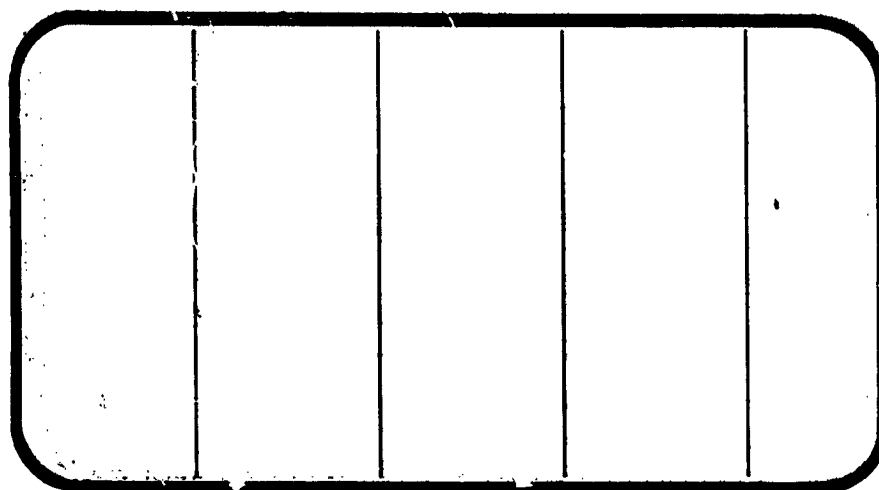




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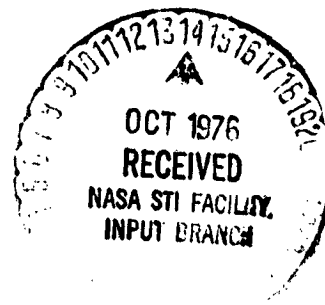
(NASA-CF-147615) HEAT TRANSFER TEST OF AN  
0.006-SCALE THIN-SKIN THERMOCOUPLE SPACE  
SHUTTLE MODEL (50-0, 41-T) IN THE NASA-AMES  
RESEARCH CENTER 3.5-FOOT HYPERSONIC WIND  
TUNNEL AT MACH 5.3 (IH28), VOLUME 1

N76-32230  
HC #21.25

G3/18      Unclass  
05280

**SPACE SHUTTLE**

**AEROTHERMODYNAMIC DATA REPORT**



**JOHNSON SPACE CENTER**

**HOUSTON, TEXAS**

**DATA Management services**

SPACE DIVISION



**CHRYSLER CORPORATION**

August, 1976

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NASA CR-147,615

VOLUME 1 OF 2

HEAT TRANSFER TEST OF AN 0.006-SCALE THIN-SKIN  
THERMOCOUPLE SPACE SHUTTLE MODEL (50-0, 41-T) IN  
THE NASA-AMES RESEARCH CENTER 3.5-FOOT HYPERSONIC  
WIND TUNNEL AT MACH 5.3 (IH28).

by

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Shuttle Aerosciences  
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W. K. Lockman  
NASA-Ames Research Center

Prepared Under Contract Number NAS9-13247

by

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Chrysler Corporation Space Division  
New Orleans, La. 70189

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



WIND TUNNEL TEST SPECIFICS:

Test Number: ARC 3.5-195  
NASA Series Number: IH28  
Model Number: 50-0, 41-T  
Test Dates: May 17 through May 24, 1974  
Occupancy Hours: 88

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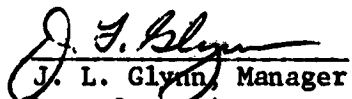
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HEAT TRANSFER TEST OF AN 0.006-SCALE THIN-SKIN  
THERMOCOUPLE SPACE SHUTTLE MODEL (50-0, 41-T) IN  
THE NASA-AMES RESEARCH CENTER 3.5-FOOT HYPERSONIC  
WIND TUNNEL AT MACH 5.3 (IH28)

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ABSTRACT

This report presents data obtained from a heat transfer test conducted on an 0.006-scale Space Shuttle Orbiter and External Tank in the NASA-Ames Research Center 3.5-foot Hypersonic Wind Tunnel. The purpose of this test was to obtain data under simulated return-to-launch-site abort conditions. Configurations tested were integrated orbiter and external tank, orbiter alone, and external tank alone at angles of attack of 0,  $\pm 30$ ,  $\pm 60$ ,  $\pm 90$ , and  $\pm 120$  degrees.

Runs were conducted at Mach numbers of 5.2 and 5.3 for Reynolds numbers of  $1.0 \times 10^6$  and  $4.0 \times 10^6$  per foot, respectively. Heat transfer data were obtained from 75 orbiter and 75 external tank iron-constantan thermocouples.

This report consists of 2 volumes. Volume 1 contains Figures 4-15; whereas, Volume 2 contains Figures 16-27 and the Tabulated Source Data.

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INDEX OF DATA FIGURES

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<b>VOLUME 1</b>				
4	TANK, ALONE	(A)	HAW/HT, PHI, ALPHA, RN/L, X/L, MACH	1-112
5	TANK, IN THE PRESENCE OF ORBITER	(A)	HAW/HT, PHI, ALPHA, RN/L, X/L, BETA, MACH	113-336
6	TANK, RATIO OF INTERFERENCE TO UNDISTURBED	(B)	PHI, ALPHA, X/L	337-373
7	ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE	(C)	HAW/HT, BP, ALPHA	374-395
8	ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK	(C)	HAW/HT, BP, ALPHA RN/L, BETA, MACH	396-427
9	ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED	(D)	BP, ALPHA	428-440
10	ORBITER BODY SIDEWALL, ORBITER ALONE	(E)	HAW/HT, Z, ALPHA, X/L	441-528
11	ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK	(E)	HAW/HT, Z, ALPHA RN/L, X/L, BETA, MACH	529-656
12	ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED	(F)	Z, ALPHA, X/L	657-690
13	OMS PODS, ORBITER ALONE	(E)	HAW/HT, X/L, ALPHA, Z	691-720
14	OMS PODS, ORBITER IN PRESENCE OF THE TANK	(E)	HAW/HT, X/L, ALPHA, RN/L, BETA, Z, MACH	721-768
15	OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED	(D)	Z, ALPHA	769-789

INDEX OF DATA FIGURES (Continued)

FIGURE NUMBER	TITLE	SCHEDULE OF COEFFICIENTS PLOTTED	CONDITIONS VARYING	PAGES
VOLUME 2 16	CHINE, ORBITER ALONE	(C)	HAW/HT, ALPHA	790-800
17	CHINE, ORBITER IN PRESENCE OF THE TANK	(C)	HAW/HT, ALPHA, RN/L, MACH	801-811
18	CHINE, RATIO OF INTERFERENCE TO UNDISTURBED	(D)	ALPHA	812-822
19	LEFT WING LOWER SURFACE, ORBITER ALONE	(G)	HAW/HT, 2Y/B, ALPHA	823-855
20	LEFT WING LOWER SURFACE, ORBITER IN PRESENCE OF TANK	(G)	HAW/HT, 2Y/B, ALPHA, RN/L, BETA, MACH	856-903
21	LEFT WING LOWER SURFACE, RATIO OF INTERFERENCE TO UNDISTURBED	(H)	2Y/B, ALPHA	904-918
22	RIGHT WING UPPER SURFACE, ORBITER ALONE	(I)	HAW/HT, 2Y/B, ALPHA, X/C	919-995
23	RIGHT WING UPPER SURFACE, ORBITER IN PRESENCE OF TANK	(I)	HAW/HT, 2Y/B, ALPHA, RN/L, BETA, X/C, MACH	996-1107
24	RIGHT WING UPPER SURFACE, RATIO OF INTERFERENCE TO UNDISTURBED	(J)	2Y/B, ALPHA, X/C	1108-1139
25	VERTICAL TAIL, ORBITER ALONE	(G)	HAW/HT, Z, ALPHA	1140-1161
26	VERTICAL TAIL, ORBITER IN PRESENCE OF TANK	(G)	HAW/HT, Z, ALPHA, RN/L, BETA, MACH	1162-1193
27	VERTICAL TAIL, RATIO OF INTERFERENCE TO UNDISTURBED	(H)	Z, ALPHA	1194-1206

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SCHEDULE OF COEFFICIENTS PLOTTED:

- (A) H/HREF versus X/L  
H/HREF versus PHI
- (B) HI/HU versus X/L  
HI/HU versus PHI
- (C) H/HREF versus X/L
- (D) HI/HU versus X/L
- (E) H/HREF versus X/L  
H/HREF versus Z
- (F) HI/HU versus X/L  
HI/HU versus Z
- (G) H/HREF versus X/C
- (H) HI/HU versus X/C
- (I) H/HREF versus X/C  
H/HREF versus  $2Y/B$
- (J) HI/HU versus X/C  
HI/HU versus  $2Y/B$

## NOMENCLATURE

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
b		thickness of model skin, in.
B	BREF	span length, in.
C		specific heat of model skin material, BTU/lb <sub>m</sub> -°R
c		chord length, in.
C <sub>0</sub> , C <sub>1</sub> , C <sub>2</sub>		constants in curve fit for C over model wall temperature range
c <sub>p</sub>		specific heat of air stream (perfect gas value), BTU/lb <sub>m</sub> -°R
CHAN	CHAN	Recording-system channel
H <sub>aw</sub>	HAW	adiabatic wall enthalpy, BTU/lb <sub>m</sub>
H <sub>t</sub>	HT	free-stream total enthalpy, BTU/lb <sub>m</sub>
	HO	average of free-stream total enthalpy values of all tunnel runs incorporated into an aero data-set, BTU/lb <sub>m</sub>
H <sub>w<sub>i</sub></sub>	HW	enthalpy based on model wall temperature for given T/C location at initial time, BTU/lb <sub>m</sub>
h	H	heat-transfer coefficient at model wall for given T/C location
h <sub>s</sub>	HS, HREF	stagnation-point heat-transfer coefficient for reference sphere
h/h <sub>s</sub>	H/HS, H/HREF	ratio of model heat-transfer coefficient to heat-transfer coefficient of reference sphere for H <sub>aw</sub> /H <sub>t</sub> = X.XXX
IML		inner mold line
L	LREF, LENGTH	model reference length, in. or ft.
M <sub>∞</sub>	MACH	free-stream Mach number
H <sub>w</sub>		enthalpy based on model wall temperature, BTU/lb <sub>m</sub>



NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$P_t$	PT	free-stream total pressure, psia
	PO	average of free-stream total pressure values of all tunnel runs incorporated into an aero dataset, psia
$\dot{q}_1$	QDOT,Q	heat-transfer rate at model wall for given T/C location at initial time, BTU/ft <sup>2</sup> -sec
$\dot{q}_s$	QS, QREF	stagnation-point heat-transfer rate for reference sphere at initial time, BTU/ft <sup>2</sup> -sec
$R_s$	RS	reference sphere radius at model scale equivalent to 0.305 m (1 ft) for full-scale vehicle
$Re_{\infty}/ft$	RE/FT	free-stream Reynolds number per foot
	RN/L	average of free-stream Reynolds number values (per foot) of all tunnel runs incorporated into an aero dataset
$Re_{\infty,L}$	REL	free-stream Reynolds number based on model reference length, L
	S/R	body wetted running length
St	ST	Stanton number based on free-stream flow conditions and the model heat-transfer coefficient for $H_{aw}/H_t = X.XXX$
T		temperature, °R
$T_t$	TT	free-stream total temperature, °R
	TO	average of free-stream total temperature values of all tunnel runs incorporated into an aero dataset, °R
$T_{w_1}$	TW	model wall temperature for given T/C location at initial time, °R

NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
T/C	T/C	thermocouple
t		time, sec
t <sub>1</sub>	TIME	initial time (before model insertion into flow) extrapolated from f(T <sub>w</sub> ) vs. time, sec
u, V		velocity, ft/sec
W		density of model skin material lb <sub>m</sub> /ft <sup>3</sup>
X		axial distance measured from nose, in.
	X/C	chordwise location, fraction of local chord
	X/L	longitudinal location, fraction of body length
Y		spanwise distance from centerline, in.
2y/B	2Y/B	spanwise location, fraction of semi-span
Z	Z	water plane distance, in.
	Z/BV	spanwise location on vertical tail, fraction of exposed span
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
μ		viscosity of air, lb-sec/ft <sup>2</sup>
ρ		density of air, lb <sub>m</sub> /ft <sup>3</sup>
θ	THETA	external tank angular surface coordinate, measured clockwise looking forward. 0 degrees at bottom centerline, degrees
φ	PHI	orbiter angular surface coordinate, measured clockwise looking forward. 0 degrees at bottom centerline, degrees

NOMENCLATURE (Concluded)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
W.P.		water plane, height measured along Z axis, in.
B.L.	BP	butt plane, distance from orbiter centerline in the outboard direction, in.
	HI/HU	ratio of interference to undisturbed heat transfer coefficients
	ZMRP	moment reference point on Z axis
	YMRP	moment reference point on Y axis
	XMRP	moment reference point on X axis
	SREF	reference length or wing mean aerodynamic chord; ft.

SUBSCRIPTS

aw	adiabatic wall
i	initial value before model insertion
O	Orbiter
PG	perfect gas (calorically and thermally perfect gas)
s	reference sphere
t	free-stream total condition
T	tank
V	vertical tail
W	wall
$\infty$	free-stream

## CONFIGURATIONS INVESTIGATED

The model (Orbiter and External Tank) tested was a 0.006-scale representation of the Rockwell International Space Shuttle Vehicle. The Orbiter and External Tank are defined by Rockwell lines SS-H-01414 and SS-H-01415.

The Orbiter and Tank were initially built by Grumman Aircraft, Bethpage, New York, but the Orbiter was modified with additional thermocouples added to the upper surface of the left wing, vertical tail, and OMS pod. Modifications of both Orbiter and External Tank stings were accomplished to carry increased loading within the high angle of attack range.

The Orbiter was a full span (cast stainless steel) model with thin-skin inserts. Thin-skin stainless steel (17-4PH) inserts were located on the underside region, left-hand wing (top and bottom), windshield area, left fuselage side, OMS pod, and vertical tail. These inserts were instrumented with 89 iron-constantan thermocouples of which only 75 were used during this test. The model was built with all control surfaces in the 0° deflection condition.

The External Tank was constructed of thin-skin (15-5PH) stainless steel. The Tank was instrumented with 111 iron-constantan thermocouples, of which only 75 were used.

The Orbiter and External Tank were designed so either could be tested alone or in the second stage configuration.

CONFIGURATIONS INVESTIGATED (Concluded)

The following configuration components were tested:

<u>Notation</u>	<u>Description</u>
B <sub>22</sub>	Fuselage (1-147B Lines)
C <sub>7</sub>	Canopy
F <sub>5</sub>	Body Flap
M <sub>4</sub>	OMS Pods
V <sub>7</sub>	Vertical Tail
W <sub>111</sub>	Wing
T <sub>8</sub>	External Tank (-139 Lines)

## MODEL INSTRUMENTATION

The Orbiter and External Tank were instrumented with 200 iron-constantan thermocouples, but only 150 were used for this test. All thermocouples were spotwelded to thin-skin (nominal skin thickness of 0.030 in.) stainless steel inserts and the leads were clamped in bundles within the model. The exact T/C locations for the Orbiter and External Tank are presented in Tables IV and V, respectively, and illustrated in Figures 2a and 2b, respectively. The T/C leads were 50 feet long and fitted with Cannon Plug connectors.

## TEST FACILITY DESCRIPTION

The NASA-Ames 3.5-foot Hypersonic Wind Tunnel is a closed-circuit, blowdown-type tunnel capable of operating at nominal Mach numbers of 5, 7, and 10 at pressures to 1800 psia and temperatures of 3400°R for run times to four minutes. The major components of the facility include a gas storage system where the test gas is stored at 3000 psi, a storage heater filled with aluminum-oxide pebbles capable of heating the test gas to 3400°R, axisymmetric contoured nozzles with exit diameters of 42 inches for generating the desired Mach number, and a 900,000 ft<sup>3</sup> vacuum storage system which operates to pressures of 0.3 psia. The test section itself is an open-jet type enclosed within a chamber approximately 12-feet in diameter and 40-feet in length, arranged transversally to the flow direction.

A model support system is provided that can pitch models through an angle-of-attack range of -20 to +20 degrees, in a vertical plane, about a fixed point of rotation on the tunnel centerline. This rotation point is adjustable from 1 to 5 feet from the nozzle exit plane. The model normally is out of the test stream (strut centerline 37 inches from tunnel centerline) until the tunnel test conditions are established after which it is inserted. Insertion time is adjustable to as little as  $\frac{1}{2}$  second and models may be inserted at any strut angle.

A high-speed, analog-to-digital data acquisition system is used to record test data on magnetic tape. The present system is equipped to measure and record the outputs from 80 transducers in addition to 20 channels of tunnel parameters.

## TEST PROCEDURE

Heat Transfer Data were obtained by measuring the temperature rise over a period of time from a total of 150 iron-constantan thermocouples. The model was injected into the flow in approximately 1 second and held on tunnel centerline for approximately 1 second. Temperature measurements and tunnel conditions were recorded on magnetic tape at 0.07-second intervals by the data acquisition system from the start of model injection to the start of model retraction.

A maximum of 75 thermocouples could be recorded for any given run. The thermocouple leads were routed from the model through the tunnel model-injection mechanism, and connected to a junction box which was wired directly to a thermocouple reference-temperature (150°F) box. The junction box connectors were wrapped with asbestos for heat protection from the tunnel test-chamber ambient conditions (no free-stream flow on box). Thermocouple changes were accomplished by changing 5 Cannon Plugs containing 15 thermocouples each. Prior to testing, a thermocouple heat-response check, through the data-acquisition system, was performed on all thermocouples to assure proper hook-up, polarity and response.

Prior to each run with model attitude changes, the model was leveled in pitch and roll by means of leveling blocks which attach to the sting assembly of the Orbiter/External Tank. When leveling the models, an inclinometer was placed on the leveling plate. Proper roll relationships between the models were set using scribed lines on the model stings.



## DATA REDUCTION

All test data were reduced at the NASA/Ames Research Center using the data-reduction techniques outlined below. The thermocouple data were reduced using the one-dimensional, thin-wall equation:

$$\dot{q} = Wcb \frac{dT_w}{dt} = h (N_{aw} - N_w) \equiv hN_t \left( \frac{N_{aw}}{N_t} - \frac{N_w}{N_t} \right) \quad (1)$$

which neglects heat-conduction losses.

Assuming that  $W$  and  $h$  are constant and

$$C = C_0 + C_1 T_w + C_2 T_w^2 \text{ for } T_w \text{ ranges} \quad (2)$$

the integration of equation (1) for  $t = t_1$  to  $t$  and  $T_w = T_{w1}$  to  $T_w$  yields the linear equation:

$$f(T_w) = -\ln \left( \frac{T_{aw}^i - T_w}{T_{aw}^i - T_{w1}} \right) - \left[ \frac{C_1}{C_{aw}^i} + \frac{C_2}{C_{aw}^i} \left( T_{aw}^i + \frac{T_w + T_{w1}}{2} \right) \right] (T_w - T_{w1}) \\ = \frac{hc_p}{WC_{aw}^i b} (t - t_1) \quad (3)$$

where it is defined that:

$$T_{aw}^i \equiv \frac{N_{aw}}{c_p} \equiv \frac{N_{aw}}{N_t} \frac{N_t}{c_p} \equiv (T_{aw})_{PG} \quad (4)$$

$$C_{aw}^i \equiv C_0 + C_1 T_{aw}^i + C_2 T_{aw}^i{}^2 \quad (5)$$

\* specific heat at adiabatic wall temperature

DATA REDUCTION (Continued)

The form of Eq (3) is  $f(T_w) = mt + a$  where  $m$  is the slope and  $a$  is the intercept for a straight line if heat-conduction errors are negligible. Thus, deviations from a straight line can indicate heat-conduction effects.

The slope,  $m$ , of  $f(T_w)$  vs  $t$  from Eq (3) is computed by a least-squares, straight-line fit over a finite time interval (approx. 1 sec) beginning when the model reaches uniform tunnel flow. The value of the heat-transfer coefficient,  $h$ , is then determined from:

$$h = \frac{WJ_{aw}^2 b}{c_p} m \quad (6)$$

Using this value of  $h$ , the heat-transfer rate is evaluated at the initial time,  $t_1$ , when the model is isothermal at the initial wall enthalpy,

$$\dot{q} = \dot{q}_1 = h (H_{aw} - H_{w1}) \equiv h H_t \left( \frac{H_{aw}}{H_t} - \frac{H_{w1}}{H_t} \right) \quad (7)$$

where  $H_{aw}/H_t$  is the same value used to evaluate  $h$ . The resultant value of  $\dot{q}$  is independent of the value of  $H_{aw}/H_t$  used for both the  $h$  and  $\dot{q}$  evaluations.

The reference sphere heating is also evaluated at the initial wall enthalpy by the method of Fay and Riddell

$$\dot{q}_s = h_s (H_t - H_{w1}) \equiv h_s H_t \left( 1.0 - \frac{H_{w1}}{H_t} \right) \quad (8)$$

The model-to-sphere ratio of heat-transfer coefficients is then determined from Eqs. (7) and (8) as

$$\frac{h}{h_s} = \frac{\dot{q}_1}{\dot{q}_s} \left[ \frac{1.0 - H_{w1}/H_t}{H_{aw}/H_t - H_{w1}/H_t} \right] \quad (9)$$

### DATA REDUCTION (Concluded)

where  $\dot{q}_1$  is constant for all values of  $H_{aw}/H_t$ .

To determine  $h/h_s$  for various values of  $H_{aw}/H_t$ , the particular value of  $H_{aw}/H_t$  is substituted into Eq. (9).

The Stanton number is defined as

$$St \equiv \frac{h}{\rho u} = \frac{\dot{q}_1}{\rho u (H_{aw} - H_{w1})} \quad (10)$$

where for free-stream conditions,  $\rho u = \rho_\infty V_\infty$ .

The calculations of the model heating, reference sphere heating, and Reynolds number included the corrections of NACA report 1135 (Ref. 3) for calorically imperfect, thermally perfect air. Keyes' equation for viscosity (Ref. 4) was also used for the sphere heating and Reynolds number computations:

$$\mu = \frac{0.0232 \times 10^{-6} T^{0.5}}{1 + \frac{220}{T} \times 10^{-9/T}} \quad (11)$$

where the units for  $T$  and  $\mu$  are  $^{\circ}R$  and  $lb\text{-sec}/ft^2$ , respectively.

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1. Walstad, D. G.: Pretest Information for Tests of an 0.006-Scale Thin-Skin Space Shuttle Heat Transfer Model (50-0, 41-T) in the Ames Research Center 3.5-foot HWT Wind Tunnel Test IH28. SD-74-SH-0135, March 27, 1974.
2. Fuy, J. A.; and Riddell, F. R.: Theory of Stagnation Point Heat Transfer in Dissociated Air. J. Aeron. Sci., Vol. 25, No. 1, February, 1958, pp 73-85.
3. Ames Research Staff: Equations, Tables, and Charts for Compressible Flow. NACA Rept. 1135. 1953.
4. Bertram, Mitchel H.: Comment on "Viscosity of Air." J. Spacecraft and Rockets, Vol. 4, No. 2, February, 1967, pp 287-288.





TABLE II. (Concluded)

TEST: IH28 (ARC 3.5-195)		DATA SET/RUN NUMBER COLLATION SUMMARY														DATE: JUNE, 1974																								
DATA SET IDENTIFIER	CONFIGURATION	SCHD. PARAMETERS/VALUES			NO. OF RUNS	MODEL THERMOCOUPLE HOOKUP		TEST RUN NUMBERS																																
		$\alpha$	$\beta$	$M_{\infty}$		T <sub>1</sub>	O <sub>1</sub>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	IDVAR (1)	IDVAR (2)	NDV
REV018	T <sub>1</sub>	90	0	1.0	5.3	1																																		
19	O <sub>1</sub>	0	0	1.0	5.2																																			
20		30																																						
21		60																																						
22		90																																						
23		120																																						
24		120																																						
25		90																																						
26		60																																						
27		30																																						
TYPE OF DATA																																								

COEFFICIENT SCHEDULES  
 O<sub>1</sub> - ORBITER THERMOCOUPLE HOOKUP (CONS T-SET 100)  
 T<sub>1</sub> - TANK THERMOCOUPLE HOOKUP (CONS T-SET 200)

The 4th character of the dataset identifier describes the T/C location.  
 A - underside fuselage C - OMS pods F - wing lower surface  
 T - external tank D - chine G - wing upper surface  
 B - body sidewall E - canopy H - vertical tail

TABLE III  
MODEL DIMENSIONAL DATA

MODEL COMPONENT: BODY - B22

GENERAL DESCRIPTION: Fuselage, Configuration 3A per Rockwell Lines  
VL70-000147B.

NOTE: Identical to B19, except underside.

Model Scale = 0.006

DRAWING NUMBER: VL70-000147B

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length - in	<u>1290.3</u>	<u>7.742</u>
Max. Width - in	<u>267.6</u>	<u>1.606</u>
Max. Depth - in	<u>244.5</u>	<u>1.467</u>
Fineness Ratio	<u>4.84601</u>	<u>4.84601</u>
Area - Ft <sup>2</sup>		
Max. Cross-Sectional	<u>386.67</u>	<u>0.0139</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>



TABLE II<sub>1</sub> (Continued)  
 MODEL DIMENSIONAL DATA

MODEL COMPONENT: Canopy - C7

GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines VL70-000139

Model Scale = 0.006

DRAWING NUMBER VL70-000139

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length ( $X_0 = .433$ to $X_0 = 670$ ) - in. FS	<u>237</u>	<u>1.422</u>
Max Width	<u>                    </u>	<u>                    </u>
Max Depth ( $Z_0 =$ to $Z_0 = 501$ ) - in FS	<u>                    </u>	<u>                    </u>
Fineness Ratio	<u>                    </u>	<u>                    </u>
Area		
Max Cross-Sectional	<u>                    </u>	<u>                    </u>
Planform	<u>                    </u>	<u>                    </u>
Wetted	<u>                    </u>	<u>                    </u>
Base	<u>                    </u>	<u>                    </u>

TABLE III (Continued)  
MODEL DIMENSIONAL DATA

MODEL COMPONENT: F5 Body Flap

GENERAL DESCRIPTION: 3 Configuration per Rockwell Lines VL70-000139

\_\_\_\_\_

\_\_\_\_\_

Scale Model = 0.006

DRAWING NUMBER

VL70-000139

DIMENSION:

FULL SCALE

MODEL SCALE

Length - in

84.70

.508

Max Width - in

267.6

1.606

Max Depth

\_\_\_\_\_

\_\_\_\_\_

Fineness Ratio

\_\_\_\_\_

\_\_\_\_\_

Area - Ft<sup>2</sup>

\_\_\_\_\_

\_\_\_\_\_

Max Cross-Sectional

\_\_\_\_\_

\_\_\_\_\_

Platform

142.5

.005

Wetted

\_\_\_\_\_

\_\_\_\_\_

Base

38.0958

.0014

TABLE III (Continued)  
MODEL DIMENSIONAL DATA

MODEL COMPONENT: O/S Pod - M<sub>4</sub>

GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines VL70-000139

NOTE: M<sub>4</sub> identical to M<sub>3</sub>, except intersection to fuselage.

Model Scale = 0.006

DRAWING NUMBER

VL70-000139

DIMENSION:

FULL SCALE

MODEL SCALE

Length - IN

346.0

2.076

Max Width - IN

108.0

.648

Max Depth - IN

113.0

.678

Fineness Ratio

Area - FT<sup>2</sup>

Max Cross-Sectional

Planform

Wetted

Base

TABLE III (Continued)  
MODEL DIMENSIONAL DATA

MODEL COMPONENT: T8 - EXTERNAL TANK

GENERAL DESCRIPTION: 2A Configuration per Rockwell Lines:

VL73-000018 and VL72-000061 "C" Body of Revolution

Scale Model = 0.006

DRAWING NUMBER

VL73-000018

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length - In. (Nose @ $X_T = 309$ )	<u>186.50</u>	<u>1.119</u>
Max Width (Dia) - In.	<u>324.0</u>	<u>1.944</u>
Max Depth	<u>          </u>	<u>          </u>
Fineness Ratio L/D	<u>6.1389</u>	<u>6.1389</u>
Area - Ft. <sup>2</sup>		
Max Cross-Sectional	<u>572.56</u>	<u>0.02061</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>
WP of tank centerline, ( $Z_T$ ) In.	<u>400.0</u>	<u>2.400</u>

TABLE III (Continued)  
MODEL DIMENSIONAL DATA

MODEL COMPONENT: VERTICAL - V7

GENERAL DESCRIPTION: Centerline Vertical Tail, Doublewedge Airfoil

with Rounded Leading Edge

NOTE: Same as V5, but with manipulator housing removed.

Model Scale = 0.006

DRAWING NUMBER:

VL70-000139

DIMENSIONS:

FULL-SCALE

MODEL SCALE

TOTAL DATA

Area (Theo) Ft <sup>2</sup>	<u>425.92</u>	<u>0.0153</u>
Planform		
Span (Theo) In	<u>315.72</u>	<u>1.894</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep Back Angles, degrees		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>26.249</u>	<u>26.249</u>
0.25 Element Line	<u>41.130</u>	<u>41.130</u>
Chords:		
Root (Theo) WP	<u>268.50</u>	<u>1.611</u>
Tip (Theo) WP	<u>108.47</u>	<u>0.651</u>
MAC	<u>199.81</u>	<u>1.199</u>
Fus. Sta. of .25 MAC	<u>1463.50</u>	<u>8.781</u>
W. P. of .25 MAC	<u>635.522</u>	<u>3.813</u>
B. L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle    Deg	<u>10.000</u>	<u>10.000</u>
Trailing Wedge Angle   Deg	<u>14.920</u>	<u>14.920</u>
Leading Edge Radius	<u>2.0</u>	<u>2.0</u>
Void Area	<u>13.17</u>	<u>0.0005</u>
Blanketed Area	<u>0.00</u>	<u>0.00</u>

TABLE III (Concluded)  
MODEL DIMENSIONAL DATA

MODEL COMPONENT: WING-W 111

GENERAL DESCRIPTION: Configuration 3A per Rockwell Lines VL70-000147B.

NOTE: Identical to W107, except lowered 3.5" and increased cuff incidence.

Model Scale = 0.006

TEST NO.	DWG. NO. VL70-000147B	
DIMENSIONS:	FULL-SCALE	MODEL SCALE
<b>TOTAL DATA</b>		
Area (Theo.) Ft <sup>2</sup>		
Planform	2690.00	0.0968
Span (Theo) In.	936.68	5.620
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Dihedral Angle, degrees (@ T.E. of Elevon)	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	-10.24	-10.24
0.25 Element Line	35.209	35.209
<b>Chords:</b>		
Root (Theo) B.P.O.O.	689.24	4.135
Tip, (Theo) B.P.	137.85	0.827
MAC	474.81	2.49
Fus. Sta. of .25 MAC	1136.89	6.821
W.P. of .25 MAC	295.70	1.774
B.L. of .25 MAC	182.13	1.093
<b>EXPOSED DATA</b>		
Area (Theo) Ft <sup>2</sup>	1752.29	0.063
Span, (Theo) In. BP108	720.68	4.324
Aspect Ratio	2.058	2.058
Taper Ratio	0.2451	0.2451
<b>Chords</b>		
Root BP108	562.40	3.374
Tip 1.00 $\frac{b}{2}$	137.85	0.827
MAC	393.03	2.358
Fus. Sta. of .25 MAC	1185.31	7.112
W.P. of .25 MAC	296.70	1.780
B.L. of .25 MAC	251.76	1.511
<b>Airfoil Section (Rockwell Mod NASA) XXXX-64</b>		
Root $\frac{b}{2}$ = @ Y <sub>0</sub> 199 to NACA 0010	0.10	0.10
Tip $\frac{b}{2}$ =	0.12	0.12
<b>Data for (1) of (2) Sides</b>		
Leading Edge Cuff		
Planform Area Ft <sup>2</sup>	118.333	0.0043
Leading Edge Intersects Fus M. L. @ Sta	500.0	3.000
Leading Edge Intersects Wing @ Sta	1083.5	6.501

TABLE IV ORBITER THERMOCOUPLE LOCATIONS

T/C No.	Skin Thick	LOCATION					T/C No.	Skin Thick	LOCATION				
		x/l	x/c	y	b/2	z			x/l	x/c	y	b/2	z
1	.035	.025					35	.035	.60				
2		.050					36	.034	.70				
3		.075					37	.032	.70				
4	.034	.10					38	.035	.70				
5	.033	.125					39		.825				
6		.150					40		.825			OMS PODS	
7	.034	.175	UNDERSIDE				41		.825				
8		.20	FUSELAGE $\phi$				42		.90				
9	.035	.25	BP = 0.0				43		.90				
10		.30					44		.90				
11	.034	.40					45	.035	.10				
12	.035	.50					46		.15			CHINE	
13		.65					47		.20				
14		.80					48		.17			CANOPY	
15	.036	.95					49*		.425			MID FUSE	
16	.030	.35					50	.031		.05			40%
17	.027	.40	UNDERSIDE				51	.030		.10			40%
18		.50	FUSELAGE				52*	.030		.20			40%
19 *		.60	BP = 117.0				53	.029		.30			40%
20		.70					54*	.028	WING	.40			40%
21 *	.028	.80					55		LWR	.50			40%
22	.031	.90					56*			.60			40%
23 *	.036	1.00					57			.70			40%
24	.034	.30					58*	.029		.80			40%
25	.033	.30					59			.90			40%
26	.034	.30	BODY				60	.034		.10			60%
27	.035	.40	SIDEWALL				61	.032		.20			60%
28	.034	.40					62*	.031		.30			60%
29	.035	.40					63*	.030	WING	.40			60%
30		.50					64*		LWR	.50			60%
31	.034	.50					65			.60			60%
32	.035	.50					66*			.70			60%
33		.60					67*			.80			60%
34	.033	.60					68			.90			60%

TABLE IV ORBITER THERMOCOUPLE LOCATIONS (Concluded)

T/C No.	Skin Thick.	LOCATION					T/C No.	Skin Thick.	LOCATION											
		x/l	x/c	y	b/2	z			x/l	x/c	y	b/2	z							
69	.034	↑	.20		80%															
70		WING	.40		80%															
71 *		LWR	.60		80%															
72	.035	↑	.80		80%															
73	.035	↑	.20		40%															
74	.034	WING	.40		40%															
75	.035	UP	.60		40%															
76	.037	↑	.80		40%															
77	.034	↑	.20		40%															
78	.030	WING	.40		60%															
79	.030	↑	.60		60%															
80	.031	↑	.80		60%															
81	.027	↑	.20		80%															
82	.028	WING	.40		80%															
83	.028	UP	.60		80%															
84	.028	↑	.80		80%															
85	.039	↑	.25			3.57														
86	.040	VERT	.50			3.57														
87	.037	↑	.75			3.57														
88	.033	VERT	.35			4.42														
89	.034	↑	.6			4.42														
* Data were not obtained at these T/C locations.																				



TABLE V EXTERNAL TANK THERMOCOUPLE LOCATIONS

T/C NO.	SKIN THICK.	LOCATION		T/C NO.	SKIN THICK.	LOCATION		T/C NO.	SKIN THICK.	LOCATION	
		X/1	Φ DEG.			X/1	Φ DEG.			X/1	Φ DEG.
1	0.037	0	NOSE	34	0.032	0.40	135	67	0.030	0.60	45
2	0.030	0.005	180	35	0.033	0.40	112.5	68	0.030	0.60	0
3	0.030	0.010		36	0.033	0.40	90	69 *	0.033	0.625	180
4	0.030	0.020		37	0.030	0.40	67.5	70	0.033	0.65	180
5	0.030	0.04		38	0.029	0.40	45	71	0.032	0.65	157.5
6	0.030	0.06		39	0.031	0.40	0	72	0.031	0.65	135
7	0.029	0.08		40	0.032	0.425	180	73	0.030	0.65	112.5
8	0.029	0.10		41	0.032	0.45	180	74 *	0.030	0.65	90
9	0.028	0.125		42	0.033	0.45	157.5	75 *	0.030	0.65	67.5
10	0.028	0.15		43	0.031	0.45	135	76 *	0.033	0.675	180
11	0.028	0.175		44	0.031	0.45	112.5	77	0.033	0.70	180
12	0.028	0.20	180	45 *	0.031	0.45	90	78	0.032	0.70	157.5
13	0.028	0.20	90	46	0.033	0.475	180	79	0.032	0.70	135
14 *	0.032	0.25	180	47	0.033	0.50	180	80 *	0.031	0.70	112.5
15 *	0.029	0.25	90	48	0.033	0.50	157.5	81	0.030	0.70	90
16 *	0.030	0.275	112.5	49	0.032	0.50	135	82 *	0.031	0.70	67.5
17 *	0.030	0.275	90	50	0.033	0.50	112.5	83 *	0.029	0.70	45
18	0.034	0.30	180	51	0.031	0.50	90	84	0.033	0.75	180
19 *	0.031	0.30	112.5	52 *	0.031	0.50	67.5	85	0.033	0.75	157.5
20 *	0.031	0.30	90	53 *	0.030	0.50	45	86	0.032	0.75	135
21 *	0.030	0.30	67.5	54	0.032	0.525	180	87 *	0.031	0.75	112.5
22 *	0.031	0.325	135	55	0.032	0.55	180	88 *	0.031	0.75	90
23 *	0.031	0.325	112.5	56	0.033	0.55	157.5	89 *	0.030	0.75	67.5
24 *	0.031	0.325	90	57	0.031	0.55	135	90	0.033	0.80	180
25	0.032	0.35	180	58	0.031	0.55	112.5	91	0.033	0.80	157.5
26	0.032	0.35	135	59 *	0.031	0.55	90	92	0.032	0.80	135
27	0.031	0.35	112.5	60	0.032	0.575	180	93 *	0.032	0.80	112.5
28	0.031	0.35	90	61	0.032	0.60	180	94	0.031	0.80	90
29 *	0.031	0.35	67.5	62	0.033	0.60	157.5	95 *	0.030	0.80	67.5
30	0.034	0.375	180	63	0.031	0.60	135	96 *	0.029	0.80	45
31	0.032	0.375	135	64	0.031	0.60	112.5	97 *	0.030	0.80	0
32	0.033	0.40	180	65	0.031	0.60	90	98	0.033	0.85	180
33	0.032	0.40	157.5	66	0.031	0.60	67.5	99	0.032	0.85	157.5
								100	0.032	0.85	135
								101 *	0.030	0.85	112.5
								102 *	0.030	0.85	90
								103	0.030	0.90	180
								104	0.033	0.90	157.5
								105	0.032	0.90	135
								106 *	0.032	0.90	112.5
								107	0.031	0.90	90
								108 *	0.030	0.90	67.5
								109 *	0.029	0.90	45
								110 *	0.033	0.935	180
								111 *	0.033	0.974	180

\* Data were not obtained at these T/C locations.

TABLE VI  
 RUN NUMBER/TUNNEL CONDITION SUMMARY

Run No.	Config $O_1 + T_1$	$\alpha_m$ , deg.	$\alpha$ strut, deg.	$\beta$	Const Set**	$M_\infty$	$Re_\infty$ /ft $\times 10^{-6}$	Nominal***		
								Pt psia	Tt OR	1500
1		0	0	0	100	5.22	1.0	100		
2		0	0		200					
3		30	-10.0		200					
4		60	20.0		200					
5		60	20.0		100		4.0	410		
6		60	20.0		100	5.3	1.0	100		
7		30	-10.0		100	5.22		100		
8		*	*	-5	100			100		
9		*	*	-5	200			100		
10		30	-10.0	0	200	5.3	4.0	410		
11		30	-10.0		100		4.0	410		
12		60	20.0		200		4.0	410		
13		-60	-20.0		200	5.22	1.0	100		
14		-60	-20.0		100					
15		-30	10.0		100					
16		-30	10.0		200					
17		90	-10.0		200					
18		90	-10.0		100					
19		120	20.0		100					
20		120	20.0		200					
21		-120	20.0		200					
22		-120	20.0		100					
23		-90	-10.0		100					
24		-90	-10.0		200					
25		-90	-10.0		100					
26		-120	20.0		100					

\*  $\alpha_m = 30^\circ 22' 32''$ ,  $\alpha$  strut =  $-9^\circ 37' 28''$

\*\* 100 - Orbiter T/Cs; 200 - External Tank T/Cs

\*\*\* Actual test values are given in the Appendix

TABLE VI  
 RUN NUMBER/TUNNEL, CONDITION SUMMARY (Concluded)

Run No.	Config	$\alpha$ π, deg.	$\alpha$ strut, deg.	$\beta$	Const Set**	$M_\infty$	Nominal***		
							$Re_\infty$ / ft $\times 10^{-6}$	$P_t$ psia	$T_t$ OR
27	O1	120	20.0	0	100	5.22	1.0	100	1500
28	↓	90	-10.0	↓	100	↓	↓	↓	↓
29	↓	-60	-20.0	↓	100	↓	↓	↓	↓
30	↓	-30	10.0	↓	100	↓	↓	↓	↓
31	T1	-30	10.0	↓	200	↓	↓	↓	↓
32	↓	-60	-20.0	↓	200	↓	↓	↓	↓
33	↓	0	0	↓	200	↓	↓	↓	↓
34	O1	0	0	↓	100	↓	↓	↓	↓
35	↓	30	-10.0	↓	100	↓	↓	↓	↓
36	↓	60	20.0	↓	100	↓	↓	↓	↓
37	T1	-90	-10.0	↓	200	↓	↓	↓	↓
38	↓	-120	20.0	↓	200	↓	↓	↓	↓
39	↓	-90	-10.0	↓	200	5.3	4.0	410	↓

\*\* 100 - Orbiter T/Cs; 200 - External Tank T/Cs

\*\*\* Actual test values are given in the Appendix

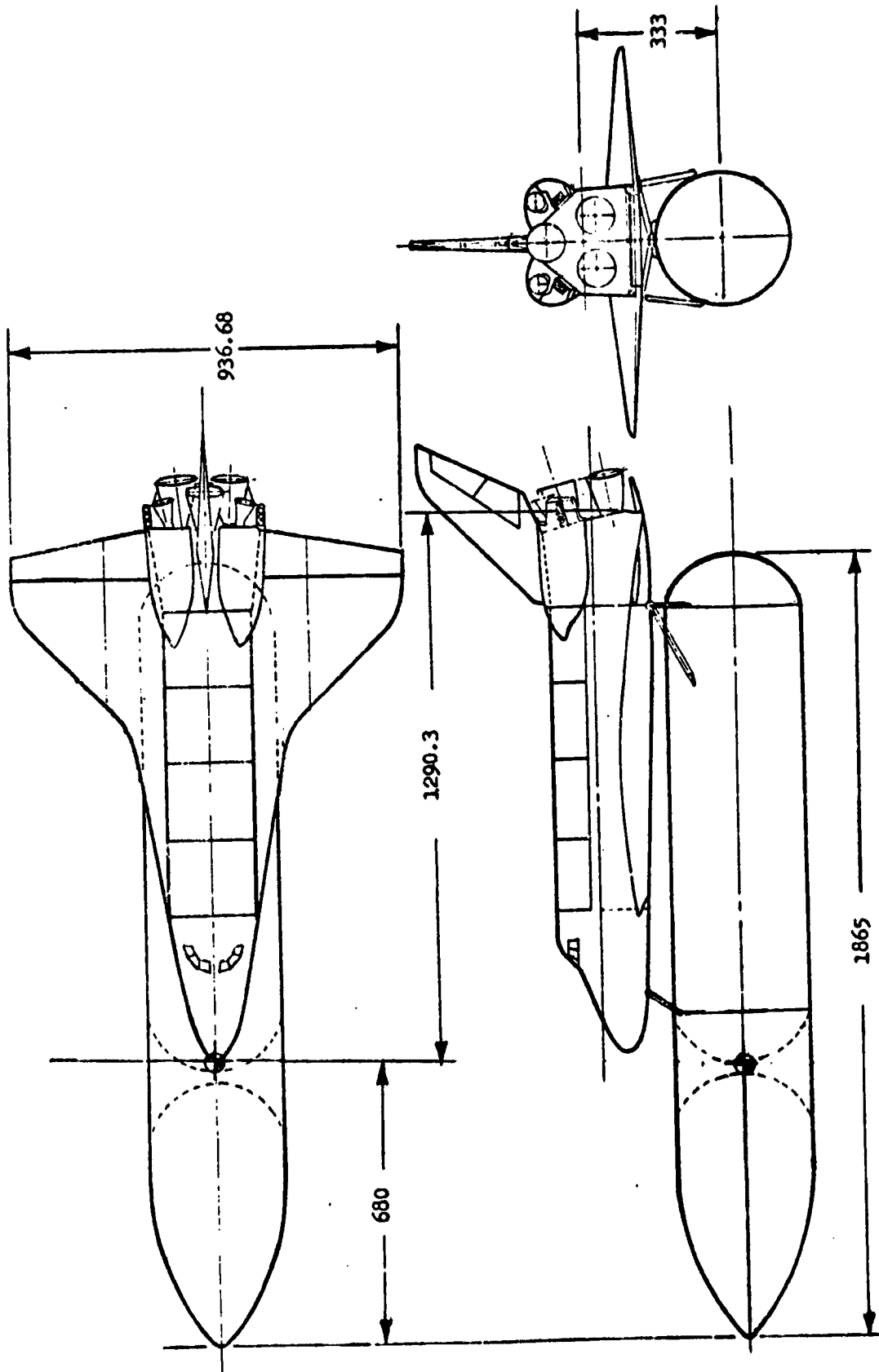
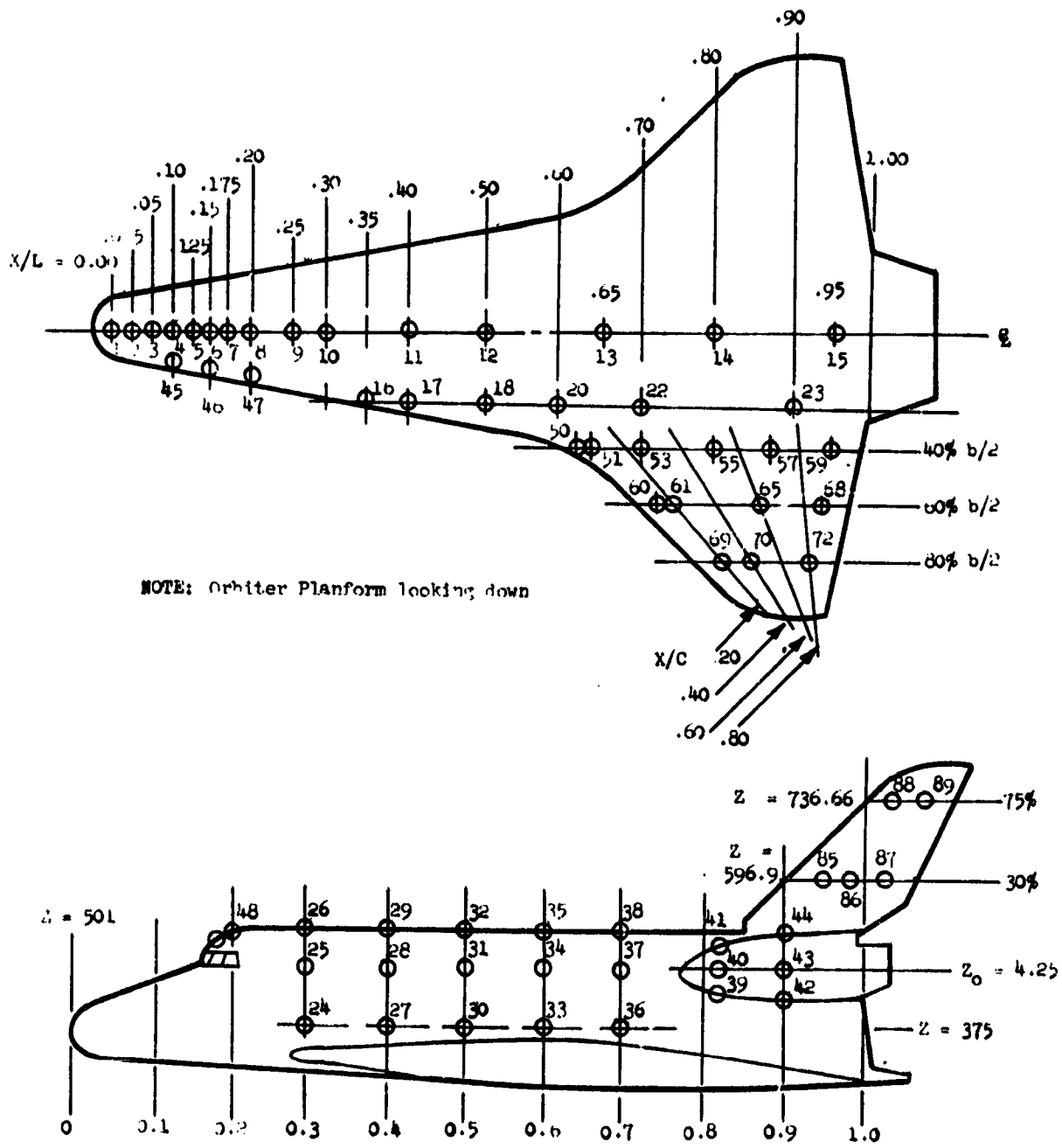


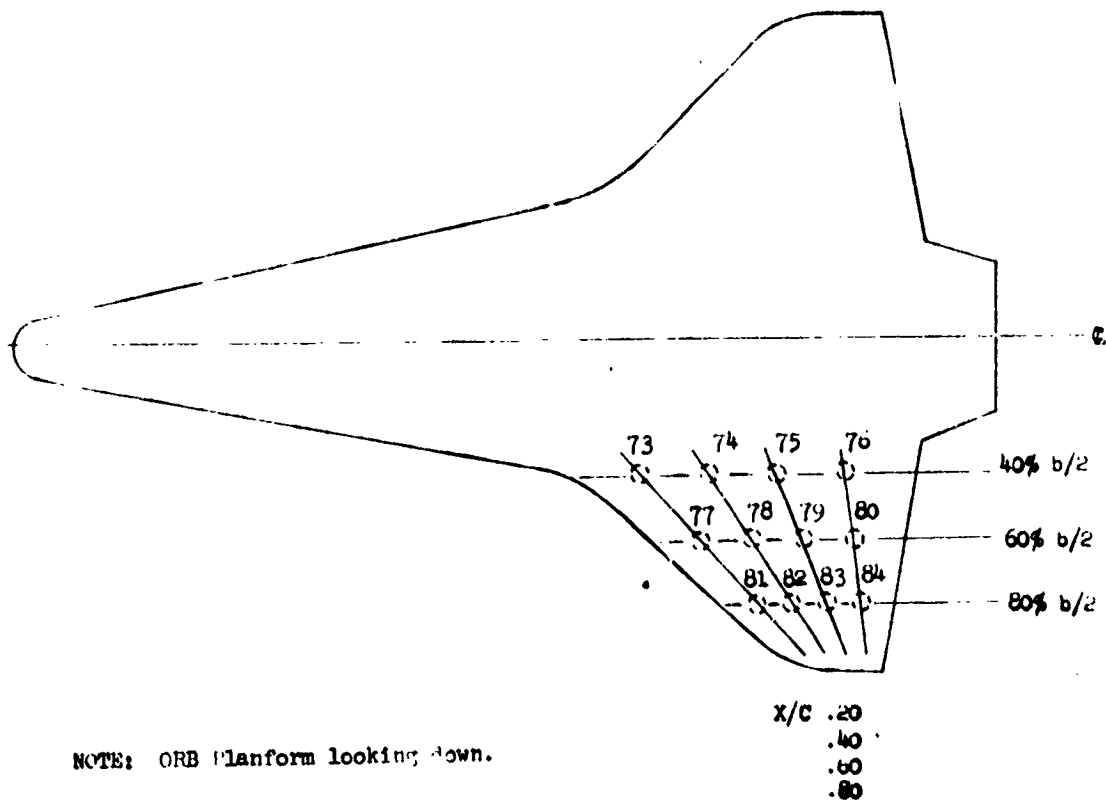
Figure 1. Orbiter/External Tank General Layout



NOTE: Orbiter Planform looking down

a. 50-0 Orbiter -- 147-B Configuration Thermocouple Locations  
Figure 2. Model Instrumentation Sketches

Upper Surface (Left Wing) Instrumentation



NOTE: ORB Planform looking down.

a. 50-0 Orbiter -- 147-B Configuration Thermocouple Locations  
Figure 2. Model Instrumentation Sketches (Concluded).

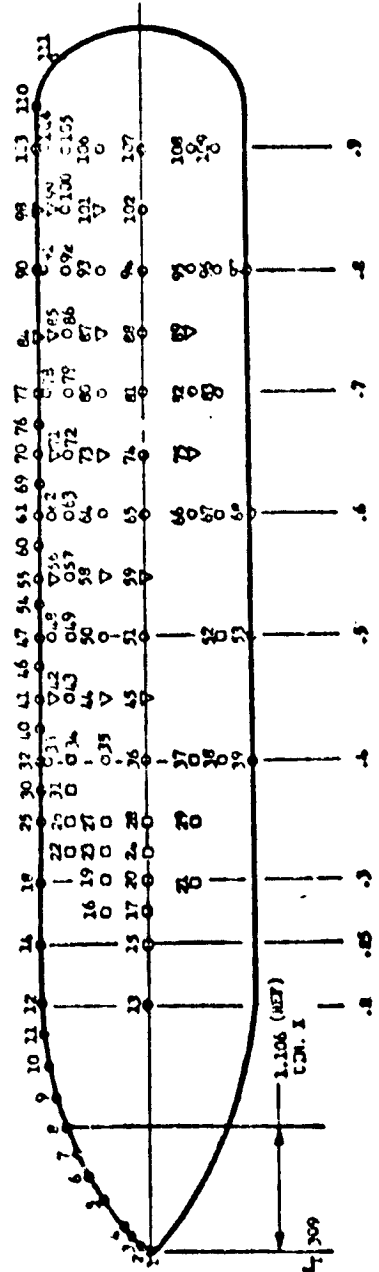
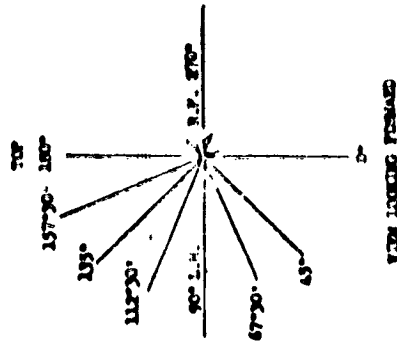
T/C NO.	DEM. I	φ
1	0	180°
2	1.055	180°
3	2.110	180°
4	3.165	180°
5	4.220	180°
6	5.275	180°
7	6.330	180°
8	7.385	180°
9	8.440	180°
10	9.495	180°
11	10.550	180°
12	11.605	180°
13	12.660	180°
14	13.715	180°
15	14.770	180°
16	15.825	180°
17	16.880	180°
18	17.935	180°
19	18.990	180°
20	20.045	180°
21	21.100	180°
22	22.155	180°
23	23.210	180°
24	24.265	180°
25	25.320	180°

T/C NO.	DEM. I	φ
26	3.871	135°
27	4.926	135°
28	5.981	135°
29	7.036	135°
30	8.091	135°
31	9.146	135°
32	10.201	135°
33	11.256	135°
34	12.311	135°
35	13.366	135°
36	14.421	135°
37	15.476	135°
38	16.531	135°
39	17.586	135°
40	18.641	135°
41	19.696	135°
42	20.751	135°
43	21.806	135°
44	22.861	135°
45	23.916	135°
46	24.971	135°
47	26.026	135°
48	27.081	135°
49	28.136	135°
50	29.191	135°

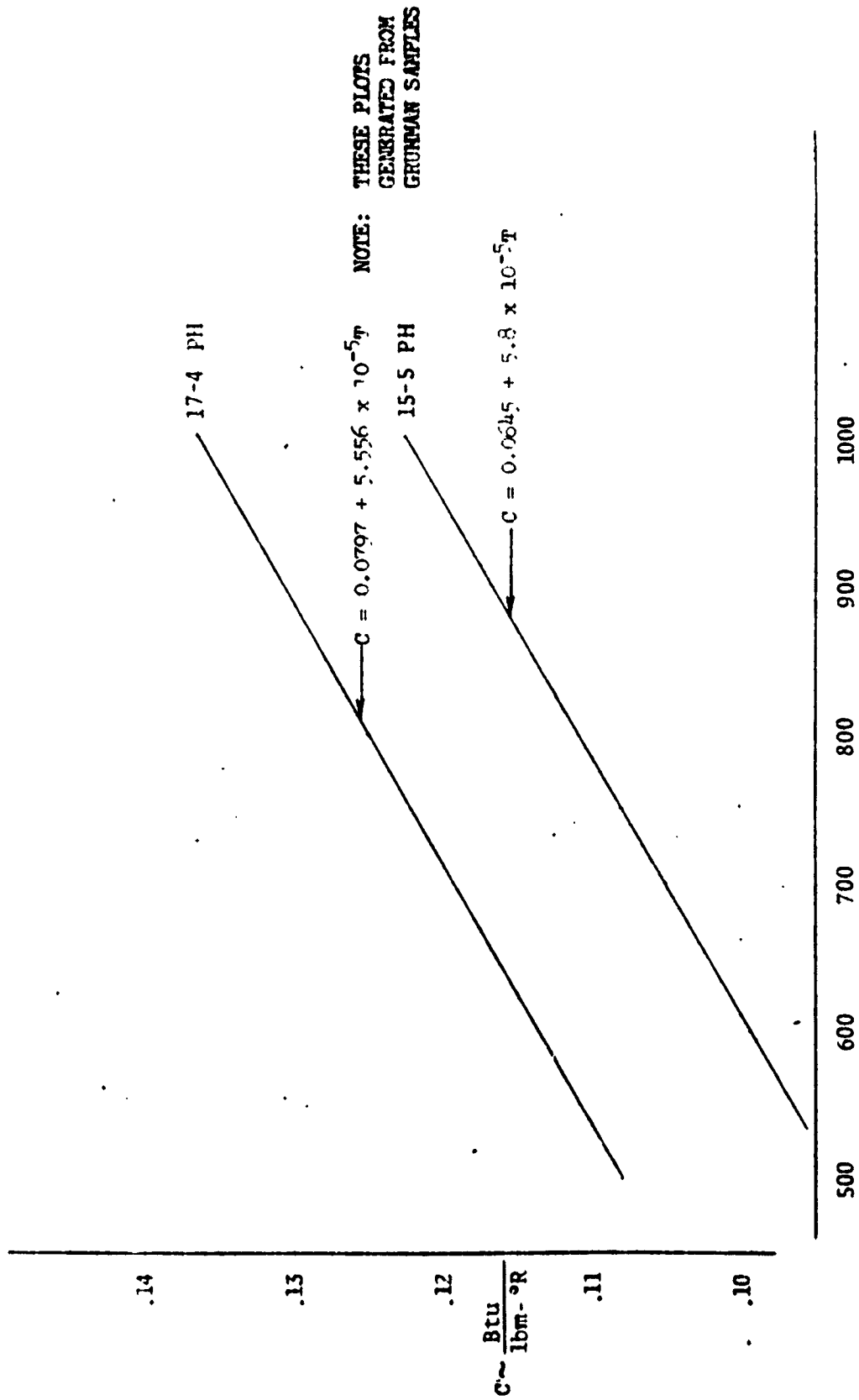
T/C NO.	DEM. I	φ
51	5.530	90°
52	6.585	90°
53	7.640	90°
54	8.695	90°
55	9.750	90°
56	10.805	90°
57	11.860	90°
58	12.915	90°
59	13.970	90°
60	15.025	90°
61	16.080	90°
62	17.135	90°
63	18.190	90°
64	19.245	90°
65	20.300	90°
66	21.355	90°
67	22.410	90°
68	23.465	90°
69	24.520	90°
70	25.575	90°
71	26.630	90°
72	27.685	90°
73	28.740	90°
74	29.795	90°
75	30.850	90°

T/C NO.	DEM. I	φ
76	7.445	45°
77	8.500	45°
78	9.555	45°
79	10.610	45°
80	11.665	45°
81	12.720	45°
82	13.775	45°
83	14.830	45°
84	15.885	45°
85	16.940	45°
86	17.995	45°
87	19.050	45°
88	20.105	45°
89	21.160	45°
90	22.215	45°
91	23.270	45°
92	24.325	45°
93	25.380	45°
94	26.435	45°
95	27.490	45°
96	28.545	45°
97	29.600	45°
98	30.655	45°
99	31.710	45°
100	32.765	45°

T/C NO.	DEM. I	φ
101	34.880	0°
102	35.935	0°
103	36.990	0°
104	38.045	0°
105	39.100	0°
106	40.155	0°
107	41.210	0°
108	42.265	0°
109	43.320	0°
110	44.375	0°
111	45.430	0°
112	46.485	0°
113	47.540	0°
114	48.595	0°
115	49.650	0°
116	50.705	0°
117	51.760	0°
118	52.815	0°
119	53.870	0°
120	54.925	0°

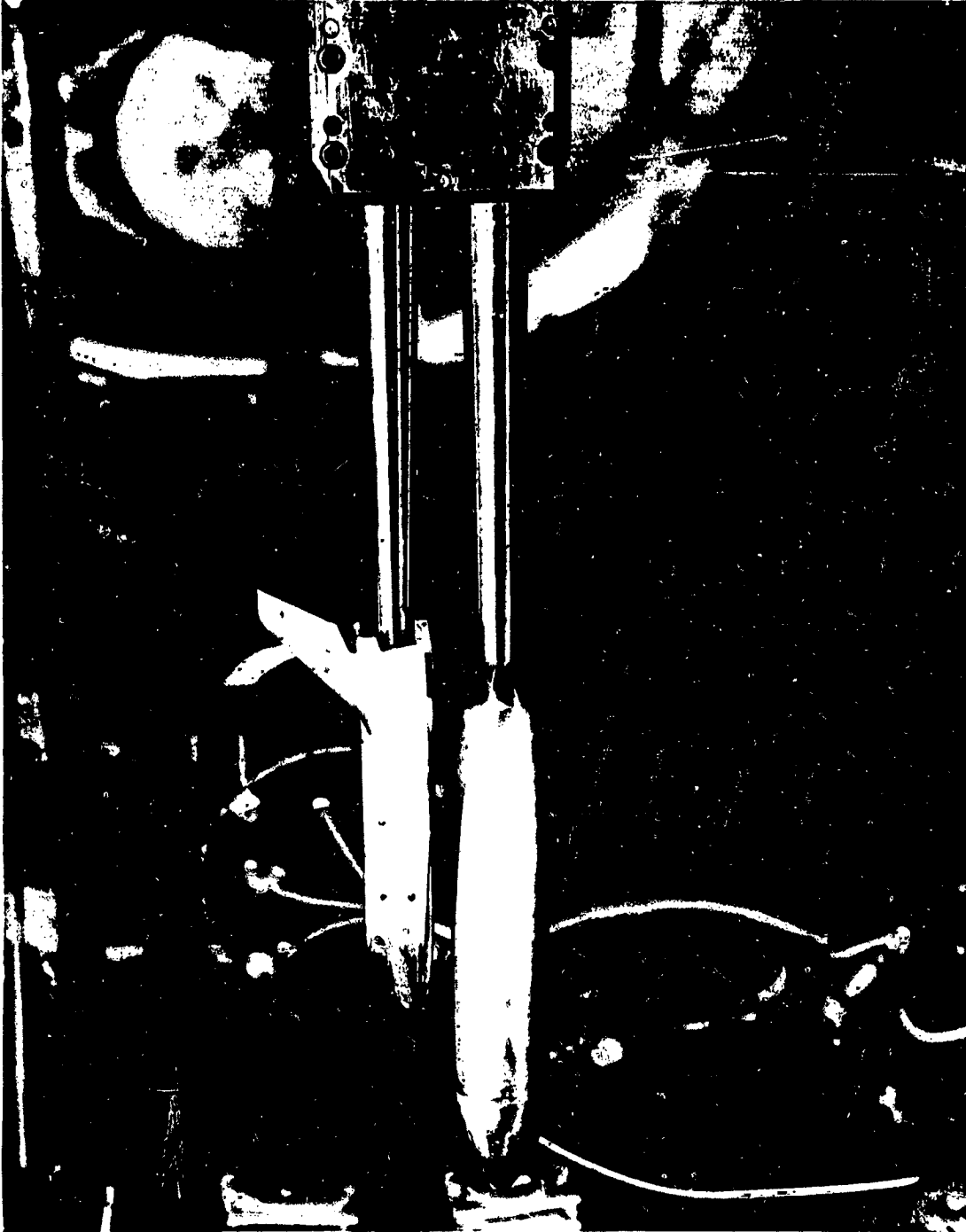


b. 41-T 0.00c-scale External Tank T/C Locations  
 Figure 2. Model Instrumentation Sketches

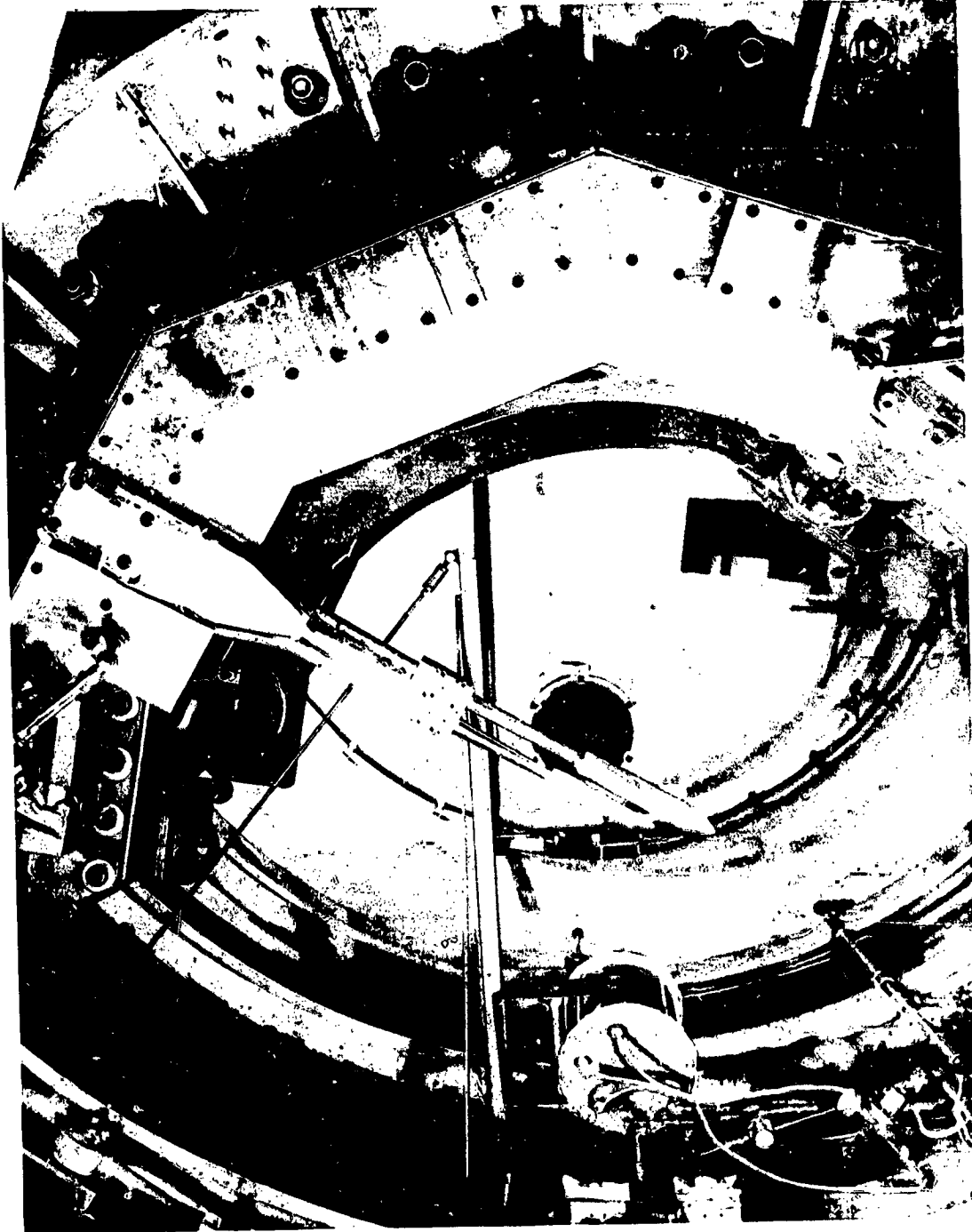


c. Specific Heat vs. Temperature for 17-4PH and 15-5PH stainless steel  
Figure 2. Model Instrumentation Sketches

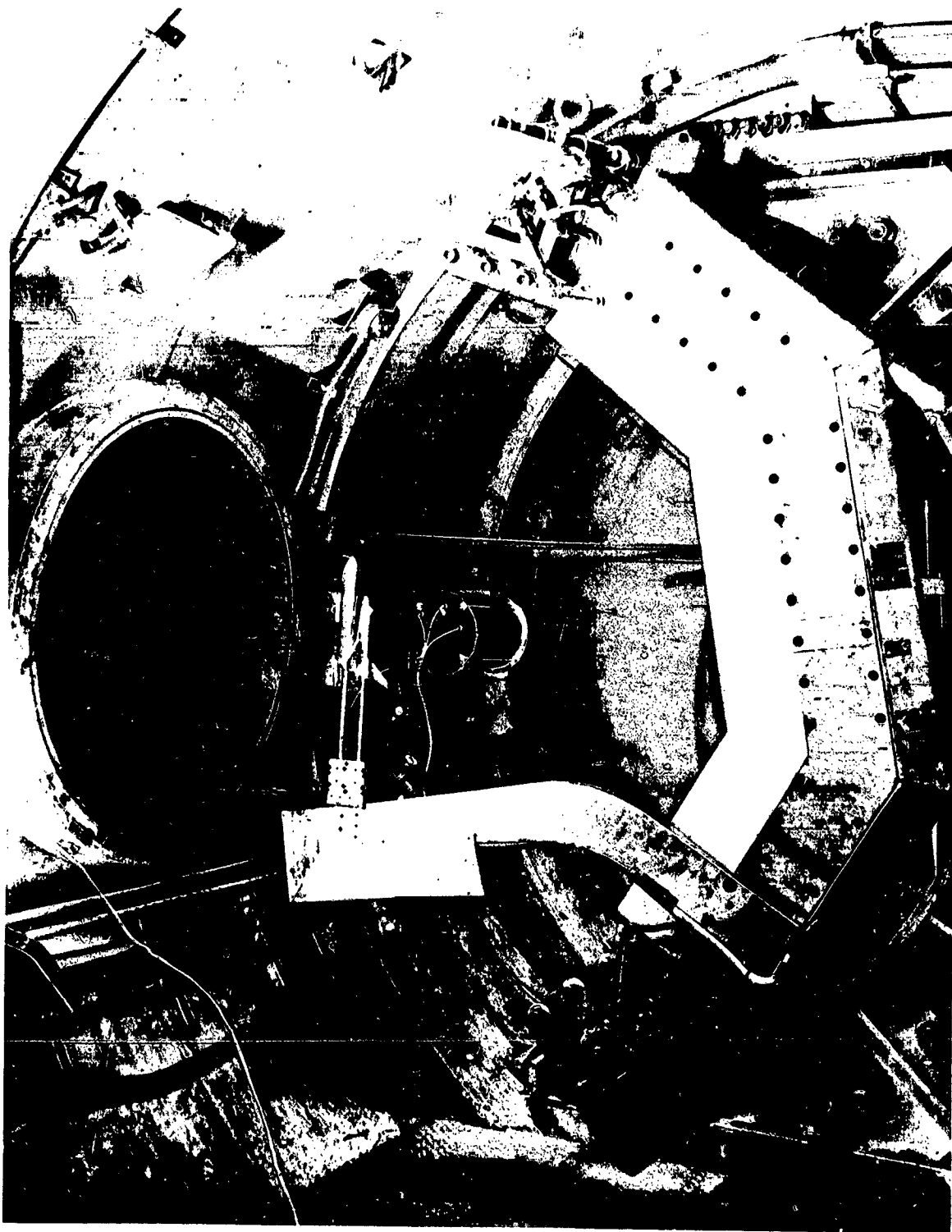




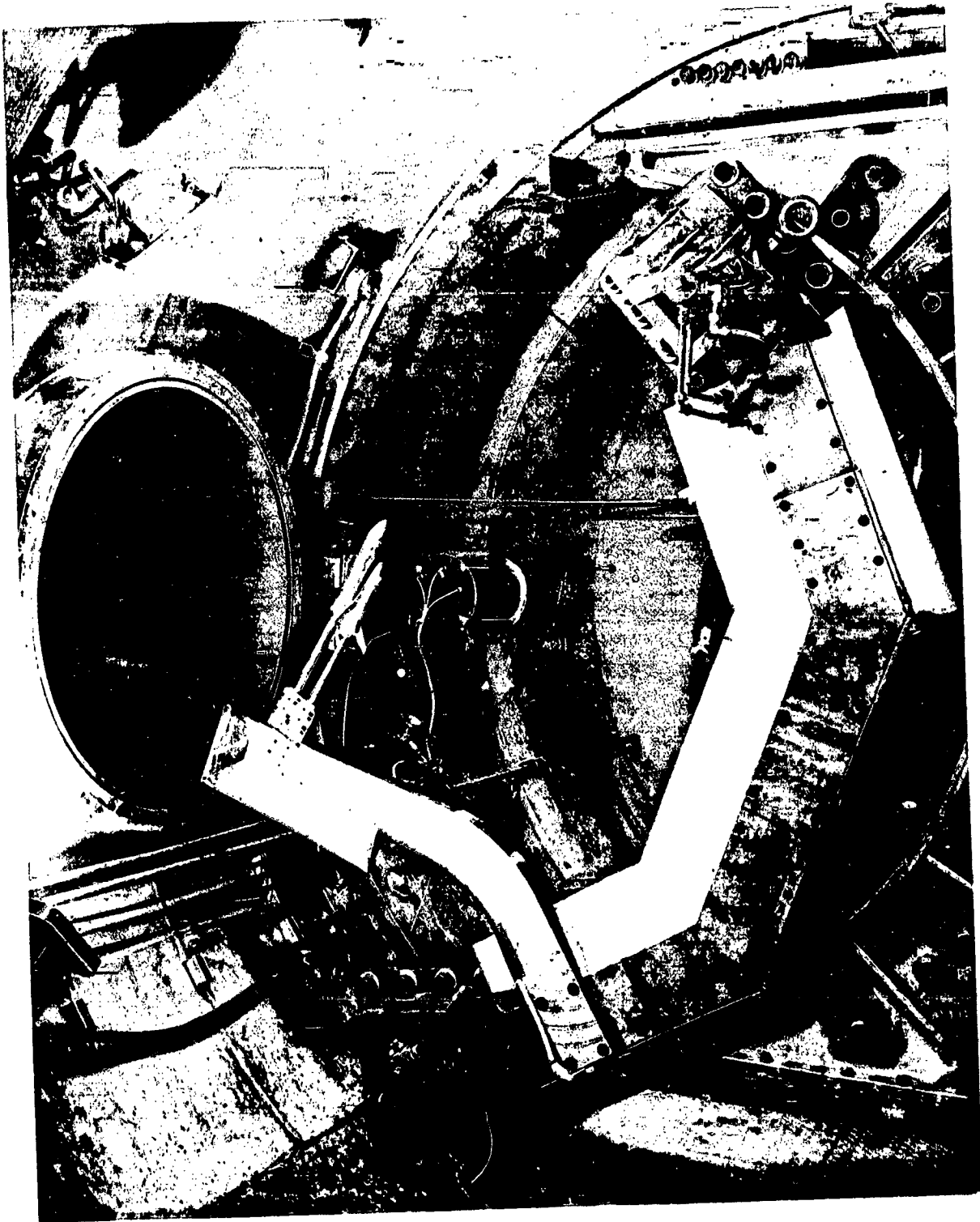
a. Orbiter/Tank at 0.0 degrees  
Figure 3. Model Installation Photographs



b. Orbiter/Tank at -60.0 degrees  
Figure 3. Model Installation Photographs



c. Orbiter/Tank at 90.0 degrees  
Figure 3. Model Installation Photographs



d. Orbiter/Tank at 120.0 degrees  
Figure 3. Model Installation Photographs

DATA FIGURES

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(REV T13)

EXTERNAL TANK

AMES 3.5-:95 :H28 T1

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
PV/L 1.000

SYMBOL HAN/HT P/HI MACH  
◇◇◇ .850 20.000 5.220  
◇◇◇ .900  
◇◇◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

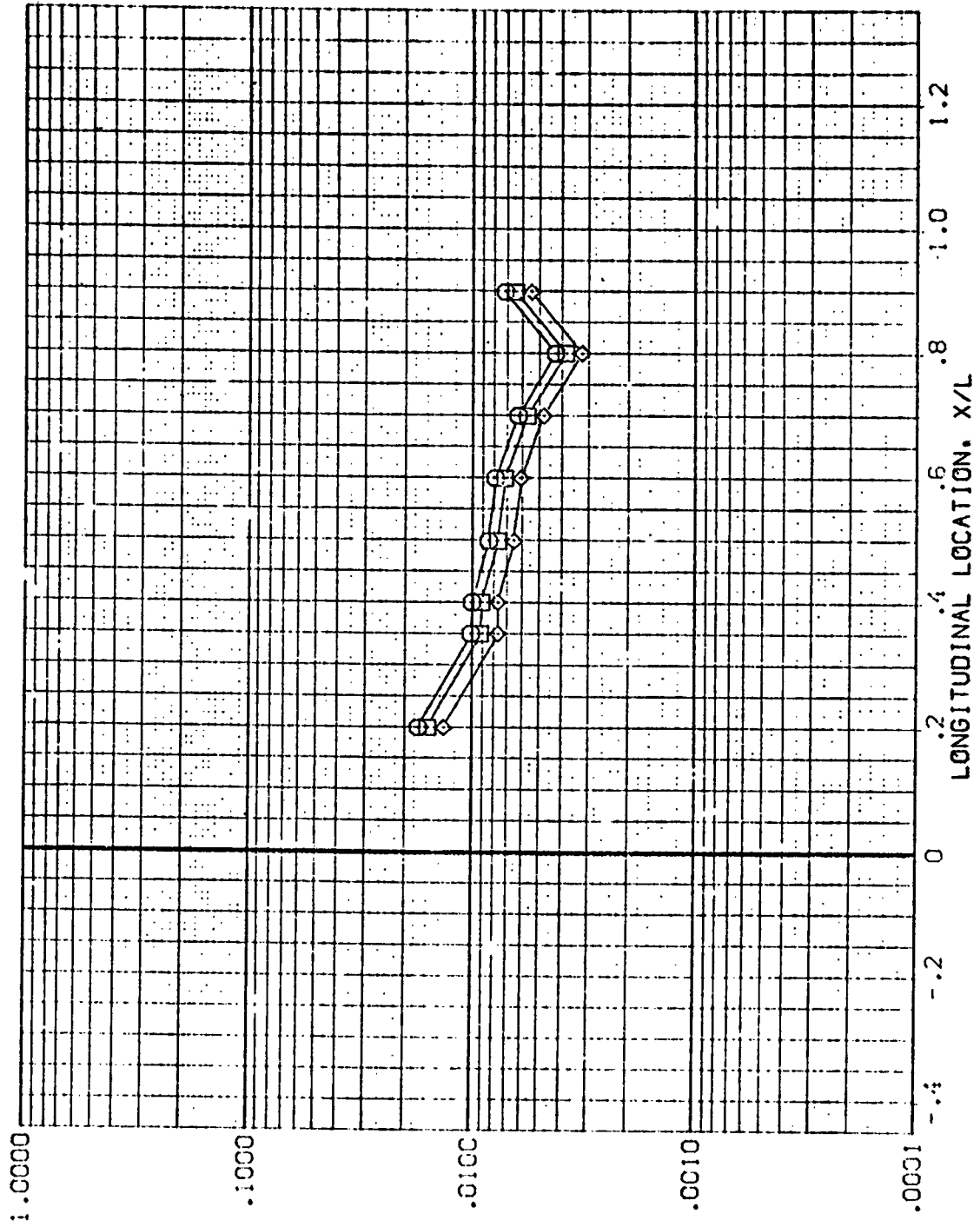


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV113)

SYMBOL	HA/WHT	PHI	MACH	PARAMETRIC VALUES
□	.850	112.500	5.220	ALPHA
◇	.500			RN/L
	1.000			.000
				BETA
				1.000
				.000

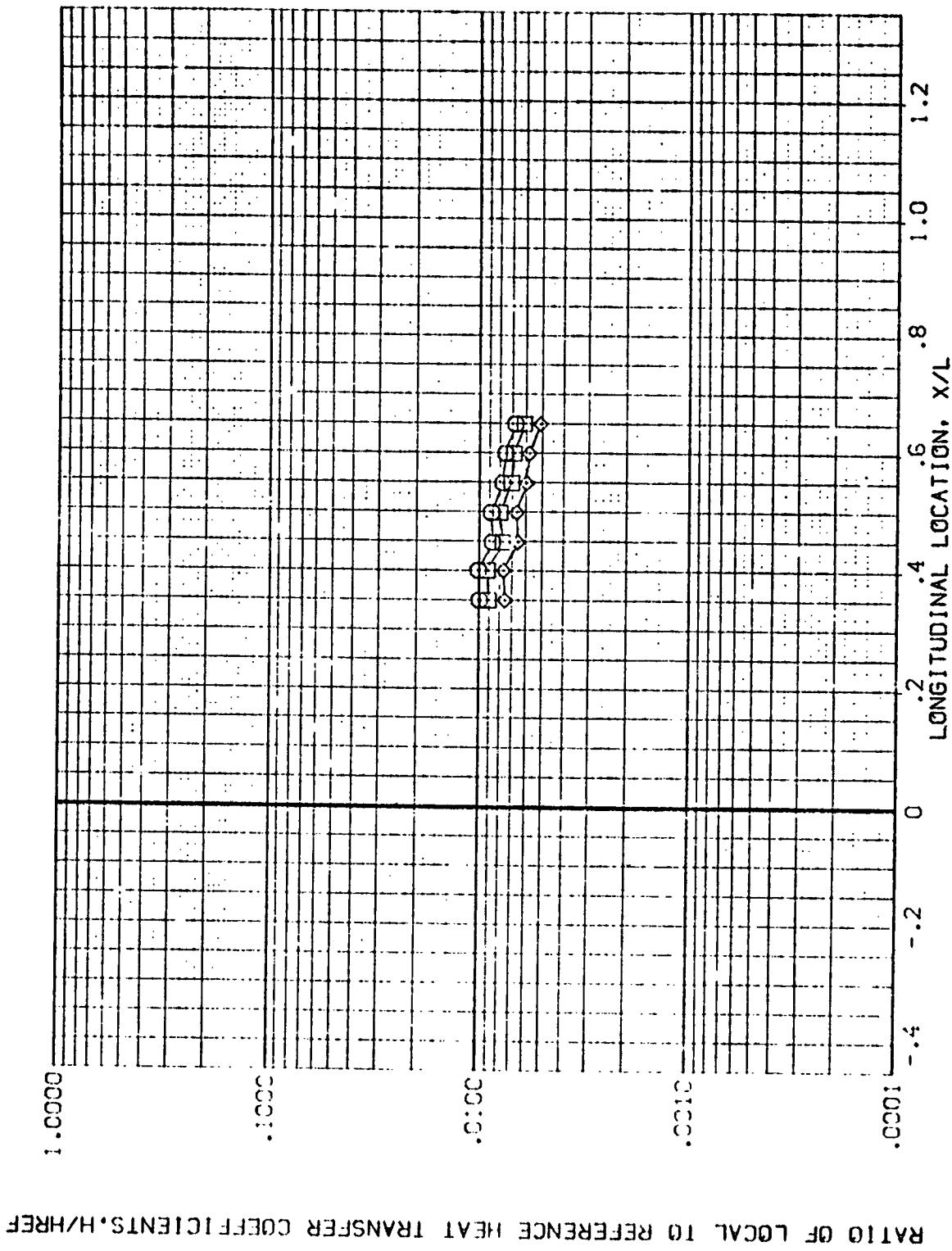


FIG. 4 TANK, ALONE

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(REV T13)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 FNVL .000

SYSC. HAMB/T P=I MACH  
 .650 135.000 5.220  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

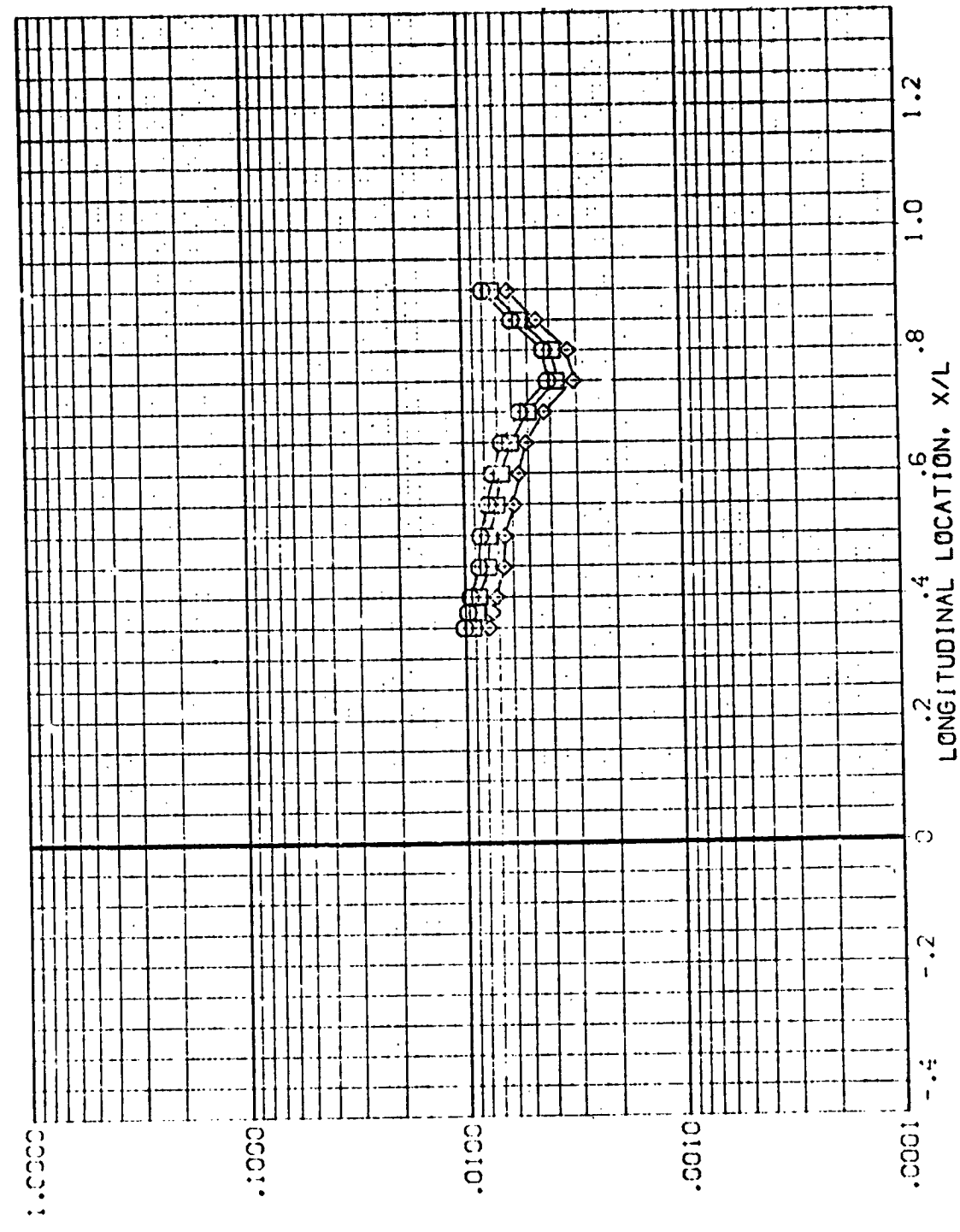


FIG. 4 TANK, ALONE



(REV113)

EXTERNAL TANK

AVES 3.5-.95 IH28 T1

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
RN/L 1.000

SYMBOL HAW/HT PH; MACH  
◇ .85C 157.500 5.220  
□ .95C  
◇ 1.00C

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

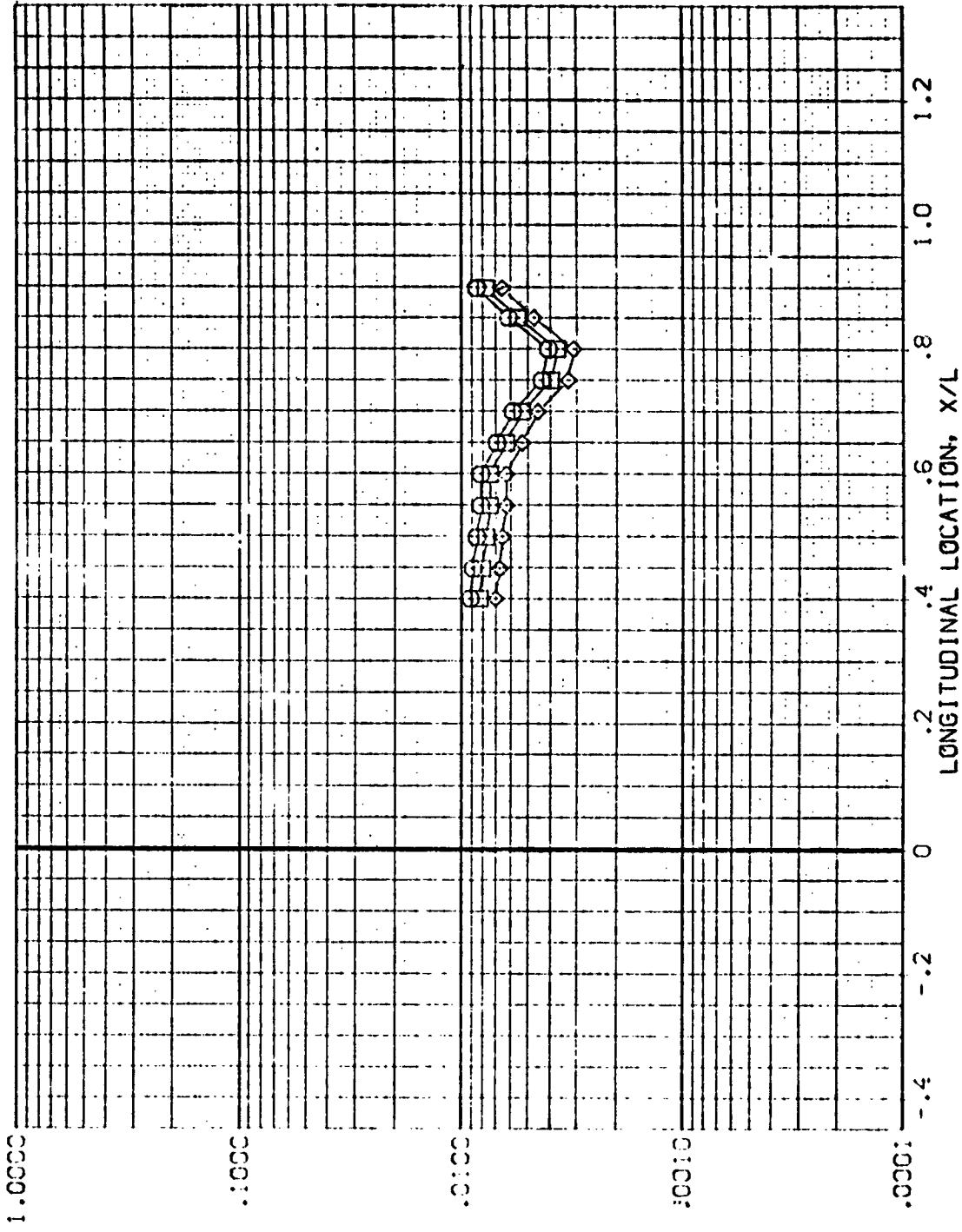


FIG. 4 TANK, ALONE

(REV T13)

EXTERNAL TANK

AYES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA .000  
RN/L 1.000  
BETA .000

SYNTH  
HAM/HT .800  
P-1 190.000  
MACH 5.220  
.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

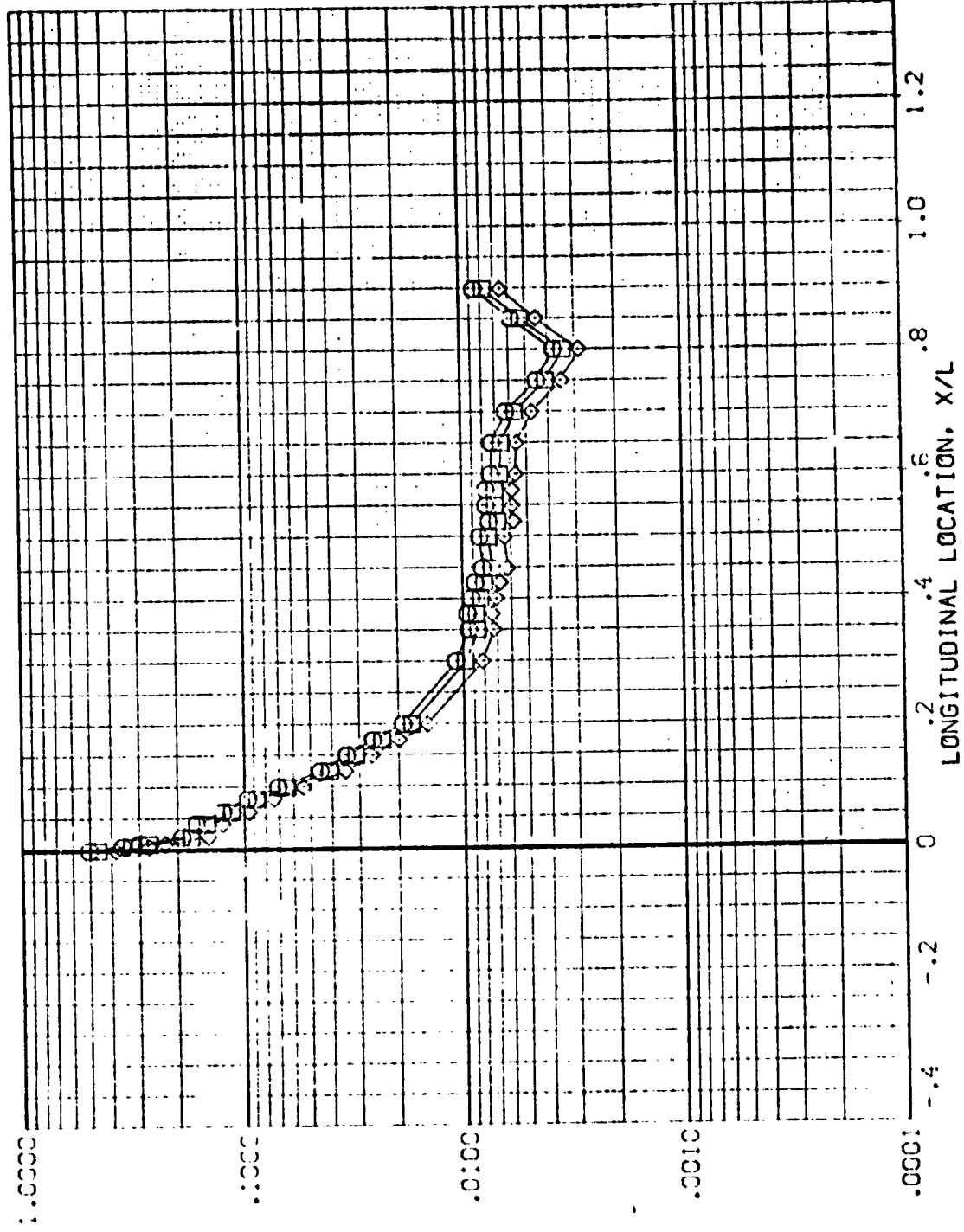


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV114)

SYMBOL	WAVELENGTH	PHASE	SPEED	PARAMETER VALUES
◇	.850	90.000	5.220	A <sub>1</sub> = -90.000
	.900			BETA = 1.000
	1.000			RW/L = 1.000

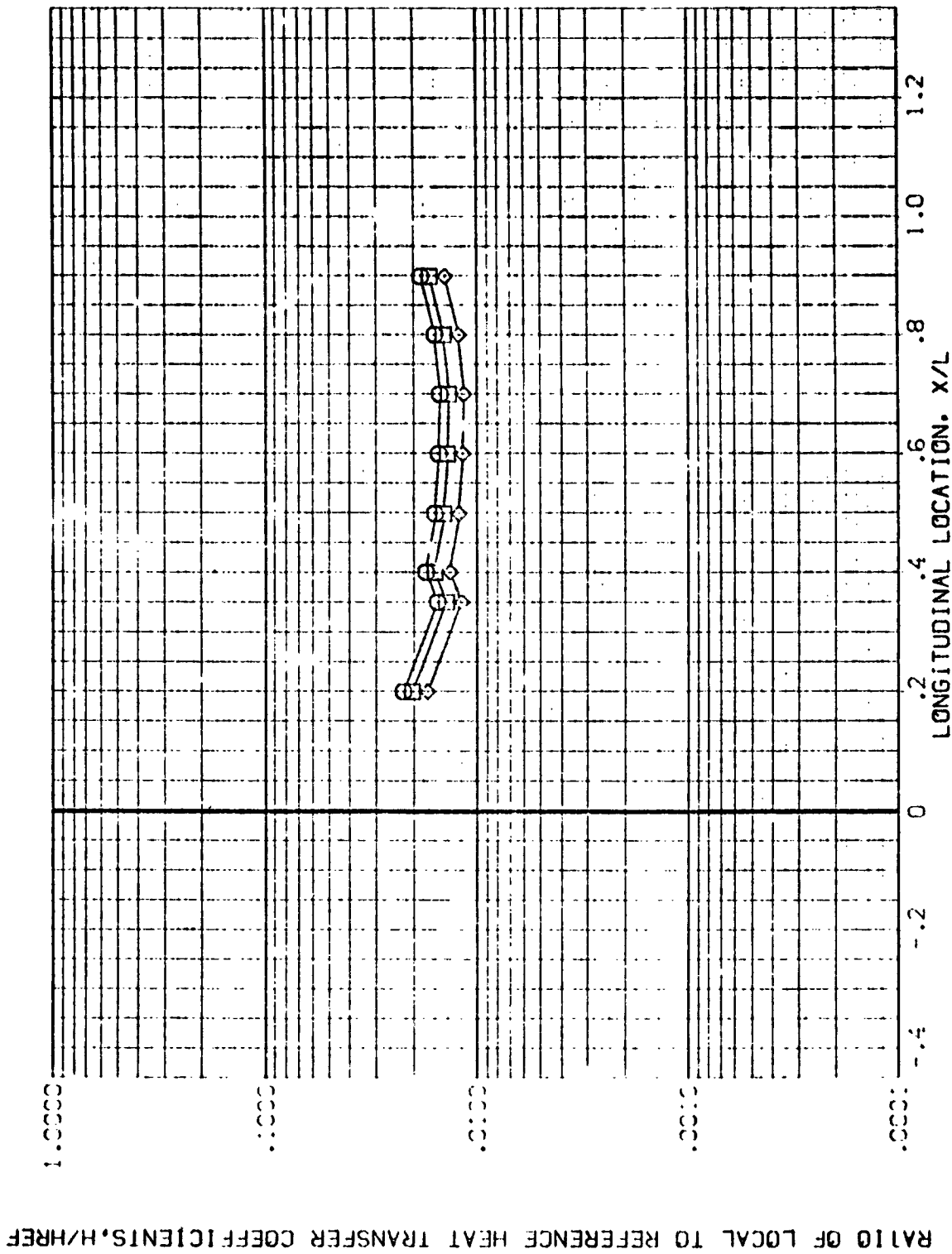


FIG. 4 TANK, ALONE

(REV 114)

EXTERNAL TANK

AYES 3.5-1.95 1428 T1

SWEEP RATE/WT PH1 MACH  
.850 112.500 5.220  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -30.000 BETA .000  
R/V/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

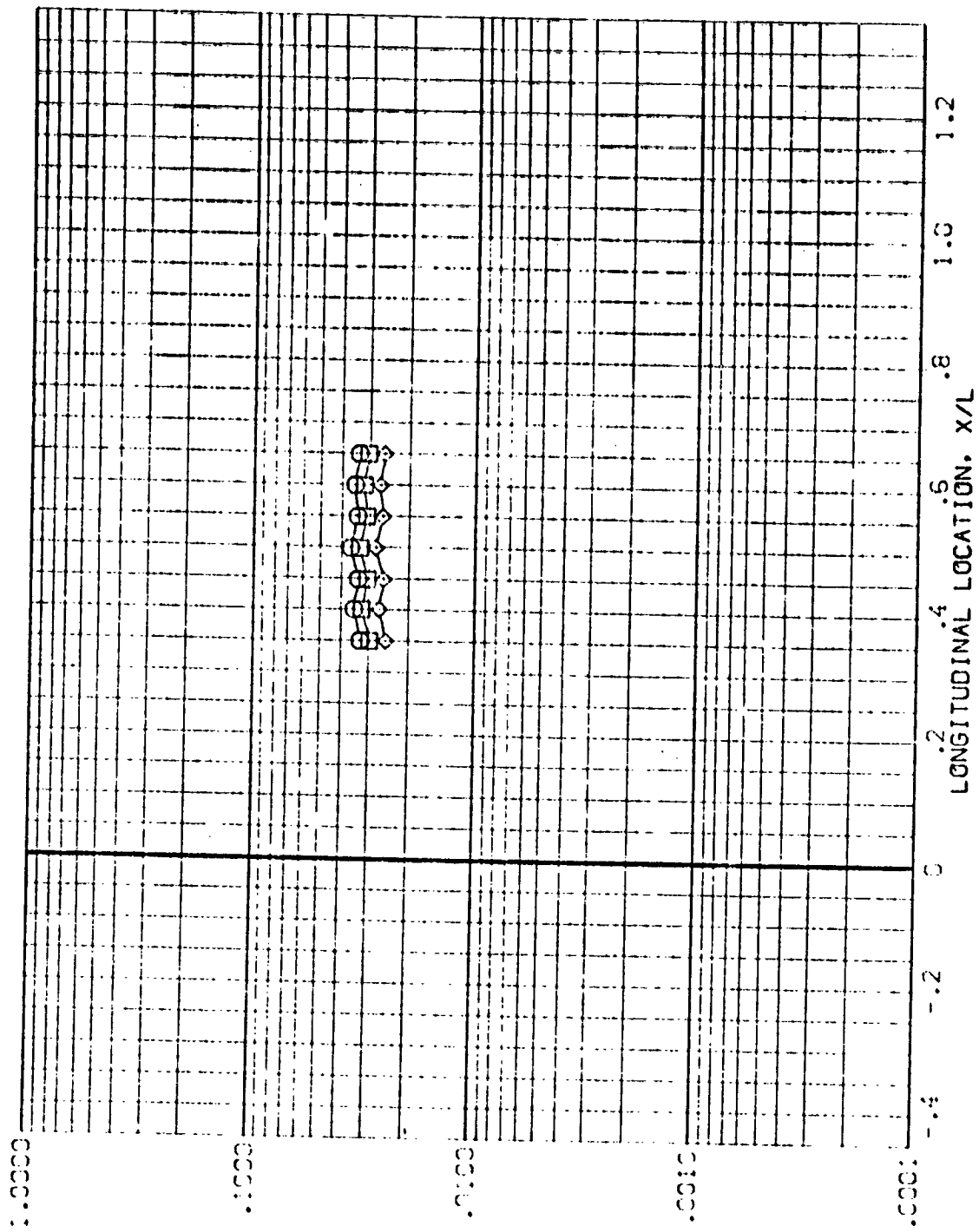


FIG. 4 TANK ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV T14)

PARAMETER VALUES  
 ALPHA -30.000 DEG  
 PW/L 1.000

SYMBOL H/W/L\* P/R VACH  
 ◊ .850 135.000 5.220  
 □ .300  
 ◊ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

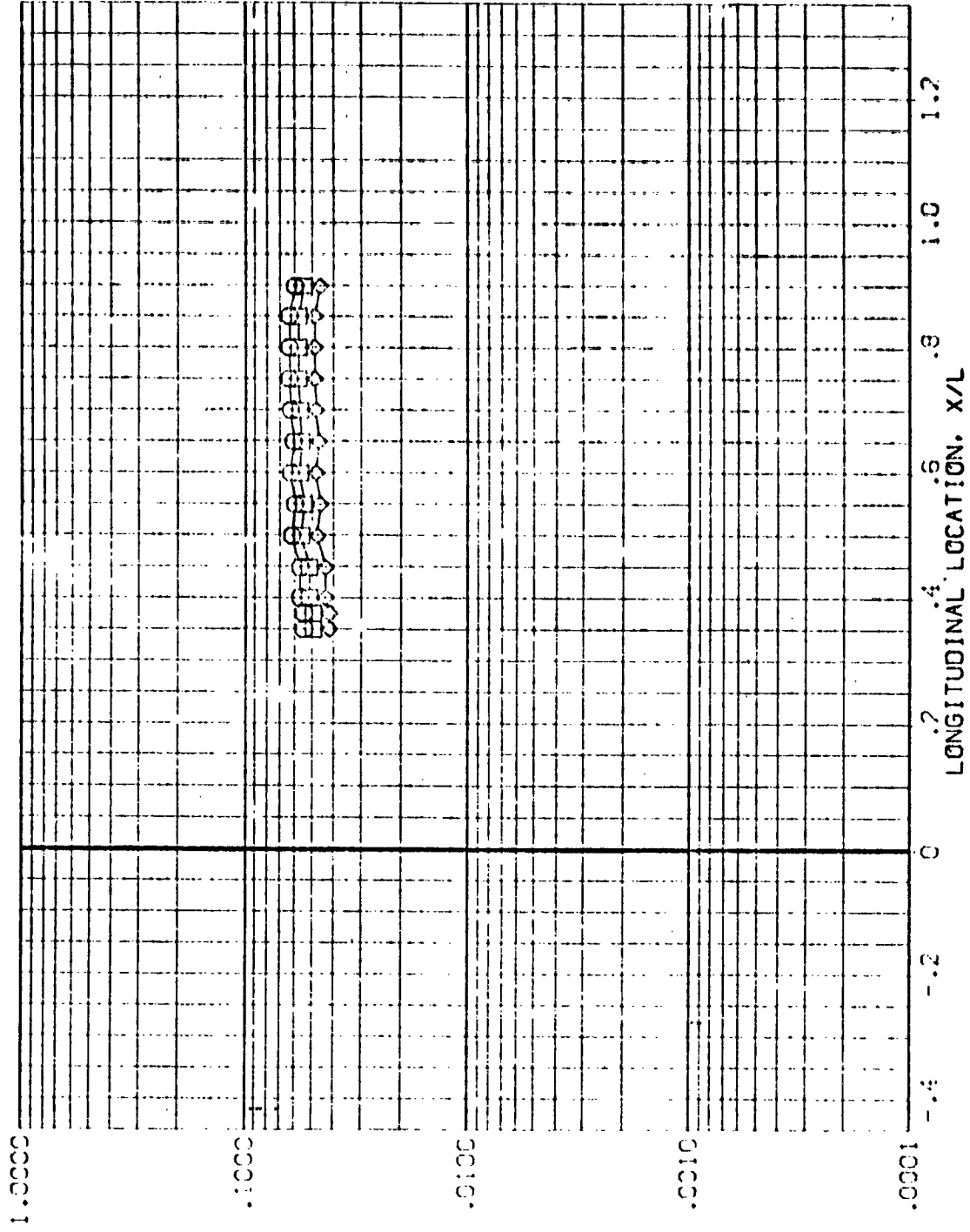


FIG. 4 TANK ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REVT14)

SYMS.	HA/WHT	Pt:	MACH	PARAMETRIC VALUES
□	.850	157.500	5.220	ALPHA
◇	.900			RV/L
	1.000			BETA
				1.000
				.600

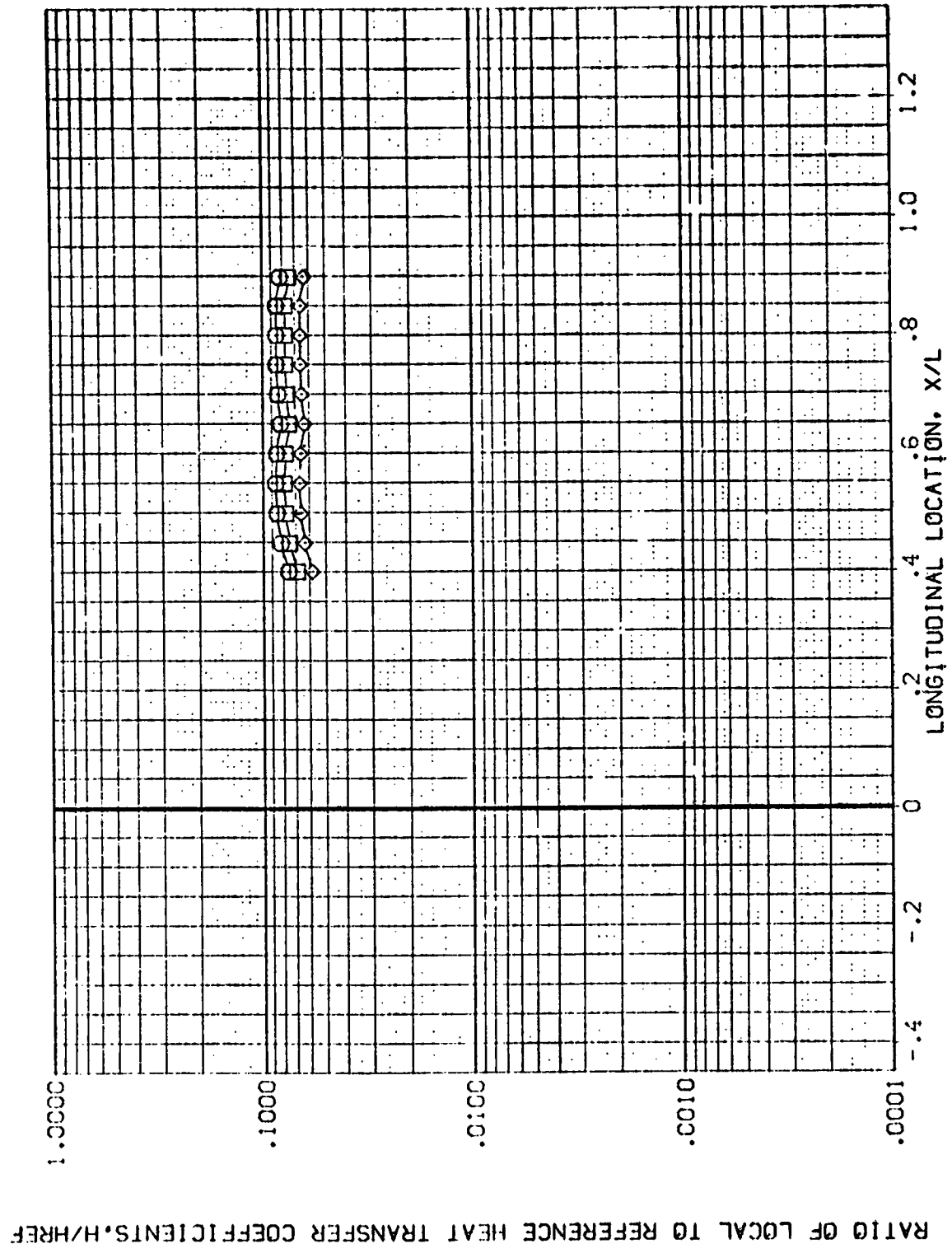


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1

EXTERNAL TANK

(REVT14)

SYMBOL	HA/WHT	PHI	MACH
◇	.850	180.000	5.220
□	.900		
	1.000		

PARAMETRIC VALUES	BETA	.000
ALPHA	RN/L	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

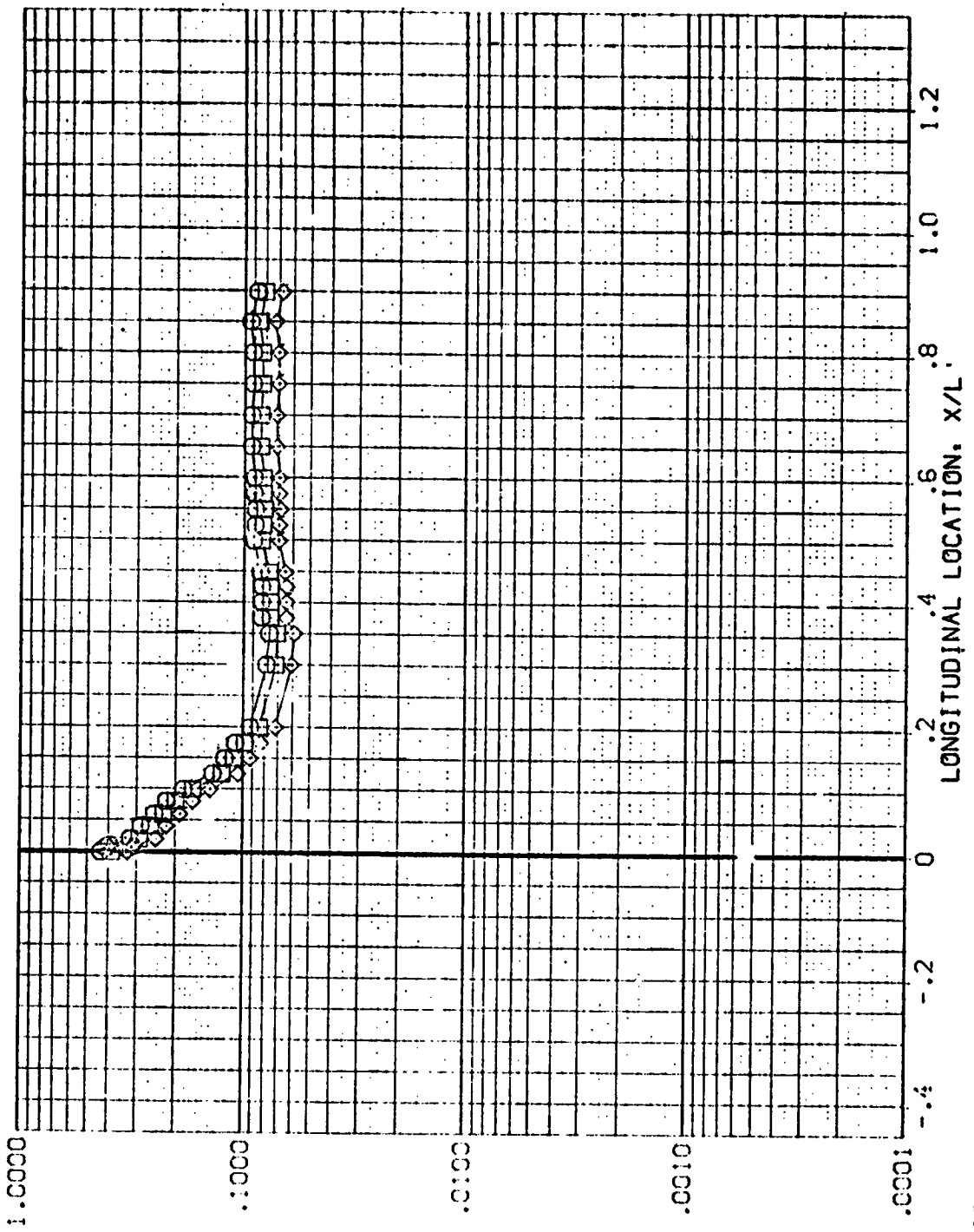


FIG. 4 TANK, ALONE

F

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV115)

SYNOPSIS	MAW/WT	PHI	MACH	PARAMETRIC VALUES
	.850	90.000	5.221	ALPHA
	.900			RV/L
	1.000			BETA
				.000

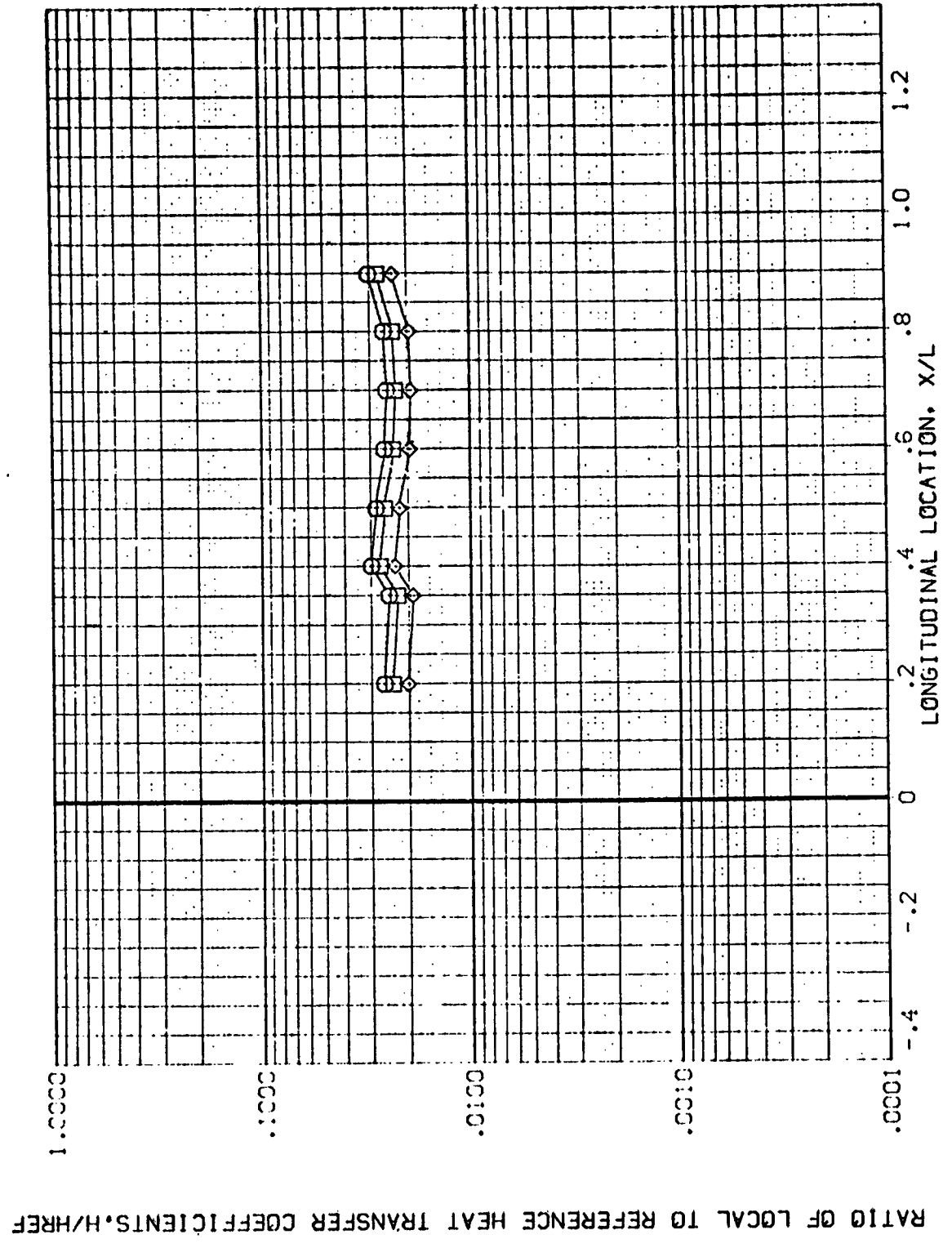


FIG. 4 TANK, ALONE



AMES 3.5-195 IH28 T1

EXTERNAL TANK

(REV115)

SYMBOL:  $\diamond$   $\square$   $\square$

HA/W/T .850  
PHI 112.500  
MACH 5.221

PARAMETRIC VALUES  
ALPHA -60.000  
RN/L 1.000  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

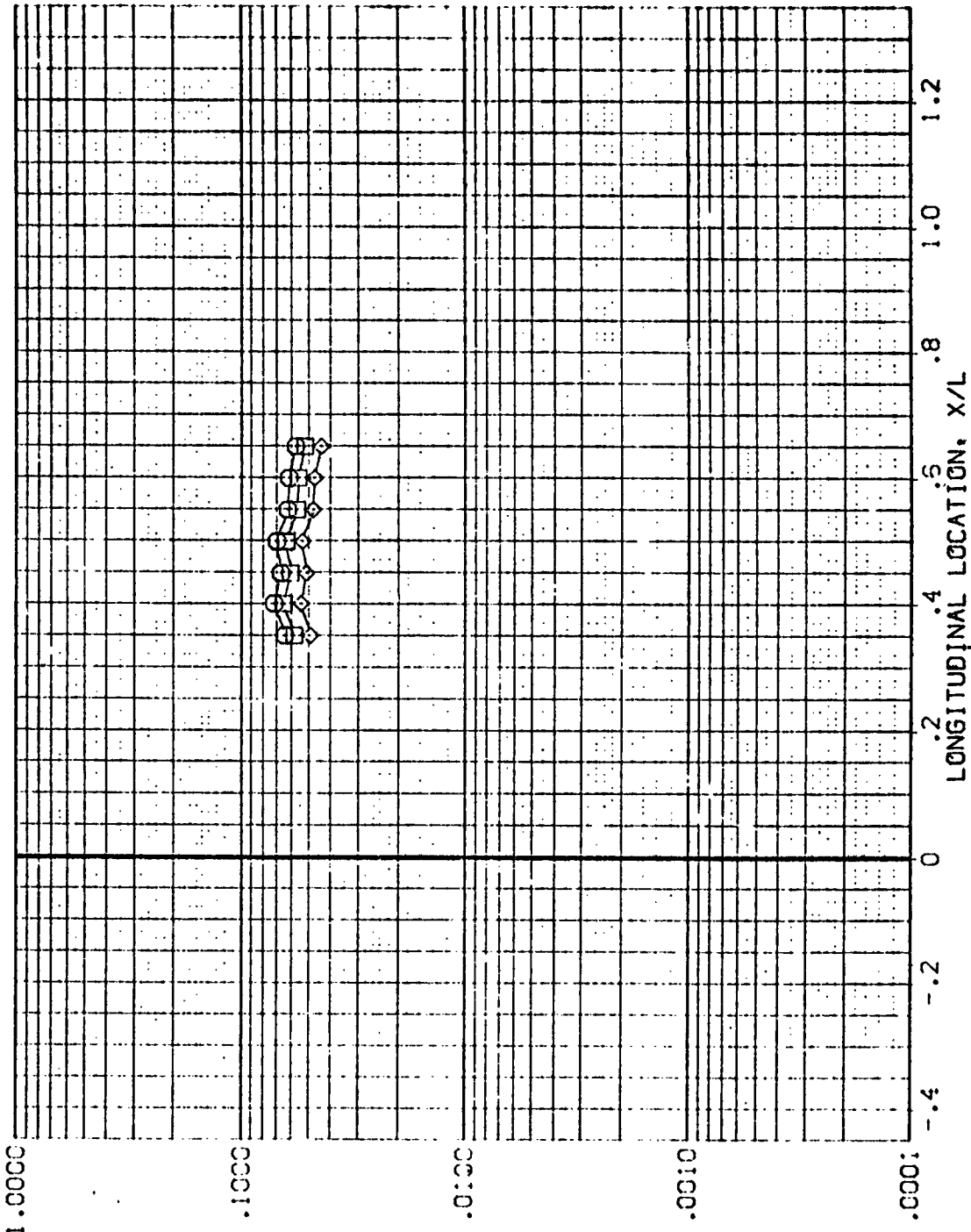


FIG. 4 TANK, ALONE

(REV115)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -60.000 BETA .000  
RN/L 1.000

SYMBOL HAW/WT PHI MACH  
◇ 170 .950 135.000 5.221  
.950  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

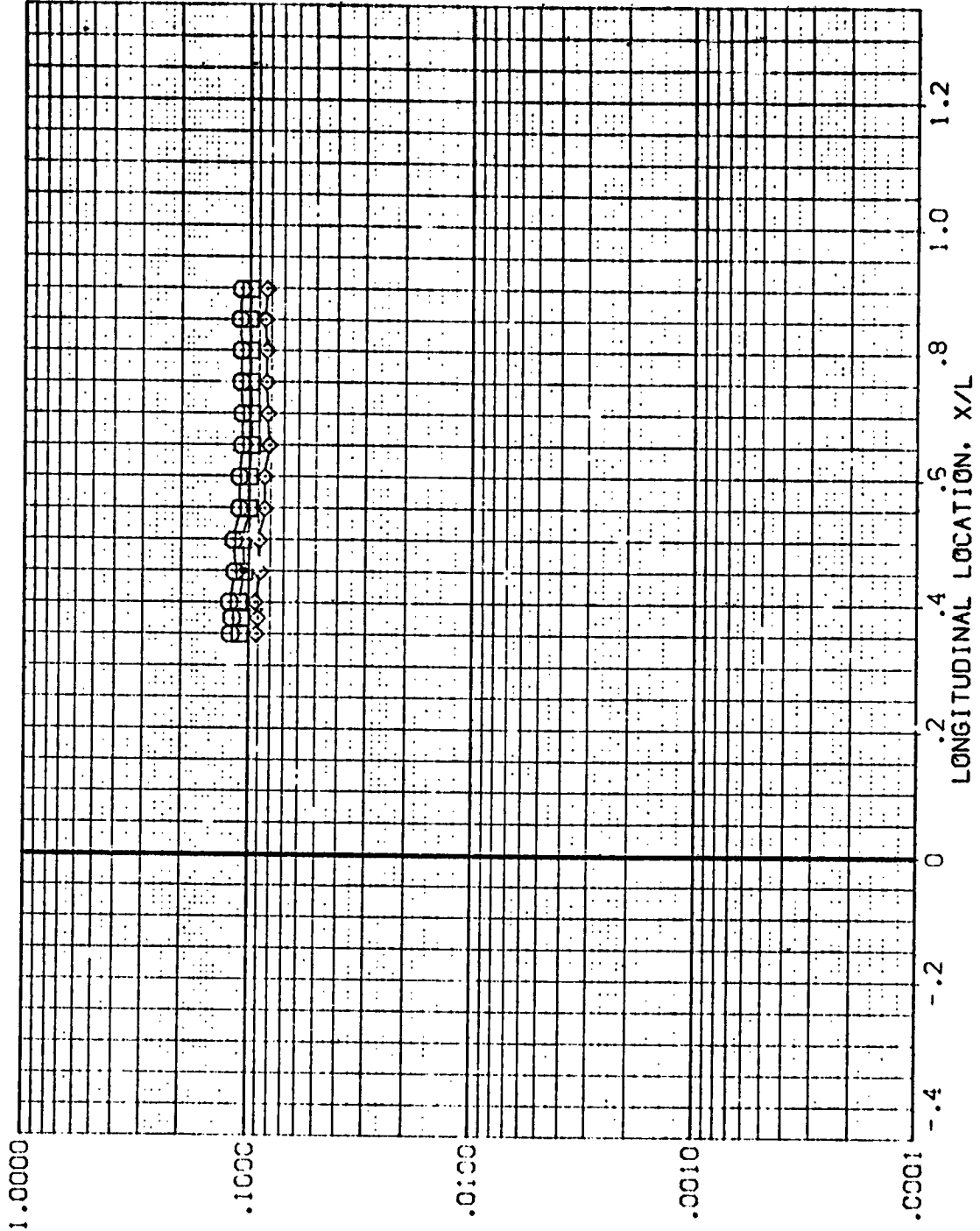


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV115)

SYNCL HAN/WT PHI MACH  
 .850 157.500 5.221  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -60.000  
 BETA 1.000  
 RN/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

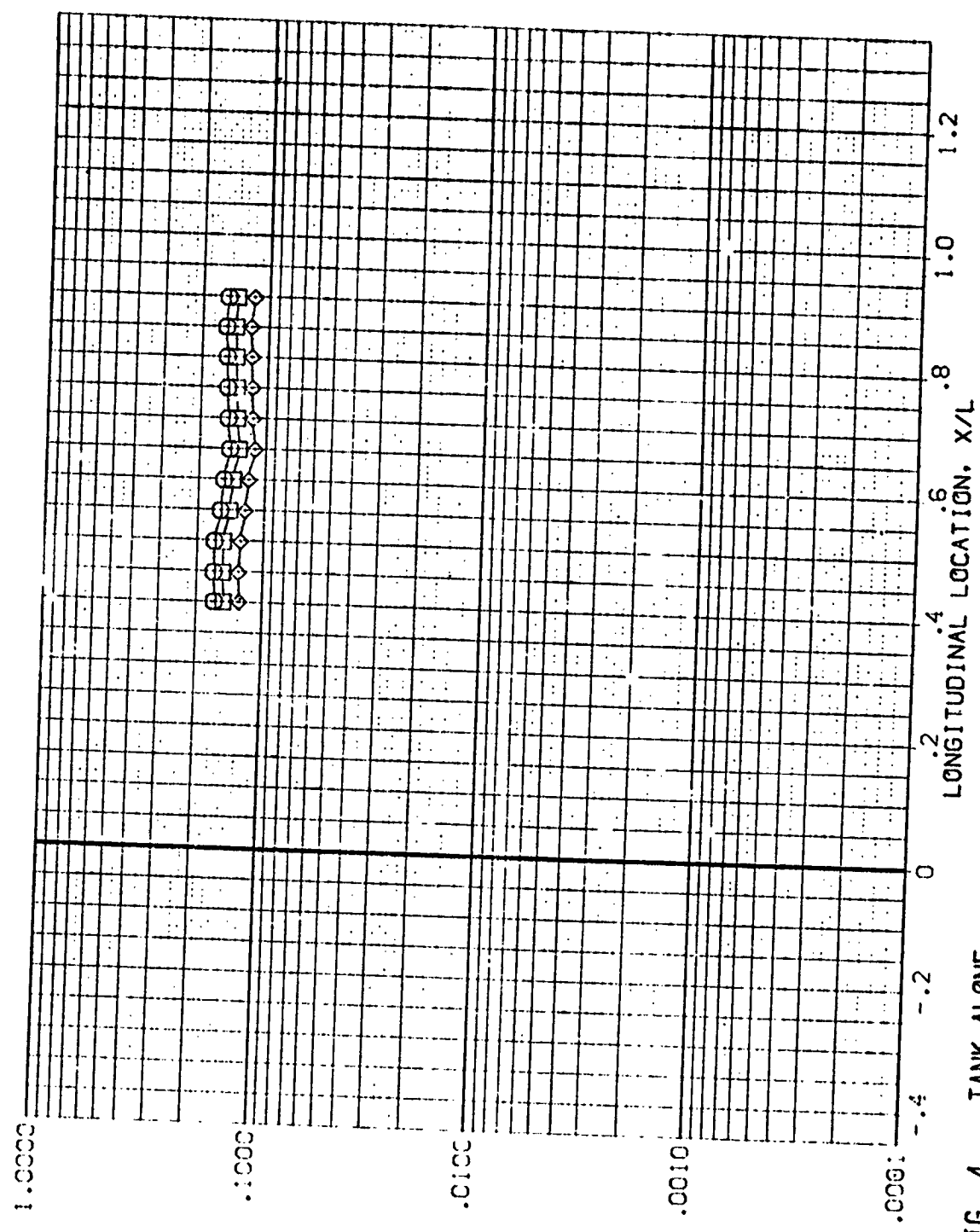


FIG. 4 TANK, ALONE

QUALITY OF THE  
 ORIGINAL PAGE IS  
 POOR

(REV T15)

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 PRN/L 1.000

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL HAW/HT P-1 MACH  
 .850 180.000 5.221  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

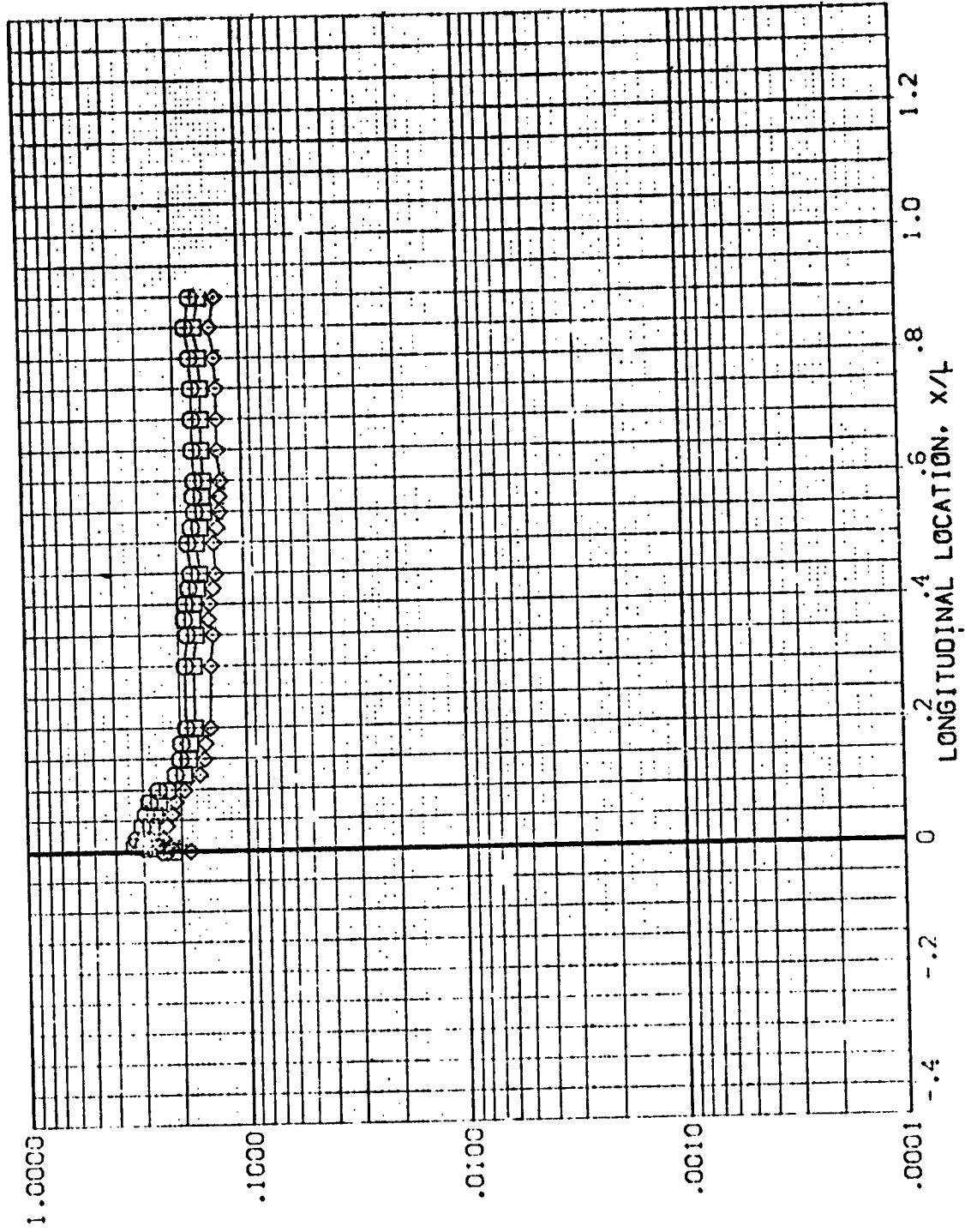


FIG. 4 TANK ALONE

AMES 3.5-195 :H28 T1 EXTERNAL TANK (REV T16)

SYMBOL: HAWAHT PHI MACH  
 .85C 90.000 5.220  
 .200  
 1.000

PARAMETRIC VALUES  
 ALPHA PN/L  
 -90.000 1.000  
 BETA .000

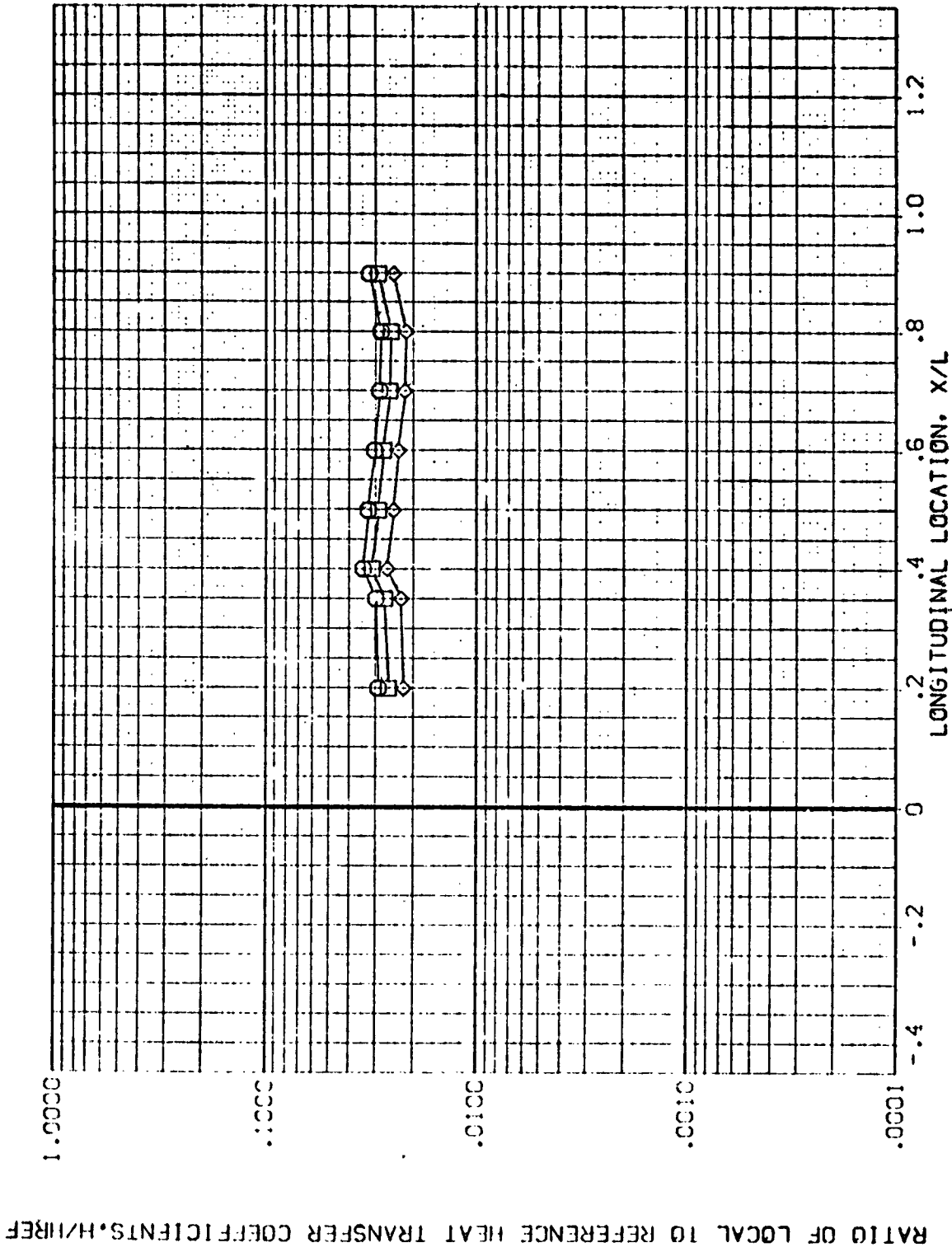


FIG. 4 TANK, ALONE

(REVT16)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYNOPSIS

MAN/UT P-1: MACH  
-850 112.500 5.220  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -90.000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

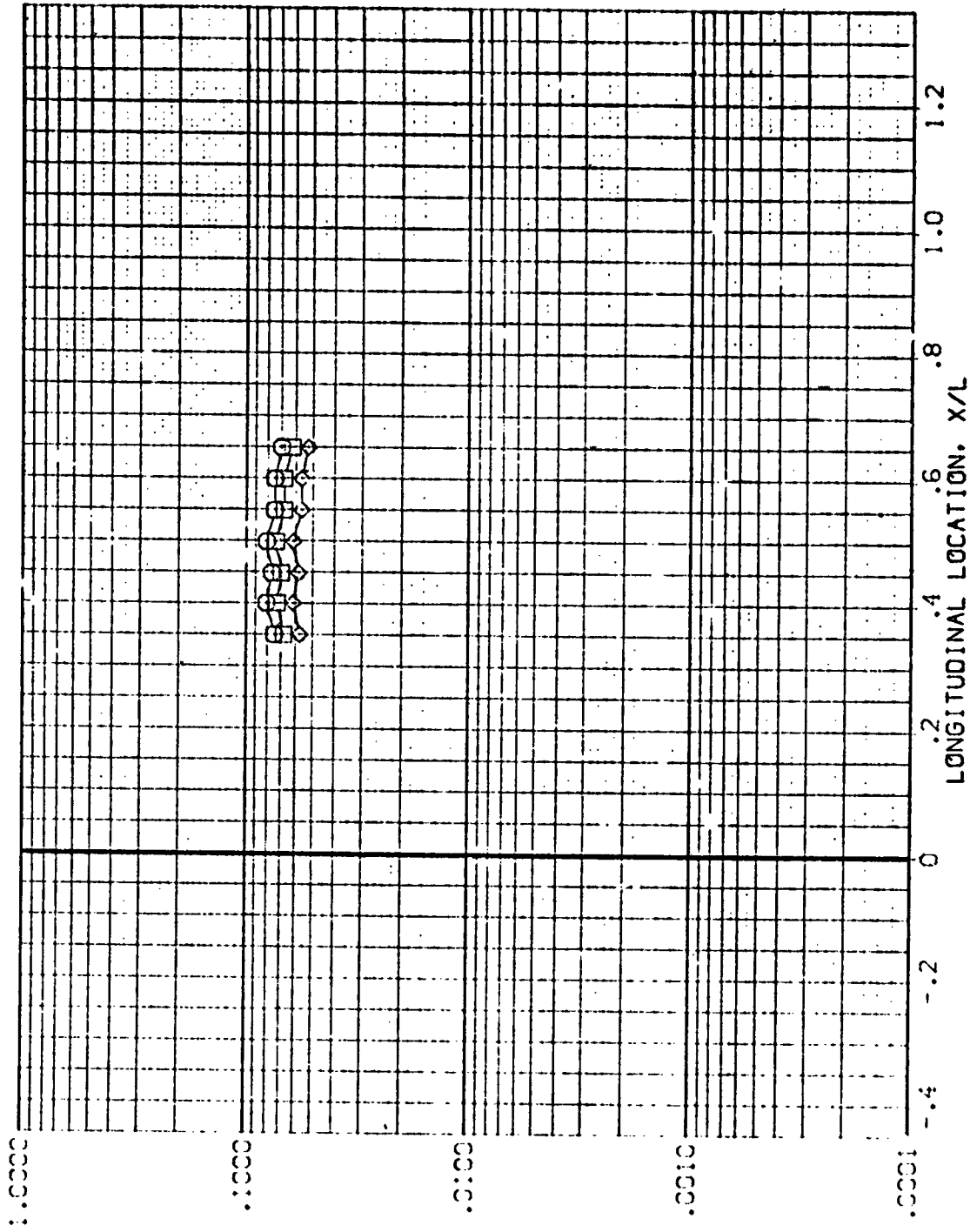


FIG. 4 TANK, ALGNE

AMES 3.5-:95 IH28 T1

EXTERNAL TANK

(REV T16)

SYMBOL

HA/WHT  
.850  
.900  
1.000

PHI  
.35.000

MACH  
5.220

PARAMETRIC VALUES  
ALPHA  
RN/L

-9C.000  
1.000

BETA

.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

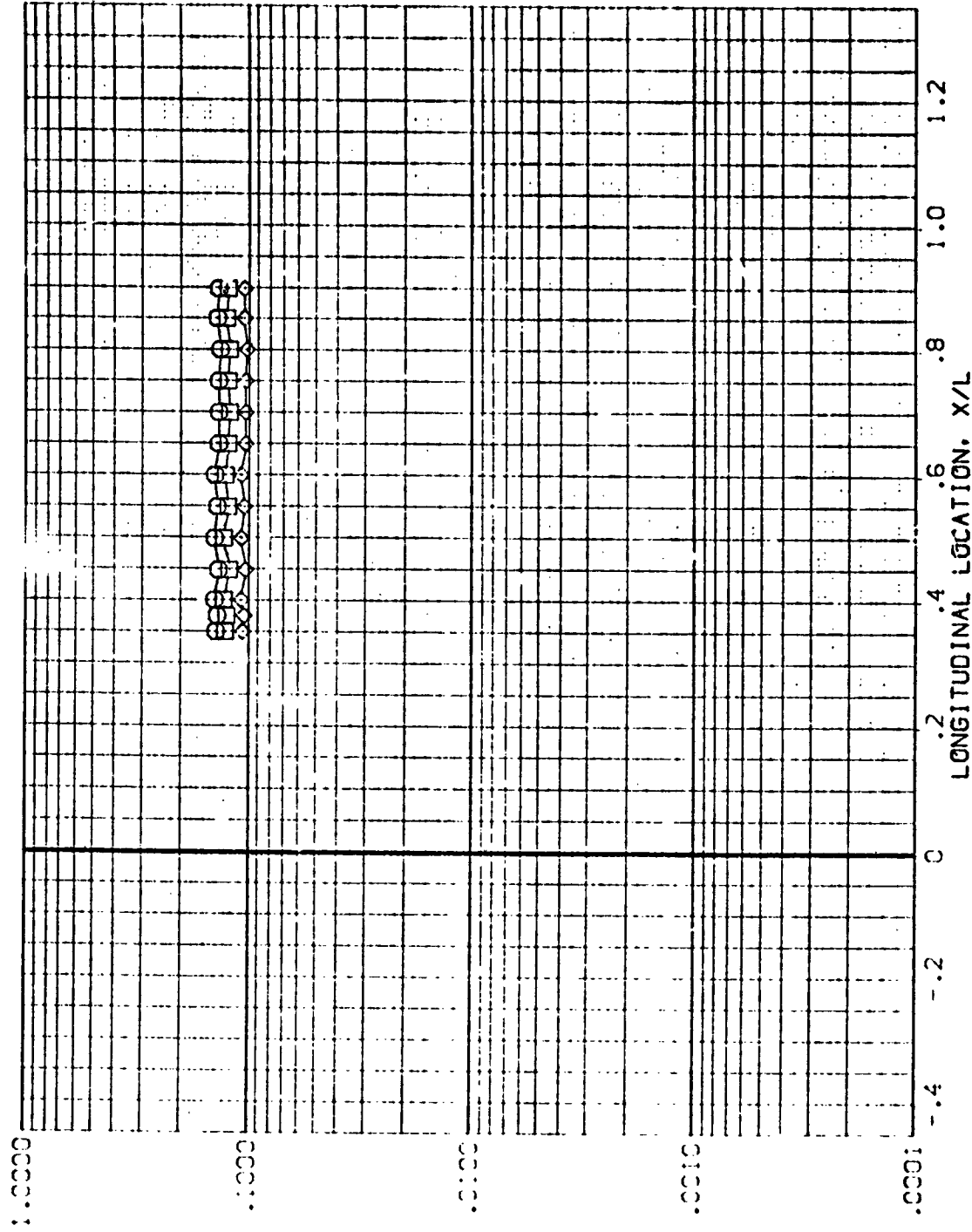


FIG. 4 TANK, ALONE

(REV T16)

EXTERNAL TANK

AVES 3.5-195 IH28 T1

PARAMETRIC VALUES  
-90.000 ALPHA  
1.000 BETA

MACH  
5.220

SWEEP  
1.000  
1.000  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

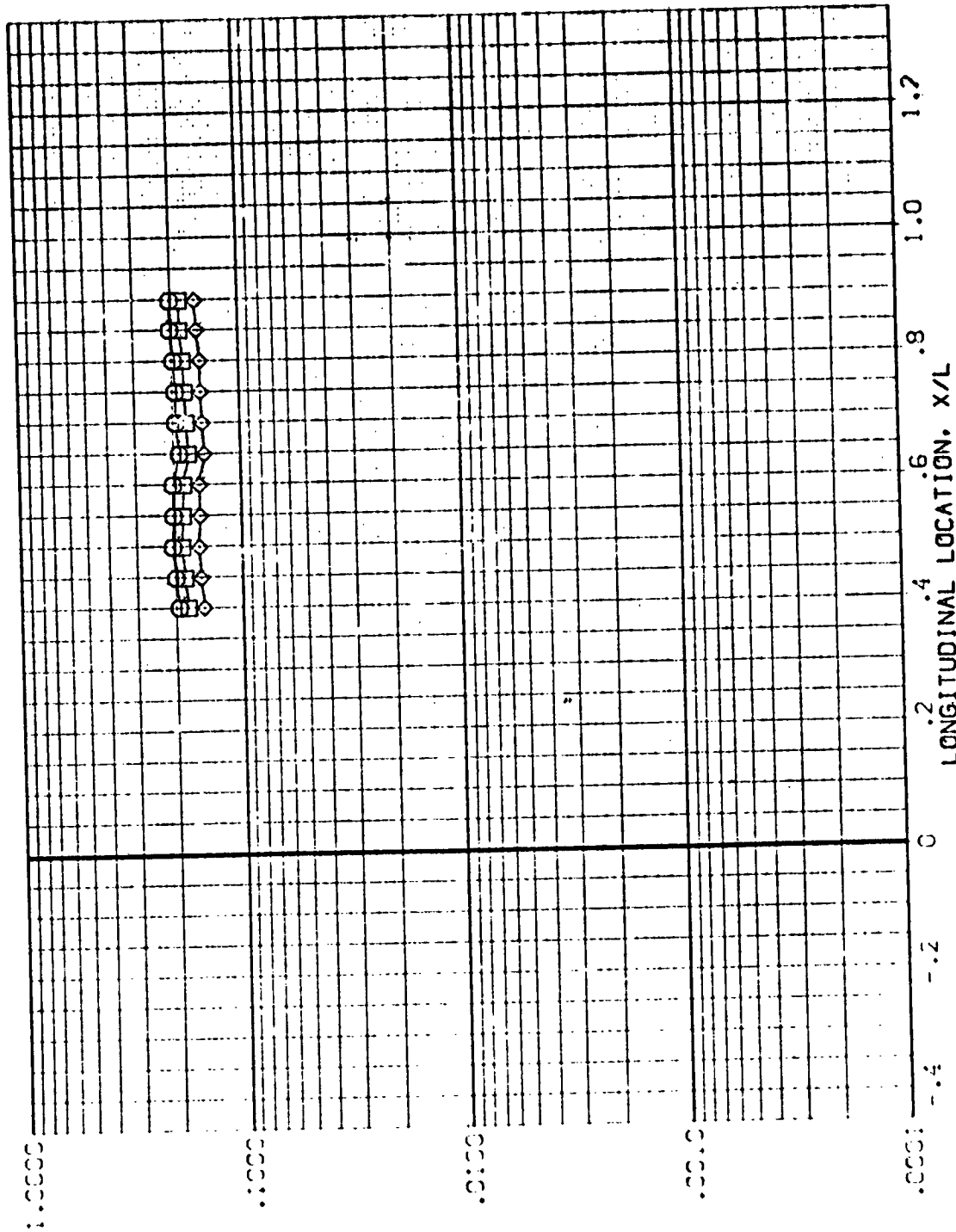


FIG. 4 TANK, ALONE



AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV16)

SYBCL  
 -MACHT P-1 MACH  
 .850 180.000 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -90.000  
 BETA 1.000  
 .000

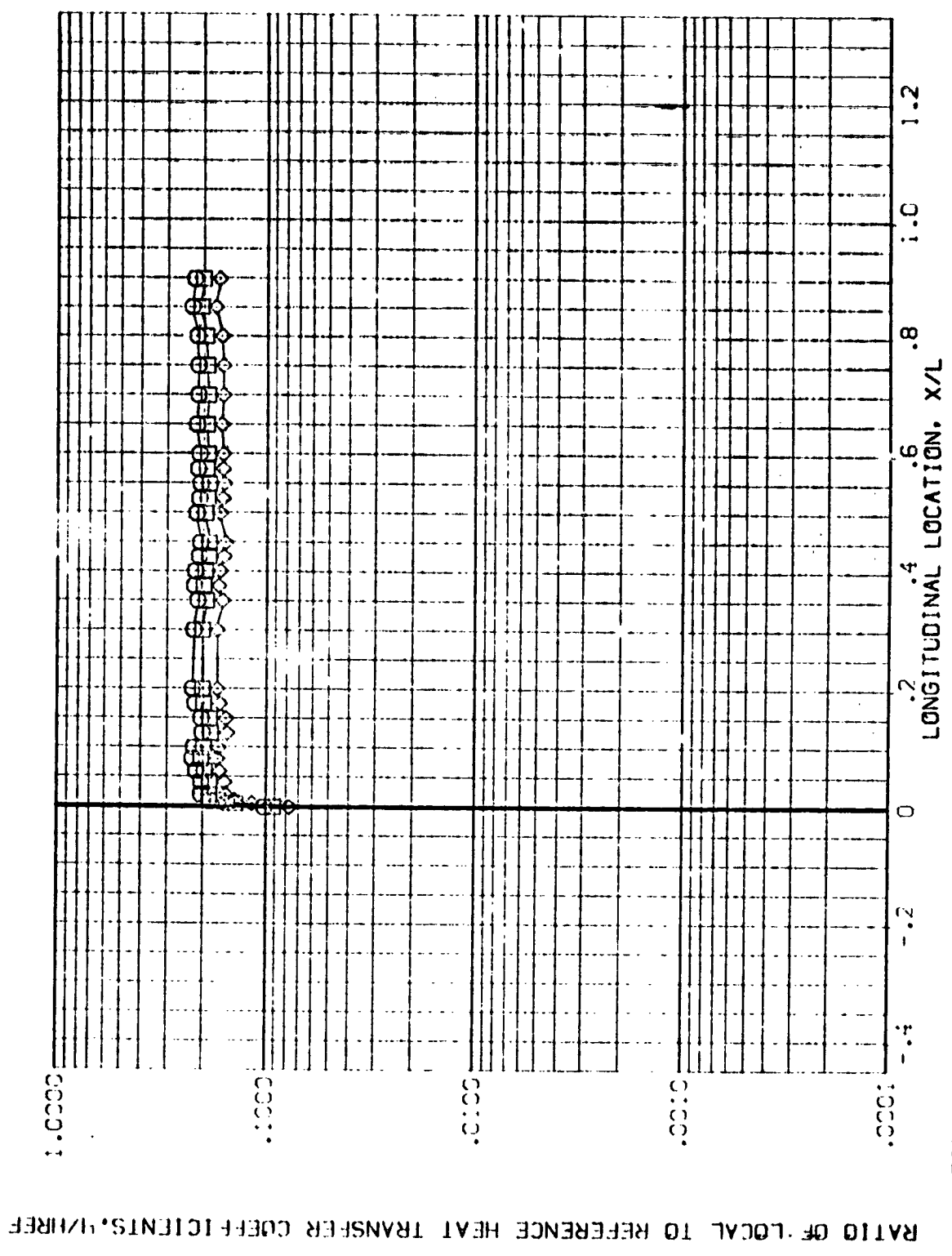


FIG. 4 TANK, ALONE

AVES 3.5-195 IH28 T1 EXTERNAL TANK (REV. T17)

SYMBOL HEIGHT DIA. MACH  
 ○ 1.000 .800 5.220  
 ○ .800 .800 5.220  
 ○ 1.000 .800 5.220

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA .000  
 RW/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

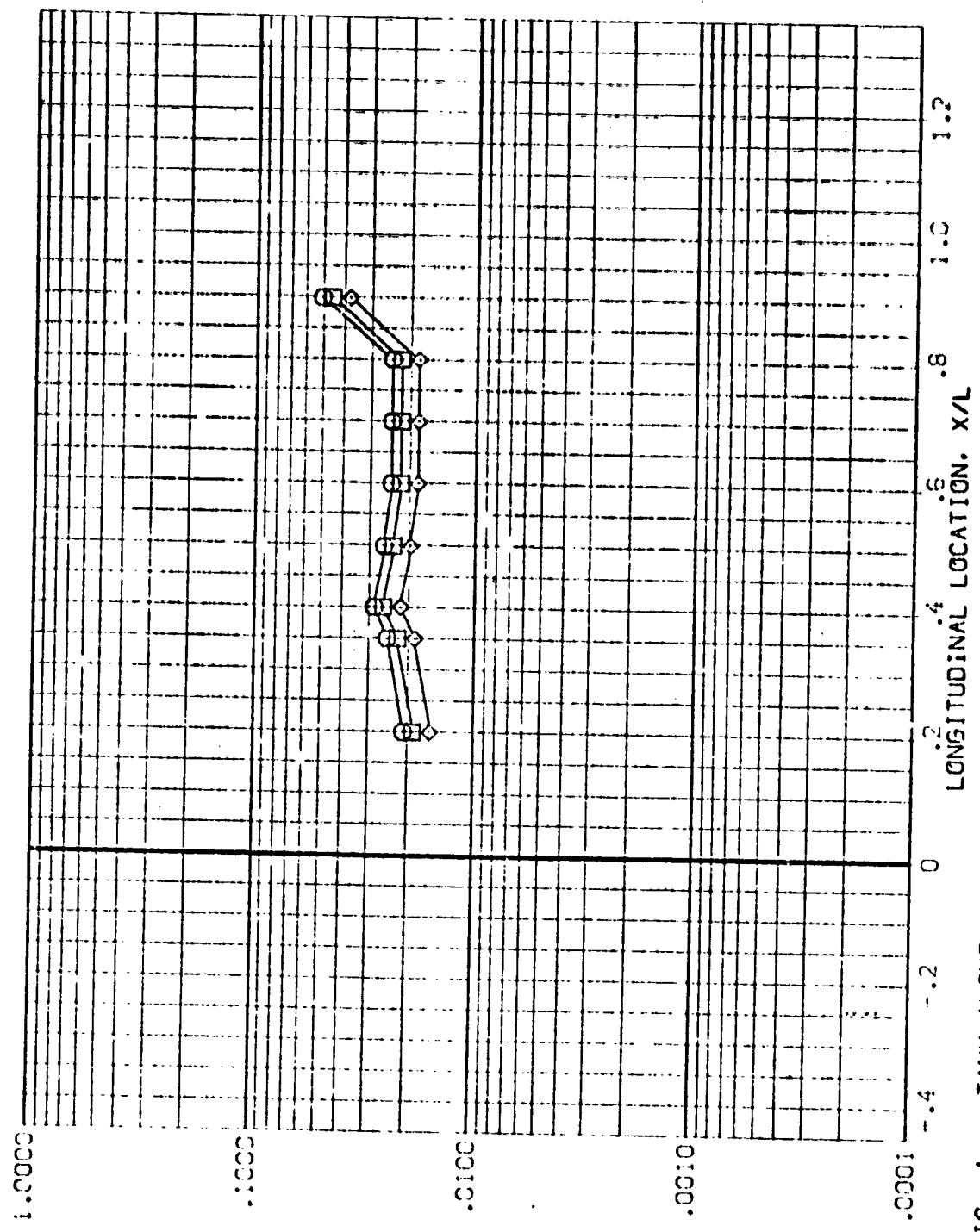


FIG. 4 TANK, ALONE

AVES 3.5-195 IH28 T1 EXTERNAL TANK (REV117)

PARAMETRIC VALUES  
 ALPHA 1.000000 BETA .000000  
 P=V/L .000000

MASS FLOW RATE  
 .850 112.500 5.220

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

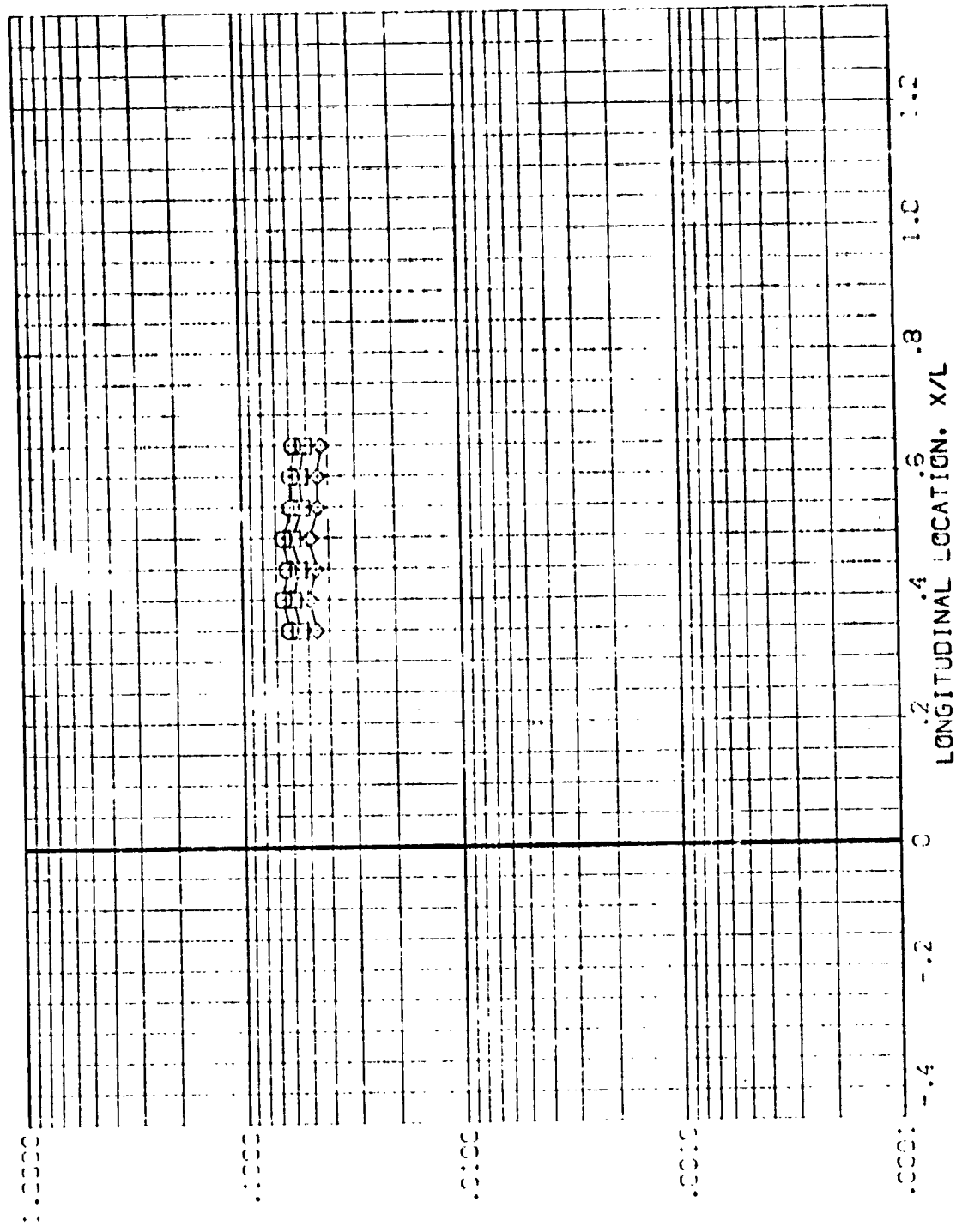


FIG. 4 TANK ALONE

(REV17)

EXTERNAL TANK

AVES 3.5-195 IH28 T1

PARAMETRIC VALUES	
ALPHA	-120.000
BETA	1.000
RN/L	.000

SWEEP	1440/H	PHI	1/2CH
	.850	195.000	5.220
	.900		
	1.000		

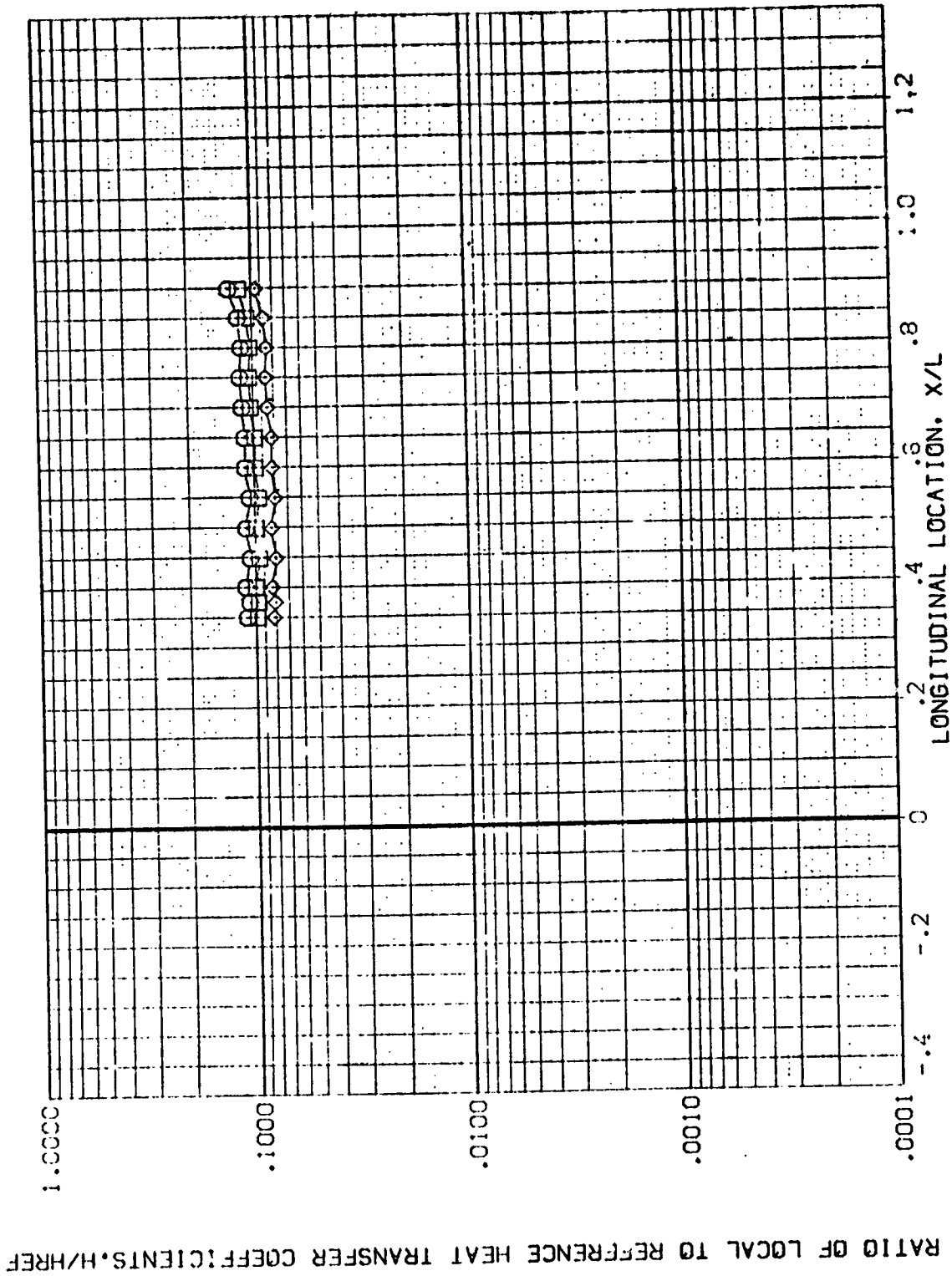


FIG. 4 TANK, ALONE

(REV117)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -120.000 BETA .000  
RN/L 1.000

SYMBOL:  $\diamond$   $\square$   $\square$   
HAM/HT .850 PHI 157.500 MACH 5.220  
.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

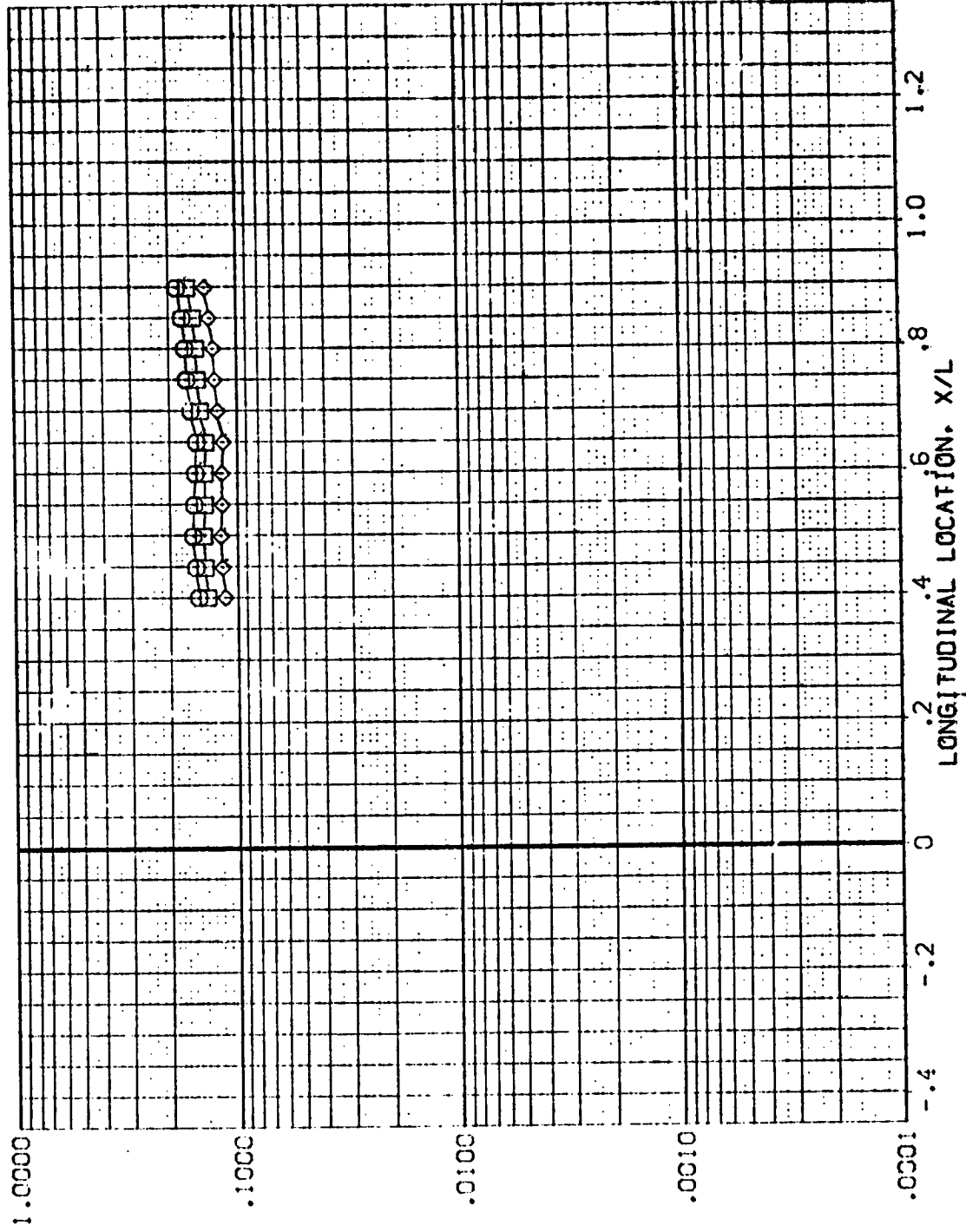


FIG. 4 TANK ALONE

AMES 3.5-:95 IH28 T1 EXTERNAL TANK (REV17)

SYMBOL HAM/HT PHI MACH  
 ◇ 110 .850 190.000 5.220  
 .900  
 :.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RN/L 1.000

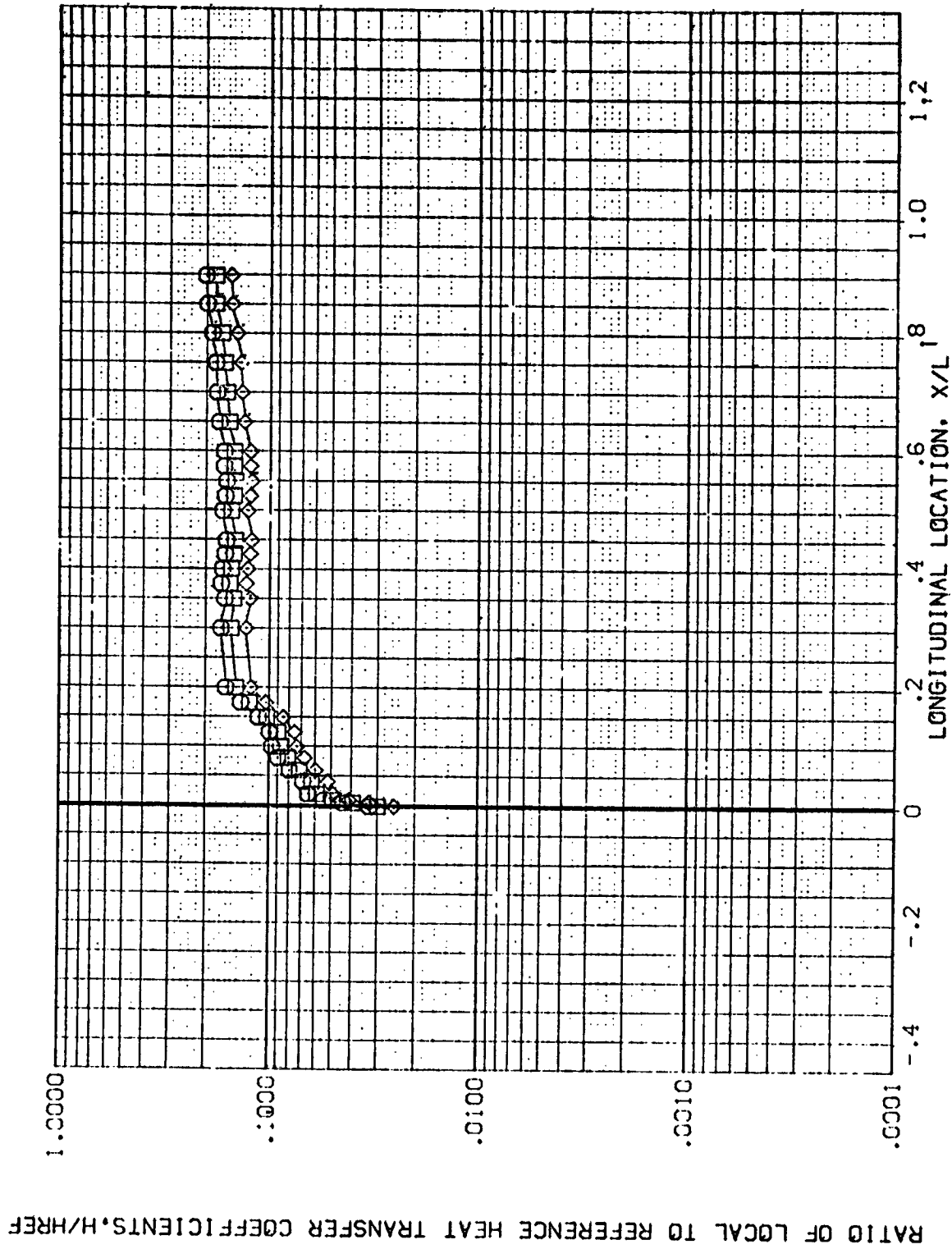


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK

(REV T18)

SYMBOL HA/WHT PH: MACH  
 □ .850 90.000 5.303  
 ○ .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 RW/L 4.000

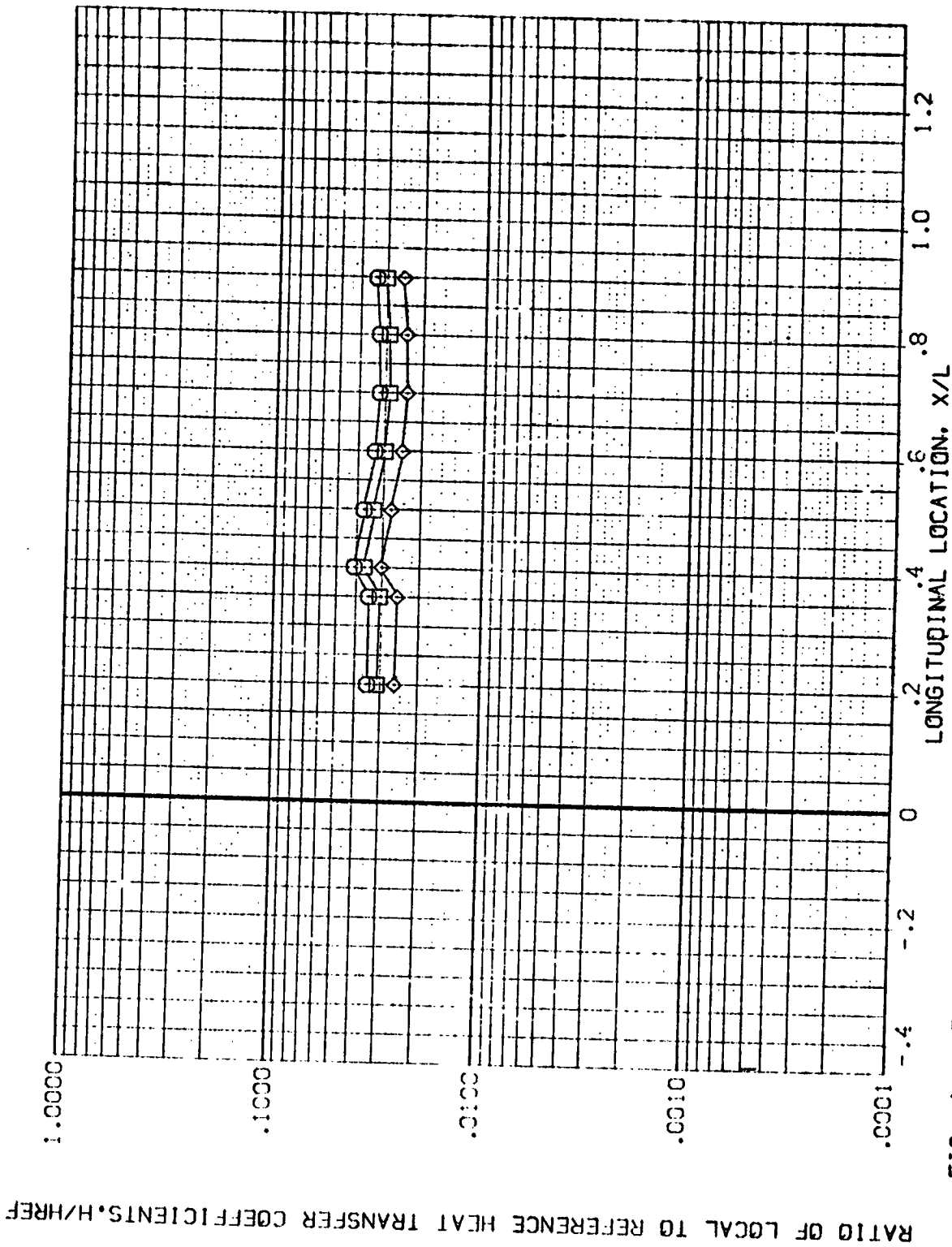


FIG. 4 TANK, ALONE

(REVT18)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -90.000  
BETA 4.000  
P1/VL .000

SYMBOL HAW/HT PHI MACH  
◇ .850 :12.500 5.303

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

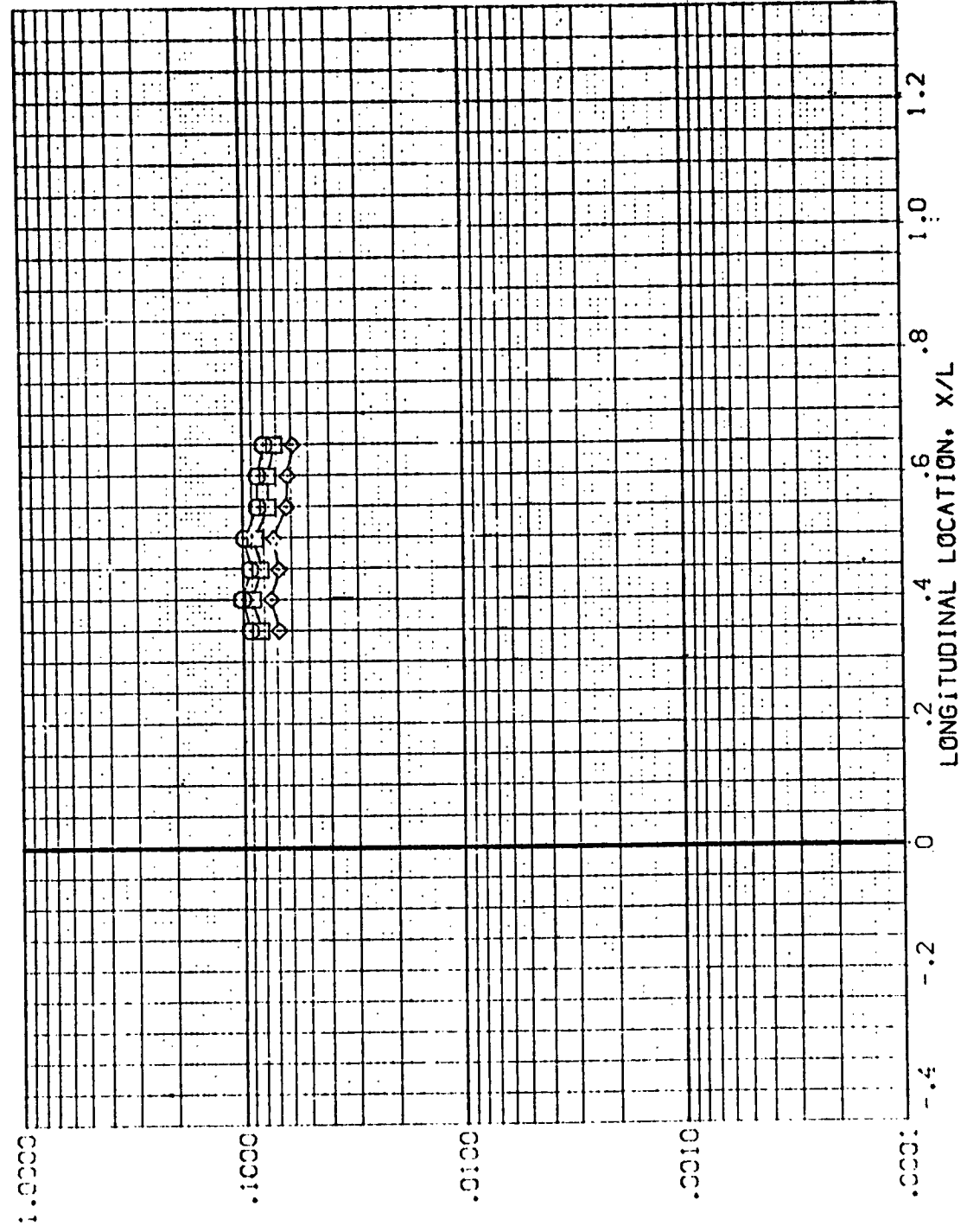


FIG. 4 TANK, ALONE



AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV118)

SYMBOL:  $\square$   $\diamond$       PARAMETRIC VALUES

RAV/HT	PL:	MACH	ALPHA	BETA
.850	.35.000	5.303	-90.000	4.000
.900			RN/L	
1.000				.000

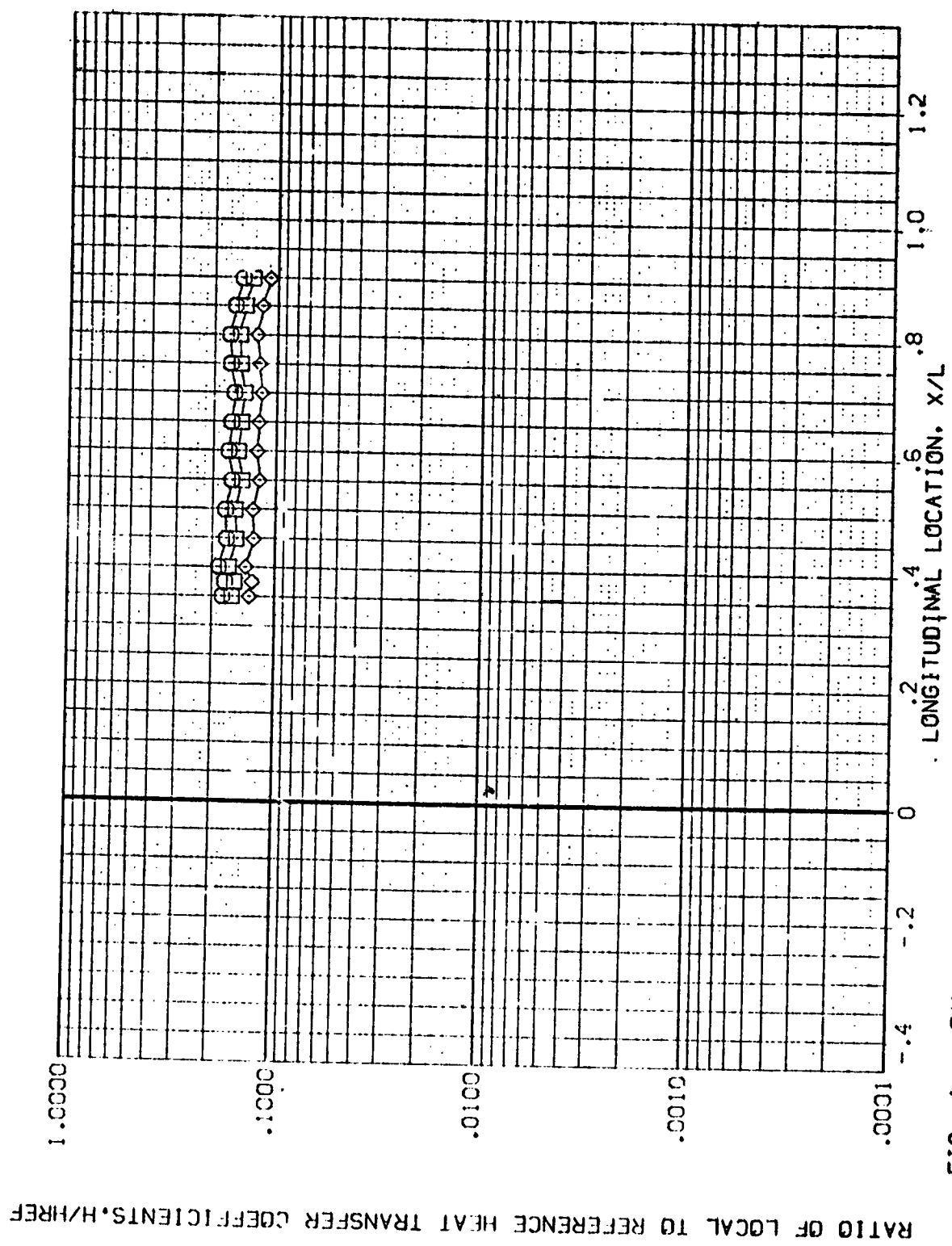


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV T18)

SYSEC	MAW/HT	PHI	MACH	PARAMETRIC VALUES
◇	.850	157.500	5.303	-90.0°
□	.900			BETA
◇	1.000			4.000
				RV/L

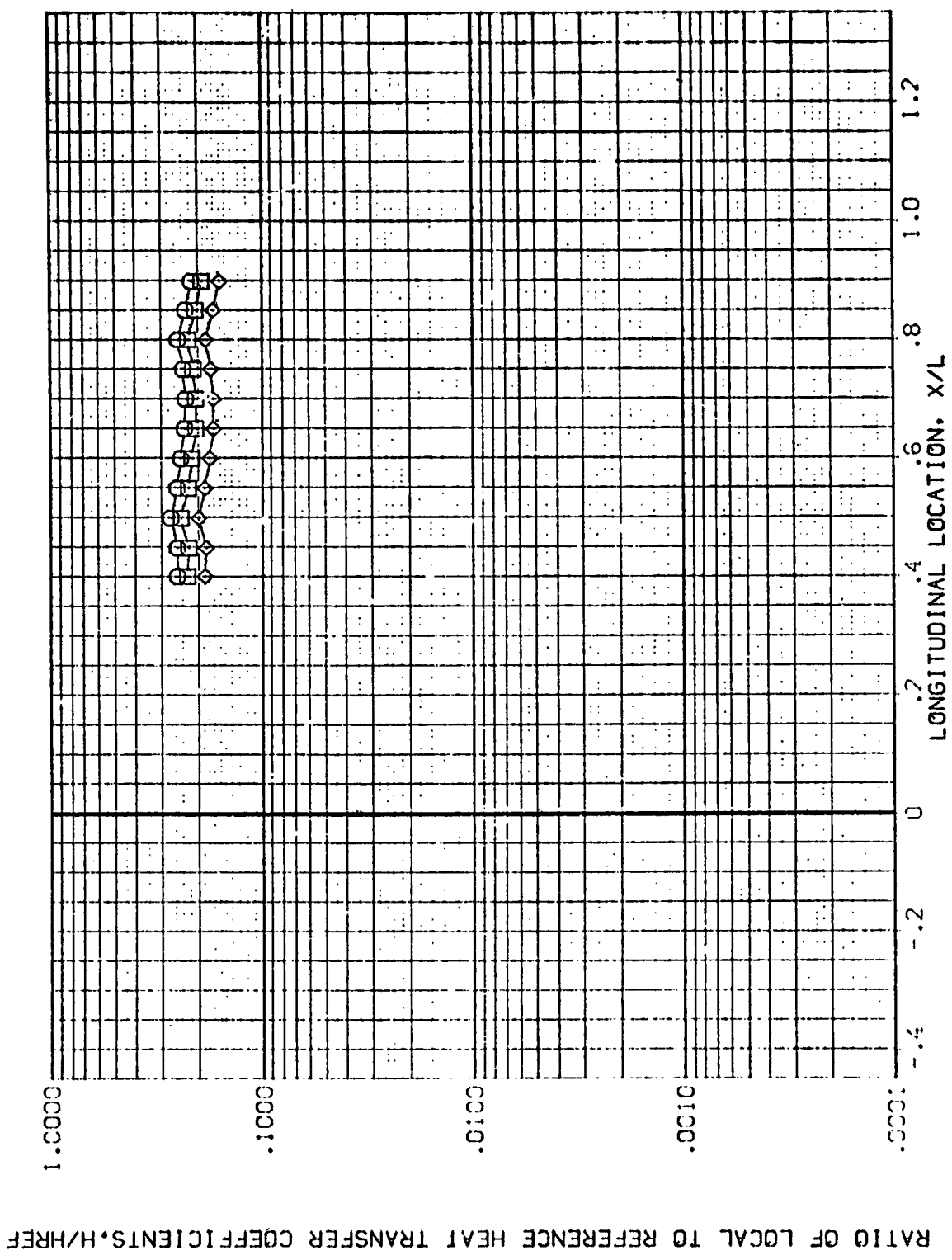


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV18)

SYSEC- .852  
 PHA/4" .852  
 PHI 180.000  
 MACH 5.303

PARAMETRIC VALUES  
 ALPHA -90.000  
 BETA 4.000  
 PHI/L .000

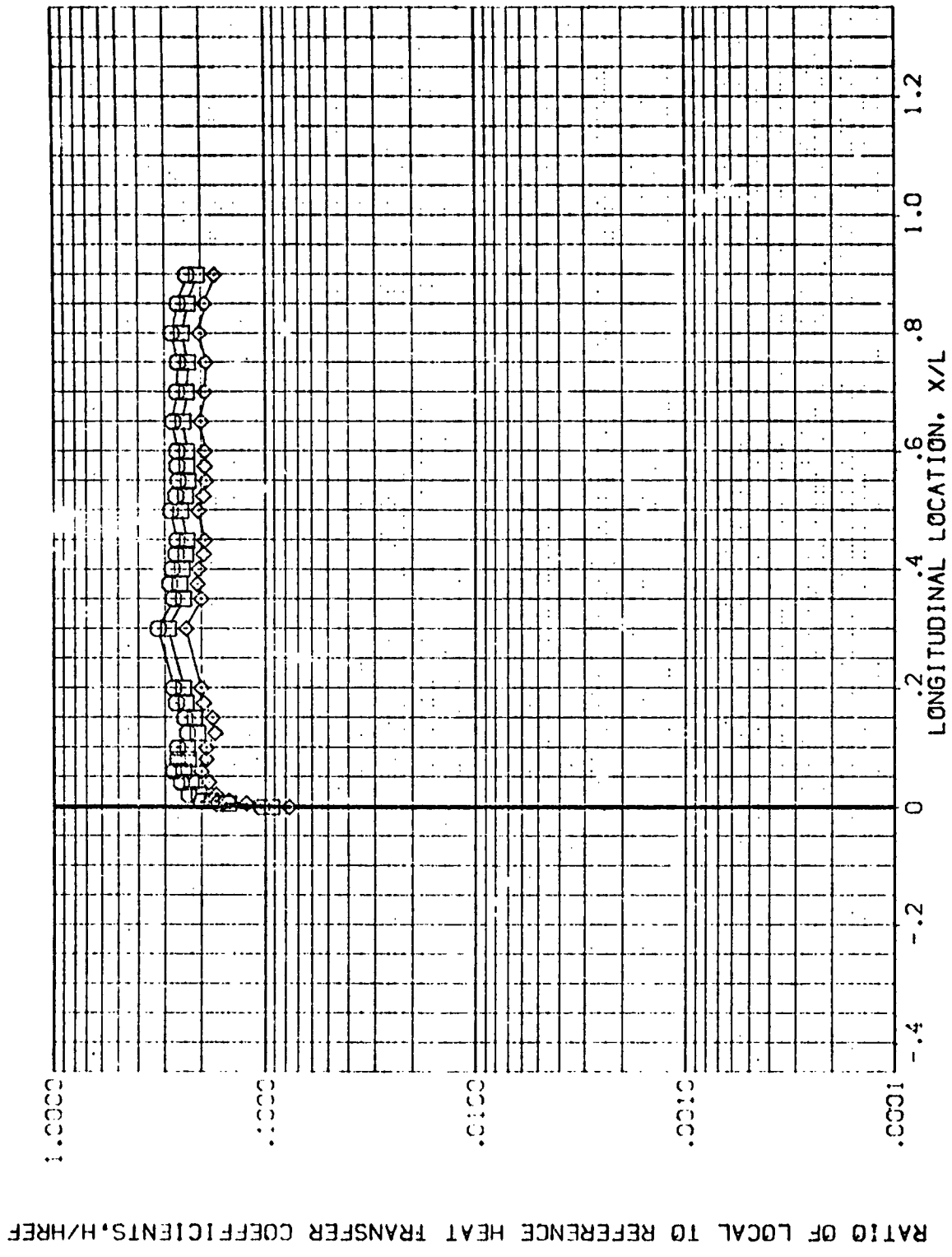


FIG. 4 TANK, ALONE

AVES 3.5-195 IH28 T1 EXTERNAL TANK

(REV113)

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 R1/L 1.000

SYMBOL H/W/T V/L WACK  
 Q110 .850 .350 5.220  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

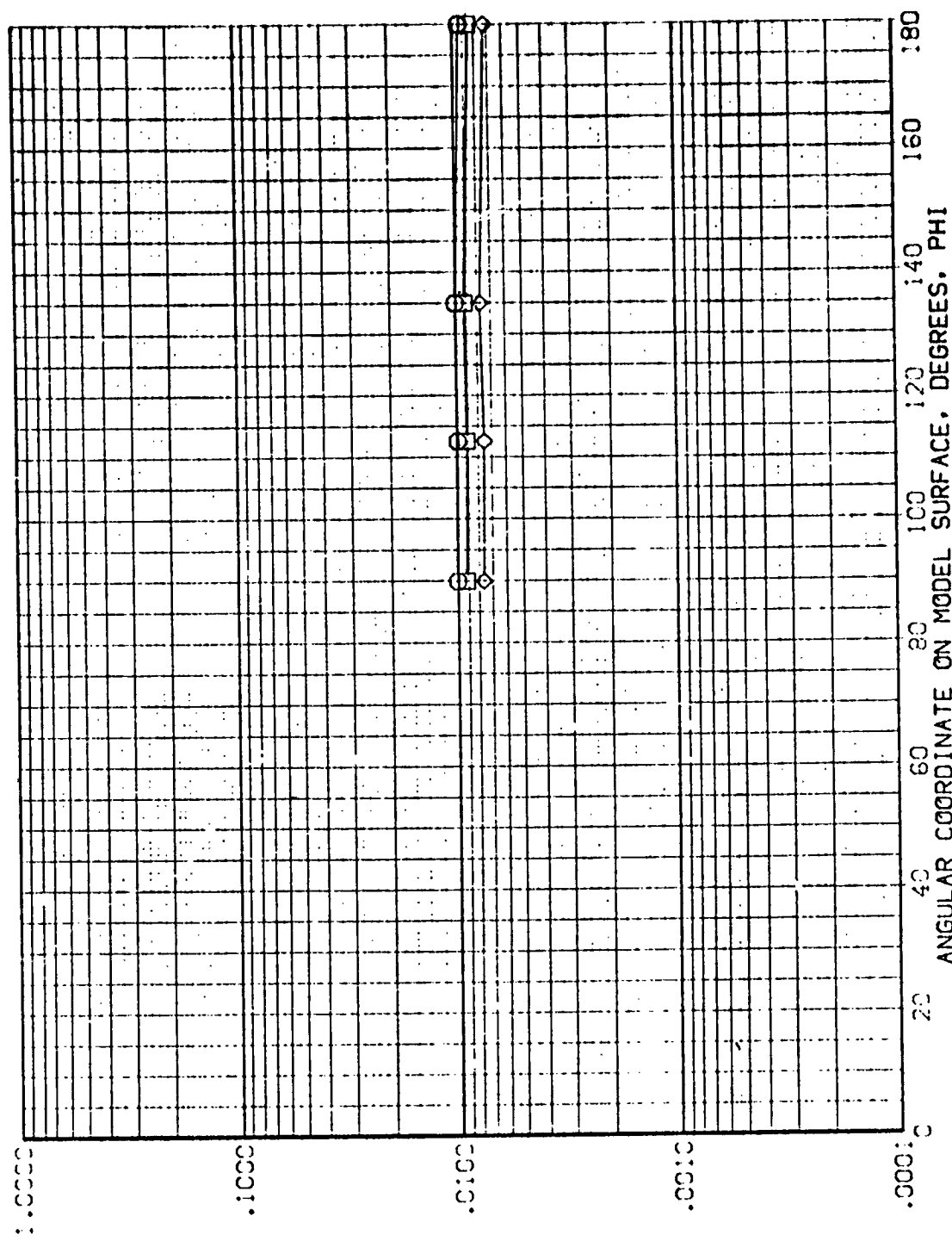


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1

EXTERNAL TANK

(REV13)

SYMBOL:  $\diamond$   $\square$   $\square$   
H\*/H\* .850  
X/L .400  
MACH 5.220

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
PM/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

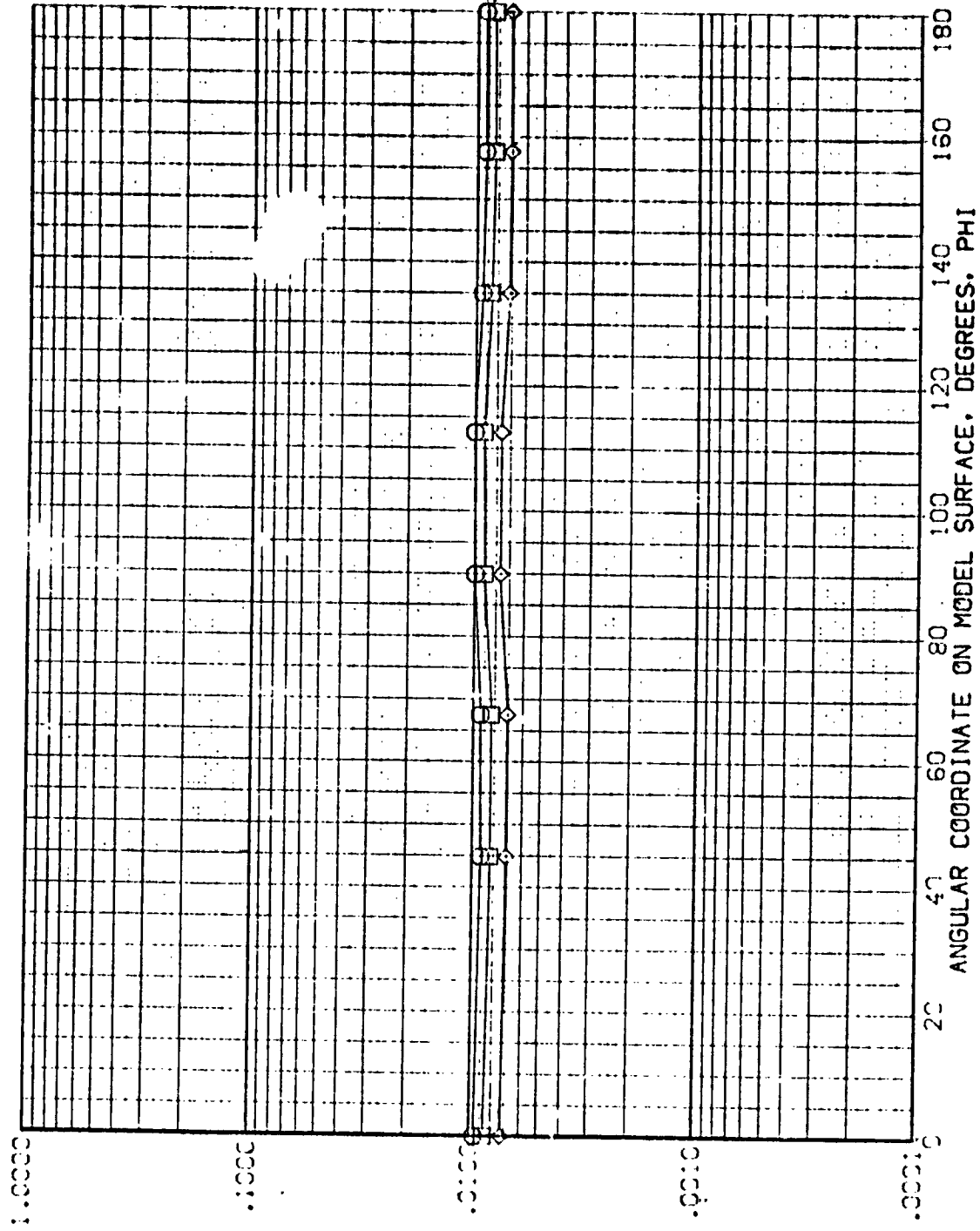


FIG. 4 TANK, ALONE

AVES 3.5-195 IH28 T1 EXTERNAL TANK (REV113)

SYMCL HAM/IT Y/L MACH  
 .85C .450 5.220  
 .90C  
 1.00C

PARAMETRIC VALUES  
 .000 BETA  
 1.000 ALPHA  
 RN/L

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

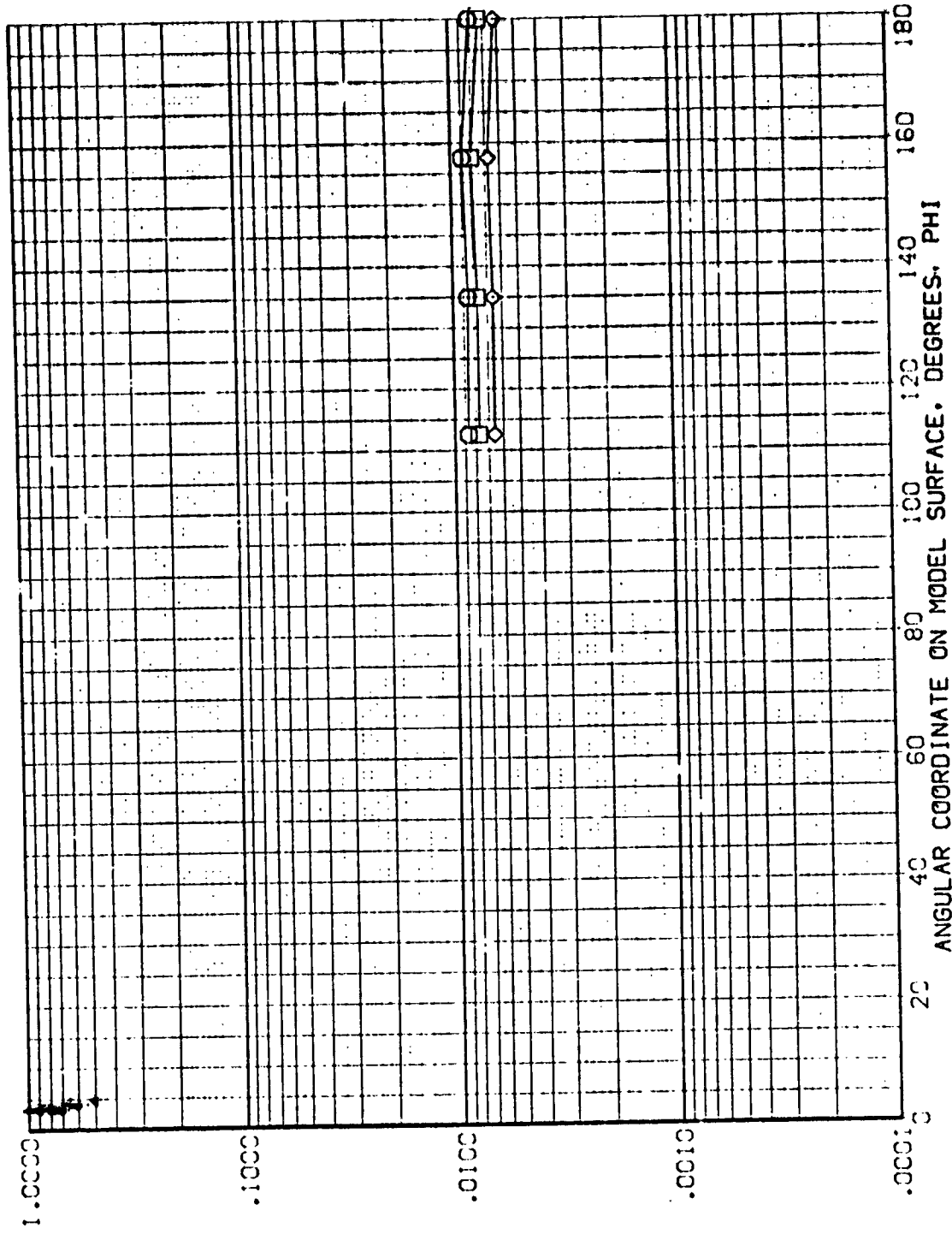


FIG. 4 TANK, ALONE

(REV113)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SIZES: H/W 1.000  
X/L .850  
Y/L .500  
MACH 5.120

PARAMETRIC VALUES  
ALPHA .000  
BETA .000  
PHI/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

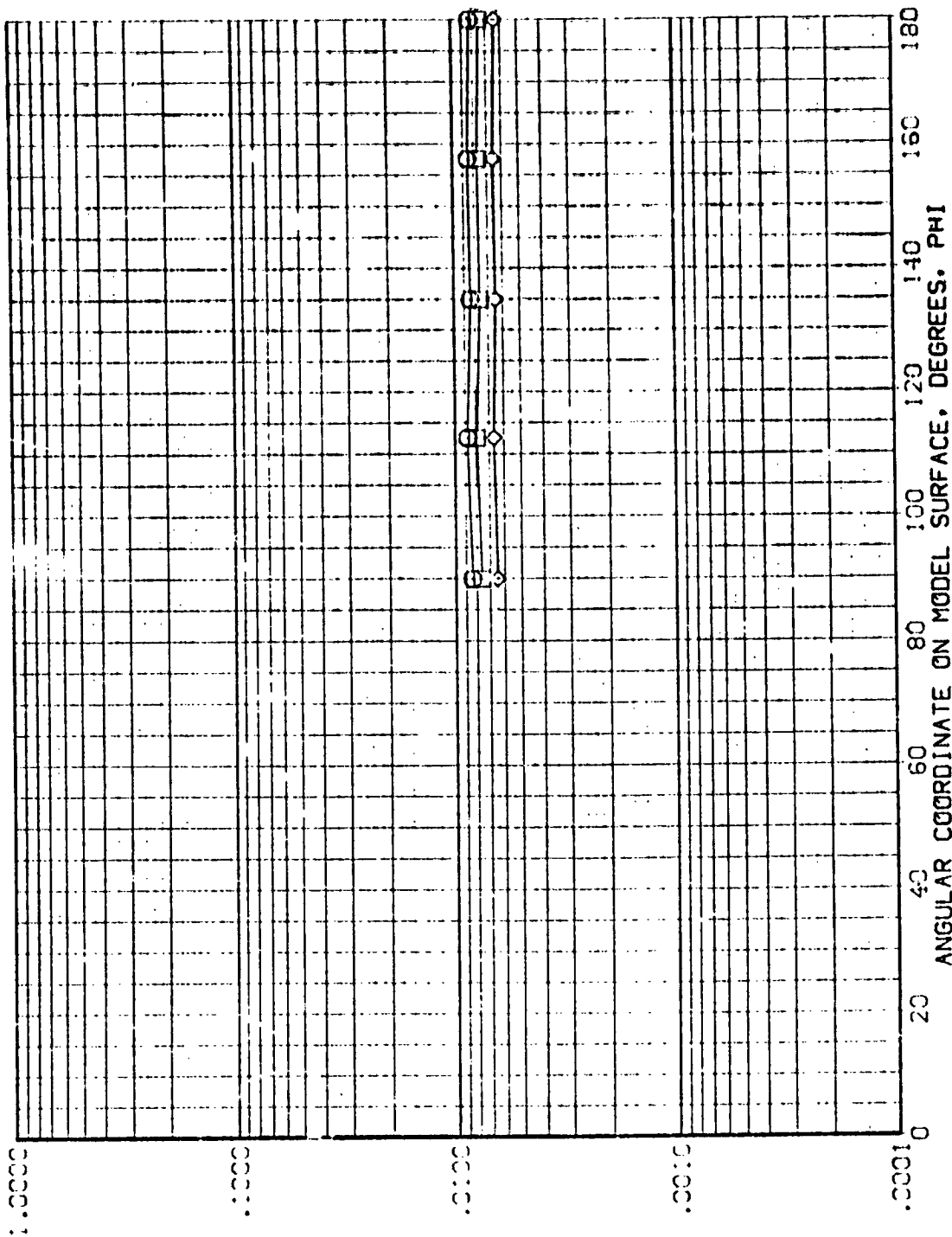


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 TI EXTERNAL TANK

(REV113)

SYNCD	HA/W/HT	X/L	VAC	ALPHA	BETA	PARAMETRIC VALUES
0110	.650	.550	5.220	.000	.000	
	.900			1.000		
	1.000					

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

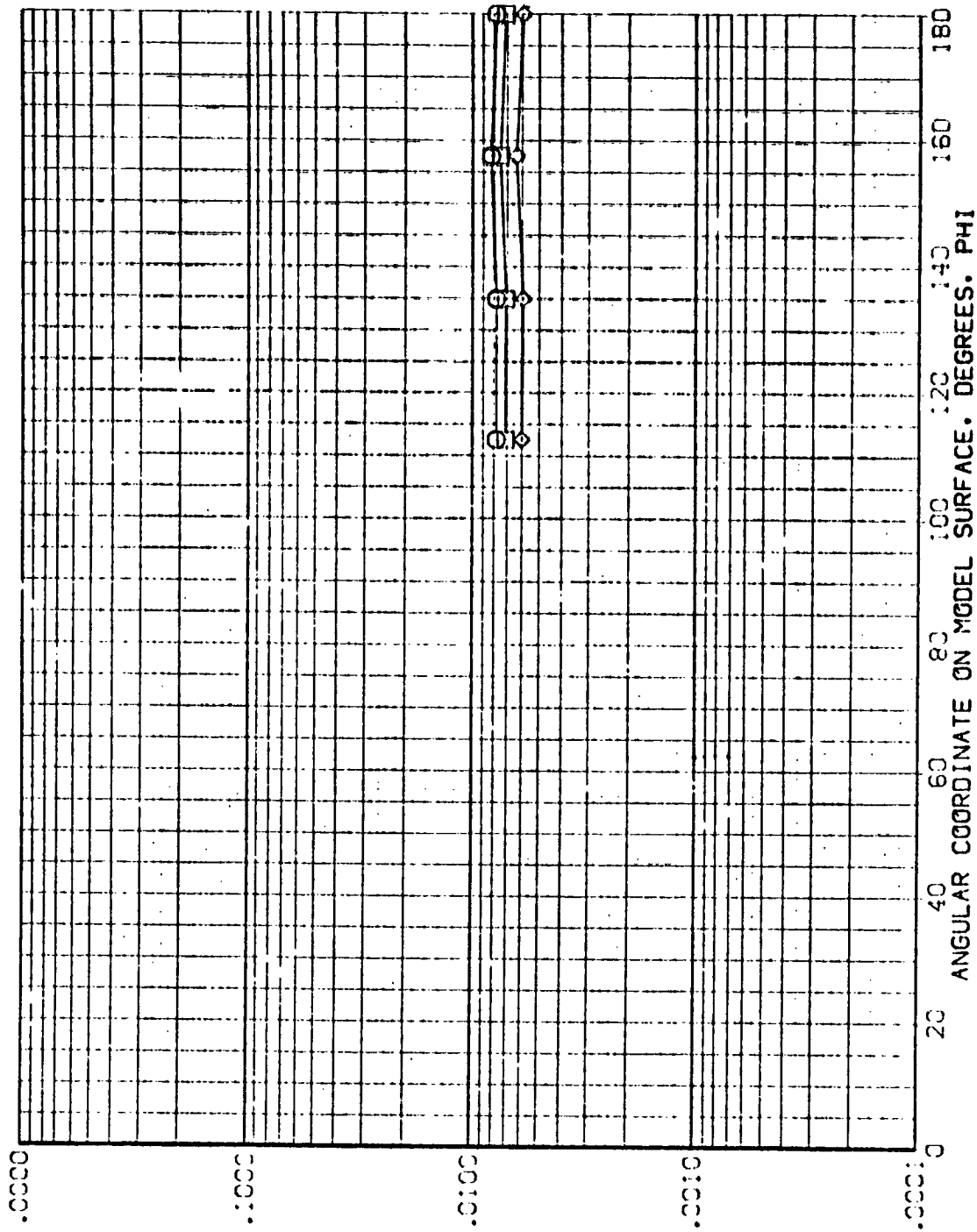


FIG. 4 TANK, ALONE



AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV710)

SVES-  
 -P/HT  
 .850  
 .900  
 1.000

X/L MACH  
 .600 5.220

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 .000

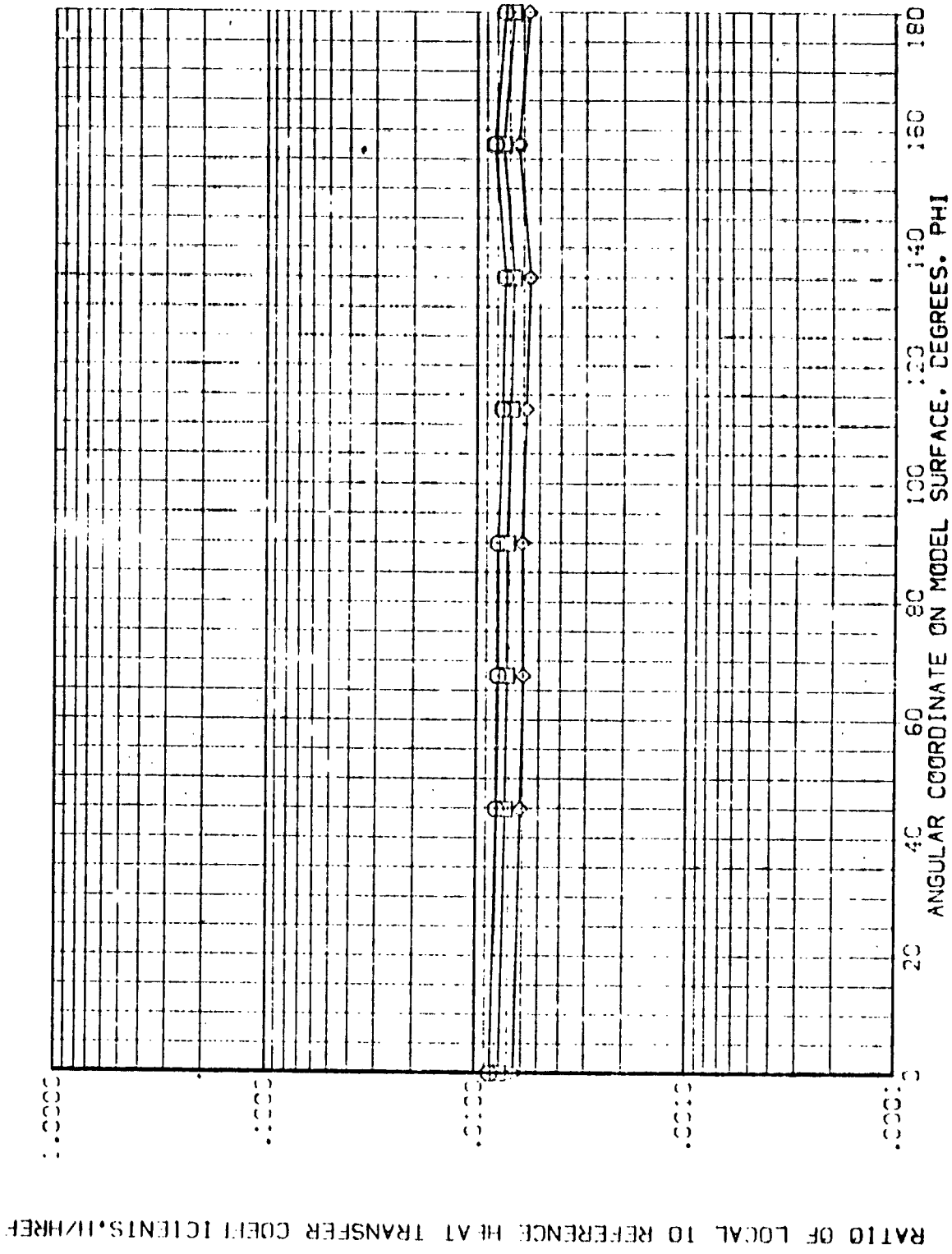


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV113)

SYMBOL H/A/H/T X/L MACH  
 ◊ ◊ .850 .650 5.220  
 ◊ ◊ .930  
 ◊ ◊ 1.000

PARAMETRIC VALUES  
 ALPHA .000  
 PH/L 1.000  
 BETA .000

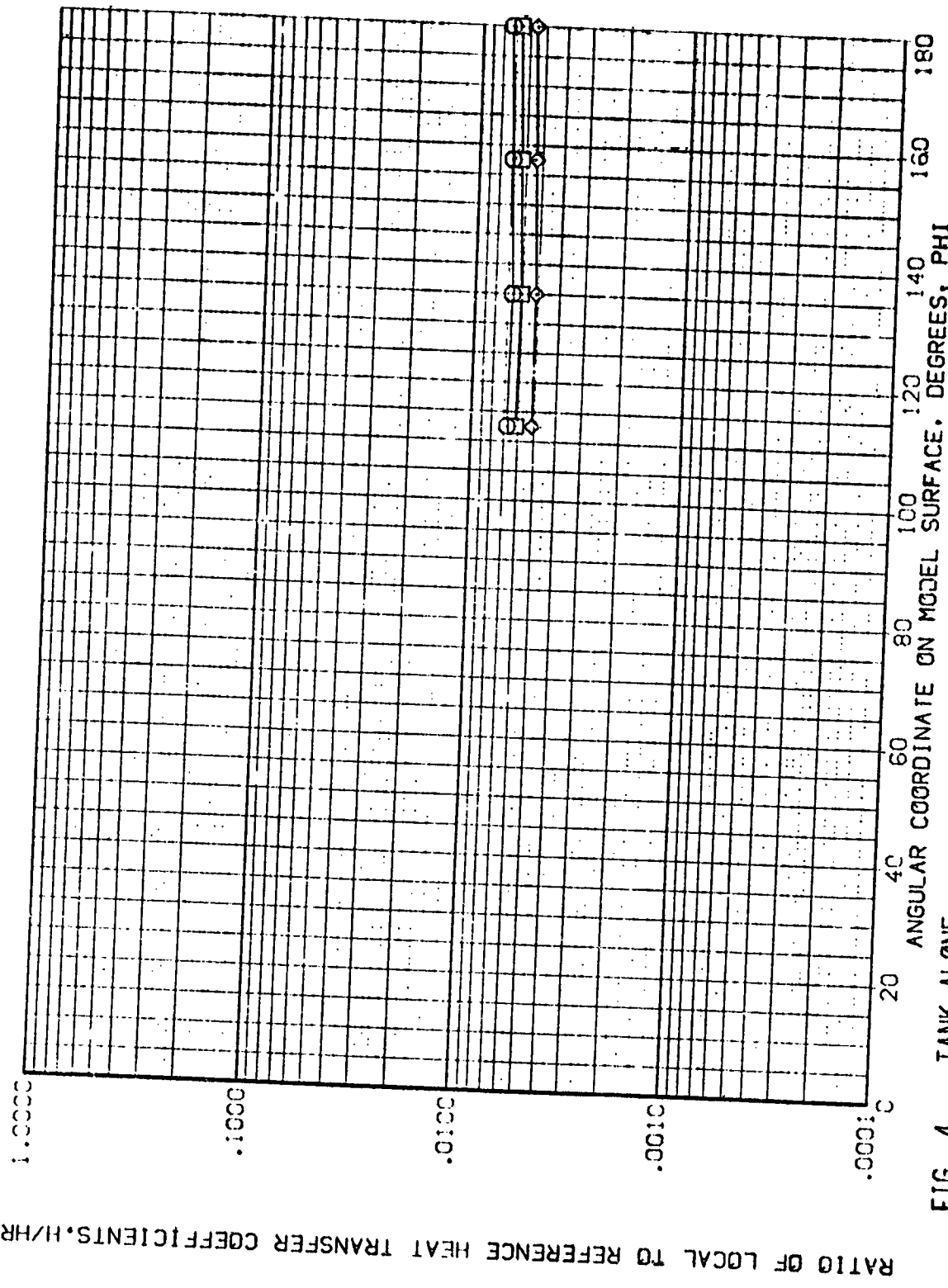


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV113)

SYMBOL	HAW/HT	X/L	MACH	PARAMETRIC VALUES
◇	.850	.700	5.220	ALPHA .000
□	.900			BETA .000
○	1.000			PR/L 1.000

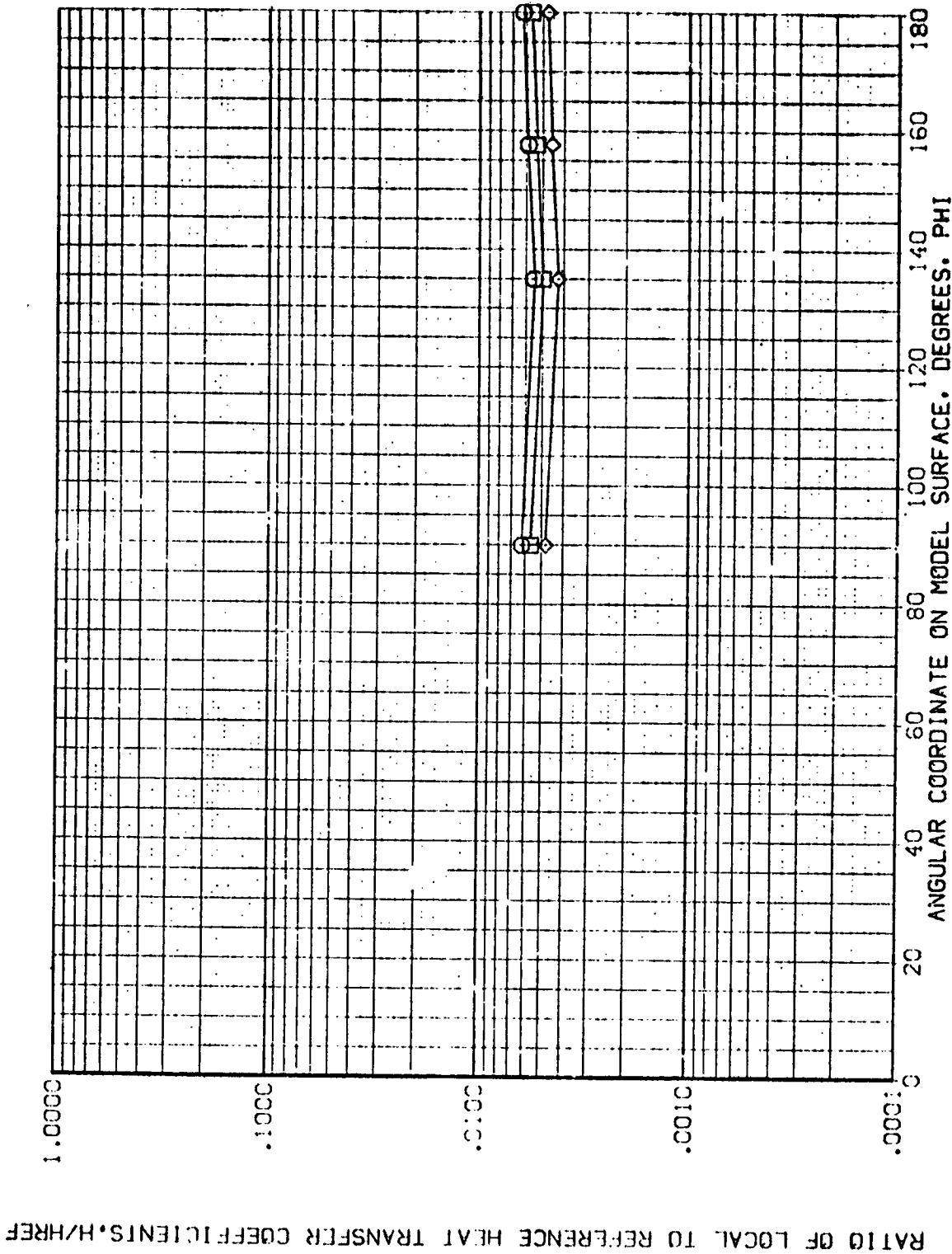


FIG. 4 TANK ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV T13)

SYSC. HAW/HT X/L MACH  
 .850 .750 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RNV/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

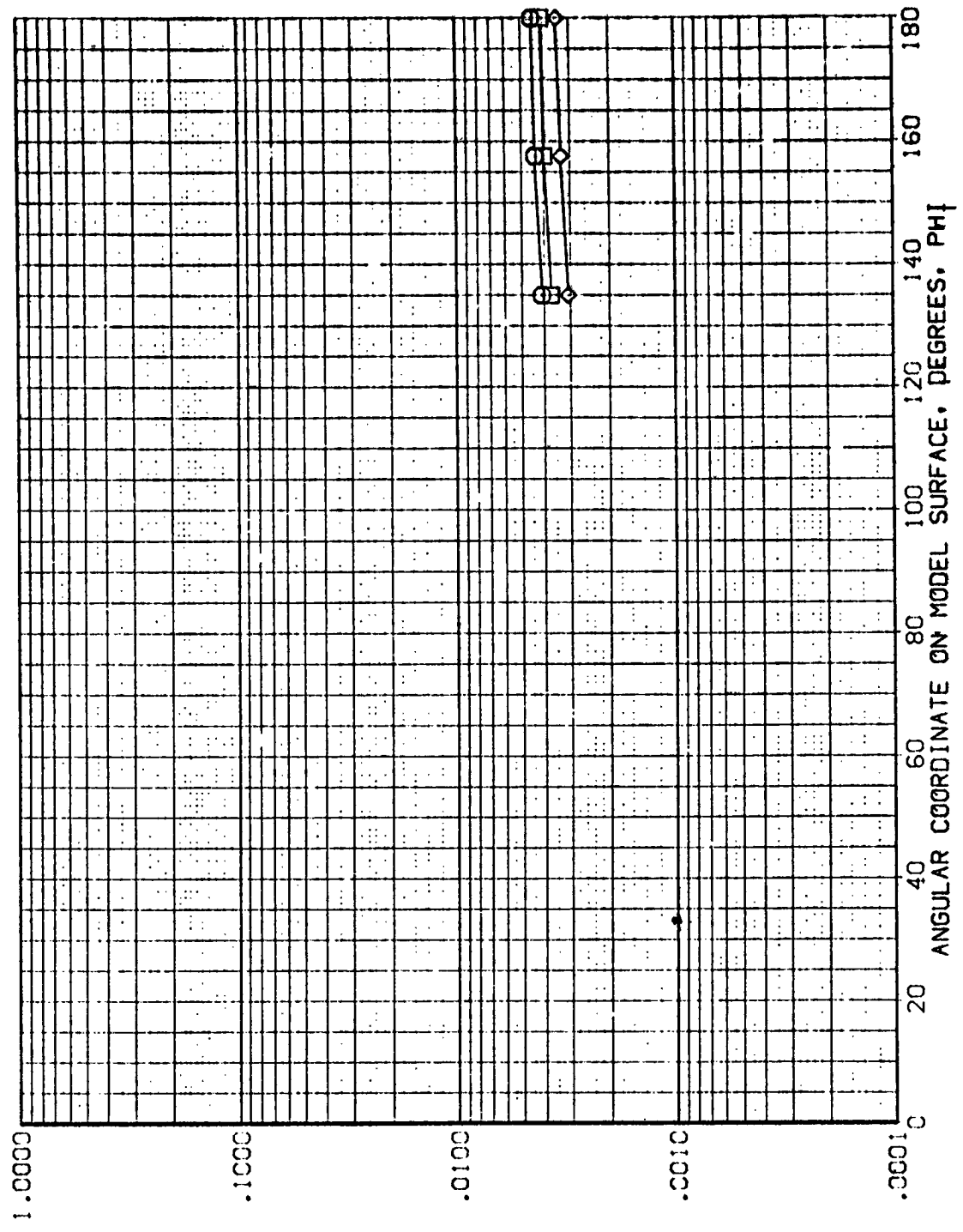


FIG. 4 TANK-ALONE

(REV113)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL H/W/H T X/L MACH  
.850 .800 5.220  
.900  
1.000

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

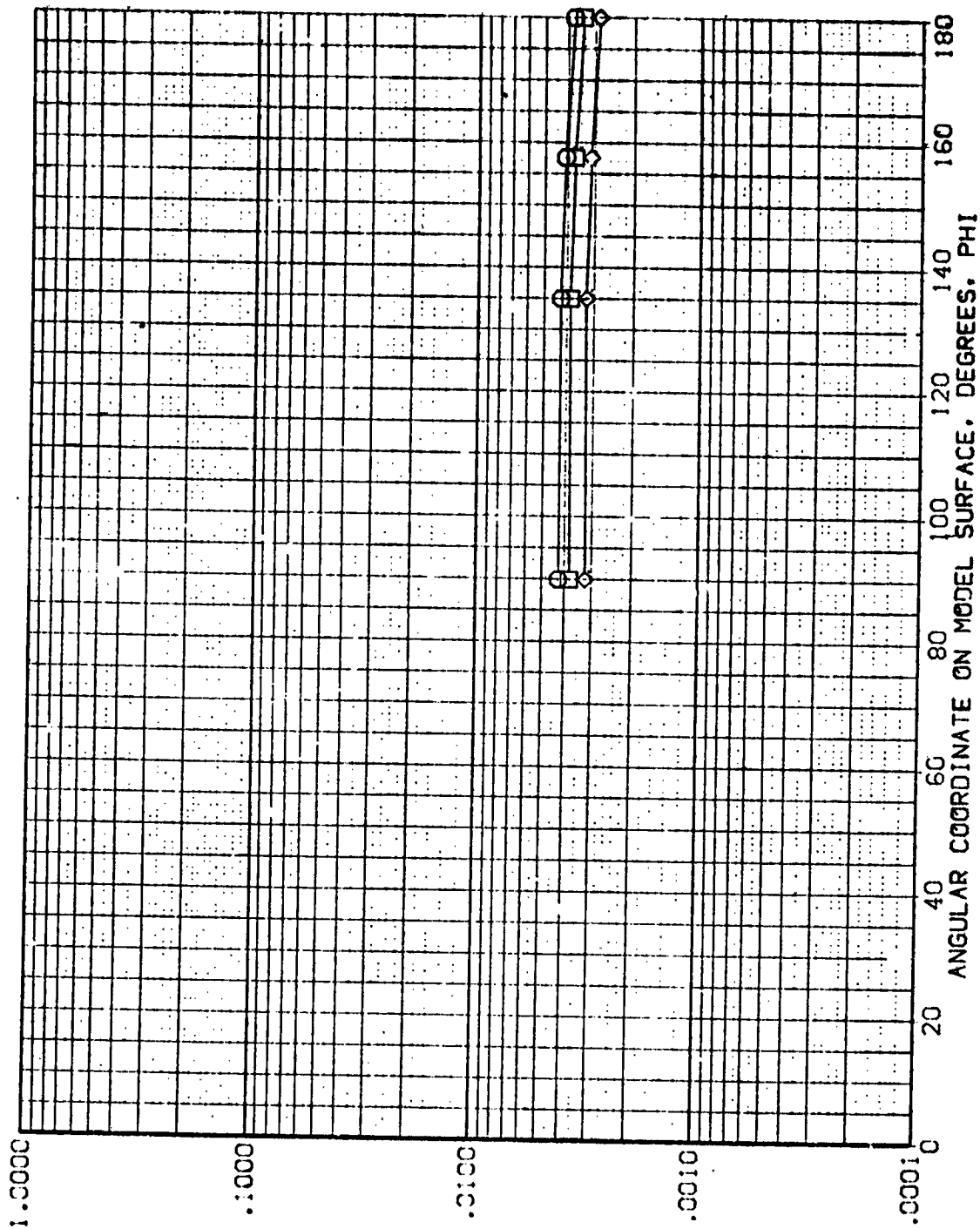


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV113)

SYMBOL HAW/HT X/L MACH  
 □ .850 .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RN/L .000

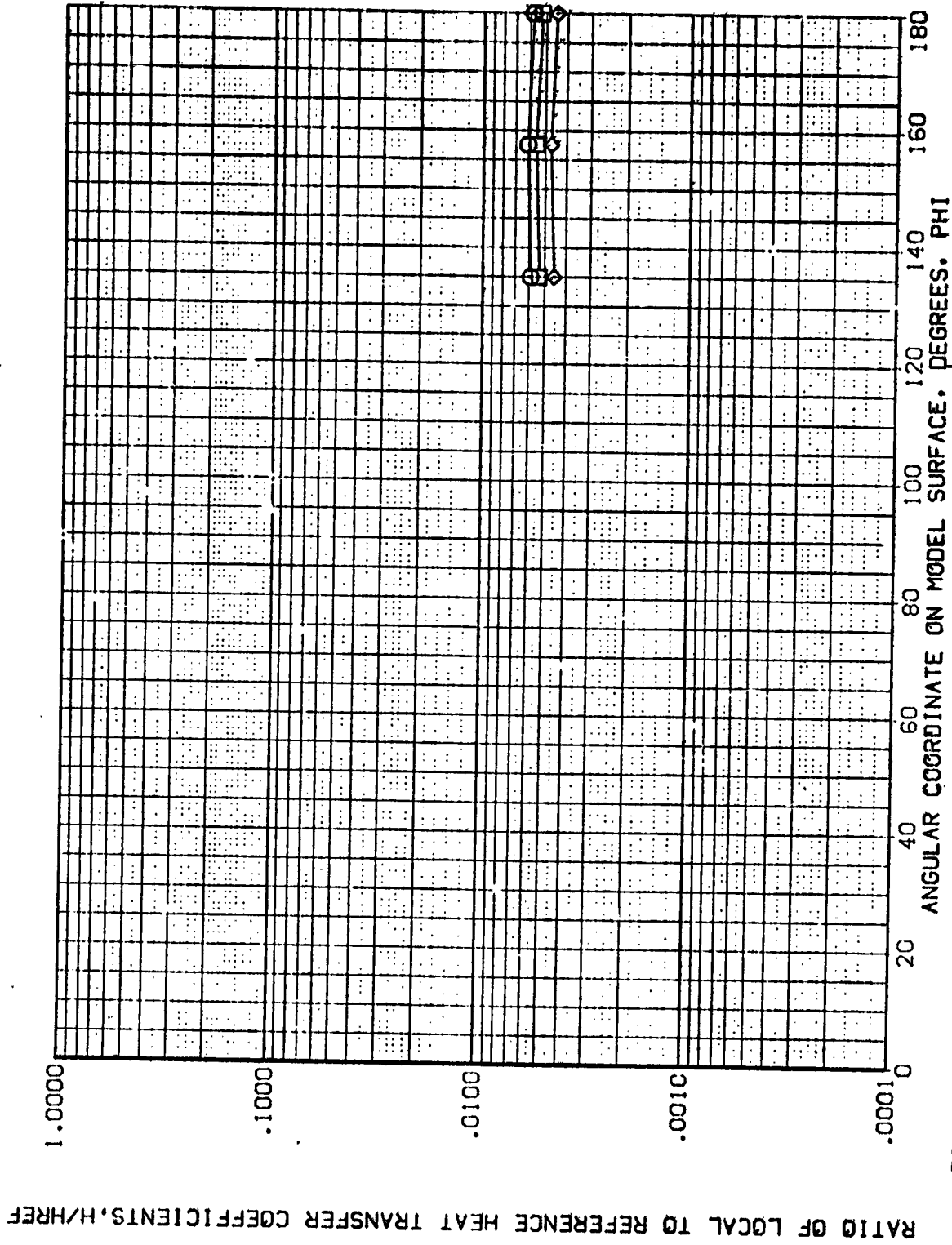


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV13)

SYMBOL  
 ◊ □ ◇

HAW/HT .850  
 .900  
 1.000

X/L .900

MACH 5.220

PARAMETRIC VALUES  
 ALPHA .070  
 RNL 1.000

BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

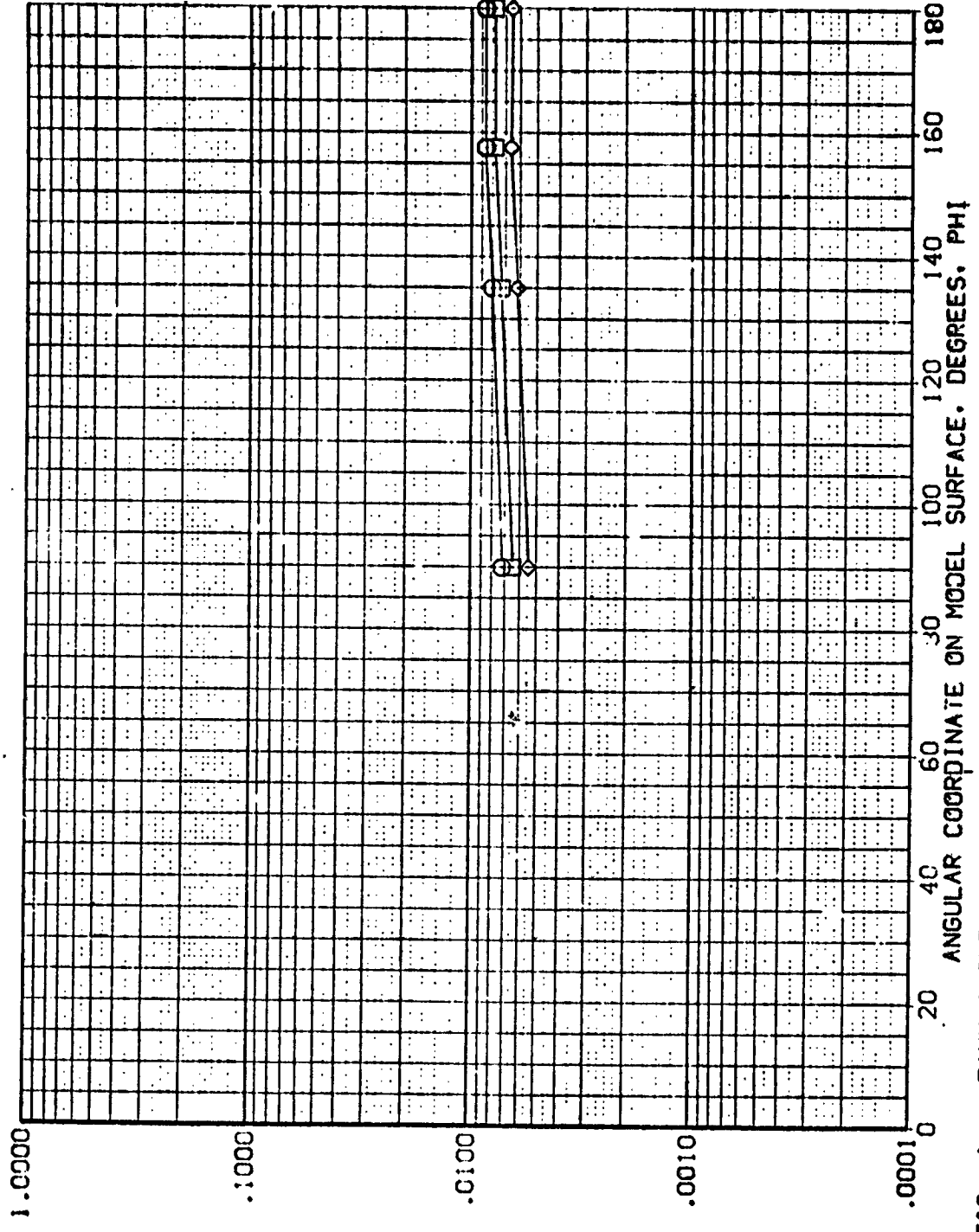


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV114)

SYMBOL HAV/HT X/L MACH  
 □ .850 .350 5.220  
 ◇ .900 1.000

PARAMETRIC VALUES  
 ALPHA -30.000  
 BETA 1.000

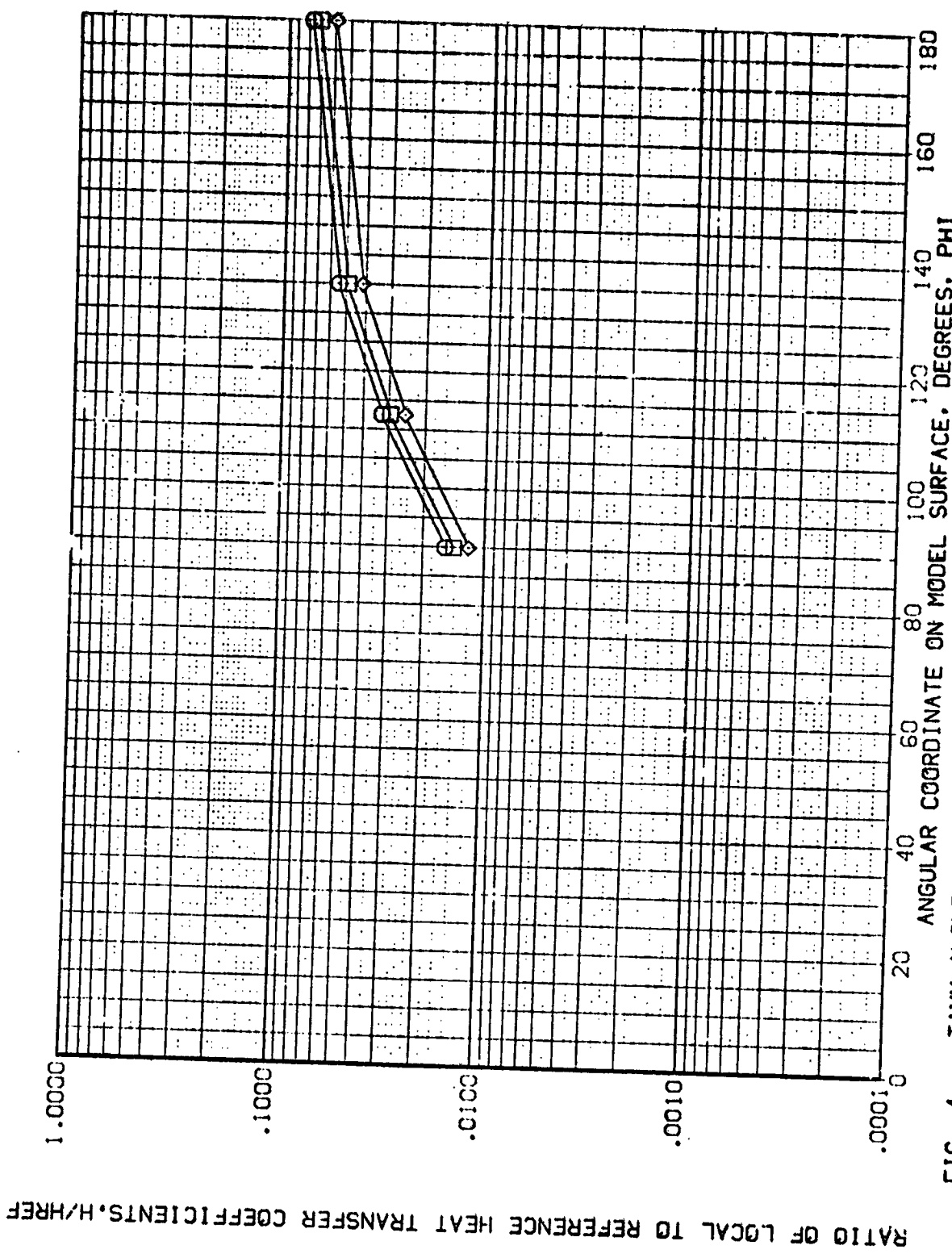


FIG. 4 TANK, ALONE



(REV114)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -50.000 BETA .000  
RN/L 1.000

SYMBOL HAW/HT X/L MACH  
◇ .850 .400 5.220  
□ .900  
○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

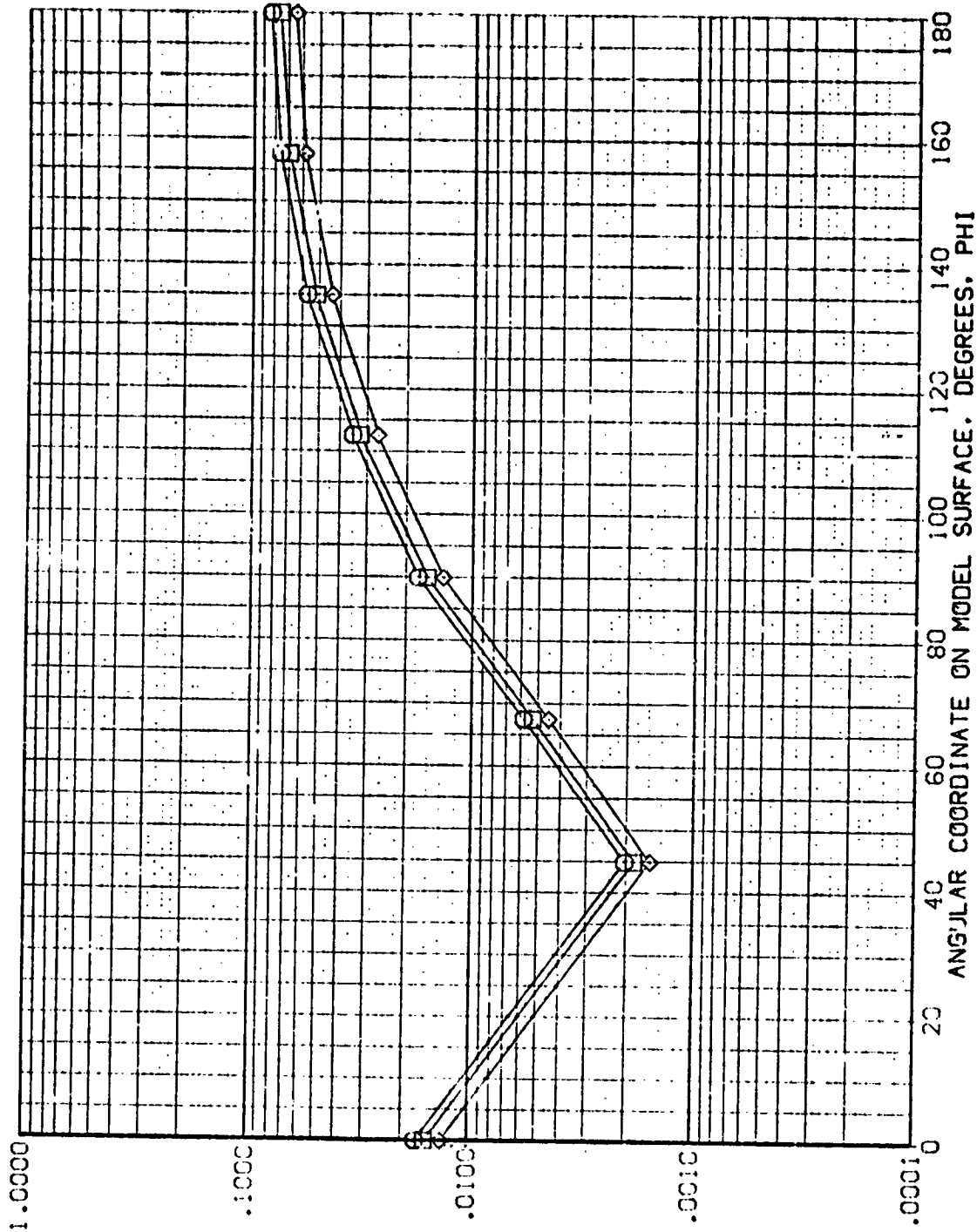


FIG. 4 TANK, ALONE

AMES 3.5-195 1428 T1 EXTERNAL TANK (REV.14)

SWGC - .850  
 .900  
 1.000

W/L .450  
 MACH 5.220

PARAMETRIC VALUES  
 ALPHA -30.000  
 BETA 1.000  
 P<sub>0</sub>/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

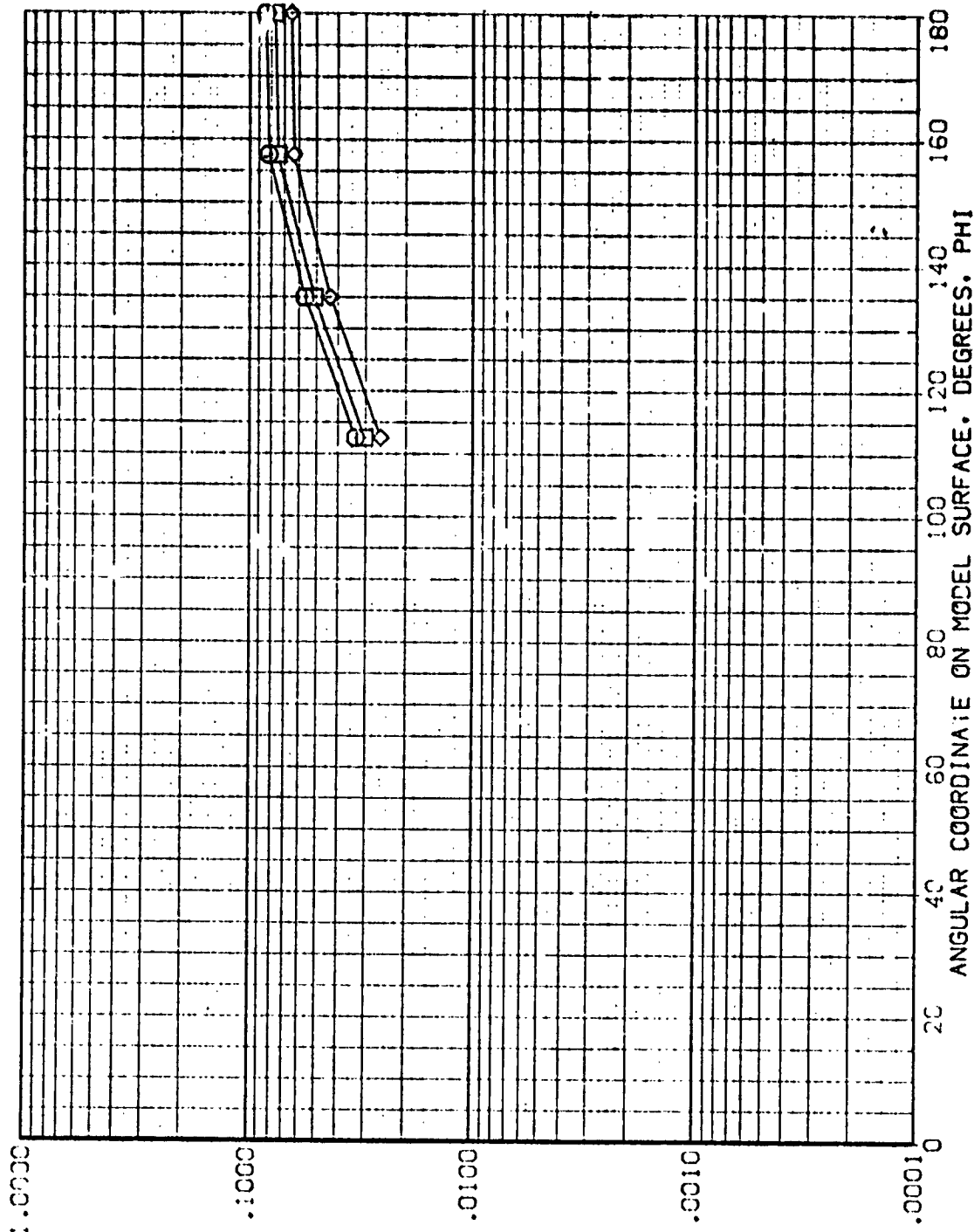


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV 14)

SYMBOL	HA/WJT	X/L	MACH	PARAMETRIC VALUES
◇	.650	.500	5.220	ALPHA
□	.900			-30.000
	1.000			BETA
				1.000
				.000

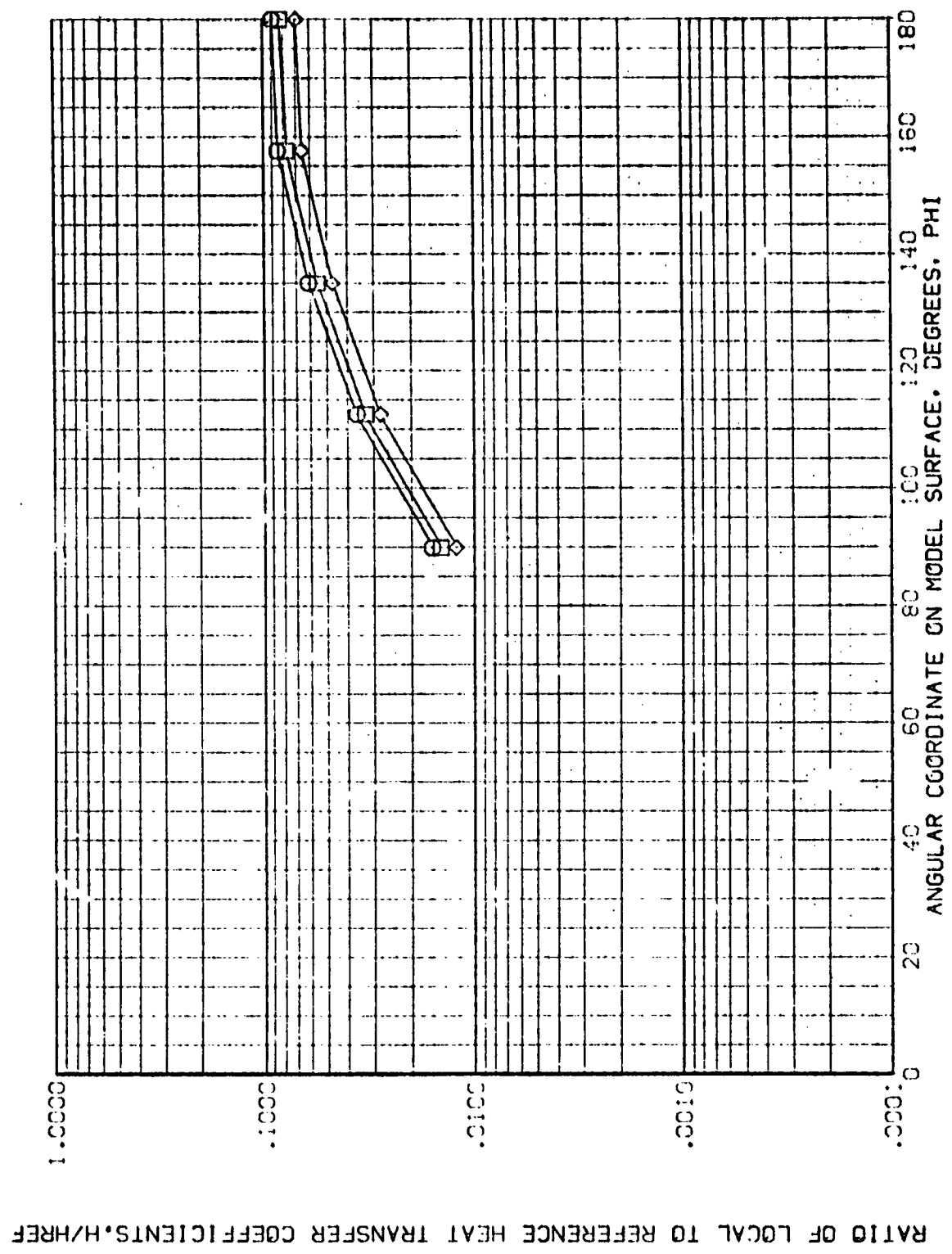


FIG. 4 TANK, ALONE

(REV114)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL HREF/UT X/L MACH  
◇ .953 .550 5.220  
○ .900  
□ 1.000

PARAMETRIC VALUES  
ALPHA -30.000 BETA .000  
P1/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

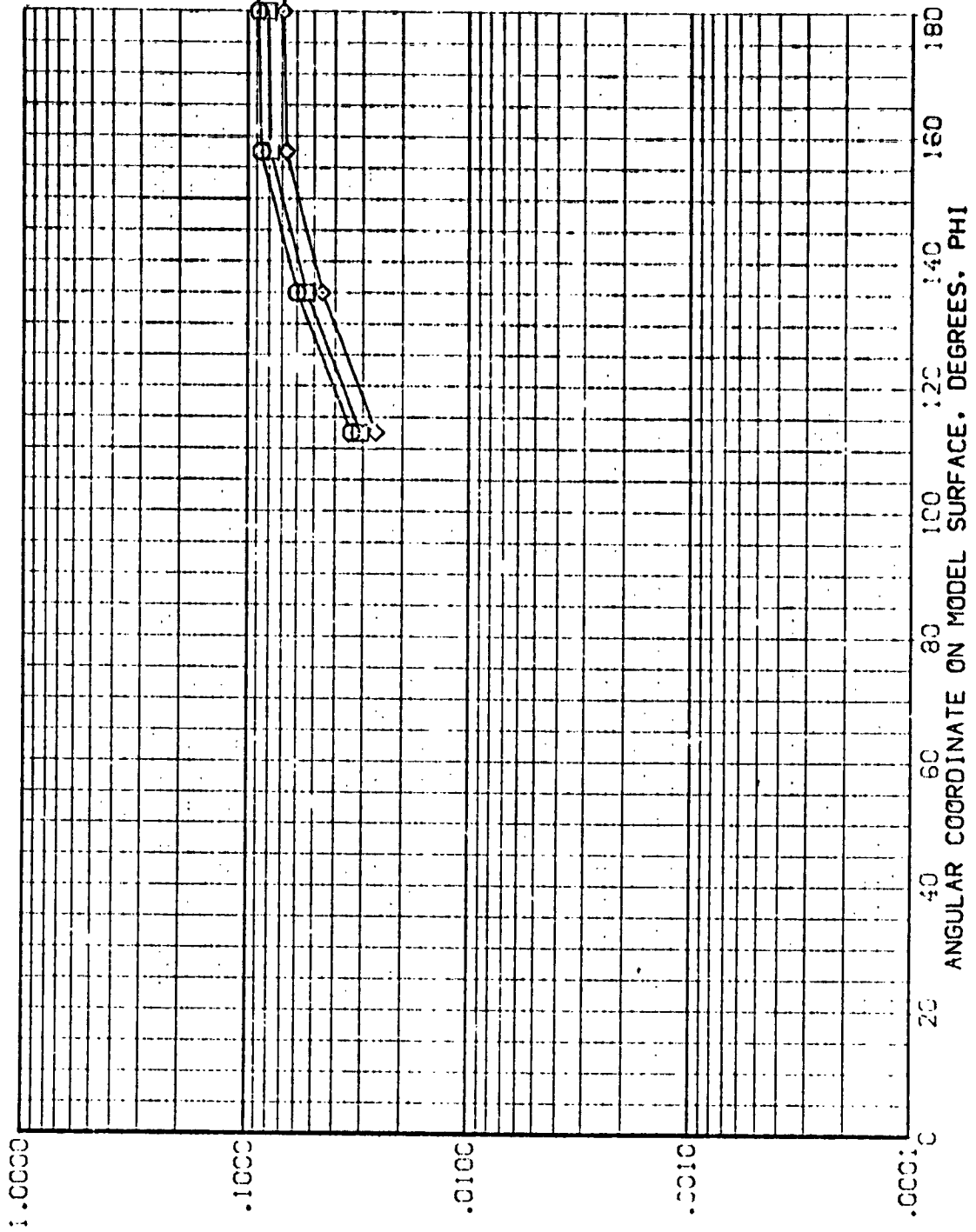


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV714)

SYMBOL HAW/HT X/L MACH  
 ◊ ◊ .850 .600 5.220  
 ◊ ◊ .900  
 ◊ ◊ 1.000

PARAMETRIC VALUES  
 ALPHA -30.000 DEG  
 RN/L 1.000 .000

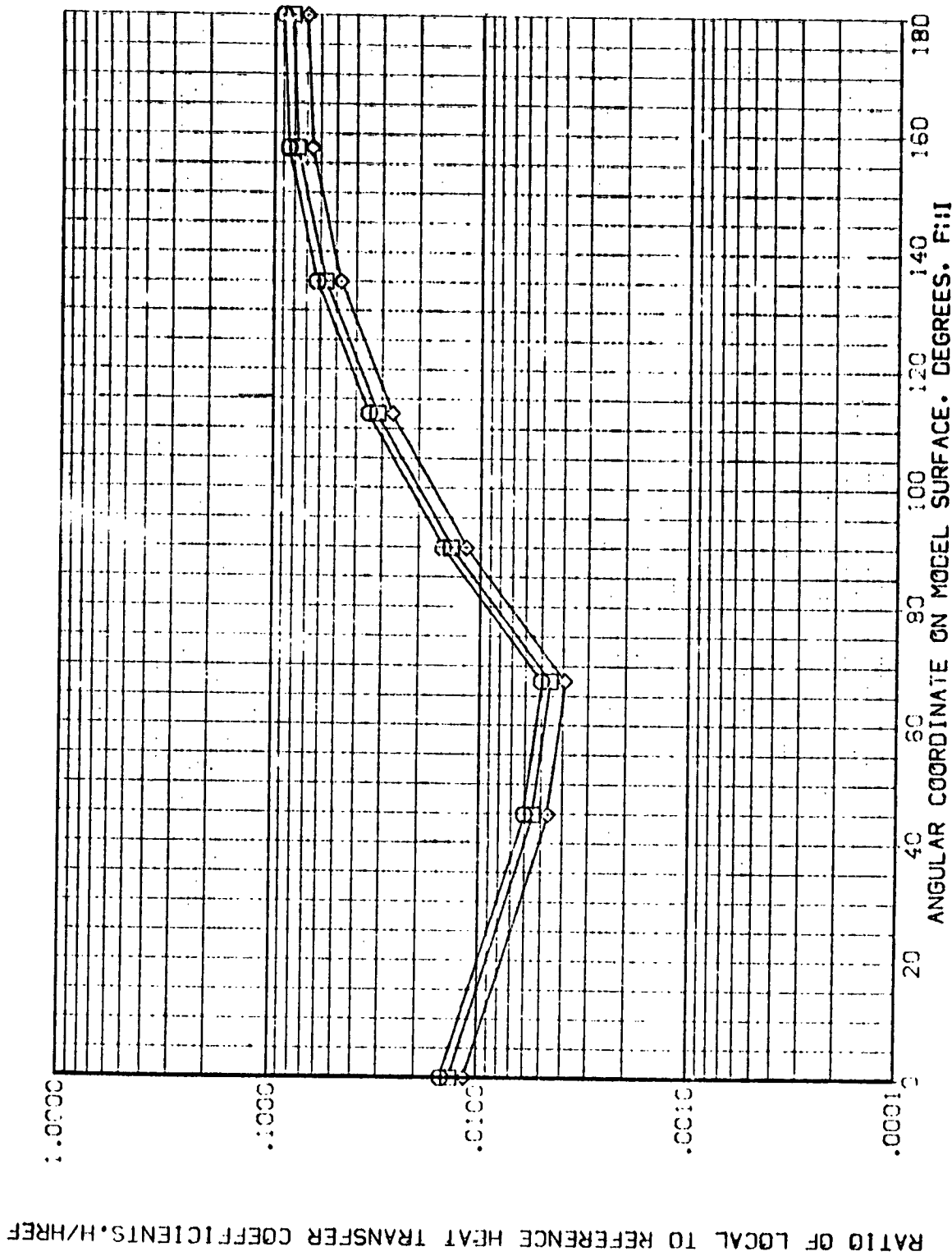


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV114)

SYMBOL:  $\diamond$   $\square$   $\square$   
 HAW/HT .850  
 X/L .650  
 WACH 5.220

PARAMETRIC VALUES  
 ALPHA -30.000  
 BETA .000  
 P\*/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

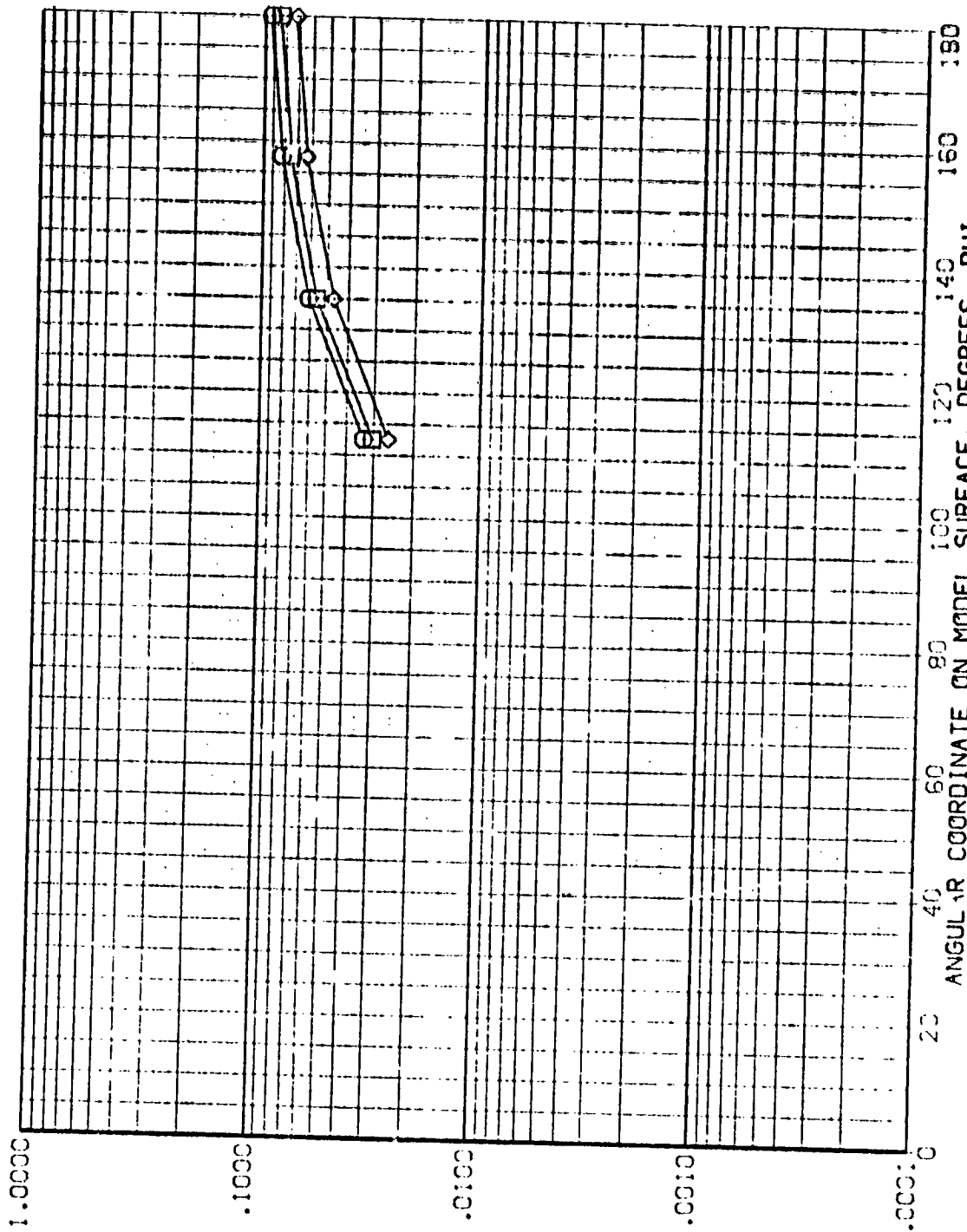


FIG. 4 TANK ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV114)

SIZE: HAW/RT X/L MACH  
 .850 .700 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .000  
 PVAL 1.000

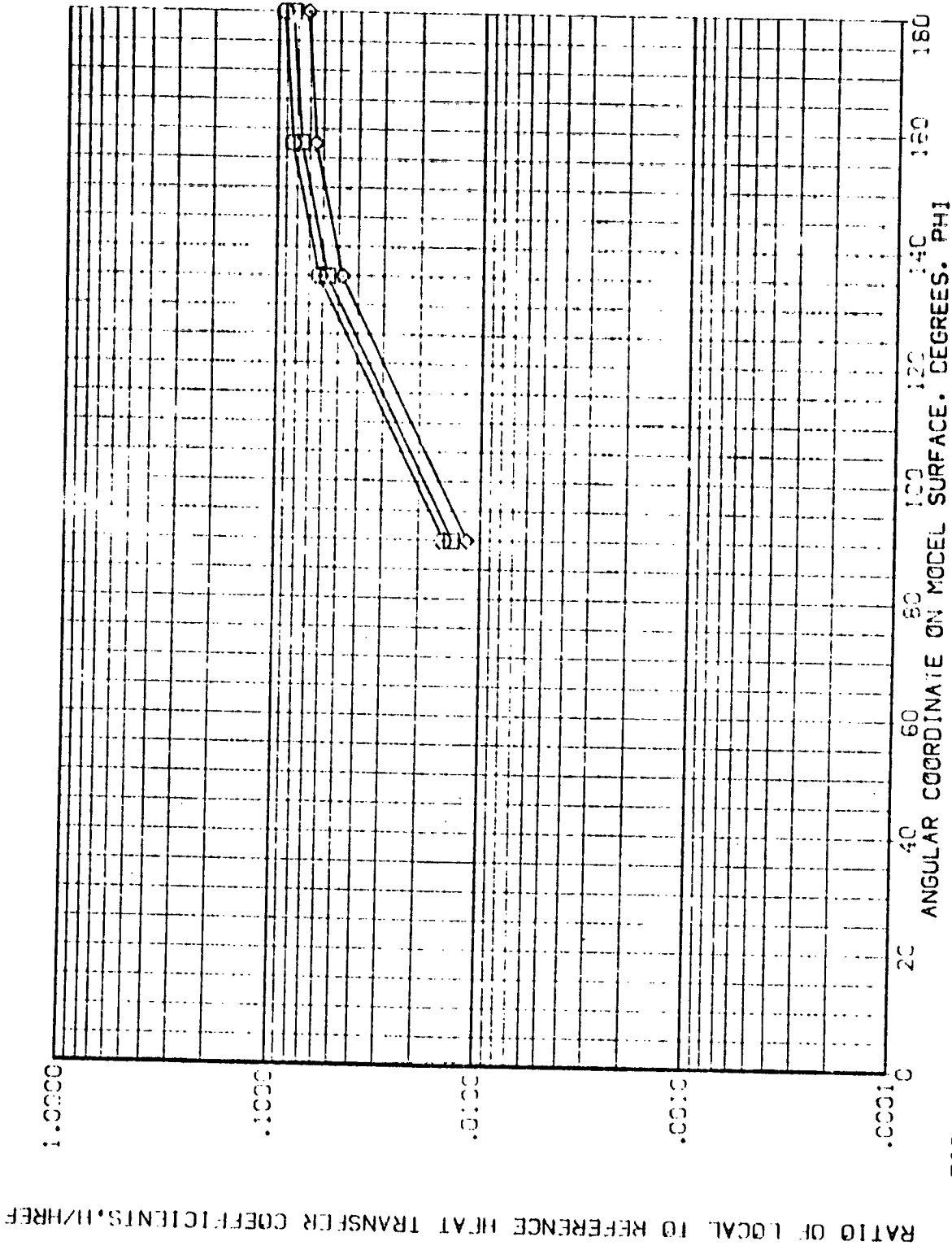


FIG. 4 TANK, ALONE

02

AMES 3.5-195 IH28 .1 EXTERNAL TANK

(REV114)

SYMBOL  
◇ □

PARAMETRIC VALUES  
H/W/H T V/L MACH  
.850 .750 5.220

PARAMETRIC VALUES  
ALPHA R/V/L BETA  
-30.000 1.000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

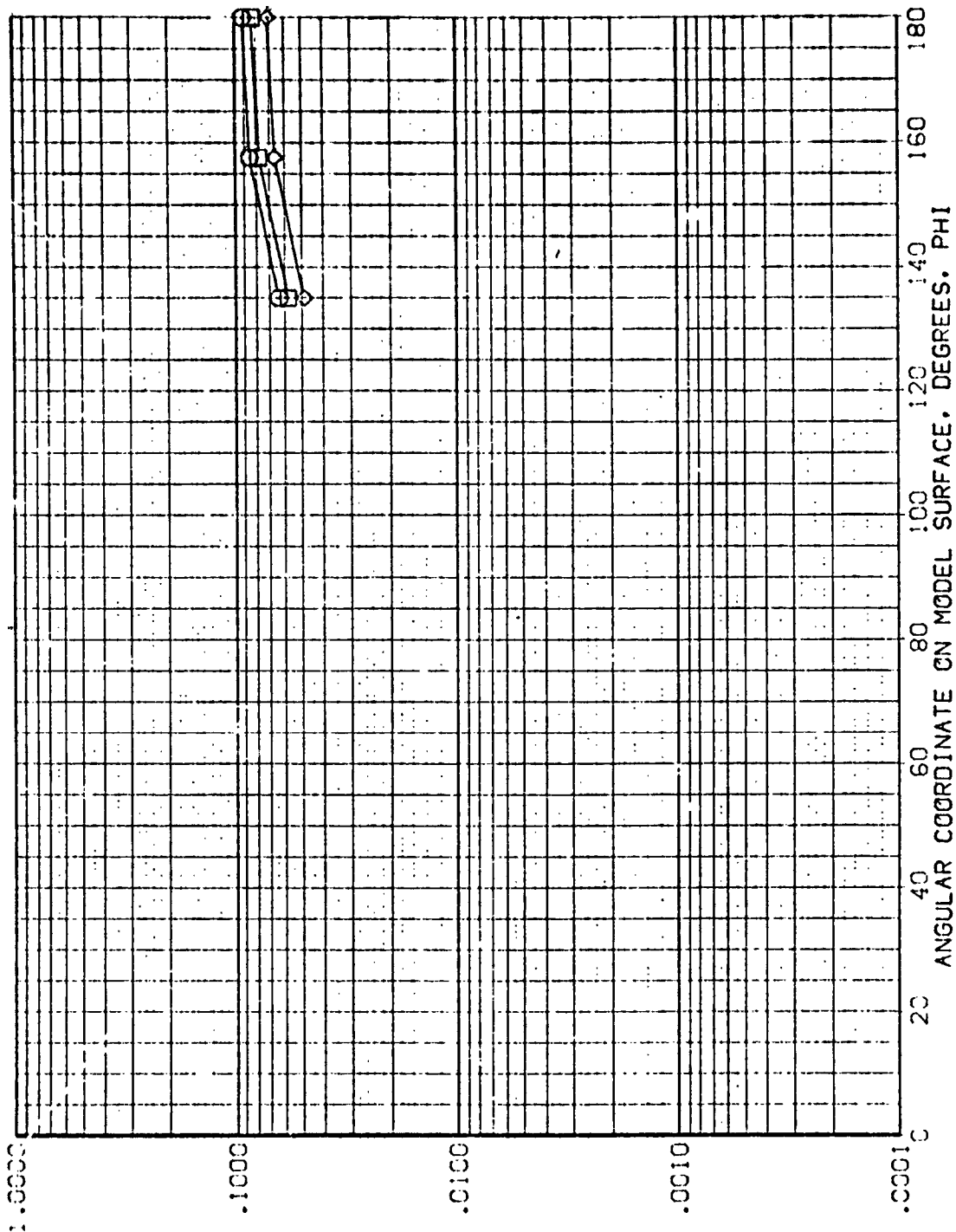


FIG. 4 TANK, ALONE



(REV114)

EXTERNAL TANK

AVES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -30.000 SET A .000  
RN/L 1.000

HA/HHT X/L MACH  
.850 .800 5.220  
.900  
1.000

SYMBOL  
□  
◇

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

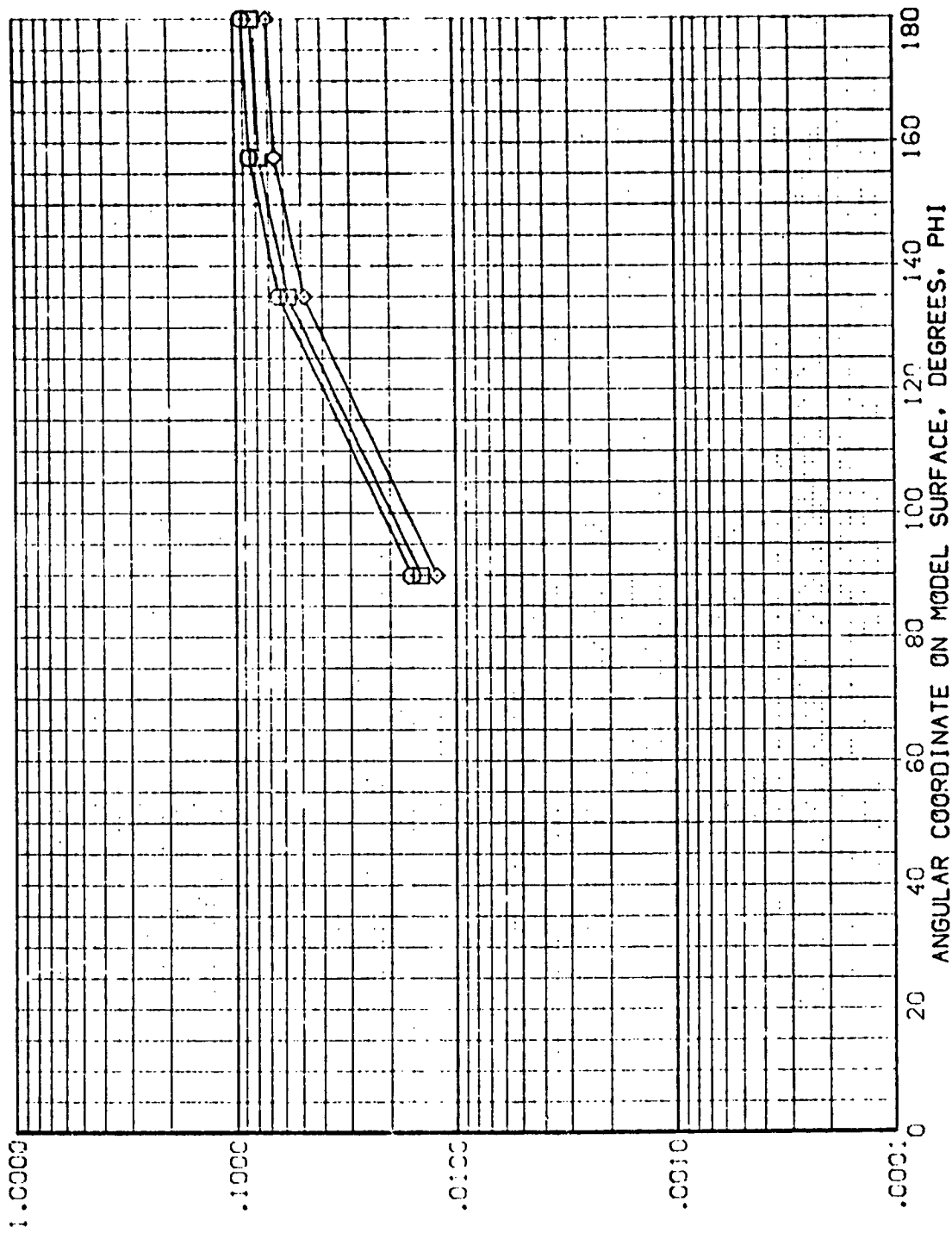


FIG. 4 TANK, ALONE

(REV T14)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL

HAW/HT .850  
X/L .850  
MACH 5.220

PARAMETRIC VALUES  
ALPHA PV/L 1.000  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

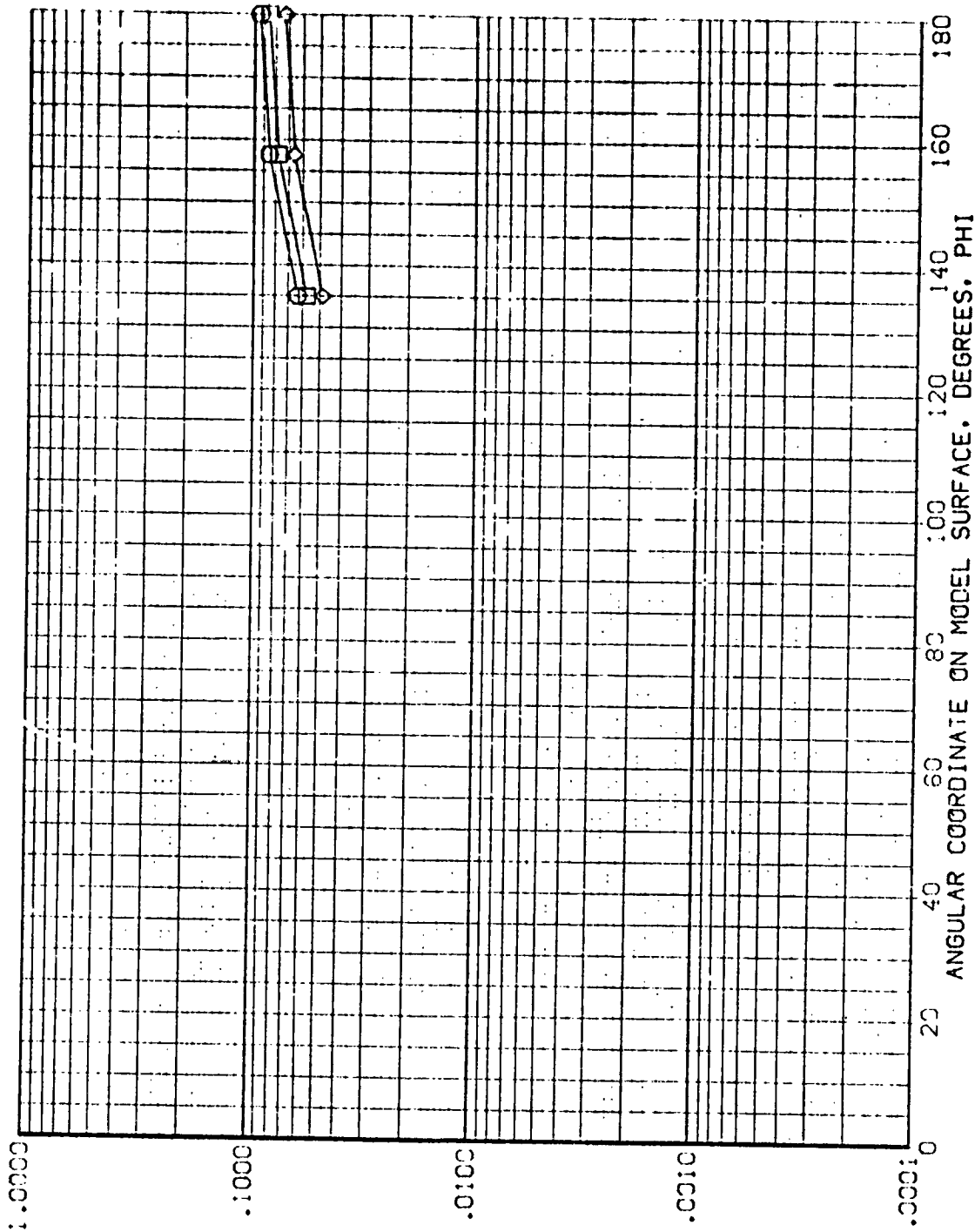


FIG. 4 TANK ALONE

AMES 3.5-195 1428 T1

EXTERNAL TANK

(REV T14)

