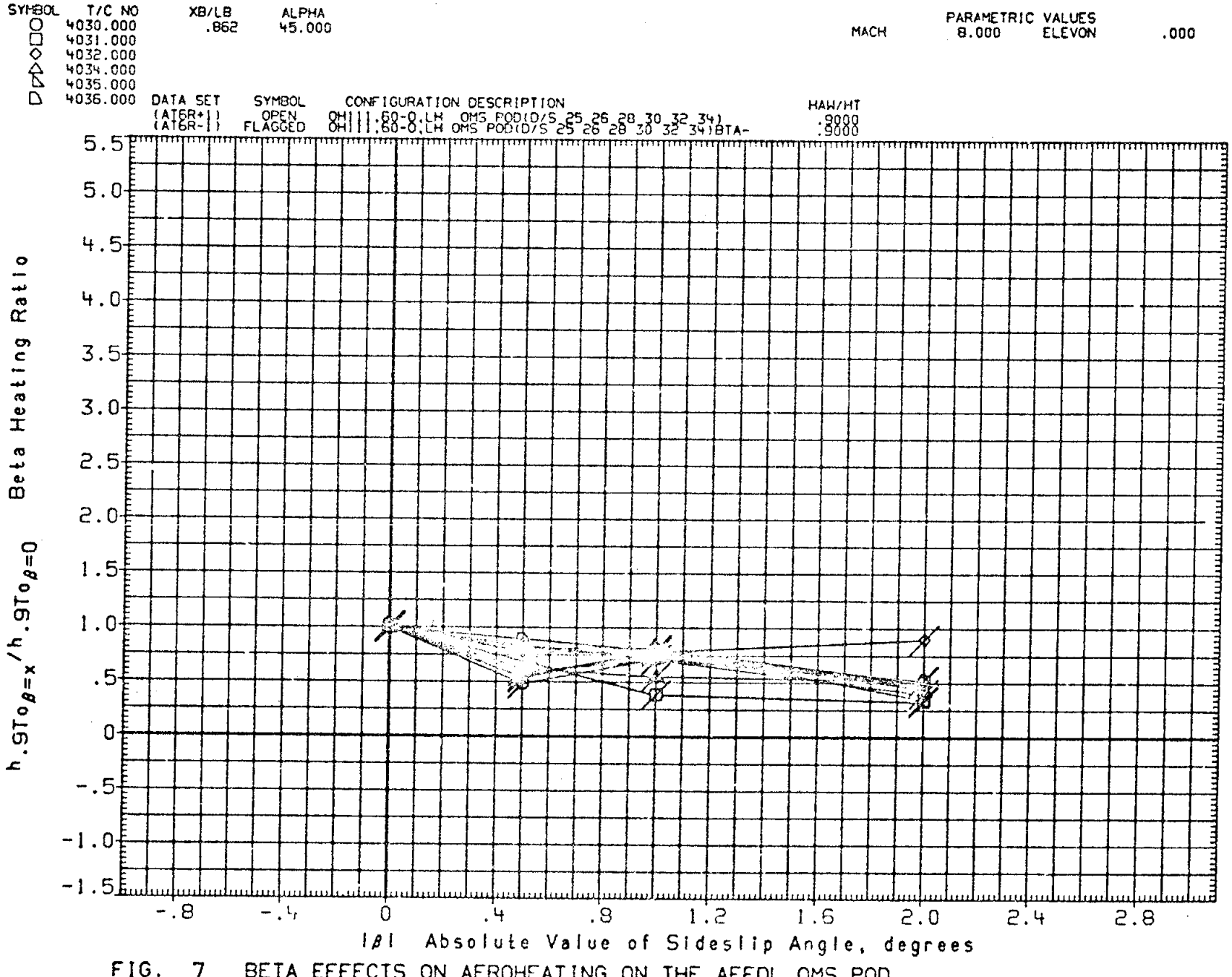
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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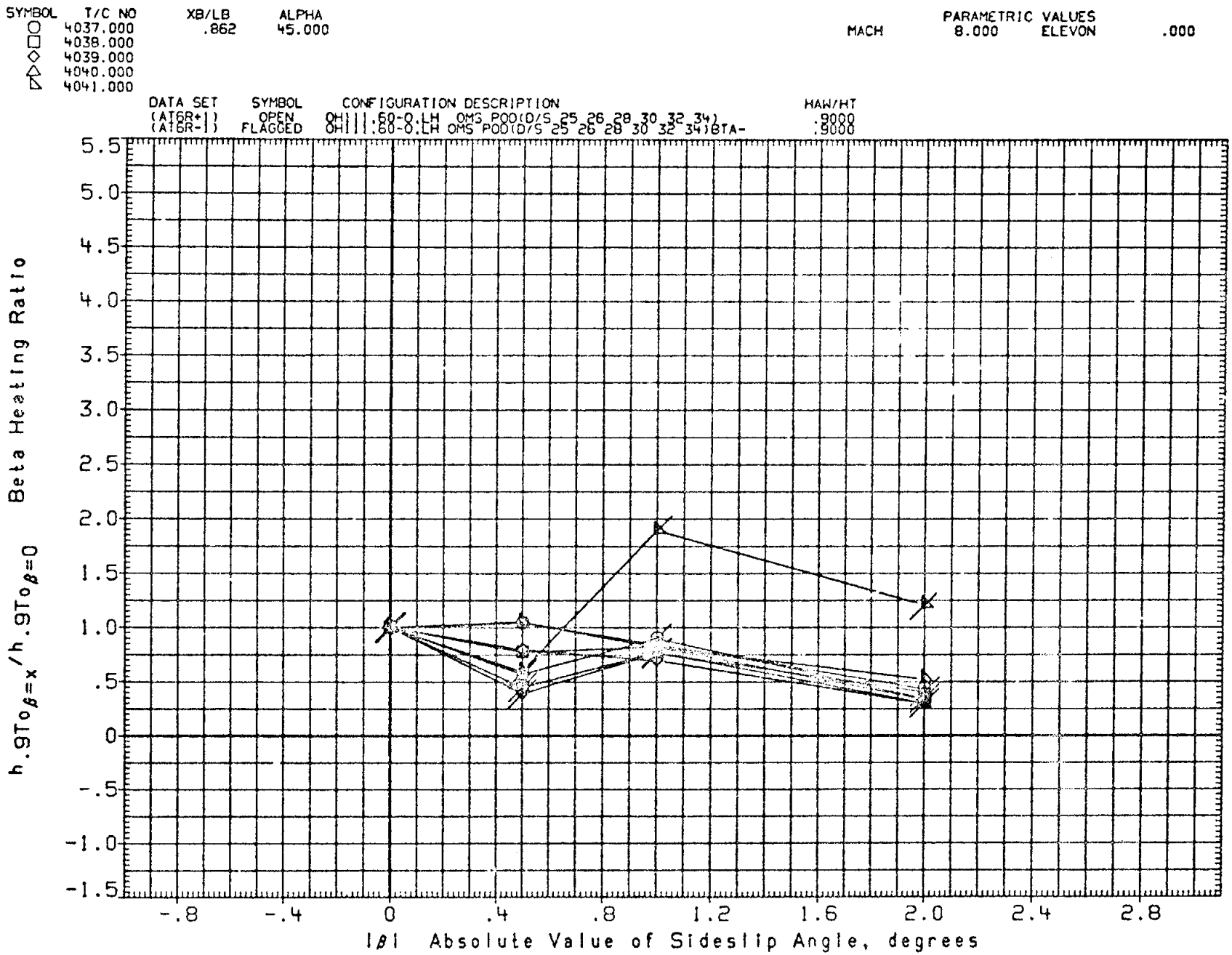
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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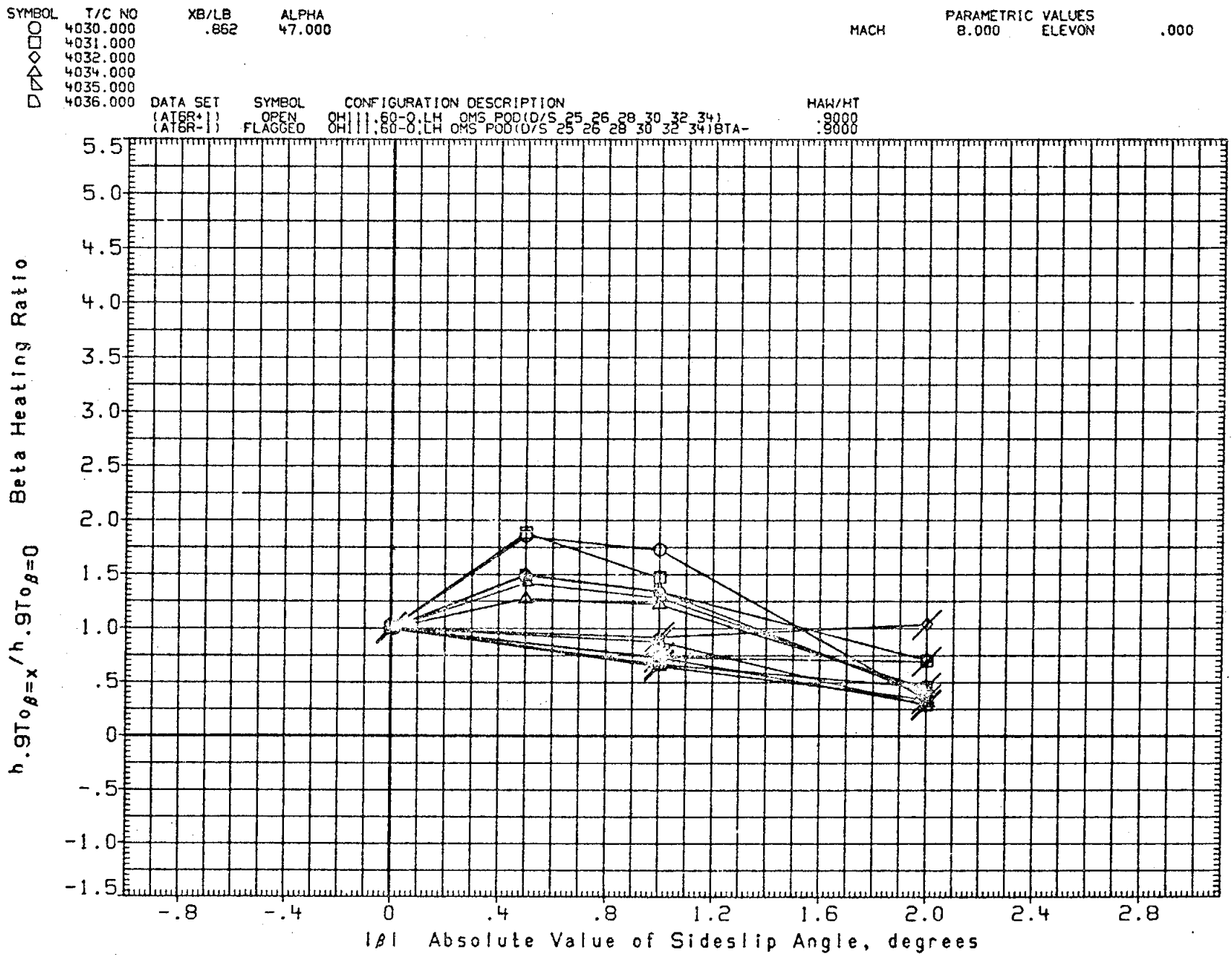

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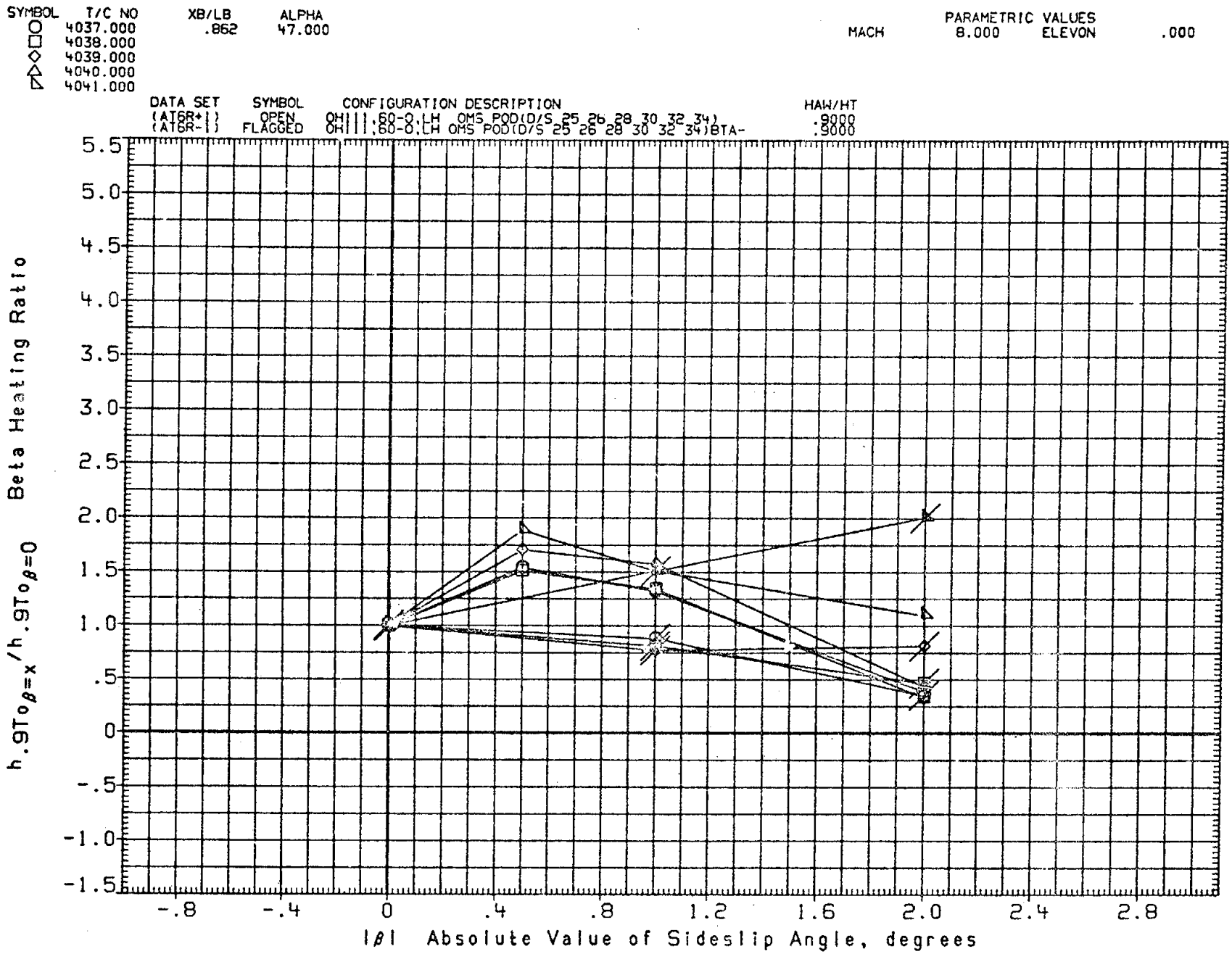
DATE 28 JAN 82



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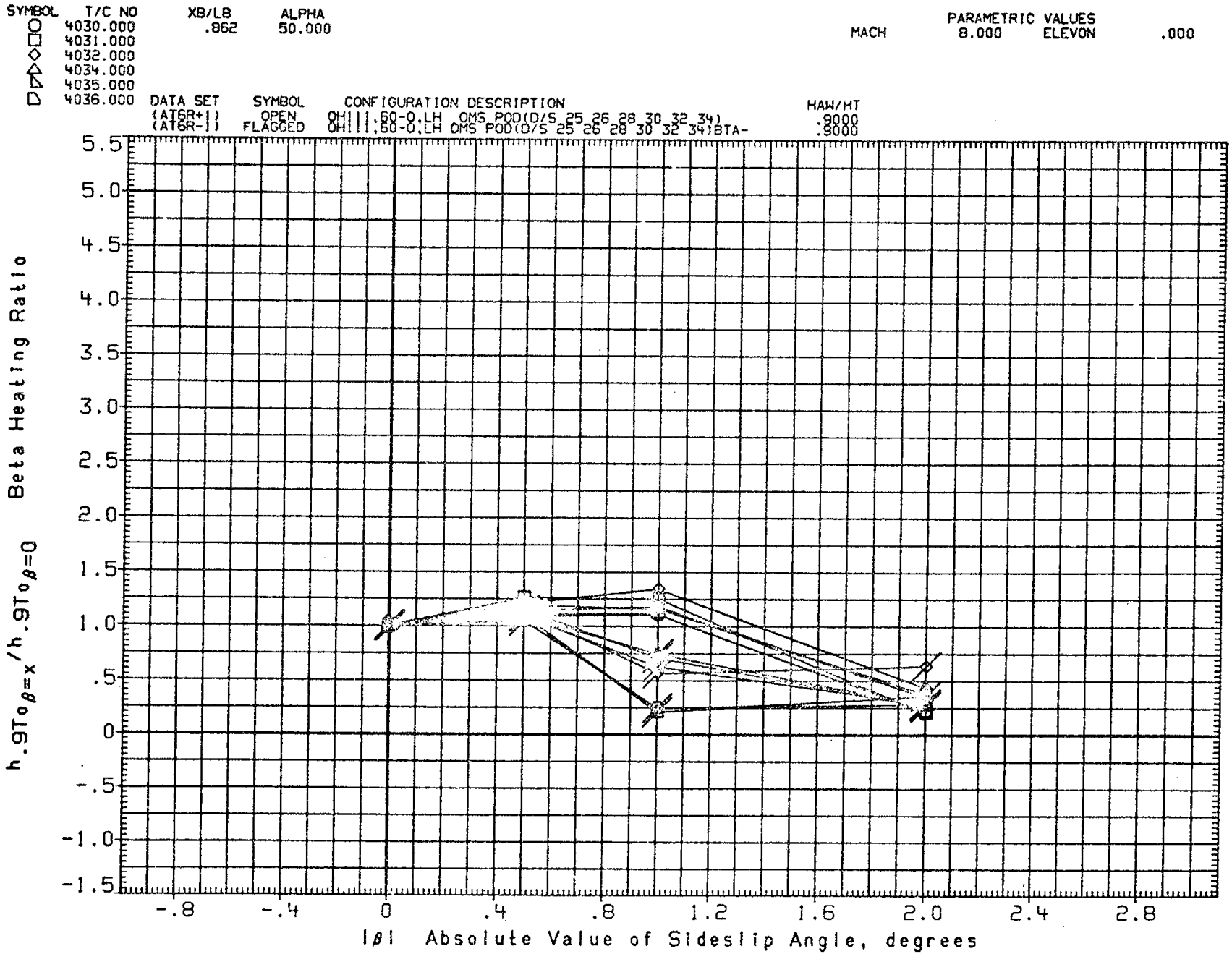
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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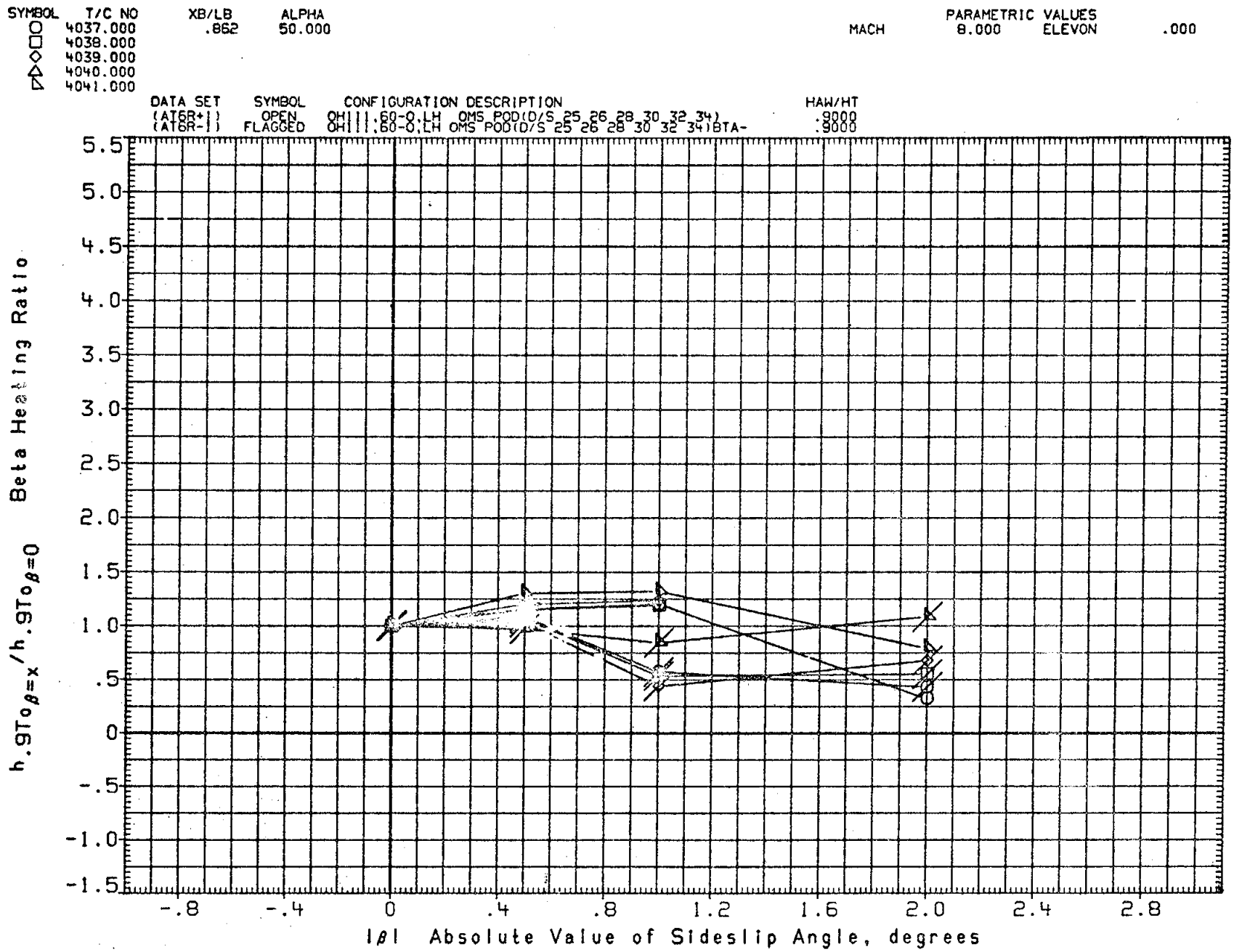
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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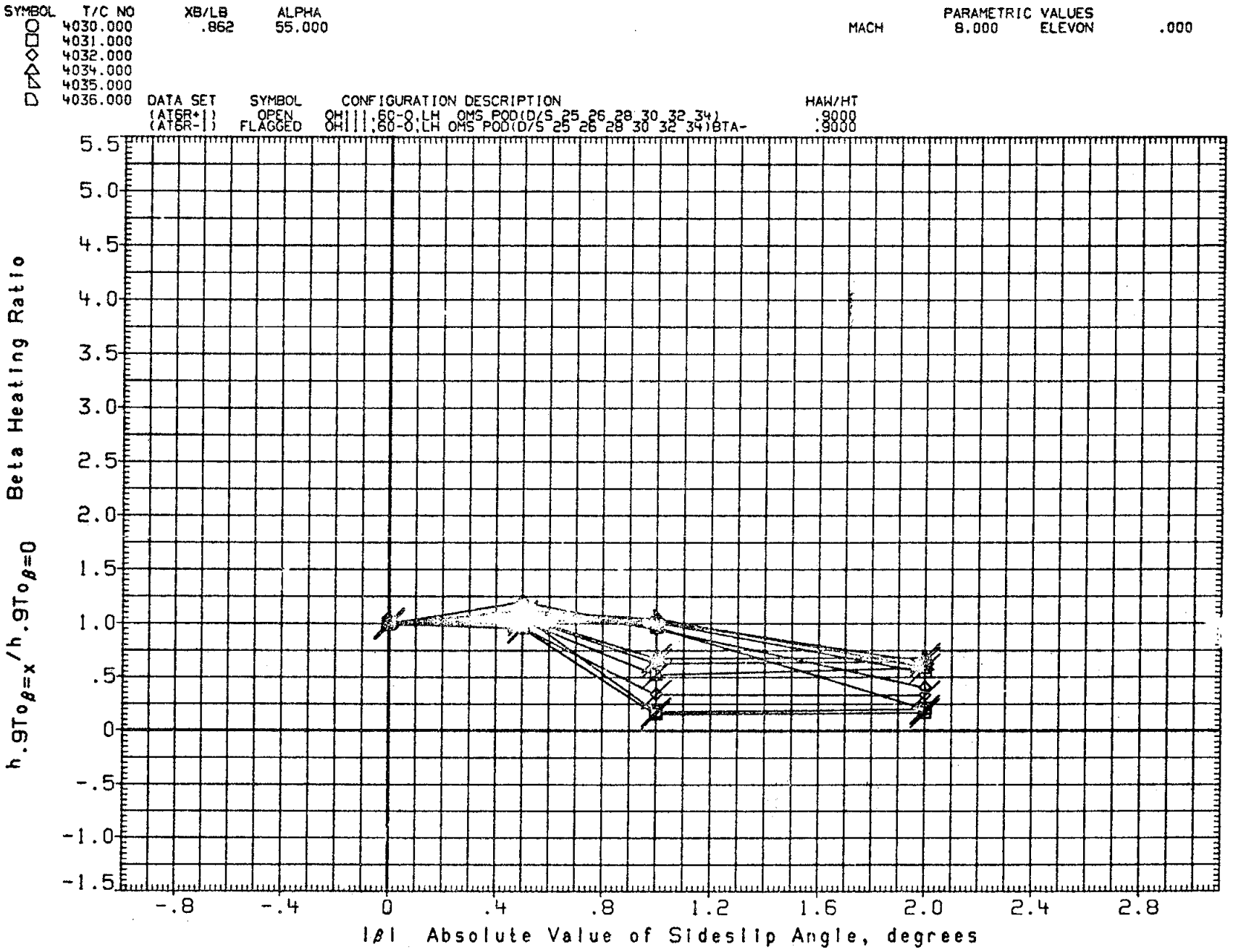
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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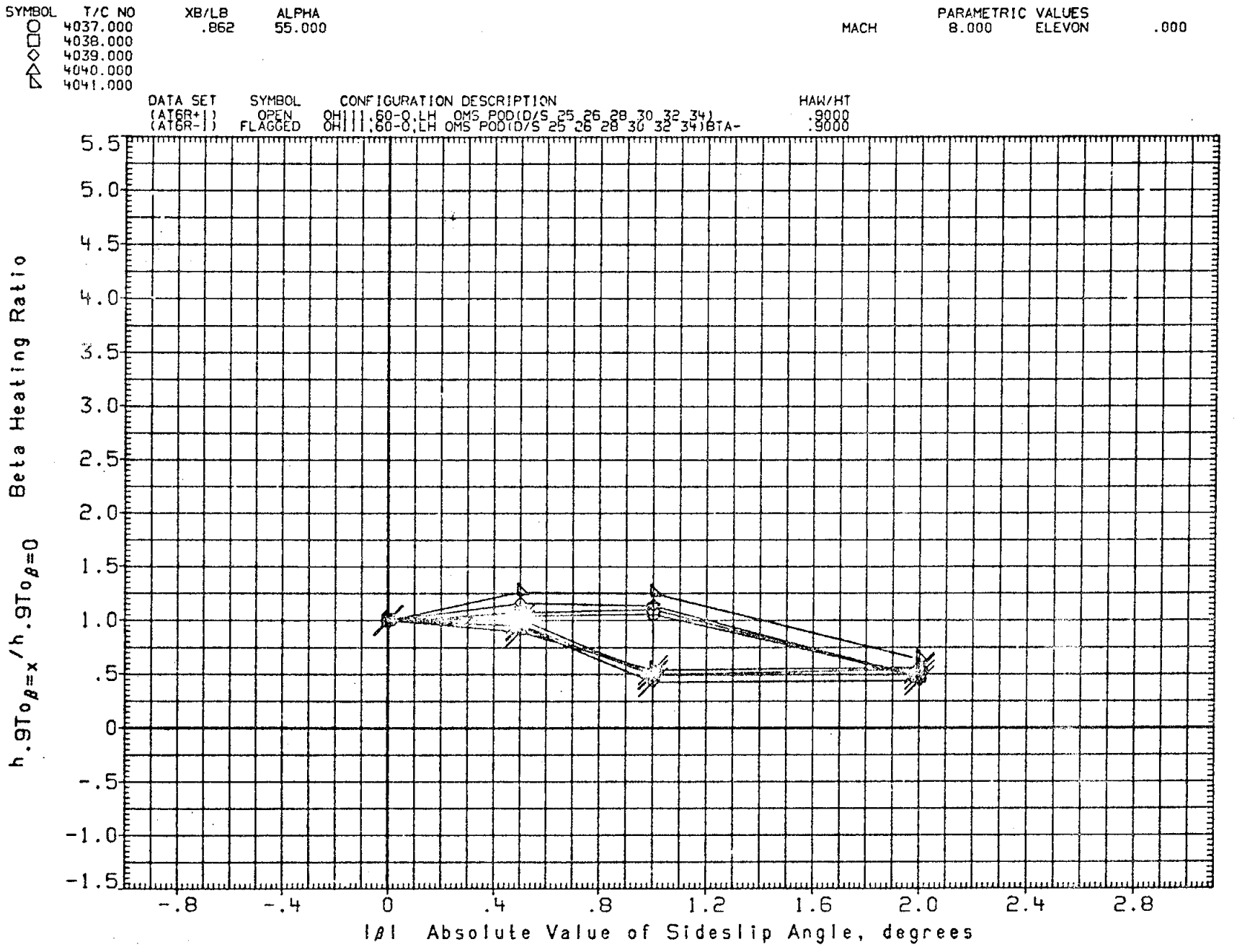

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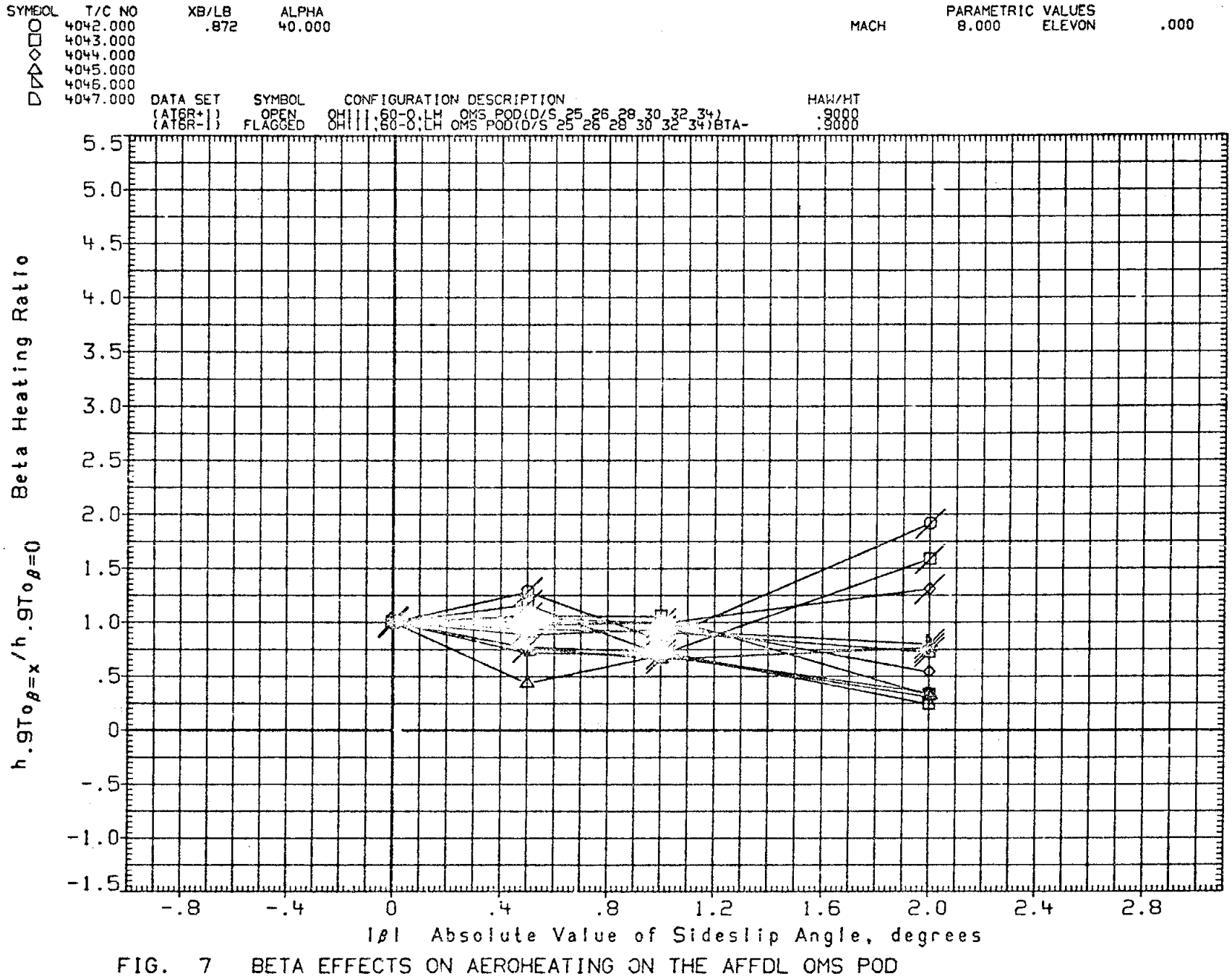
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

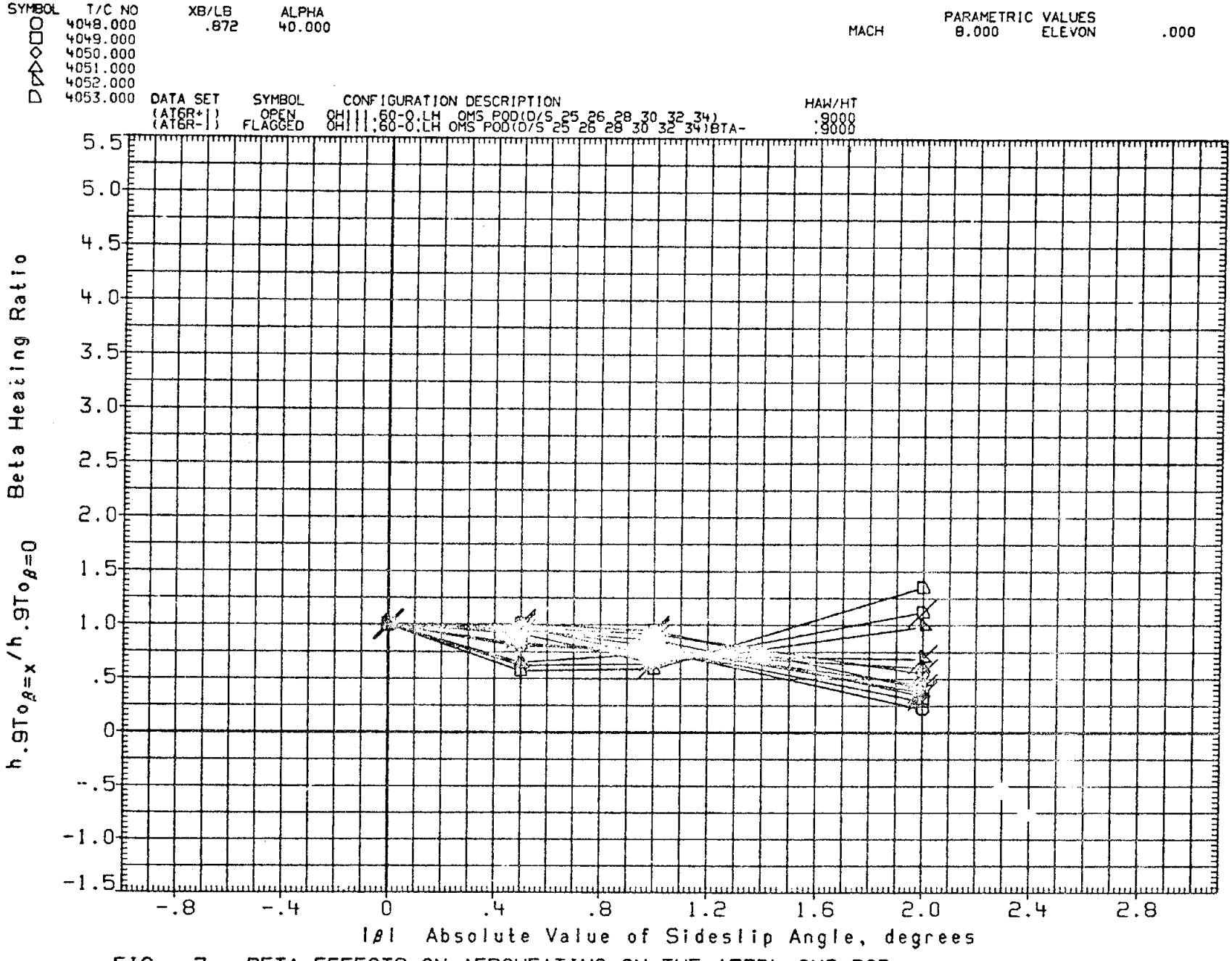


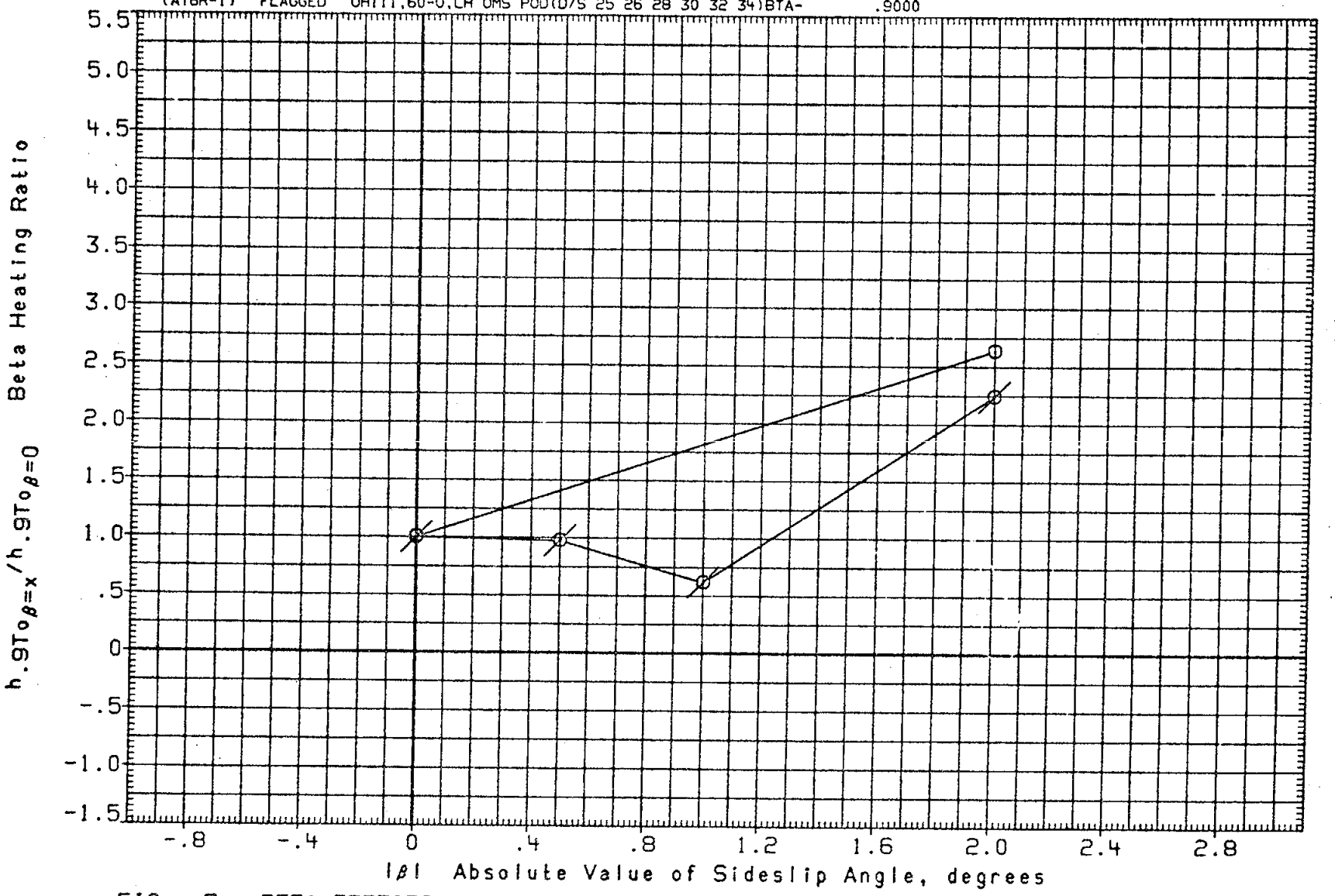
FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4054.000	.872	40.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+1)	OPEN	OH111,60-0,LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-1)	FLAGGED	OH111,60-0,LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000



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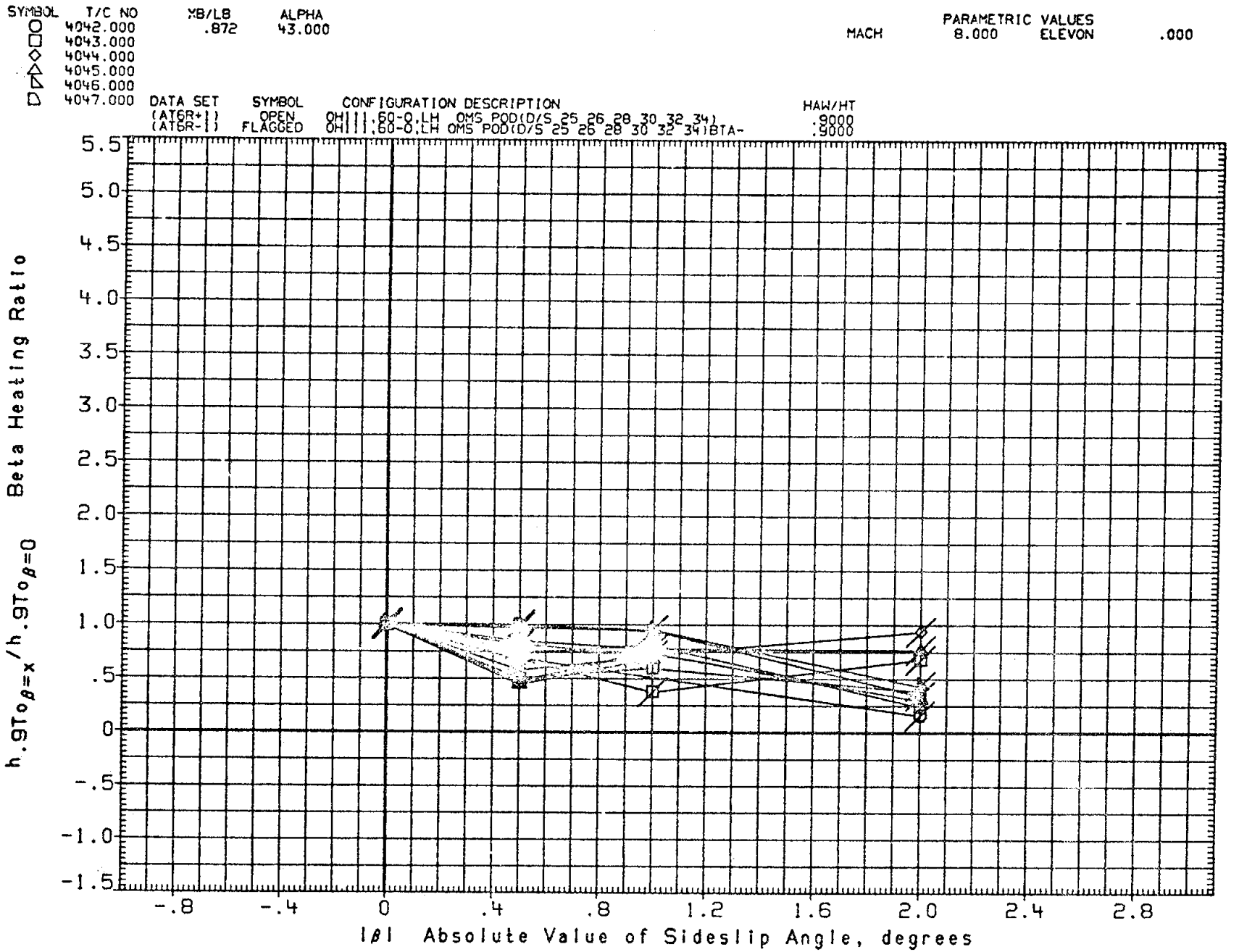
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

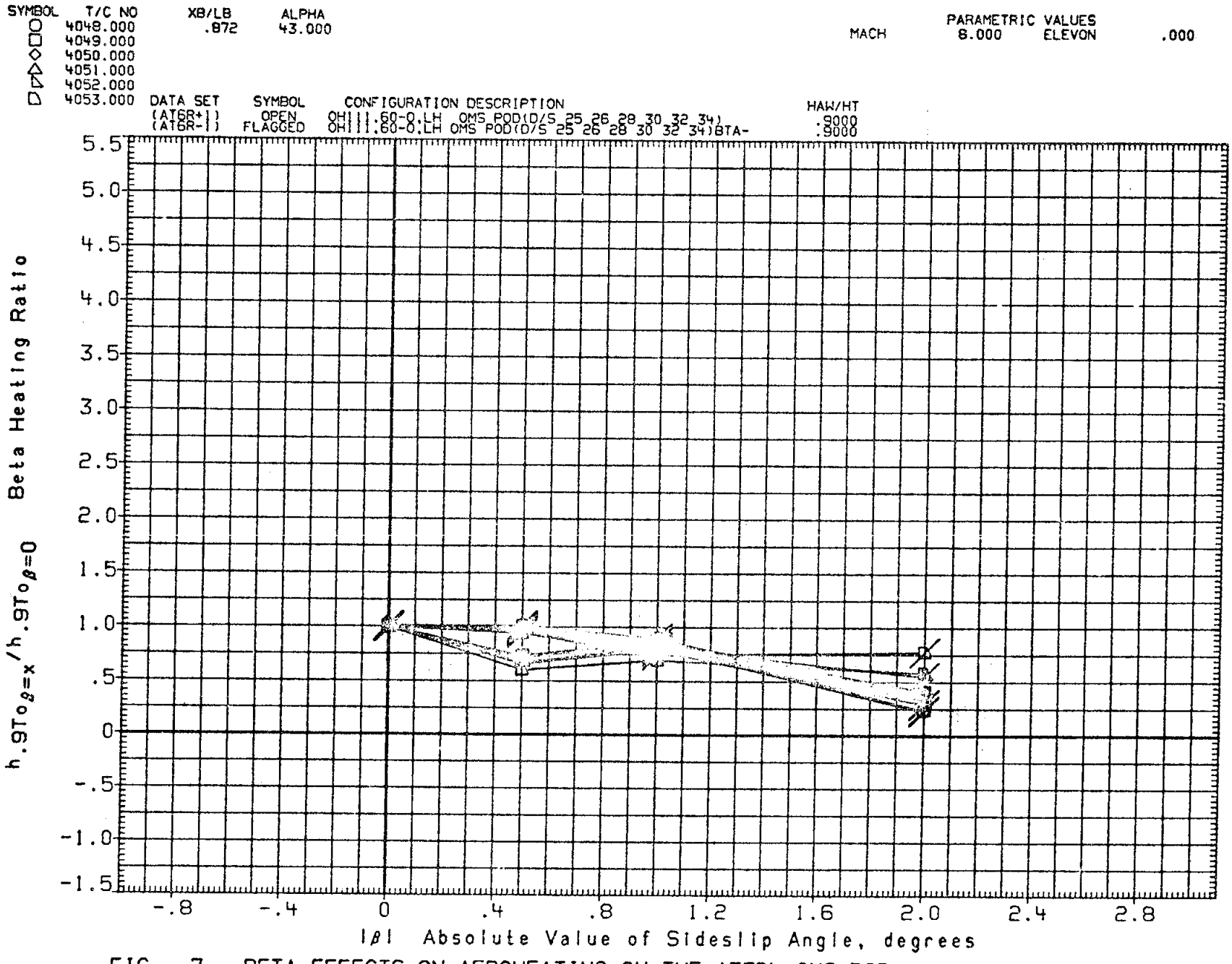


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4054.000	.872	43.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATGR+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATGR-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

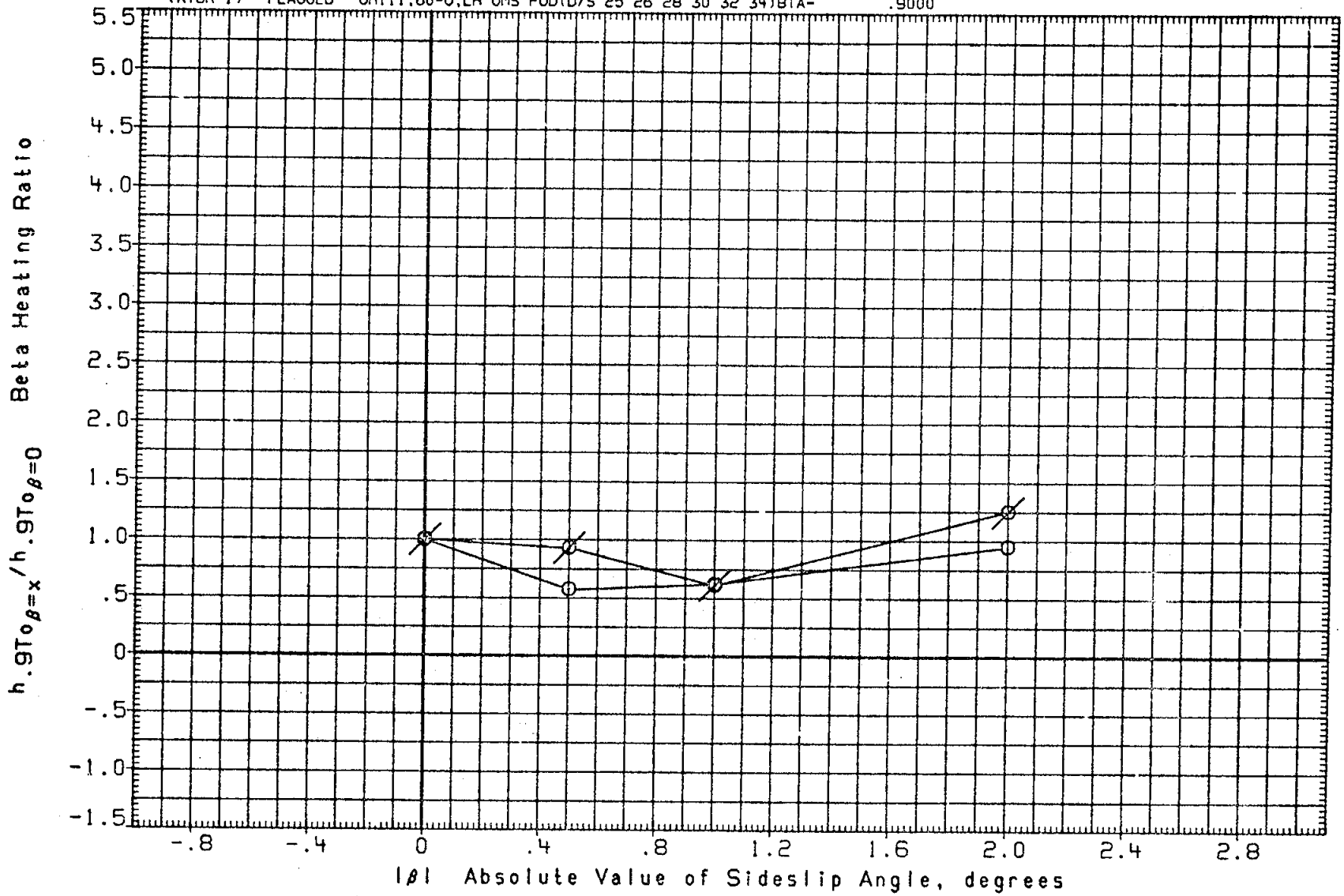


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

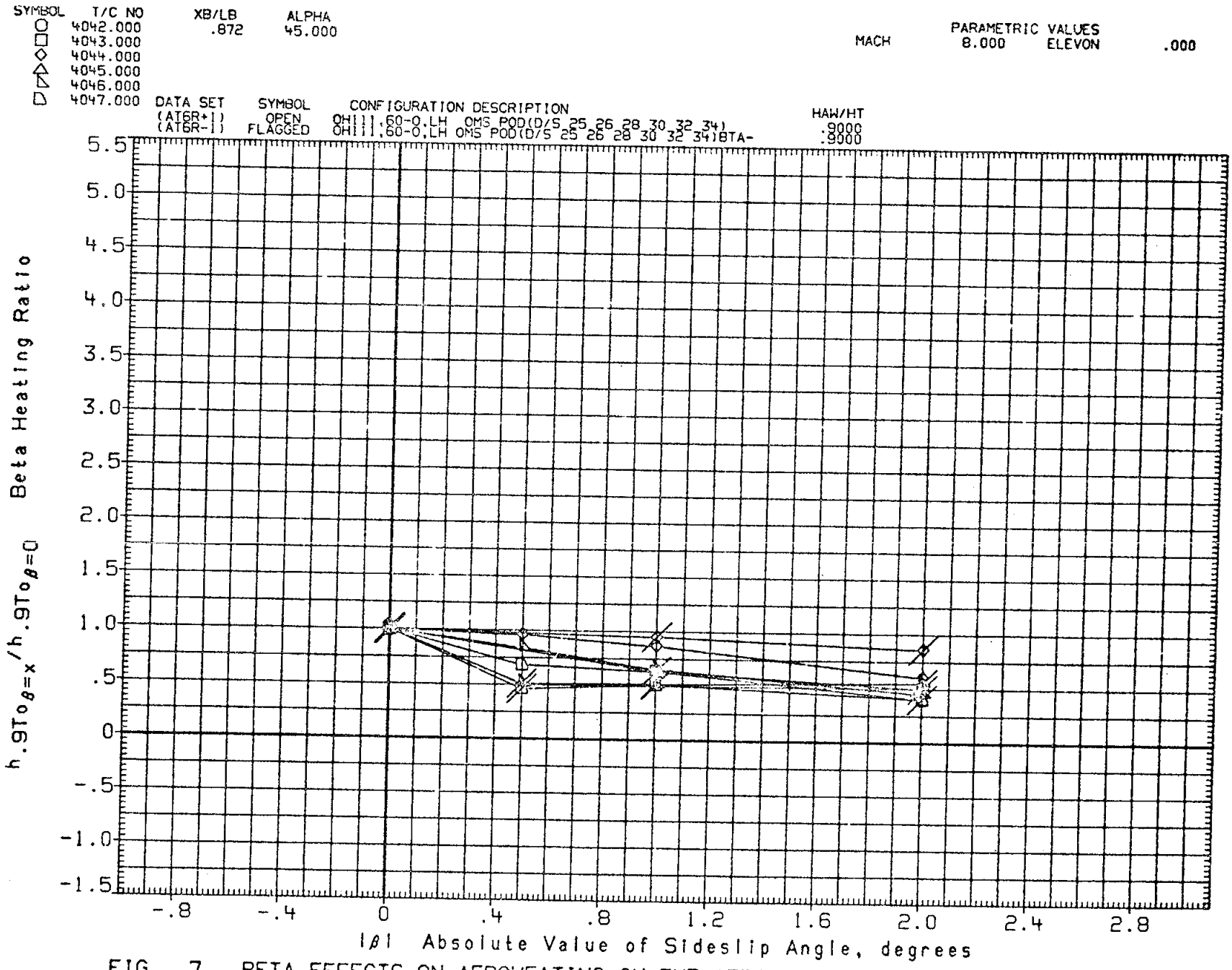
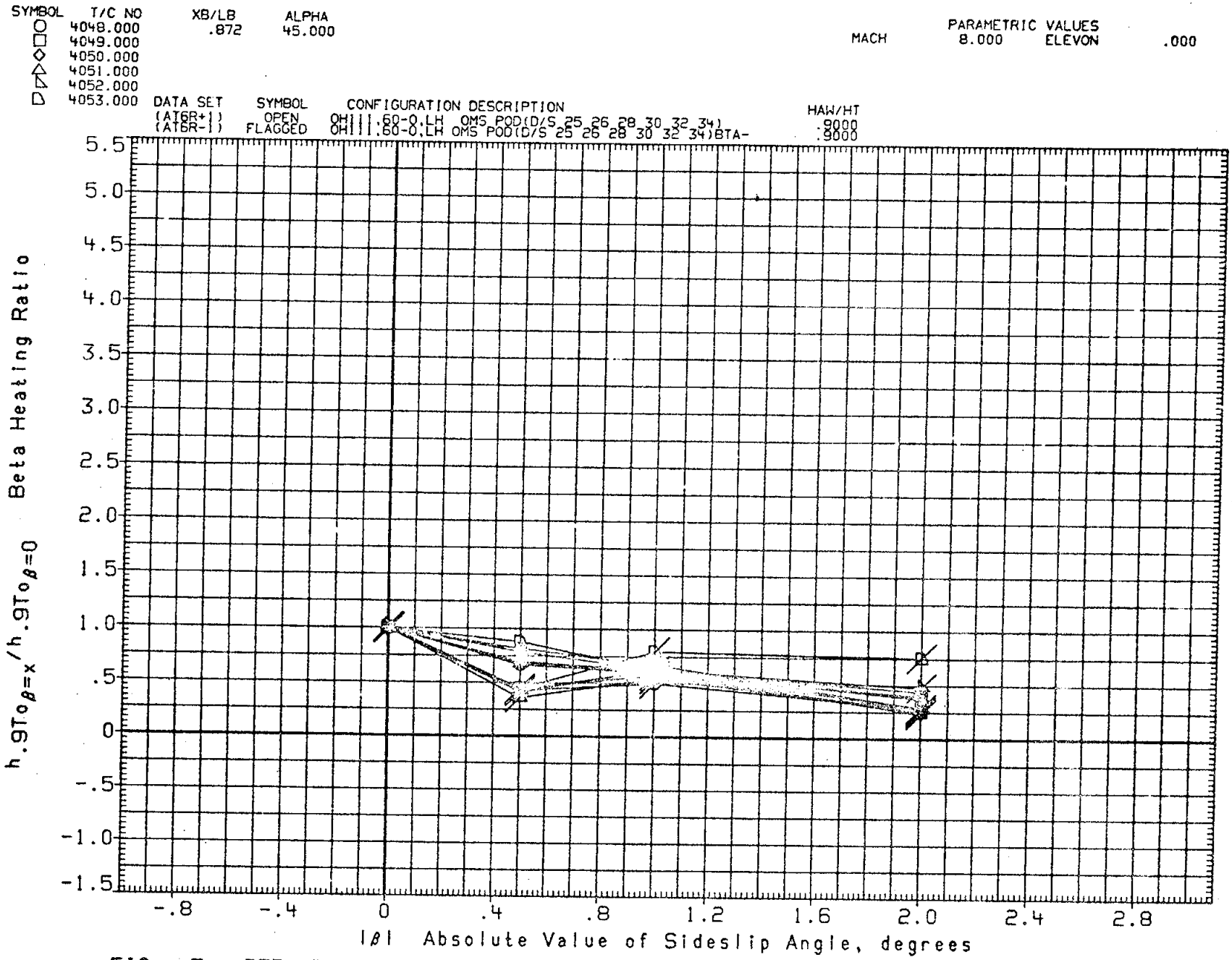


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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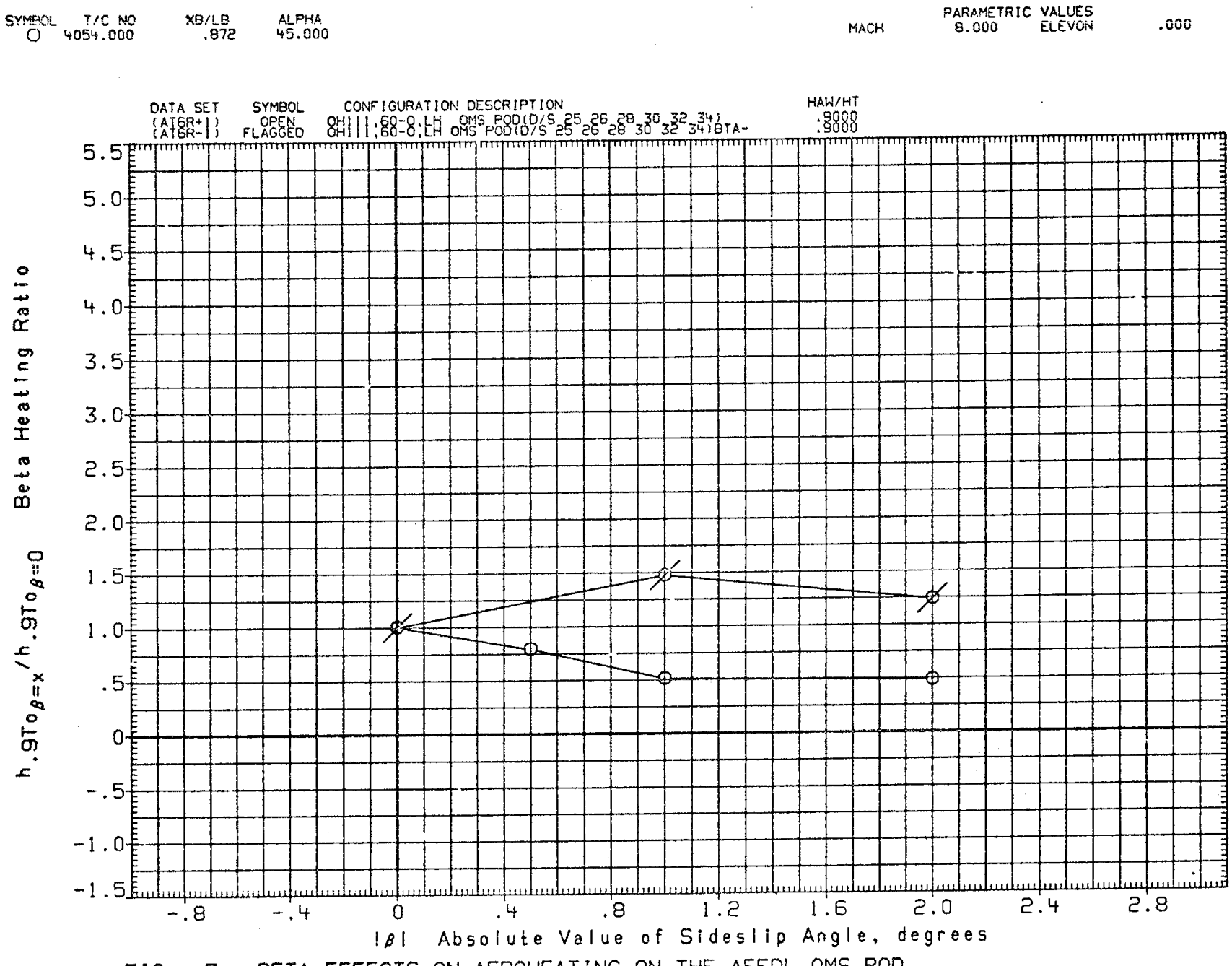
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

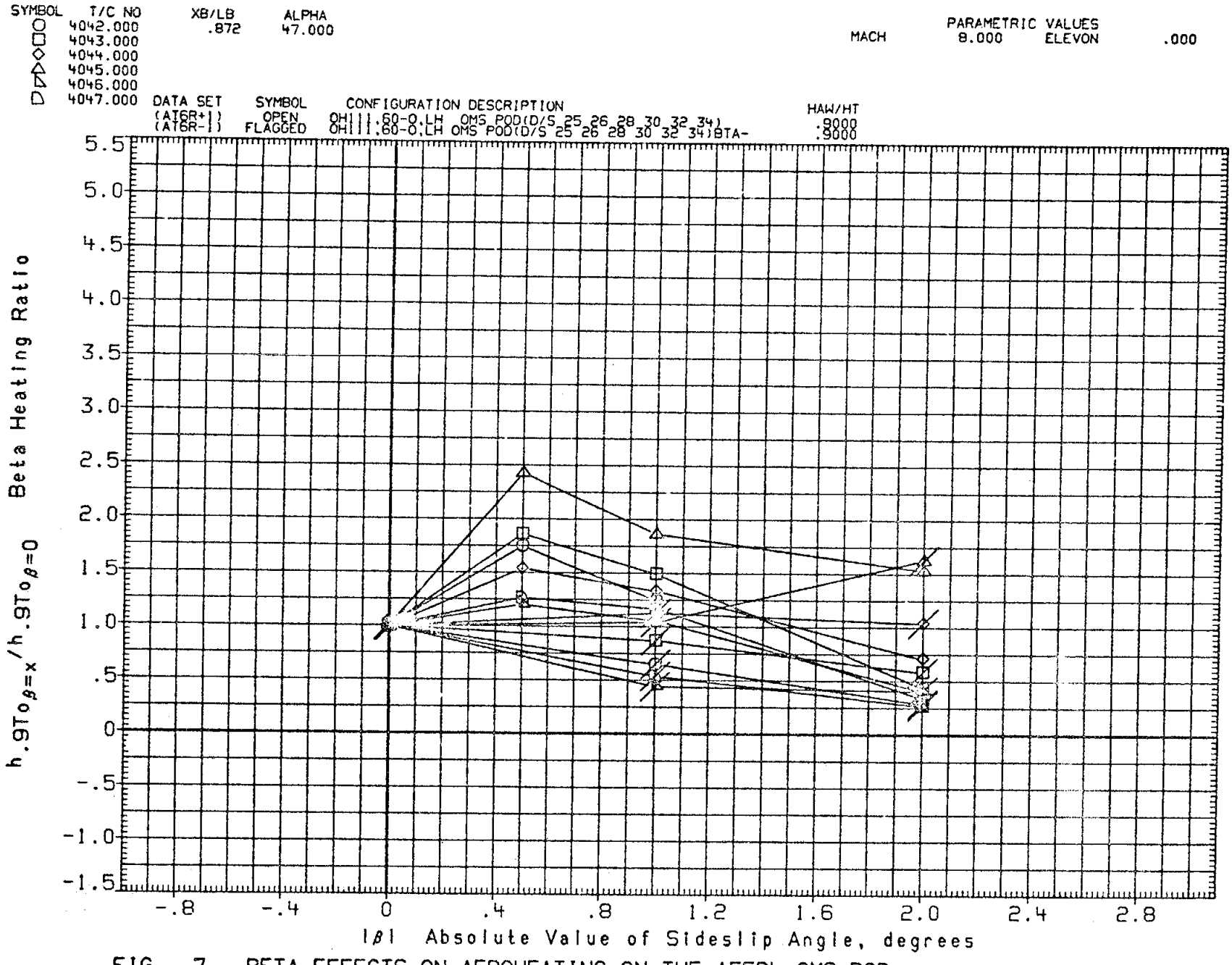


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

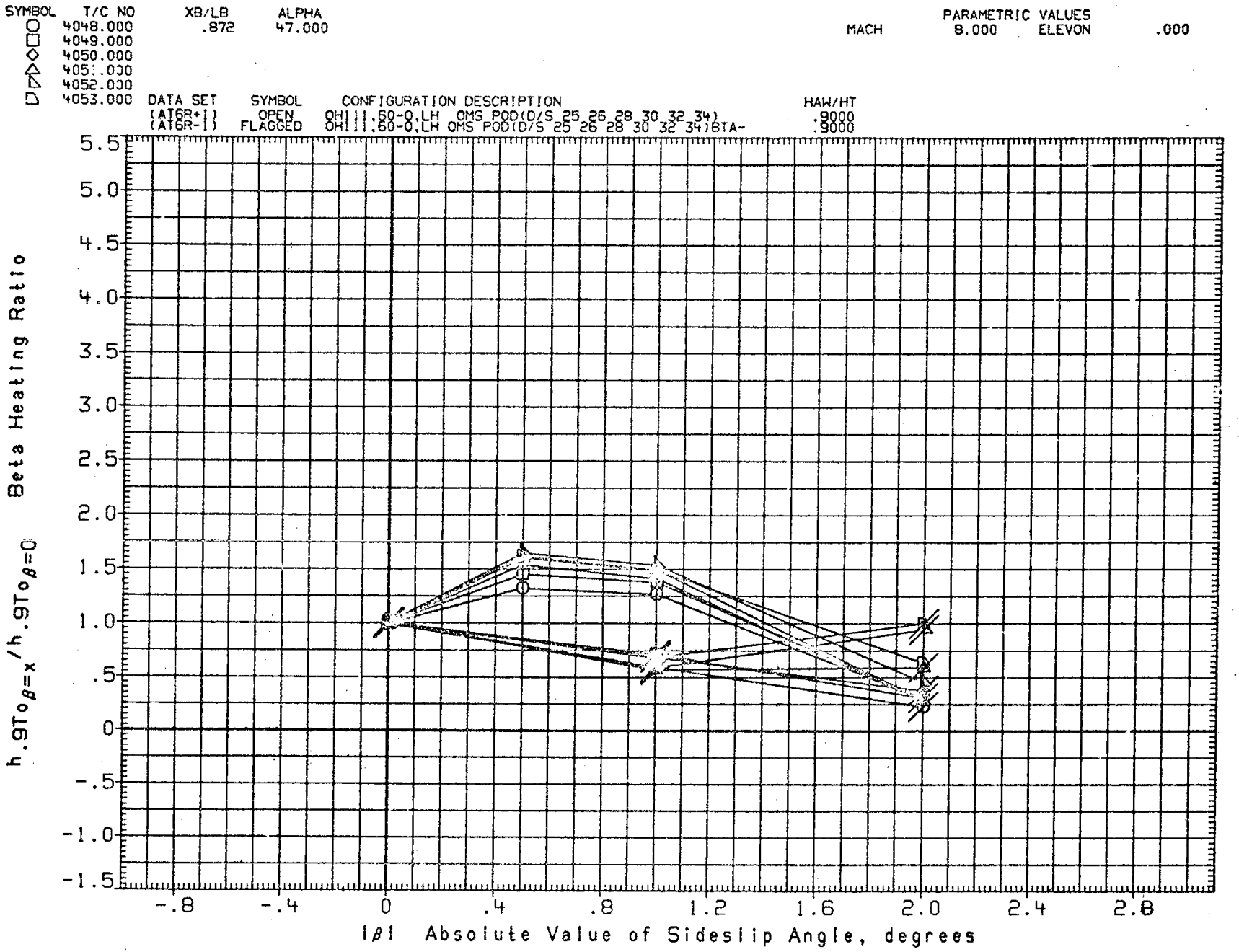


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4054.000	.872	47.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+1)	OPEN	OH111,60-0,LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-1)	FLAGGED	OH111,60-0,LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

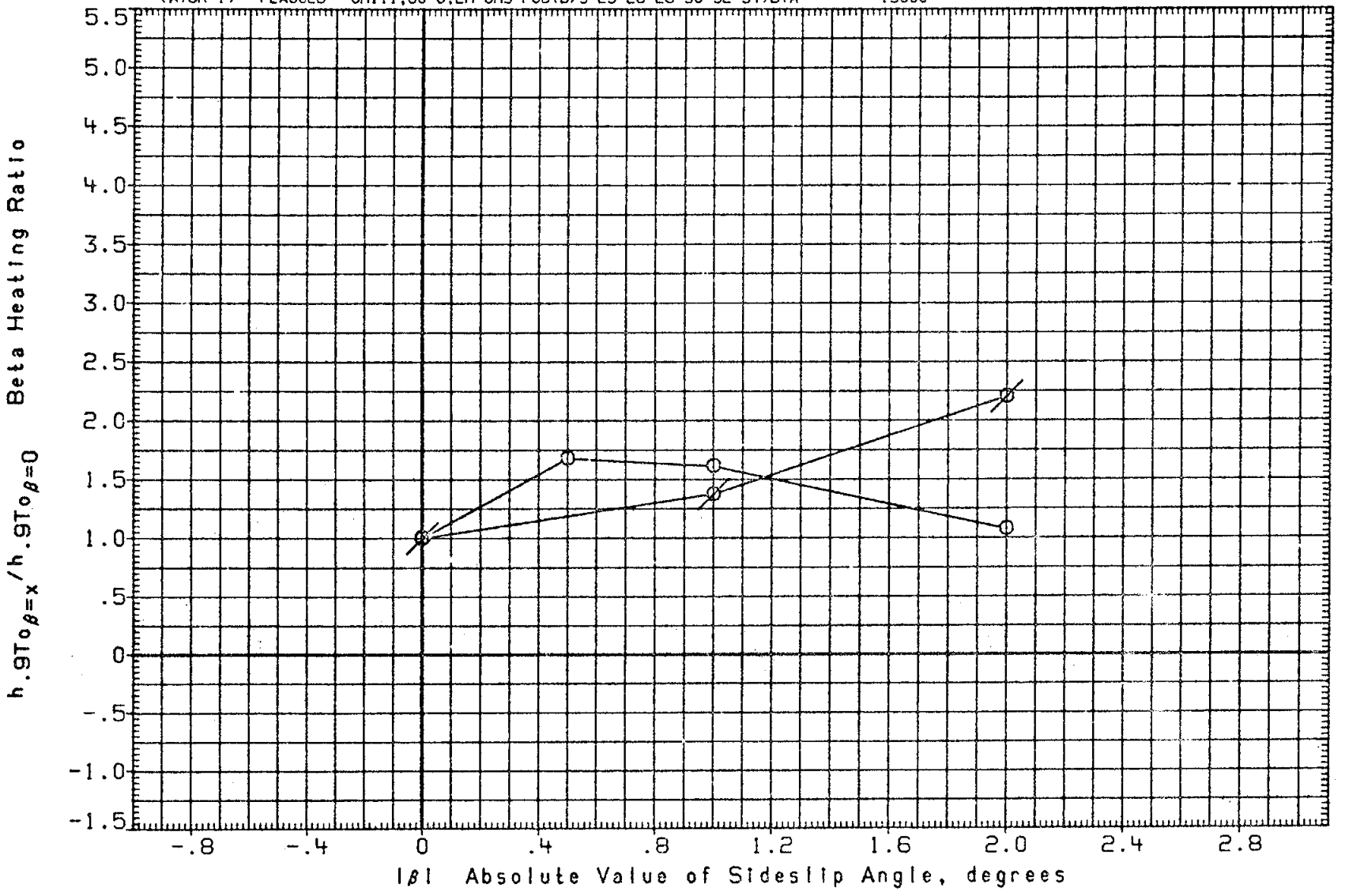


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

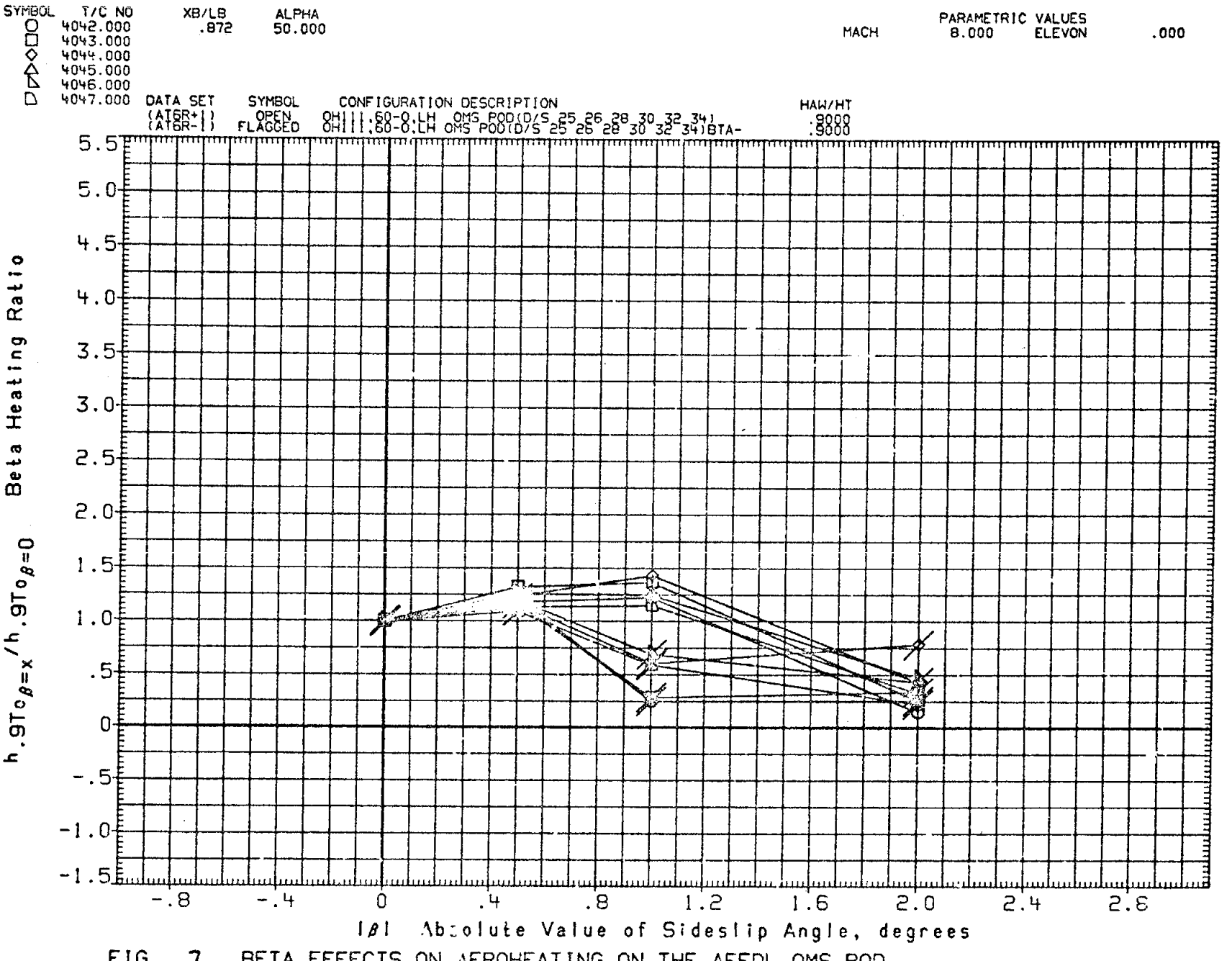


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

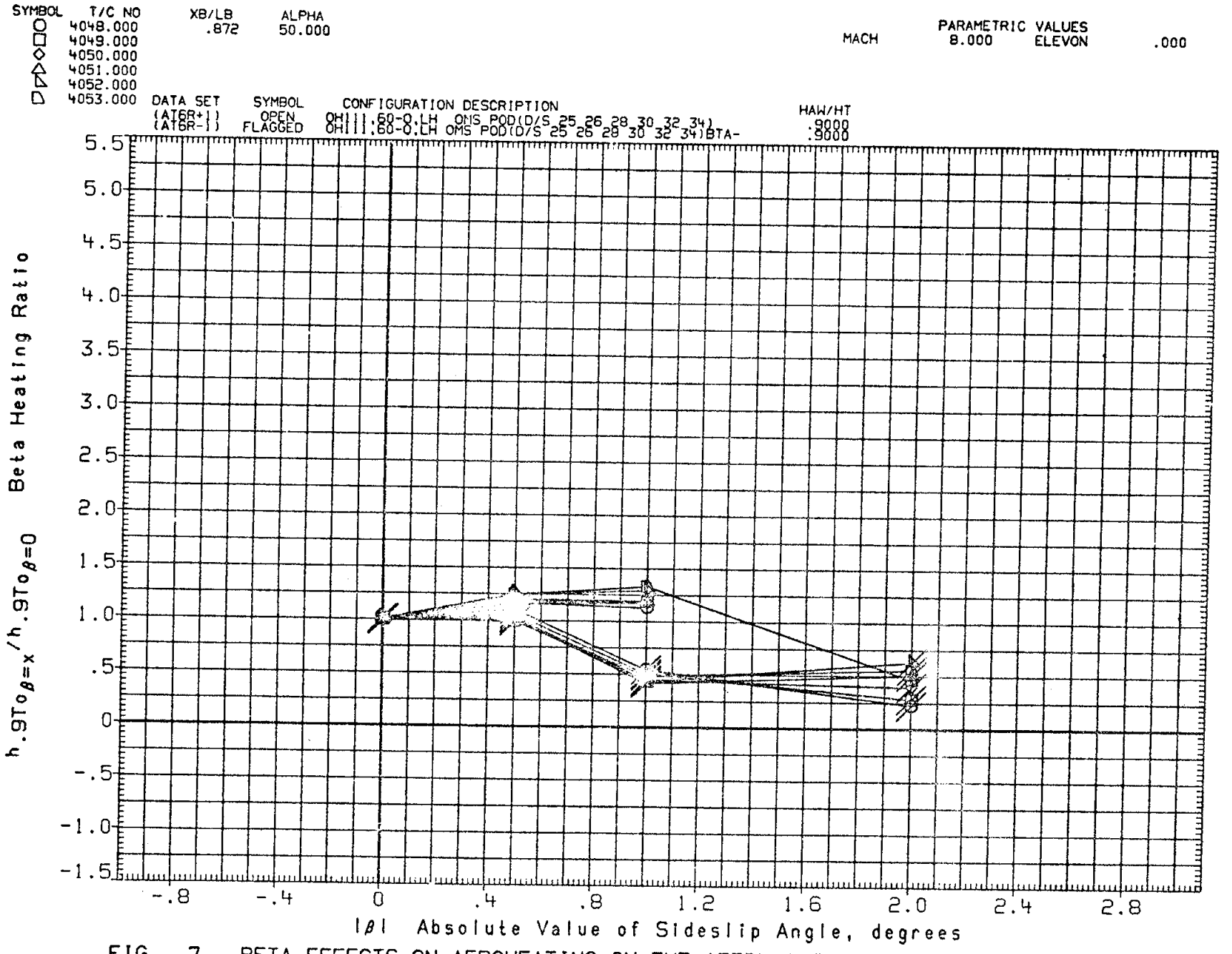


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4054.000	.872	50.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+1)	OPEN	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-1)	FLAGGED	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

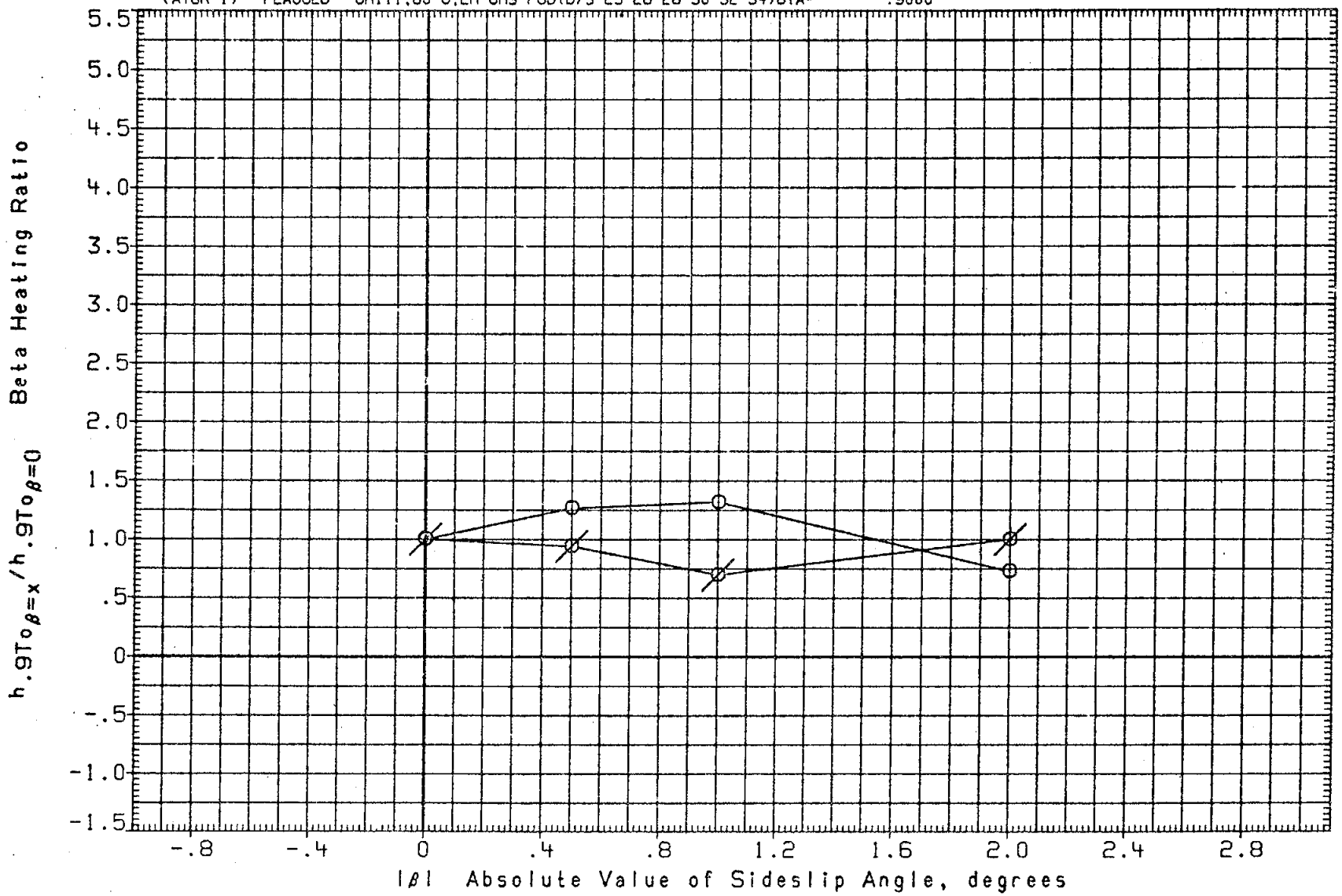
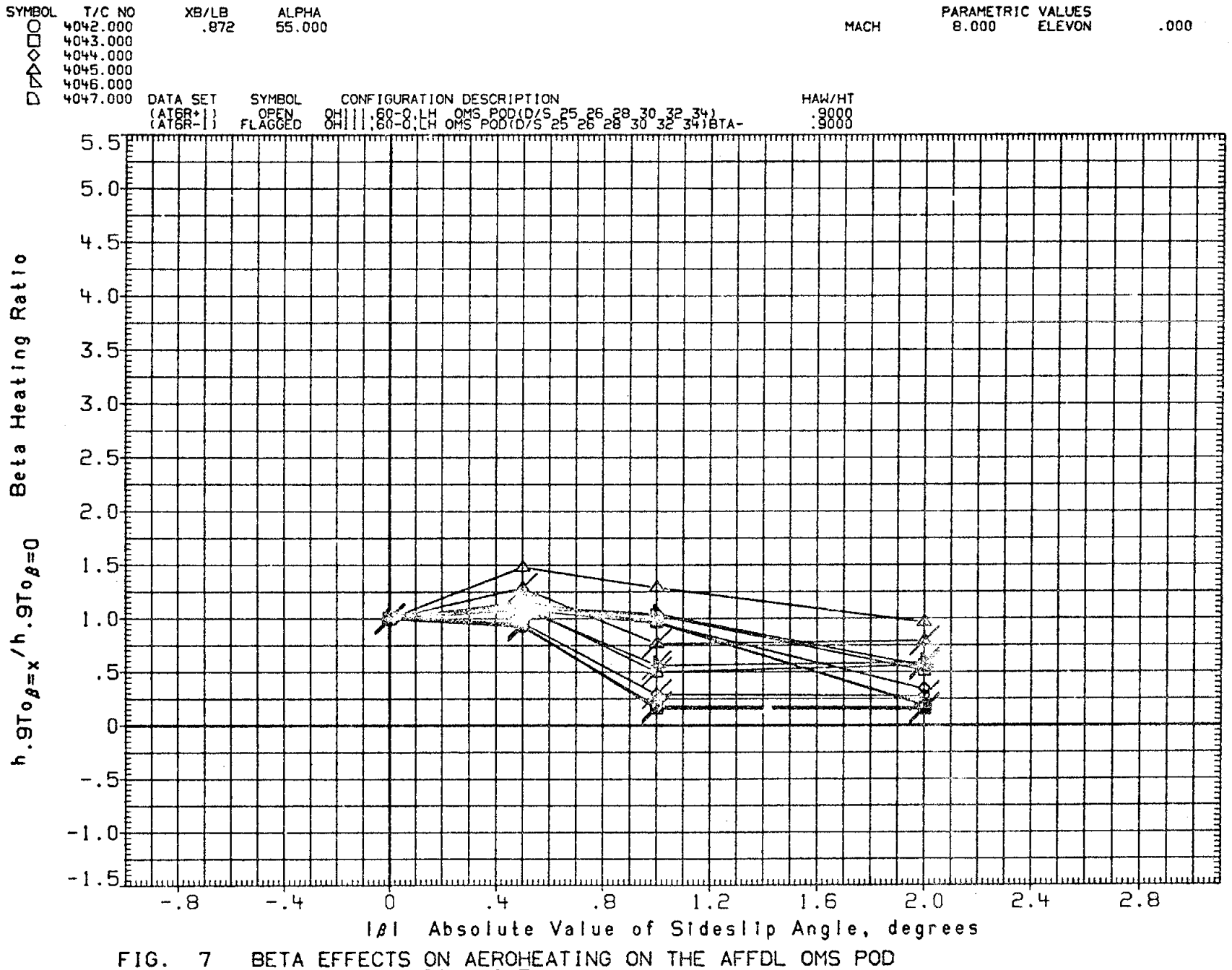


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

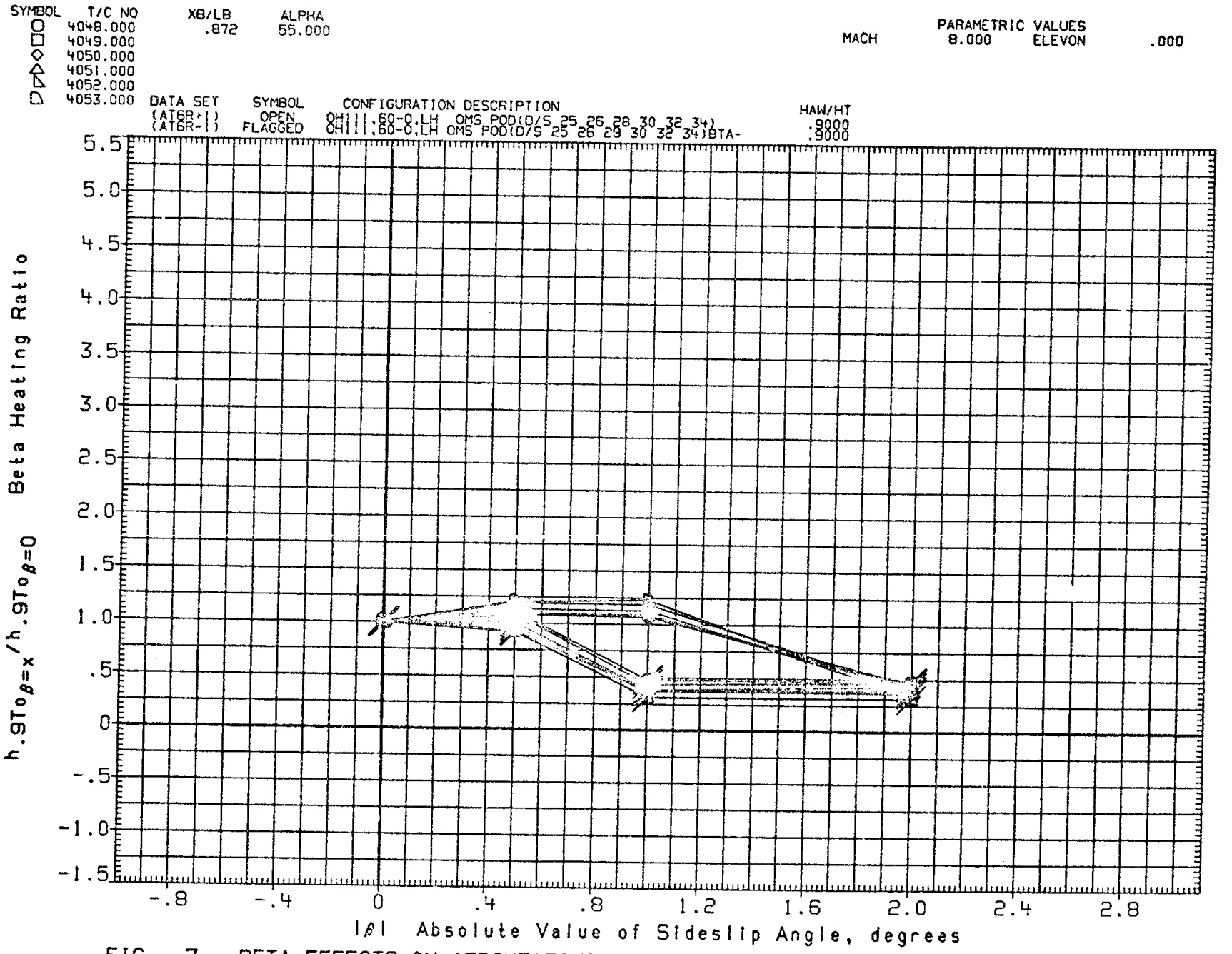


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
O	4054.000	.872	55.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+)	OPEN	OH|||,60-0,LH OMS POD(D/S 25,26,28,30,32,34)	.9000
(AT6R-)	FLAGGED	OH|||,60-0,LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

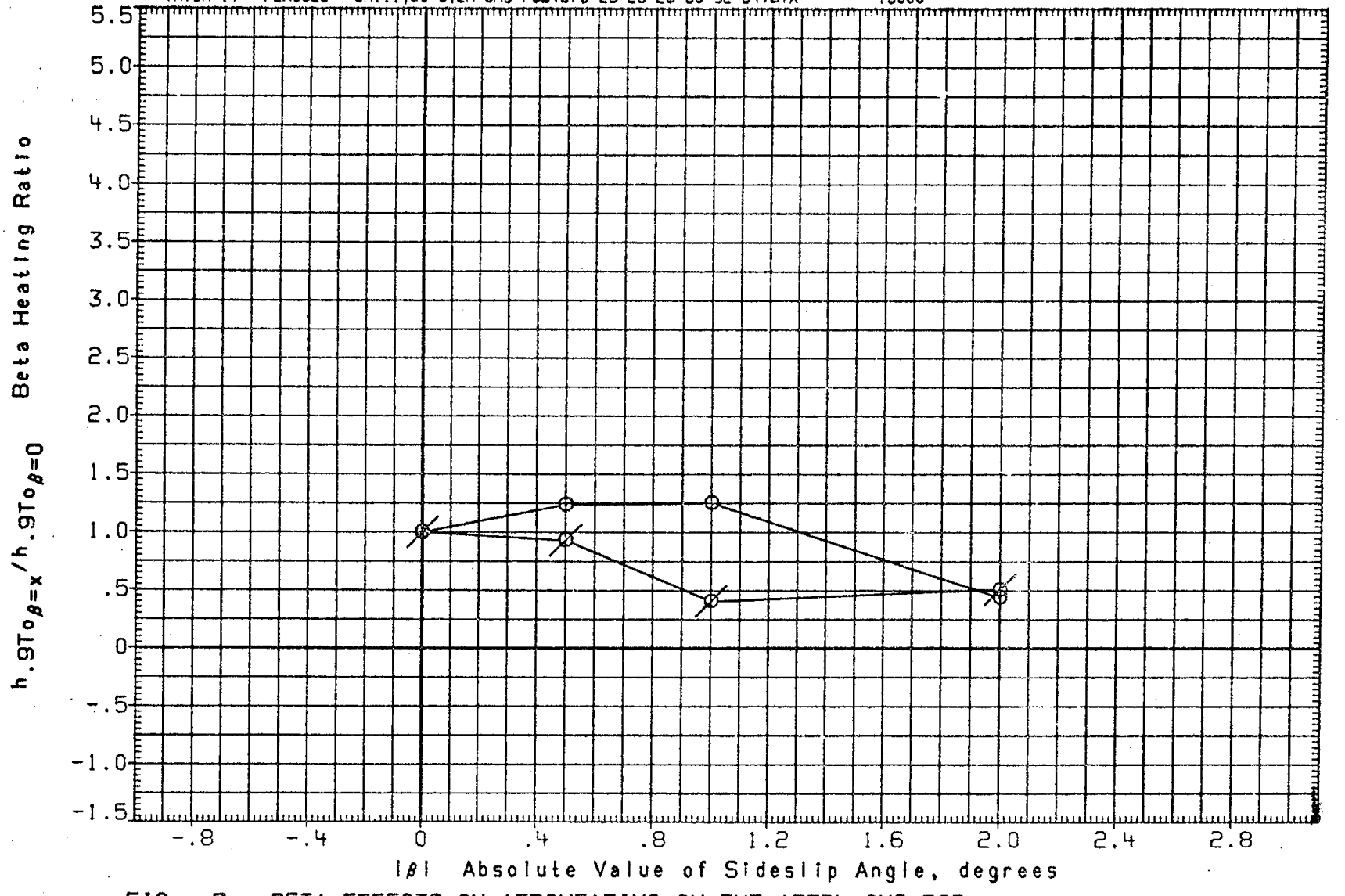


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

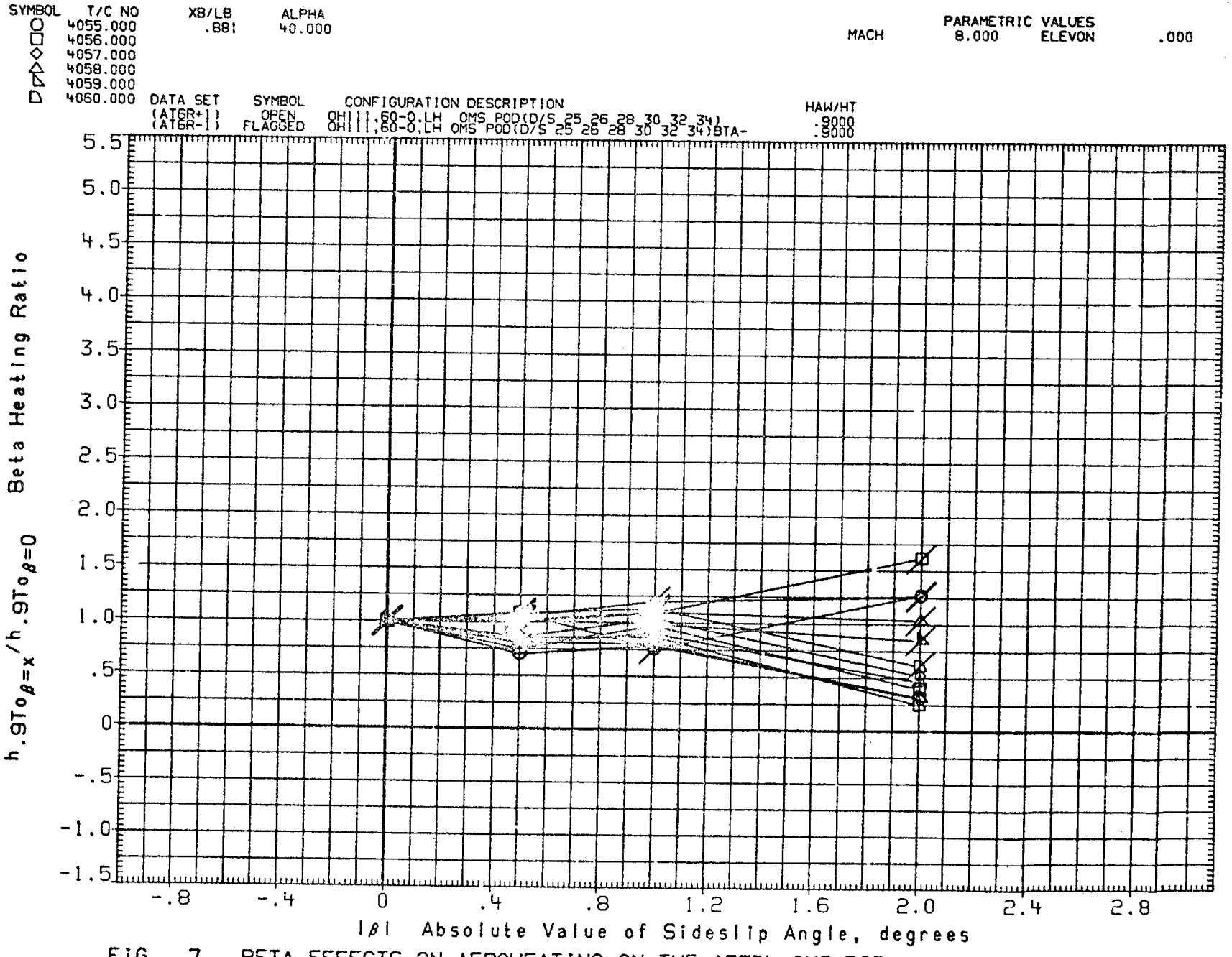
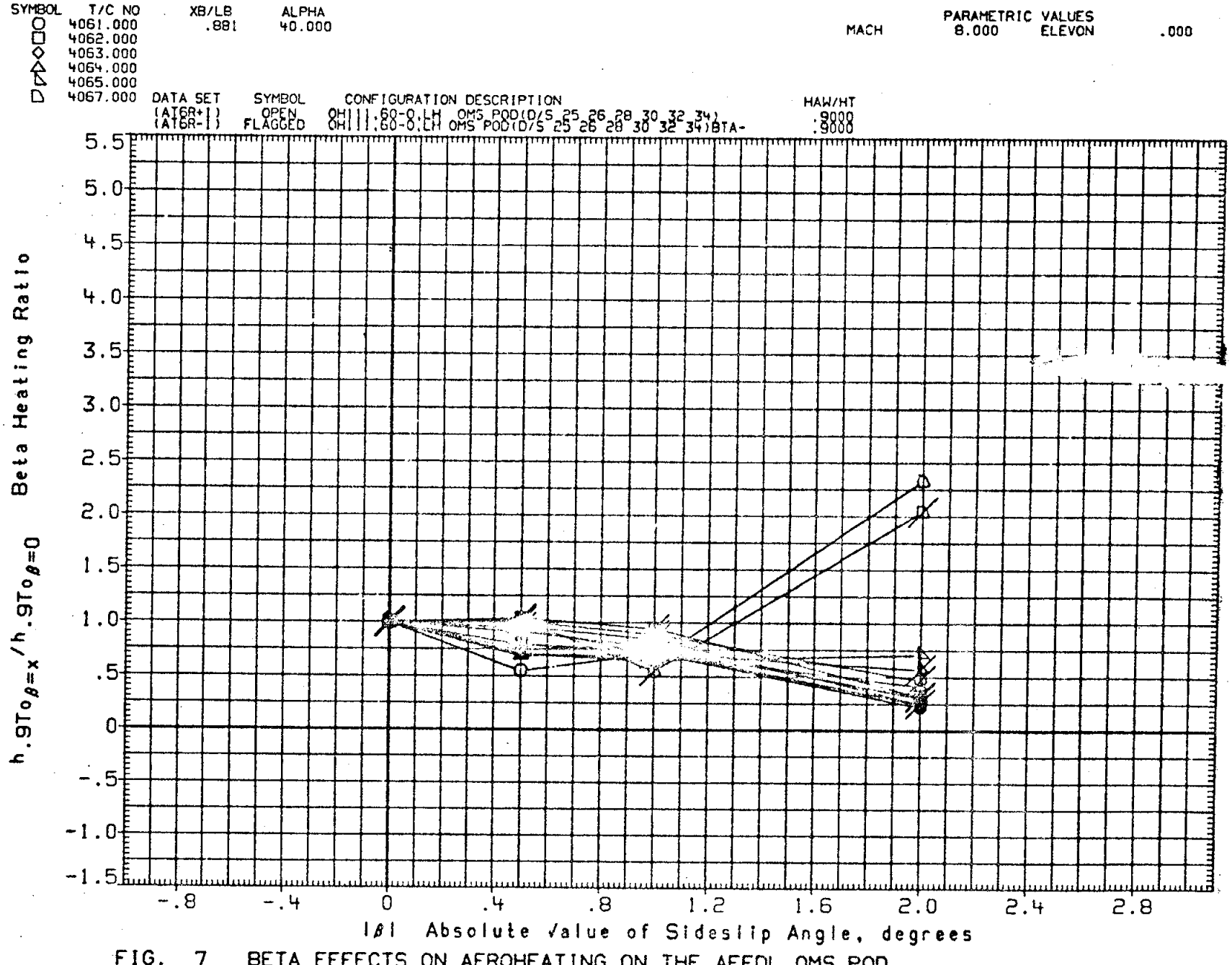


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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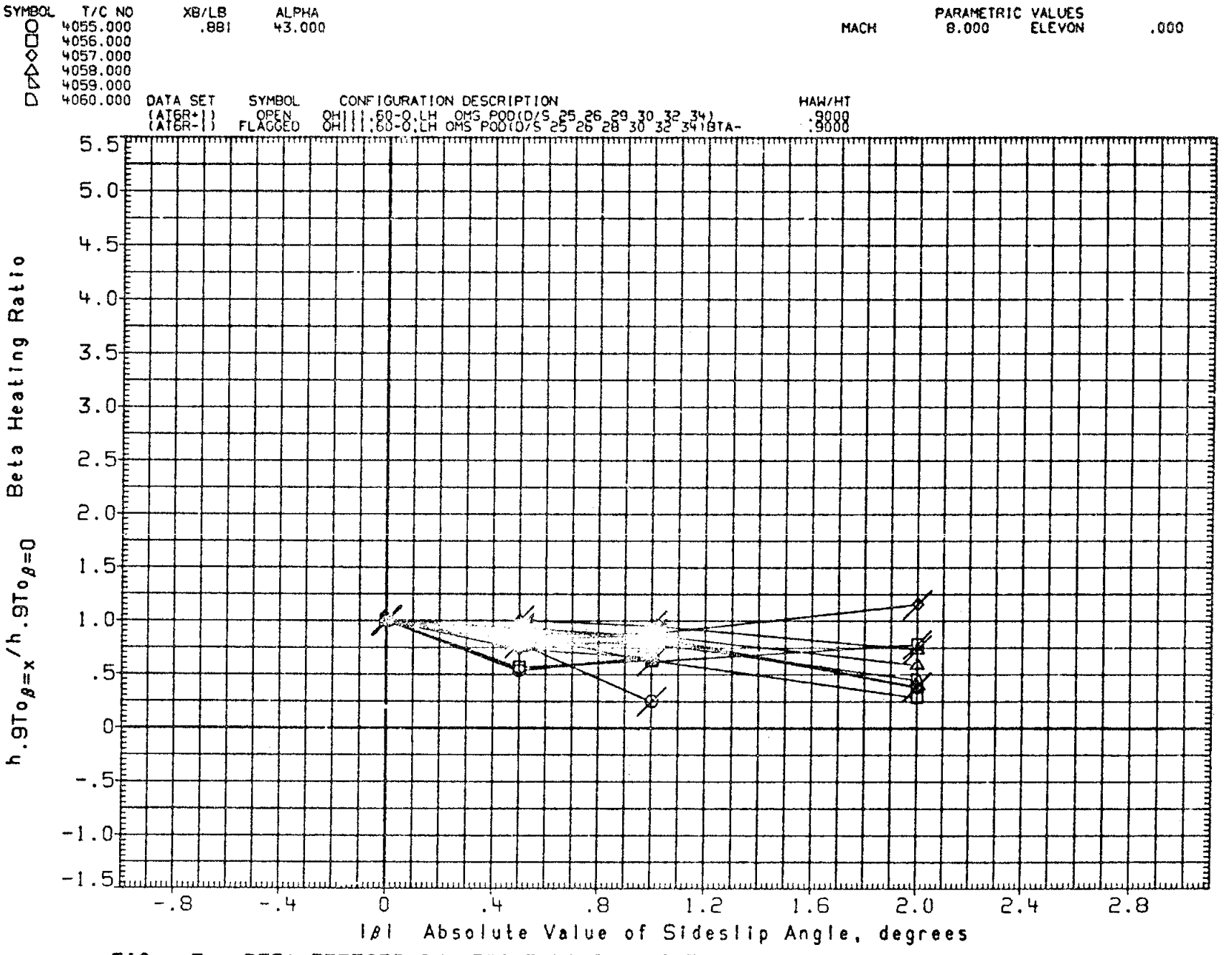
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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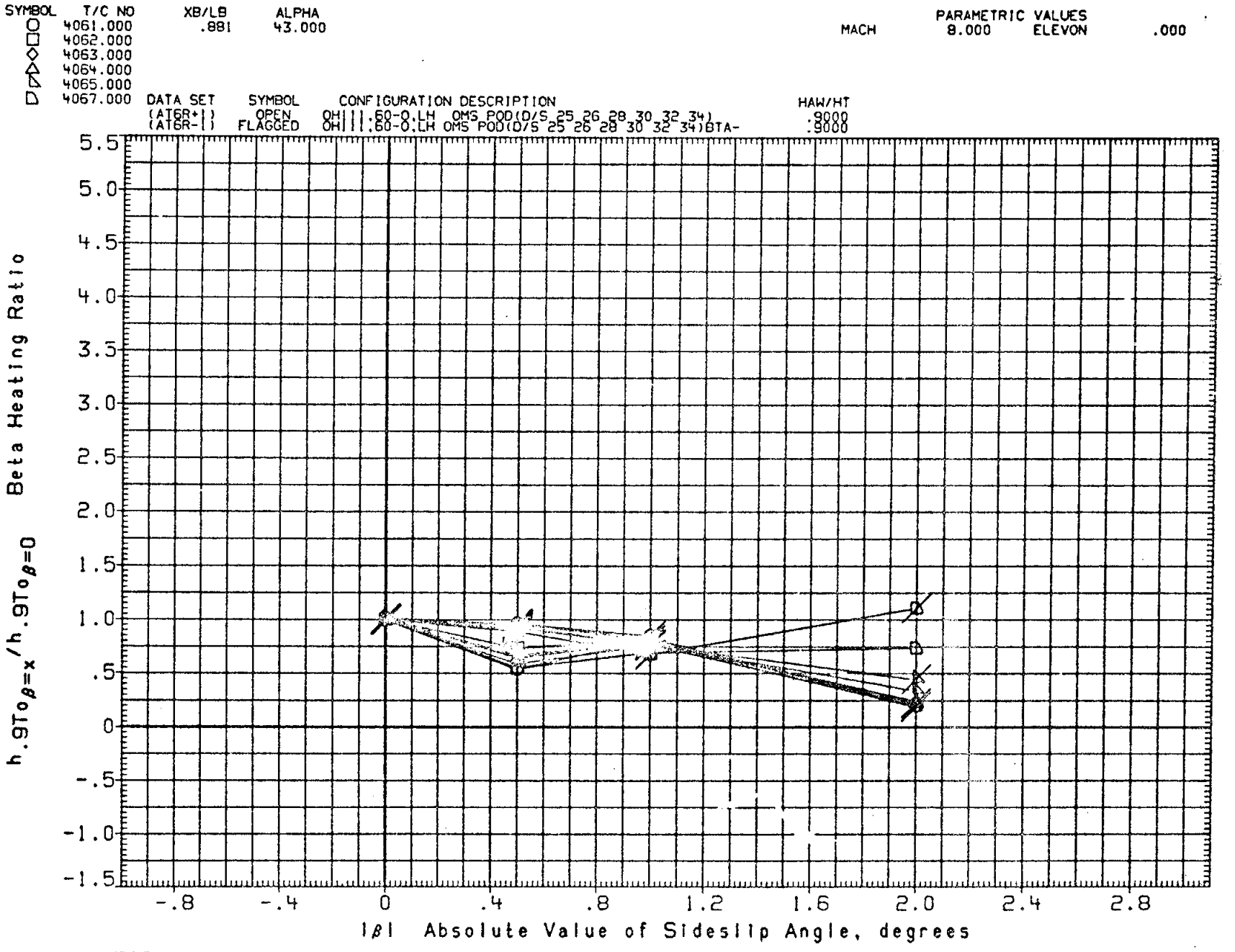
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

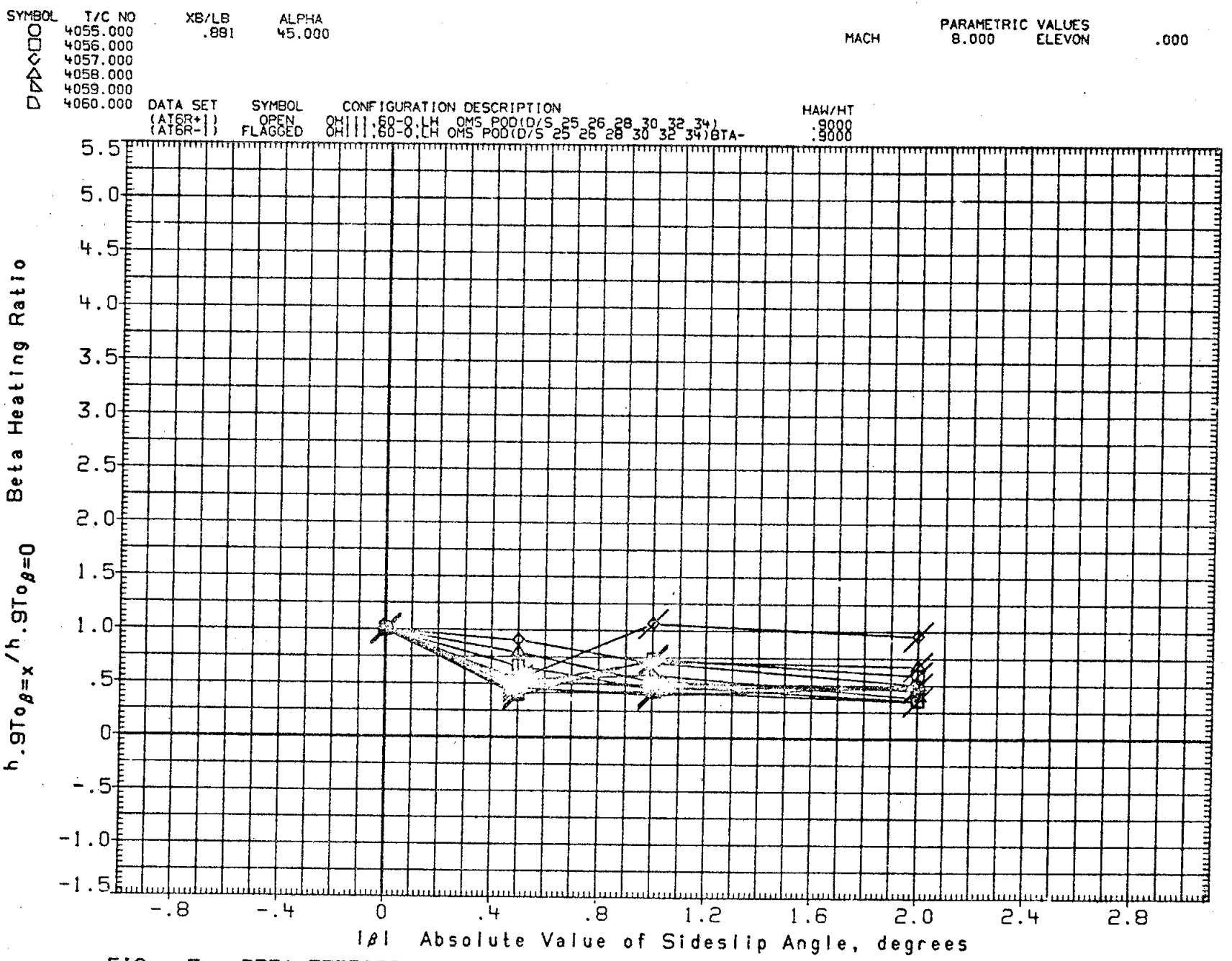


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

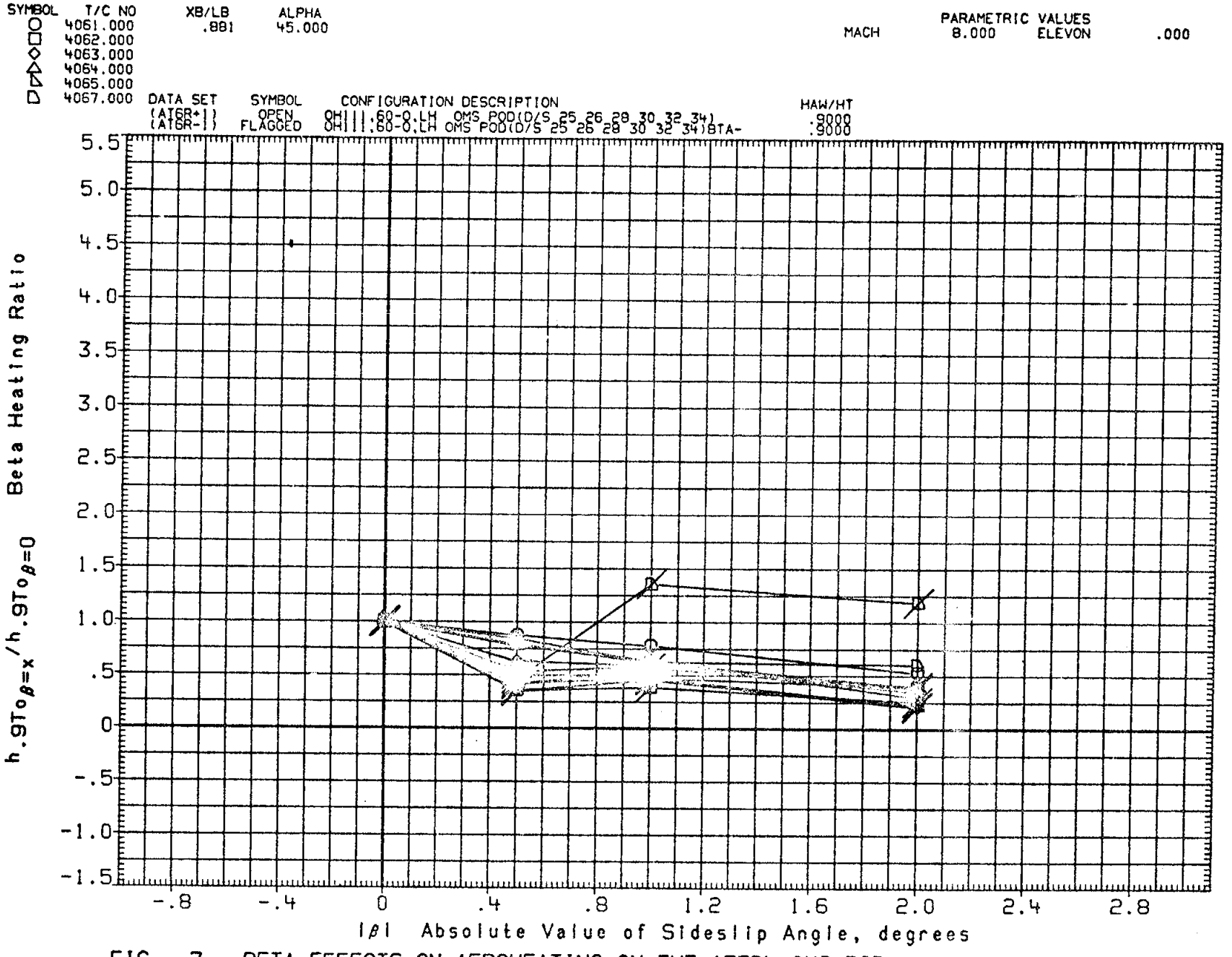


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

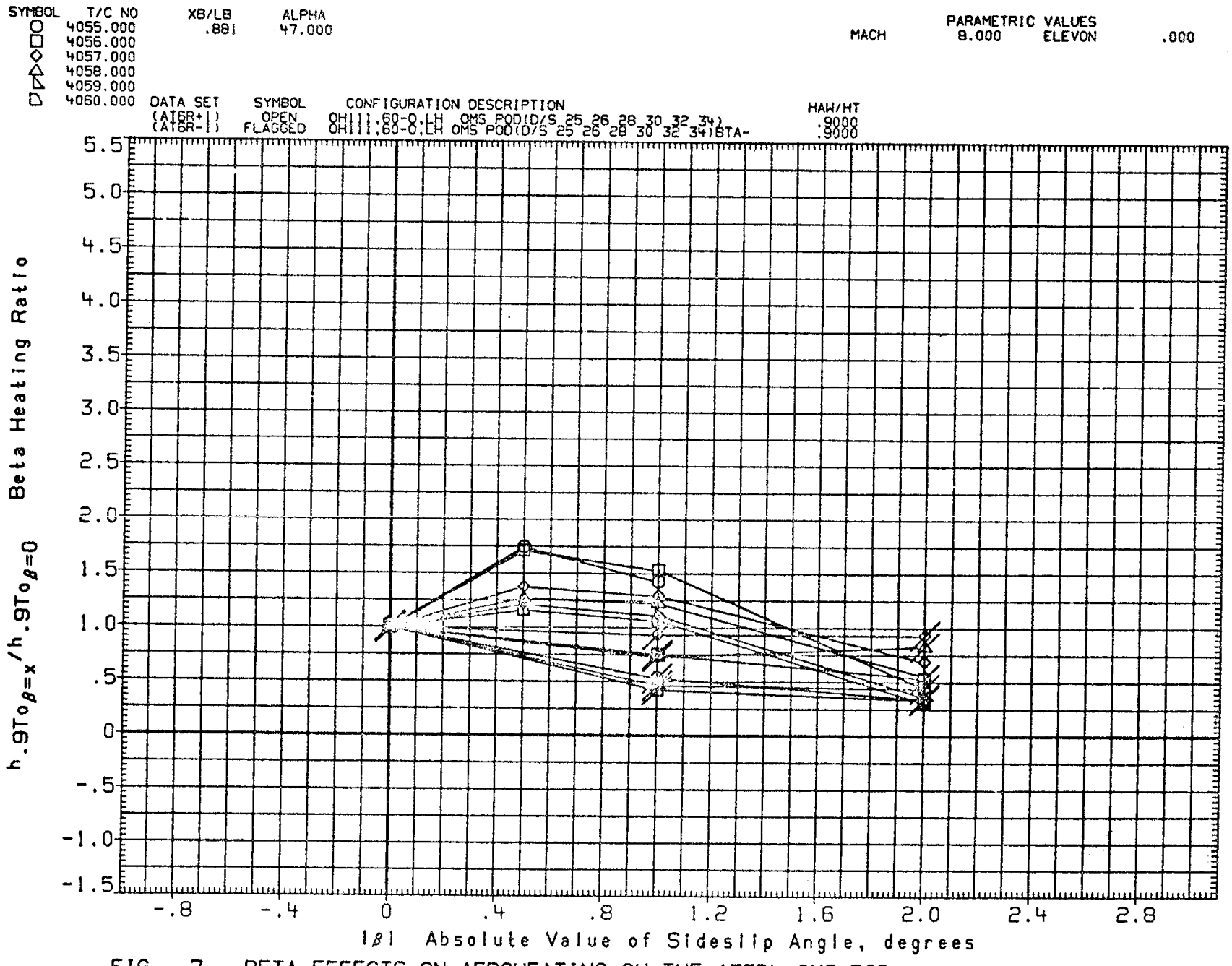


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

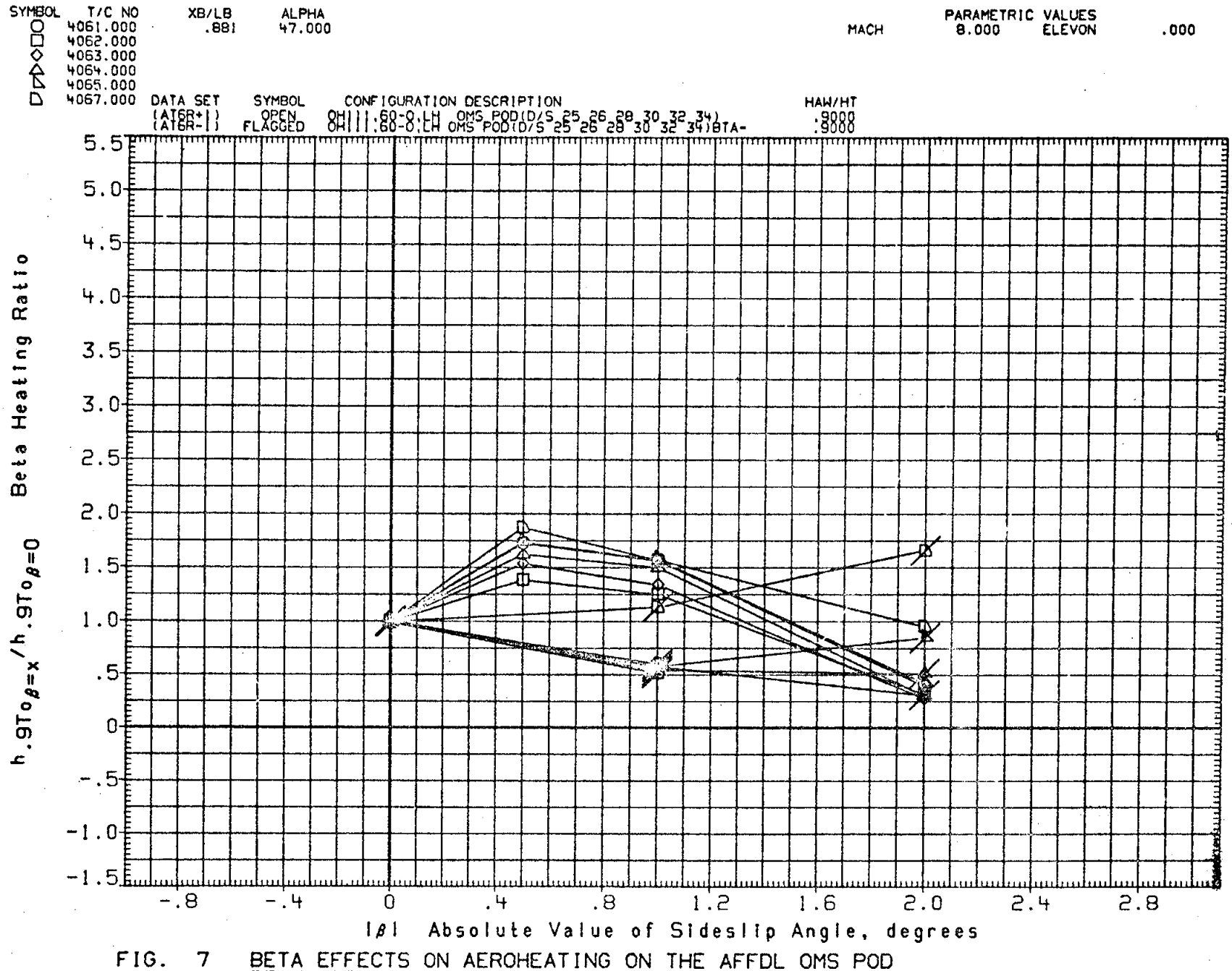
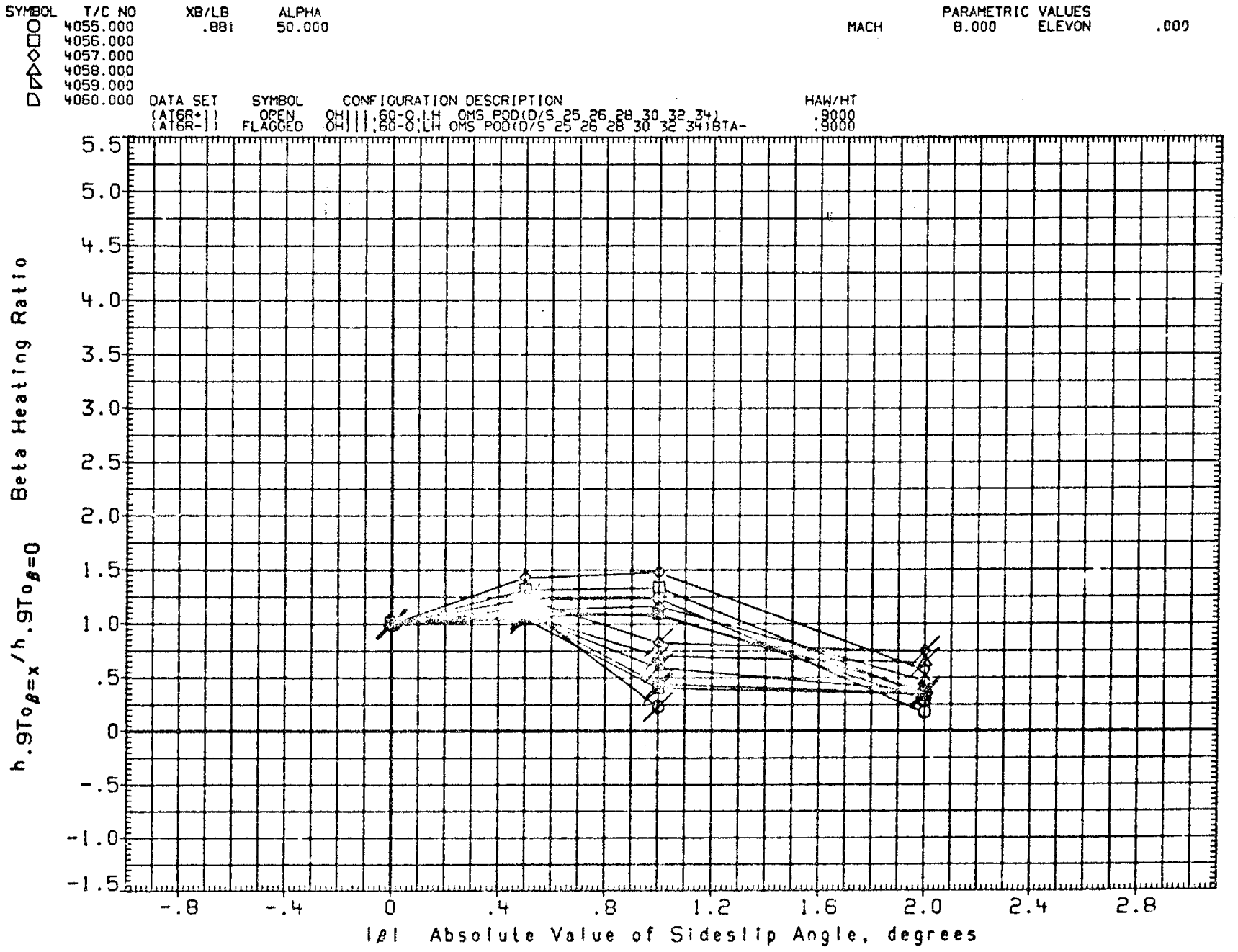


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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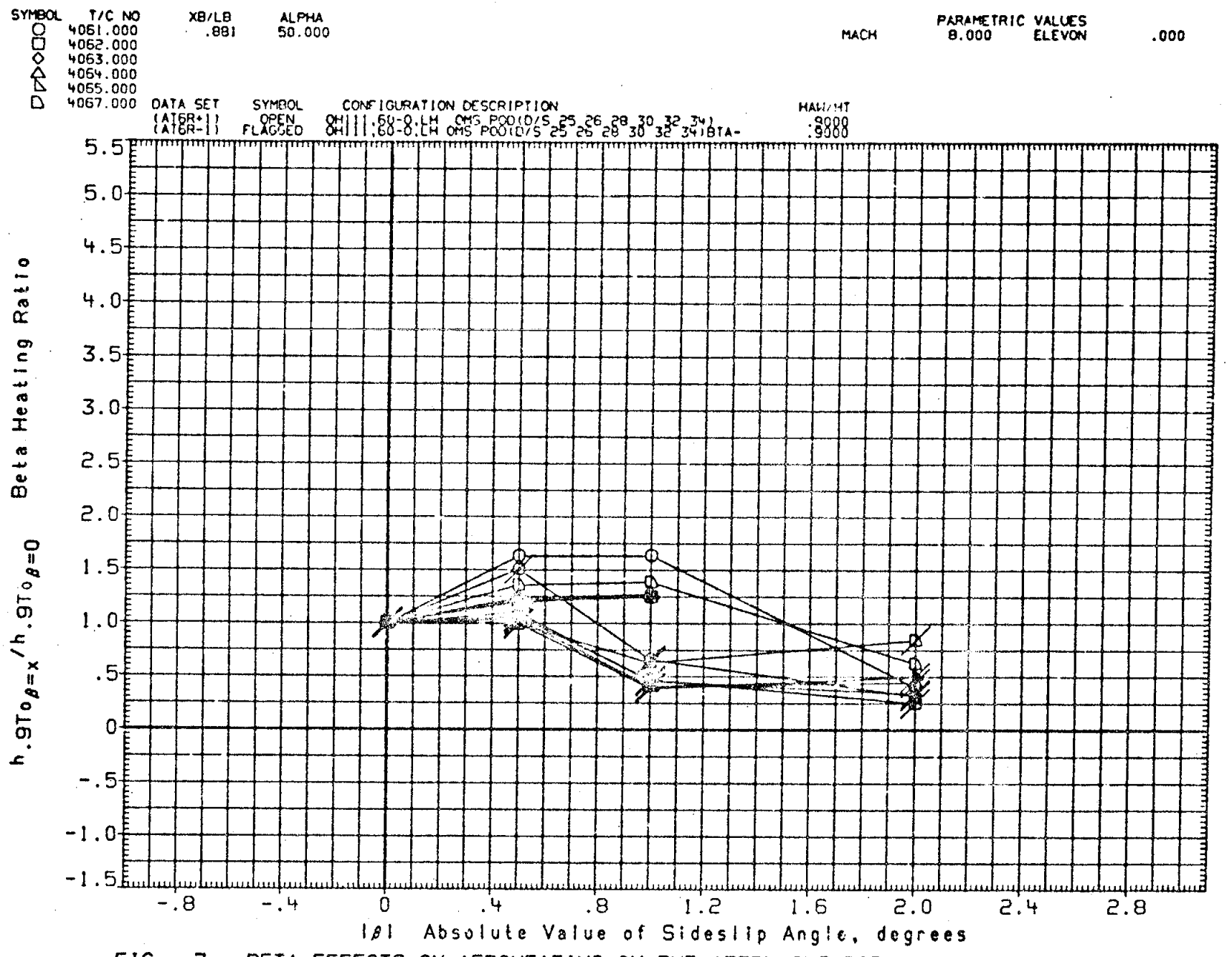
REYNOLDS NUMBER = 0.5



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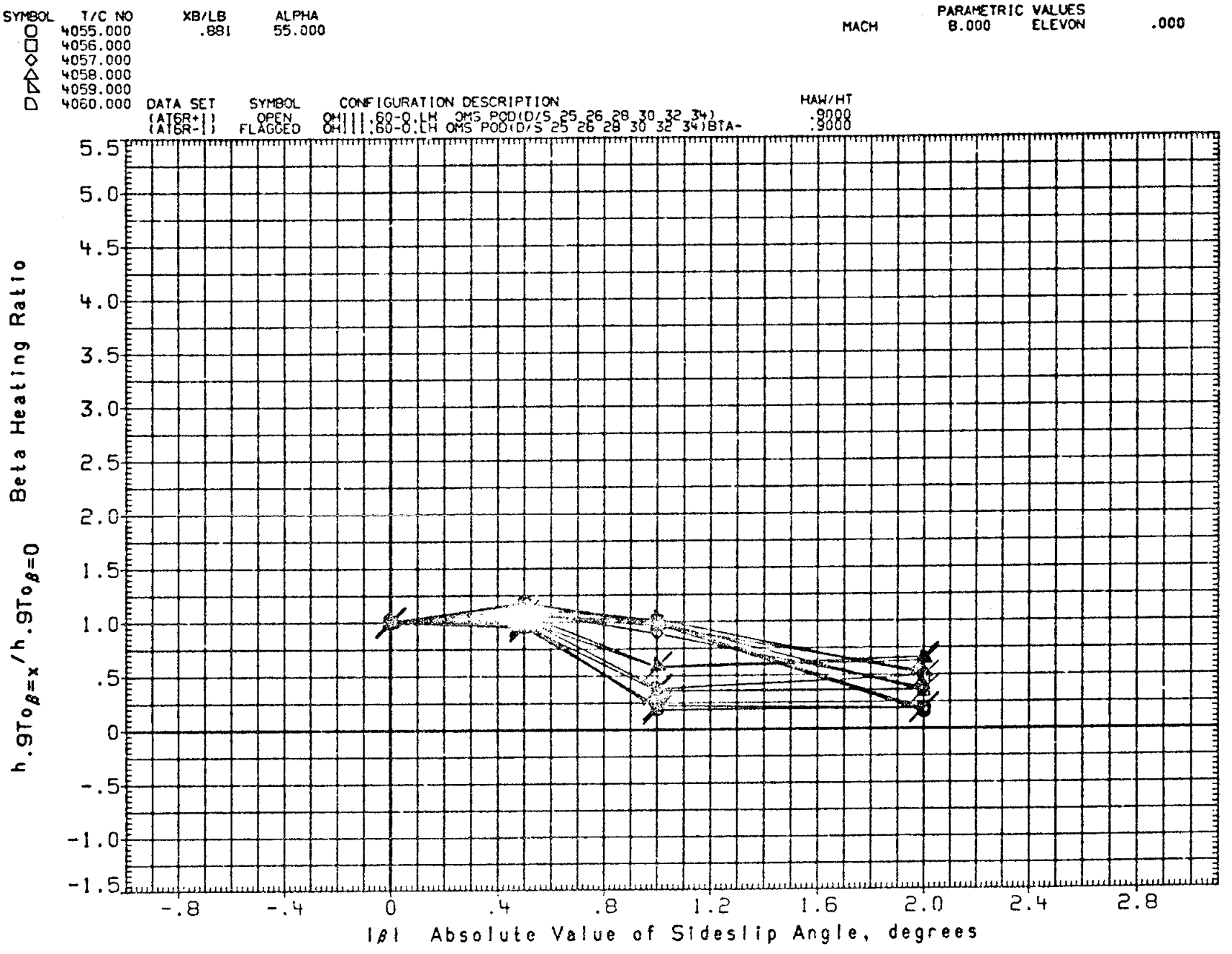
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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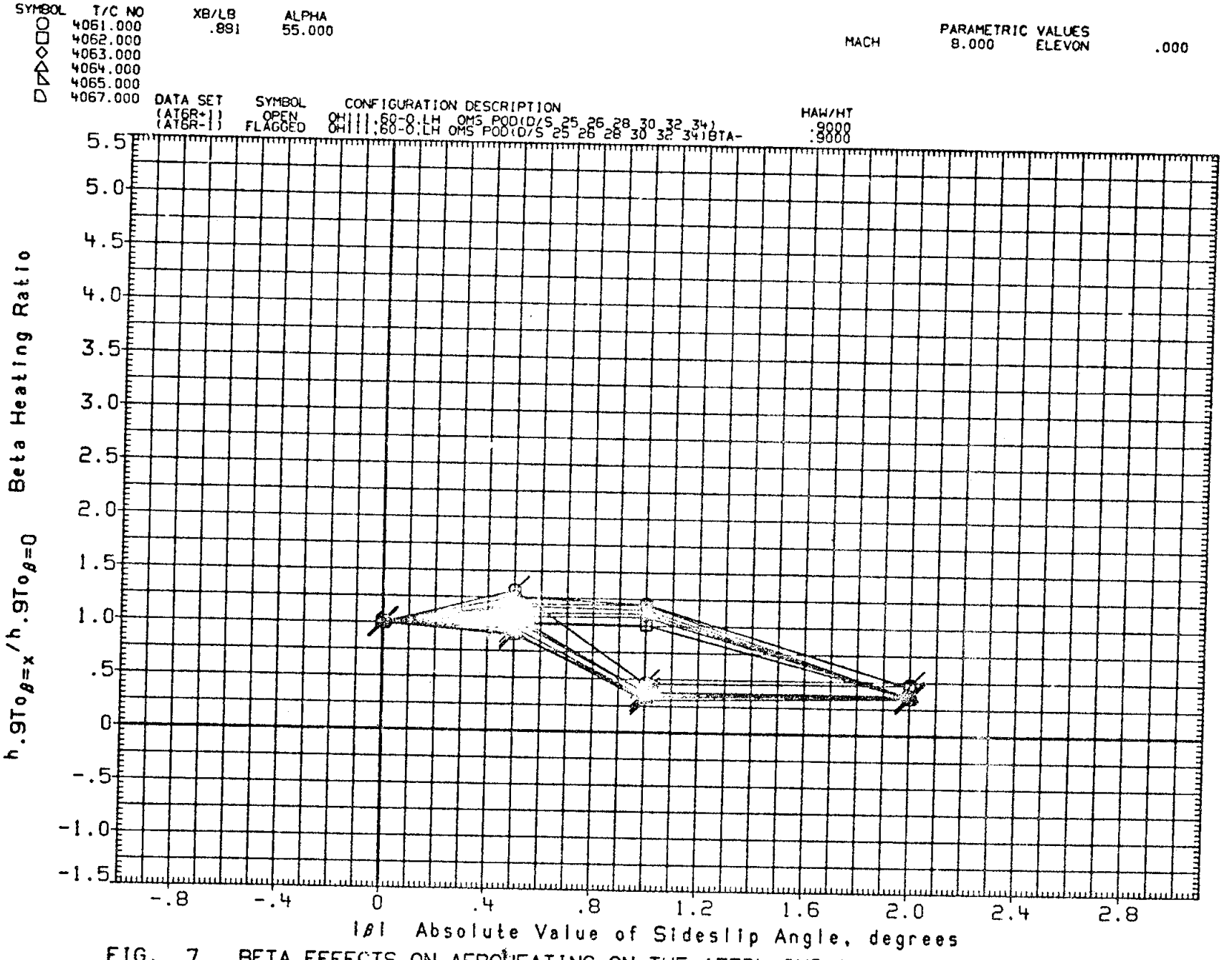

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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

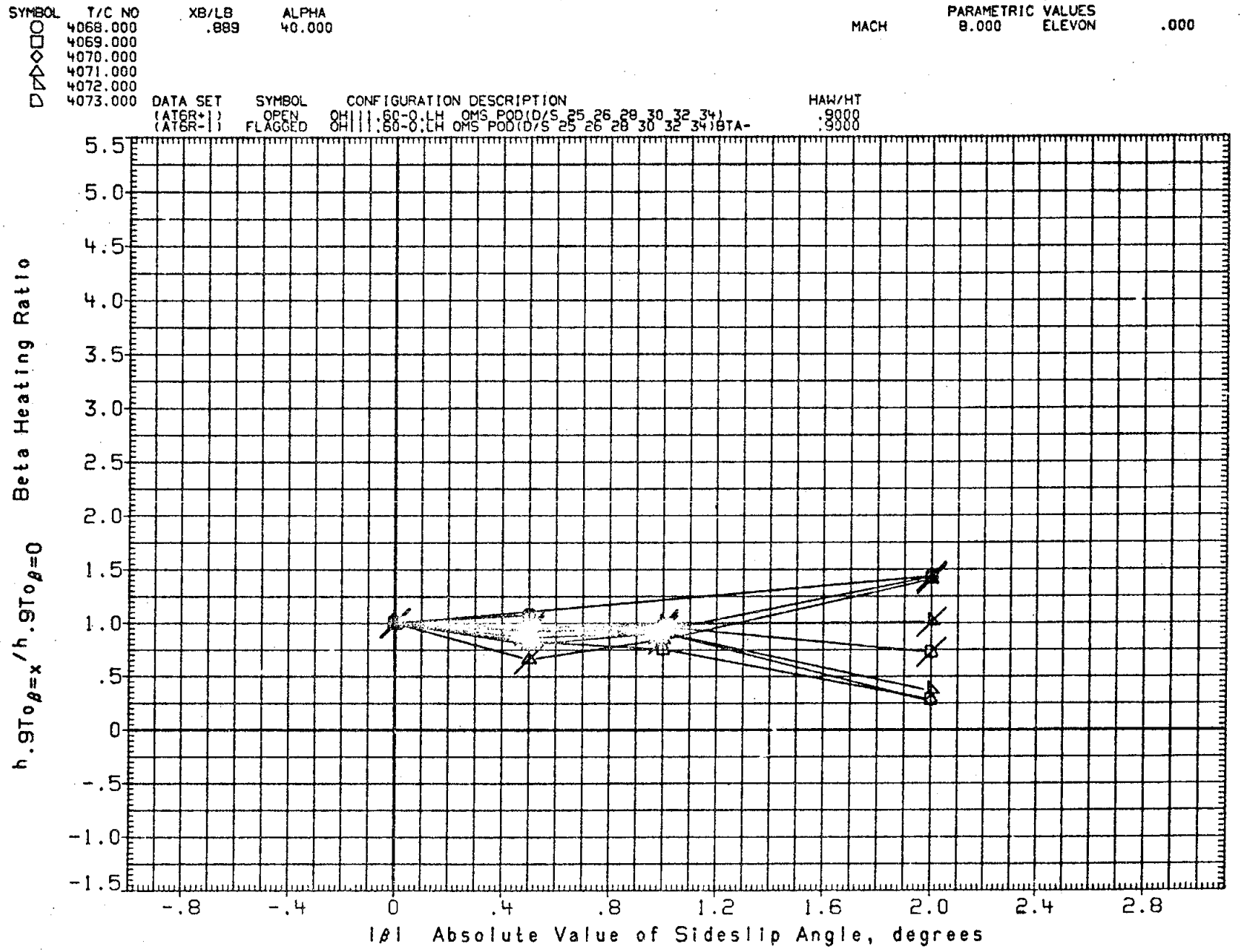


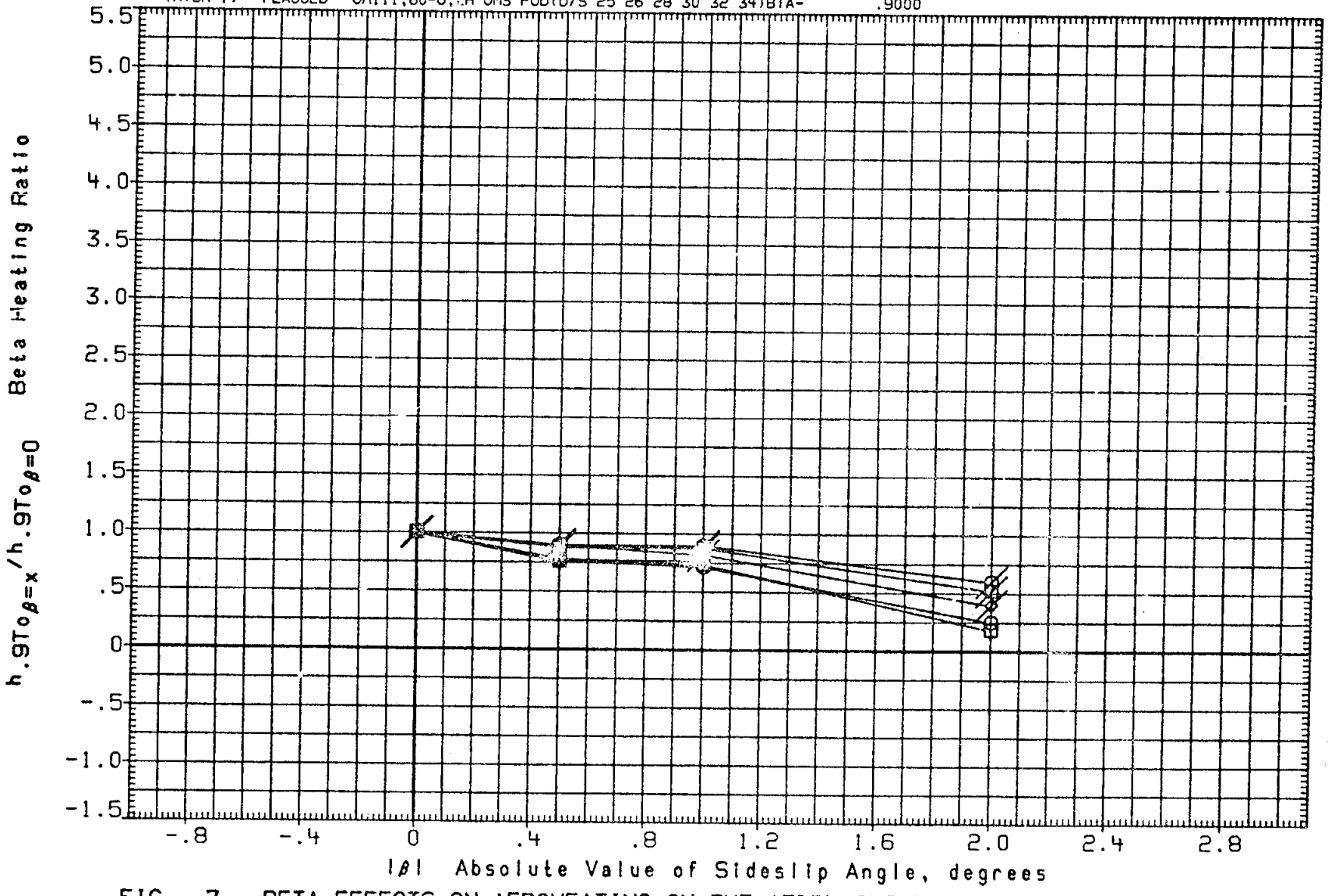
FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4074.000	.889	40.000
□	4075.000		
◇	4076.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000