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .000  
 RN/L 1.000

MACH 5.220  
 X/L .900

SYMBOL H/W/T  
 O .850  
 □ .900  
 △ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

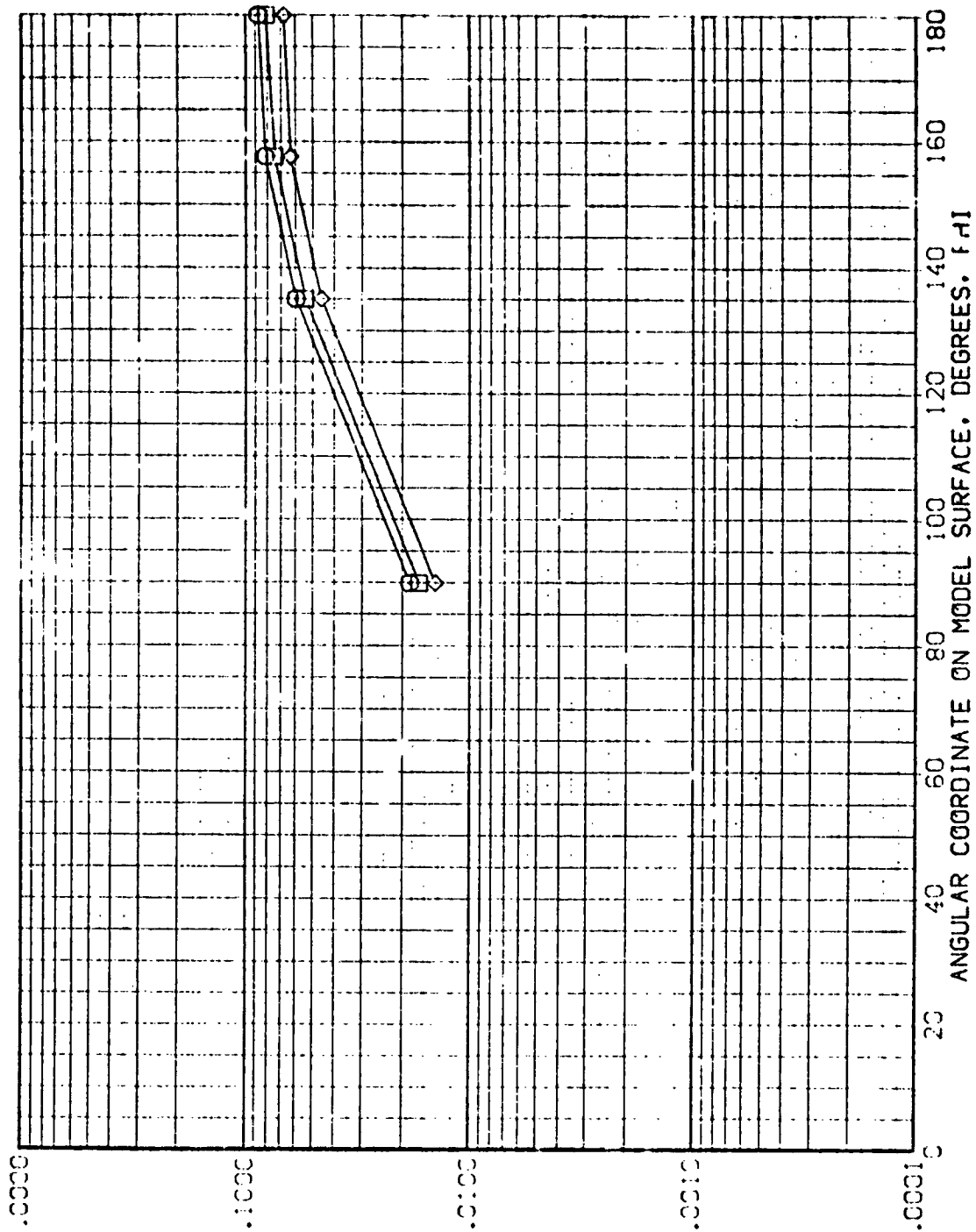


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV115)

SYMBOL H/W/H T X/L MACH  
 ◊ .850 .350 5.221  
 ○ .900  
 □ 1.000

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 R/V/L 1.000

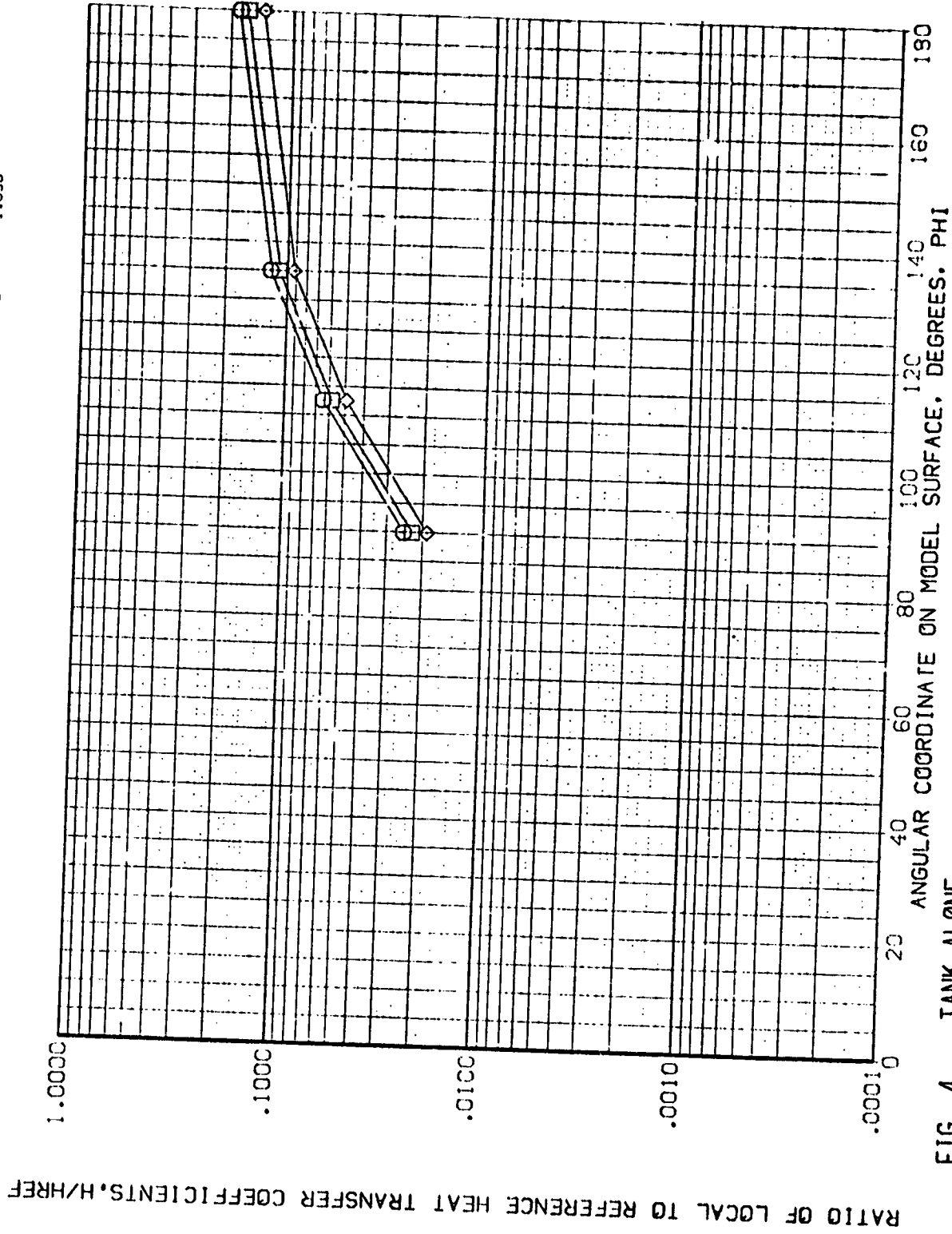


FIG. 4 TANK, ALONE

(REV15)

EXTERNAL TANK

AMES 3-5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -50.000 BETA .000  
R/N/L 1.000

SYMBOL HAW/HT X/L MACH  
◇ .850 .400 5.221  
○ .950  
□ 1.000

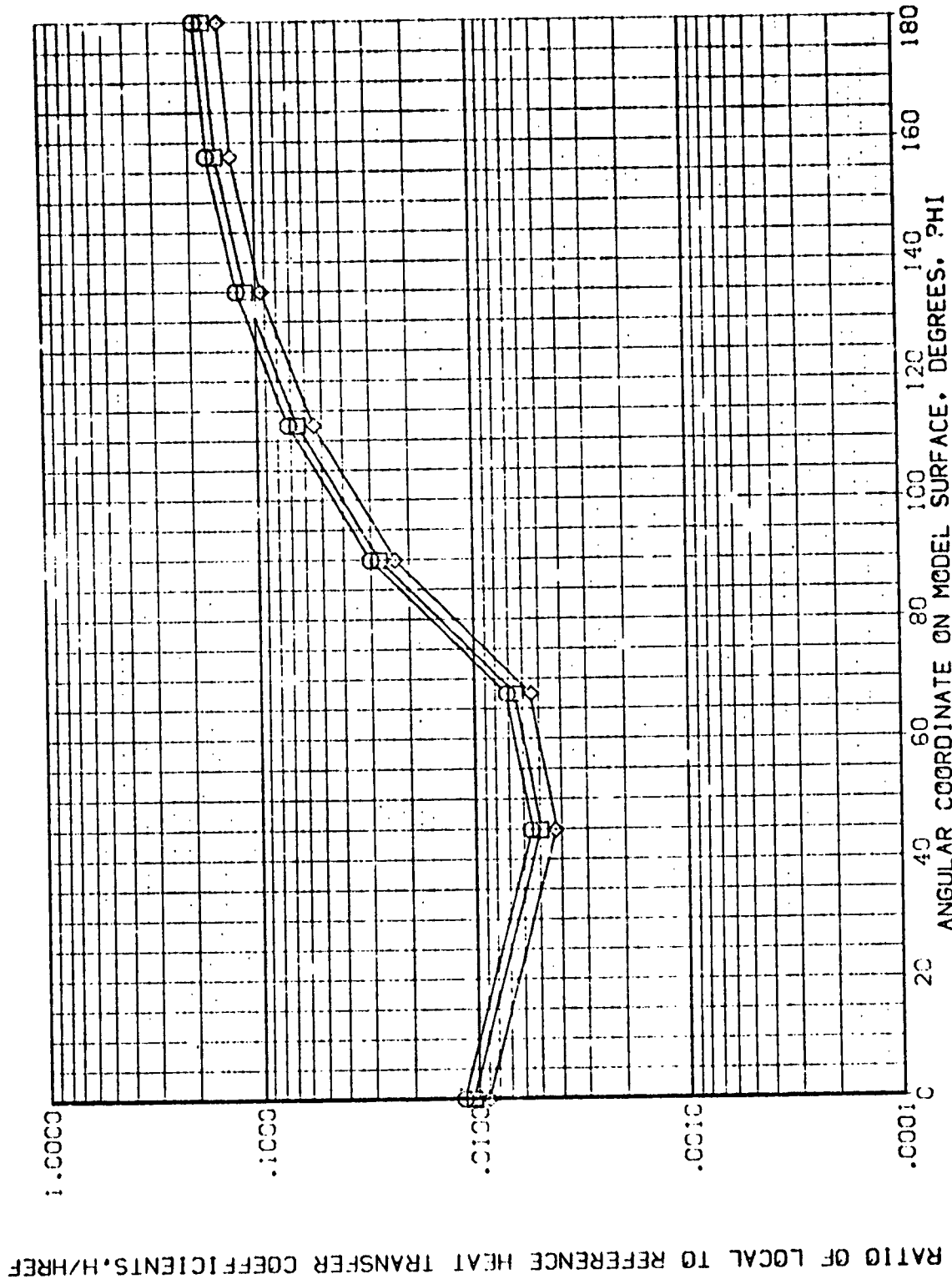


FIG. 4 TANK, ALONE

(REV15)  
 PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 RN/L 1.000

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL HAW/HT X/L MACH  
 ◇ .85C .45C 5.221  
 ○ .90C  
 □ 1.00C

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

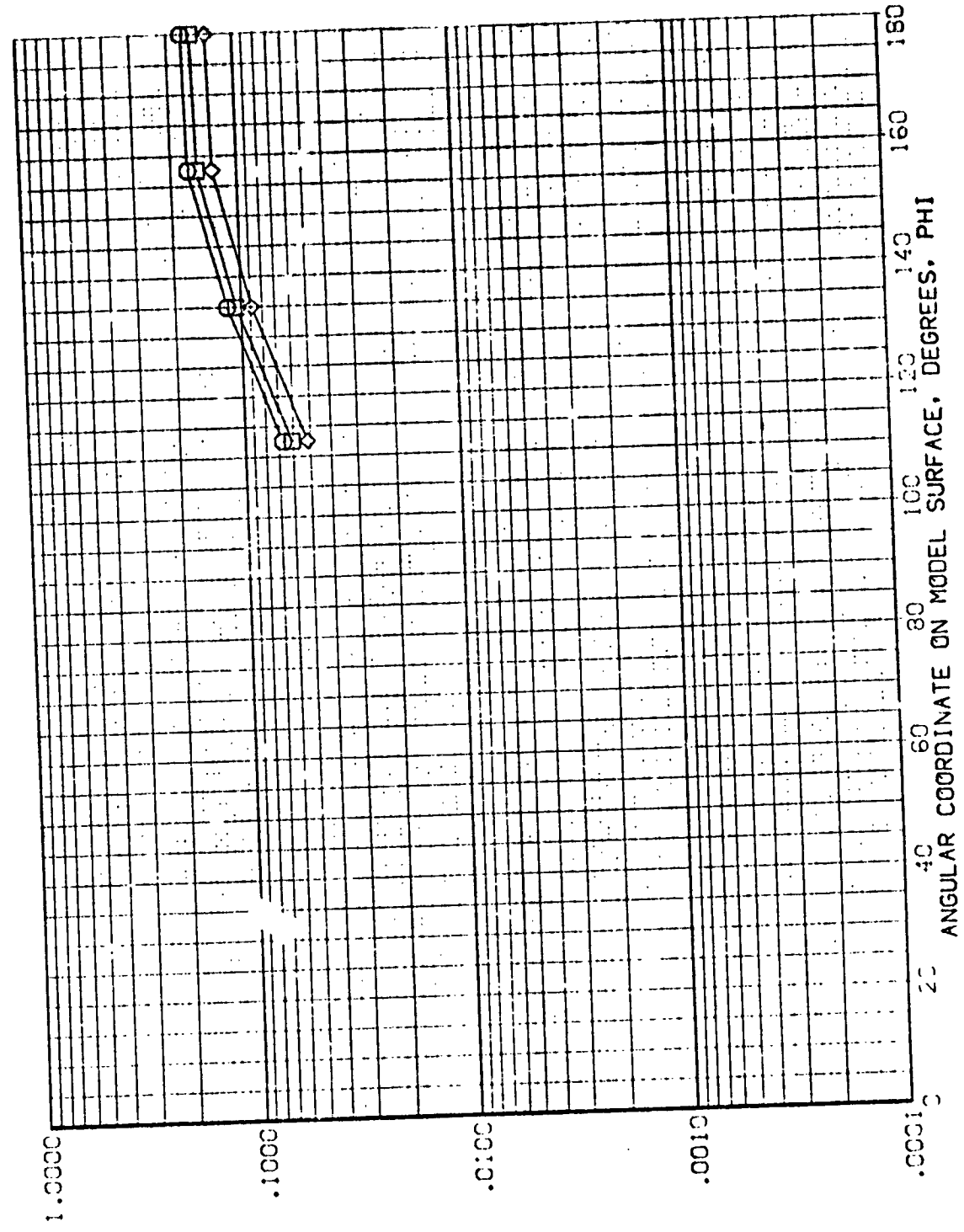


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV115)

SYMBOL    WA#/WT    X/L    MACH

◇    .850    .500    5.221

○    .900

○    1.000

PARAMETRIC VALUES

ALPHA    -60.0°

RH/L    1.000

BETA    .000

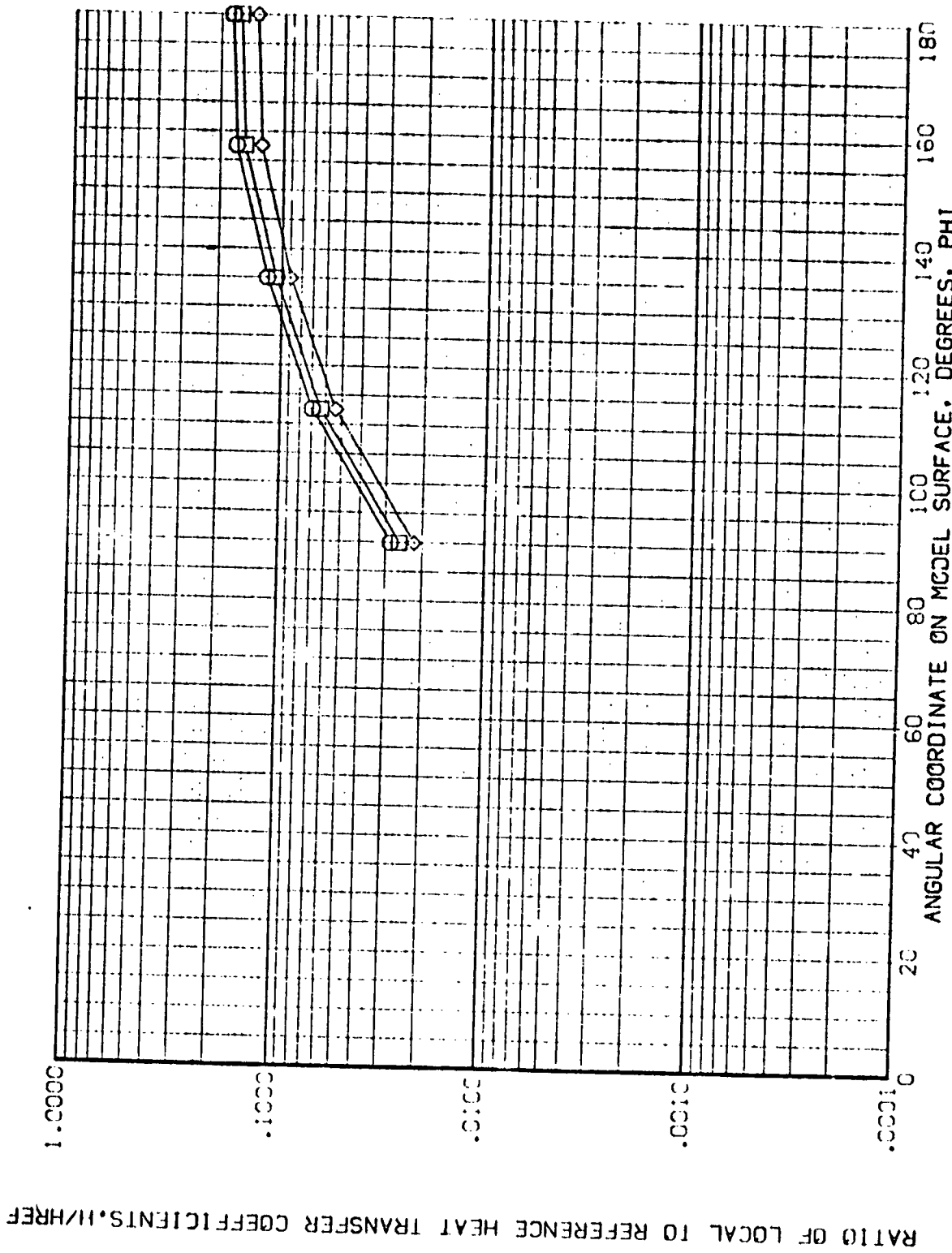


FIG. 4 TANK, ALONE

(REV T15)

EXTERNAL TANK

AMES 2.5-195 1428 T1

PARAMETRIC VALUES  
ALPHA -60.000 BETA .000  
R\*/L 1.000

S-VECL H-AN/H-T V/L MACH  
.0100 .0800 .550 5.221  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

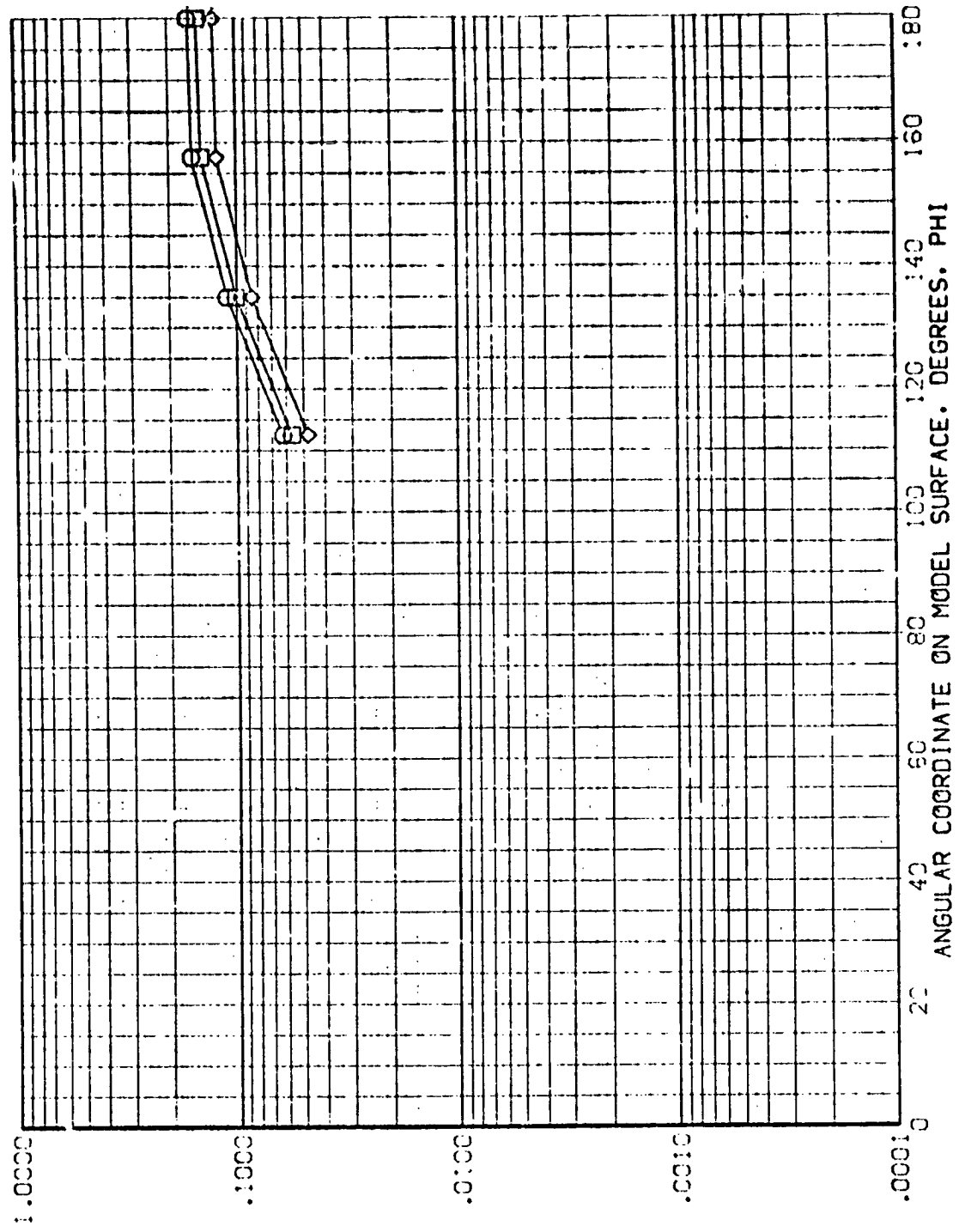


FIG. 4 TANK-ALONE



AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV15)

SYMBOL:  $\diamond$   $\square$   $\circ$   
 HAM/HT .850  
 X/L .600  
 MACH 5.221  
 1.000

PARAMETRIC VALUES  
 ALPHA -50.000  
 BETA 1.000  
 .000

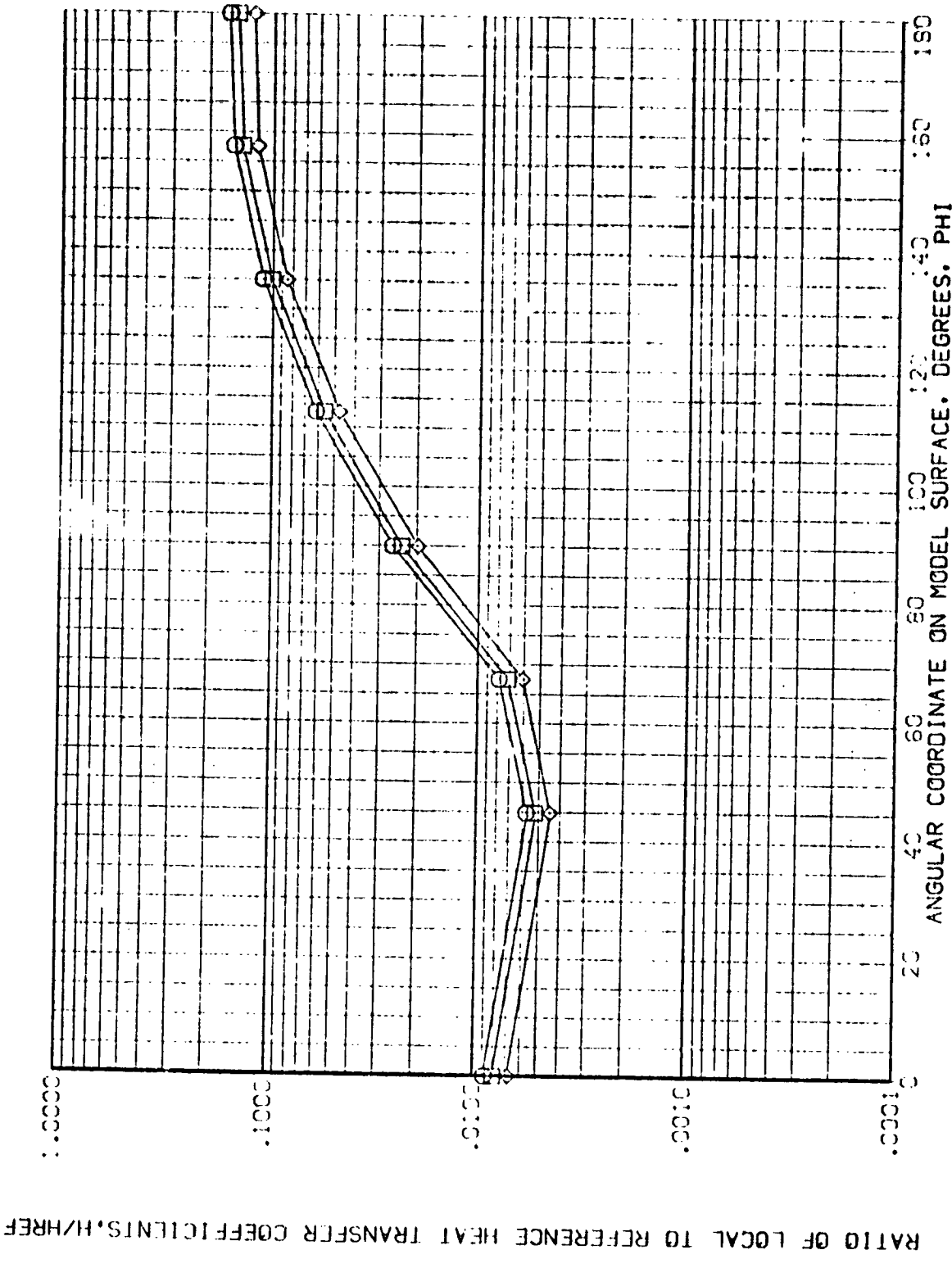


FIG. 4 TANK, ALONE

AMES 3.5-195 1H28 T1 EXTERNAL TANK (REV:15)

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 PA/L 1.000

SYMB- WAK/WT Y/L MACH  
 .850 .550 5.221  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

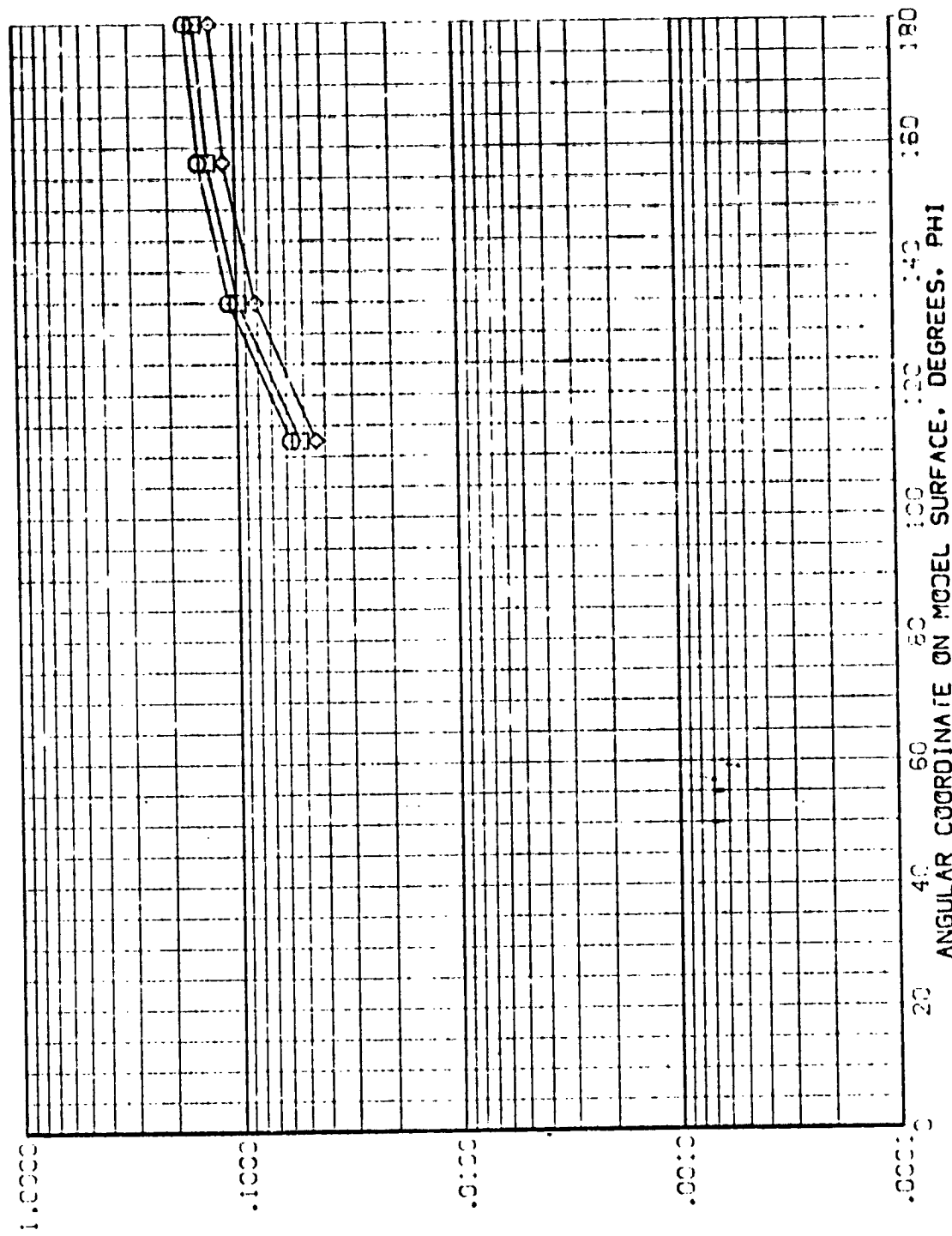


FIG. 4 TANK, ALONE

CRE/T150

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -60.000  
BETA 1.000

ALPHA  
BETA

MACH 5.221  
X/L .700

WAM/HT .850  
BETA .950  
1.000

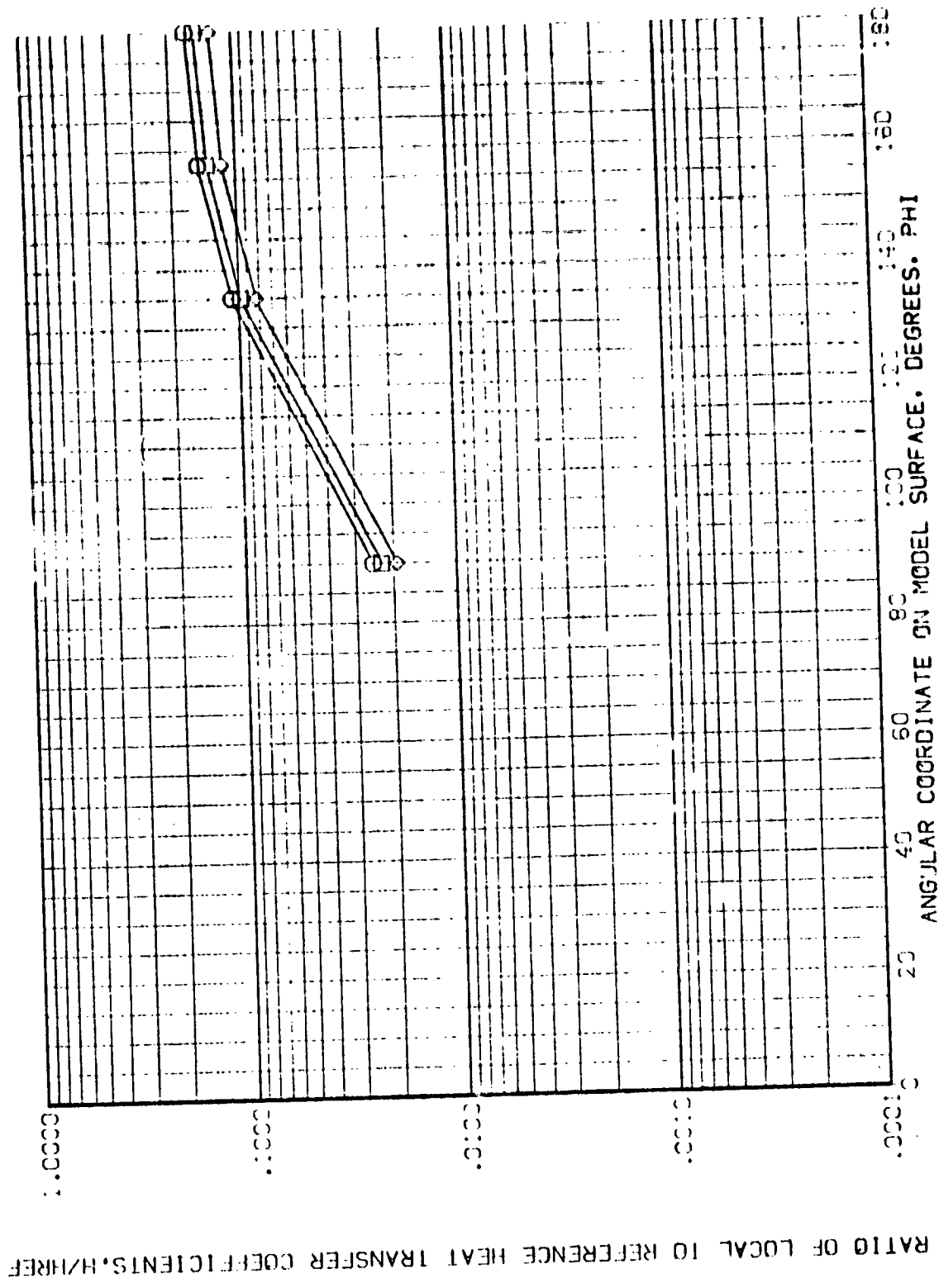


FIG. 4 TANK ALONE

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF  
 DIMENSIONS: HEIGHT 1.0000, WIDTH 5.0000  
 AVES 3.5-135 1429 T1 EXTERNAL TANK (REFLECTED)  
 SURFACE AREA 1.0000  
 SURFACE AREA 1.0000  
 SURFACE AREA 1.0000  
 SURFACE AREA 1.0000

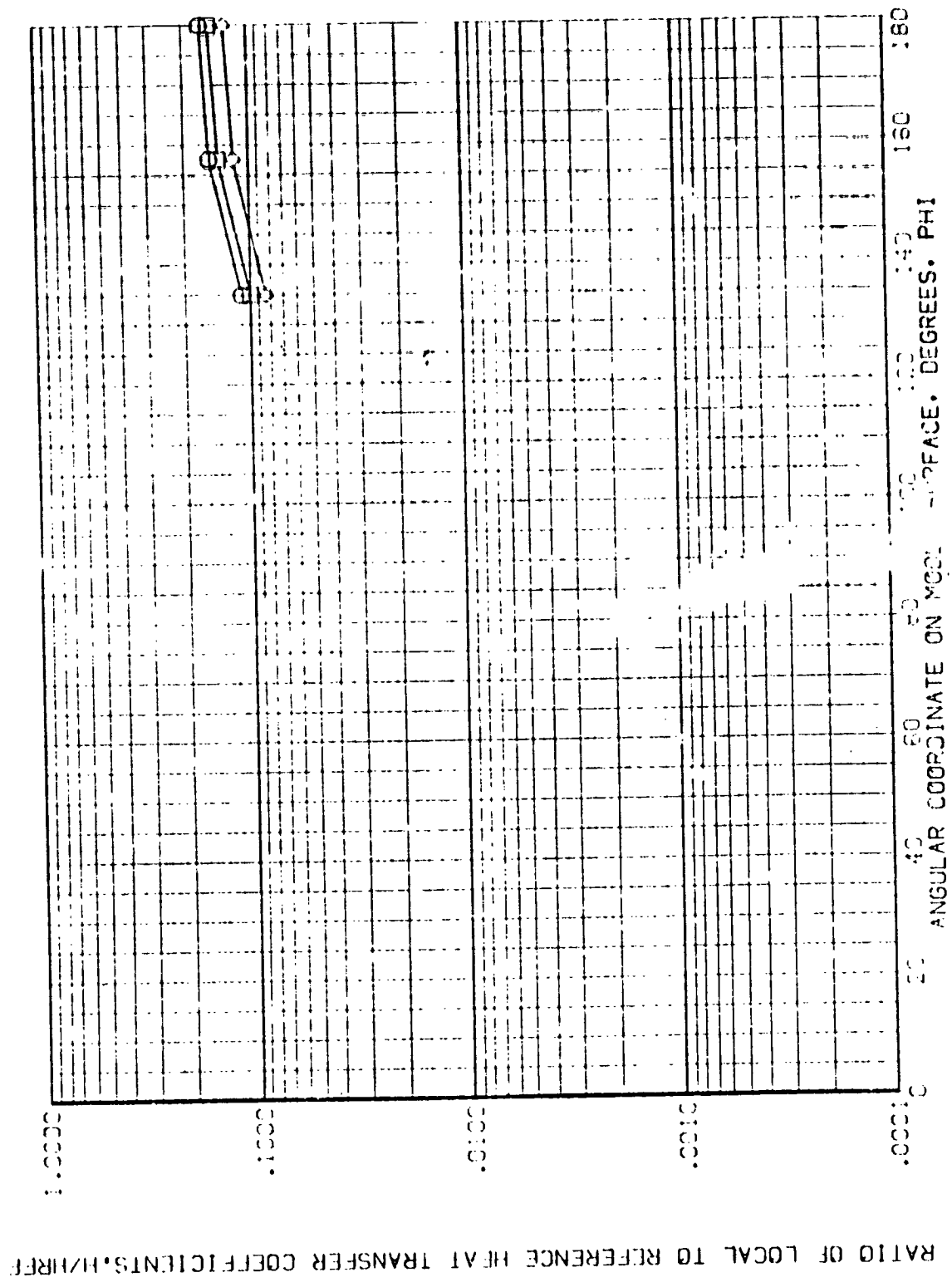


FIG. 4 TANK, ALONE

(REV T15)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMB.	HAW/HT	X/L	MACH
◇	.850	.800	5.221
□	.900		
	1.000		

PARAMETRIC VALUES	
ALPHA	BETA
PI/4L	1.000
	.000

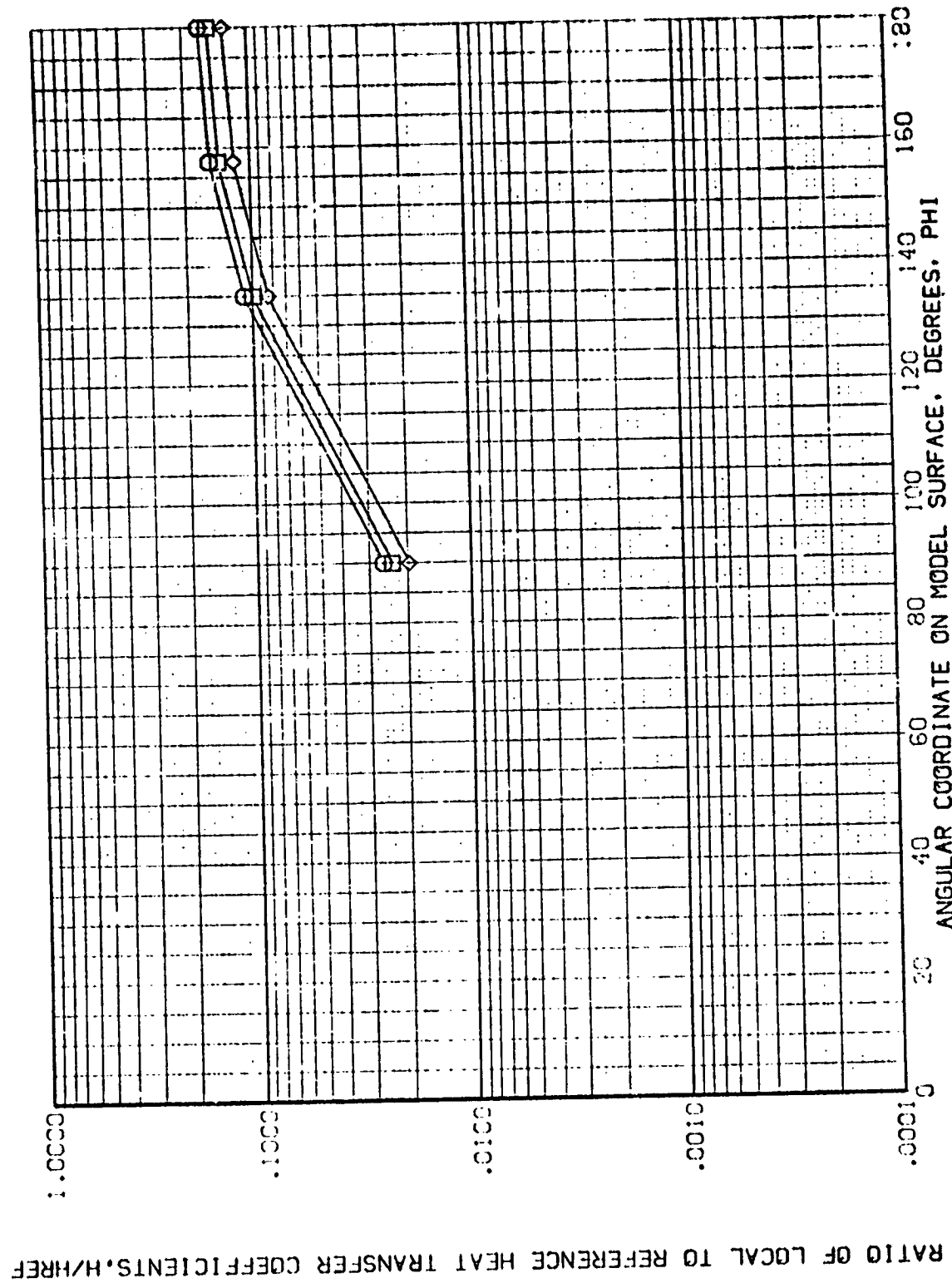


FIG. 4 TANK-ALONE

(REV115)

EXTERNAL TANK

AYES 3.5-195 IH28 T1

PARAMETRIC VALUES  
 ALPHA R/V/L 1.000  
 BETA .000

SYMBOL HAW/H<sup>2</sup> V/L MACH  
 ◇ .850 .650 5.221  
 ○ .900 .800  
 △ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

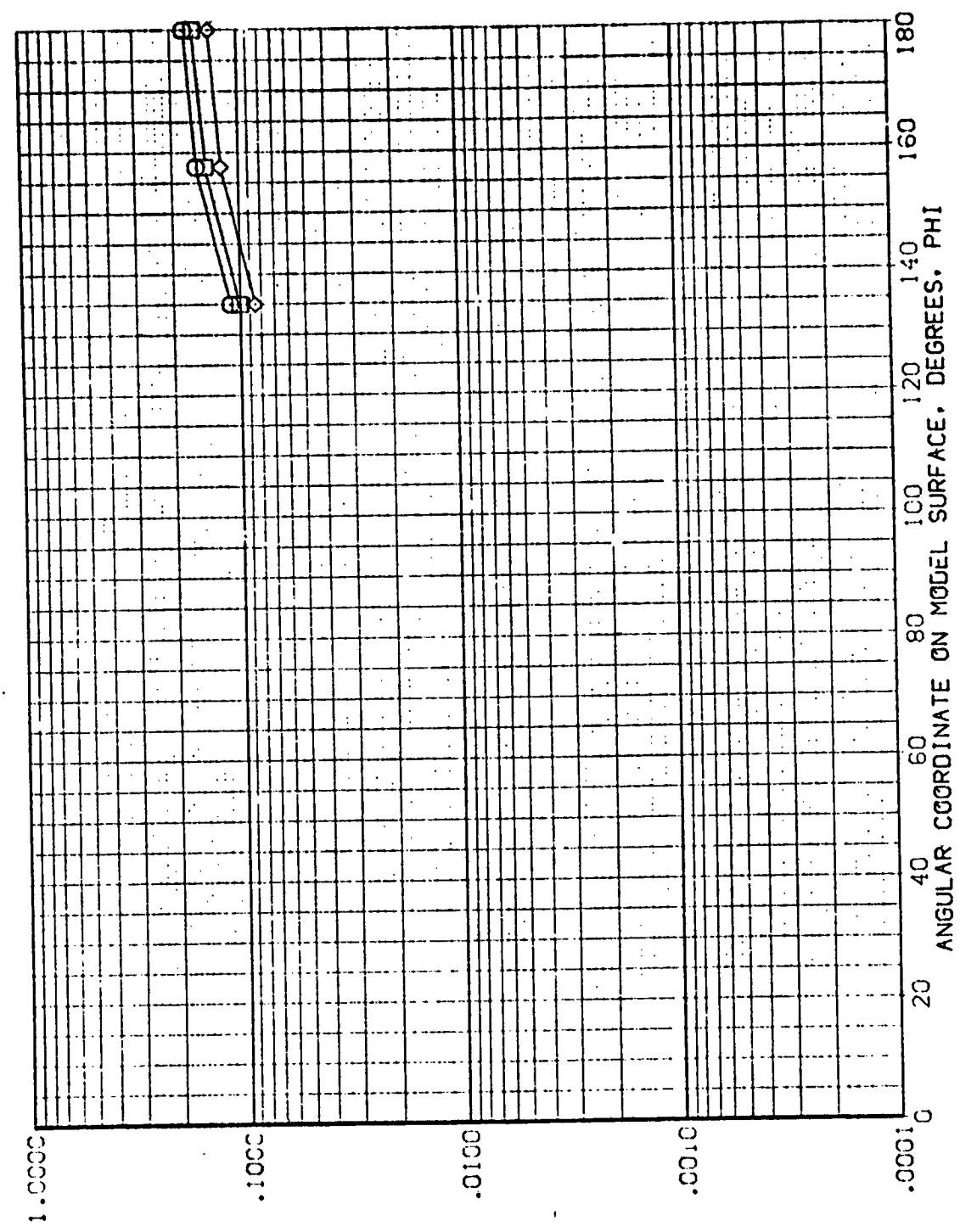


FIG. 4 TANK ALONE

(REV T15)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL  $\diamond$   $\square$   $\circ$

H/H<sub>REF</sub> .850  
 X/L .900  
 MACH 5.221

ALPHA  
 RV/L

PARAMETRIC VALUES  
 -60.000 BETA  
 1.000 .000

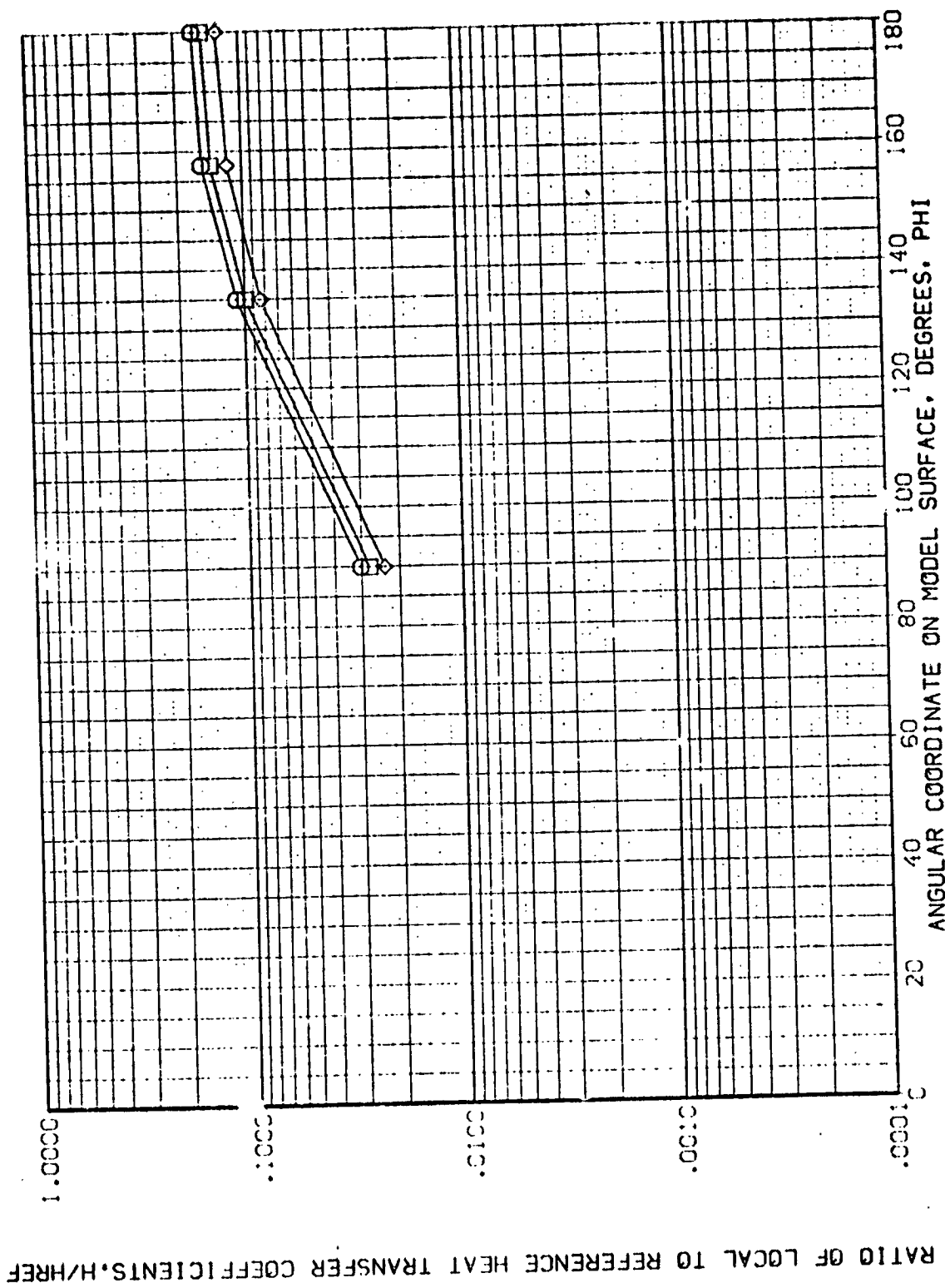


FIG. 4 TANK, ALONE

AVES 3.5-:95 I428 T1 EXTERNAL TANK (REV T16)

S<sub>1</sub> V<sub>1</sub> S<sub>2</sub> V<sub>2</sub> S<sub>3</sub> V<sub>3</sub> S<sub>4</sub> V<sub>4</sub> S<sub>5</sub> V<sub>5</sub> S<sub>6</sub> V<sub>6</sub> S<sub>7</sub> V<sub>7</sub> S<sub>8</sub> V<sub>8</sub> S<sub>9</sub> V<sub>9</sub> S<sub>10</sub> V<sub>10</sub> S<sub>11</sub> V<sub>11</sub> S<sub>12</sub> V<sub>12</sub> S<sub>13</sub> V<sub>13</sub> S<sub>14</sub> V<sub>14</sub> S<sub>15</sub> V<sub>15</sub> S<sub>16</sub> V<sub>16</sub> S<sub>17</sub> V<sub>17</sub> S<sub>18</sub> V<sub>18</sub> S<sub>19</sub> V<sub>19</sub> S<sub>20</sub> V<sub>20</sub> S<sub>21</sub> V<sub>21</sub> S<sub>22</sub> V<sub>22</sub> S<sub>23</sub> V<sub>23</sub> S<sub>24</sub> V<sub>24</sub> S<sub>25</sub> V<sub>25</sub> S<sub>26</sub> V<sub>26</sub> S<sub>27</sub> V<sub>27</sub> S<sub>28</sub> V<sub>28</sub> S<sub>29</sub> V<sub>29</sub> S<sub>30</sub> V<sub>30</sub> S<sub>31</sub> V<sub>31</sub> S<sub>32</sub> V<sub>32</sub> S<sub>33</sub> V<sub>33</sub> S<sub>34</sub> V<sub>34</sub> S<sub>35</sub> V<sub>35</sub> S<sub>36</sub> V<sub>36</sub> S<sub>37</sub> V<sub>37</sub> S<sub>38</sub> V<sub>38</sub> S<sub>39</sub> V<sub>39</sub> S<sub>40</sub> V<sub>40</sub> S<sub>41</sub> V<sub>41</sub> S<sub>42</sub> V<sub>42</sub> S<sub>43</sub> V<sub>43</sub> S<sub>44</sub> V<sub>44</sub> S<sub>45</sub> V<sub>45</sub> S<sub>46</sub> V<sub>46</sub> S<sub>47</sub> V<sub>47</sub> S<sub>48</sub> V<sub>48</sub> S<sub>49</sub> V<sub>49</sub> S<sub>50</sub> V<sub>50</sub> S<sub>51</sub> V<sub>51</sub> S<sub>52</sub> V<sub>52</sub> S<sub>53</sub> V<sub>53</sub> S<sub>54</sub> V<sub>54</sub> S<sub>55</sub> V<sub>55</sub> S<sub>56</sub> V<sub>56</sub> S<sub>57</sub> V<sub>57</sub> S<sub>58</sub> V<sub>58</sub> S<sub>59</sub> V<sub>59</sub> S<sub>60</sub> V<sub>60</sub> S<sub>61</sub> V<sub>61</sub> S<sub>62</sub> V<sub>62</sub> S<sub>63</sub> V<sub>63</sub> S<sub>64</sub> V<sub>64</sub> S<sub>65</sub> V<sub>65</sub> S<sub>66</sub> V<sub>66</sub> S<sub>67</sub> V<sub>67</sub> S<sub>68</sub> V<sub>68</sub> S<sub>69</sub> V<sub>69</sub> S<sub>70</sub> V<sub>70</sub> S<sub>71</sub> V<sub>71</sub> S<sub>72</sub> V<sub>72</sub> S<sub>73</sub> V<sub>73</sub> S<sub>74</sub> V<sub>74</sub> S<sub>75</sub> V<sub>75</sub> S<sub>76</sub> V<sub>76</sub> S<sub>77</sub> V<sub>77</sub> S<sub>78</sub> V<sub>78</sub> S<sub>79</sub> V<sub>79</sub> S<sub>80</sub> V<sub>80</sub> S<sub>81</sub> V<sub>81</sub> S<sub>82</sub> V<sub>82</sub> S<sub>83</sub> V<sub>83</sub> S<sub>84</sub> V<sub>84</sub> S<sub>85</sub> V<sub>85</sub> S<sub>86</sub> V<sub>86</sub> S<sub>87</sub> V<sub>87</sub> S<sub>88</sub> V<sub>88</sub> S<sub>89</sub> V<sub>89</sub> S<sub>90</sub> V<sub>90</sub> S<sub>91</sub> V<sub>91</sub> S<sub>92</sub> V<sub>92</sub> S<sub>93</sub> V<sub>93</sub> S<sub>94</sub> V<sub>94</sub> S<sub>95</sub> V<sub>95</sub> S<sub>96</sub> V<sub>96</sub> S<sub>97</sub> V<sub>97</sub> S<sub>98</sub> V<sub>98</sub> S<sub>99</sub> V<sub>99</sub> S<sub>100</sub> V<sub>100</sub>

X/L .350 MACH 5.220  
 ALPHA R/V/L .000 BETA .000

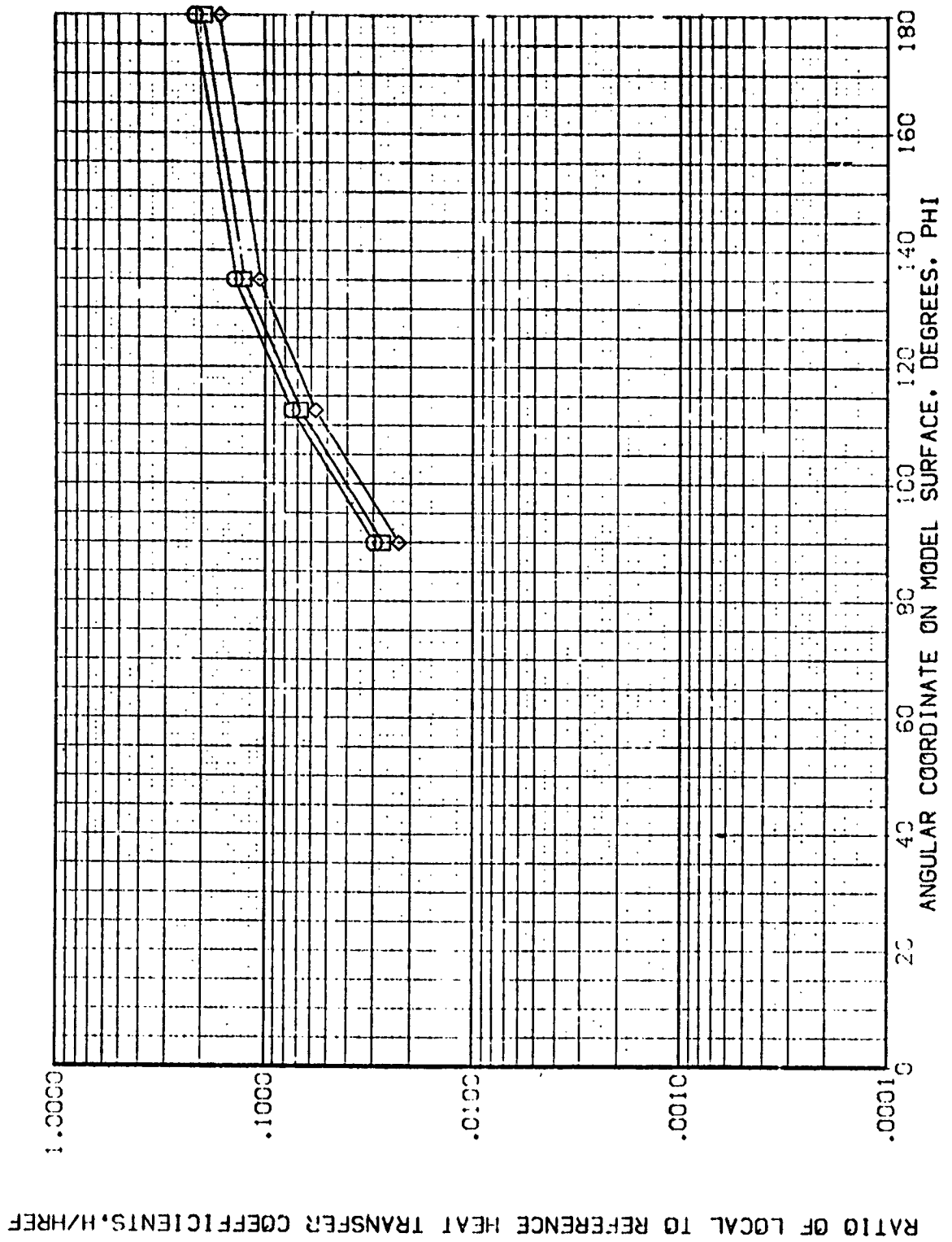


FIG. 4 TANK, ALONE



(REV T16)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -90.000  
BETA 1.000  
P%/L .000

MACH 5.220

X/L .400

HAW/HT .850

.900

1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

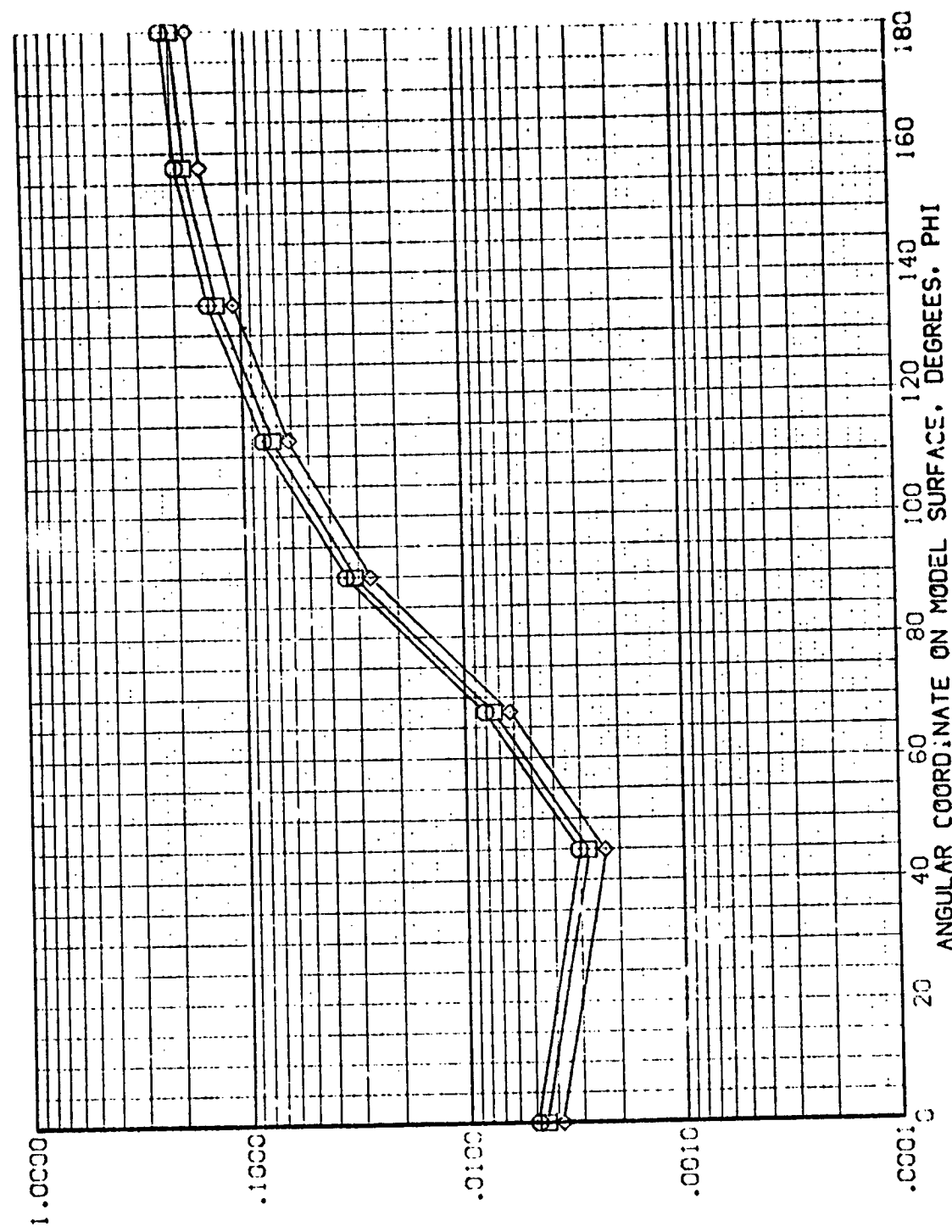


FIG. 4 TANK, ALONE

(REV 16)

EXTERNAL TANK

AMES 3.5-95 IH28 T1

PARAMETRIC VALUES  
ALPHA R/V/L -90.000 BETA 1.000 .000

SYMBOLS  
-MACH  
.850  
.950  
1.000  
Y/L .450  
MACH 5.220

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER DEFICIENCIES, H/HREF

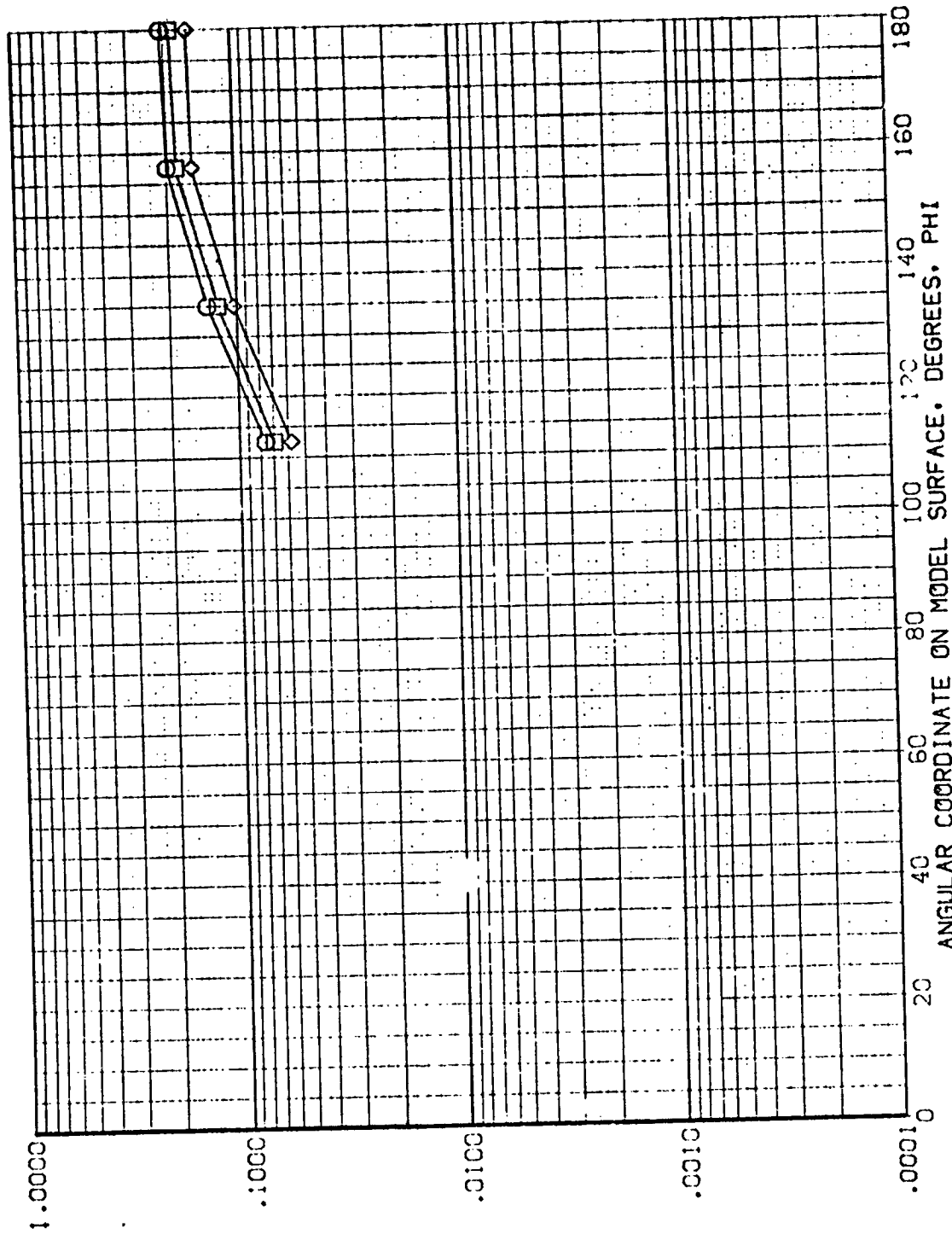


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV116)

SYBCL	HA/HT	X/L	Y/CH	PARAMETRIC VALUES
◇	.850	.500	5.230	ALPHA
	.900			BETA
	1.000			1.000
				.000

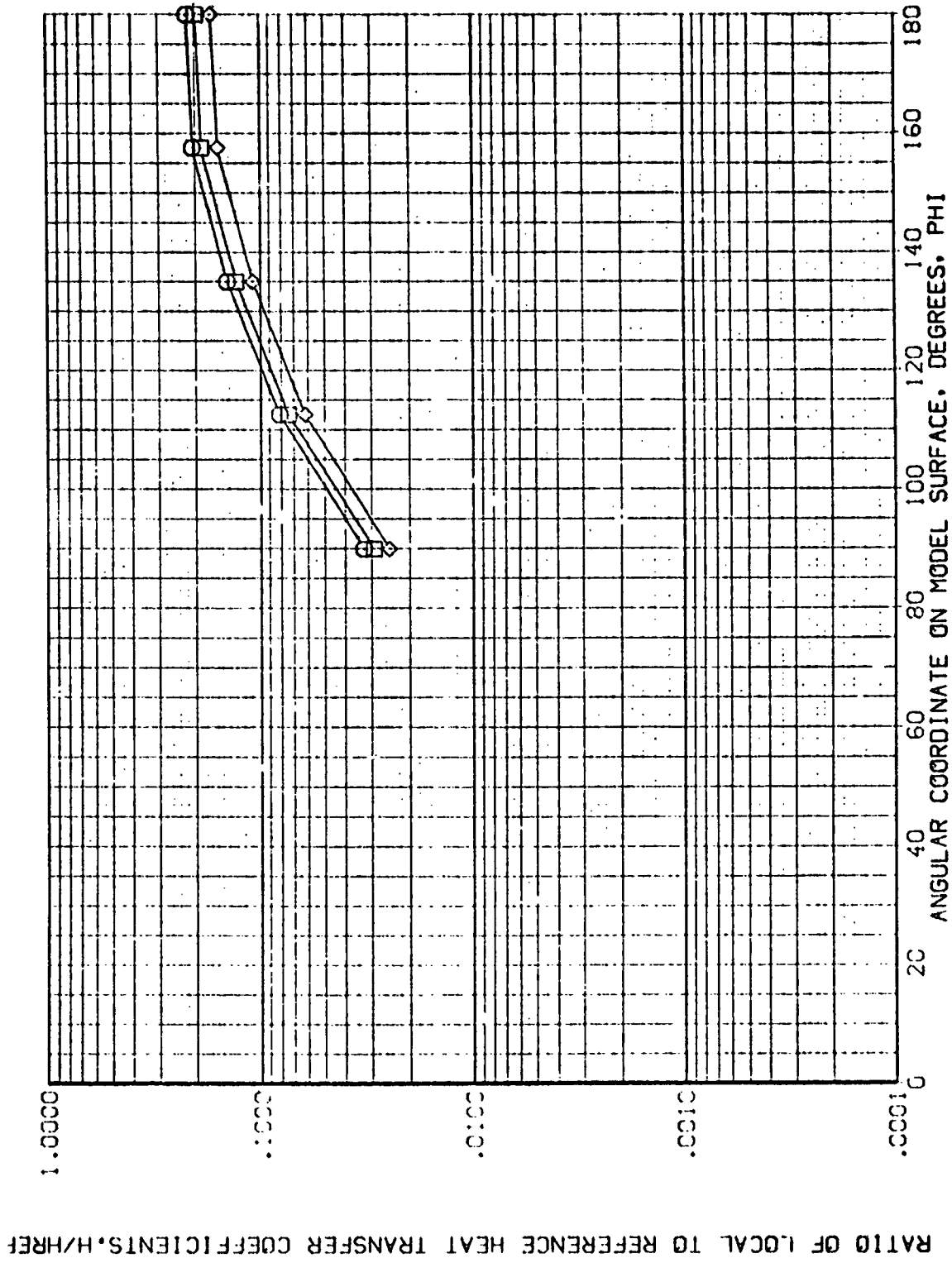


FIG. 4 TANK ALONE

(REVT16)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES

ALPHA	BETA
RN/L	1.000
	.000

HEIGHT	R/L	MACH
.550	.550	5.220
.900		
1.000		

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

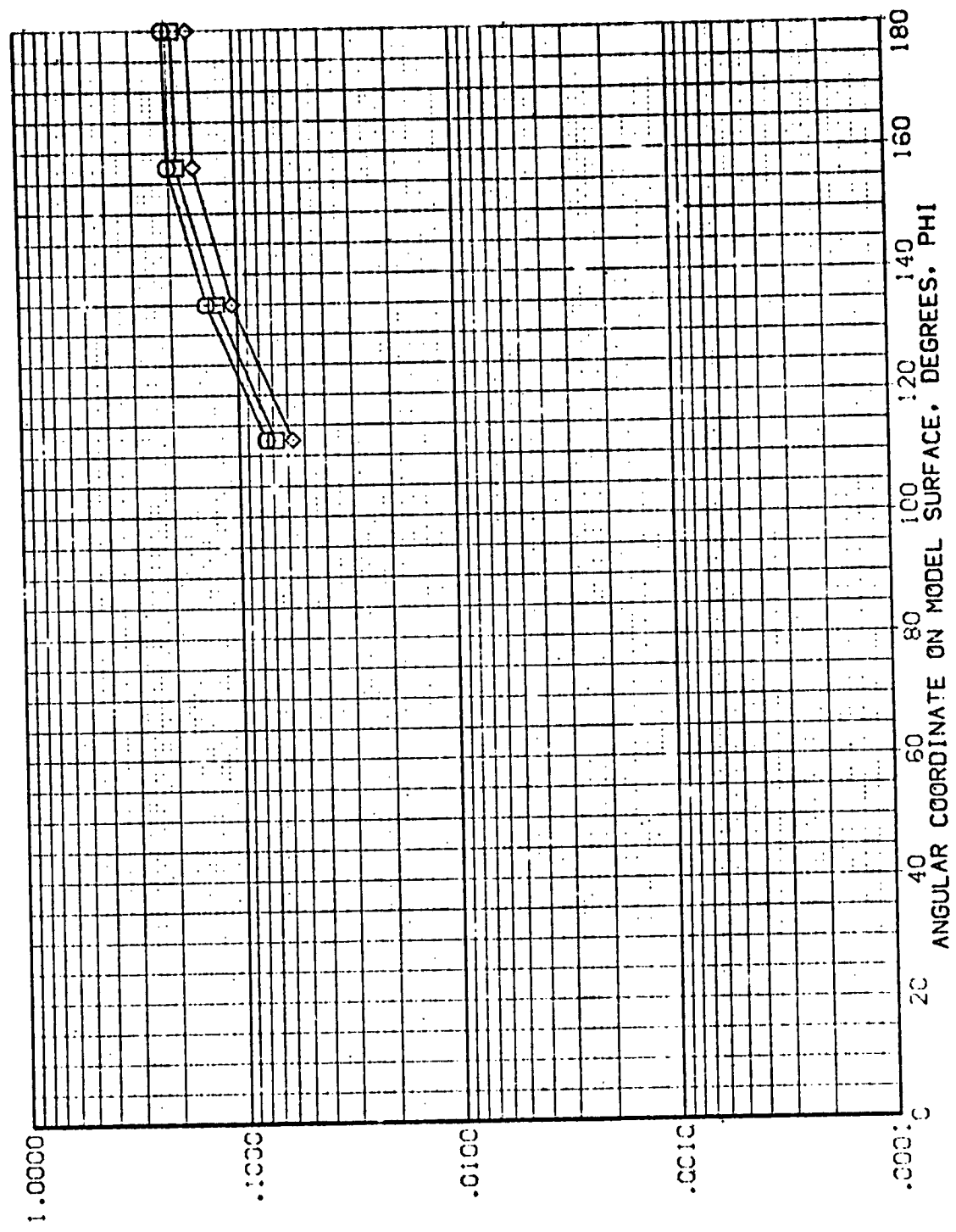


FIG. 4 TANK ALONE

QUALITY OF THE ORIGINAL PAGE IS POOR

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV116)

SYMBOL HEIGHT X/L MACH  
 ◇ .850 .500 5.220  
 ○ .930  
 □ 1.000

PARAMETRIC VALUES  
 ALPHA -90.000  
 BETA 1.000  
 RV/L .000

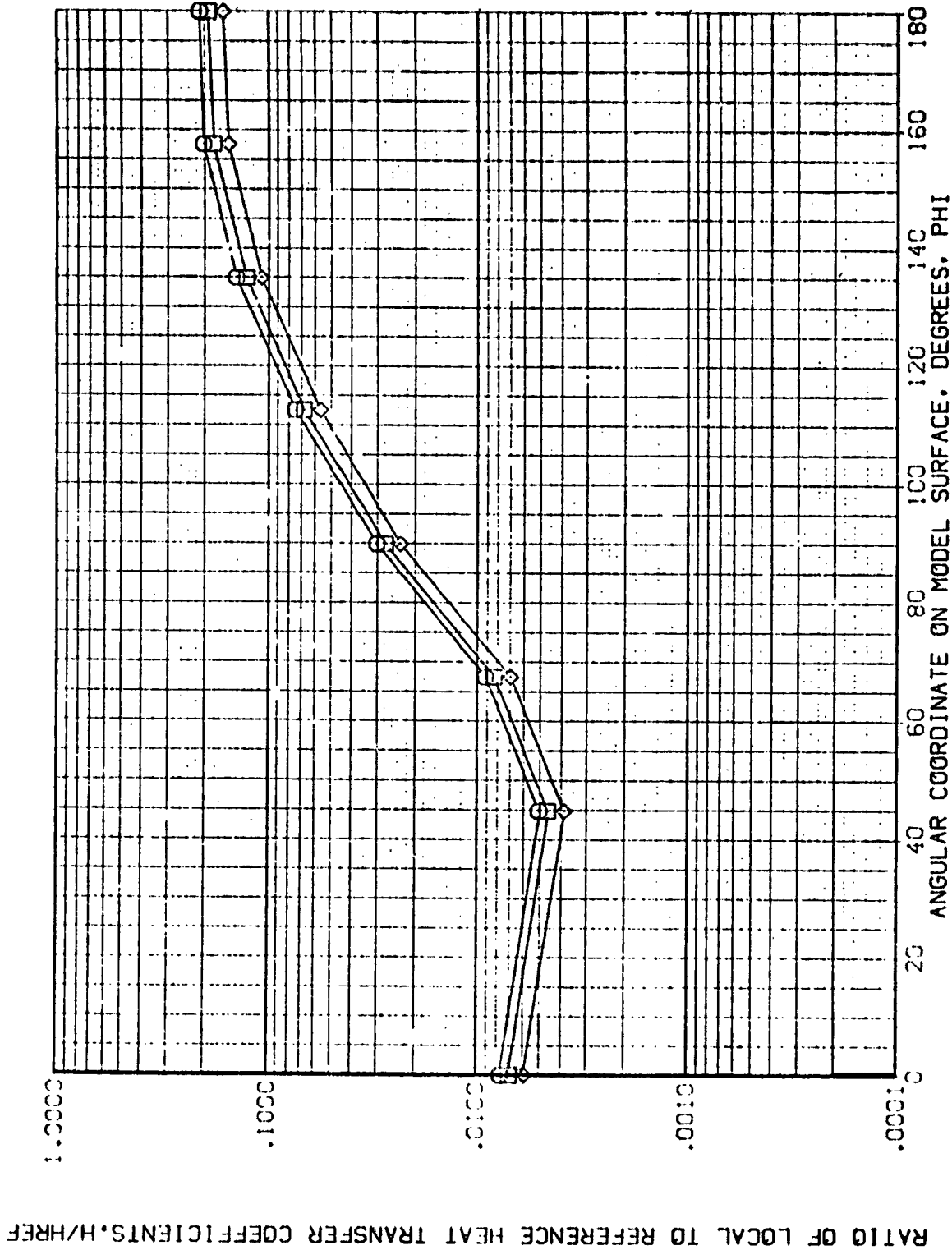


FIG. 4 TANK-ALONE

(REV T16)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -90.000 BETA .000  
RN/L 1.000

SYMBOL H/W/H T X/L MACH  
◇ 1.000 .850 .650 5.220  
◇ 1.000 .900 .800 5.220  
◇ 1.000 1.000 1.000 5.220

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

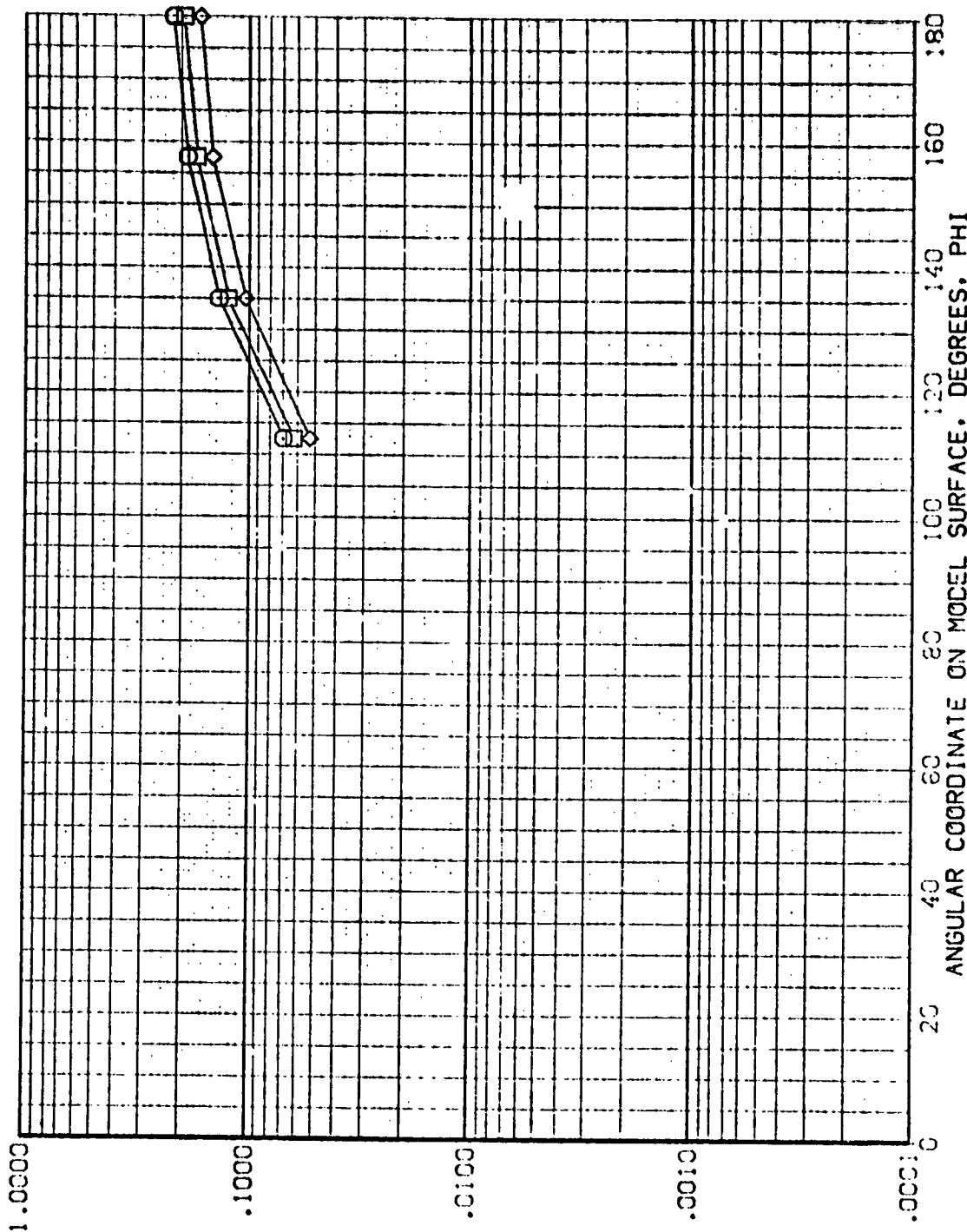


FIG. 4 TANK ALONE

(REV T16)

EXTERNAL TANK

AMES 3.5-:95 IH28 T1

PARAMETRIC VALUES  
ALPHA -9.000 BETA .000  
PM/L 30

SYMBOL X/L MACH  
◇ .850  
◇ .900  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

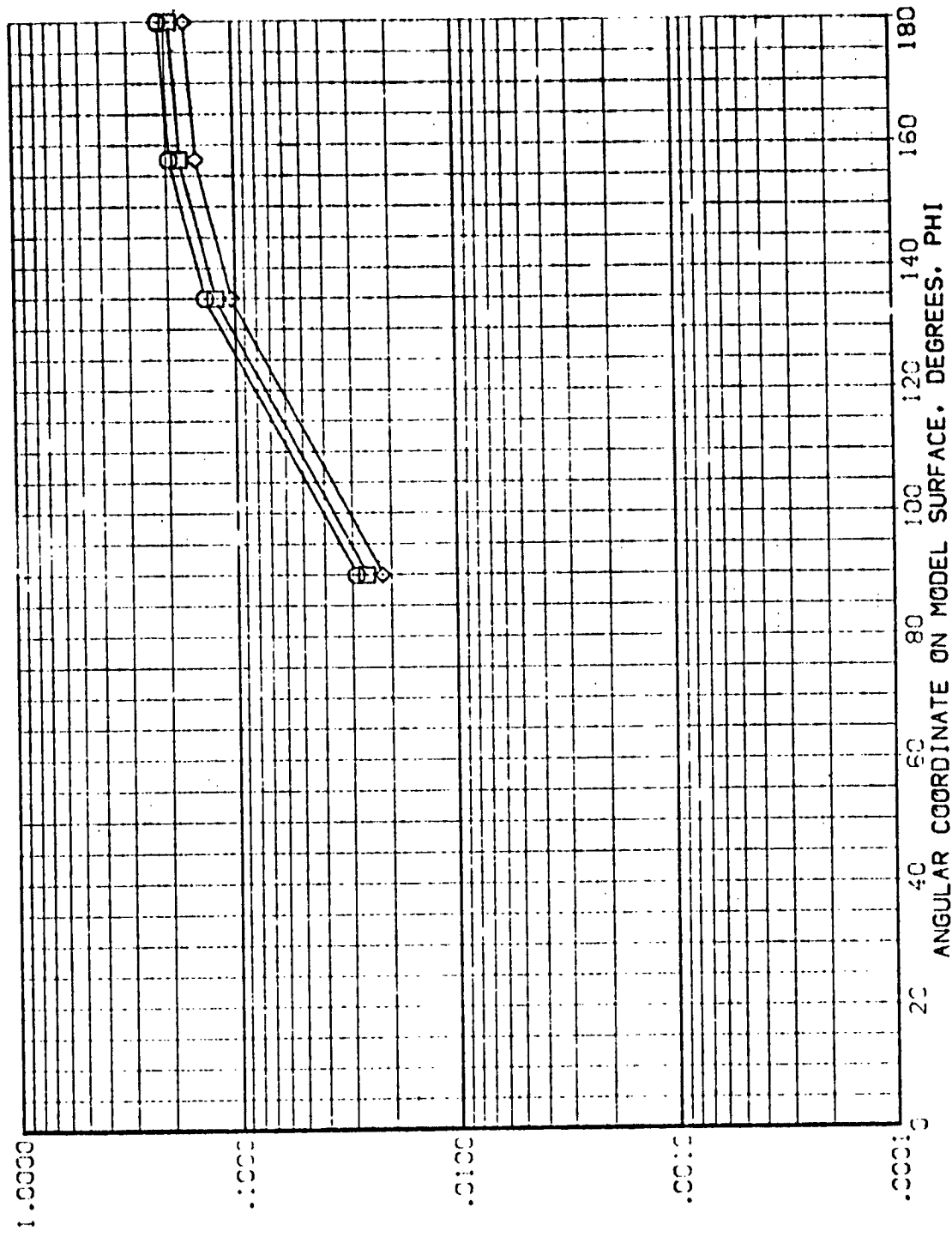


FIG. 4 TANK, ALONE

AMES 3.5-195 1428 T1 EXTERNAL TANK

(REV116)

SYMBOL H/W/H<sup>2</sup> X/L VACH  
 ◇ 0.850 .750 5.220  
 □ 0.900  
 ○ 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 RW/L 1.000

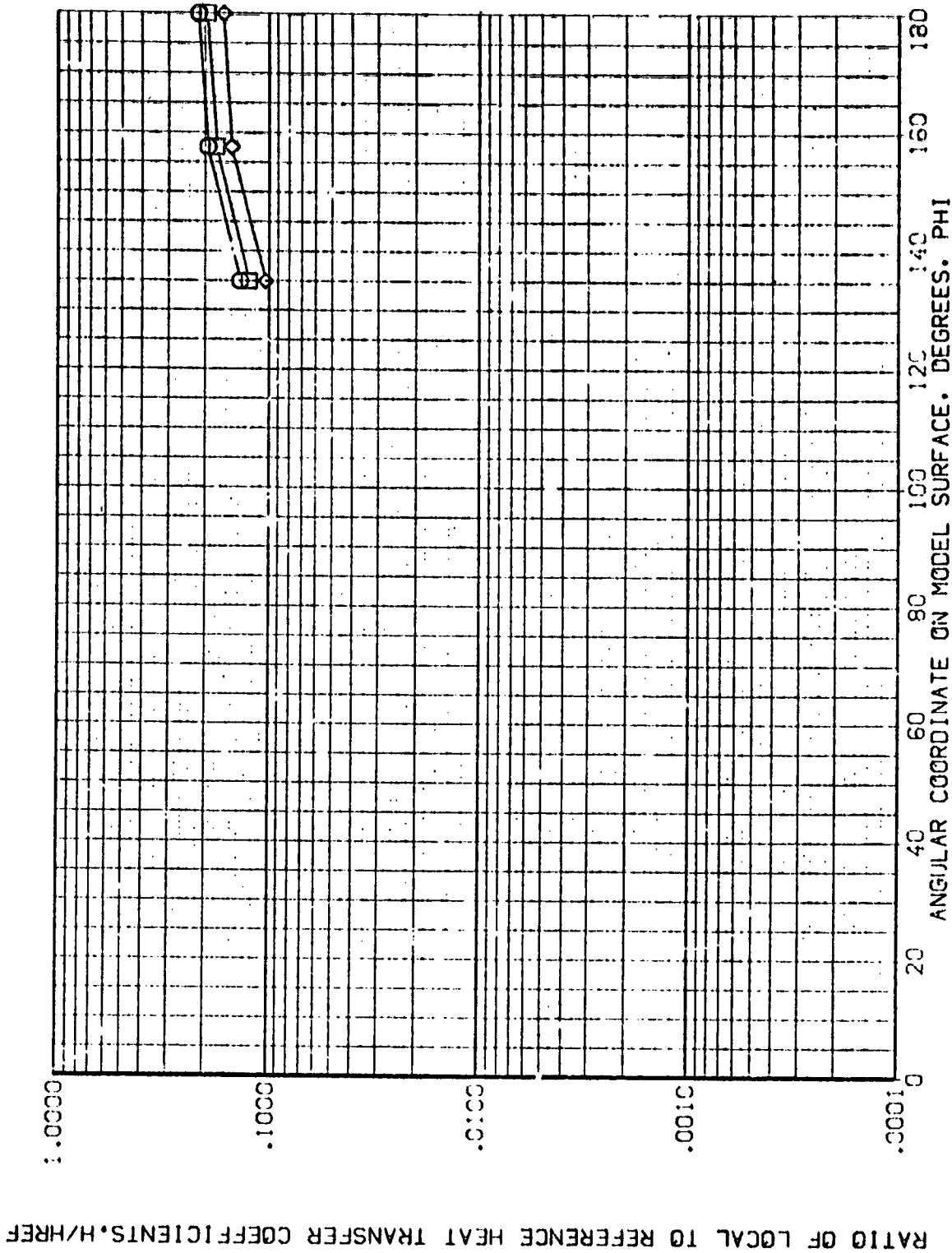


FIG. 4 TANK, ALONE



(CONT.)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL:  $\diamond$   
MACH 5.220  
X/L .800  
H/W/H/T .850  
1.900  
1.000

PARAMETRIC VALUES  
ALPHA -93.000  
BETA 1.000  
R/V/L .000

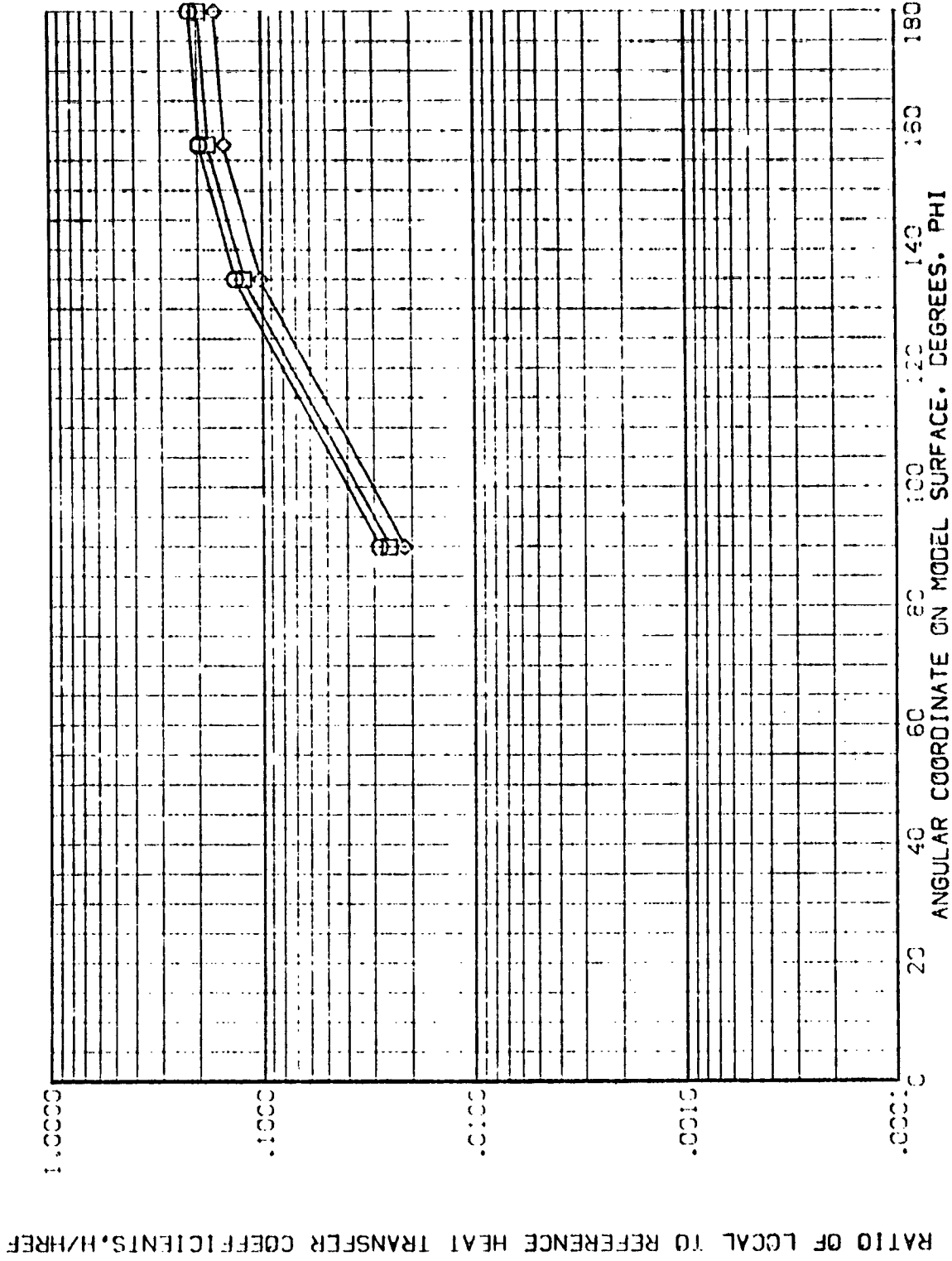


FIG. 4 TANK-ALONE

AMES 3.5-195 1428 T1 EXTERNAL TANK (REV116)

PARAMETRIC VALUES  
 ALPHA = 251.000 BETA = .0000  
 RVAL = 11.000

SYMBOL = 1.000  
 M1 = 1.000 M2 = 1.000  
 M3 = 1.000 M4 = 1.000  
 M5 = 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

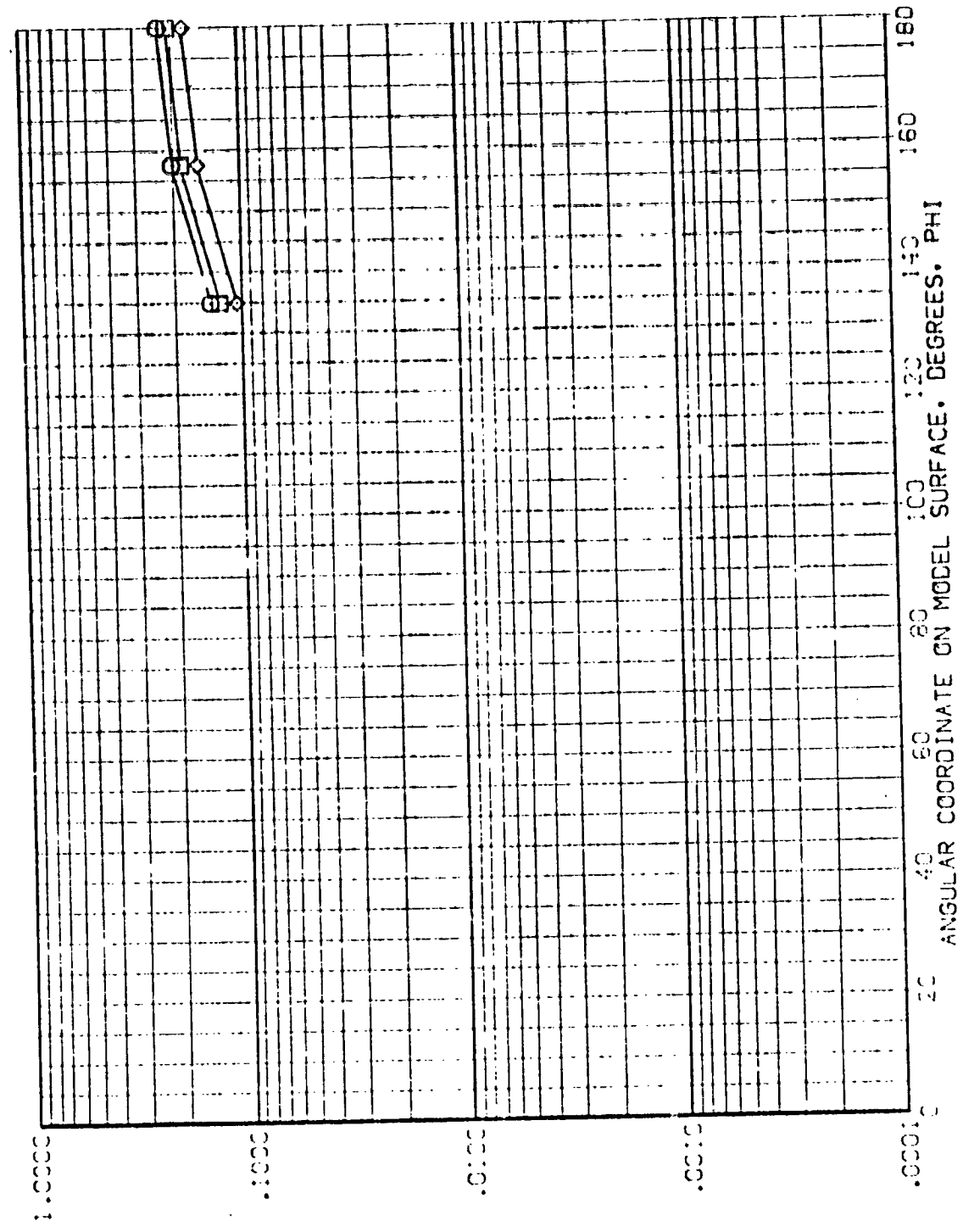


FIG. 4 TANK PLANE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV116)

SYMBOL	W <sub>REF</sub> /H	X/L	MACH	PARAMETRIC VALUES
◇	.650	.900	5.220	-90.0°
	.900			BETA
	1.000			1.000
				ALPHA
				RN/L
				.000

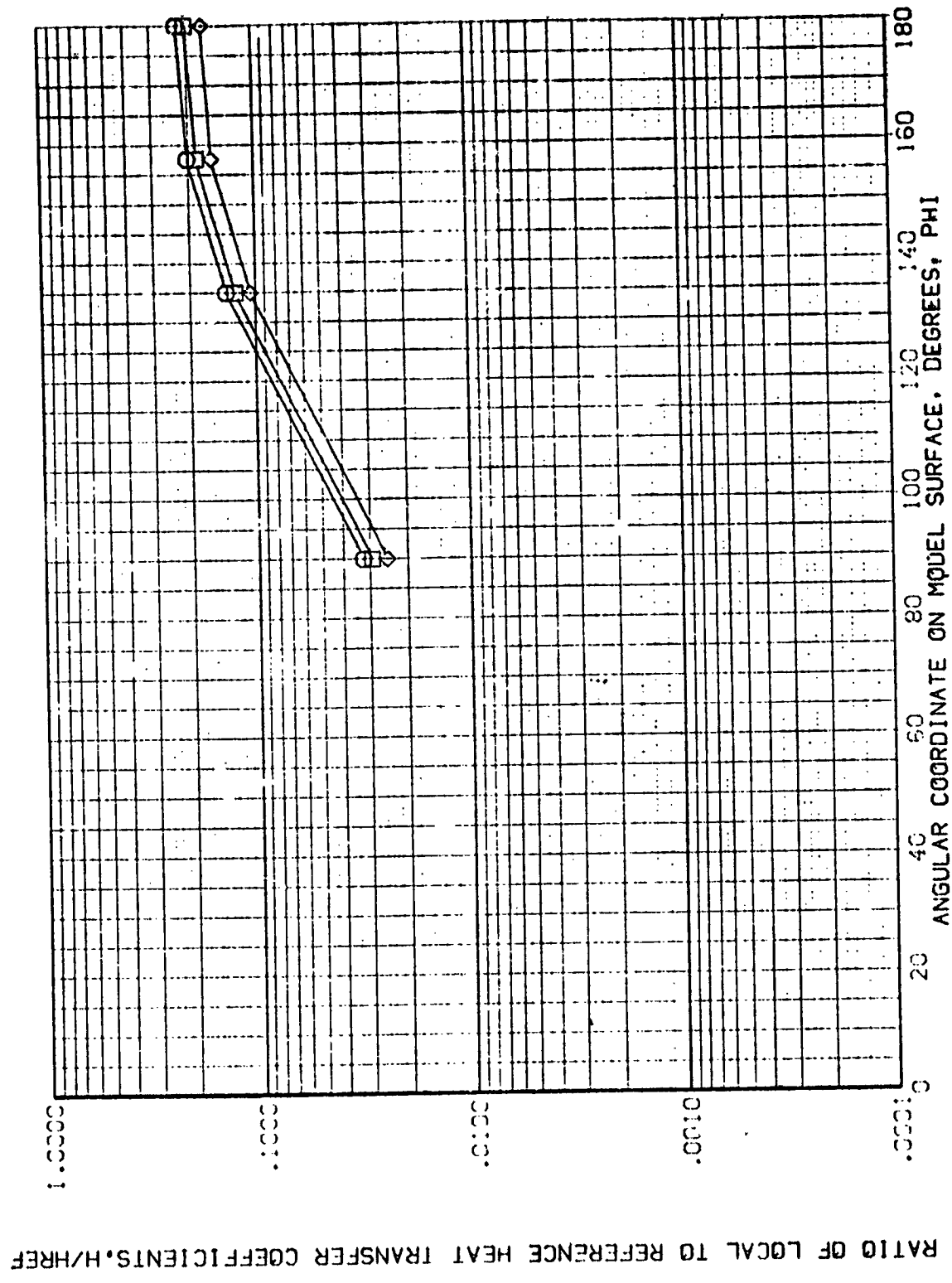


FIG. 4 TANK, ALONE

(REV117)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL:  $\diamond$   $\square$   
HAW/HT .95C  
X/L .350  
MACH 5.220  
.9CC  
1.0CC

PARAMETRIC VALUES  
ALPHA -120.000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

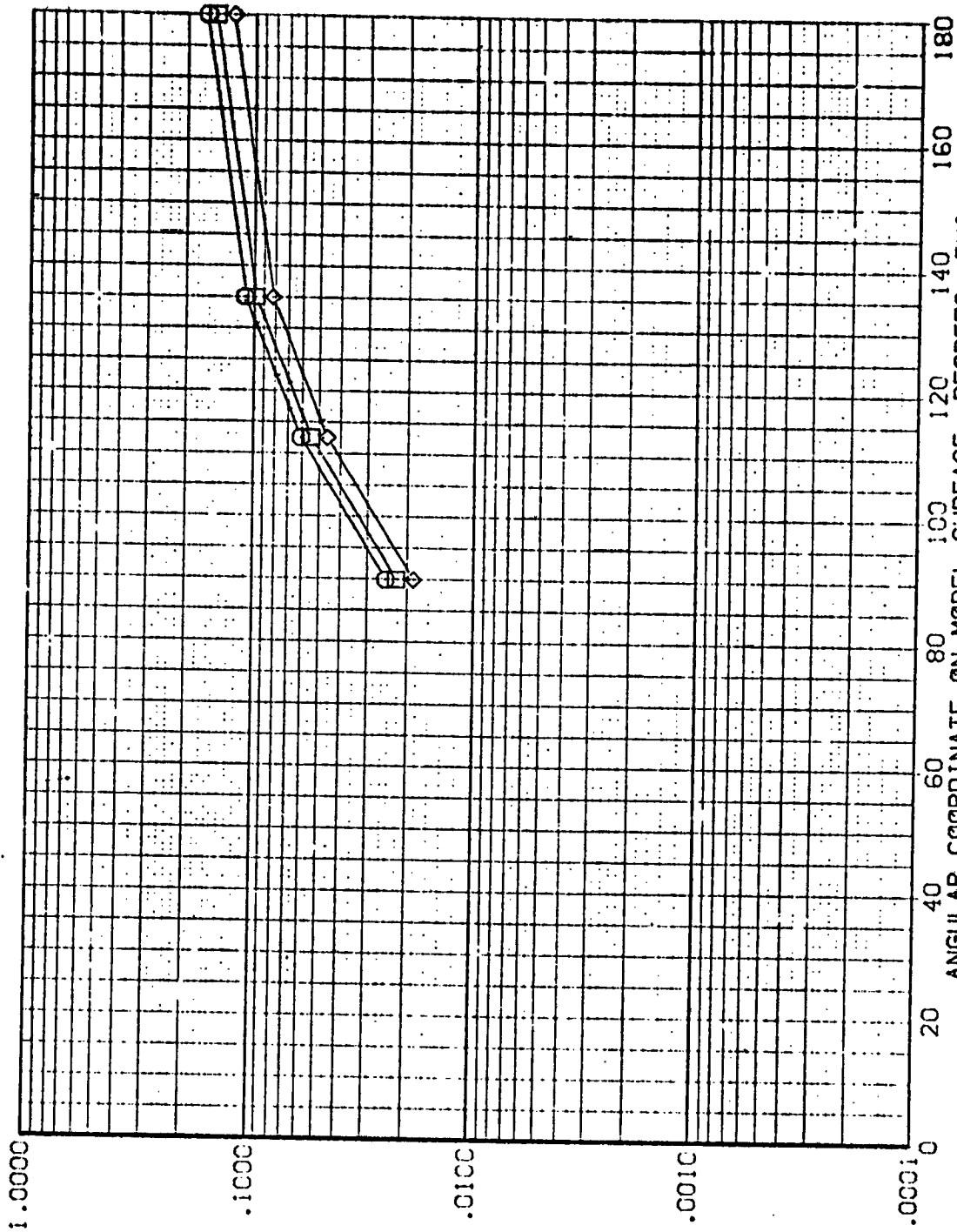


FIG. 4 TANK, ALONE

(REV117)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

◇ SPEC. WAKE/UT X/L MACH  
.853 .400 5.220  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -.20.000 BETA .000  
PHI/L 1.000

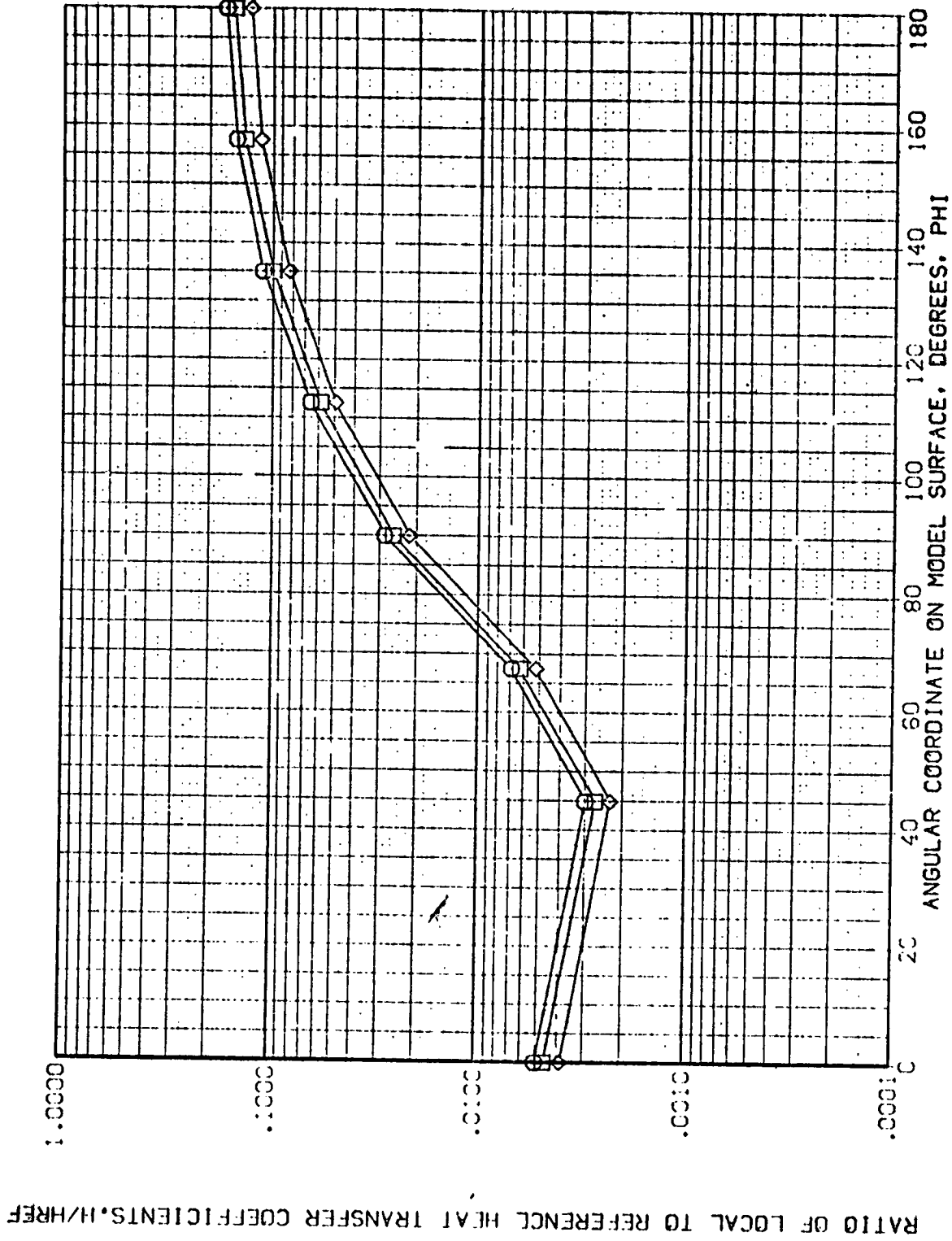


FIG. 4 TANK, ALONE

ANES 3.5-195 IH28 T1 EXTERNAL TANK (REV117)

SYMBOL	H/W/H <sup>2</sup>	X/L	YACH	PARAMETRIC VALUES
◇	.850	.450	5.220	ALPHA -120.000
	.900			BETA 1.000
	1.000			RN/L .000

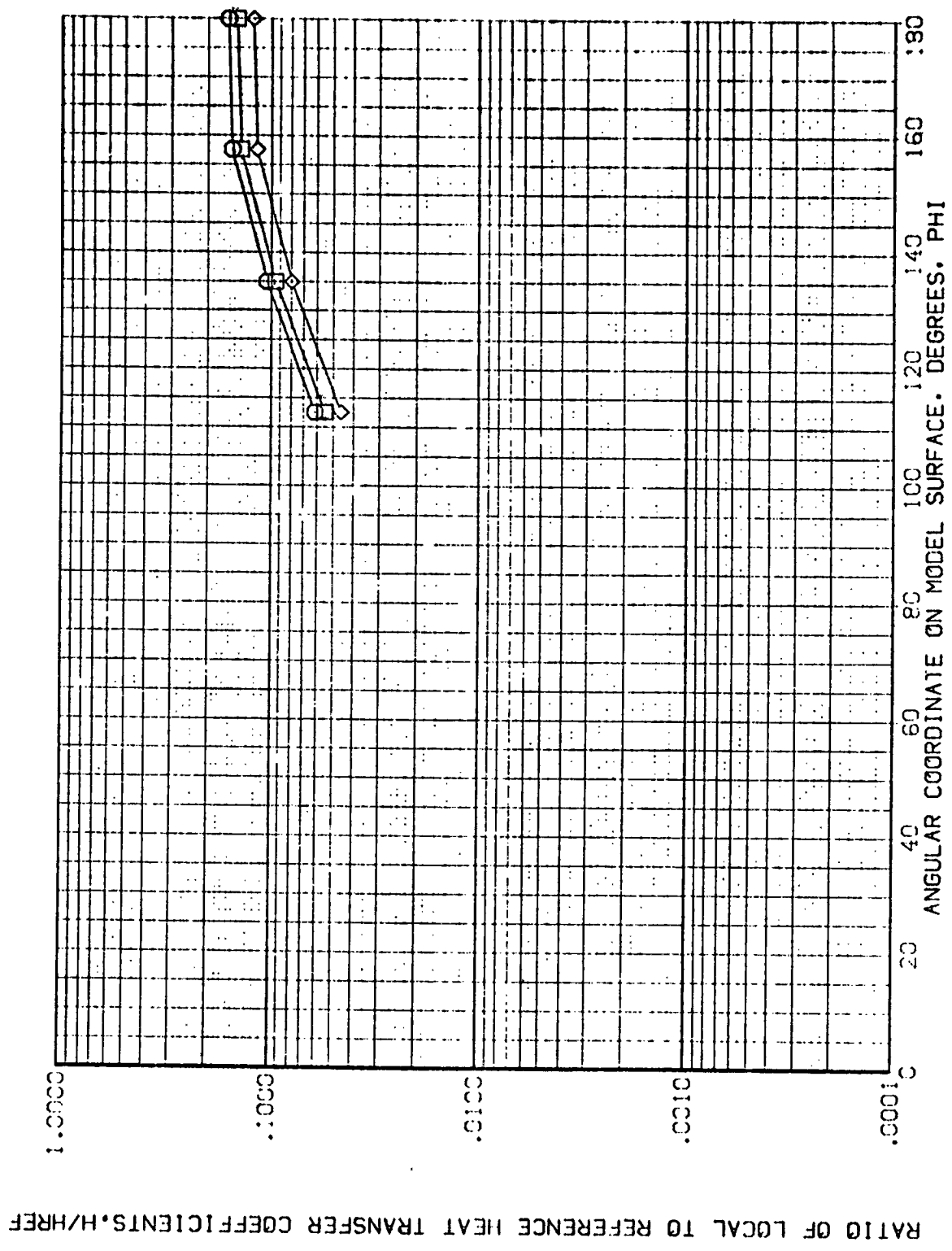


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1

EXTERNAL TANK

(REVT17)

SYMBOL    H/W/H/T    X/L    MACH    PARAMETRIC VALUES

□    .950    .500    5.220    ALPHA    -120.000    6E-3    .000

◇    .900    .500          RN/L    1.000            

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

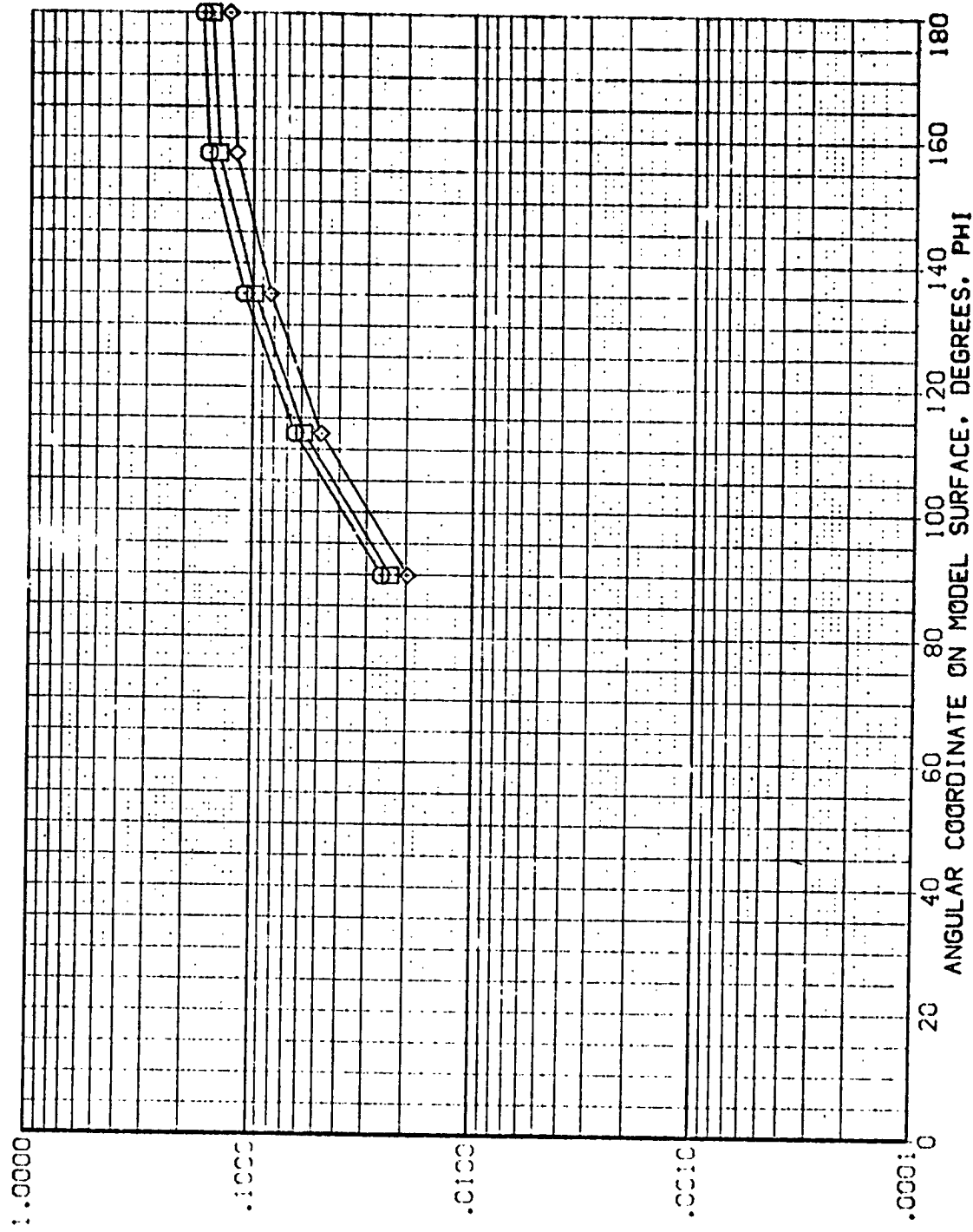


FIG. 4 TANK ALONE

(REV17)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -120.000 BETA .000  
RN/L 1.000

MACH 5.220

X/L .550

HPW/H\* .850  
SYMBOL  $\diamond$  .900  
 $\square$  1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

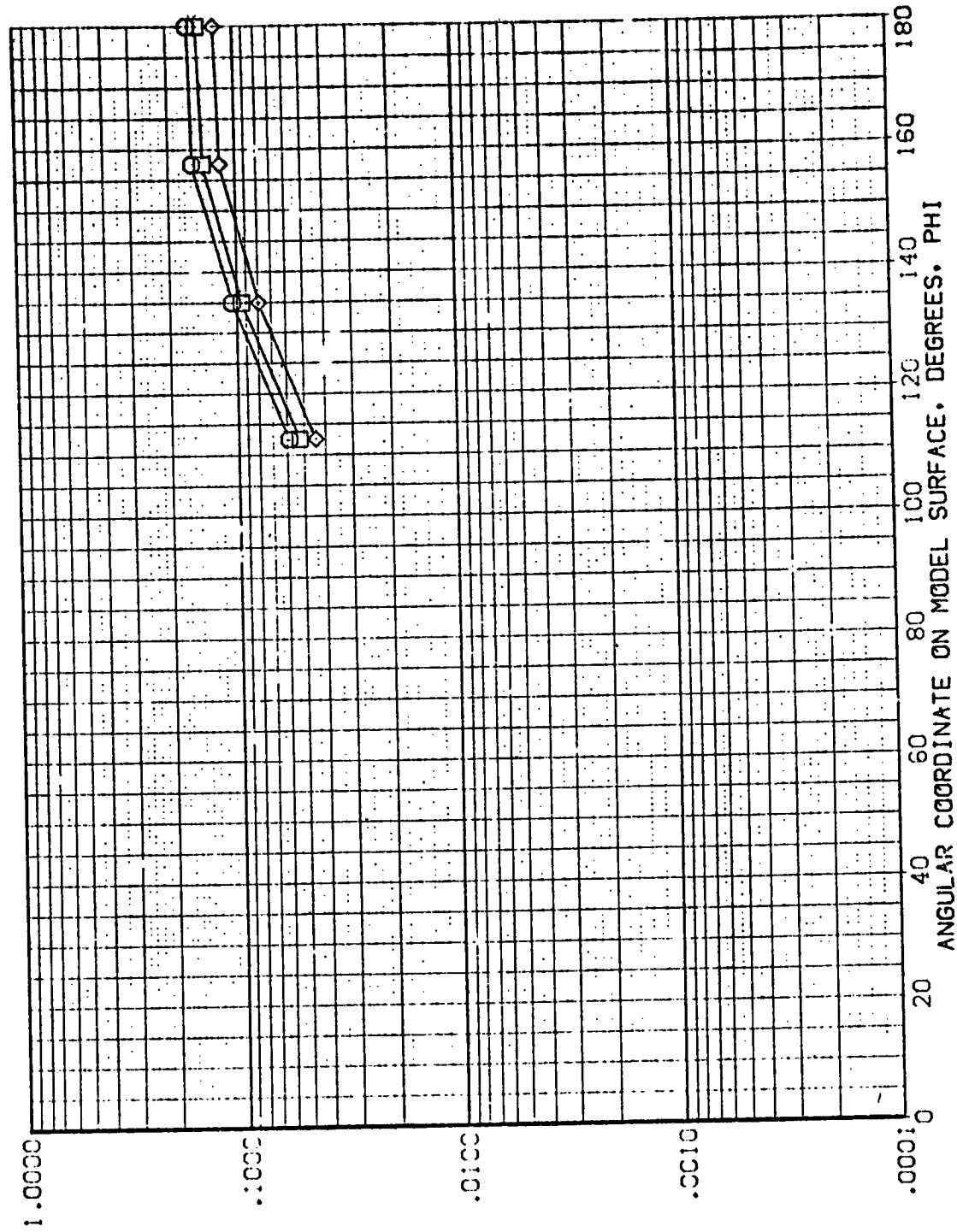


FIG. 4 TANK, ALONE



AMES 3.5-195 IH28 T1

EXTERNAL TANK

(REV17)

SYMBOL	HA/W/HT	X/L	MACH	PARAMETRIC VALUES	
◇	.850	.600	5.220	ALPHA	BETA
○	.900			-120.000	1.000
◇	1.000			RN/L	

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

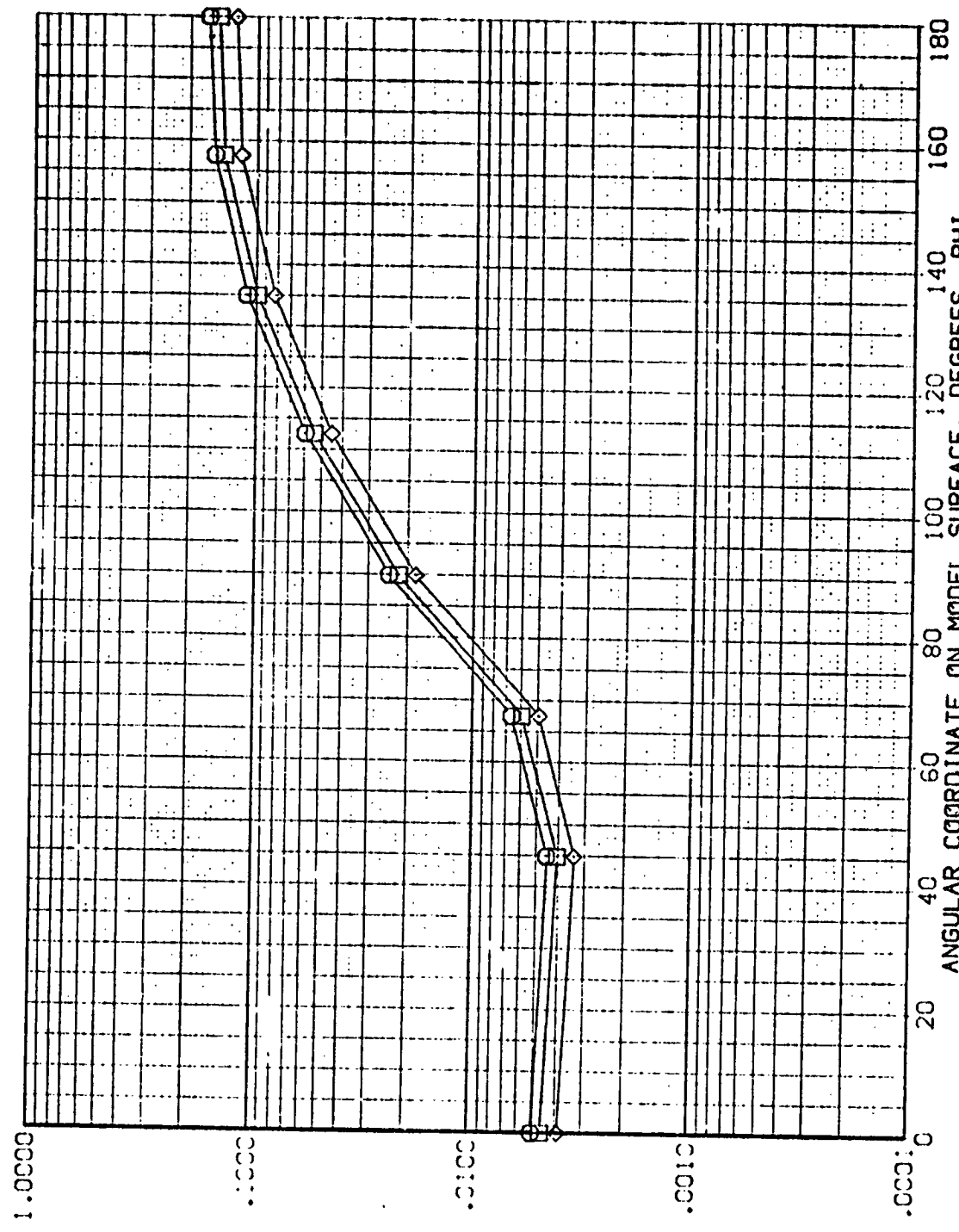


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK

(REV117)

SYMCL HAW/HT X/L MACH  
 ◇ .850 .550 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

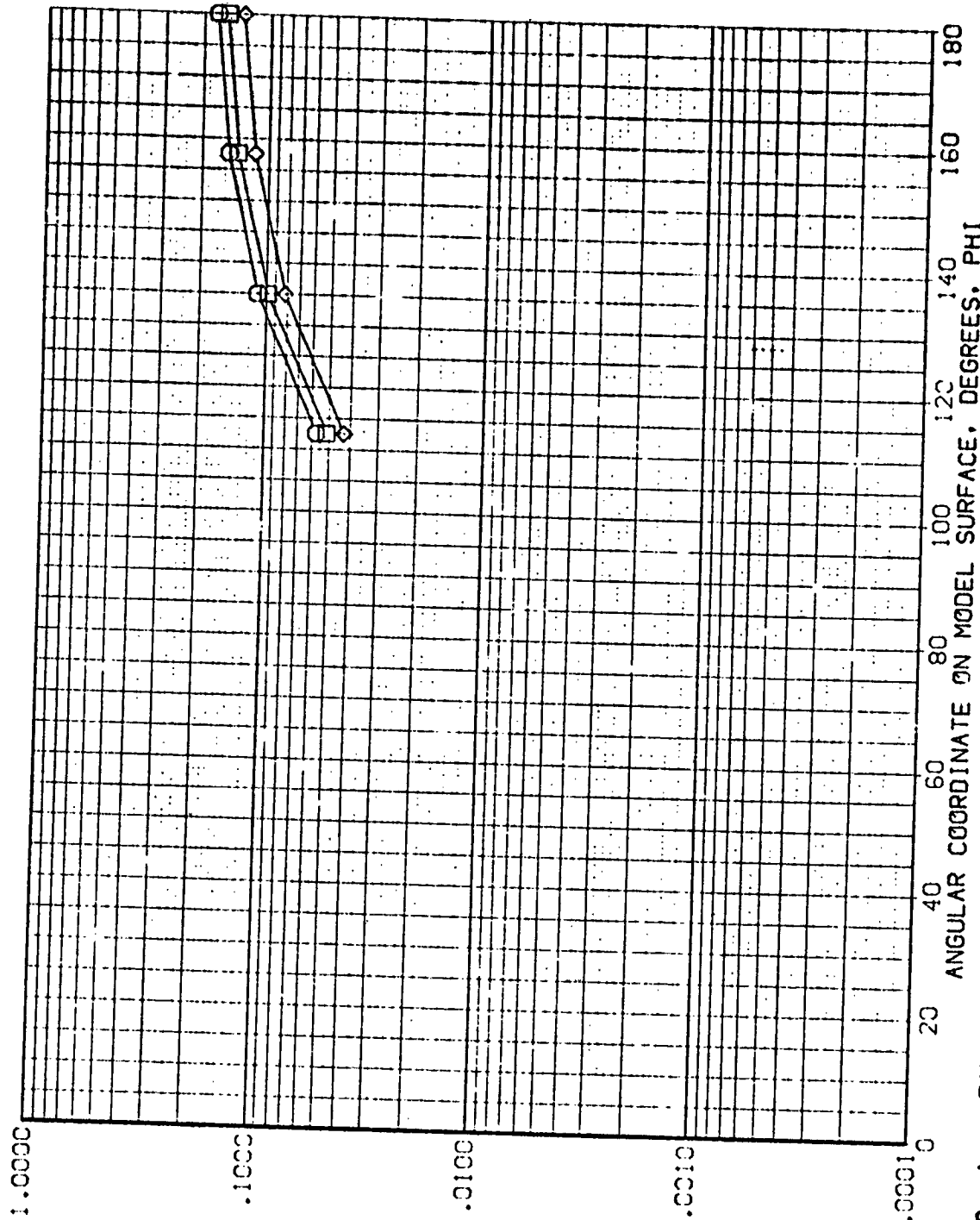


FIG. 4 TANK, ALONE

(REV117)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA  
RN/L  
-120.000  
1.000  
BETA  
1.000

SYMBOL  
◇ □  
HAW/HT  
.850  
.900  
1.000  
X/L  
.700  
MACH  
5.220

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

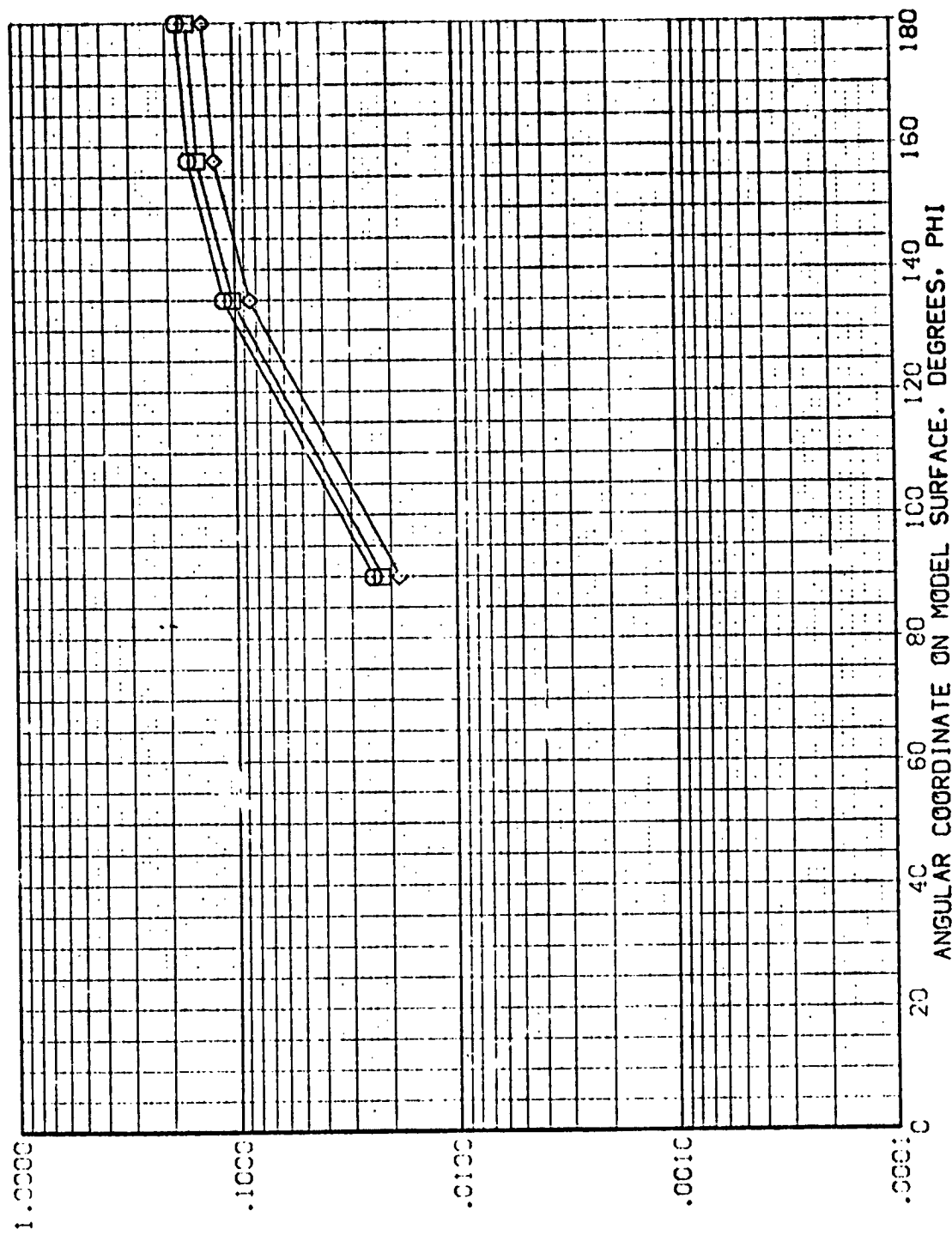


FIG. 4 TANK-ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV117)

SYMBOL M/M/HT X/L MACH  
 ◊ .850 .750 5.220  
 □ .900  
 ○ 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 R1/L 1.000

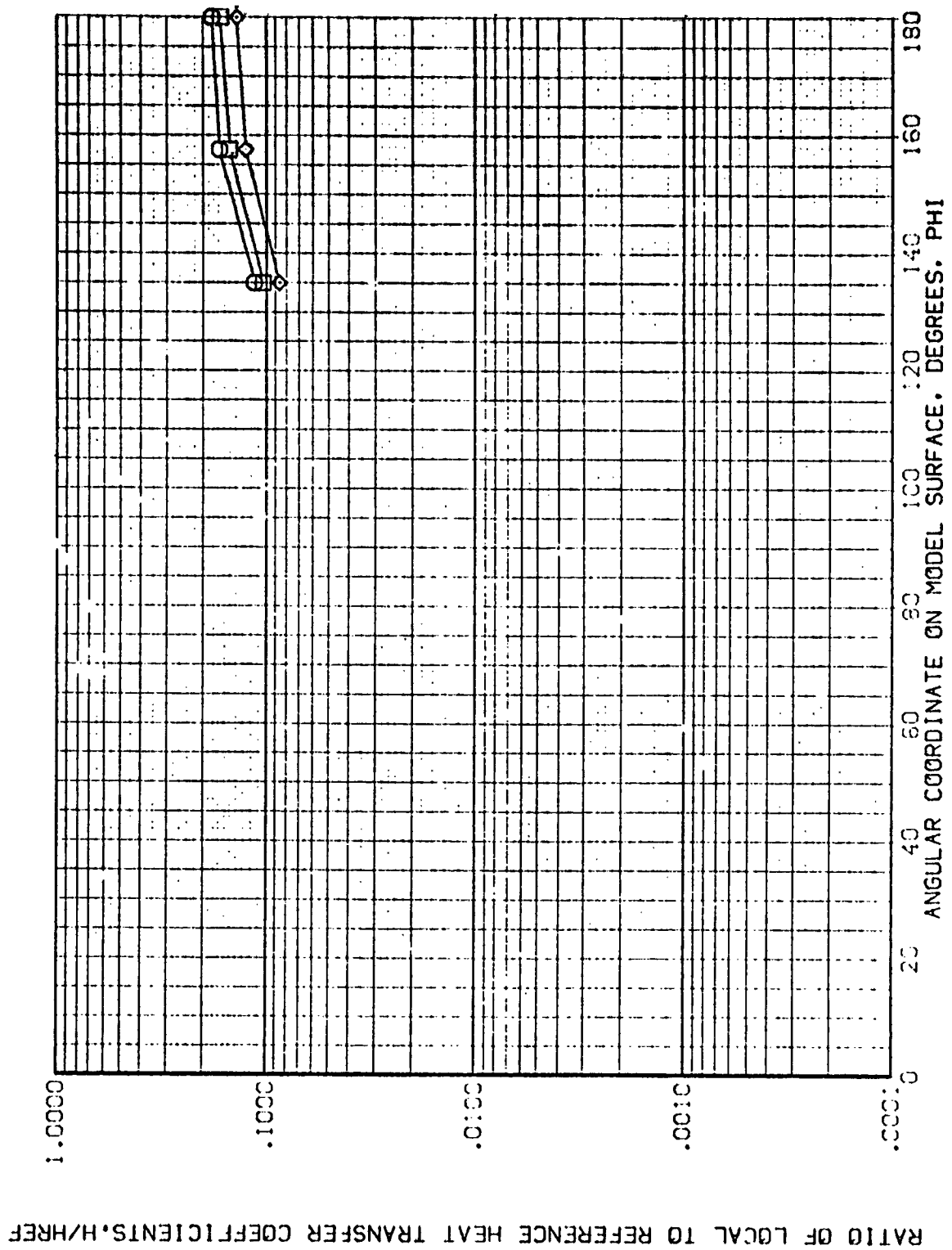


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV117)

SYMBOL:  $\diamond$   $\square$   $\circ$   
 H/W/H/T: .850  
 X/L: .800  
 MACH: 5.220

PARAMETRIC VALUES  
 ALPHA: -120.000  
 BETA: .000  
 RW/L: 1.000

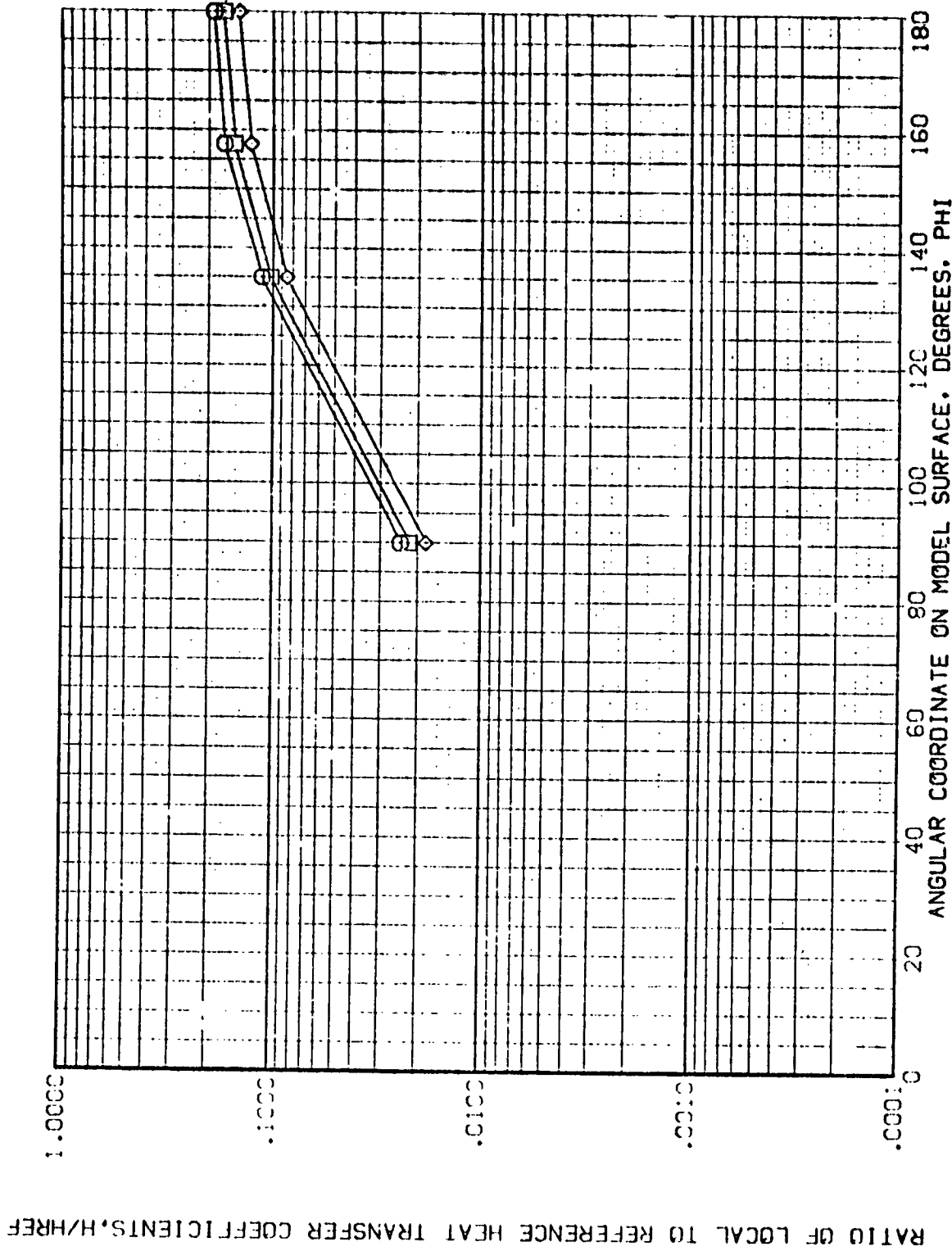


FIG. 4 TANK-ALONE

AYES 3.5-195 1428 T1 EXTERNAL TANK (REV117)

SYMBOL	WAVE/M <sup>2</sup>	X/L	MACH	PARAMETRIC VALUES
□	.850	.850	5.220	ALPHA -120.000
○	.950			BETA .000
◇	1.000			RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

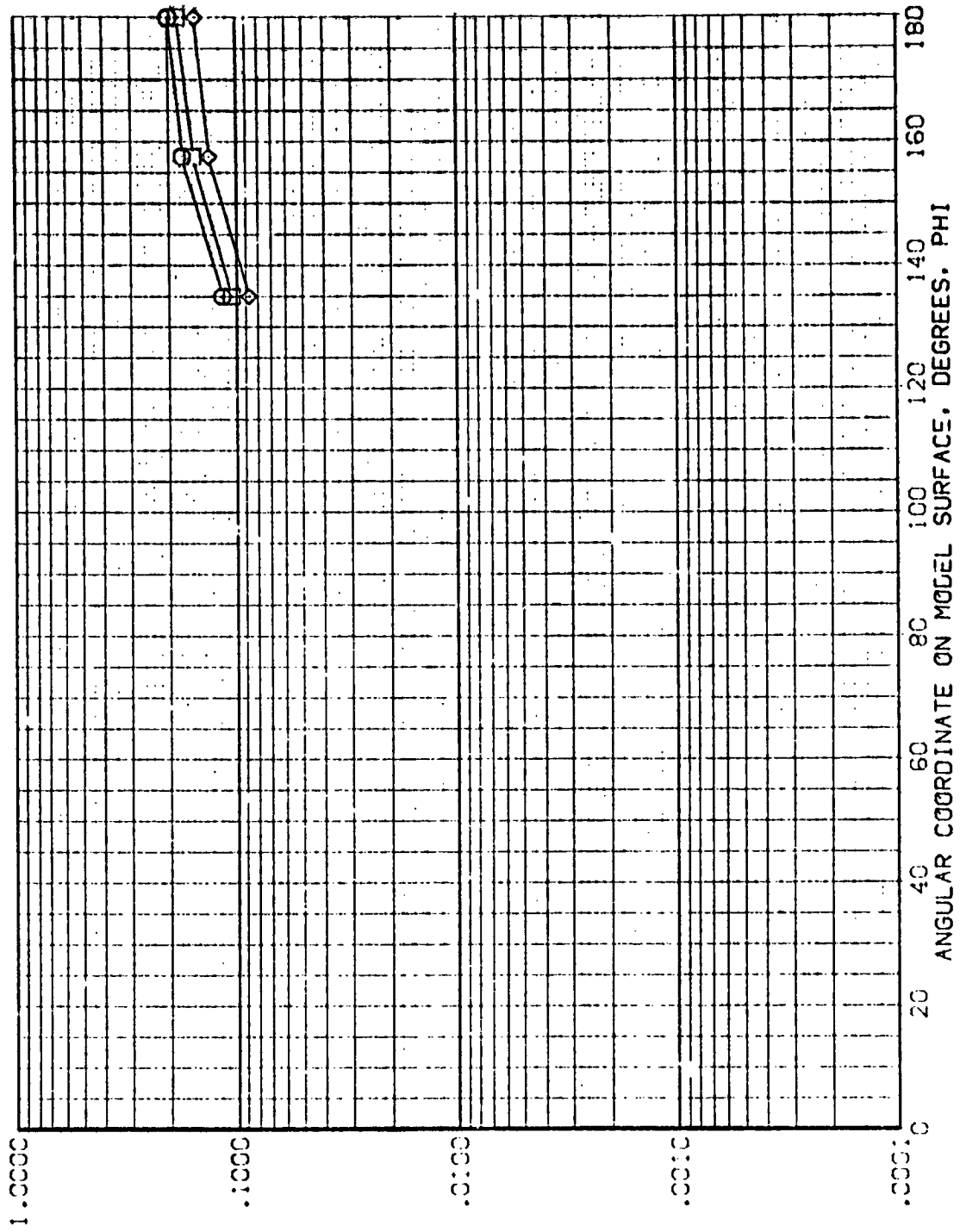


FIG. 4 TANK, ALONE

(REV 17)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

.000

PARAMETRIC VALUES

BETA

-120.000

ALPHA

RN/L

1.000

MACH

5.220

r/L

.900

HAW/HT

.850

SYMBOL

◇

.900

1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

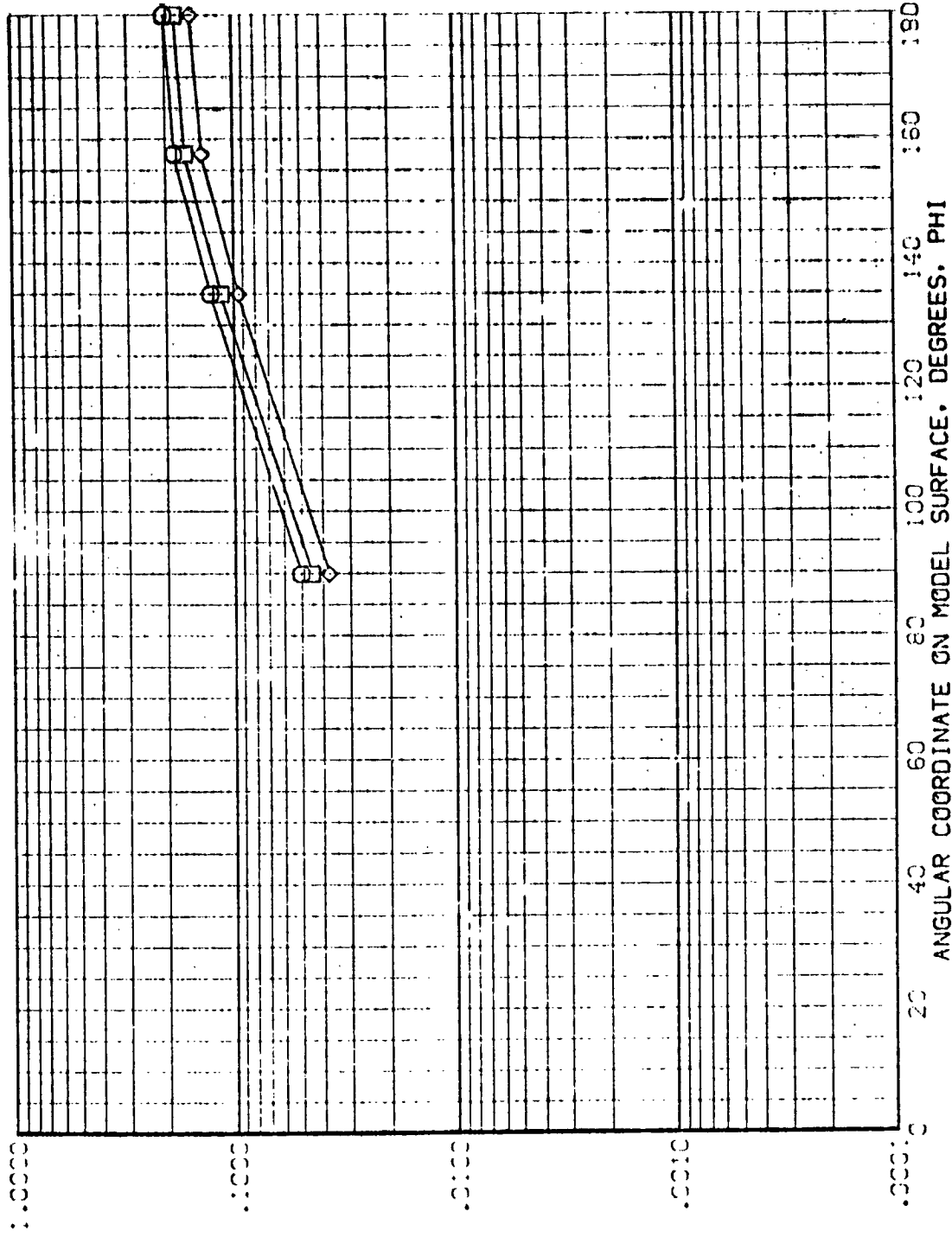


FIG. 4 TANK, ALONE

AVES 3.5-195 IH28 T1 EXTERNAL TANK (REV:18)

SVECT:     
 W/L: .350 MACH: 5.333  
 .850  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA: .000  
 PIVL: 4.000  
 BETA: .000

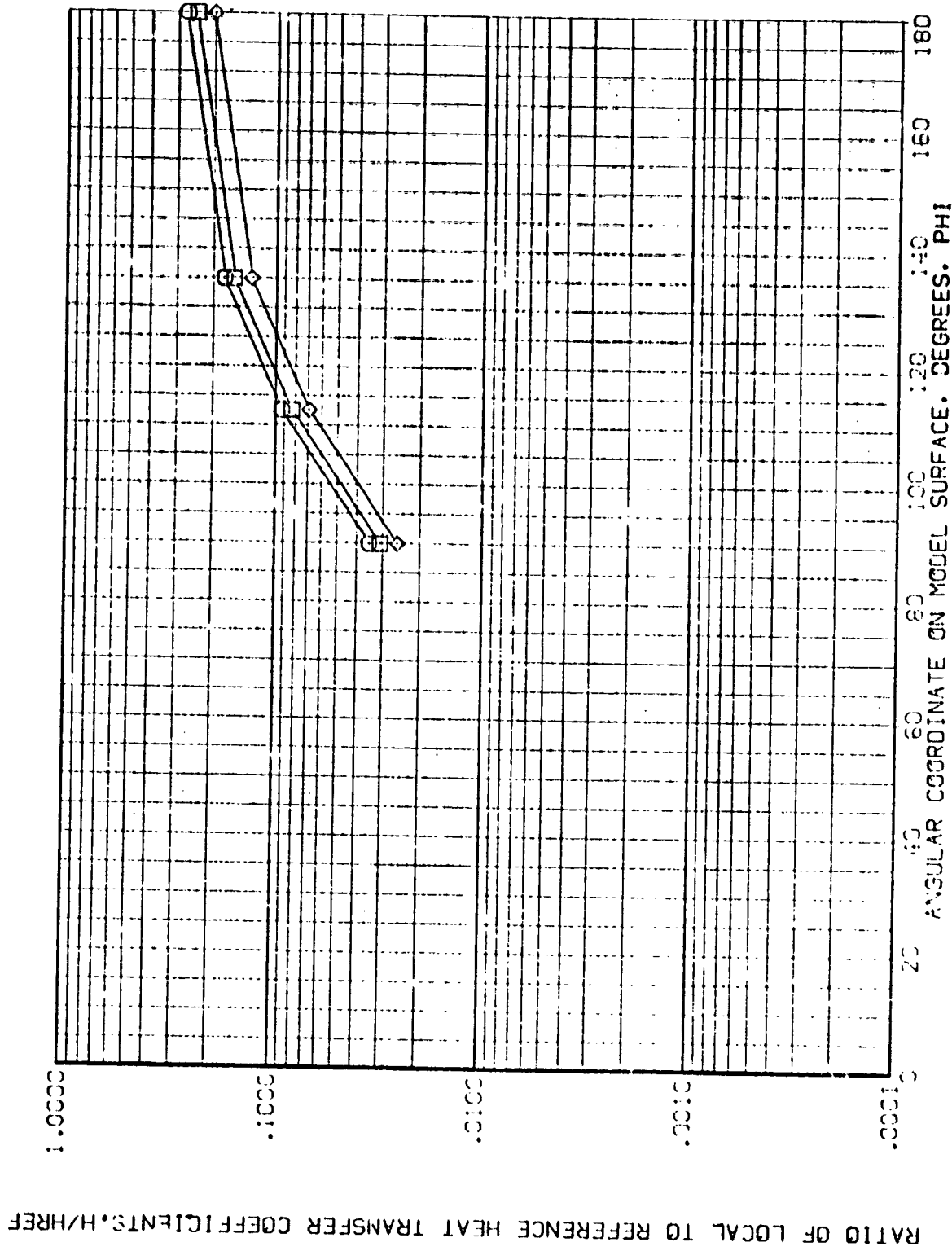


FIG. 4 TANK, ALONE



AMES 3.5-195 1428 T1 EXTERNAL TANK (REV118)

SYMBOL MACH F/L MACH PARAMETRIC VALUES  
 .850 .400 5.303 ALPHA -90.000 BETA .000  
 .900 1.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

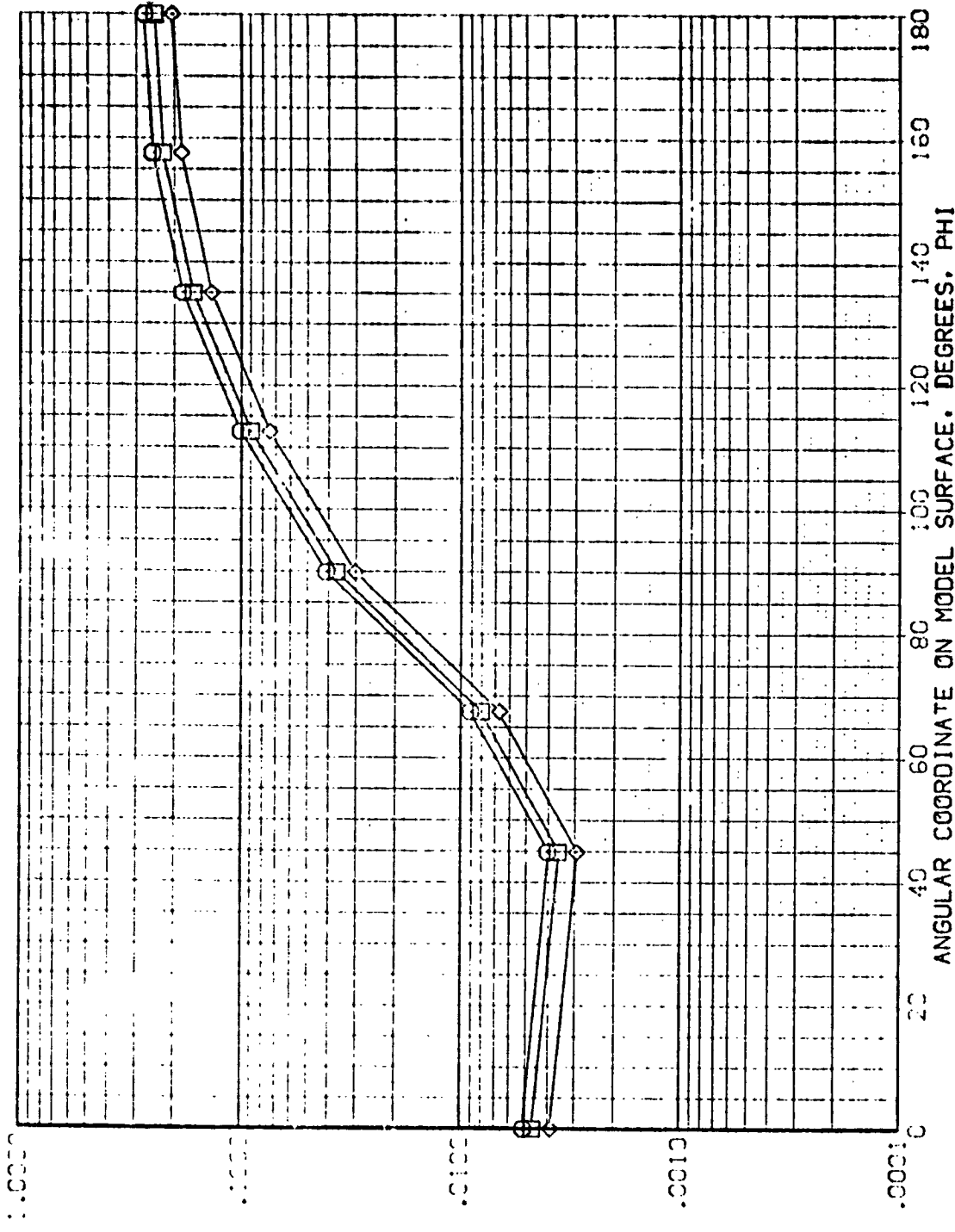


FIG. 4 TANK, ALONE

(REV T18)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

PARAMETRIC VALUES  
ALPHA -90.000 BETA .000  
RN/L 4.000

SYSEC- HAW/HT X/L MACH  
◇ □ ○ ◊ .650 .450 5.303  
□ ○ ◊ .300  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

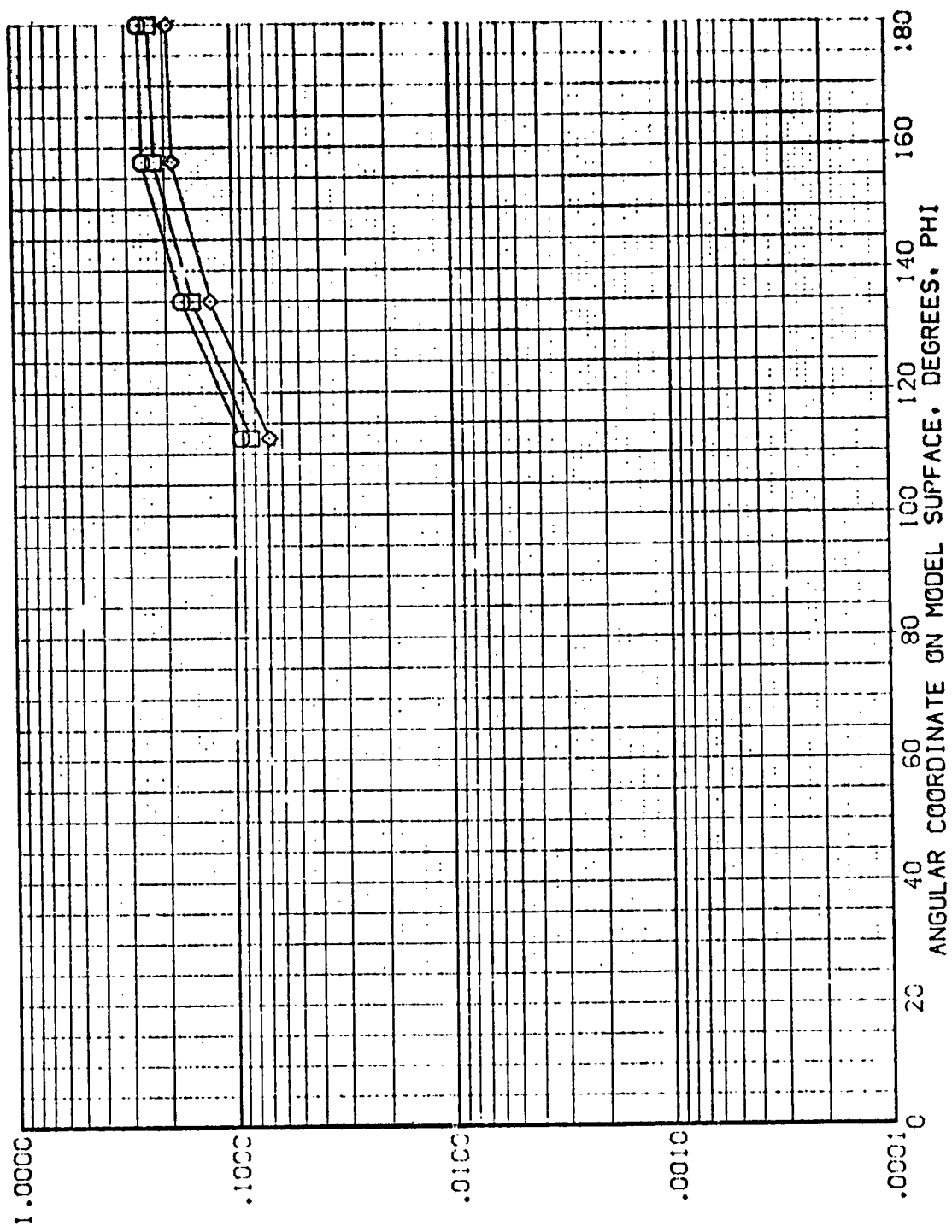


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV118)

SYMBOL H/W/T X/L MACH  
 □ .853 .500 5.303  
 ◇ .903 .500 5.303  
 ◆ 1.000 .500 5.303

PARAMETRIC VALUES  
 ALPHA -90.000  
 BETA 4.000  
 RNV/L .000

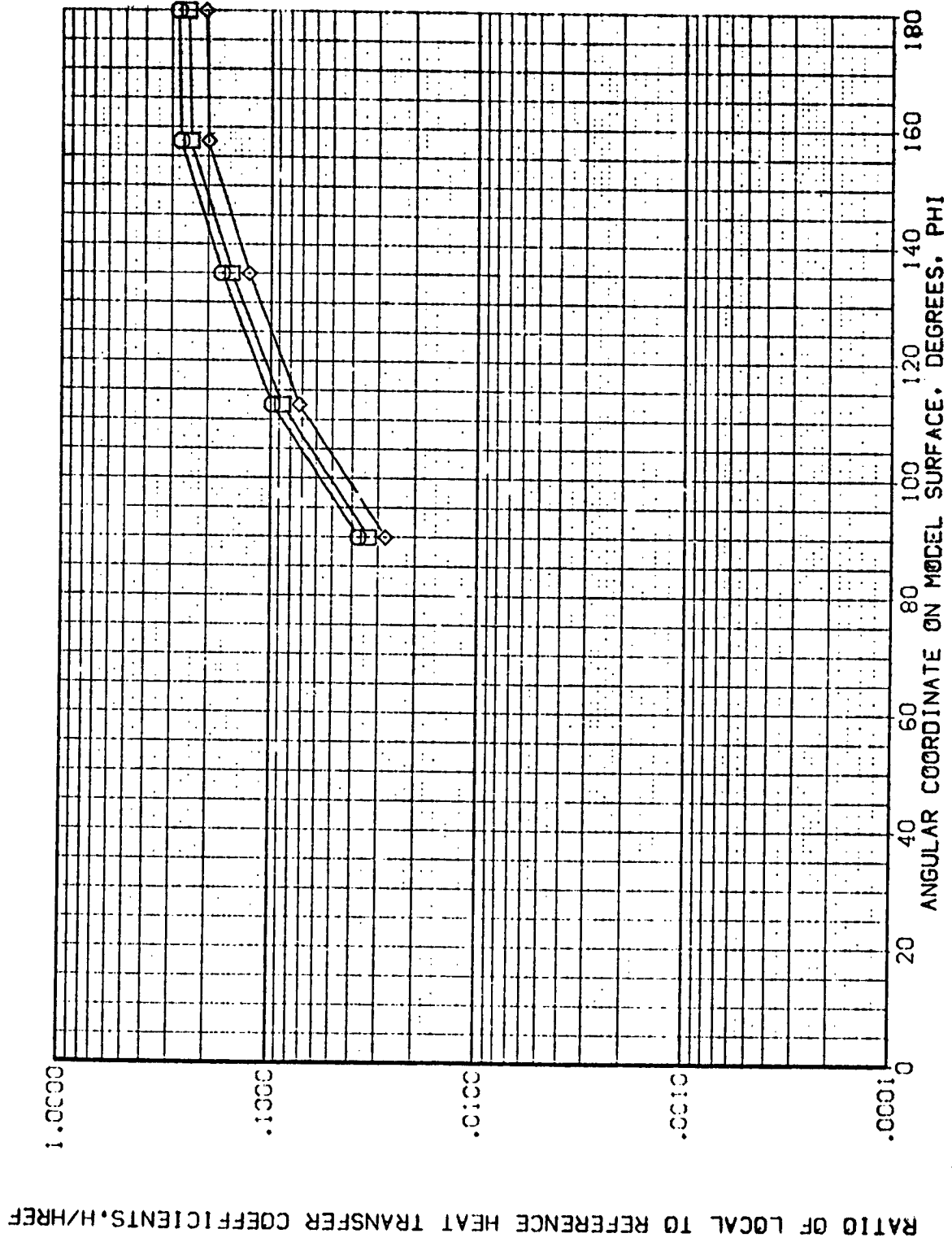


FIG. 4 TANK ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV118)

SYMBOL HEIGHT X/L MACH  
 □ .850 .550 5.333  
 ◇ .900 .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA 4.000  
 RV/L

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

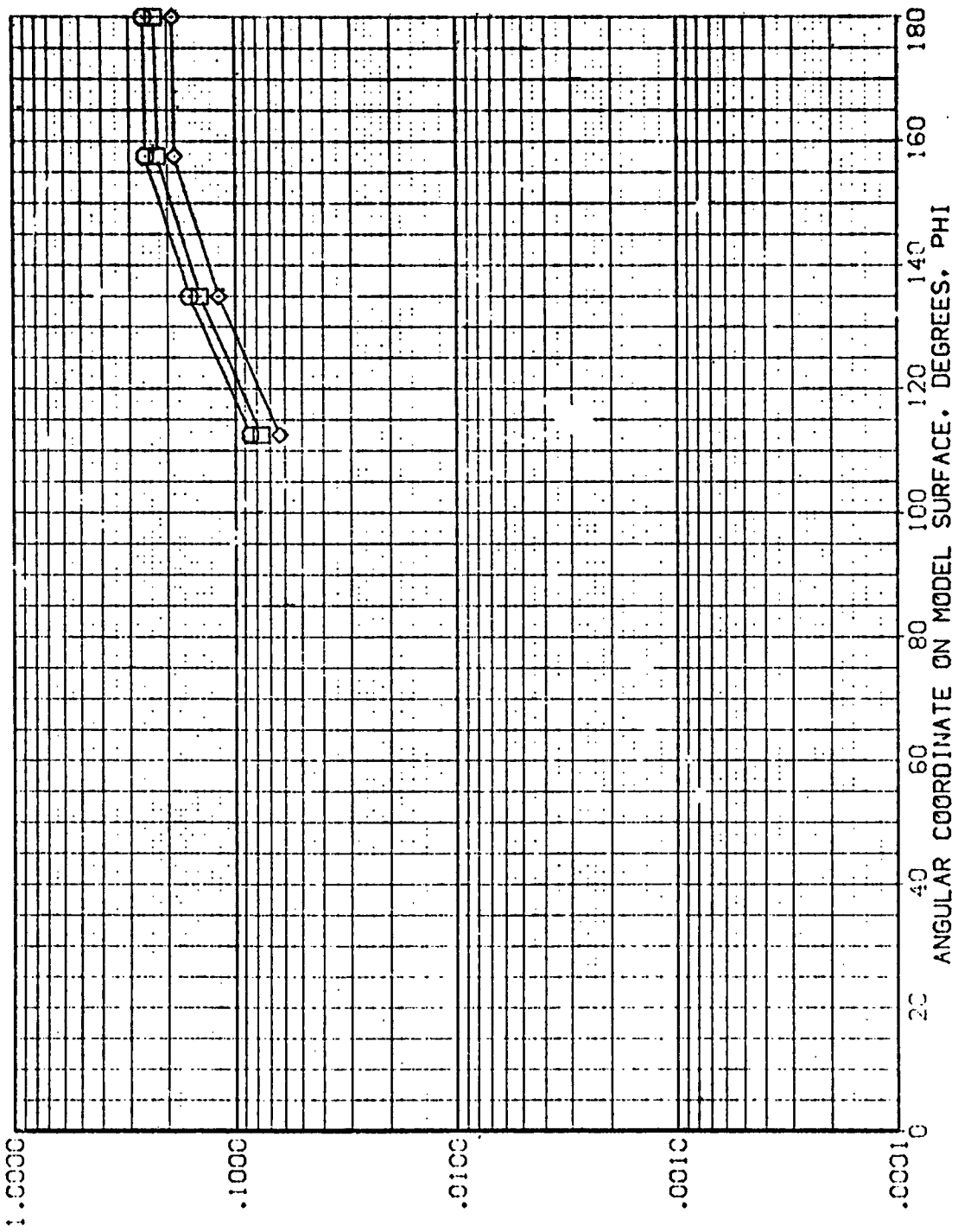


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV118)

SYMBOL H/W/T X/L MACH  
 ◊ .850 .600 5.303  
 □ .900 .600 5.303  
 ◊ 1.000 .600 5.303

PARAMETRIC VALUES  
 ALPHA -93.000 BETA .000  
 RH/L 4.000

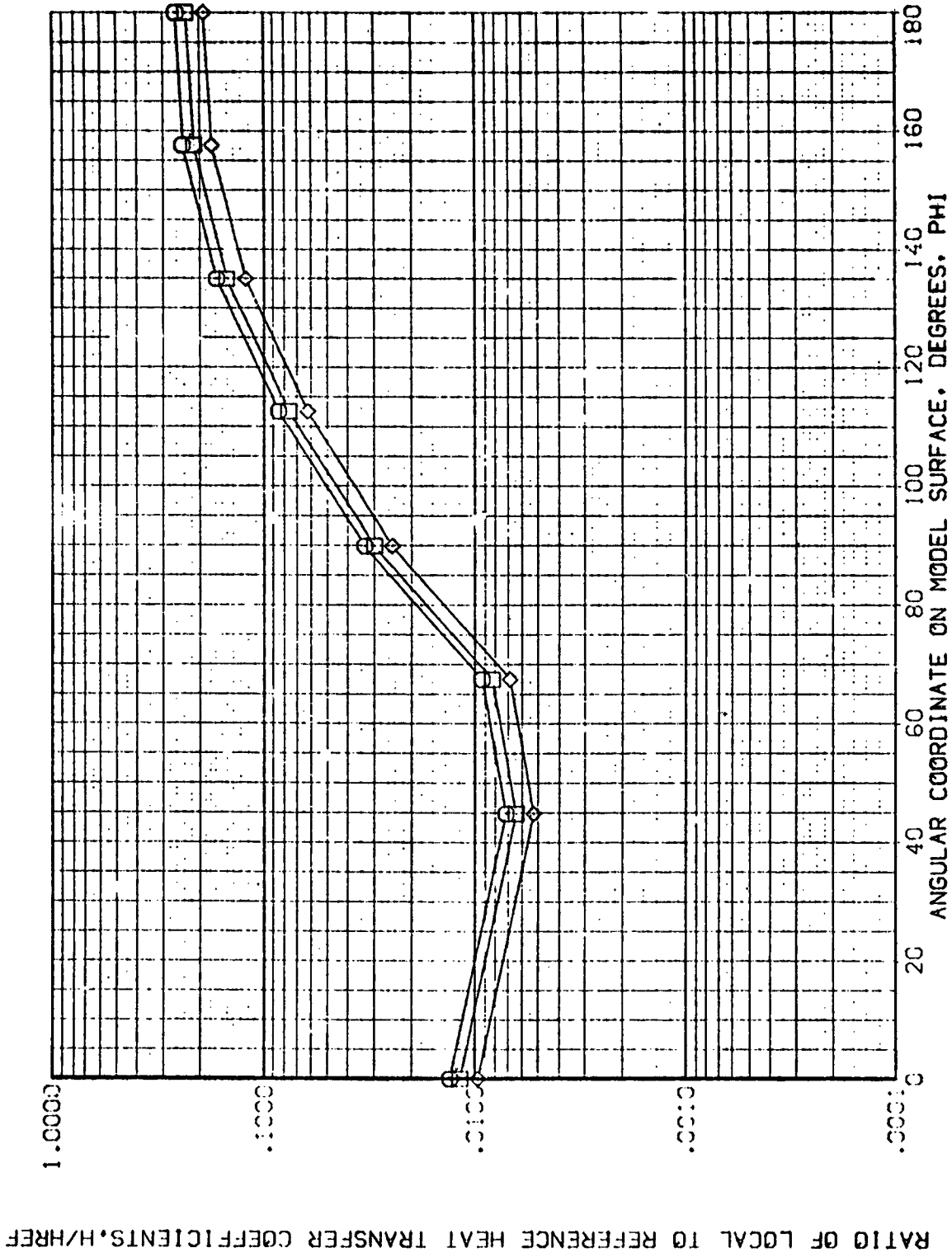


FIG. 4 TANK ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV T18)

SYMBOL HAW/HT X/L MACH  
 ◊ .85C .65C 5.303  
 ○ .95C  
 △ 1.05C

PARAMETRIC VALUES  
 -90.00C ALPHA  
 4.000 R<sub>N</sub>/L  
 .000 BETA

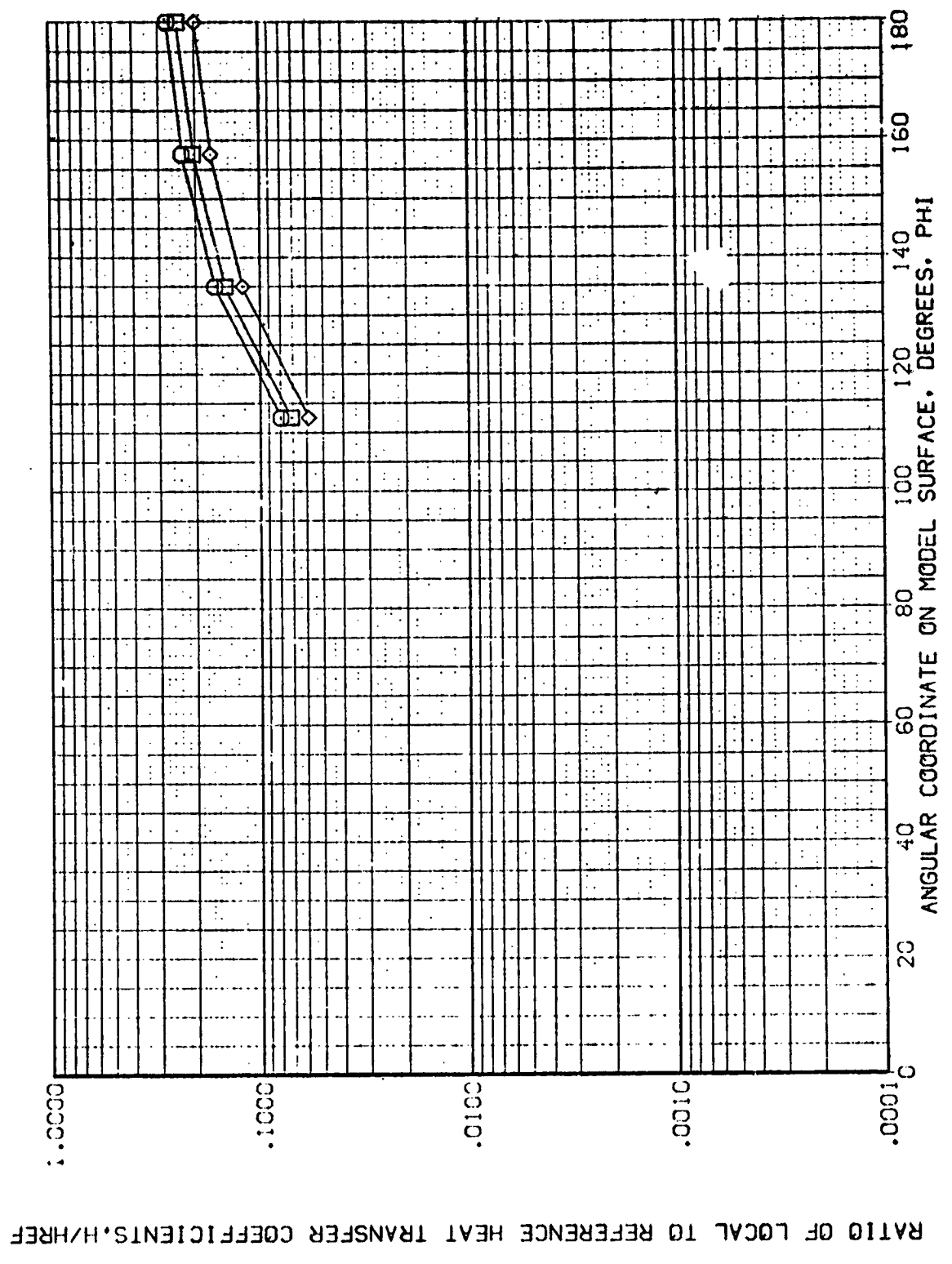


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK

(REV118)

SYMBOL	H/M/HT	V/L	MACH	PARAMETRIC VALUES
◇	.850	.700	5.303	-90.000 BETA
□	.900			4.000
◇	1.000			

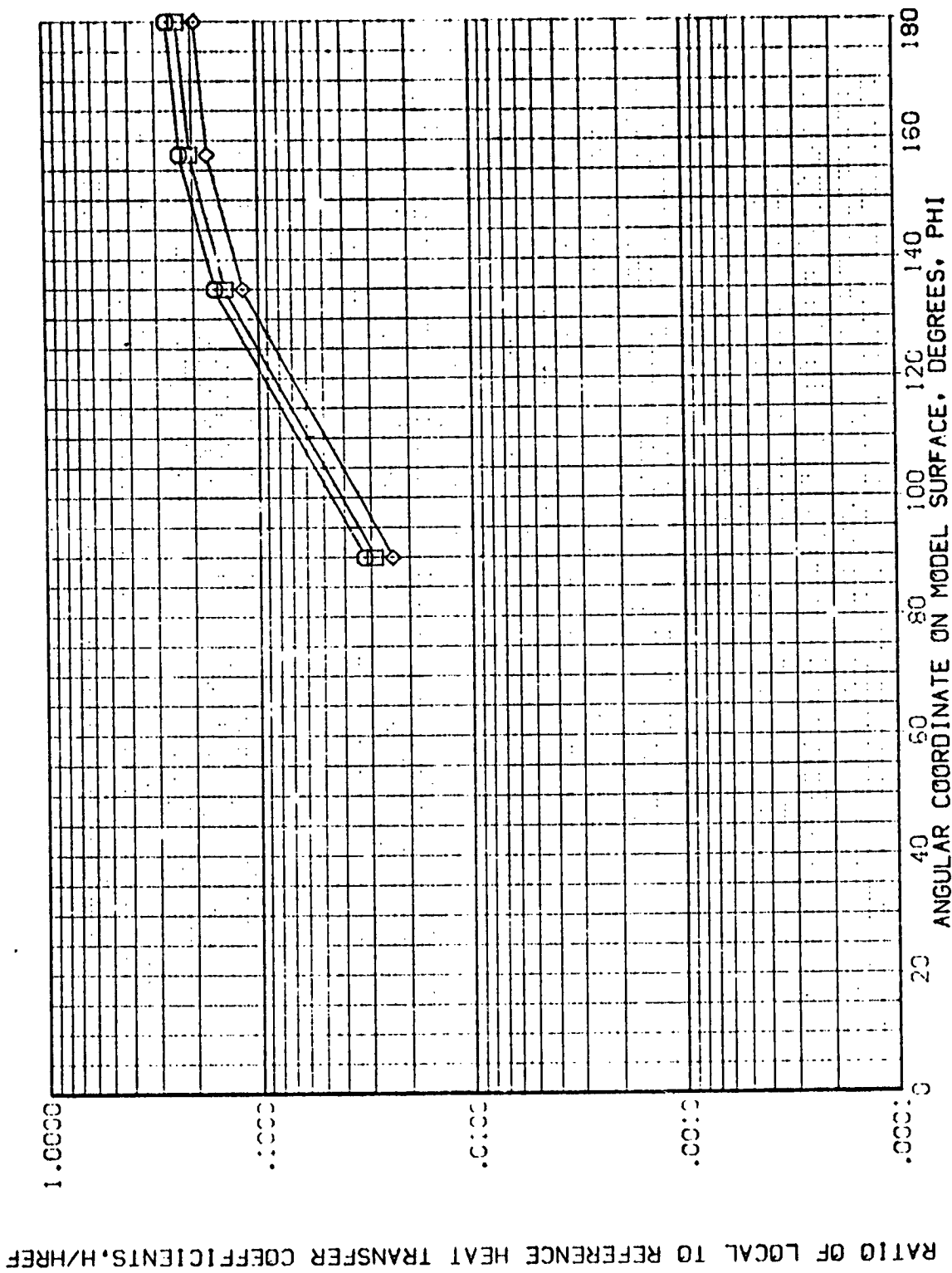


FIG. 4 TANK, ALONE

AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV T18)

SYSEC- H/W/RT X/L MACH  
 .850 .750 5.303  
 .900  
 1.500

PARAMETRIC VALUES  
 -90.00 ALPHA  
 4.000 BETA

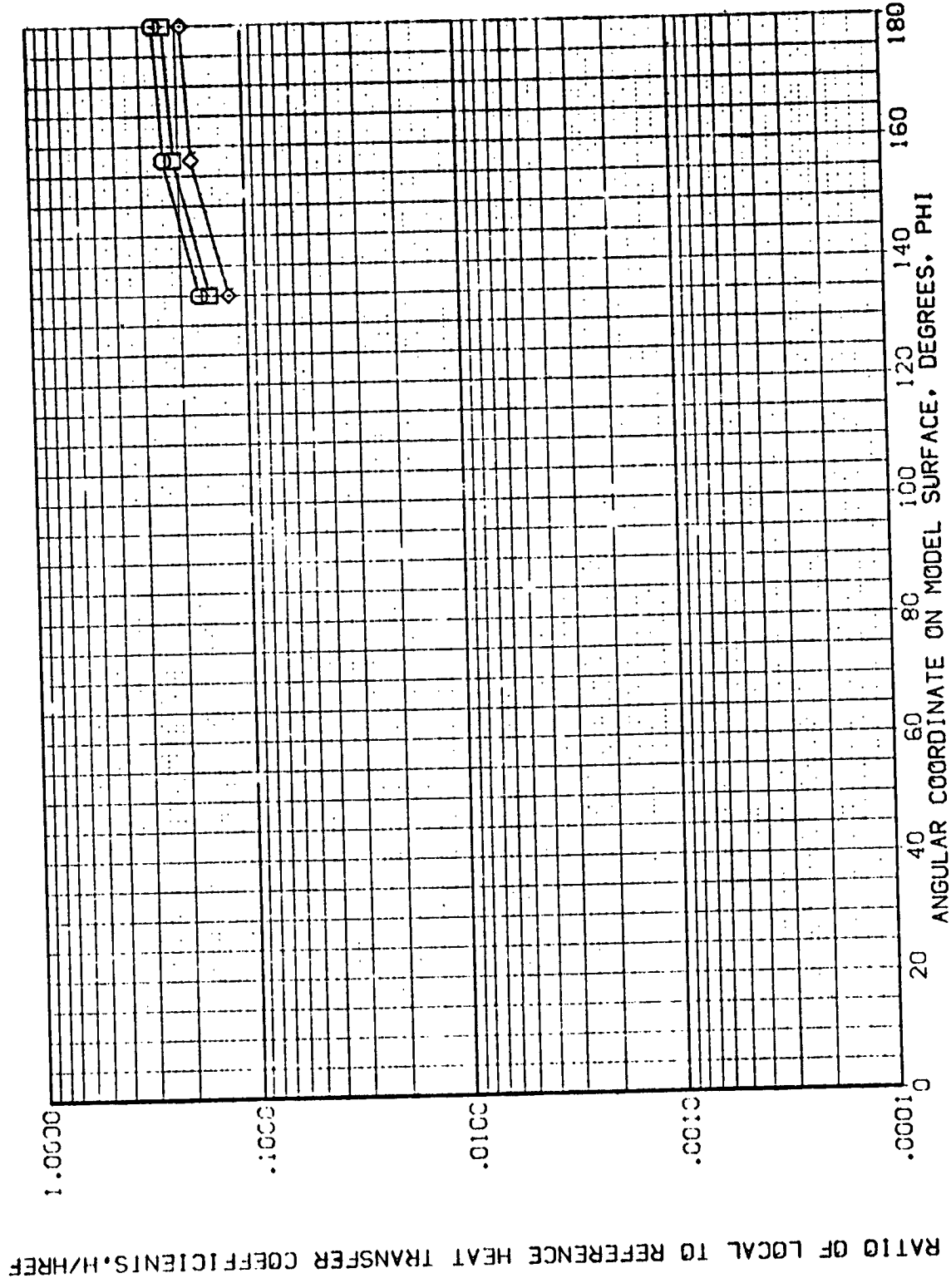


FIG. 4 TANK ALONE



AMES 3.5-195 IH28 T1 EXTERNAL TANK (REV T18)

S Y M B O L	P A R A M E T R I C	V A L U E S
$\diamond$	-90.000	B E T A
$\square$	4.000	

X / L	M A C H
.800	5.303

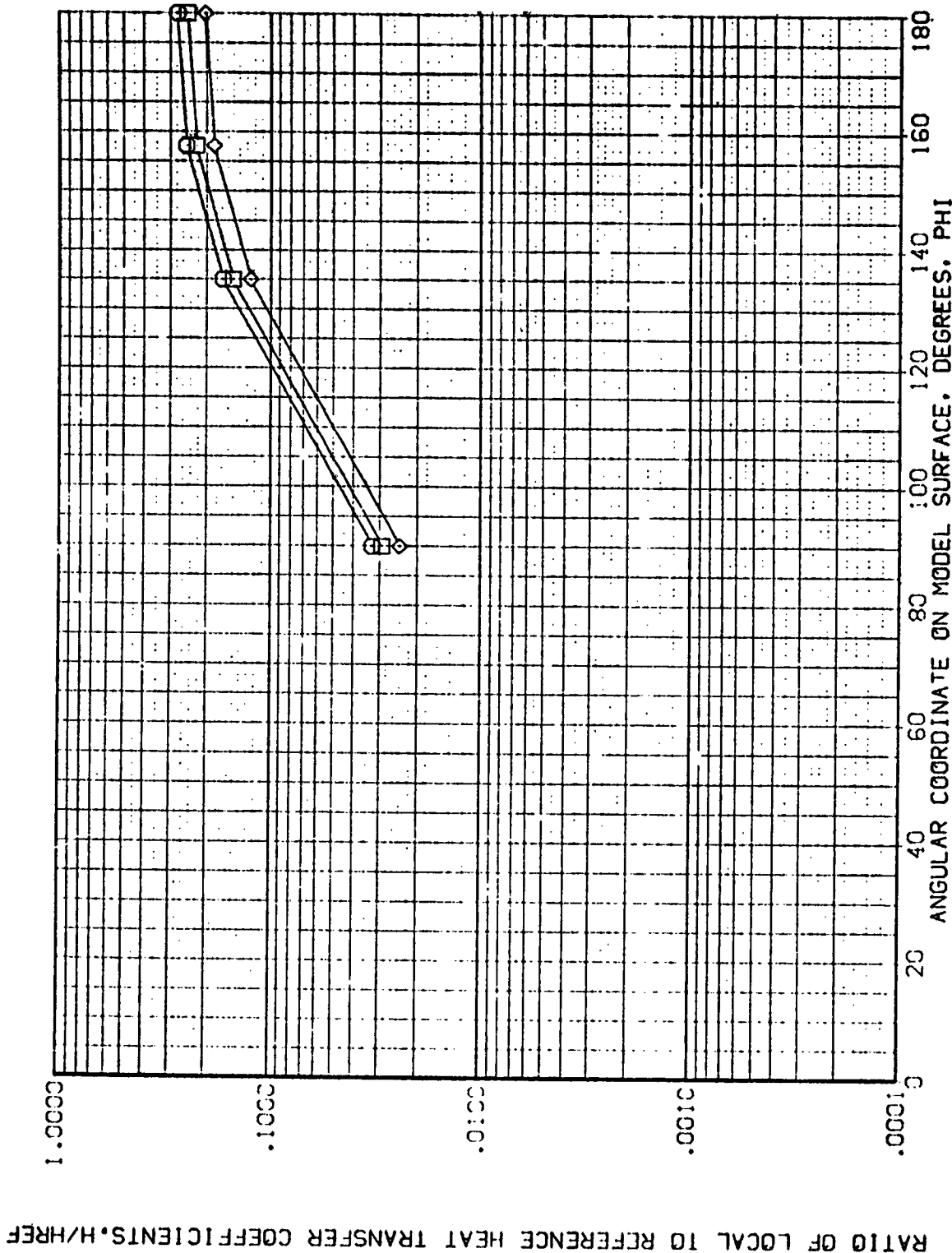


FIG. 4 TANK, ALONE

AMES 3.5-195 :H28 T1 EXTERNAL TANK (REVT18)

SPEC. HAW/HT X/L MACH  
 .850 .950 5.303  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 RN/L 4.000

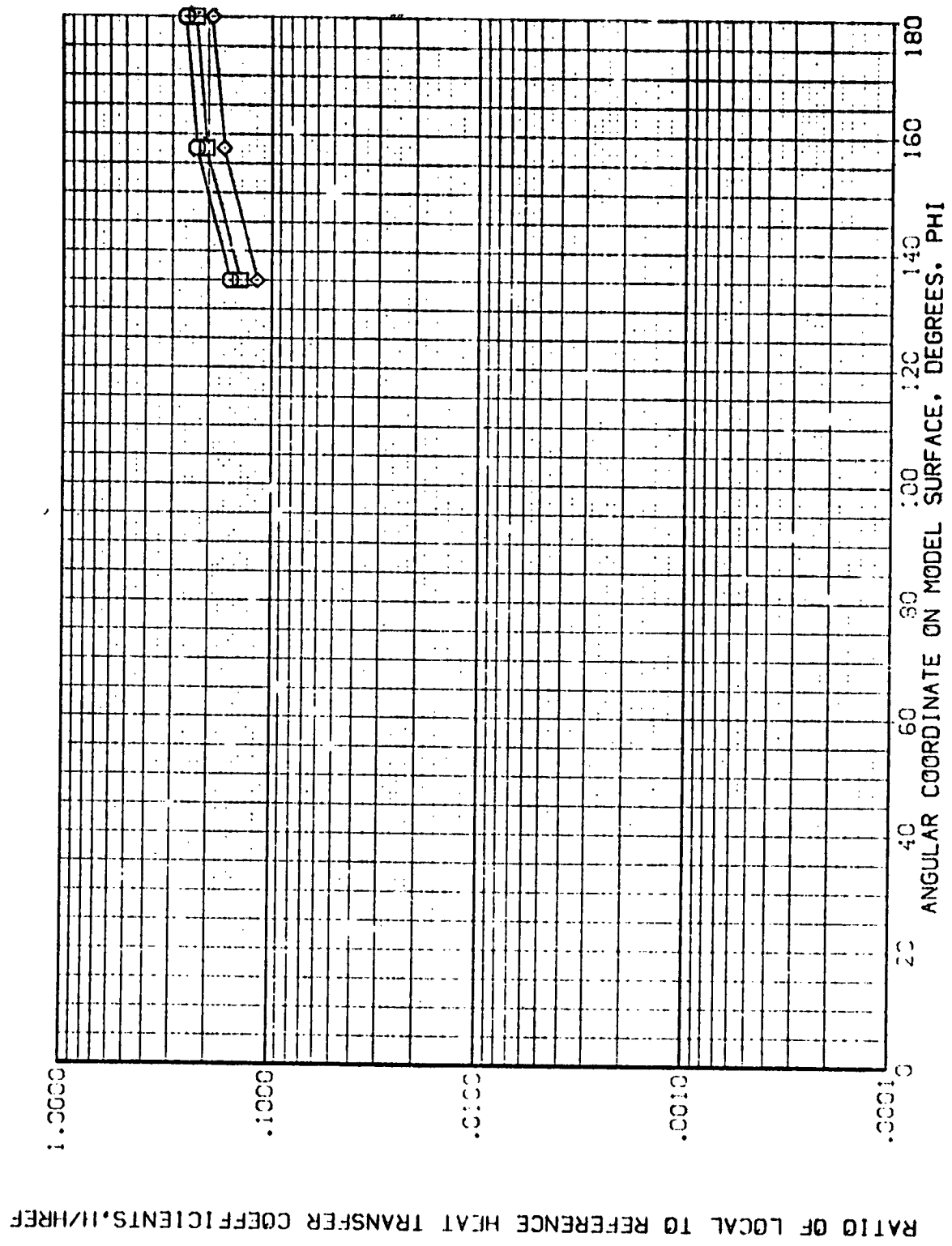


FIG. 4 TANK, ALONE

(REV T18)

EXTERNAL TANK

AMES 3.5-195 IH28 T1

SYMBOL

HA/WHT  
.850  
.900  
1.000

X/L  
.900

MACH  
5.303

PARAMETRIC VALUES

ALPHA  
PN/L  
-90.000  
4.000

BETA  
.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

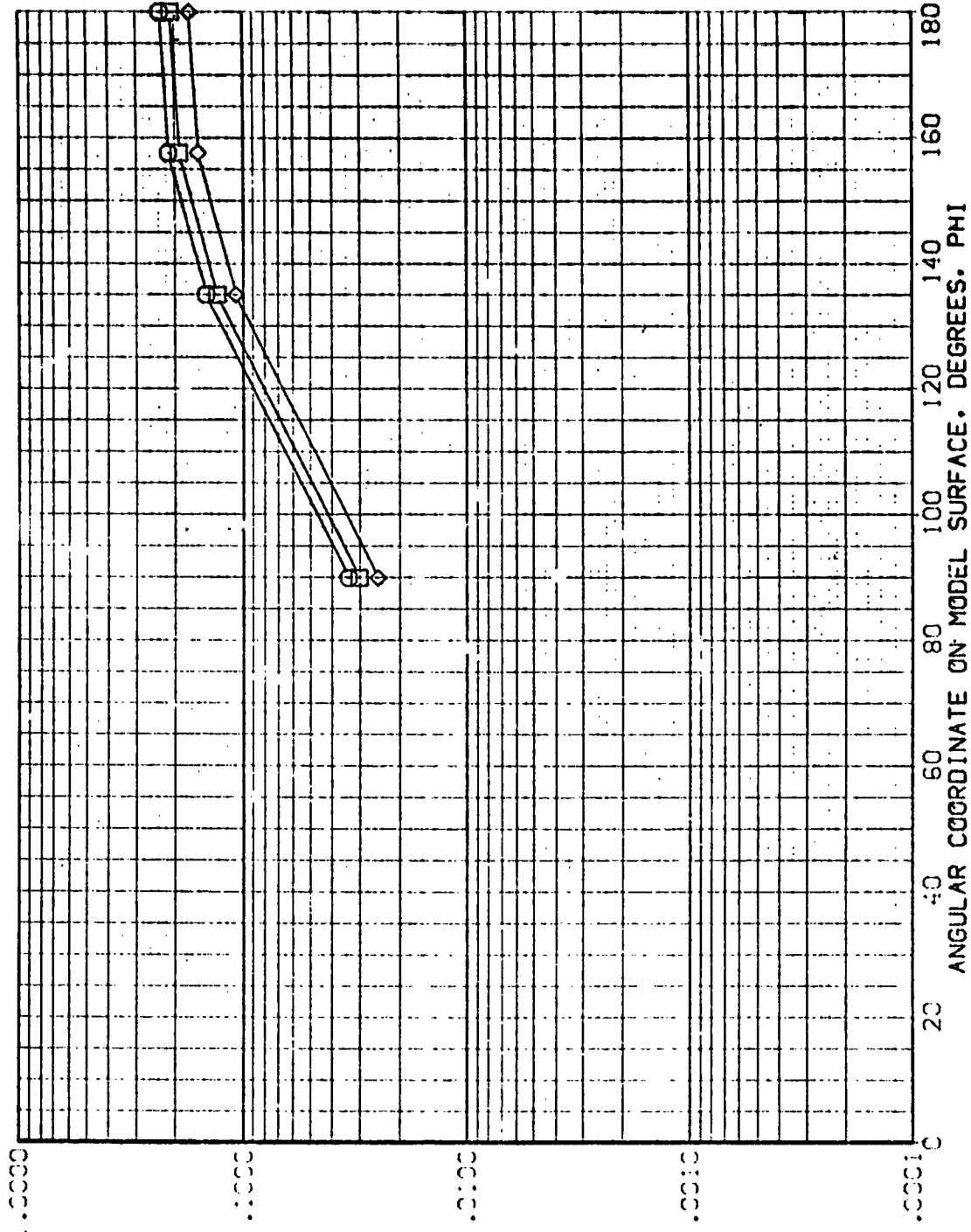


FIG. 4 TANK, ALONE

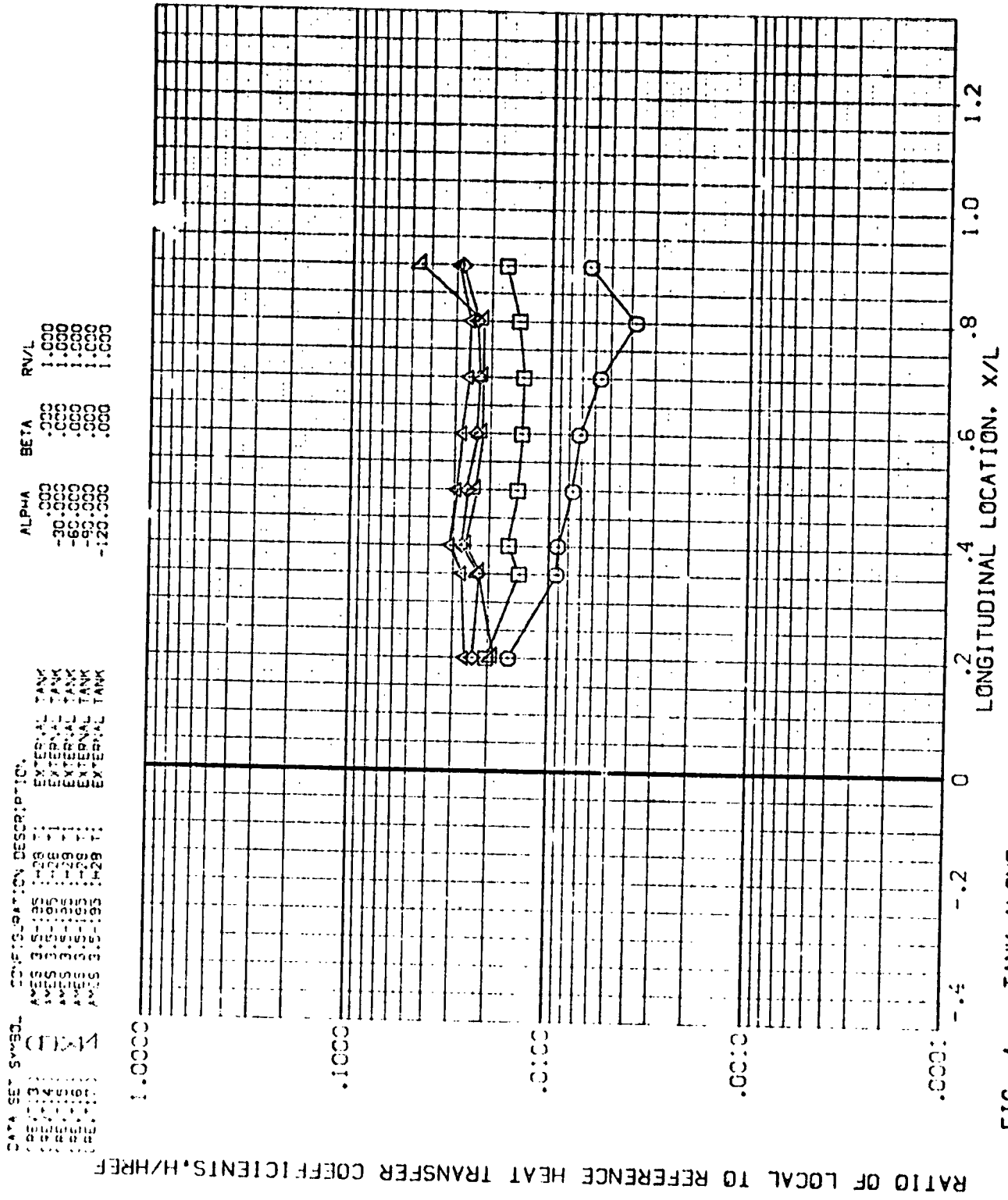


FIG. 4 TANK ALONE

MAC = 5.300  $\mu$ AV/UT = .900 PHI = 90.000

DATA SET SYMBOL  
 REV13  
 REV14  
 REV15  
 REV16  
 REV17  
 REV18

CONFIGURATION DESCRIPTION  
 AVES 3.5-195 1.428 T1 EXTERNAL TANK  
 AVES 3.5-195 1.428 T1 EXTERNAL TANK  
 AVES 3.5-195 1.428 T1 EXTERNAL TANK  
 AVES 3.5-195 1.428 T1 EXTERNAL TANK  
 AVES 3.5-195 1.428 T1 EXTERNAL TANK

ALPHA BETA PNT/L  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

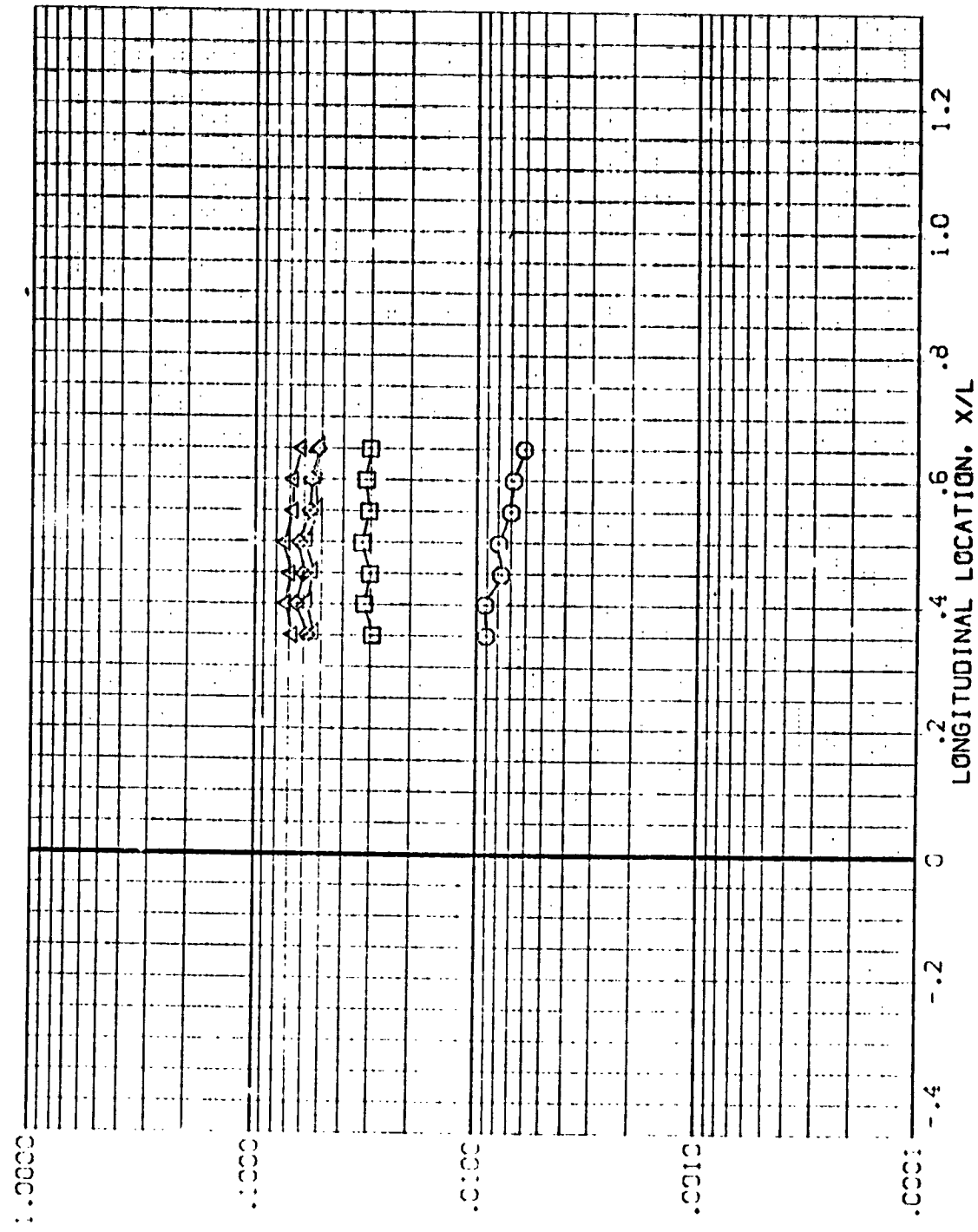


FIG. 4 TANK, ALONE

MACH = 5.300 MAX/HREF = .900 PHI = 112.500



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (REVT13) AYES 3.5-195 (428 T) EXTERNAL TANK  
 (REVT14) AYES 3.5-195 (428 T) EXTERNAL TANK  
 (REVT15) AYES 3.5-195 (428 T) EXTERNAL TANK  
 (REVT16) AYES 3.5-195 (428 T) EXTERNAL TANK  
 (REVT17) AYES 3.5-195 (428 T) EXTERNAL TANK

ALPHA BETA RI/L  
 .000 1.000  
 -30.000 1.000  
 -60.000 1.000  
 -90.000 1.000  
 -120.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

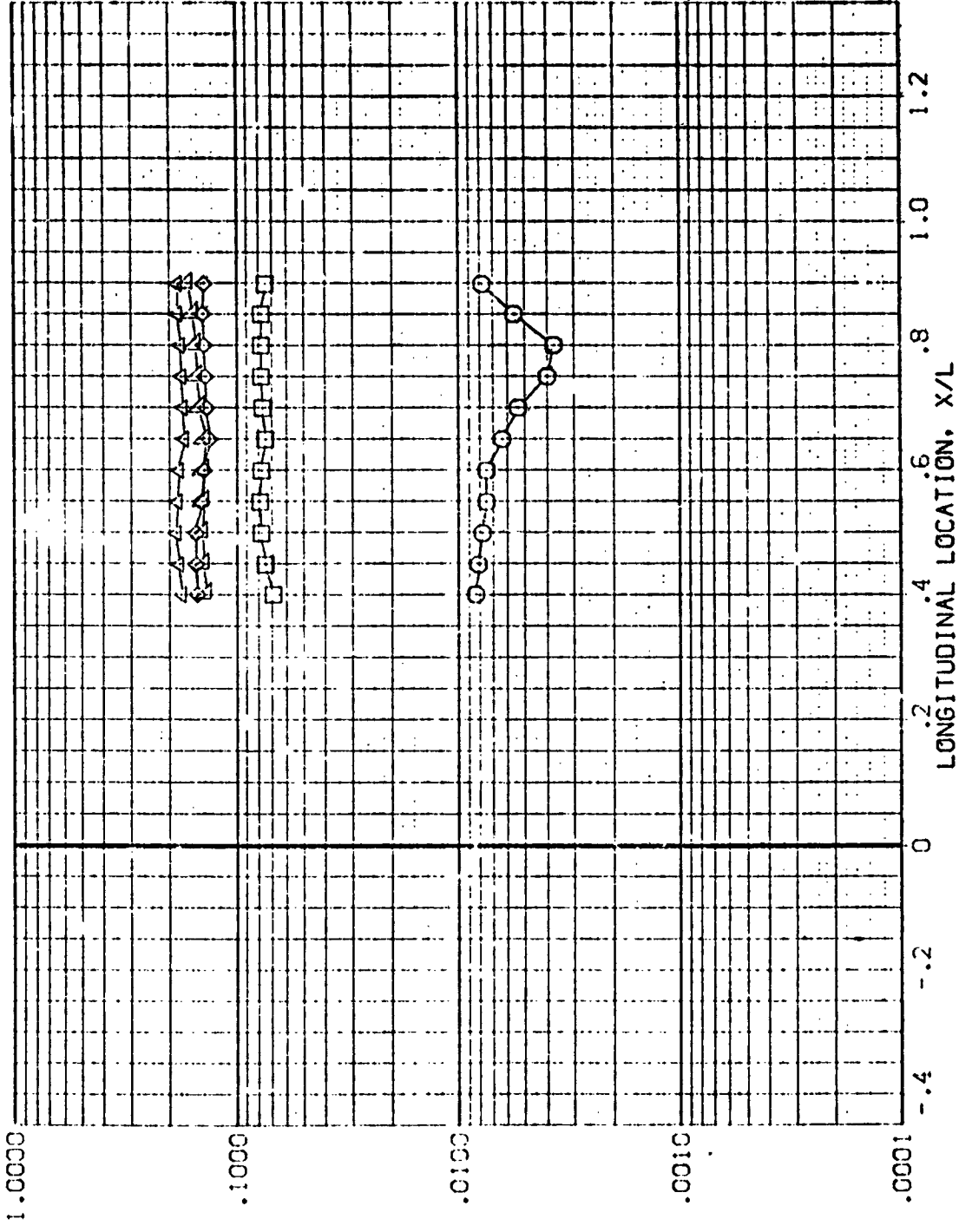


FIG. 4 TANK, ALONE

MACH = 5.300 4W/HT = .900 PHI = 157.500 PAGE 106

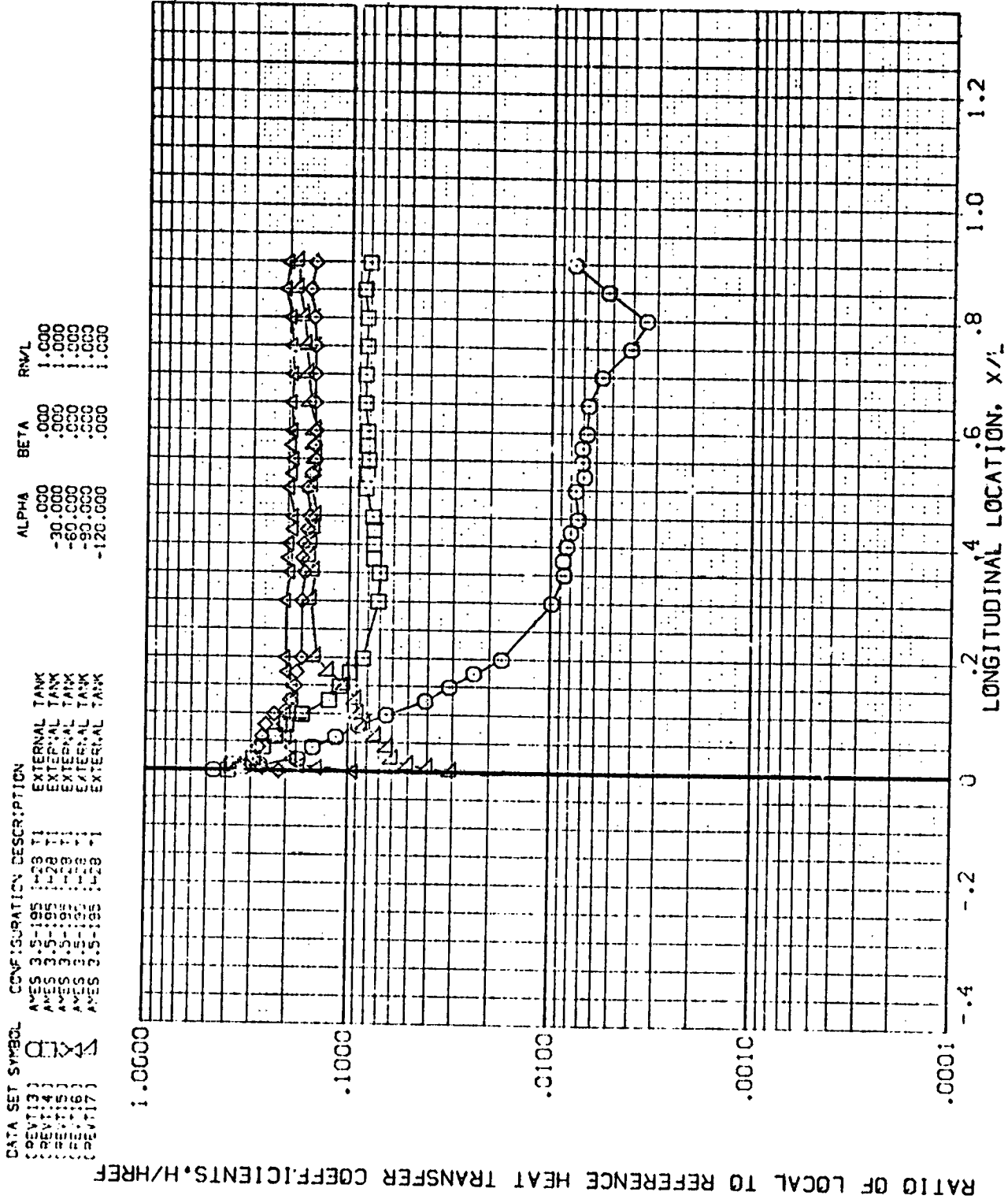


FIG. 4 TANK, ALONE

MACH = 5.300 HAW/HREF = .900 PHI = 180.000



DATA SET SYMBOL: **Q** CONFIGURATION DESCRIPTION:  
 (REV116) AVES 3.5-195 1428 T1 EXTERNAL TANK  
 (REV118) AVES 3.5-195 1428 T1 EXTERNAL TANK

ALPHA BETA RN/L  
 190.000 .000 1.000  
 190.000 .000 4.000

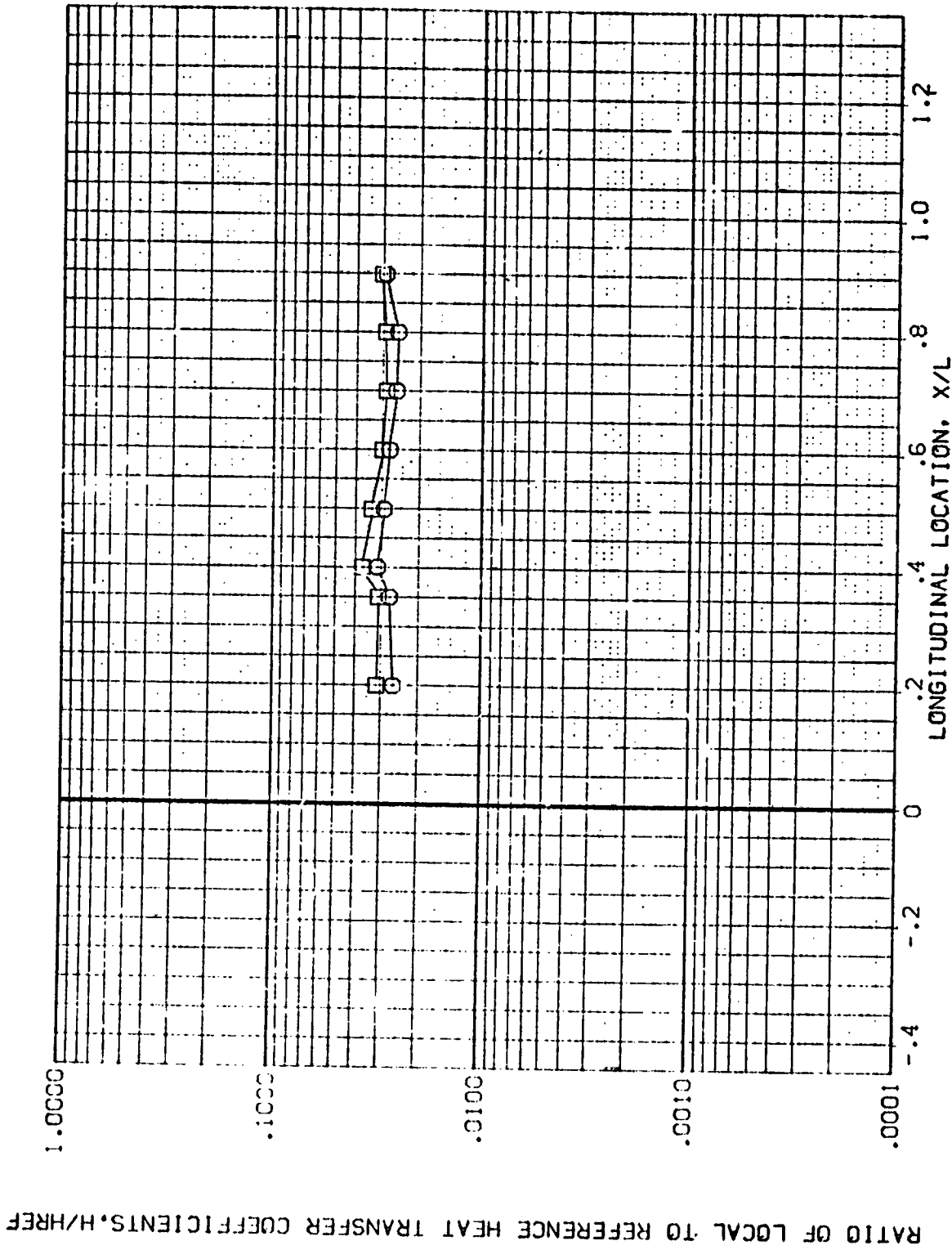


FIG. 4 TANK, ALONE

MACH = 5.300 HAW/HT =

.900 PHI = 90.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (REV16) AYES 3.5:195 1428 T1 EXTERNAL TANK  
 (REV18) AYES 3.5:195 1428 T1 EXTERNAL TANK

ALPHA BETA RI/VL  
 -90.000 .000 1.000  
 -90.000 .000 4.000

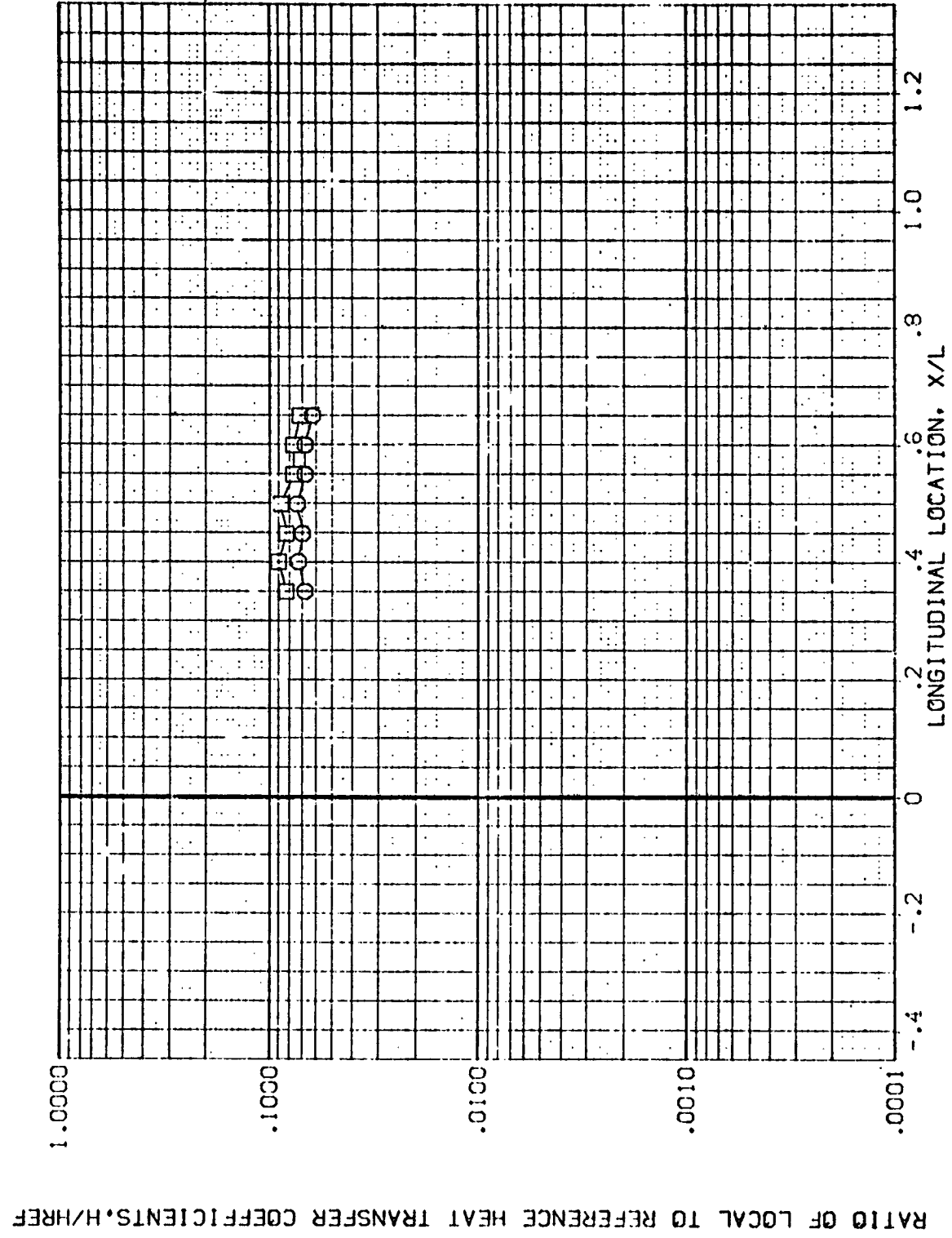


FIG. 4 TANK, ALONE

MACH = 5.300 HAW/HT = .900 PHI = 112.500

DATA SET SYMBOL  
 (REV116) **B**  
 (REV118)

CONFIGURATION DESCRIPTION  
 AMES 3.5-195 1428 T1 EXTERNAL TANK  
 AMES 3.5-195 1428 T1 EXTERNAL TANK

ALPHA BETA RV/L  
 -90.000 .000 1.000  
 -90.000 .000 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

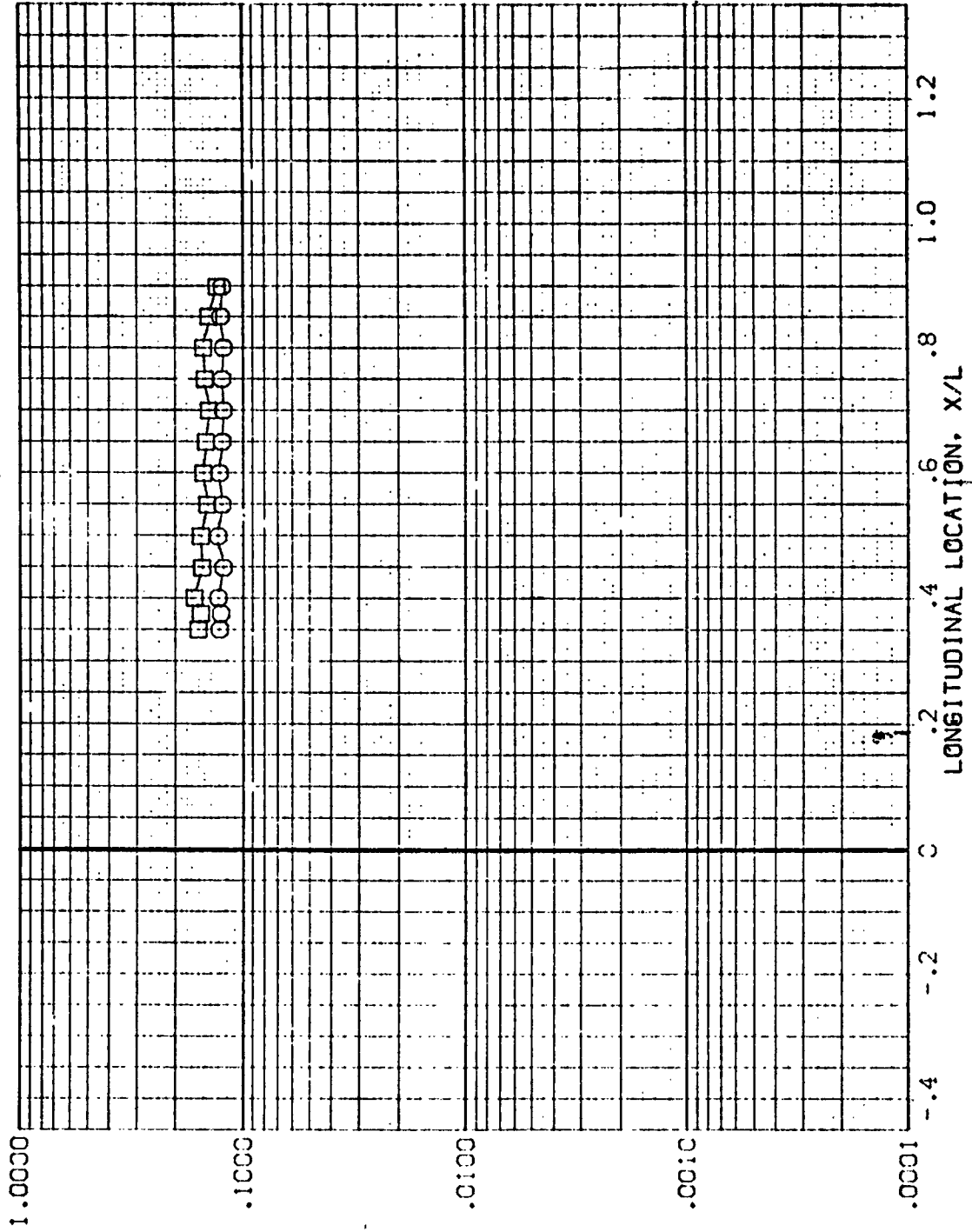


FIG. 4 TANK, ALONE

MACH = 5.300  $\mu = 1.0$

PHI = .900

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REPRODUCIBILITY OF THE  
 ORIGINAL PAGE IS POOR

DATA SET SYMBOL: 8  
 (REV116)  
 (REV118)

CONFIGURATION DESCRIPTION

AVES 3.5-195 1-28 T1 EXTERNAL TANK  
 AVES 3.5-195 1-23 T1 EXTERNAL TANK

ALPHA BETA RN/L  
 -80.000 .000 1.000  
 -50.000 .000 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

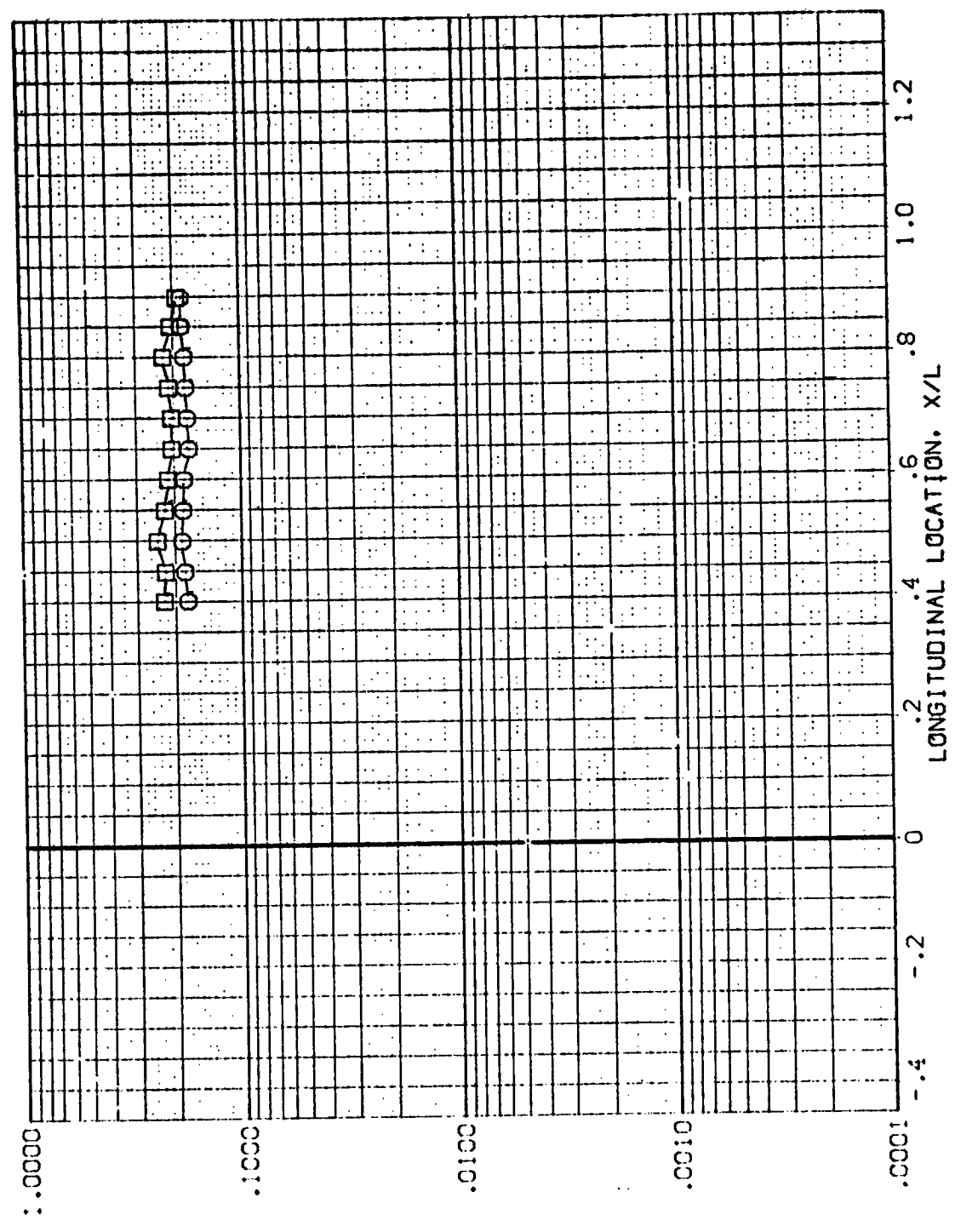


FIG. 4 TANK, ALONE

MACH = 5.300 H<sub>AW</sub>/HT = .900 PHI = 157.500

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: EXTERNAL TANK  
 (REV16) AMES 3.5-195 1428 II EXTERNAL TANK  
 (REV18) AMES 3.5-195 1428 II EXTERNAL TANK

ALPHA: -50.000  
 BETA: .000  
 RV/L: 1.000

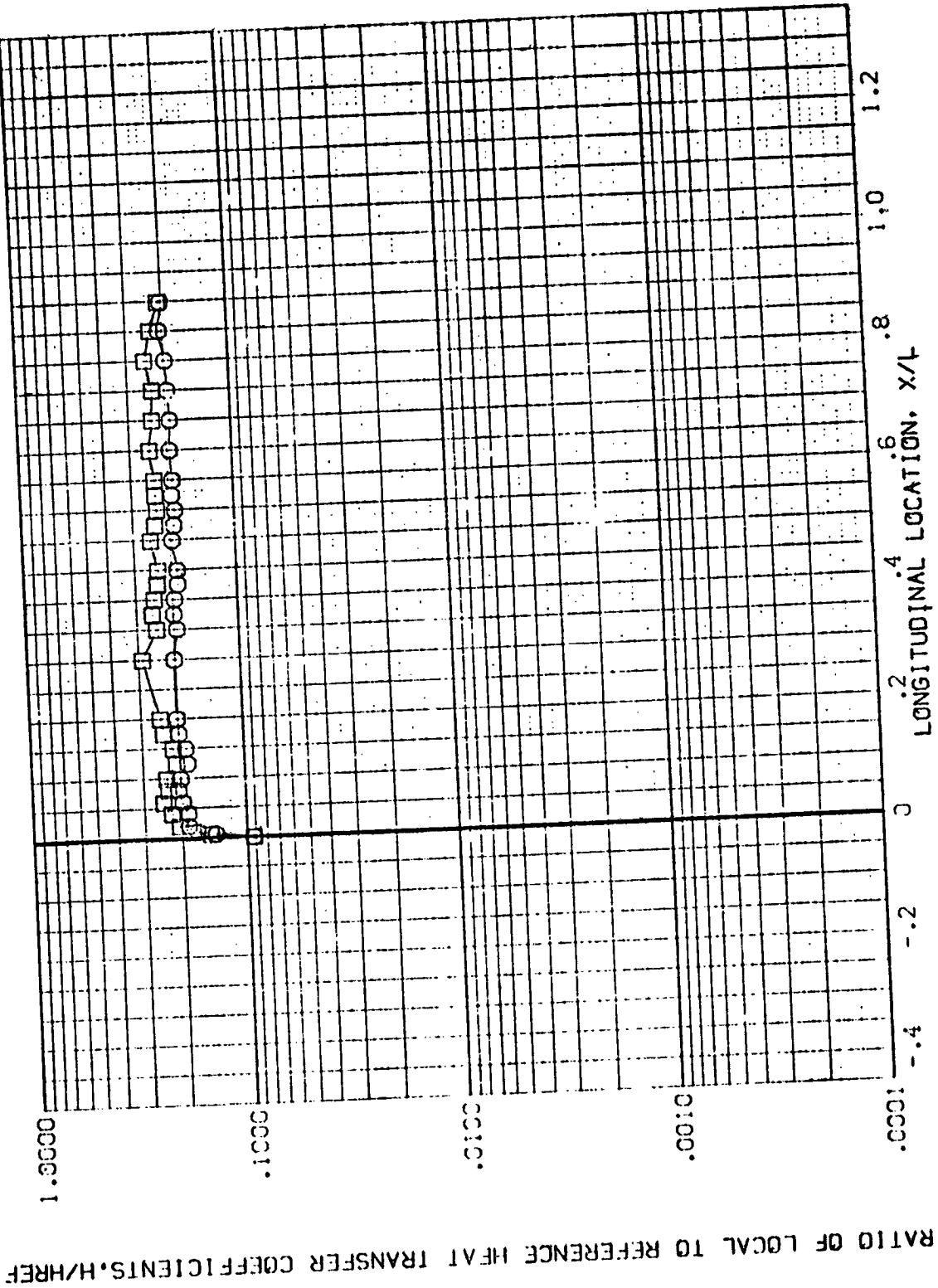


FIG. 4 TANK, ALONE  
 MACH = 5.300 HAW/HT = .900 PHI = 180.000  
 PAGE 112

AMES 3.5-195 IH28 01+T: EXTERNAL TANK

(REVTO1)

SYMBOL:  $\diamond$   $\square$   
 H<sub>2</sub>/H<sub>1</sub>: .850  
 P<sub>H</sub>: 90.000  
 MACH: 5.222  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA: .000  
 BETA: .000  
 R<sub>H</sub>/L: 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

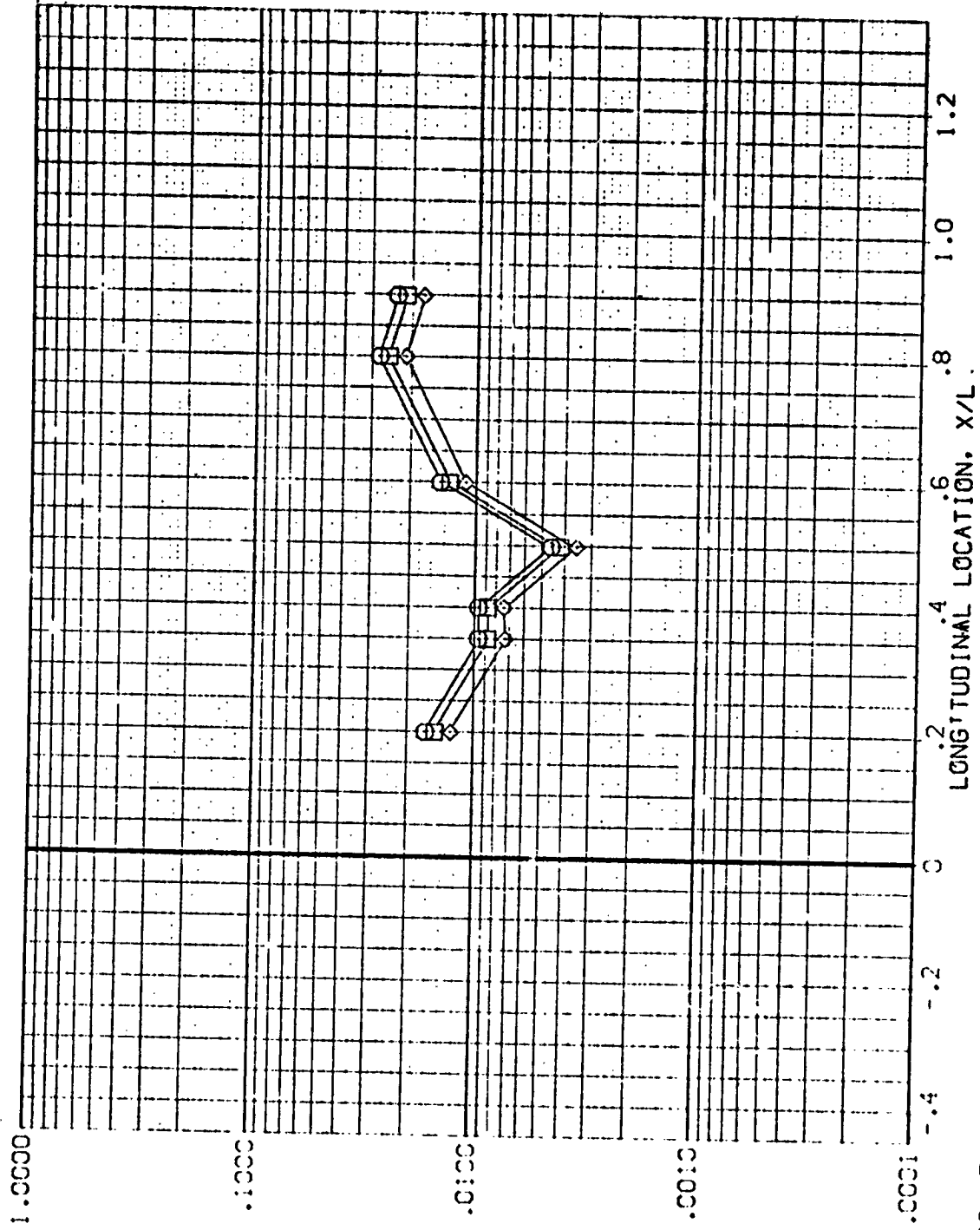


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-:95 IH28 01+T1 EXTERNAL TANK

(REV T01)

SYSTEM HAW/RT P-: MACH  
 .850 :12.500 5.222  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

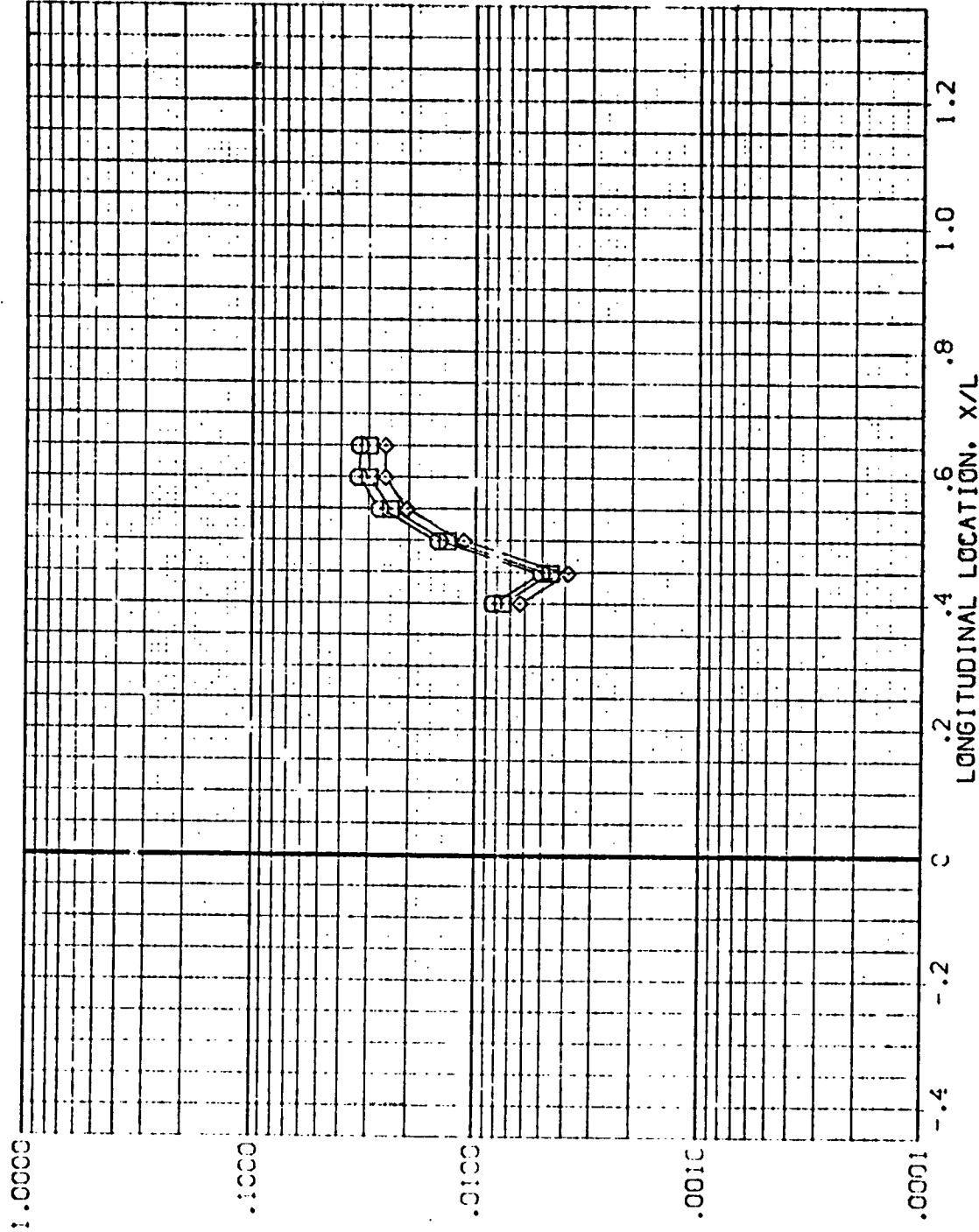


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AYES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T01)

SYMBOL  $\square$   $\diamond$       PARAMETR. VALUES  
 HREF/HREF      PH: MACH      ALPHA      BETA  
 .850      135.000      5.222      .000  
 .900                     1.000  
 1.000                         

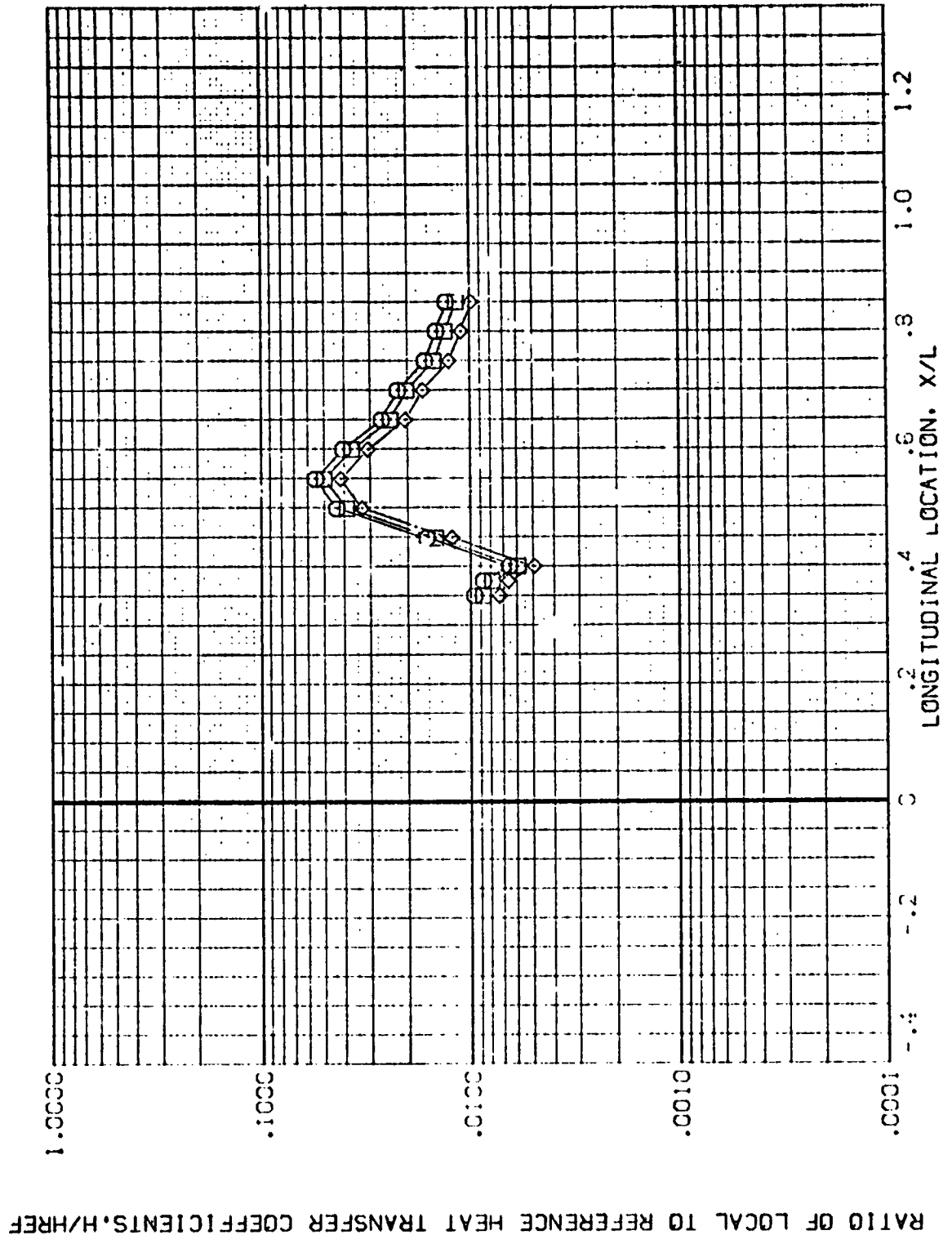


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



(REV T01)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

PARAMETRIC VALUES  
ALPHA .000  
PHI/L 1.000  
BETA .000

SYMBOL H/W/H/T PHI MACH  
◇ .850 .900 1.000  
157.500 5.222

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

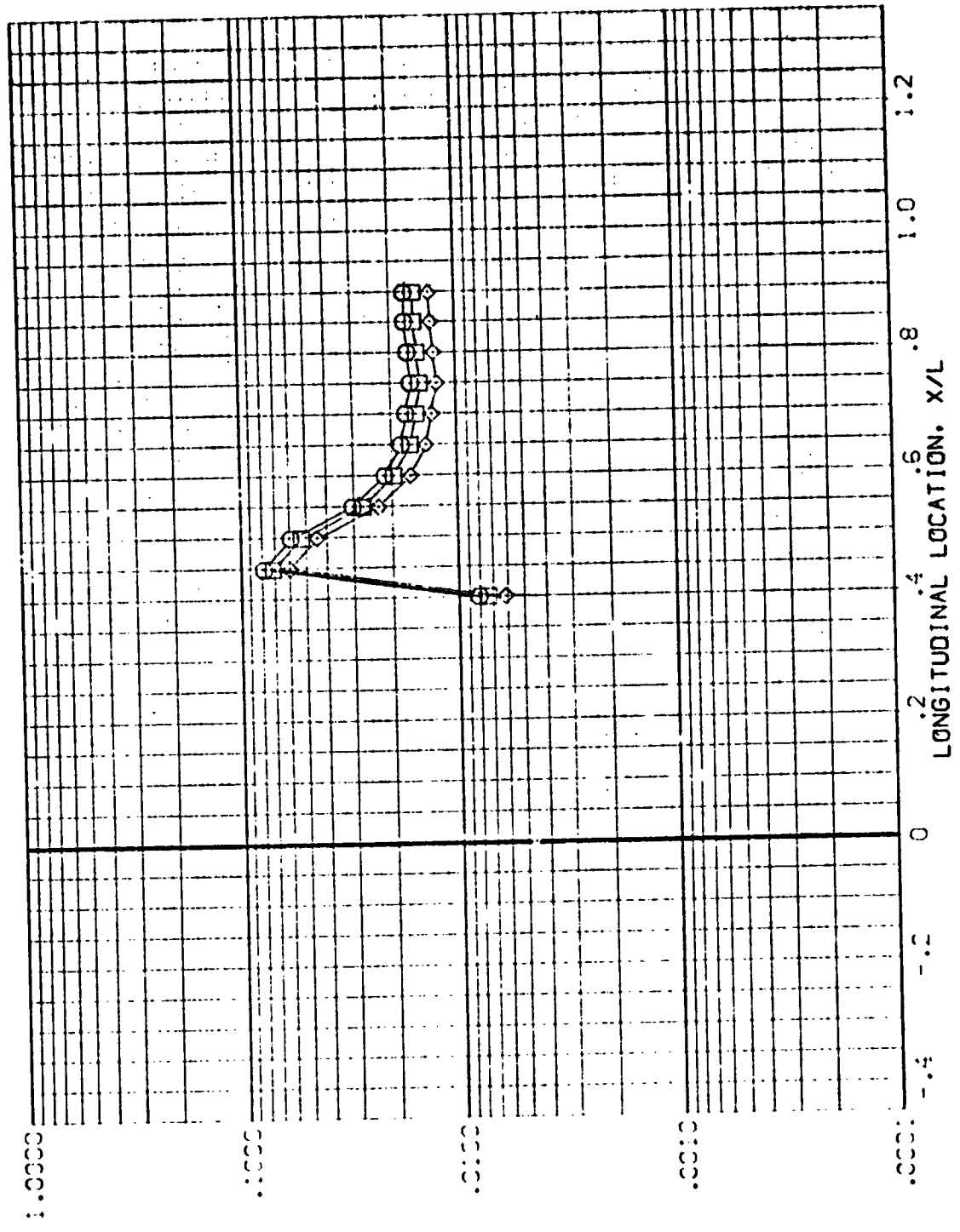


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV T01)

AMES 3.5-195 1-28 C1+T1 EXTERNAL TANK

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
P%/L 1.000

SWBC WAK/WT P-1 MACH  
.850 180.000 5.022

Q110  
1.000  
.800  
.600

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

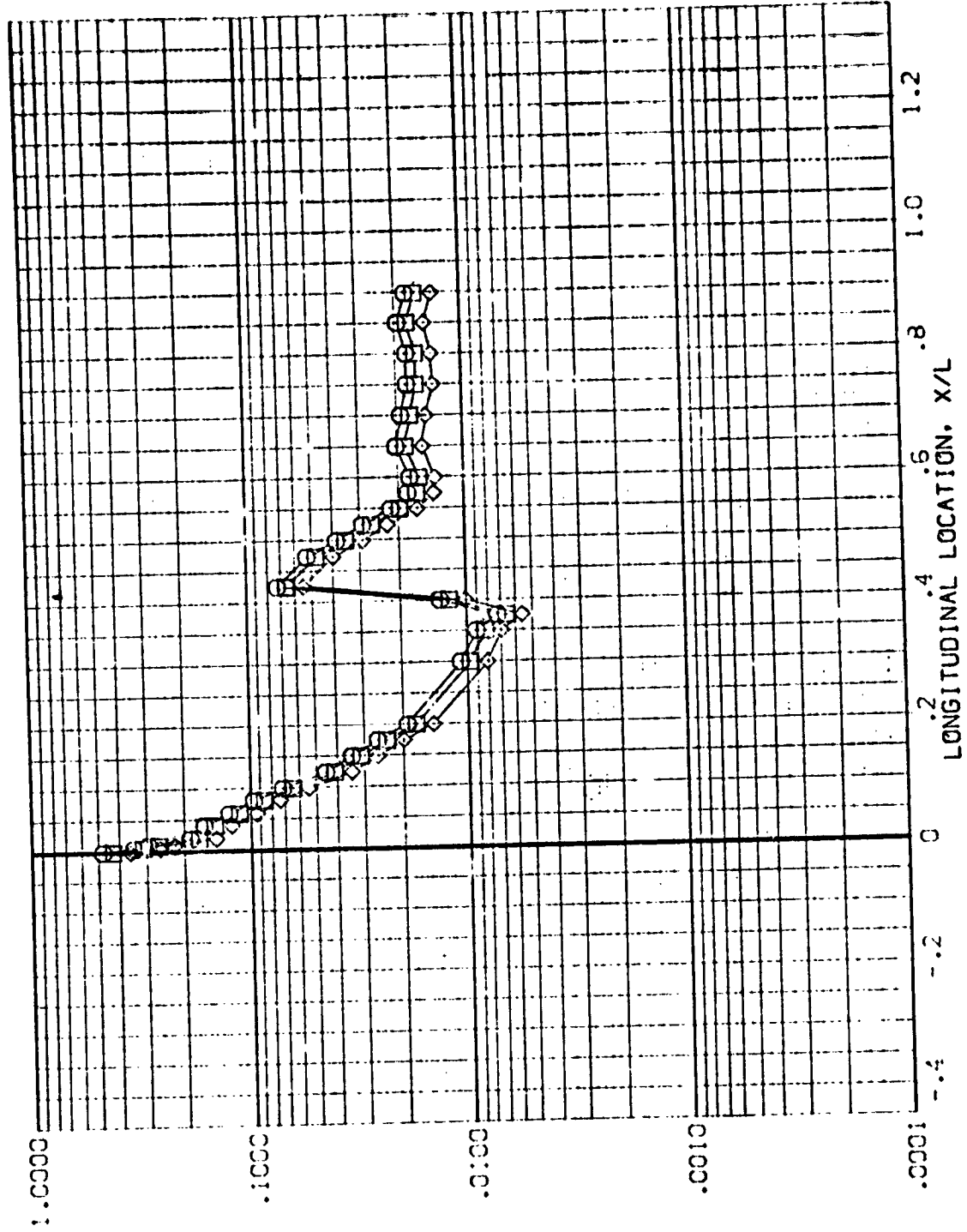


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T02)

SPEED: .850  
 PHI: 90.000  
 MACH: 5.220  
 .300  
 1.000

PARAMETRIC VALUES  
 ALPHA: 30.000  
 BETA: 1.000  
 .000

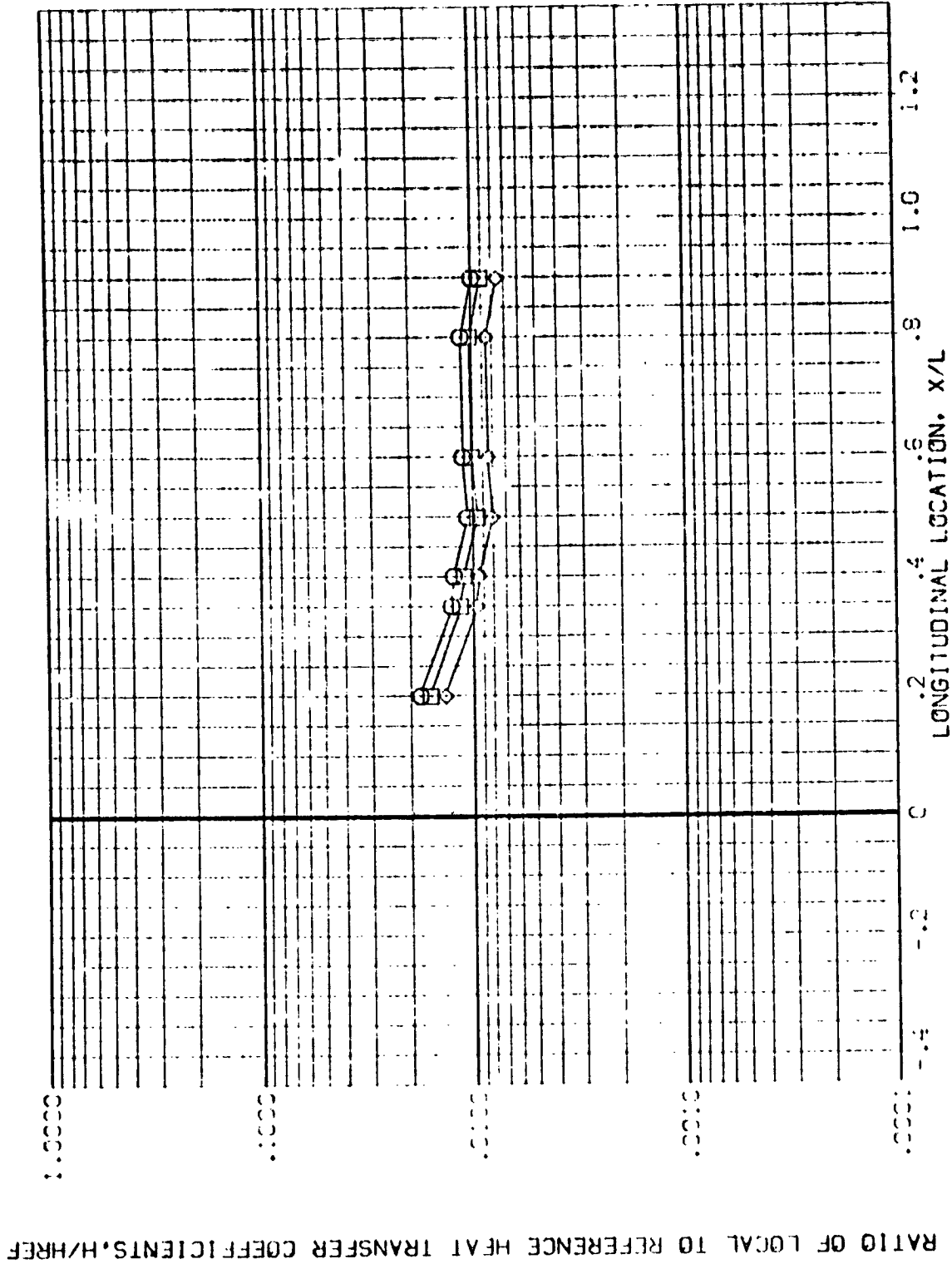


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1428 01+11 EXTERNAL TANK (REV T02)

S-VEZ 1428 5-1  
 350 112.500 5.000  
 430  
 1.000

PARAMETRIC VALUES  
 ALPHA 30.000 BETA .000  
 SV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

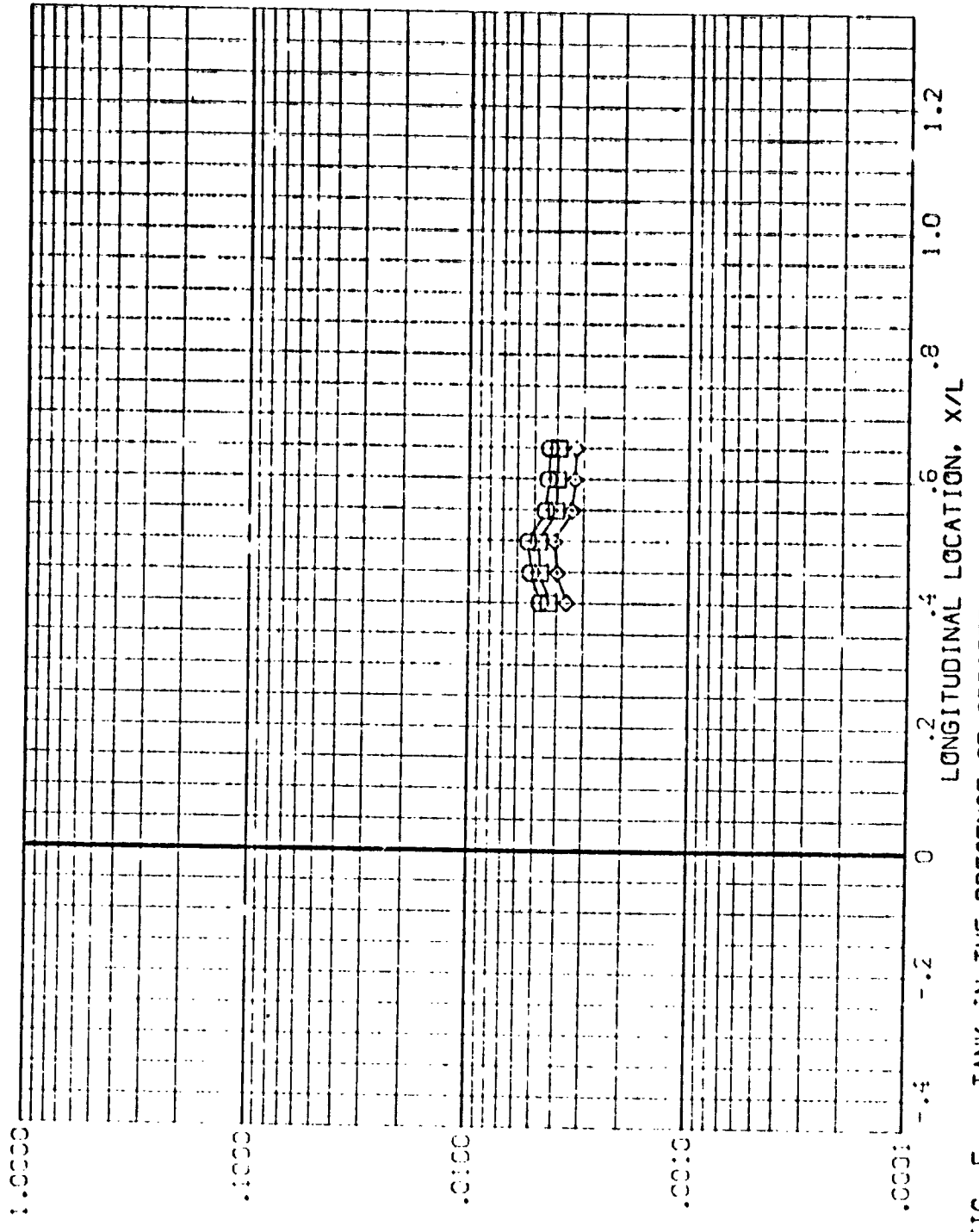


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV102)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

PARAMETRIC VALUES  
ALPHA 39.00  
BETA 1.000  
R/V/L .000

MACH 5.220  
PHI 135.000  
HREF 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

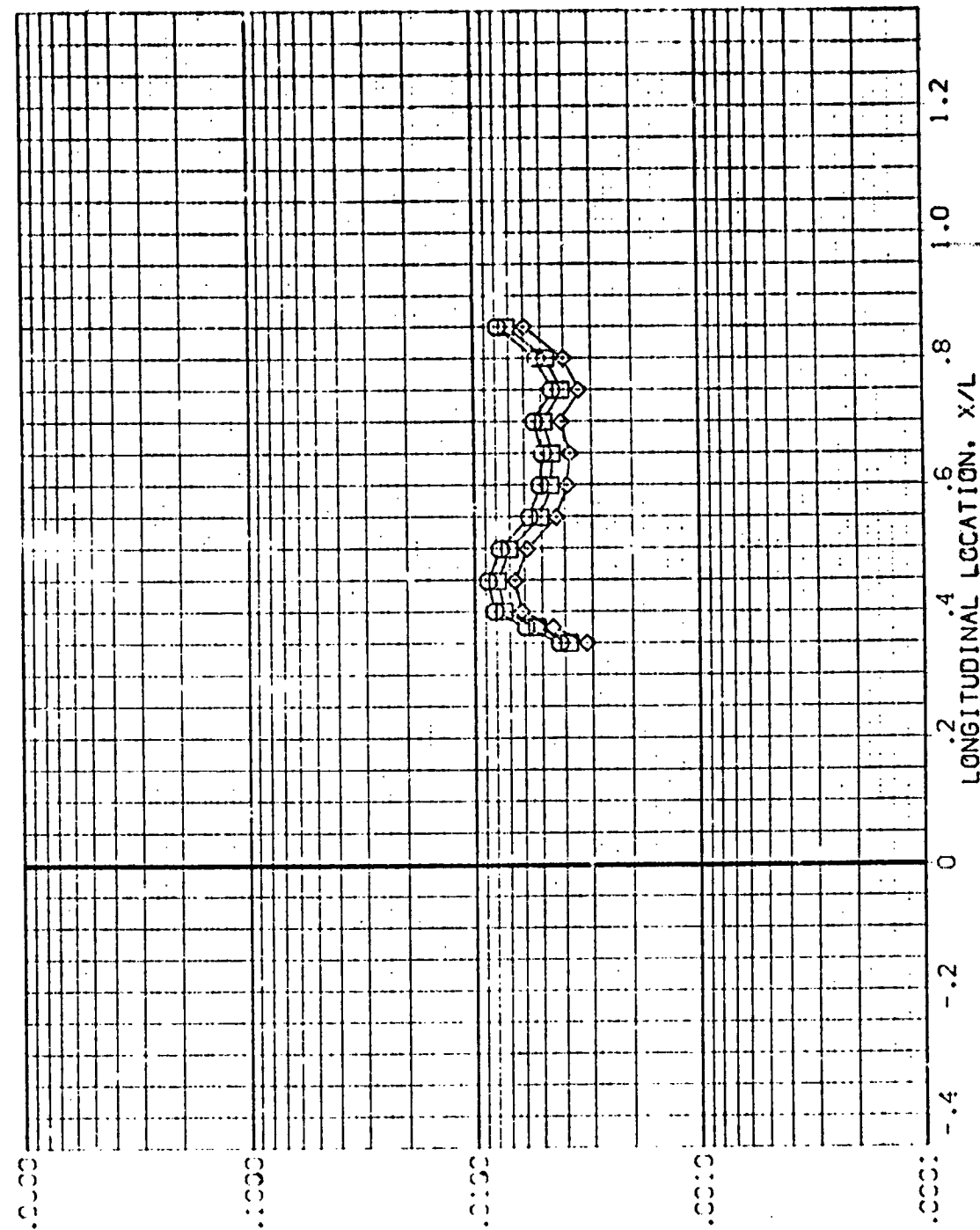


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T02)

SYMBOL:  $\square$   $\diamond$   
 HAW/HT: .850  
 PN: 157.50C  
 MACH: 5.220  
 1.000

PARAMETRIC VALUES  
 ALPHA: 30.000  
 BETA: 1.000  
 PH/L: .000

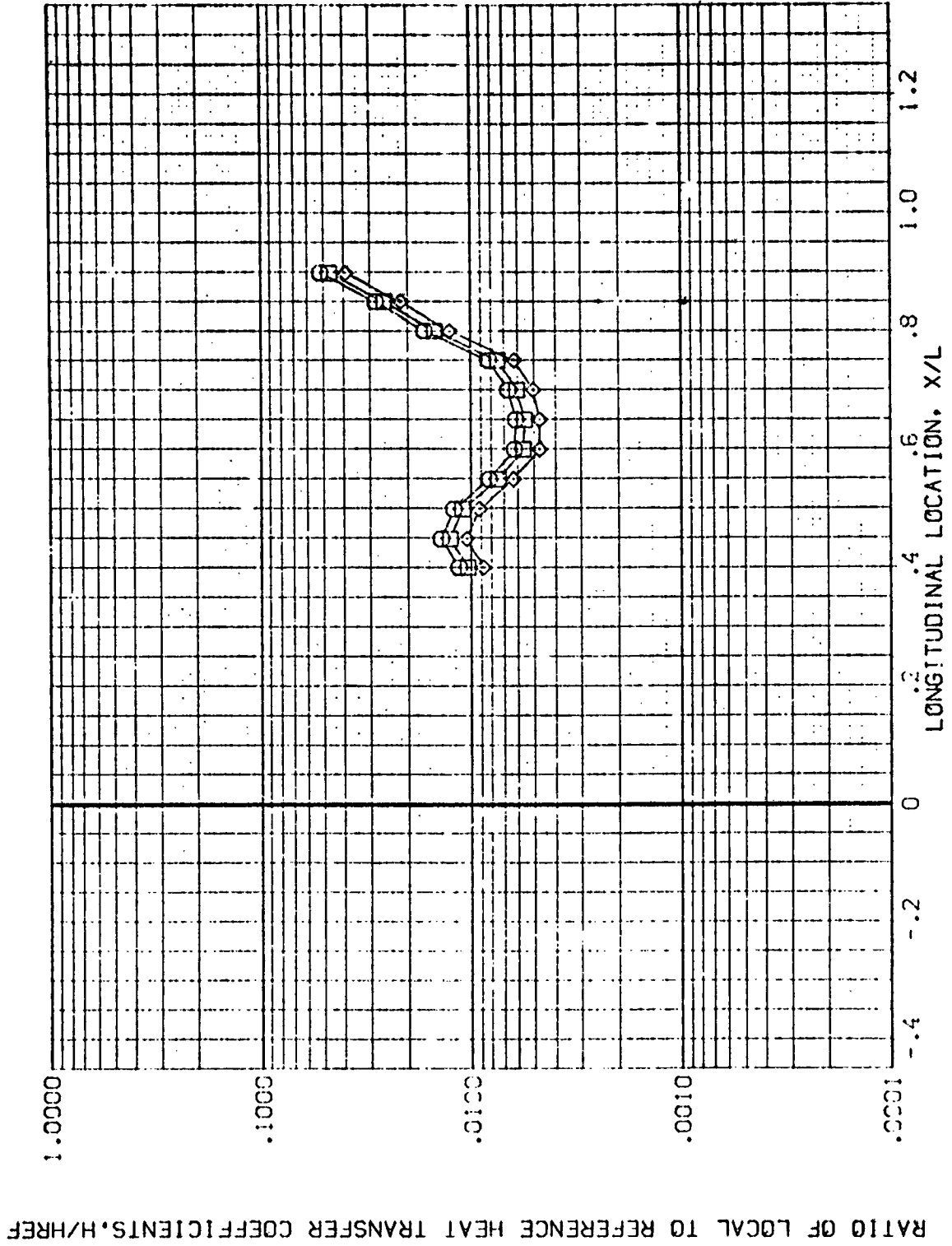


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T02)

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 RN/L .000

HA/WRT .850  
 PHI .80000  
 MACH 5.220

SYMBOL  
 ◊ .900  
 ○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

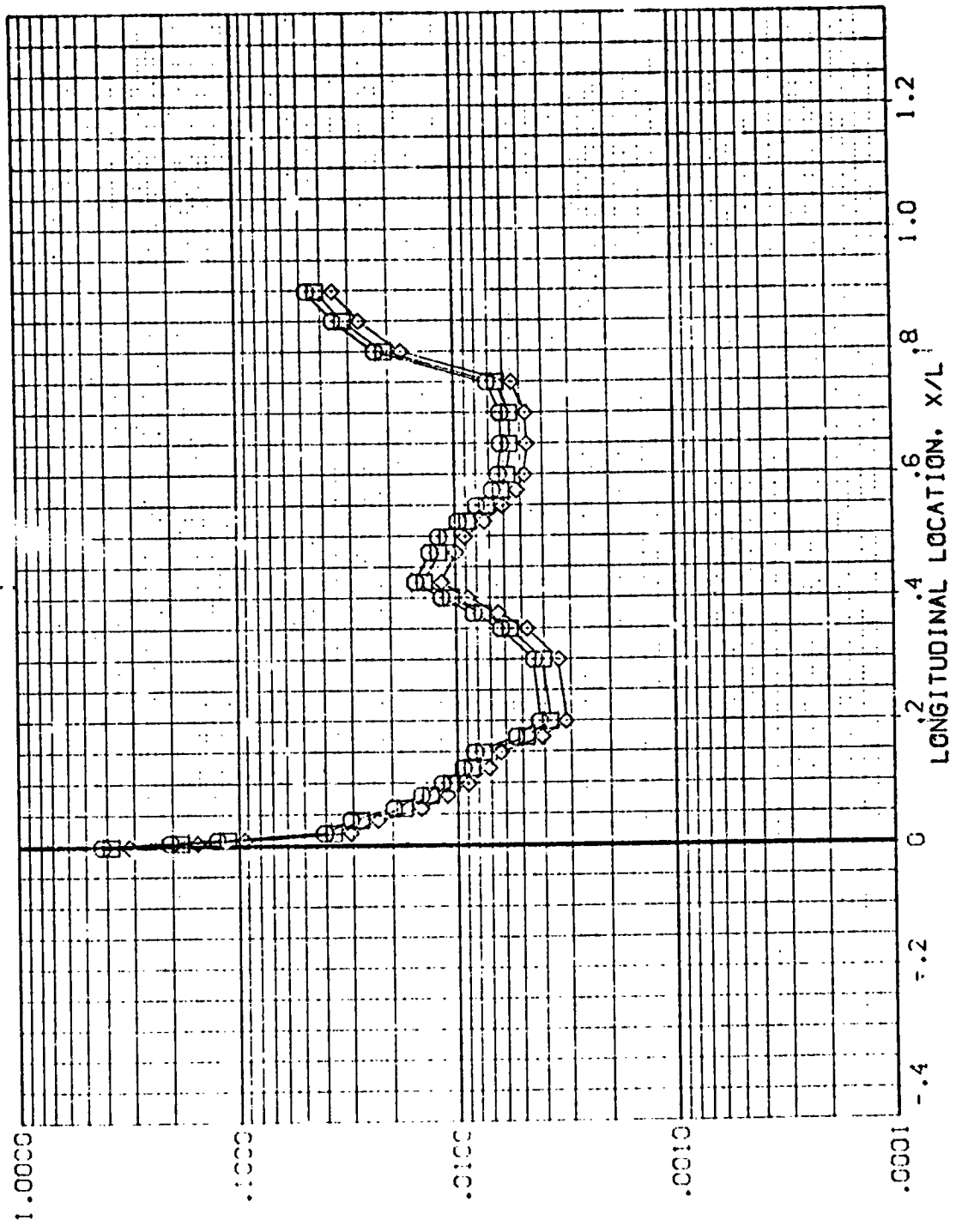


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AYES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T03)

SYMBOL	HAW/H <sup>2</sup>	PH	MACH	PARAMETRIC VALUES
◇	.850	90.000	5.220	60.000 ALPHA
□	.900			1.000 BETA
◇	1.000			

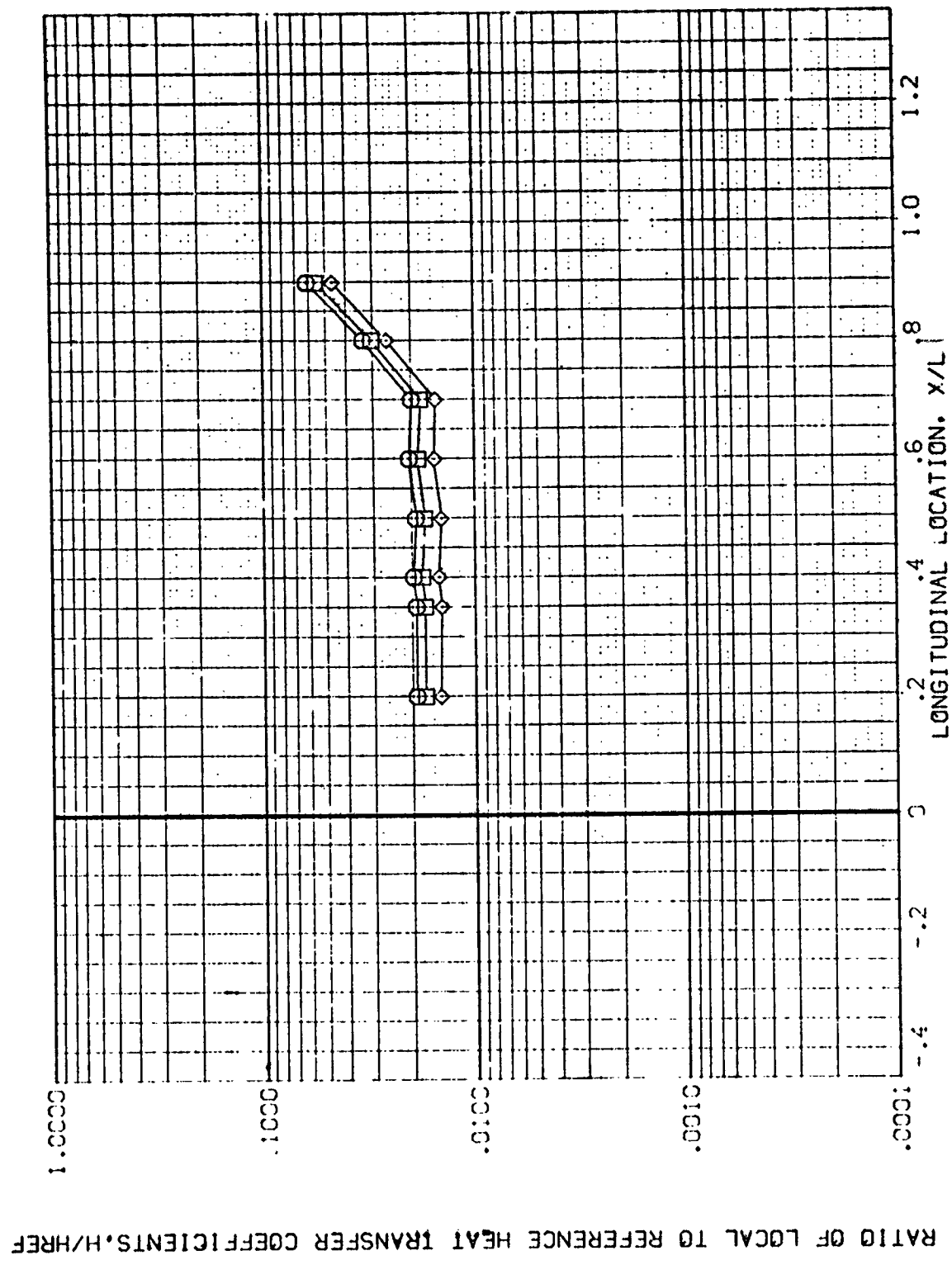


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T03)

SYSEC. HAW/HT P-I MACH  
 .950 112.500 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

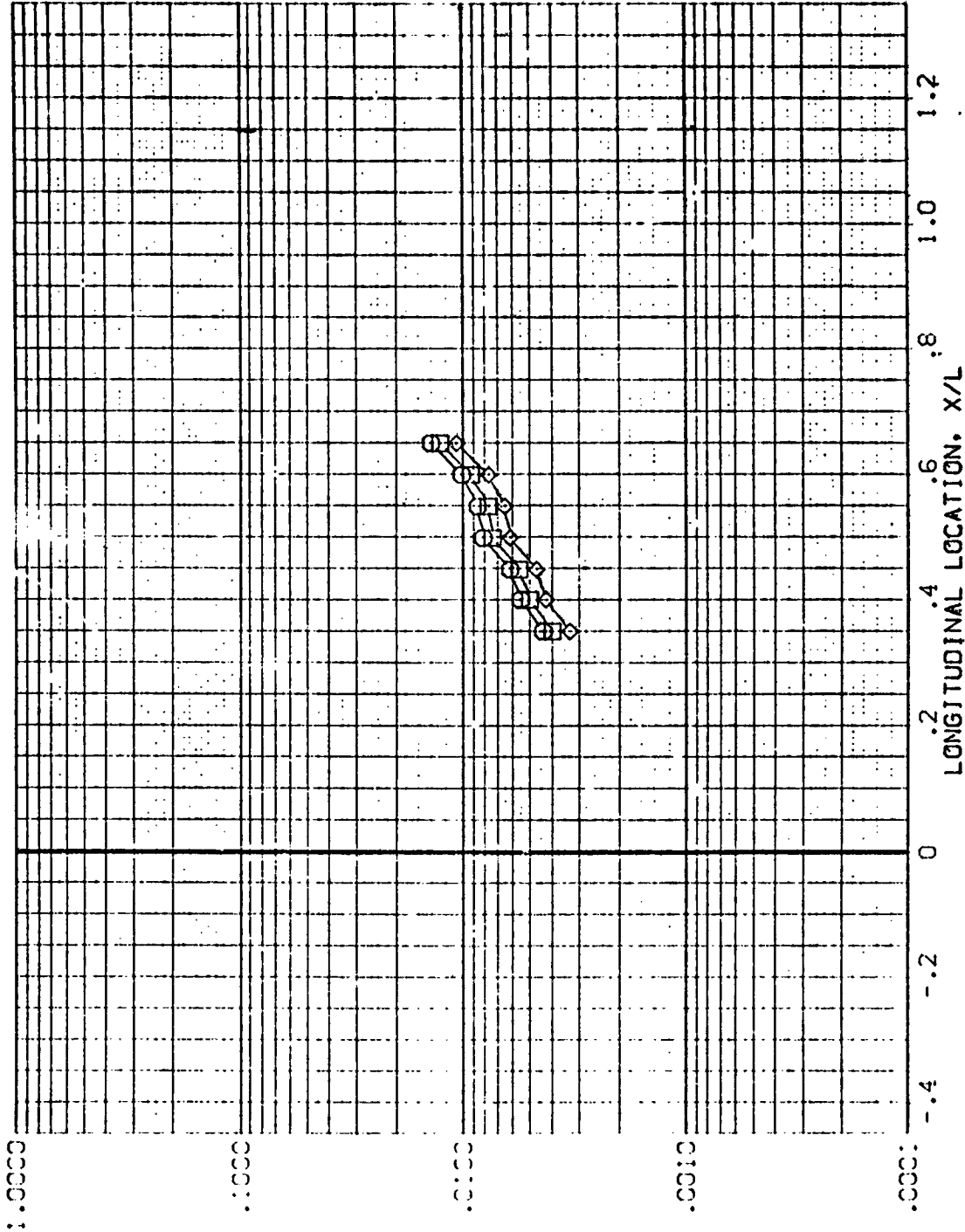


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+11 EXTERNAL TANK (REV T03)

SVECL 448/47 P=1 MACH  
 .850 135.000 5.220  
 .930  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

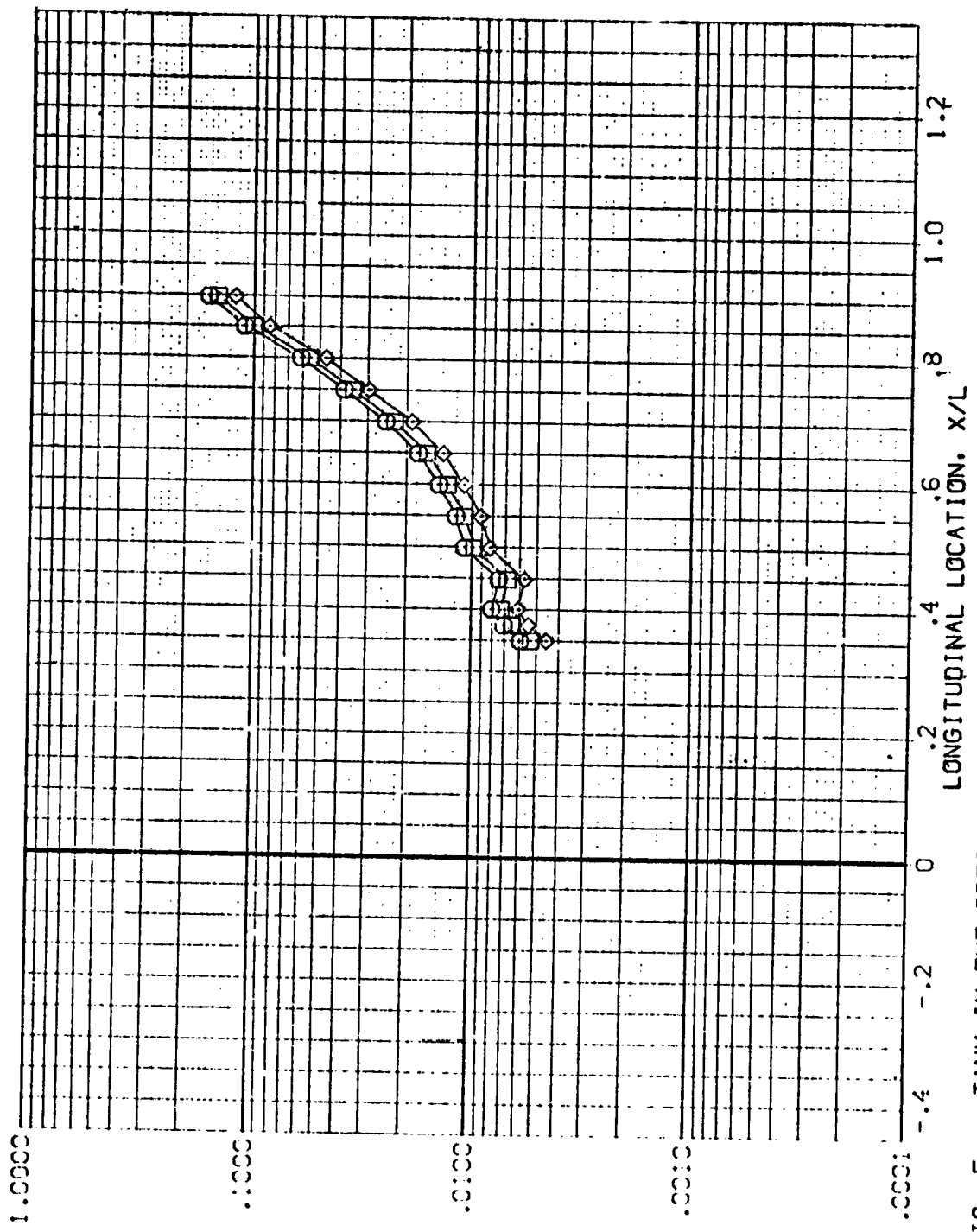


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T03)

SYVEC HAM/HT PH: MACH  
 .850 :57.500 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .500  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

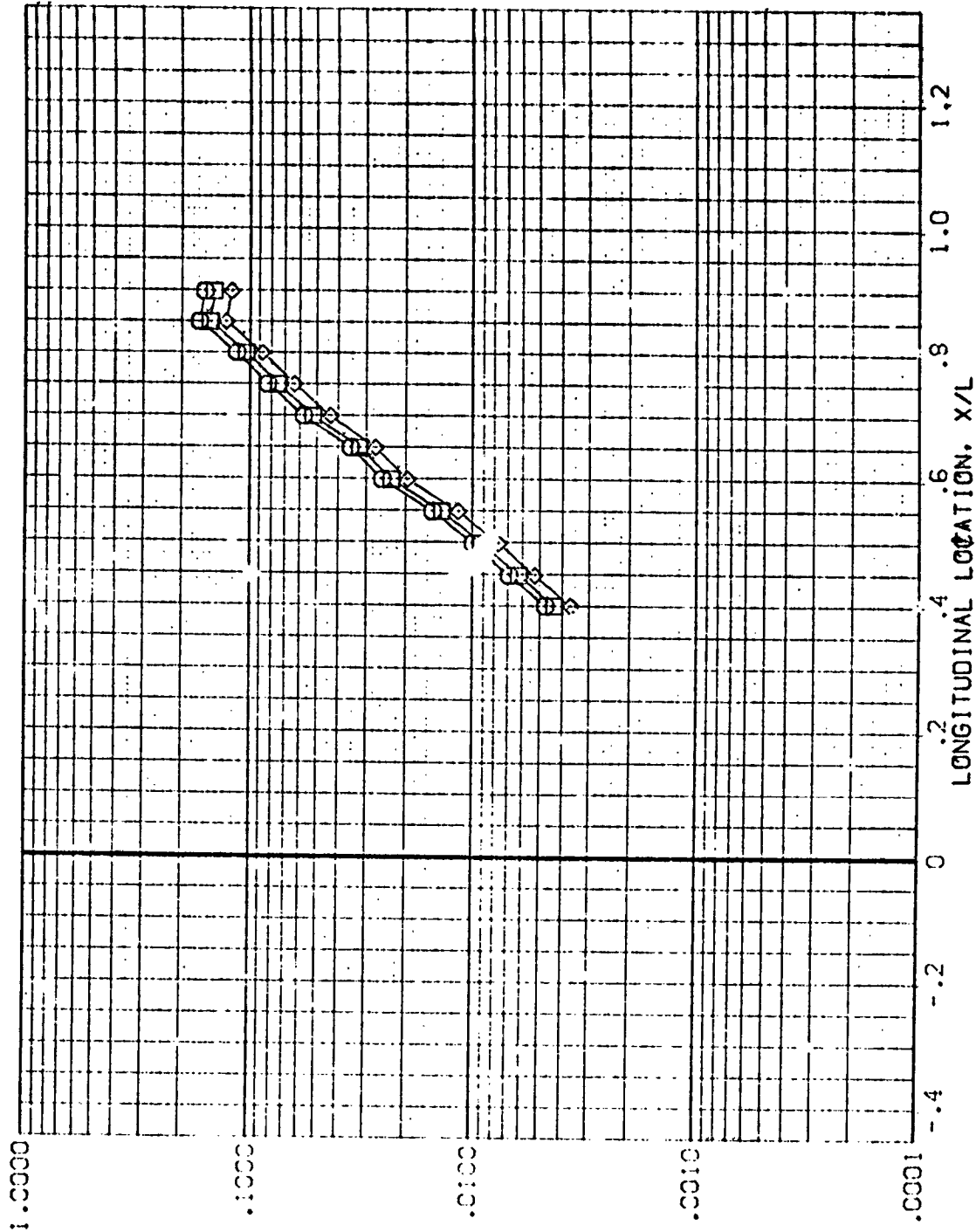


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T03)

SYSC	HA/HT	PHI	MACH	PARAMETRIC VALUES
◇	.850	180.000	5.220	ALPHA
◇	.900			60.000
◇	1.000			BETA
				1.000
				.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

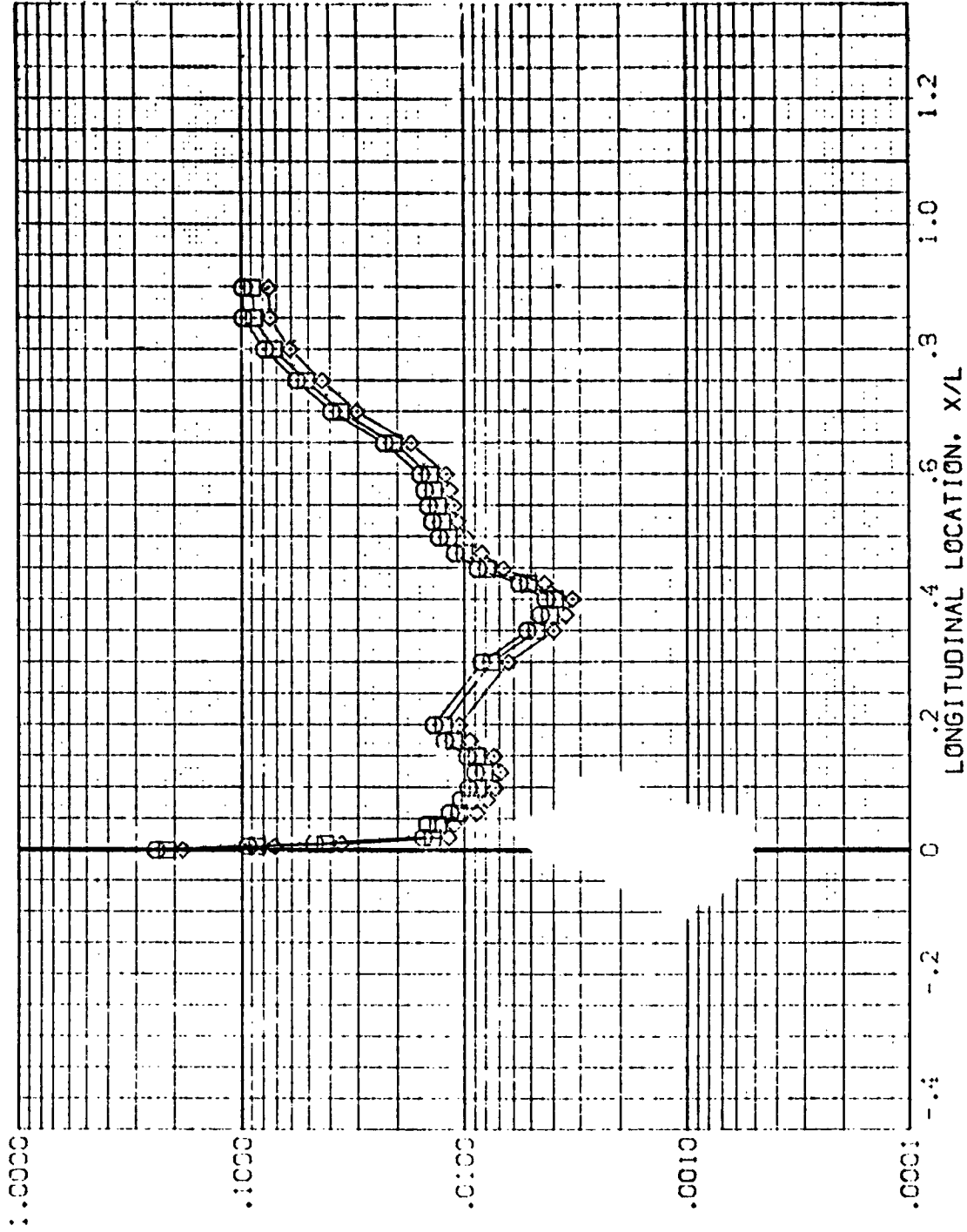


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T04)

SYMBOL	HAM/HT	PHI	MACH	PARAMETRIC VALUES
□	.850	90.000	5.221	ALPHA 90.000
◇	.950			BETA 1.000
	1.000			RN/L 1.000

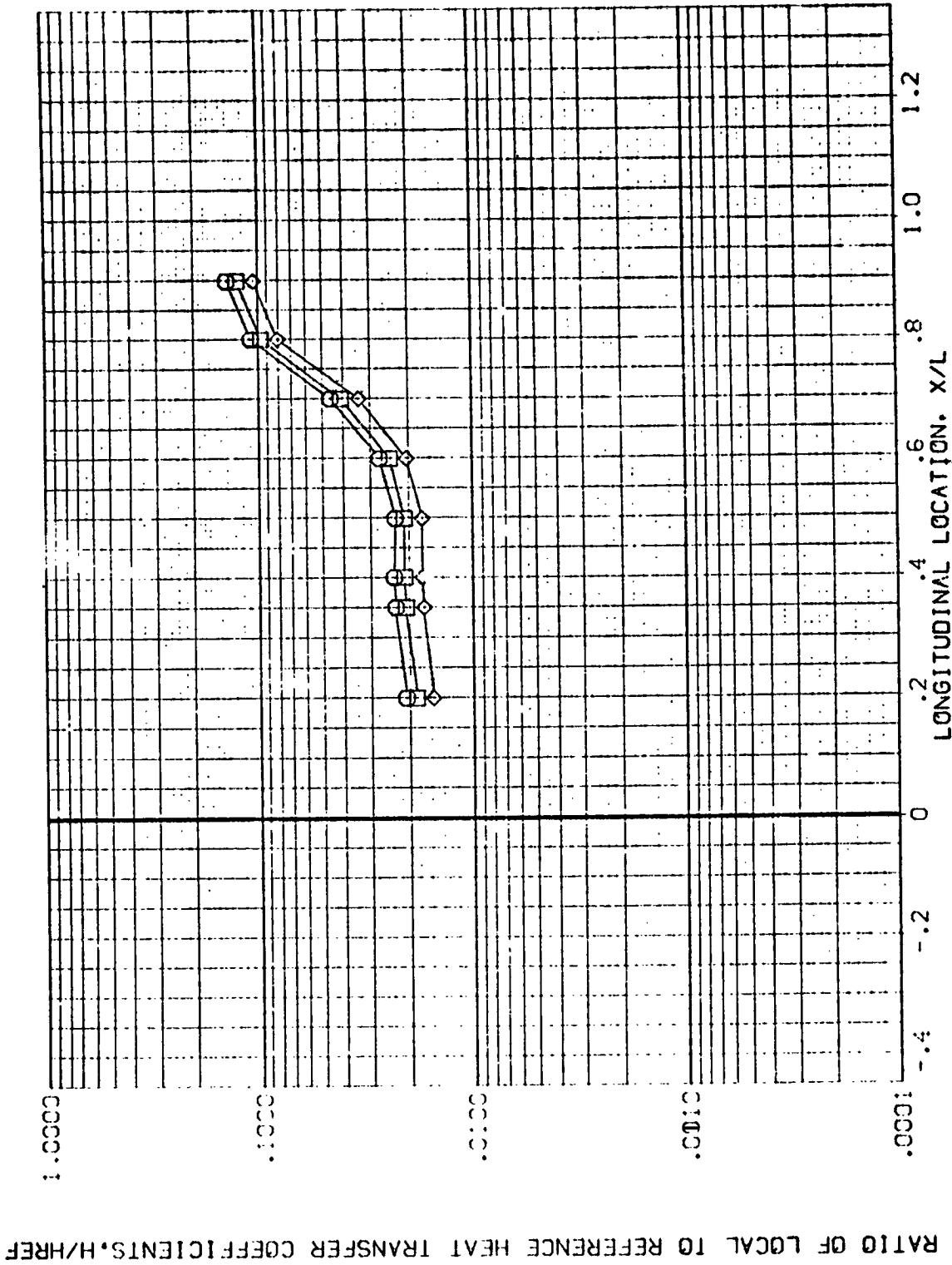


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T04)

PARAMETRIC VALUES  
 ALPHA 90.000 BETA .000  
 RV/L .000

SYSEC- HAW/HZ PH: MACH  
 .850 1:2.500 5.221  
 .200  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

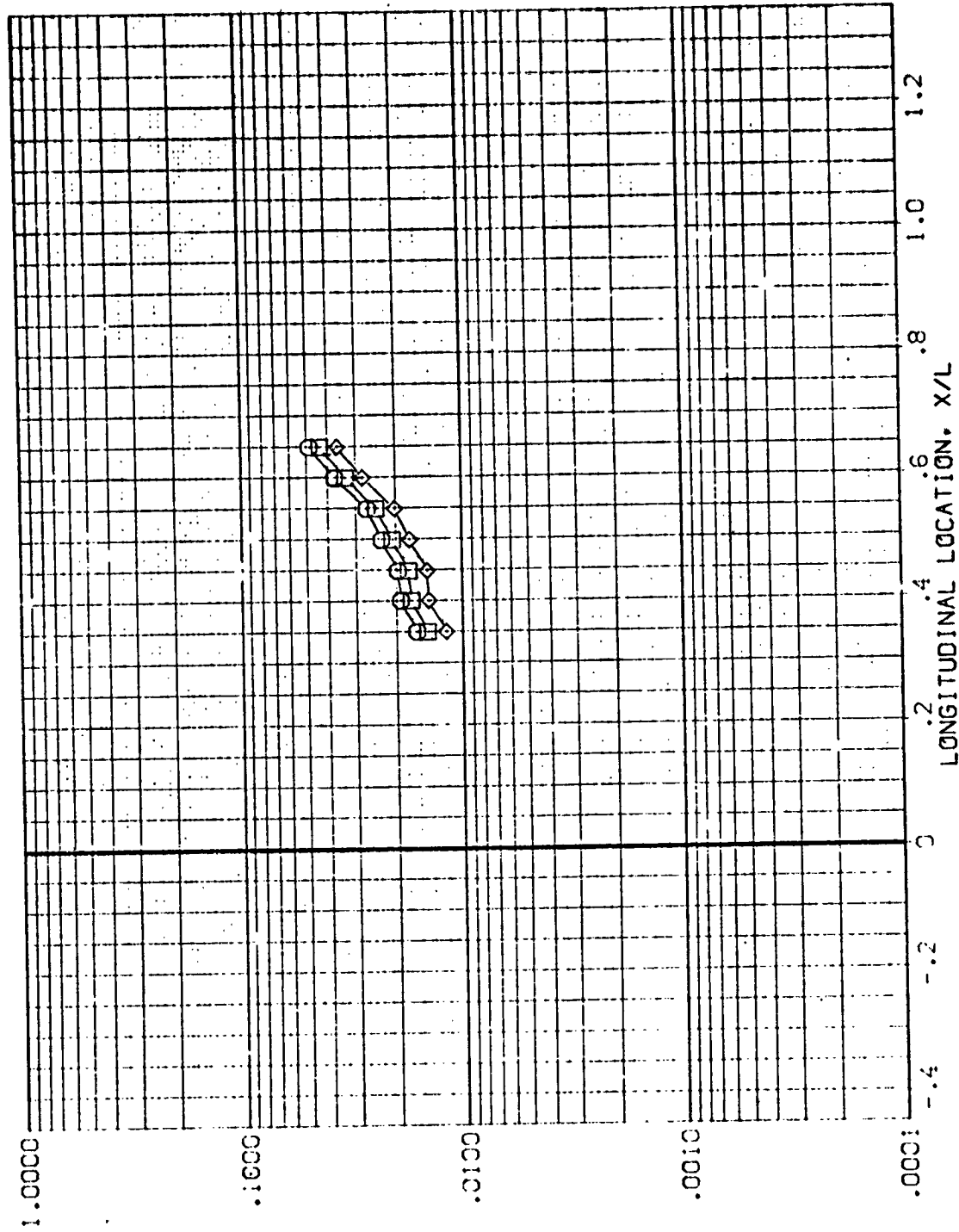


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV104)

SYMBOL:  $\square$   $\diamond$   
 HAW/H: .550  
 RH: 195.000  
 MACH: 5.221

PARAMETRIC VALUES  
 ALPHA: 90.000  
 BETA: 1.000  
 RN/L: .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

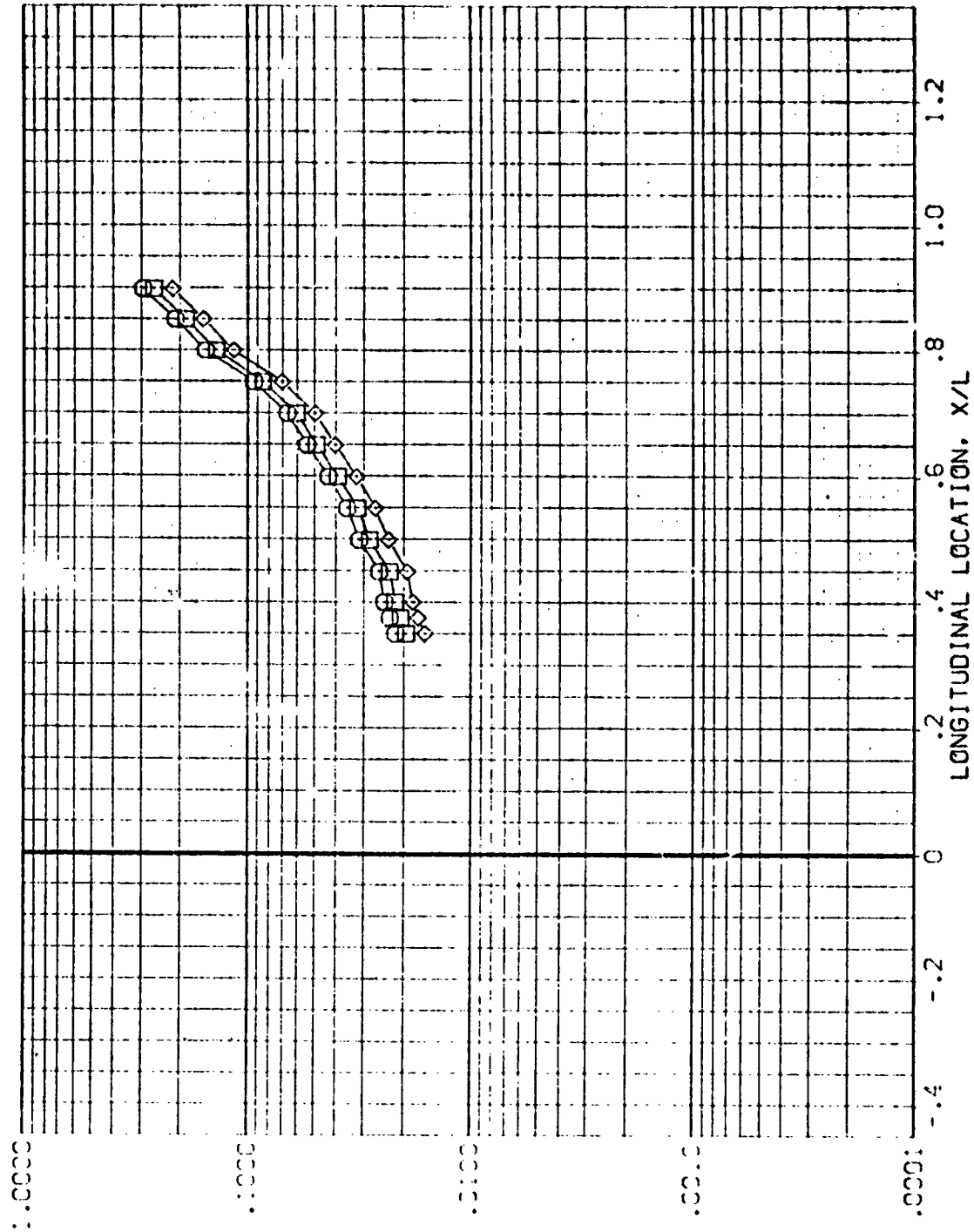


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

AVES 3.5-:95 IH28 01+T1 EXTERNAL TANK (REV T04)

SYMBOL	WAKE/WT	BM	MACH	PARAMETRIC VALUES
◇	.850	:57.500	5.221	90.000 ALPHA
□	.900			1.000 BETA
◇	1.000			

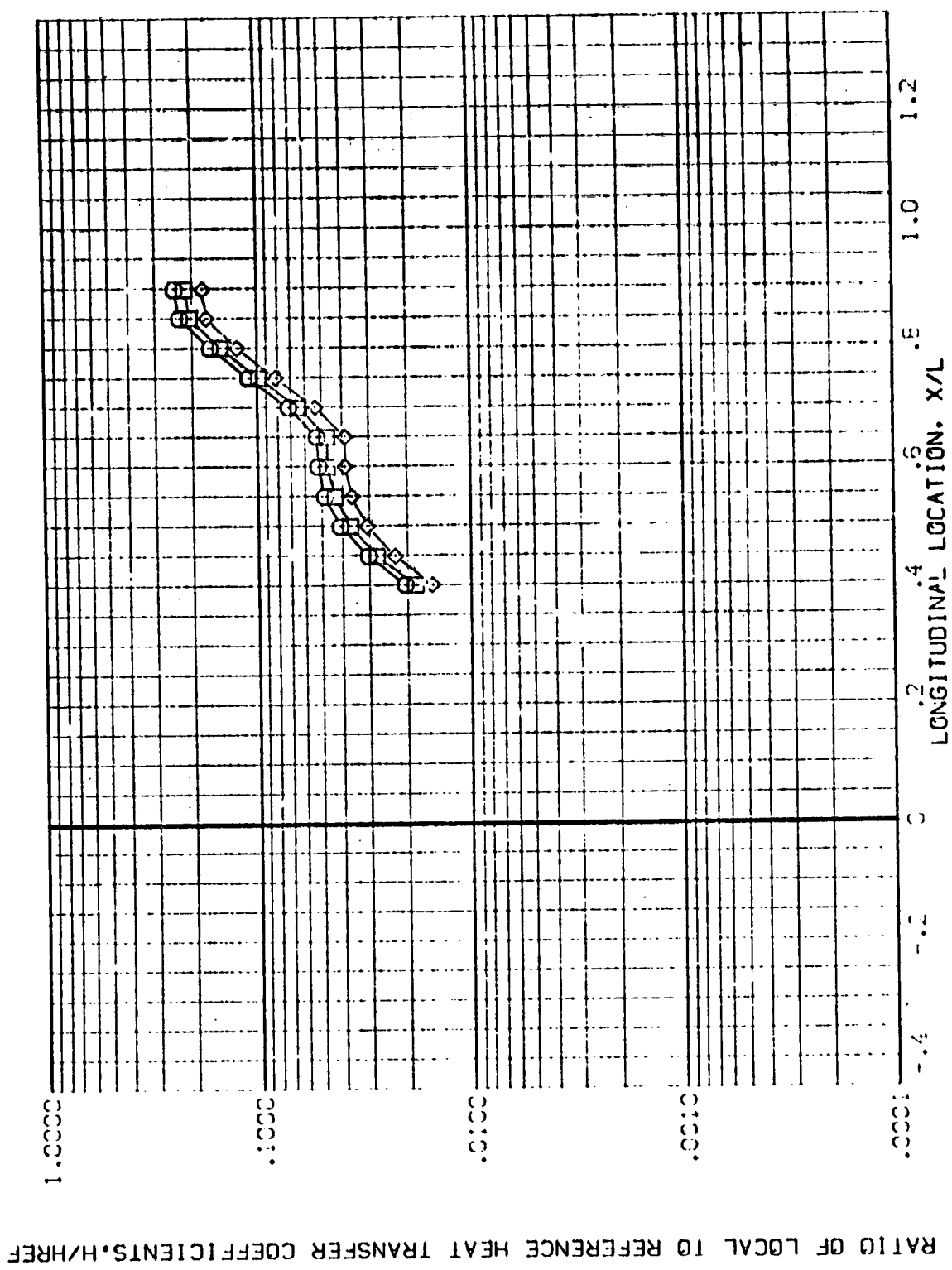


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AVES 3.5-195 IH28 01+T1 EXTERNAL TANK (REF TO 4)

SYMBOL MACH PH: MACH  
 .850 180.000 5.221  
 .900  
 1.000

PARAMETER VALUES  
 ALPHA 90.000 BETA .000  
 PH: 1.000

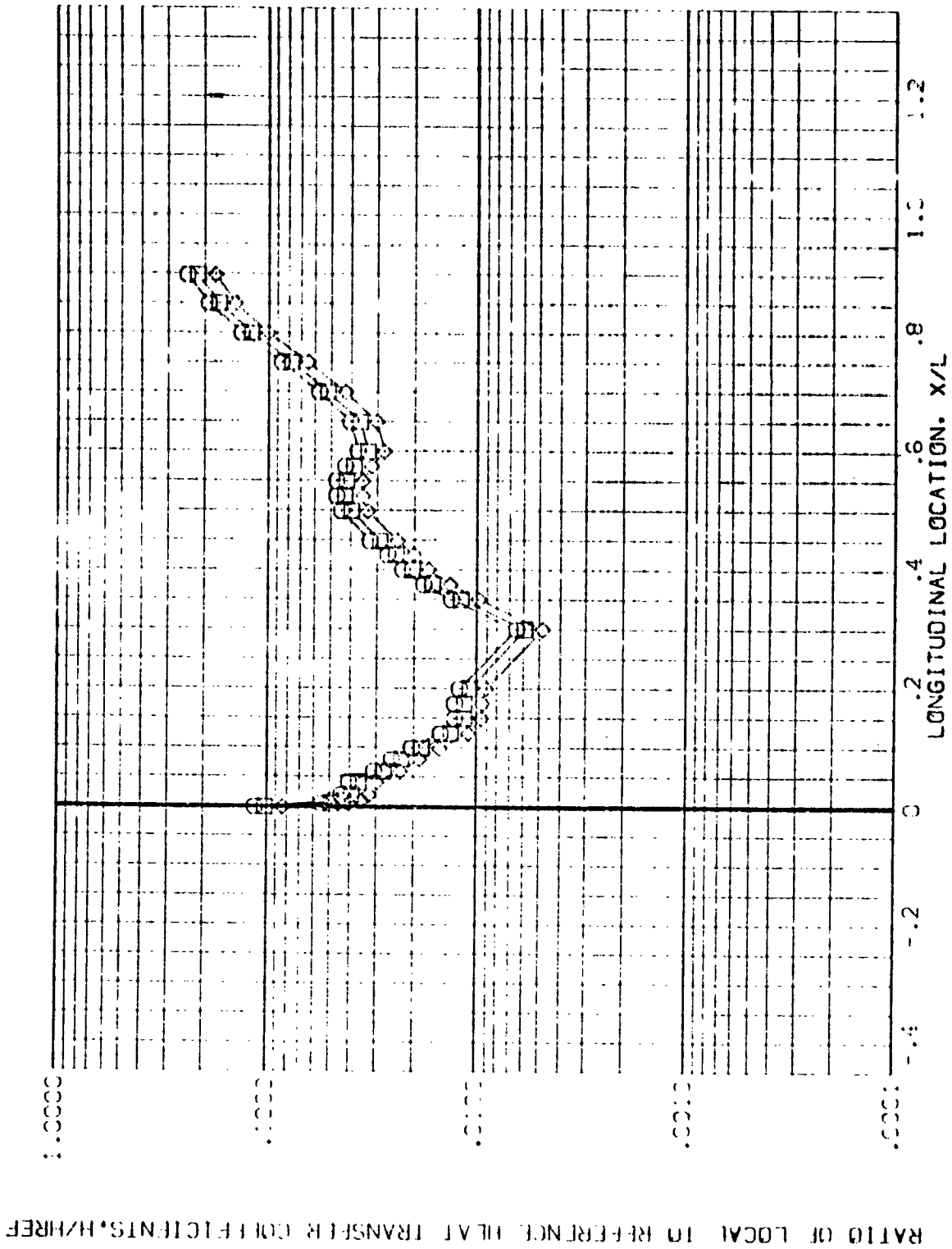


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES RESEARCH CENTER, GLENN COLLEGE, GLENN, CALIF.

1961-1962

PARAMETRIC VALUES  
 ALPHA 100.000 BETA .000  
 S/N/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS,  $h_x/h_{ref}$

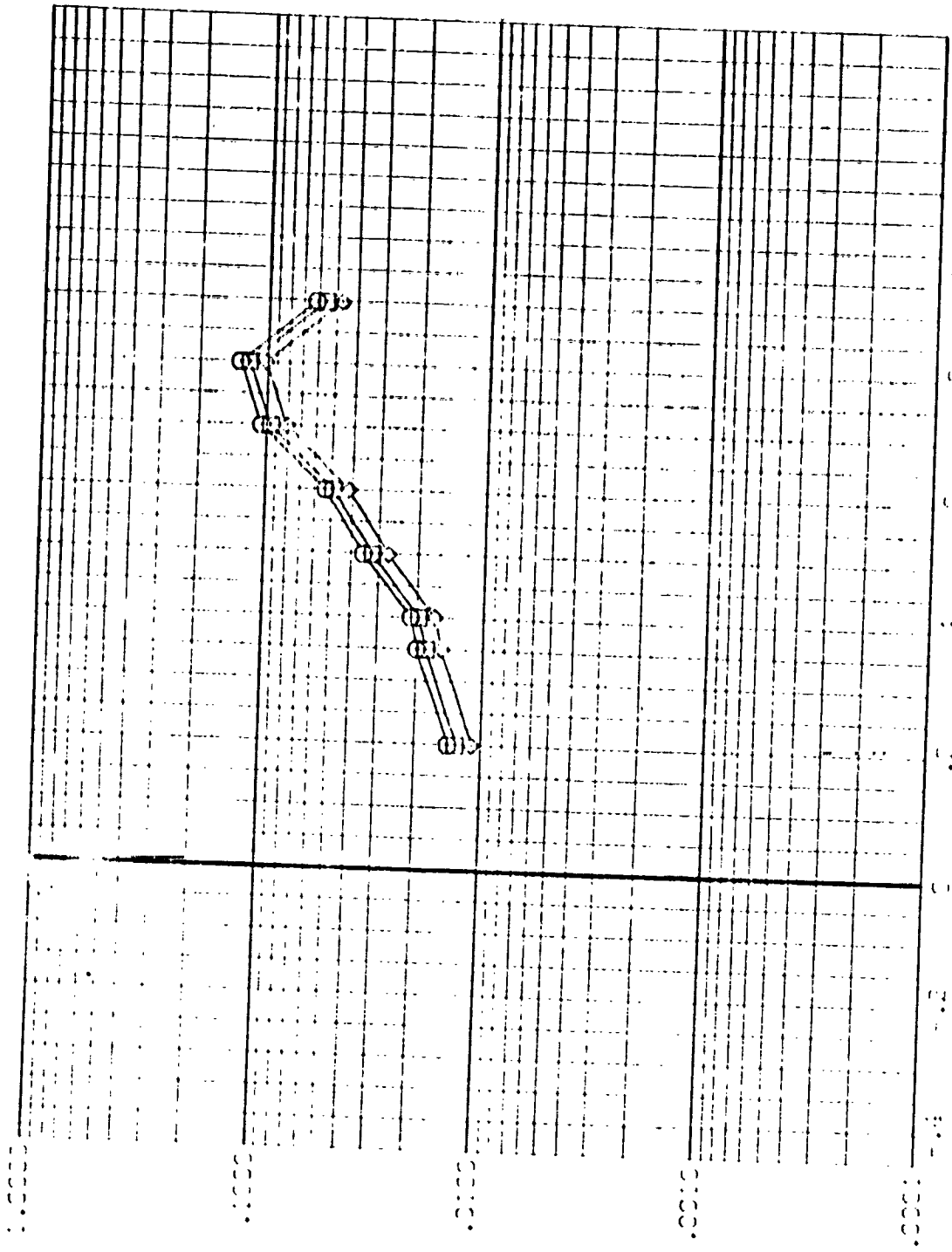


FIG. 5 TANK IN THE PRESENCE OF ORBITER

(REV T05)

AVES 3.5-195 I-28 01+T1 EXTERNAL TANK

SYMBOL	PARAMETER	VALUE
◇	MAW/WT	.850
	P-1	112.500
	MACH	5.221
	ALPHA	120.000
	BETA	1.000
	RN/L	1.000

PARAMETER	VALUE
ALPHA	120.000
BETA	1.000
RN/L	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

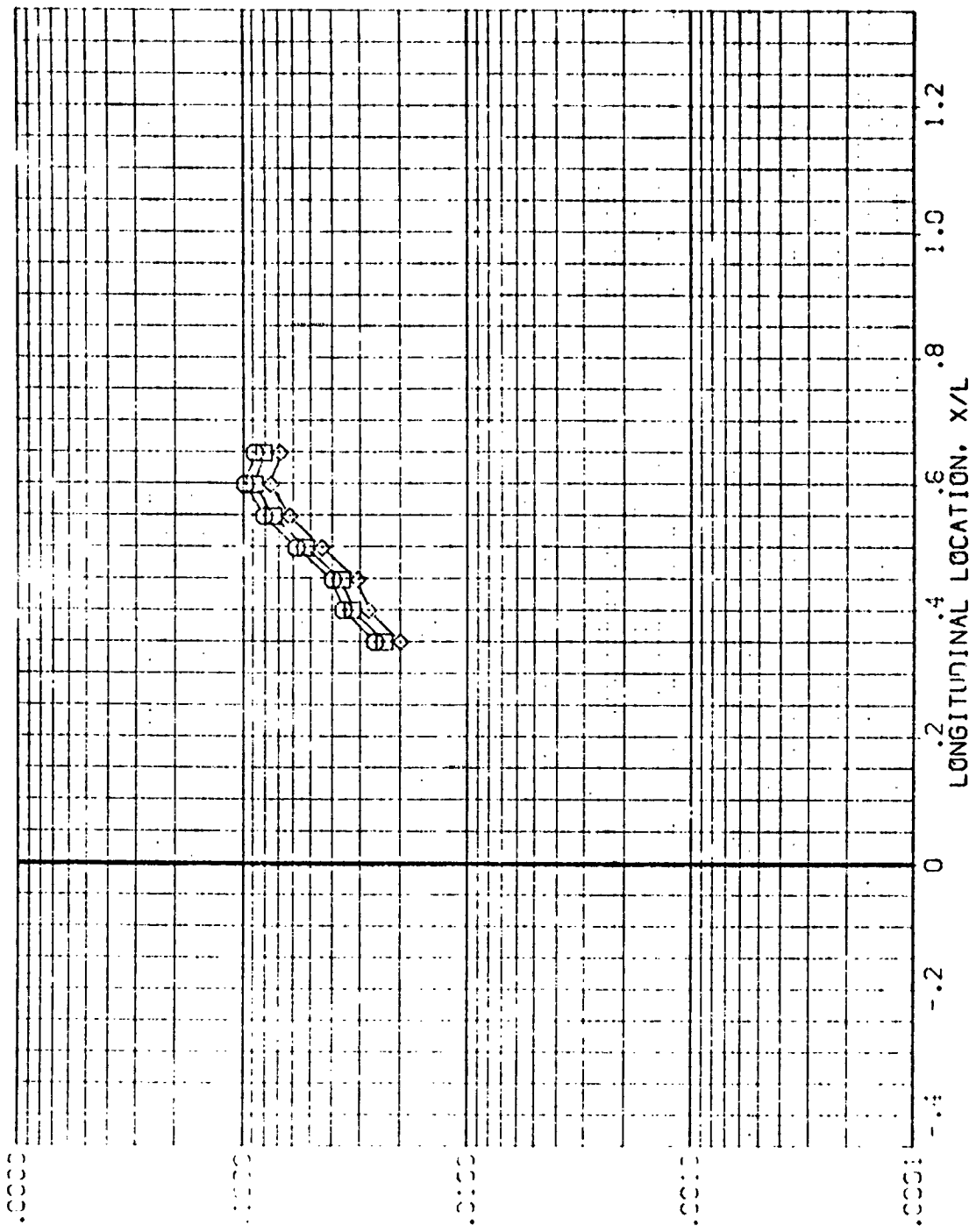


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 C1+T1 EXTERNAL TAN:

(REVT05)

SYMBOL H<sub>REF</sub>/T P=1 MACH  
◇ .950 135.000 5.221  
□ .900  
○ 1.000

PARAMETRIC VALUES  
ALPHA 120.000 BETA .000  
RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

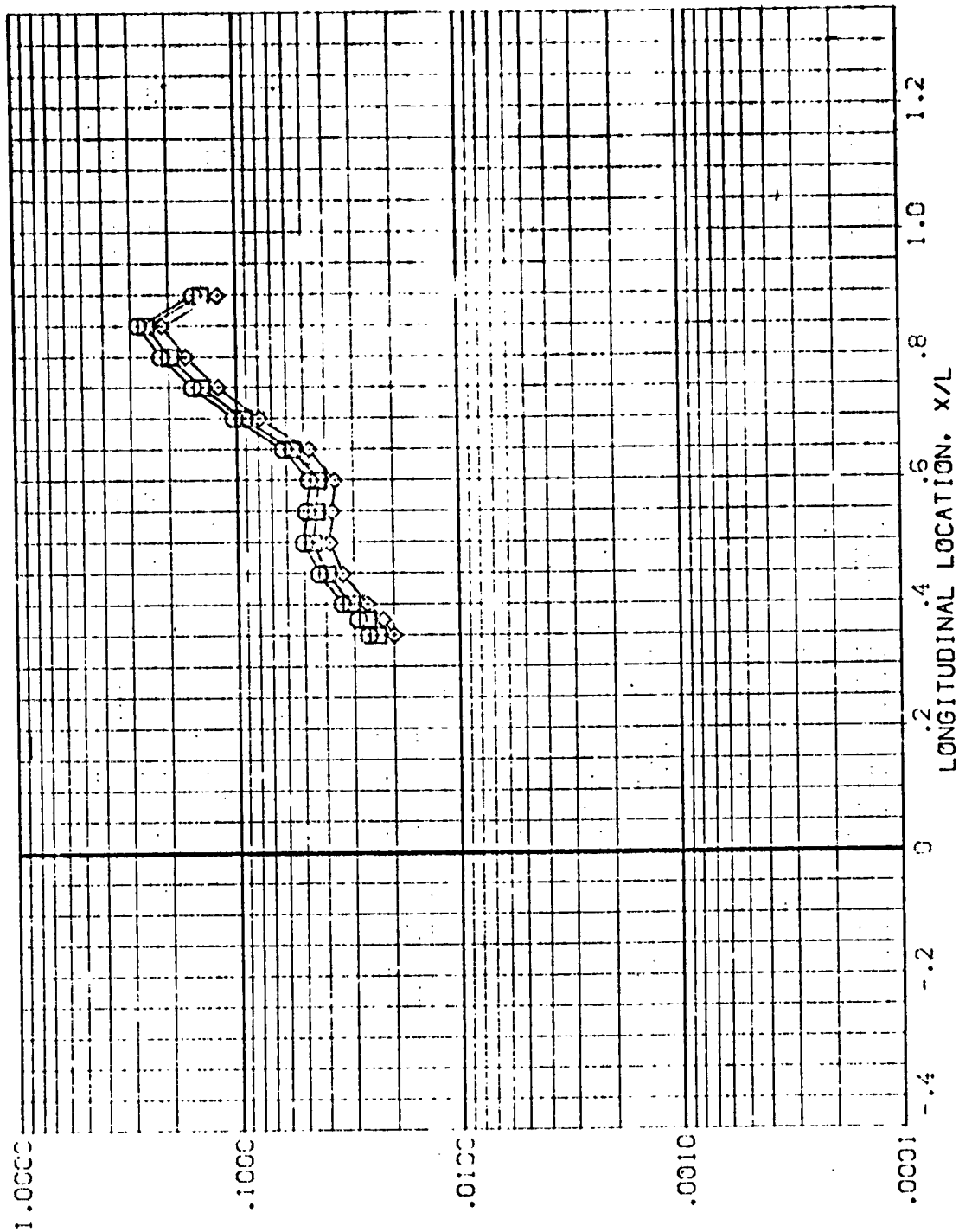


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AYES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T05)

SYMBOL H/W/H/T PH: MACH  
 □ .850 :57.500 5.221  
 ◇ .900  
 1.000

PARAMETER VALUES  
 ALPHA .000  
 BETA .000  
 R/R/L .000

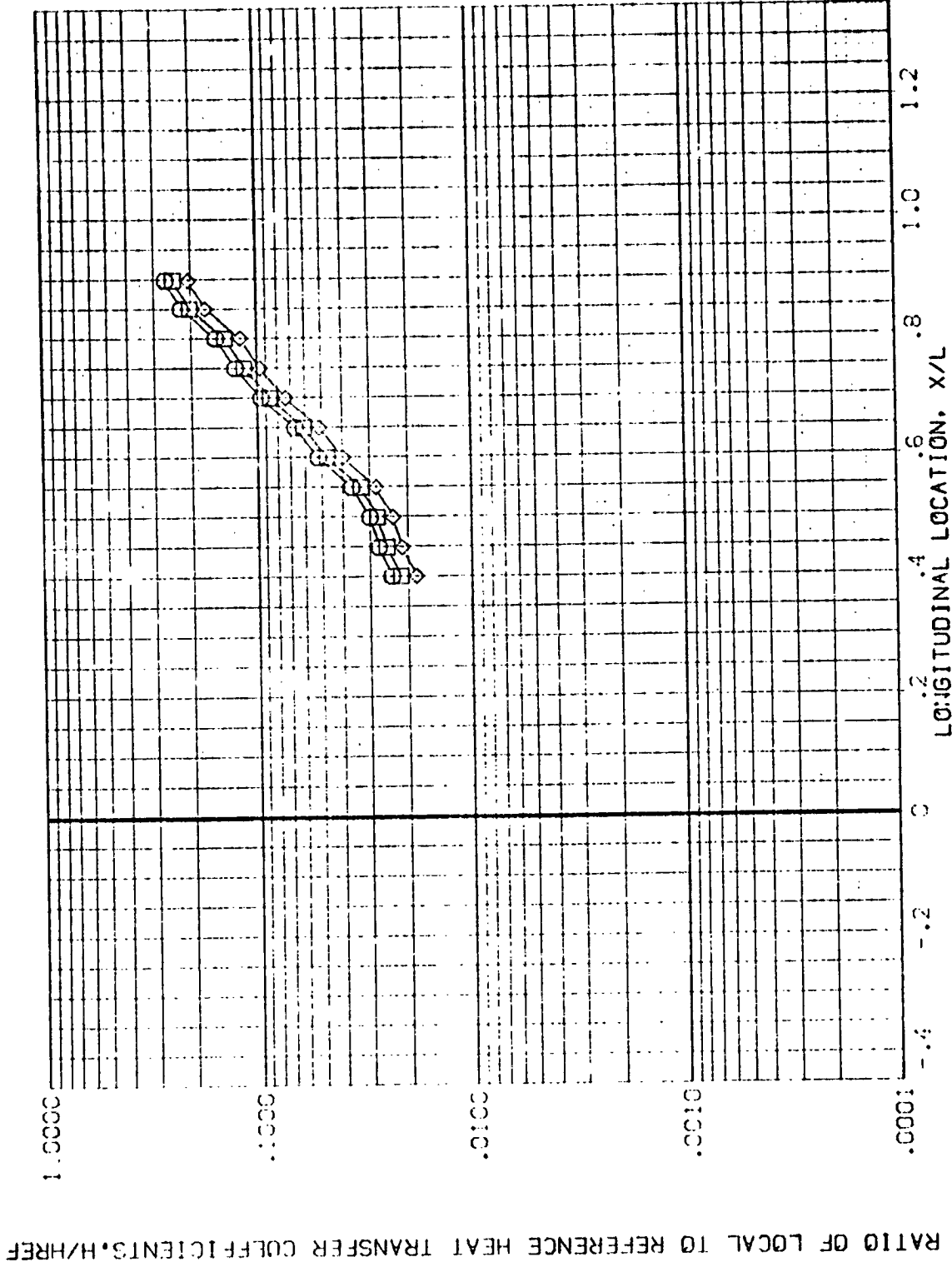


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-1.95 IH28 C1-T1 EXTERNAL TANK

(REV T05)

SPEED-  
 HAW/HT P-1 MACH  
 .250 :50.000 5.221  
 .500 :1.000  
 1.000

PAR. METRIC VALUES  
 ALPHA 120.000 BETA .000  
 R1/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

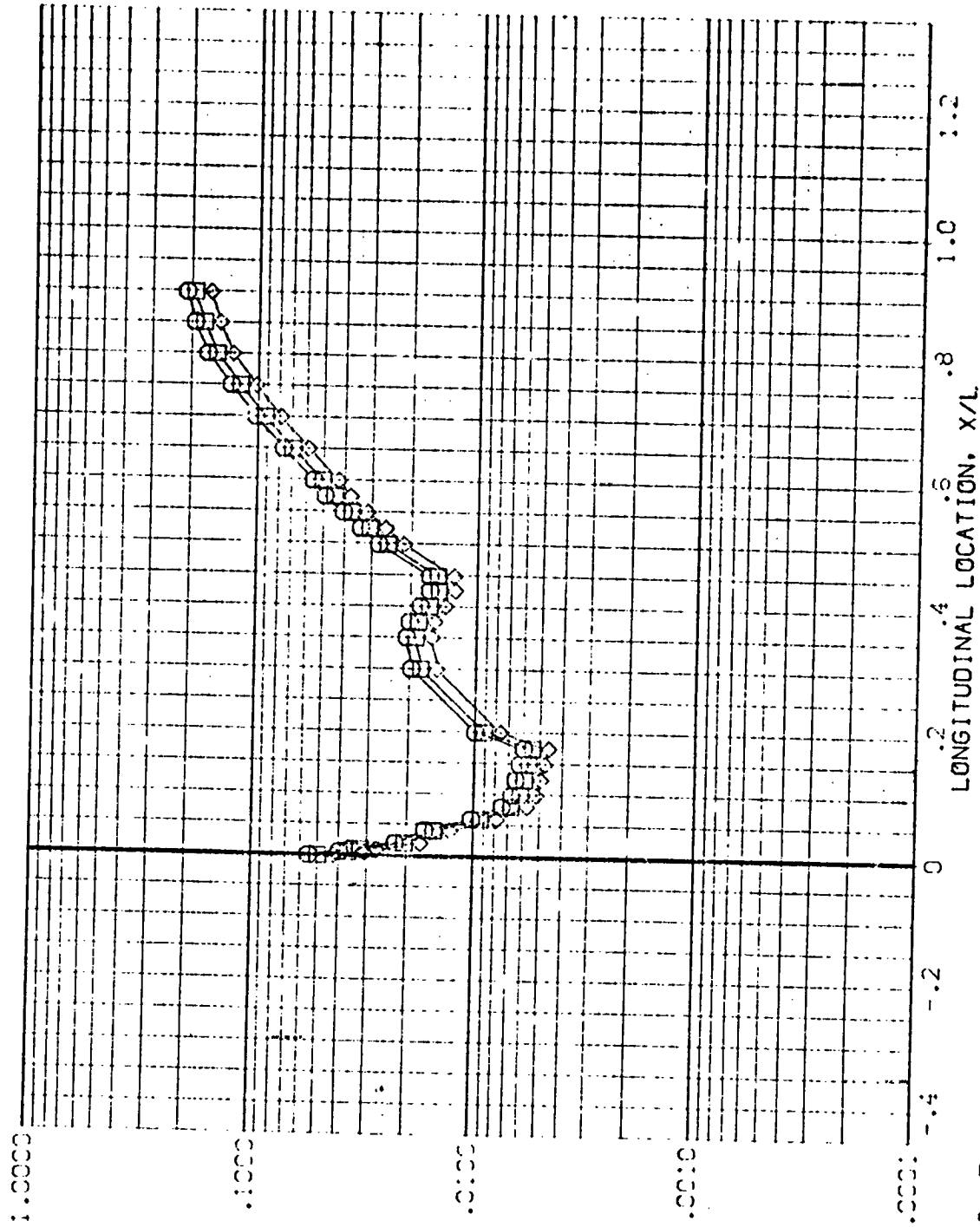


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

SYMBOL HEIGHT PWI VACH  
 ○ 1.000 .800 90.000 5.220  
 ○ 1.000 .900 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RN/L 1.000

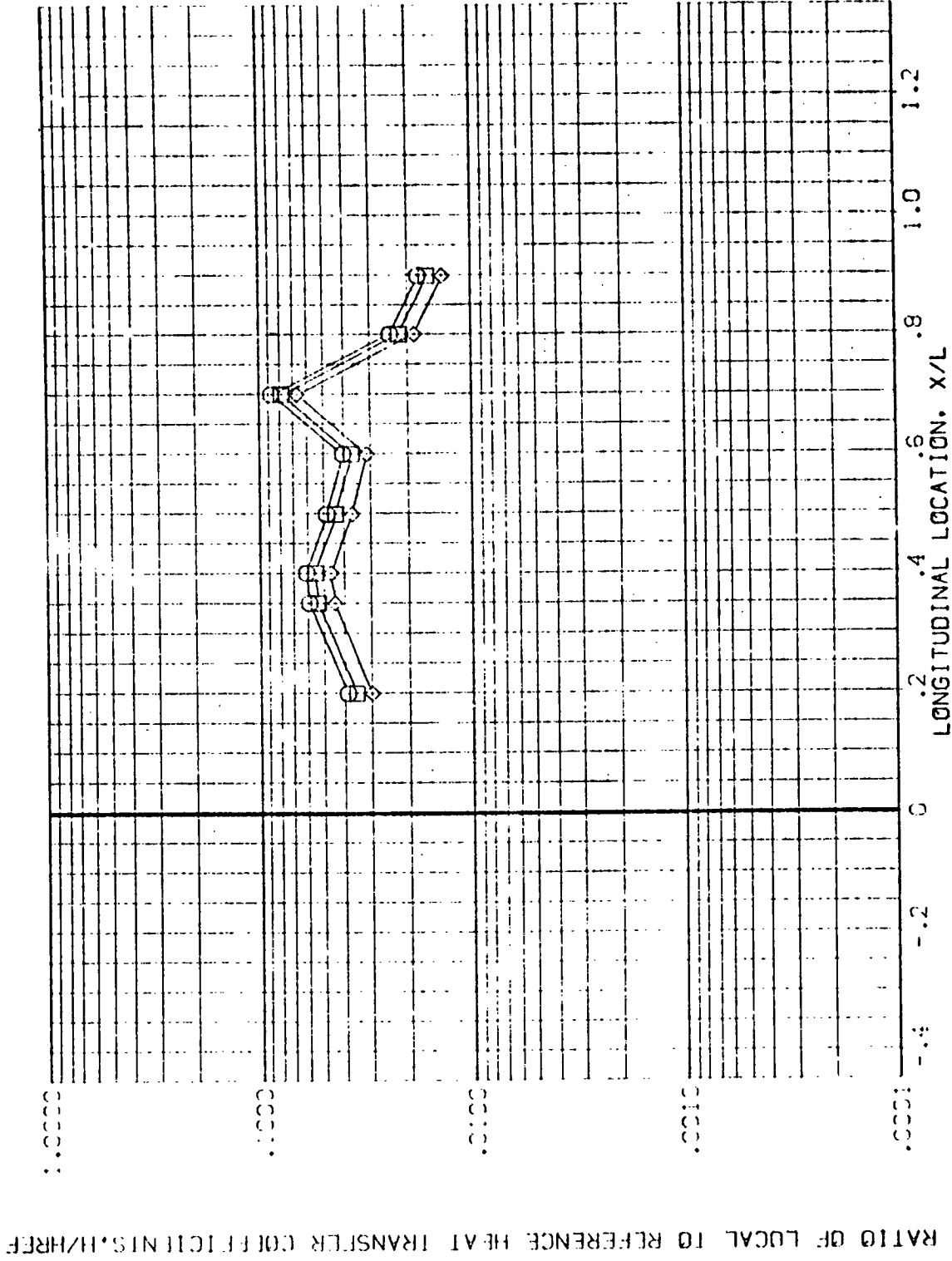


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-125 1428 01-T1 EXTERNAL TANK (REV706)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RV/L 1.000

MA/REF .850  
 P/L 112.500  
 WACH 5.220

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

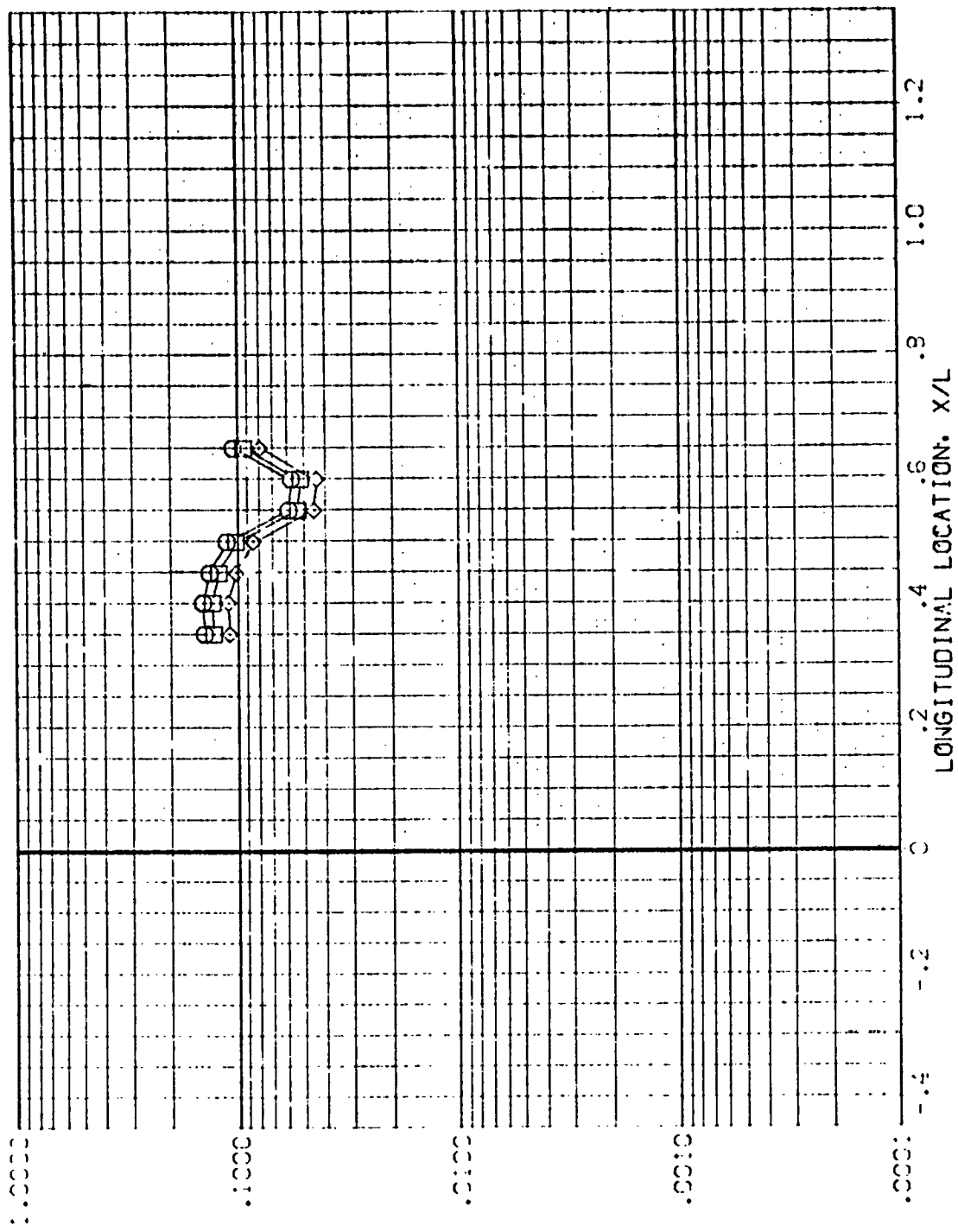


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TAN"

(REV106)

SYMBOL:  $\diamond$   $\square$   
 H/W/H/T P/F1 MACH  
 .850 135.000 5.220  
 .950  
 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 P/W/L 1.000

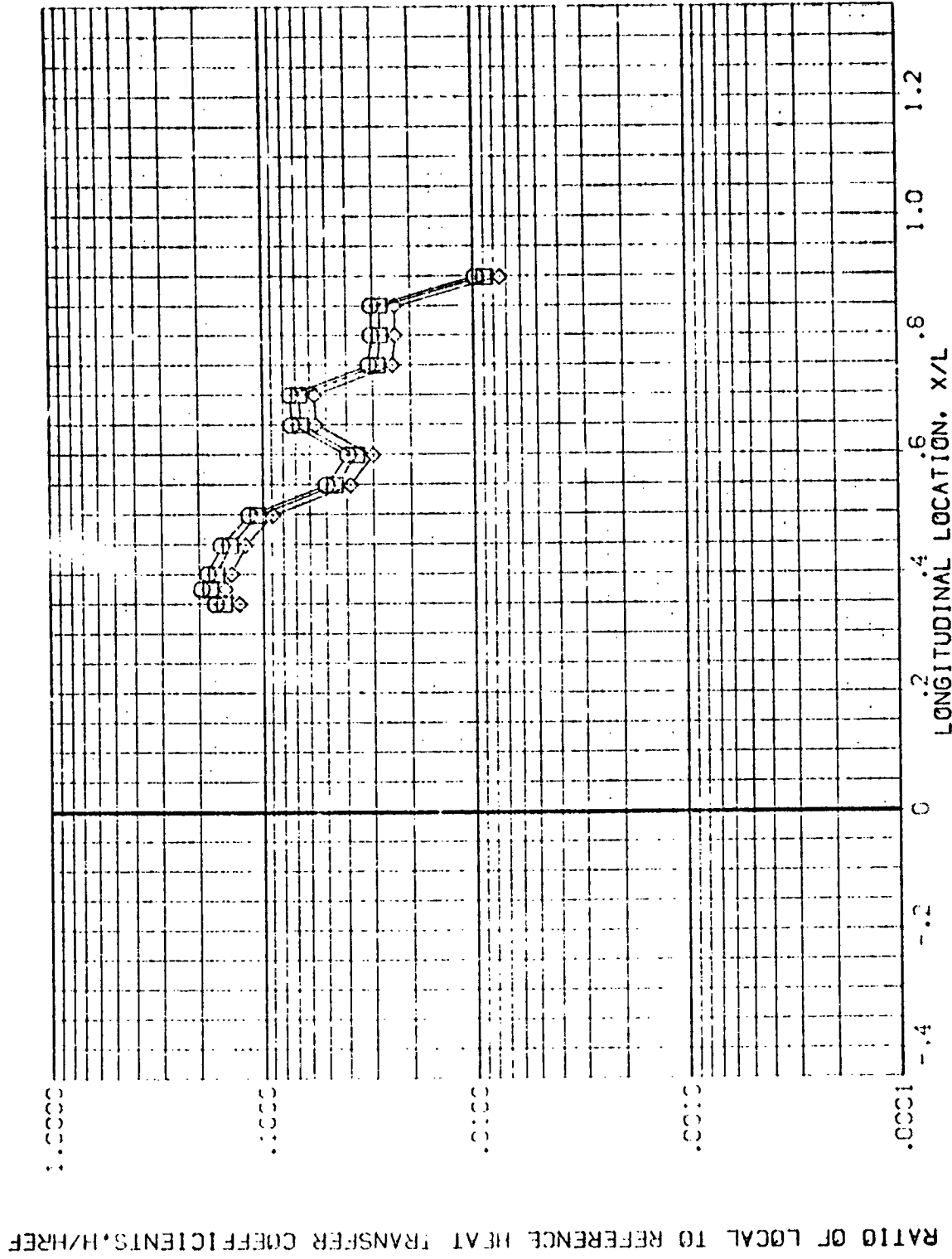


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 .H28 01+T1 EXTERNAL TANK (REV 06)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 PR/L .000

SYMBOL MARKER P-1 M-2  
 .850 .850 157.500 5.220  
 .850 .850  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

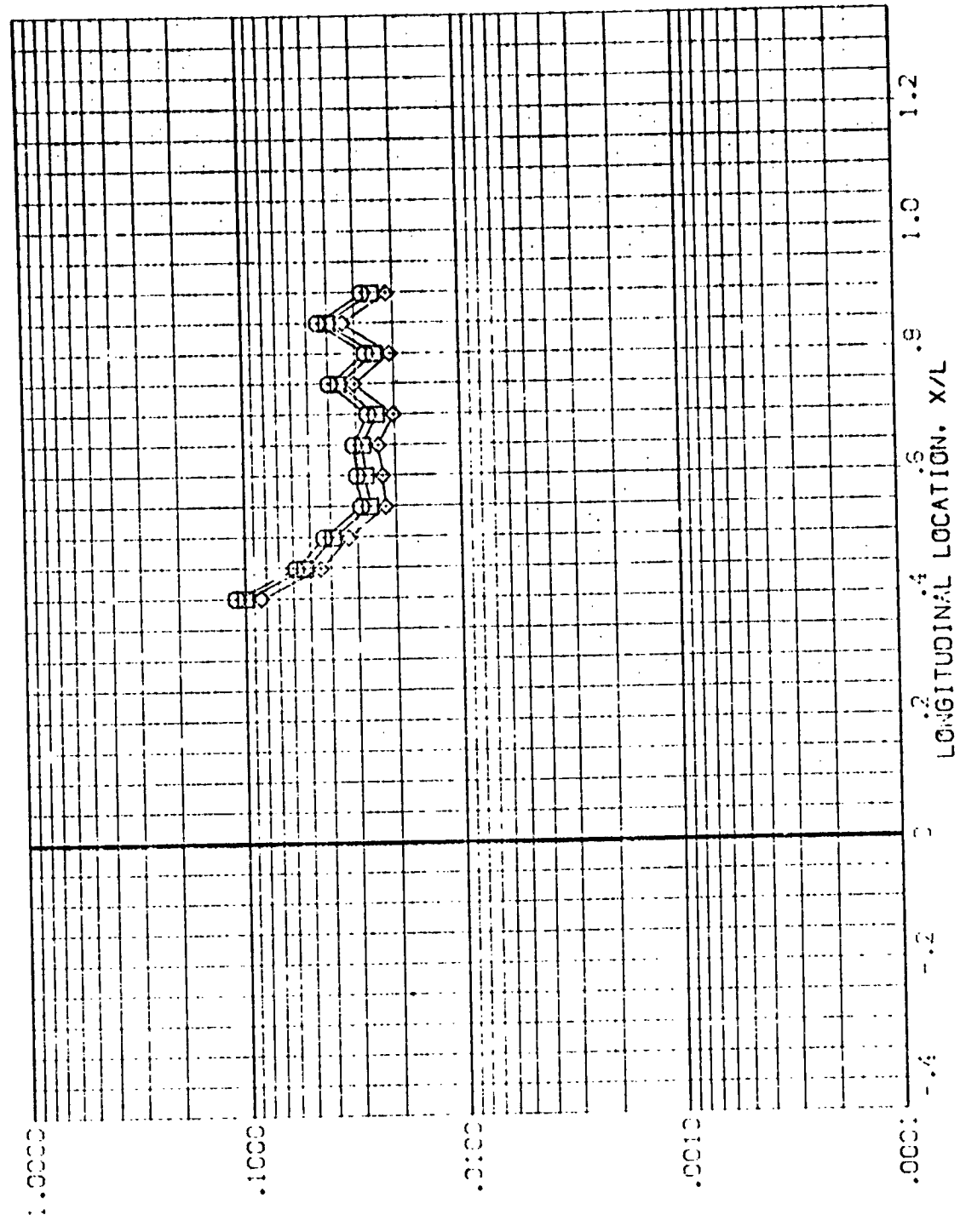


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1-28 C1+T1 EXTERNAL TANK (REV T06)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RN/L 1.000

SYMBOL MACH/REF PVI MACH  
 ○ 170 .850 100.000 5.220  
 ○ 180 .850 100.000 5.220  
 ○ 190 .850 100.000 5.220

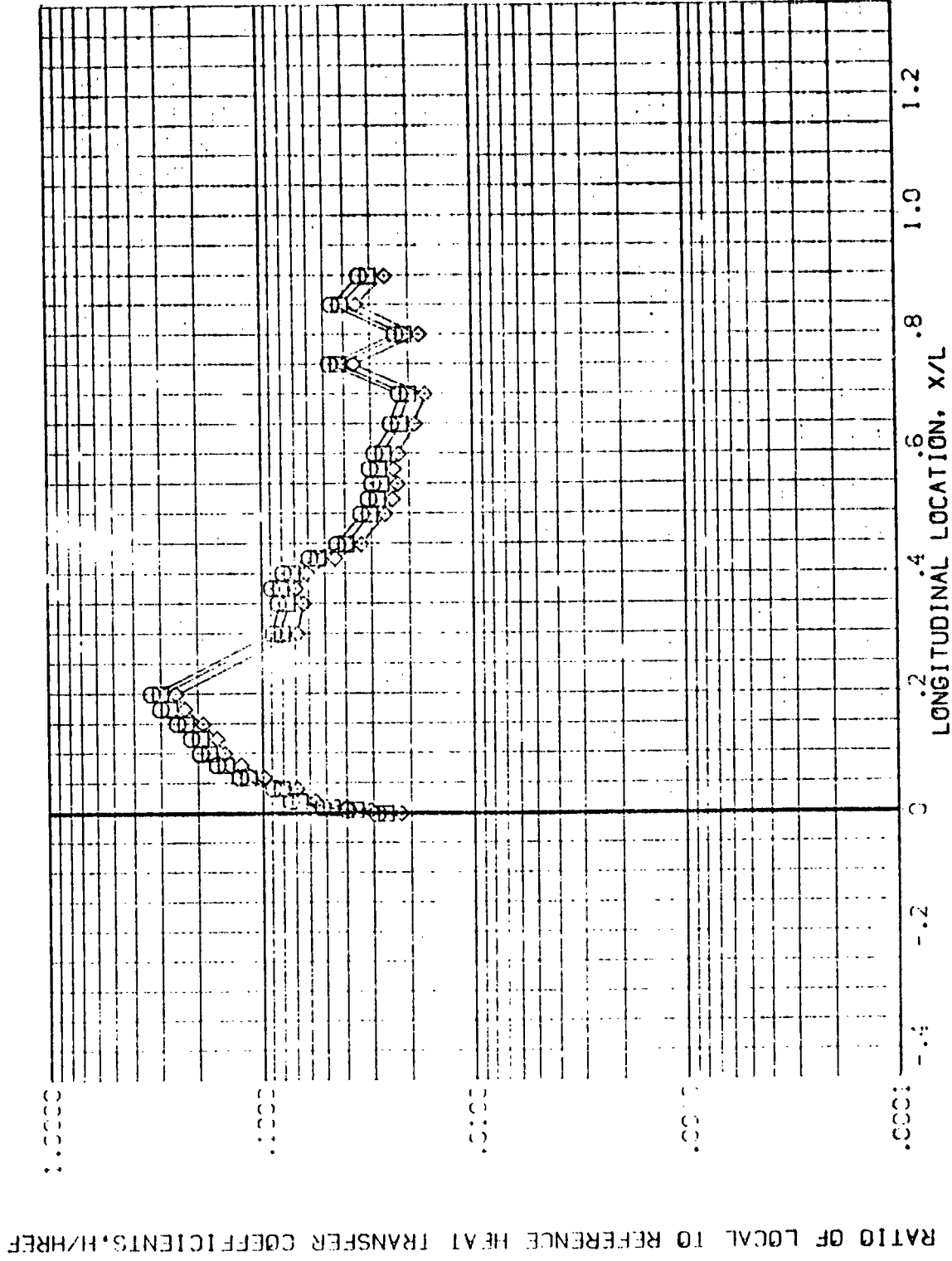


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T07)

SVESL	PARAMET	PR	MACH	PARAMETRIC VALUES
◇ T10	.850	90.000	5.019	ALPHA
	.300			PR/L
	1.000			BETA
				.000

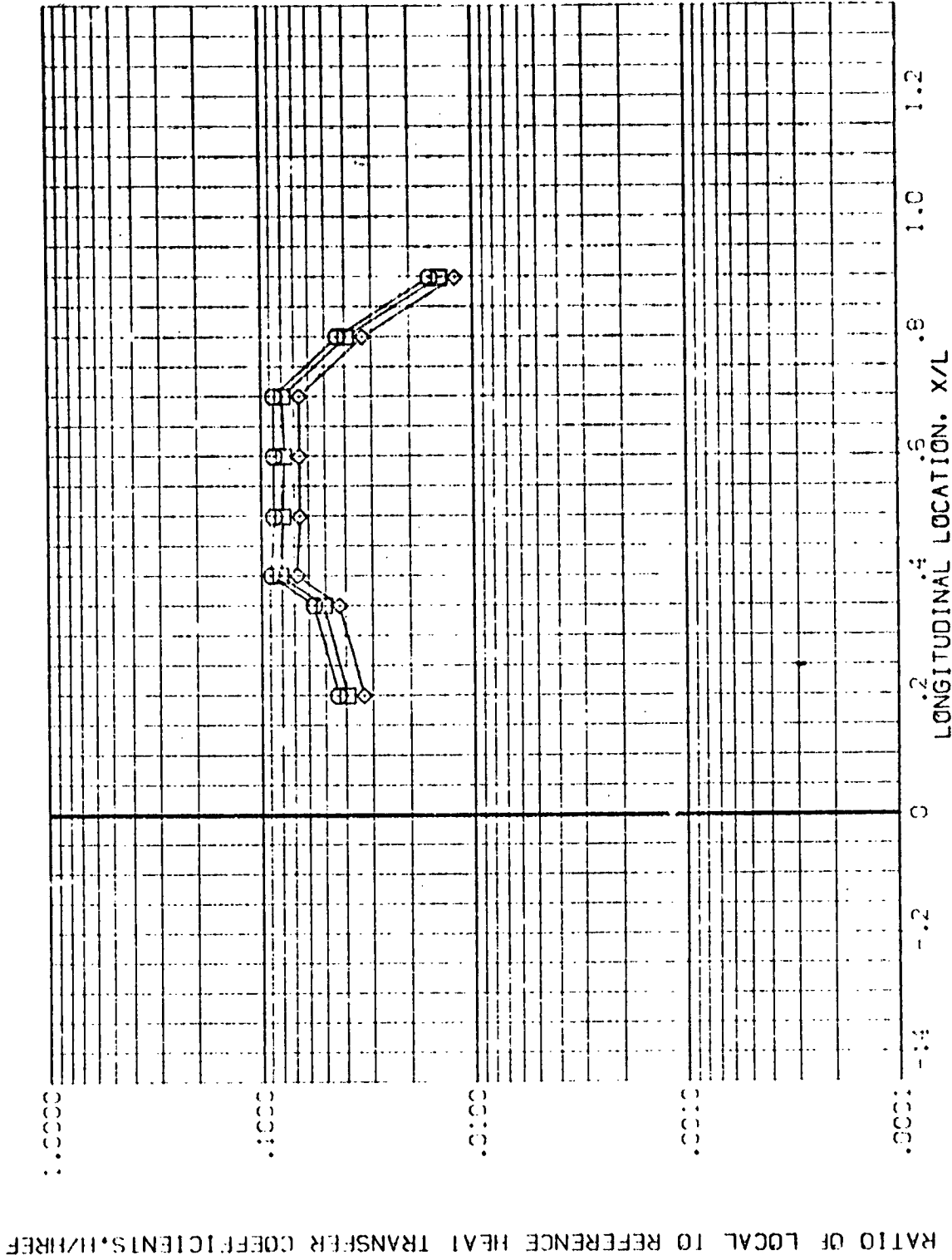


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV107)

SYSEC- PA/HT PH: MACH  
 .850 112.500 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 PR/L .1000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

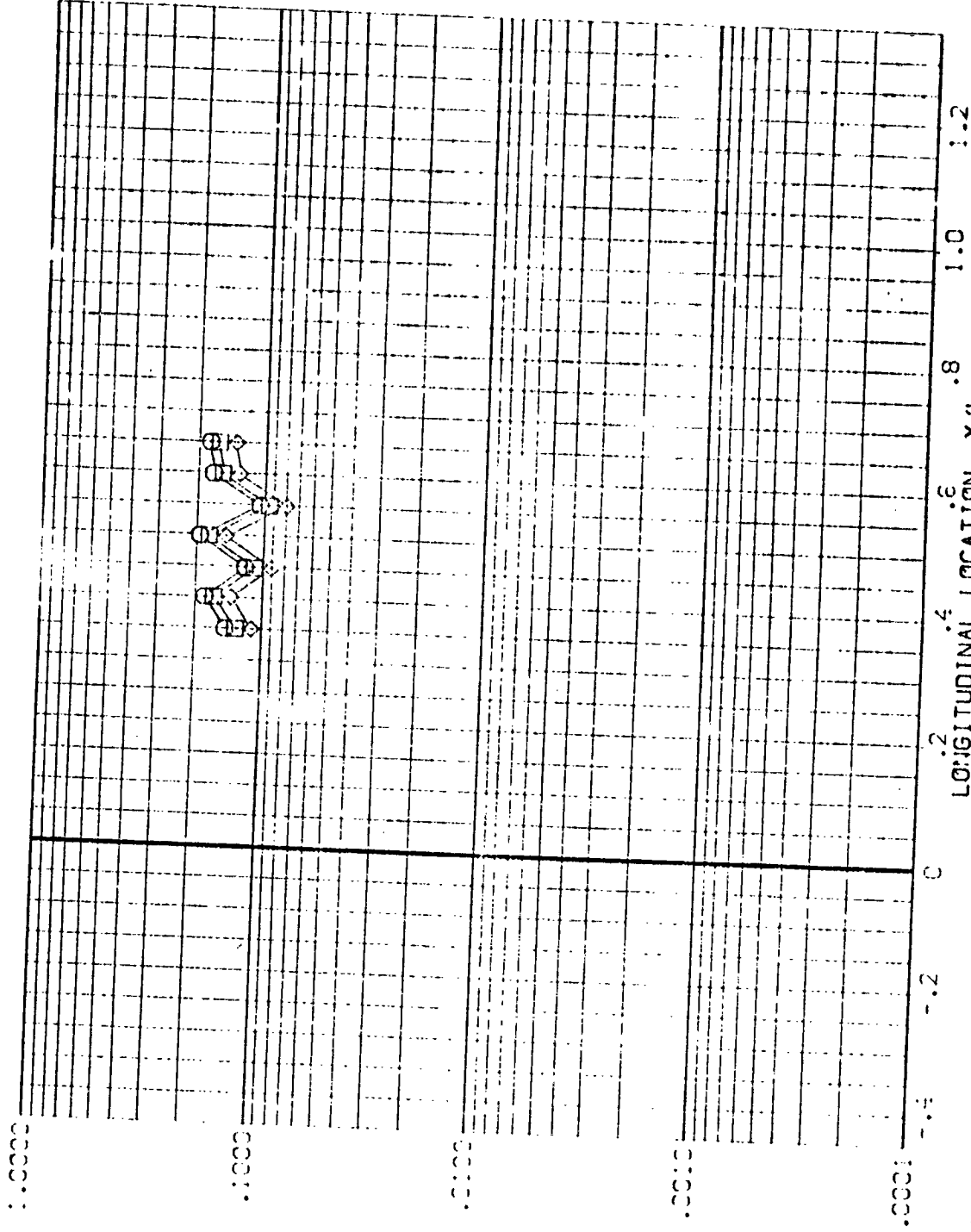


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REPRODUCIBILITY OF THE  
 ORIGINAL PAGE IS POOR

AVES 3.5-195 1-28 01-7: EXTERNAL TANK (REV'D 07)

SYMBOLS:  $\diamond$   $\square$   $\circ$   $\triangle$   
 HMA/MT 850 135.000 3.219  
 MACH  
 ALPHA 0.000  
 BETA 1.000  
 RVAL .000

PARAMETRIC VALUES  
 ALPHA 0.000  
 BETA 1.000  
 RVAL .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

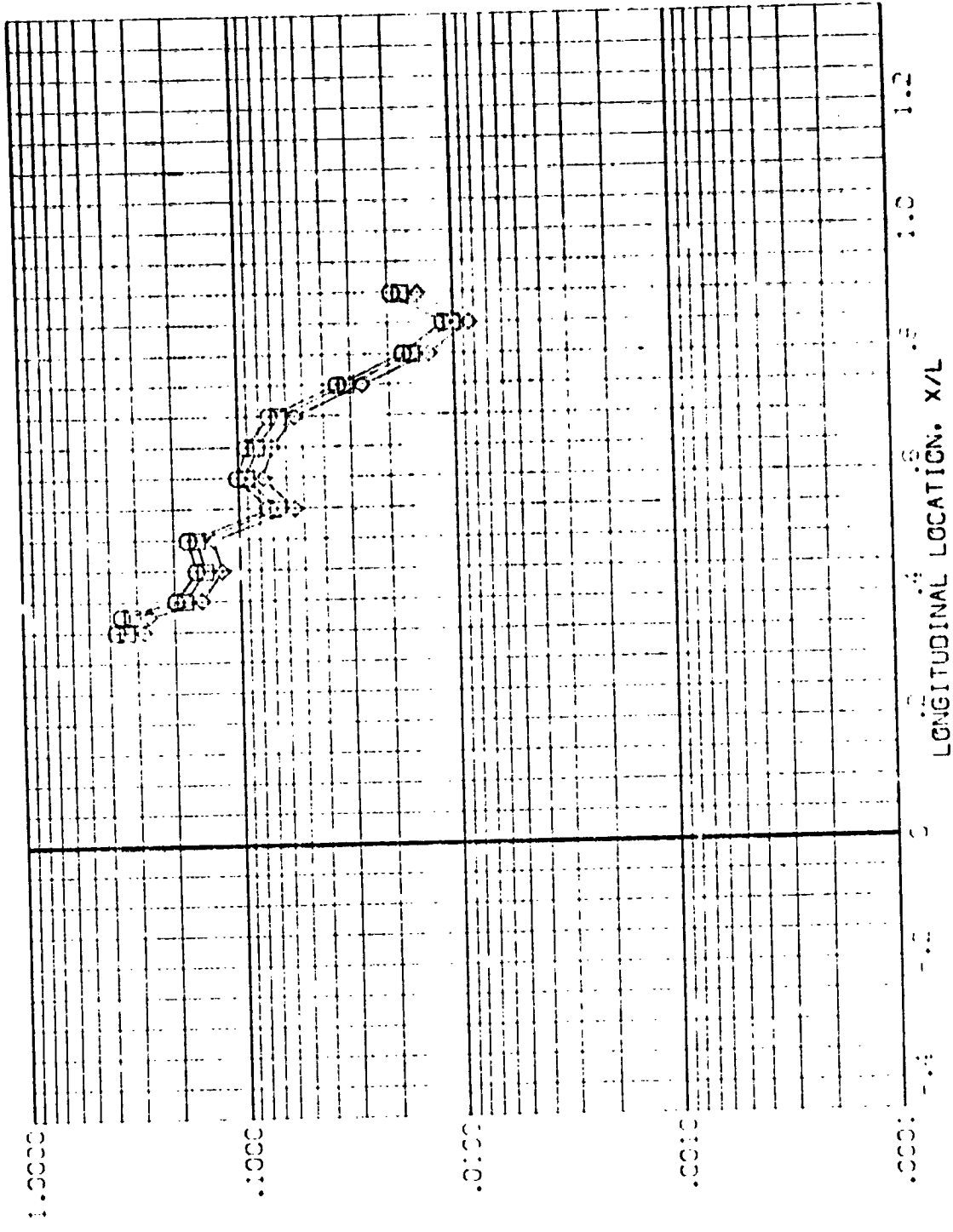


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-125 IH28 CI+TI EXTERNAL TAN (REPT07)

SYNOPSIS  
 NAME: PH: MACH  
 1800 157.500 5.219  
 1920  
 1.000

PARAMETER VALUES  
 ALPHA 1.00000 BETA .100  
 PVAL 1.0000

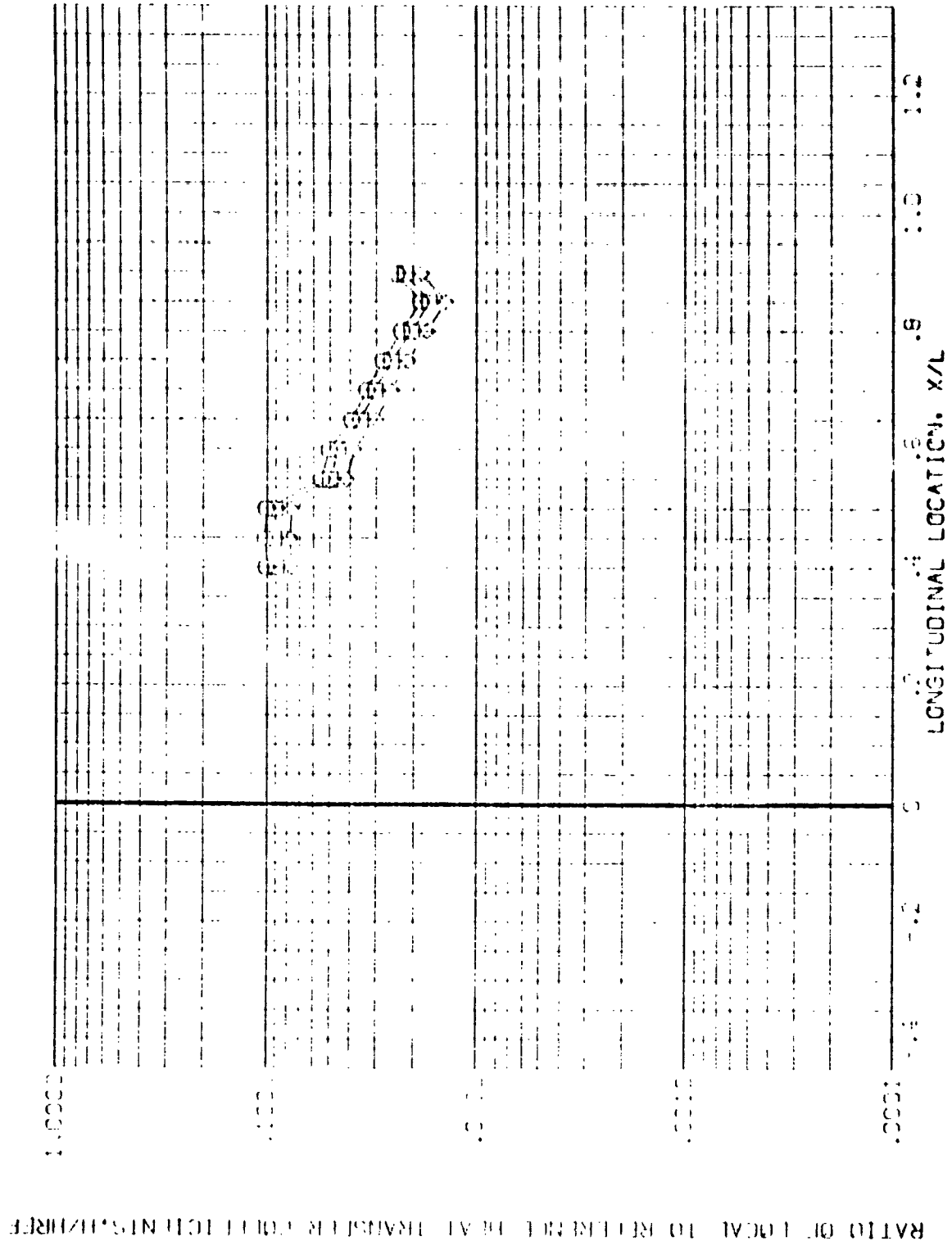


FIG. 5 TANK IN THE PRESENCE OF COBITER

AMES 3.5-100 1-08 C-17: EXTERNAL TANK (REV. 007)

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 P/L 1.000

SLICE 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-10, 1-11, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17, 1-18, 1-19, 1-20, 1-21, 1-22, 1-23, 1-24, 1-25, 1-26, 1-27, 1-28, 1-29, 1-30, 1-31, 1-32, 1-33, 1-34, 1-35, 1-36, 1-37, 1-38, 1-39, 1-40, 1-41, 1-42, 1-43, 1-44, 1-45, 1-46, 1-47, 1-48, 1-49, 1-50, 1-51, 1-52, 1-53, 1-54, 1-55, 1-56, 1-57, 1-58, 1-59, 1-60, 1-61, 1-62, 1-63, 1-64, 1-65, 1-66, 1-67, 1-68, 1-69, 1-70, 1-71, 1-72, 1-73, 1-74, 1-75, 1-76, 1-77, 1-78, 1-79, 1-80, 1-81, 1-82, 1-83, 1-84, 1-85, 1-86, 1-87, 1-88, 1-89, 1-90, 1-91, 1-92, 1-93, 1-94, 1-95, 1-96, 1-97, 1-98, 1-99, 1-100

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

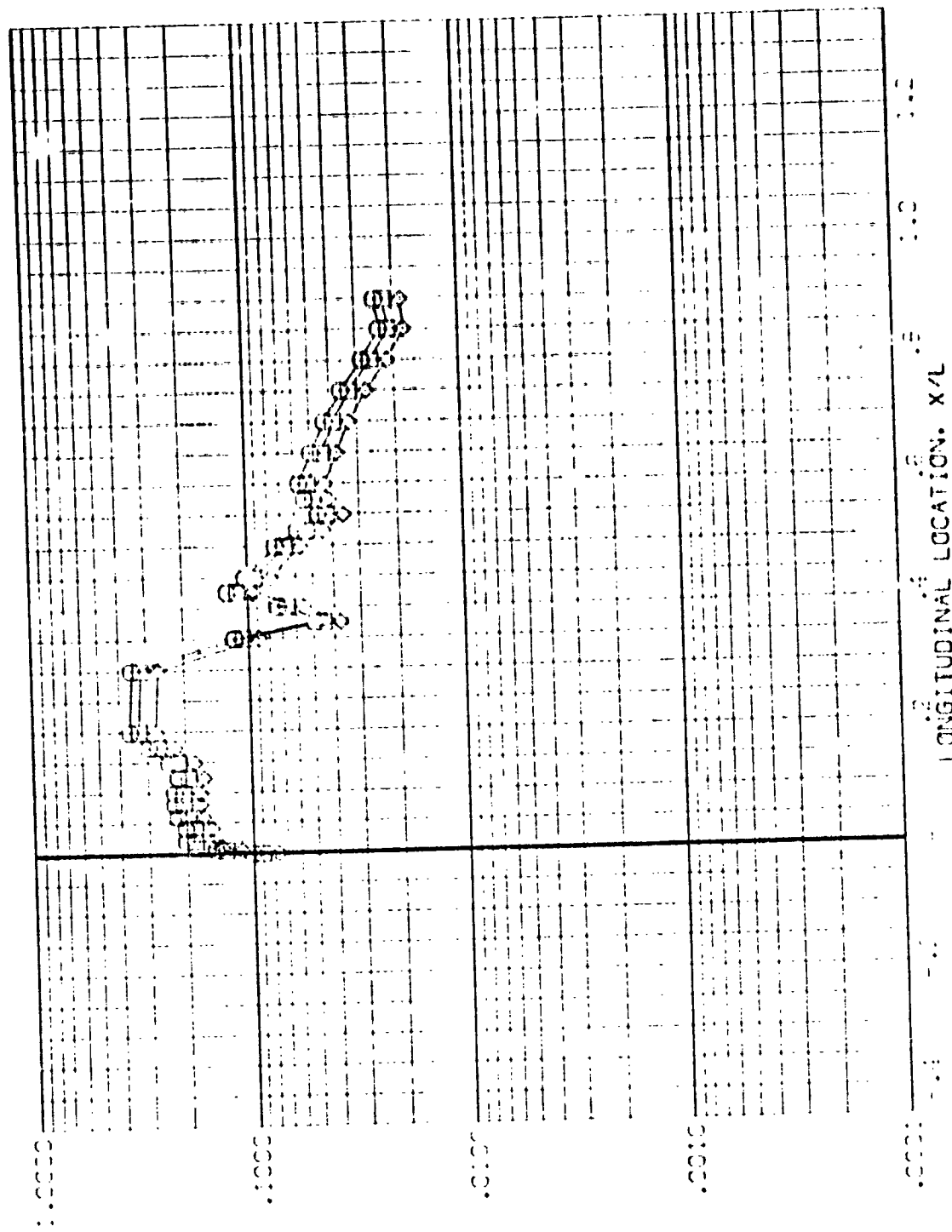


FIG. 5 TANK IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T08)

SYMBOL  $\diamond$

HA/WHT .850  
PHI 90.000  
MACH 5.220

PARAMETER VALUES  
ALPHA -60.000  
BETA 1.000  
RM/L .001

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

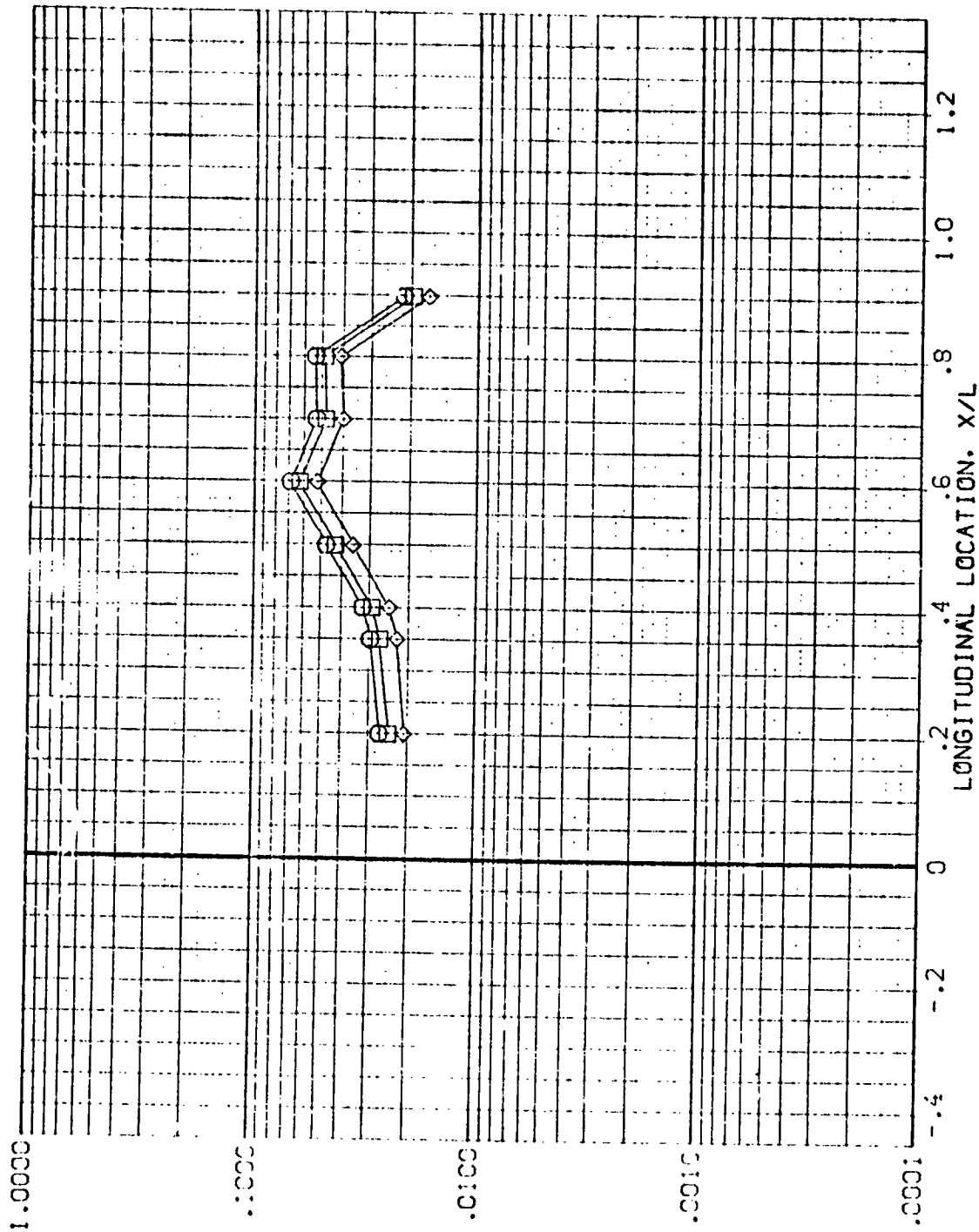


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

C-3

T

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T08)

SYMBOL

HPM/TI 541

MACH 5.220

1:10.500

1.000

PARAMETRIC VALUES

ALPHA -50.000

BETA 1.000

.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

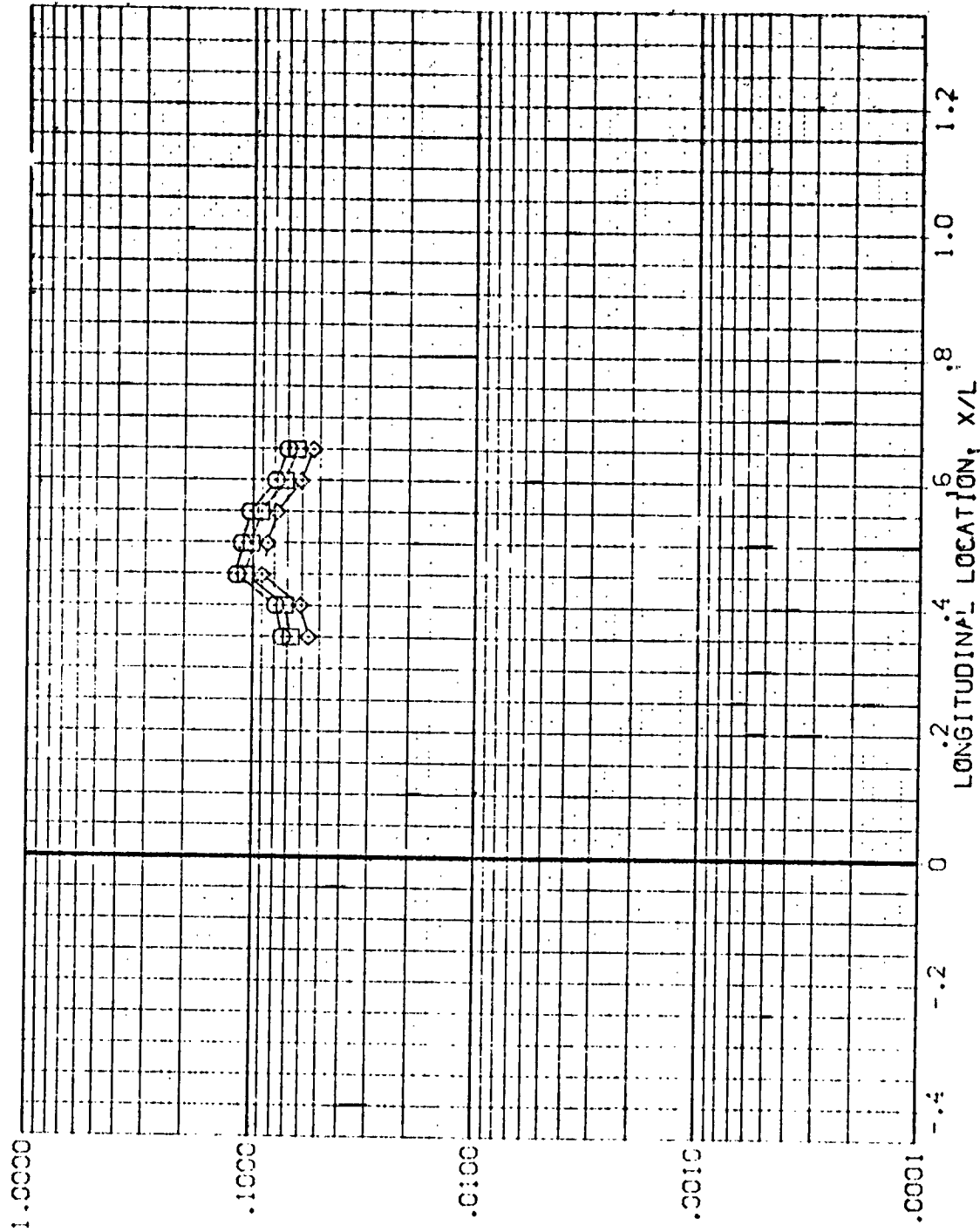


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-:95 IH28 01+T1 EXTERNAL TANK

(REV T08)

SYMBOL  
 ◻  
 ◊

HAW/HT .850  
 .900  
 1.000

PHI 135.000  
 MACH 5.220

ALPHA  
 RN/L

PARAMETRIC VALUES

-60.000 BETA  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

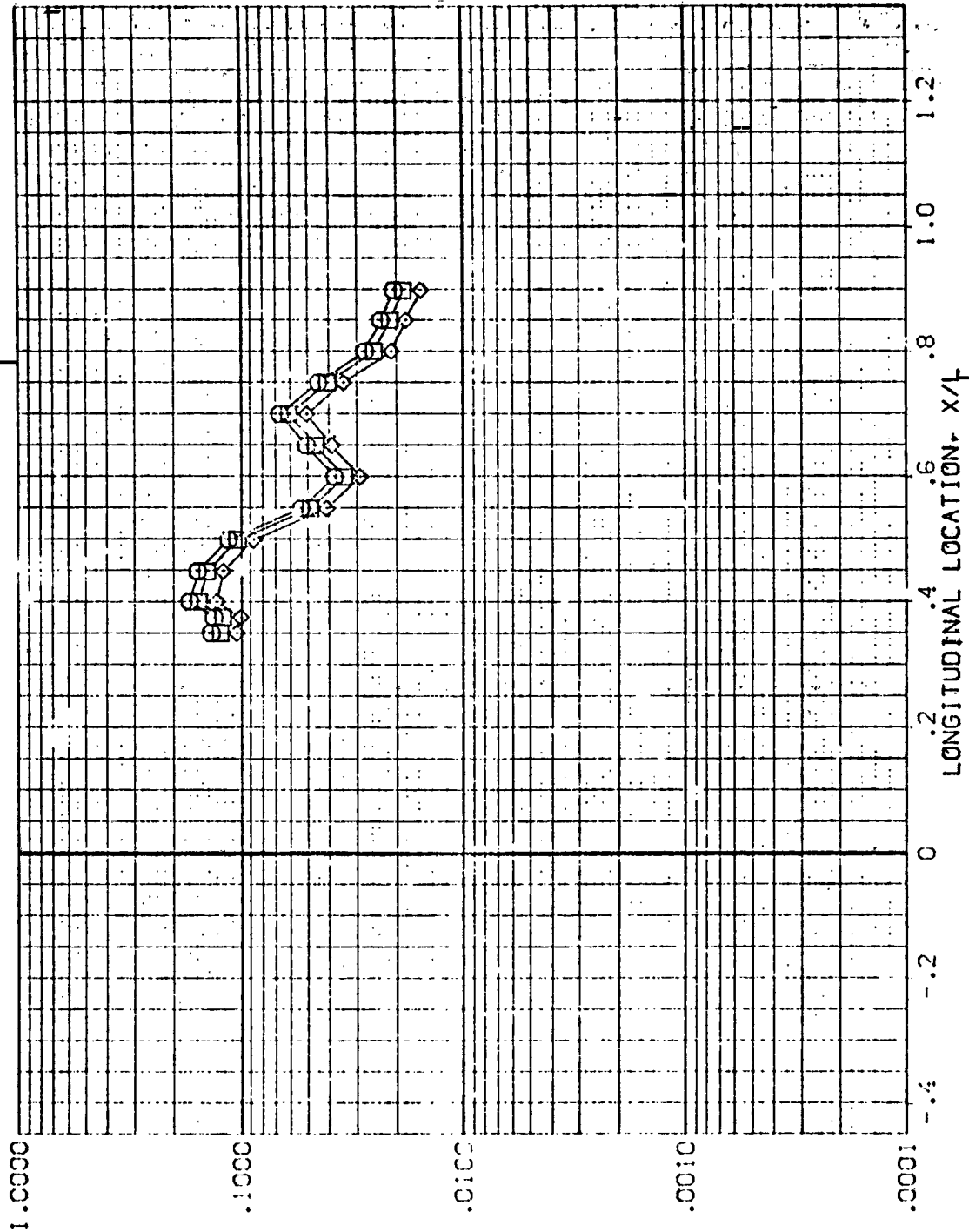


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T08)  
 S-VEE HAN/UT PFI VACH  
 .850 157.500 5.220  
 .300  
 1.000  
 PARAMETRIC VALUES  
 ALPHA -50.000 BETA .000  
 RN/L 1.000

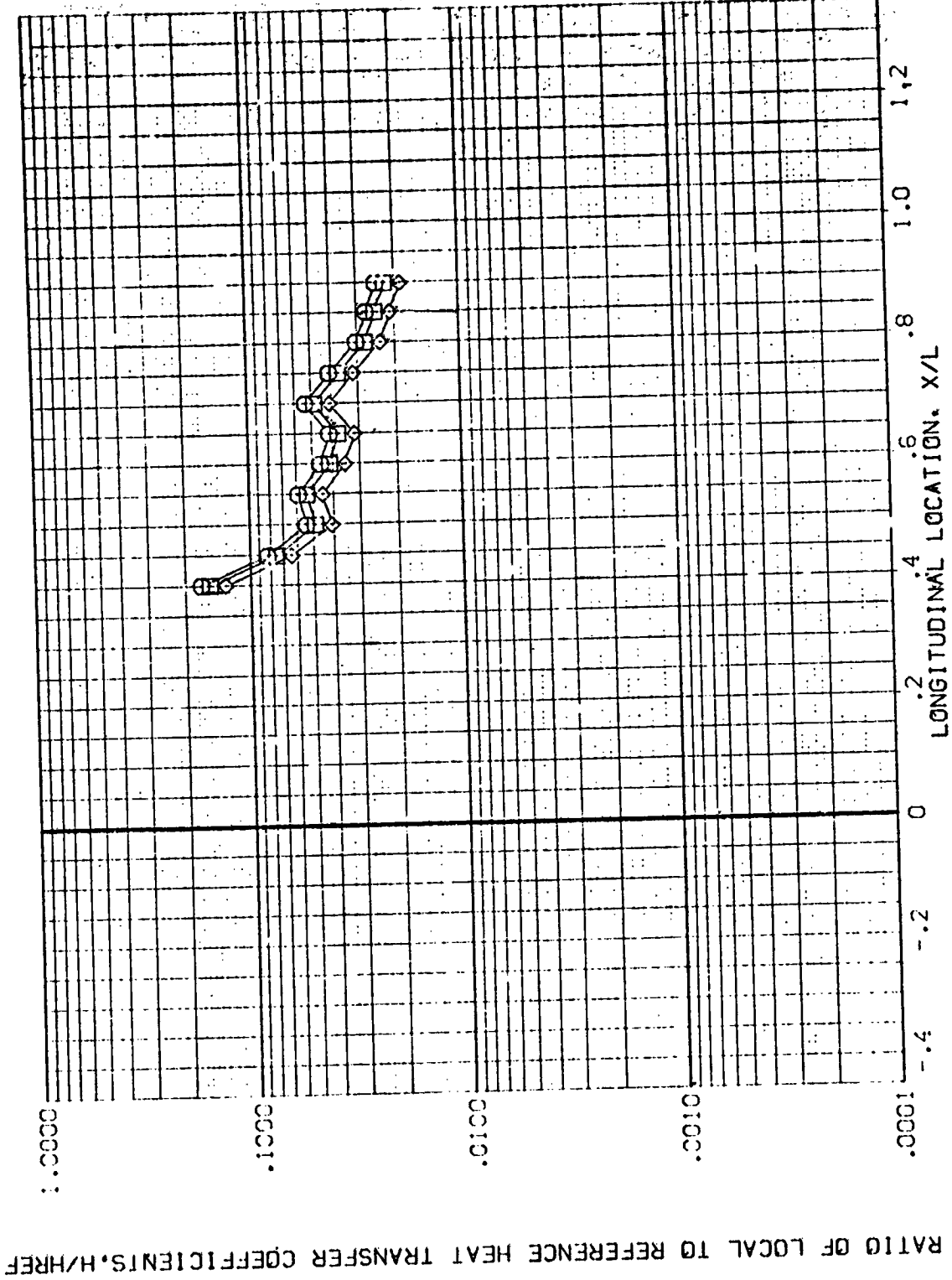


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T08)

SYMBOL HAW/HT PHI MACH  
 ◻ .850 180.000 5.220  
 ◻ .900  
 ◻ 1.000

PARAMETRIC VALUES  
 -60.000 ALPHA  
 1.000 BETA  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

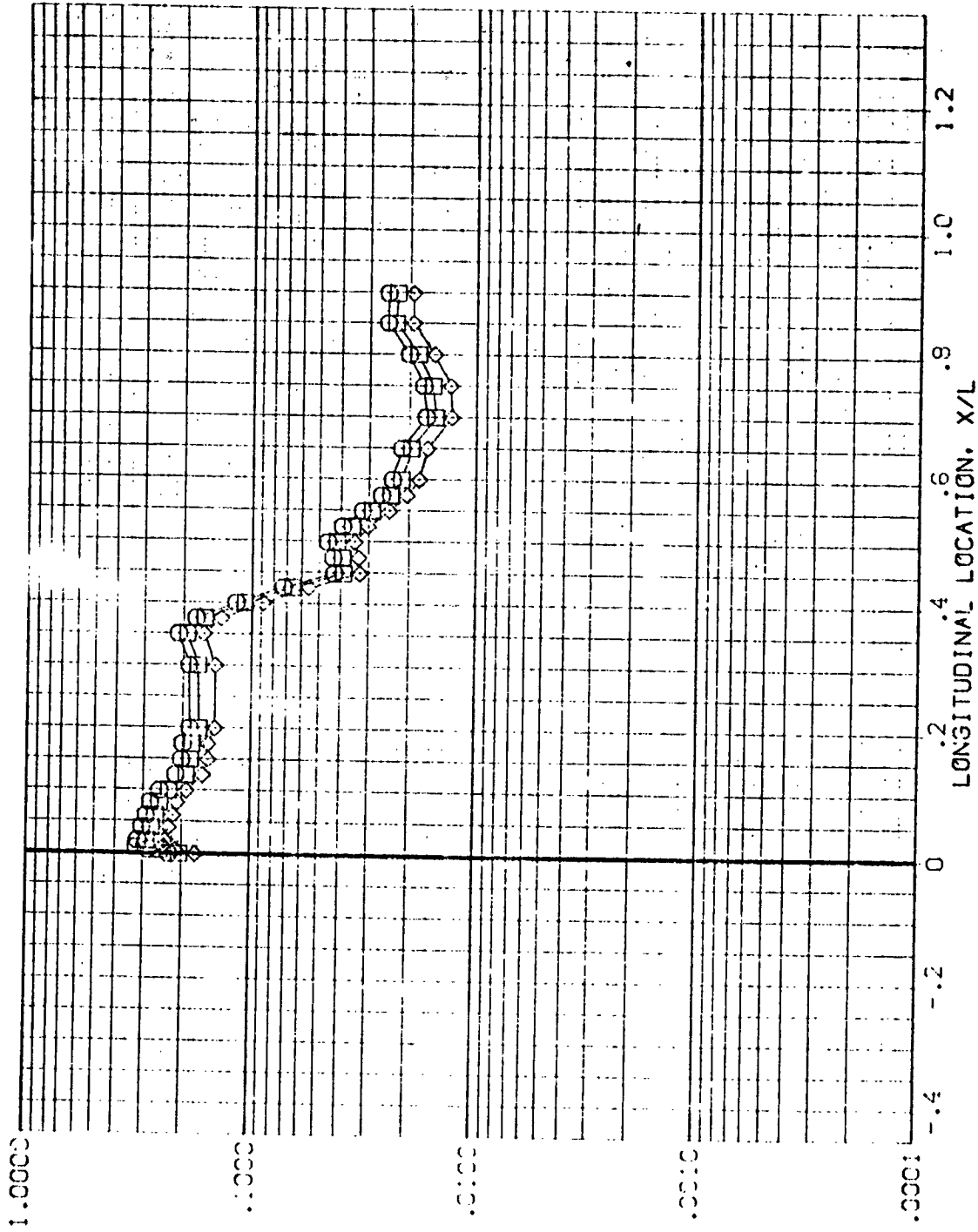


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-10E 1-29 C1+T1 EXTERNAL TANK (REV109)

DIMEN. PARAMETER UNIT VALUE  
 DIAMETER .850 INCH  
 LENGTH 1.000 INCH  
 MASS 5.219

PARAMETRIC VALUES  
 ALPHA 1.000  
 BETA 1.000  
 RV/L 1.000

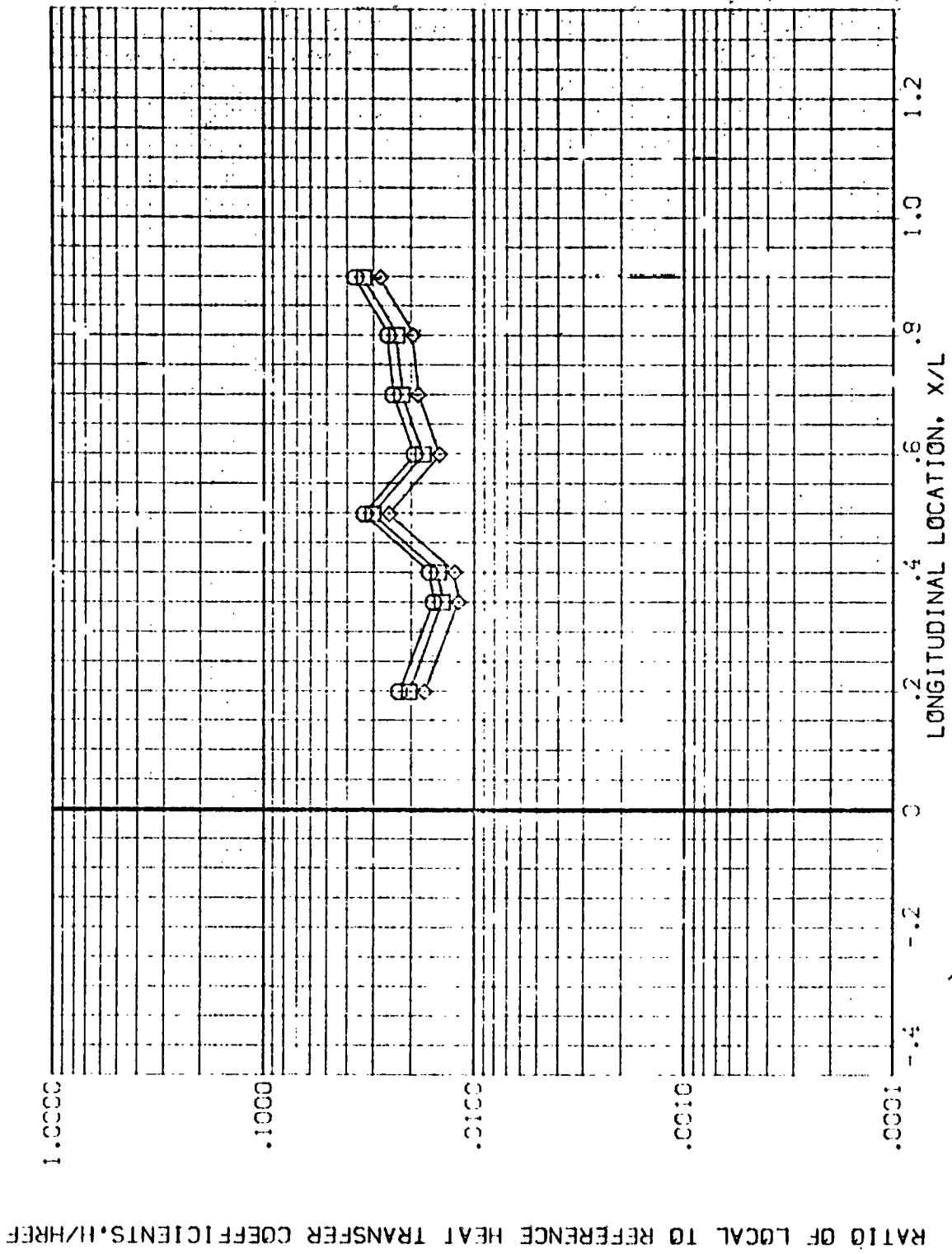


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV109)

SYMBOL

HA<sub>0</sub>/HT  
 .950  
 .920  
 .9000

PHI  
 112.500

MACH  
 5.219

PARAMETER C VALUES

ALPHA  
 P<sub>N</sub>/L  
 .0000

BETA  
 .0000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

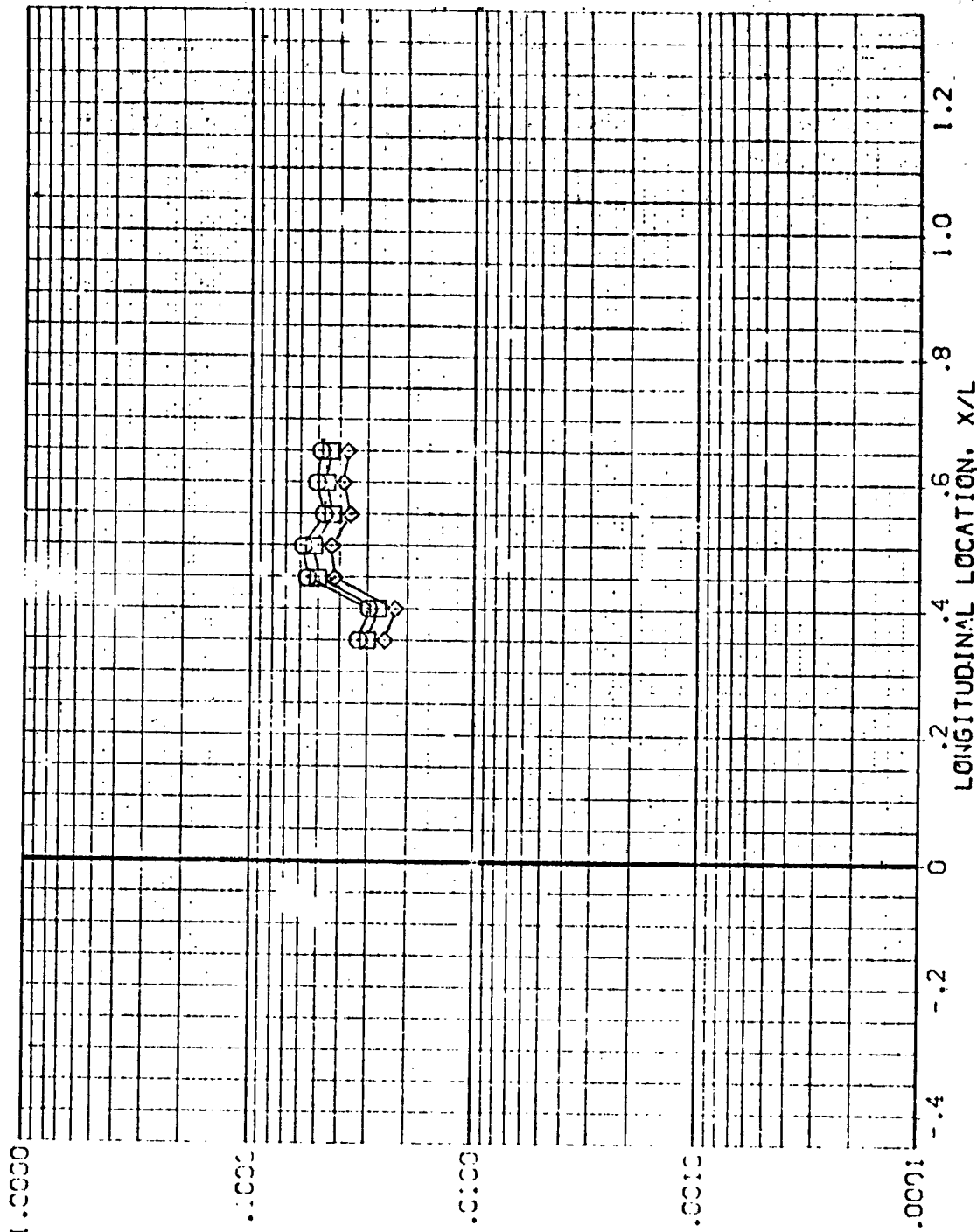


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T09)

SI-MET MACH/FT P-HI MACH  
.550 :35.000 5.219  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -30.000 BETA .000  
RN/L 1.000

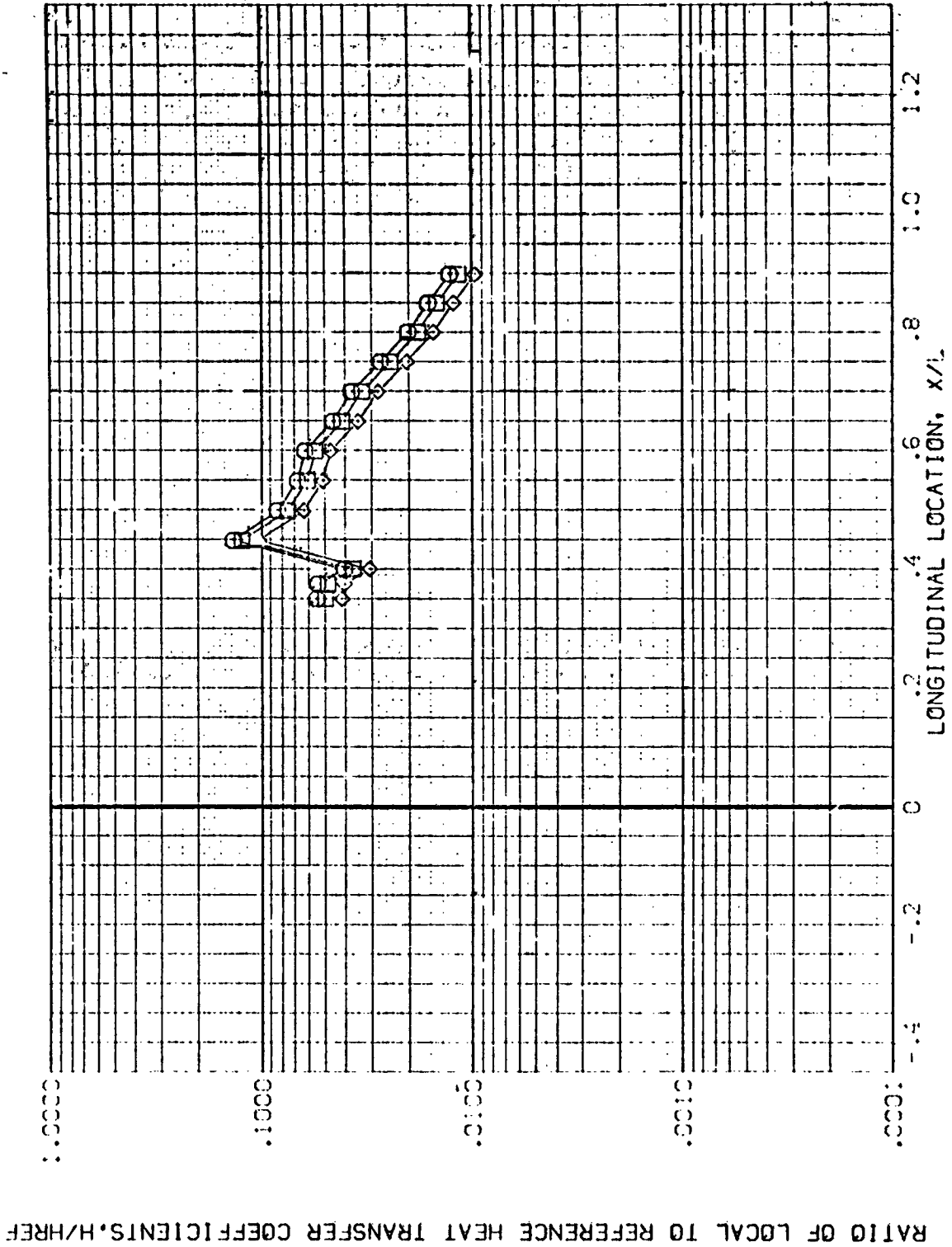


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REVTC9)

SYMBOL

HA/WHT  
.850  
.900  
1.000

PHI  
157.500

MACH  
5.219

PARAMETRIC VALUES  
ALPHA  
RN/L

BETA  
1.000  
.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

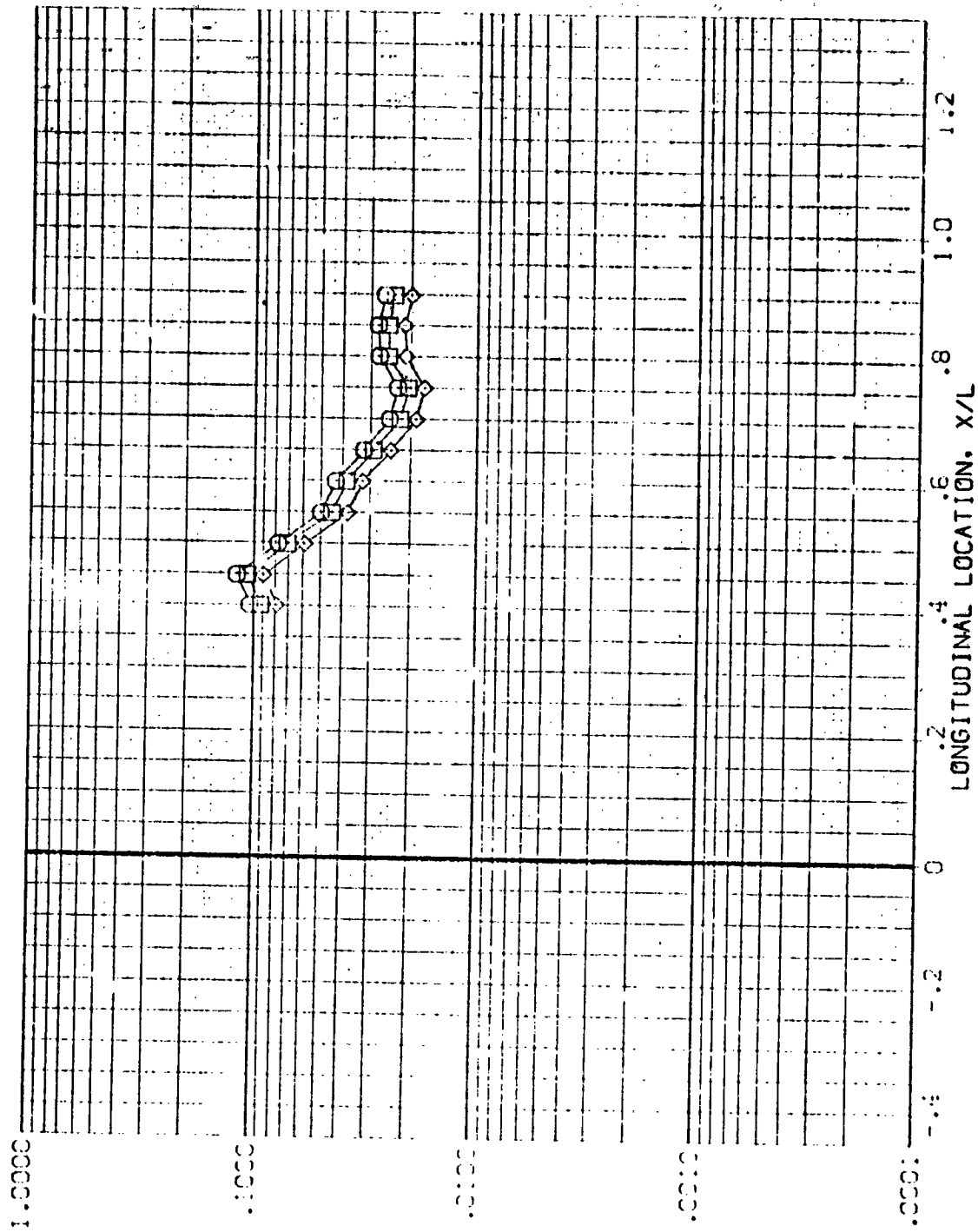


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 1-28 01+11 EXTERNAL TANK (REV T09)

SYMBOL WEIGHT P/W MACH  
 O 110 .850 180.000 5.219  
 □ 100 .300  
 △ 1.000

PARAMETRIC VALUES  
 ALPHA -33.000 BETA .000  
 RV/L 1.000

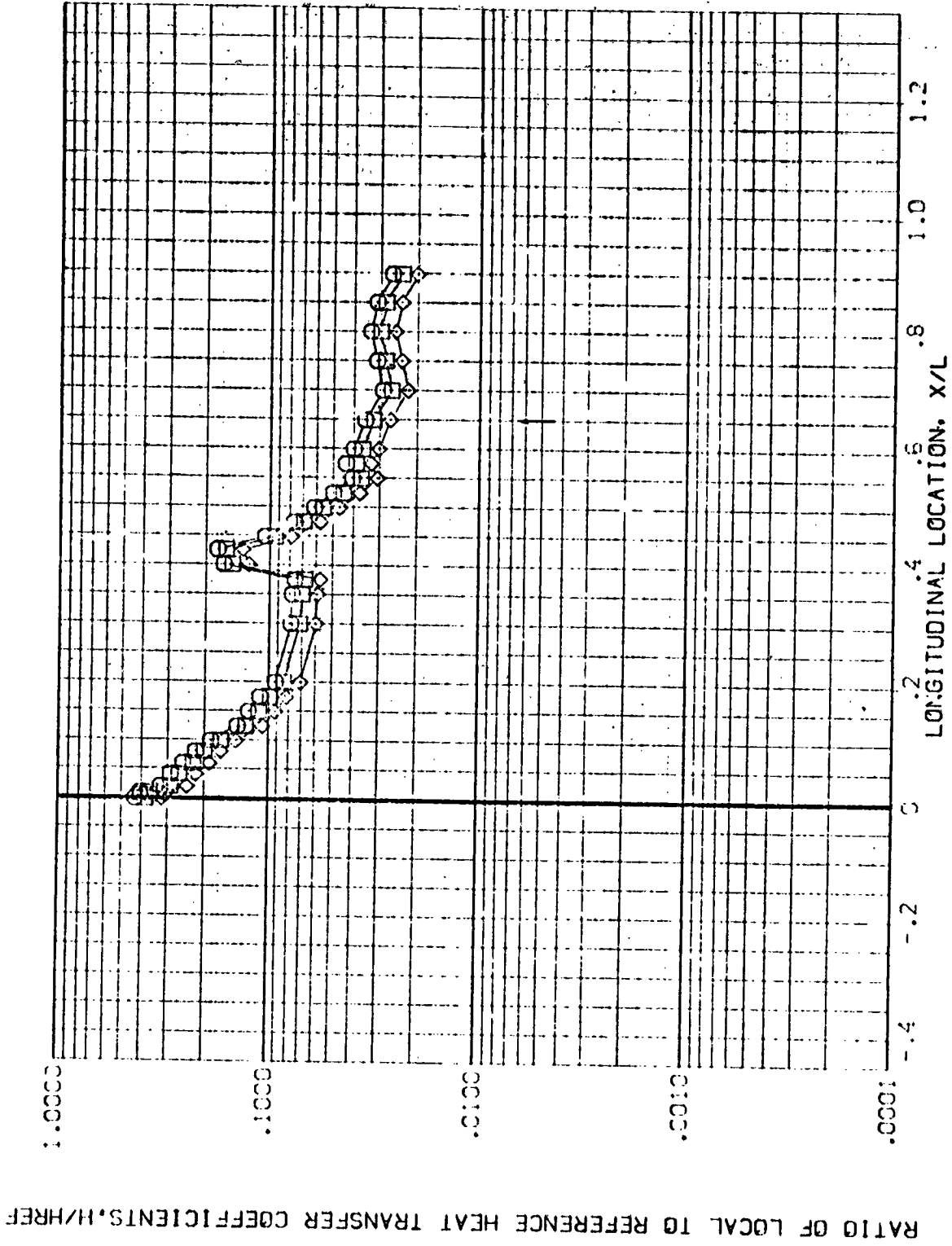


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(RE/TIC)

SYMBOL PARAMETER VALUE  
 ◊ T/O  
 ▲ H/W/H  
 ○ P/I  
 □ MACH  
 .850  
 .900  
 .950  
 1.000  
 5.300

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 4.000

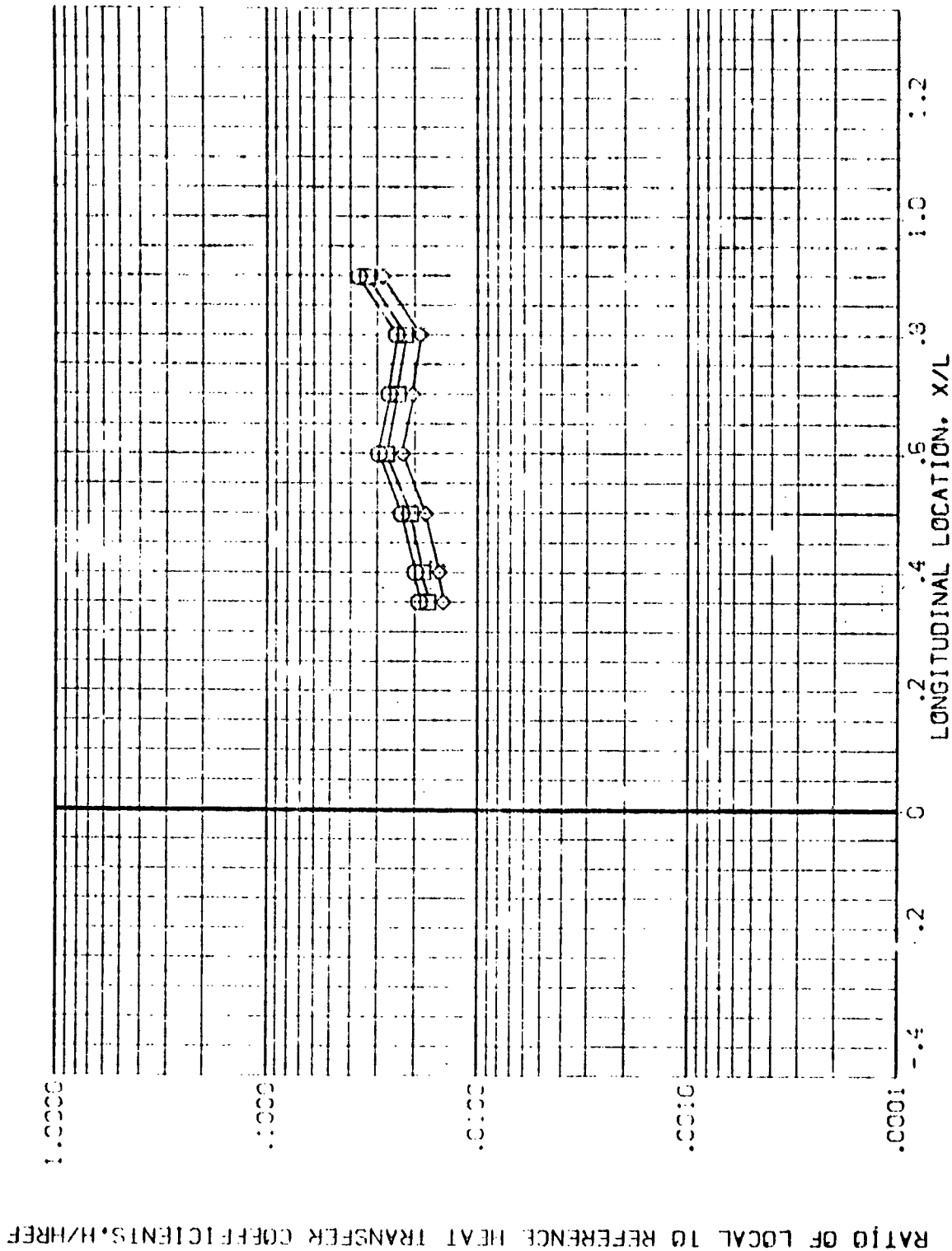


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1428 01+11 EXTERNAL TANK

(FE/710)

SYMBOL    HM/FT    PH:    MACH  
 ○        .850    112.500    5.300  
 □        .900  
 ◇        1.000

PARAMETRIC VALUES  
 ALPHA    60.000    BETA    .000  
 PAVL    4.000

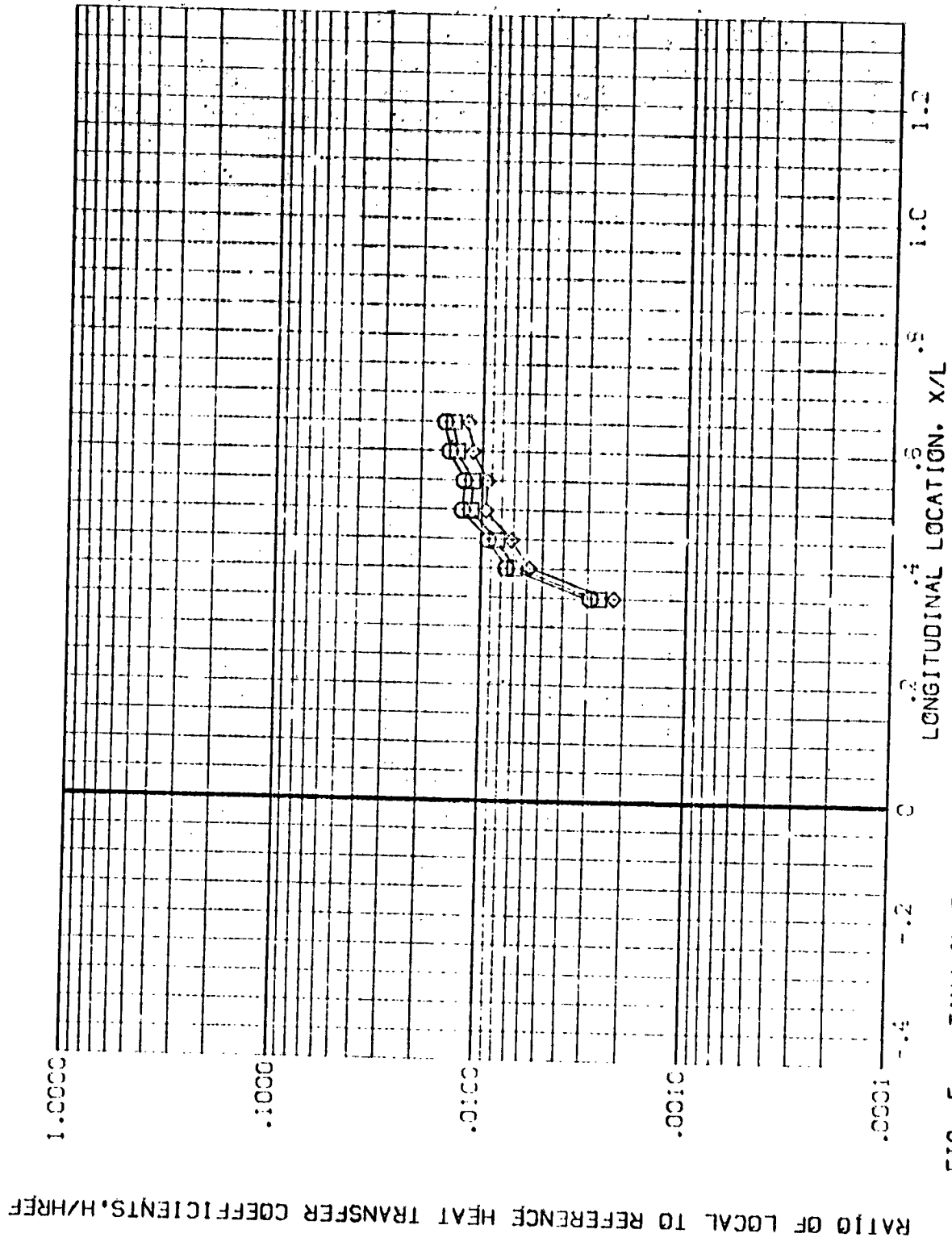


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 I-28 31-T1 EXTERNAL TANK

(REV:10)

SYMBOL: HAW/HT PLI: MACH  
 .850 135.000 5.300  
 .800  
 1.000

PARAMETER VALUES  
 ALPHA 60.000  
 BETA 4.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

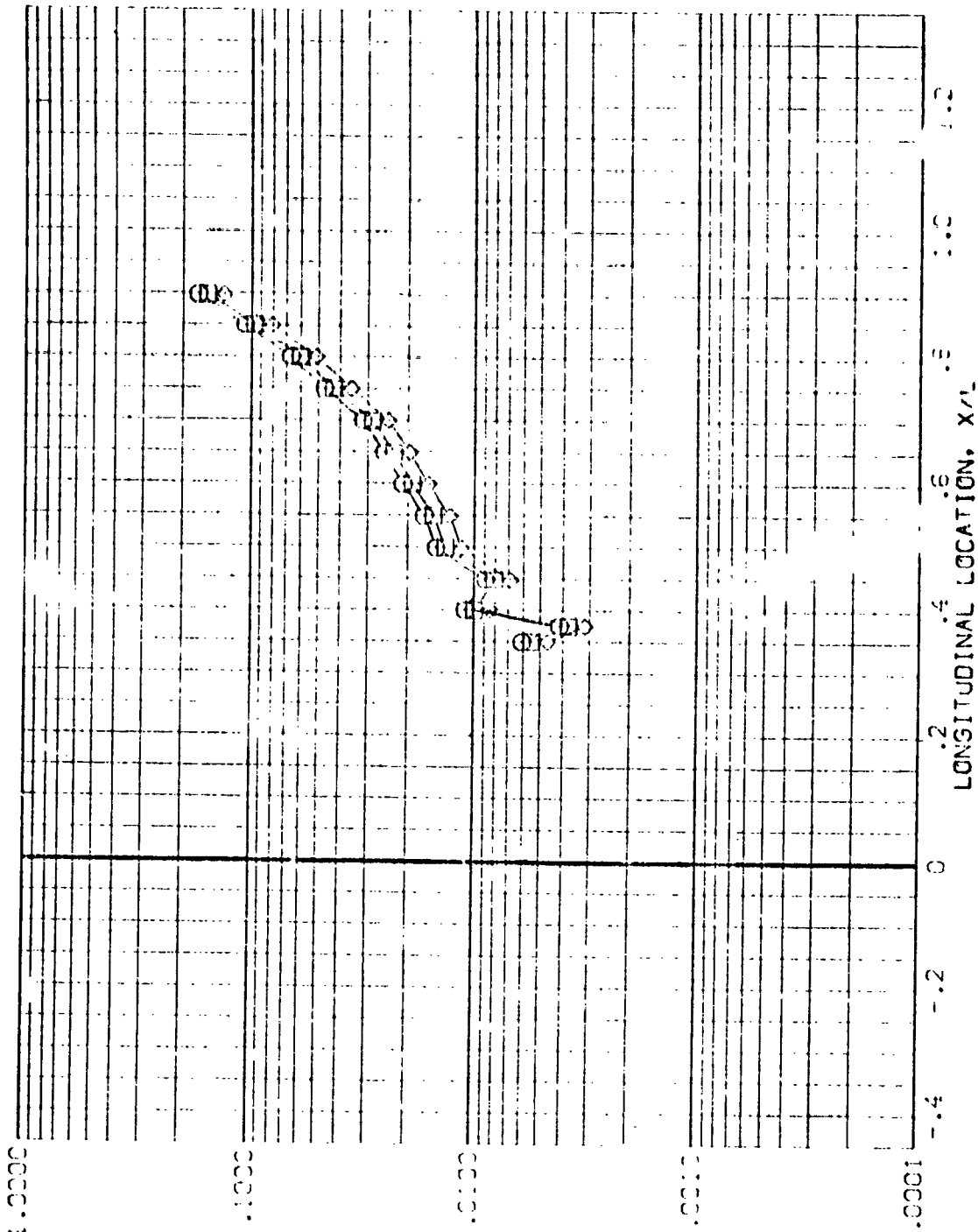


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-105 1428 014T1 EXTERNAL TANK (REV:10)

SYMBOL HEIGHT F-1 MACH  
 ◊ 1.850 157.500 5.300  
 □ 1.000 1.000 1.000

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 4.000  
 RV/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

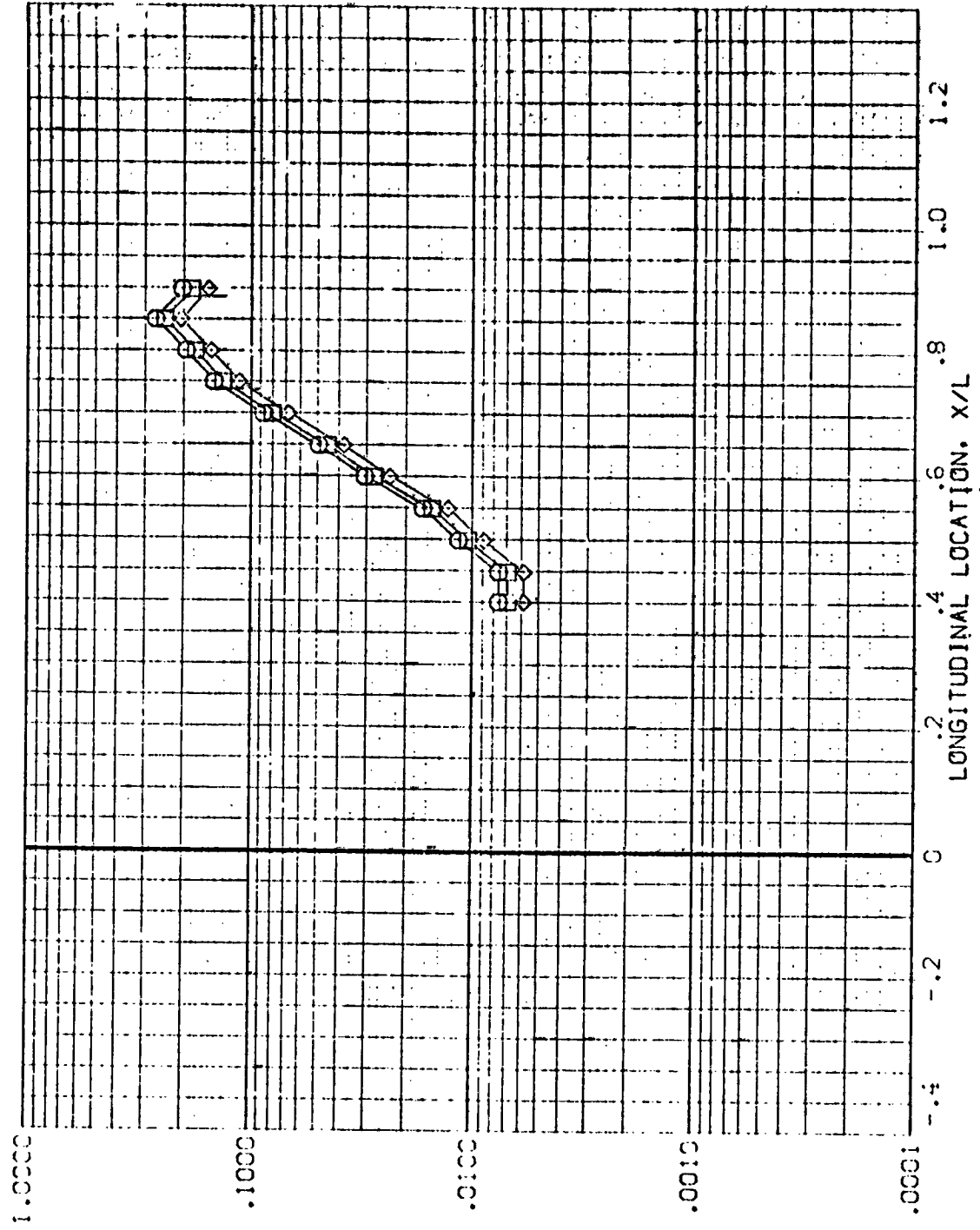


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3,5-195 IH28 01+T1 EXTERNAL TANK

(REV 10)

SYMBOL HAW/HT PHI MACH  
 □ .850 180.000 5.300  
 ◇ .900 1.000

PARAMETER VALUES  
 ALPHA 60.000  
 PN/L 1.000  
 BETA 1.000

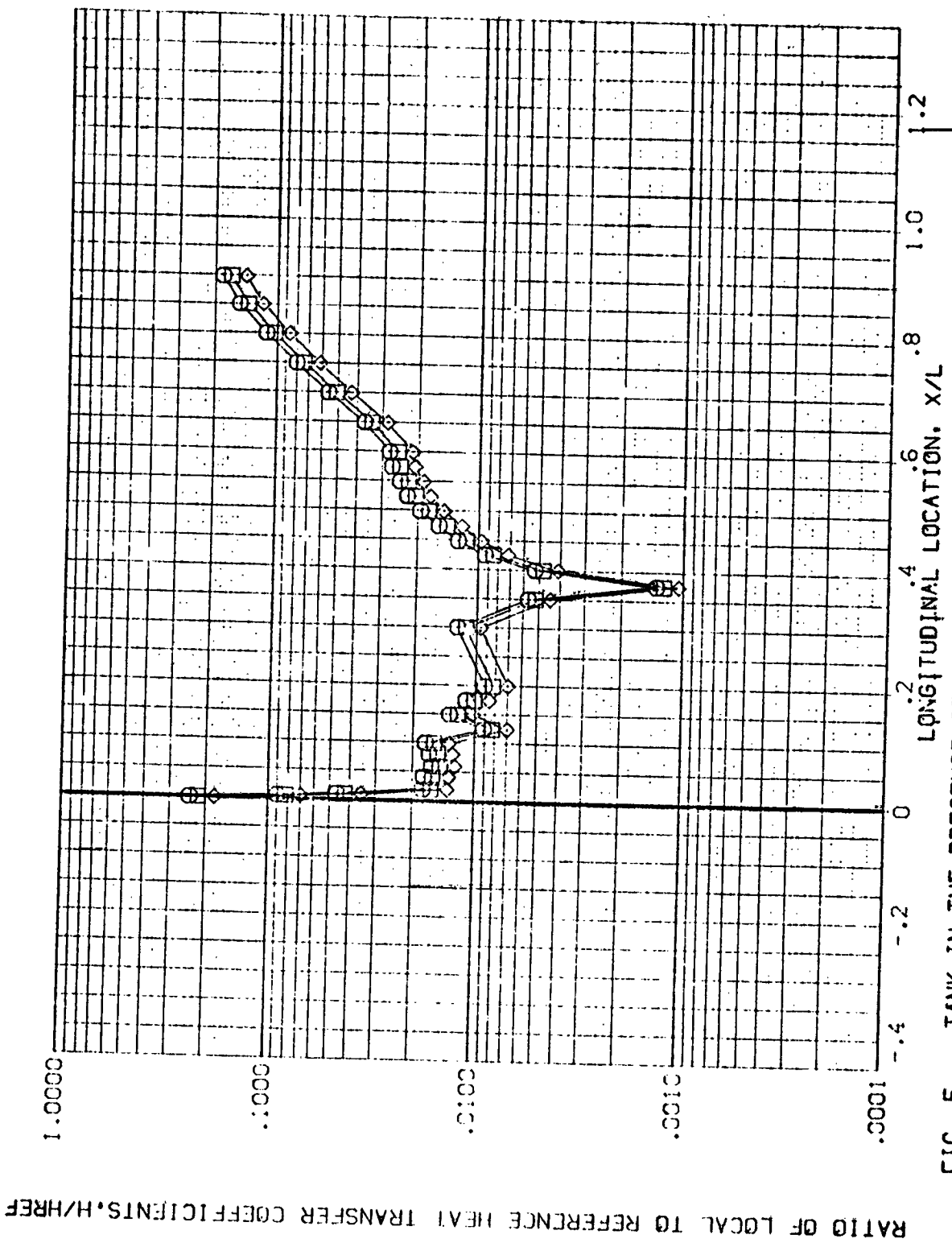


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV 11)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

PARAMETRIC VALUES  
3D.000 BETA  
4.000

ALPHA  
R/V/L

MACH  
5.300

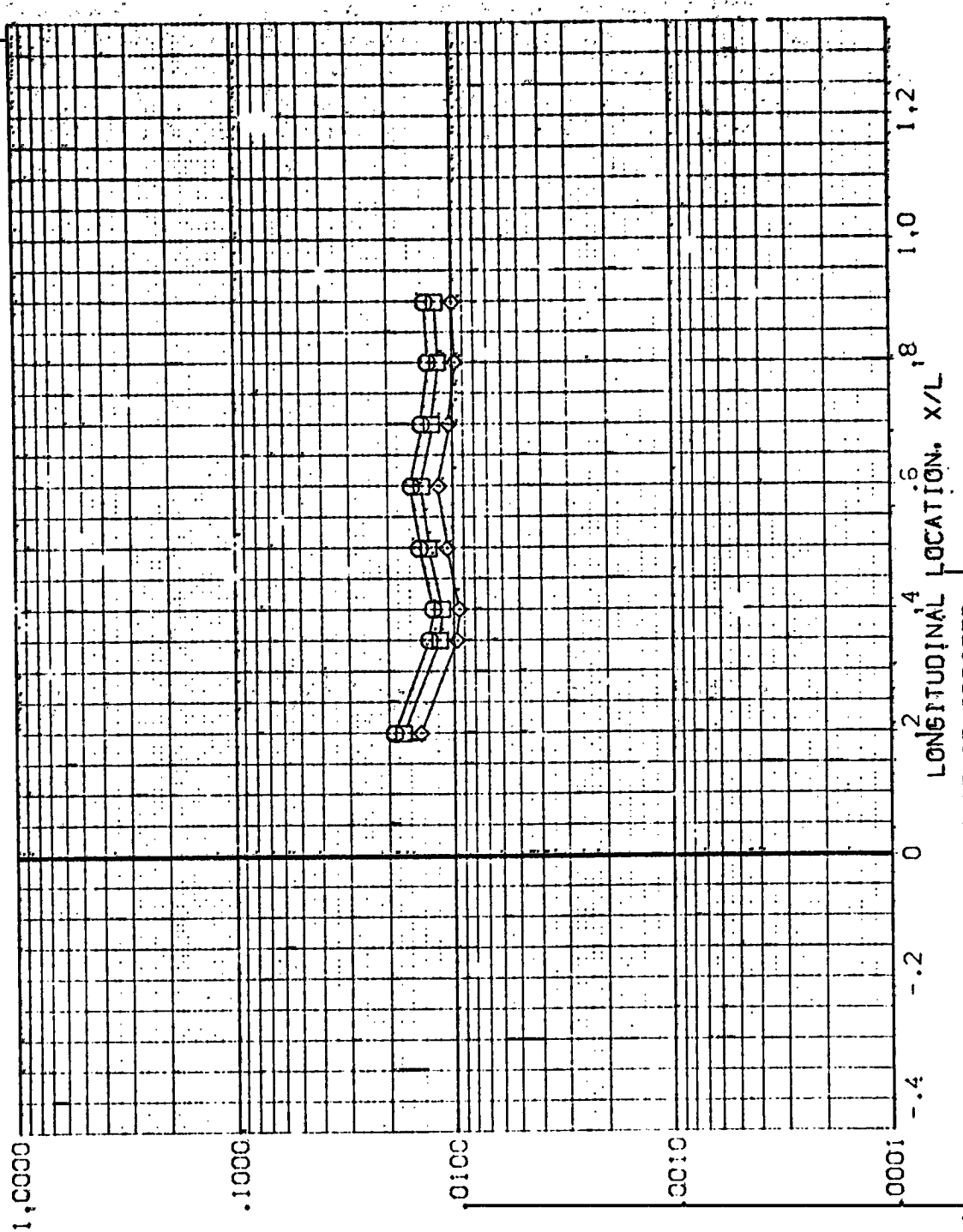
PHI  
90.000

HAW/HT  
.850

SYMBL  
◇ □ ◇

.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF



REPRODUCIBILITY OF FIG. 5 TANK, IN THE PRESENCE OF ORBITER

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AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV111)

SYMBOL  
 □  
 ◇

MAV/HT .850  
 PWI 112.500  
 MACH 5.300

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 4.000  
 RNV/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

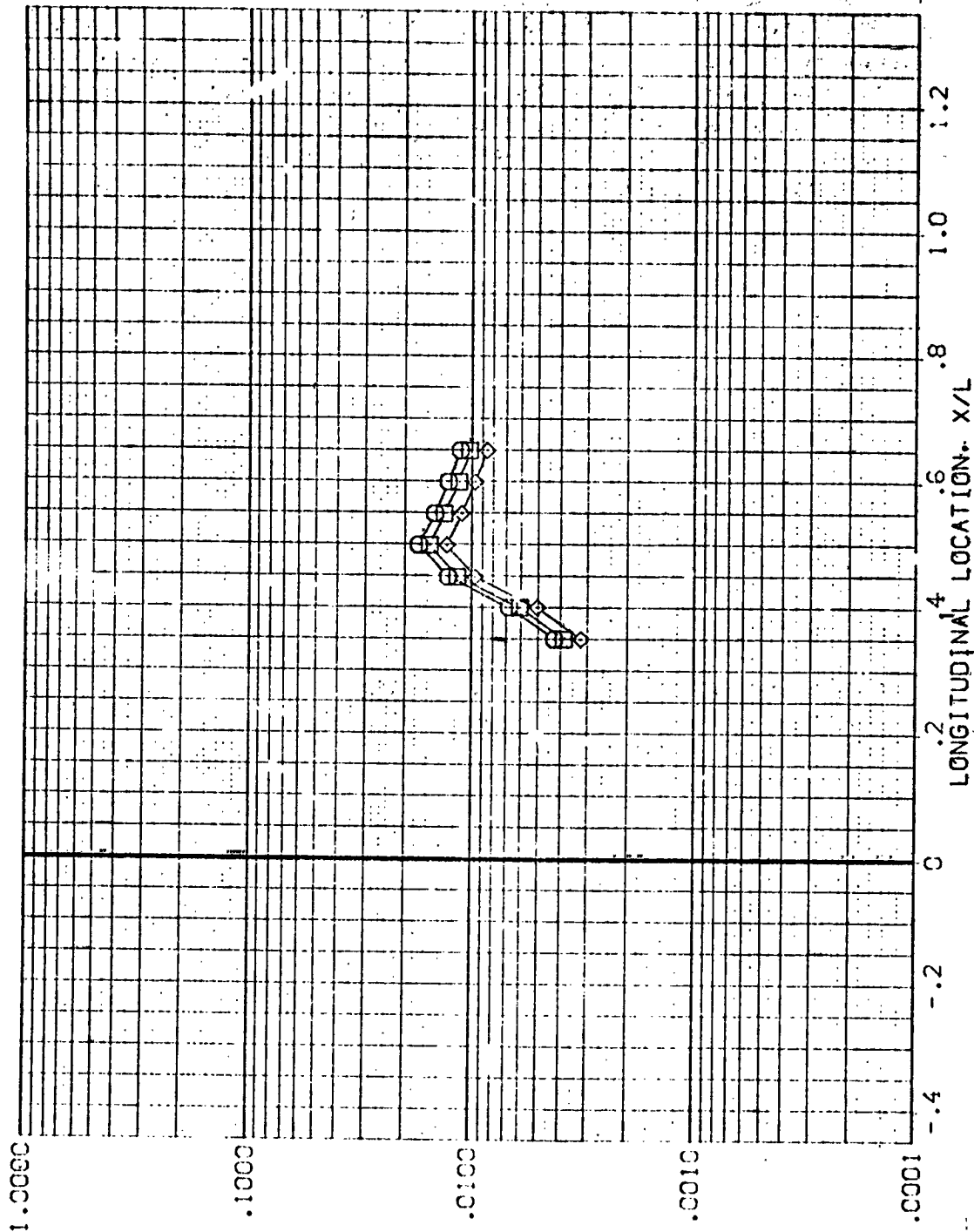


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3,5-195 01-T1 EXTERNAL TANK (REV 11)

SYMBOL MACH HT P4: MACH  
 □ .850 .35.000 5.300  
 ○ .930  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 4.300  
 FN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

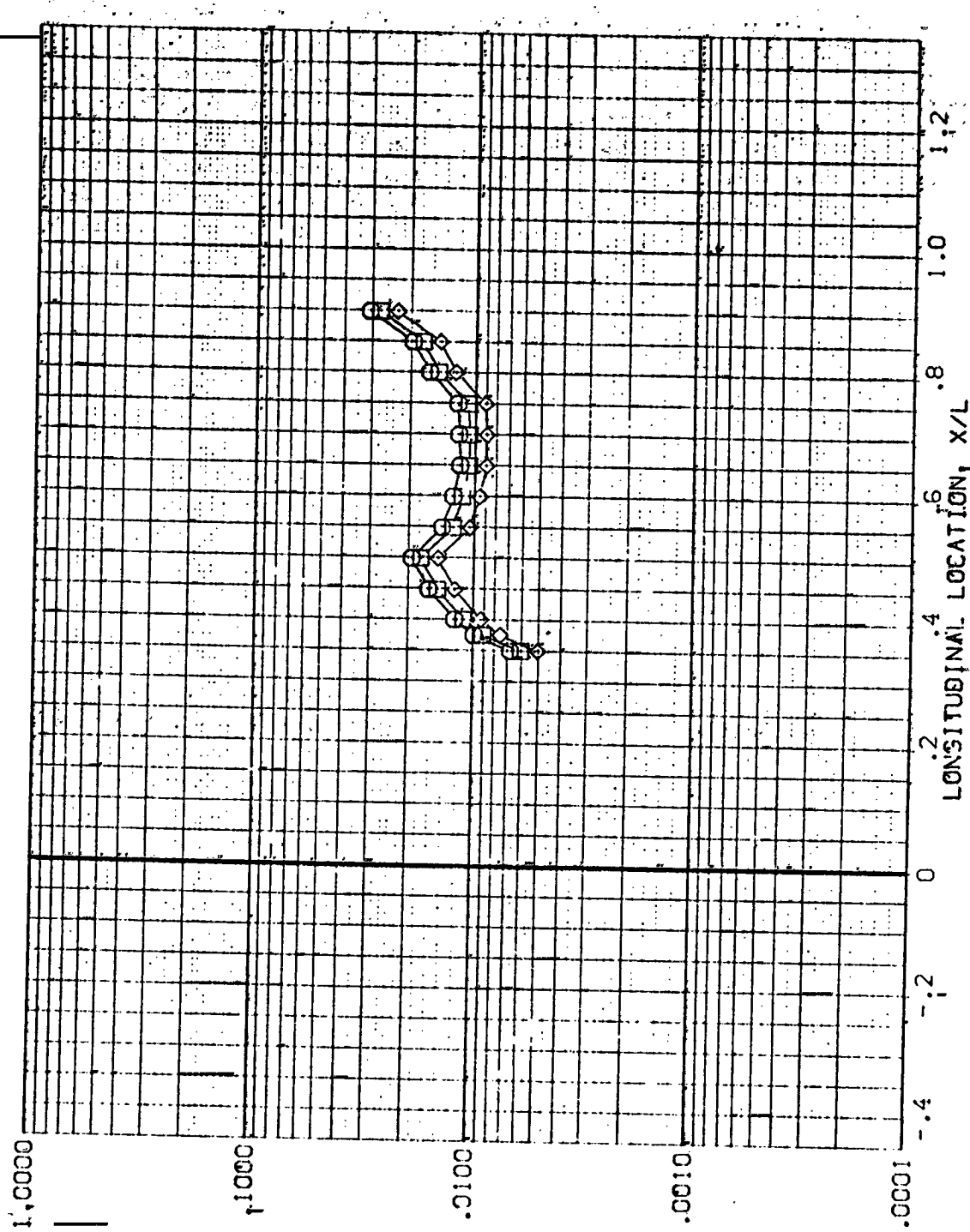


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV 111)

SYMBOL: 444/HT  
 .850  
 .900  
 1.000

PARAMETRIC VALUES:  
 ALPHA 30.000  
 BETA 4.000  
 PHI 57.500  
 MACH 5.300  
 RN/L

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

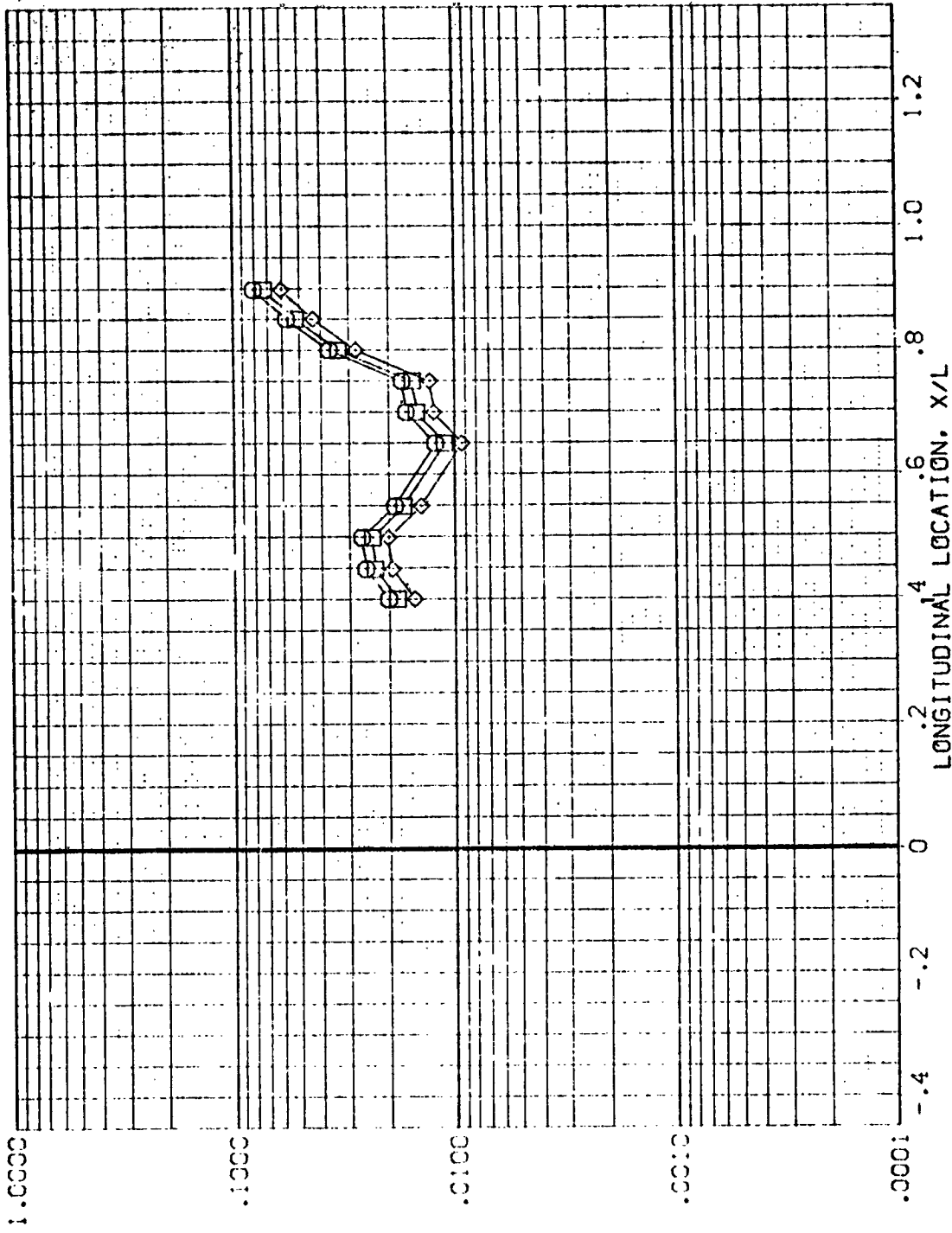


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AXES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV111)

SYMBOL:  $\square$   $\diamond$   
 HAY/LT: .850 .900 1.000  
 Pn: 190.000  
 MACH: 5.300

PARAMETRIC VALUES  
 ALPHA: RN/L  
 BETA: 33.000 4.000  
 .000

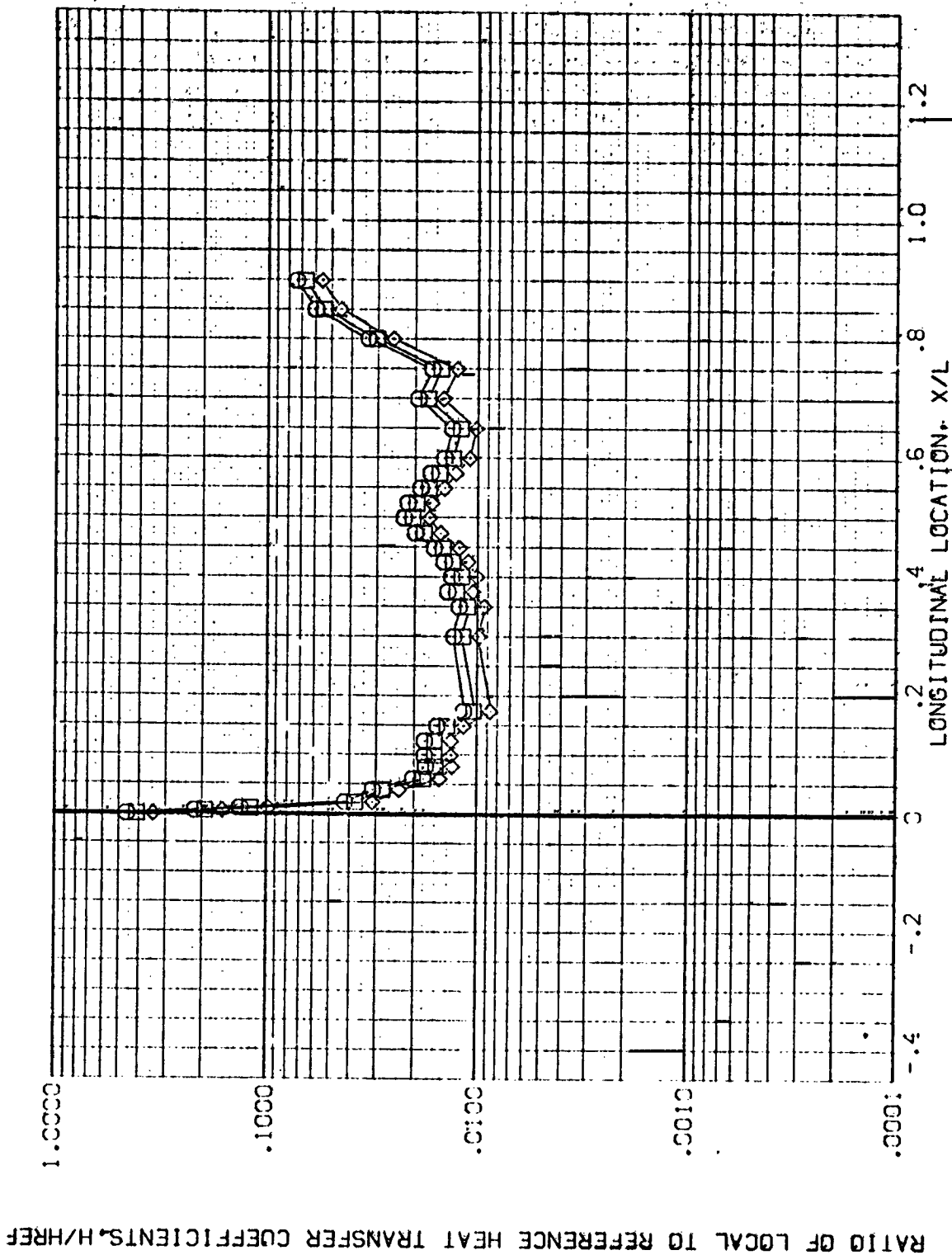


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV112)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

PARAMETRIC VALUES  
ALPHA 30.000 BETA -5.000  
RV/L 1.000

SYMBOL H/W/H/T PHI MACH  
◇ .850 90.000 5.219  
□ .900  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

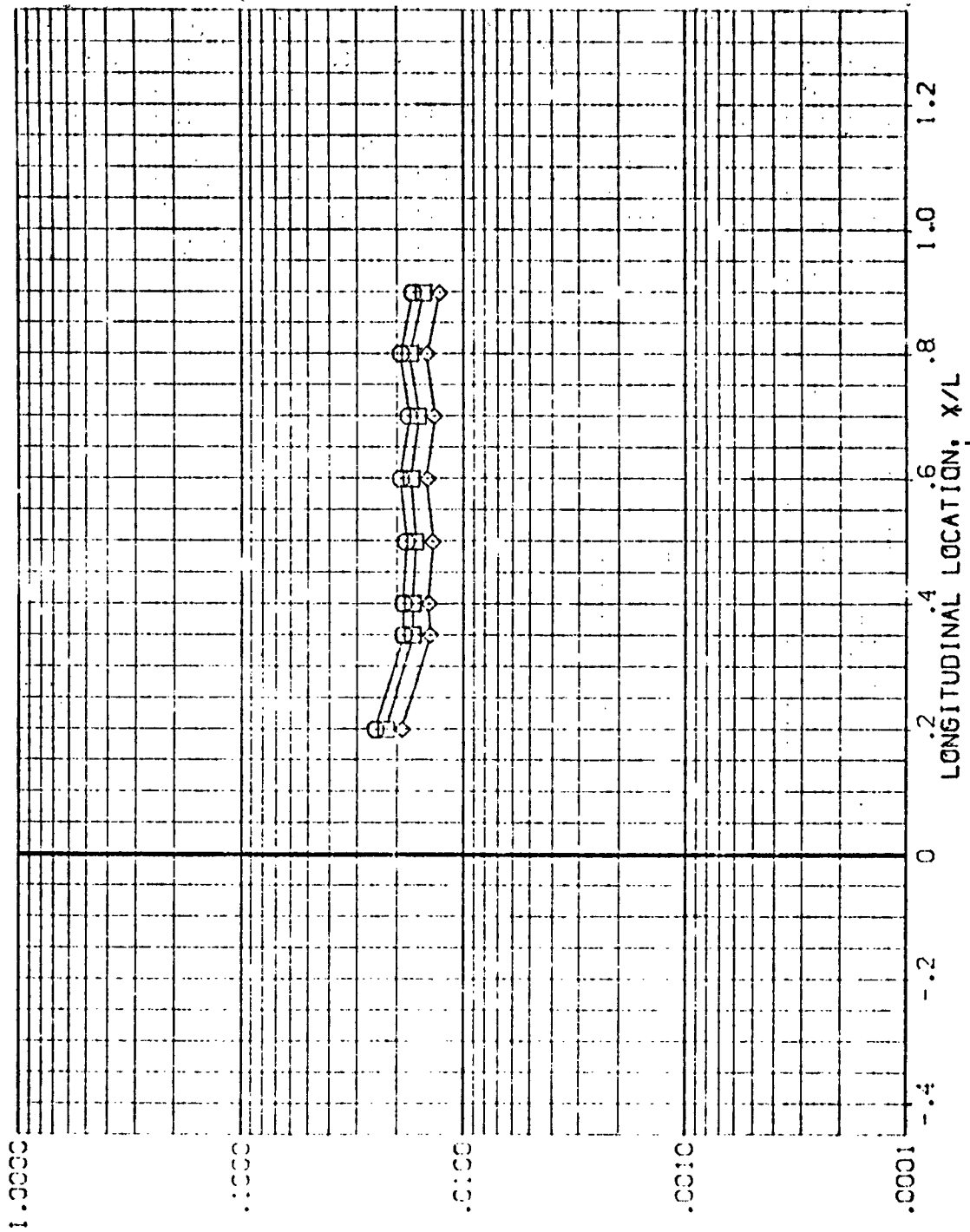


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV12)

SYMBOL: HREF/REF  
 .850  
 .200  
 1.000

PH: 112.500  
 MACH: 5.219

PARAMETRIC VALUES  
 ALPHA: 30.000  
 BETA: 1.000  
 RN/L: 15.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

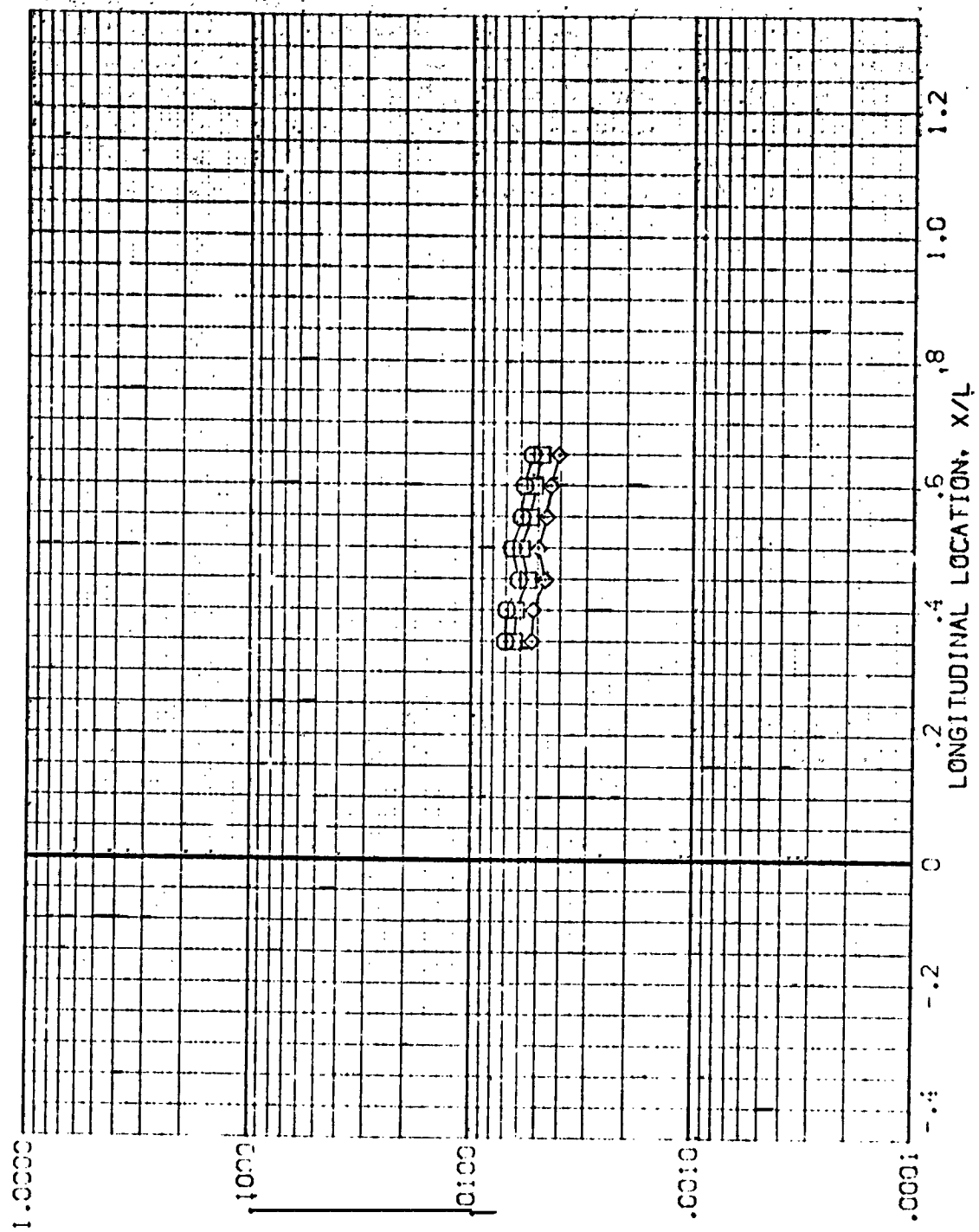


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV112)

SYMBOL:  $\square$   $\diamond$   
 HAM/HT: .850  
 PH: 135.000  
 MACH: 5.219  
 .900  
 1.000

PARAMETERS: JALLES: -5.000  
 ALPHA: 30.000  
 BETA: 1.000  
 RNV/L: 1.000

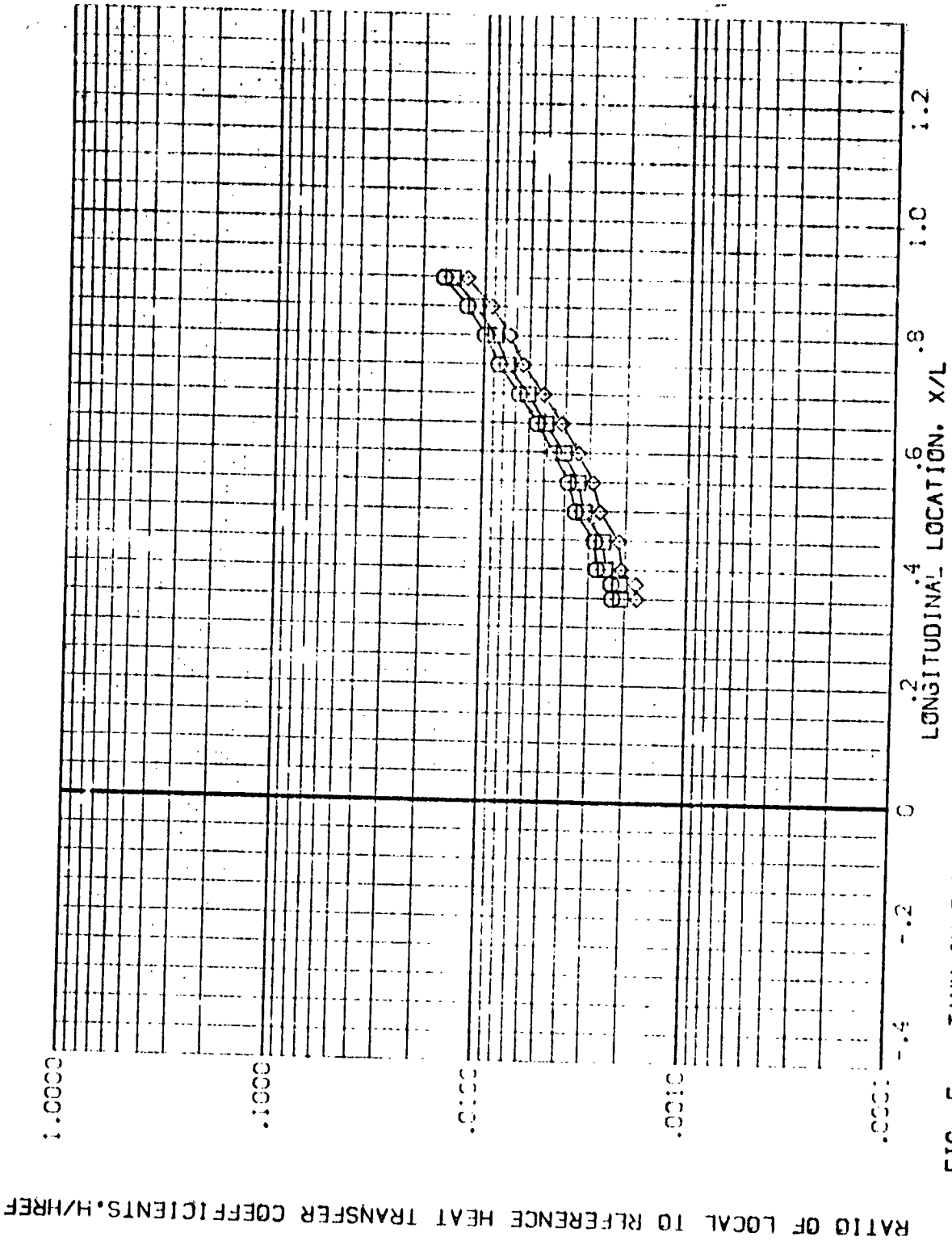


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 M28 OI+TI EXTERNAL TANK

(PEVT12)

SPEED: 1.000  
 HAW/M: 1.000  
 MACH: 5.219  
 P/L: 1.000  
 S/L: 1.000

PARAMETRIC VALUES  
 ALPHA: 30.000  
 BETA: 1.000  
 -S: 0.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

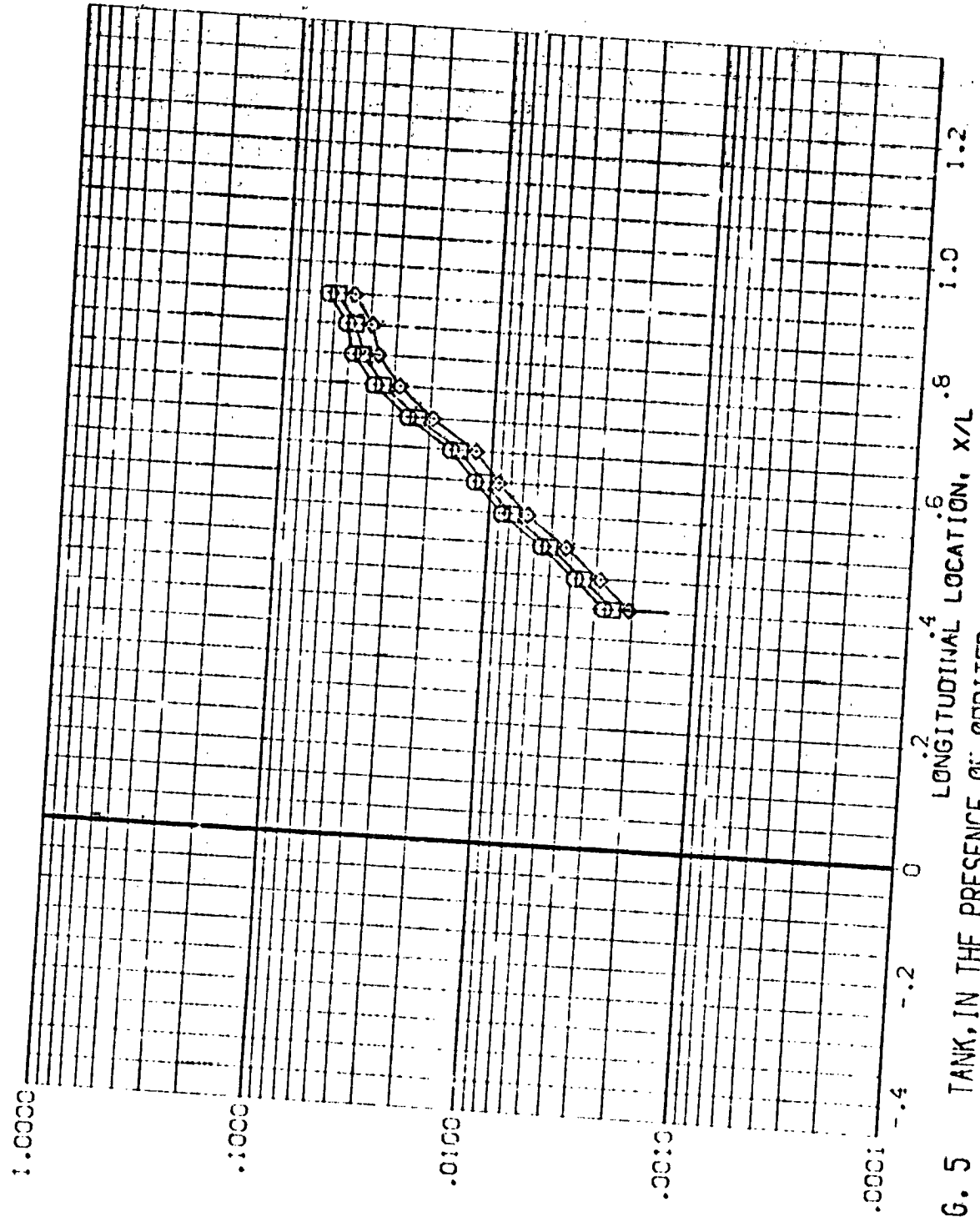


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 CI+TI EXTERNAL TANK

(REV112)

SYMS. H/W/T P-1 MACH  
 .850 .850 .850 5.219  
 .900 .900 .900  
 1.000 1.000

PARAMETRIC VALUES  
 ALPHA 20.000 BETA -5.000  
 SVL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

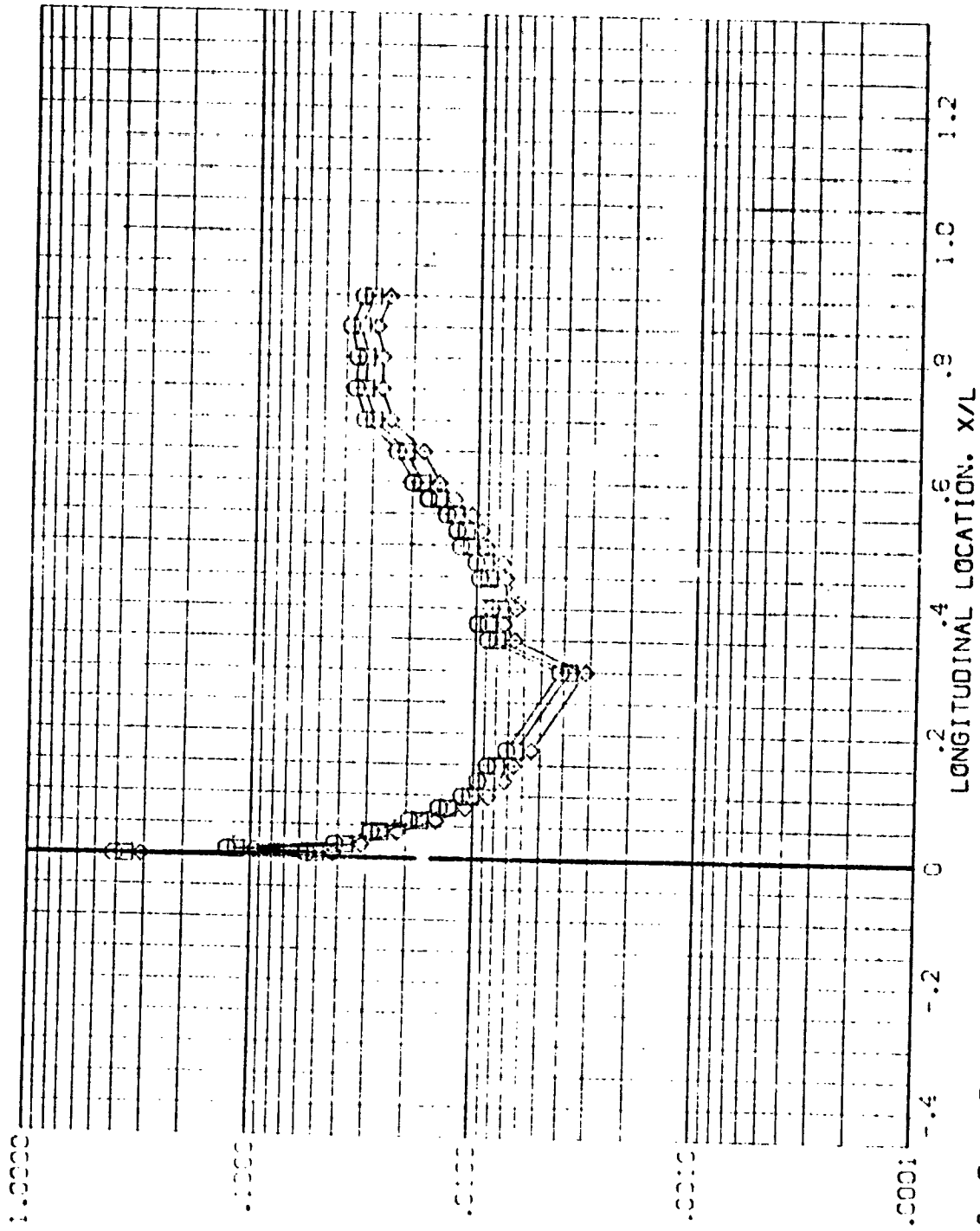


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-1:95 I-28 01+T: EXTERNAL TANK (REV TO 1)

SIMSC. HAN/M<sup>2</sup> P/L MACH  
 .650 .350 5.222  
 .900  
 1.000

PARAMETRIC VALUES  
 ALP-A .000 BETA .000  
 RM/L 1.00

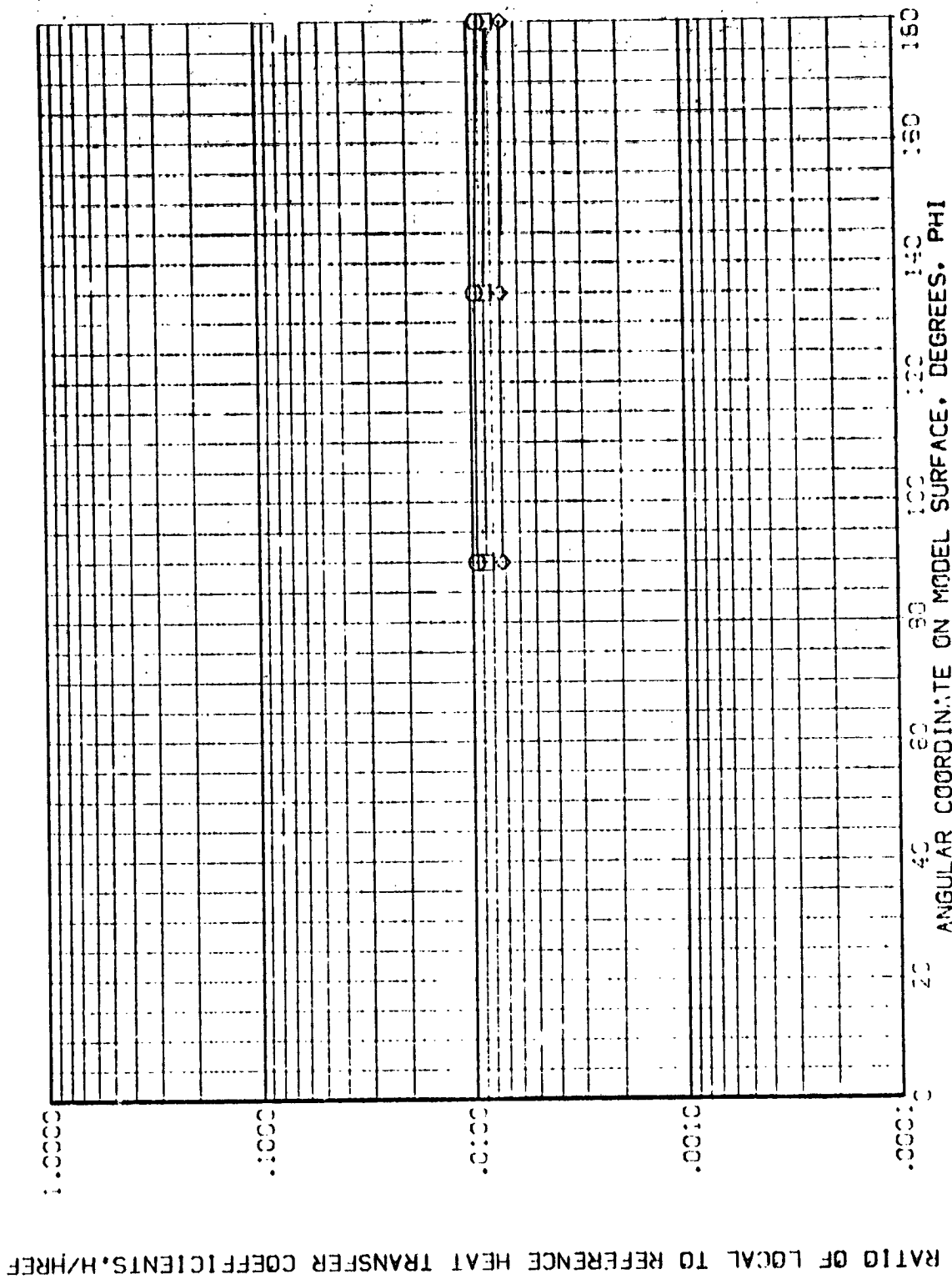


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(CONT'D)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

SYMBOL    H/W/H/T    X/L    MACH    HREF

◇        .650    .400    5.222

□        .900

○        1.000

PARAMETRIC VALUES

ALPHA    .000    BETA    .000

RV/L    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

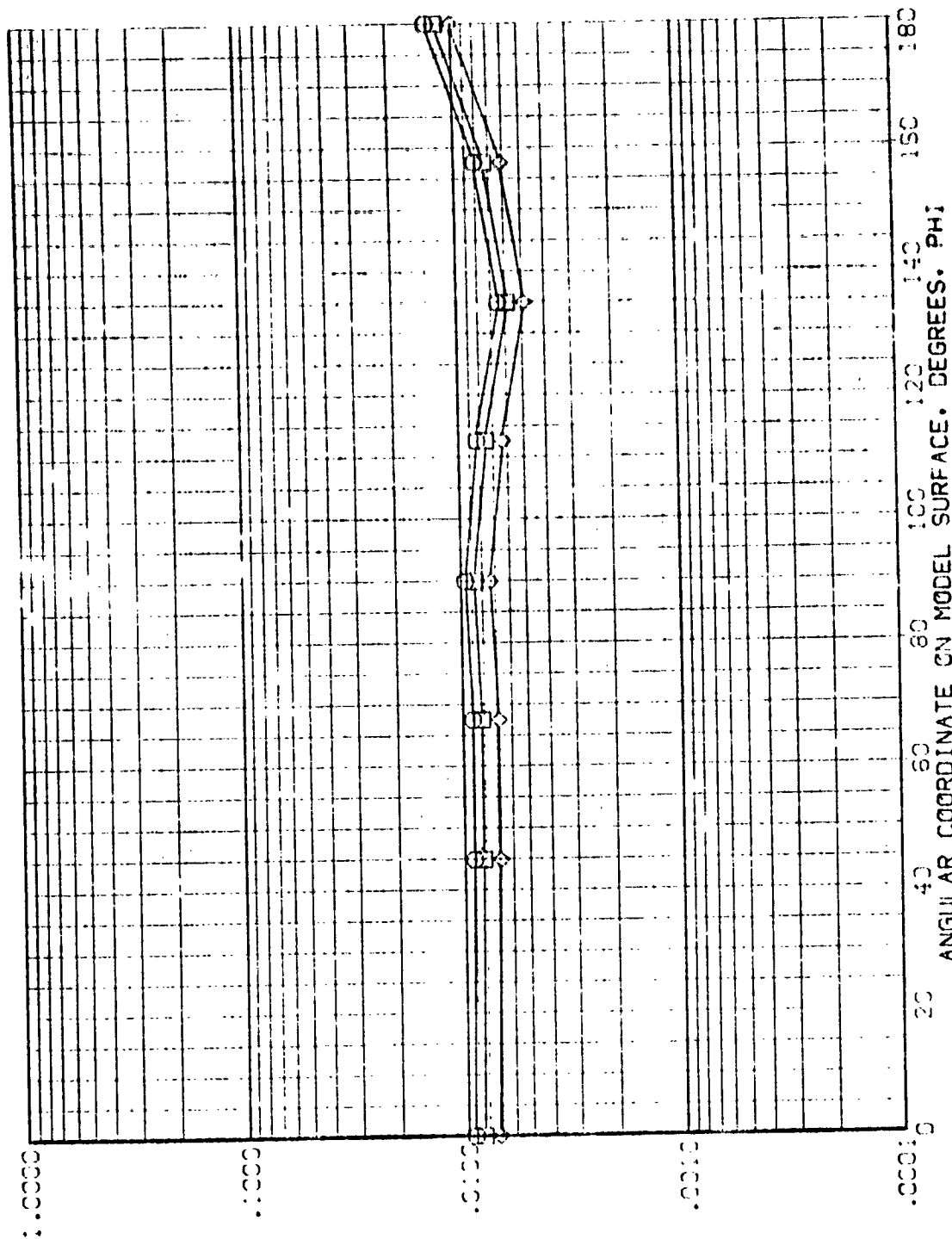


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REF: AMES RESEARCH REPORT  
 1955-10-10-100-1000

AMES 3.5-195 1428 01+T1 EXTERNAL TANK

(REV 101)

SYSEAL HAW/HT V/L YAC4  
 .850 .450 5.222  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

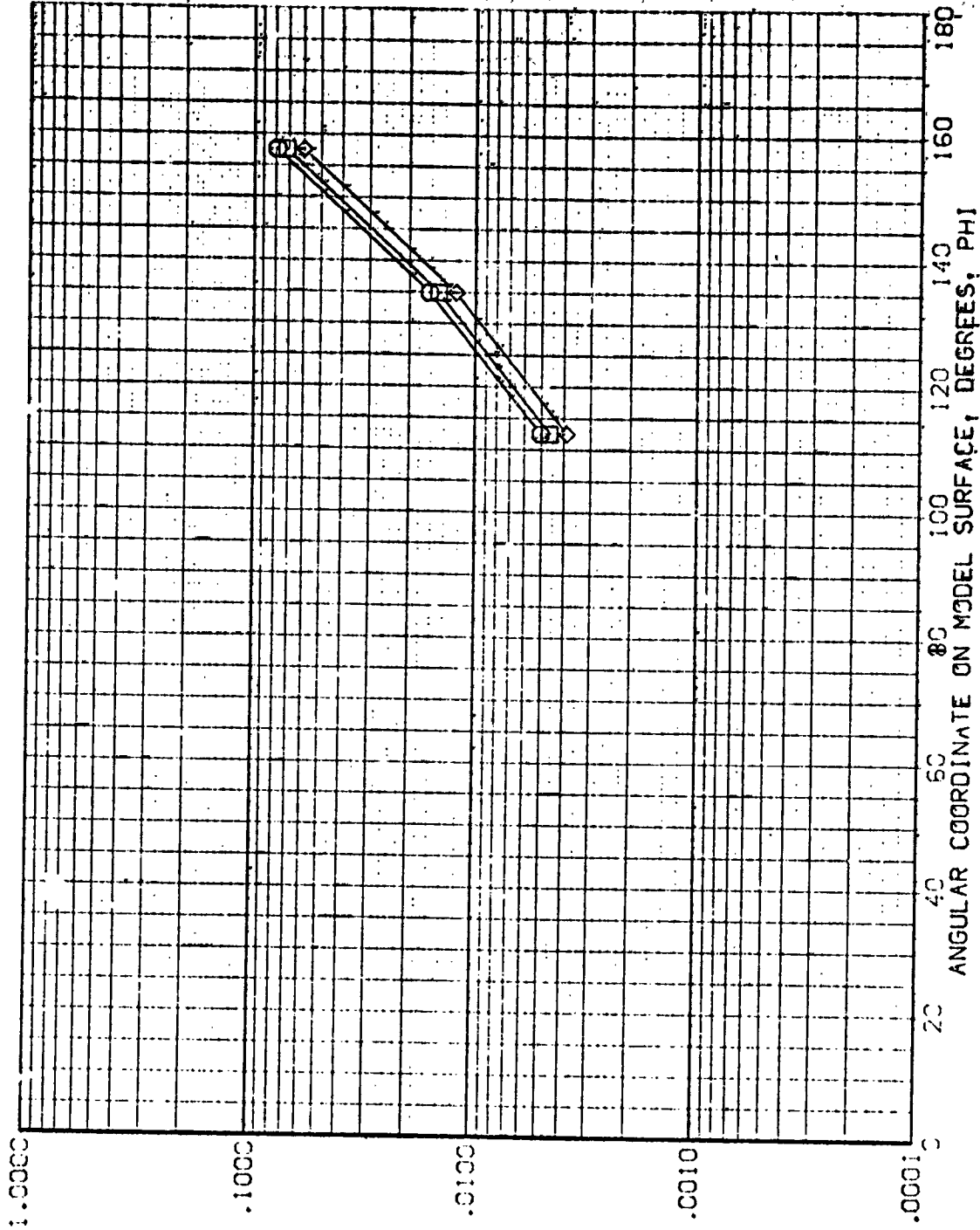


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T01)

SYMBOL  
 □  
 ◇

MAY/HT .850  
 X/L .500  
 MACH 5.222

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RV/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

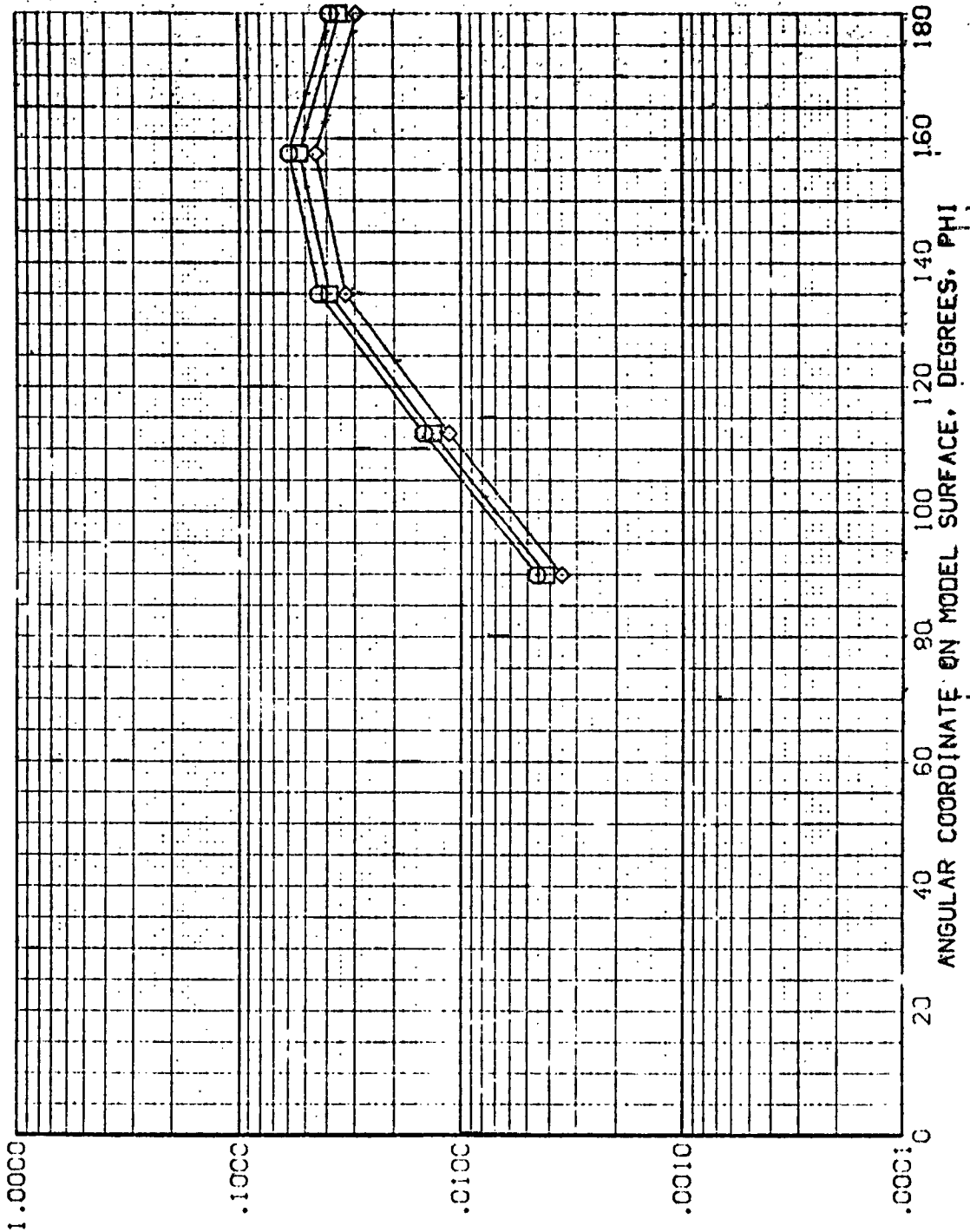


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV T01)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

SYMBOL HA/HREF X/L MACH  
□ .850 .550 5.222  
○ .900  
◇ 1.000

PARAMETRIC VALUES  
ALPHA .000  
BETA .000  
RWL 1.000

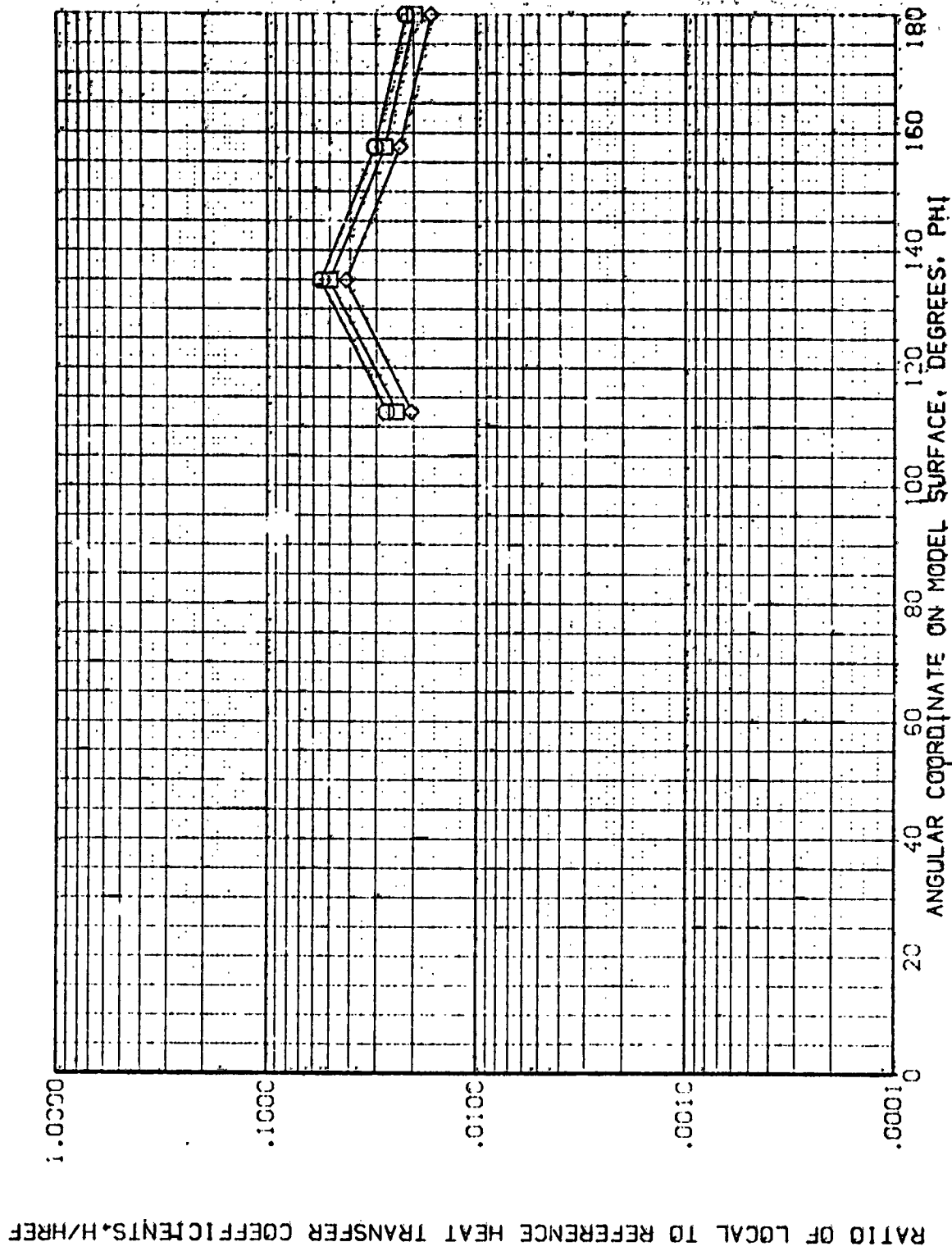


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV101)

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.30  
 MACH 5.222  
 X/L .600

SYMBOL  
 □ .850  
 ○ .900  
 ◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

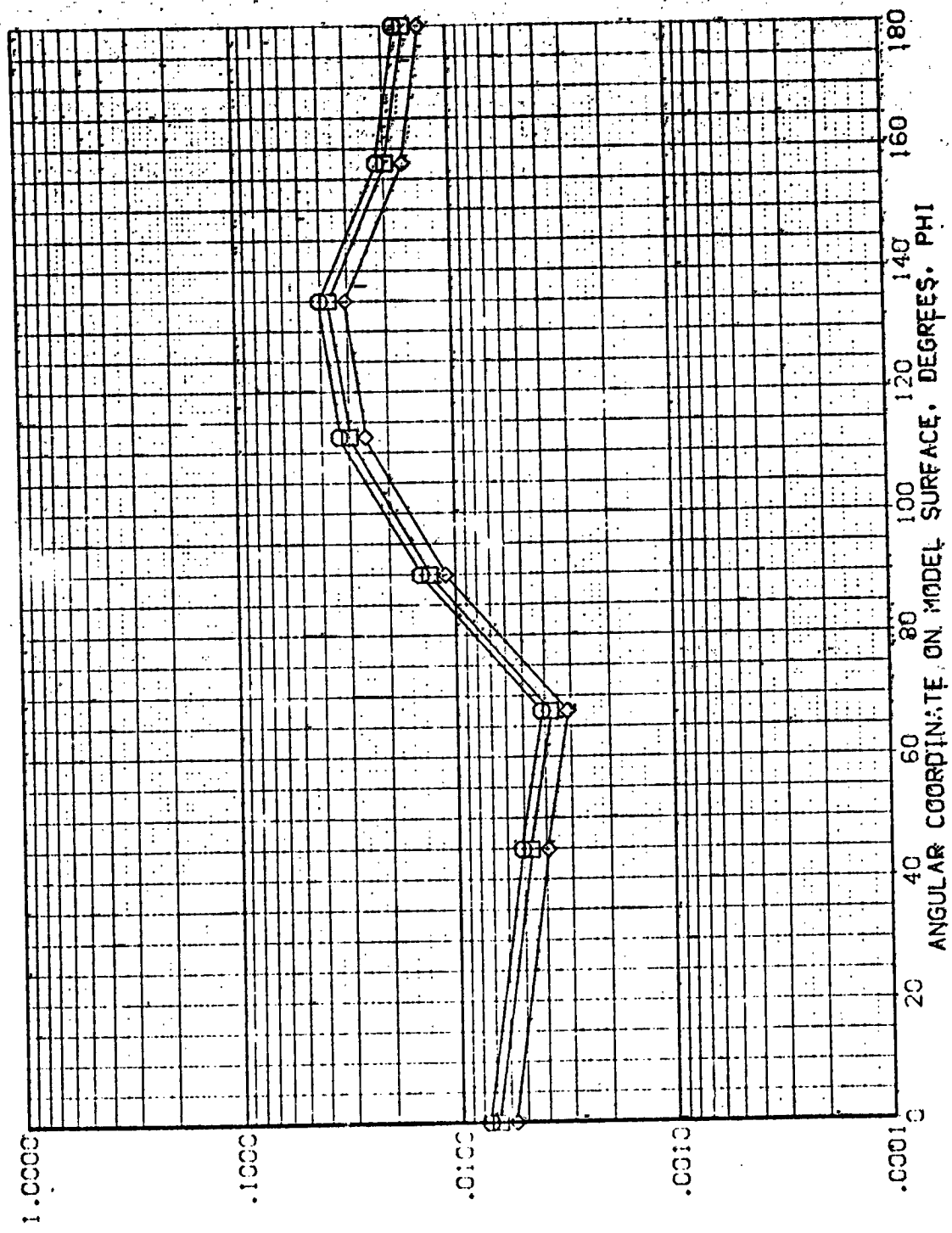


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV 101)

SYMBOL  
 □  
 ○  
 △

HAY/HT 1.850  
 X/L .650  
 MACH 5.222

PARAMETRIC VALUES  
 ALPHA RM/4  
 BETA 1.000  
 1.000  
 .000

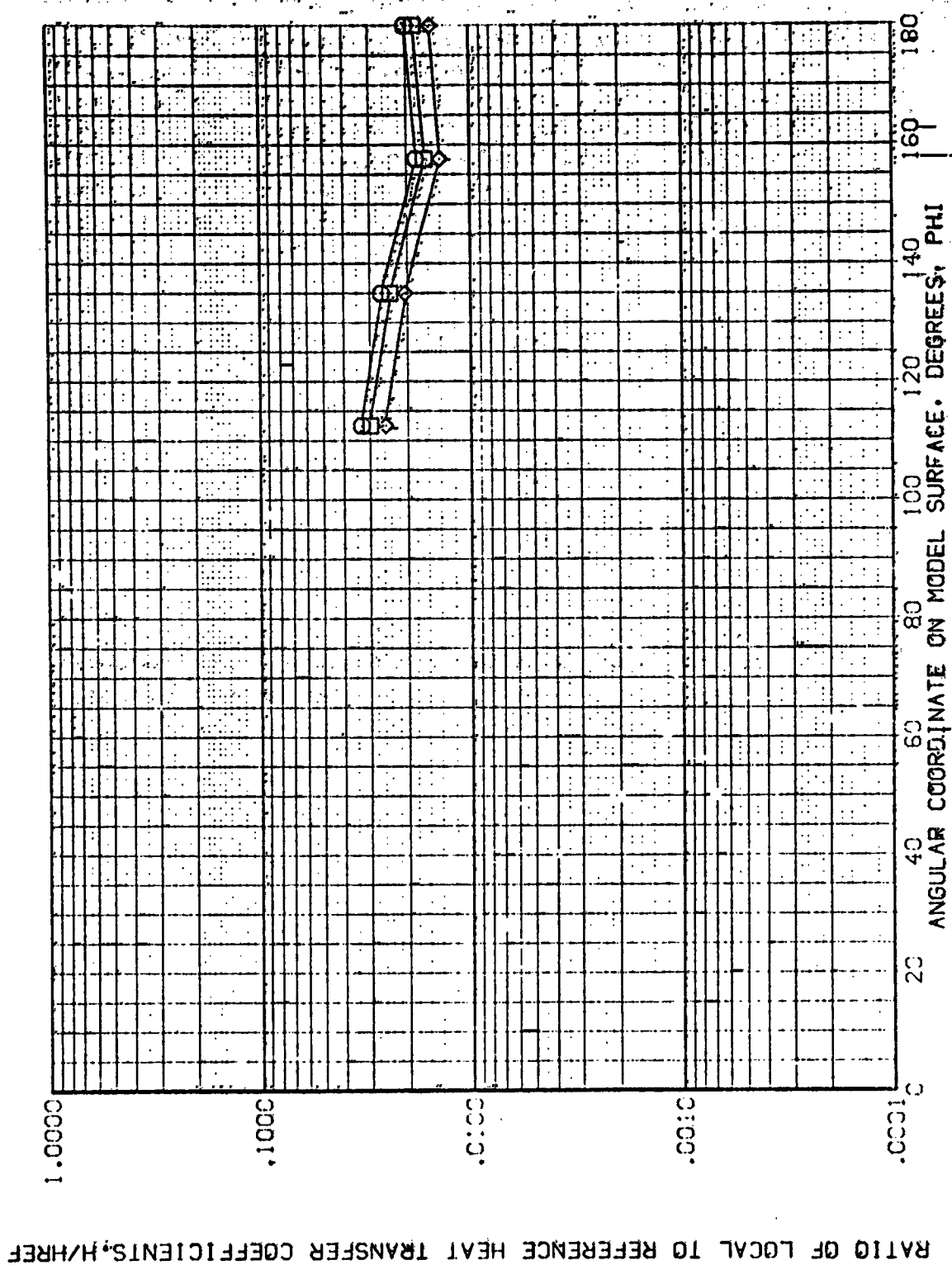


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV101)

SYMBOL HA/WHT X/L MACH  
 □ .850 .700 5.222  
 ○ .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

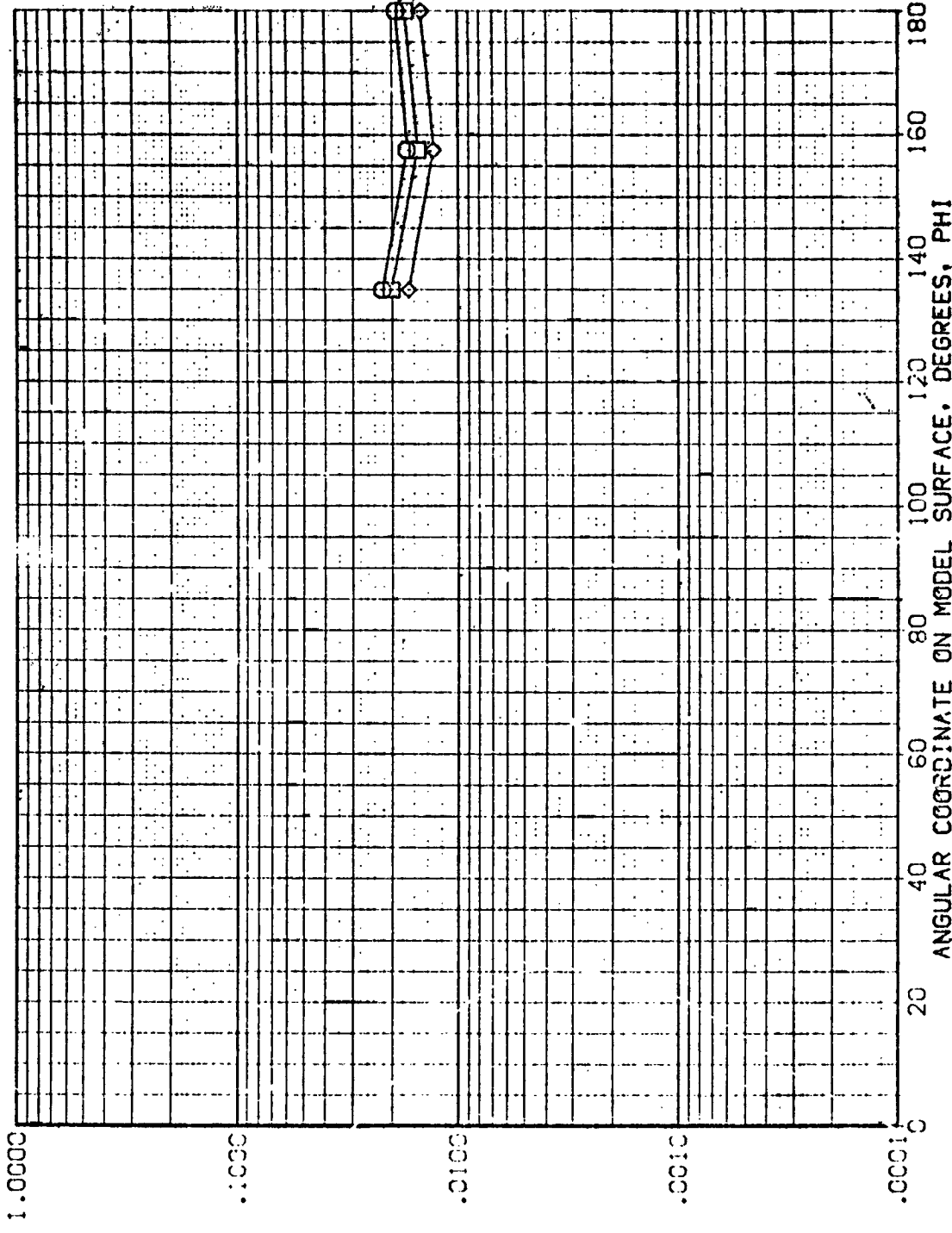


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T01)

SYMBOL    H/W/H/T    X/L    MACH  
 □        1.850     .750     5.222  
 ◇        .900  
          1.000

PARAMETRIC VALUES  
 ALPHA    .000  
 BETA     1.000  
 RMA/T    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

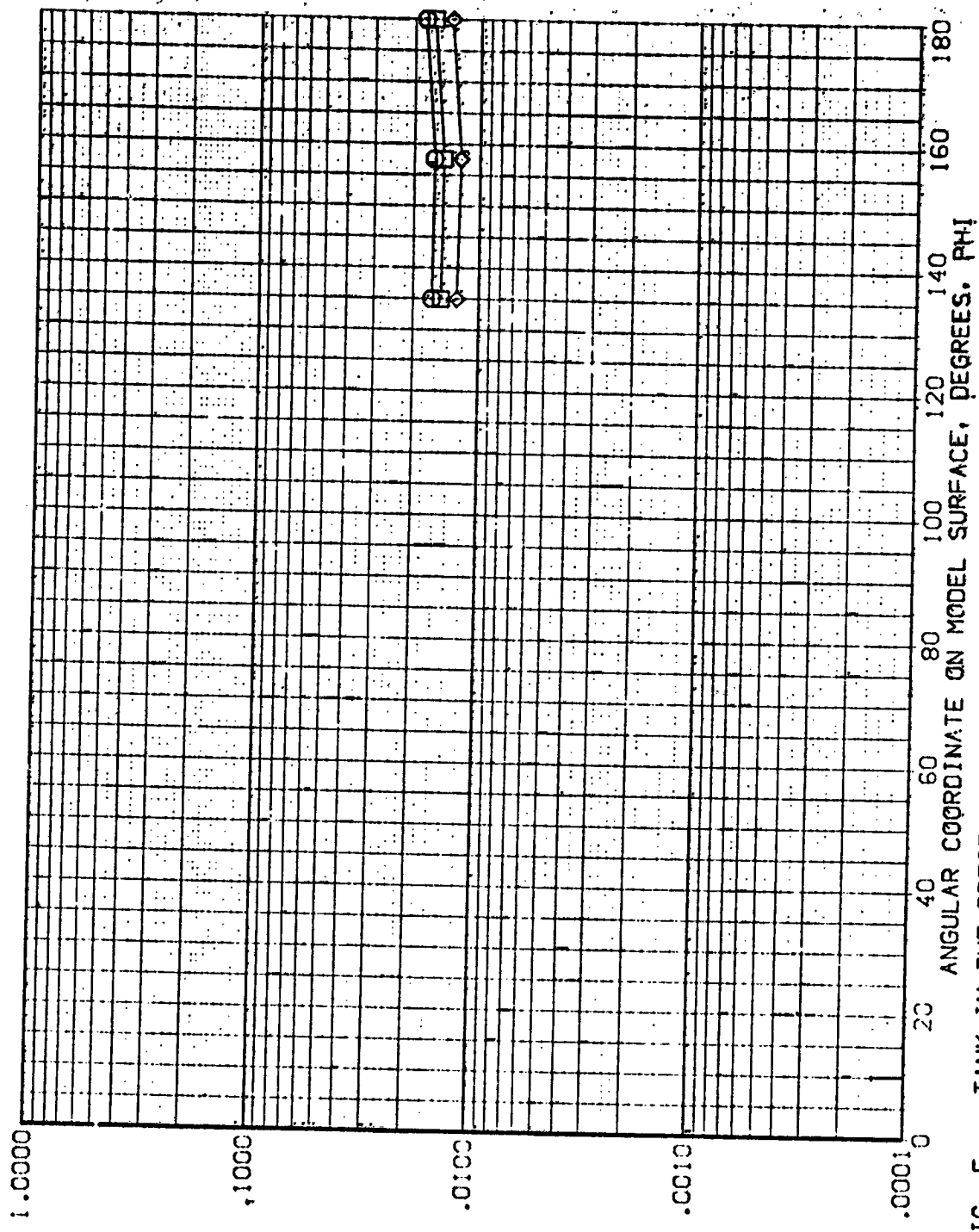


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 P1+T1 EXTERNAL TANK

(REV101)

SYMBOL    HAW/HT    X/L    MACH

□    .85C    .800    5.222

◇    .900    .900    1.000

PARAMETRIC VALUES

ALPHA    BETA

RM/L    1.000    .300

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

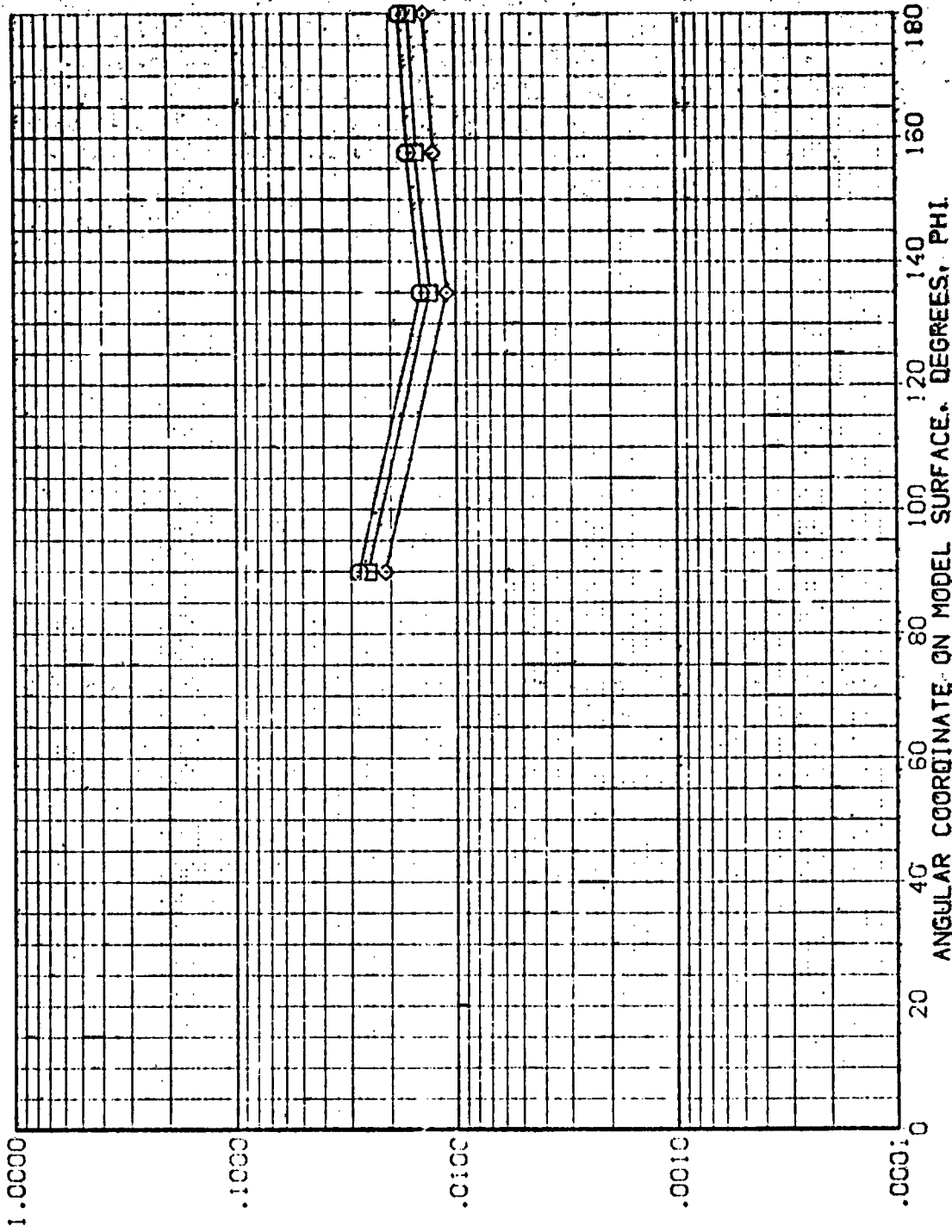


FIG. 5. TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV TO 1)

PARAMETRIC VALUES  
 ALPHA: .009  
 BETA: 1.000  
 RNL/L .000

MACH 5.222  
 X/L .850

SYMBOL HAW/H\*  
 □ .850  
 ○ .900  
 ◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

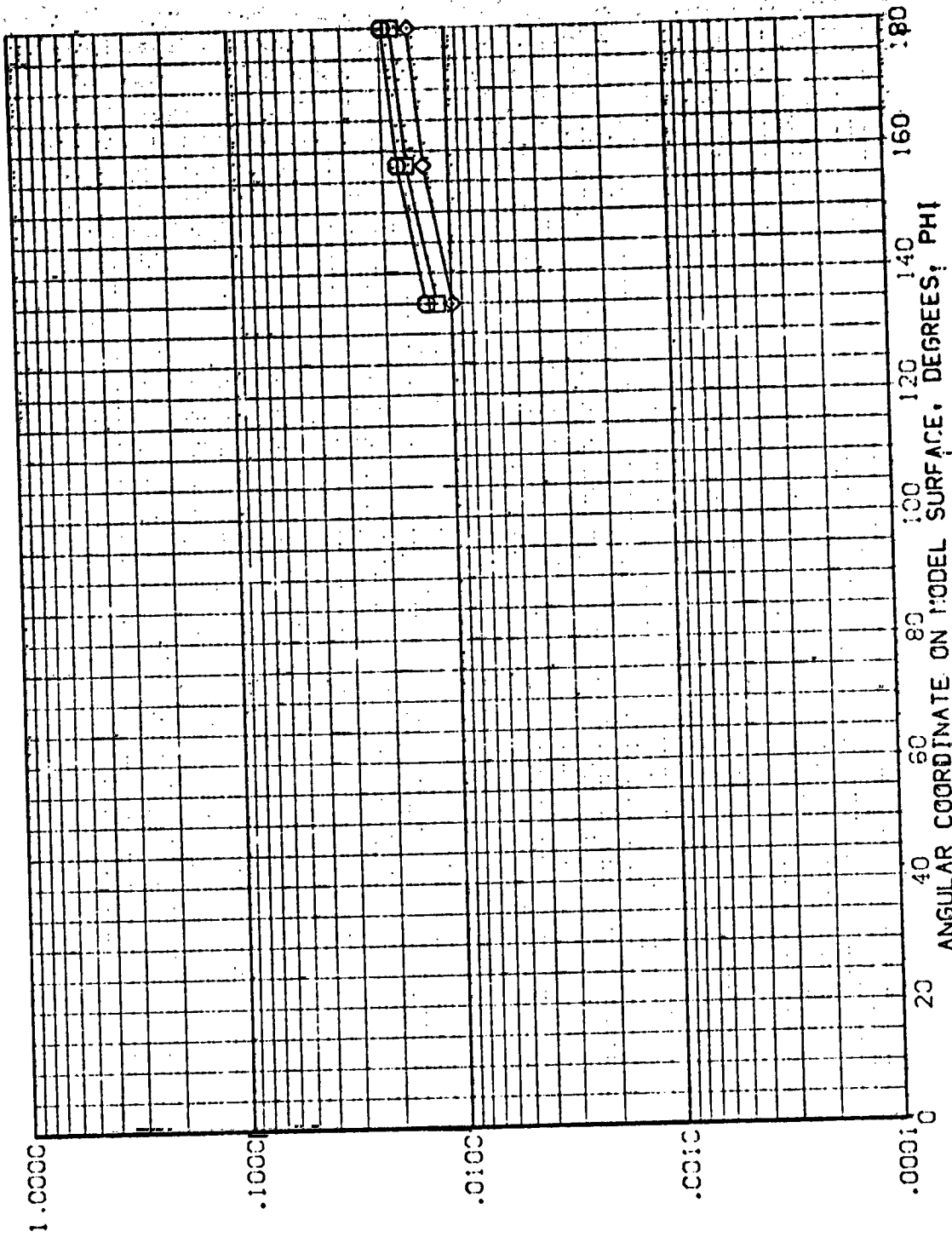


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T01)

SYMBOL	HA/W/T	X/L	MACH	ALPHA	BETA
◇	.850	.900	5.222	.000	.000
□	.900			1.000	
◇	1.000				

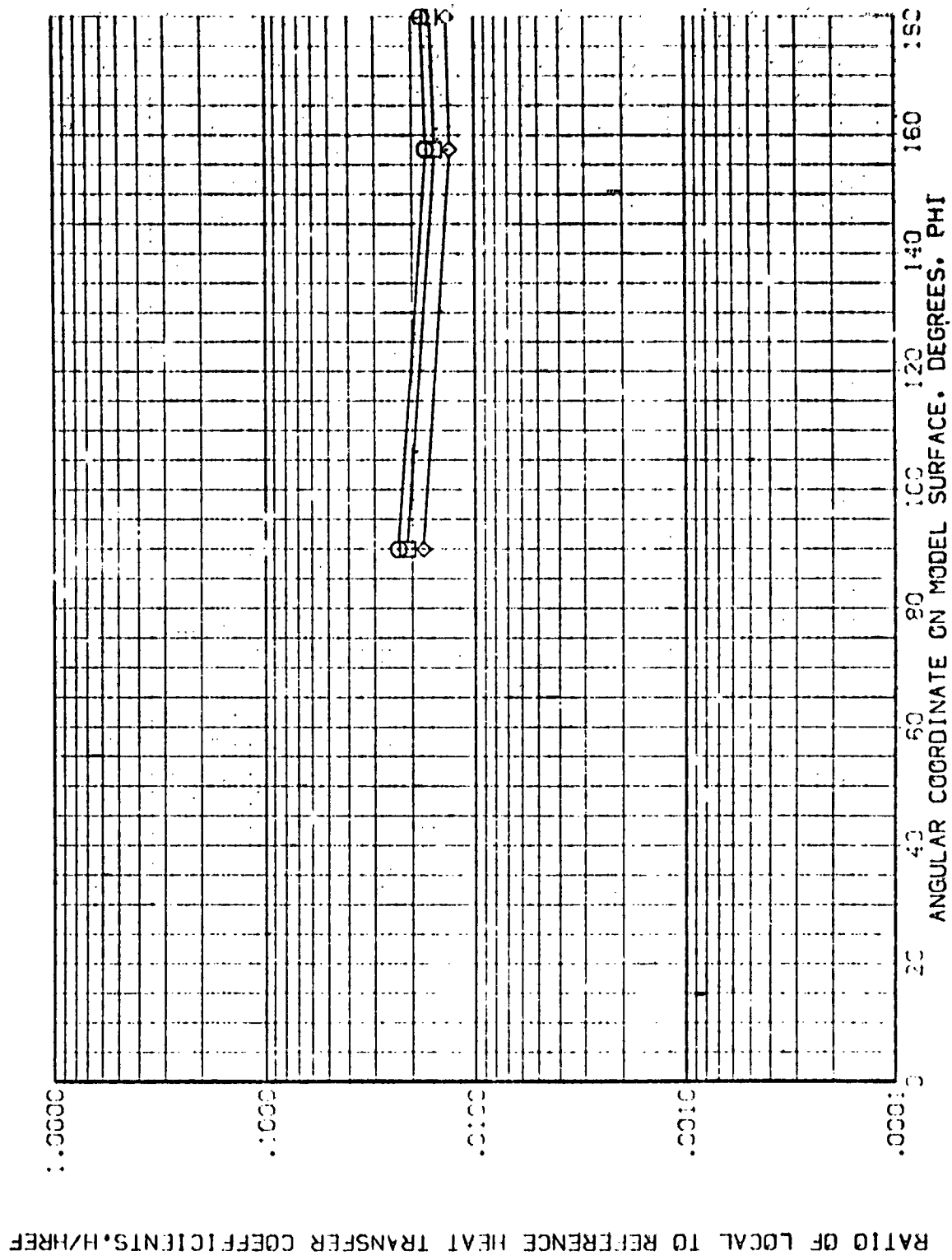


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 I429 01+T1 EXTERNAL TANK (REV T02)

S<sub>REF</sub>    HREF/HT    X/L    MACH  
 1.000    .850    .350    5.220  
 .900  
 1.000

PARAMETRIC VALUES:  
 3D.CCD    9EYA  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

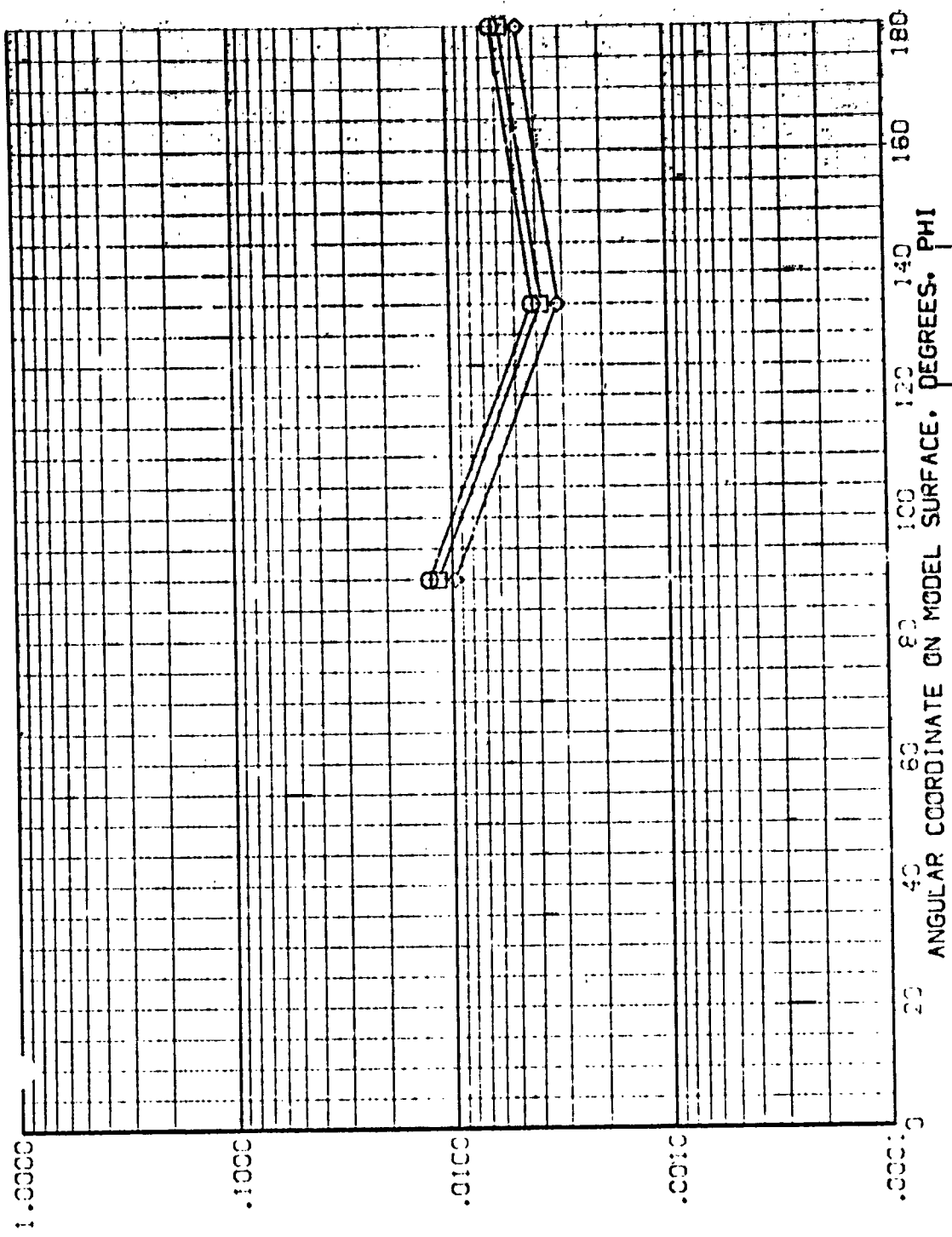


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV 102)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

SYMBOL	MAW/T	X/L	MACH	PARAMETRIC VALUES
◇ □	.850	.400	5.220	30.000 SETA .000
	.900			1.000
	1.000			

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

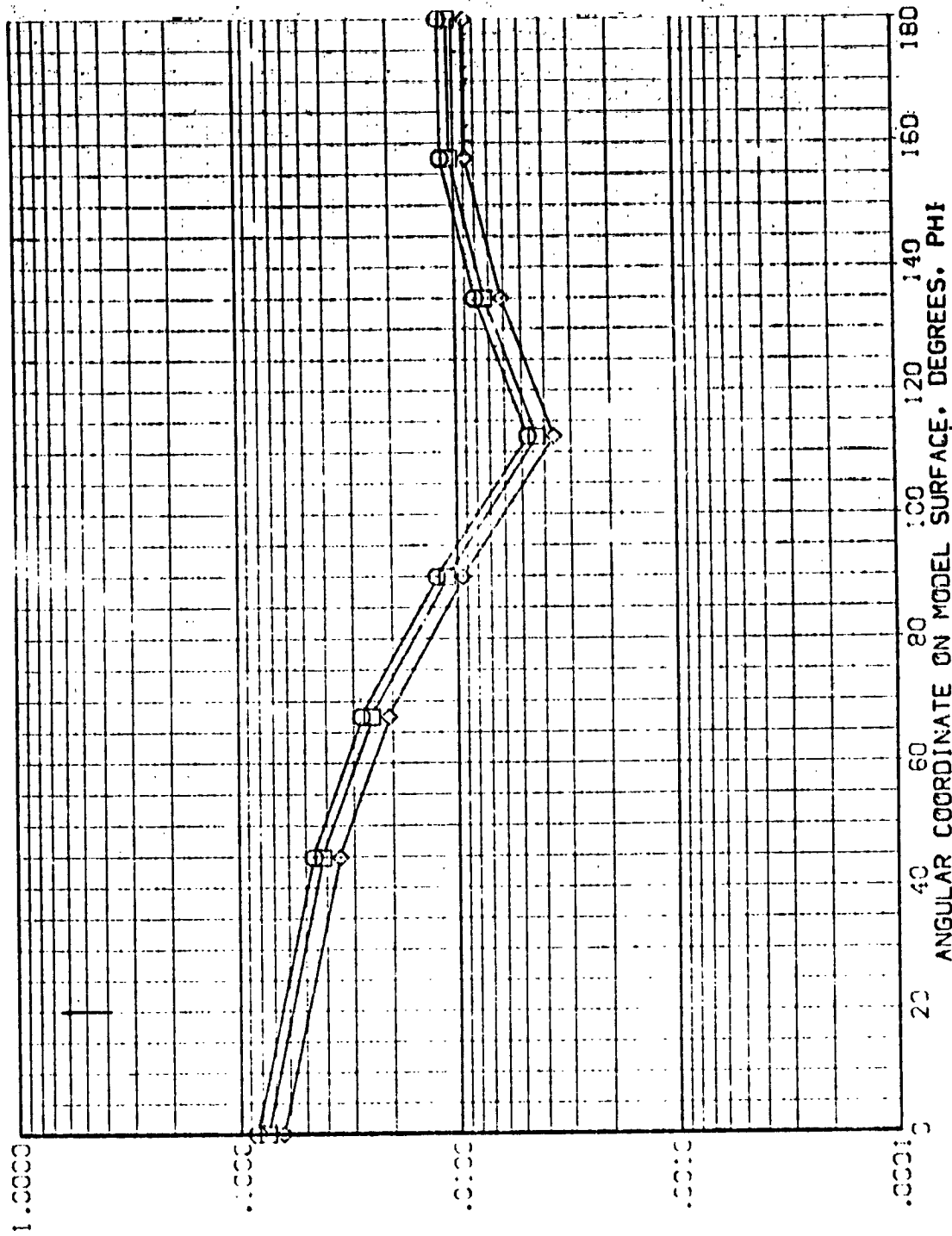


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REF: JOURNAL OF SPACE  
ORBITAL PAGE IS 188

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV702)

SYMBOL:  $\diamond$   $\square$   
 H/REF: 1850  
 H/REF: 900  
 H/REF: 1.000

PARAMETRIC VALUES:  
 ALP-A: PNYL  
 BETA: .000  
 PNYL: 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

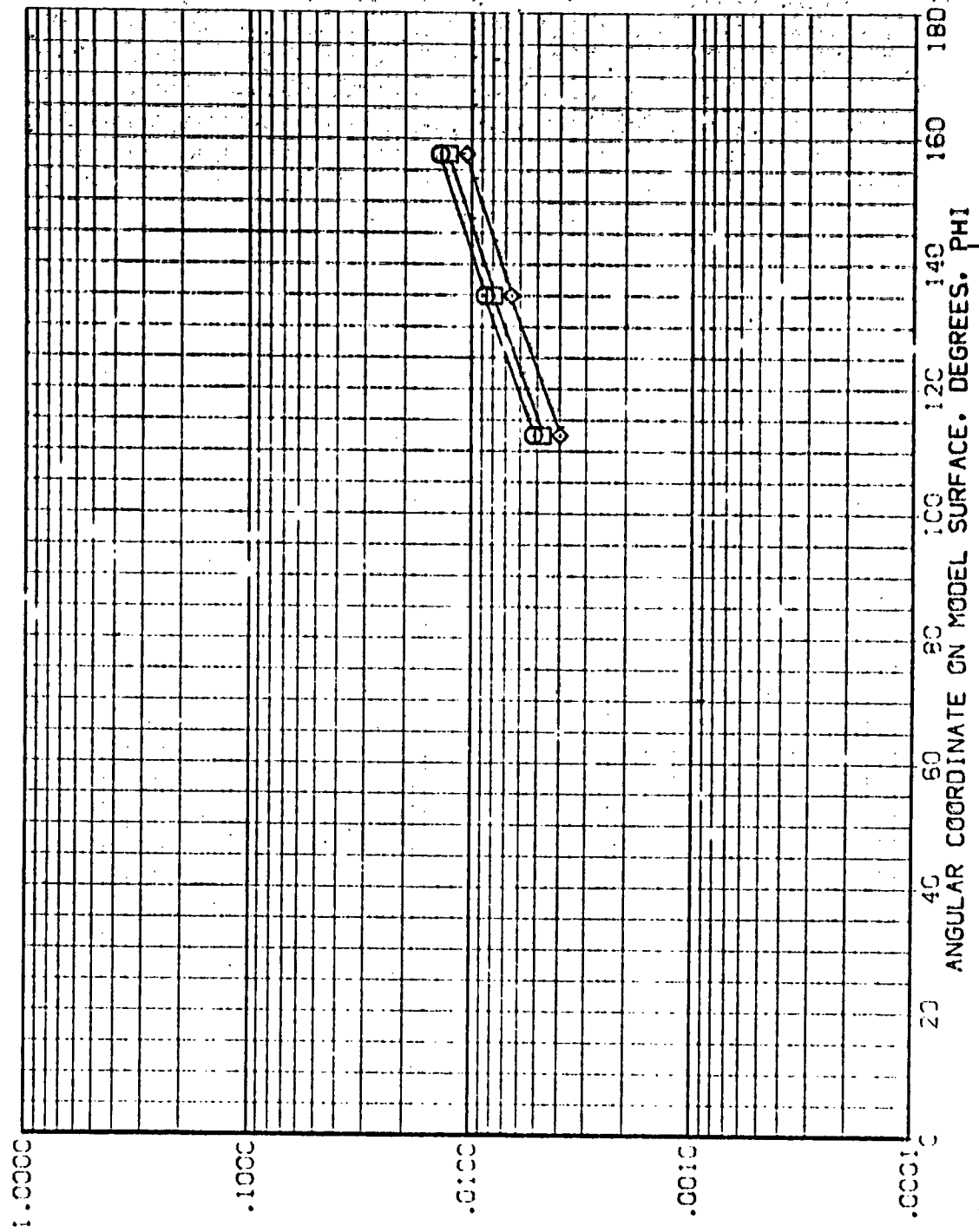


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 G1+T1 EXTERNAL TANK (REV102)

SYMBOL HAW/HT K/L MACH  
◇ .850 .500 5.220  
○ .900  
□ 1.000

PARAMETRIC VALUES  
ALPHA 30.000  
P/W/L 1.000  
ETA .000

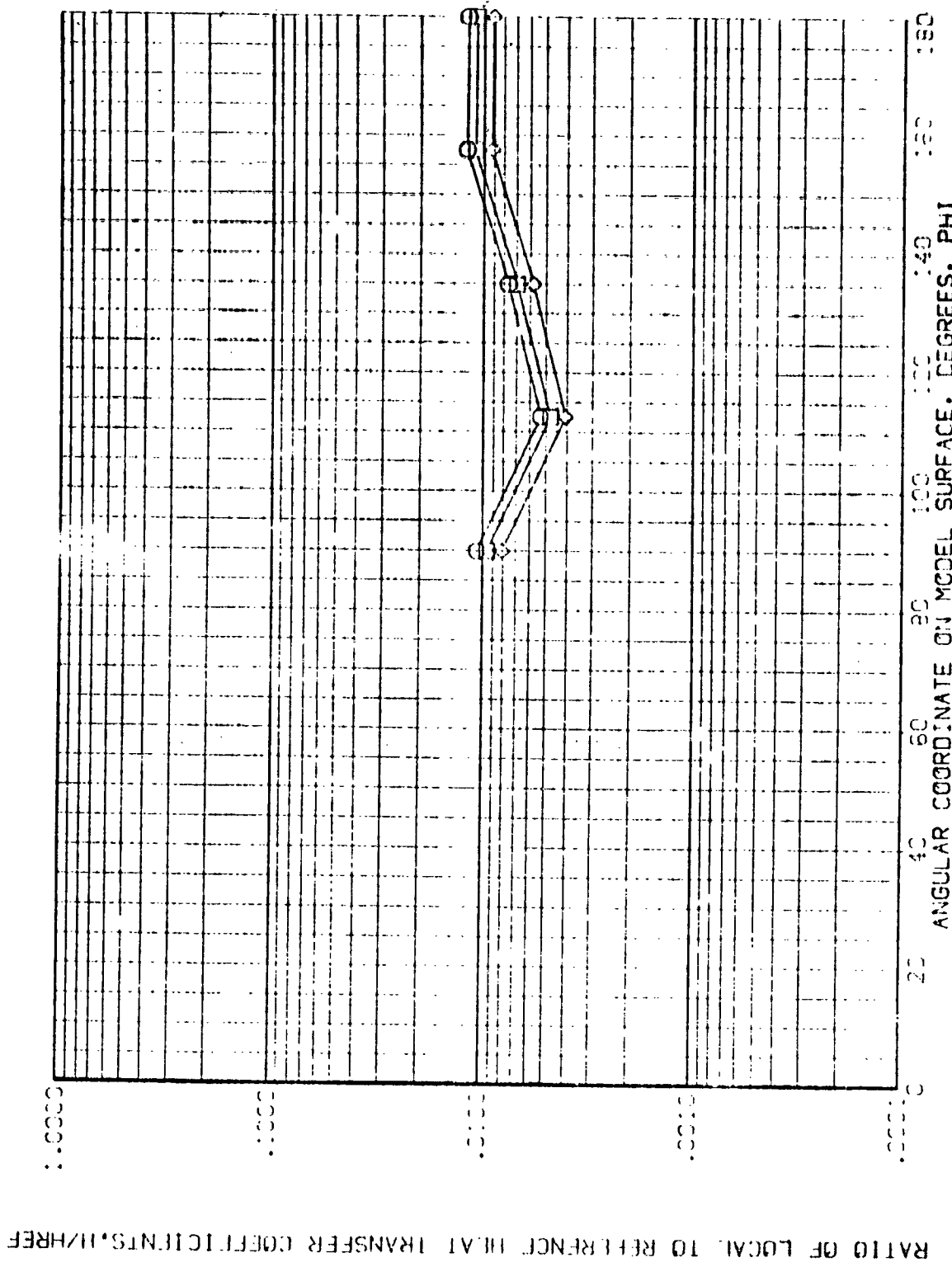


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+TI EXTERNAL TANK

(REV T02)

PARAMETRIC VALUES  
 ALPHA 30.000 BETA .C.3  
 RI/L 1.000

SYMBOL H/W/H\* V/L MACH  
 .850 .550 5.220  
 .910  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

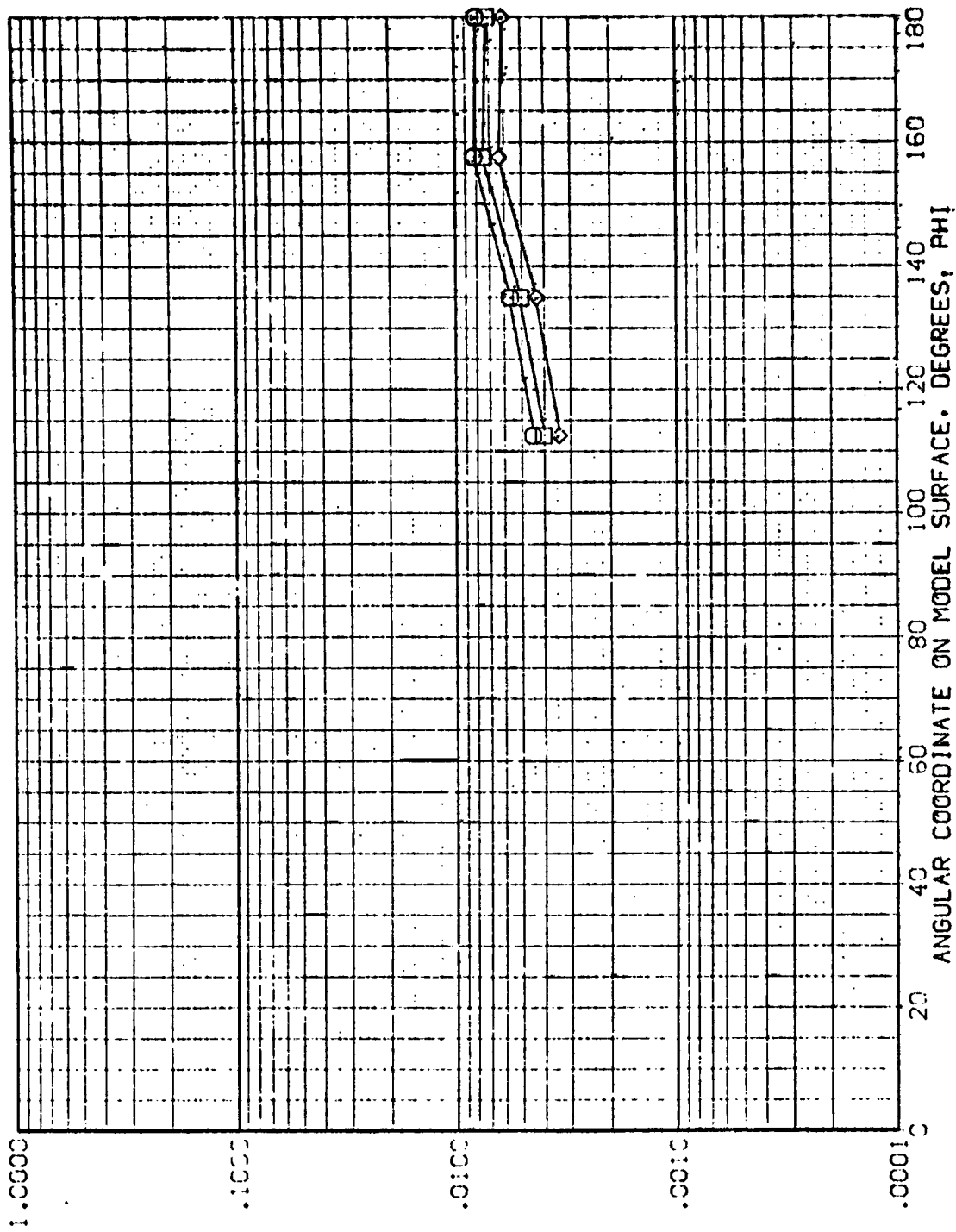


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3,5-195 IH28 01+T1 EXTERNAL TANK

(REVTC2)

SYMBOL  $\diamond$

HEIGHT  
.850  
.900  
1.000

X/L  
.600

MACH  
5.220

PARAMETRIC VALUES  
ALPHA 30.000  
RN/L 1.000  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

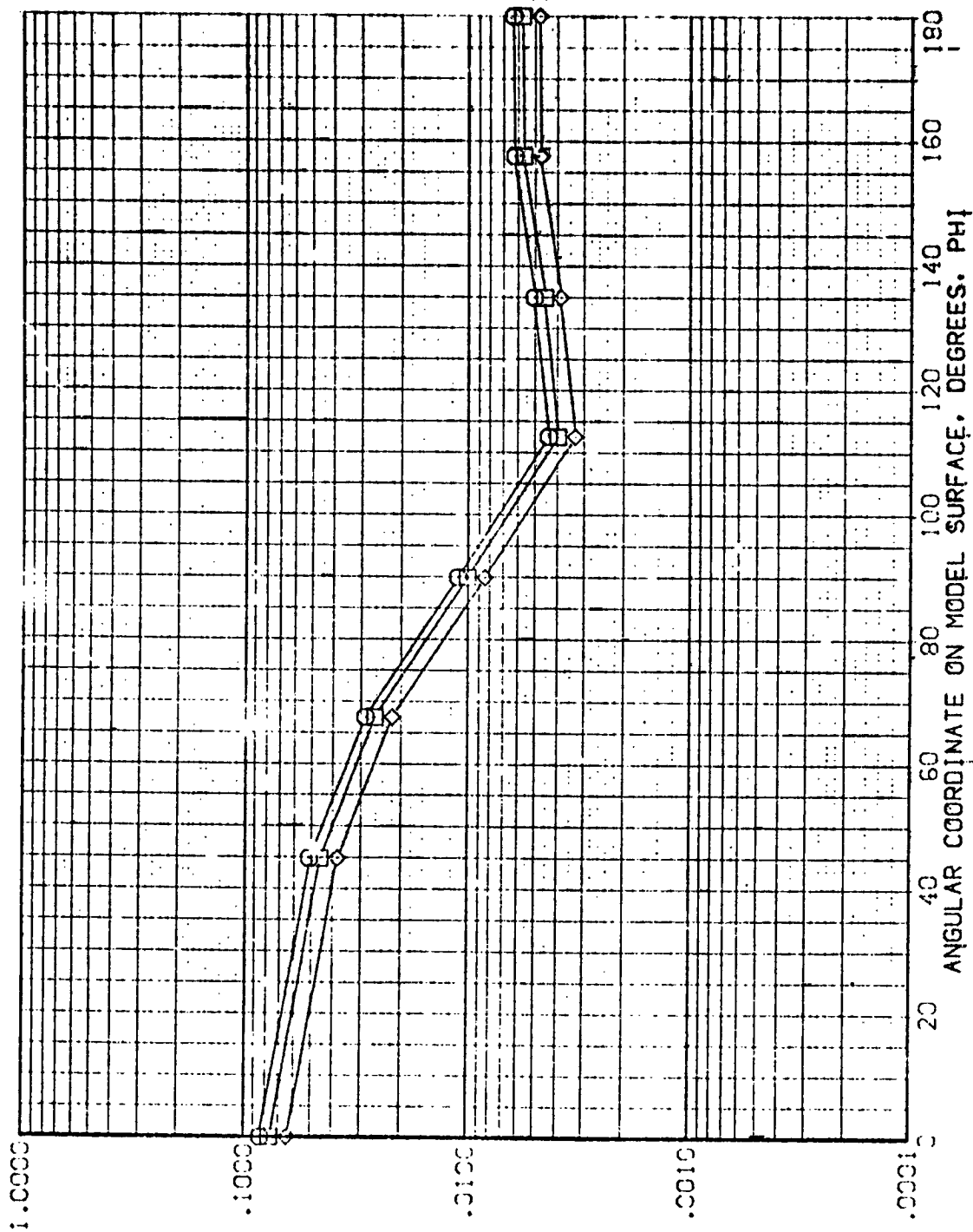


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-:95 IH28 01+T1 EXTERNAL TANK

(REV102)

SYMBOL	HA/HT	X/L	MACH	PARAMETRIC VALUES	
◇	.850	.650	5.230	ALPHA	BETA
□	.900			1,000	1,000
◇	1.000			RN/L	

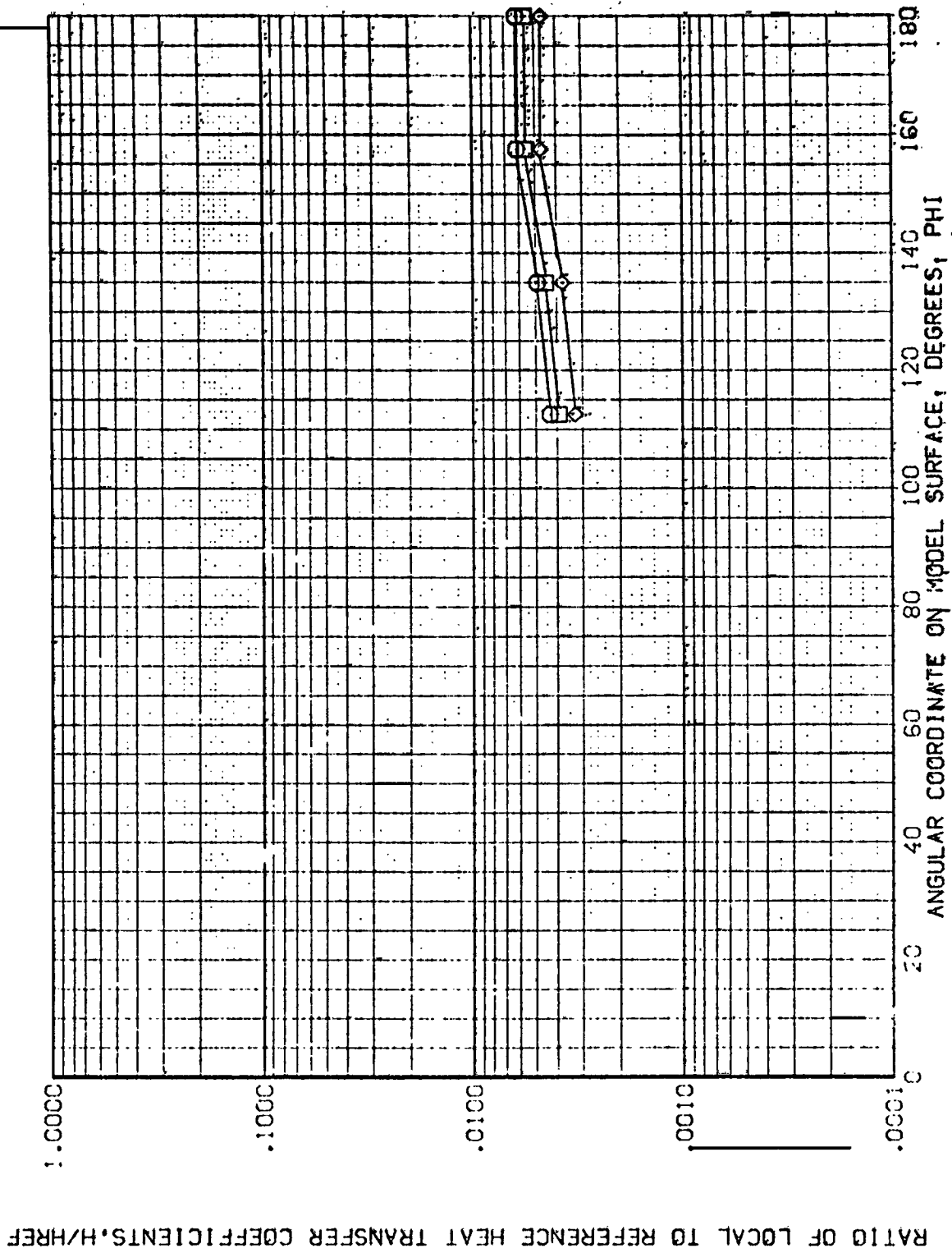


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV T02)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

PARAMETRIC VALUES  
ALPHA 30.000 BETA .000  
RV/L 1.000

MACH 5.220  
X/L .700

SYMBOL  
◇ □

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

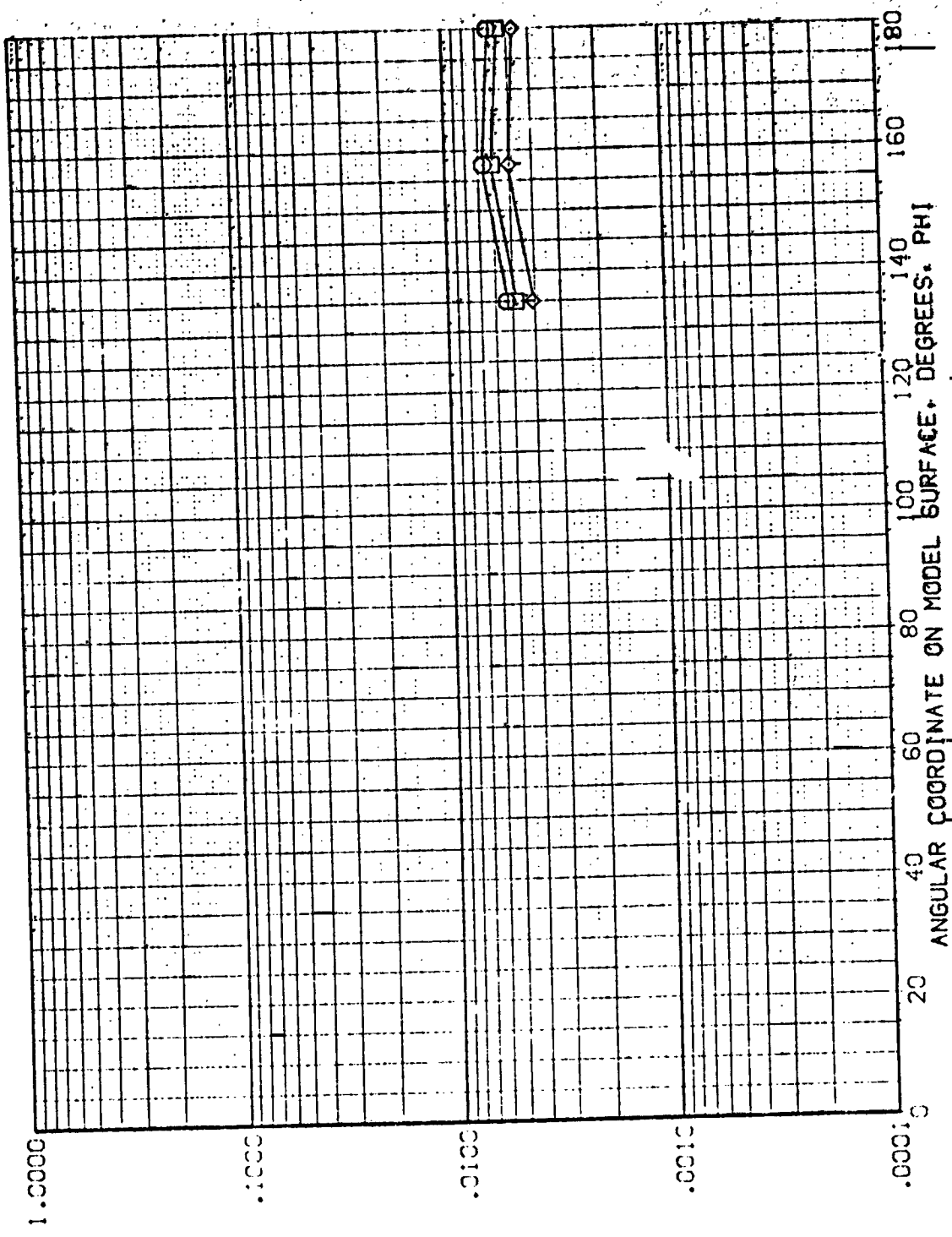


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 O:-T1 EXTERNAL TANK

(REV T02)

SYMBOL    H/W/HT    %L    MACH

◇    .85    .750    5.220

□    .900

○    1.000

PARAMETRIC VALUES

A-PWA    30.009    BETA

RNVL    1.080

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

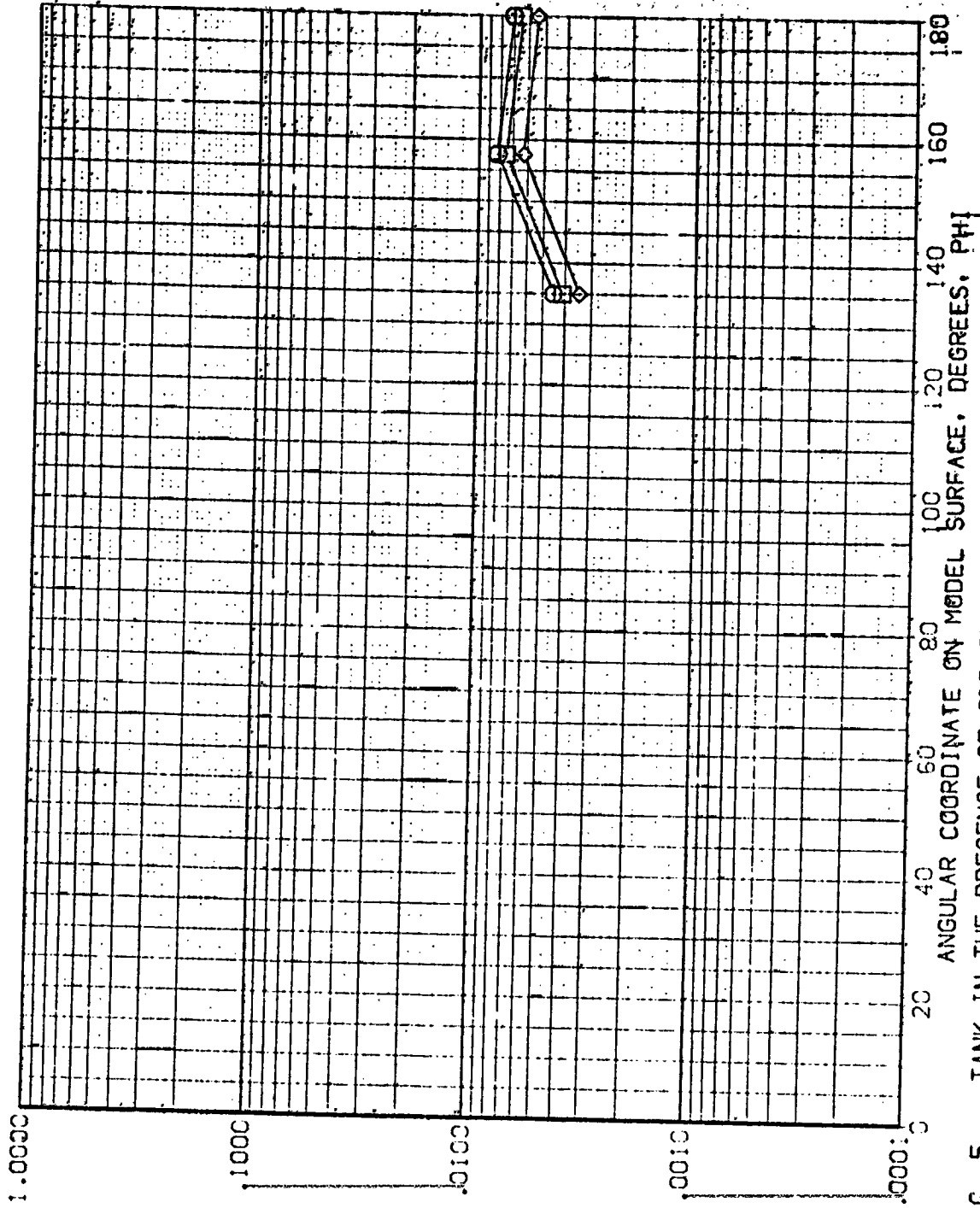


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AYES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV 02)

SYMBOL MACH X/L  
 □ 1.950 .800  
 ◇ 1.950 1.000

MACH 5.220

PARAMETRIC VALUES  
 ALPHA 30.000 .000  
 RV/L 1.000

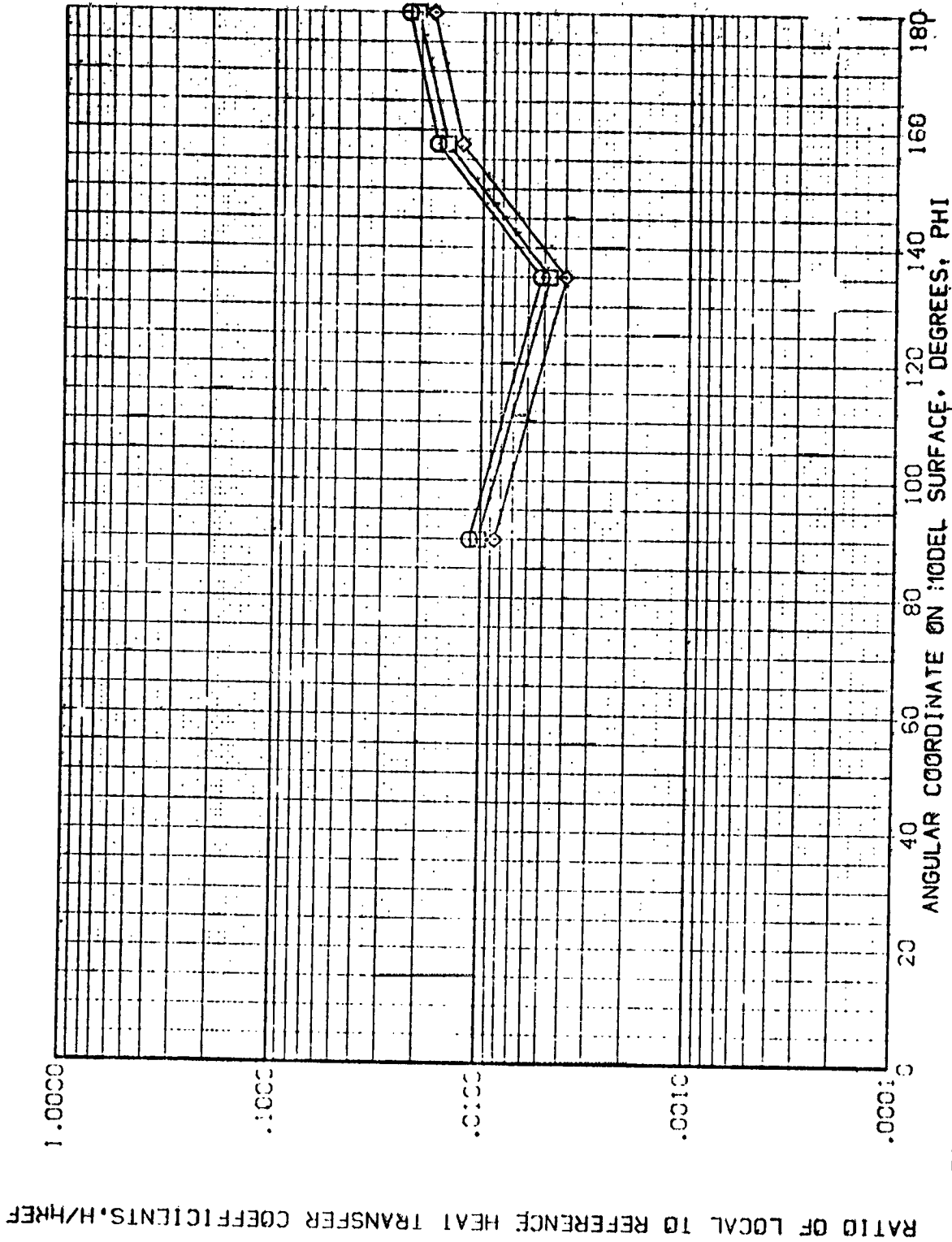


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 H28 01+T1 EXTERNAL TANK

(REV T02)

SYMBOL H<sub>REF</sub>/H<sub>REF</sub> MACH  
 ◊ .850 5.220  
 ○ .900  
 △ 1.000

PARAMETRIC VALUES  
 ALPHA 30.890  
 RN/L 1.000  
 PETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/H<sub>REF</sub>

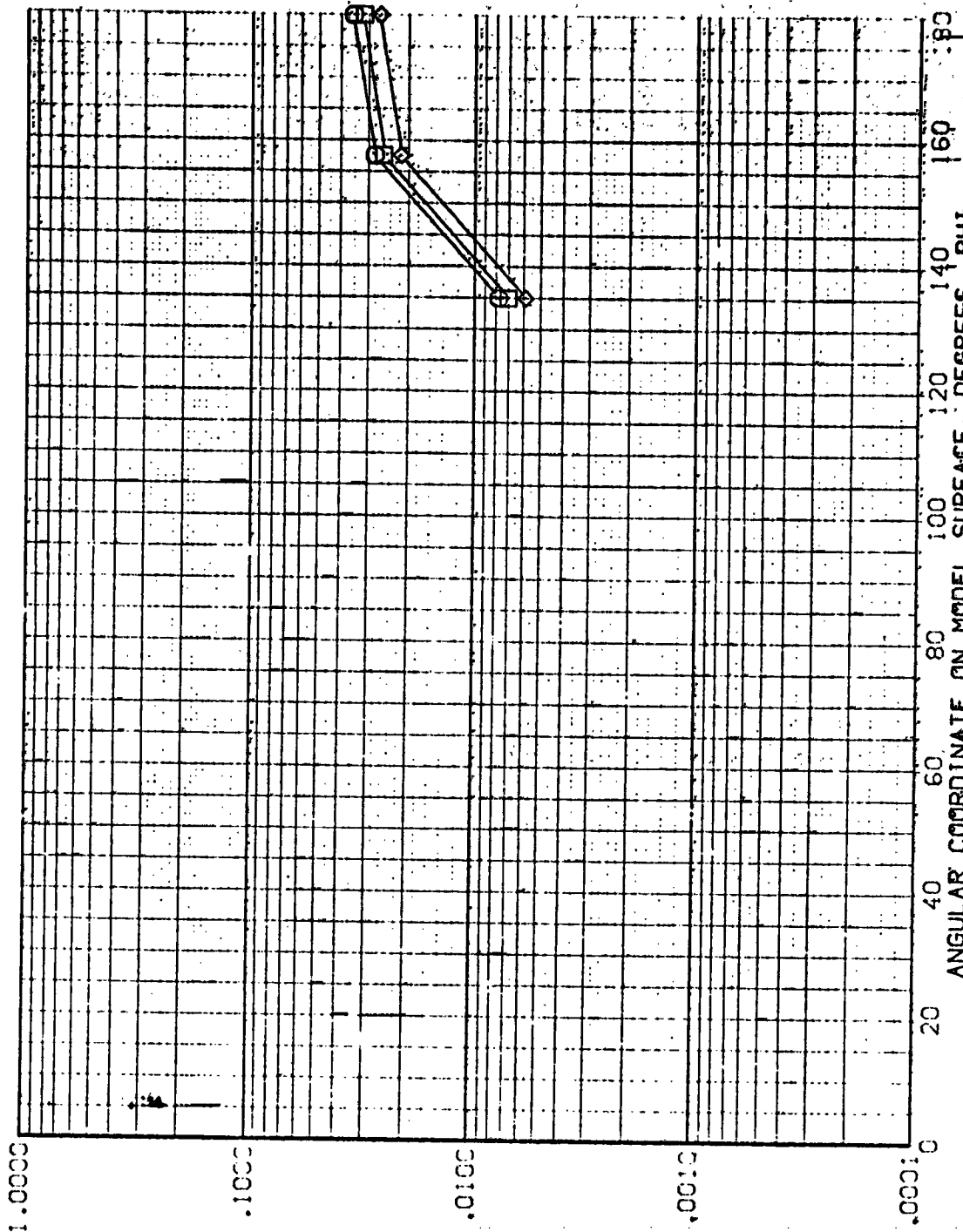


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T02)

SYMBOL    Wt    X/L    MACH

◇    .850    .900    5.220

ALPHA    BETA

1.000    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

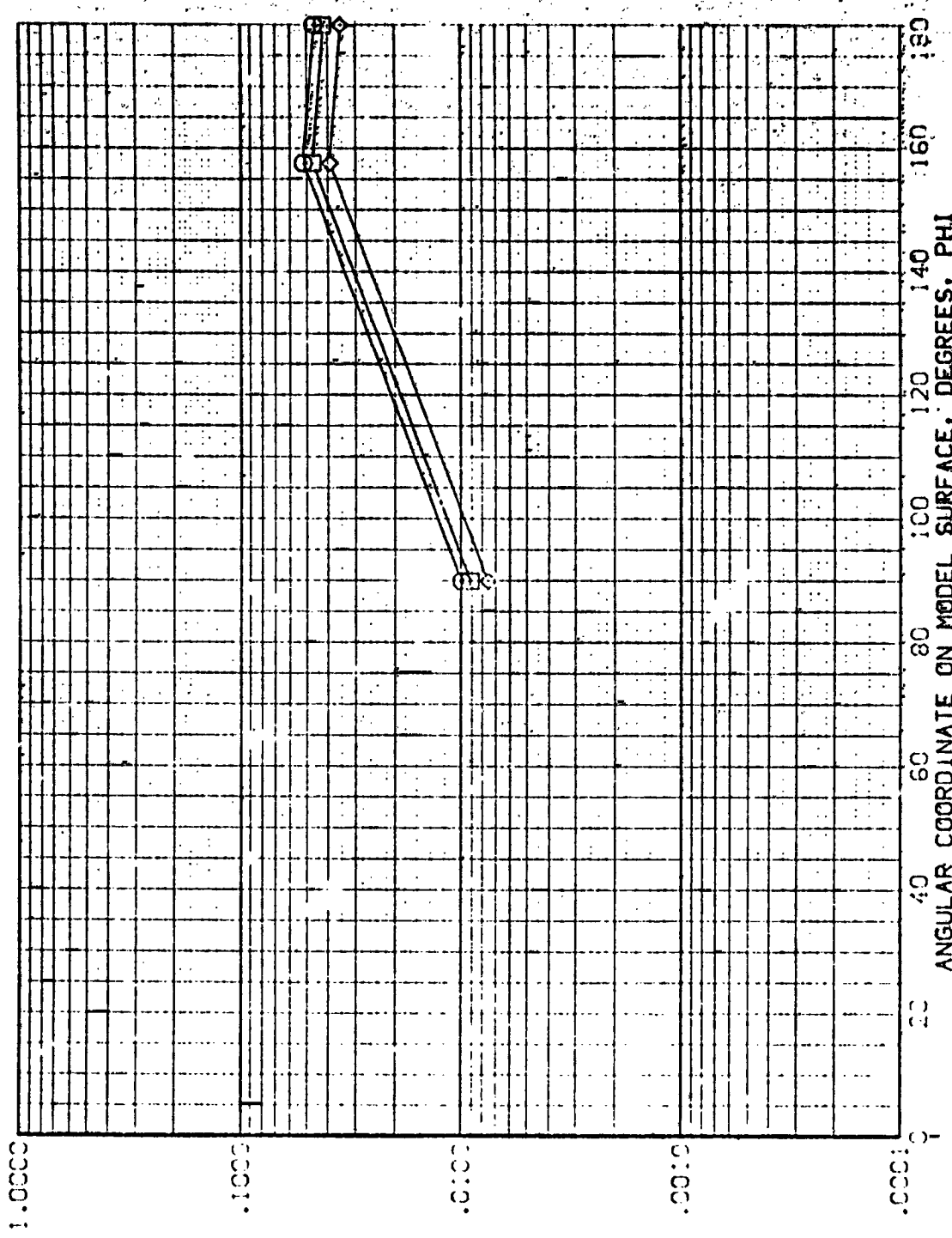


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 3,5-195 IH28 01+T1 EXTERNAL TANK

(REV T03)

SYMBOL    H/W/HT    Y/L    MACH  
 ◊    .180    .350    5.220  
 ◻    .200  
 ◻    .200

PARAMETRIC VALUES  
 ALPHA    BETA  
 RN/L    1,000    .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