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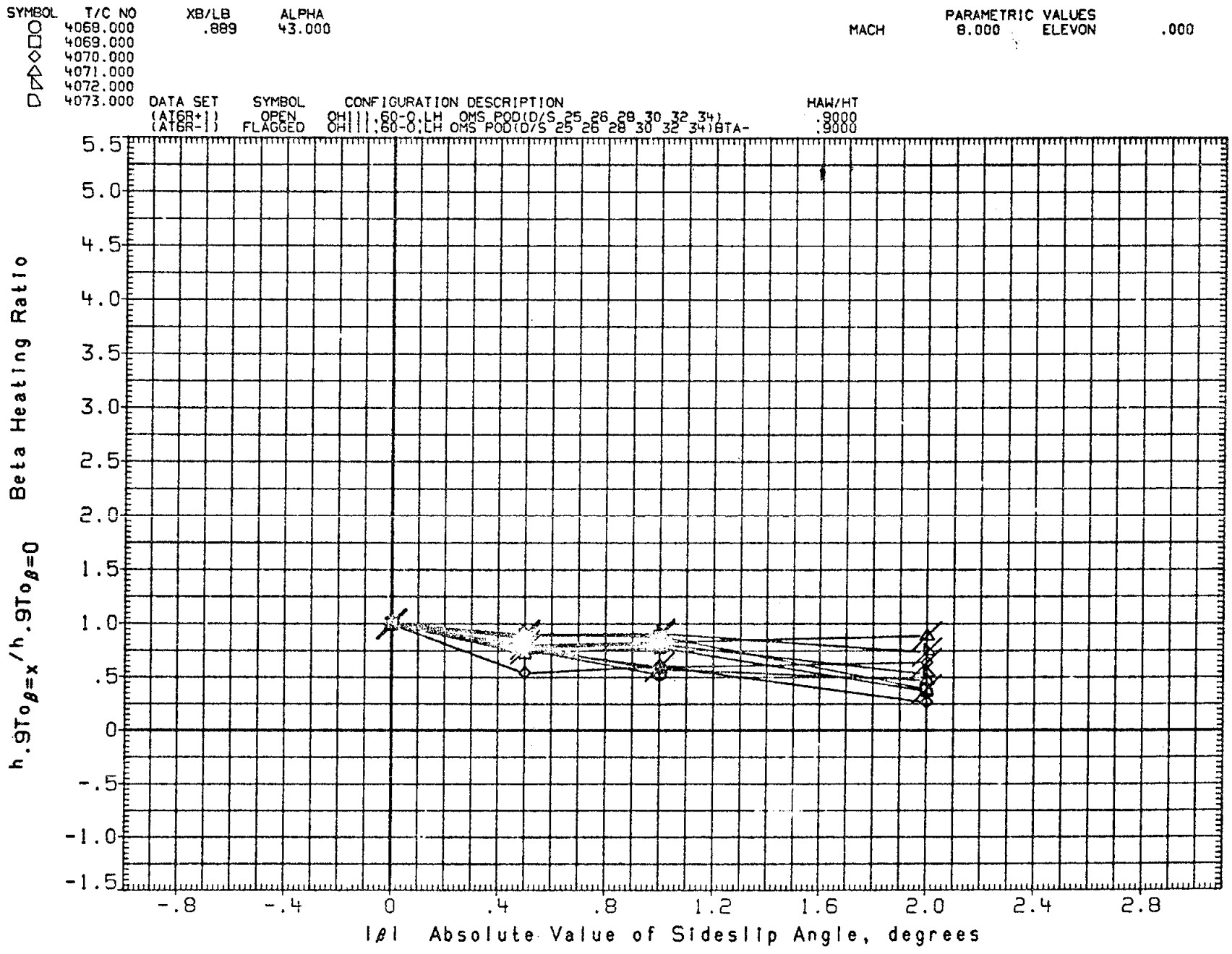
DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

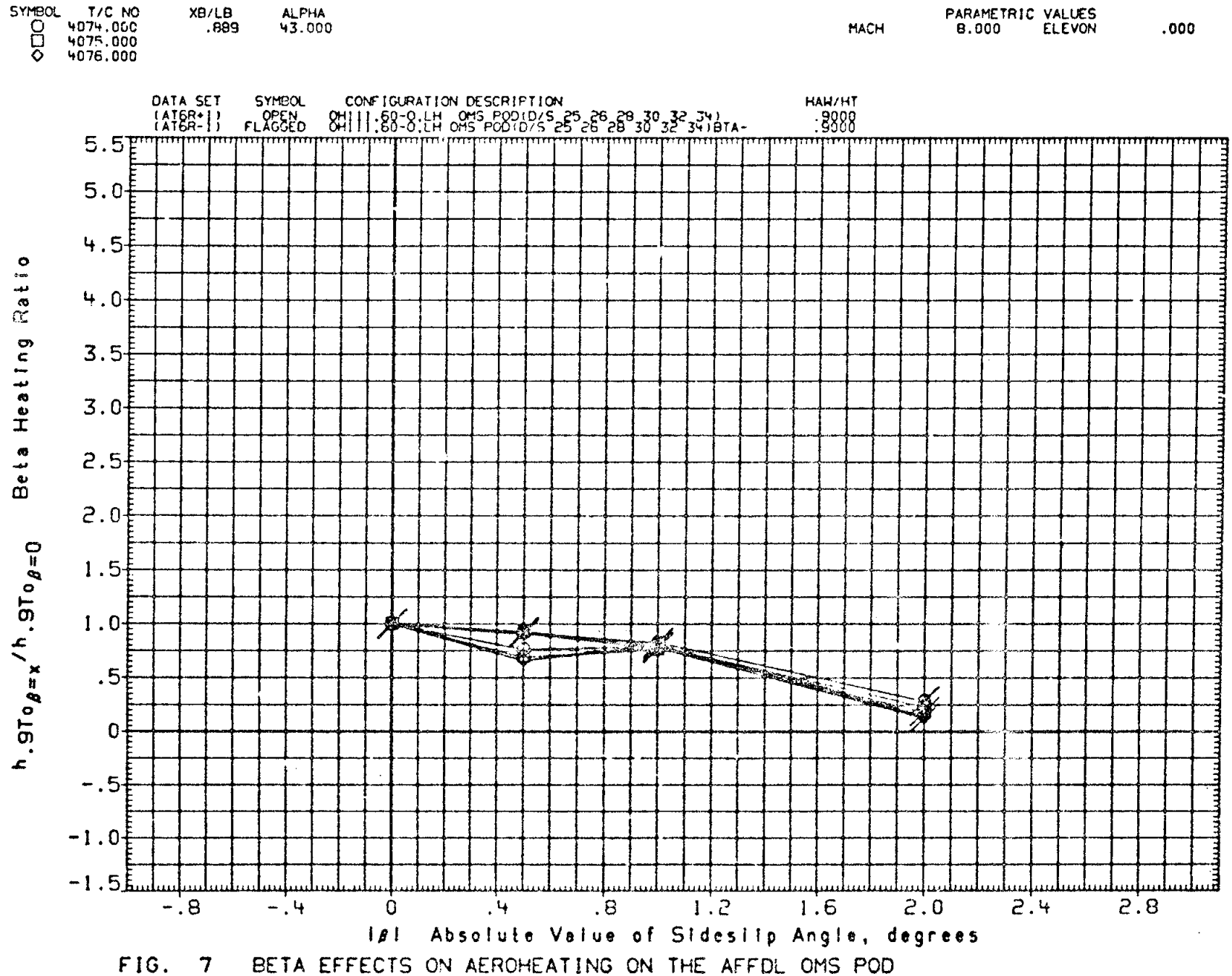
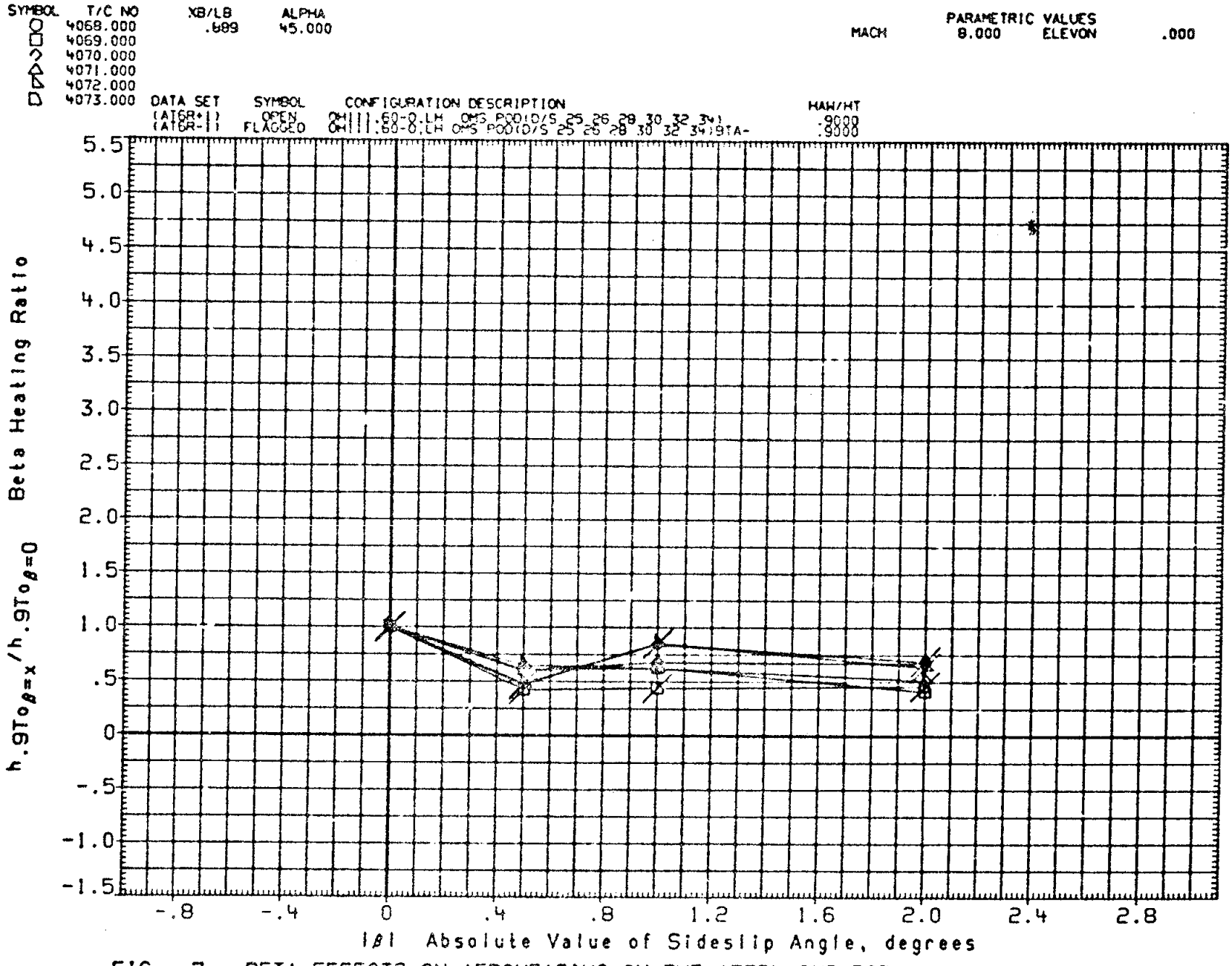


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

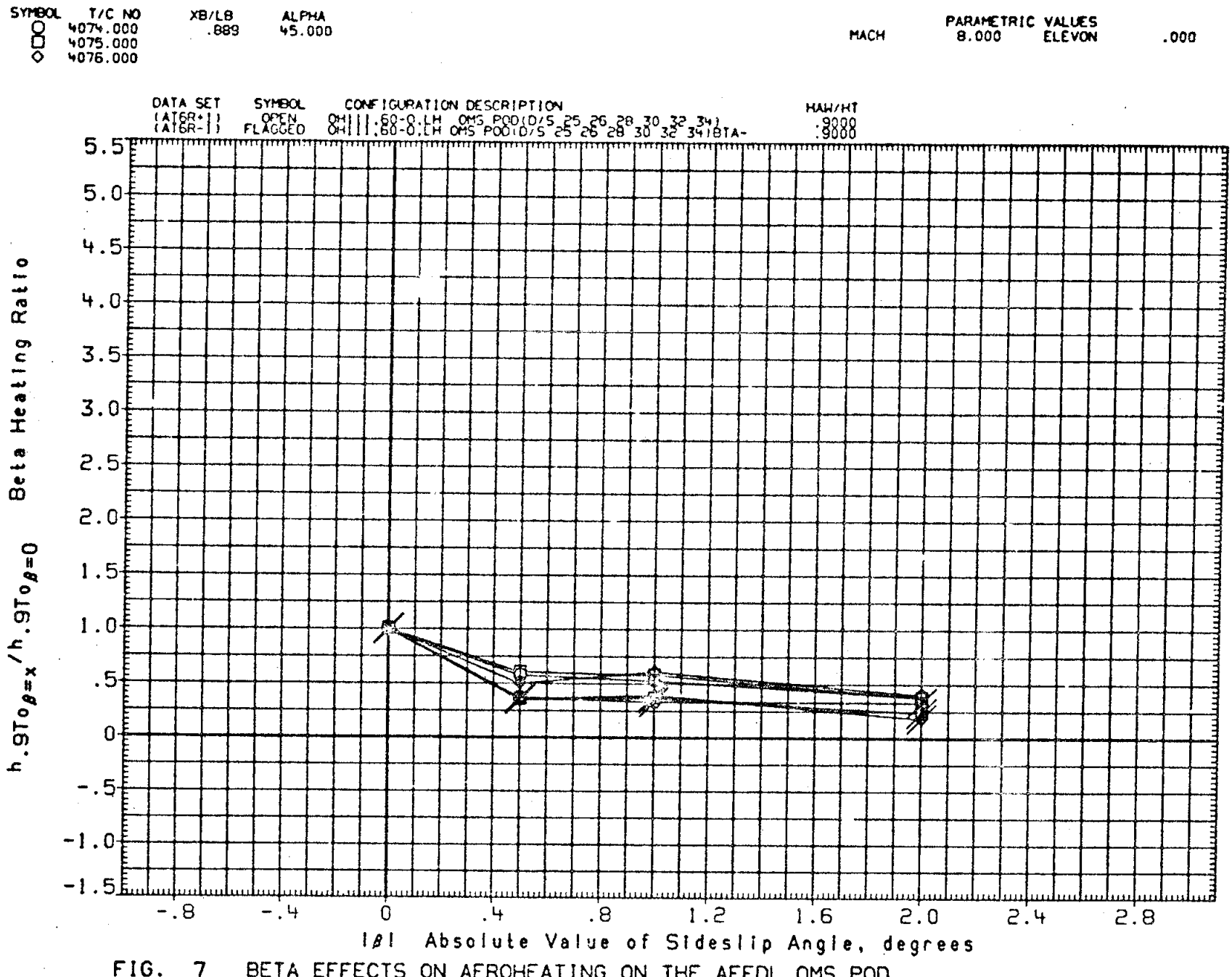
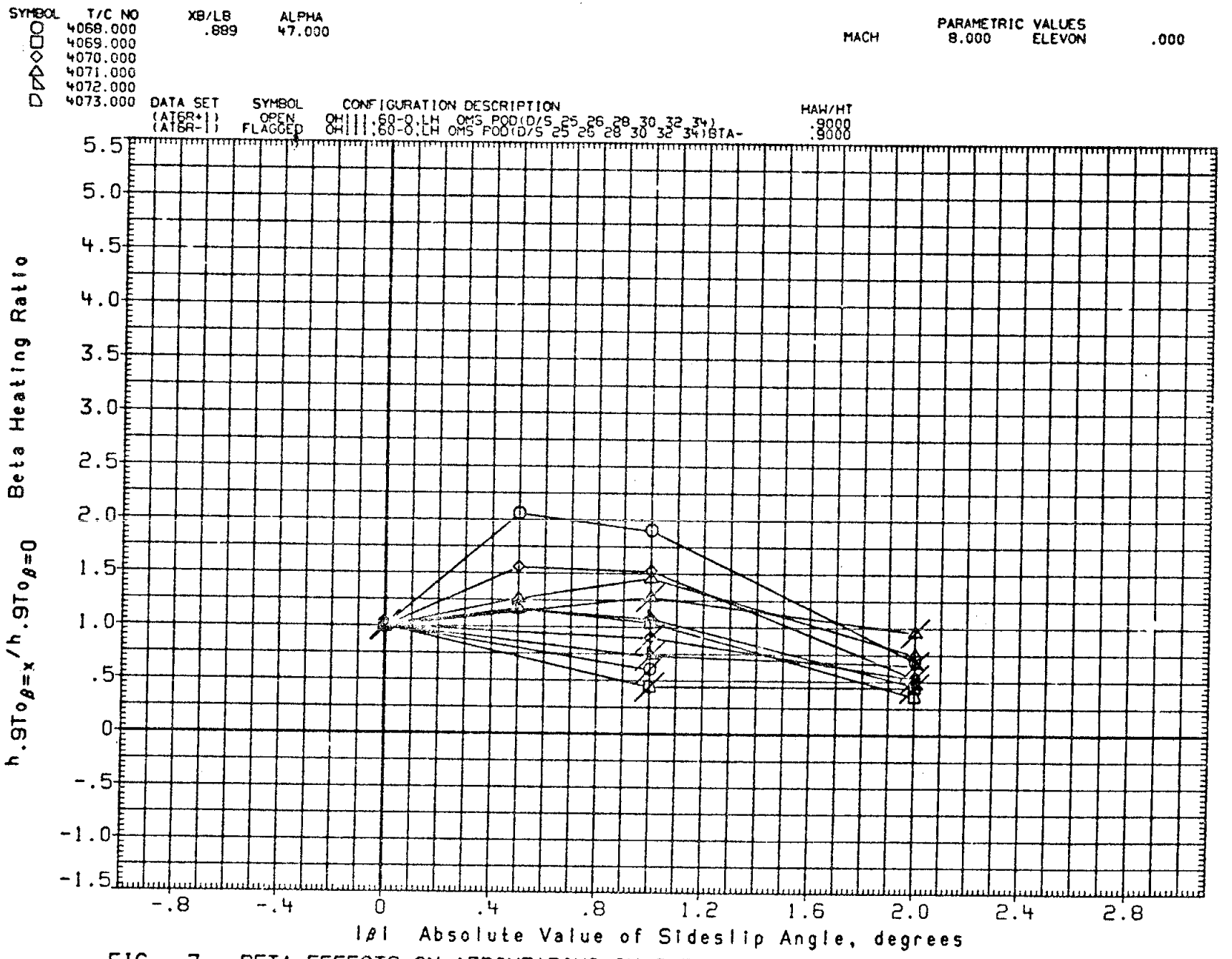


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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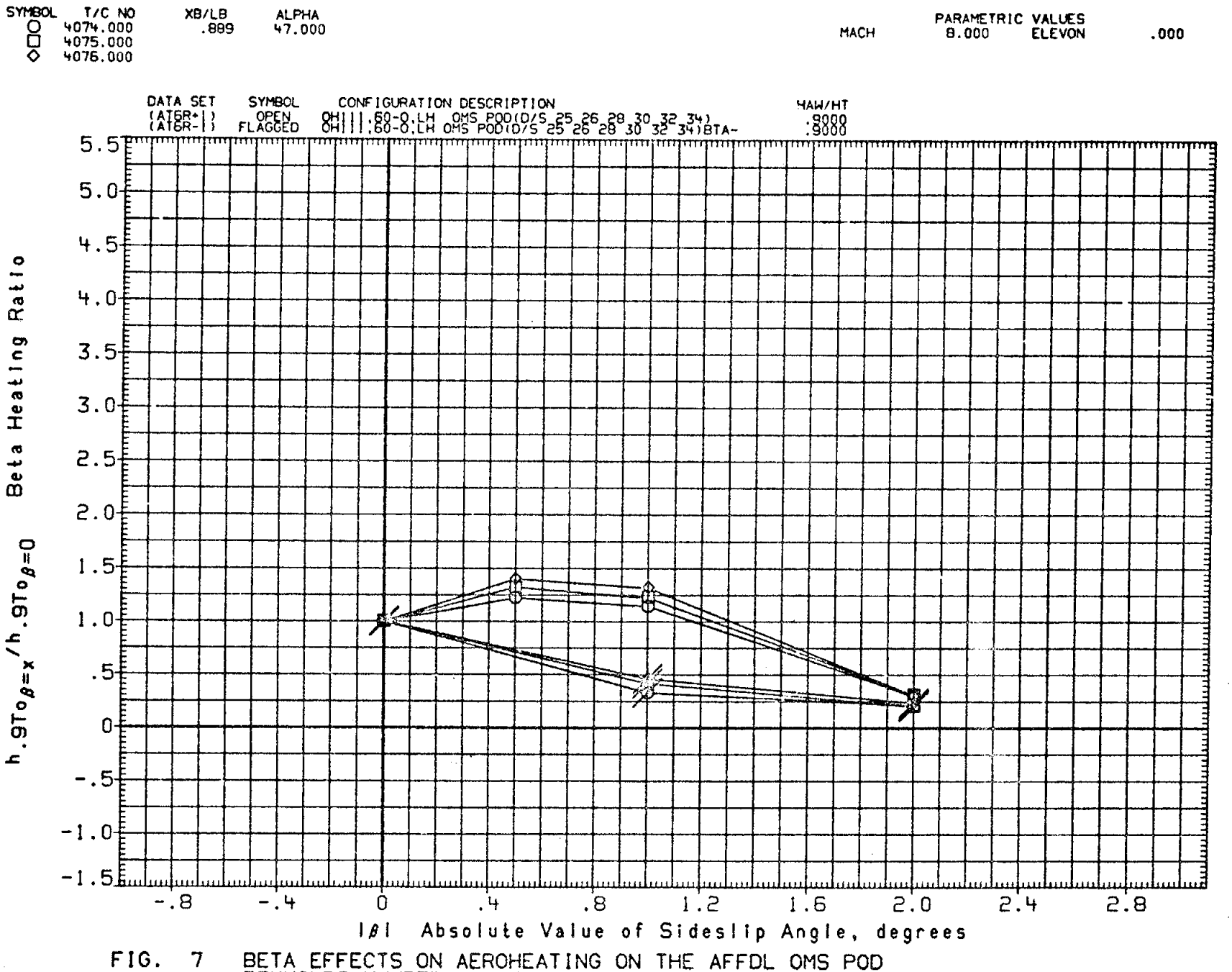
DATE 28 JAN 82



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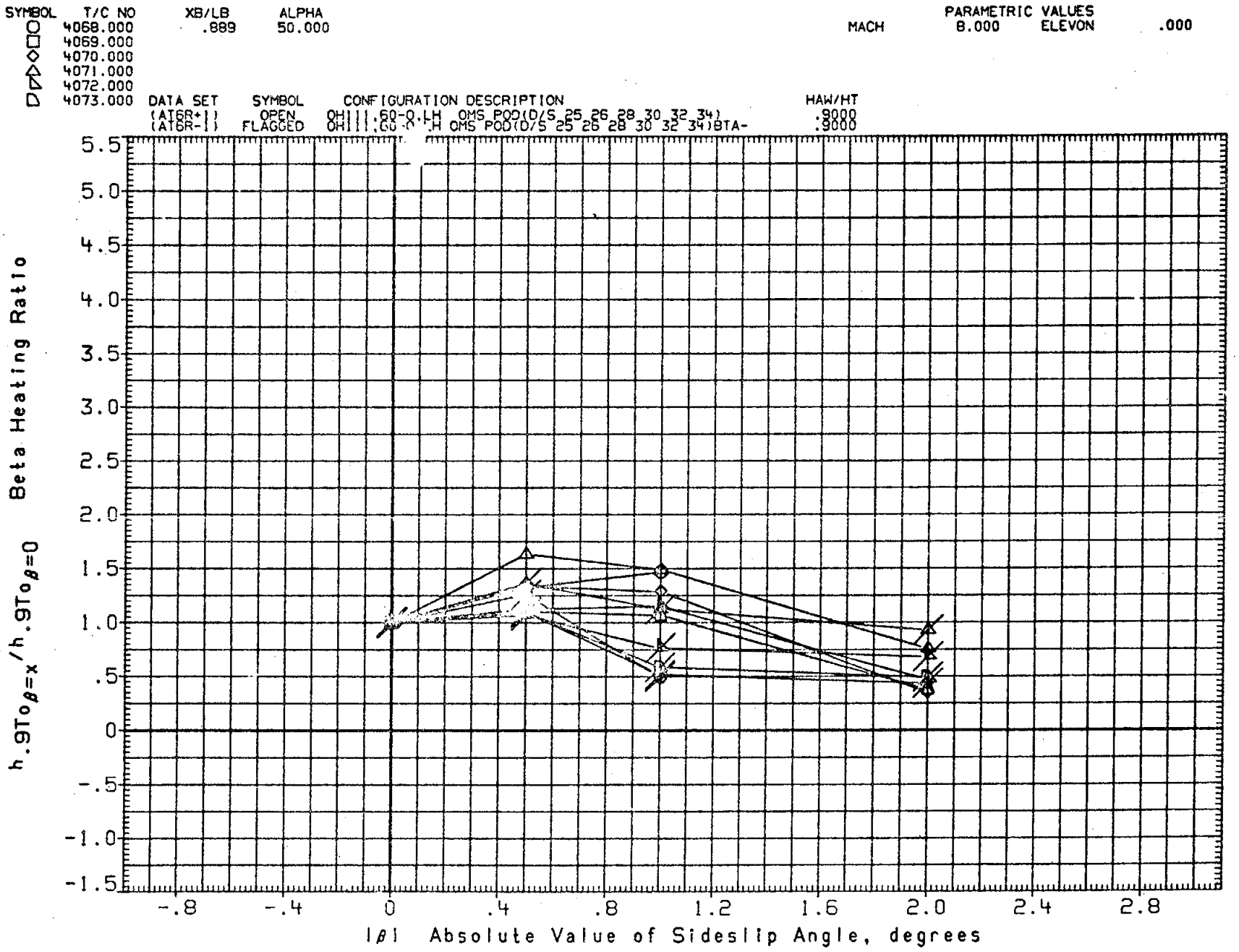
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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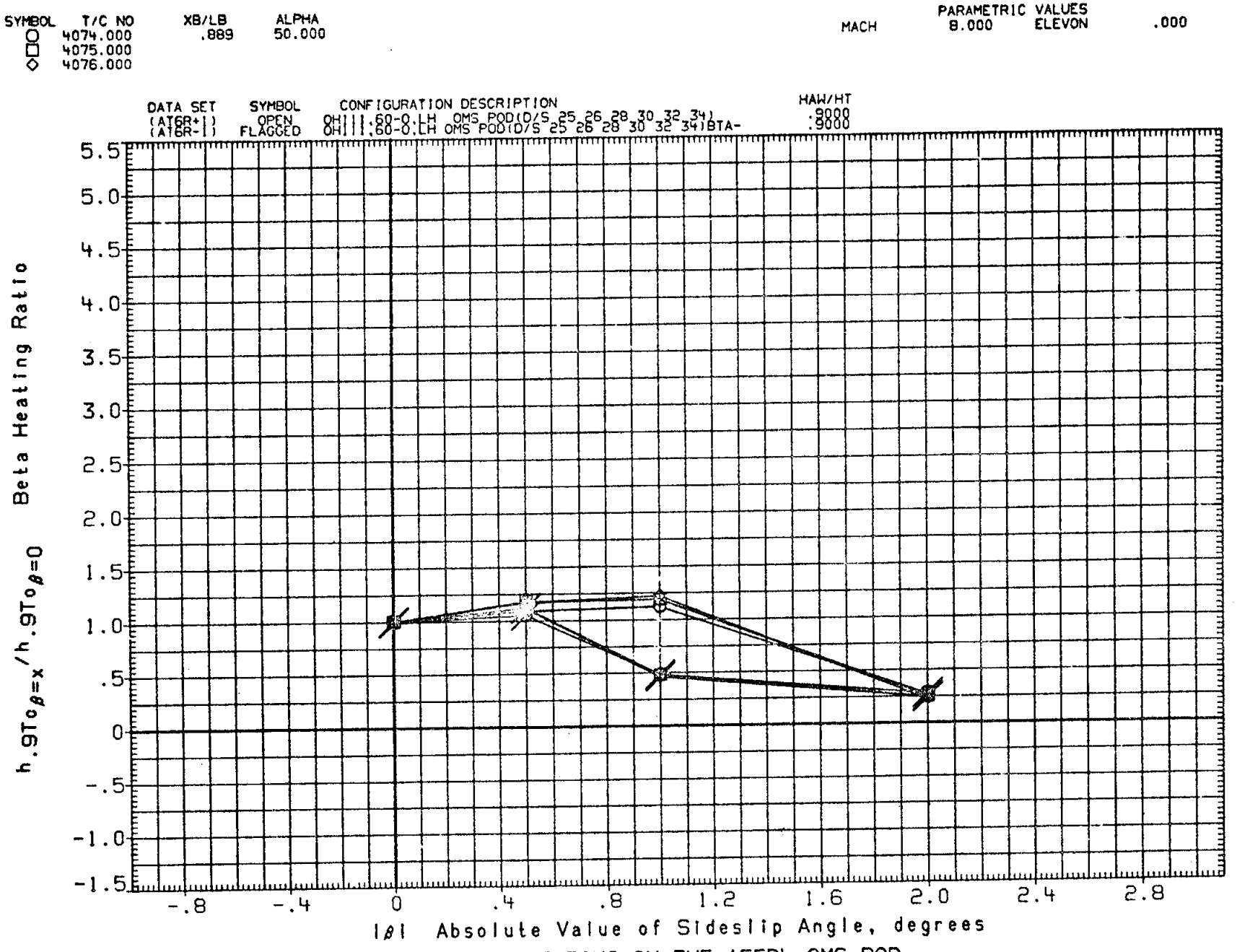
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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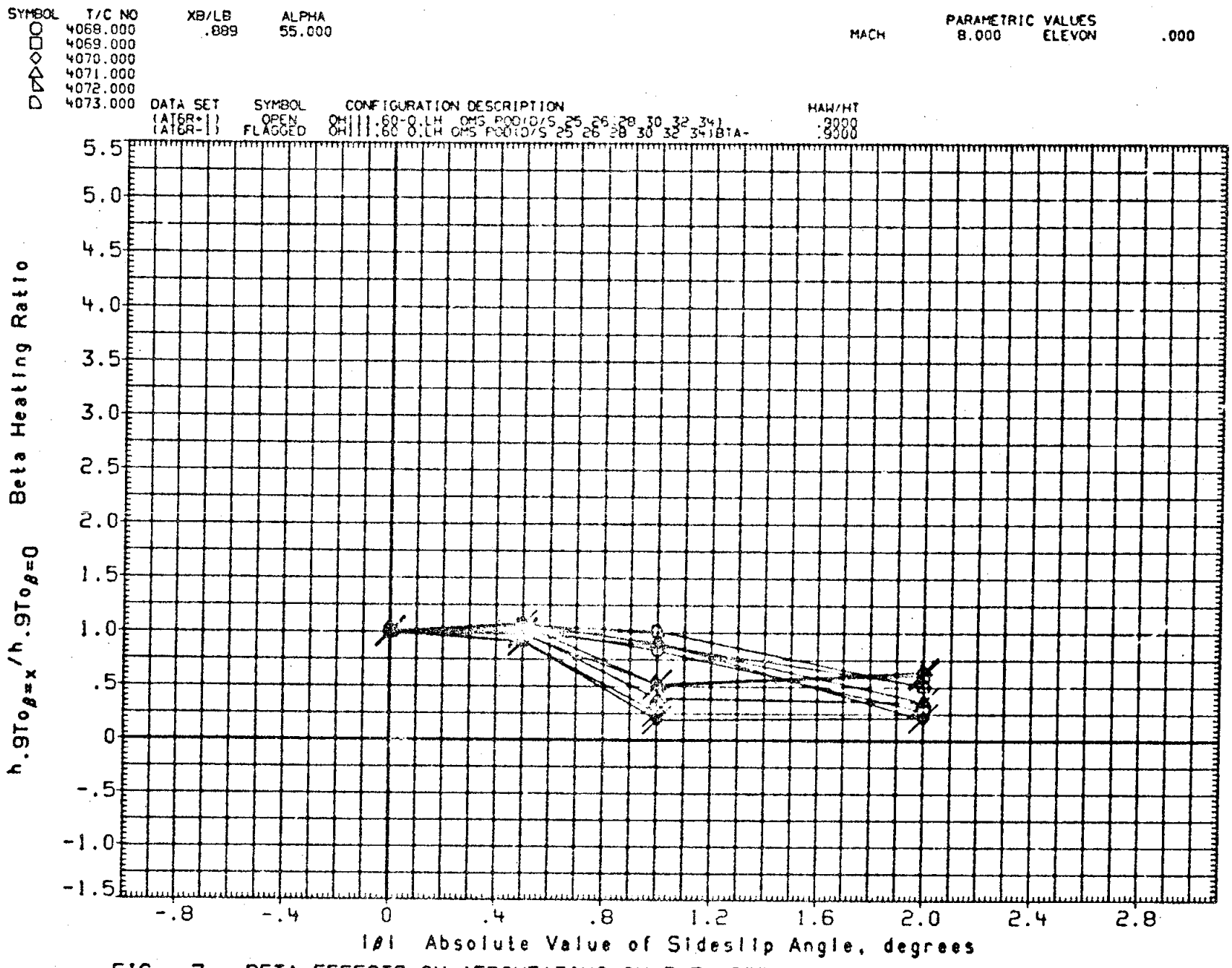
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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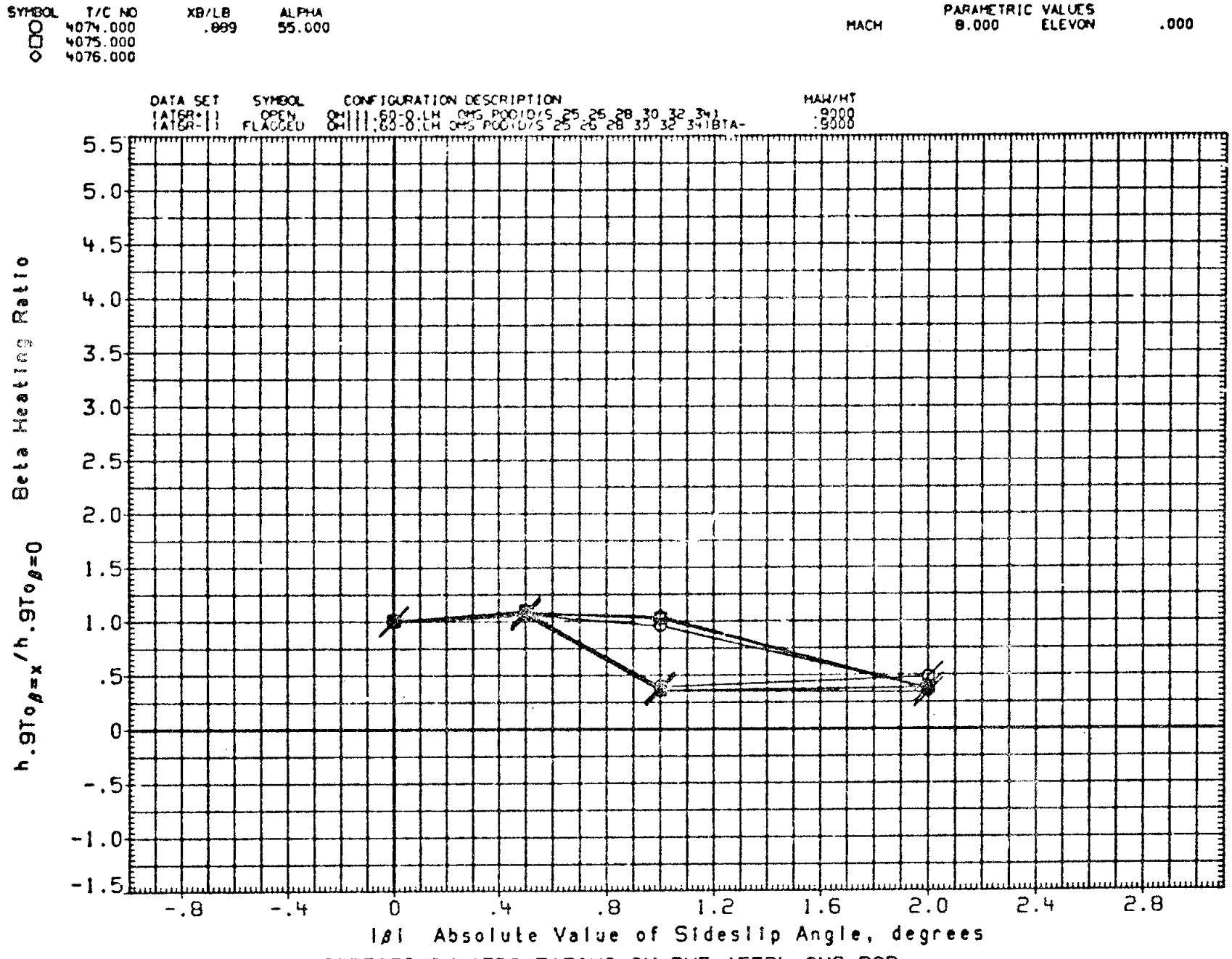
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

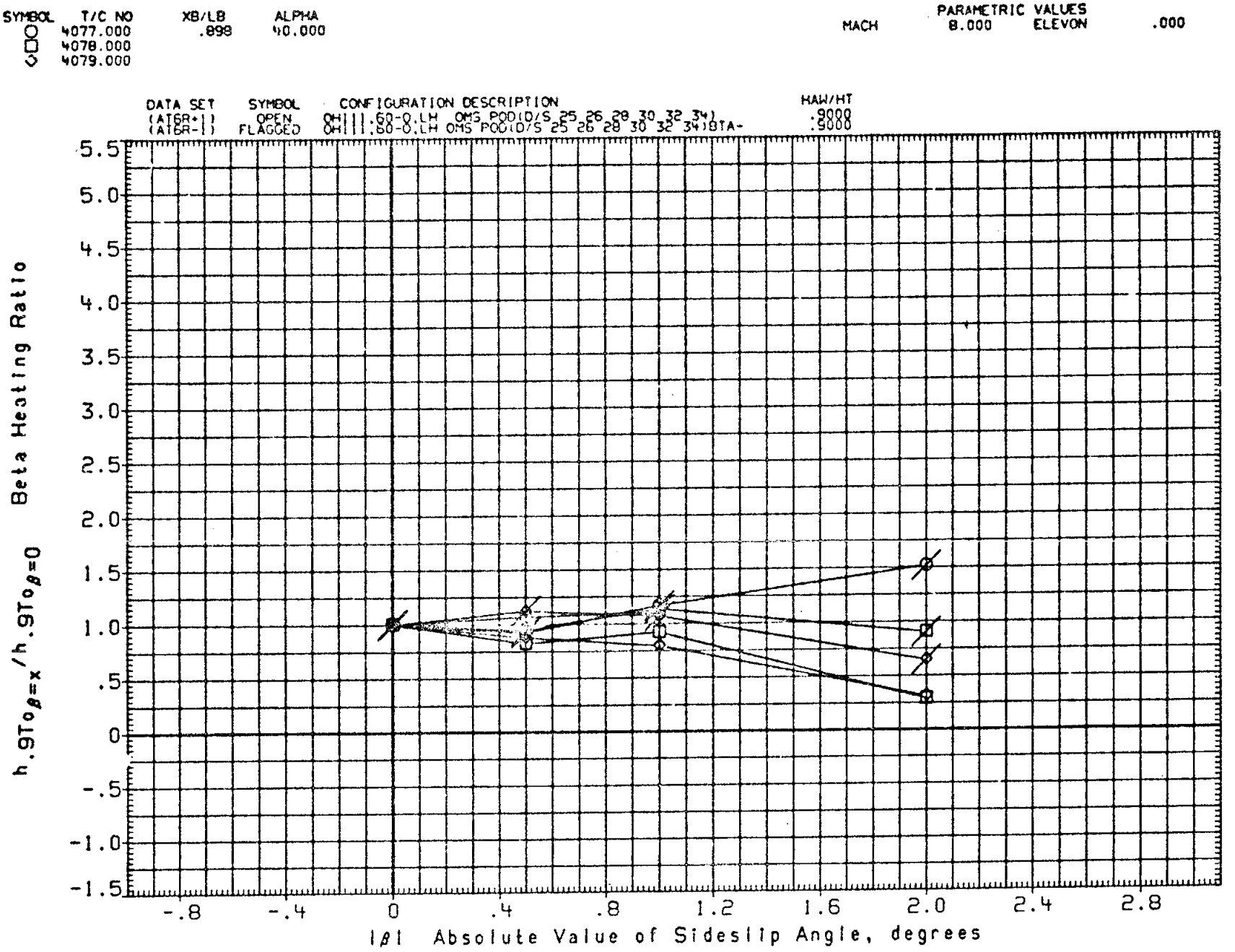


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4077.000	.898	43.000
□	4078.000		
◇	4079.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/IRT
(AT6R+1)	OPEN	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-1)	FLAGGED	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

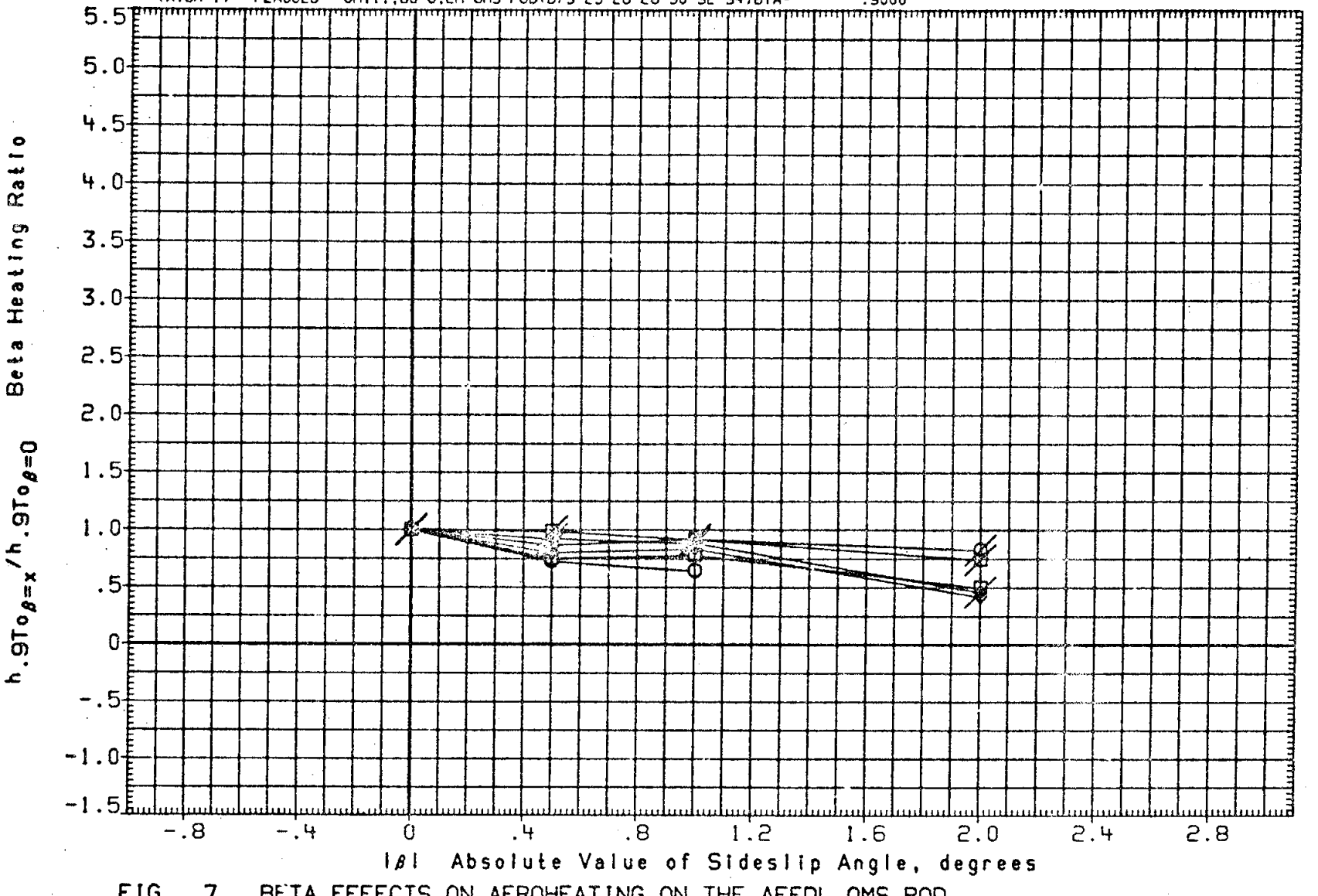


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

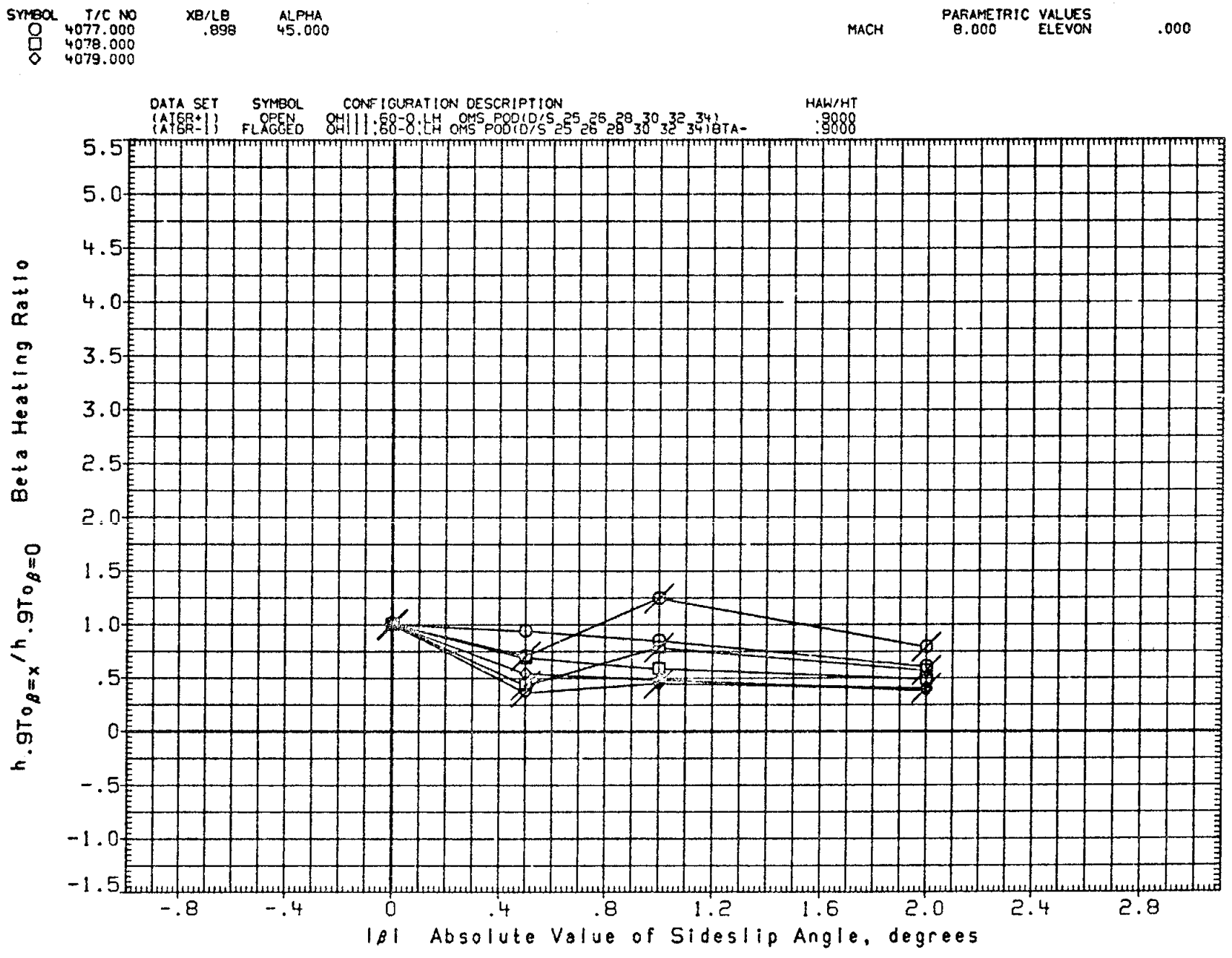


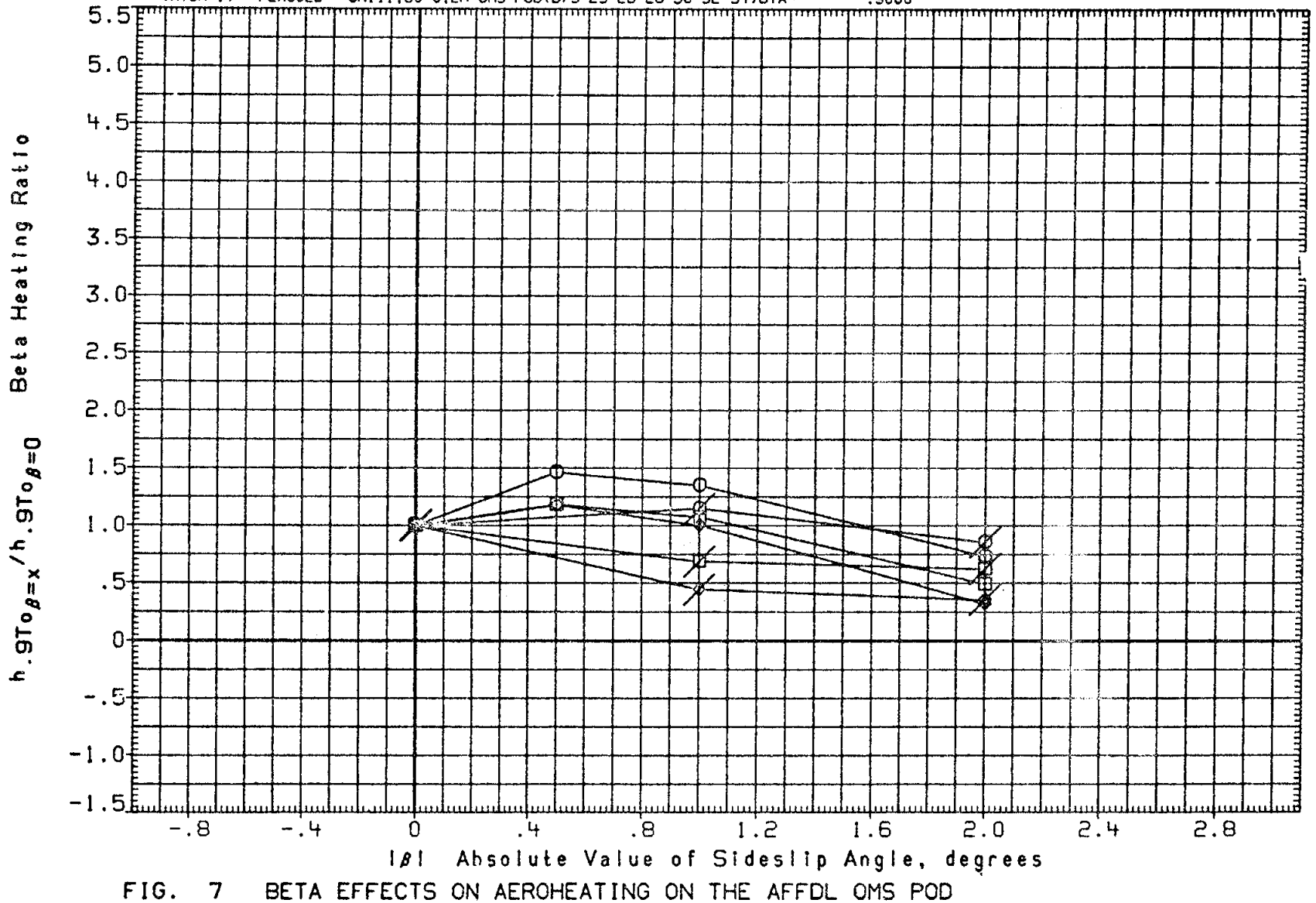
FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4077.000	.898	47.000
□	4078.000		
◇	4079.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+)	OPEN	OHIII,60-0,LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-)	FLAGGED	OHIII,60-0,LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

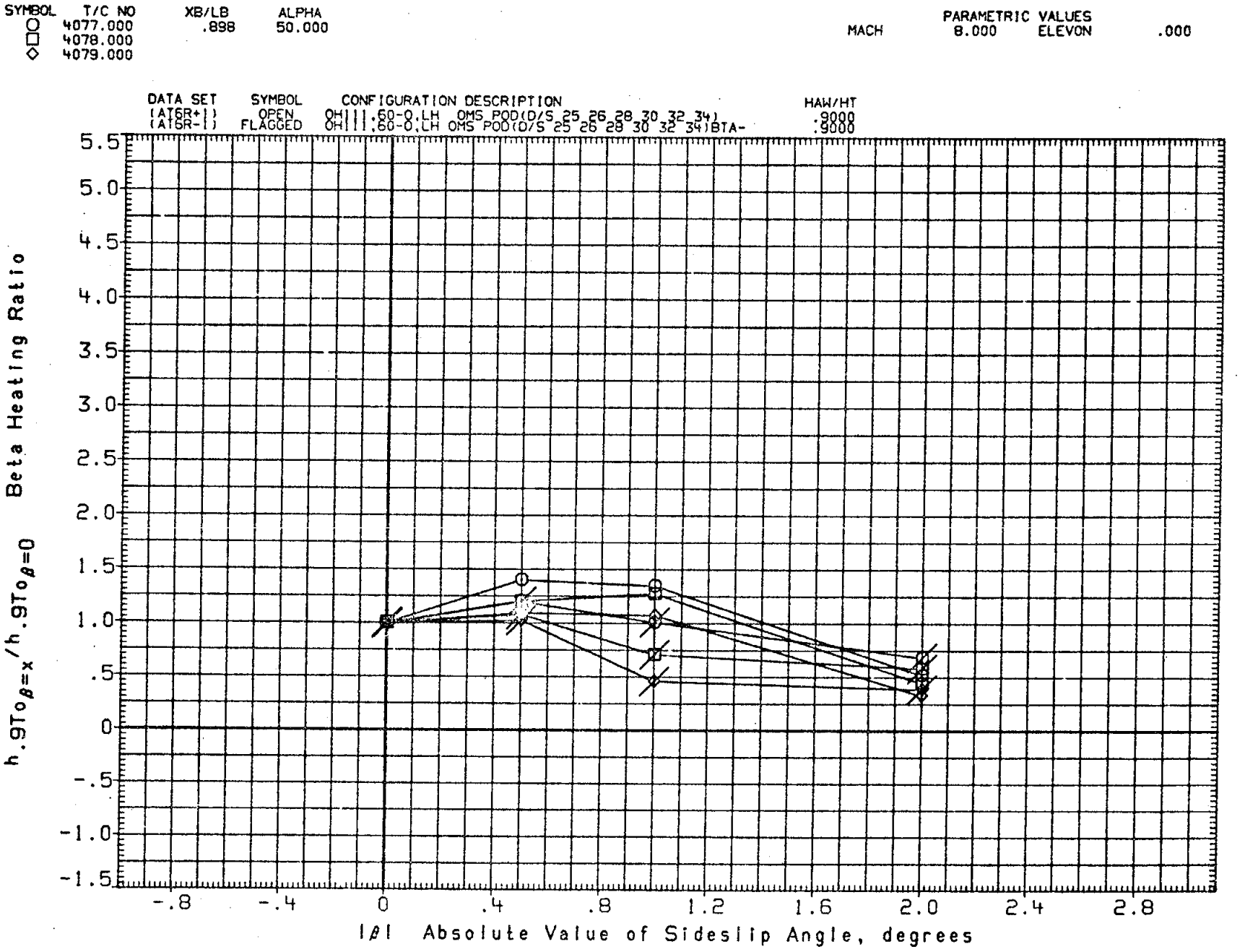


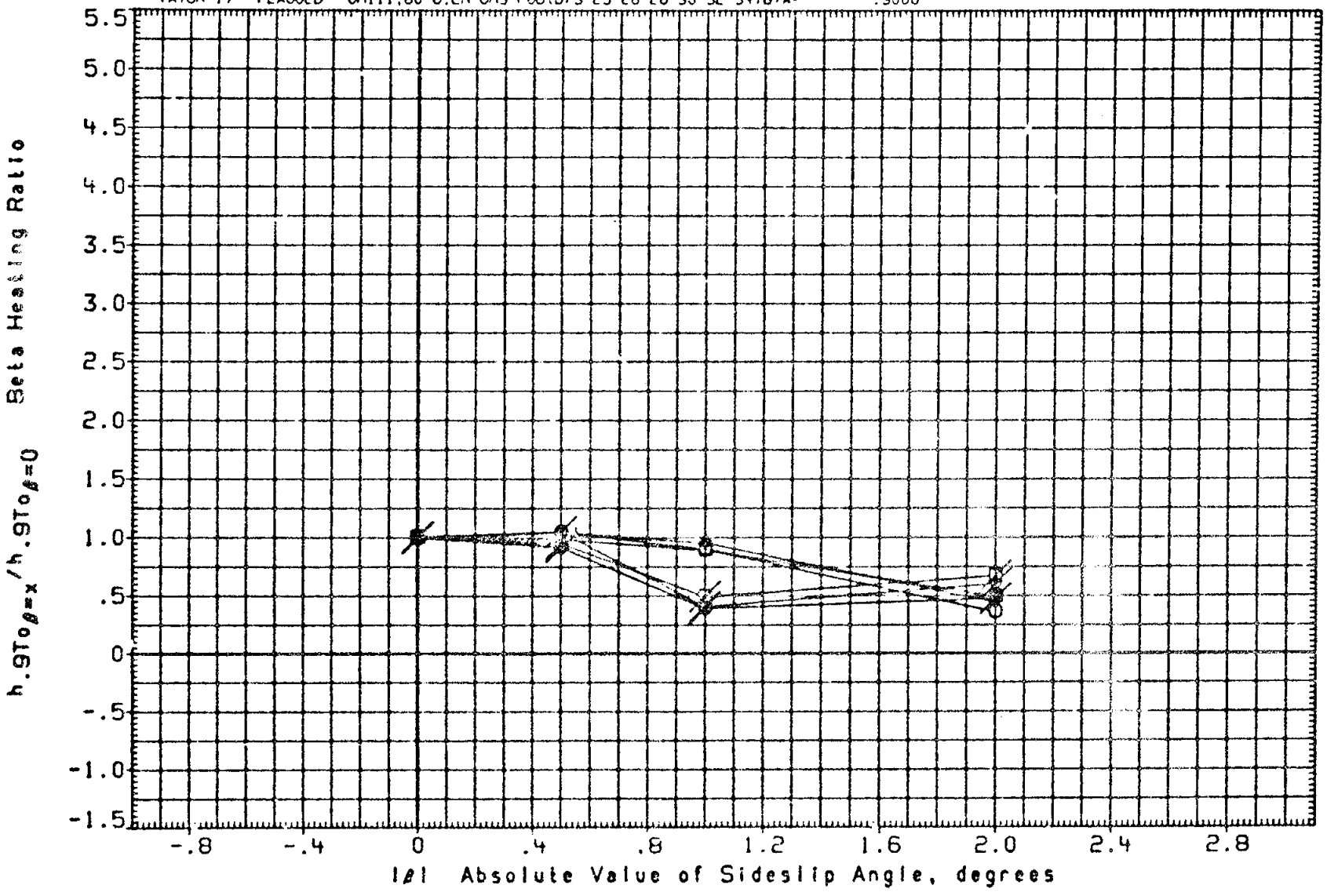
FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4077.000	.898	55.000
□	4078.000		
◇	4079.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATBR+1)	OPEN	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATBR-1)	FLAGGED	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000



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REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

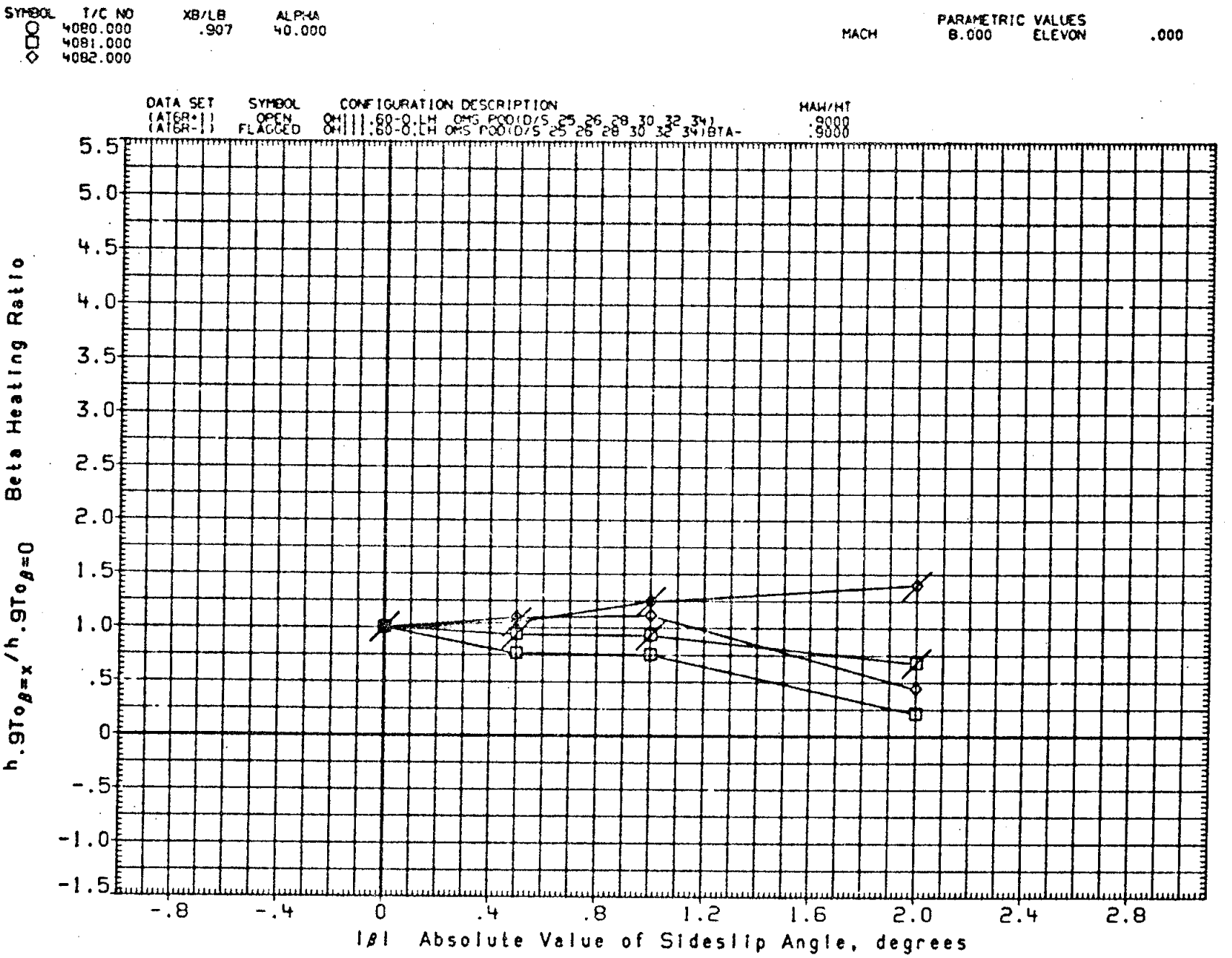


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

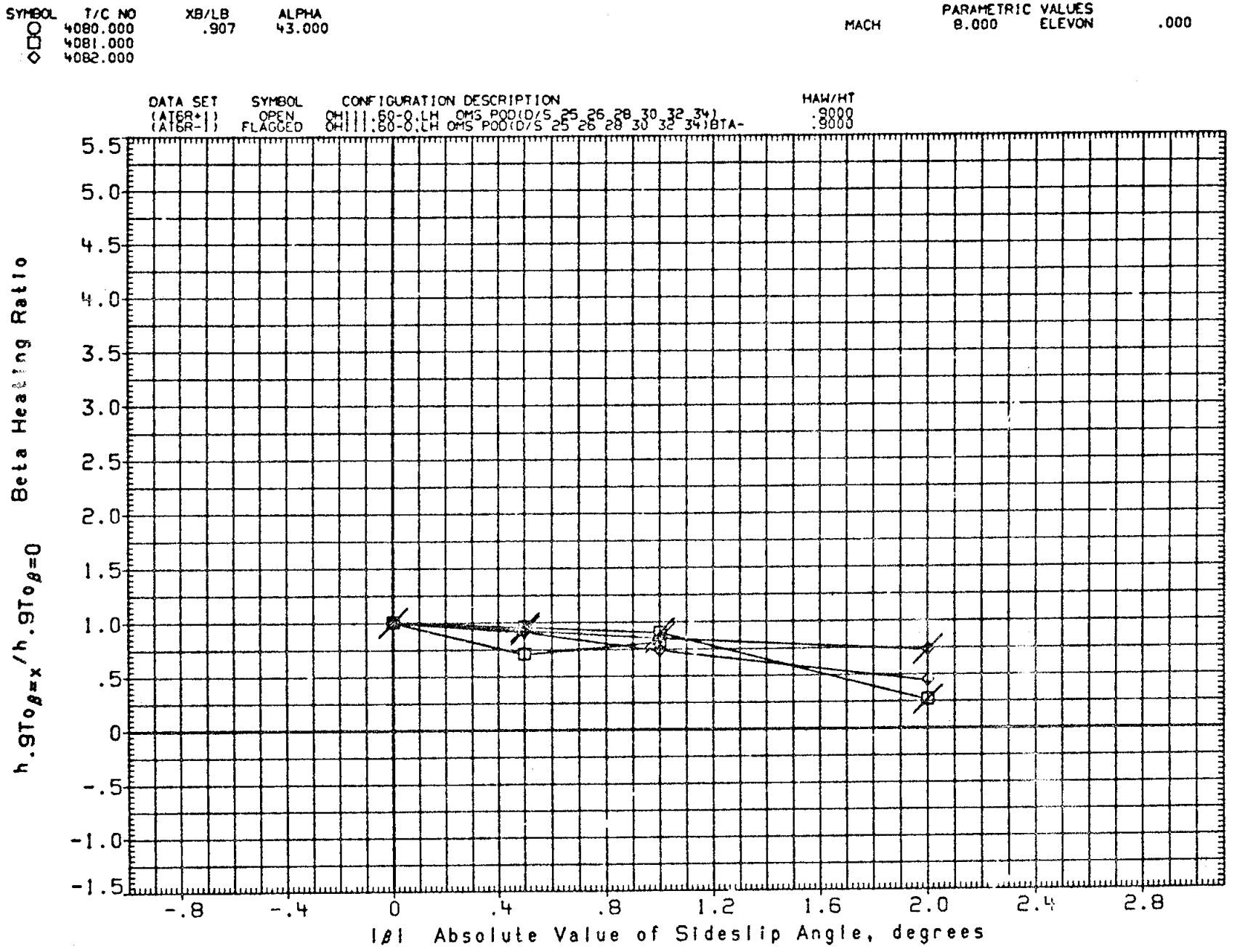


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

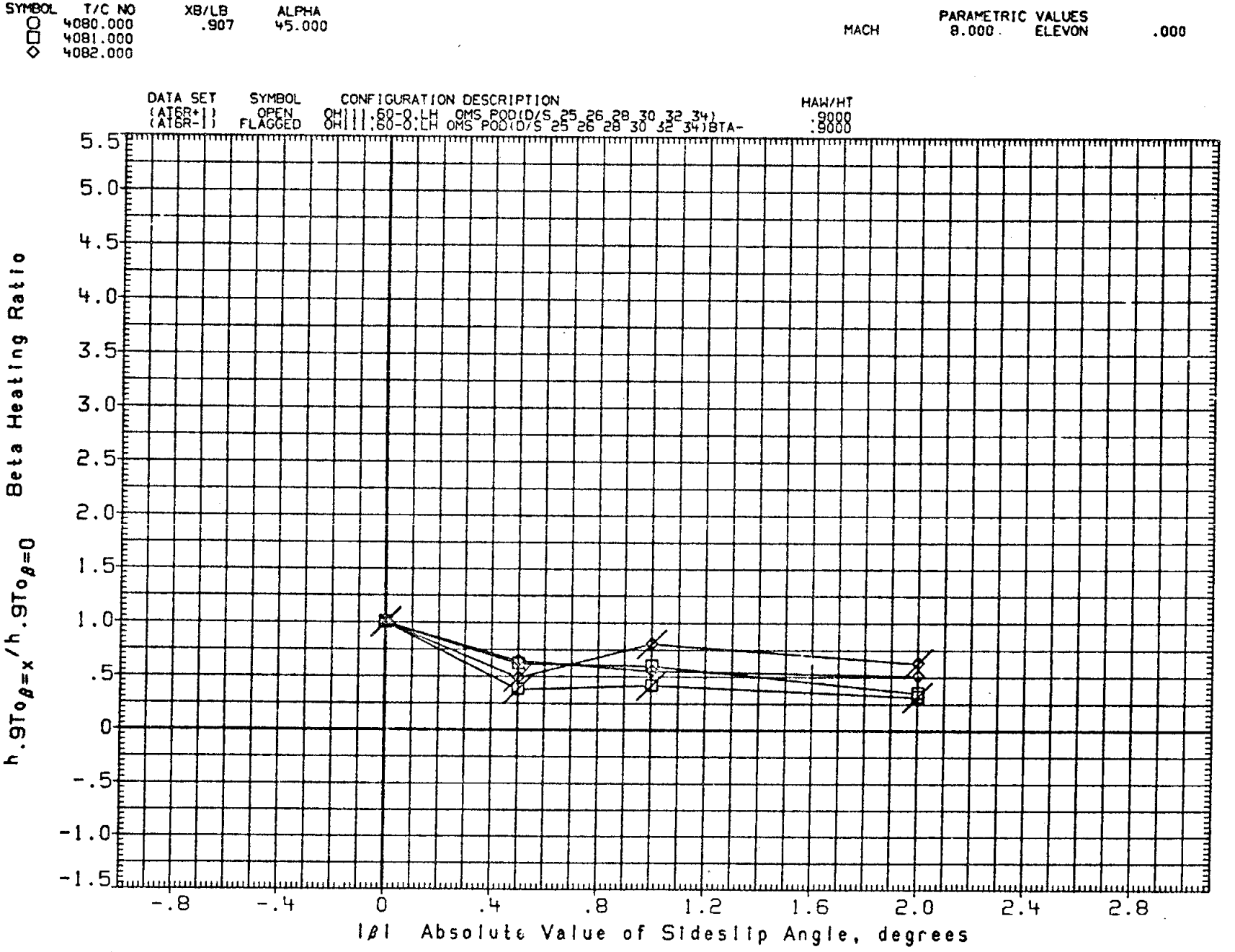


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

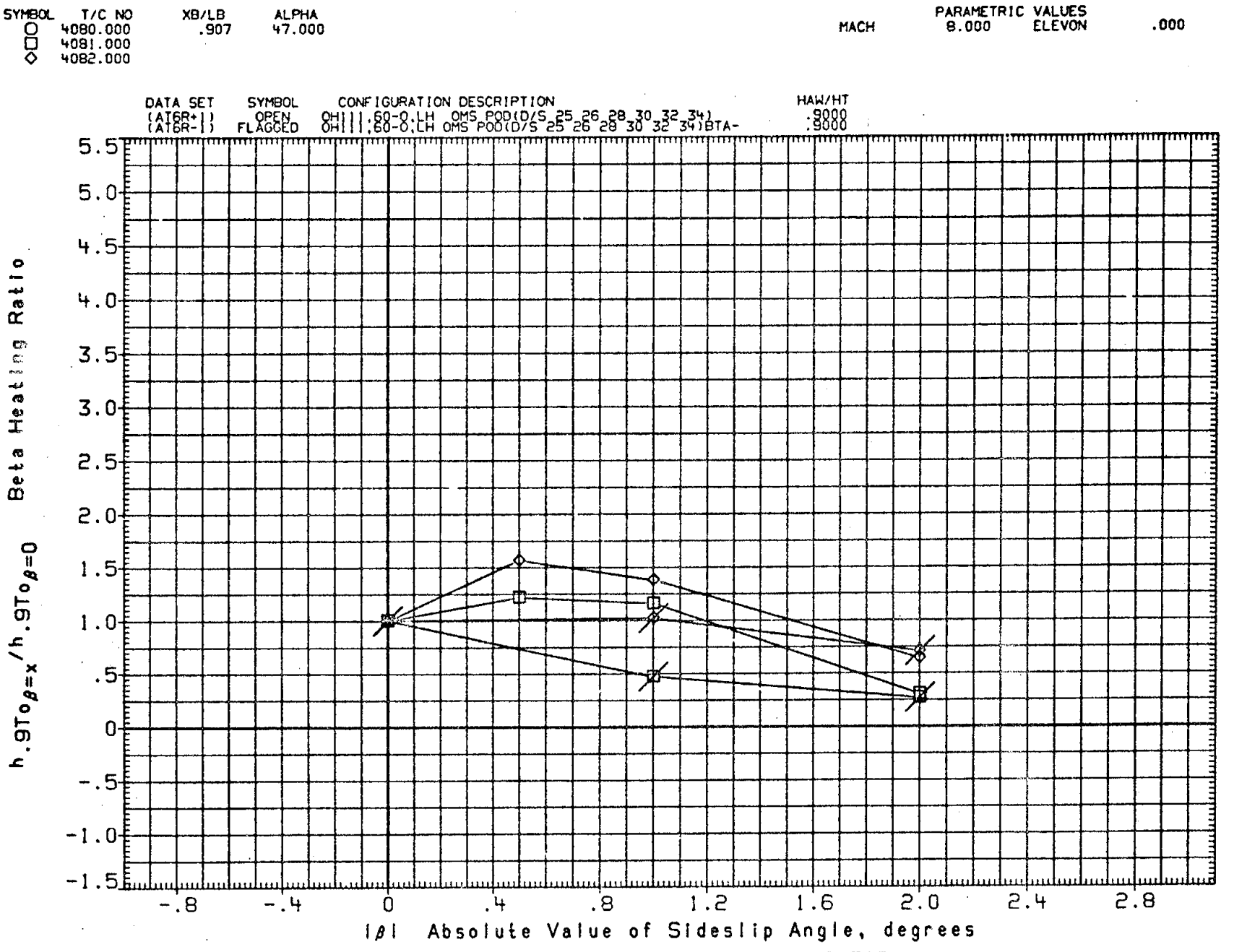


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

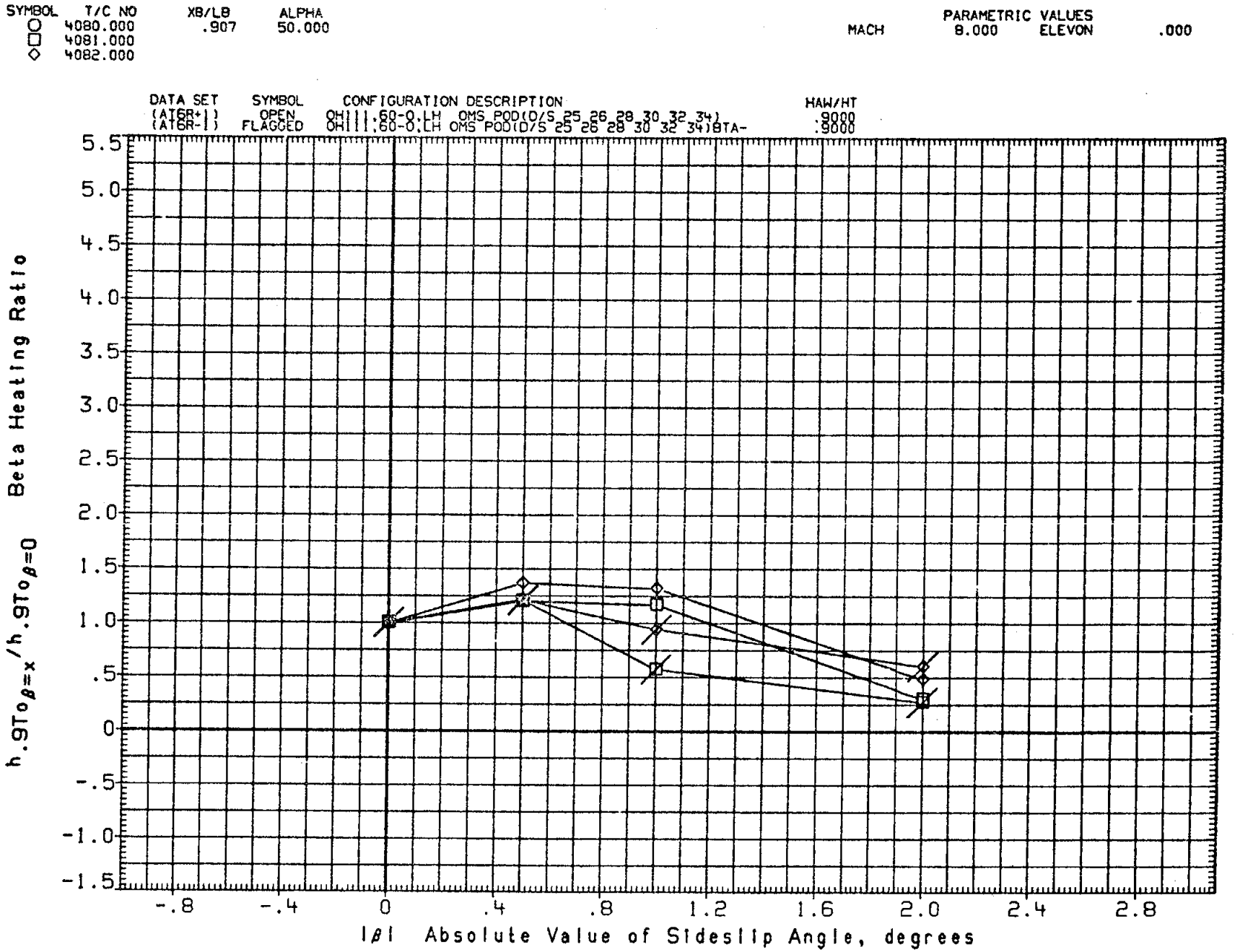


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4080.000	.907	55.000
□	4081.000		
◇	4082.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATGR+1)	OPEN	OH1I1.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(ATGR-1)	FLAGGED	OH1I1.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

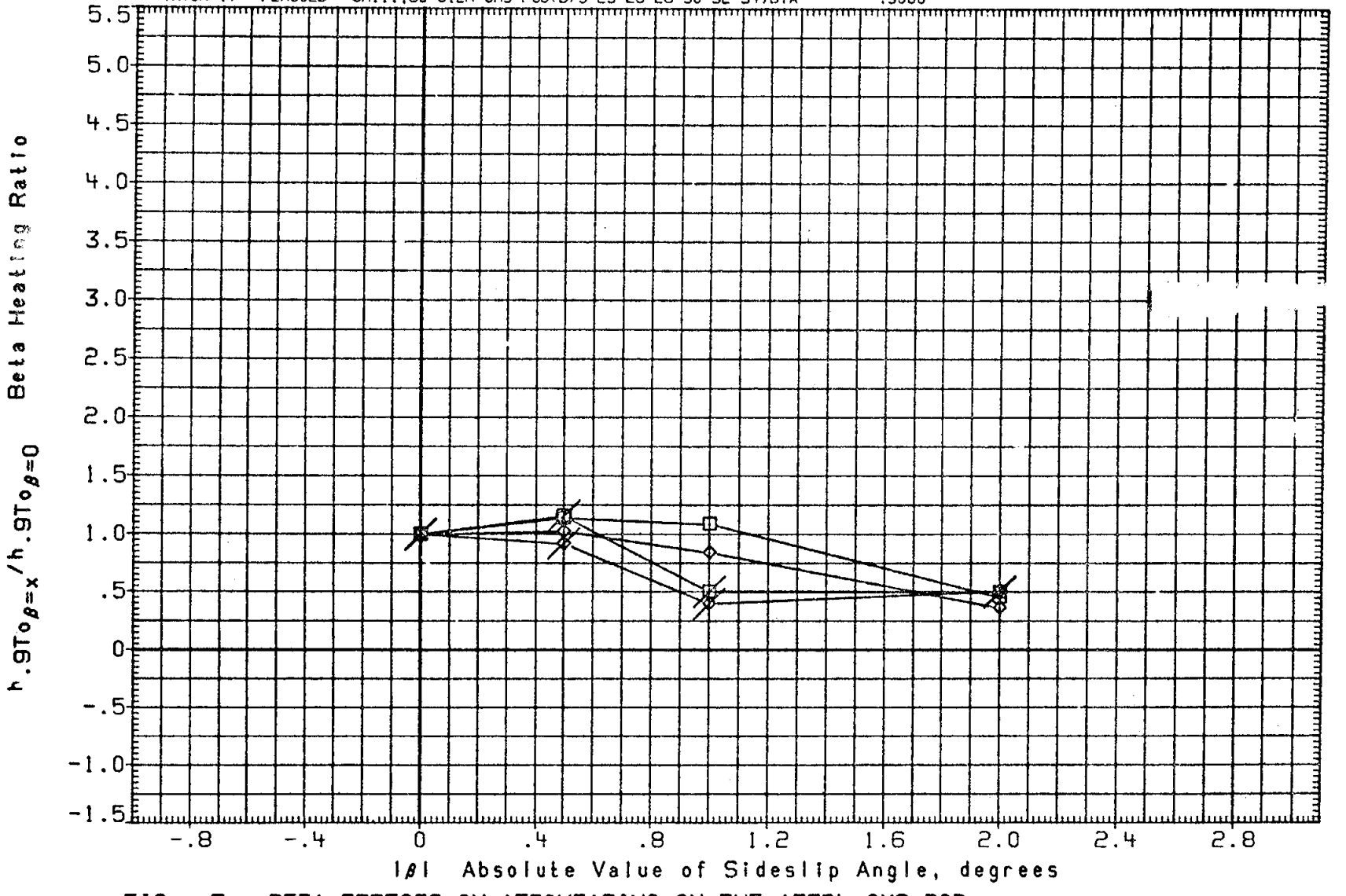


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

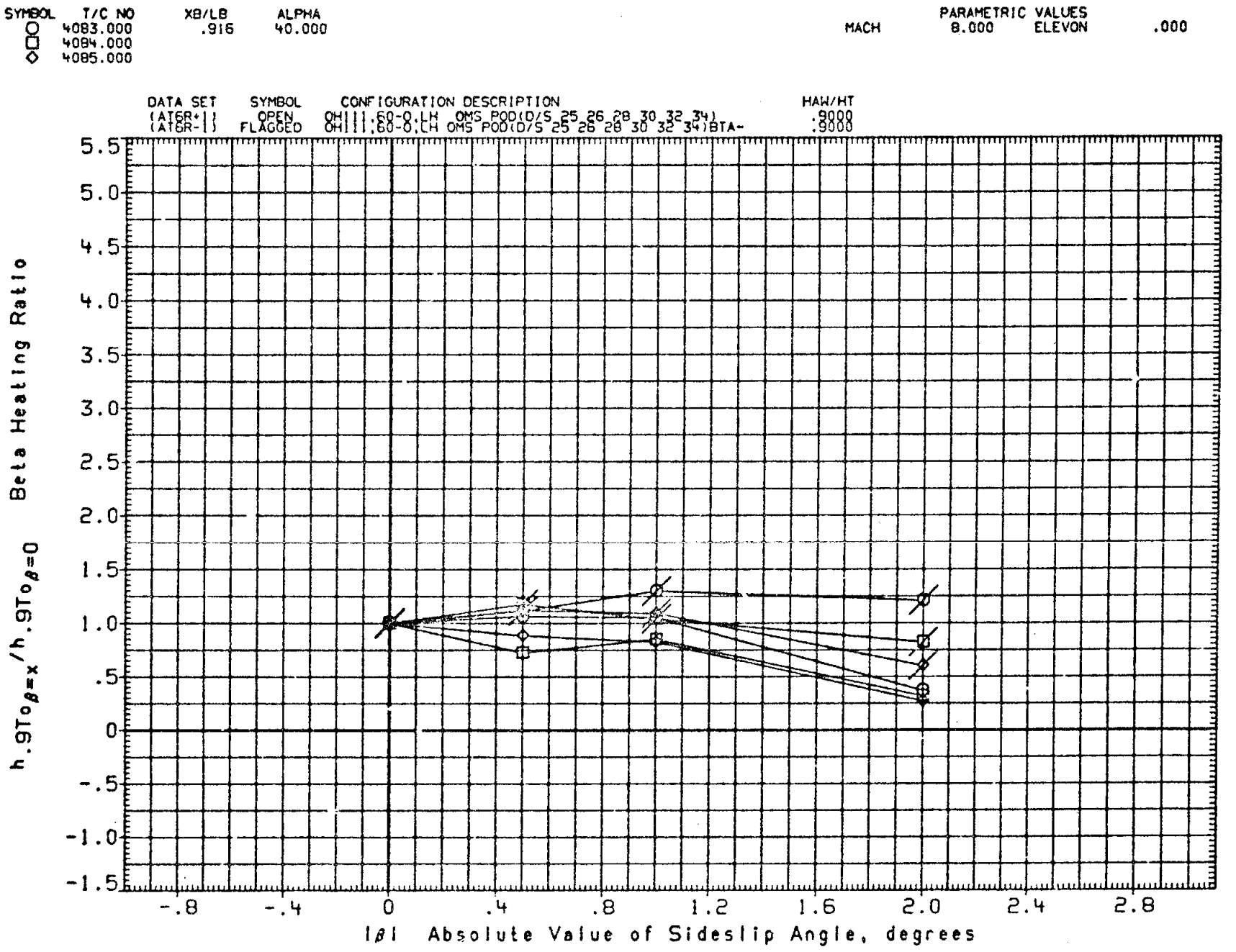
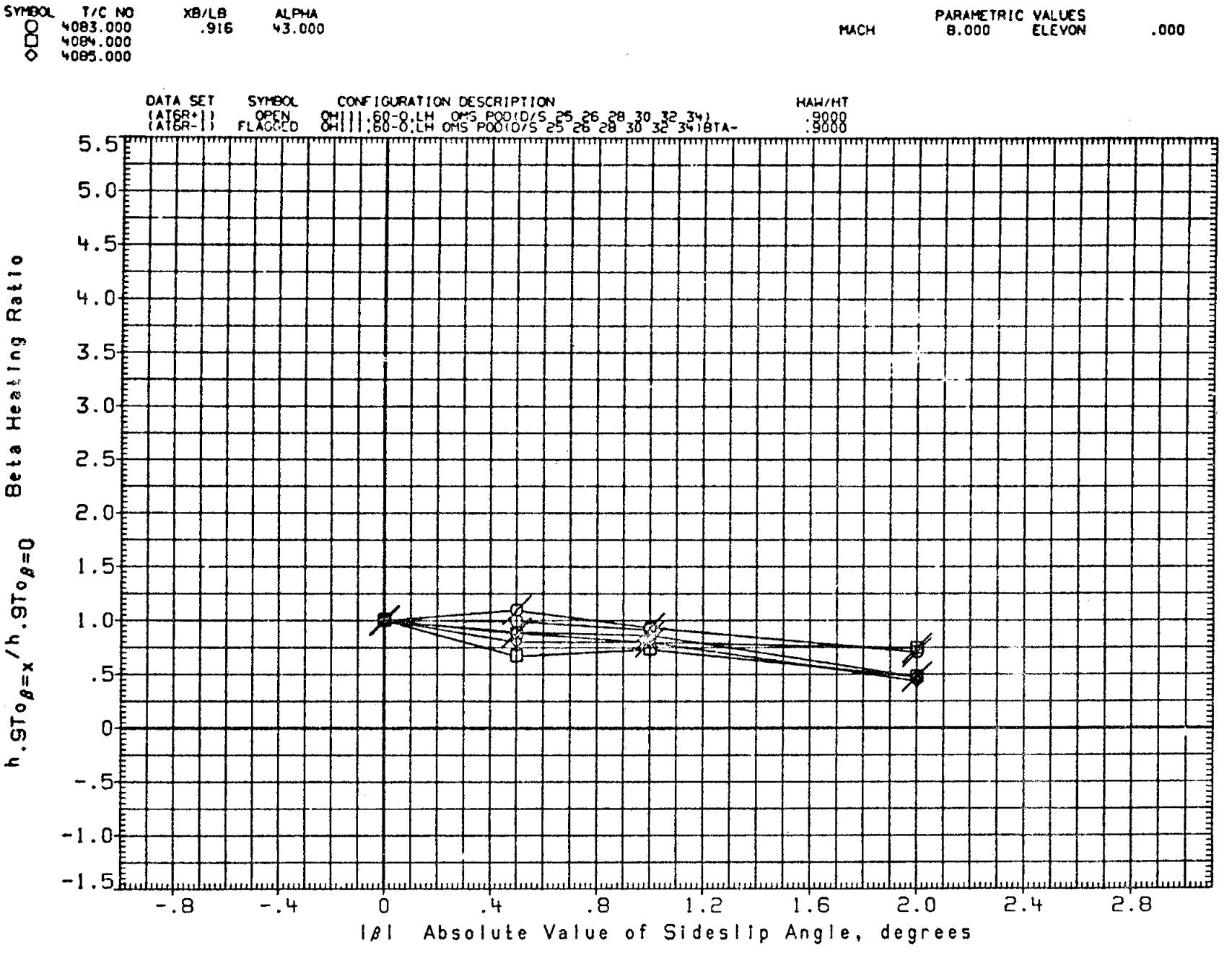


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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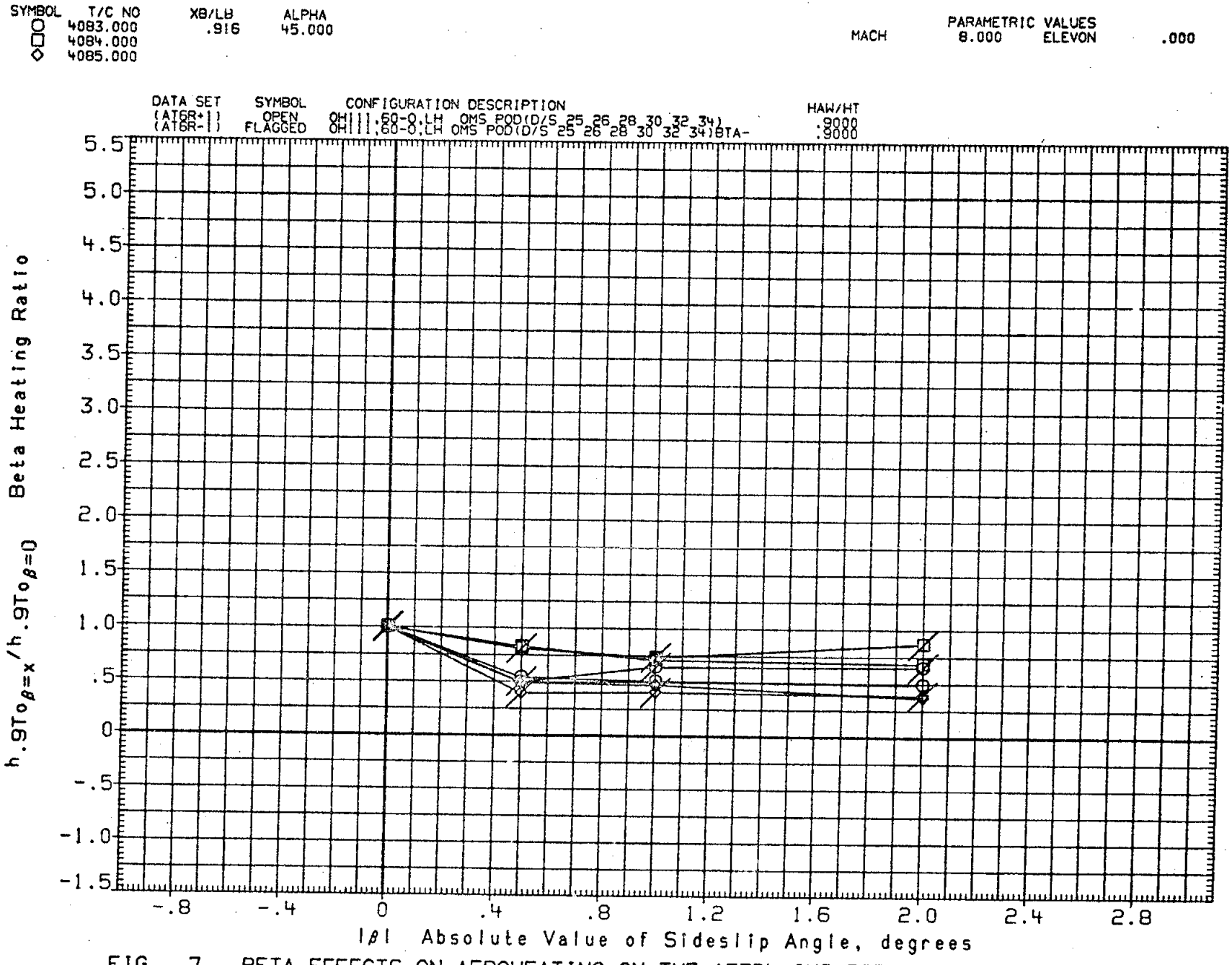
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82



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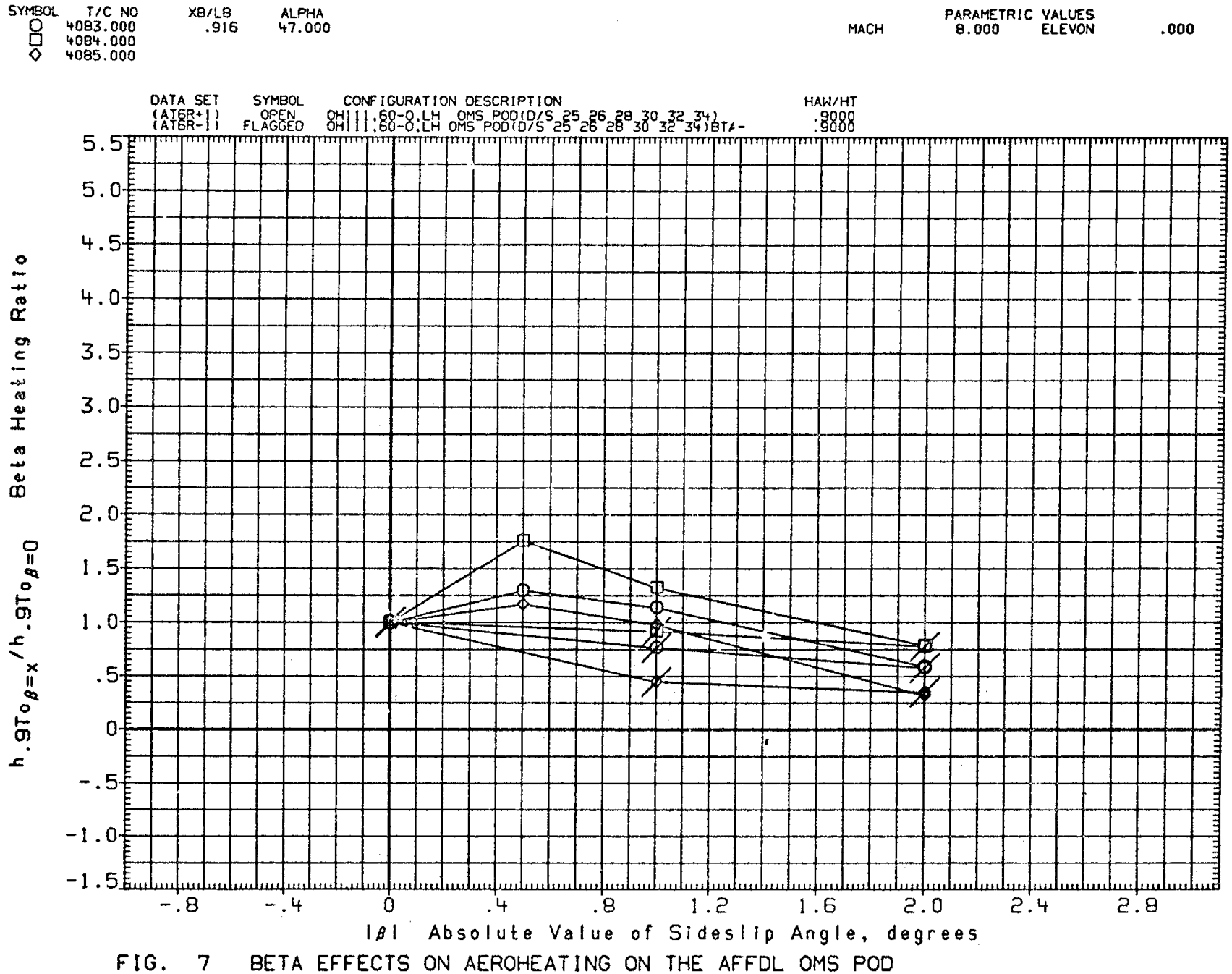
DATE 28 JAN 82



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REYNOLDS NUMBER = 0.5

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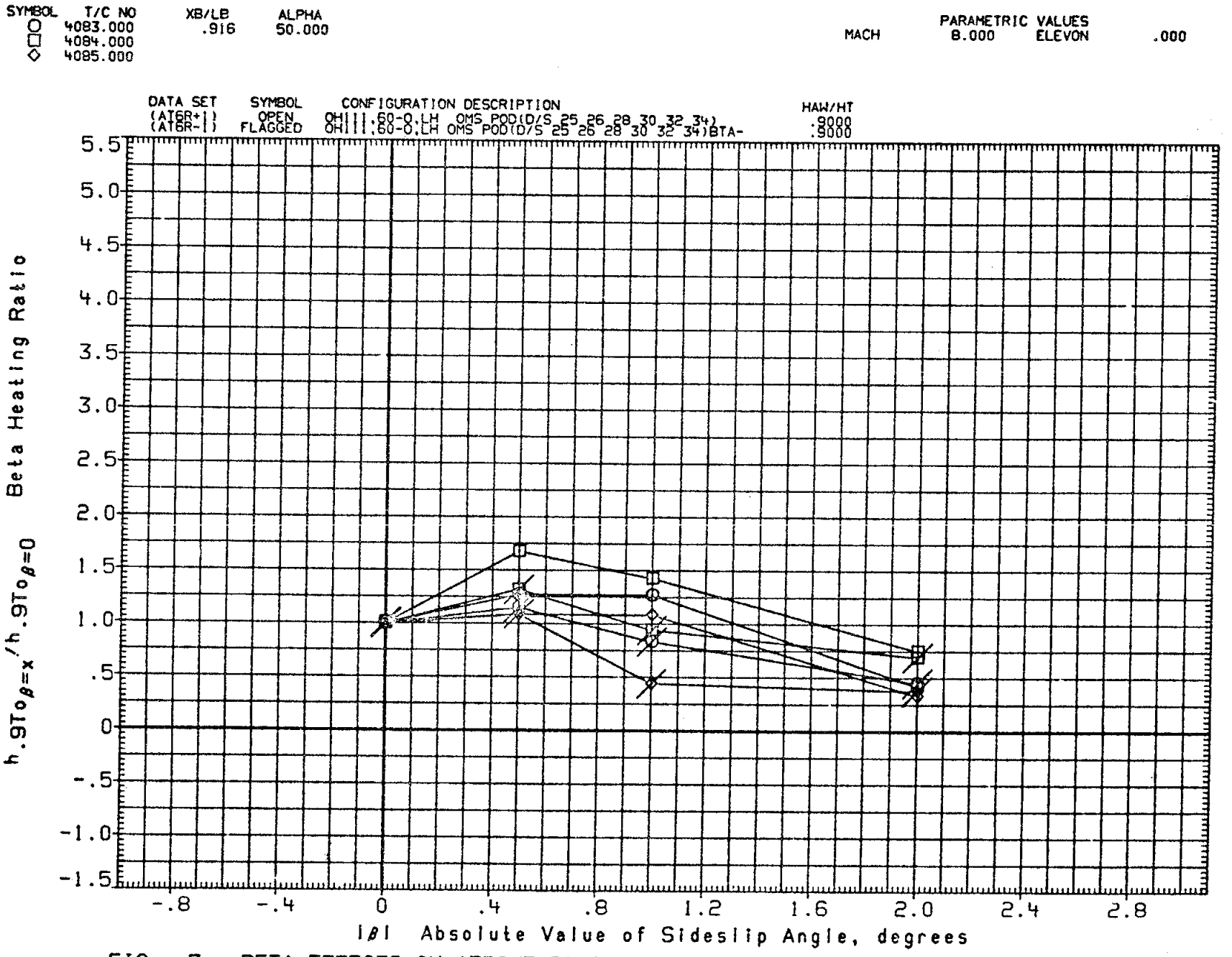


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4083.000	.916	55.000
□	4084.000		
◇	4085.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

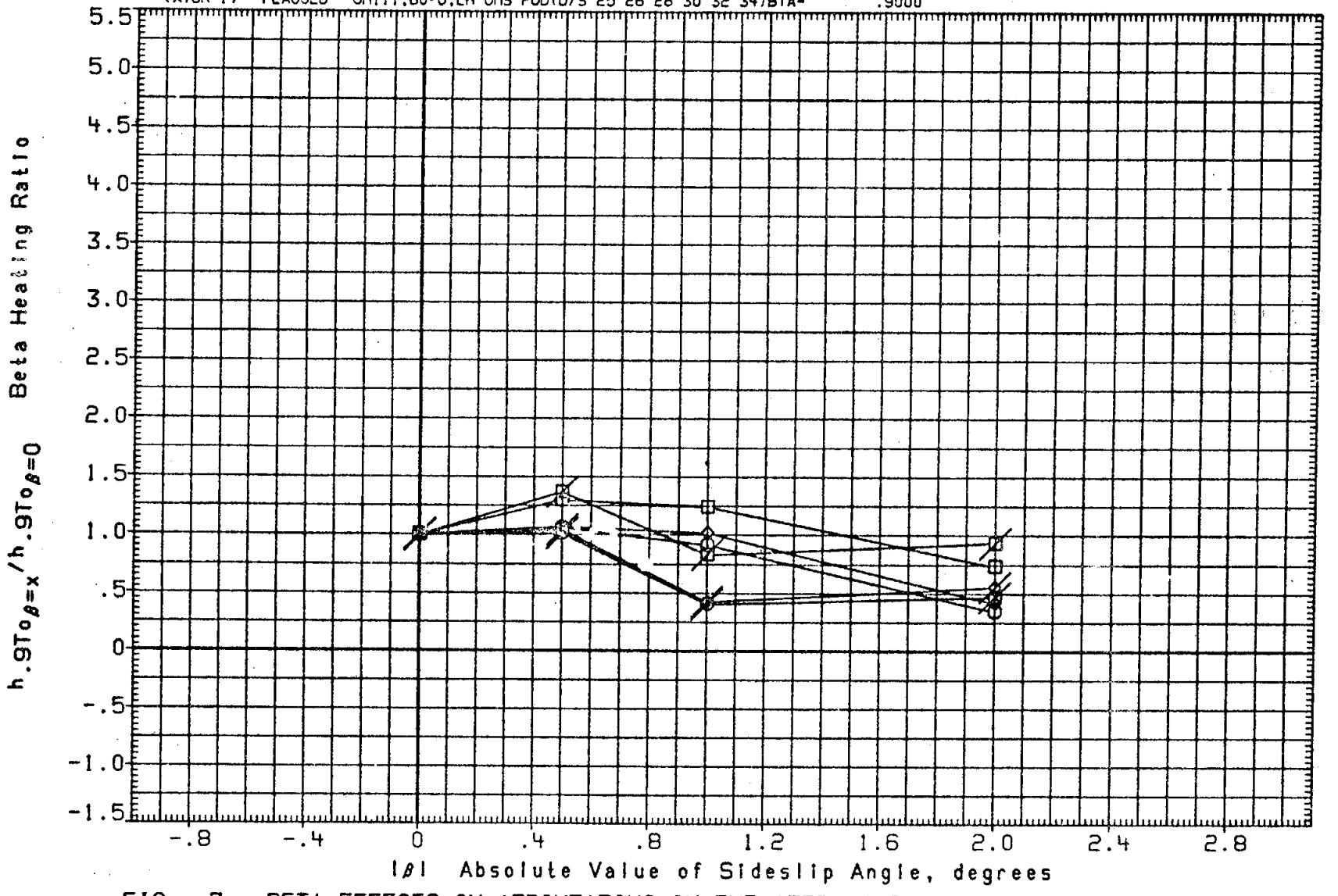


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4086.000	.926	40.000
□	4087.000		
◇	4089.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

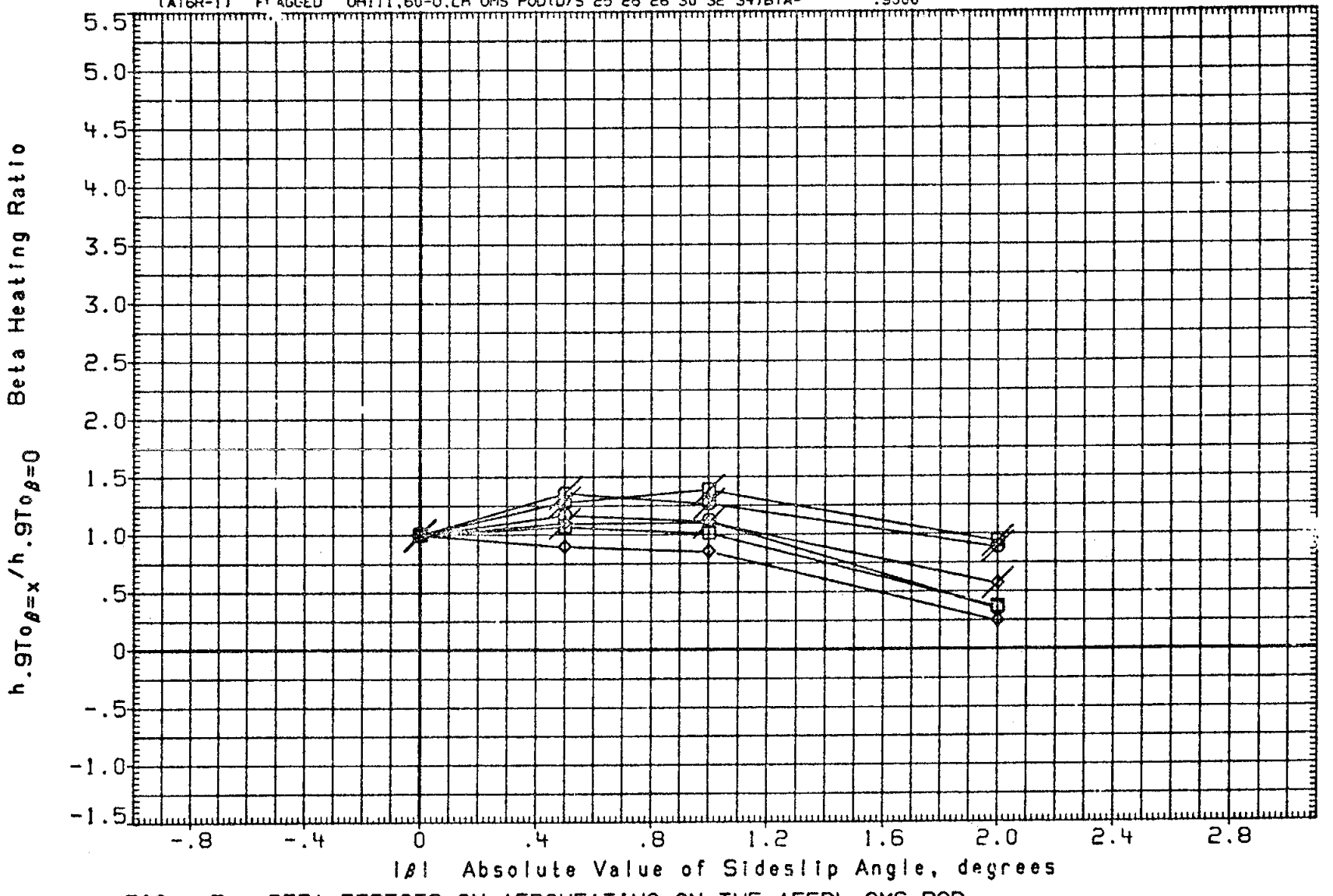


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4086.000	.926	43.000
□	4087.000		
◇	4088.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+1)	OPEN	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-1)	FLAGGED	OH111.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

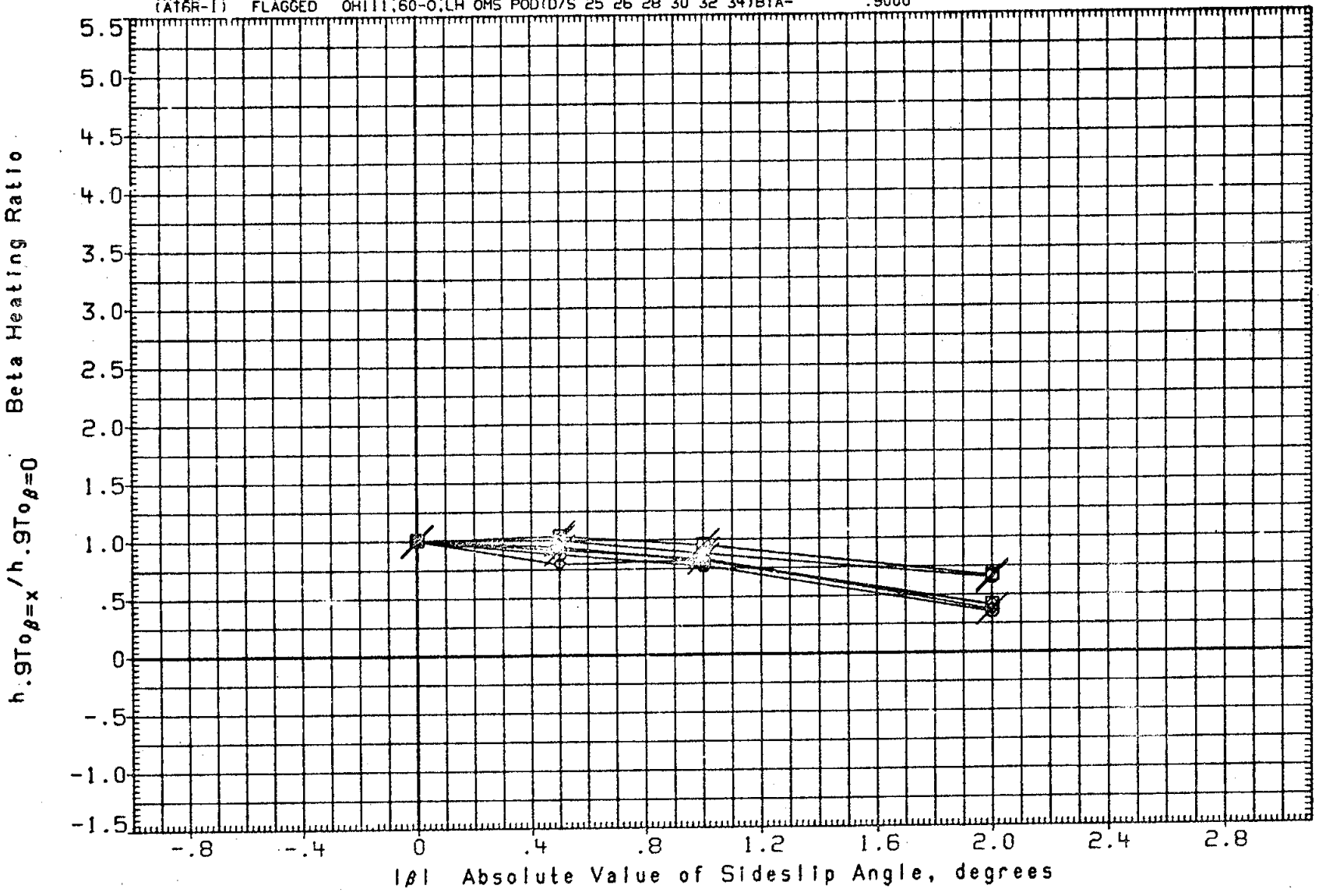


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

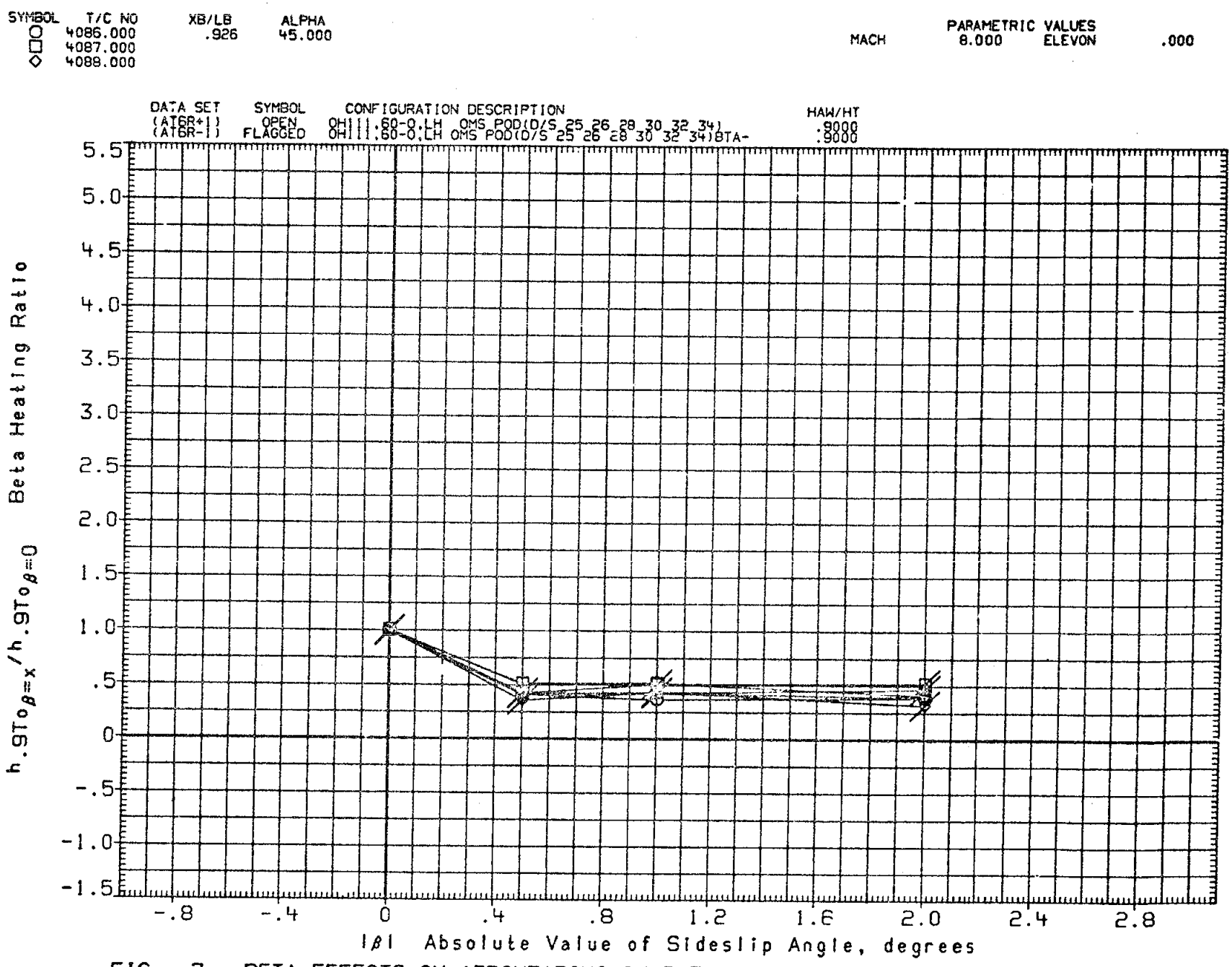


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

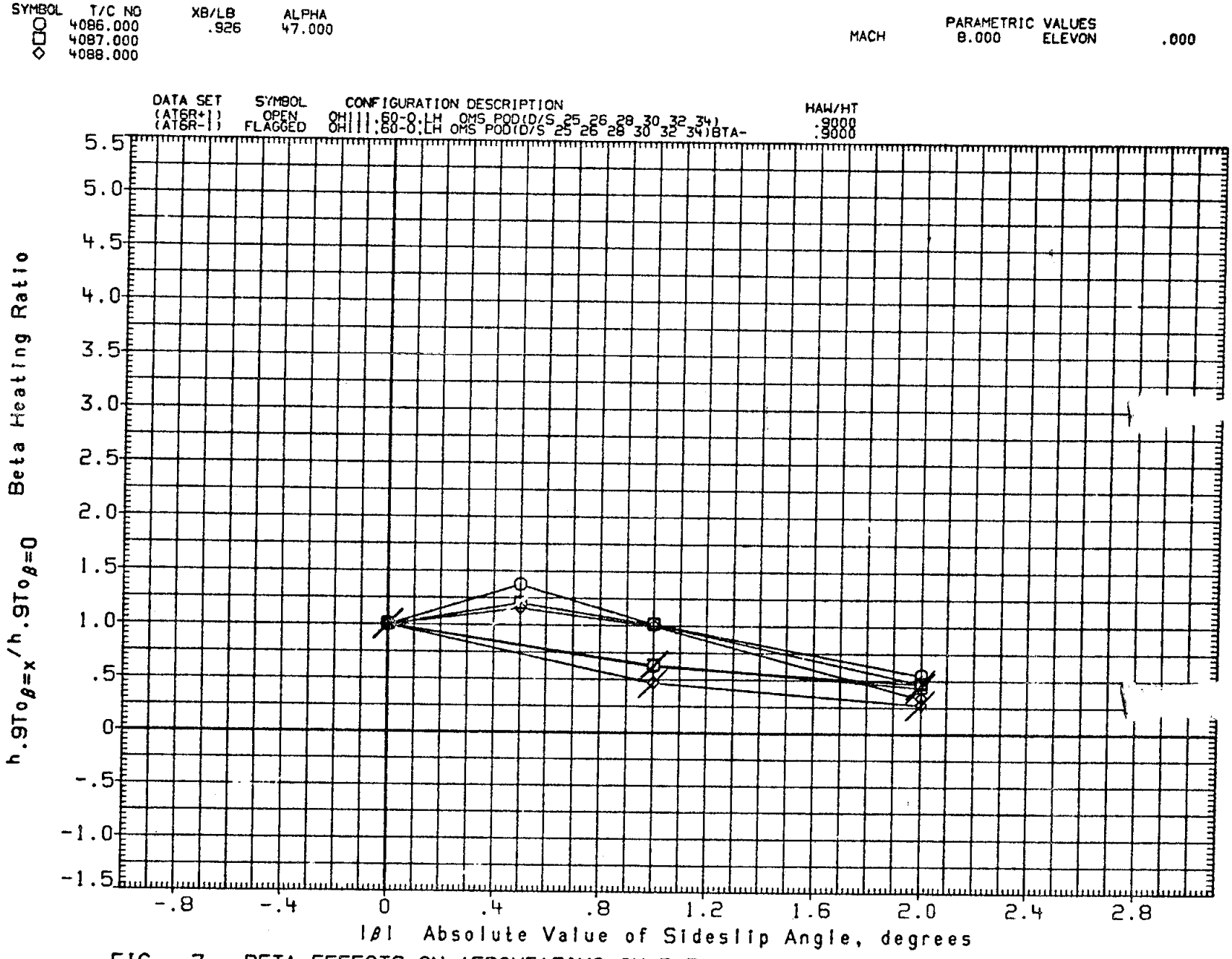


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

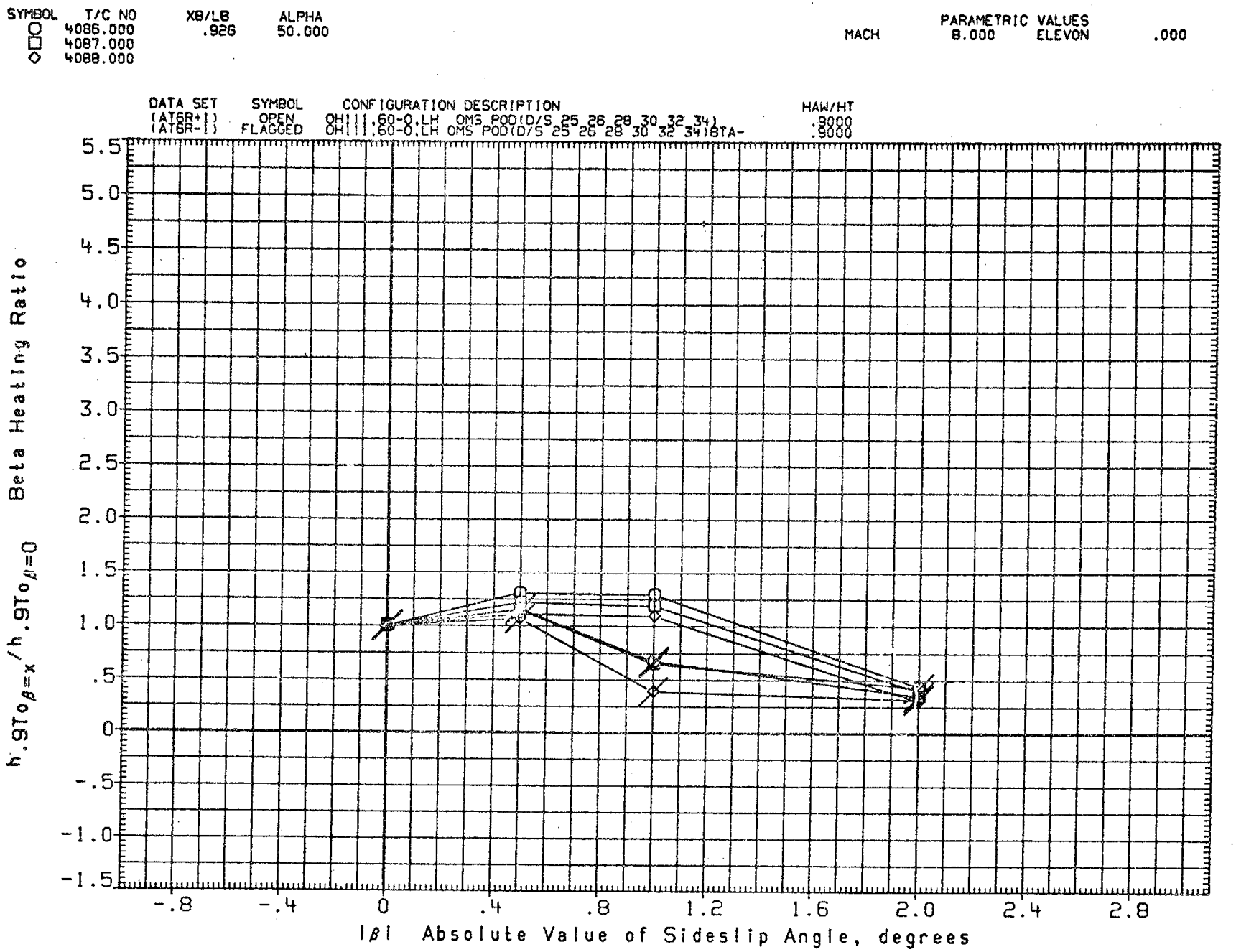


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

SYMBOL	T/C NO	XB/LB	ALPHA
○	4086.000	.926	55.000
□	4087.000		
◇	4088.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6R+)	OPEN	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)	.9000
(AT6R-)	FLAGGED	OH|||.60-0.LH OMS POD(D/S 25 26 28 30 32 34)BTA-	.9000

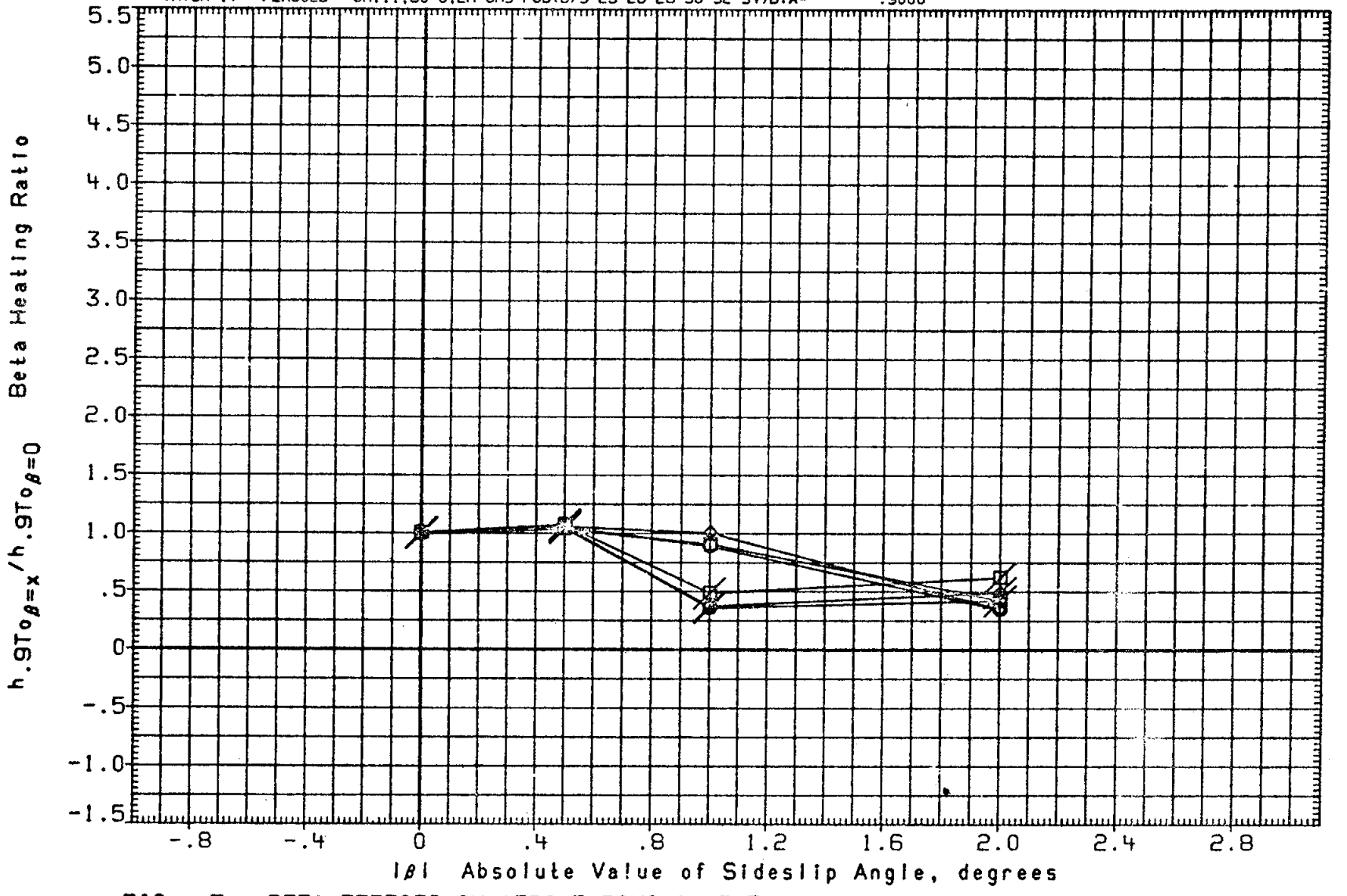


FIG. 7 BETA EFFECTS ON AEROHEATING ON THE AFFDL OMS POD
REYNOLDS NUMBER = 0.5

DATE 28 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.100	.900
◇	-.996		
□	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

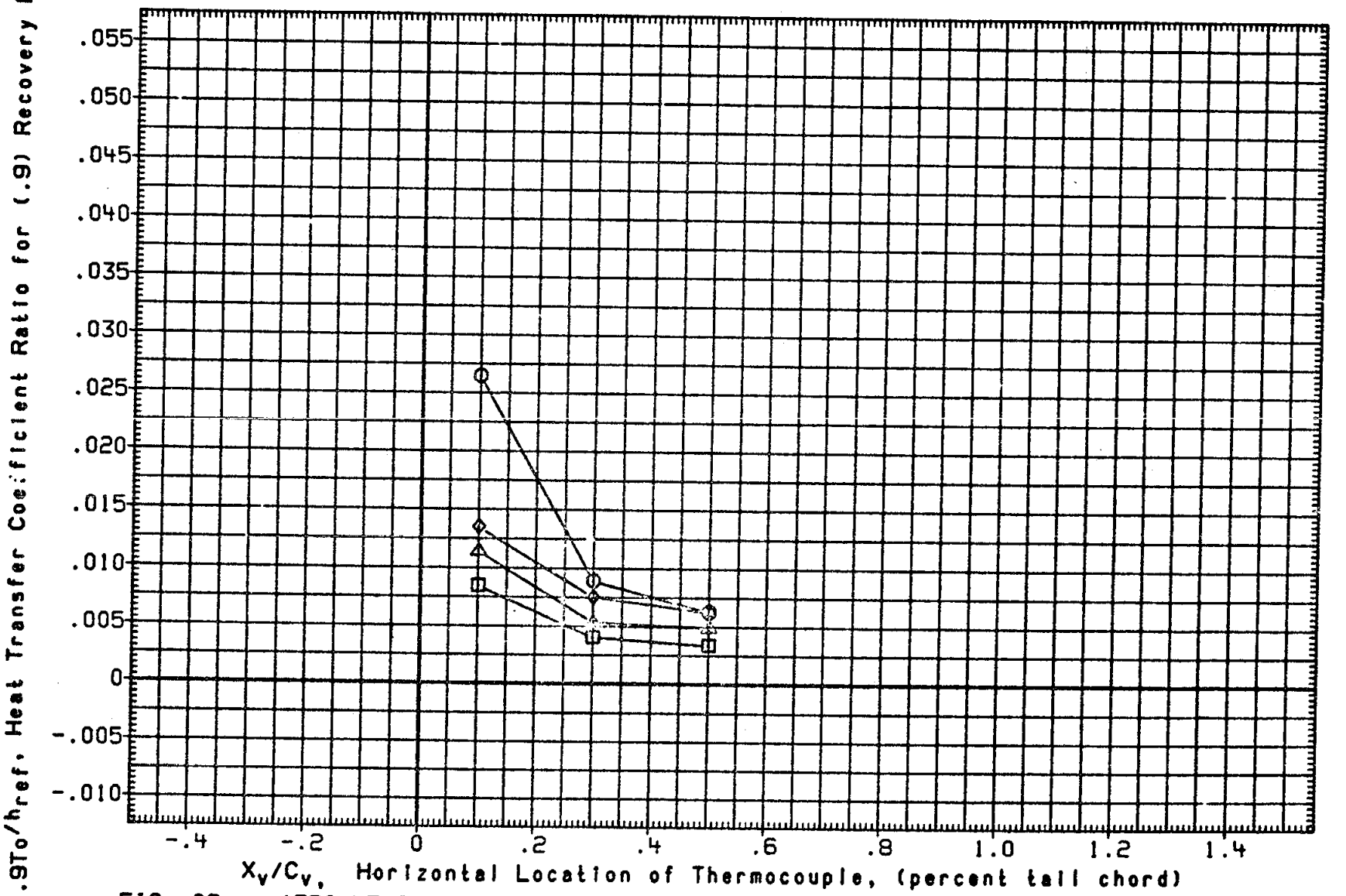


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
◇	.483	.100	.900
□	.993		
○	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

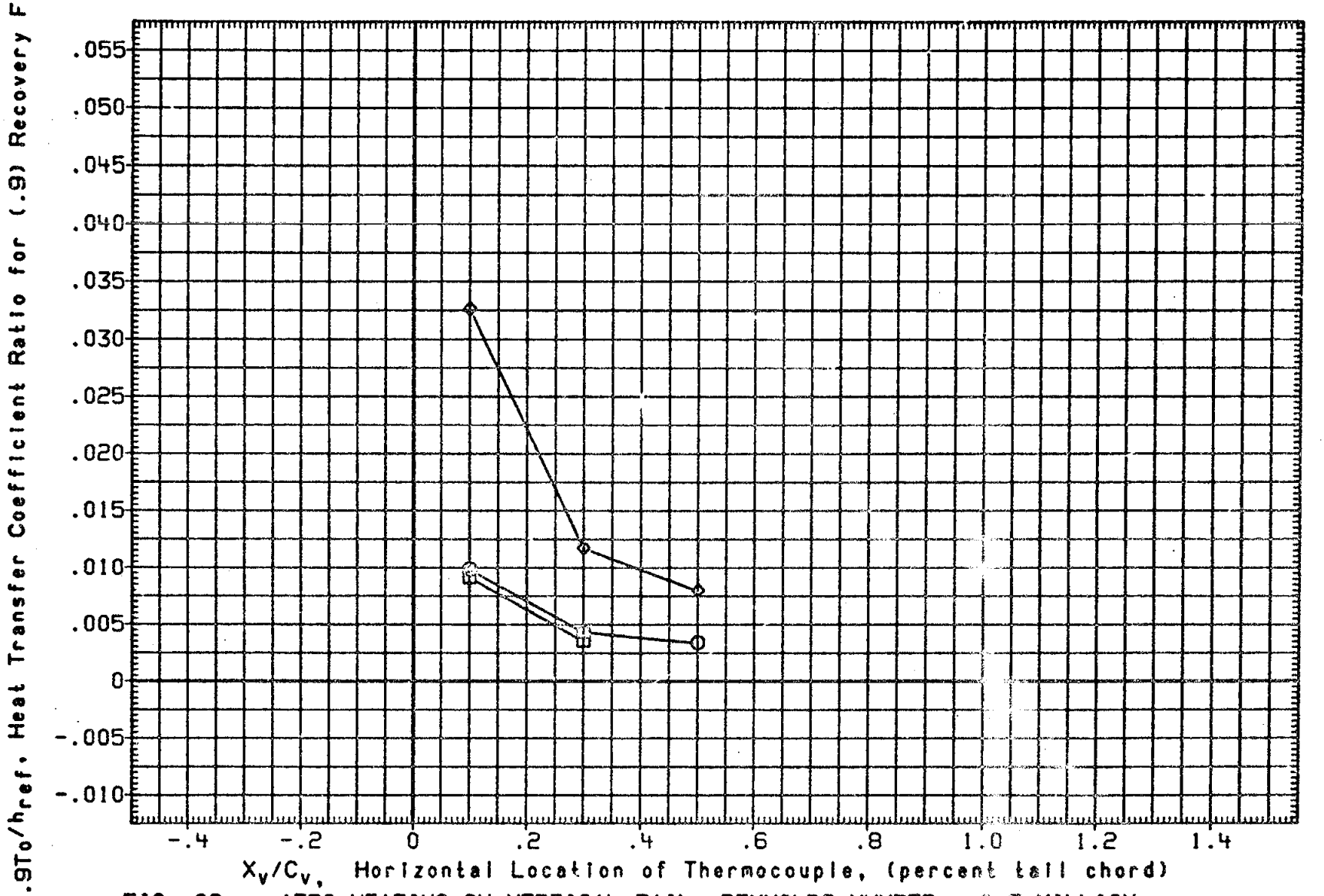


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.200	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

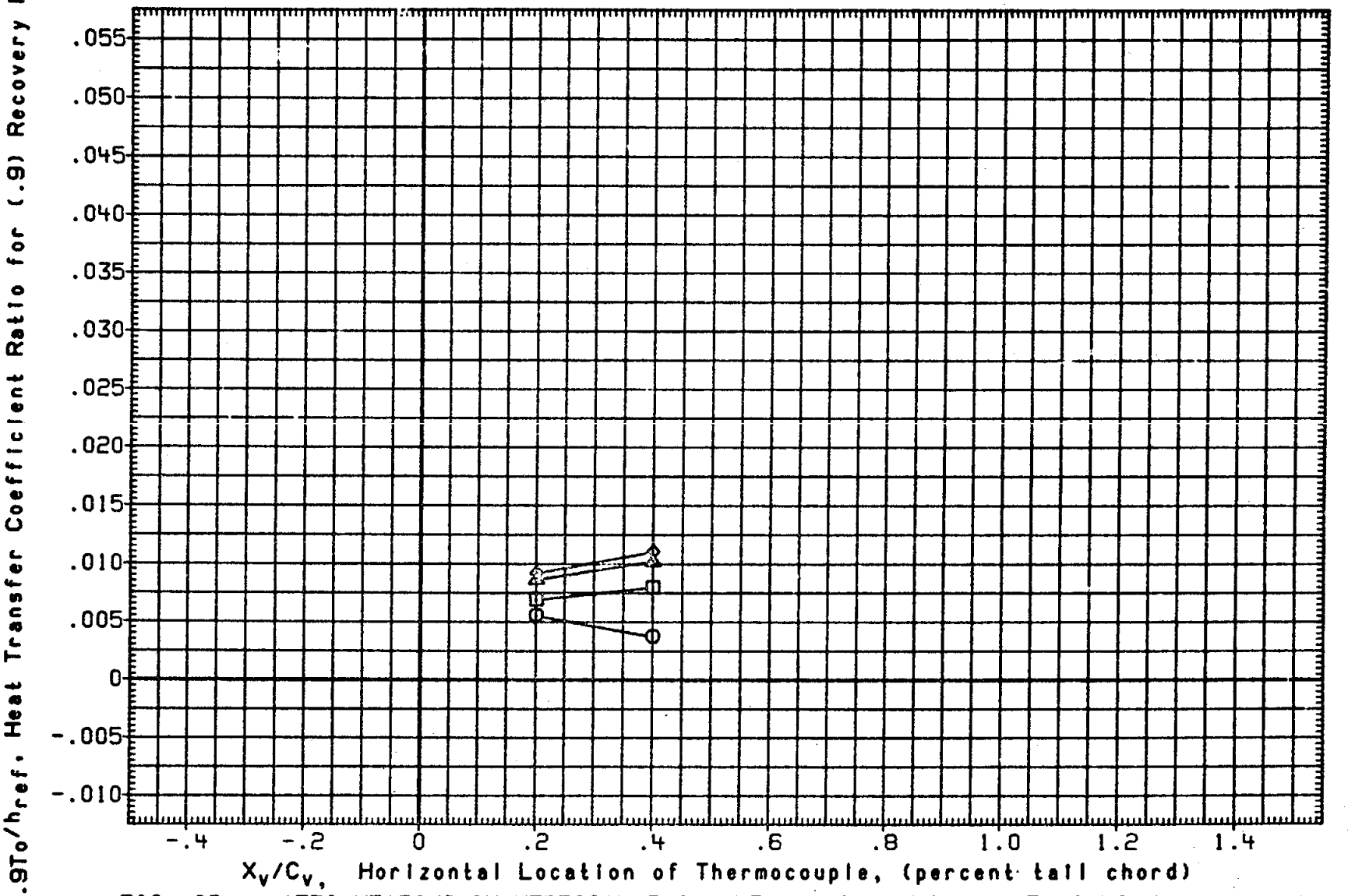


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.200	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

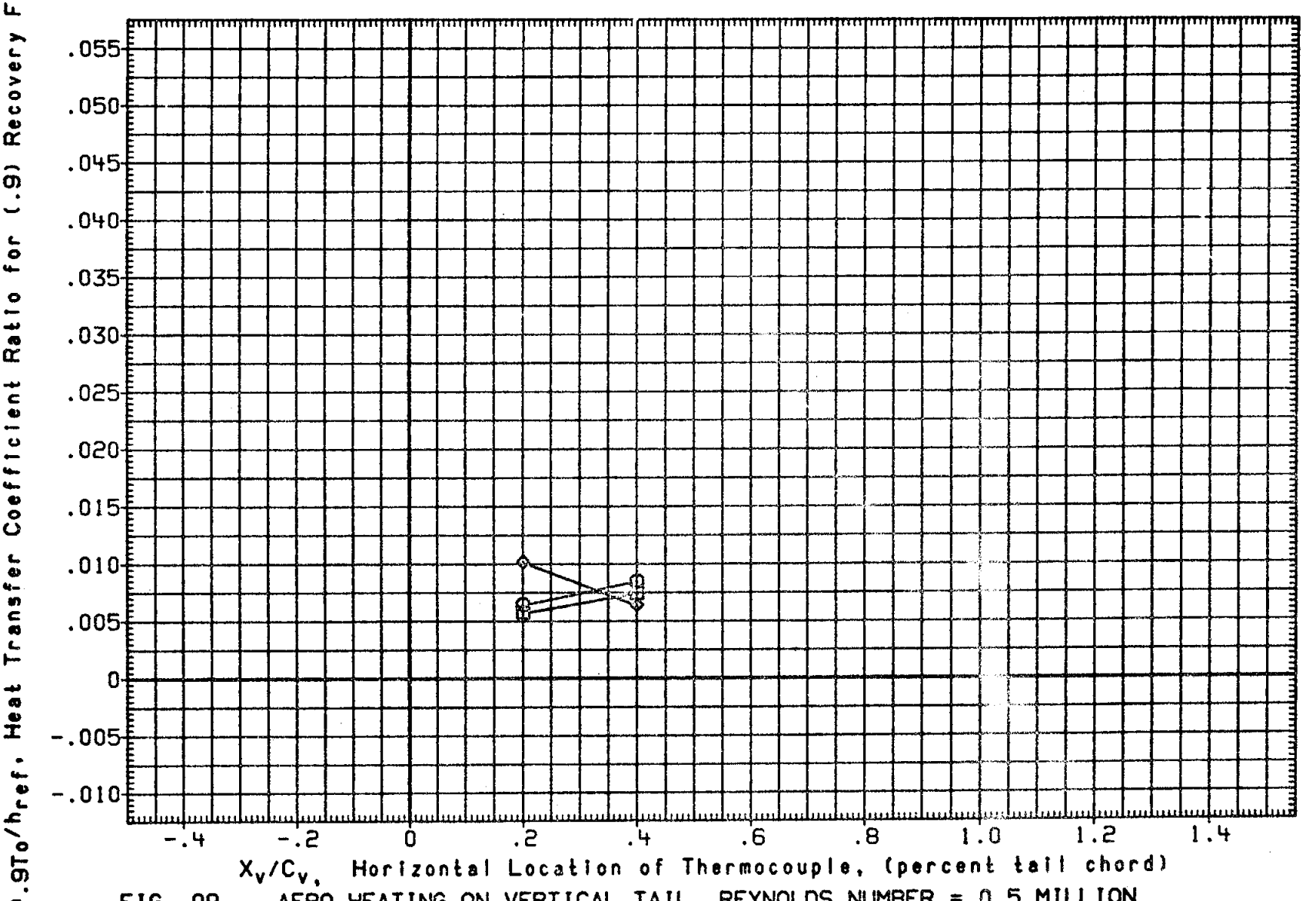


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-0, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.300	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

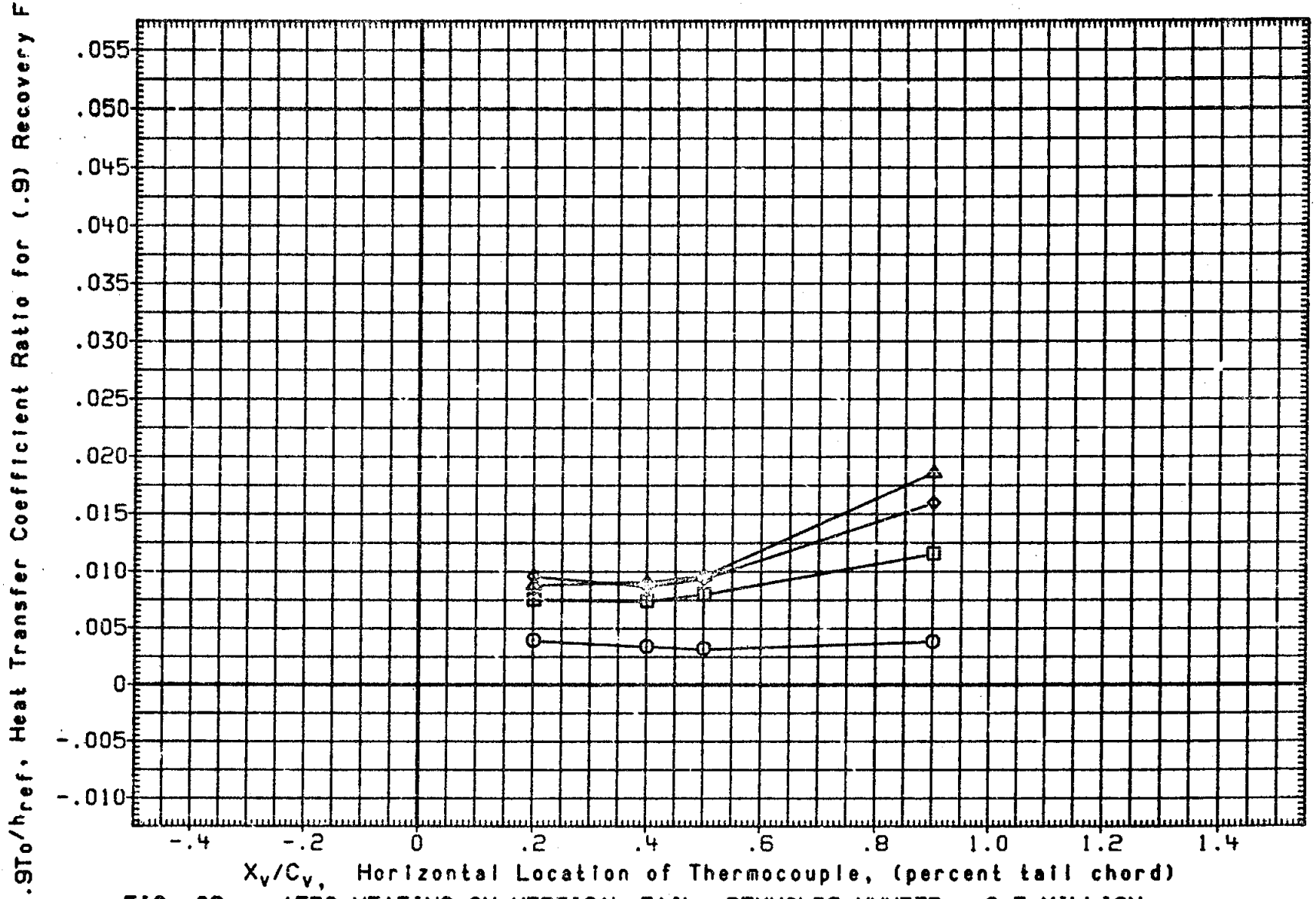


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-0, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.300	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

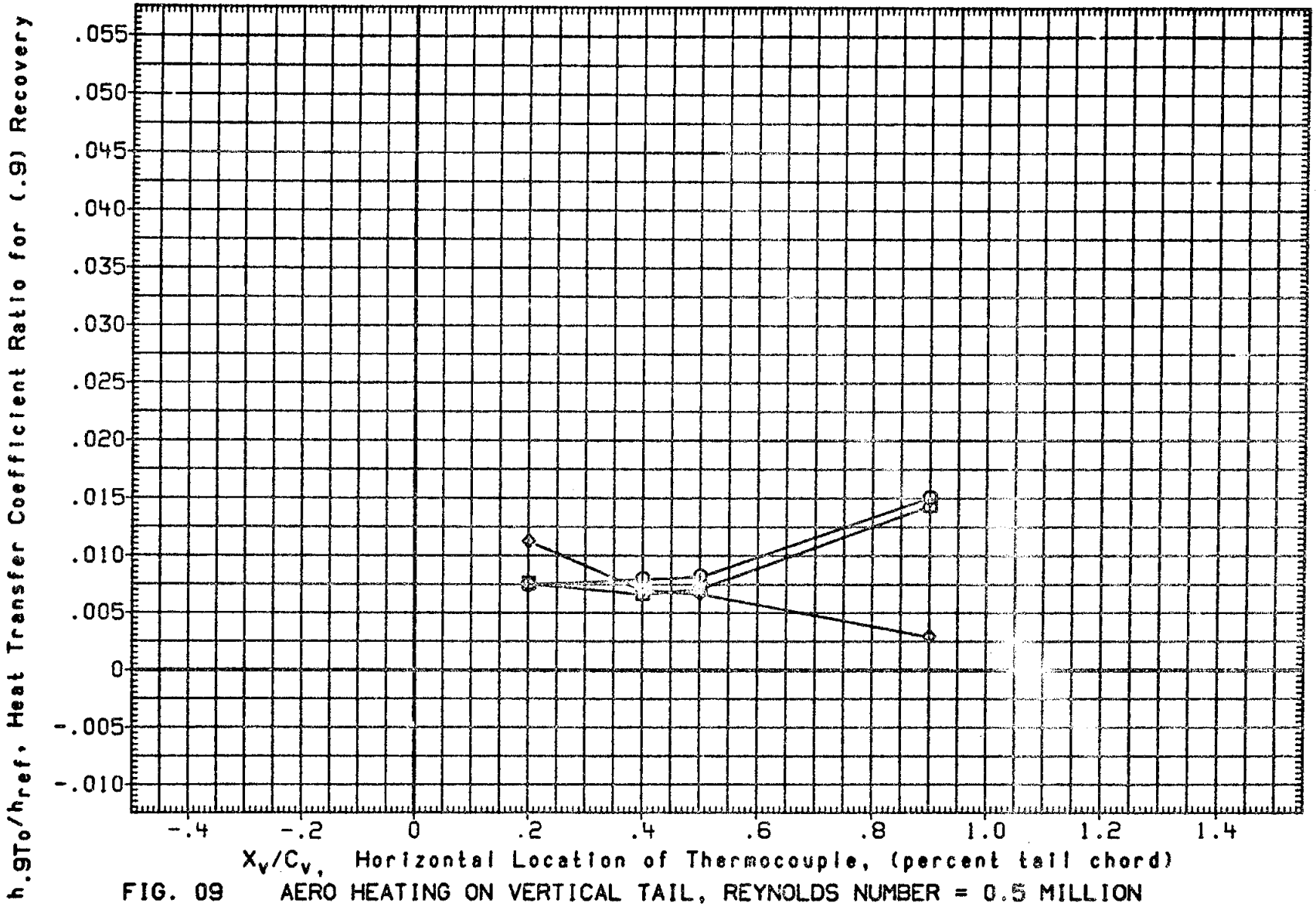


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.400	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

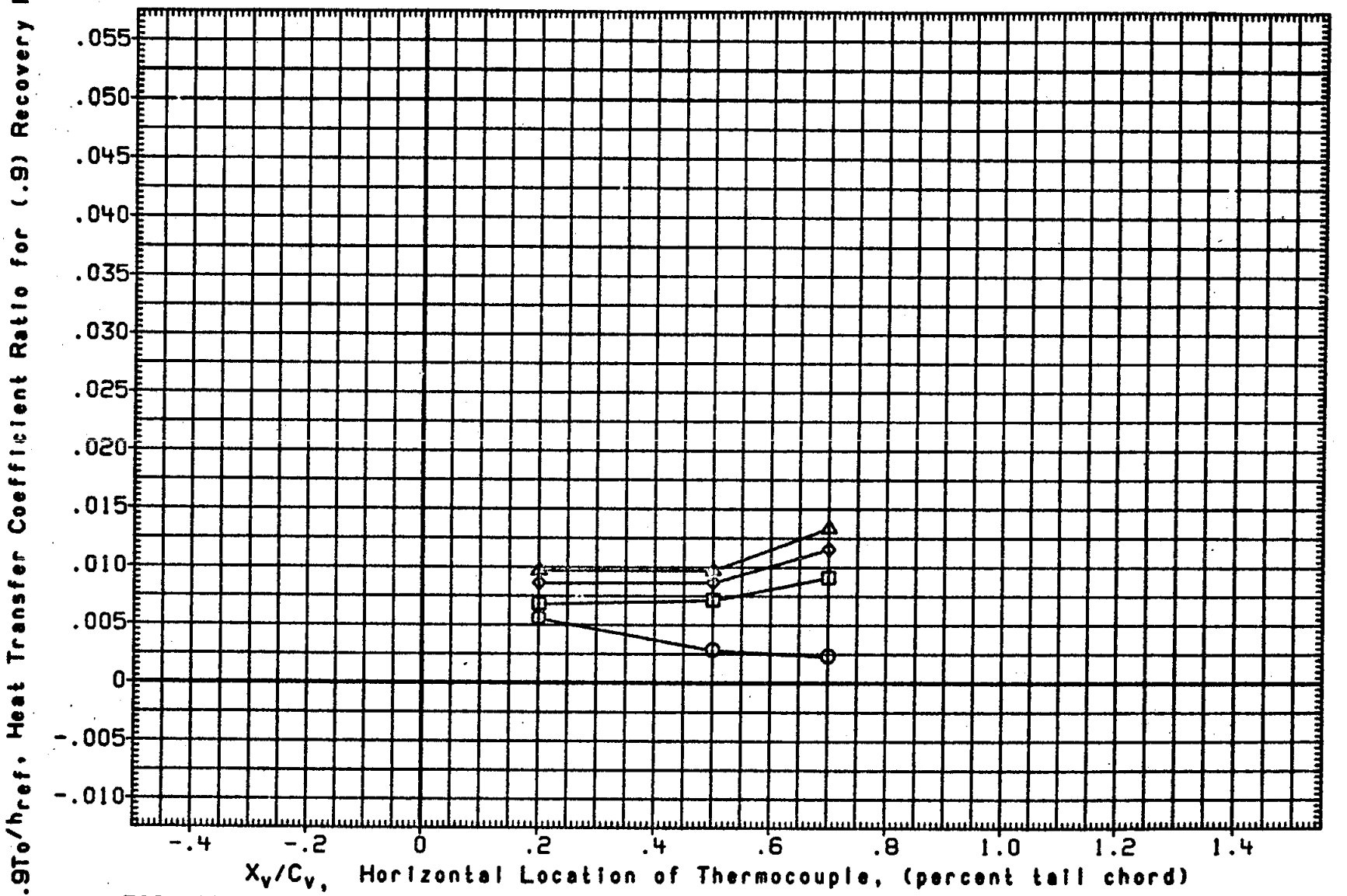


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.400	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

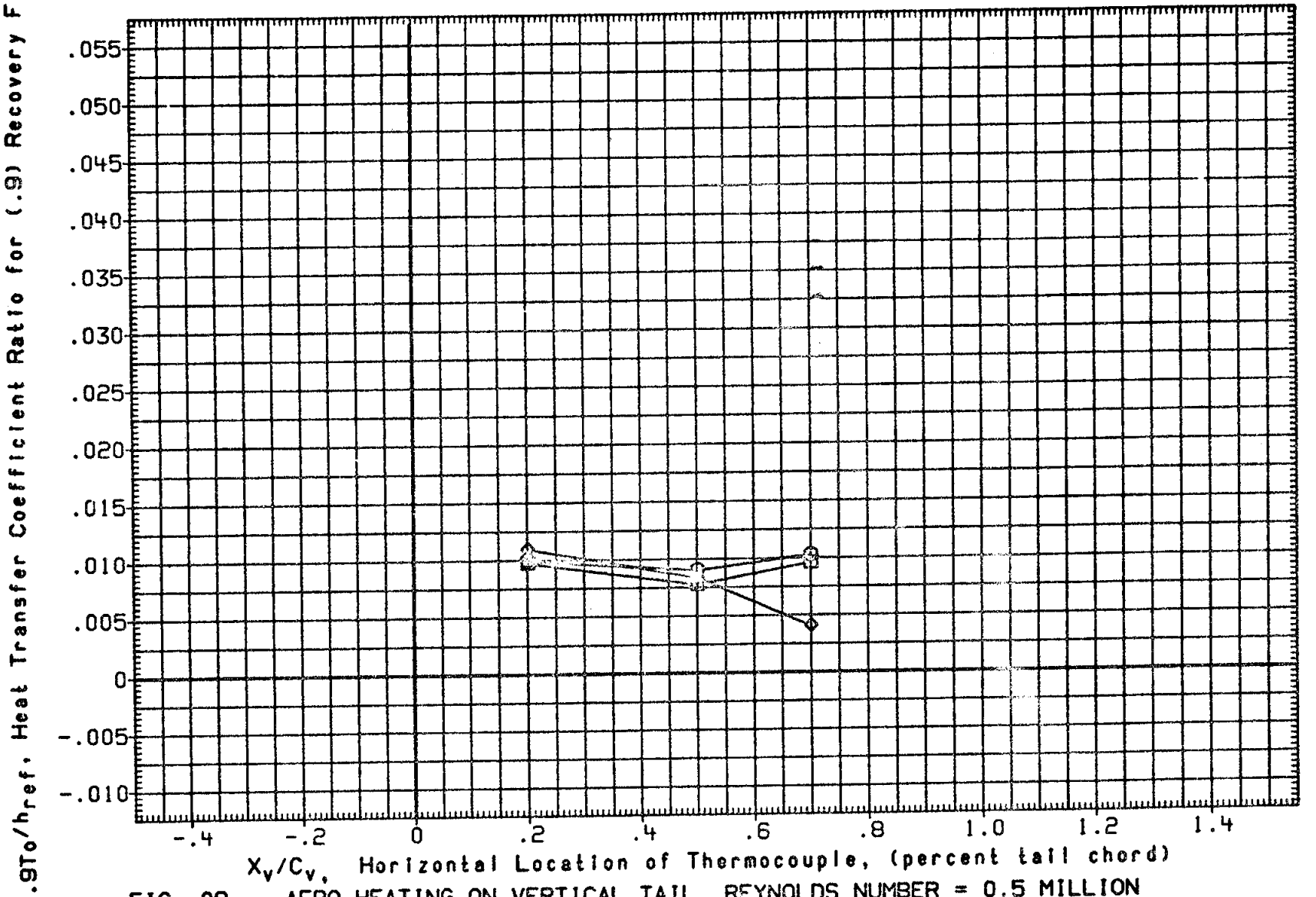


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-0, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.500	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

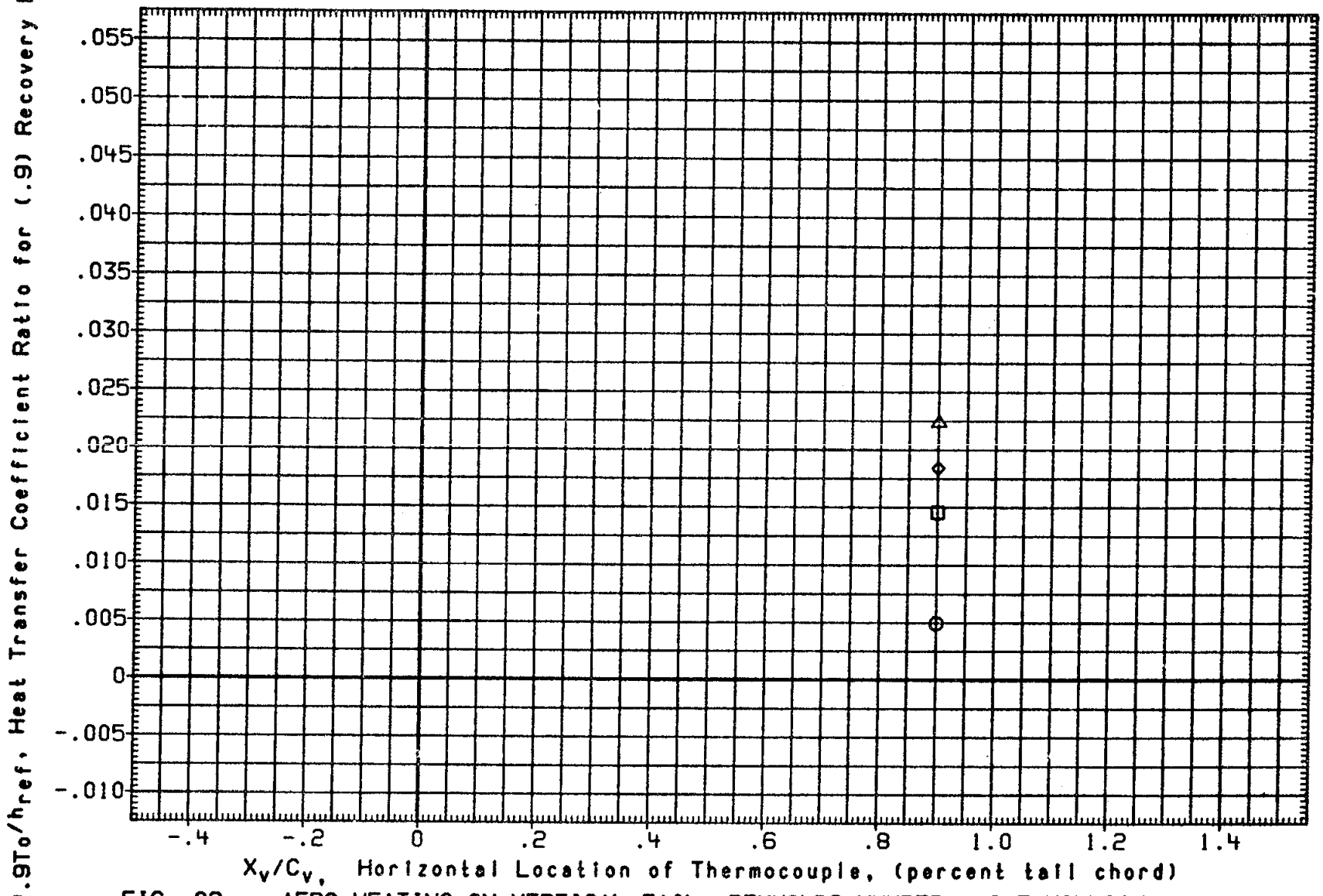


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-0, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.500	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	0.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

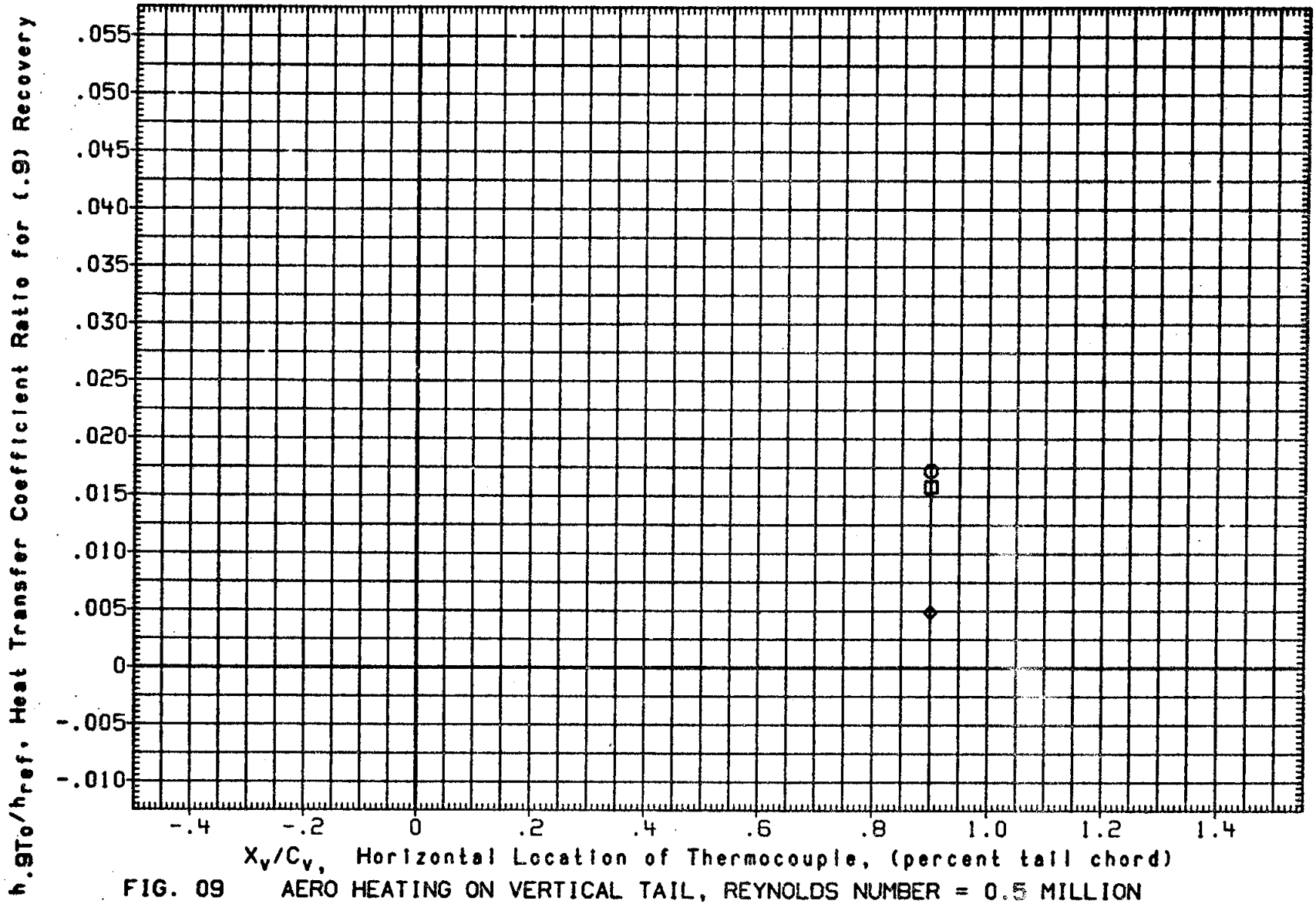


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-0, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.600	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

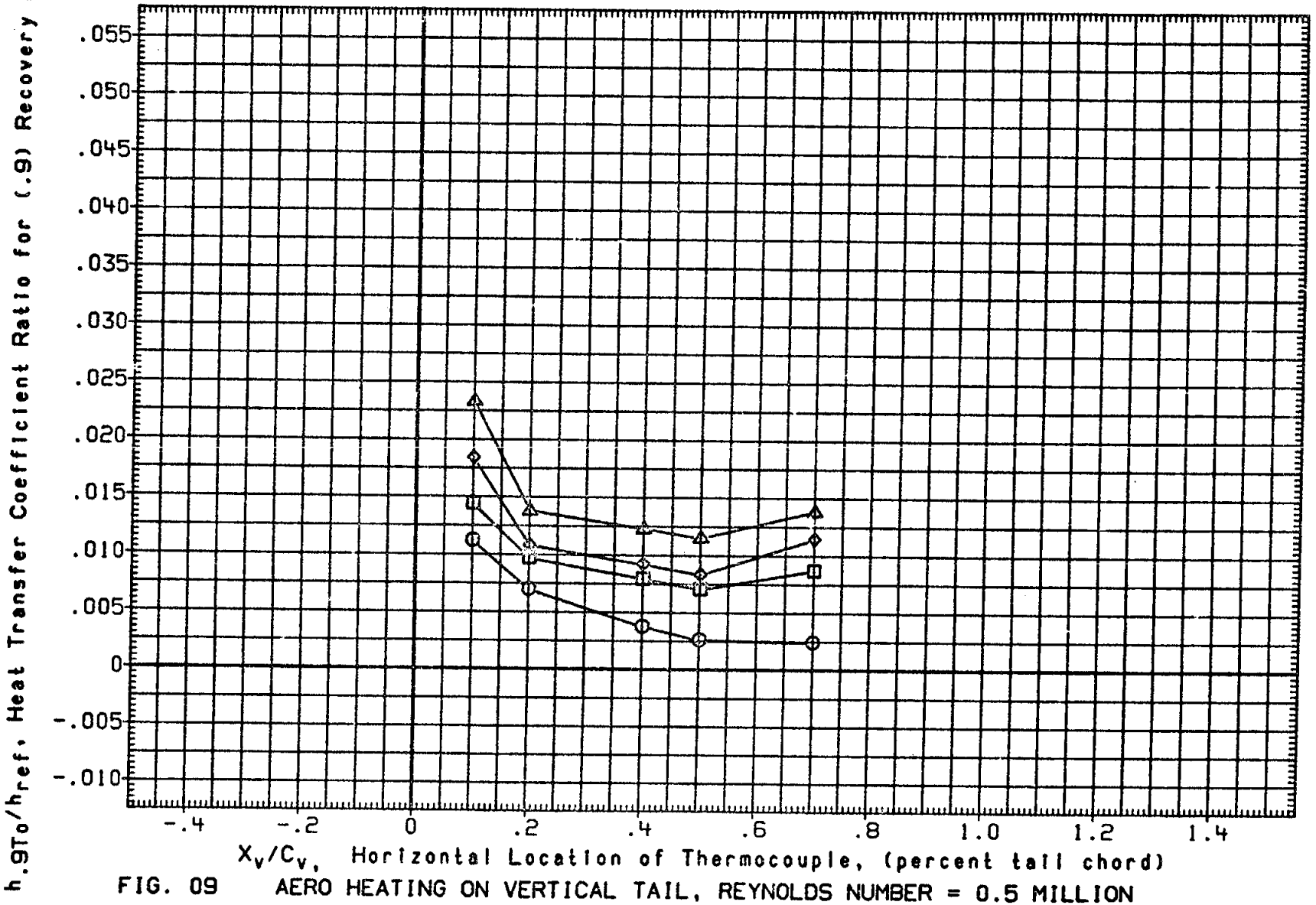


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-0, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.600	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

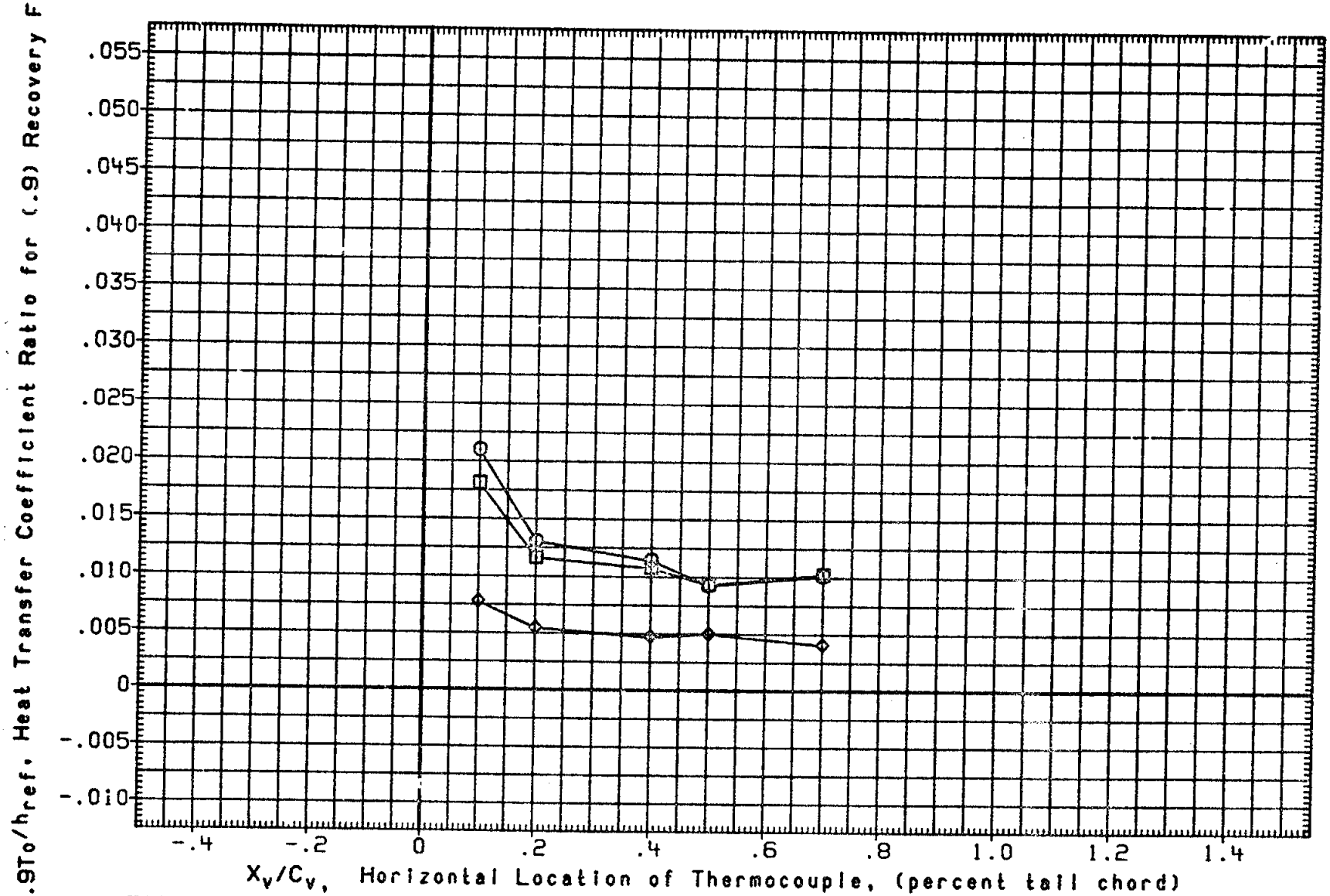


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.700	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

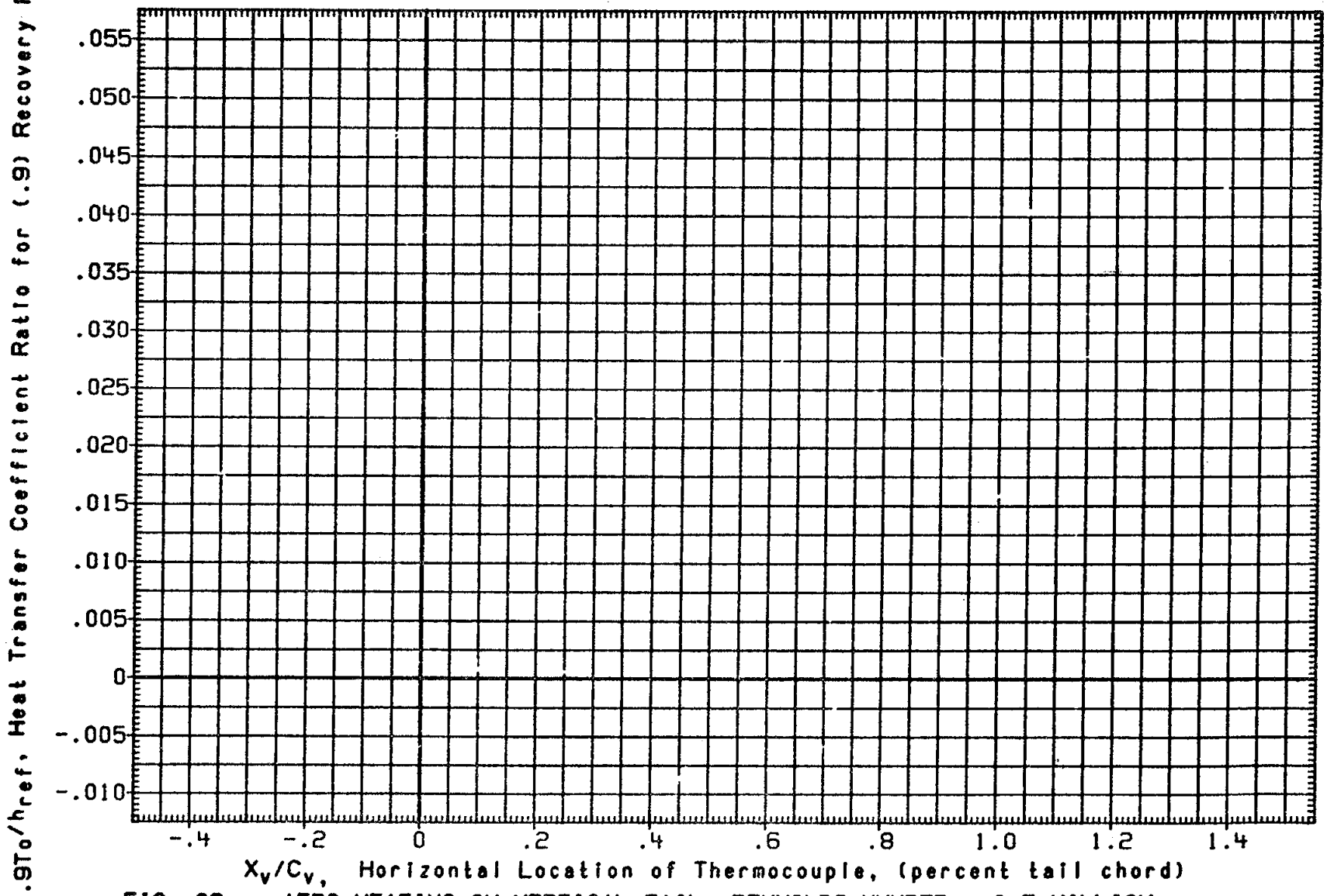


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.700	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

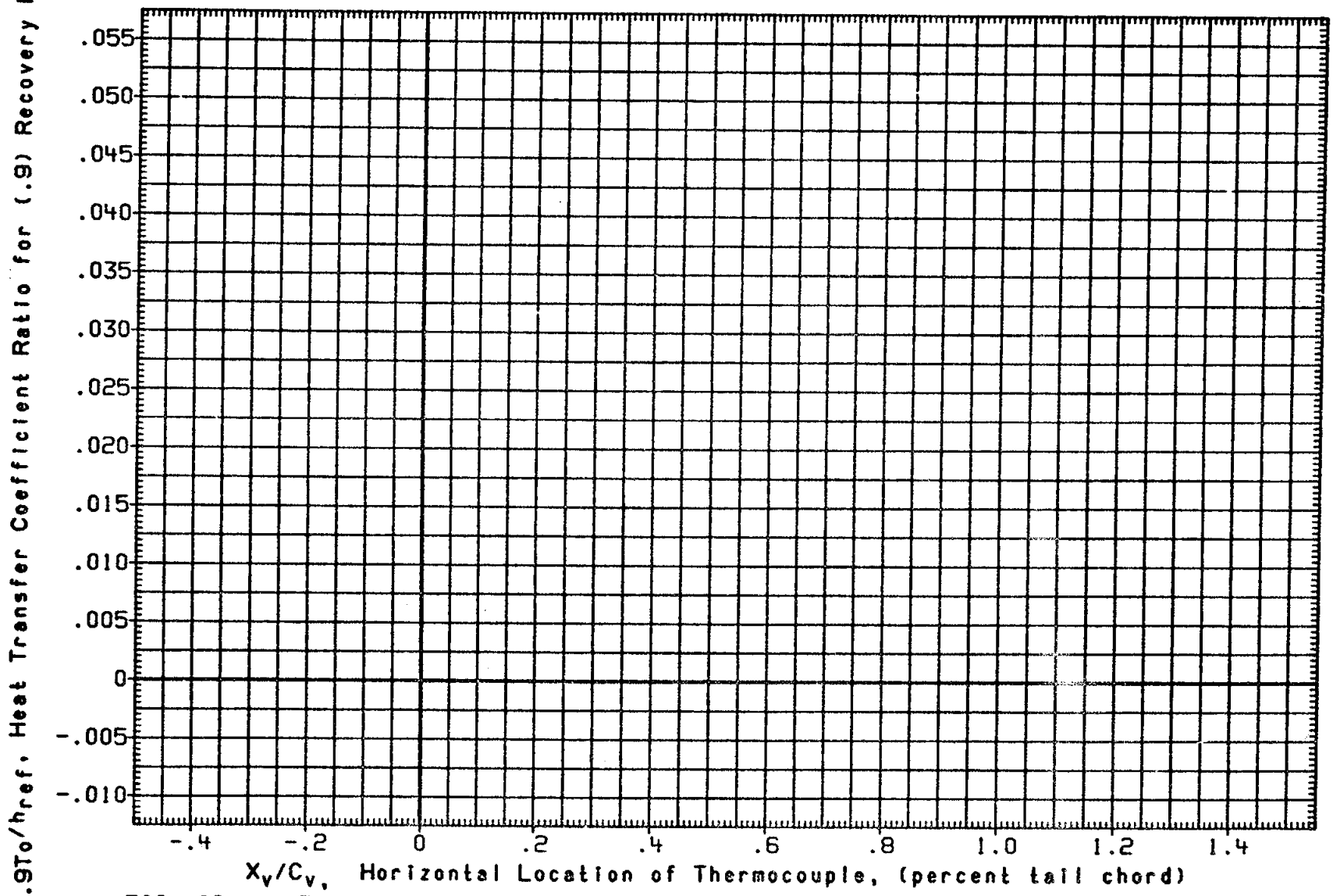


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-0, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.800	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

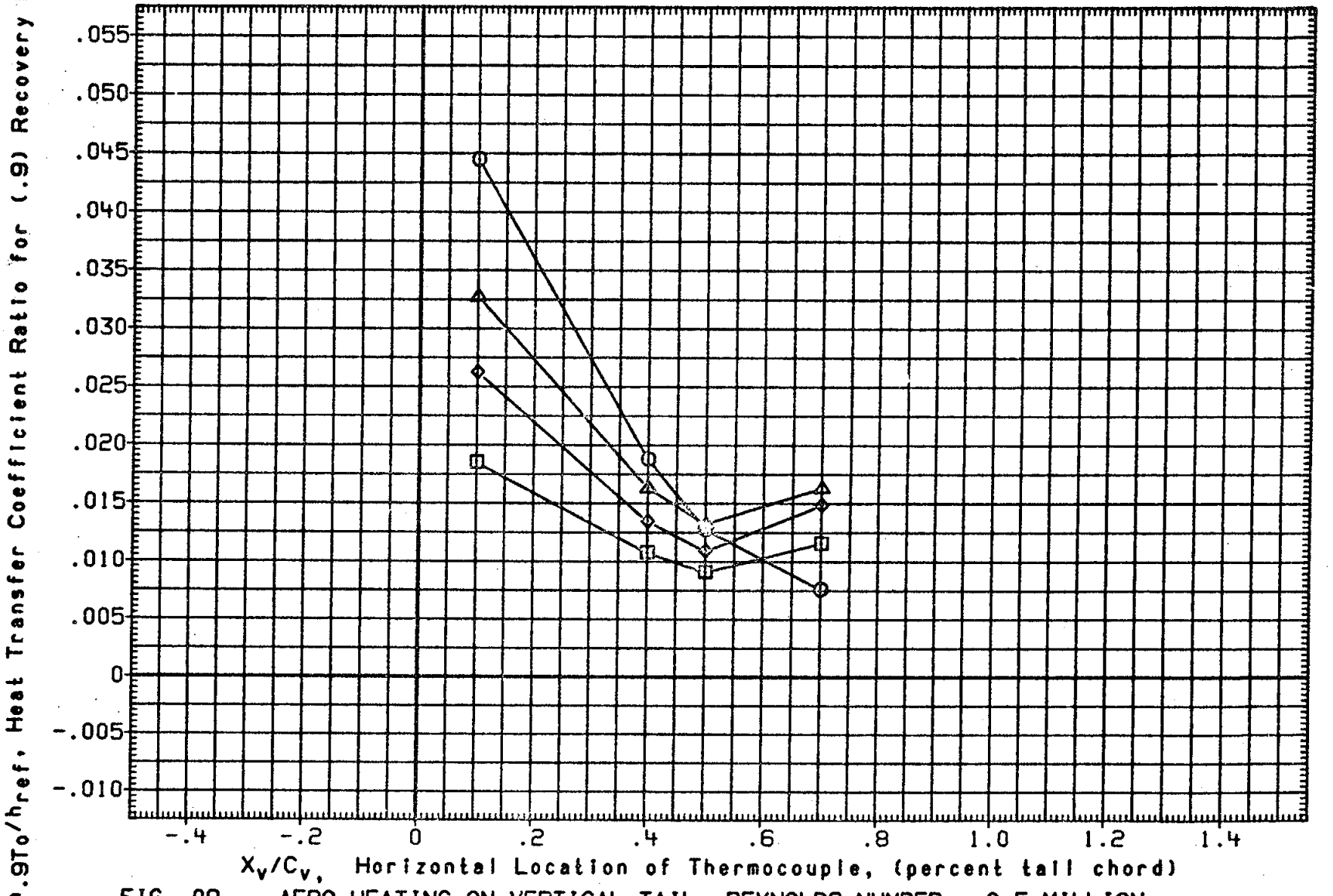


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.800	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

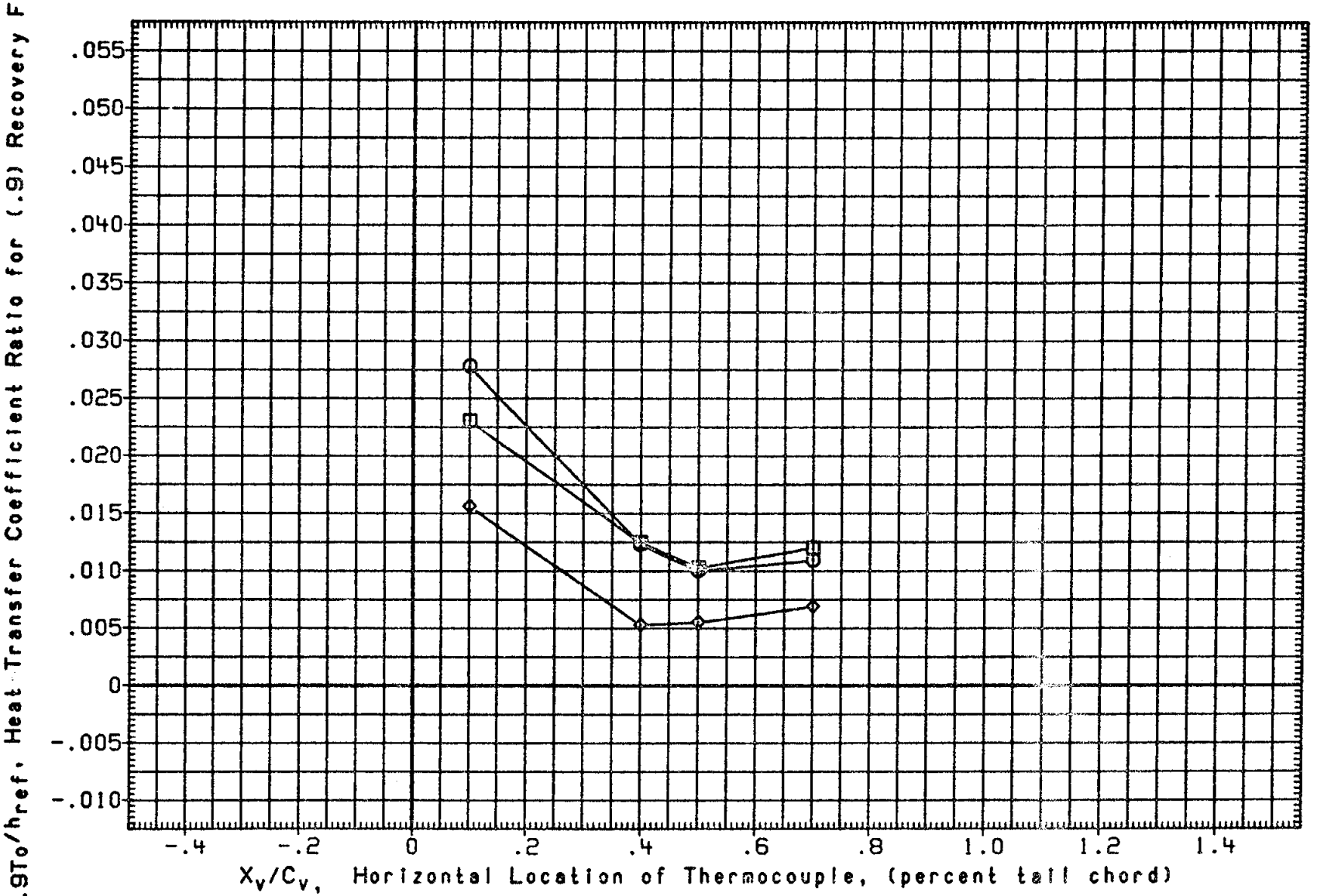


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.900	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

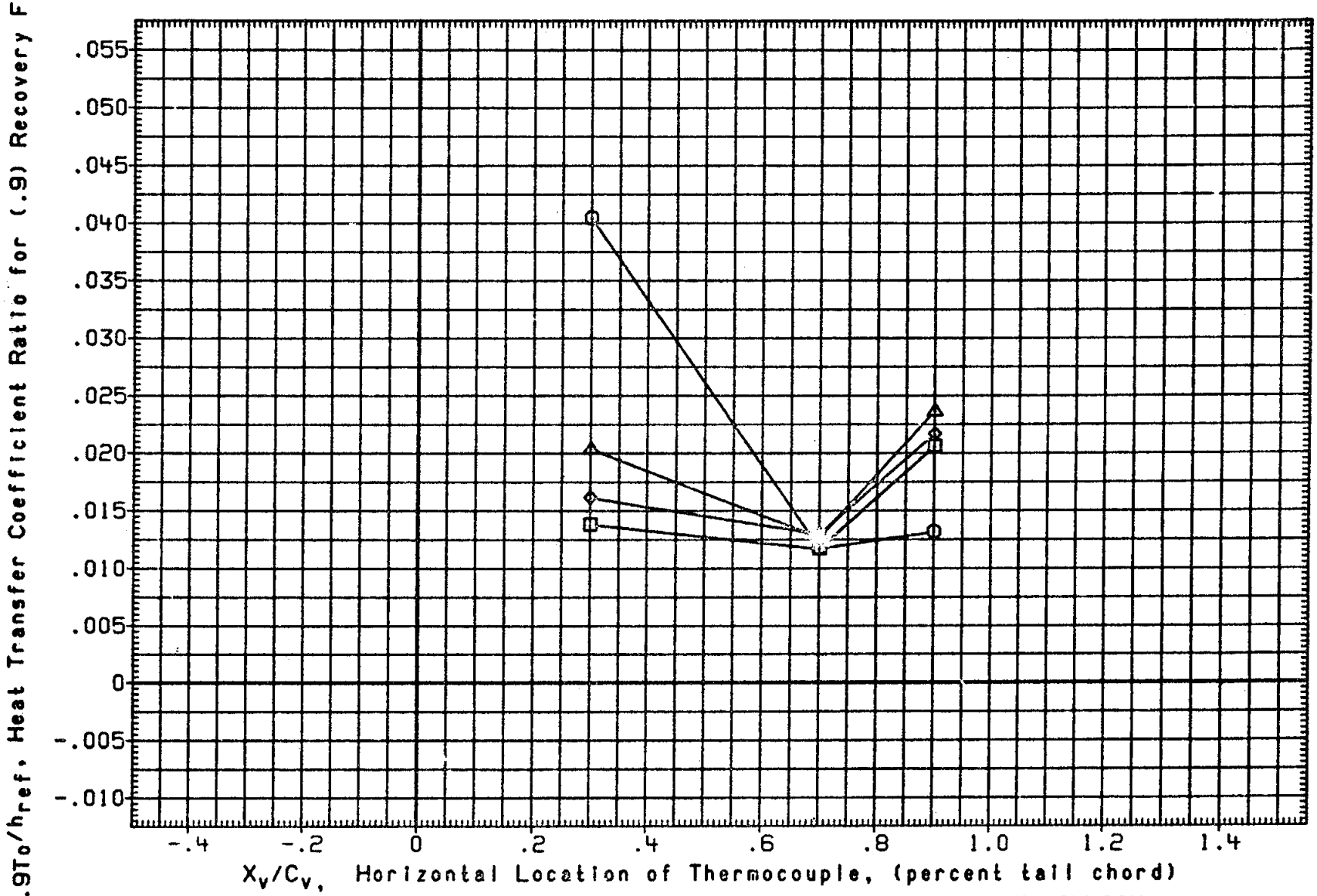


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.900	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

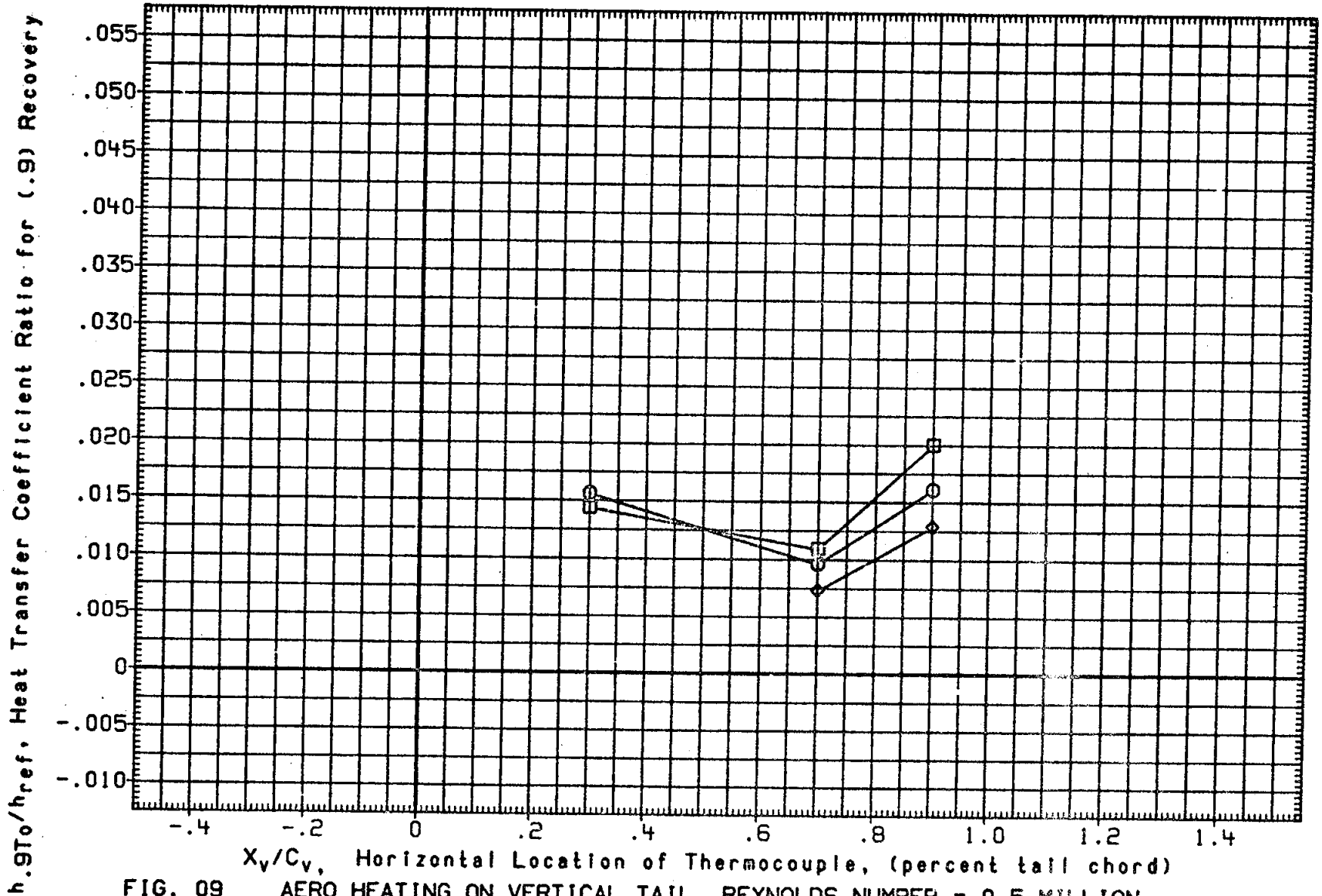


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	-1.967	.950	.900
□	-.996		
◇	-.499		
△	.005		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

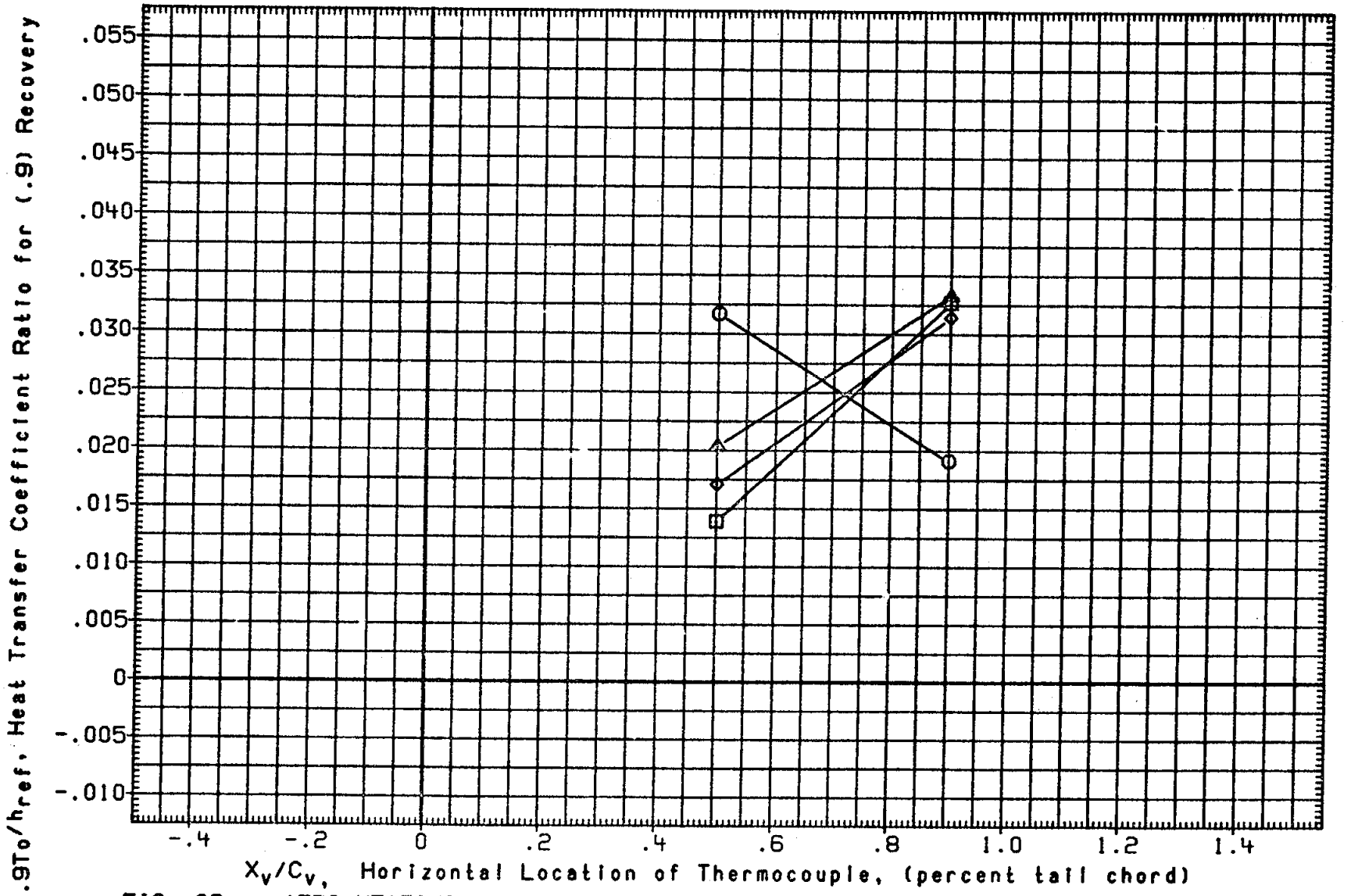


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

DATE 29 JAN 82

(ST6V25) OH111, MODEL 60-O, VERTICAL TAIL (LH SIDE)

SYMBOL	BETA	ZV/BV	HAW/HT
○	.483	.950	.900
□	.993		
◇	1.976		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

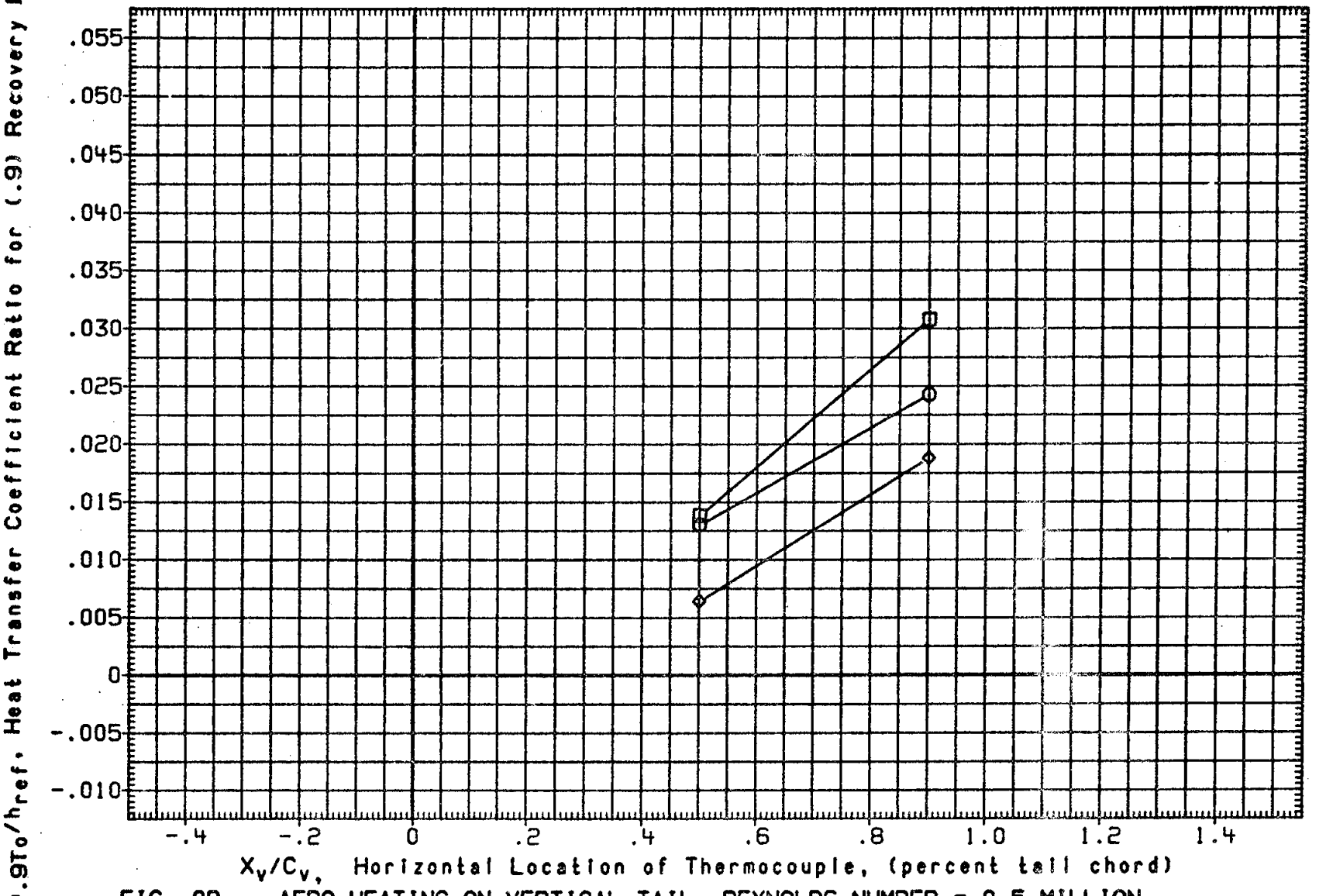


FIG. 09 AERO HEATING ON VERTICAL TAIL, REYNOLDS NUMBER = 0.5 MILLION

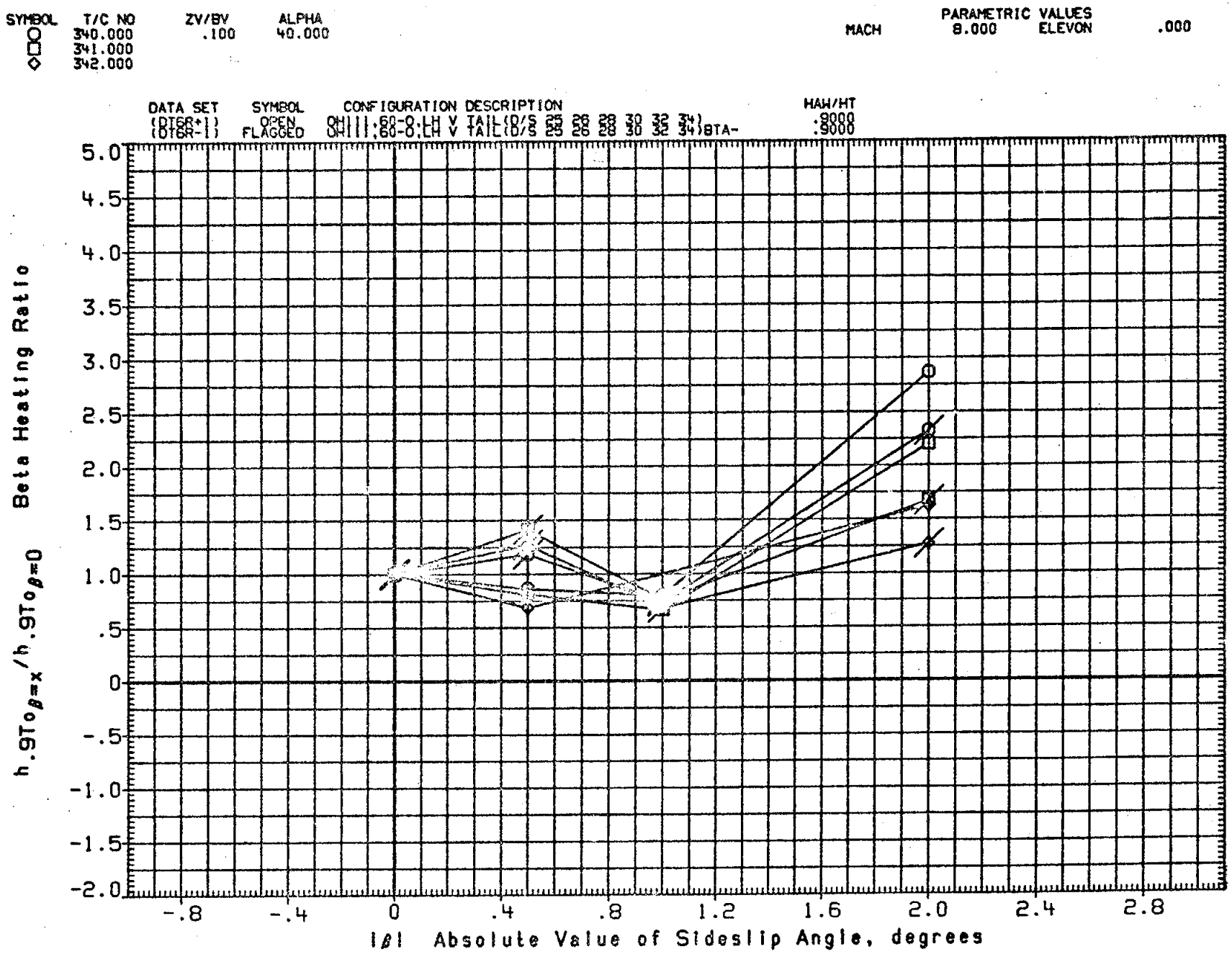


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

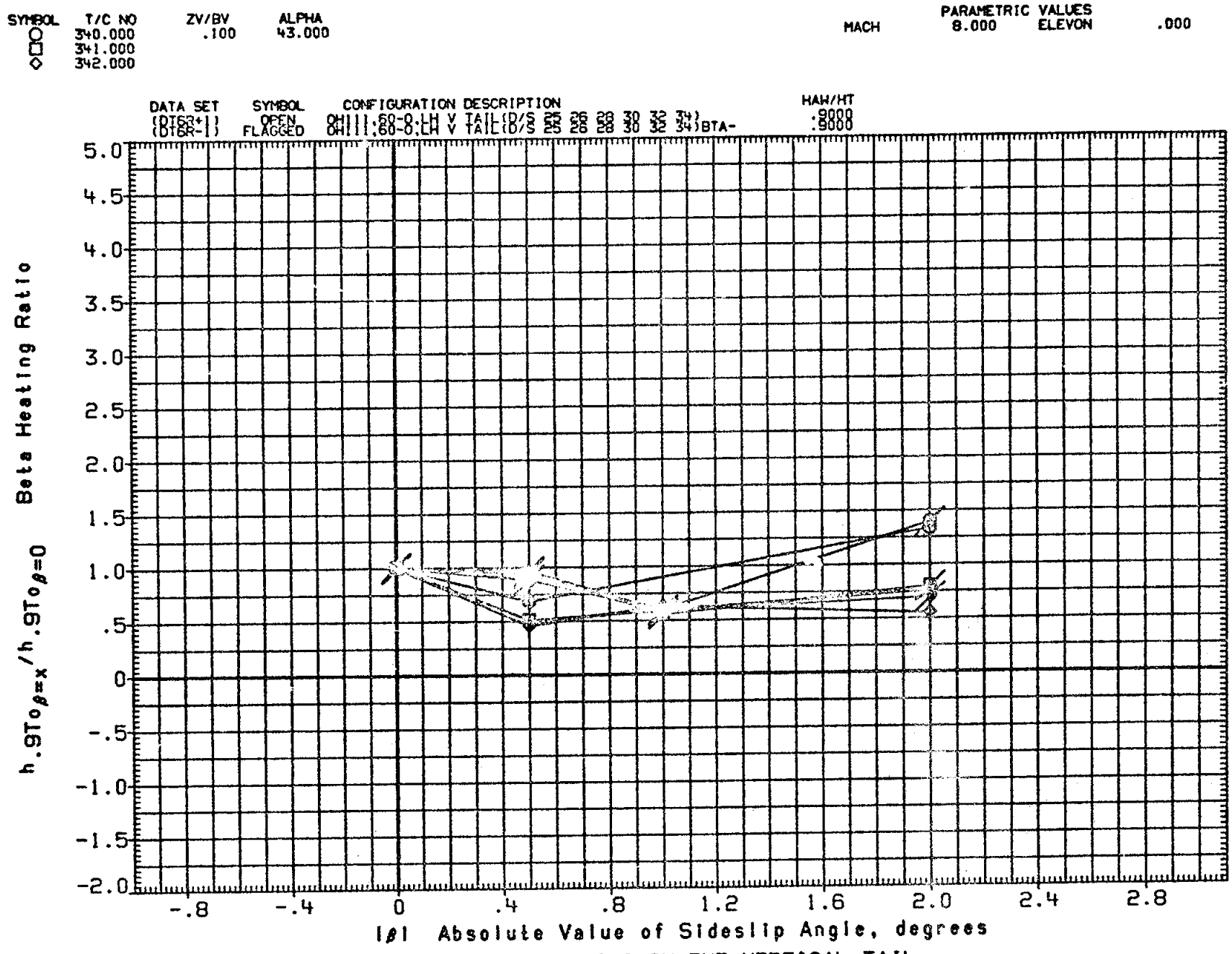


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

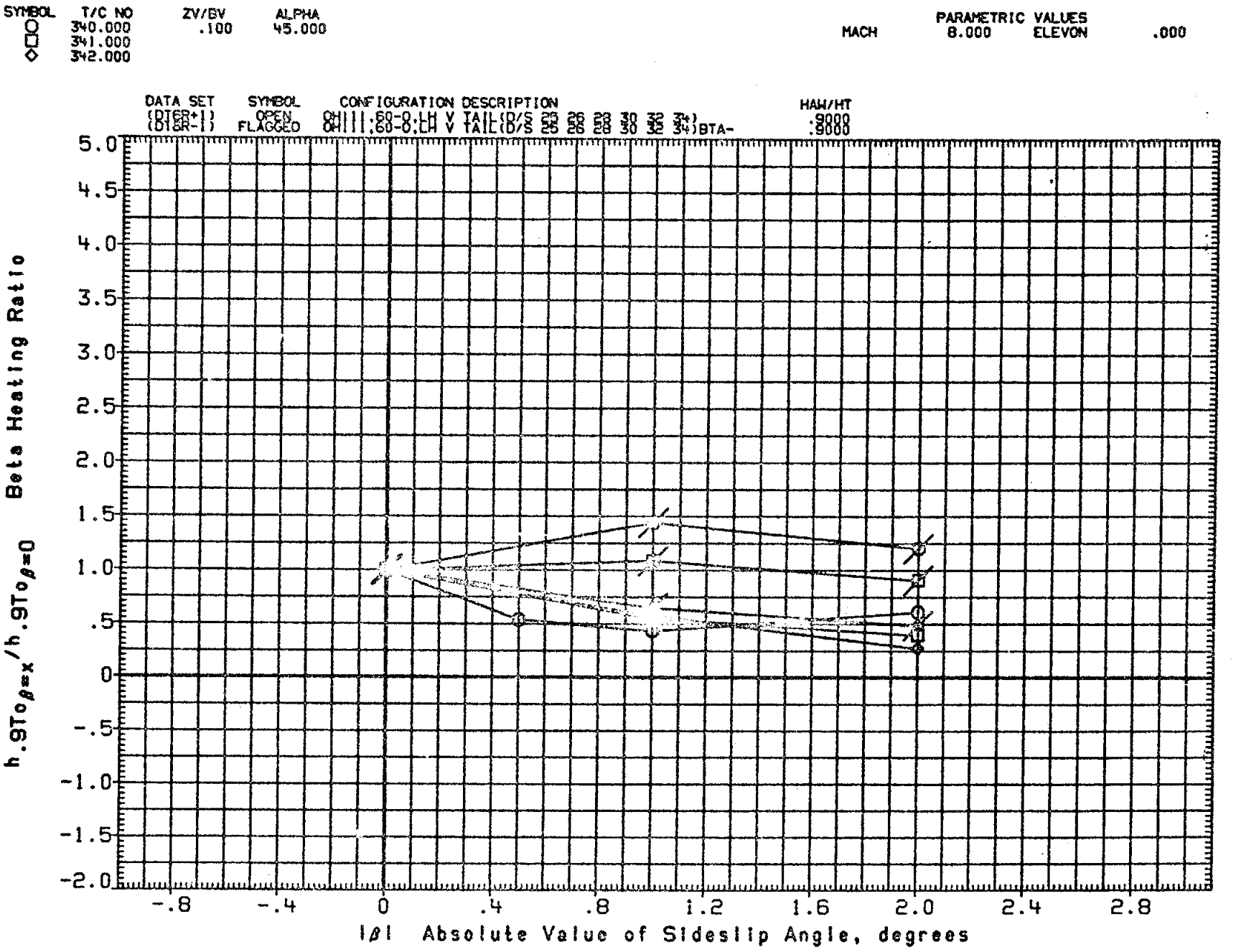


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
○	340.000	.100	47.000
□	341.000		
◇	342.000		

MACH PARAMETRIC VALUES 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DT6R+1)	OPEN	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DT6R-1)	FLAGGED	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

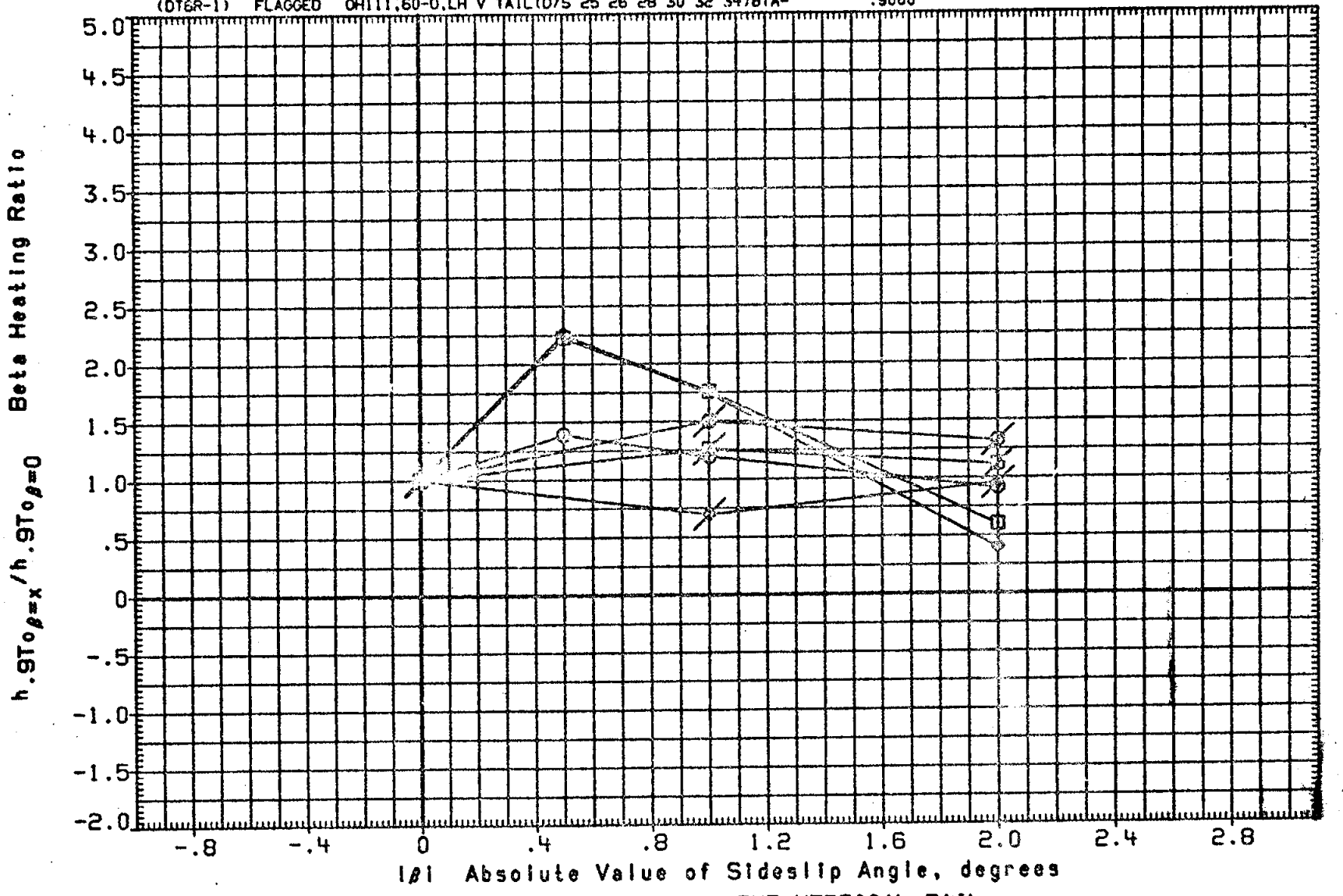


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

PAGE

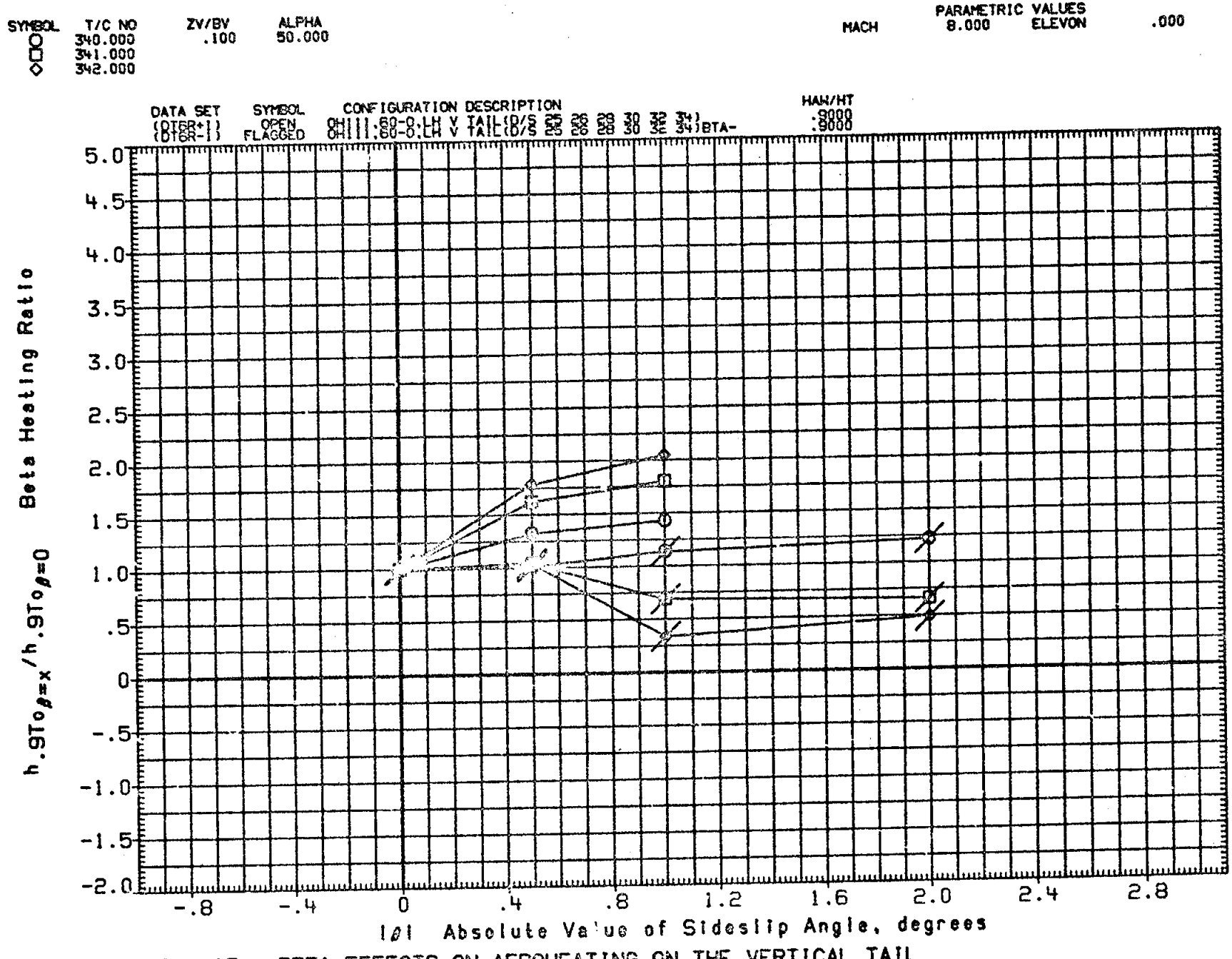


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
○	340.000	.100	55.000
□	341.000		
◇	342.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DTGR+1)	OPEN	OH111;60-0;LH V TAIL(D/S 23 26 28 30 32 34)	.9000
(DTGR-1)	FLAGGED	OH111;60-0;LH V TAIL(D/S 23 26 28 30 32 34)BTA-	.9000

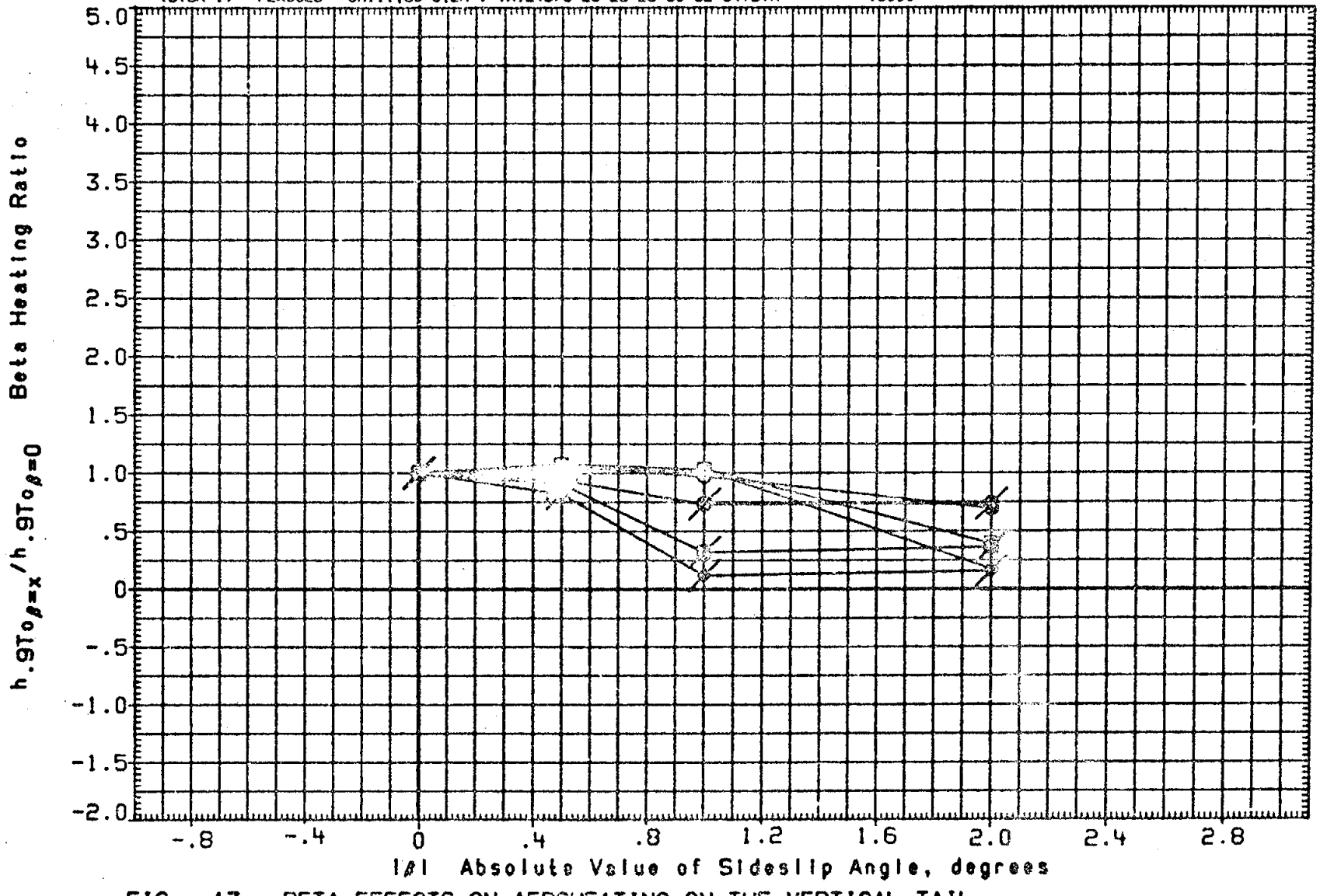


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

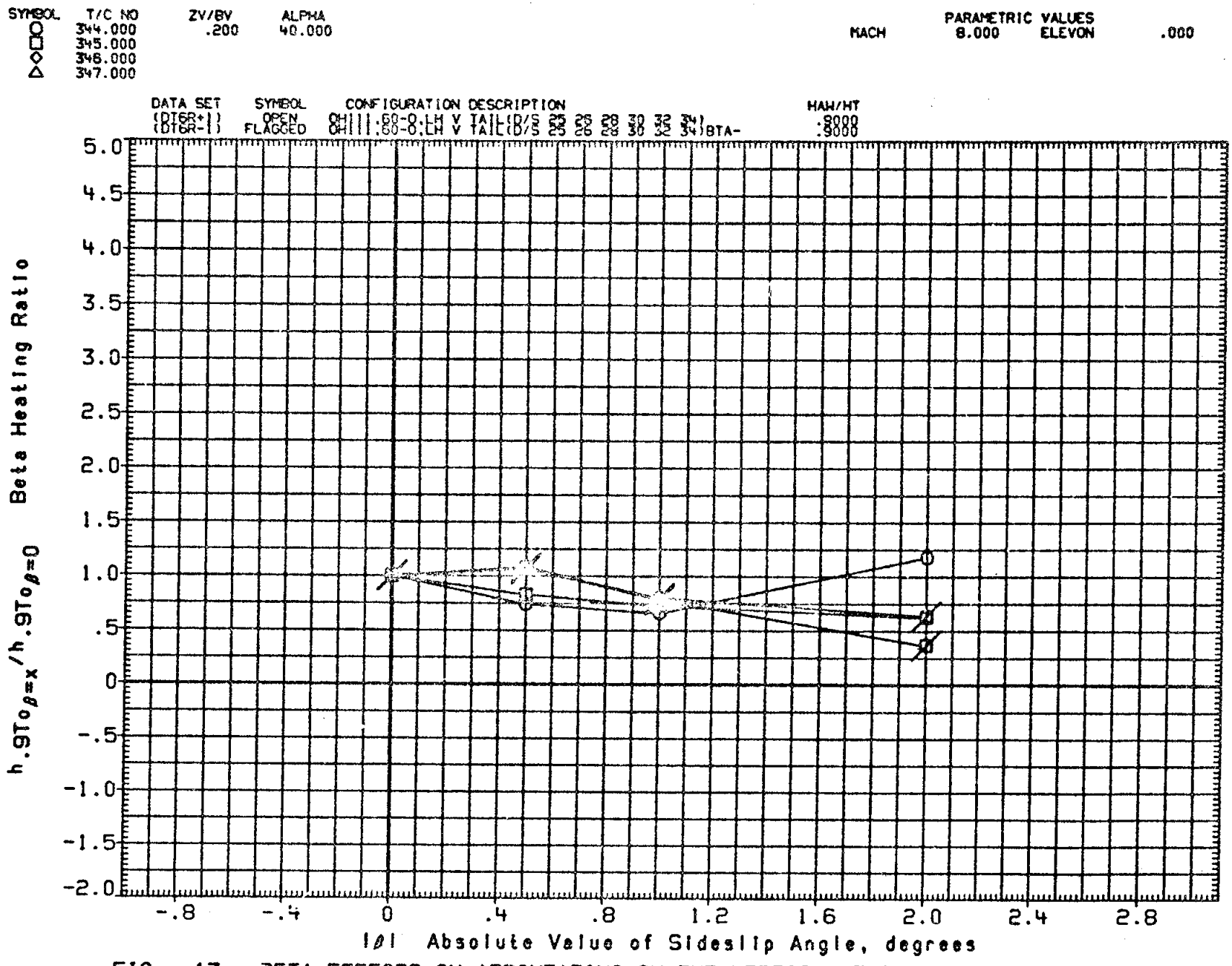


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

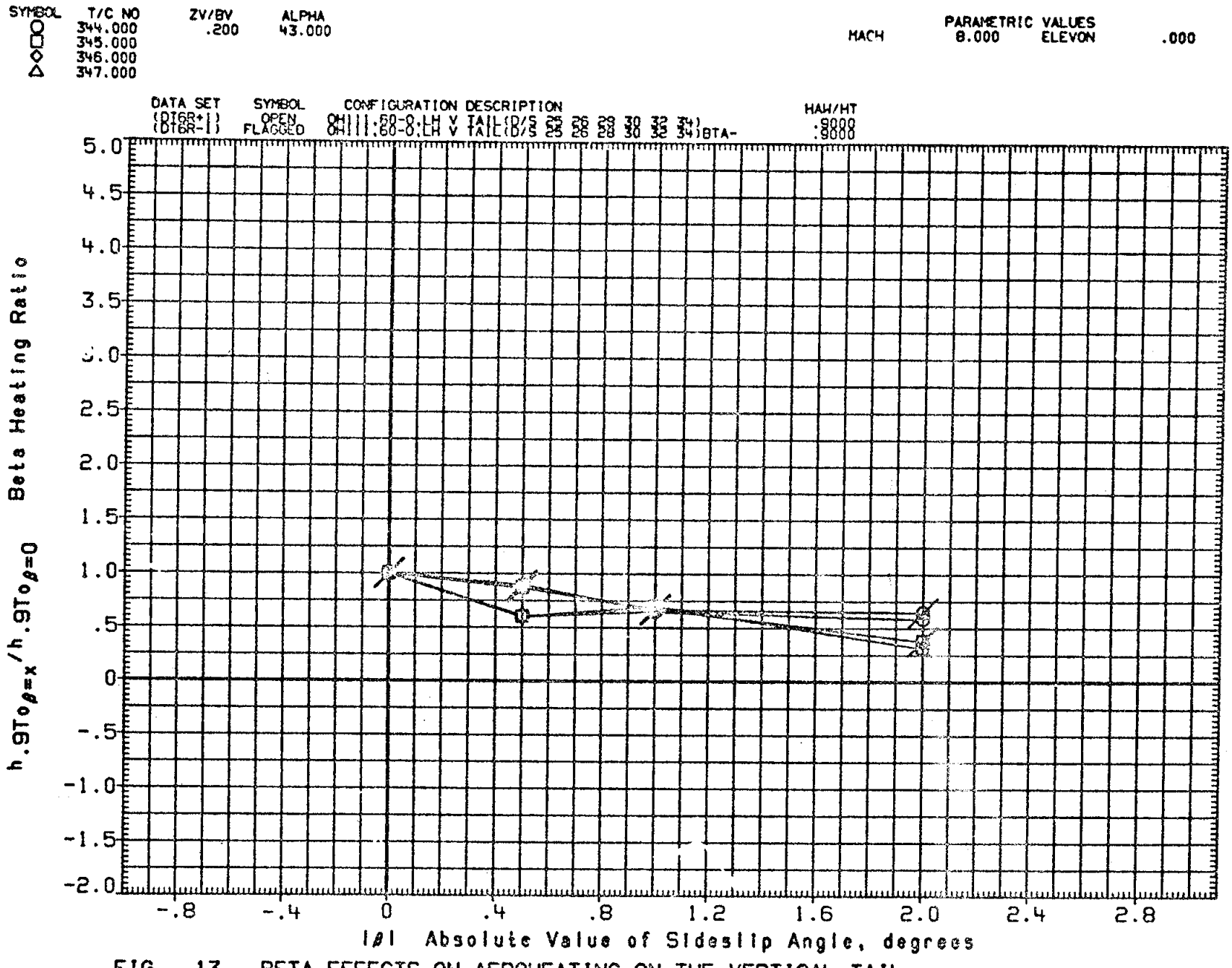


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

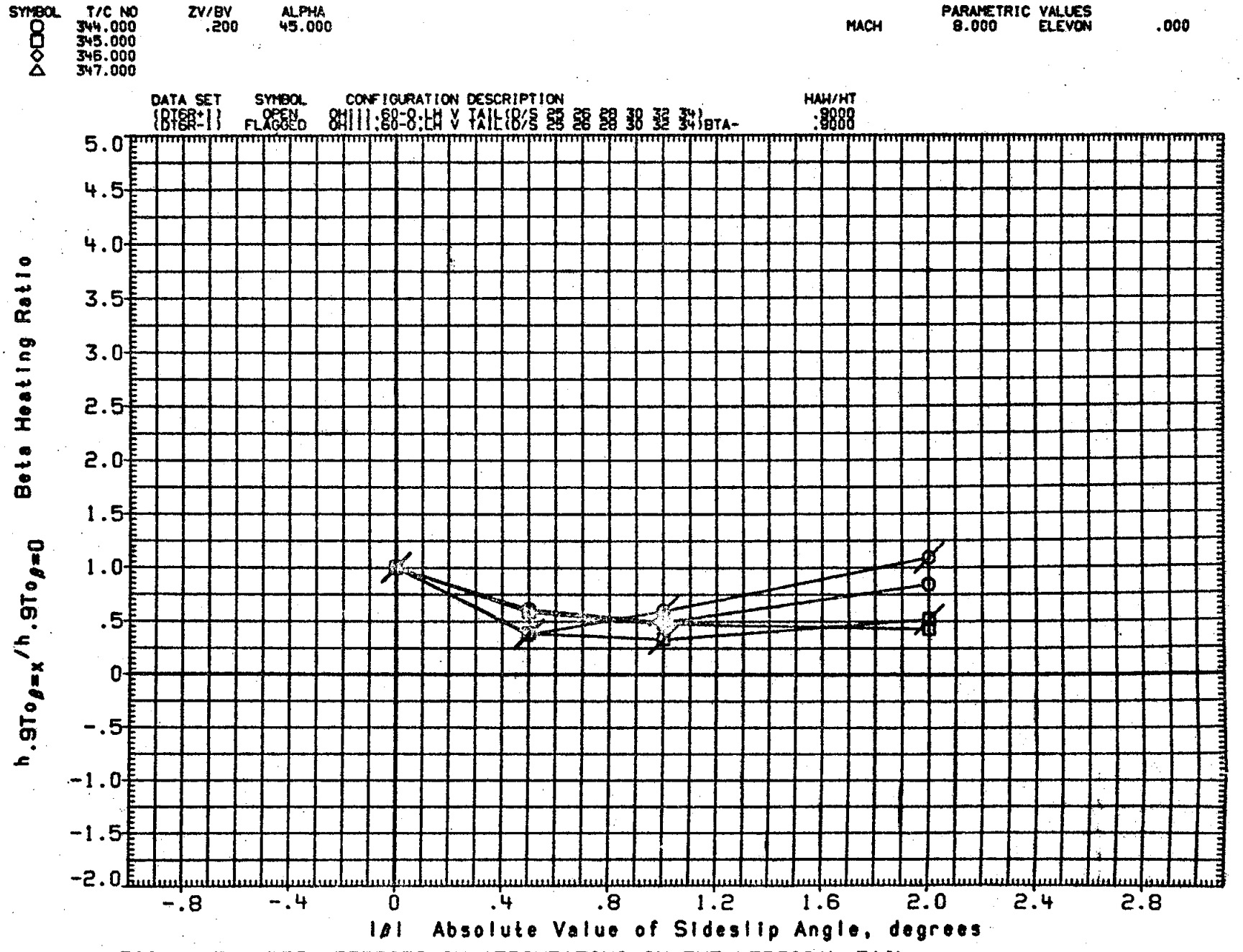


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

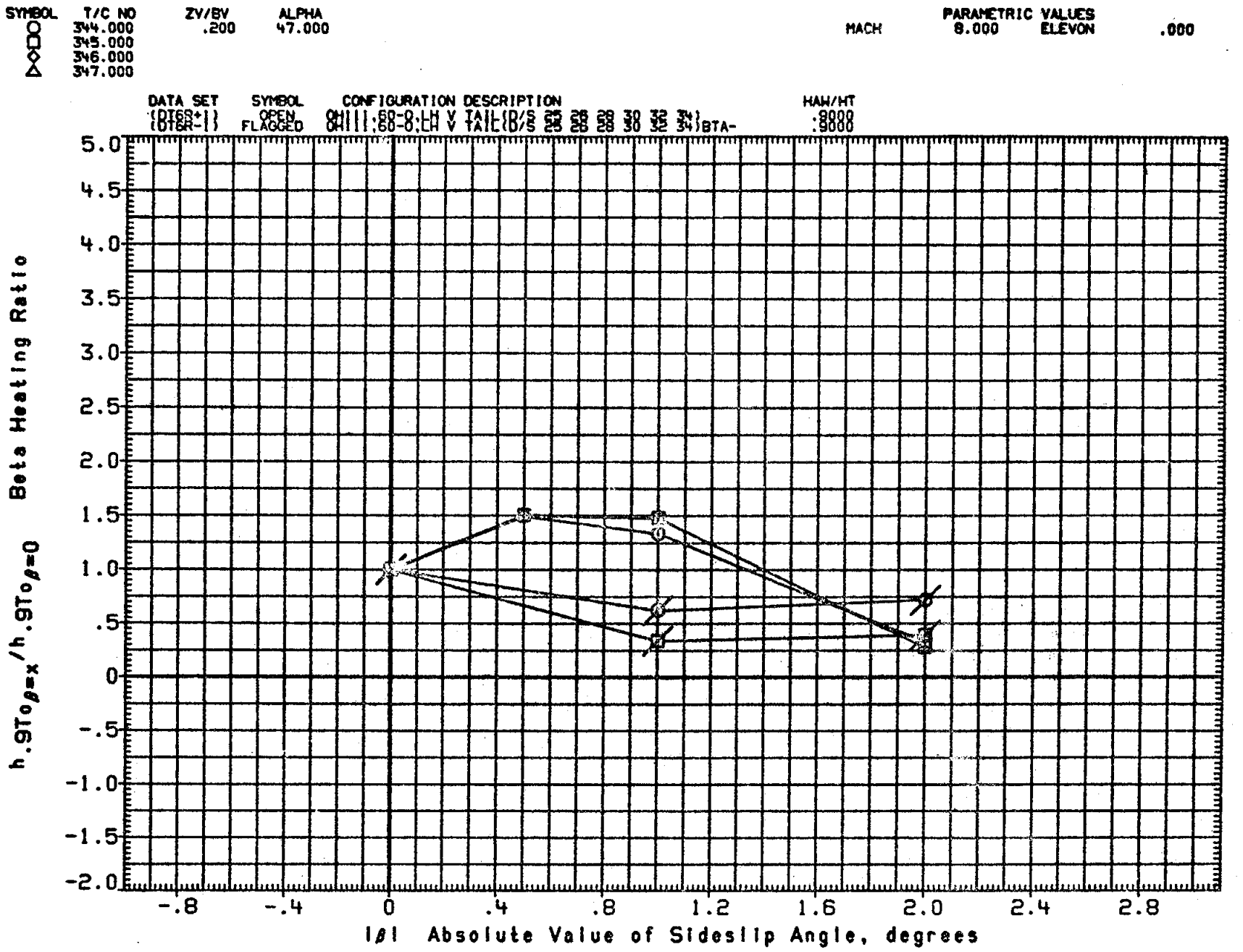


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

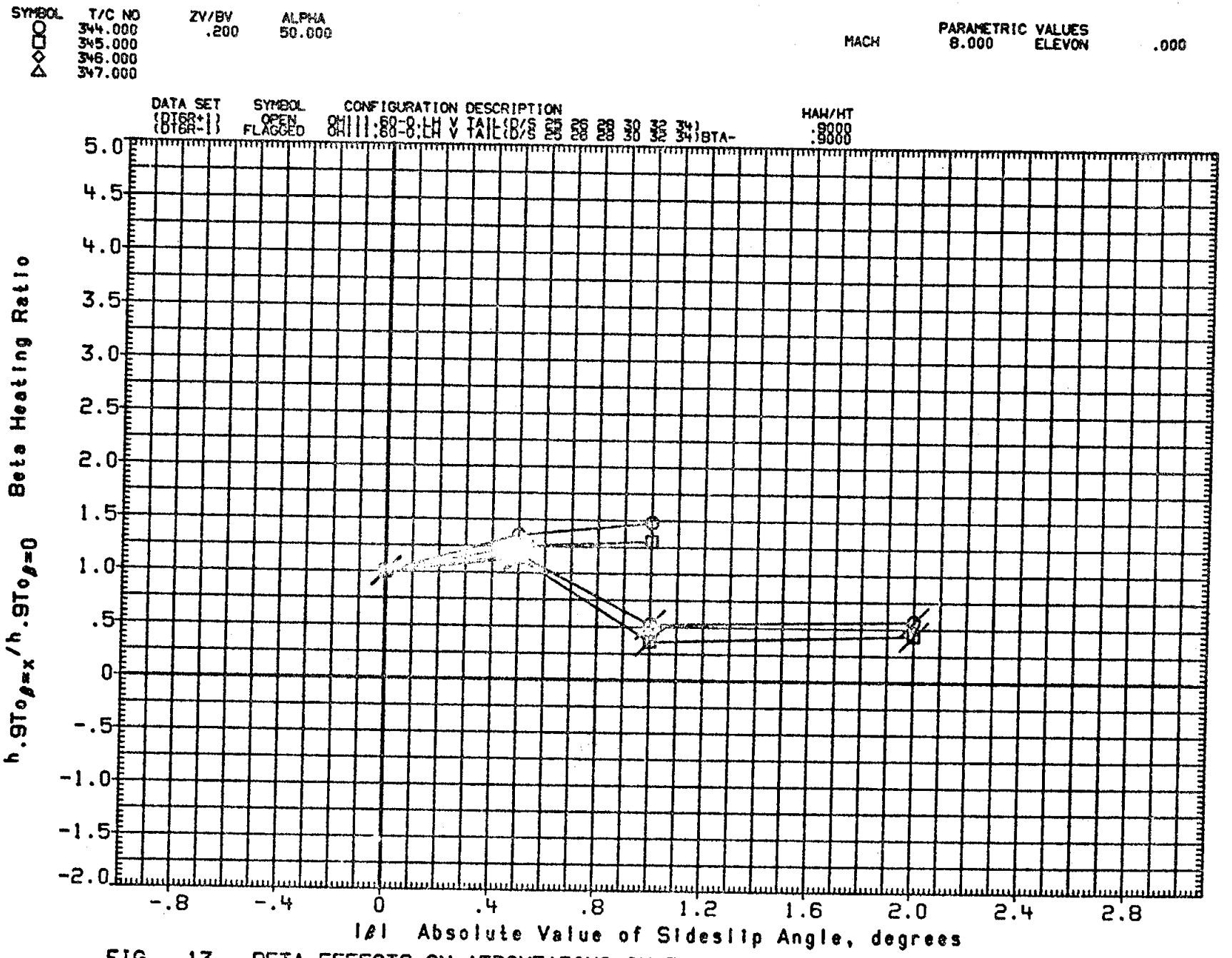


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

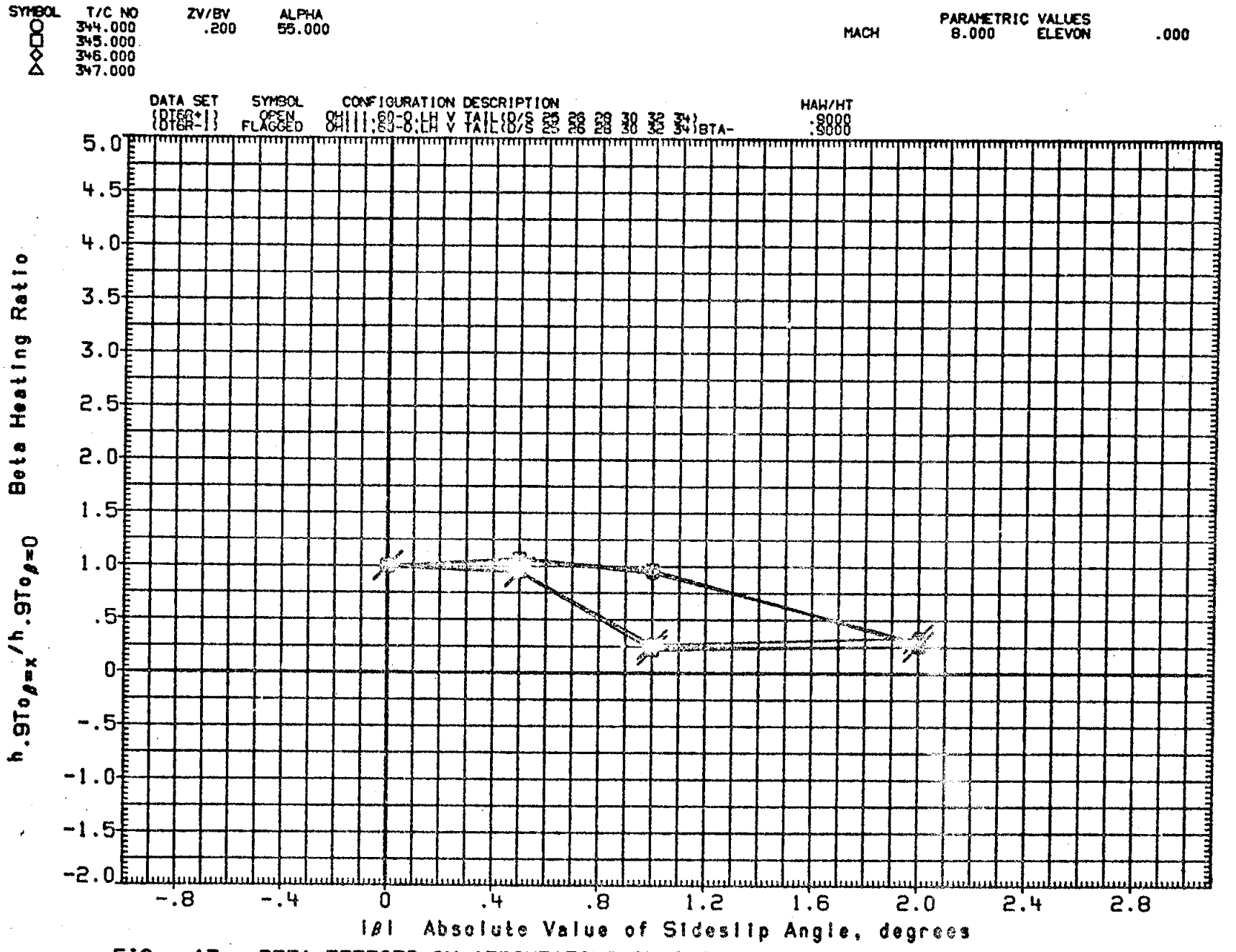


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

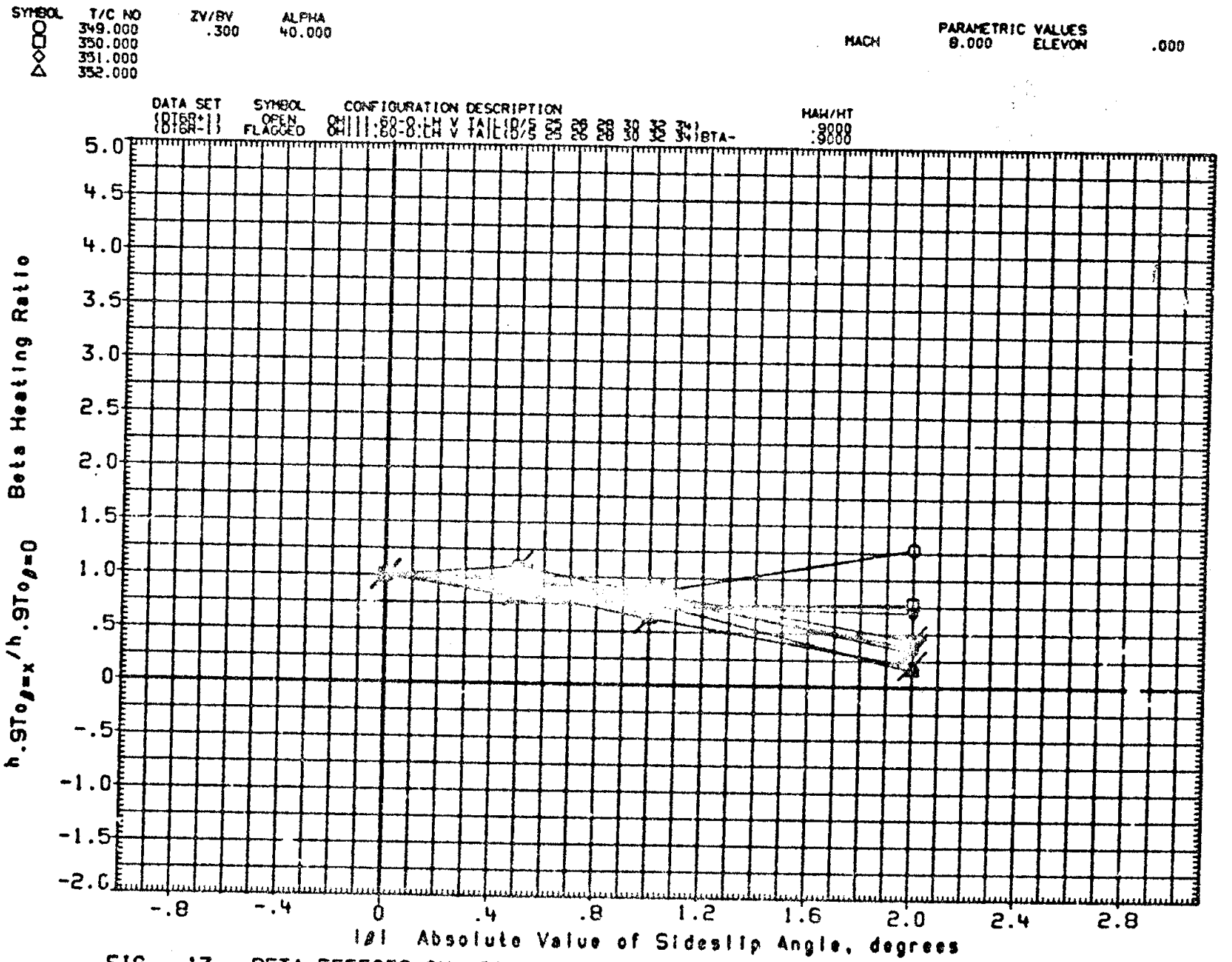


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

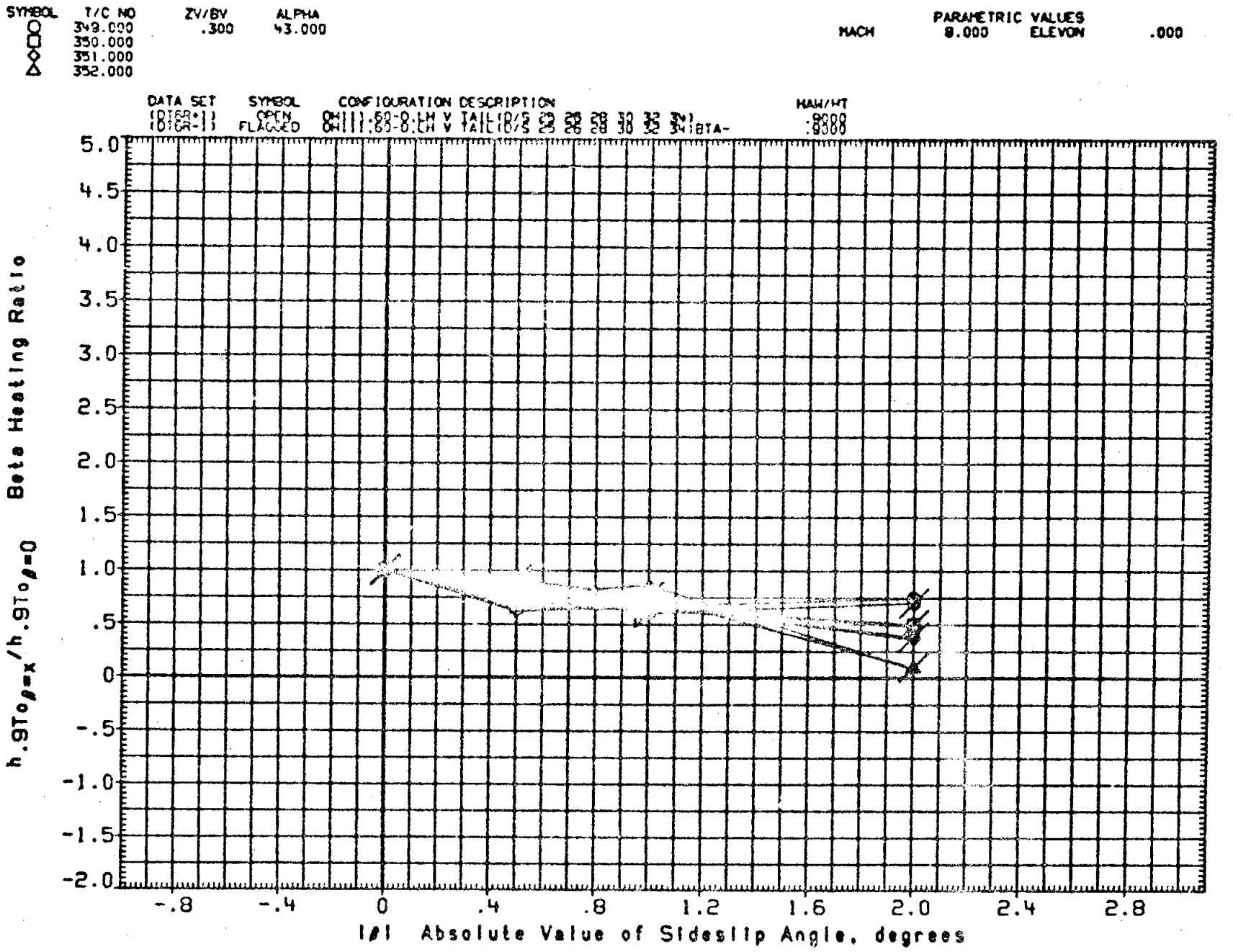
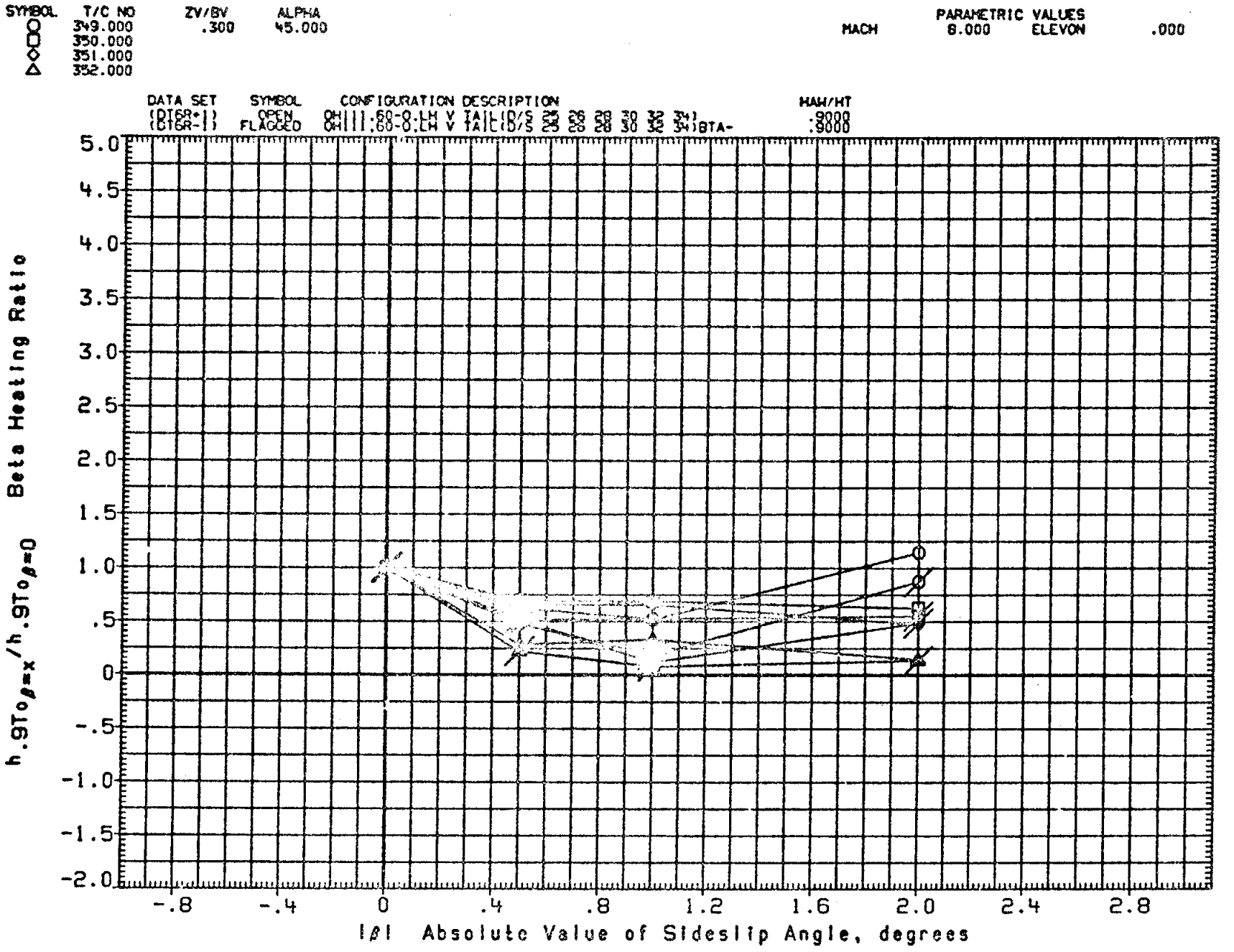


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82



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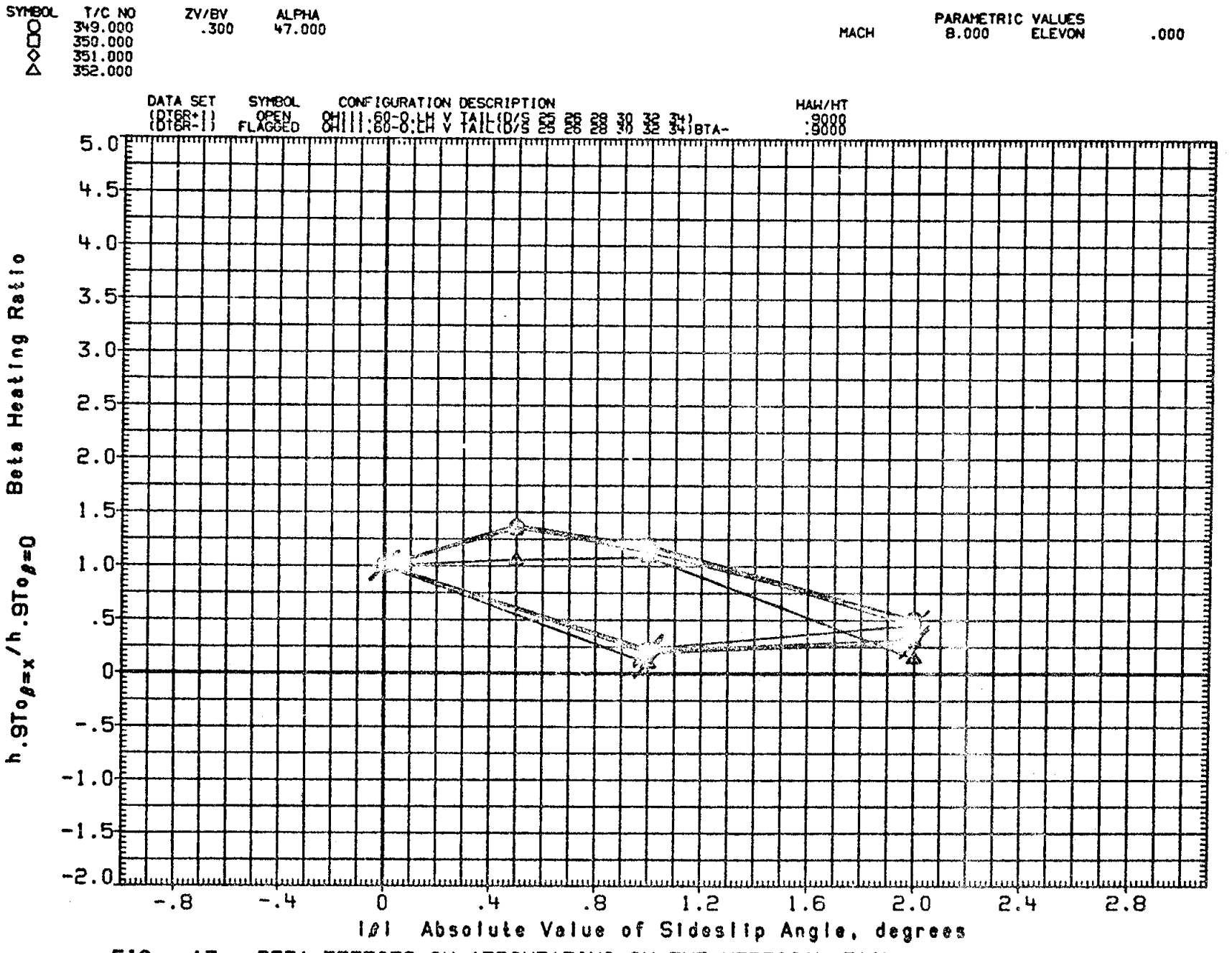
REYNOLDS NUMBER=0.5

DATE 13 JUL 82



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REYNOLDS NUMBER=0.5

DATE 13 JUL 82

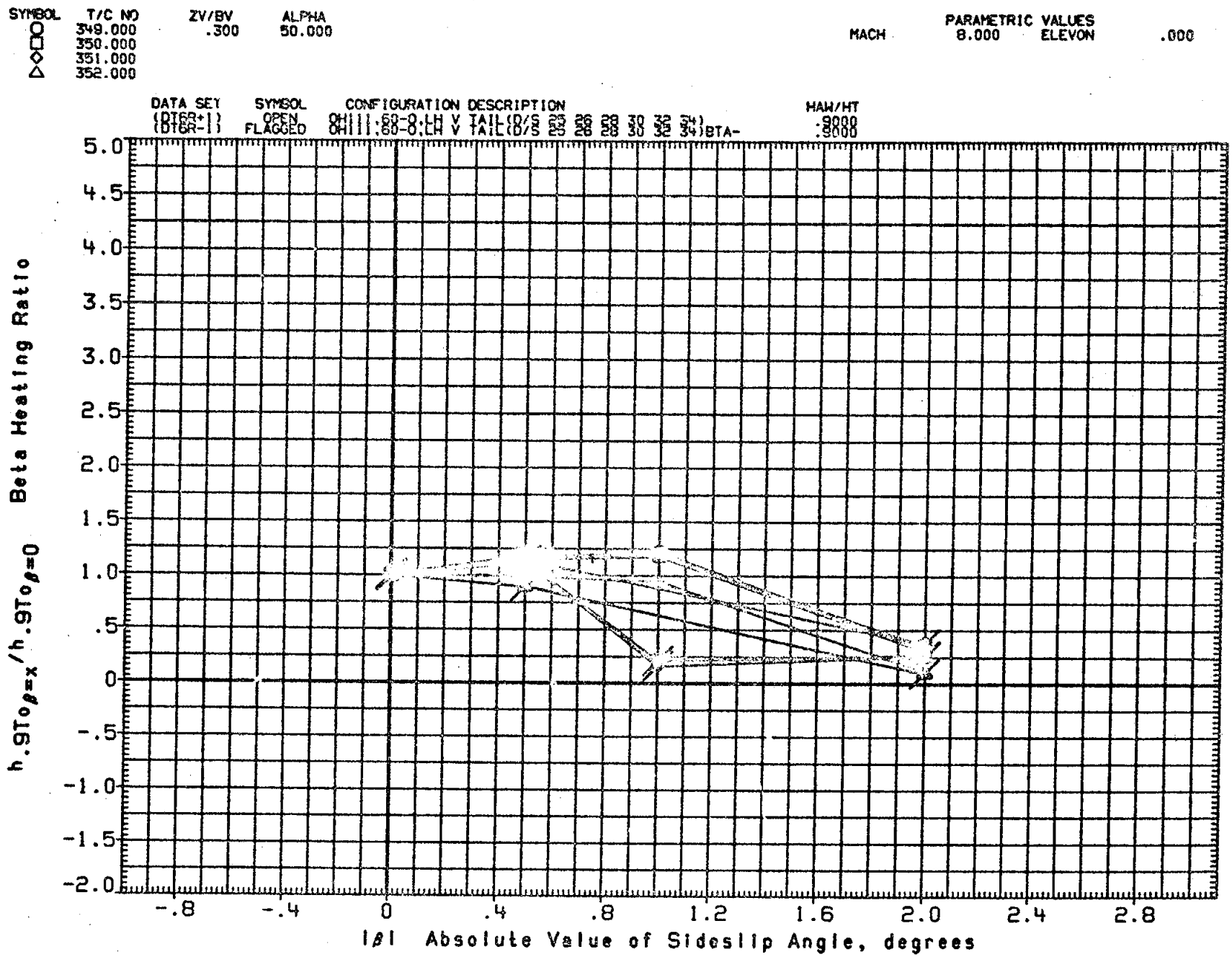


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

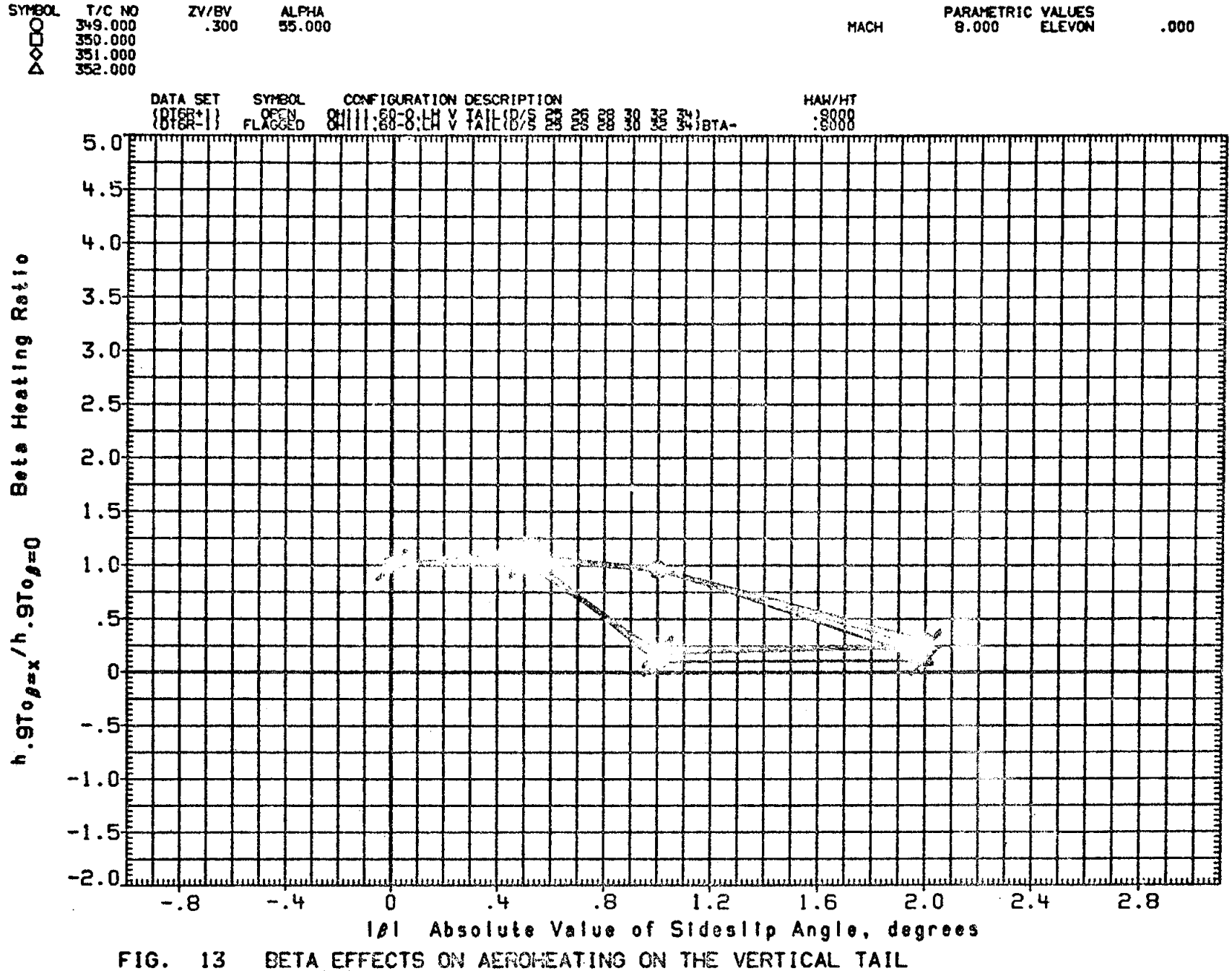


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

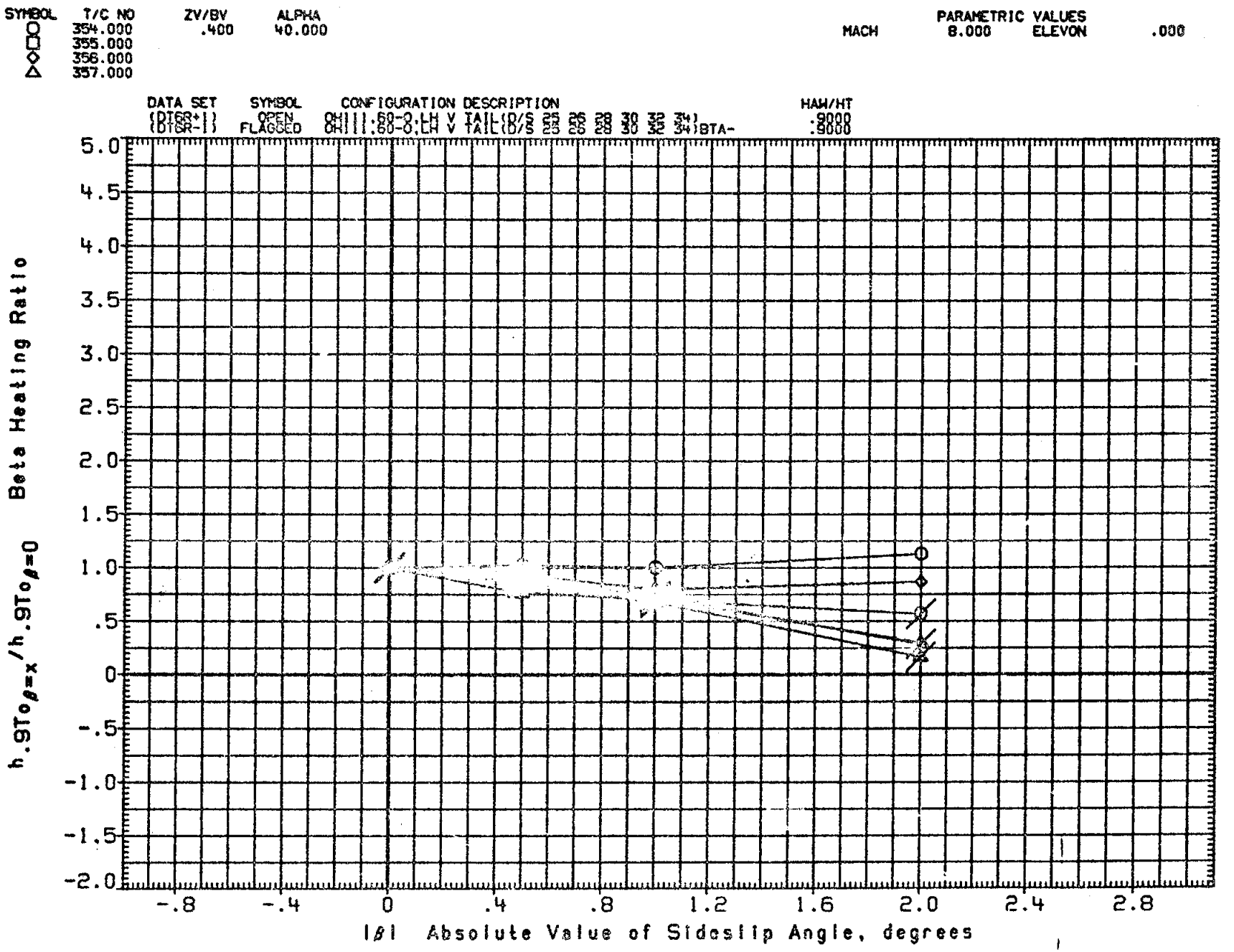


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

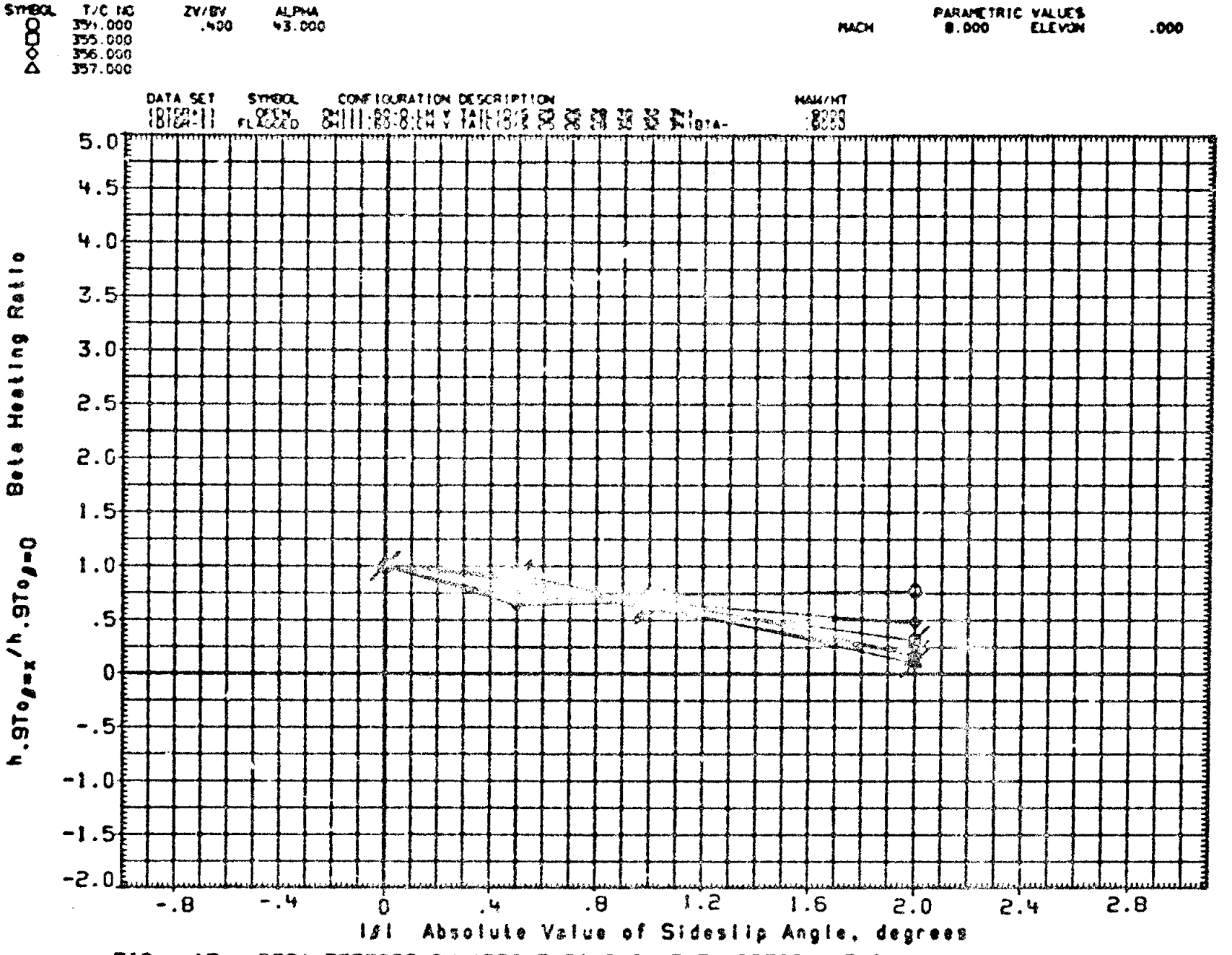


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

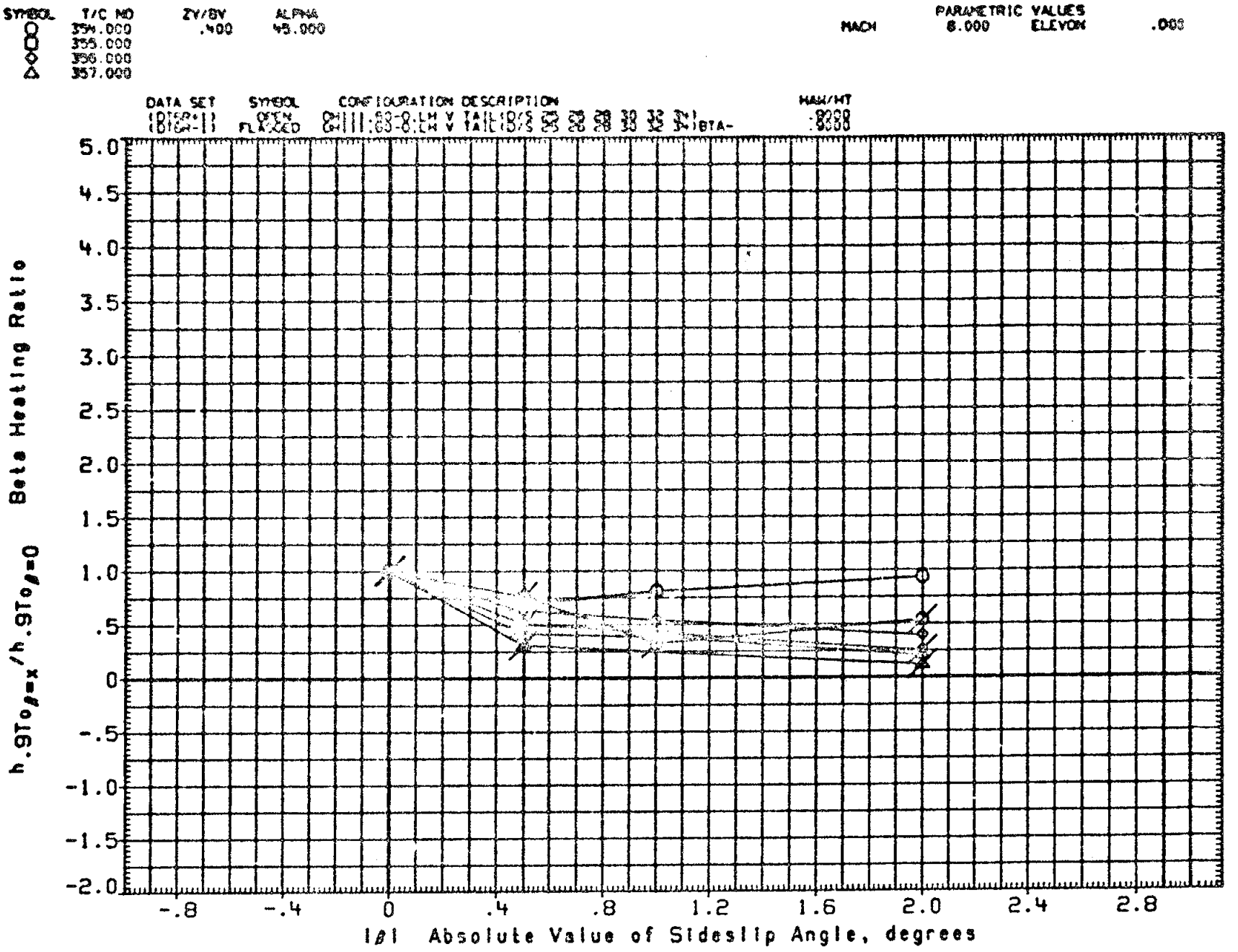


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

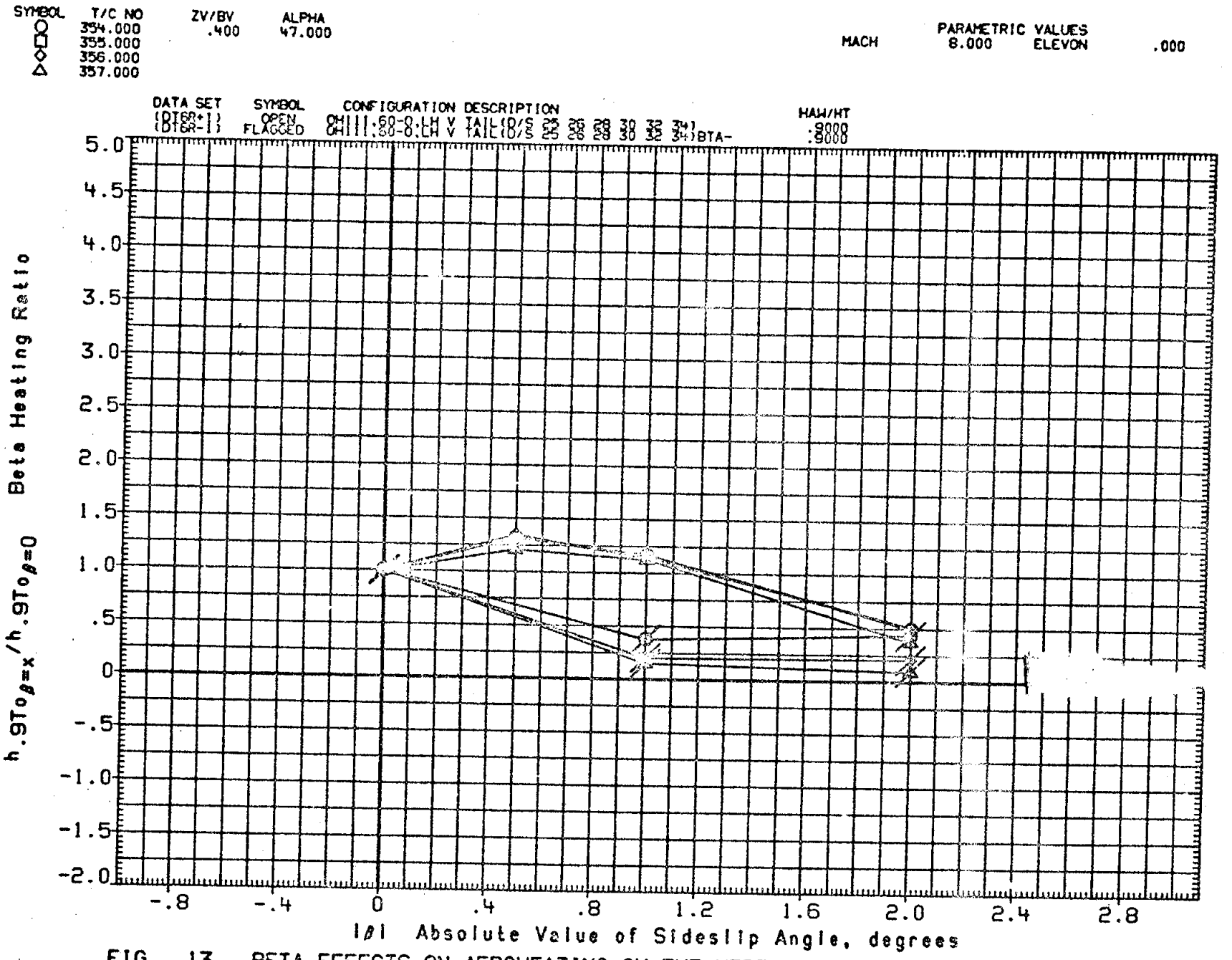


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

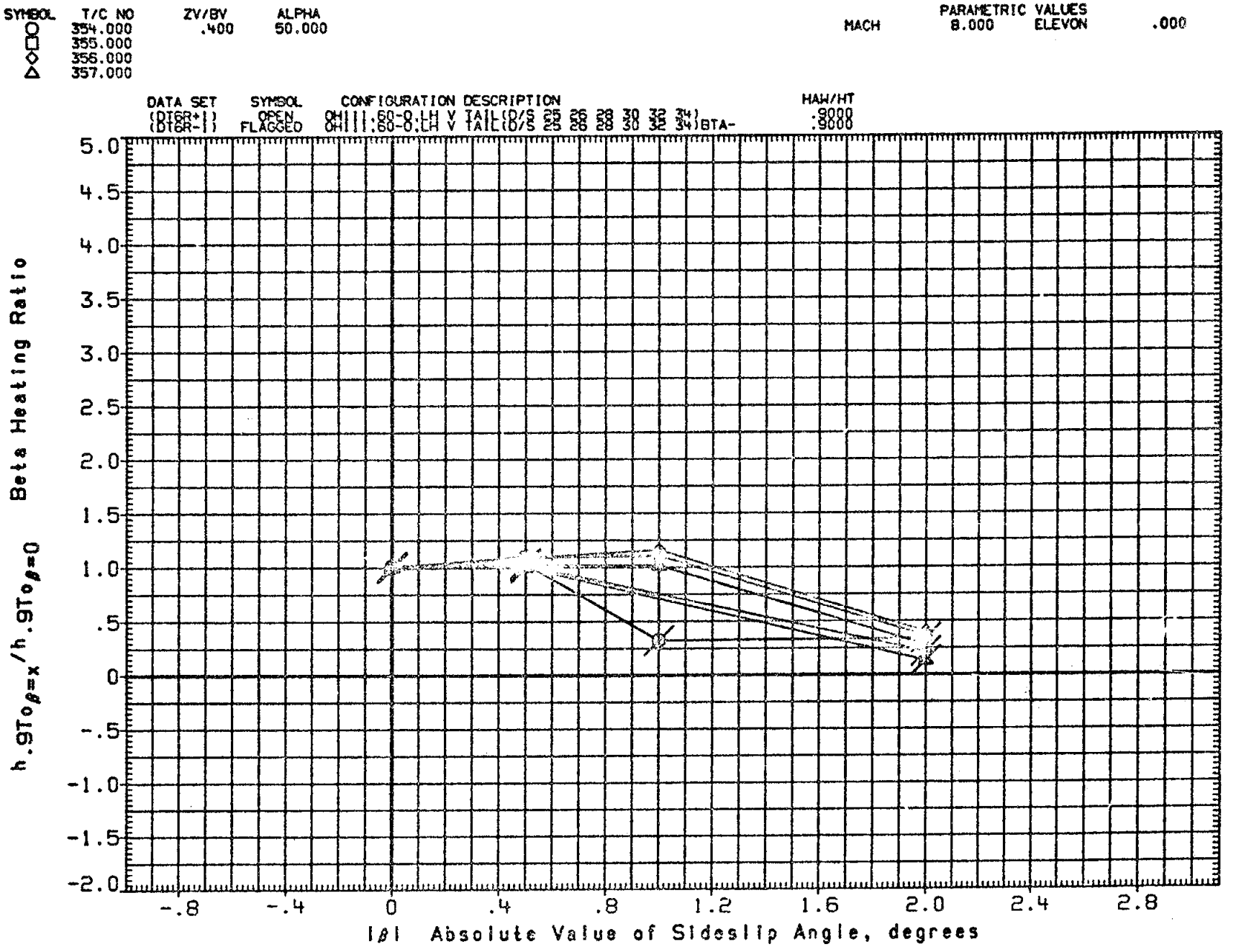


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
○	354.000	.400	55.000
□	355.000		
◇	356.000		
△	357.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DT6R+1)	OPEN	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DT5R-1)	FLAGGED	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

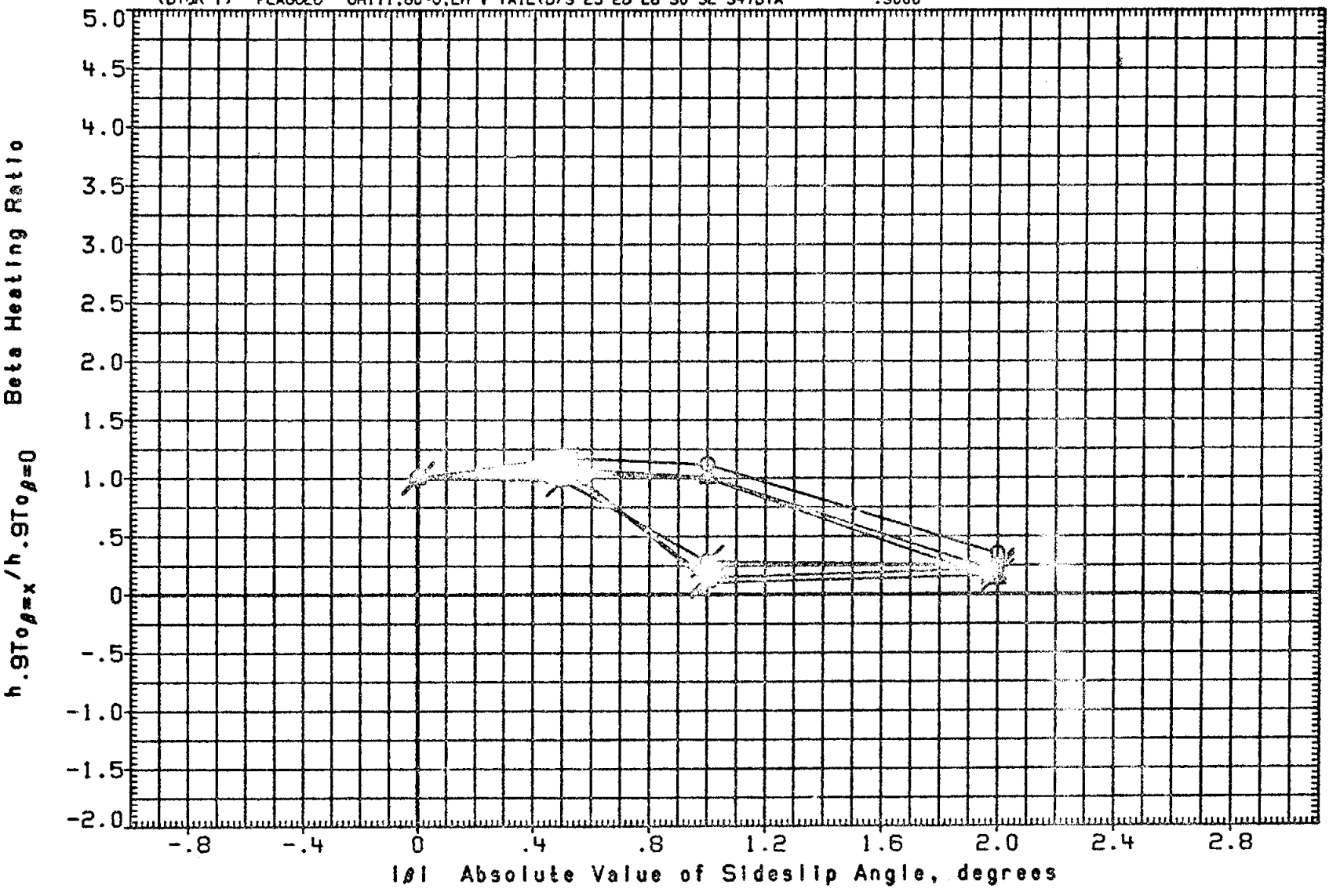


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

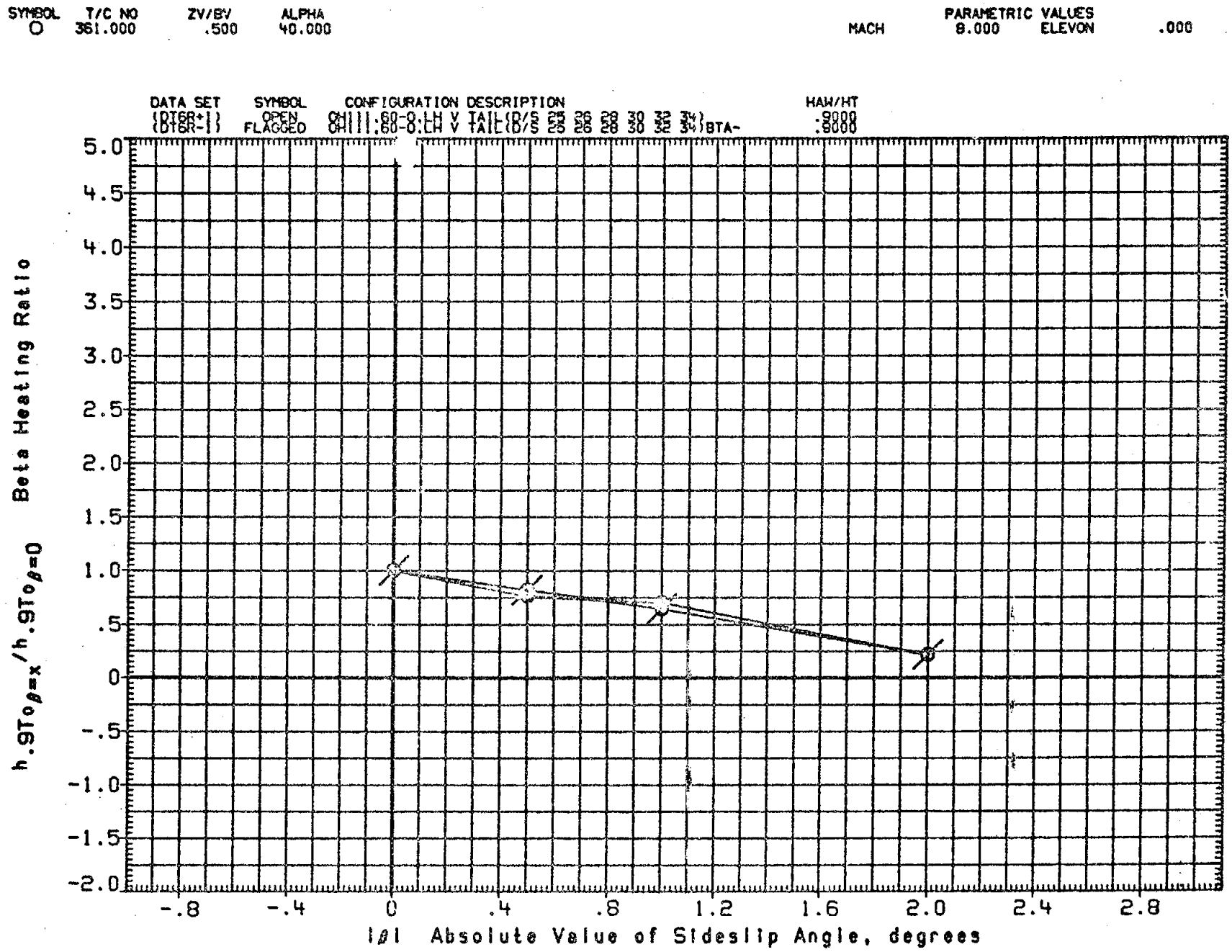


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
O	361.000	.500	43.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DT6R+1)	OPEN	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DT6R-1)	FLAGGED	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

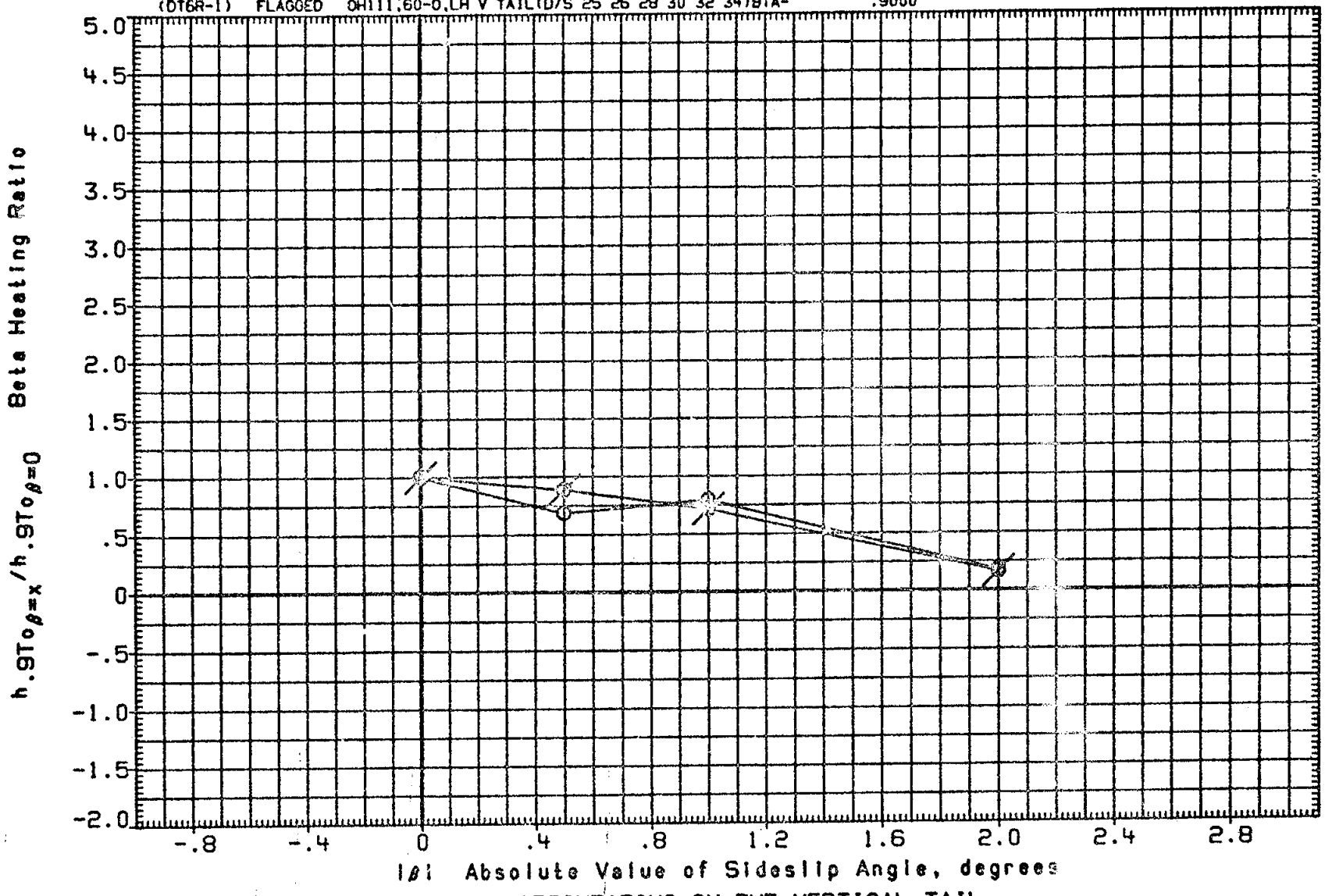


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
O	351.000	.500	45.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION MACH/MT