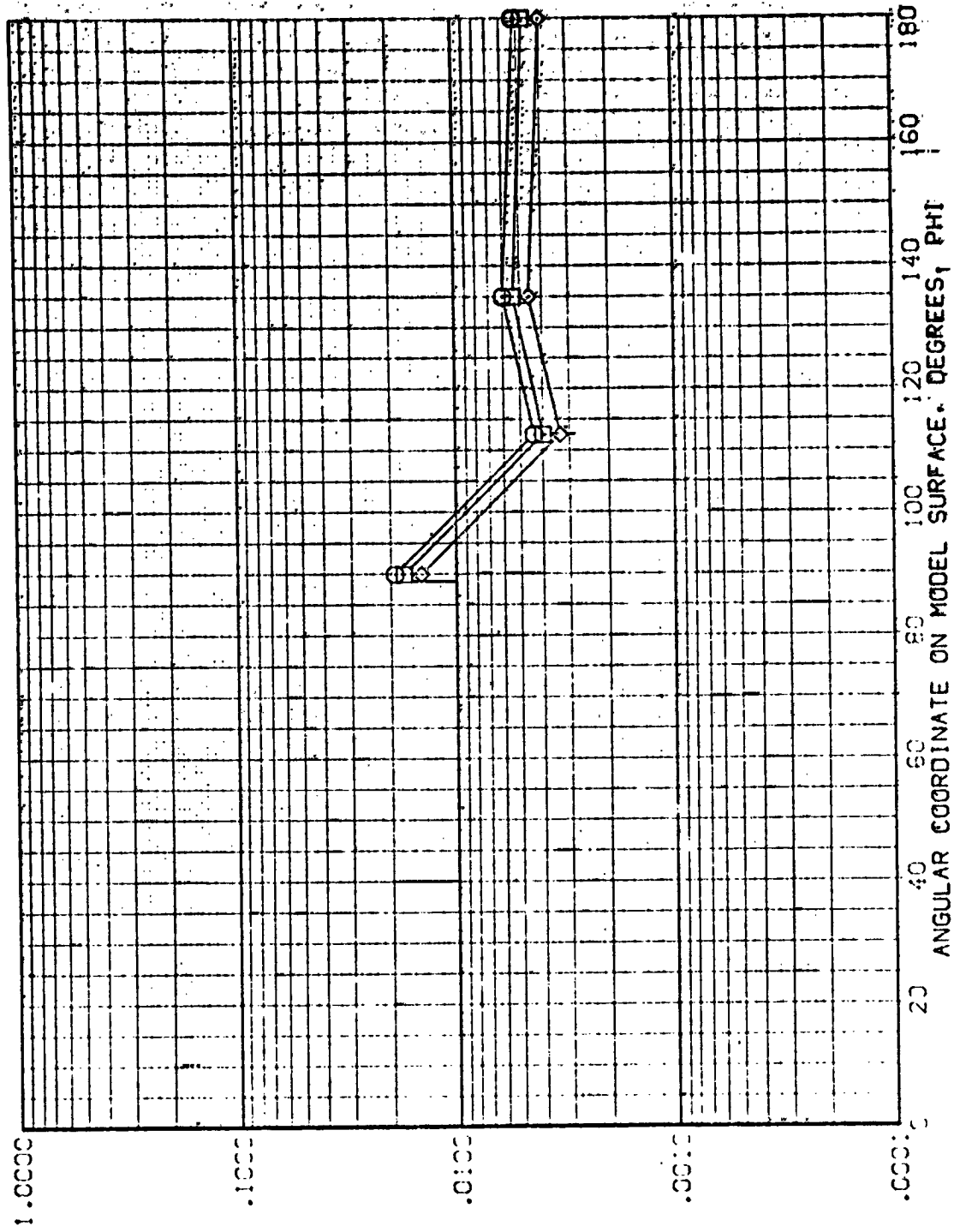


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+11 EXTERNAL TANK

(REV T03)

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 1.000  
 PN/L .000

SWEEP MACH X/L Y/L  
 .850 .400 5.220  
 .900  
 1.000

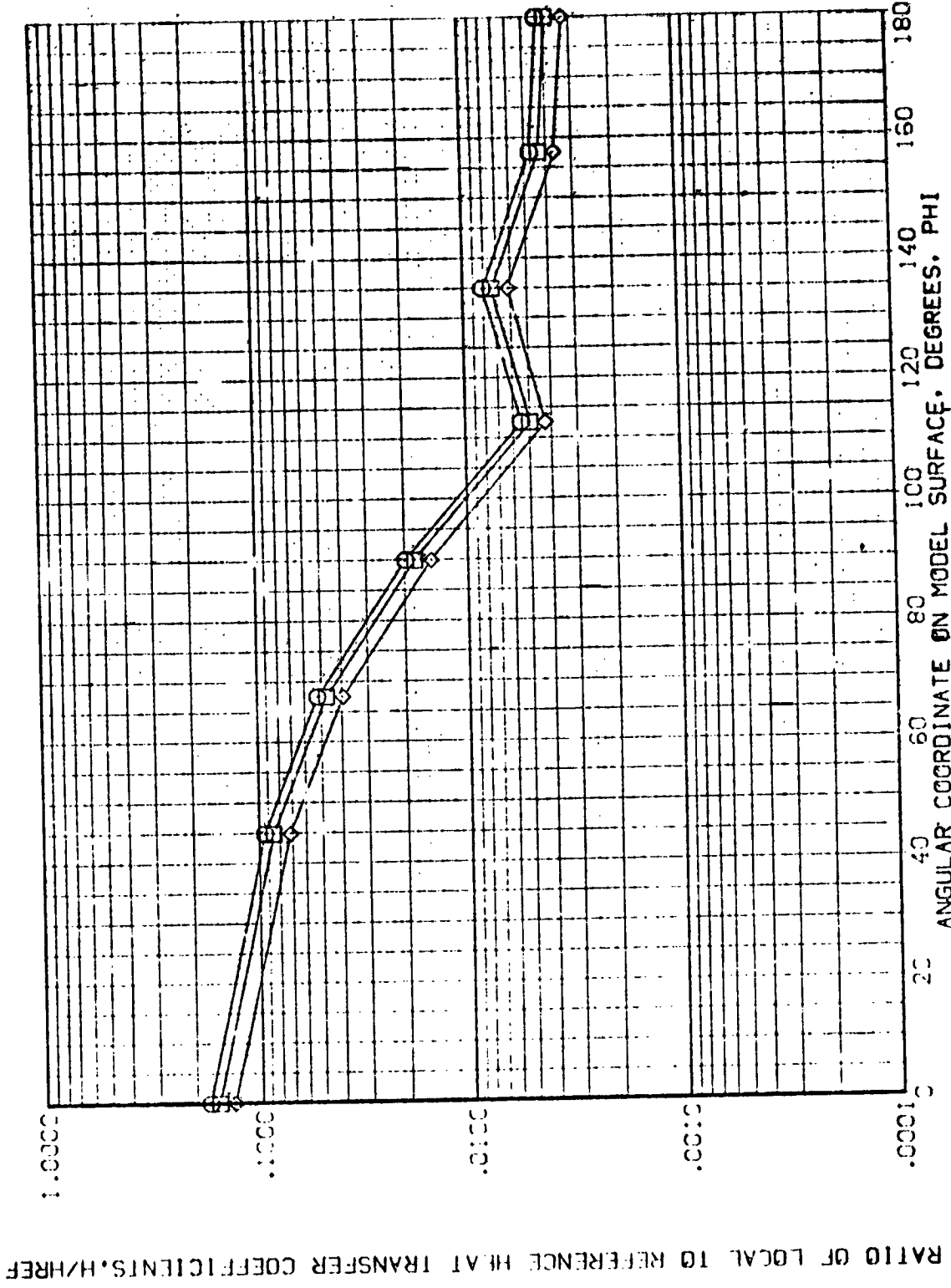


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 (H28 G1+T1) EXTERNAL TANK

(REVTC3)

◇ □

SYMBOL  
 MA/WT .850  
 X/L .450  
 MACH 5.220  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 1.000  
 .800

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

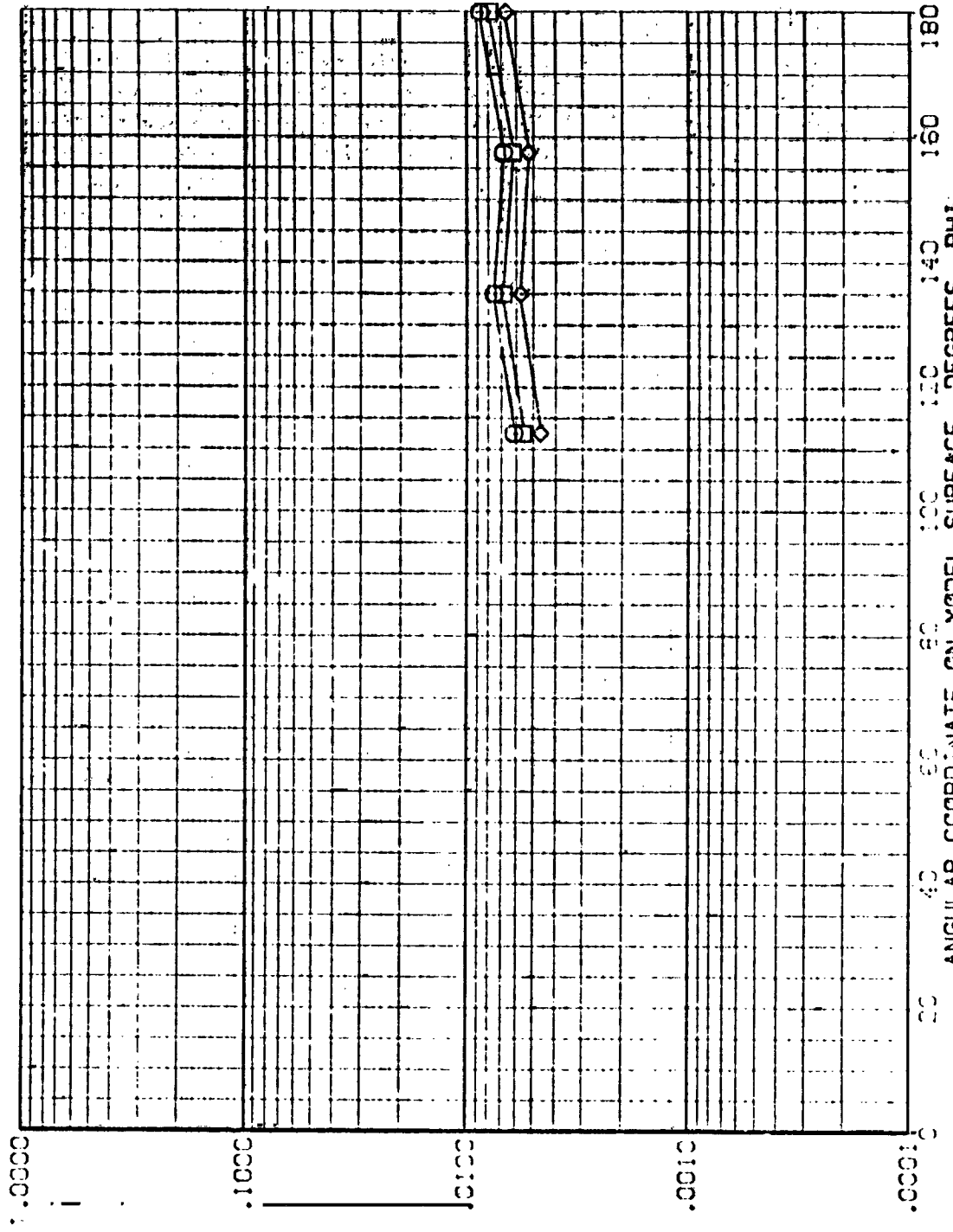


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

CRENTOS)

AVES 3.5-195 1H28 01+T1 EXTERNAL TANK

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RV/L 1.000

SYMBOL MAX/FT X/L MACH  
 □ .850 .500 5.220  
 ○ .900  
 ◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

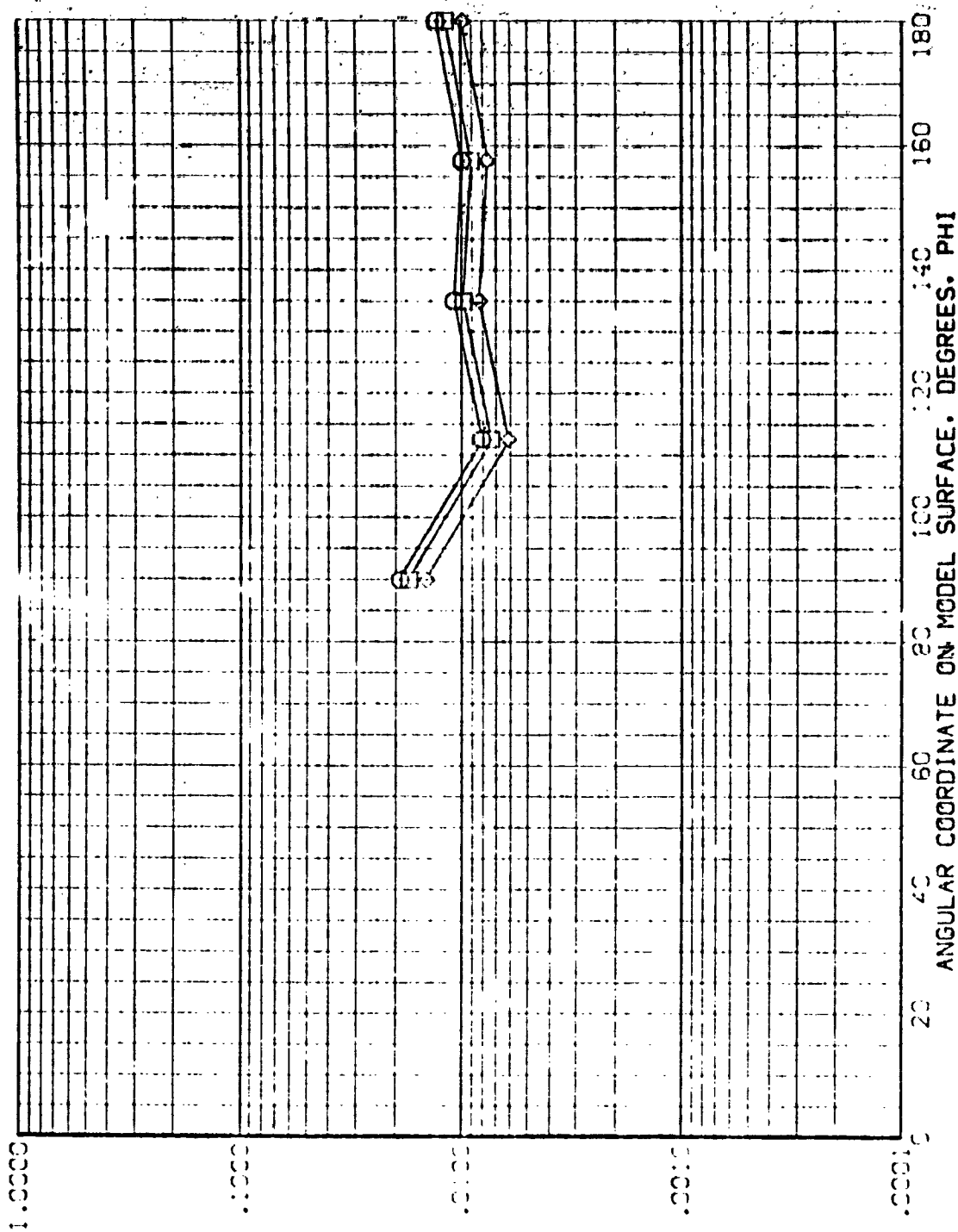


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REF ID: A64114  
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 UNAVAILABLE

AVES 3.5-195 1428 01+T1 EXTERNAL TANK (REV T03)

S<sub>REF</sub> 1.000  
 W<sub>REF</sub> 1.000  
 K/L 0.550  
 V<sub>REF</sub> 5.000

PARAMETRIC VALUES  
 ALP-A 60.000  
 R<sub>1</sub>/L 1.000  
 BETA 0.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

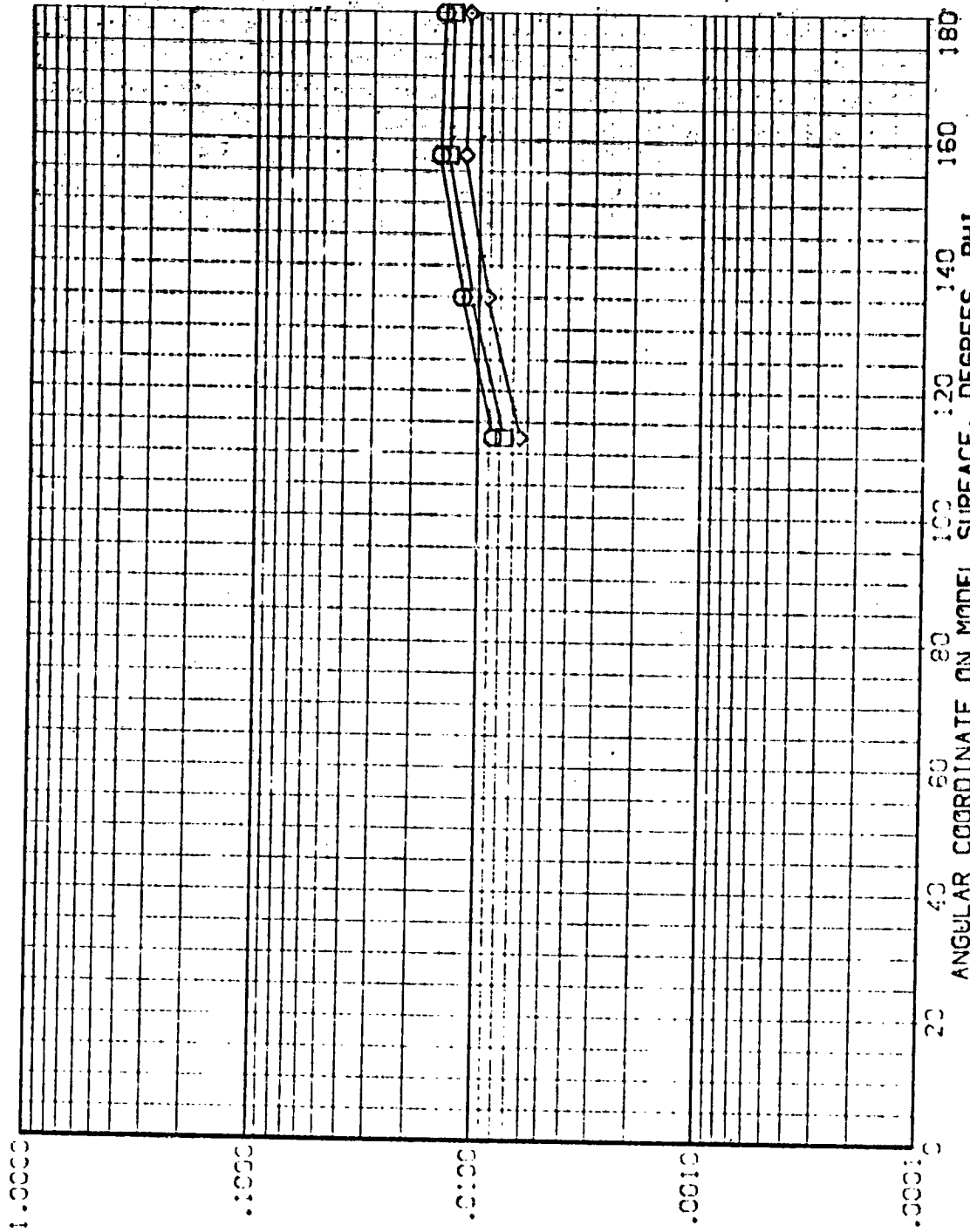


FIG. 5 TANK, IN THE PRESENCE OF ORBITER  
ANGULAR COORDINATE ON MODEL SURFACE, DEGREES, PHI

(FEVTC3)

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK

SYMS-  
◇ ETC

PARAMETER VALUE  
MACH 5.220  
X/L .600  
R/L 1.000

PARAMETER VALUE  
ALPHA 69.000  
ETA 1.000  
R/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

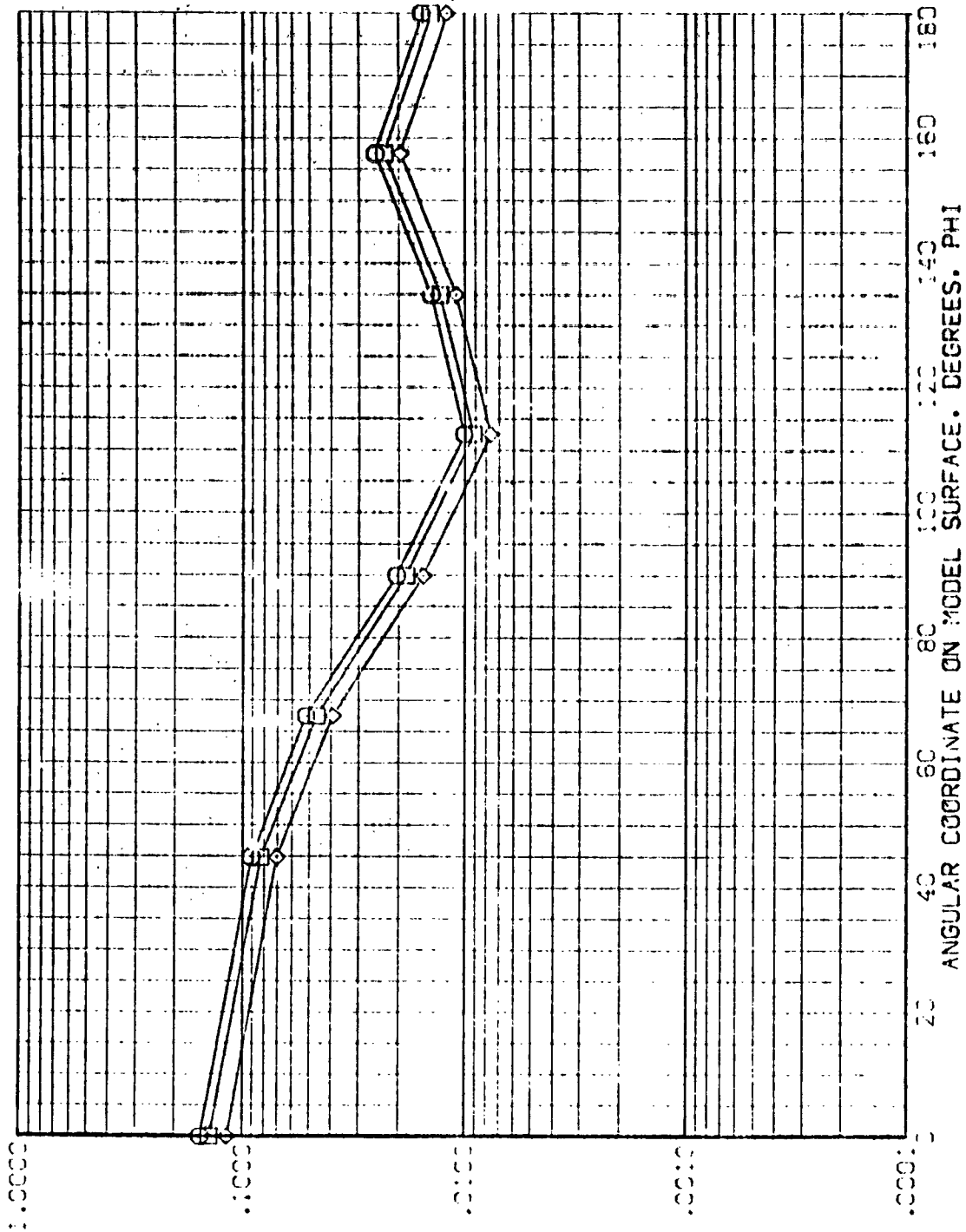


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 C1+T1 EXTERNAL TANK (REV T03)

SYMBOL: HAW/T  
 .850  
 .900  
 1.000

V/L  
 .600

MACH  
 5.220

PARAMETRIC VALUES  
 ALPHA  
 P%/L  
 60.000  
 1.000

BETA  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

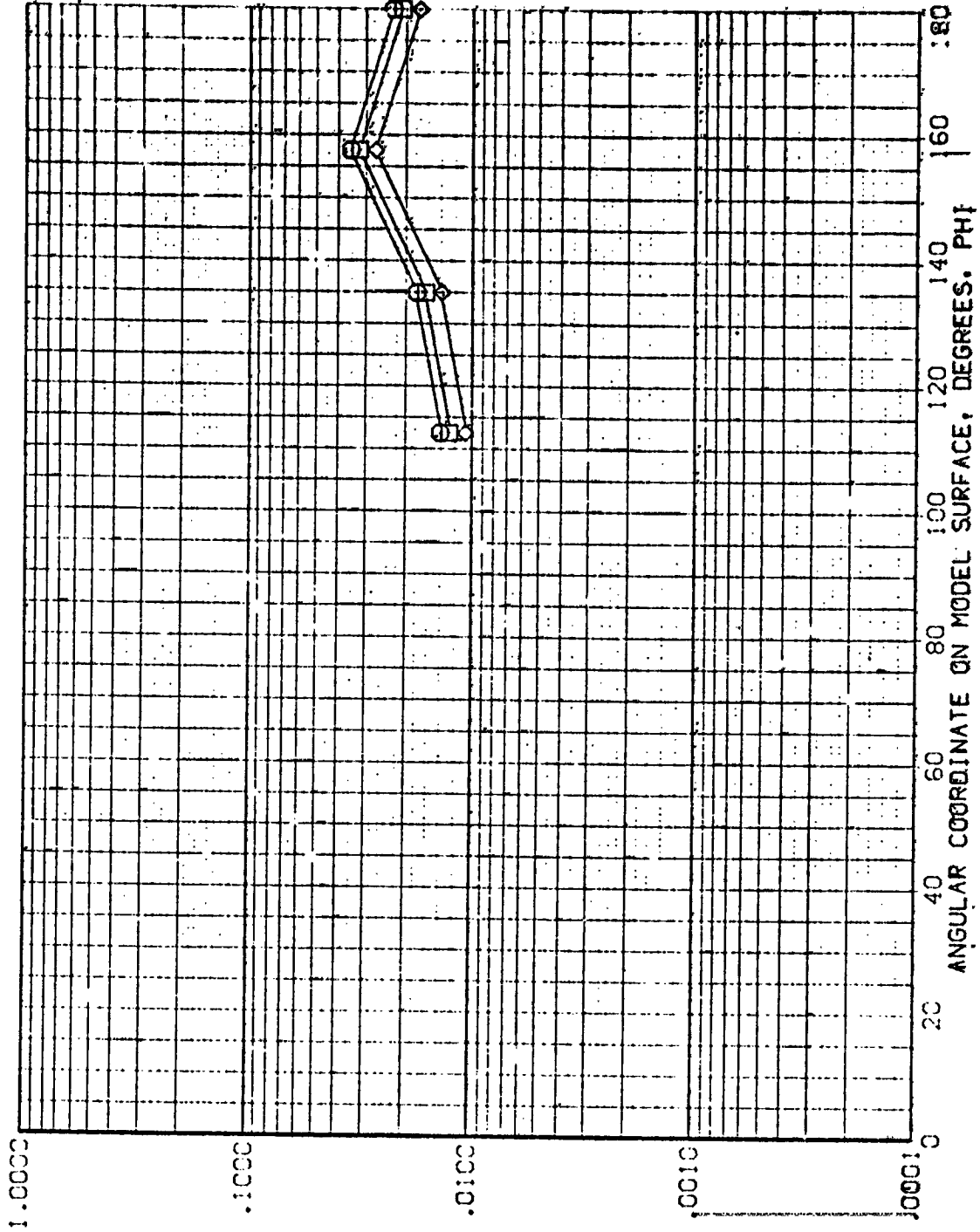


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3,5-195 IH28 01+T1 EXTERNAL TANK

(REV T03)

SYMBOL HA#/HT X/L MACH  
 □ .850 .700 5.220  
 ◇ .900  
 1.000

PARAMETRIC VALUES  
 ALPHA RM/L BETA .000  
 1.000

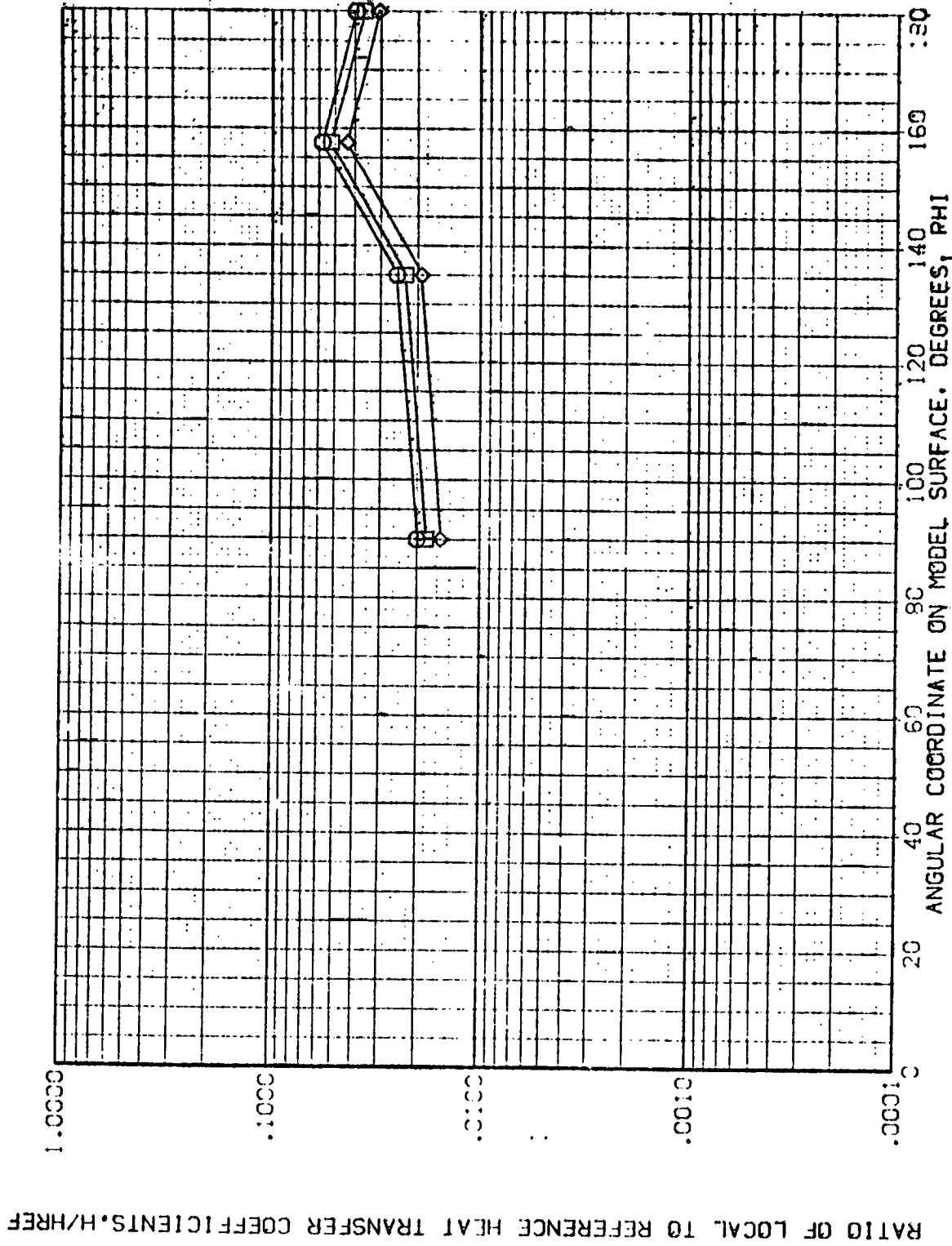


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T03)

SYMBOL H/W/HI X/L MACH  
 ◊ .85C .750 5.220  
 ○ .9CC  
 △ 1.0CC

PARAMETRIC VALUES  
 ALPHA 50.000  
 BETA 1.000  
 PAV/L .000

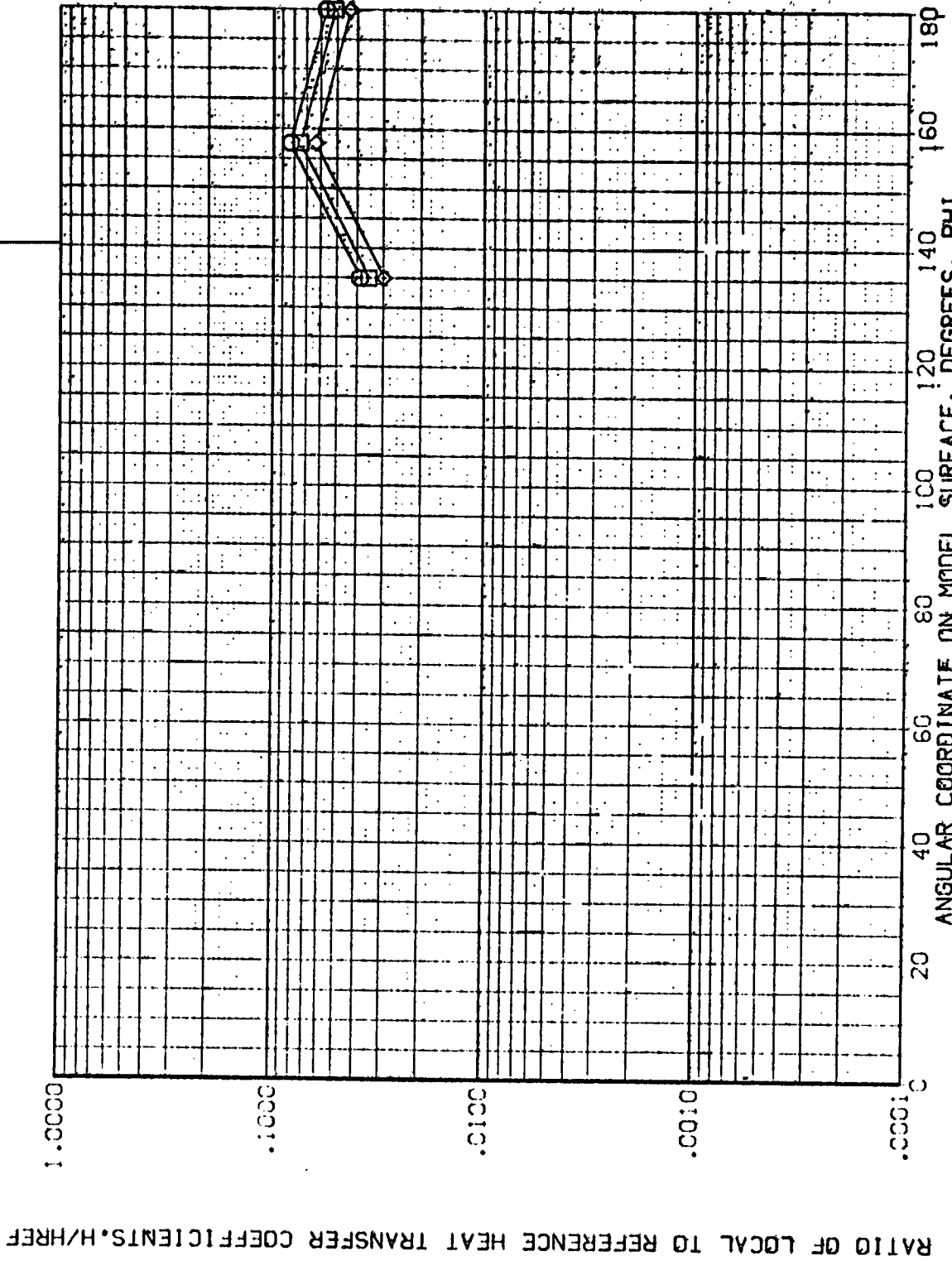


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

SYMBOL:  $\diamond$   $\square$   
 H/W/HRT .850  
 X/L .800  
 MACH 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 1.000  
 R/W/L .000

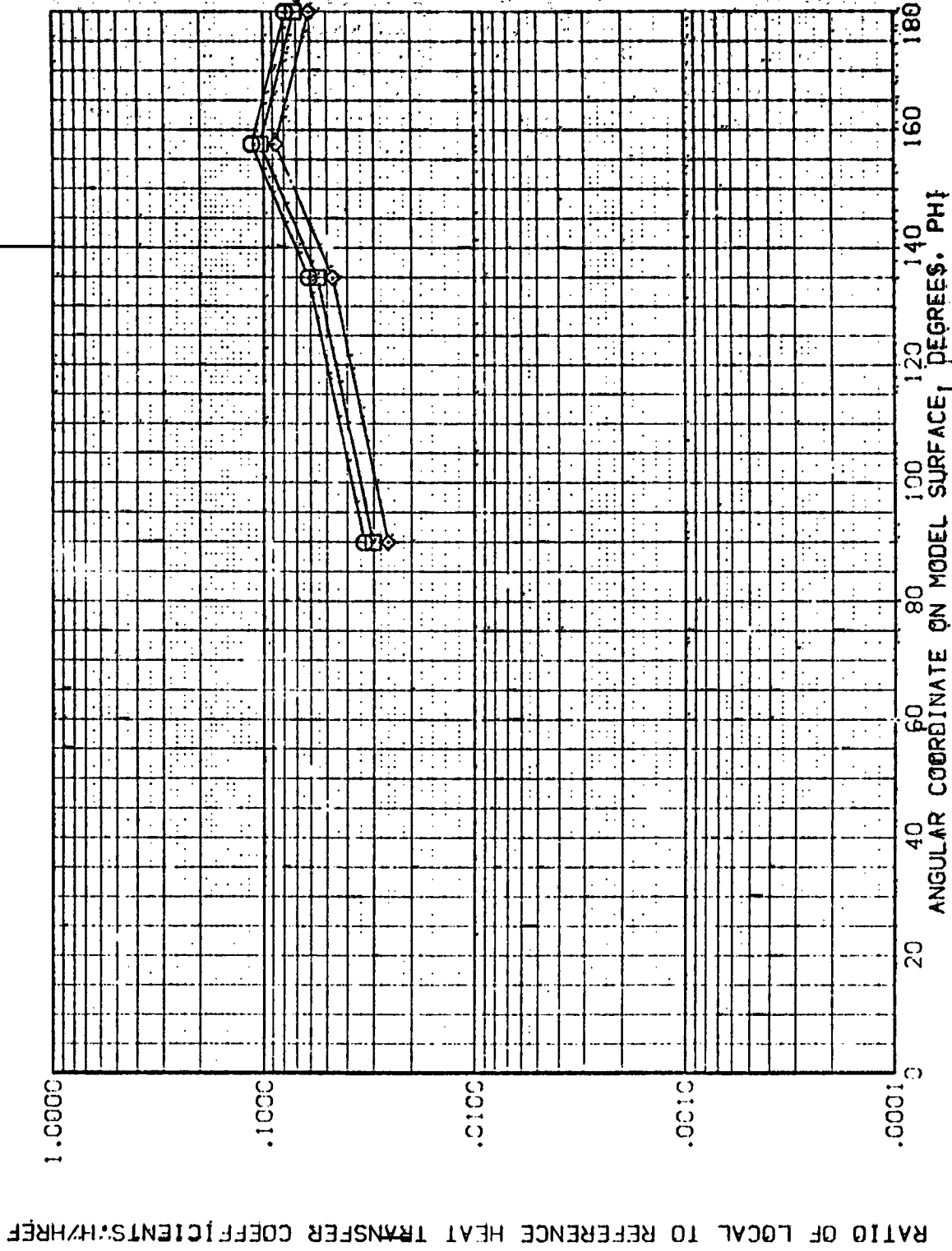


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T03)

SYMBOL MACH  $\gamma/L$  MACH  
 ◊ .850 .950 5.220  
 □ .950 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

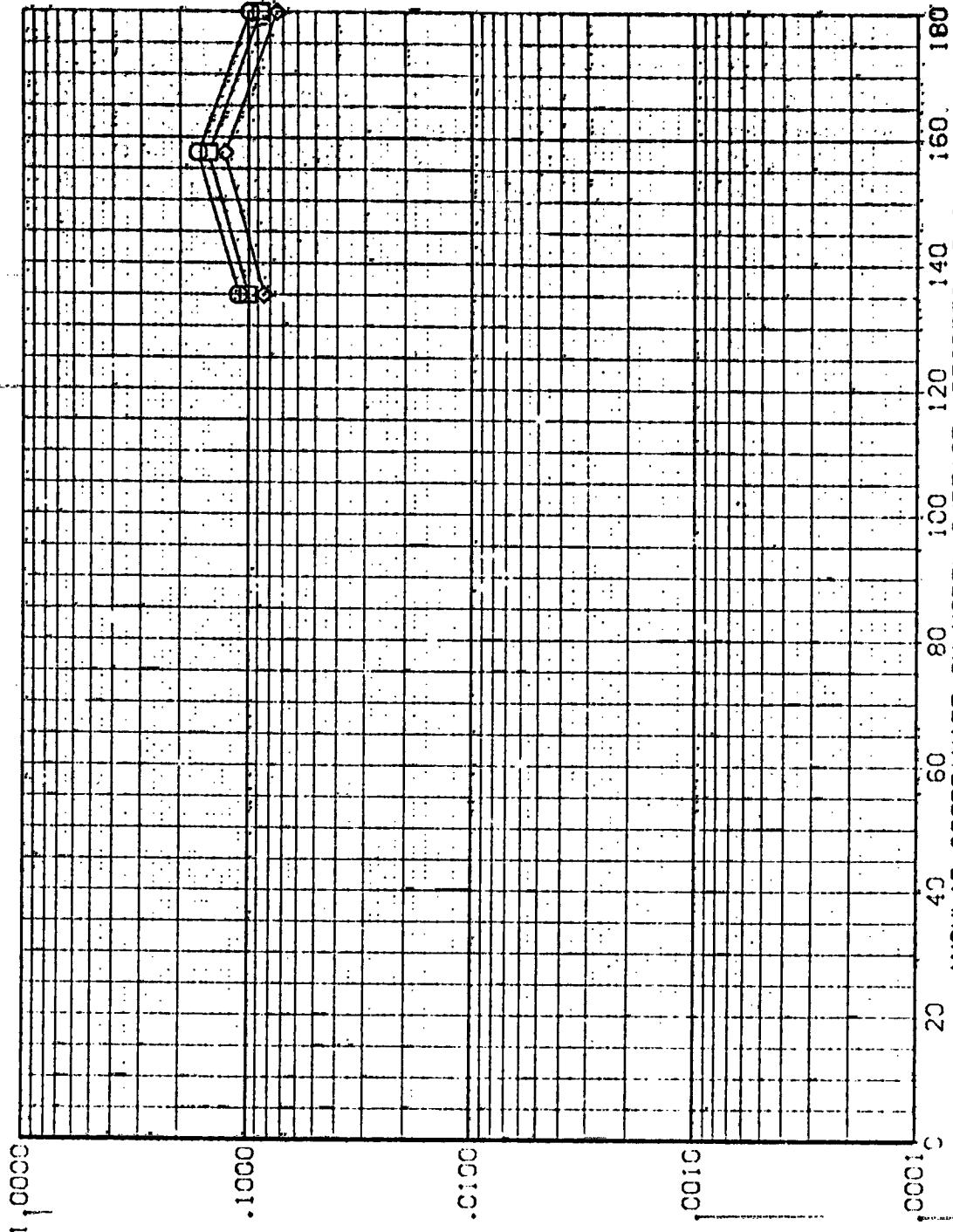


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 I428 01+T1 EXTERNAL TANK (REV T03)

SYMBOL: H/W/HT X/L MACH  
 .850 .900 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 1.000  
 RM/L .000

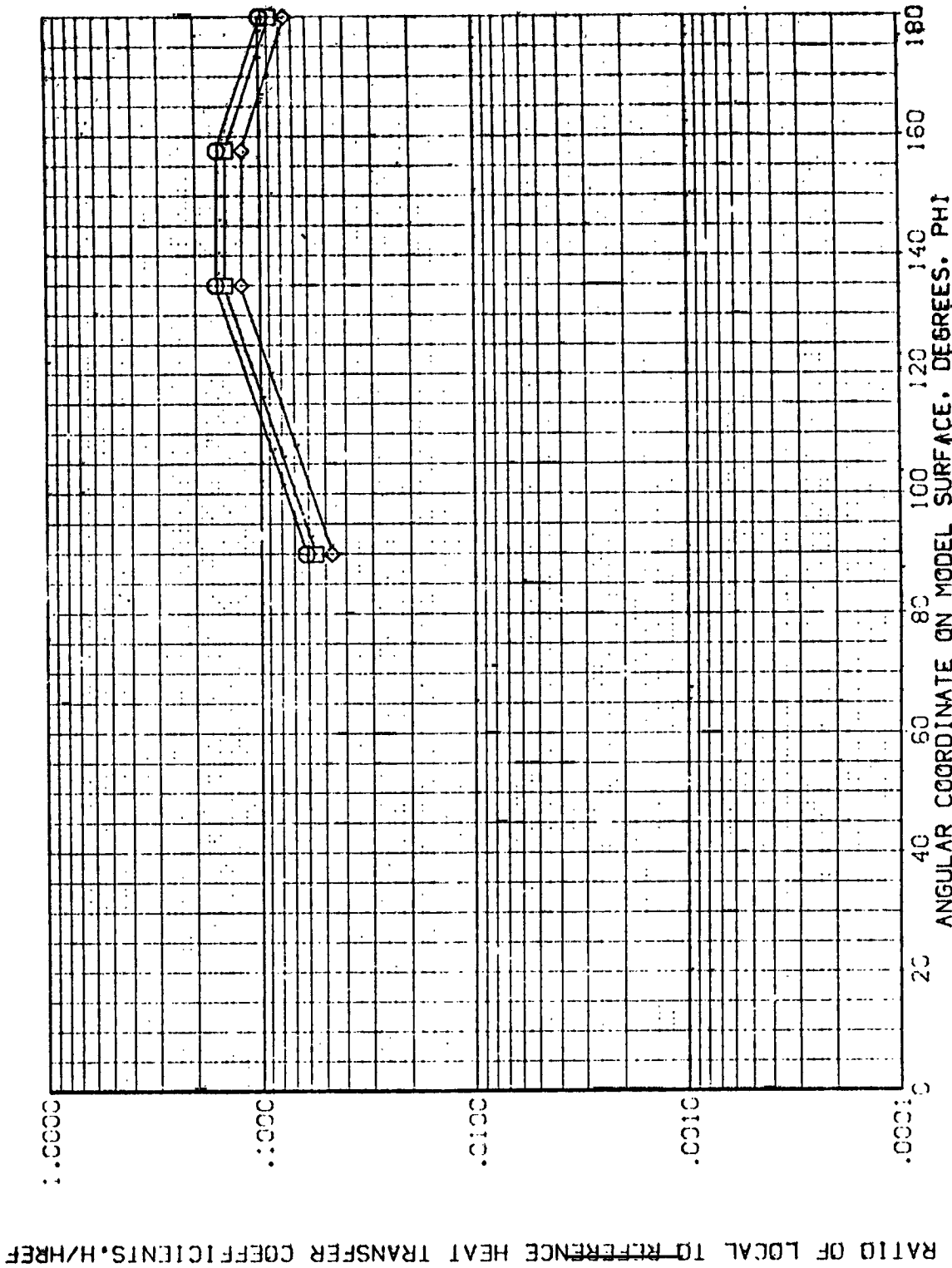


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 OI+T1 EXTERNAL TANK (REV104)

SYMBOL MACH V/L VACH  
 ○ 0.850 .350 5.221  
 □ 0.900  
 △ 1.000

PARAMETRIC VALUES  
 ALPHA 90.000  
 BETA 1.000  
 PVAL .0000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

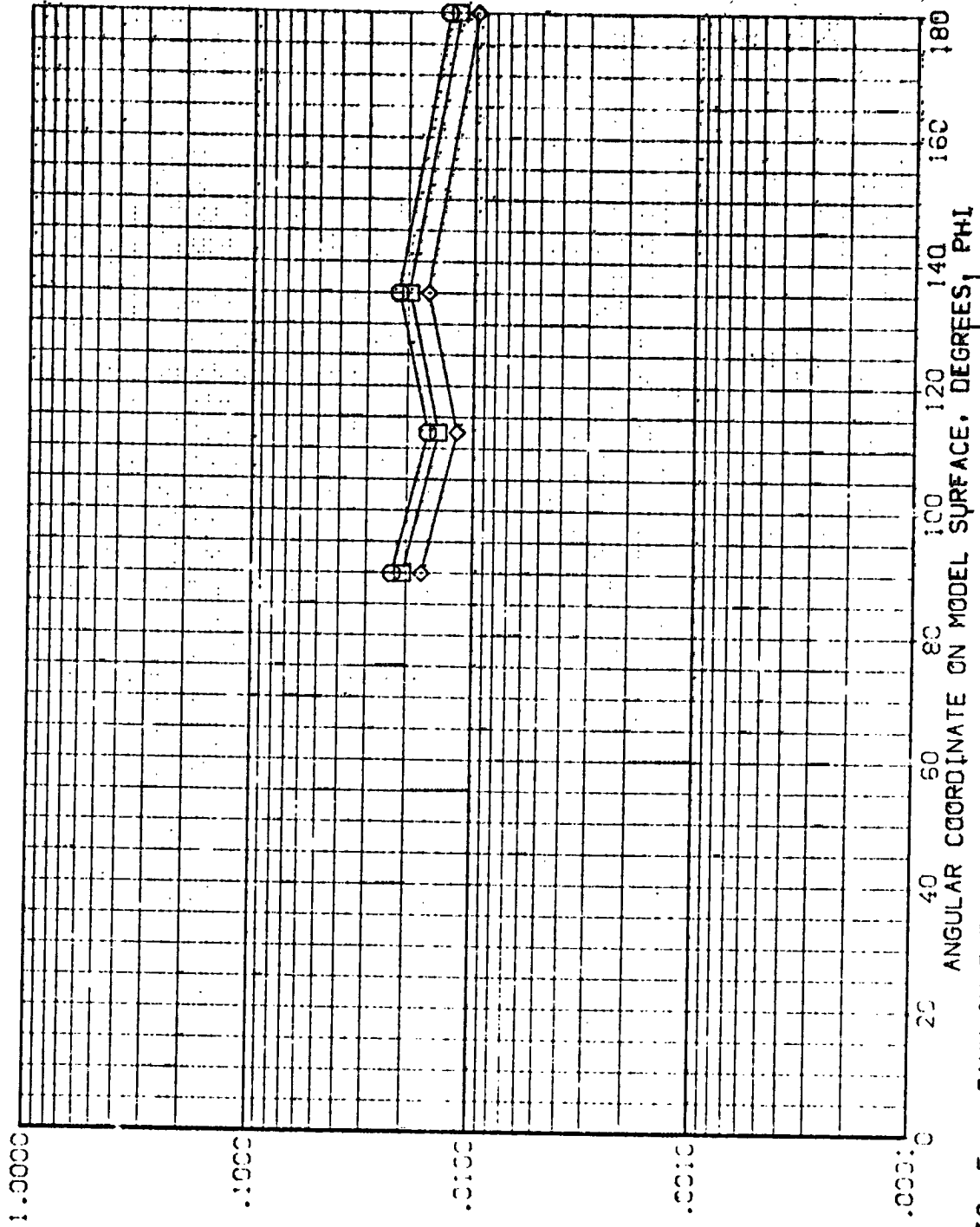


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1428 01+T1 EXTERNAL TANK

(REV T04)

SYMBOL HEIGHT X/L MACH  
 .850 .400 5.221  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 90.000  
 BETA 1.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

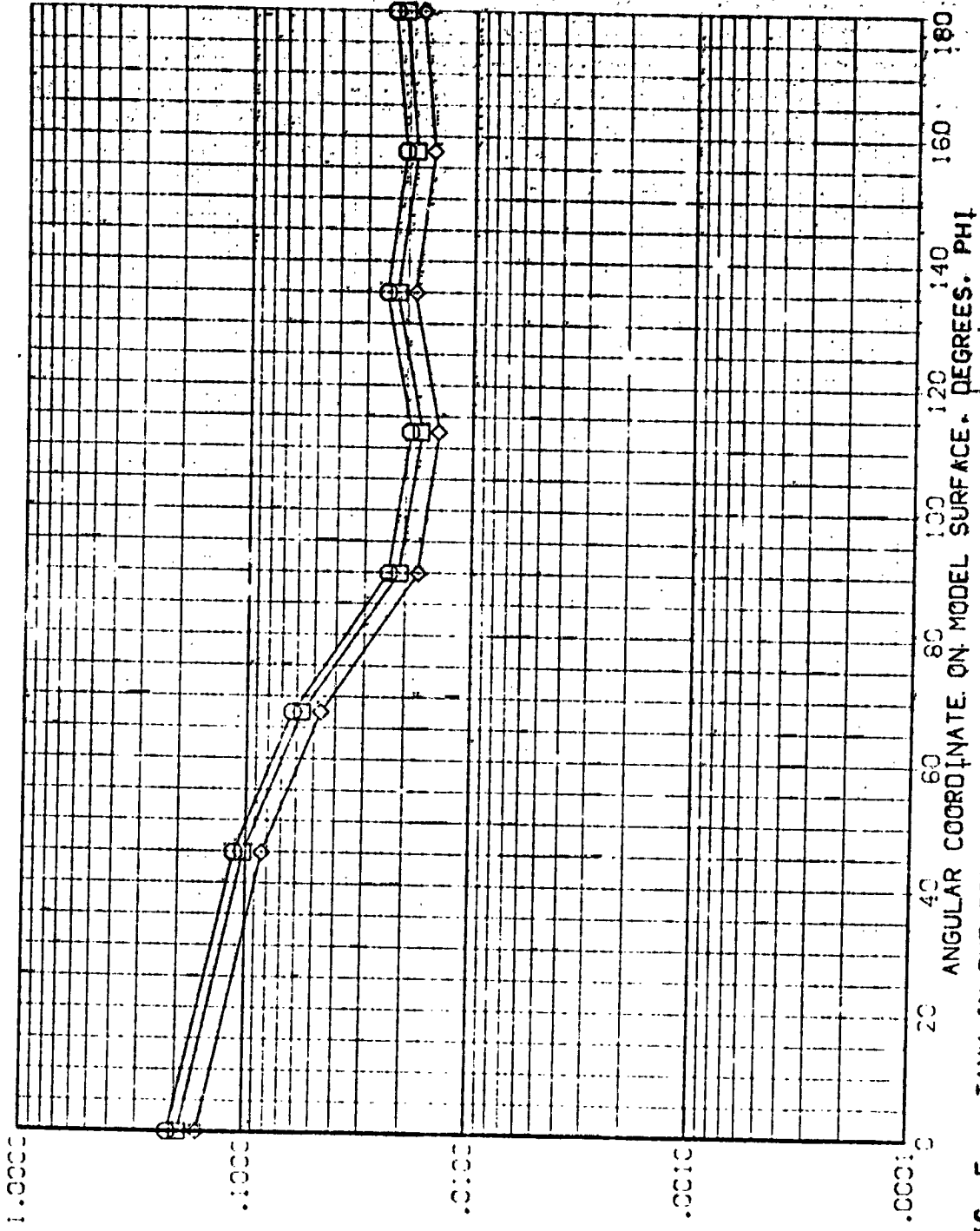


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 1-28 01+T1 EXTERNAL T.A.K (REVTO4)

SYMBOL:  $\square$   $\diamond$   
 HEIGHT: .850  
 .900  
 1.000  
 W/L: .450  
 MACH: 5.221

PARAMETRIC VALUES:  
 ALPHA: 50.000  
 R/V/L: 1.000  
 BETA: .000

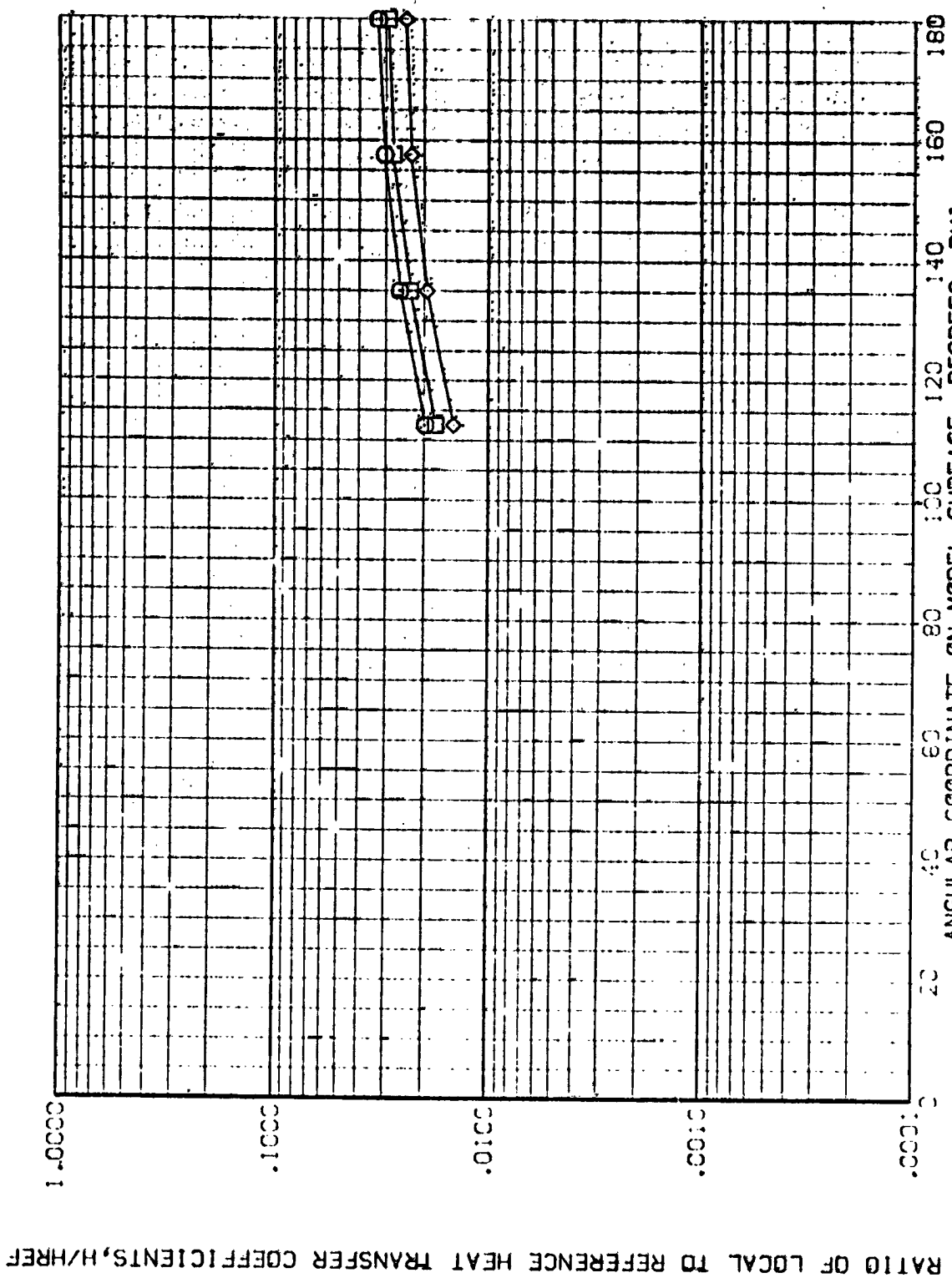


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01-T1 EXTERNAL TANK (REVISED)

SYNOPSIS: MACH 5.22  
 HEIGHT 1500  
 V/L MACH 5.22  
 .850  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 00.000  
 BETA 1.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

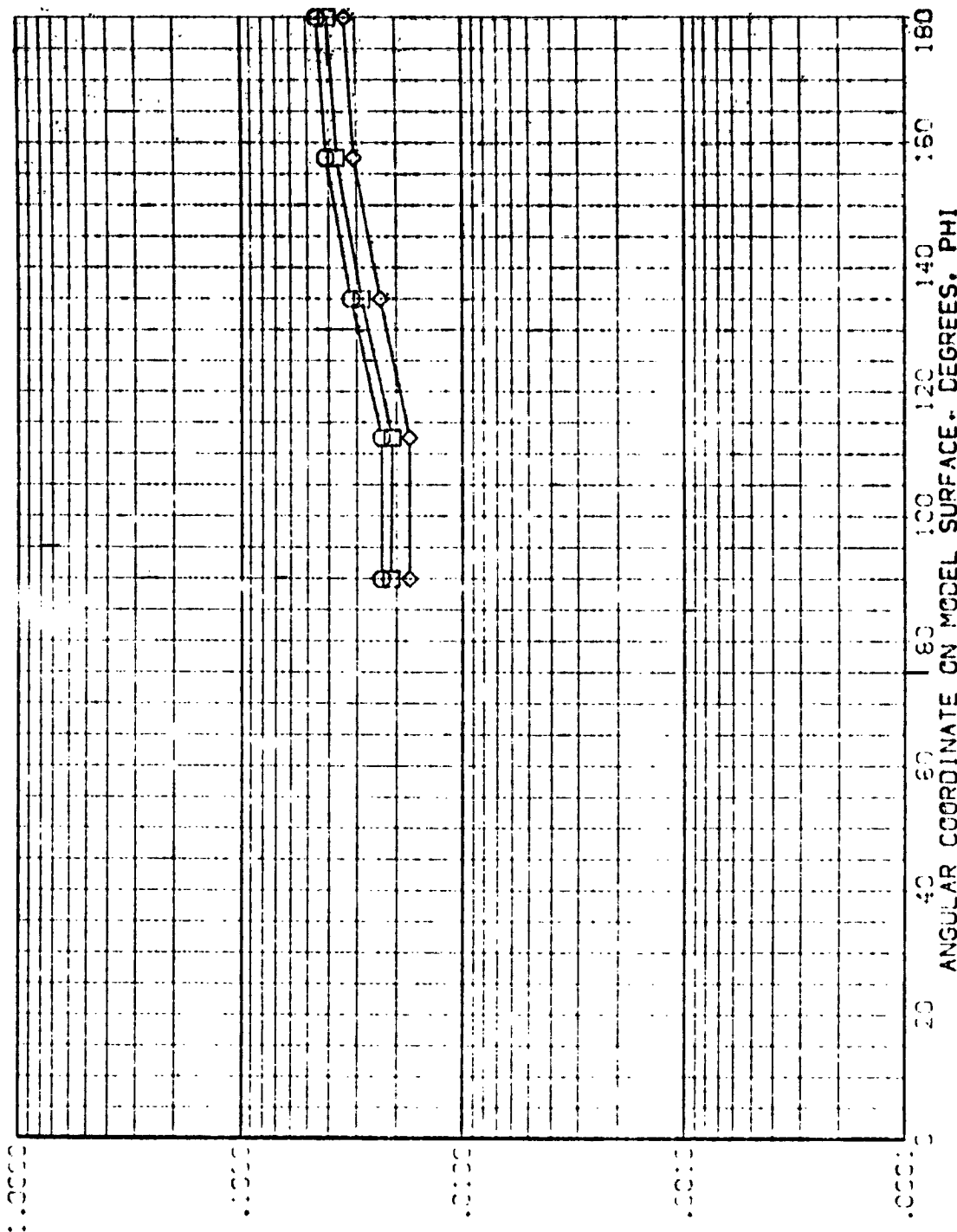


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 3.5-195 1420 C-171 EXTERNAL TANK (REV T04)

SYMBOL MAP #1 (1) MACH 5.221  
 ○ .850  
 □ .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA 90.000 BETA .000  
 P1/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

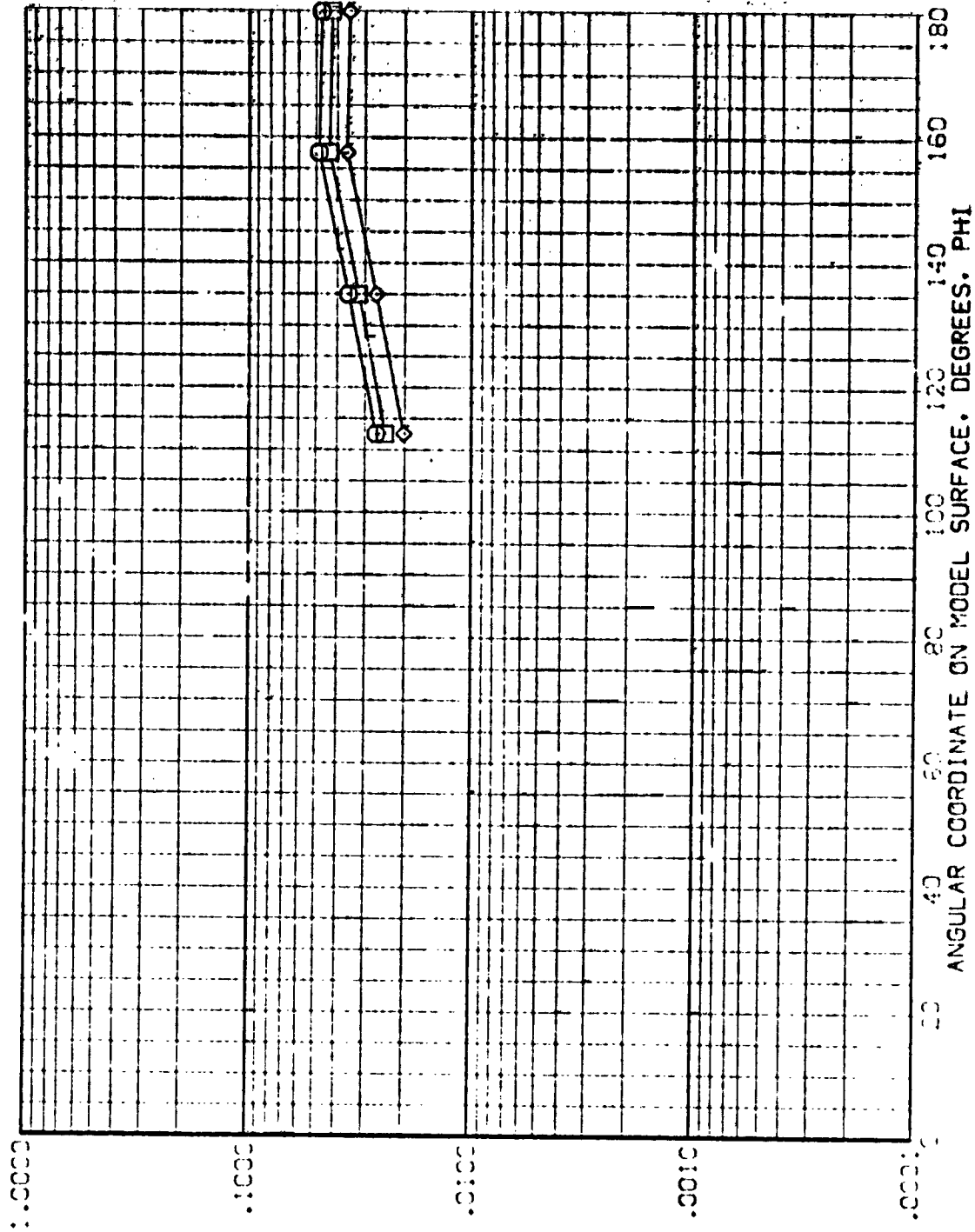


FIG. 5 TANK IN THE PRESENCE OF ORBITER

DIMENSIONS: HEIGHT 1.950 W/L .600 W/DTH 5.221  
 WEIGHT .950  
 AREA 1.000

PARAMETRIC VALUES  
 ALPHA 90.000 SETA .000  
 P/W/L 1.000

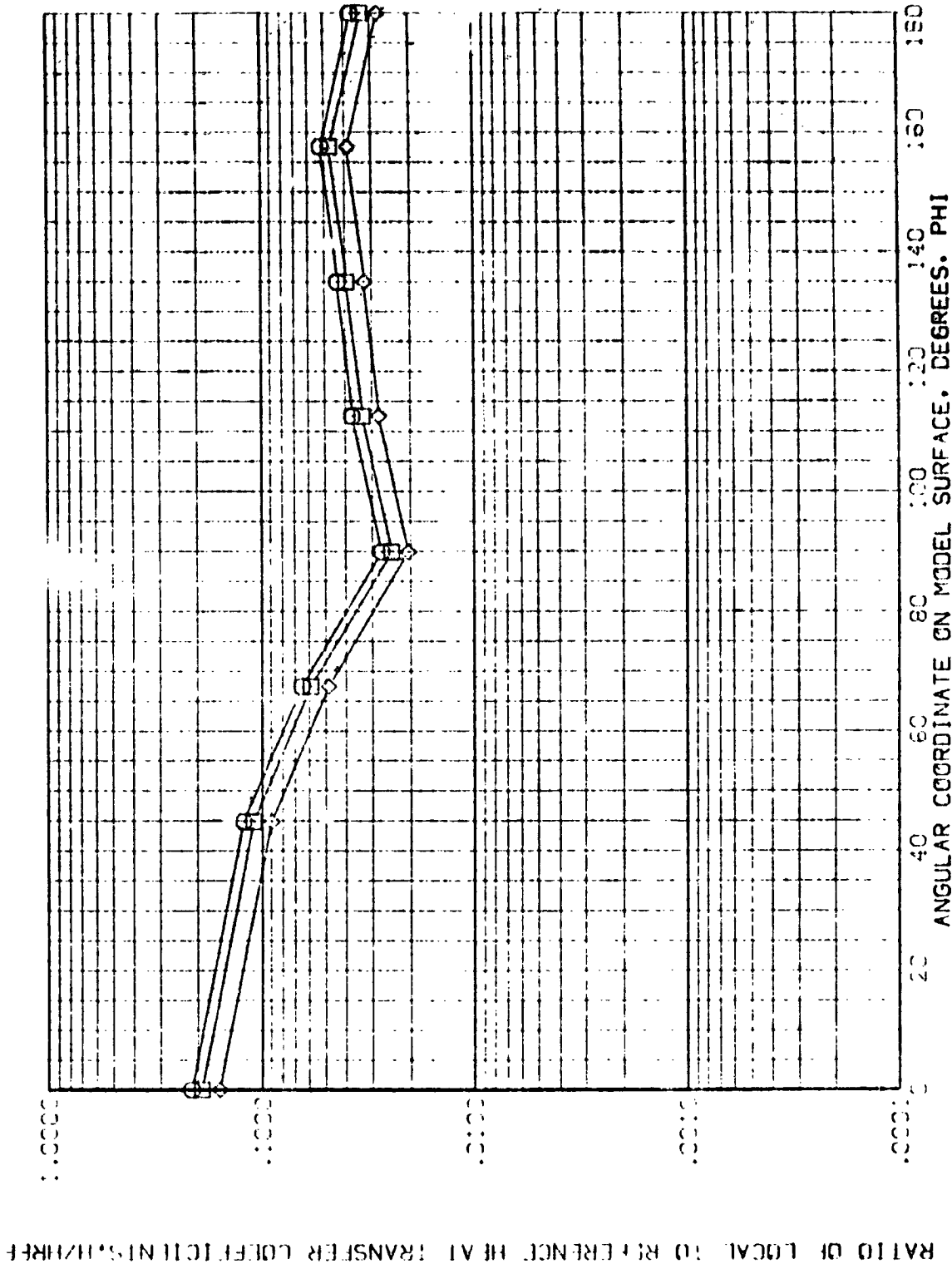


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVG 3.5-135 (4.3 CI+1) EXTERNAL TANK (REVTC4)

SYMBOL MARKS V/L "ACH  
 1.000 .000  
 .500 .000  
 .250 .000  
 .125 .000

ALPHA  
 0.000

BETA  
 1.000

PARAMETRIC VALUES  
 ALPHA 0.000  
 BETA 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

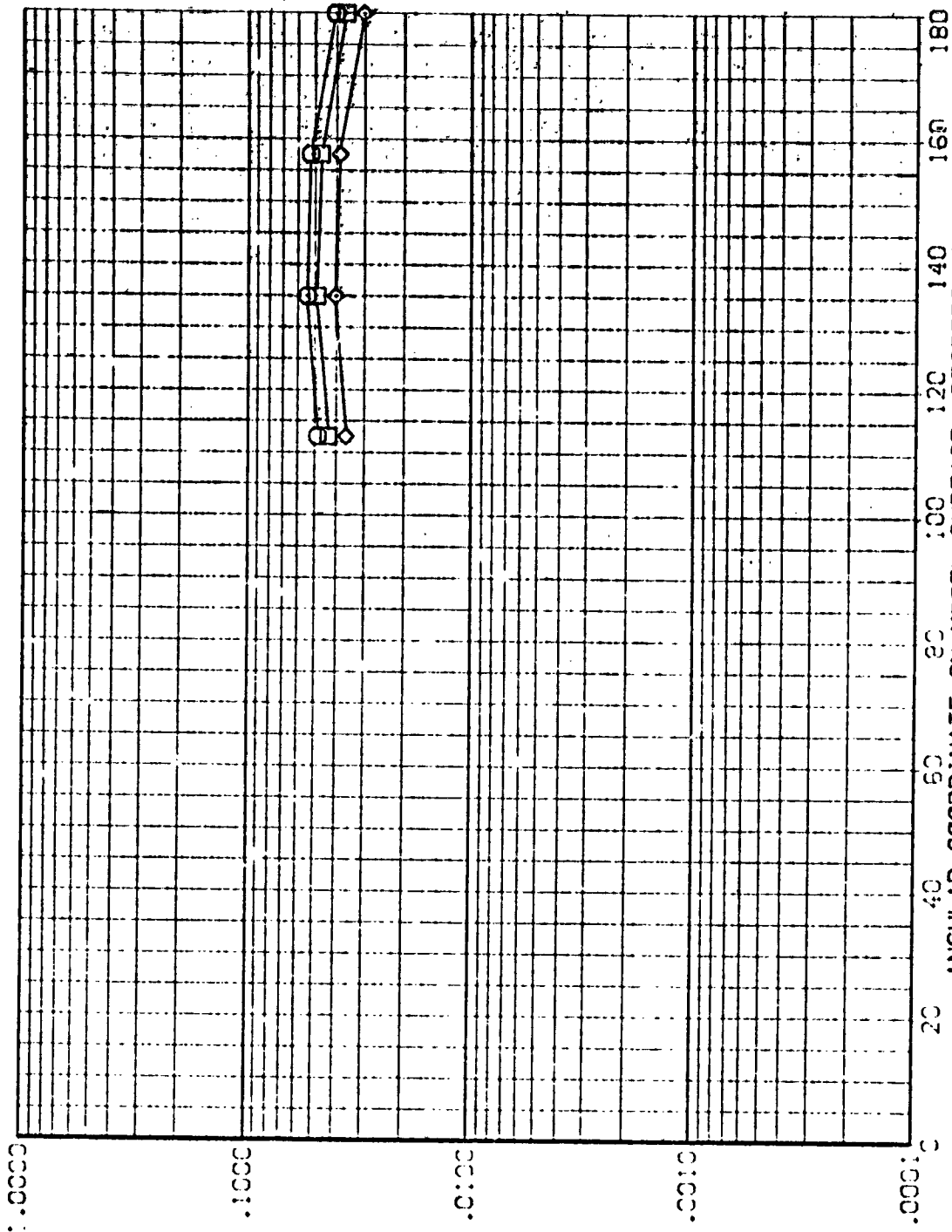


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01-T: EXTERNAL TANK (REV. 7-64)

SYMBOL:  $\diamond$   
 MACH: .855  
 MACH: .900  
 MACH: .950  
 MACH: 1.000

MACH: 5.221

BASIC GEOMETRIC VALUES  
 ALPHA: 90.000  
 BETA: 1.000

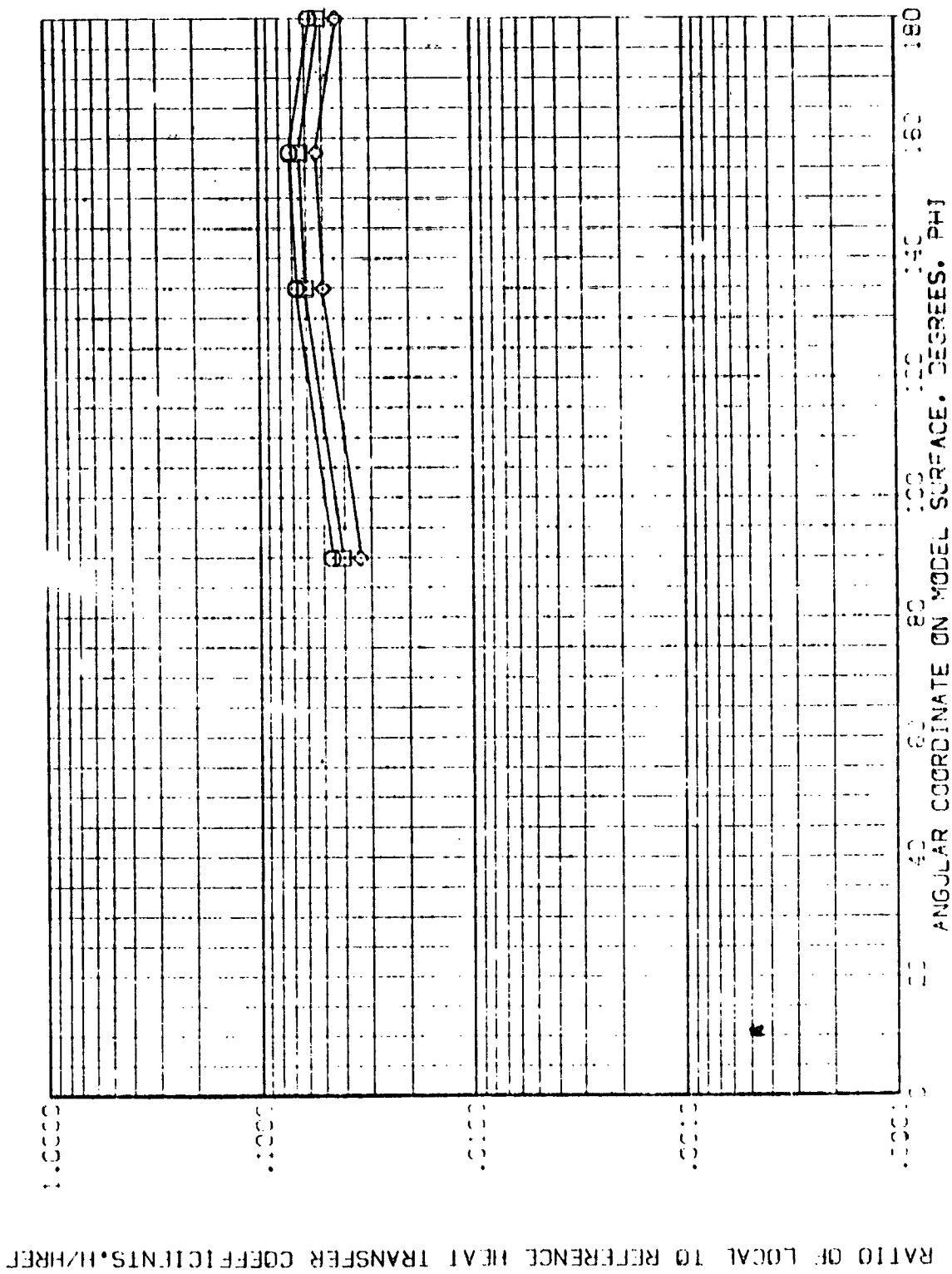


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AYES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T04)

SYMBOLS  
 H/HREF .250  
 X/L .750  
 MACH 5.221

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RV/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

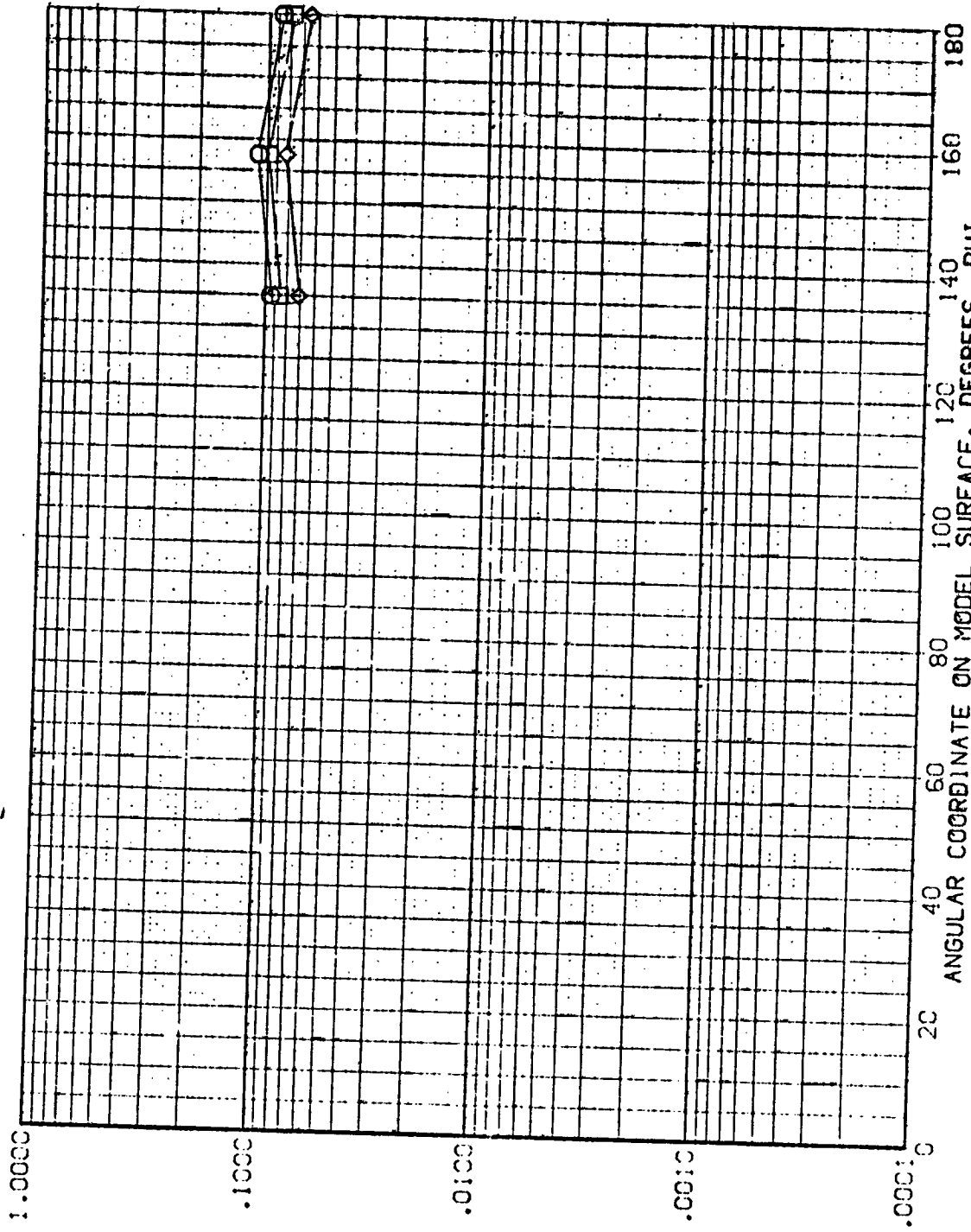


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T04)

SPEED H/REF  
 .850  
 .900  
 1.000

M/L MACH  
 .800 5.221

PARAMETRIC VALUES  
 ALPHA 90.000  
 BETA 1.000  
 RML .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

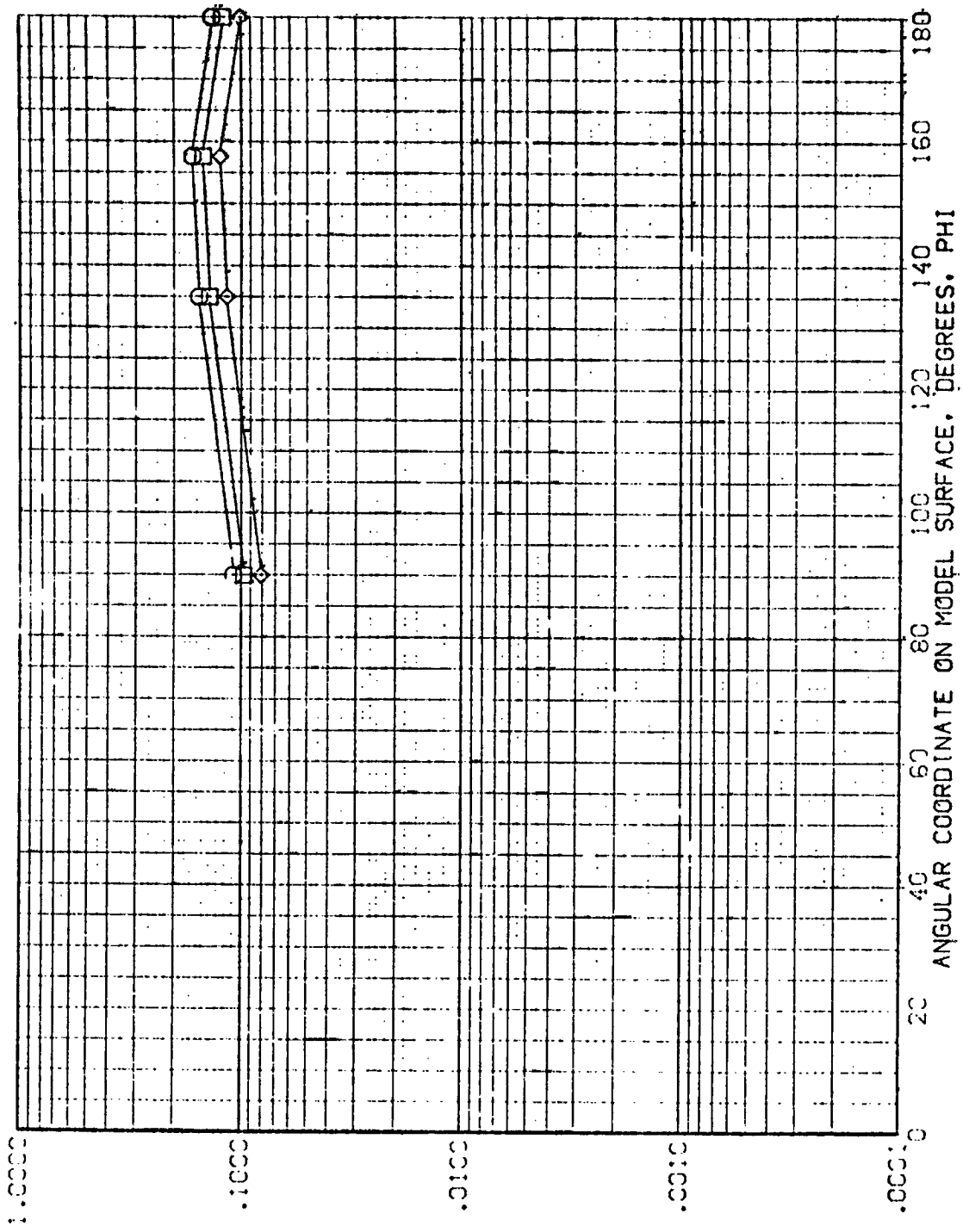


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 C1+T1 EXTERNAL TANK

(REV T04)

SYMBOL  
 □  
 ○  
 ◇

MAN/HT .850  
 X/L .950  
 MACH 5.221

PARAMETRIC VALUES  
 ALPHA RN/L 1.000  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

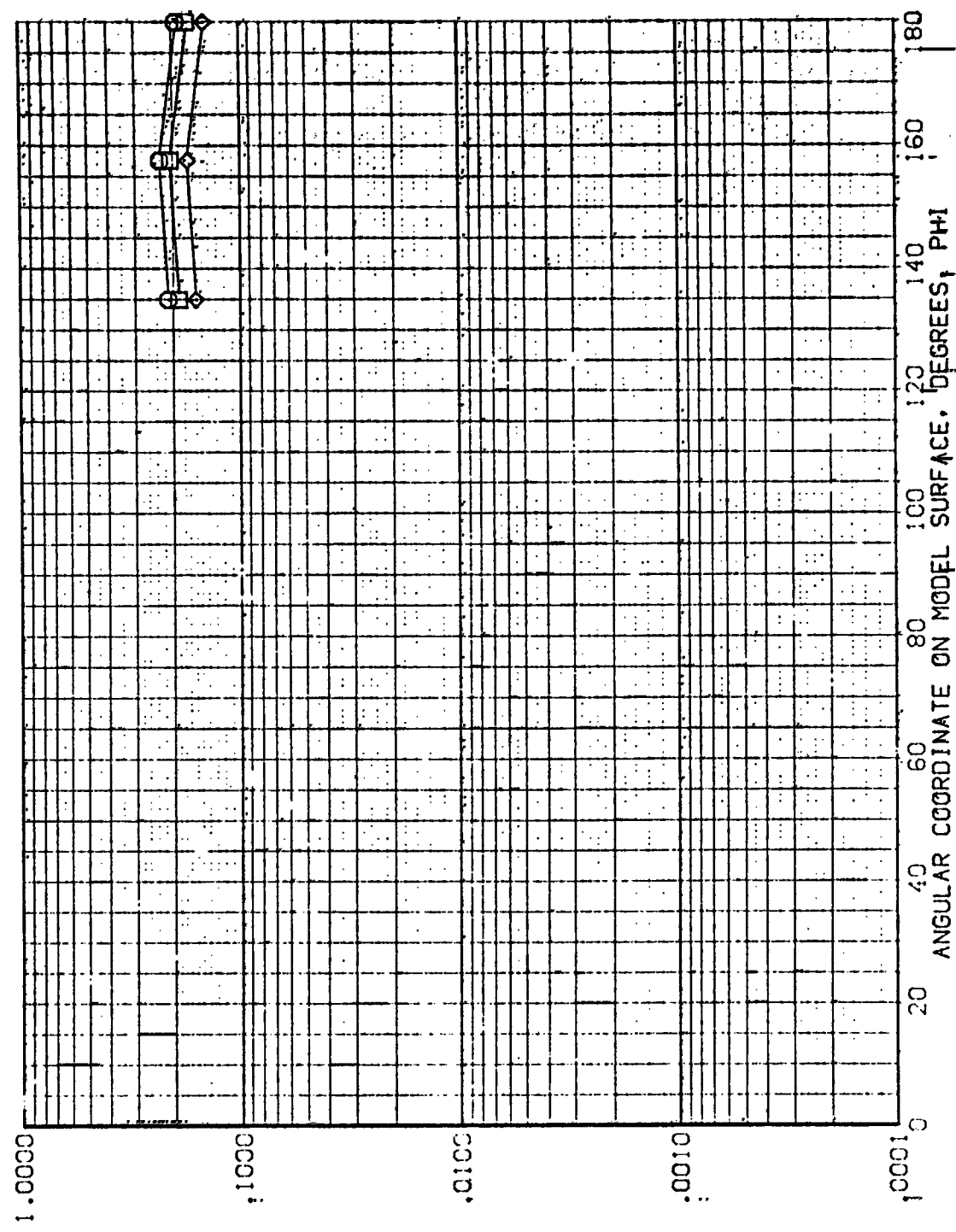


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AVES 3.5-195 IH28 01-71 EXTERNAL TANK

(REV T04)

SYSEC  
 1/10  
 1/10

W/W/H  
 .850  
 .900  
 1.000

ALPHA  
 PH/L

PARAMETRIC VALUES  
 90.000 BETA  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

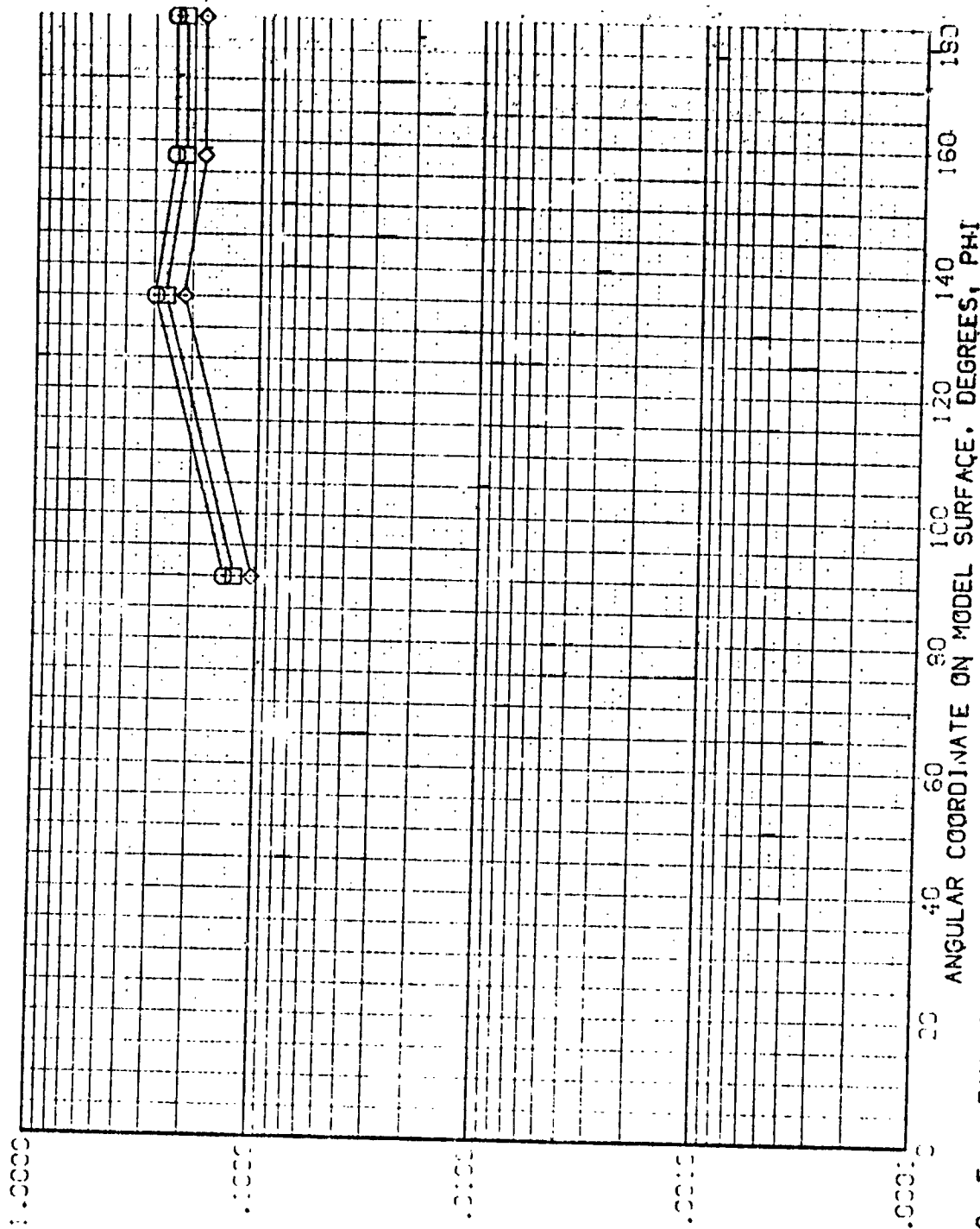


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-:95 IH28 01-T1 EXTERNAL TANK

(REV T05)

SYMBOL    HX/HT    X/L    MACH

◇    .85C    .36C    5.221

○    .90C            

□    1.00C            

PARAMETRIC VALUES

ALPHA    170.000

RM/L    1.000

BETA    .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

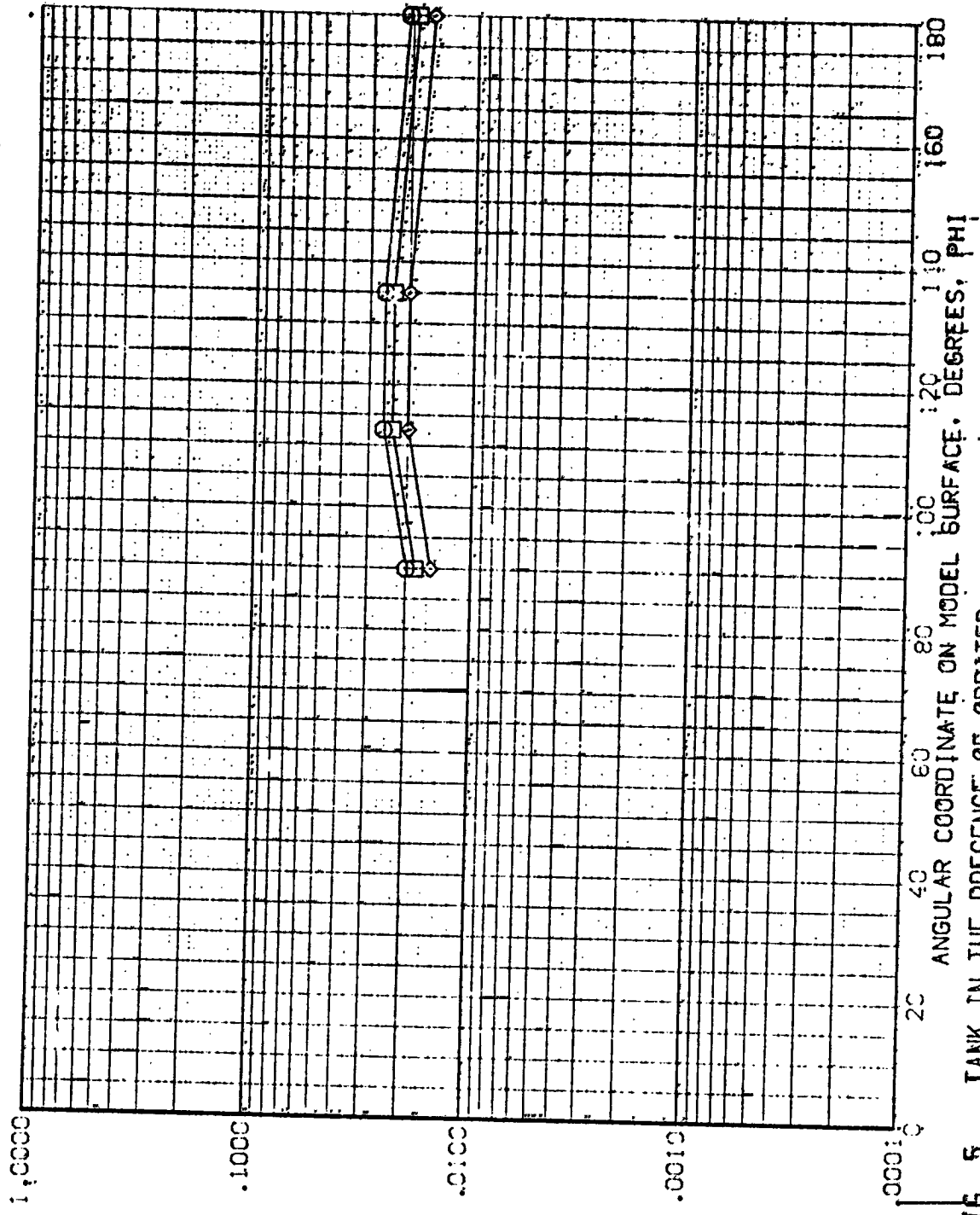


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T05)

SYMBOL H/WHT X/L MACH  
 ◊ .850 .400 5.221  
 ◻ .900  
 ◻ 1.000

PARAMETRIC VALUES  
 ALPHA 125.000  
 BETA 1.000  
 RY/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

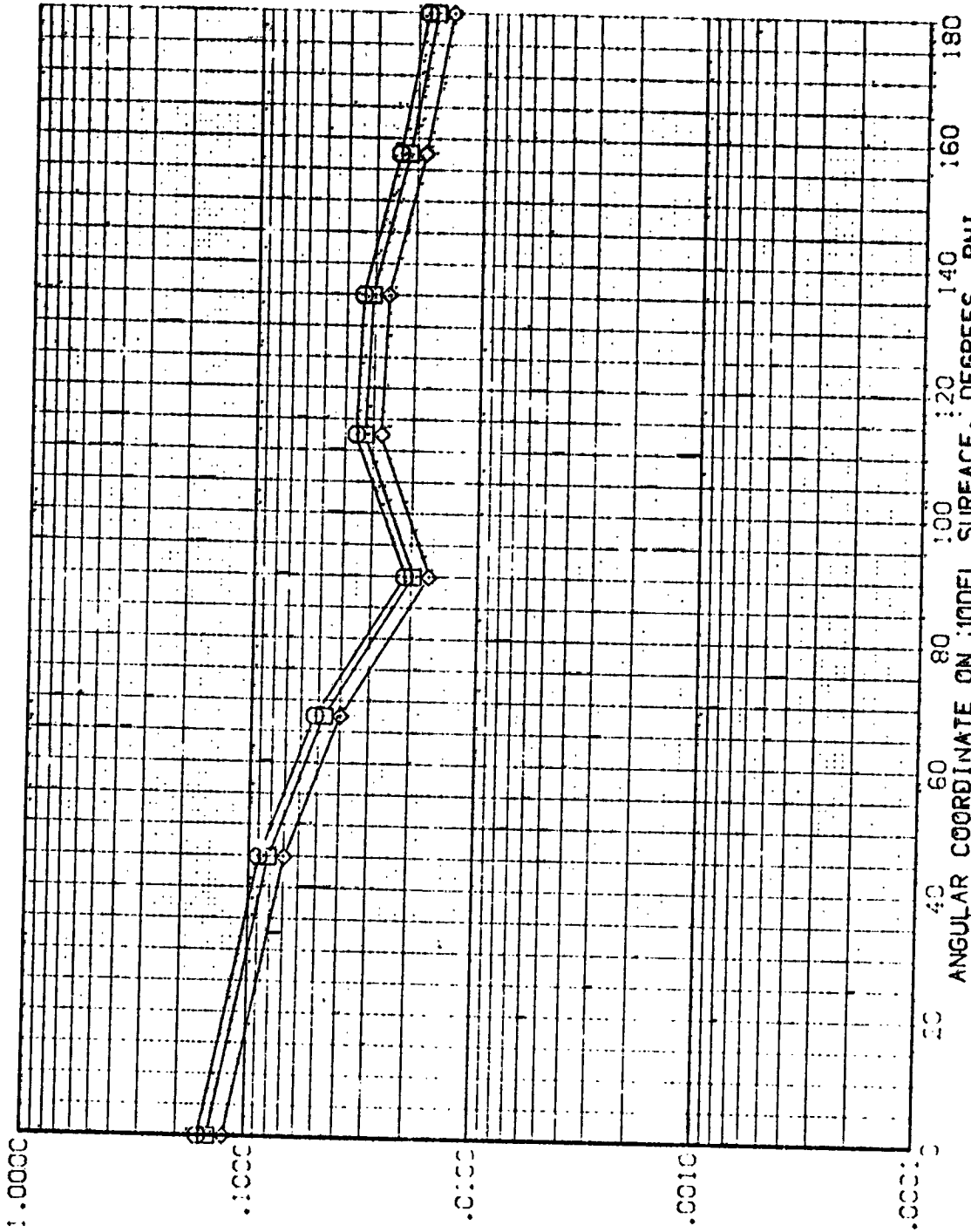


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T05)

SYMB. WAVELENGTH MACH  
 .85C .450 5.221  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 120.000  
 BETA 1.000

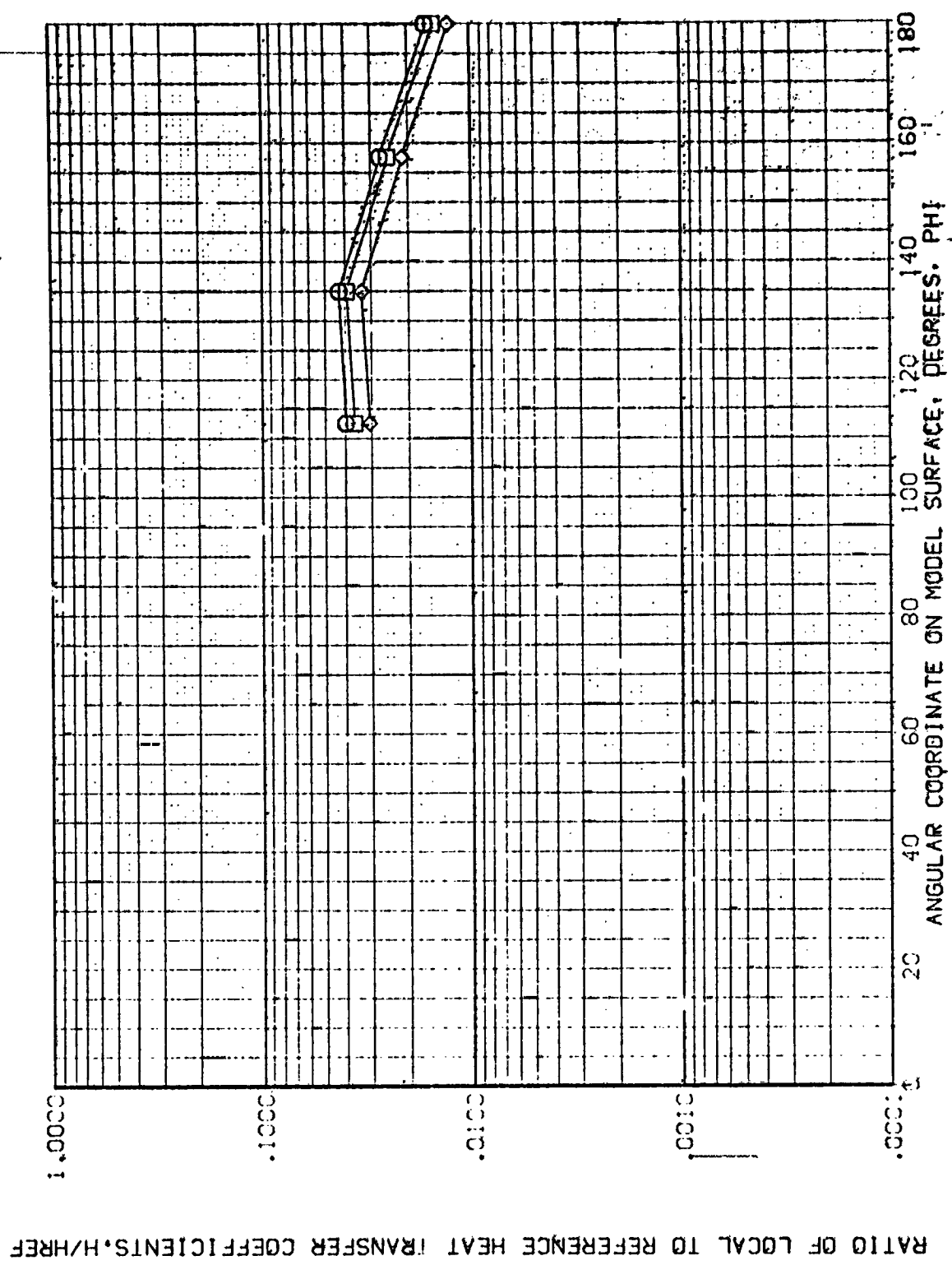


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3,5-195 IH28 01+T1 EXTERNAL TANK

(REV TOS)

SYMBOL HA#/FT X/L MACH  
 ○ 1850 .500 5.221  
 □ 1900 .900  
 △ 1.000

PARAMETRIC VALUES:  
 ALPHA 179,000 BETA .000  
 FN/L 1,000

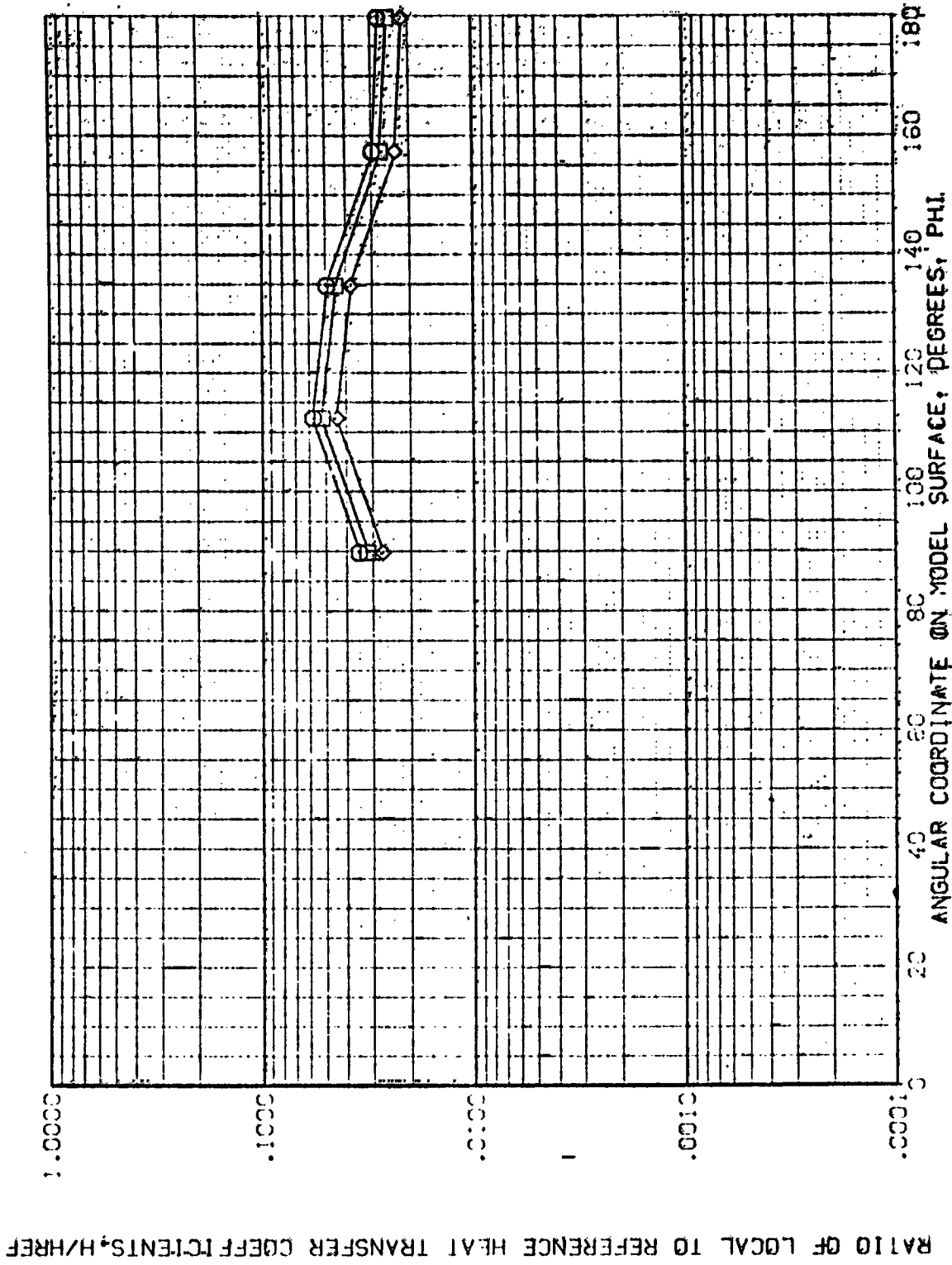


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 OI+TI EXTERNAL TANK

(REV T05)

SYSC. HAV/WT X/L MACH  
 .850 .550 5.221  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 120.000  
 BETA 1.000  
 .000

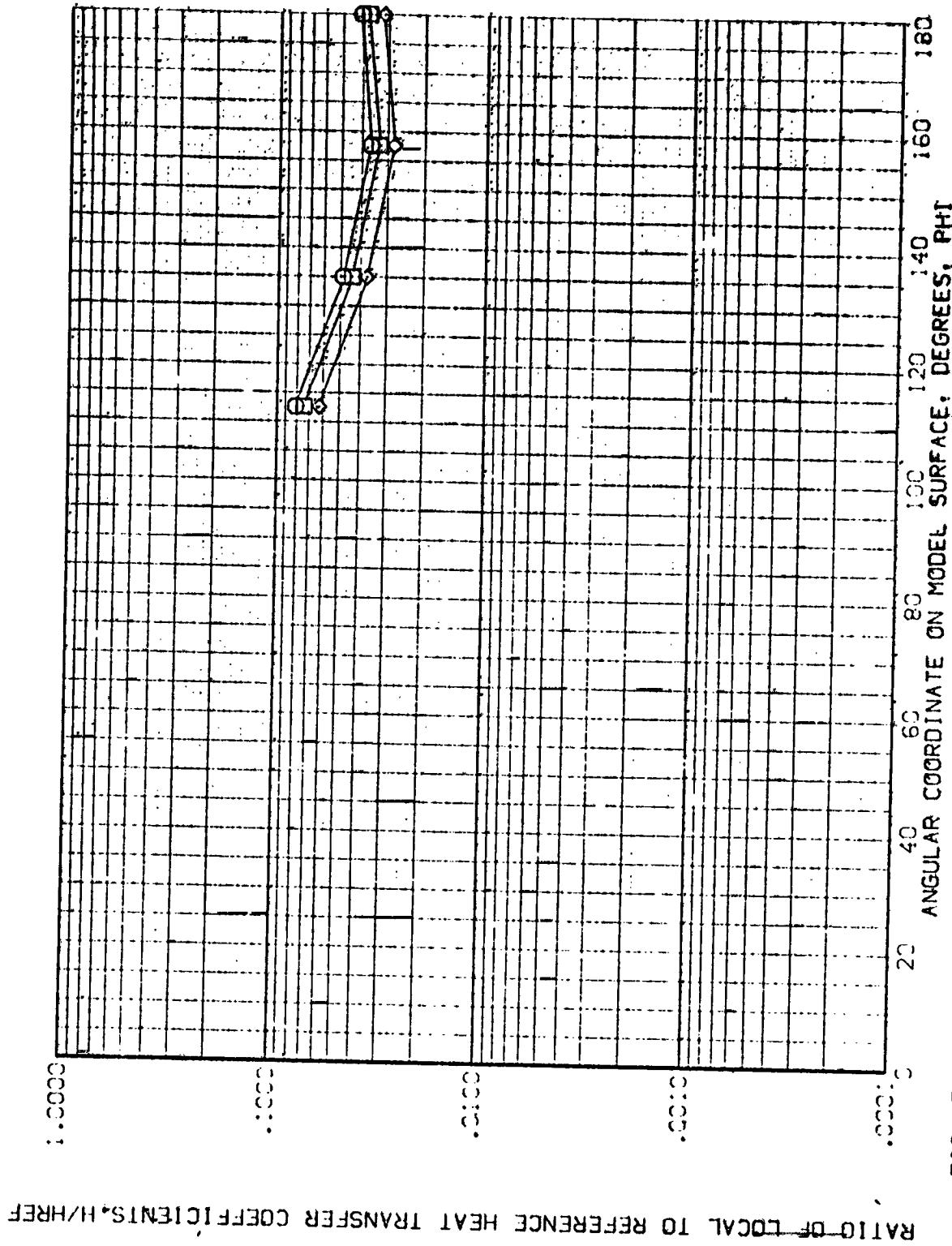


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 Q1+T1 EXTERNAL TANK (REV T05)

SYMBOL	HEIGHT	X/L	Y/L	W/L	PARAMETRIC VALUES
◇	.850	.600	.5221		120.000 BETA .000
◇	.900				1.000
◇	1.000				

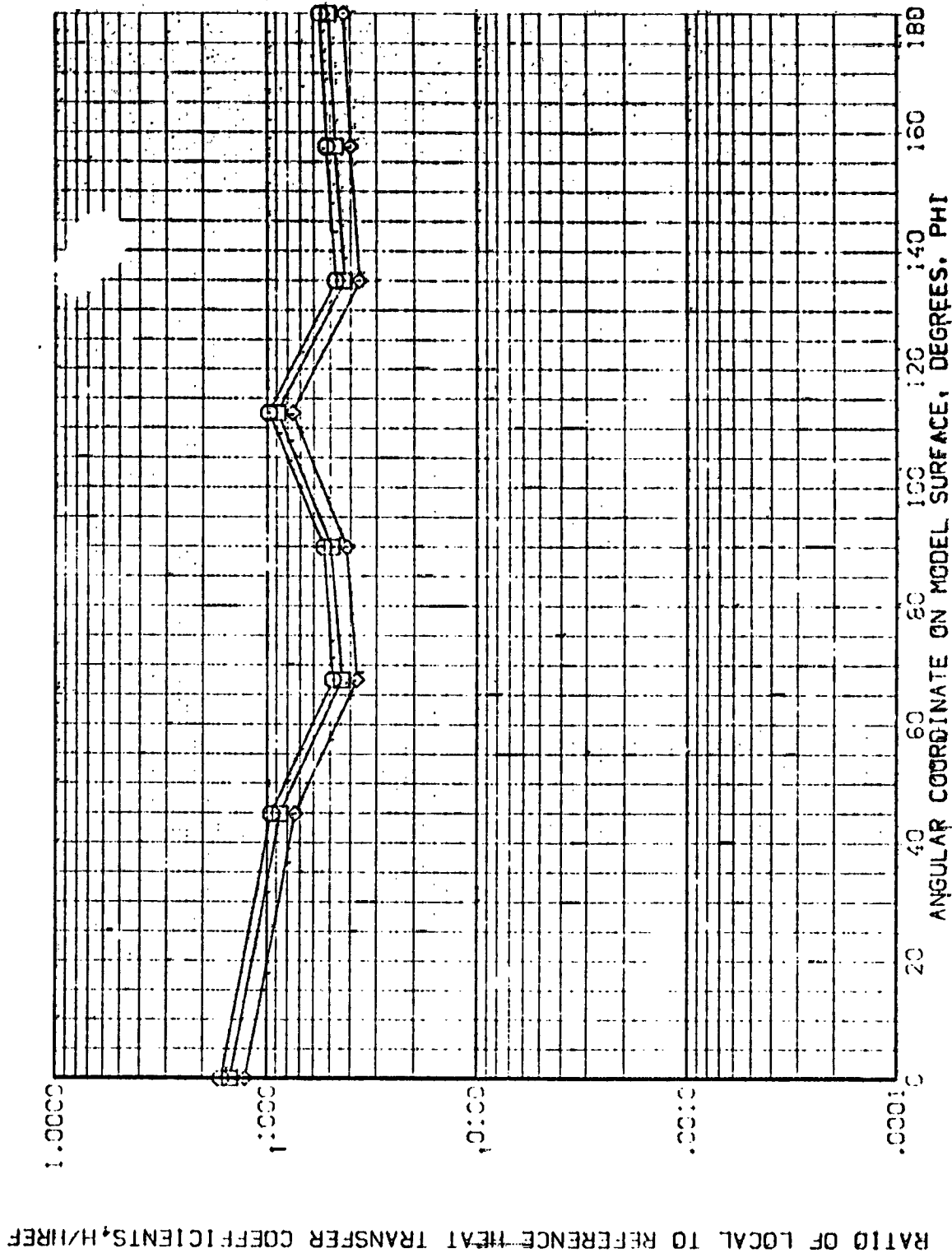


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+11 EXTERNAL TANK (REV105)

SPEED HEIGHT X/L MACH  
 0.850 1.850 5.221  
 0.900 1.900  
 1.000 2.000

PARAMETRIC VALUES  
 ALPHA 127.000 BETA .000  
 PV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

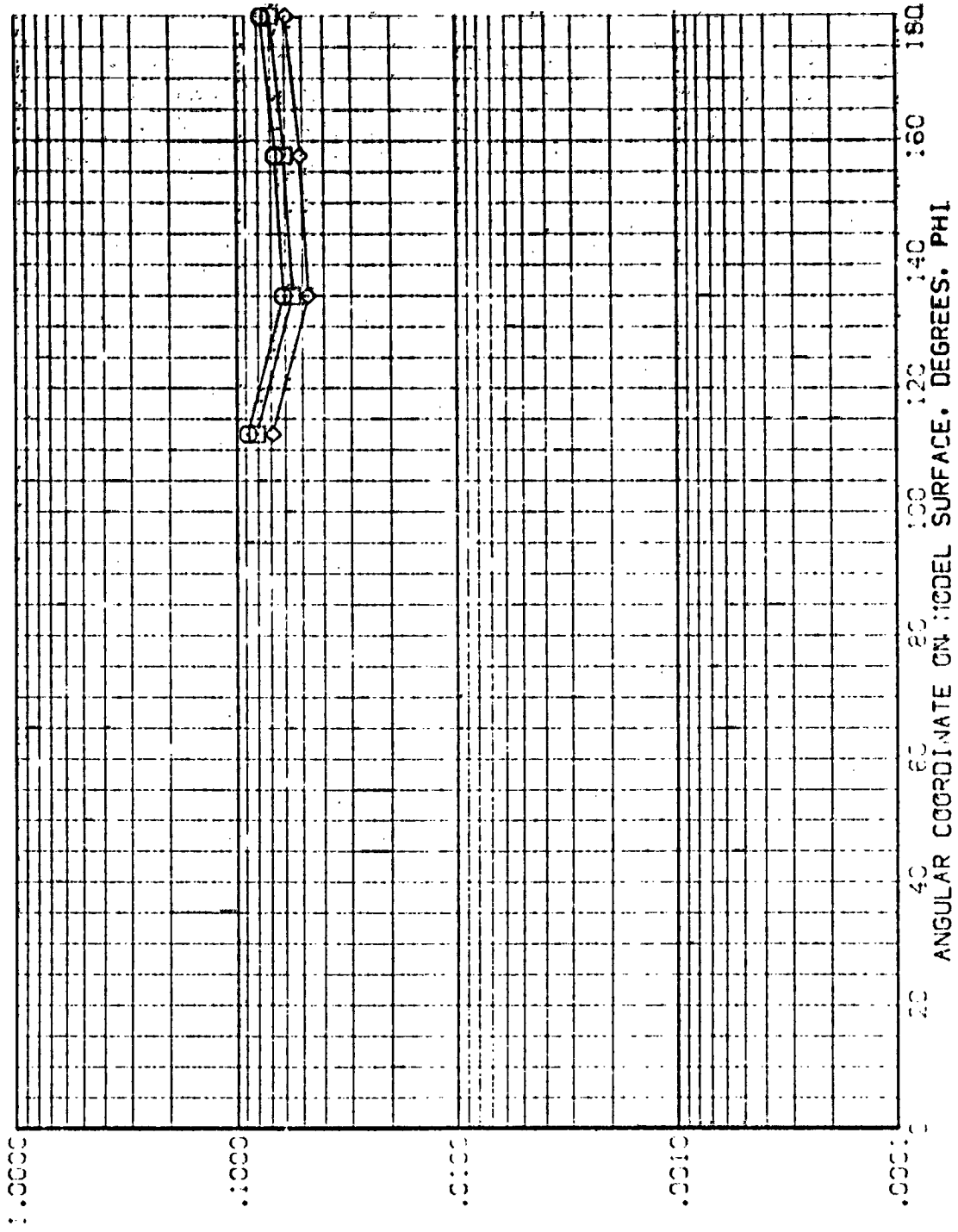


FIG. 5 TANK IN THE PRESENCE OF ORBITER



AYES 3.5-195 IH28 OI+T1 EXTERNAL TANK

(REV T05)

SYMBOL MACH  
 .650  
 .850  
 .950  
 1.000

PARAMETRIC VALUES  
 ALPHA 120.0000 BETA .000  
 RAYL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

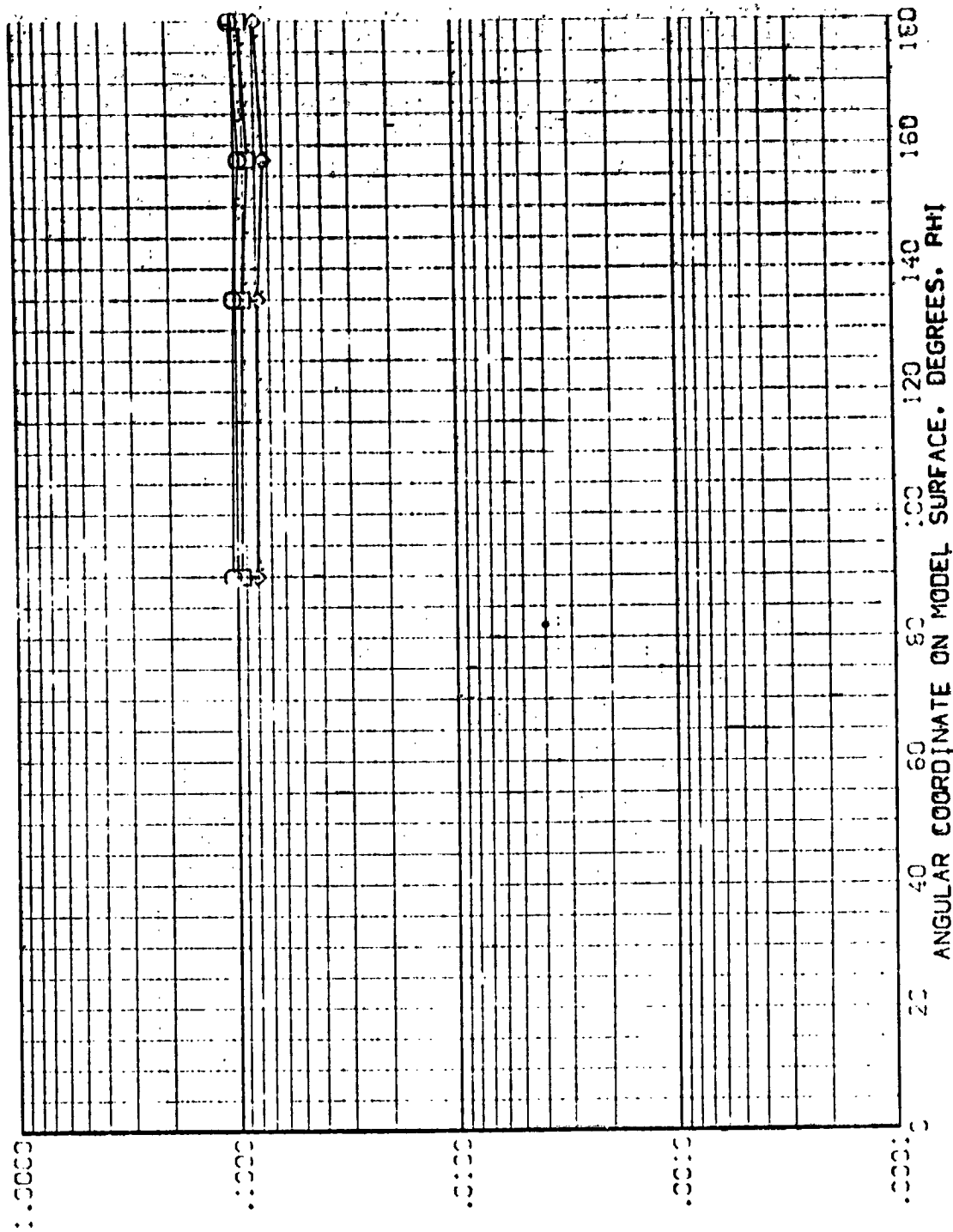


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REPRODUCED FROM  
 ORIGINAL PAGE 10

AVES 3.5-195 IH28 01+71 EXTERNAL TANK (REV 05)

PARAMETRIC VALUES  
 ALPHA .25.000 BETA .000  
 P/L 1.000

WIND VELOCITY  
 VACH 5.221  
 WIND DIRECTION  
 WACH 1.750

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

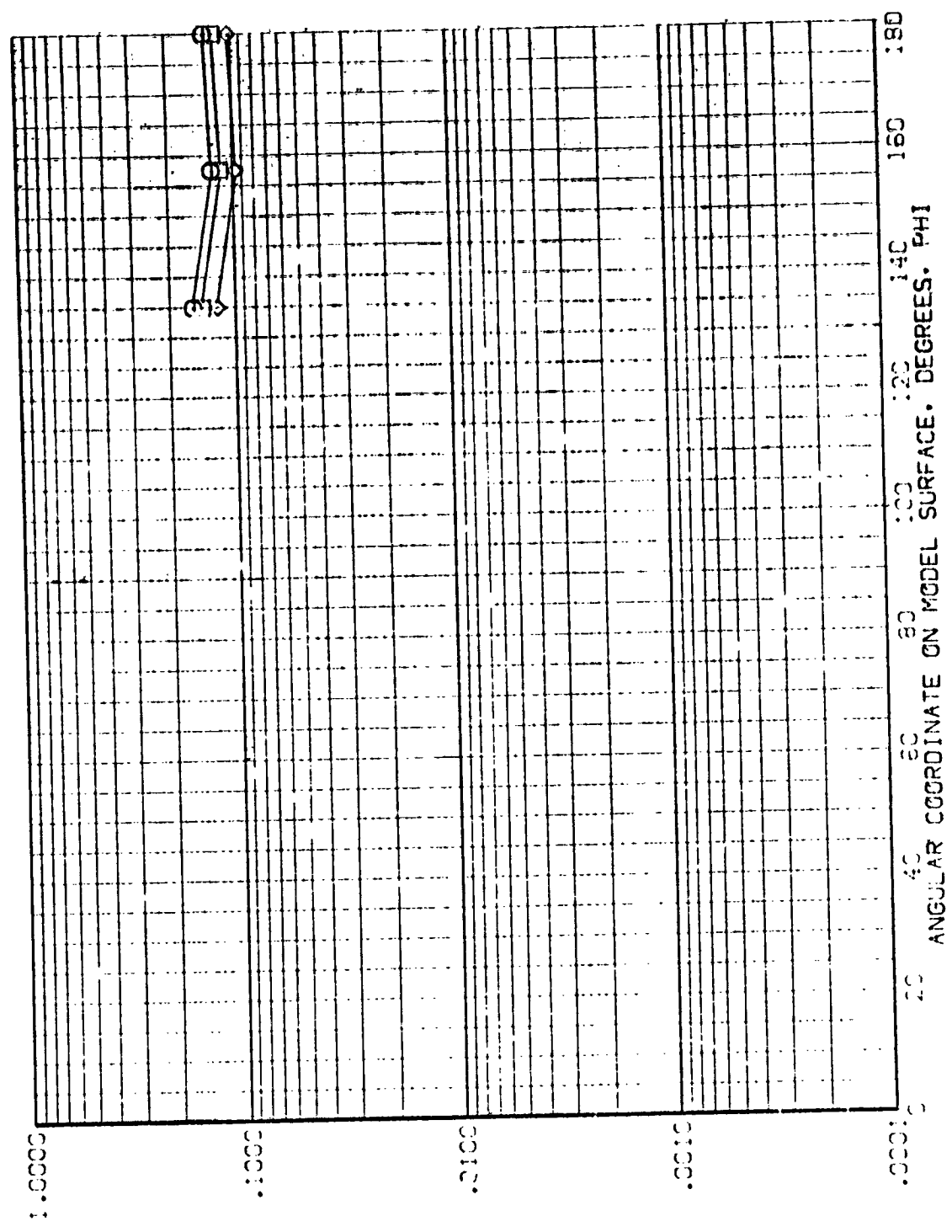


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REF 05)

PARAMETRIC VALUES  
 ALPHA 27.000 BETA .000  
 RAYL 1.000

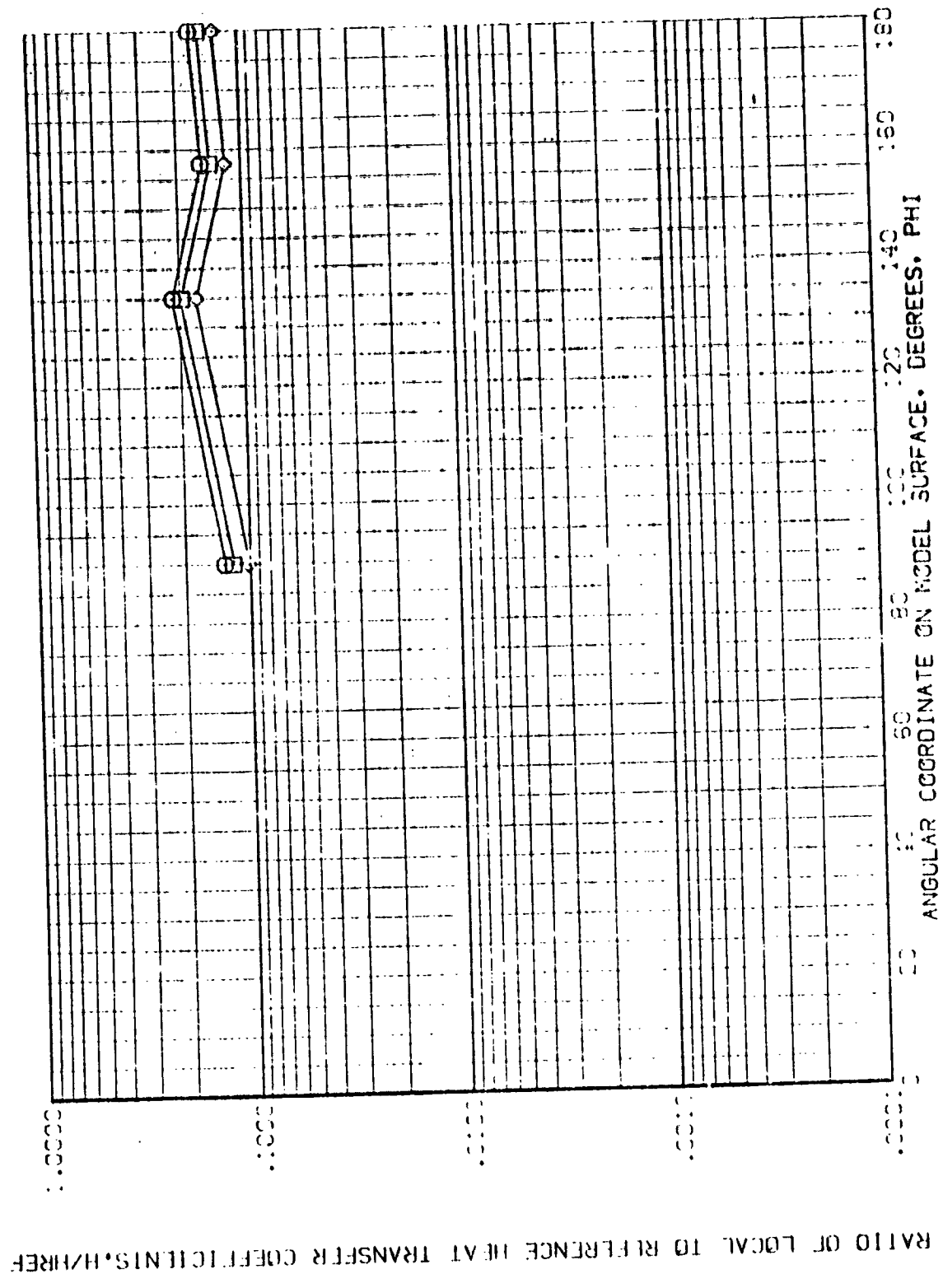


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1428 C14T1 EXTERNAL TANK

(REV T05)

S-VEE H<sub>REF</sub> M/L MACH  
 .000 .500 5.221  
 .000 .000  
 1.000

PARAMETRIC VALUES  
 ALPHA 100.000 BETA .000  
 P<sub>W/L</sub> 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

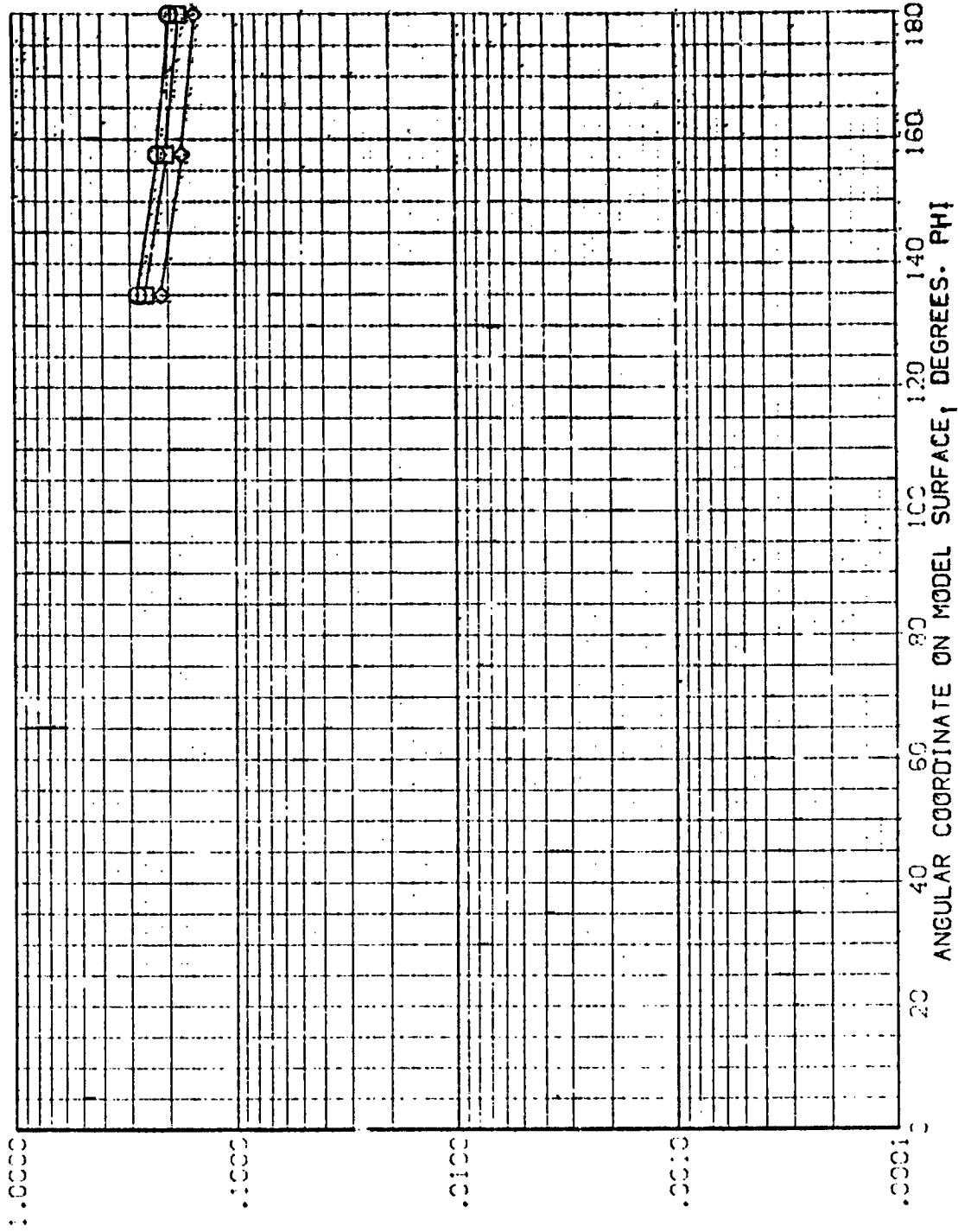


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T05)

SYMBOL  
 ◆ 1.000  
 □ .900  
 ○ .850

Y/L .900 MACH 5.221

PARAMETRIC VALUES  
 ALPHA 120.000 BETA .000  
 RN/L 1.000

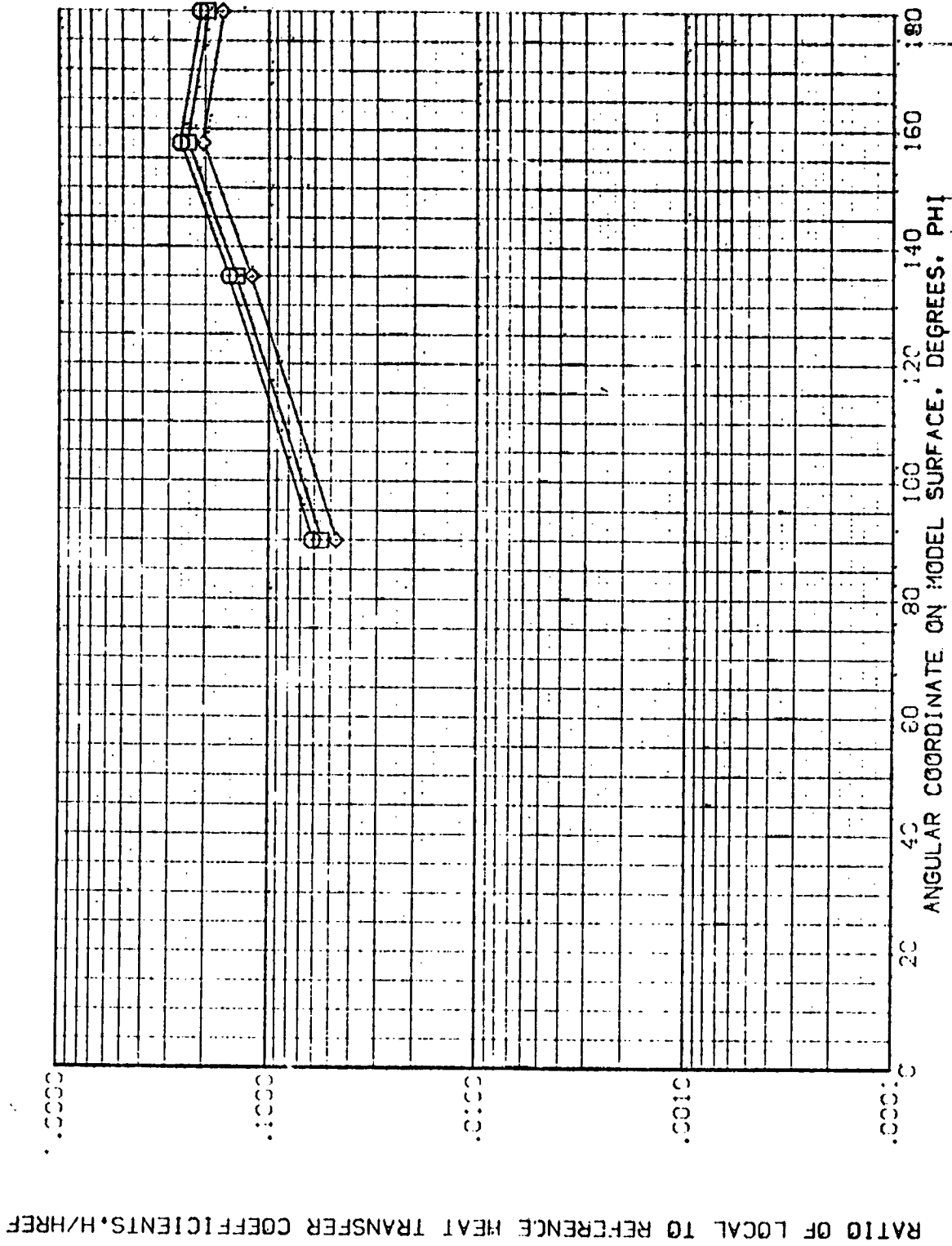


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3,5-195 1428 01+T1 EXTERNAL TANK (REV T06)

SYMBOL    H/W/L    X/L    YAC    MACH  
 □        .850    .350    5.220  
 ◇        .950    .350    5.220

PARAMETRIC VALUES  
 ALPHA    -120.000  
 RV/L     1.000  
 BETA     .000

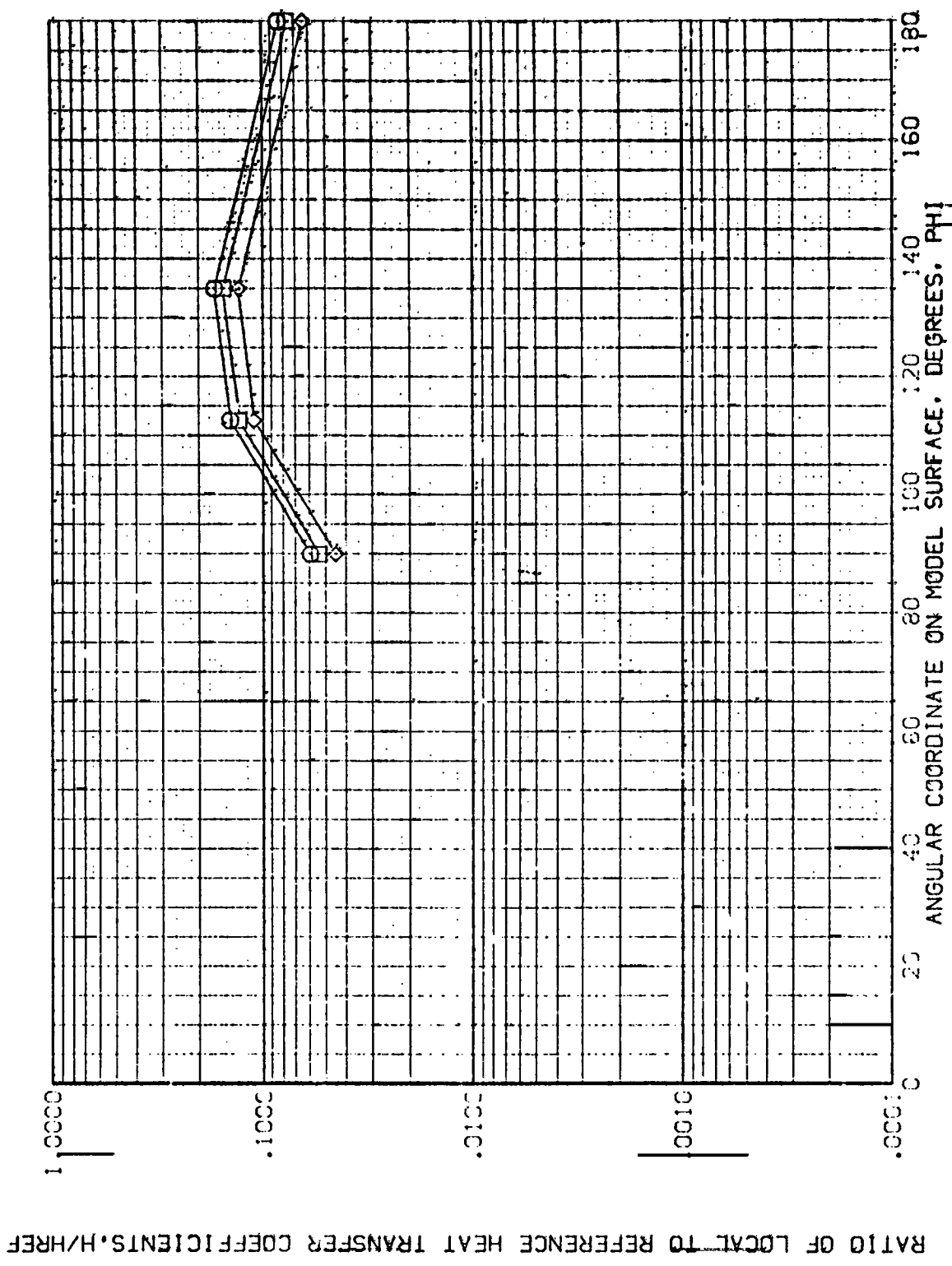


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1H28 01+T1 EXTERNAL TANK

(REV T06)

SYMBOL H/W/HT X/L MACH  
 □ .850 .400 5.220  
 ◊ .900 .400 5.220  
 ○ 1.000 .400 5.220

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA 1.000  
 R1/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

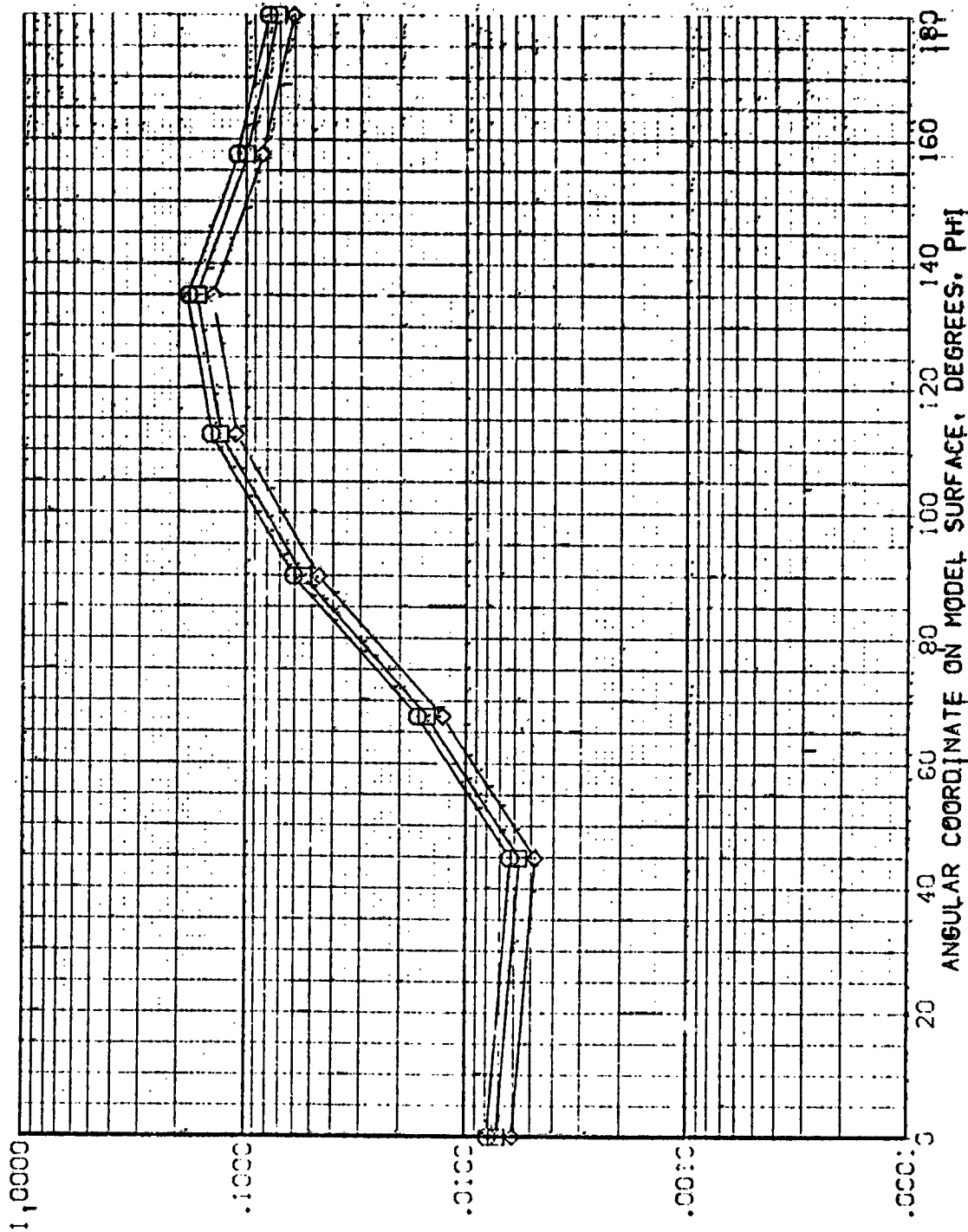


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AYES 3.5-195 IH28 G1+T1 EXTERNAL TANK

(REV T06)

SYMBOL MARK/HT X/L MACH  
 ◊ □ .850 .450 5.273  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA 1.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

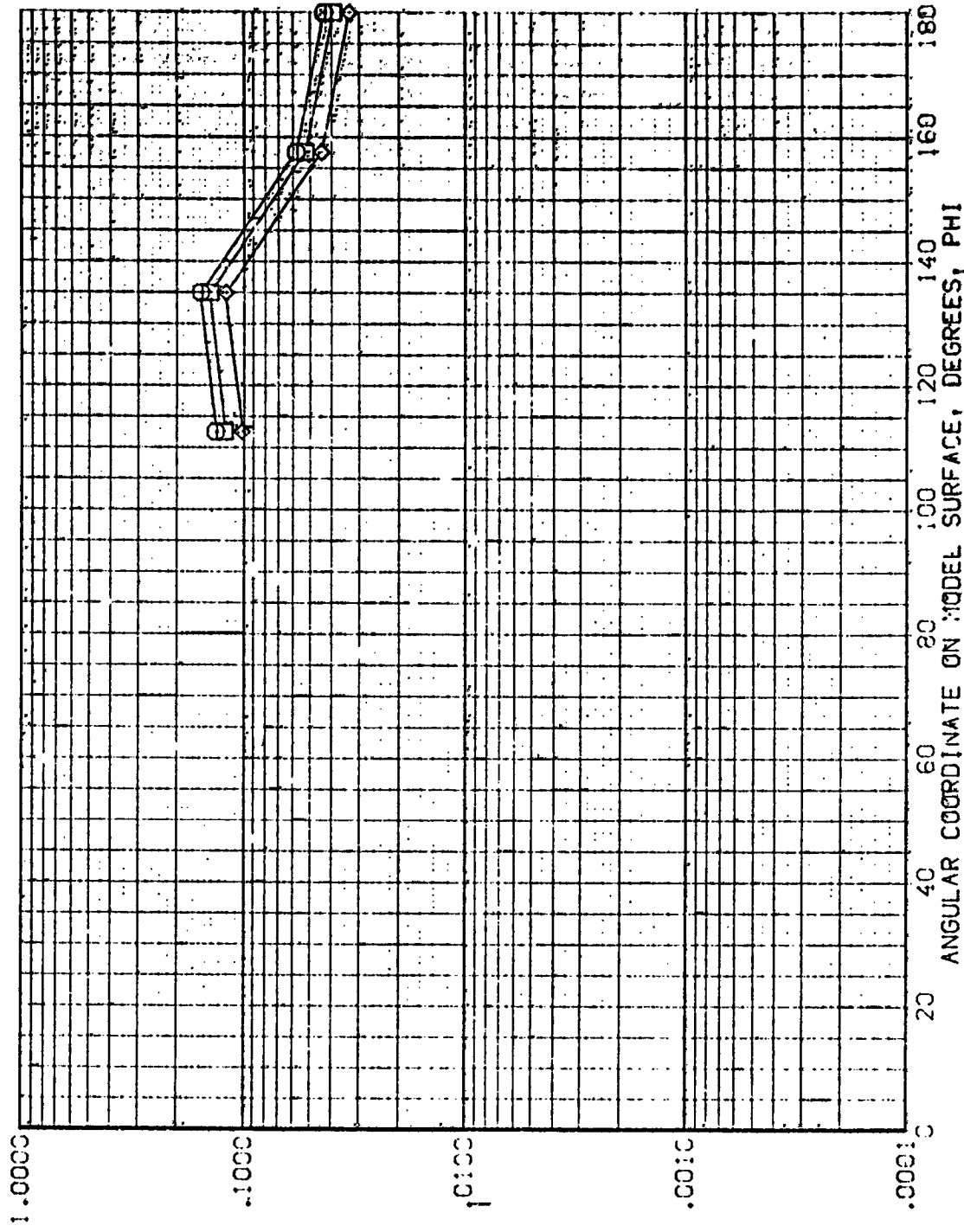


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T06)

$\diamond$  1.0  
 S<sub>REF</sub> .850  
 X/L .500  
 MACH 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA 1.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

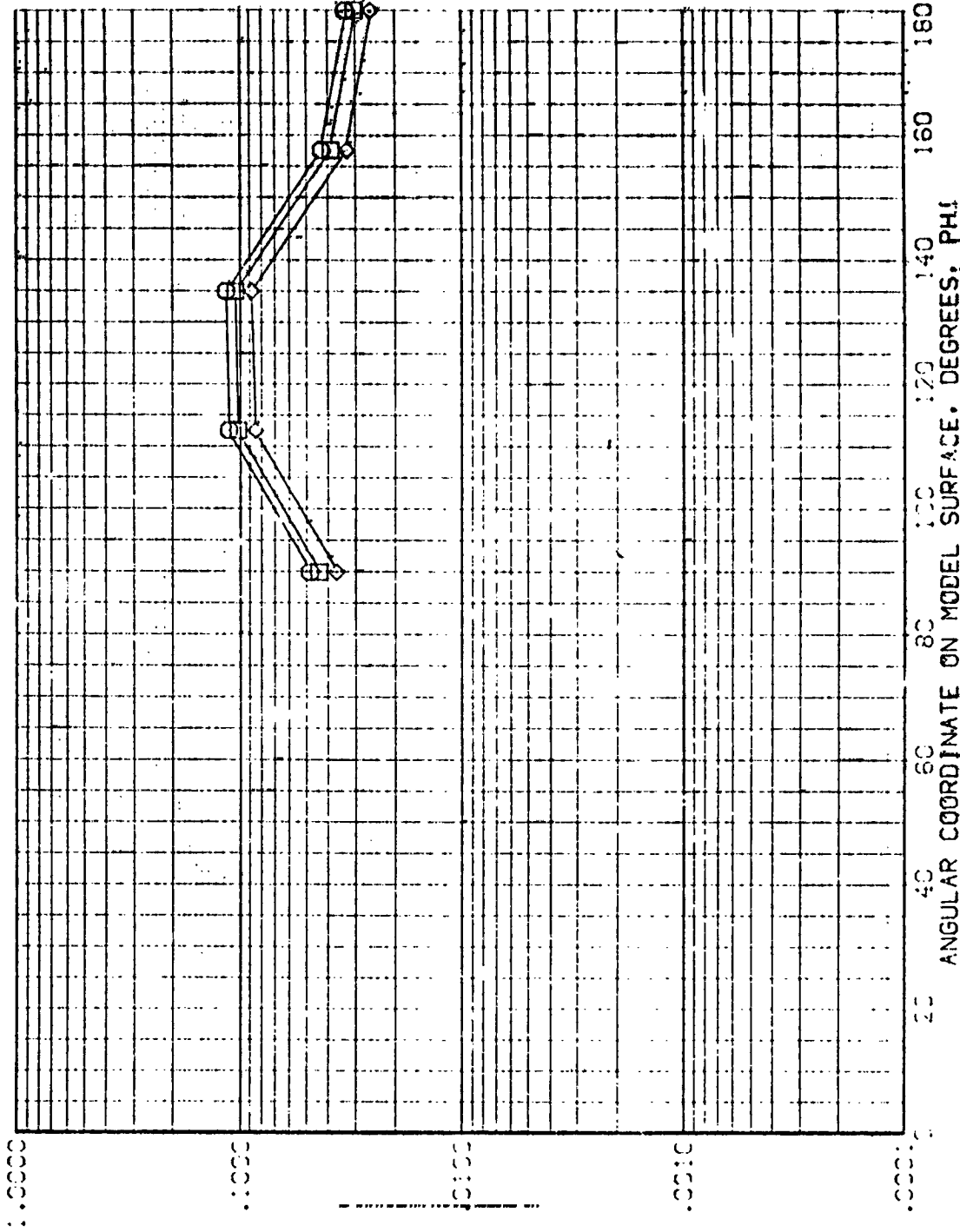


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AXES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T06)

SYMBOL MAP/REF Y/L MACH  
 ◇ 110 .850 .550 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RW/L 11.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

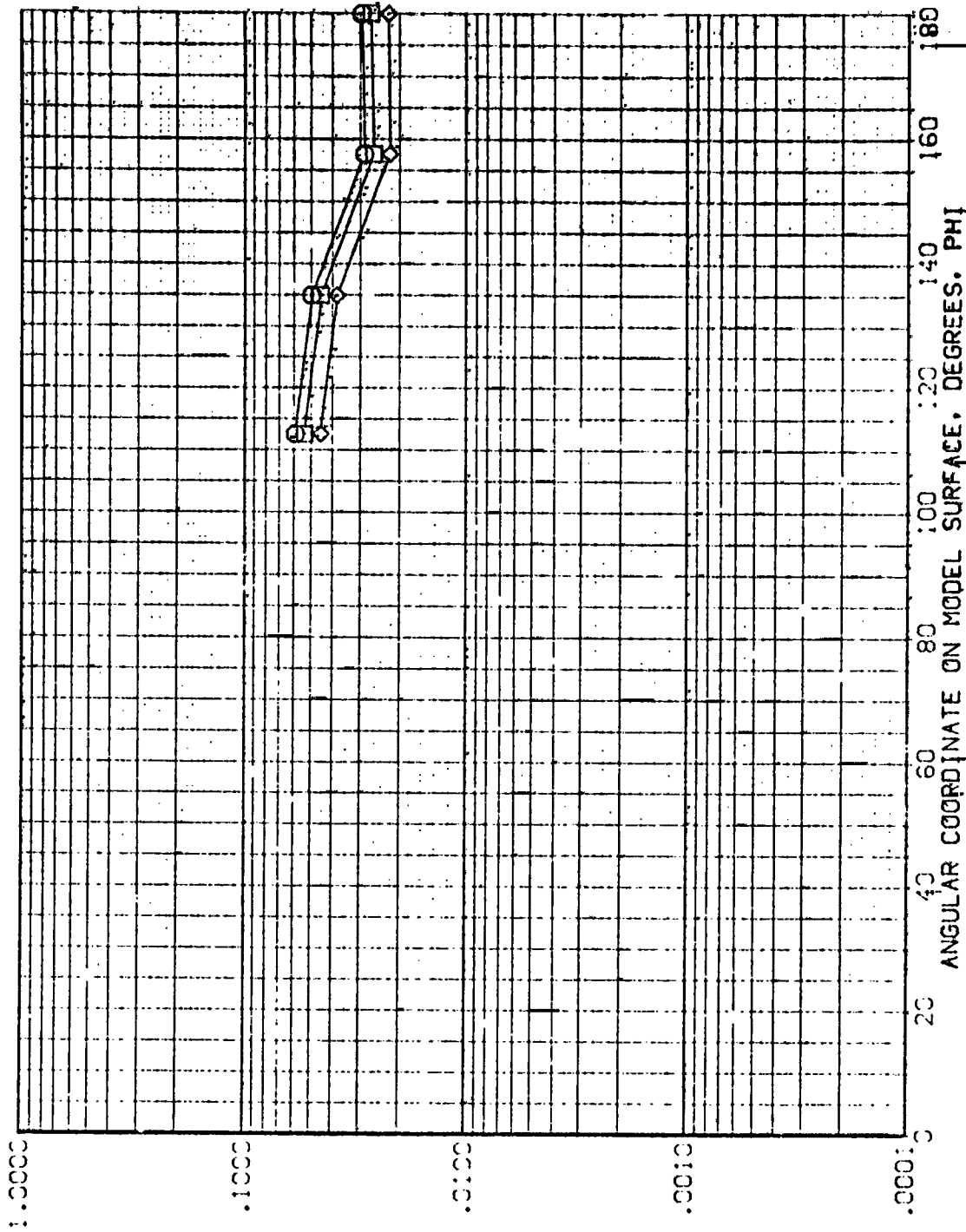


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AXES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T06)

SYMBOL:  $\diamond$   $\square$   
 H<sub>REF</sub> .850  
 X/C<sub>REF</sub> .600  
 MACH 5.220

PARAMETRIC VALUES  
 ALPHA .120  
 BETA .000  
 P<sub>W/T</sub> 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/H<sub>REF</sub>

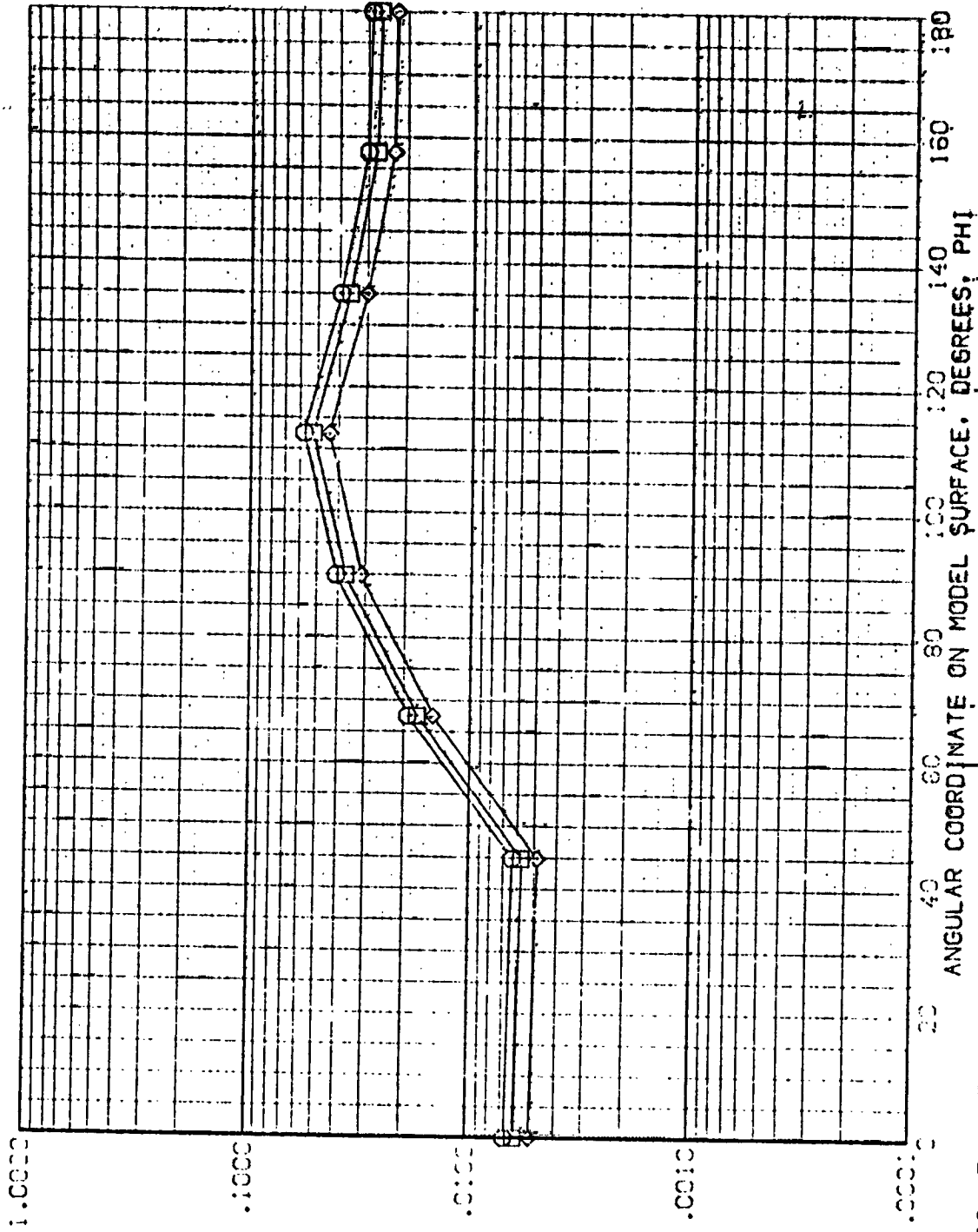


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T06)

SYMBOL H/W/H T X/L MACH  
◇ 1.000 .850 .650 5.220  
◇ 1.000 .900 .700 5.220  
◇ 1.000 1.000 1.000 5.220

PARAMETRIC VALUES  
ALPHA 1120.000 BETA .000  
RNL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

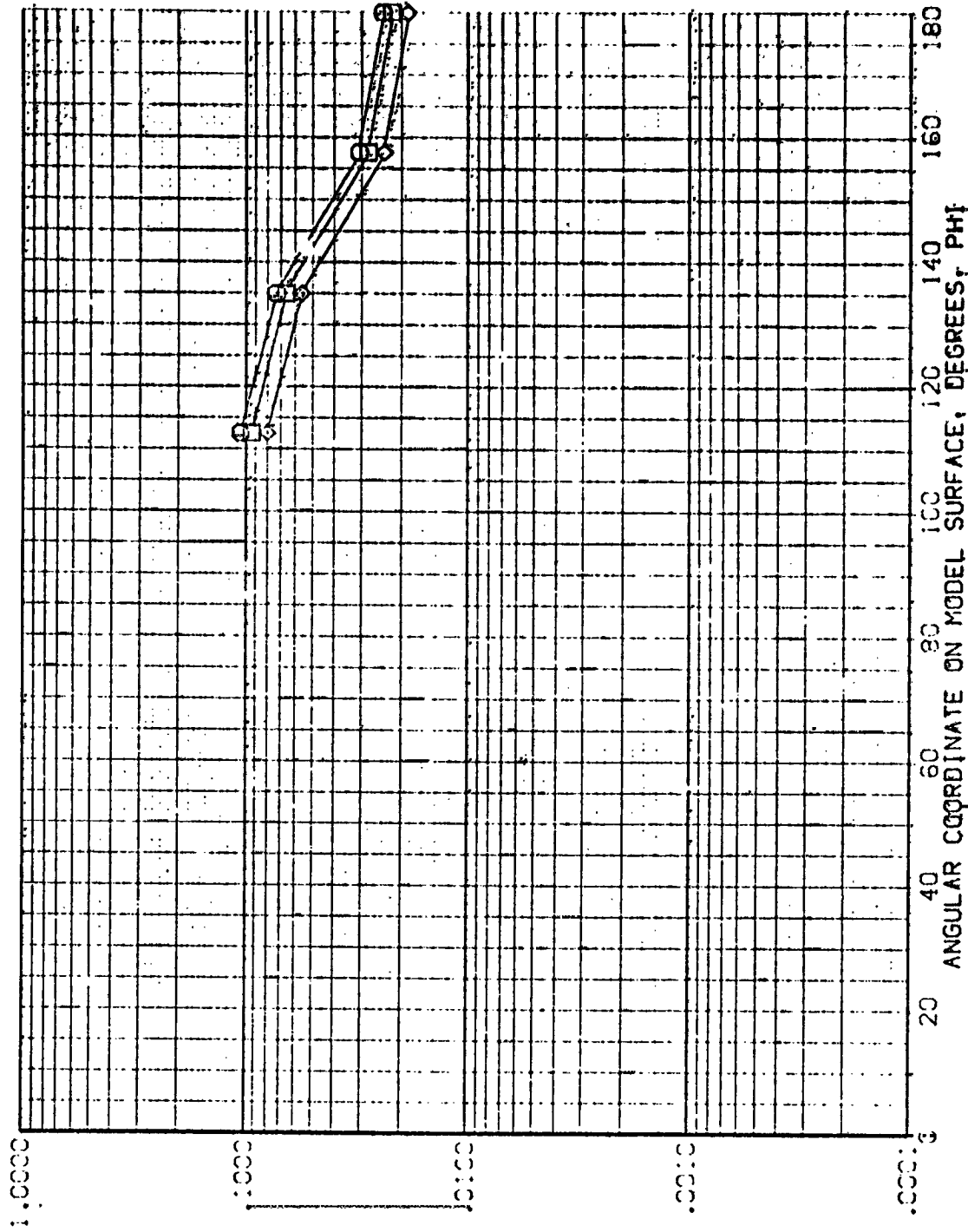


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV106)

SYMBOL MACH X/L MACH  
 ◊ .850 .700 5.220  
 ◻ .900 .900  
 ◻ 1.000

PARAMETRIC VALUES  
 ALPHA -127.000 BETA .000  
 RM/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

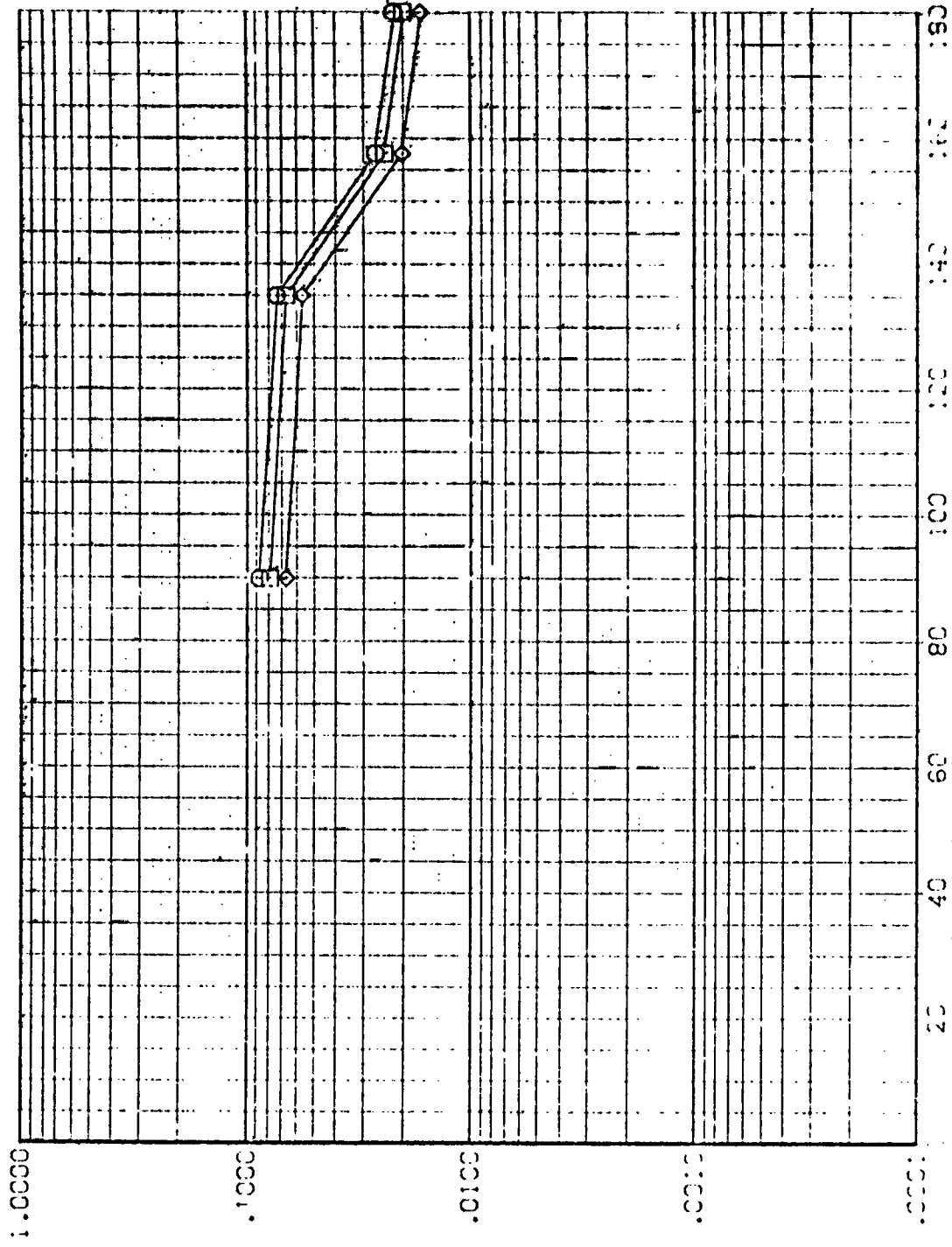


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 C1+T1 EXTERNAL TANK (REV706)

S-REF 448.1  
 .850  
 .900  
 1.000  
 1/2 .750  
 MACH 5.220

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA .900  
 RN/L : 500

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

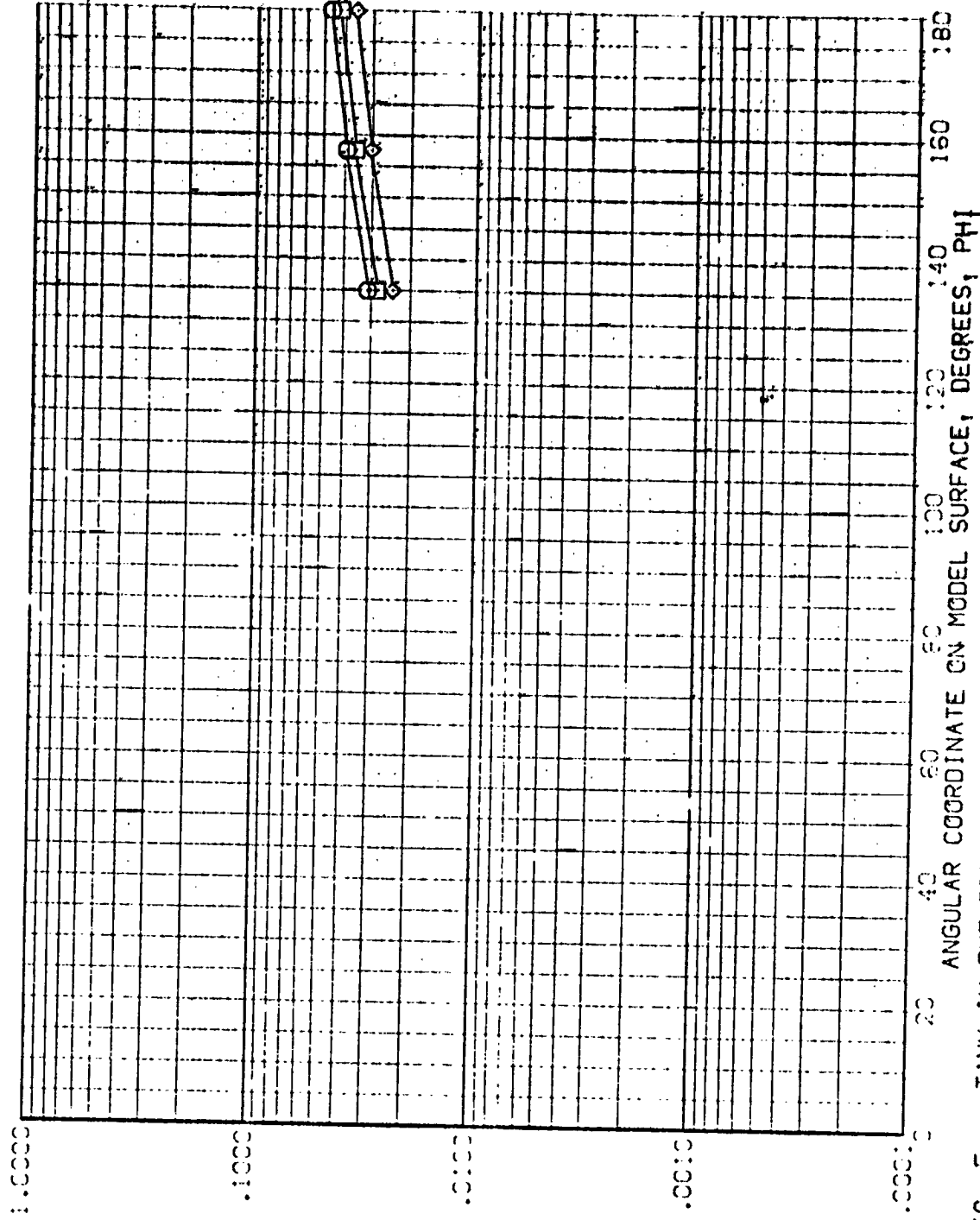


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+11 EXTERNAL TAN:

(REV106)

SYMBOL

◇	WAKE	X/L	MACH
□	NOSE	.800	5.220
○	LEADING	.900	
◇	TRAILING	1.000	

PARAMETRIC VALUES	
ALPHA	-120.000
BETA	1.000
CONF	

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

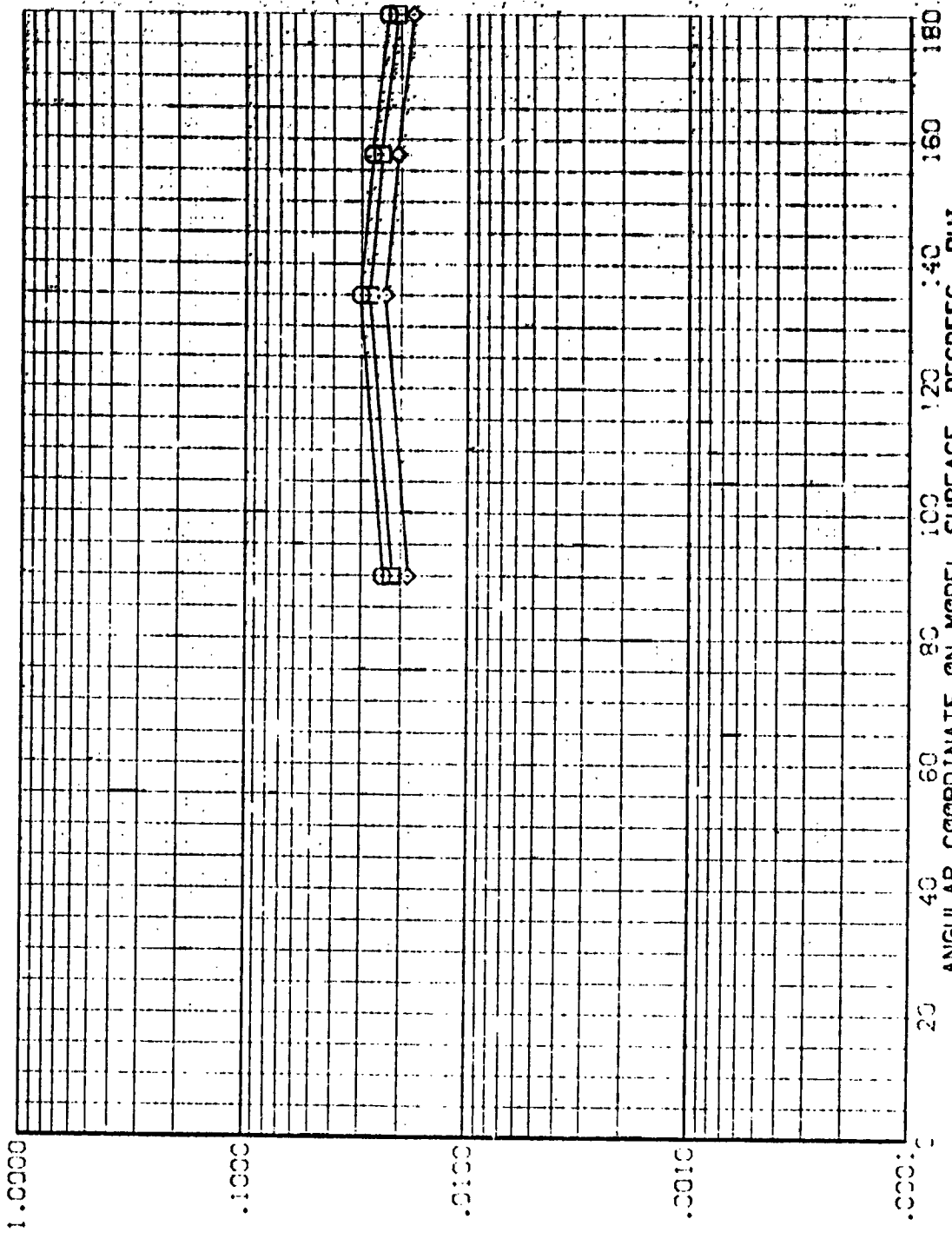


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

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AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REVTC6)

SYSEC- H/REF X/L MACH  
 .850 .550 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -127.000 BETA .000  
 RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

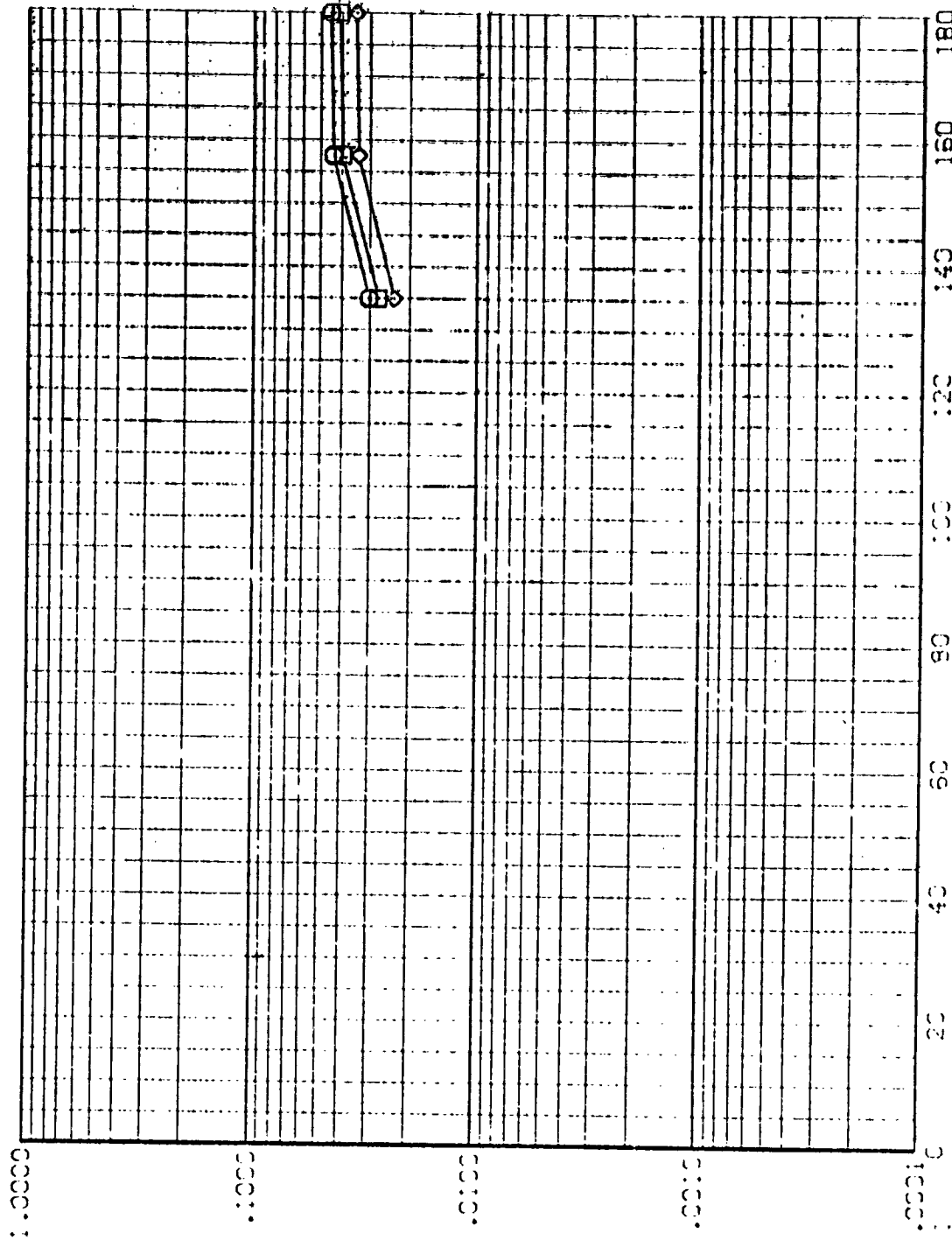


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 H28 01+T1 EXTERNAL TANK

(REVISED)

$\Delta$  SWEDL  $\frac{h}{h_{REF}}$  X/C MACH  
 .850 .900 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RW/C 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

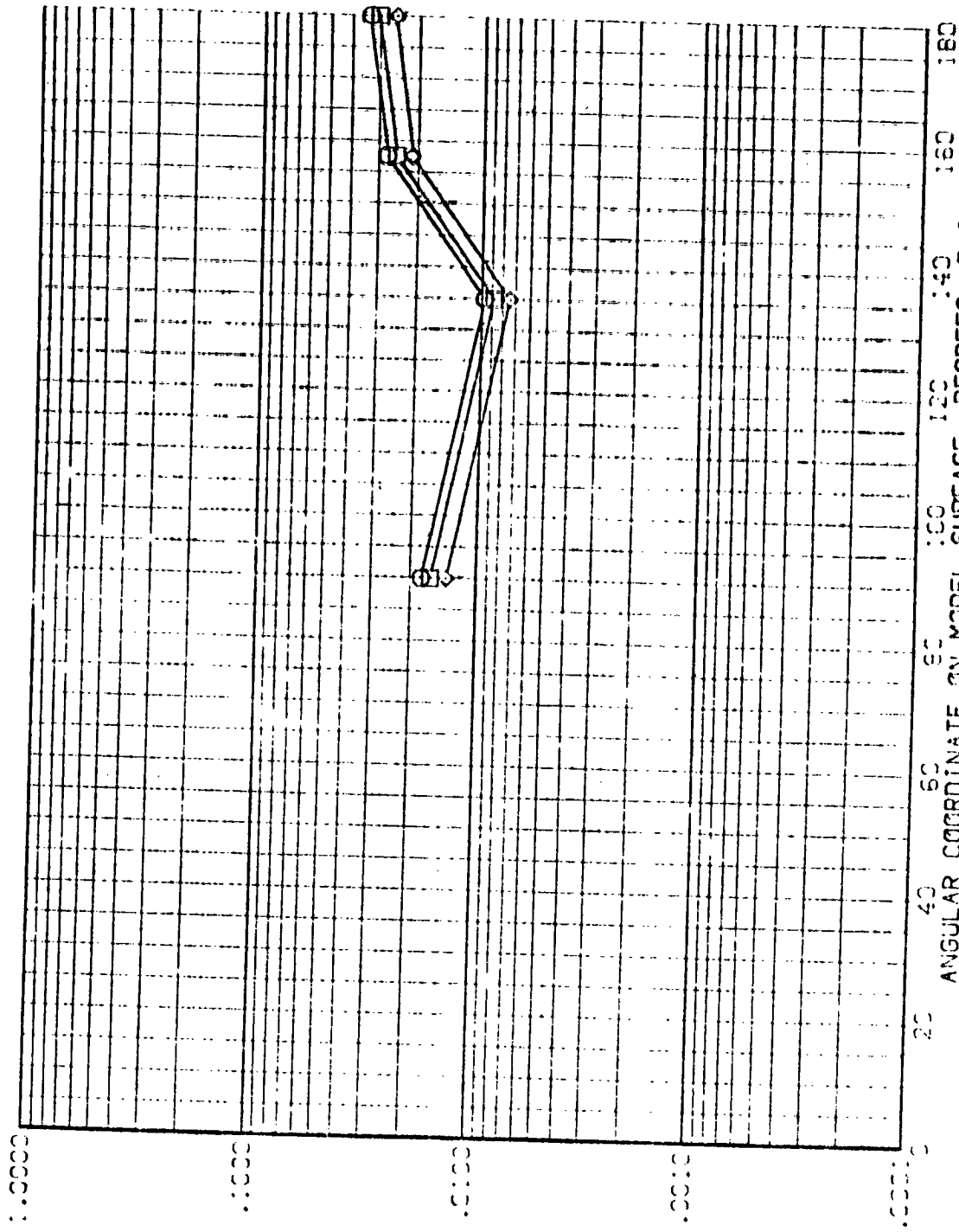


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T07)

SYMBOL  
 □  
 ◇

HANWAT  
 .850  
 .900  
 1.000

X/L  
 .350

MACH  
 5.219

PARAMETRIC VALUES  
 ALPHA  
 R<sub>1</sub>/L  
 -90.000  
 1.000

BETA  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

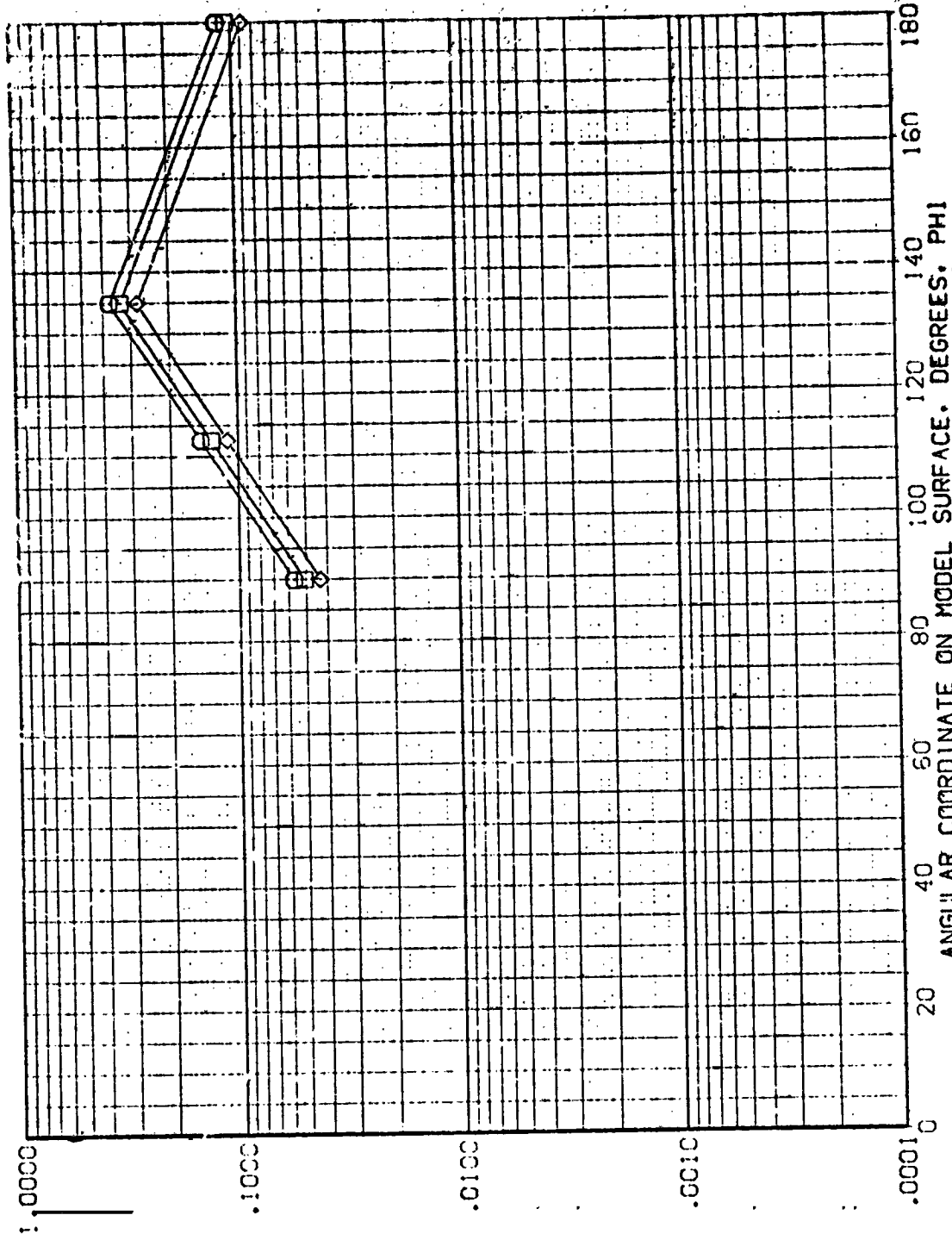


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

24

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV107)

SYMBOL L/W/H<sup>2</sup> Y/L MACH  
 .850 .400 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 RH/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

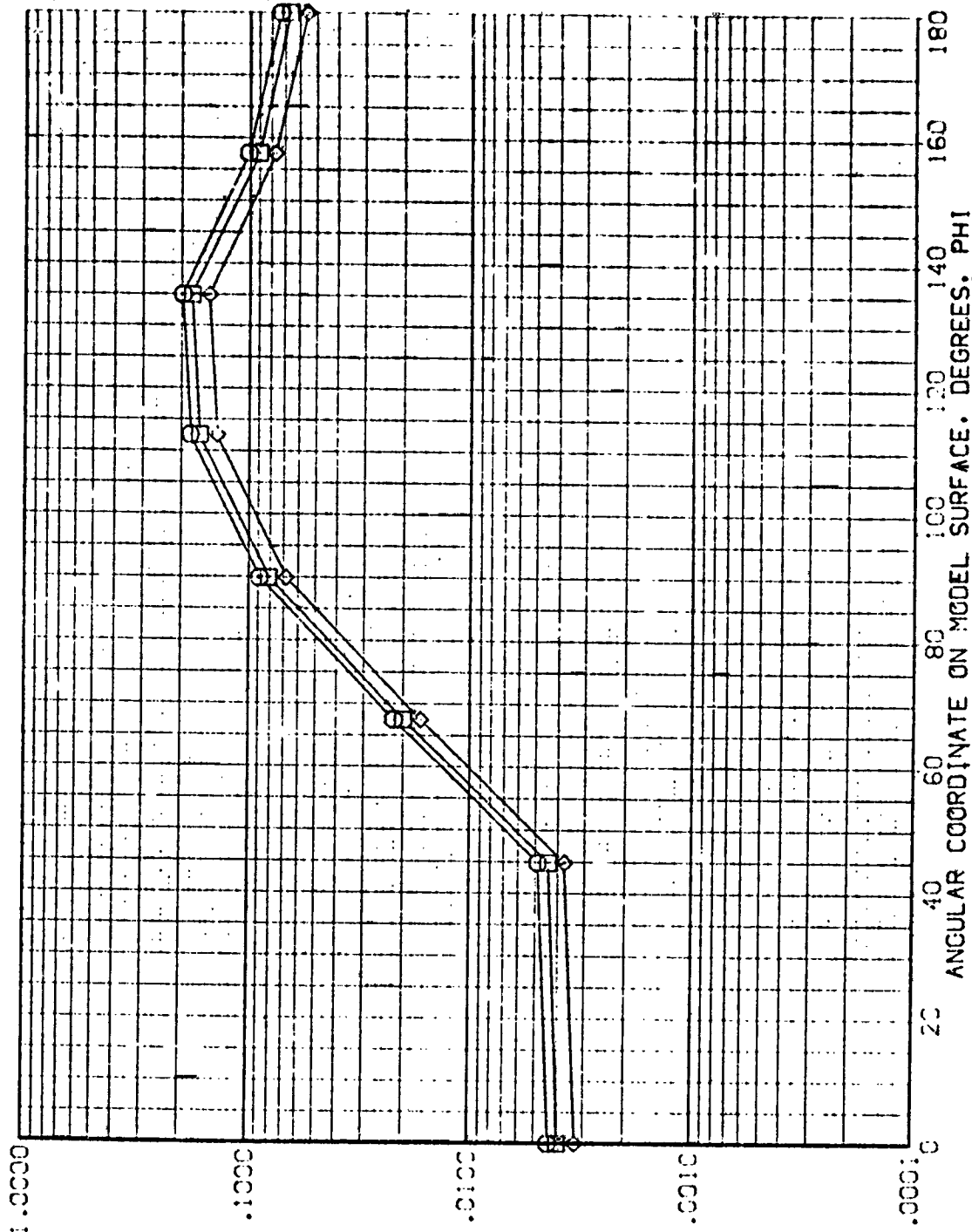


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T07)

SWR	h/h <sub>∞</sub>	X/L	MACH
◇	.850	.450	5.219
□	.900		
	1.000		

PARAMETRIC VALUES	
ALPHA	-90.000
BETA	1.000
RY/L	.000

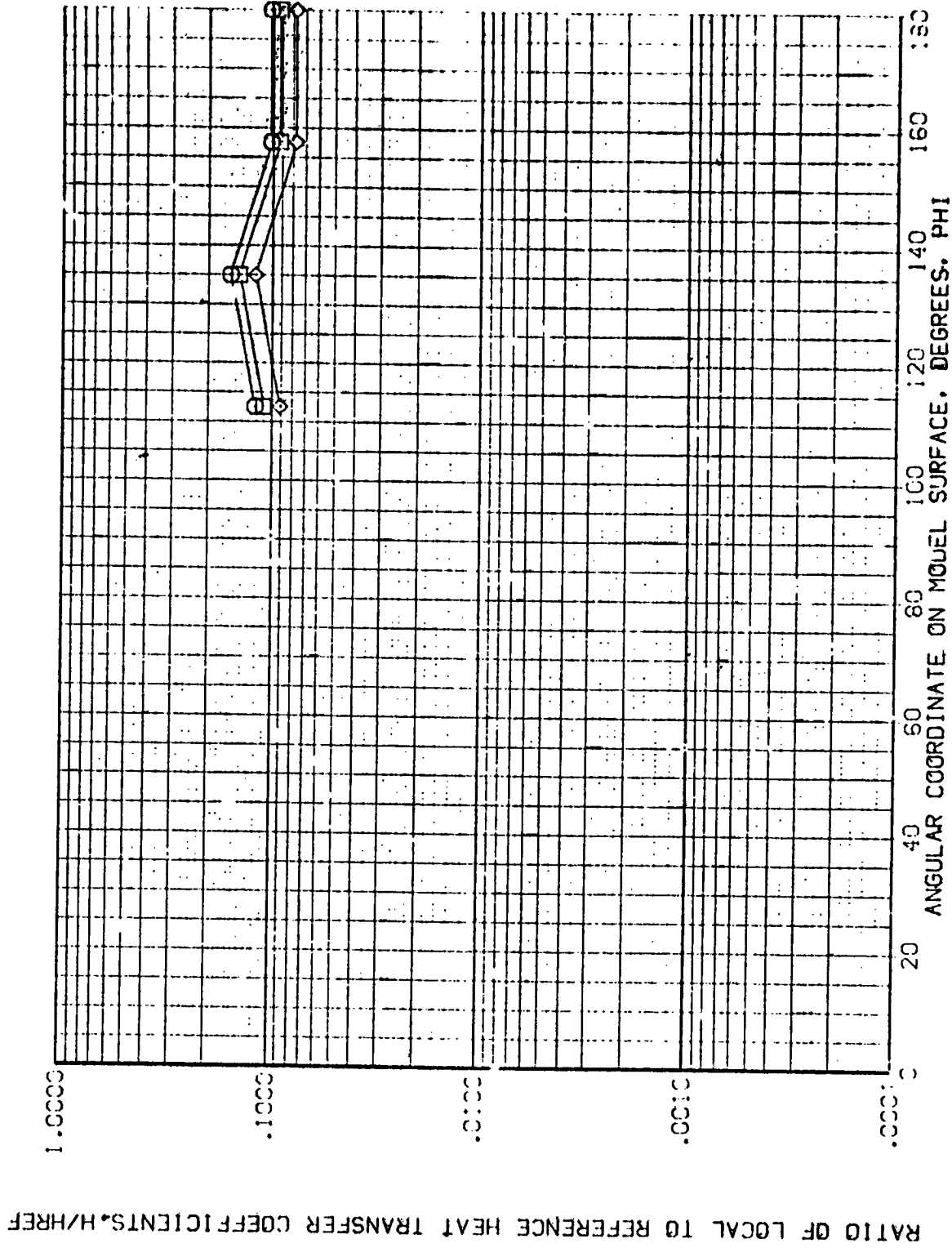


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T07)

SYMBOL MACH/HT X/L MACH  
 □ .850 .500 5.219  
 ○ .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 RV/L 1.000

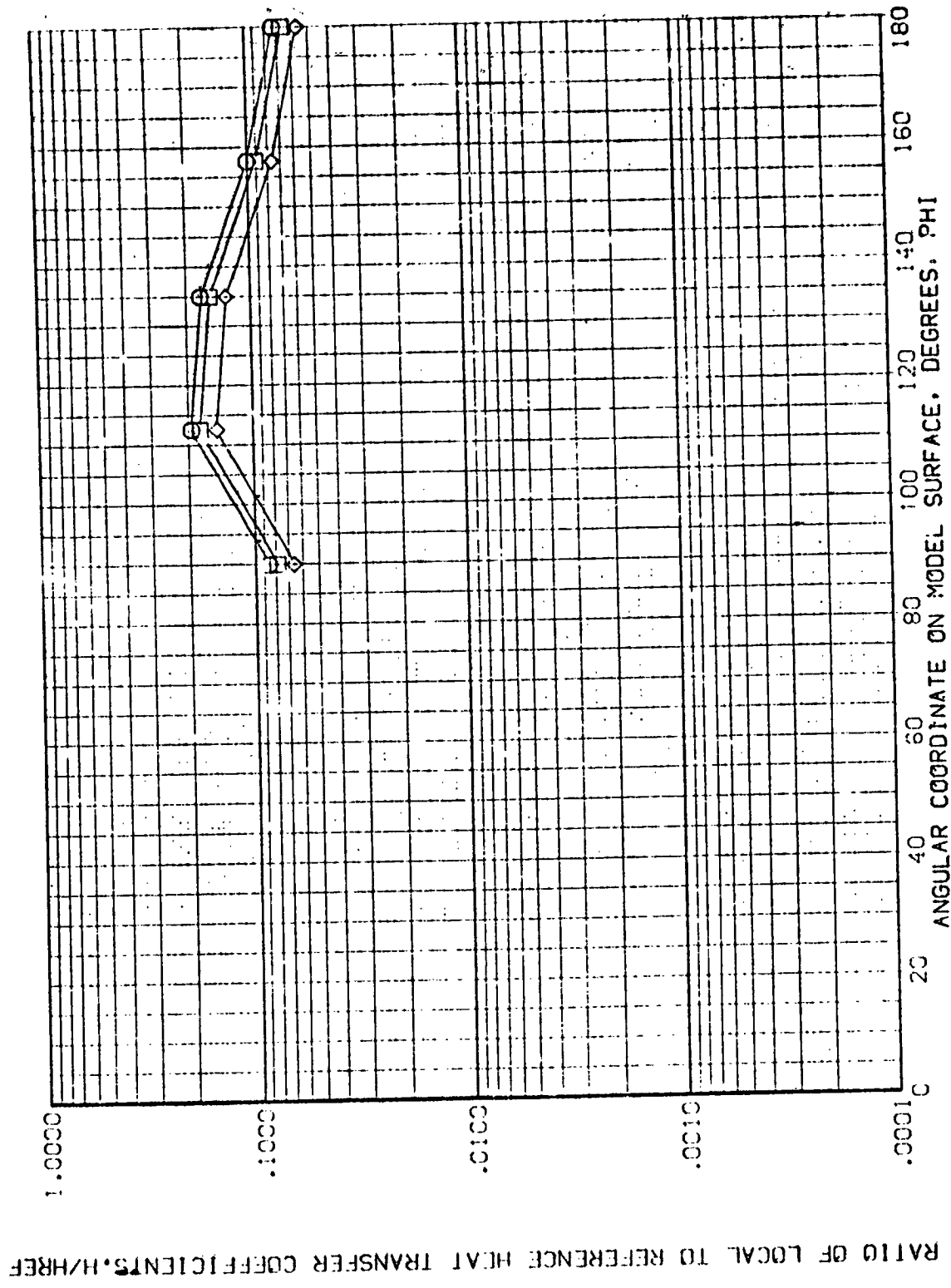


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T07)

SYMBOL MACH/WT X/L MACH  
 ◊ □ .850 .550 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -93.000 BETA .000  
 FN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

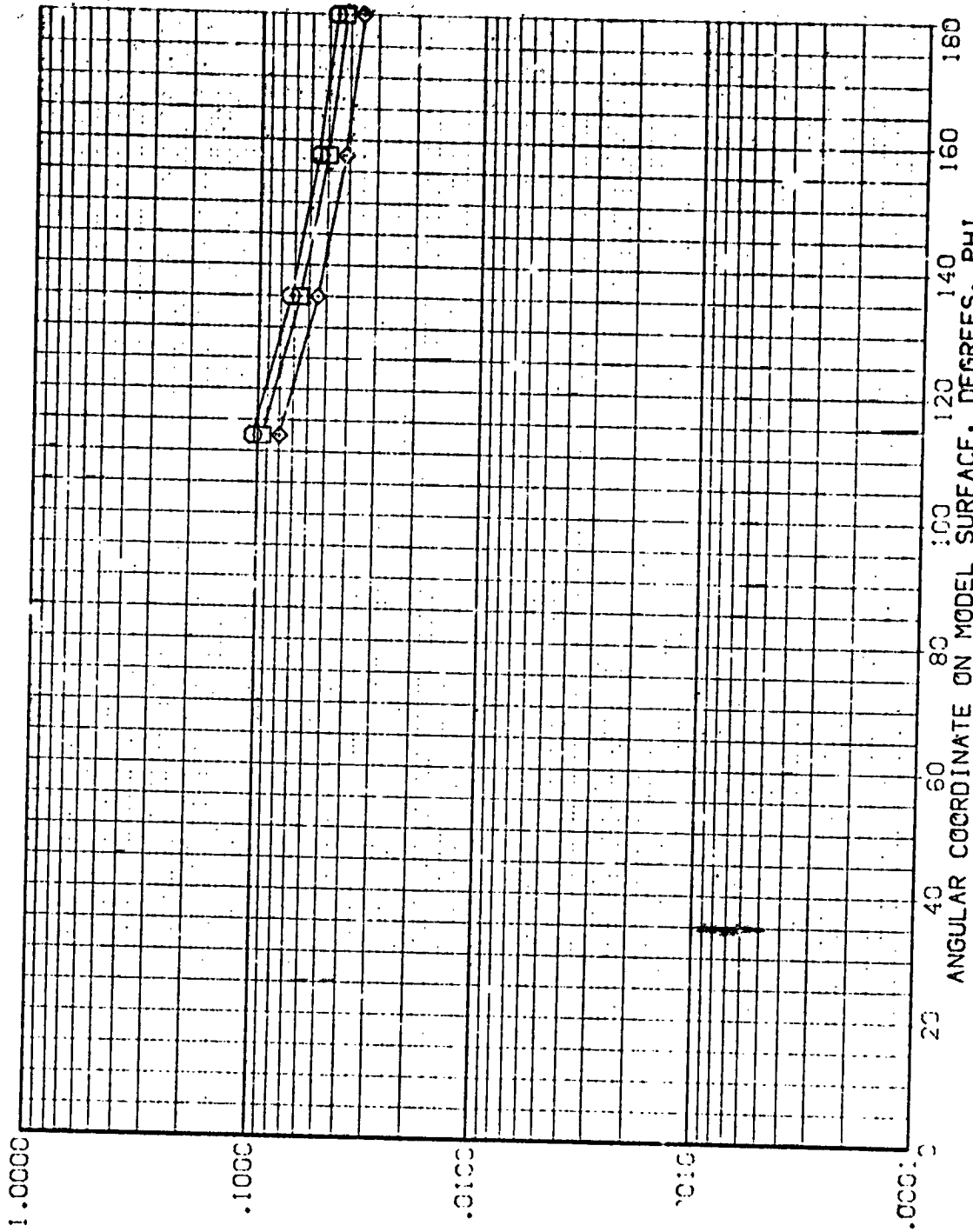


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T07)

SYSTEM MAX/IN X/L M/CH M/CH  
 950 .600 5.219 .000  
 930 1.000  
 PARAMETRIC VALUES  
 ALPHA: -90.000 BETA .000  
 RN/L 1.000

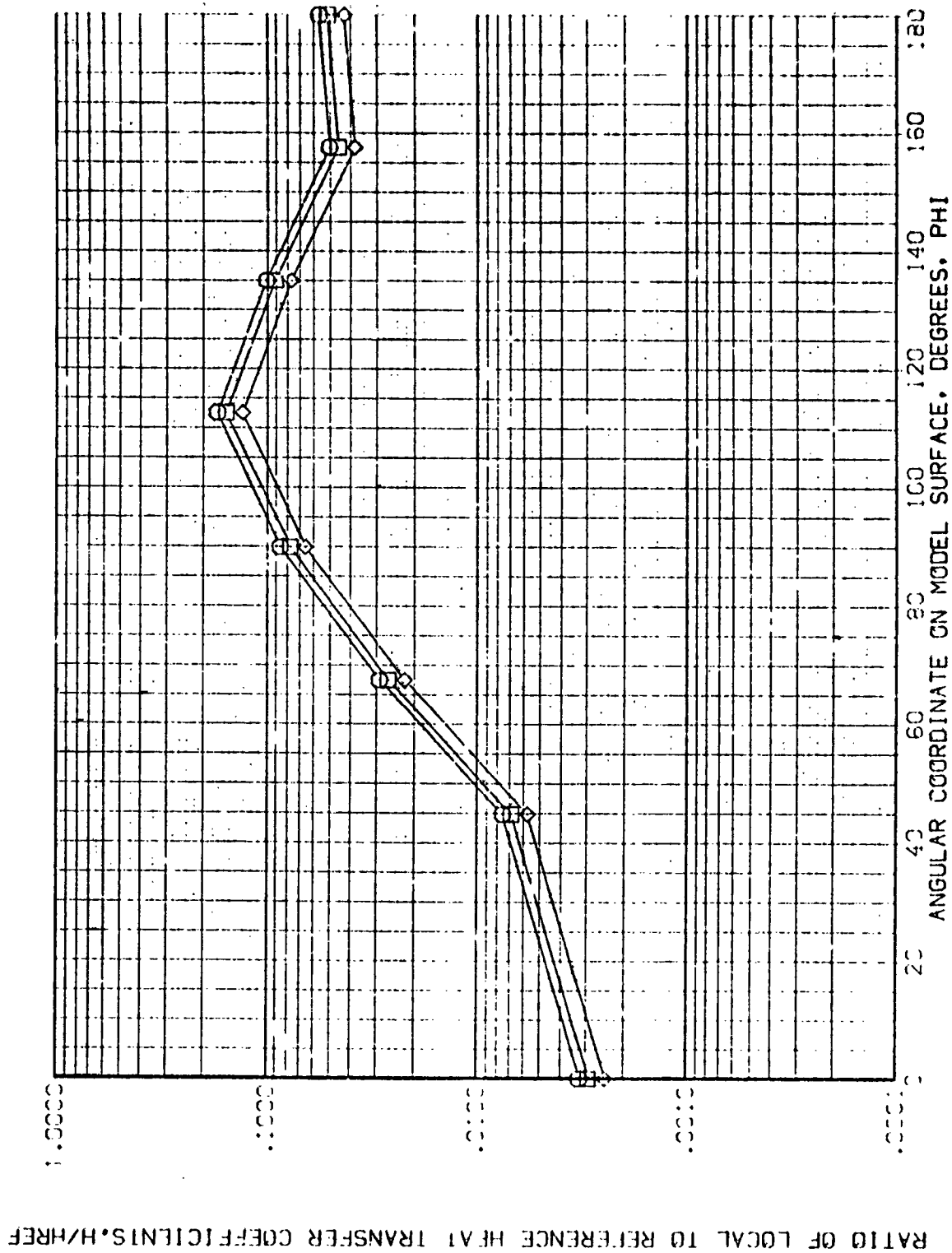


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV107)

SYMBOL HAN/HT X/L MACH  
.850 .550 5.219  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -5.000 BETA .000  
RV/L 1.000

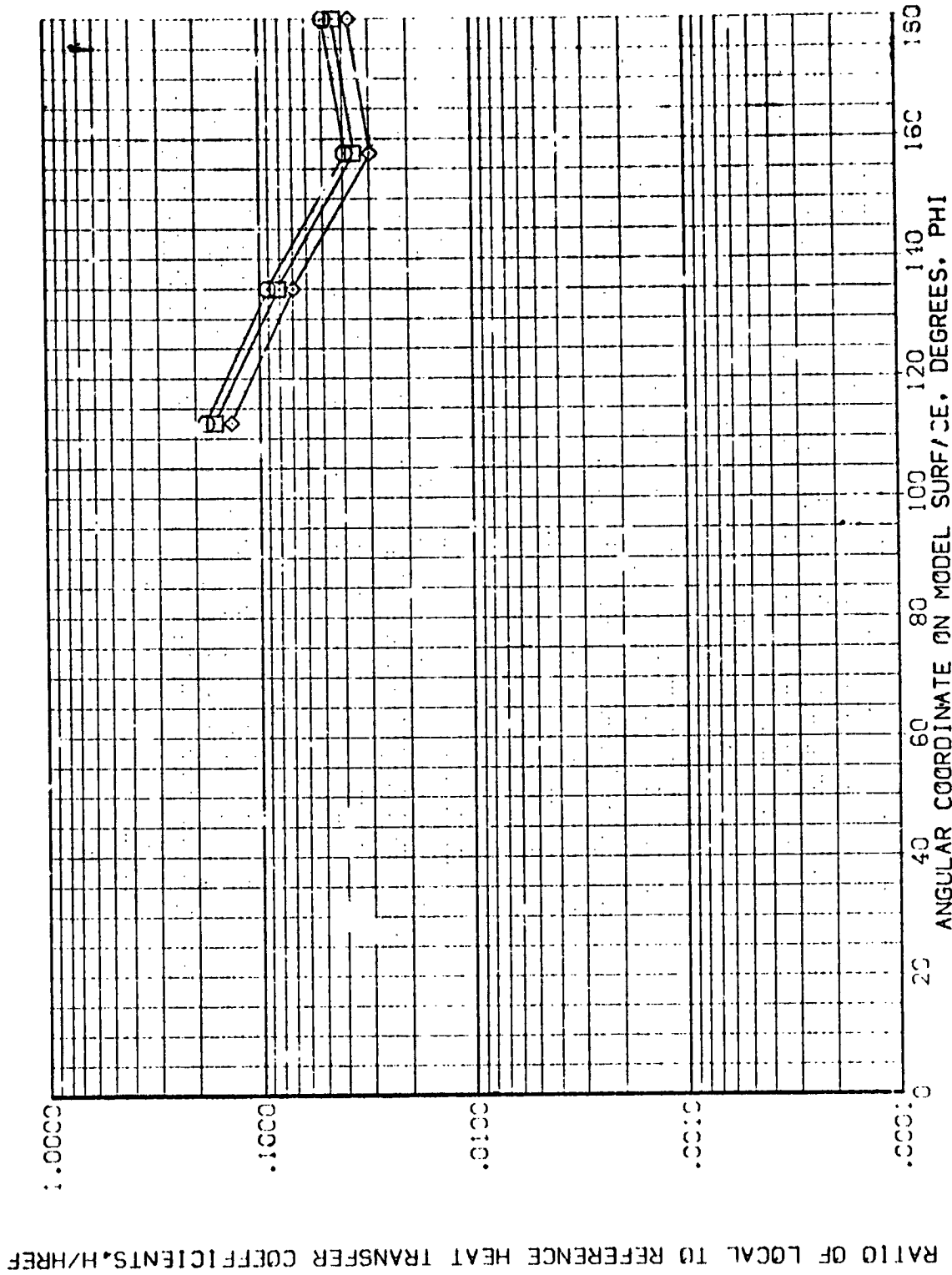


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



(REV107)

AVES 3.5-195 IH28 01+11 EXTERNAL TANK

PARAMETRIC VALUES	
ALPHA	-90.000
BETA	1.000
PR/L	.000

SVES	WAV	Y/L	MACH
1.000	.800	.700	5.219
1.000	.900		
1.000			

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

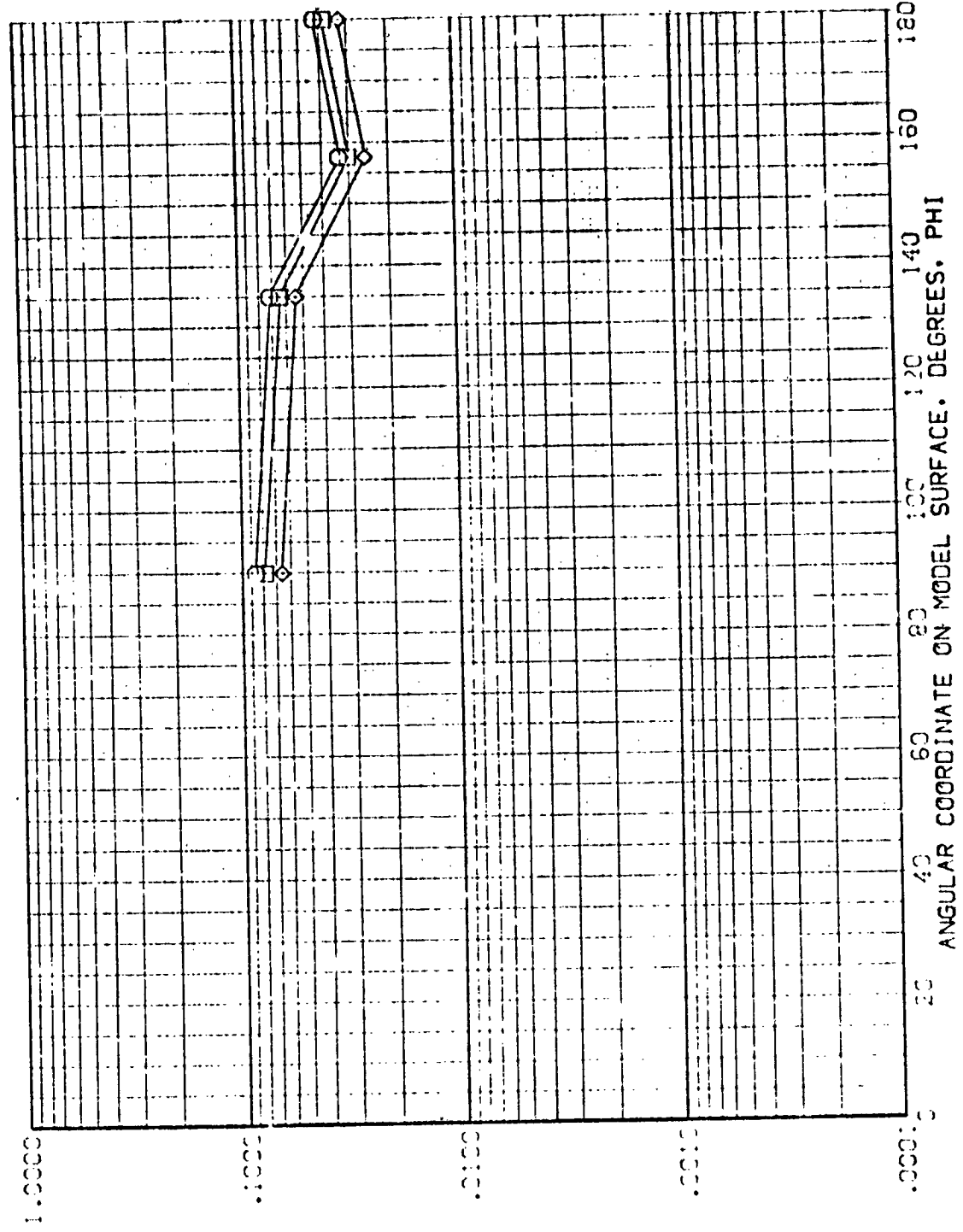


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 1-28 01+71 EXTERNAL TANK

(REVISED)

PARAMETRIC VALUES  
 ALPHA -50.000 BETA .000  
 RV/L 1.000

MAJOR 1/2 3.750 MACH 5.219  
 MINOR .850  
 .900  
 .950

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

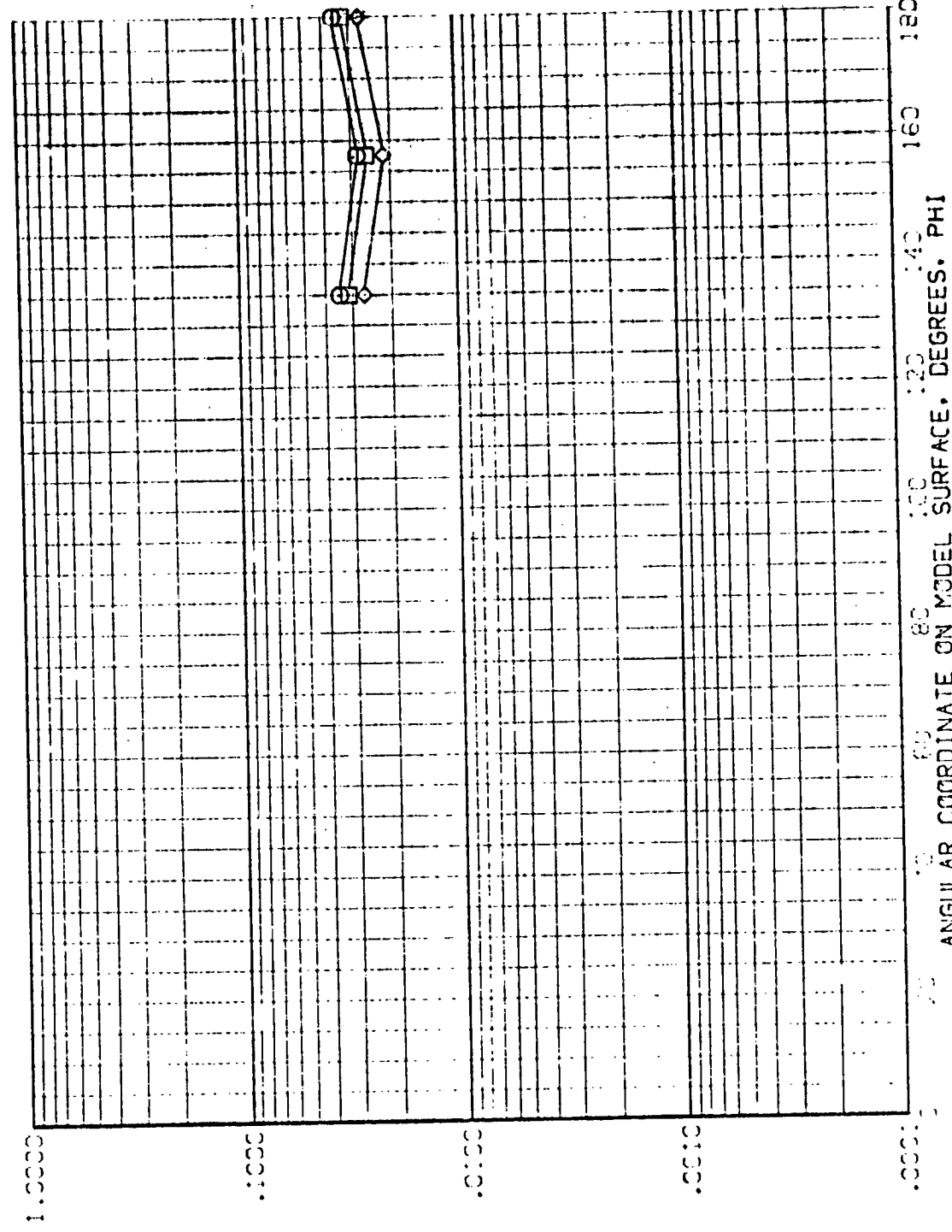


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV107)

SYMBOL    HP#/H<sup>2</sup>    X/L    MACH

□    .850    .800    5.219

PARAMETRIC VALUES

ALPHA    BETA    PNA/L

-90.000    .000    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

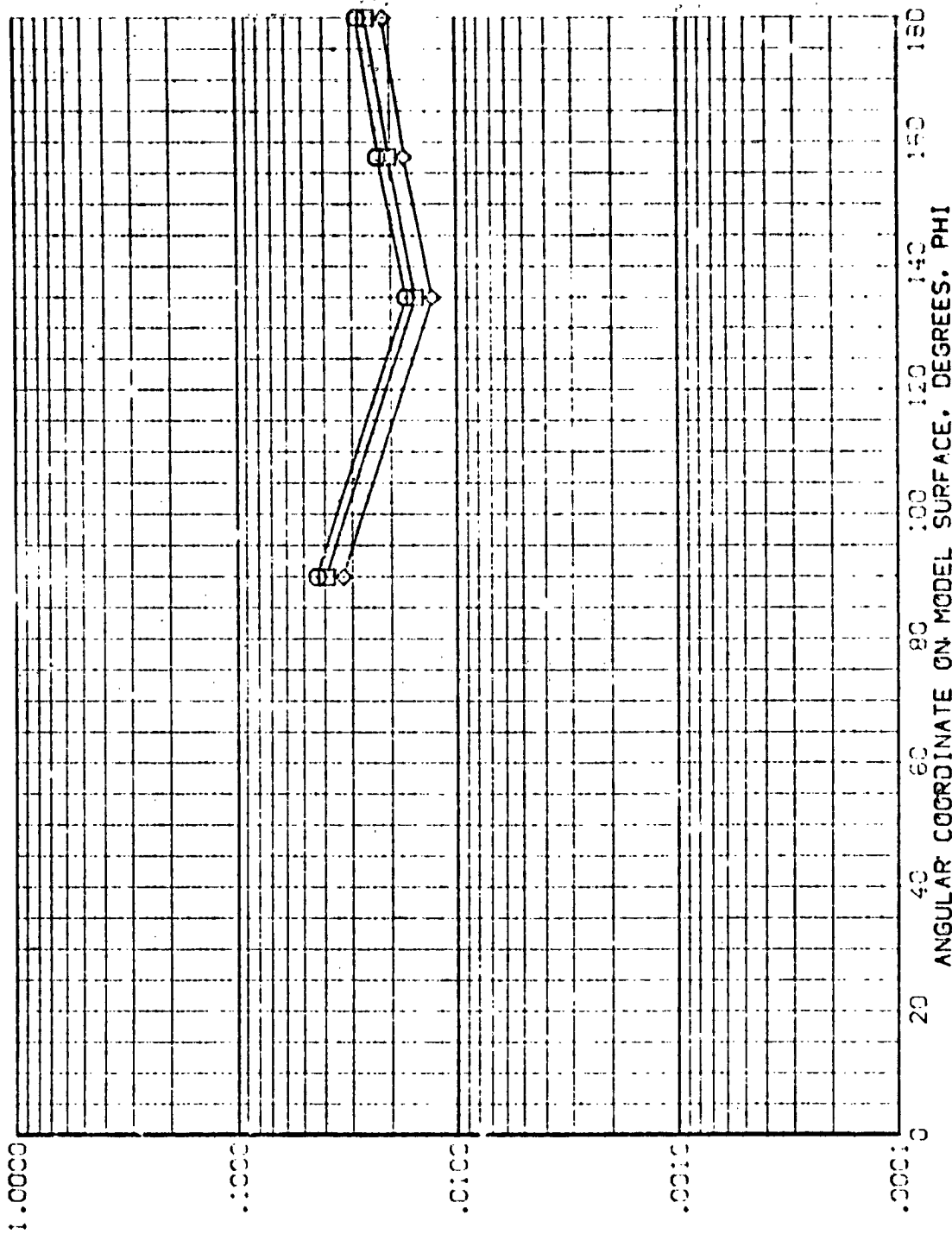


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 1-28 01+71 EXTERIAL TANK (REVISED)

SYMBOL PARAMETER VALUE  
 1850 WASH 5.219  
 1800  
 14000

PARAMETRIC VALUES  
 ALPHA 6.74  
 BETA 1.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

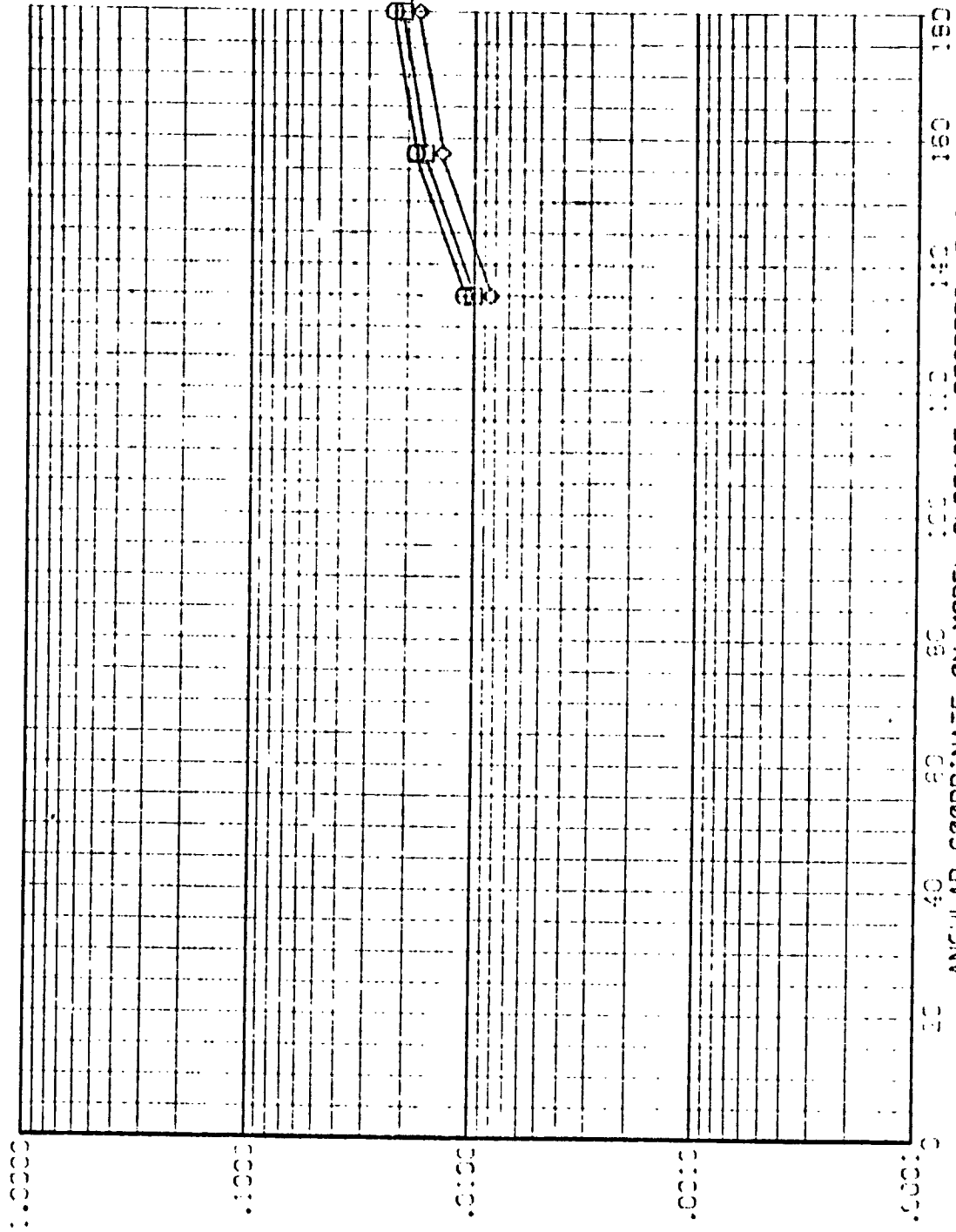


FIG. 5 TANK, IN THE PRESENCE OF CPBITER

AMES 3.5-195 1428 01+T1 EXTERNAL TANK (REV. 1070)

PARAMETER VALUES  
 ALPHA 1.0000  
 PVAL 1.0000  
 MACH 5.219  
 R 1.219  
 Y/L 1.900  
 HREF 1.000

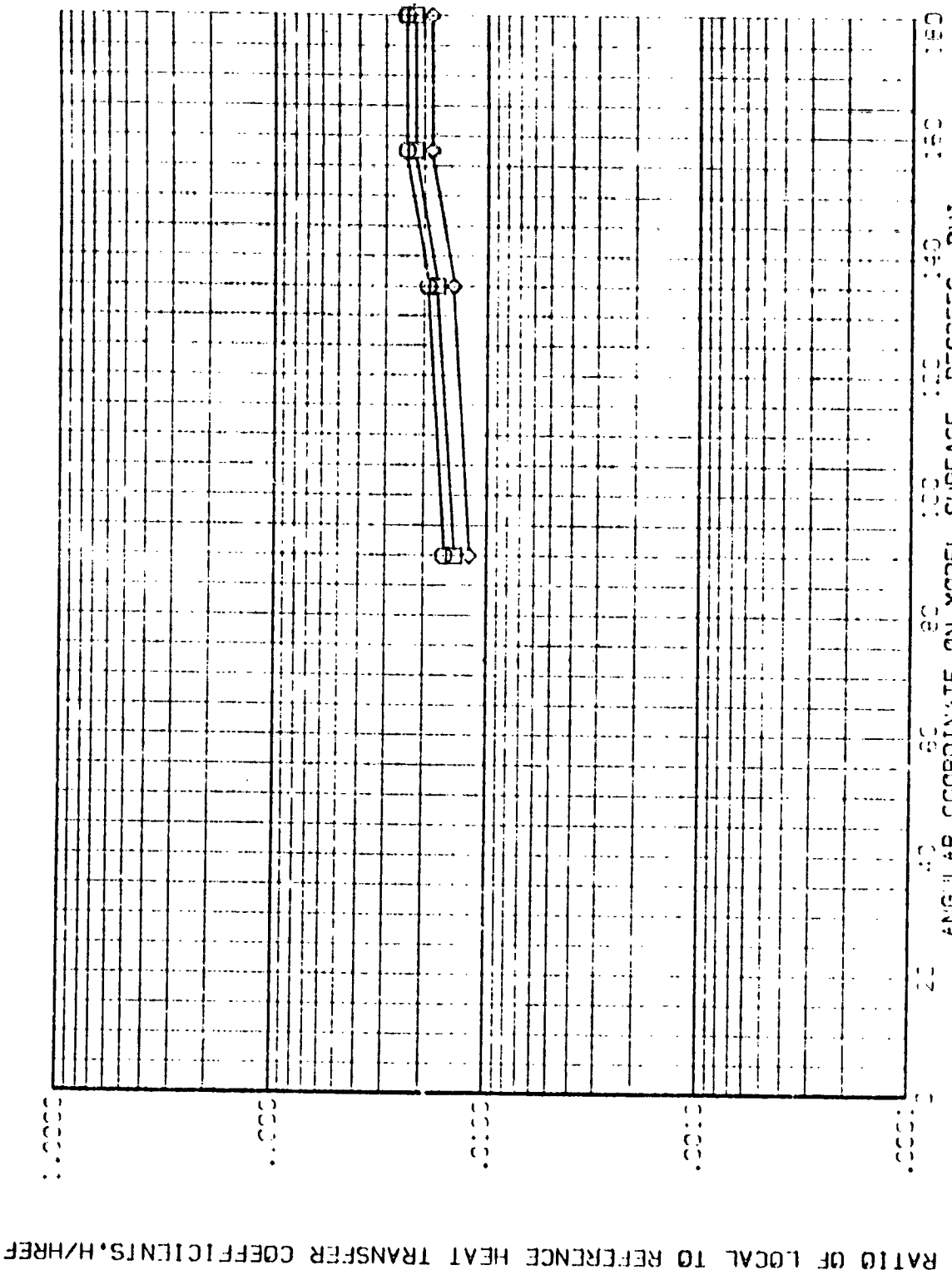


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AVES 3.5-105 1428 C-17: EXTERNAL TANK REPORT

PARAMETER VALUES  
 AREA 6674  
 VOL 10000  
 WGT 50000

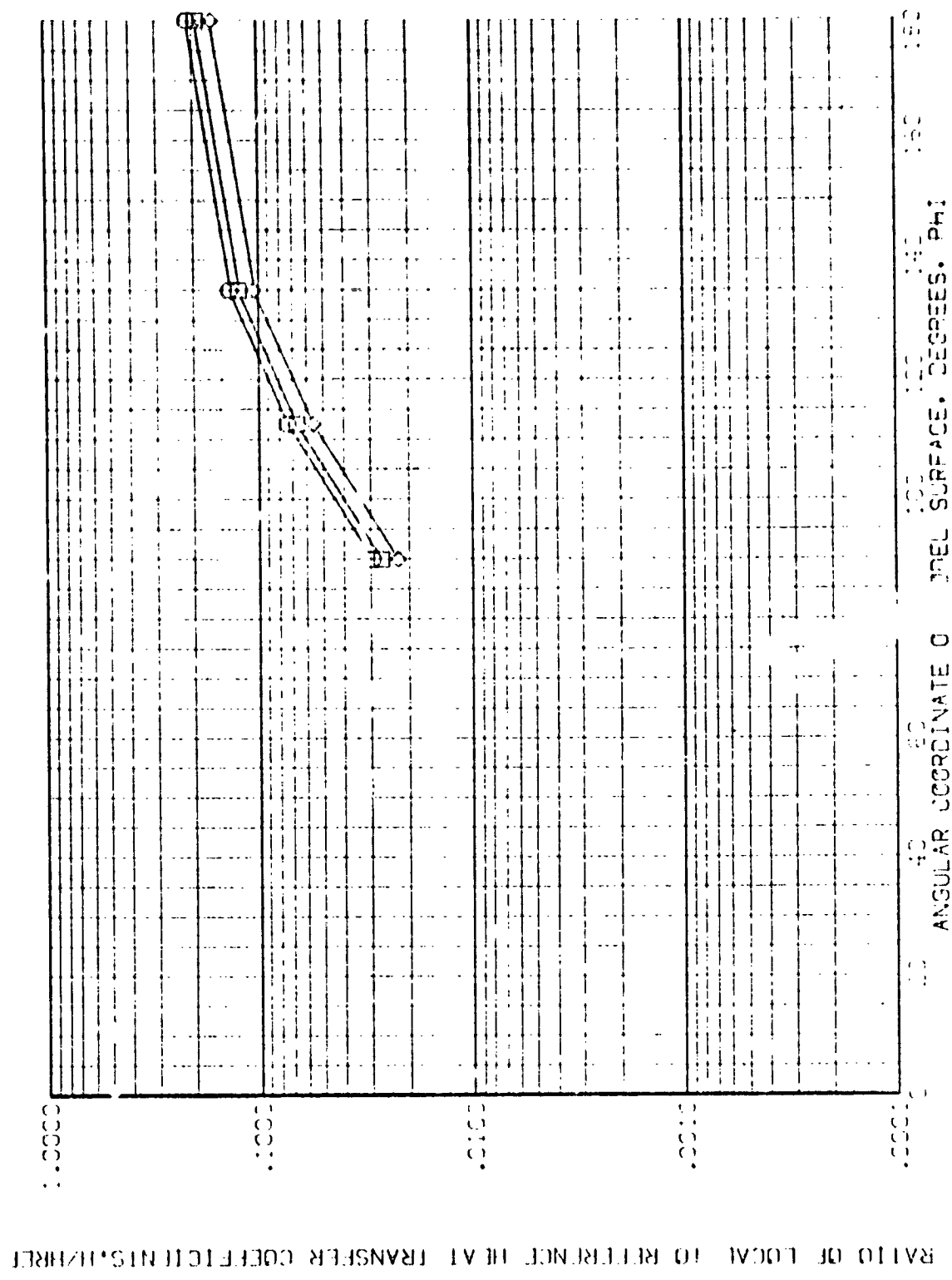


FIG. 5 TANK IN THE PRESENCE OF CRBITER

AMES 3.5-1:95 IH28 01+T1 EXTERNAL TANK

(REV T08)

$S/\sqrt{M}$  .850  
 $X/L$  .400  
 MACH 5.220  
 $\diamond$  1.000

PARAMETRIC VALUES  
 $\alpha$  -60.000  
 $\beta$  .000  
 $R/V_L$  1.000

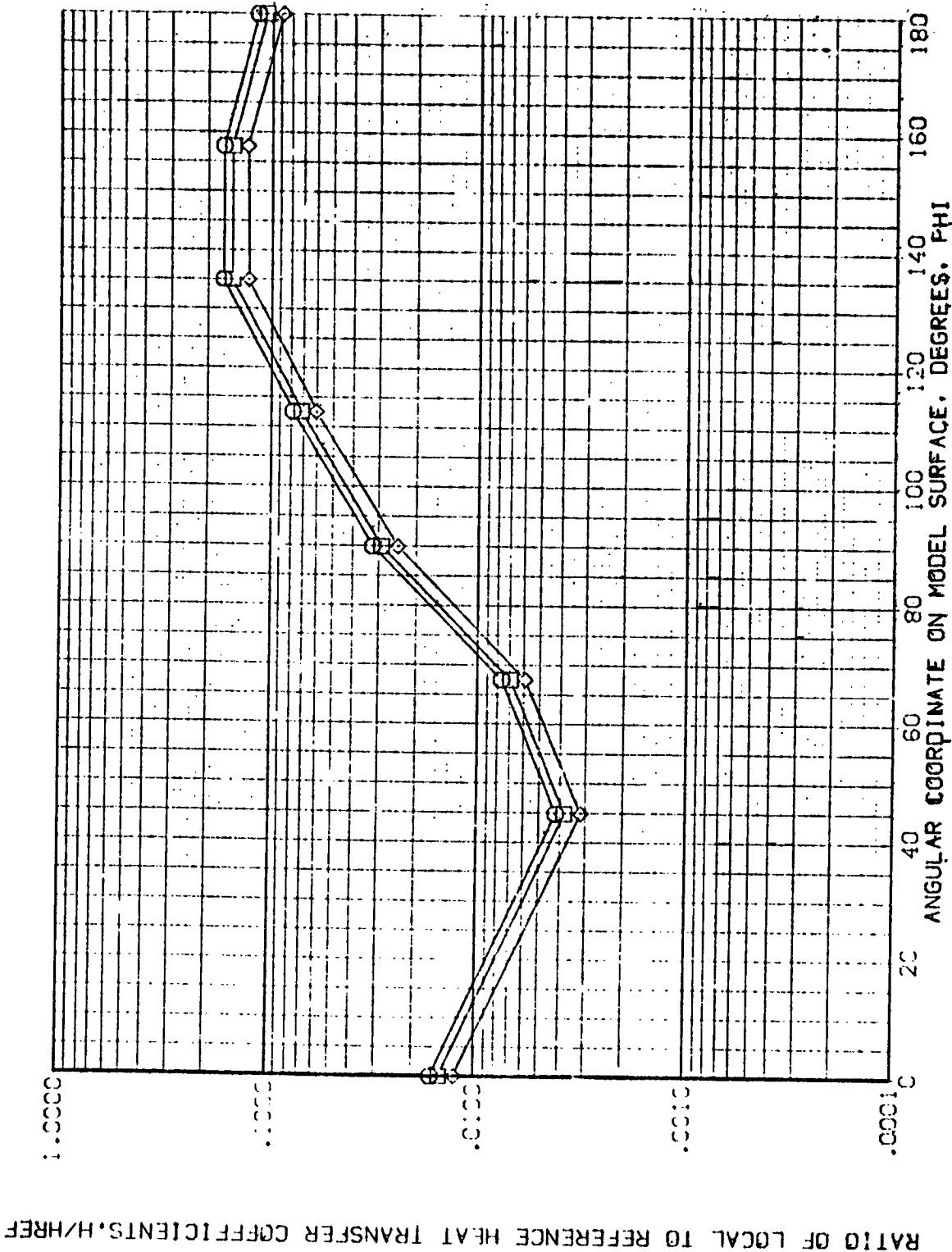


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(RE/T08)

SPEED. H/REF. MACH  
 .850 .450 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -80.000  
 BETA 1.000  
 PAVL .000

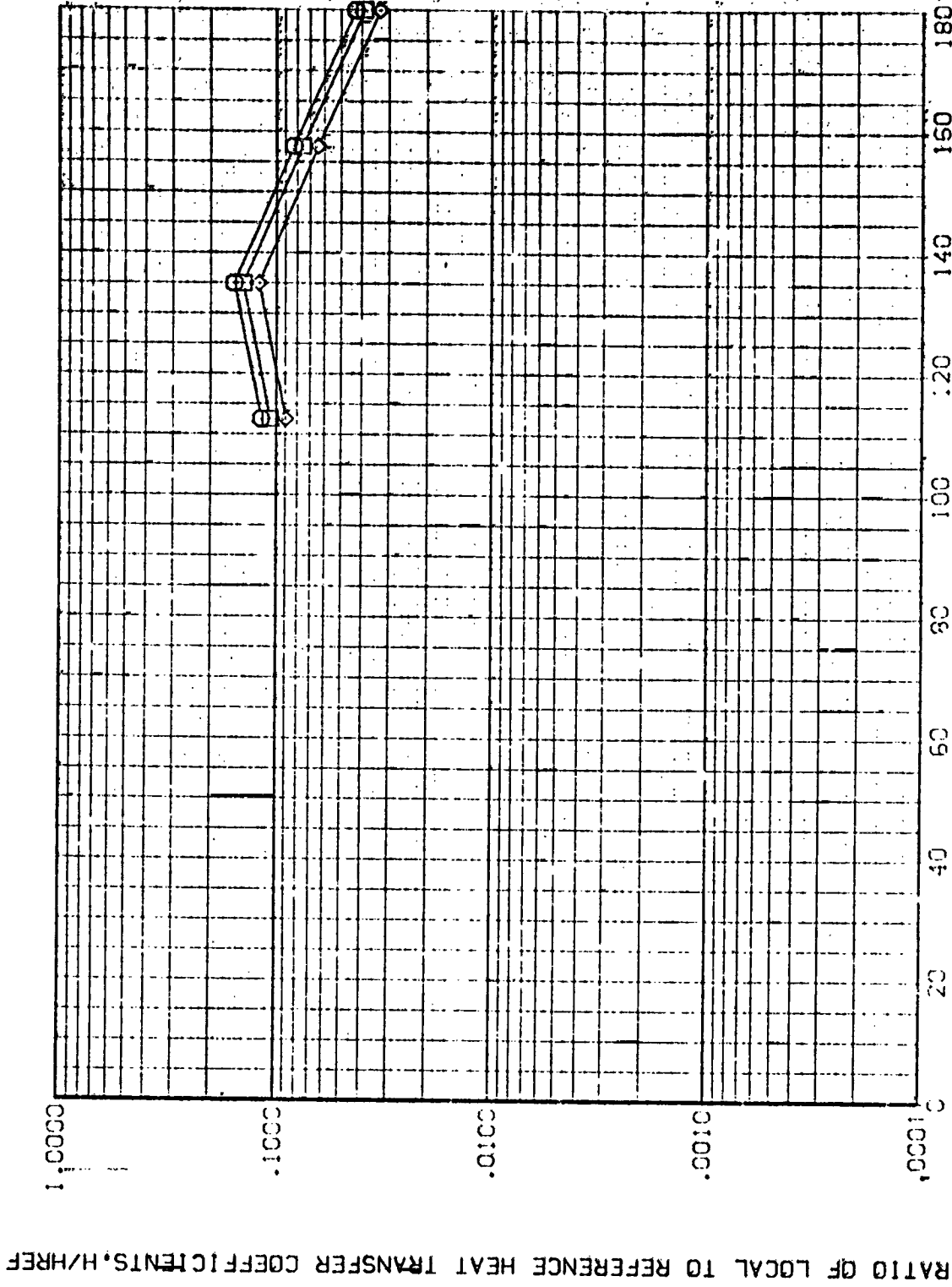


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T08)

SYMBOL HEIGHT X/L MACH

◇ .850 .500 5.220

□ .900

○ 1.000

PARAMETRIC VALUES

ALPHA RAYL -60.000 BETA .000  
 RAYL 1.000

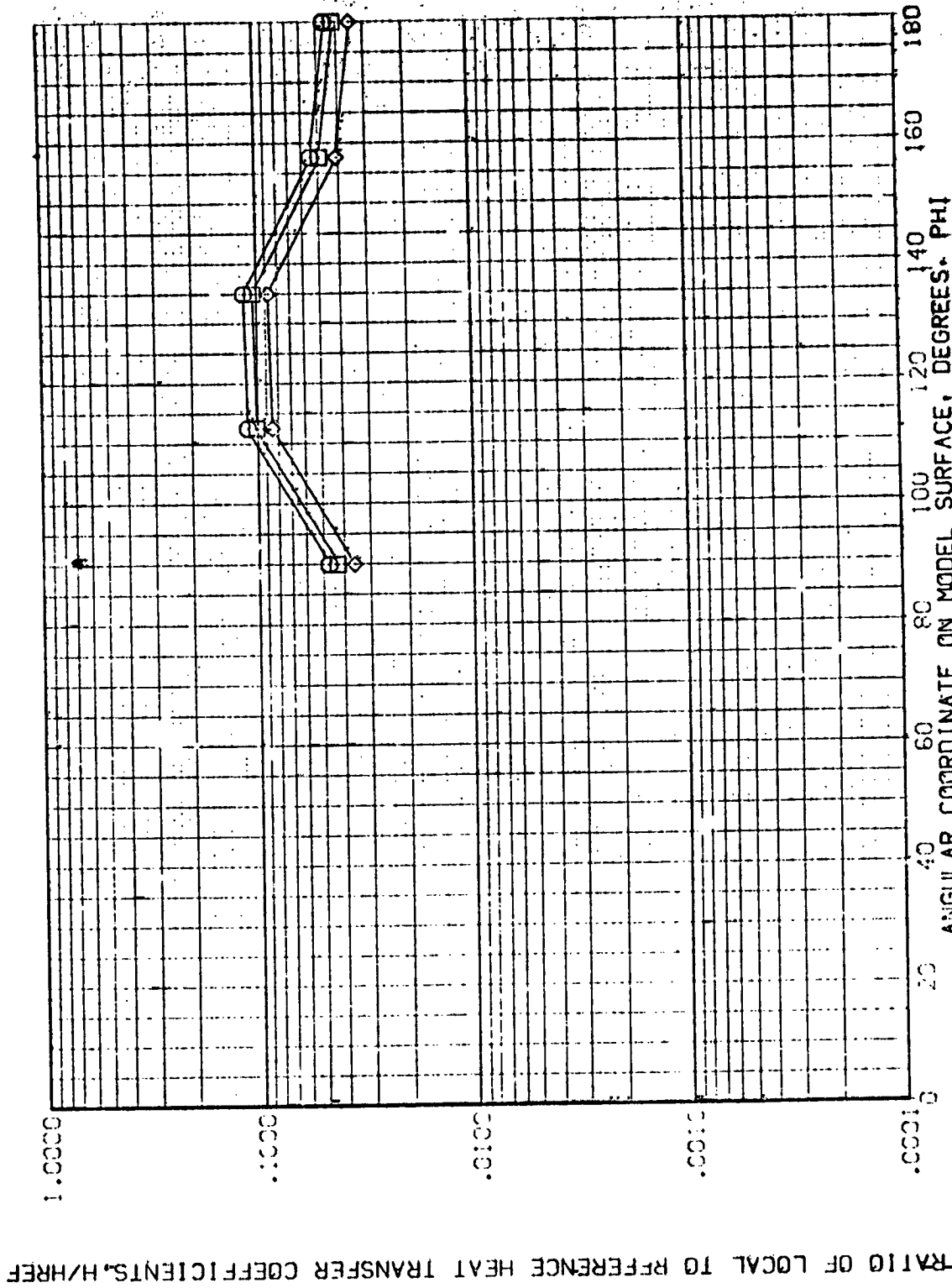


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T08)

SYSC. HEIGHT .850 MACH .550  
 .900 5.220  
 1.000

PARAMETRIC VALUES  
 ALPHA -60.000  
 RNAL 1.000  
 BETA .000

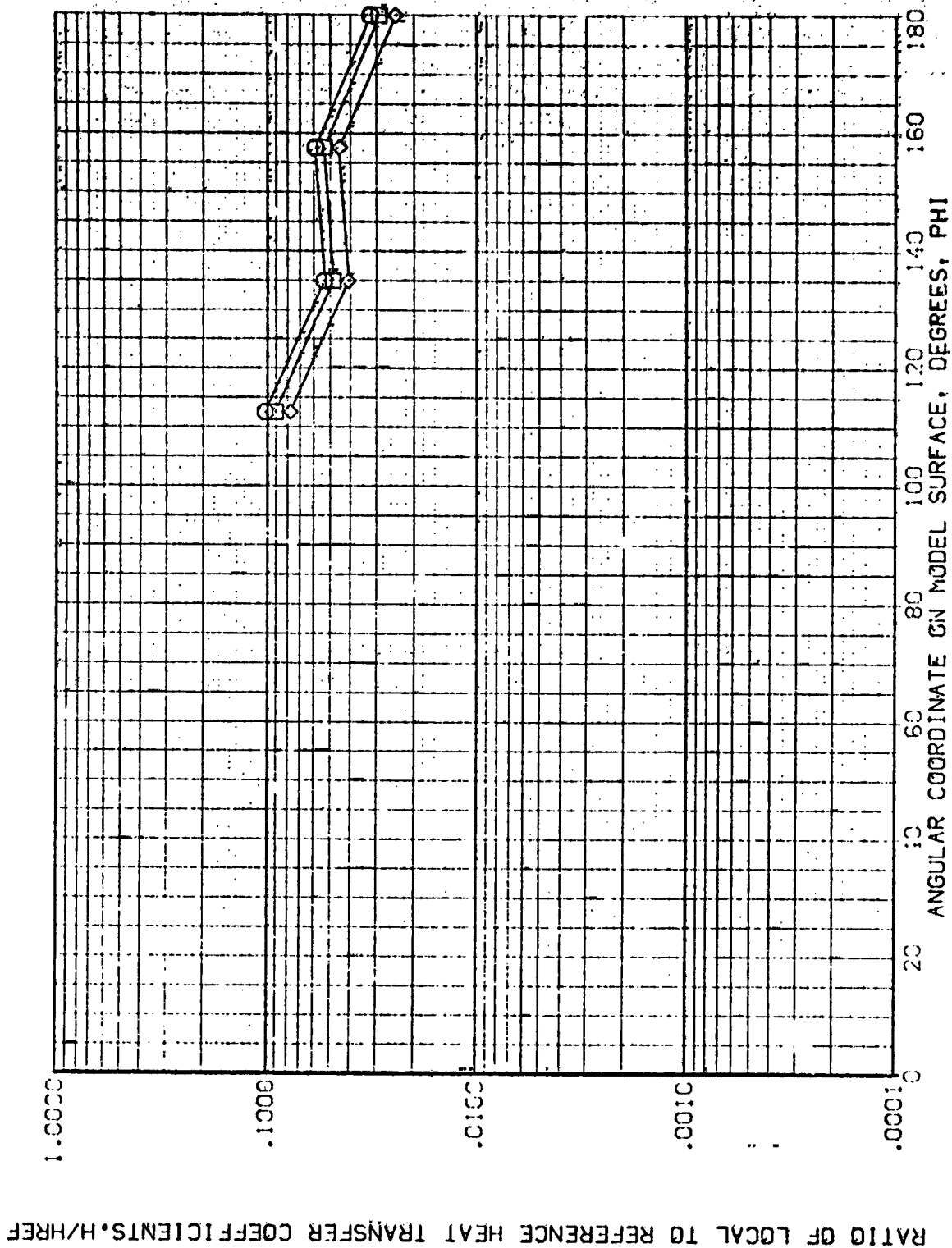


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV T08)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

SYMBOLS  
□  
◇

HEIGHT Y/L MACH  
.950 .500 5.220  
.953  
1.000

PARAMETRIC VALUES  
ALPHA -EQ.000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

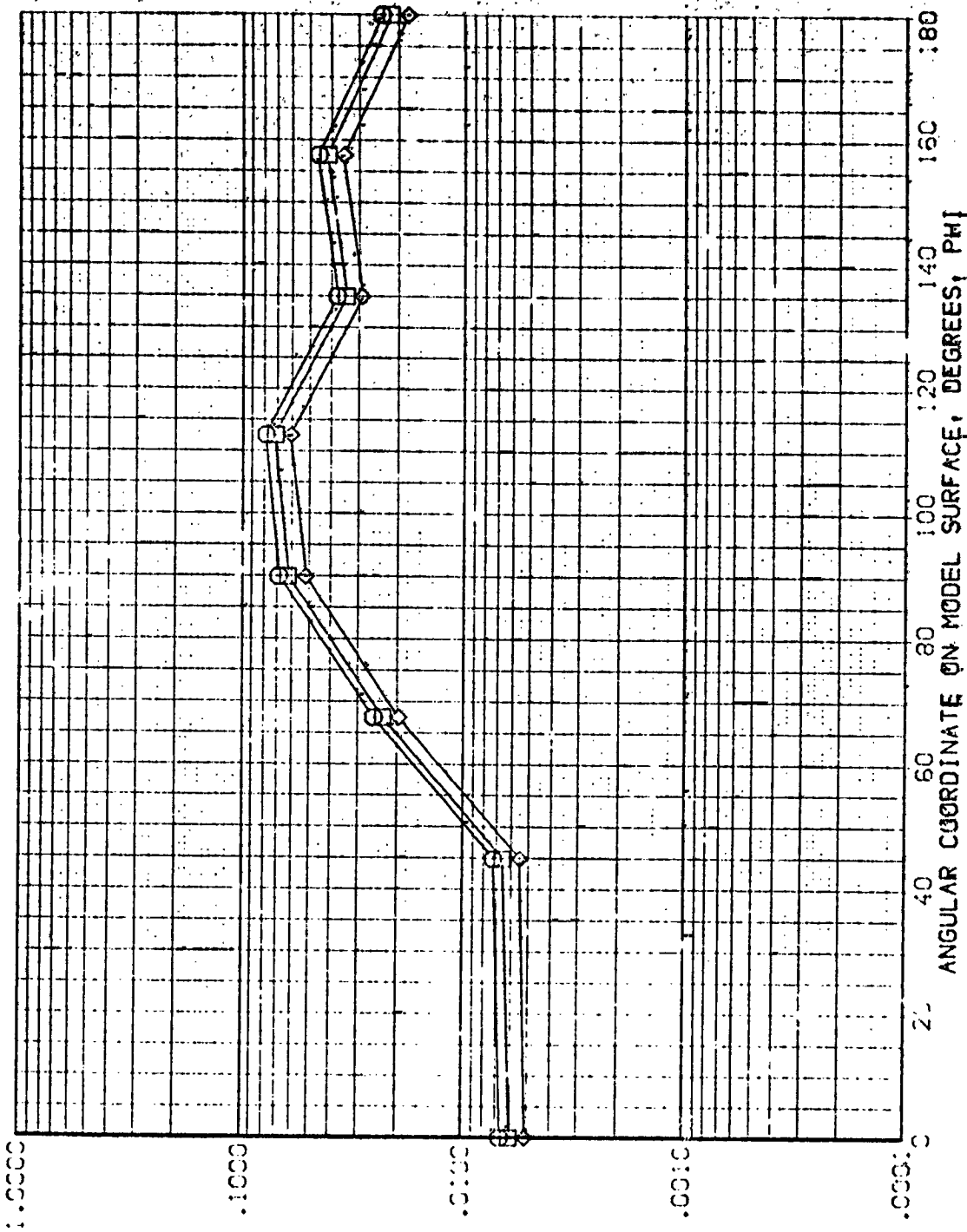


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3,5-195 IH28 01+T1 EXTERNAL TANK (REV 108)

PARAMETRIC VALUES  
 ALPHA 1.000  
 BETA 1.000

SYSC- .850  
 X/L .650  
 MACH 5.220  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

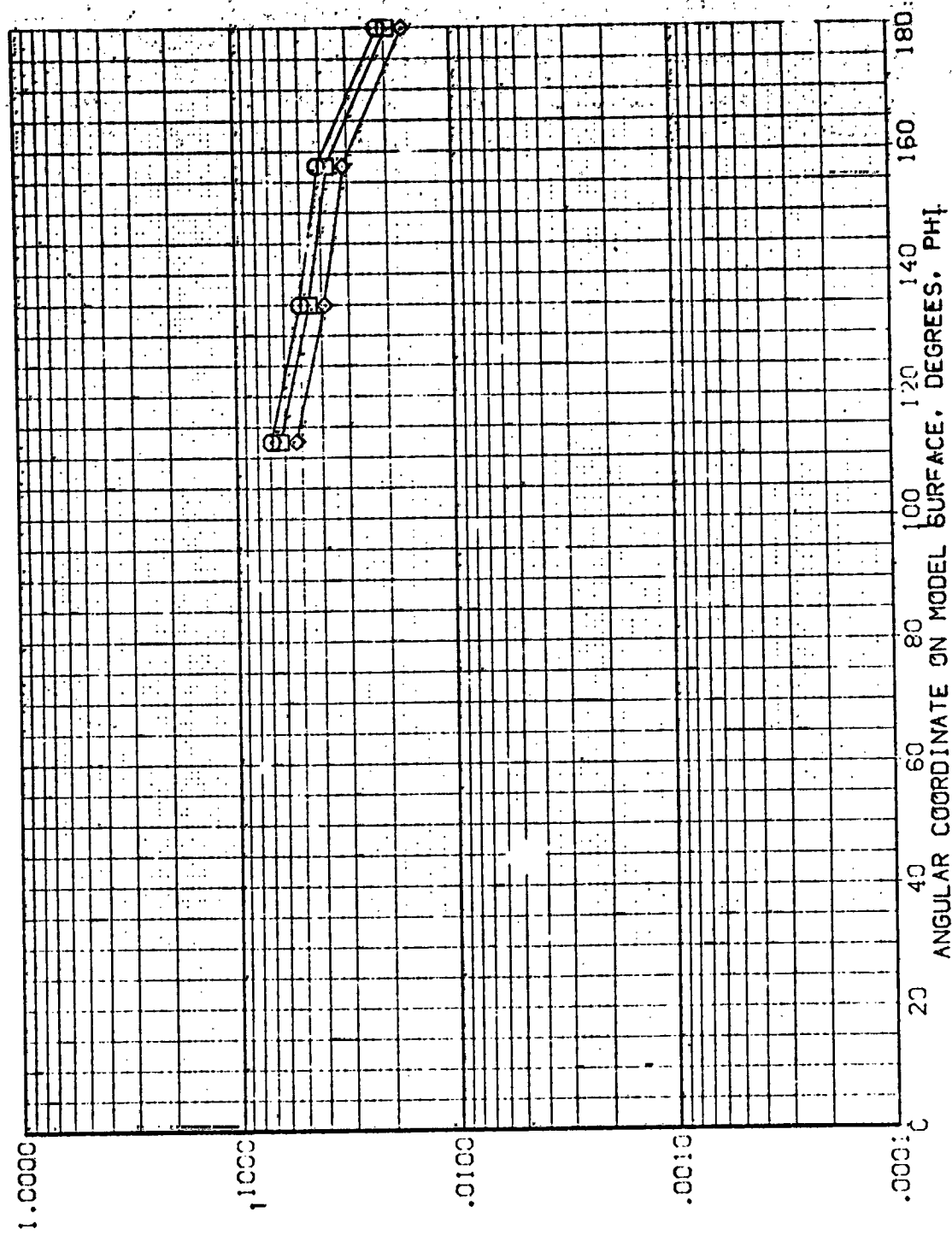


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV108)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

SYMBOL    HAW/T    CL    MACH

◇        .855    .700    5.220

□        .900    .700    5.220

○        1.000    .700    5.220

PARAMETRIC VALUES

ALPHA    BETA

RVAL    .000

1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

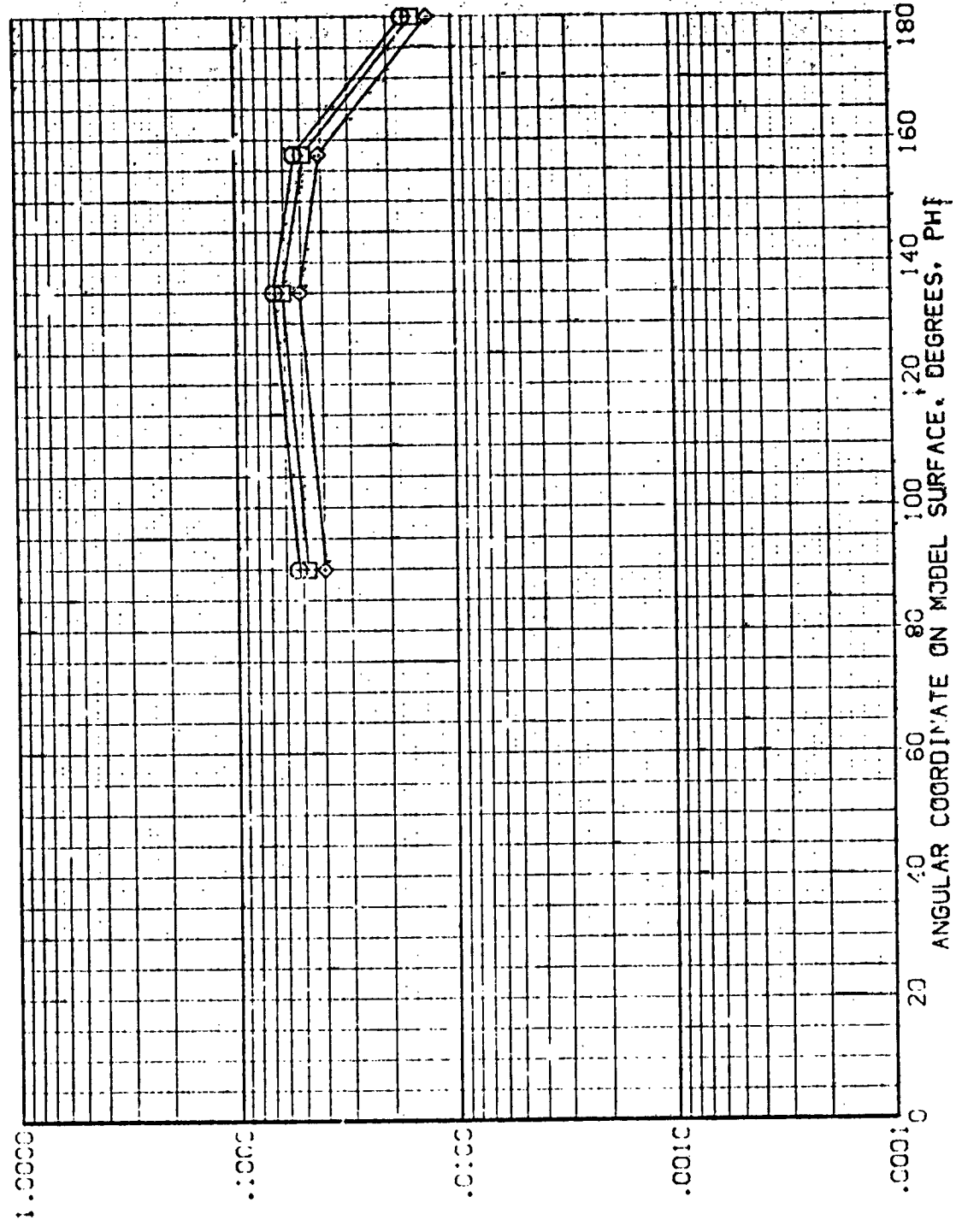


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 3.5-135 IH28 G1+T1 EXTERNAL TANK (REV T08)

MACH 5.220  
 X/L .750  
 Y/L .850  
 Z/L .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -60.000  
 BETA 1.000  
 RV/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

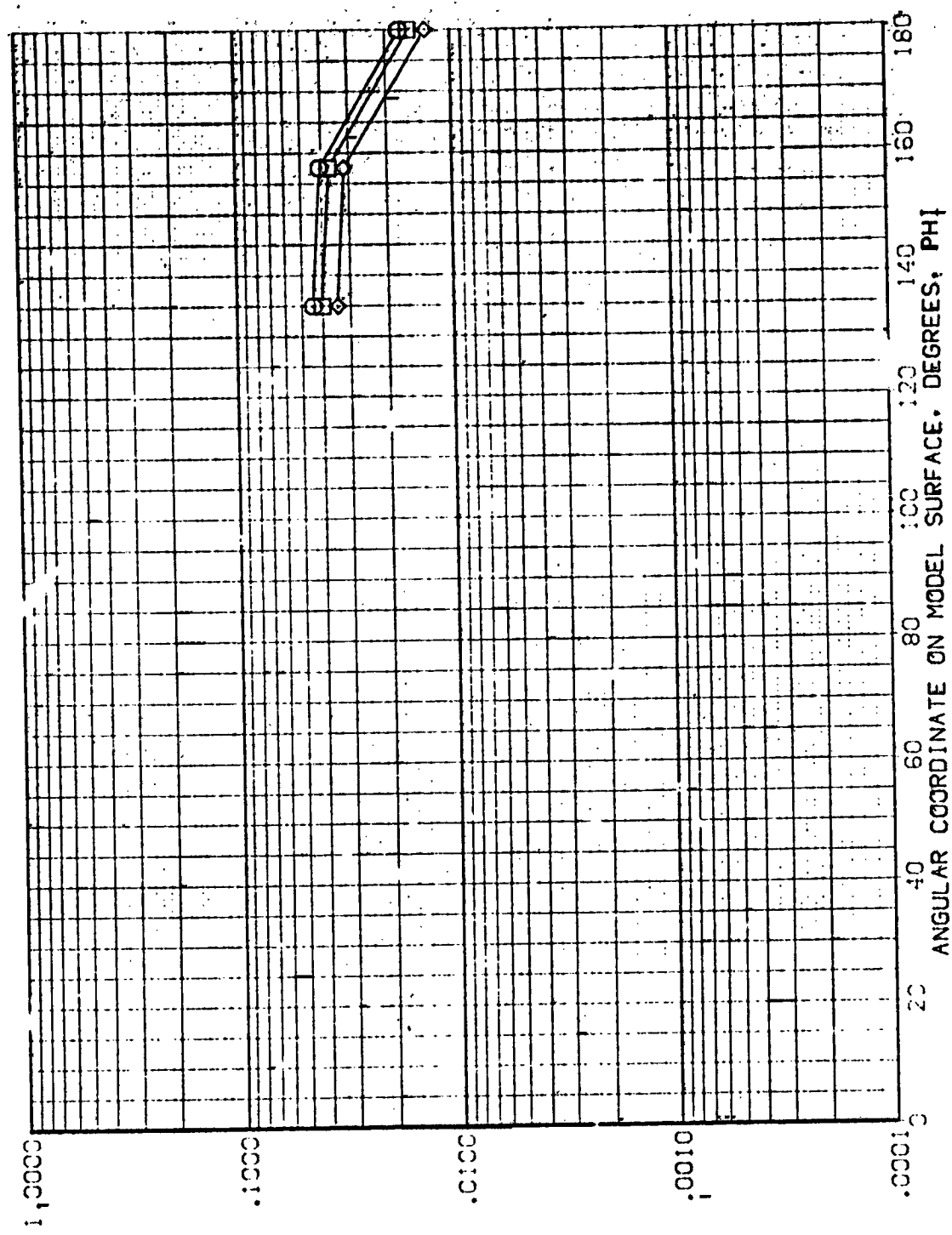


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV108)

SYMBOL	H/W/H	X/Z	MACH	PARAMETRIC VALUES
□	.850	.900	5.223	ALPHA
◇	.900			-60 000
	1.000			SE-A
				1.000
				0.000

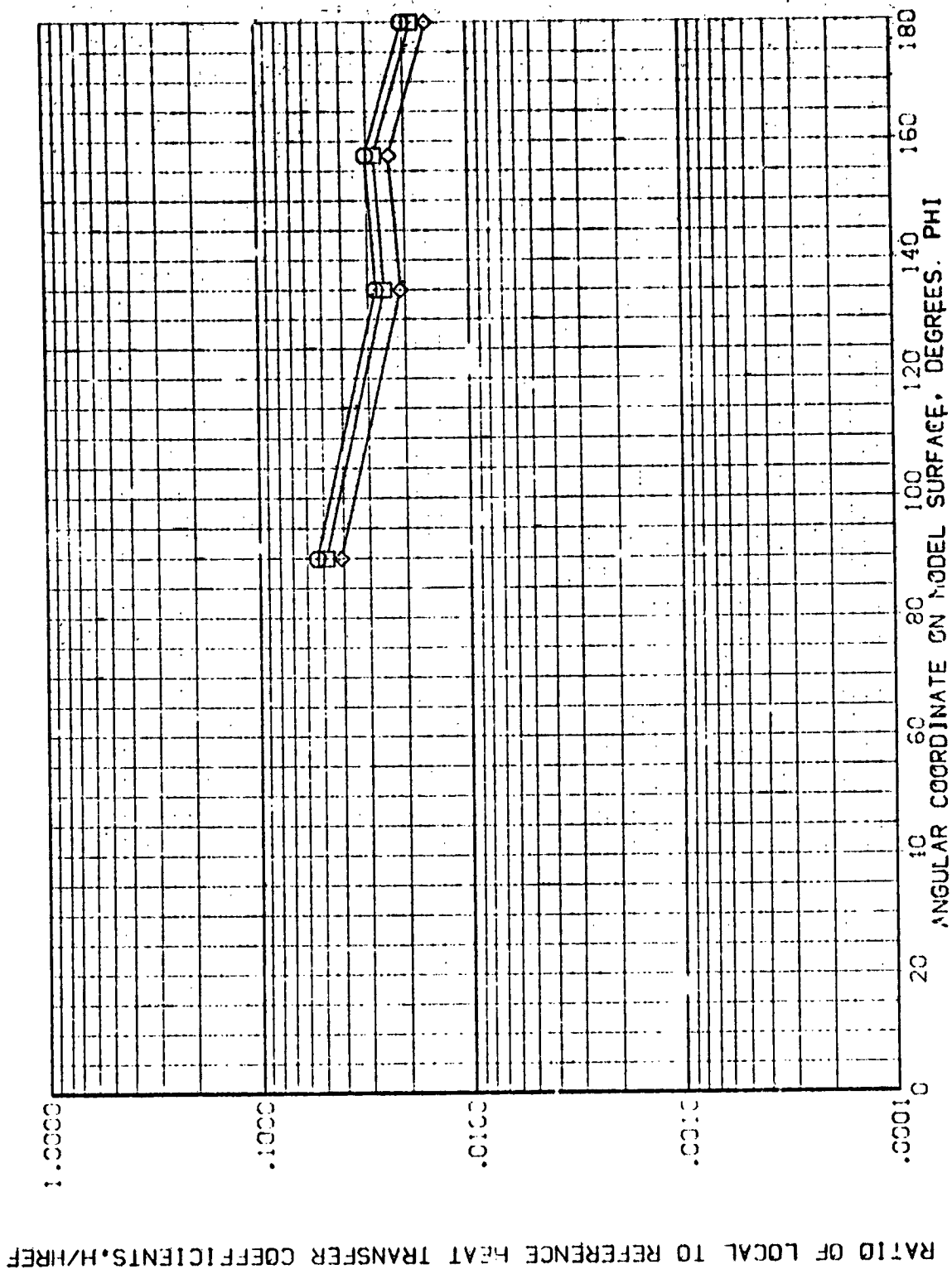


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1H28 01+T1 EXTERNAL TANK

(REV T08)

SYMBOL HEIGHT X/L VACH  
◇ 170 .850 .850 5.220  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -60.000  
P/N/L 1.000  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

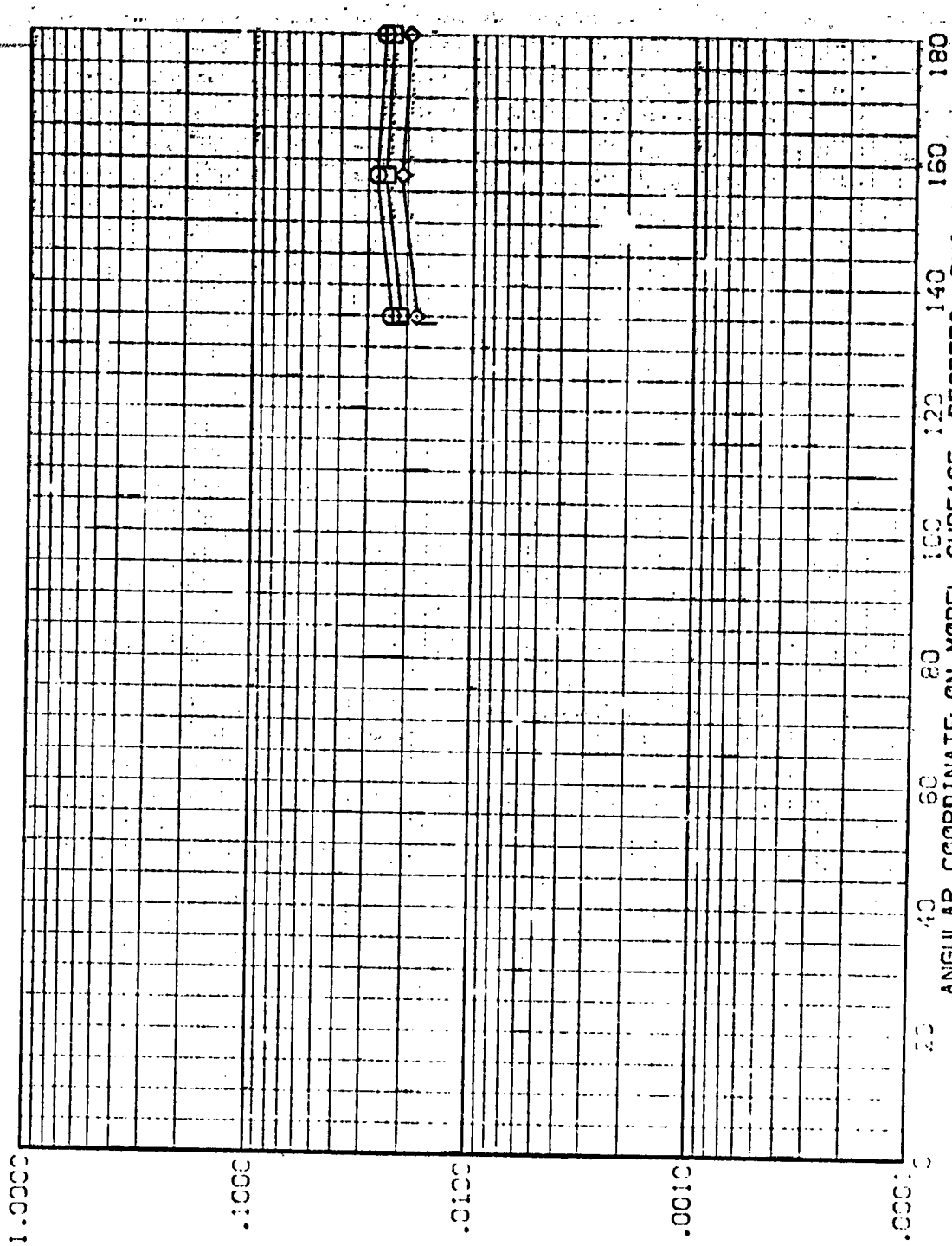


FIG. 5 TANK IN THE PRESENCE OF ORBITER



AMES 3.5-195 1H28 01+T1 EXTERNAL TANK (REV108)

SYSEC- HAW/H<sup>2</sup> X/L V/CH  
 .850 .900 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 RW/L 1.000

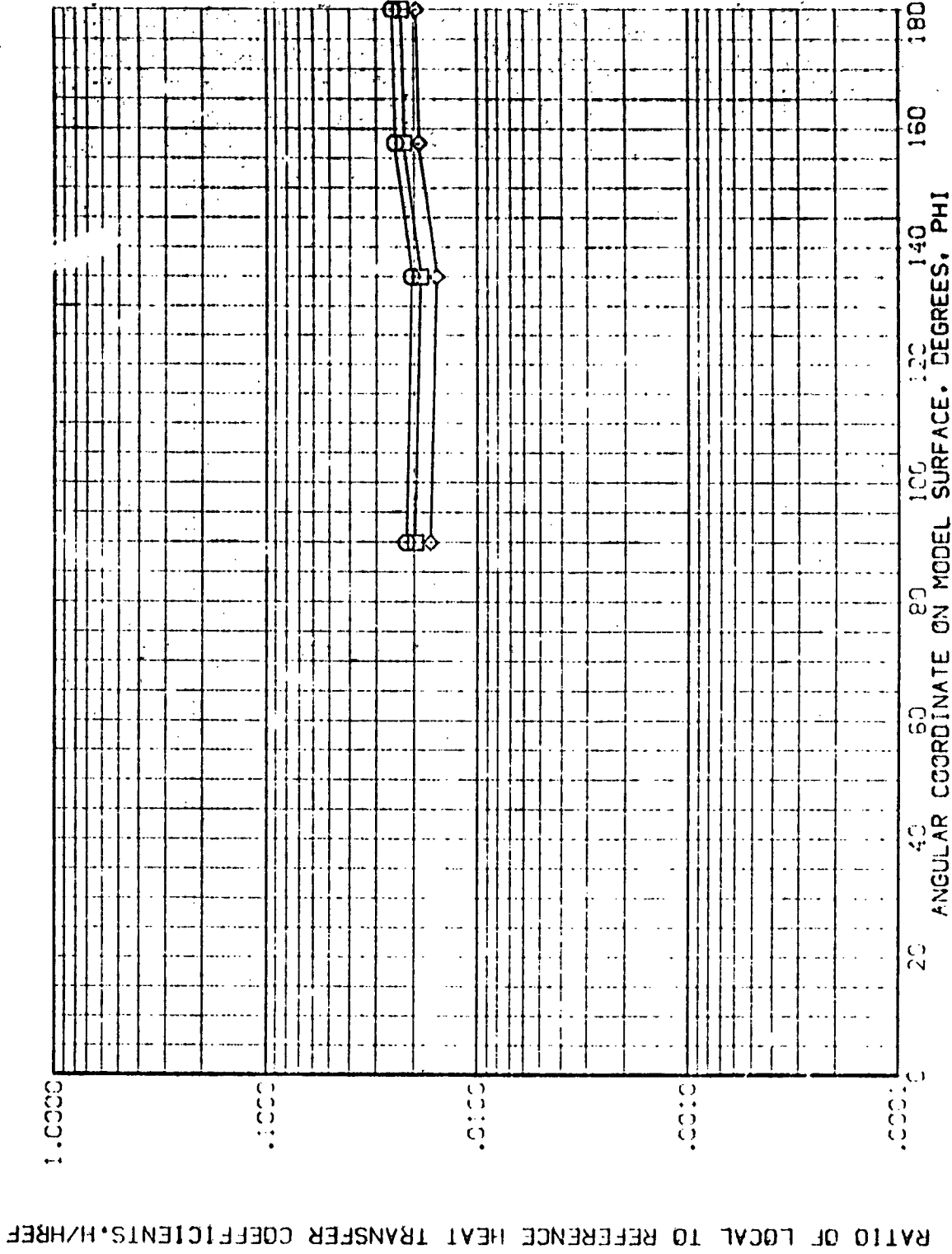


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REPRODUCIBILITY OF  
 ORIGINAL PAGE IS POOR

AMES 2.5-195 1428 C1+T1 EXTERNAL TANK (REV T09)

SAVEZ  
SCALE  
VAL  
MACH  
5.219

PARAMETRIC VALUES  
ALPHA  
R/V/L  
-30.000  
1.000  
BETA  
.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