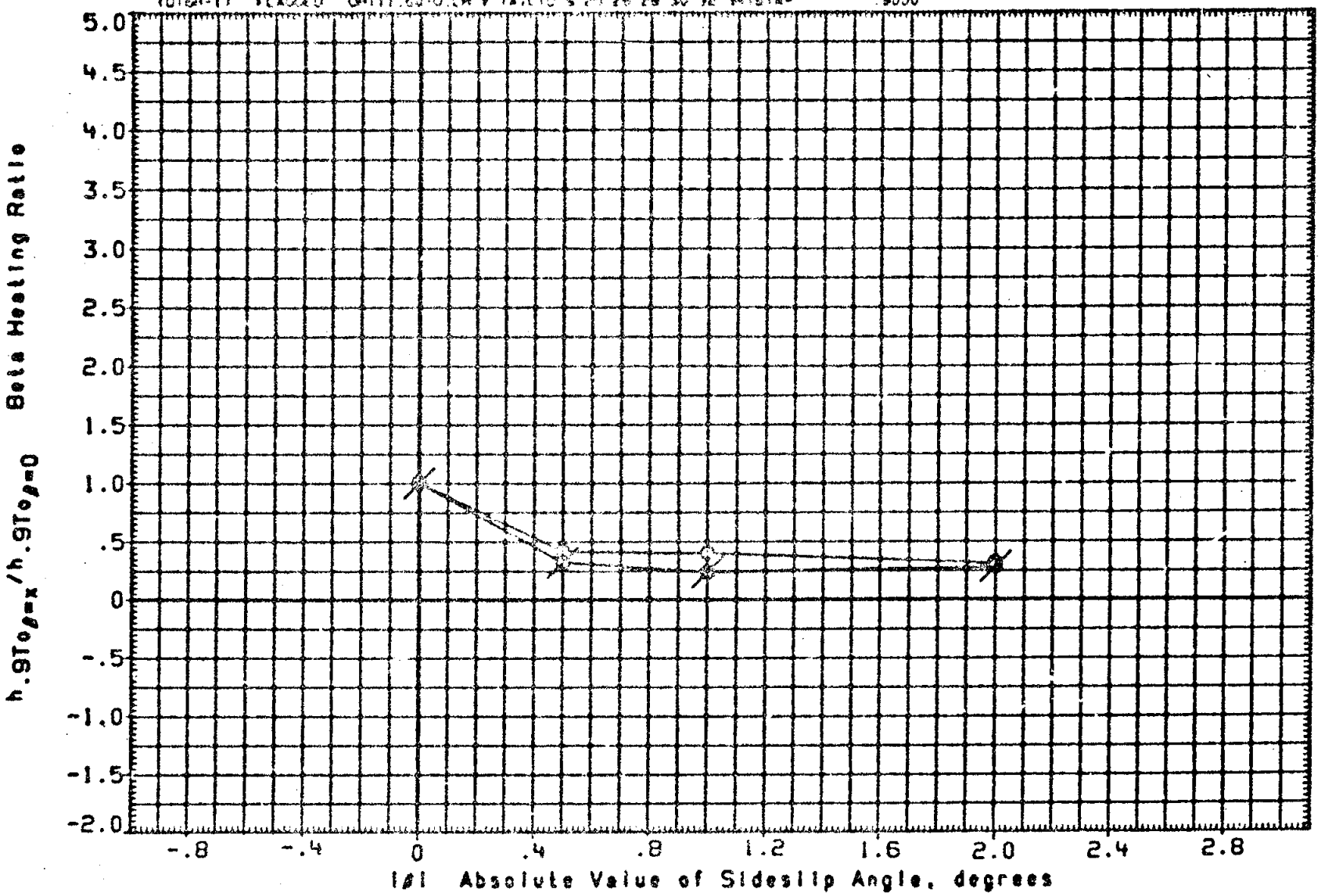


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

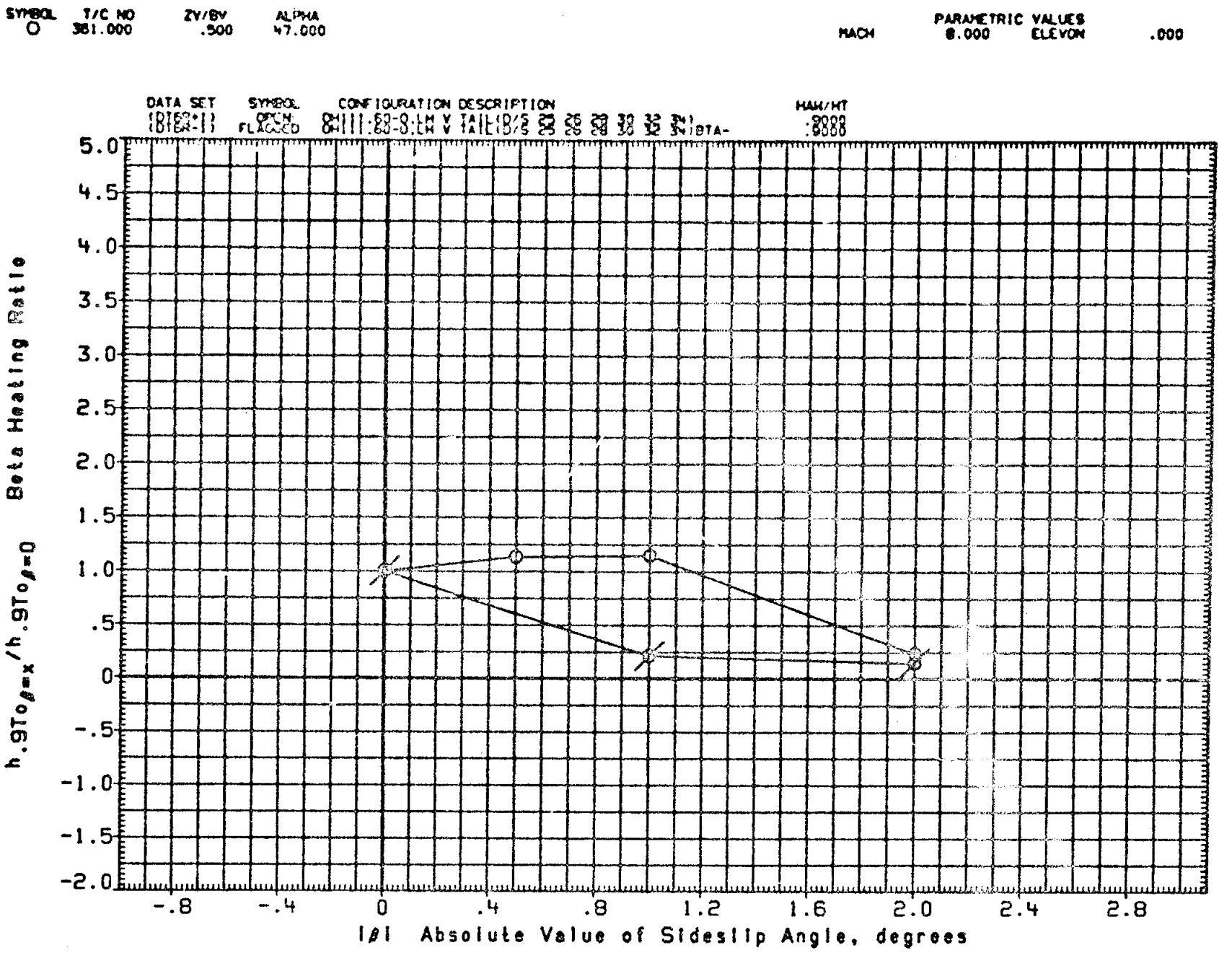


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
O	361.000	.500	50.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DTGR+1)	OPEN	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DTGR-1)	FLAGGED	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

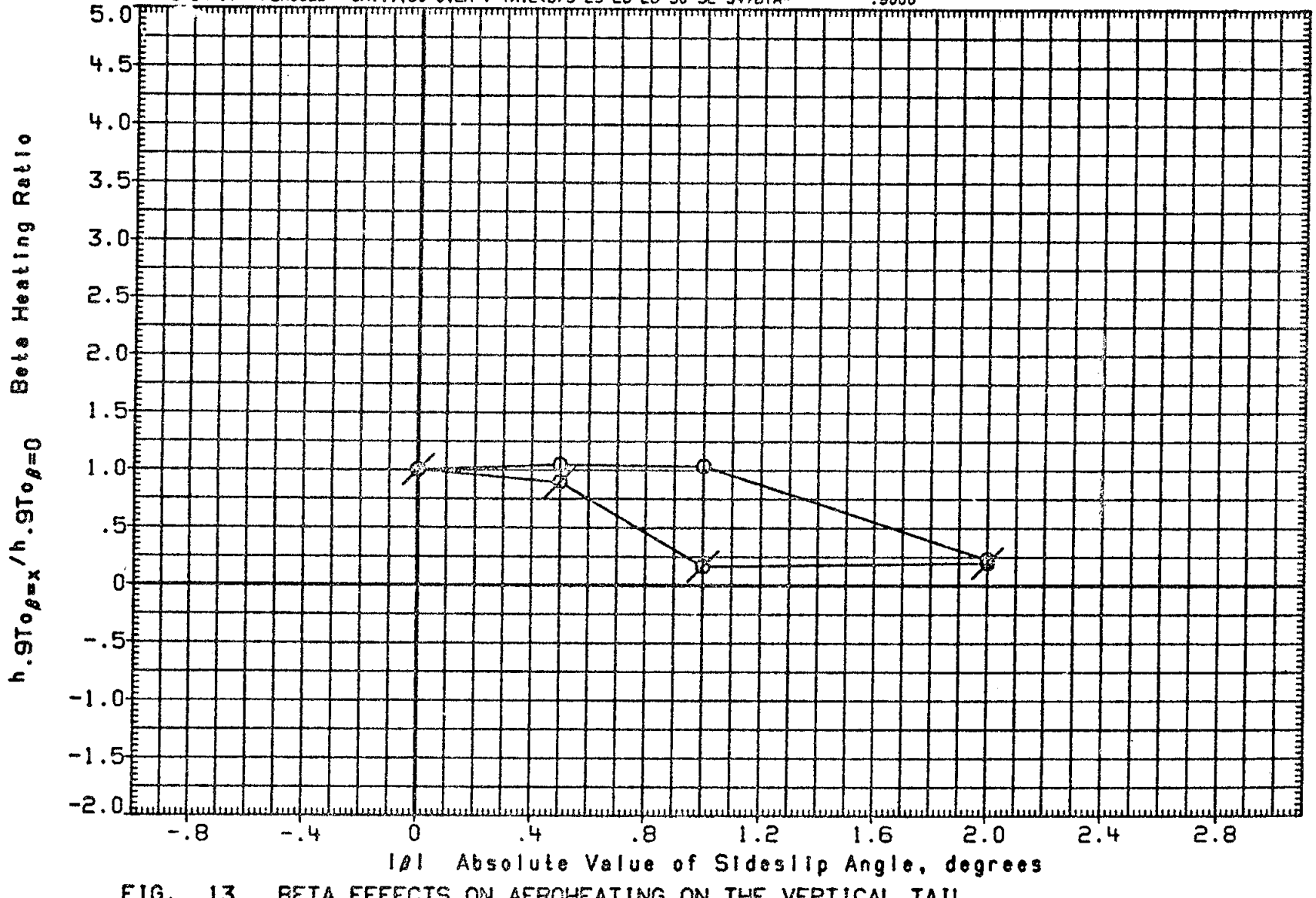


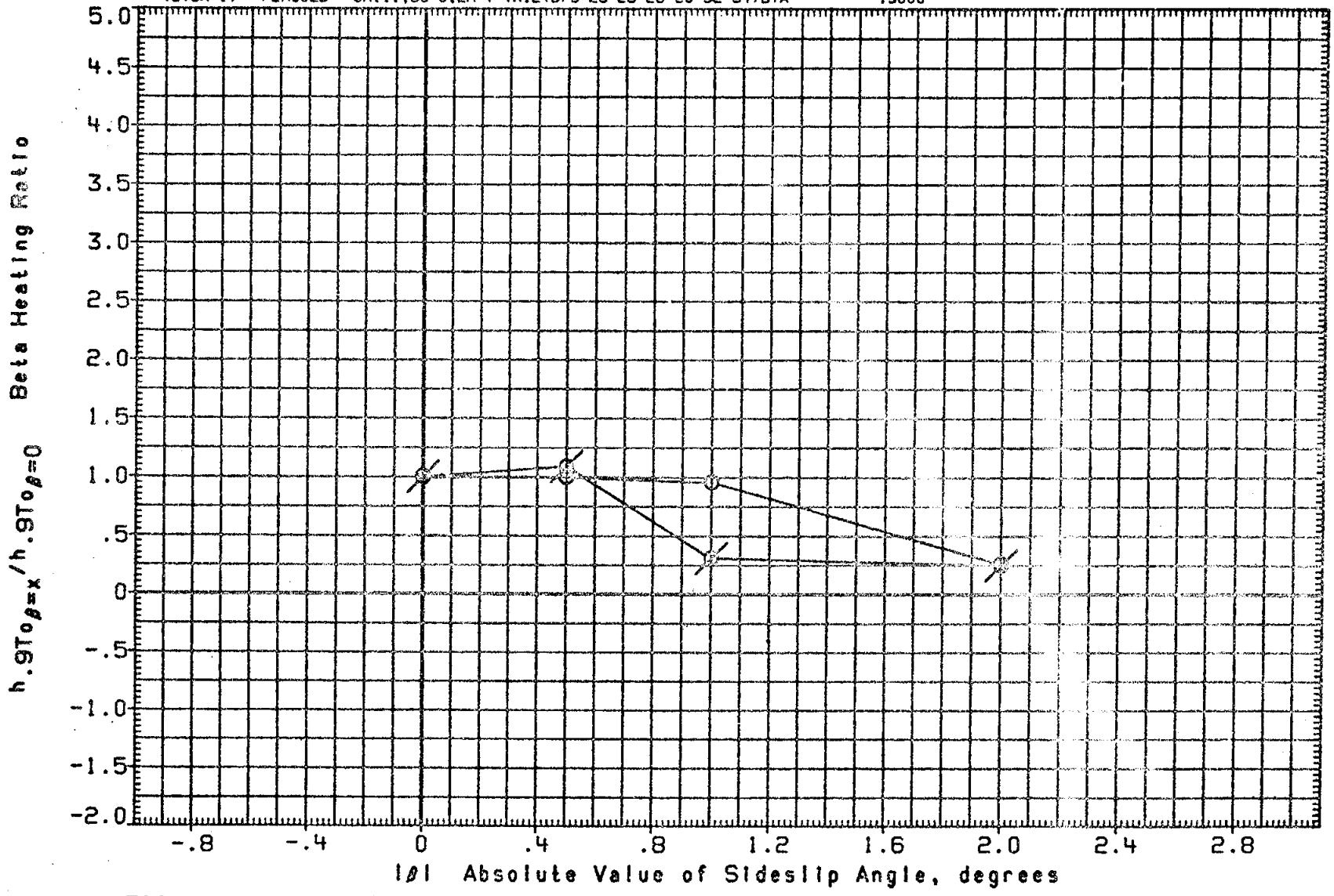
FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
O	361.000	.500	55.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DT6R+1)	OPEN	OH111,60-0,LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DT6R-1)	FLAGGED	OH111,60-0,LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000



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REYNOLDS NUMBER=0.5

DATE 13 JUL 82

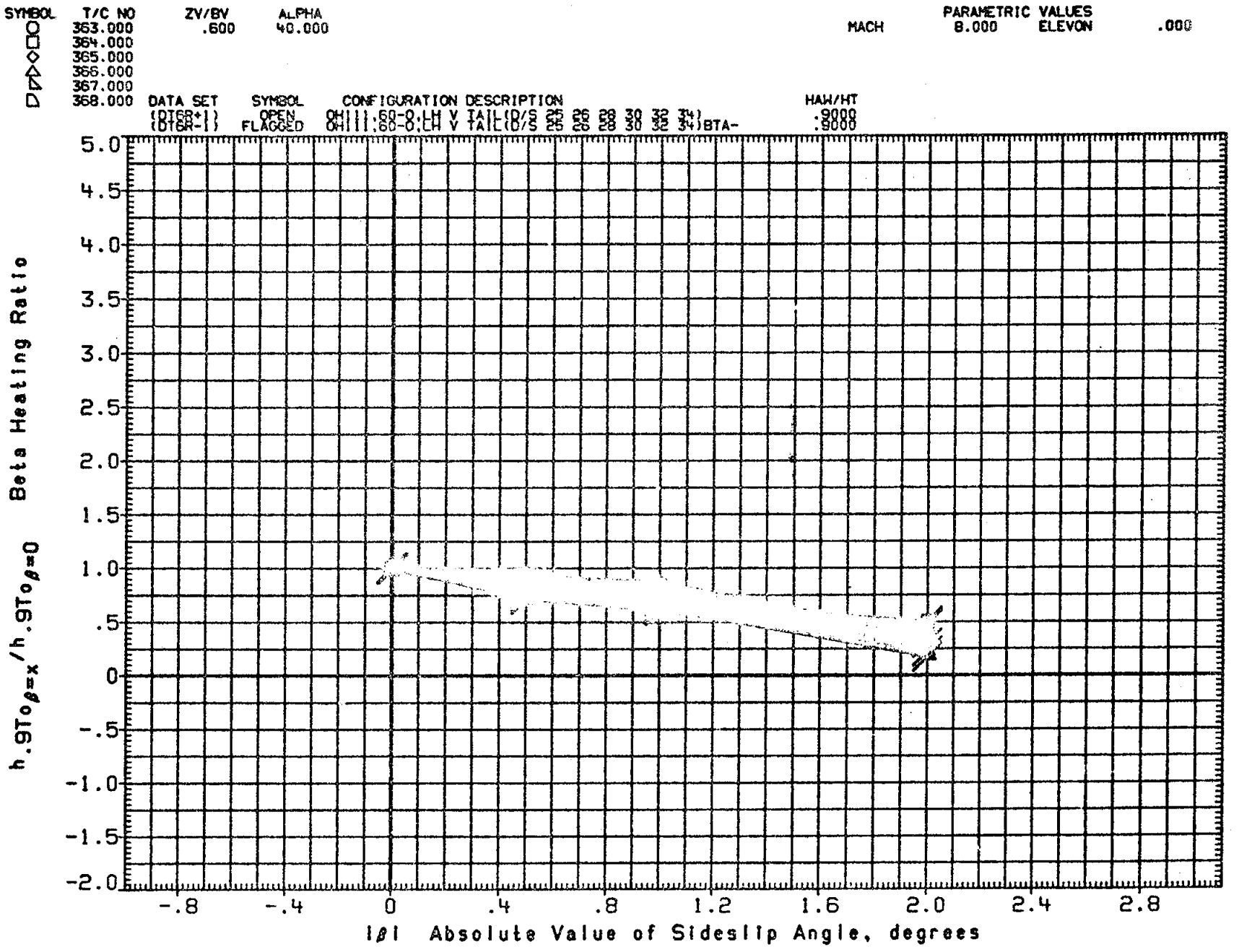


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

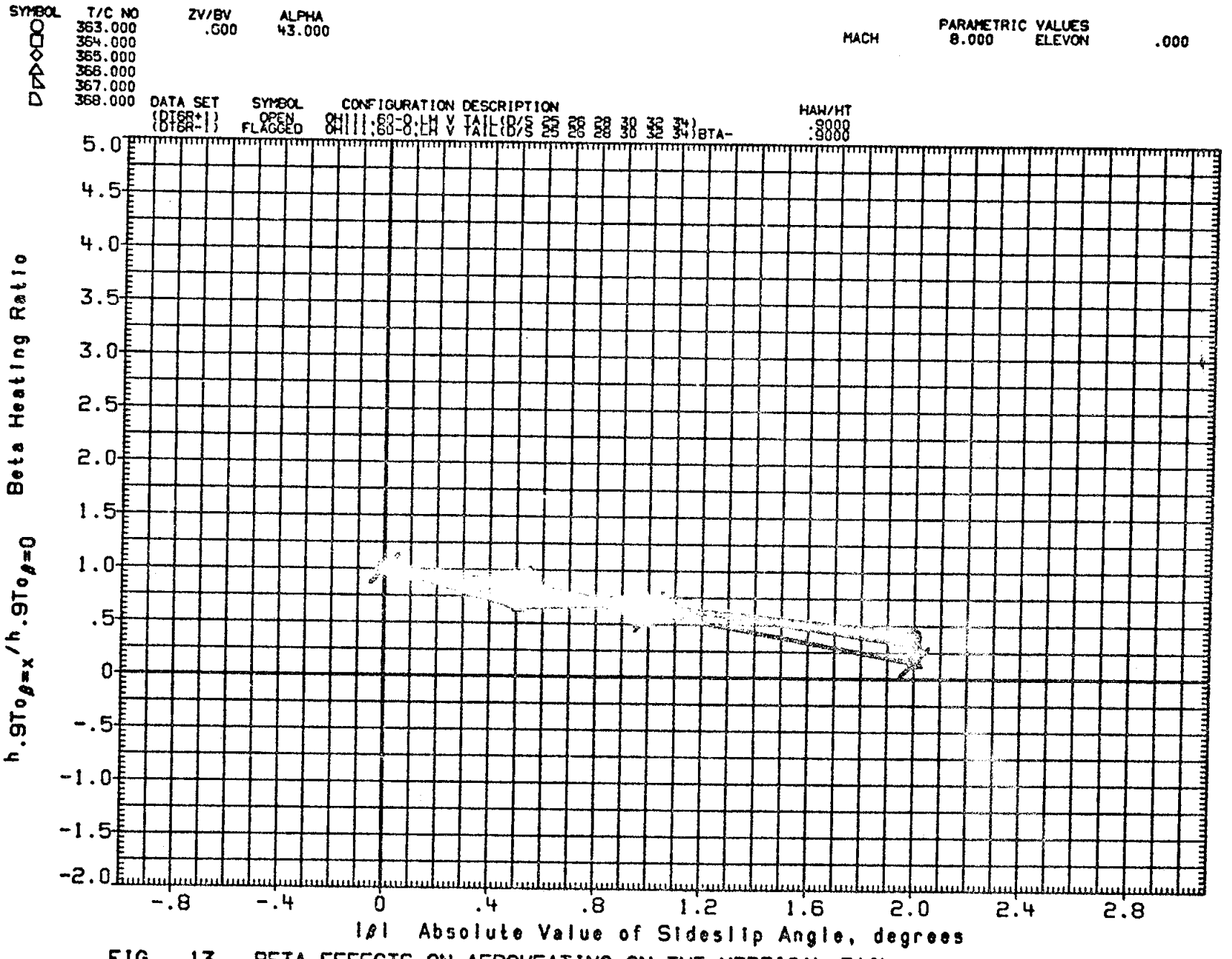


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

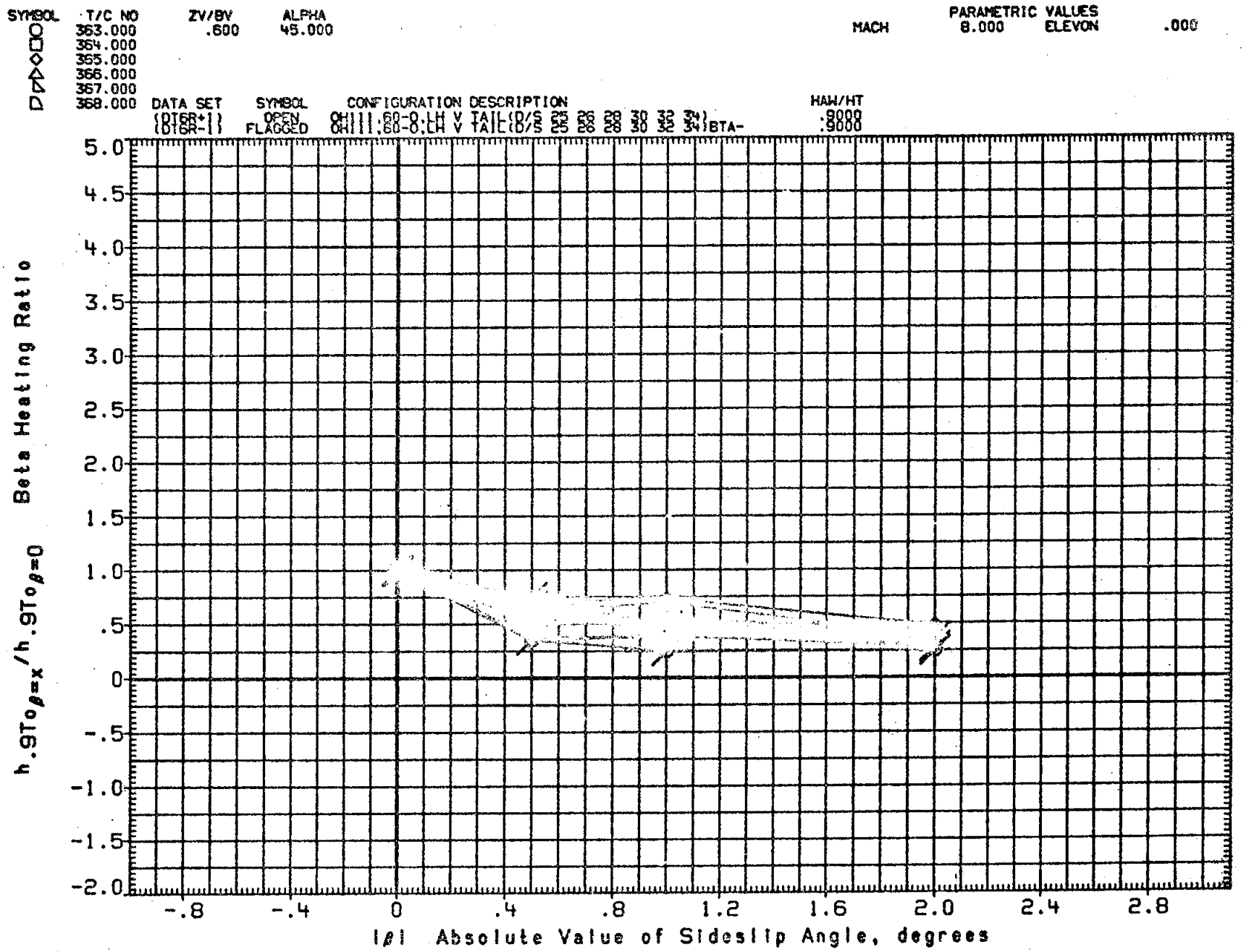
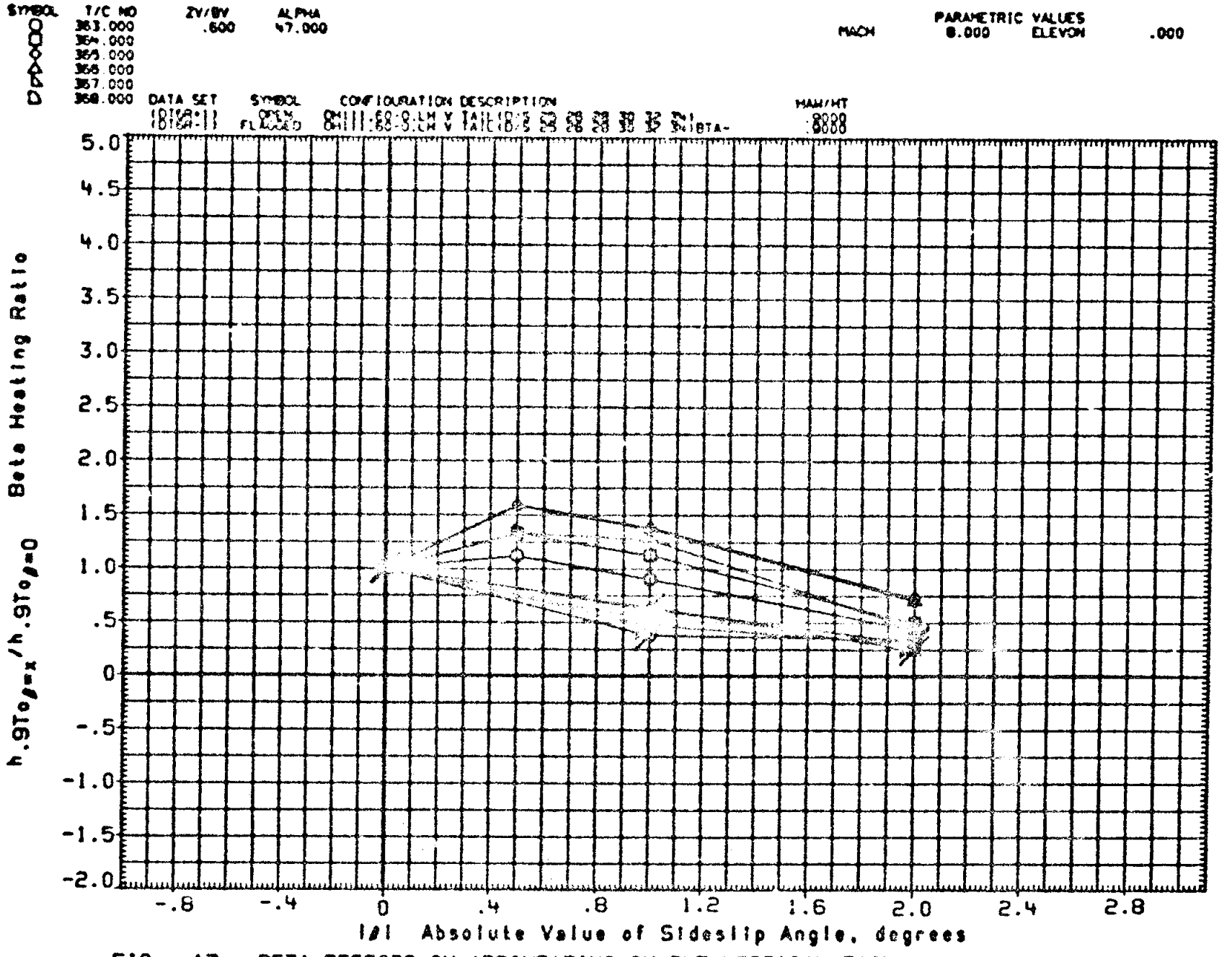


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82



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REYNOLDS NUMBER=0.5

DATE 13 JUL 82

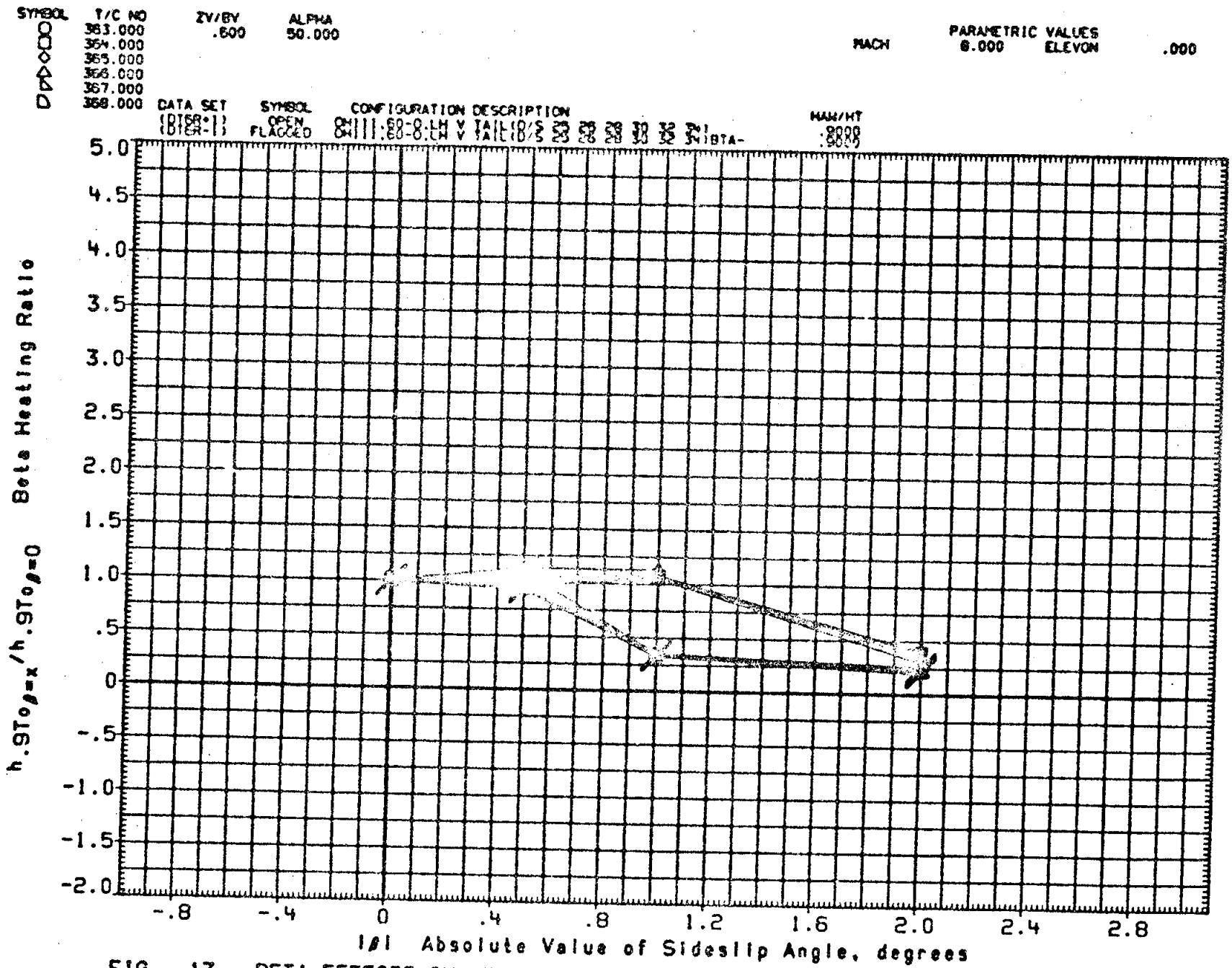


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

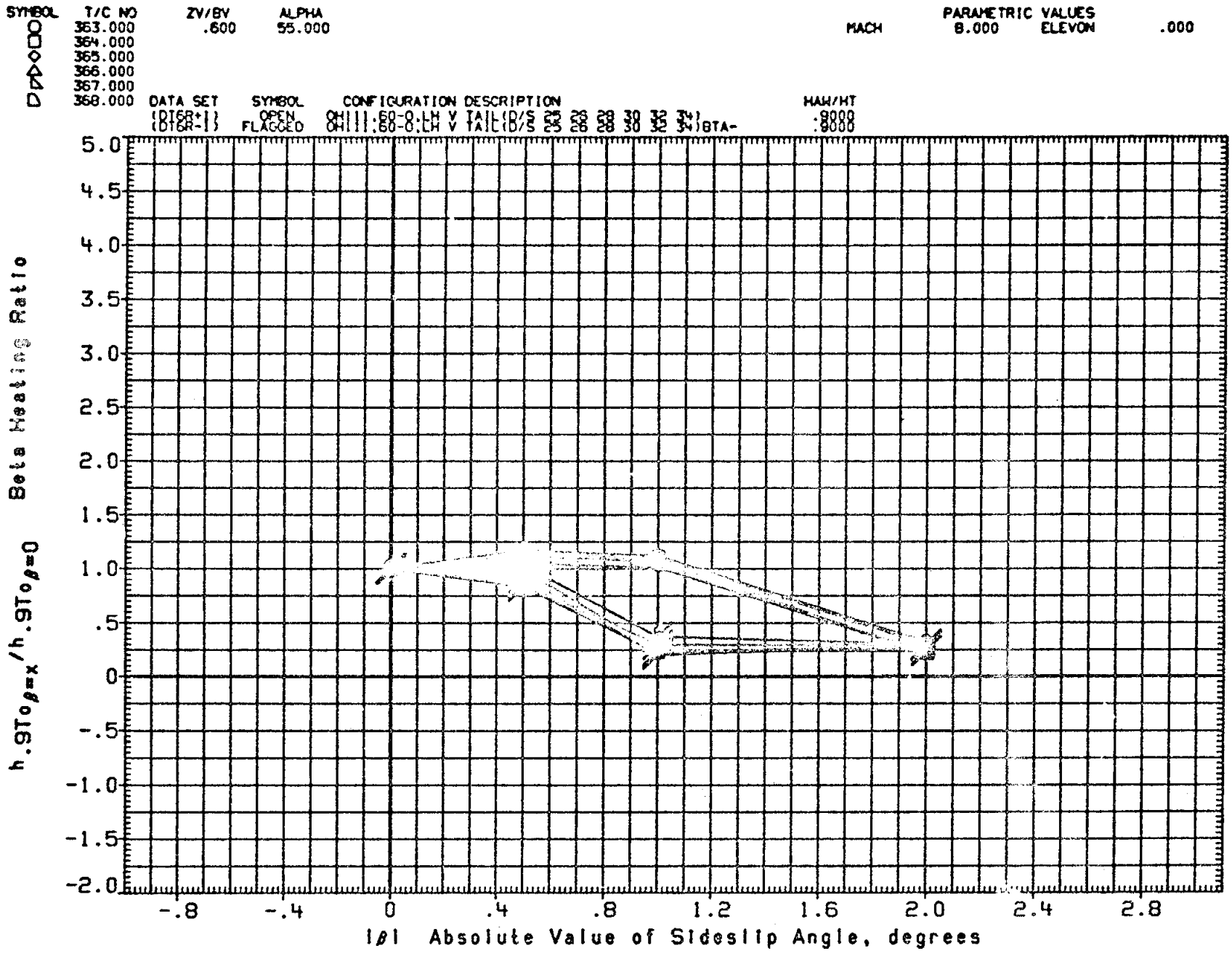


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA		PARAMETRIC VALUES		
O	371.000	.700	40.000	MACH	8.000	ELEVON	.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DT6R+1)	OPEN	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DT6R-1)	FLAGGED	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

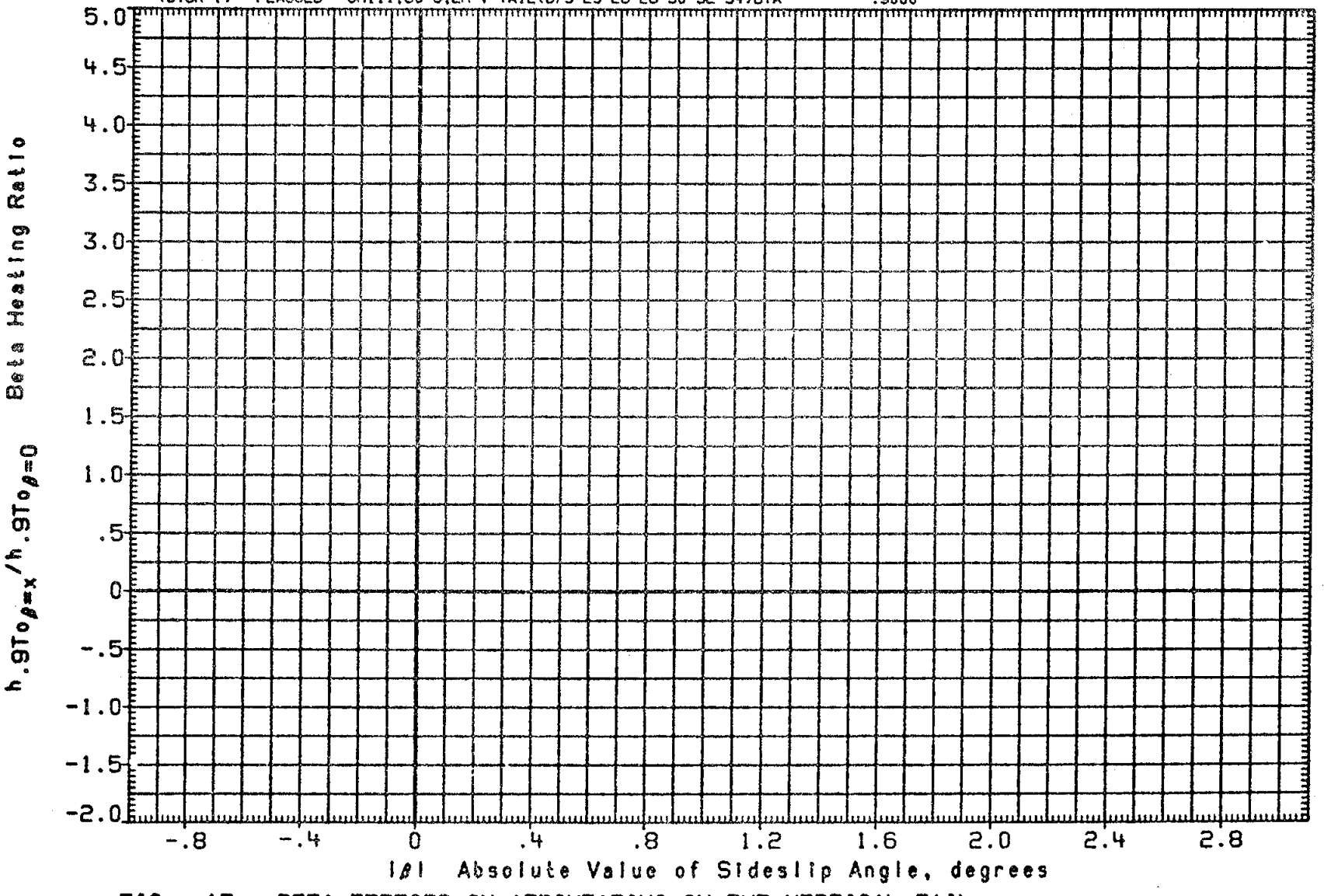


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
O	371.000	.700	43.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAH/HT
(DTGR+1)	OPEN	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DTGR-1)	FLAGGED	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

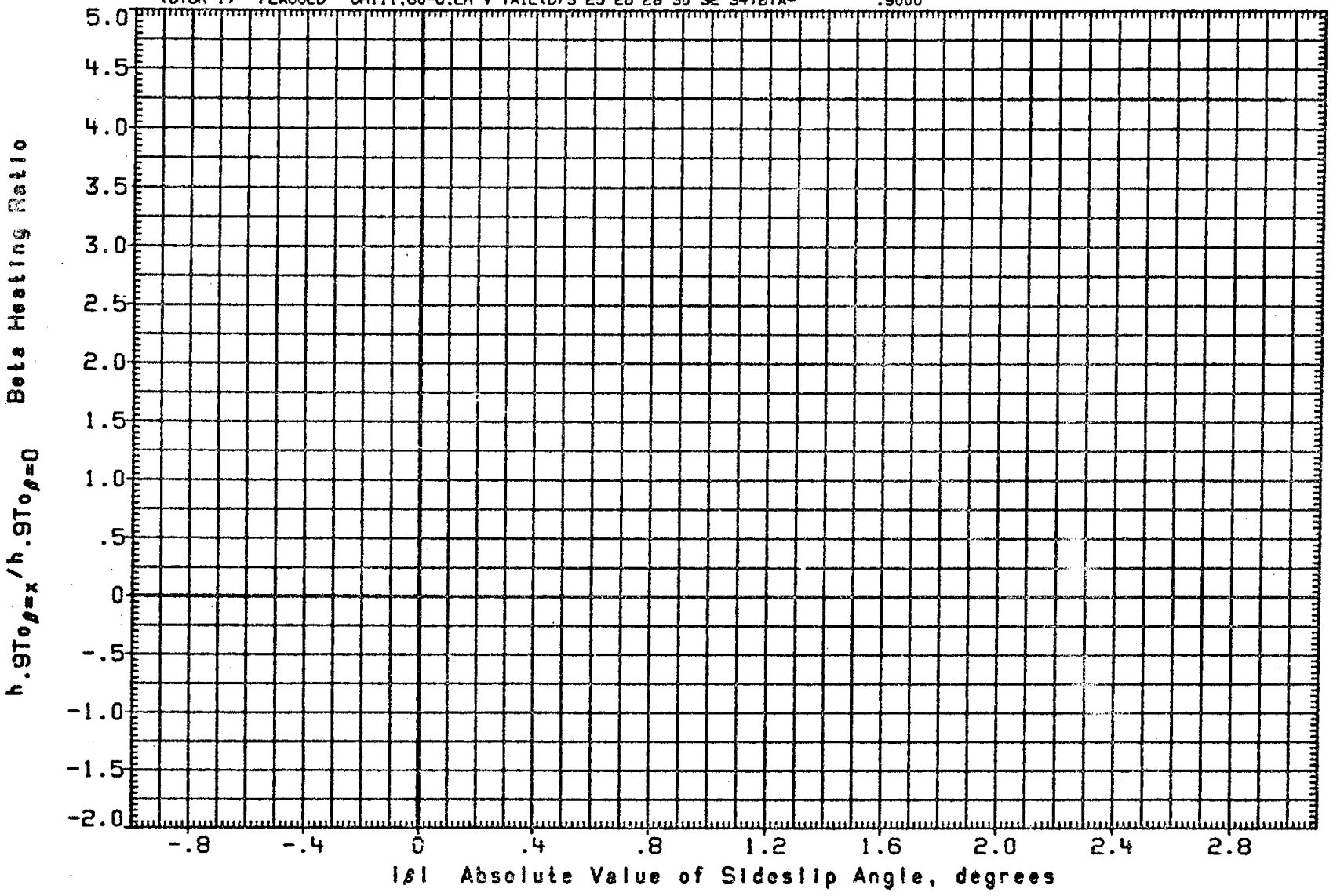


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
O	371.000	.700	45.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DTBR+1)	OPEN	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DTBR-1)	FLAGGED	OH111.60-0.LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

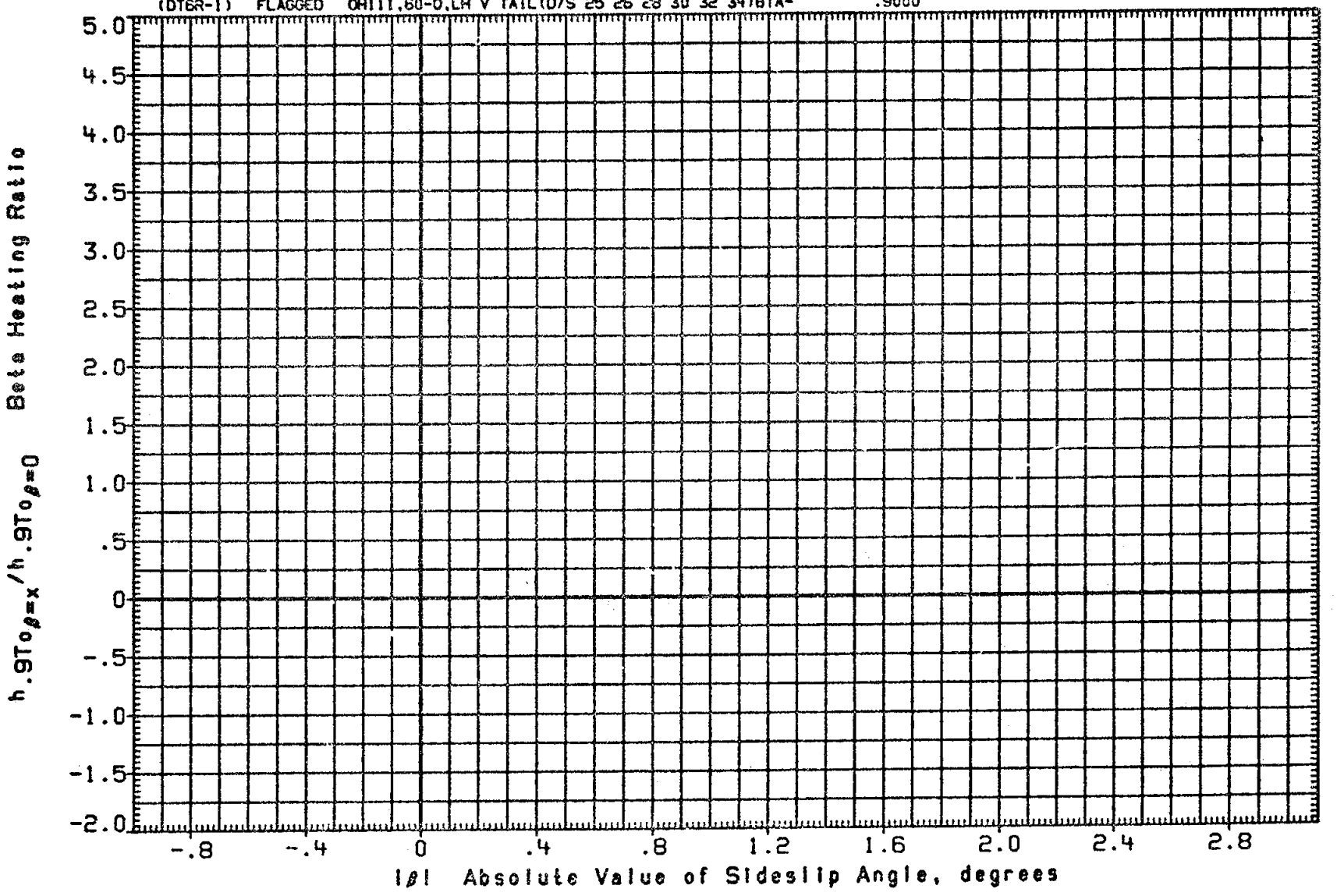


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
O	371.000	.700	47.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DT6R+1)	OPEN	OH111.60-0;LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DT6R-1)	FLAGGED	OH111.60-8;LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

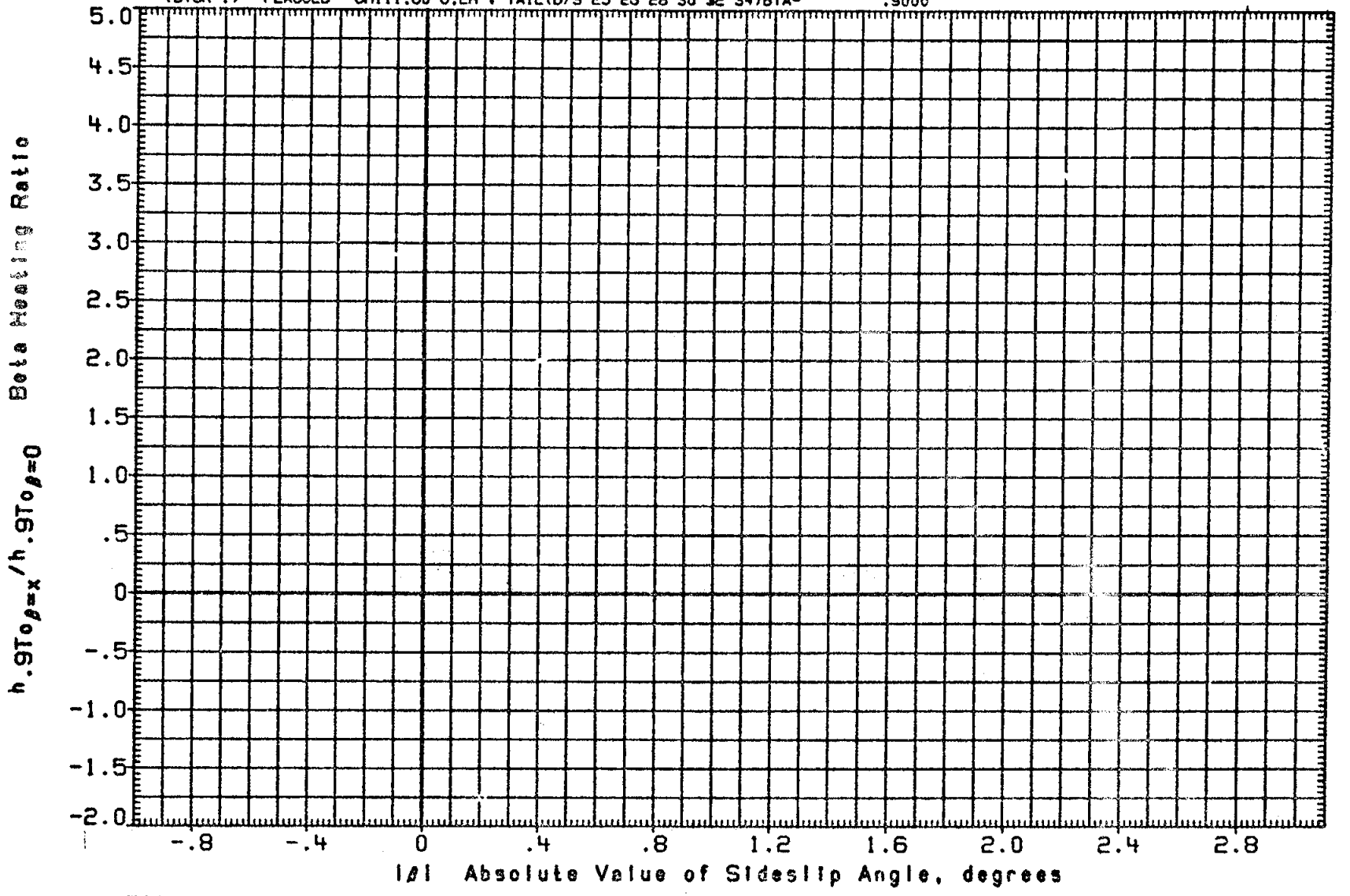


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BY	ALPHA
O	371.000	.700	50.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DTGR+1)	OPEN	OH111:60-0:LH V TAIL(D/S 24 26 28 30 32 34)	.9000
(DTGR-1)	FLAGGED	OH111:60-0:LH V TAIL(D/S 25 26 28 30 32 34)BTA-	.9000

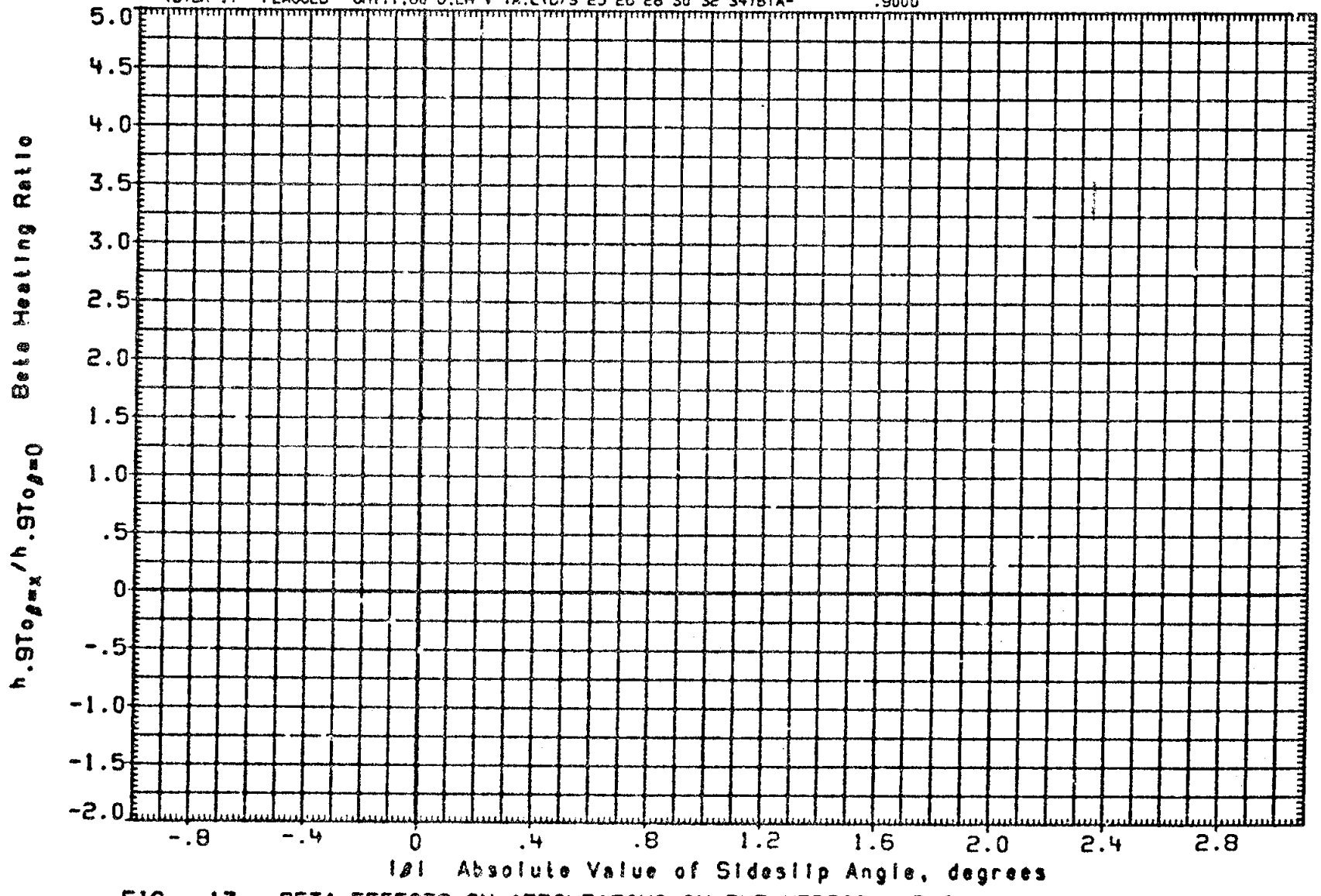


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

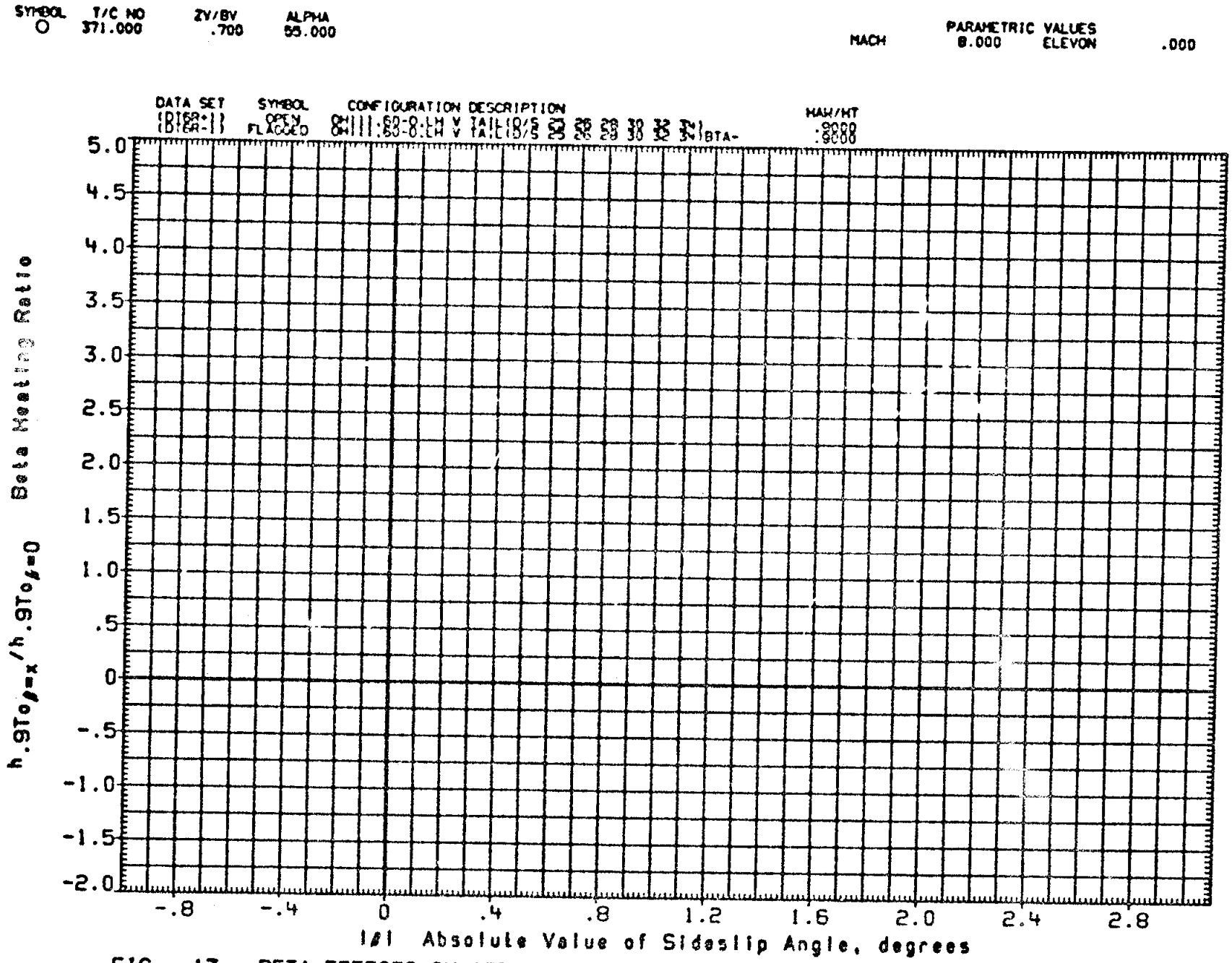


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

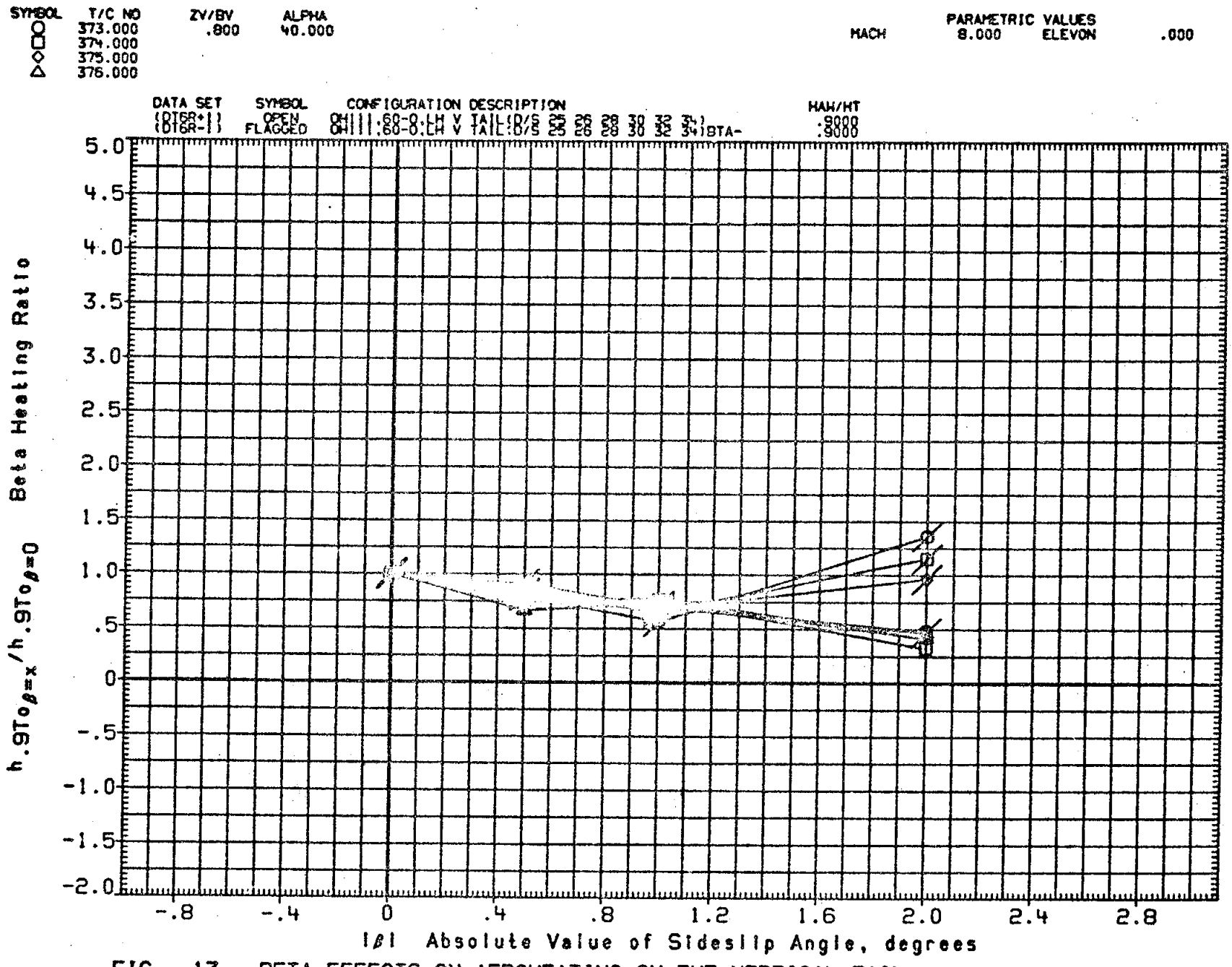


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

SYMBOL	T/C NO	ZV/BV	ALPHA
○	373.000	.800	43.000
□	374.000		
◇	375.000		
△	376.000		

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(DTGR+1)	OPEN	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)	.9000
(DTGR-1)	FLAGGED	OH111;60-0;LH V TAIL(D/S 25 26 28 30 32 34)DTA-	.9000

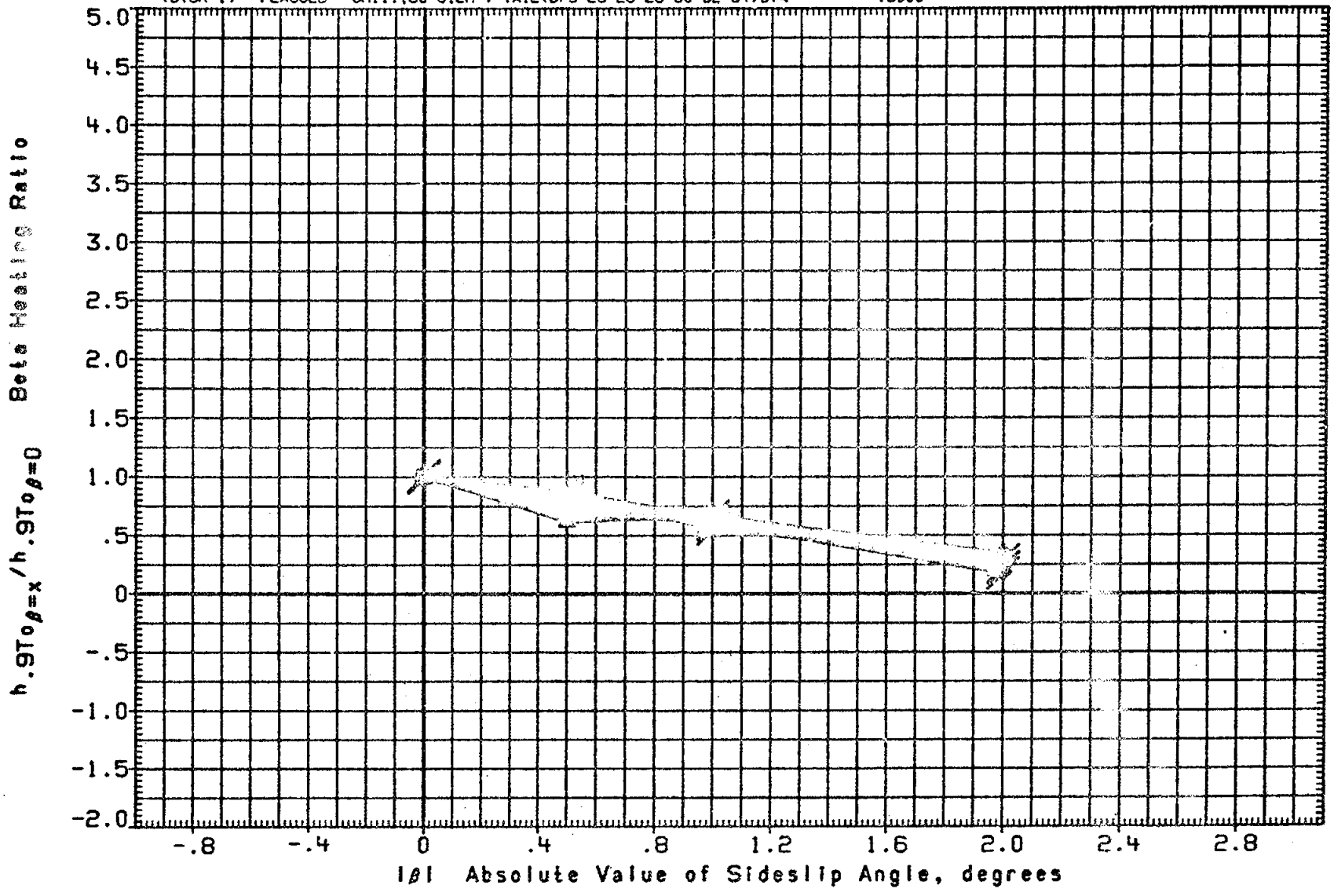


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

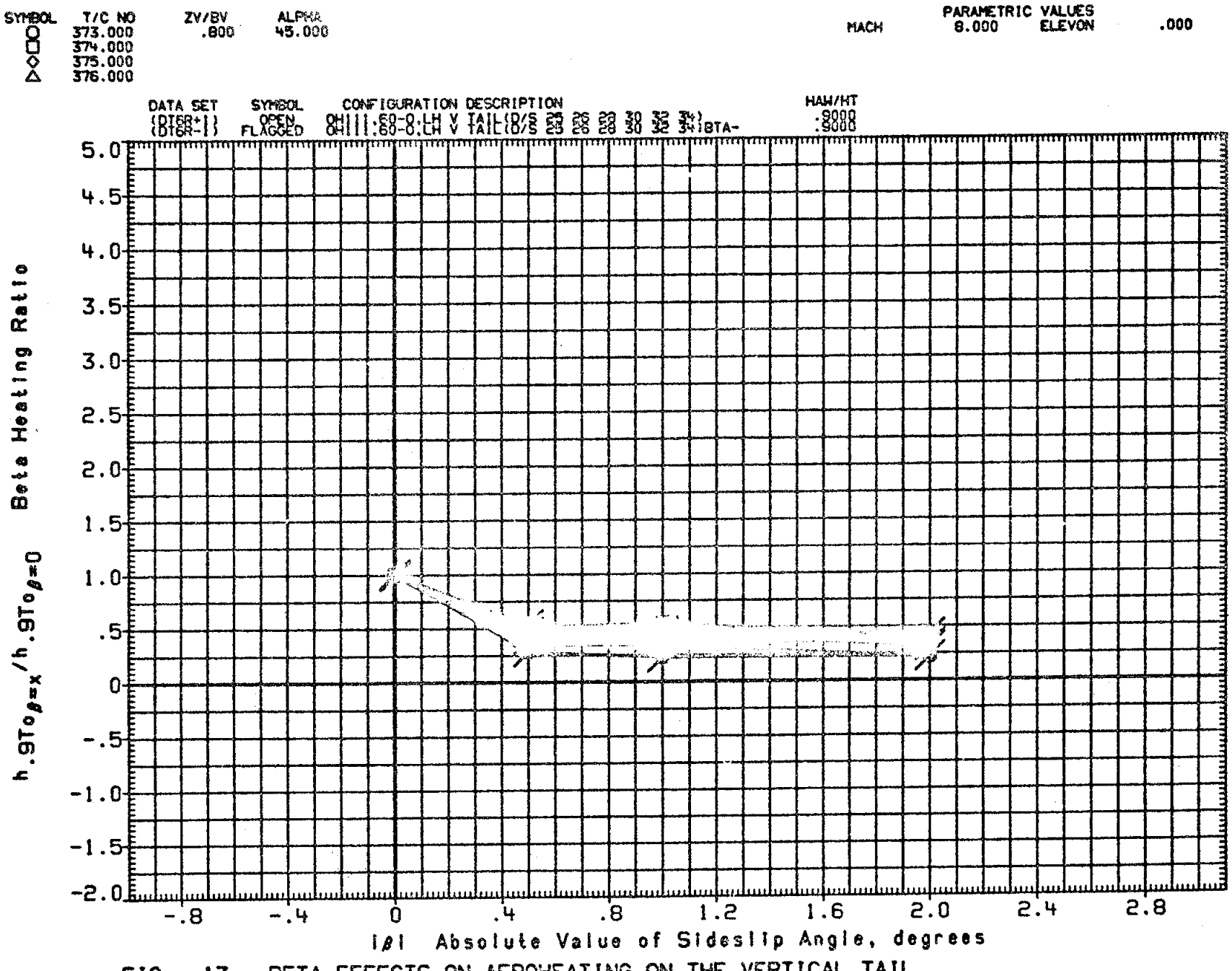


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

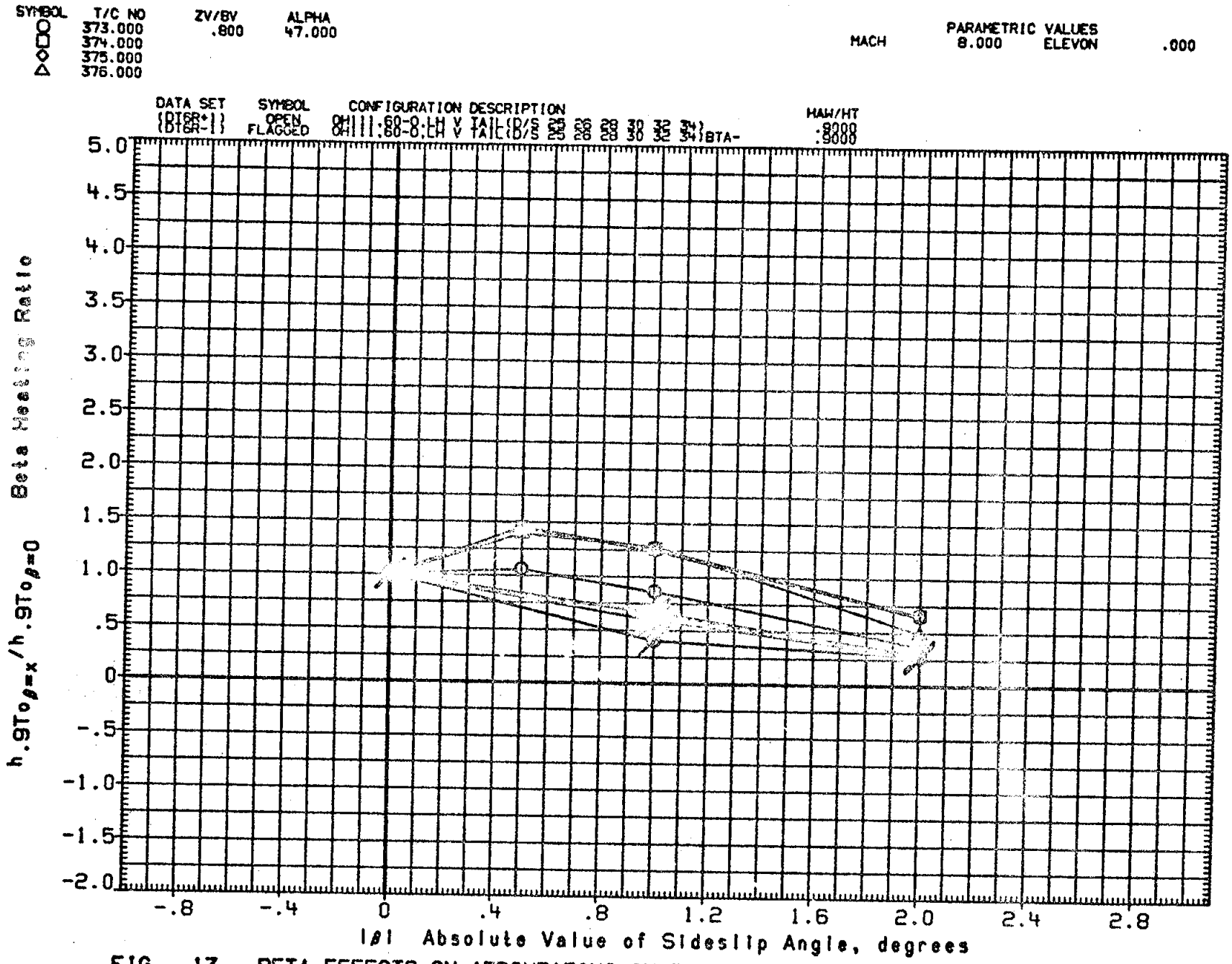


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

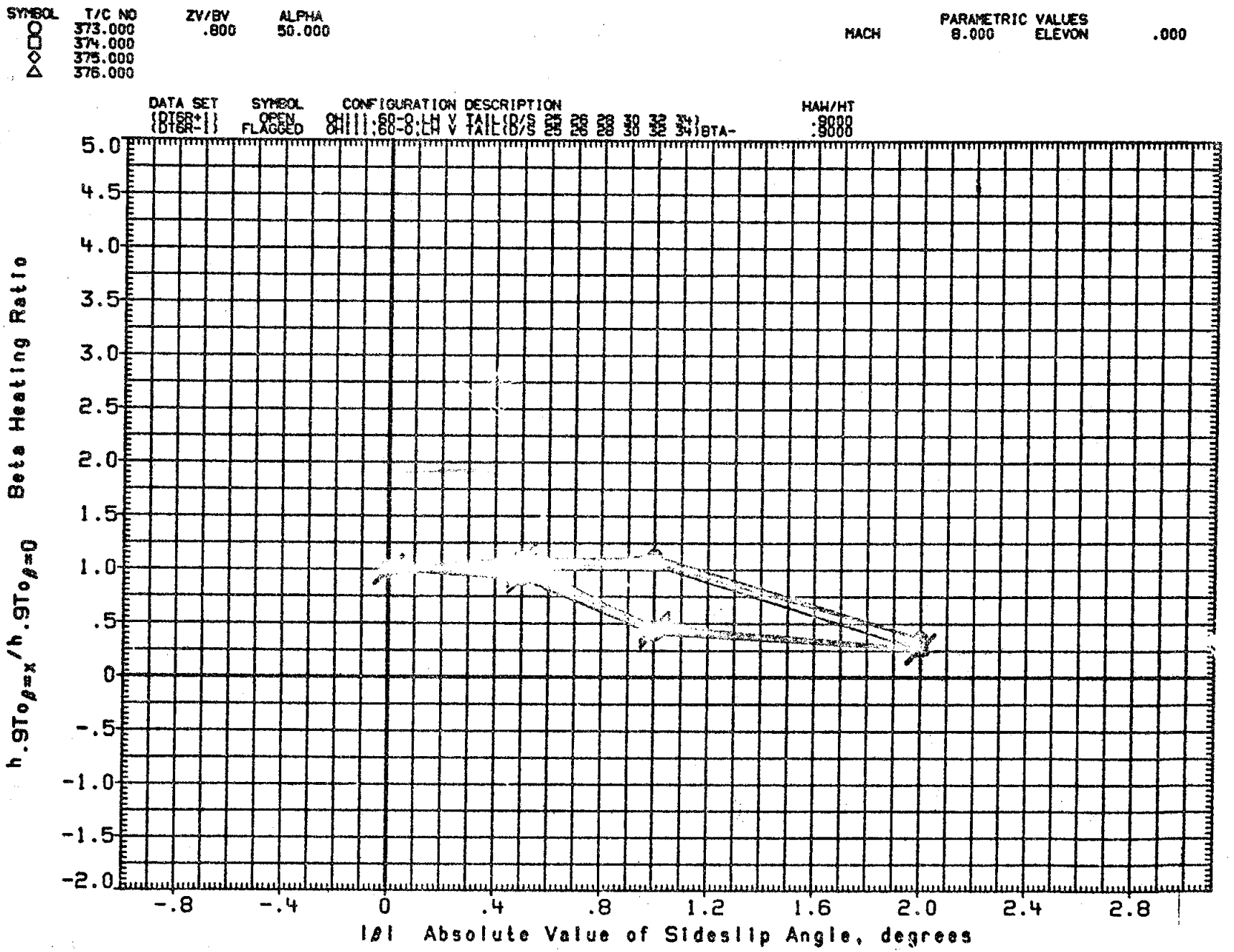


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

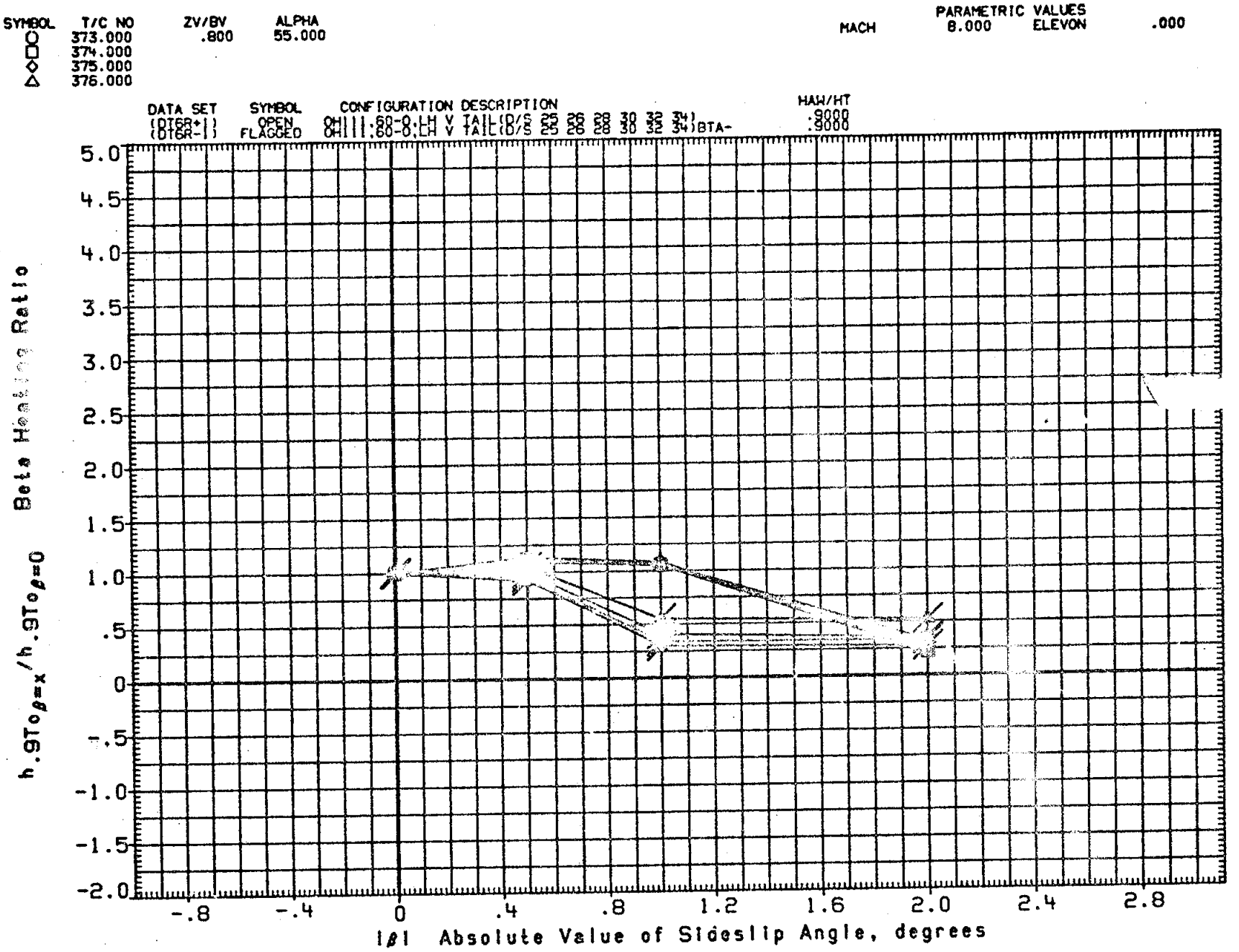


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

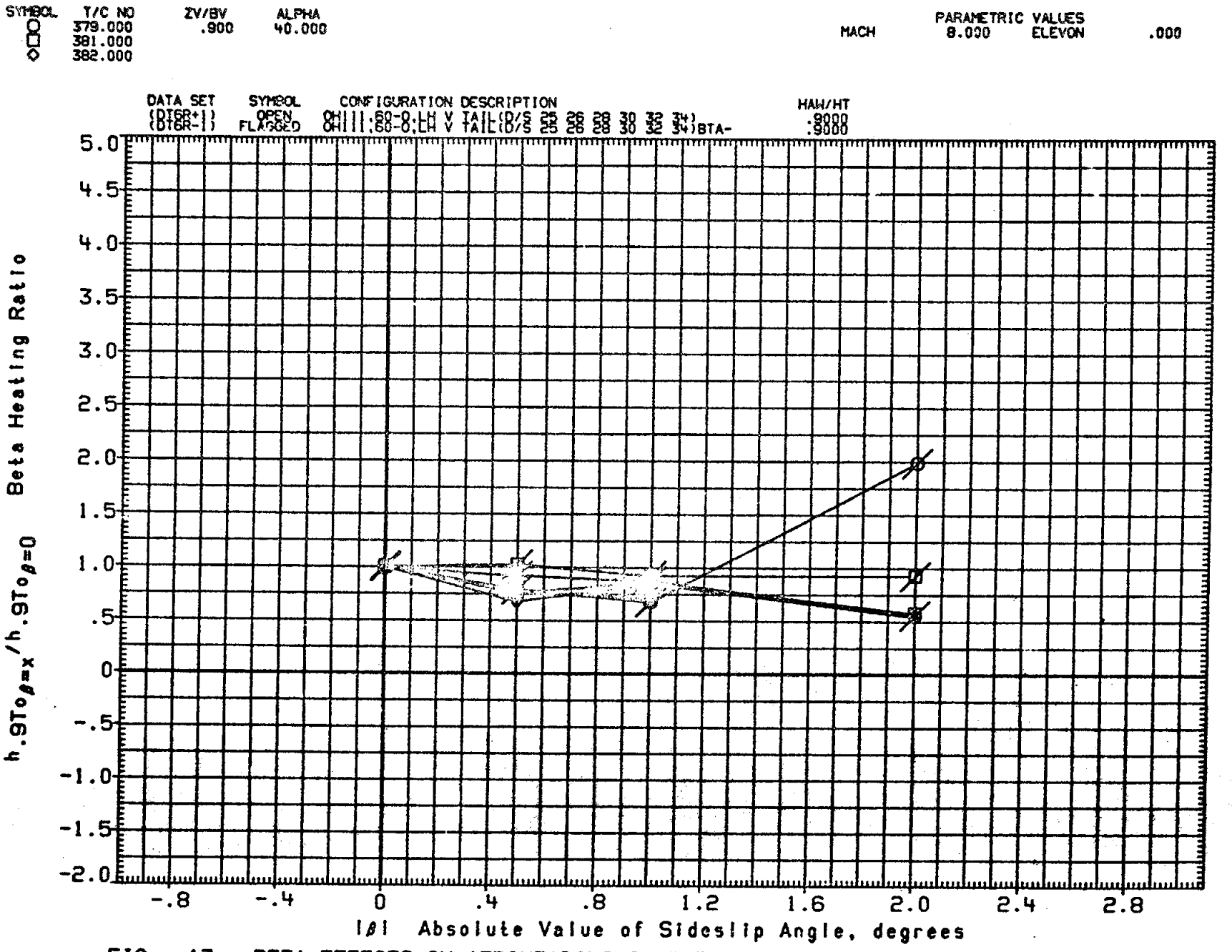


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

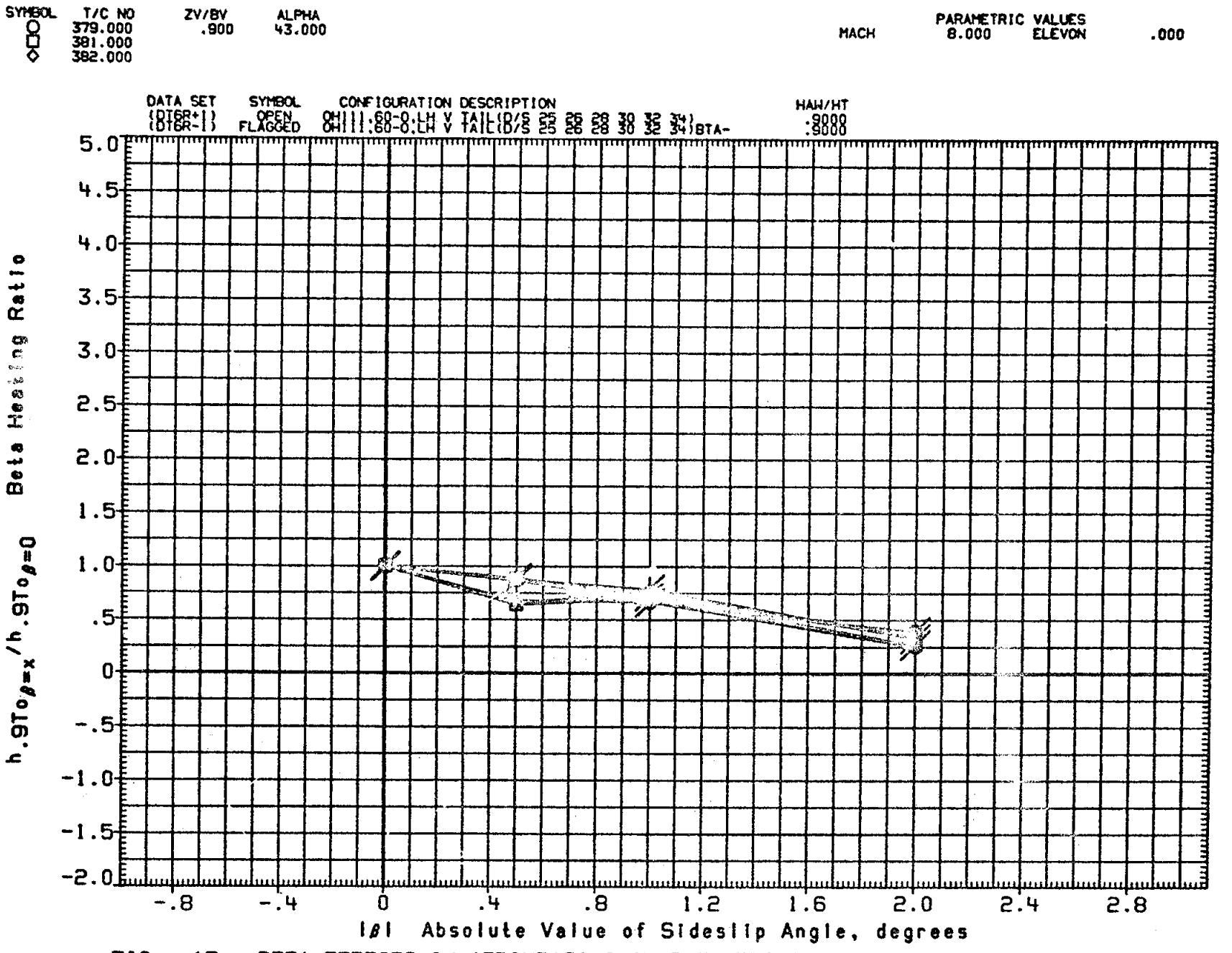


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

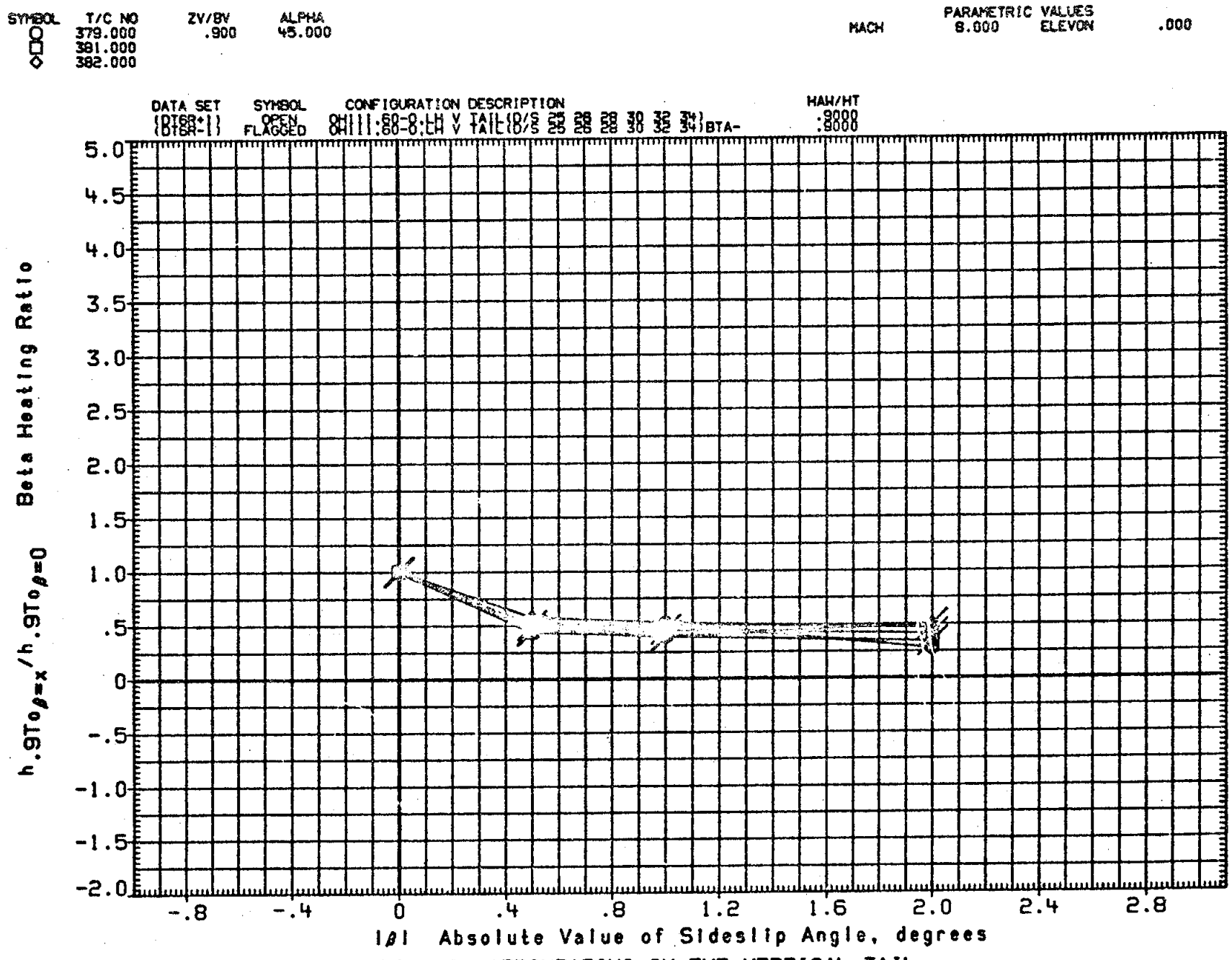


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

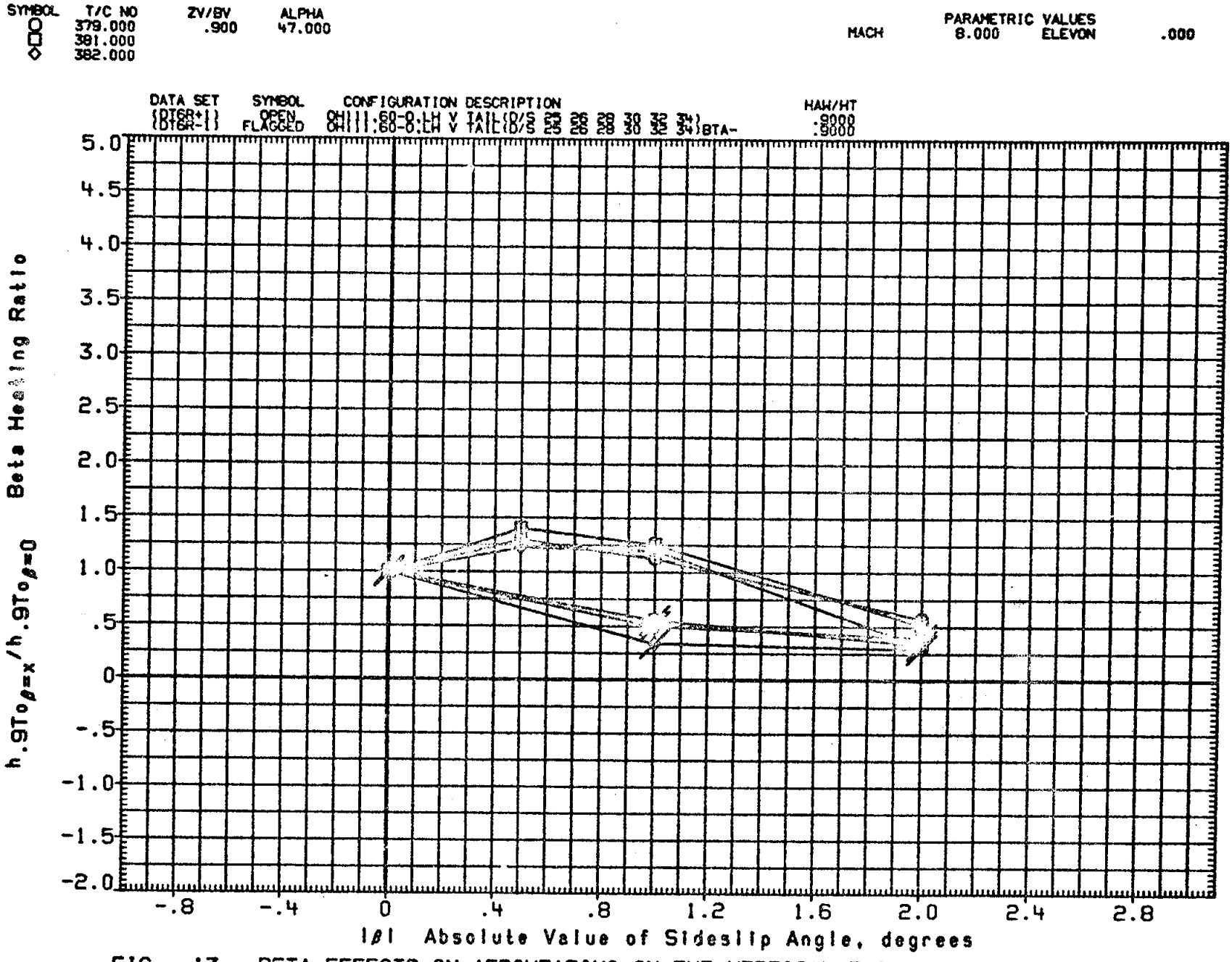


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

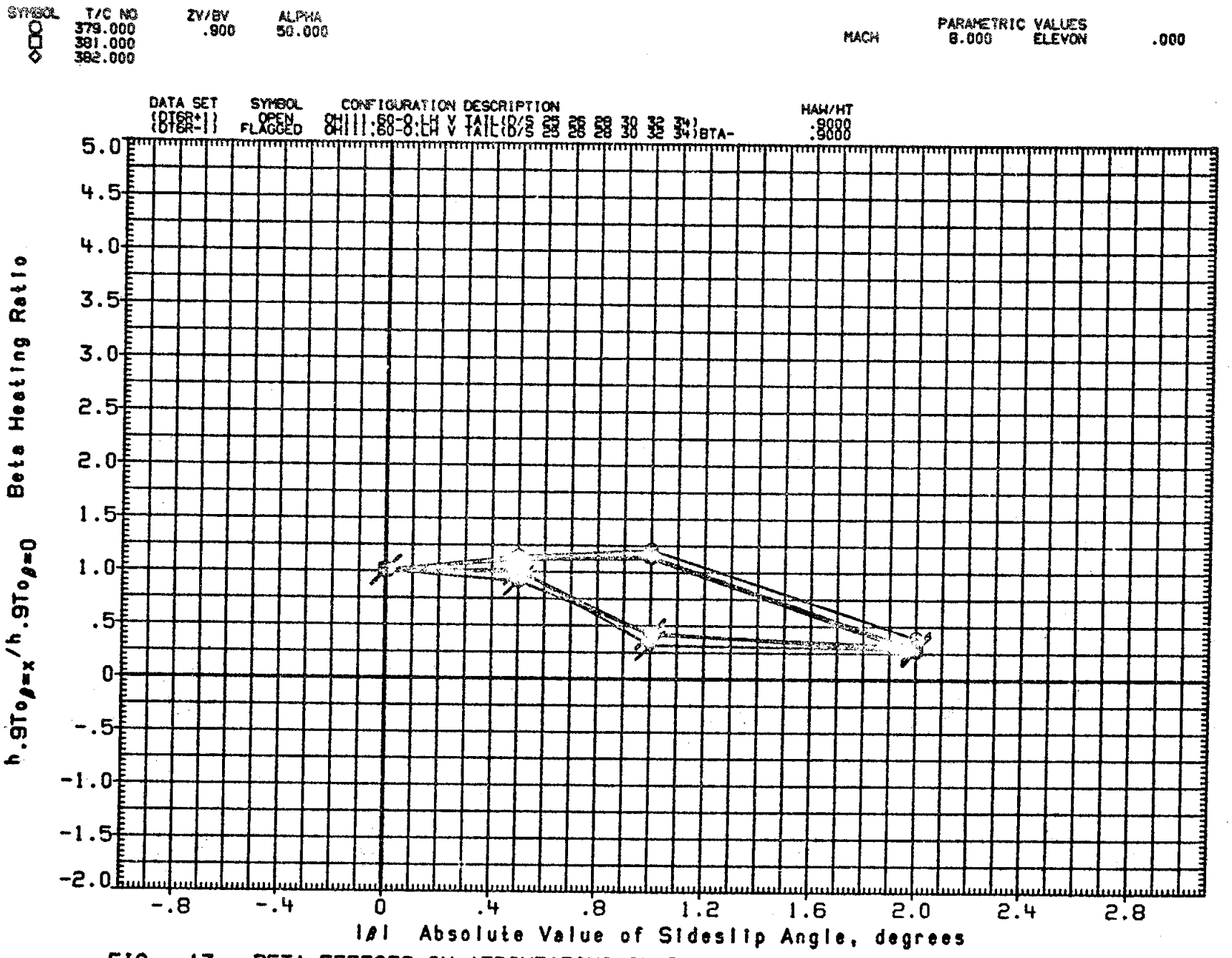


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

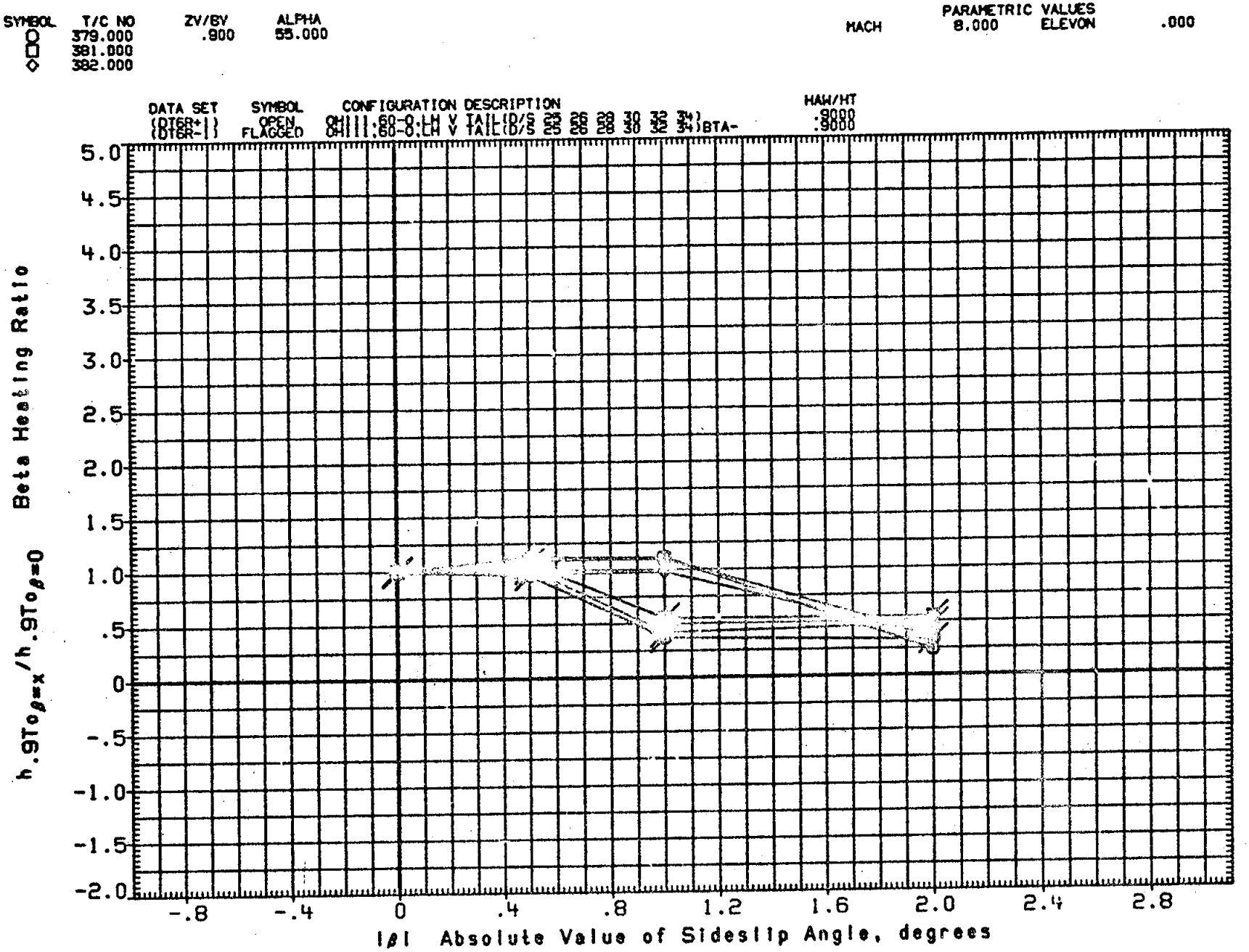


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

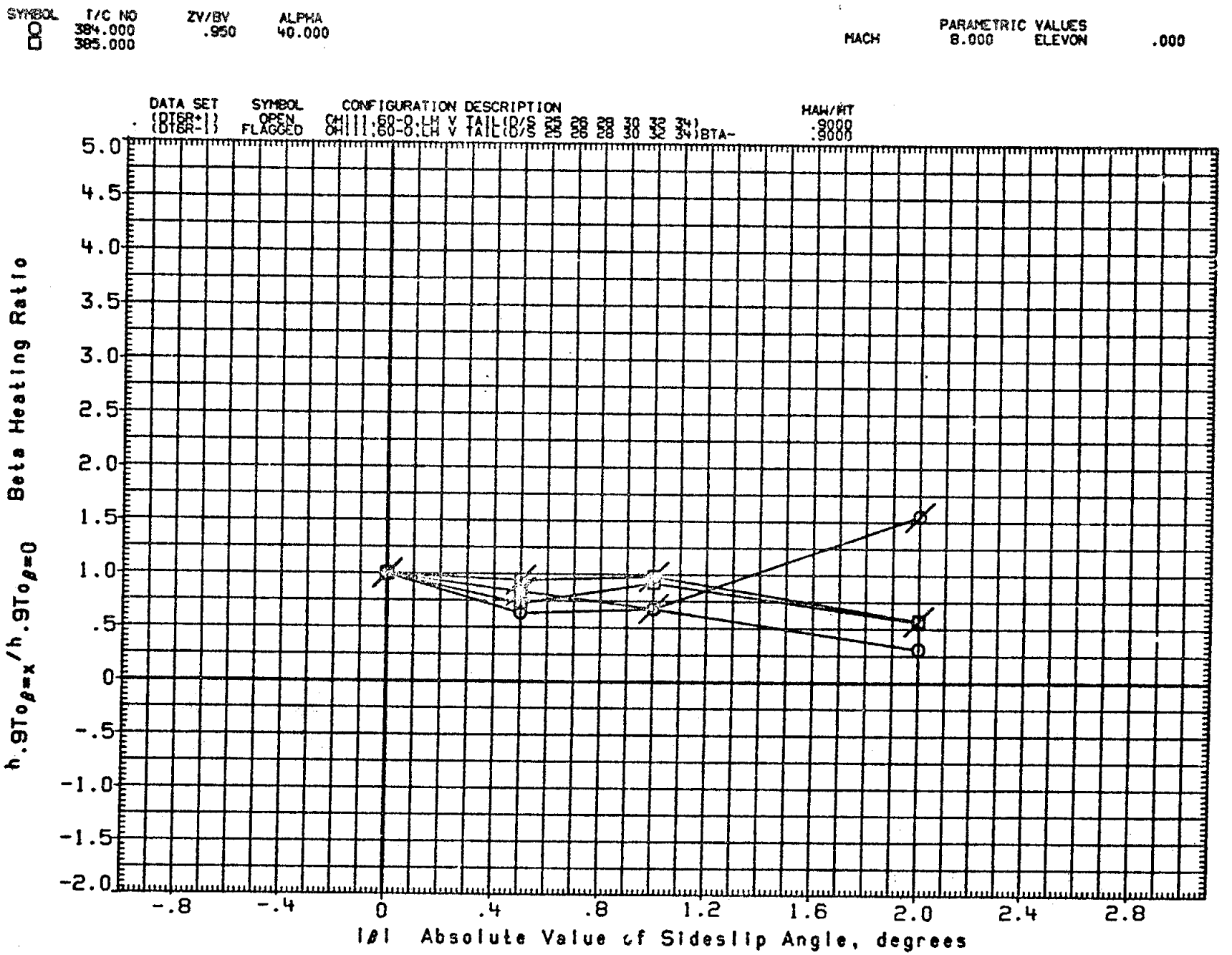


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

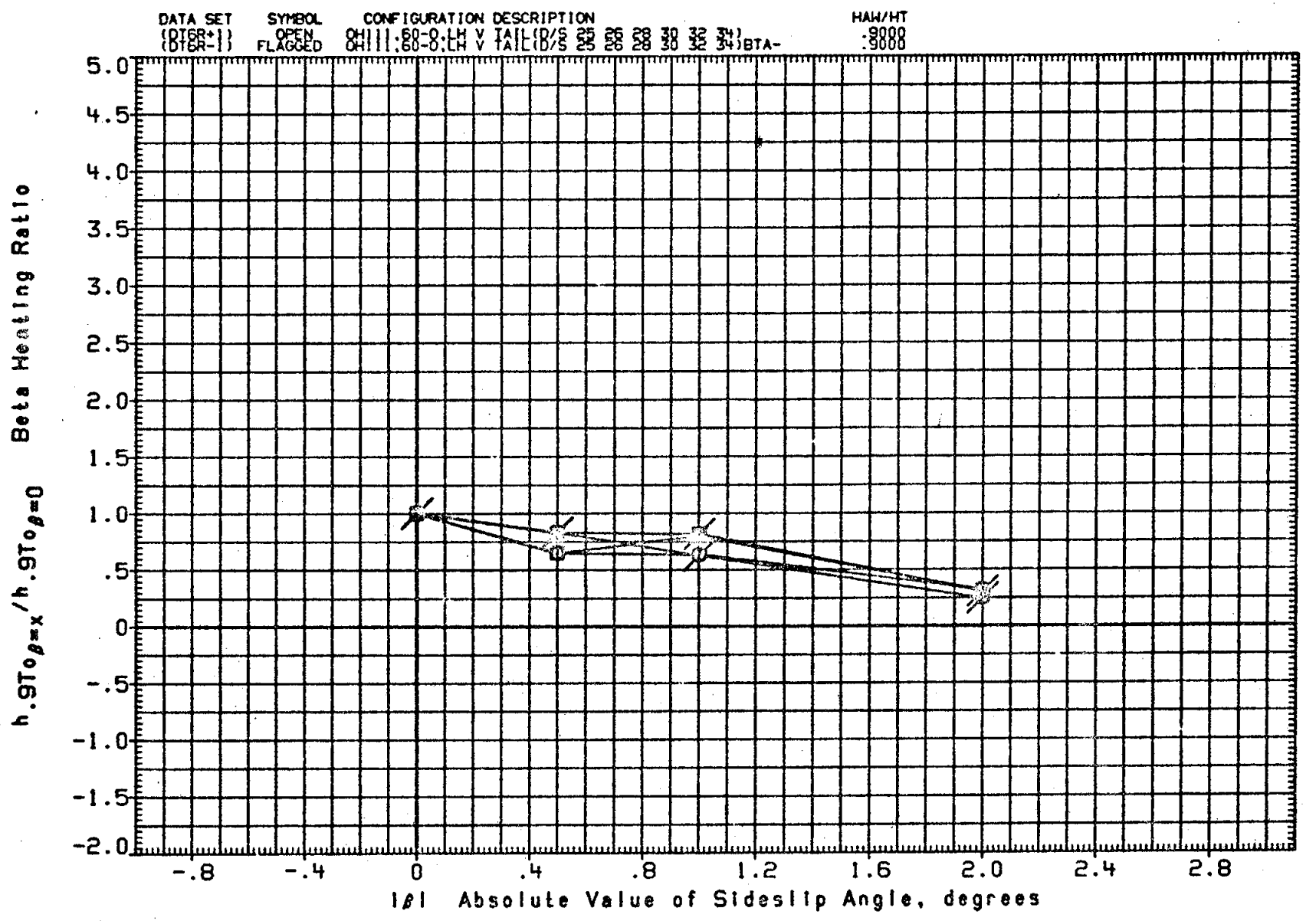


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

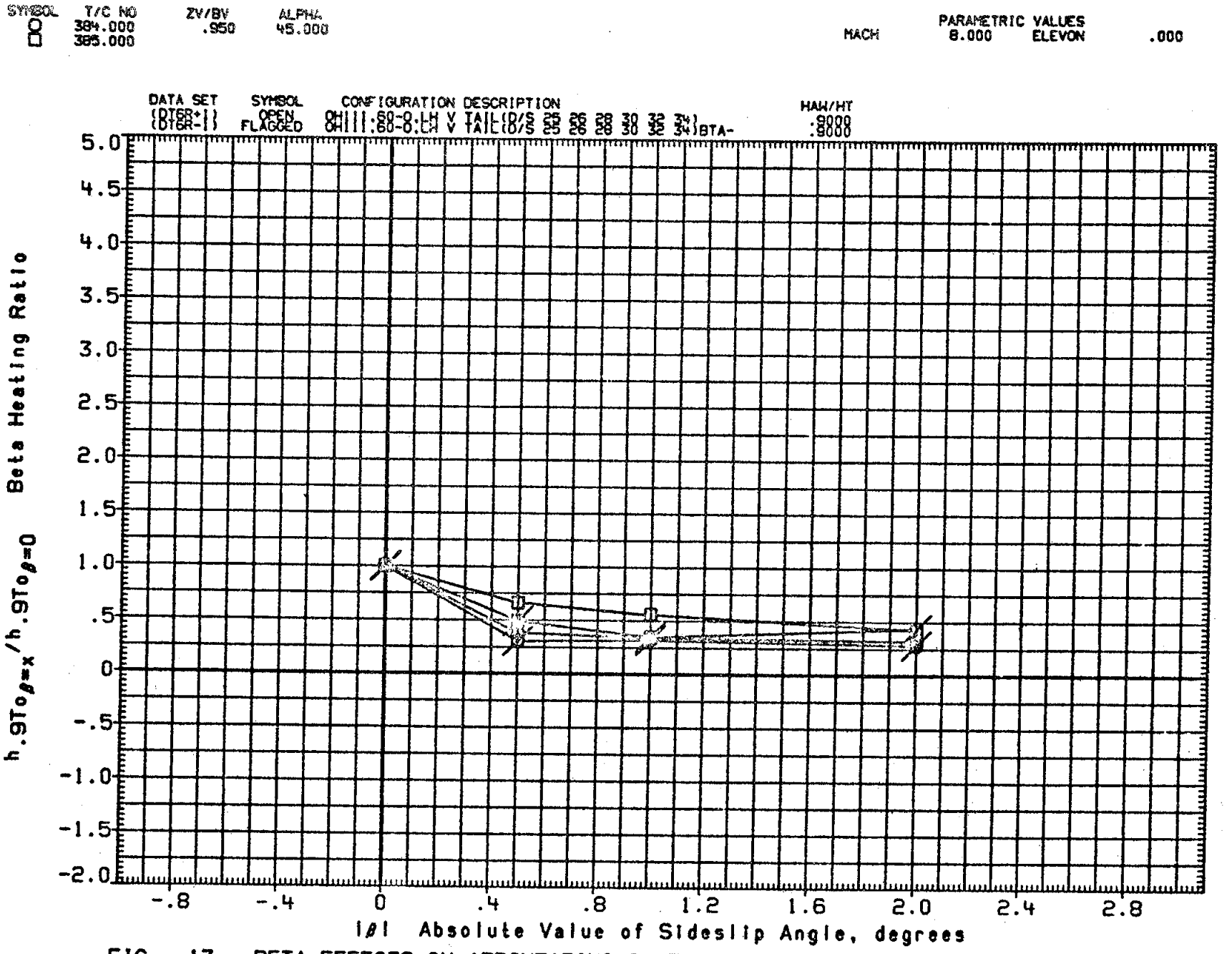


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

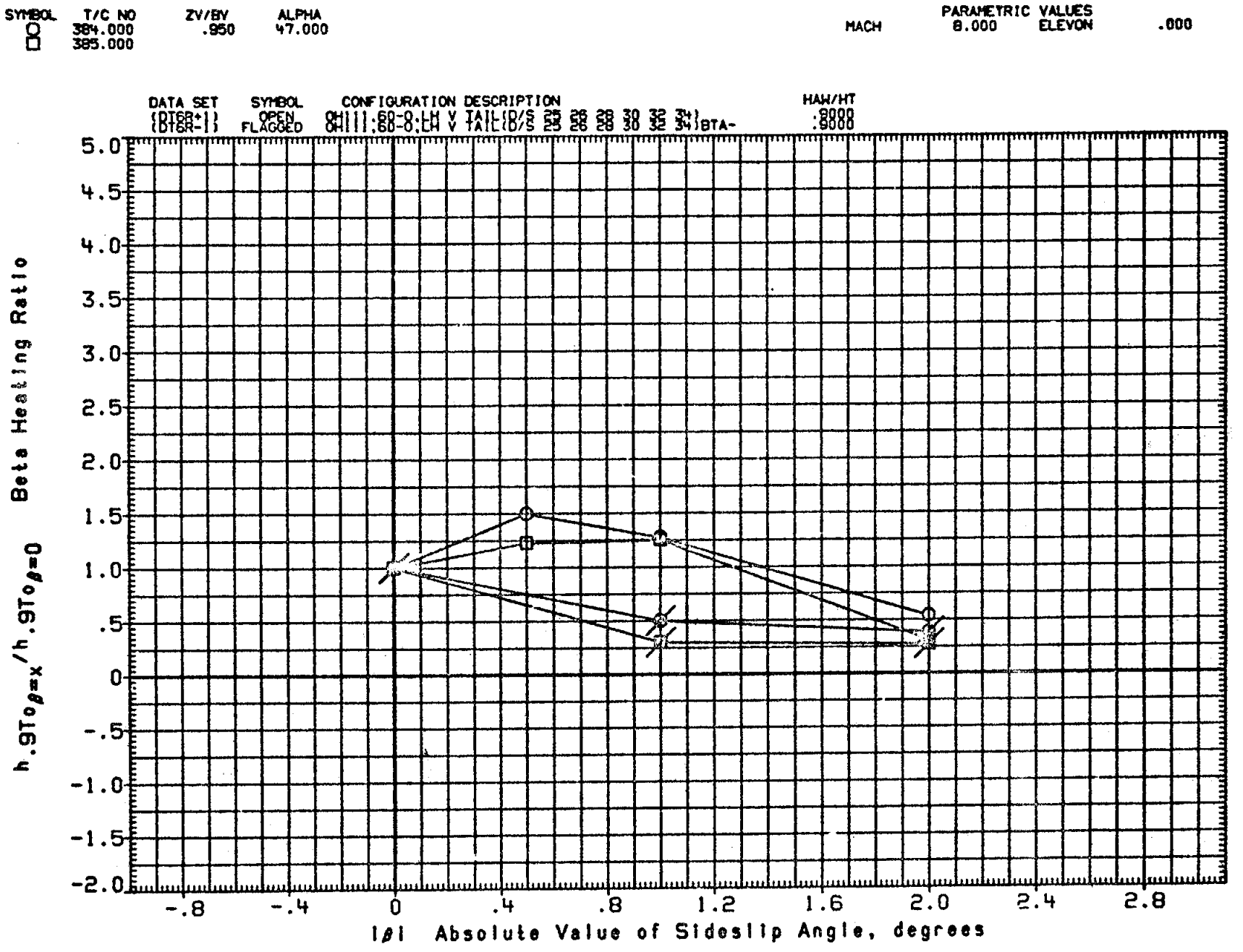


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

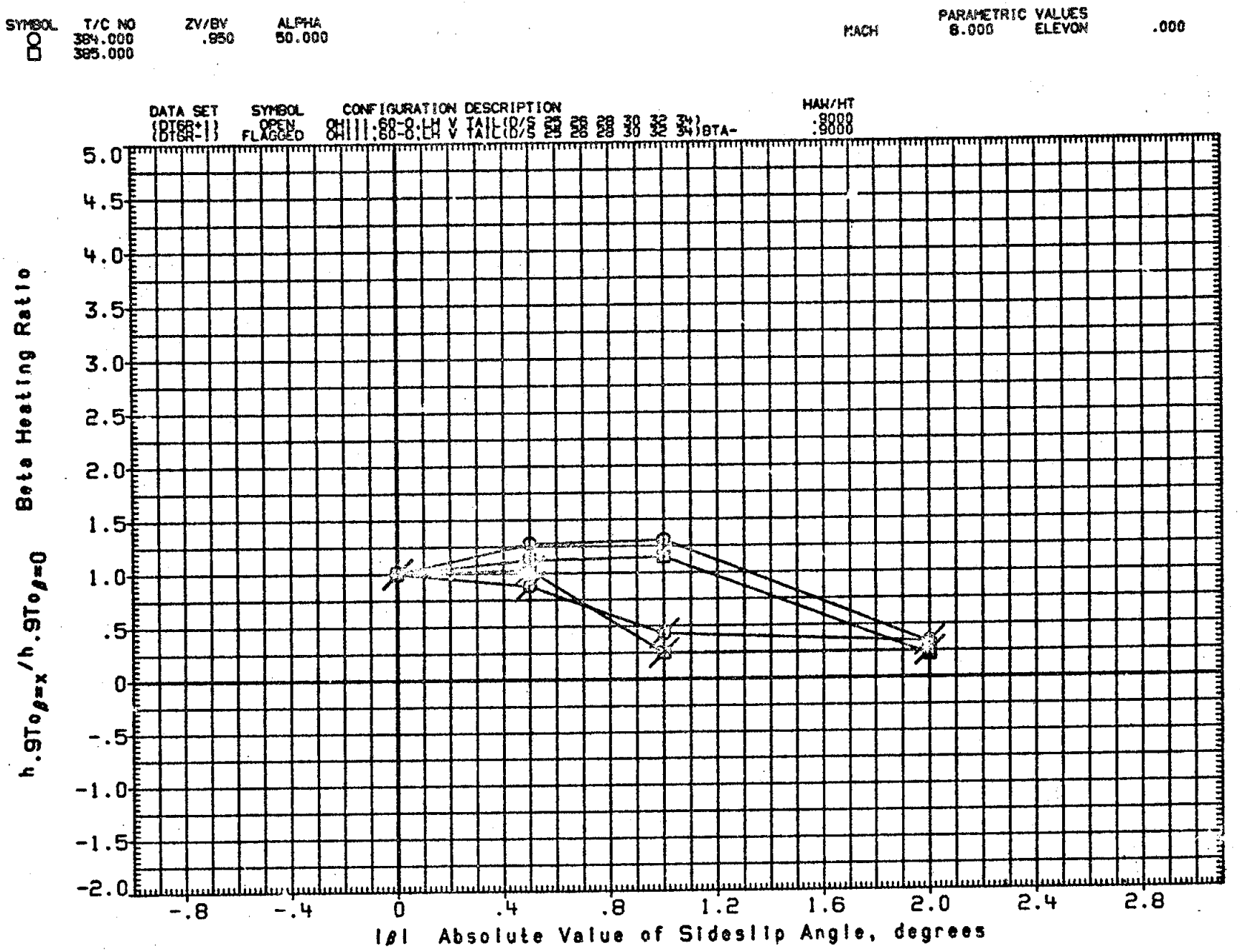


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

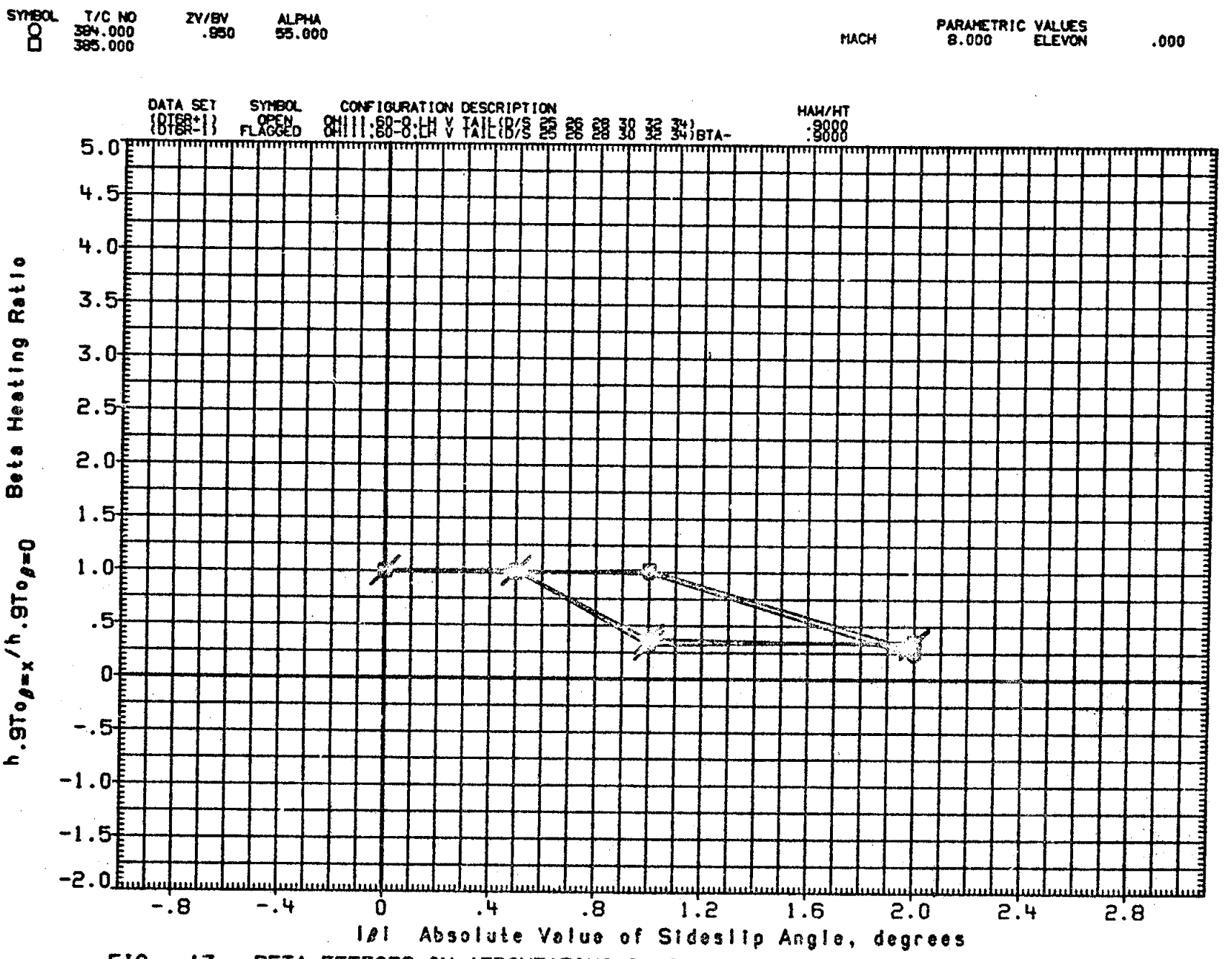


FIG. 13 BETA EFFECTS ON AEROHEATING ON THE VERTICAL TAIL
REYNOLDS NUMBER=0.5

DATE 13 JUL 82

(ST6B01) OH111, MODEL 56-0, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	-1.985	355.000	.900
□	-.989		
◇	-.498		
△	-.001		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

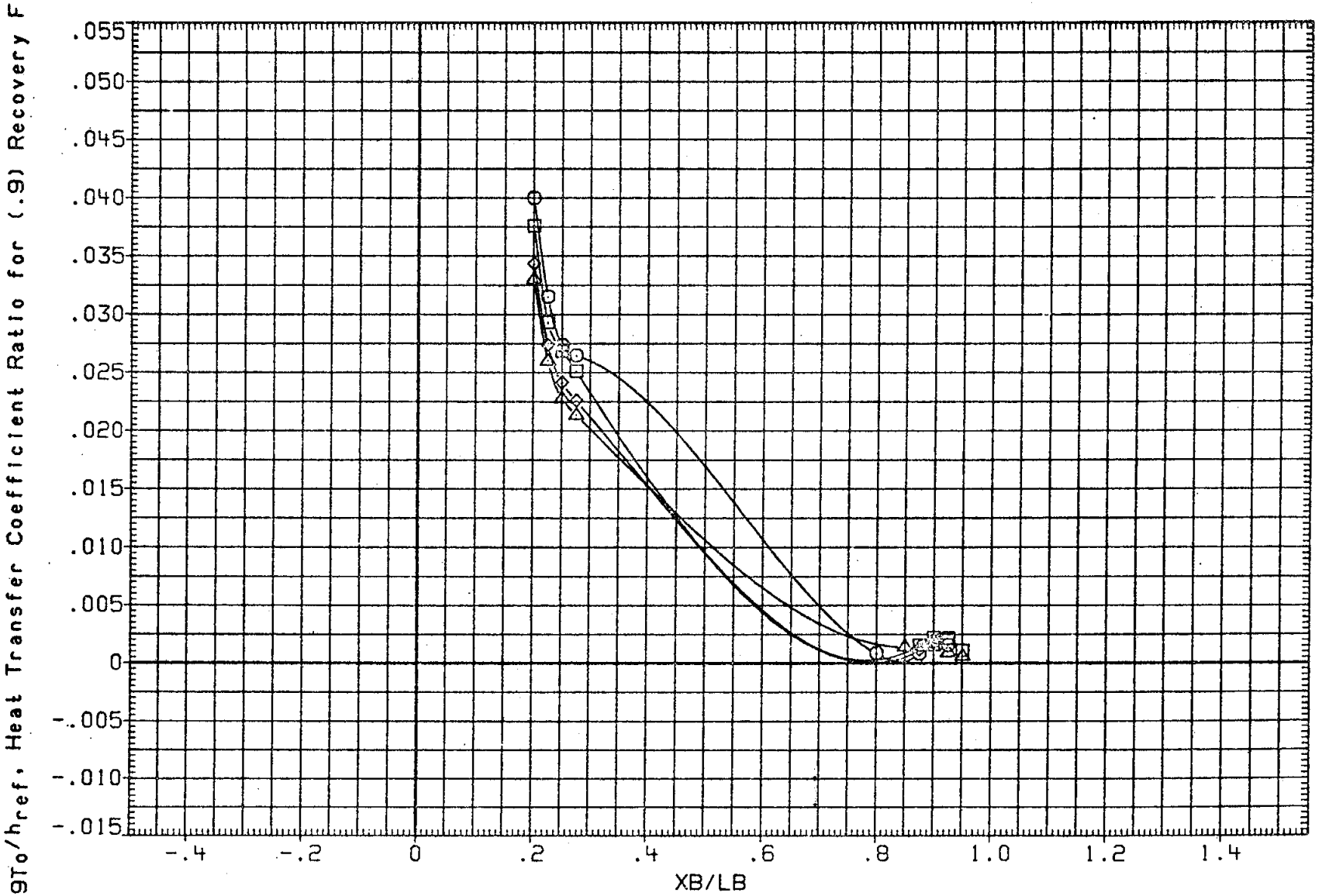


FIG. 15 AERO HEATING ALONG MODEL 56-0 LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	.491	355.000	.900
□	.986		
◇	1.968		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

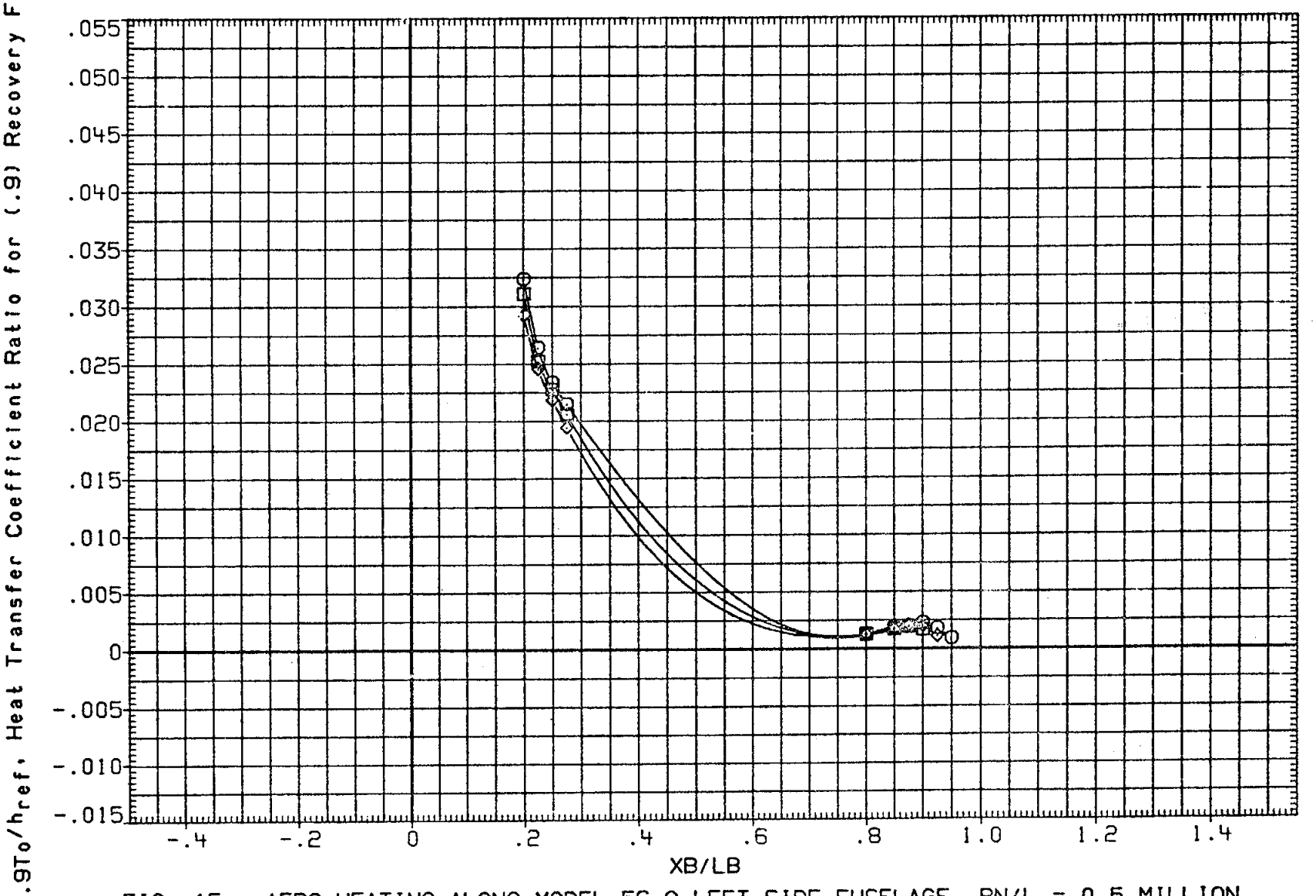


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6B01) OH111, MODEL 56-0, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	-1.985	372.500	.900
□	-.989		
◇	-.498		
△	-.001		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

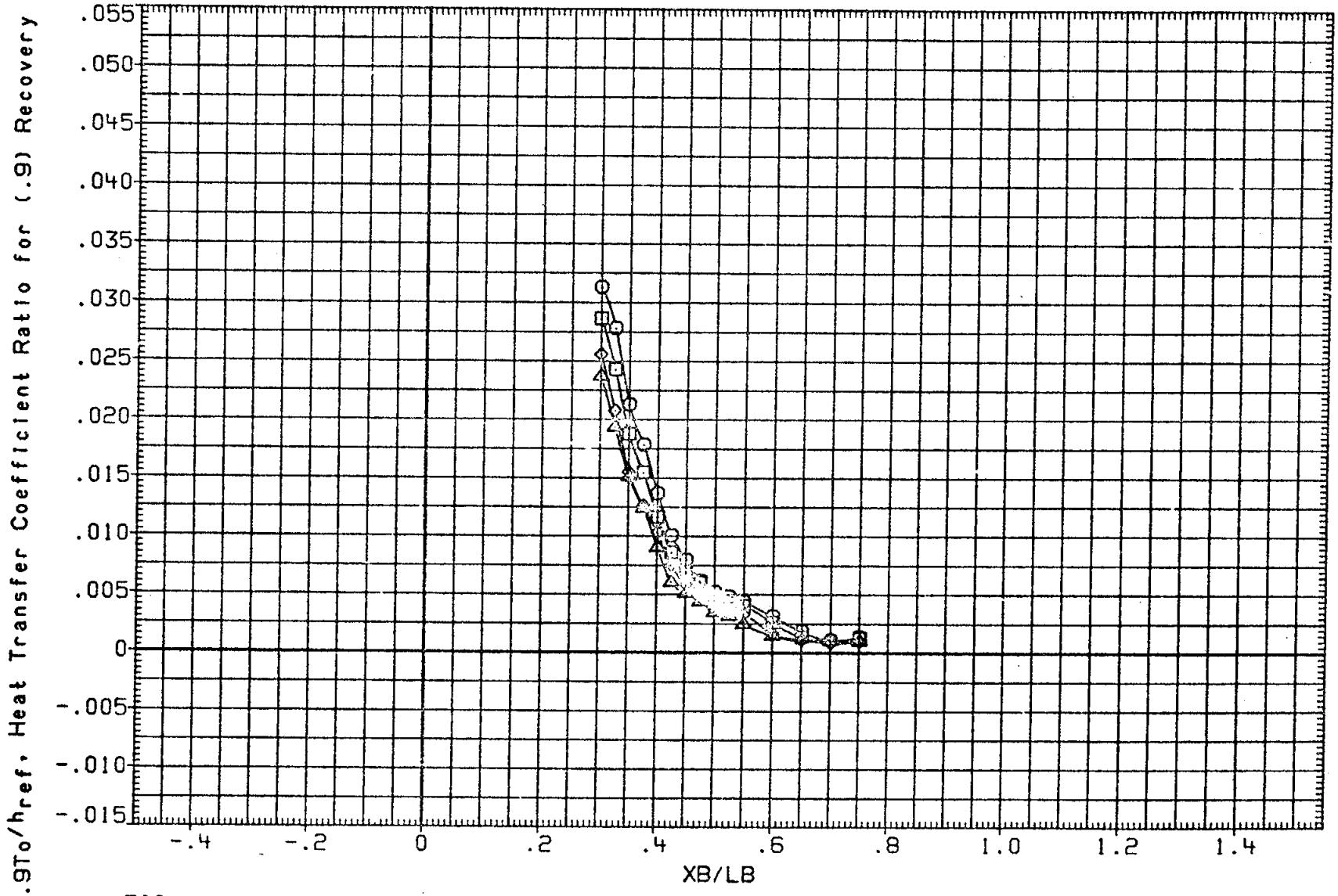


FIG. 15 AERO HEATING ALONG MODEL 56-0 LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	.491	372.500	.900
□	.986		
◇	1.968		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

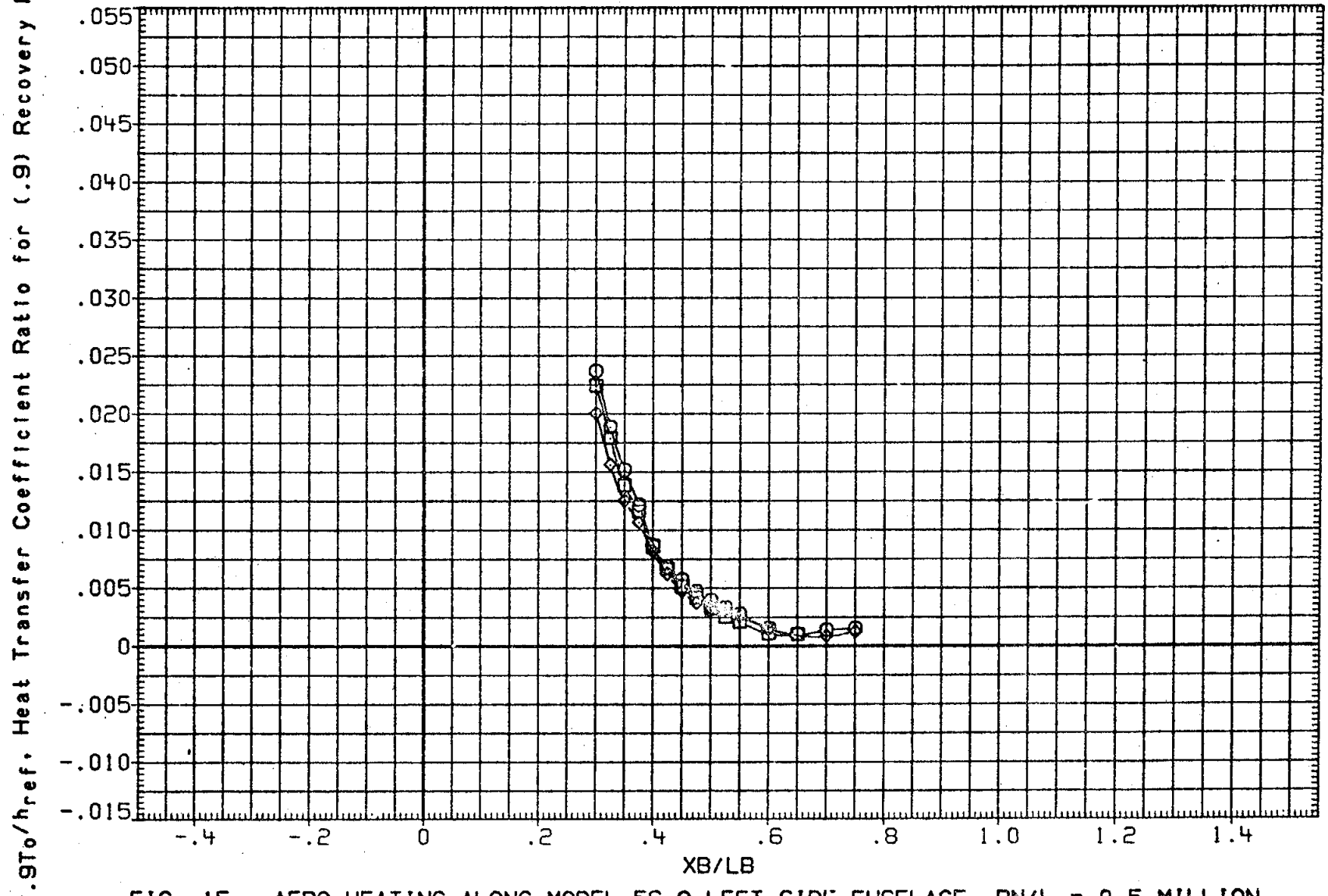


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	-1.985	400.000	.900
□	-.989		
◇	-.498		
△	-.001		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

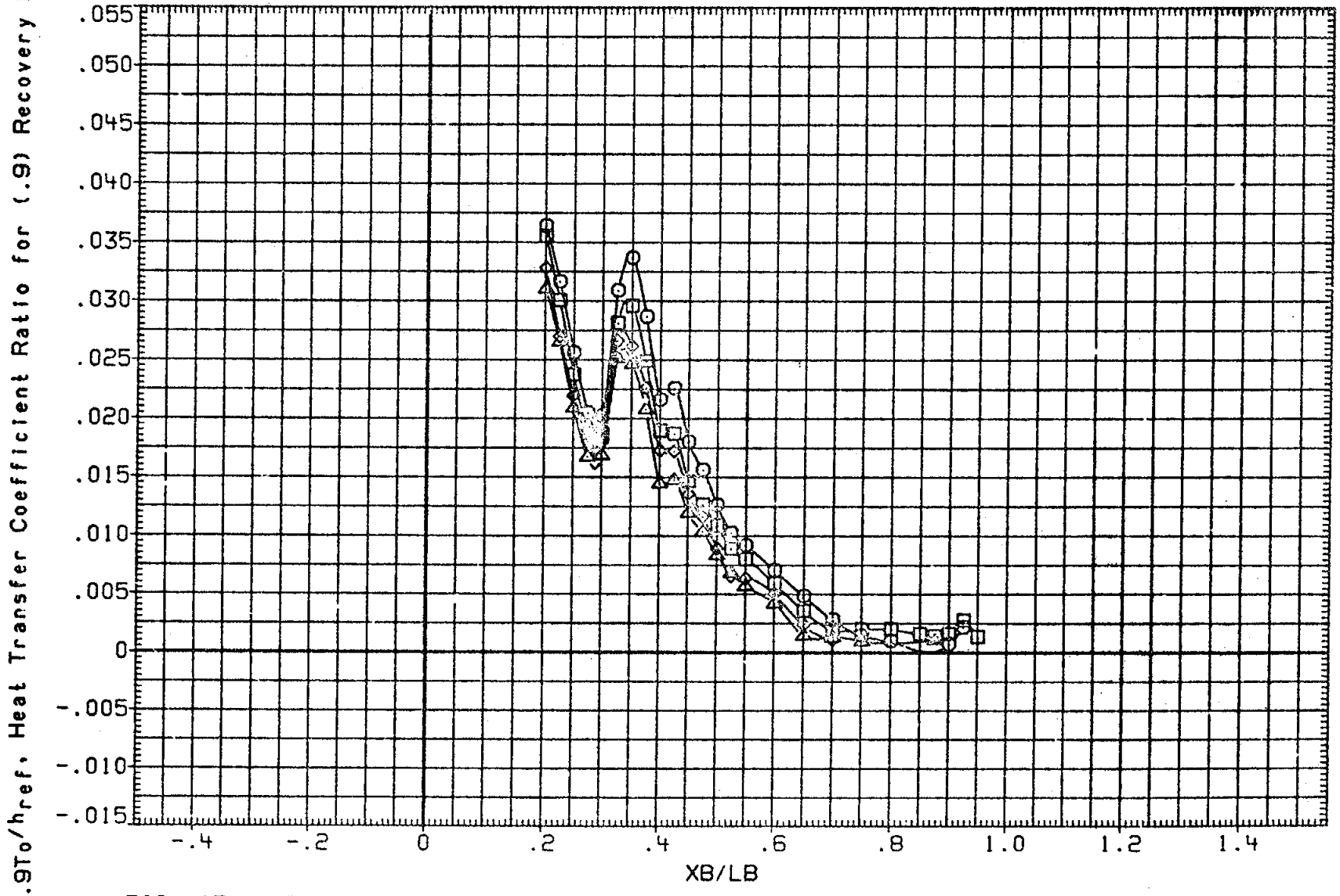


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	.491	400.000	.900
□	.986		
◇	1.968		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

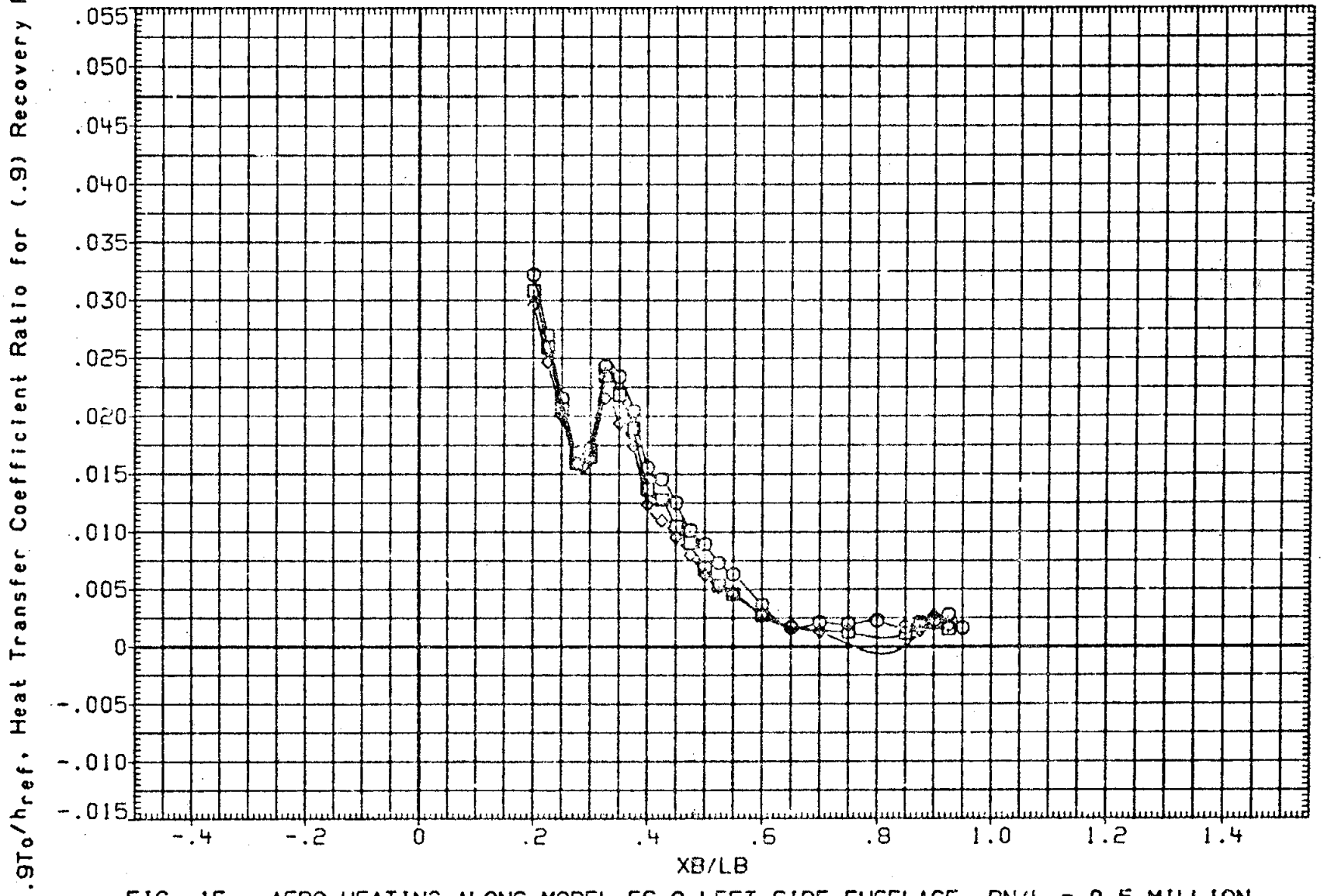


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	-1.985	420.000	.900
□	-.989		
◇	-.498		
△	-.001		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