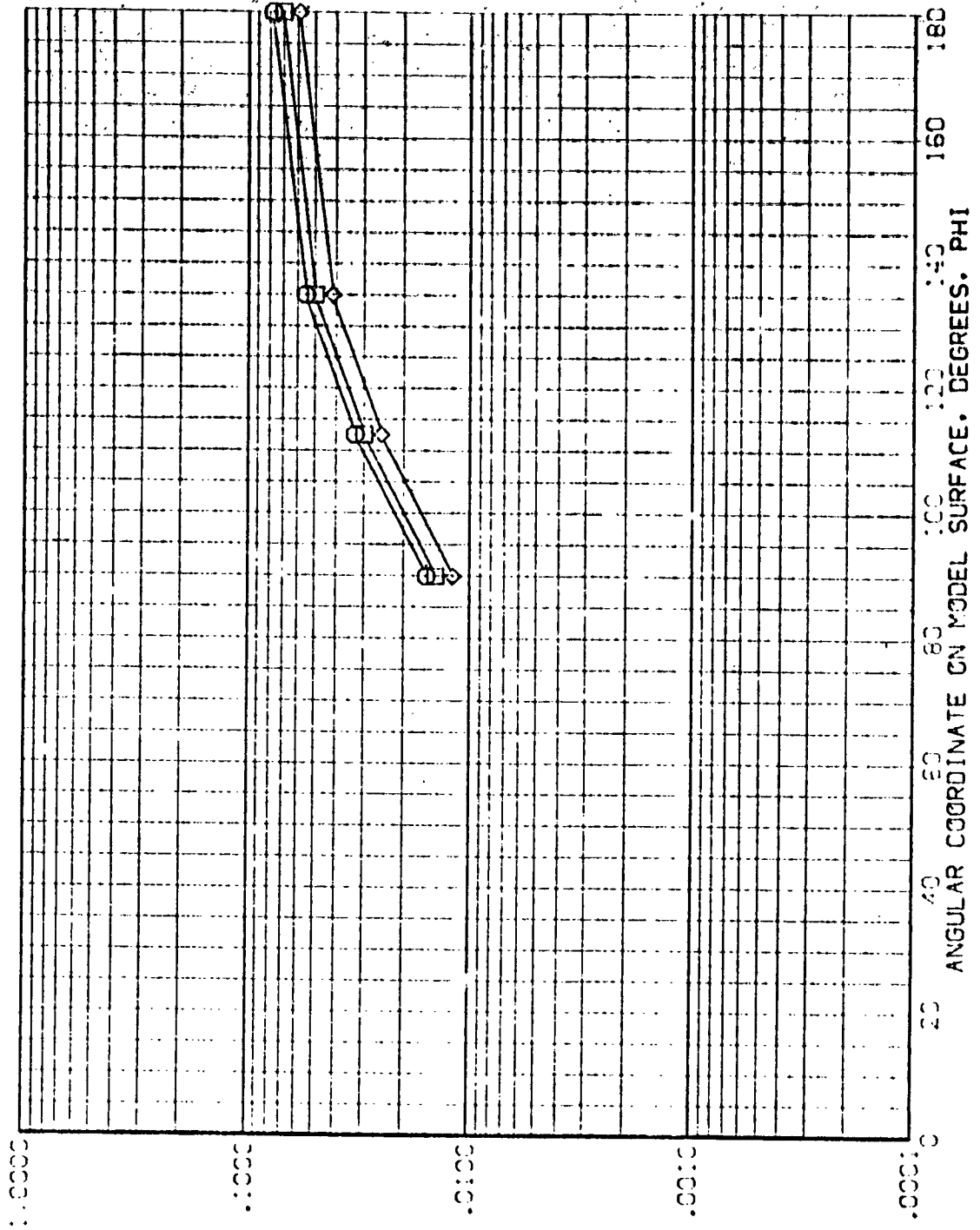


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV109)

ST. SEC. HAWK/M<sup>2</sup> M/L MACH  
 0.850 .400 5.219  
 0.900  
 1.000

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .200  
 PNL 1.000

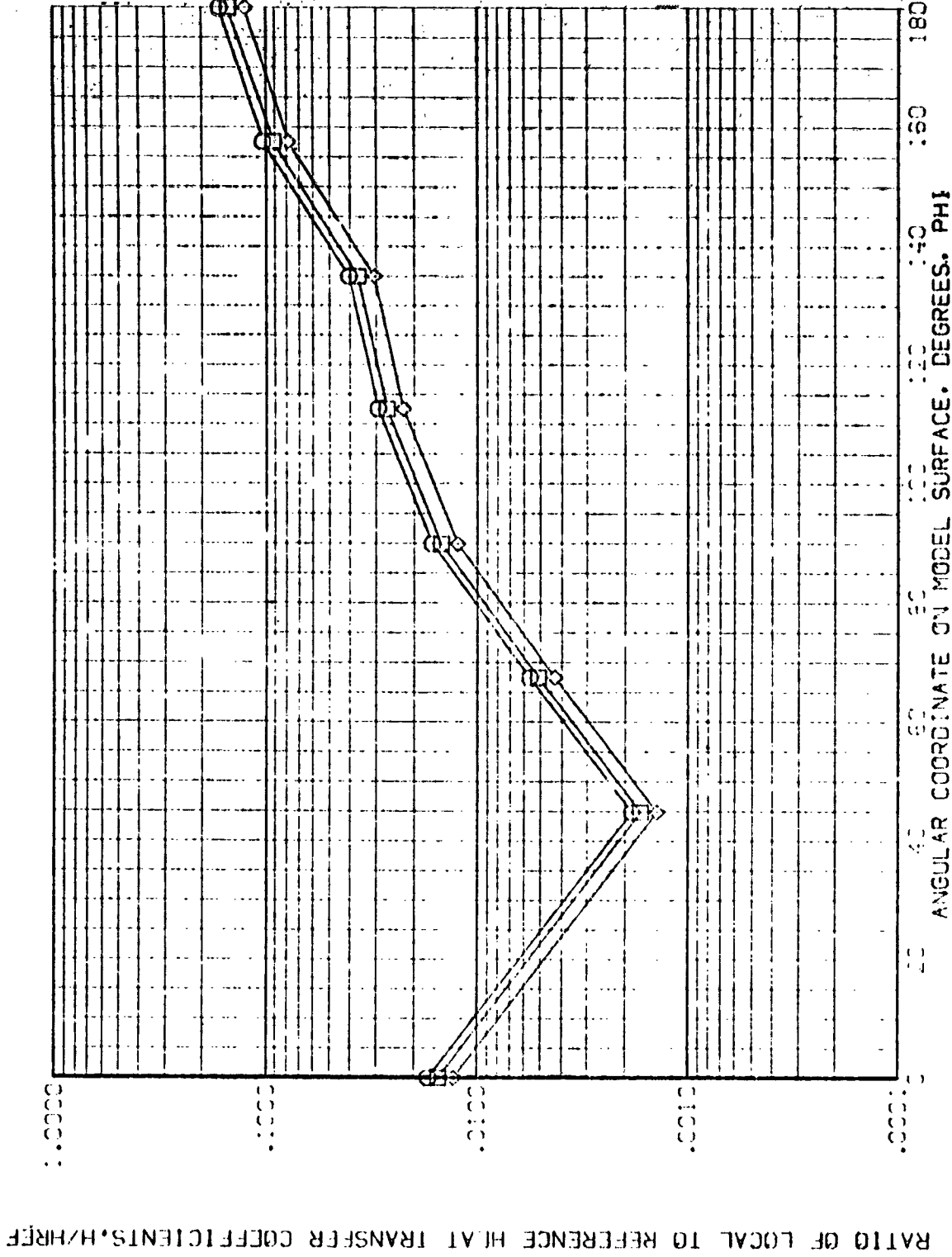


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 315-105 1-28 01-71 INTERNAL TANK (REV. 000)

PARAMETRIC VALUES  
ALPHA -30.000 BETA .0000  
Rho 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

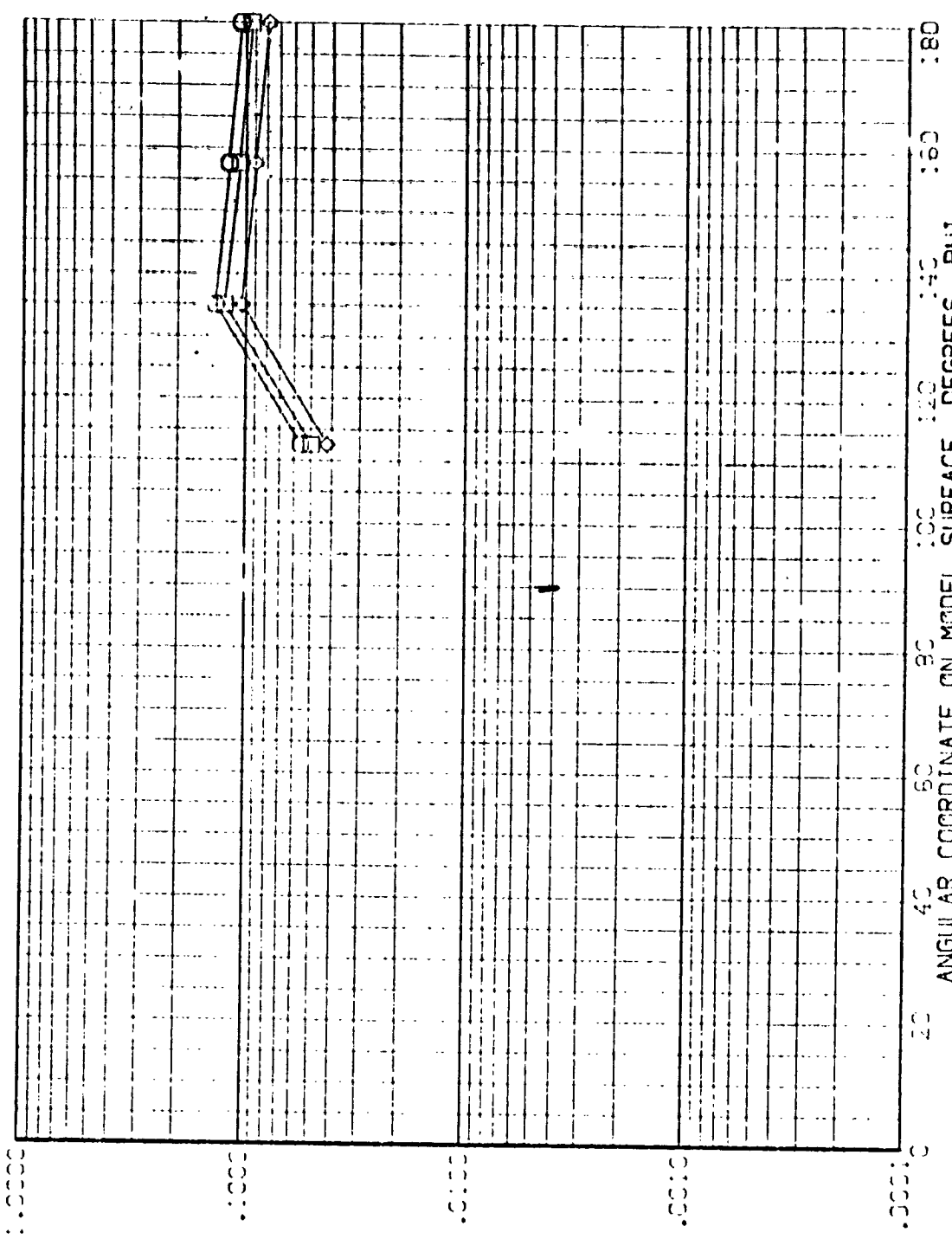


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T09)

SYSC-  
◇ □

MAN/HT .85C  
X/L .500  
MACH 5.219

PARAMETRIC VALUES  
ALPHA -30.000  
PR/L 1.000  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

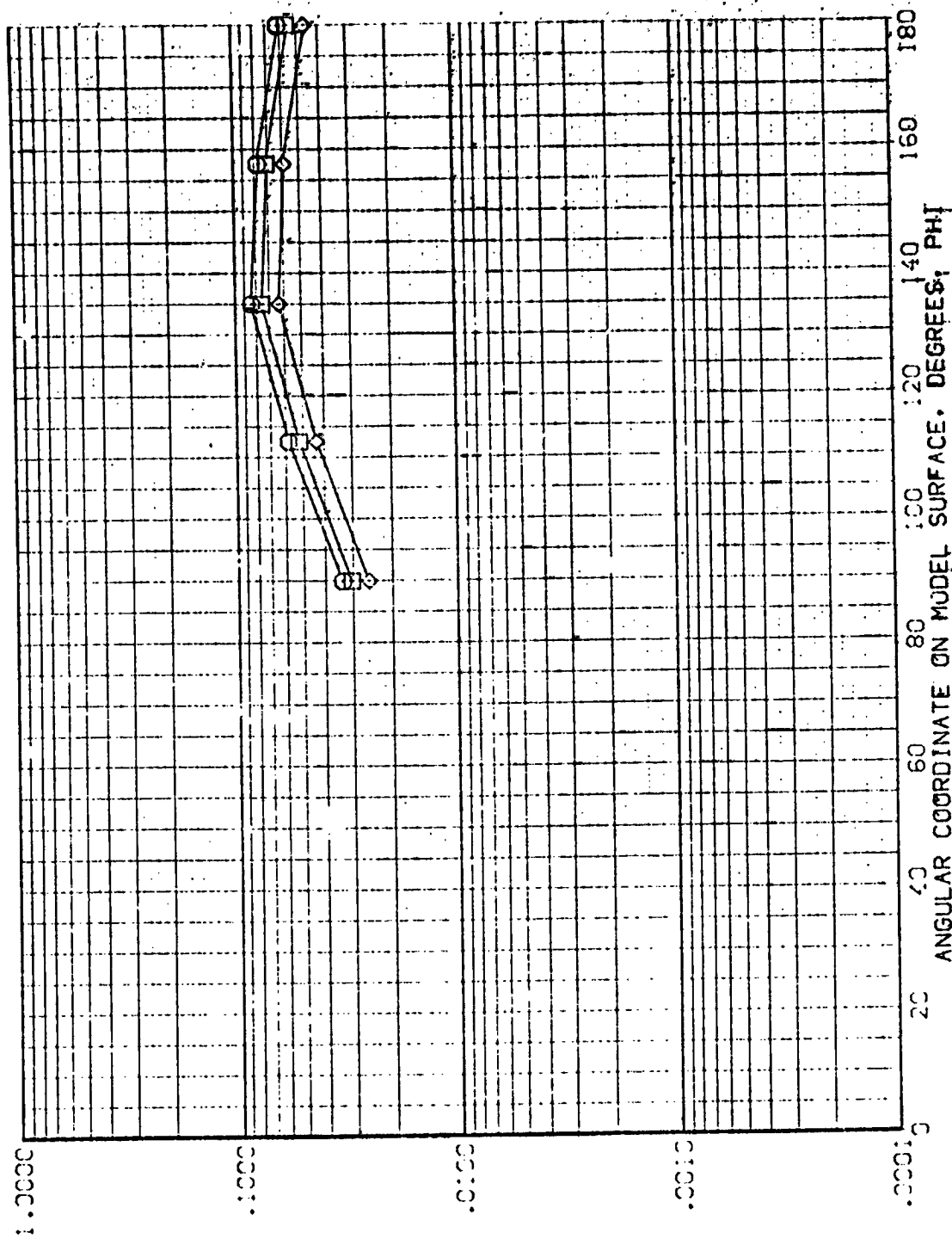


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-125 1428 CI-TI EXTERNAL TANK

(REV T09)

SPEED  
 HA/W/L  
 .850  
 .900  
 1.000  
 V/L  
 .550  
 V/CH  
 5.219

PARAMETRIC VALUES  
 ALPHA  
 PR/L  
 -30.000  
 1.000  
 BETA  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

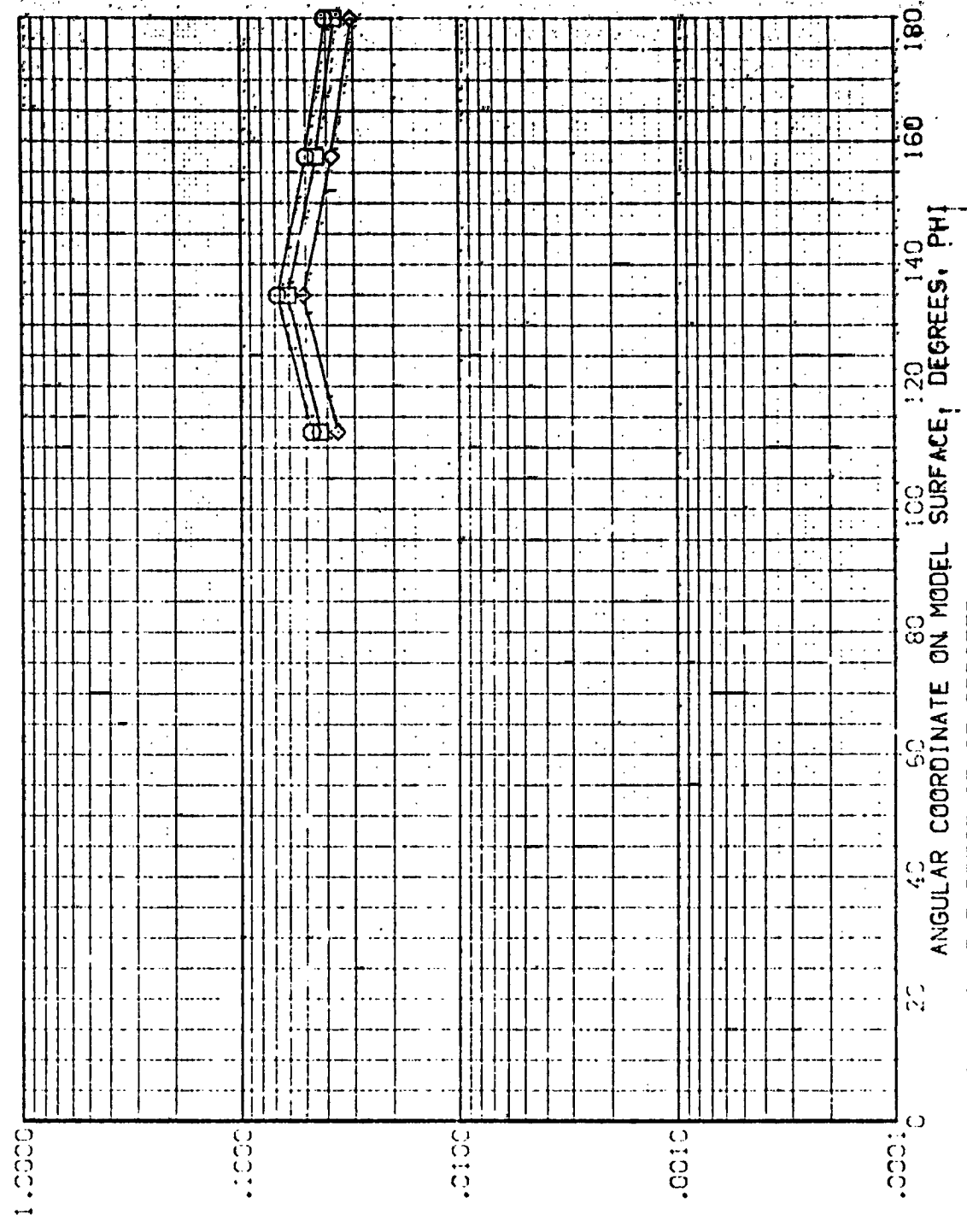


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T09)

SYMBOL H/W/T X/L MACH  
 ◊ .853 .600 5.219  
 □ .900 .600  
 ◊ 1.000

PARAMETRIC VALUES  
 ALPHA 900 BETA .600  
 PNU/L 1.000

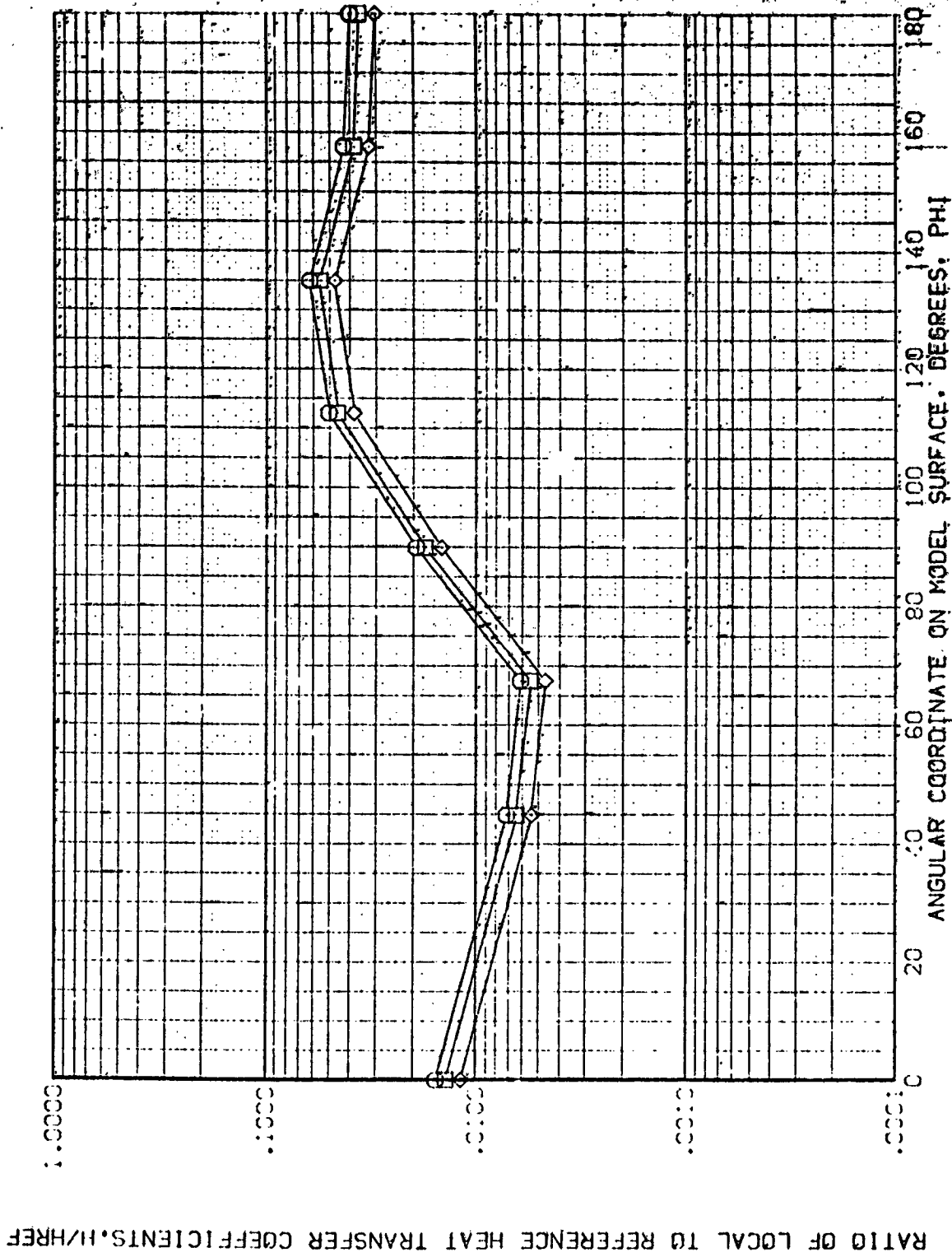


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 OI+TI EXTERNAL TANK

(REV T09)

SYMBOL HEIGHT X/L MACH  
 ◊ .850  
 □ .900  
 ○ 1.000

PARAMETRIC VALUES  
 ALPHA -30.000  
 RNVL 1.000  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

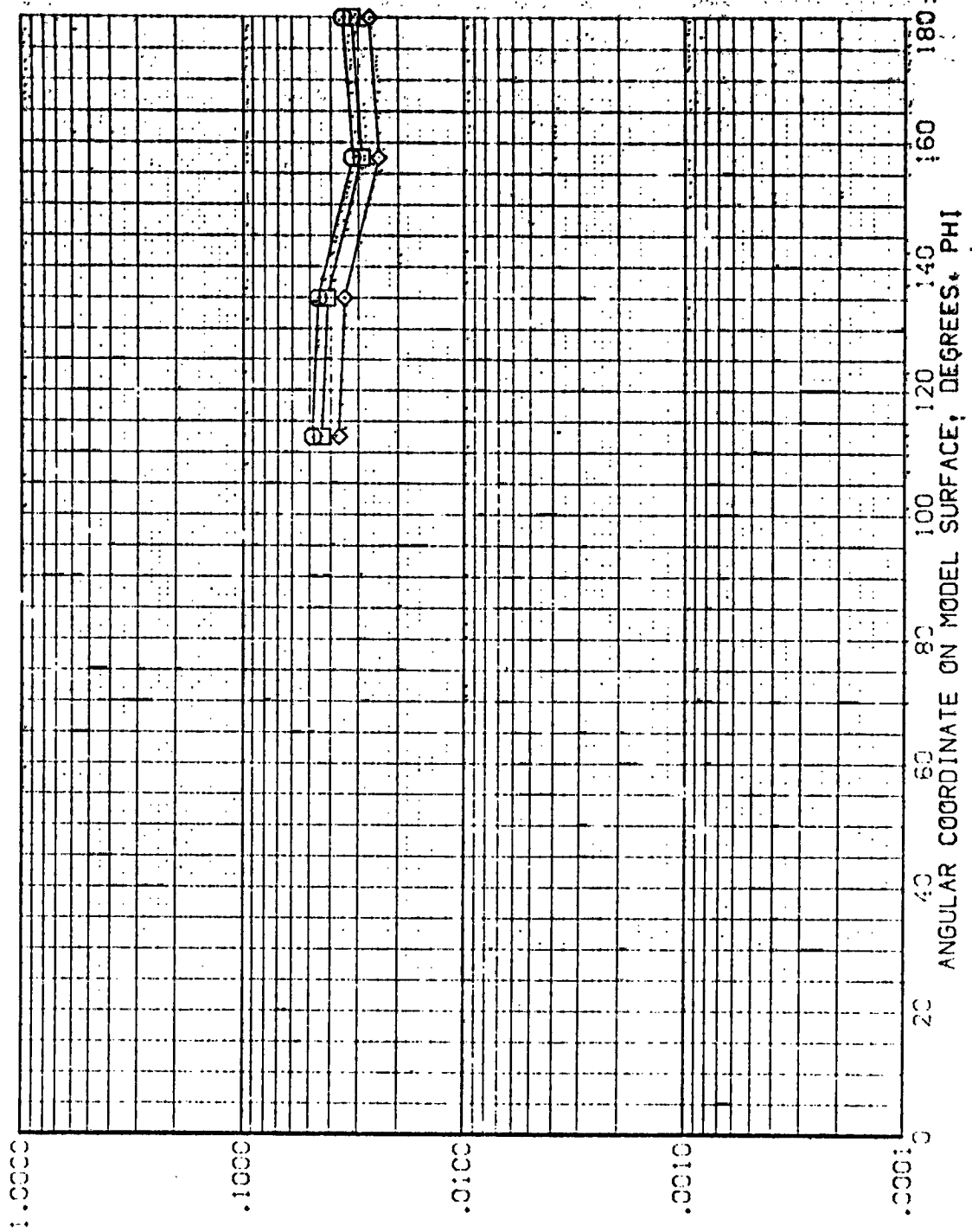


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T09)

SPEED  $\square$   $\diamond$   
 HAW/HT .850  
 X/L .700  
 MACH 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA  $\beta$  .000  
 RN/L 1.000

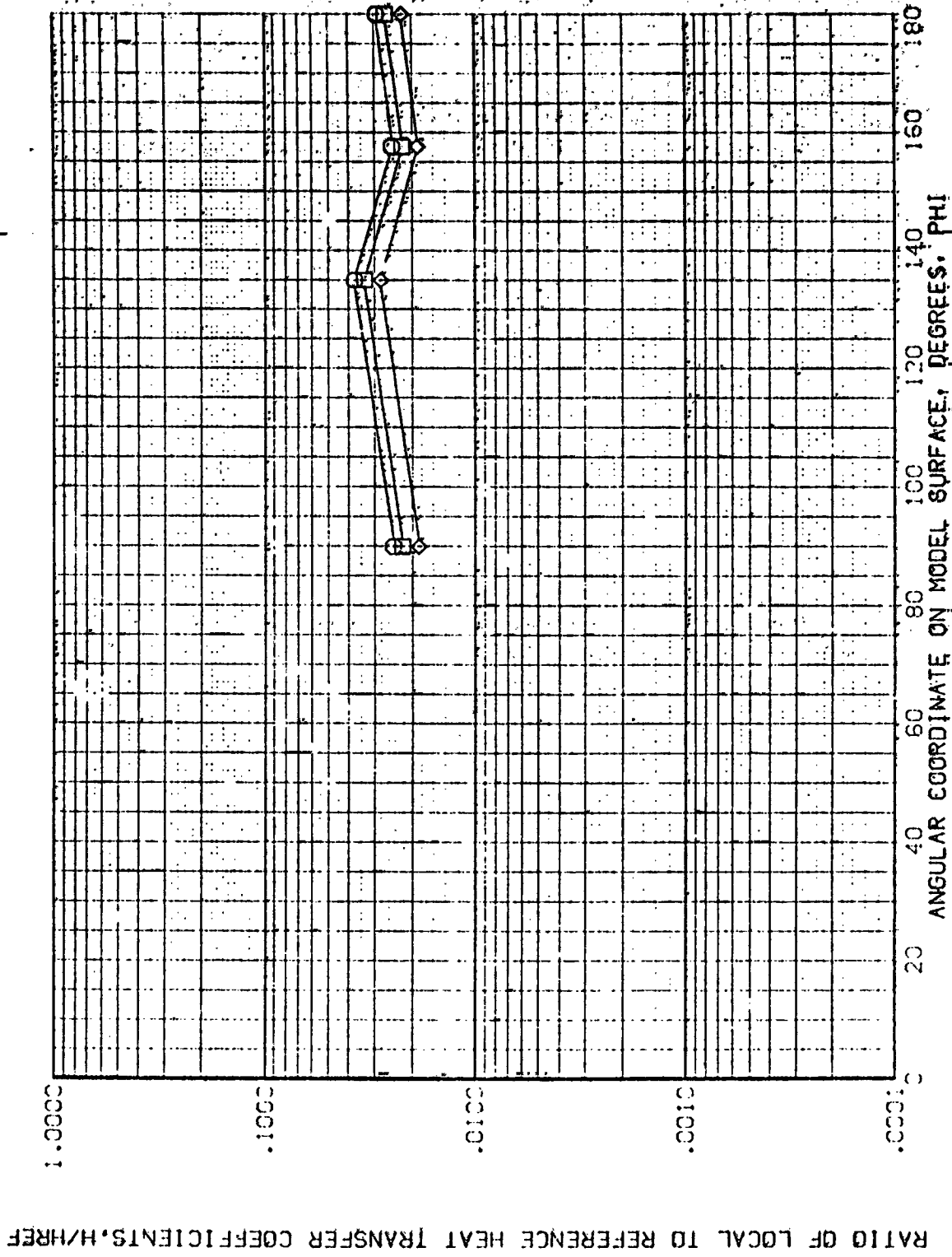


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (RE/TO9)

SYMBOL MACH  $\gamma$  C VACH  
 □ .950 1.50 5.219  
 ◇ .900 1.000

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

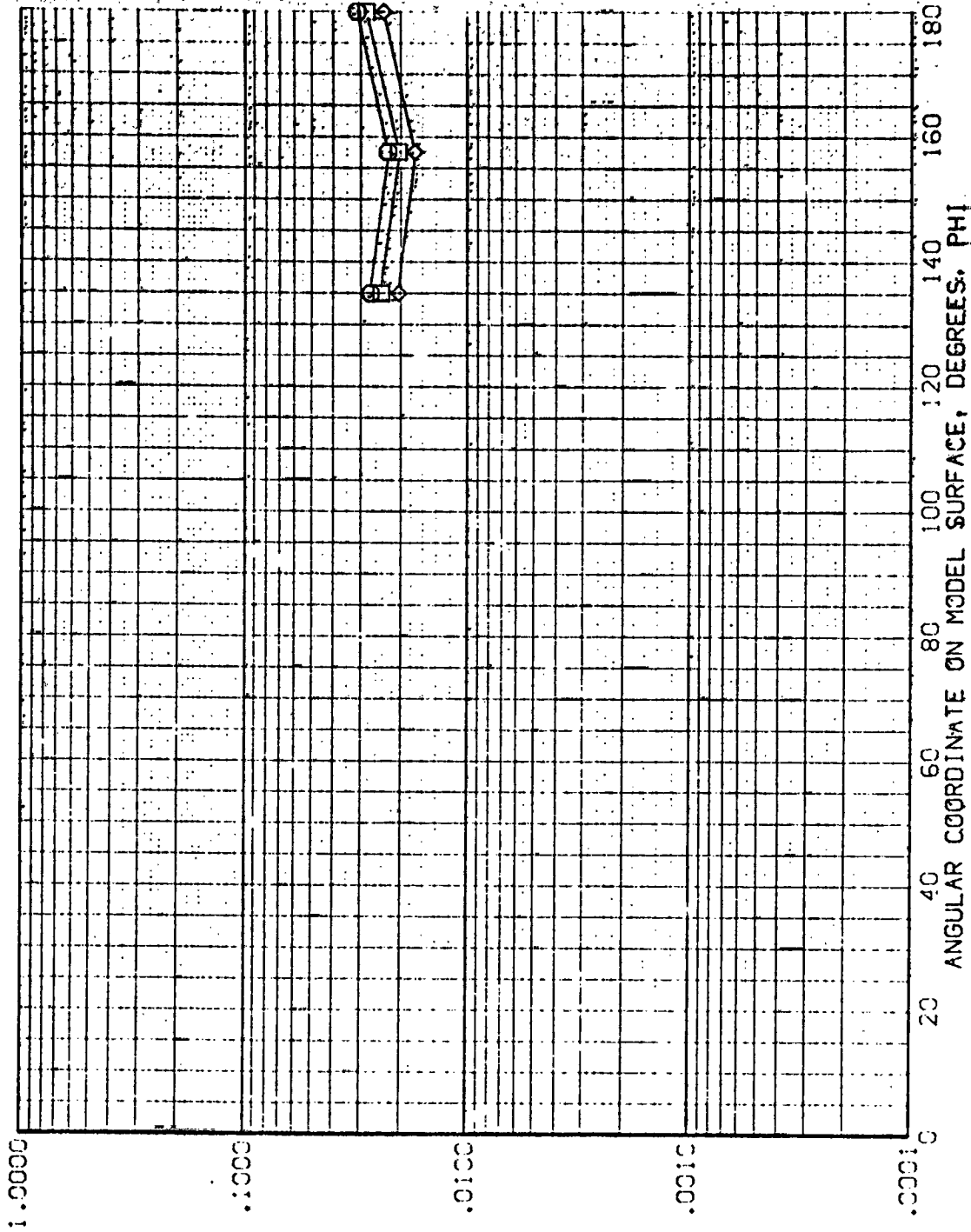


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T09)

SYSEC  
 -PAR/PT  
 .850  
 .900  
 1.000

X/L  
 .800  
 MACH  
 5.219

PARAMETRIC VALUES  
 ALPHA  
 R/V/L  
 -30.000  
 BETA  
 1.000

.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

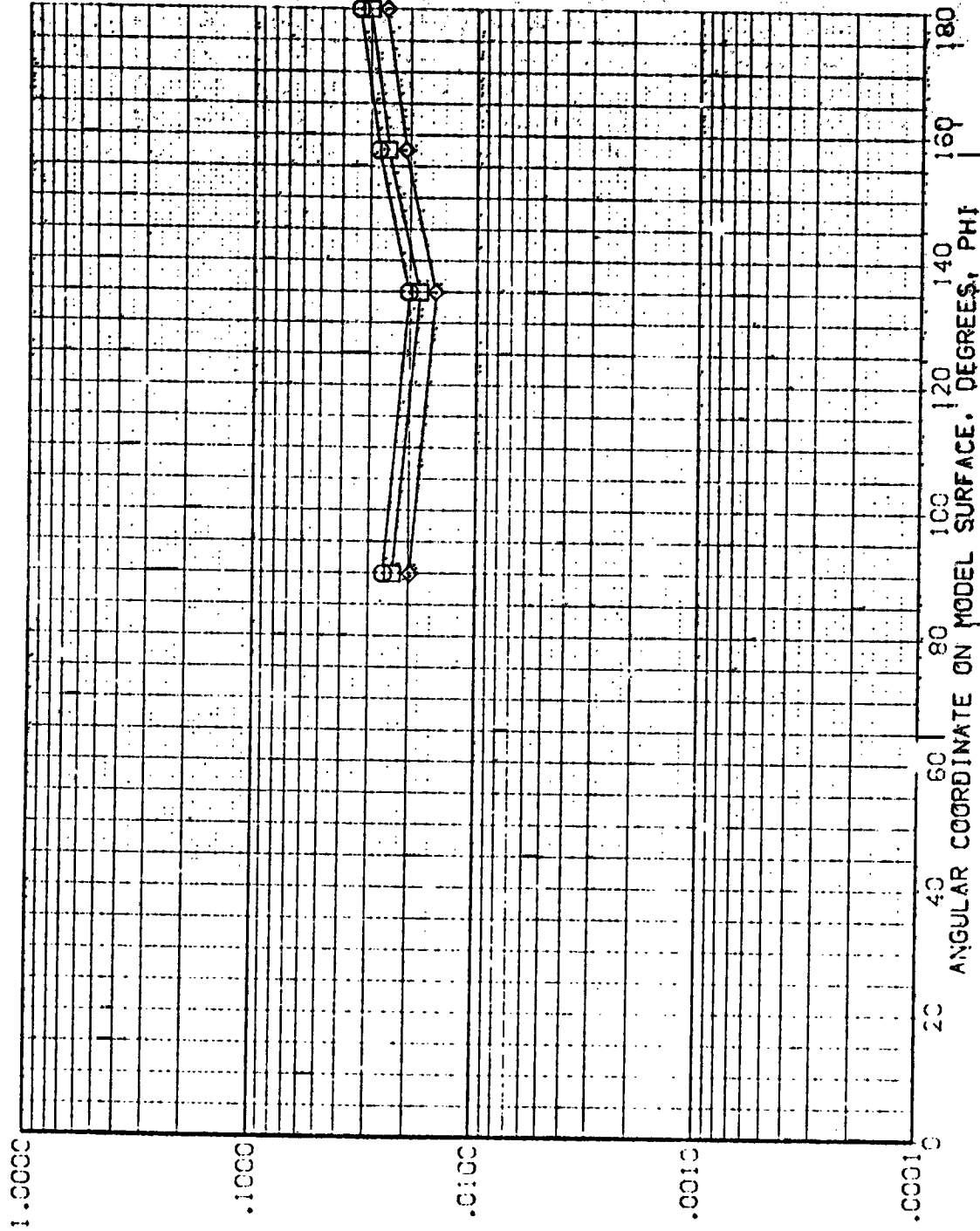


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AYES 3.5-135 (H29 01+11) EXTERNAL TANK

(REV T09)

SYMBOL    MACH    X/L    Y/L    MACH  
 ◇ T/O    .850    .850    .850    5.219  
          .900    .900    .900     
          1.000    1.000    1.000   

PARAMETRIC VALUES  
 ALPHA    -30.000    BETA  
 RN/L    1.000    .000

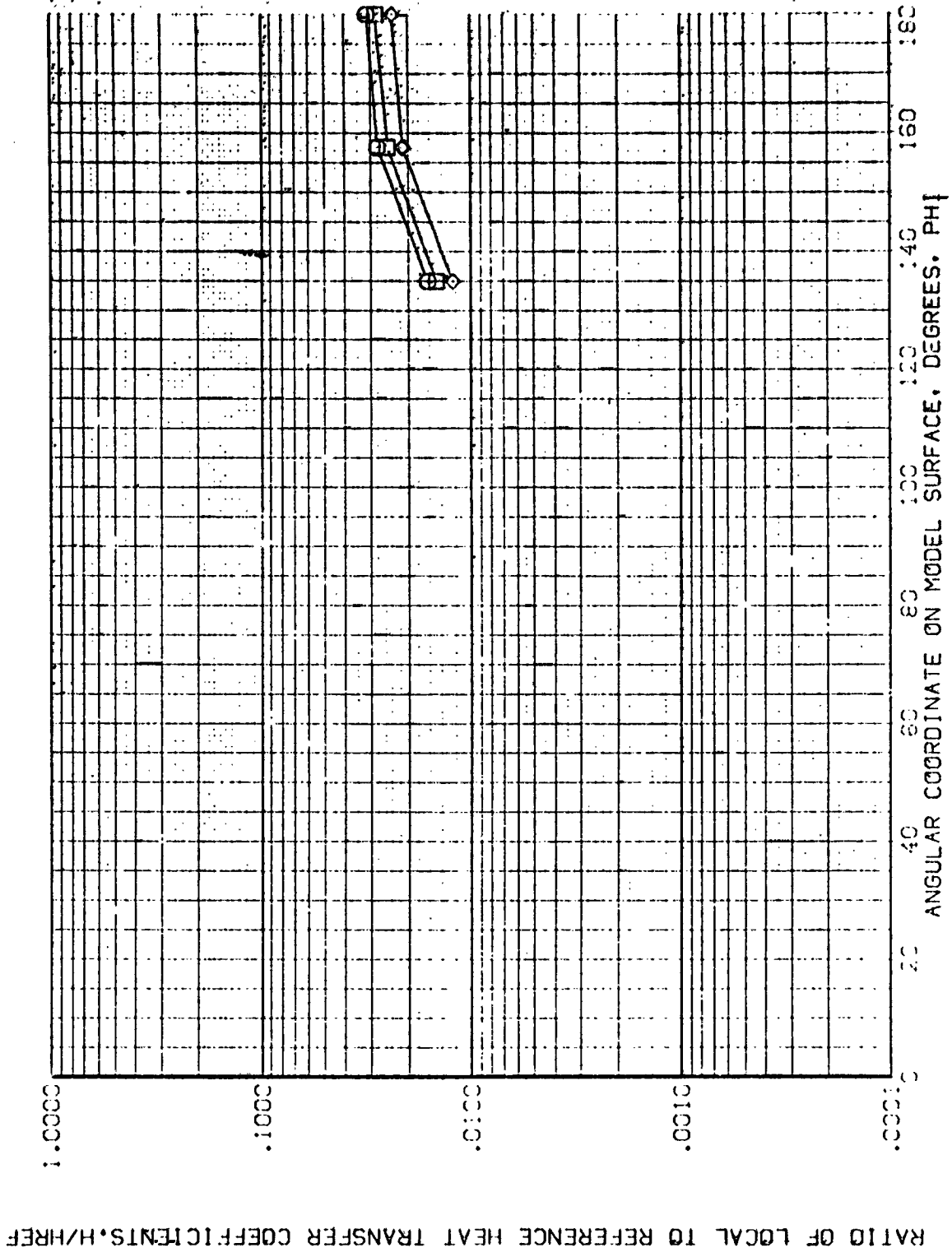


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+TI EXTERNAL TANK

(REV T09)

SYMBOL PARAMETER VALUE  
 ◇ T/D .650  
 ○ X/D .800  
 ○ V/CH 5.219

PARAMETRIC VALUES  
 ALPHA -30.000  
 BETA .000  
 RV/L 1.000

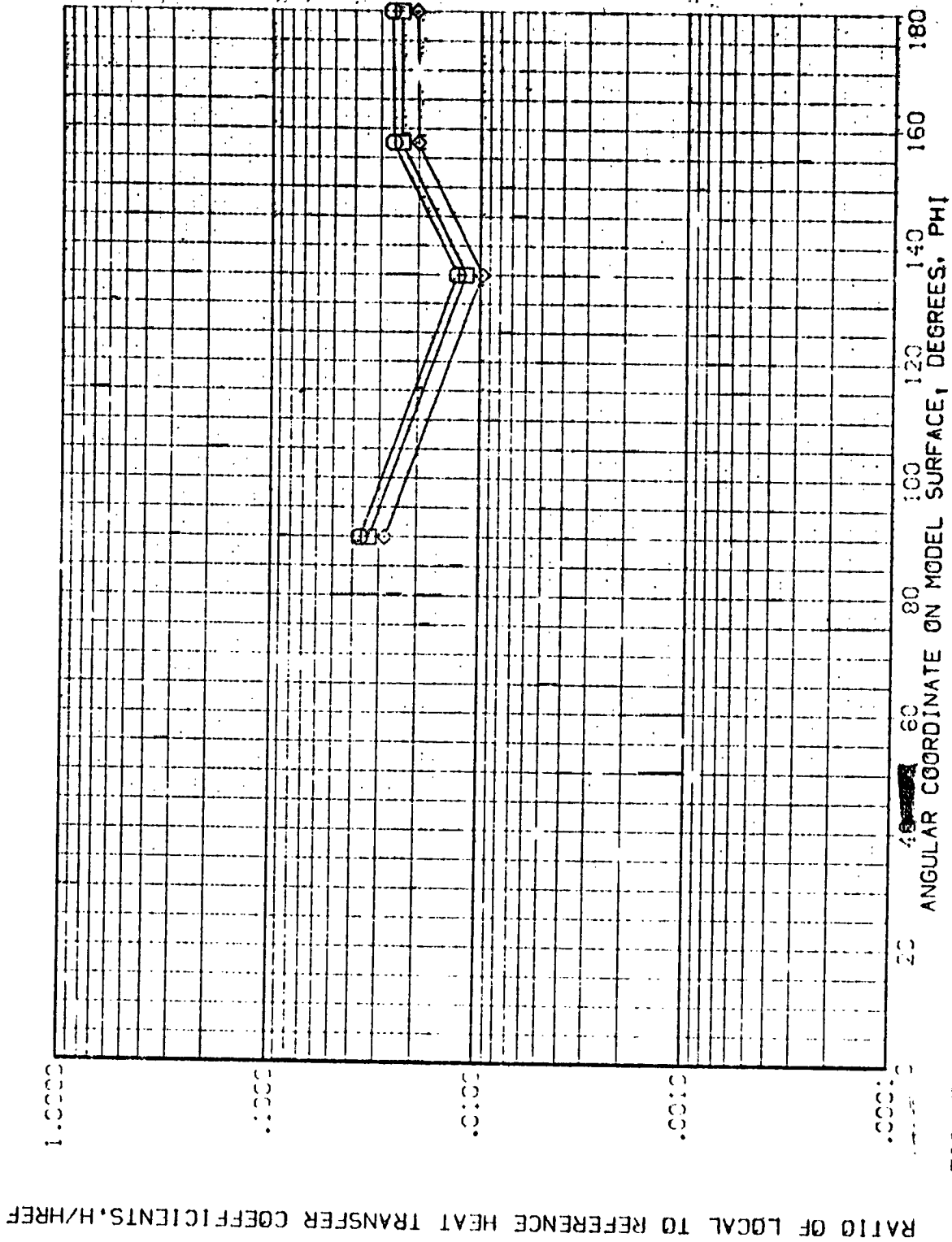


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REPRODUCIBILITY OF THIS  
 ORIGINAL PAGE IS POOR

AMES 3.5-195 1-29 01+11 EXTERNAL TANK (REV 110)

◇ PRO

PARAMETER X/C MACH  
.850 .350 5.300  
.900  
1.000

PARAMETRIC VALUES  
ALPHA 60.000 BETA .000  
RV/L 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

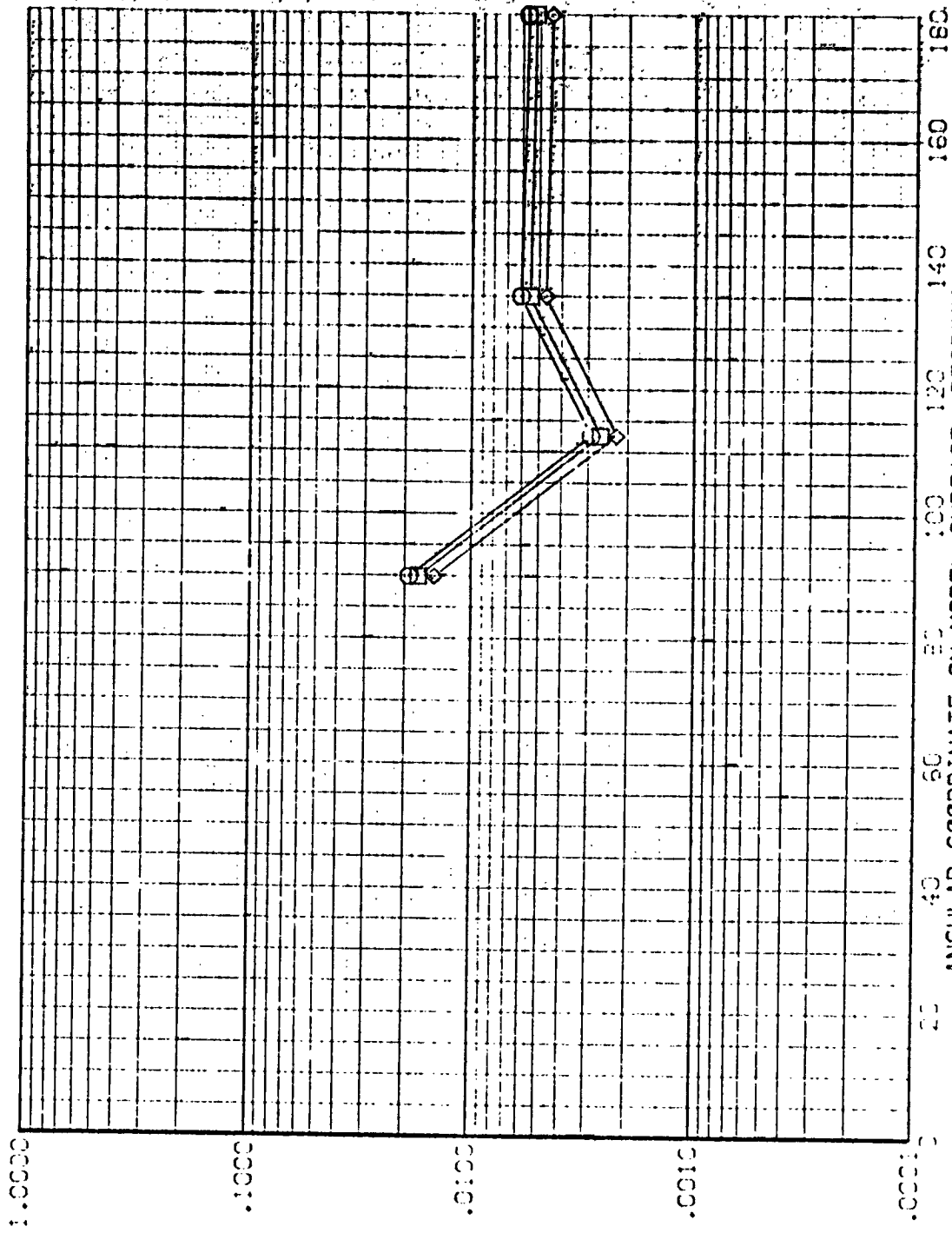


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-155 1H28 01+11 EXTERNAL TANK

(REV 10)

SYMBOL: -R/R/H/C  
 .650  
 .300  
 1.000

M/L: .400  
 M/C/H: 5.300

PARAMETRIC VALUES  
 ALPHA: 60.00  
 BETA: 4.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

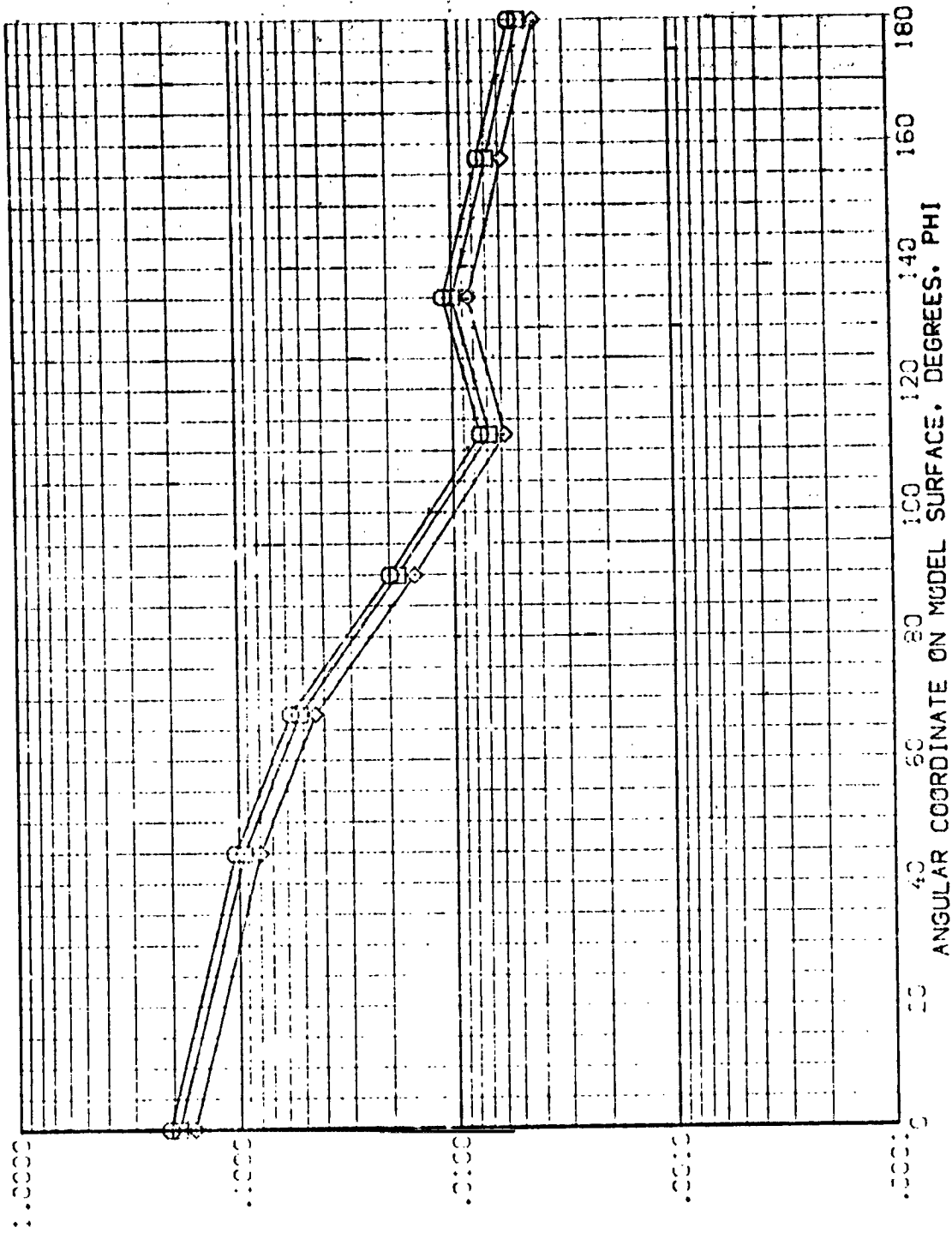


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-125 IH28 C1+T1 EXTERNAL TANK (REV110)

SYMBOL PARAMETER VALUE  
 MACH 5.300  
 V/L .400  
 HAW/HT .800  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 4.000  
 R/V/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

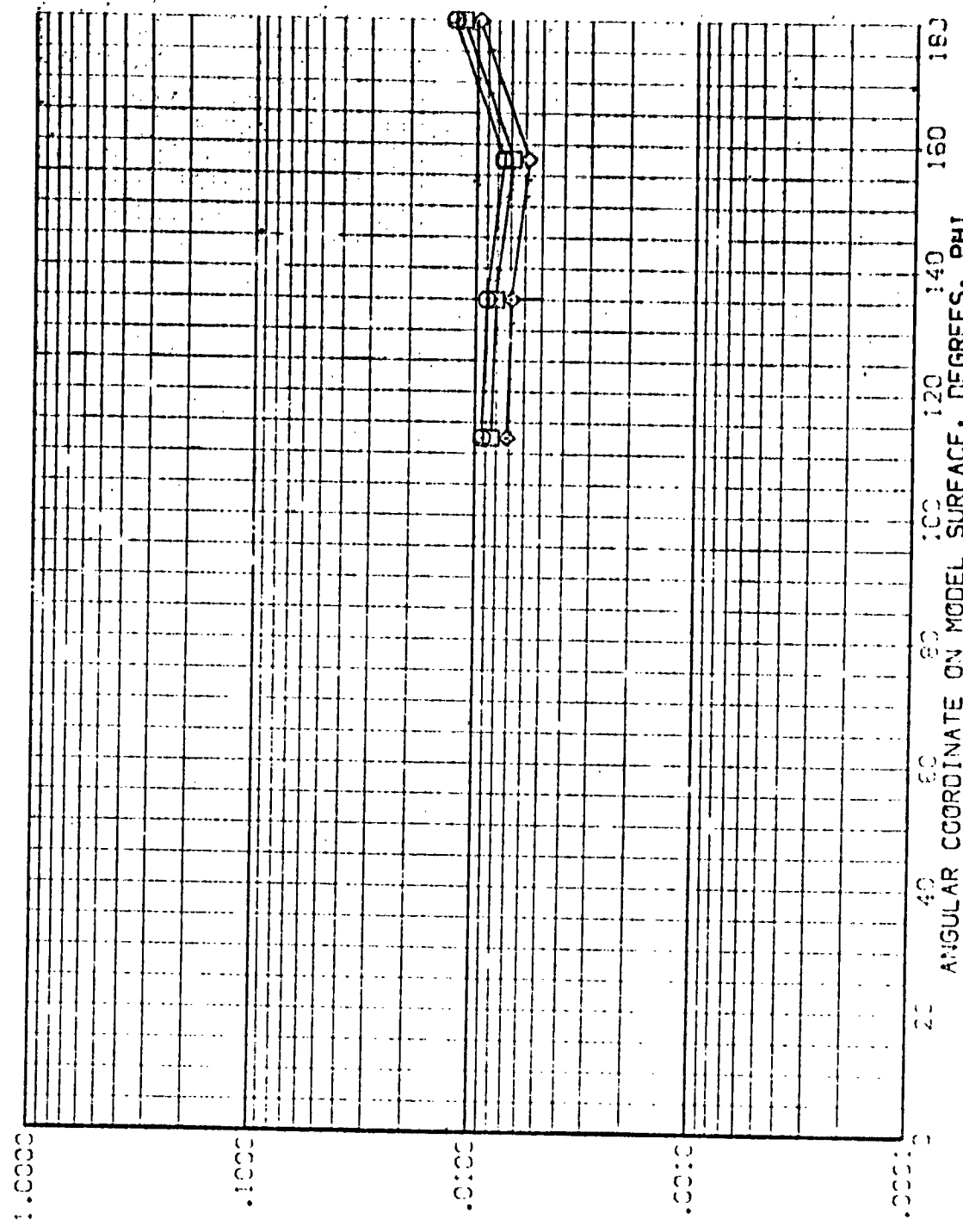


FIG. 5 TANK IN THE PRESENCE OF ORBITER



AMES 3.5-195 1-29 01+11 EXTERNAL TANK (REV:100)

PARAMETRIC VALUES  
ALPHA 60.000 BETA .000  
MACH 5.000  
SPEED 1.000  
REF .800  
REF .900  
REF 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

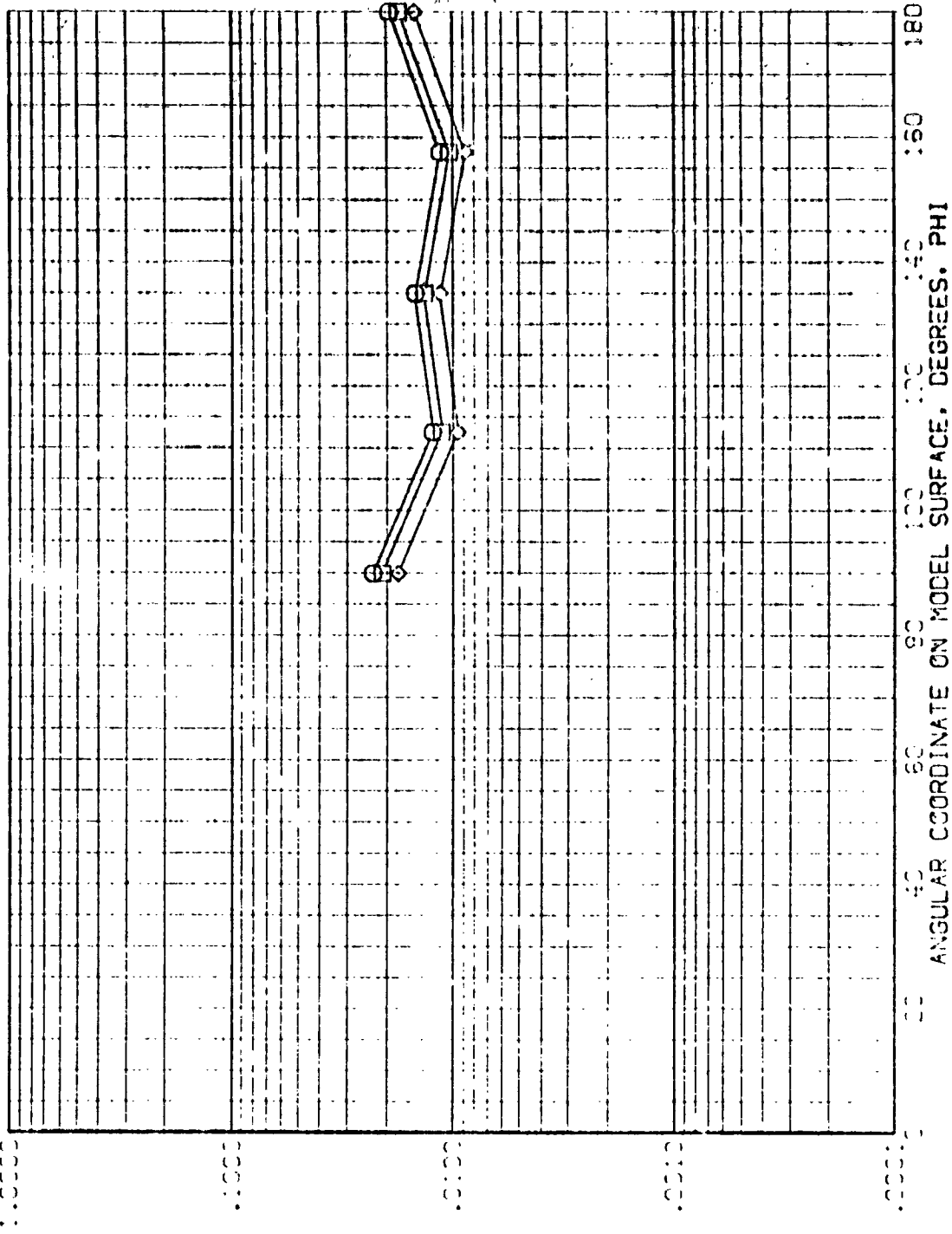


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 1-28 01-T1: EXTERNAL TANK (REV 110)

SIZE: 11.000  
 MASS: 1.000  
 MOMENT: .000  
 VISC: .500  
 WIND: 5.000

PARAMETRIC VALUES  
 ALPHA: .000  
 BETA: 4.000  
 PVL: .000

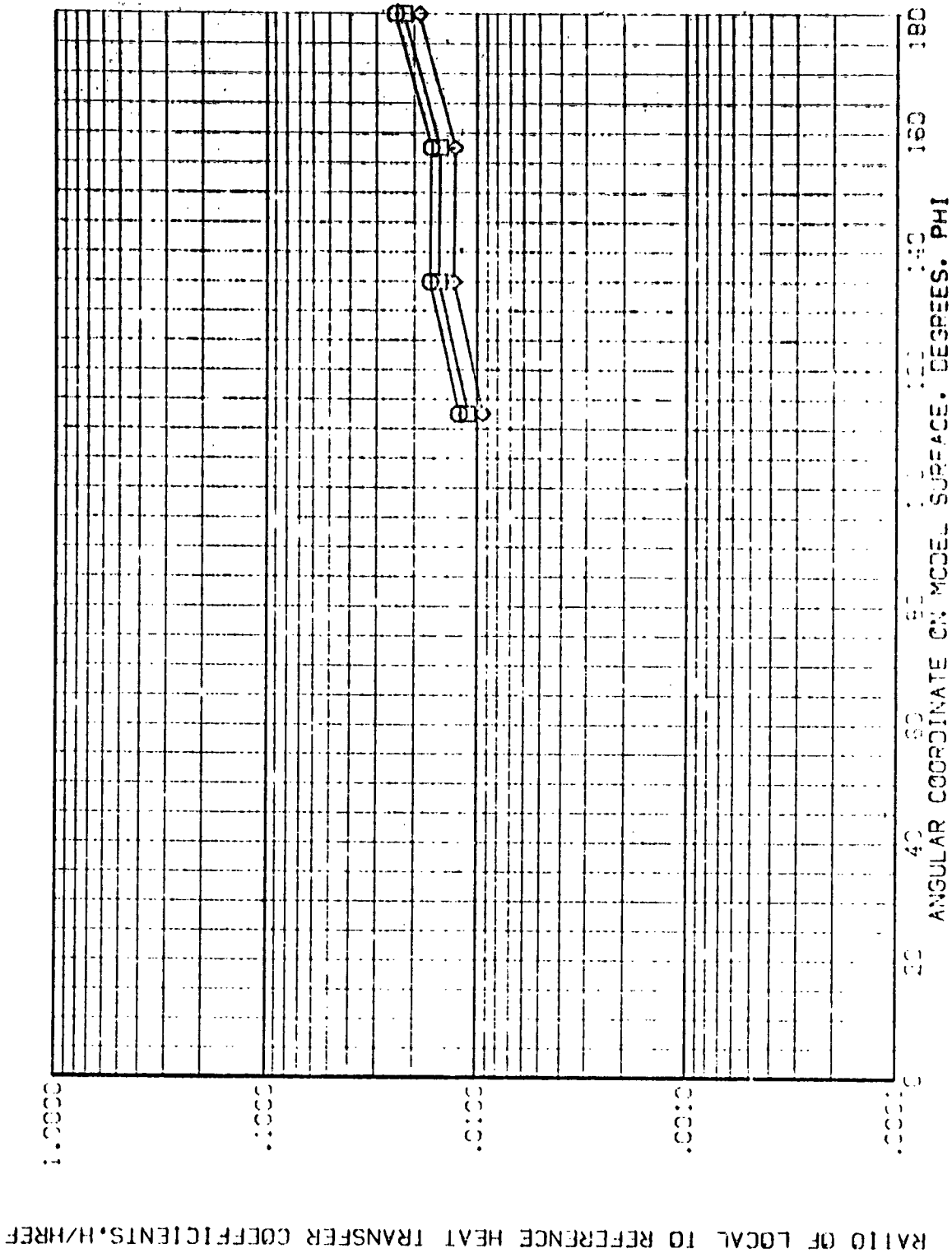


FIG. 5 TANK IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01-T1 EXTERNAL TANK

(REV110)

SYMSC.	MAW/T	X/L	MACH	PARAMETRIC VALUES
1.000	.850	.600	5.300	ALPHA
.950				BETA
				RV/L
				.000

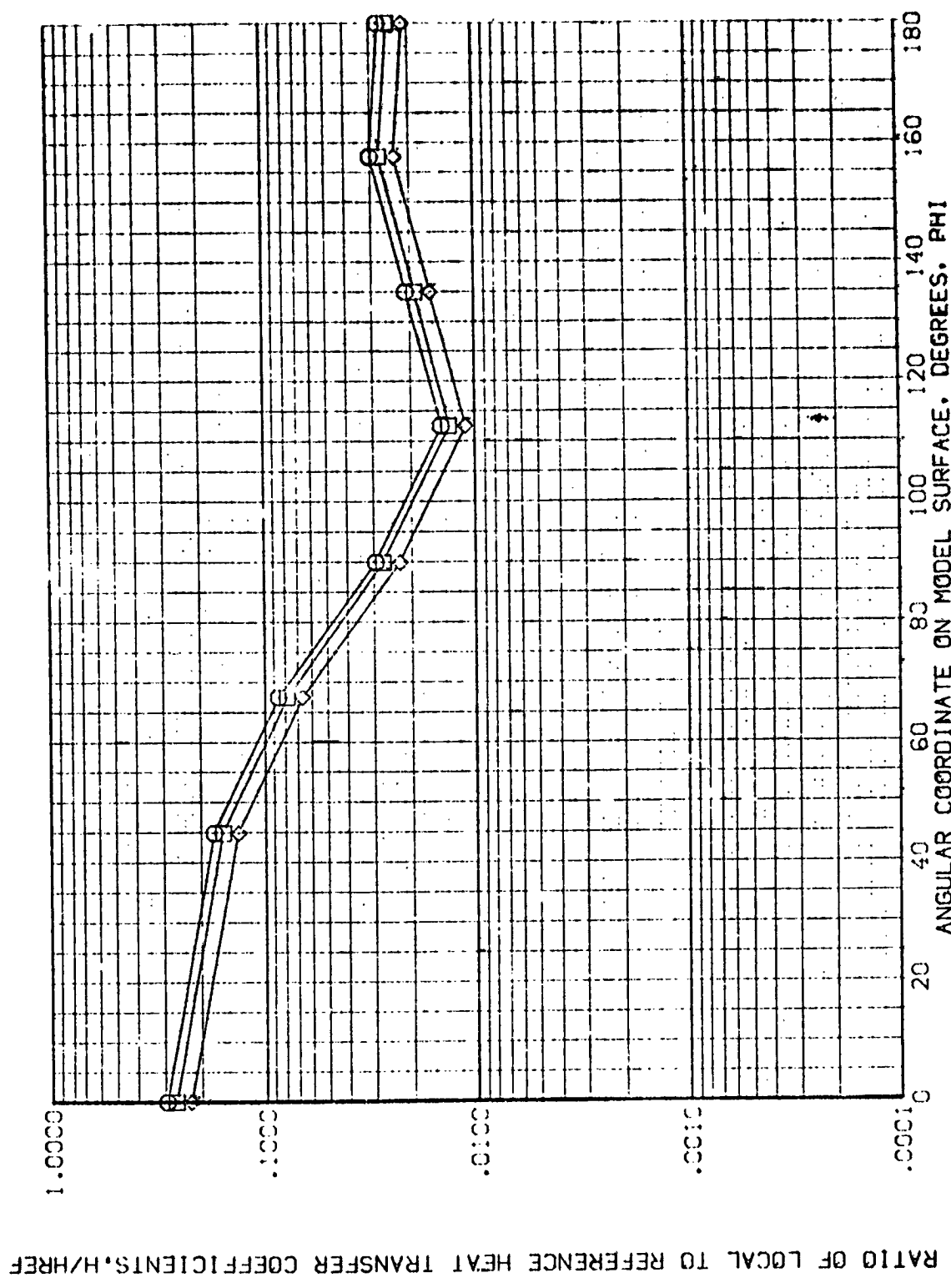


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

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ORIGINAL PAGE IS 100%

AMES 3.5-155 IH28 01+T1 EXTERNAL TANK (REV110)

SYMBOL HAW/HT X/L MACH  
 ◊ .850 .650 5.300  
 ◻ .950  
 ◻ 1.000

PARAMETRIC VALUES  
 ALPHA 150.000 BETA .000  
 RN/L 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

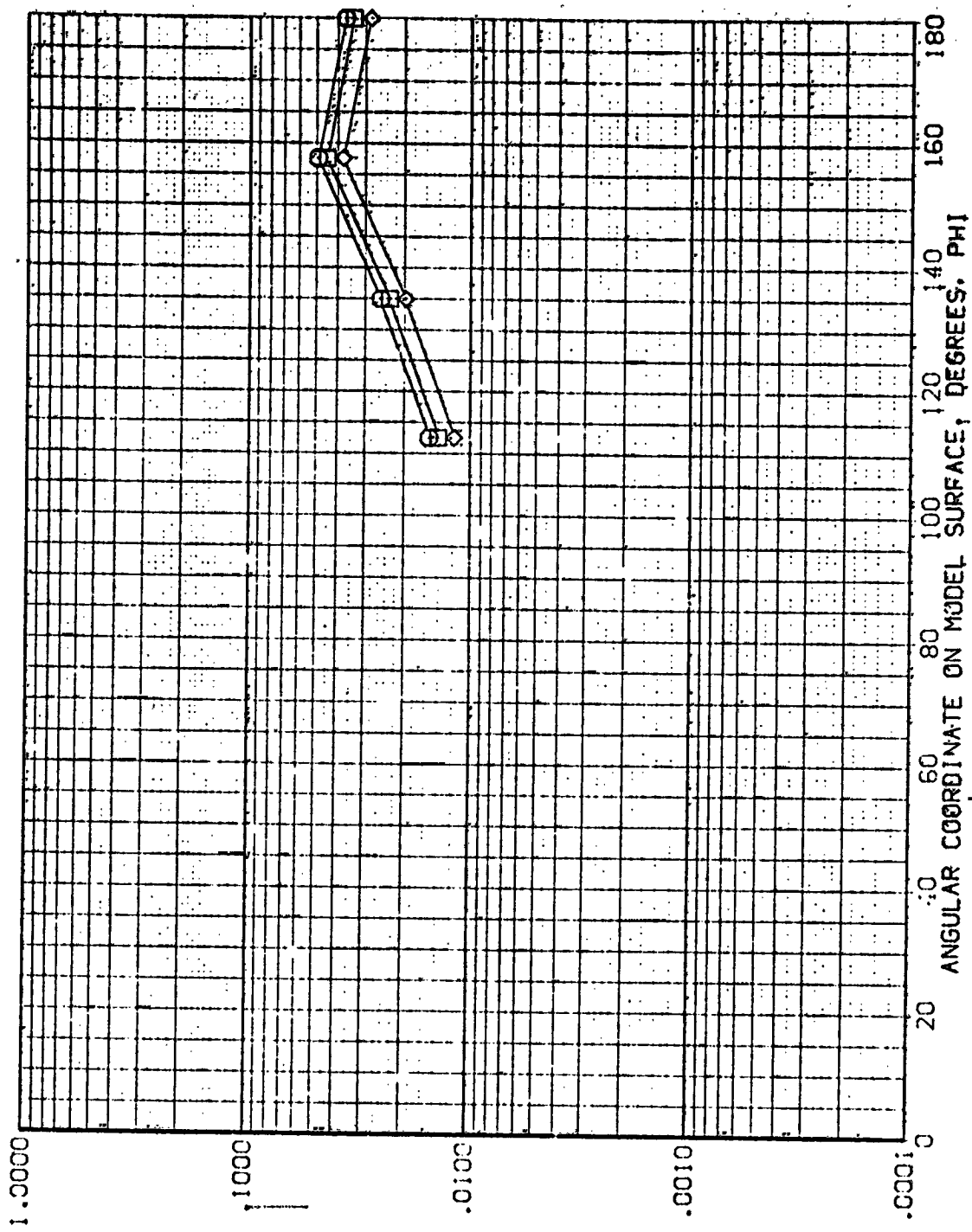


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T10)

SYSEC- HAM/HT X/L MACH  
 .85C .700 5.300  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RV/L 4.000

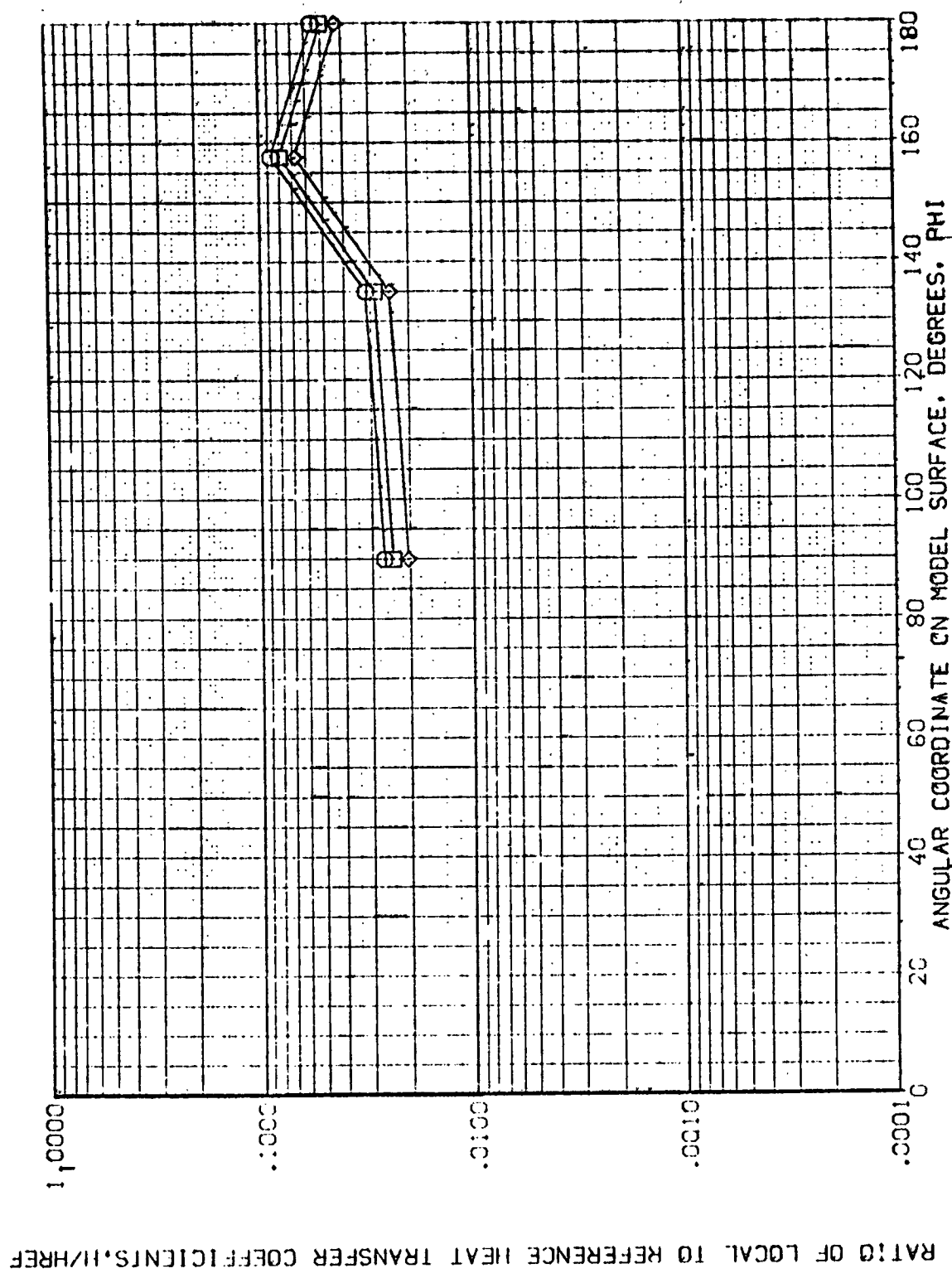


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV T10)

S<sup>1</sup> SEC. --V/M<sup>2</sup> X/L M/CH  
 .850 .750 5.300  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BET/° .000  
 RV/L 4.000

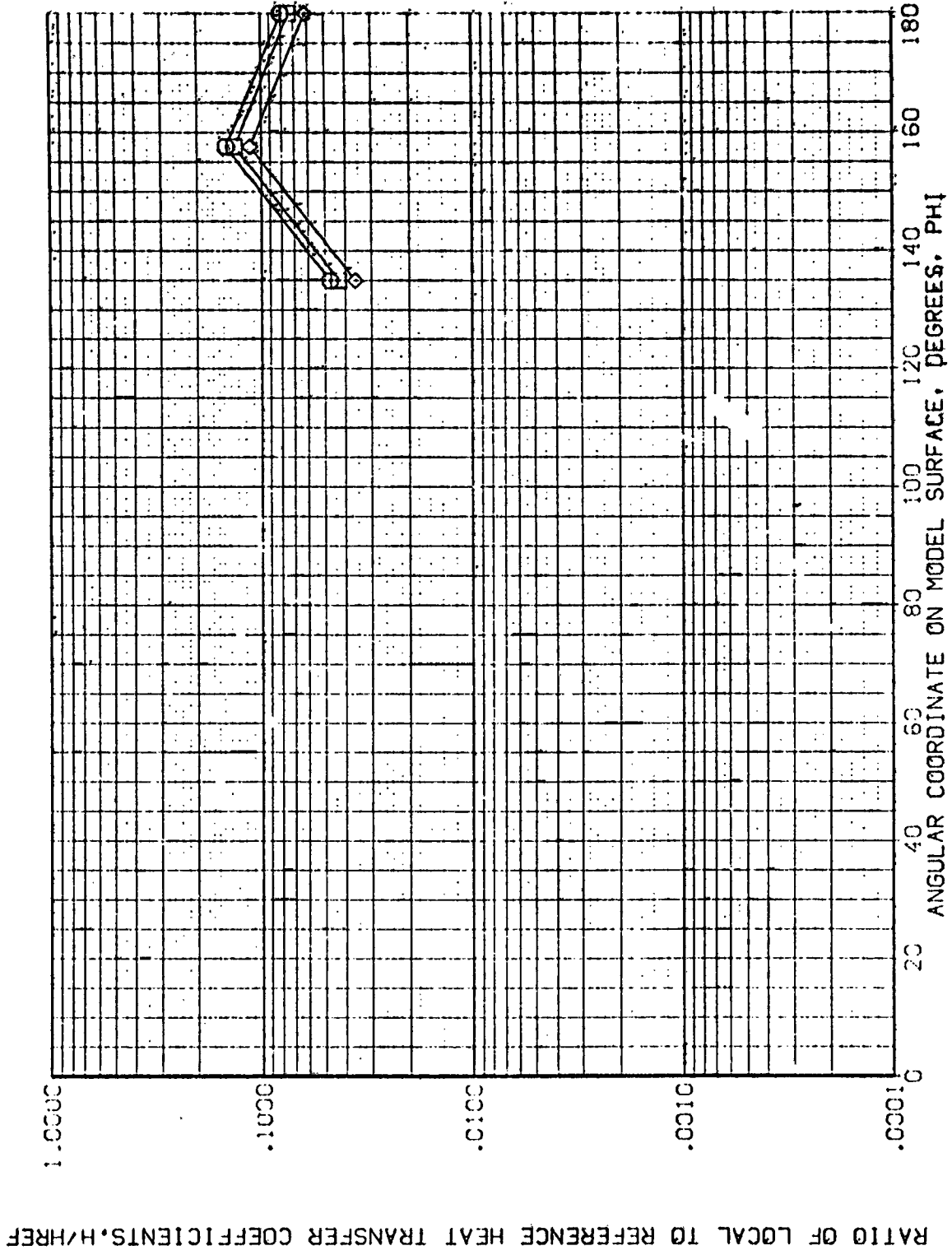


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T10)

SYMBOL    H/M/HT    X/L    MACH  
 ◊    .850    .800    3.300  
 ◻    .900  
 ◻    1.000

PARAMETRIC VALUES  
 60.000    BETA  
 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

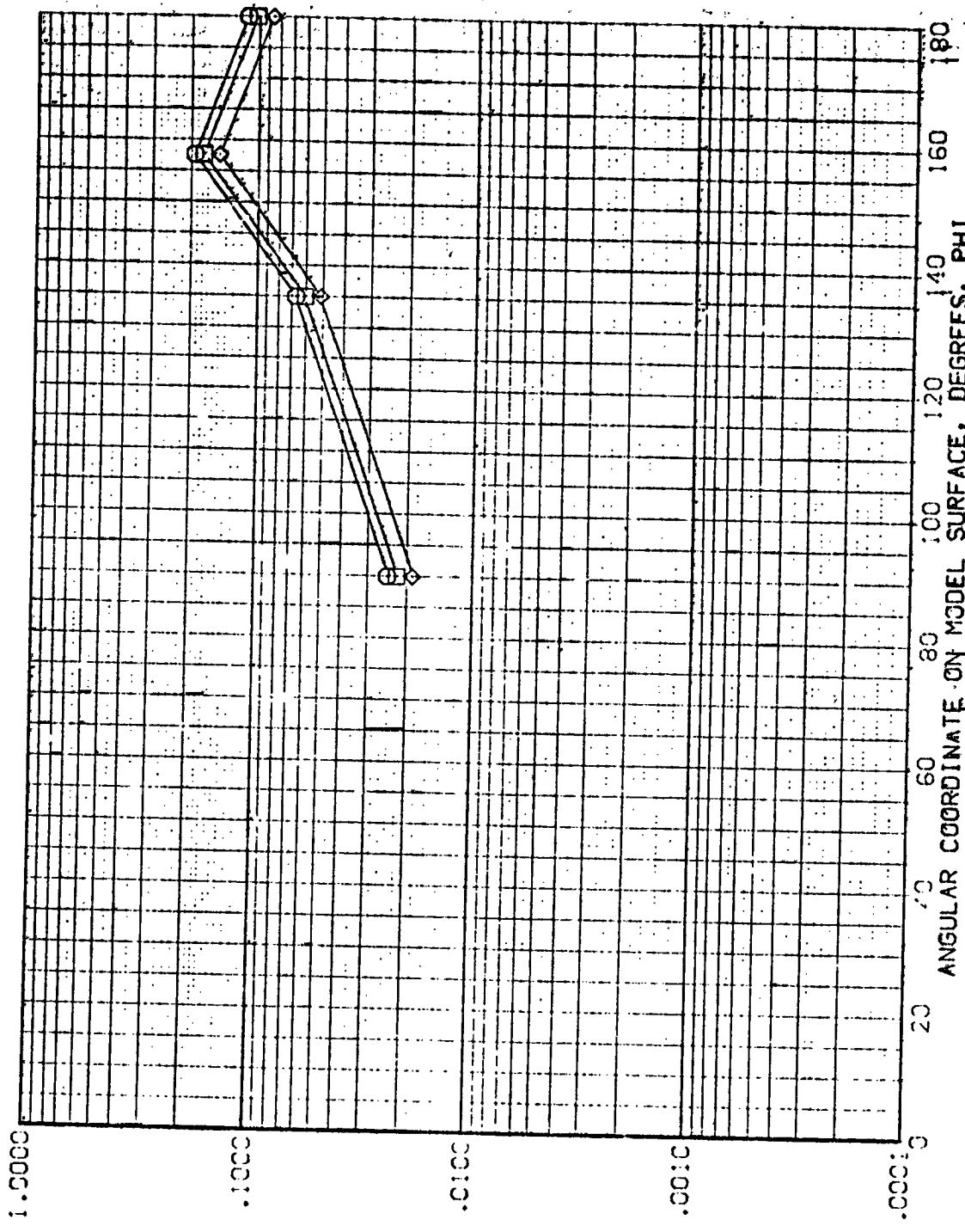


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-:95 IH28 01+T1 EXTERNAL TANK

(REV110)

SYNOPSIS  
 MAX/HT 1850  
 X/L .850  
 MACH 5.300  
 1950  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 4.000  
 RN/L .000

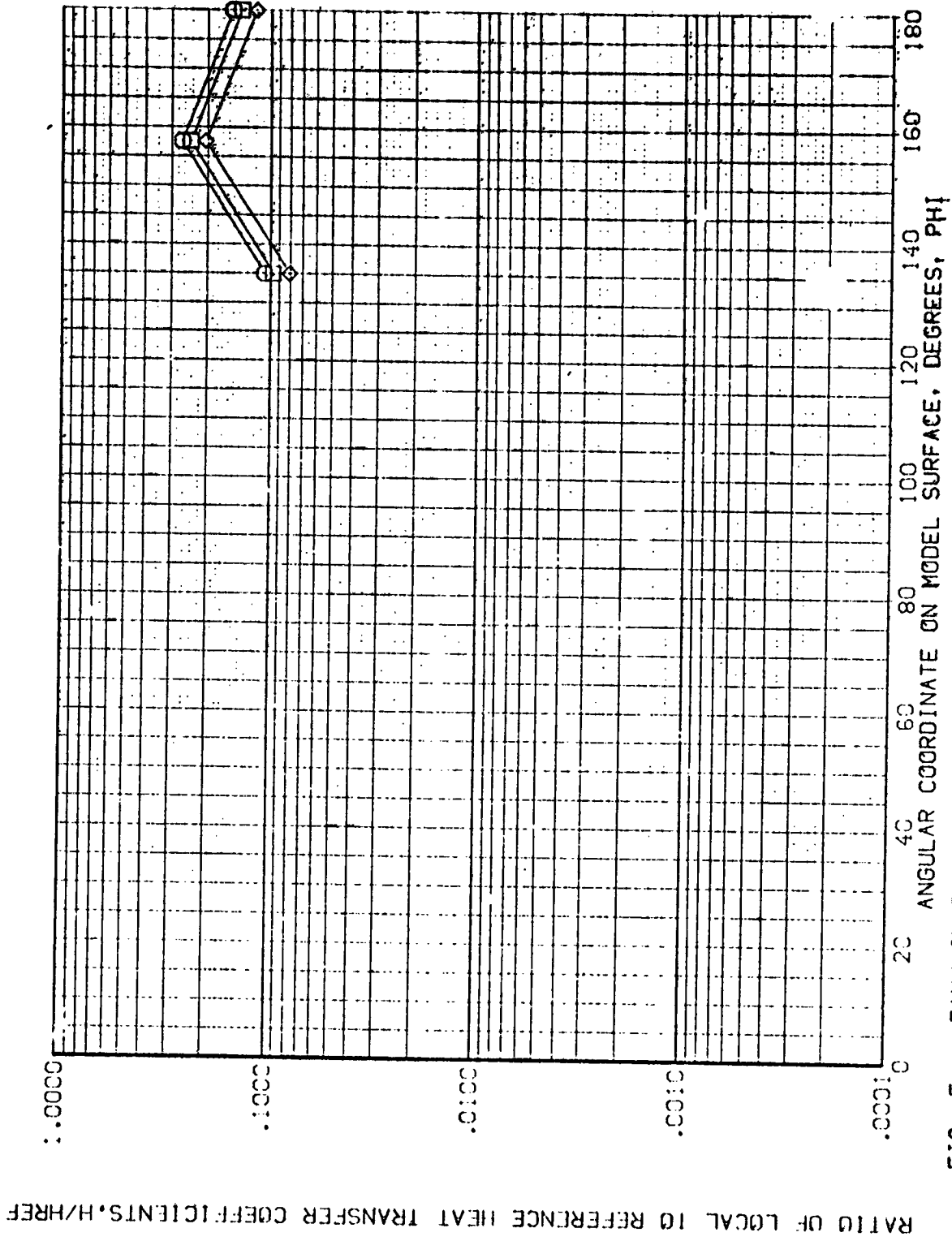


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV110)

SYMBOL MACH K/L MACH  
 ○ .850 .900 5.300  
 □ .900 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .300  
 PN/L 4.000

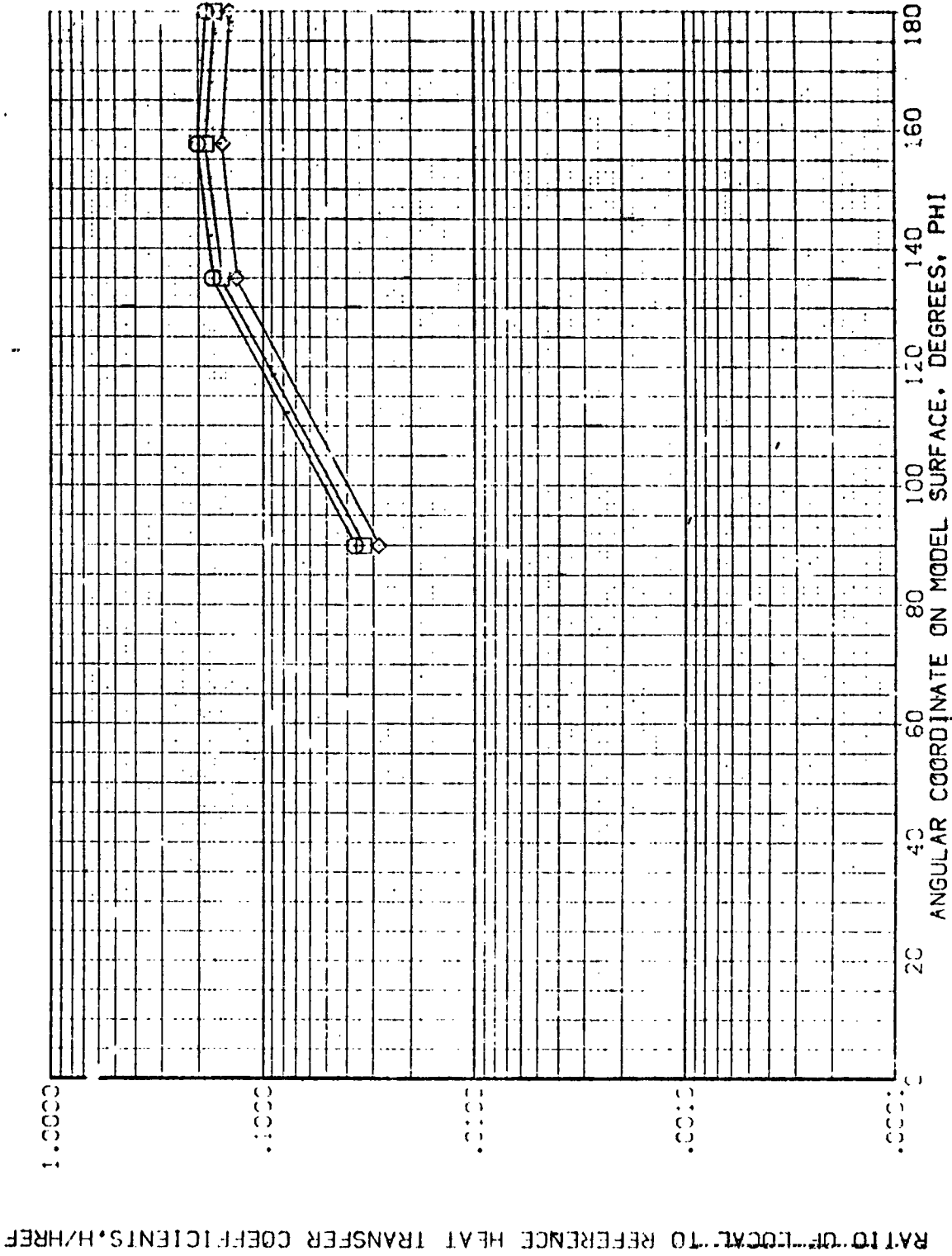


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 1-28 01+11 EXTERNAL TANK (REV111)

SYMBO:  $\diamond$   $\square$   $\circ$   
 MACH .350  
 Y/L 5.300  
 WACH 5.300  
 .850  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 30.770  
 RN/L 4.000  
 BETA .0000

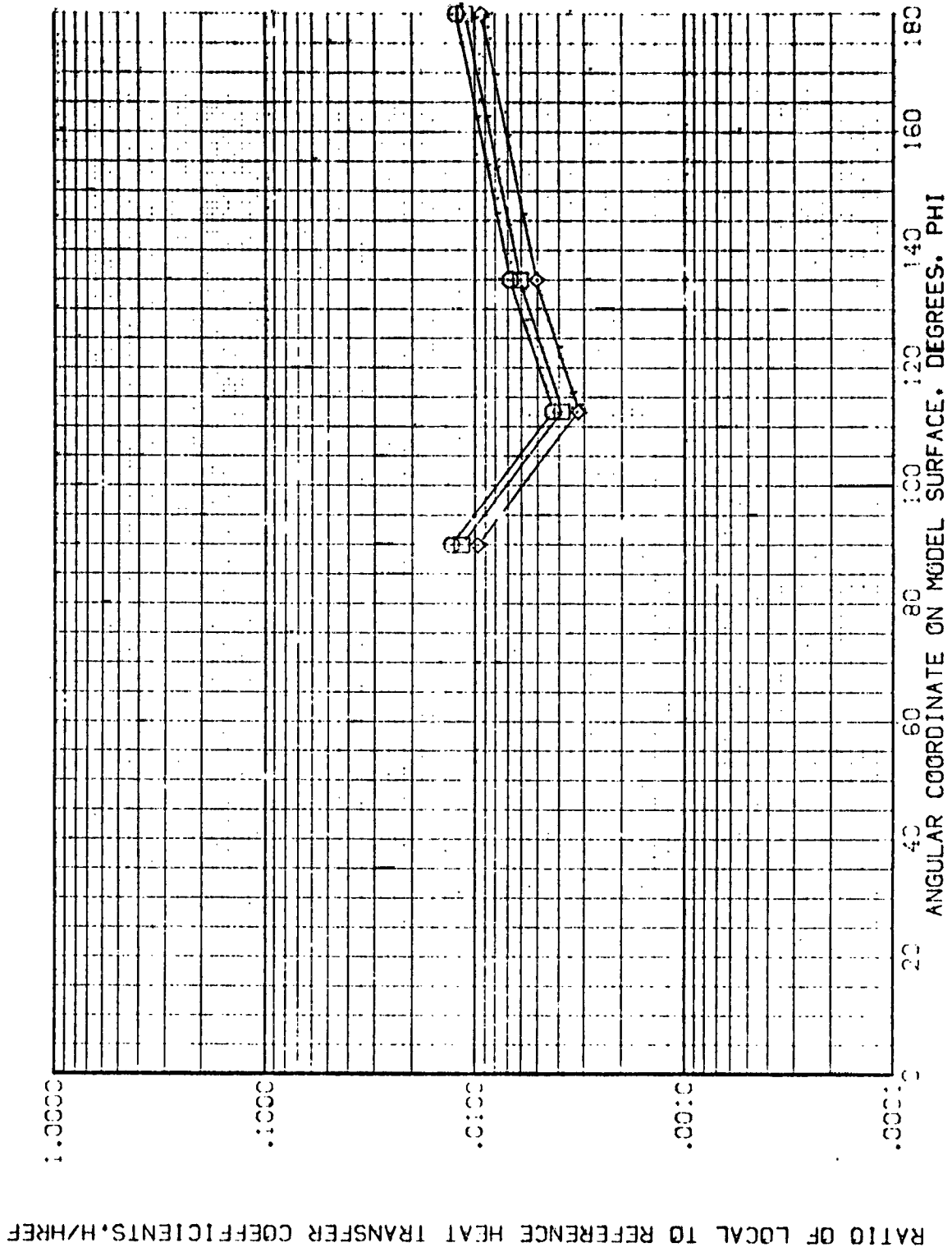


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV 111)

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK

PARAMETRIC VALUES  
ALPHA 30.000  
BETA 4.000

SWEEP H<sub>1</sub>/H<sub>2</sub> X/L MACH  
.850 .400 5.300  
.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

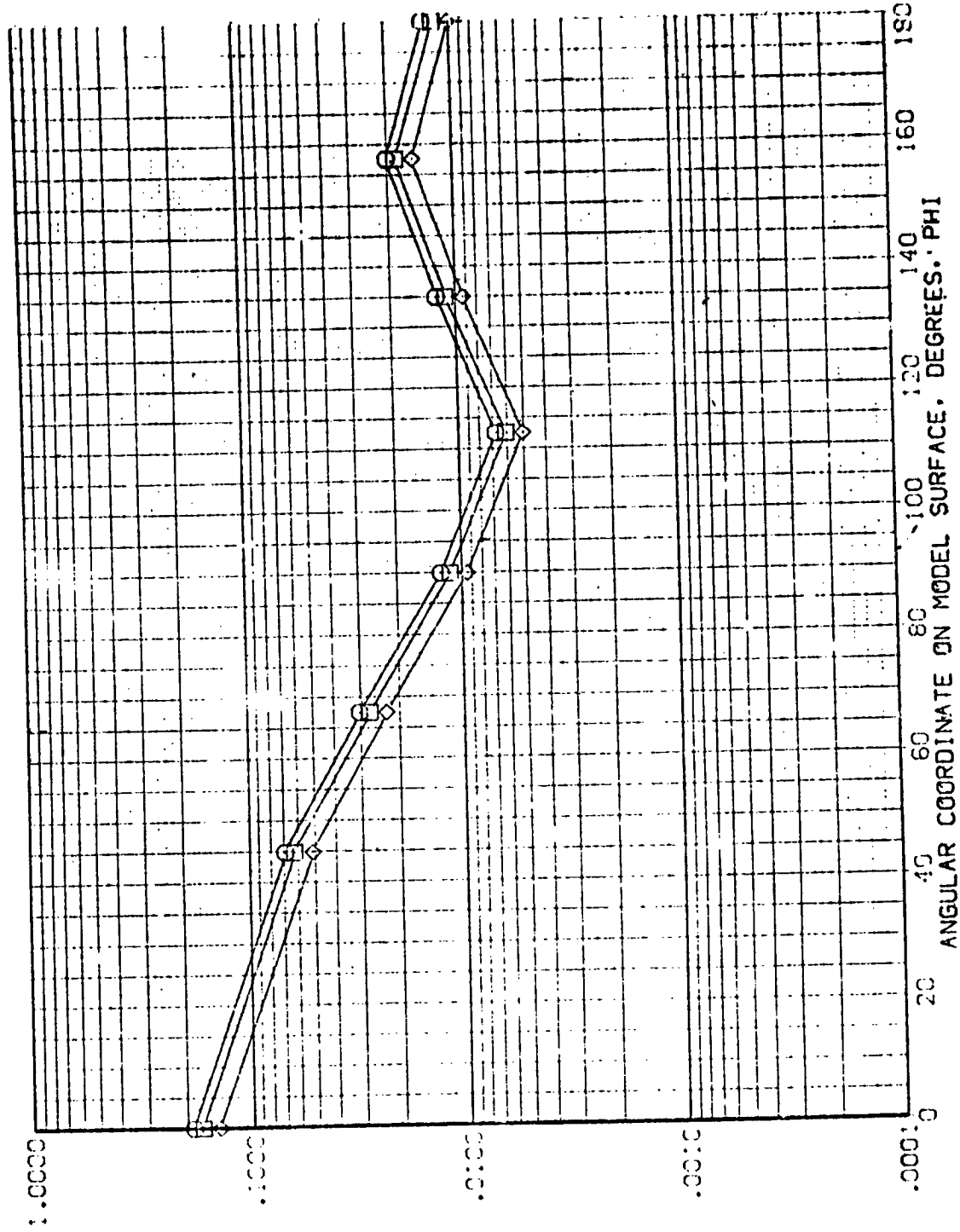


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REF ID: A66111  
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AVES 3.5-195 :H28 C1+T1 EXTERNAL TANK (RE.T11)

S.W.E.C.  $\diamond$   $\square$   $\circ$   
 .850  
 .950  
 1.000  
 K/L .450  
 MACH 5.300

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

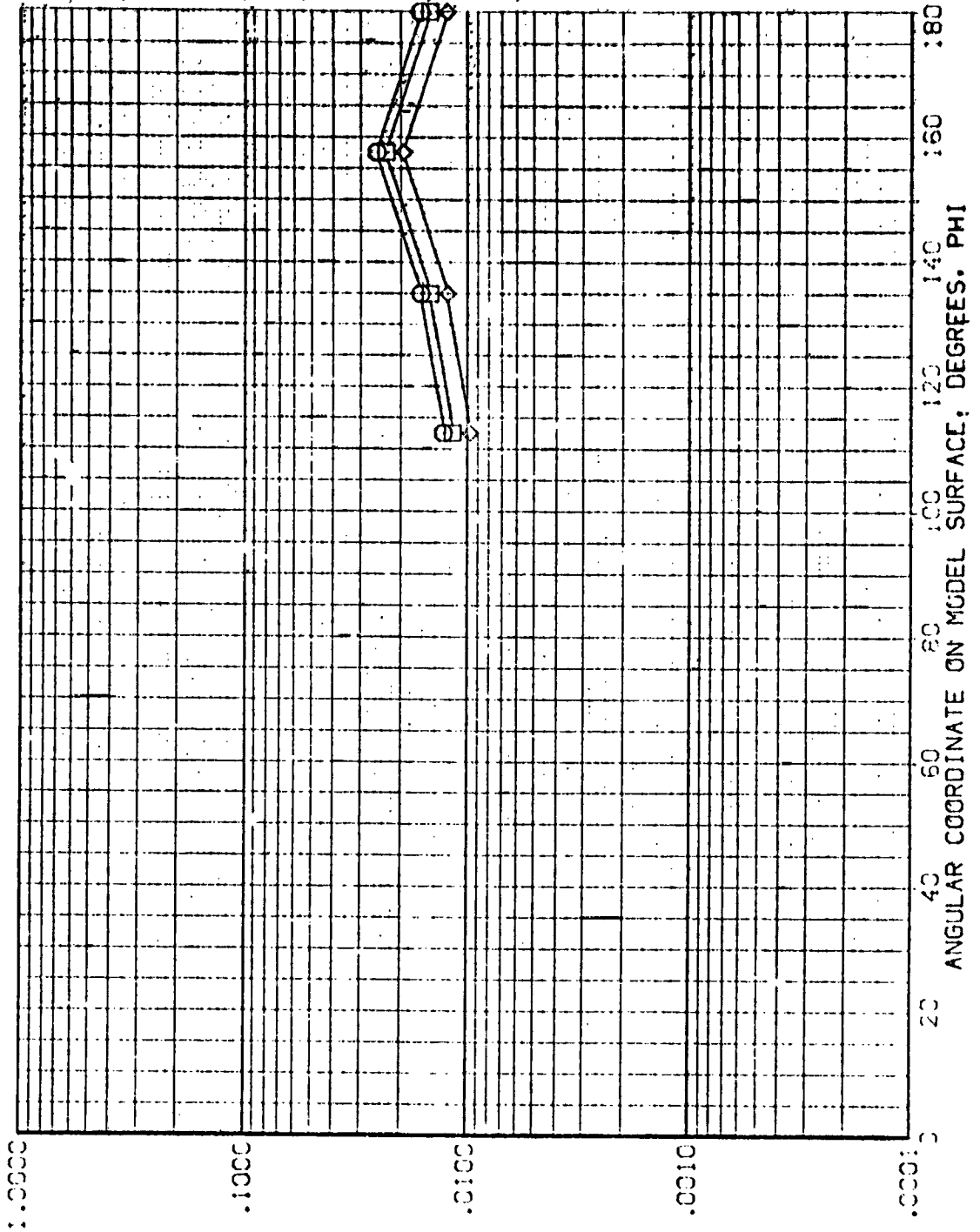


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV111)

SYNOPSIS  
 MACH 5.300  
 R/L .500

PARAMETRIC VALUES  
 30.000 BETA  
 4.000

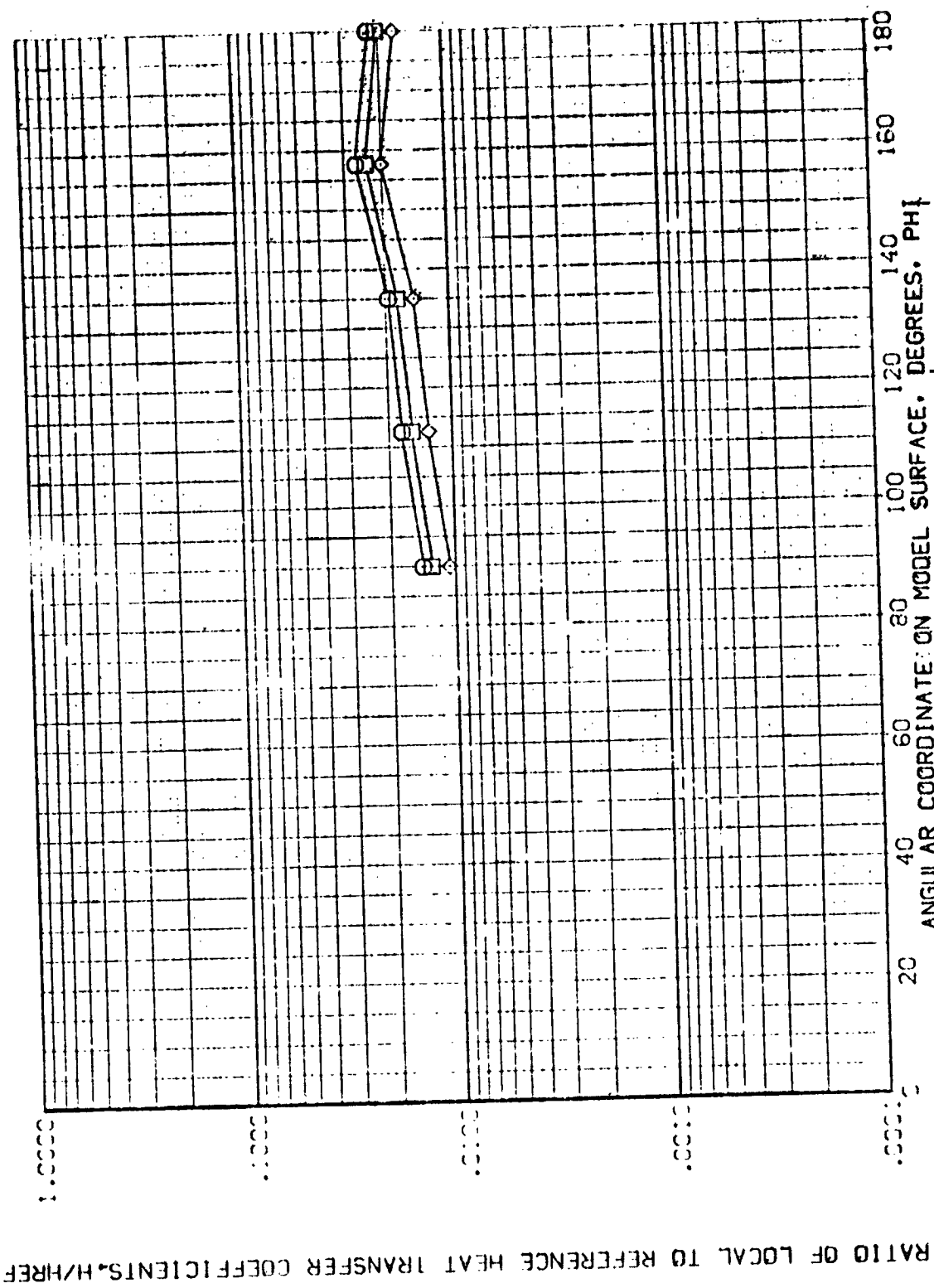


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV111)

51102- 48.4/ft X/L .550 MACH 5.300  
1.860  
.900  
1.000

PARAMETRIC VALUES  
ALPHA 30.000 BETA .000  
R1/L 4.000

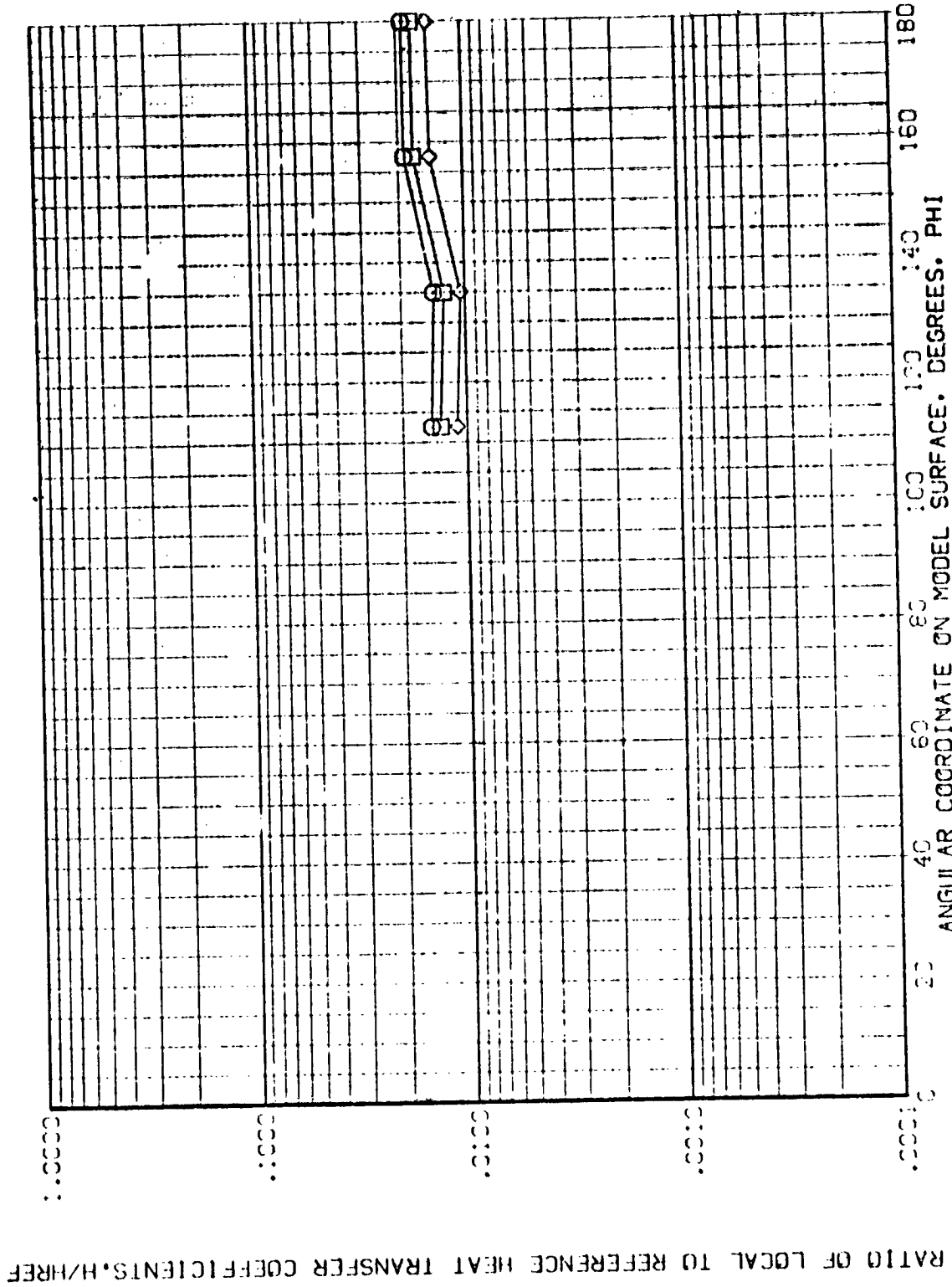


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1428 C1+T1 EXTERNAL TANK (REV111)

PARAMETRIC VALUES  
 ALPHA 33.000 BETA .000  
 P%/L 4.000

PARAMETRIC VALUES  
 X%/L .1600 YACH 5.300  
 S.WEIGHT .0500  
 .0500  
 .0500  
 .0500

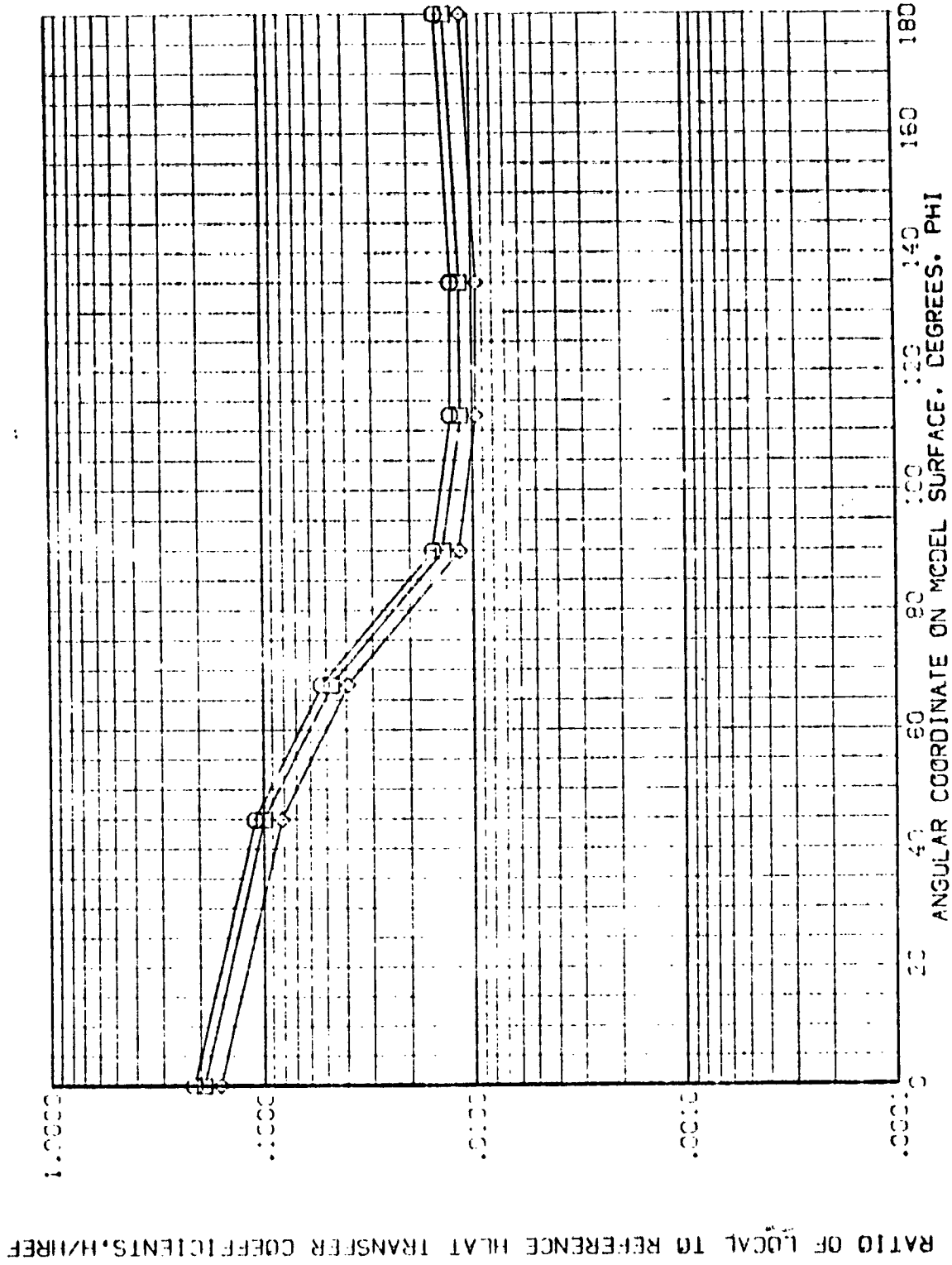


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 1-08 01+01 EXTERNAL TANK

(REV 111)

PARAMETRIC VALUES  
ALPHA 30.000 BETA .000  
MACH 5.000  
RNUC 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

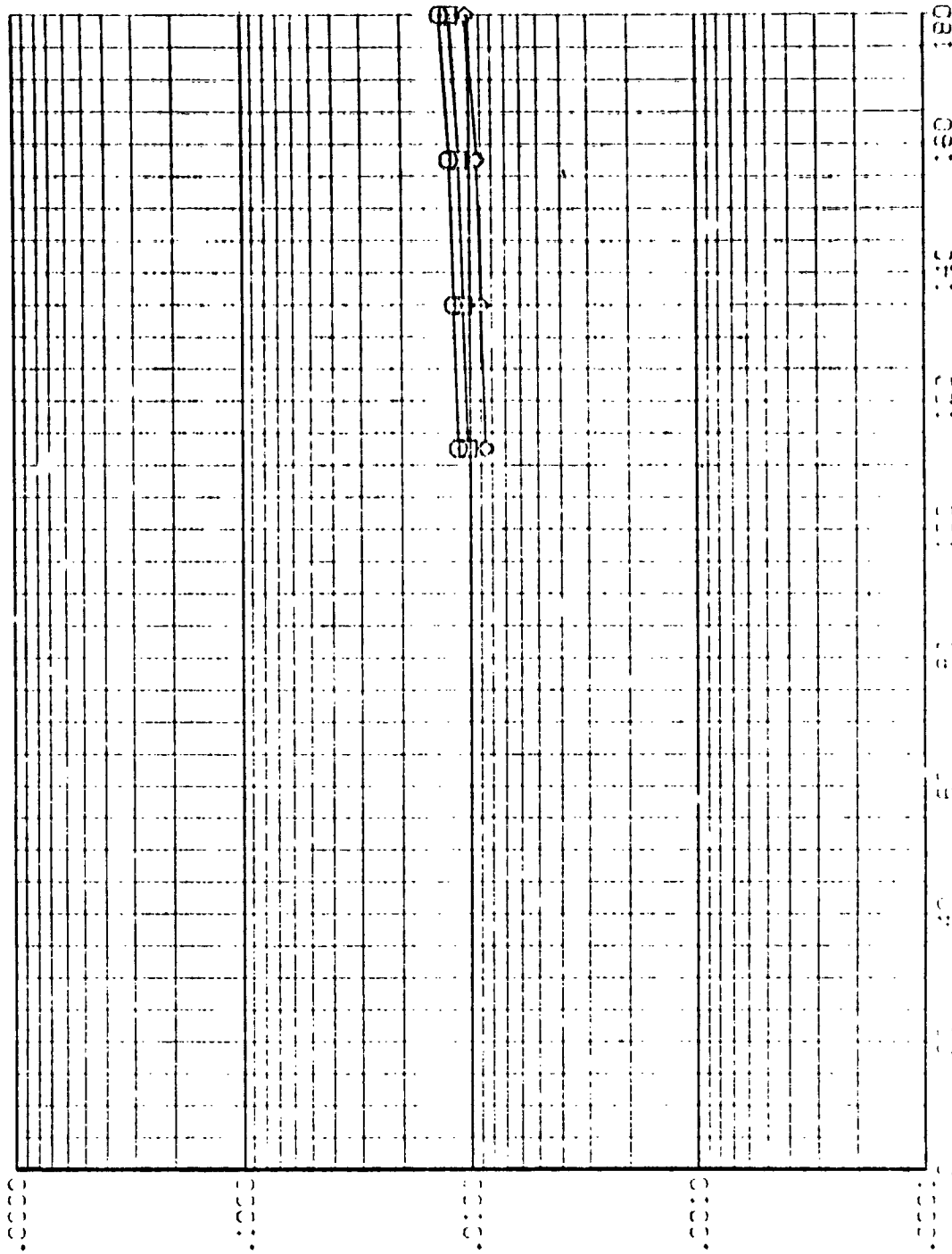


FIG. 5 TANK IN THE PRESENCE OF ORBITER



AMES 3.5-195 1H28 01+T1 EXTERNAL TANK

(REV111)

VELOCITY MACH  
 .850 5.300  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 30.000 BETA .000  
 PIV/L 4.000

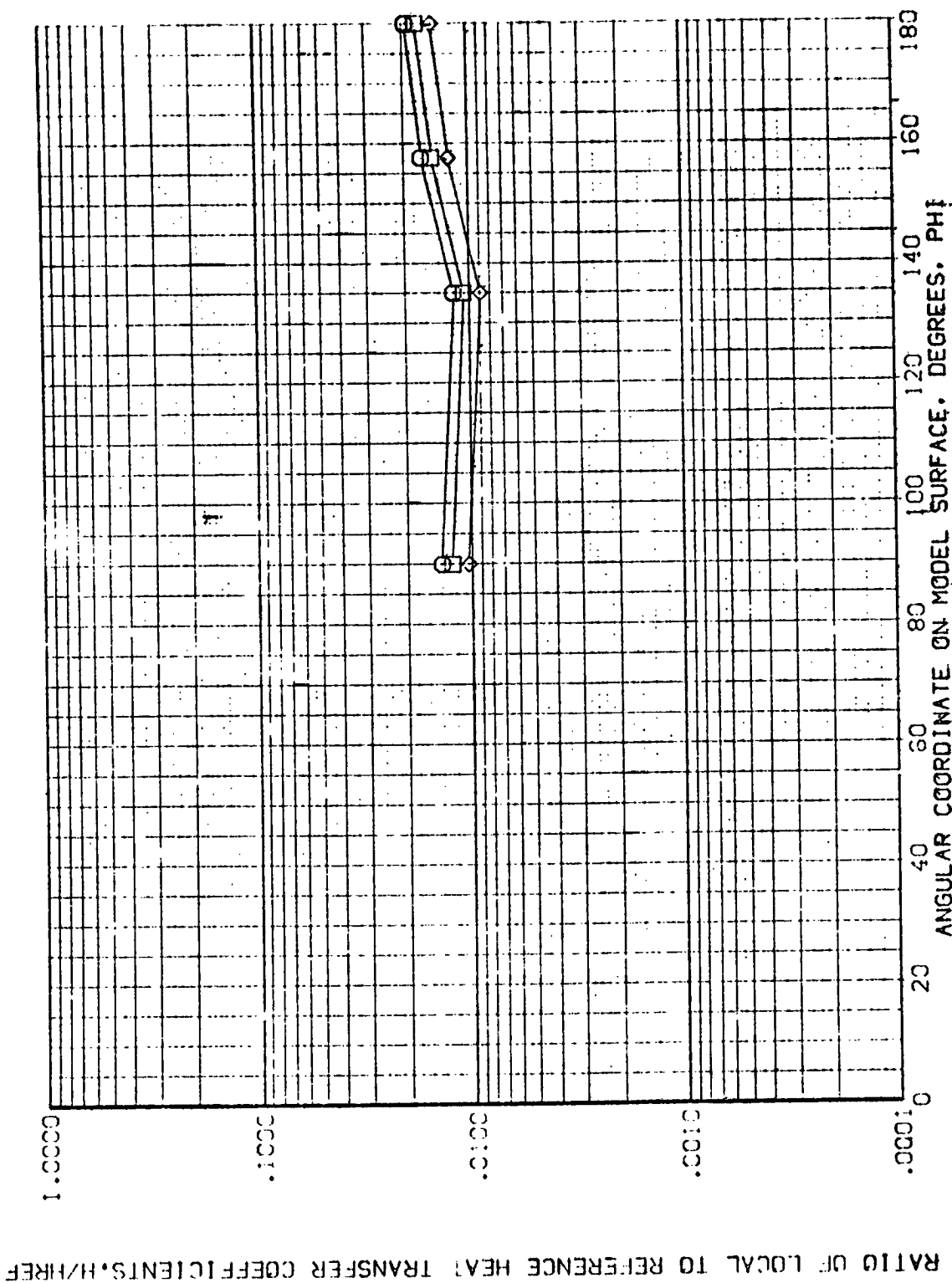


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK (REV 11)

SYSEC. HEIGHT XL MACH  
 .850 .750 5.300  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 14.000  
 PNT. .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

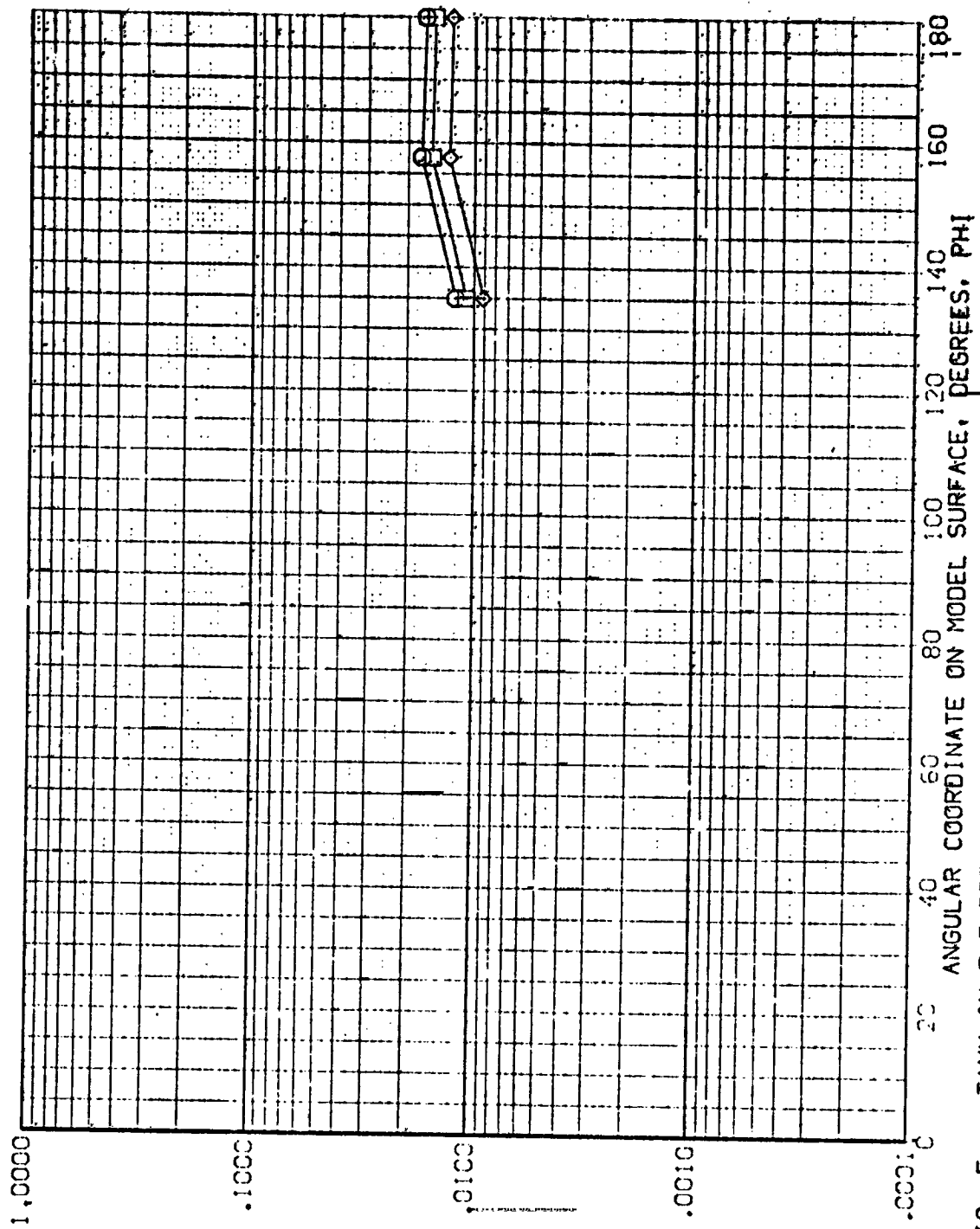


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

(REV111)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

SYMBOL  $\diamond$   $\square$   $\square$

H<sub>REF</sub>/H<sub>T</sub> .850  
 .900  
 1.000

4/L .500  
 MACH 5.330

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 4.000  
 .800

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

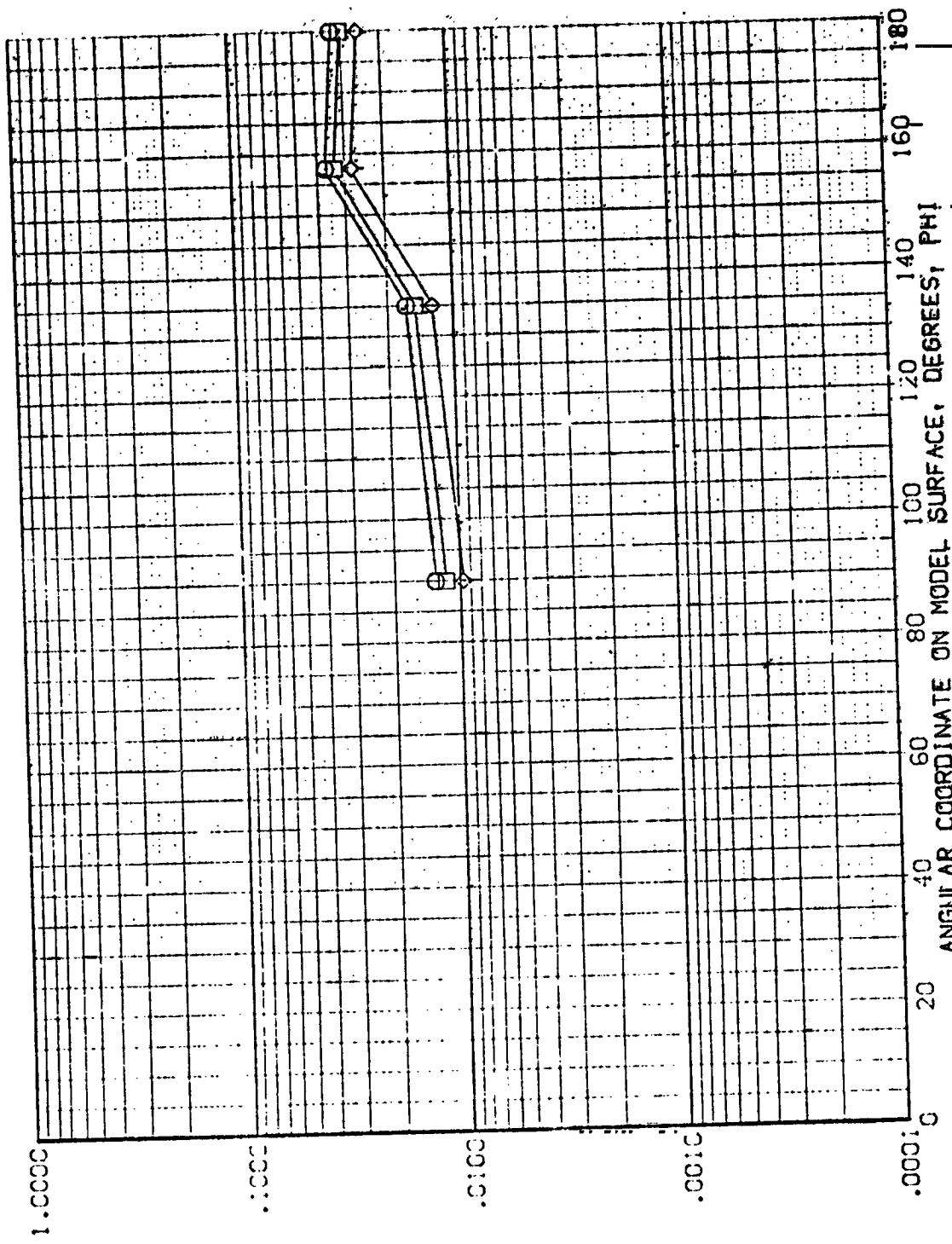


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 01+T. EXTERNAL TANK

(REV111)

SYMBOL X/L MACH  
 □ .850 5.300  
 ○ .950  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA 30.030 BETA .008  
 RN/L 14.000

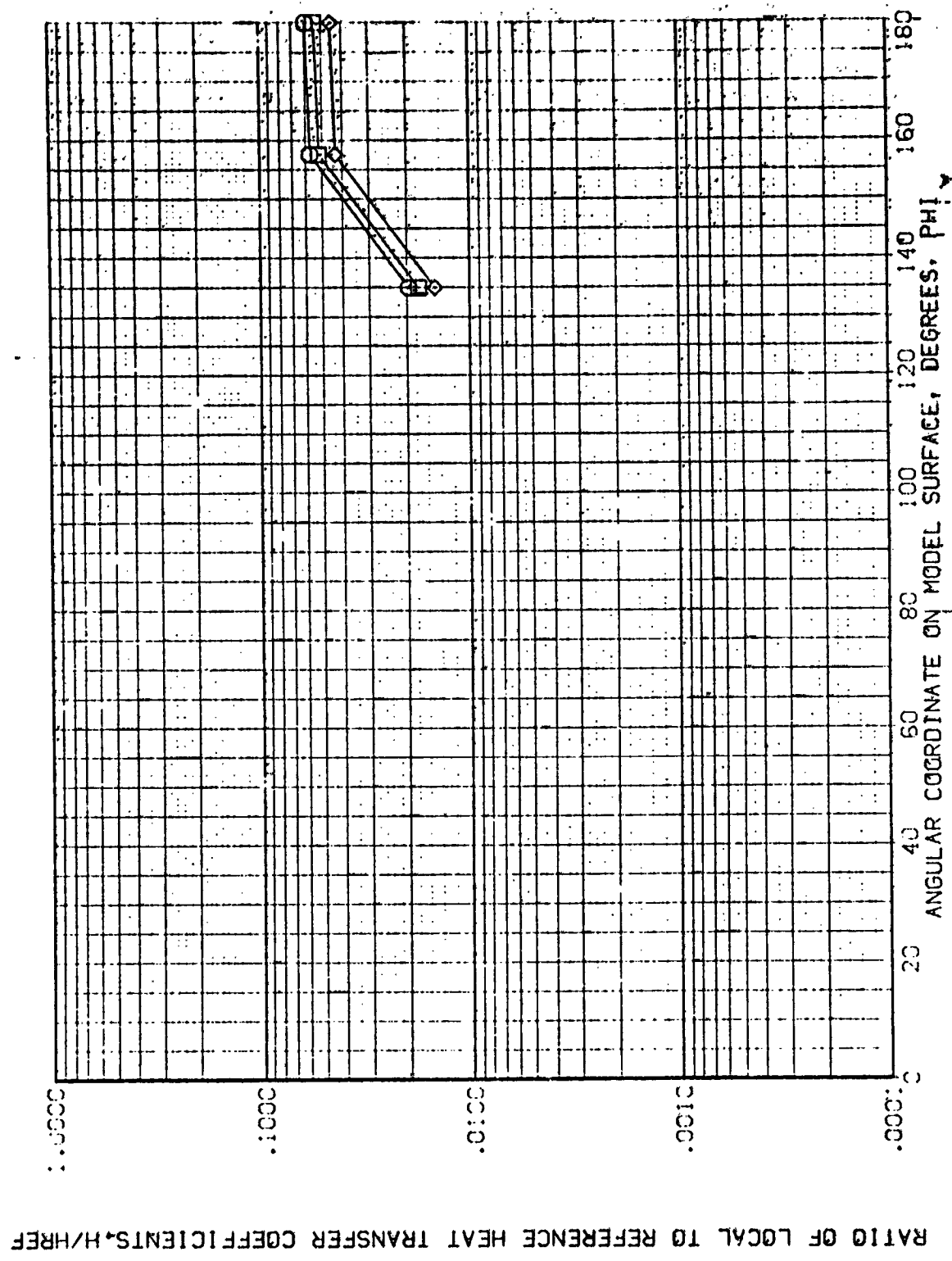


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 O1+T1 EXTERNAL TANK (REV111)

SYSC1    H/W/HT    X/L    MACH    ALPHA    BETA    .000  
 .850    .900    .900    5.300    30.000    4.000  
 .900    1.000

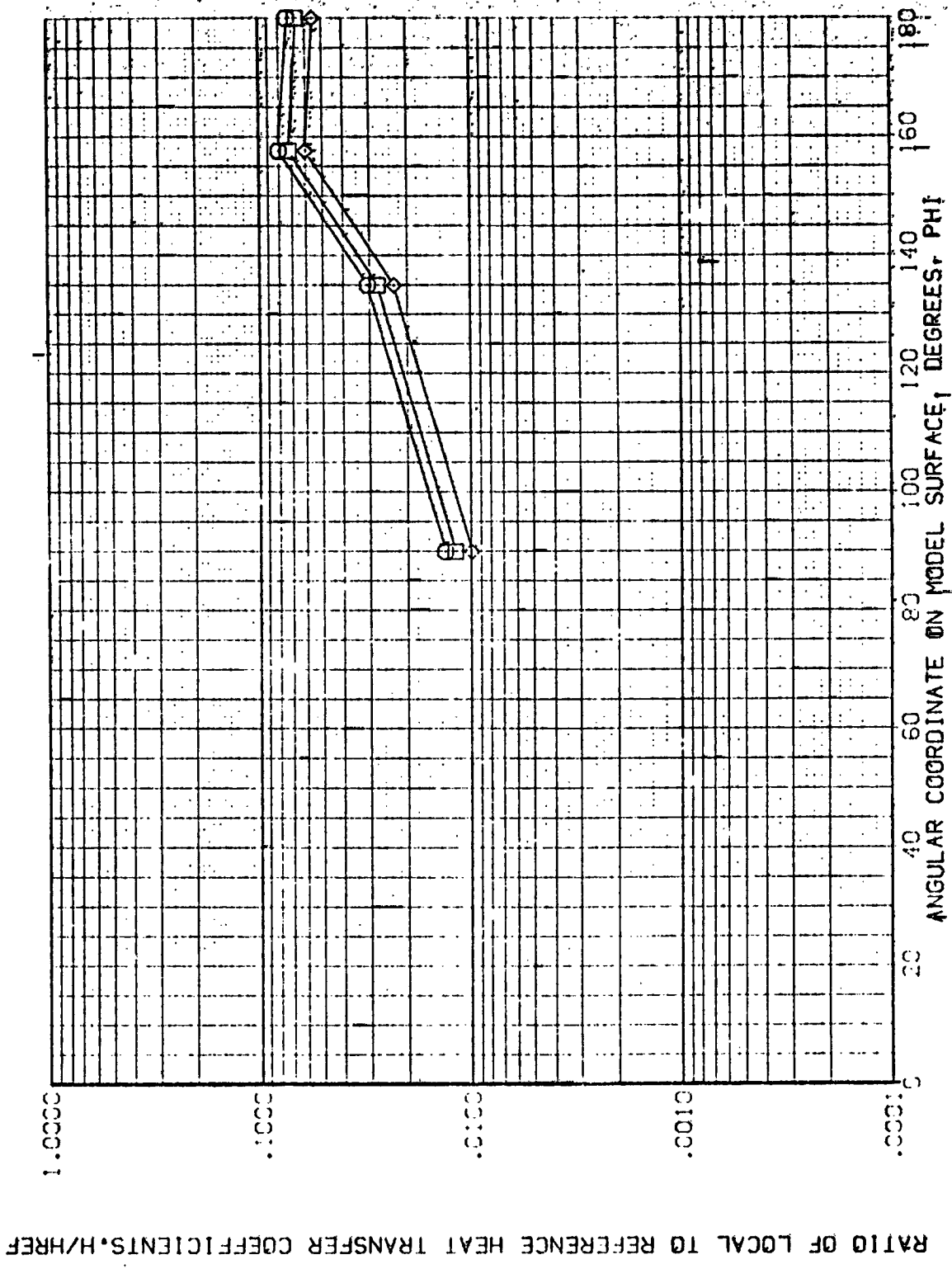


FIG. 5 TANK, IN THE PRESENCE OF ORBITER PAGE 304

AYES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV T12)

SYMBOL H/W/H/T Y/L MACH  
 ◊ .850 .350 5.219  
 □ .900  
 ○ .000

PARAMETRIC VALUES  
 ALPHA 30.000  
 R/V/L 1.000  
 BETA 15.000

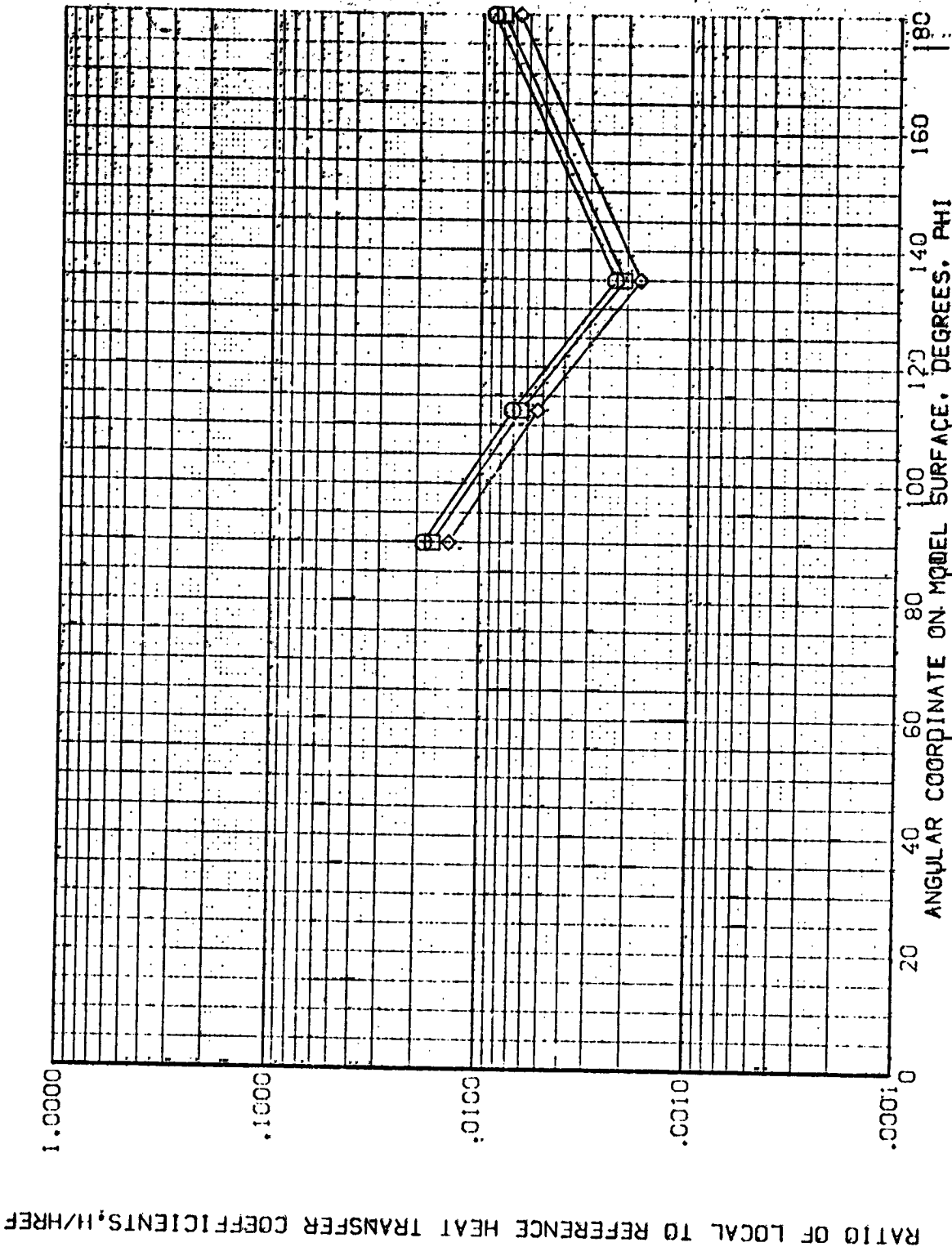


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 IH28 G1+T1 EXTERNAL TANK

(REV T12)

S-MACH .850  
 H-A/H\* .900  
 X/L .400  
 MACH 5.219

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 -5.500

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

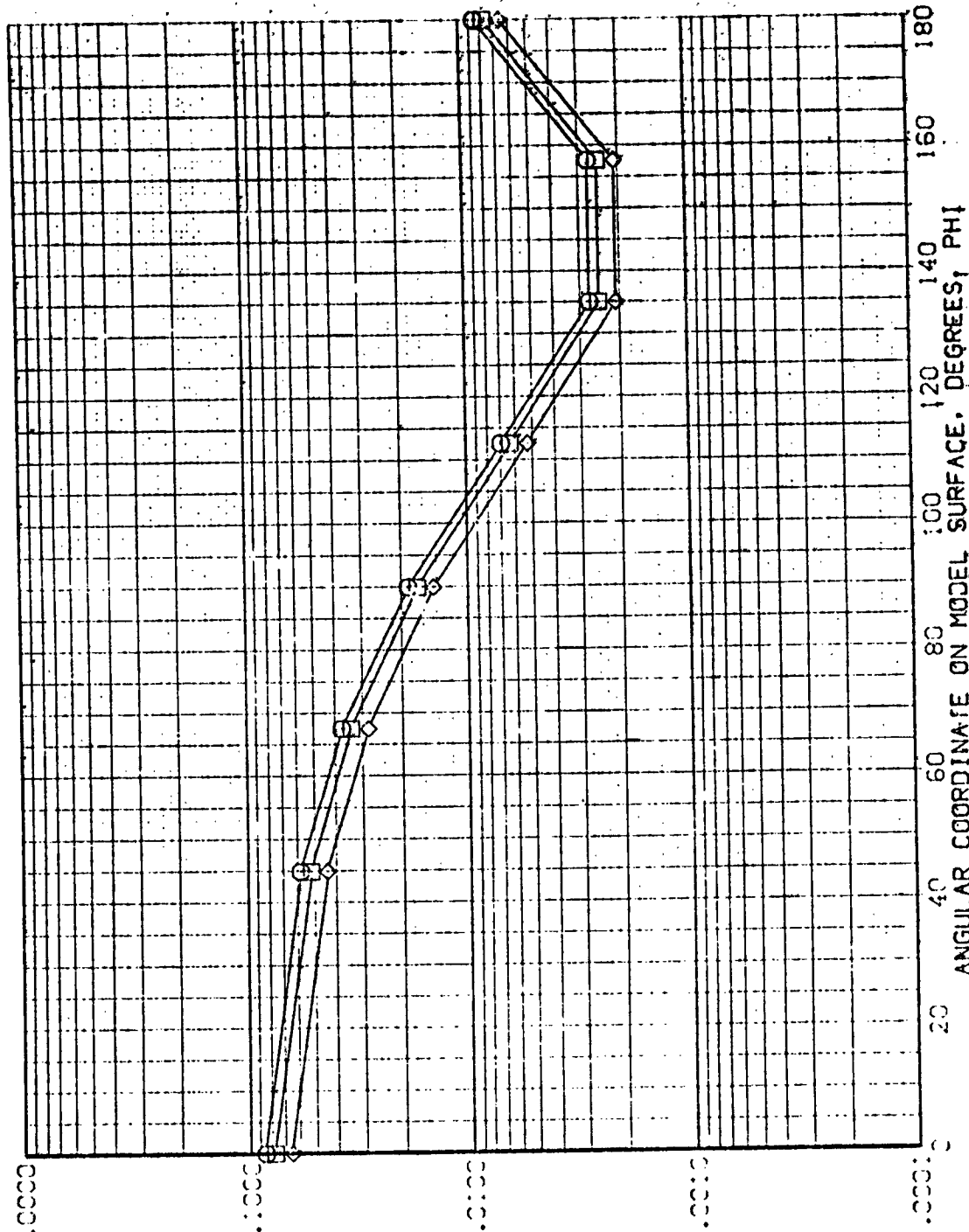


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 CI+TI EXTERNAL TANK

(REV12)

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 -5.000

SVBEC .350  
 Y/L .450  
 MACH 5.219  
 .900  
 1.000

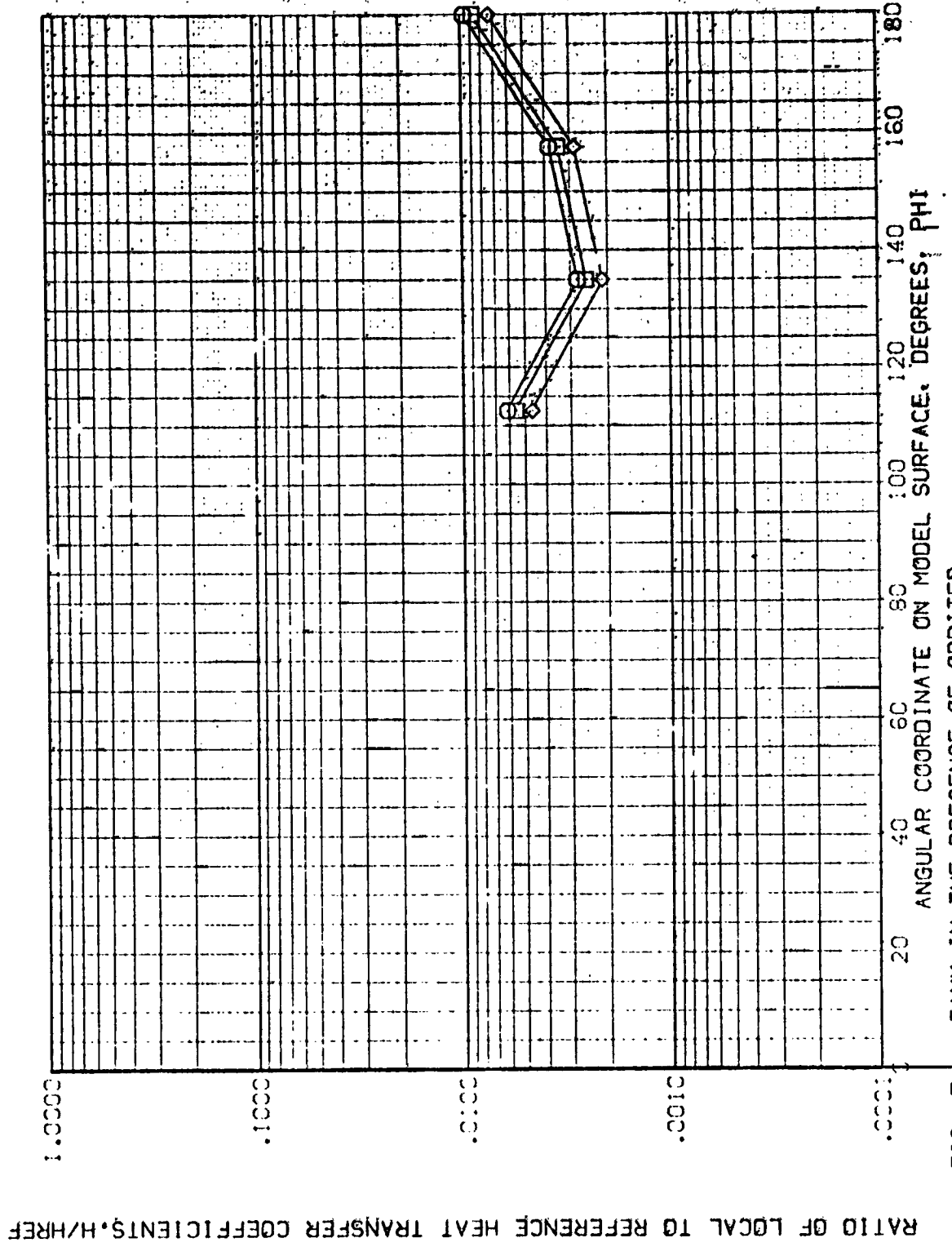


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



SYMBOL MACH %/L MACH  
 ◊ .350 .500 5.219  
 □ .500  
 ○ 1.000

PARAMETRIC VALUES  
 3C 300 ALPHA  
 1.000 BETA  
 -5.000

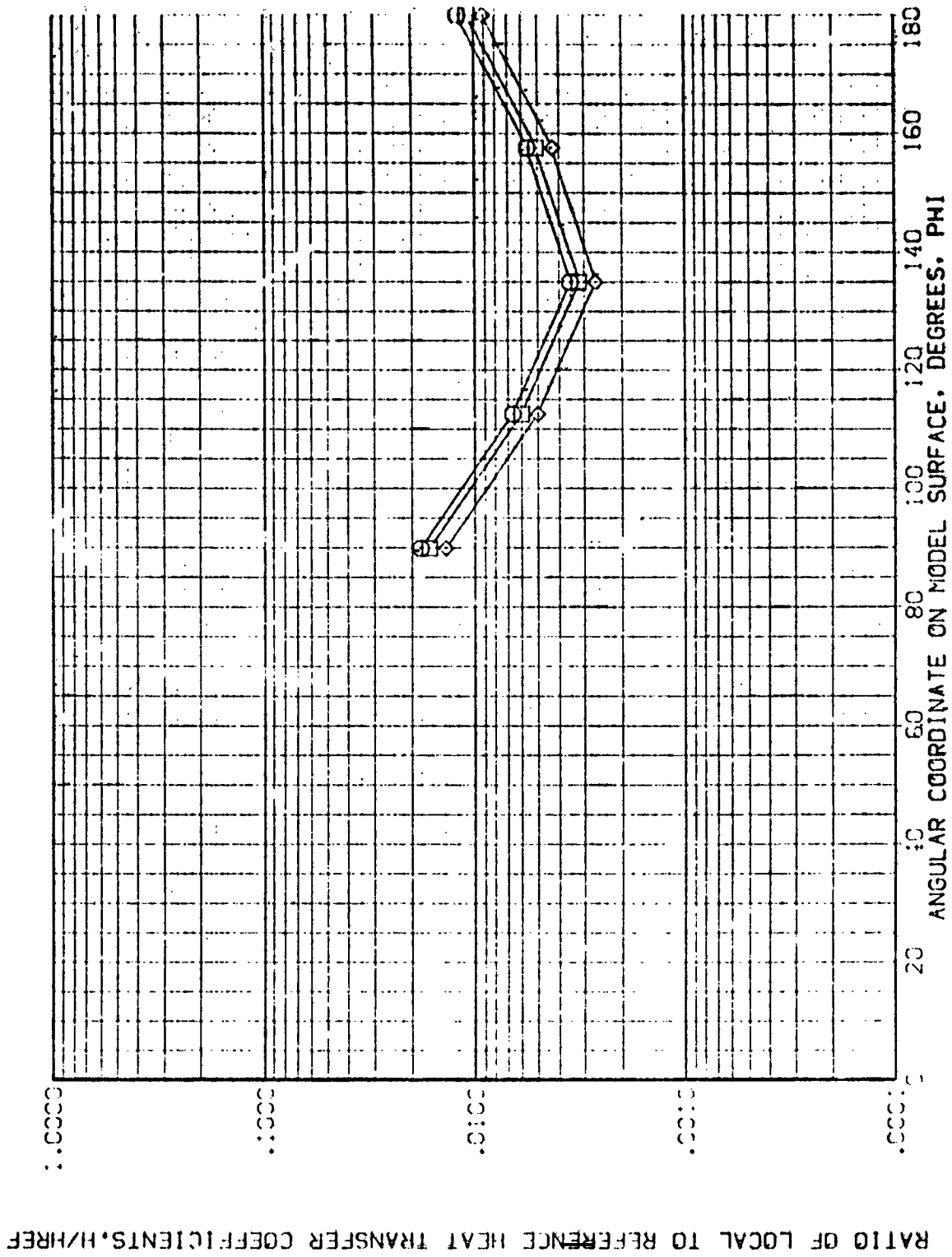


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 (H29 C1+T) EXTERNAL TANK (REV 12)

MACH .559 5.219  
 R/V/L .500  
 .500  
 1.000

PARAMETRIC VALUES  
 ALPHA 39.008 BETA -5.000  
 R/V/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

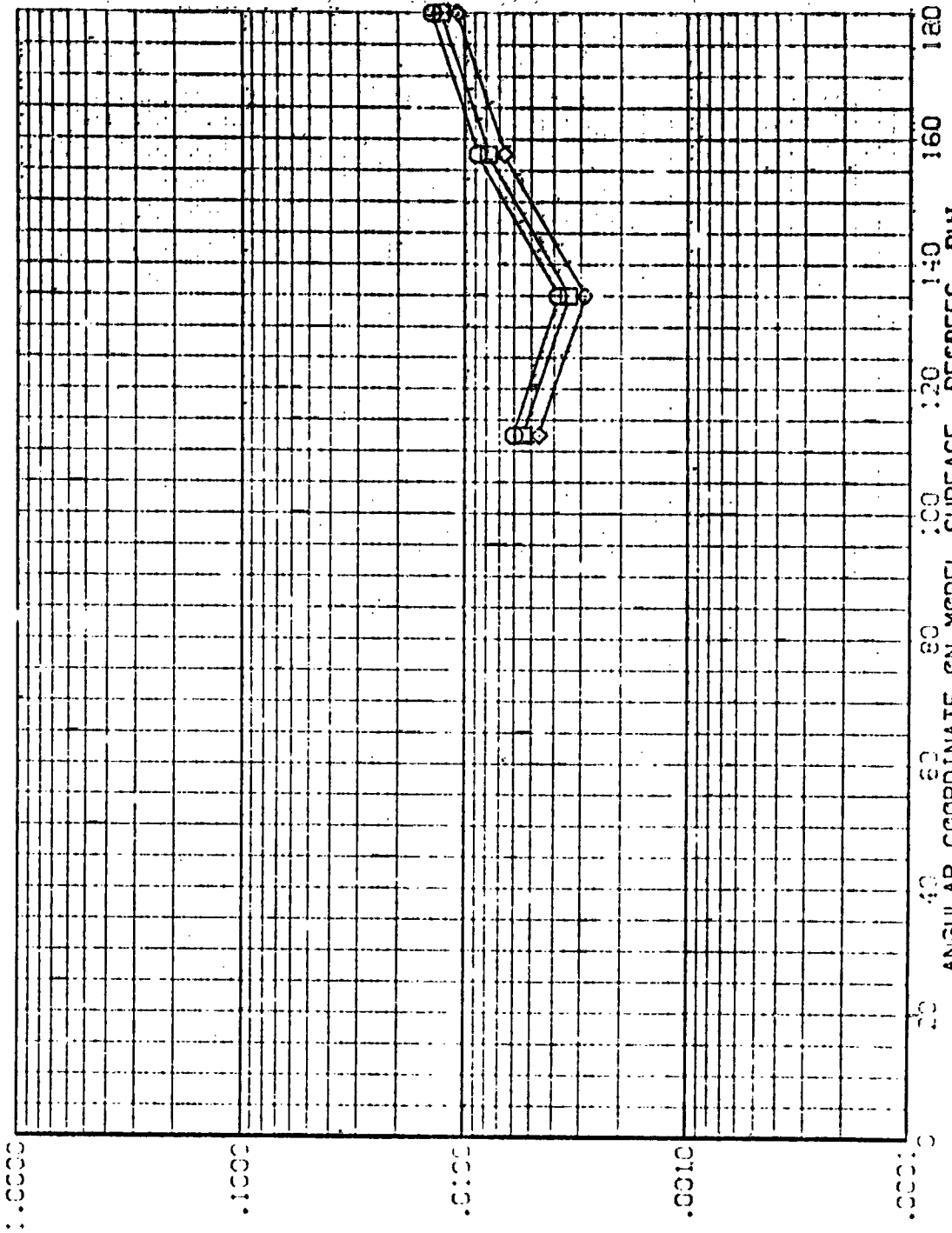


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV112)

SV322	MACH	M/L	MACH
0.170	.650	.600	5.219
	.800		
	1.000		

PARAMETRIC VALUES	
ALPHA	BETA
30.000	-5.000
RW/L	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, HZ/REF

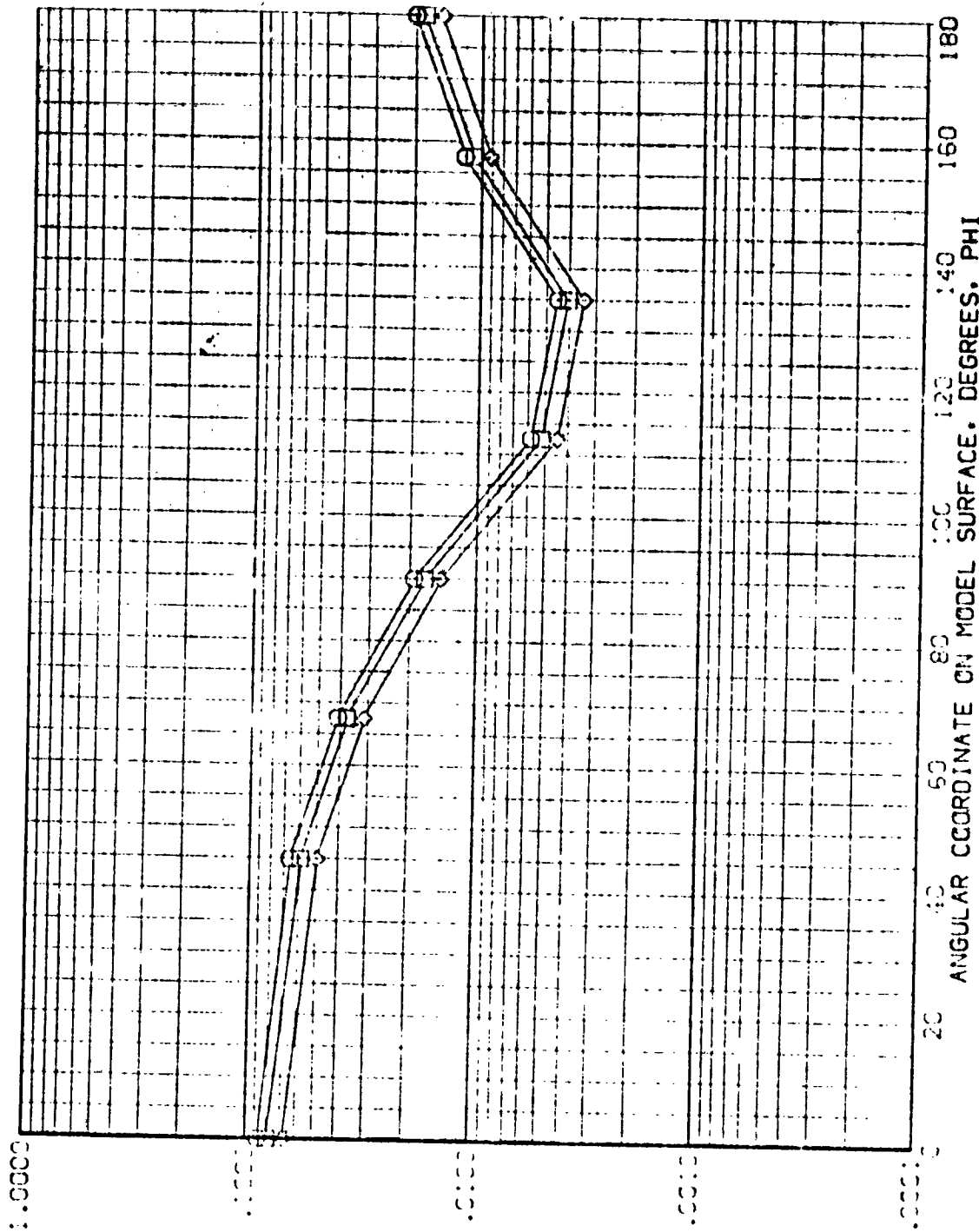


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AMES 3.5-195 (R28 01+T) EXTERNAL TANK (REV12)

SPEED: 1.000  
 HEIGHT: 1.000  
 MACH: 5.219  
 ALPHA: 0.000  
 BETA: 0.000

PARAMETRIC VALUES  
 3D CDD: 1.000  
 BETA: 0.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

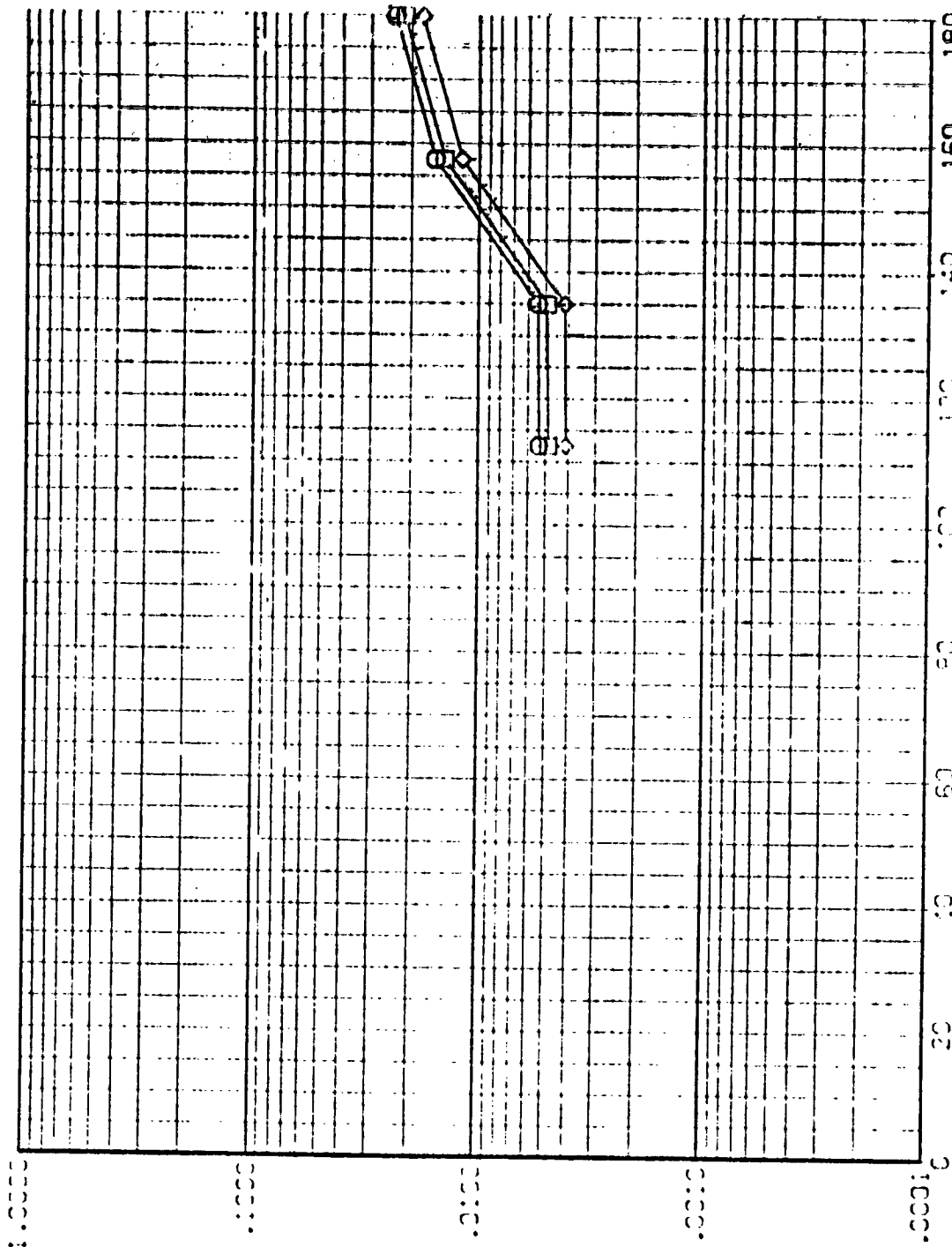


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

AVES 3.5-195 1H20 01+11 EXTERNAL TANK (REV112)

PARAMETRIC VALUES  
 ALPHA 30.0000 BETA -5.0000  
 RW/C 1.0000

WIND VELOCITY  
 WIND VELOCITY 5.219  
 WIND DIRECTION 1.0000

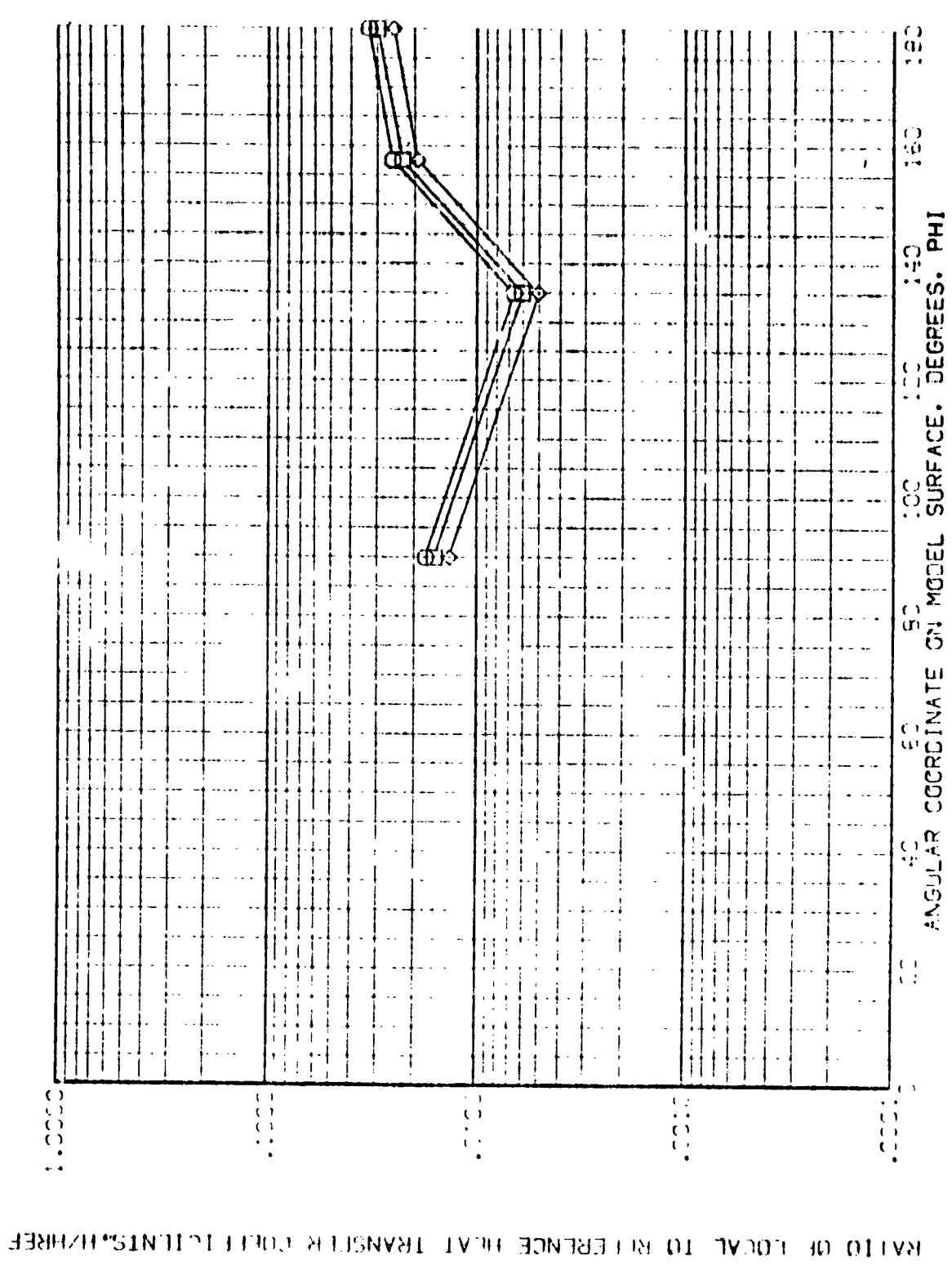


FIG. 5 TANK IN THE PRESENCE OF ORBITER

PHYS 0.5-195 1-28 01+1: EXTERNAL TANK (REAT12)

MACH 5.219

PARAMETRIC VALUES  
ALPHA 30.000  
BETA 1.000  
-S.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

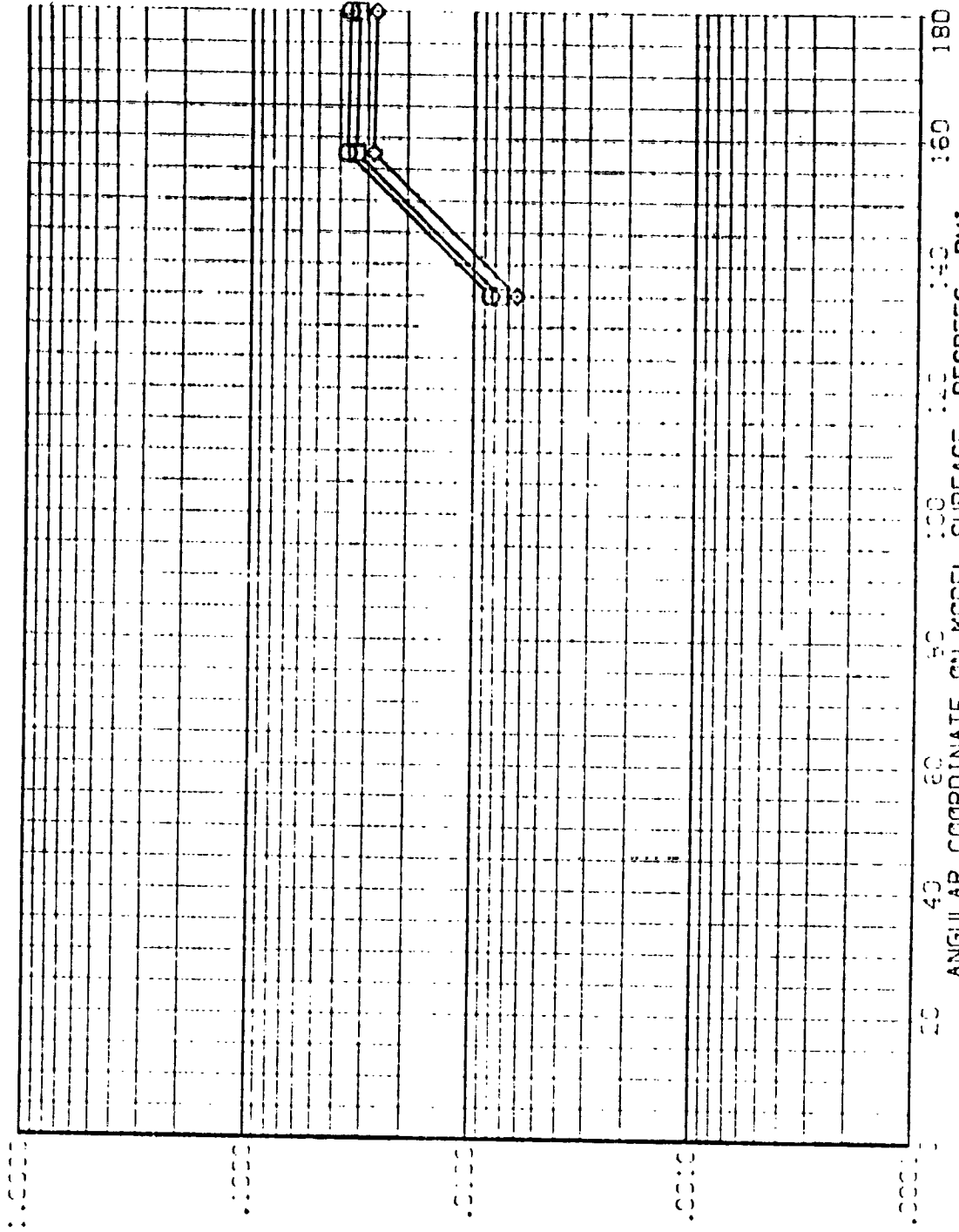


FIG. 5 TANK IN THE PRESENCE OF ORBITER

(REV112)

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK.

PARAMETRIC VALUES  
ALPHA 30.000 BETA -5.000  
RVAL 1.000

SPEED: MACH 5.219  
X/L .800  
HAP/HT .950  
RVAL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

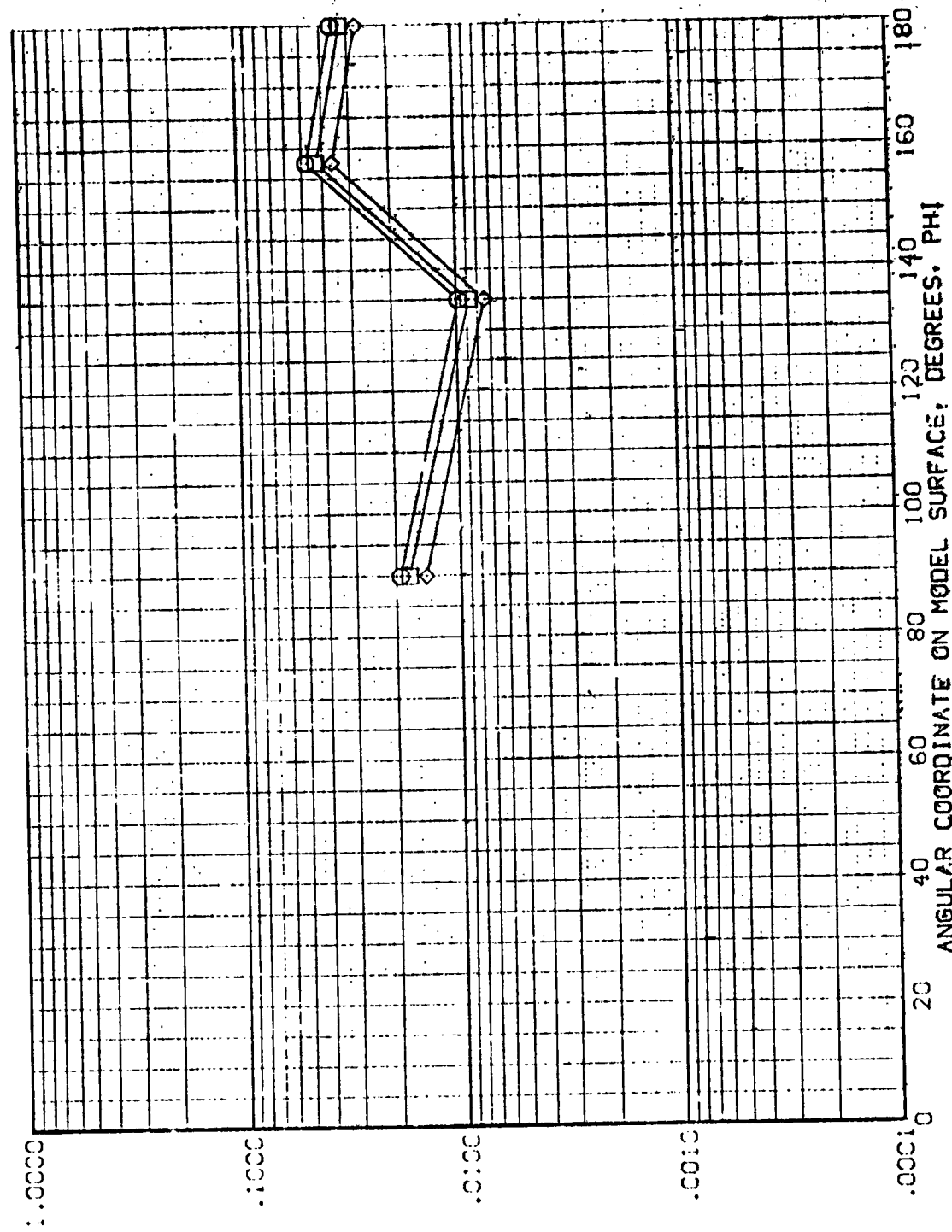


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

REF ID: A68111  
OPERATING PAPER 18

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV112)

SYMBOL      MACH       $\beta$       VACH  
 ◊      .850      .850      5.219  
 □      .900  
 ◊      1.000

PARAMETRIC VALUES  
 30.000      BETA      -5.000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

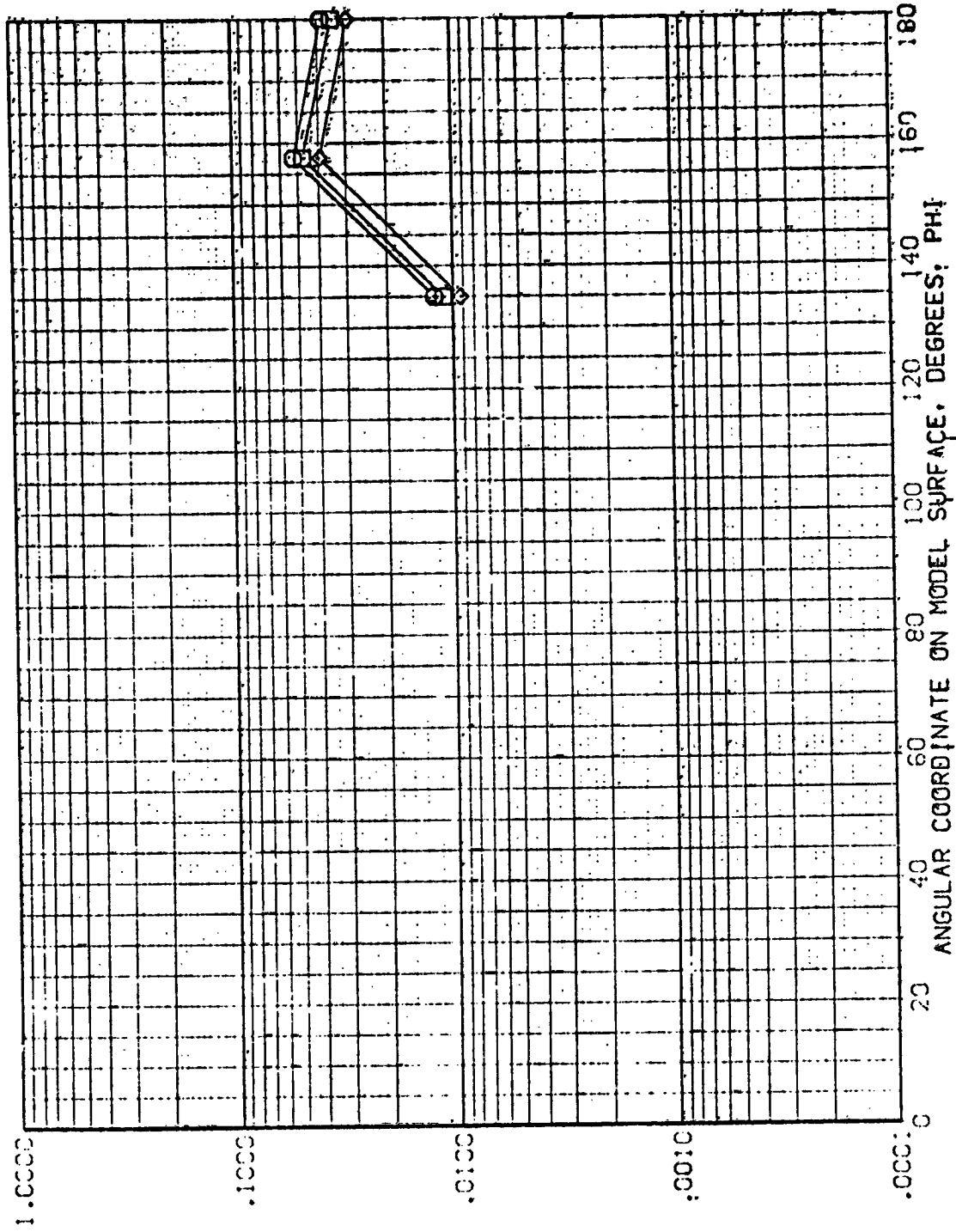


FIG. 5 TANK, IN THE PRESENCE OF ORBITER



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV112)

SYMBOL  
 □  
 ◇

MAX/HT .85C  
 .90C  
 1.00C

X/L .90C

MACH 5.219

ALPHA  
 RA/L

30.00C  
 1.00C

PARAMETRIC VALUES  
 BETA  
 -5.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

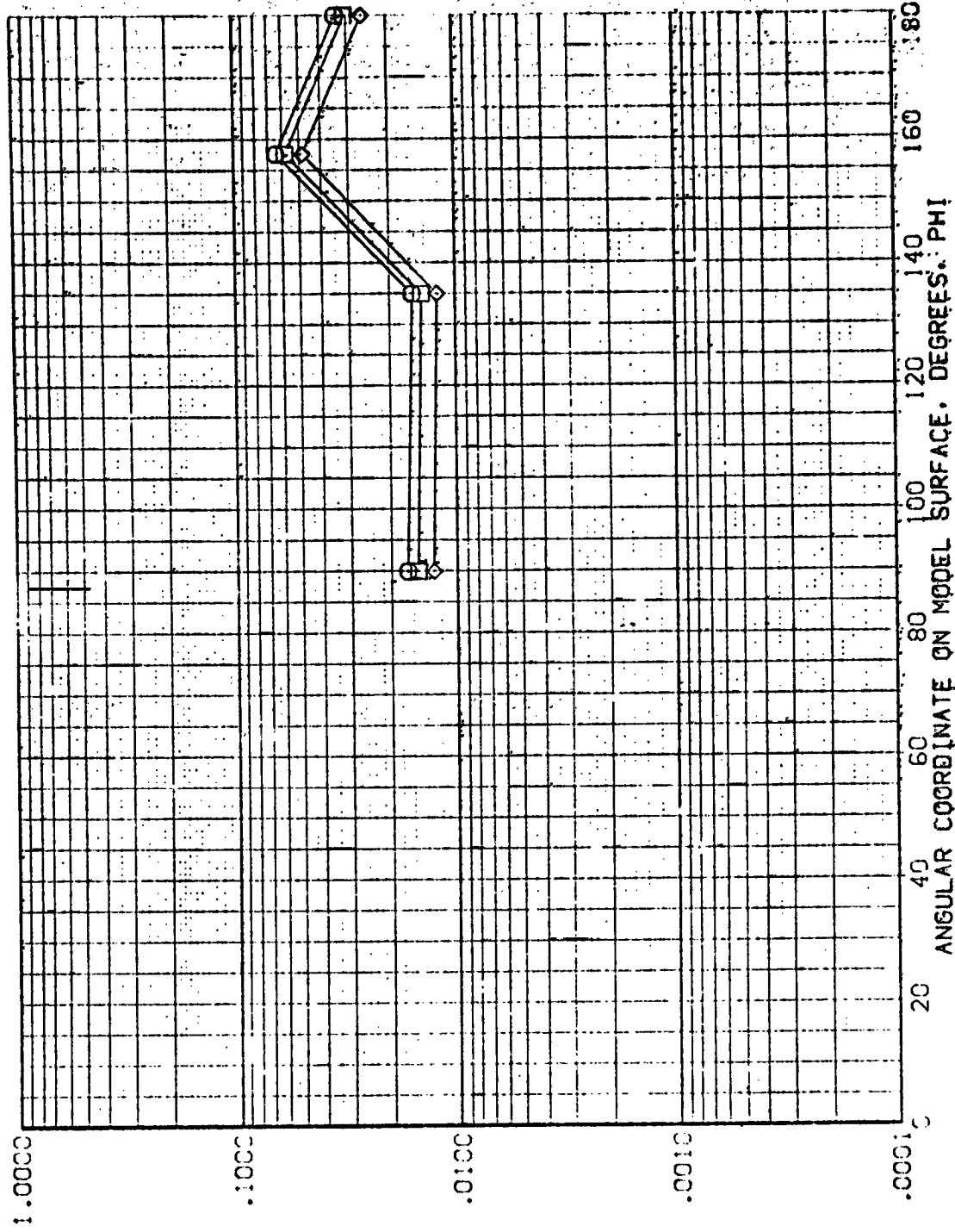


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 AYES 3.5-195 1-28 CI+II EXTERNAL TANK  
 AYES 3.5-195 1-28 CI+II EXTERNAL TANK  
 AYES 3.5-195 1-28 CI+II EXTERNAL TANK  
 AYES 3.5-195 1-28 CI+II EXTERNAL TANK  
 AYES 3.5-195 1-28 CI+II EXTERNAL TANK

ALPHA BETA RV/L  
 .000 .000  
 30.000 1000  
 60.000 .000  
 90.000 .000  
 120.000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HRREF

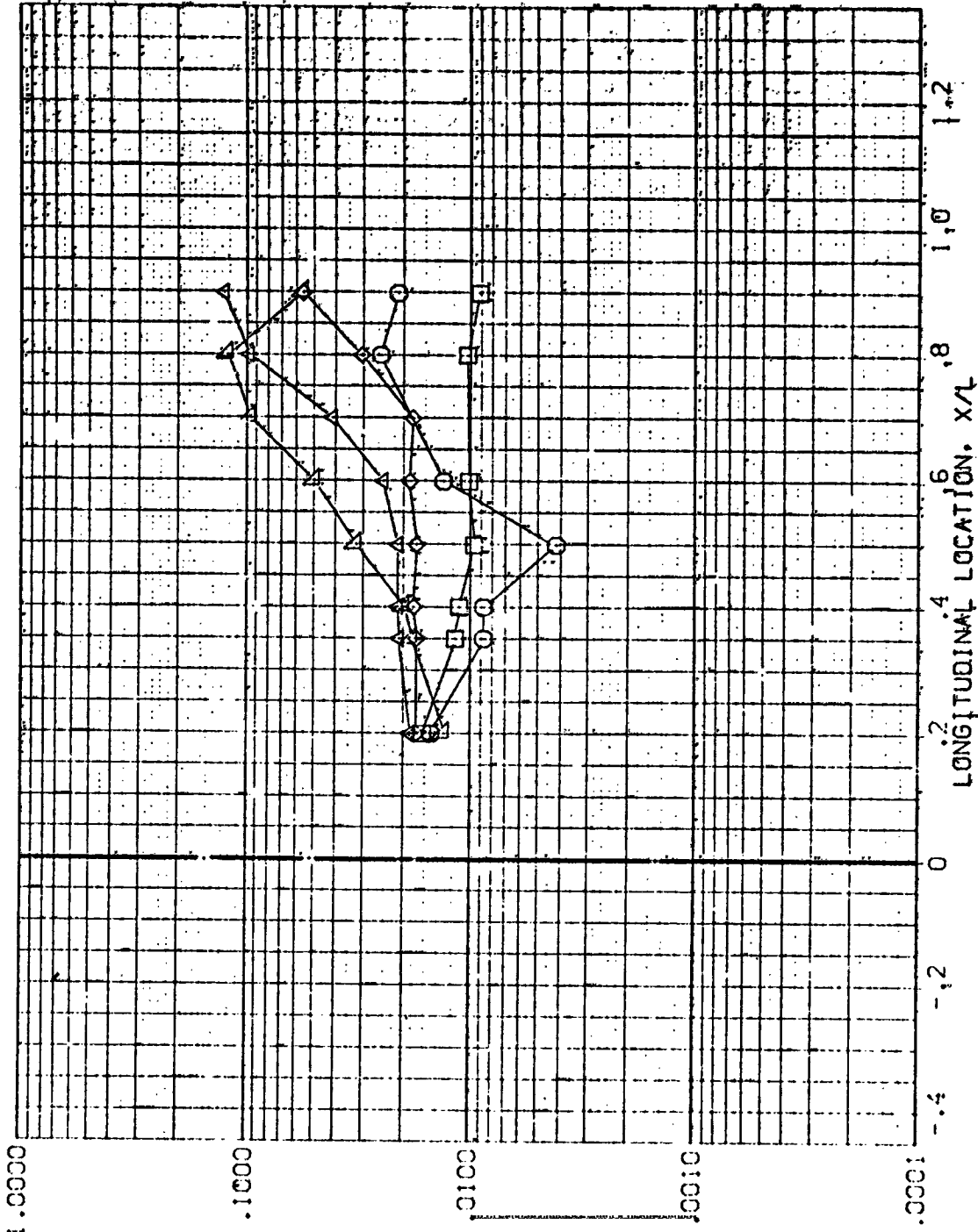


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.300 HAW/HT = .900 PHI = 50.300

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 PRE101 1428 C1\*1 EXTERNAL TANK  
 PRE102 1428 C1\*1 EXTERNAL TANK  
 PRE103 1428 C1\*1 EXTERNAL TANK  
 PRE104 1428 C1\*1 EXTERNAL TANK  
 PRE105 1428 C1\*1 EXTERNAL TANK

ALPHA BETA S/V/L  
 .000 .000 1.000  
 20.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

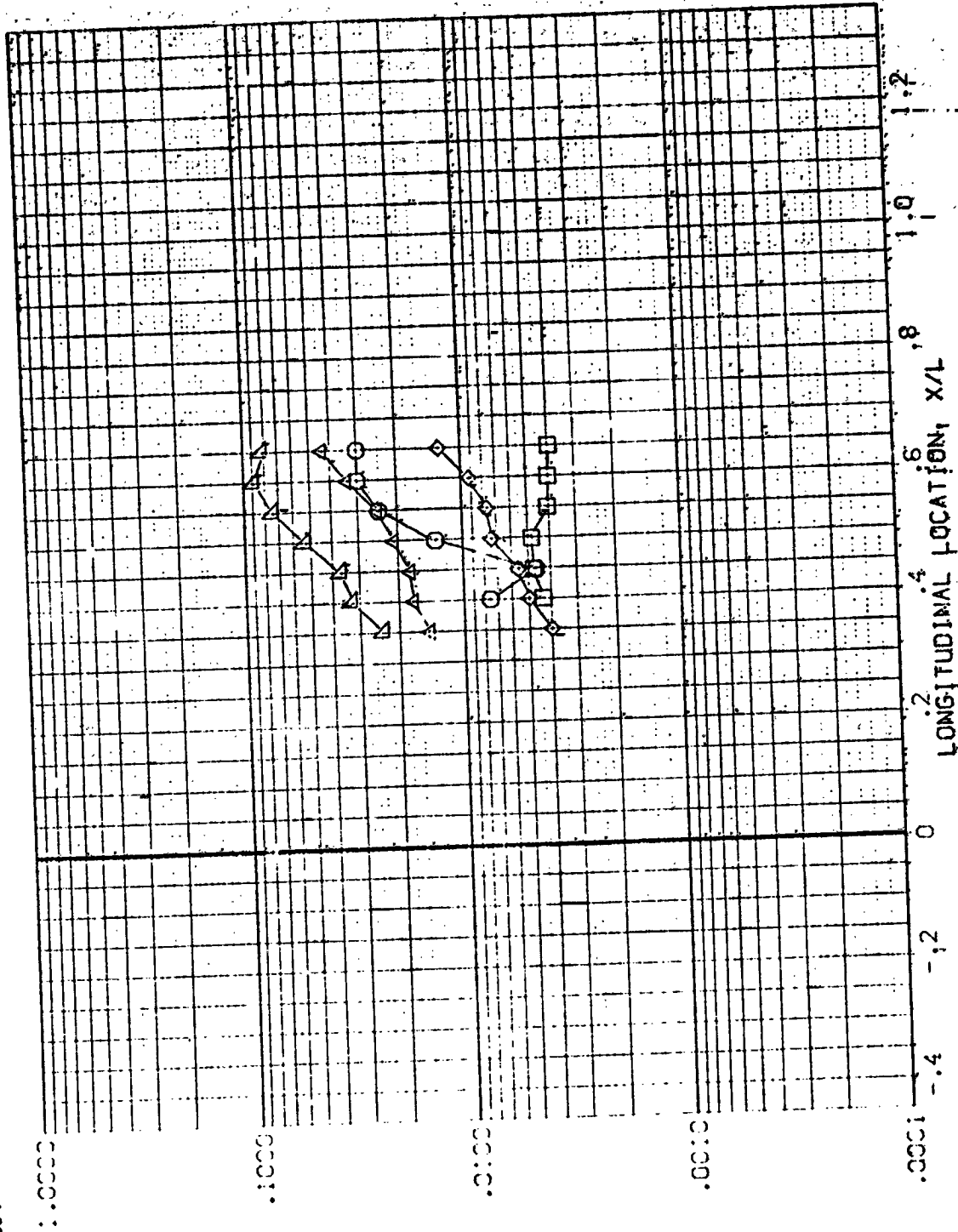


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.300 HAW/HT = .900 PHI = 112,500

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RNA/L
(REV101)	AMES 3.5.195 (128) (1+1) EXTERNAL TANK	.000	.000	1.000
(REV102)	AMES 3.5.195 (128) (1+1) EXTERNAL TANK	.000	.000	1.000
(REV103)	AMES 3.5.195 (128) (1+1) EXTERNAL TANK	.000	.000	1.000
(REV104)	AMES 3.5.195 (128) (1+1) EXTERNAL TANK	.000	.000	1.000
(REV105)	AMES 3.5.195 (128) (1+1) EXTERNAL TANK	.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

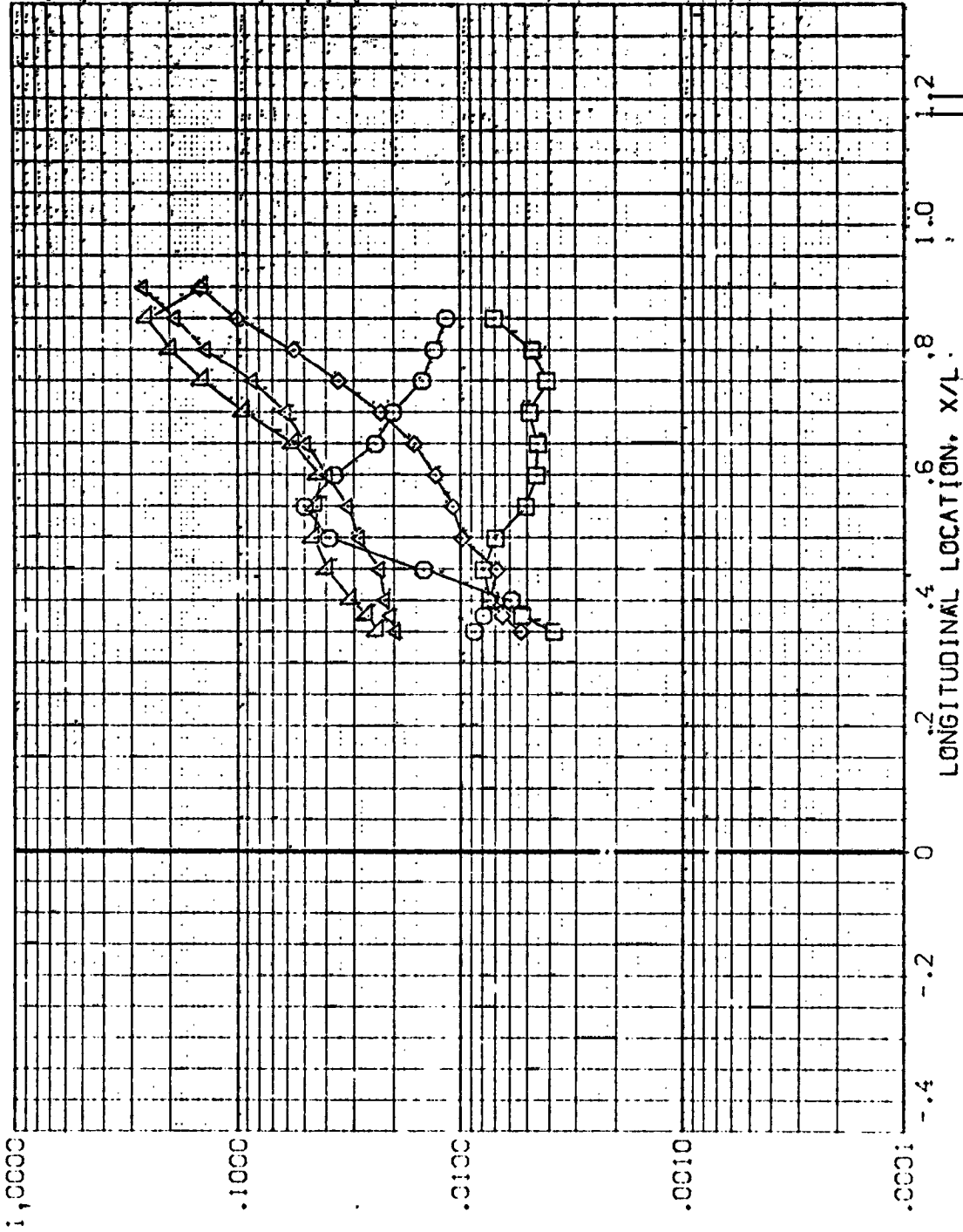


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.300 HAW/HT = .900 PHI = 135.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (REV 01) AMS 3-5-195 1428 01\*11 EXTERNAL TANK  
 (REV 02) AMS 3-5-195 1428 01\*11 EXTERNAL TANK  
 (REV 03) AMS 3-5-195 1428 01\*11 EXTERNAL TANK  
 (REV 04) AMS 3-5-195 1428 01\*11 EXTERNAL TANK  
 (REV 05) AMS 3-5-195 1428 01\*11 EXTERNAL TANK

ALPHA BETA RV/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

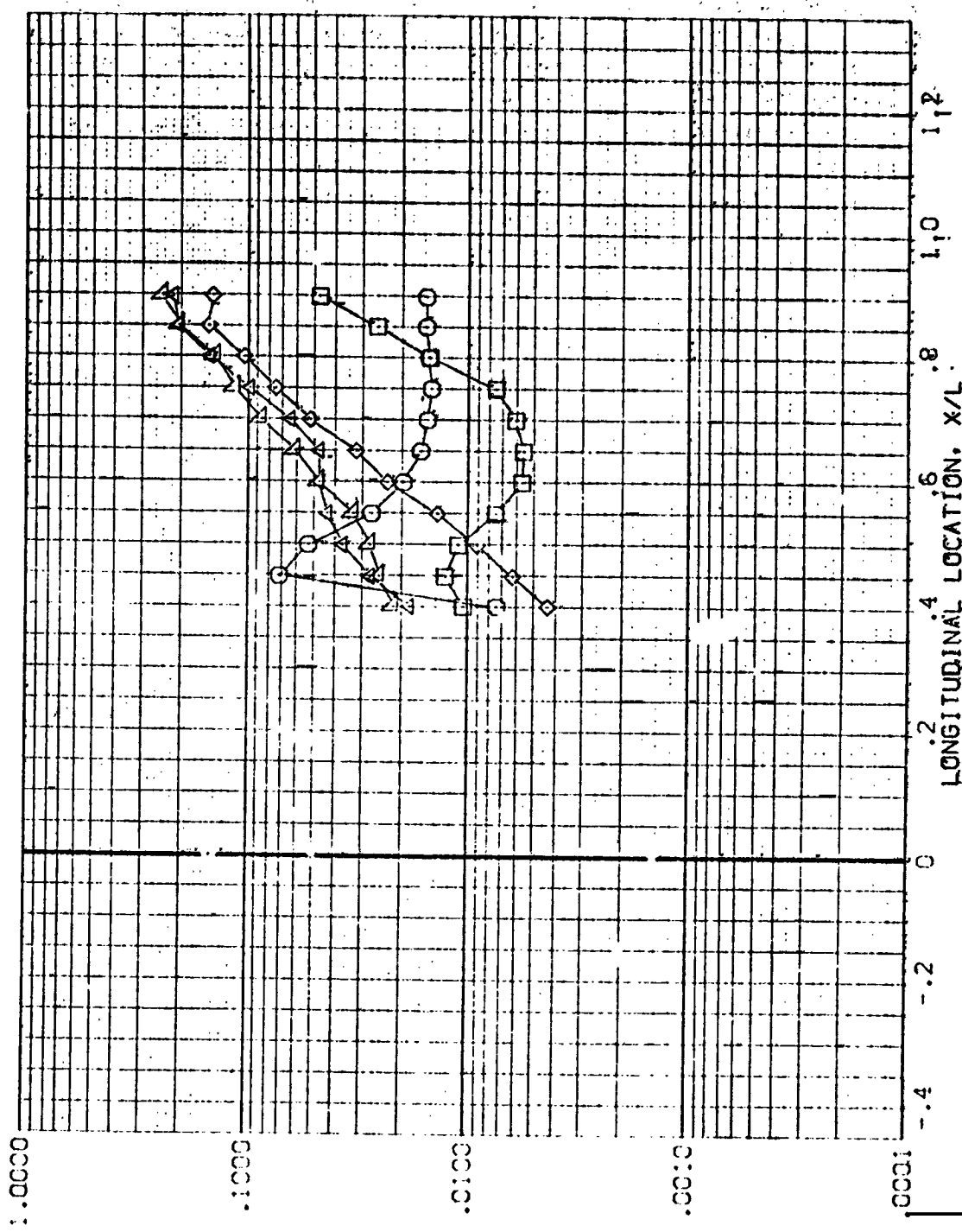


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

$\gamma_{AC} = 5.300$   $\mu_{AW}/HT = .900$   $\text{PHI} = 157.500$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RV/L
000001	AXIS 01-01-01	.000	.000	1.000
000002	AXIS 01-01-01	30.000	.000	1.000
000003	AXIS 01-01-01	60.000	.000	1.000
000004	AXIS 01-01-01	90.000	.000	1.000
000005	AXIS 01-01-01	120.000	.000	1.000
000006	AXIS 01-01-01	.000	.000	1.000
000007	AXIS 01-01-01	.000	.000	1.000
000008	AXIS 01-01-01	.000	.000	1.000
000009	AXIS 01-01-01	.000	.000	1.000
000010	AXIS 01-01-01	.000	.000	1.000
000011	AXIS 01-01-01	.000	.000	1.000
000012	AXIS 01-01-01	.000	.000	1.000
000013	AXIS 01-01-01	.000	.000	1.000
000014	AXIS 01-01-01	.000	.000	1.000
000015	AXIS 01-01-01	.000	.000	1.000
000016	AXIS 01-01-01	.000	.000	1.000
000017	AXIS 01-01-01	.000	.000	1.000
000018	AXIS 01-01-01	.000	.000	1.000
000019	AXIS 01-01-01	.000	.000	1.000
000020	AXIS 01-01-01	.000	.000	1.000
000021	AXIS 01-01-01	.000	.000	1.000
000022	AXIS 01-01-01	.000	.000	1.000
000023	AXIS 01-01-01	.000	.000	1.000
000024	AXIS 01-01-01	.000	.000	1.000
000025	AXIS 01-01-01	.000	.000	1.000
000026	AXIS 01-01-01	.000	.000	1.000
000027	AXIS 01-01-01	.000	.000	1.000
000028	AXIS 01-01-01	.000	.000	1.000
000029	AXIS 01-01-01	.000	.000	1.000
000030	AXIS 01-01-01	.000	.000	1.000
000031	AXIS 01-01-01	.000	.000	1.000
000032	AXIS 01-01-01	.000	.000	1.000
000033	AXIS 01-01-01	.000	.000	1.000
000034	AXIS 01-01-01	.000	.000	1.000
000035	AXIS 01-01-01	.000	.000	1.000
000036	AXIS 01-01-01	.000	.000	1.000
000037	AXIS 01-01-01	.000	.000	1.000
000038	AXIS 01-01-01	.000	.000	1.000
000039	AXIS 01-01-01	.000	.000	1.000
000040	AXIS 01-01-01	.000	.000	1.000
000041	AXIS 01-01-01	.000	.000	1.000
000042	AXIS 01-01-01	.000	.000	1.000
000043	AXIS 01-01-01	.000	.000	1.000
000044	AXIS 01-01-01	.000	.000	1.000
000045	AXIS 01-01-01	.000	.000	1.000
000046	AXIS 01-01-01	.000	.000	1.000
000047	AXIS 01-01-01	.000	.000	1.000
000048	AXIS 01-01-01	.000	.000	1.000
000049	AXIS 01-01-01	.000	.000	1.000
000050	AXIS 01-01-01	.000	.000	1.000
000051	AXIS 01-01-01	.000	.000	1.000
000052	AXIS 01-01-01	.000	.000	1.000
000053	AXIS 01-01-01	.000	.000	1.000
000054	AXIS 01-01-01	.000	.000	1.000
000055	AXIS 01-01-01	.000	.000	1.000
000056	AXIS 01-01-01	.000	.000	1.000
000057	AXIS 01-01-01	.000	.000	1.000
000058	AXIS 01-01-01	.000	.000	1.000
000059	AXIS 01-01-01	.000	.000	1.000
000060	AXIS 01-01-01	.000	.000	1.000
000061	AXIS 01-01-01	.000	.000	1.000
000062	AXIS 01-01-01	.000	.000	1.000
000063	AXIS 01-01-01	.000	.000	1.000
000064	AXIS 01-01-01	.000	.000	1.000
000065	AXIS 01-01-01	.000	.000	1.000
000066	AXIS 01-01-01	.000	.000	1.000
000067	AXIS 01-01-01	.000	.000	1.000
000068	AXIS 01-01-01	.000	.000	1.000
000069	AXIS 01-01-01	.000	.000	1.000
000070	AXIS 01-01-01	.000	.000	1.000
000071	AXIS 01-01-01	.000	.000	1.000
000072	AXIS 01-01-01	.000	.000	1.000
000073	AXIS 01-01-01	.000	.000	1.000
000074	AXIS 01-01-01	.000	.000	1.000
000075	AXIS 01-01-01	.000	.000	1.000
000076	AXIS 01-01-01	.000	.000	1.000
000077	AXIS 01-01-01	.000	.000	1.000
000078	AXIS 01-01-01	.000	.000	1.000
000079	AXIS 01-01-01	.000	.000	1.000
000080	AXIS 01-01-01	.000	.000	1.000
000081	AXIS 01-01-01	.000	.000	1.000
000082	AXIS 01-01-01	.000	.000	1.000
000083	AXIS 01-01-01	.000	.000	1.000
000084	AXIS 01-01-01	.000	.000	1.000
000085	AXIS 01-01-01	.000	.000	1.000
000086	AXIS 01-01-01	.000	.000	1.000
000087	AXIS 01-01-01	.000	.000	1.000
000088	AXIS 01-01-01	.000	.000	1.000
000089	AXIS 01-01-01	.000	.000	1.000
000090	AXIS 01-01-01	.000	.000	1.000
000091	AXIS 01-01-01	.000	.000	1.000
000092	AXIS 01-01-01	.000	.000	1.000
000093	AXIS 01-01-01	.000	.000	1.000
000094	AXIS 01-01-01	.000	.000	1.000
000095	AXIS 01-01-01	.000	.000	1.000
000096	AXIS 01-01-01	.000	.000	1.000
000097	AXIS 01-01-01	.000	.000	1.000
000098	AXIS 01-01-01	.000	.000	1.000
000099	AXIS 01-01-01	.000	.000	1.000
000100	AXIS 01-01-01	.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

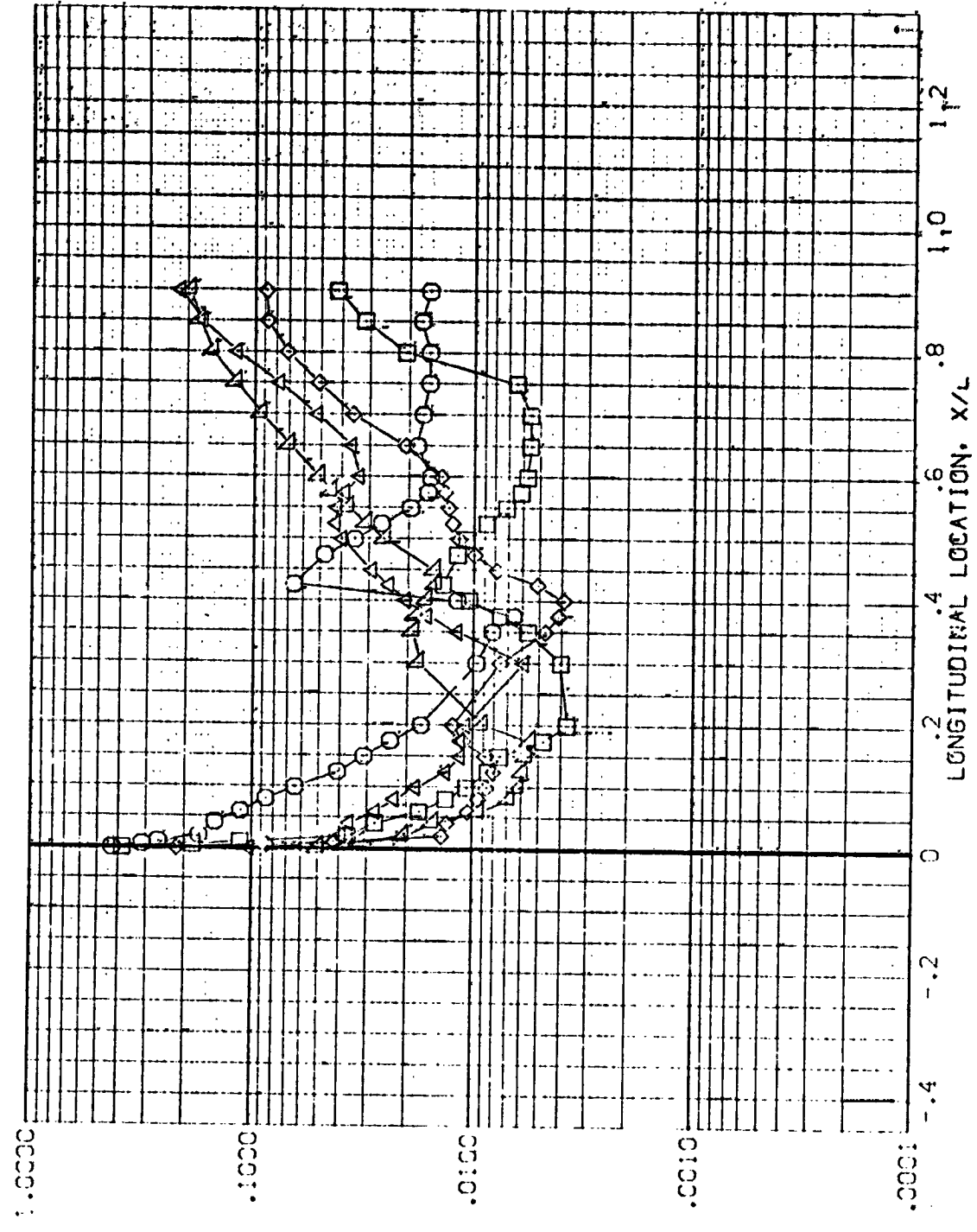


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.300 REYNOLDS = 180.000 PHO = 0.900

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (SET 01) 0128 01+11 EXTERNAL TANK  
 (SET 02) 0128 01+11 EXTERNAL TANK  
 (SET 03) 0128 01+11 EXTERNAL TANK  
 (SET 04) 0128 01+11 EXTERNAL TANK  
 (SET 05) 0128 01+11 EXTERNAL TANK

ALPHA BETA RV/L  
 .000 .000 1.000  
 130.000 .000 1.000  
 -60.000 .000 1.000  
 -80.000 .000 1.000  
 -120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

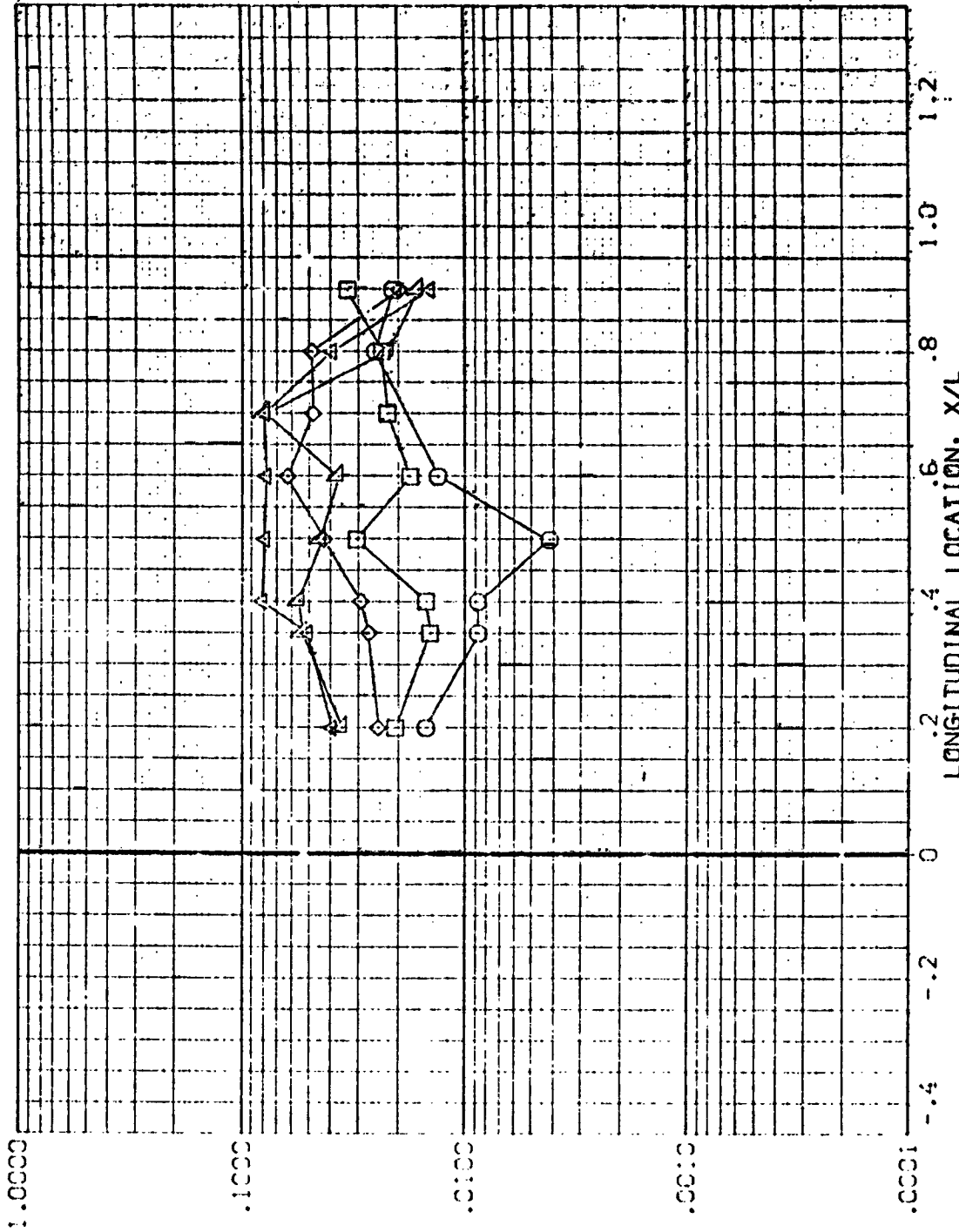


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.300 HAW/HT = .900 PHI = 50.000

012801 01+11 EXTERNAL TANK P

DATA SET SAVED

ADDRESS	CONFIGURATION DESCRIPTION	ALPHA	BETA	RV/L
1003	1.28 01+11 EXTERNAL TANK	.000	.000	1.000
1004	1.28 01+11 EXTERNAL TANK	-30.000	.000	1.000
1005	1.28 01+11 EXTERNAL TANK	60.000	.000	1.000
1006	1.28 01+11 EXTERNAL TANK	-80.000	.000	1.000
1007	1.28 01+11 EXTERNAL TANK	-120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

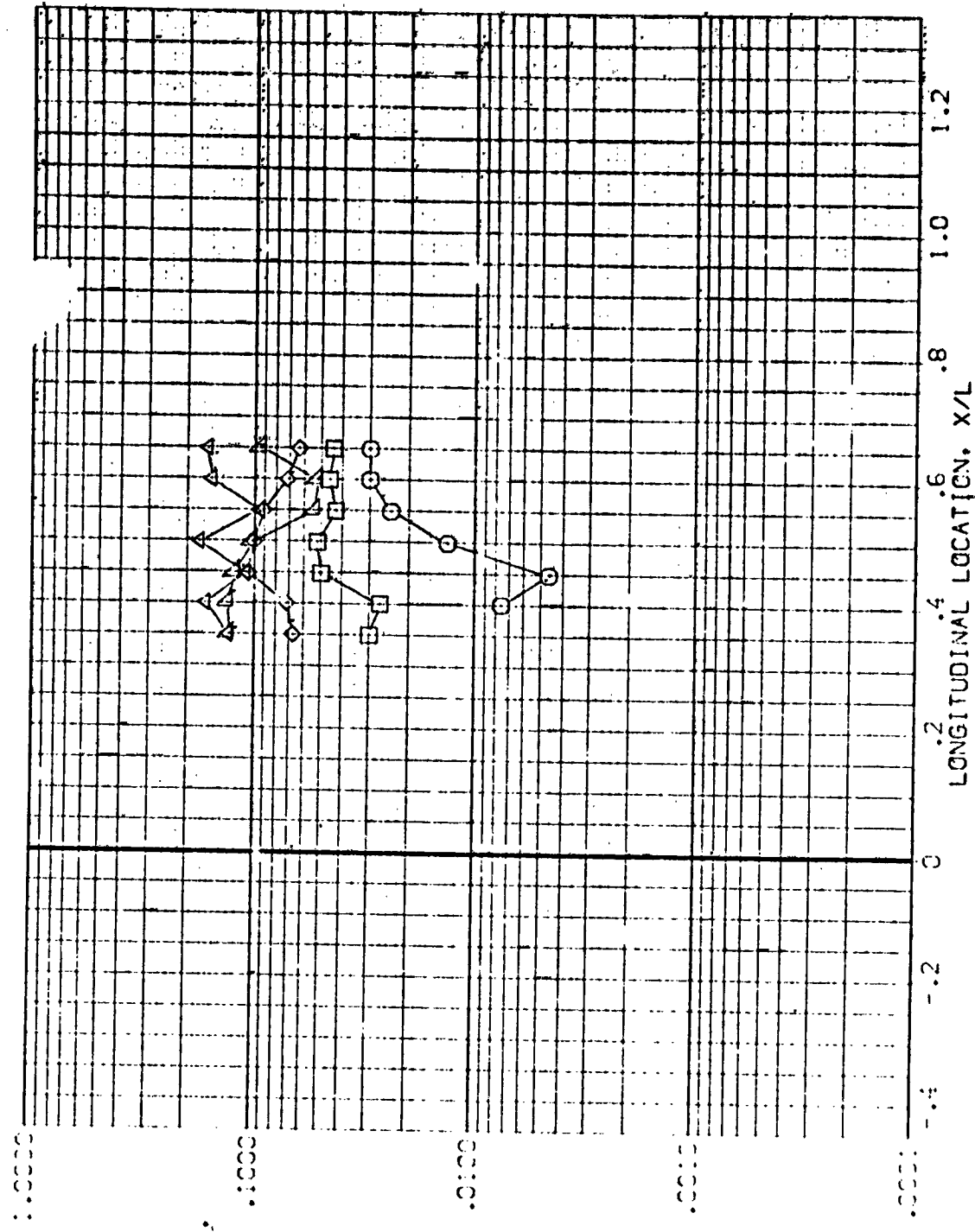


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.000 HEIGHT = .900 RE = 1:1.500



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	$R_{w/L}$
000000	000000	EXTERNAL TANK	.000	.000	1.000
000000	000001	EXTERNAL TANK	.000	.000	1.000
000000	000002	EXTERNAL TANK	.000	.000	1.000
000000	000003	EXTERNAL TANK	.000	.000	1.000
000000	000004	EXTERNAL TANK	.000	.000	1.000
000000	000005	EXTERNAL TANK	.000	.000	1.000
000000	000006	EXTERNAL TANK	.000	.000	1.000
000000	000007	EXTERNAL TANK	.000	.000	1.000
000000	000008	EXTERNAL TANK	.000	.000	1.000
000000	000009	EXTERNAL TANK	.000	.000	1.000
000000	000010	EXTERNAL TANK	.000	.000	1.000
000000	000011	EXTERNAL TANK	.000	.000	1.000
000000	000012	EXTERNAL TANK	.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

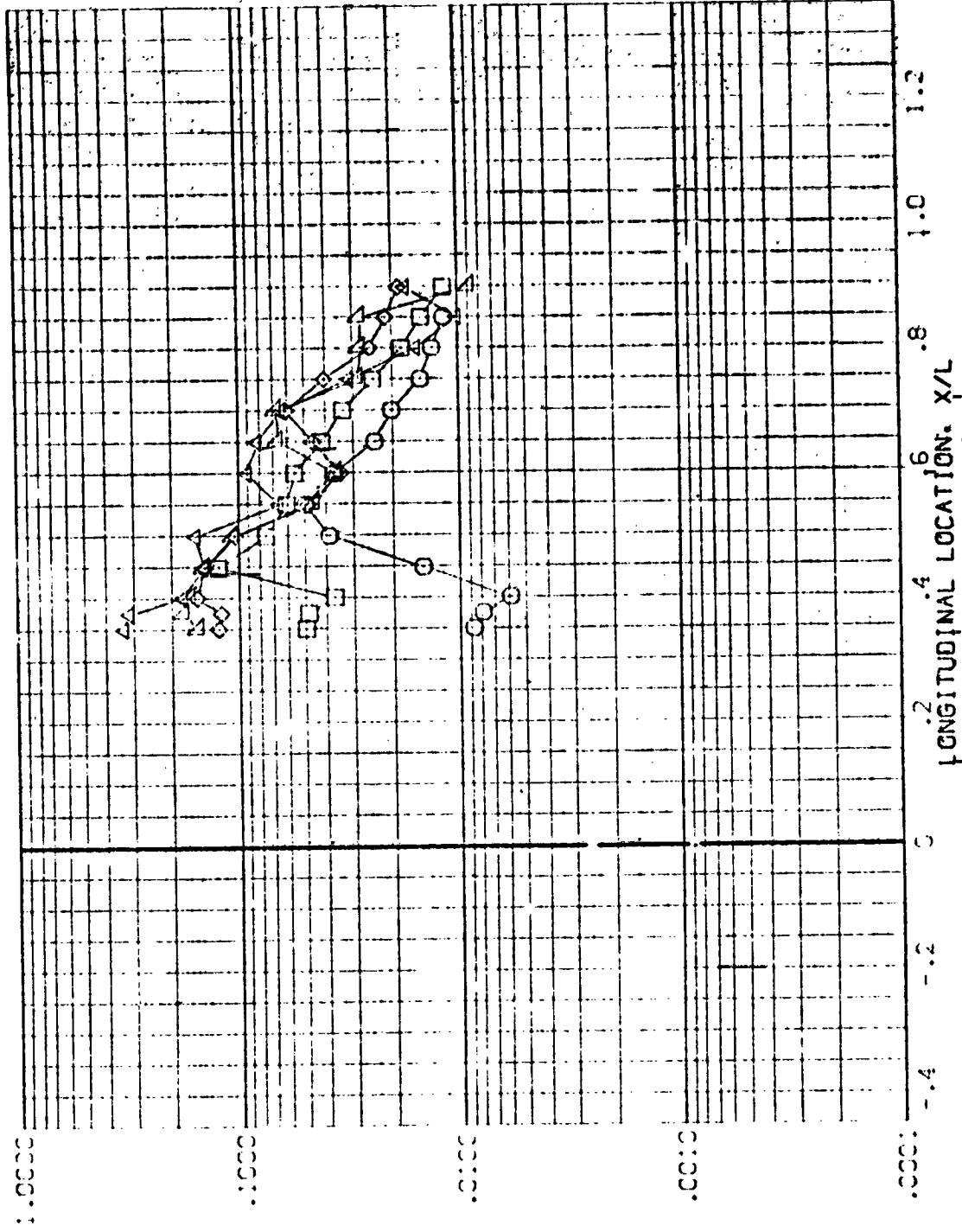


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

$MACH = 5.000$   $HREF/HREF = .900$   $PHI = 135.000$

CONFIGURATION SYMBOL	DESCRIPTION
1000000000	EXTERNAL TANK
2000000000	EXTERNAL TANK
3000000000	EXTERNAL TANK
4000000000	EXTERNAL TANK
5000000000	EXTERNAL TANK
6000000000	EXTERNAL TANK
7000000000	EXTERNAL TANK
8000000000	EXTERNAL TANK
9000000000	EXTERNAL TANK

ALPHA	BETA	PR/L
1000000000	000	1000000000
2000000000	000	1000000000
3000000000	000	1000000000
4000000000	000	1000000000
5000000000	000	1000000000
6000000000	000	1000000000
7000000000	000	1000000000
8000000000	000	1000000000
9000000000	000	1000000000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, HZ/REF

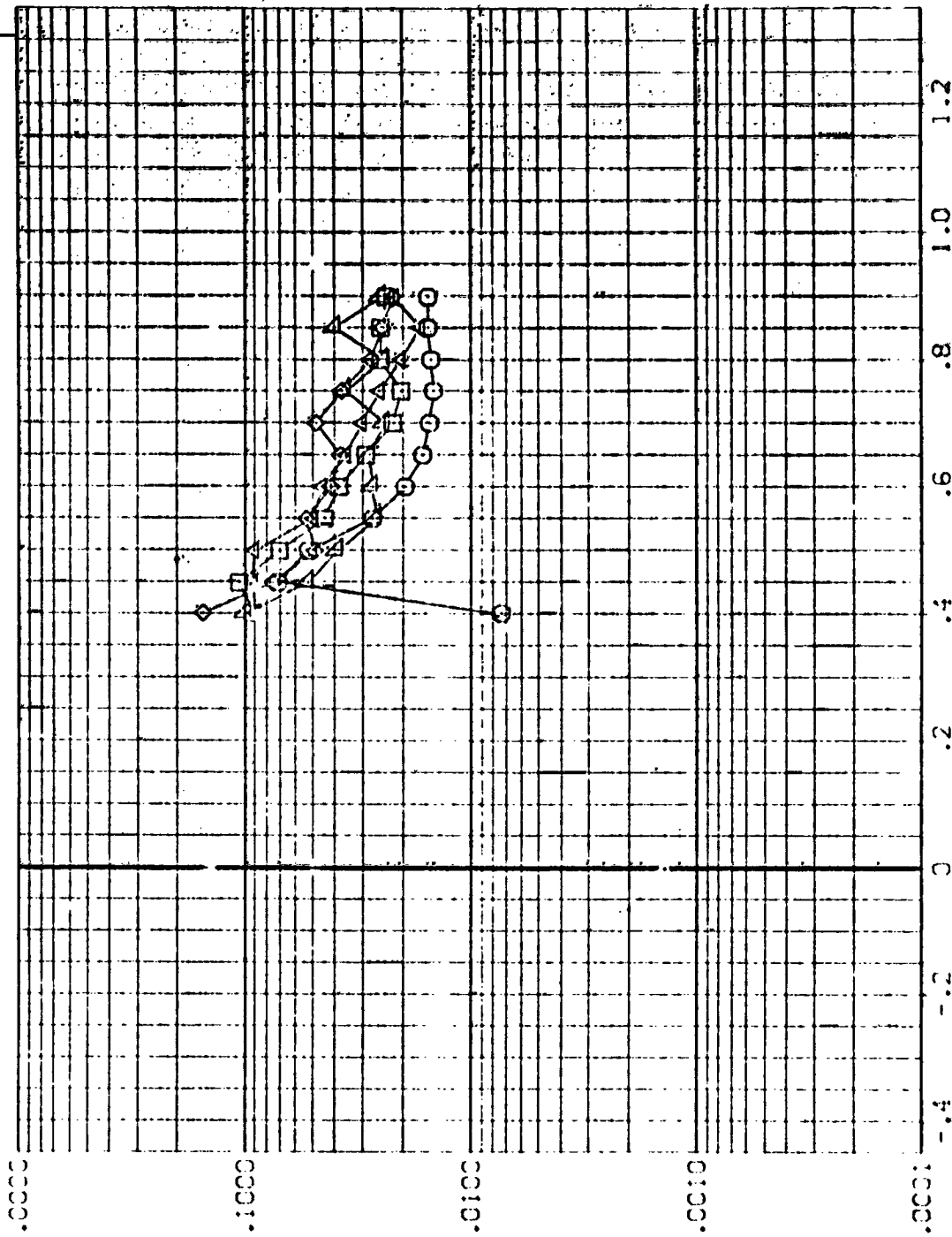


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

WIND = 5.000 M/S Q = 0.800 P/H = 157.500

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

AMES 3 5-195 1428 01+11 EXTERNAL TANK  
 AMES 3 5-195 1428 01+11 EXTERNAL TANK  
 AMES 3 5-195 1428 01+11 EXTERNAL TANK  
 AMES 3 5-195 1428 01+11 EXTERNAL TANK

ALPHA BETA R/V/L  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

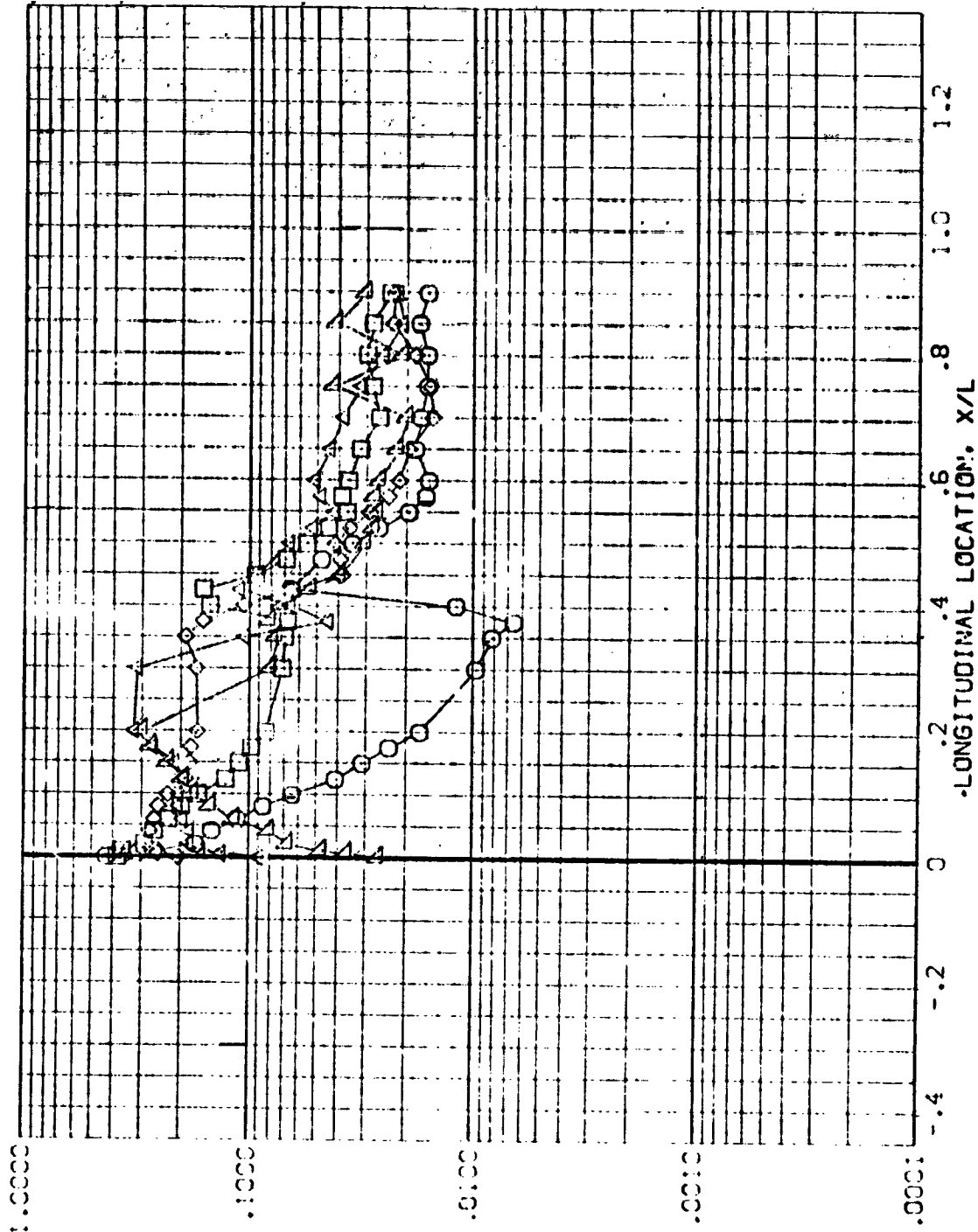


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.200 HAW/HTE = .200 PHI = 180.000

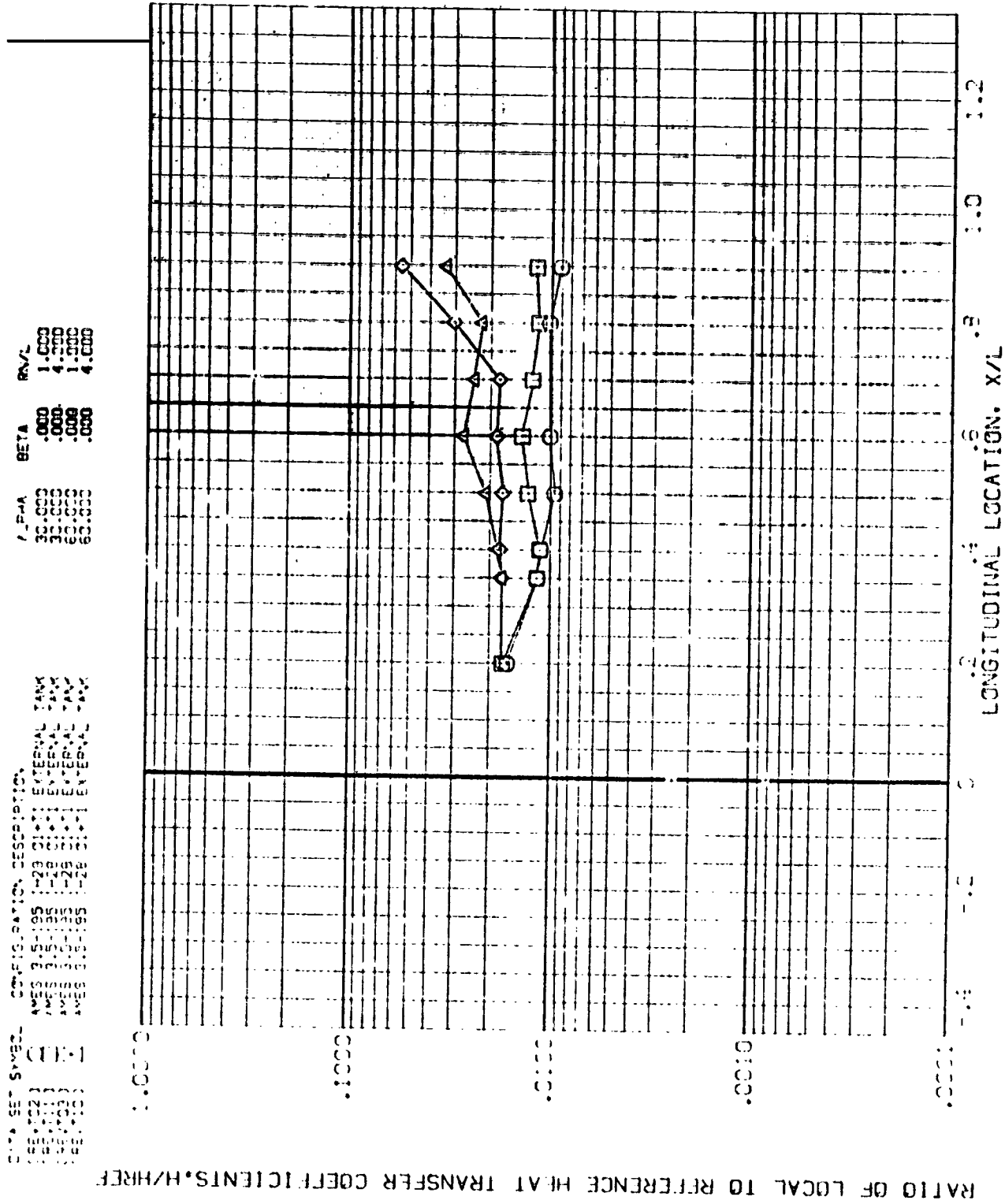


FIG. 5 TANK IN THE PRESENCE OF ORBITER

SCALE - 5.000 H/HREF = 0.000 0.000 0.000 0.000

DATA SET SIMUL. CONFIGURATION DESCRIPTION

1000	AVES 05-195	1428	01.411	EXTERNAL TANK
1001	AVES 05-195	1428	01.411	EXTERNAL TANK
1002	AVES 05-195	1428	01.411	EXTERNAL TANK
1003	AVES 05-195	1428	01.411	EXTERNAL TANK
1004	AVES 05-195	1428	01.411	EXTERNAL TANK

ALPHA BETA EM/L

30.000	.000	1.000
30.000	.000	4.000
60.000	.000	1.000
60.000	.000	4.000

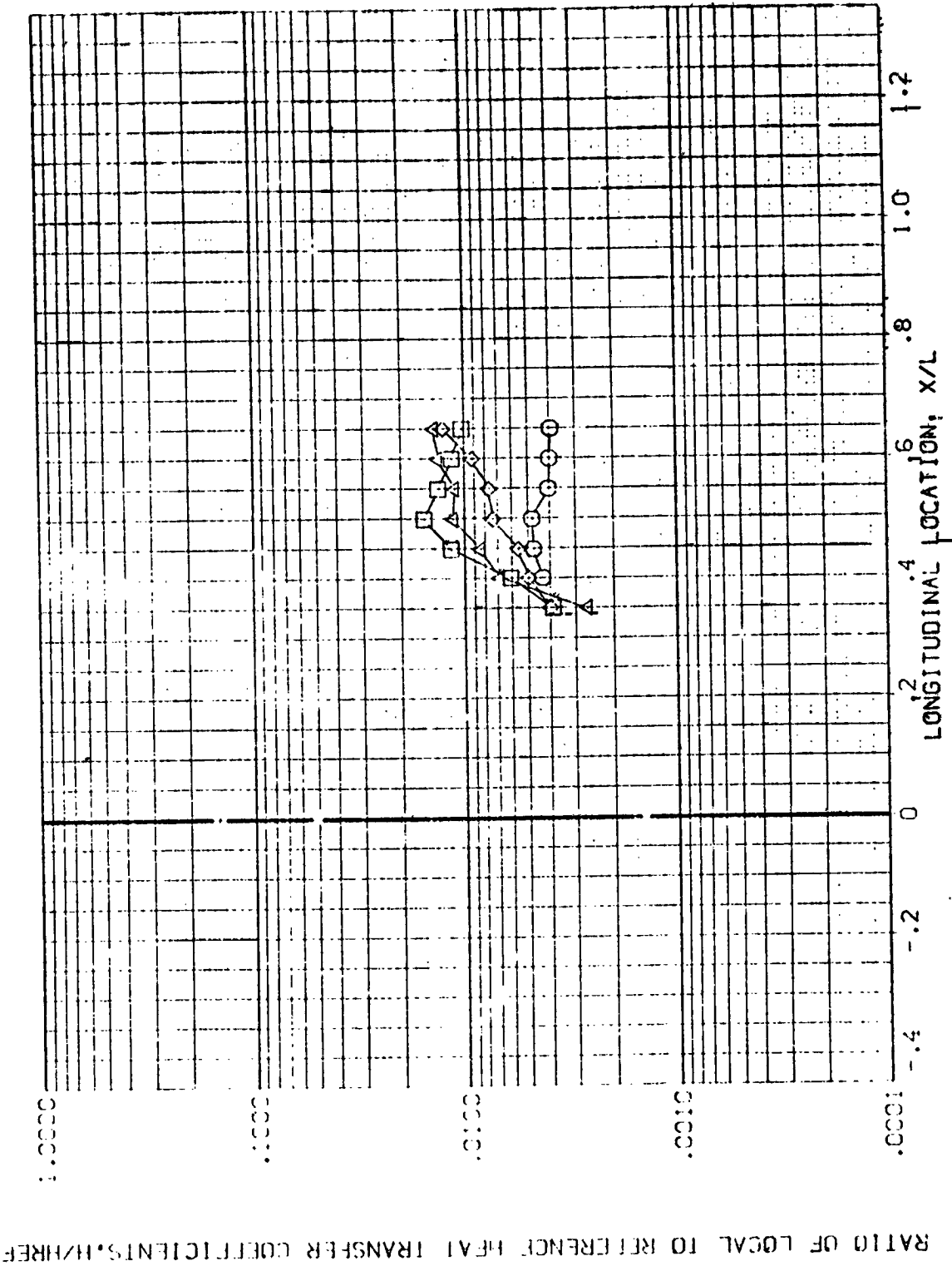


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.900 HAW/HT = .900 PHI = 112.500

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA RNAL

(P2102)	AVES 3.5:195	(P28 01+T1	EXTERNAL TANK	30.000	.020	1.000
(P2101)	AVES 3.5:195	(P28 01+T1	EXTERNAL TANK	30.000	.000	4.000
(P2103)	AVES 3.5:195	(P28 01+T1	EXTERNAL TANK	60.000	.000	1.000
(P2100)	AVES 3.5:195	(P28 01+T1	EXTERNAL TANK	60.000	.000	4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

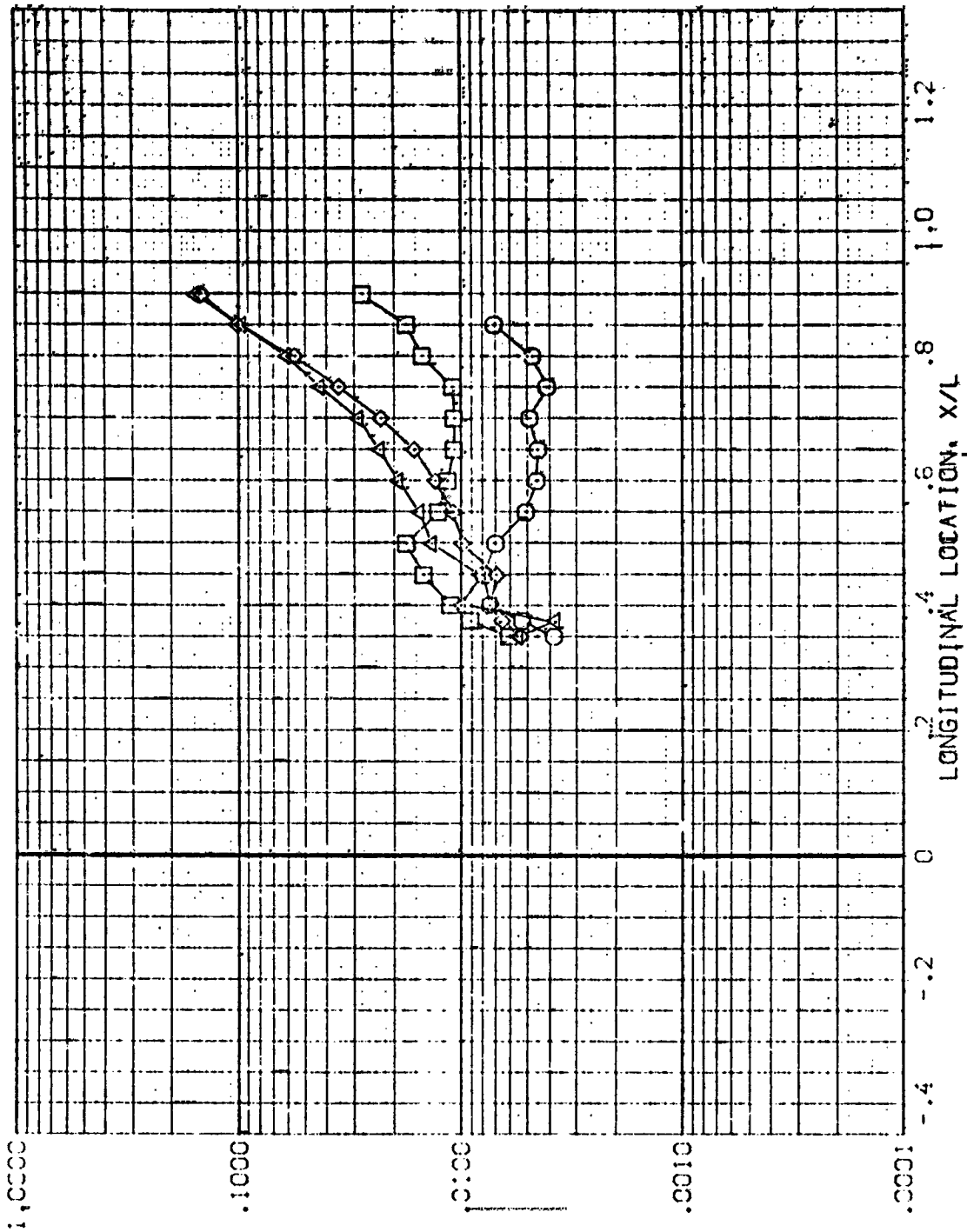


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.200 HAW/HT = .900 PHI = 135.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (R107) ARES 3-S-195 I#28 O1\*11 EXTERNAL TANK  
 (R108) ARES 3-S-195 I#28 O1\*11 EXTERNAL TANK  
 (R109) ARES 3-S-195 I#28 O1\*11 EXTERNAL TANK  
 (R110) ARES 3-S-195 I#28 O1\*11 EXTERNAL TANK

ALPHA BETA RV/L  
 30.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 60.000 .000 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

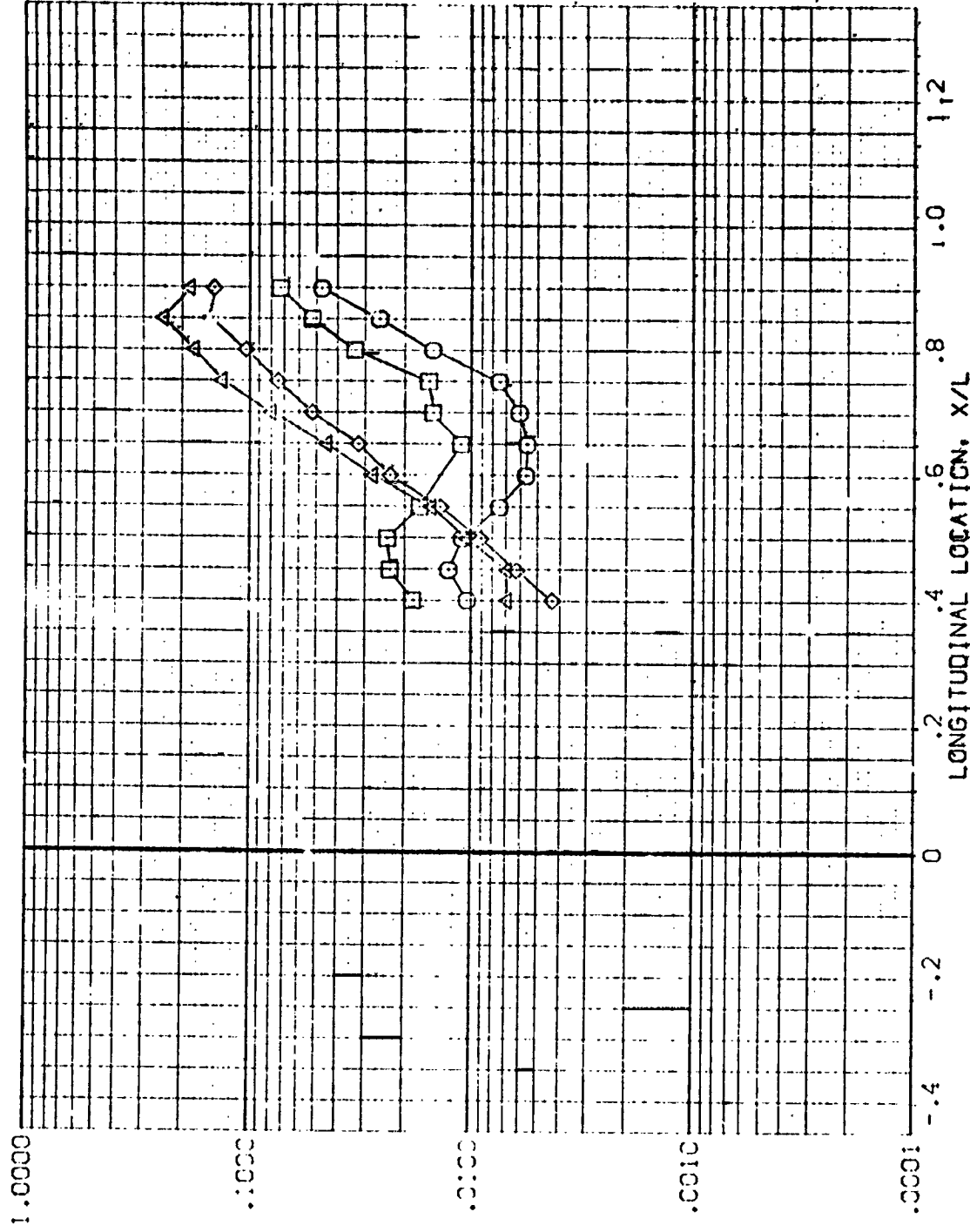


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.000 H<sub>REF</sub>/H<sub>T</sub> = .900 PHI = 107.500

DATA SET SYMBOL CONFIGURATION DESCRIPTION

AVES 3.5.195 I408 CI+II INTERNAL TANK  
 AVES 3.5.195 I408 CI+II EXTERNAL TANK  
 AVES 3.5.195 I408 CI+II EXTERNAL TANK  
 AVES 3.5.195 I426 CI+II EXTERNAL TANK

ALPHA BETA RH/L  
 30.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 60.000 .000 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

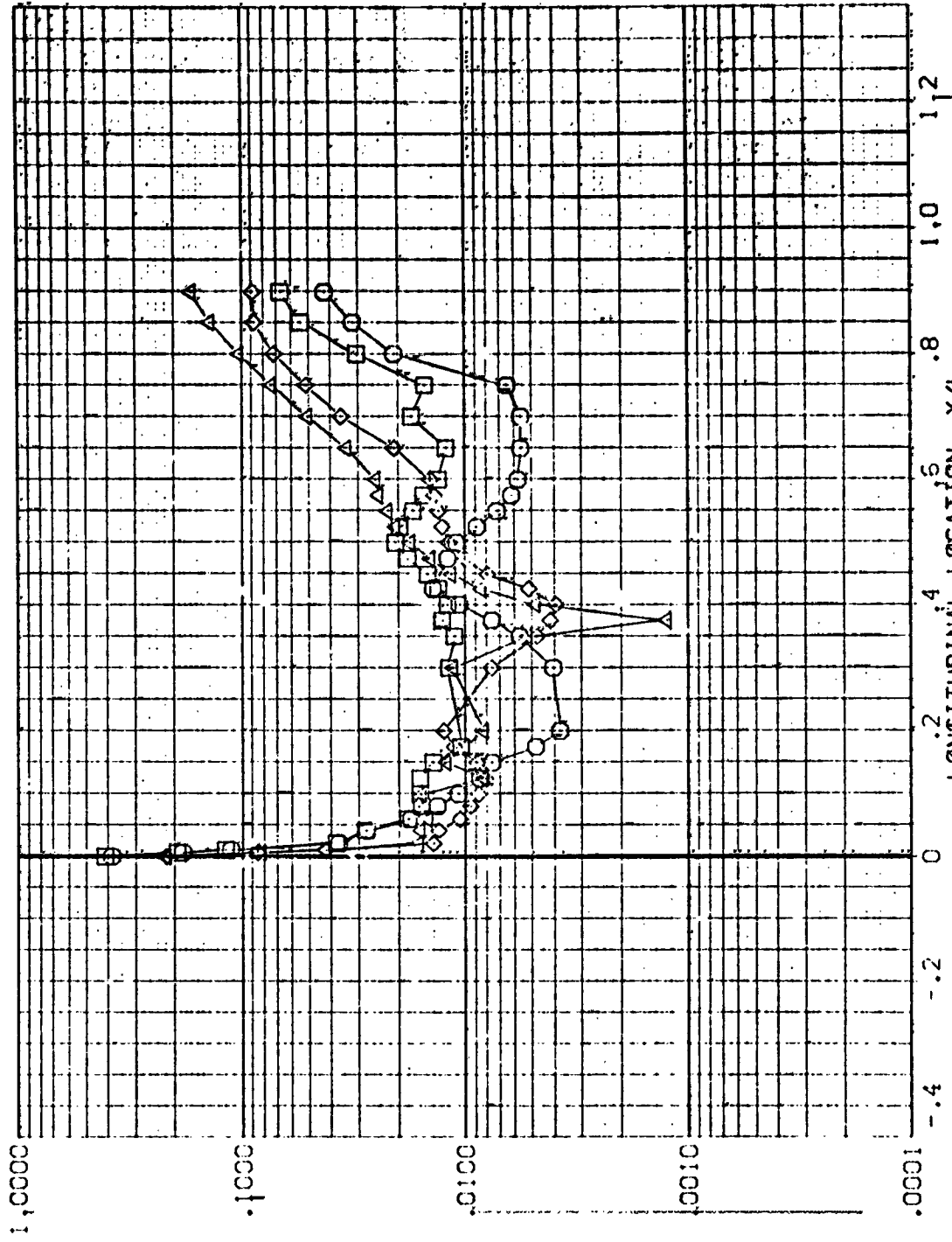


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

WICH = 5.300 HAW/HTE = .900 PHI = .900.000



DATA SET SYMBO: CONFIGURATION DESCRIPTION  
 (REACT2) ANES 3.5-195 (P28 G1+T1) EXTERNAL TANK  
 (REACT12) ANES 3.5-195 (P28 G1+T1) EXTERNAL TANK

ALPHA 30.000  
 BETA .000  
 R/V/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

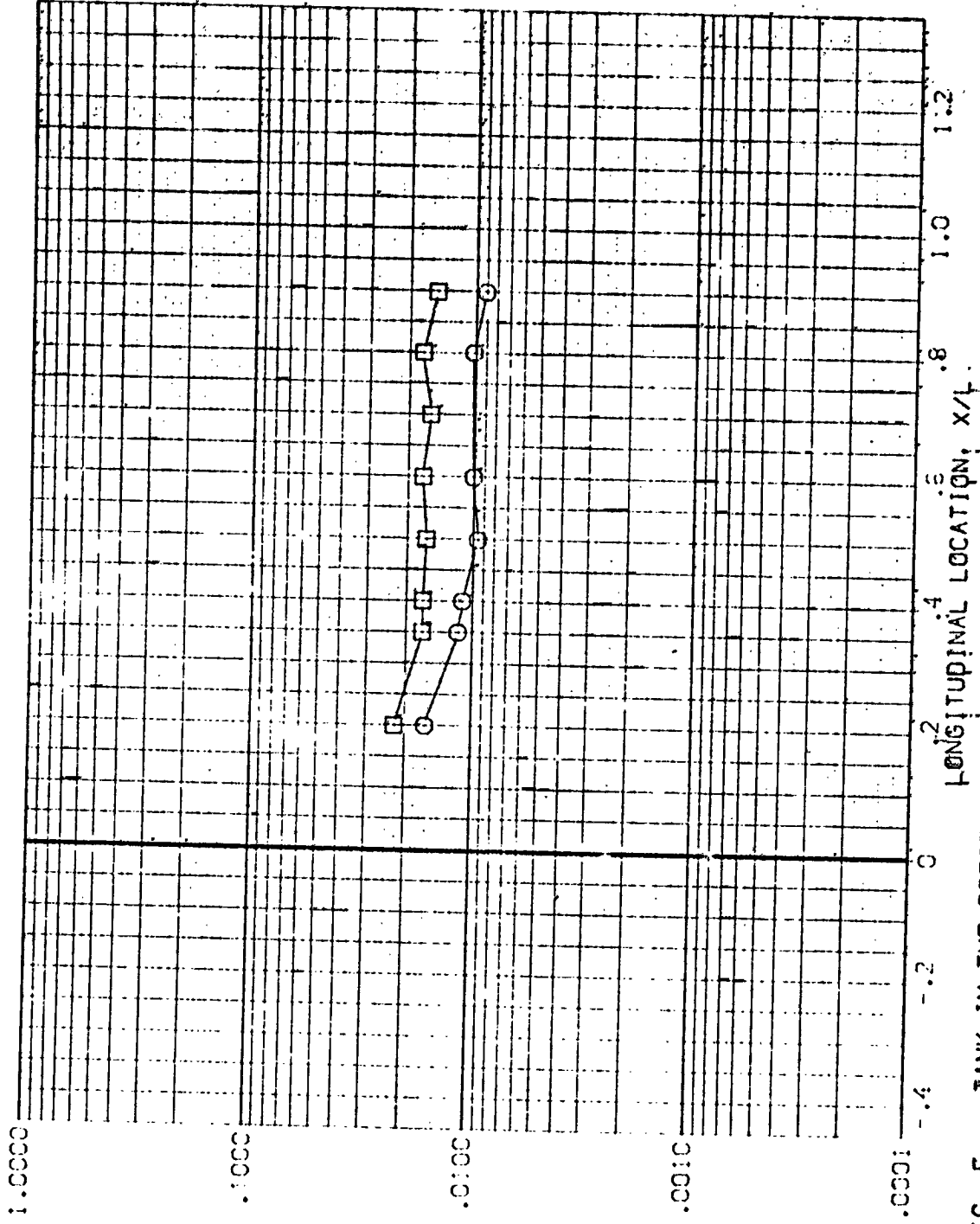


FIG. 5 TANK IN THE PRESENCE OF ORBITER

$\mu = 5.300$   $L^*W/HT = .900$   $\phi = 90,000$

DATA SET SYMBOL: [ ]  
 CONFIGURATION DESCRIPTION:  
 AXES 3.5-195 1428 01+11 EXTERNAL TANK  
 (REV 12)  
 AXES 3.5-195 1428 01+11 EXTERNAL TANK  
 (REV 13)

ALPHA BETA PV/L  
 10.000 1.000  
 10.000 -5.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

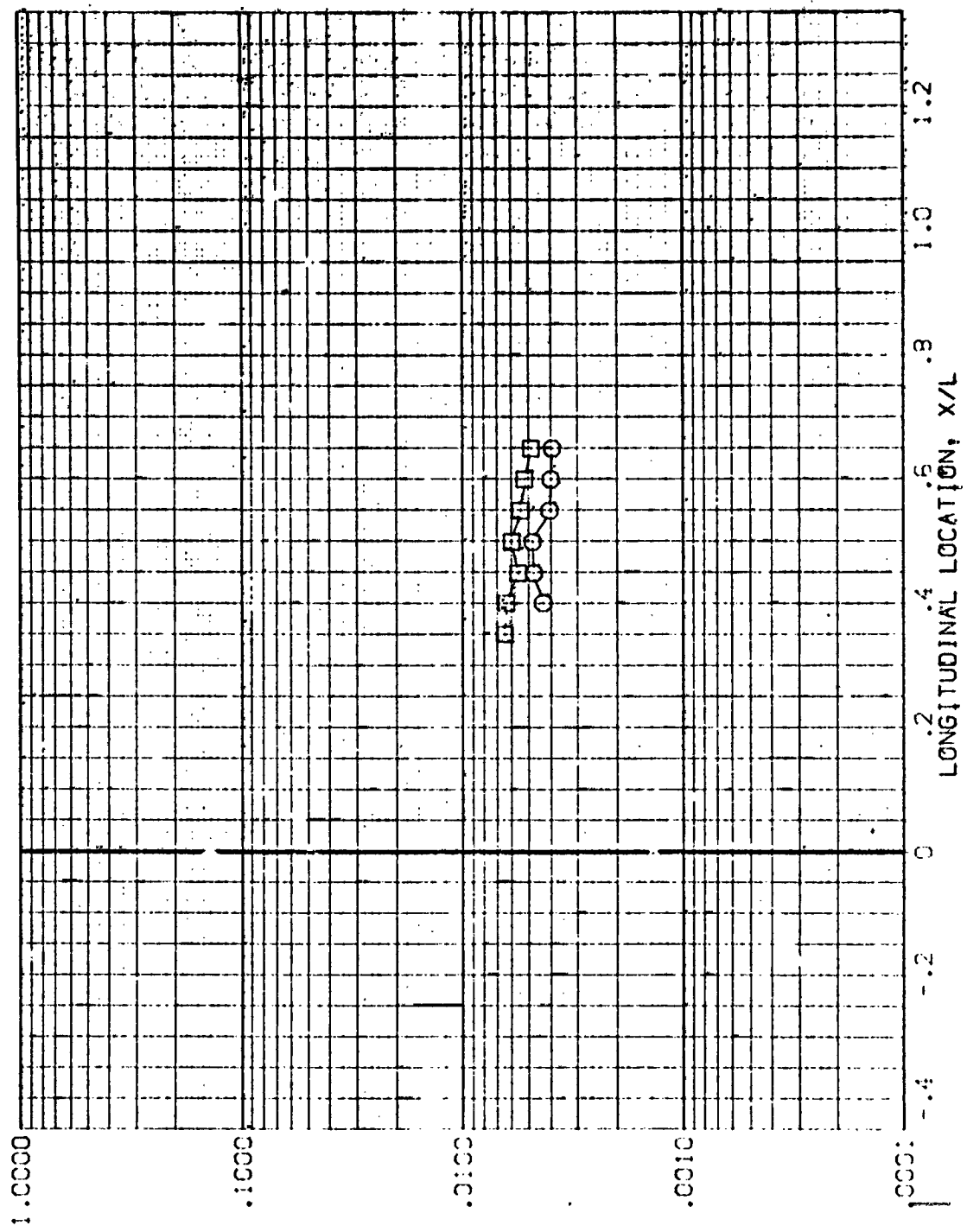


FIG. 5 TANK, IN THE PRESENCE OF 0 BITER

MACH = 5.300 HAW/HT = .900 P41 = 1:2 500

DATA SET SYMB. CONFIGURATION DESCRIPTION  
 (REV102) 0 ANES 3.5-195 (M28 CI+T) EXTERNAL TANK  
 (REV112) 0 ANES 3.5-195 (M29 CI+T) EXTERNAL TANK

ALPHA BETA RVAL  
 30.000 .000 1.000  
 30.000 -5.000 1.000

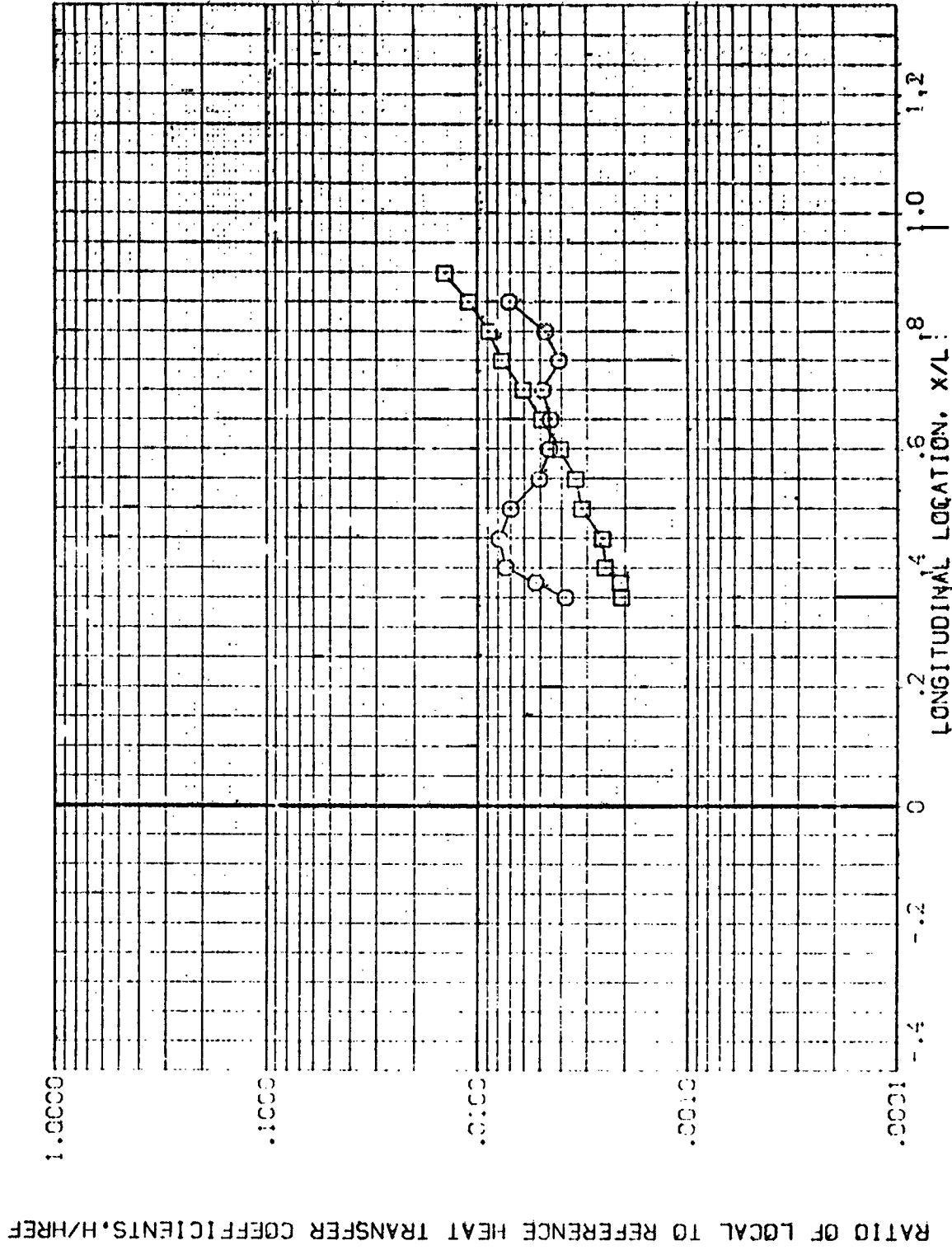


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.200 REYNOLDS = 0.900 PHI = 135.000

REPRODUCED FROM THE  
 ORIGINAL PART 18

DATA SET SYMBOL: CONFIGURATION DESCRIPTION  
 CASE 1:01:01 (1) AVES 3.0-1.05 1-28 01+11 EXTERNAL TANK  
 CASE 1:01:02 (2) AVES 3.0-1.05 1-28 01+11 EXTERNAL TANK

ALPHA BETA R/V/L  
 30.000 .000 1.000  
 30.000 -5.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

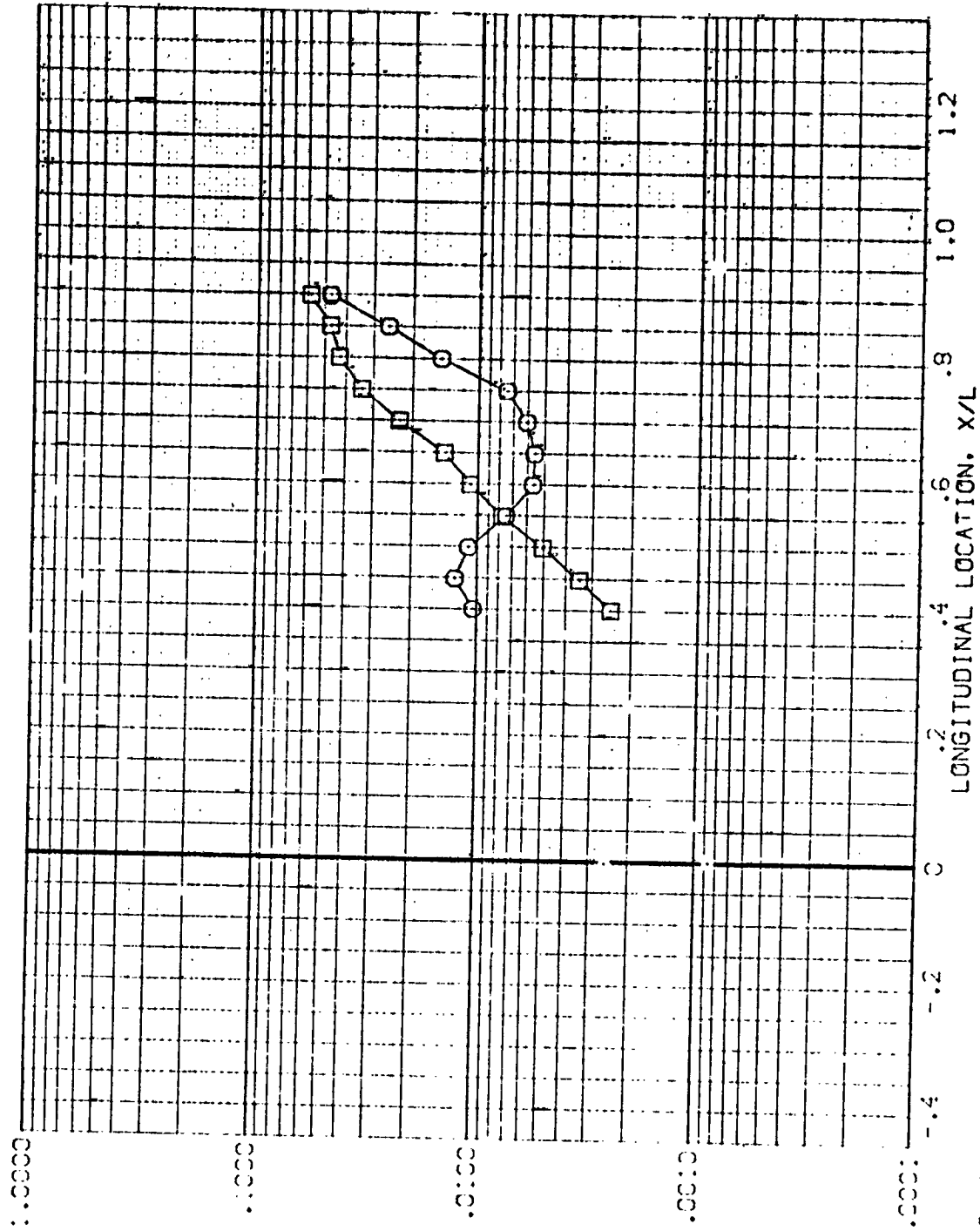


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MAC = 5.300  $\mu$  = 0.900 PHI = 157.500

DATA SET 5482: CONFIGURATION DESCRIPTION  
 (REV. 02) AYES 3.5-195 [428 01+1] INTERNAL TANK  
 (REV. 12) AYES 3.5-195 [428 01+1] EXTERNAL TANK

ALPHA BETA PIV/L  
 30.000 .000 1.000  
 30.000 -5.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

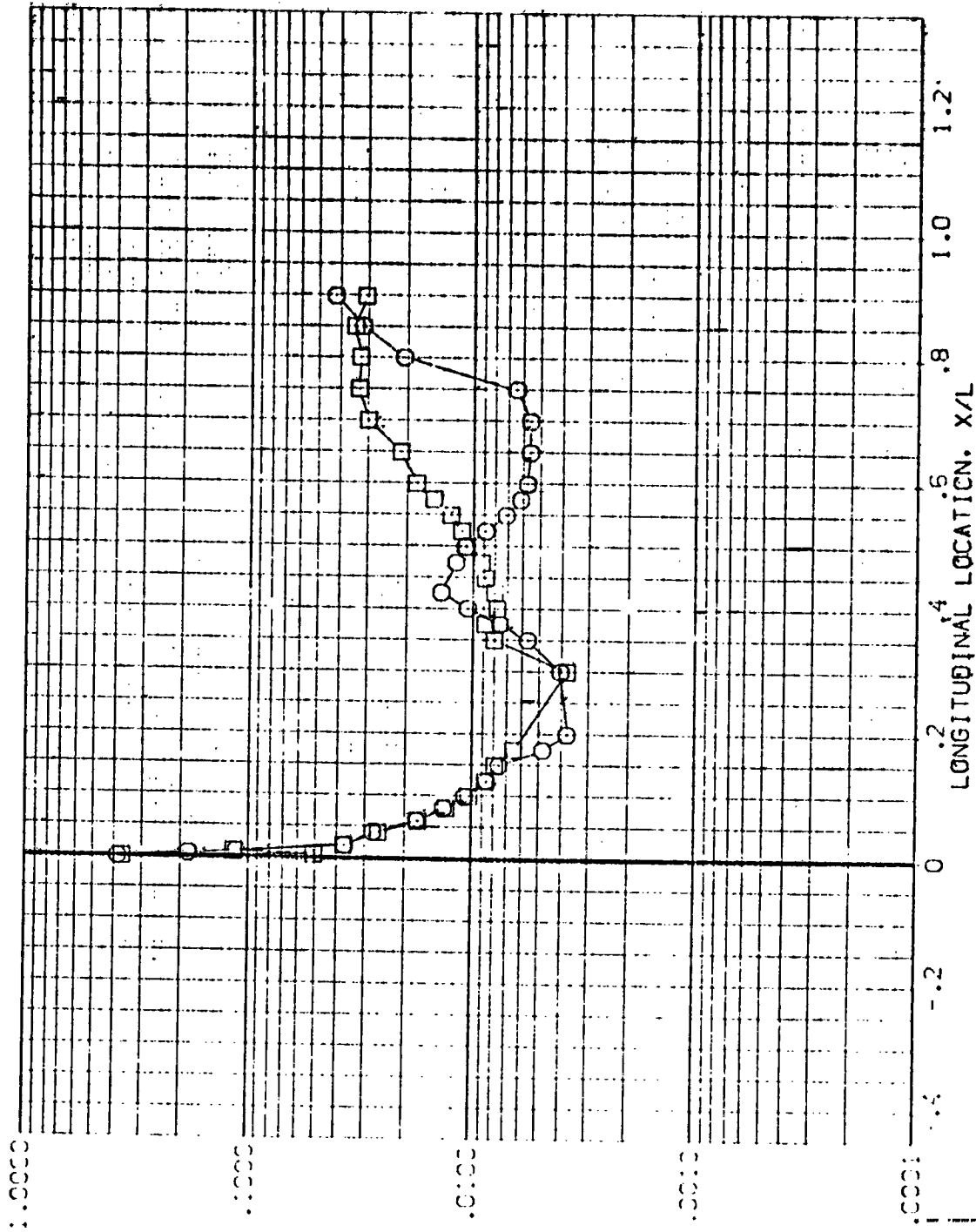


FIG. 5 TANK, IN THE PRESENCE OF ORBITER

MACH = 5.300 MACHITE = .500 PHI = '30.000

AMES 3.5-195 1H28 01+T1 EXTERNAL TANK

(BEVT01)

SAVED: PHI HEIGHT MACH  
 .000 .000 5.222  
 45.000  
 57.000  
 80.000  
 112.000  
 1435.000  
 10000.000

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RV/L .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

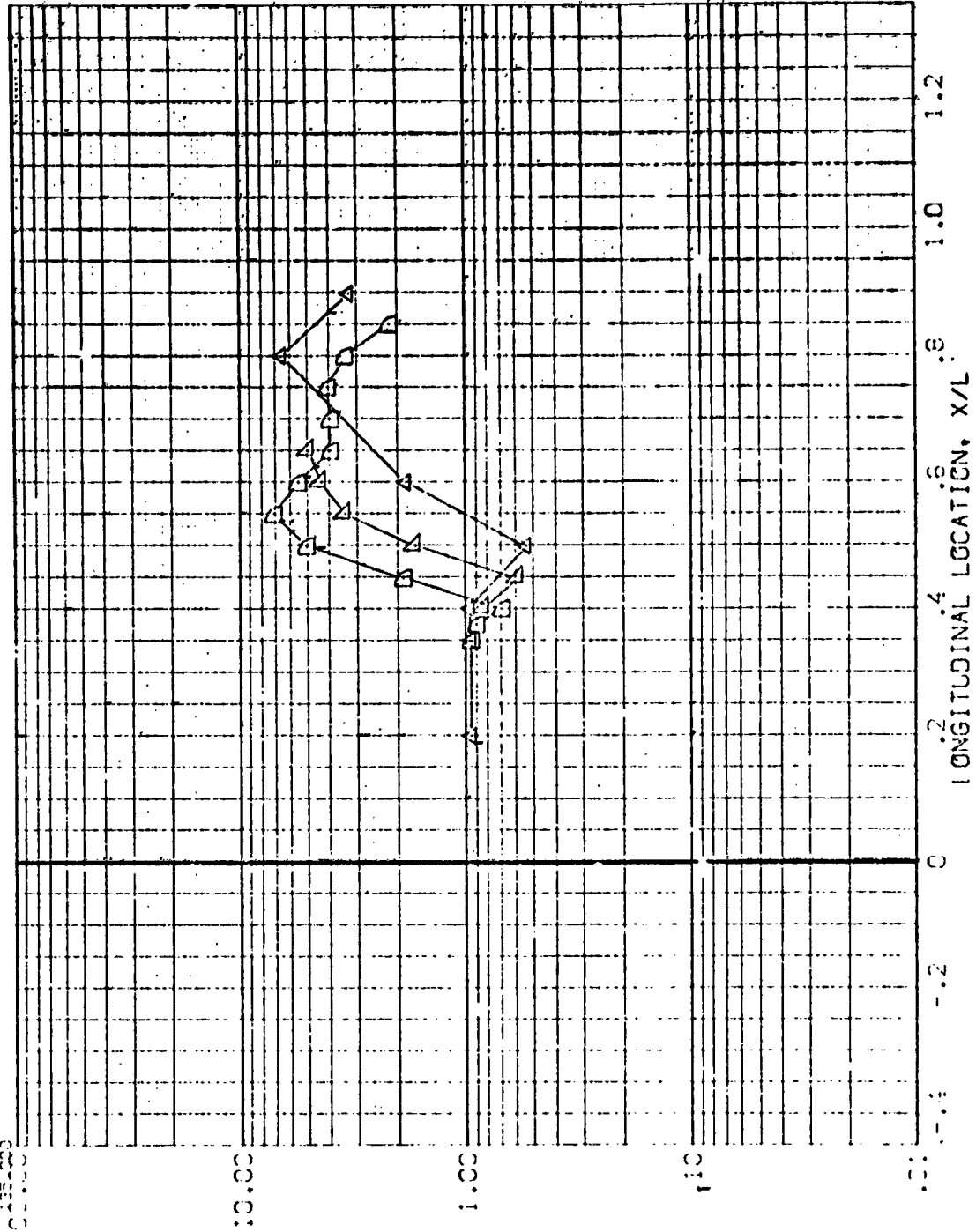


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 GI+TI EXTERNAL TANK (BEVT01)

SAVED PHI 157.500  
 180.000  
 -A<sub>0</sub> HT .900  
 MACH 5.222

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RWAL .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

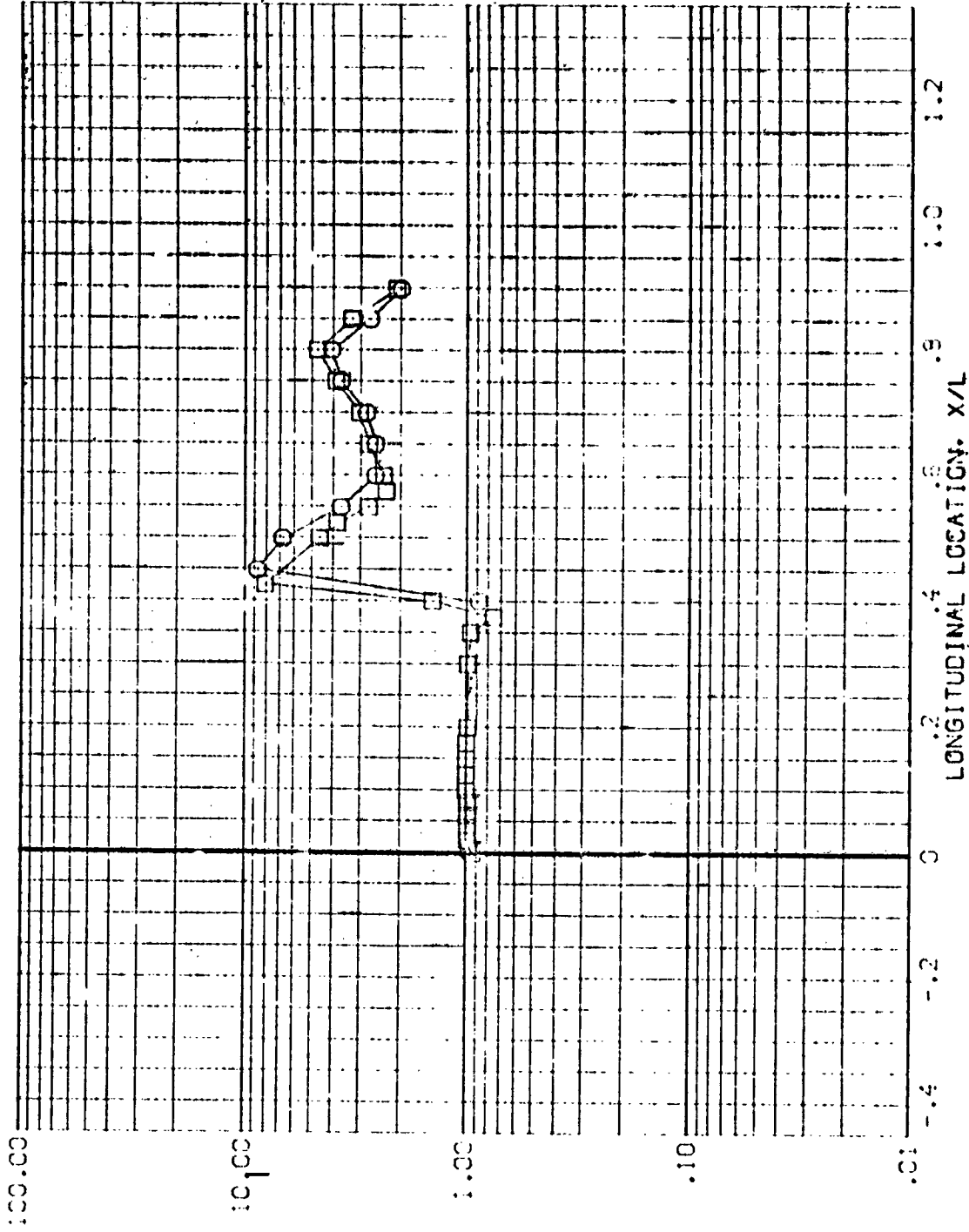


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 1-28 01-T: EXTERNAL TANK (SEE FIG. 6)