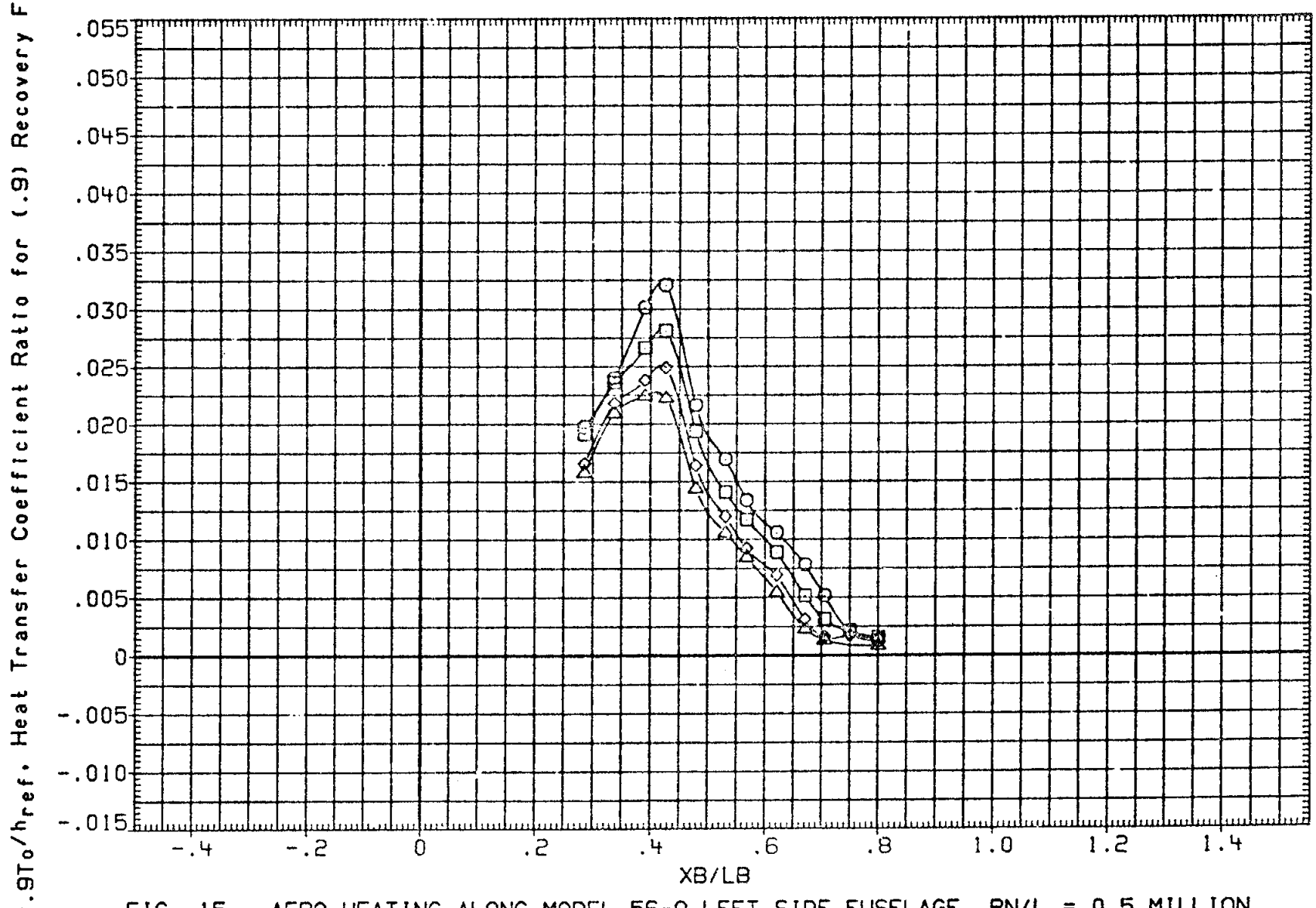


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	.491	420.000	.900
□	.986		
◇	1.968		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

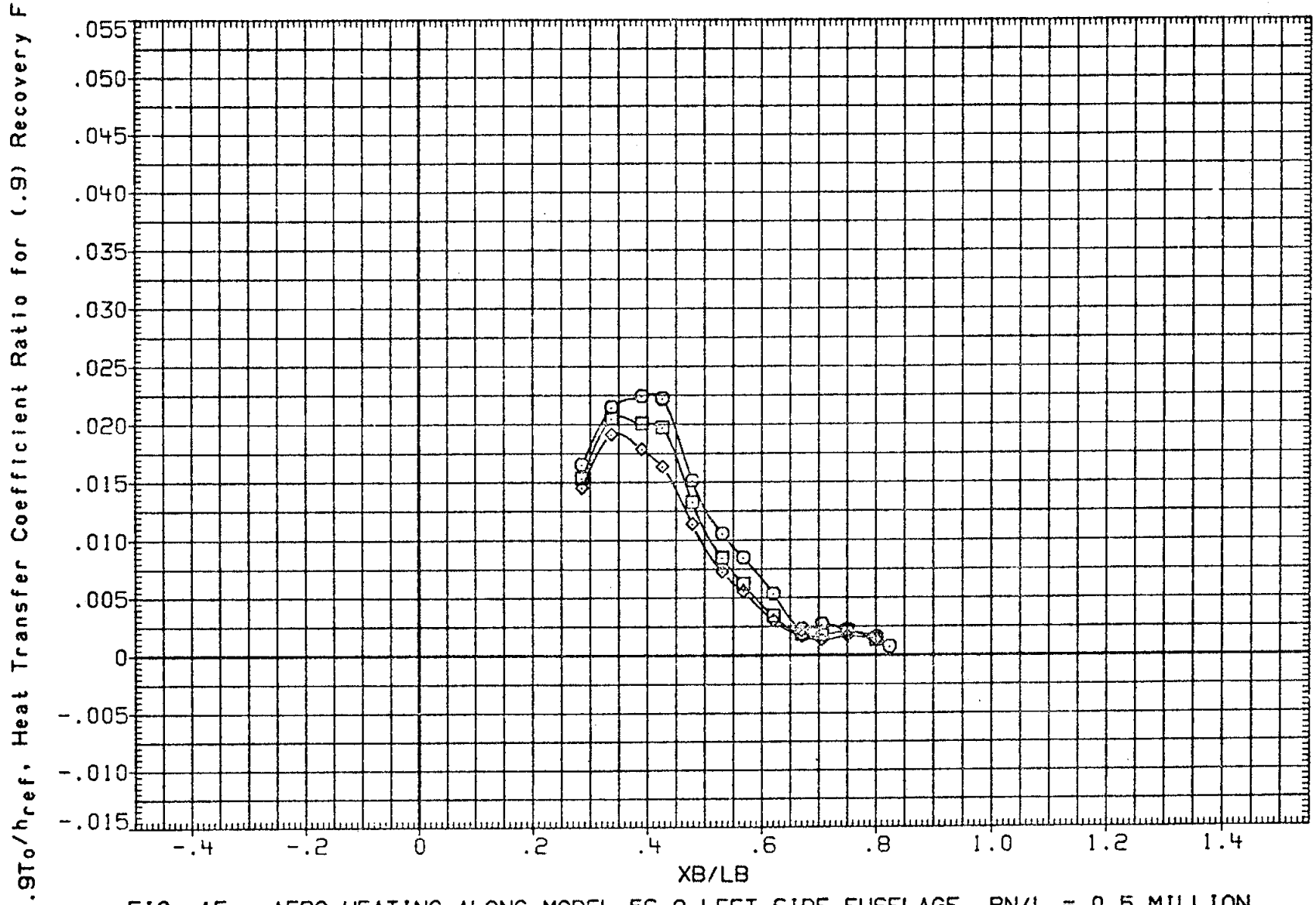


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	-1.985	445.000	.900
□	-.989		
◇	-.498		
△	-.001		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

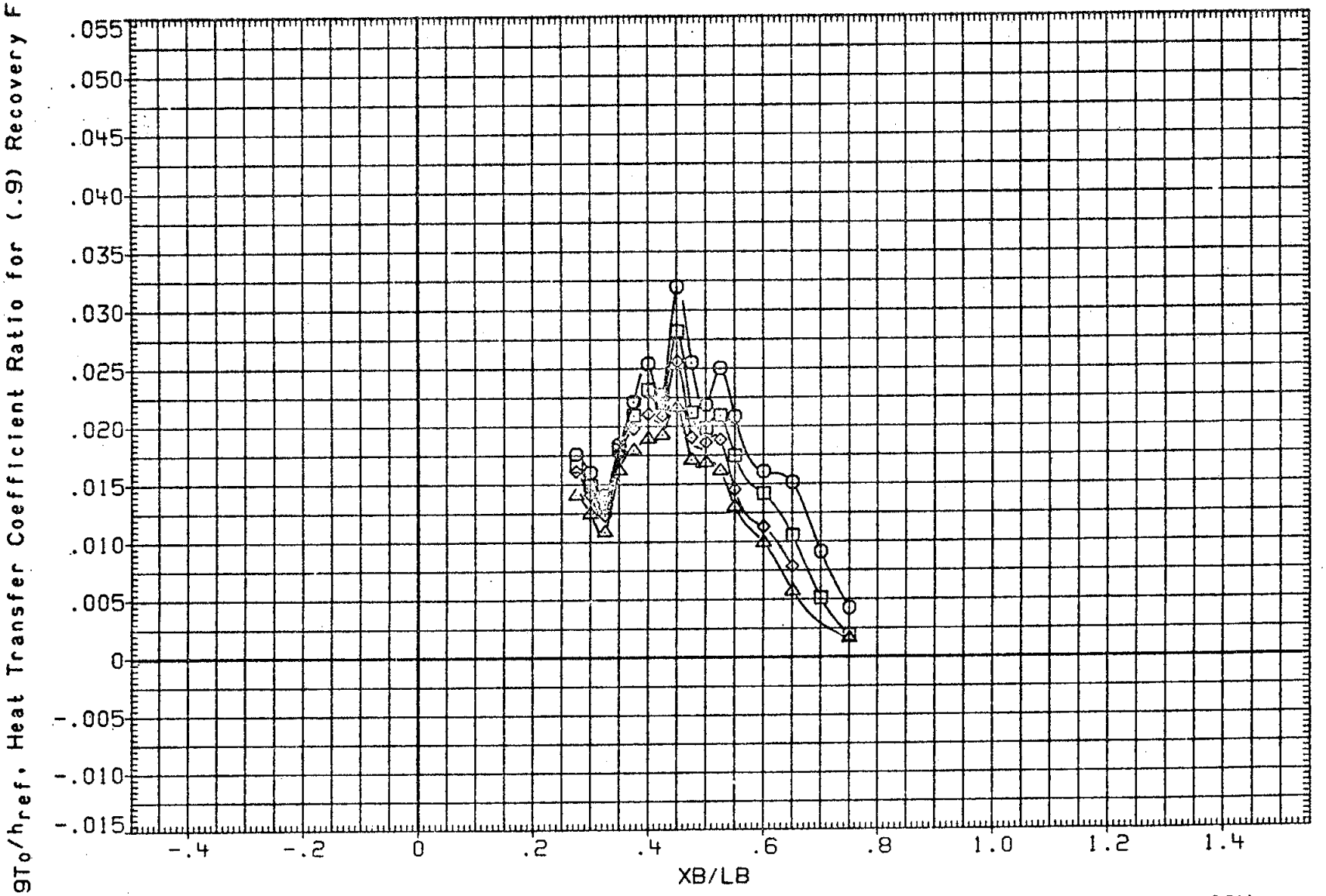


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

(ST6B01) OH111, MODEL 56-O, ORBITER FUSELAGE

SYMBOL	BETA	ZB	HAW/HT
○	.491	445.000	.900
□	.986		
◇	1.968		

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
ELEVON	.000	SPDBRK	.000
RN/L	.500		

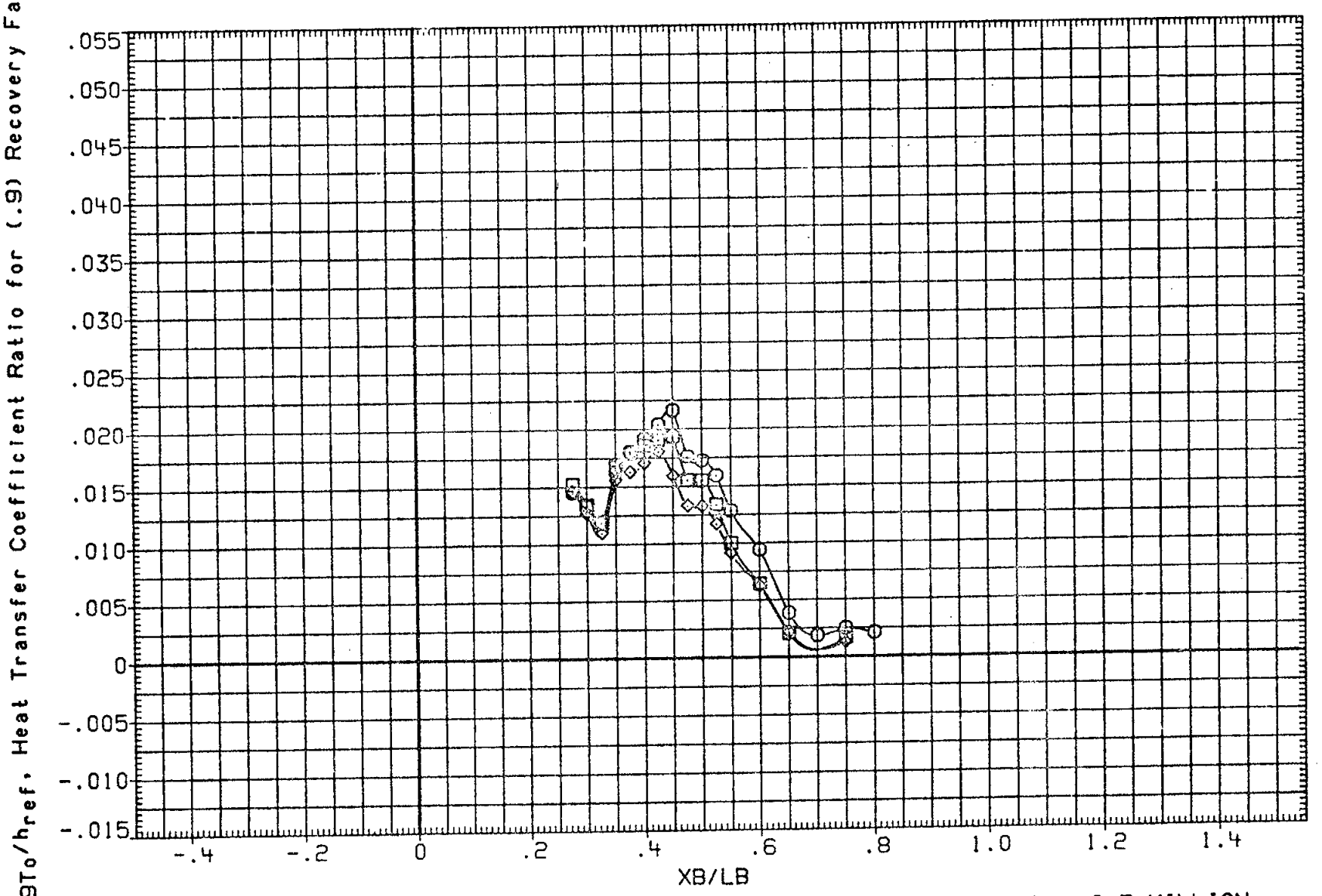


FIG. 15 AERO HEATING ALONG MODEL 56-O LEFT SIDE FUSELAGE, RN/L = 0.5 MILLION

DATE 29 JAN 82

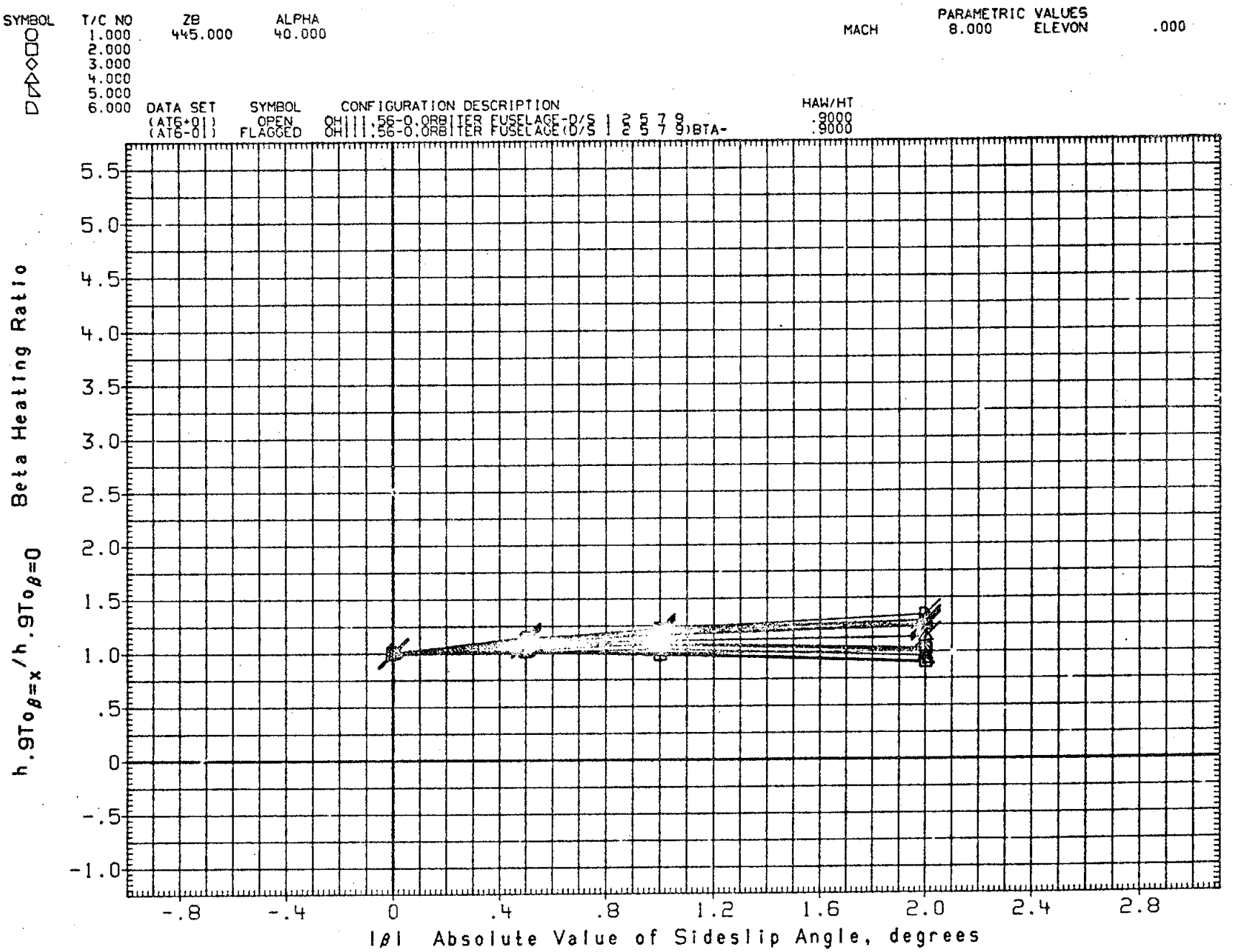


FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

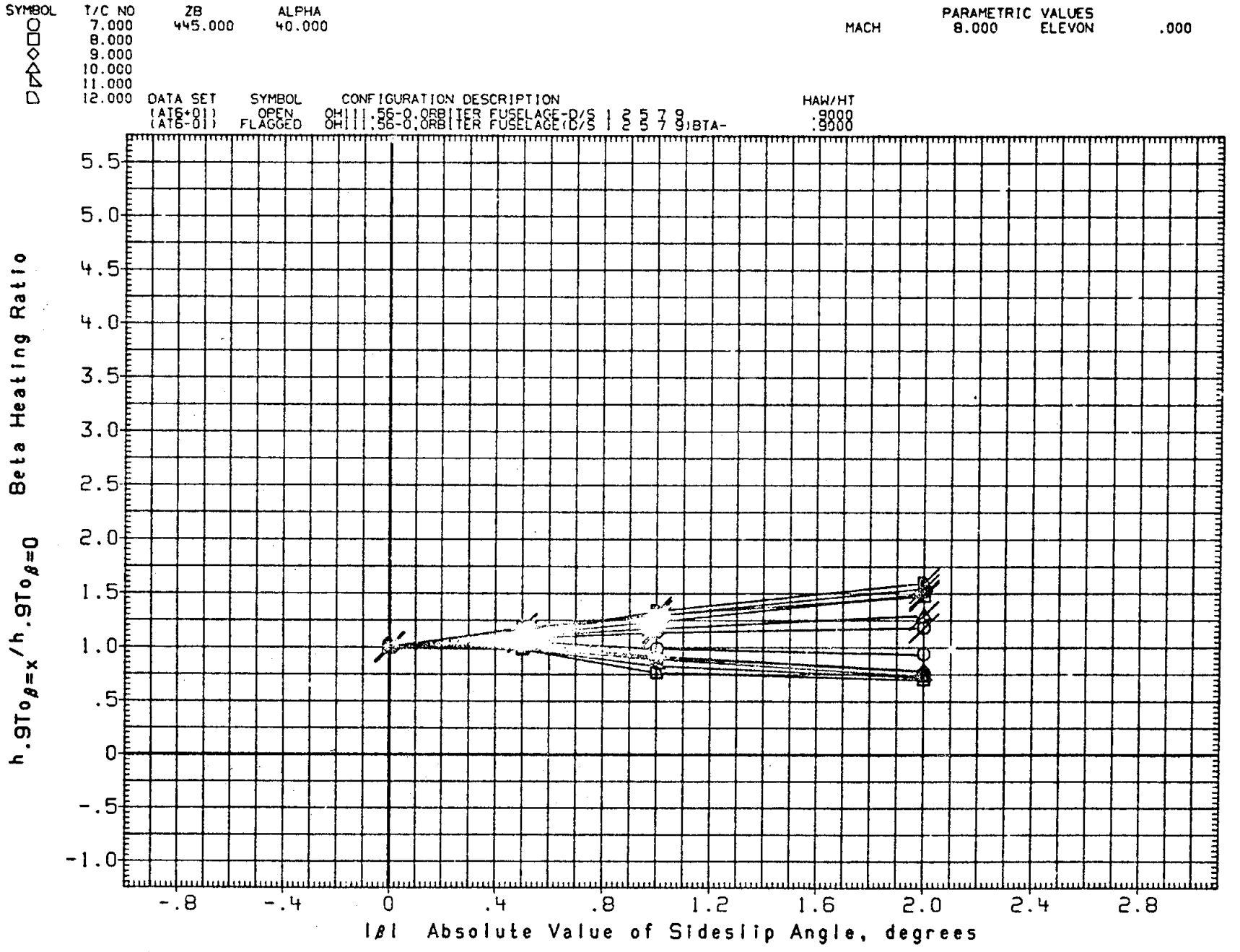


FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

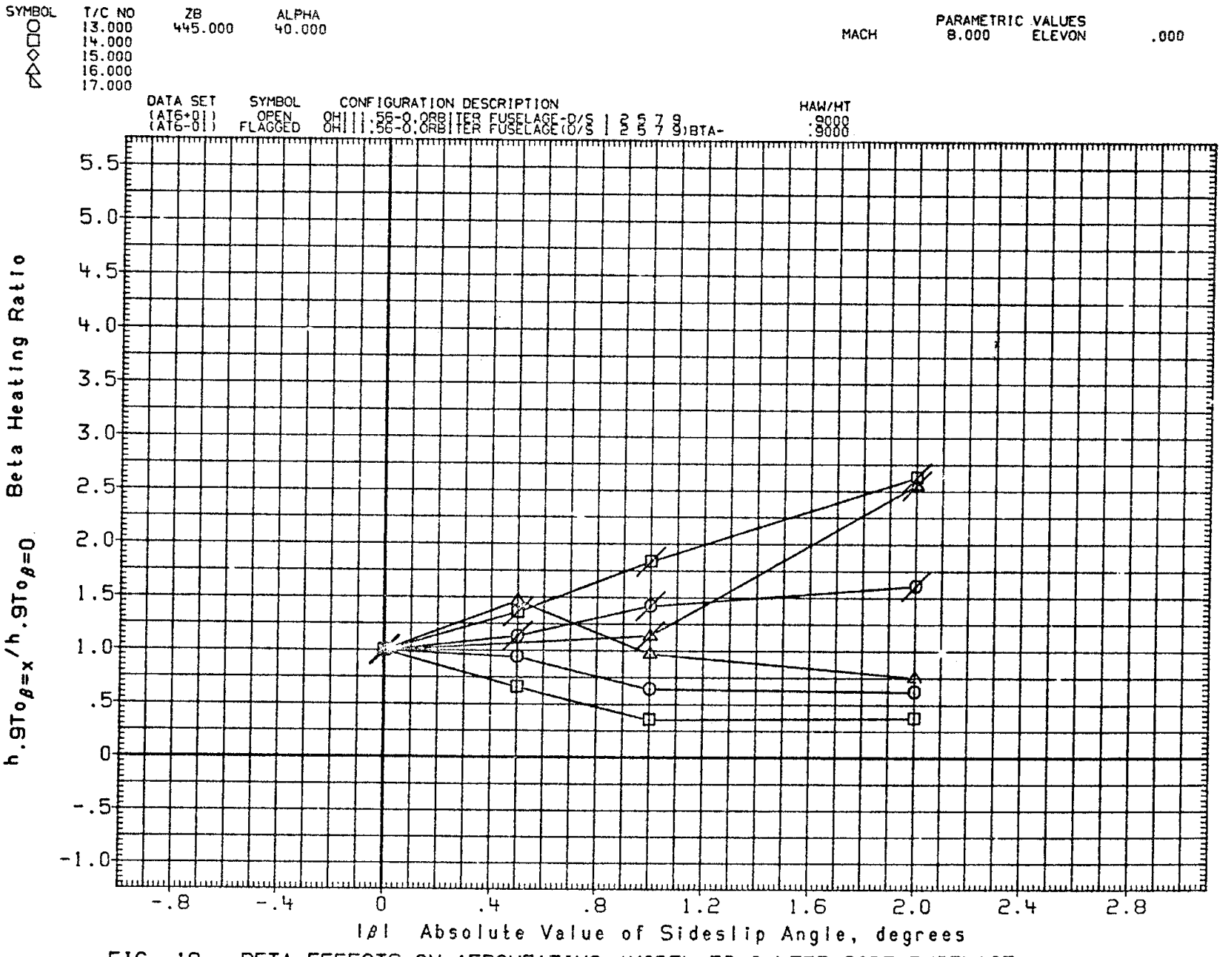


FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

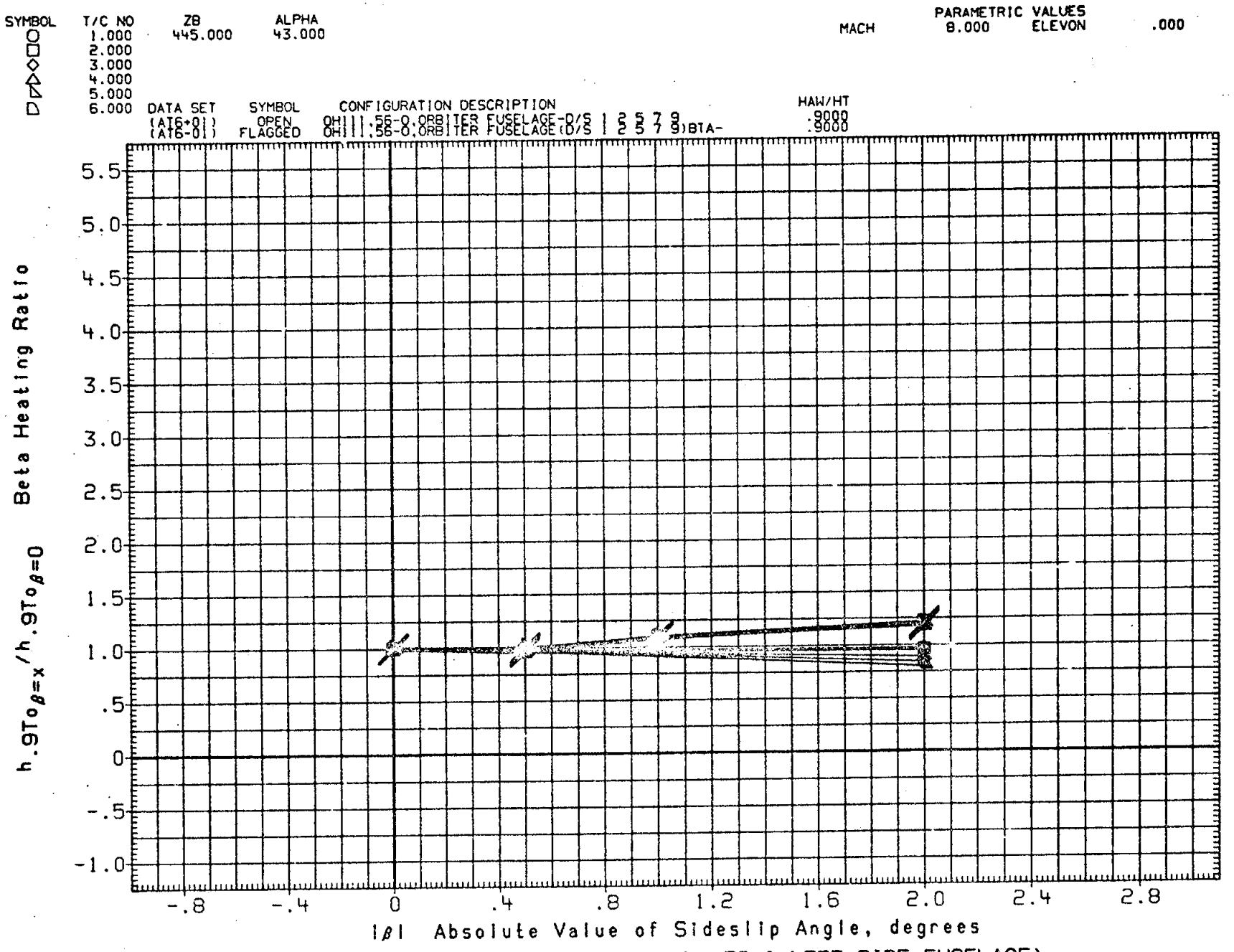


FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

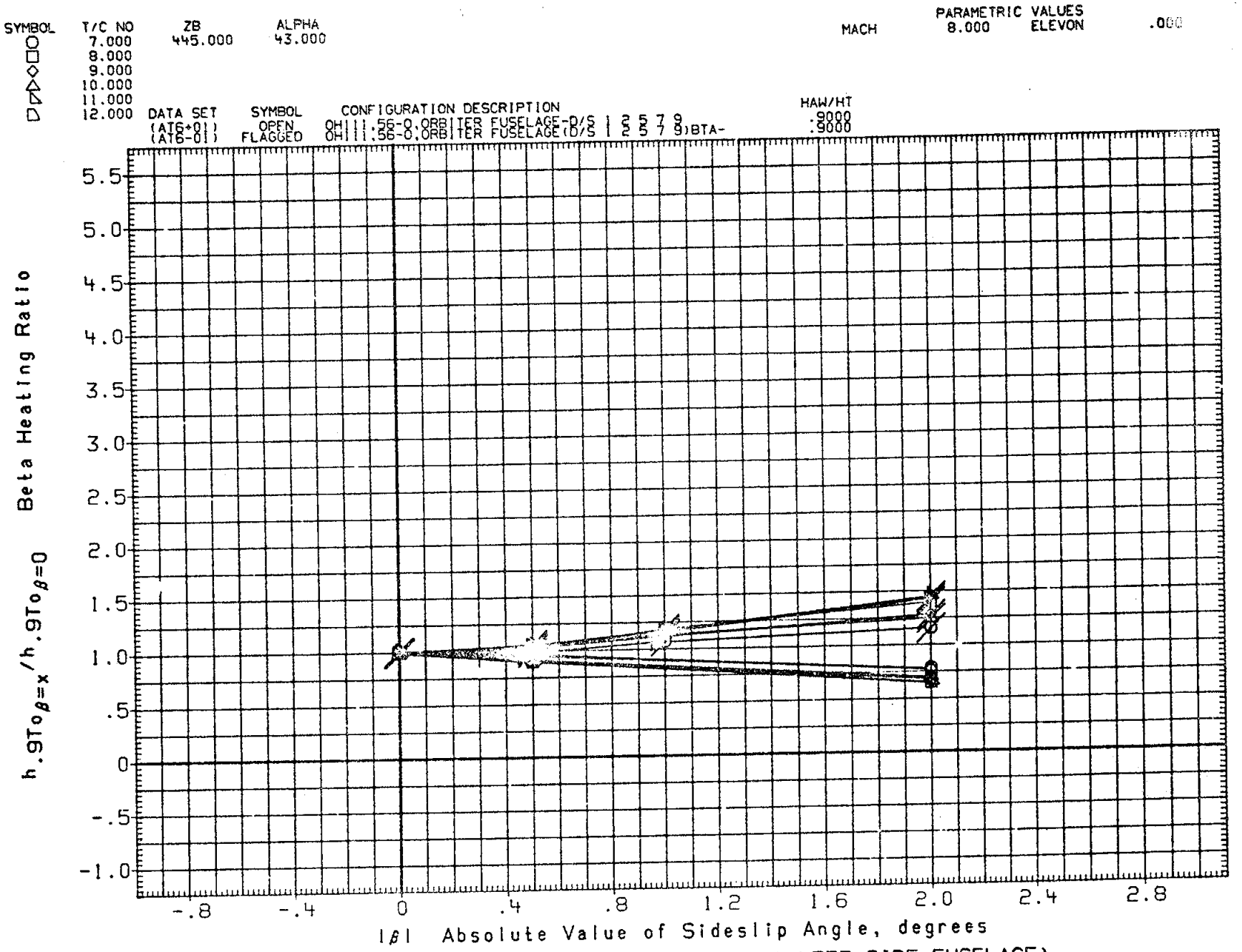


FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

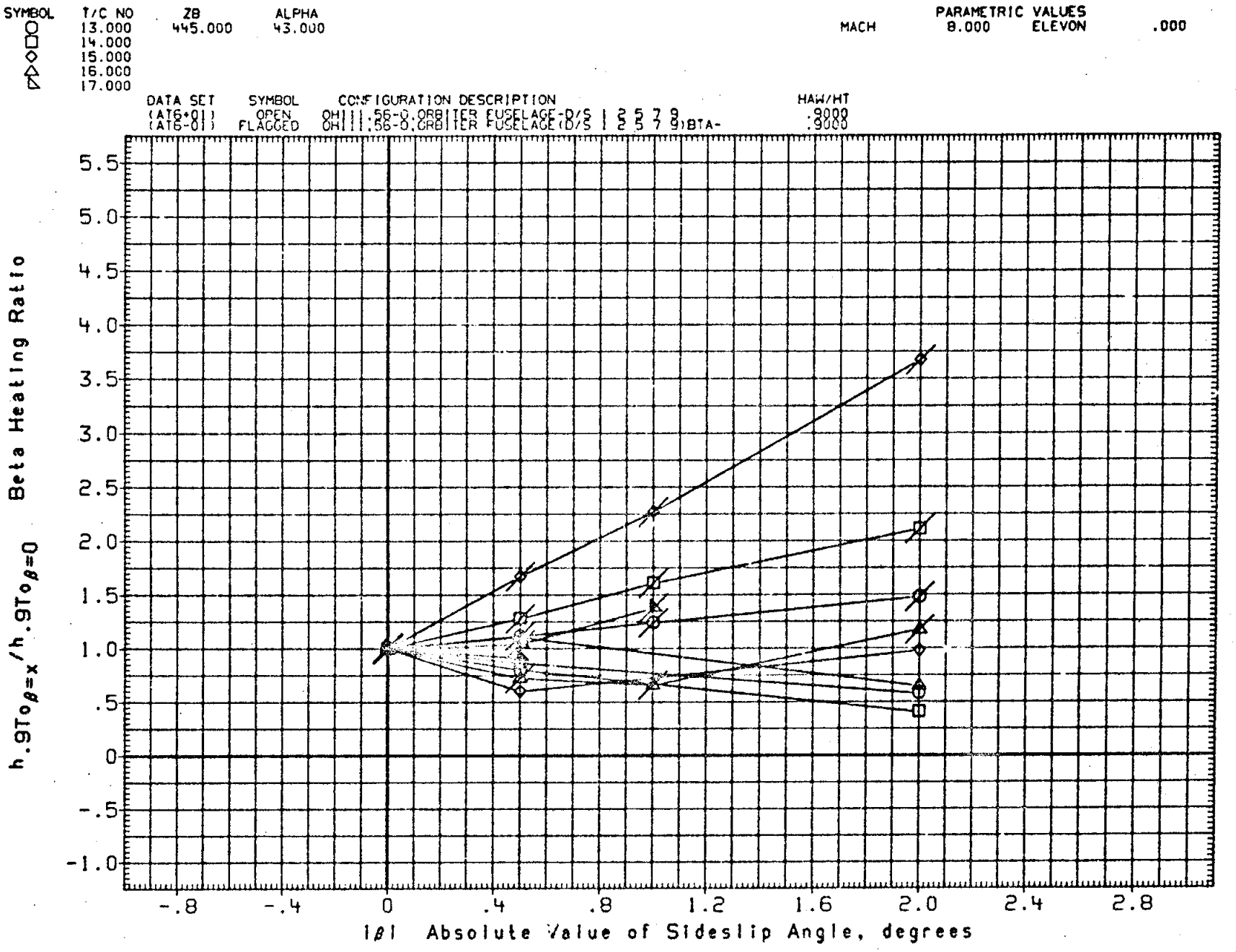
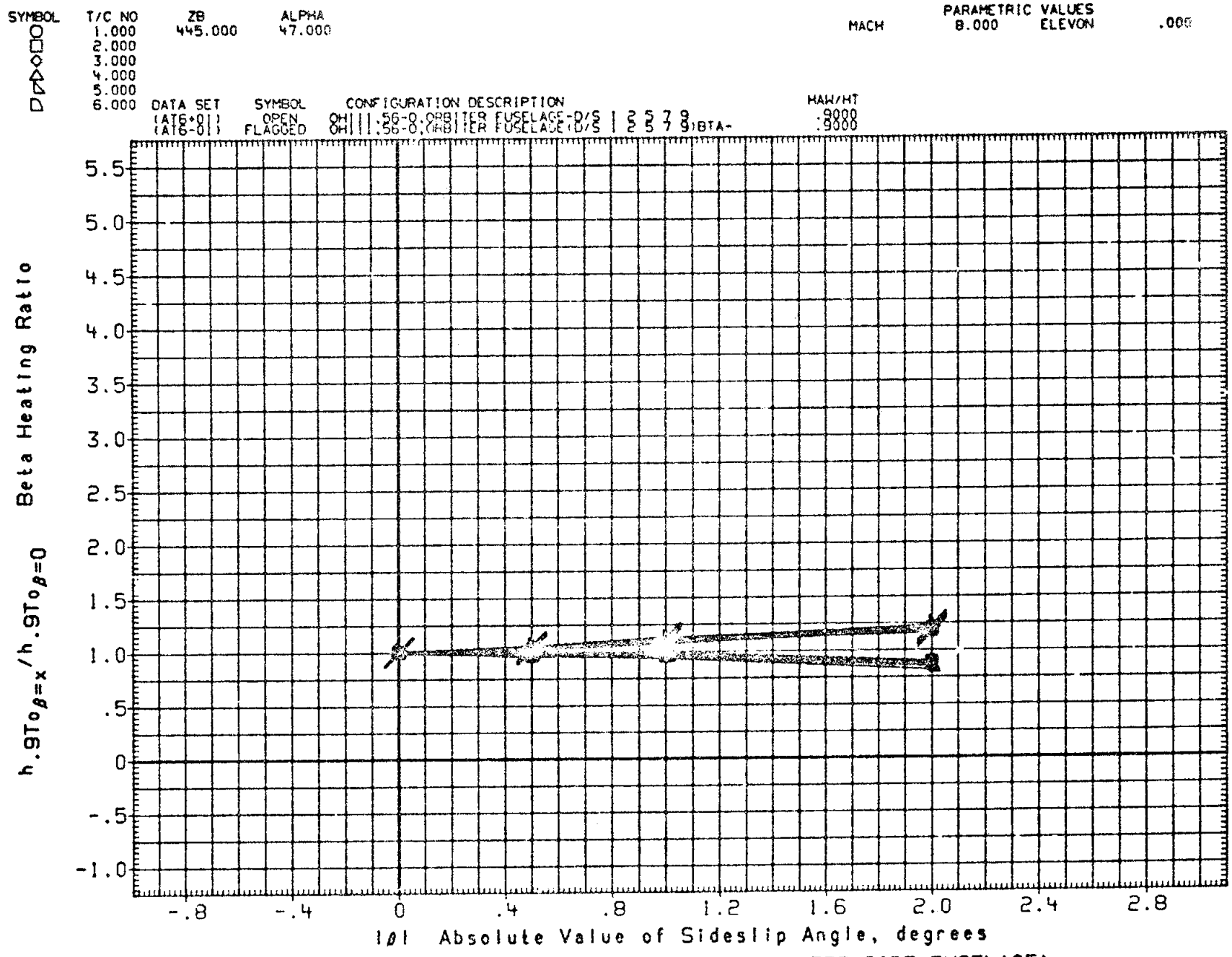


FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82



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REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

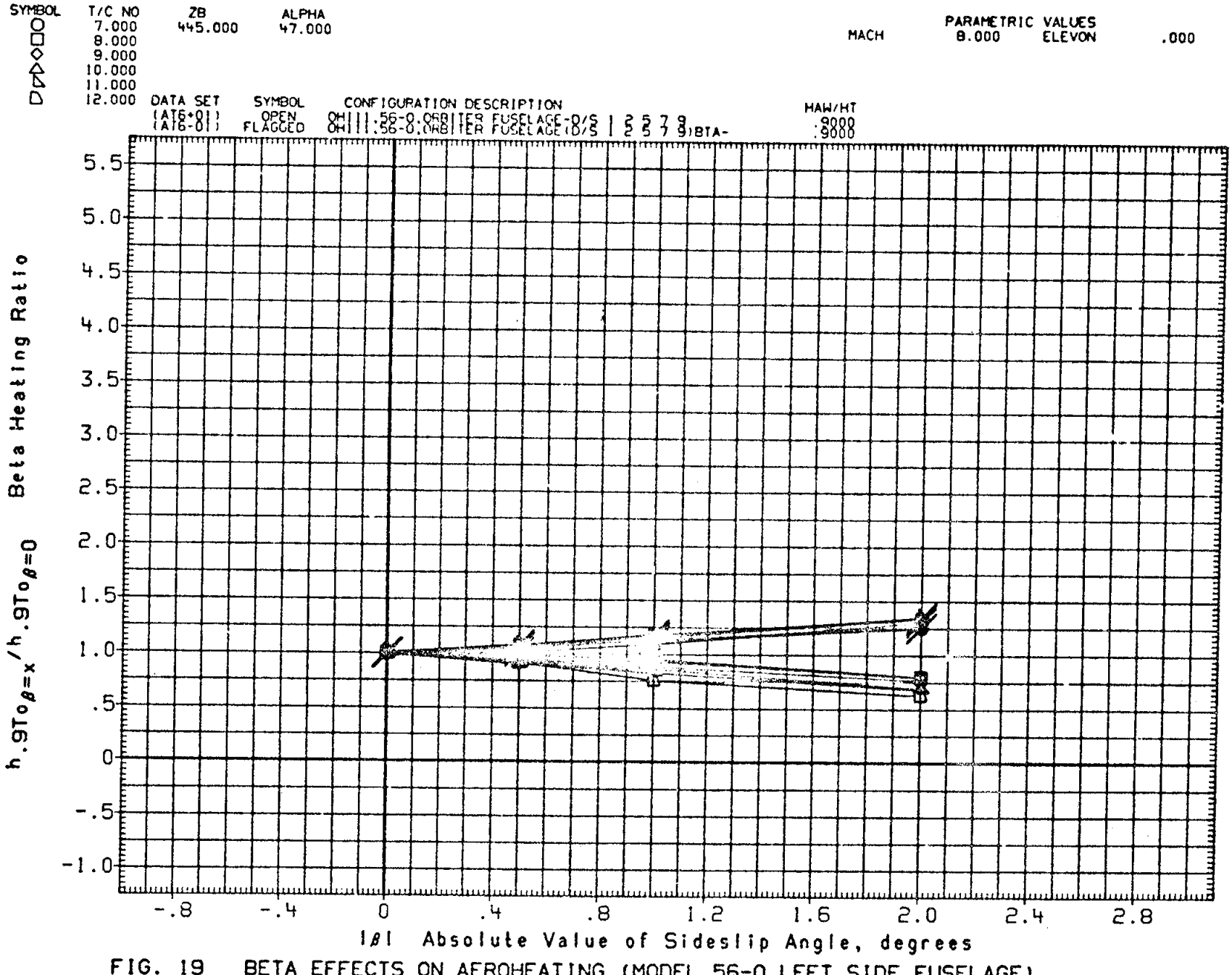

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

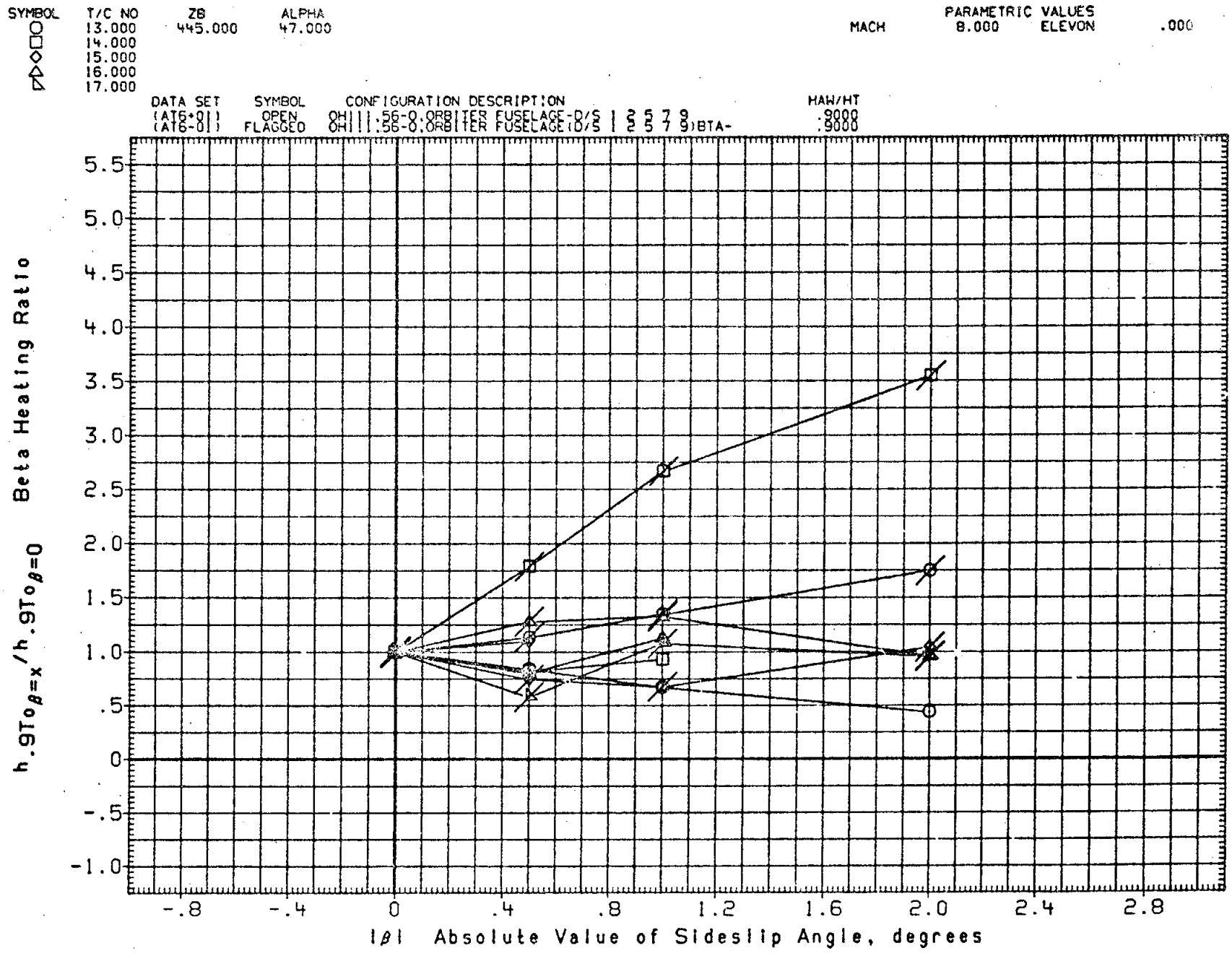

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

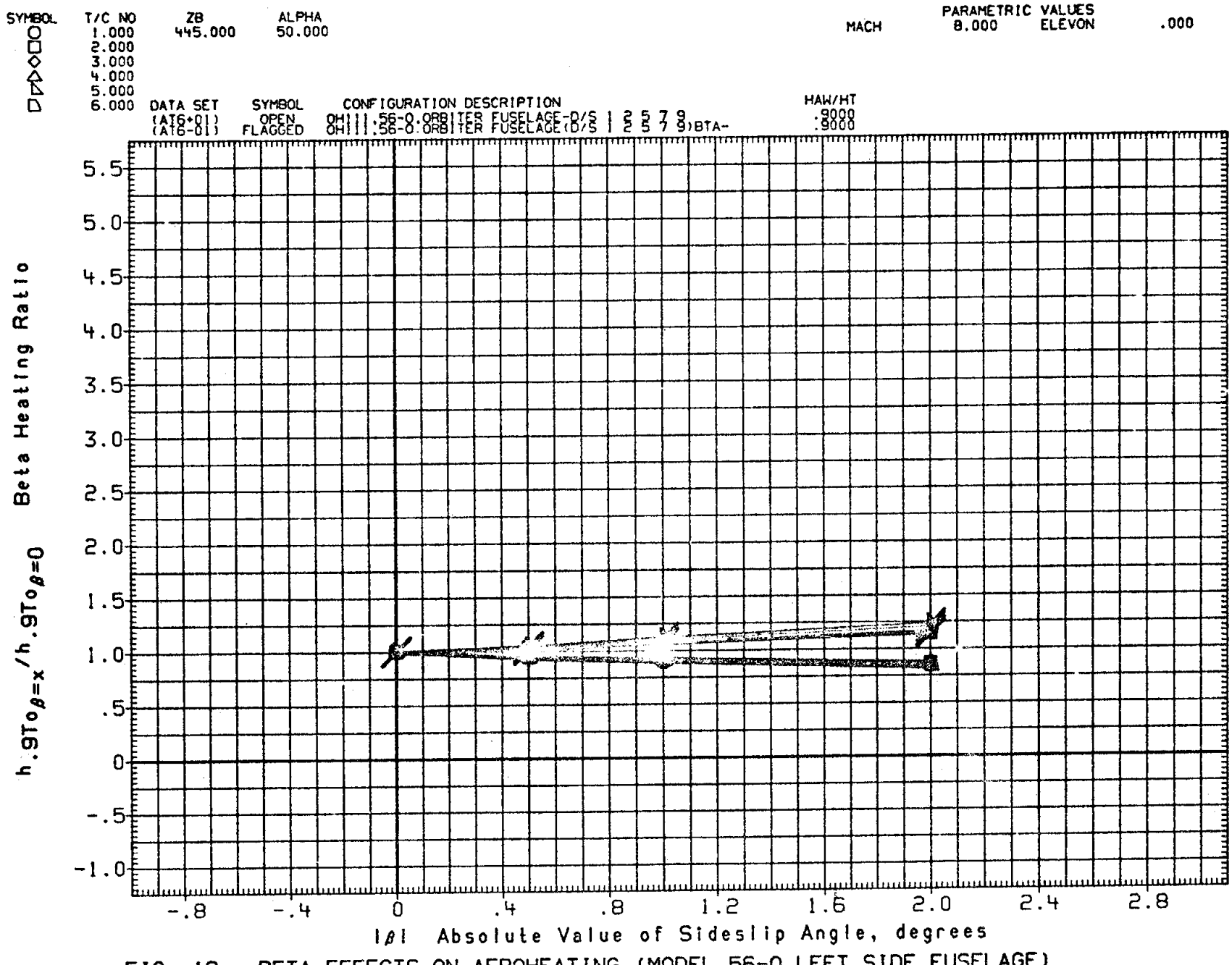

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

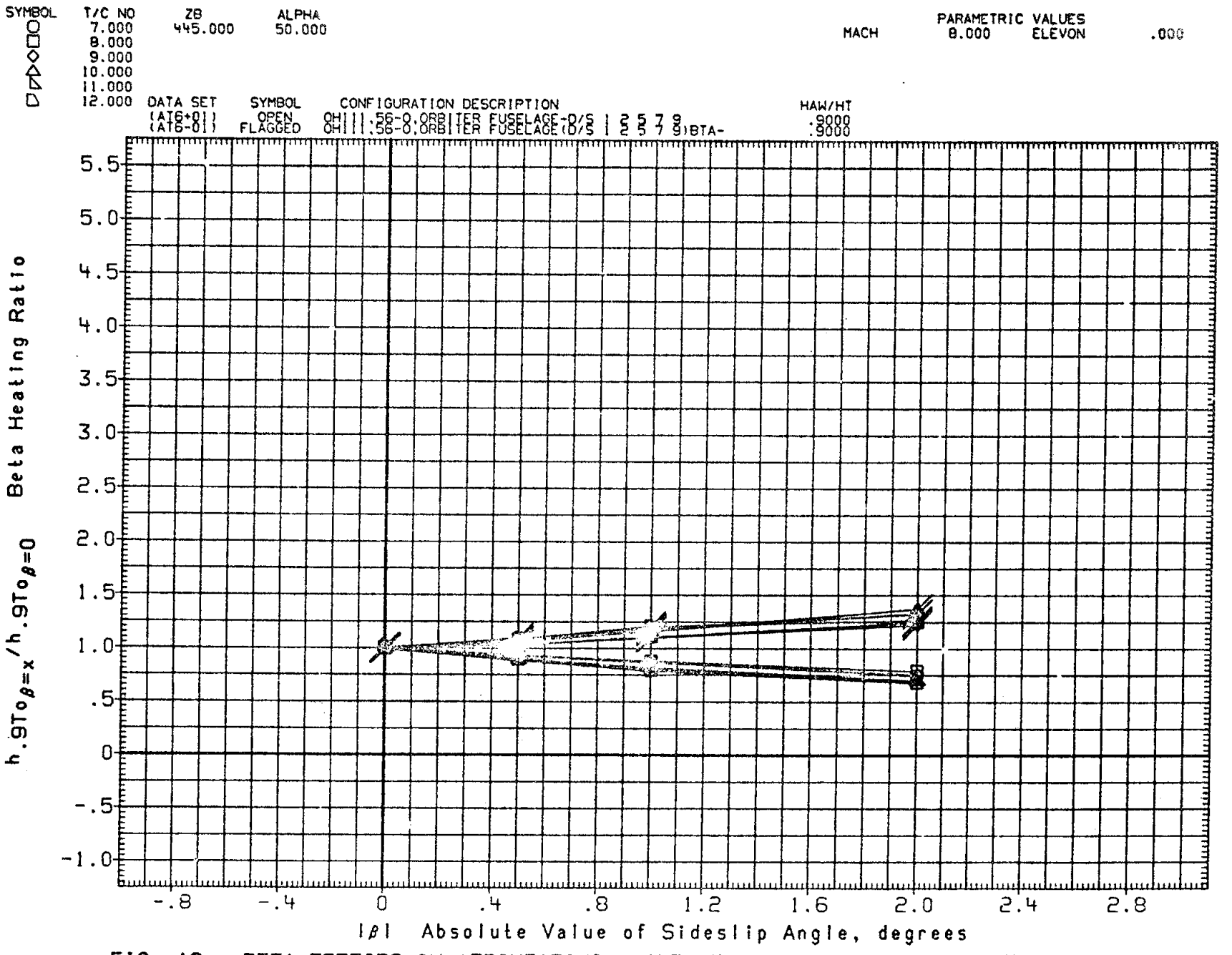

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

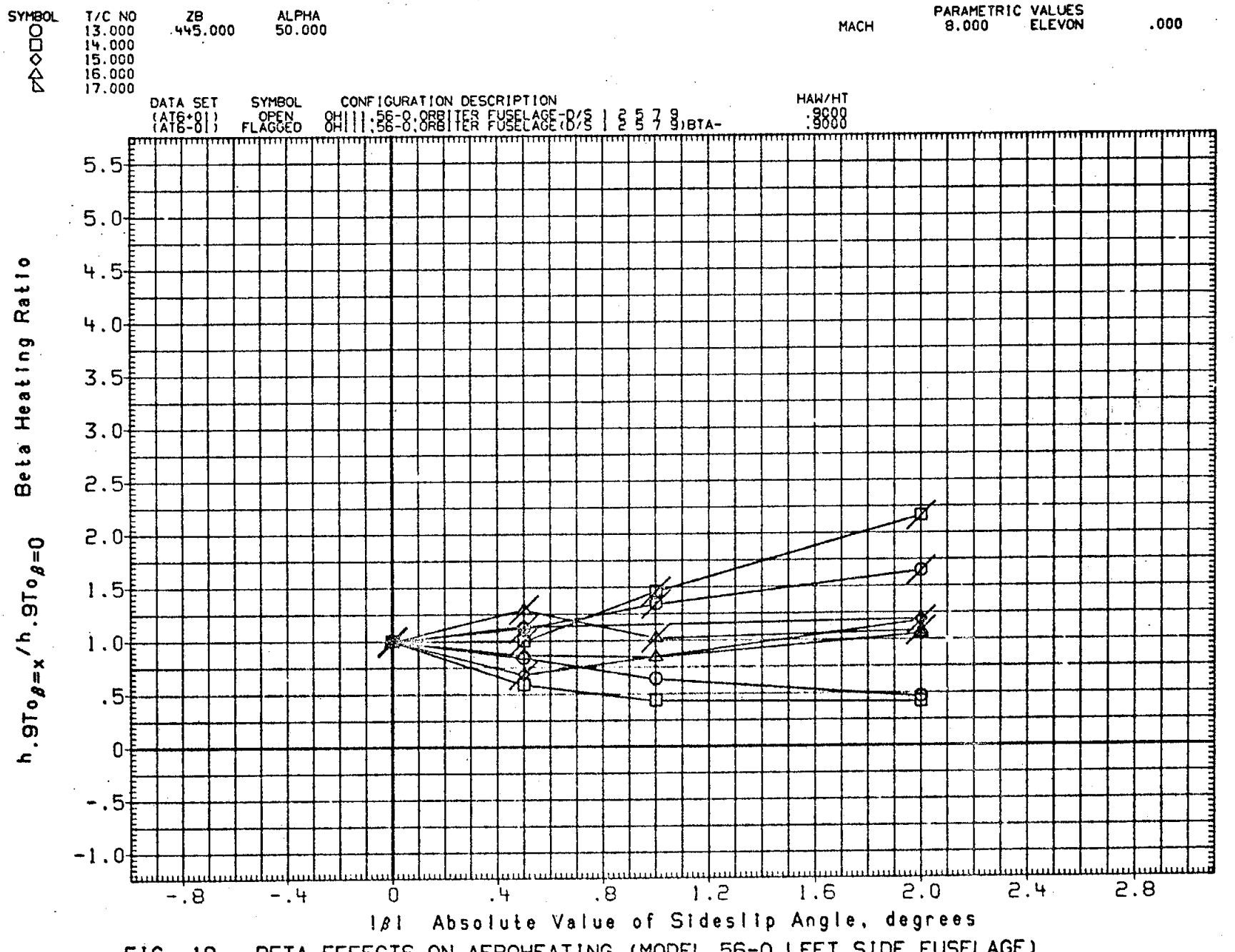

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

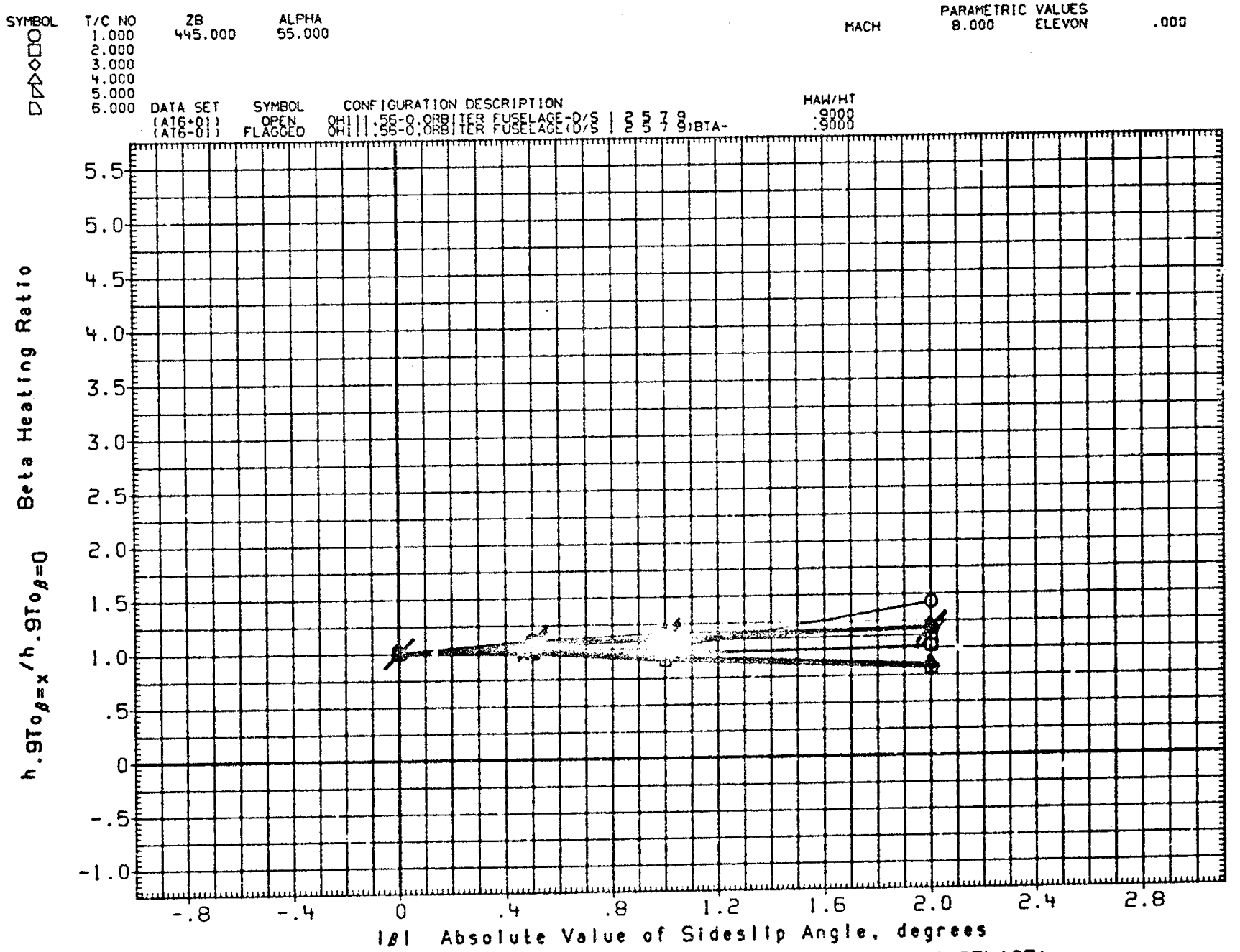

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

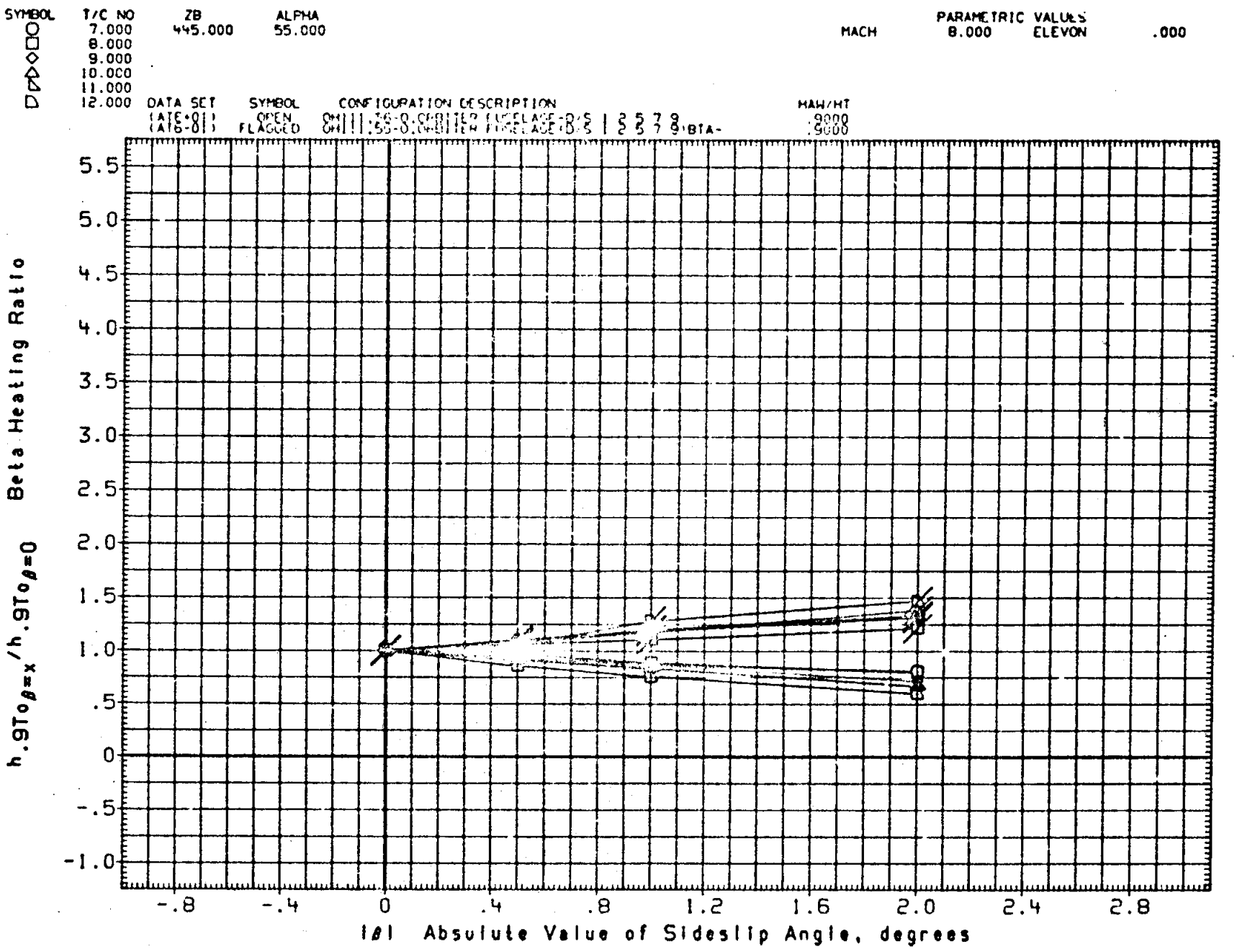

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

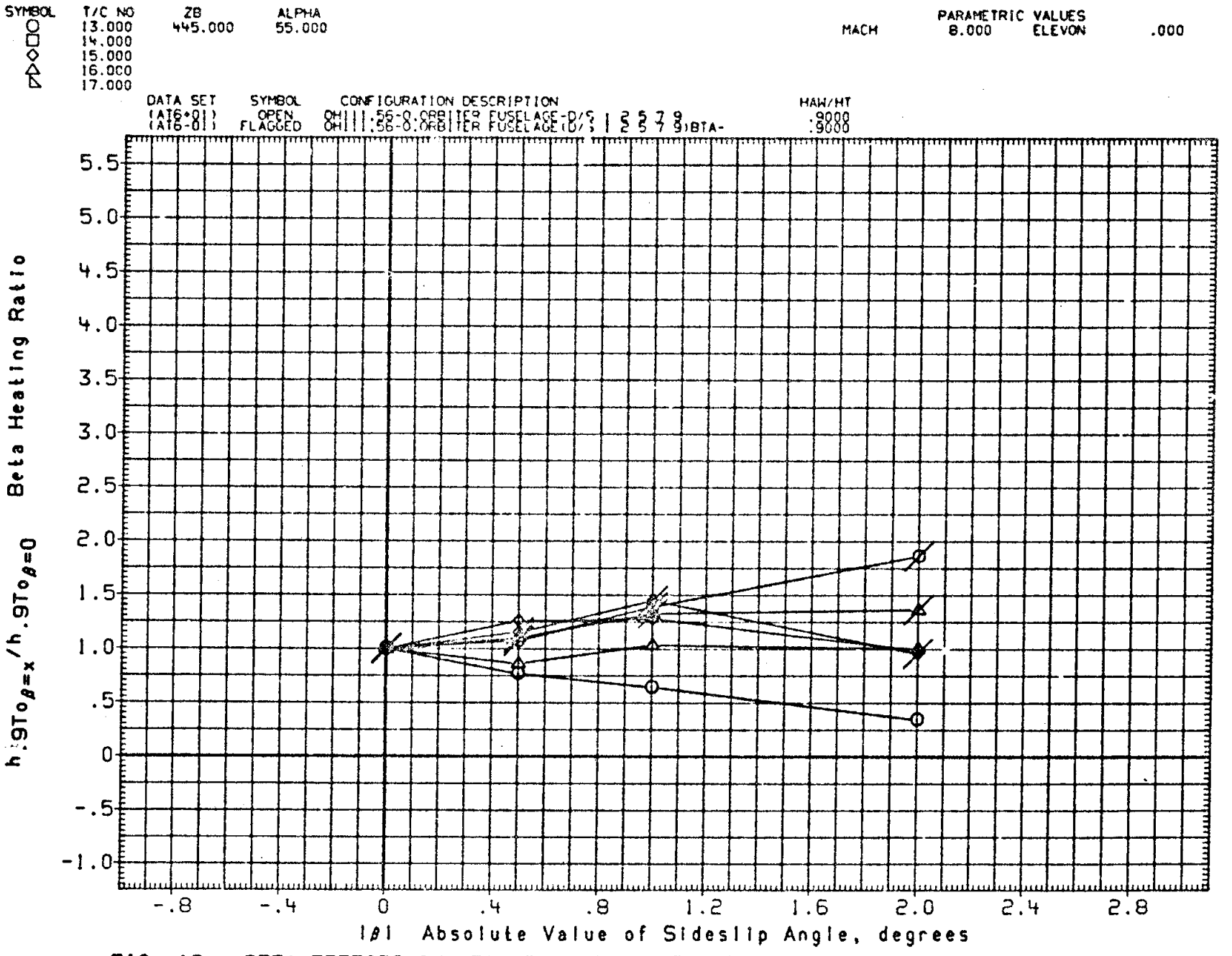

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

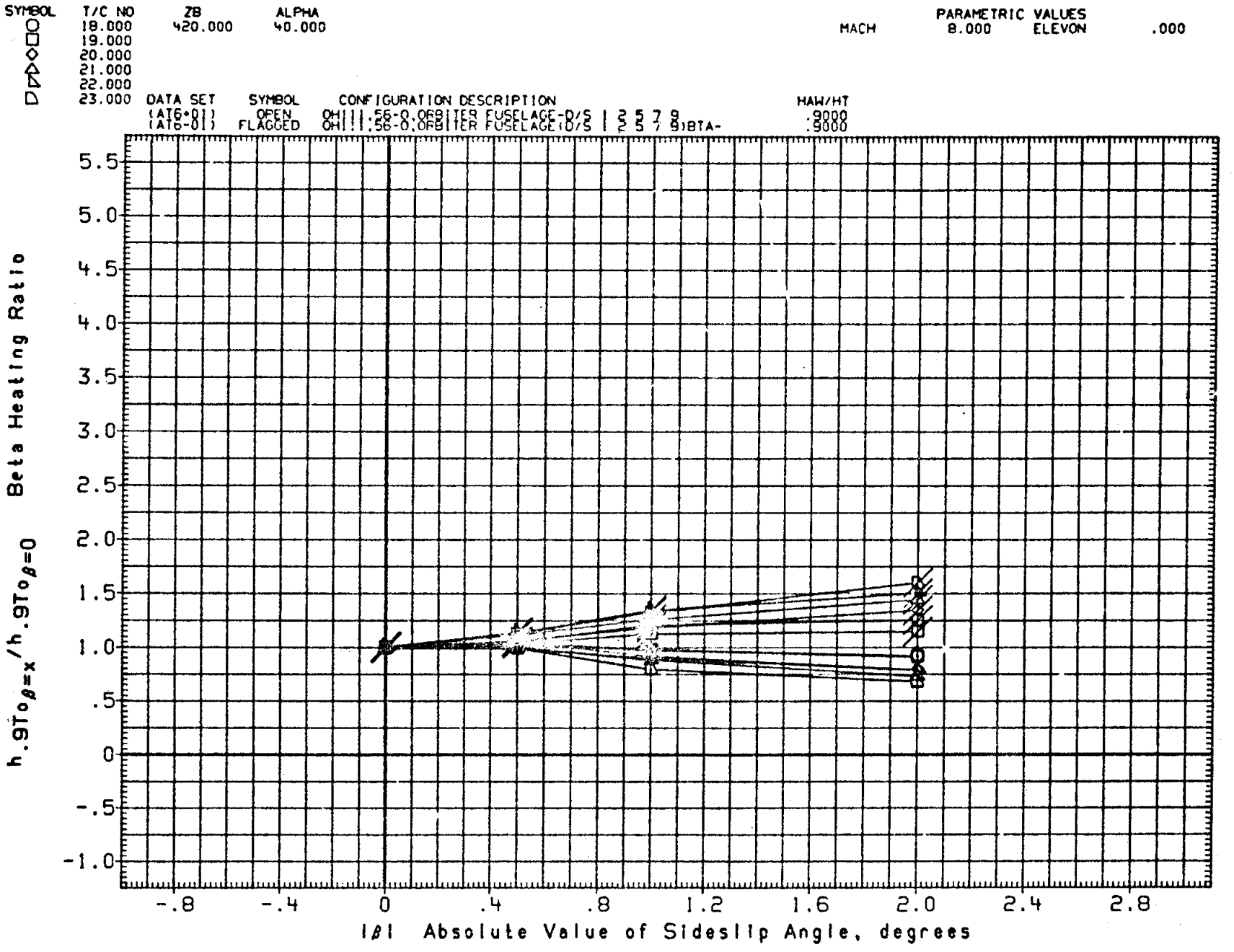

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

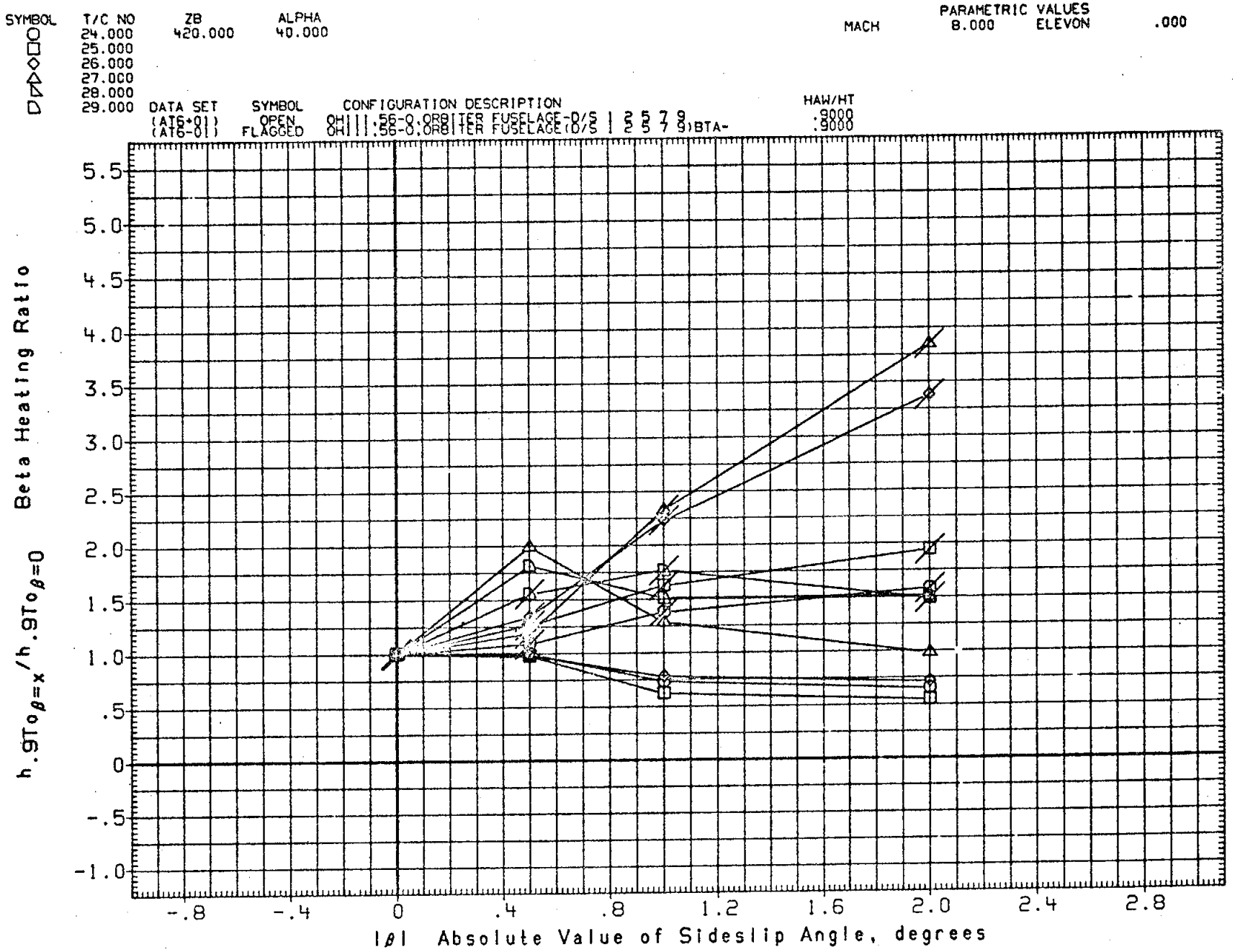

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA
O	30.000	420.000	40.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+01)	OPEN	OH|||,56-0,ORBITER FUSELAGE-D/S	2 5 7 9	.9000
(AT6-01)	FLAGGED	OH|||,56-0,ORBITER FUSELAGE(D/S | 2 5 7 9)BTA-	.9000

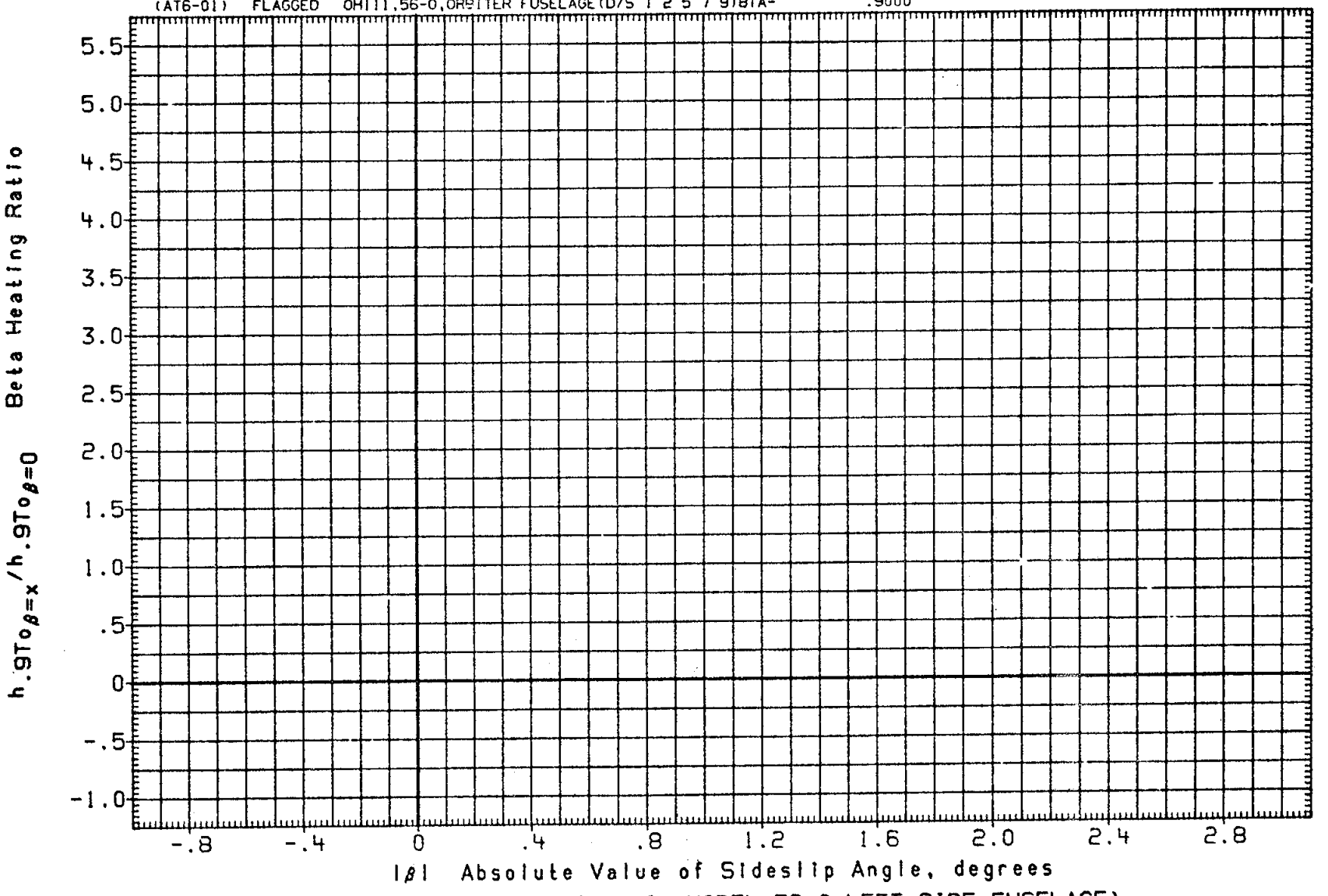

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

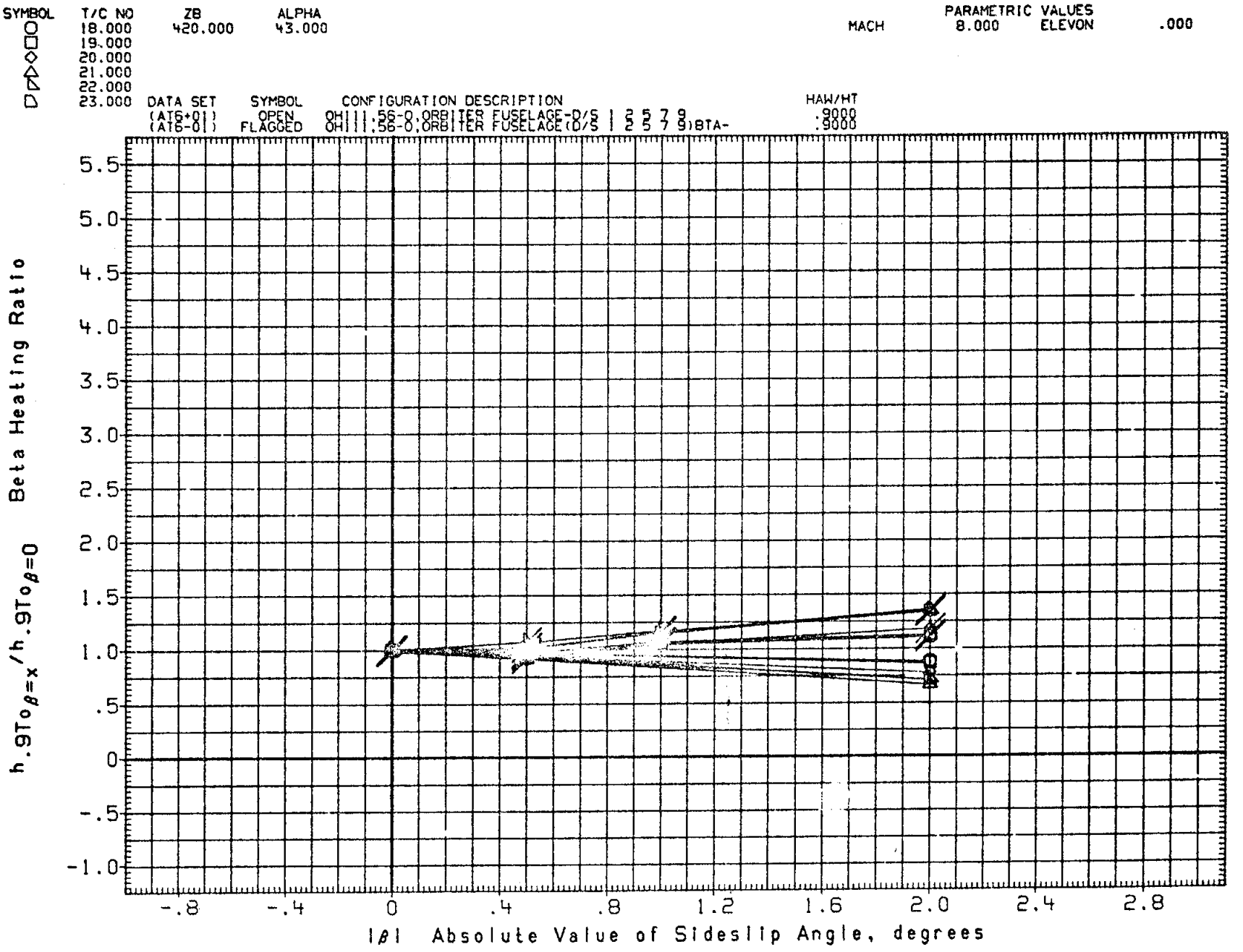

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

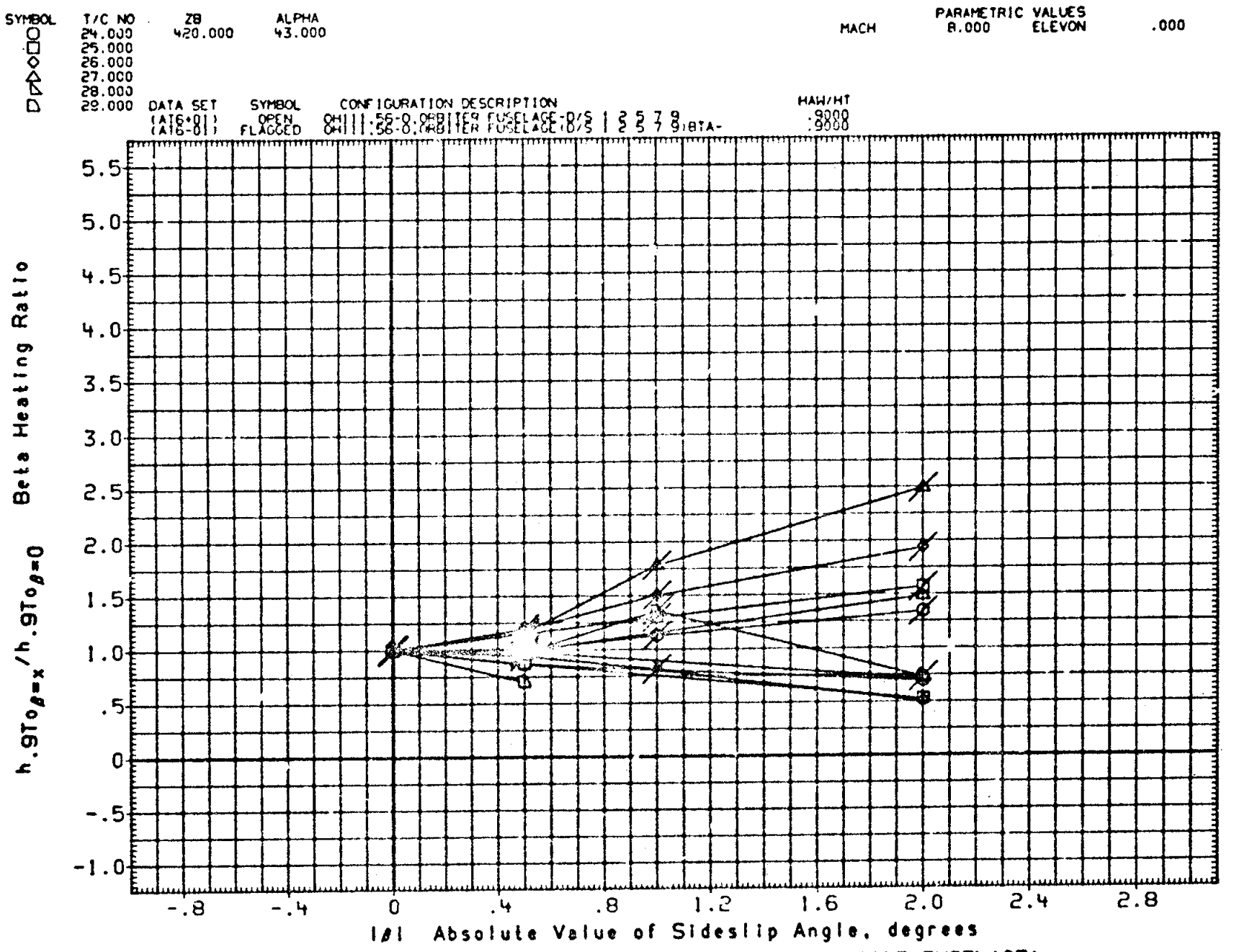

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA
O	30.000	420.000	43.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6-01)	OPEN	OH111 56-0 ORBITER FUSELAGE D/S 1 2 5 7 9	.8000
(AT6-01)	FLAGGED	OH111 56-0 ORBITER FUSELAGE D/S 1 2 5 7 9	.9000

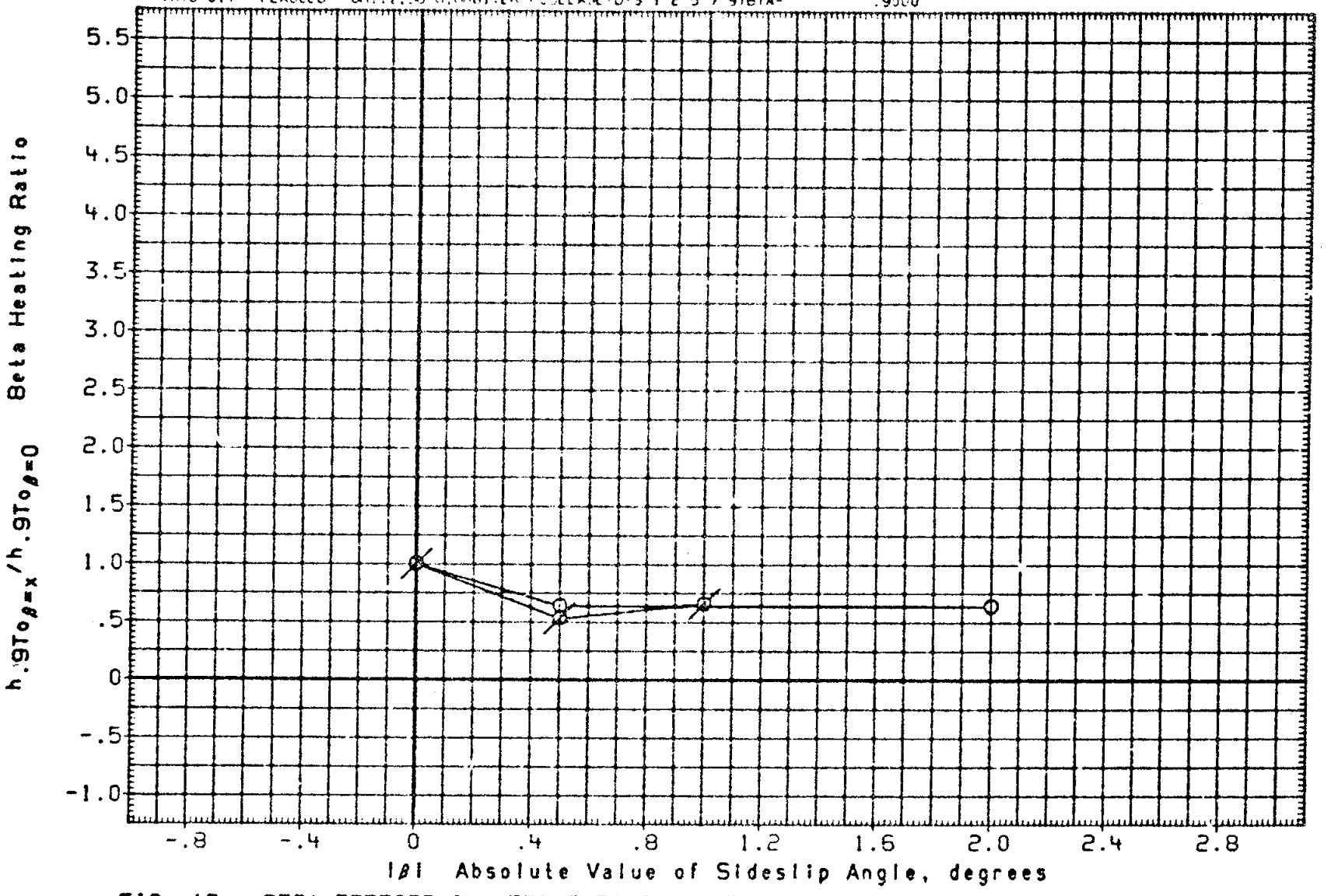

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

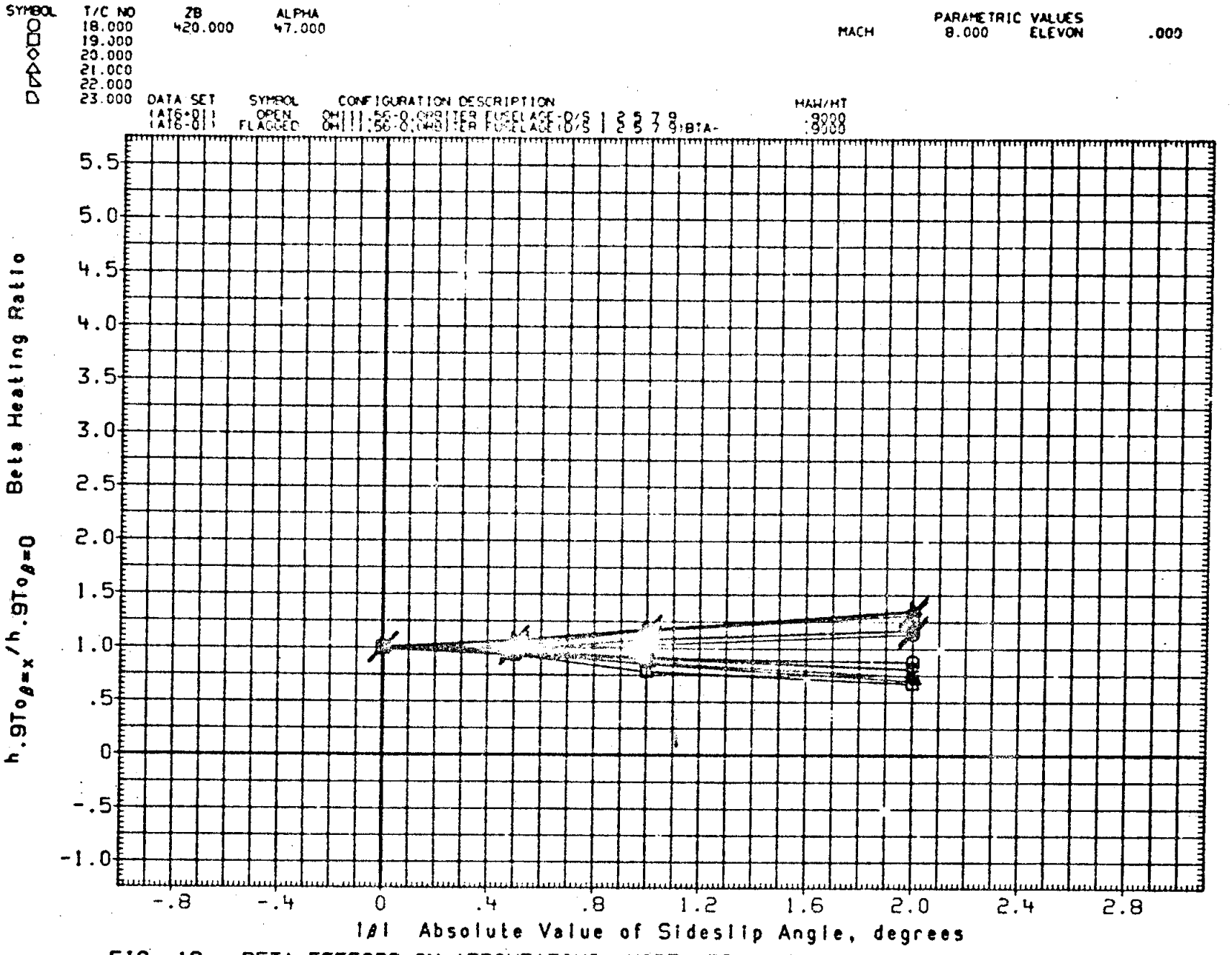

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

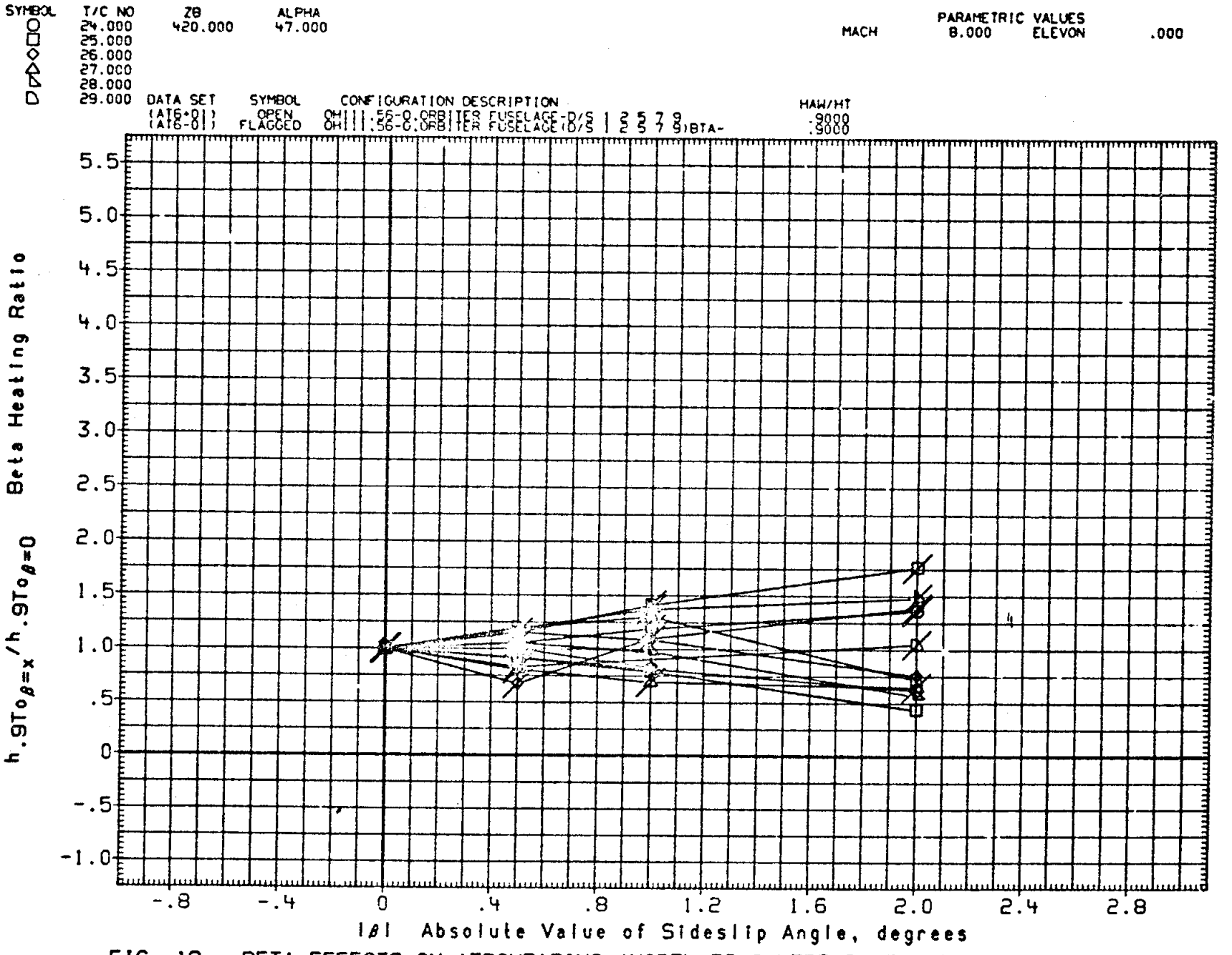

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA
O	30.000	420.000	47.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(ATG+0)	OPEN	OH|||.56-0.ORBITER FUSELAGE-D/S	2 5 7 9	.9000
(ATG-0)	FLAGGED	OH|||.56-0.ORBITER FUSELAGE(D/S | 2 5 7 9)BTA-	.9000

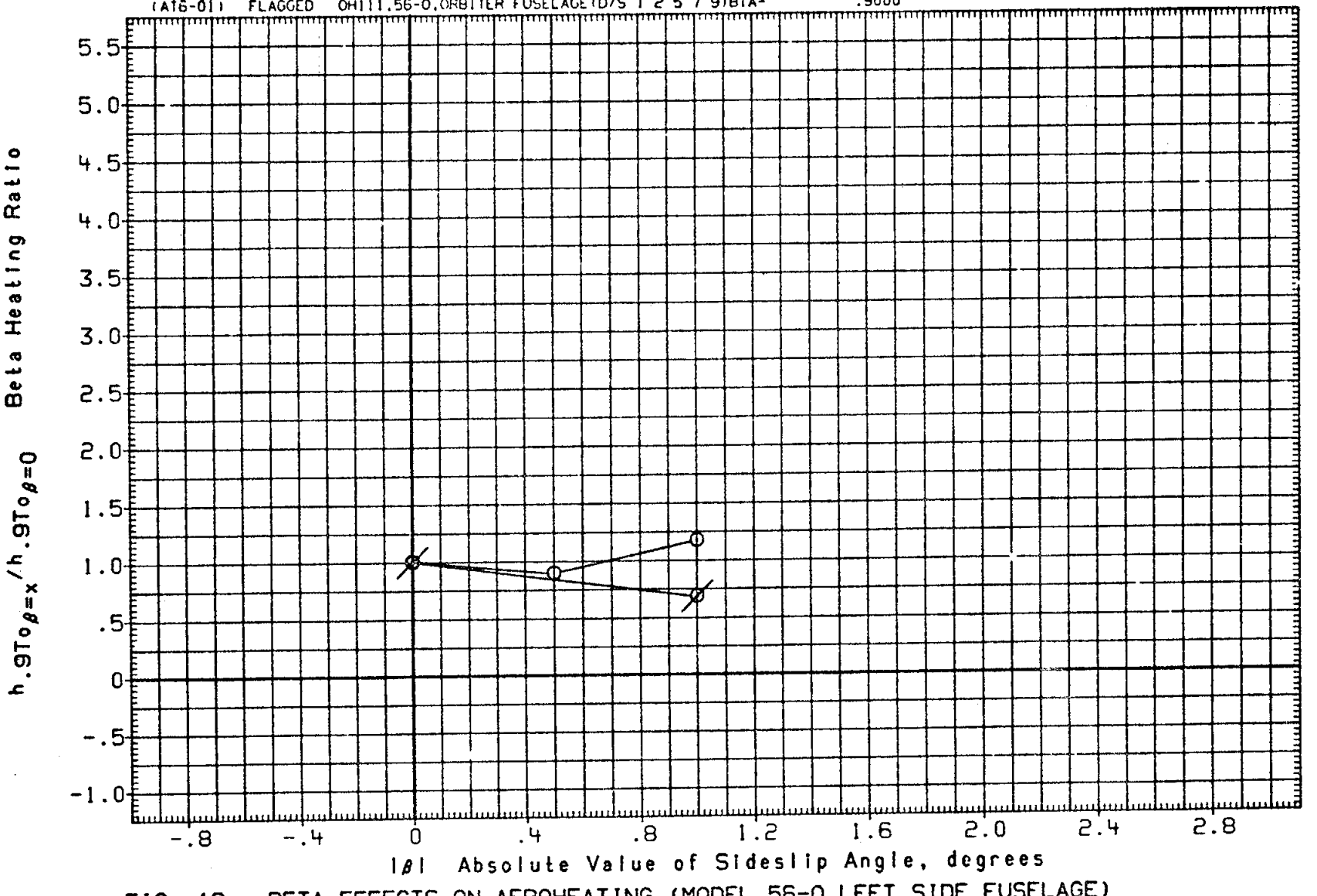

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

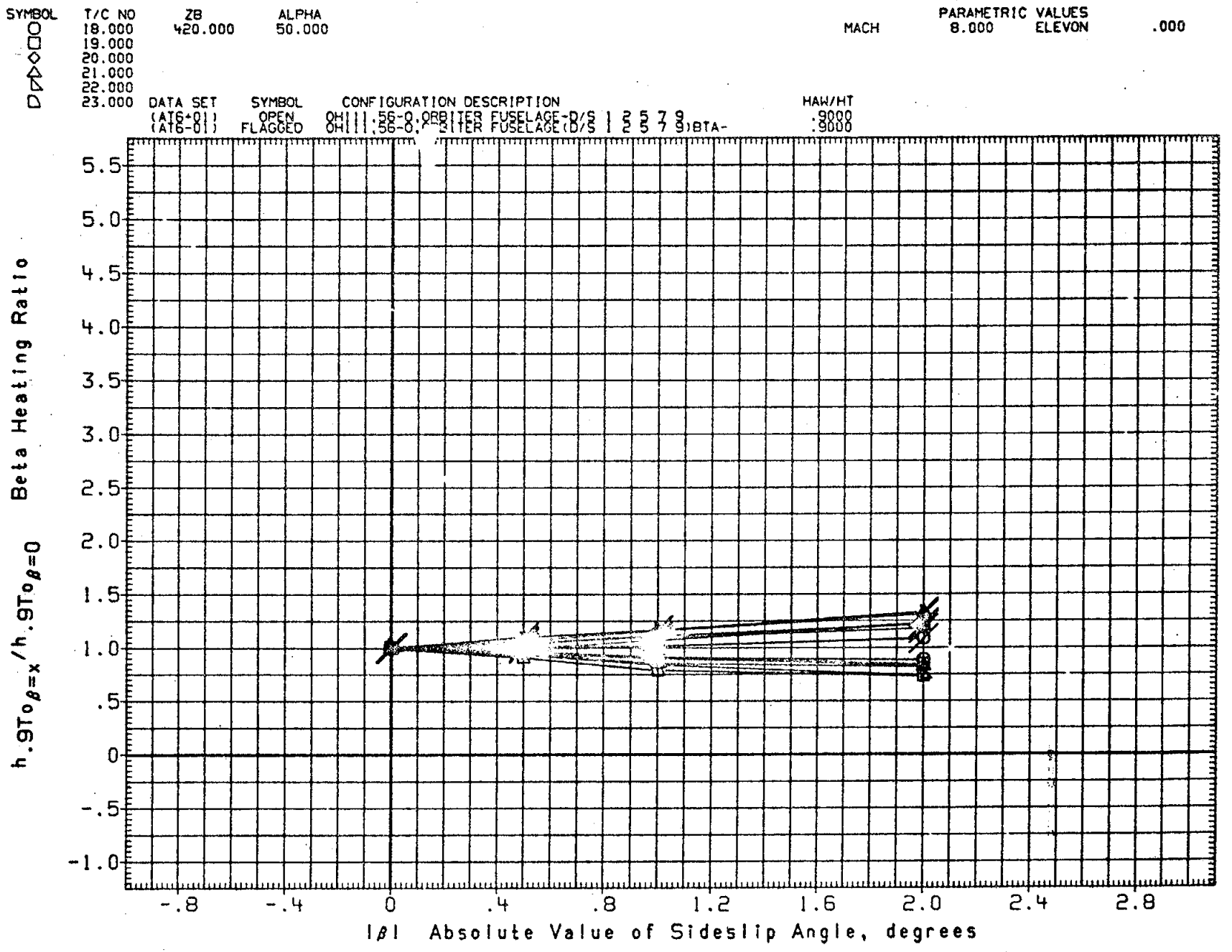

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

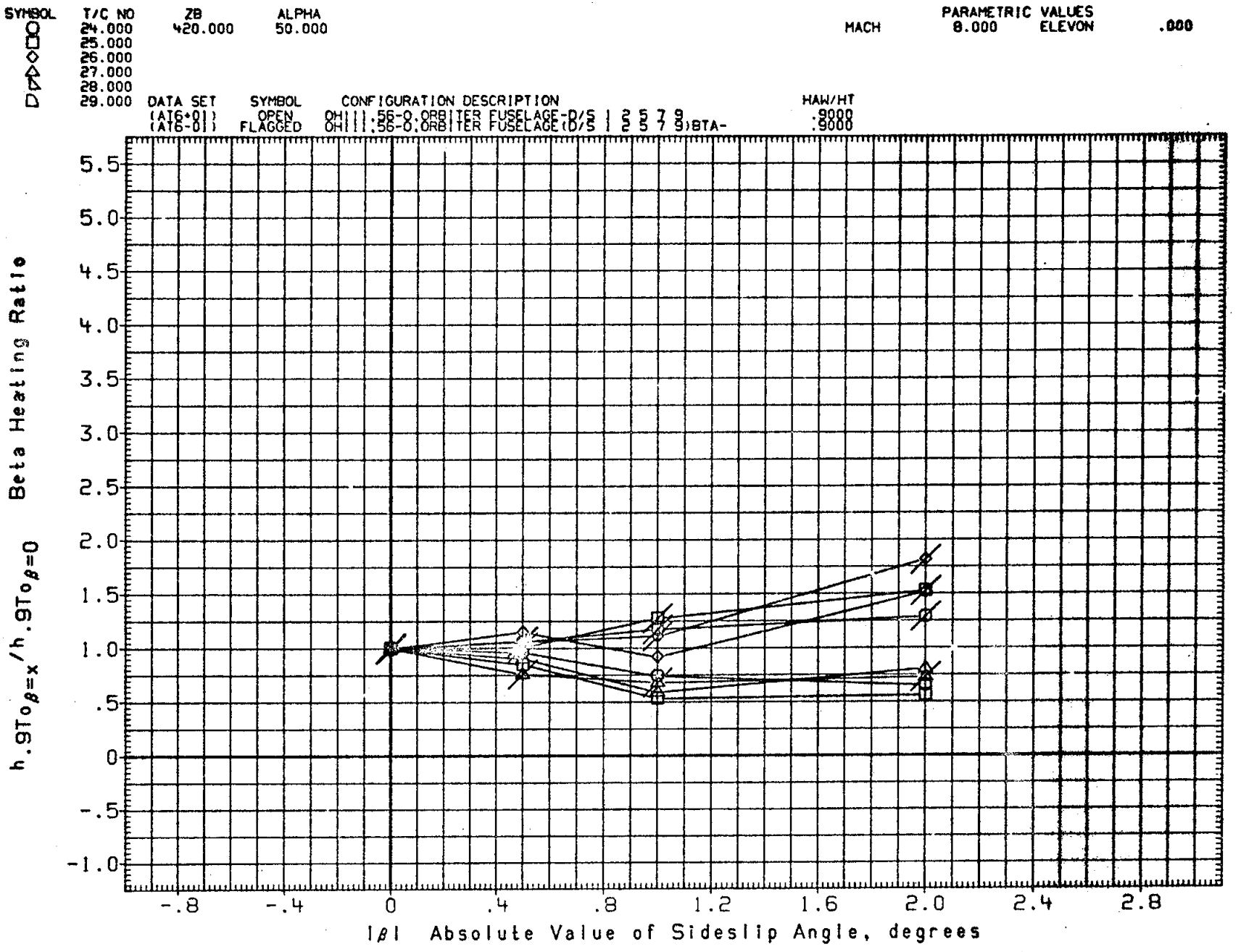

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA	PARAMETRIC VALUES			
O	30.000	420.000	50.000	MACH	8.000	ELEVON	.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+01)	OPEN	OH111.56-0.ORBITER FUSELAGE-D/S 1 2 5 7 9	.9000
(AT6-01)	FLAGGED	OH111.56-0.ORBITER FUSELAGE-D/S 1 2 5 7 9-BTA-	.9000

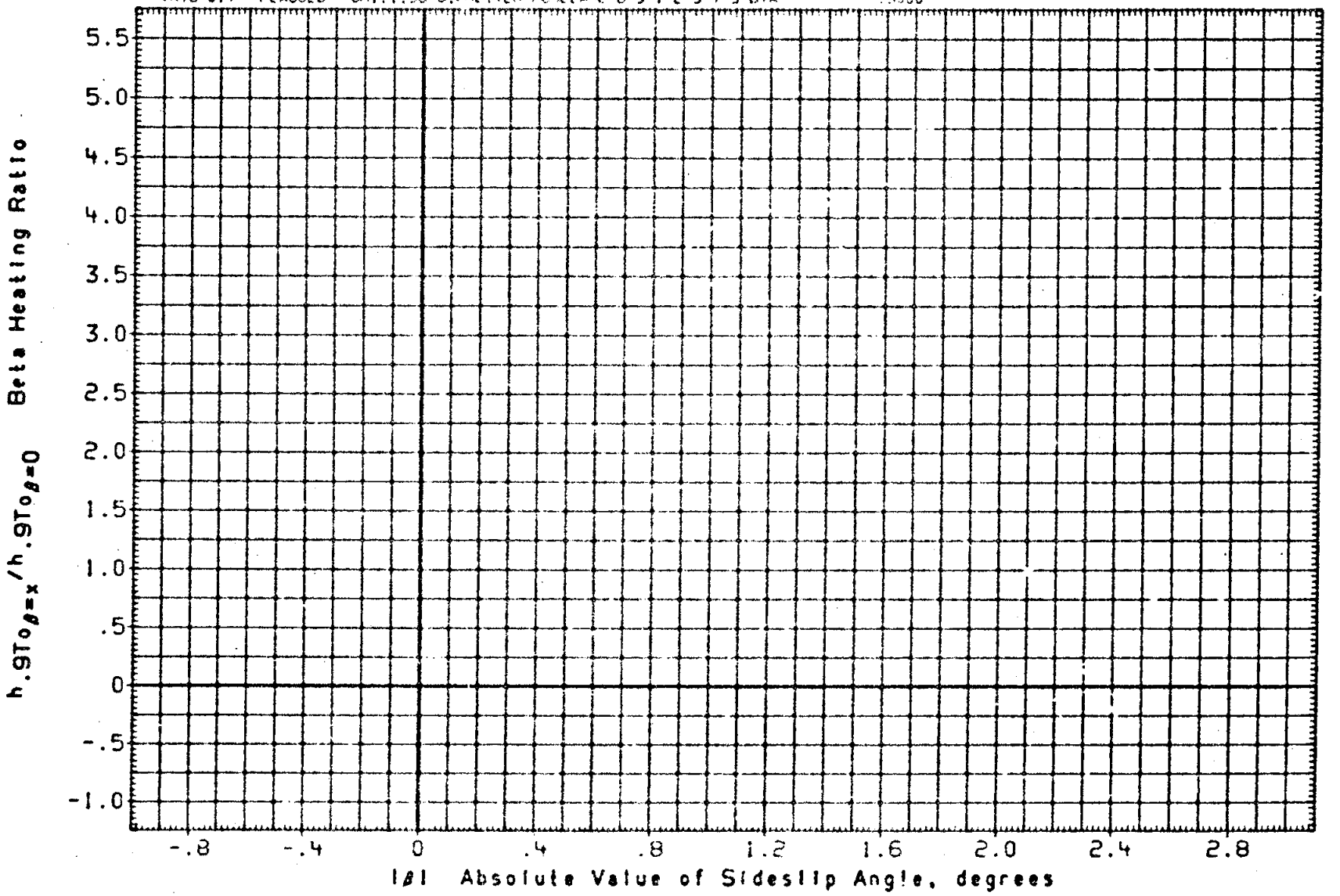

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

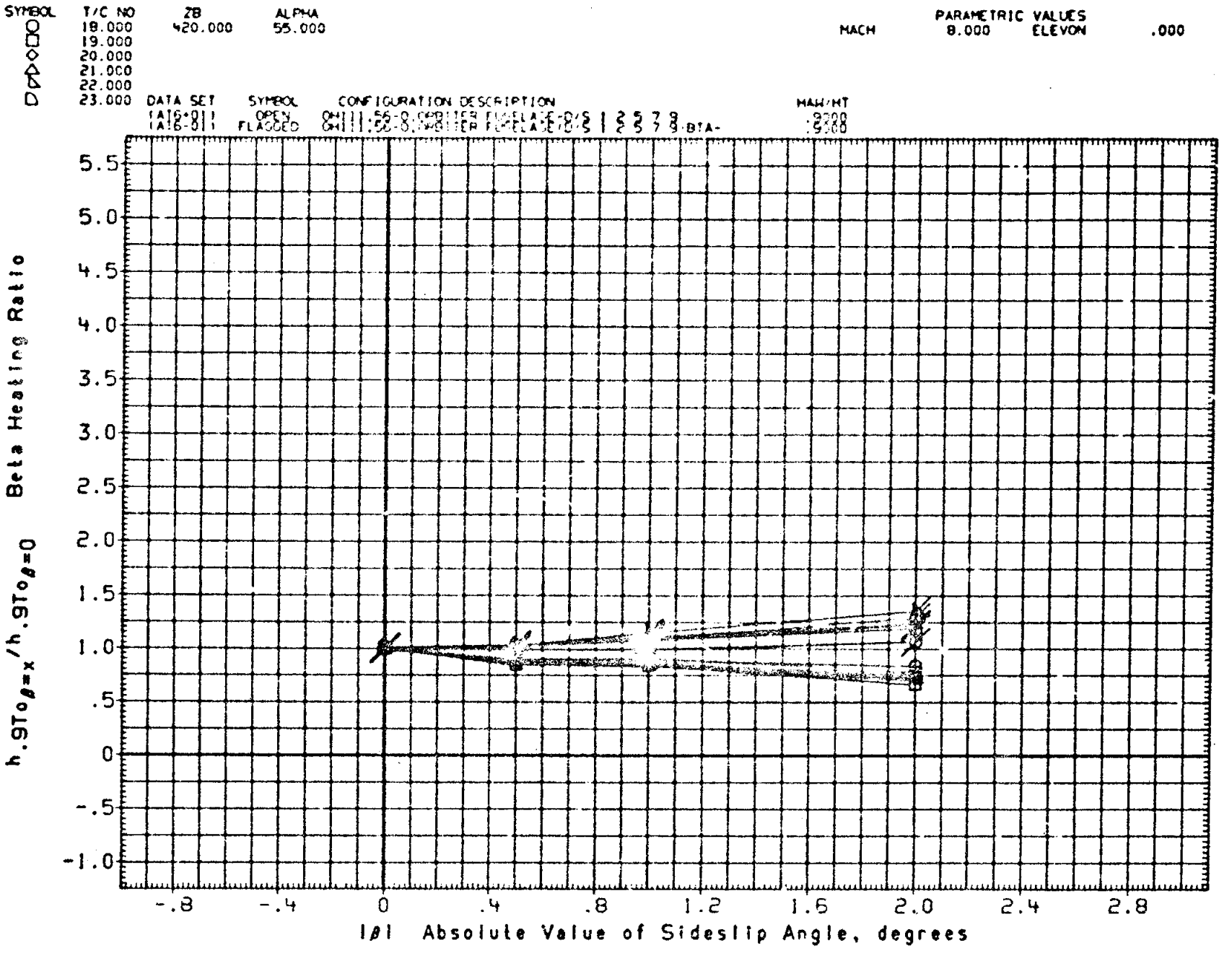

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

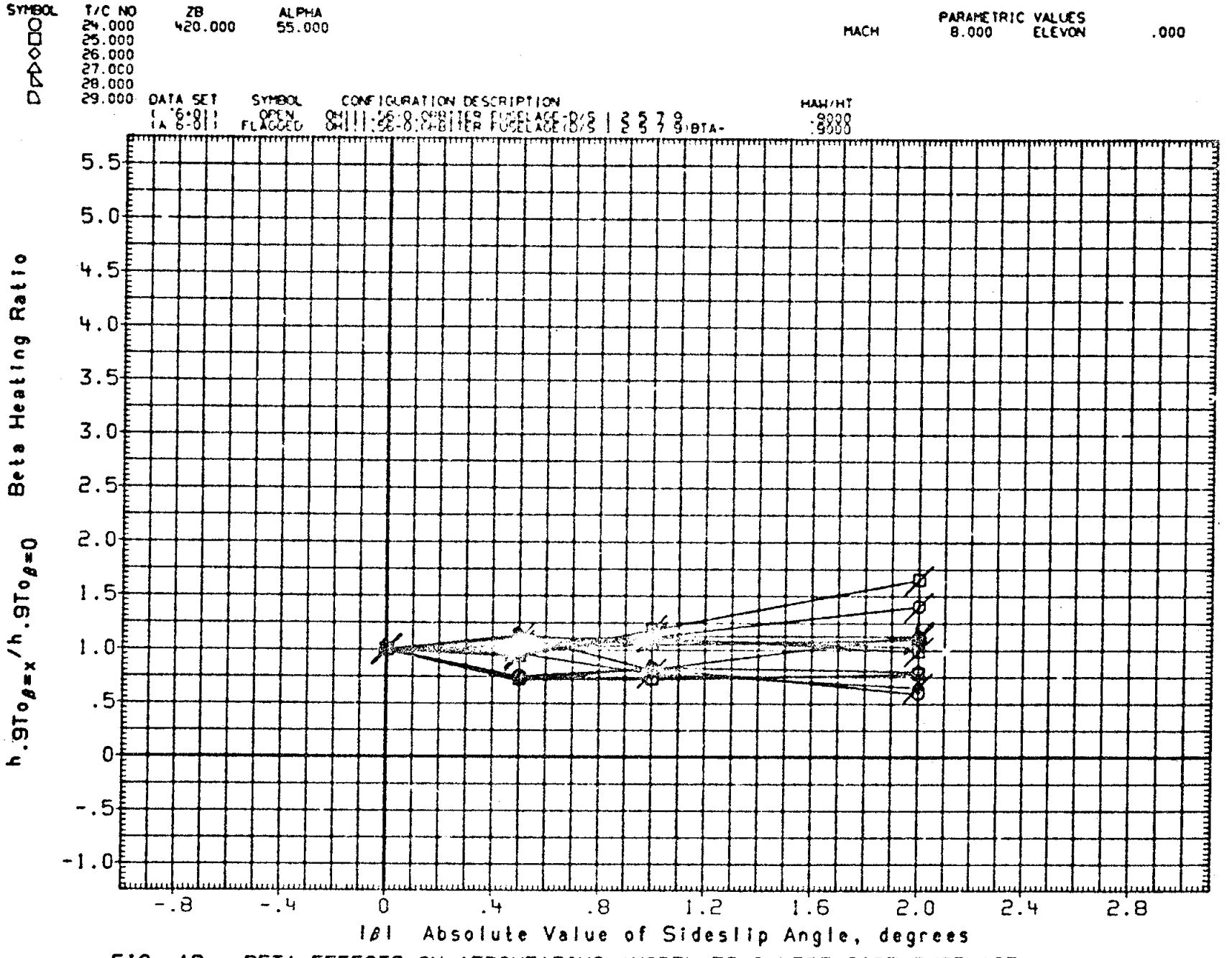

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA	PARAMETRIC VALUES			
O	30.000	420.000	55.000	MACH	8.000	ELEVON	.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6-01)	OPEN	OH111.56-0.ORBITER FUSELAGE-D/S 1 2 5 7 9	.9000
(AT6-01)	FLAGGED	OH111.56-0.ORBITER FUSELAGE(D/S 1 2 5 7 9)BTA-	.9000

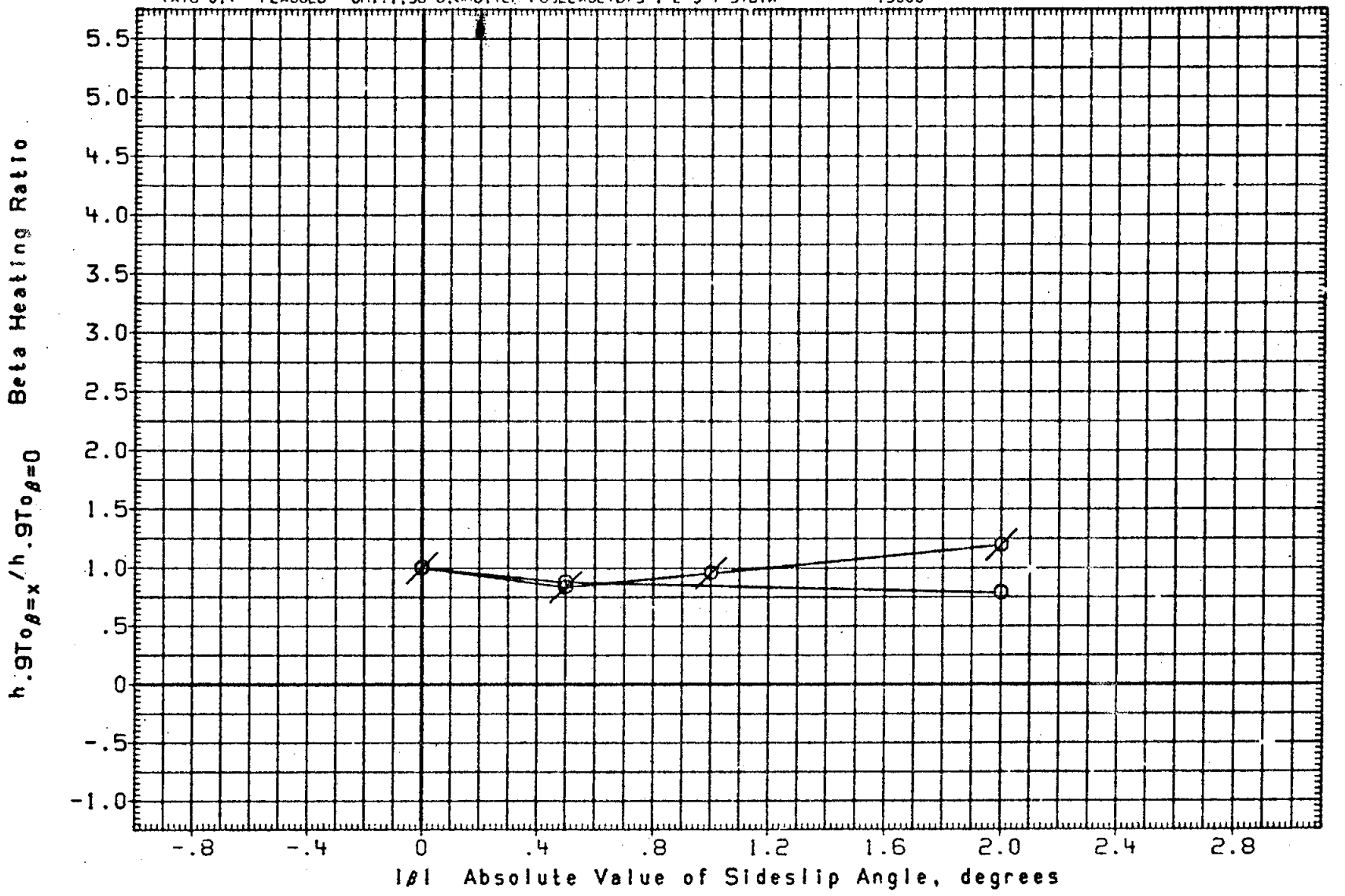

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

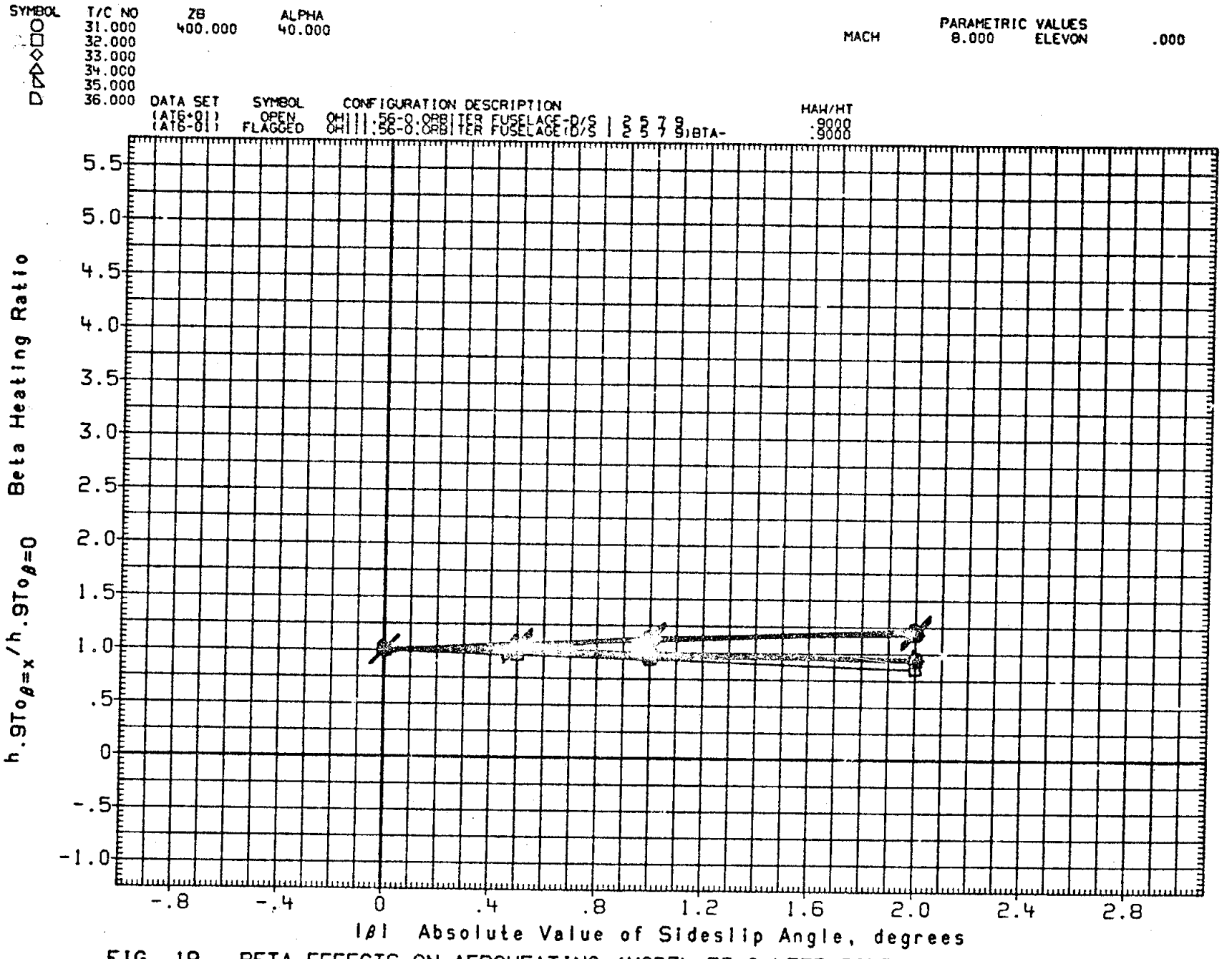

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

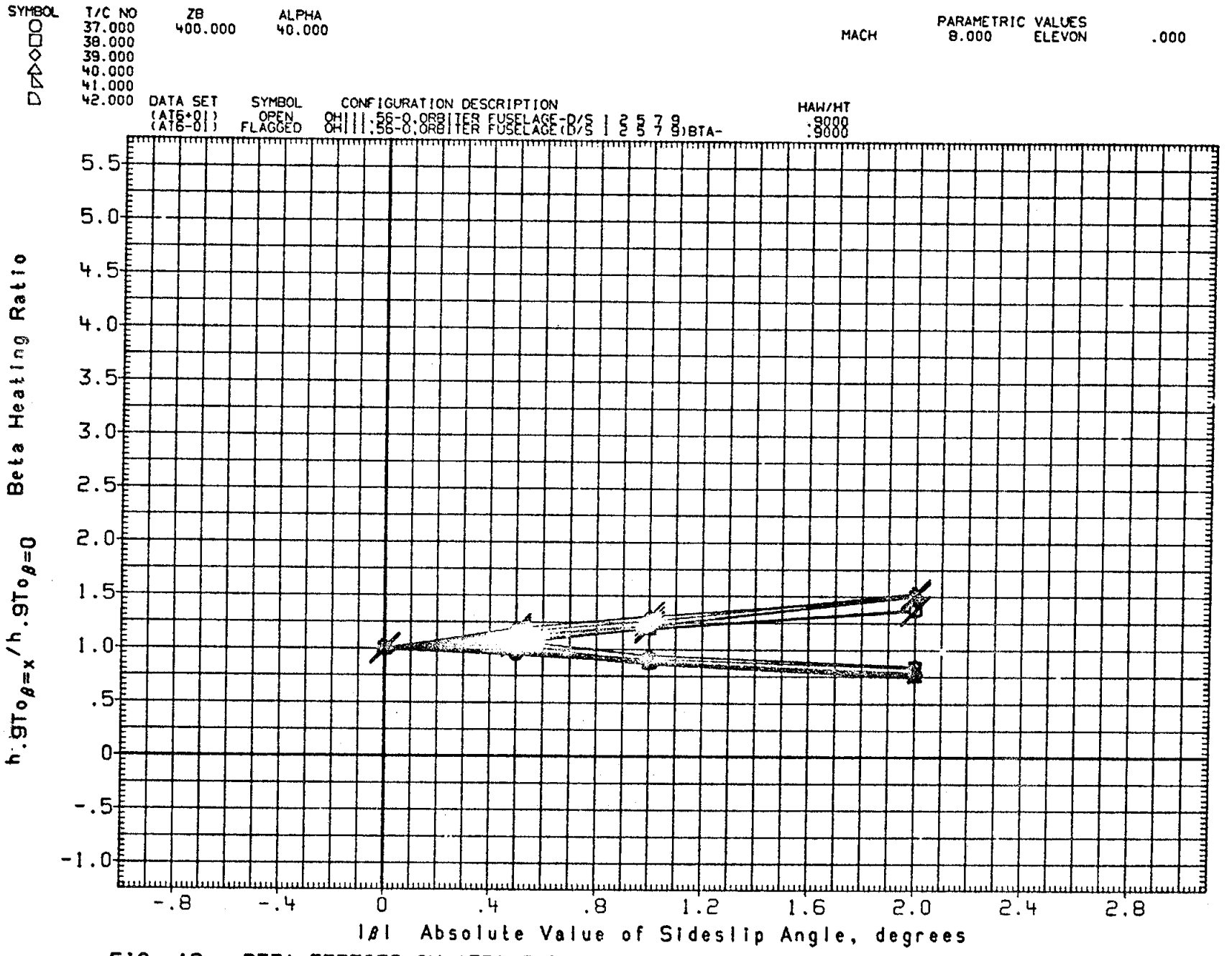

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

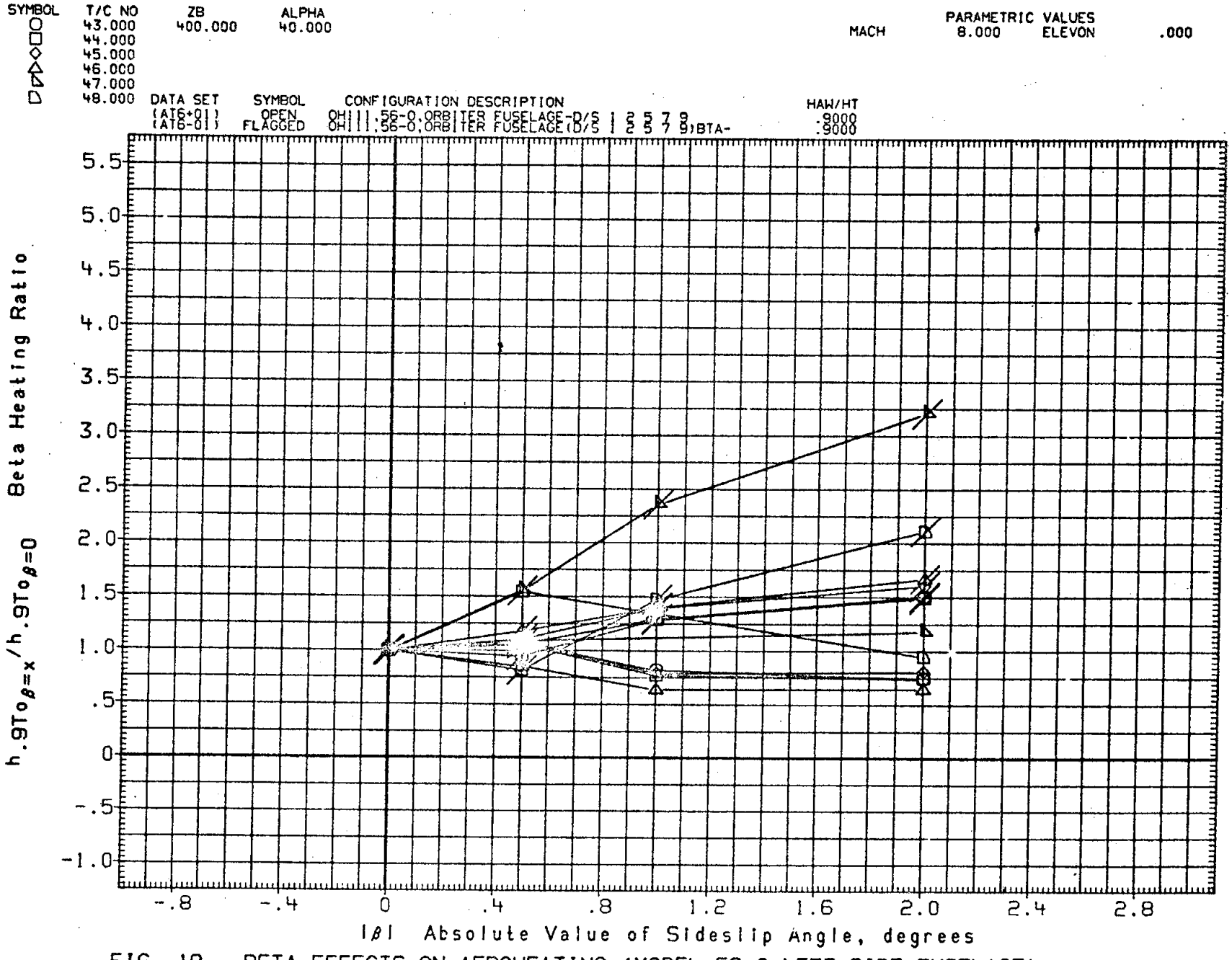

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

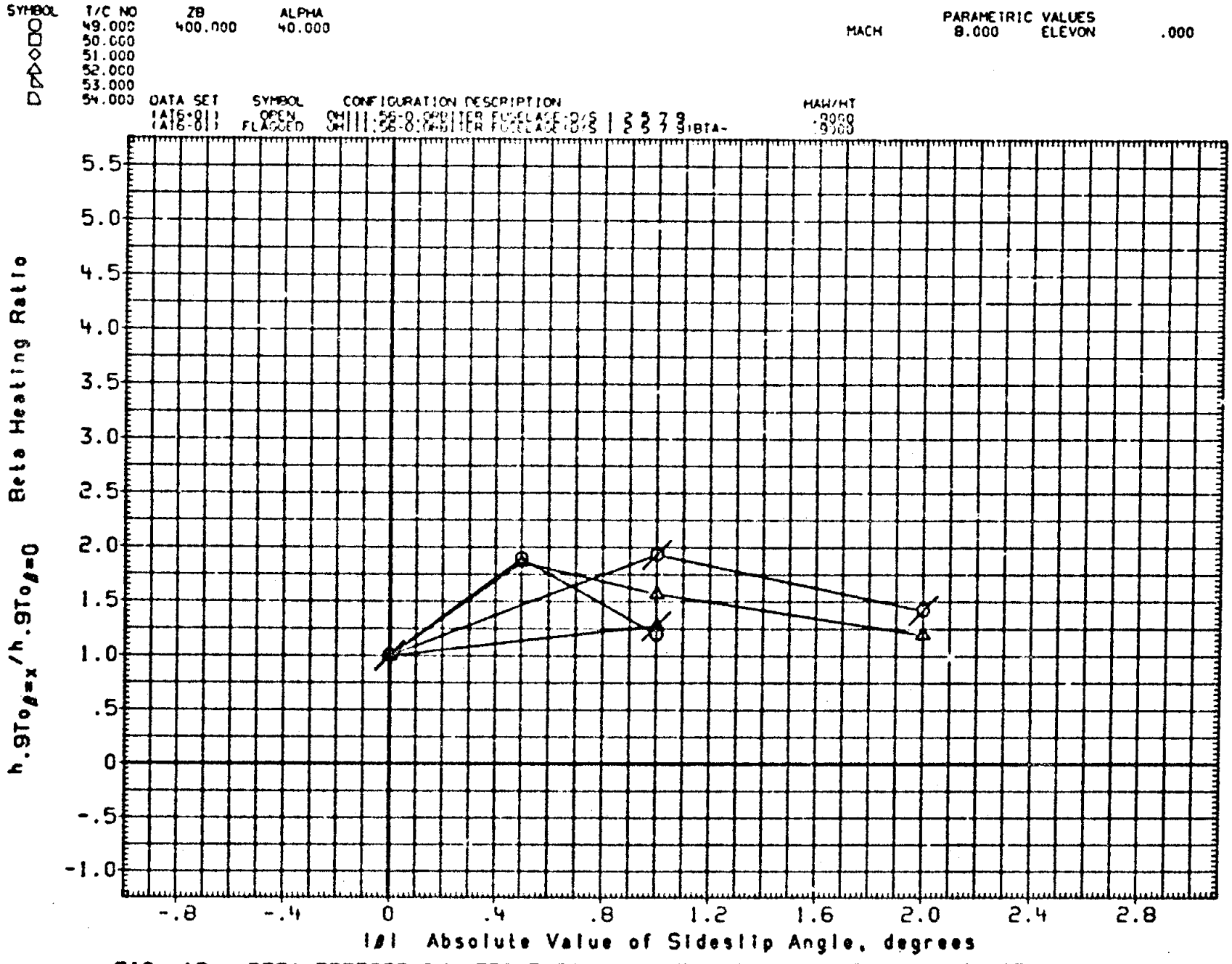

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

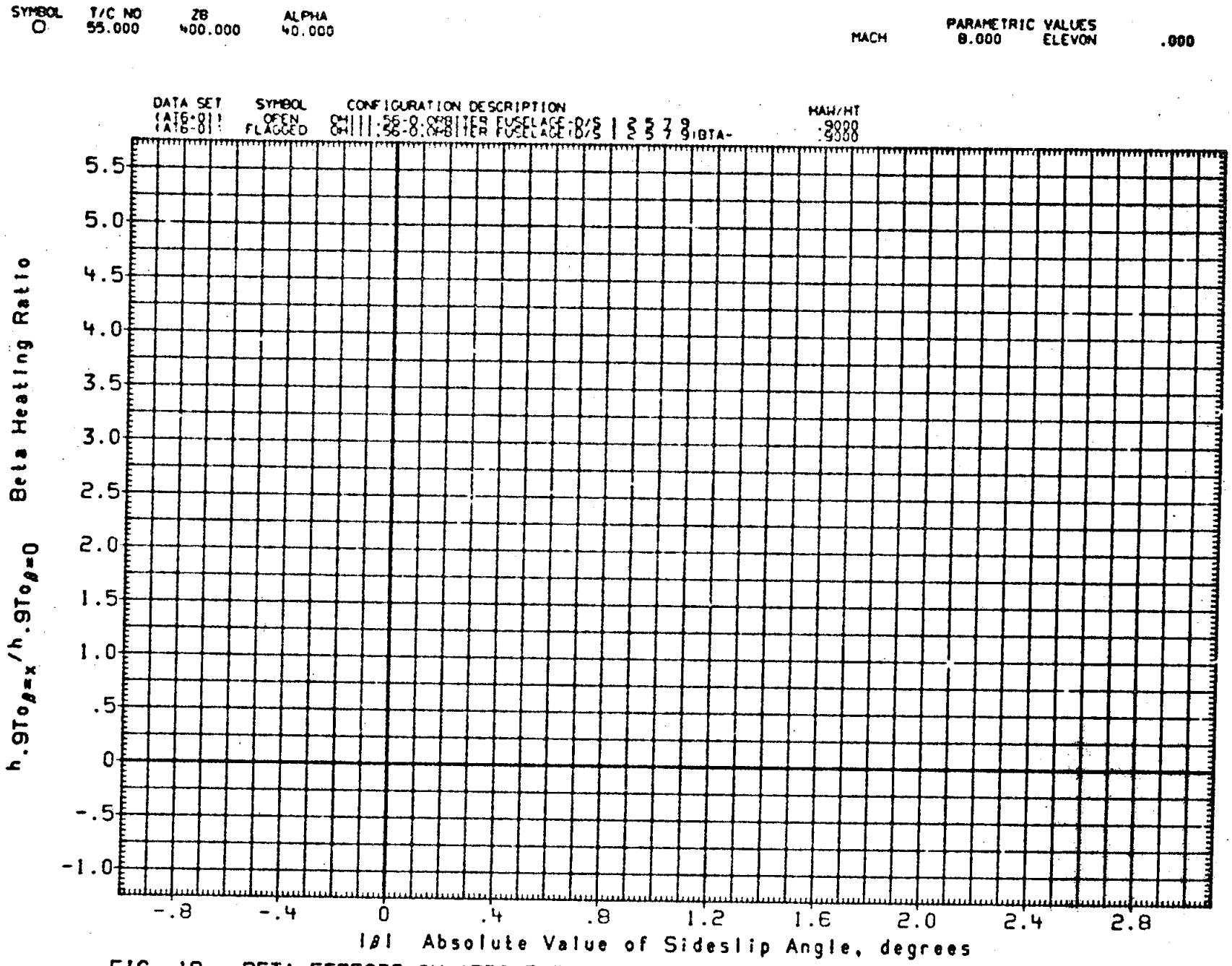

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

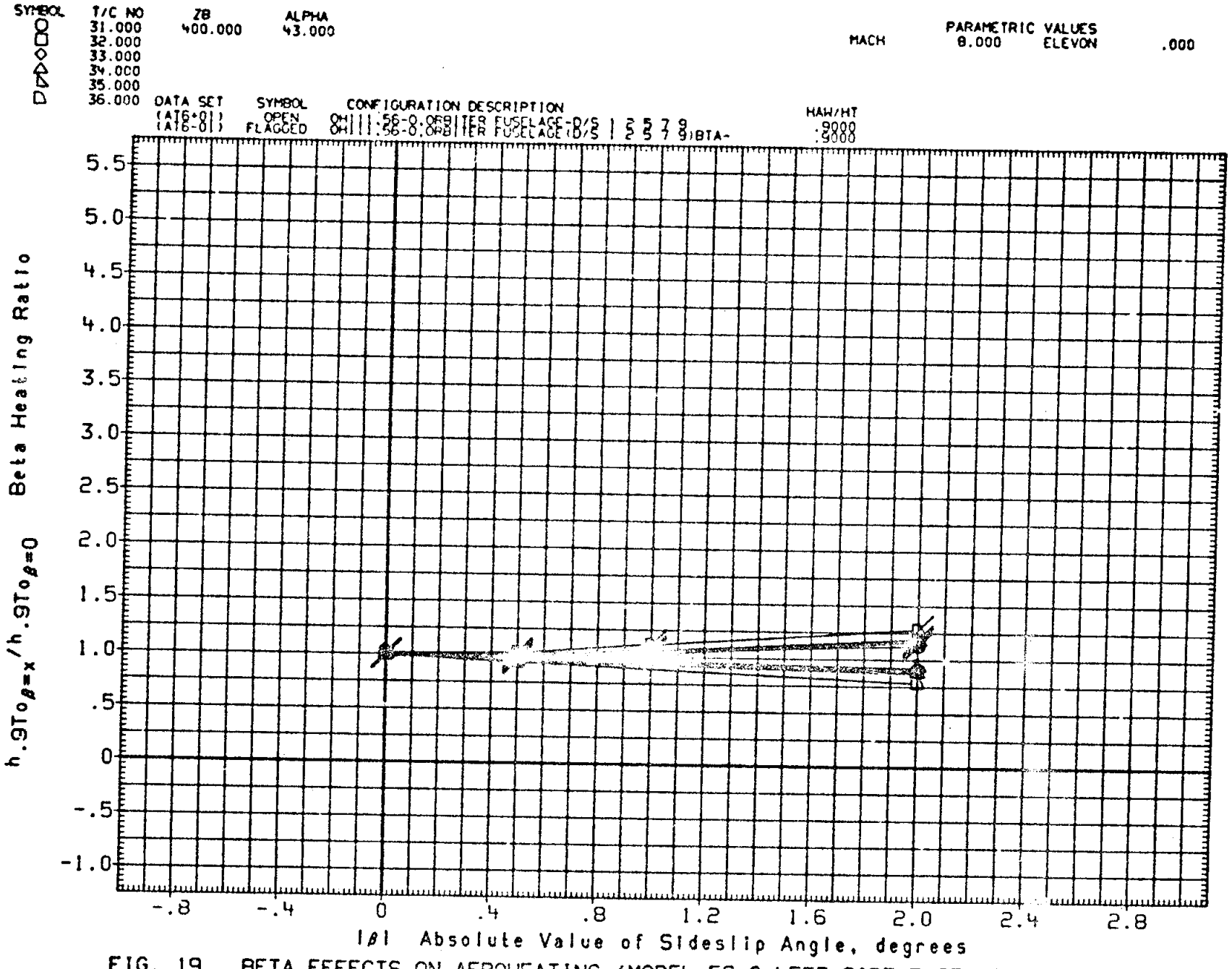

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

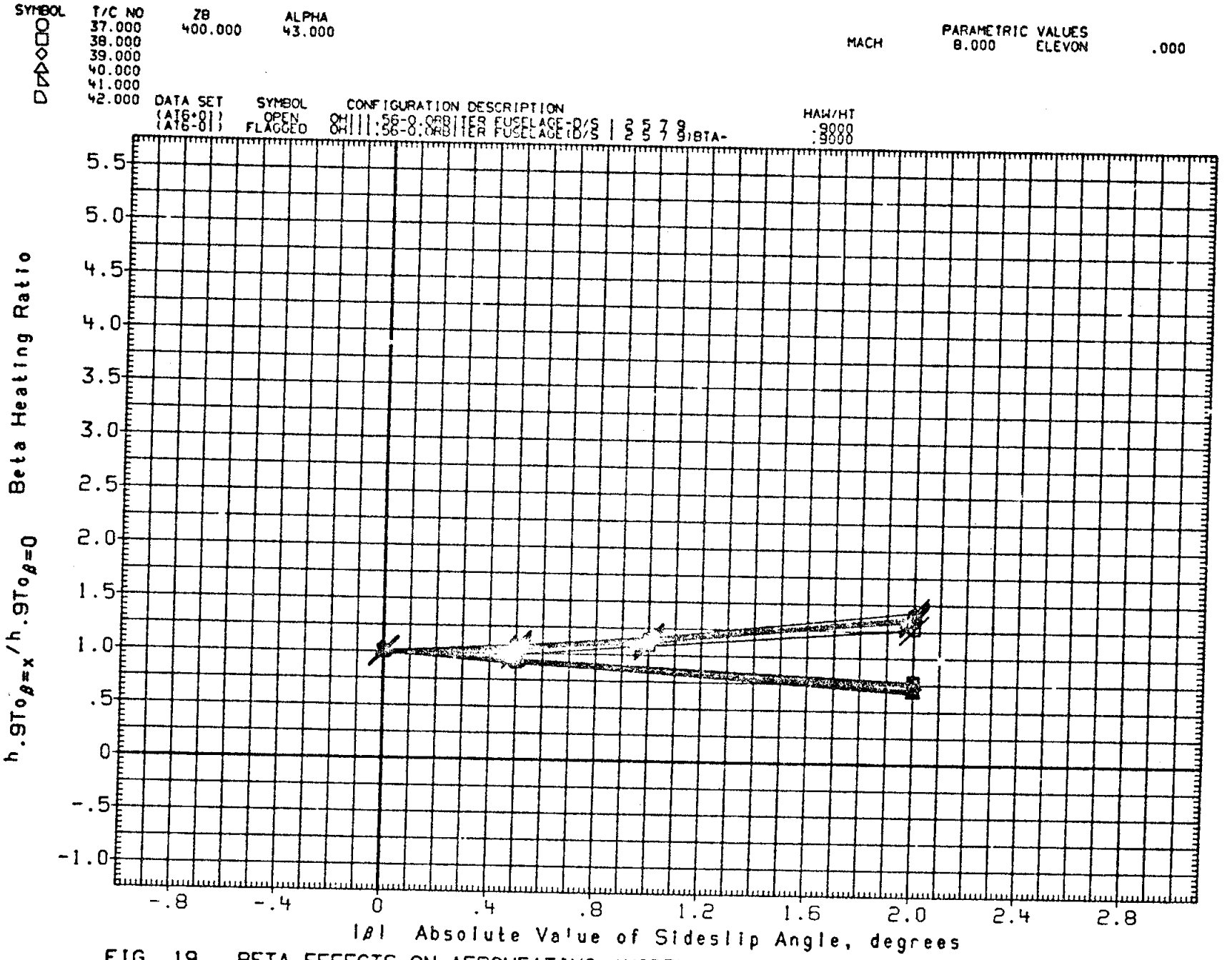

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

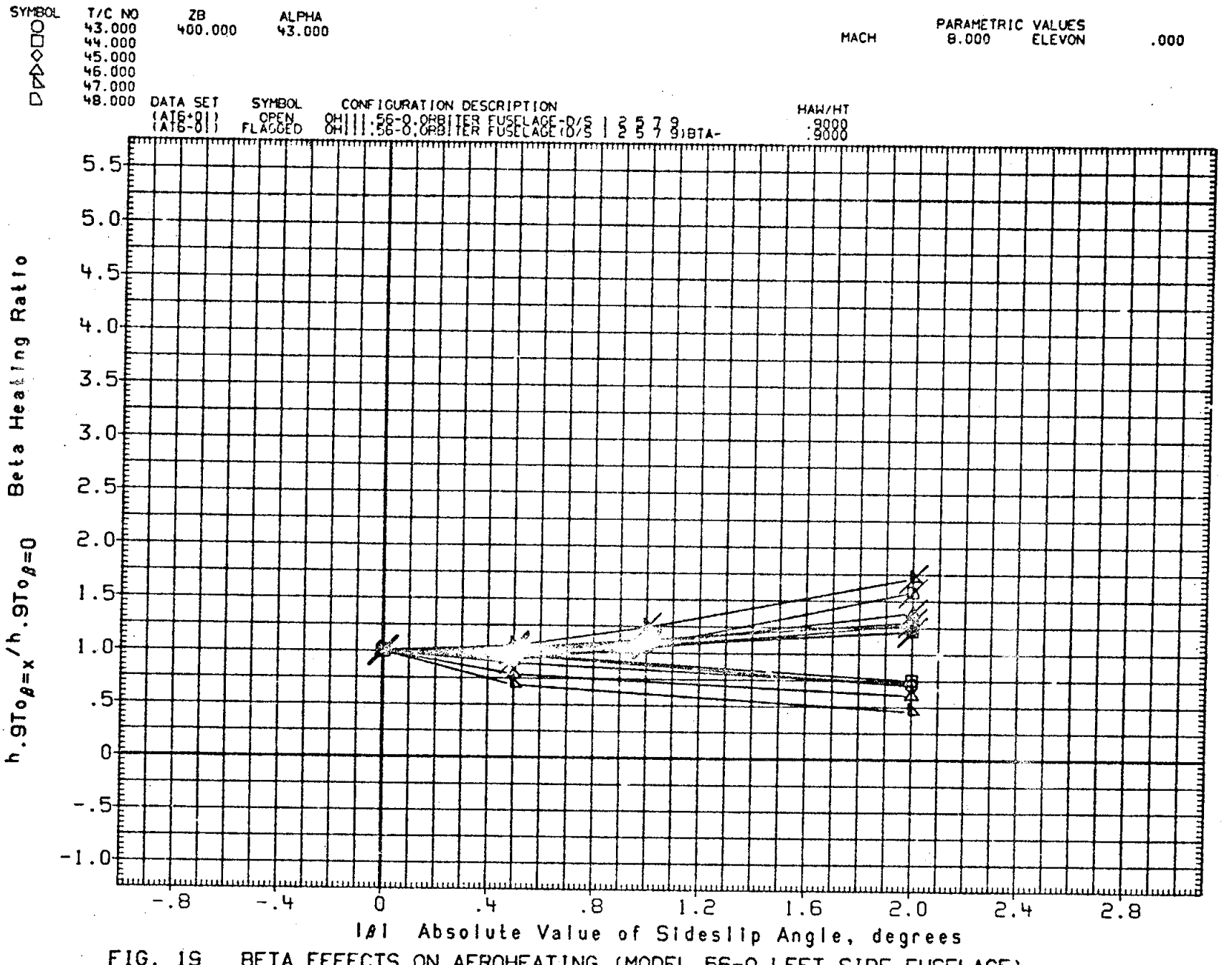

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

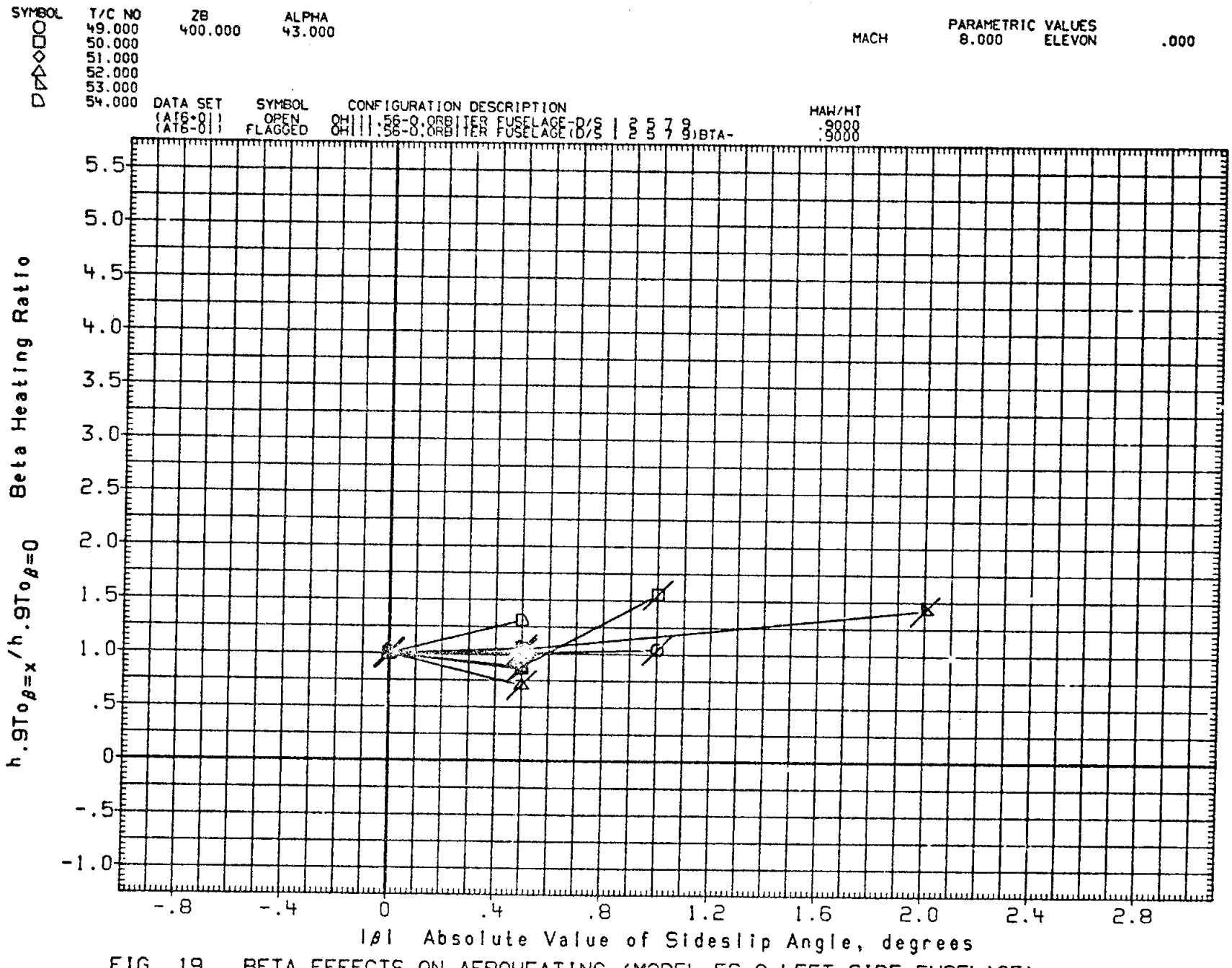

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA		PARAMETRIC VALUES		
O	55.000	400.000	43.000	MACH	8.000	ELEVON	.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+0)	OPEN	OH|||.56-0.ORBITER FUSELAGE-D/S	2 5 7 9	.9000
(AT6-0)	FLAGGED	OH|||.56-0.ORBITER FUSELAGE(D/S | 2 5 7 9)BTA-	.9000