SYSC. PHI  
 1.000  
 40.000  
 67.500  
 90.000  
 112.500  
 135.000

PARAMETER VALUE  
 ALPHA 1.500  
 BETA 5.000

PARAMETER VALUES  
 ALPHA 1.000  
 BETA 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H1/H0

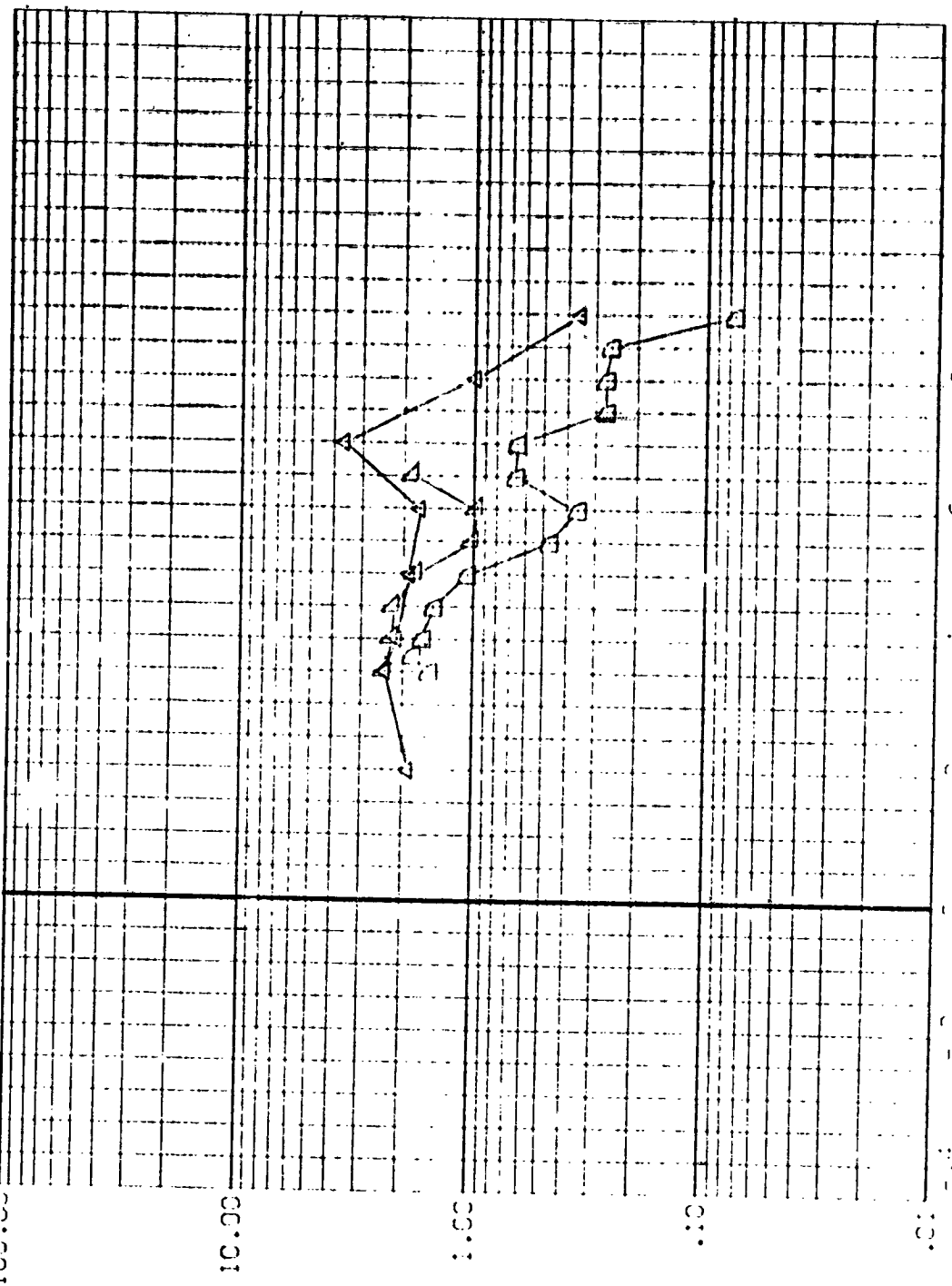


FIG. 6 TANK. RATIO OF INTERFERENCE TO UNDISTURBED



AVES 3.5-105 1-28 01+11 EXTERNAL TANK (BEVT06)

SAVED 001 157.500 1000 5.220  
 100.000

PARAMETRIC VALUES  
 ALPHA 1.000  
 BETA 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H1/H0

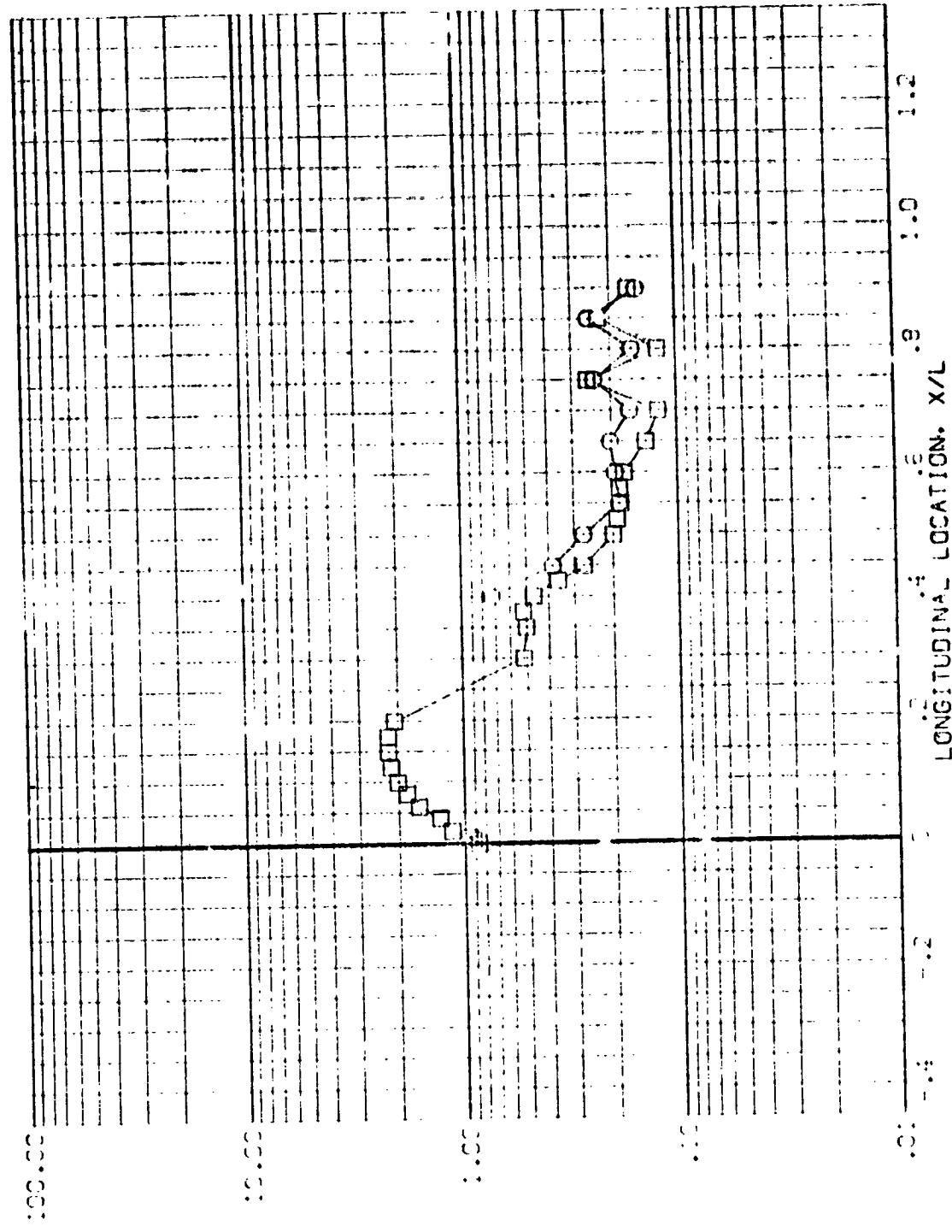


FIG. 6 TANK. RATIO OF INTERFERENCE TO UNDISTURBED

PARAMETRIC VALUES  
 -80.000 3E+4  
 1.000

FIG. 8. RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $\alpha/\alpha_0$

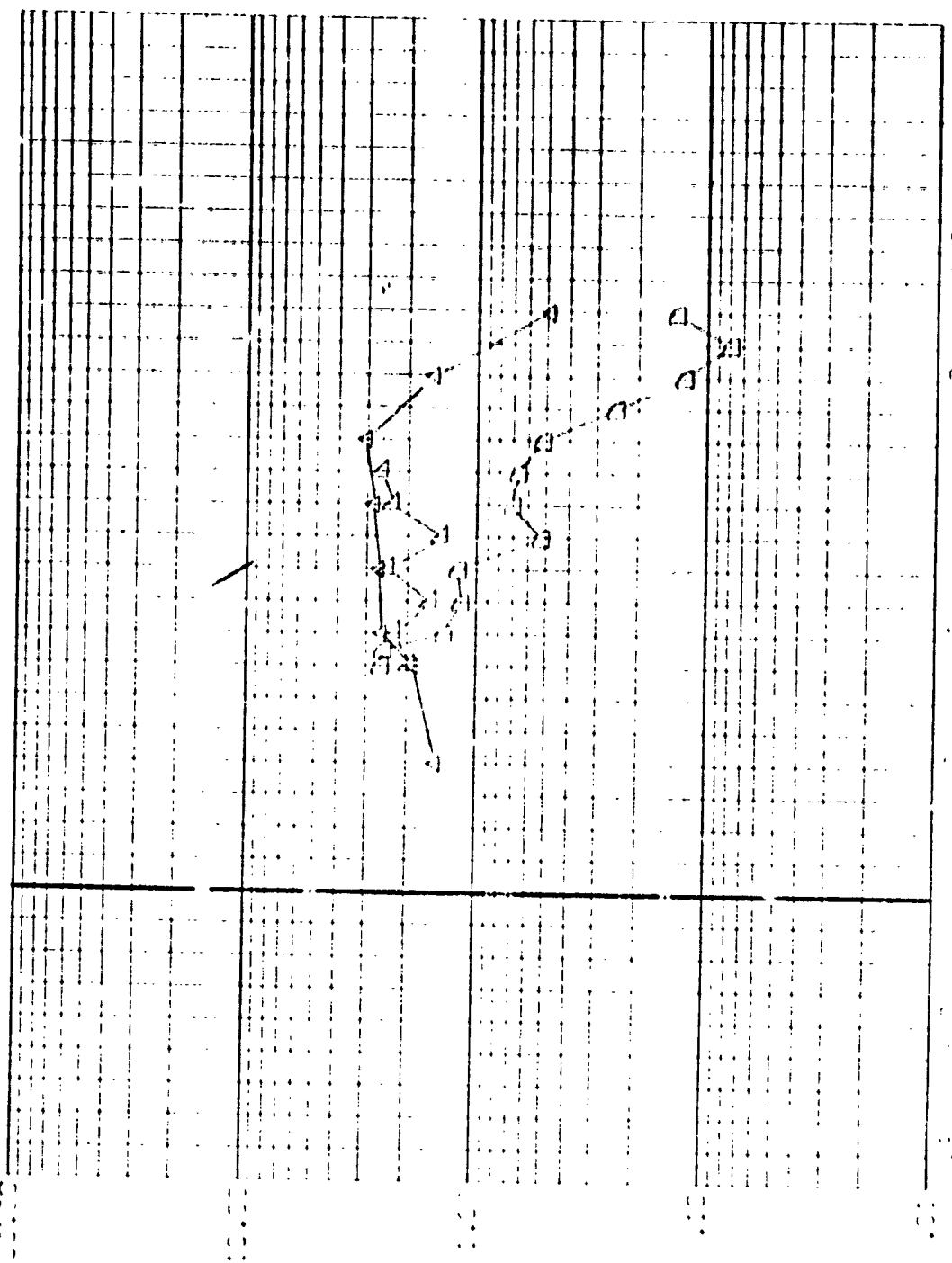


FIG. 9. RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $\alpha/\alpha_0$ , AS A FUNCTION OF DISTANCE FROM DISTURBANCE,  $x/L$

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(BEVT07)

SWRZ PHI MACH MACH/RT MACH  
 157.500 .900 5.219  
 180.000

PARAMETRIC VALUES  
 ALPHA -70.000 BETA .000  
 RN/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

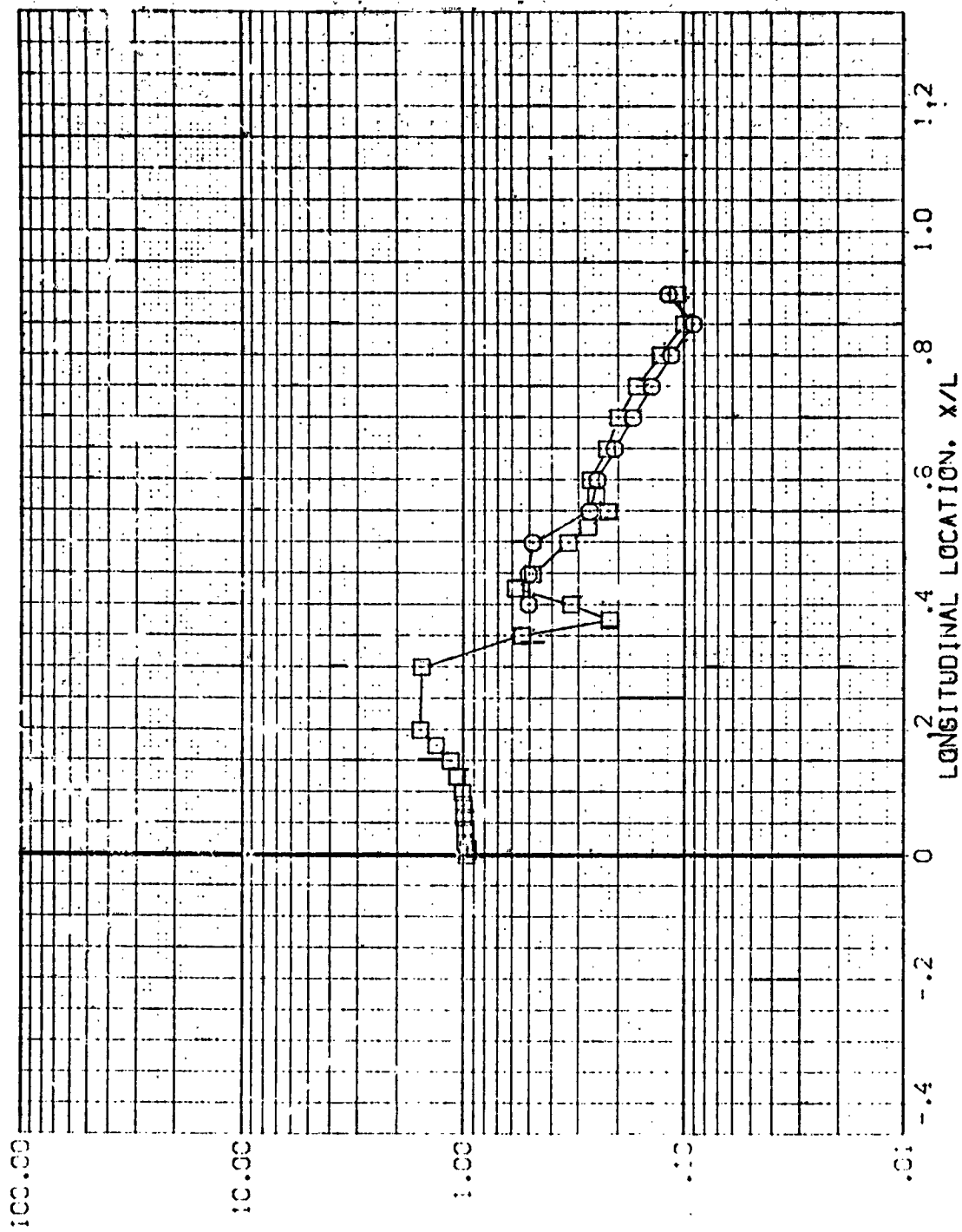


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(BEVT08)

SYNCL PHI MACH MACH  
 .000 .900 5.220  
 45.000  
 67.500  
 90.000  
 112.500  
 135.000

PARAMETRIC VALUES  
 ALPHA -60.000  
 BETA 1.000  
 RN/L .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

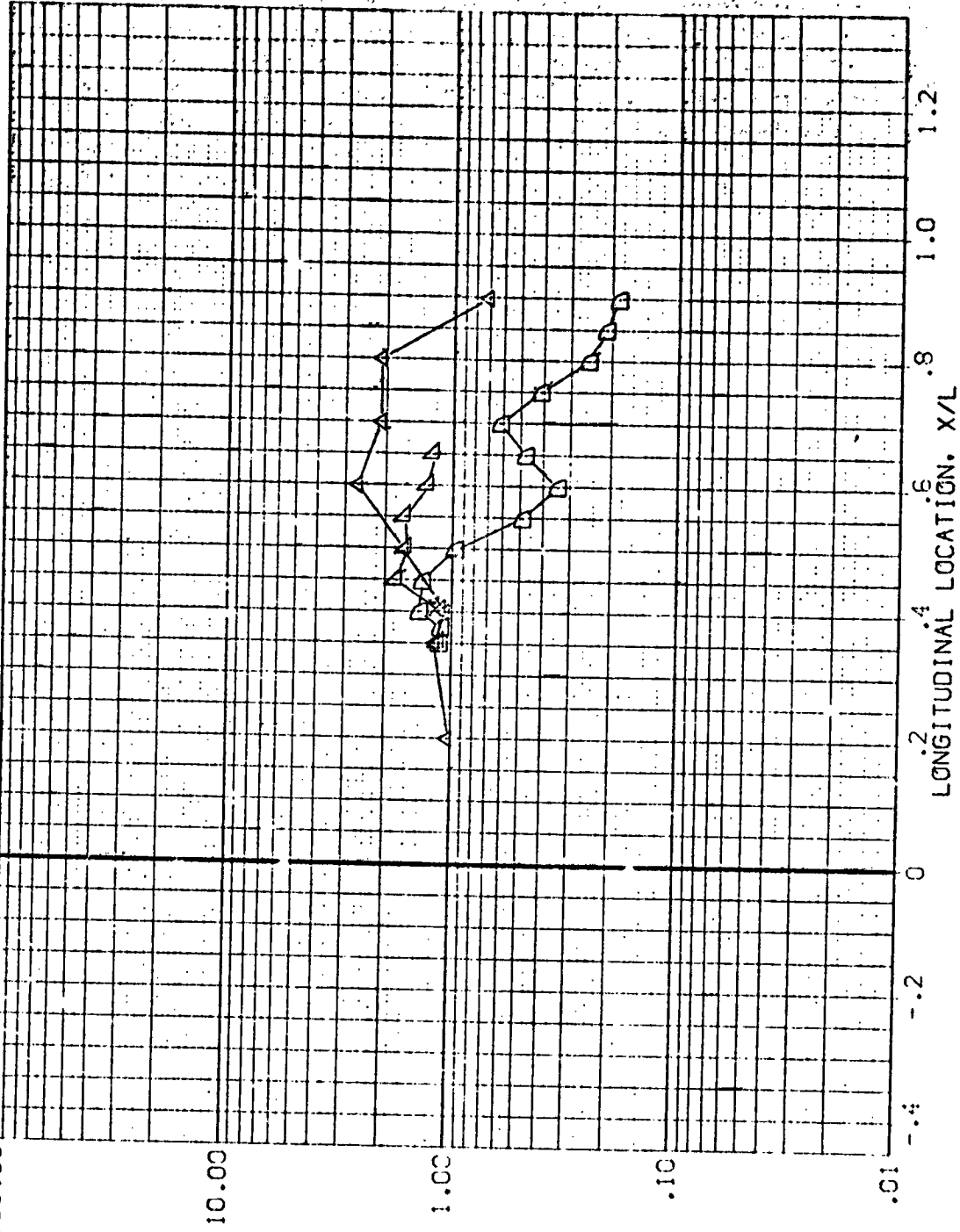


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(BEVTC6)

SYMBOL PHI HEIGHT MACH  
 □ 157.500 .900 5.220  
 ○ 183.000

PARAMETRIC VALUES  
 ALPHA 10.000 BETA .000  
 RW/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

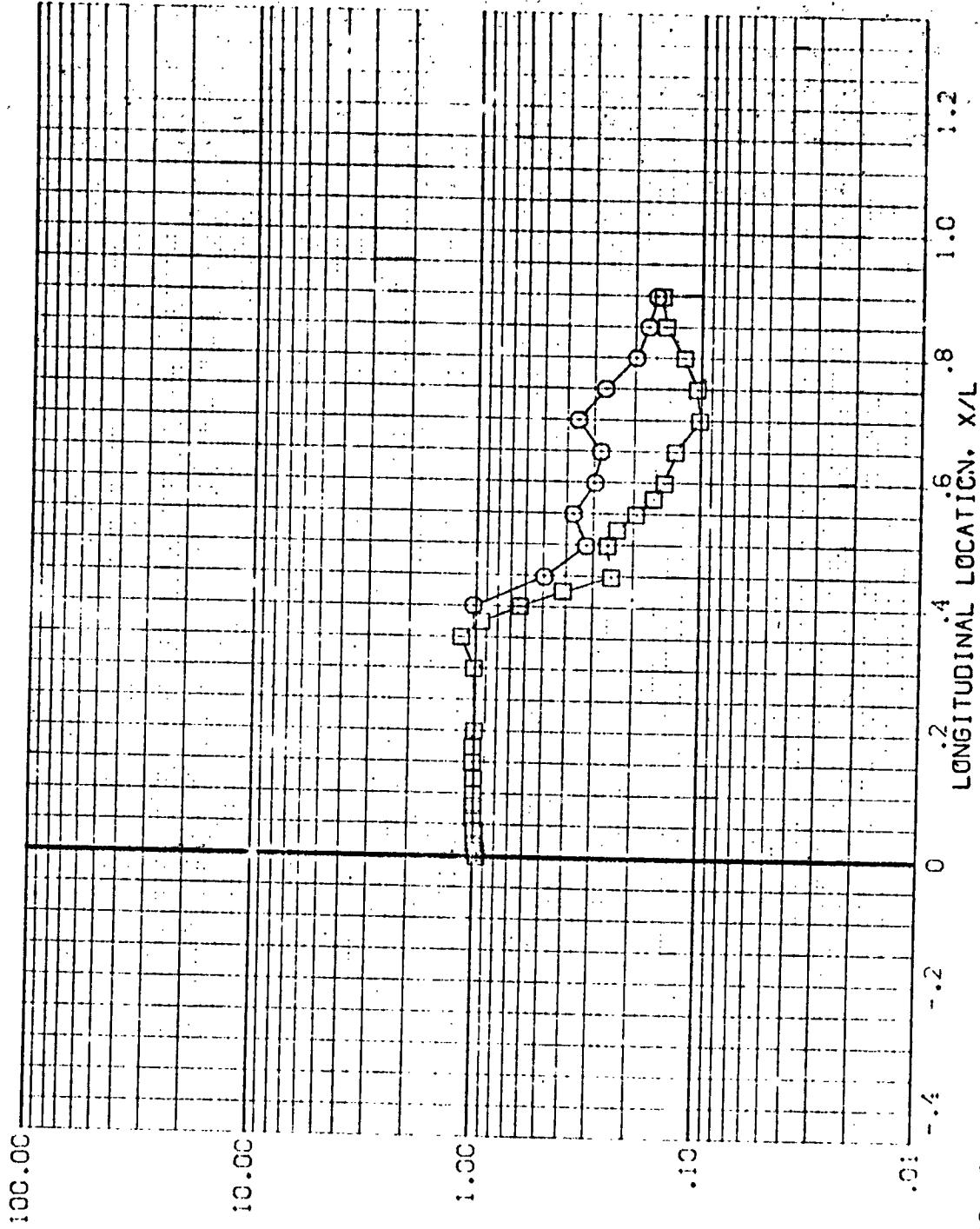


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 OI+T1 EXTERNAL TANK

(BEVT09)

S.W.E.C. PHI .000 MACH 5.219  
 45.000  
 67.500  
 90.000  
 112.500  
 135.000  
 100.00

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .000  
 RW/L 1.000

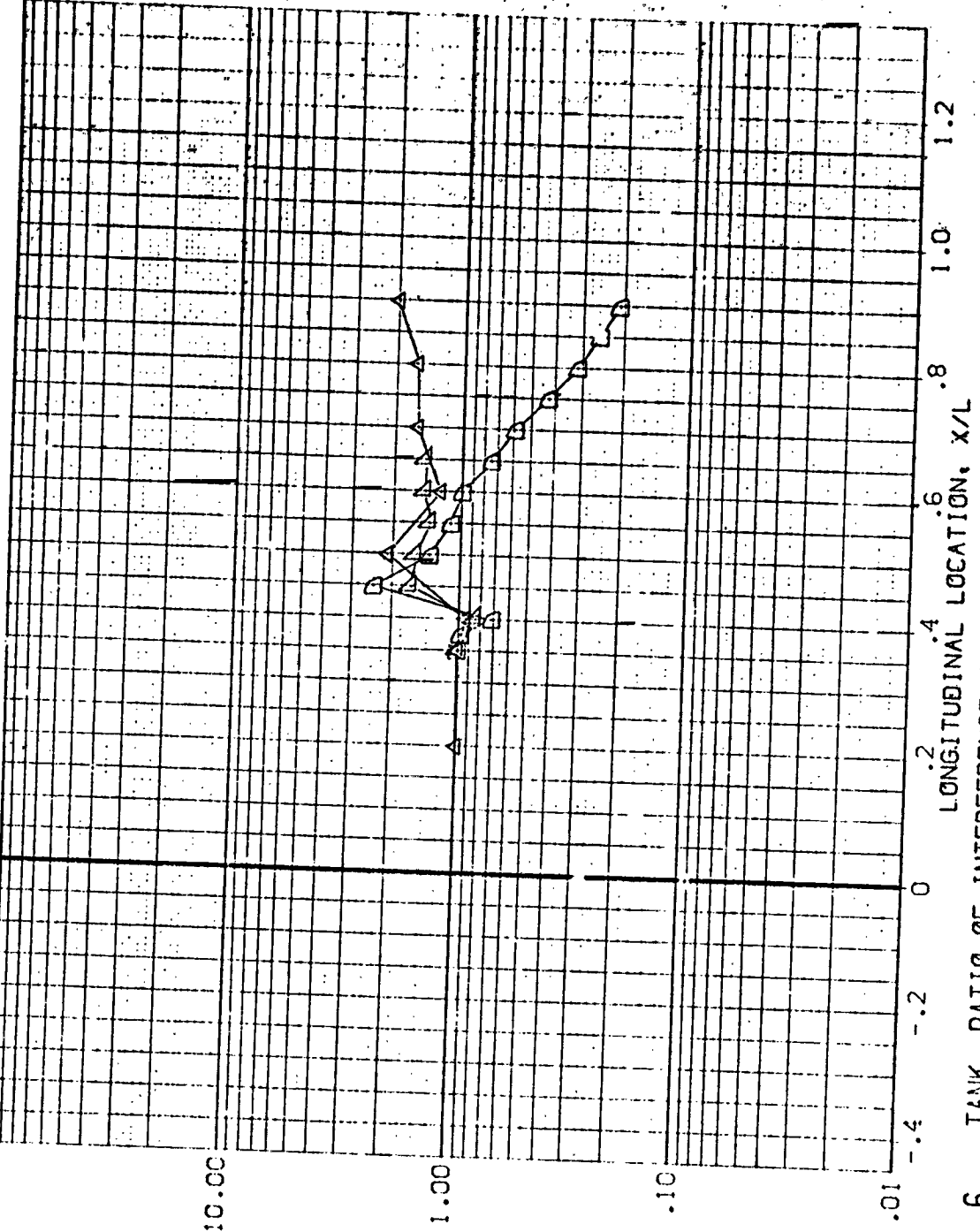


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-1.95 IH28 01+T1 EXTERNAL TANK

(BEVT09)

NO SVESL PH: WA\*/\*T MACH  
 157.500 .900 5.219  
 180.000

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .000  
 RN/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

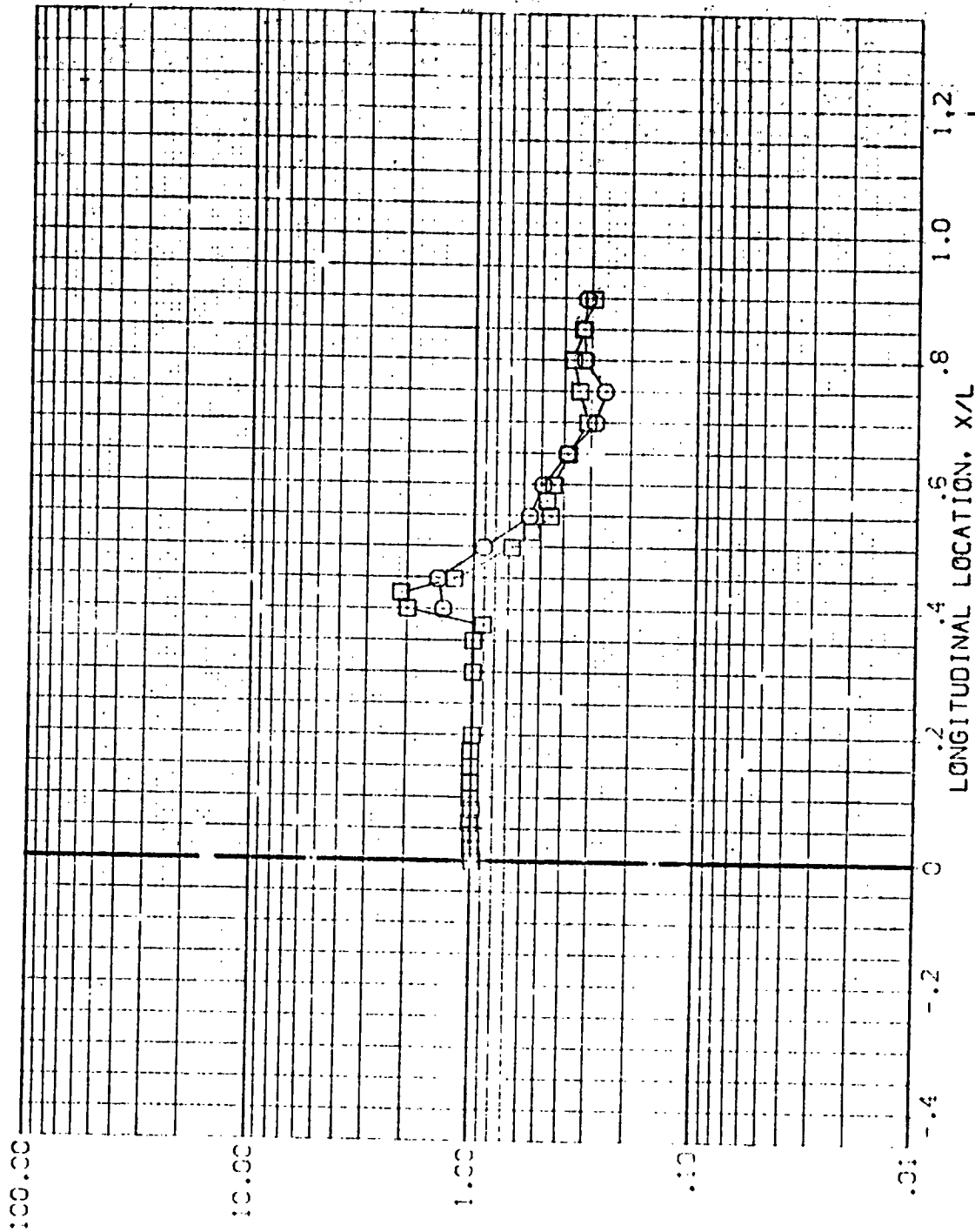


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5 195 IH28 01+T1 EXTERNAL TANK

(BEVT01)

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 RN/L 1.000

H1/H/T 1.900 MACH 5.222

SIZES X/L  
 .350  
 .400  
 .450  
 .500  
 .550  
 .600

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

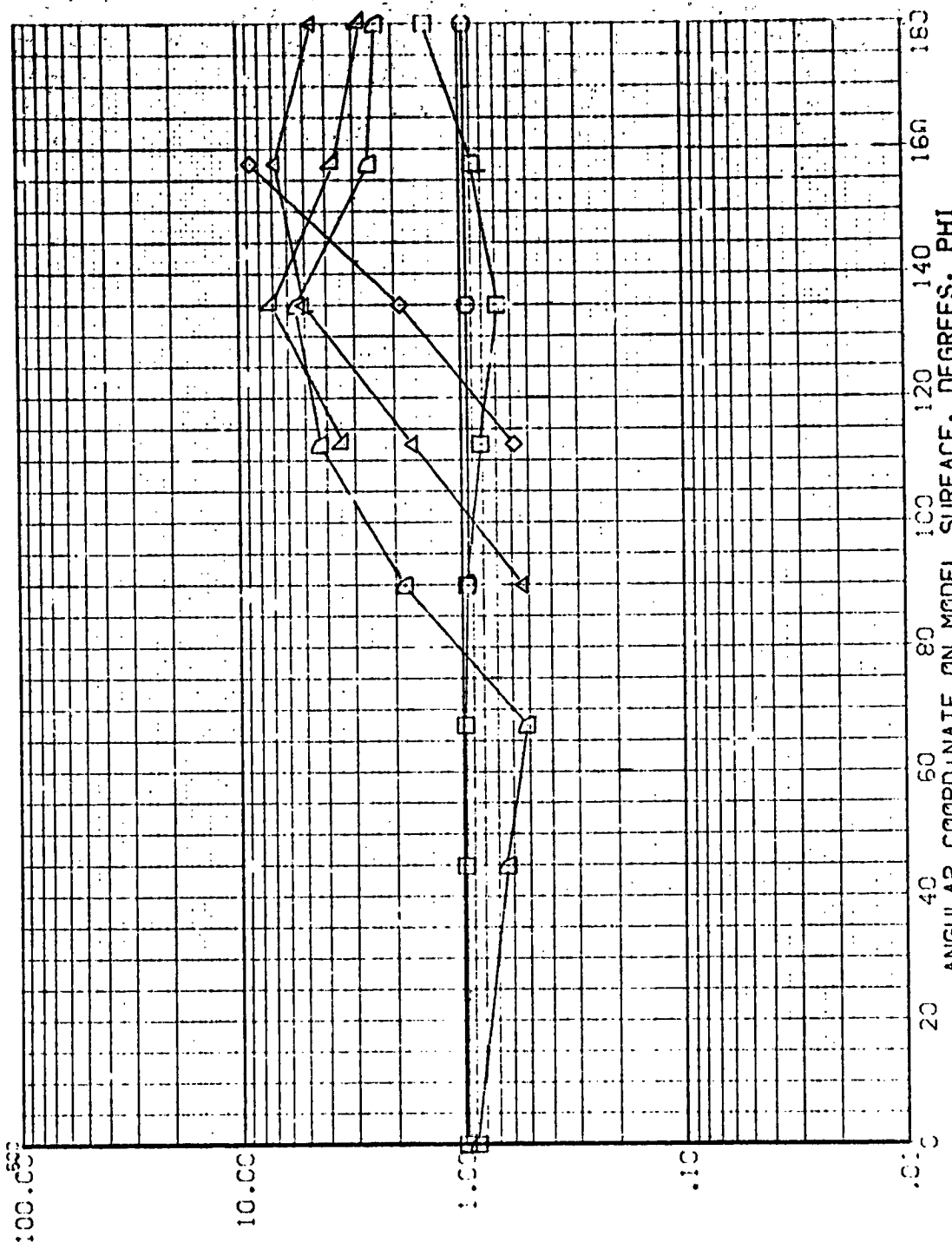


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(BEV'01)

PARAMETRIC VALUES  
 ALPHA .000  
 BETA .000  
 PN/L 1.000

PARAMETRIC VALUES  
 HAW/HT .900  
 HCH 5.222

SYMBOL X/L  
 .650  
 .700  
 .750  
 .800  
 .850  
 .900

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

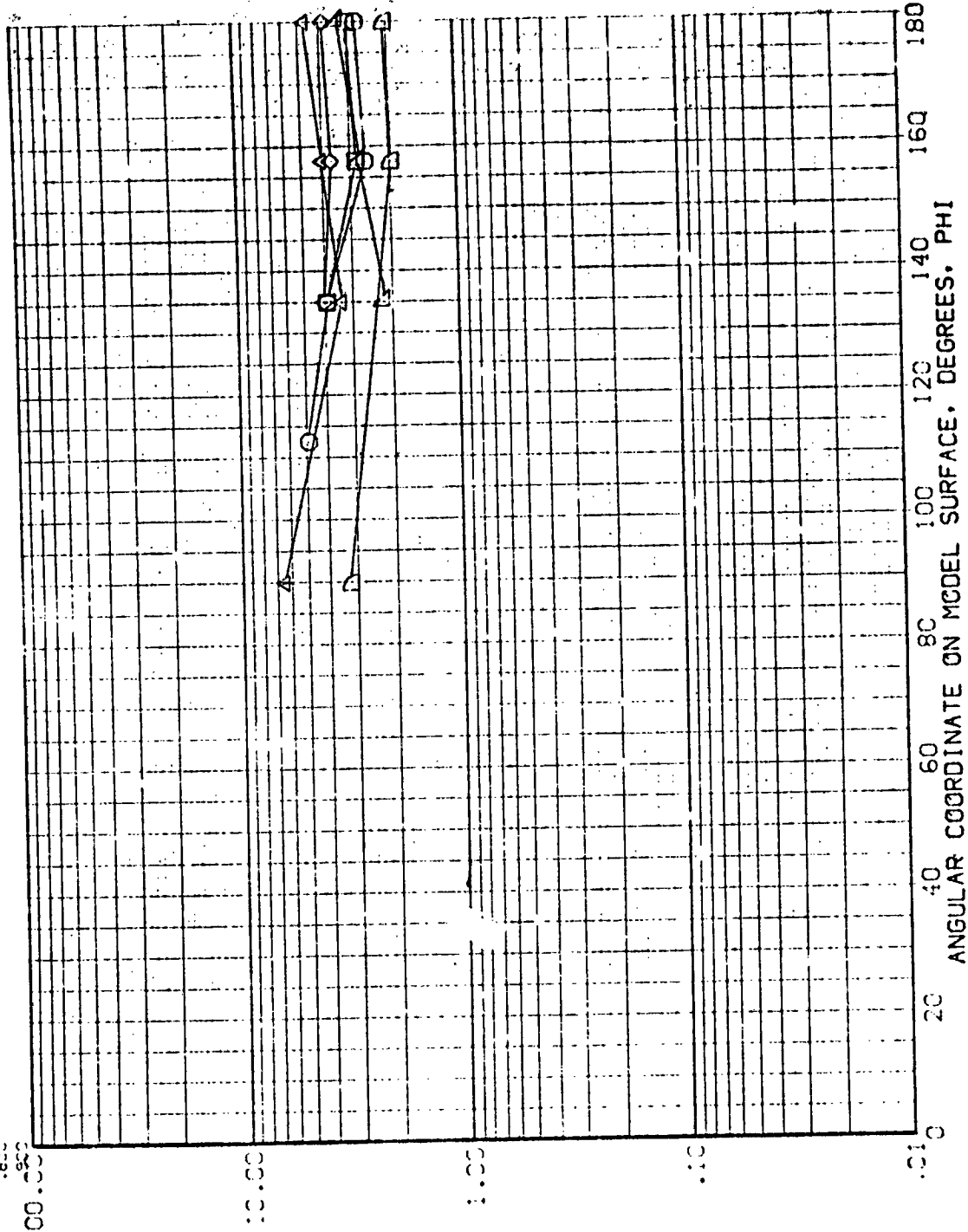


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 1428 01+T1 EXTERNAL TANK

(BE/T06)

SYMBOL X/L --W/F-- YACH

0.350  
0.400  
0.450  
0.500  
0.550

PARAMETRIC VALUES  
ALPHA -120.000  
BETA 1.000  
RNL/L .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $h_i/h_u$

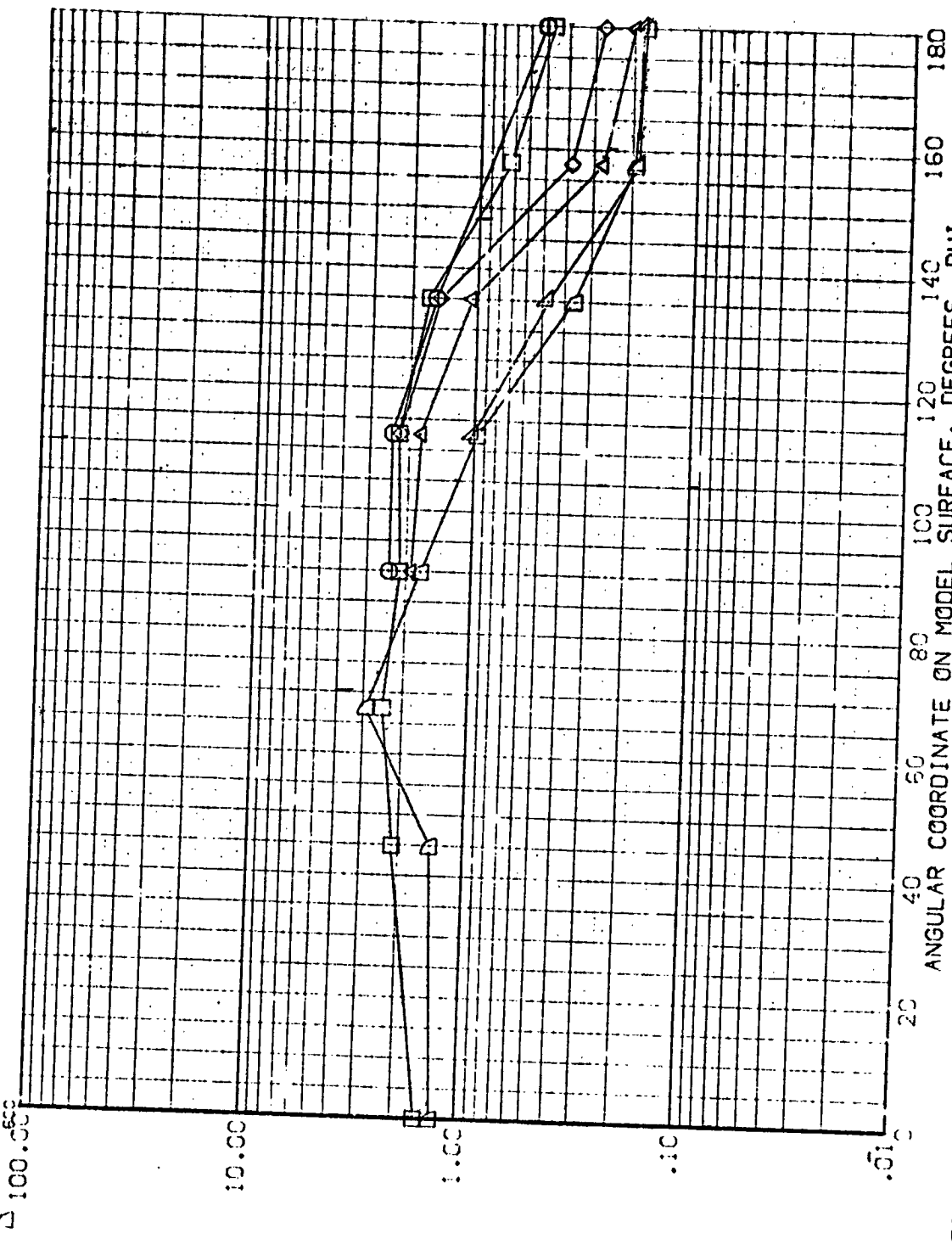


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(BEVTCS)

SPEC. M/L HAN/HT MACH  
 .650 .900 5 220  
 .700  
 .750  
 .800  
 .850  
 .900

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RN/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

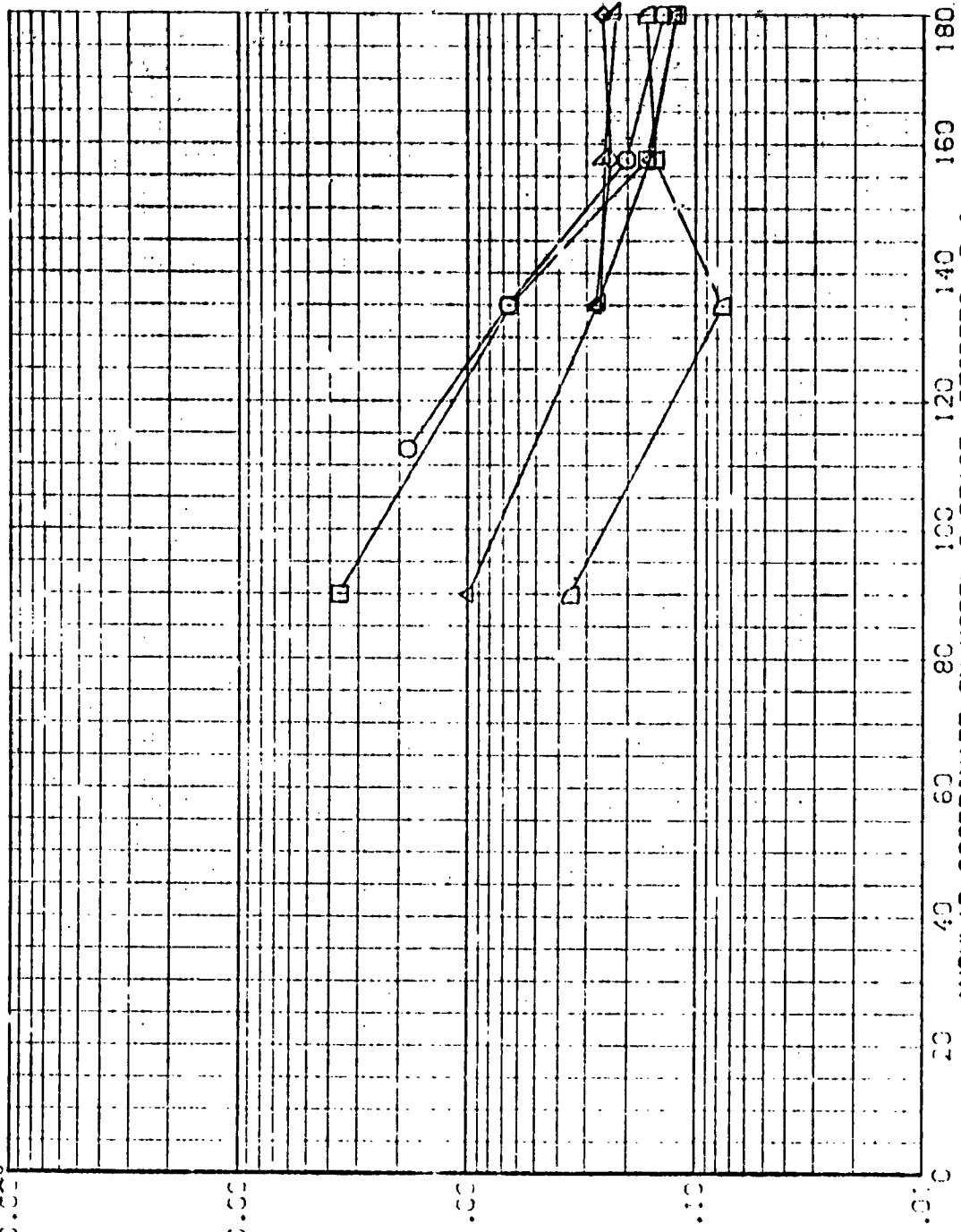


FIG. 6 TANK. RATIO OF INTERFERENCE TO UNDISTURBED

1

AVES 3.5-195 IH28 01+T1 EXTERNAL TANK (BEVT07)

MACH 5.219  
 X/L .350  
 .400  
 .450  
 .500  
 .550  
 .600

PARAMETRIC VALUES  
 ALPHA -90.000  
 BETA 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

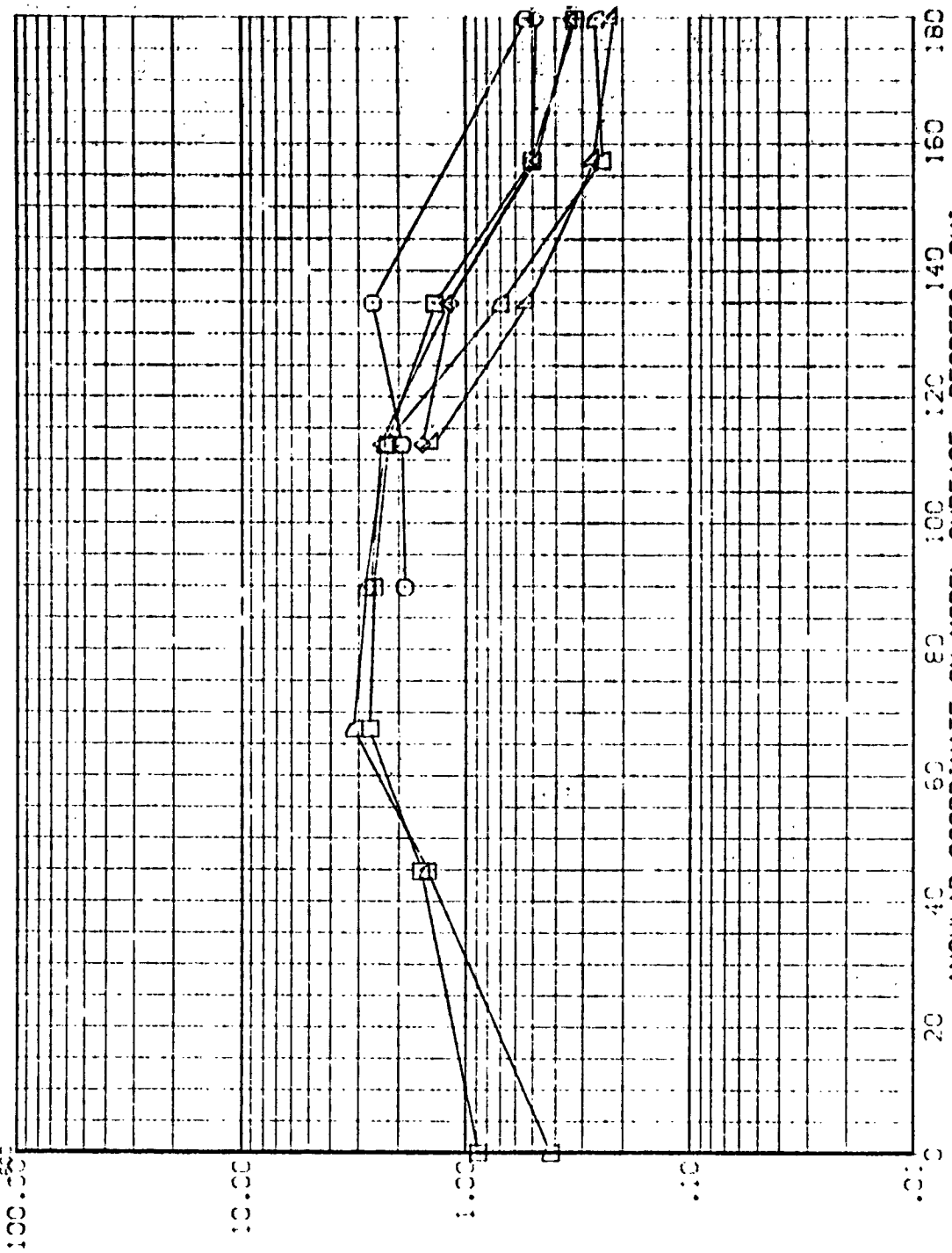


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AVES 3.5-195 1H28 01-T1 EXTERNAL TANK (BEVT07)

SYMBOLS  
 M/L .650  
 .700  
 .750  
 .800  
 .850  
 .900  
 .950  
 1.000

HAS/HT .200 MACH 5.219

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 PW/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H/H<sub>0</sub>

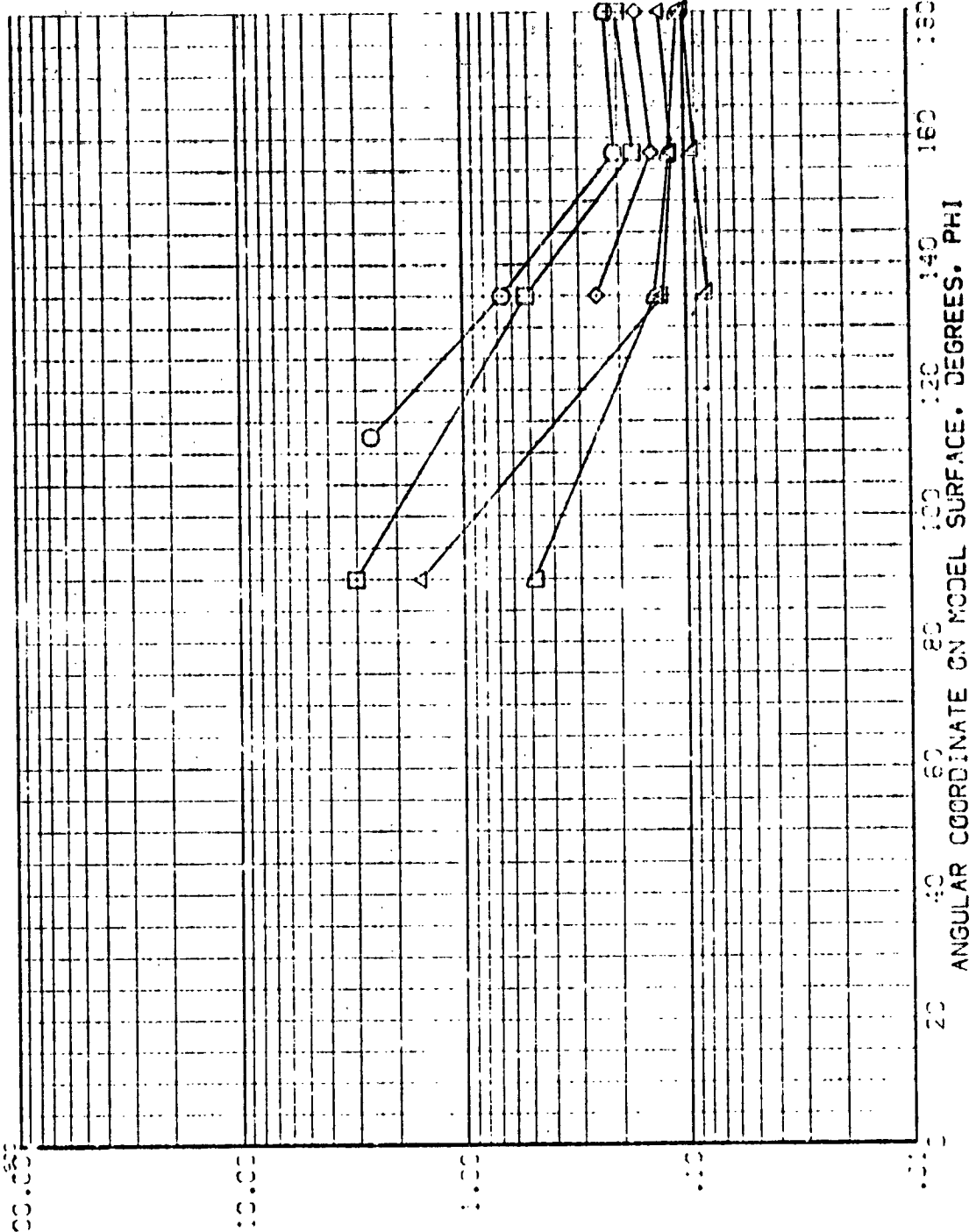


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AVES 3.5-105 IH28 CI+TI EXTERNAL TANK

(BEVT08)

PARAMETRIC VALUES  
 ALPHA -63.000 BETA .000  
 PRWL 1.000

DP-9110  
 X/L .350  
 H/W .900 MACH 5.220

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

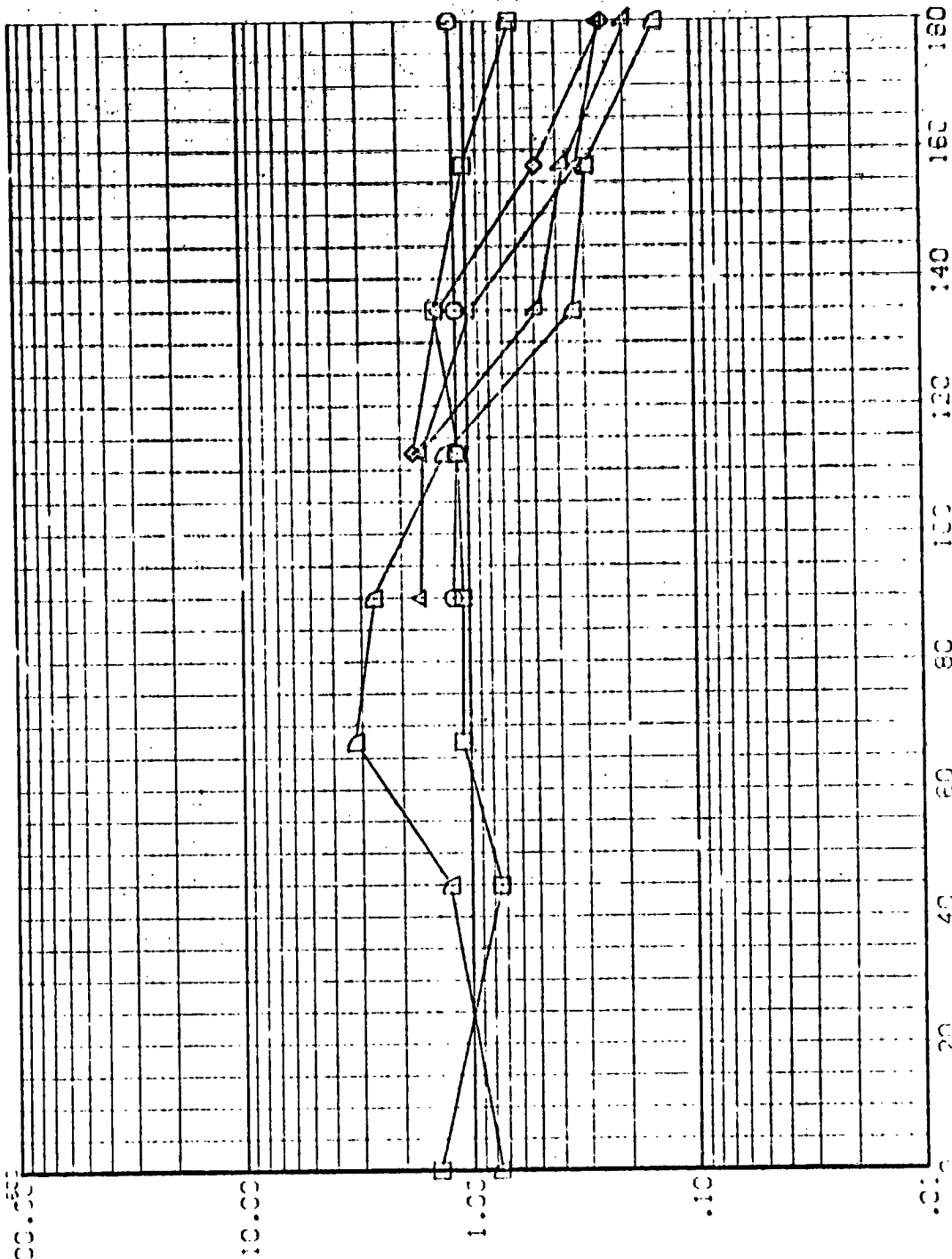


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(REV109)

SYMBOL X/L HAN/T MACH  
○ 0.650 0.900 5.220  
□ 0.700  
△ 0.750  
◇ 0.800  
◇ 0.850  
◇ 0.900

PARAMETRIC VALUES  
ALPHA -60.000 BETA .500  
R/W/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

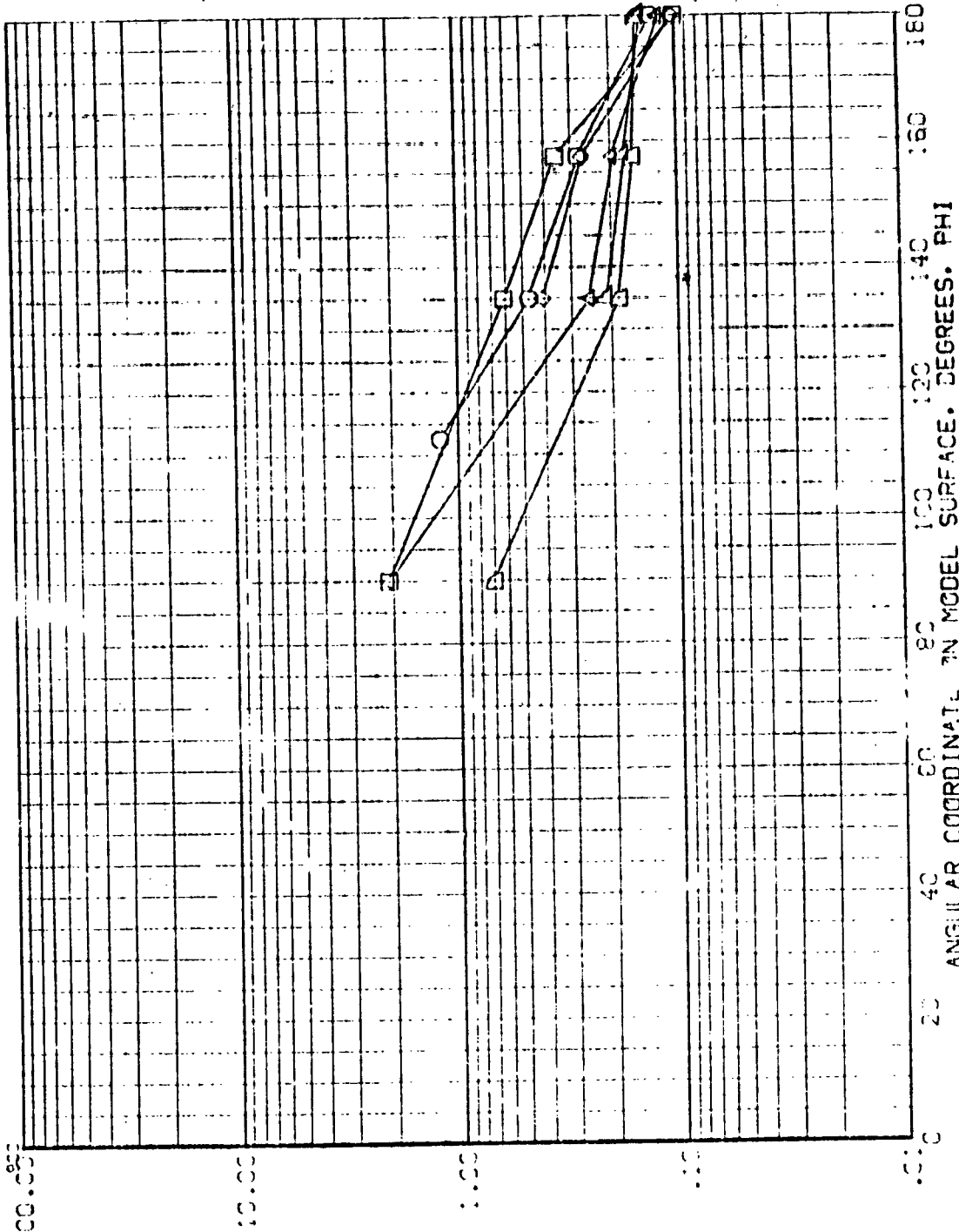


FIG. 6 TANK. RATIO OF INTERFERENCE TO UNDISTURBED

AXES 3.5-195 IH28 01+T1 EXTERNAL TANK (BEVT09)

SYSC. XL MACH  
 .350 .900 5.219  
 .400  
 .450  
 .500  
 .550  
 .600

PARAMETRIC VALUES  
 ALPHA - 3.000  
 BETA 1.000  
 RV/L .000

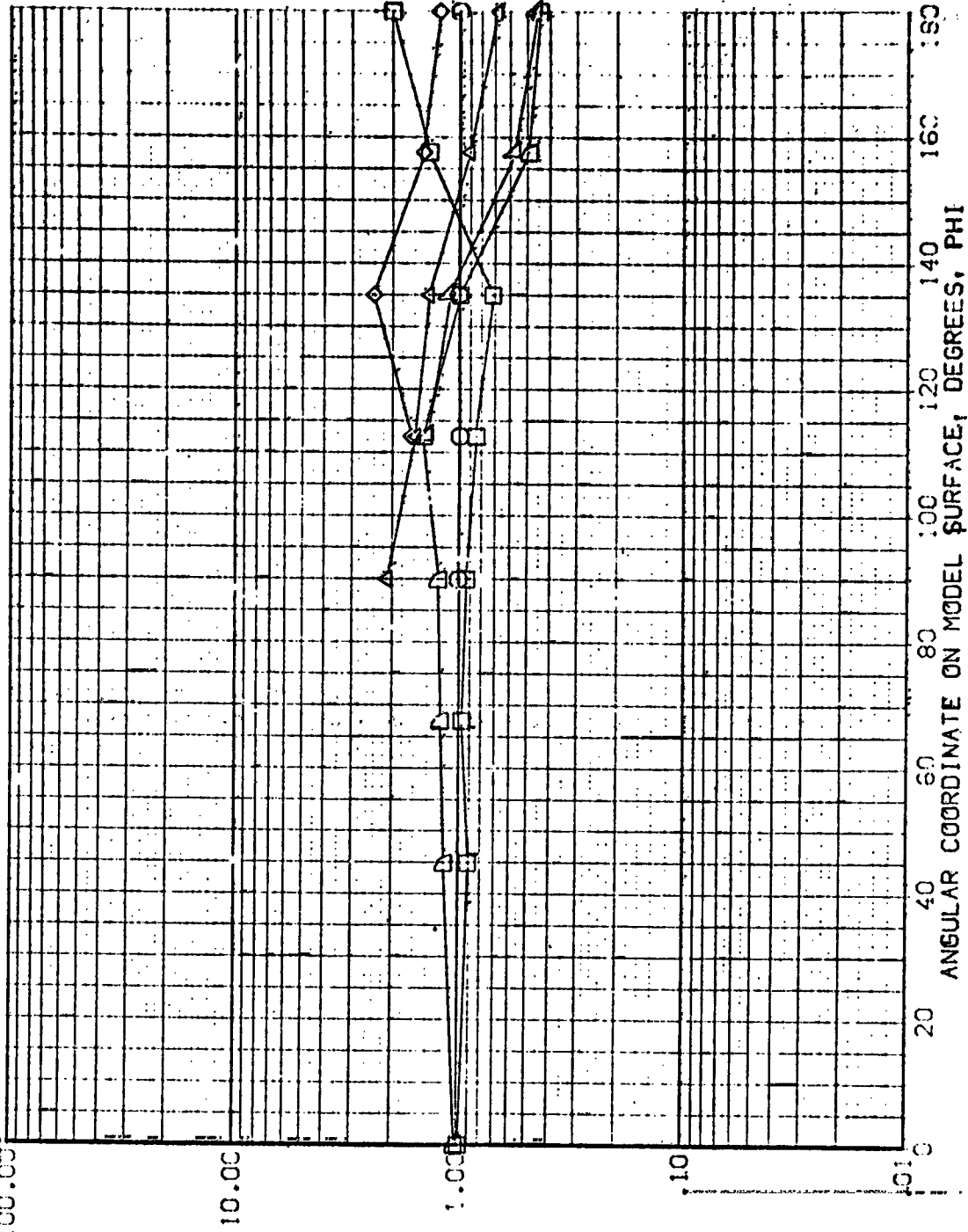


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED



AMES 3.5-195 IH28 01+T1 EXTERNAL TANK

(BEVT09)

SYMBOL X/L HAW/HT MACH  
 □ .650  
 ◇ .700  
 △ .750  
 ○ .800  
 ◊ .850

PARAMETRIC VALUES  
 ALPHA R/L -30.000  
 BETA R/L 1.000  
 .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

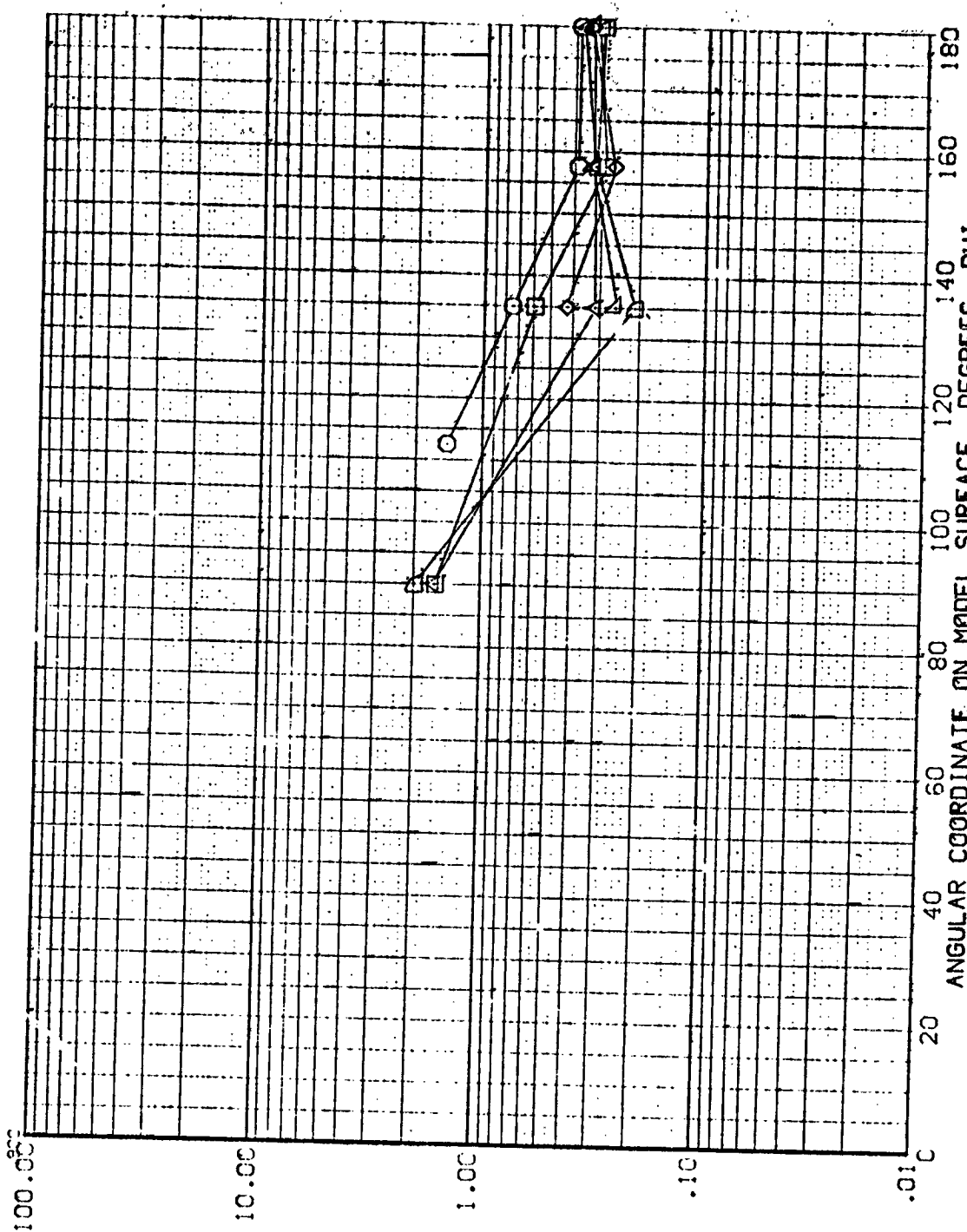
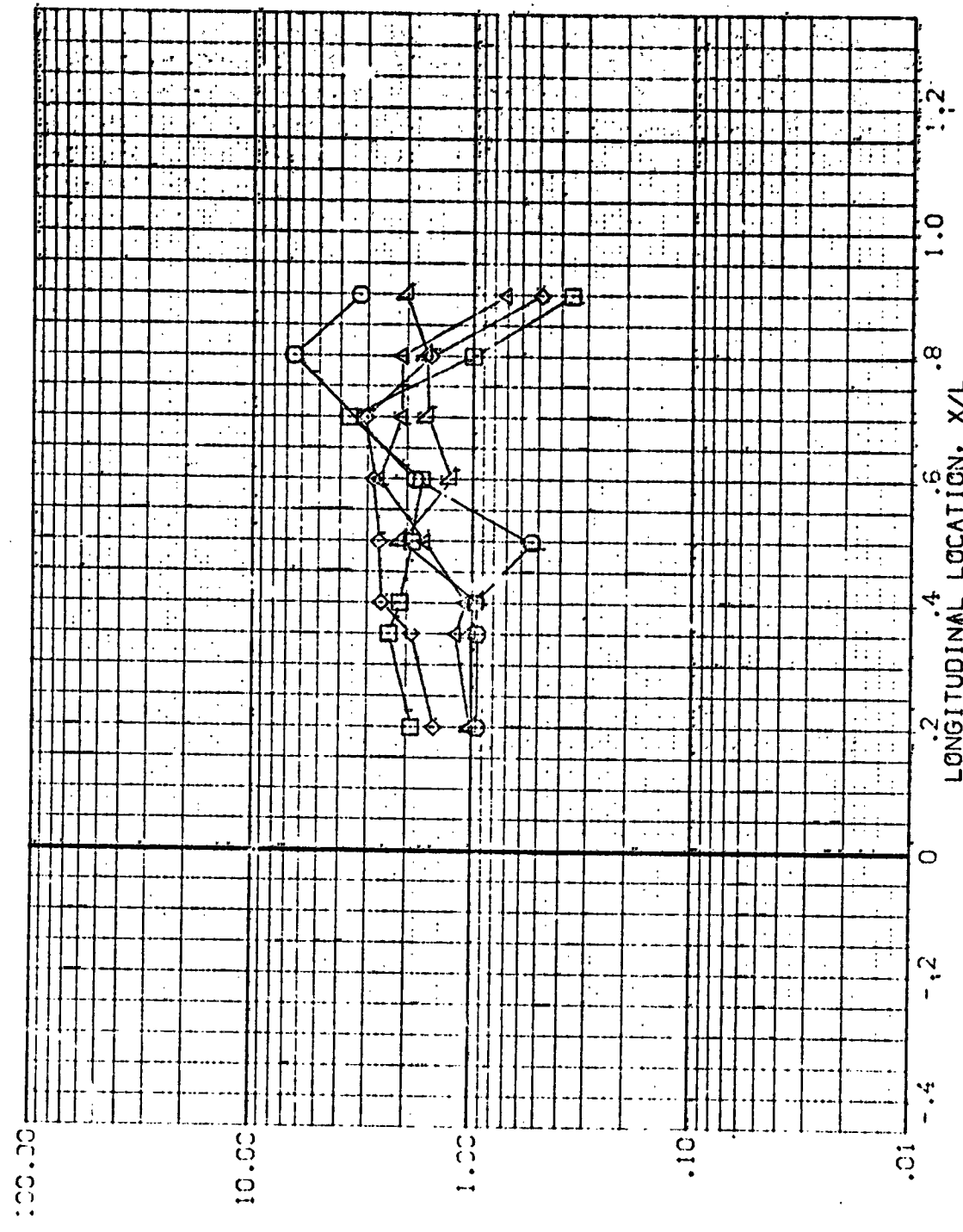


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

PERIOD JUNE 1958  
 AMES RESEARCH CENTER

DATE	SHEET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RH/L
05/01/53	003	A128	C1*11 EXTERNAL TANK	.000	.000	1.000
05/01/53	003	A128	C1*11 EXTERNAL TANK	-120.000	.000	1.000
05/01/53	003	A128	C1*11 EXTERNAL TANK	-90.000	.000	1.000
05/01/53	003	A128	C1*11 EXTERNAL TANK	-60.000	.000	1.000
05/01/53	003	A128	C1*11 EXTERNAL TANK	-30.000	.000	1.000



RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

MAJOR = 5.000 HAW/HT = .900 PHI = 30.000

DATA SET SYMBOL  
 (000001)  
 (000002)  
 (000003)  
 (000004)  
 (000005)  
 (000006)  
 (000007)

CONFIGURATION DESCRIPTION  
 AVES 3.5-195 I+28 C1+T1 EXTERNAL TANK  
 AVES 3.5-195 I+28 C1+T1 EXTERNAL TANK  
 AVES 3.5-195 I+28 C1+T1 EXTERNAL TANK  
 AVES 3.5-195 I+28 C1+T1 EXTERNAL TANK  
 AVES 3.5-195 I+28 C1+T1 EXTERNAL TANK

ALPHA BETA RN/L  
 .000 .000 1.000  
 -120.000 .000 1.000  
 -90.000 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

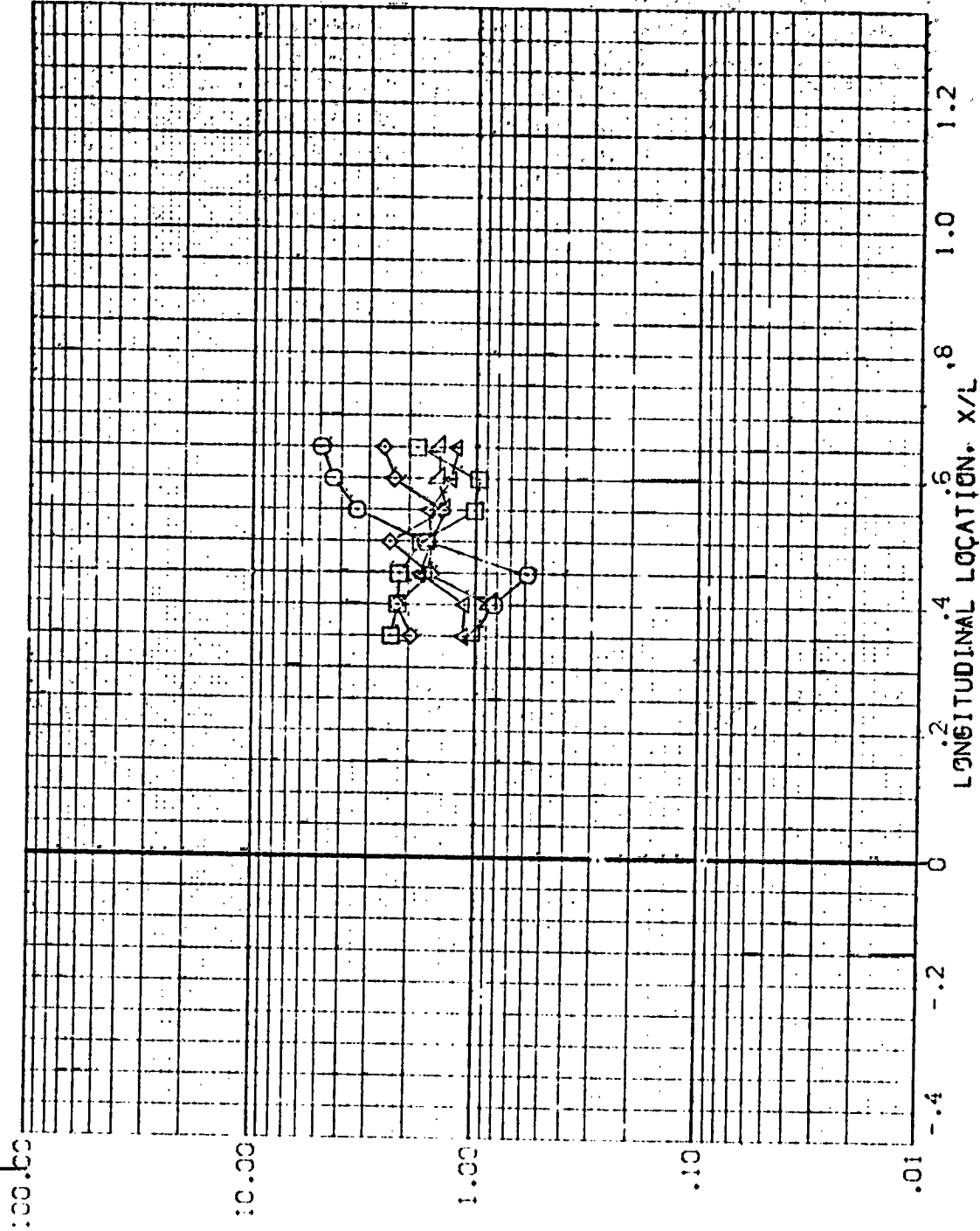


FIG. 6. TANK, RATIO OF INTERFERENCE TO UNDISTURBED

WAVELENGTH = 5.300 HAW/HT = .900 PHI = 110.500

DATA SET SVS22-  
 (BEV101) (BEV102) (BEV103) (BEV104) (BEV105) (BEV106) (BEV107) (BEV108) (BEV109) (BEV110) (BEV111) (BEV112) (BEV113) (BEV114) (BEV115) (BEV116) (BEV117) (BEV118) (BEV119) (BEV120) (BEV121) (BEV122) (BEV123) (BEV124) (BEV125) (BEV126) (BEV127) (BEV128) (BEV129) (BEV130) (BEV131) (BEV132) (BEV133) (BEV134) (BEV135) (BEV136) (BEV137) (BEV138) (BEV139) (BEV140) (BEV141) (BEV142) (BEV143) (BEV144) (BEV145) (BEV146) (BEV147) (BEV148) (BEV149) (BEV150) (BEV151) (BEV152) (BEV153) (BEV154) (BEV155) (BEV156) (BEV157) (BEV158) (BEV159) (BEV160) (BEV161) (BEV162) (BEV163) (BEV164) (BEV165) (BEV166) (BEV167) (BEV168) (BEV169) (BEV170) (BEV171) (BEV172) (BEV173) (BEV174) (BEV175) (BEV176) (BEV177) (BEV178) (BEV179) (BEV180) (BEV181) (BEV182) (BEV183) (BEV184) (BEV185) (BEV186) (BEV187) (BEV188) (BEV189) (BEV190) (BEV191) (BEV192) (BEV193) (BEV194) (BEV195) (BEV196) (BEV197) (BEV198) (BEV199) (BEV200)

CONFIGURATION DESCRIPTION  
 AVE3 3.5-1.25 1.28 CI+TI EXTERNAL TANK  
 AVE3 3.5-1.25 1.28 CI+TI EXTERNAL TANK  
 AVE3 3.5-1.25 1.28 CI+TI EXTERNAL TANK  
 AVE3 3.5-1.25 1.28 CI+TI EXTERNAL TANK  
 AVE3 3.5-1.25 1.28 CI+TI EXTERNAL TANK

ALPHA BETA RNI/L  
 .000 .000 .000  
 -120.000 .000 .000  
 -30.000 .000 .000  
 -60.000 .000 .000  
 -30.000 .000 .000

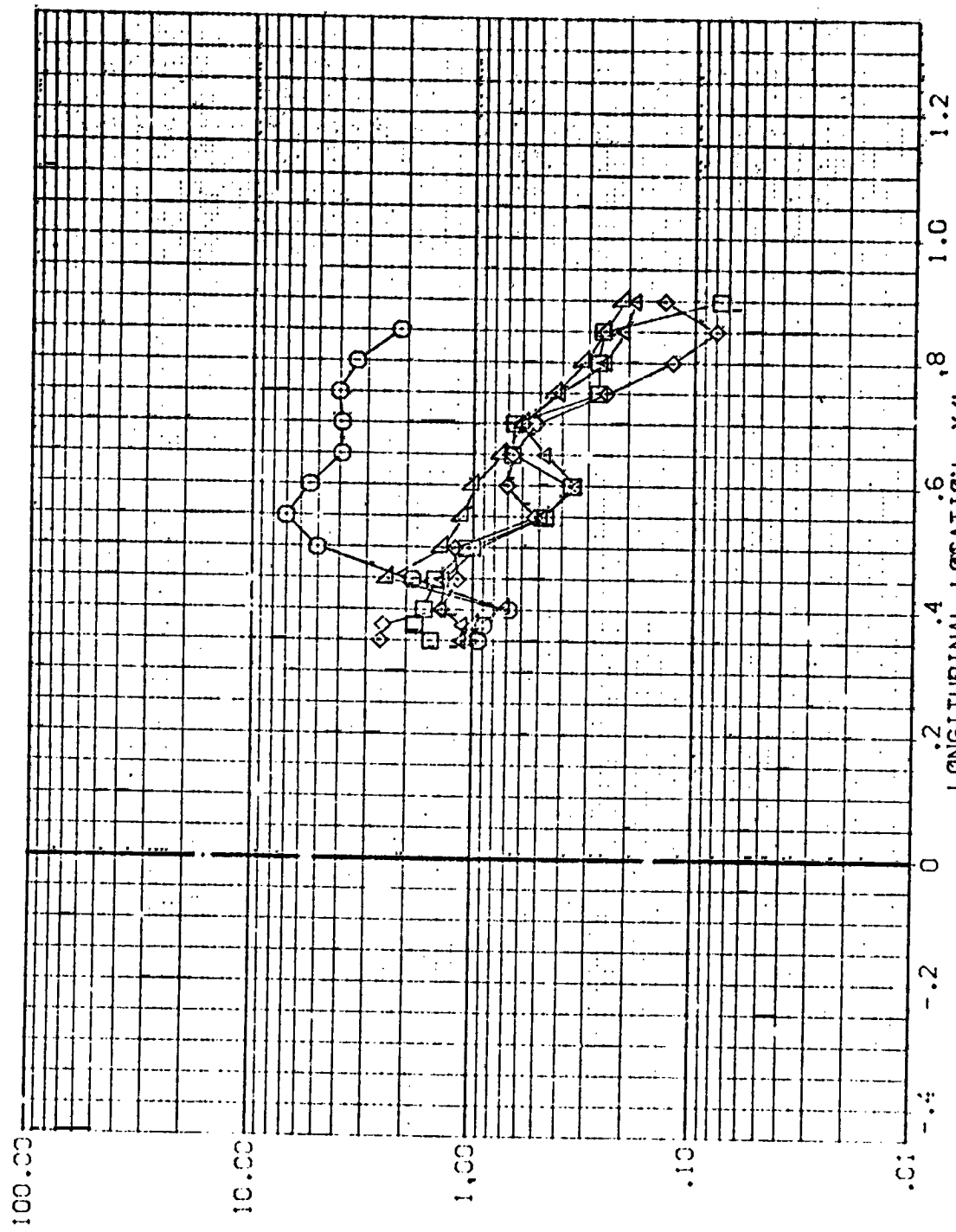


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (SERV) AMES 3.5-195 1428 01+11 EXTERNAL TANK  
 (SERV) AMES 3.5-195 1428 01+11 EXTERNAL TANK  
 (SERV) AMES 3.5-195 1428 01+11 EXTERNAL TANK  
 (SERV) AMES 3.5-195 1428 01+11 EXTERNAL TANK  
 (SERV) AMES 3.5-195 1428 01+11 EXTERNAL TANK

ALPHA BETA RVAL  
 .000 .000 1.000  
 -120.000 .000 1.000  
 -90.000 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

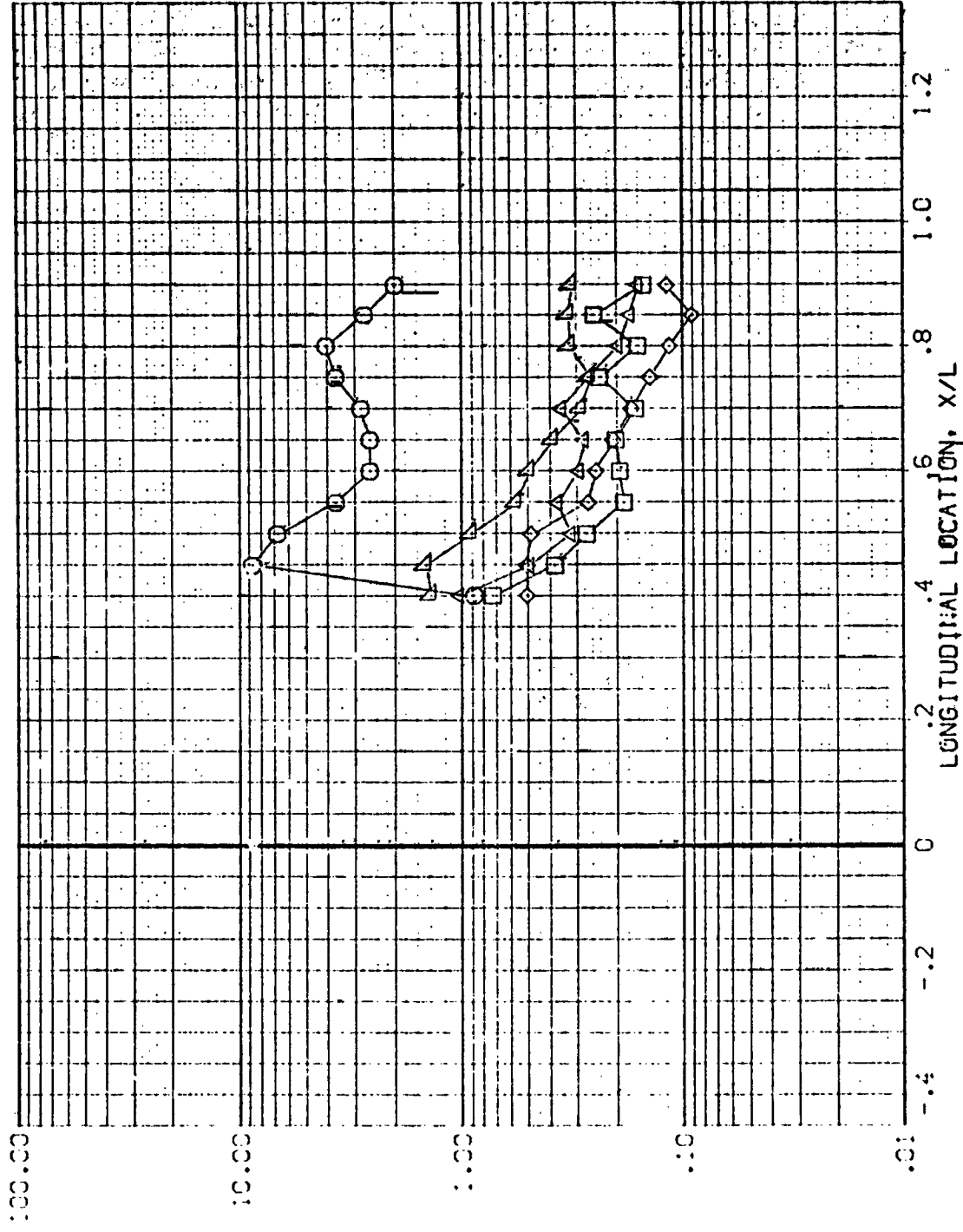


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

BRACH = 5.300 HAW/HT = .900 PHI = 157.500

DATA SET SYNO-  
 KIND  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)  
 (KIND)

CALCULATION DESCRIPTION  
 AVE5 3.05 1428 CIVIL EXTERNAL TANK  
 AVE6 3.05 1428 CIVIL EXTERNAL TANK  
 AVE7 3.05 1428 CIVIL EXTERNAL TANK  
 AVE8 3.05 1428 CIVIL EXTERNAL TANK  
 AVE9 3.05 1428 CIVIL EXTERNAL TANK  
 AVE10 3.05 1428 CIVIL EXTERNAL TANK

ALPHA BETA R/W  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H<sub>i</sub>/H<sub>u</sub>

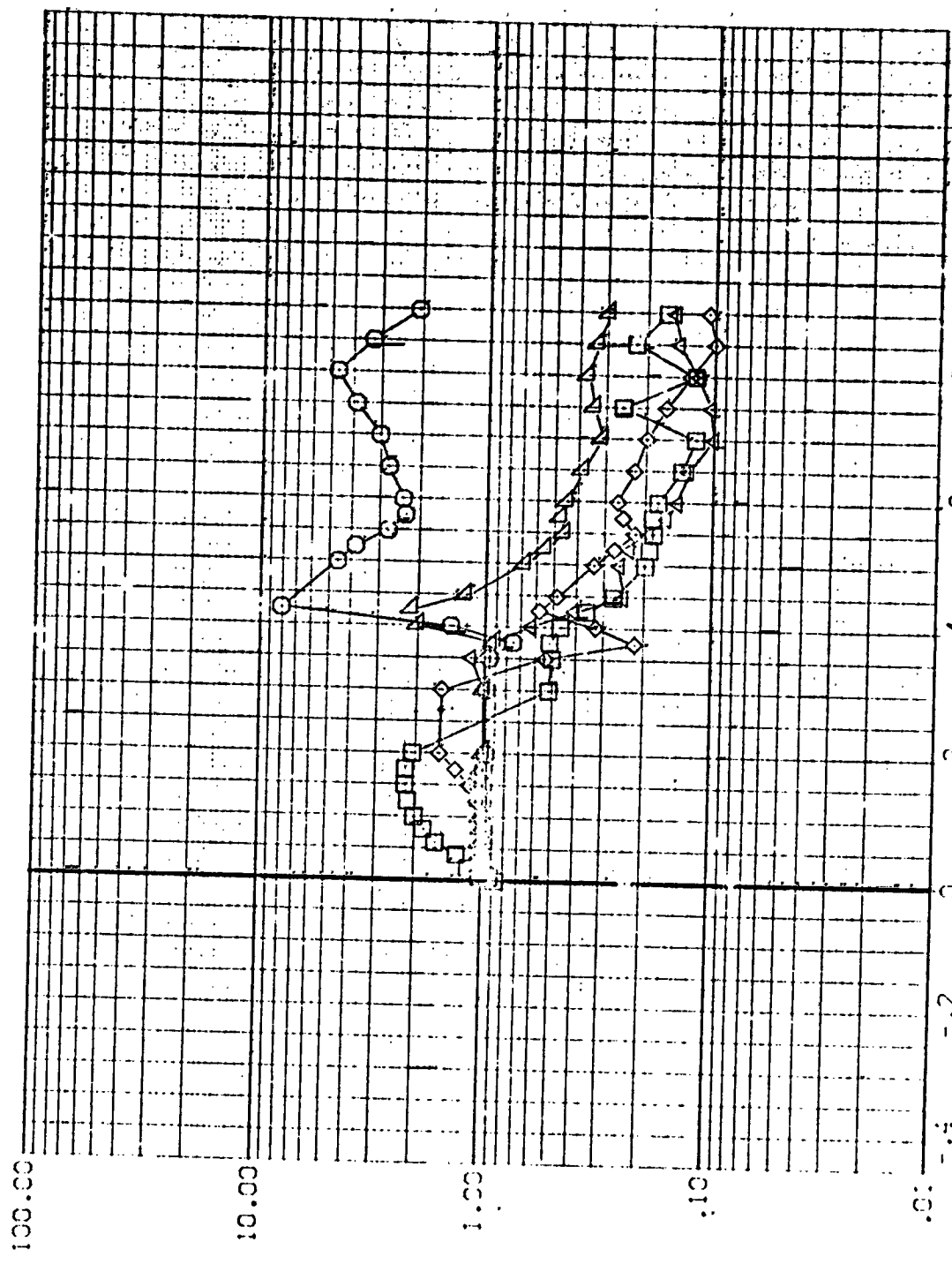
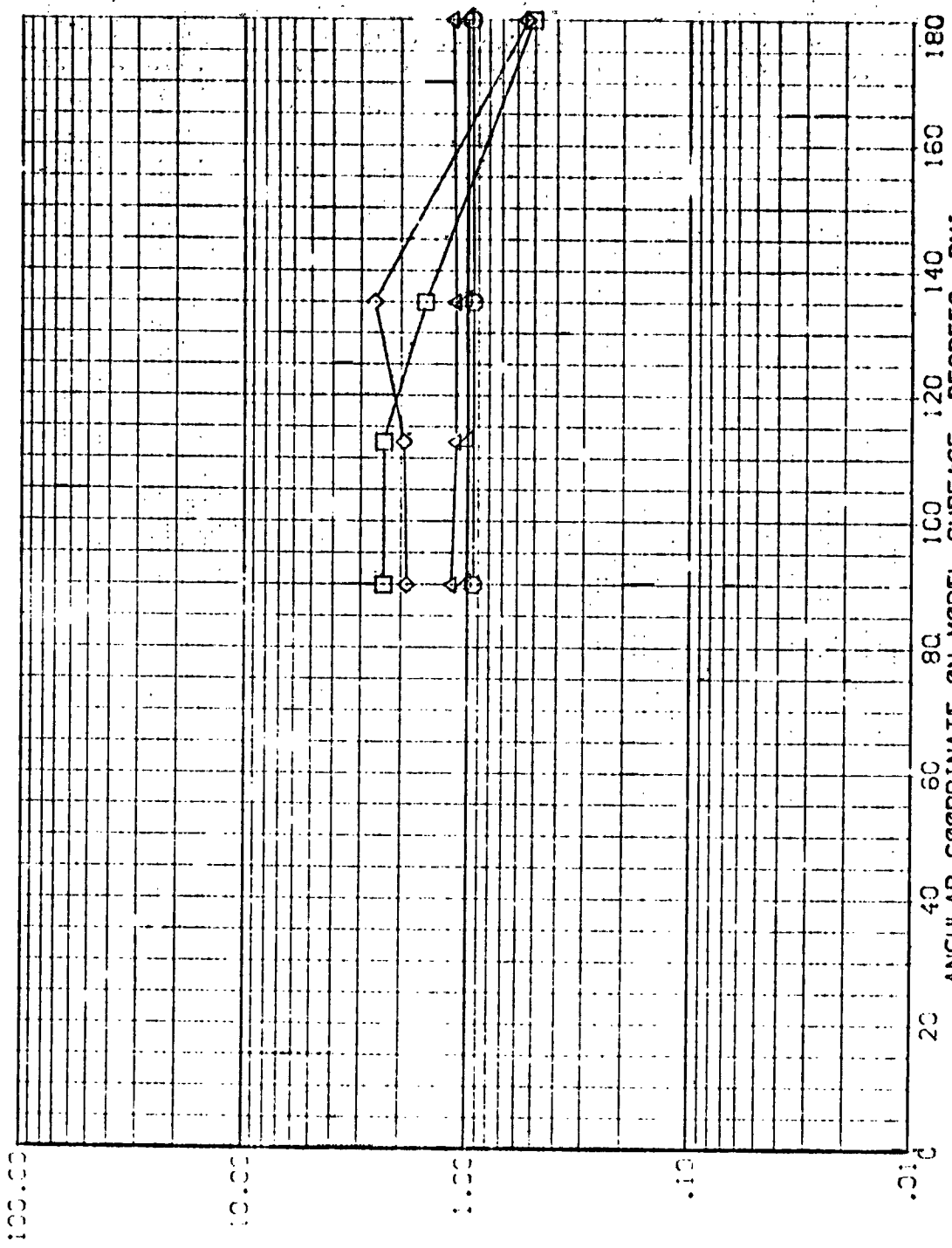


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

DATA SET SYMBOL CONVEGULATION DESCRIPTION  
 1438 01411 EXTERNAL TANK  
 1439 01411 EXTERNAL TANK  
 1440 01411 EXTERNAL TANK  
 1441 01411 EXTERNAL TANK  
 1442 01411 EXTERNAL TANK  
 1443 01411 EXTERNAL TANK  
 1444 01411 EXTERNAL TANK  
 1445 01411 EXTERNAL TANK  
 1446 01411 EXTERNAL TANK  
 1447 01411 EXTERNAL TANK  
 1448 01411 EXTERNAL TANK  
 1449 01411 EXTERNAL TANK  
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 1469 01411 EXTERNAL TANK  
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 1471 01411 EXTERNAL TANK  
 1472 01411 EXTERNAL TANK  
 1473 01411 EXTERNAL TANK  
 1474 01411 EXTERNAL TANK  
 1475 01411 EXTERNAL TANK  
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 1490 01411 EXTERNAL TANK  
 1491 01411 EXTERNAL TANK  
 1492 01411 EXTERNAL TANK  
 1493 01411 EXTERNAL TANK  
 1494 01411 EXTERNAL TANK  
 1495 01411 EXTERNAL TANK  
 1496 01411 EXTERNAL TANK  
 1497 01411 EXTERNAL TANK  
 1498 01411 EXTERNAL TANK  
 1499 01411 EXTERNAL TANK  
 1500 01411 EXTERNAL TANK

ALPHA BETA  $\rho$ /L  
 .000 .000 1.000  
 -100.000 .000 1.000  
 -90.000 .000 1.000  
 -80.000 .000 1.000  
 -70.000 .000 1.000  
 -60.000 .000 1.000  
 -50.000 .000 1.000



RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

REYNOLDS NUMBER = 5.300 HAWKINS = .900 X/L = 1.50

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(BEVT01) ASES 3.5-195 128 C1\*11 EXTERNAL TANK  
 (BEVT06) ASES 3.5-195 128 C1\*11 EXTERNAL TANK  
 (BEVT07) ASES 3.5-195 128 C1\*11 EXTERNAL TANK  
 (BEVT08) ASES 3.5-195 128 C1\*11 EXTERNAL TANK  
 (BEVT09) ASES 3.5-195 128 C1\*11 EXTERNAL TANK

ALPHA BETA RV/L  
 -120.000 .000 1.000  
 -90.000 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

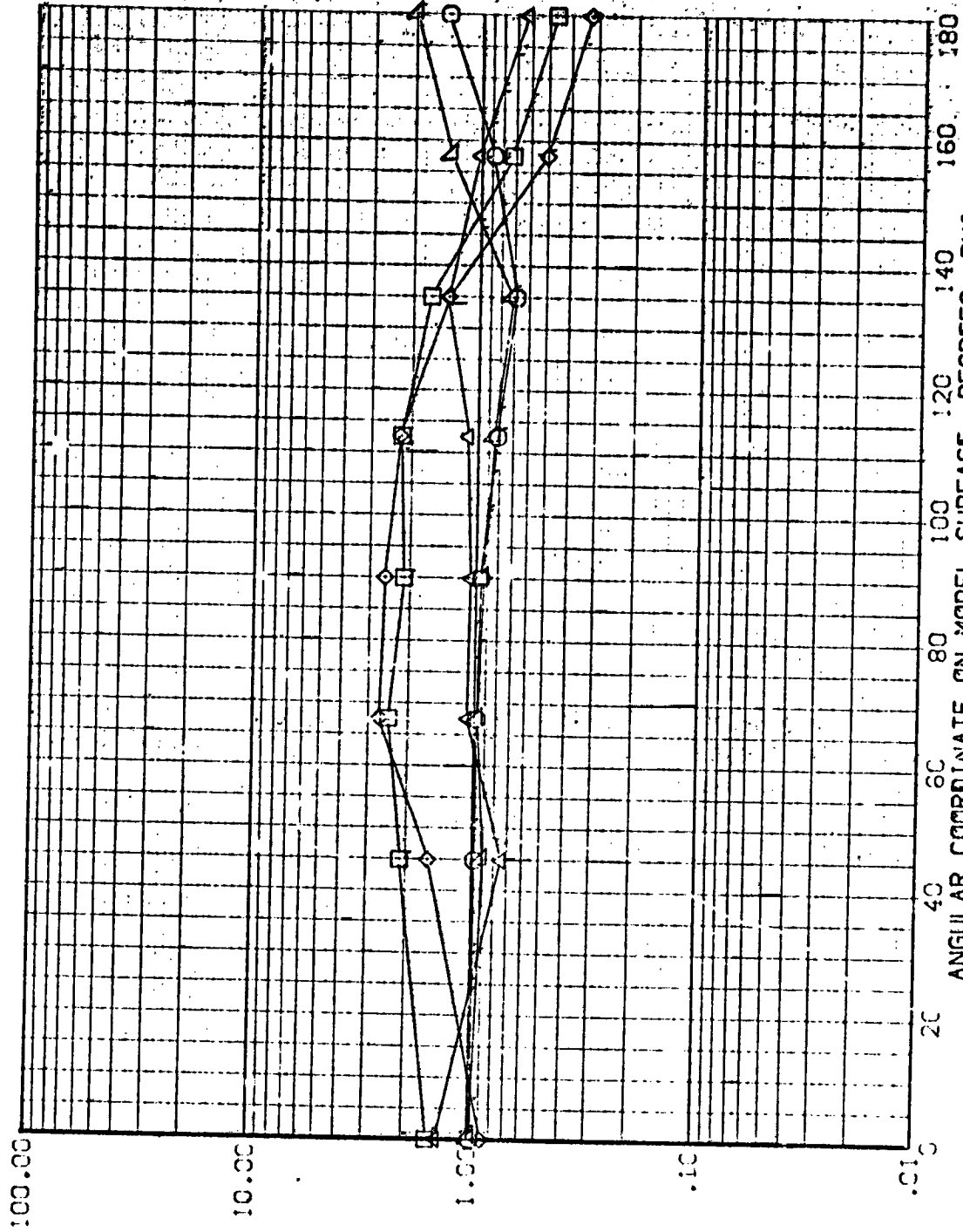


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H1/H0



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 001 011 028 01+11 EXTERNAL TANK  
 002 011 035 01+11 EXTERNAL TANK  
 003 011 042 01+11 EXTERNAL TANK  
 004 011 049 01+11 EXTERNAL TANK  
 005 011 056 01+11 EXTERNAL TANK

ALPHA BETA PHI/L  
 .000 .000 1.000  
 -120.000 .000 1.000  
 -90.000 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

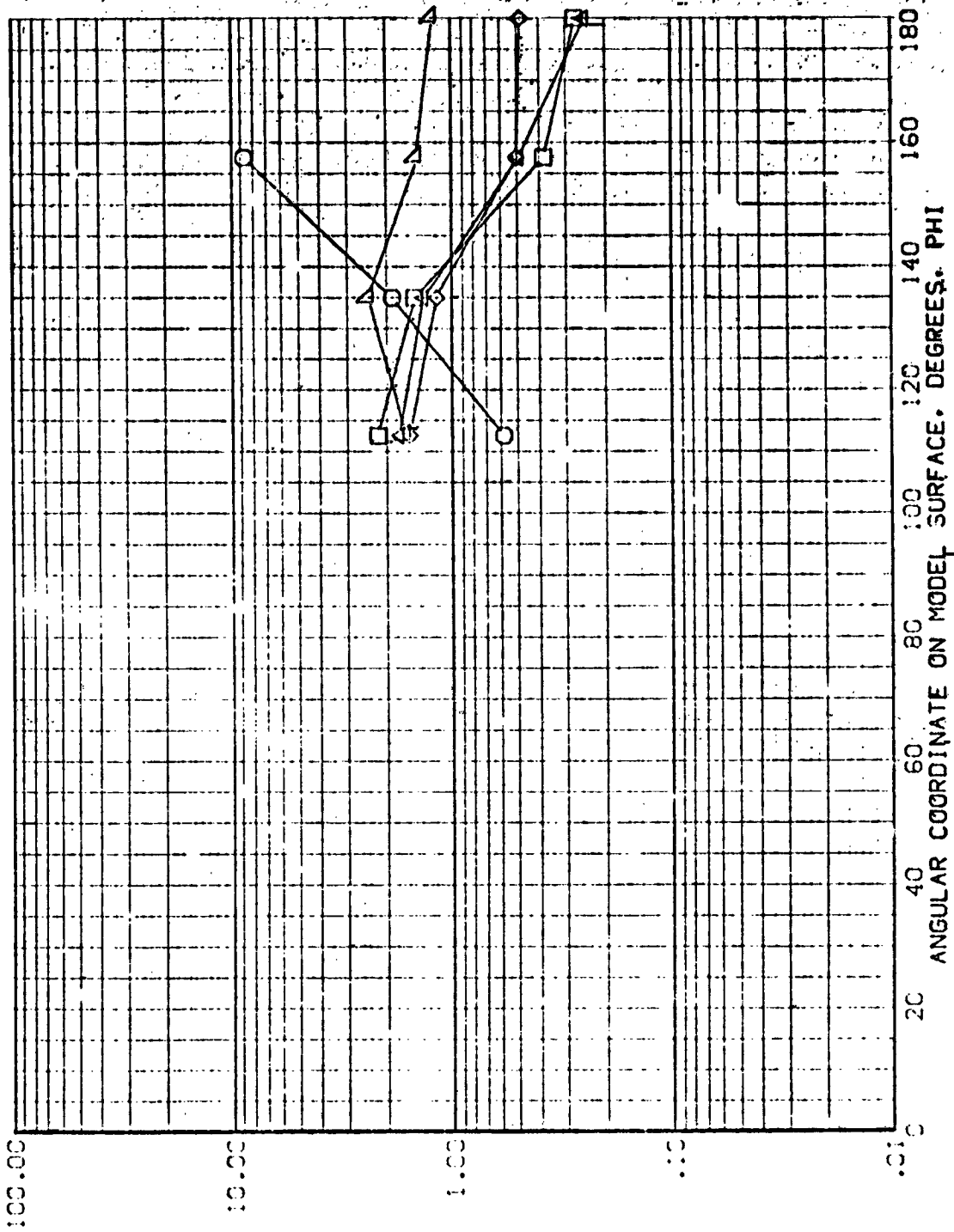


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

WAVELENGTH = 5.300 WAVELENGTH = .900 K/L = .450

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 0001 3.5-100 1428 01+11 EXTERNAL TANK  
 0002 3.5-100 1428 01+11 EXTERNAL TANK  
 0003 3.5-100 1428 01+11 EXTERNAL TANK  
 0004 3.5-100 1428 01+11 EXTERNAL TANK  
 0005 3.5-100 1428 01+11 EXTERNAL TANK  
 0006 3.5-100 1428 01+11 EXTERNAL TANK

ALPHA BETA ALPHA BETA  
 .000 .000 .000 .000  
 -120.000 .000 .000 .000  
 -60.000 .000 .000 .000  
 -60.000 .000 .000 .000  
 -30.000 .000 .000 .000

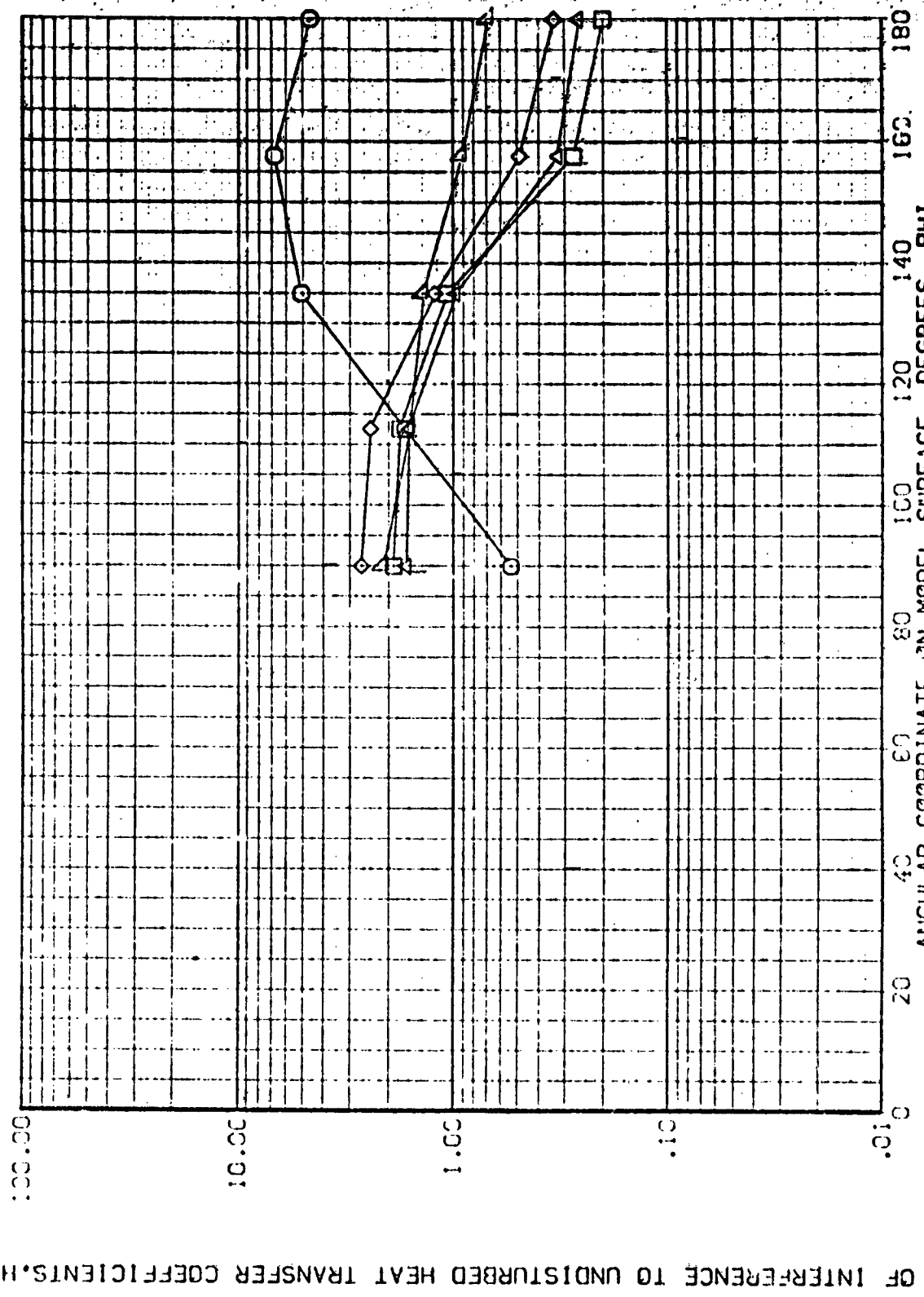


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

HA/WHT = 5.300 HA/WHT = .900 X/L = .500

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (001) (01) (02) (03) (04) (05) (06) (07) (08) (09) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (00)

ALPHA BETA SW/L  
 .000 .000 .000  
 -120.000 .000 .000  
 -90.000 .000 .000  
 -60.000 .000 .000  
 -30.000 .000 .000

AXIS 01-02 01-03 01-04 01-05 01-06 01-07 01-08 01-09 01-10 01-11 01-12 01-13 01-14 01-15 01-16 01-17 01-18 01-19 01-20 01-21 01-22 01-23 01-24 01-25 01-26 01-27 01-28 01-29 01-30 01-31 01-32 01-33 01-34 01-35 01-36 01-37 01-38 01-39 01-40 01-41 01-42 01-43 01-44 01-45 01-46 01-47 01-48 01-49 01-50 01-51 01-52 01-53 01-54 01-55 01-56 01-57 01-58 01-59 01-60 01-61 01-62 01-63 01-64 01-65 01-66 01-67 01-68 01-69 01-70 01-71 01-72 01-73 01-74 01-75 01-76 01-77 01-78 01-79 01-80 01-81 01-82 01-83 01-84 01-85 01-86 01-87 01-88 01-89 01-90 01-91 01-92 01-93 01-94 01-95 01-96 01-97 01-98 01-99 01-00

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

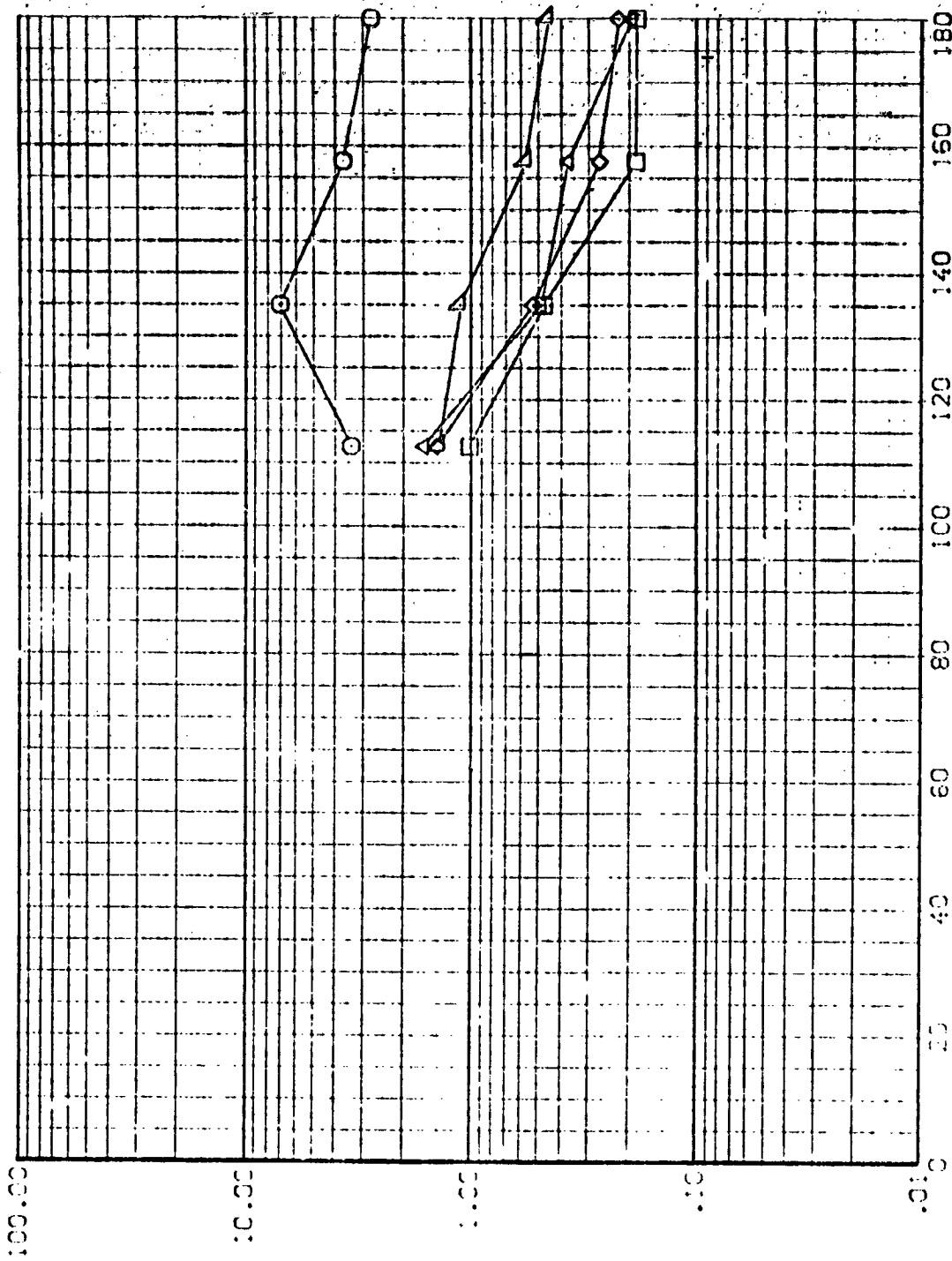


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

WAVELENGTH = 5.300 HAW/HT = .900 K/L = .550

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DATA SET SYMBOL: CONFIGURATION DESCRIPTION  
 ANG 3.0 95 108 01-11 EXTERNAL TANK  
 ANG 3.0 95 128 01-11 EXTERNAL TANK  
 ANG 3.0 95 148 01-11 EXTERNAL TANK  
 ANG 3.0 95 168 01-11 EXTERNAL TANK  
 ANG 3.0 95 188 01-11 EXTERNAL TANK  
 ANG 3.0 95 208 01-11 EXTERNAL TANK  
 ANG 3.0 95 228 01-11 EXTERNAL TANK

ALPHA BETA RAYL  
 .000 .000 1.000  
 -120.000 .000 1.000  
 -180.000 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

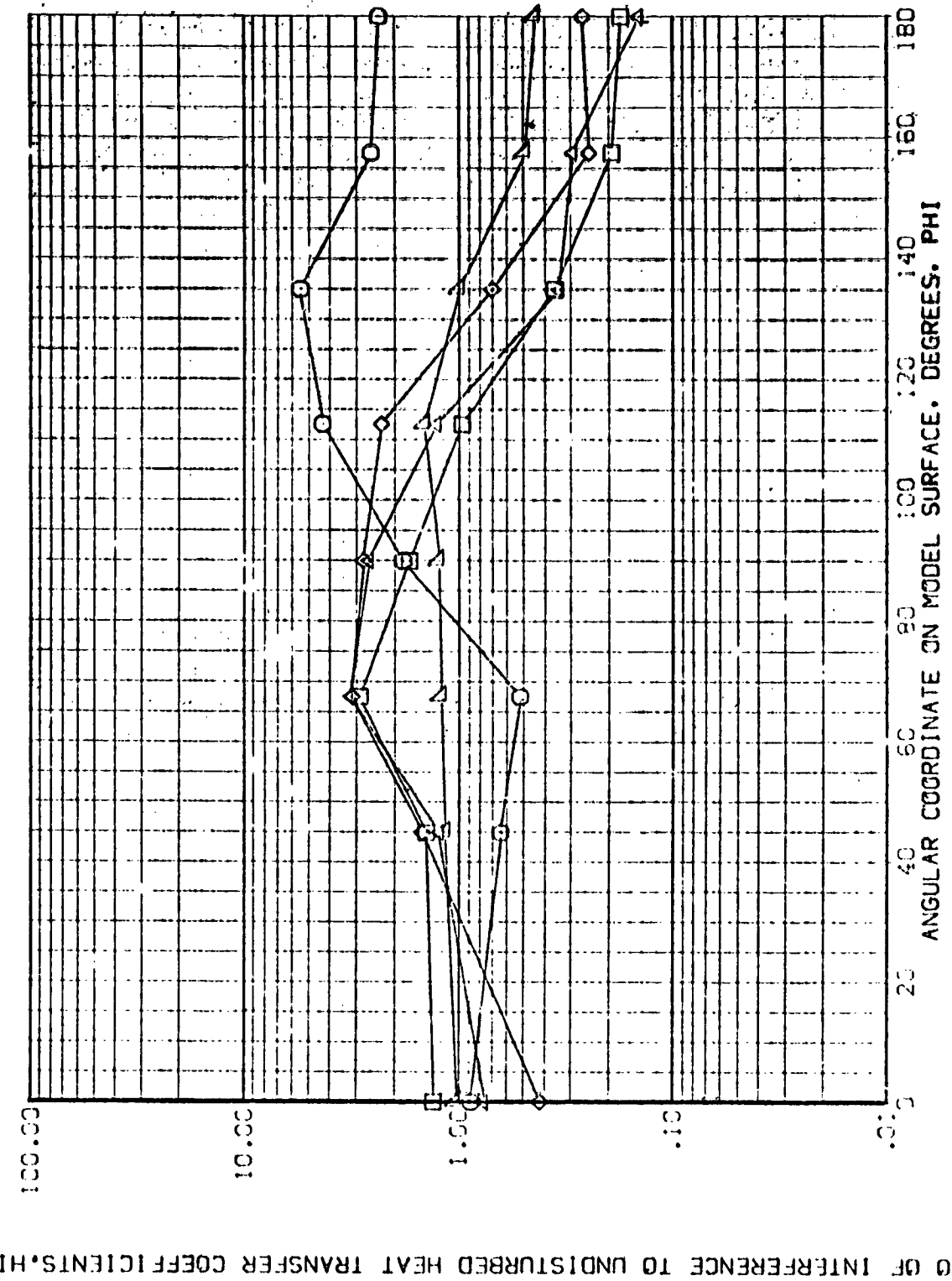


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

$H_1/H_U = 5.200 \quad K/L = 0.900 \quad K/L = 0.300$



DATA SET SV202  
 (SERIAL) 1000  
 (REVISION) 01  
 (DATE) 01-28  
 (TIME) 10:00

CONFIGURATION DESCRIPTION  
 AMES 3.5-125 P-28 CI+TI EXTERNAL TANK  
 AMES 3.5-125 P-28 CI+TI EXTERNAL TANK  
 AMES 3.5-125 P-28 CI+TI EXTERNAL TANK  
 AMES 3.5-125 P-28 CI+TI EXTERNAL TANK

ALPHA BETA PH/L  
 .000 .000 1.000  
 -120.000 .000 1.000  
 -60.000 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

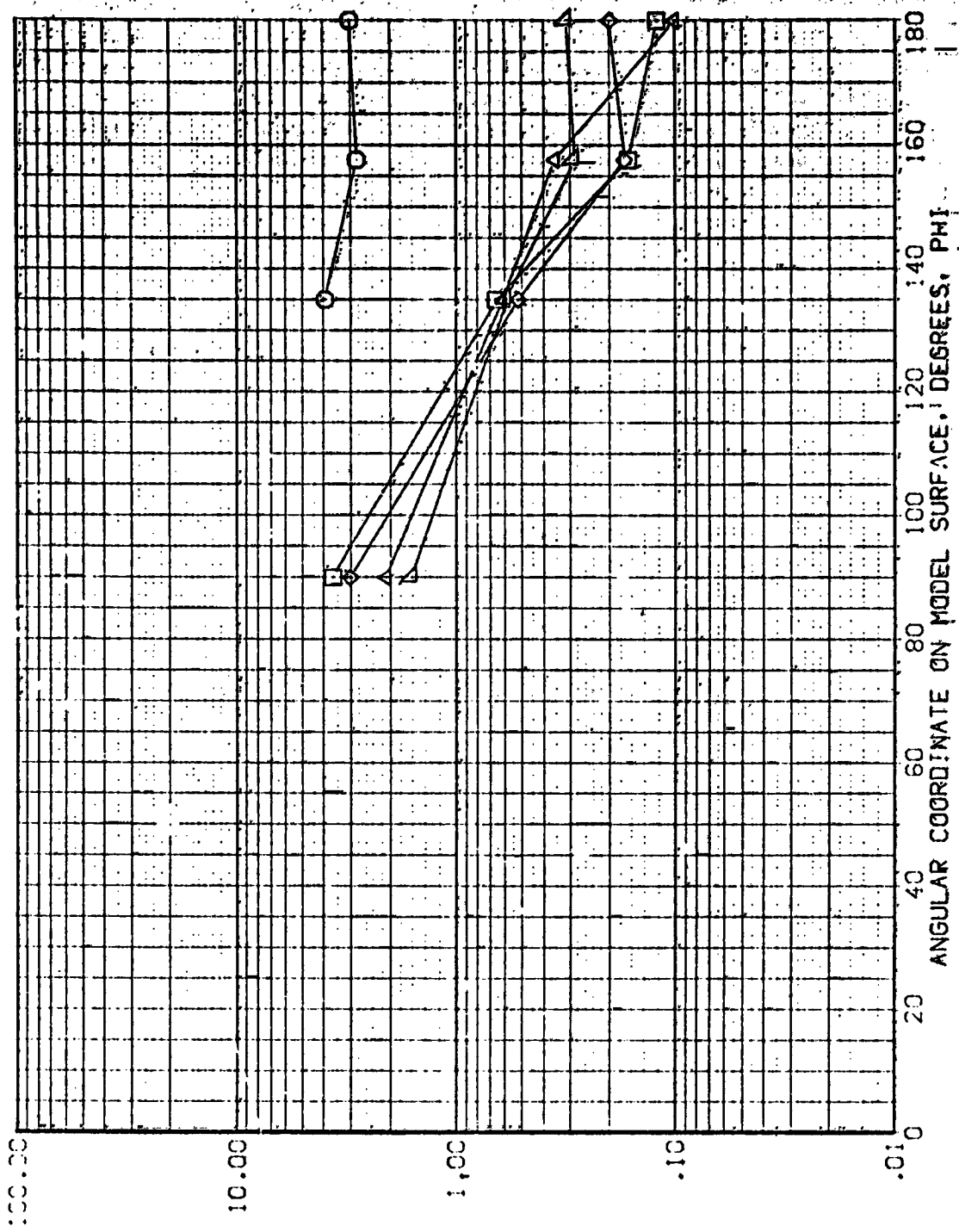


FIG. 6 TANK RATIO OF INTERFERENCE TO UNDISTURBED

W/HT = 5.300 HAW/HT = .900 X/L = .700

DATA SET SYMBC. CONFIGURATION DESCRIPTOR  
 (BEV) ( )  
 (BEV) ( )  
 (BEV) ( )  
 (BEV) ( )  
 (BEV) ( )

AVES 3-5-195 (428 01+1) EXTERNAL TANK  
 AVES 3-5-195 (428 01+1) EXTERNAL TANK  
 AVES 3-5-195 (428 01+1) EXTERNAL TANK  
 AVES 3-5-195 (428 01+1) EXTERNAL TANK

ALPHA BETA ALPHA BETA ALPHA BETA ALPHA BETA  
 .000 .000 .000 .000 .000 .000 .000 .000  
 -120.000 .000 .000 .000 .000 .000 .000 .000  
 -90.000 .000 .000 .000 .000 .000 .000 .000  
 -60.000 .000 .000 .000 .000 .000 .000 .000  
 -30.000 .000 .000 .000 .000 .000 .000 .000

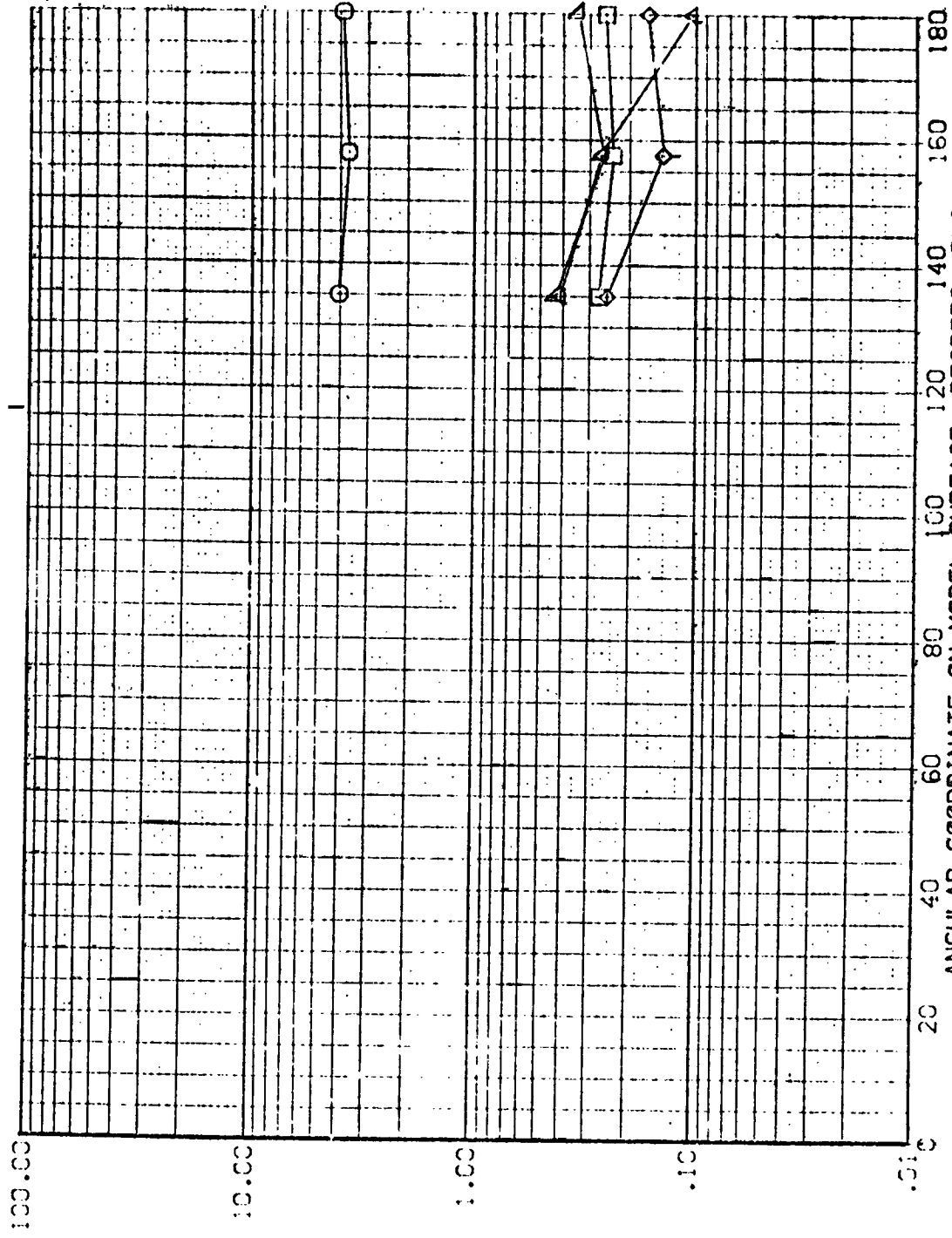


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU  
 TANK/HT = 5.000 X/L = .900 X/L = .150

ALPHA BETA PNTL  
 .000 .000 1.000  
 -120.000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000

CONFIGURATION DESCRIPTION  
 ASES 3.5-195 H28 OIATI EXTERNAL TANK  
 ASES 3.5-195 H28 OIATI EXTERNAL TANK  
 ASES 3.5-195 H28 OIATI EXTERNAL TANK  
 ASES 3.5-195 H28 OIATI EXTERNAL TANK  
 ASES 3.5-195 H28 OIATI EXTERNAL TANK

DATA SET SYMBOL  
 ASES  
 ASES  
 ASES  
 ASES  
 ASES

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

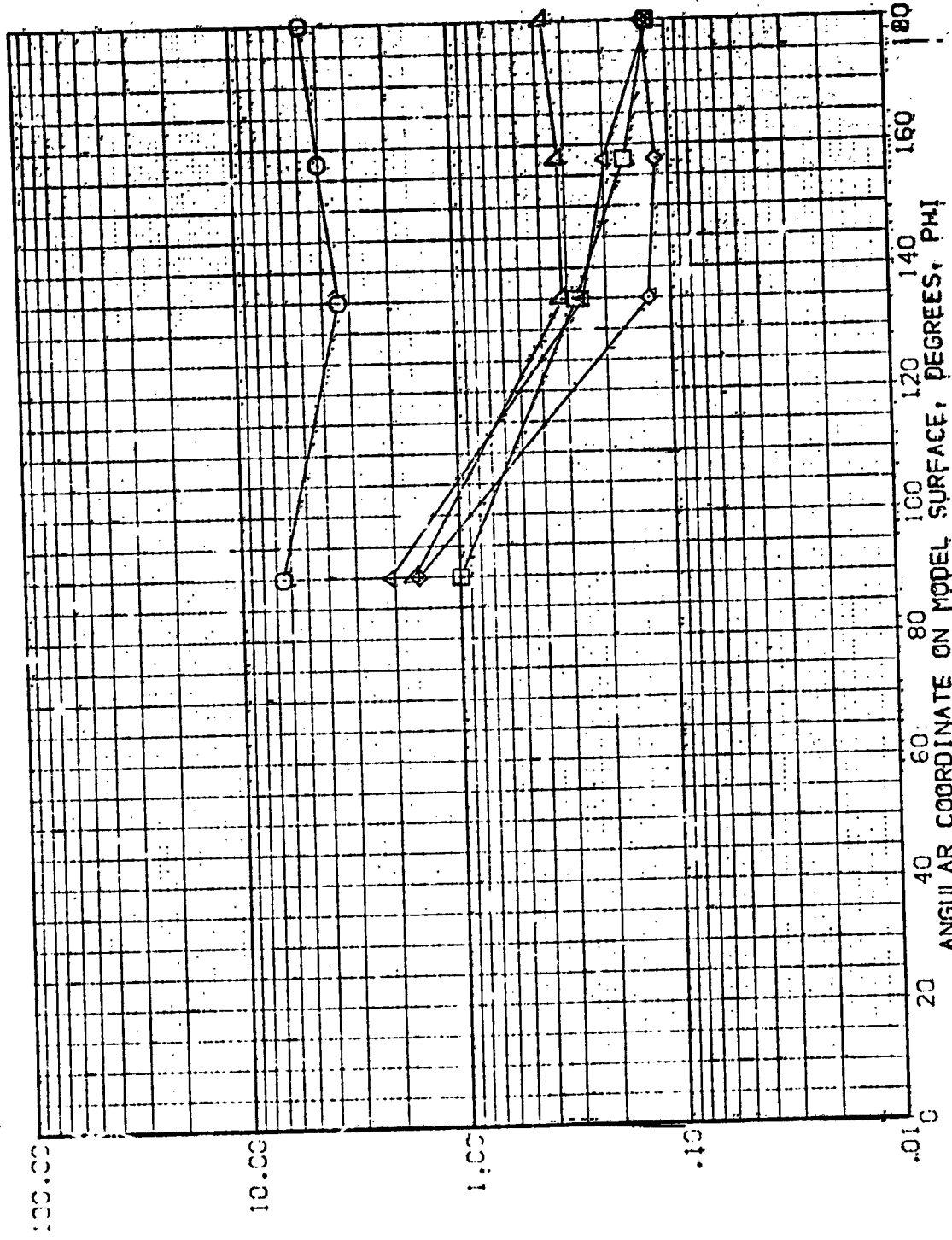


FIG: 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

MACH = 5.300 HAW/HT = .800 X/L = .800



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (SERV10) AMES 3.5.195 IH28 01+T1 EXTERNAL TANK  
 (SERV16) AMES 3.5.195 IH28 01+T1 EXTERNAL TANK  
 (SERV17) AMES 3.5.195 IH28 01+T1 EXTERNAL TANK  
 (SERV18) AMES 3.5.195 IH28 01+T1 EXTERNAL TANK  
 (SERV19) AMES 3.5.195 IH28 01+T1 EXTERNAL TANK

ALPHA BETA RIN/L  
 .000 .000 1.000  
 -120.000 .000 1.000  
 -90.070 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

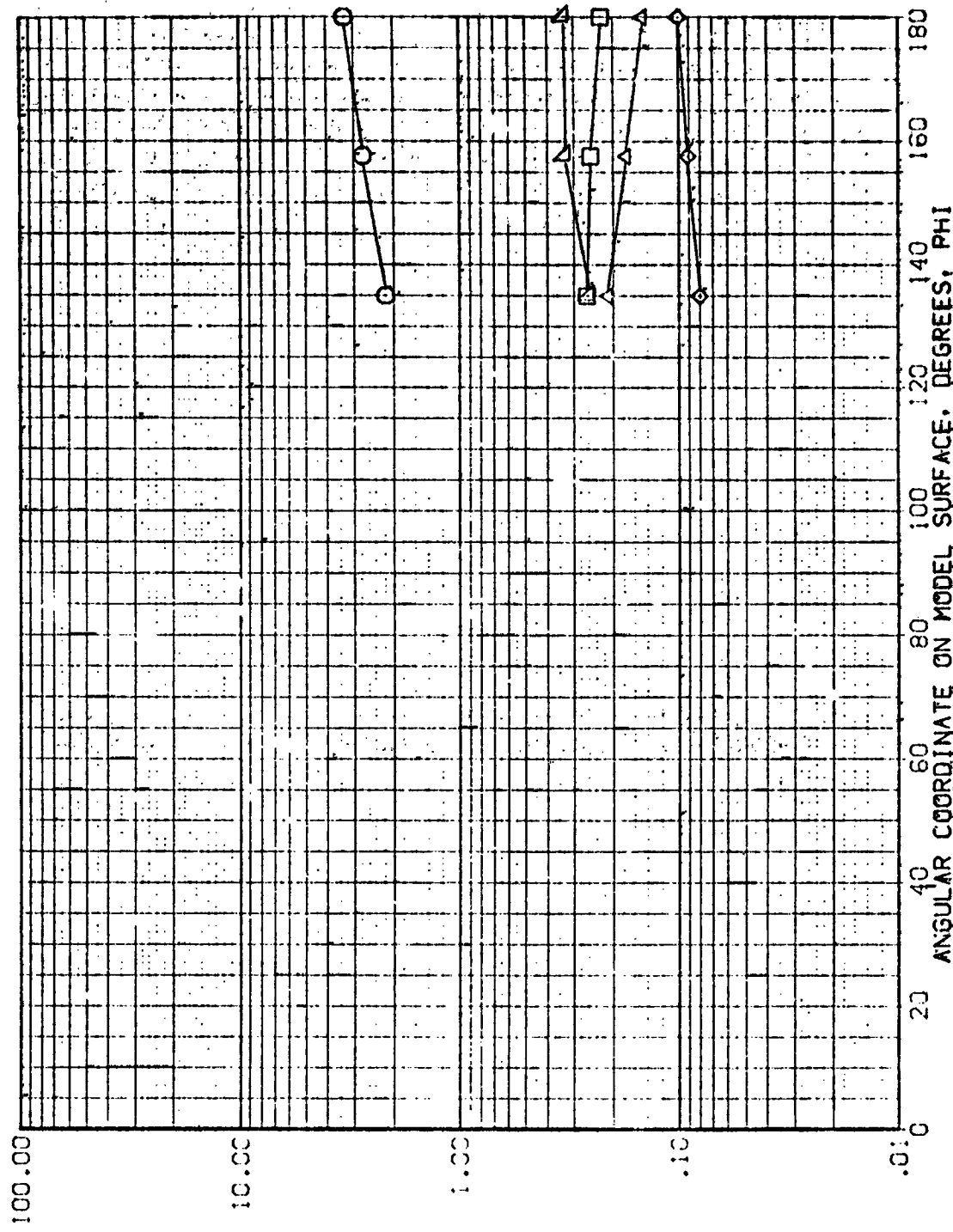


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

SLASH = 5.300 HAW/HT = .900 X/L = .850

DATA SET SYMBOL  
 0341

CONFIGURATION DESCRIPTION  
 AXES 3-5-195 1428 01+11 EXTERNAL TANK  
 AXES 3-5-195 1428 01+11 EXTERNAL TANK  
 AXES 3-5-195 1428 01+11 EXTERNAL TANK  
 AXES 3-5-195 1428 01+11 EXTERNAL TANK

ALPHA BETA RNAL  
 .900 .000 1.000  
 -120.000 .000 1.000  
 -90.000 .000 1.000  
 -60.000 .000 1.000  
 -30.000 .000 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

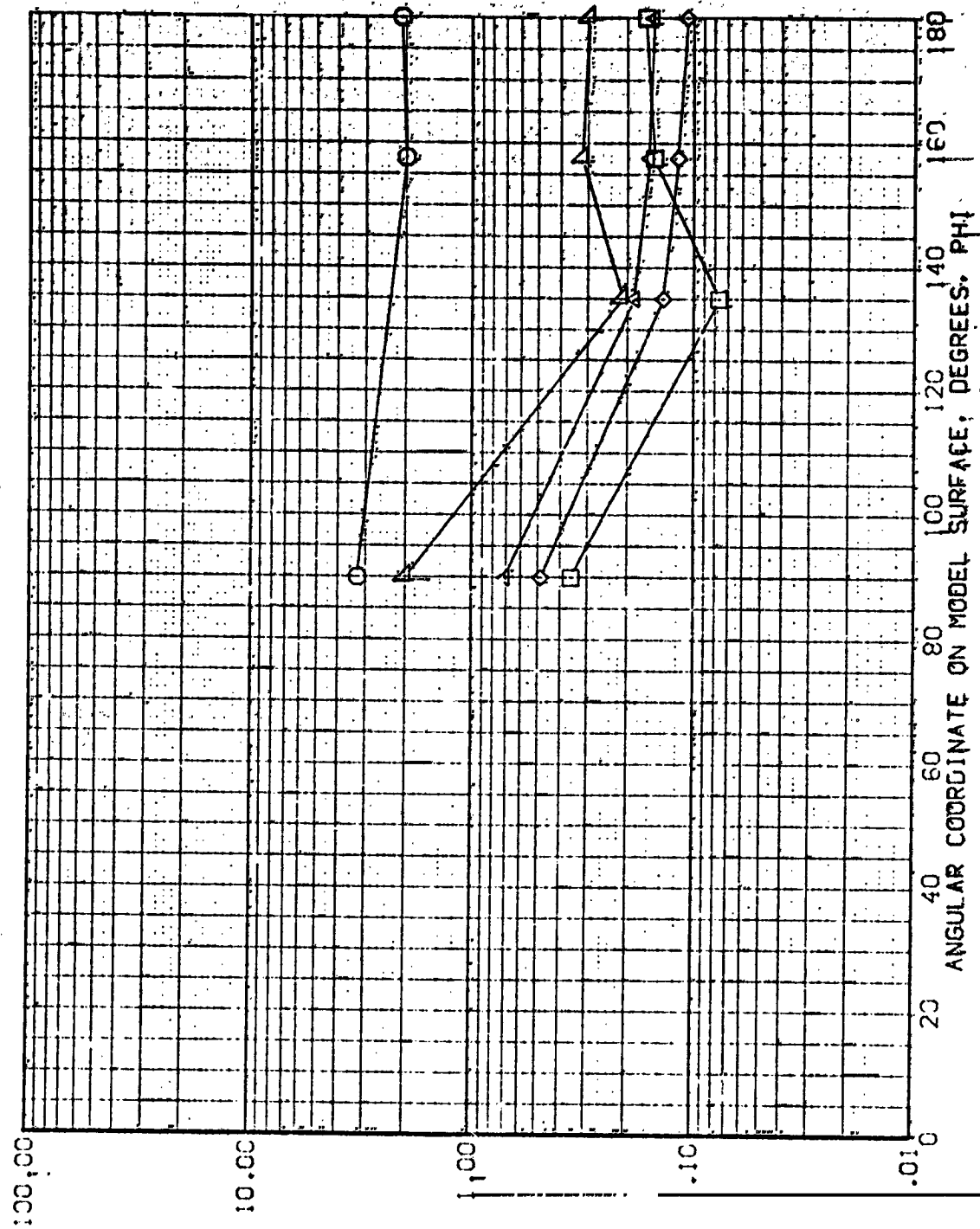


FIG. 6 TANK, RATIO OF INTERFERENCE TO UNDISTURBED

W/AC = 5.300 WAW/HT = .900 X/L = .900

(REV. 19)

UNDERSIDE FUSELAGE

AMES 3.5-195 IH28 01

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
RV/L 1.000

SV232L H/W/HT BP MACH  
.850 .000 5.220  
.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

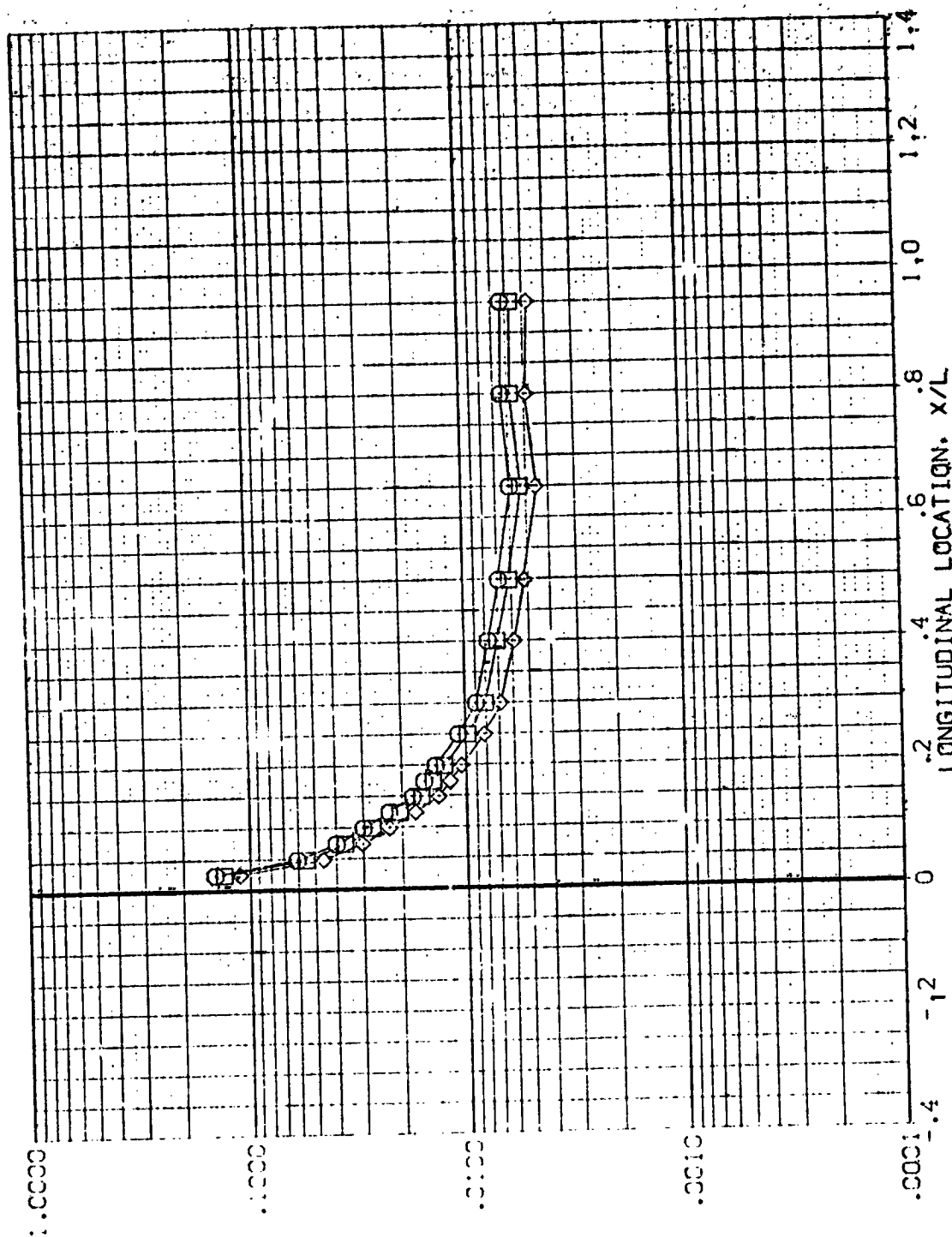


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AVES 3.5-1.95 IH28 01      (REVA19)      UNDERSIDE FUSELAGE

SYSEC.      WEIGHT      SP      MACH      .000      BETA      .000  
 1.850      17.000      5.220

ALPHA      RNU/L      1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

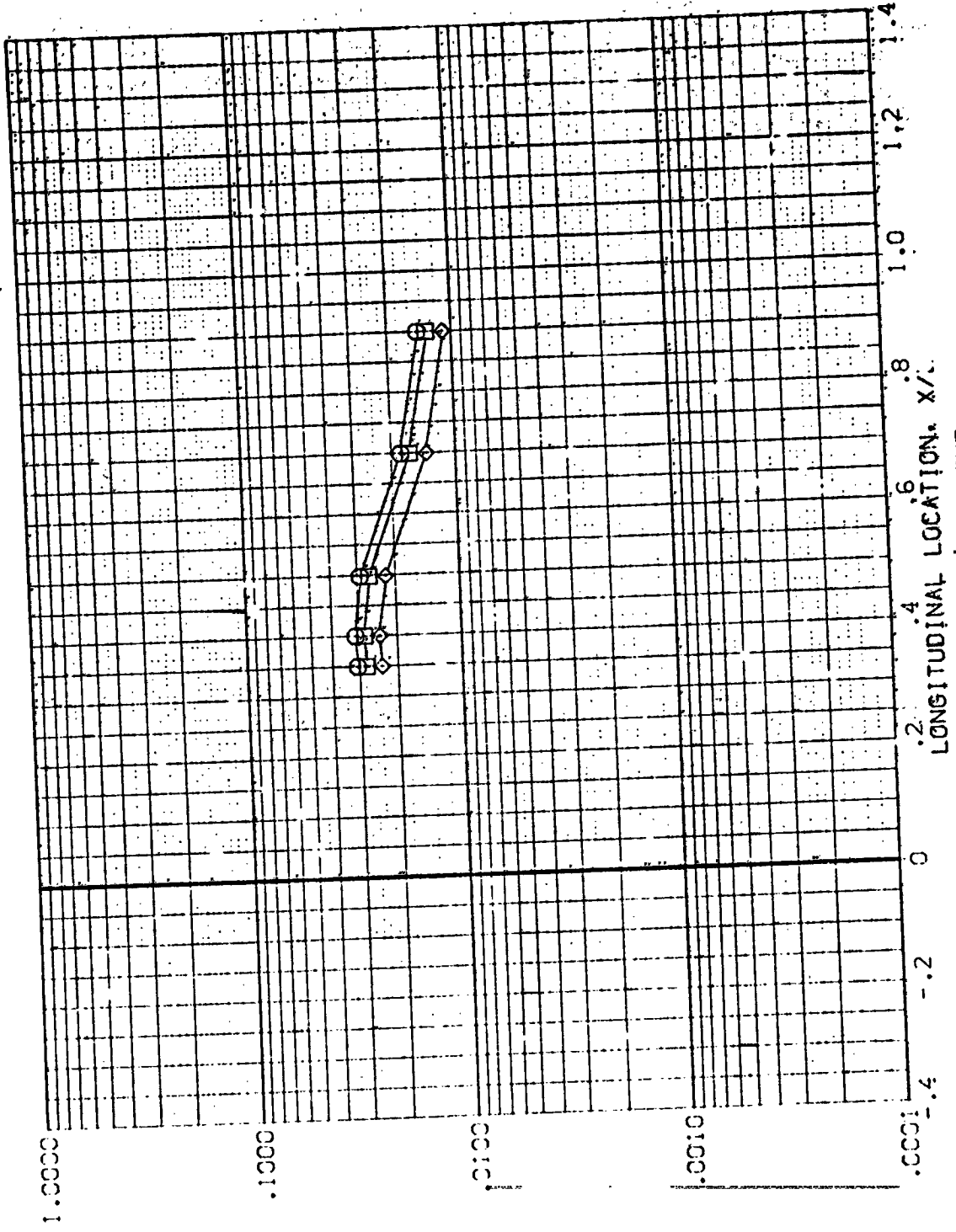


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 01 UNDERSIDE FUSELAGE (REVA20)

SYMBOL MAF/HREF BP .000 MACH 5.219  
 ◇ .850  
 ○ .300  
 □ 1.000

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 RWVL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

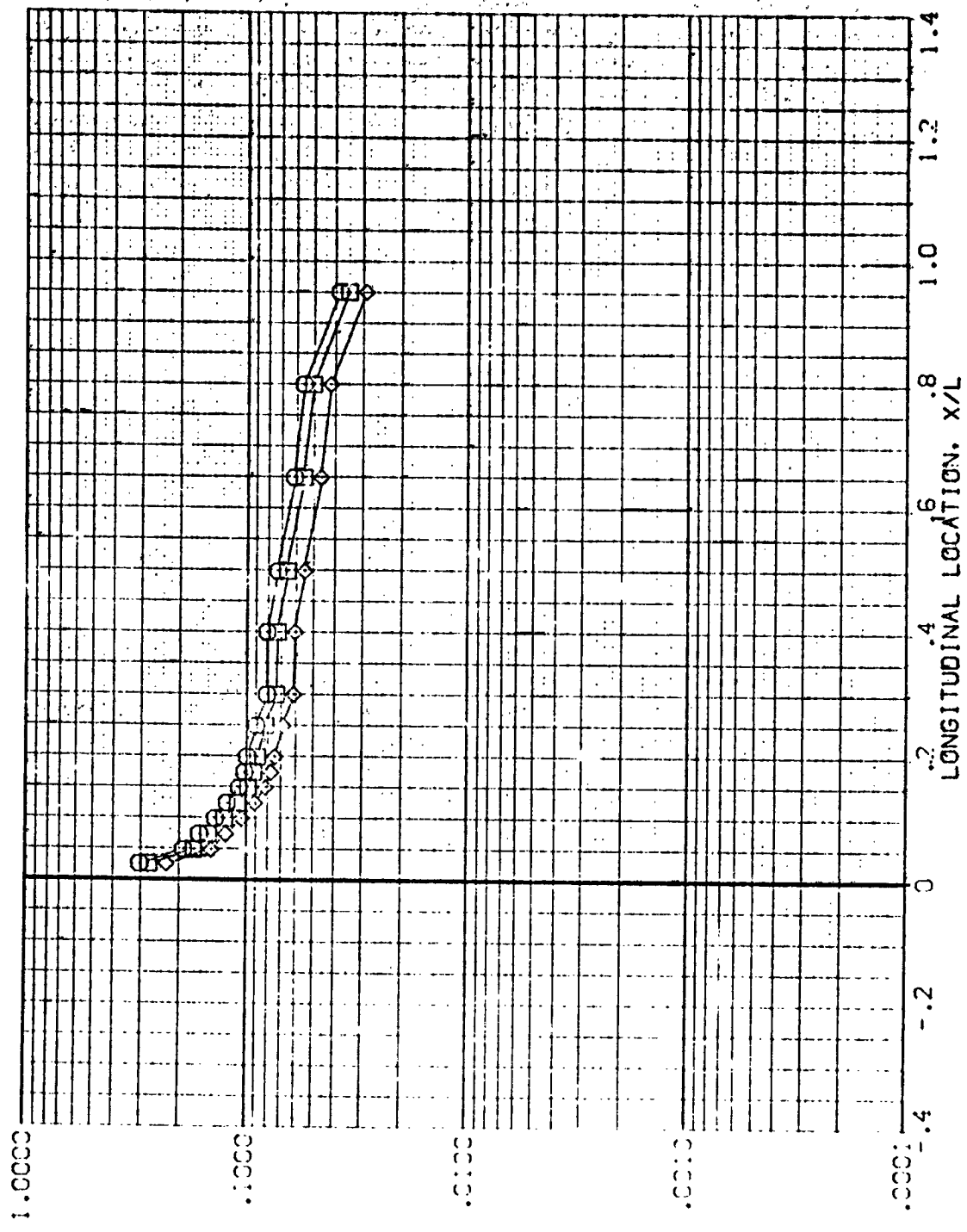


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 C1      UNDERSIDE FUSELAGE      (REVA20)

SYSC    H/REF    BP    MACH  
 .850    117.000    5.219  
 .850  
 1.000

PARAMETRIC VALUES  
 ALPHA    BETA  
 .000    .000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

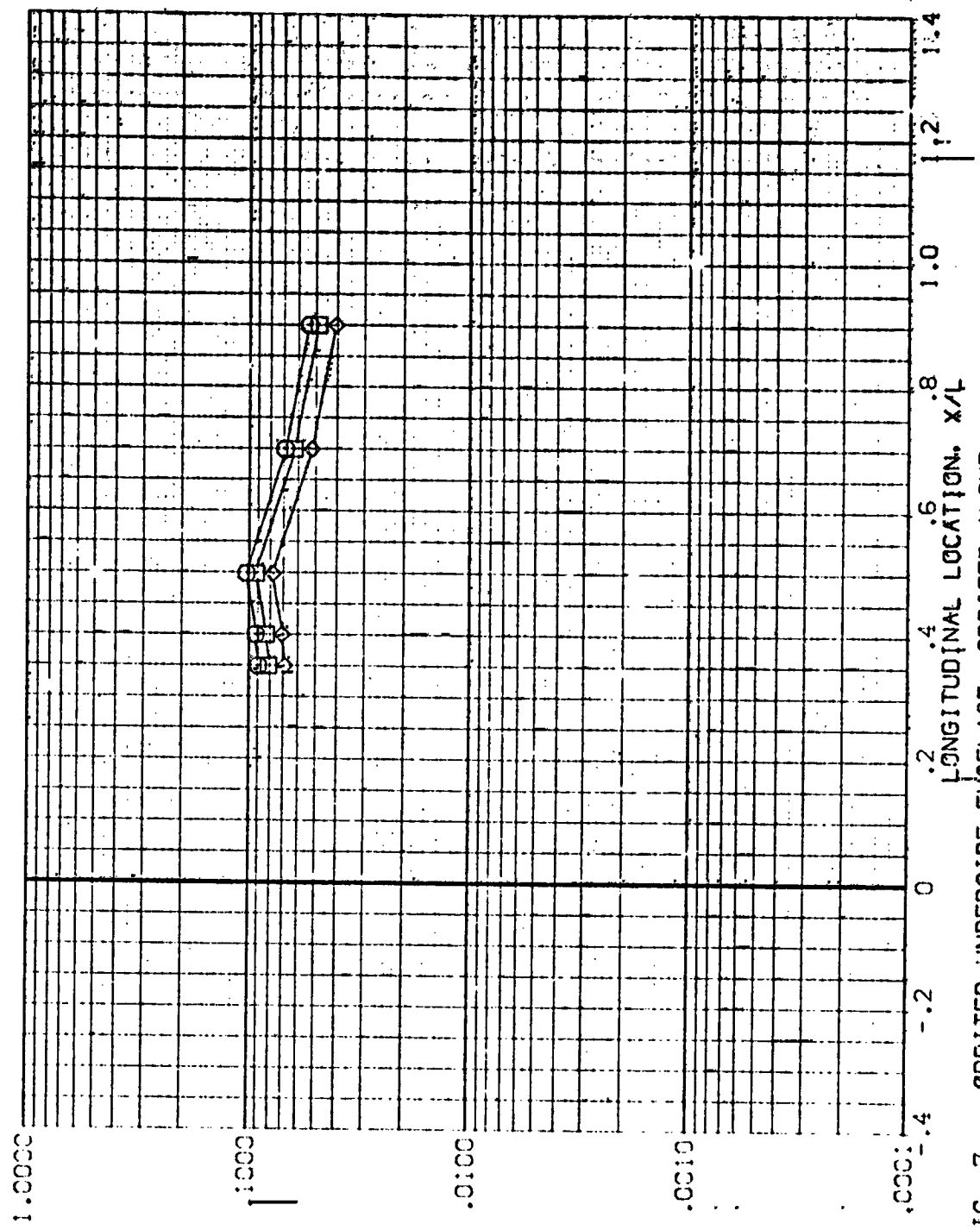


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 01      UNDERSIDE FUSELAGE      (REVA21)

SYMBOL    MACH    BP    MACH    MACH  
 1.650    .000    5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA    BETA  
 60.000    1.000  
 PV/L

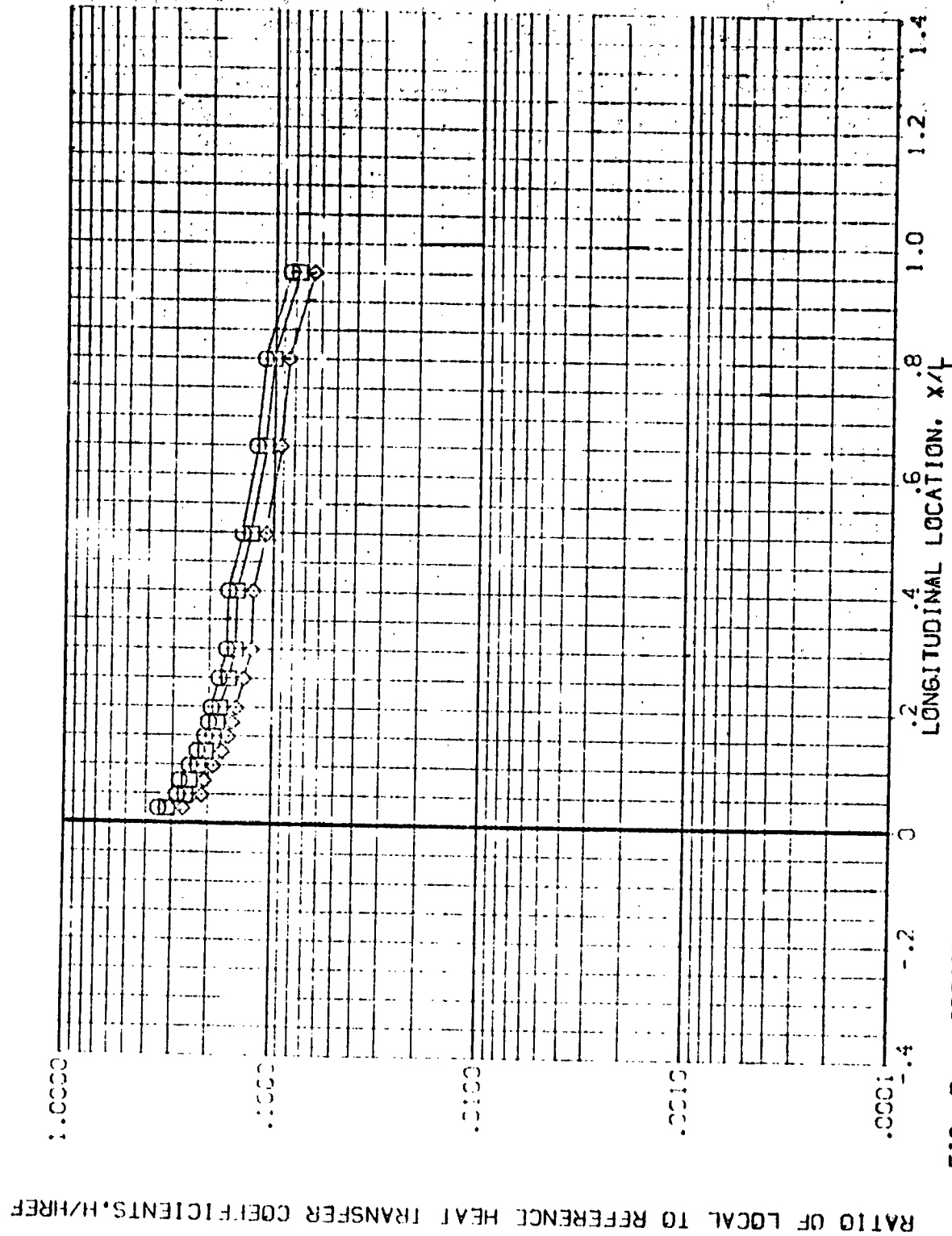


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 01      UNDERSIDE FUSELAGE      (REV21)

PARAMETRIC VALUES  
 ALPHA      6.000      BETA  
 RM/L      1.000

SYSEC    PAM/WT    EP      MACH  
 .850    1.17.000    5.220  
 .900  
 1.000

◇ (170)

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

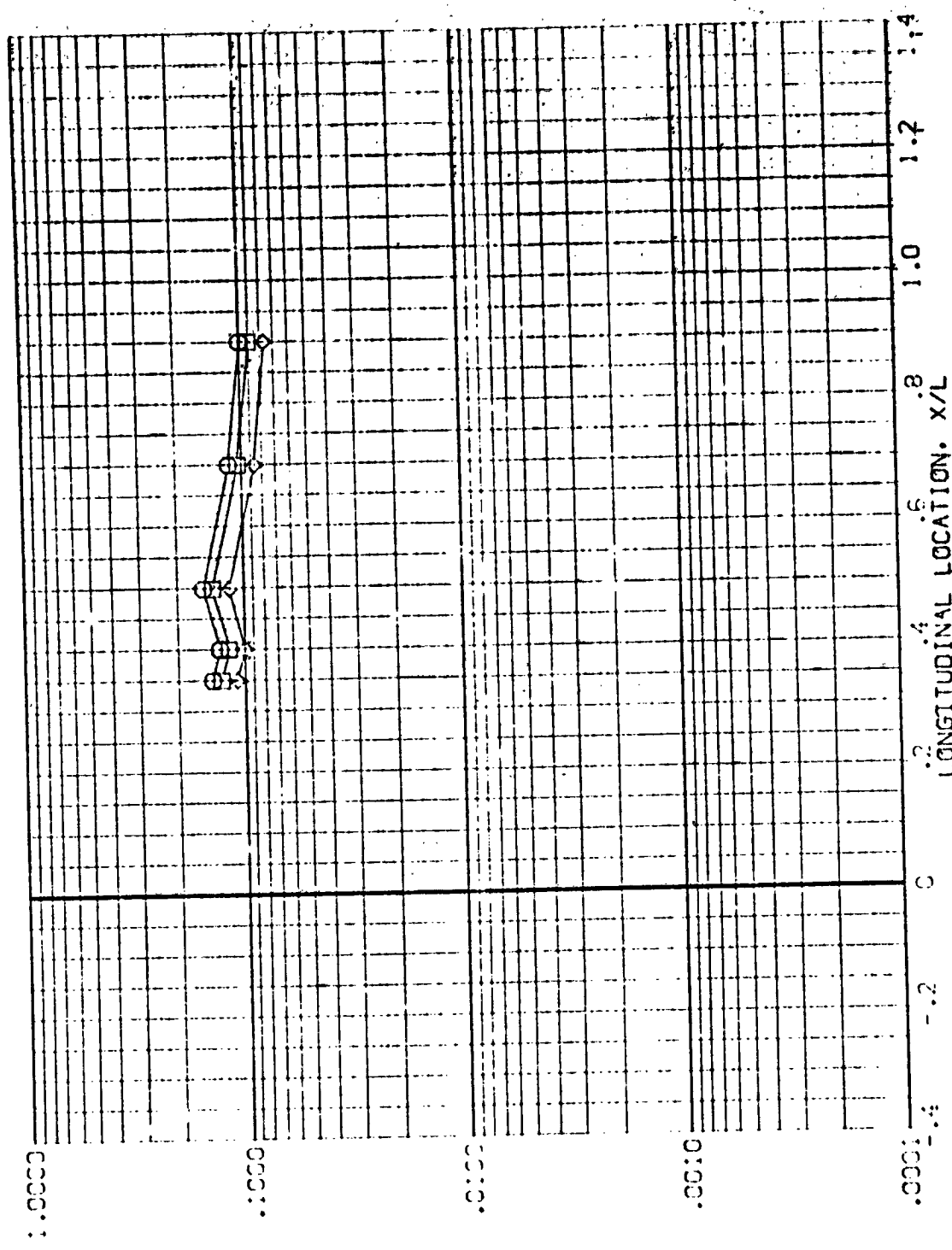


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE



(REVA22)

UNDERSIDE FUSELAGE

AXES 3.5-195 IH28 C1

PARAMETRIC VALUES  
90.000 ALPHA .000  
1.000 BETA .000

SYMBOL HAW/MT BP MACH  
-8EC .000 5.220  
-9EC .000  
-10EC .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

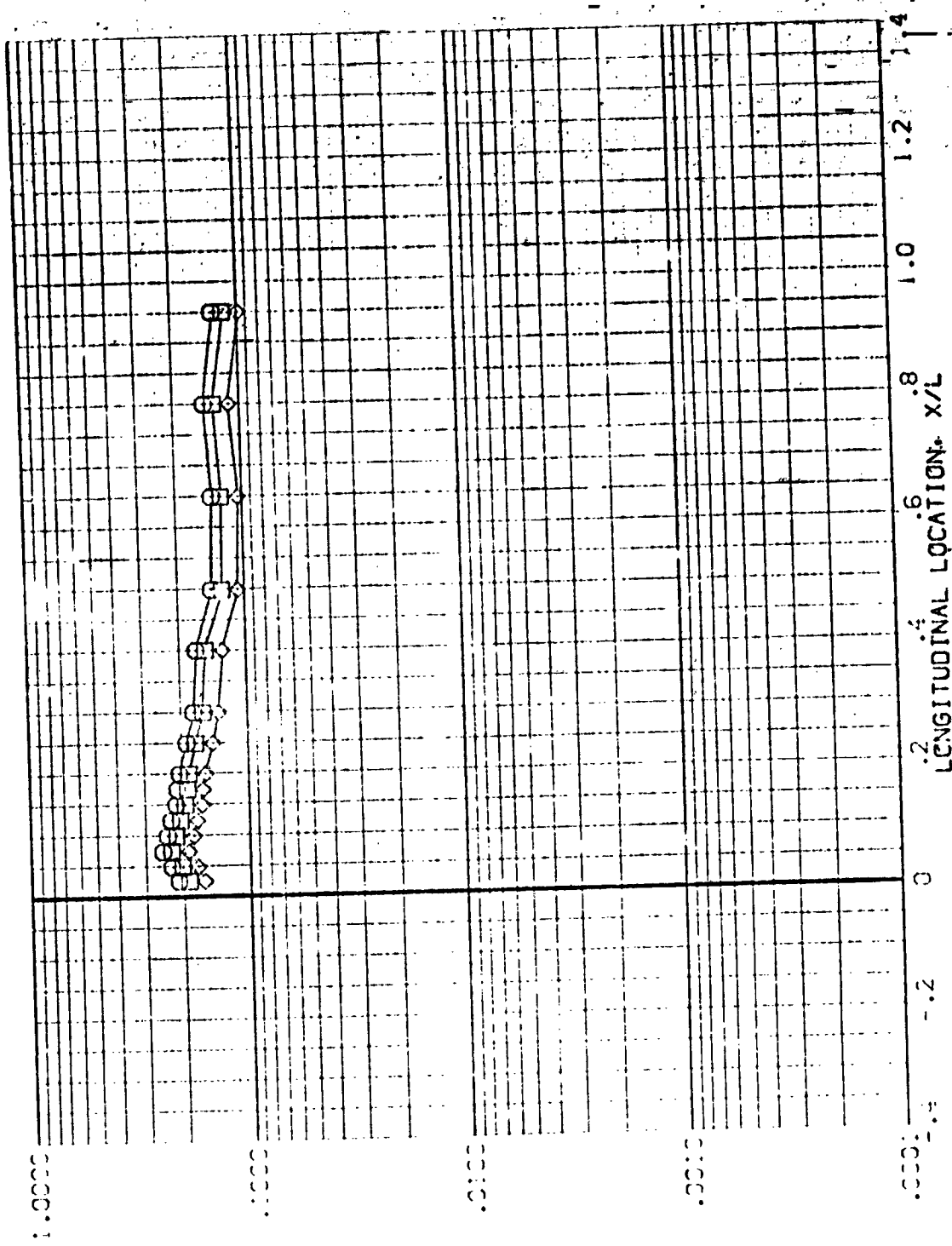


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 01      UNDERSIDE FUSELAGE      (REVA22)

SYMBOL    MACH    SP    MACH    ALPHA    BETA    .000  
 O/D       .850    17.000    5.220    PS/L    1.000

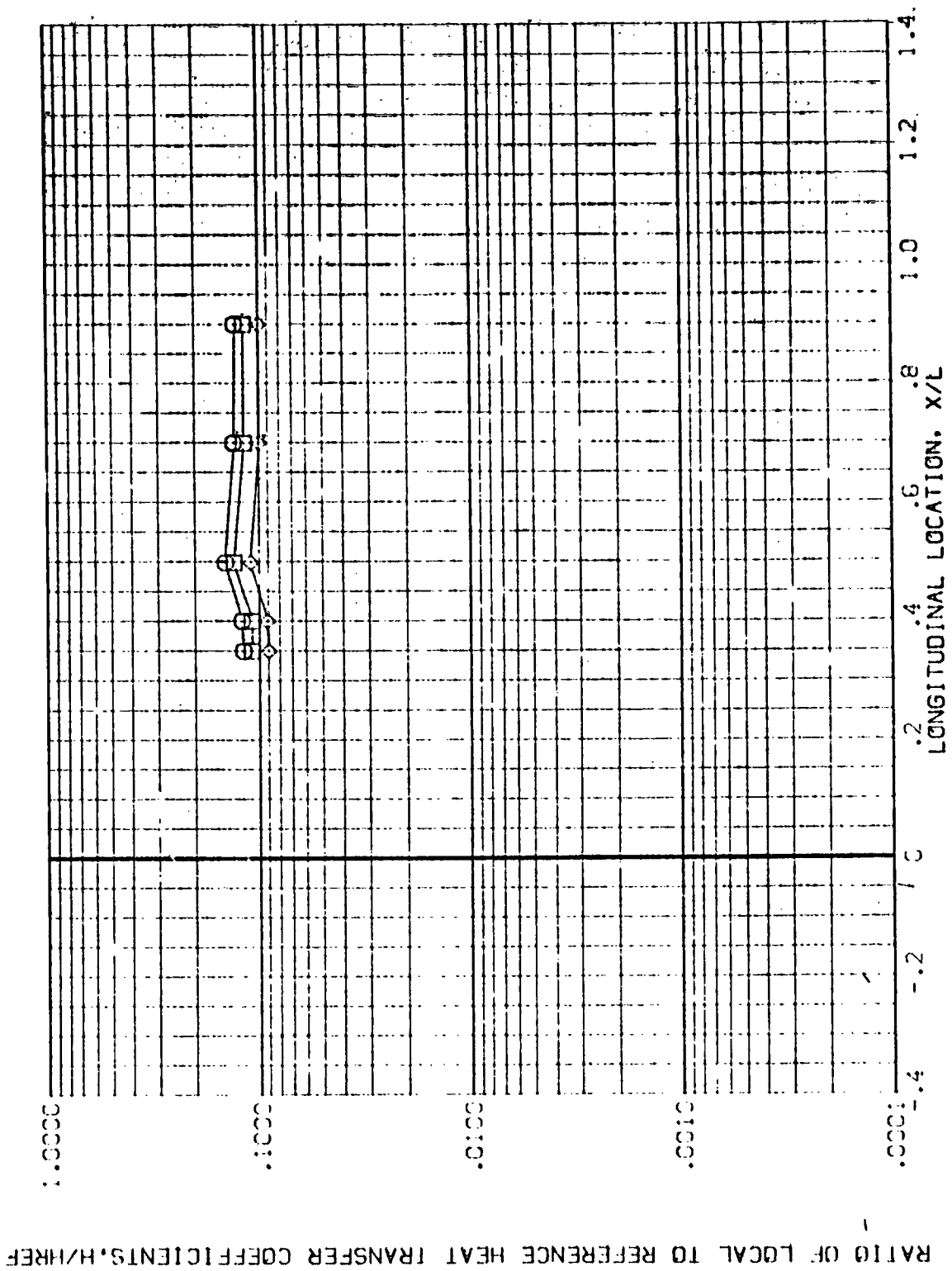


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 1428 01 UNDERSIDE FUSELAGE (REVA23)

SIZE: HANPT EP MACH  
 .500 .000 5.220  
 .300  
 1.000

PARAMETRIC VALUES  
 ALPHA BETA  
 127.000 1.000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

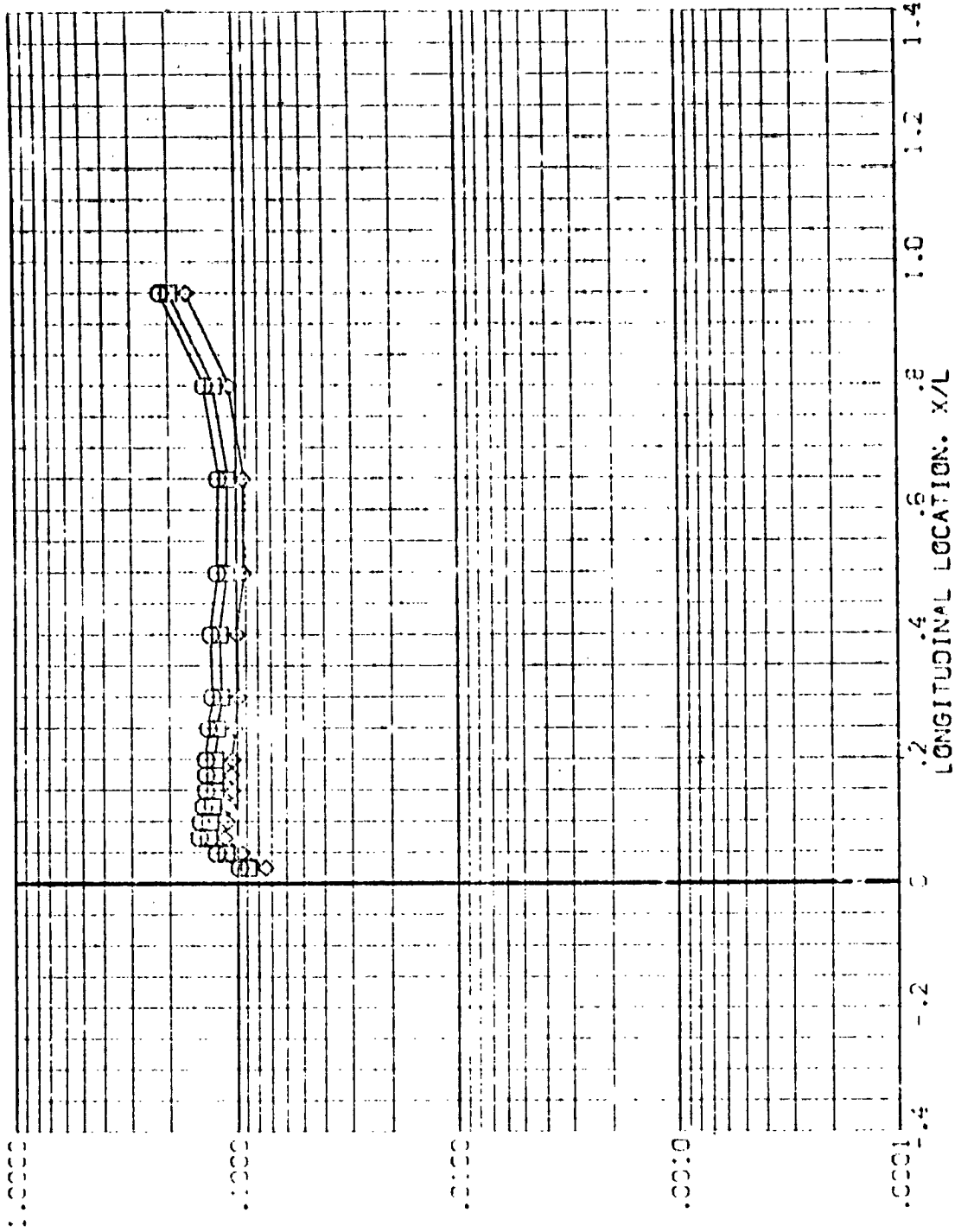


FIG. 7 ORBITER UNDERSIDE FUSELAGE. ORBITER ALONE

REPRODUCIBILITY OF THE  
 ORIGINAL PAGE IS POOR

AMES 3,5-195 :H28 C: UNDERSIDE FUSELAGE (REVA23)

SYSEL HA/HT BP MACH  
 .850 1:17.000 5:220  
 .930  
 1.000

PARAMETRIC VALUES  
 ALPHA 120.000 BETA .500  
 R/V/L 1.000

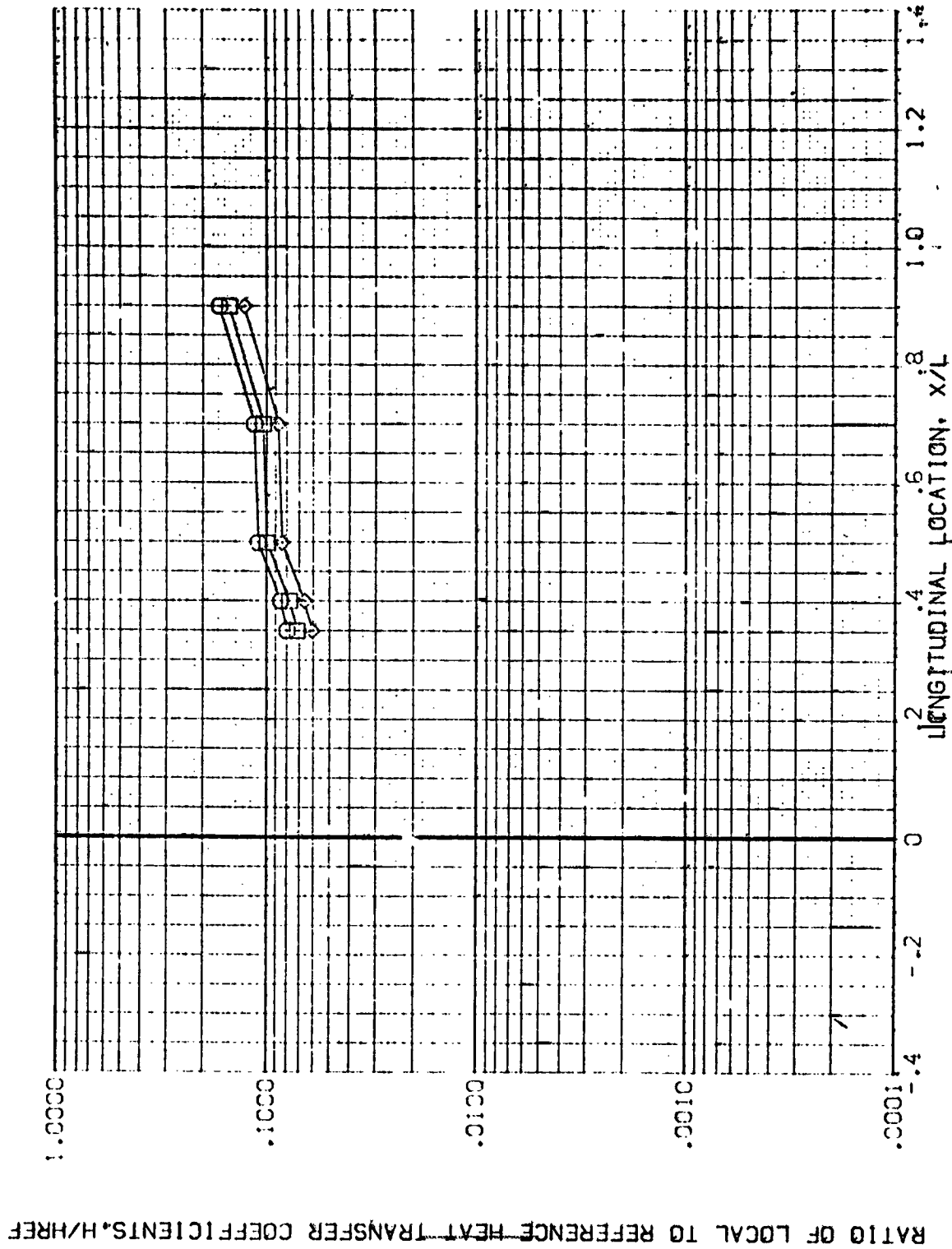


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 01      UNDERSIDE FUSELAGE      (REVA24)

SYMBOL    HAWHT    EP    MACH  
 ◊    .850    .000    5.220  
 □    .900  
 ○    1.000

PARAMETRIC VALUES  
 ALPHA    -120.000  
 BETA    1.000  
 RH/L    .000

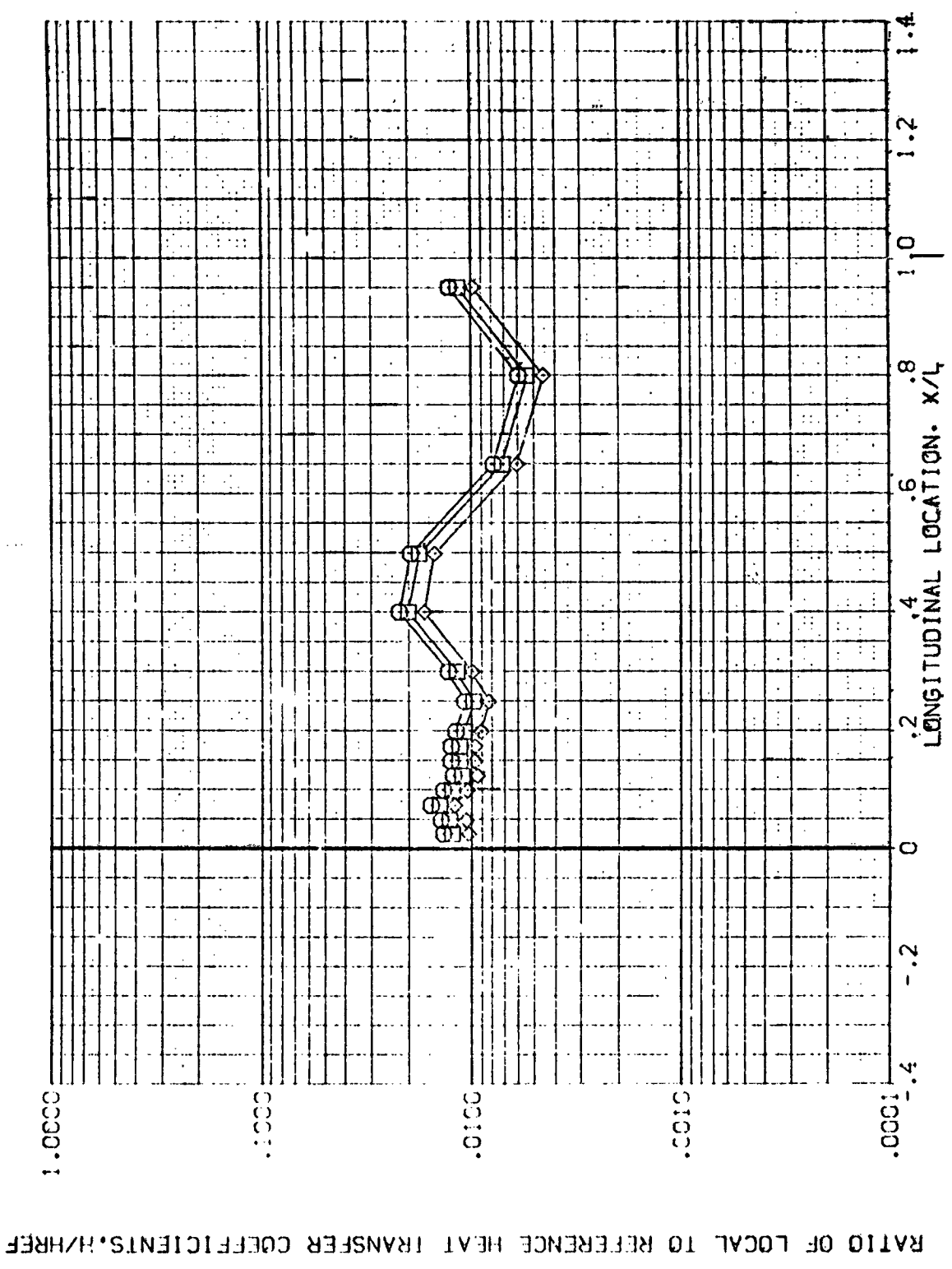


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

(REVA24)

UNDERSIDE FUSELAGE

AMES 3.5-195 IH28 01

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .900  
 RN/L 11.000

SYMBOL HEIGHT BP MACH  
 .850 117.000 5.220  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

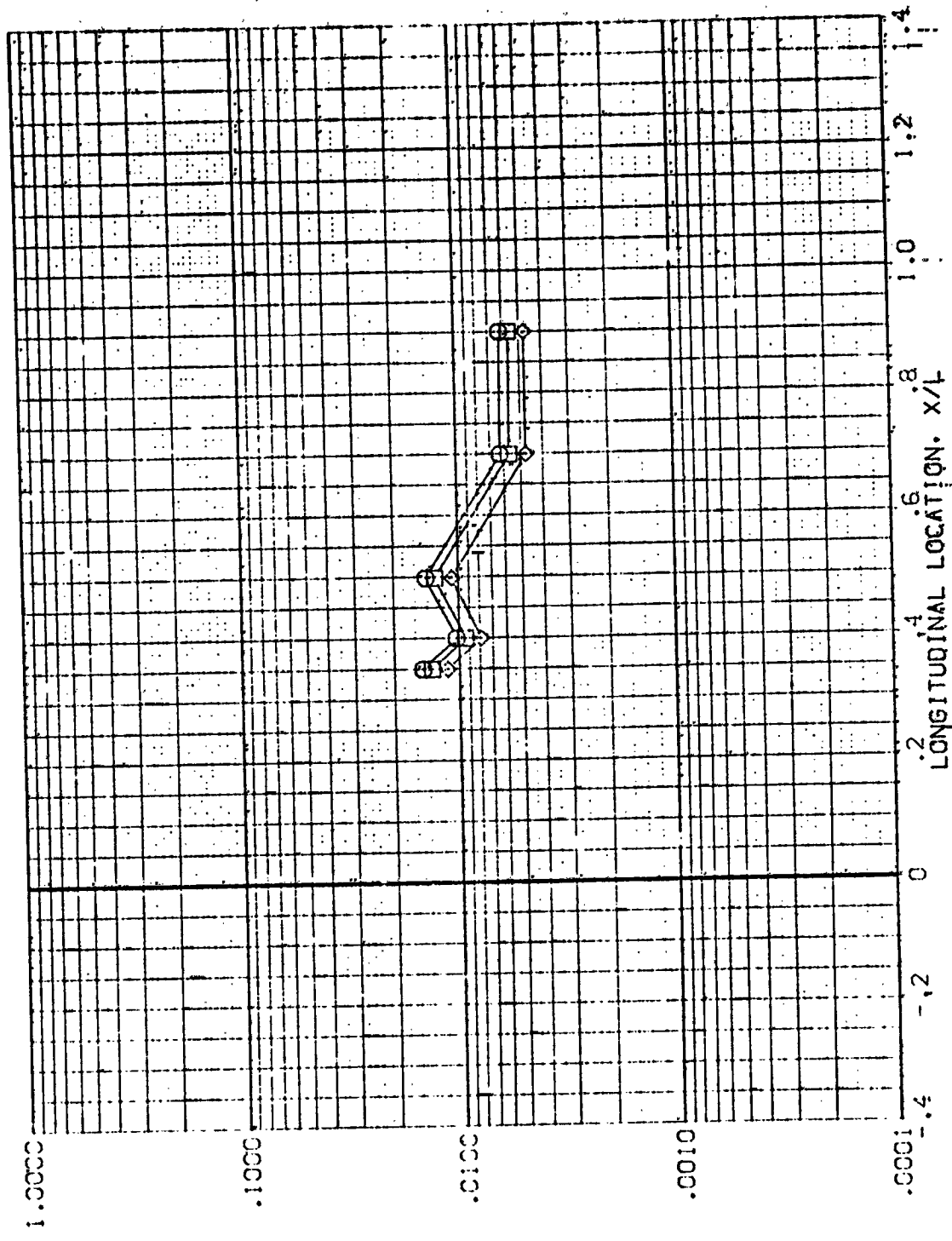


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 1H28 01 UNDERSIDE FUSELAGE (REVA25)

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 R1/L 1.000

SYMBOL HAW/HT EP MACH  
 ◇ .850 .000 5.219  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

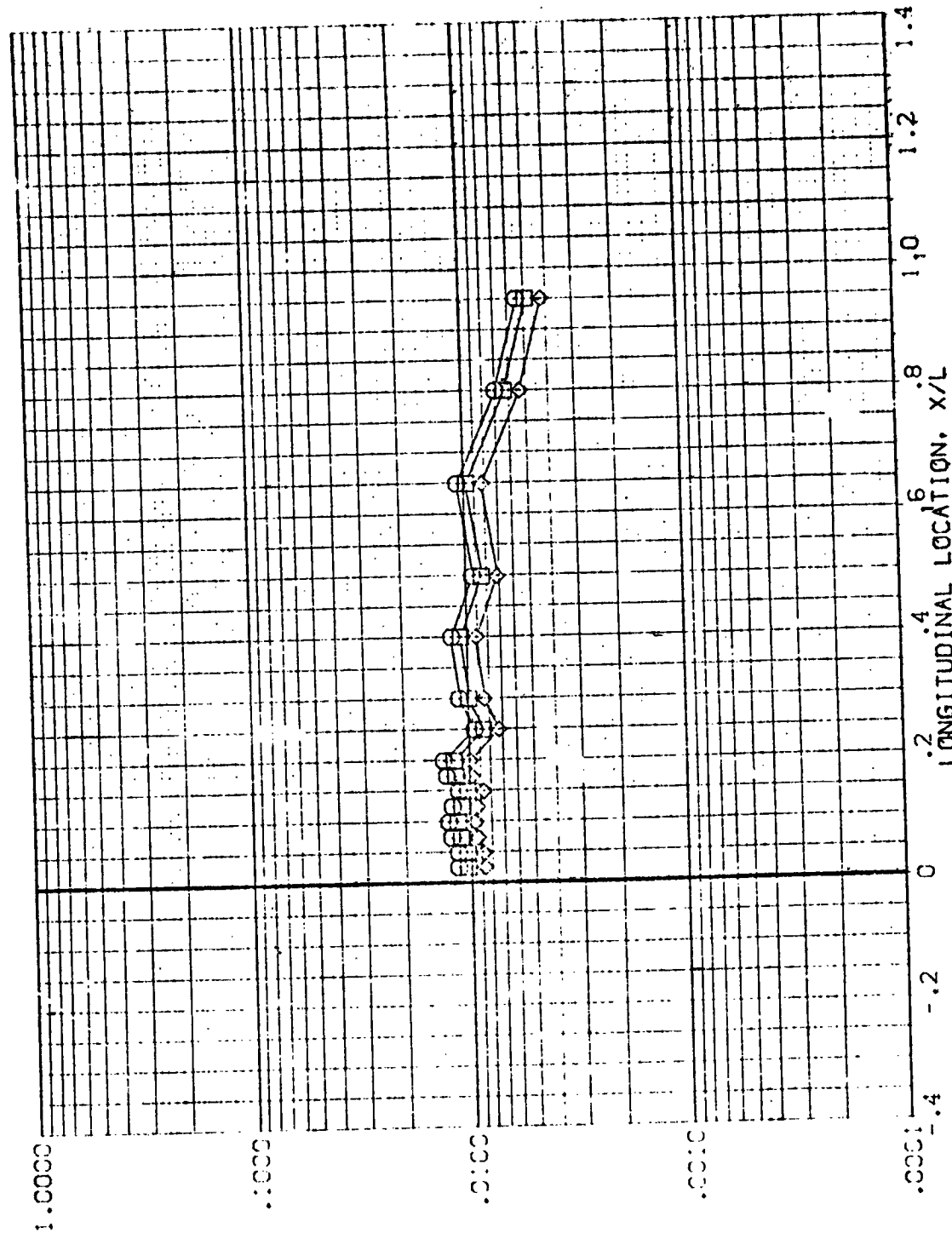


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

(REVA25)

UNDERSIDE FUSELAGE

AYES 3.5-195 IH28 01

PARAMETRIC VALUES  
ALPHA .000  
BETA 1.000

SWEEP HEIGHT BP VACH  
EDC 1.000 5.219  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

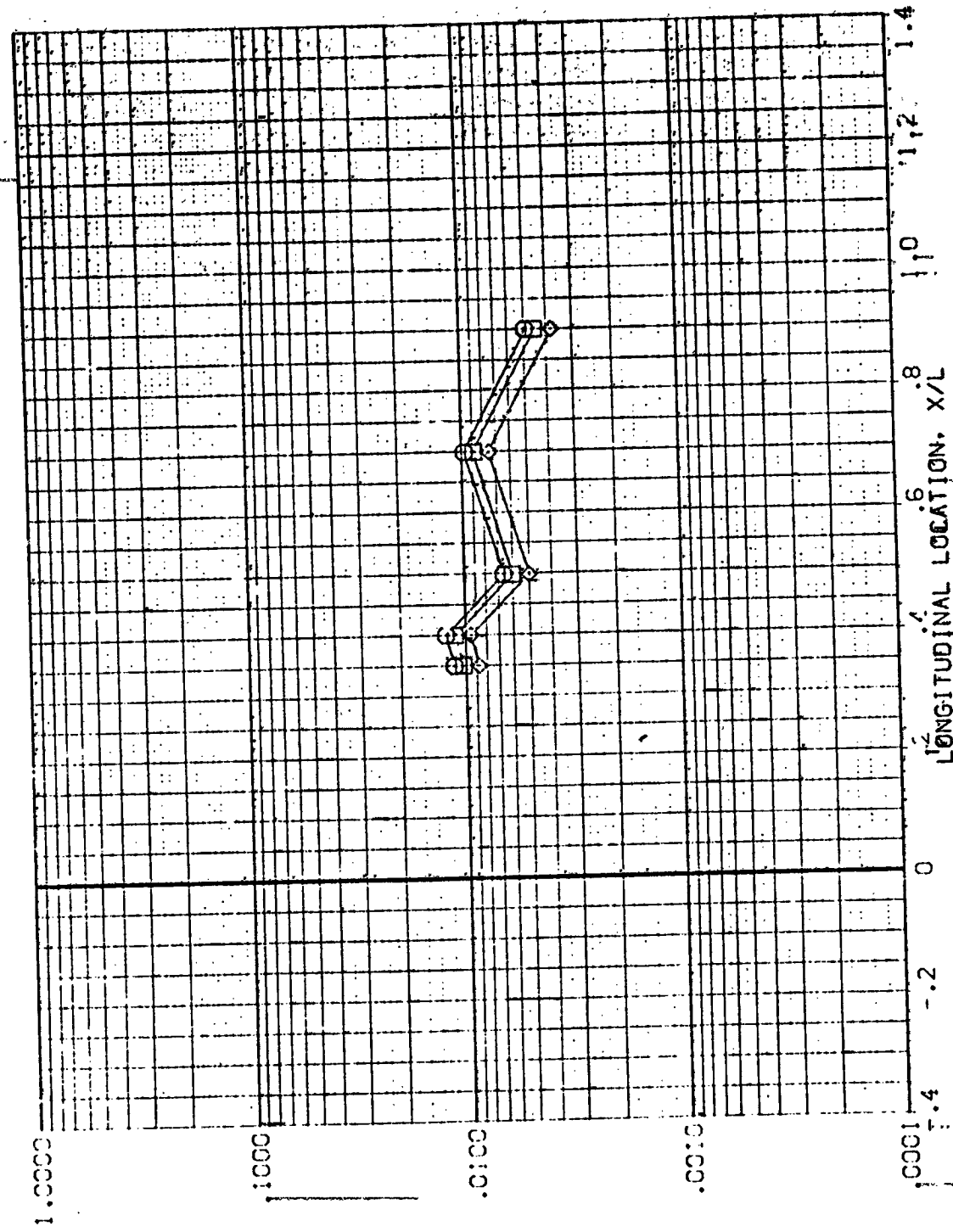


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE



AVES 3.5-195 1H28 01 UNDERSIDE FUSELAGE (REVA26)

SYNCH. HAW/RT SP MACH  
 .853 .000 5.220  
 .920  
 1.000

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 RN/L 1.000

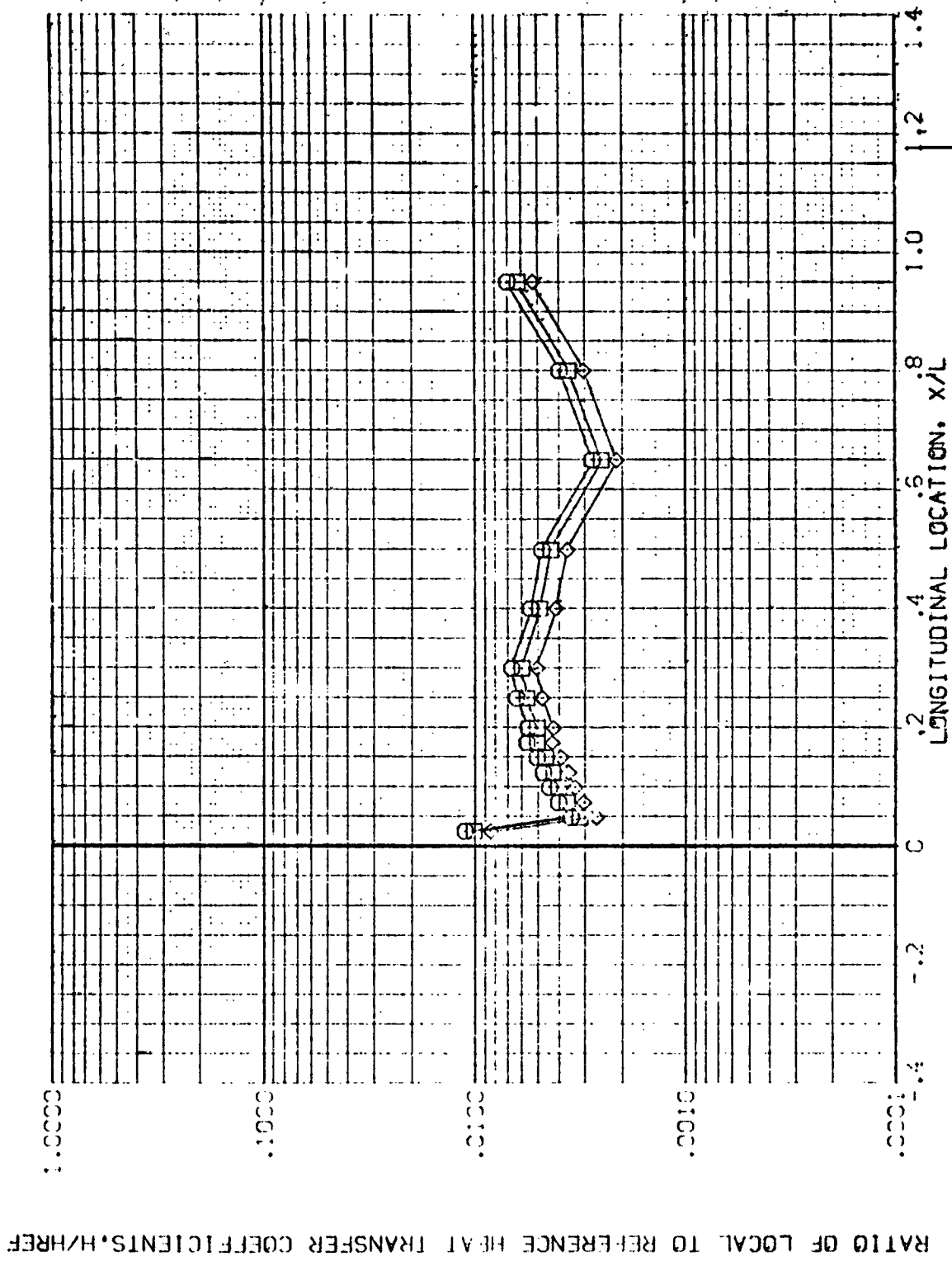


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 01

UNDERSIDE FUSELAGE

(REVA26)

S-322  
 HAW/HT .850  
 BP 117.000  
 MACH 5.220

PARAMETRIC VALUES  
 ALPHA R1/L  
 BETA 1.000  
 .000

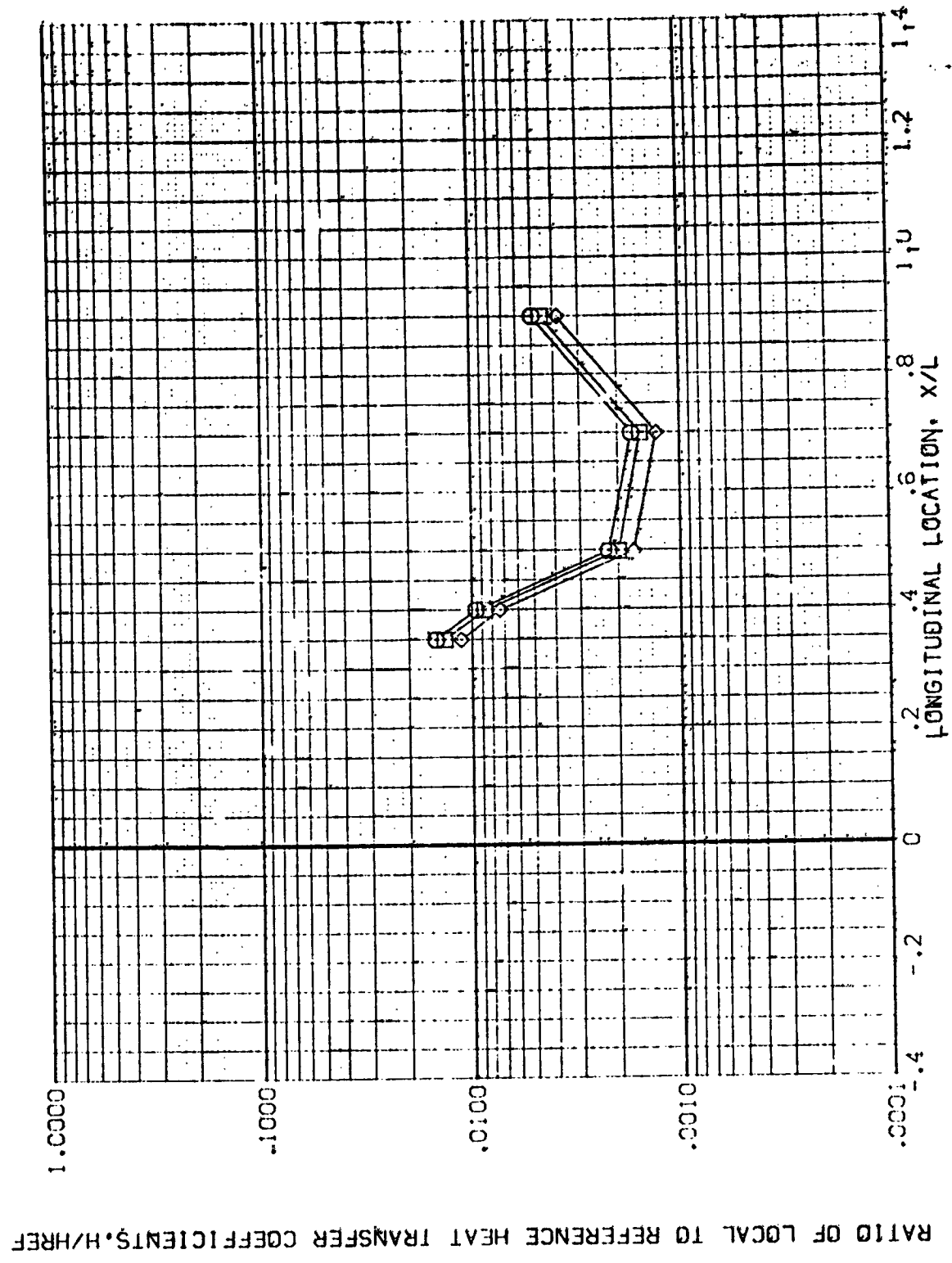


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AMES 3.5-195 IH28 01      UNDERSIDE FUSELAGE      (REVA27)

S-REF    1/4"    5"    MACH  
 .850    .000    5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA    BETA    .000  
 R/VL    1.000

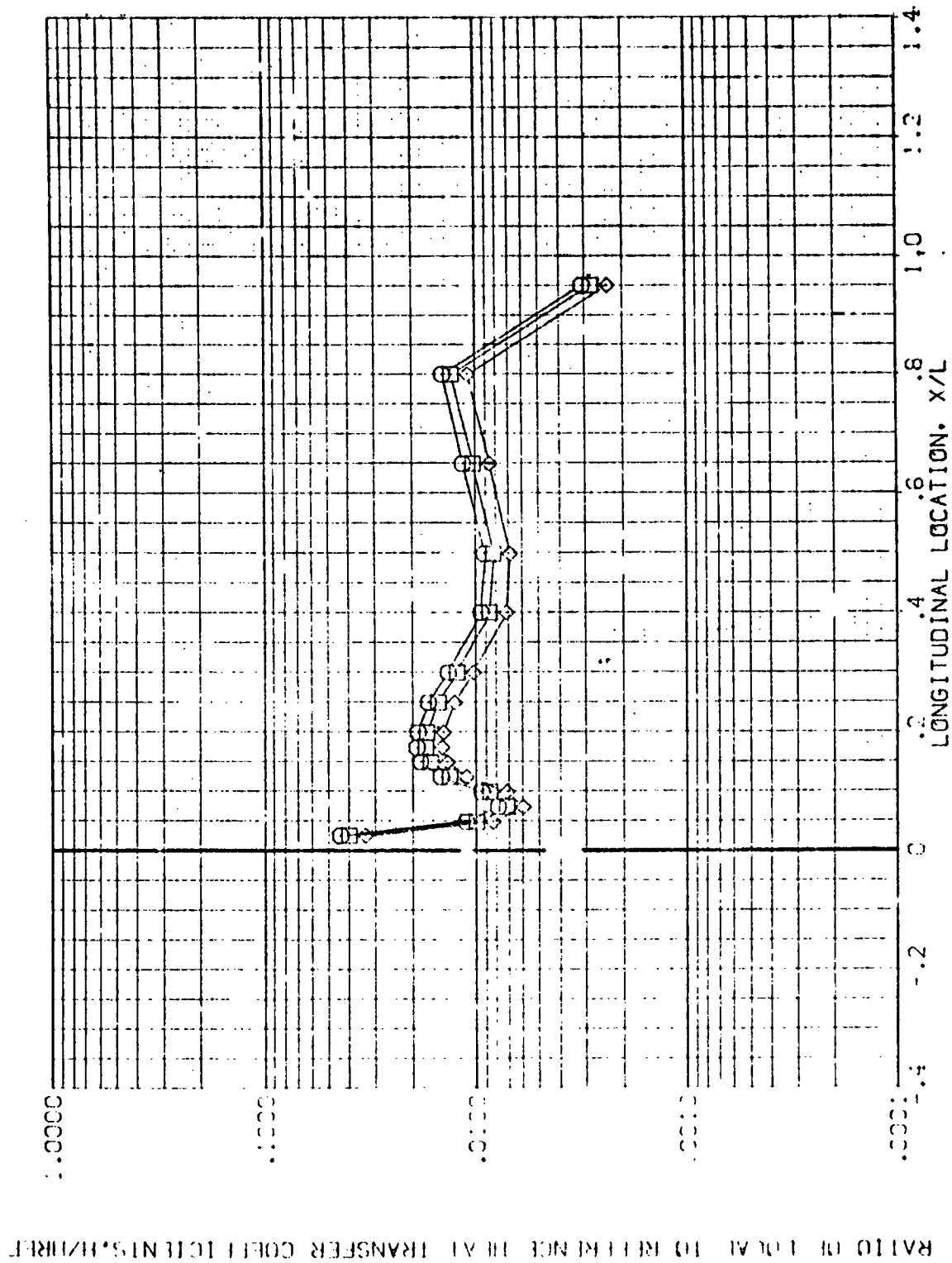


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

AVES 3.5-195 1428 01 UNDERSIDE FUSELAGE (REVA27)

S<sub>REF</sub> .500  
 HAW/REF .500  
 BP 117.000  
 MACH 5.220

PARAMETRIC VALUES  
 ALPHA R<sub>N</sub>/L 1.000  
 BETA 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

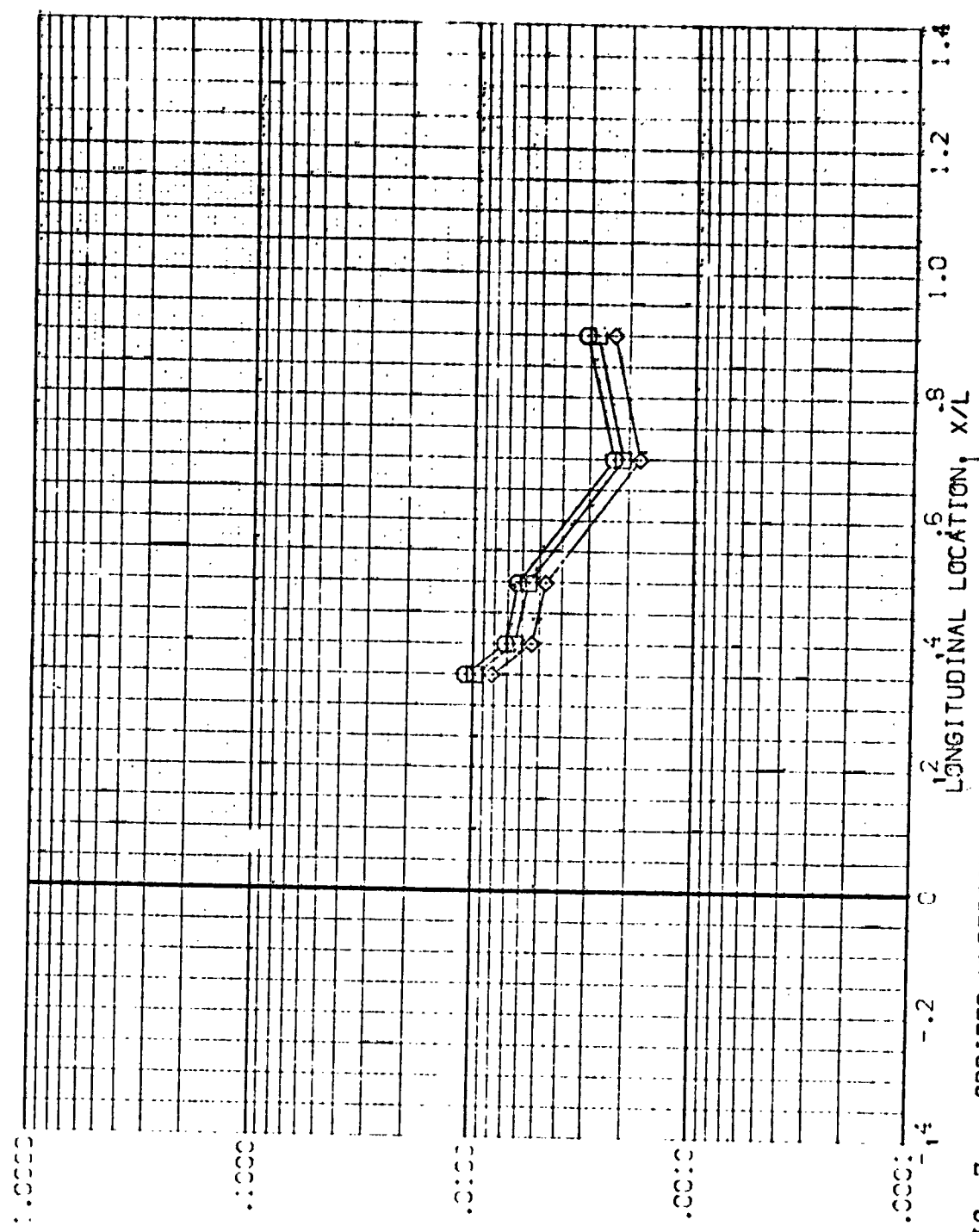


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

DATA SET SYMBOL CONFIGURATION DESCRIPTION: ALPHA BETA RN/L

00000000	00000000	00000000	000	000	1.000
00000000	00000000	00000000	30.000	000	1.000
00000000	00000000	00000000	60.000	000	1.000
00000000	00000000	00000000	90.000	000	1.000
00000000	00000000	00000000	120.000	000	1.000

UNDERSIDE FUSELAGE  
 UNDERSIDE FUSELAGE  
 UNDERSIDE FUSELAGE  
 UNDERSIDE FUSELAGE  
 UNDERSIDE FUSELAGE

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

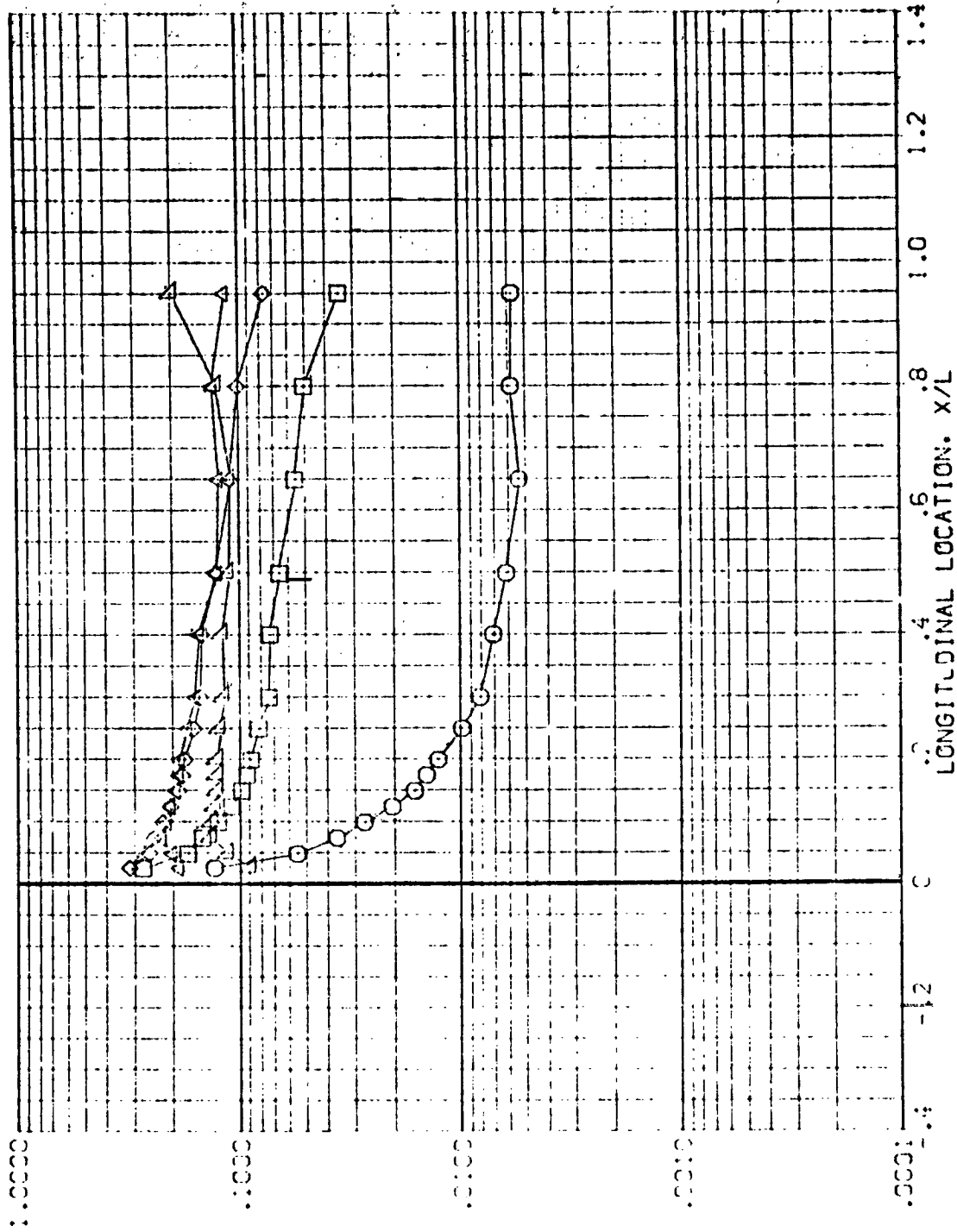
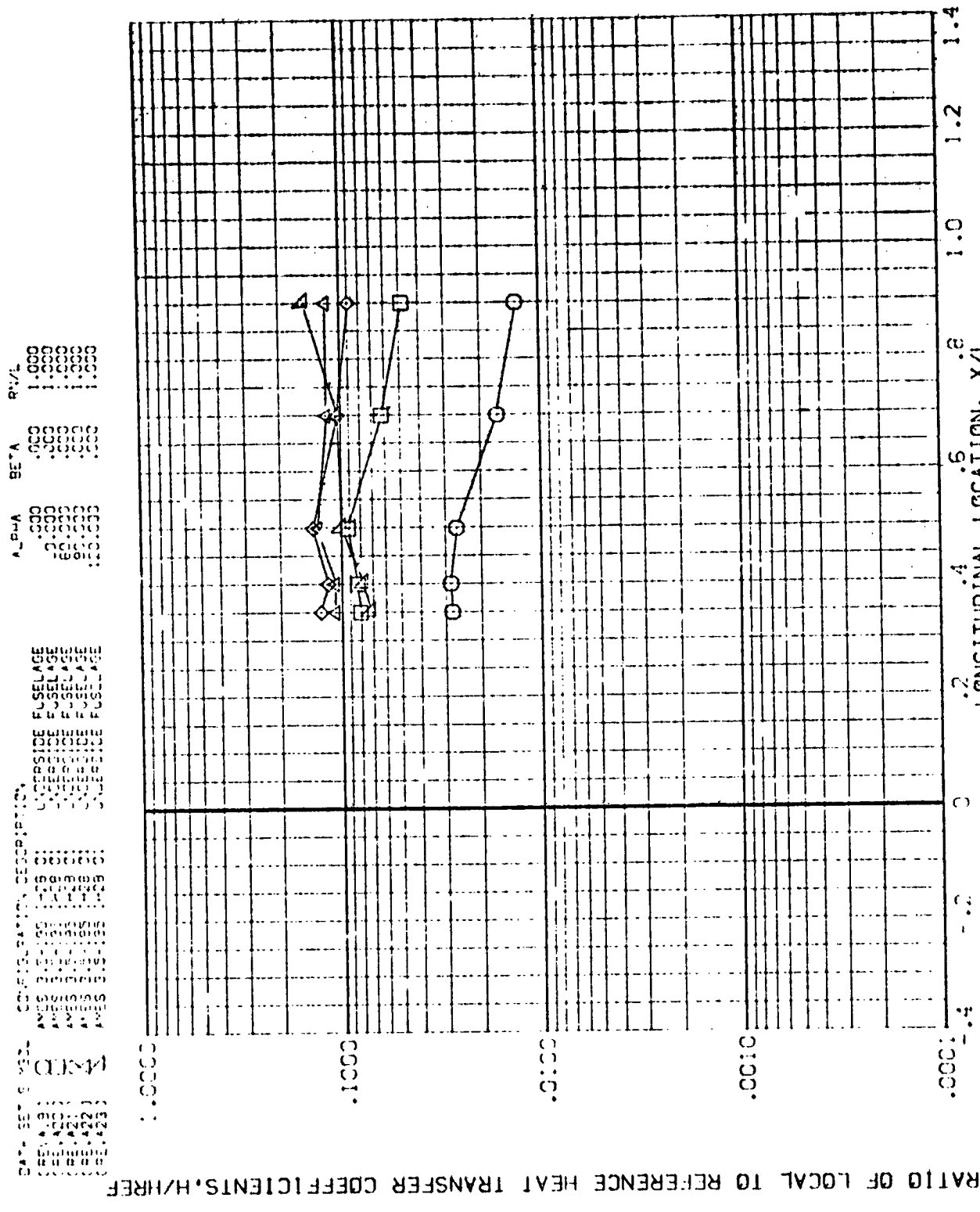


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

MACH = 5.000 ORBITER ALONE = 0.000



ALPHA BETA R/V/L  
 .000 .000 1.000  
 .000 .000 1.000  
 .000 .000 1.000  
 .000 .000 1.000  
 .000 .000 1.000  
 .000 .000 1.000

SECTORS  
 FUSELAGE  
 SIDE  
 WINDOW  
 DOOR  
 BULKHEAD

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HRREF

FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE



DATA SET NUMBER                    DESCRIPTION                                       ALPHA                    BETA                    P<sub>h</sub>/L  
 1                    1                                                                                                                                                          
 2                    2                                                                                                                                                          
 3                    3                                                                                                                                                          
 4                    4                                                                                                                                                          
 5                    5                                                                                                                                                          
 6                    6                                                                                                                                                          
 7                    7                                                                                                                                                          
 8                    8                                                                                                                                                          
 9                    9                                                                                                                                                          
 10                    10                                                                                                                                                          
 11                    11                                                                                                                                                          
 12                    12                                                                                                                                                          
 13                    13                                                                                                                                                          
 14                    14                                                                                                                                                          
 15                    15                                                                                                                                                          
 16                    16                                                                                                                                                          
 17                    17                                                                                                                                                          
 18                    18                                                                                                                                                          
 19                    19                                                                                                                                                          
 20                    20                                                                                                                                                          
 21                    21                                                                                                                                                          
 22                    22                                                                                                                                                          
 23                    23                                                                                                                                                          
 24                    24                                                                                                                                                          
 25                    25                                                                                                                                                          
 26                    26                                                                                                                                                          
 27                    27                                                                                                                                                          
 28                    28                                                                                                                                                          
 29                    29                                                                                                                                                          
 30                    30                                                                                                                                                          
 31                    31                                                                                                                                                          
 32                    32                                                                                                                                                          
 33                    33                                                                                                                                                          
 34                    34                                                                                                                                                          
 35                    35                                                                                                                                                          
 36                    36                                                                                                                                                          
 37                    37                                                                                                                                                          
 38                    38                                                                                                                                                          
 39                    39                                                                                                                                                          
 40                    40                                                                                                                                                          
 41                    41                                                                                                                                                          
 42                    42                                                                                                                                                          
 43                    43                                                                                                                                                          
 44                    44                                                                                                                                                          
 45                    45                                                                                                                                                          
 46                    46                                                                                                                                                          
 47                    47                                                                                                                                                          
 48                    48                                                                                                                                                          
 49                    49                                                                                                                                                          
 50                    50                                                                                                                                                          
 51                    51                                                                                                                                                          
 52                    52                                                                                                                                                          
 53                    53                                                                                                                                                          
 54                    54                                                                                                                                                          
 55                    55                                                                                                                                                          
 56                    56                                                                                                                                                          
 57                    57                                                                                                                                                          
 58                    58                                                                                                                                                          
 59                    59                                                                                                                                                          
 60                    60                                                                                                                                                          
 61                    61                                                                                                                                                          
 62                    62                                                                                                                                                          
 63                    63                                                                                                                                                          
 64                    64                                                                                                                                                          
 65                    65                                                                                                                                                          
 66                    66                                                                                                                                                          
 67                    67                                                                                                                                                          
 68                    68                                                                                                                                                          
 69                    69                                                                                                                                                          
 70                    70                                                                                                                                                          
 71                    71                                                                                                                                                          
 72                    72                                                                                                                                                          
 73                    73                                                                                                                                                          
 74                    74                                                                                                                                                          
 75                    75                                                                                                                                                          
 76                    76                                                                                                                                                          
 77                    77                                                                                                                                                          
 78                    78                                                                                                                                                          
 79                    79                                                                                                                                                          
 80                    80                                                                                                                                                          
 81                    81                                                                                                                                                          
 82                    82                                                                                                                                                          
 83                    83                                                                                                                                                          
 84                    84                                                                                                                                                          
 85                    85                                                                                                                                                          
 86                    86                                                                                                                                                          
 87                    87                                                                                                                                                          
 88                    88                                                                                                                                                          
 89                    89                                                                                                                                                          
 90                    90                                                                                                                                                          
 91                    91                                                                                                                                                          
 92                    92                                                                                                                                                          
 93                    93                                                                                                                                                          
 94                    94                                                                                                                                                          
 95                    95                                                                                                                                                          
 96                    96                                                                                                                                                          
 97                    97                                                                                                                                                          
 98                    98                                                                                                                                                          
 99                    99                                                                                                                                                          
 100                    100                                                                                                                                                        

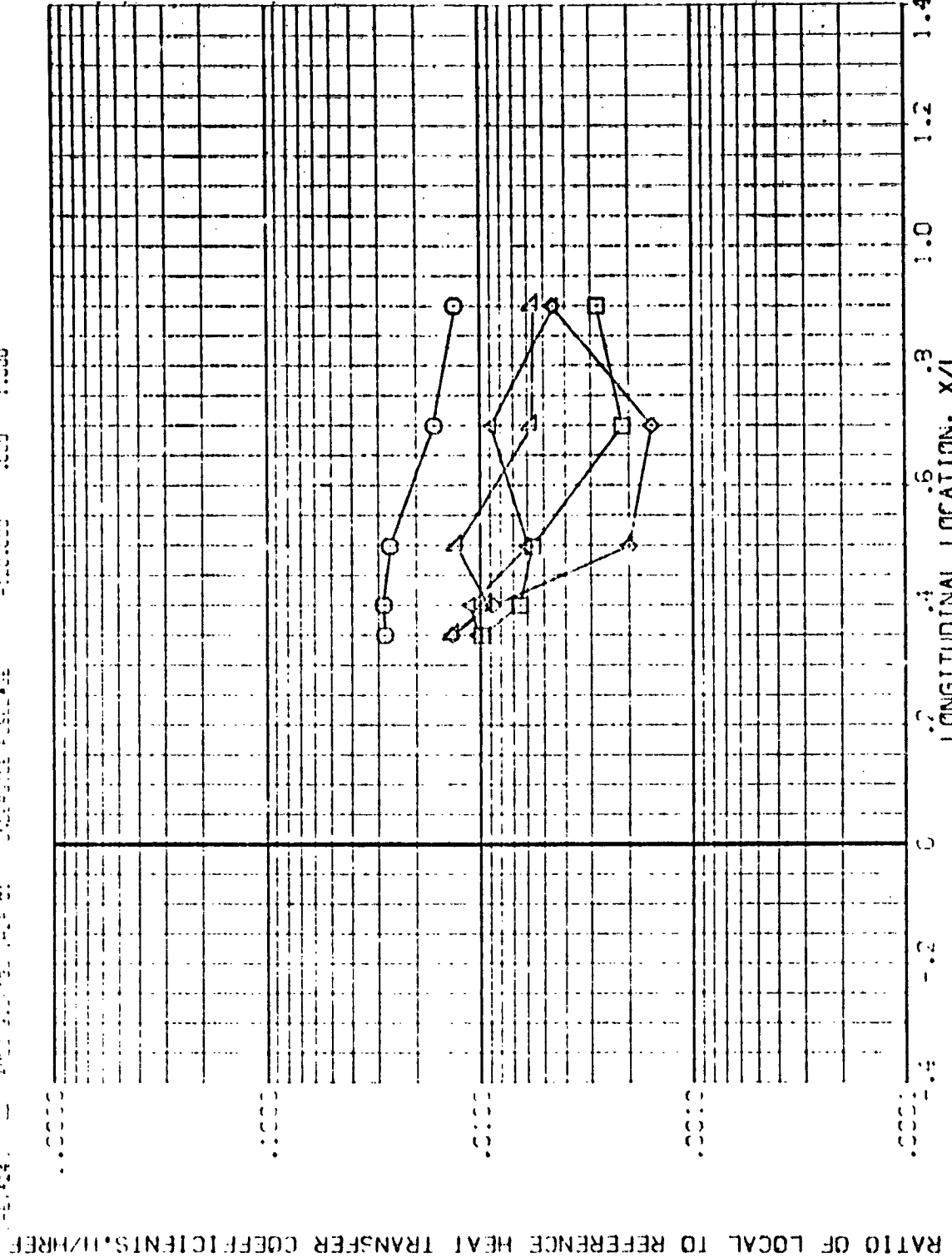


FIG. 7 ORBITER UNDERSIDE FUSELAGE, ORBITER ALONE

$\text{MACH} = 5.200$      $\text{REF} = 0.000$      $\text{REF} = 117.000$



AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE

(REV#01)

SYMBOL:  $\diamond$  WEIGHT: .850 EP: .000 MACH: 5.228  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA: .000  
 BETA: 1.000

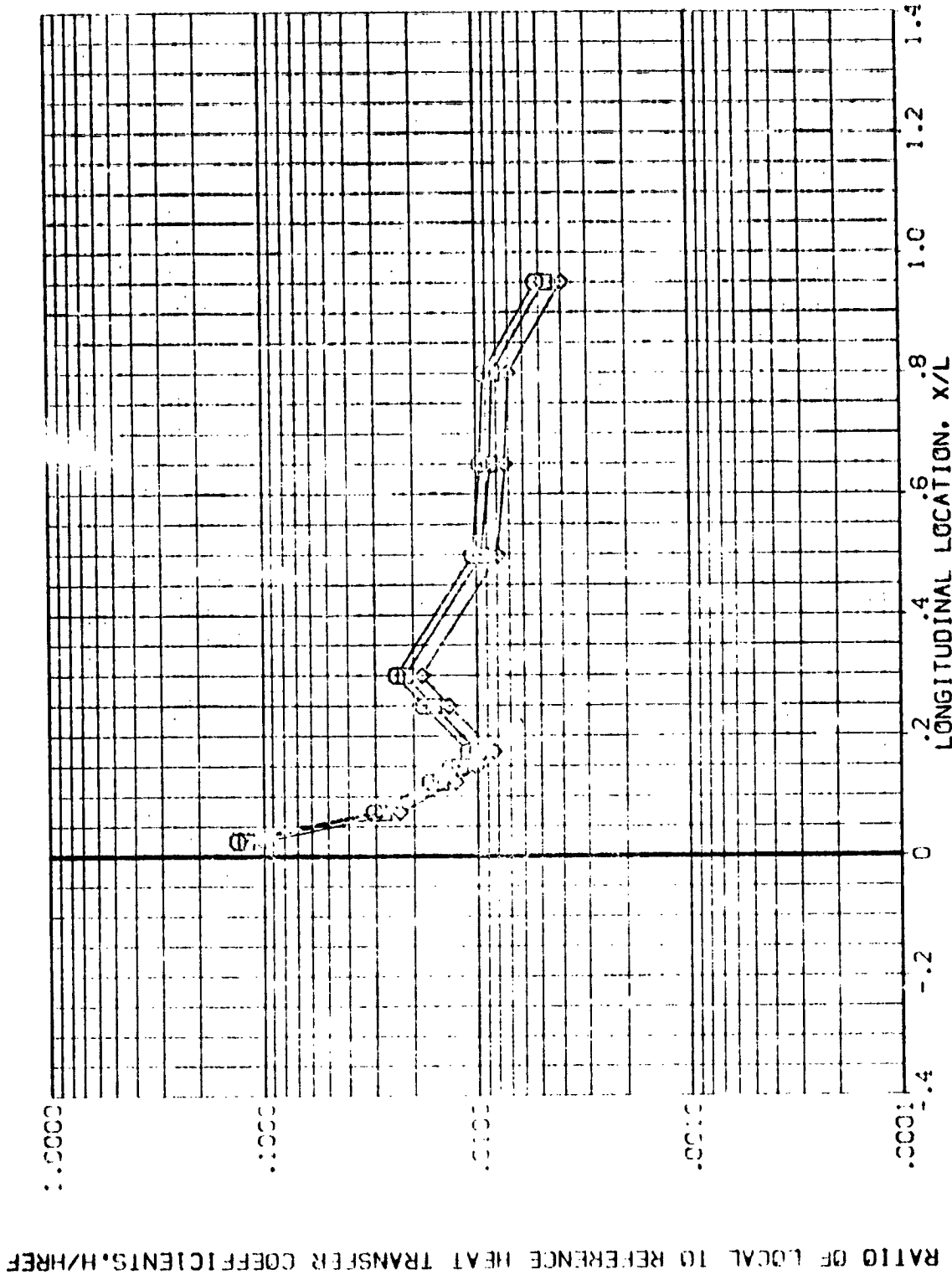


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3,5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVAQ1)

SYMBOL	MAW/HT	BP	MACH	PARAMETRIC VALUES
◇	.850	117.000	5.228	.0000 BETA
□	.900			1.000
◇	1.000			R/VT

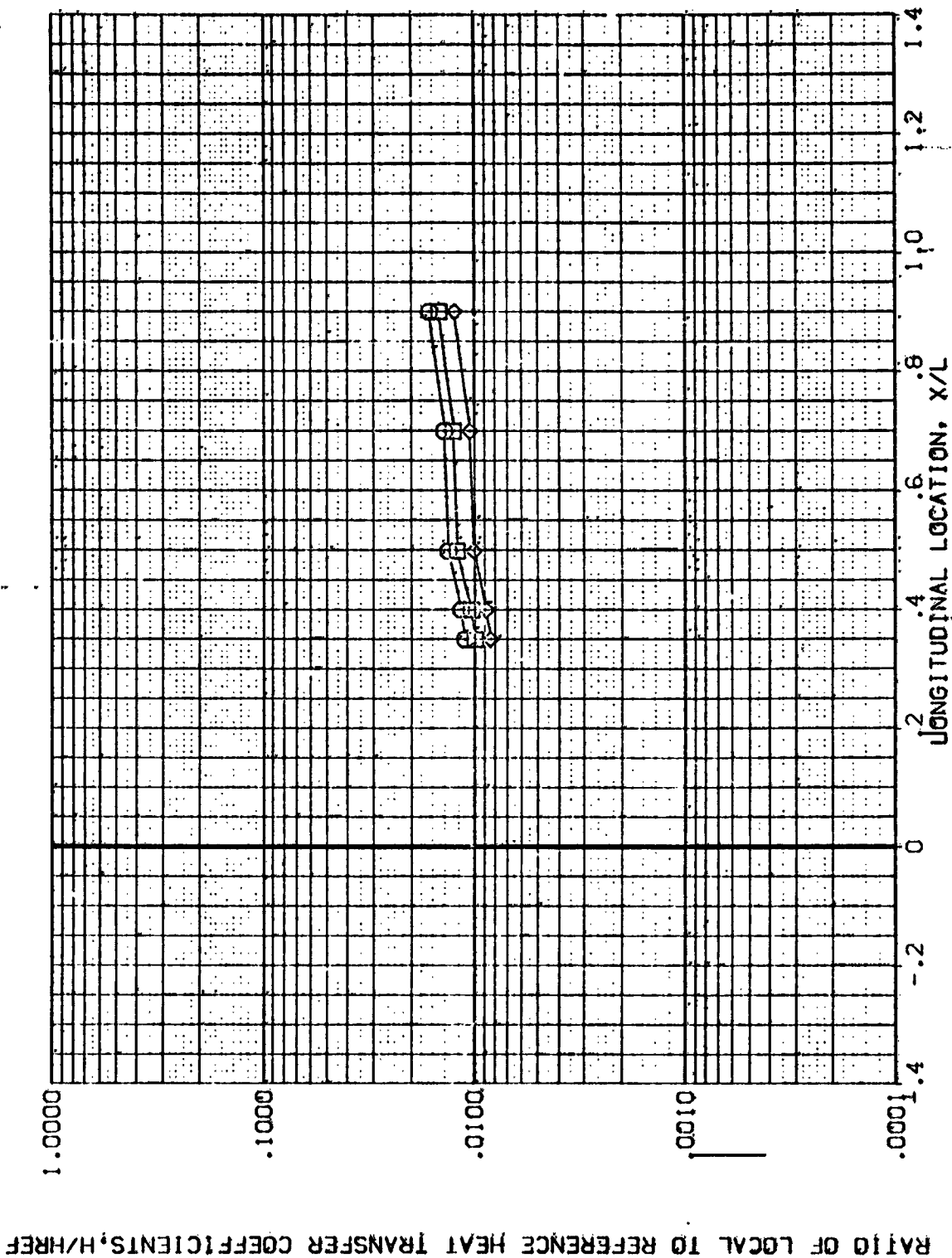


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA02)

SYMCL    MACH/HT    BP    MACH    PARAMETRIC VALUES  
 .850    .000    5.219    30.000    BETA  
 .900    1.000          1.000    R/V/L    .000

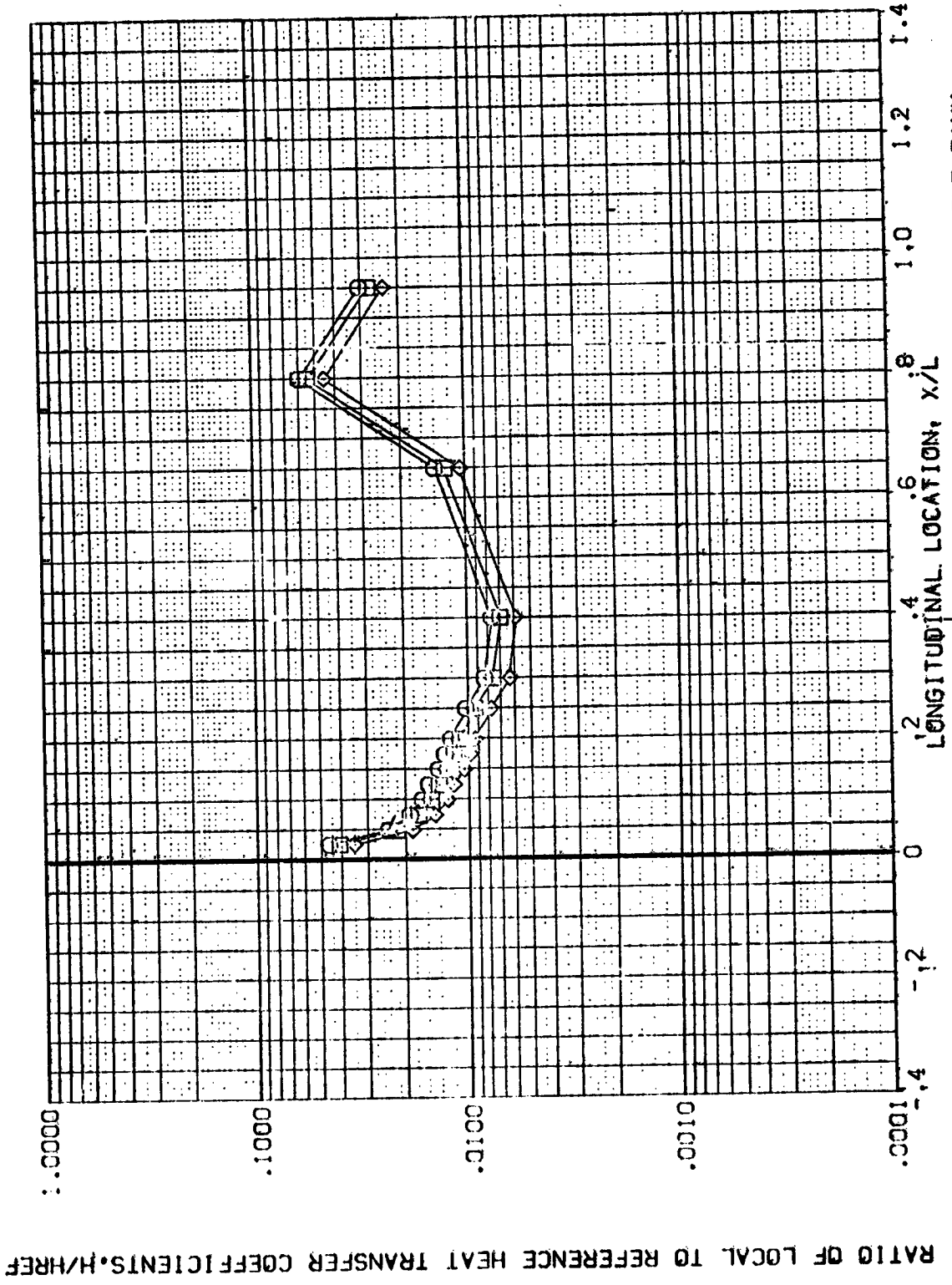


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REV A02)

PARAMETRIC VALUES  
 ALPHA 30.000 BETA 1.000  
 RN/L

SYMBOL HAWK/BP MACH  
 .850 117.000 5.219  
 .950  
 1.000

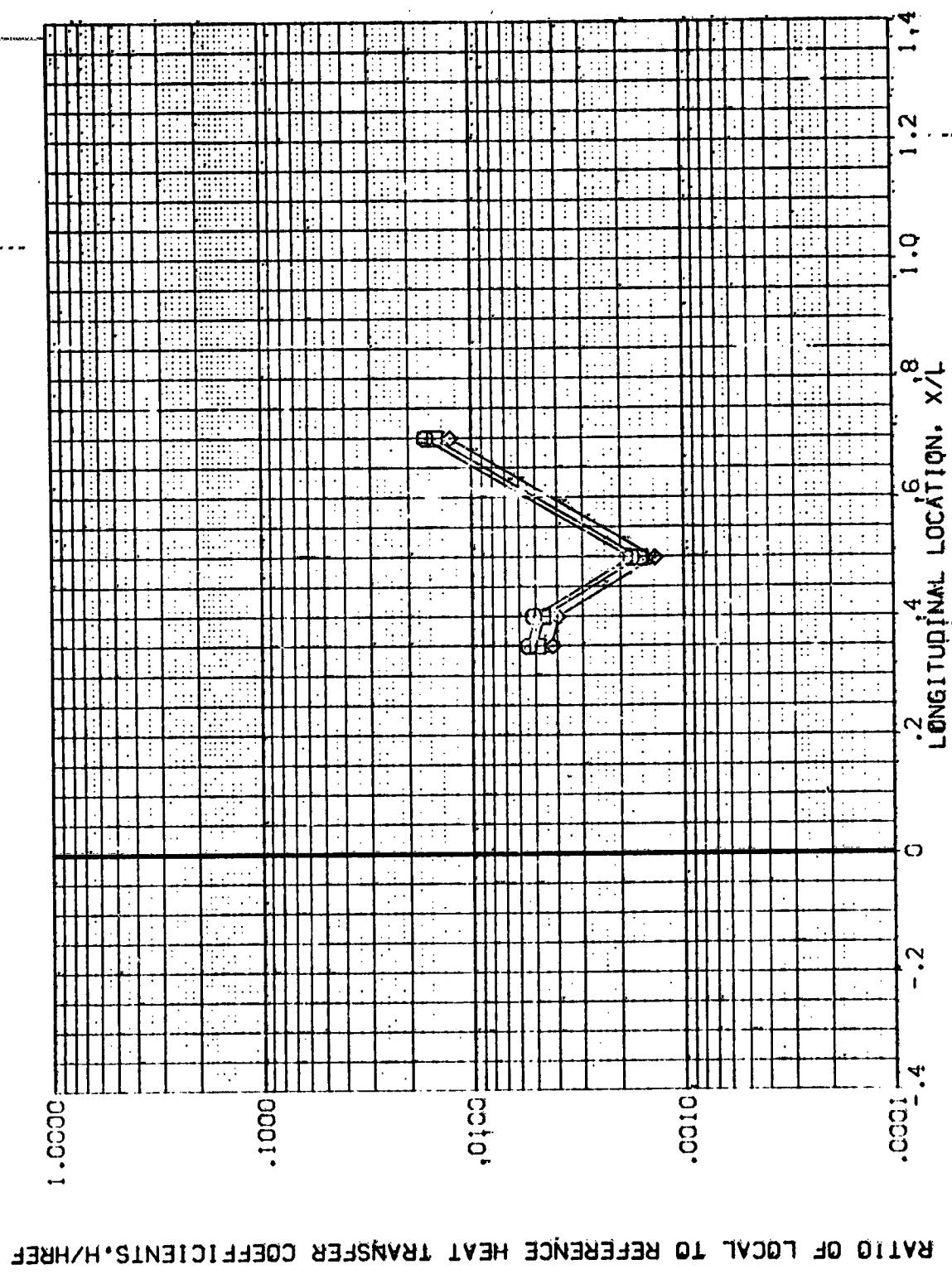


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3,5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA03)

$\diamond$  PRO  
 S.W.C. WAVELENGTH BP MACH  
 .850 .008 5.220  
 .933  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RW/L 1.000

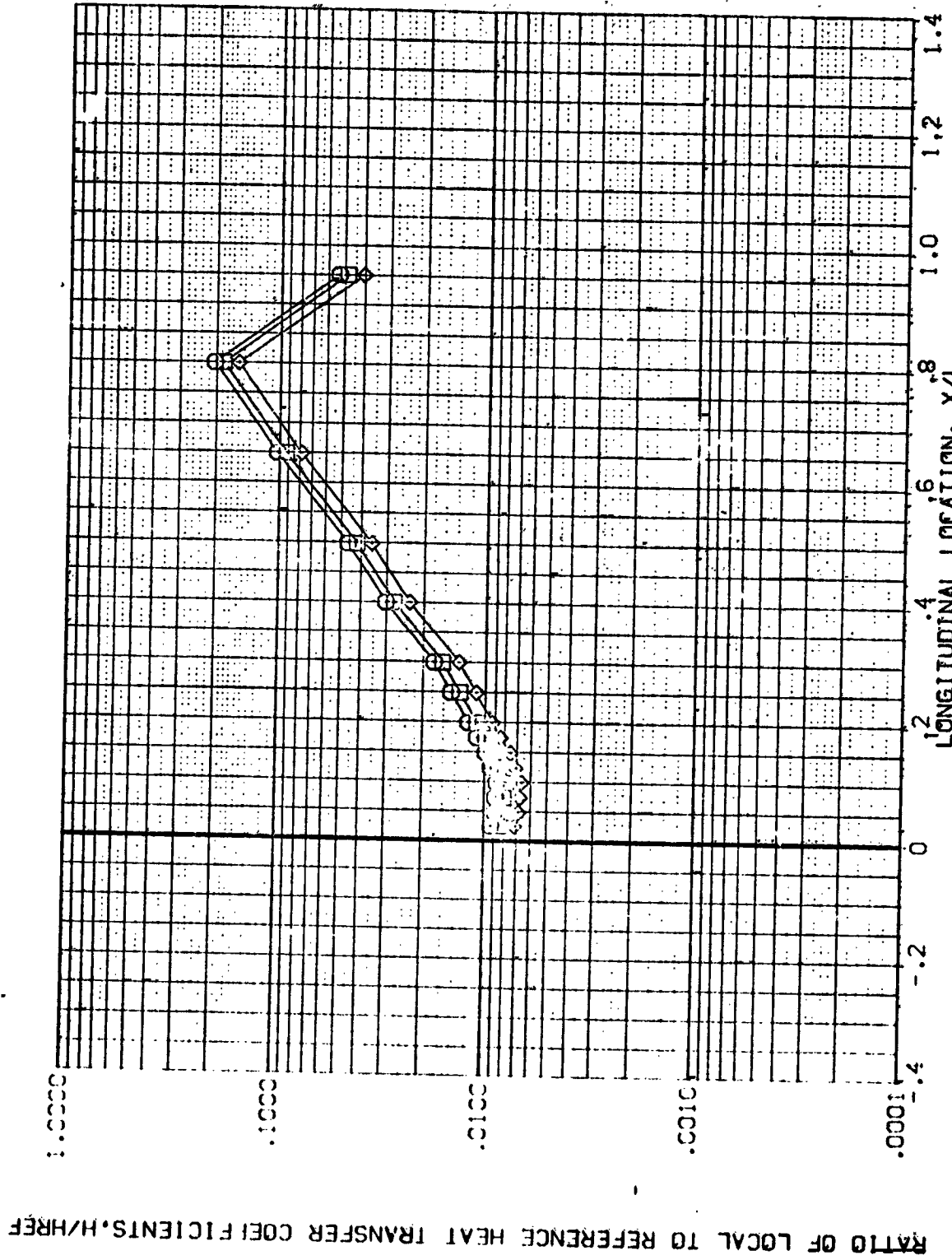


FIG. 8 ORBITER UNDERSIDE FUSELAGE. ORBITER IN THE PRESENCE OF THE TANK

AVES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA03)

SYMBOL    HAW/LT    BP    MACH  
 ◊        .850    117.000    5.220  
 ◻        .900  
 ◻        1.000

PARAMETRIC VALUES  
 ALPHA    150.000  
 BETA     1.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

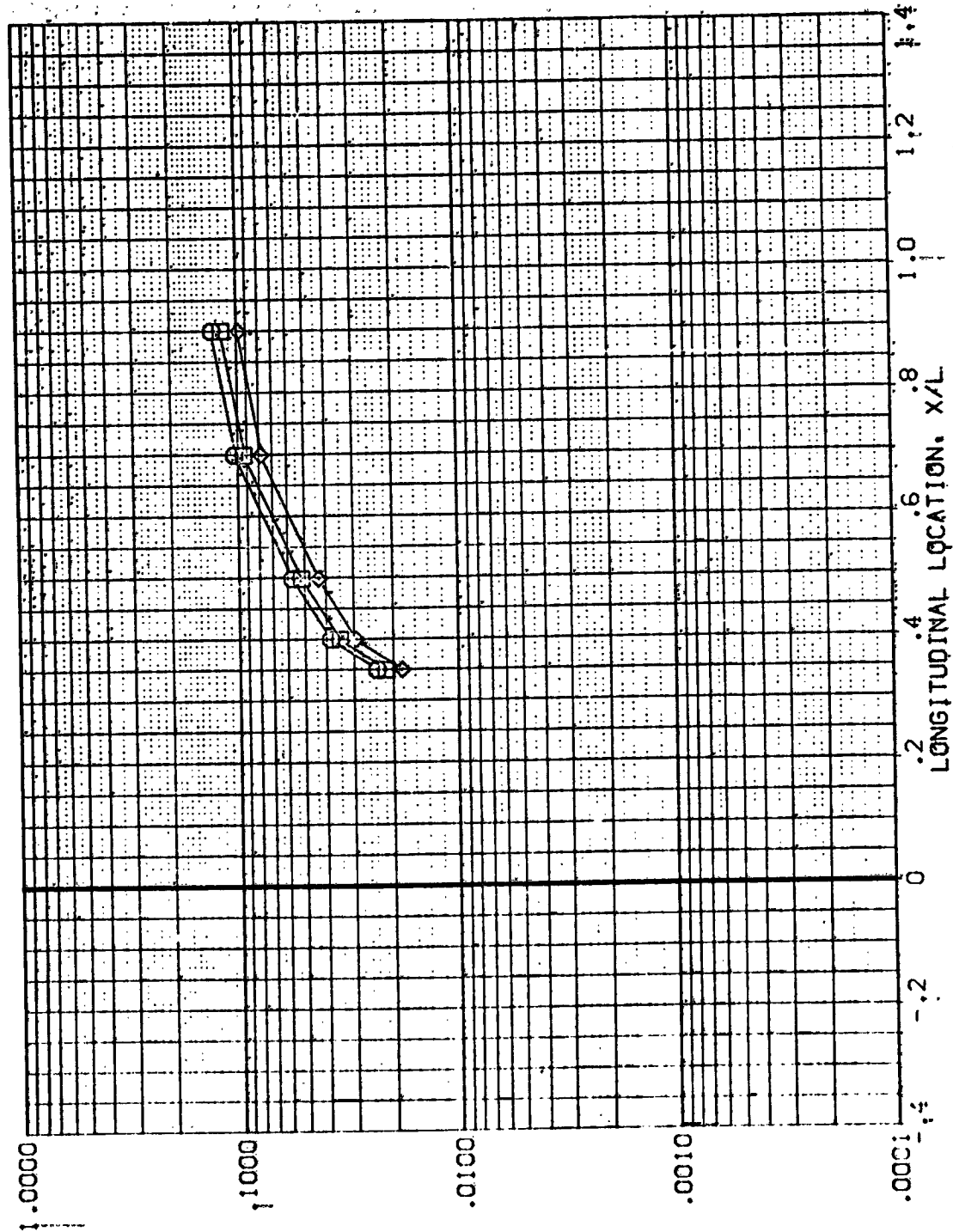


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

REPRODUCIBILITY OF THE  
 ORIGINAL PAGE IS POOR

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA04)

SYMBOL	MAV/HT	BP	MACH	PARAMETRIC VALUES
◇	.850	.000	5.219	90,000 BETA
○	.900			1,000
◇	1.000			
				ALPHA
				RV/L

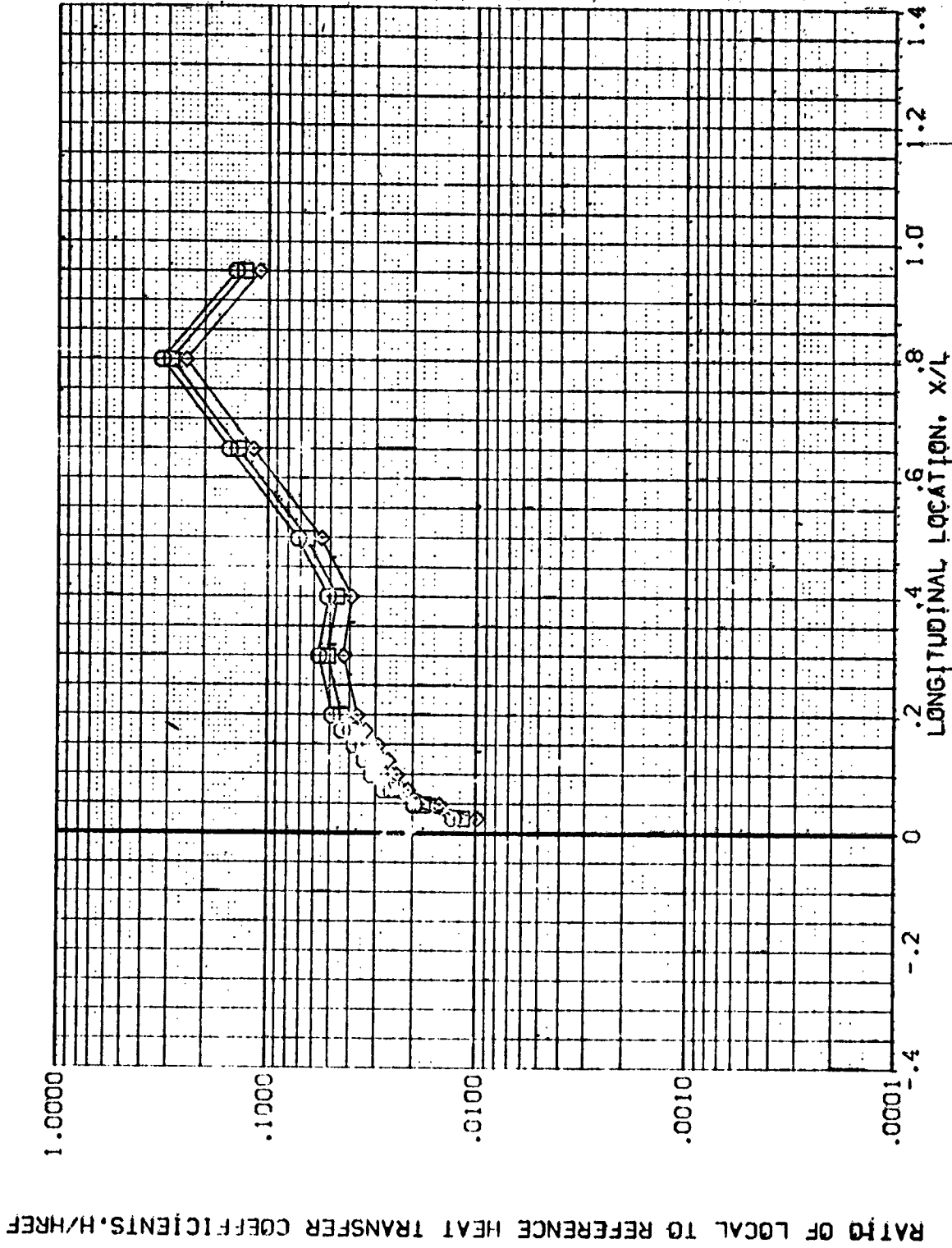


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVAD4)

SYMBOL MACH BP PACH  
 ◊ .850 117.000 5.219  
 □ .900  
 ◊ 1.000

PARAMETRIC VALUES  
 90.000 BETA  
 .000

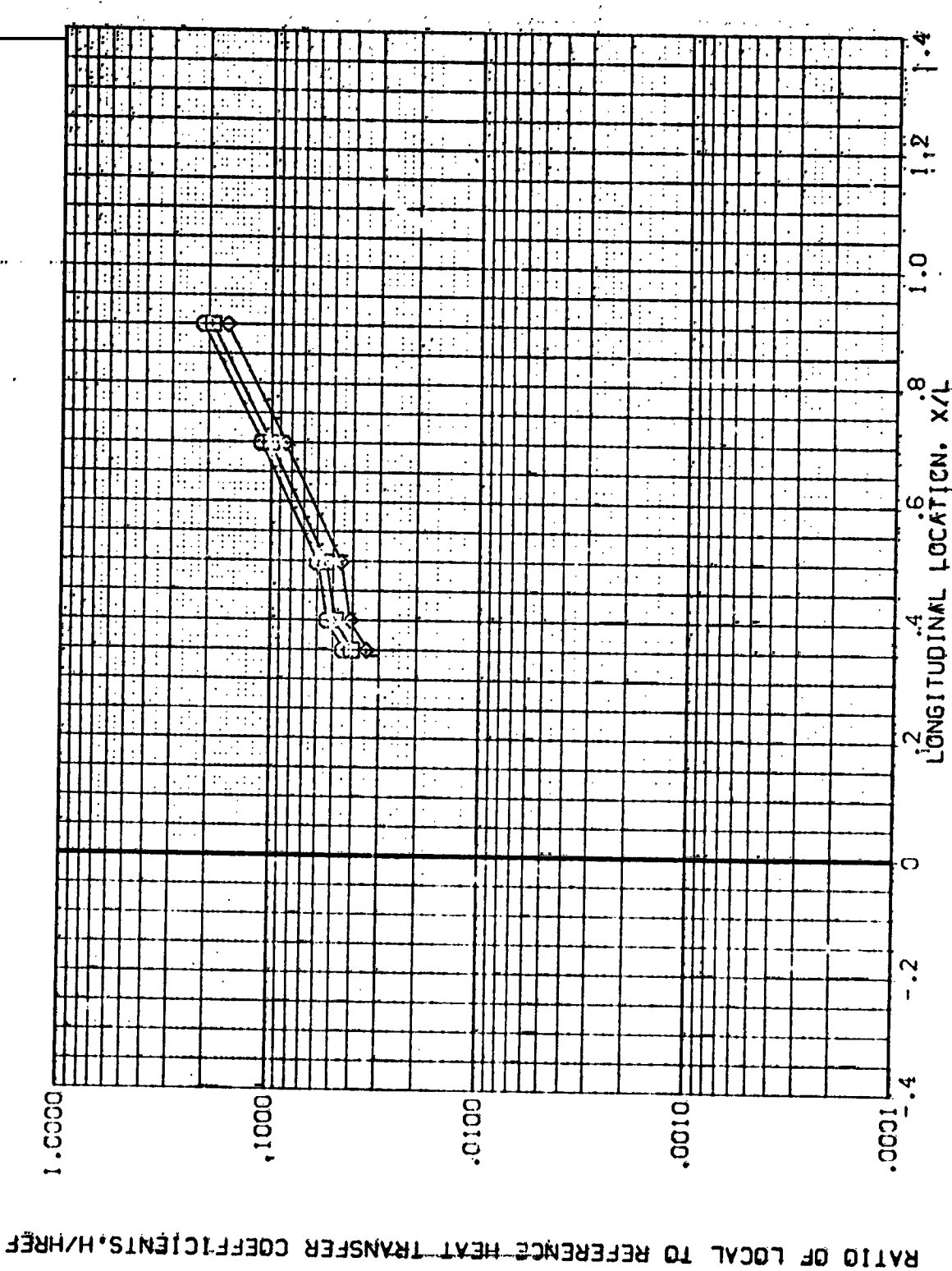


FIG. 8 ORBITER UNDERSIDE FUSELAGE. ORBITER IN THE PRESENCE OF THE TANK



AVES 3.5-195 IH28 GI+TI UNDERSIDE FUSELAGE (REVA05)

SYMBOL    HM/HREF    BP    MACH  
 ◊    .850    .000    5.220  
 □    .900  
 ○    1.000

PARAMETRIC VALUES  
 ALPHA    BETA  
 RM/L    RM/L

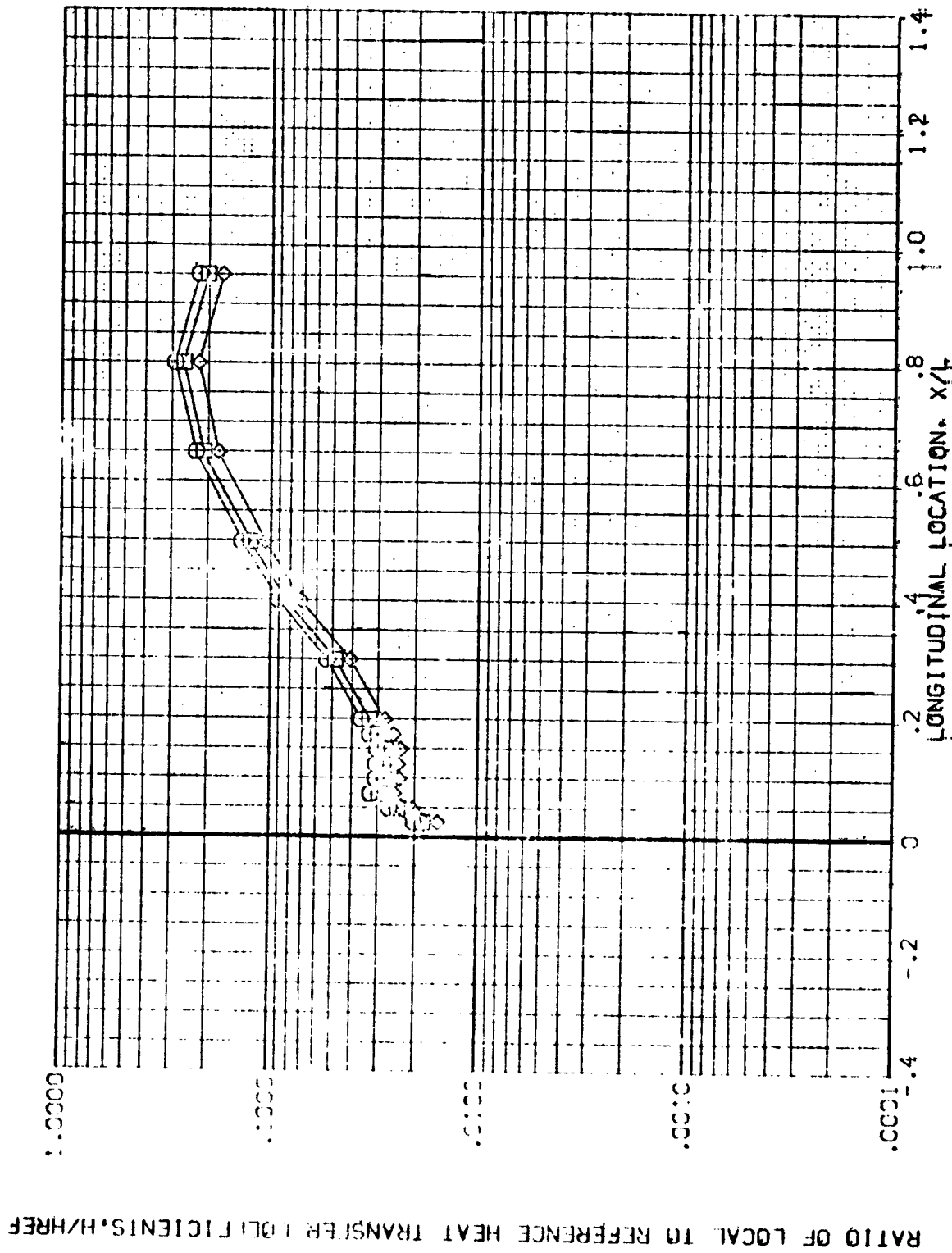


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 1428 01+T1 UNDERSIDE FUSELAGE (REV A05J)

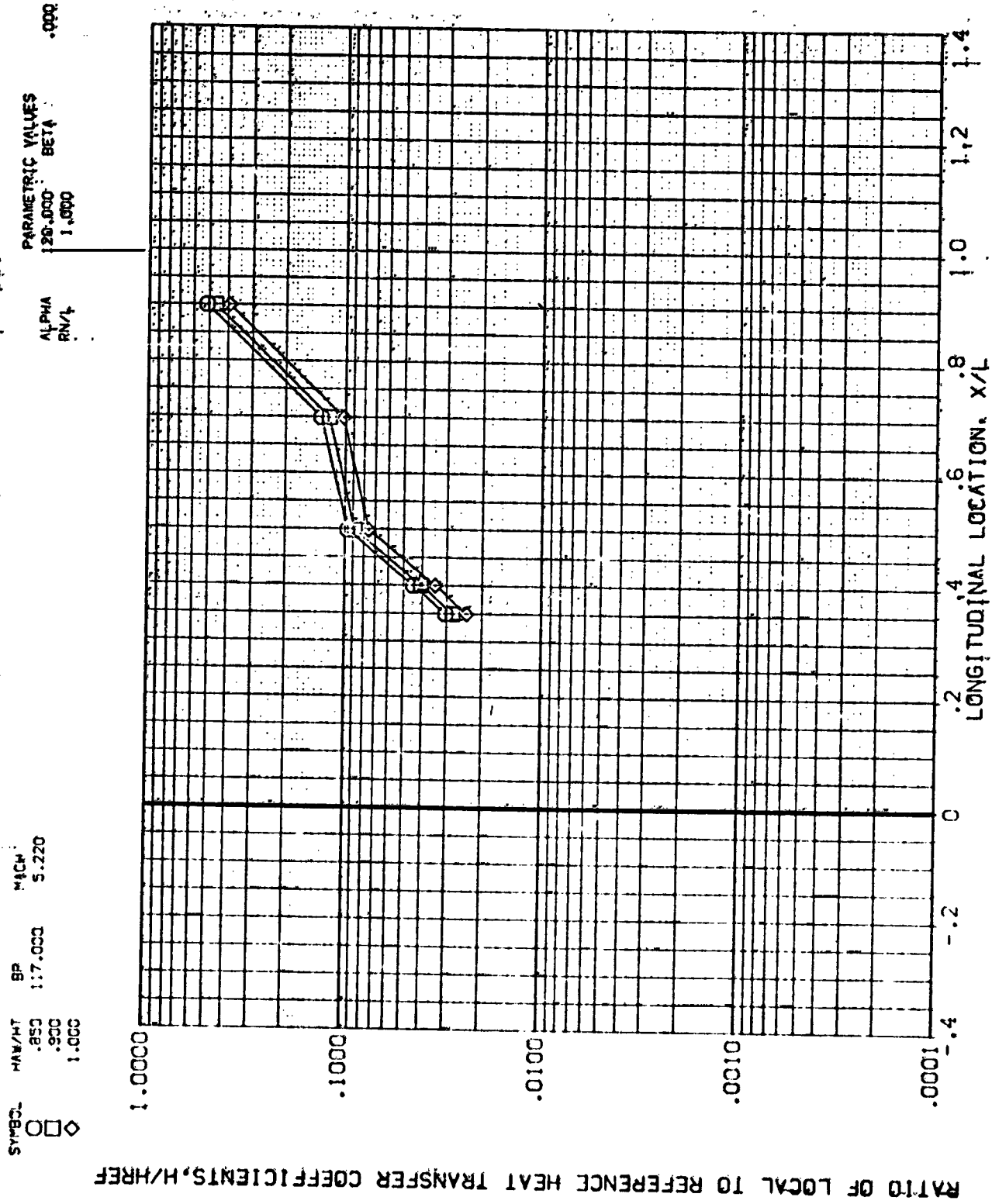


FIG. 8 ORBITER UNDERSIDE FUSELAGE ORBITER IN THE PRESENCE OF THE TANK

AVES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA06)

SYMBOL    MACH    BP    MACH  
 ◇    .850    .017    5.220  
 □    .900  
 ○    1.000

PARAMETRIC VALUES  
 ALPHA    BETA  
 120.000    1.000  
 1.000    .000

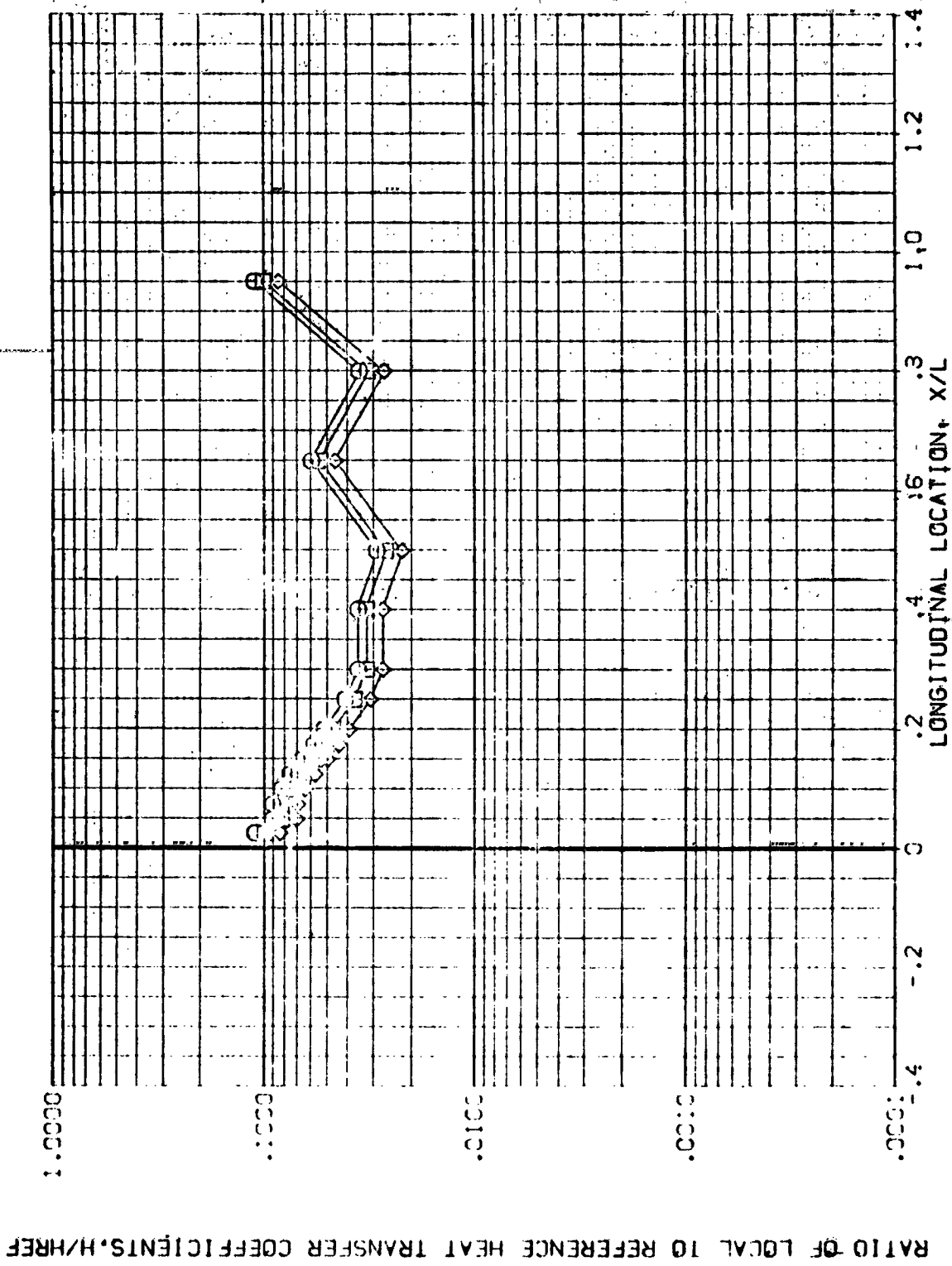


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AVES 3,5-195 IH28 CI+TI UNDERSIDE FUSELAGE (REVA06)

SYMBOL HEIGHT BP MACH  
 ◊ .850 117.000 5.220  
 □ .900 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BET.  
 BN/L 1.000

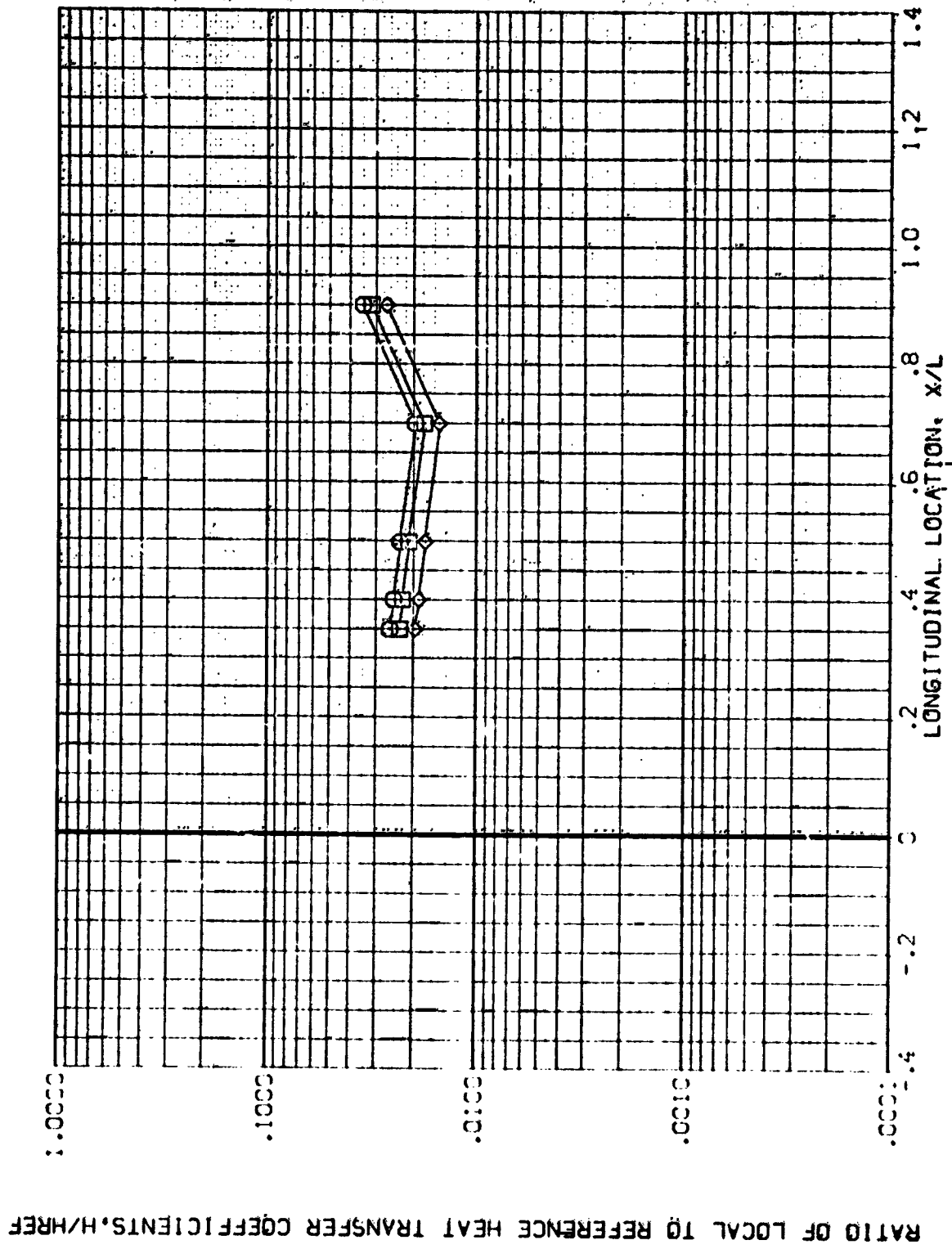


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 CI+T: UNDERSIDE FUSELAGE (REV#07)

S-SEC MAB/M<sup>2</sup> BP MACH  
 .850 .3 0 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 PIVL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/H<sub>REF</sub>

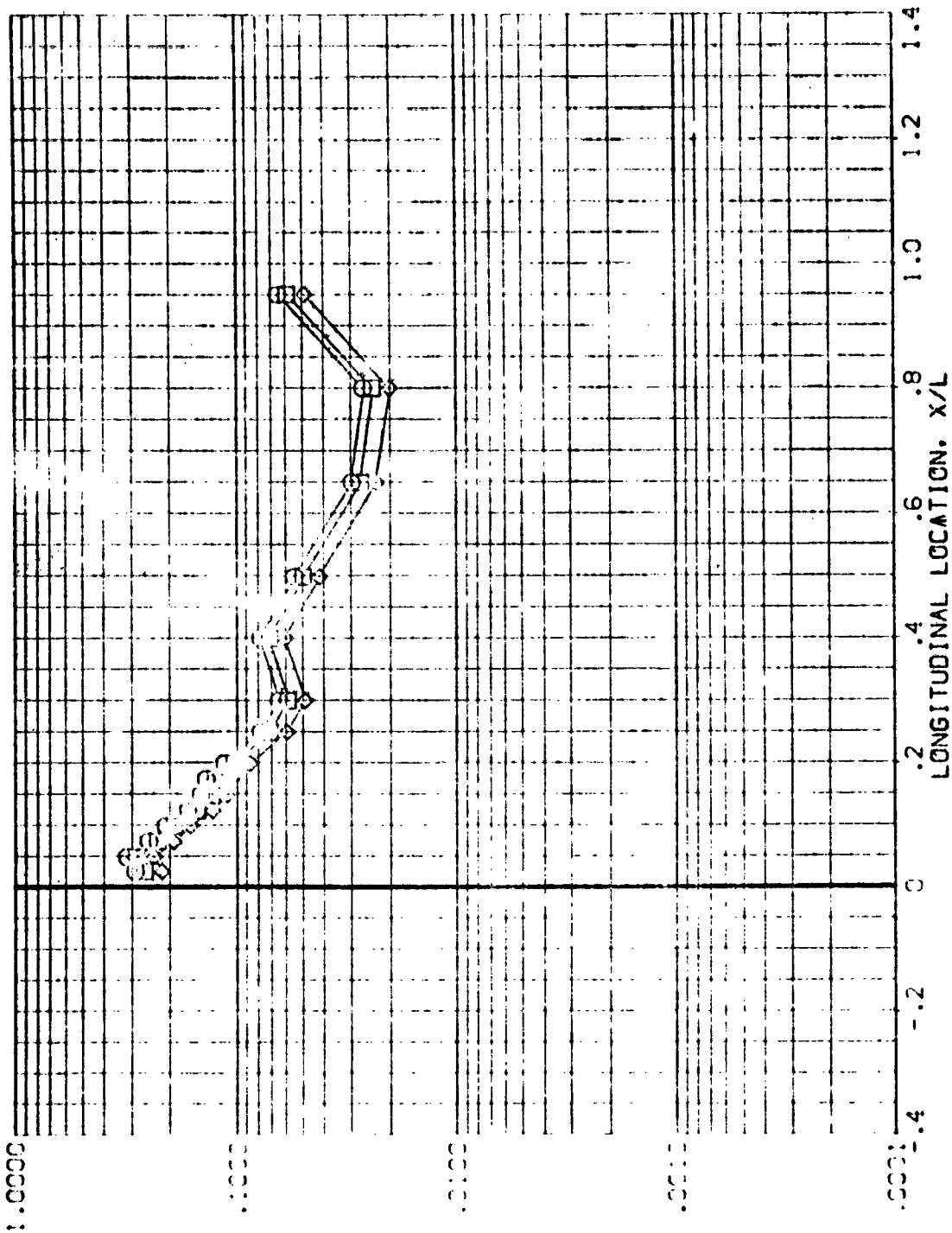


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 Q1+T1 UNDERSIDE FUSELAGE (REVA07)