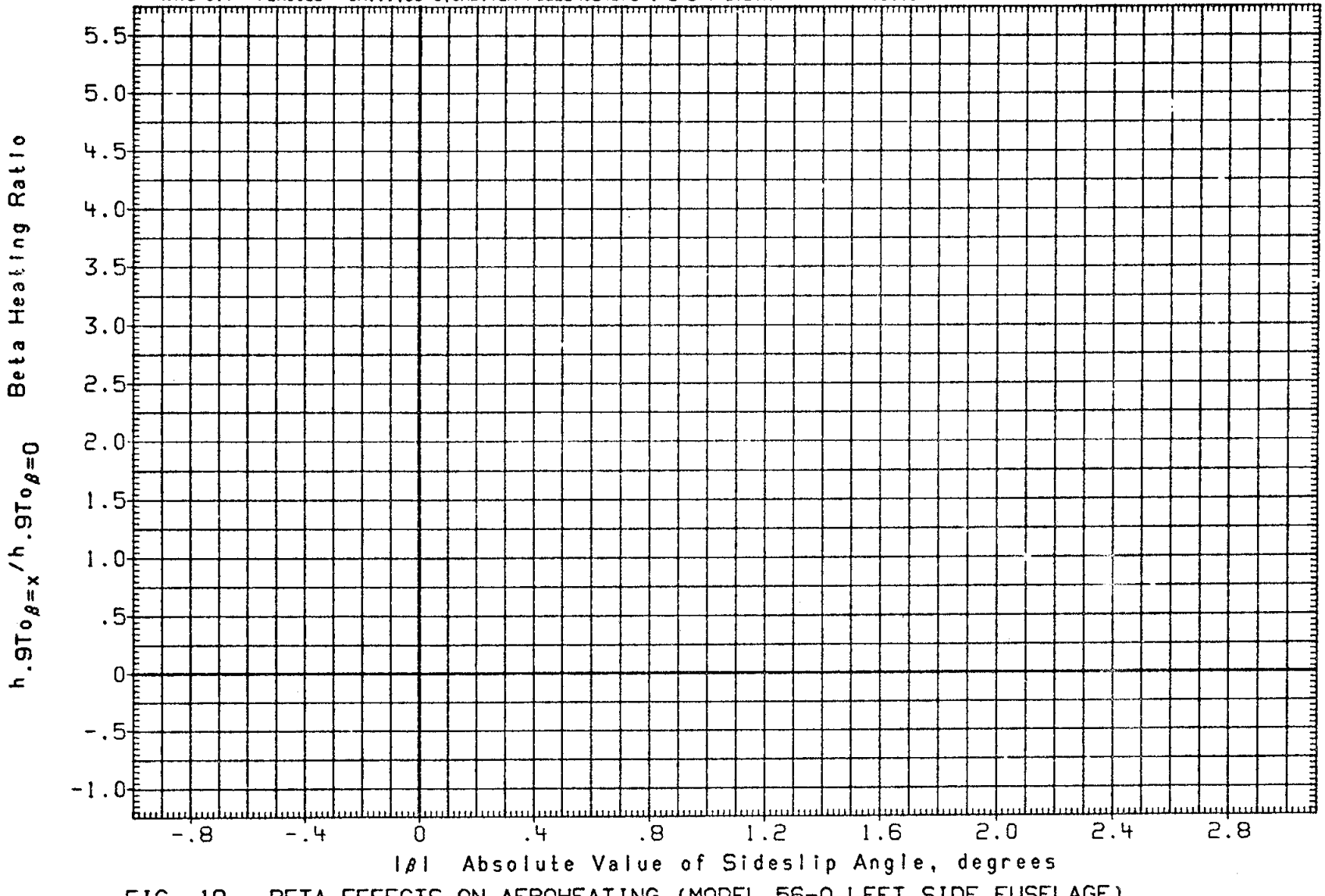

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

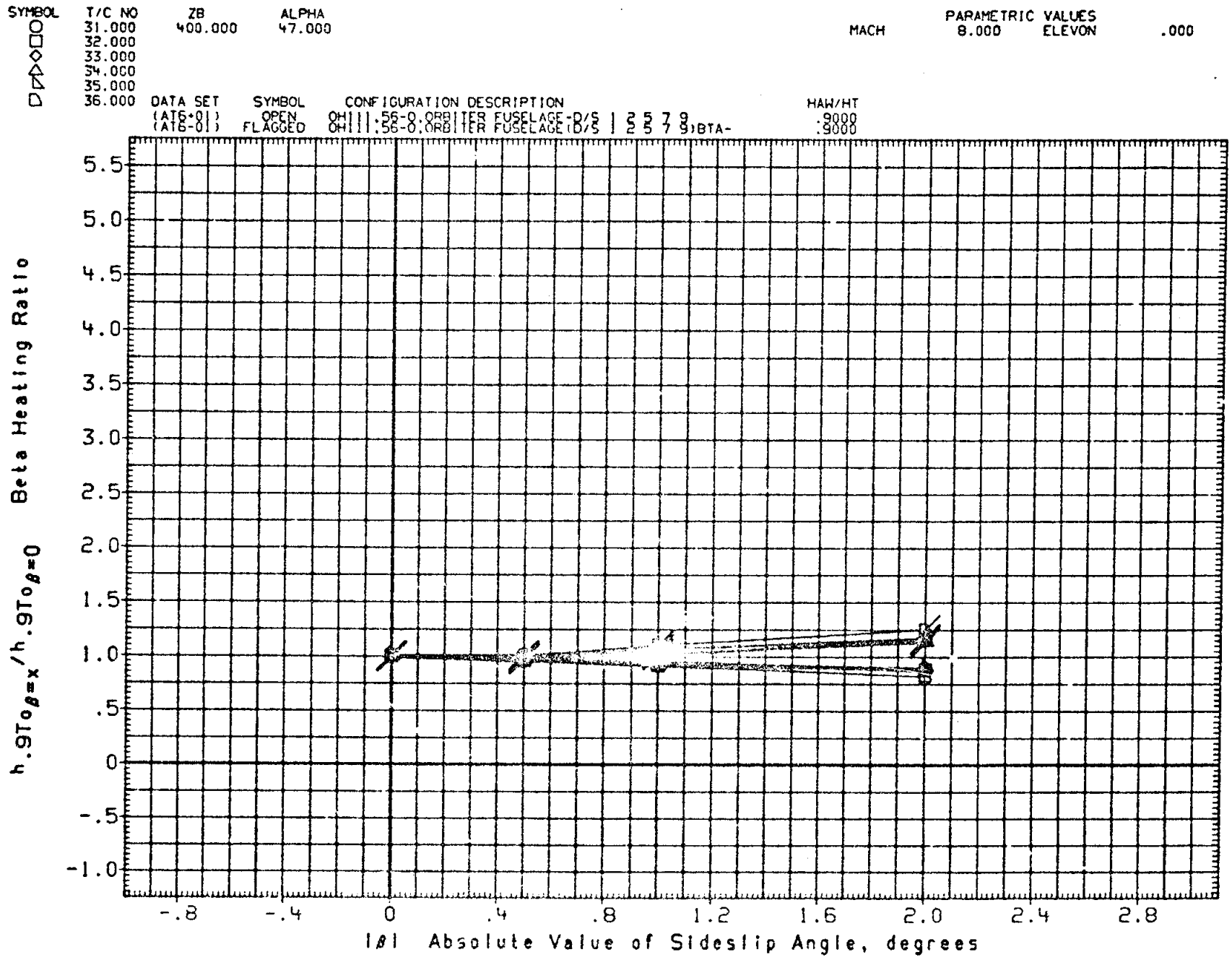

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

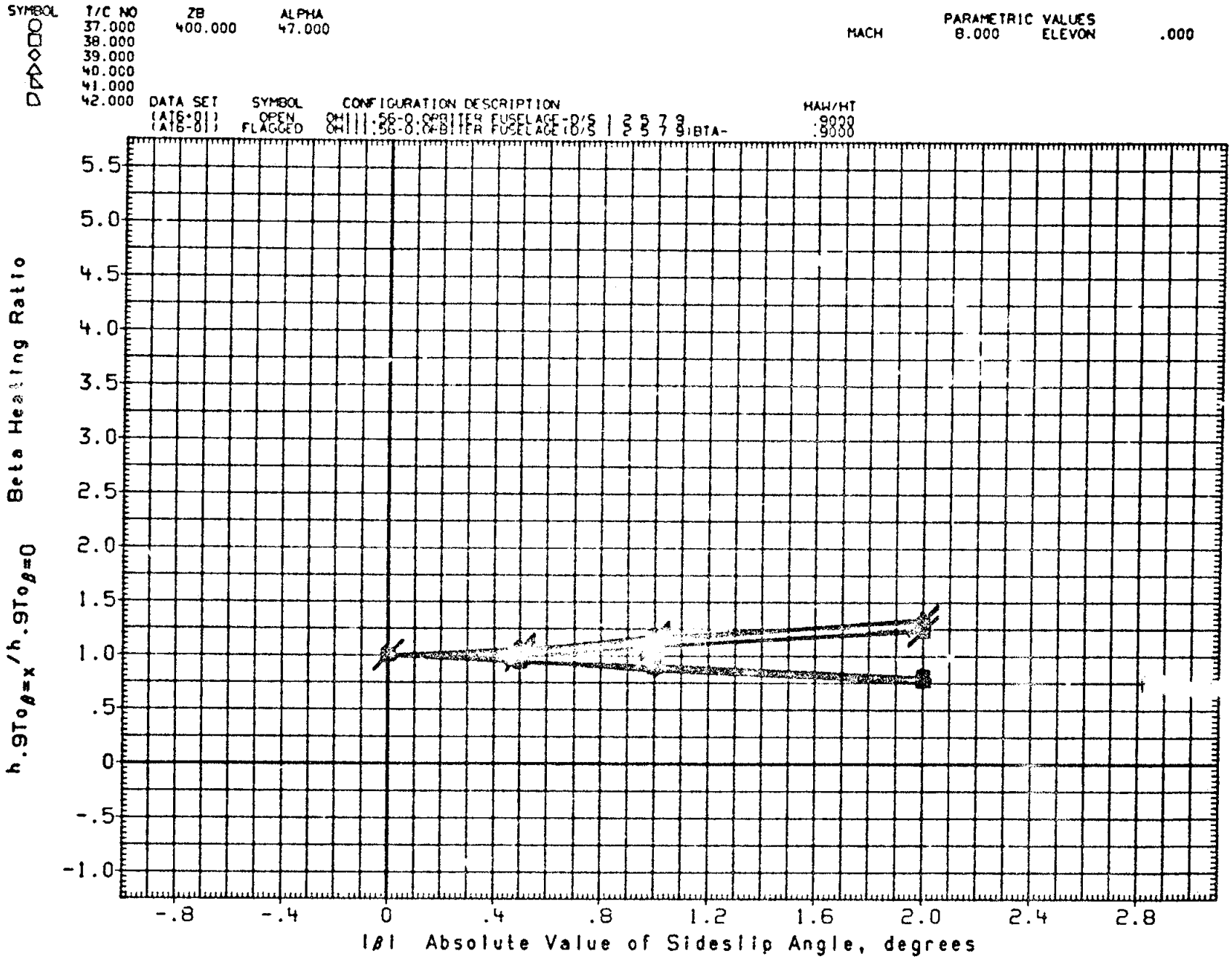

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

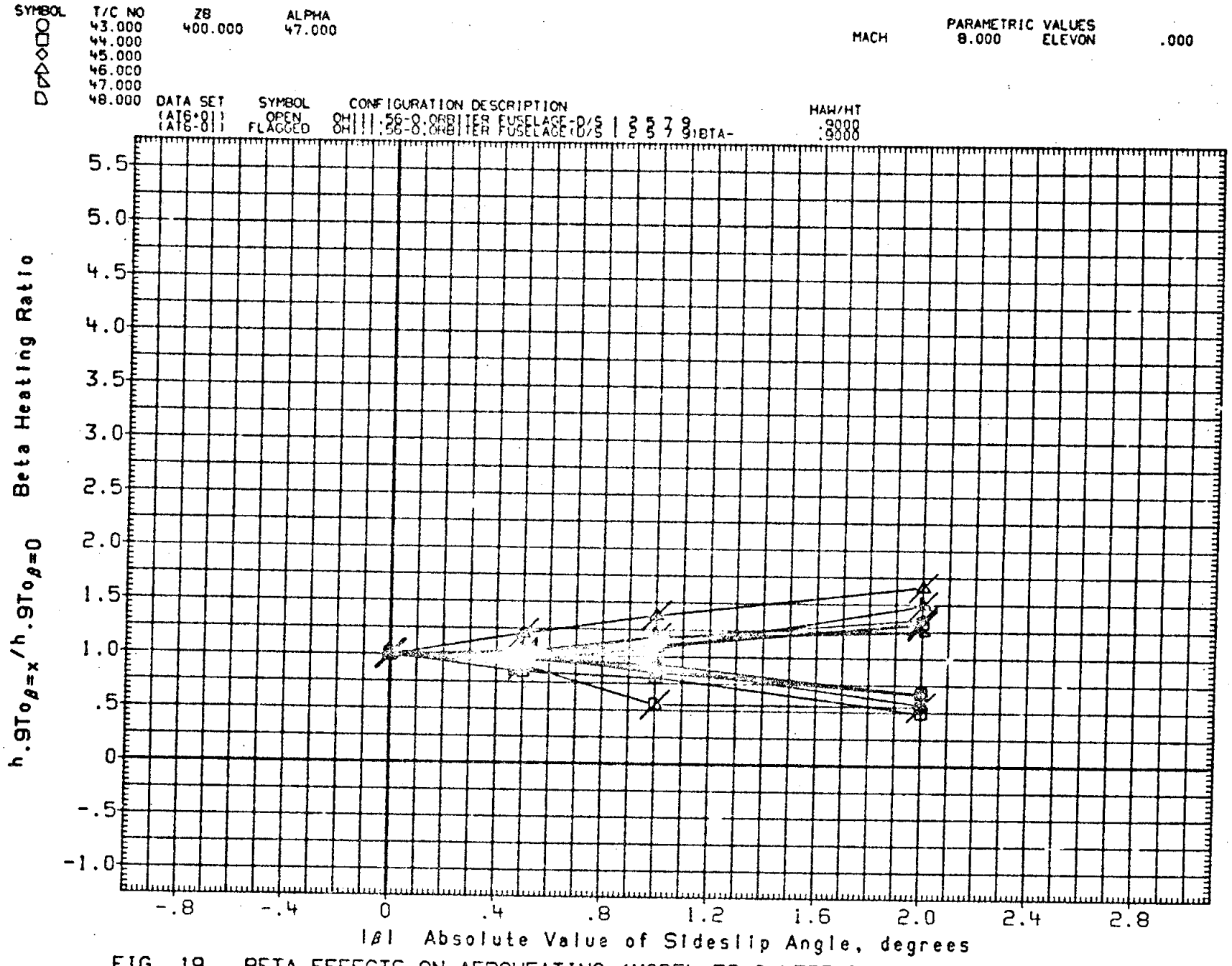

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

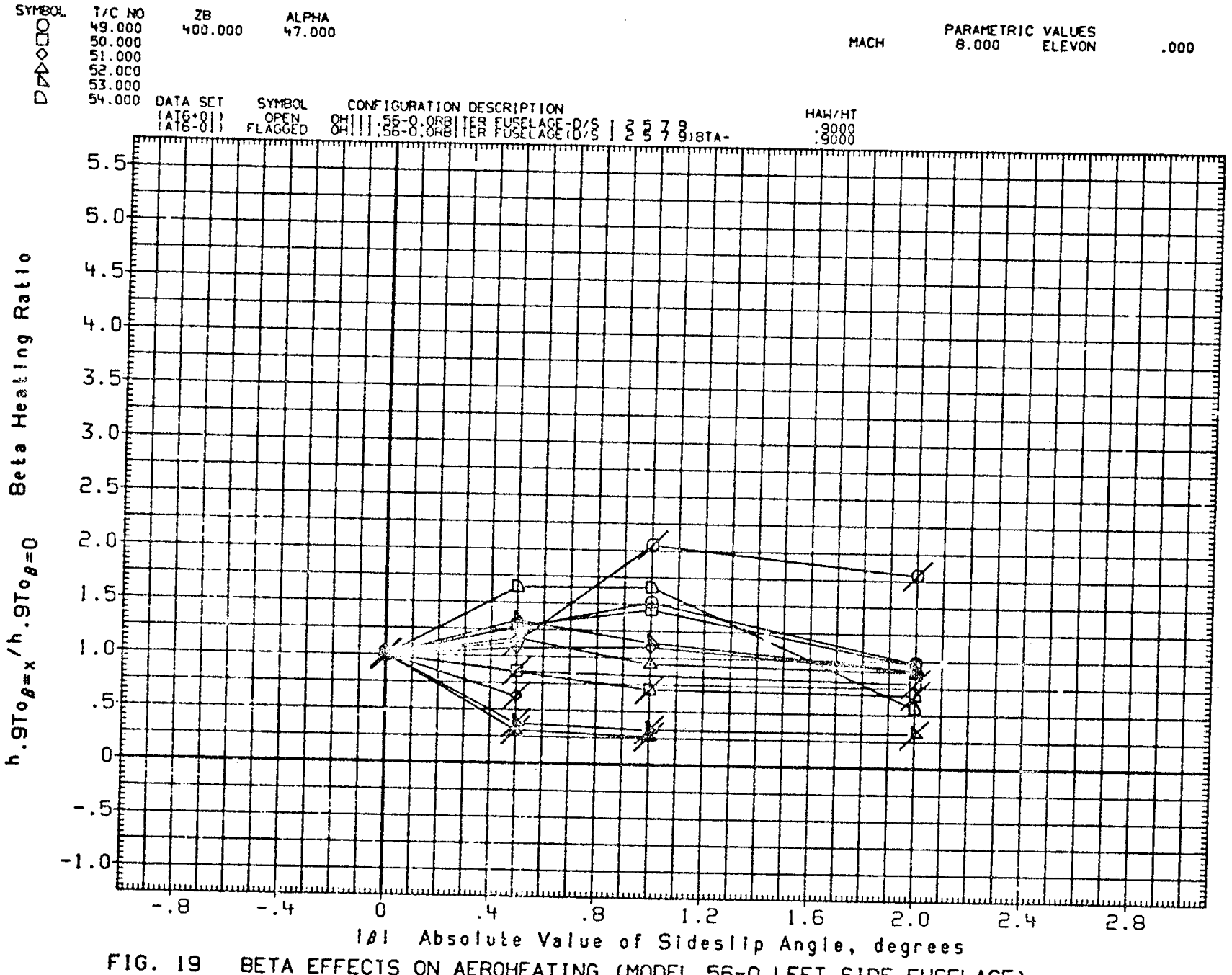

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

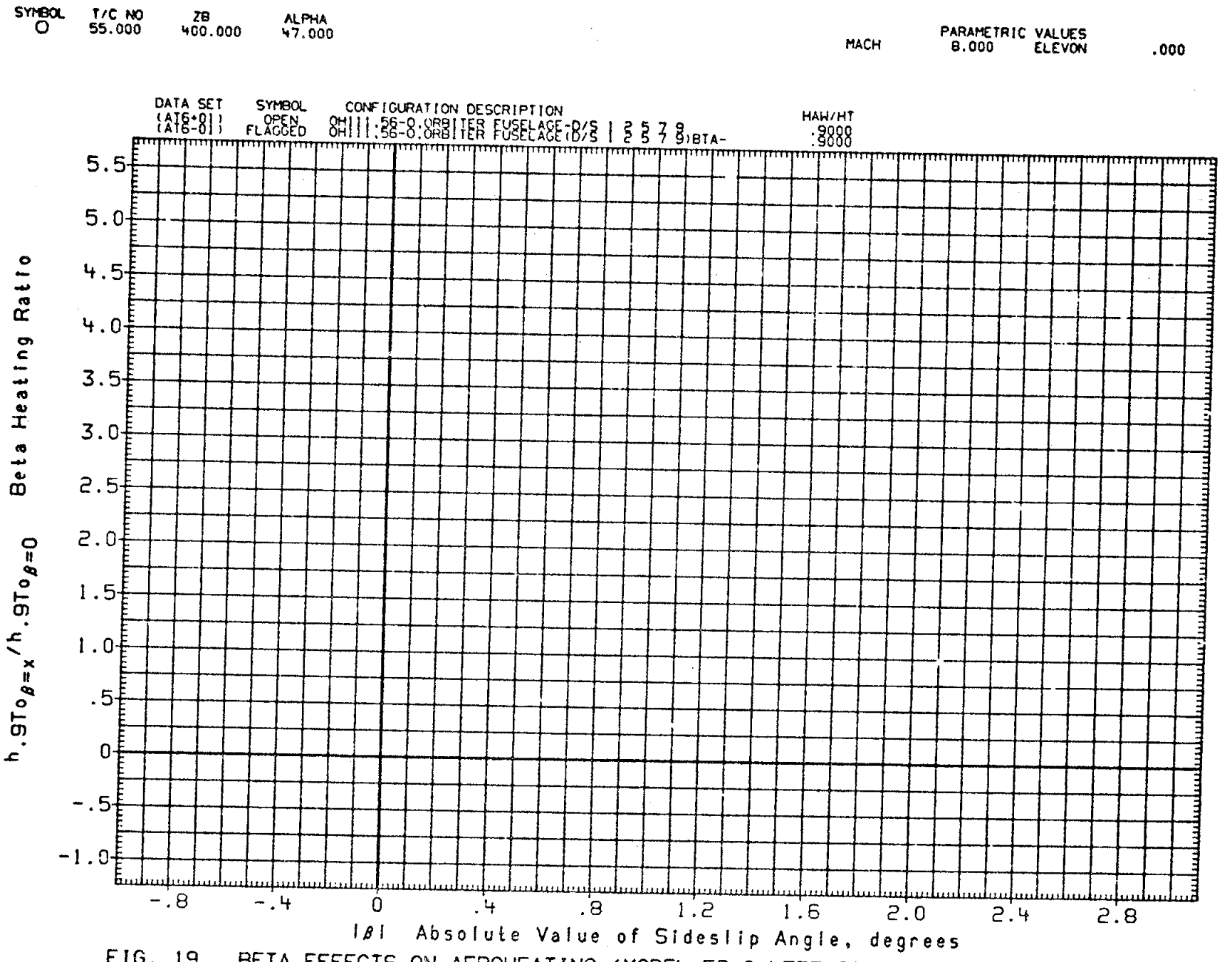

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

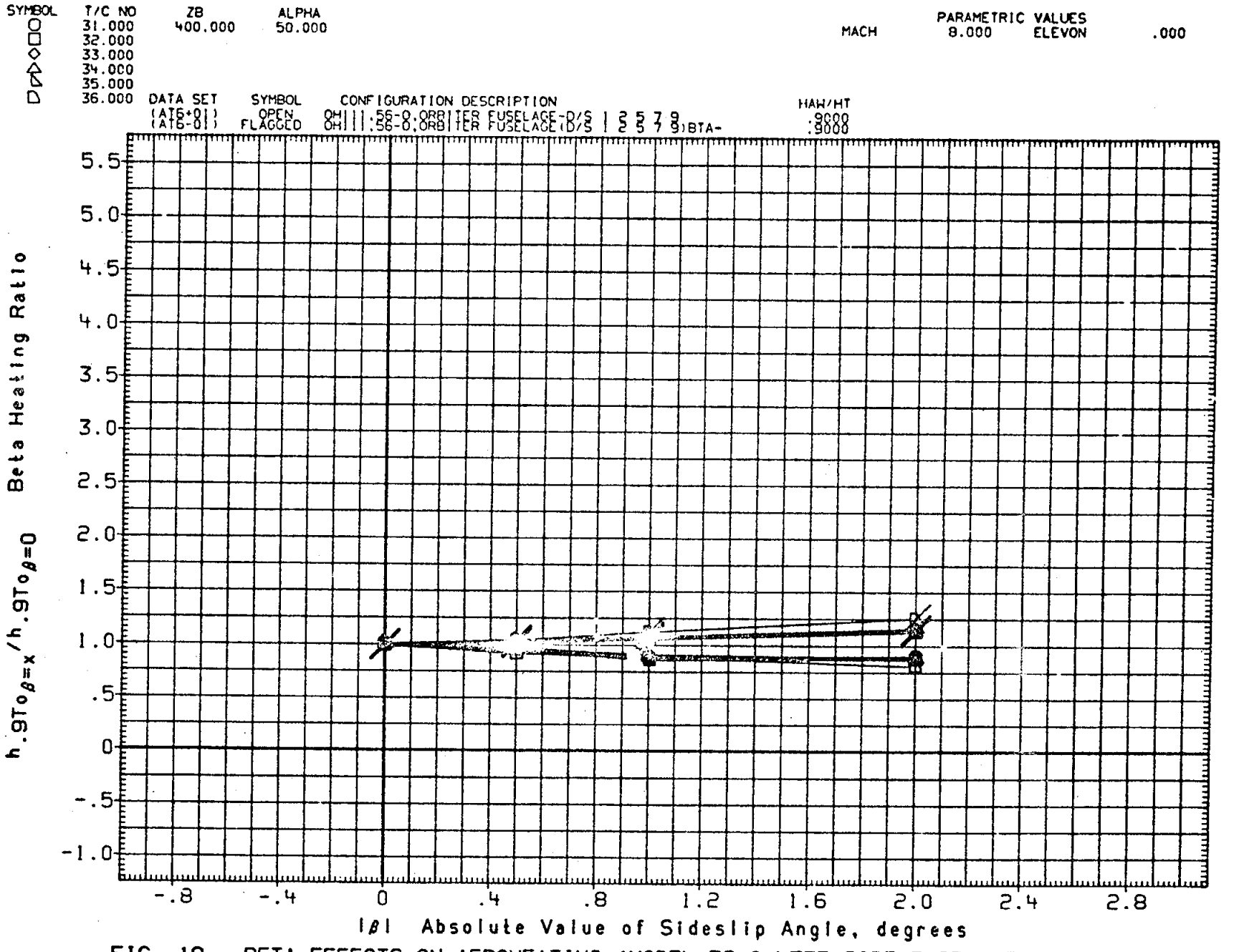

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

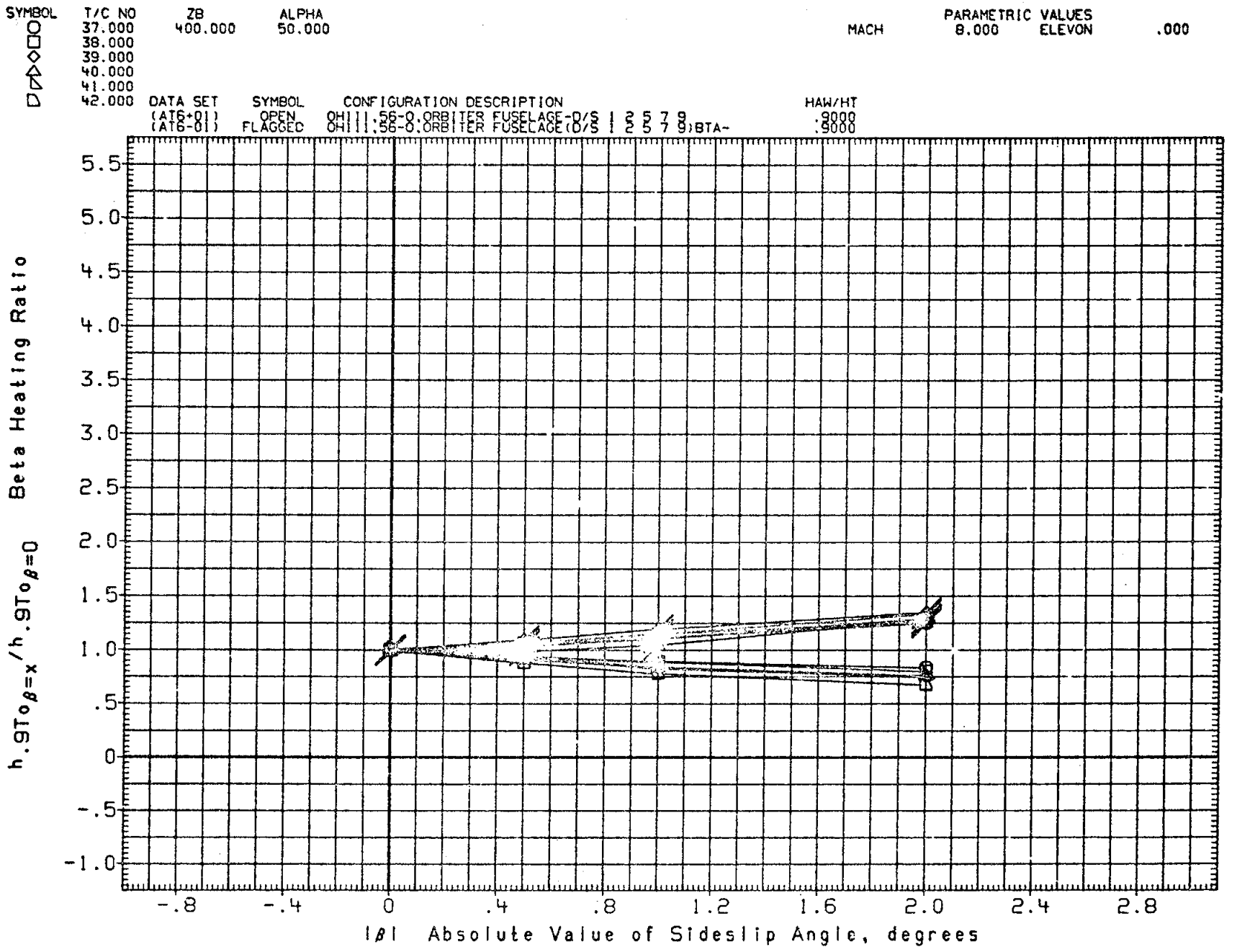

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

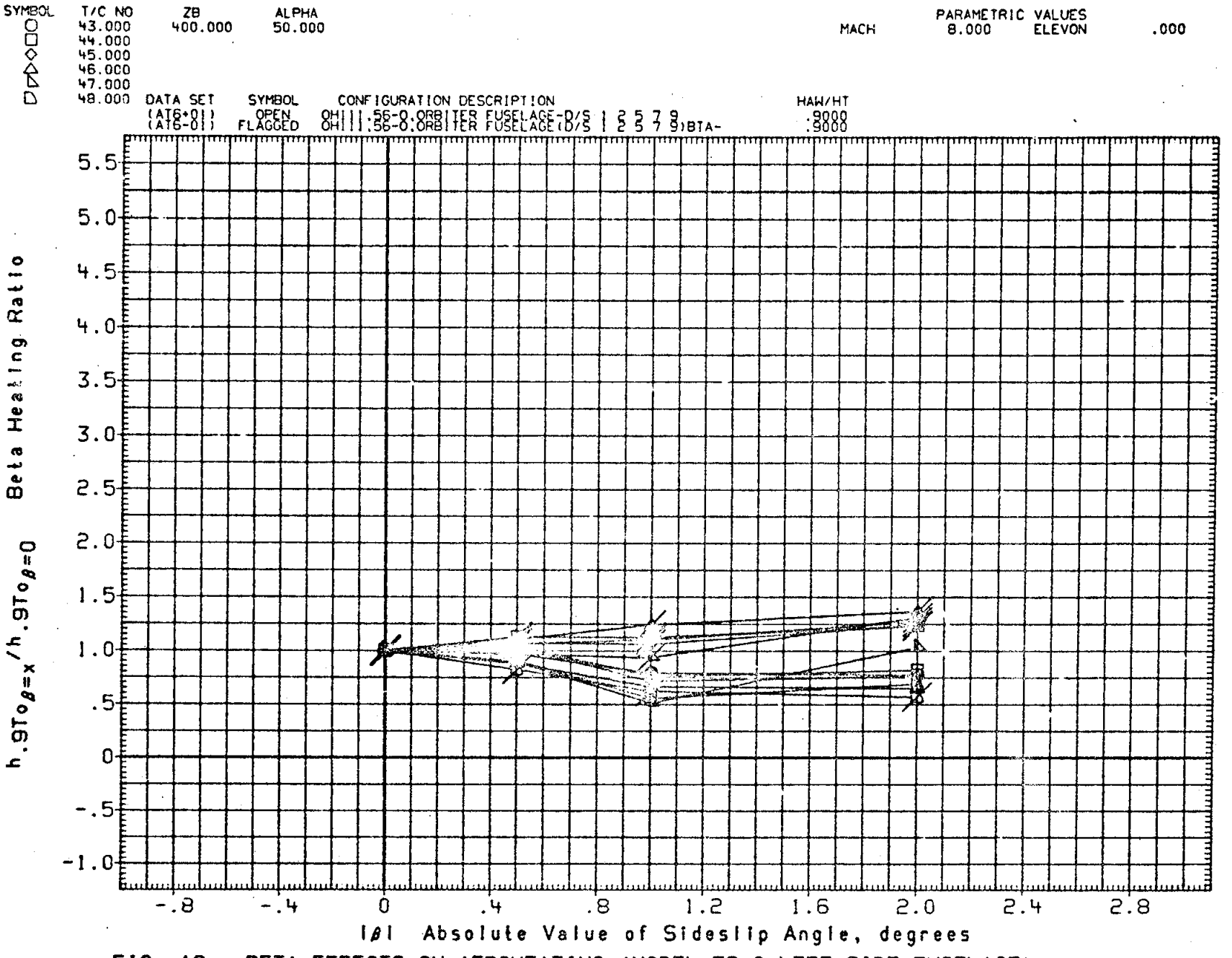

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

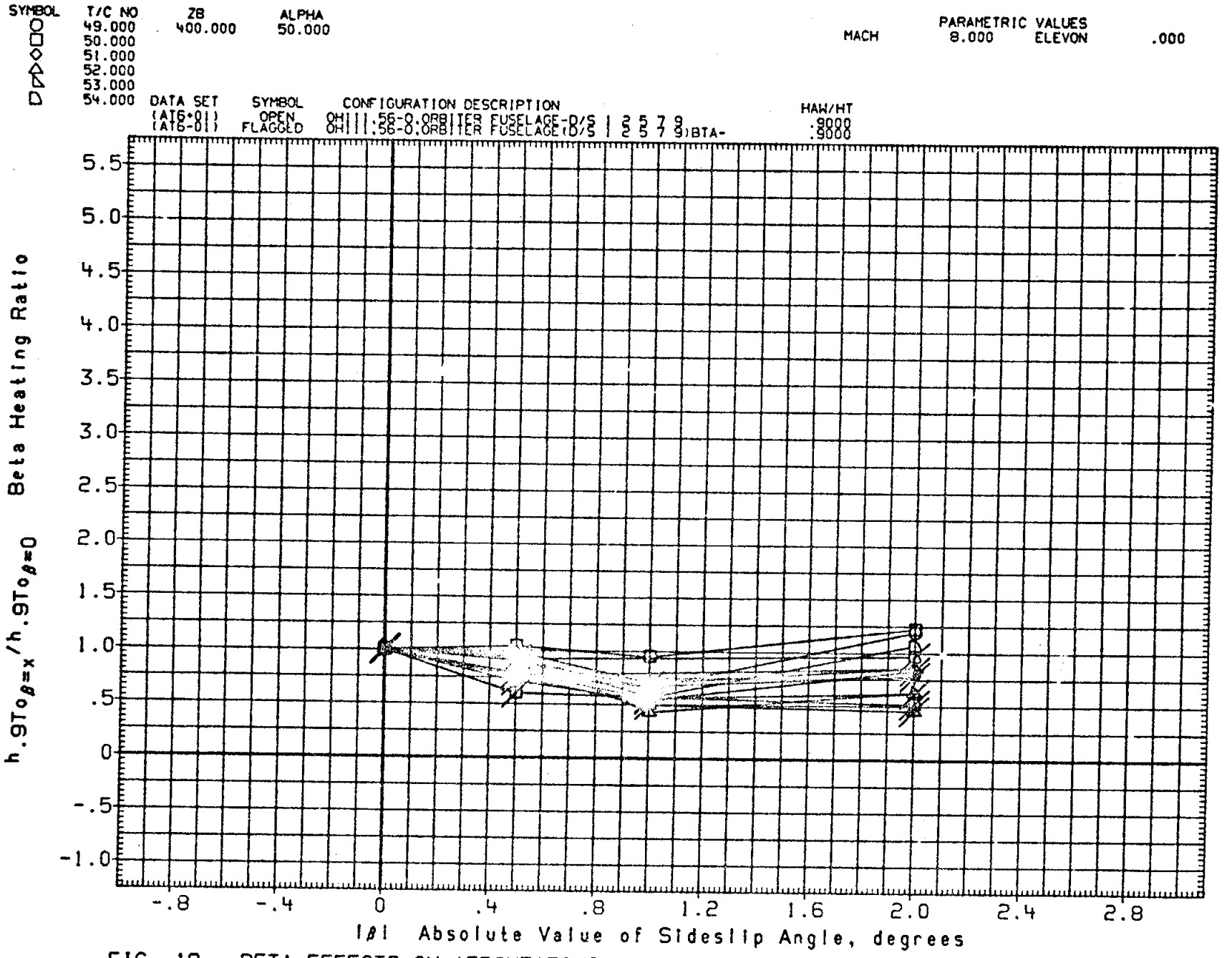

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA
O	55.000	400.000	50.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+0)	OPEN	OH|||.56-0.ORBITER FUSELAGE-D/S	2 5 7 9	.9000
(AT6-0)	FLAGGED	OH|||.56-0.ORBITER FUSELAGE(D/S | 2 5 7 9)BTA-	.9000

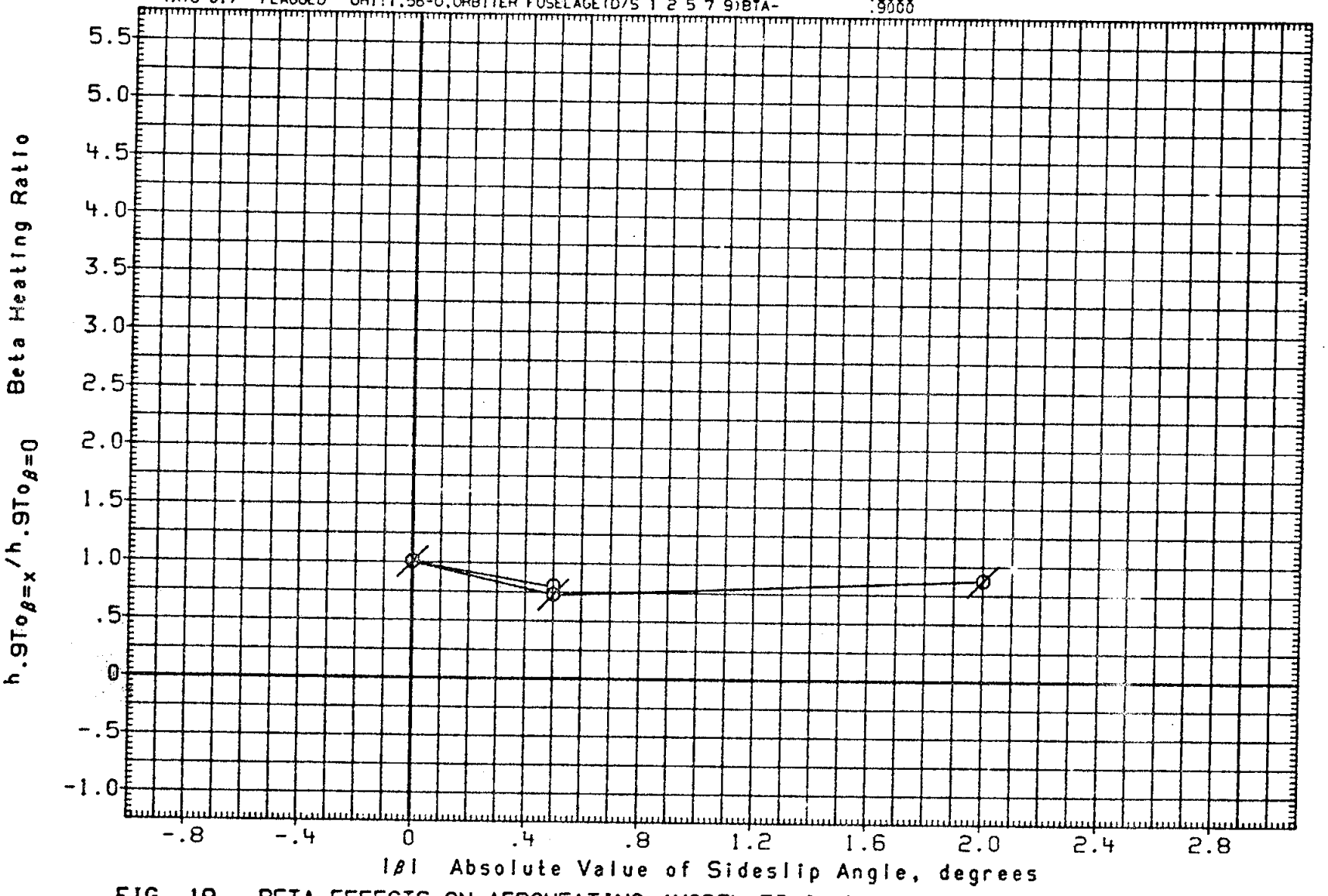

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

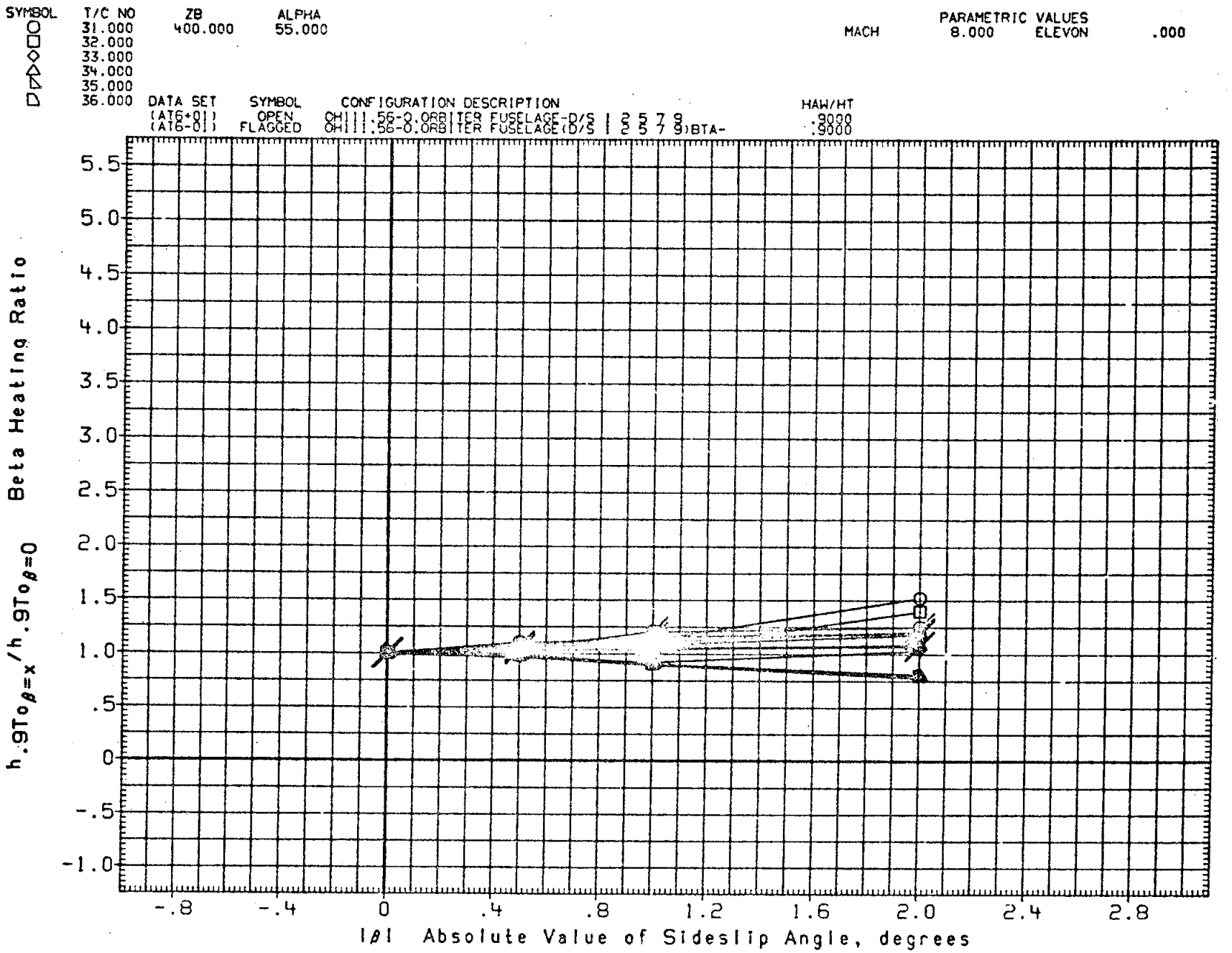

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

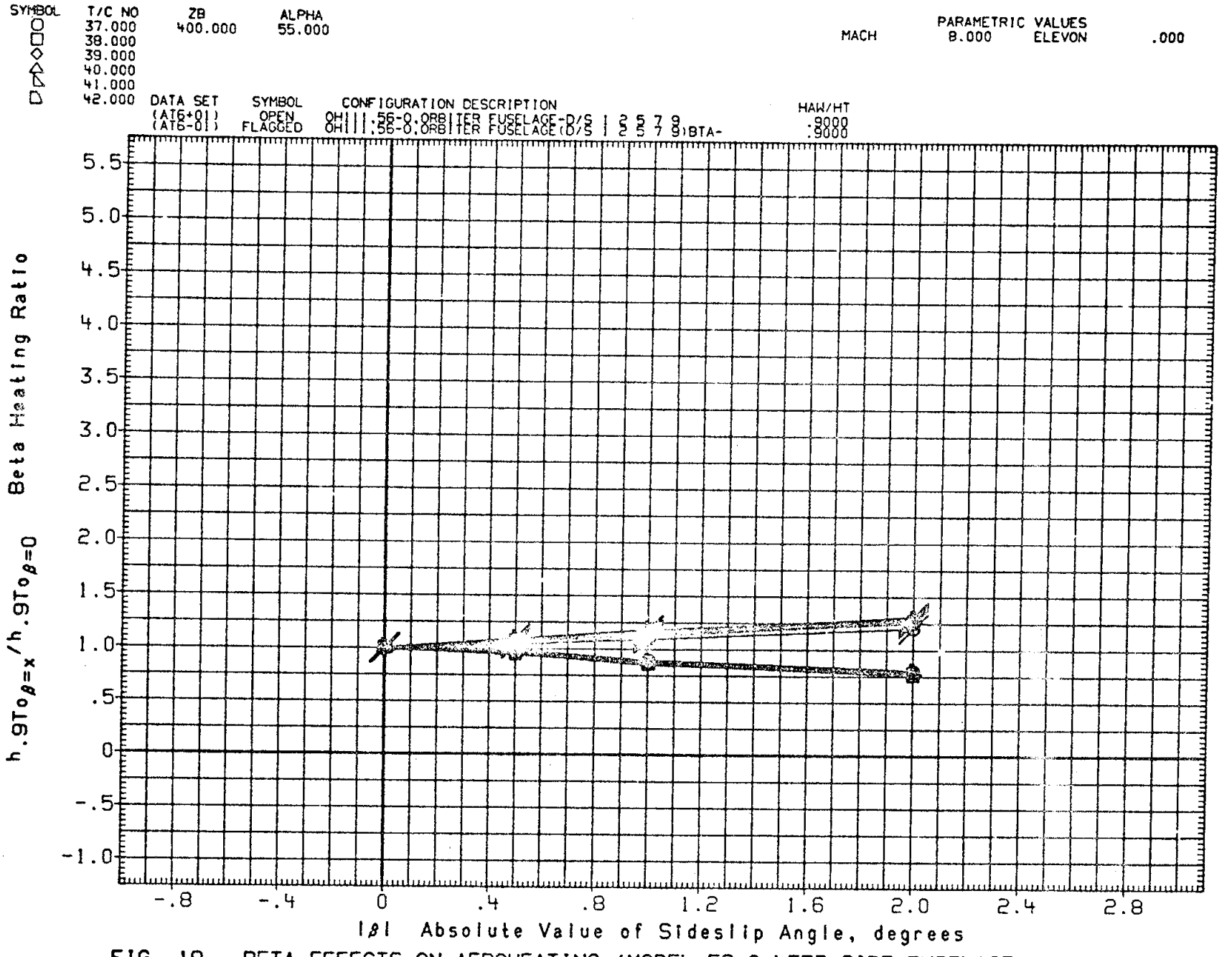

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

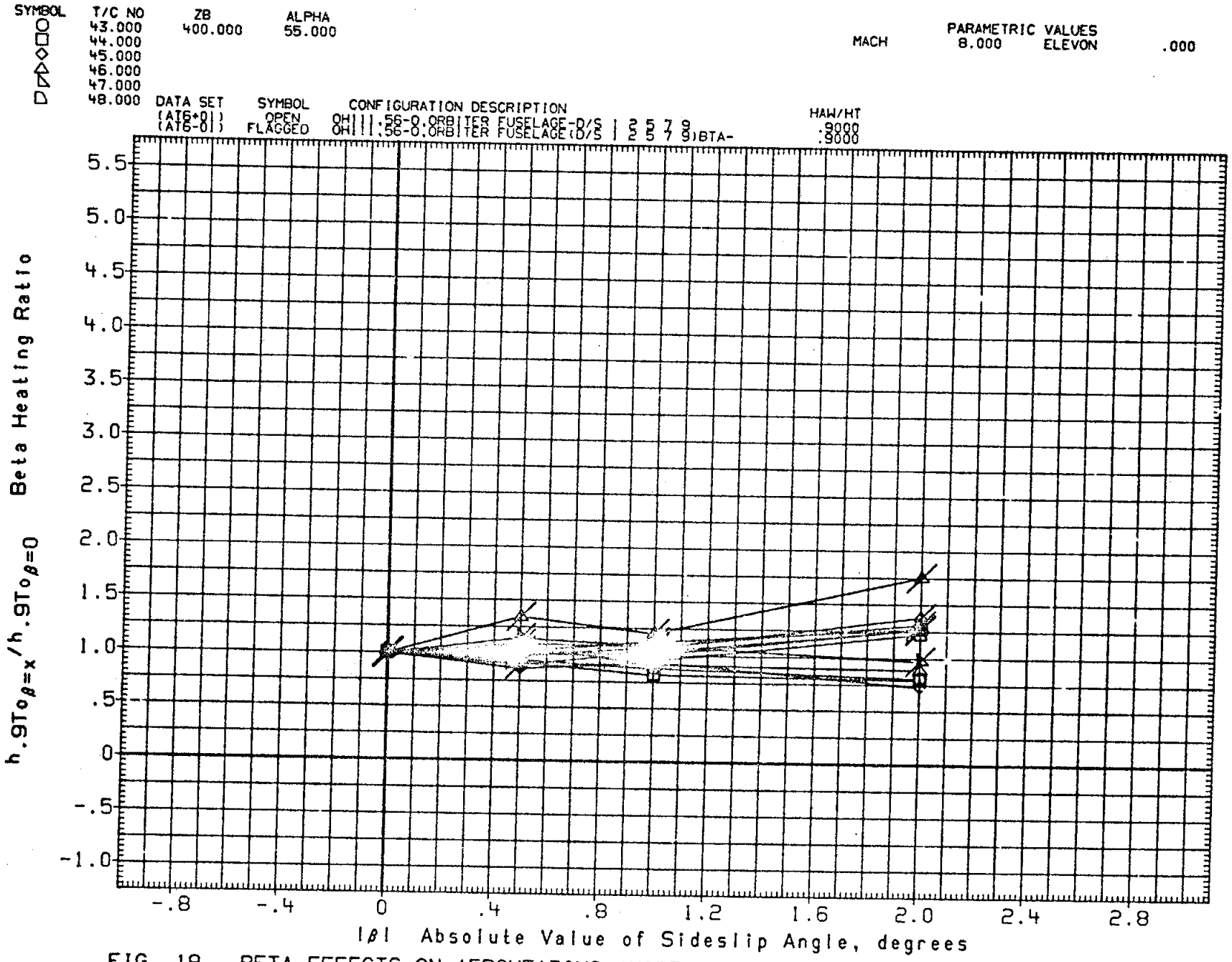

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

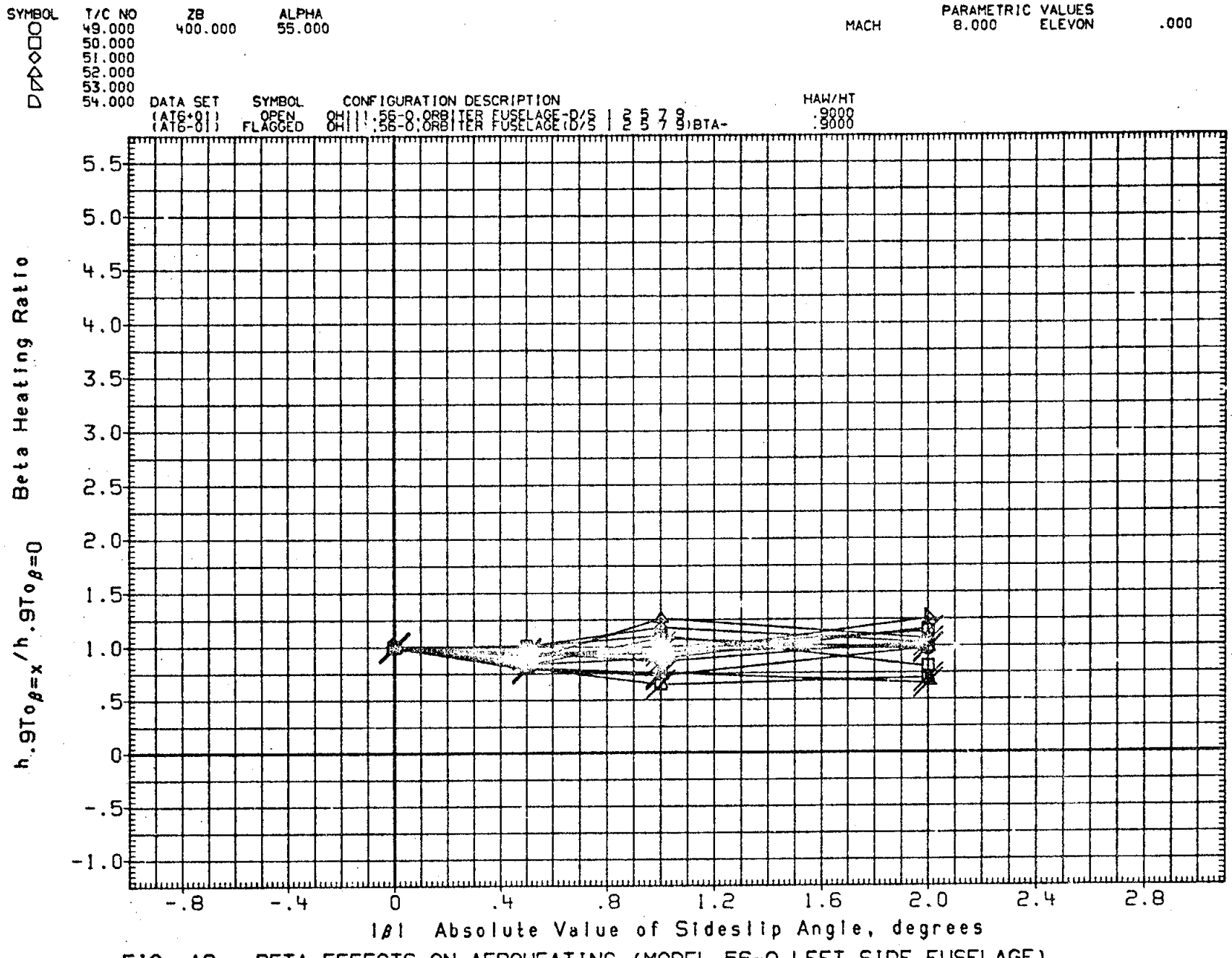

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

SYMBOL	T/C NO	ZB	ALPHA
O	55.000	400.000	55.000

PARAMETRIC VALUES
MACH 8.000 ELEVON .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+0)	OPEN	OH|||.56-0.ORBITER FUSELAGE-D/S	2 5 7 9	.9000
(AT6-0)	FLAGGED	OH|||.56-0.ORBITER FUSELAGE(D/S | 2 5 7 9)BTA-	.9000

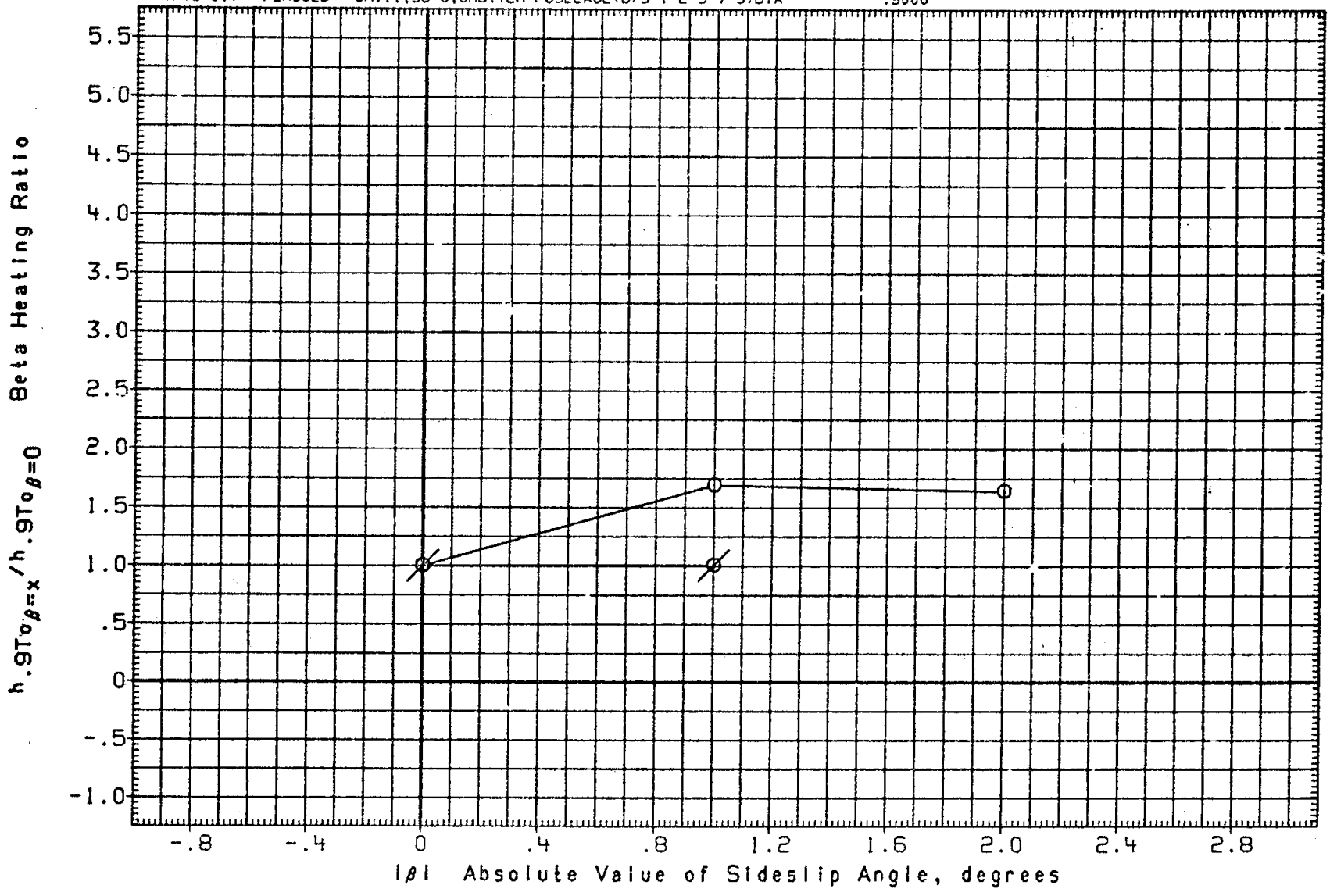

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

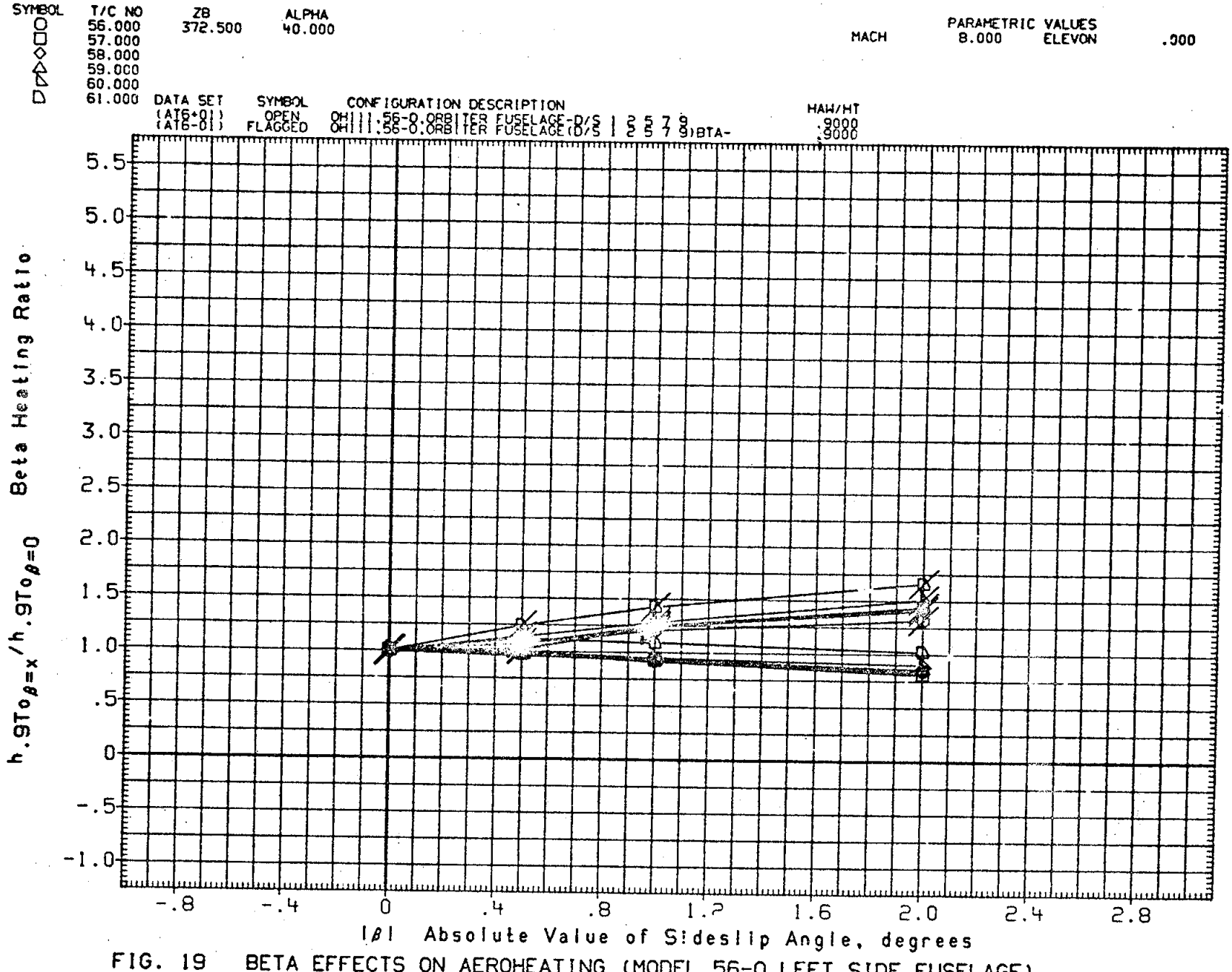

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

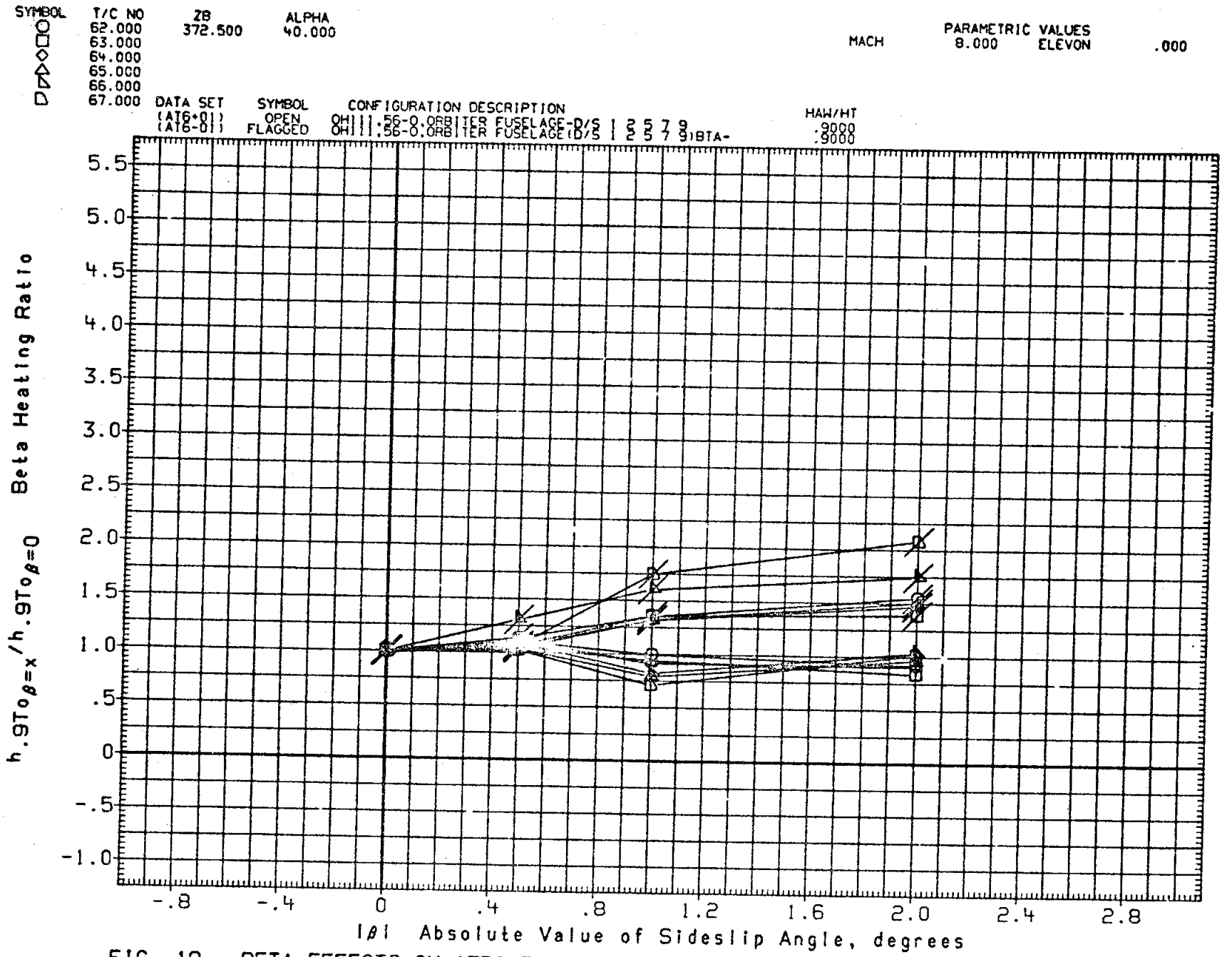

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

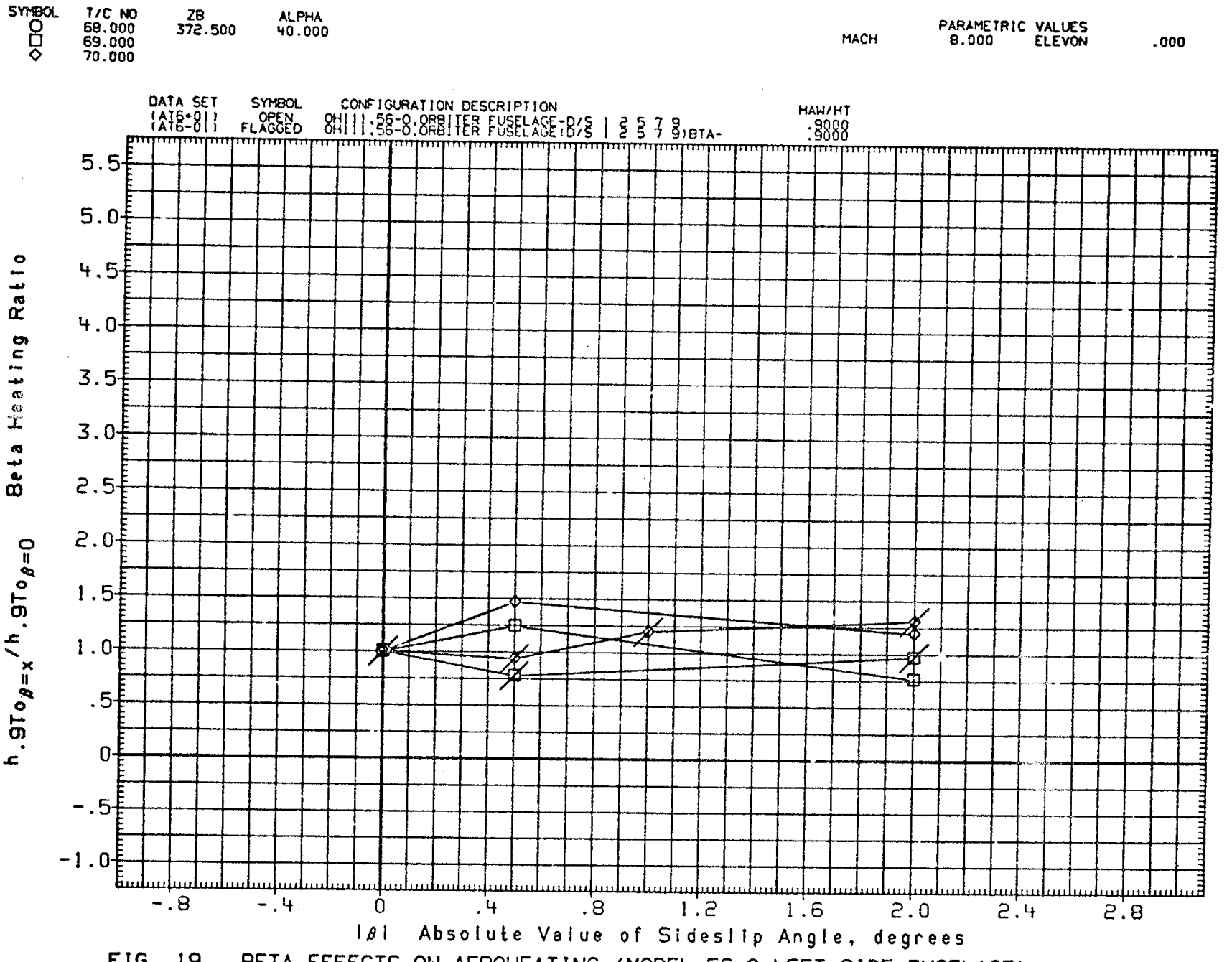

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

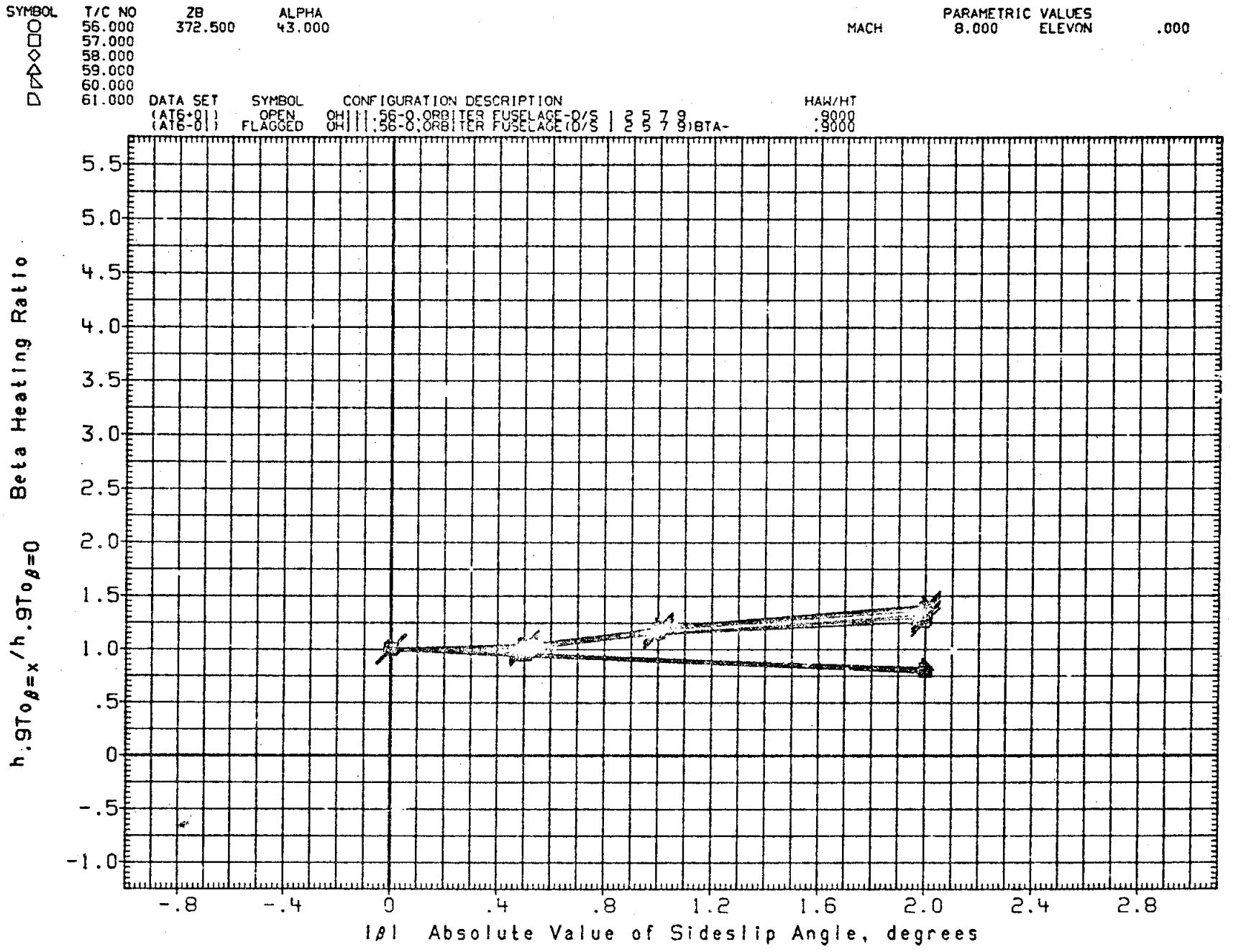

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

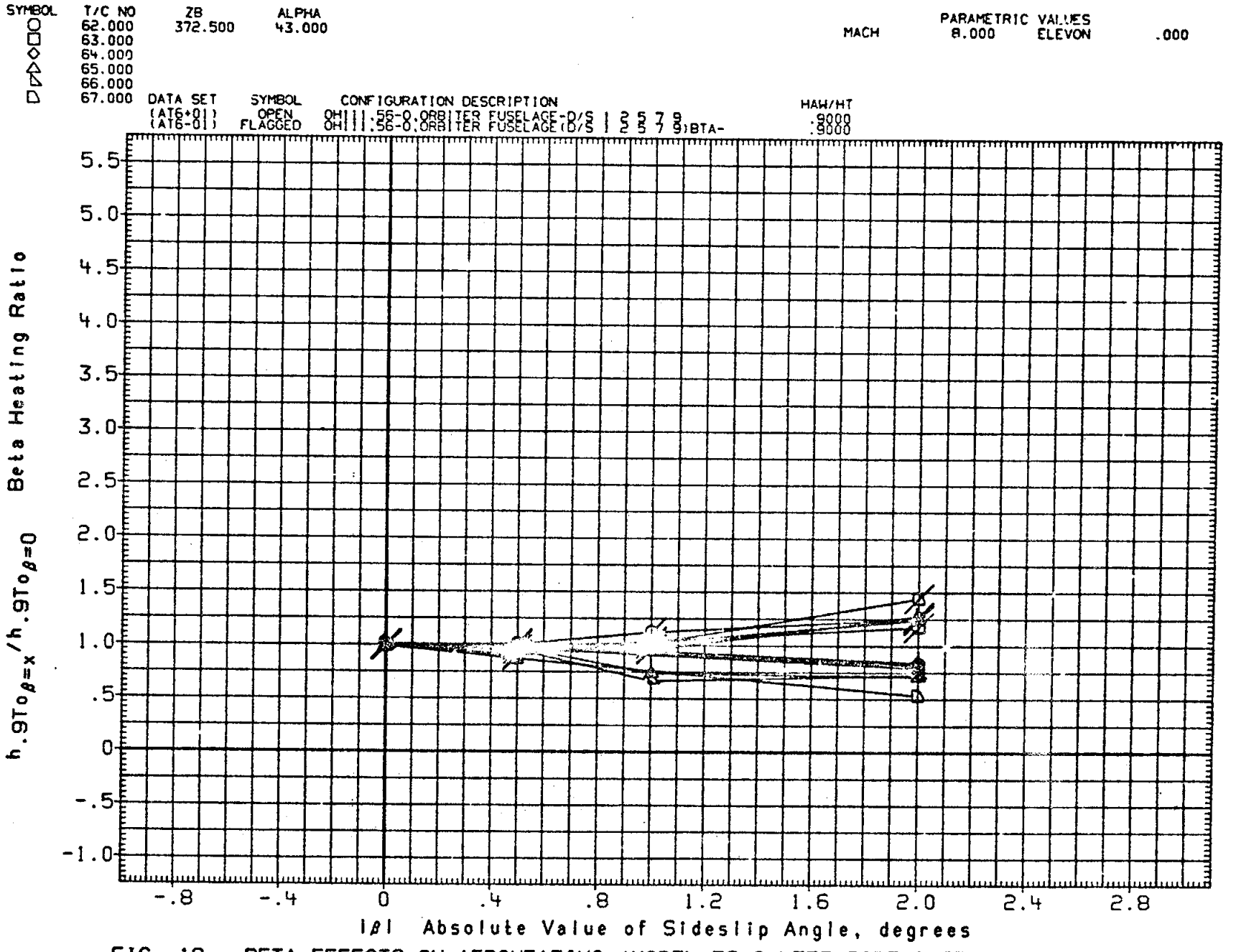

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

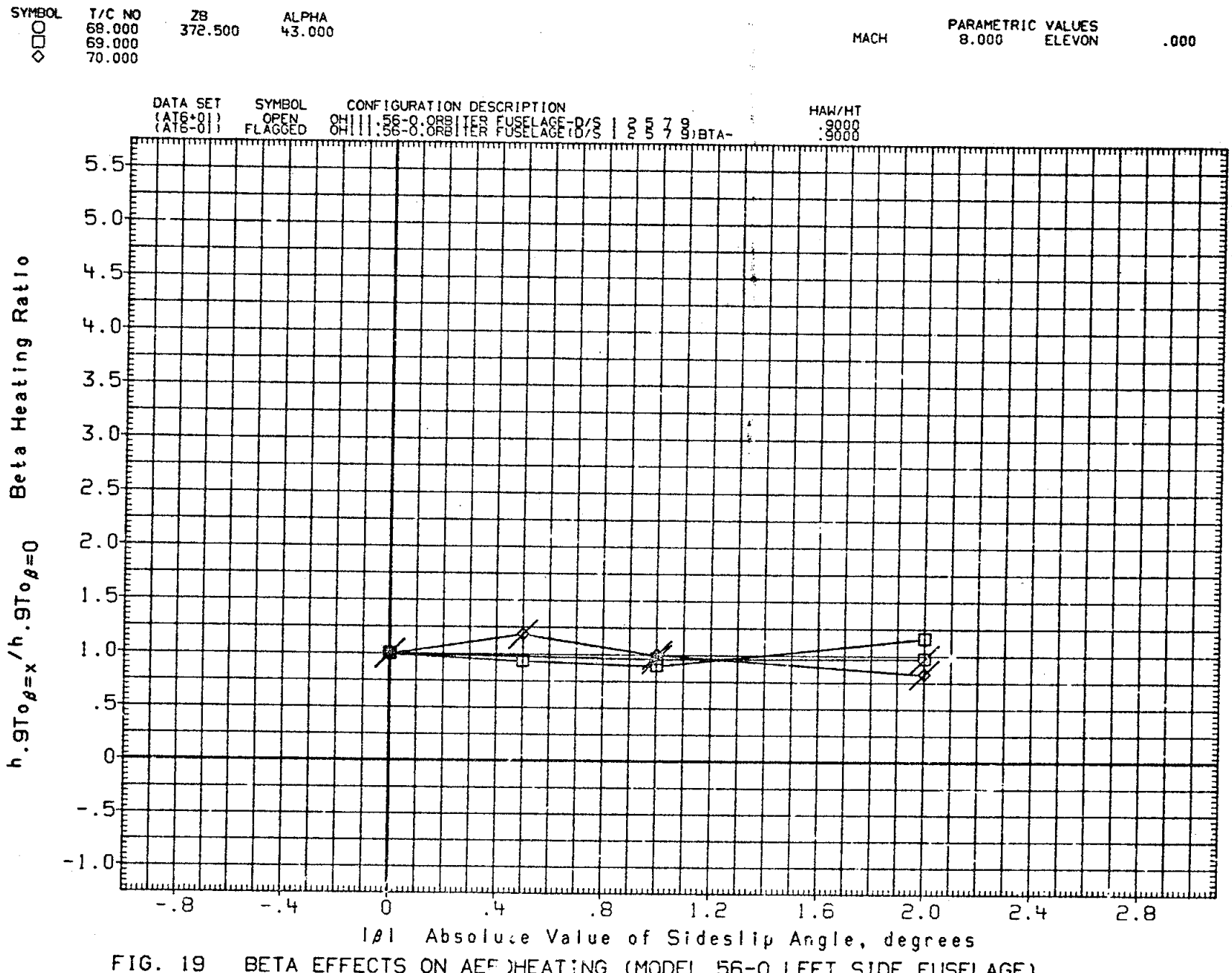

FIG. 19 BETA EFFECTS ON AERO HEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

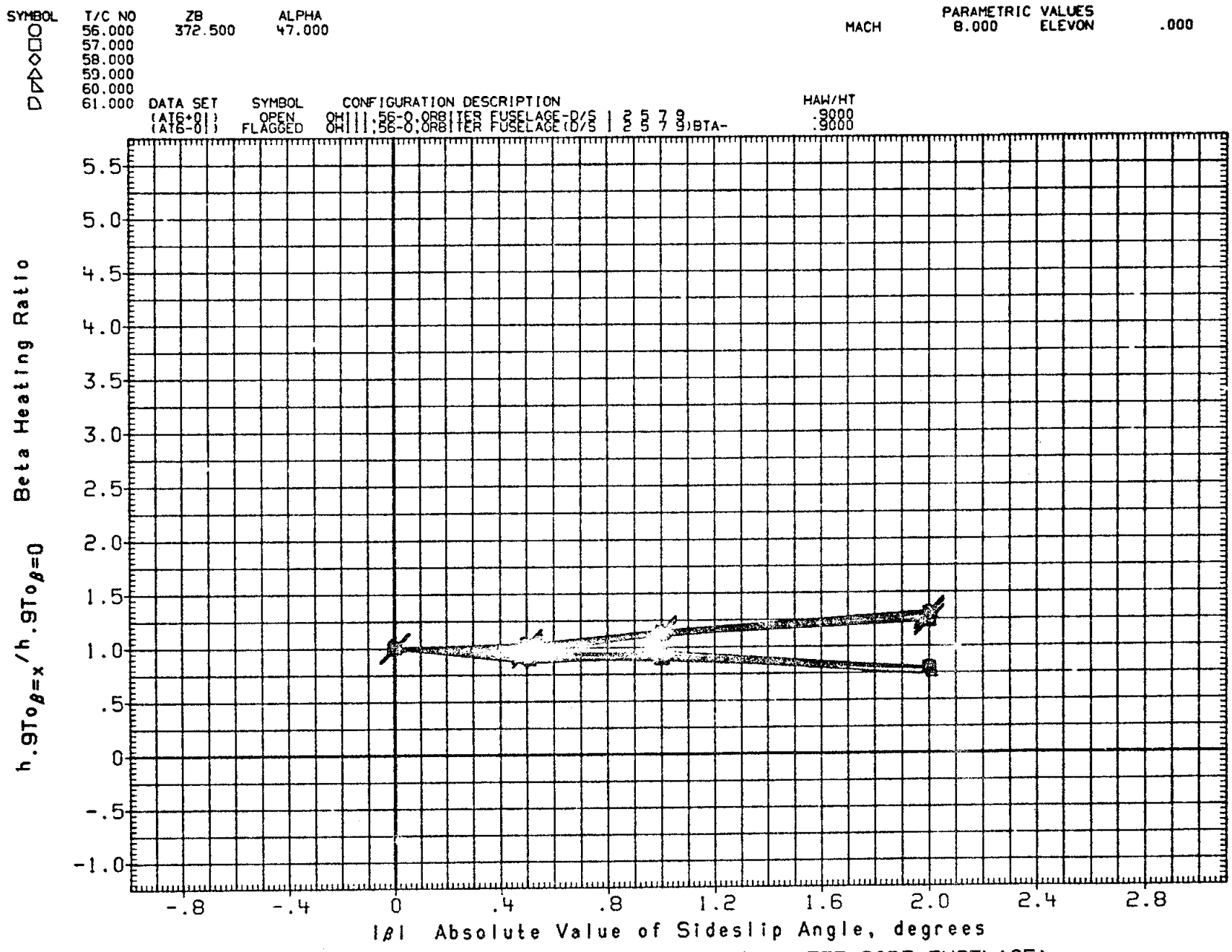

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

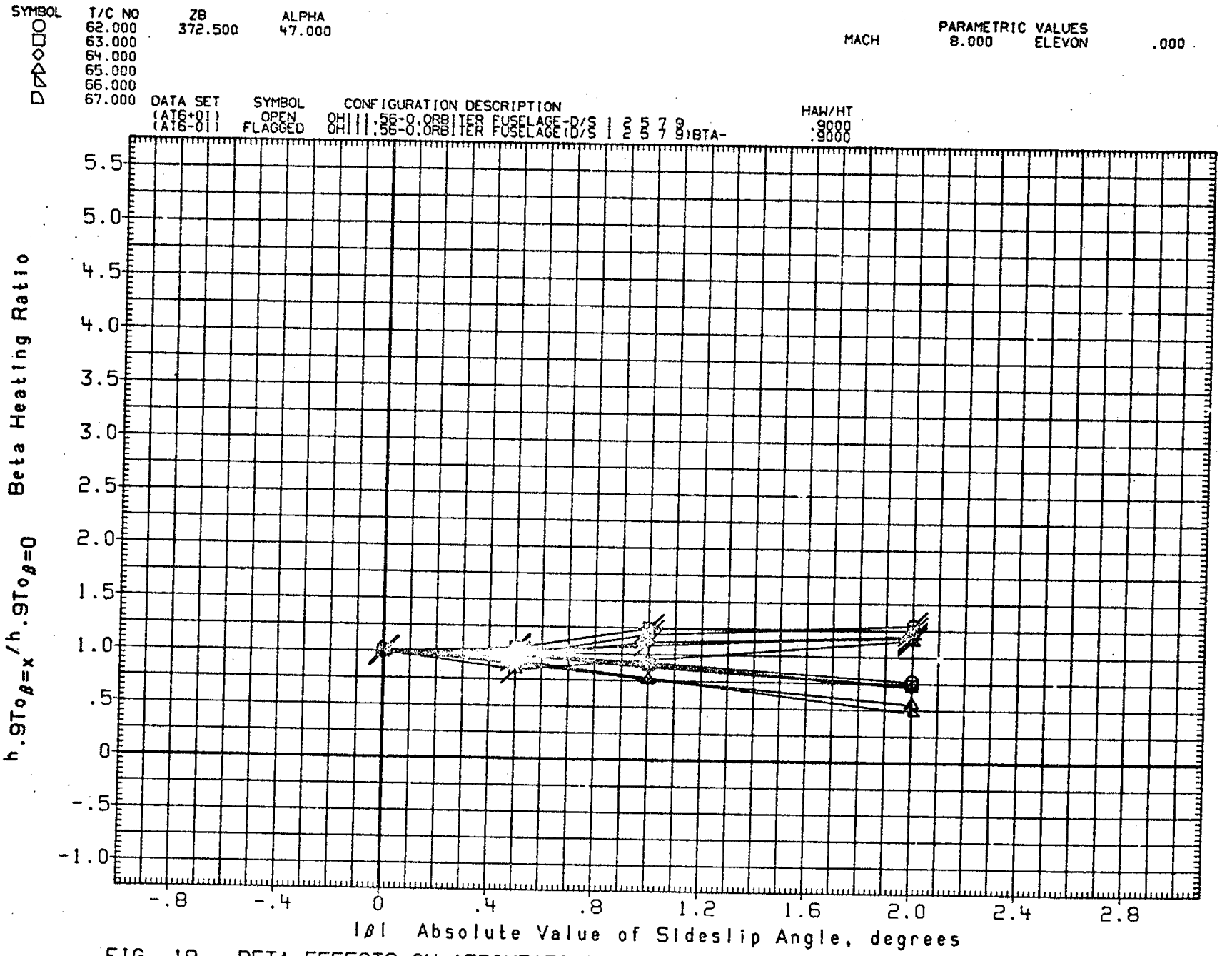

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

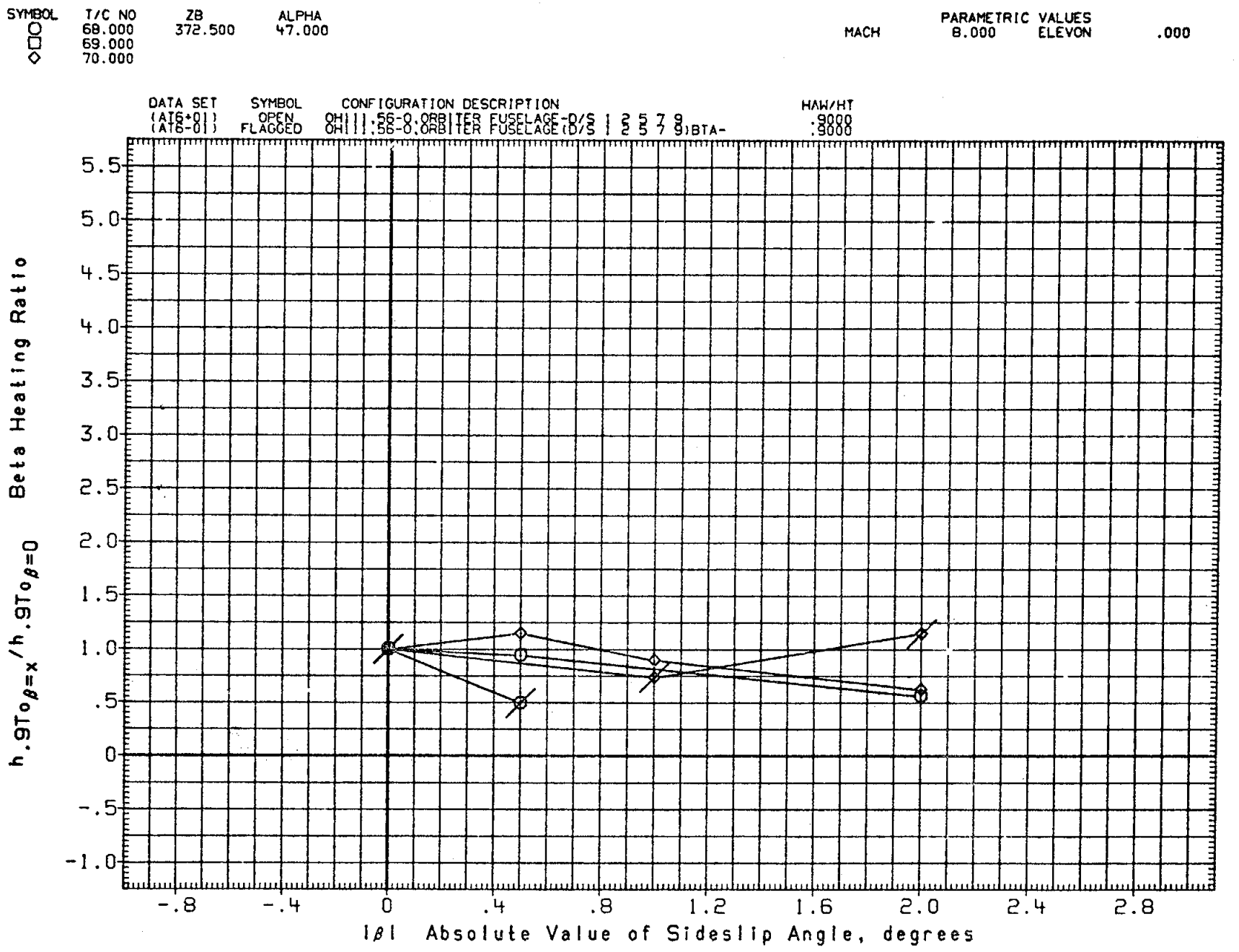

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

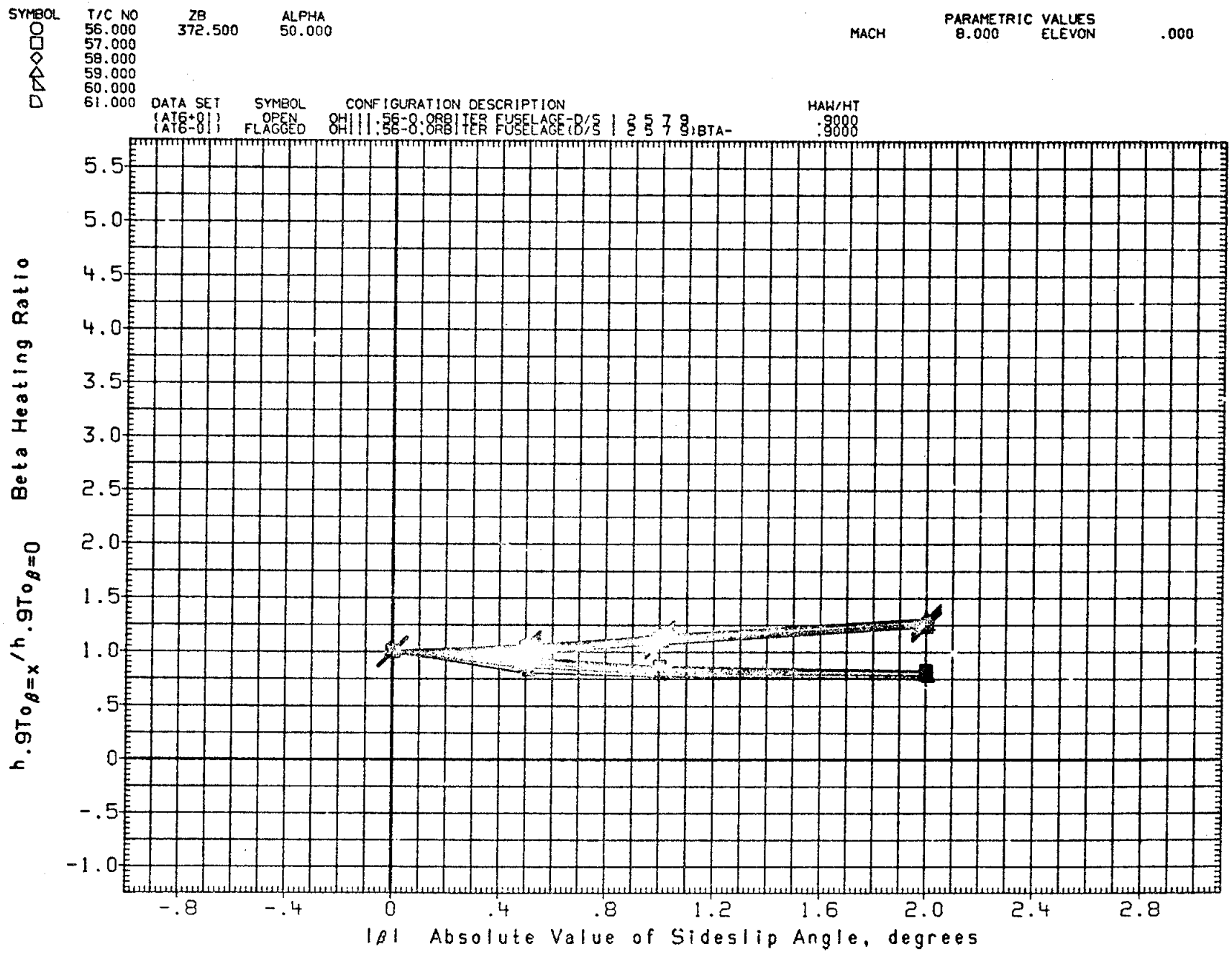

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

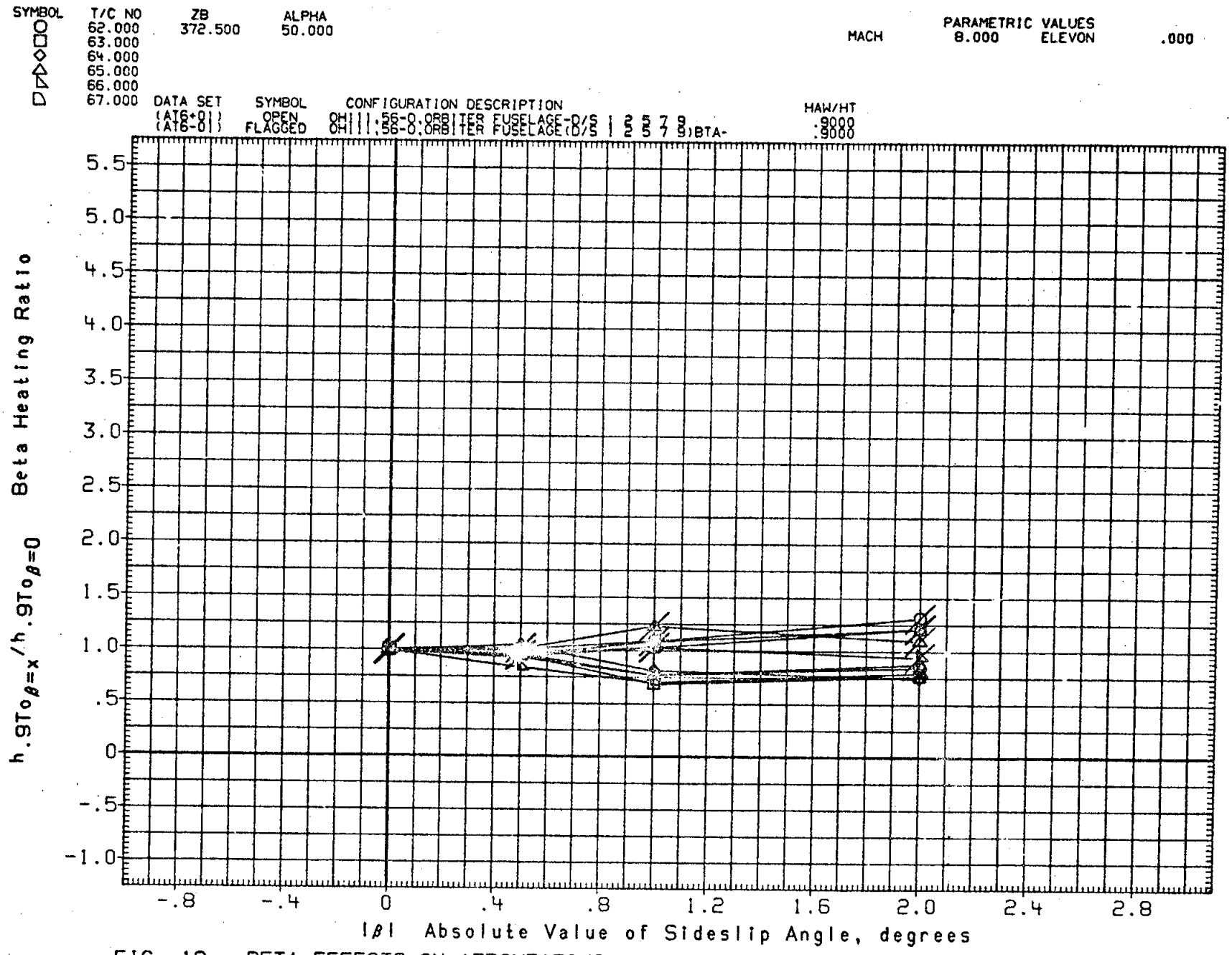

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

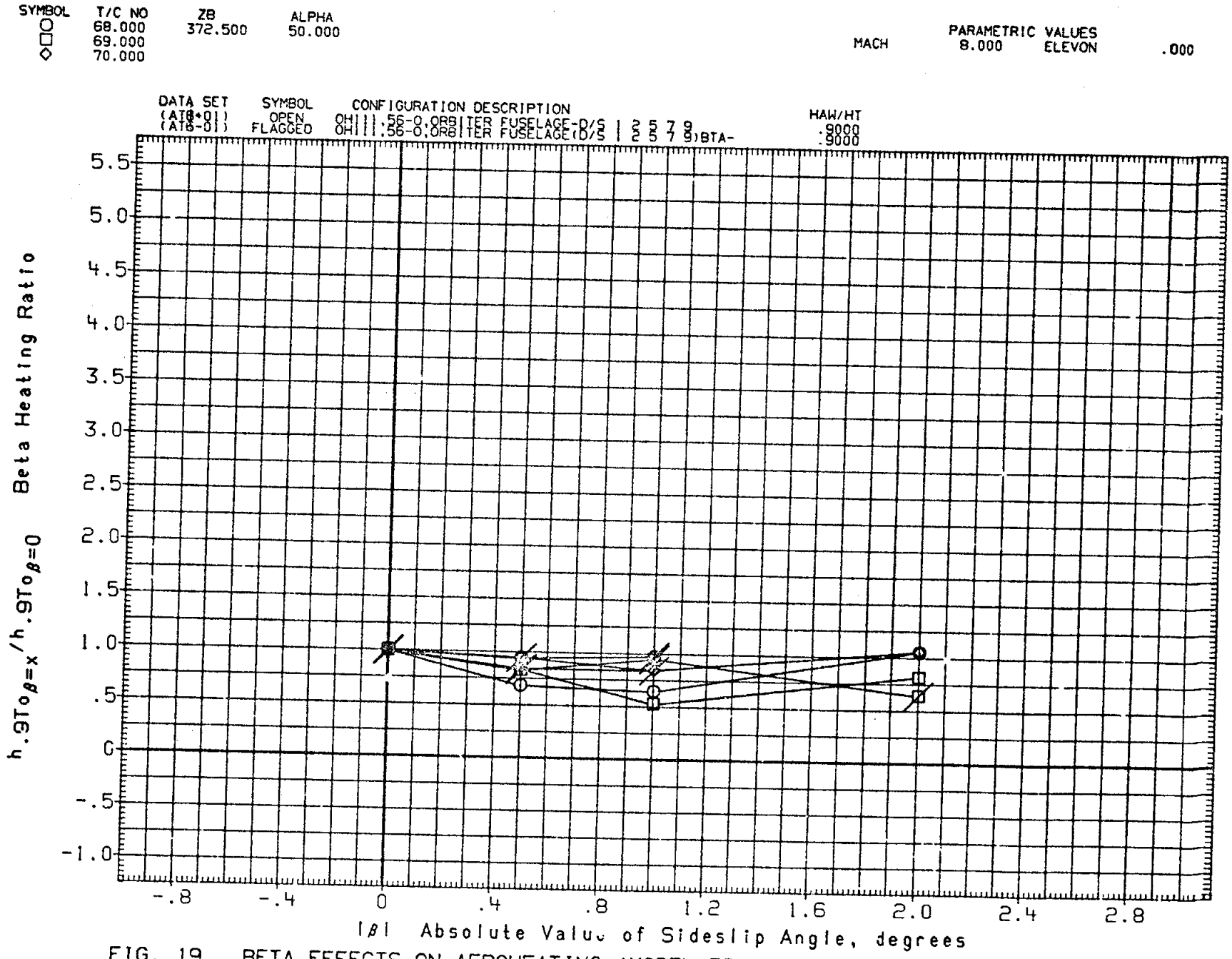

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

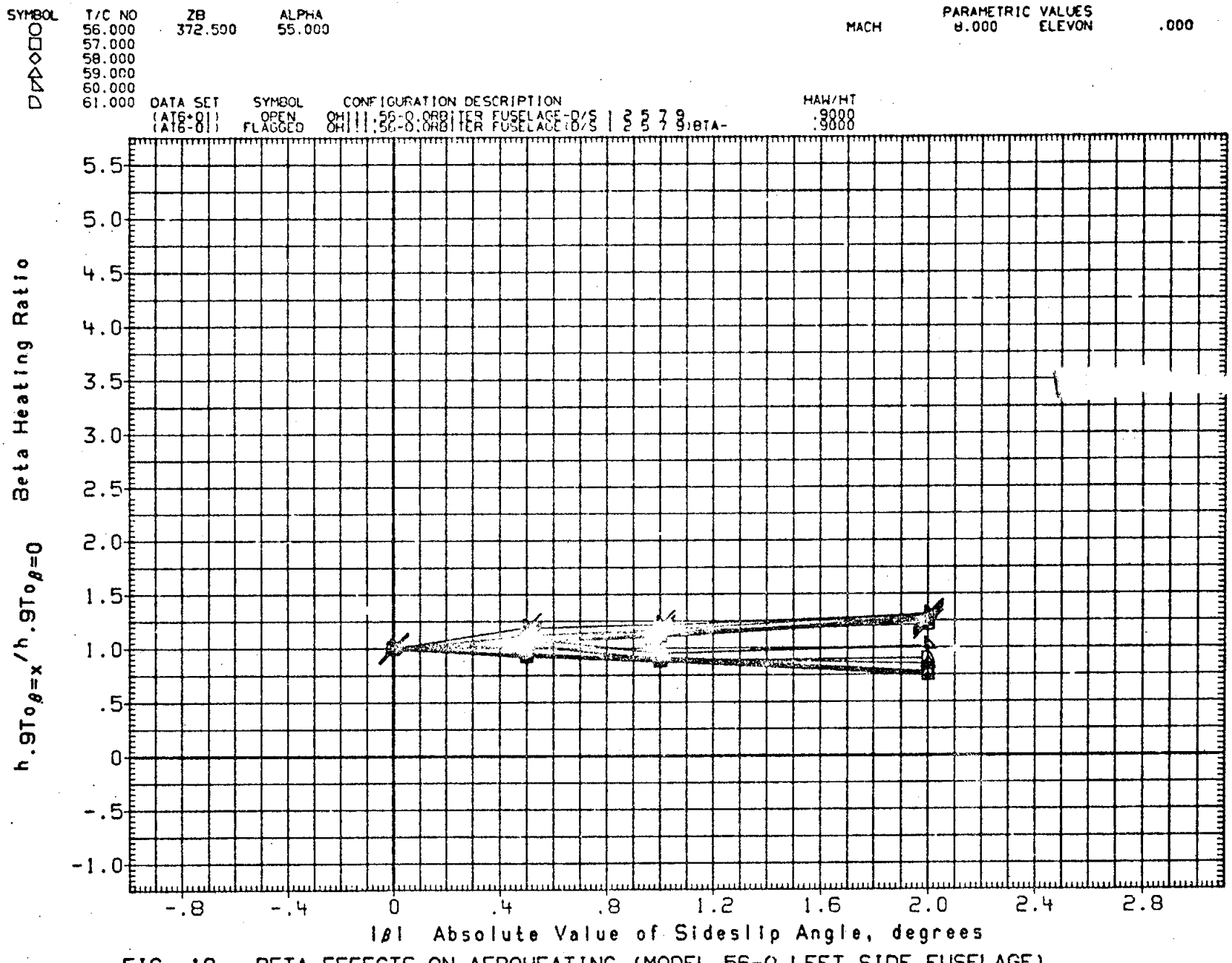

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

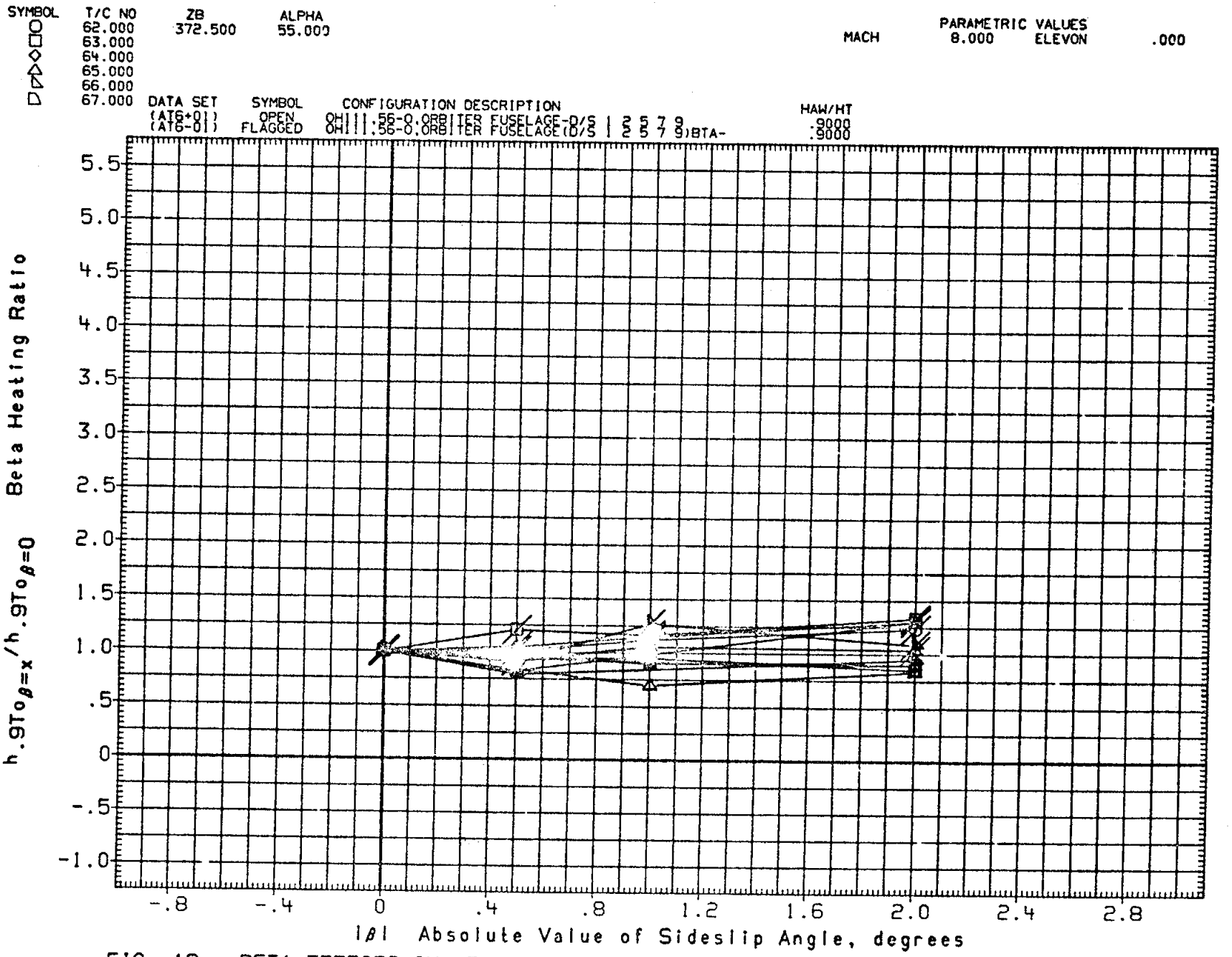

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

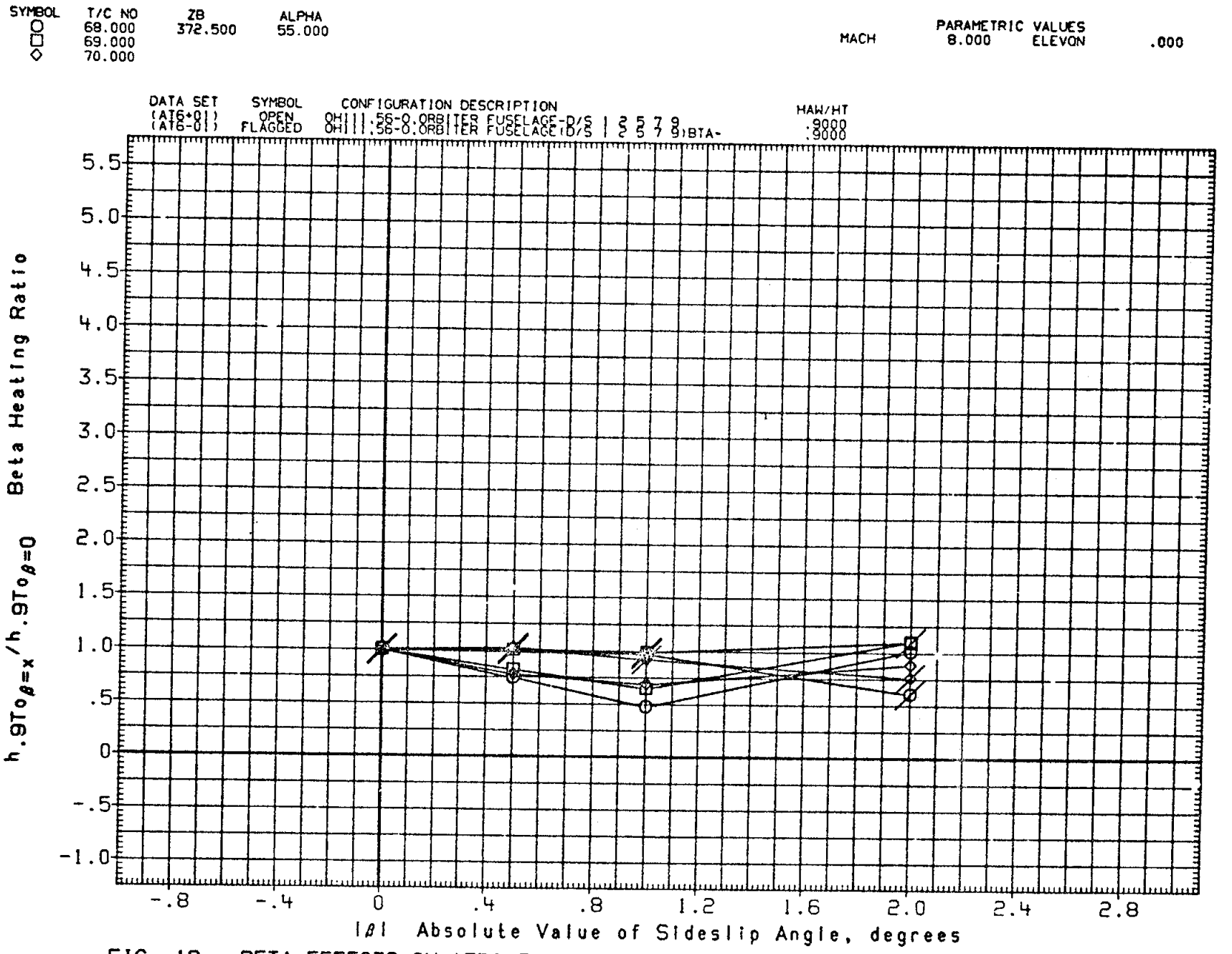

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

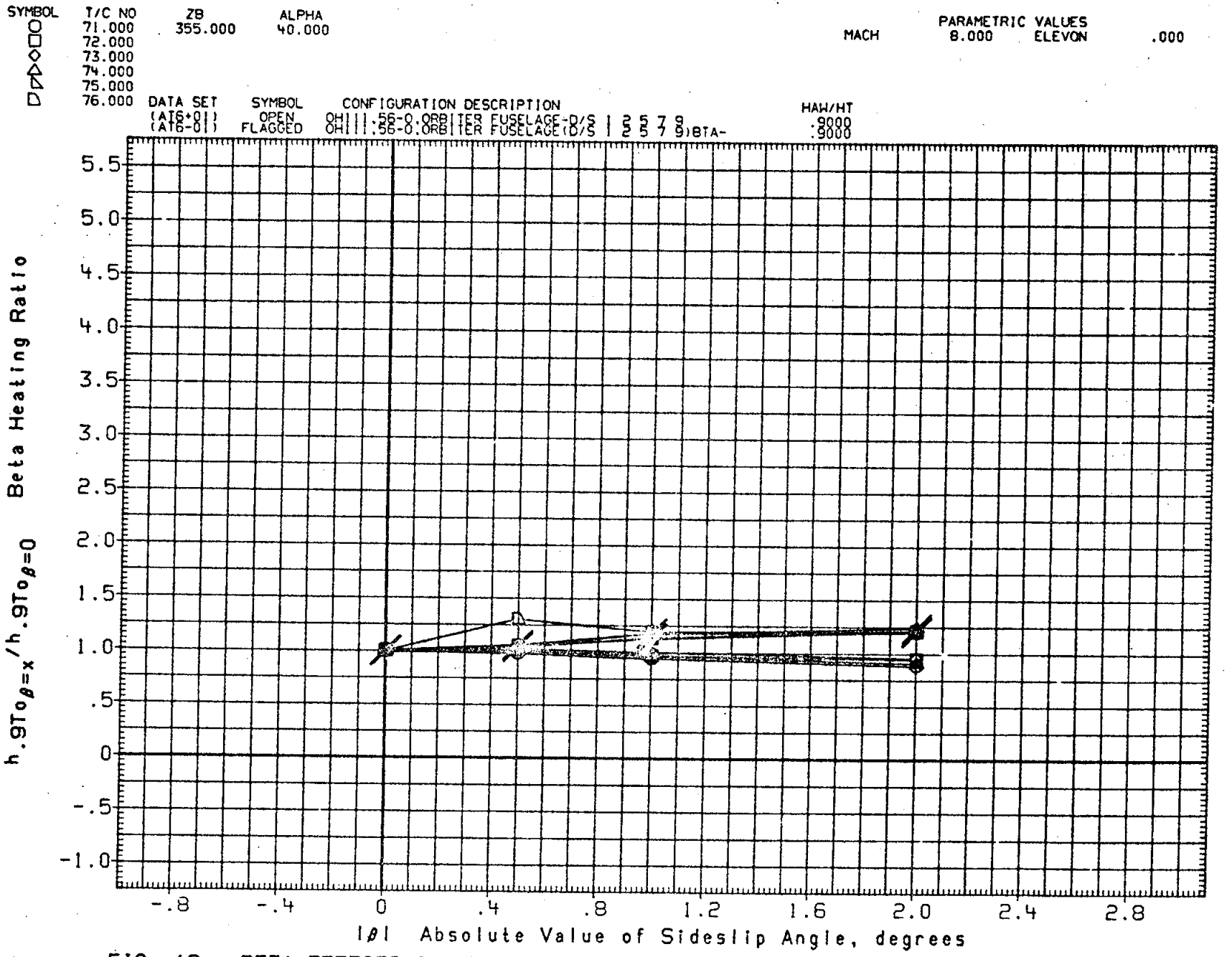

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

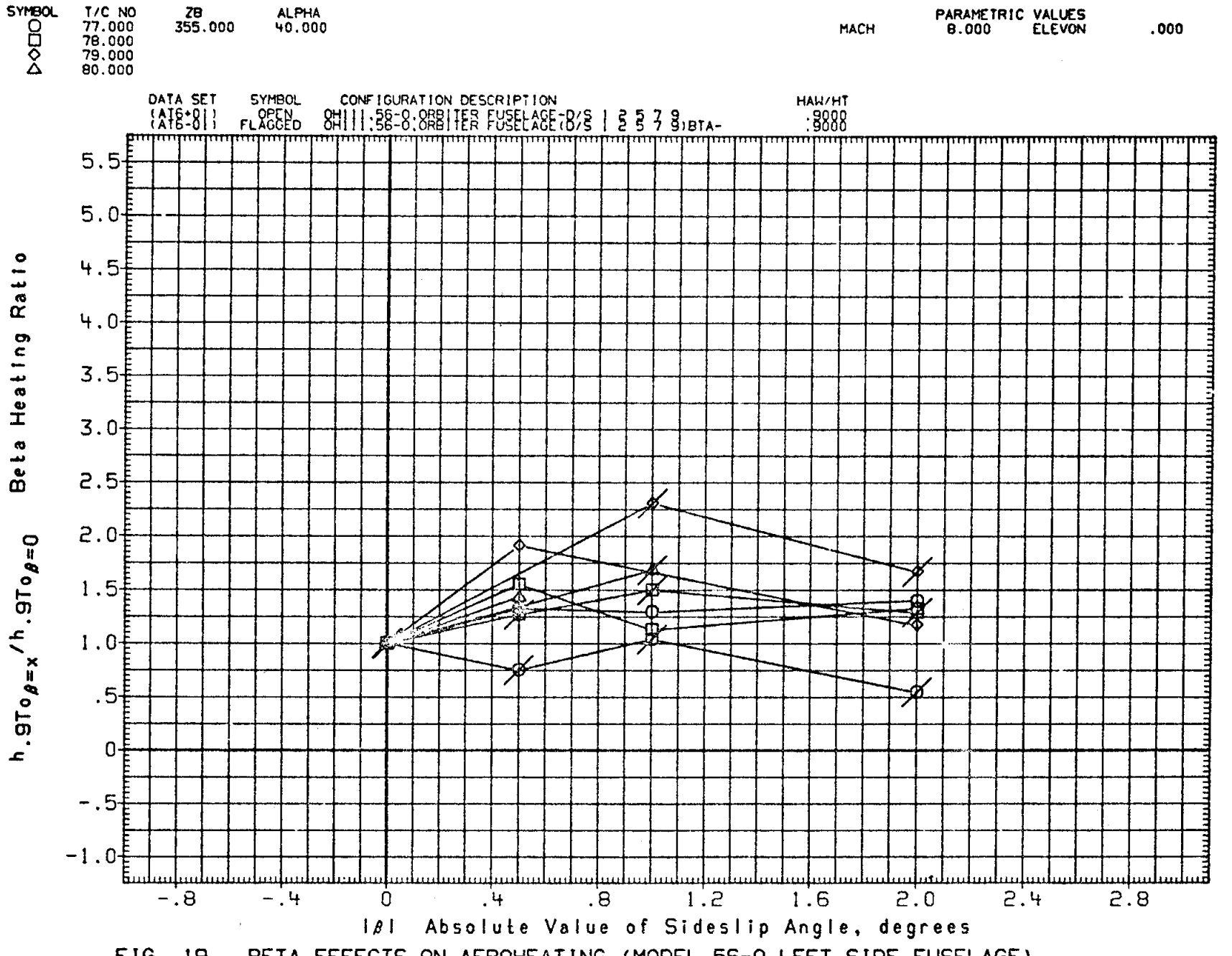

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

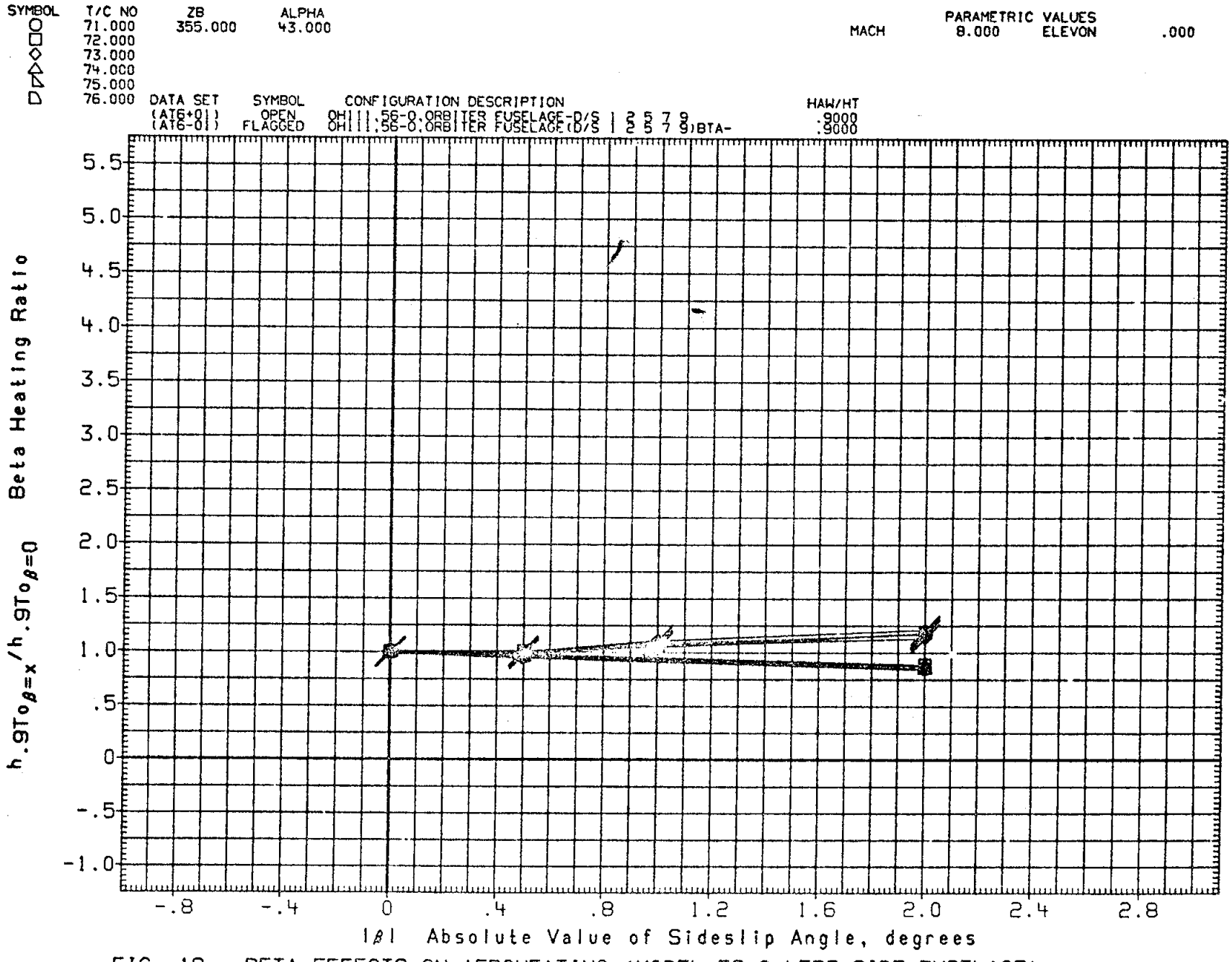

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

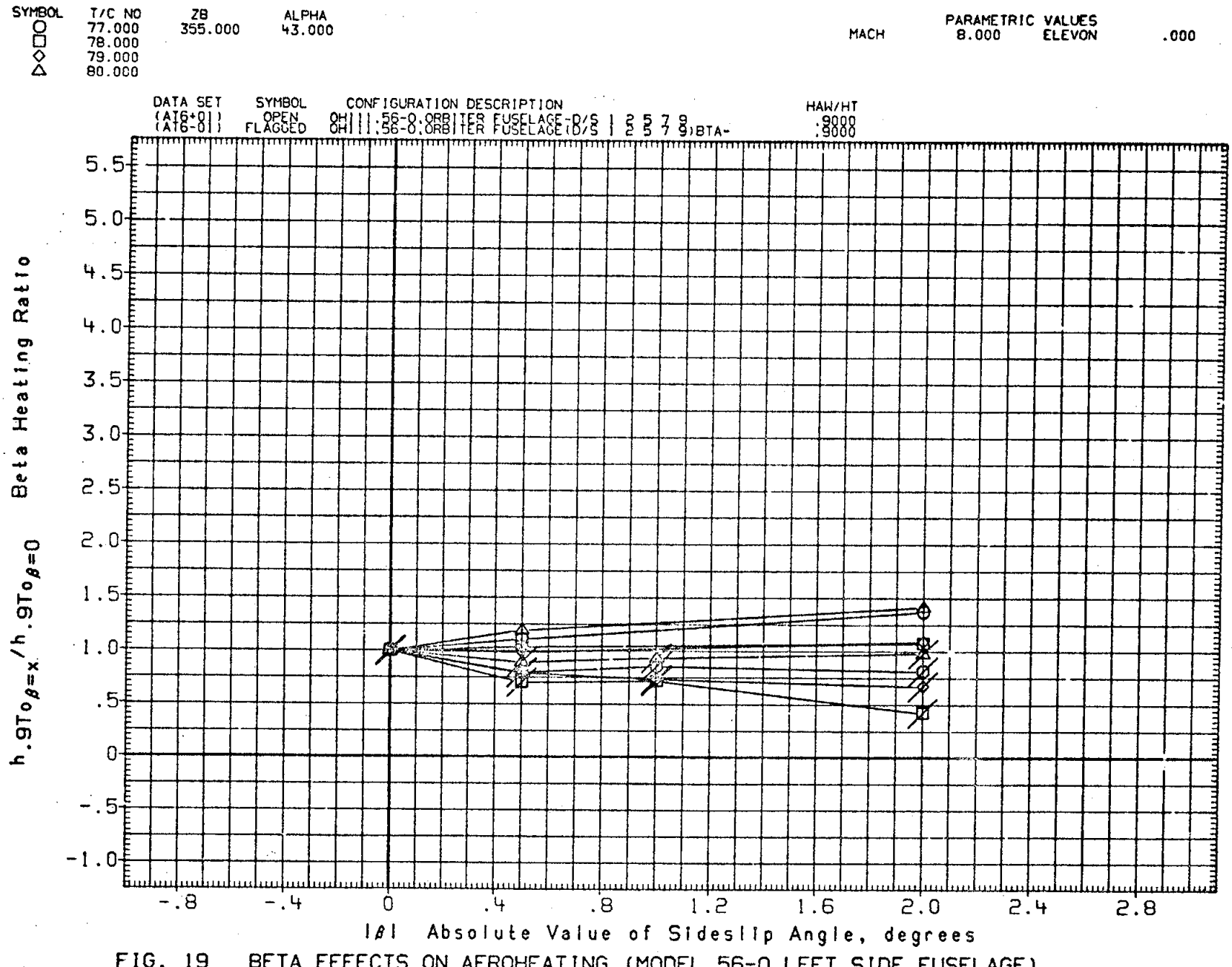

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

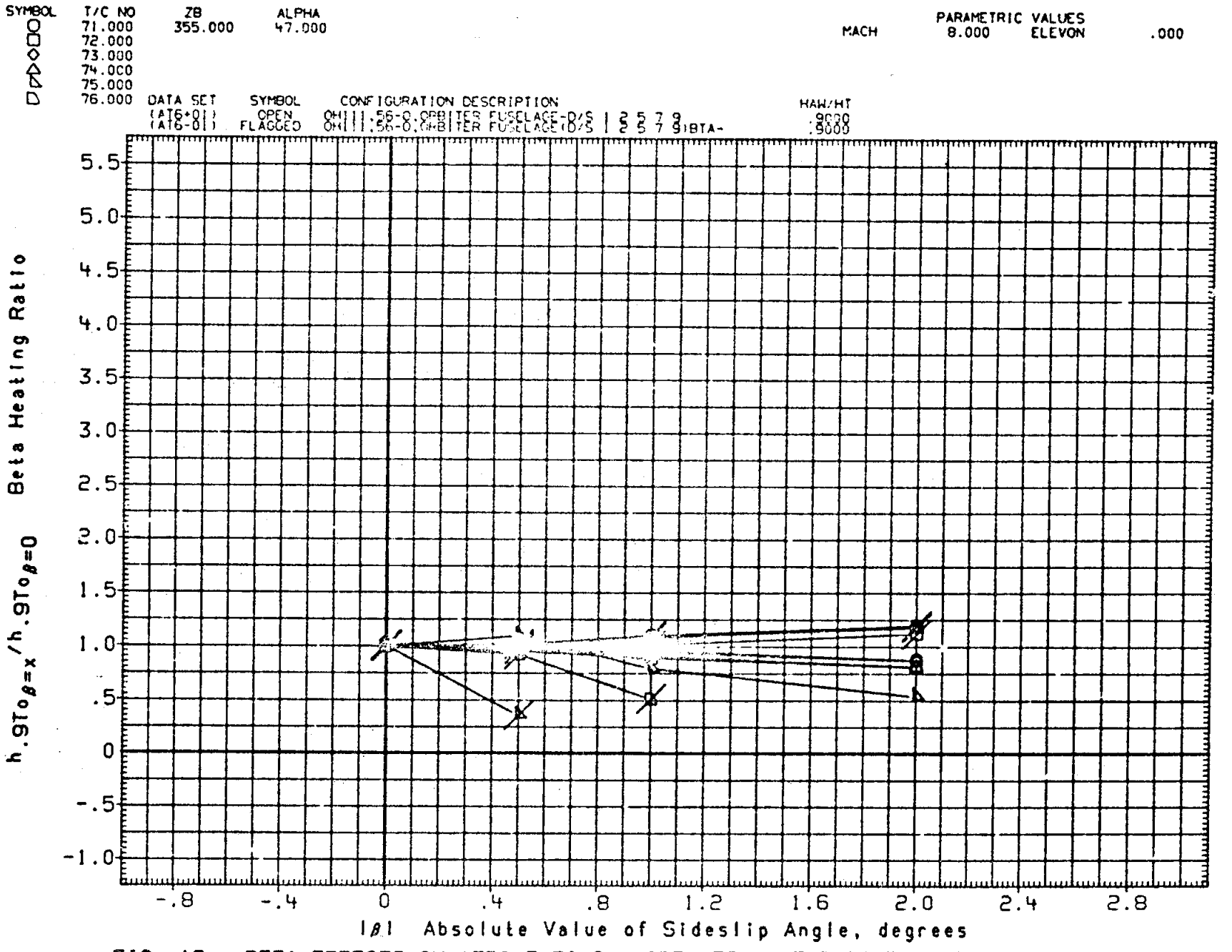

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

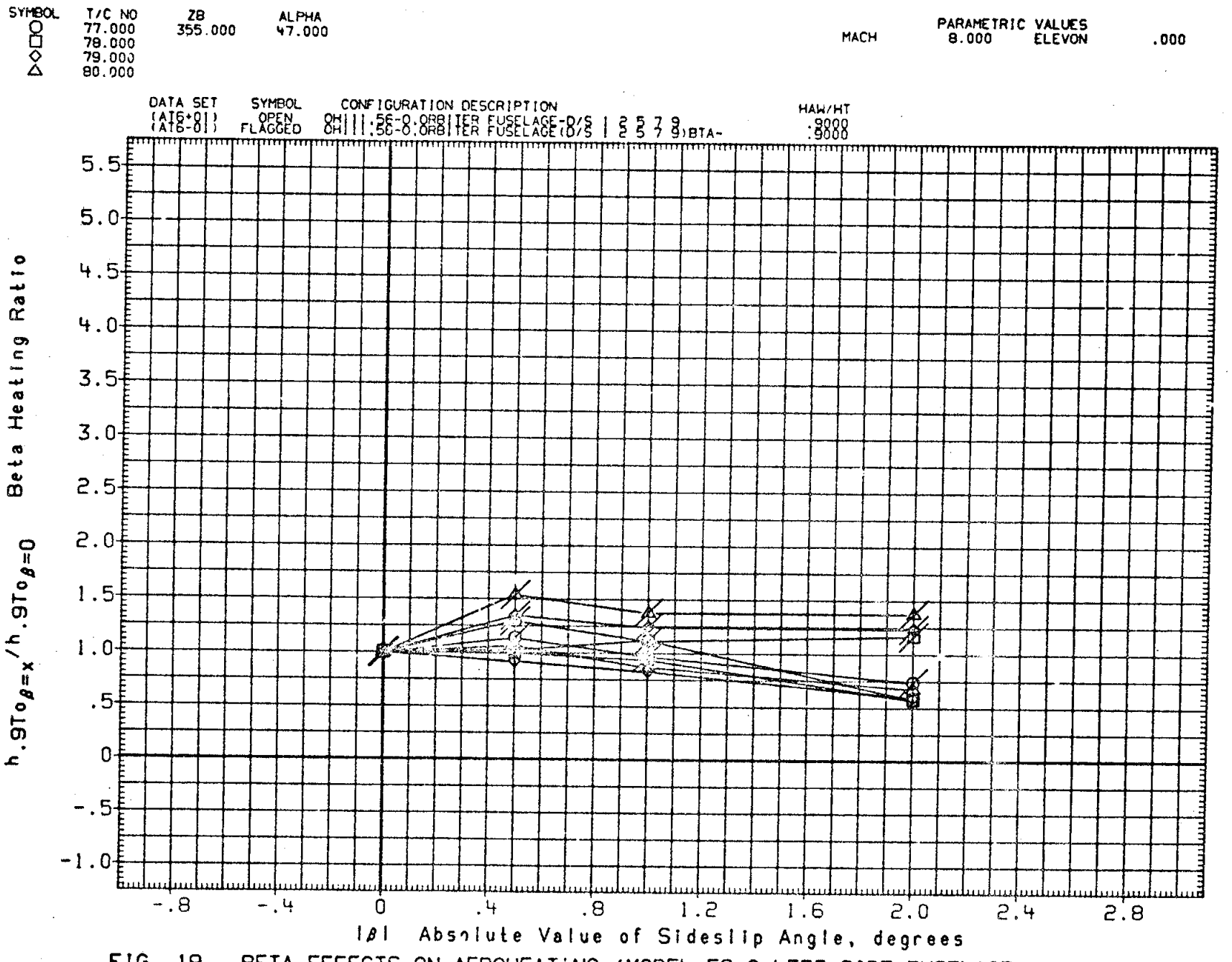

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

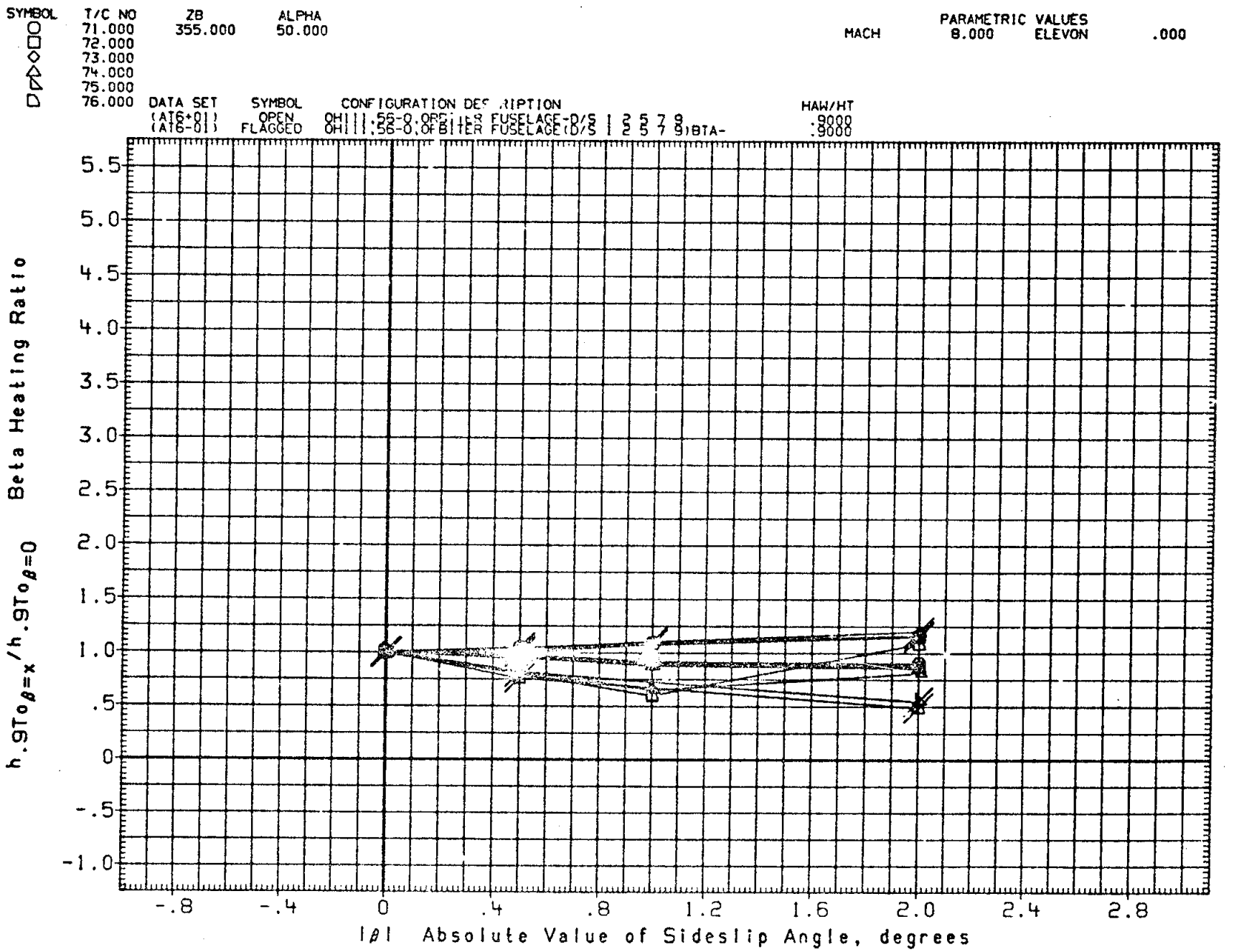

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

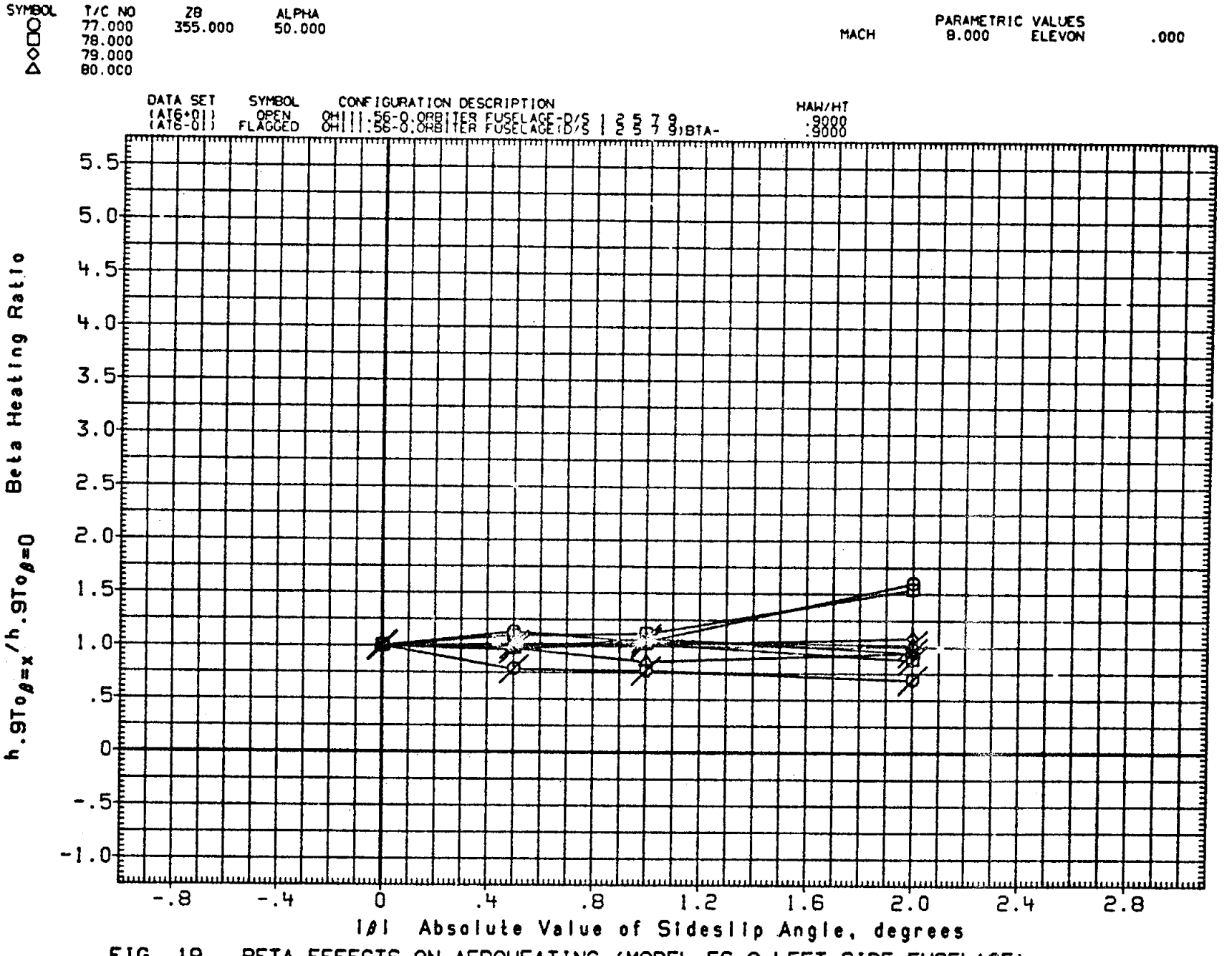

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-O LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

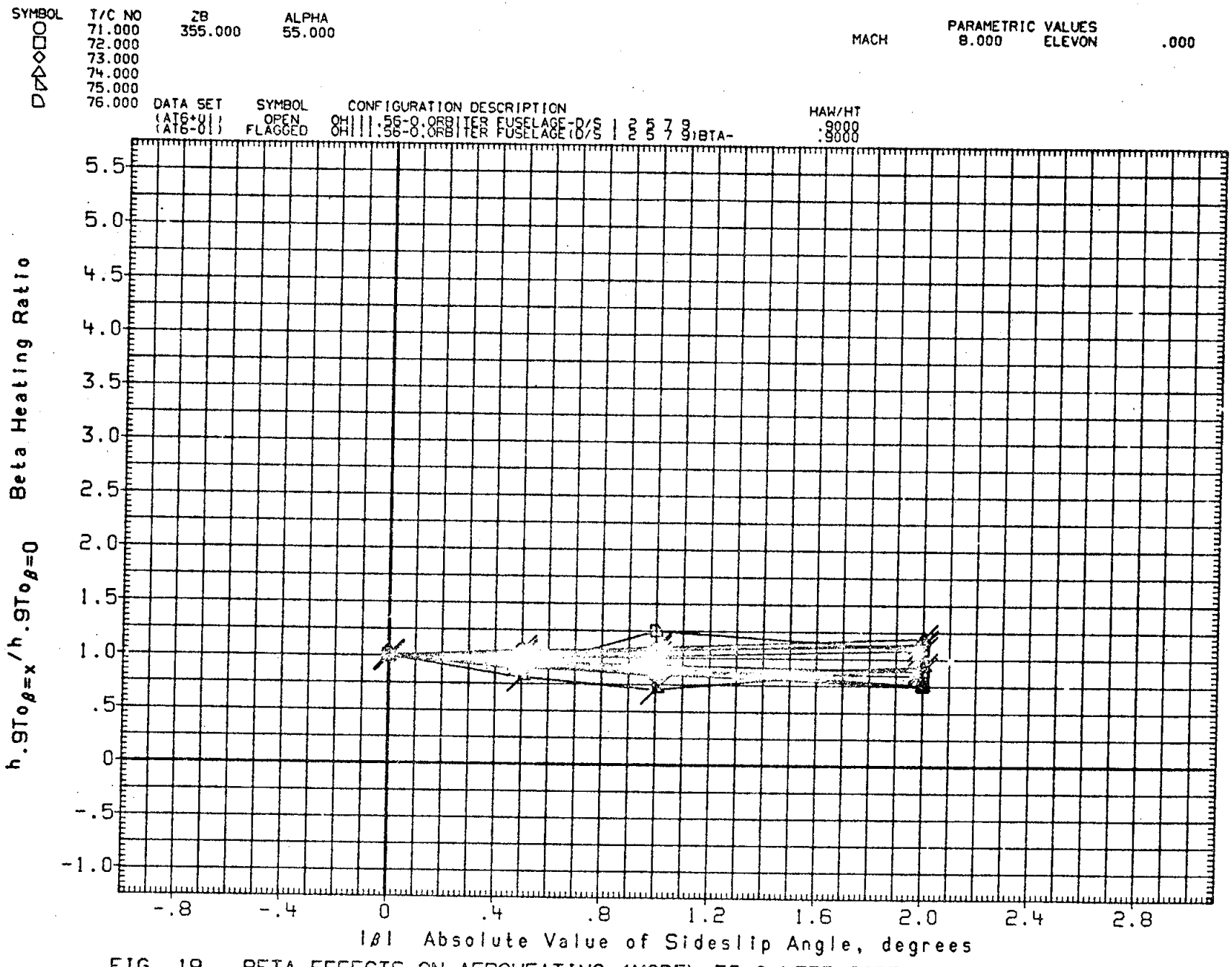

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

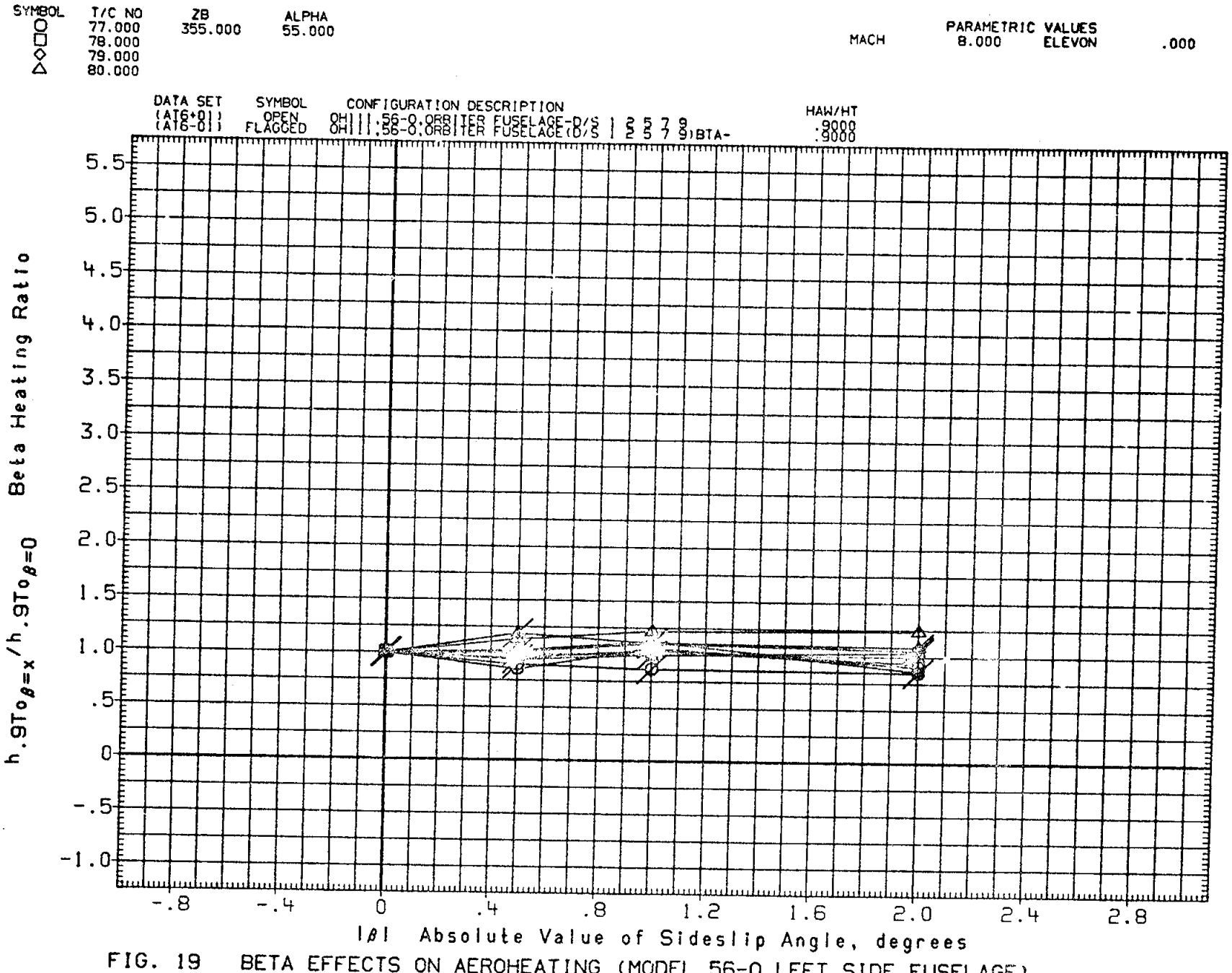

FIG. 19 BETA EFFECTS ON AEROHEATING (MODEL 56-0 LEFT SIDE FUSELAGE)
REYNOLDS NUMBER = 0.5

DATE 03 FEB 82

(ST6C44) OH111, MODEL 83-O, ORBITER CANOPY

SYMBOL	BETA	LINE	HAW/HT
O	-.002	3.000	.900

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
RN/L	.500		

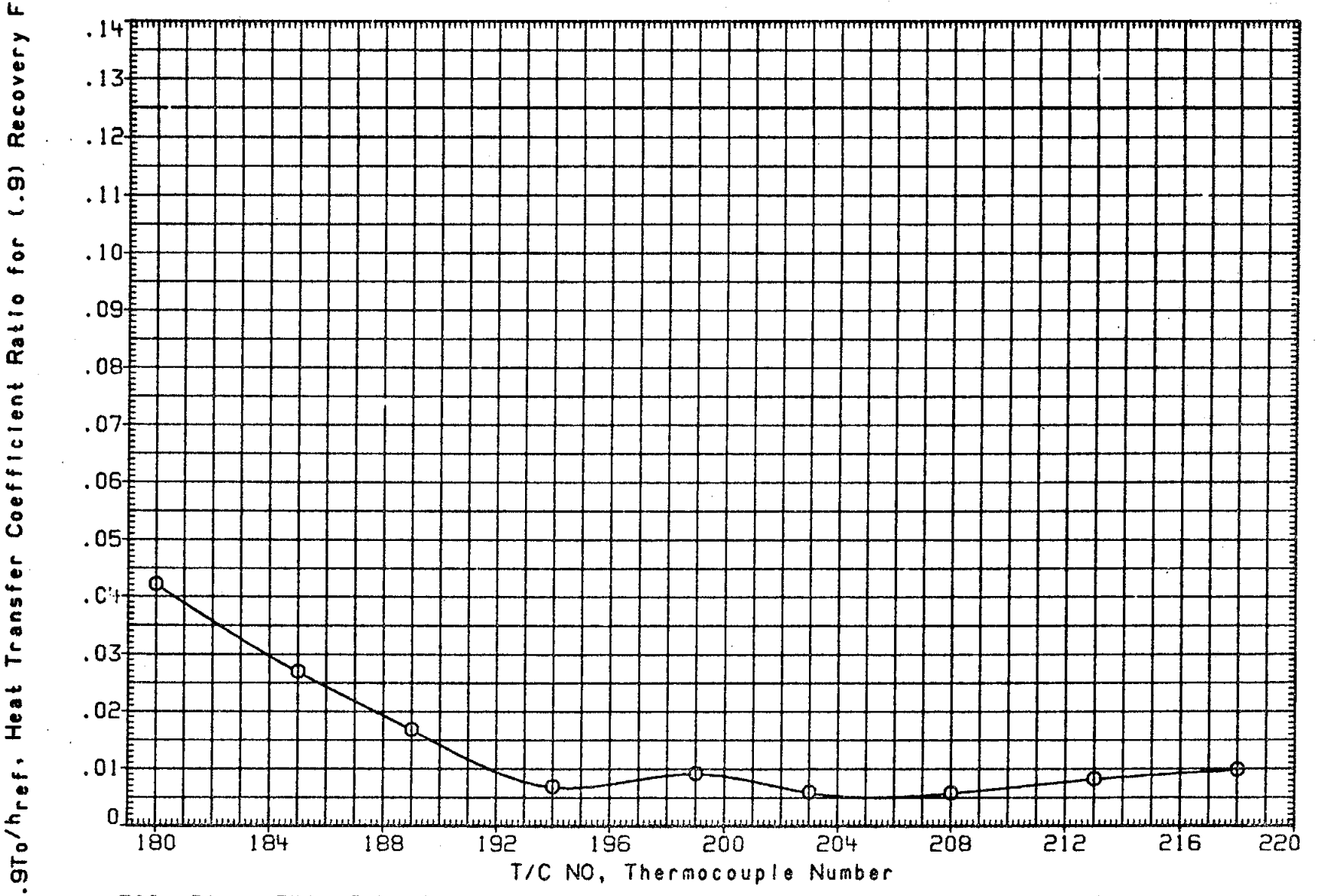

FIG. 21 AERO HEATING ON MODEL 83-O CANOPY WINDOWS, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6C44) OH111, MODEL 83-O, ORBITER CANOPY

SYMBOL	BETA	LINE	HAW/HT
O	-.002	4.000	.900

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
RN/L	.500		

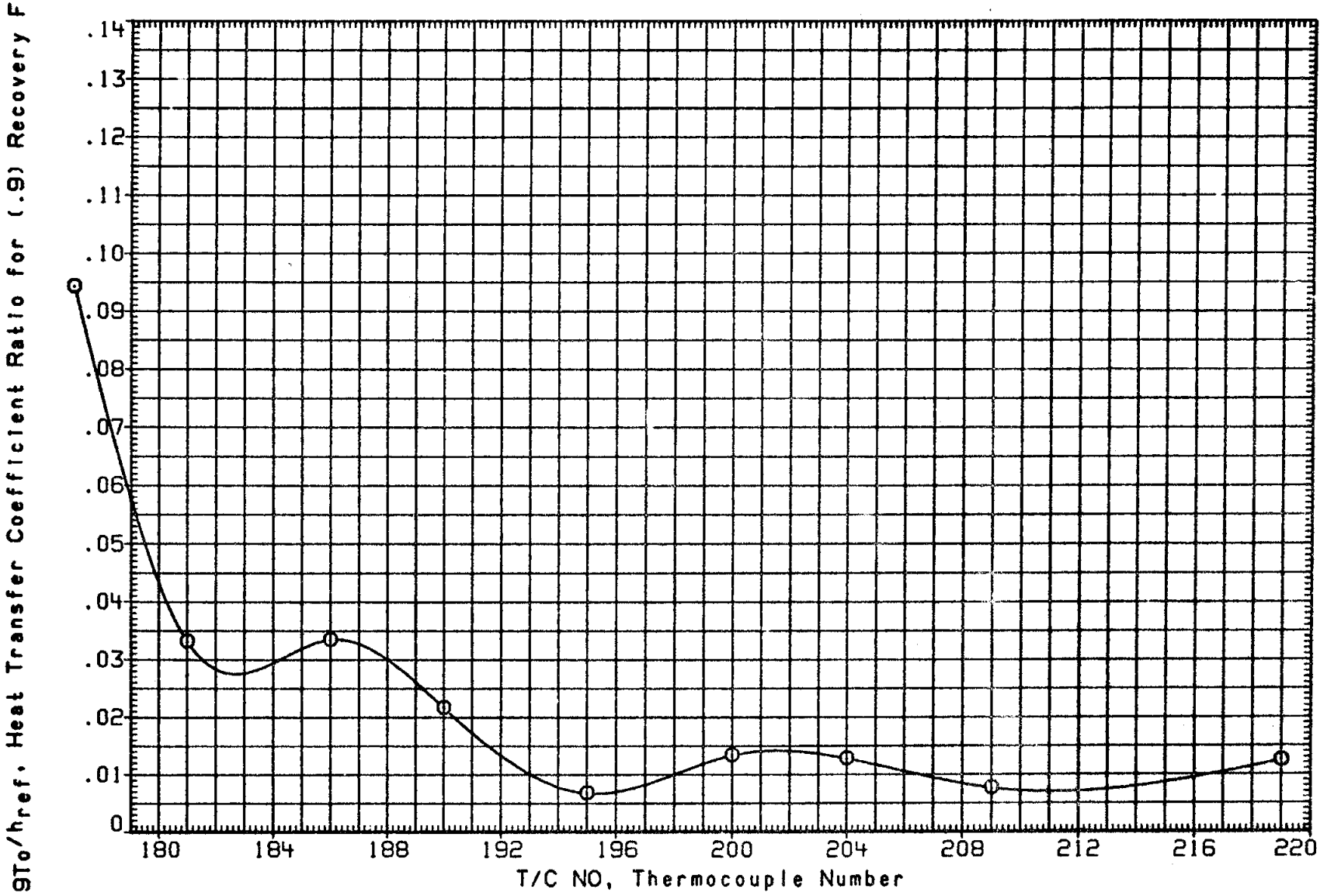

FIG. 21 AERO HEATING ON MODEL 83-O CANOPY WINDOWS, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6C44) OH111, MODEL 83-0, ORBITER CANOPY

SYMBOL	BETA	LINE	HAW/HT
O	-.002	5.000	.900

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
RN/L	.500		

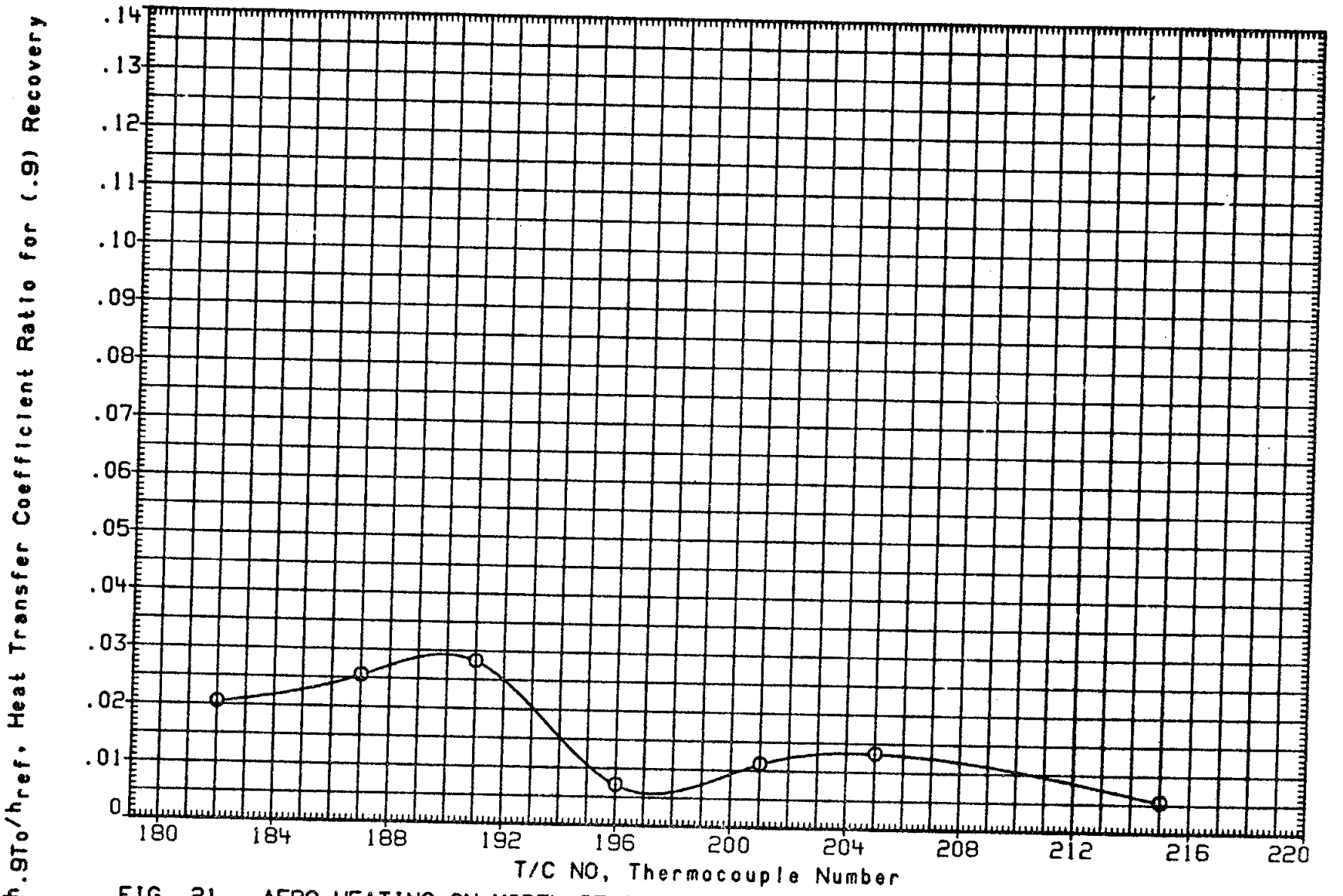

FIG. 21 AERO HEATING ON MODEL 83-0 CANOPY WINDOWS, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6C45) OH111, MODEL 83-O, ORBITER CANOPY

SYMBOL	BETA	LINE	HAW/HT
O	-.001	3.000	.900

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
RN/L	.500		

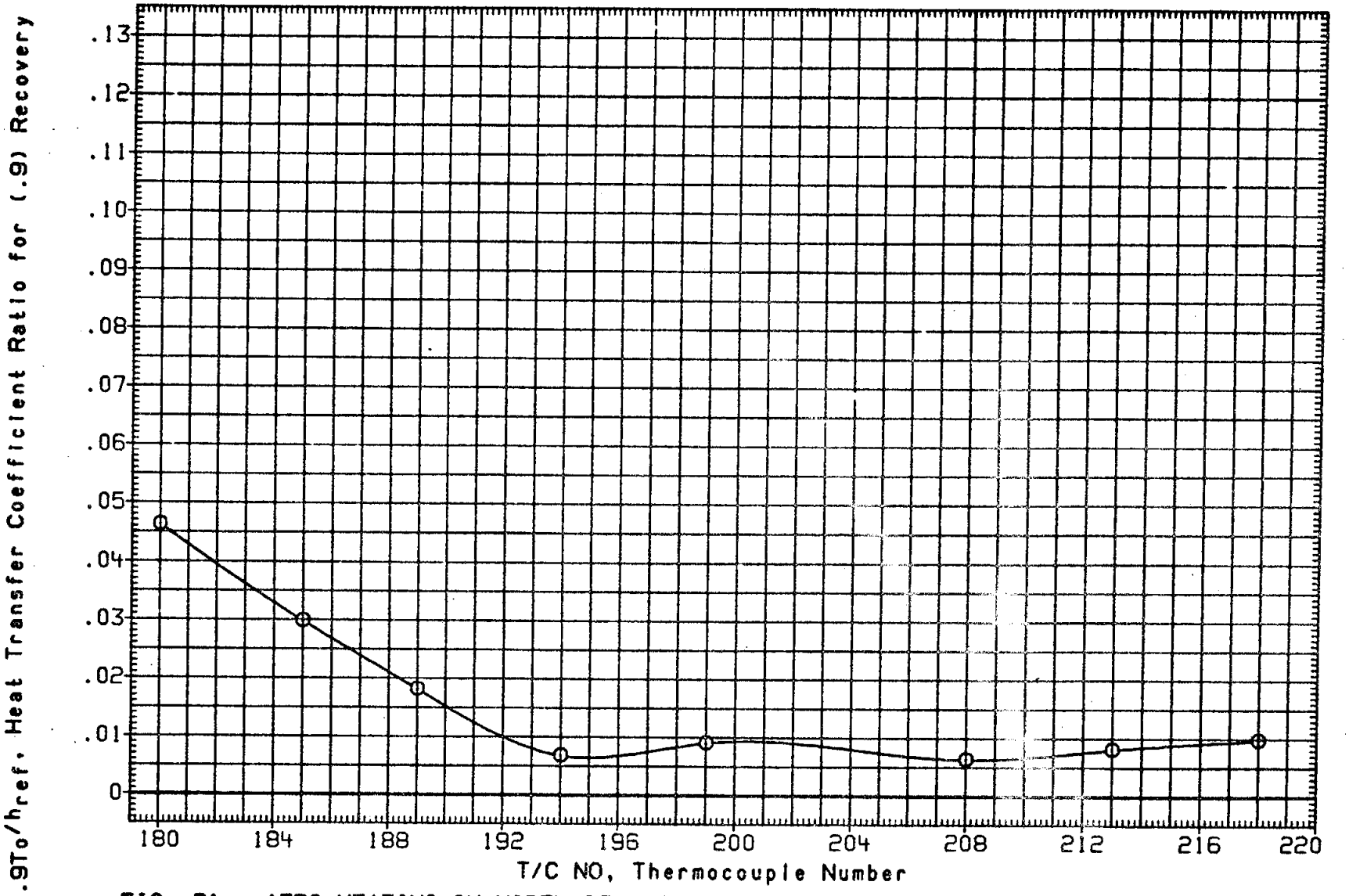

FIG. 21 AERO HEATING ON MODEL 83-O CANOPY WINDOWS, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6C45) OH111, MODEL 83-O, ORBITER CANOPY

SYMBOL	BETA	LINE	HAW/HT
O	-.001	4.000	.900

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
RN/L	.500		

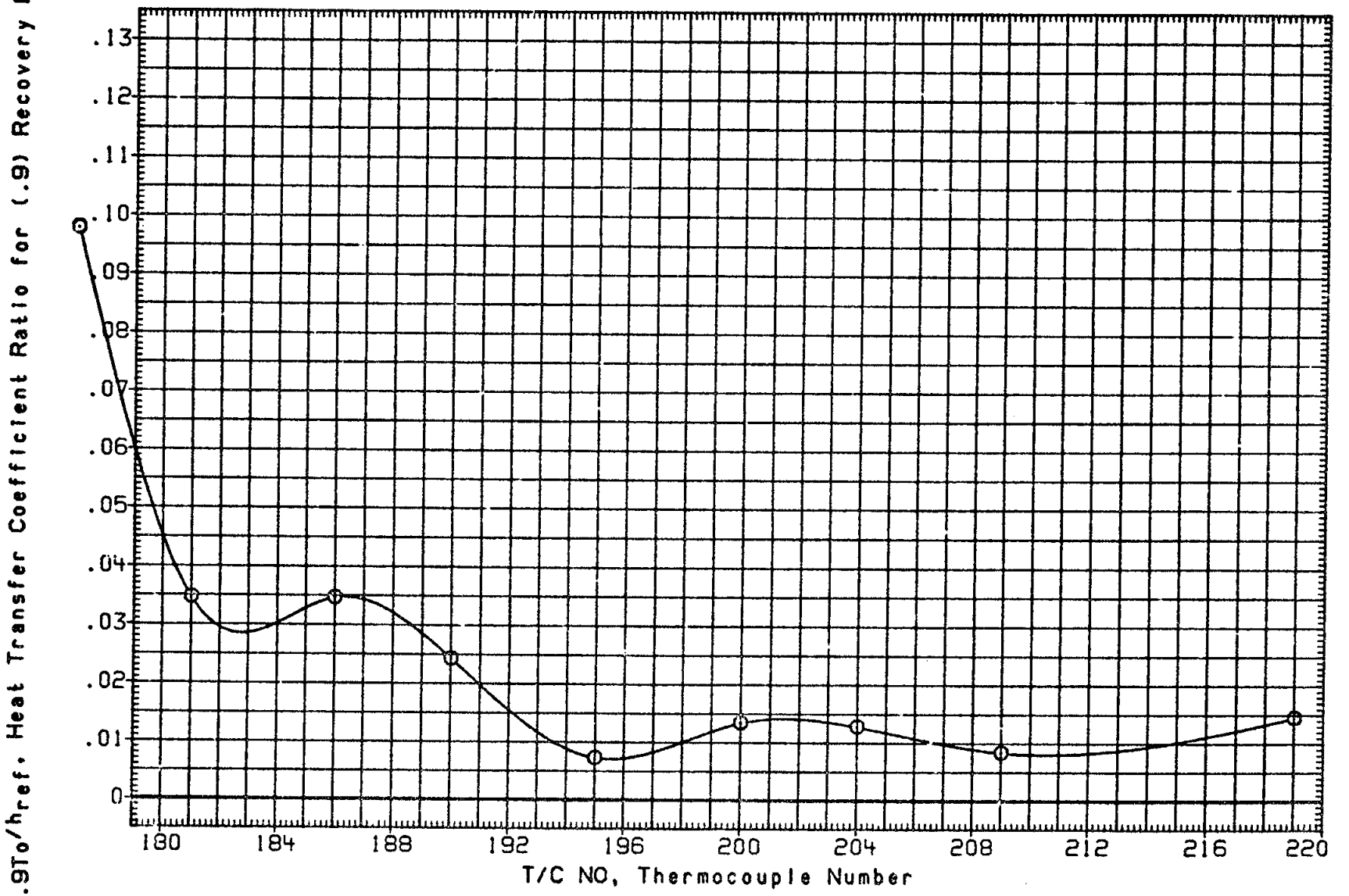

FIG. 21 AERO HEATING ON MODEL 83-O CANOPY WINDOWS, RN/L = 0.5 MILLION

DATE 29 JAN 82

(ST6C45) OH111, MODEL 83-O, ORBITER CANOPY

SYMBOL	BETA	LINE	HAW/HT
O	-.001	5.000	.900

PARAMETRIC VALUES

MACH	8.000	ALPHA	40.000
RN/L	.500		

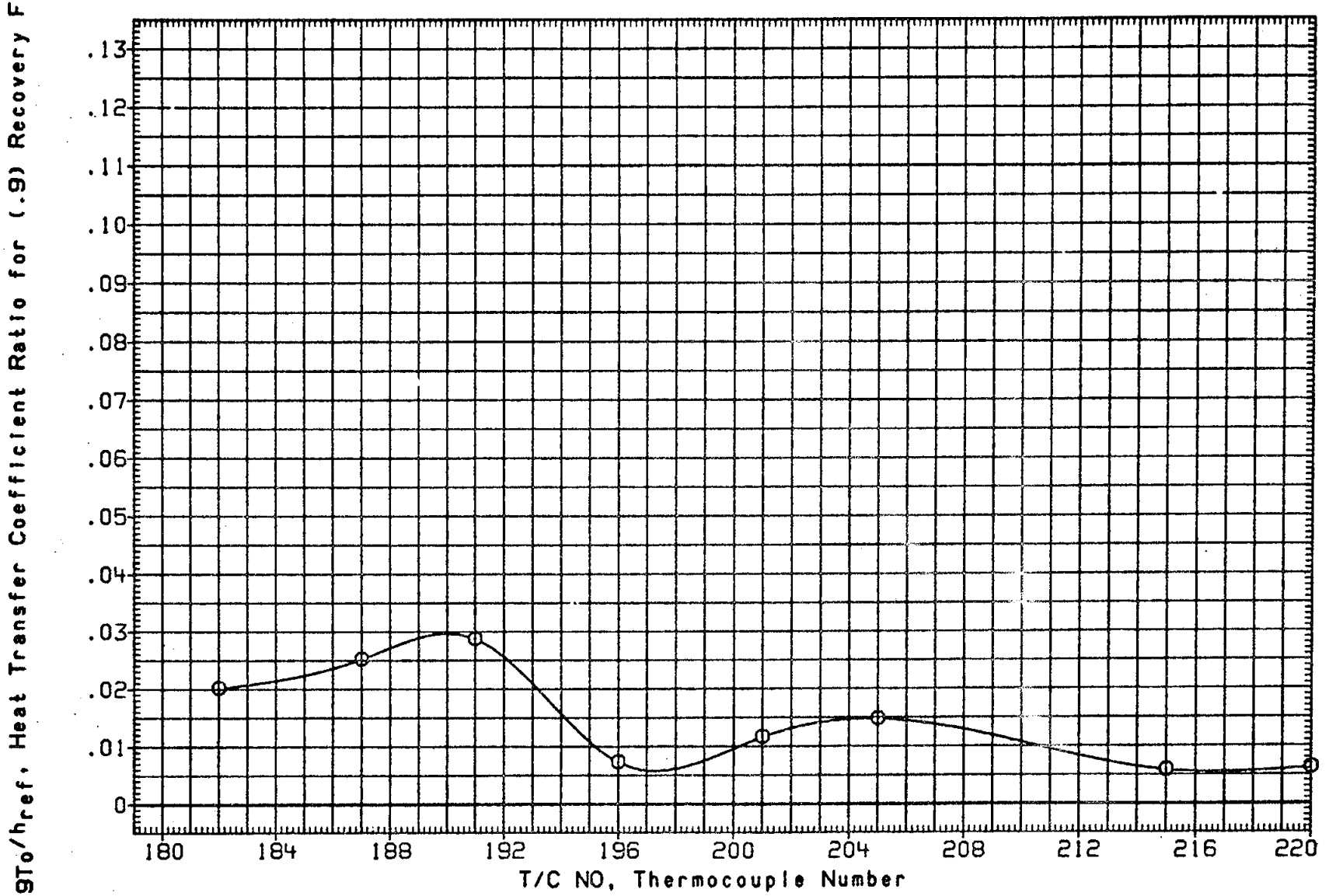

FIG. 21 AERO HEATING ON MODEL 83-O CANOPY WINDOWS, RN/L = 0.5 MILLION

DATE 29 JAN 82

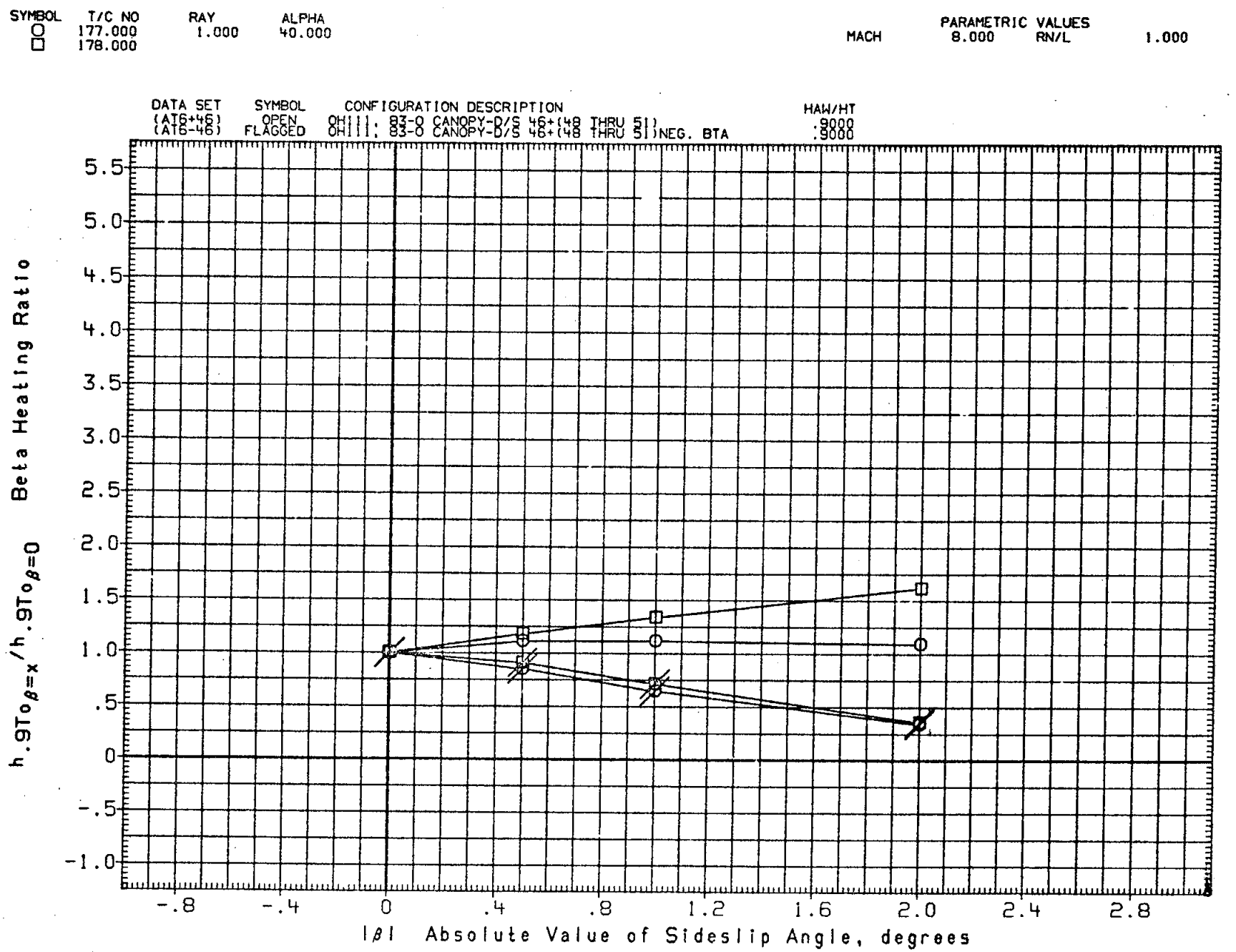

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

PAGE

SYMBOL	T/C NO	RAY	ALPHA
○	177.000	1.000	43.000
□	178.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||, 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||, 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

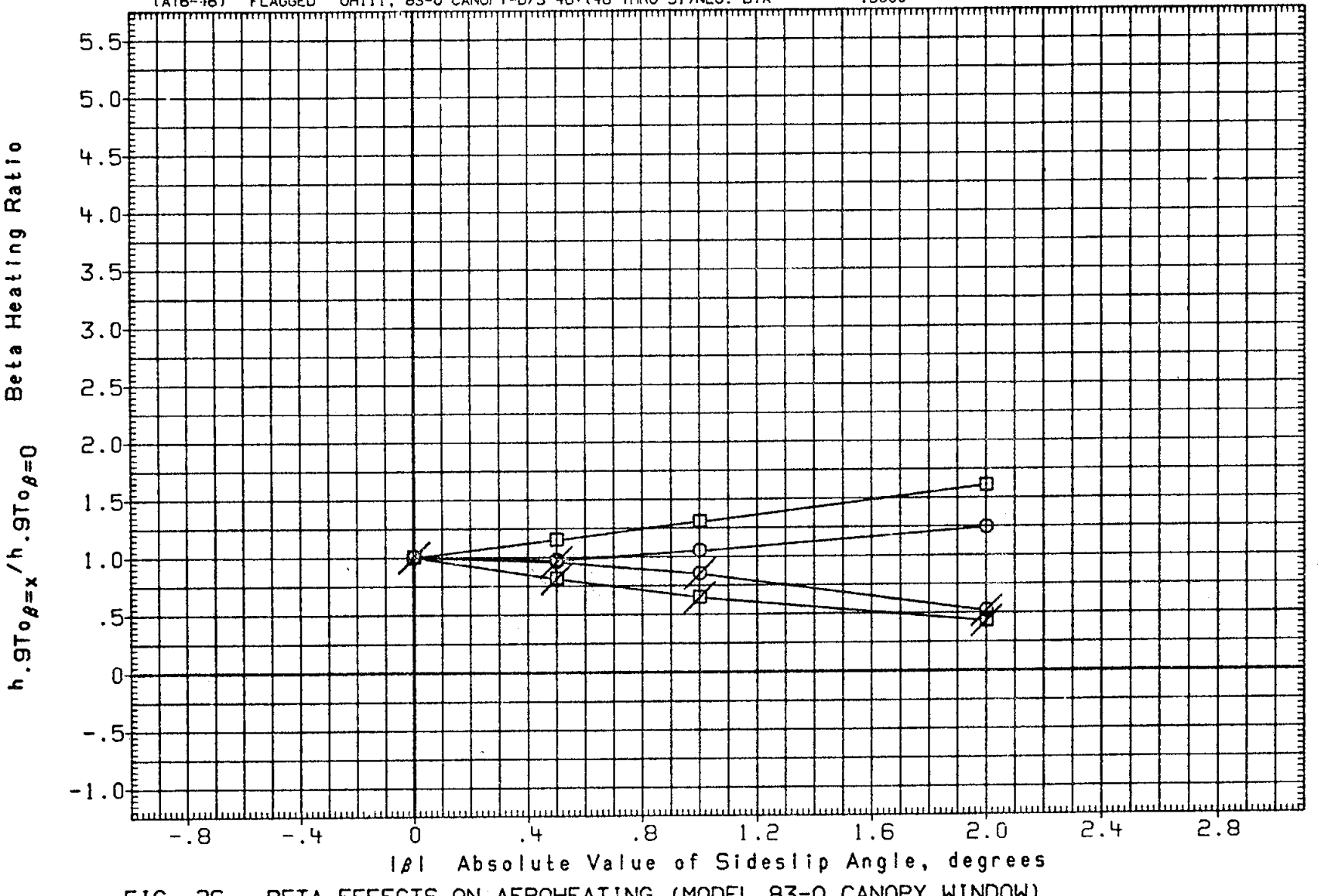

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	177.000	1.000	47.000
□	178.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OHIII, 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII, 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

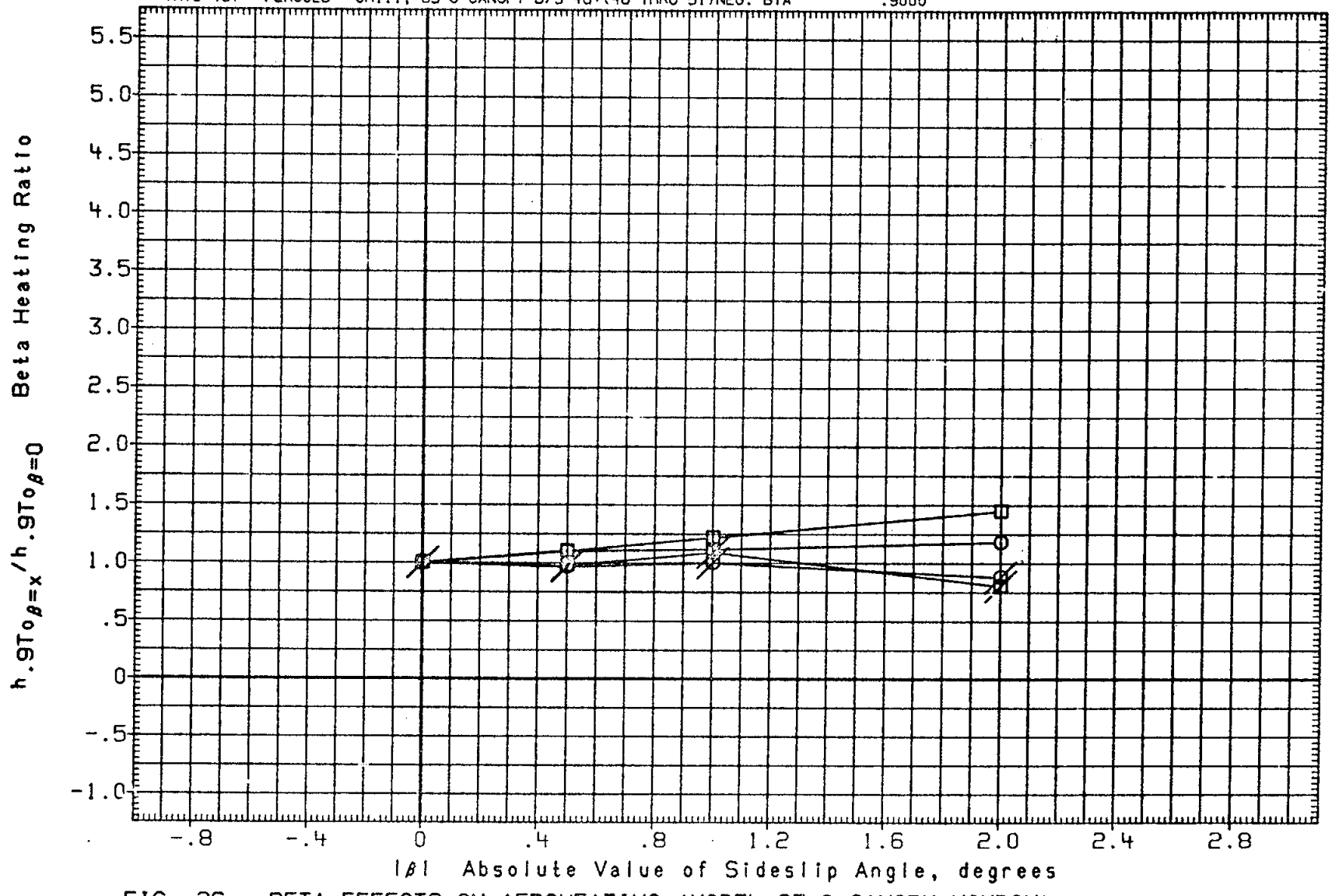

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	177.000	1.000	50.000
□	178.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OHIII, 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII, 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

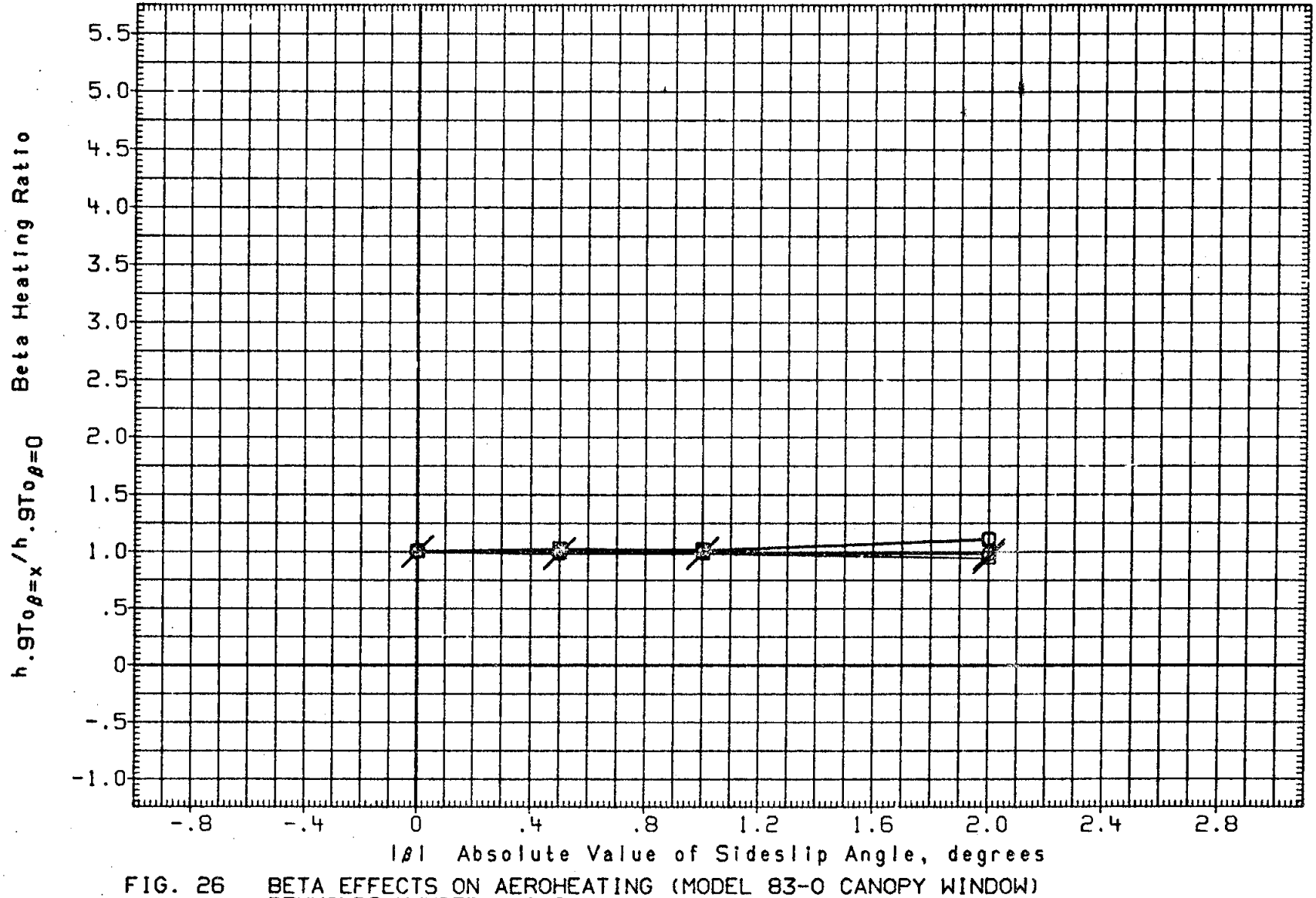

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 92

SYMBOL	T/C NO	RAY	ALPHA
○	177.000	1.000	55.000
□	178.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||, 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||, 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

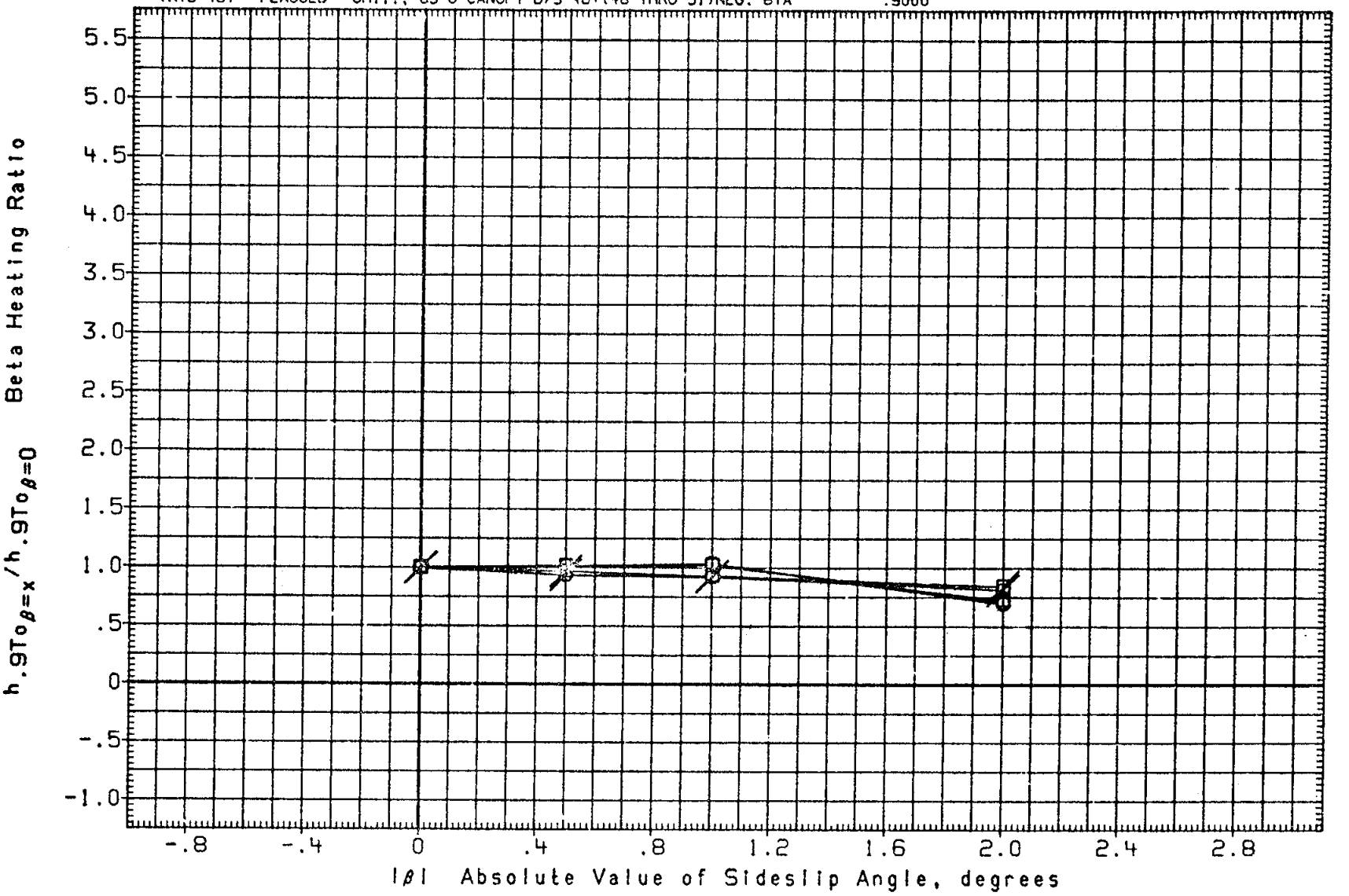

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
O	179.000	2.000	40.000

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||, 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||, 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

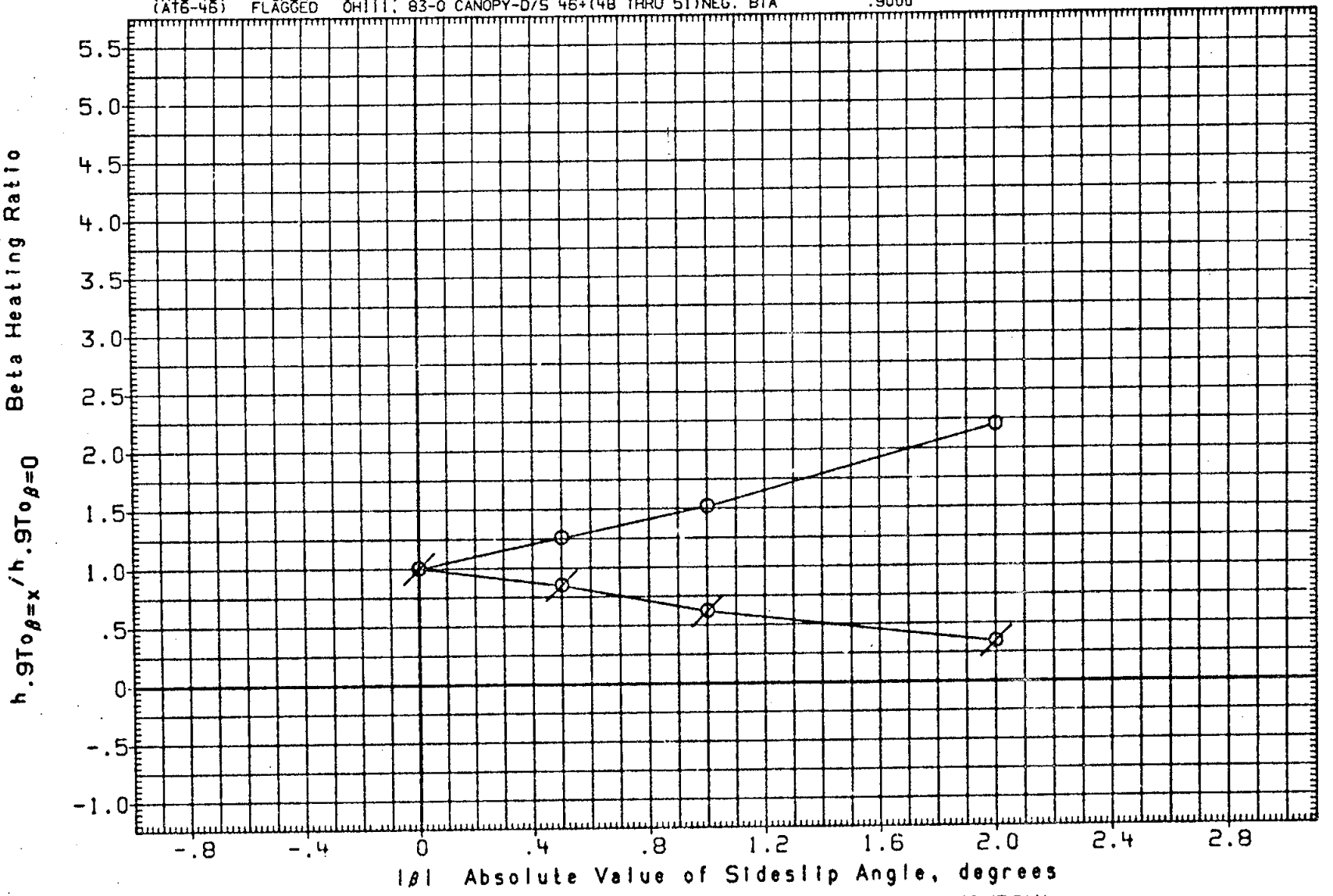

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
O	179.000	2.000	43.000

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OHIII; 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII; 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

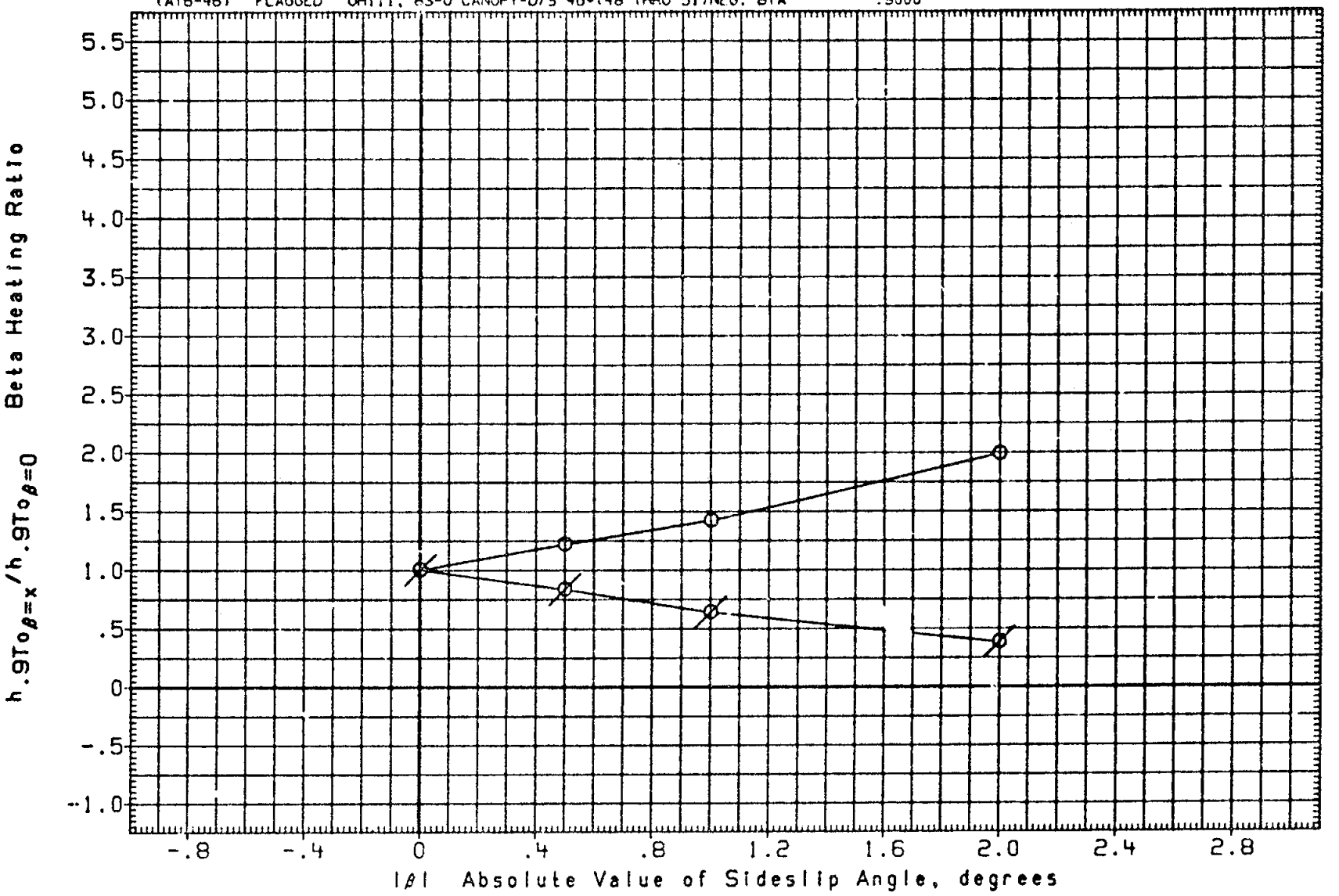

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
O	179.000	2.000	47.000

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||: 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||: 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

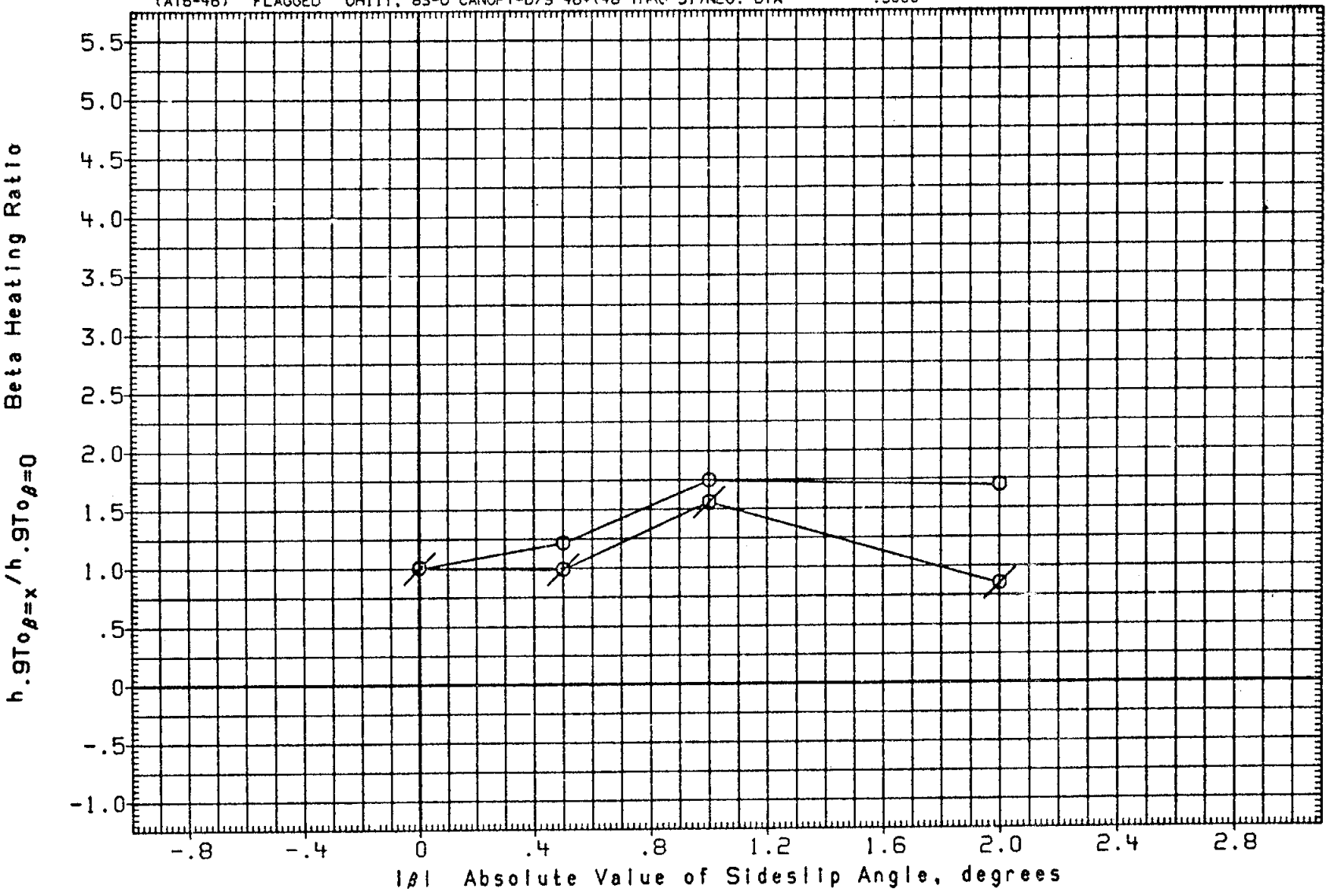

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
O	179.000	2.000	50.000

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||; 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||; 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

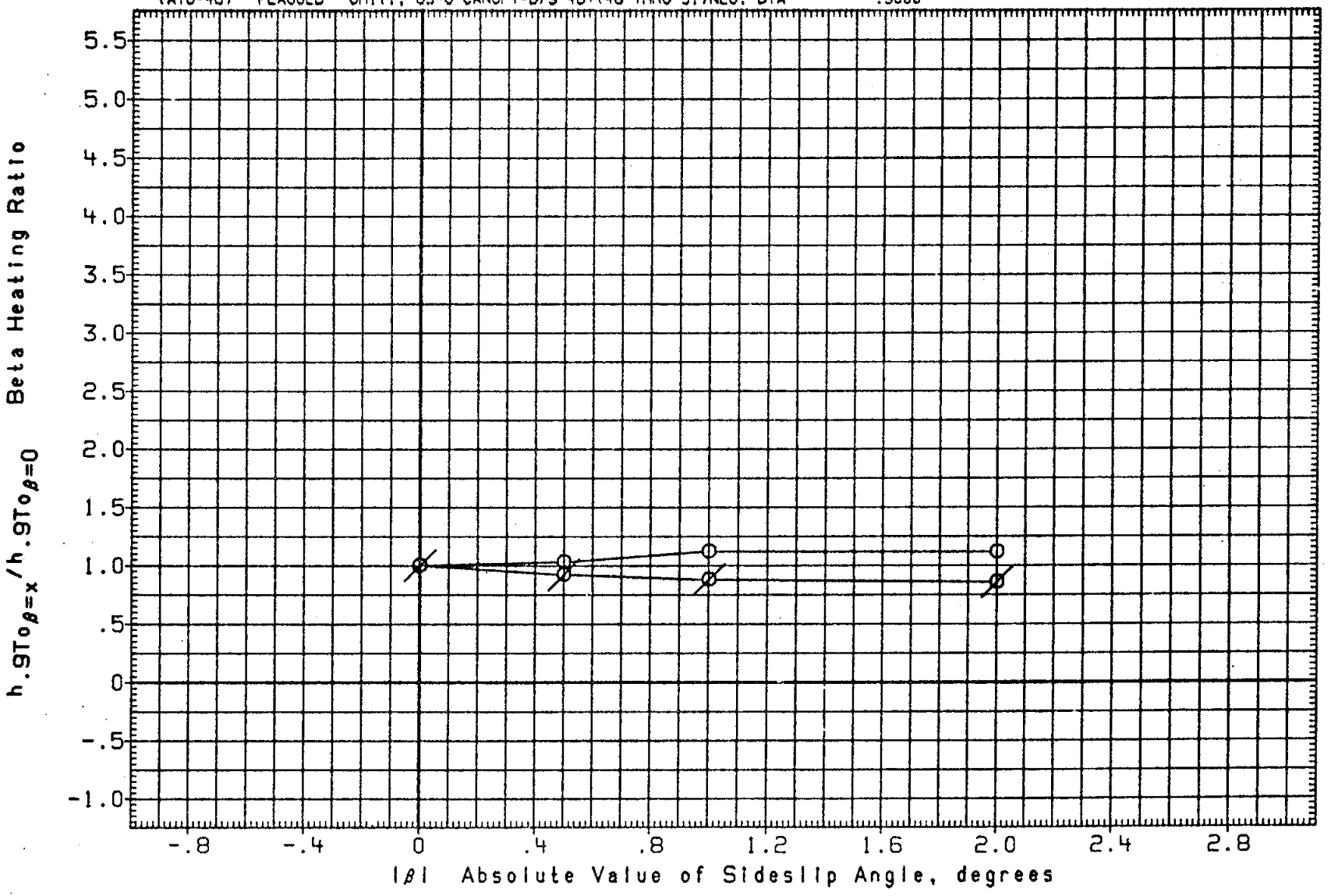

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
O	179.000	2.000	55.000

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||: 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||: 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

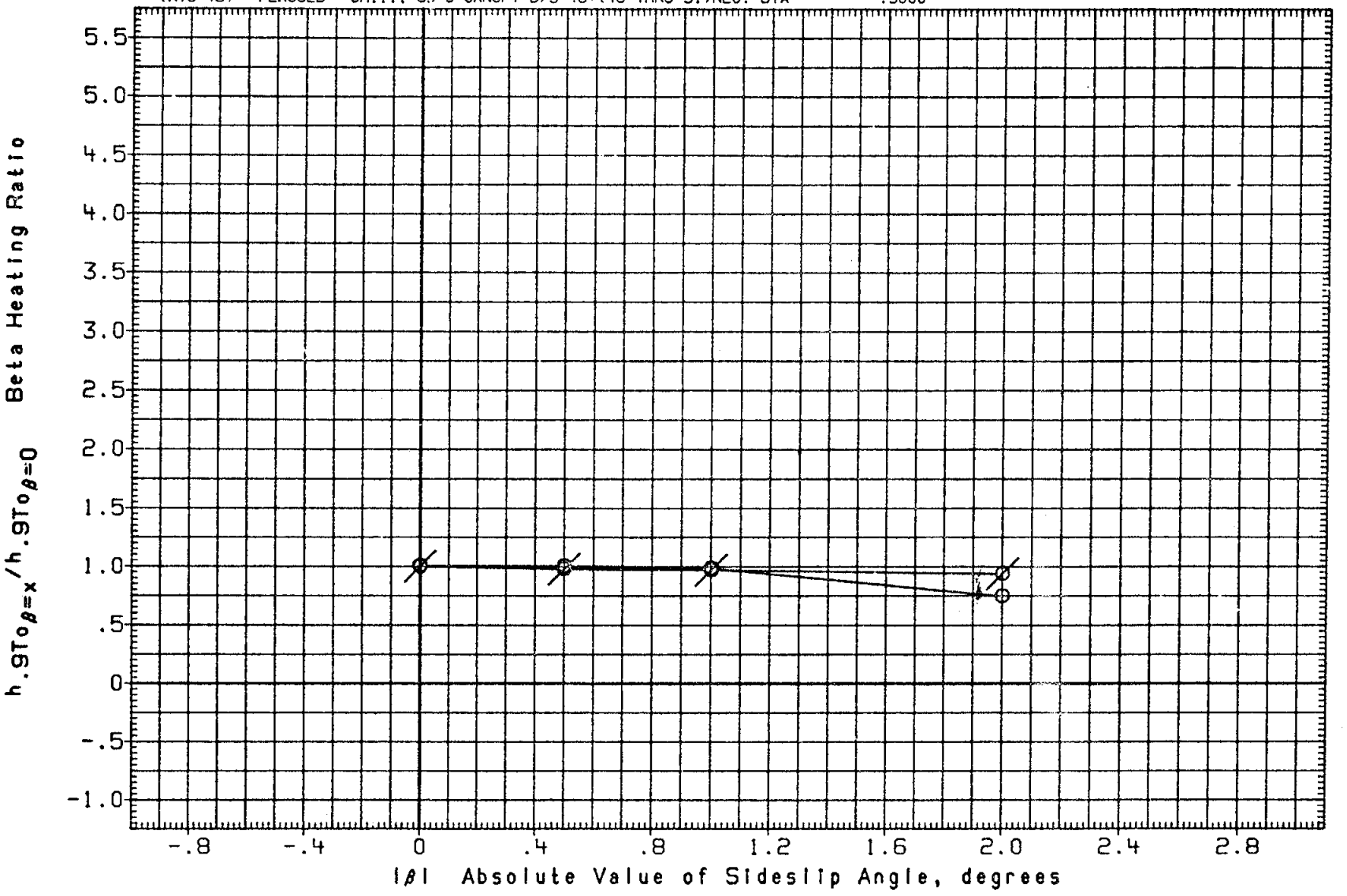

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

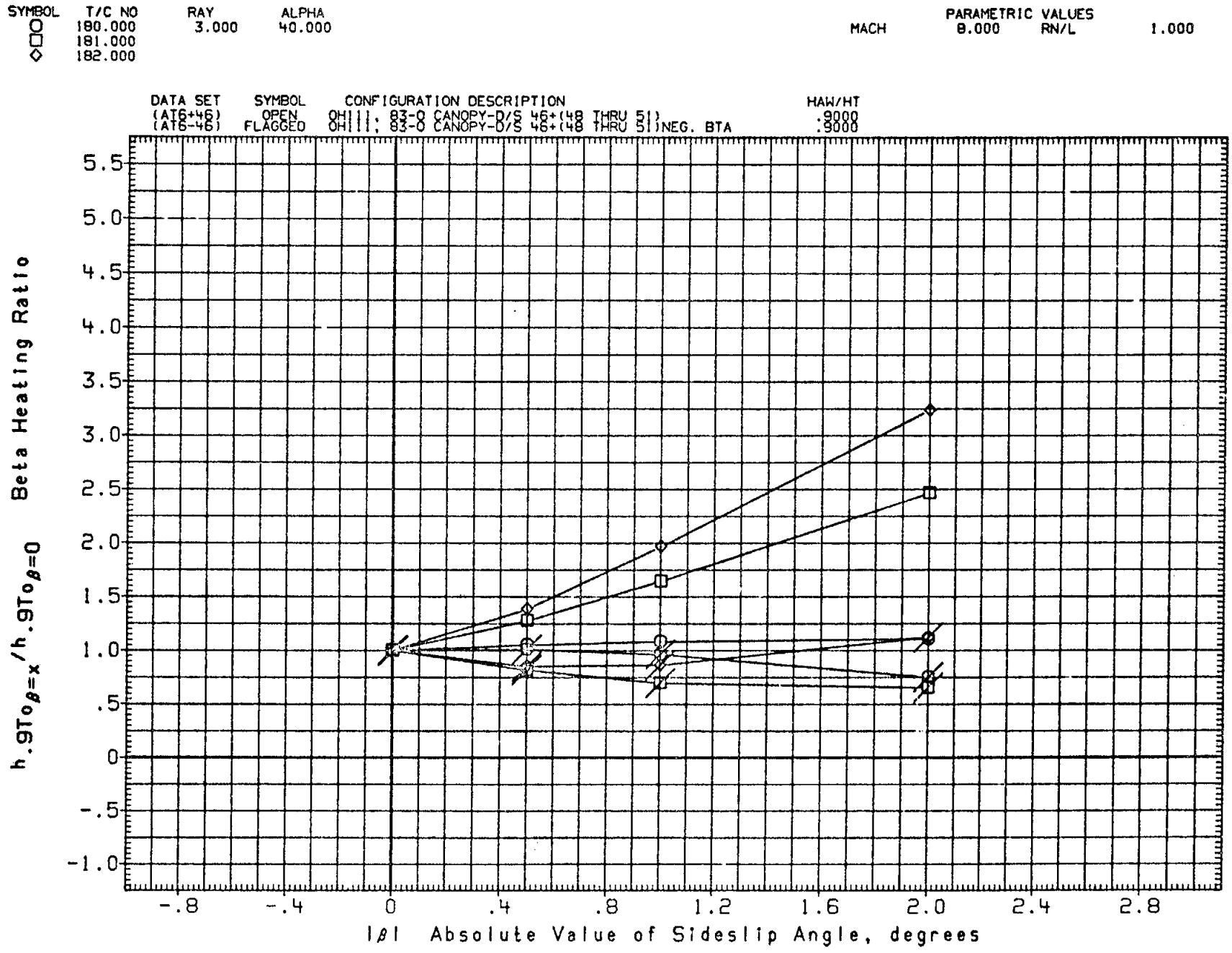

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

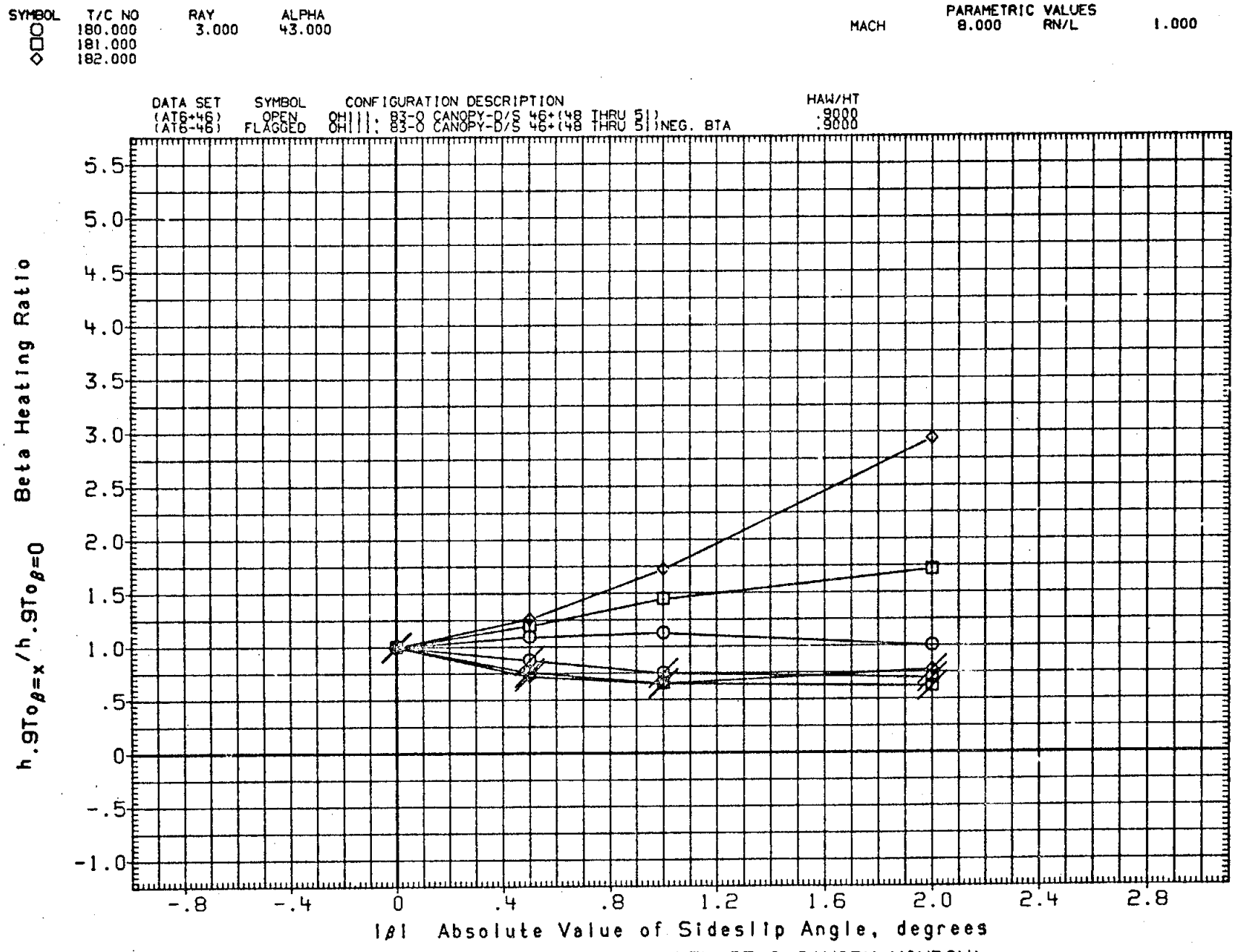

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

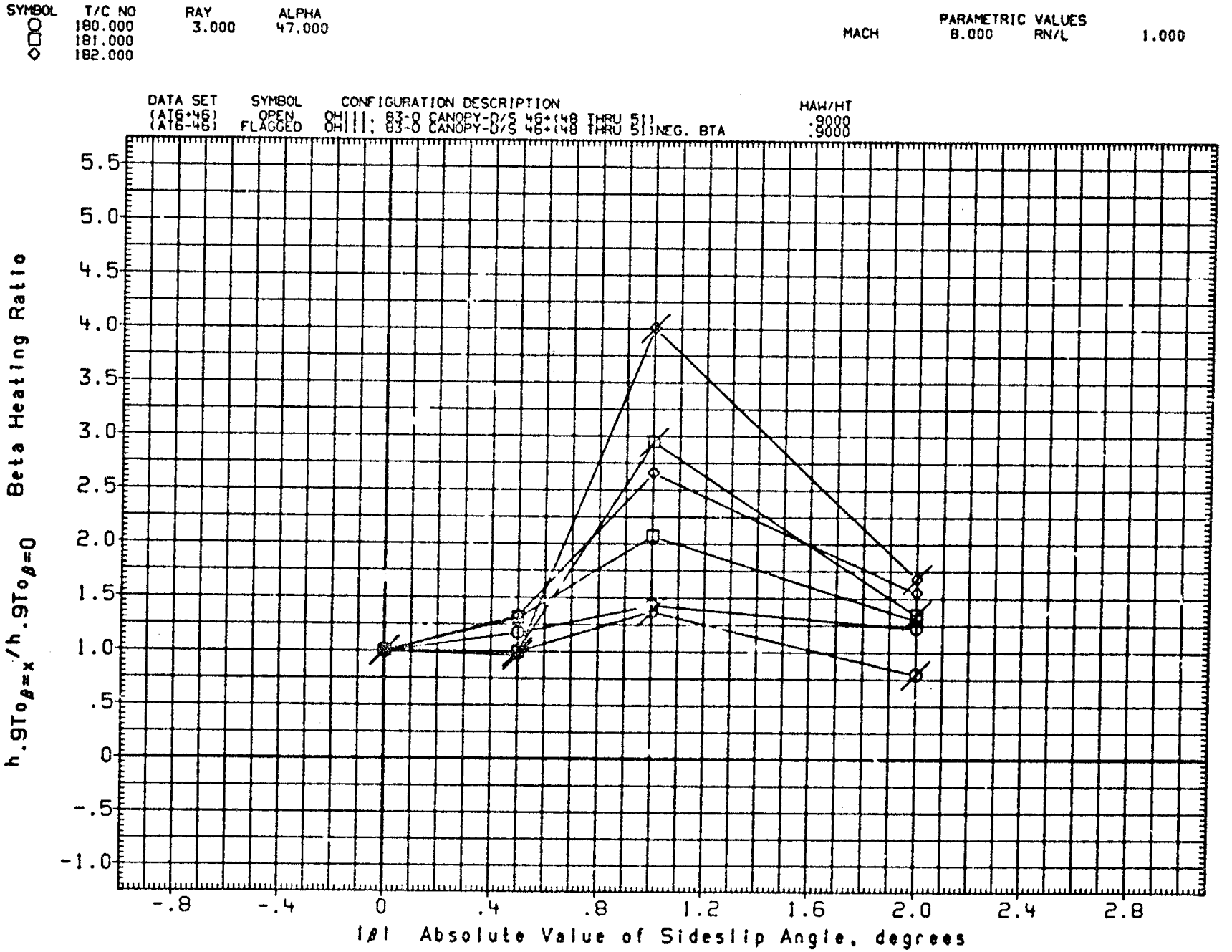

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

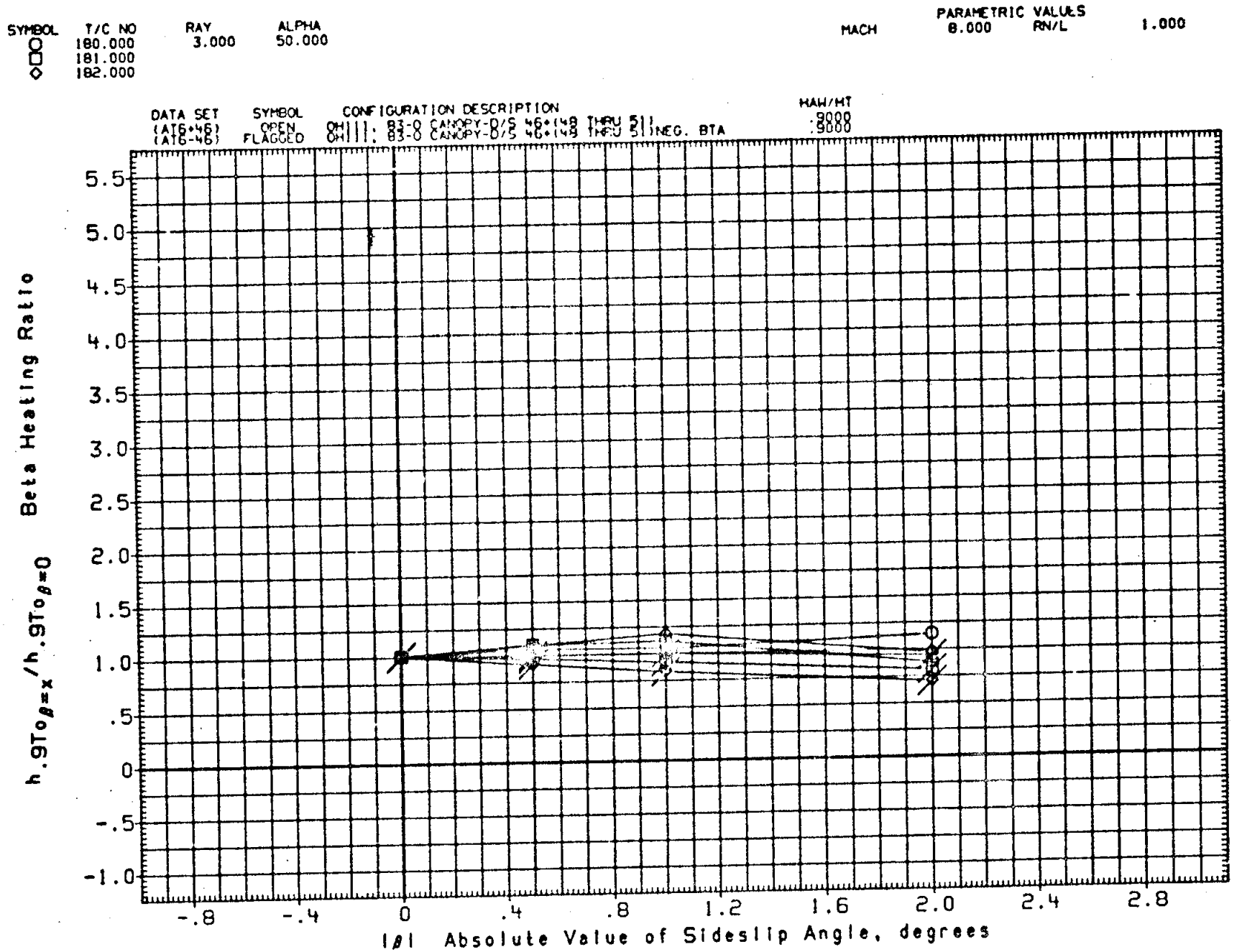

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	180.000	3.000	55.000
□	181.000		
◇	182.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6-46)	OPEN	OH|||: 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||: 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

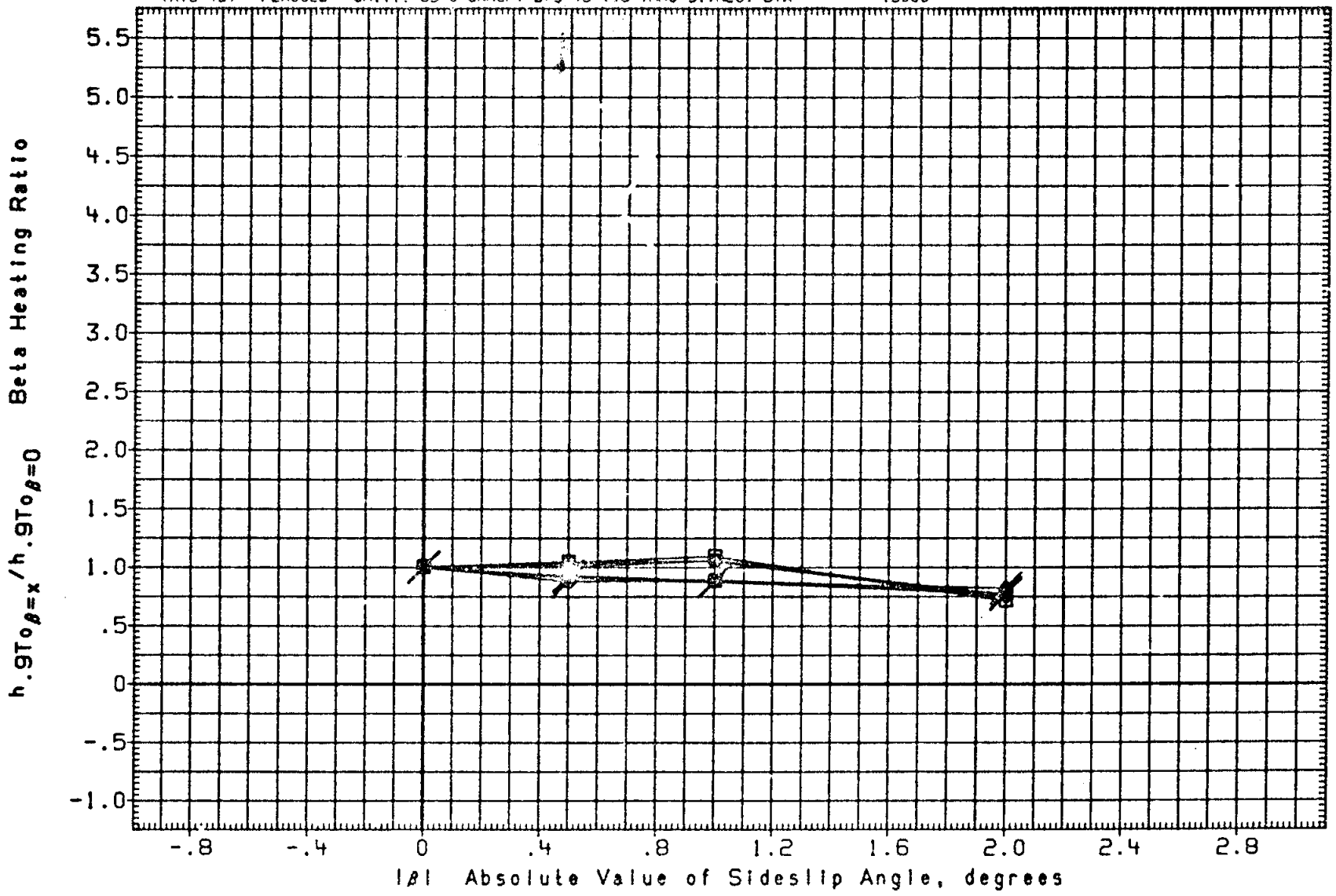

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

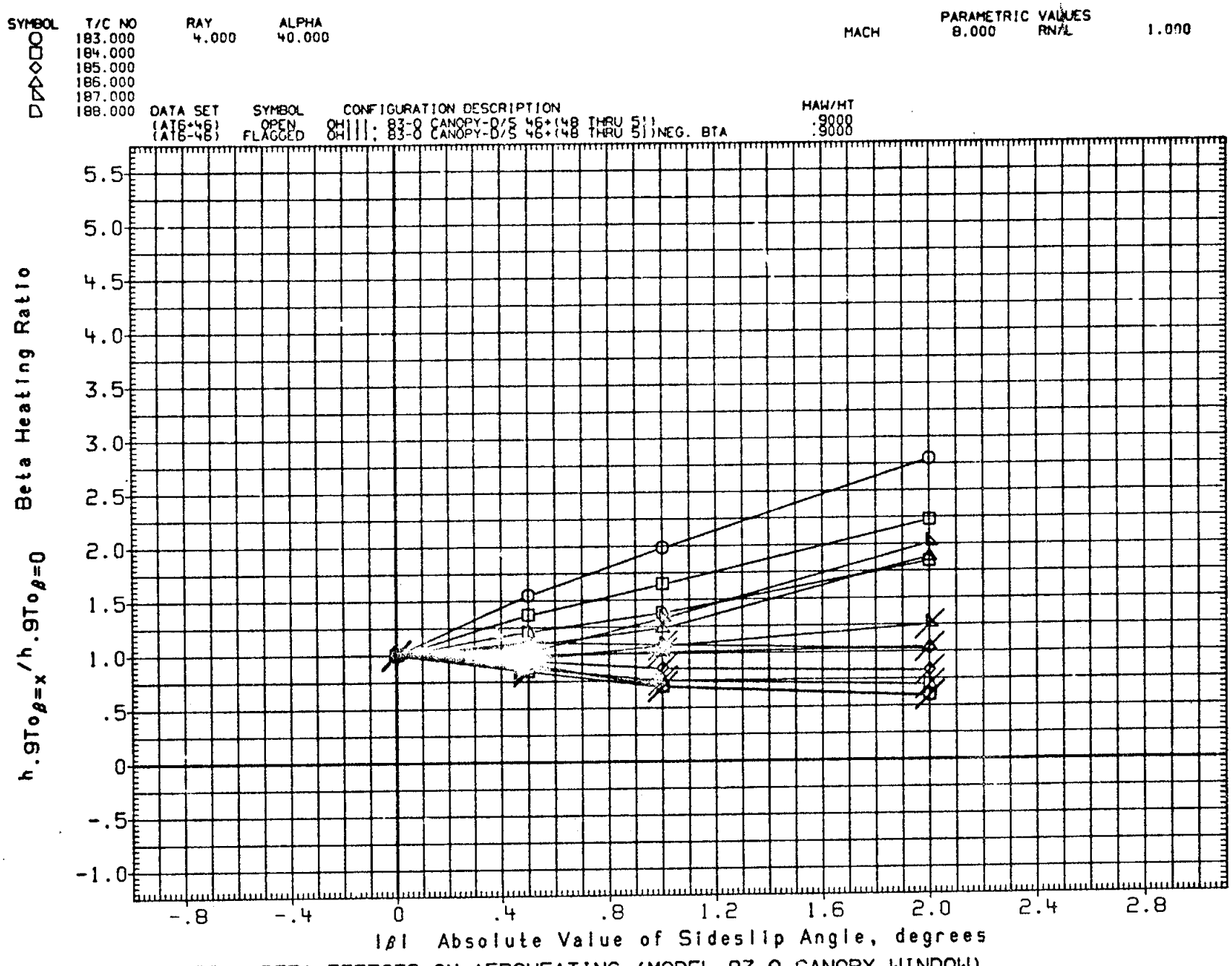

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

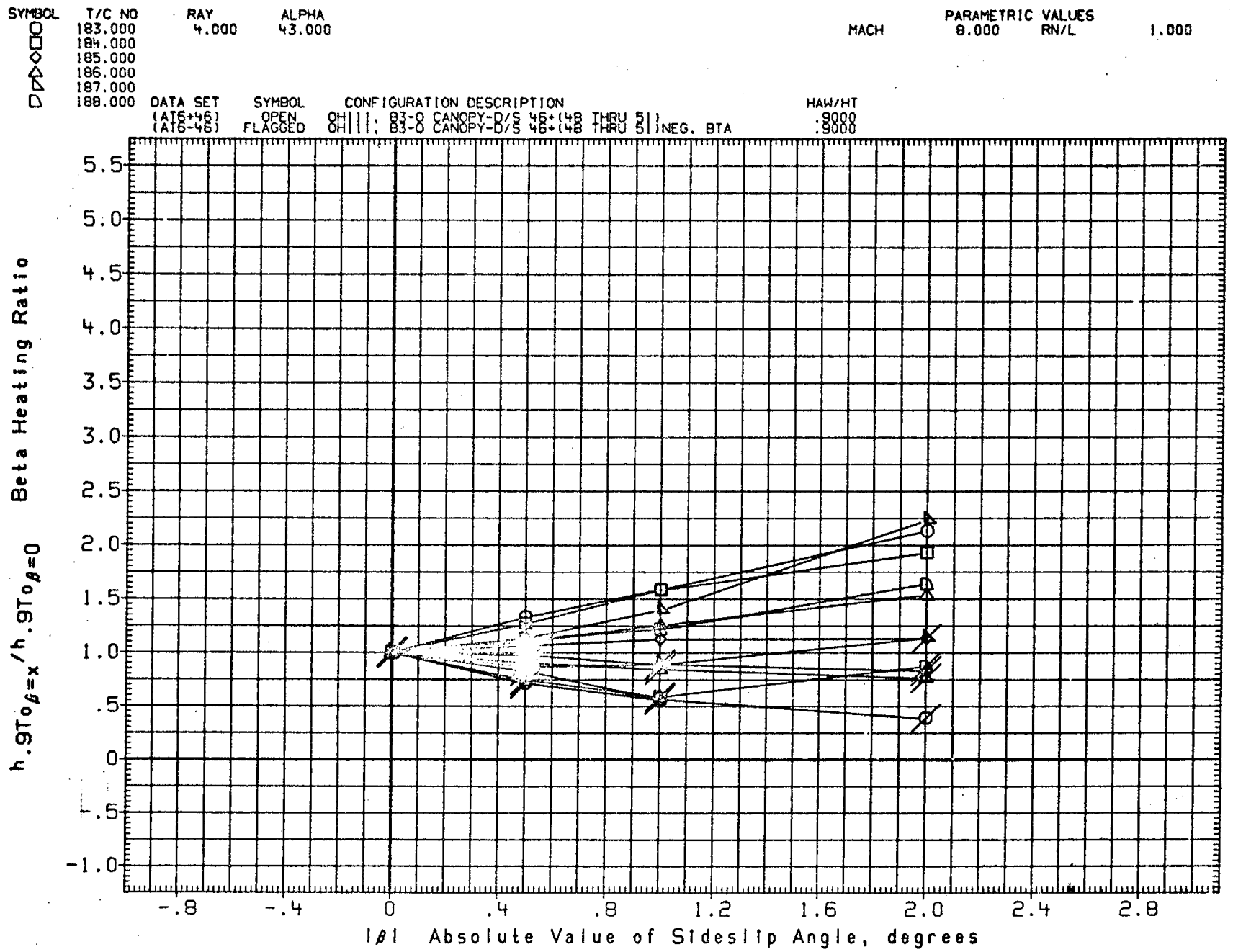

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

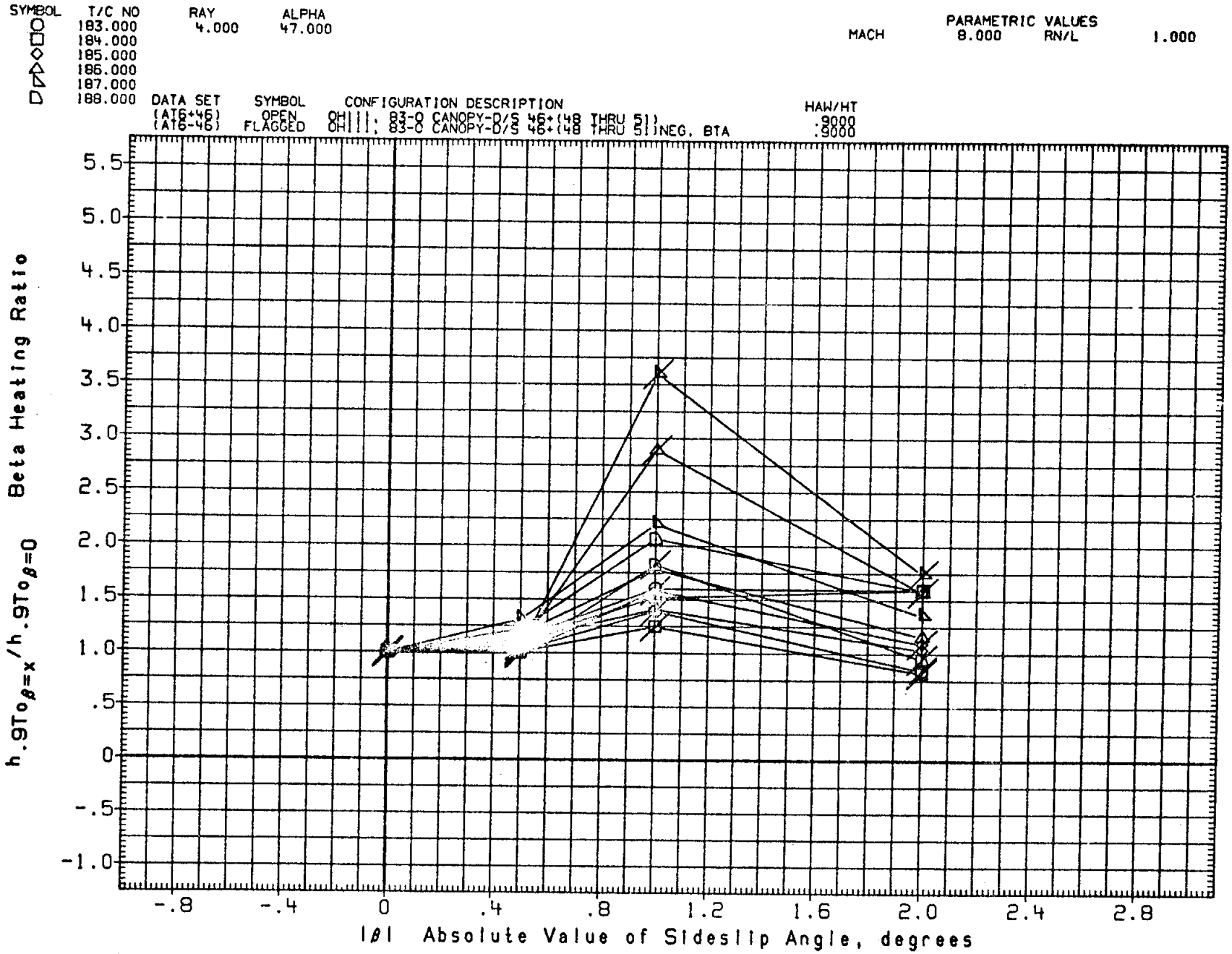

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	183.000	4.000	50.000
□	184.000		
◇	185.000		
△	186.000		
▷	187.000		
▽	188.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||, 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||, 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

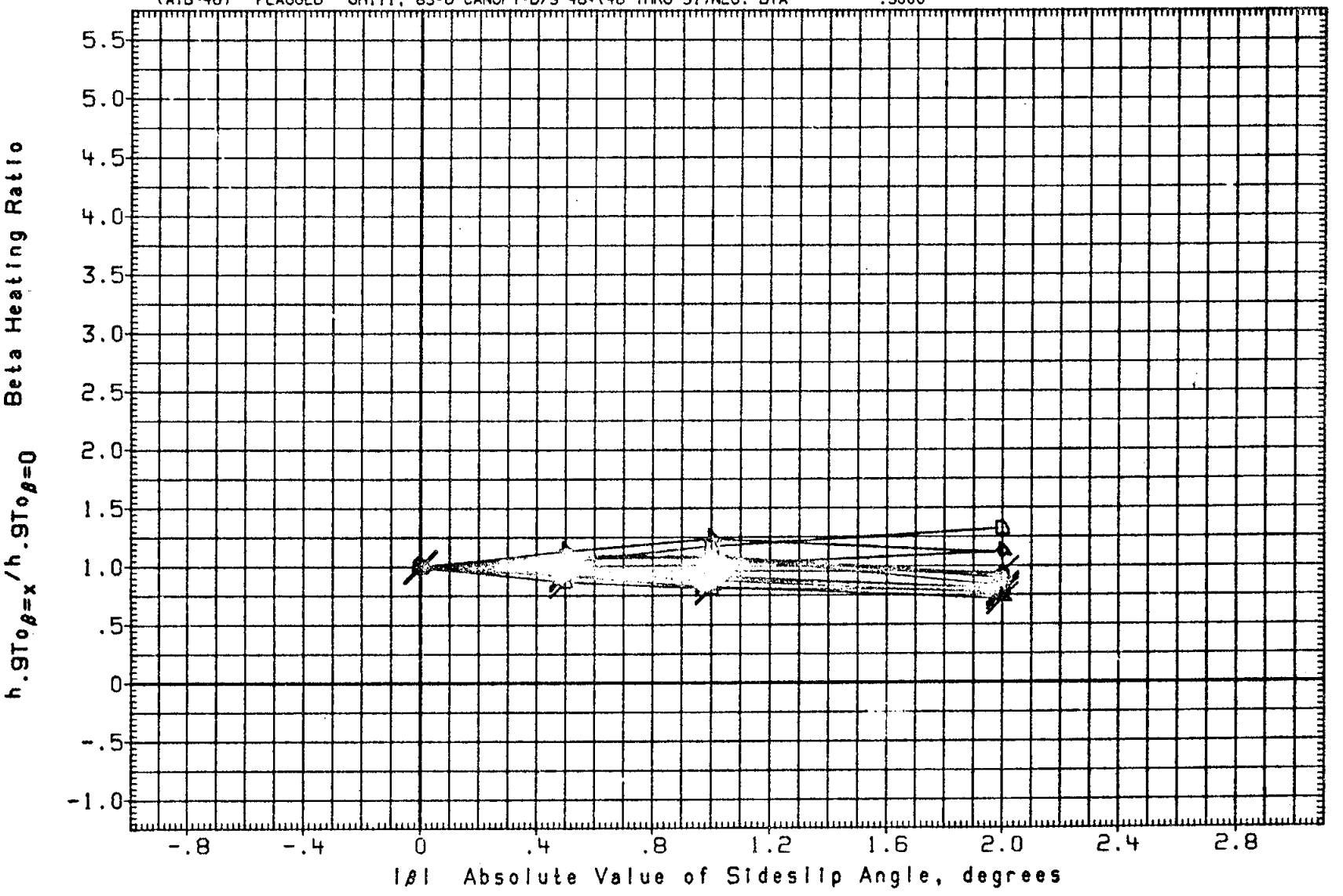

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

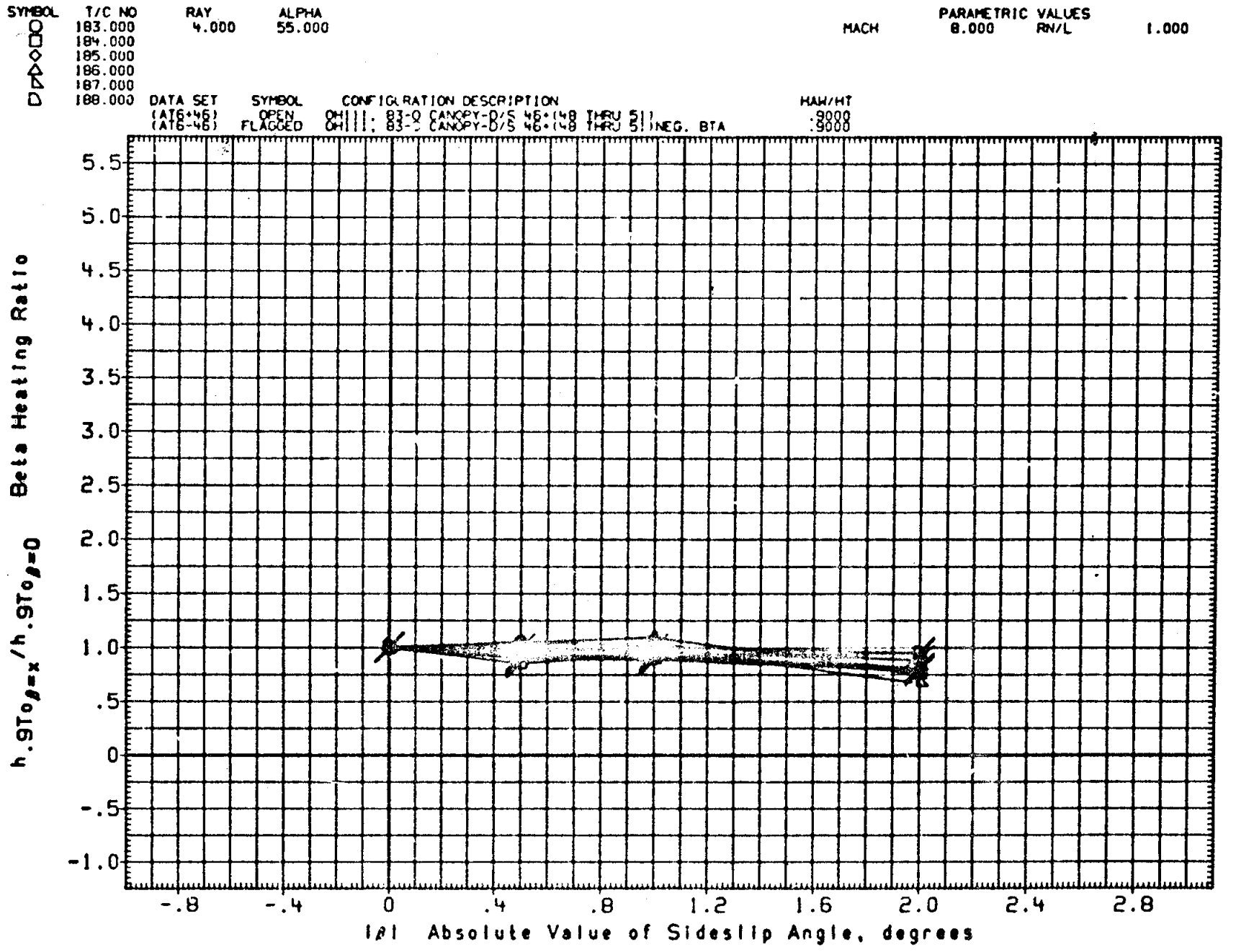

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

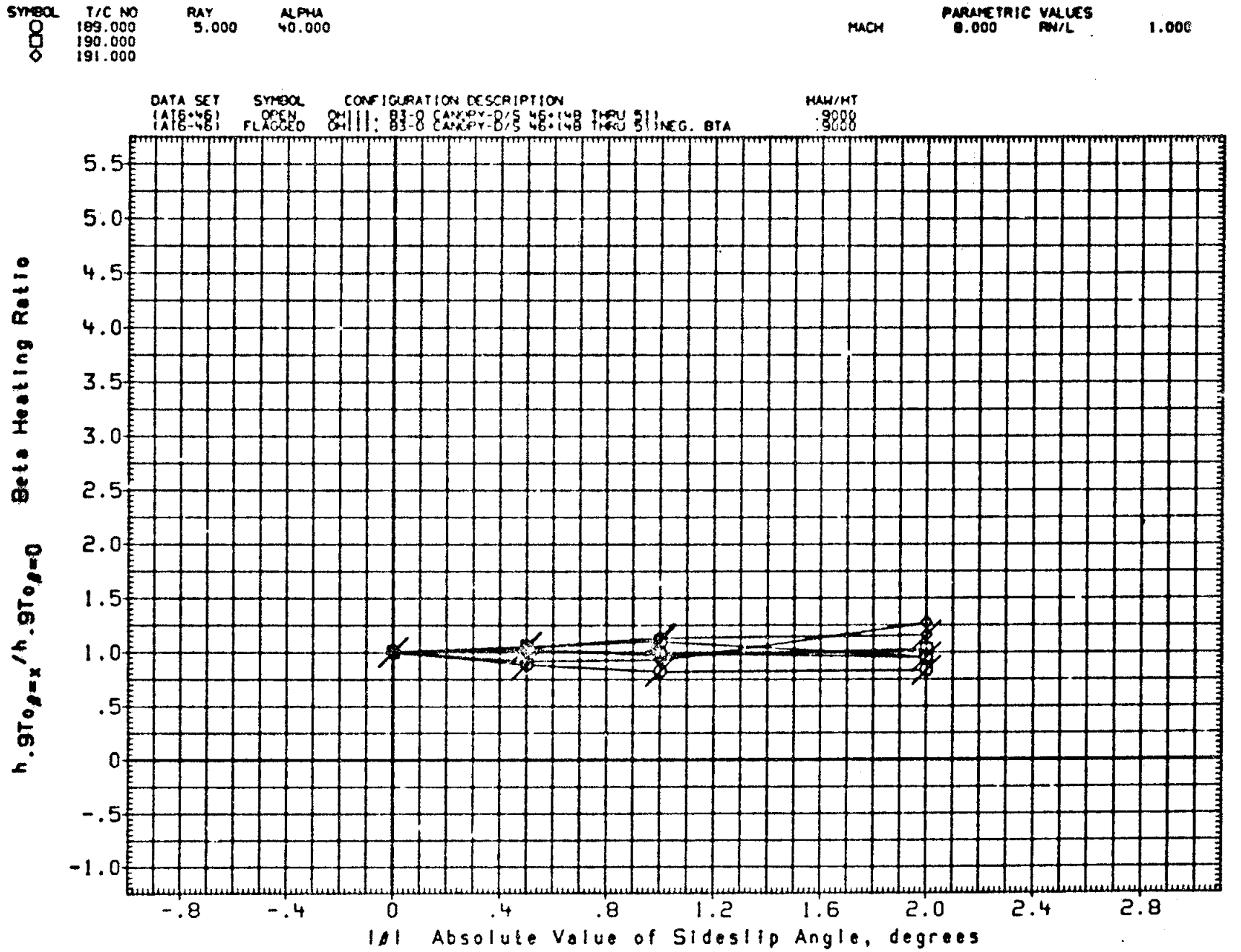

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

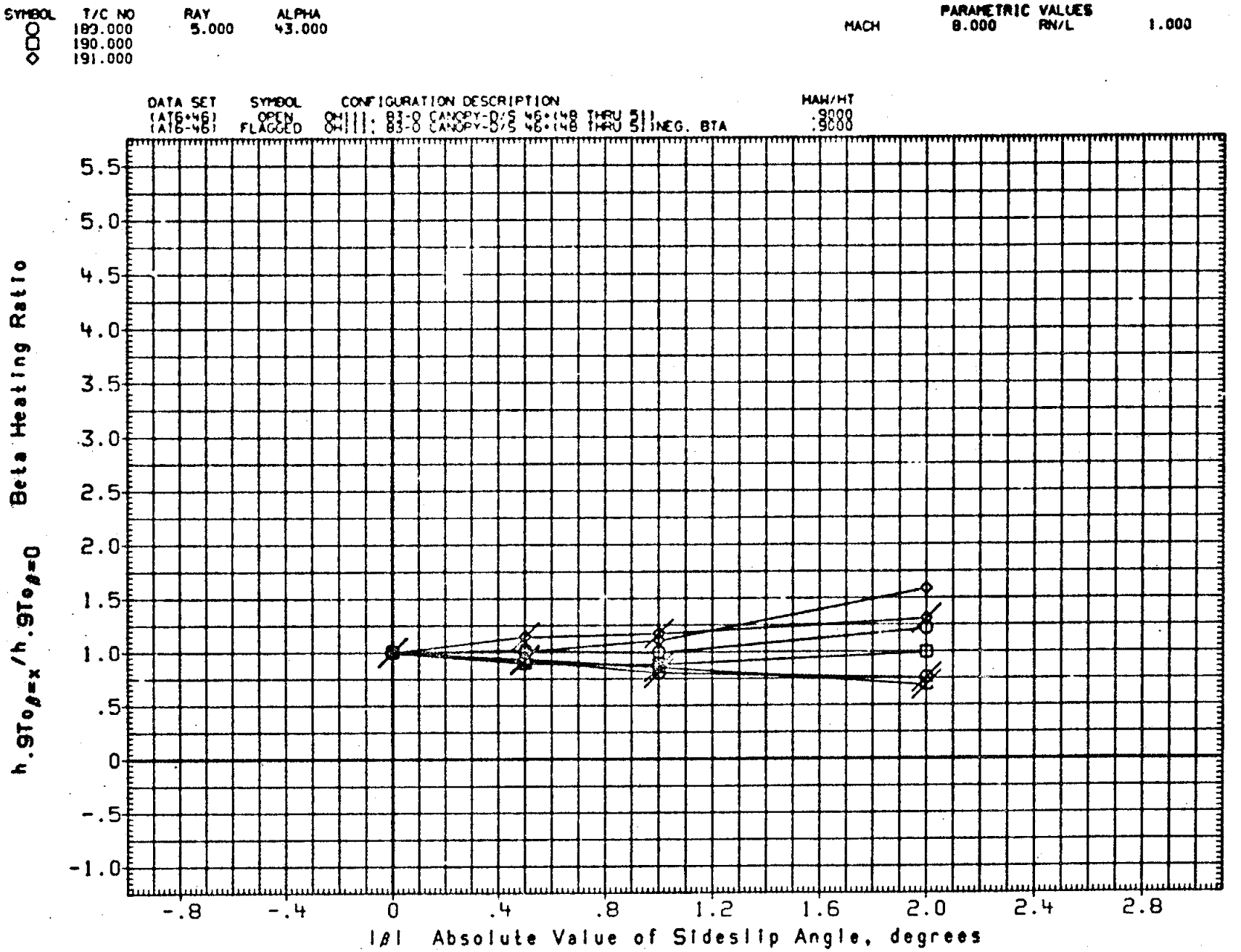

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

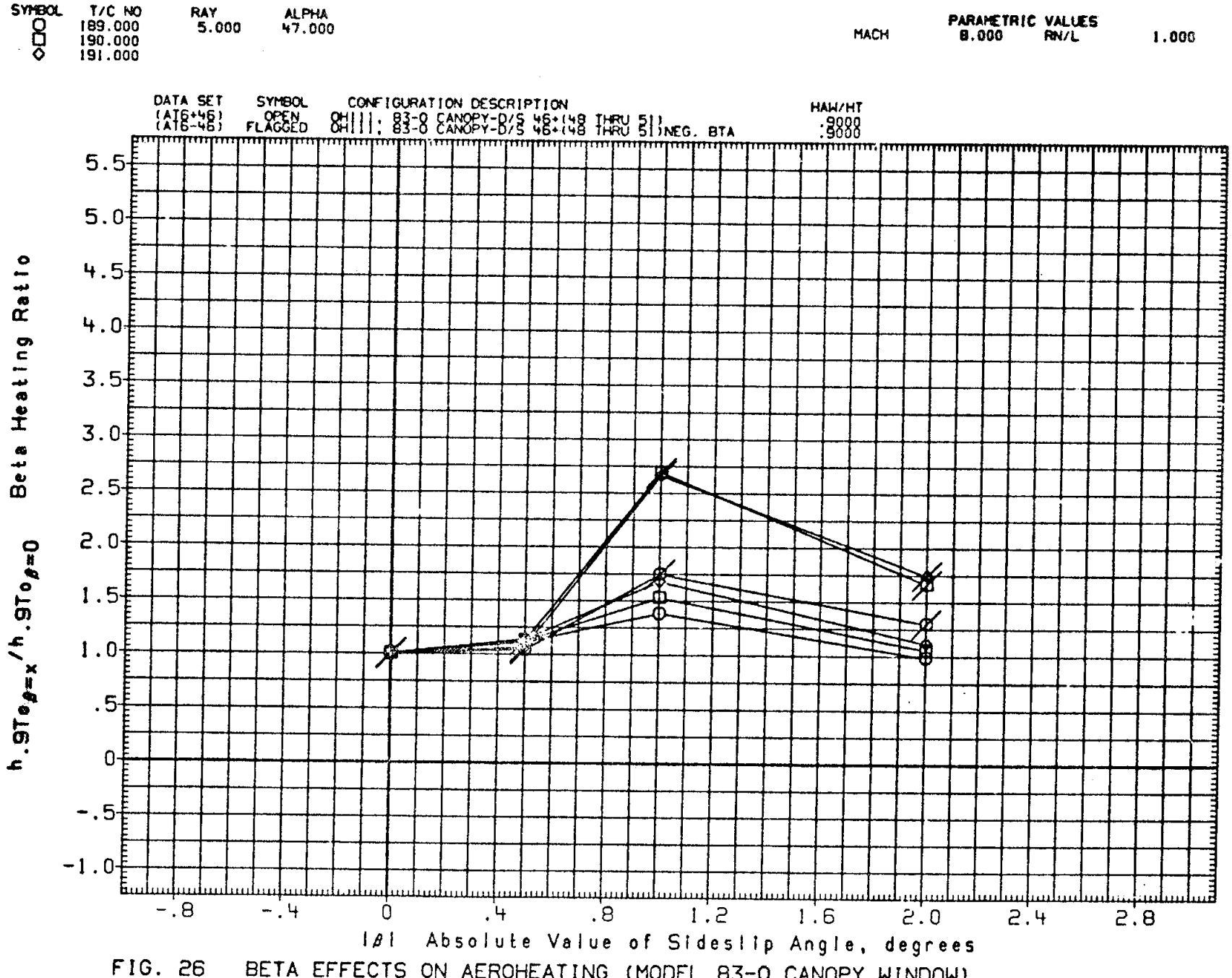

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

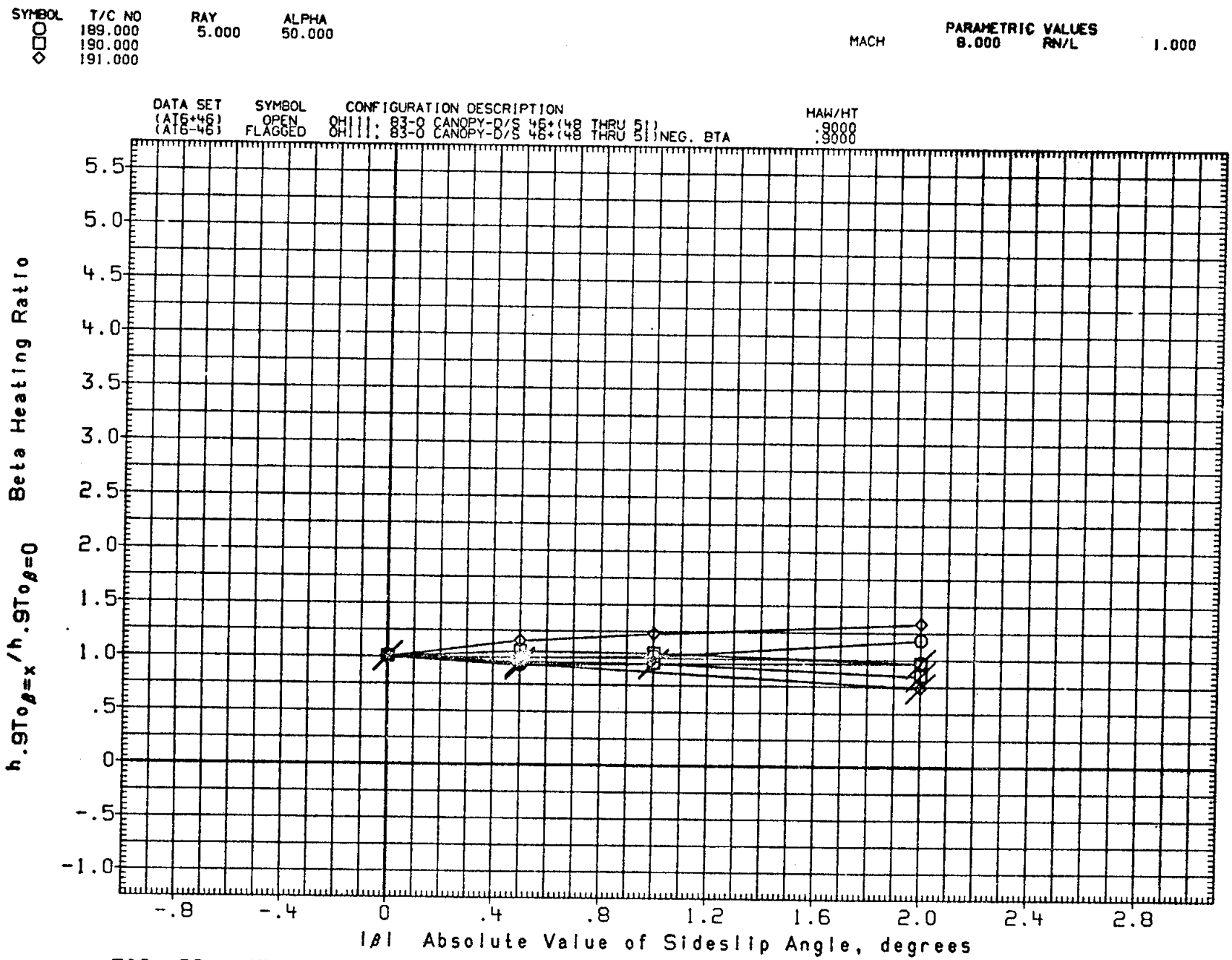

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

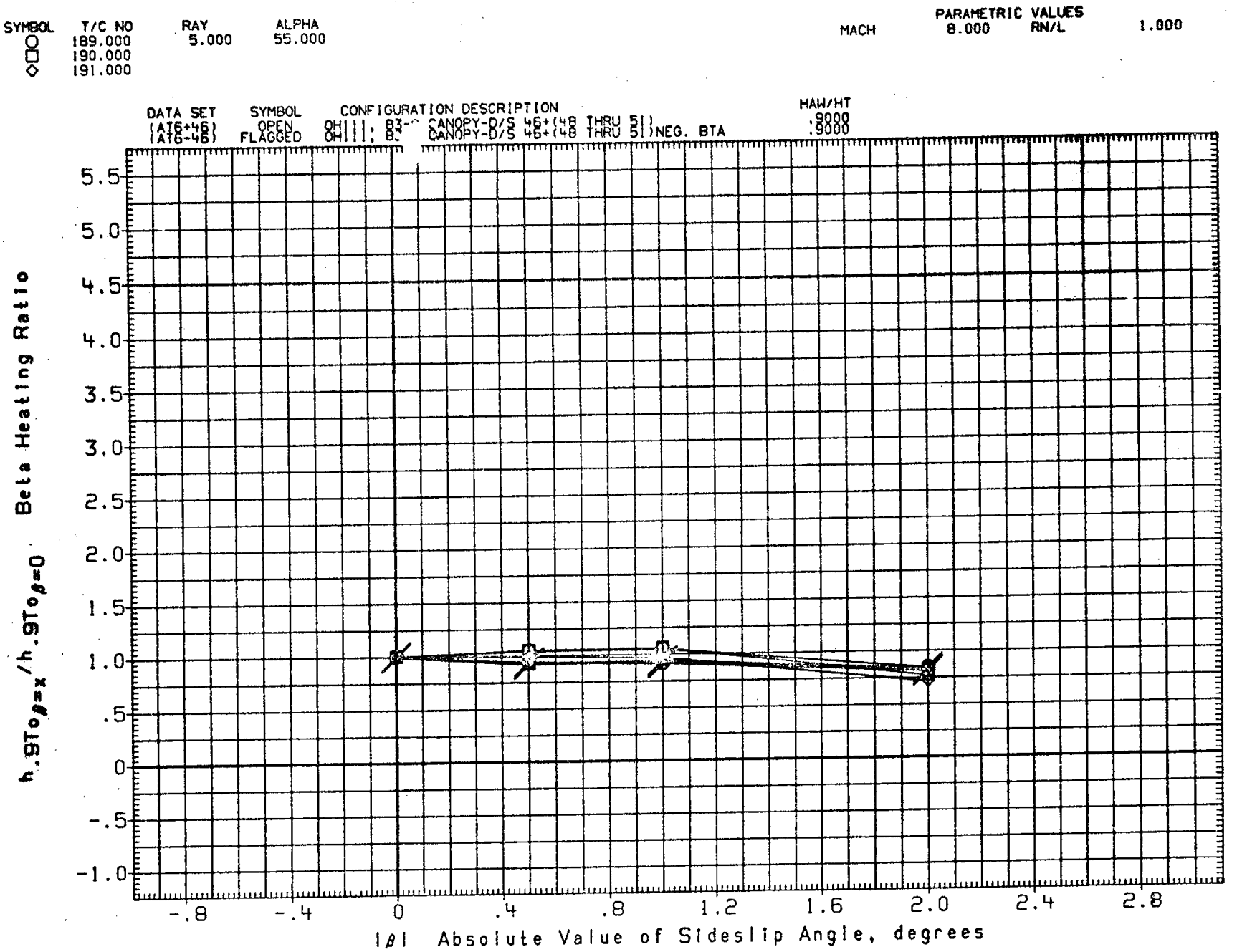

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	192.000	6.000	40.000
□	193.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111; 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111; 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

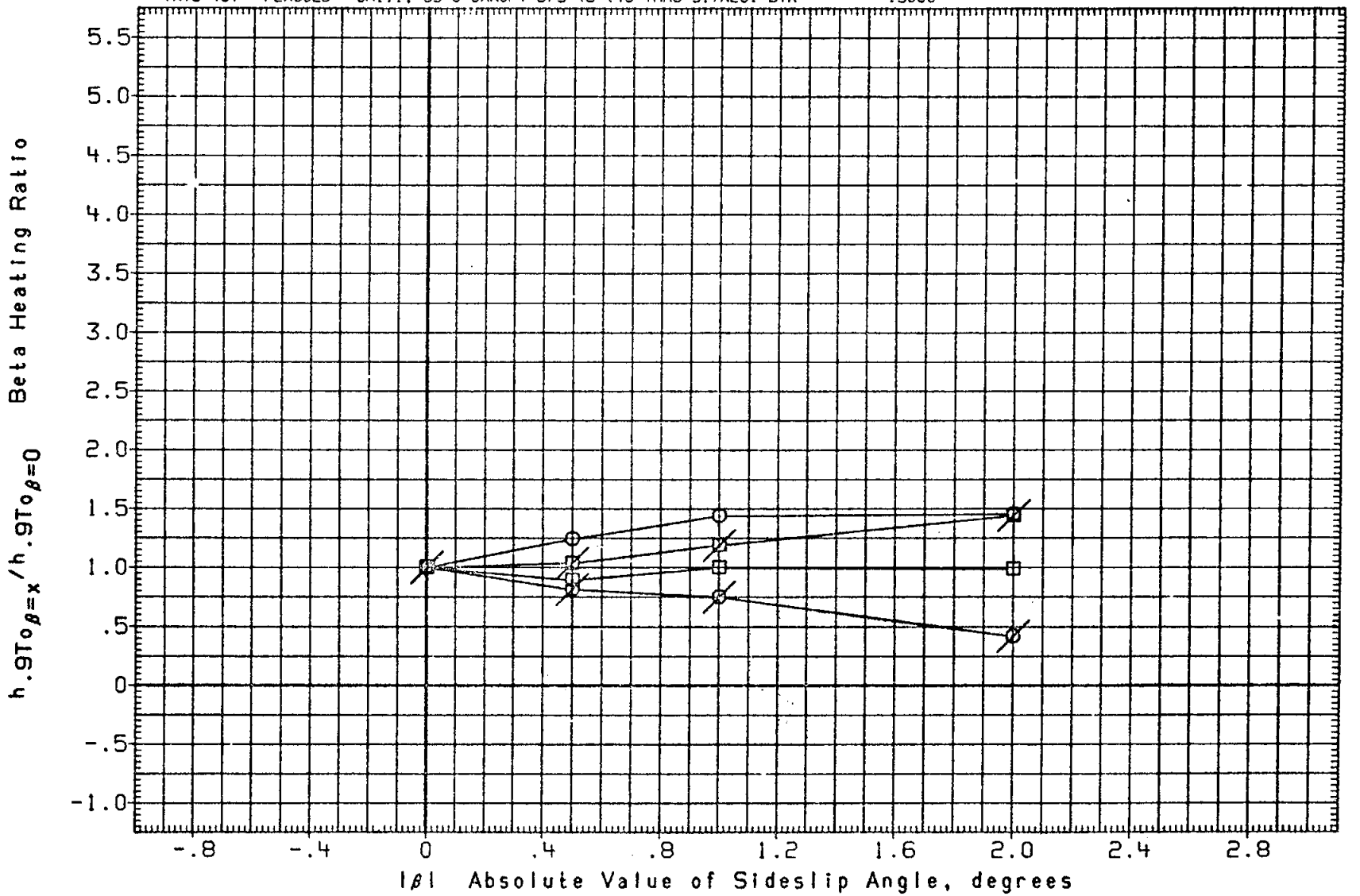

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

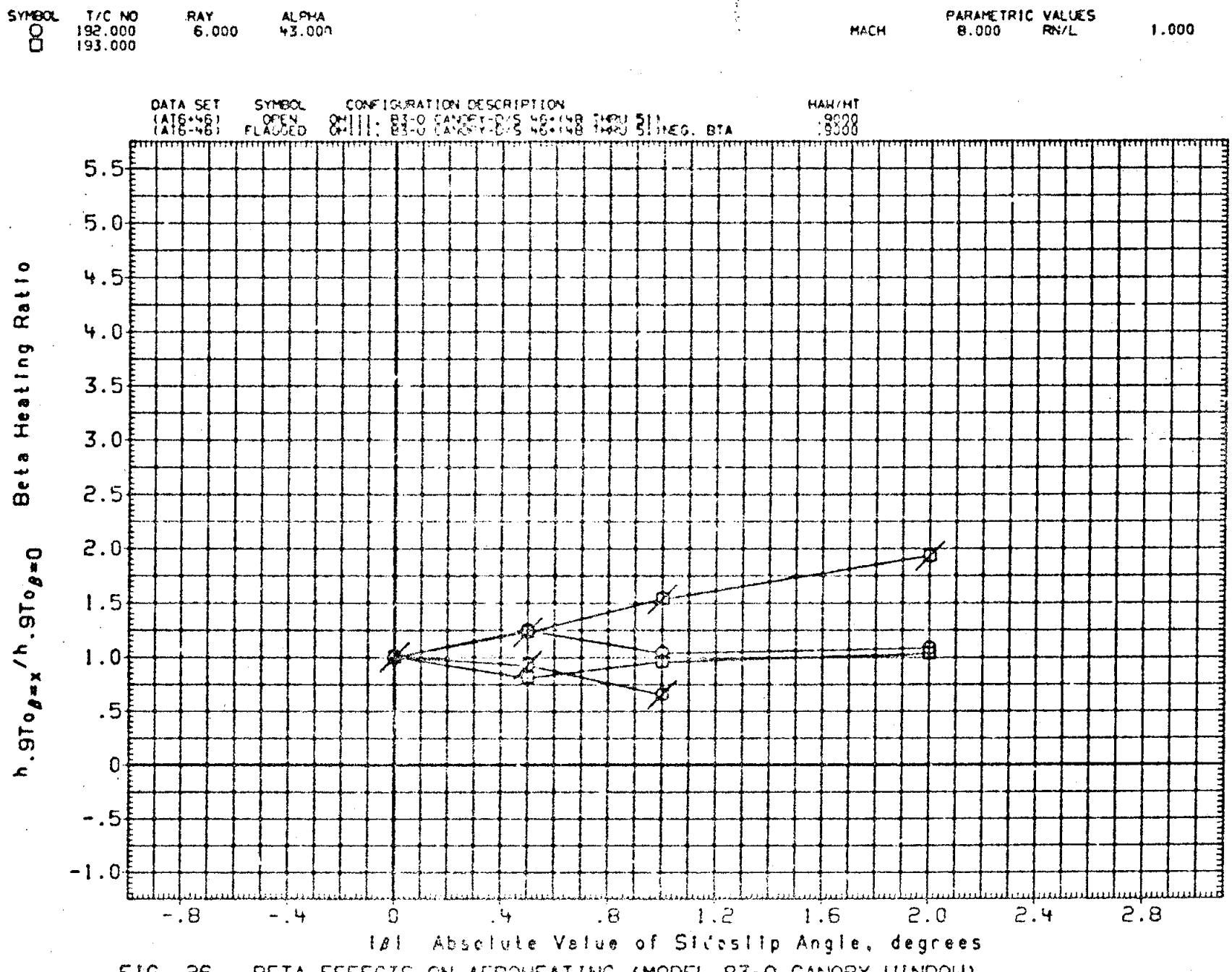

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

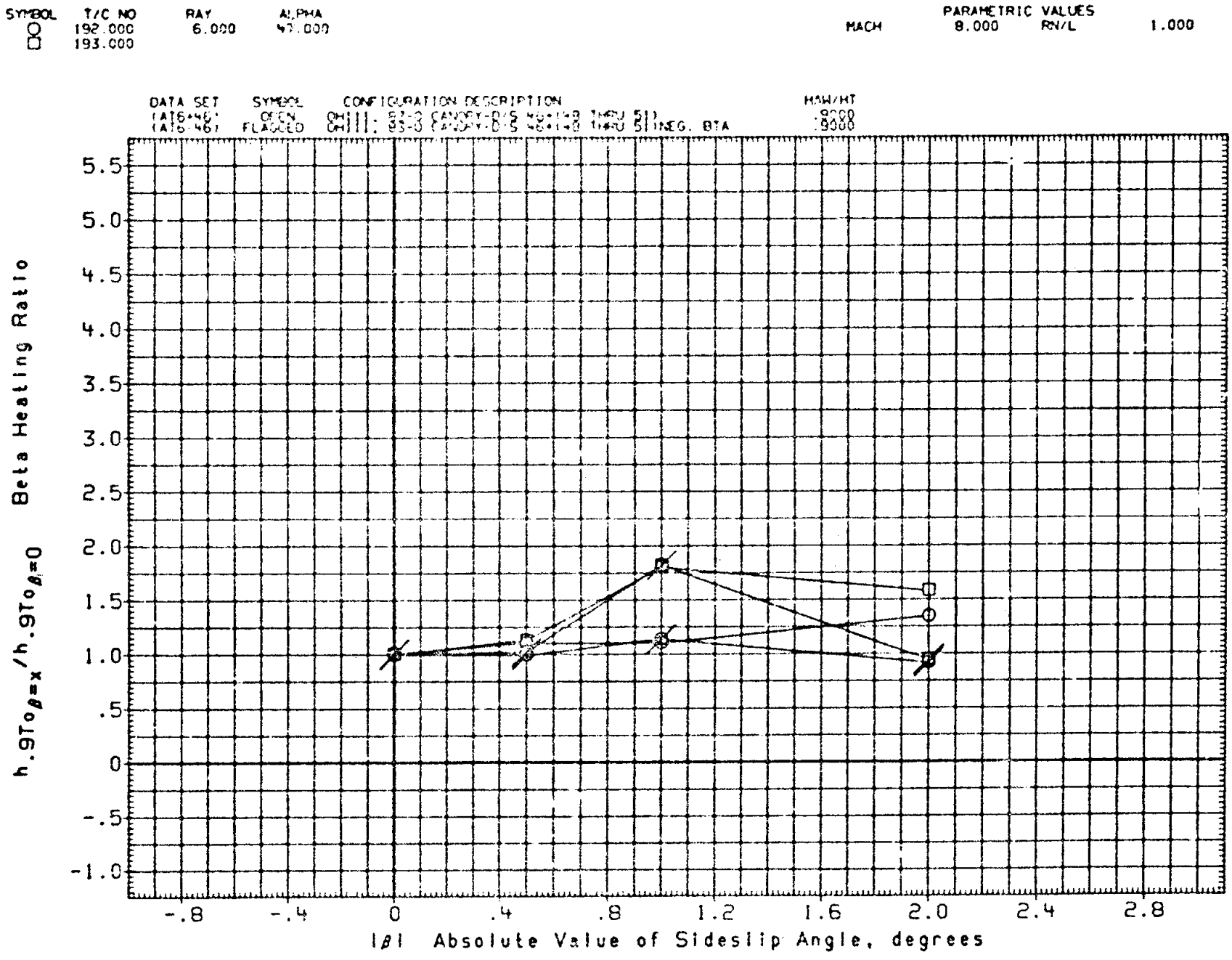

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	192.000	6.000	50.000
□	193.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6-46)	OPEN	OHIII: 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII: 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

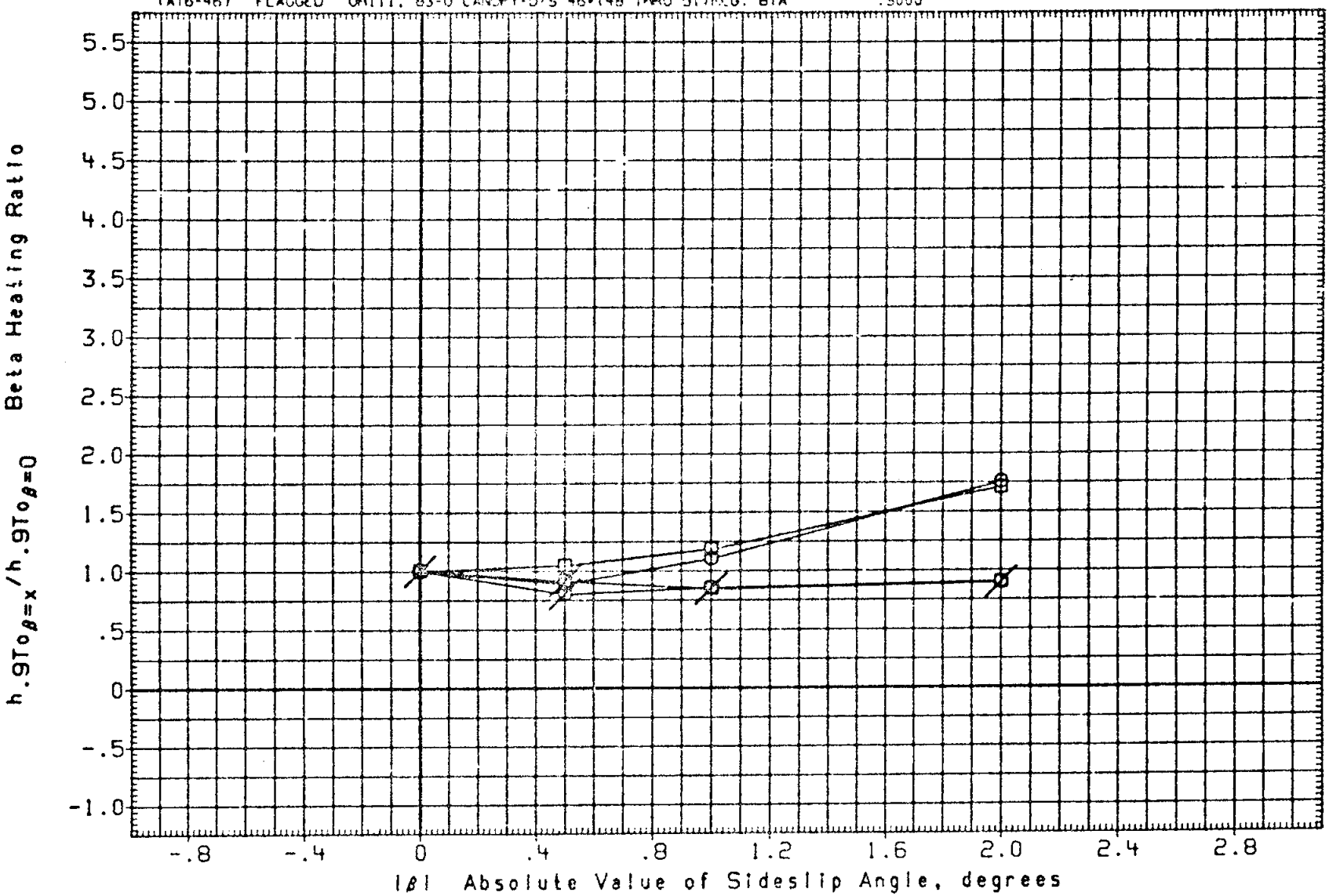

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	192.000	6.000	55.000
□	193.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111: 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111: 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

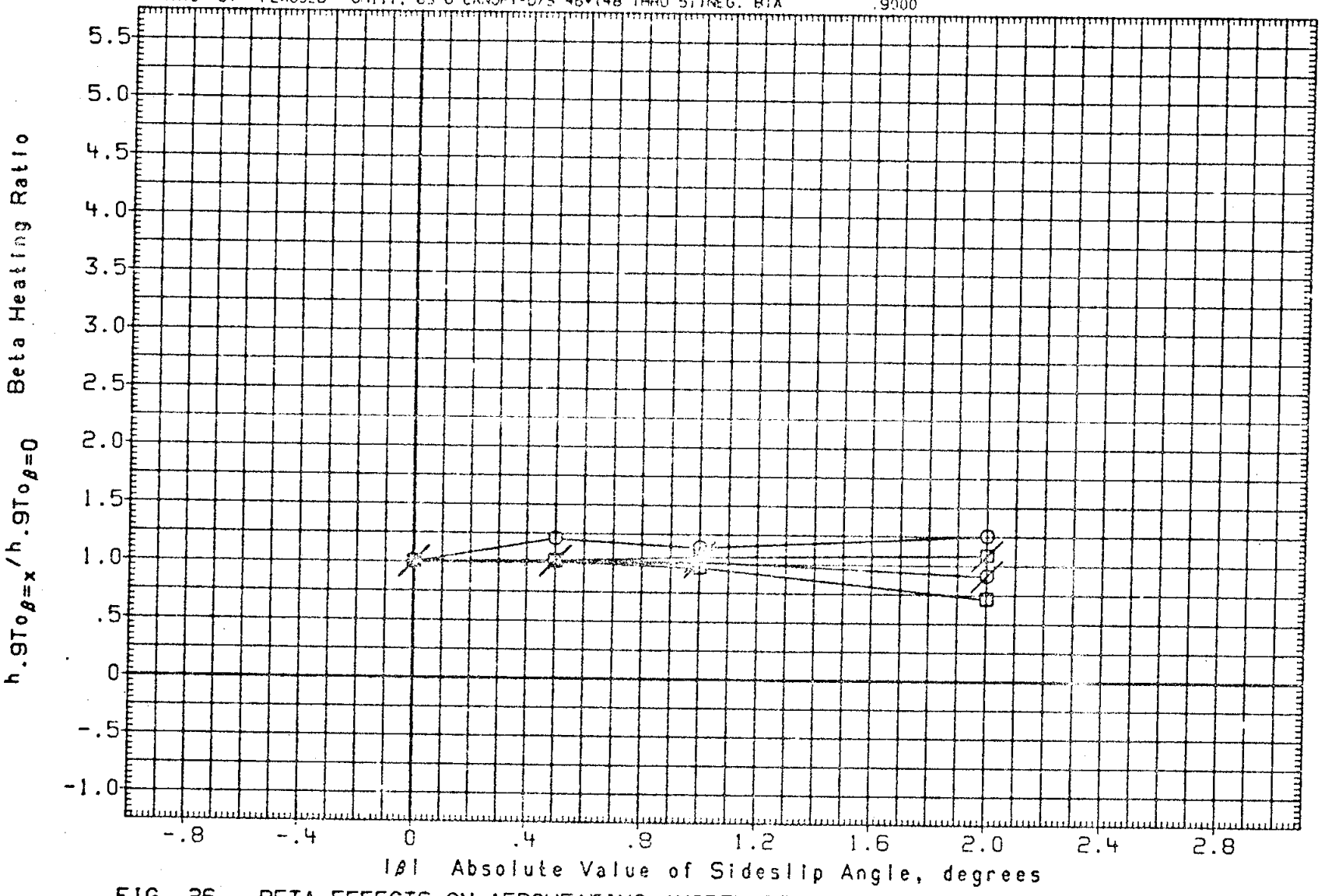

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	194.000	7.000	40.000
□	195.000		
◇	196.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111. 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111. 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