SYMBOL	WALL/HT	BP	MACH	ALPHA	BETA
◇	.850	117.000	5.219	RN/L	-90.000
□	.900				1.000
◇	1.000				.000

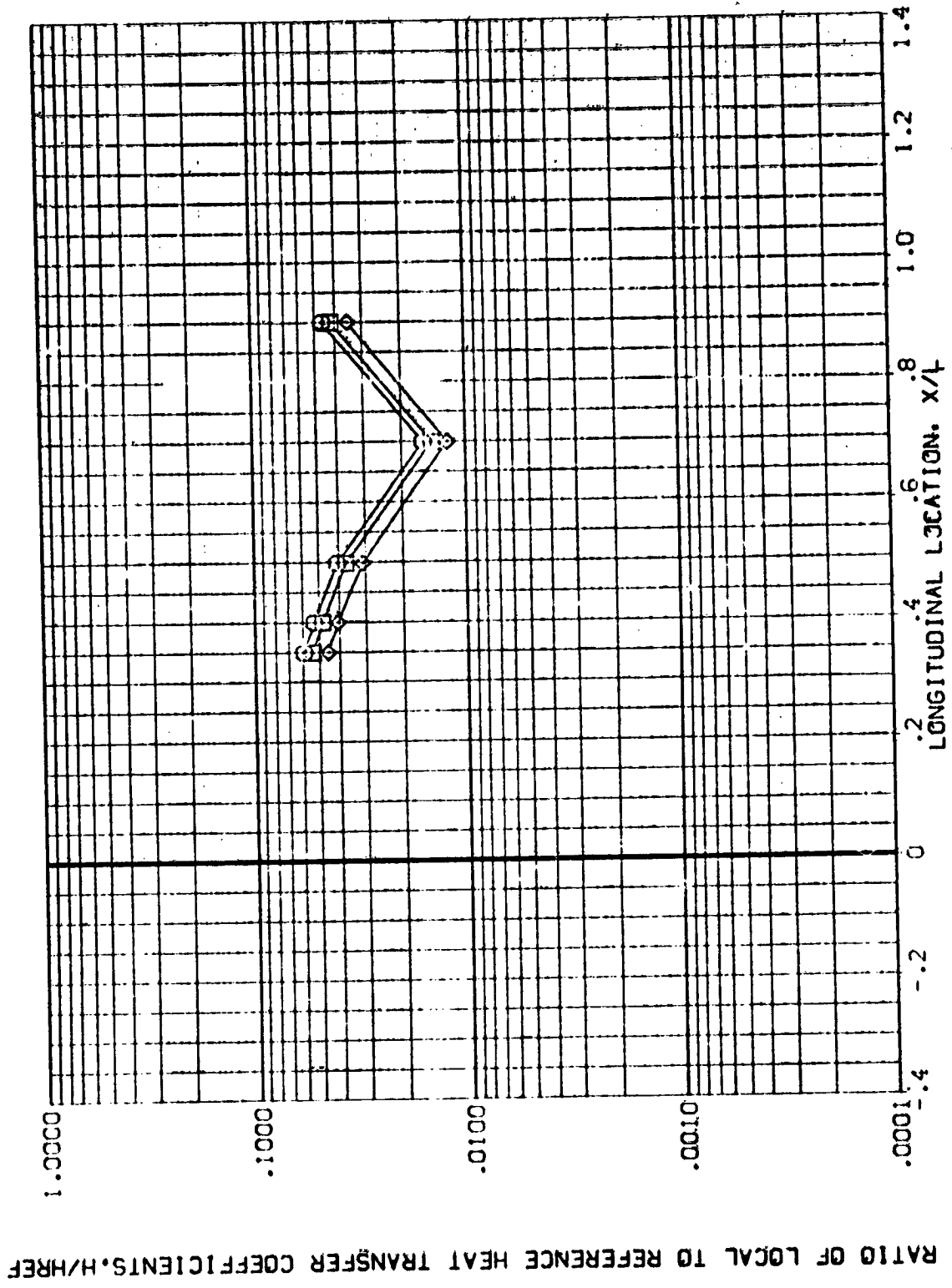


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 I428 O1+T1 UNDERSIDE FUSELAGE (REV 408)

PARAMETRIC VALUES  
ALPHA -60.000 BETA .000  
RV/L 1.000

SYMBOL HAW/HT BP MACH  
◇ .850 .000 5.220  
○ .500  
□ 1.000

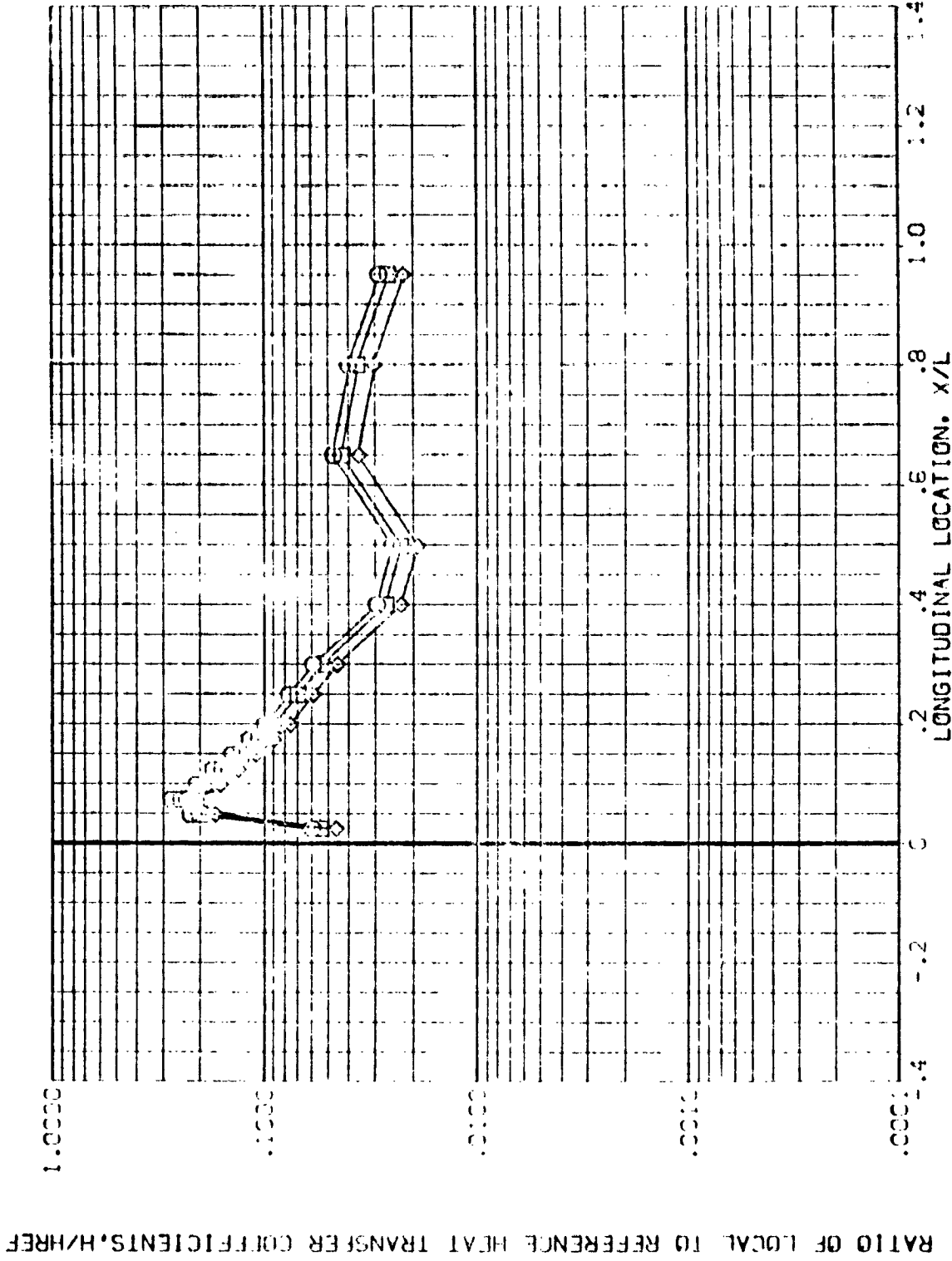


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA08)

PARAMETRIC VALUES  
 TSO.000 BETA .000  
 ALPHA 1.000  
 RN/L

SYMBOL  
 MAW/HT BP MACH  
 .850 117.000 5.220  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

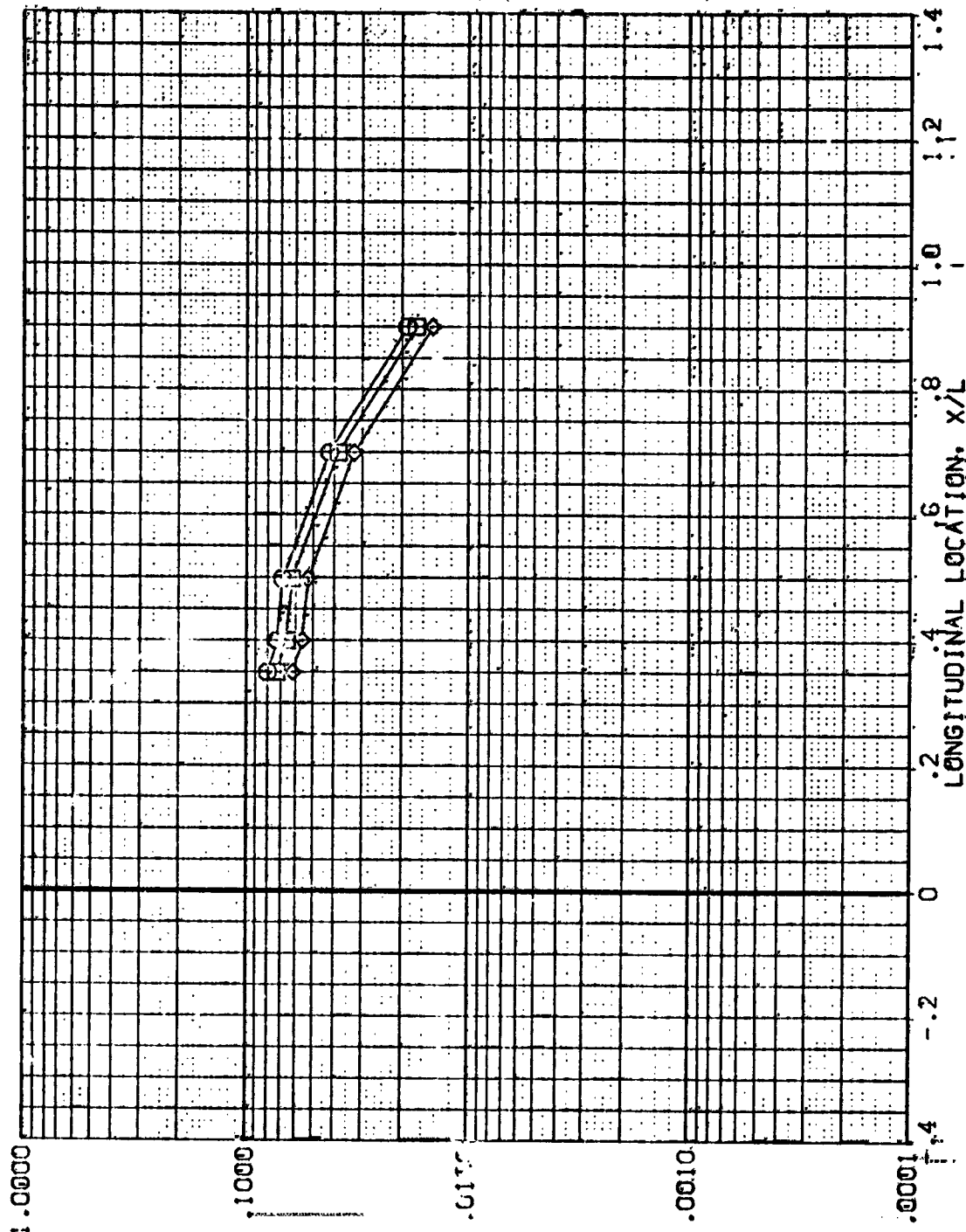


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK



AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE

(REVA09)

SYMBOL MACH  
 □ .850  
 ○ .900  
 ◇ 1.000

RP .000

MACH 5.220

ALPHA  
 RN/L

PARAMETRIC VALUES  
 -30.000 BETA  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

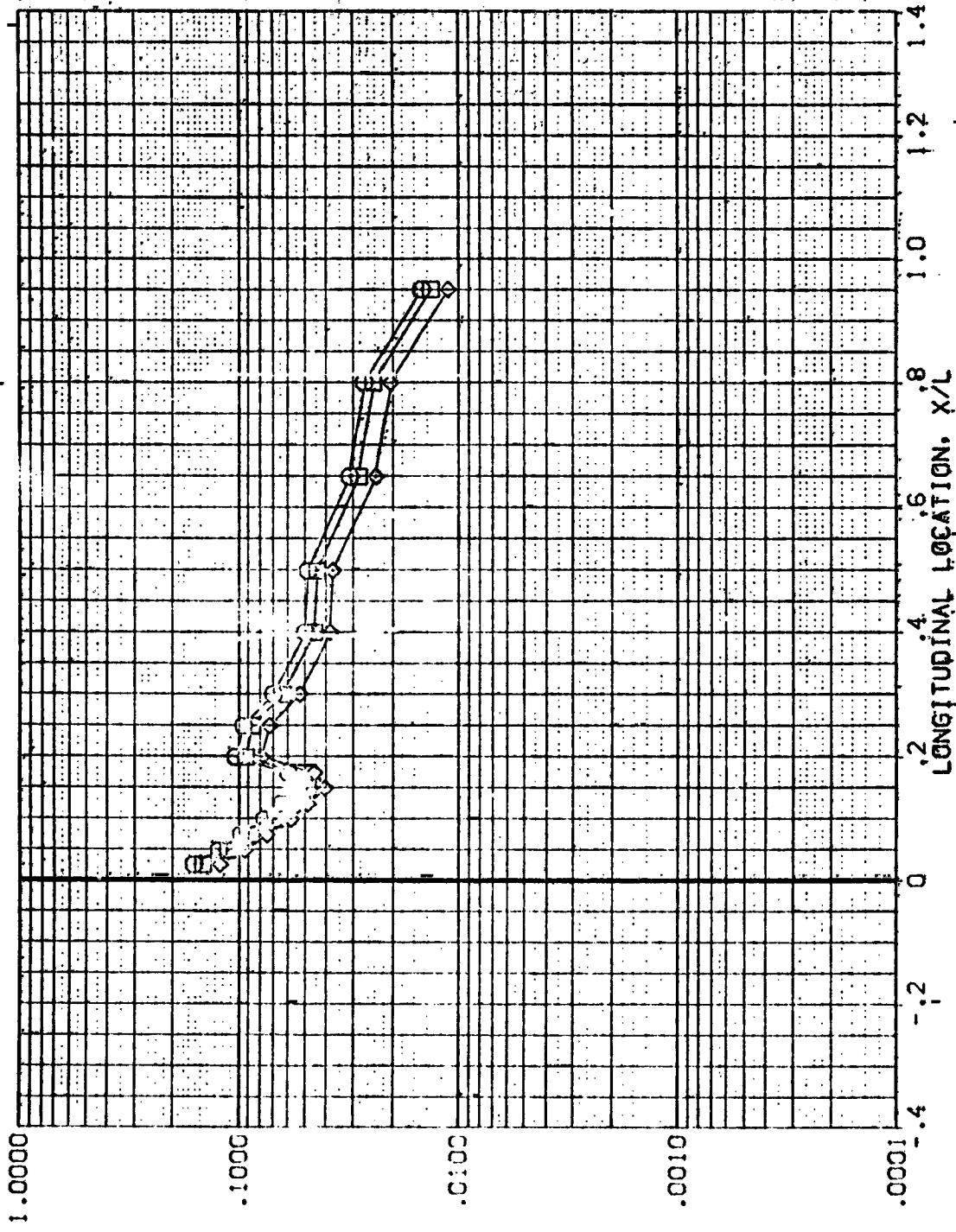


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3,5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA099)

SYMBOL:  $\square$   $\diamond$   
 MACH: 5.220  
 BP: 117.000  
 H<sub>REF</sub>: 1.000

PARAMETRIC VALUES  
 ALPHA: RMVT  
 BETA: 1.000

600

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

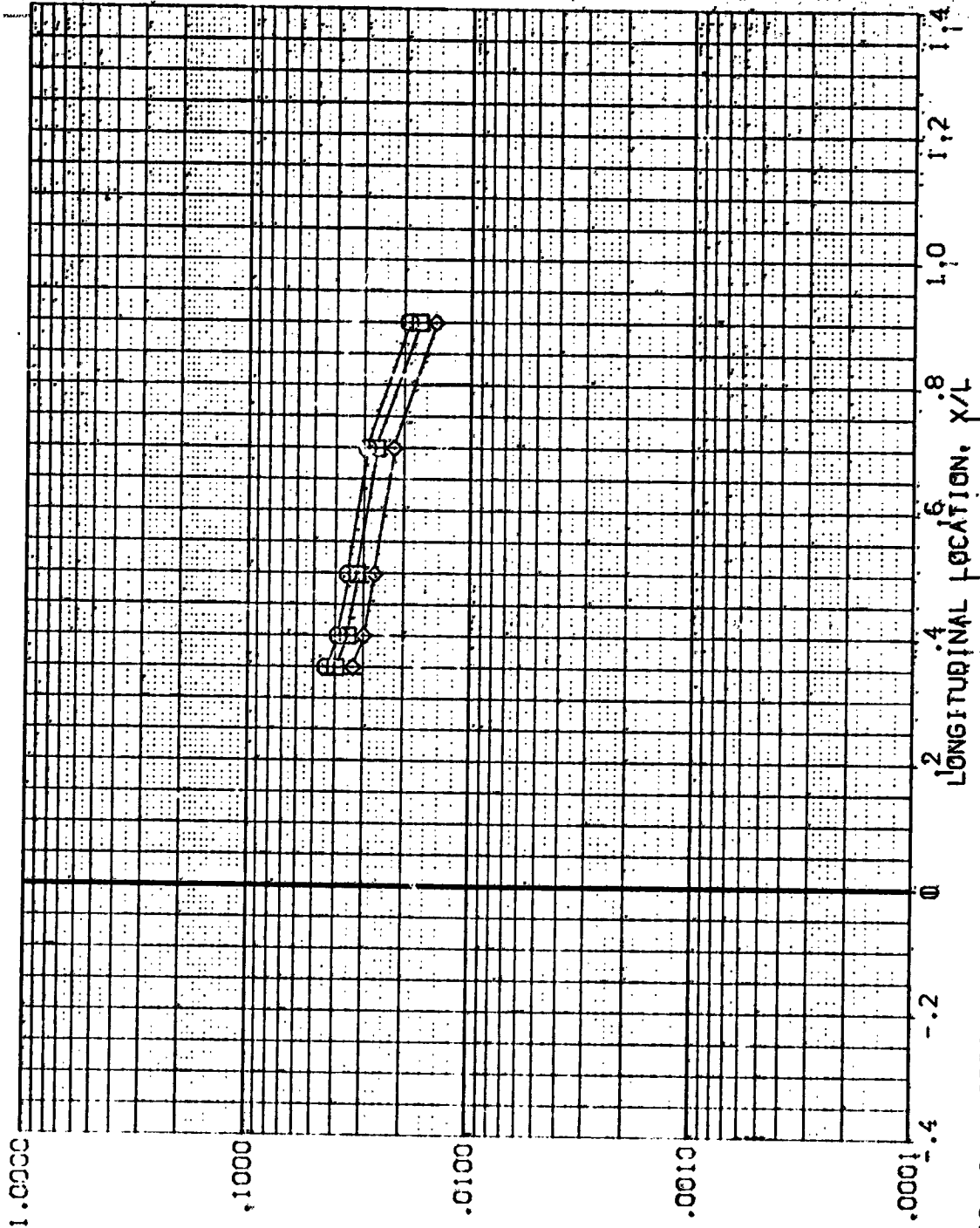


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3,5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA10J)

PARAMETRIC VALUES  
 SQ.060 BETA .000  
 4.000  
 ALPHA  
 RMVT

SYMBOL  
 HAW/HT .850  
 .900  
 1.000  
 MACH 5.299

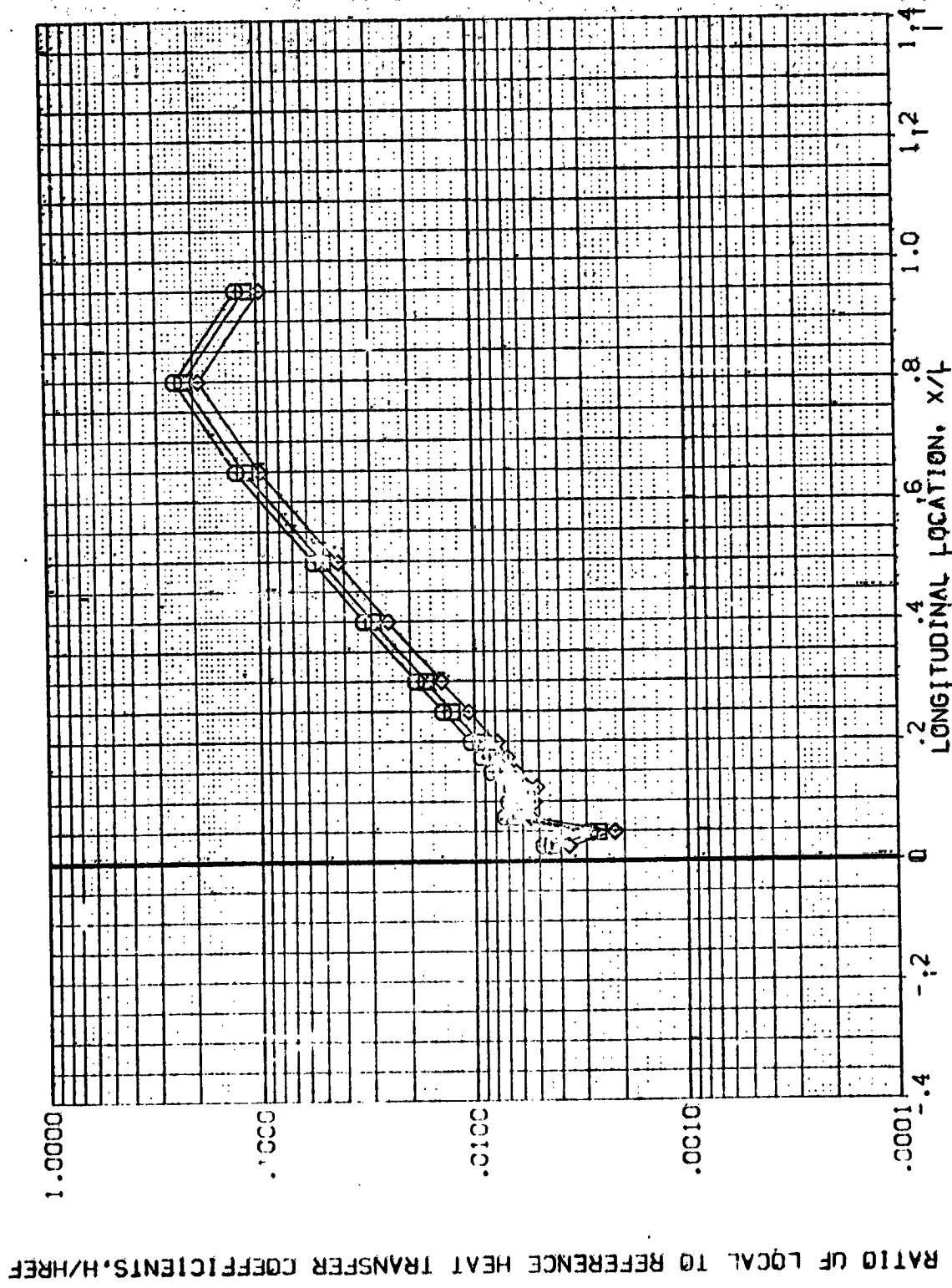


FIG. 8 ORBITER UNDERSIDE FUSELAGE. ORBITER IN THE PRESENCE OF THE TANK

AMES 3,5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA10)

SYMBOL    MAY/WT    BP    MACH  
 ◊    .85C    117.008    5.299  
 □    .90C  
    1.000

PARAMETRIC VALUES  
 ALPHA    .000  
 RNV/L    4.000  
 BETA    .000

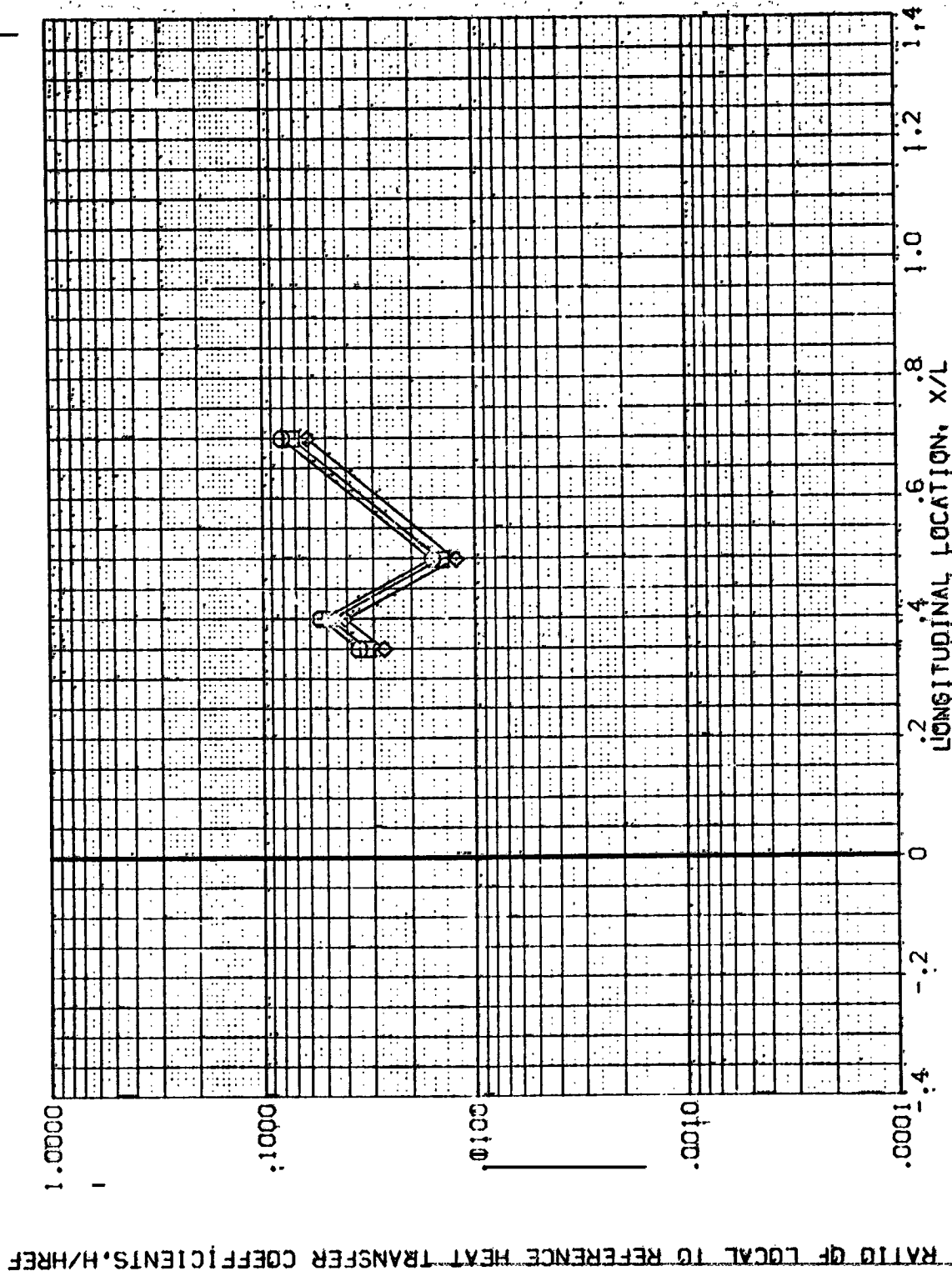


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA11)

PARAMETRIC VALUES  
 SO.000 BETA .000  
 4.000

ALPHA  
 RN/L

MACH 5.300  
 BP .000

MAX/HT  
 .850  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

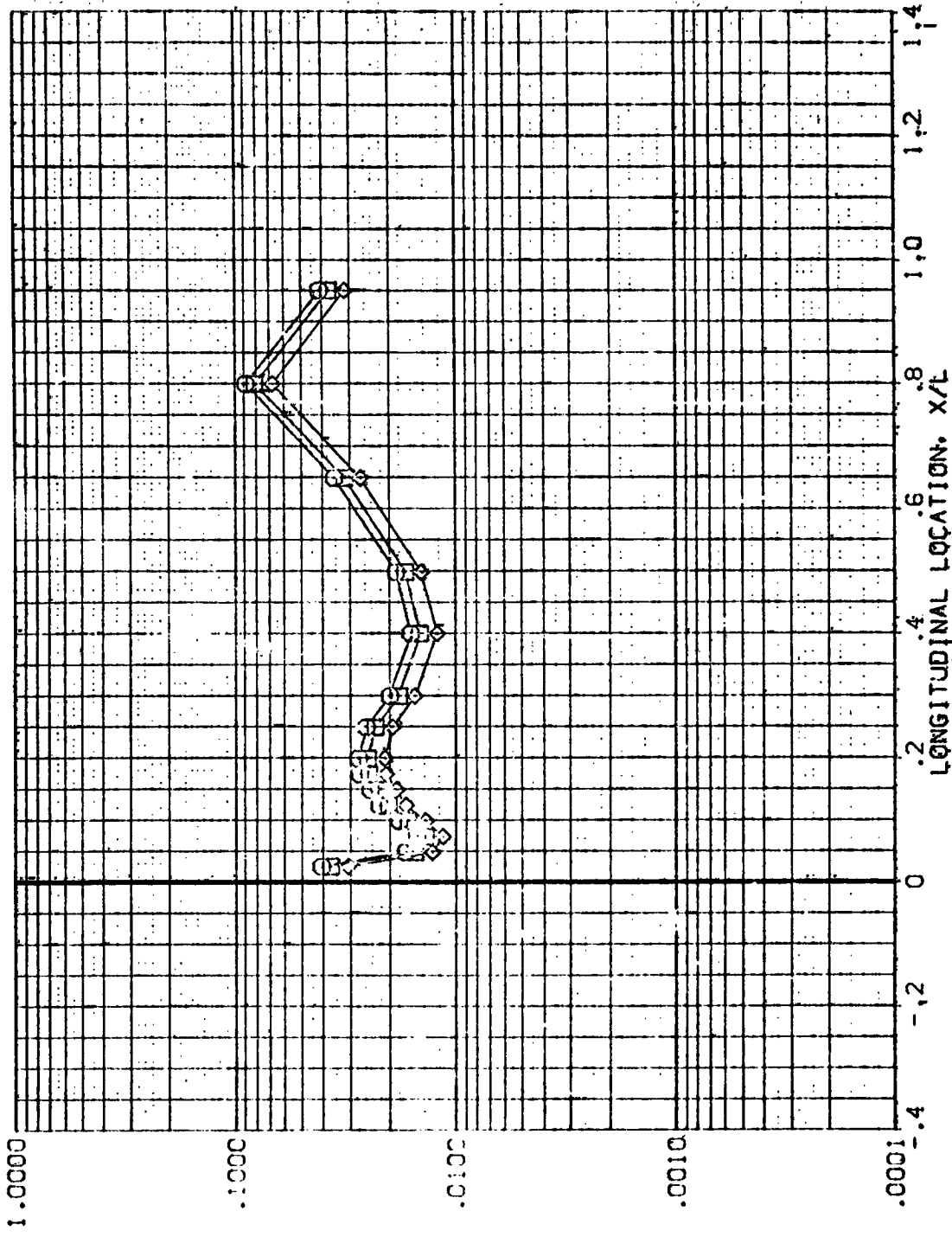


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-135 IH28 01+T1 UNDERSIDE FUSELAGE (REV. 11)

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 4.000  
 RNL 0.000

BP 117.000  
 MACH 5.300  
 WRE/HT .850  
 .900  
 1.000

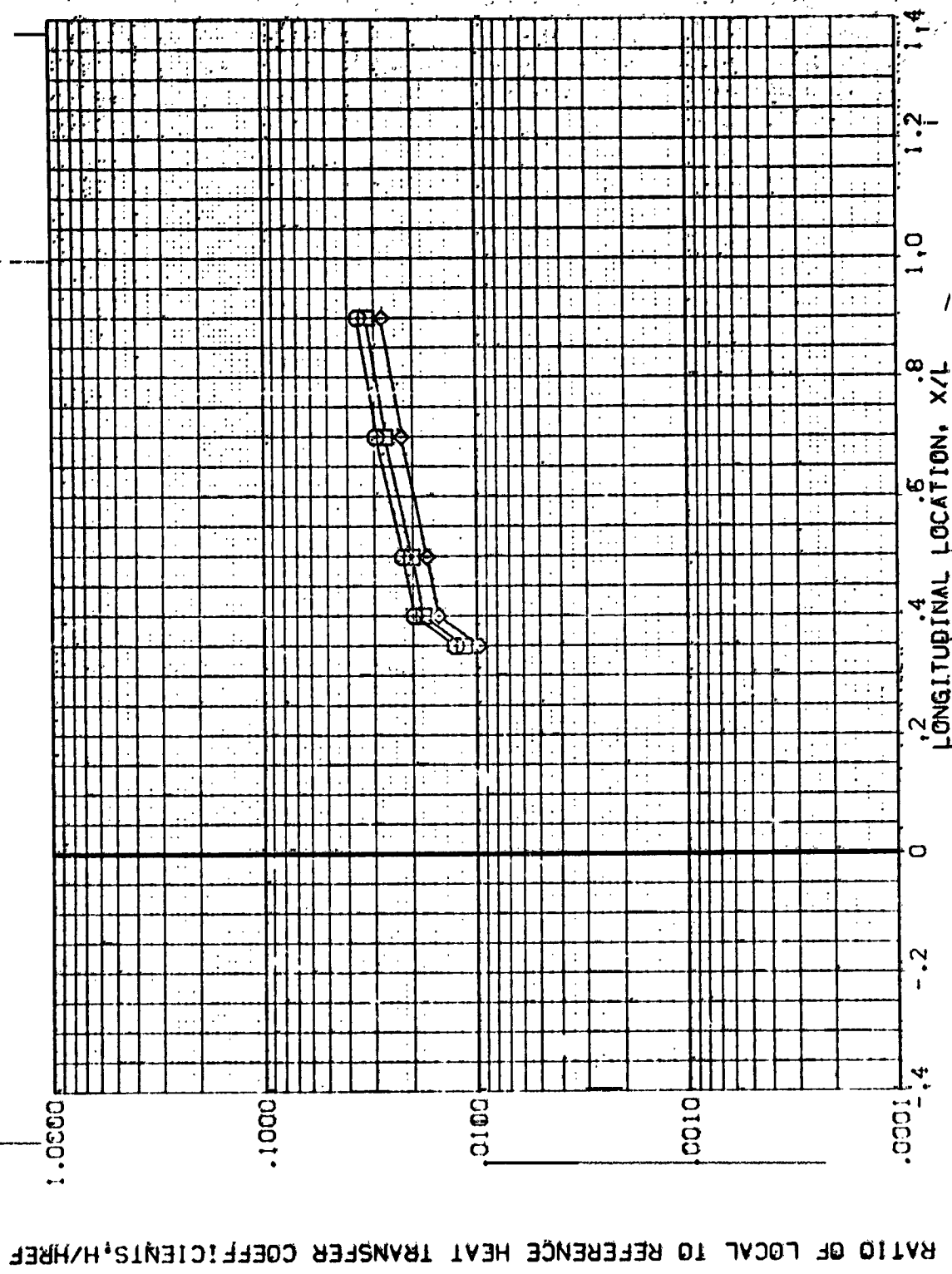


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 Q1+T1 UNDERSIDE FUSELAGE (REVA12)

SYMBOL MACH  
 ◊ .85  
 □ .90  
 ◊ 1.00

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 -S:000

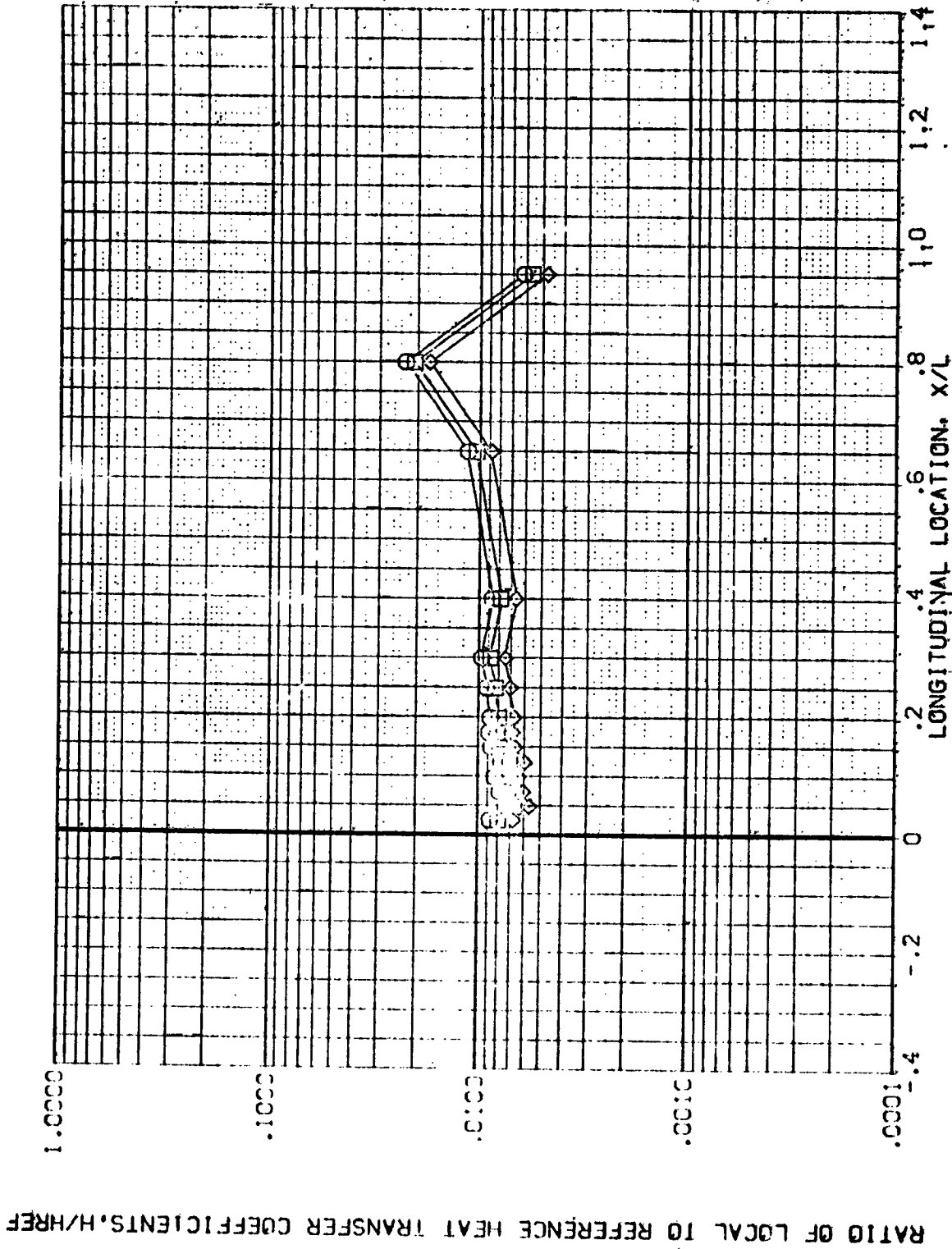


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REVA12)

SYMBOL	MAW/HT	RP	WICH	PARAMETRIC VALUES
◇	.850	1.7.000	5.220	30.000 PETA
□	.900			1.000
	1.000			

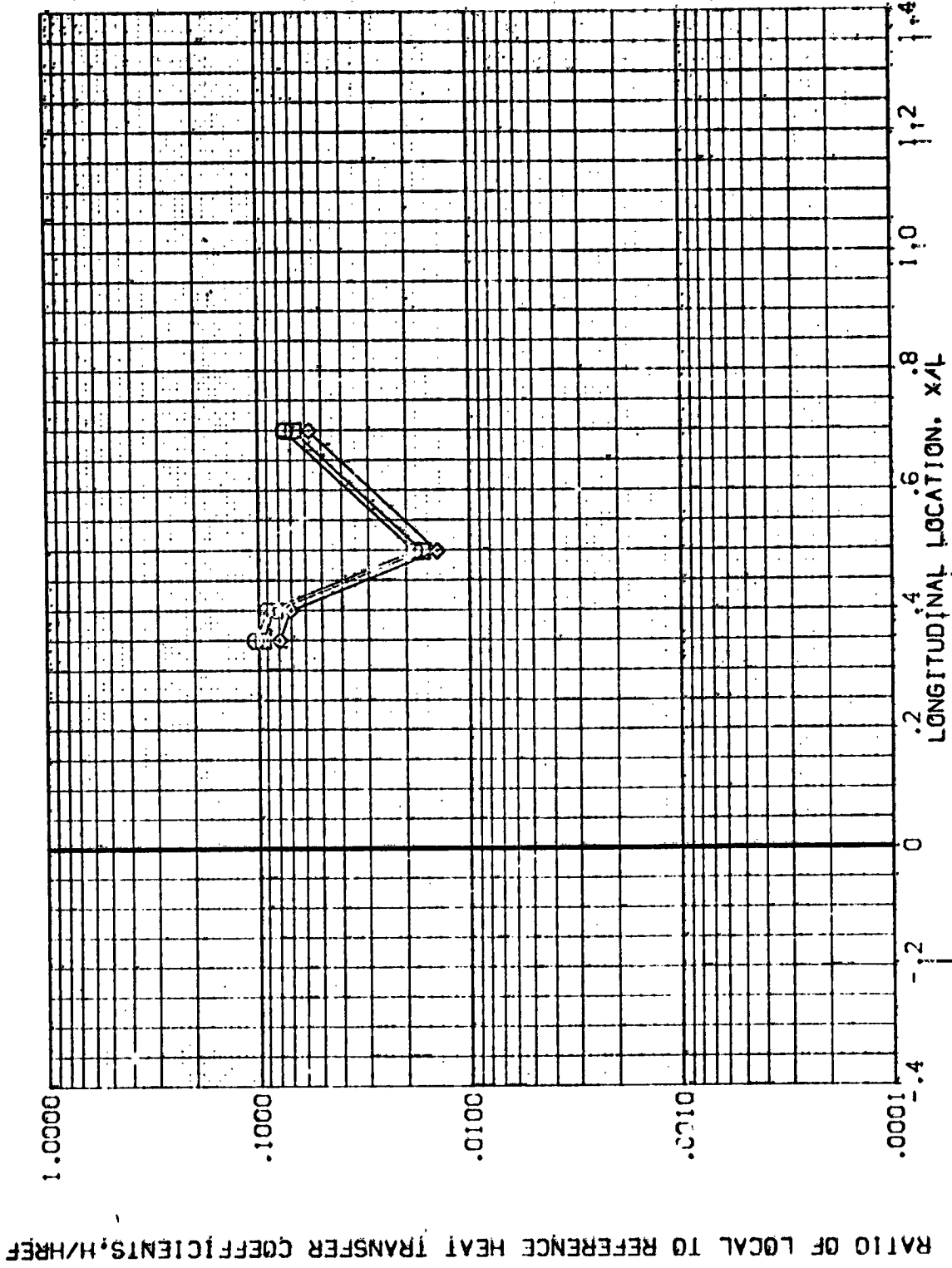


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK



DATA SET SYMBOL  
 RE/101  
 RE/102  
 RE/103  
 RE/104  
 RE/105

CONFIGURATION DESCRIPTION  
 AMES 3-5-195 1428 01+11 UNDERSIDE FUSELAGE  
 AMES 3-5-195 1428 01+11 UNDERSIDE FUSELAGE  
 AMES 3-5-195 1428 01+11 UNDERSIDE FUSELAGE  
 AMES 3-5-195 1428 01+11 UNDERSIDE FUSELAGE  
 AMES 3-5-195 1428 01+11 UNDERSIDE FUSELAGE

ALPHA BETA RN/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

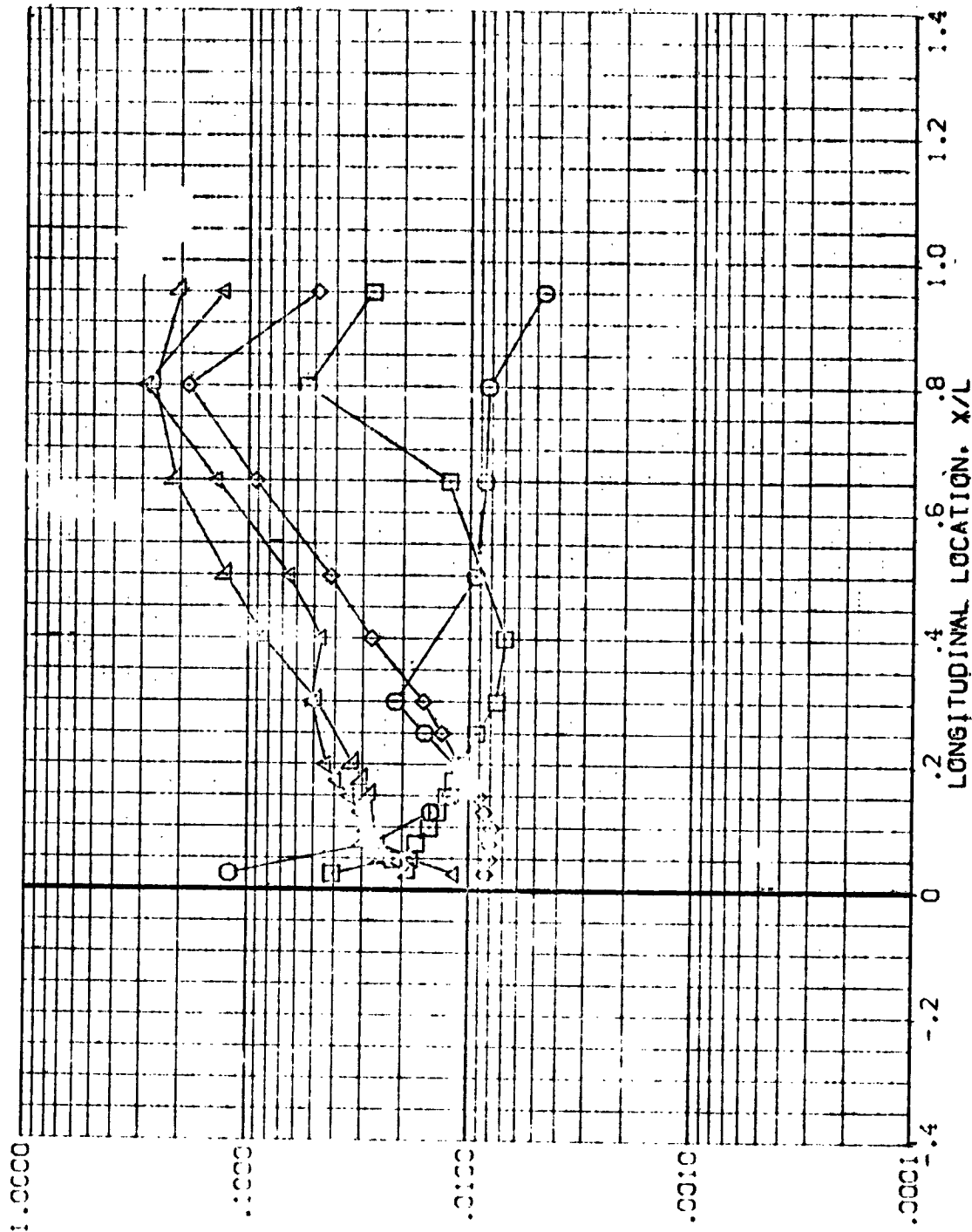


FIG. 8 ORBITER UNDERSIDE FUSELAGE; ORBITER IN THE PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 BP = .000

DATA SET SYMBO- CONFIGURATION DESCRIPTION ALPHA BETA RV/L

DATA SET SYMBO-	CONFIGURATION DESCRIPTION	ALPHA	BETA	RV/L
0001	0001	.000	.000	1.000
0002	0002	30.000	.000	1.000
0003	0003	60.000	.000	1.000
0004	0004	90.000	.000	1.000
0005	0005	120.000	.000	1.000

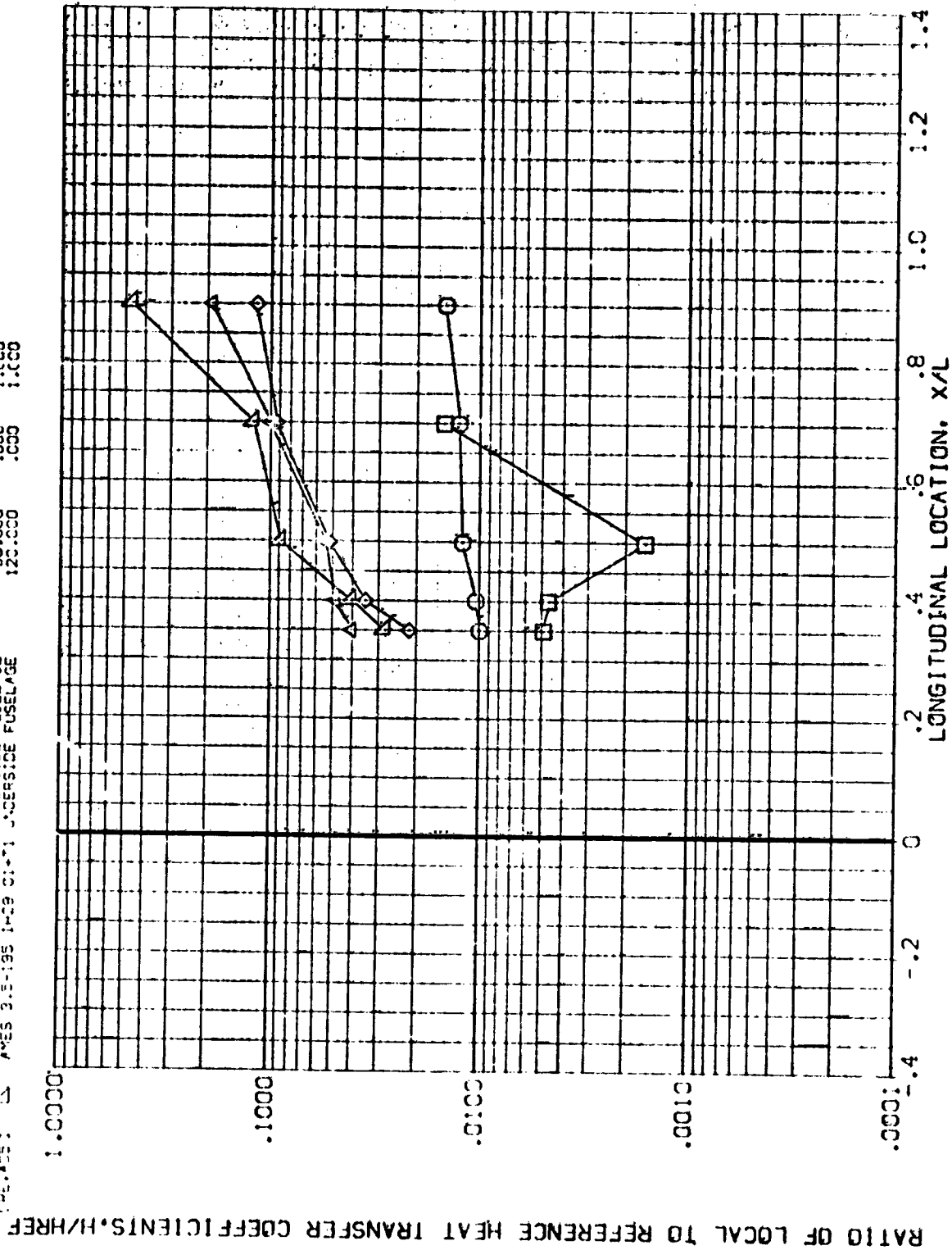


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

VAC = 5.300 HAW/HTE = .900 BP = 117.000

DATA SET SYMBOL: CONFIGURATION DESCRIPTION ALPHA BETA GAMMA

14310	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14320	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14330	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14340	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14350	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14360	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14370	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14380	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14390	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000
14400	3.151185	1428	31+1	UNDERSIDE FUSELAGE	1.000	1.000

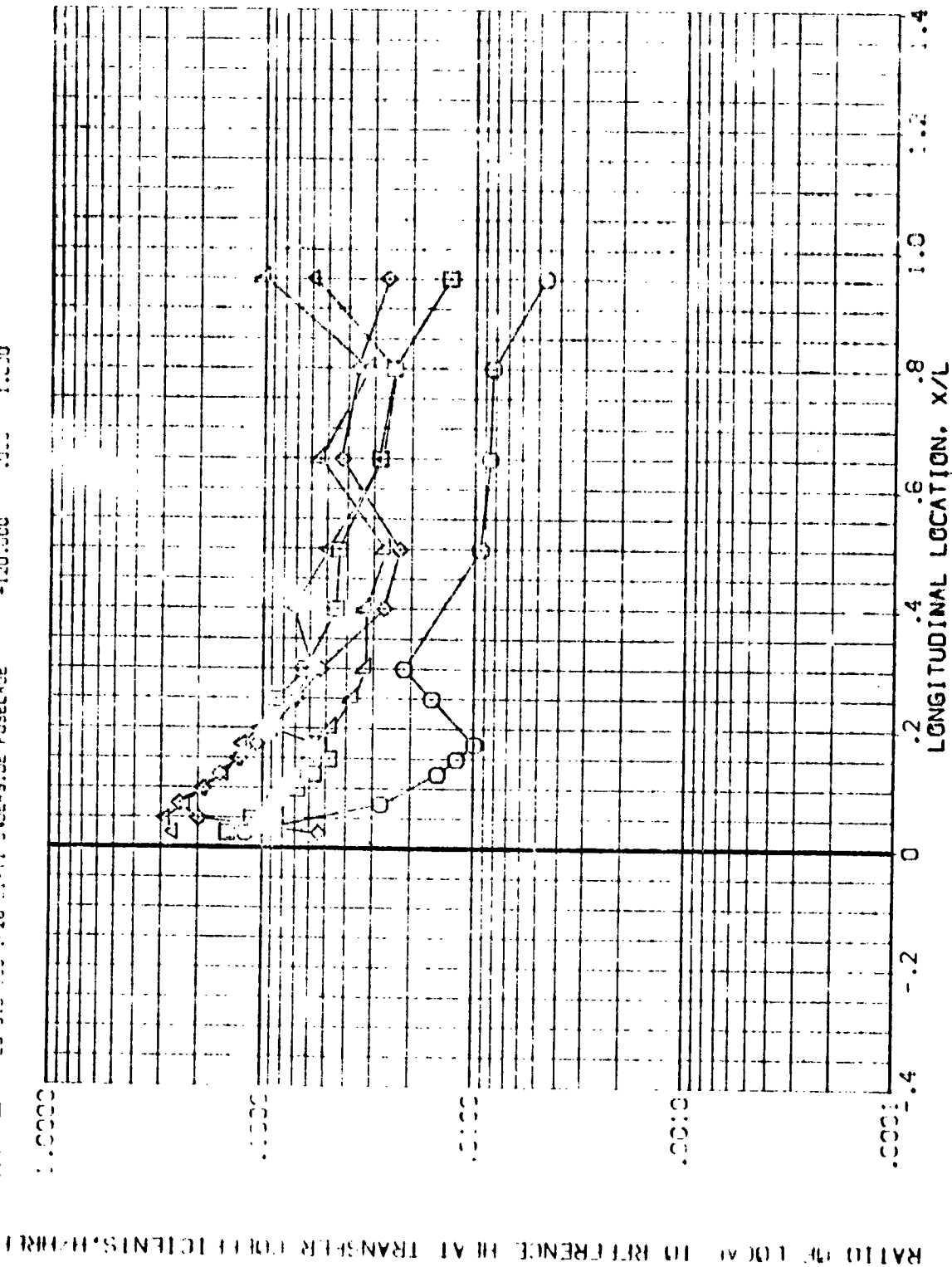


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 BP = 1.000 PAGE 422

ALL DIMENSIONS IN INCHES  
 ORBITER PAGE 422

DATA SET SYMBOL  
 0000000000  
 0000000000  
 0000000000  
 0000000000  
 0000000000  
 0000000000

CONFIGURATION DESCRIPTION  
 AVES 3.5:195 1428 CI+TI UNDERSIDE FUSELAGE  
 AVES 3.5:195 1428 CI+TI UNDERSIDE FUSELAGE  
 AVES 3.5:195 1428 CI+TI UNDERSIDE FUSELAGE  
 AVES 3.5:195 1428 CI+TI UNDERSIDE FUSELAGE  
 AVES 3.5:195 1428 CI+TI UNDERSIDE FUSELAGE

ALPHA BETA BR/L  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

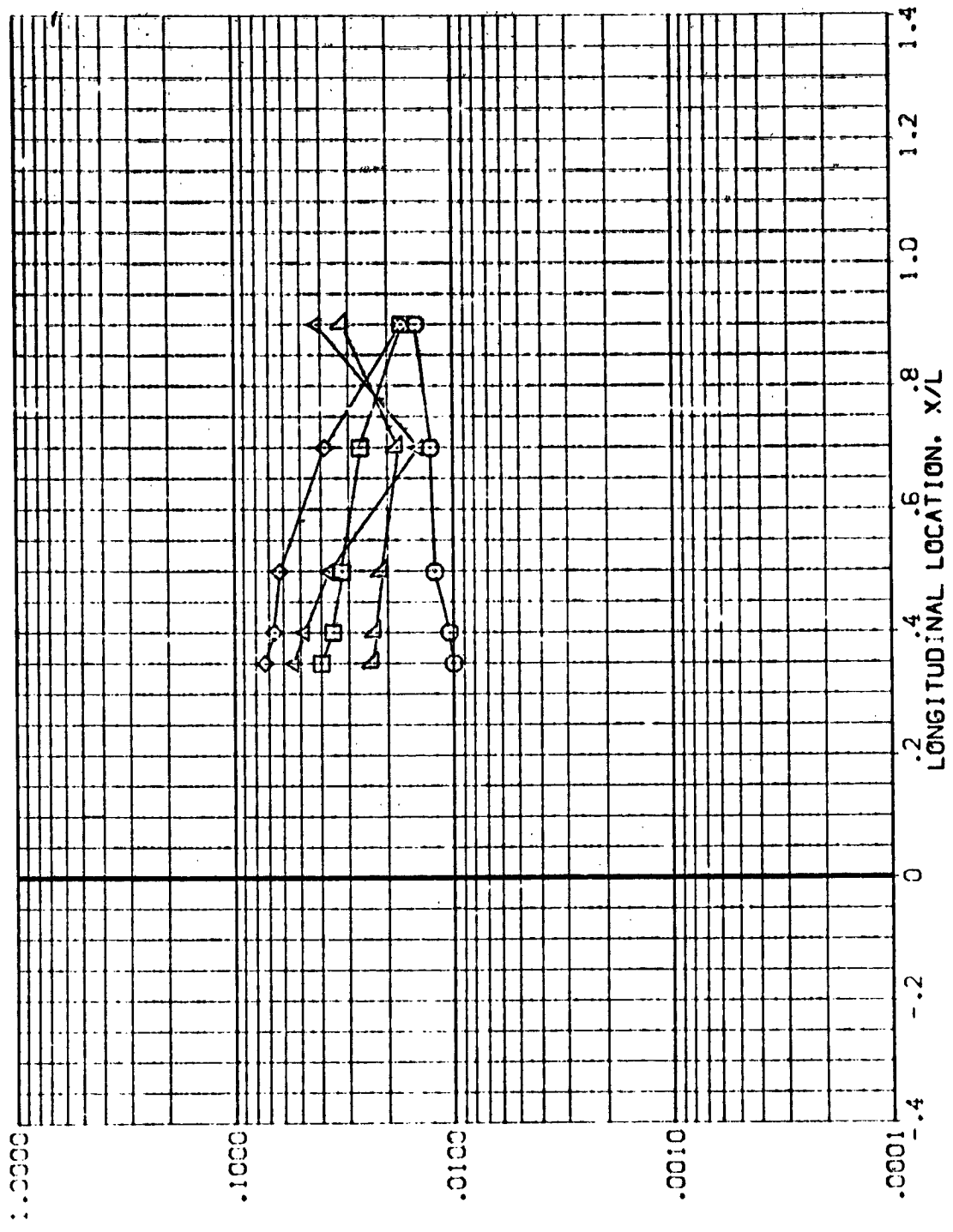


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

WACH = 5.300 WAW/HTE = .900 BP = 117.000

DATA SET NUMBER	CONFIGURATION DESCRIPTION	ALPHA	BETA	BV/L
000001	AVES 3.5-1.95 1.00 CI+TI UNDERSIDE FUSELAGE	30.000	.000	1.000
000002	AVES 3.5-1.95 1.00 CI+TI UNDERSIDE FUSELAGE	30.000	.000	4.000
000003	AVES 3.5-1.95 1.00 CI+TI UNDERSIDE FUSELAGE	60.000	.000	1.000
000004	AVES 3.5-1.95 1.00 CI+TI UNDERSIDE FUSELAGE	60.000	.000	4.000

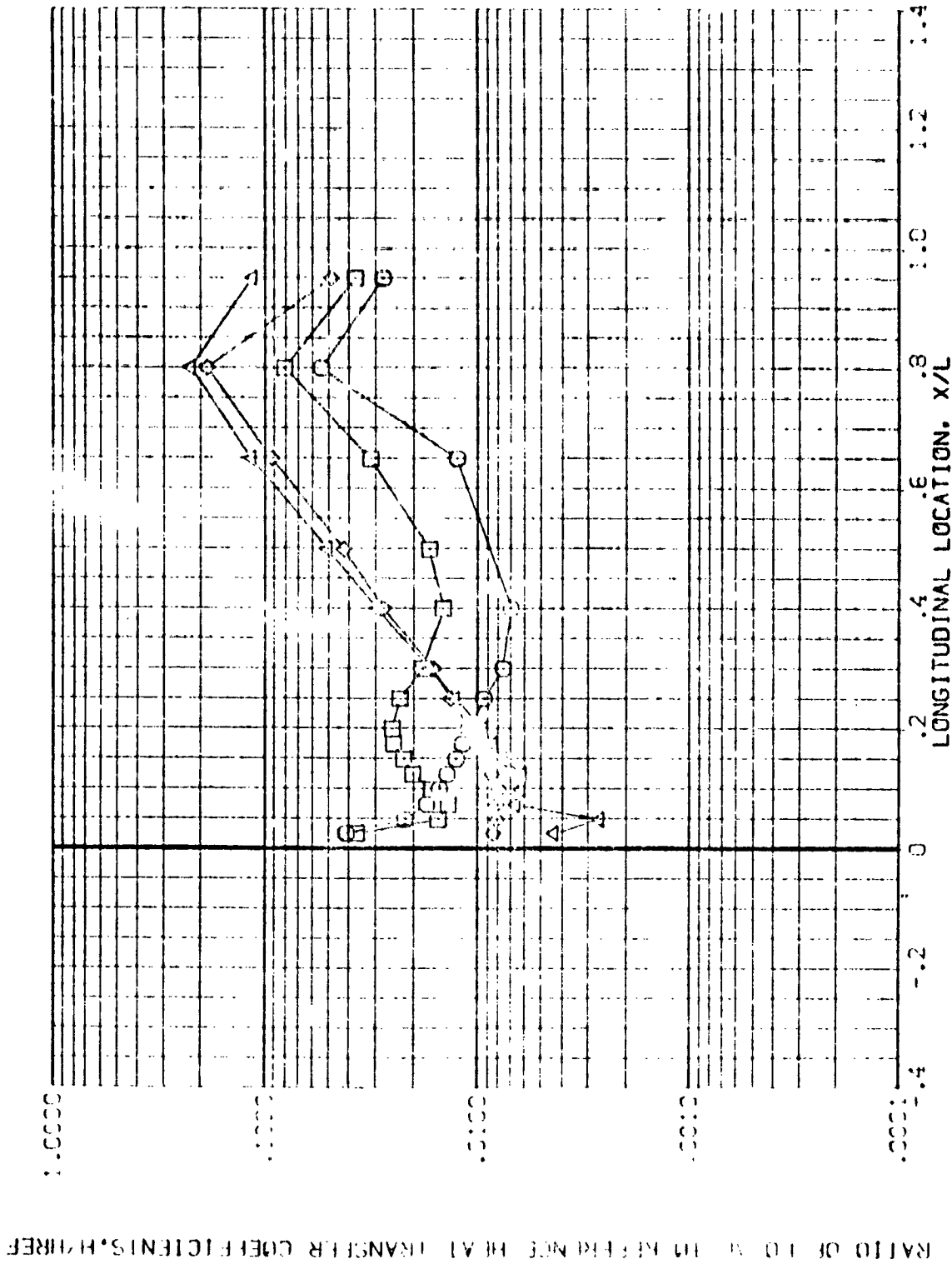


FIG. 9 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

MACH = 5.300  $\gamma$  = 1.4  $H/HT = .900$  BP = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (REV)A02) (REV)A11) (REV)A03) (REV)A10)

ALPHA BETA RVAL  
 80.000 .000 .1000  
 50.000 .000 .4000  
 60.000 .000 .1000  
 60.000 .000 .4000

AMES 3.5-195 I428 Q1\*11 UNDERSIDE FUSELAGE  
 AMES 3.5-195 I428 Q1\*11 UNDERSIDE FUSELAGE  
 AMES 3.5-195 I428 Q1\*11 UNDERSIDE FUSELAGE  
 AMES 3.5-195 I428 Q1\*11 UNDERSIDE FUSELAGE

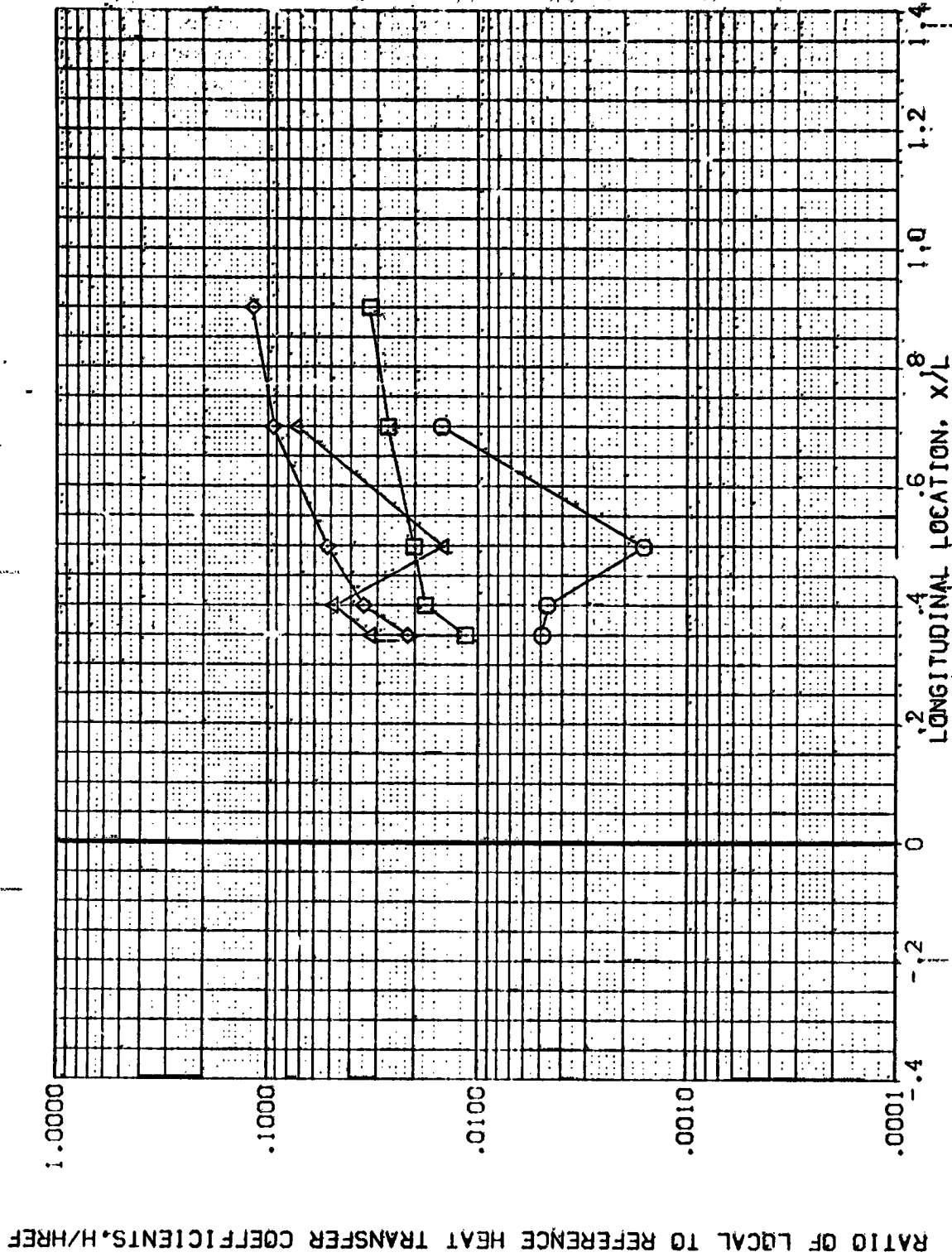


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = 1,900 BP = 117,000

DATA SET SYMBOL    CONFIGURATION DESCRIPTION  
 (REVA02)    AMES 3-5-195 IH28 01+T1 UNDERSIDE FUSELAGE  
 (REVA12)    AMES 3-5-195 IH28 01+T1 UNDERSIDE FUSELAGE

ALPHA    BETA    RV, L  
 30.000    .000    1.000  
 30.000    -5.000    1.000

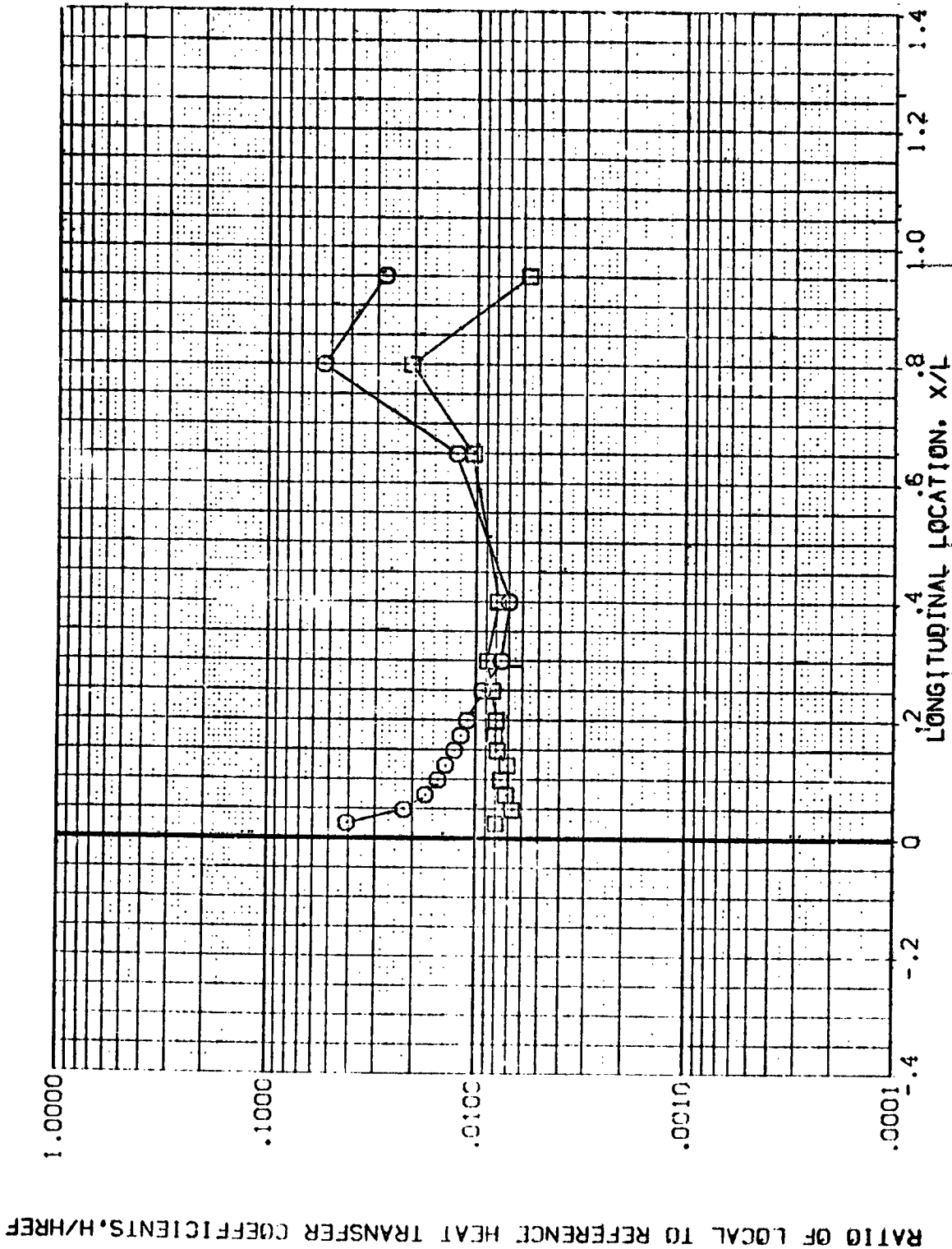


FIG. 8 ORBITER UNDERSIDE FUSELAGE. ORBITER IN THE PRESENCE OF THE TANK

MACH = 5.300    HAW/HT = .900    BP = .000

DATA SET SYMBOL:  $\square$  CONFIGURATION DESCRIPTION:  
 ANES 3 5-195 1428 C1111 UNDERSIDE FUSELAGE  
 ANES 3 5-195 1428 C1111 UNDERSIDE FUSELAGE

ALPHA BETA RVAL  
 30.000 .000 1.000  
 30.000 -.5.000 1.000

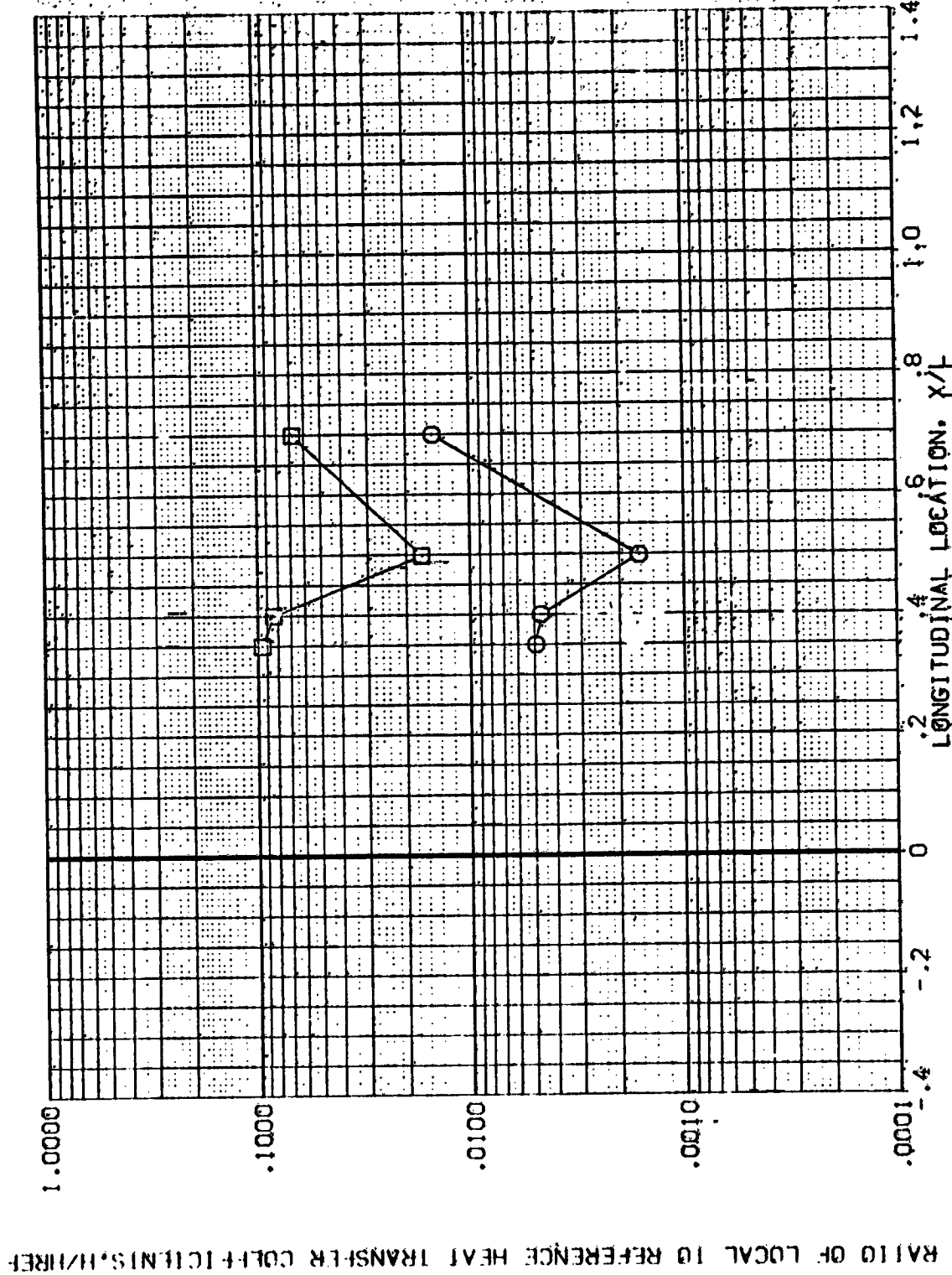


FIG. 8 ORBITER UNDERSIDE FUSELAGE, ORBITER IN THE PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 BP = 117,000



(BEVA01)

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
RNL 1.000

SYMBOL BP HAWAHT MACH  
.000 .900 5.228  
1:17.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

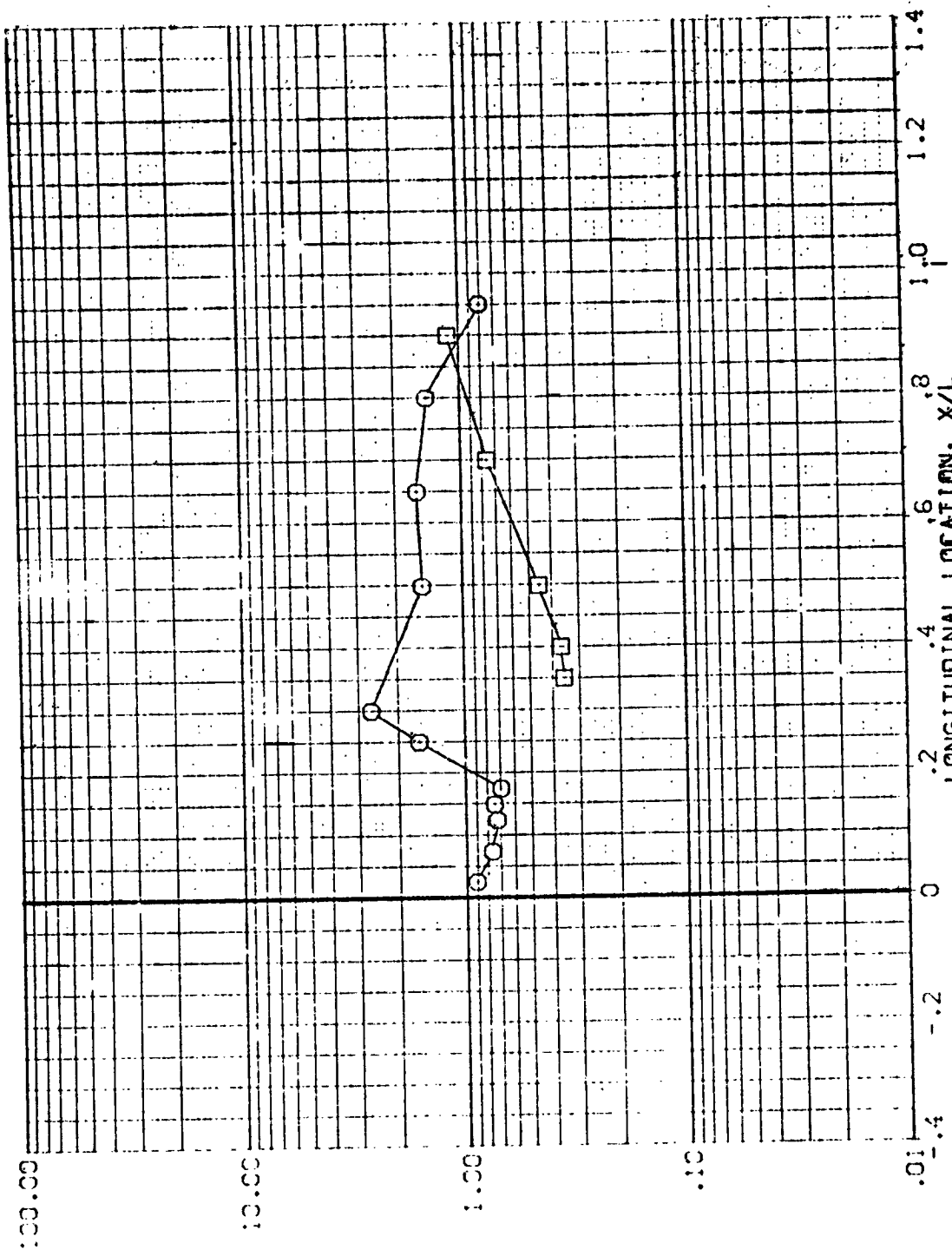


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-:95 IH28 01+T1 UNDERSIDE FUSELAGE (BEVAQ2)

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 .090

SYMBOL BP HAN/HT YACH  
 .000 .900 5.219  
 117.000

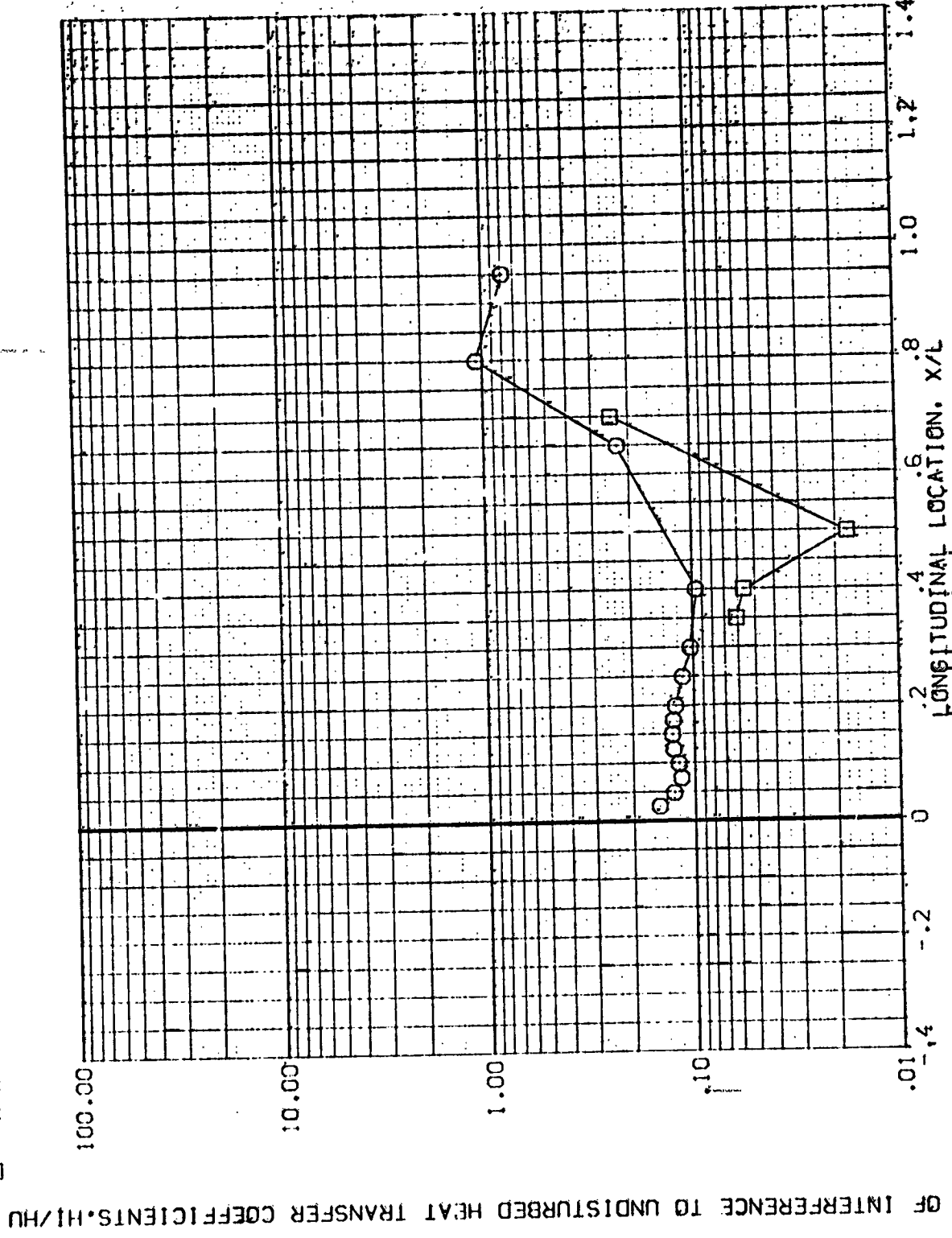


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

AVES 3.5-195 IH2S 01+T1 UNDERSIDE FUSELAGE (BEVA03)

SVVSC: SP .000 .900 MACH 5.220  
 O 117.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RN/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

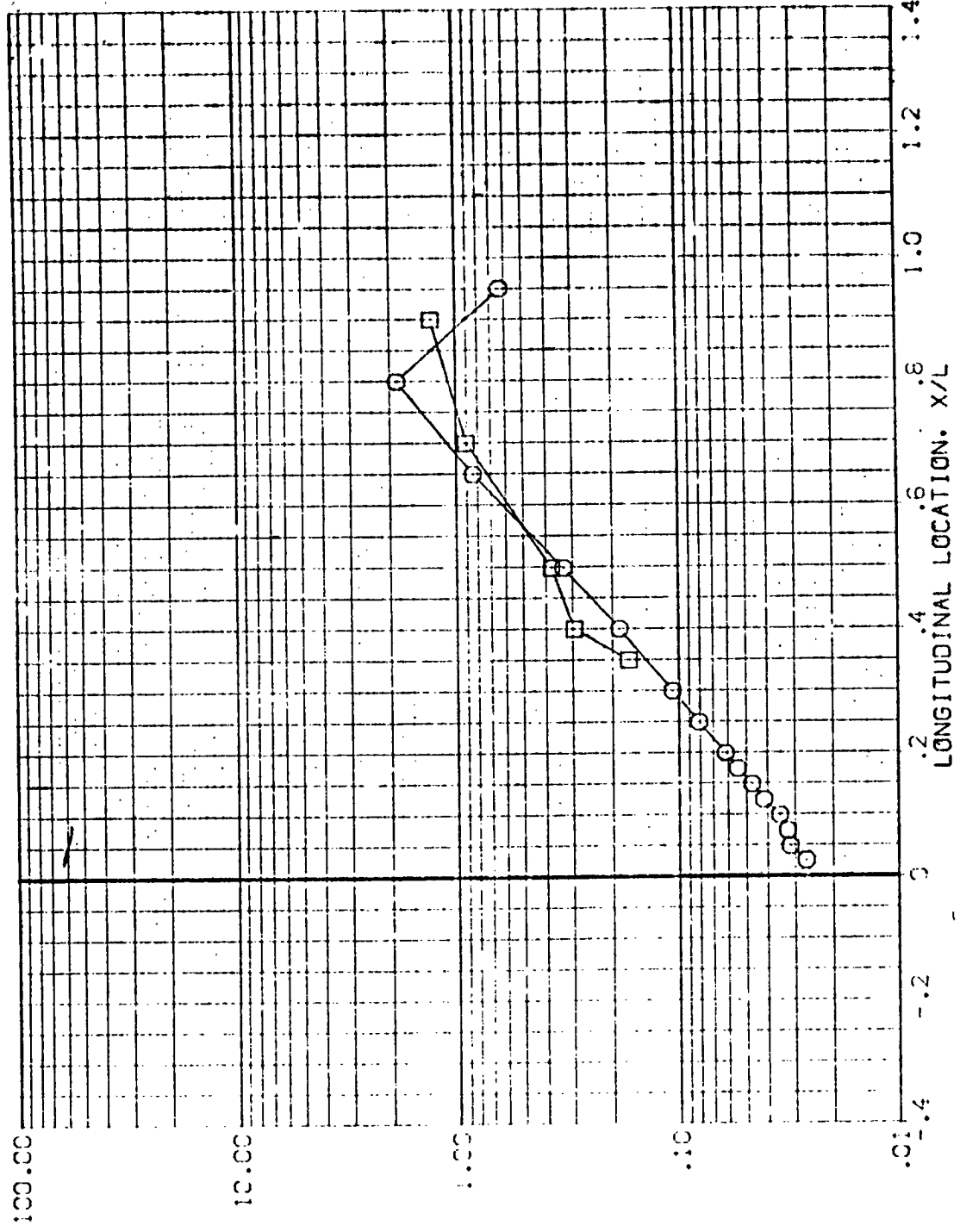


FIG. 9 ORBITER UNDERSIDE FUSELAGE RATIO OF INTERFERENCE TO UNDISTURBED

REPRODUCTION OF THIS  
 MANUAL PAGE IS FOR

AVES 3.5-195 IH28 01-T1 UNDERSIDE FUSELAGE (BEVA04)

SP 117.000  
 MACH .900  
 5.289

PARAMETRIC VALUES  
 ALPHA 99.000  
 BETA 1.000  
 RVAL 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

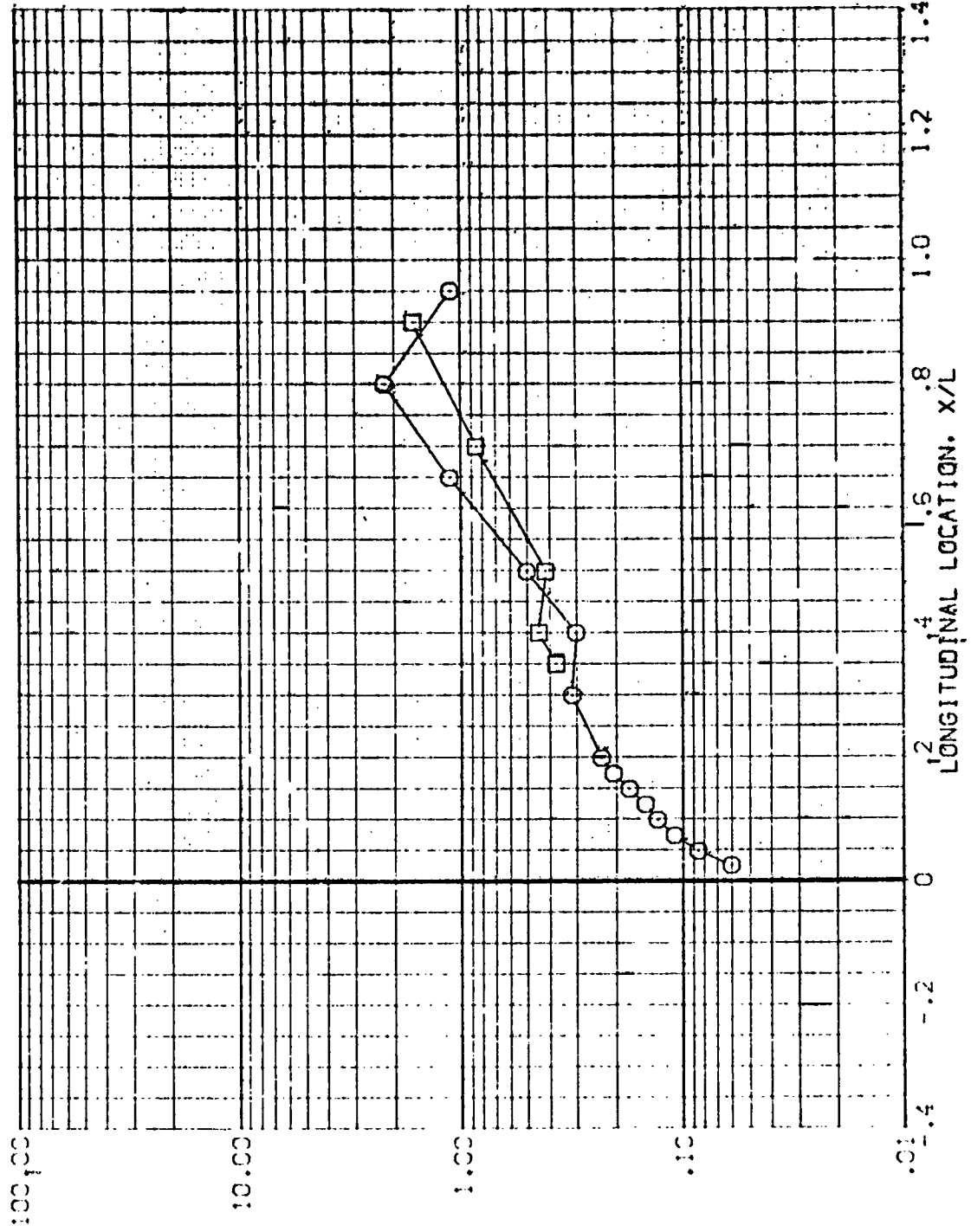


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (BEVA05)

SYSECL BP .003 HA#/WT .900 MACH 5.220  
 117.000

PARAMETRIC VALUES:  
 ALPHA :20 °00 BETA .000  
 RN/L :.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

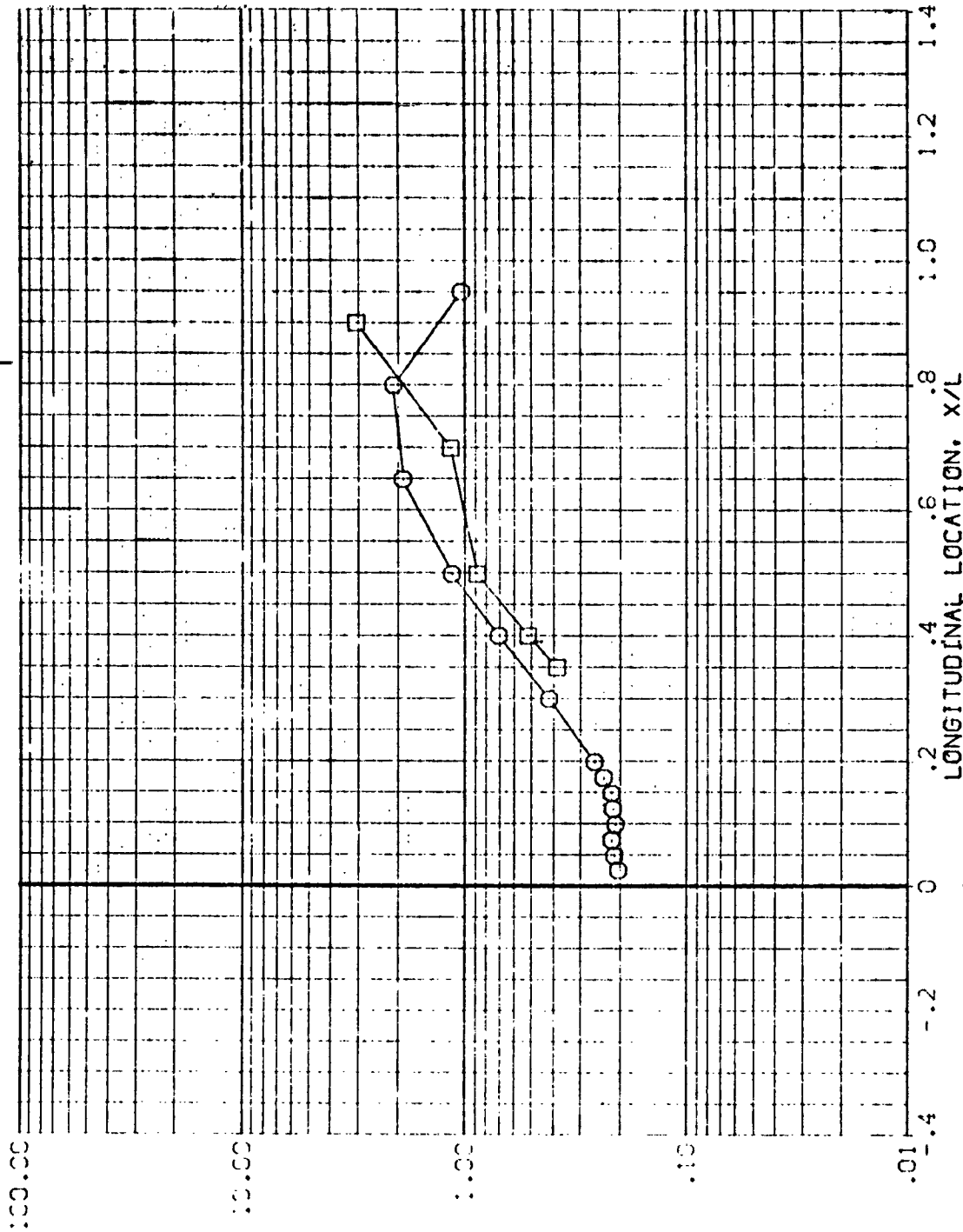


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

AYES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (BEVA06)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 AN/L 1.000

SYMBOL SP MACH  
 O .000 5.220  
 □ :17.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

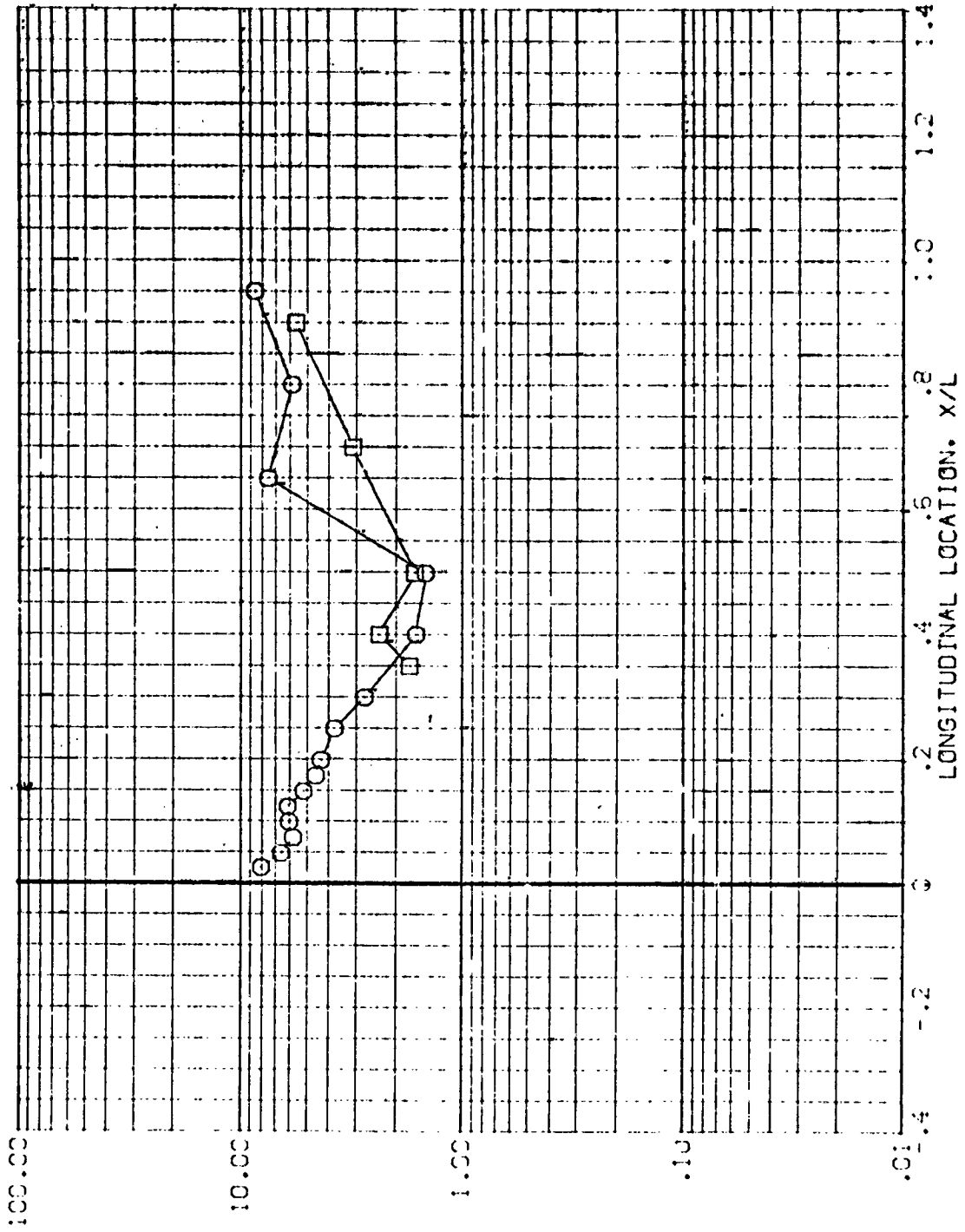


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (BEVAC7)

SYMBOL BP HAWA/T MACH  
 □ .000 .900 5.219  
 ○ 117.000

PARAMETRIC VALUES  
 ALPHA .50.000  
 BETA 1.000  
 RH/L .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/H<sub>∞</sub>

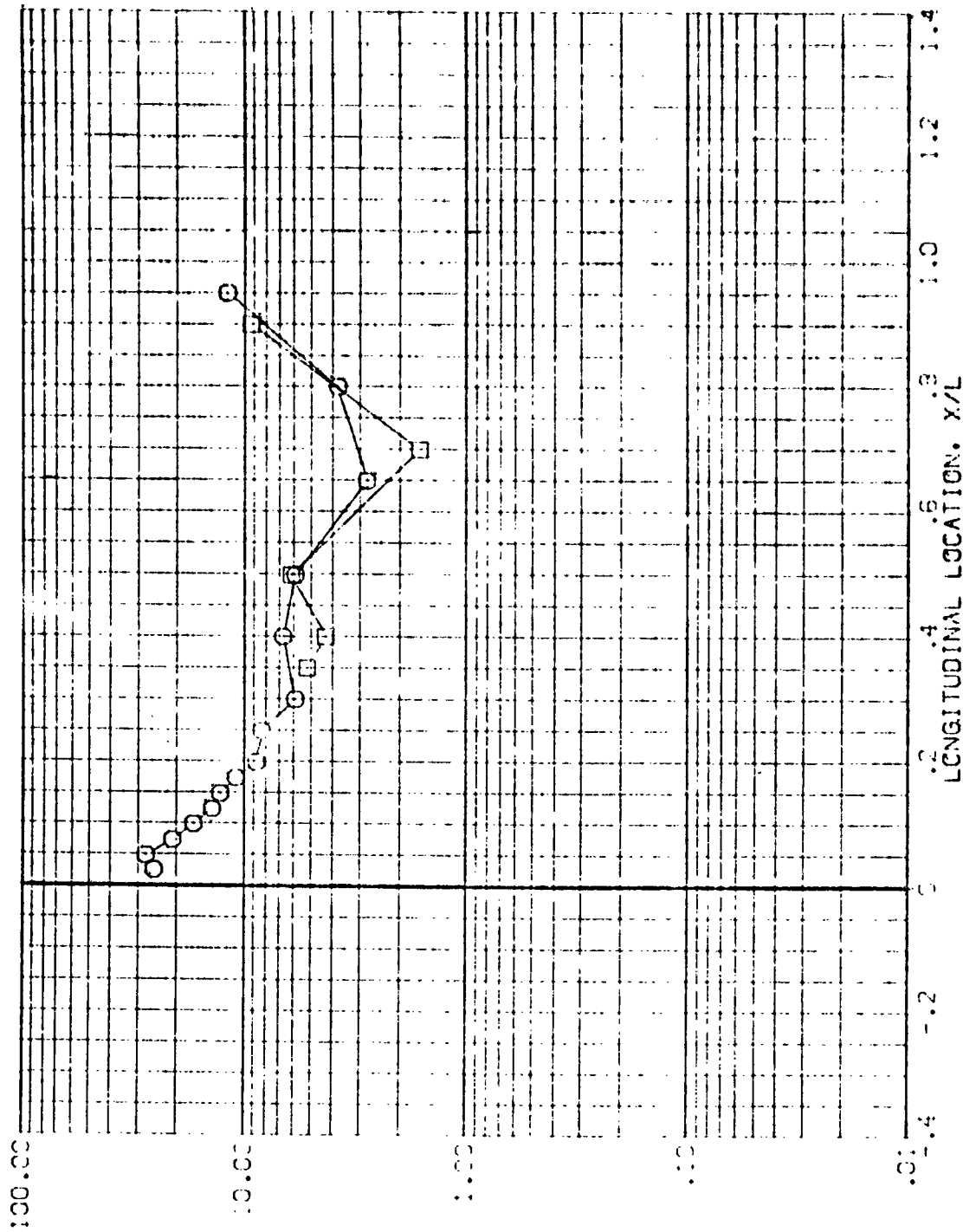


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 1428 O1+T1 UNDERSIDE FUSELAGE (BEVAC8)

SP 1:17.000  
 MACH 0.900  
 ALPHA RVL 1.000  
 BETA 1.000

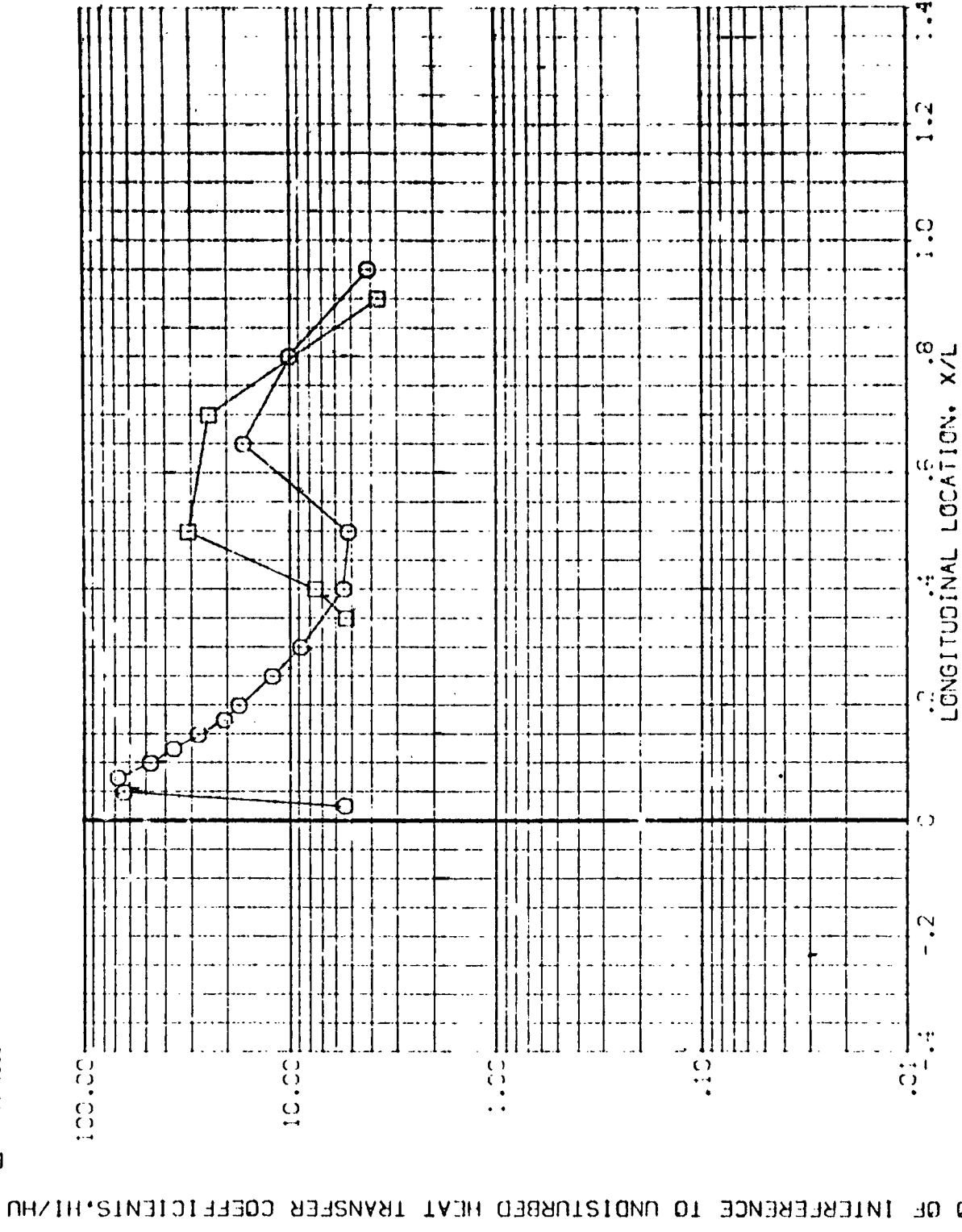


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED



AMES 3.5-195 IH28 01+T1 UNDERSIDE FUSELAGE (REV. A01)

S<sub>REF</sub> 10.000  
 S<sub>REF</sub> 117.000  
 S<sub>REF</sub> 1000  
 MACH 5.220

PARAMETER VALUES  
 ALPHA 30.000  
 BETA 1.000  
 RW/L 1.000

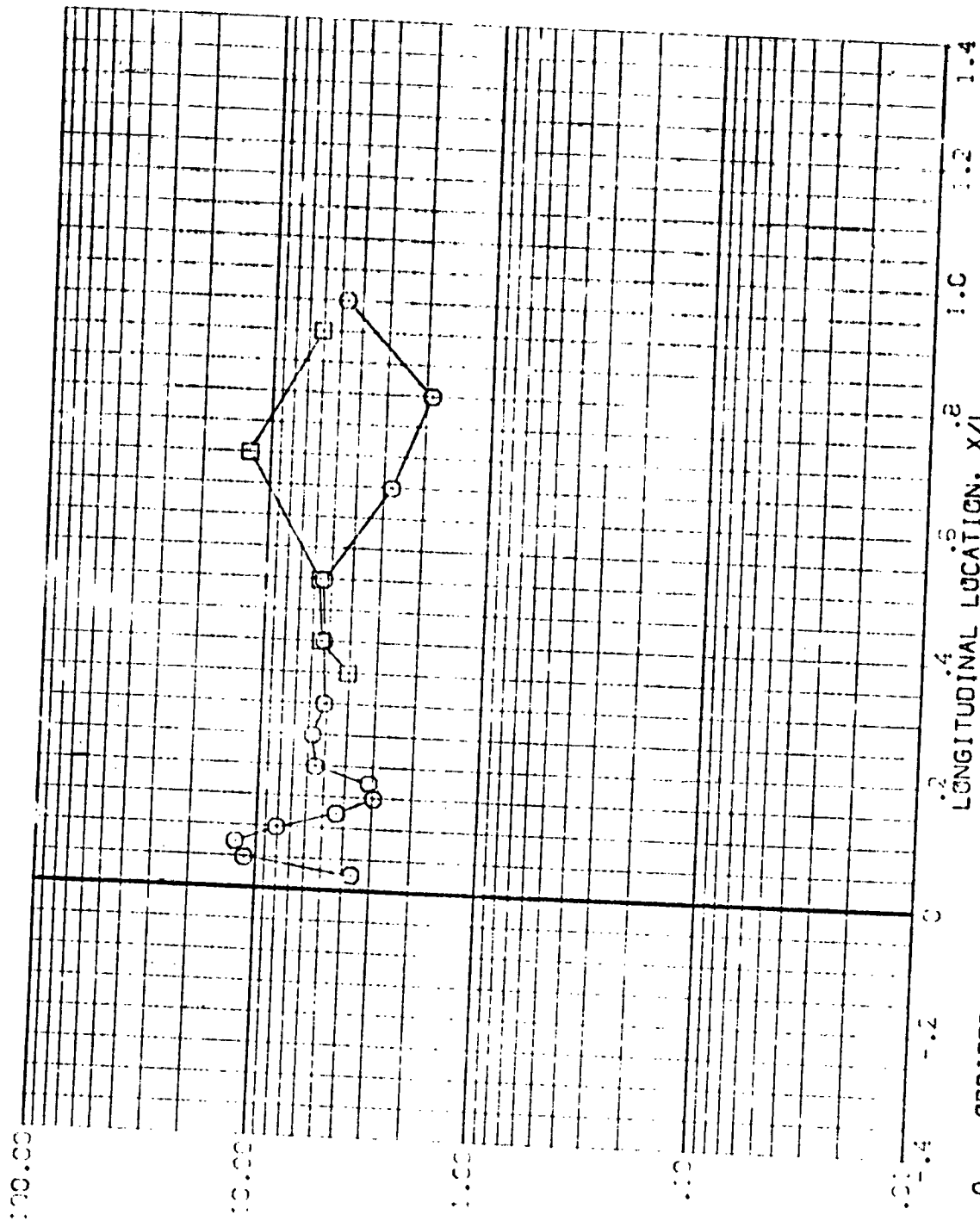


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	ALPHA	BETA	BVAL
000001		01*	01	.000000	.000000	1.000000
000002		02*	02	.000000	.000000	1.000000
000003		03*	03	.000000	.000000	1.000000
000004		04*	04	.000000	.000000	1.000000
000005		05*	05	.000000	.000000	1.000000
000006		06*	06	.000000	.000000	1.000000
000007		07*	07	.000000	.000000	1.000000
000008		08*	08	.000000	.000000	1.000000
000009		09*	09	.000000	.000000	1.000000
000010		10*	10	.000000	.000000	1.000000
000011		11*	11	.000000	.000000	1.000000
000012		12*	12	.000000	.000000	1.000000
000013		13*	13	.000000	.000000	1.000000
000014		14*	14	.000000	.000000	1.000000
000015		15*	15	.000000	.000000	1.000000

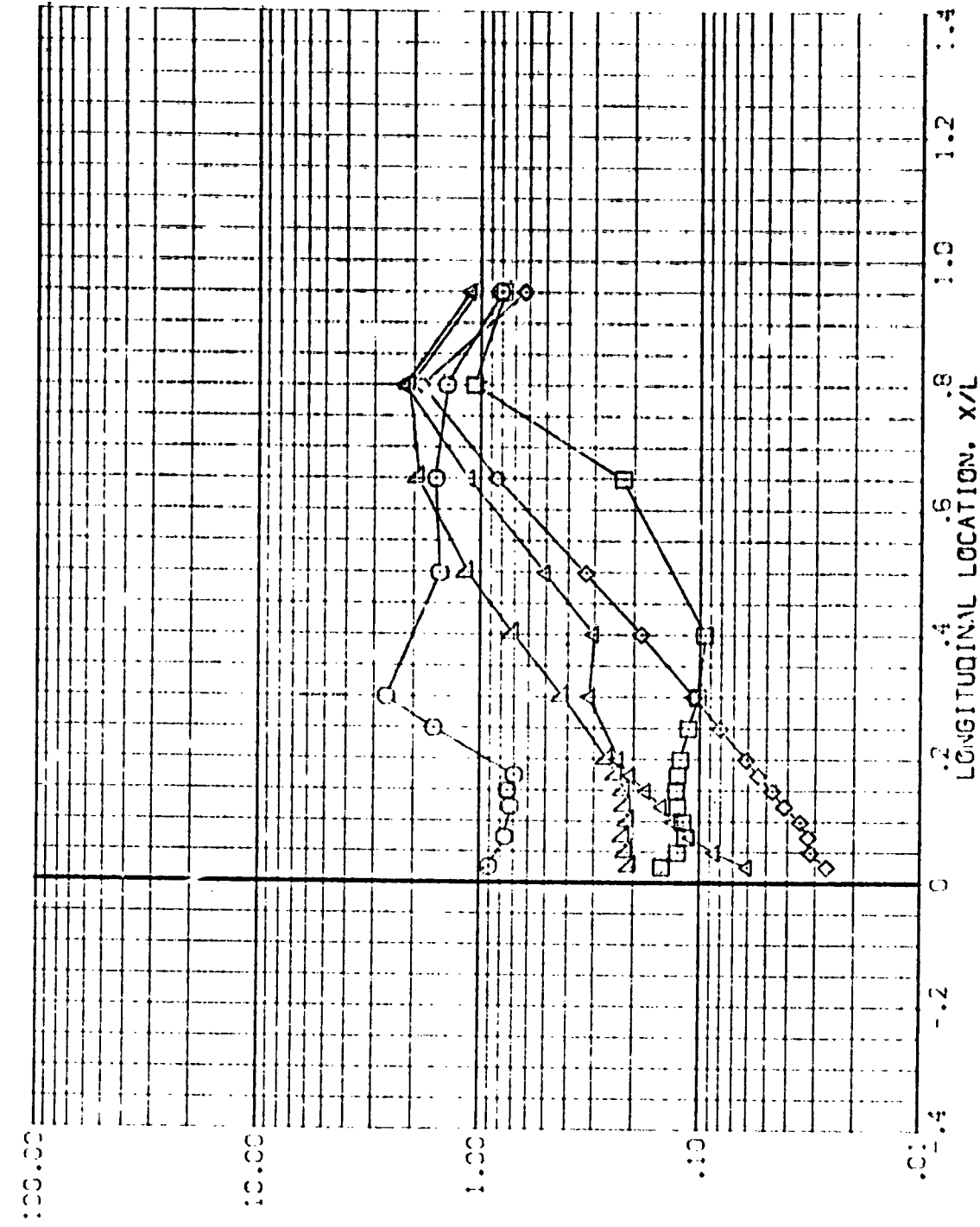


FIG. 9 ORBITER UNDERSIDE FUSELAGE RATIO OF INTERFERENCE TO UNDISTURBED

DATA SET SYMBOL      CALCULATION DESCRIPTION      ALPHA      BETA      RATIO

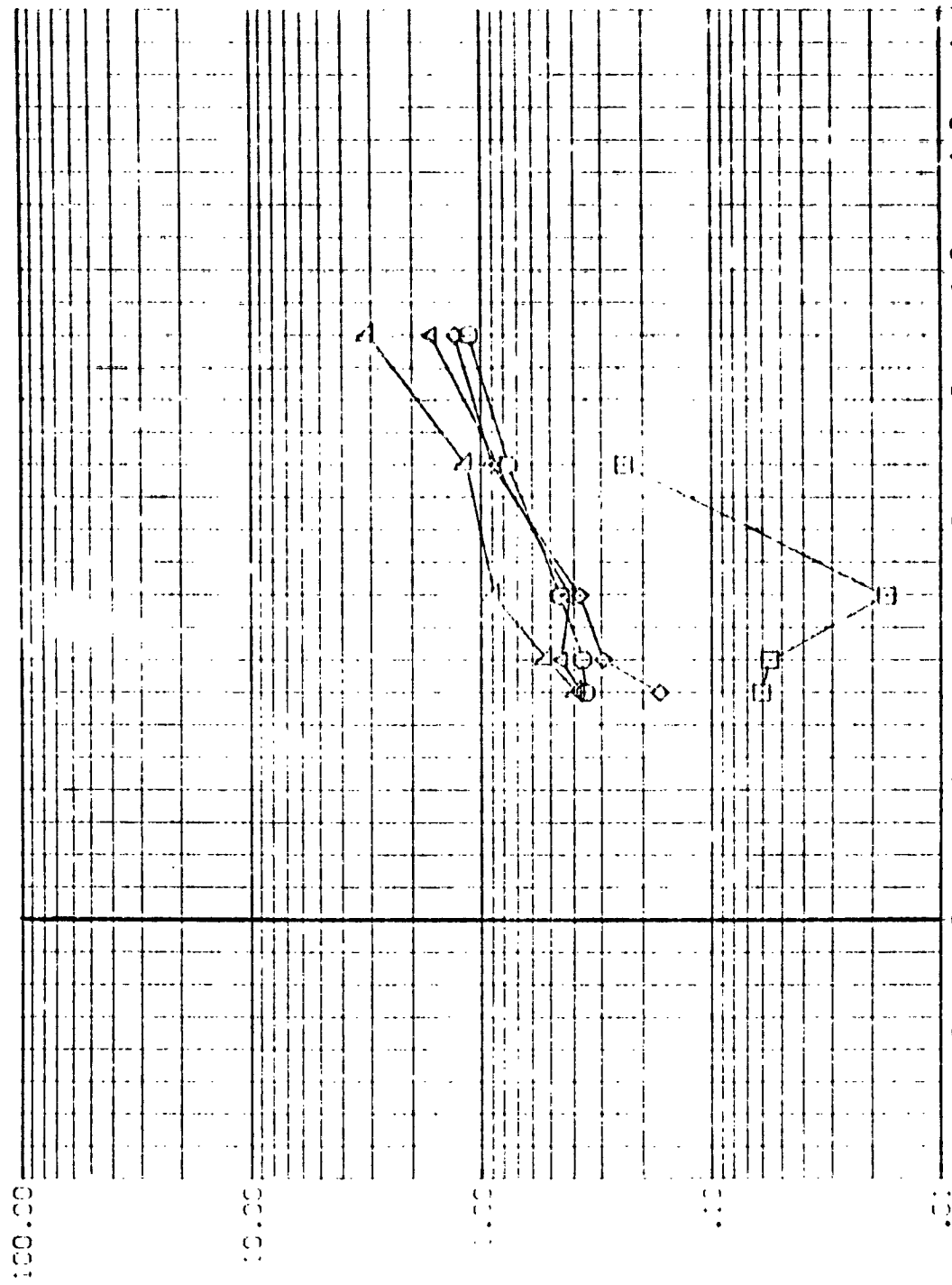


FIG. 9 OPBITER UNDERSIDE FUSELAGE RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H<sub>1</sub>/H<sub>∞</sub>      MACH = 5.333      H/W/L = .900      EP = 117.000      P = 55      438

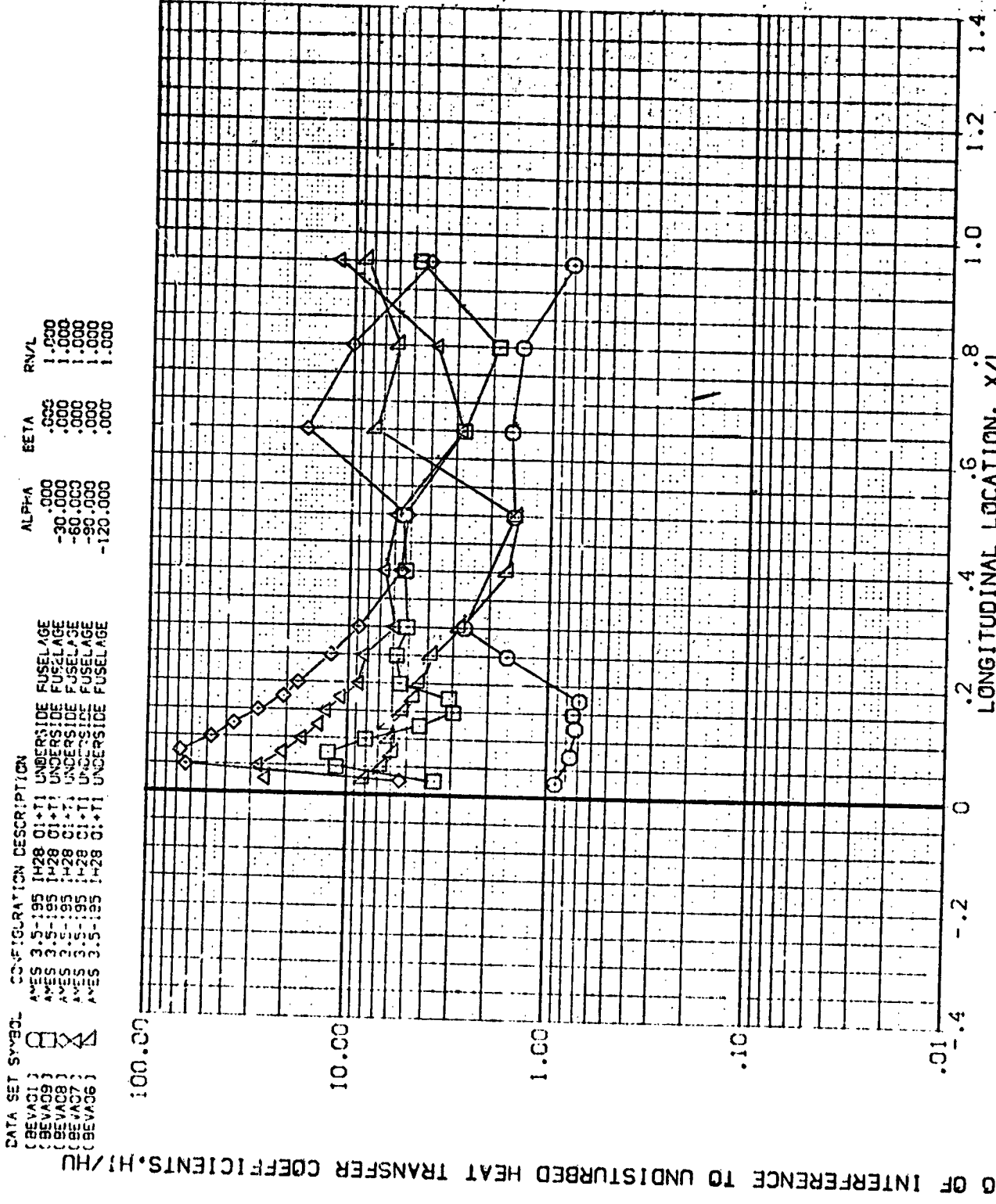


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

MACH = 5.300 HAW/HT = .900 BP = .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PN/L
{BEEVA01}	AMES 3.5-195 1428 01+11 UNDERSIDE FUSELAGE	.300	.000	1.000
{BEEVA09}	AMES 3.5-195 1428 01+11 UNDERSIDE FUSELAGE	-30.000	.000	1.000
{BEEVA08}	AMES 3.5-195 1428 01+11 UNDERSIDE FUSELAGE	-60.000	.000	1.000
{BEEVA07}	AMES 3.5-195 1428 01+11 UNDERSIDE FUSELAGE	-90.000	.000	1.000
{BEEVA06}	AMES 3.5-195 1428 01+11 UNDERSIDE FUSELAGE	-120.000	.000	1.000

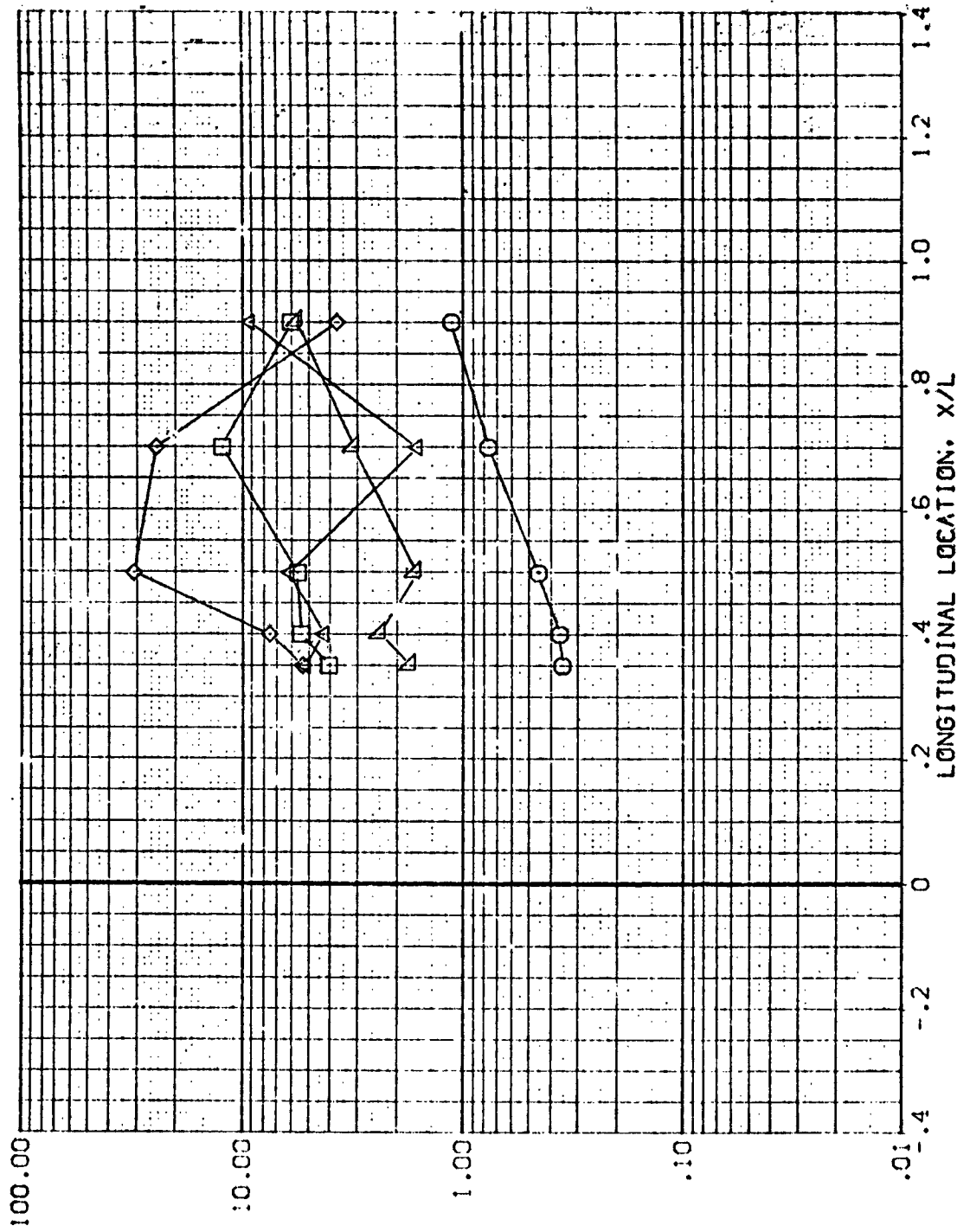


FIG. 9 ORBITER UNDERSIDE FUSELAGE, RATIO OF INTERFERENCE TO UNDISTURBED

W/ACH = 5.300 H/W/HT = .900 BP = 117.000

PAGE 440

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB19)

SYMBOL    HAW/HT    Z    MACH  
 ◊    .850    375.000    5.220  
 □    .900  
 ◊    1.000

PARAMETRIC VALUES  
 ALPHA    .000  
 BETA    .000  
 P1/L    1.000

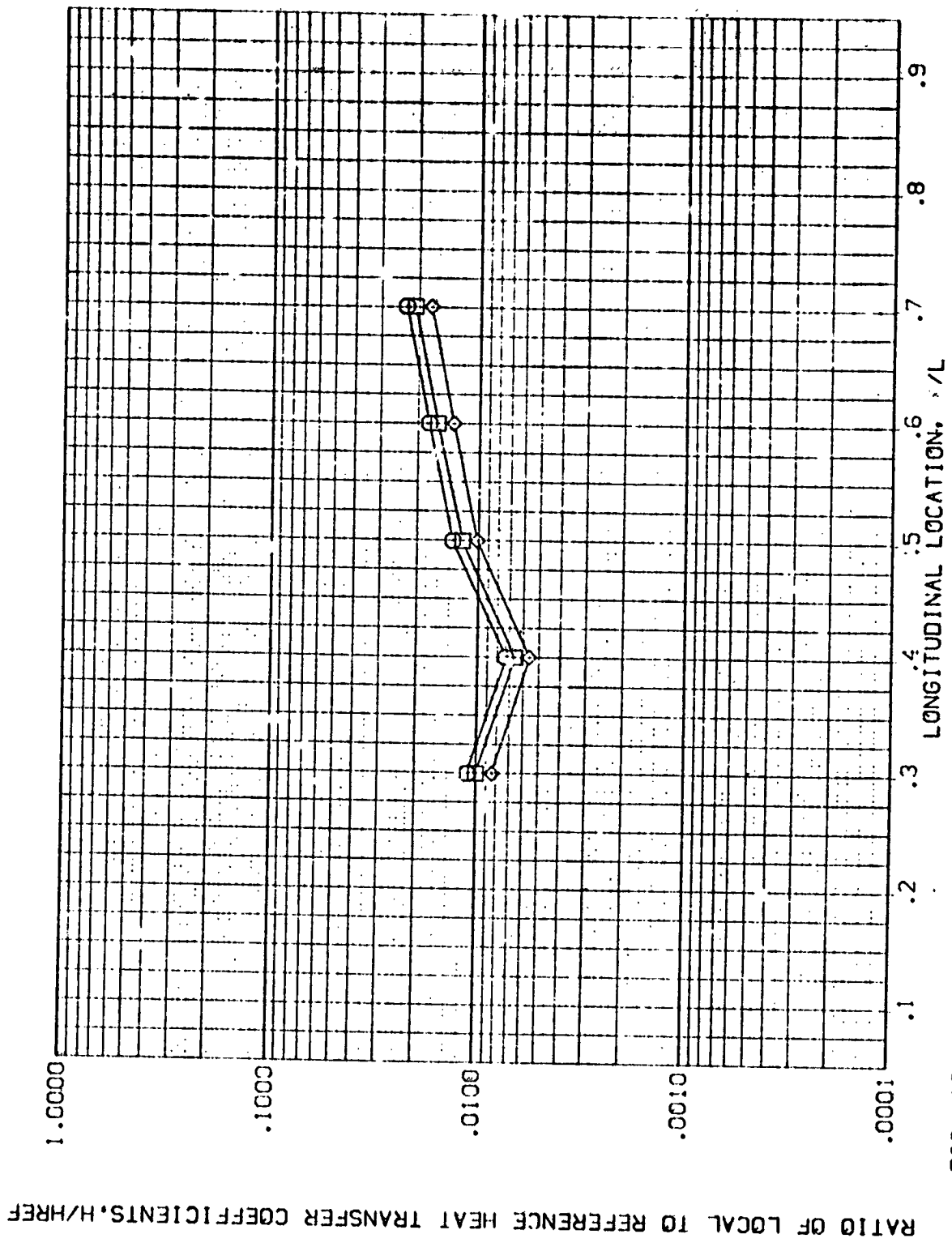


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB19)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL MAW/HT Z MACH

◇	.850	425.000	5.220
○	.900		
◇	1.000		

PARAMETRIC VALUES	
ALPHA	BETA
RM/L	.000
1.000	

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

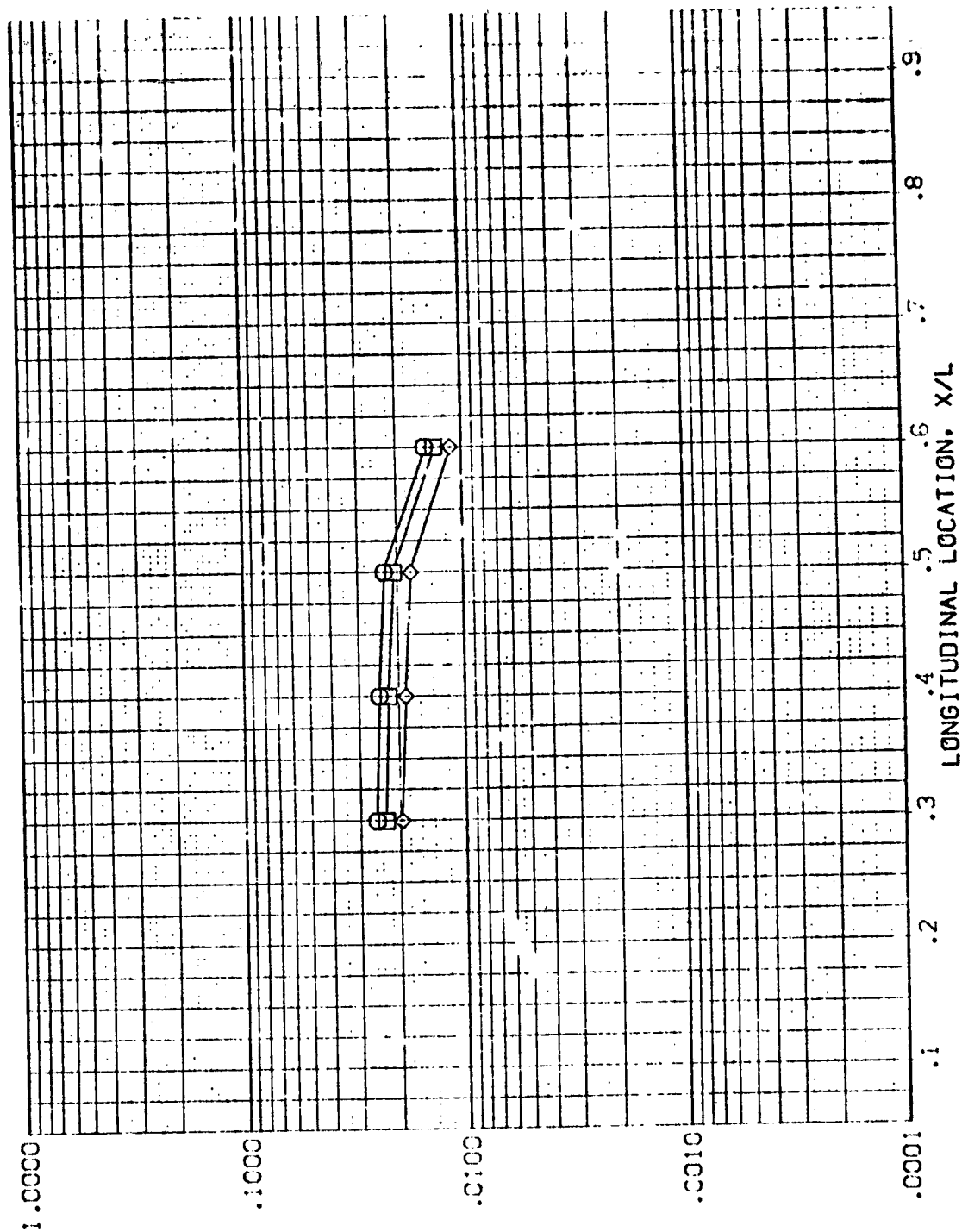


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

SEE ADDITIONAL PAGES OF THE ORIGINAL PAGE FOR

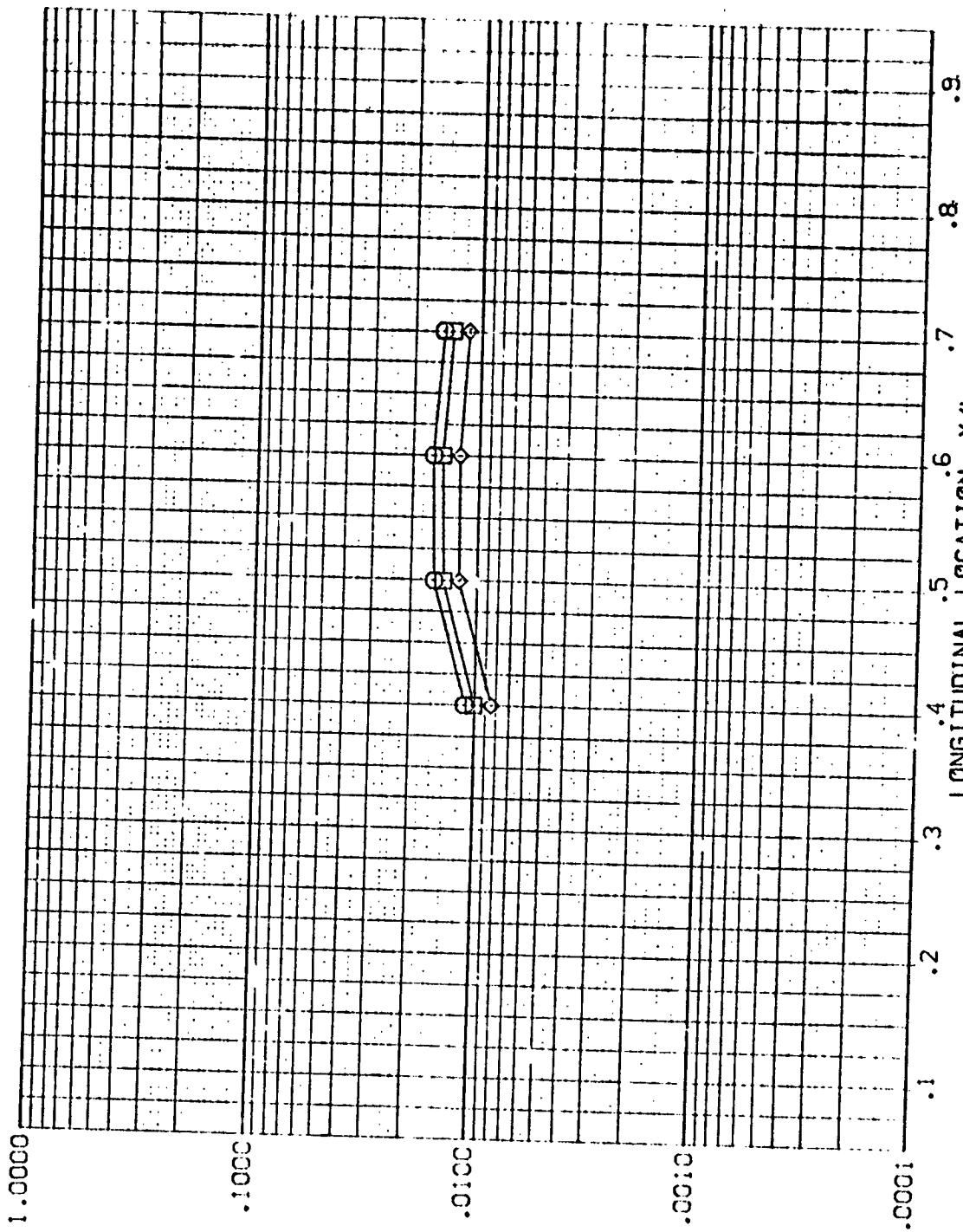
(REVB19)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL HAW/HT Z MACH  
◇ .850 501.000 5.220  
□ .900  
○ 1.000

PARAMETRIC VALUES  
ALPHA .000 BETA .000  
RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF



LONGITUDINAL LOCATION, X/L  
FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



(REV820)

BODY SIDEWALL.

AMES 3.5-195 IH28 01

SYMBOL  
◇  
□

MAW/HT  
.850  
.900  
1.000

Z

375.000

MACH

5.219

PARAMETRIC VALUES  
ALPHA  
RNL

30.000  
1.000

BETA  
.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

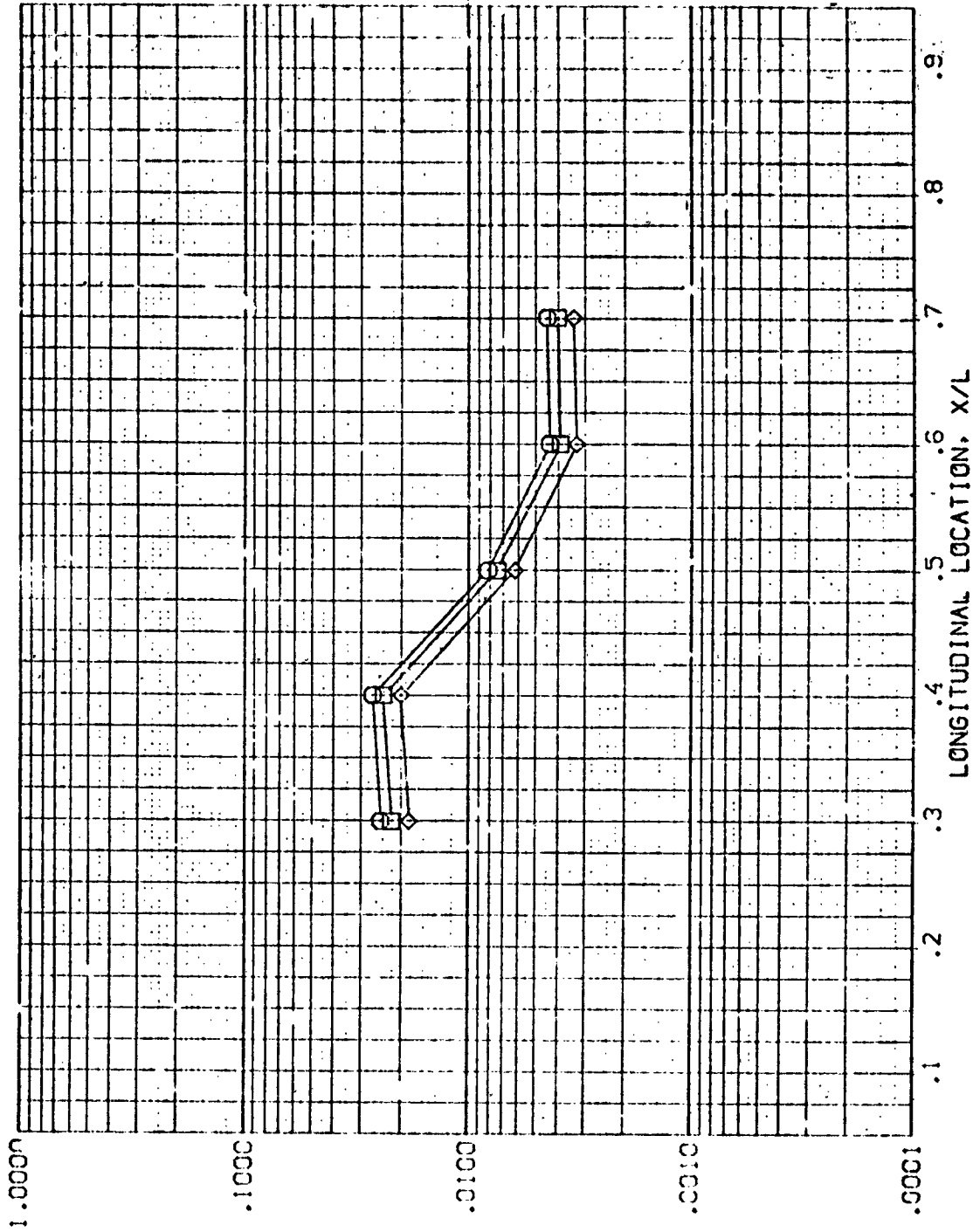


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB20)

AMES 3.5-195 IH28 01 BODY SIDEWALL.

WZ MACH

SYMBOL HAWAHT 2 MACH  
□ .850 425.000 5.219  
◇ .900  
1.000:

PARAMETRIC VALUES  
ALPHA 30.000 BETA .000  
RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

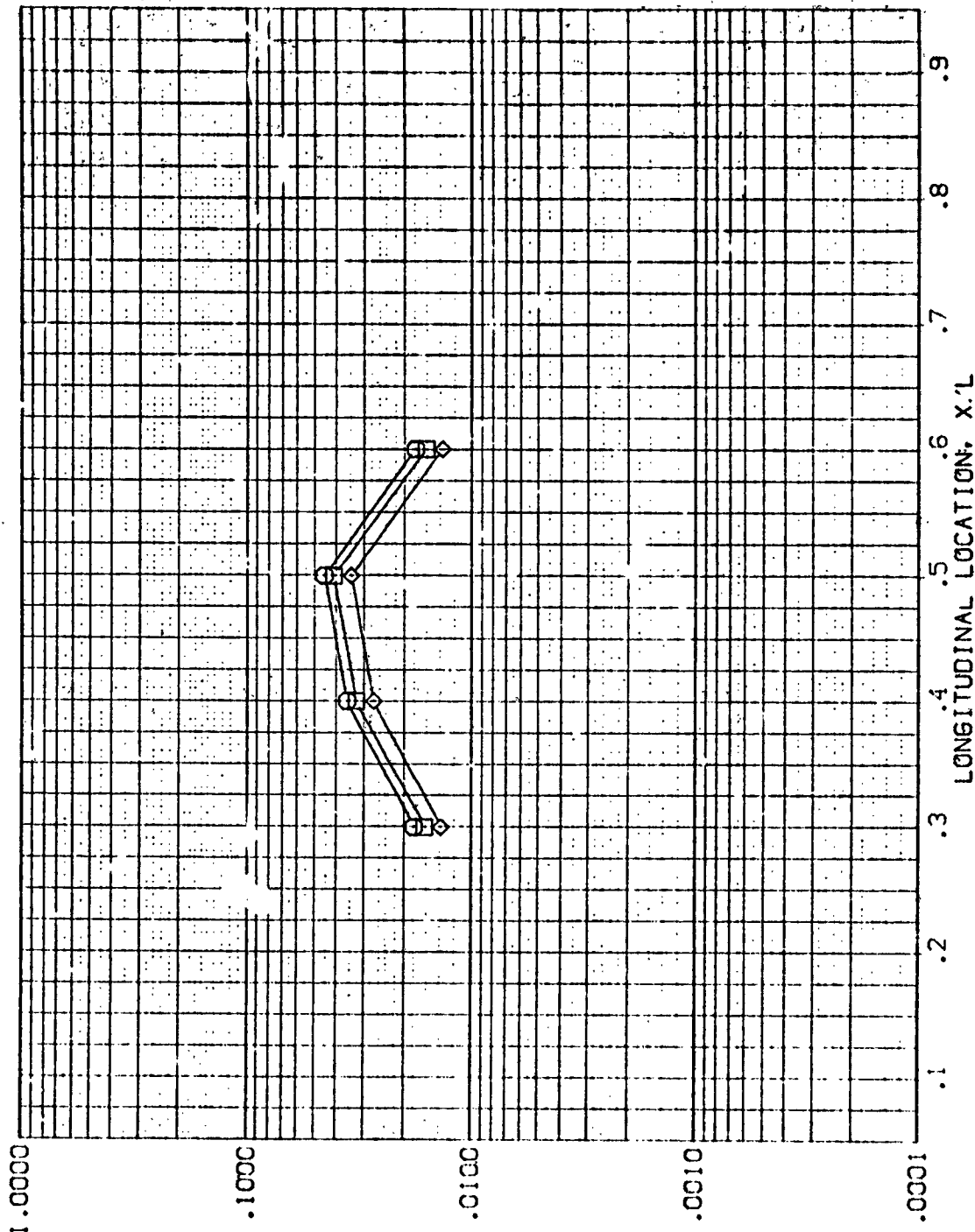


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB20)

AMES 3.5-195 IH28 01 BODY SIDEWALL

HAZ/HT Z MACH

.850 501.000 5.219

SYMBOL  
◇  
□  
○

PARAMETRIC VALUES  
30.000 BET\*  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

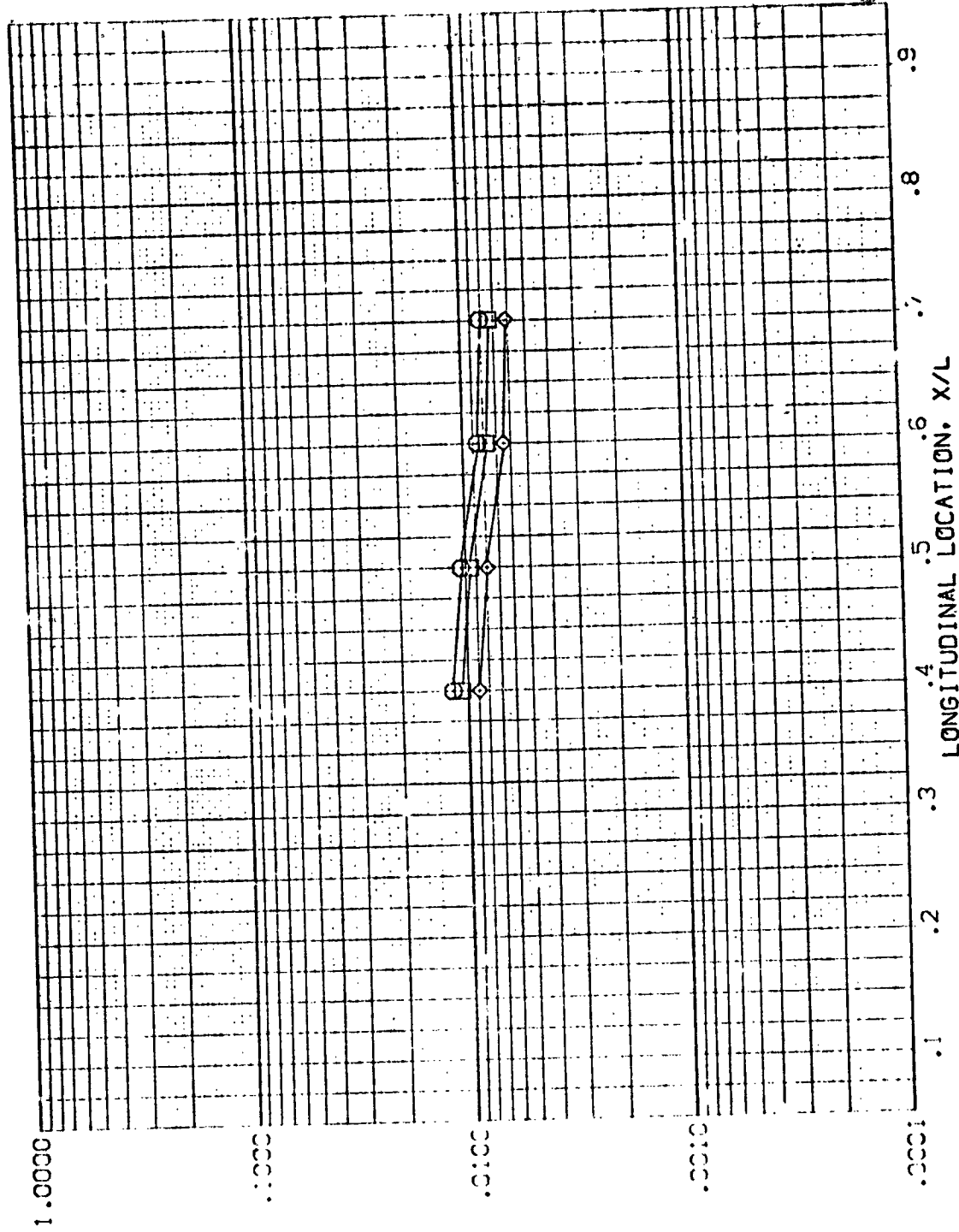


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REV21)

SYMB. HAW/HT Z MACH  
 ◊ .850 375.000 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 P/V/L 1.000

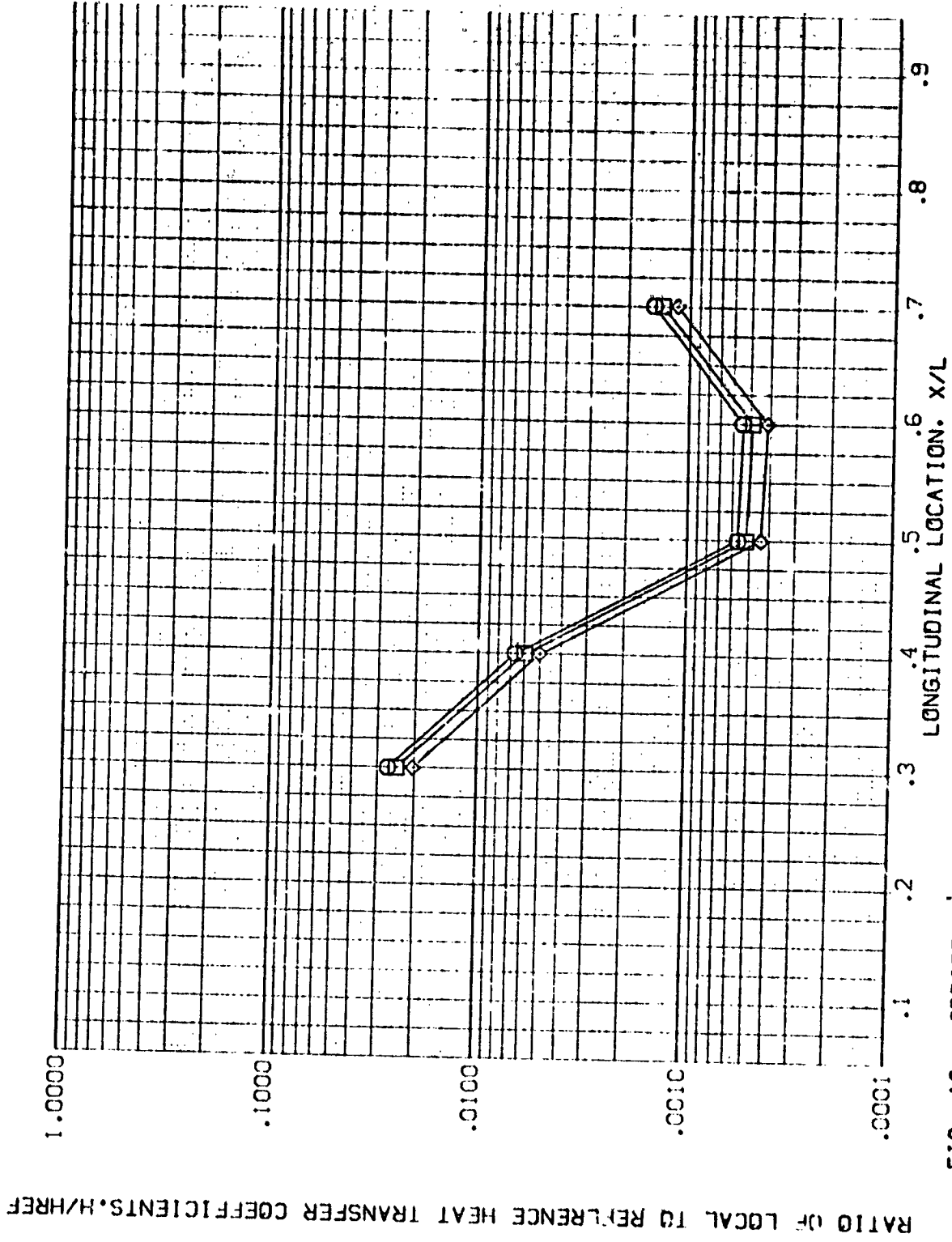


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REV 921)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SIZES: HAW/H" Z MACH  
 .850 425.000 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, HZ/HREF

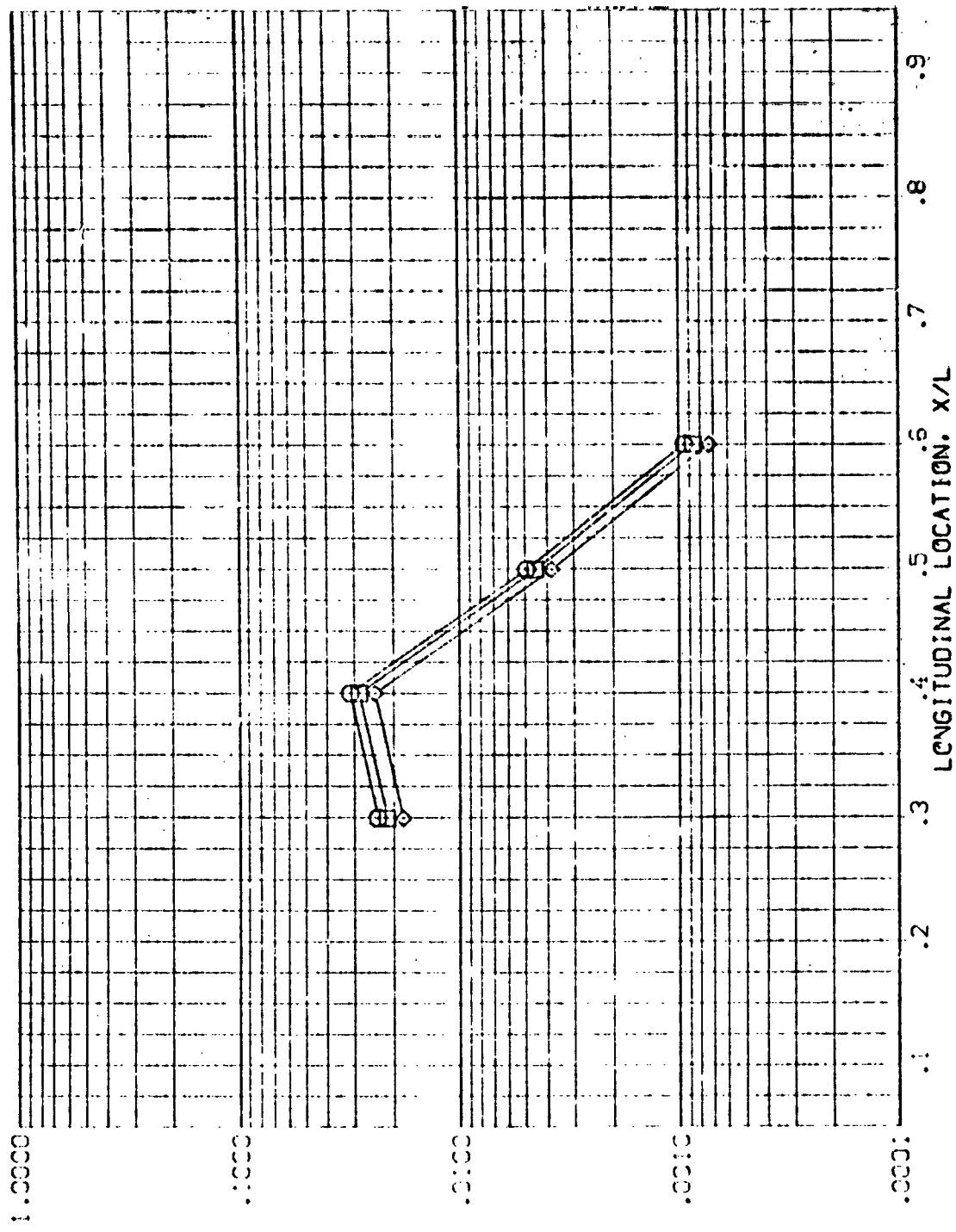


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REV821)

SYMBOL	MAP/RT	Z	MACH	PARAMETRIC VALUES
◇	.850	501.000	5.220	60.000 ALPHA
□	.900			1.000 BETA
◇	1.000			

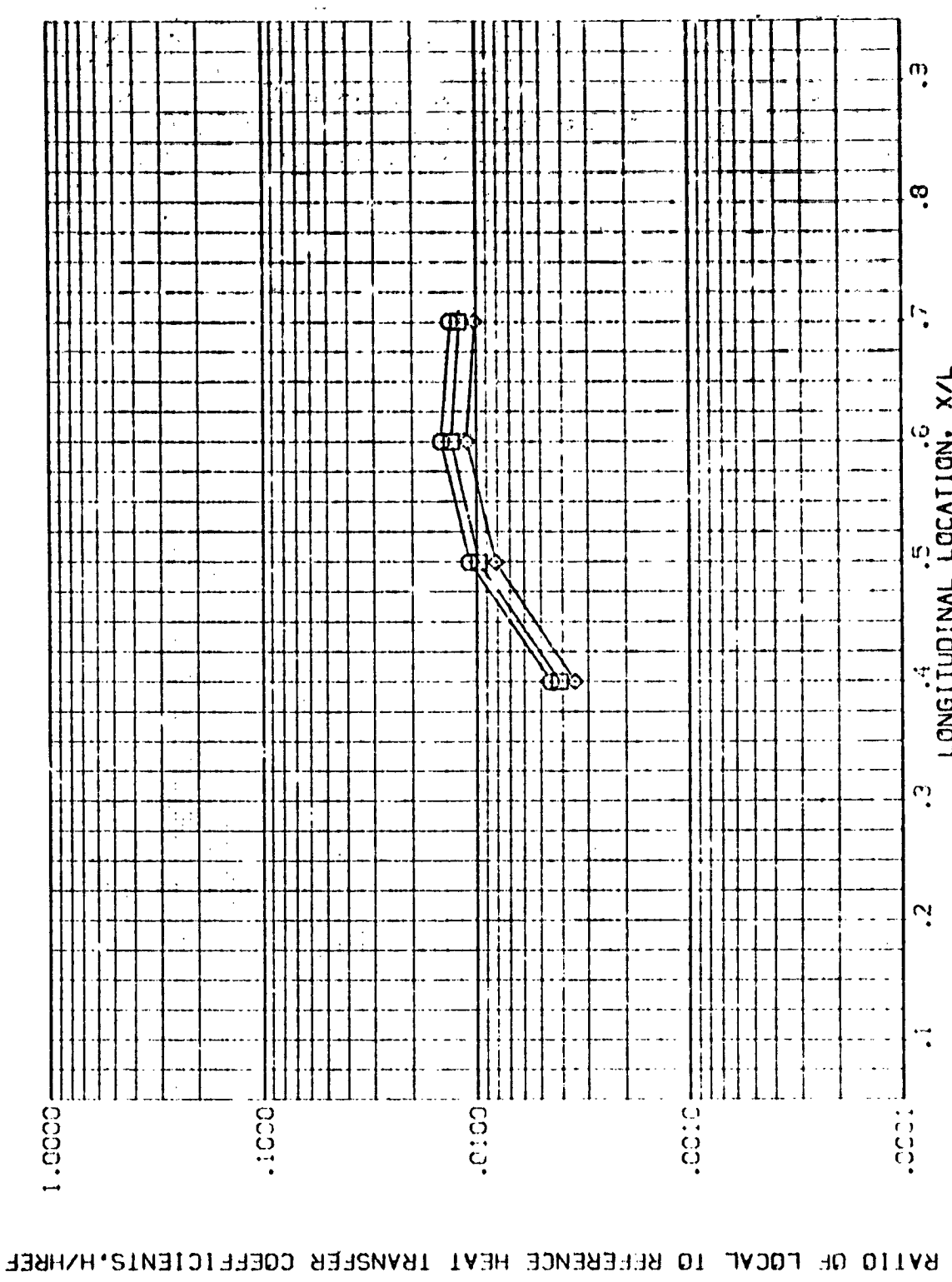


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AYES 3.5-195 IH28 01 BODY SIDEWALL

(FEV502)

SEVER. PARAM. 2 MACH 5.220  
.850 375.000  
.900  
1.000

ENDING VALUES  
ALPHA 0.000  
ETA 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

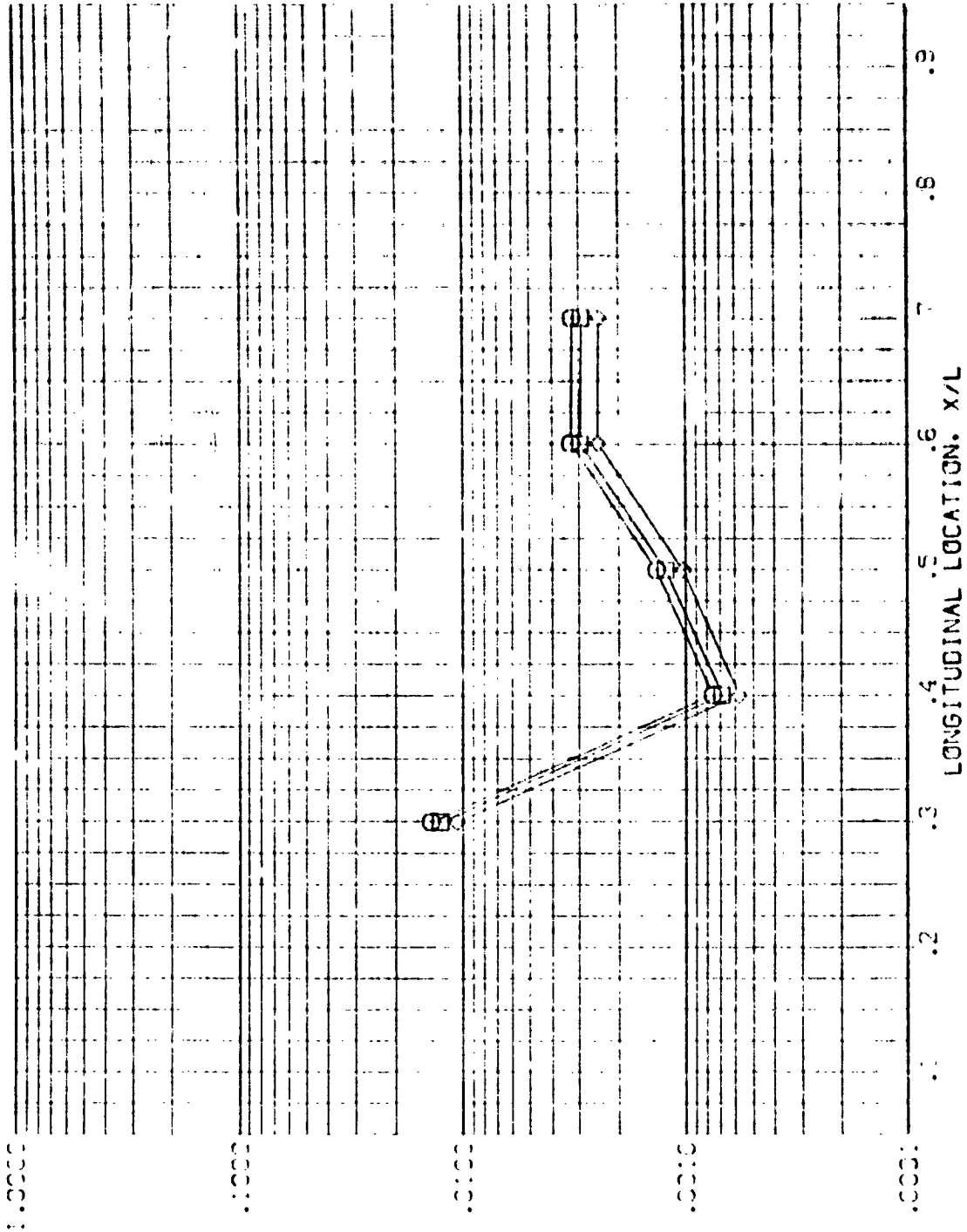


FIG. 10 ORBITER BODY SIDEWALL, ORPITER ALONE

AVES 2.5-195 1428 01 BODY SIDEWALL (RE:922)

PARAMETRIC VALUES  
 ALPHA 90.000 BETA .000  
 GVL 1.000

SYSCD H/M/MT Z MICH  
 .850 429.000 5.220  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

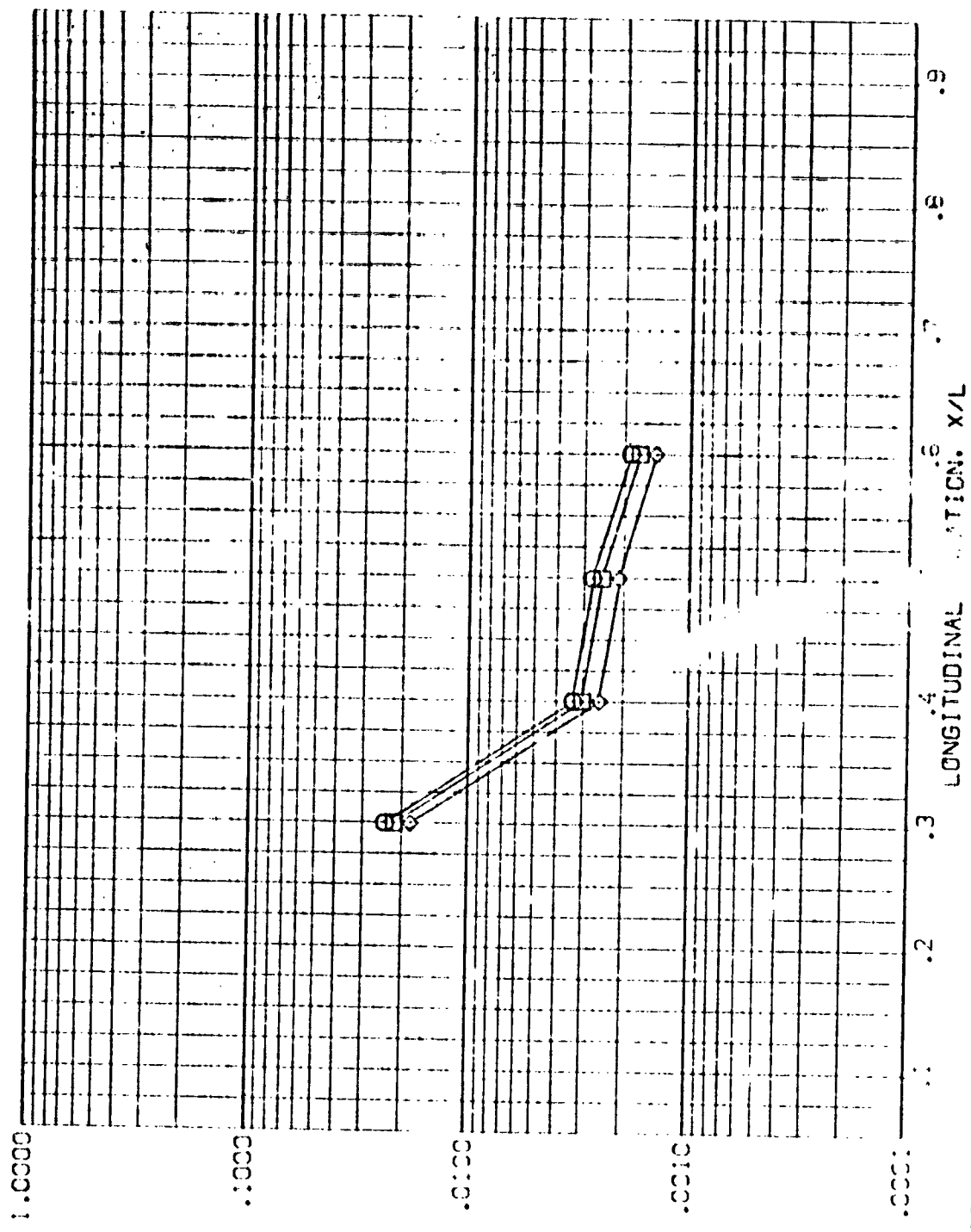


FIG. 10 ORBITER BODY SIDEWALL, ORBITER AL...



SYMBOL HEIGHT Z MACH  
 ◇ .850 501.000 5.220  
 ○ .900  
 △ .950

PARAMETRIC VALUES  
 SO.000 SETA .000  
 ALPHA RM/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

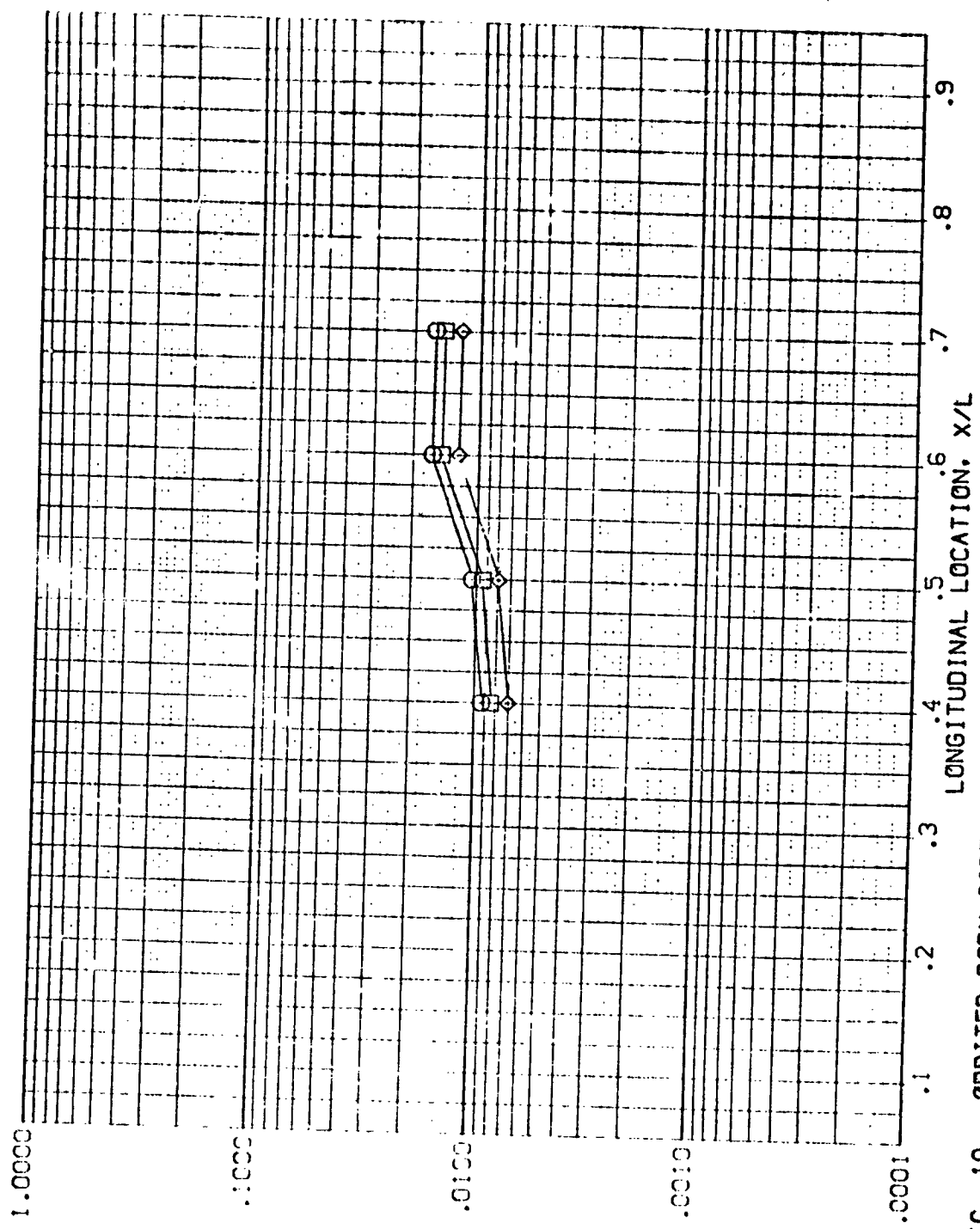


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

REF ID: A60100  
 ORIGINAL PAGE IS FOR REF ID: A60100

(REVB23)

PARAMETRIC VALUES  
 12C 000 BETA .000  
 ALPHA 1.000  
 RN/L

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYBCL HAWALT Z MACH  
 .850 375.000 5.220  
 .900  
 1.000

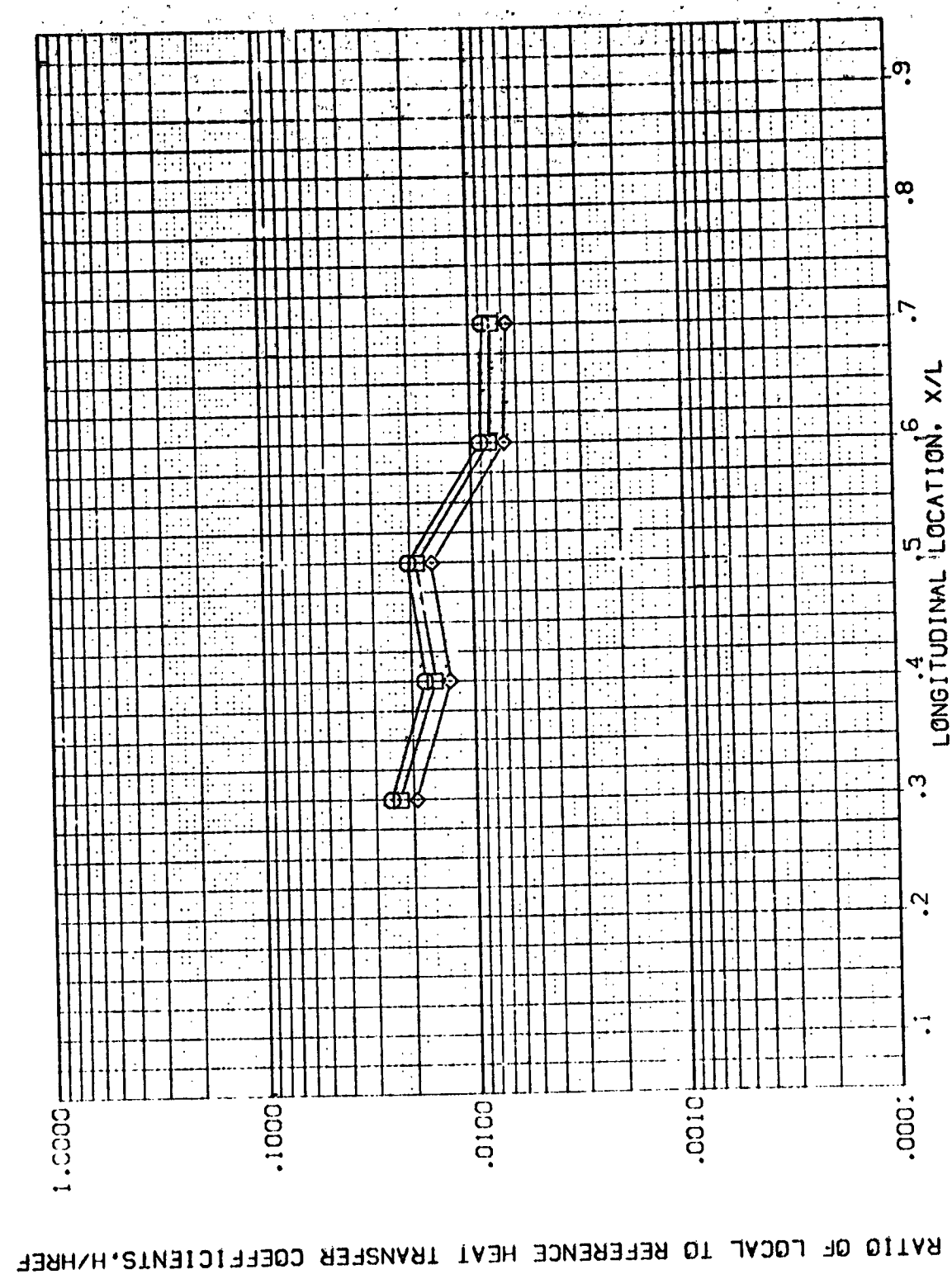


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB23)

BODY SIDEWALL

AYES 3.5-195 IH28 01

PARAMETRIC VALUES  
ALPHA 120.000 BETA .000  
RN/L 1.000

SYMBOL HAW/HT Z MACH  
◇ □ .850 425.000 5.220  
□ .900  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

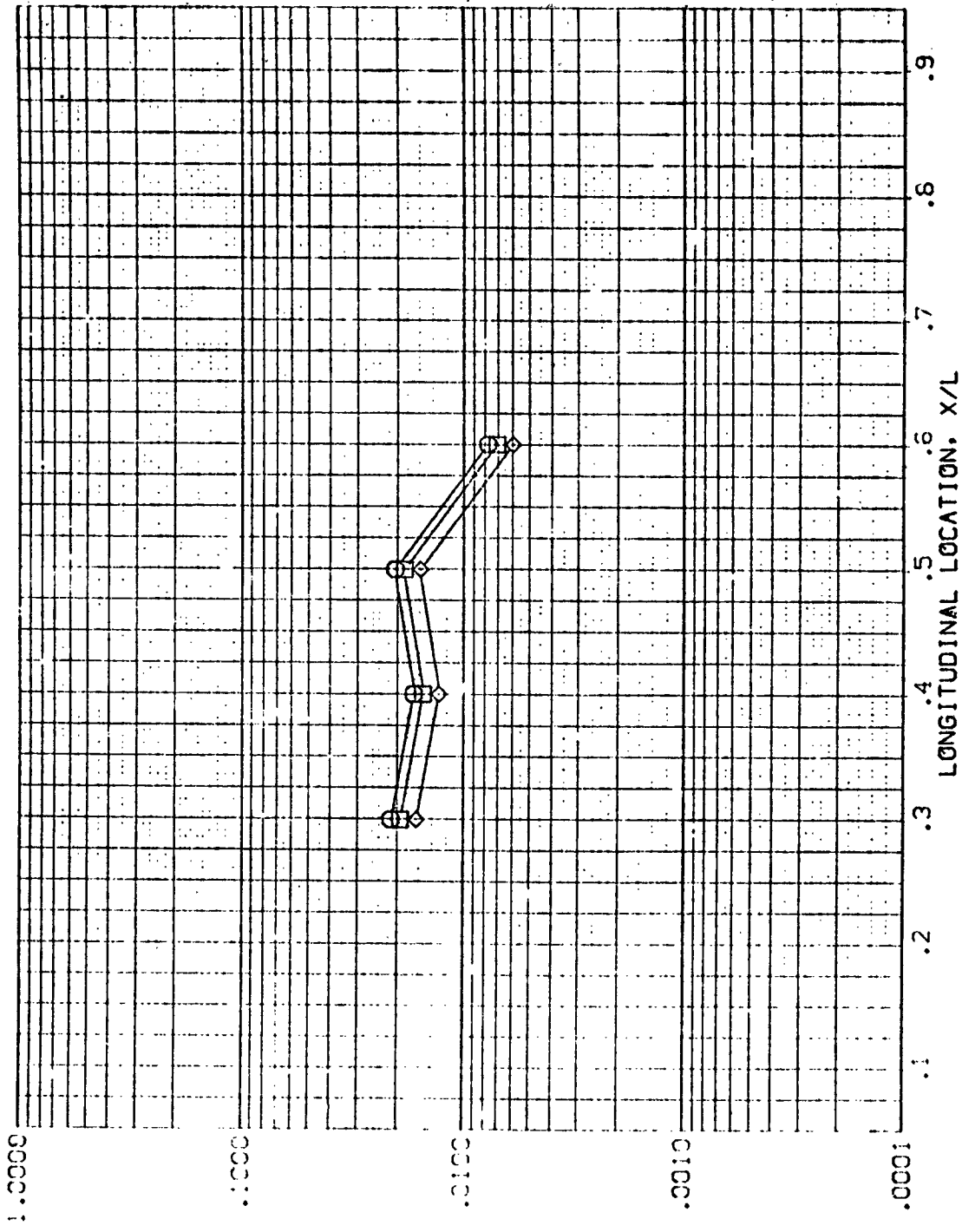


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REV/B23)

SYSEC. HAV/HT Z MACH  
 ◊ ◊ .850 501.000 5.220  
 ◊ ◊ .900 1.000

PARAMETRIC VALUES  
 ALPHA 12°.000 BETA .000  
 RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

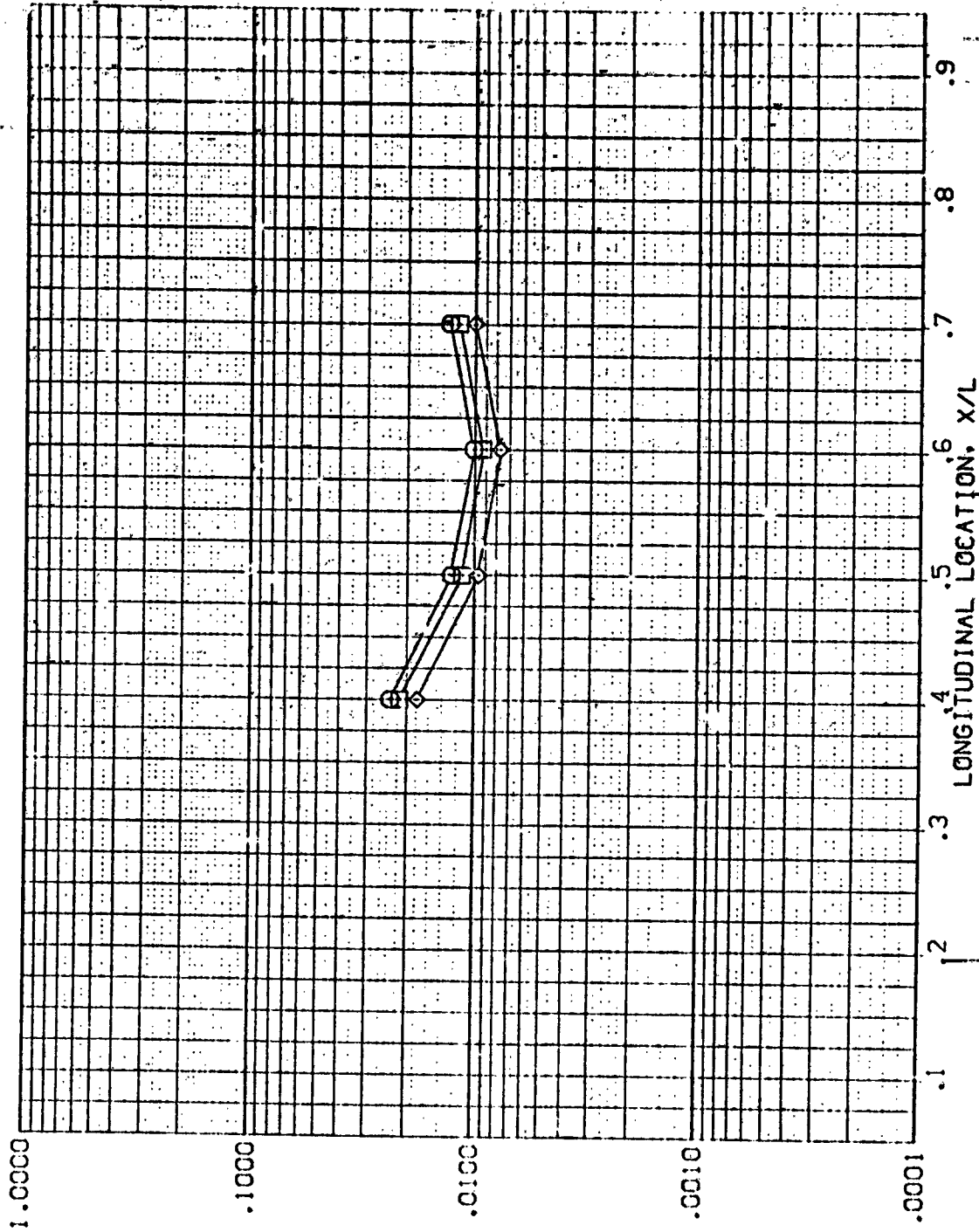


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 0: BODY SIDEWALL (REVB24)

SYMBOL MAW/HT Z MACH  
 □ .850 375.000 5.220  
 ○ .950  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

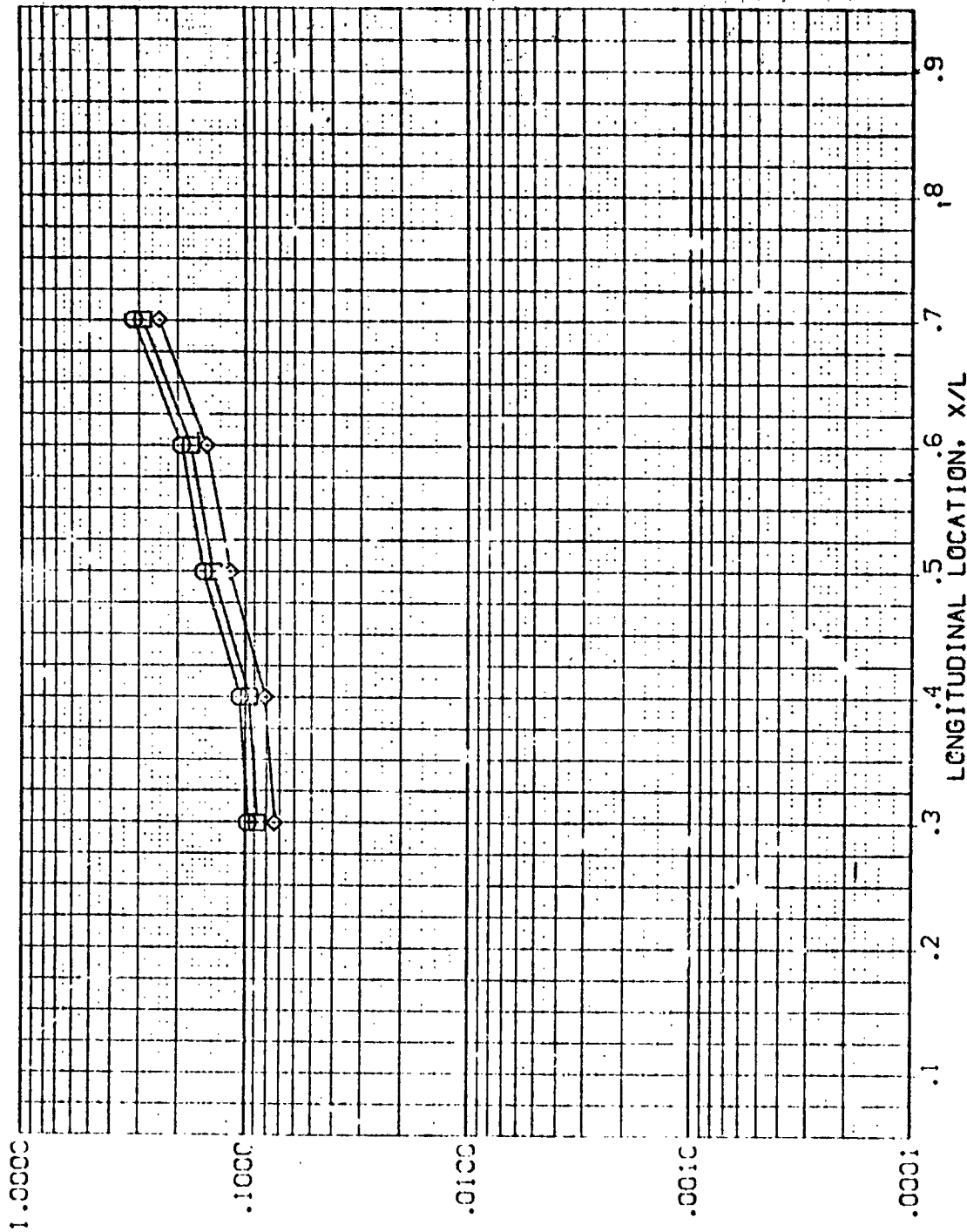


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB24)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES

ALPHA RVAL -120.000 BETA .000  
MACH 5.220

SYMBOL HAW/HT Z  
◇ .850 425.000  
□ .900  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

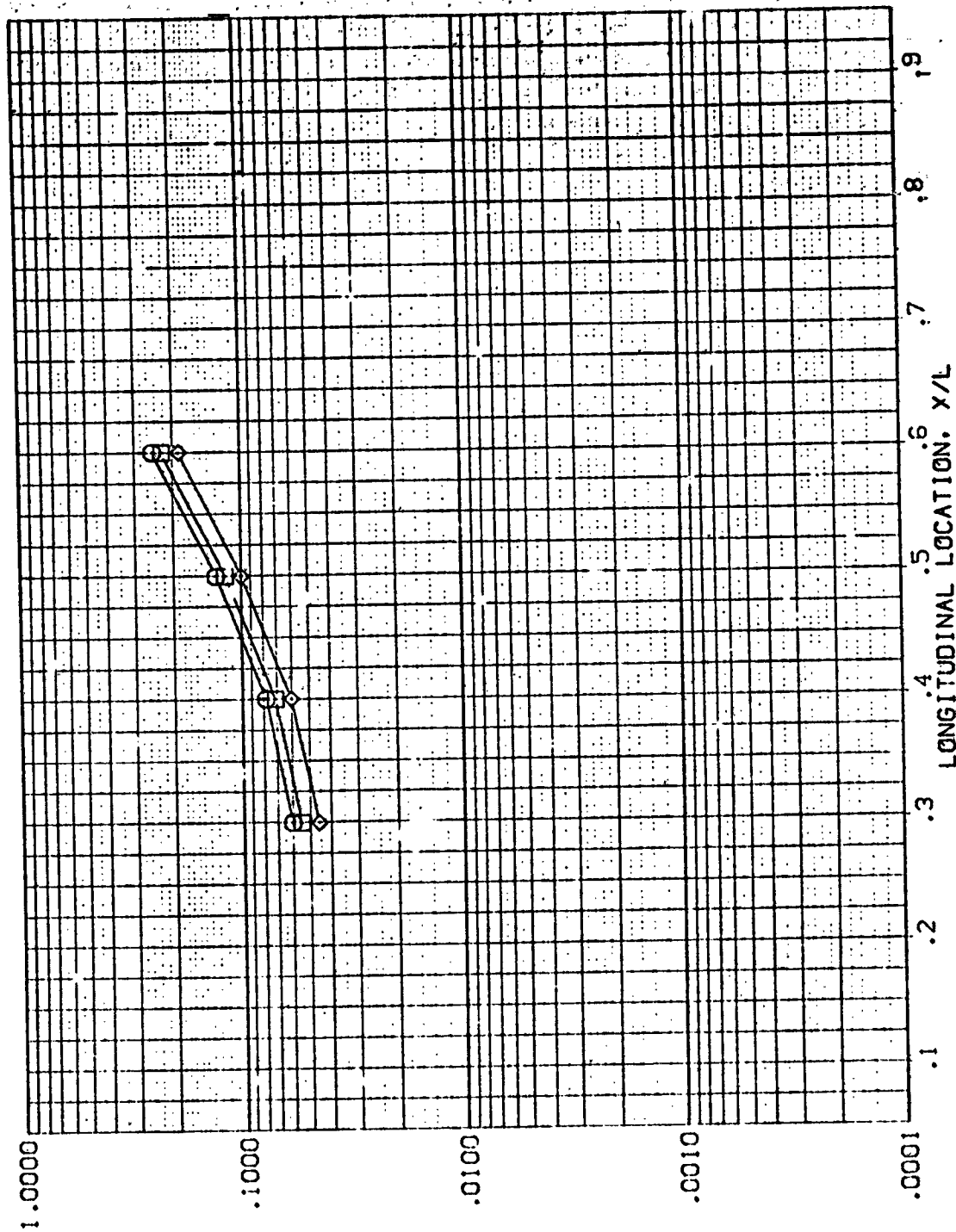


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB24)

PARAMETRIC VALUES  
ALPHA -12.000 BETA .000  
RN/L 1.000

SYMBOLS:  $\square$   $\diamond$   
MACH 5.220  
Z 501.000  
MACH .850  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

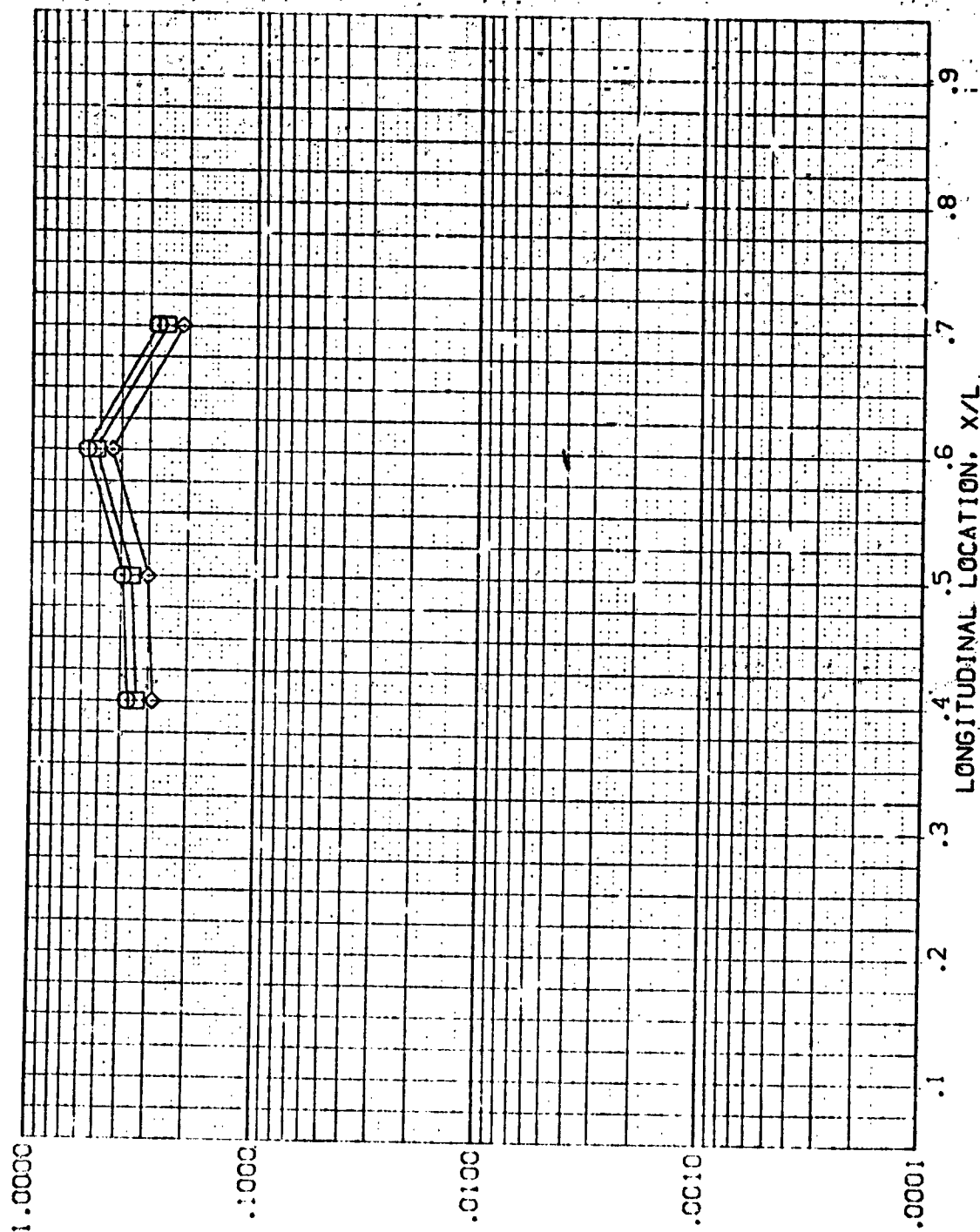


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB25)

SYMBOL:  $\square$   $\diamond$   
 X: .850  
 Y: .900  
 Z: 375.038  
 MACH: 5.219  
 RHO/L: 1.000

PARAMETRIC VALUES  
 ALPHA: -90.000  
 BETA: .000  
 GAMMA: .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

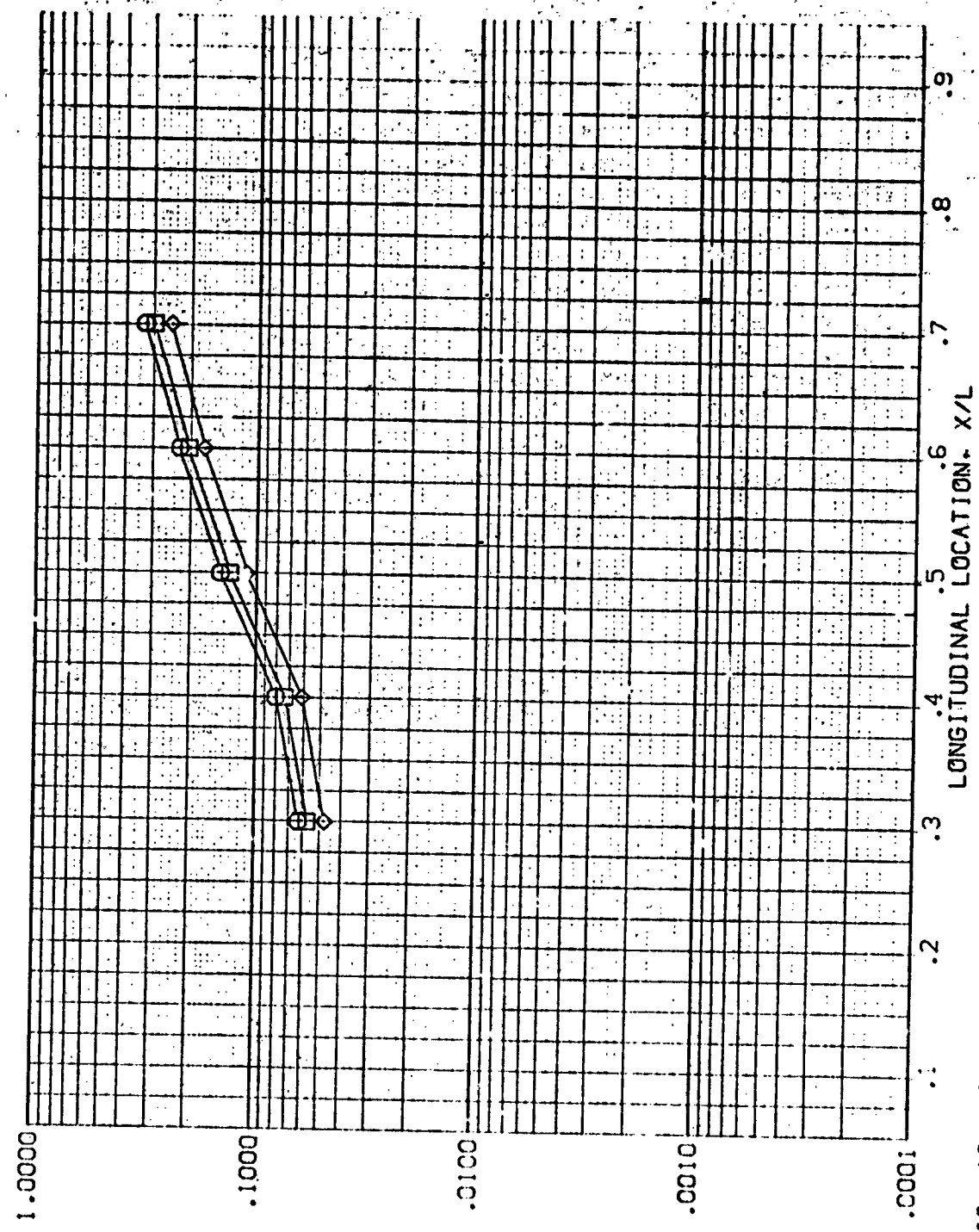


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



(REV825)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA -90.000 BETA .000  
RV/L 1.000

SYMBOL MAM/HT Z MACH  
◇ .850 425.000 5.219  
□ .900  
◇ 1.000

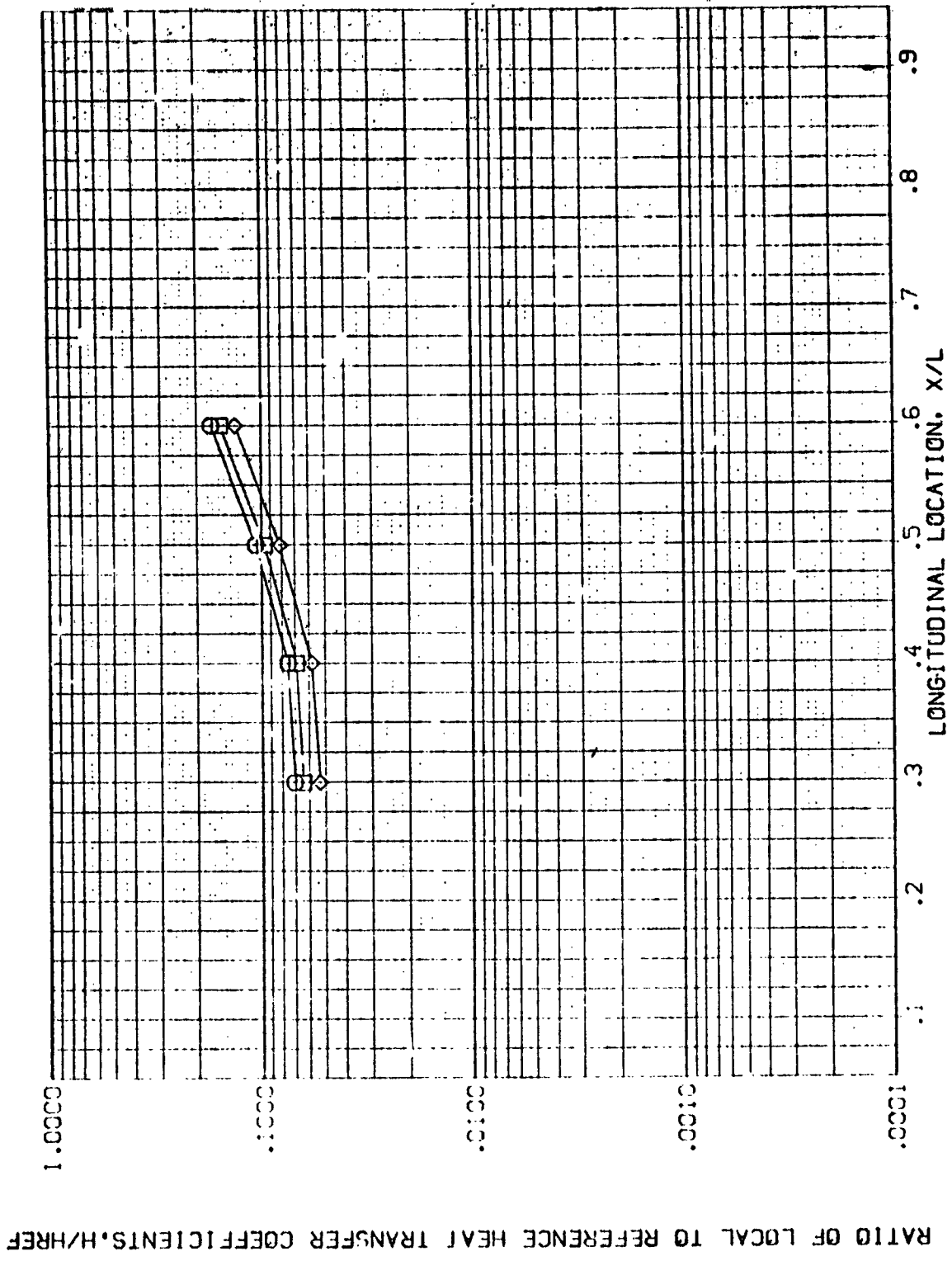


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB25)

AMES 3.5-195 IH28 01 90DY SIDEWALL

SYMBOL M/W/HT Z MACH

◇ .850 501.000 5.219  
◇ .930  
◇ 1.000

PARAMETRIC VALUES  
ALPHA -91.000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

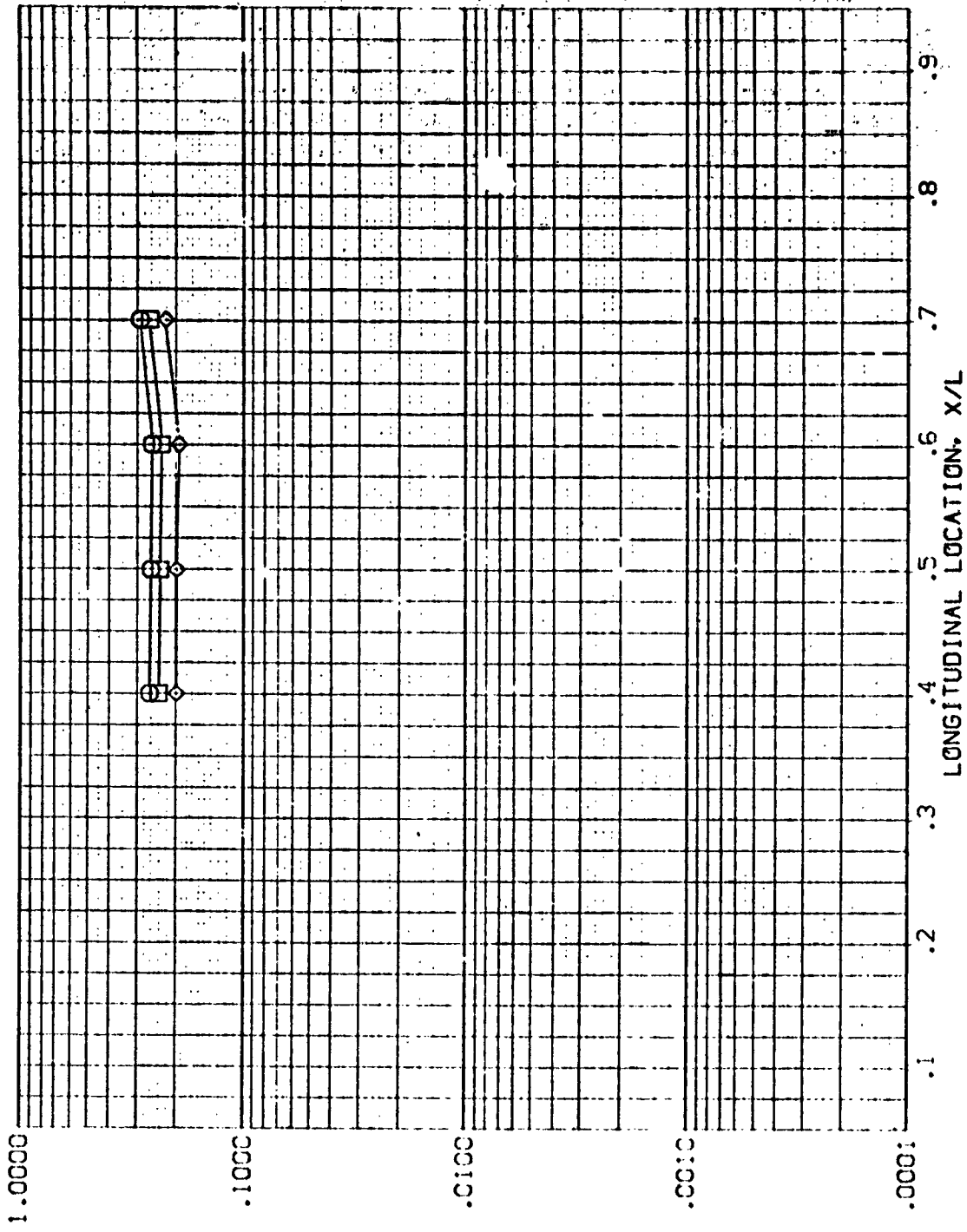


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REV B26)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETER VALUES

ALPHA -60.00 BETA .000  
RNI/L 1.00

MACH 5.220  
Z 375.000  
H/REF .850  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

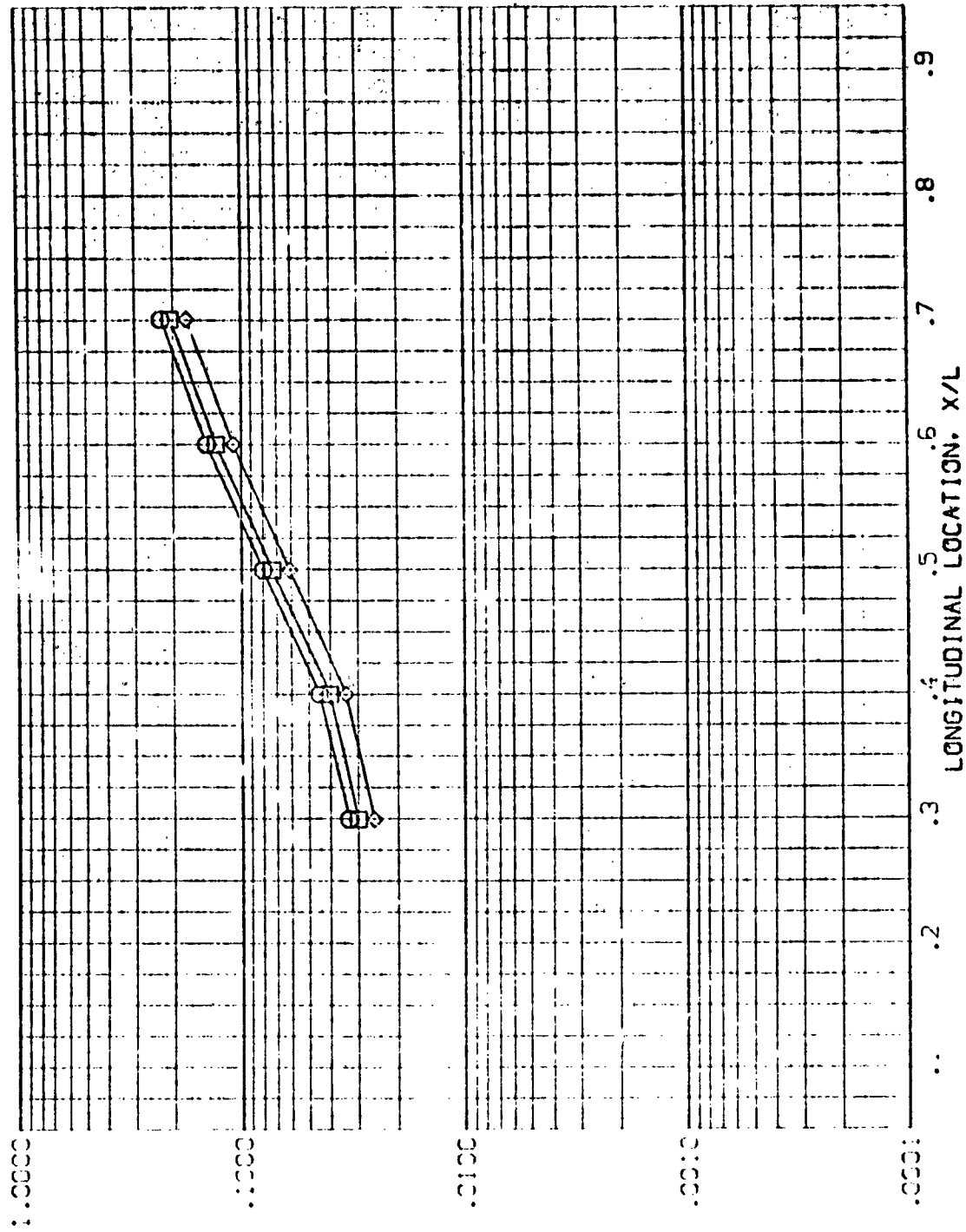


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB26)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL MACH Z MACH  
◇ .650 425.000 5.220  
□ .800  
○ 1.000

PARAMETRIC VALUES  
ALPHA R/V/L -6.000  
BETA 1.000  
.000

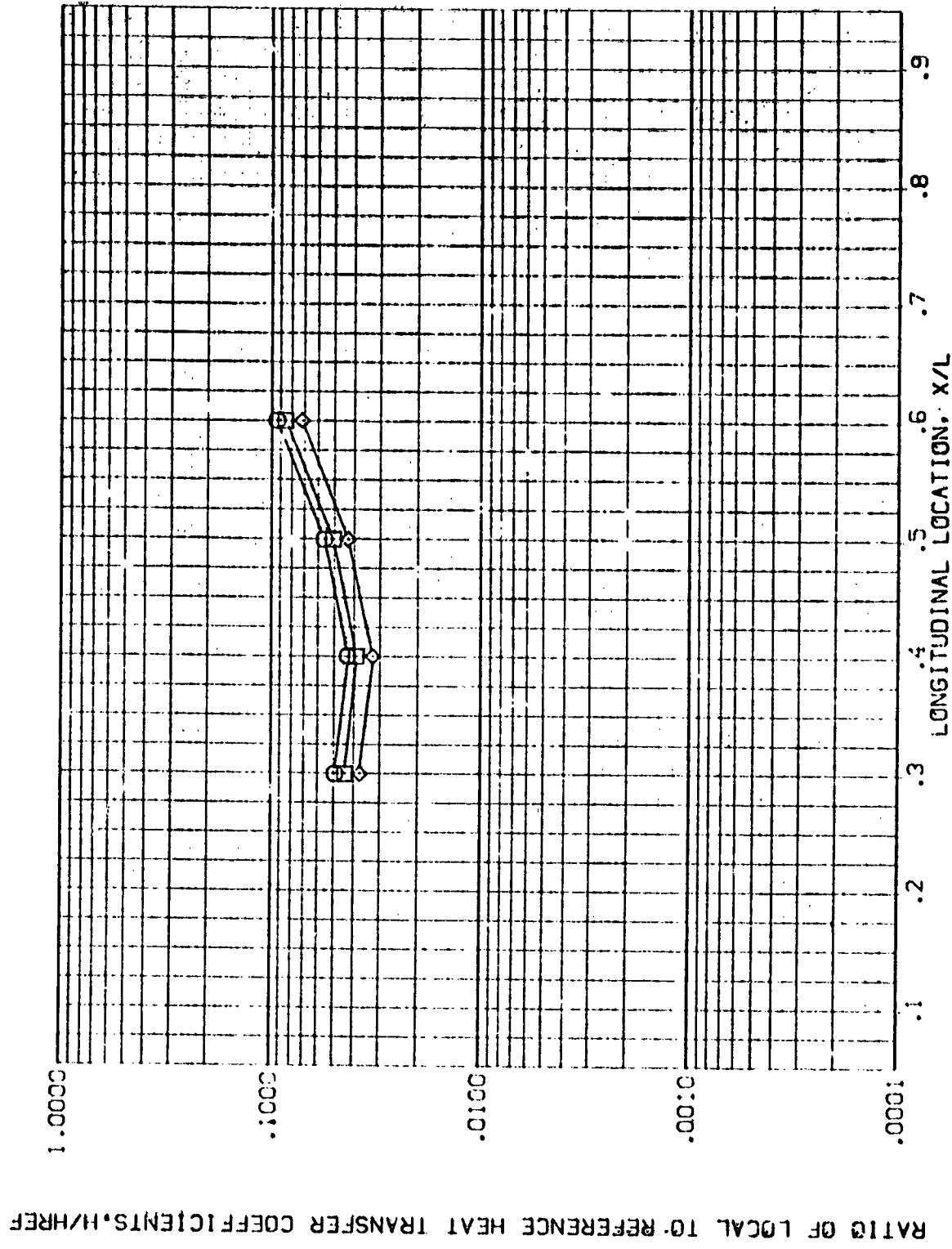


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB26)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL HAW/HREF Z MACH

◇	.850	501.000	5.220
□	.900		
◇	1.000		

PARAMETRIC VALUES	
ALPHA	-50.000
BETA	1.000
ETA	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

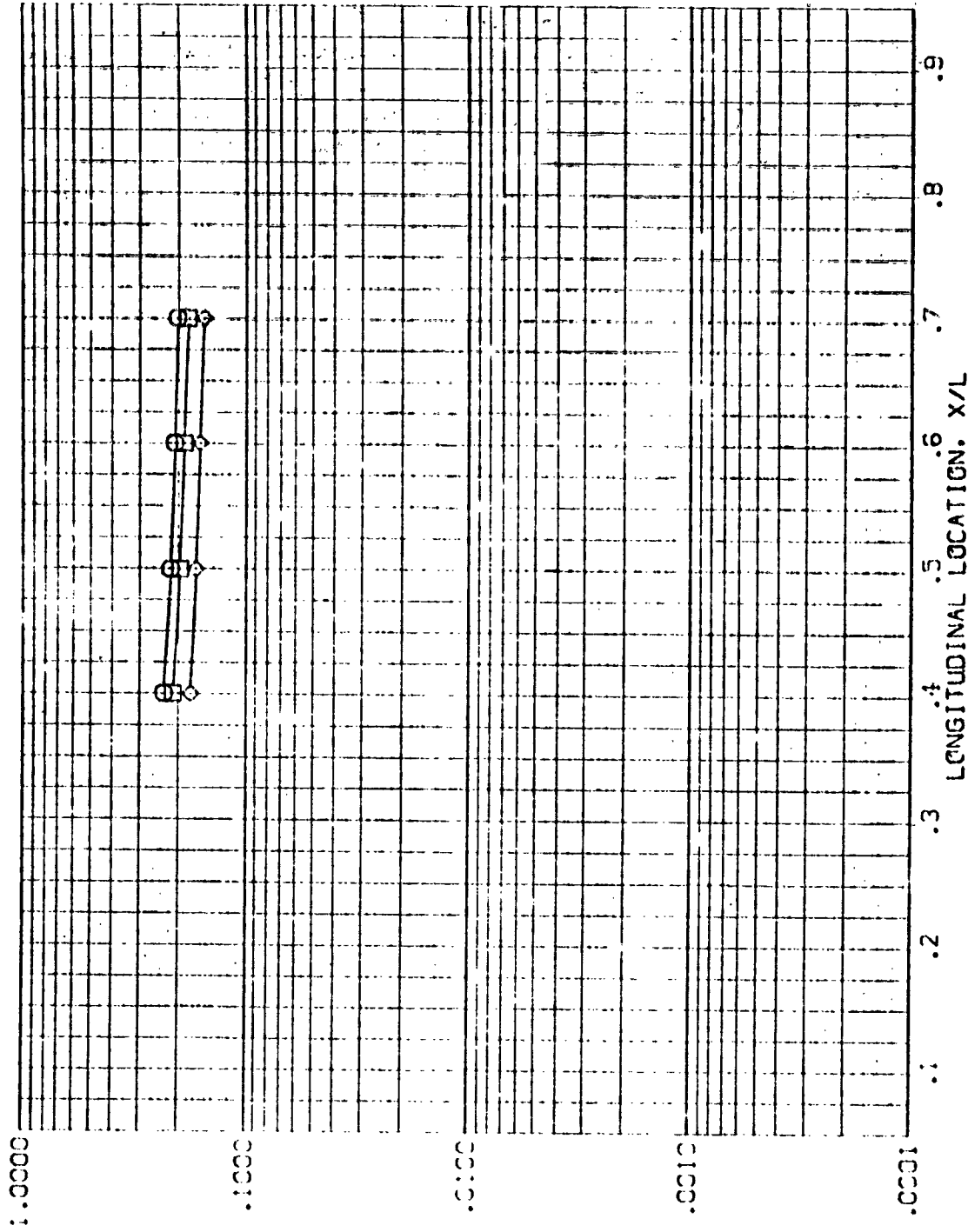


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REV827)

AMES 3.5-195 IH28 0: BODY SIDEWALL

SYMBOL MACH/FT Z MACH  
.850 375.000 5.220  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -30.000 BETA .000  
RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

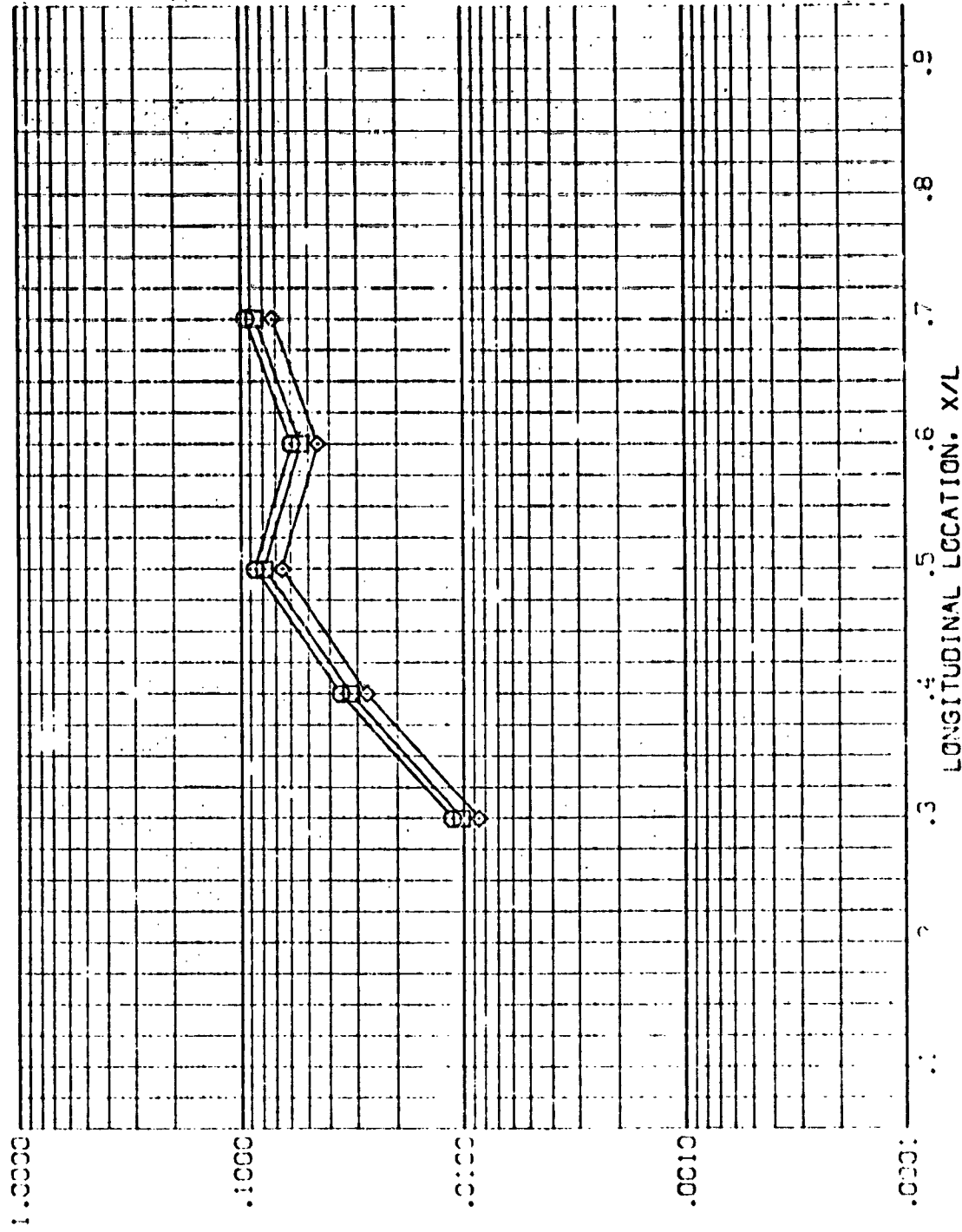


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB27)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMB: HAW/HT Z MACH

.850 425.000 5.220  
.900  
1.000

PARAMETRIC VALUES  
ALPHA -30.000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

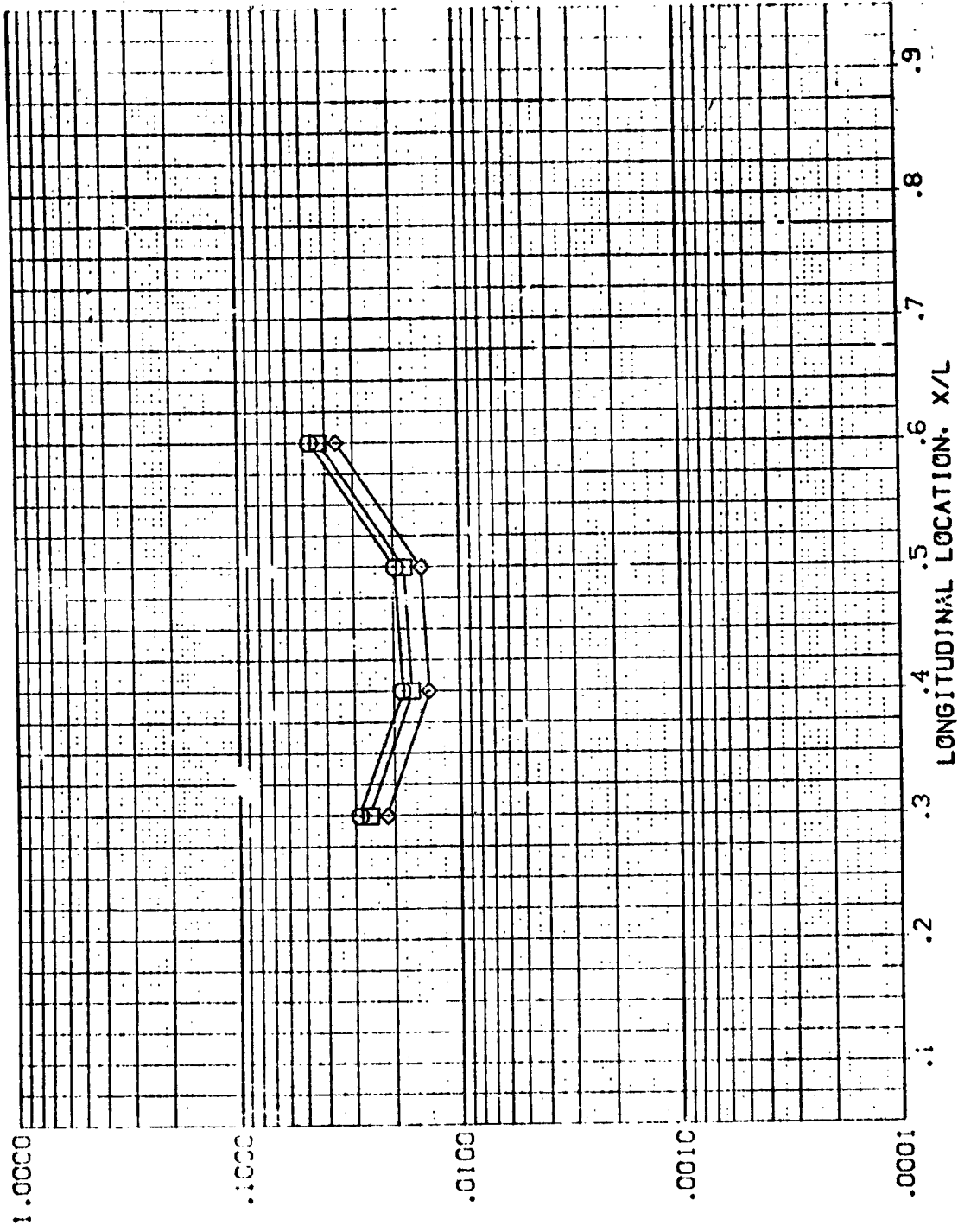


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB27)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL HAW/HT Z MACH  
◇ .850 501.600 5.220  
○ .930  
□ 1.000

PARAMETRIC VALUES  
ALPHA: -30.000  
RN/L: 1.000  
BETA: .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

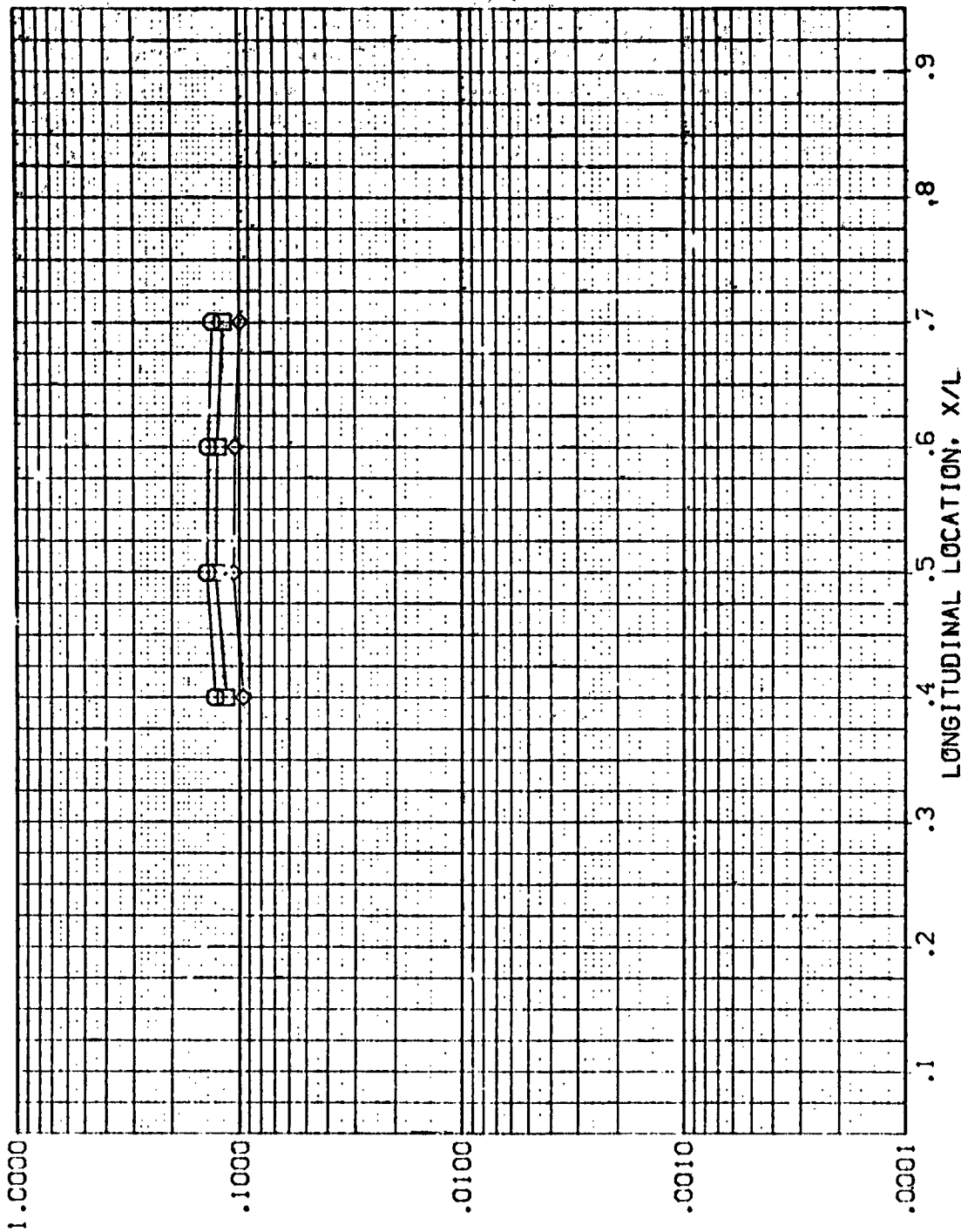


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB19)

SYMBOL HAW/HT X/L MACH  
□ .850 .300 5.220  
◇ .900  
◇ 1.000

PARAMETER VALUES  
ALPHA .000 BETA .000  
RM/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

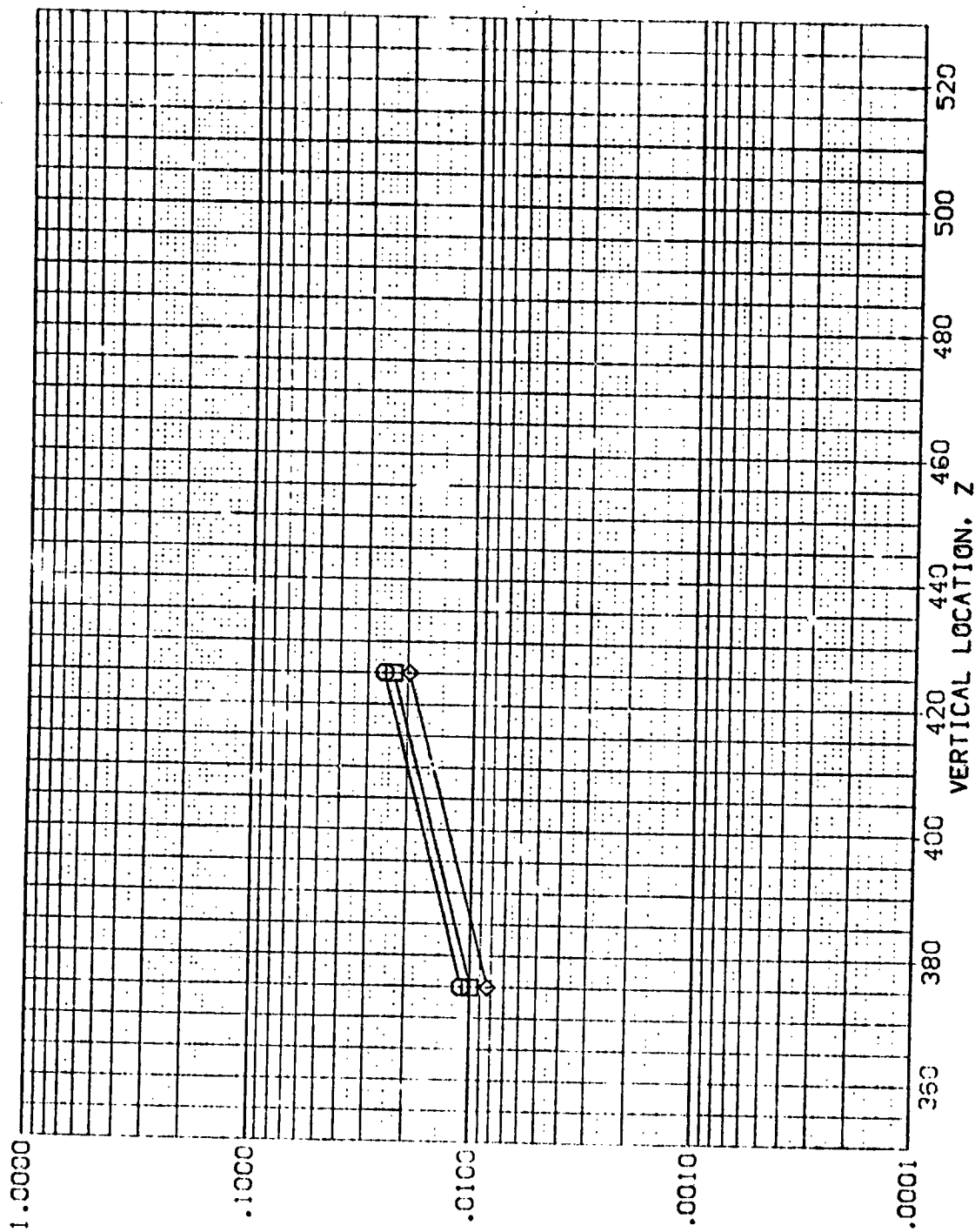


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB19)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES

ALPHA  
RN/L

BETA  
1.000

MACH  
5.220

X/L  
.400

RAY/HT  
RSC  
.900

1.000

SYMBOL

◇

◇

◇

◇

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

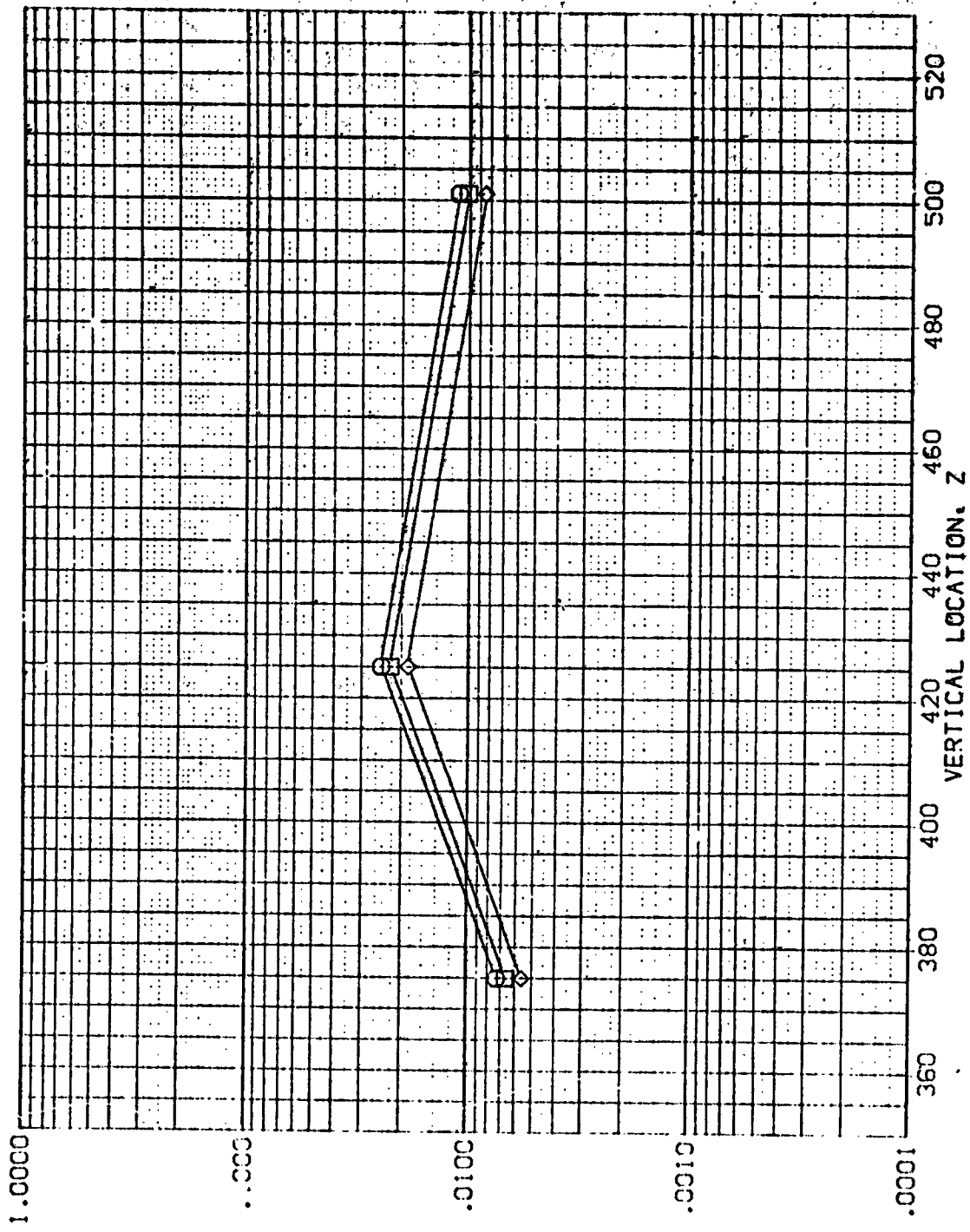


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB19)

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB19)

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB19)

SYMBOL  
□  
◇

HAW/HT .850  
.950  
1.000

X/L .500

MACH 5.220

PARAMETRIC VALUES  
ALPHA .000  
RN/L 1.000

BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

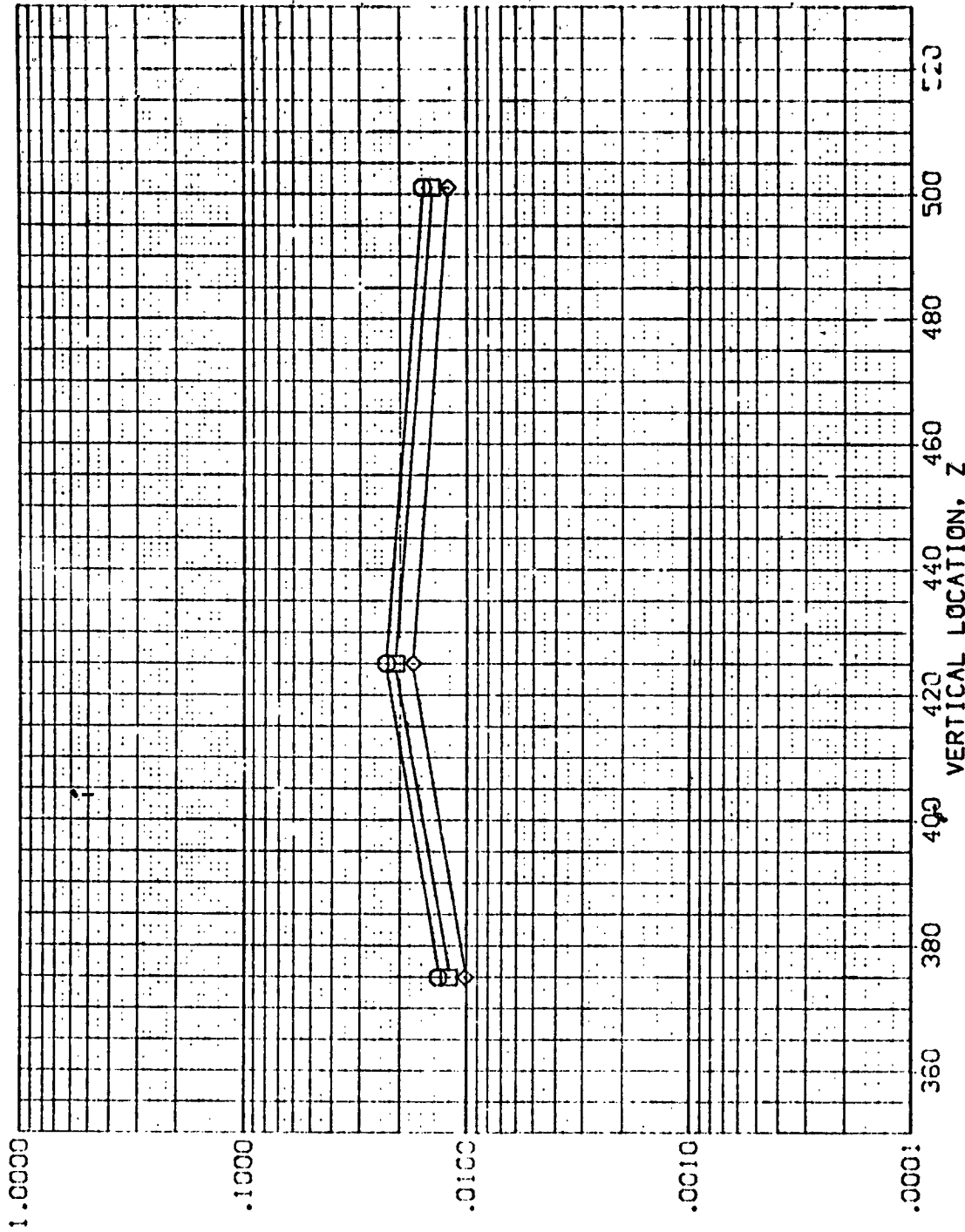


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL

(REVB19)

SYMBOL	HA <sub>W</sub> /HT	%L	MACH
◇	.850	.600	5.220
□	.900		
◇	1.000		

PARAMETRIC VALUES	
ALPHA	BETA
RN/L	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

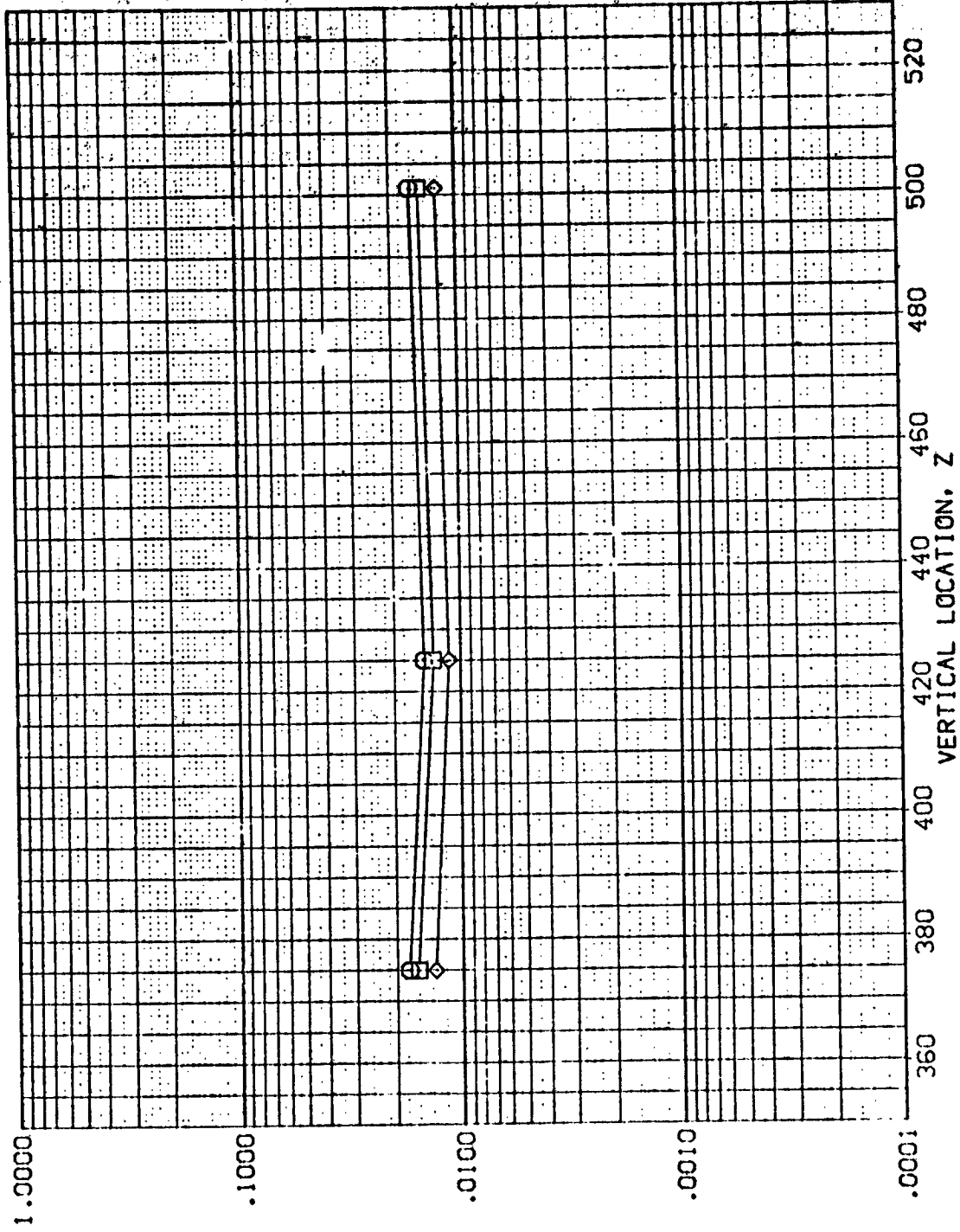


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB19)

BODY SIDEWALL

AMES 3.5-135 IH28 01

MACH 5.220

X/L .700

HAW/HT .850

.900

1.000

PARAMETRIC VALUES

BETA

.000

ALPHA

1.000

R/L

.000

◇ □

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

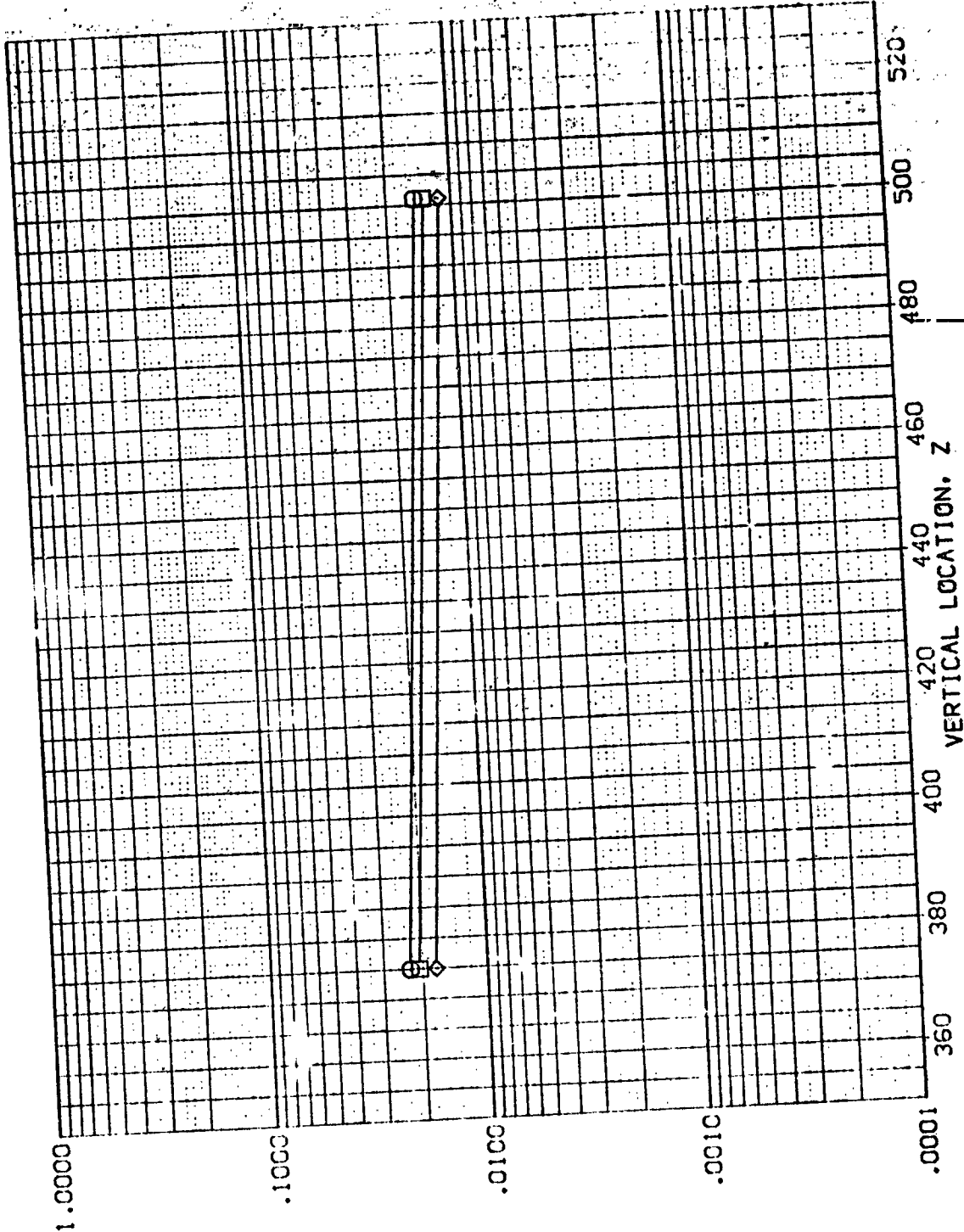


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

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AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB20)

S<sub>REF</sub> HAM/HT X/L MACH  
 .850 .300 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 30,000 BETA .000  
 1,000 ALPHA  
 RN/L

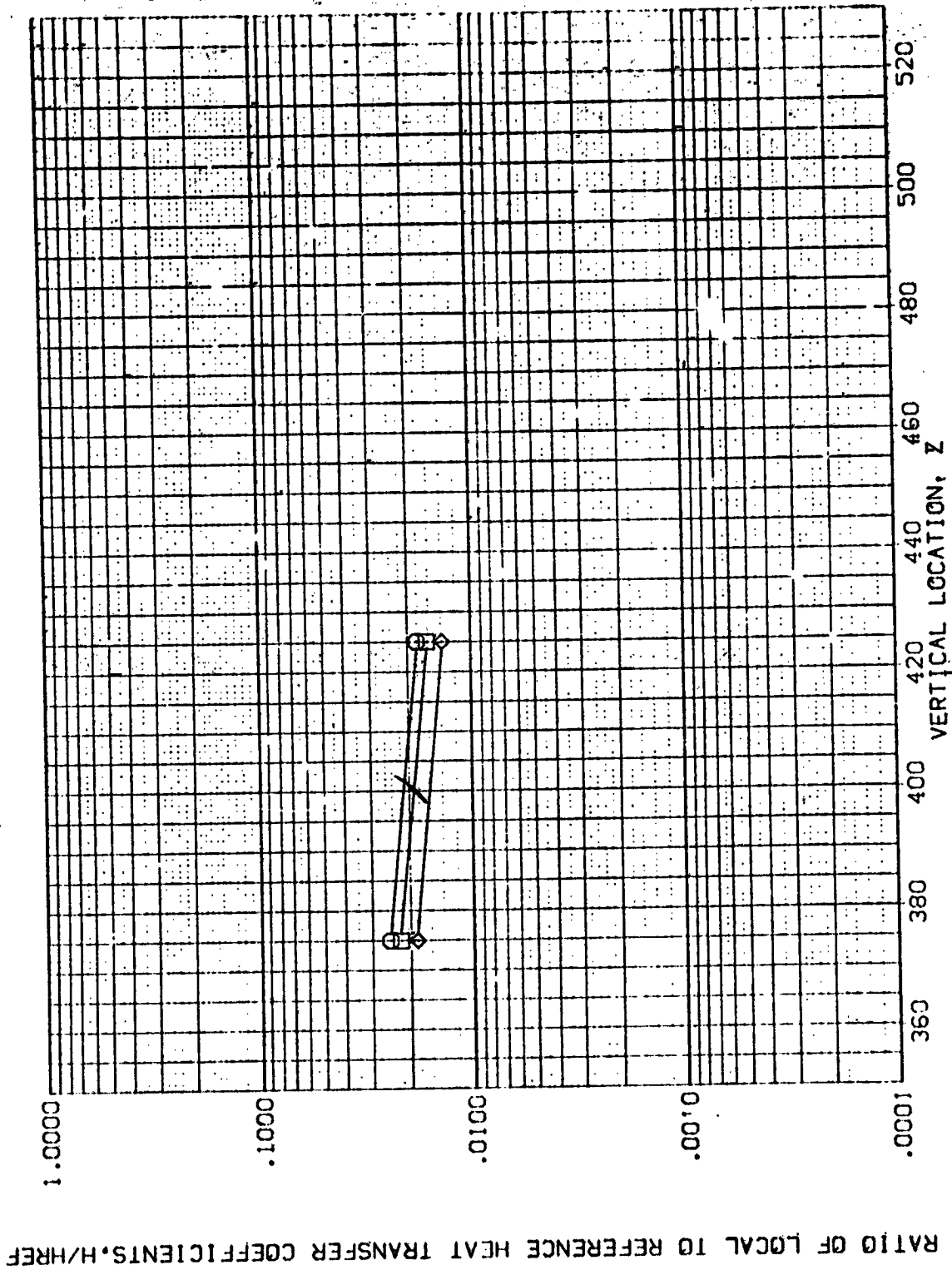


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB20)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL HAW/HT X/L MACH

.850 .400 5.219  
.900  
1.000

PARAMETRIC VALUES  
ALPHA 3C 000 BETA .000  
RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

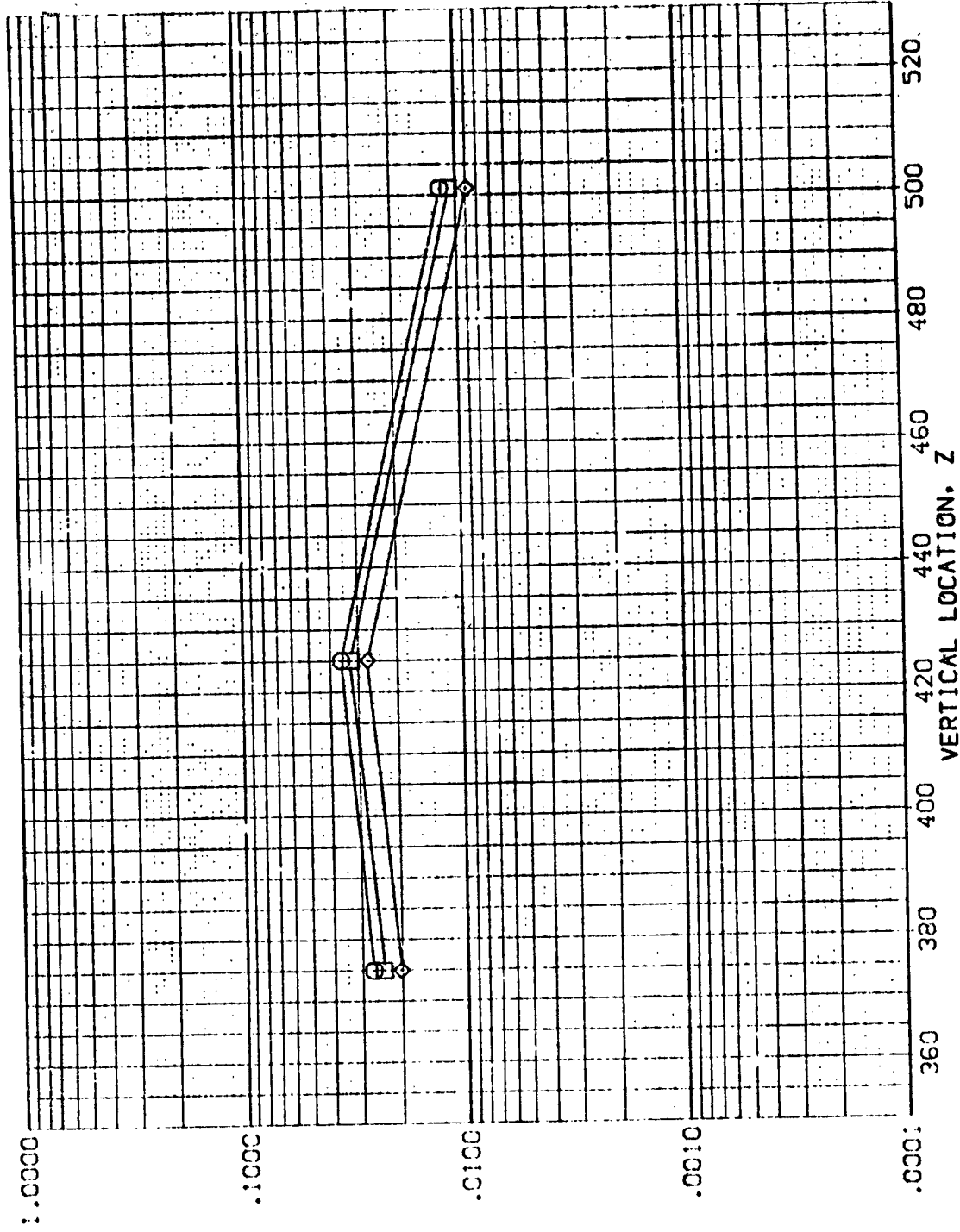
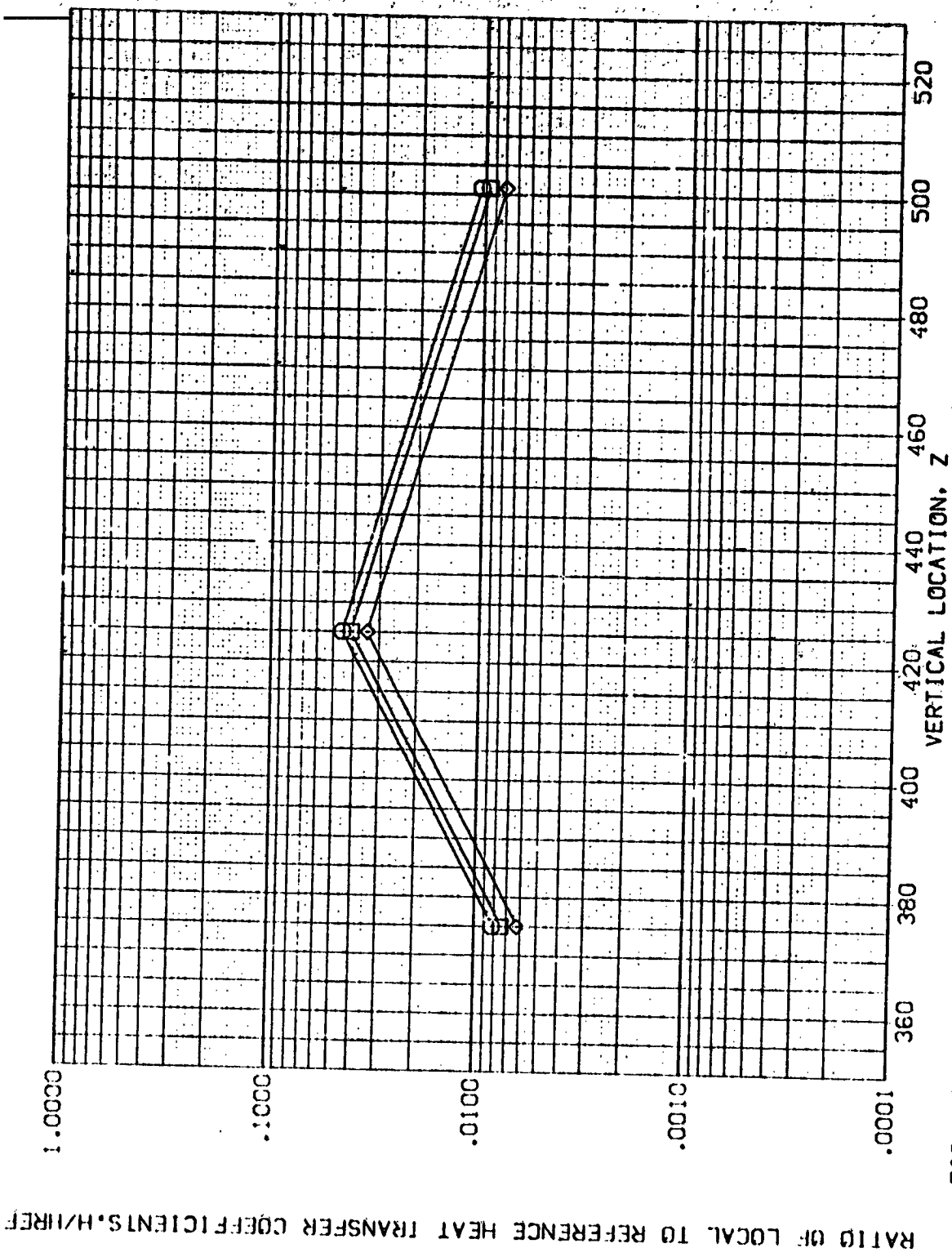


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB20)

SEASL HAW/HT X/L MACH  
 .850 .500 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 39.000 BETA .000  
 RN/L 1.000



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



(REVB20)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL MAW/HT X/L MACH

◇	.850	.600	5.219
□	.900		
◇	1.000		

PARAMETRIC VALUES  
 3C 000: BETA .000  
 RN/E 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

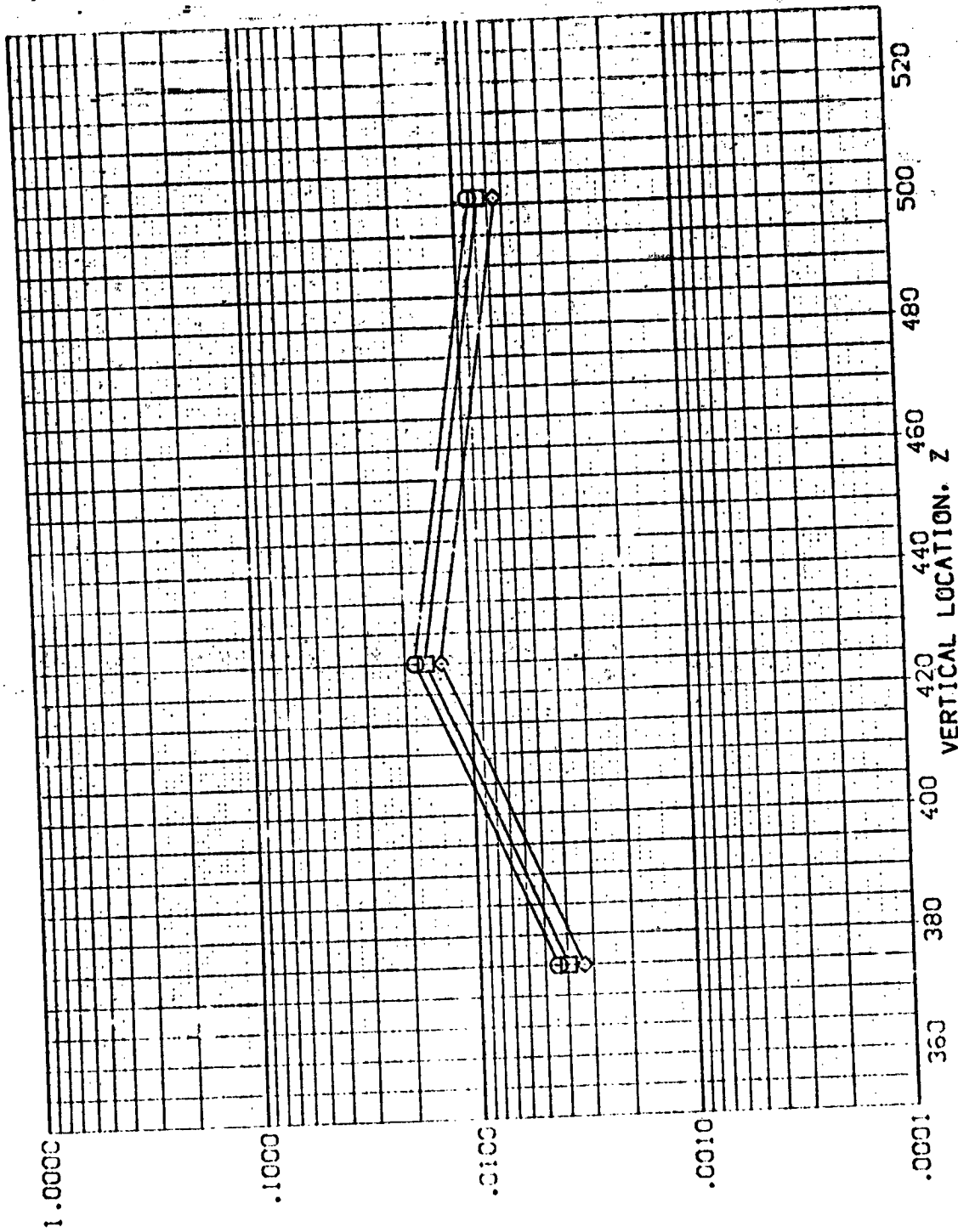


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REV B20)

PARAMETRIC VALUES  
 ALPHA 30.000 BETA .000  
 RN/L 1.000

MAW/HT X/L MACH  
 .850 .700 5.219  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

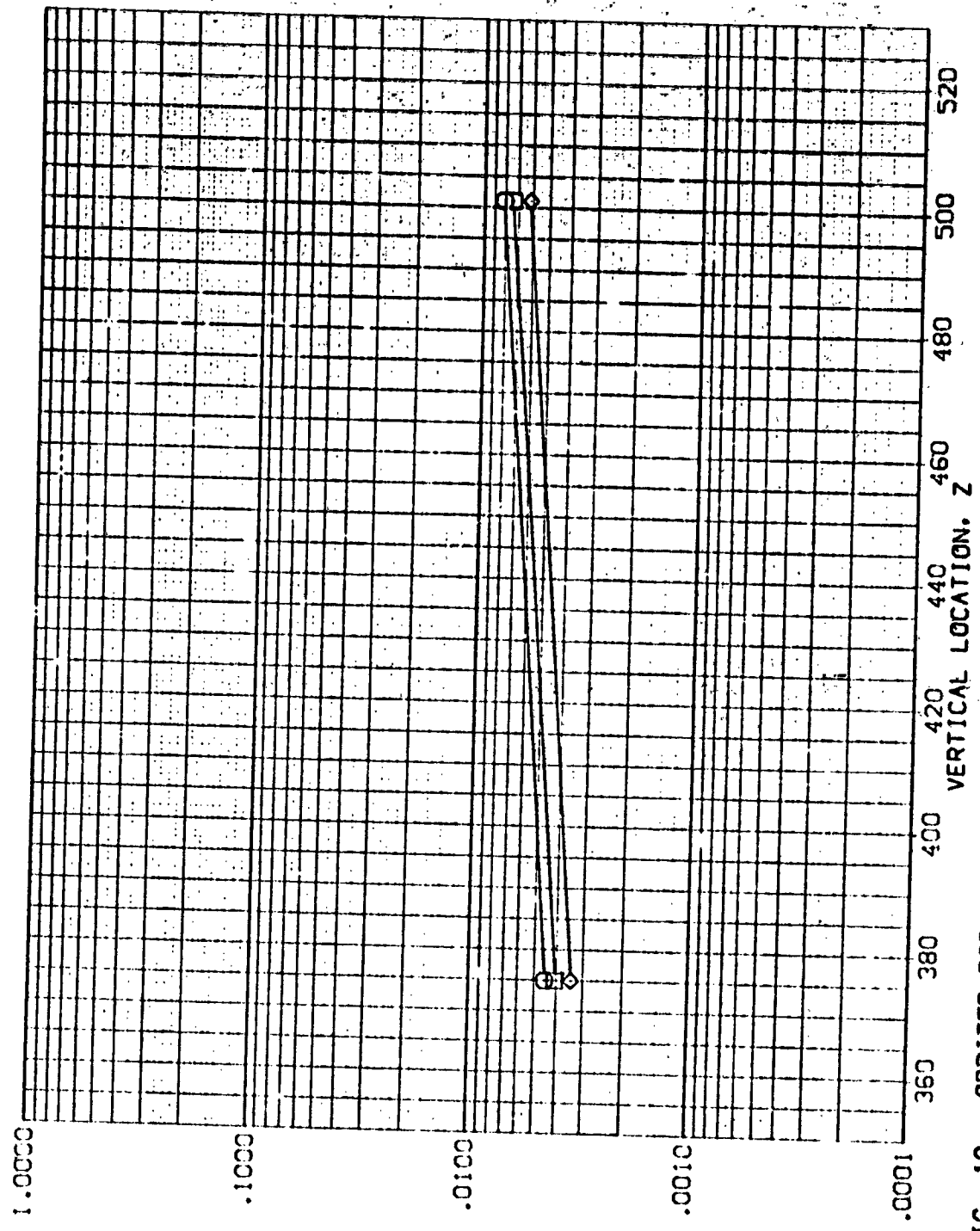


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB21)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETER VALUES

ALPHA 60.000 BETA .000  
RV/L 1.000

PARAMETER X/L MACH  
H/W 0.850 .300 5.220  
D/H 0.900  
D/W 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

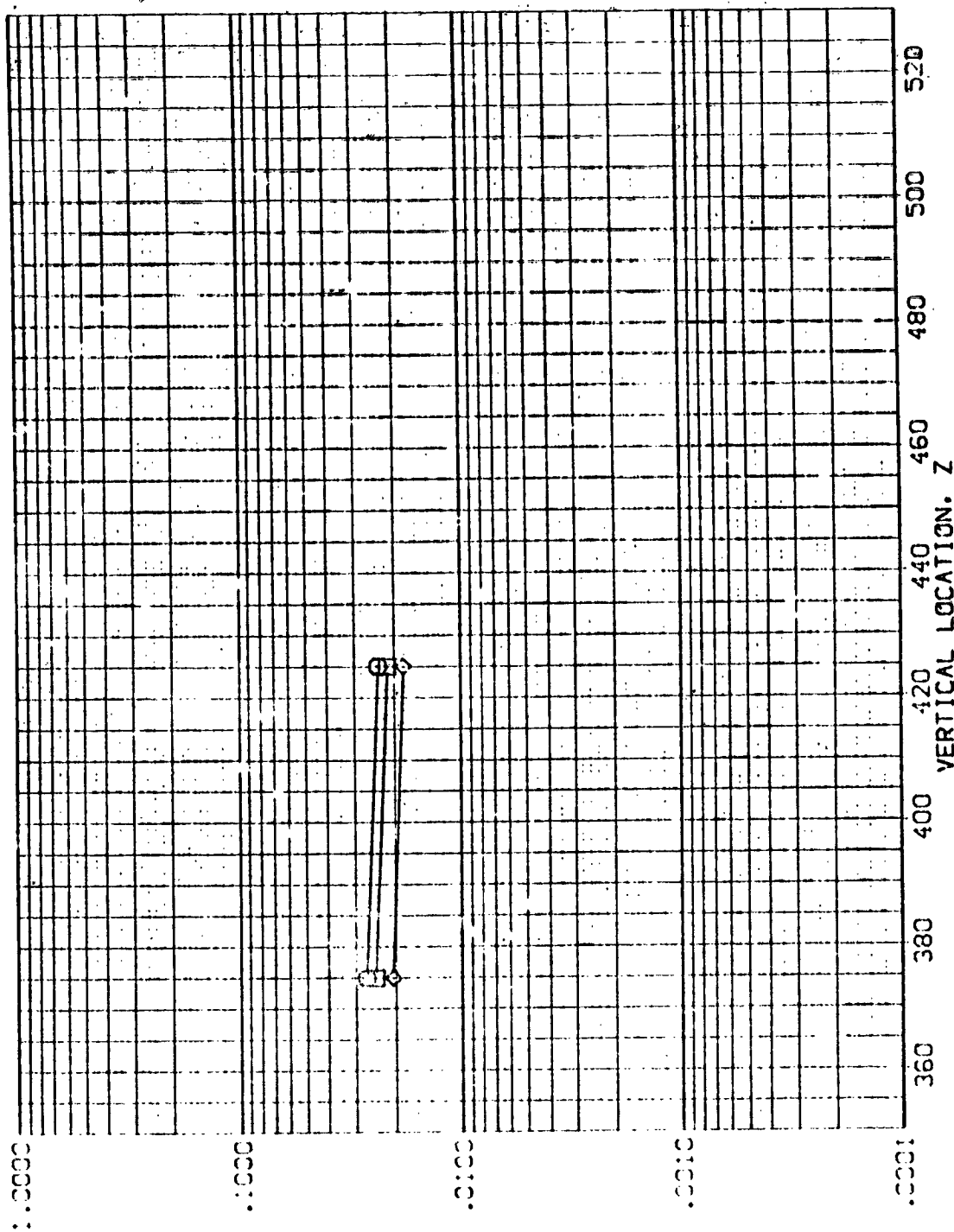


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

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AVES 3.5-195 1H28 01 BODY SIDEWALL (REVB21)

SYSC. PARAM. X/L MACH  
 .850 .400 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RR/L 1.000

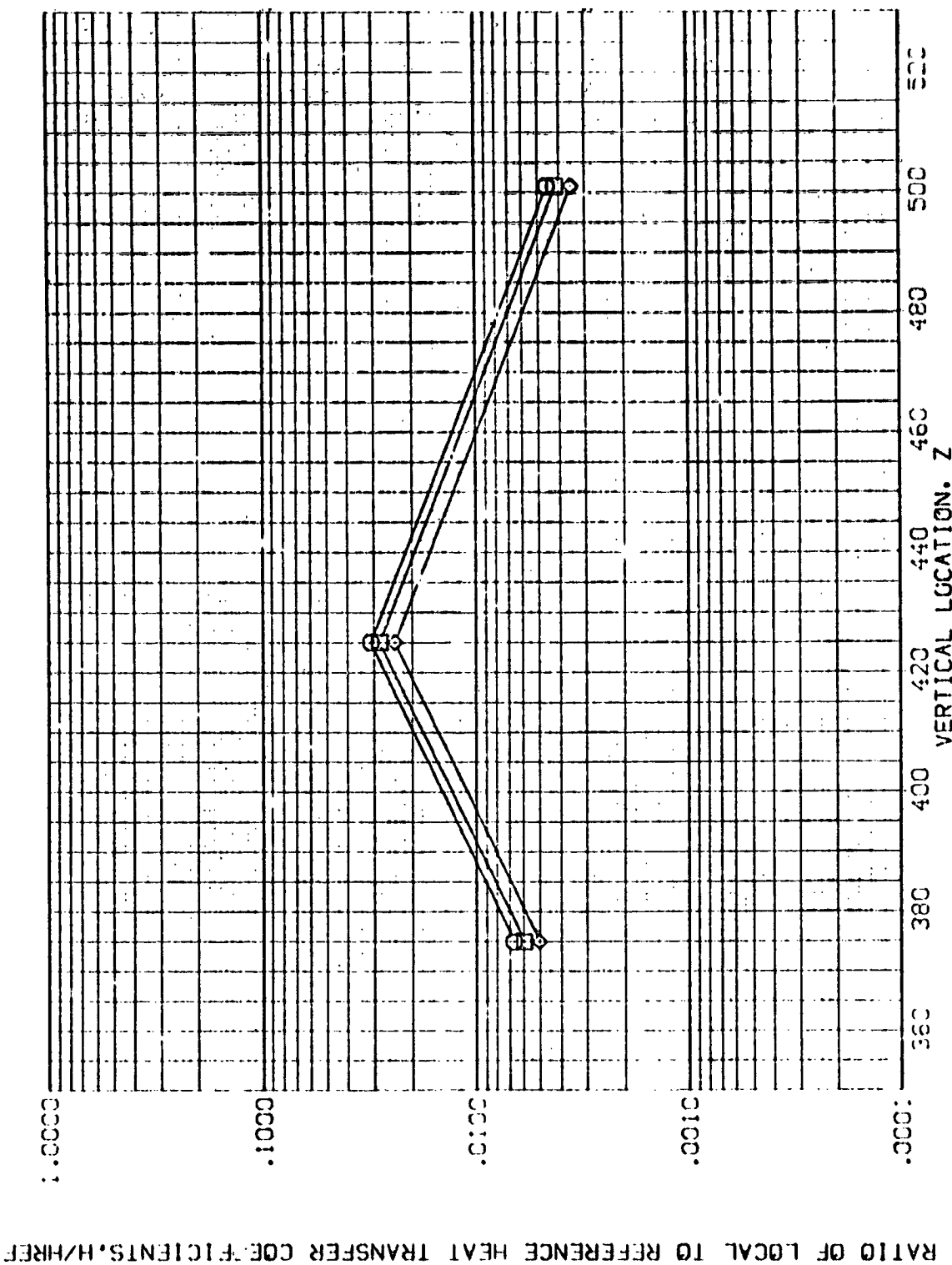


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB21)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES