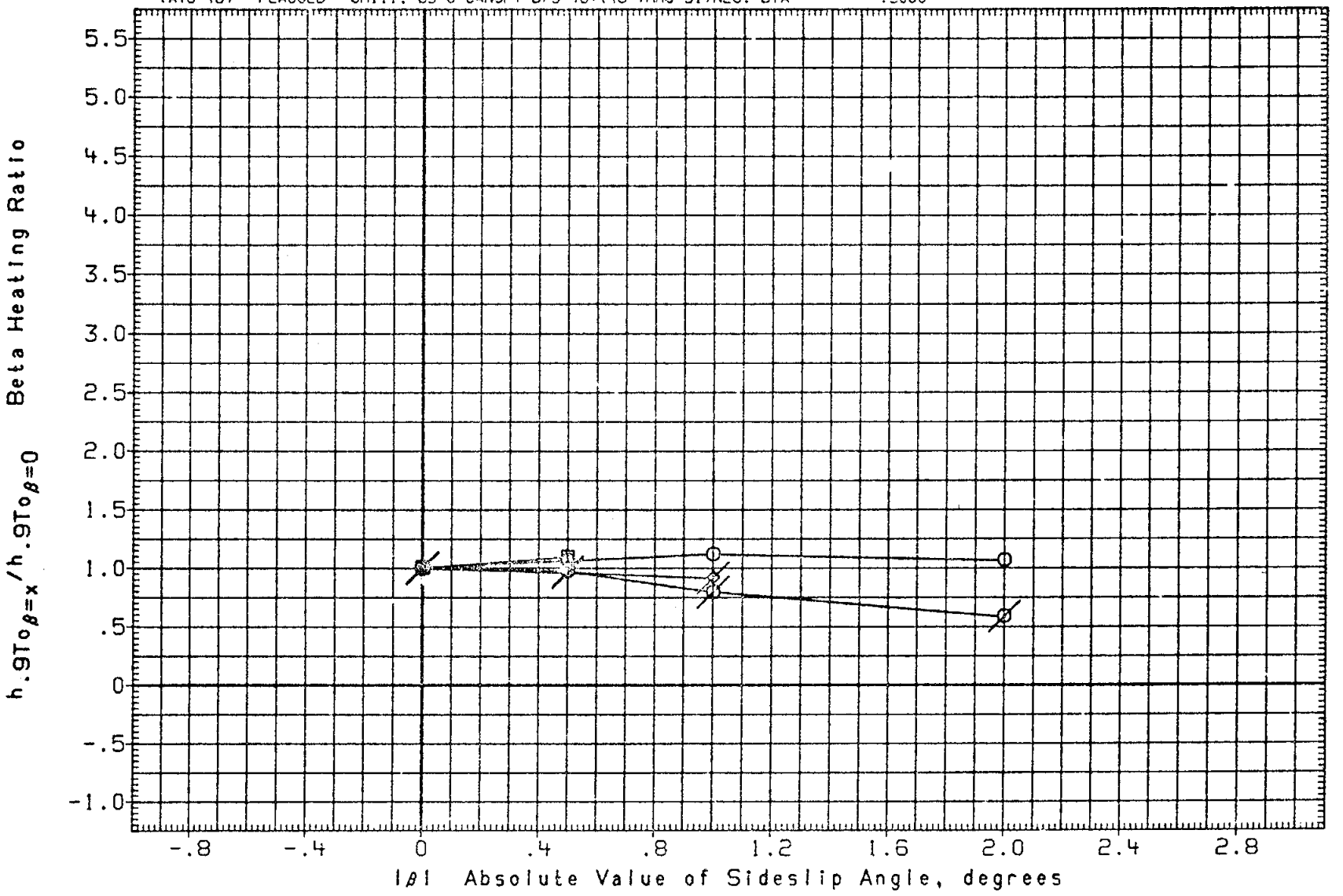

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

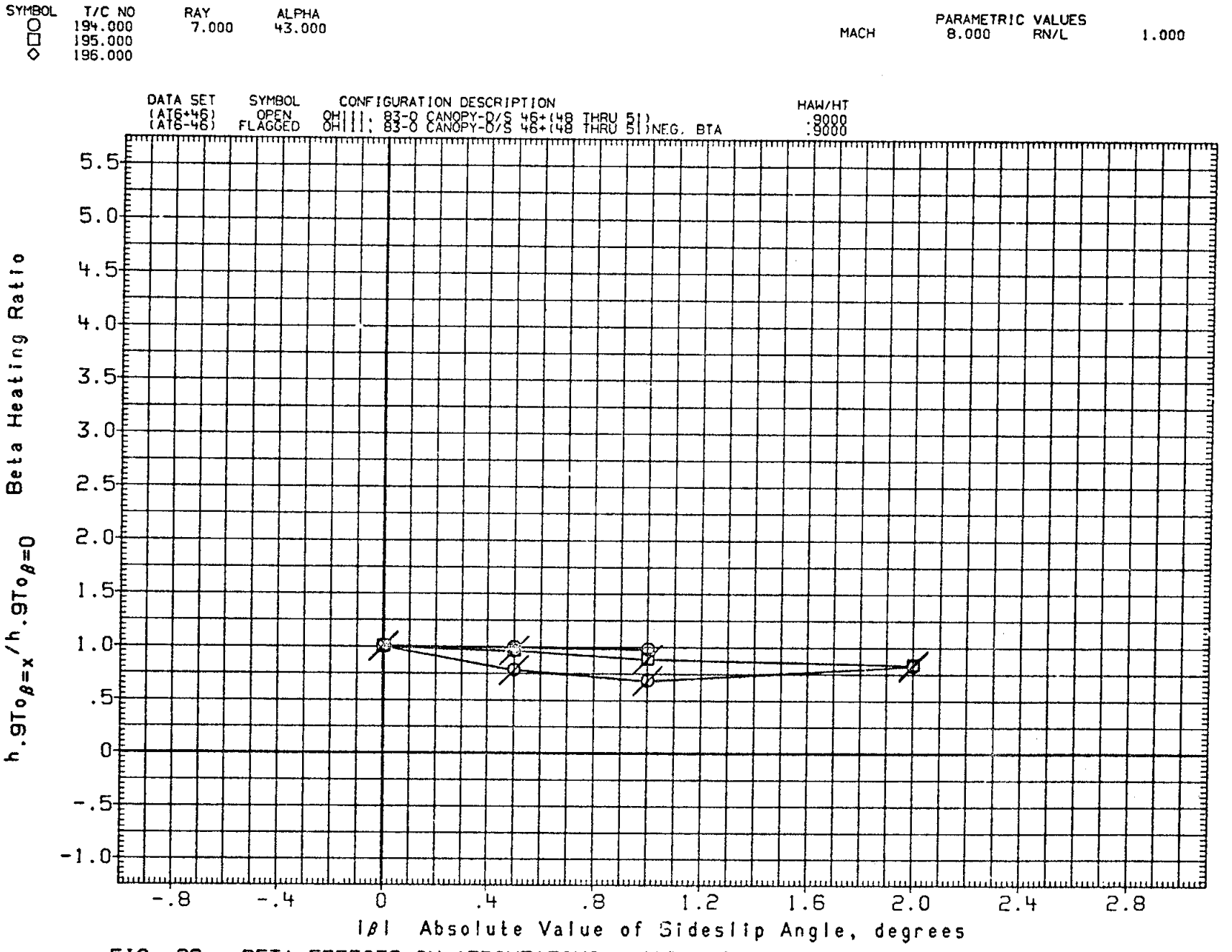

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	194.000	7.000	47.000
□	195.000		
◇	196.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111, 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111, 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

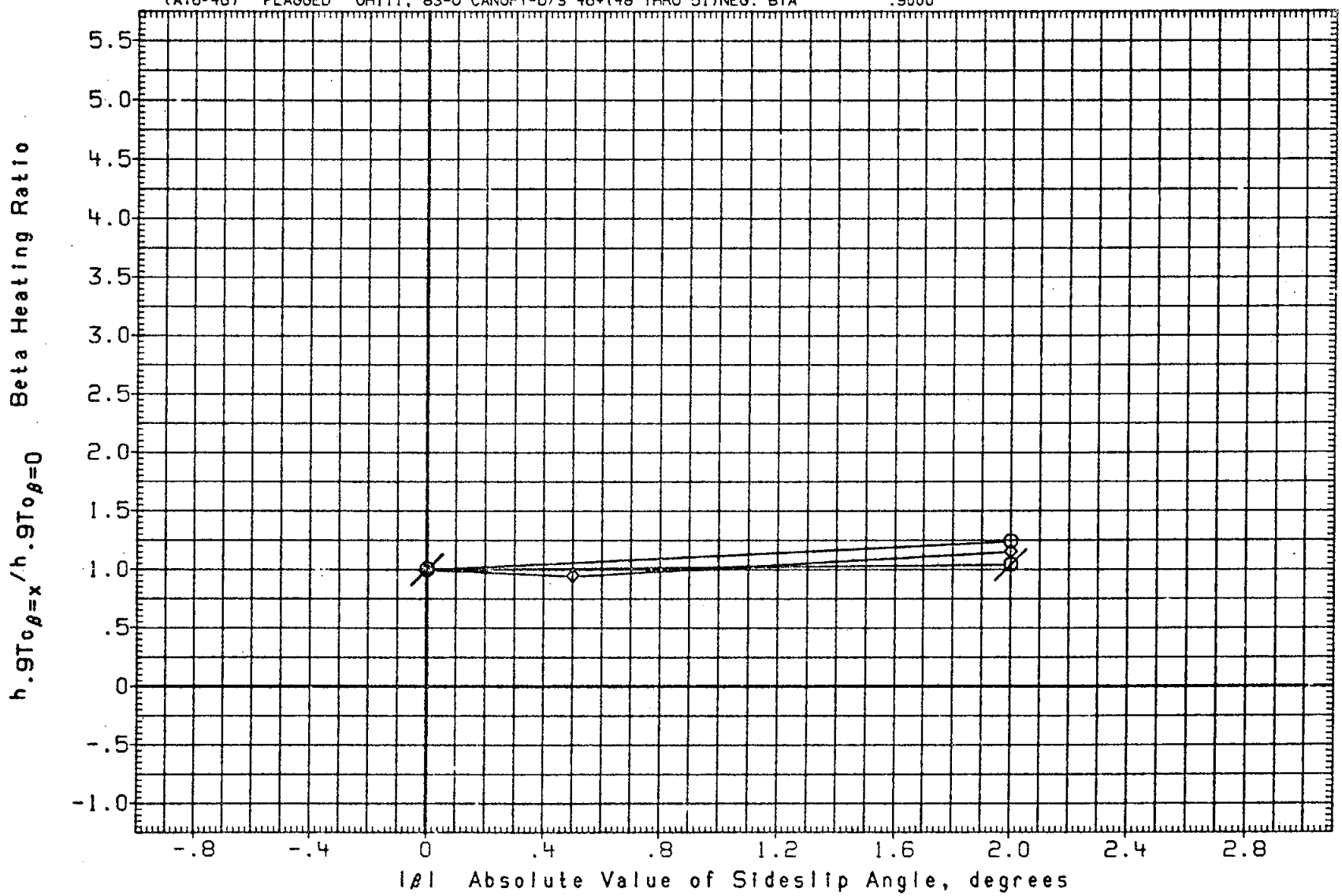

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

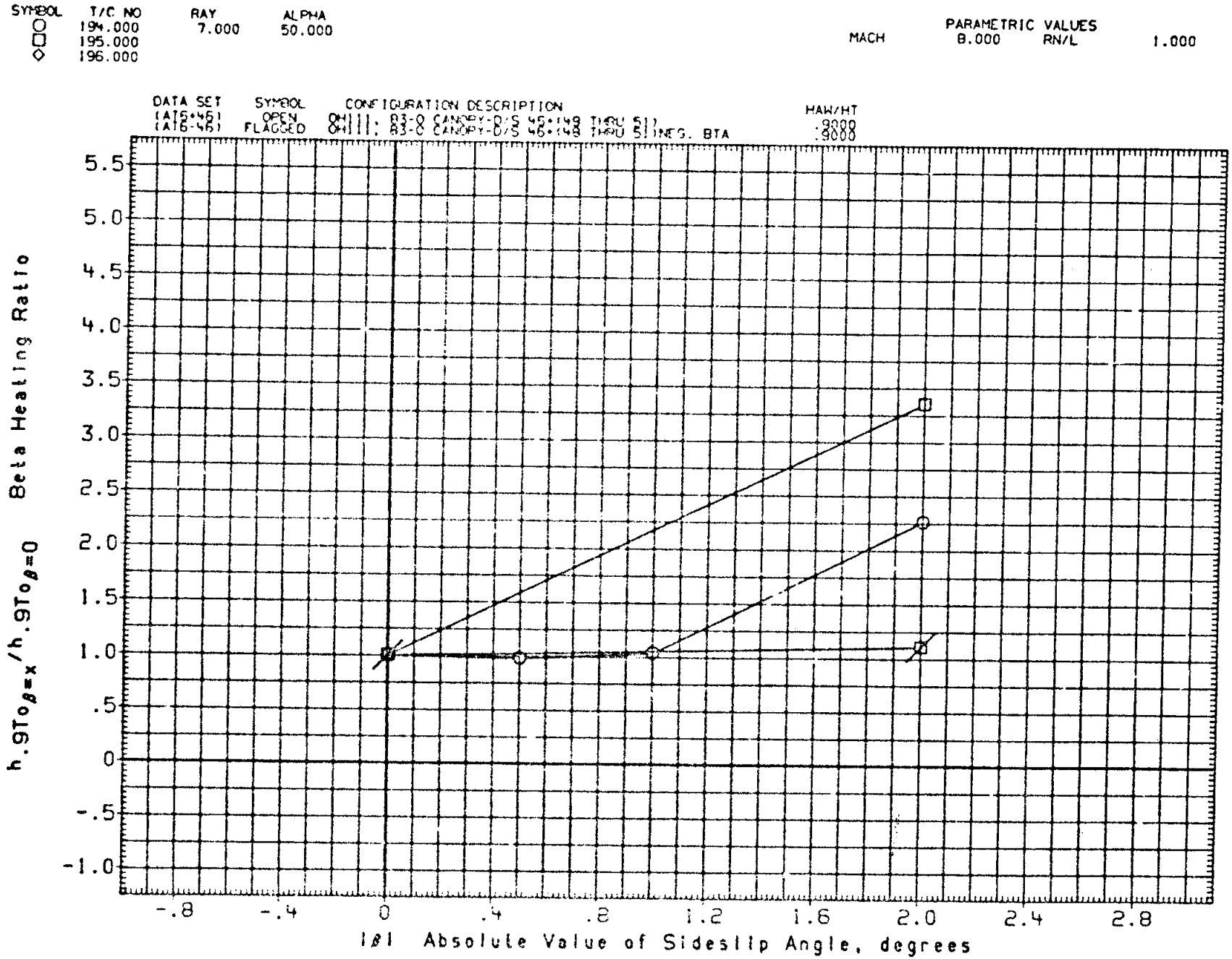

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL B3-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

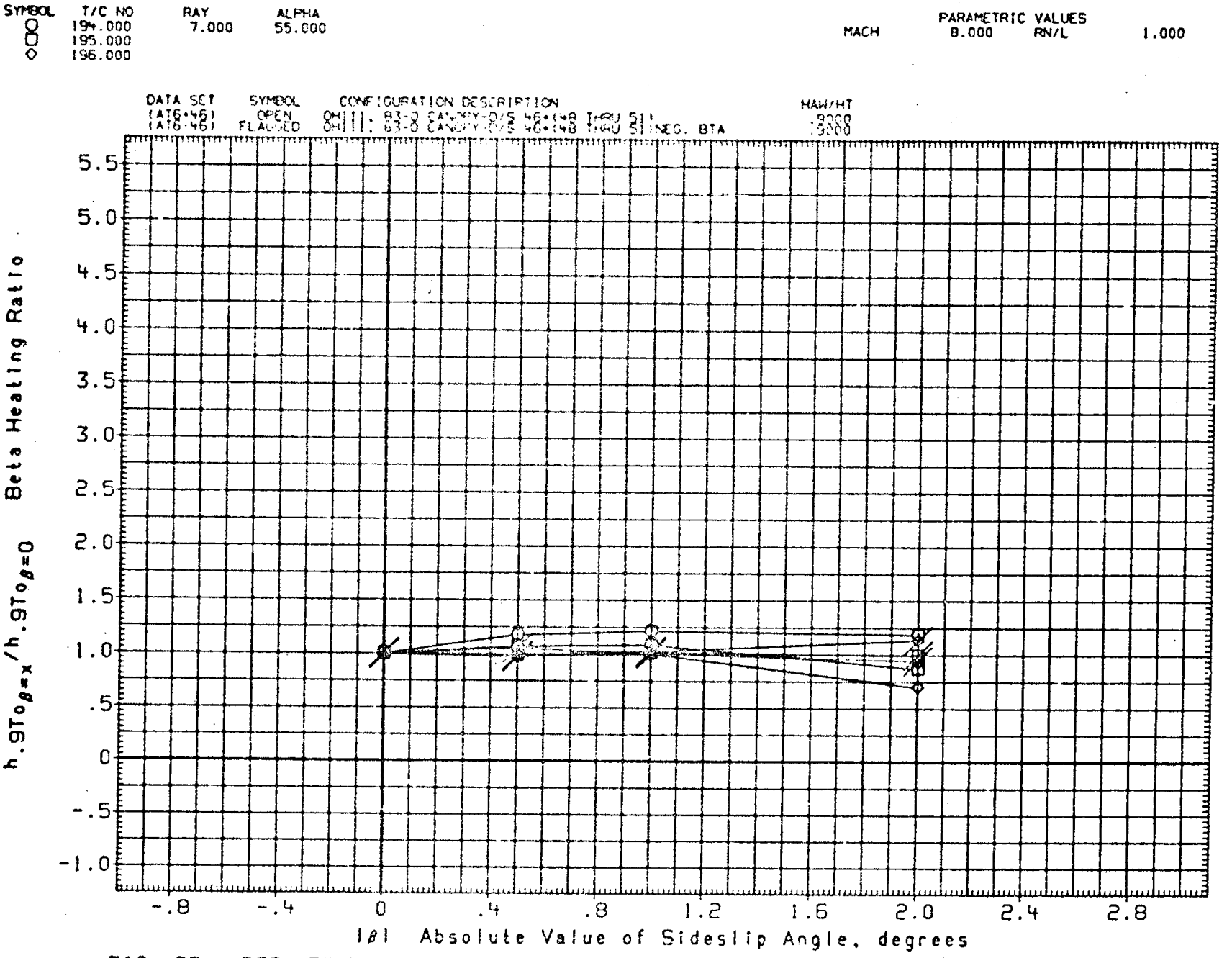

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

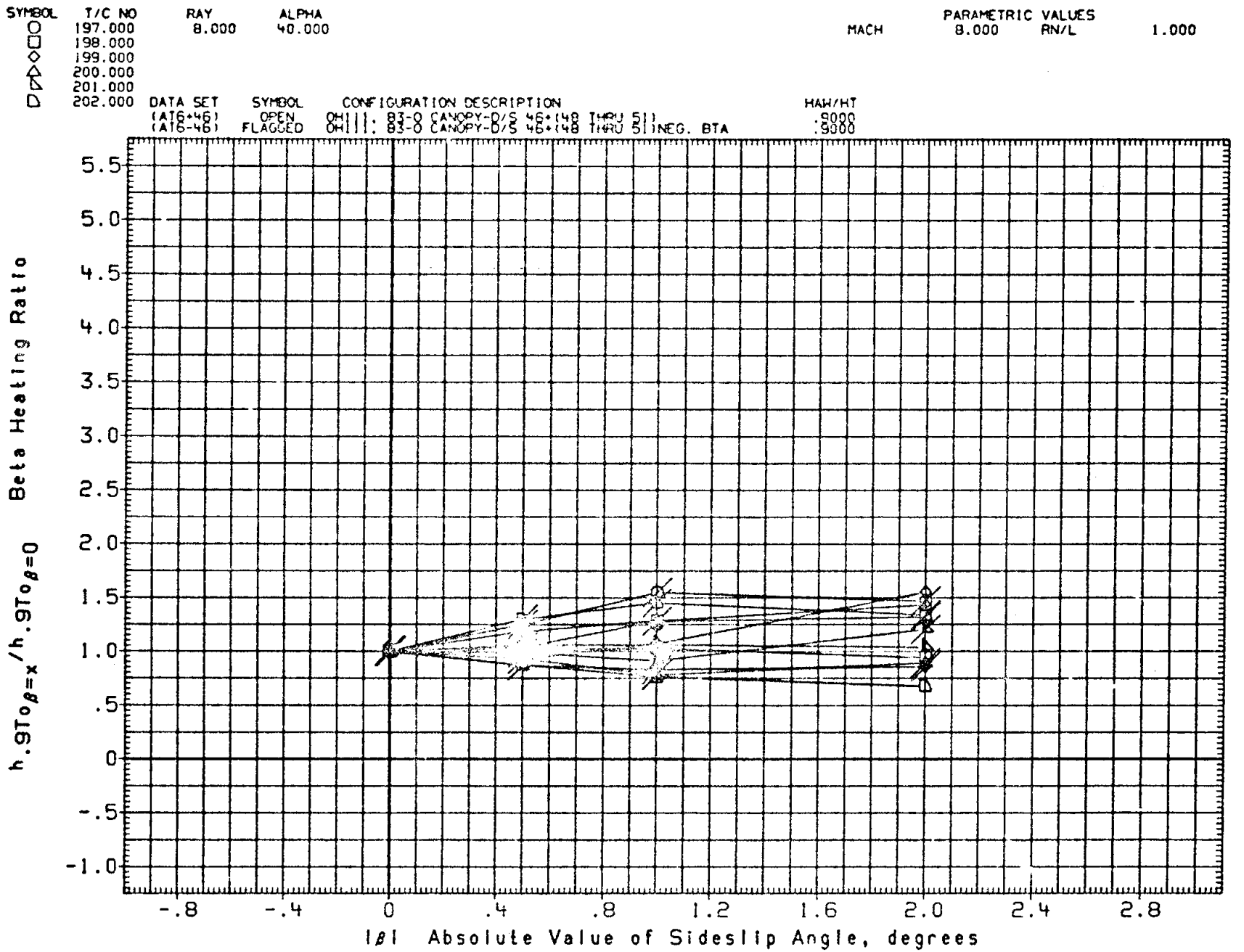

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

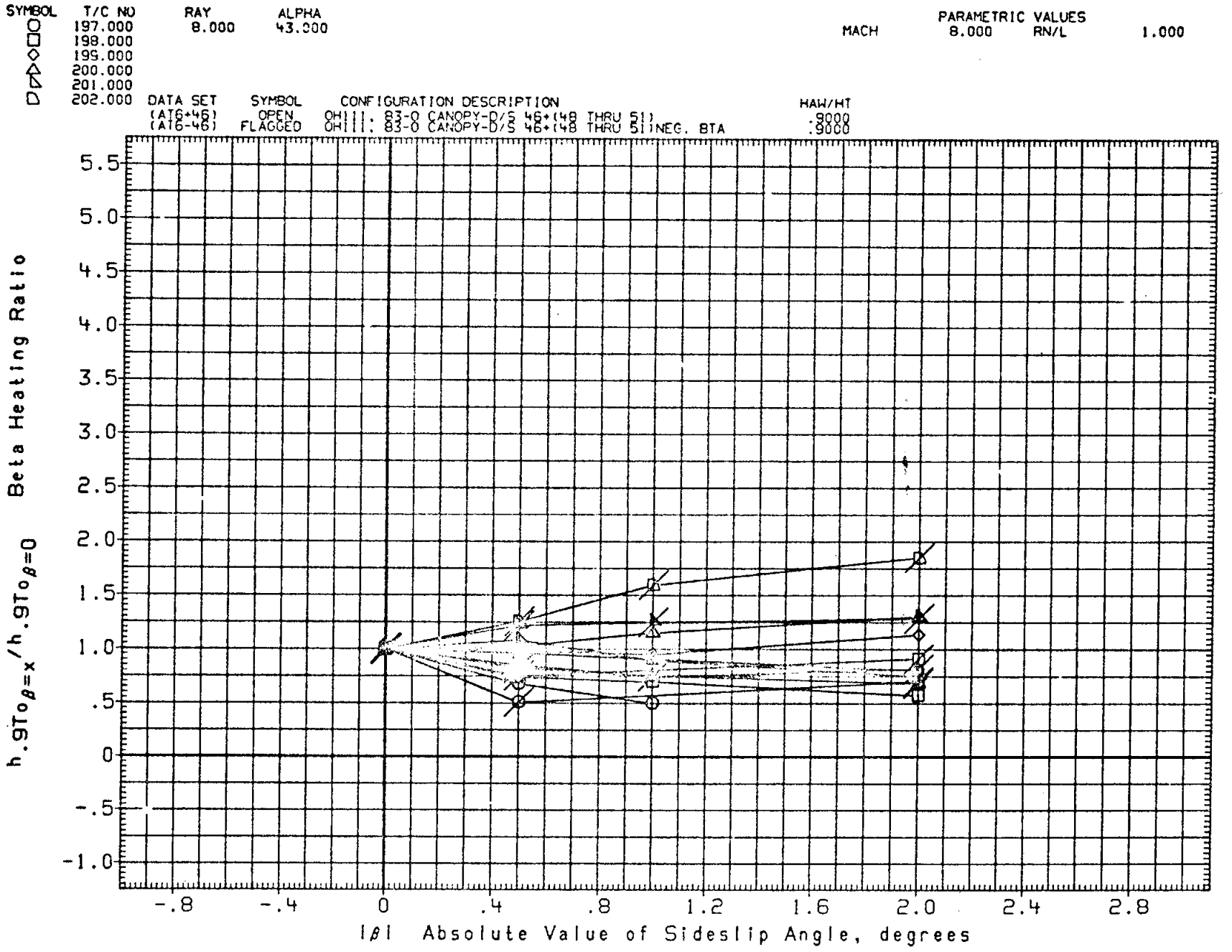

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

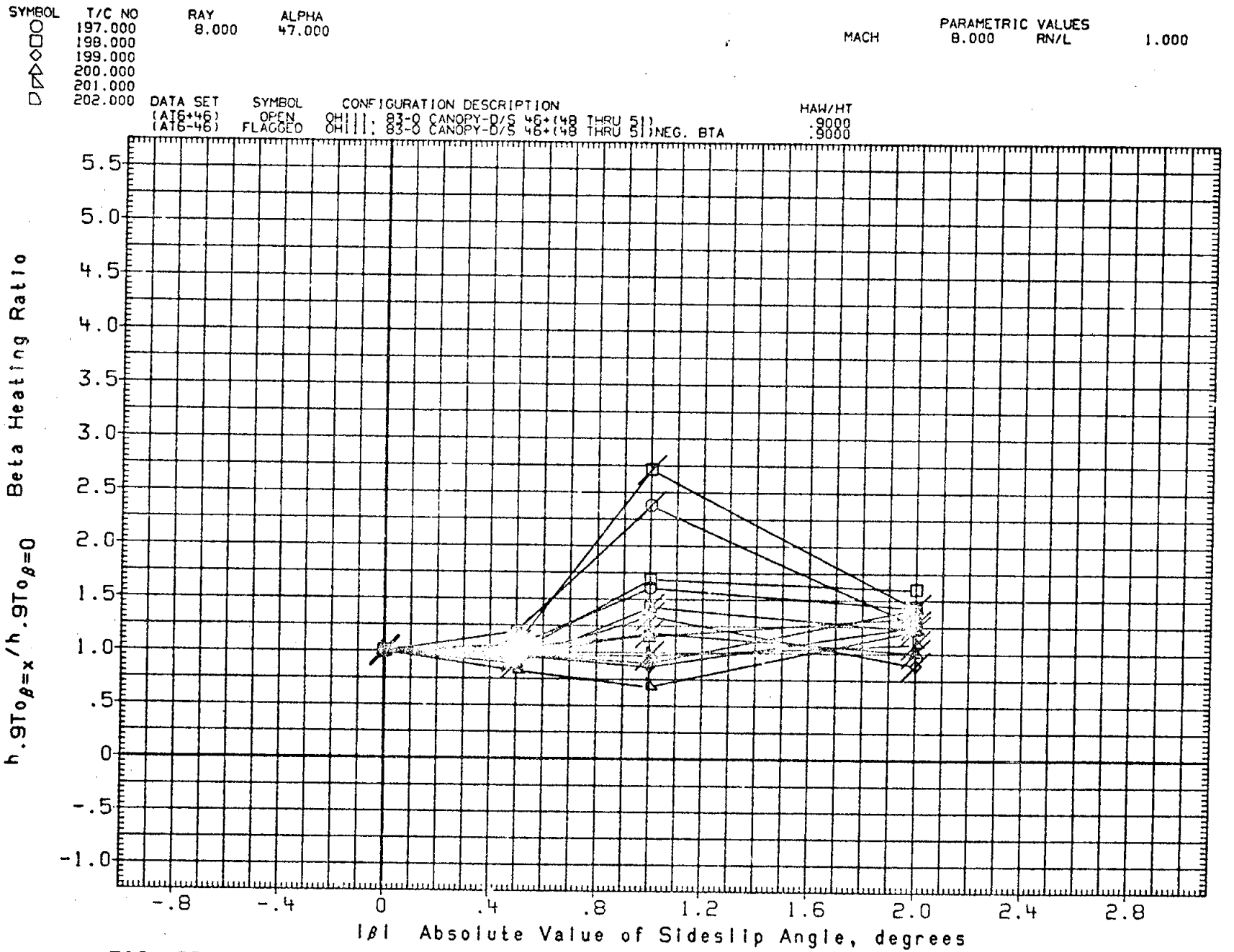

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

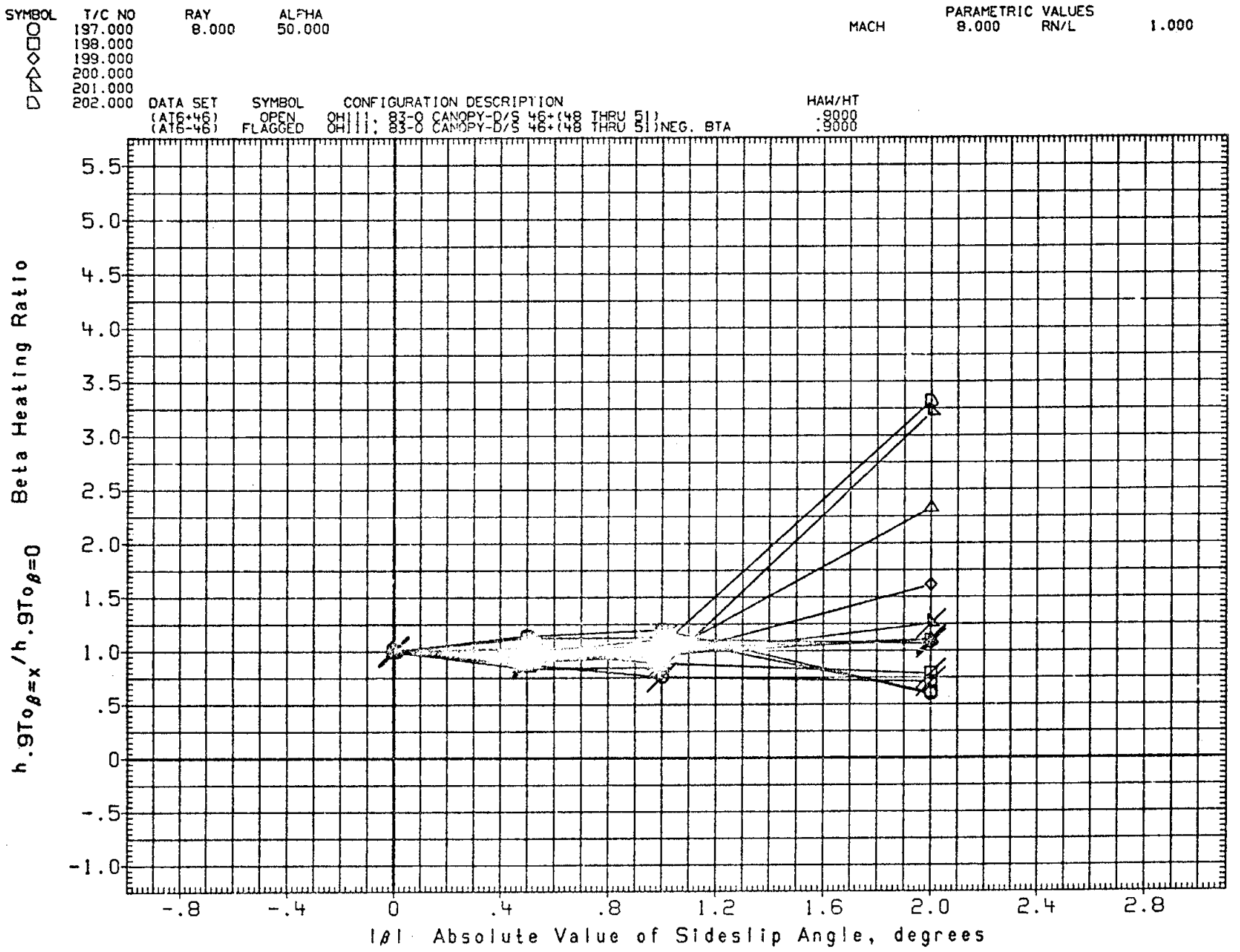

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

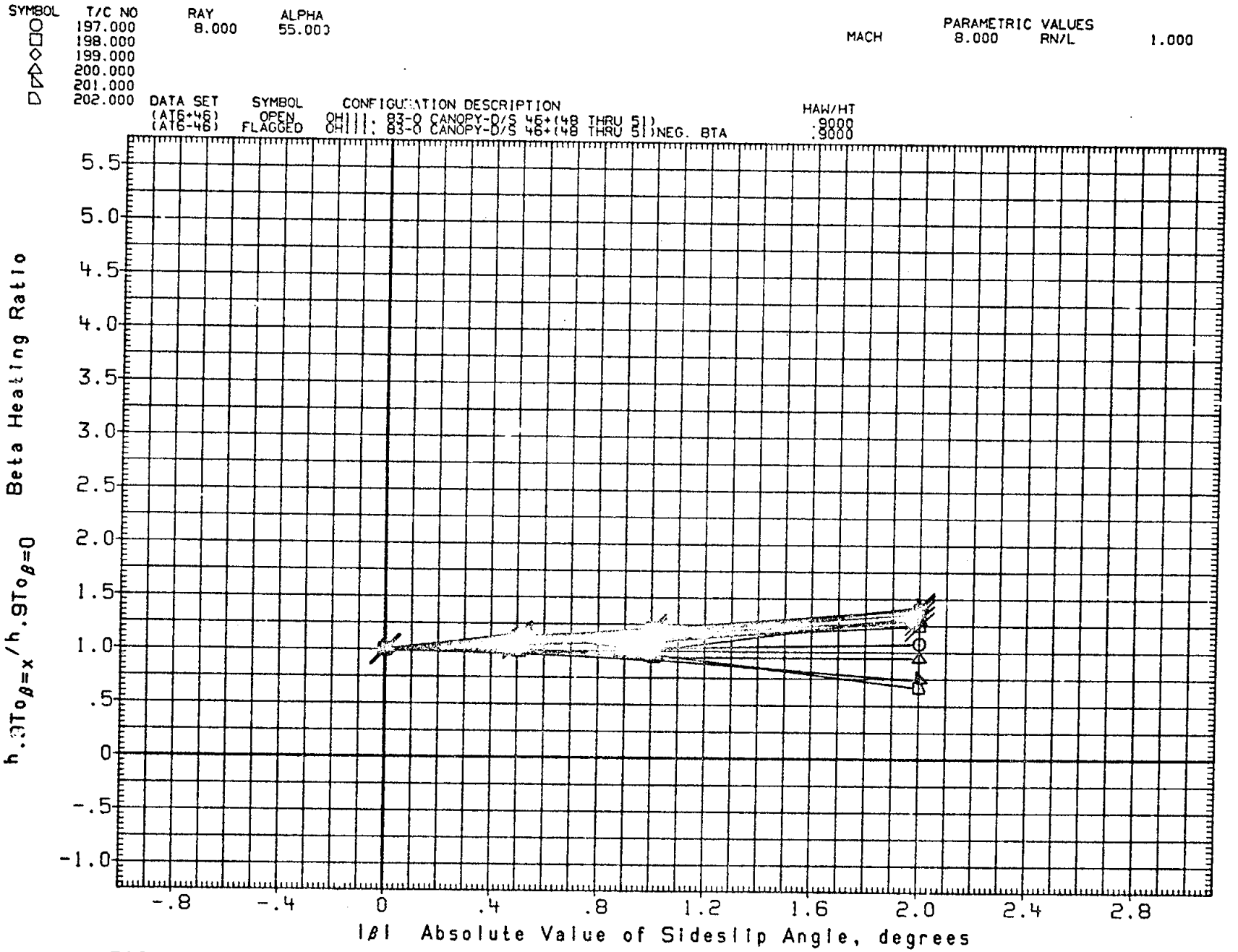

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	203.000	9.000	40.000
□	204.000		
◇	205.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111; 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111; 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

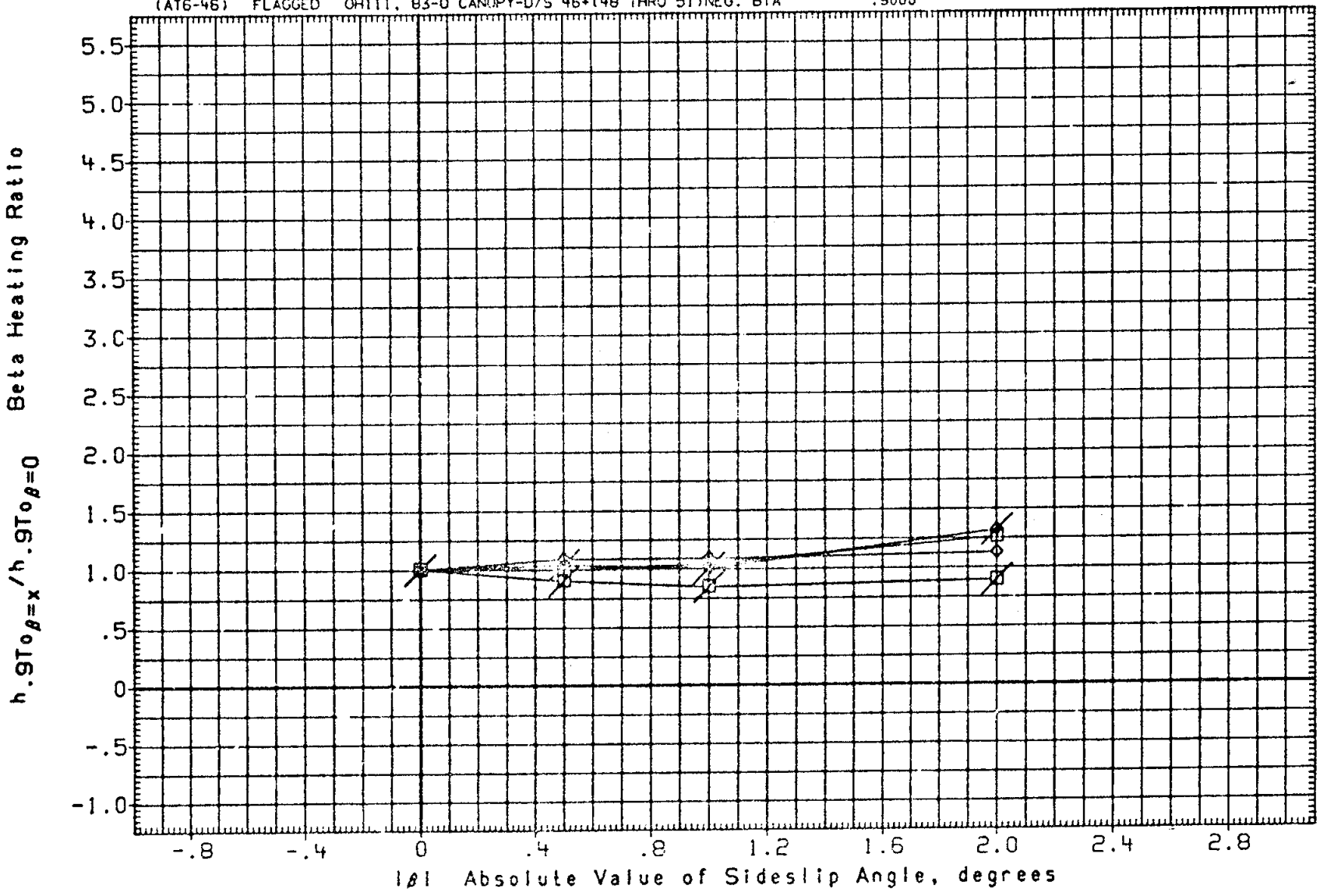

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

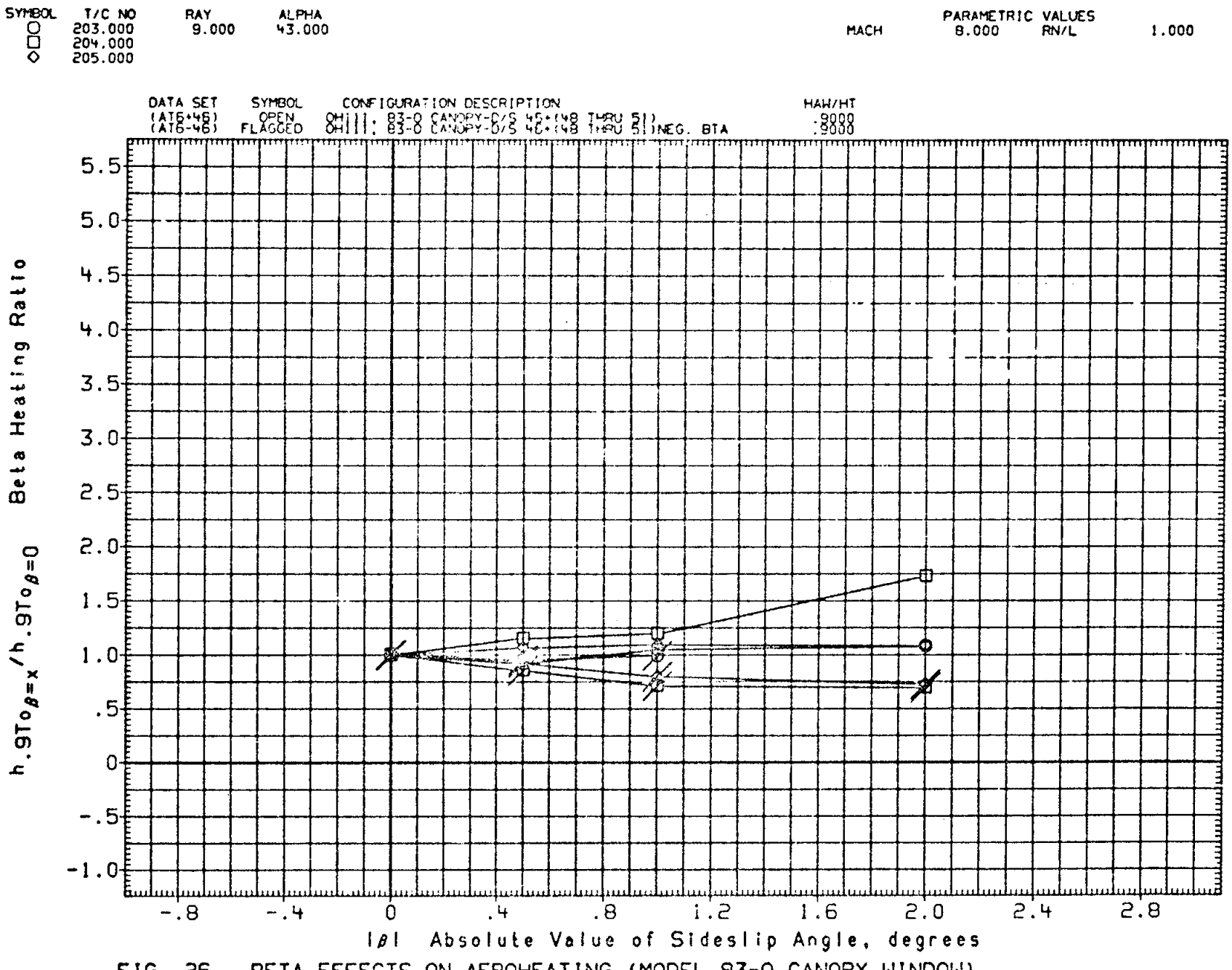

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

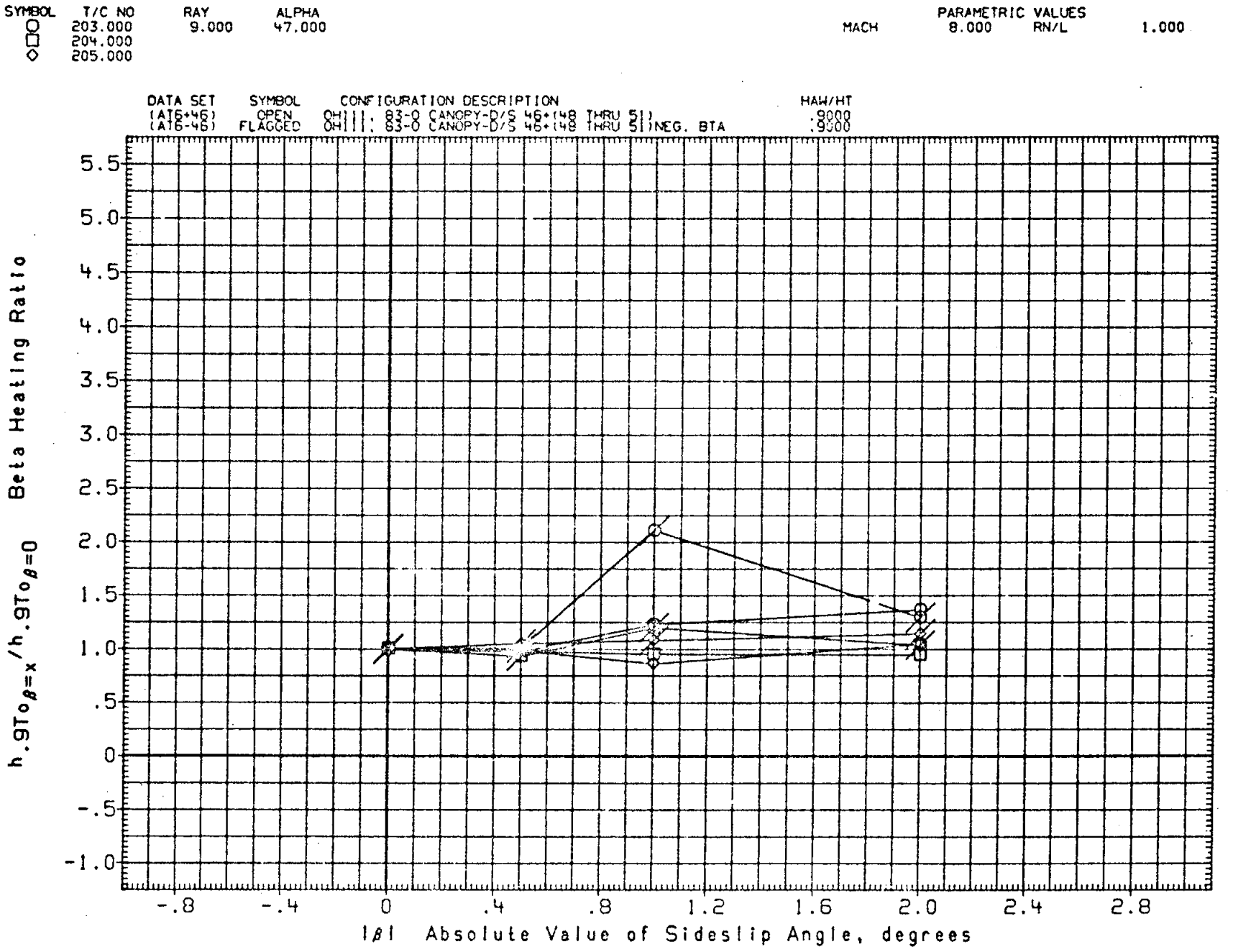

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	203.000	9.000	50.000
□	204.000		
◇	205.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OHIII: 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII: 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

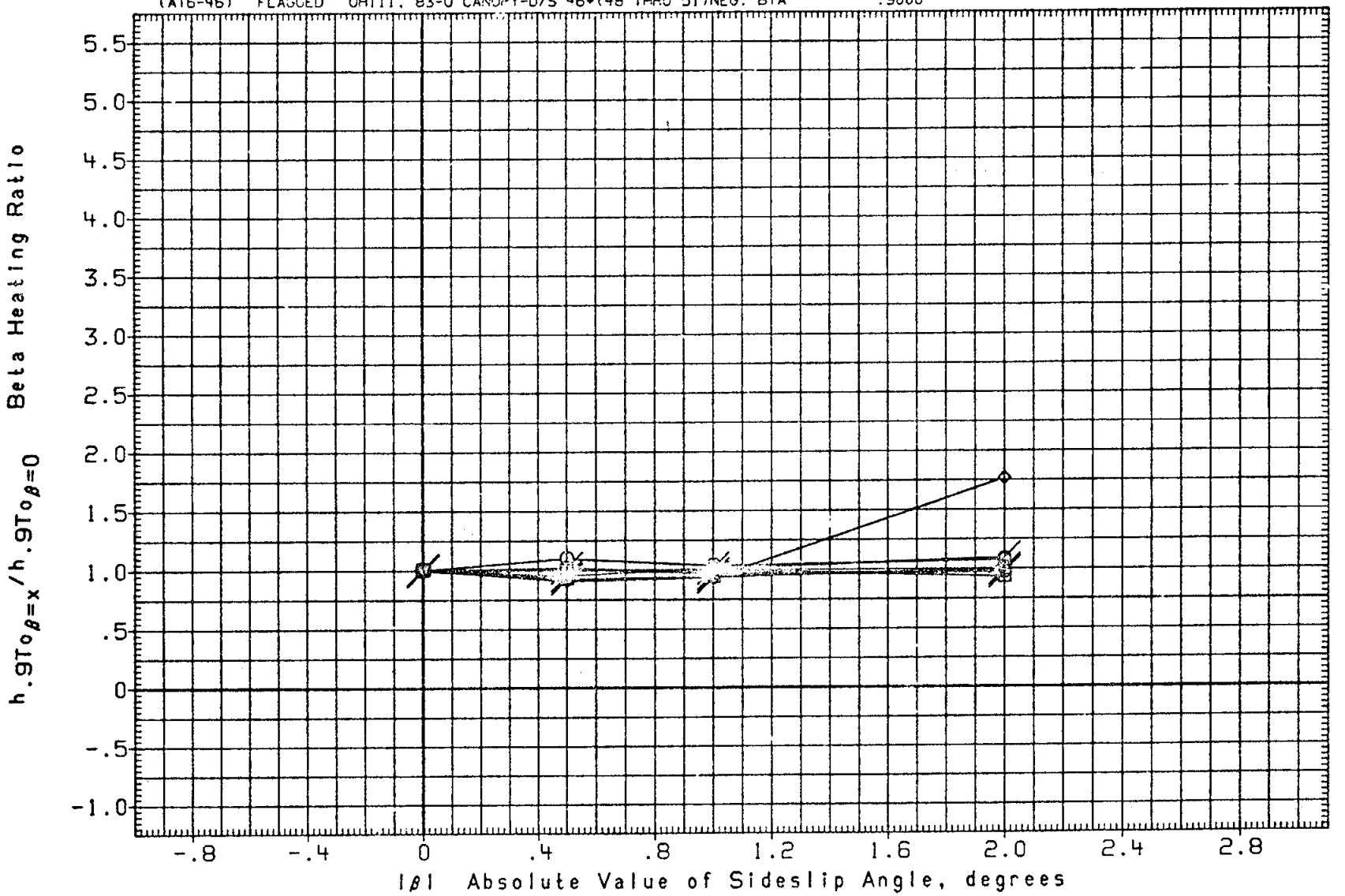

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	203.000	9.000	55.000
□	204.000		
◇	205.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OHIII: 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII: 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

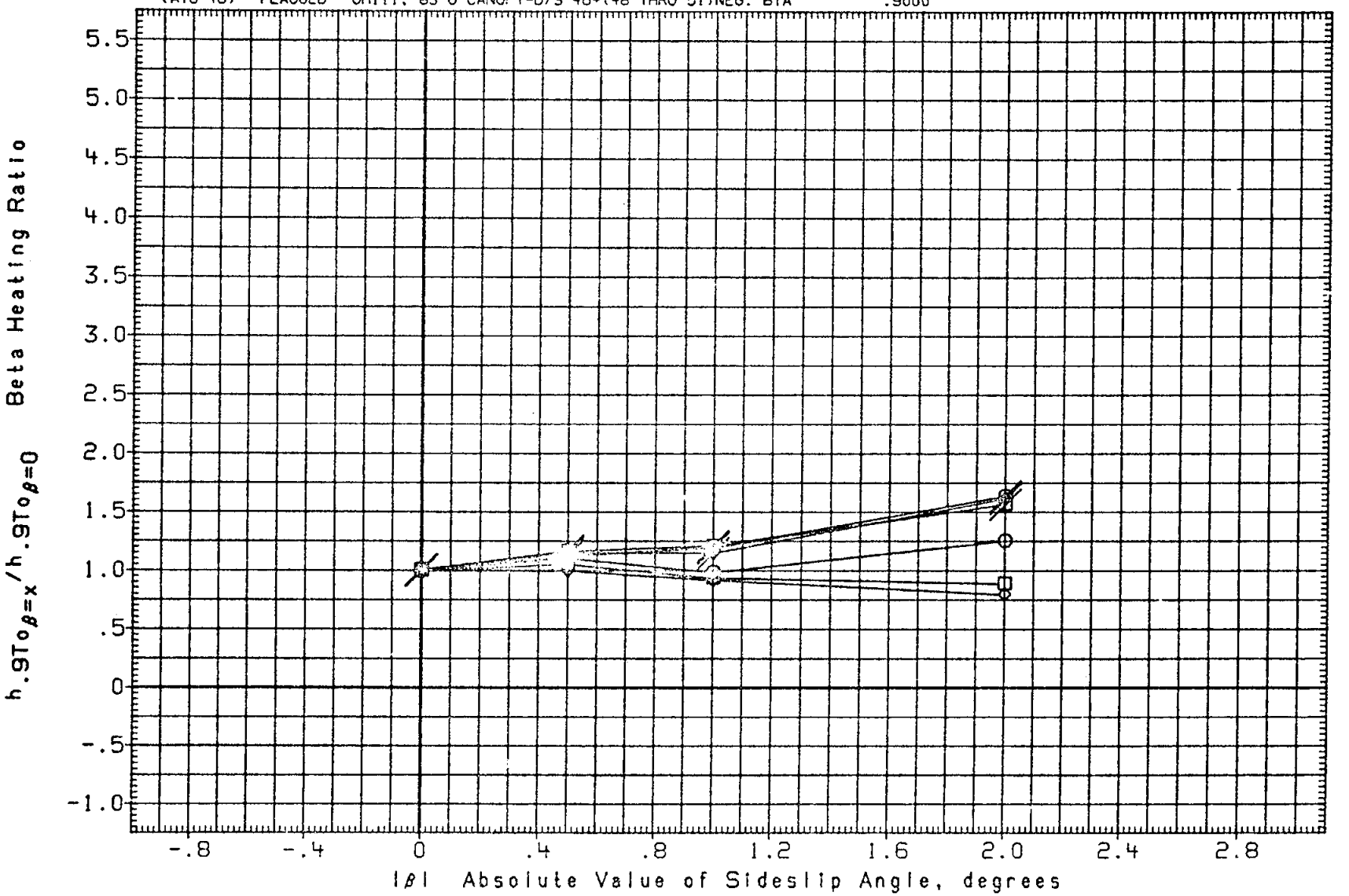

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	206.000	10.000	40.000
□	207.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111; 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111; 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

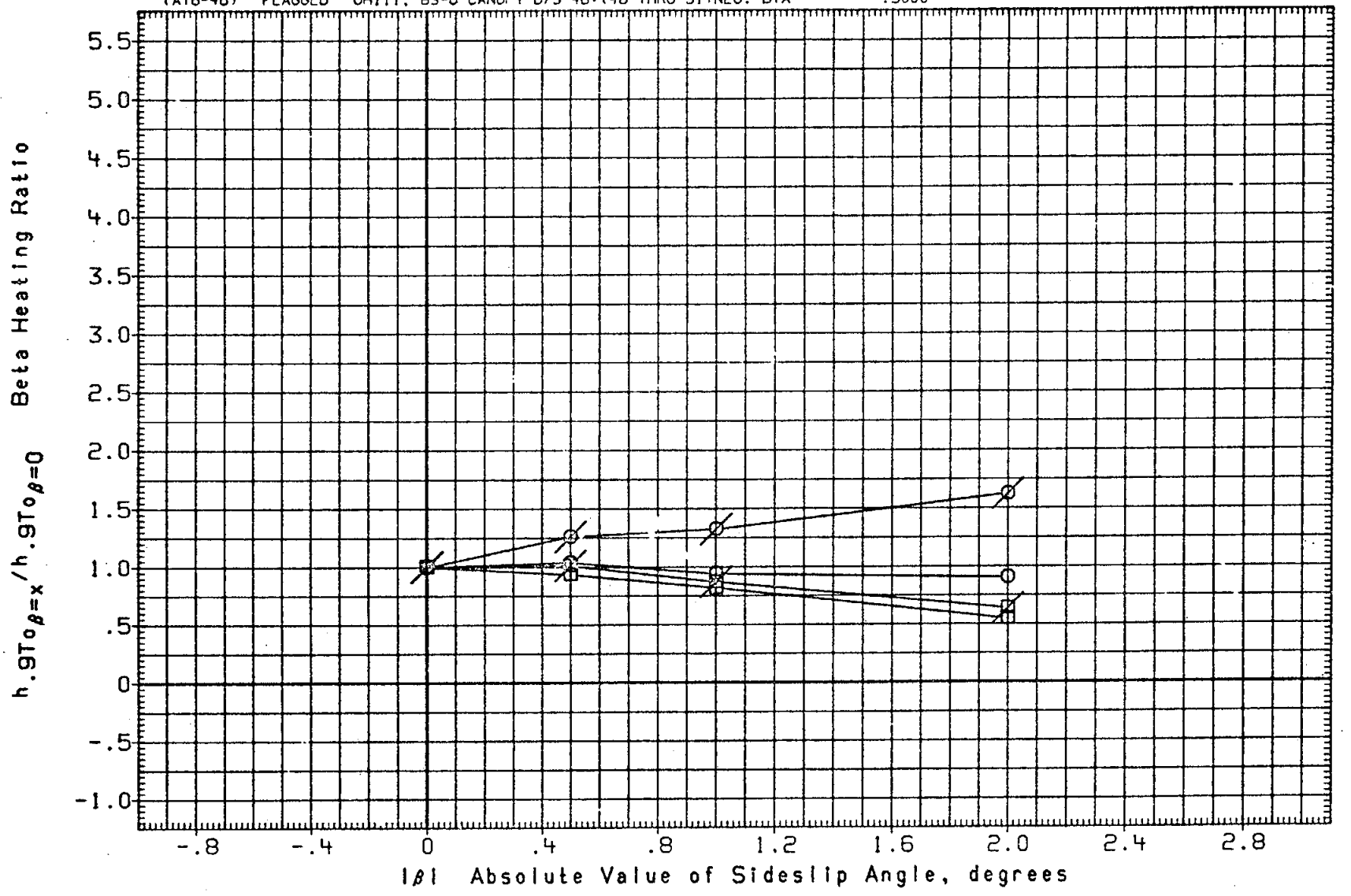

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	206.000	10.000	43.000
□	207.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111; 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111; 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

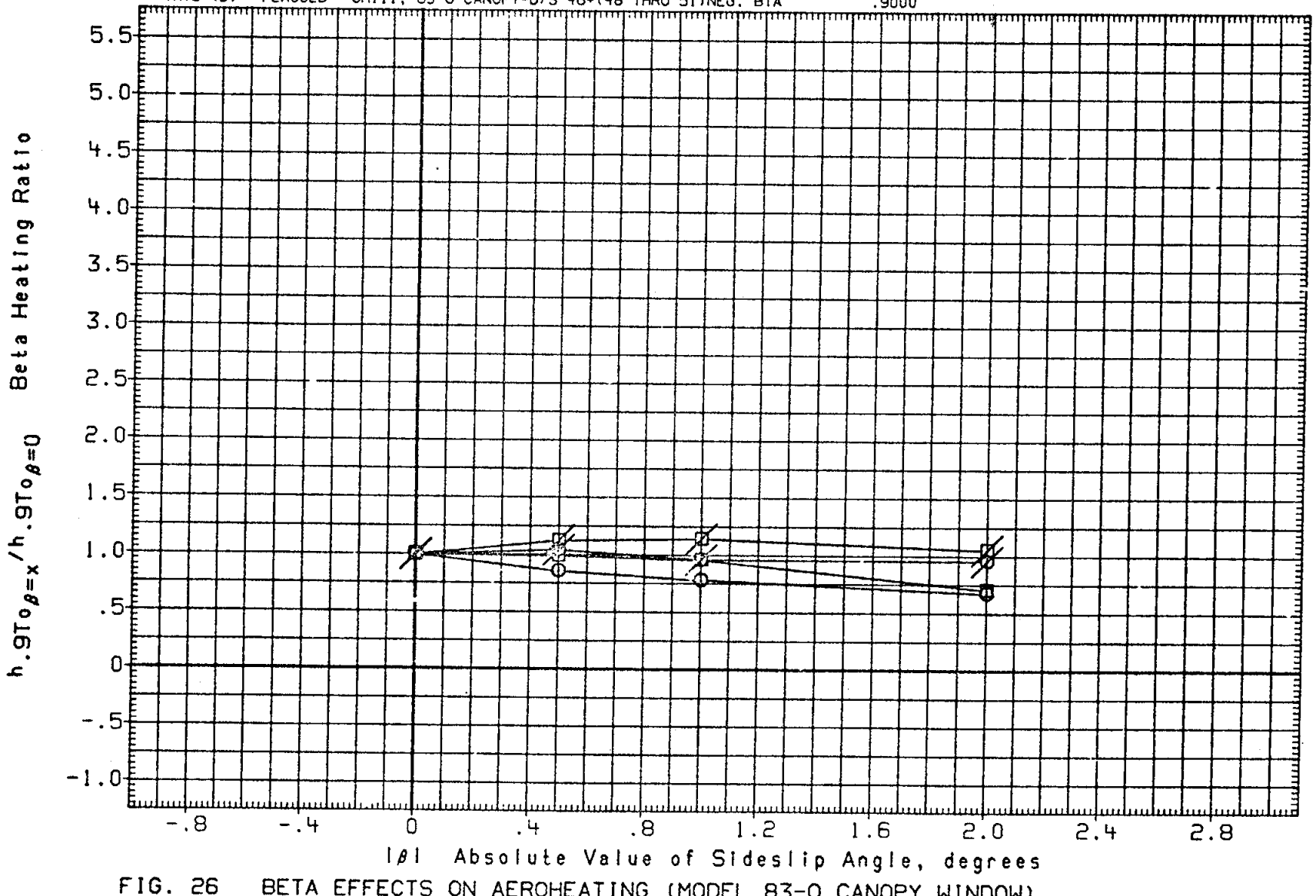

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	206.000	10.000	47.000
□	207.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||; 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-48)	FLAGGED	OH|||; 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

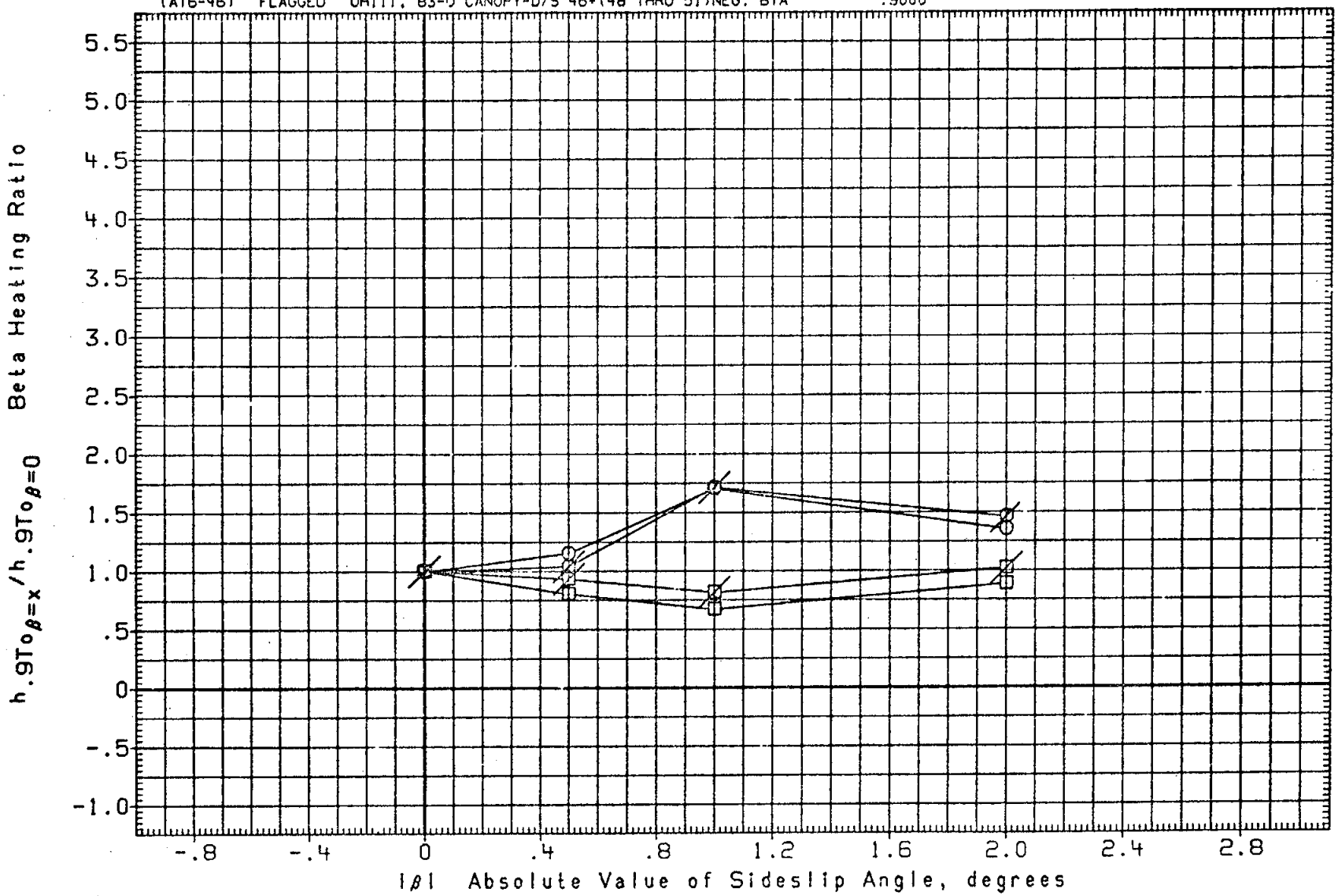

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	206.000	10.000	50.000
□	207.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OHIII, 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII, 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

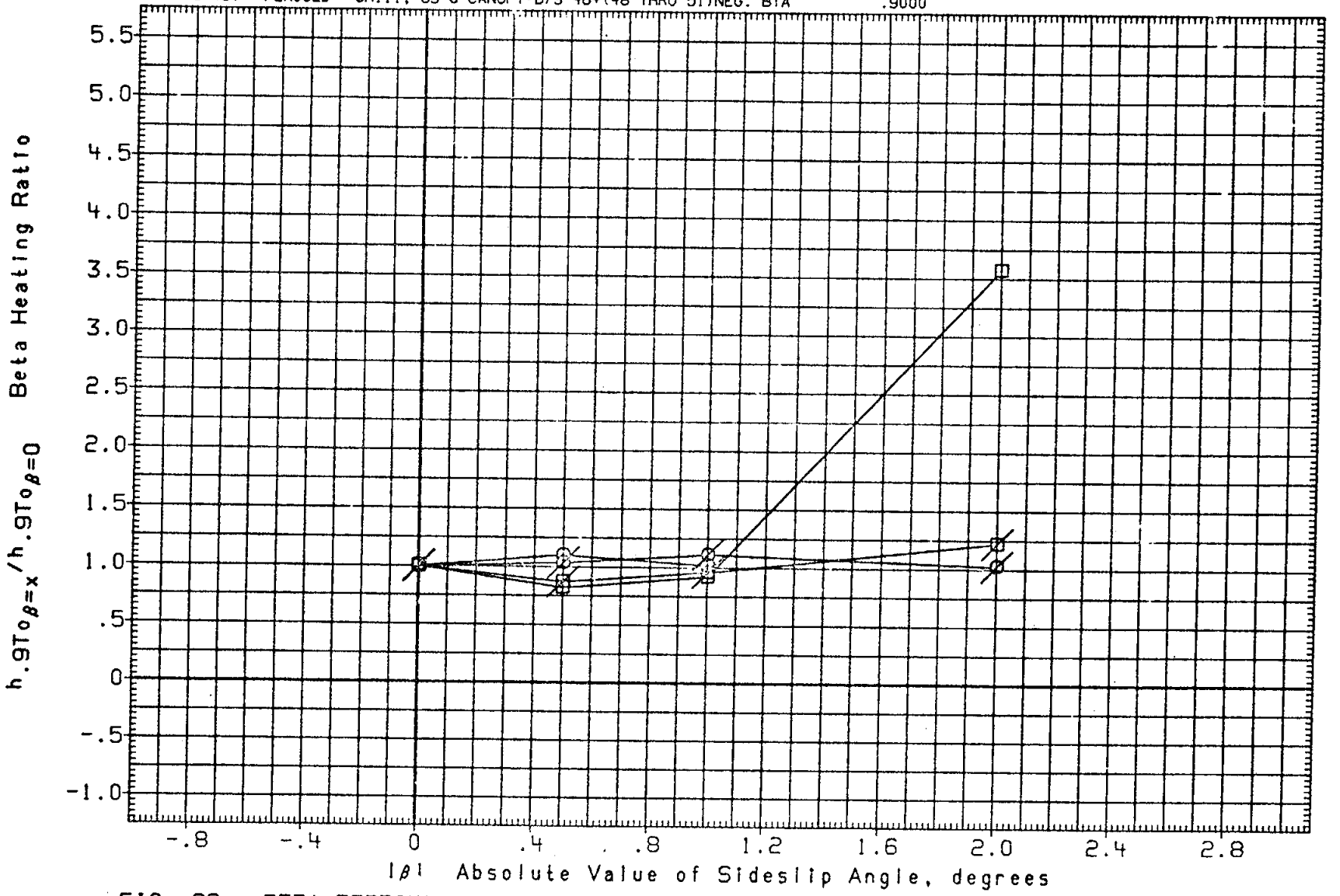

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	206.000	10.000	55.000
□	207.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OHIII; 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OHIII; 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

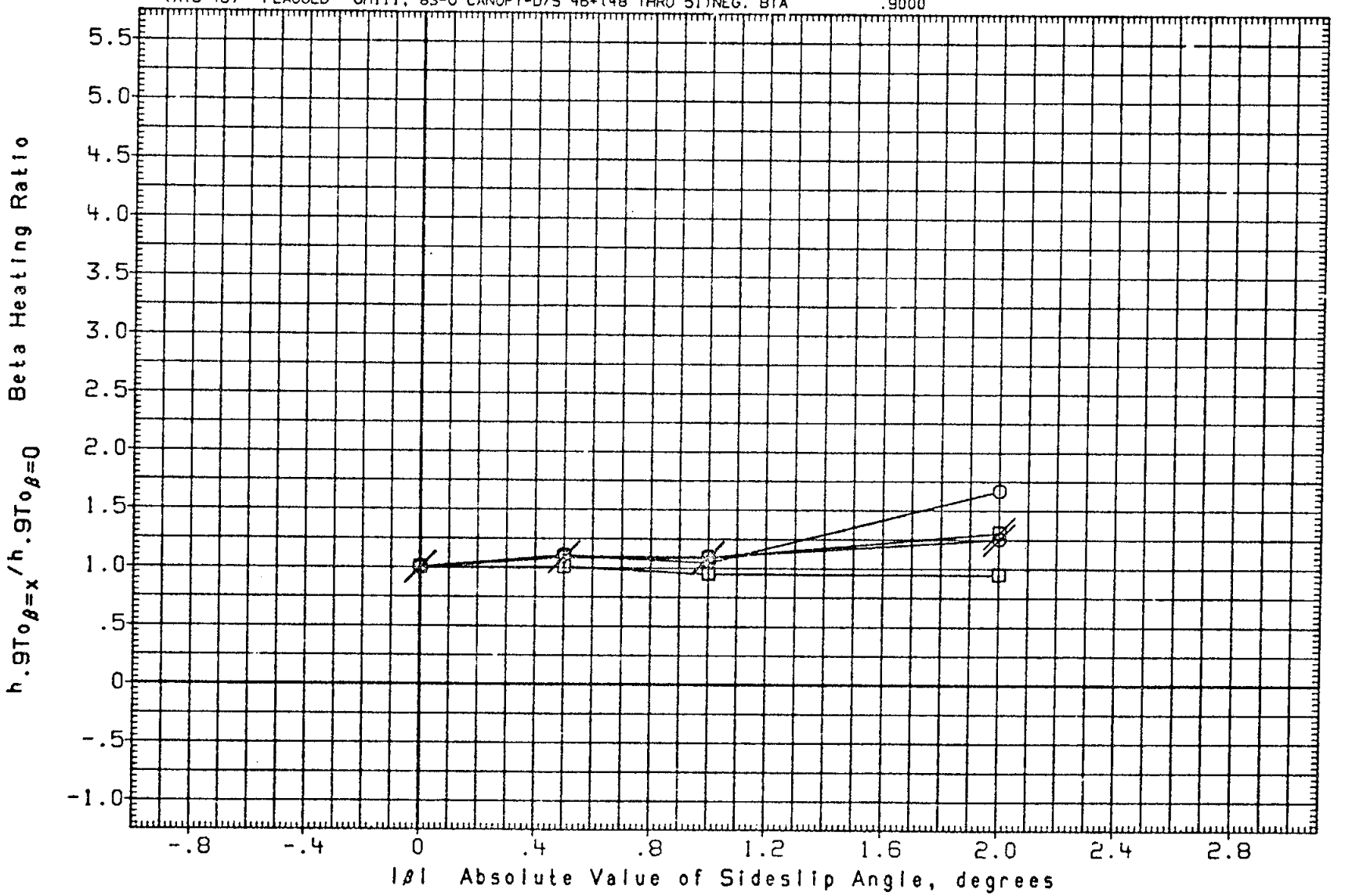

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

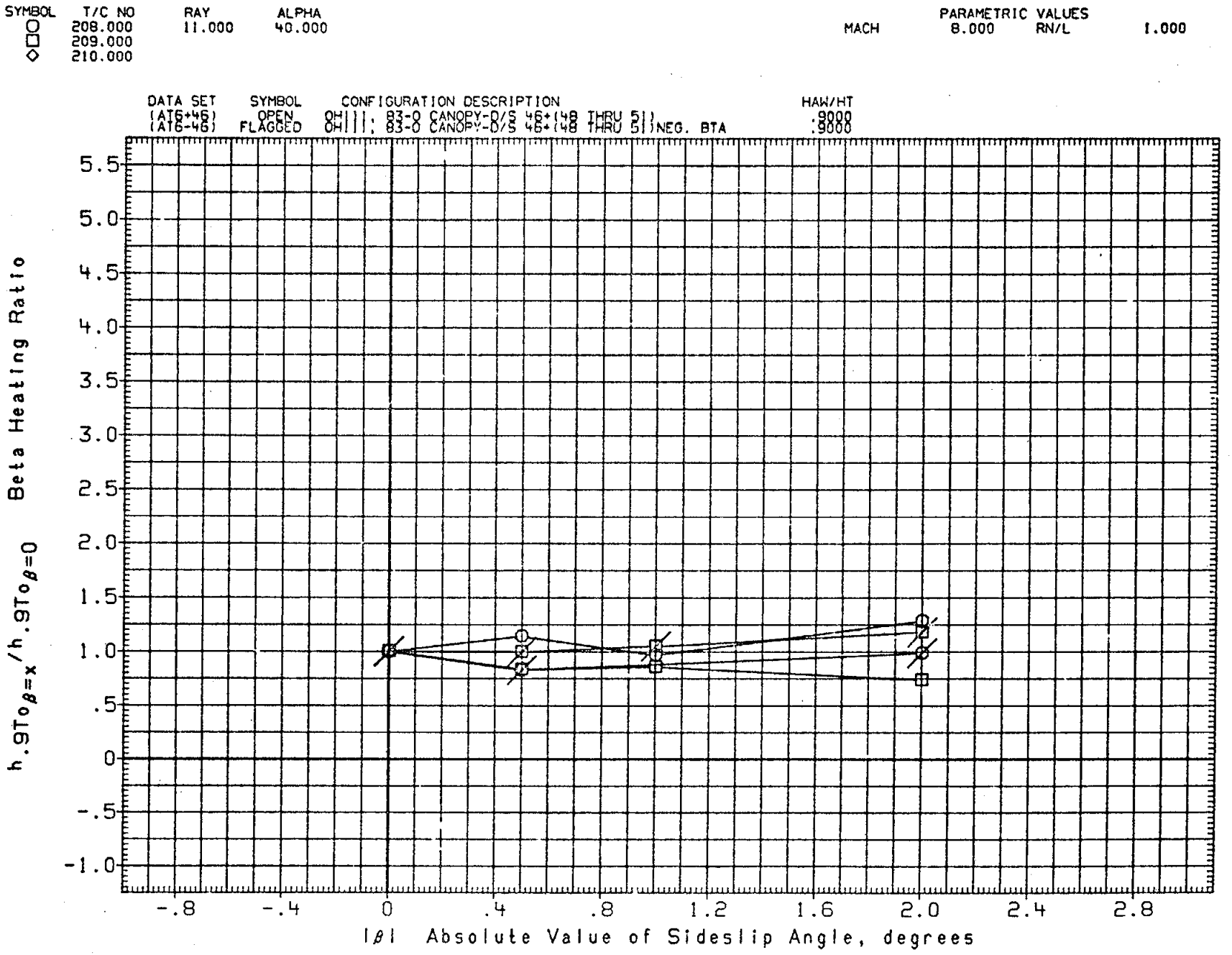

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	208.000	11.000	43.000
□	209.000		
◇	210.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||, 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||, 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

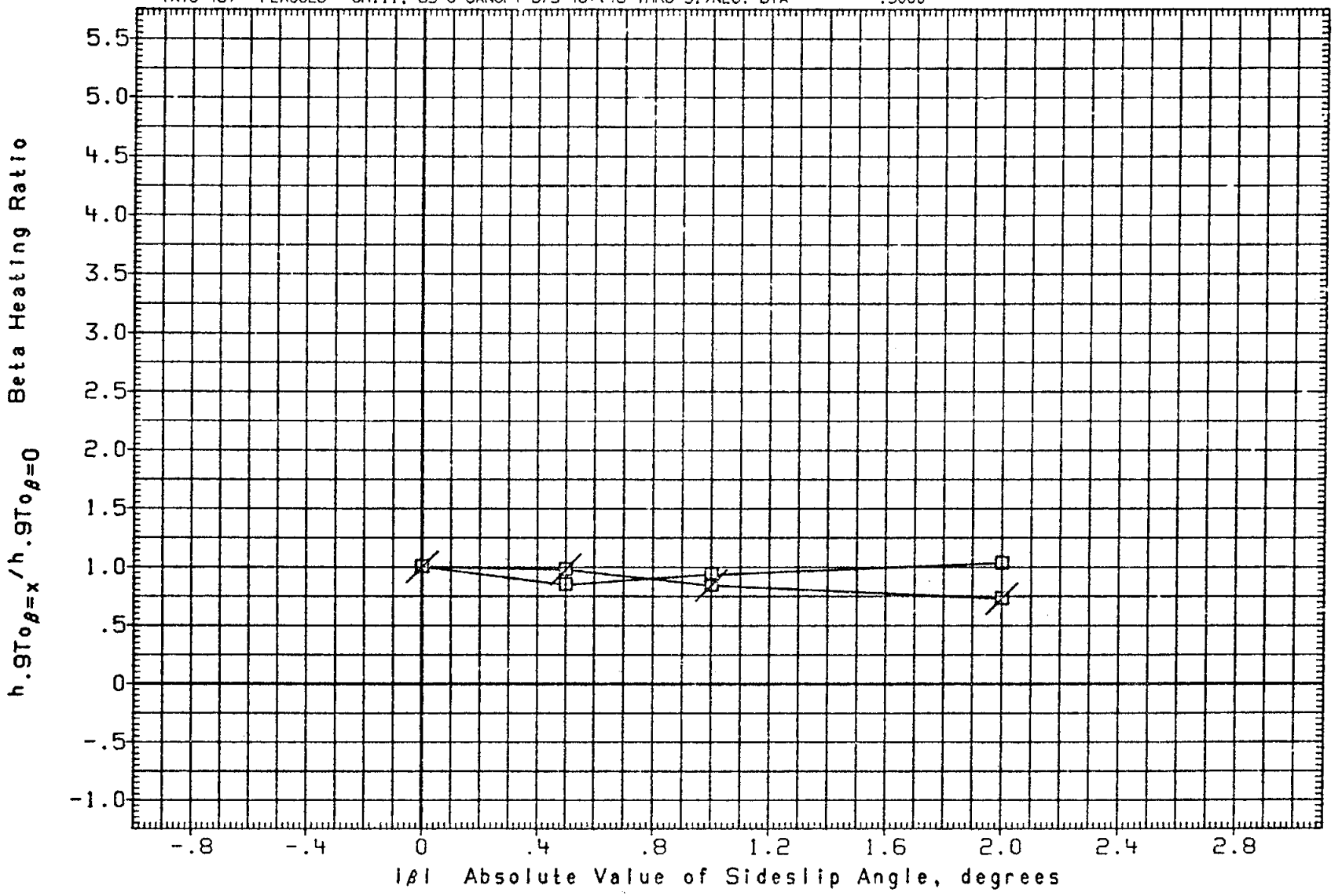

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

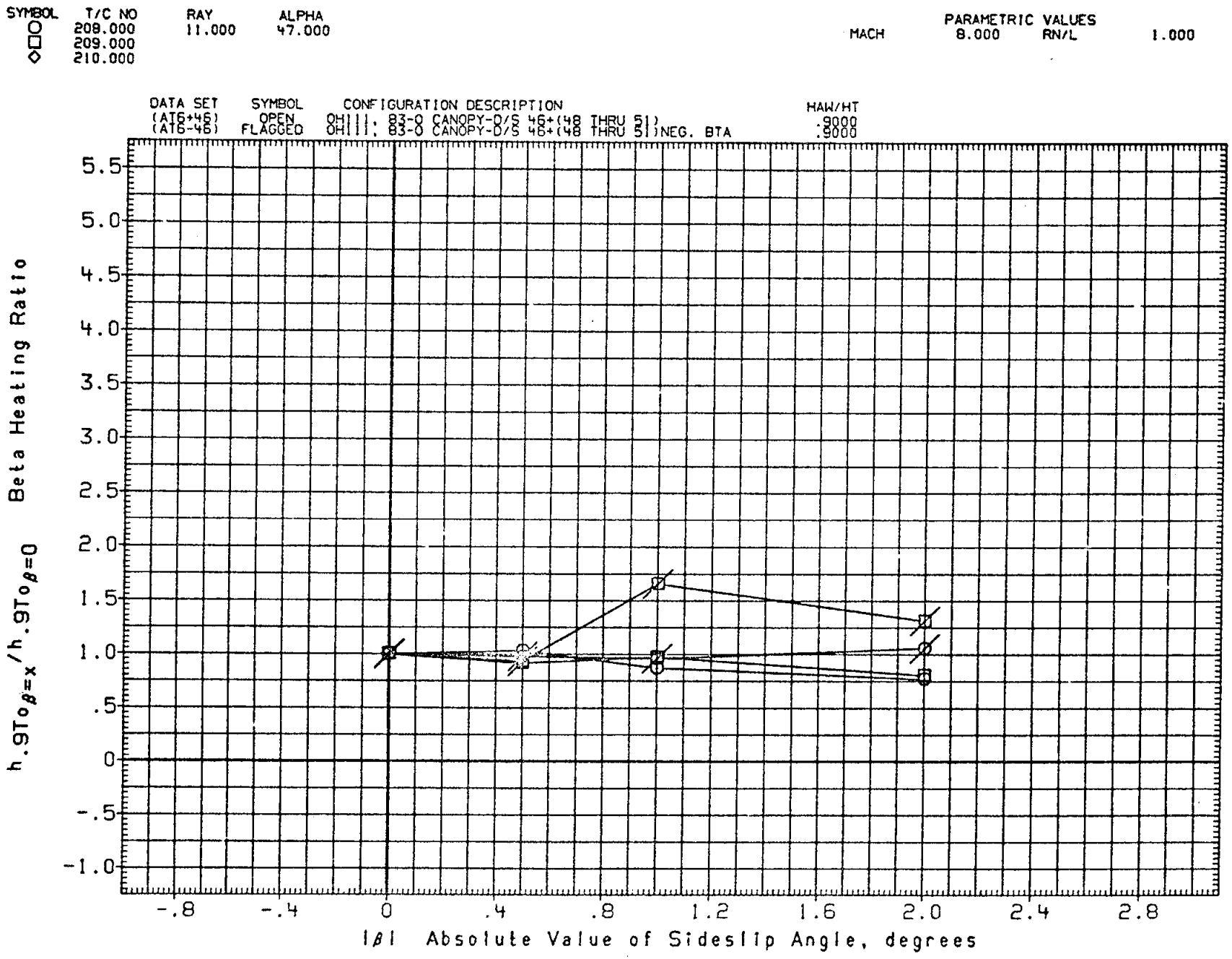

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

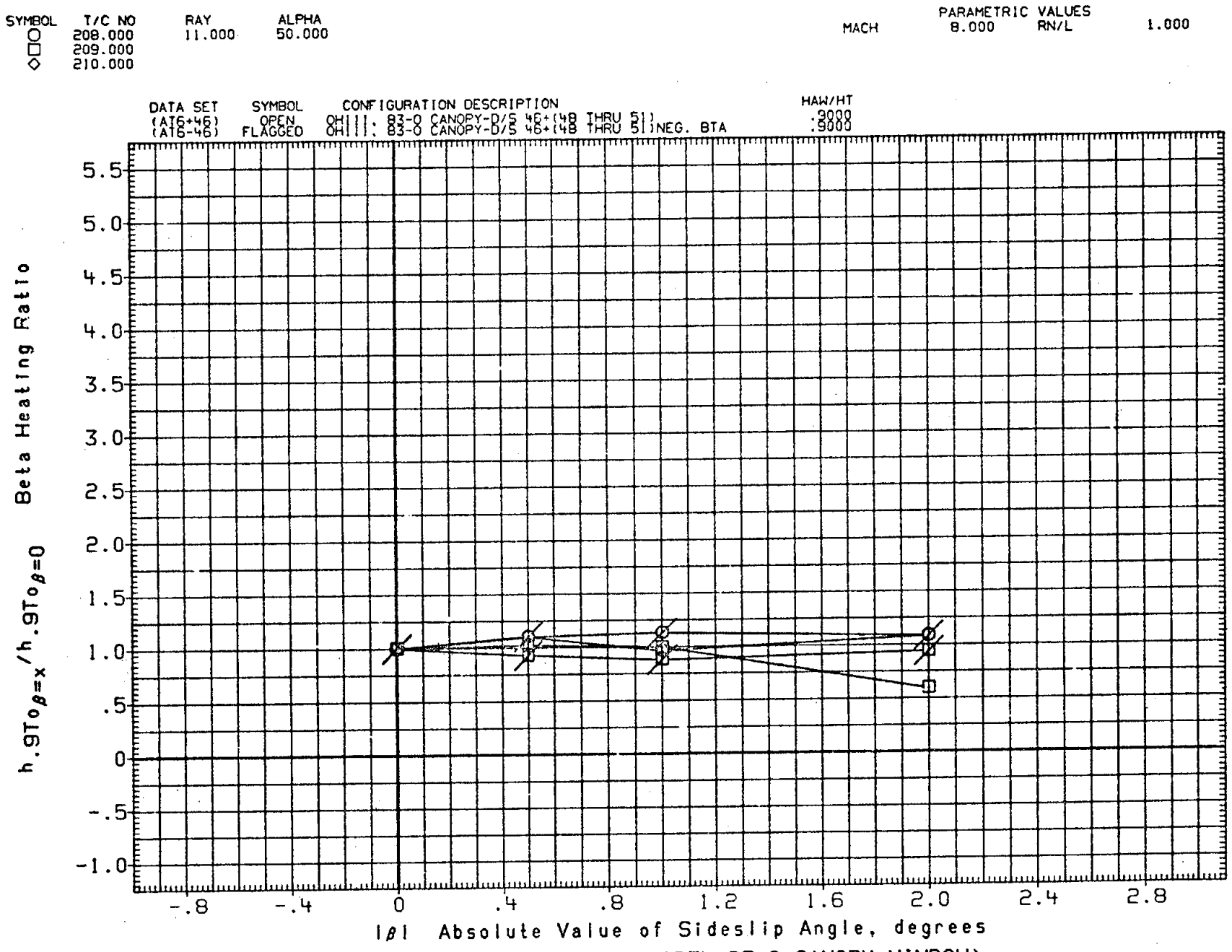

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	208.000	11.000	55.000
□	209.000		
◇	210.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111, 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111, 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

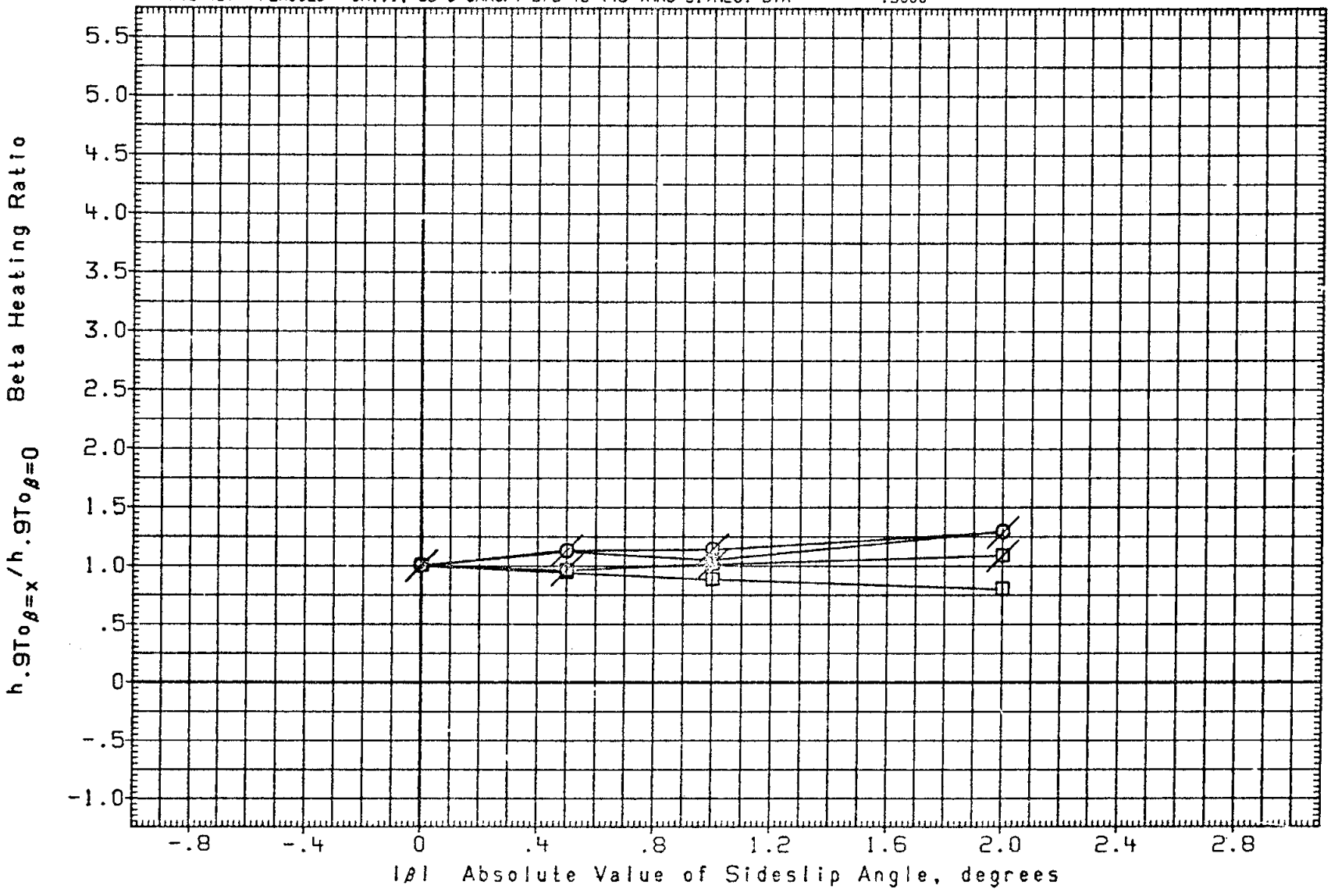

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

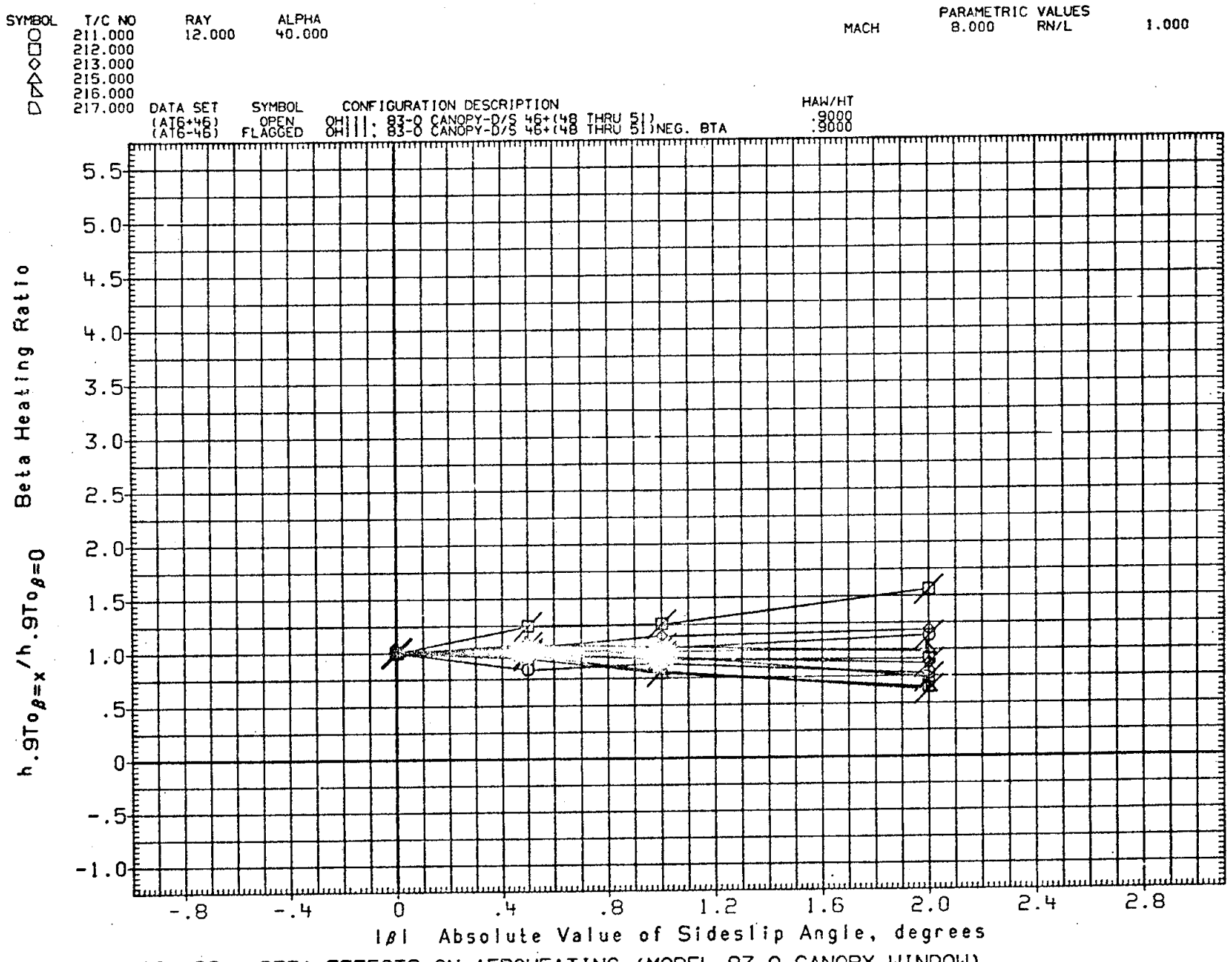

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

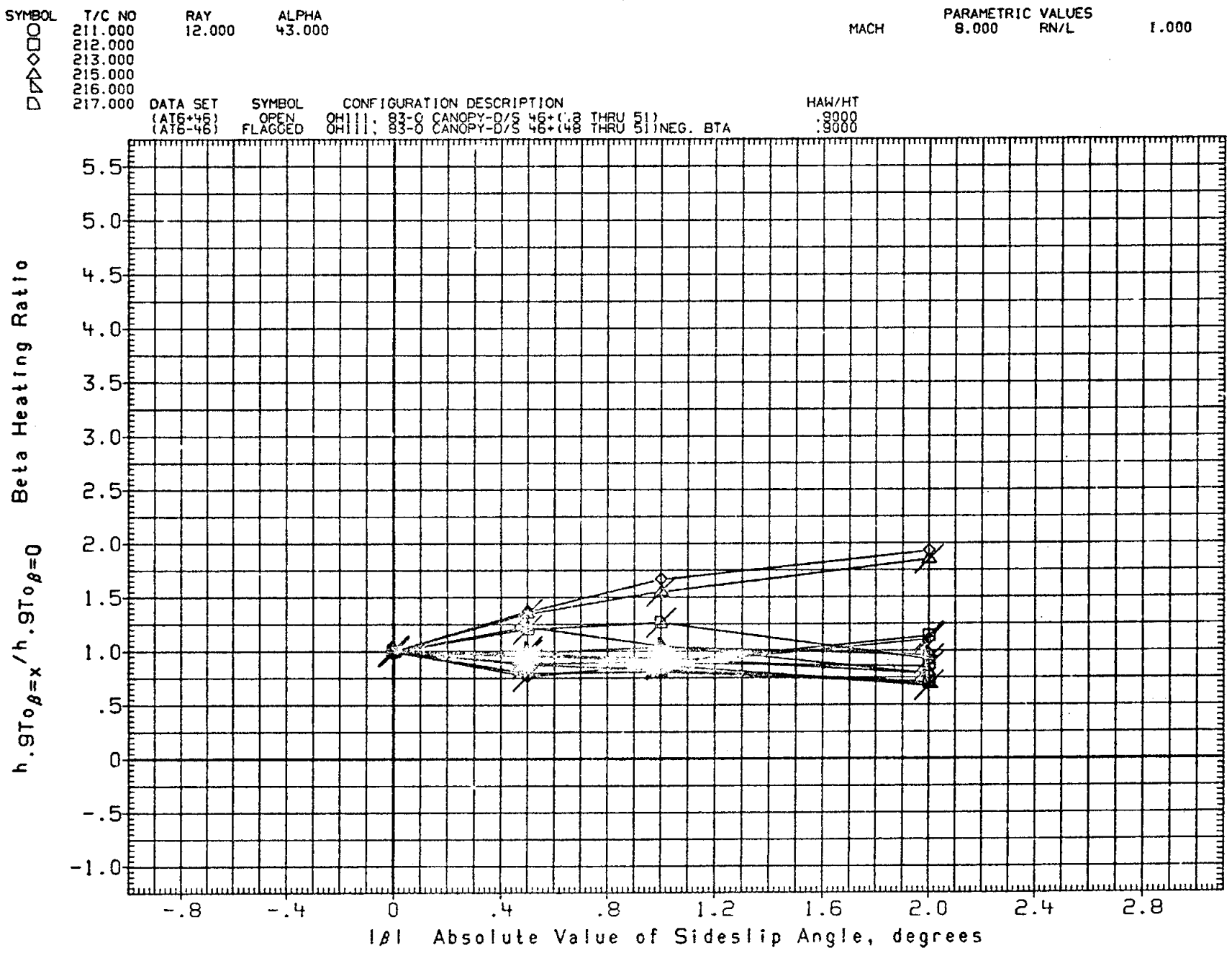

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

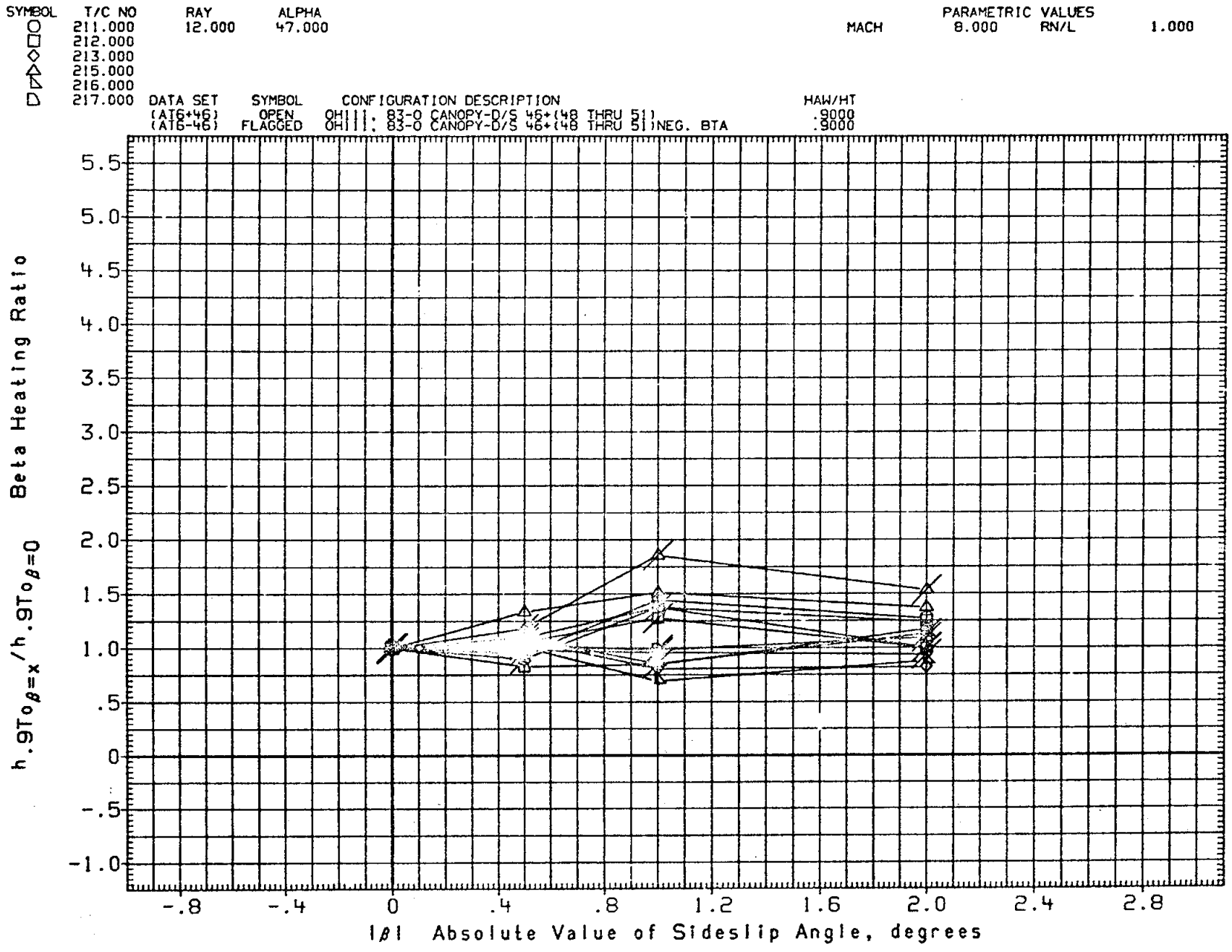

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

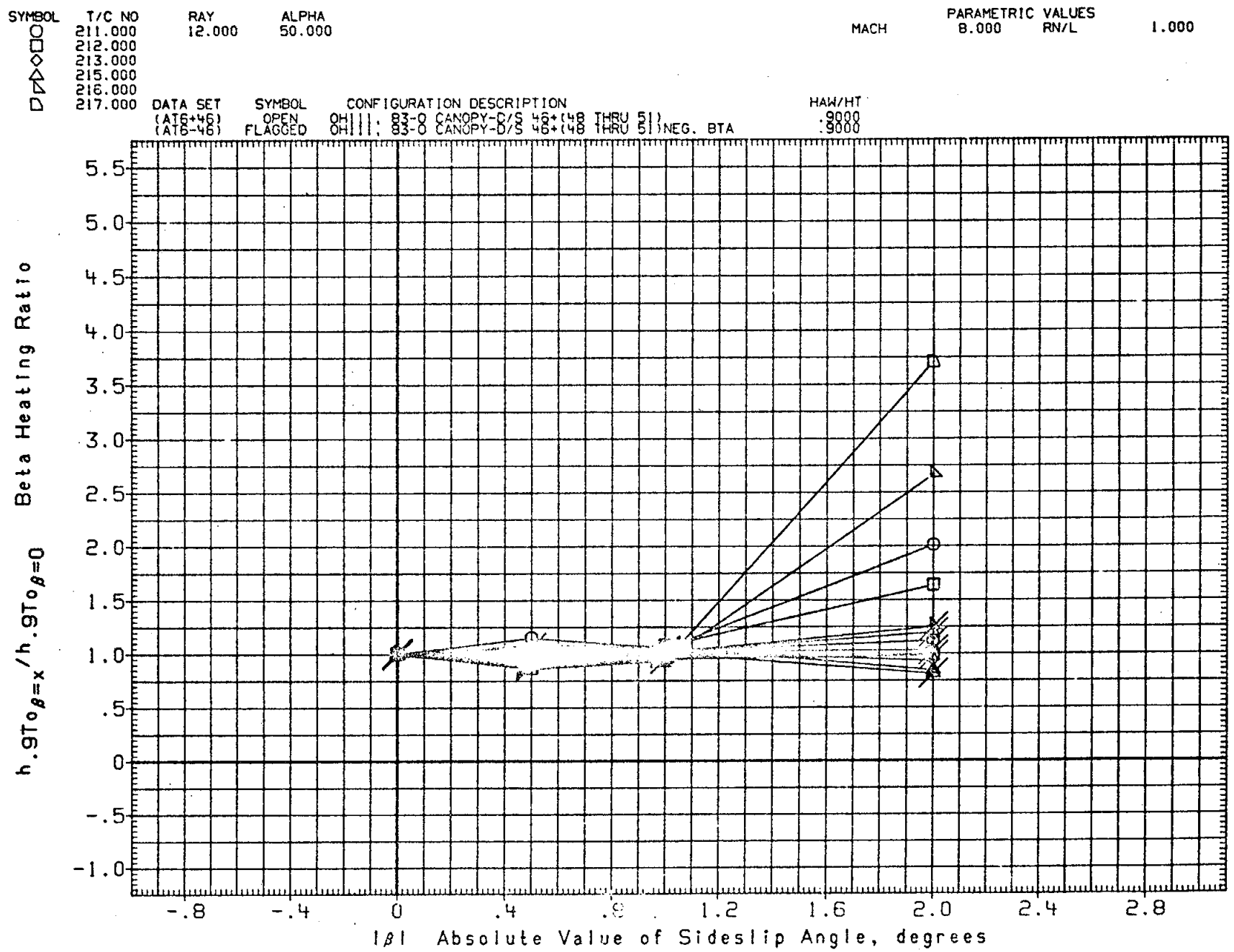

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

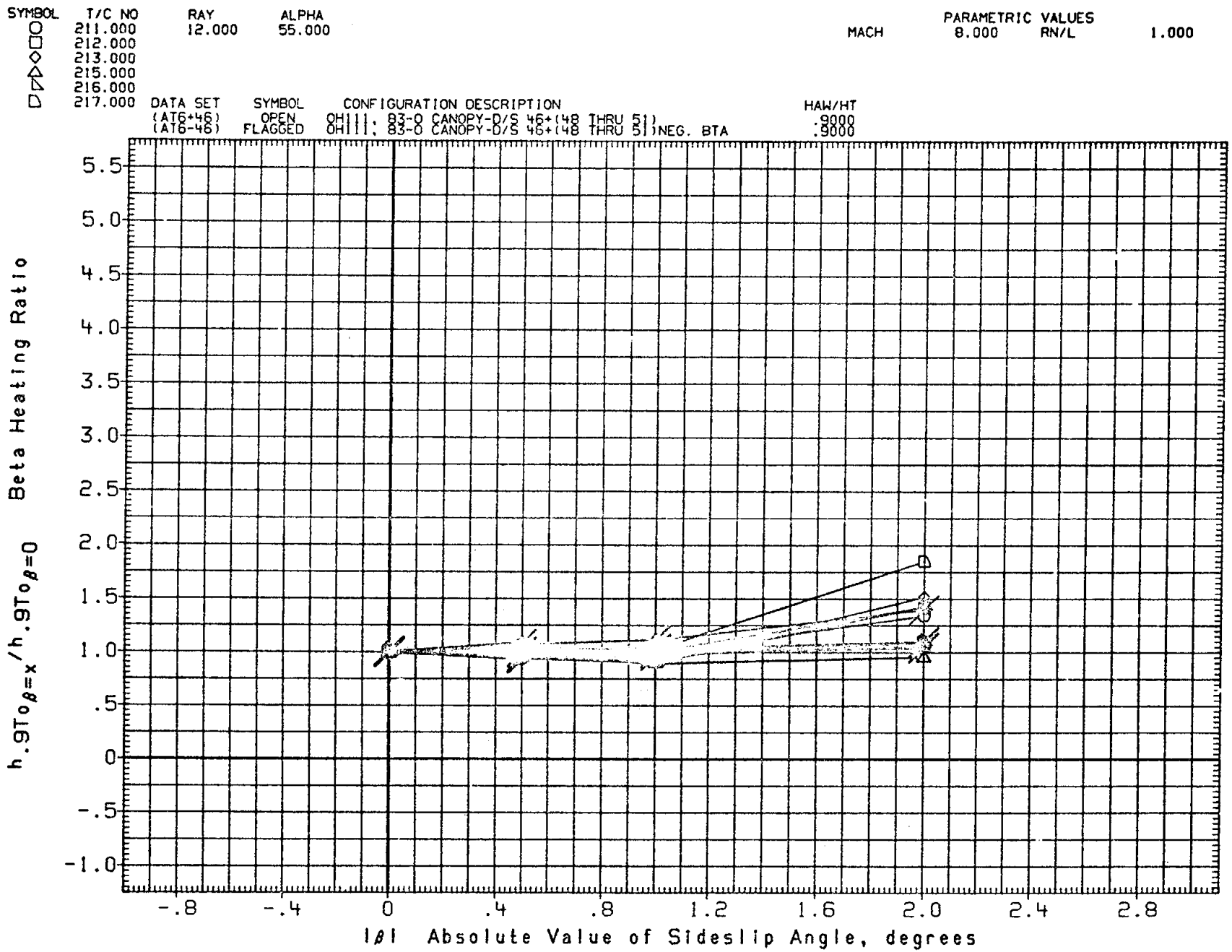

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	218.000	13.000	40.000
□	219.000		
◇	220.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH111, B3-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH111, B3-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

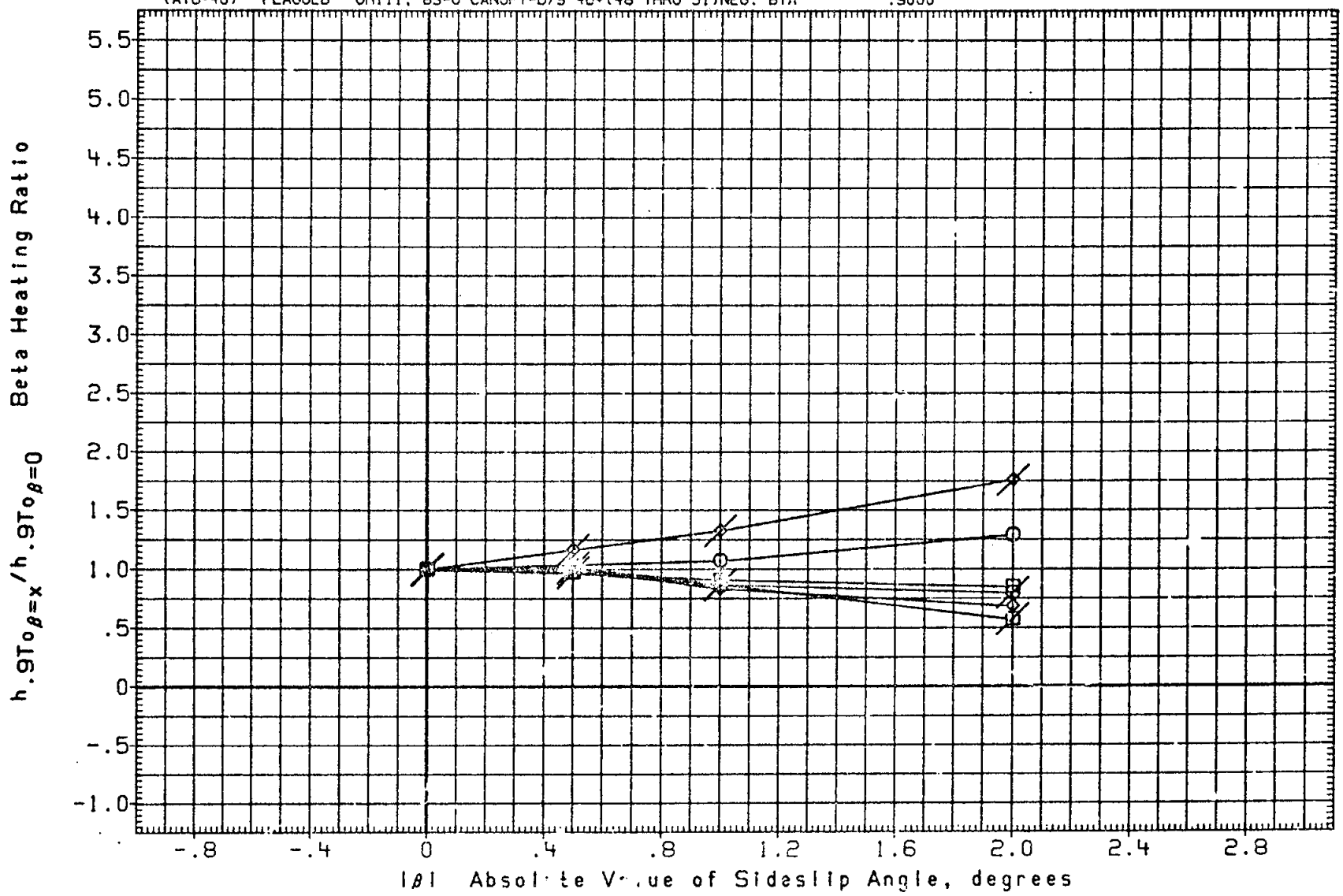

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

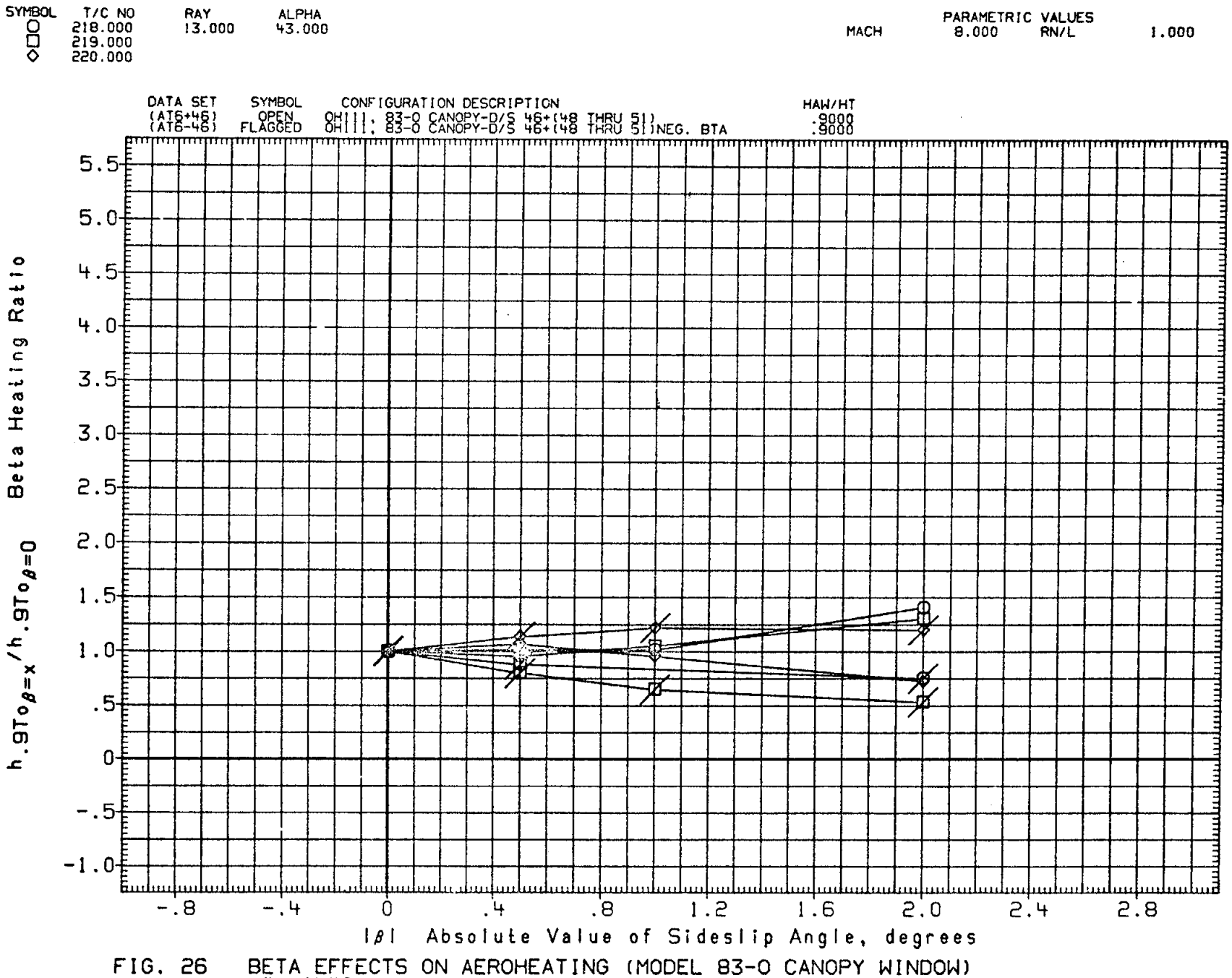

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.C

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	218.000	13.000	47.000
□	219.000		
◇	220.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||, 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||, 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

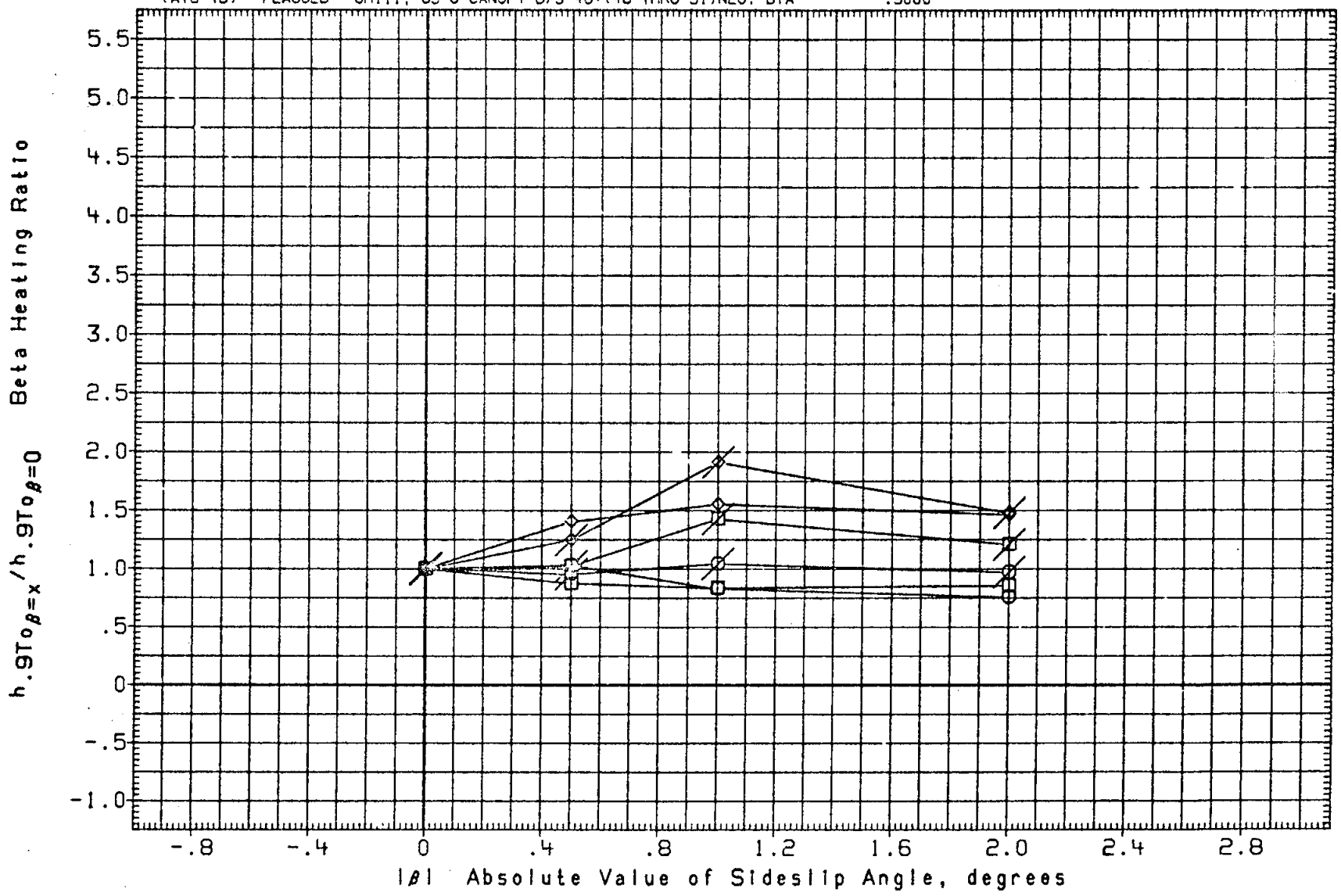

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

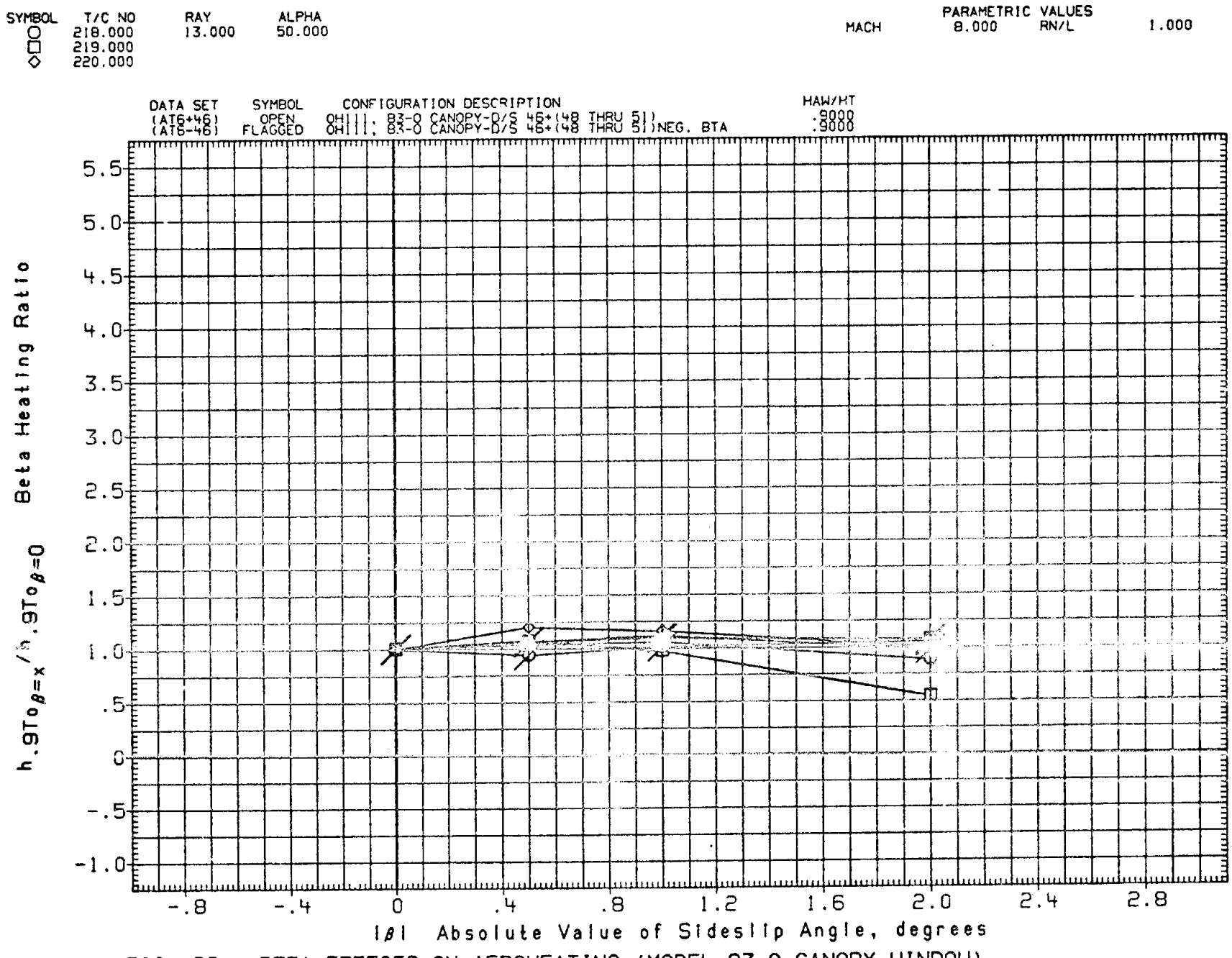

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

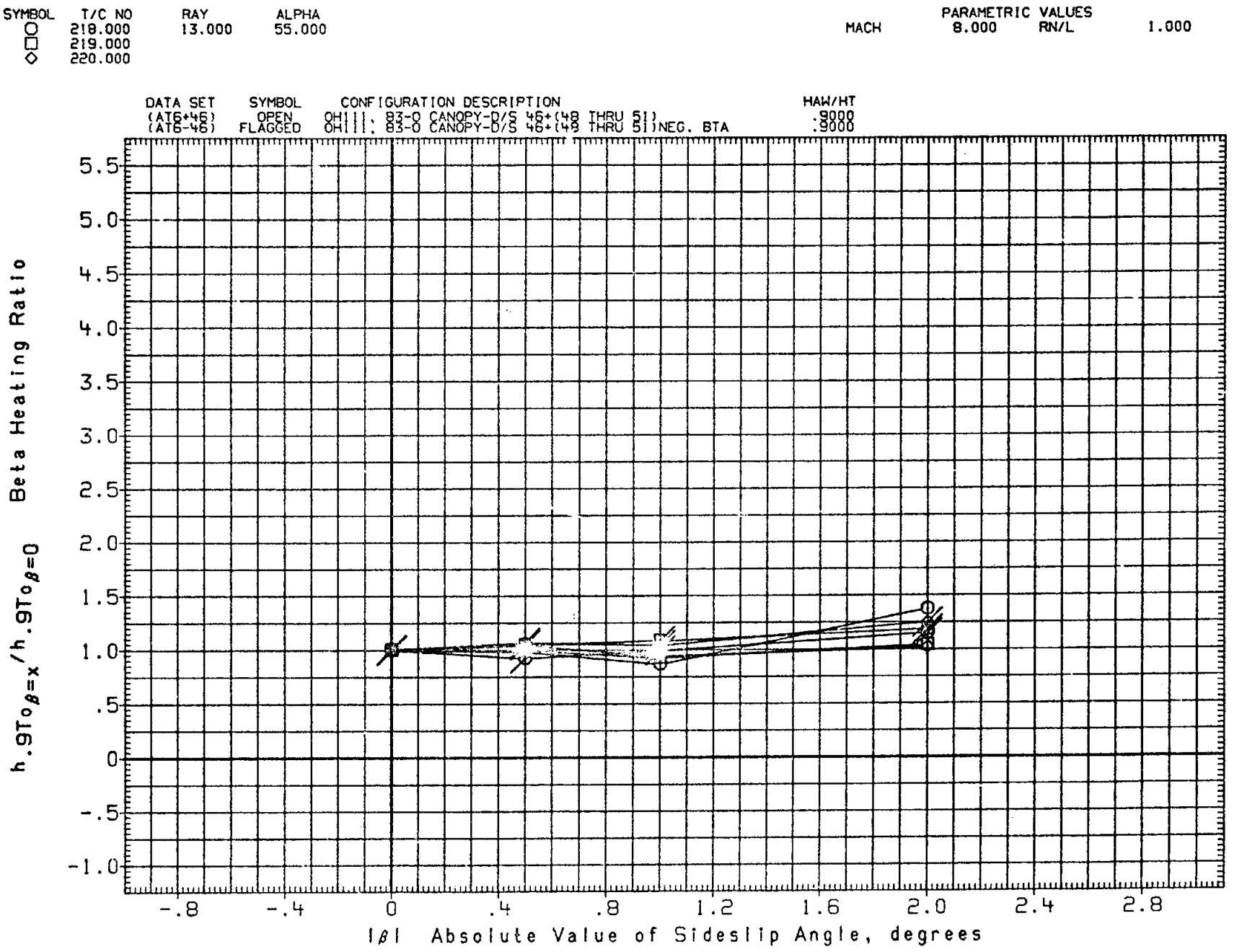

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

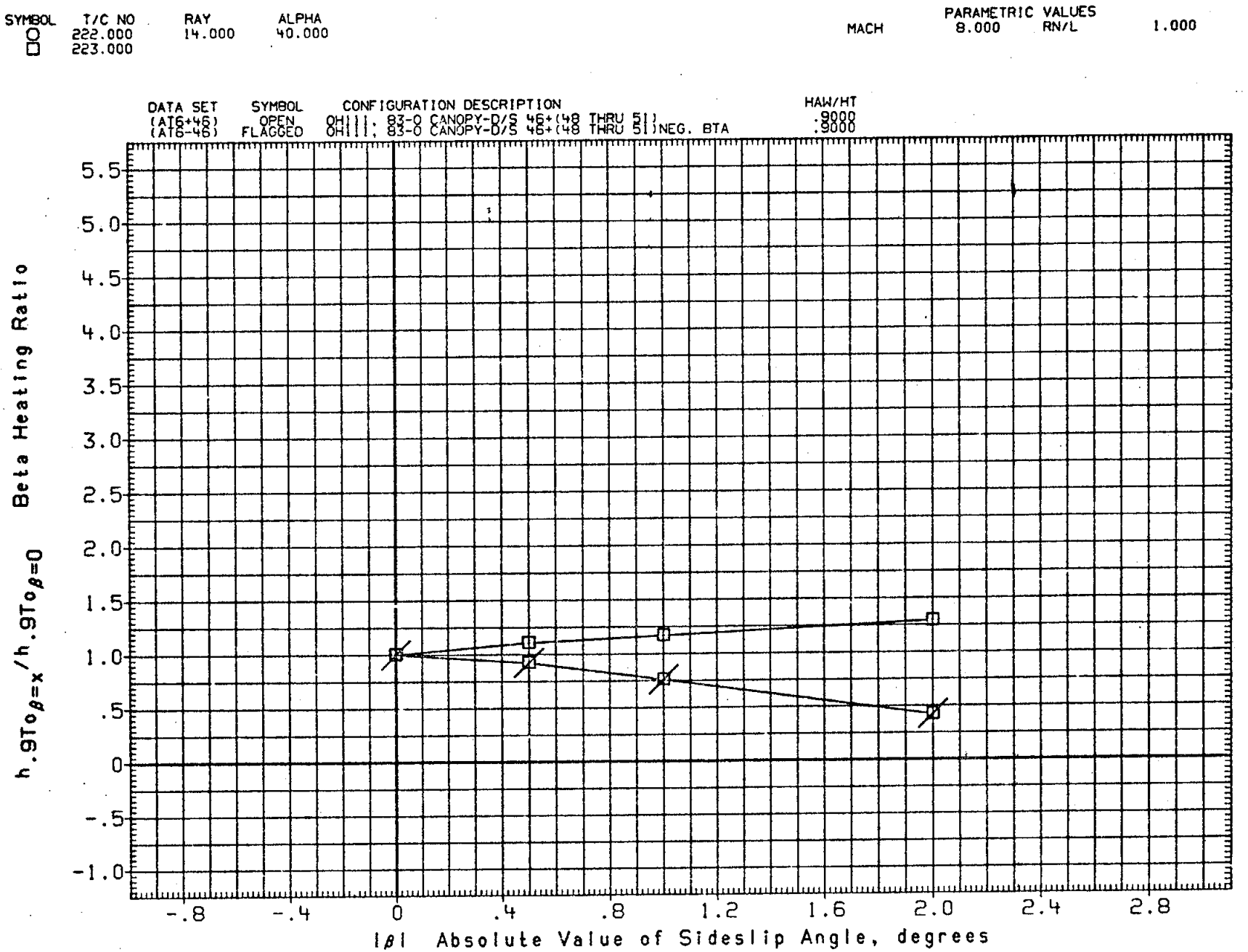

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

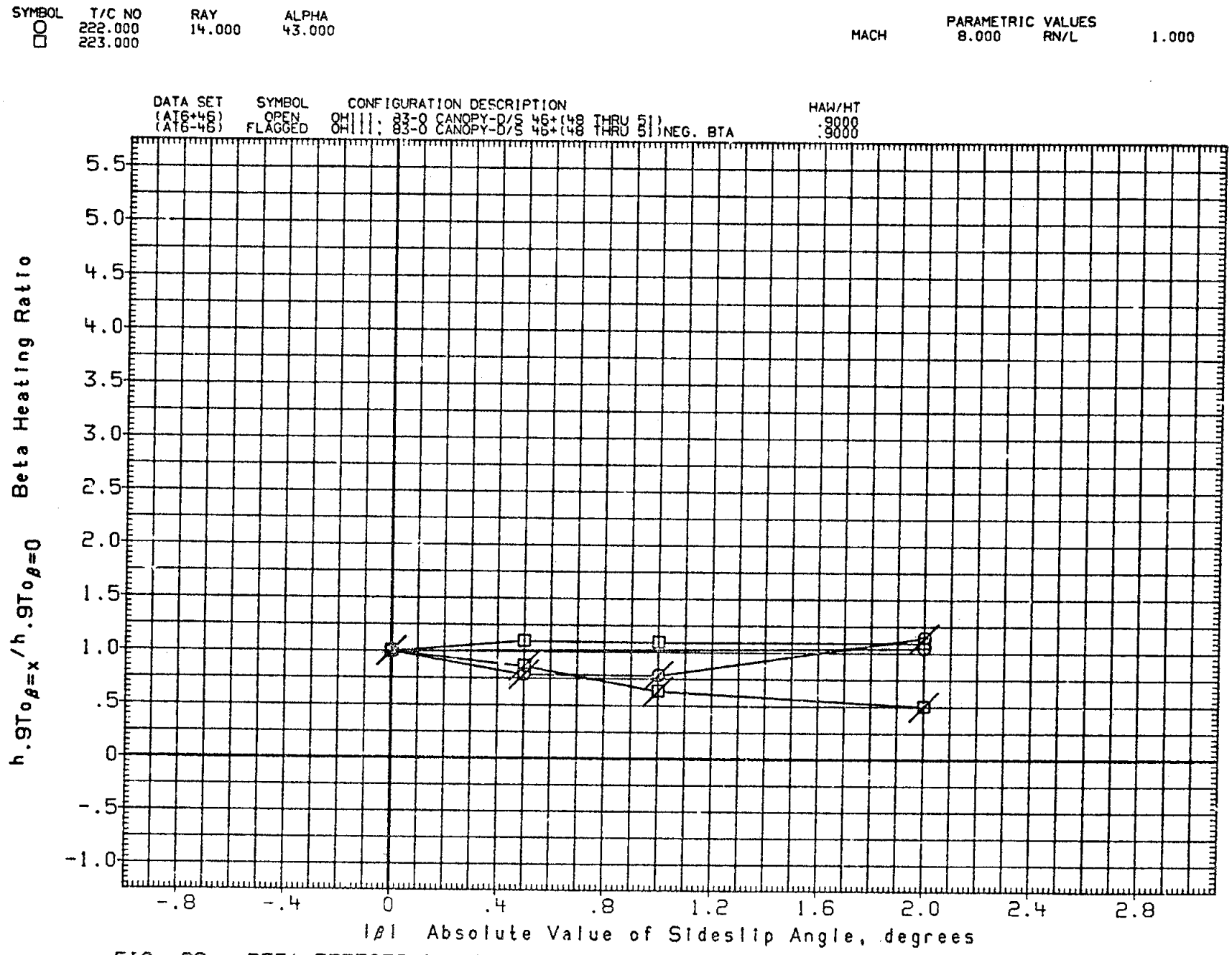

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-0 CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

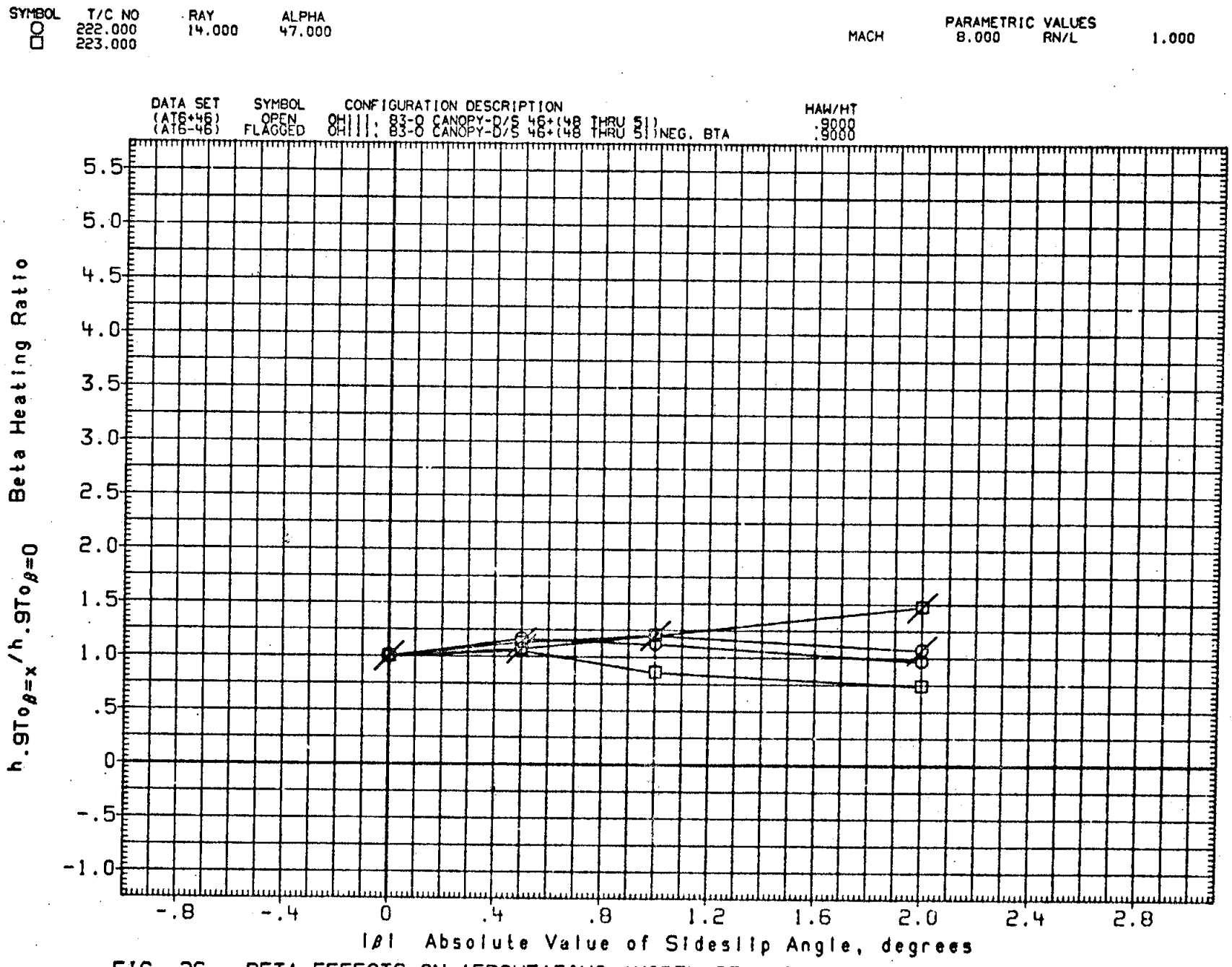

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	222.000	14.000	50.000
□	223.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||; 83-0 CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||; 83-0 CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

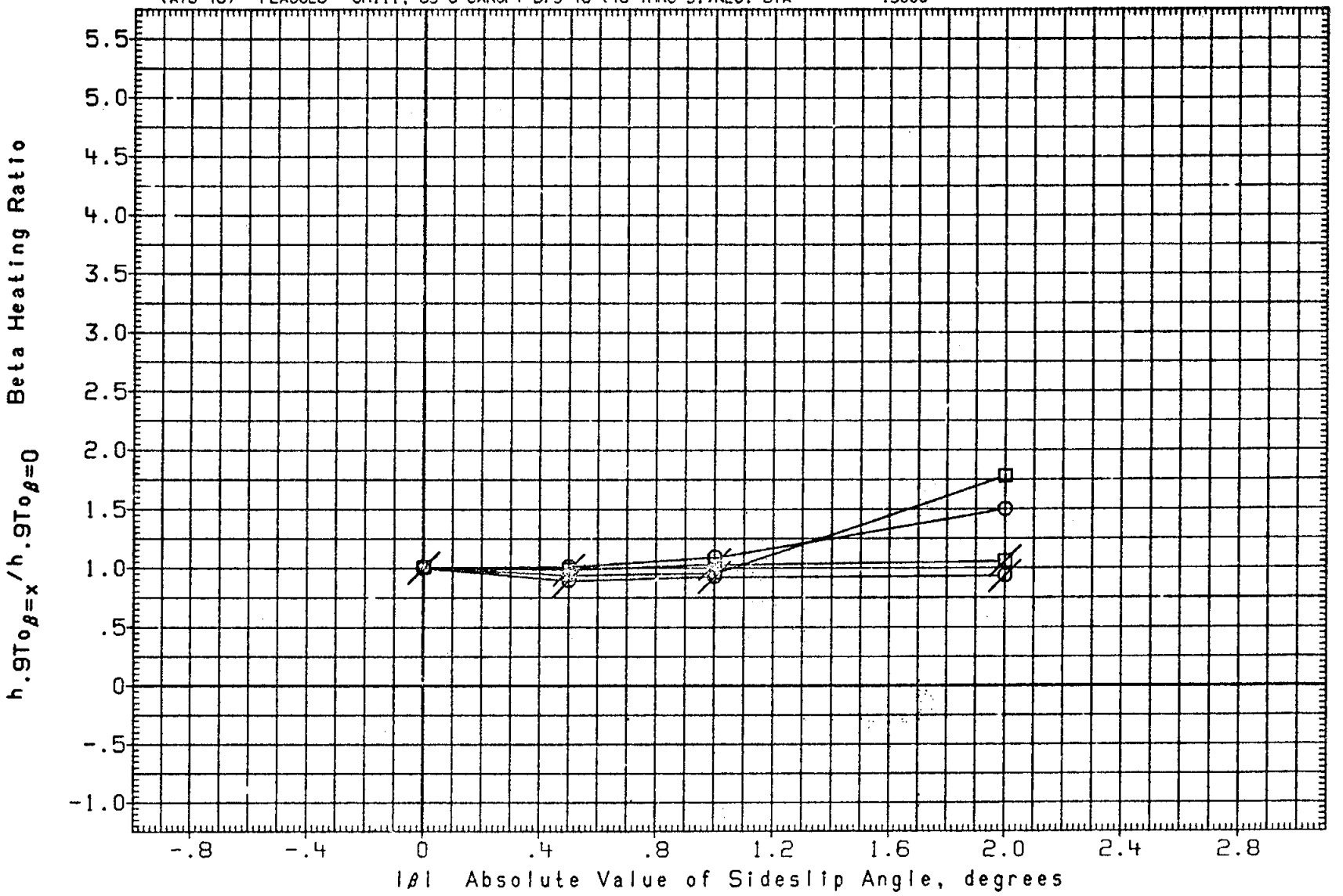

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82

SYMBOL	T/C NO	RAY	ALPHA
○	222.000	14.000	55.000
□	223.000		

PARAMETRIC VALUES
MACH 8.000 RN/L 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HAW/HT
(AT6+46)	OPEN	OH|||; 83-O CANOPY-D/S 46+(48 THRU 51)	.9000
(AT6-46)	FLAGGED	OH|||; 83-O CANOPY-D/S 46+(48 THRU 51)NEG. BTA	.9000

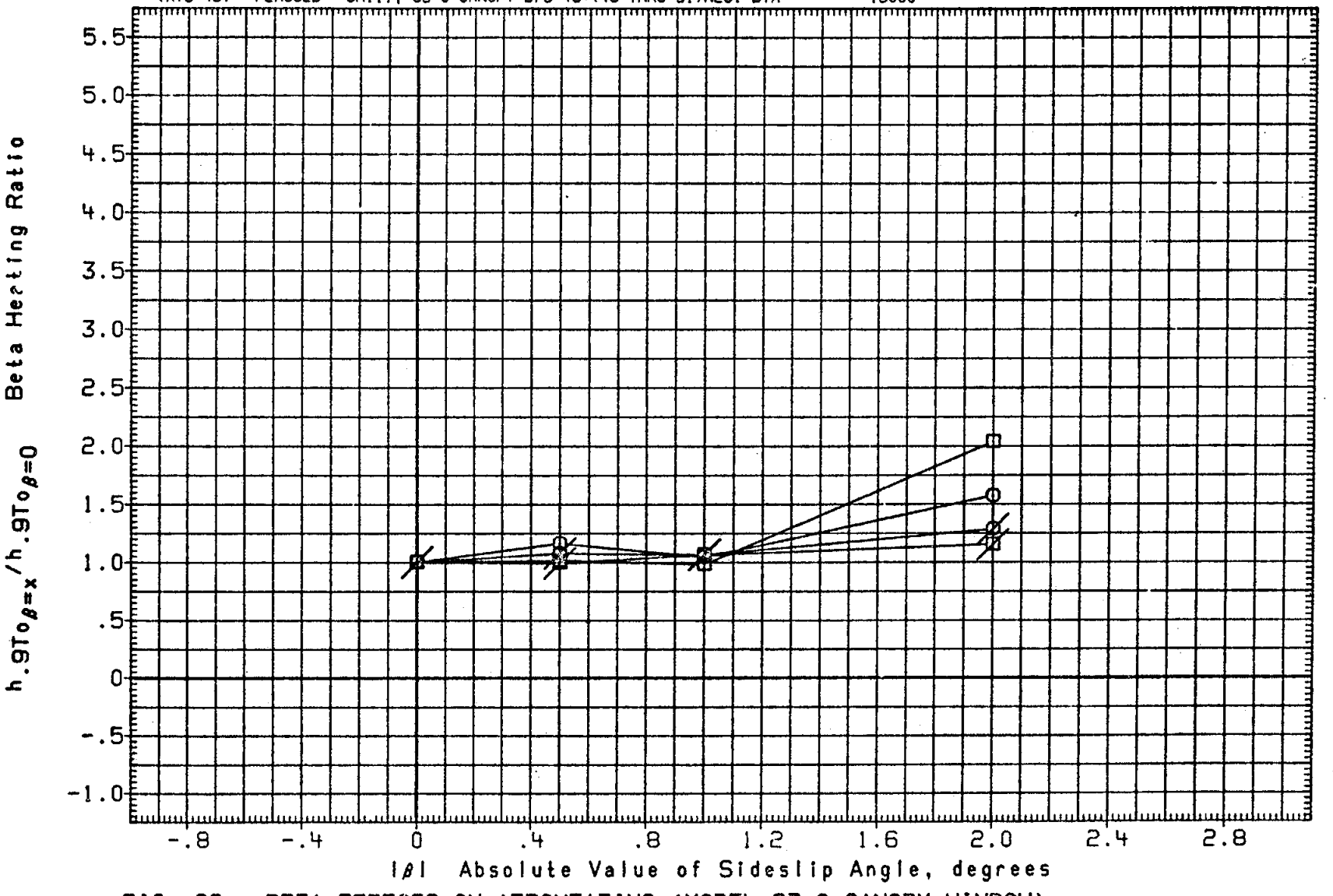

FIG. 26 BETA EFFECTS ON AEROHEATING (MODEL 83-O CANOPY WINDOW)
REYNOLDS NUMBER = 1.0

DATE 29 JAN 82