ALPHA 60.000 BETA .000  
RN/L 1.000

MACH 5.226

X/L .500

HAW/HT .850  
.900  
1.000

SYMBOL  $\square$   $\diamond$

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

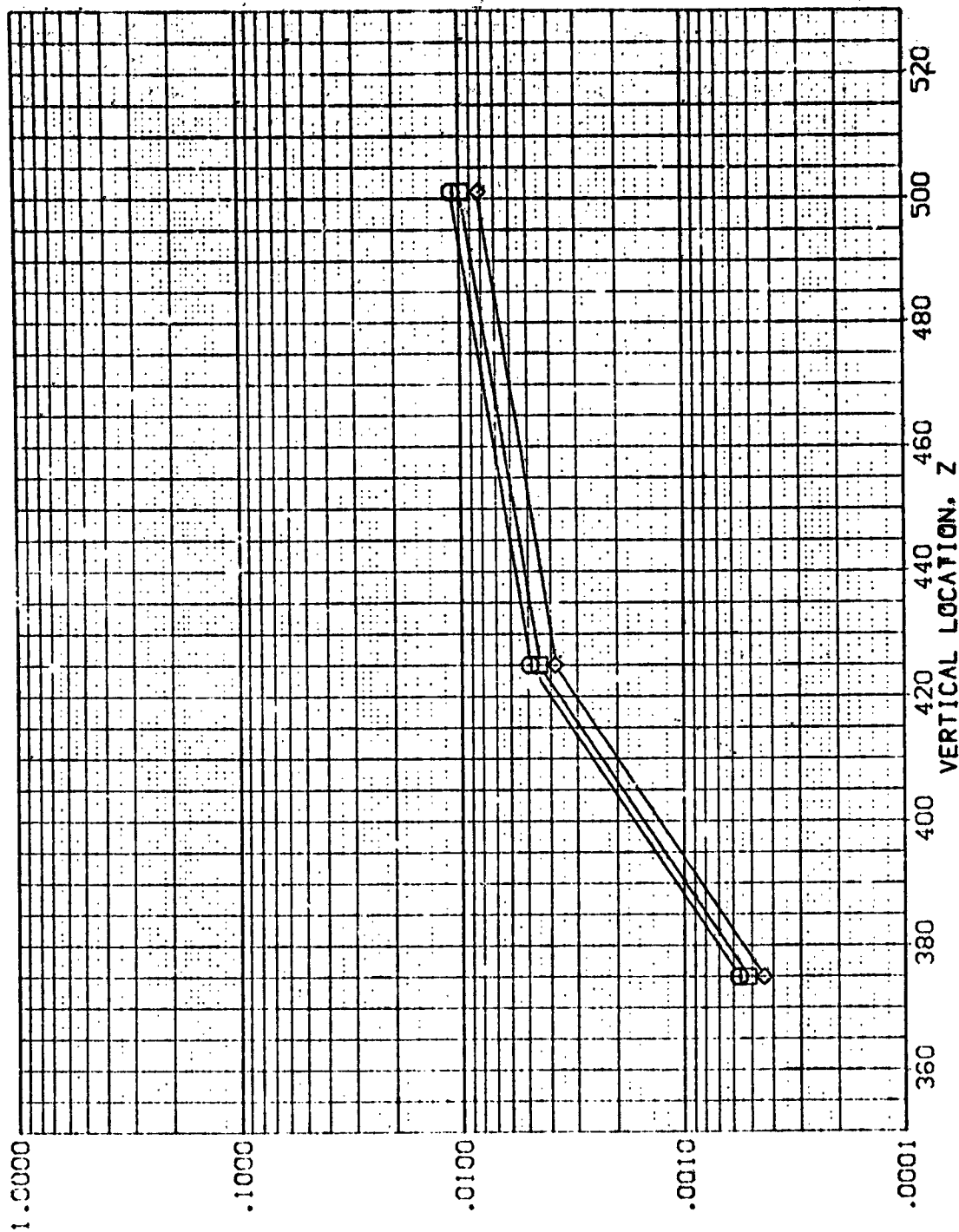


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REV B21)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL HAY/HT X/L MACH  
◇ .850 .600 5.220  
□ .900  
◇ 1.000

PARAMETRIC VALUES  
ALPHA 60.000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

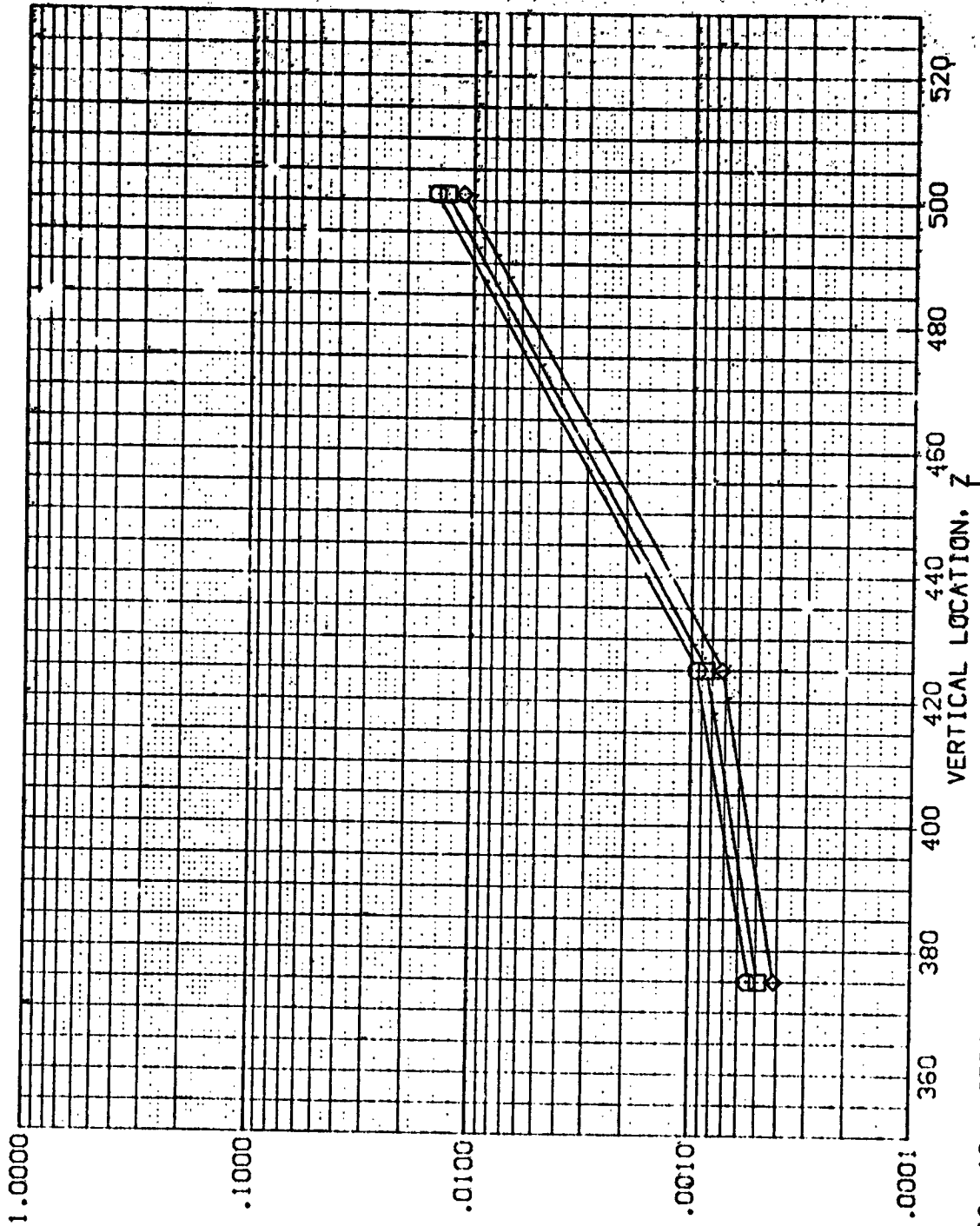


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01

RODY SIDEWALL

(REVB21)

SYMBOL

□	MAW/HT	X/L	MACH
□	.850	.700	5.220
□	.900		
◇	1.000		

MACH

PARAMETRIC VALUES

ALPHA	CC 300	BETA
RN/L	1.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

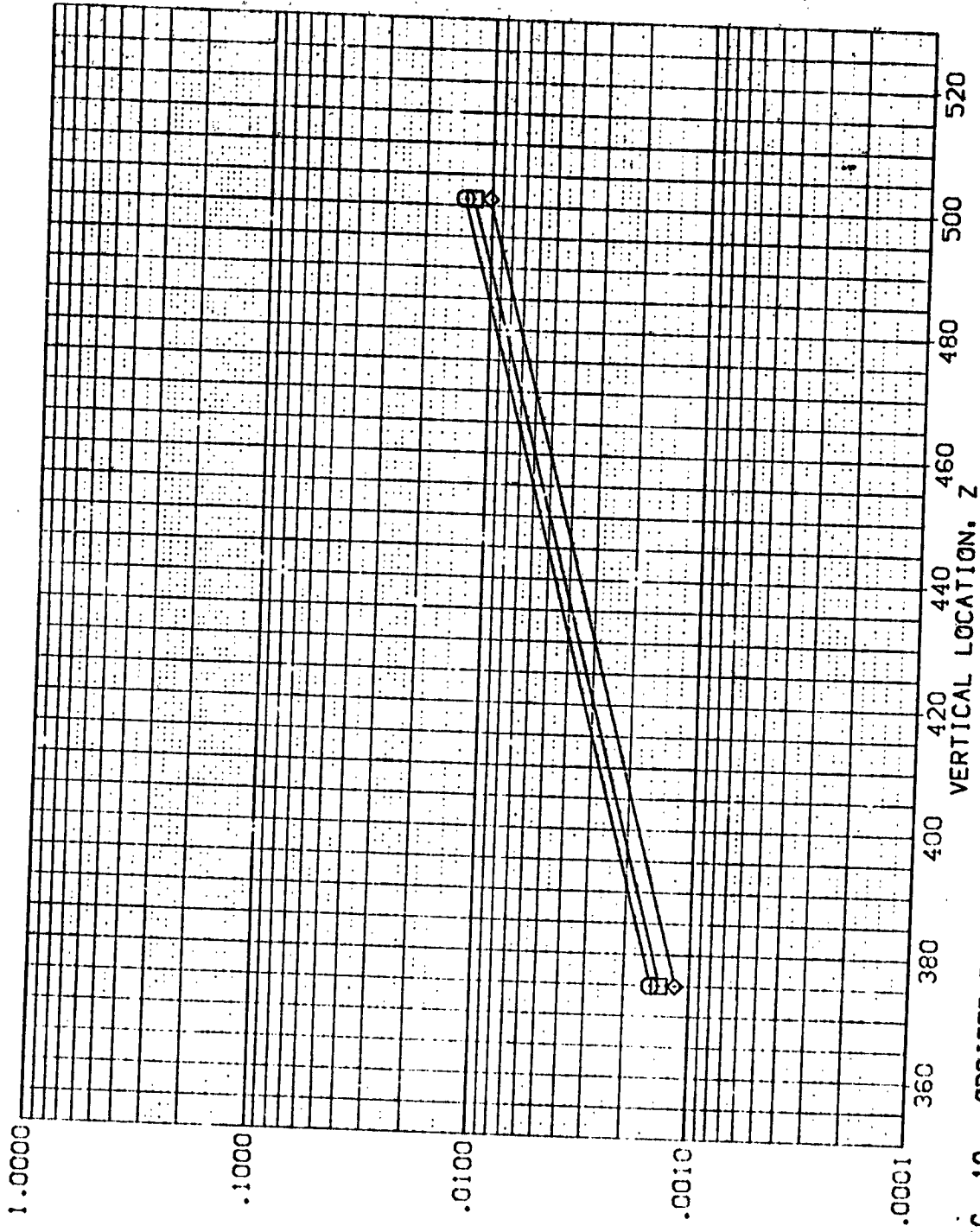


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB22)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA 90.000 BETA .500  
RN/L 1.000

SYMBOL H<sub>REF</sub>/H<sub>T</sub> X/L MACH  
◇ .850 .300 5.220  
□ .900  
○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/H<sub>REF</sub>

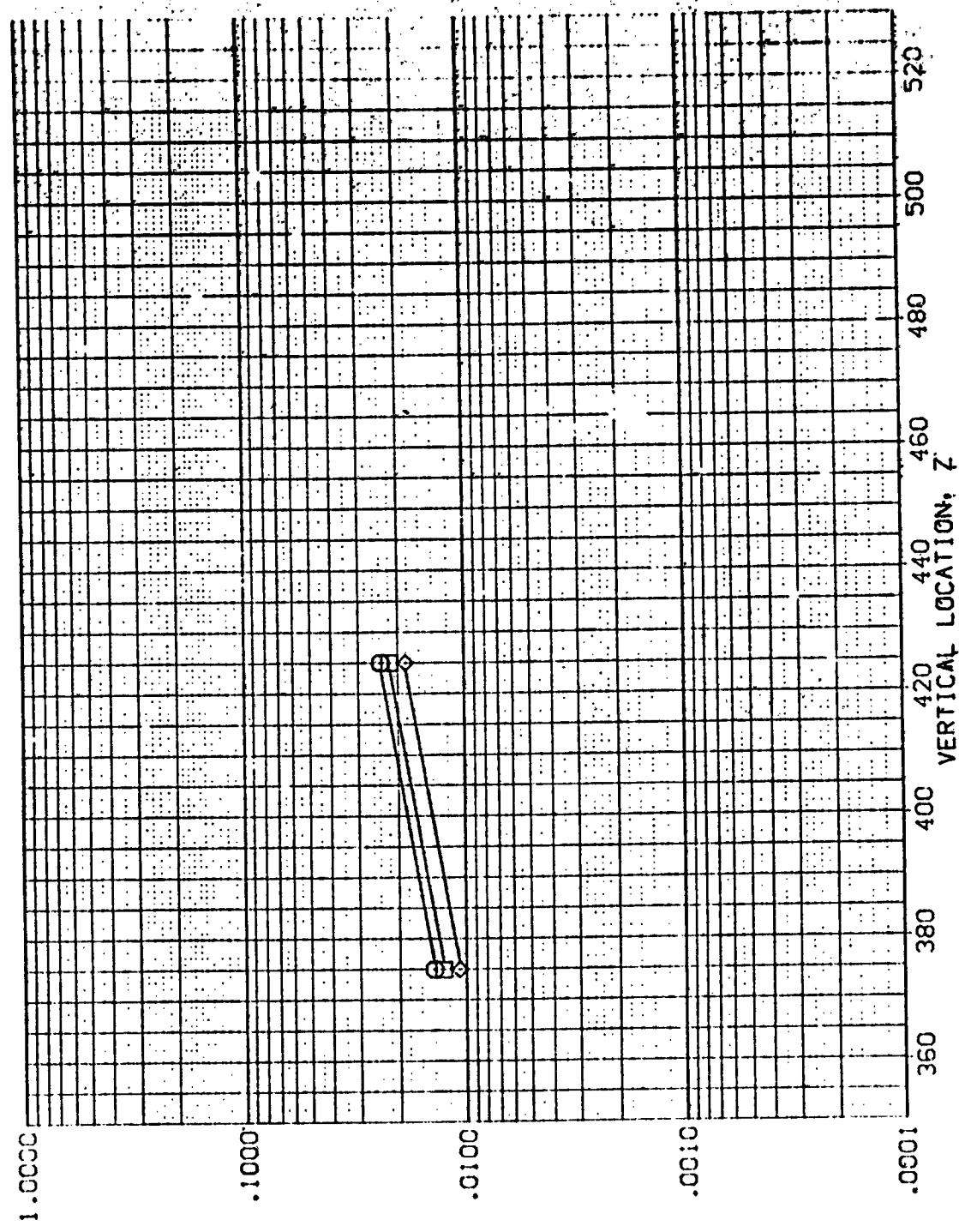


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB22)

SYMBOL HAW/HT X/L MACH  
□ .850 .400 5.220  
○ .900  
◇ 1.000

PARAMETRIC VALUES  
SC 300 ALPHA  
1.000 RR/L  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

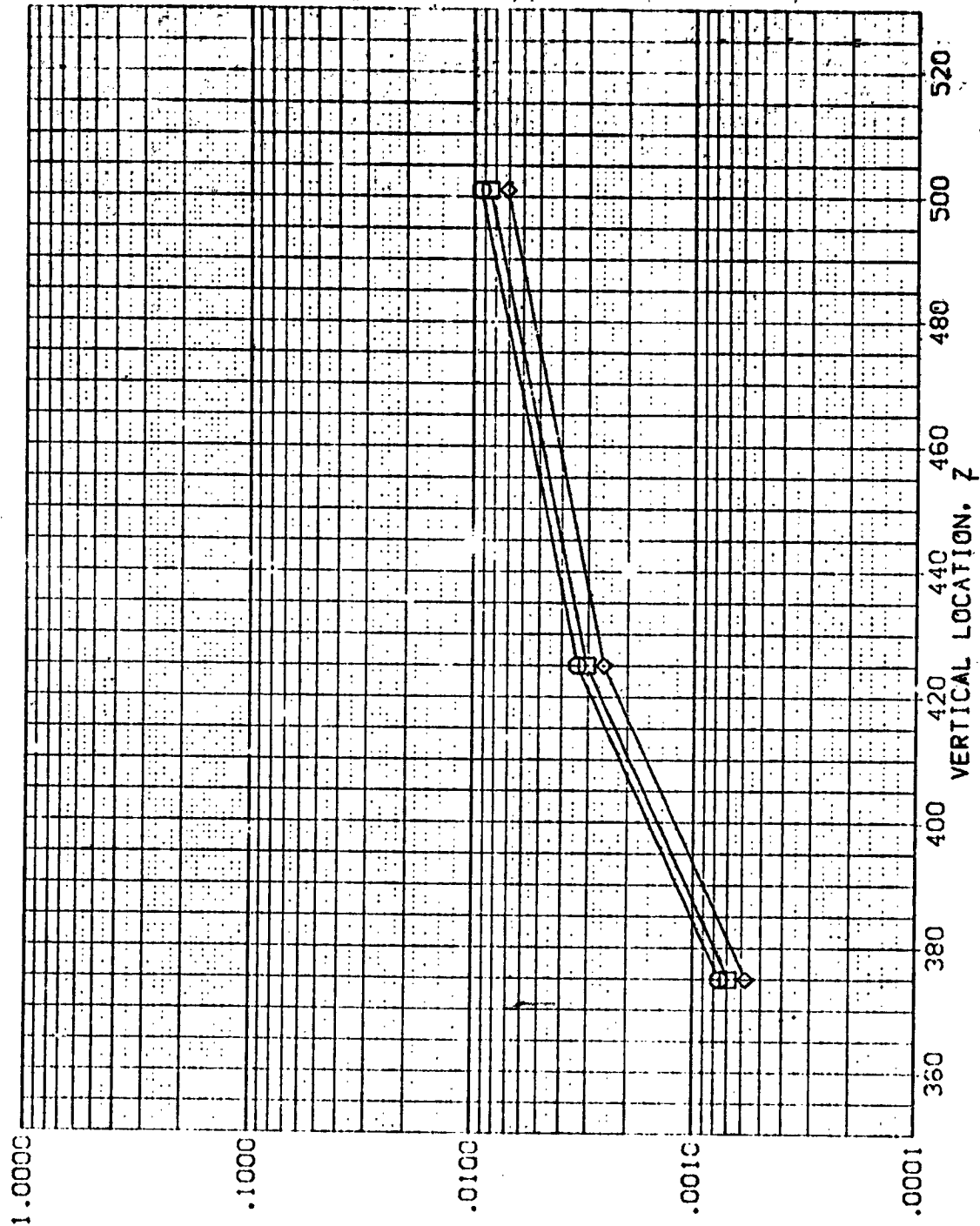


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB22)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES

ALPHA  
RN/L

90.000  
1.000

BETA  
1.000

MACH  
5.220

X/L  
.500

HAW/H  
.850  
.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

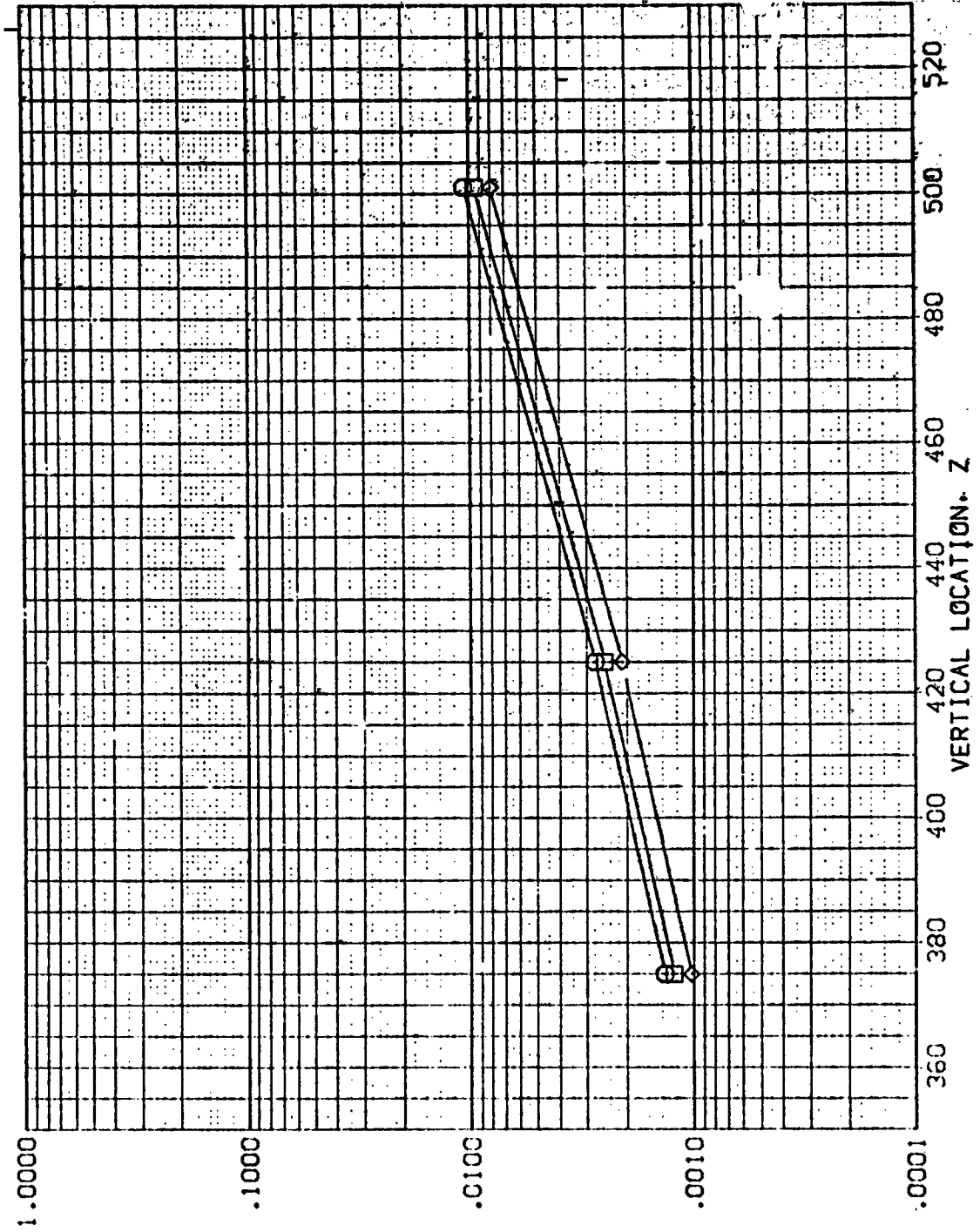


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB22)

PARAMETRIC VALUES  
 ALPHA 90.000 BETA .000  
 RN/L 1.000

MAV/HT X/L MACH  
 .850 .600 5.220  
 .900  
 1.000

SYMBOL  
 ◊  
 ◻  
 ◻

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

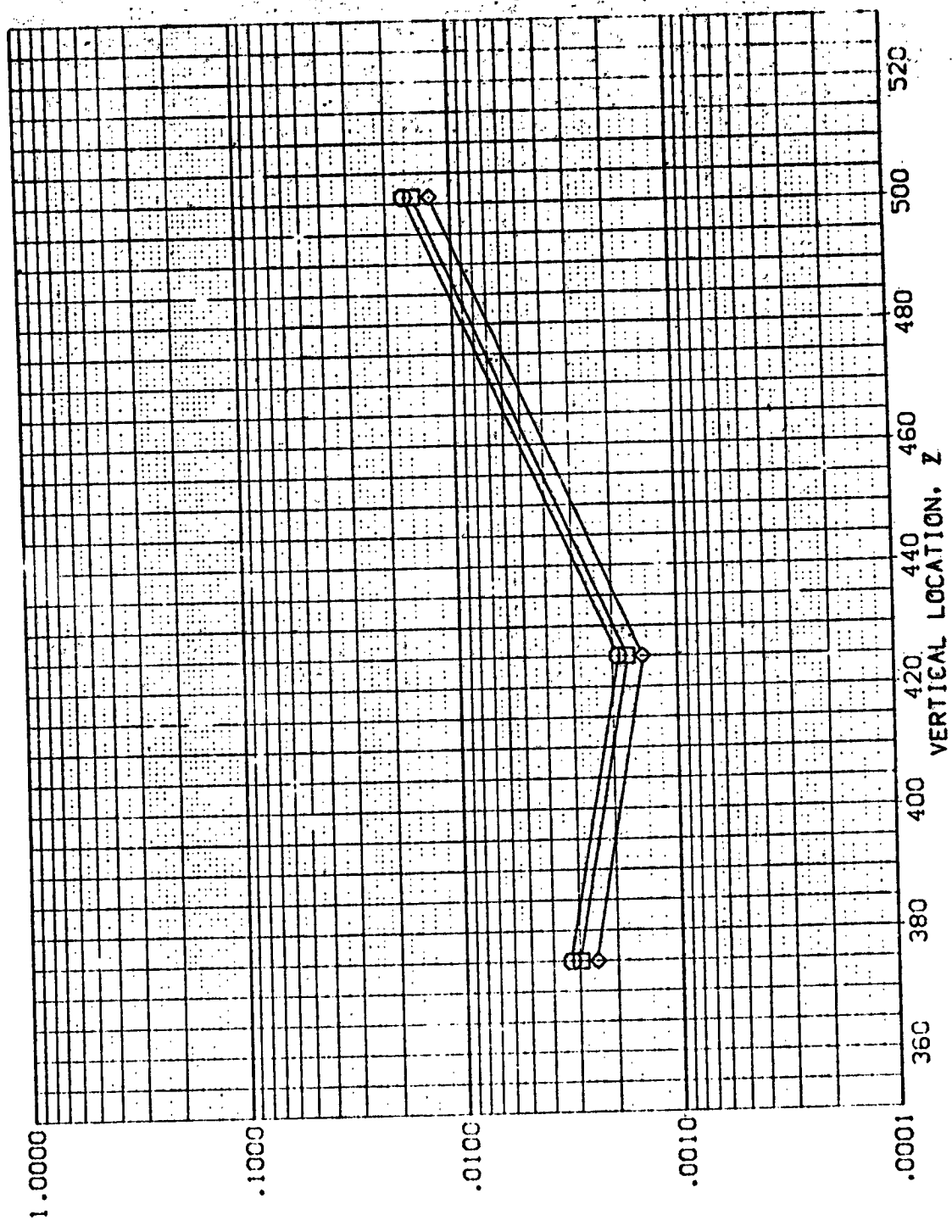


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

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(REVB22)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES

ALPHA 90.000  
BETA 1.000

MAN/HT .850  
X/L .700  
MACH 5.220

SYMBOL  $\diamond$   $\square$

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

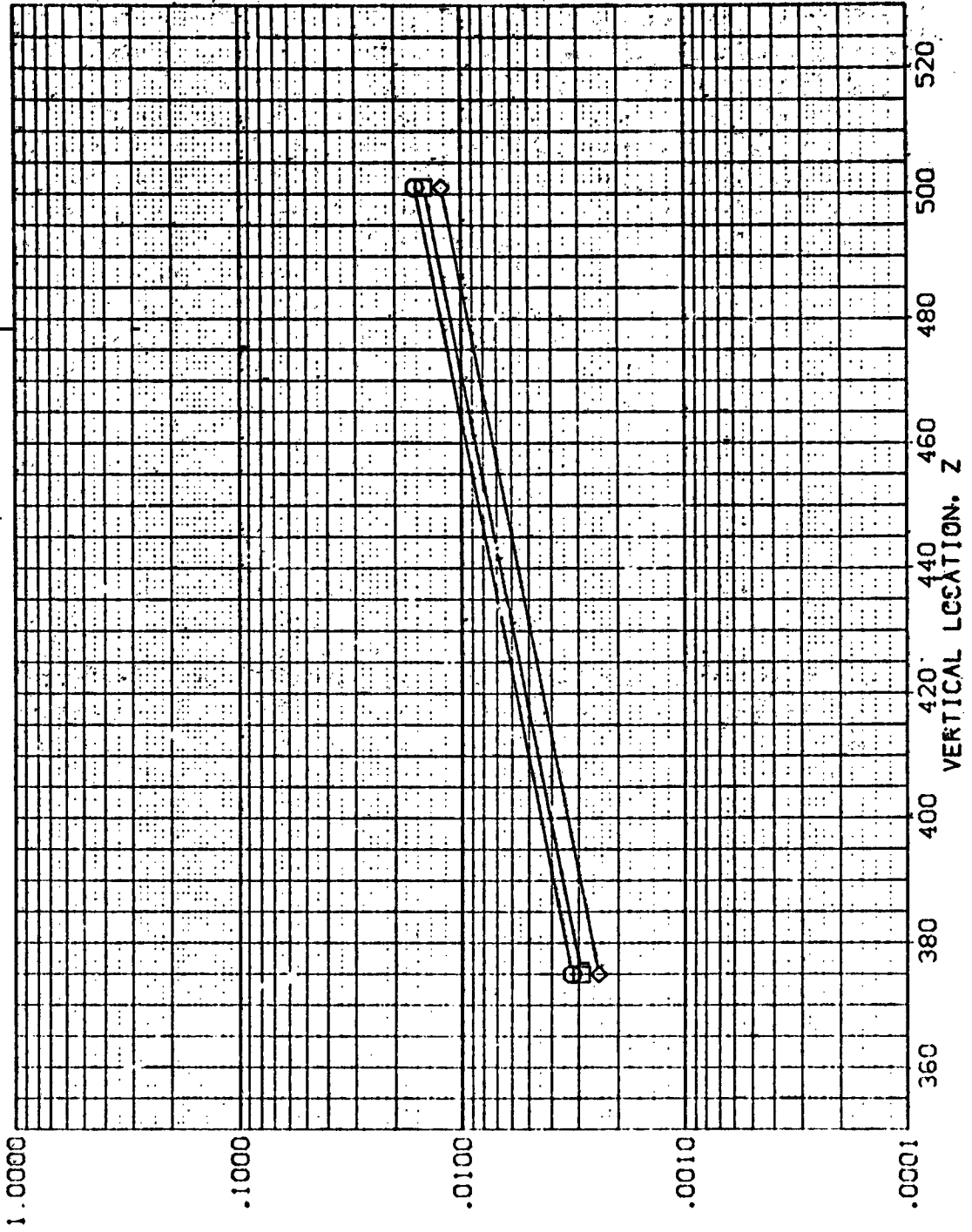


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB23)

BODY SIDEWALL

AMES 3.5-195 IH28 01

SYMBOL  $\square$   $\diamond$

HAW/HT .850  
X/L .300  
MACH 5.220

PARAMETRIC VALUES  
ALPHA R/V/L 1.000  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

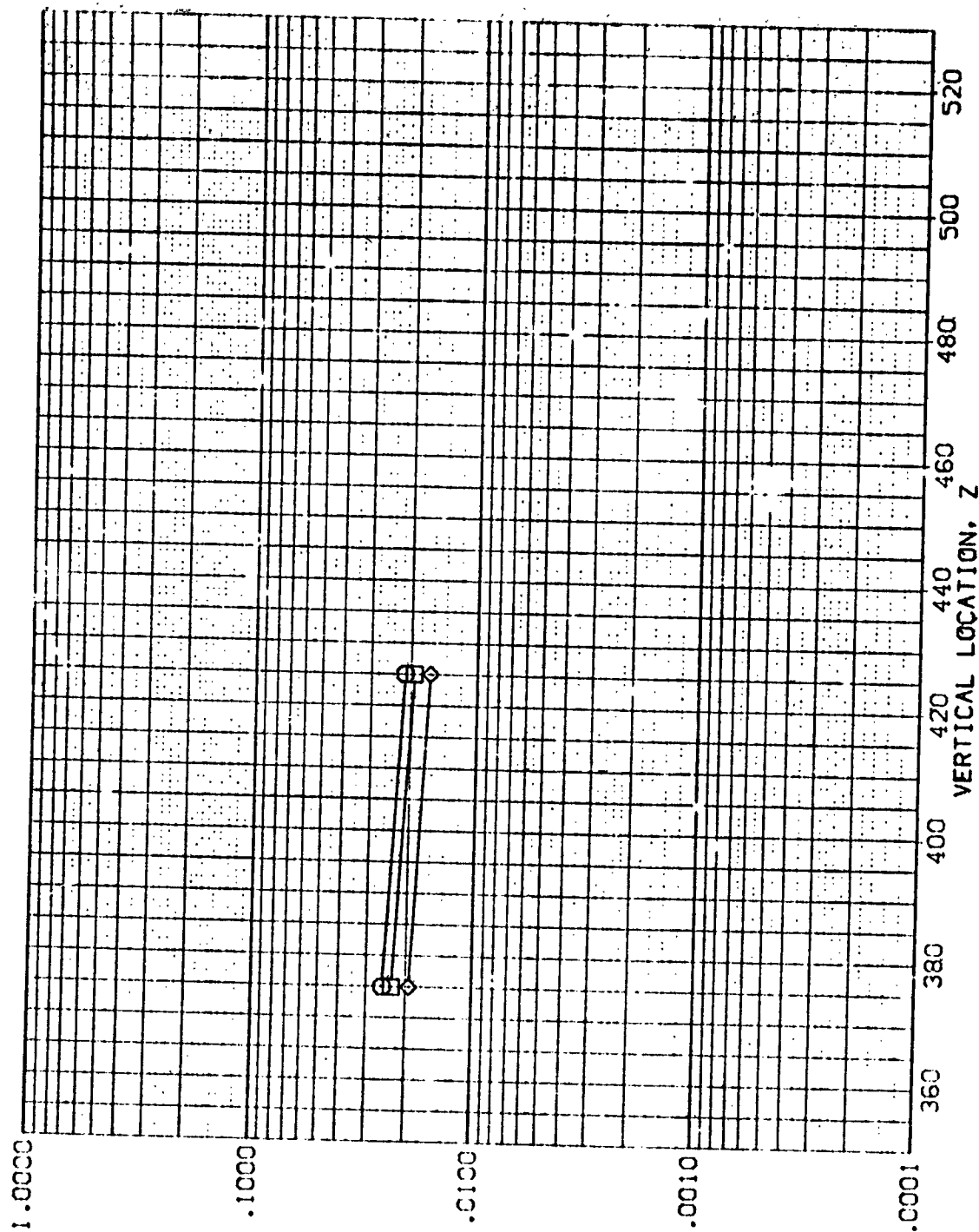


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB23)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES

ALPHA 120.000 BETA 1.000  
RN/L 1.000

MACH 5.720  
X/L .400

SYMBOL:  $\square$  .850  
 $\square$  .900  
 $\diamond$  1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

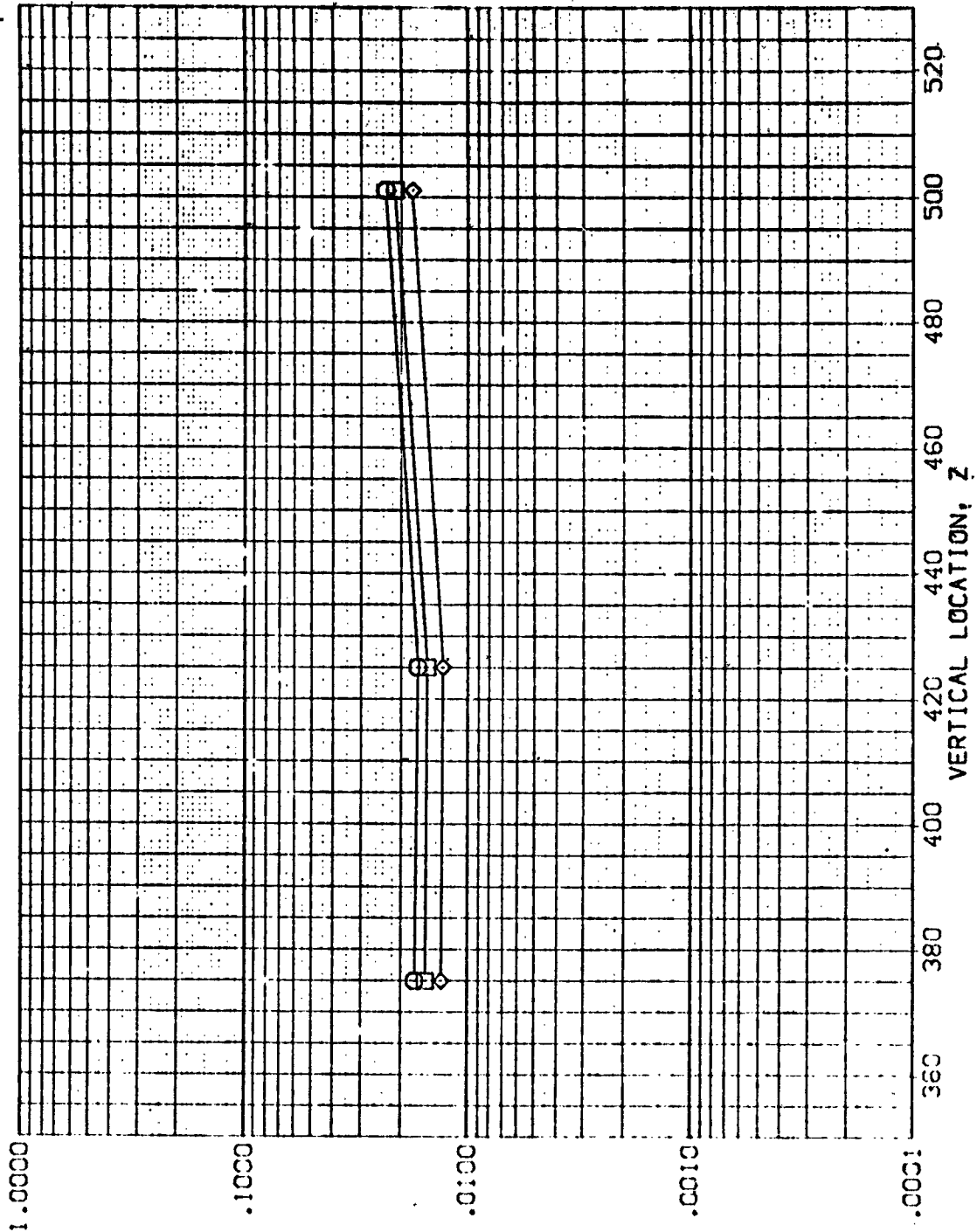


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB23)

AMES 3.5-195 IH28 01 BODY SIDEWALL

SYMBOL MACH X/L

1.000  
0.850  
0.900  
1.000

MACH  
5.220

X/L  
.500

PARAMETRIC VALUES  
ALPHA  
RV/L

120.000  
1.000

BETA  
1.000

.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

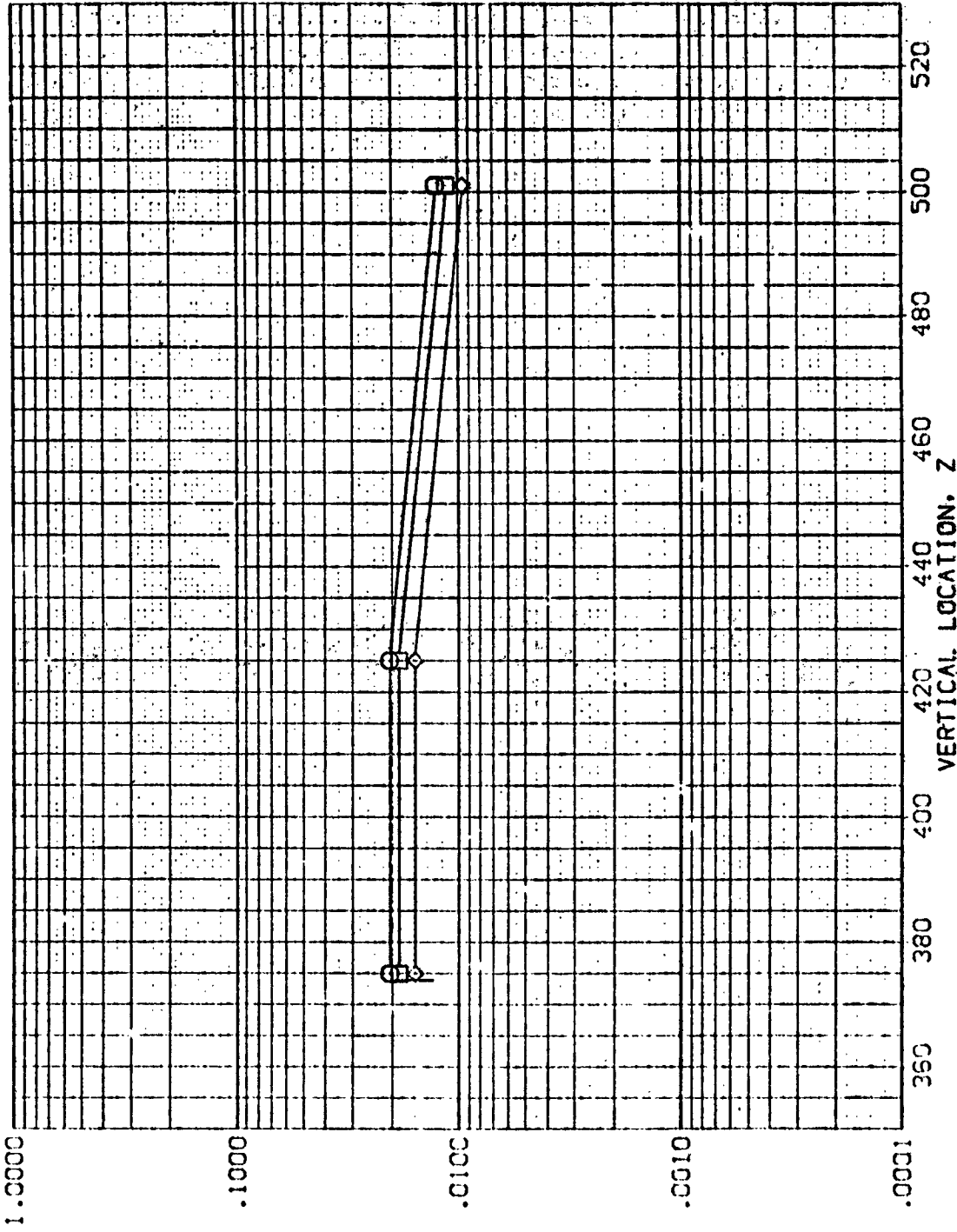


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB23)

AMES 3.5-195 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES

ALPHA 120.000 BETA .000  
 RM/L 1.000

SP/SEC. HAW/HT X/L VACH  
 .850 .600 5.220  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

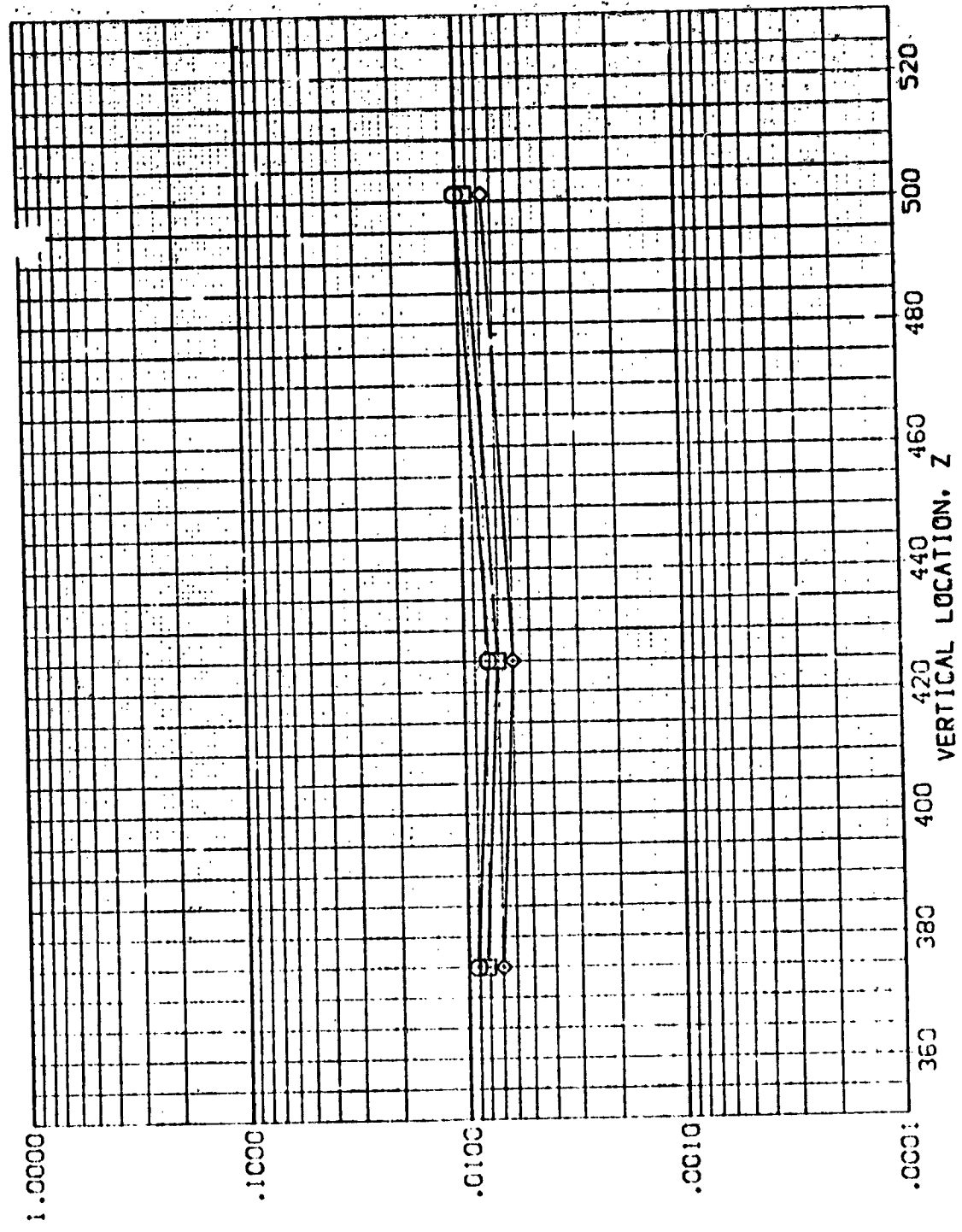


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



AMES 3.5-195 IH28 01 BODY SIDEWALL (REV923)

SYSC. MACH. X/L. MACH  
0.850 0.700 5.220  
0.900  
1.000

PARAMETRIC VALUES  
ALPHA 120.000 BETA .000  
RVAL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

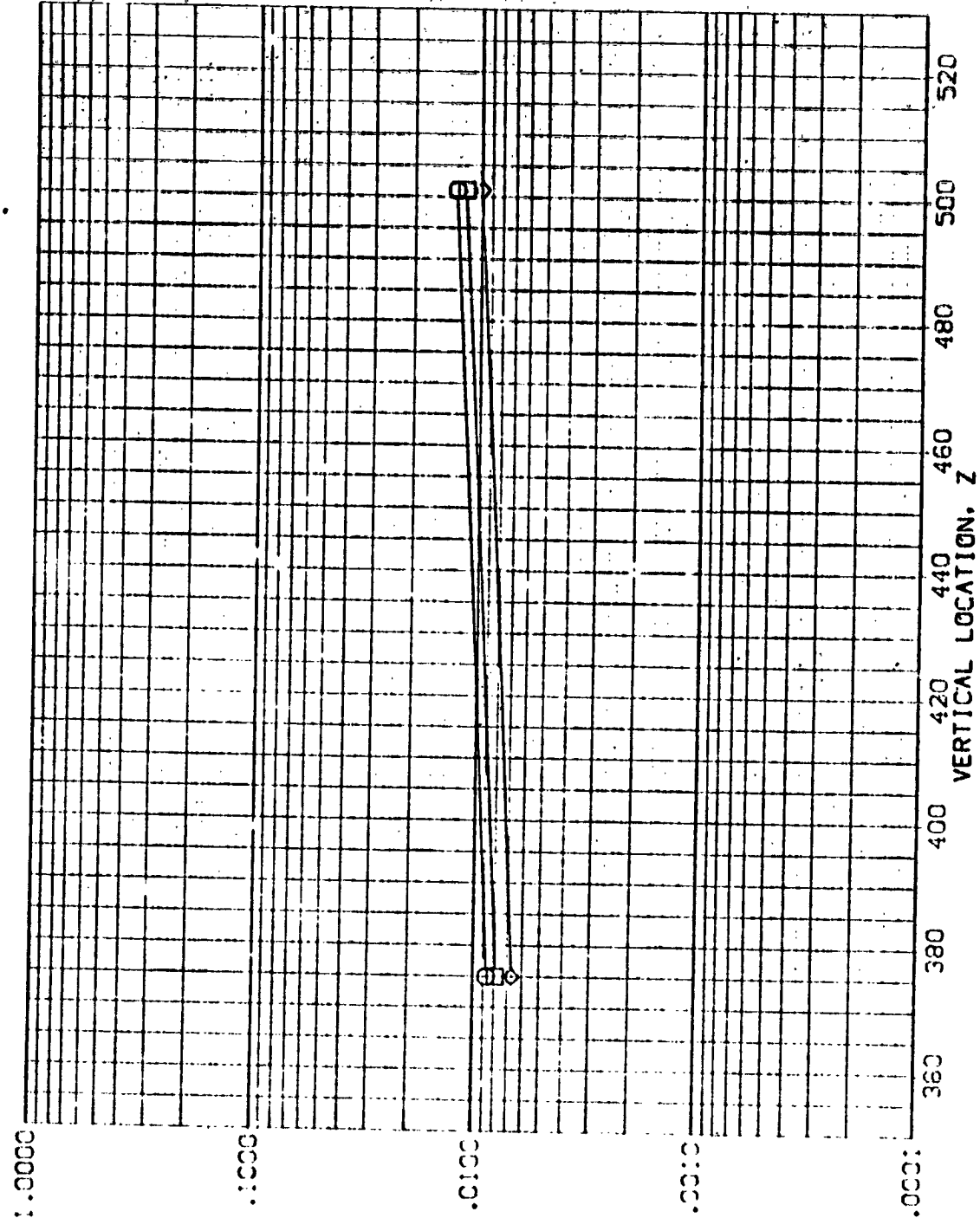


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AVES 3.5-195 1428 01 BODY SIDEWALL (REV824)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RV/L 1.000

SYMBOL A/R/M V/L MACH  
 ◊ .950 .300 5.220  
 □ .900  
 ○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

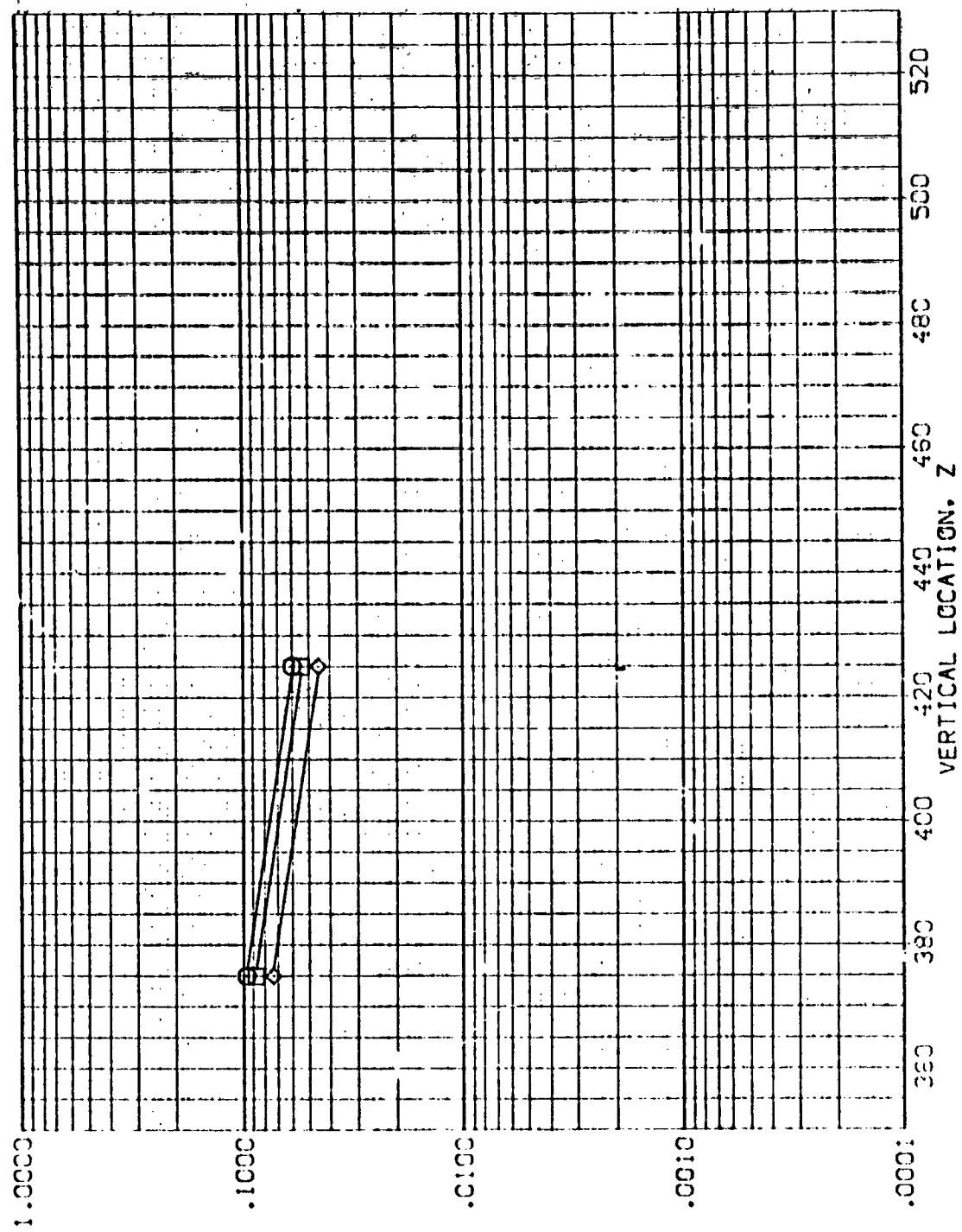


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-.95 IH28 01 BODY SIDEWALL (REV924)

SYMBOL	HA/HT	X/L	MACH	PARAMETRIC VALUES
□	.850	.400	5.220	ALPHA
◇	.900			RN/L
	1.000			BETA
				.000

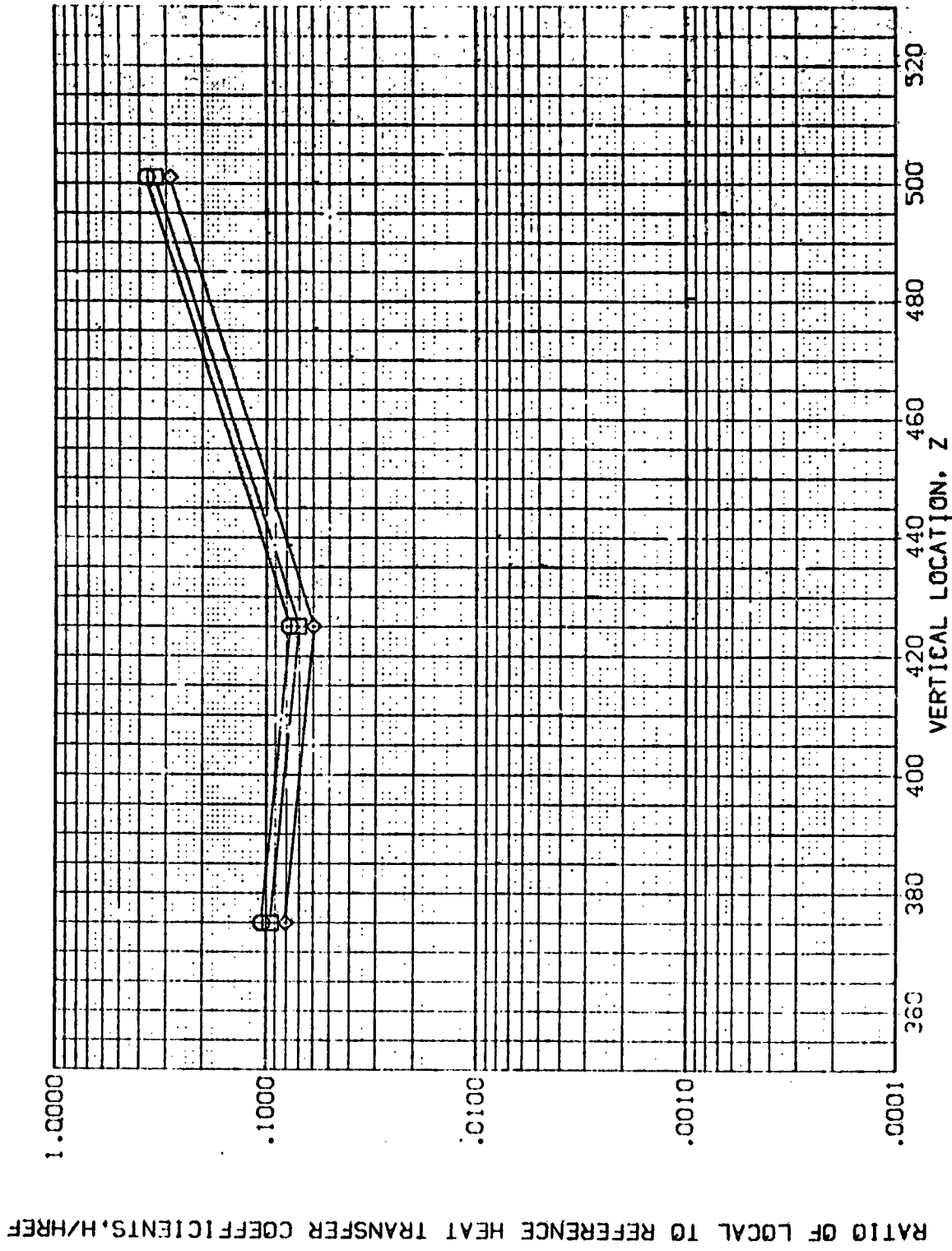


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

AMES 3.5-195 IH28 01 BODY SIDEWALL.

(REV824)

SYMBOL  
 □  
 ◇

HAW/HT .850  
 X/L .500  
 MACH 5.220

PARAMETRIC VALUES  
 ALPHA -120  
 RN/L 1.000  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

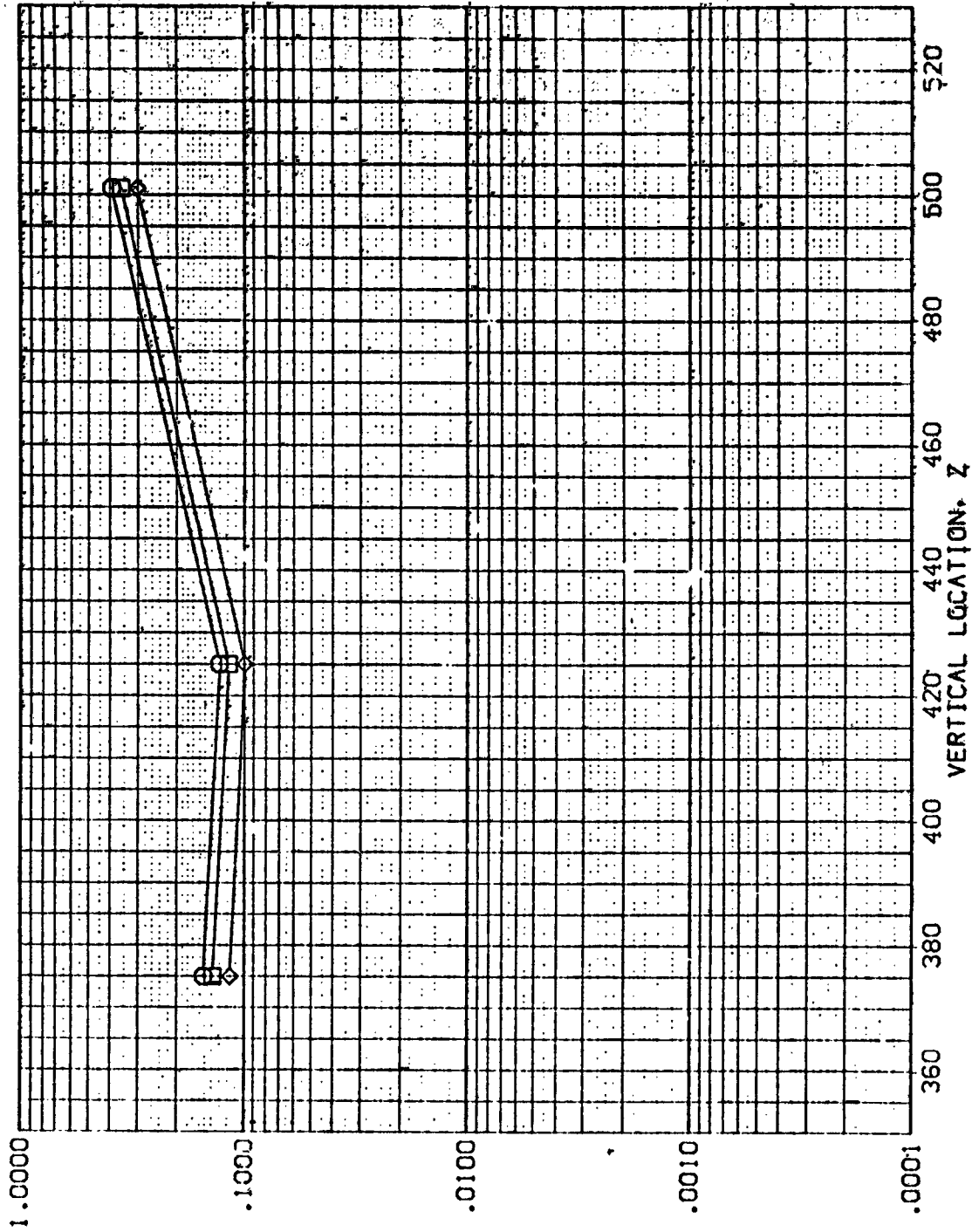


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB24)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RN/L 1.000

SYSEC-  
 HAW/HT .850  
 X/L .600 MACH 5.220  
 .900  
 1.000

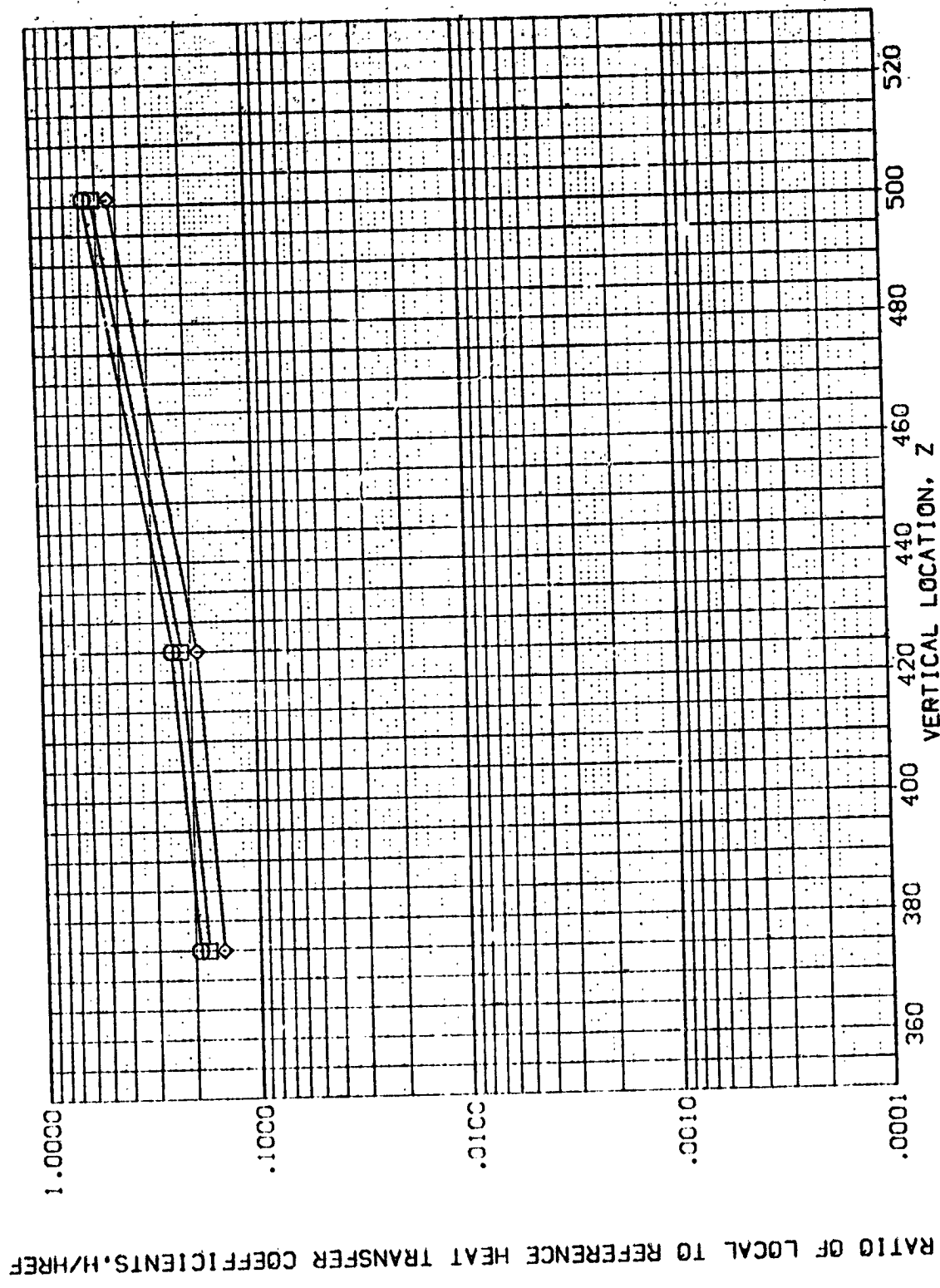


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB24)

SYMBOL MAW/HT X/L MACH  
 □ .850 .700 5.220  
 ◇ .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA 1.000  
 RN/L .000

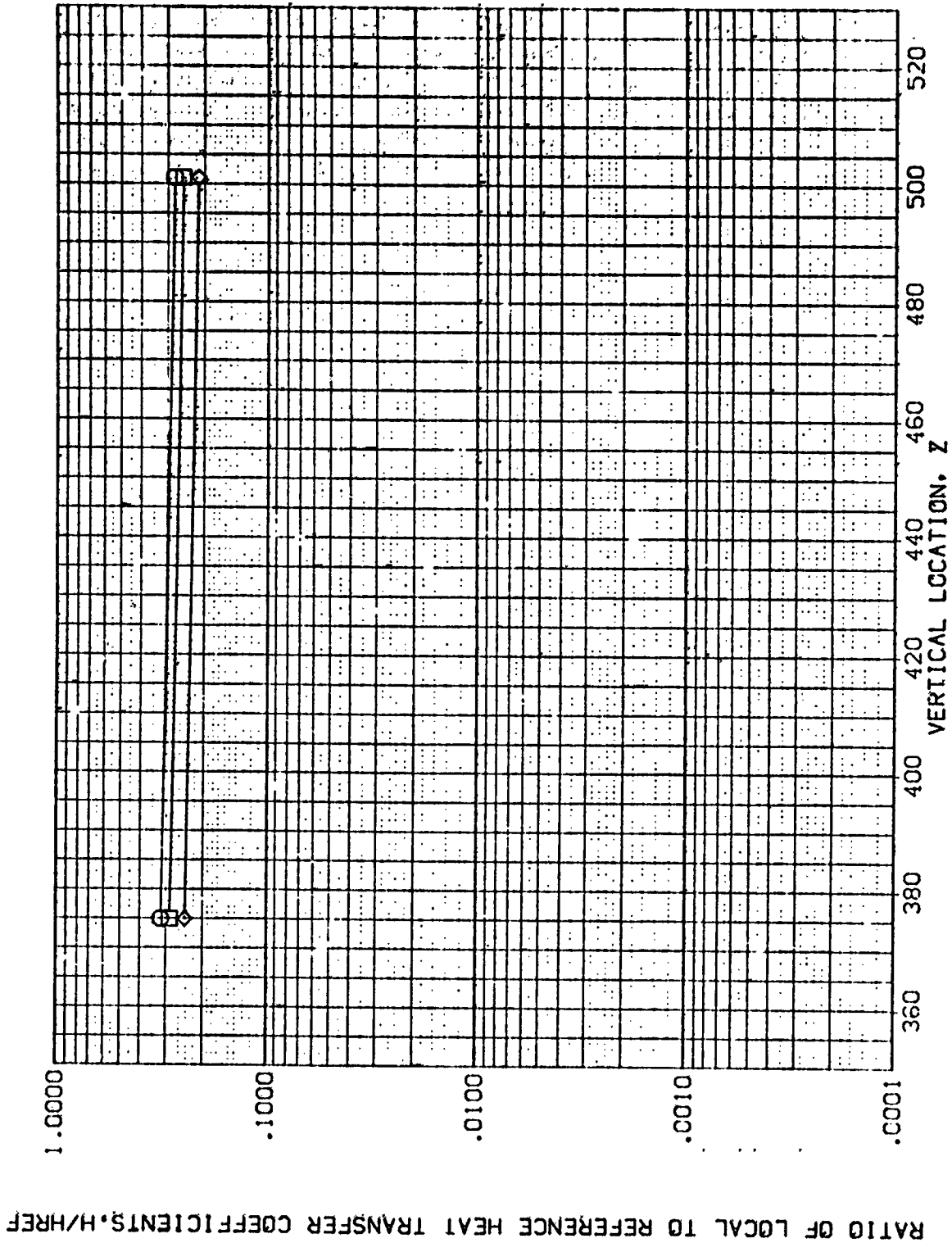


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB25)

BODY SIDEWALL

AMES 3.5-195 IH28 01

SYMBOL  
◇ □

HA/WHT .85C  
.900  
1.000

X/L .300

MACH 5.219

PARAMETRIC VALUES  
ALPHA -90.000  
RN/L 1.000

BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

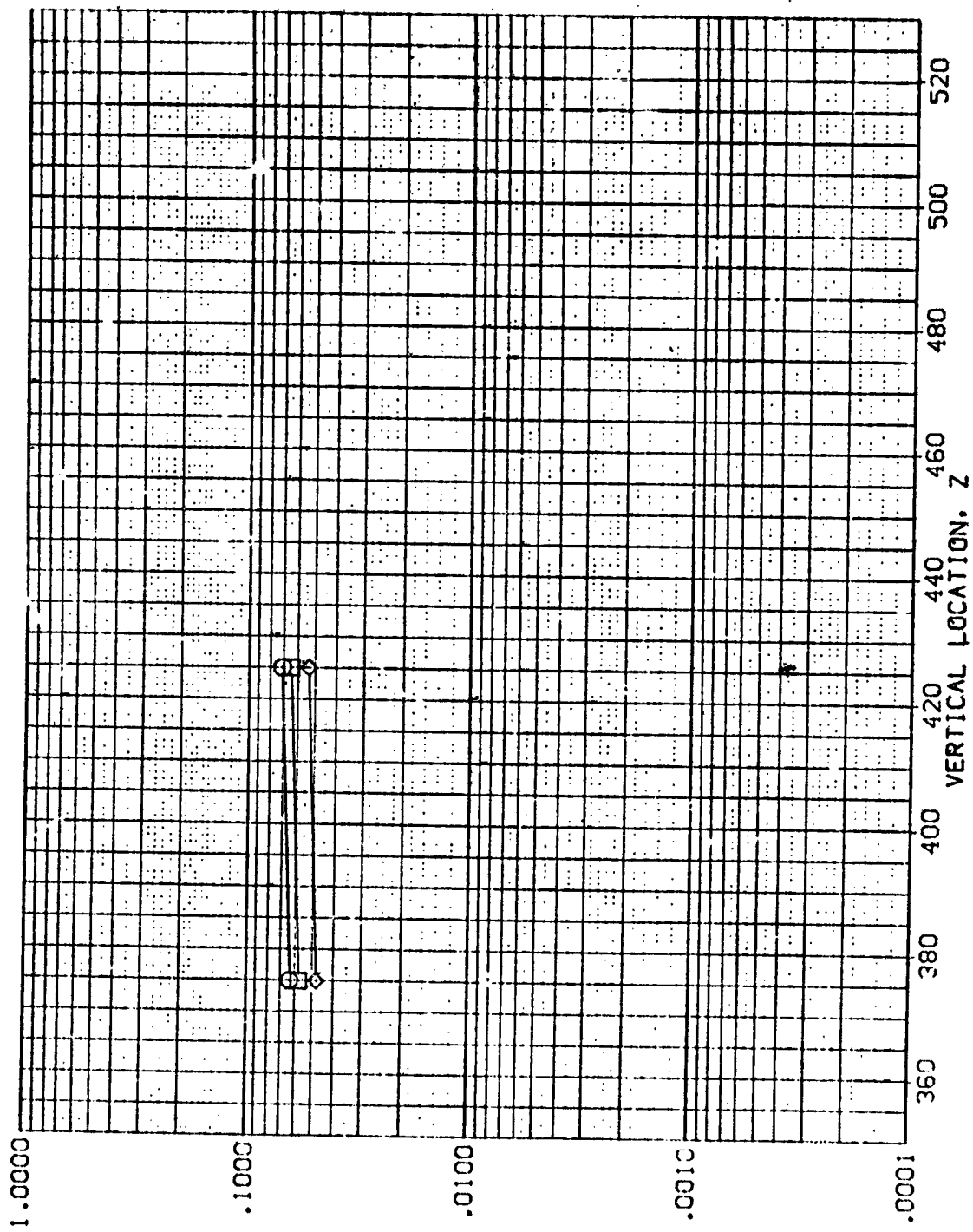


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB25)

SYMBOL HAW/HT X/L MACH  
 ◊ .850 .400 5.219  
 ◻ .900  
 ◻ 1.000

PARAMETRIC VALUES  
 ALPHA -90.000  
 RN/L 1.000  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

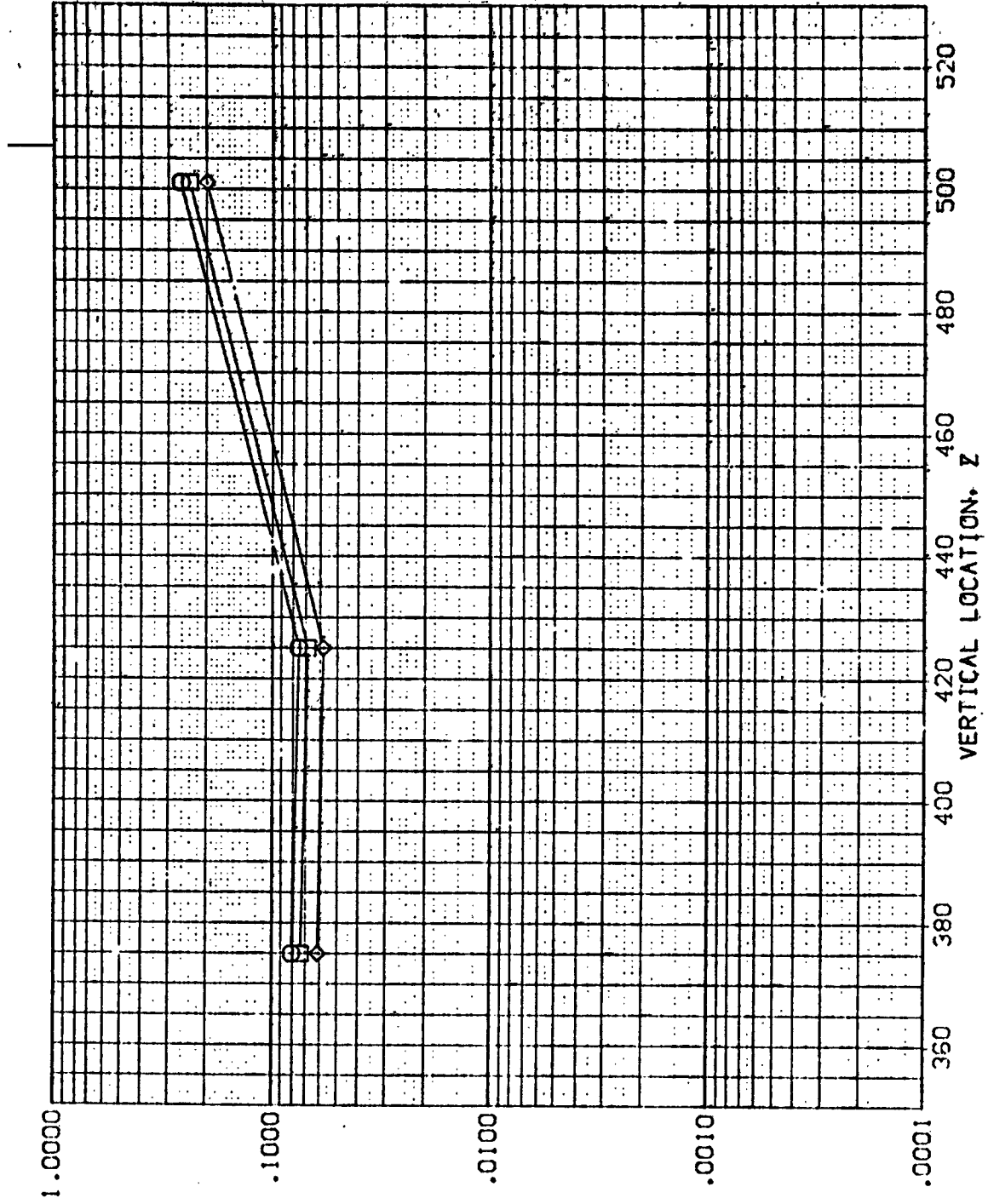


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB25)

SYMBOL H/W/HT X/L MACH  
 ◊ .850 .500 5.219  
 ◻ .900 .500 5.219  
 ◻ 1.000 .500 5.219

PARAMETRIC VALUES  
 ALPHA RNV/L  
 BETA RNV/L  
 .000 .000  
 1.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

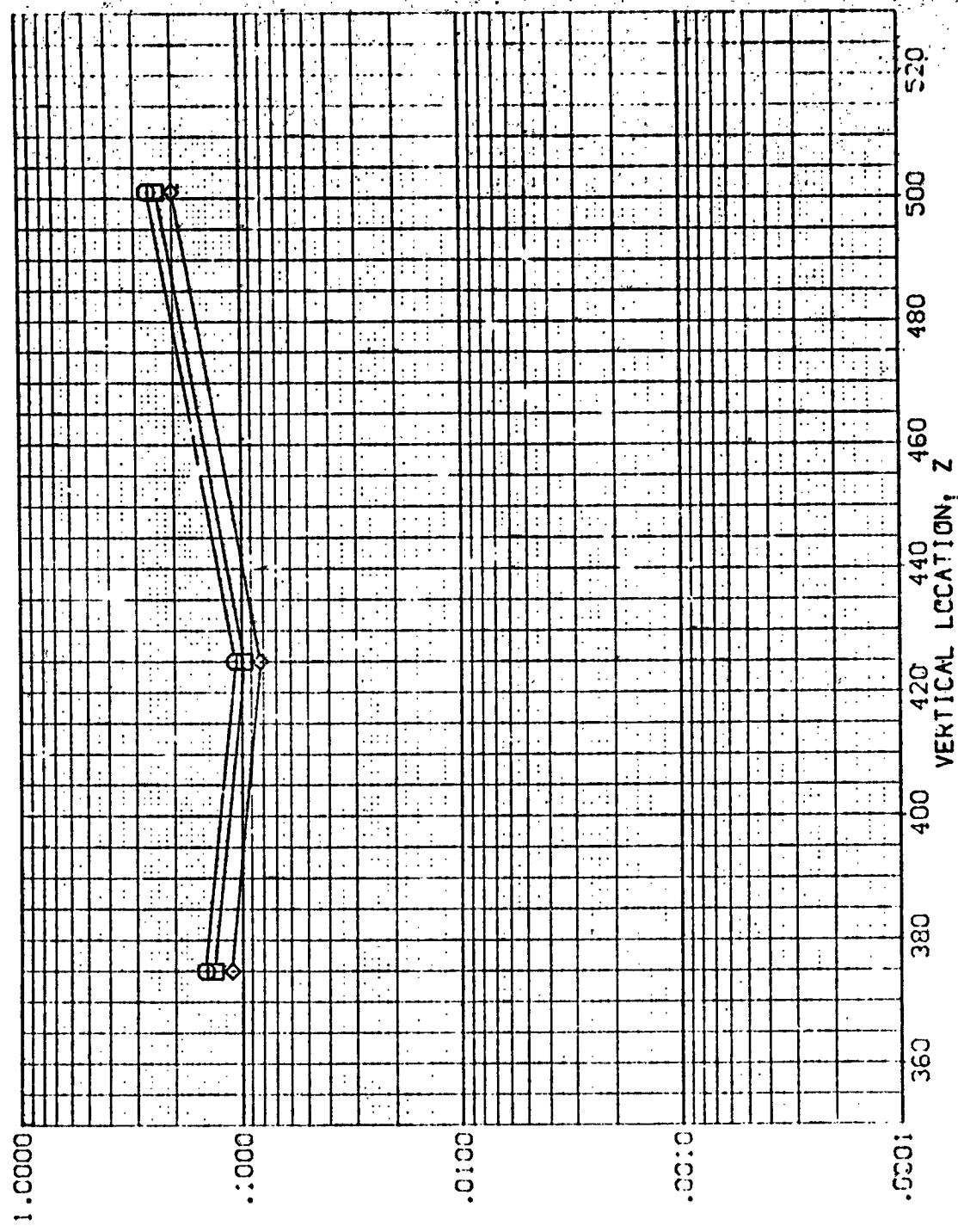


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB25)

SYMBOL  
 ◊  
 ◻  
 ◊

MAV/HT .850  
 X/L .600  
 MACH 5.219

PARAMETRIC VALUES  
 ALPHA .000  
 R/V/L 1.000  
 BETA .300

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

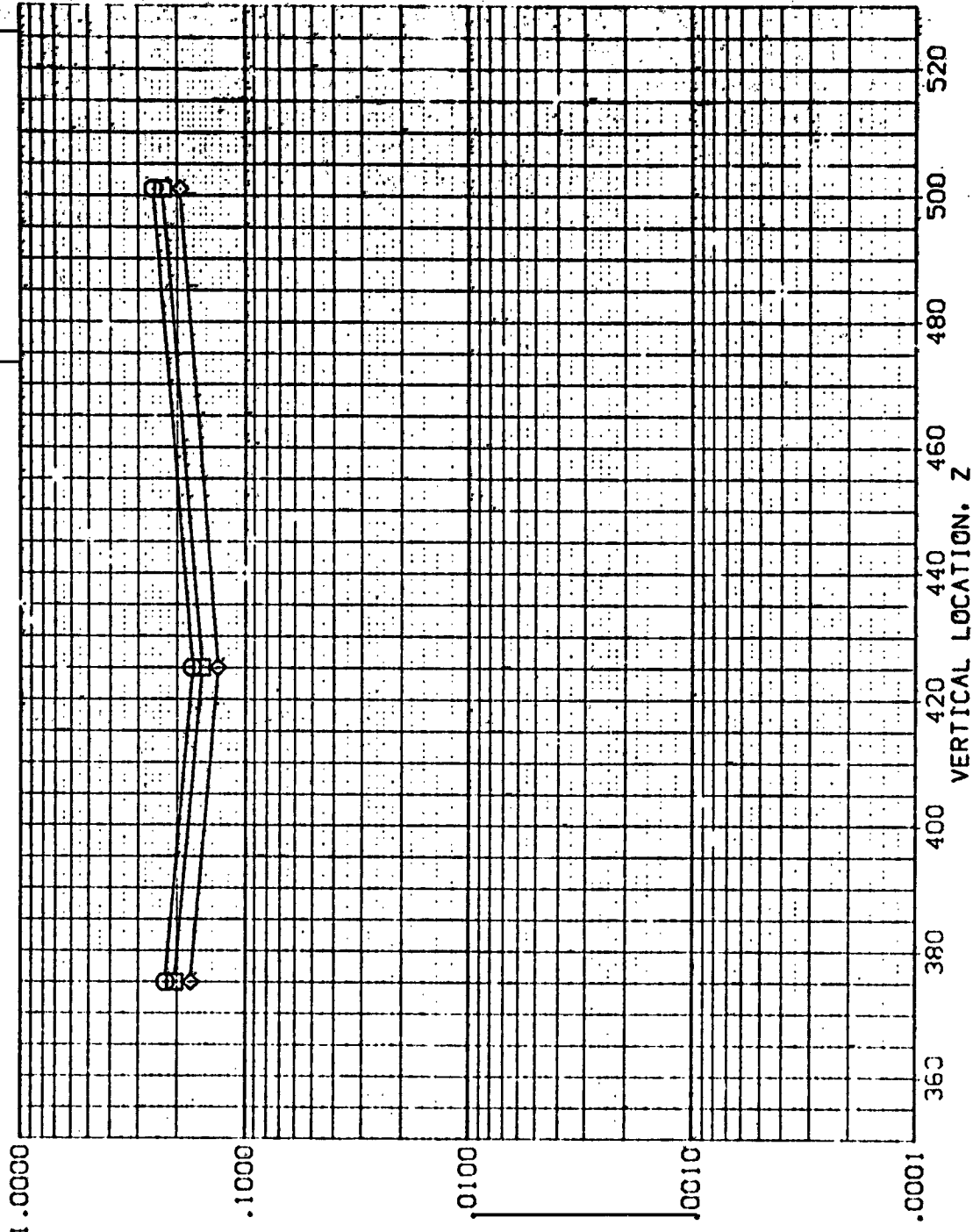


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL

(REV825)

SI<sup>3</sup>SC  
 □ □ ◇

MA# / μT  
 .850  
 .900  
 1.000

K/L MACH  
 .700 5.219

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .550  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

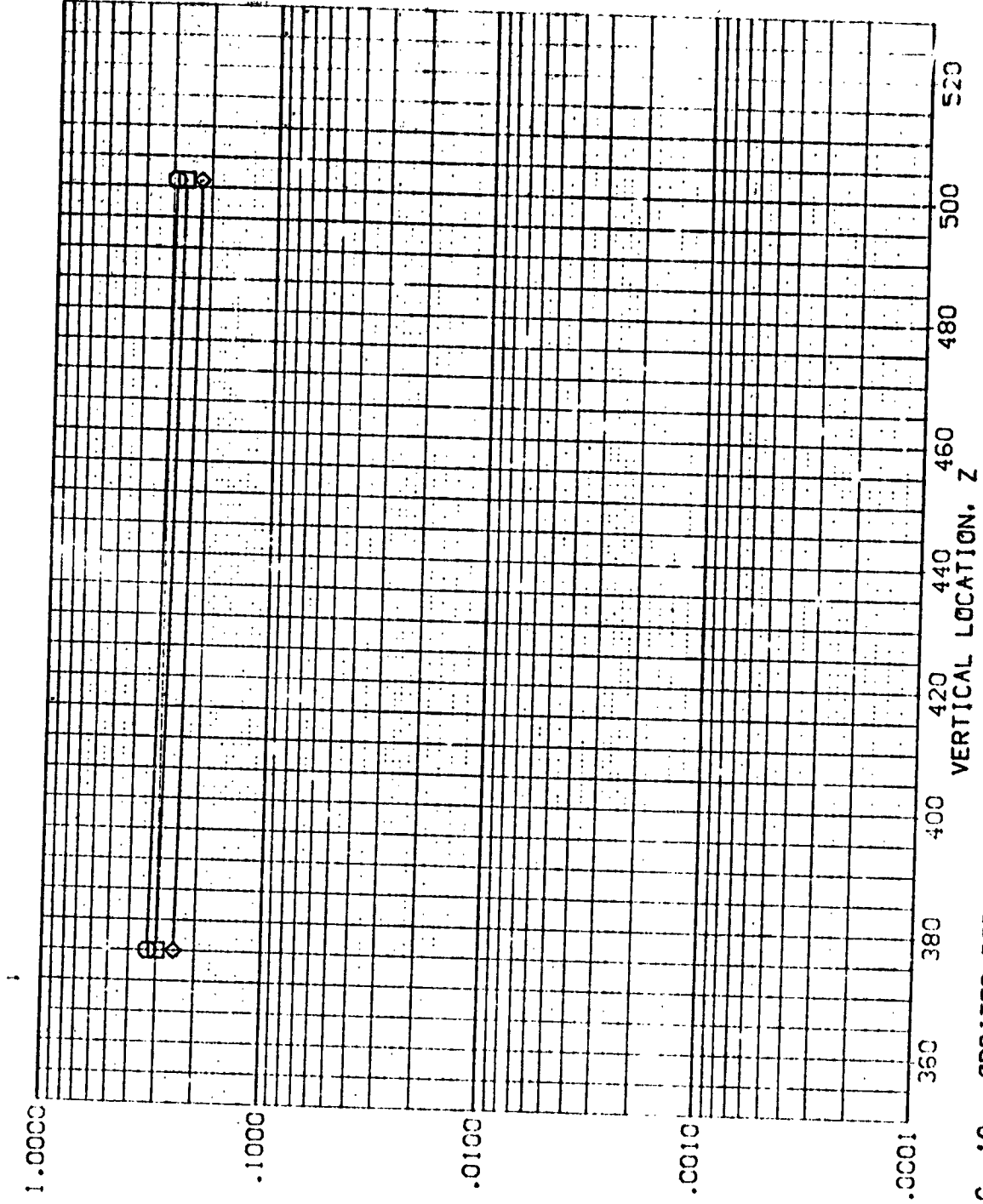


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 1H28 01 BODY SIDEWALL

(REVB26)

5-222  
 ◇ O

MA#/RT X/L MACH  
 .950 .300 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -6C 000 1.000  
 BETA .000  
 RN/L

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

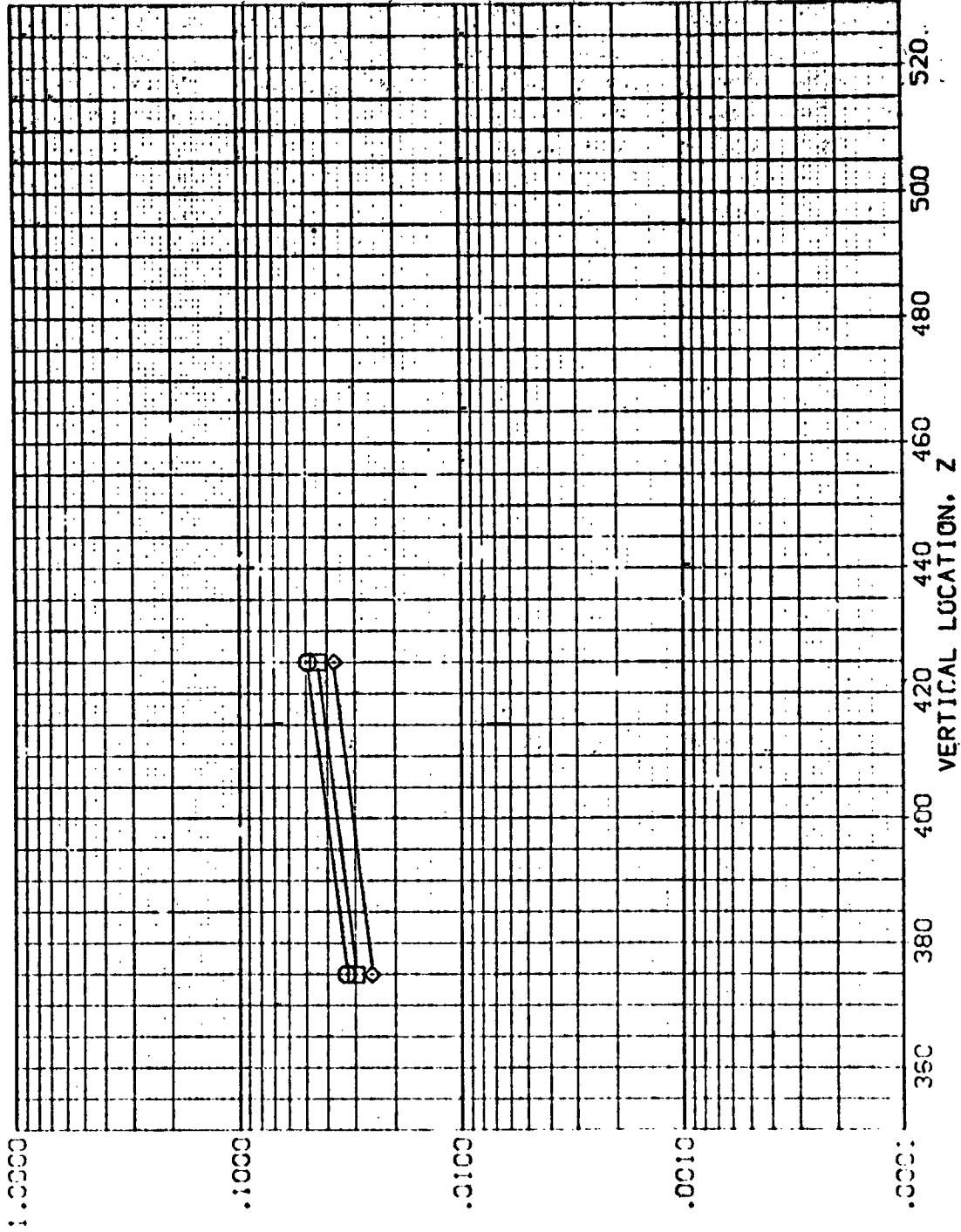


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REV B26)

AVES 3.5-195 IH28 01 BODY SIDEWALL

SIZE: .850  
MACH: 5.220  
T/L: .400

PARAMETRIC VALUES  
ALPHA: -60.000  
BETA: 1.000  
PW/L: .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

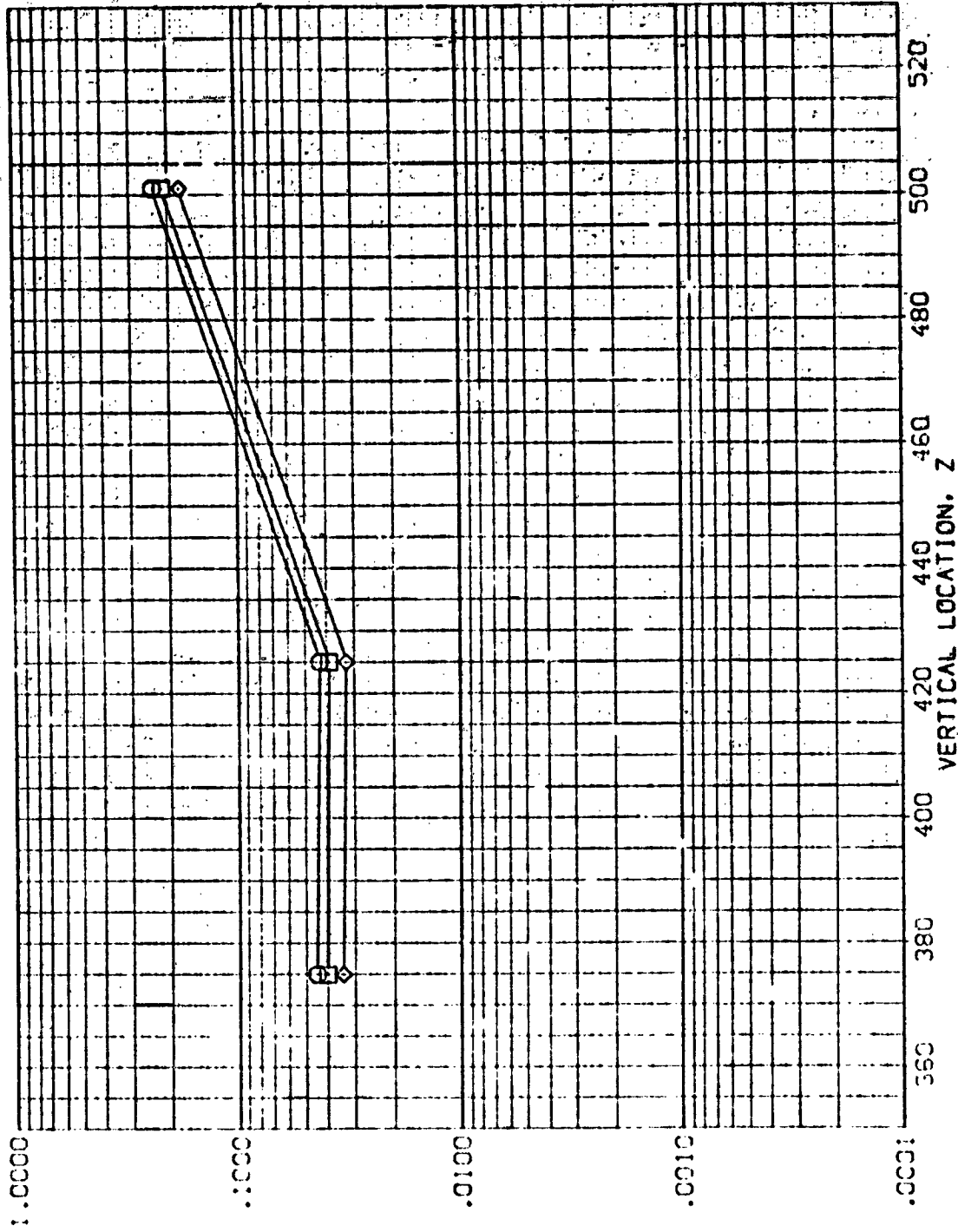


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB26)

AYES 3.5-:95 IH28 01 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA -60.000 BETA .000  
RVAL 1.000

SYMBOL HAW/H<sup>2</sup> K/L MACH  
◇ .85C .500 5.220  
□ .90C .500 5.220  
◇ 1.00C 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

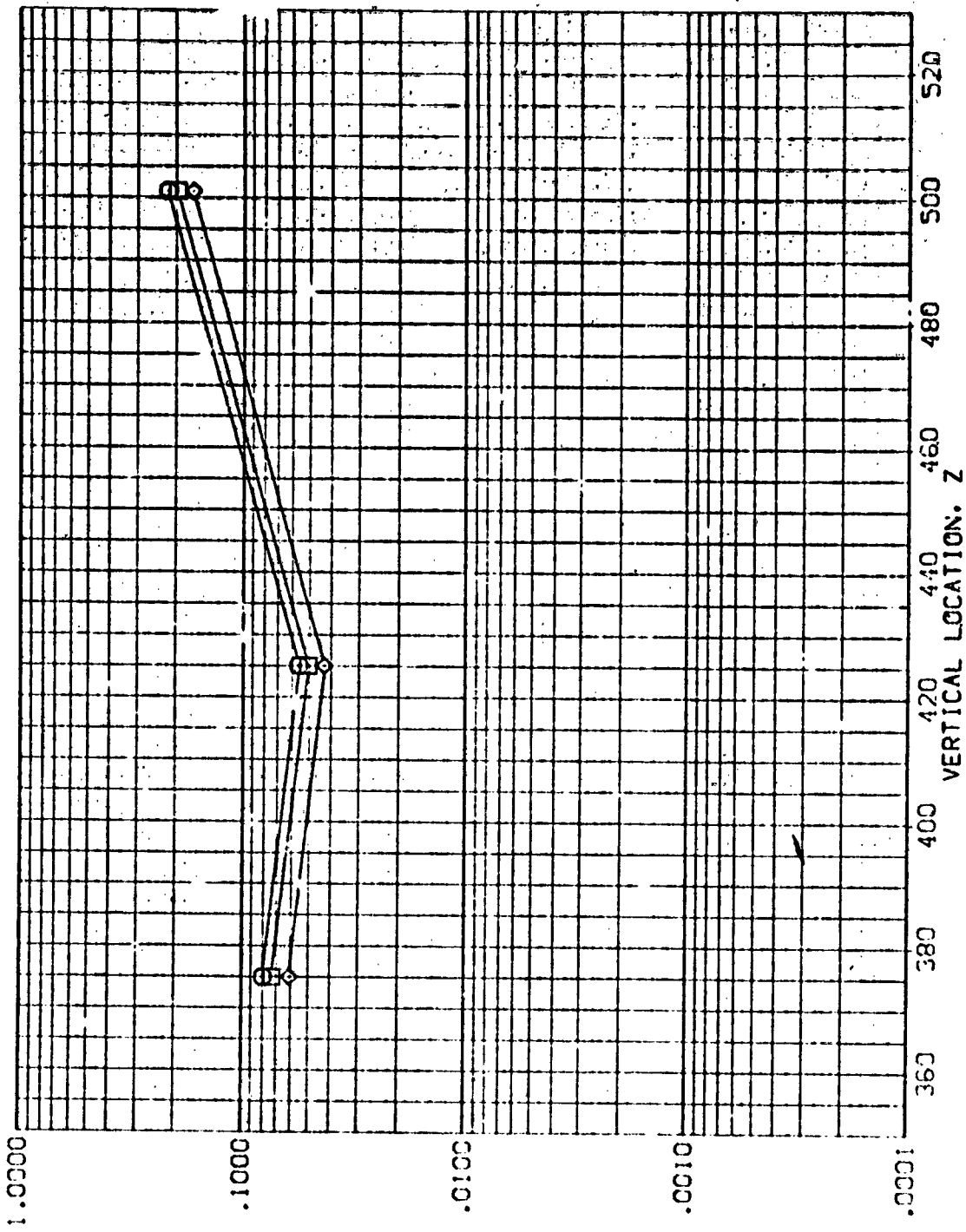


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REF. 328)

AMES 3.5-195 1428 01 BODY SIDEWALL

AMES 3.5-195 1428 01 BODY SIDEWALL

SIZES:  $\diamond$  1.000  
 $\square$  .900  
 $\square$  .850

MW/MT .600 MACH 5.220  
 K/L .600

PARAMETRIC VALUES  
 ALPHA .000  
 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

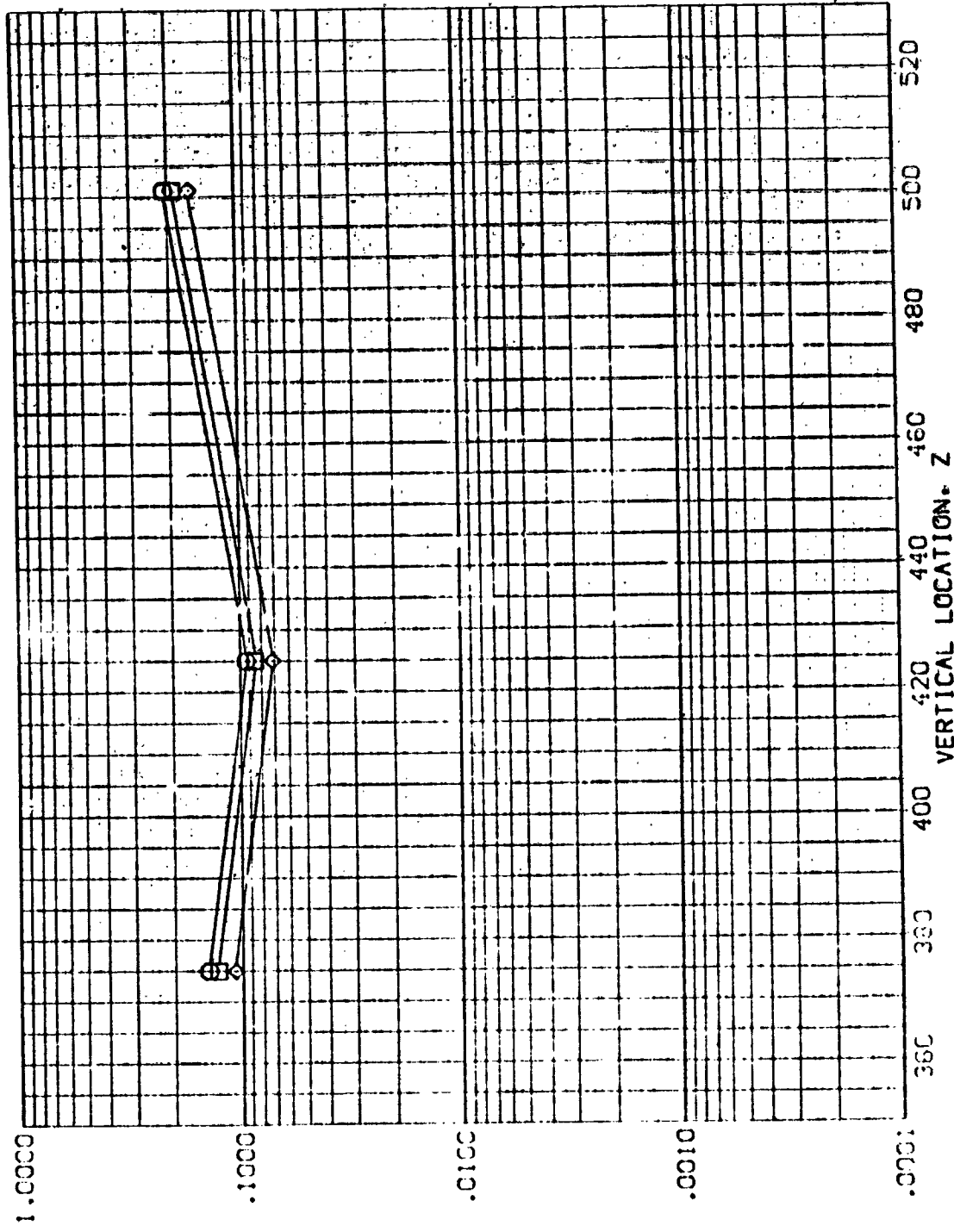


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

(REVB26)

BODY SIDEWALL

REV 2.5.75 1428 01

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 P/W 1.000

SCALE: HORIZ. 1" = 100' VERT. 1" = 1000'  
 DATE: 5.11.75

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

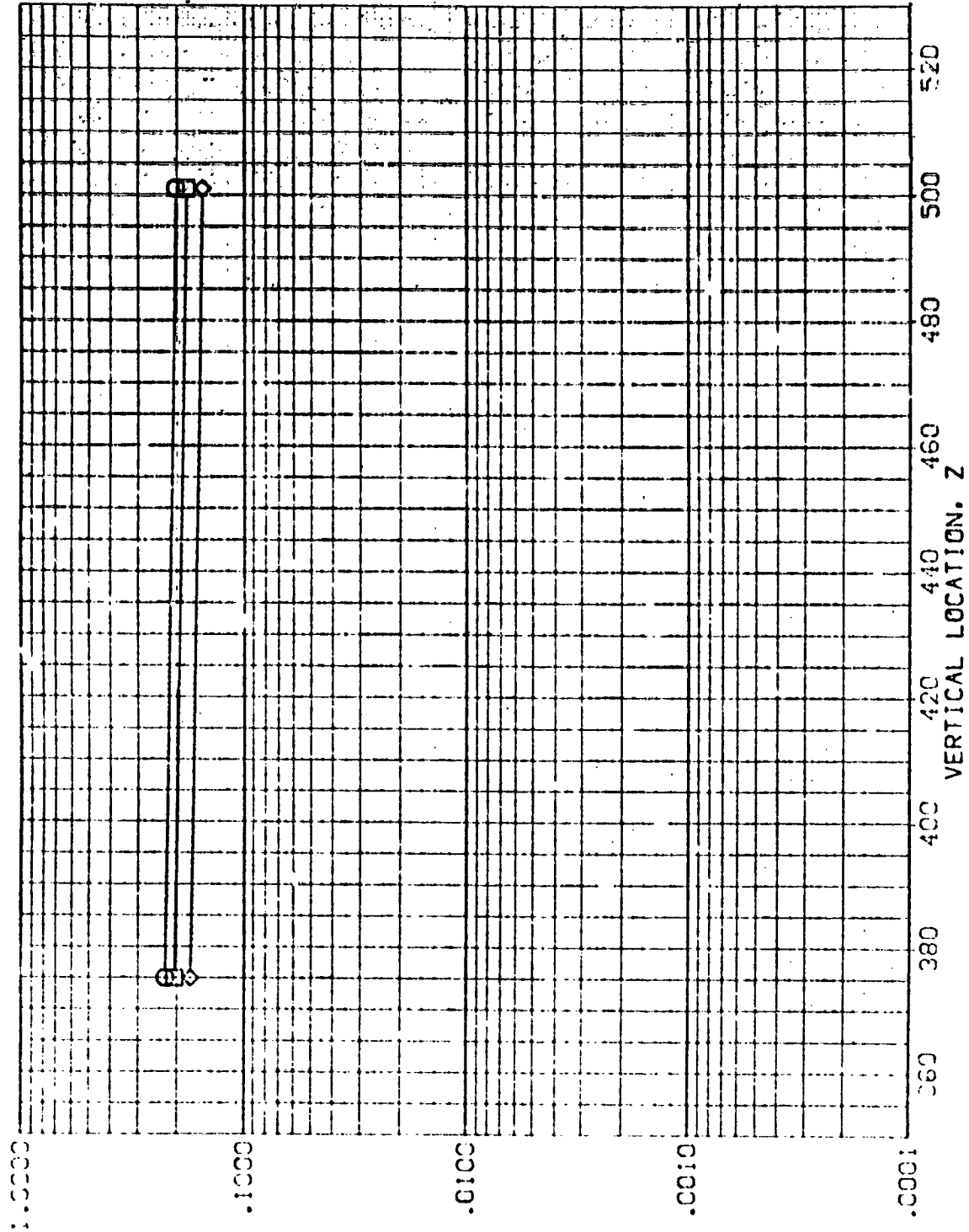


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE



AMES 3.5-195 IH28 01 BODY SIDEWALL

(REVB27)

SYMBOL  
◇  
□

H/W/H  
.850  
.900  
1.000

X/L  
.300

MACH  
5.220

PARAMETRIC VALUES  
ALPHA  
RN/L

BETA  
-30.000  
1.000  
.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

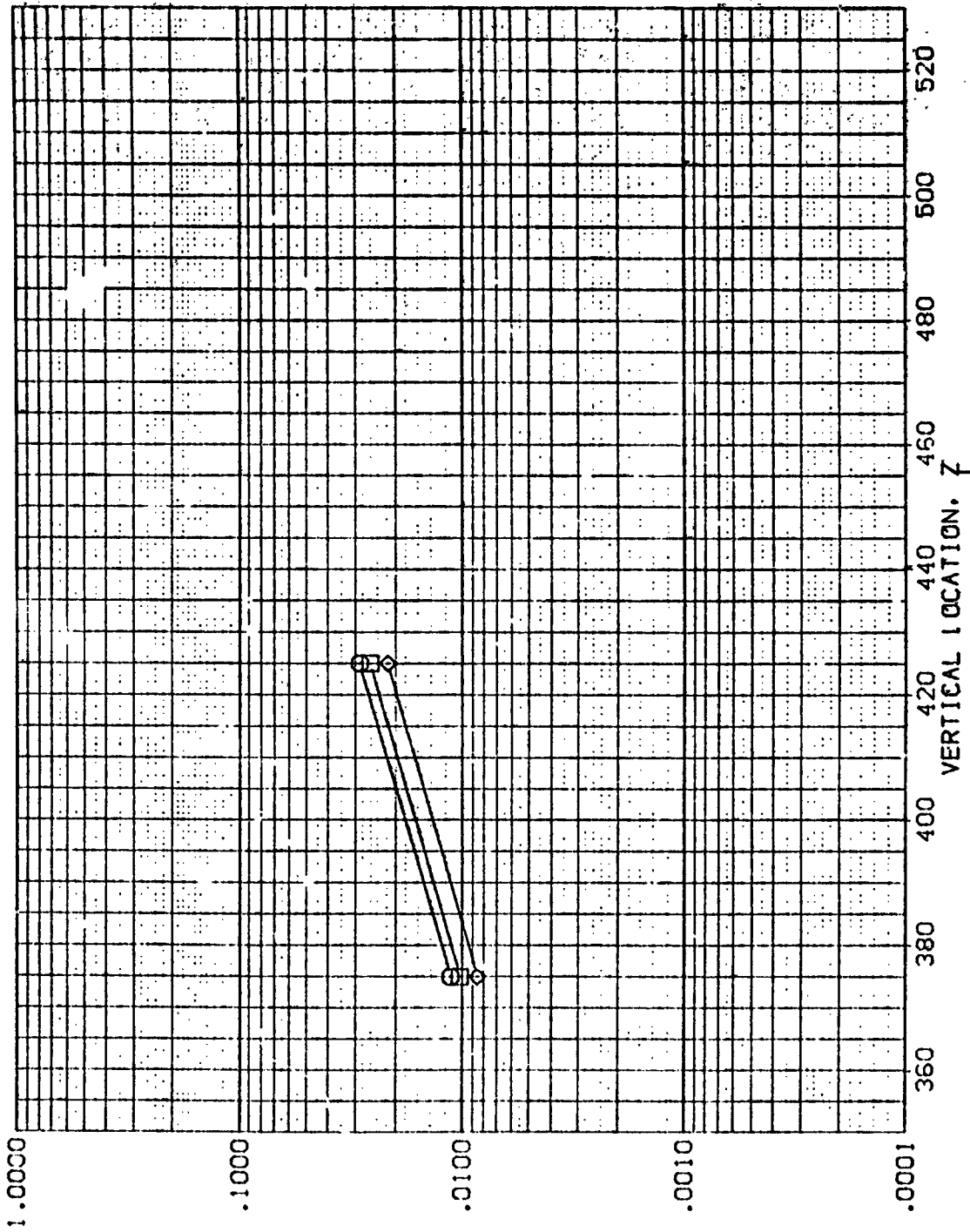


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB27)

PARAMETRIC VALUES  
 ALPHA -30.000  
 BETA 1.000  
 RV/L .000

SYMBOL HAN/HT X/L MACH  
 ◇ .850 .400 5.220  
 ○ .950  
 □ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

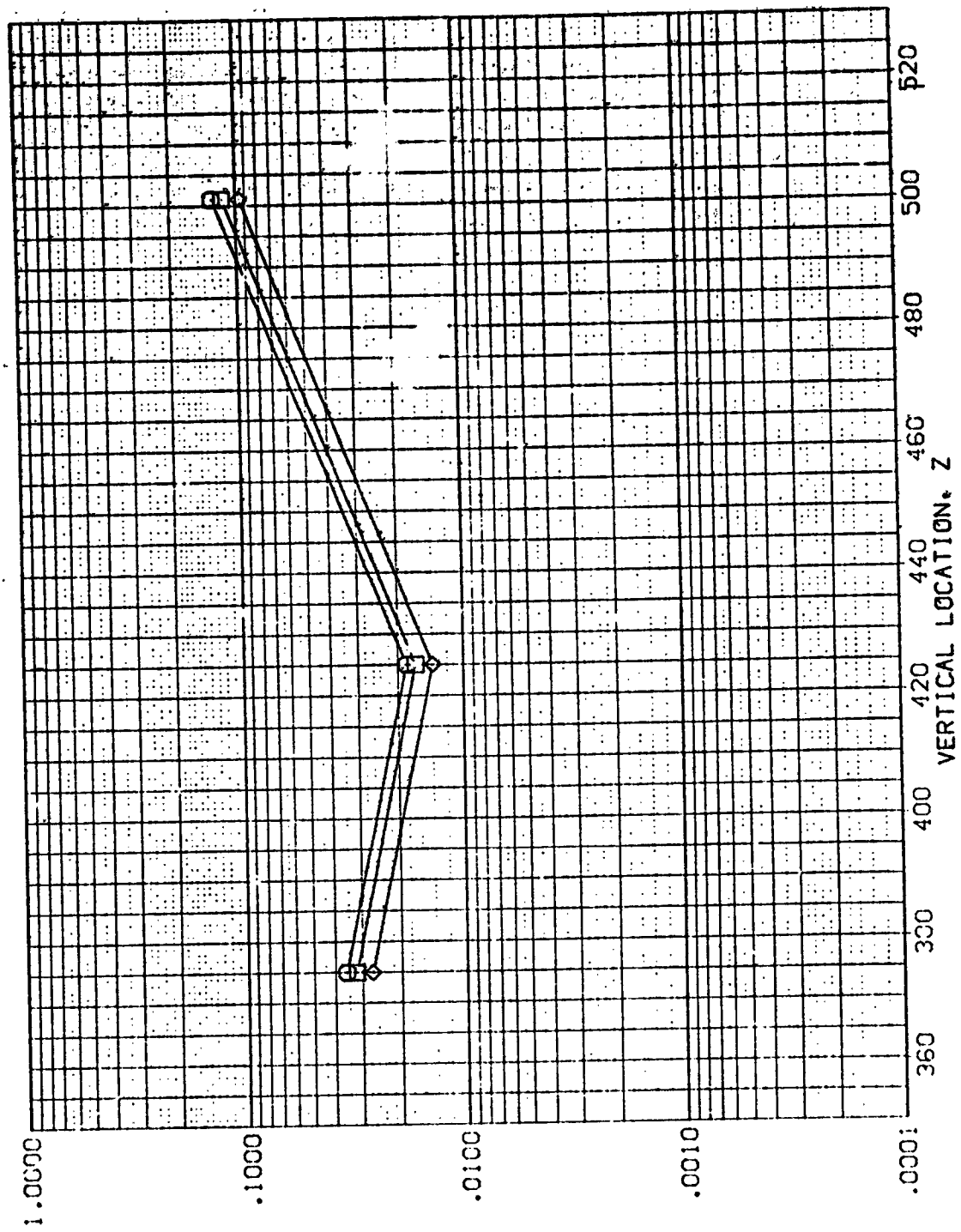


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL

(REVB27)

SYMBOL  $\diamond$   $\square$

PARAMETER  
 H/W 0.850  
 X/L 0.500  
 MACH 5.220  
 0.900  
 1.000

PARAMETRIC VALUES  
 ALPHA -30.000  
 BETA 1.000  
 .008

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

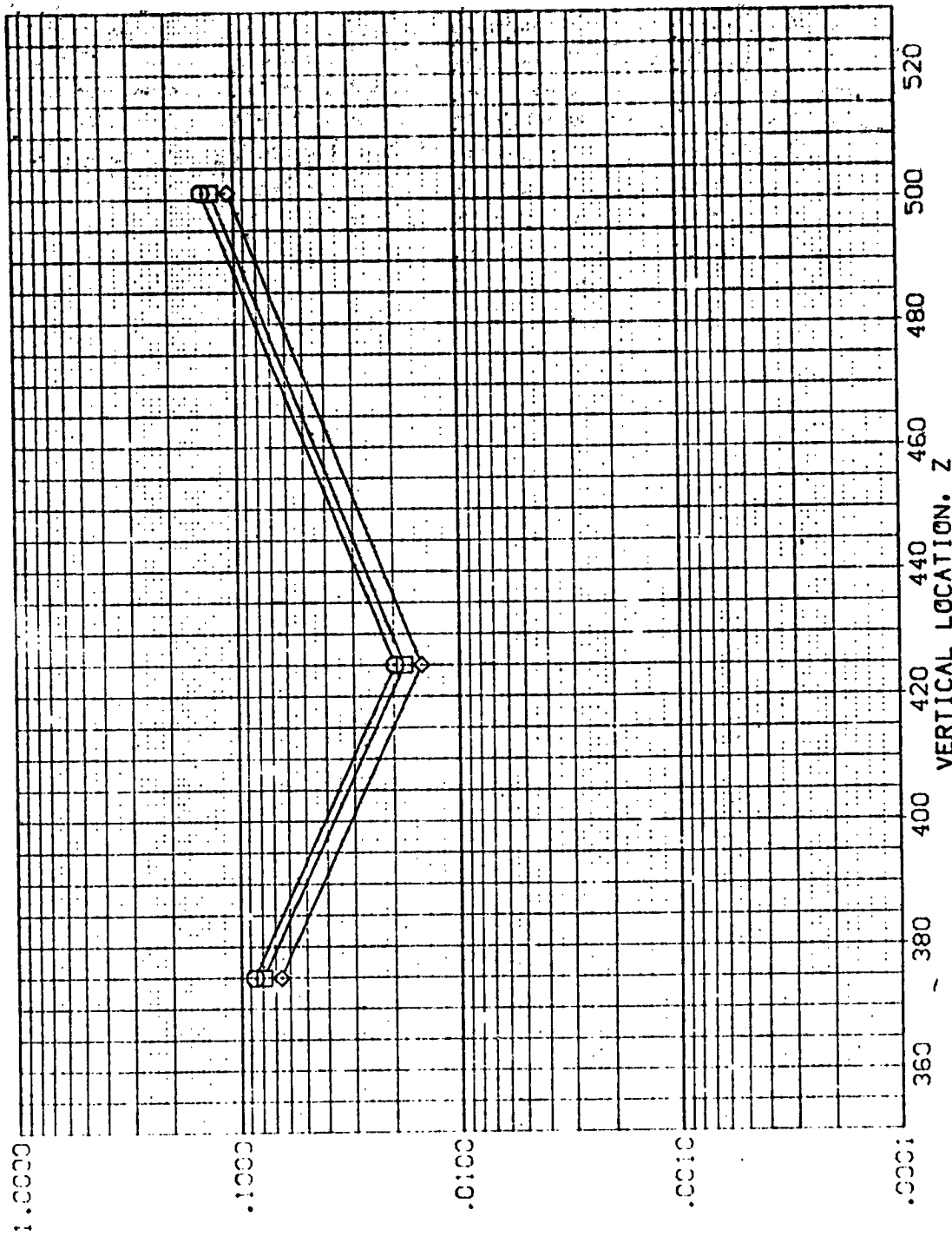


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL

(REVB27)

SYMBOL HAY/HT X/L MACH  
 □ .850 .600 5.220  
 ◇ .950  
 1.000

PARAMETRIC VALUES  
 ALPHA RAYL 1.000  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

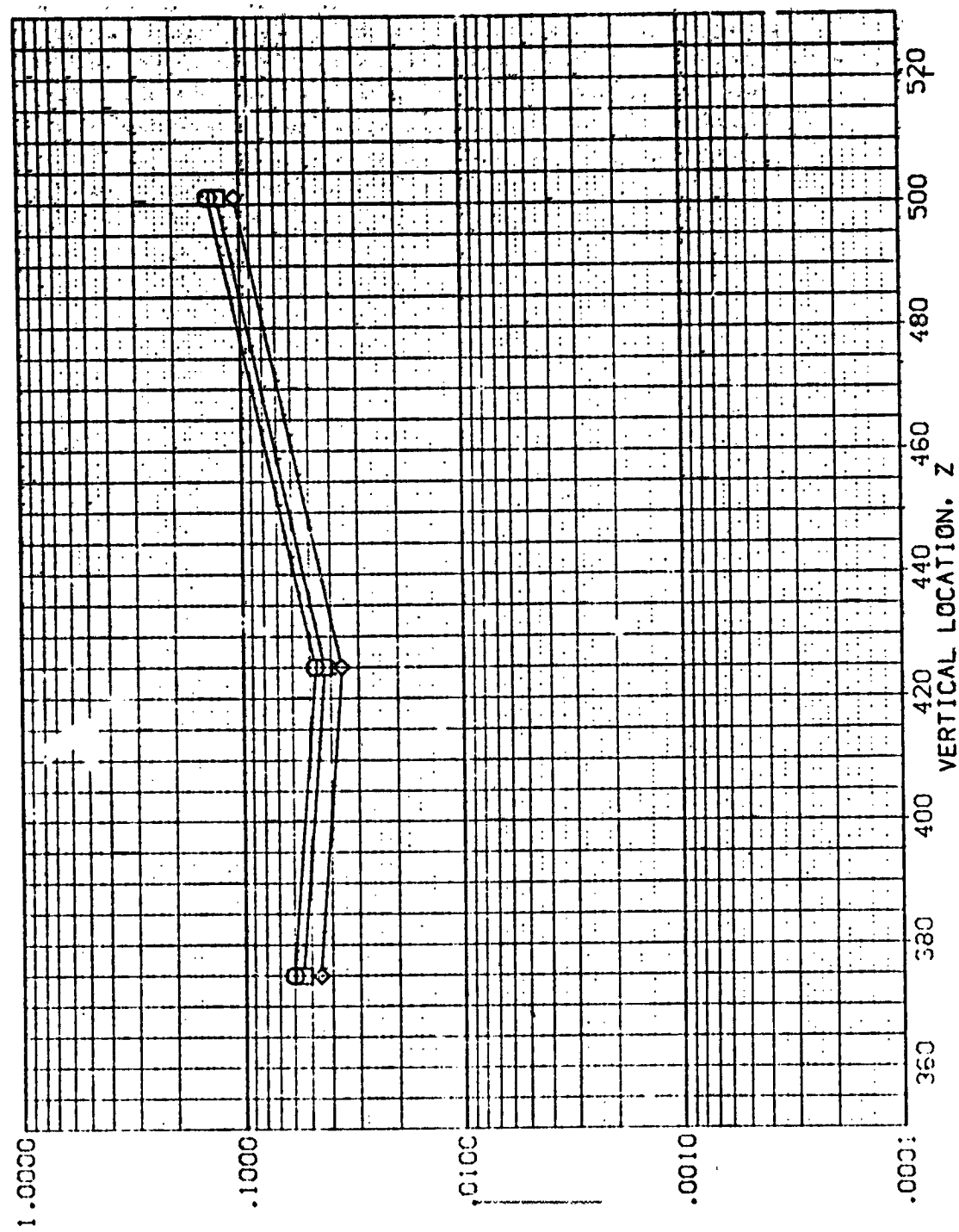


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

AMES 3.5-195 IH28 01 BODY SIDEWALL (REVB27)

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .000  
 R1/L 1.000

SYMBOL H/W/HT X/L MACH  
 ◇ .850 .700 5.220  
 ○ .900 .800  
 □ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

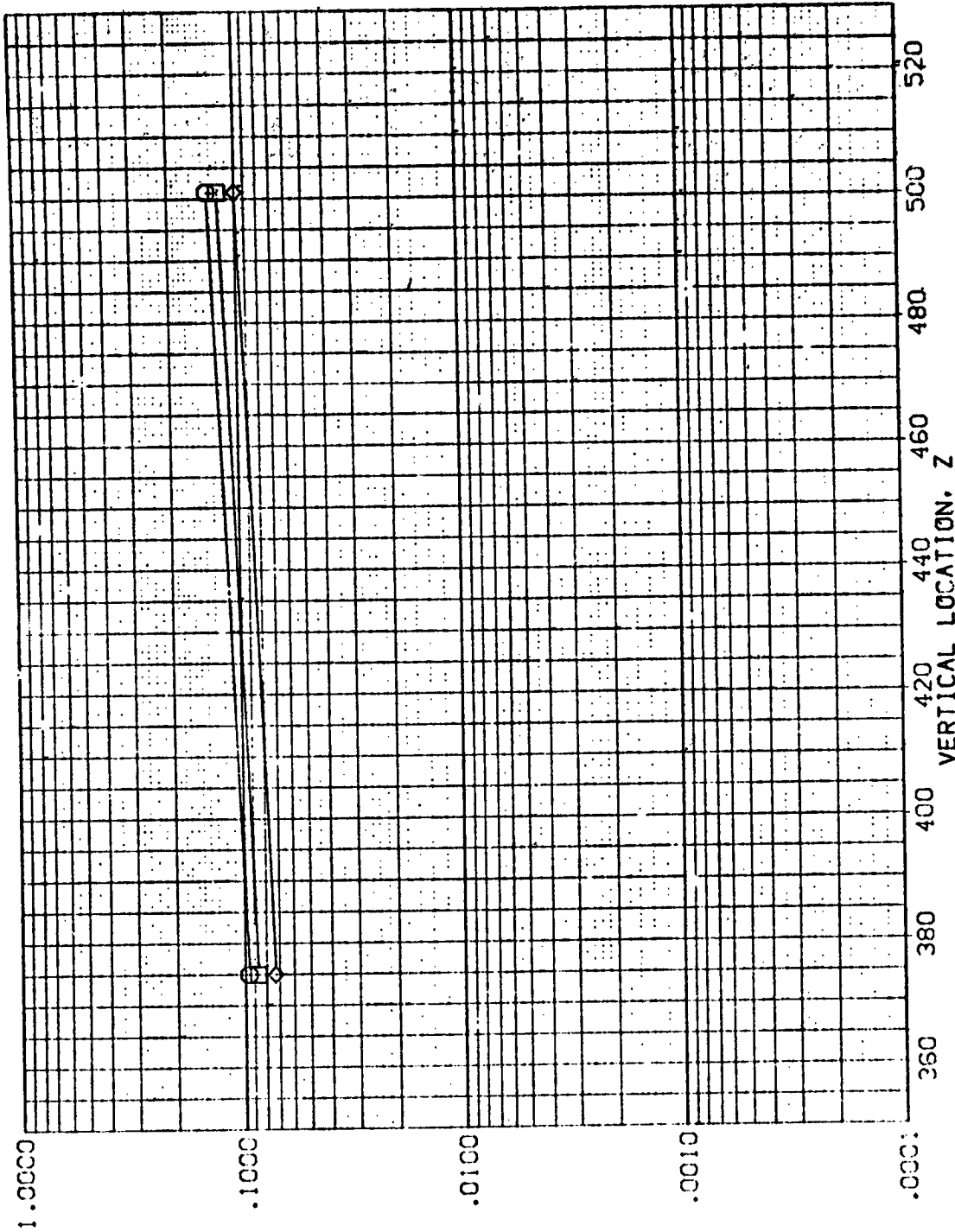


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(REV191) AMES 3.5-195 1428 01 BODY SIDEWALL  
 (REV192) AMES 3.5-195 1428 01 BODY SIDEWALL  
 (REV193) AMES 3.5-195 1428 01 BODY SIDEWALL  
 (REV194) AMES 3.5-195 1428 01 BODY SIDEWALL  
 (REV195) AMES 3.5-195 1428 01 BODY SIDEWALL

ALPHA .000  
 .30.000  
 .60.000  
 .90.000  
 120.000

BETA .000  
 .000  
 .000  
 .000  
 .000

RV/L 1.000  
 1.000  
 1.000  
 1.000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

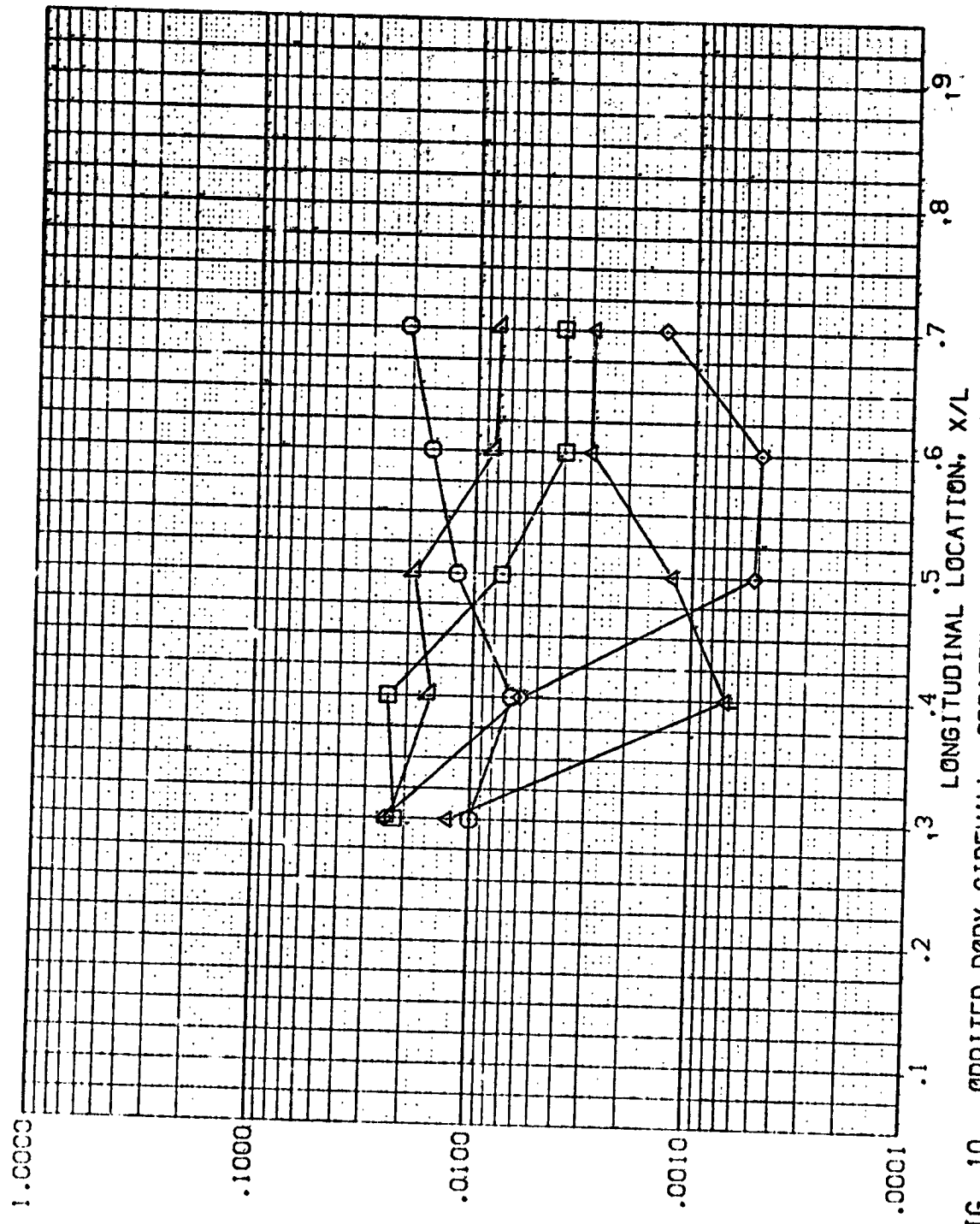


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 Z = 375.000

DATA SET SYMBOL  
 (REV819)  
 (REV820)  
 (REV821)  
 (REV822)  
 (REV823)

CONFIGURATION DESCRIPTION  
 AMES 3.5-195 IH28 O1 BODY SIDEWALL  
 AMES 3.5-195 IH28 O1 BODY SIDEWALL  
 AMES 3.5-195 IH28 O1 BODY SIDEWALL  
 AMES 3.5-195 IH28 O1 BODY SIDEWALL  
 AMES 3.5-195 IH28 O1 BODY SIDEWALL

ALPHA BET<sup>a</sup> P<sup>a</sup>/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

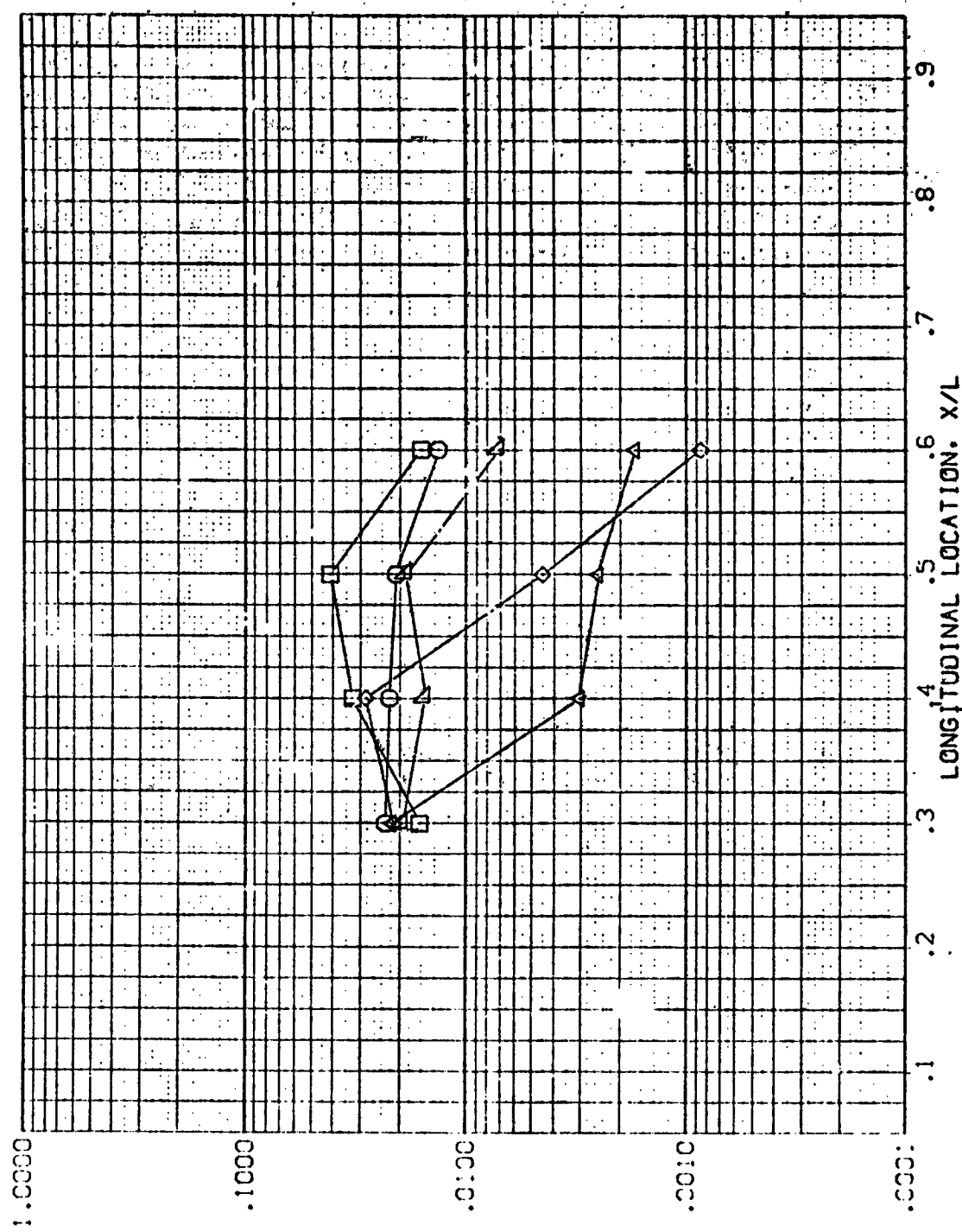


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 Z = 4.25.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(REV19) ASES 3-5-195 1H28 01 BODY SIDEWALL  
 (REV20) ASES 3-5-195 1H28 01 BODY SIDEWALL  
 (REV21) ASES 3-5-195 1H28 01 BODY SIDEWALL  
 (REV22) ASES 3-5-195 1H28 01 BODY SIDEWALL  
 (REV23) ASES 3-5-195 1H26 01 BODY SIDEWALL

ALPHA BETA RRV/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

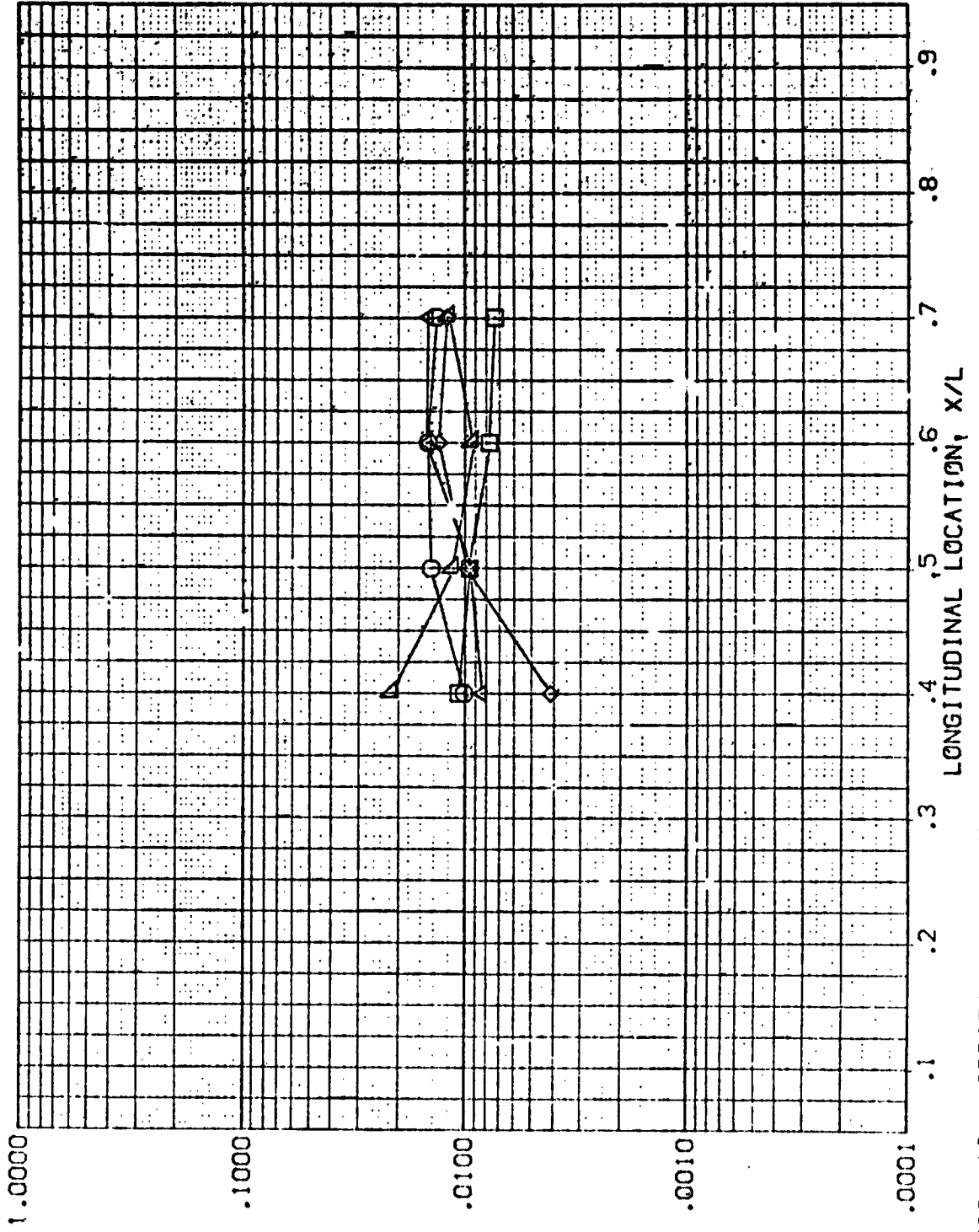


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 Z = 501.000



DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA RN/L

AMES 3.5-195 1428 C1	BODY SIDEWALL	.000	.000	1.000
AMES 3.5-195 1428 C1	BODY SIDEWALL	-30.000	.000	1.000
AMES 3.5-195 1428 C1	BODY SIDEWALL	-60.000	.000	1.000
AMES 3.5-195 1428 C1	BODY SIDEWALL	-90.000	.000	1.000
AMES 3.5-195 1428 C1	BODY SIDEWALL	-120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

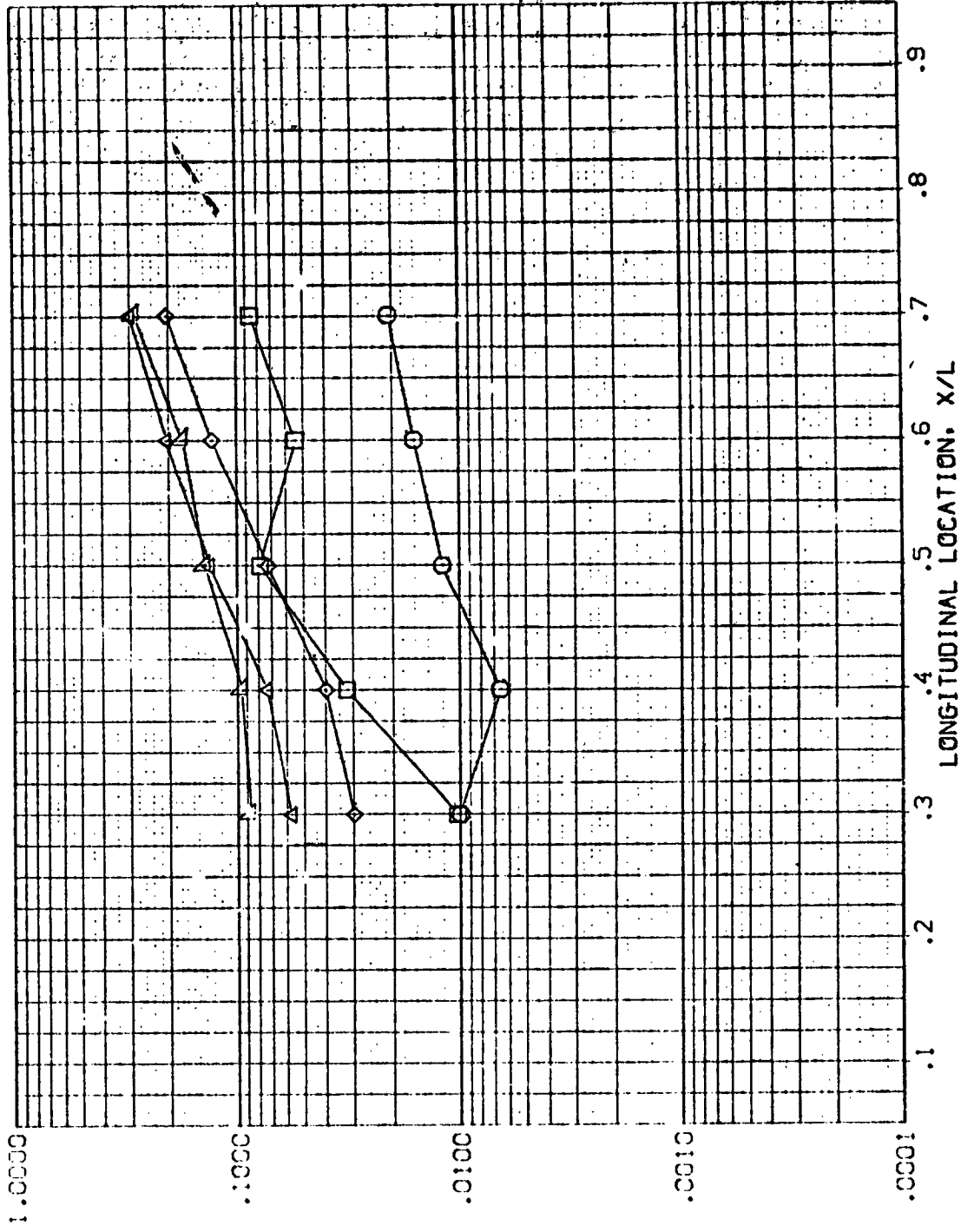


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 Z = 375.000

THIS PAGE IS FOR ORIGINAL PAGE IS FOR

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA RM/L

(REV19)	AMES 3.5.195 IH28 C1	BODY SIDEWALL	.000	.000	1.000
(REV27)	AMES 3.5.195 IH28 C1	BODY SIDEWALL	-30.000	.000	1.000
(REV26)	AMES 3.5.195 IH28 C1	BODY SIDEWALL	-60.000	.000	1.000
(REV25)	AMES 3.5.195 IH28 C1	BODY SIDEWALL	-90.000	.000	1.000
(REV24)	AMES 3.5.195 IH28 C1	BODY SIDEWALL	-120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

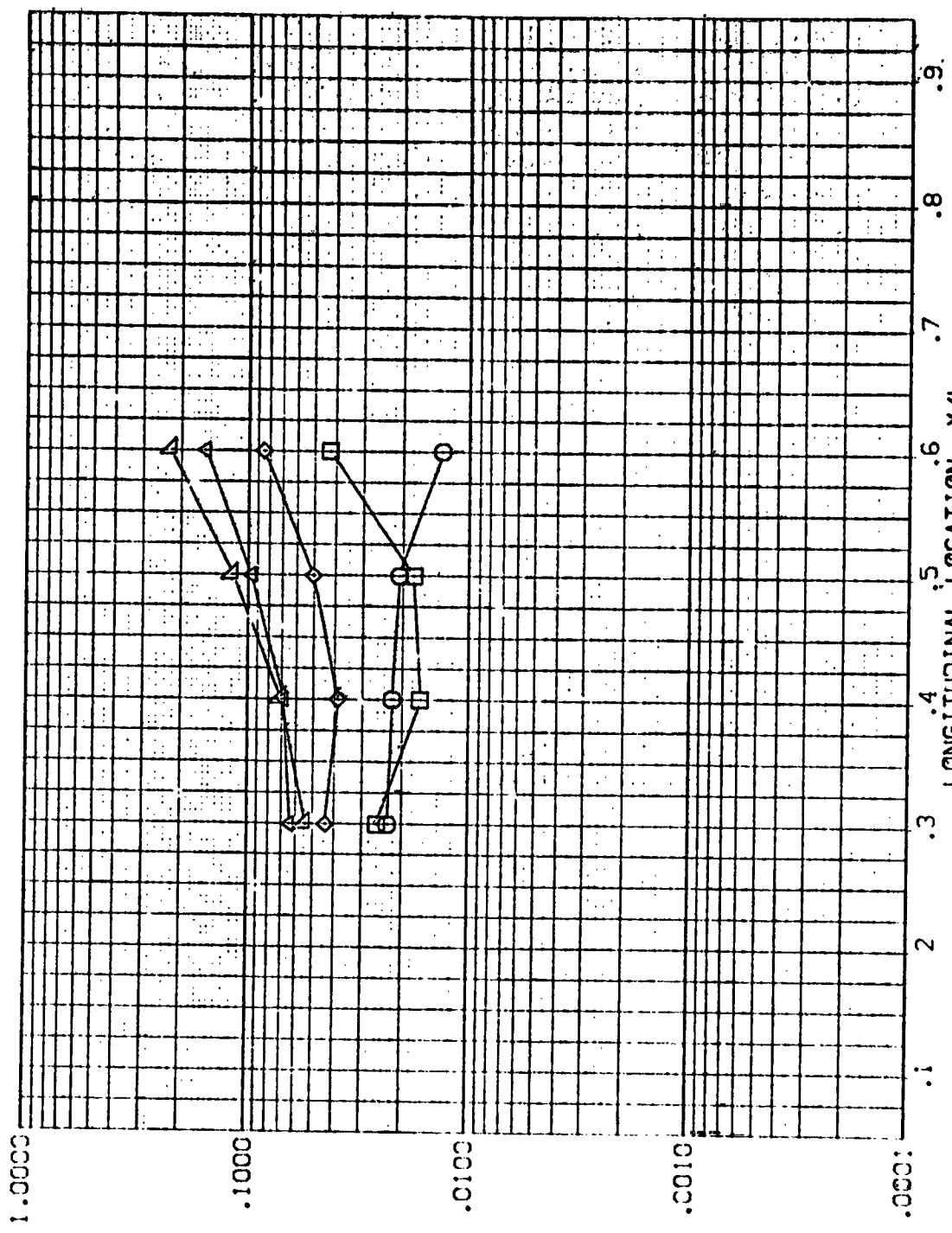


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

WACH = 5.300 HAW/HT = .900 Z = 425.000

DATA SET 01521  
 NAME: 01521  
 UNIT: 01521  
 DATE: 01521  
 TIME: 01521  
 BY: 01521  
 FOR: 01521  
 FROM: 01521  
 TO: 01521  
 BY: 01521  
 FOR: 01521  
 FROM: 01521  
 TO: 01521

CONFIGURATION DESCRIPTION  
 01521 01521 01521  
 01521 01521 01521  
 01521 01521 01521  
 01521 01521 01521  
 01521 01521 01521  
 01521 01521 01521  
 01521 01521 01521  
 01521 01521 01521  
 01521 01521 01521

ALPHA BETA R/L  
 0.000 0.000 1.000  
 0.000 0.000 1.000  
 0.000 0.000 1.000  
 0.000 0.000 1.000  
 0.000 0.000 1.000  
 0.000 0.000 1.000  
 0.000 0.000 1.000  
 0.000 0.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

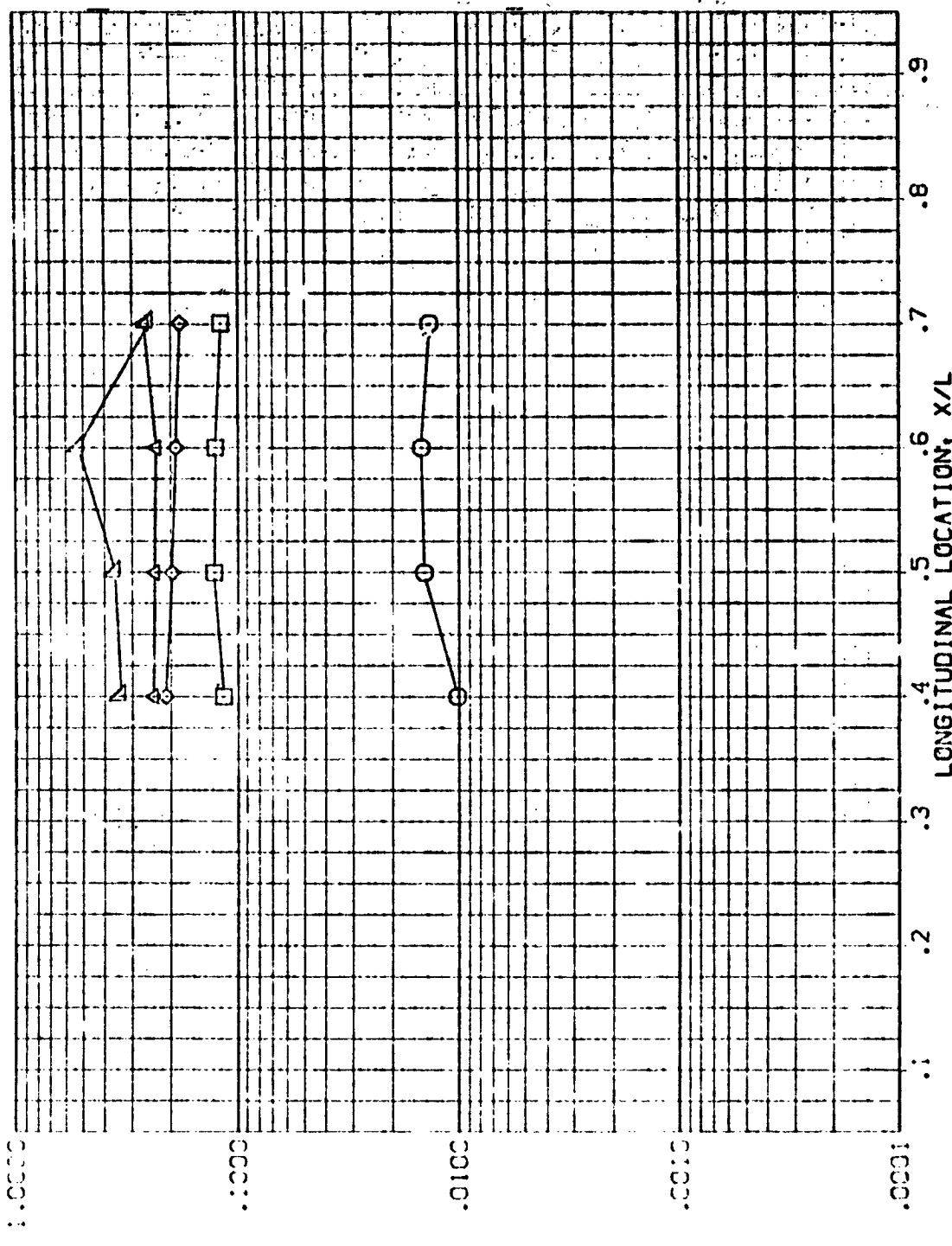


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 H/W/HT = .900 Z = 501.000

DATA SET SYMBOL    CORRELATION    DESCRIPTION    ALPHA    BETA    RML

(PREB19)	AMES 3-5-195	1428 01	1.000	.000	1.000
(PREB20)	AMES 3-5-195	1428 01	30.000	.000	1.000
(PREB21)	AMES 3-5-195	1428 01	60.000	.000	1.000
(PREB22)	AMES 3-5-195	1428 01	90.000	.000	1.000
(PREB23)	AMES 3-5-195	1428 01	120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

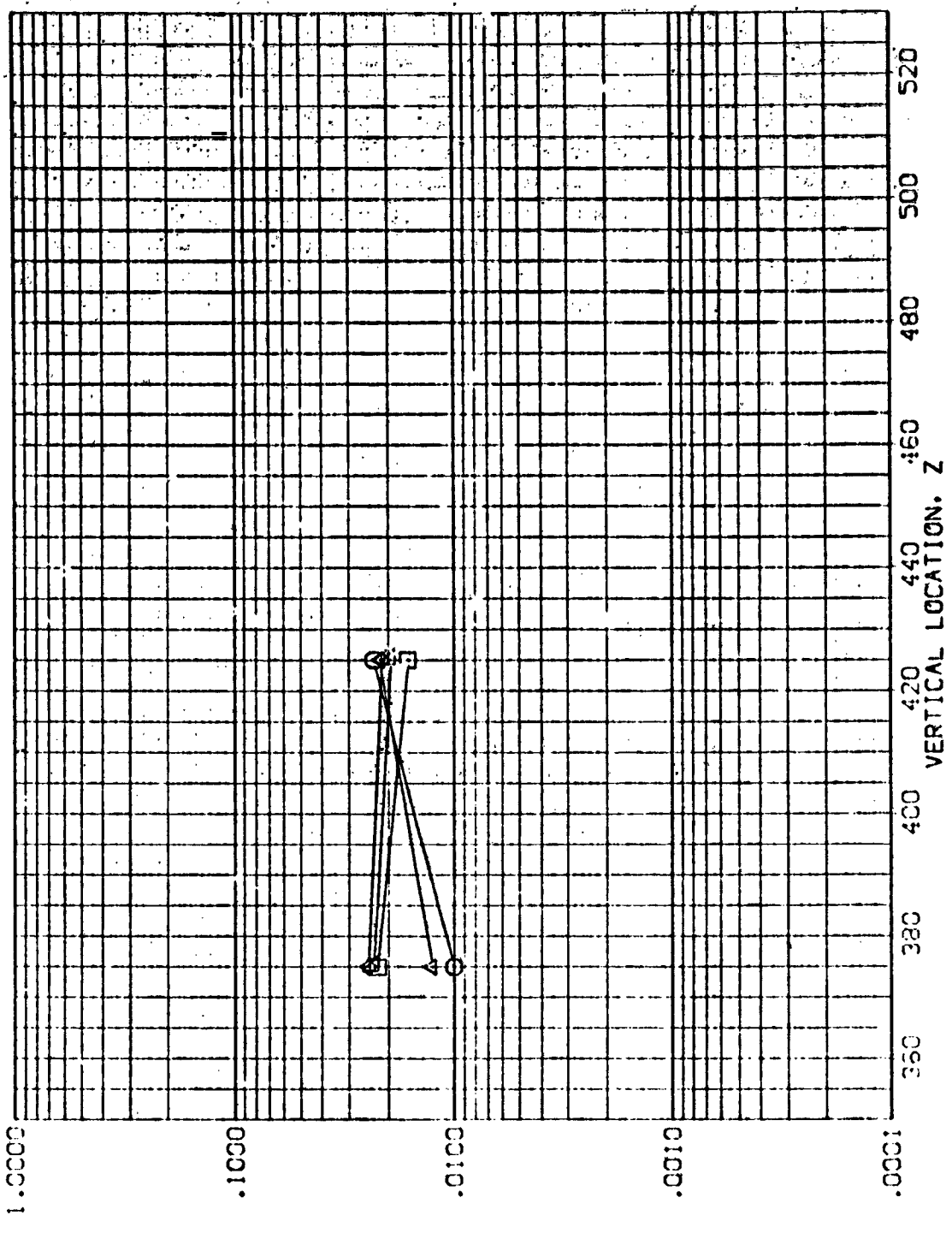


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.000    LAM/μT = .200    X/L = .300

DATA SET SYMBOLS: CONFIGURATION DESCRIPTION ALPHA SECT

1	10000000	10000000	10000000	10000000	10000000
2	10000000	10000000	10000000	10000000	10000000
3	10000000	10000000	10000000	10000000	10000000
4	10000000	10000000	10000000	10000000	10000000
5	10000000	10000000	10000000	10000000	10000000
6	10000000	10000000	10000000	10000000	10000000
7	10000000	10000000	10000000	10000000	10000000
8	10000000	10000000	10000000	10000000	10000000
9	10000000	10000000	10000000	10000000	10000000
10	10000000	10000000	10000000	10000000	10000000
11	10000000	10000000	10000000	10000000	10000000
12	10000000	10000000	10000000	10000000	10000000
13	10000000	10000000	10000000	10000000	10000000
14	10000000	10000000	10000000	10000000	10000000
15	10000000	10000000	10000000	10000000	10000000
16	10000000	10000000	10000000	10000000	10000000
17	10000000	10000000	10000000	10000000	10000000
18	10000000	10000000	10000000	10000000	10000000
19	10000000	10000000	10000000	10000000	10000000
20	10000000	10000000	10000000	10000000	10000000
21	10000000	10000000	10000000	10000000	10000000
22	10000000	10000000	10000000	10000000	10000000
23	10000000	10000000	10000000	10000000	10000000
24	10000000	10000000	10000000	10000000	10000000
25	10000000	10000000	10000000	10000000	10000000
26	10000000	10000000	10000000	10000000	10000000
27	10000000	10000000	10000000	10000000	10000000
28	10000000	10000000	10000000	10000000	10000000
29	10000000	10000000	10000000	10000000	10000000
30	10000000	10000000	10000000	10000000	10000000
31	10000000	10000000	10000000	10000000	10000000
32	10000000	10000000	10000000	10000000	10000000
33	10000000	10000000	10000000	10000000	10000000
34	10000000	10000000	10000000	10000000	10000000
35	10000000	10000000	10000000	10000000	10000000
36	10000000	10000000	10000000	10000000	10000000
37	10000000	10000000	10000000	10000000	10000000
38	10000000	10000000	10000000	10000000	10000000
39	10000000	10000000	10000000	10000000	10000000
40	10000000	10000000	10000000	10000000	10000000
41	10000000	10000000	10000000	10000000	10000000
42	10000000	10000000	10000000	10000000	10000000
43	10000000	10000000	10000000	10000000	10000000
44	10000000	10000000	10000000	10000000	10000000
45	10000000	10000000	10000000	10000000	10000000
46	10000000	10000000	10000000	10000000	10000000
47	10000000	10000000	10000000	10000000	10000000
48	10000000	10000000	10000000	10000000	10000000
49	10000000	10000000	10000000	10000000	10000000
50	10000000	10000000	10000000	10000000	10000000
51	10000000	10000000	10000000	10000000	10000000
52	10000000	10000000	10000000	10000000	10000000
53	10000000	10000000	10000000	10000000	10000000
54	10000000	10000000	10000000	10000000	10000000
55	10000000	10000000	10000000	10000000	10000000
56	10000000	10000000	10000000	10000000	10000000
57	10000000	10000000	10000000	10000000	10000000
58	10000000	10000000	10000000	10000000	10000000
59	10000000	10000000	10000000	10000000	10000000
60	10000000	10000000	10000000	10000000	10000000
61	10000000	10000000	10000000	10000000	10000000
62	10000000	10000000	10000000	10000000	10000000
63	10000000	10000000	10000000	10000000	10000000
64	10000000	10000000	10000000	10000000	10000000
65	10000000	10000000	10000000	10000000	10000000
66	10000000	10000000	10000000	10000000	10000000
67	10000000	10000000	10000000	10000000	10000000
68	10000000	10000000	10000000	10000000	10000000
69	10000000	10000000	10000000	10000000	10000000
70	10000000	10000000	10000000	10000000	10000000
71	10000000	10000000	10000000	10000000	10000000
72	10000000	10000000	10000000	10000000	10000000
73	10000000	10000000	10000000	10000000	10000000
74	10000000	10000000	10000000	10000000	10000000
75	10000000	10000000	10000000	10000000	10000000
76	10000000	10000000	10000000	10000000	10000000
77	10000000	10000000	10000000	10000000	10000000
78	10000000	10000000	10000000	10000000	10000000
79	10000000	10000000	10000000	10000000	10000000
80	10000000	10000000	10000000	10000000	10000000
81	10000000	10000000	10000000	10000000	10000000
82	10000000	10000000	10000000	10000000	10000000
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84	10000000	10000000	10000000	10000000	10000000
85	10000000	10000000	10000000	10000000	10000000
86	10000000	10000000	10000000	10000000	10000000
87	10000000	10000000	10000000	10000000	10000000
88	10000000	10000000	10000000	10000000	10000000
89	10000000	10000000	10000000	10000000	10000000
90	10000000	10000000	10000000	10000000	10000000
91	10000000	10000000	10000000	10000000	10000000
92	10000000	10000000	10000000	10000000	10000000
93	10000000	10000000	10000000	10000000	10000000
94	10000000	10000000	10000000	10000000	10000000
95	10000000	10000000	10000000	10000000	10000000
96	10000000	10000000	10000000	10000000	10000000
97	10000000	10000000	10000000	10000000	10000000
98	10000000	10000000	10000000	10000000	10000000
99	10000000	10000000	10000000	10000000	10000000
100	10000000	10000000	10000000	10000000	10000000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

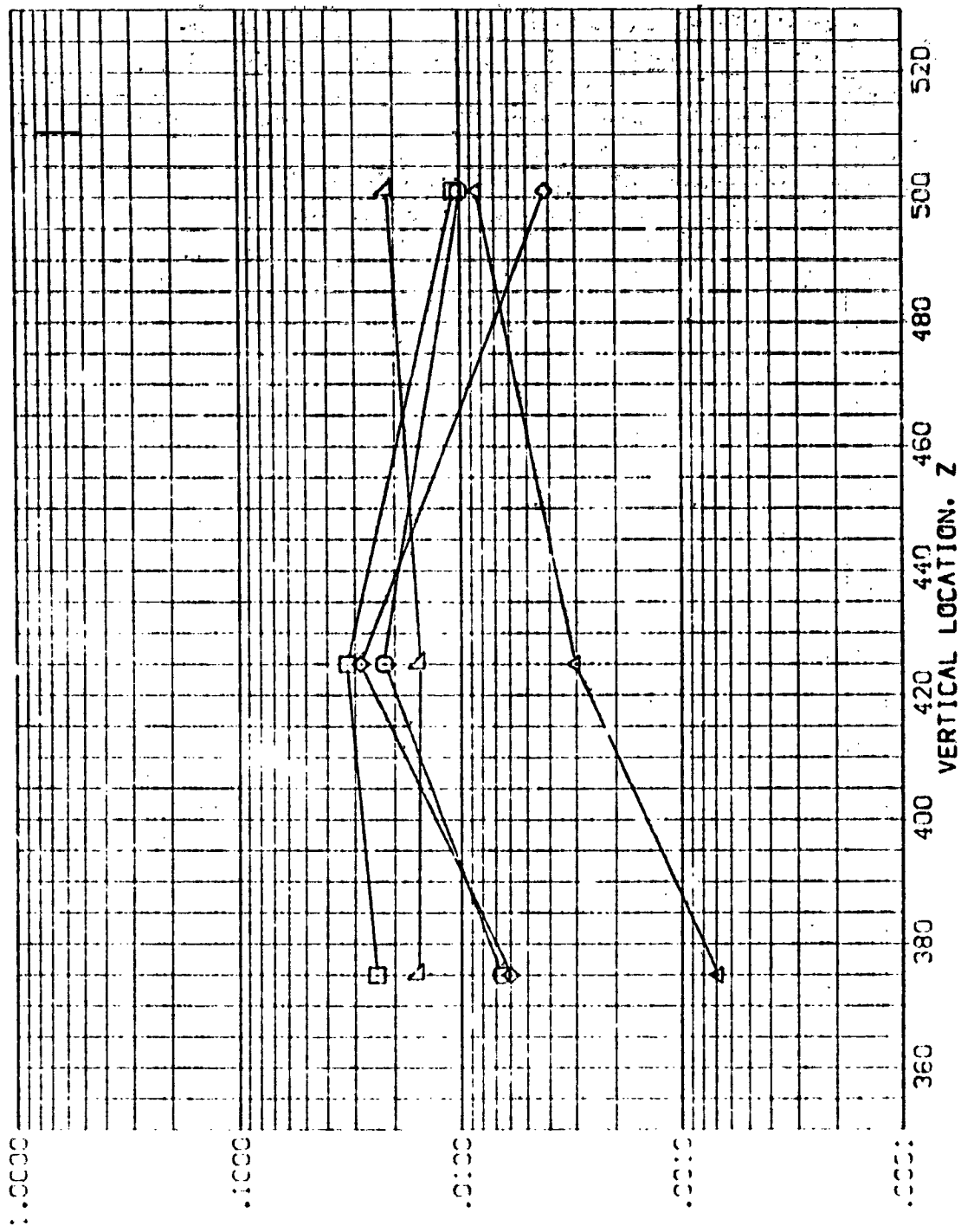


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.900 HAW/HTE = .900 X/L = .400

DATA SET SYMBO- CONFIGURATION DESCRIPTION: ALPHA BETA RAY/L

SYMBOL	DESCRIPTION	ALPHA	BETA	RAY/L
000	000	.000	.000	1.000
30	30	30.000	.000	1.000
60	60	60.000	.000	1.000
90	90	90.000	.000	1.000
120	120	120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

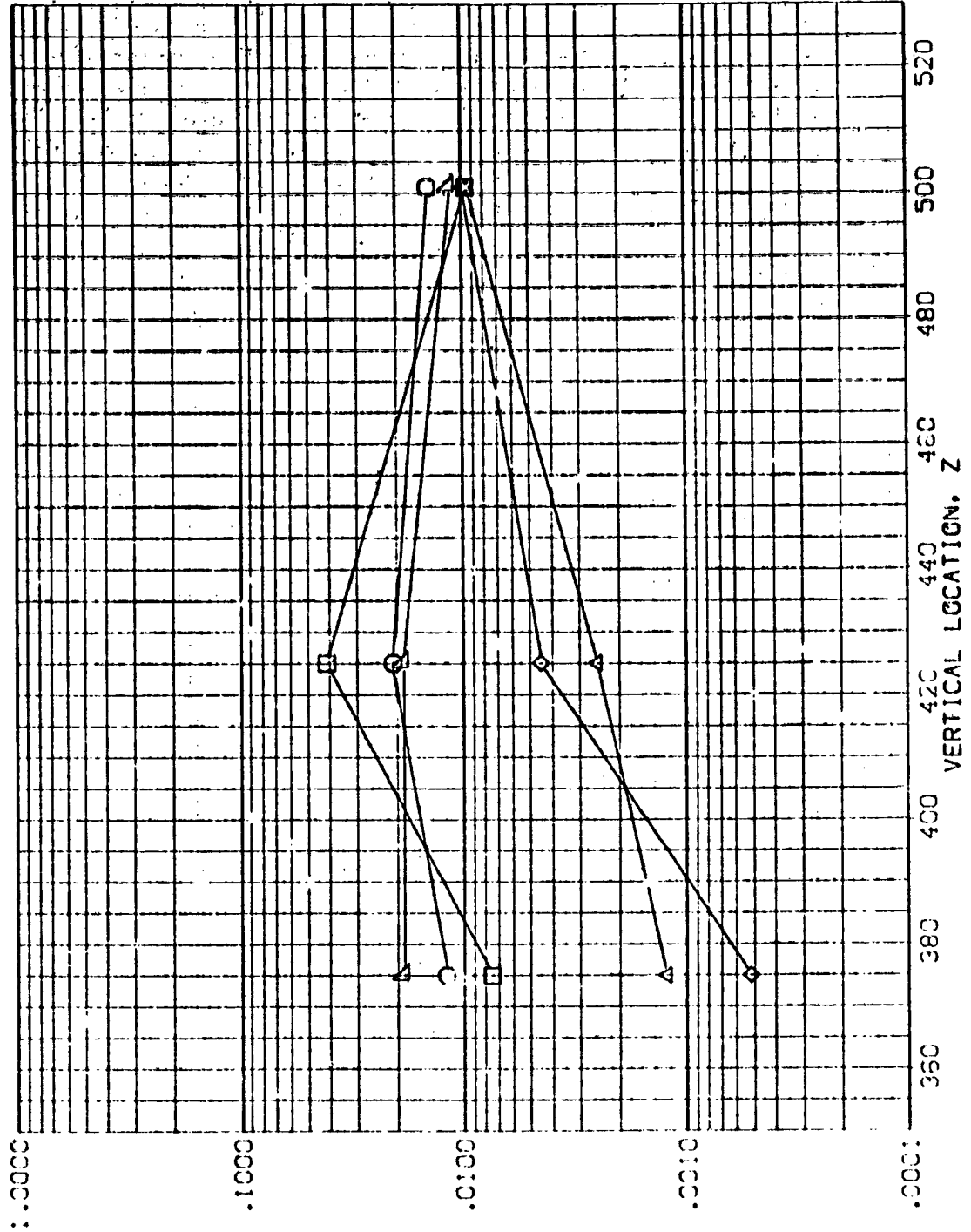


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.000 H/WALL = .900 X/WALL = .500

DATA SET SYMBOL  
 (PRE1919) 0004  
 (PRE1920) 0004  
 (PRE1921) 0004  
 (PRE1922) 0004  
 (PRE1923) 0004

CONFIGURATION DESCRIPTION  
 AYES 3.5:195 1428 01 BODY SIDEWALL  
 AYES 3.5:195 1428 01 BODY SIDEWALL  
 AYES 3.5:195 1428 01 BODY SIDEWALL  
 AYES 3.5:195 1428 01 BODY SIDEWALL  
 AYES 3.5:195 1428 01 BODY SIDEWALL

ALPHA BETT RYAL  
 .000 .000 .000  
 30.000 .000 .000  
 60.000 .000 .000  
 90.000 .000 .000  
 120.000 .000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

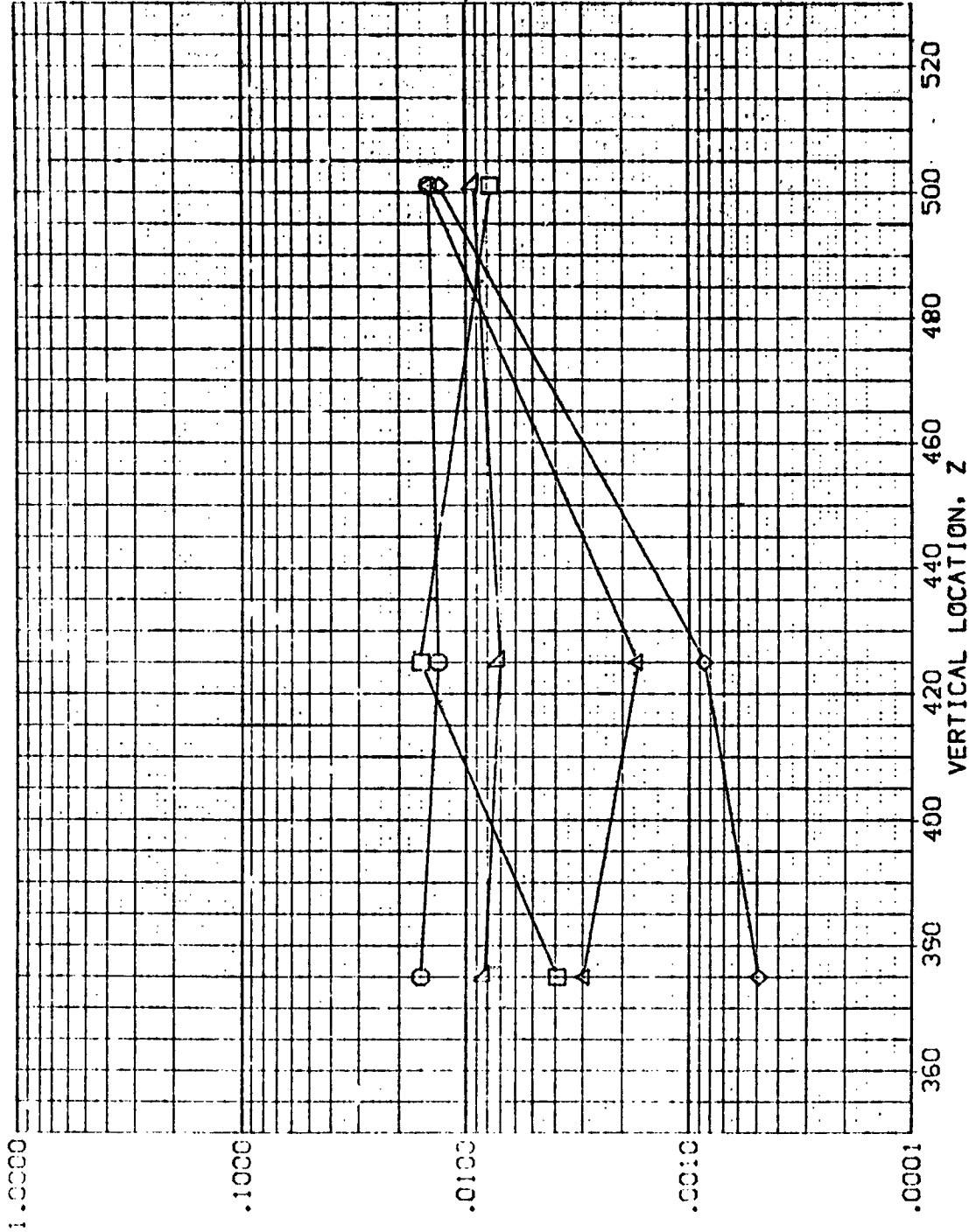


FIG. 10 ORBITER BODY SIDEWALL, GABBITER ALONE

MACH = 5.300 HAW/HT = .900 X/L = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (REVB19) BODY SIDEWALL  
 (REVB20) BODY SIDEWALL  
 (REVB21) BODY SIDEWALL  
 (REVB22) BODY SIDEWALL  
 (REVB23) BODY SIDEWALL

ALPHA BETA RV/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

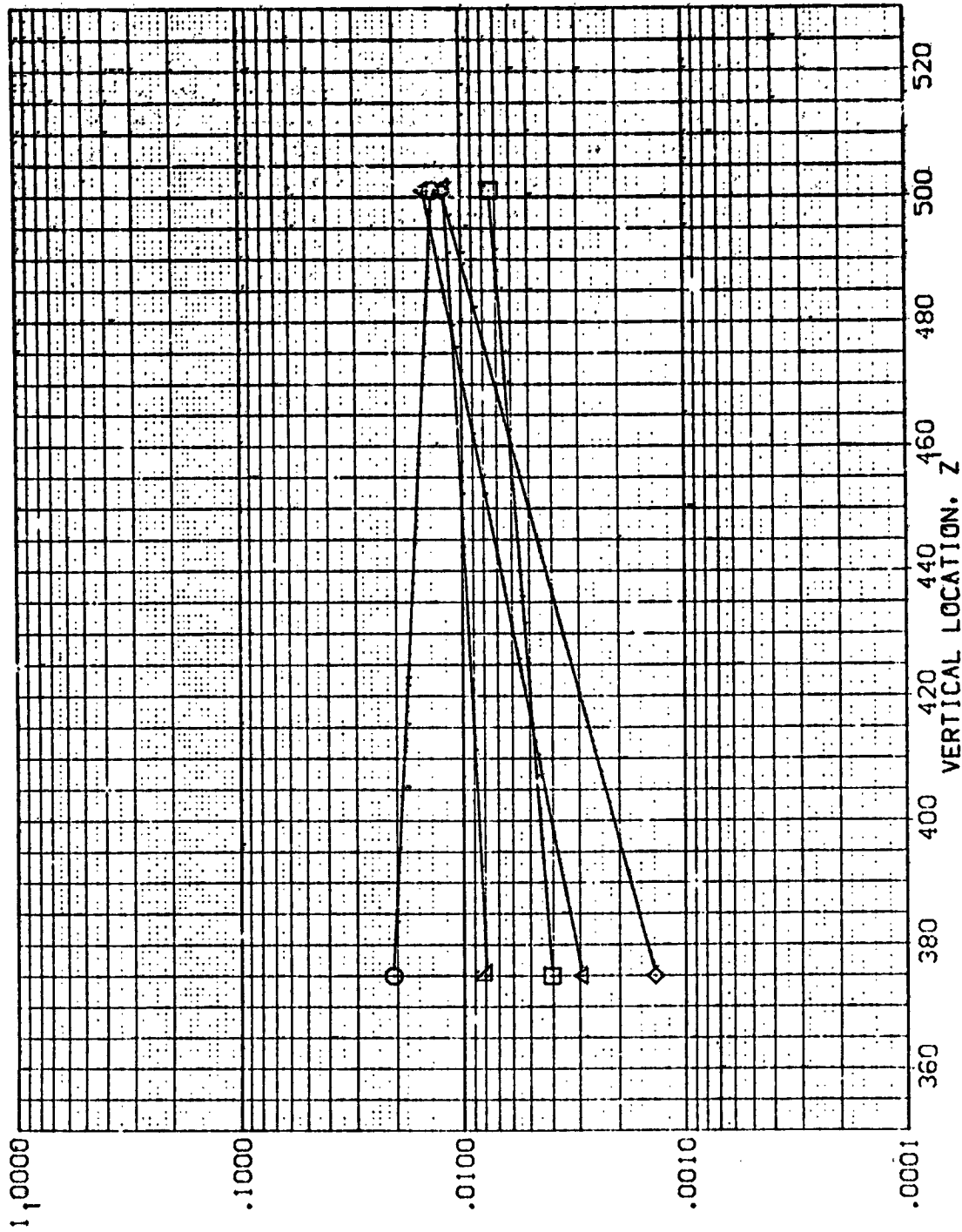


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 X/L = .700



DATA SET SIMBCL  
 (REF 1621) ASES 3.5-195  
 (REF 1622) ASES 3.5-195  
 (REF 1623) ASES 3.5-195  
 (REF 1624) ASES 3.5-195  
 (REF 1625) ASES 3.5-195  
 (REF 1626) ASES 3.5-195

CONFIGURATION DESCRIPTION  
 (REF 1621) BODY SIDEWALL  
 (REF 1622) BODY SIDEWALL  
 (REF 1623) BODY SIDEWALL  
 (REF 1624) BODY SIDEWALL  
 (REF 1625) BODY SIDEWALL  
 (REF 1626) BODY SIDEWALL

ALPHA BETA X/L  
 .000 .000 1.000  
 -.30 .000 .000  
 -.60 .000 .000  
 -.90 .000 .000  
 -1.20 .000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

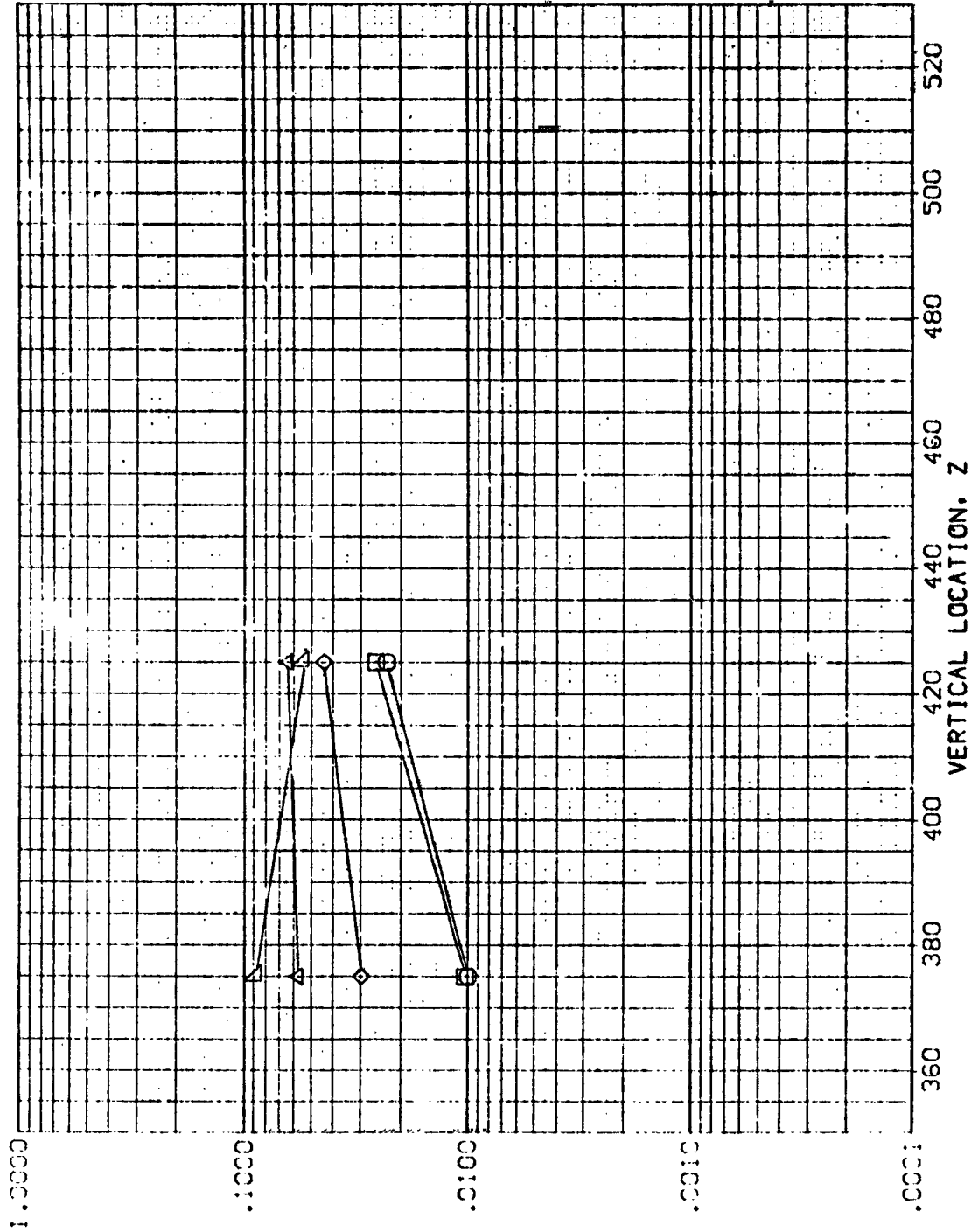


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MAC = 5.300 MAW/HT = .900 X/L = .300

ALPHA      BETA      FN/L  
 .000      .000      1.000  
 -30.000      .000      1.000  
 -60.000      .000      1.000  
 -90.000      .000      1.000  
 -120.000      .000      1.000

CONFIGURATION DESCRIPTION  
 AMES 3.5-195 1428 01 BODY SIDEWALL  
 AMES 3.5-195 1428 01 BODY SIDEWALL  
 AMES 3.5-195 1428 01 BODY SIDEWALL  
 AMES 3.5-195 1428 01 BODY SIDEWALL  
 AMES 3.5-195 1428 01 BODY SIDEWALL

DATA SET SYMBOL  
 (REV819) □  
 (REV827) ⊗  
 (REV826) ⊗  
 (REV825) ⊗  
 (REV824) ⊗

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

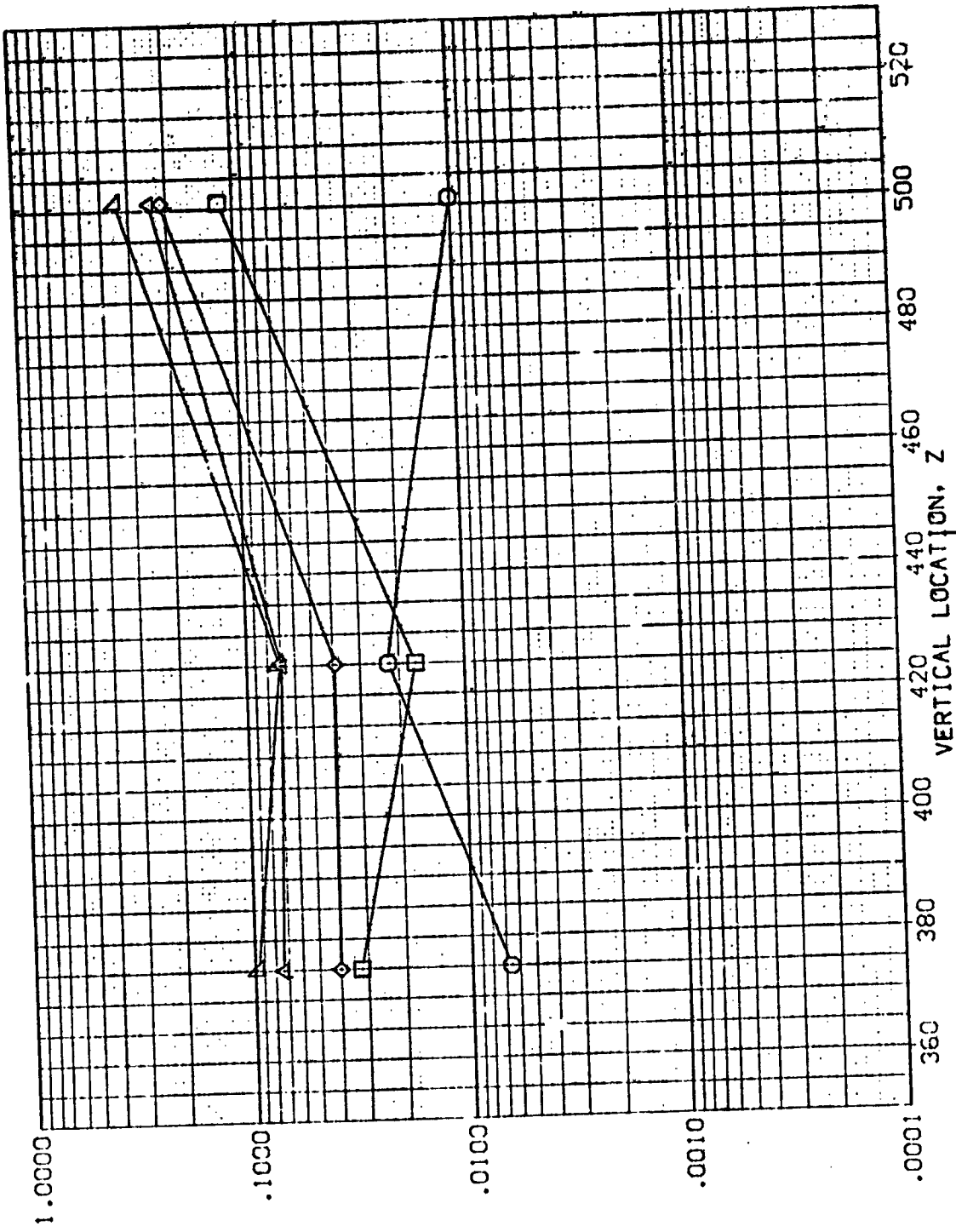


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300    HAW/HT = .900    X/L = .400

DATA SET NUMBER: CONFIGURATION DESCRIPTION

DATA SET NUMBER	CONFIGURATION DESCRIPTION	ALPHA	REYNOLDS
0001	AVS 3.5-105	0.000	1000
0002	AVS 3.5-105	0.000	1000
0003	AVS 3.5-105	0.000	1000
0004	AVS 3.5-105	0.000	1000
0005	AVS 3.5-105	0.000	1000
0006	AVS 3.5-105	0.000	1000
0007	AVS 3.5-105	0.000	1000
0008	AVS 3.5-105	0.000	1000
0009	AVS 3.5-105	0.000	1000
0010	AVS 3.5-105	0.000	1000
0011	AVS 3.5-105	0.000	1000
0012	AVS 3.5-105	0.000	1000
0013	AVS 3.5-105	0.000	1000
0014	AVS 3.5-105	0.000	1000
0015	AVS 3.5-105	0.000	1000
0016	AVS 3.5-105	0.000	1000
0017	AVS 3.5-105	0.000	1000
0018	AVS 3.5-105	0.000	1000
0019	AVS 3.5-105	0.000	1000
0020	AVS 3.5-105	0.000	1000
0021	AVS 3.5-105	0.000	1000
0022	AVS 3.5-105	0.000	1000
0023	AVS 3.5-105	0.000	1000
0024	AVS 3.5-105	0.000	1000
0025	AVS 3.5-105	0.000	1000
0026	AVS 3.5-105	0.000	1000
0027	AVS 3.5-105	0.000	1000
0028	AVS 3.5-105	0.000	1000
0029	AVS 3.5-105	0.000	1000
0030	AVS 3.5-105	0.000	1000
0031	AVS 3.5-105	0.000	1000
0032	AVS 3.5-105	0.000	1000
0033	AVS 3.5-105	0.000	1000
0034	AVS 3.5-105	0.000	1000
0035	AVS 3.5-105	0.000	1000
0036	AVS 3.5-105	0.000	1000
0037	AVS 3.5-105	0.000	1000
0038	AVS 3.5-105	0.000	1000
0039	AVS 3.5-105	0.000	1000
0040	AVS 3.5-105	0.000	1000
0041	AVS 3.5-105	0.000	1000
0042	AVS 3.5-105	0.000	1000
0043	AVS 3.5-105	0.000	1000
0044	AVS 3.5-105	0.000	1000
0045	AVS 3.5-105	0.000	1000
0046	AVS 3.5-105	0.000	1000
0047	AVS 3.5-105	0.000	1000
0048	AVS 3.5-105	0.000	1000
0049	AVS 3.5-105	0.000	1000
0050	AVS 3.5-105	0.000	1000
0051	AVS 3.5-105	0.000	1000
0052	AVS 3.5-105	0.000	1000
0053	AVS 3.5-105	0.000	1000
0054	AVS 3.5-105	0.000	1000
0055	AVS 3.5-105	0.000	1000
0056	AVS 3.5-105	0.000	1000
0057	AVS 3.5-105	0.000	1000
0058	AVS 3.5-105	0.000	1000
0059	AVS 3.5-105	0.000	1000
0060	AVS 3.5-105	0.000	1000
0061	AVS 3.5-105	0.000	1000
0062	AVS 3.5-105	0.000	1000
0063	AVS 3.5-105	0.000	1000
0064	AVS 3.5-105	0.000	1000
0065	AVS 3.5-105	0.000	1000
0066	AVS 3.5-105	0.000	1000
0067	AVS 3.5-105	0.000	1000
0068	AVS 3.5-105	0.000	1000
0069	AVS 3.5-105	0.000	1000
0070	AVS 3.5-105	0.000	1000
0071	AVS 3.5-105	0.000	1000
0072	AVS 3.5-105	0.000	1000
0073	AVS 3.5-105	0.000	1000
0074	AVS 3.5-105	0.000	1000
0075	AVS 3.5-105	0.000	1000
0076	AVS 3.5-105	0.000	1000
0077	AVS 3.5-105	0.000	1000
0078	AVS 3.5-105	0.000	1000
0079	AVS 3.5-105	0.000	1000
0080	AVS 3.5-105	0.000	1000
0081	AVS 3.5-105	0.000	1000
0082	AVS 3.5-105	0.000	1000
0083	AVS 3.5-105	0.000	1000
0084	AVS 3.5-105	0.000	1000
0085	AVS 3.5-105	0.000	1000
0086	AVS 3.5-105	0.000	1000
0087	AVS 3.5-105	0.000	1000
0088	AVS 3.5-105	0.000	1000
0089	AVS 3.5-105	0.000	1000
0090	AVS 3.5-105	0.000	1000
0091	AVS 3.5-105	0.000	1000
0092	AVS 3.5-105	0.000	1000
0093	AVS 3.5-105	0.000	1000
0094	AVS 3.5-105	0.000	1000
0095	AVS 3.5-105	0.000	1000
0096	AVS 3.5-105	0.000	1000
0097	AVS 3.5-105	0.000	1000
0098	AVS 3.5-105	0.000	1000
0099	AVS 3.5-105	0.000	1000
0100	AVS 3.5-105	0.000	1000

END

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

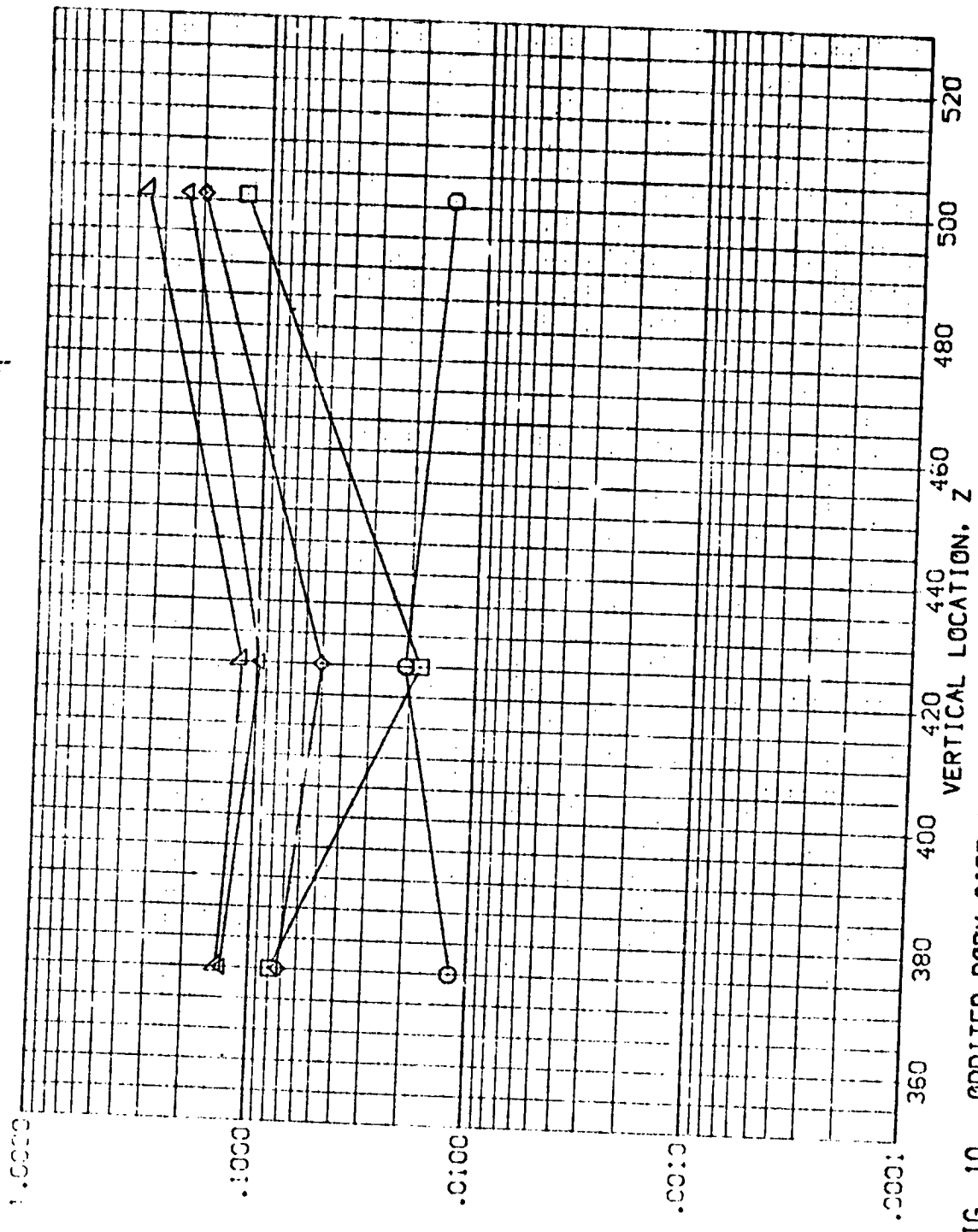


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 X/L = .500

ALPHA    BETA    RN/L  
 .000    .000    1.000  
 -30.000    .000    1.000  
 -60.000    .000    1.000  
 -90.000    .000    1.000  
 -120.000    .000    1.000

DATA SET SYMBOL    CONFIGURATION DESCRIPTION  
 (RE/B19)    AVES 3.5-195 I428 01    BCDY SIDEWALL  
 (RE/B27)    AVES 3.5-195 I428 01    BCDY SIDEWALL  
 (RE/B26)    AVES 3.5-195 I428 01    BCDY SIDEWALL  
 (RE/B25)    AVES 3.5-195 I428 01    BODY SIDEWALL  
 (RE/B24)    AVES 3.5-195 I428 01    BODY SIDEWALL

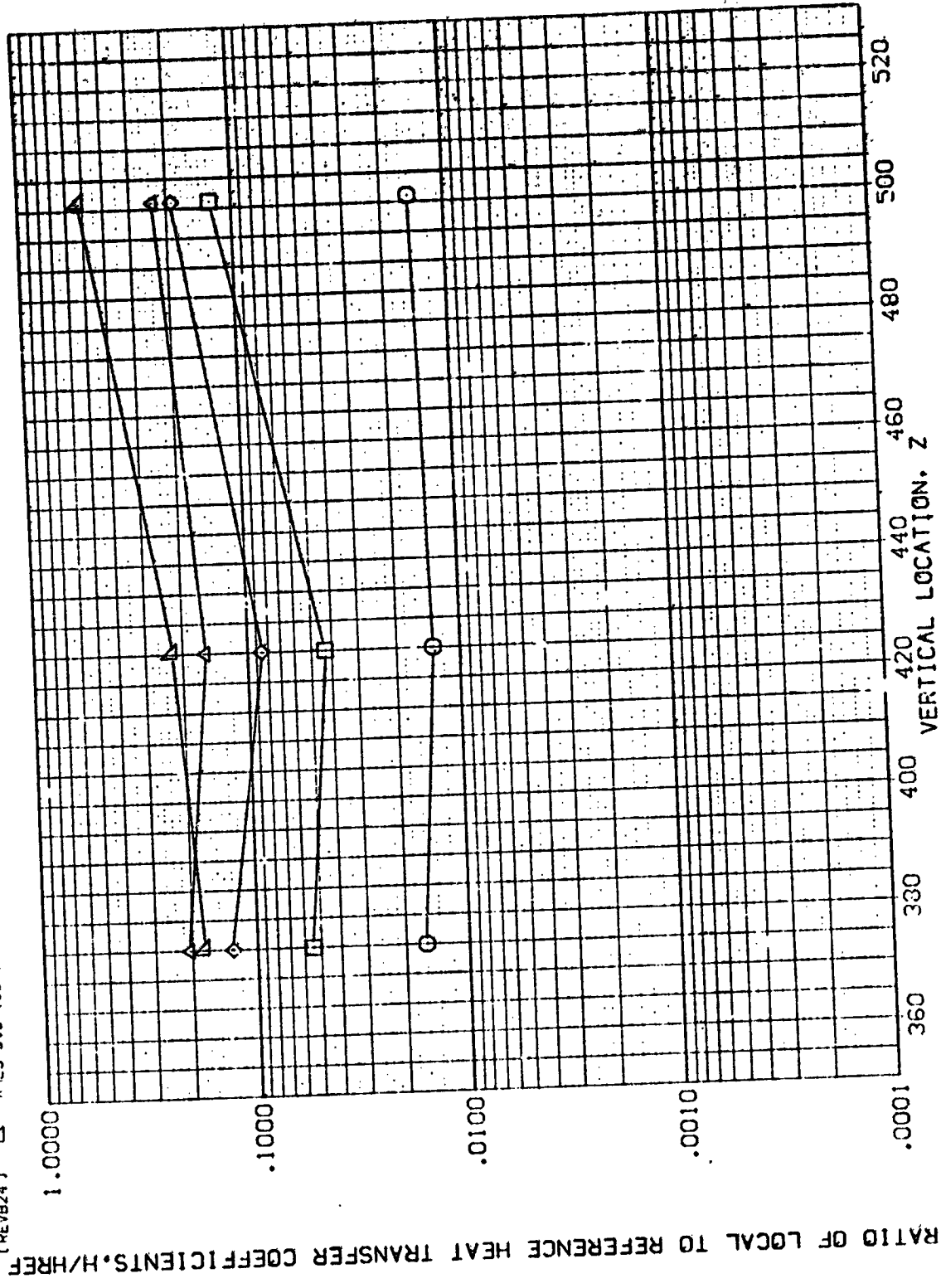


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300    H<sup>2</sup>W/HT = .900    X/L = .600

DATA SET SYMBOL  
 (REV19)  
 (REV27)  
 (REV28)  
 (REV29)  
 (REV30)  
 (REV31)

CONFIGURATION DESCRIPTION  
 AVES 3.5-195 1428 CI  
 AVES 3.5-195 1428 CI  
 AVES 3.5-195 1428 CI  
 AVES 3.5-195 1428 CI  
 AVES 3.5-195 1428 CI

BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL

ALPHA BETA P/W/L  
 .000 .000 1.000  
 -.30 .000 1.000  
 -.60 .000 1.000  
 -.90 .000 1.000  
 -1.20 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

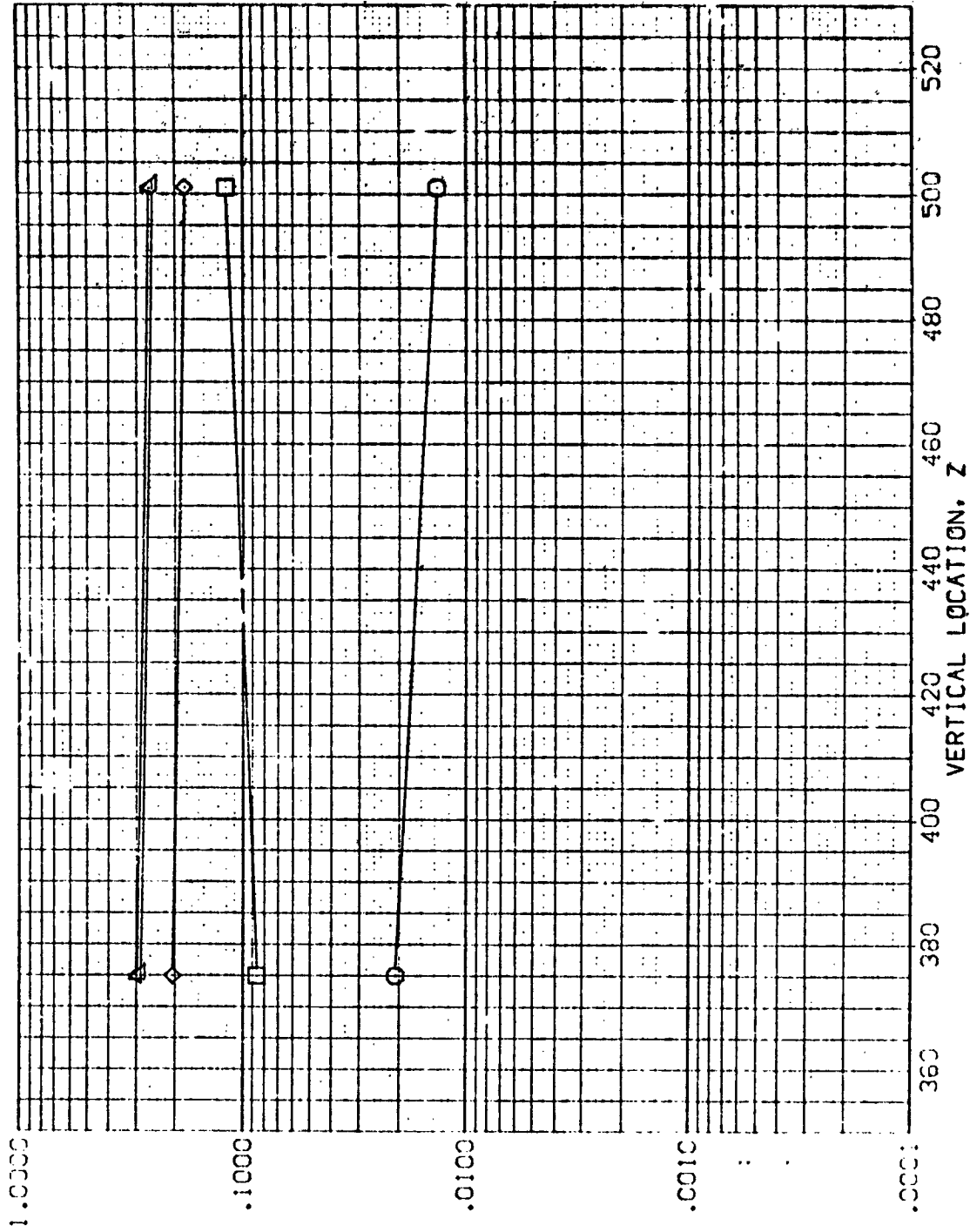


FIG. 10 ORBITER BODY SIDEWALL, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 X/L = .700

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV B01)

SYMBOL HAW/H<sub>T</sub> Z MACH  
 ◊ .850 375.000 5.228  
 □ .900  
 ◊ 1.000

PARAMETRIC VALUES  
 .000 ALPHA  
 1.000 BETA  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

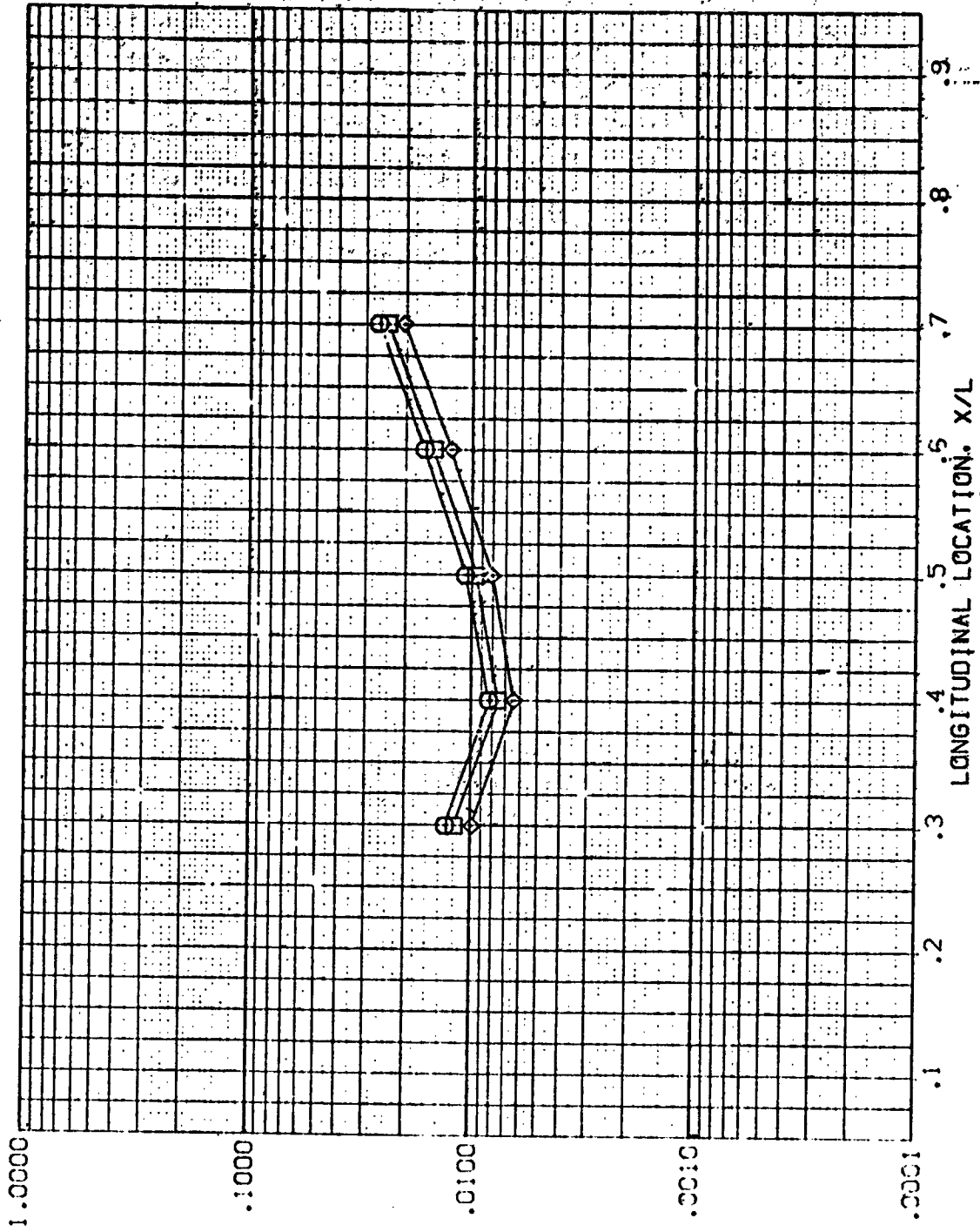


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB01)

SAVED    H/REF    Z    MACH  
 .850    425.000    5.228  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA    BETA    .000  
 RAYL    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

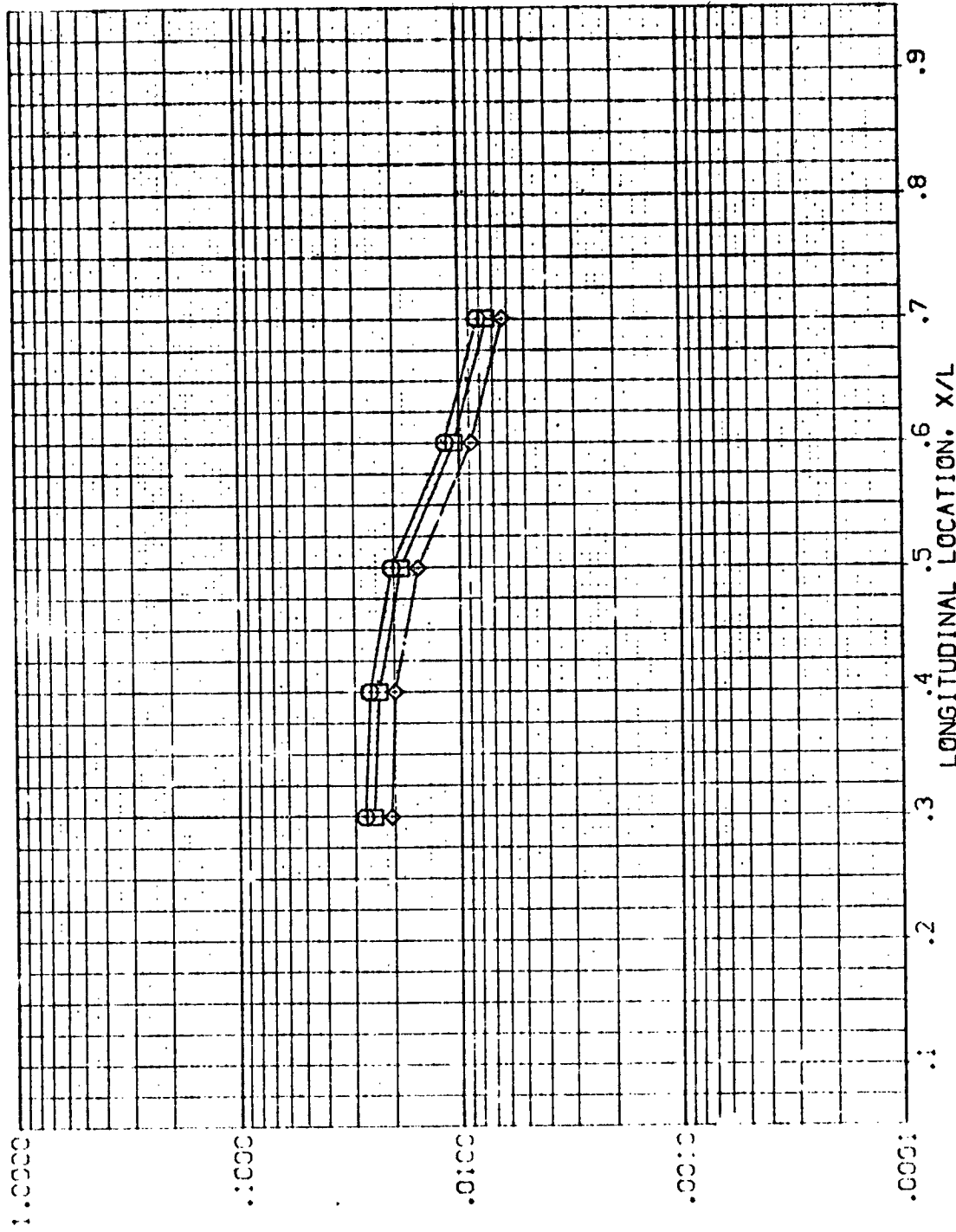


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV 01)

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RN/L .000

MACH 5.228  
 Z 501.000

SYMBOL  
 ◊  
 □  
 ○

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

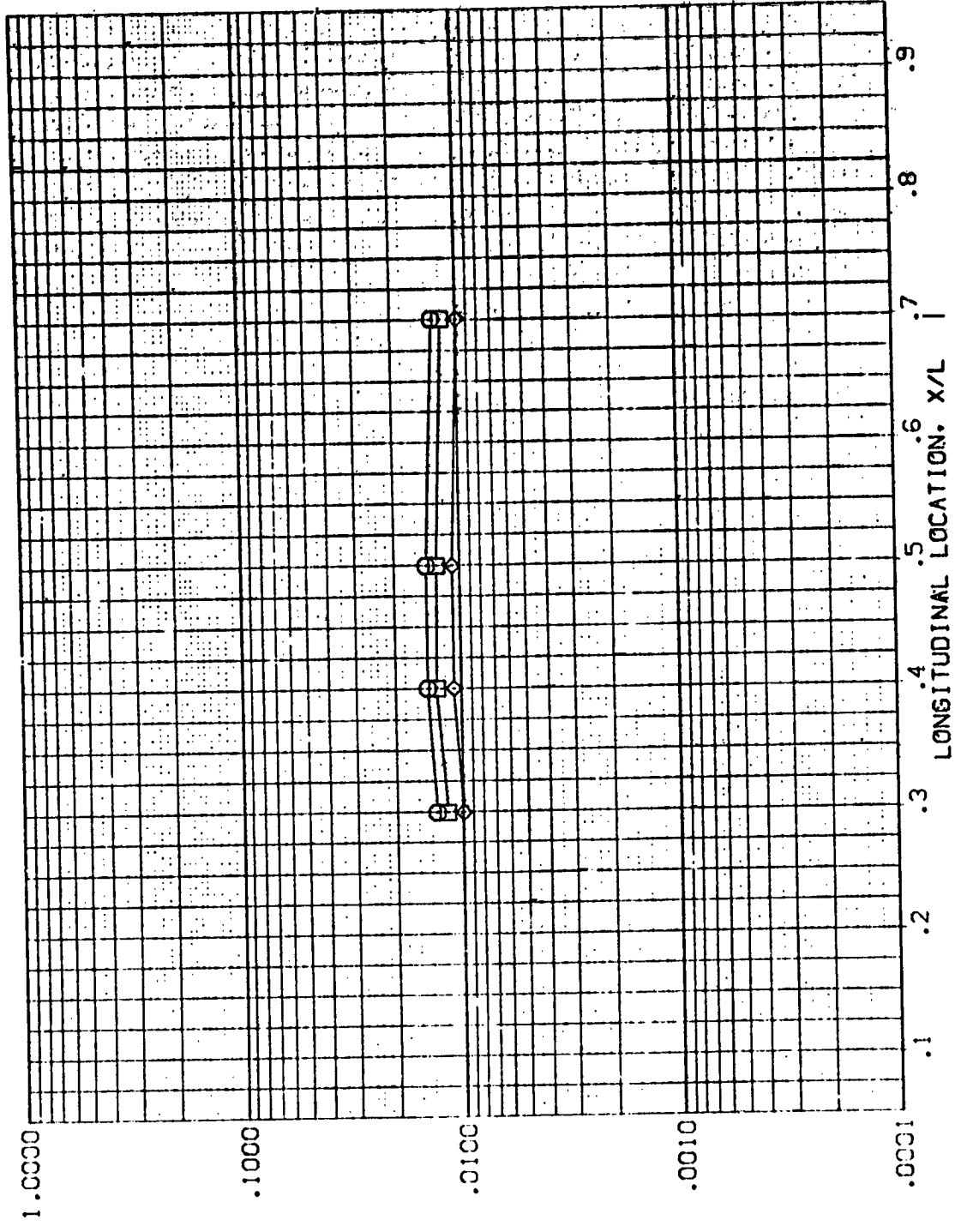


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV902)

SYMBOL    HAV/HT    Z    MACH  
 ◊    .850    375.000    5.219  
 ◻    .900    .000  
 ○    1.000

PARAMETRIC VALUES  
 ALF    30.000    BETA    .000  
 PNU    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

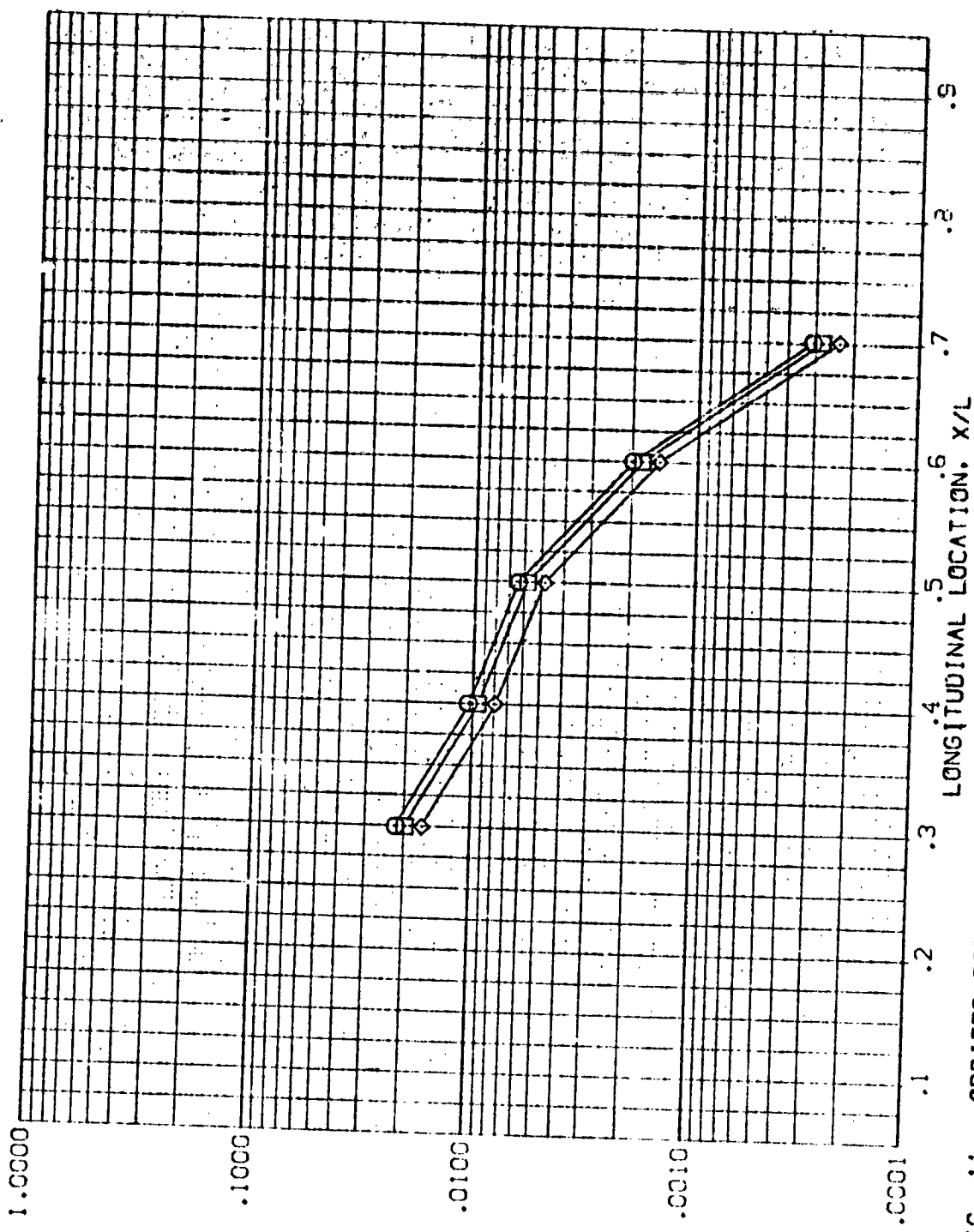


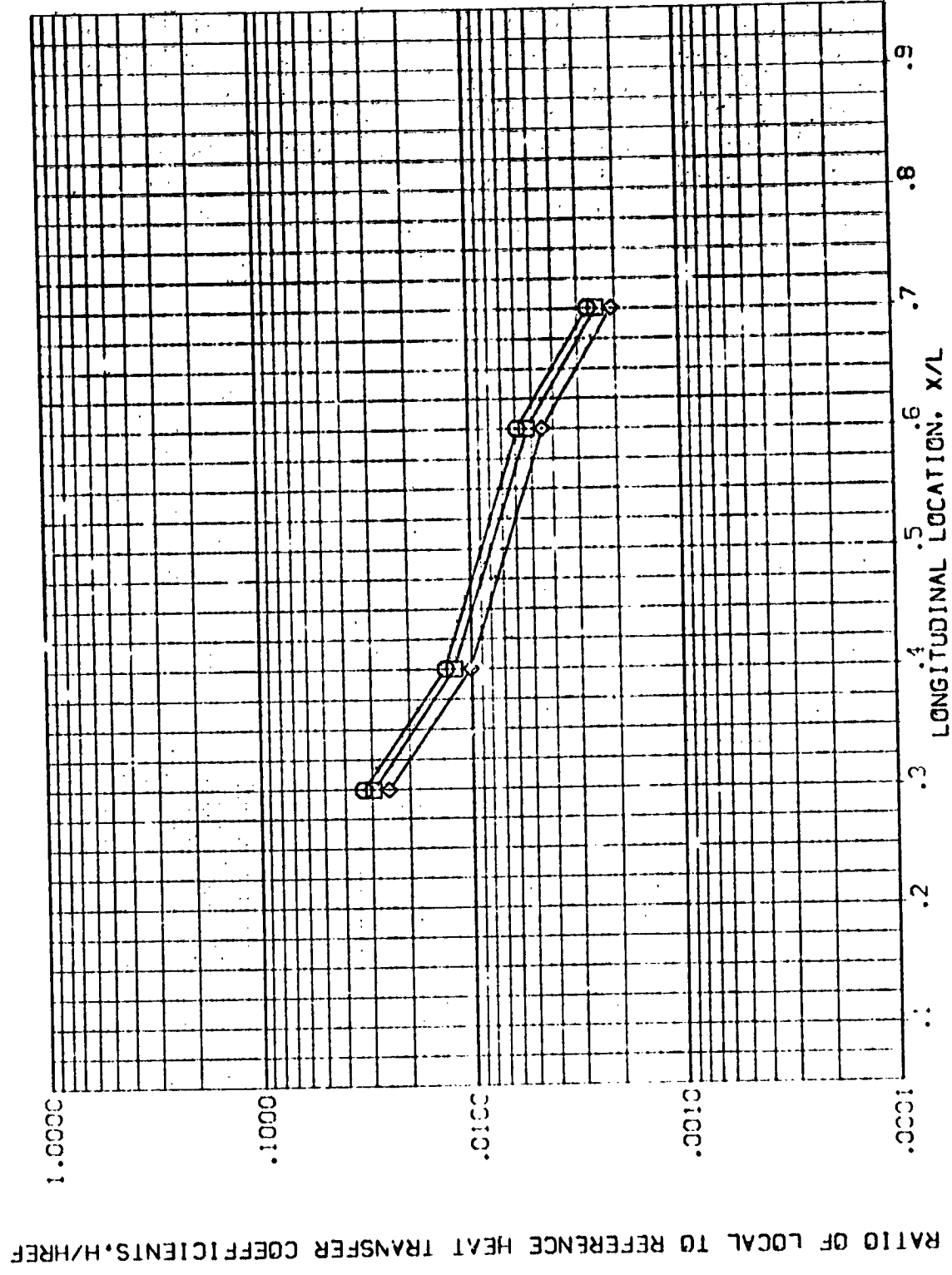
FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

SEE THE QUALITY OF THE ORIGINAL DRAWING IN PAGE

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV802)

SYNCD- WAVE/WT Z VISC-  
 .850 425.000 5.219  
 .920  
 1.000

PARAMETRIC VALUES  
 ALPHA 30.000 BETA .000  
 P/W/L 1.000



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REVISED)

AMES 3.5-195 1428 01-T1 BODY SIDEWALL

SYMBOL	HA/WHT	Z	MACH
◇	.850	501.000	5.219
□	.900		
◇	1.000		

PARAMETRIC VALUES	
ALPHA	BETA
20.000	.000
PAVE	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

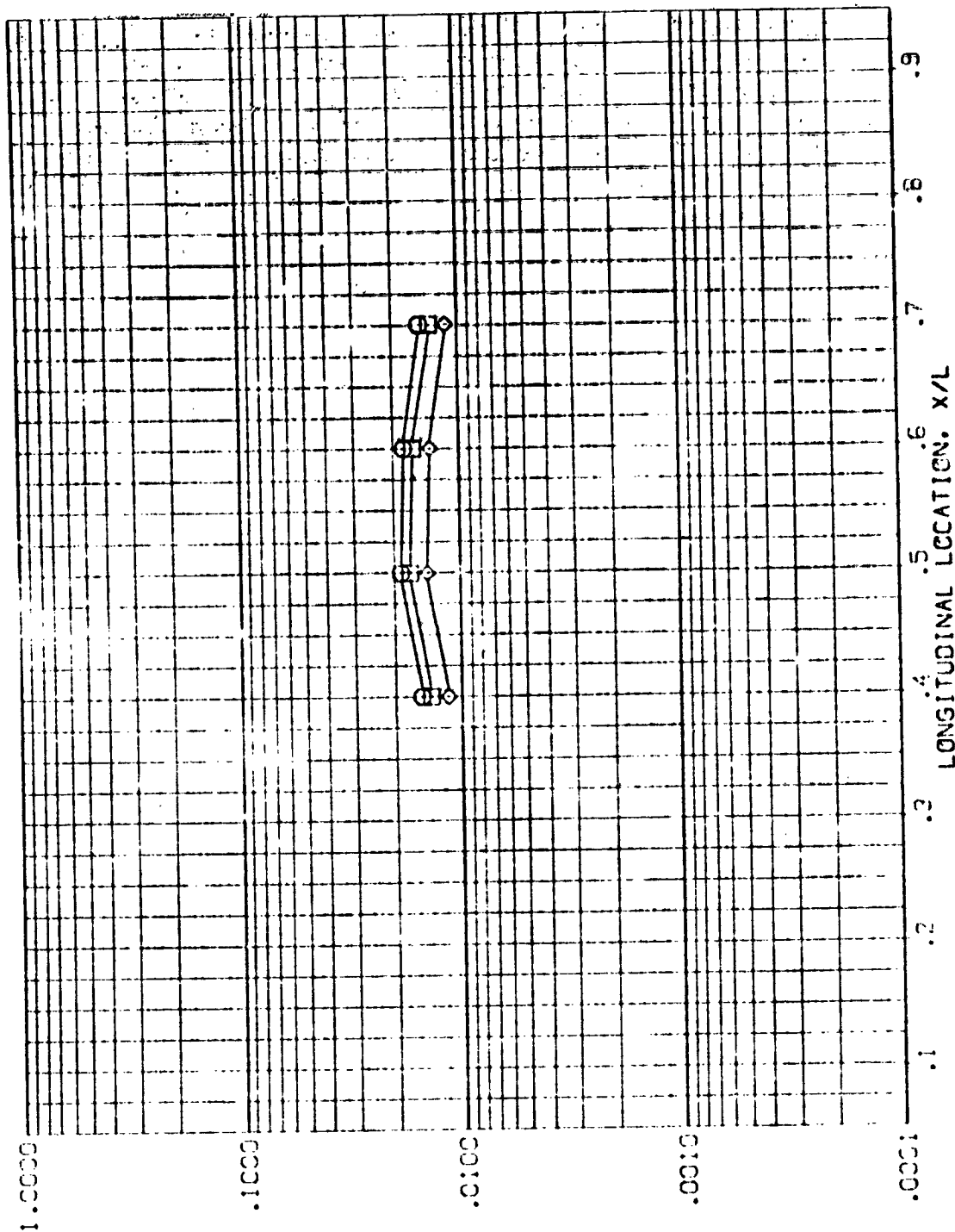


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 I-28 01+1 BODY SIDEWALL (RE 1503)

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 P.W. 1.000

Subj. 1-4#147  
 .855 375.000 WACH 5.000  
 .000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

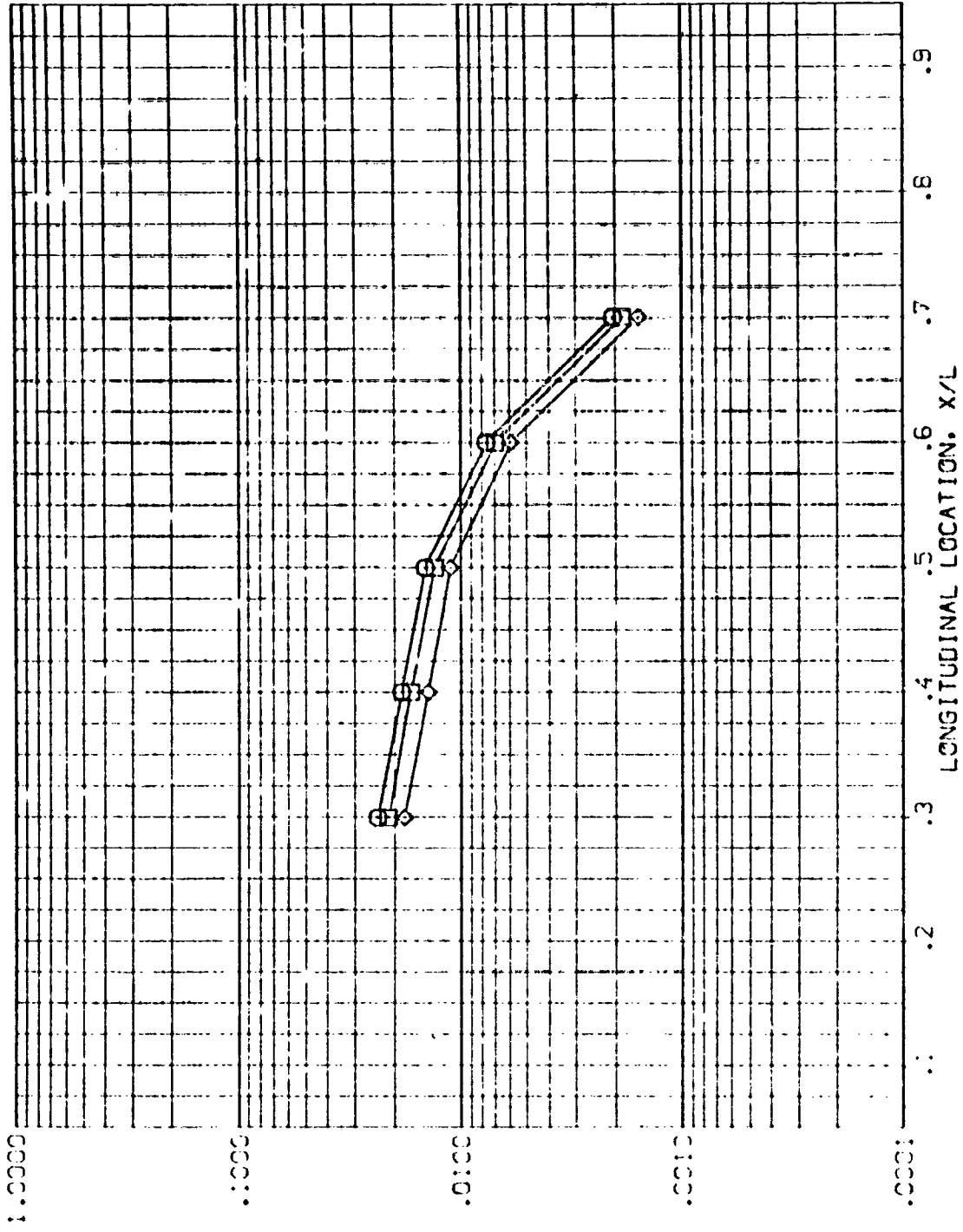


FIG. 11 CIRCULAR BODY SIDEWALL, CIRCULAR IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV B03)

PARAMETRIC VALUES  
 ALPHA 60.0°  
 BETA 1.0°  
 MACH 5.220  
 Z 425.000  
 HAW/HT .850  
 .900  
 1.000

SYMBOL  
 ◊  
 □  
 ○

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, h/hREF

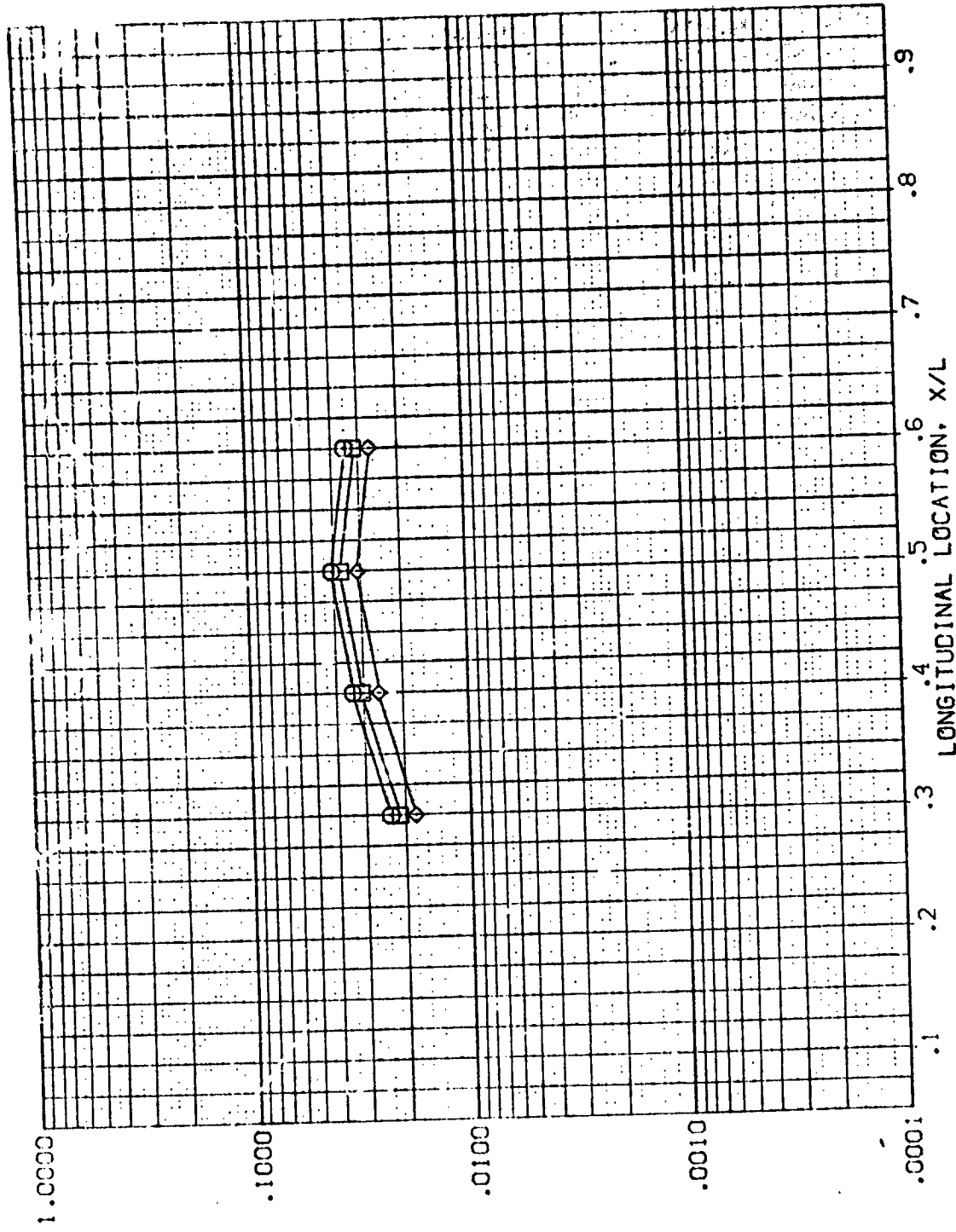


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

27

(REVB03)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA 60.000 BETA .000  
RN/L 1.000

HA/WHT Z MACH  
.850 501.000 5.220  
.900  
1.000

SYMBOL  
□  
◇

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

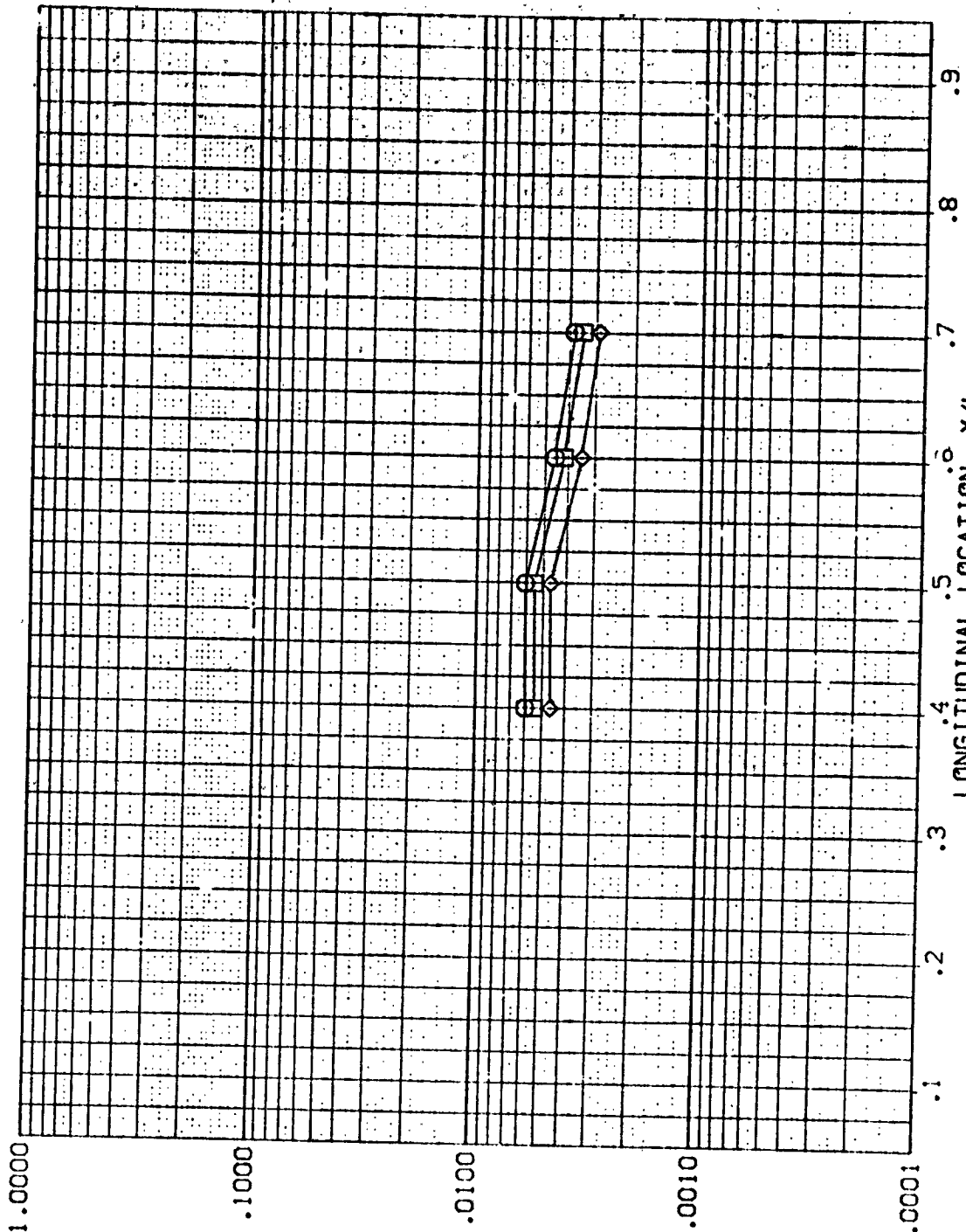


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV804)

SYMBOL HAW/HT Z MACH  
 ◊ .050 375.000 5.213  
 ○ .900  
 □ 1.000

PARAMETRIC VALUES  
 ALPHA 90.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

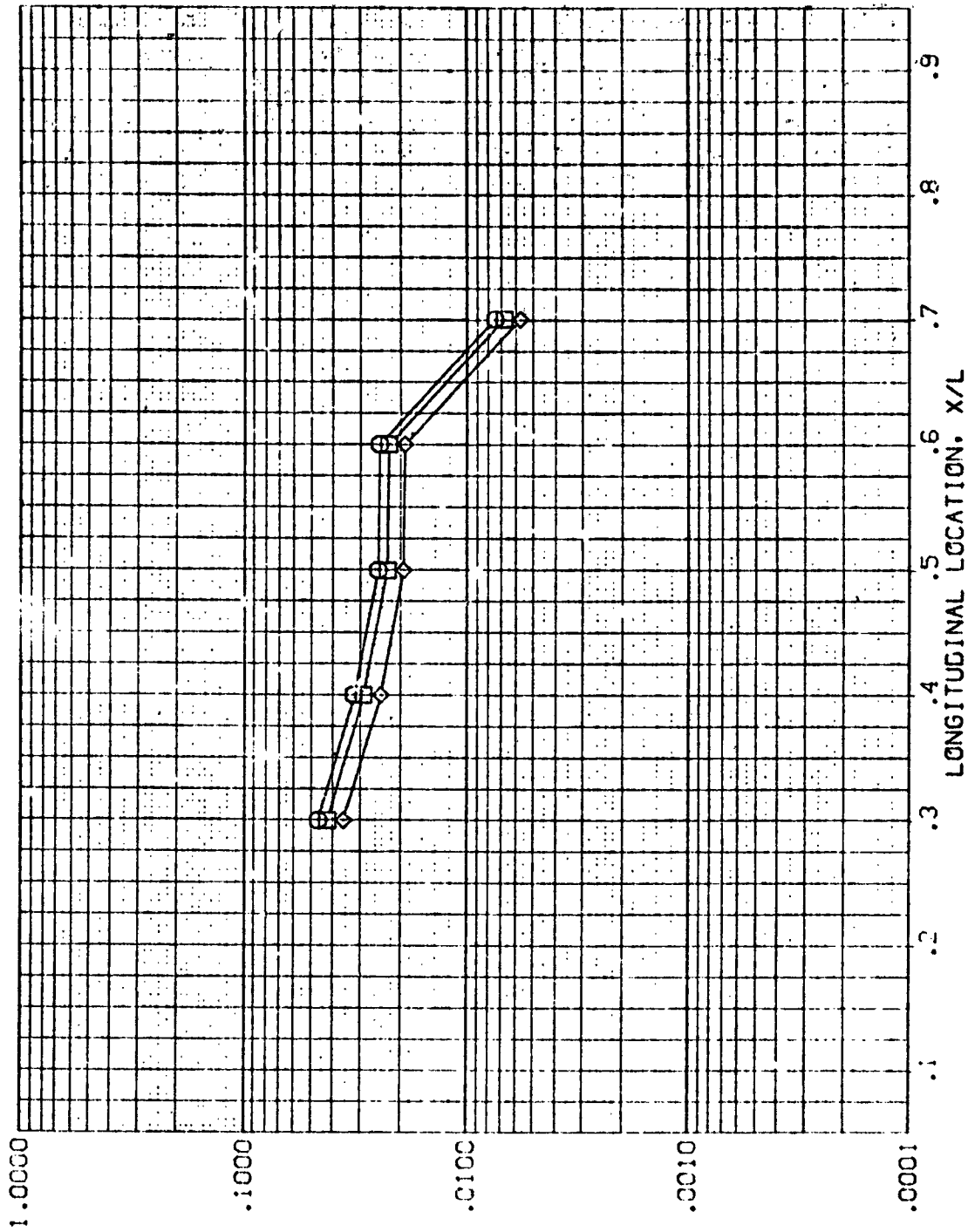


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF TIE TANK

(REV B04)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA 90.000  
BETA 1.000  
RN/L .000

SYMBOL HAW/HT Z MACH  
◇ .850 425.000 5.219  
□ .900  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

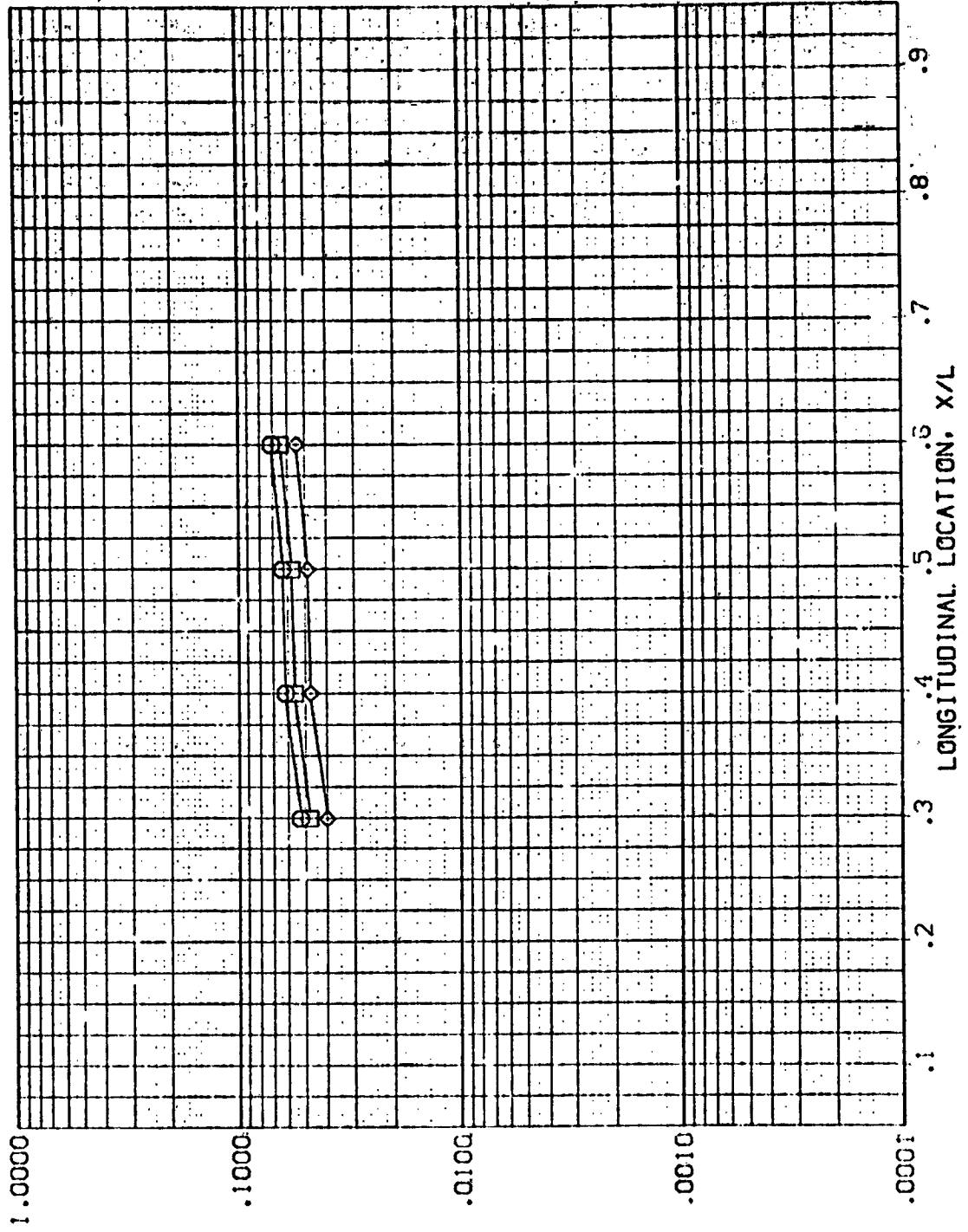


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 OI+TI BODY SIDEWALL (REV B04)

SYMBOL  $\diamond$   $\square$   
 H/W/RT .852 Z 501.000 MACH 5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 90.000 ALPHA .000  
 1.000 BETA

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

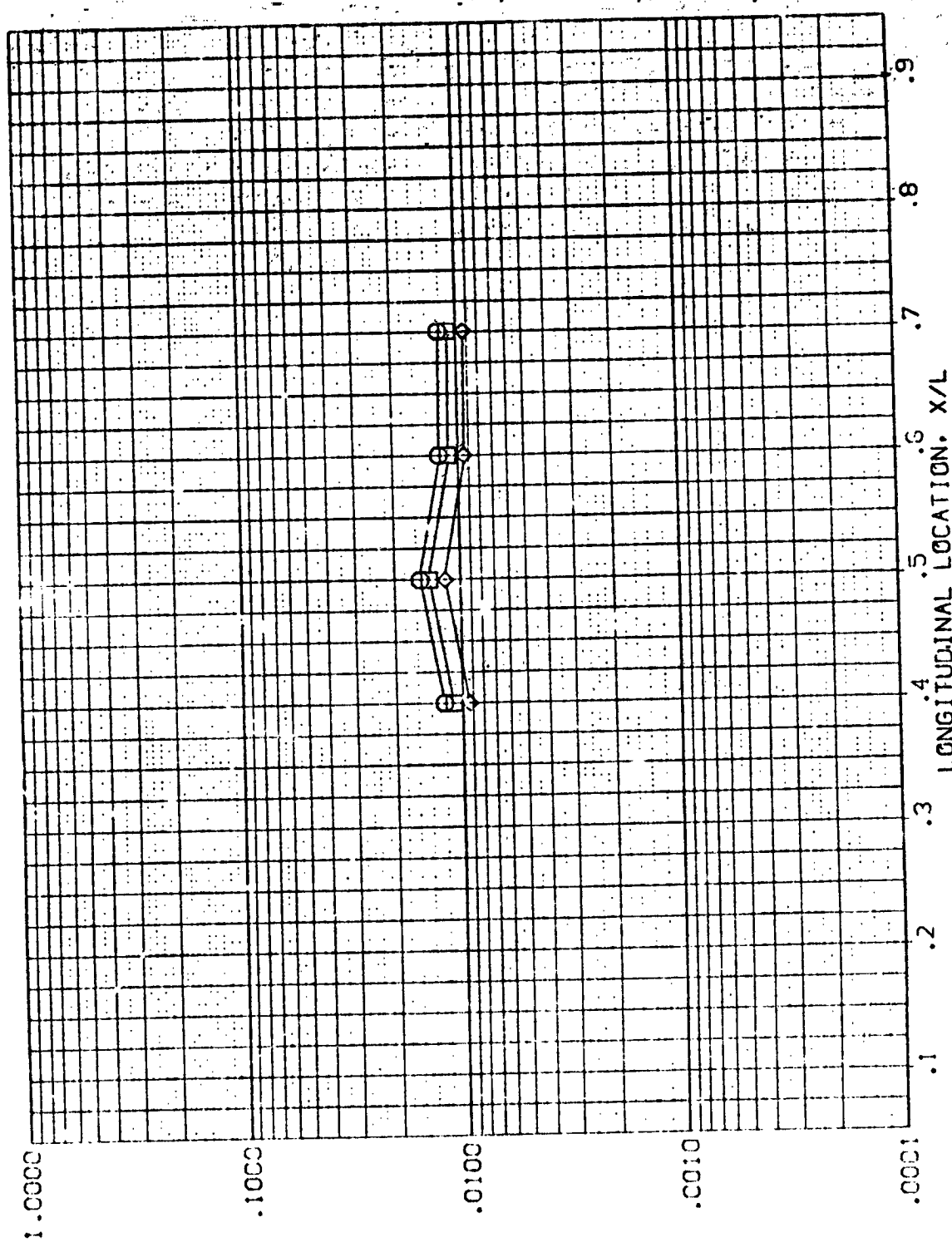


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV805)

SYSEC-  
 HA/WHT Z MACH  
 .850 375.000 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 120.C.W BETA .000  
 ALPHA RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

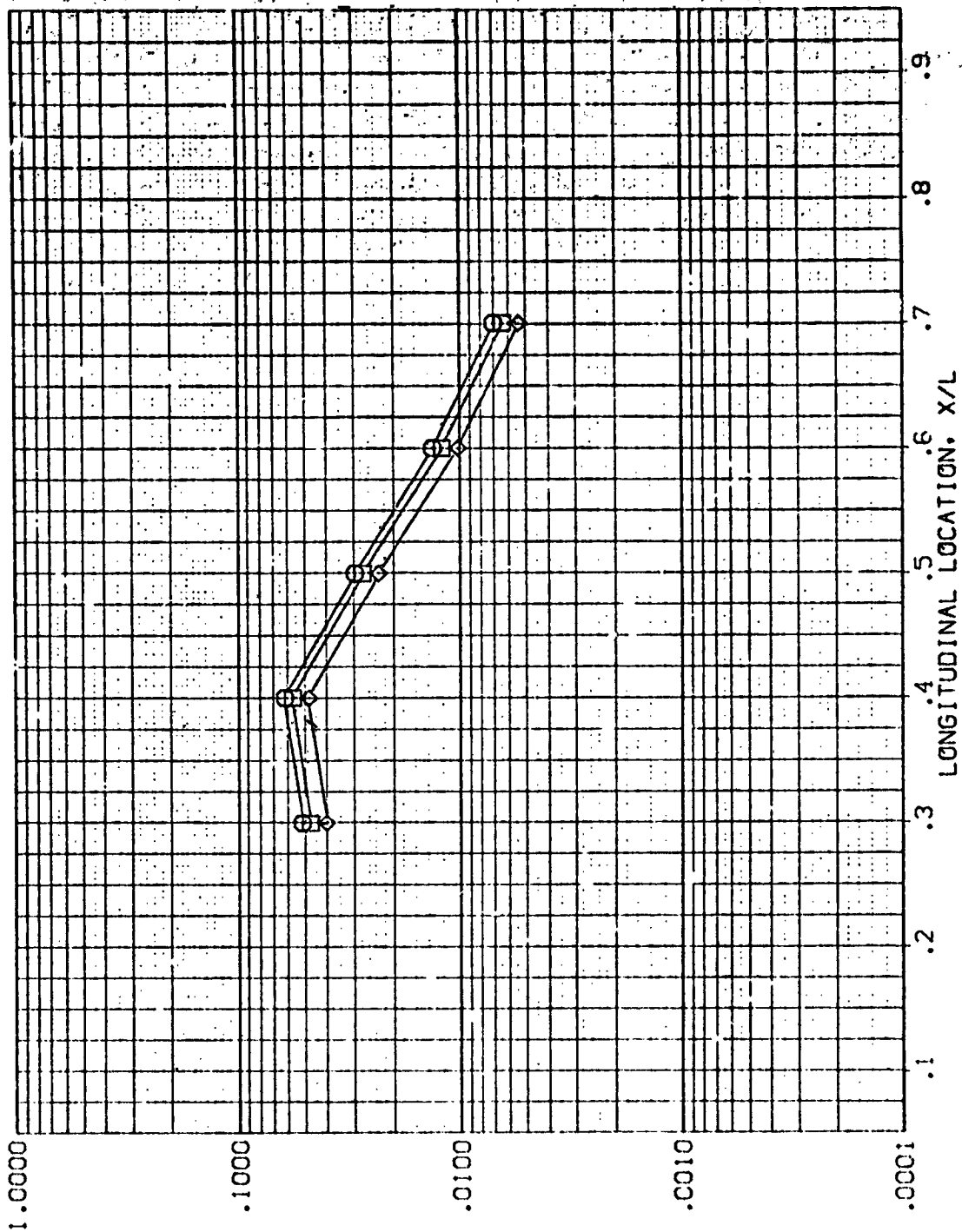


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REVB05)

AMES 3.5-11.5 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA 120.000 BETA .000  
RN/L 1.000

SYMBOL HAW/WT Z MACH  
◇ .850 425.000 5.220  
□ .900  
○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

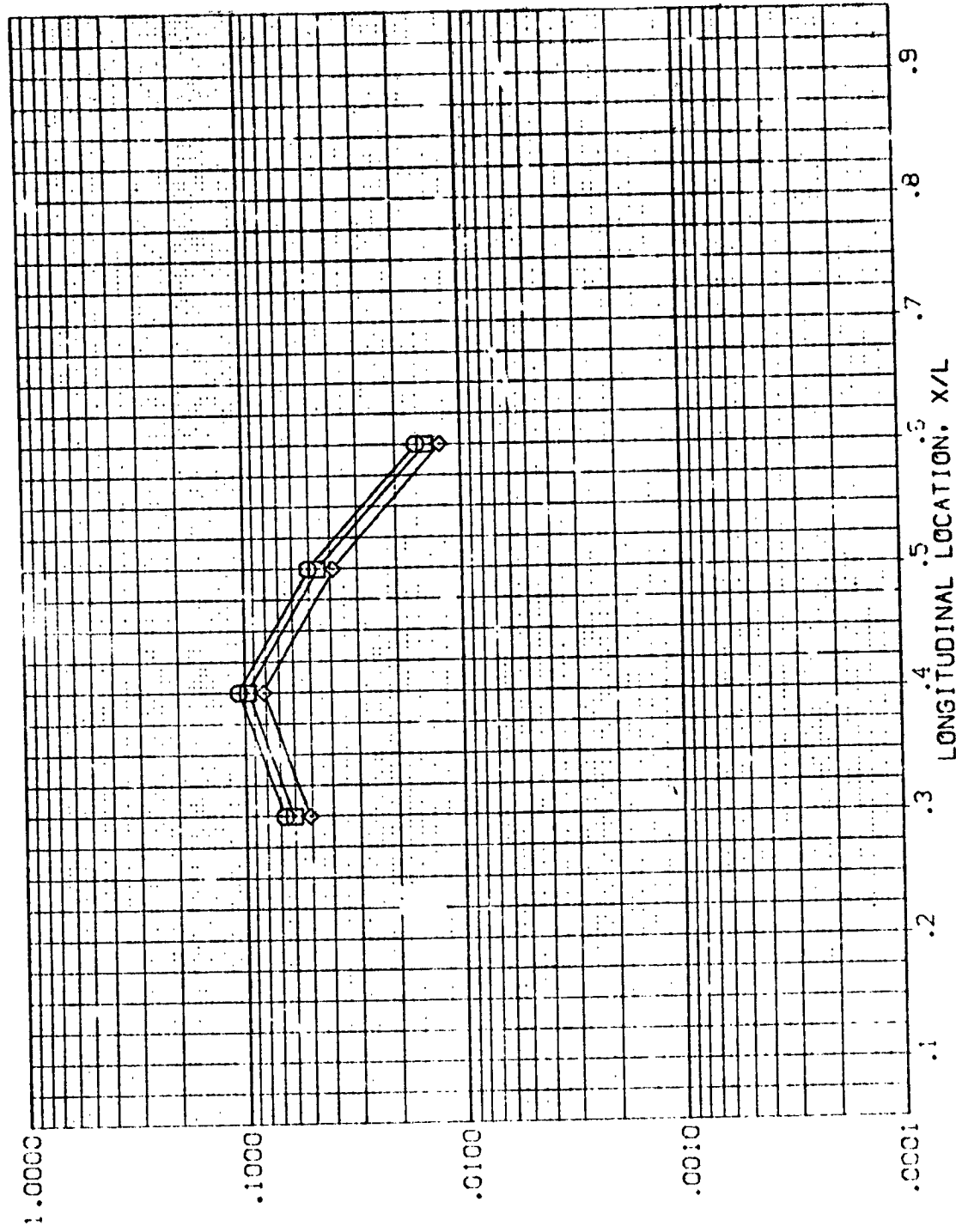


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

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ORIGINAL PAGE IS FOR

(REVB05)

AMES 3.5-195 IH28 01+I1 BODY SIDEWALL

SYMBOL HAW/HT Z MACH  
◇ .85C 501.000 5.220  
.90C  
1.00C

PARAMETRIC VALUES  
ALPHA :20.000 BETA .000  
RN/L 1.00J

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

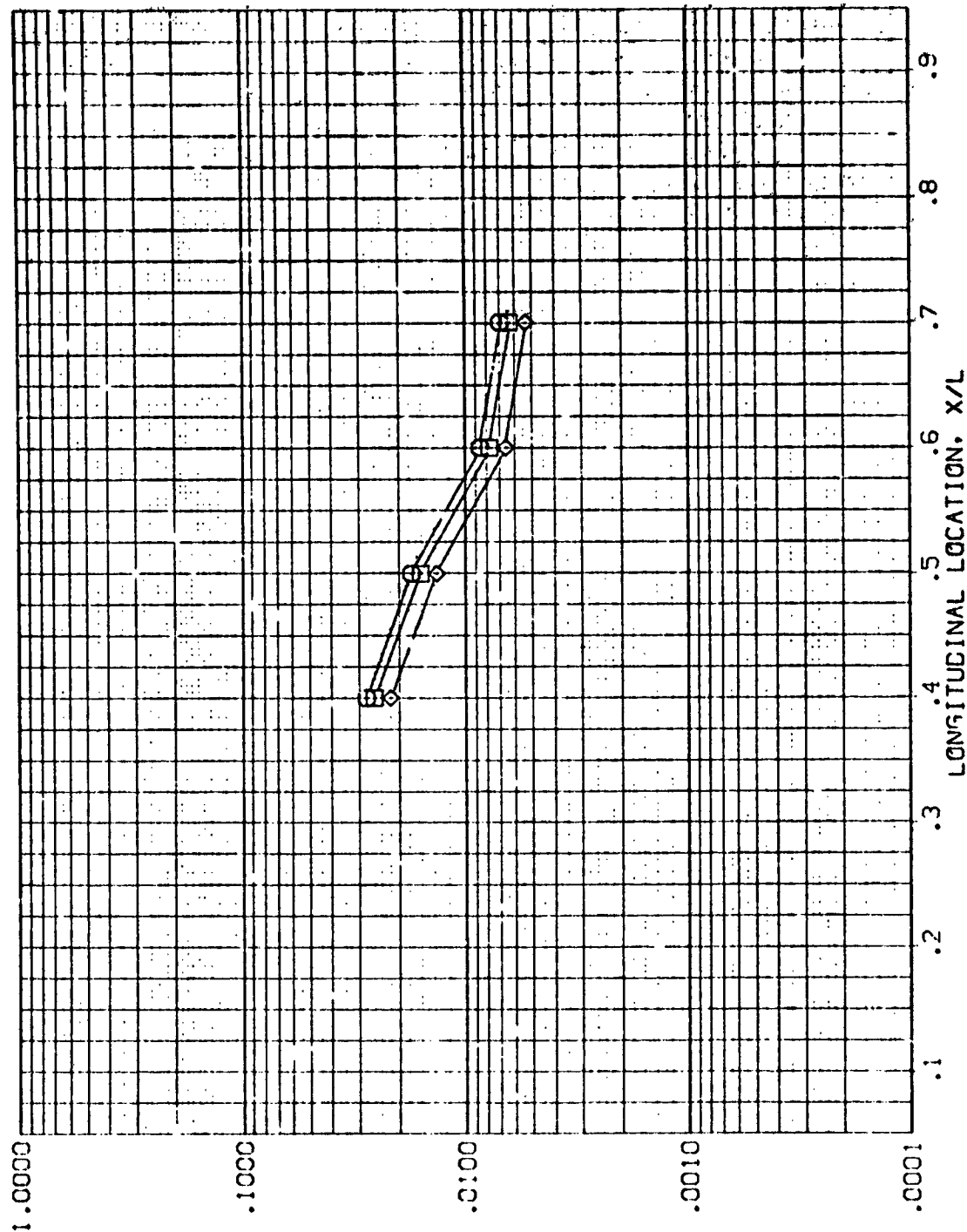


FIG. 11, ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV306)

SYMBOL HA\*HT Z MACH  
 ◇ 0.65 375.000 5.220  
 ○ 0.90  
 △ 1.000

PARAMETRIC VALUES  
 ALPHA -120.000 BETA 0.00  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

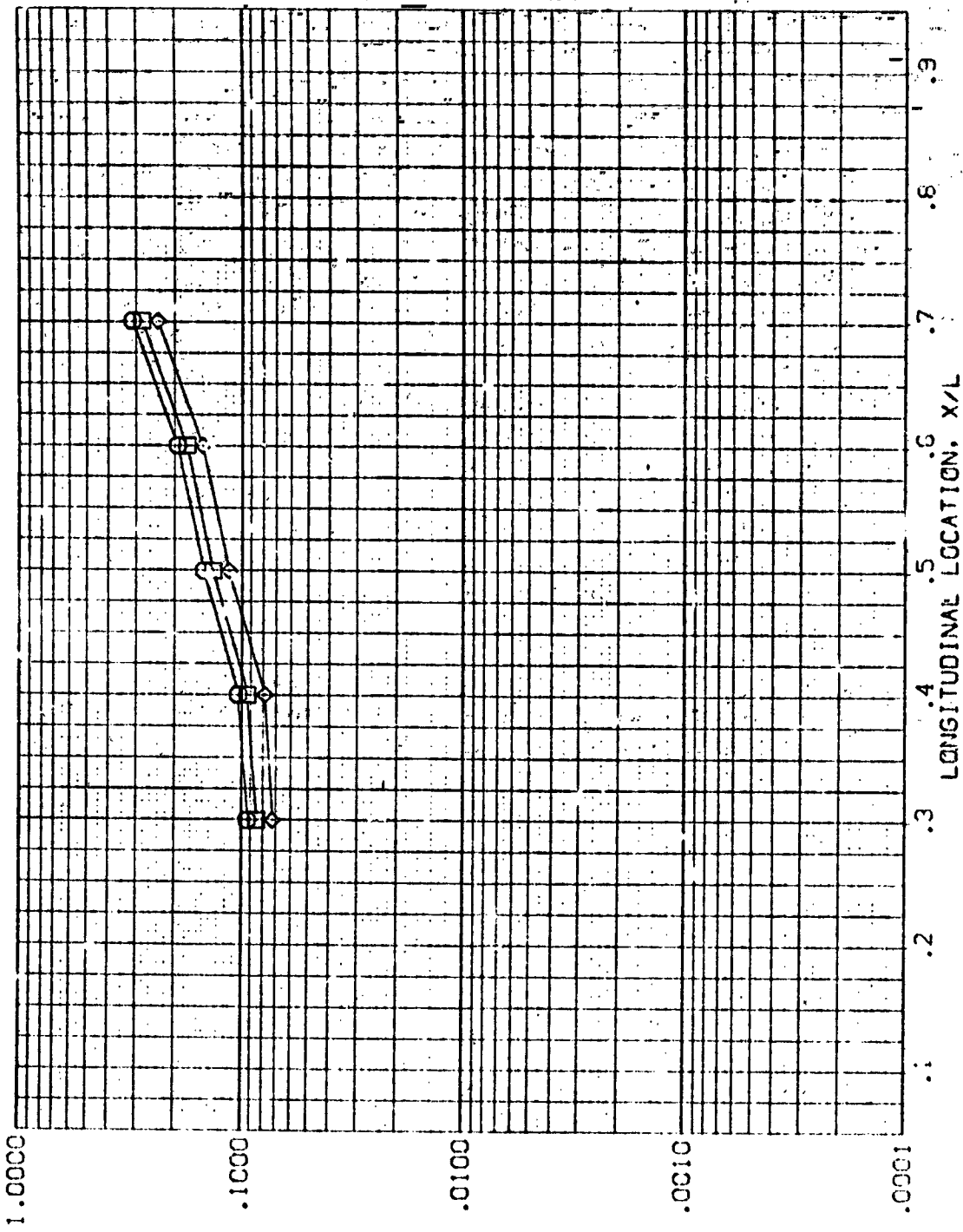


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 I428 O1+T1 BODY SIDEWALL (REVB06)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 RV/L 1.000

SYMBOL HAW/HI Z MACH  
 □ .850 425.000 5.220  
 ○ .950  
 ◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

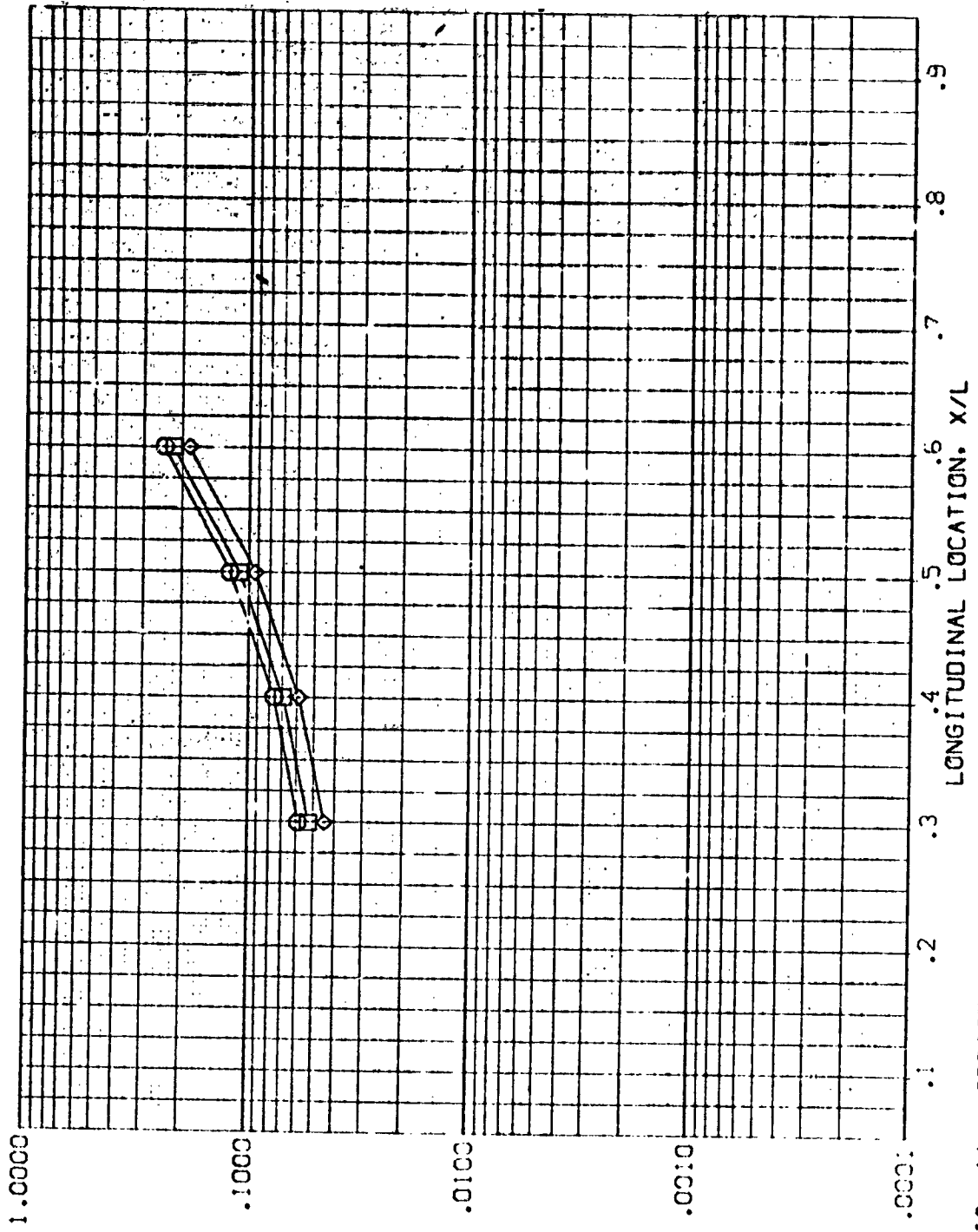


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REVISED)

SYMBOL    HAW/HT    Z    MACH  
 ◊    .850    501.000    5.220  
 ○    .900  
 □    1.000

PARAMETER VALUES  
 ALPHA    .000000  
 BETA    .000000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

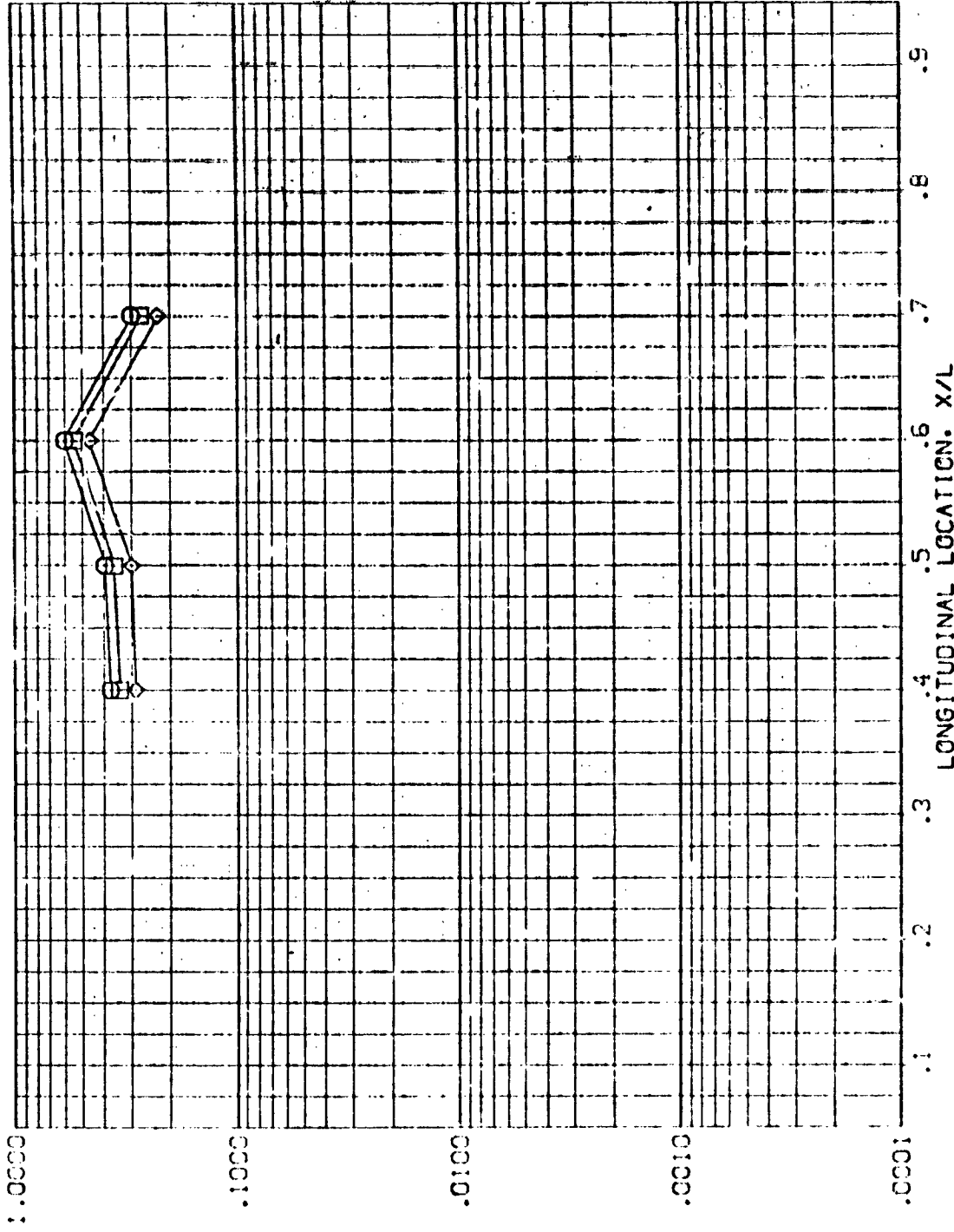


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV307)

SYMBOL	WAV/HT	Z	MACH	PARAMETRIC VALUES
□	.850	375.000	5.219	-90.000 BETA
◇	.900			1.000
	1.000			

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

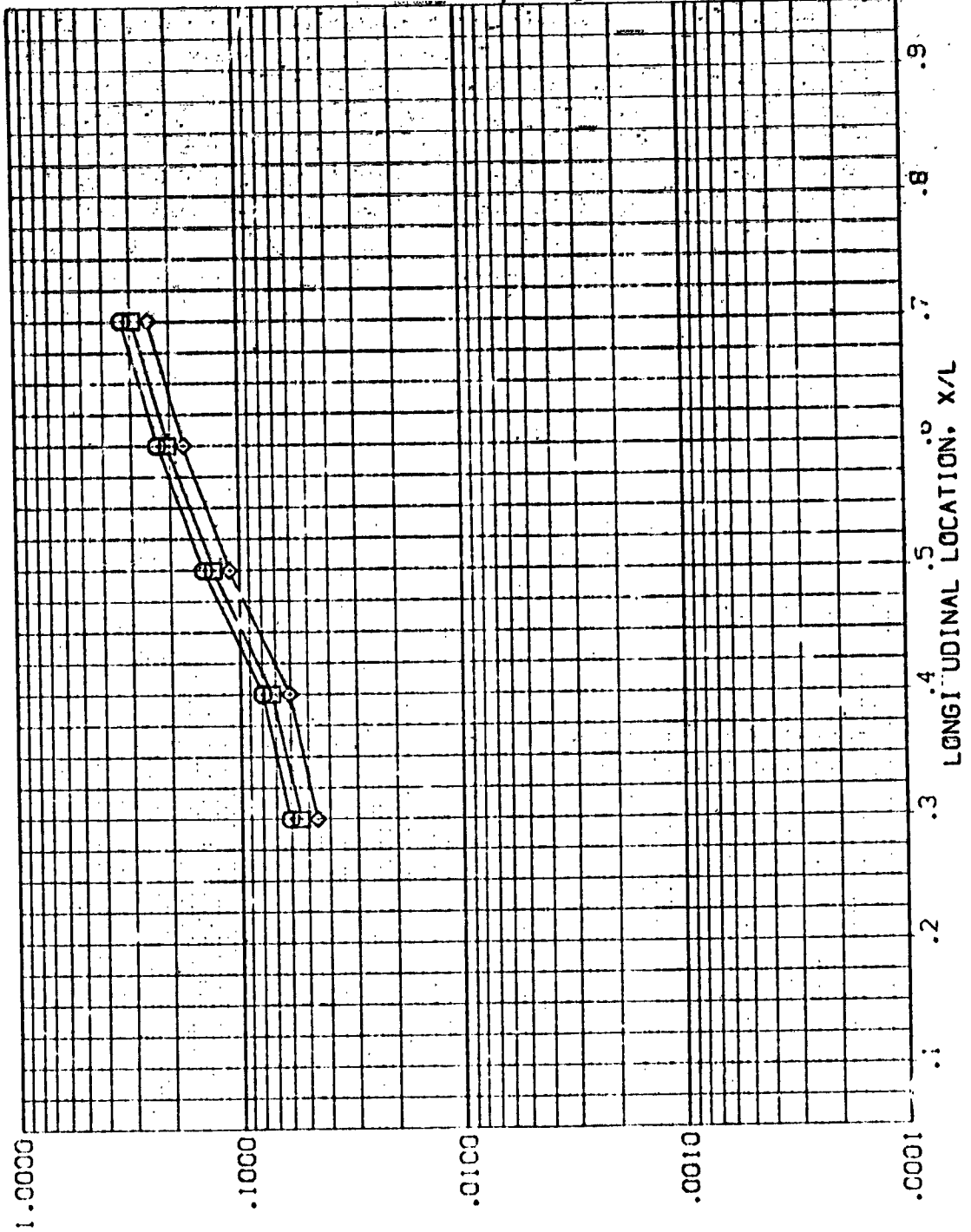


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 OI+TI BODY SIDEWALL

(PROJECT)

REF. BERIC VALUES  
 ALPHA 1.0000  
 BETA 1.0000  
 GAMMA 1.0000

SYMBOL HAW/HT Z MACH  
 .852 425.000 5.219  
 .950  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

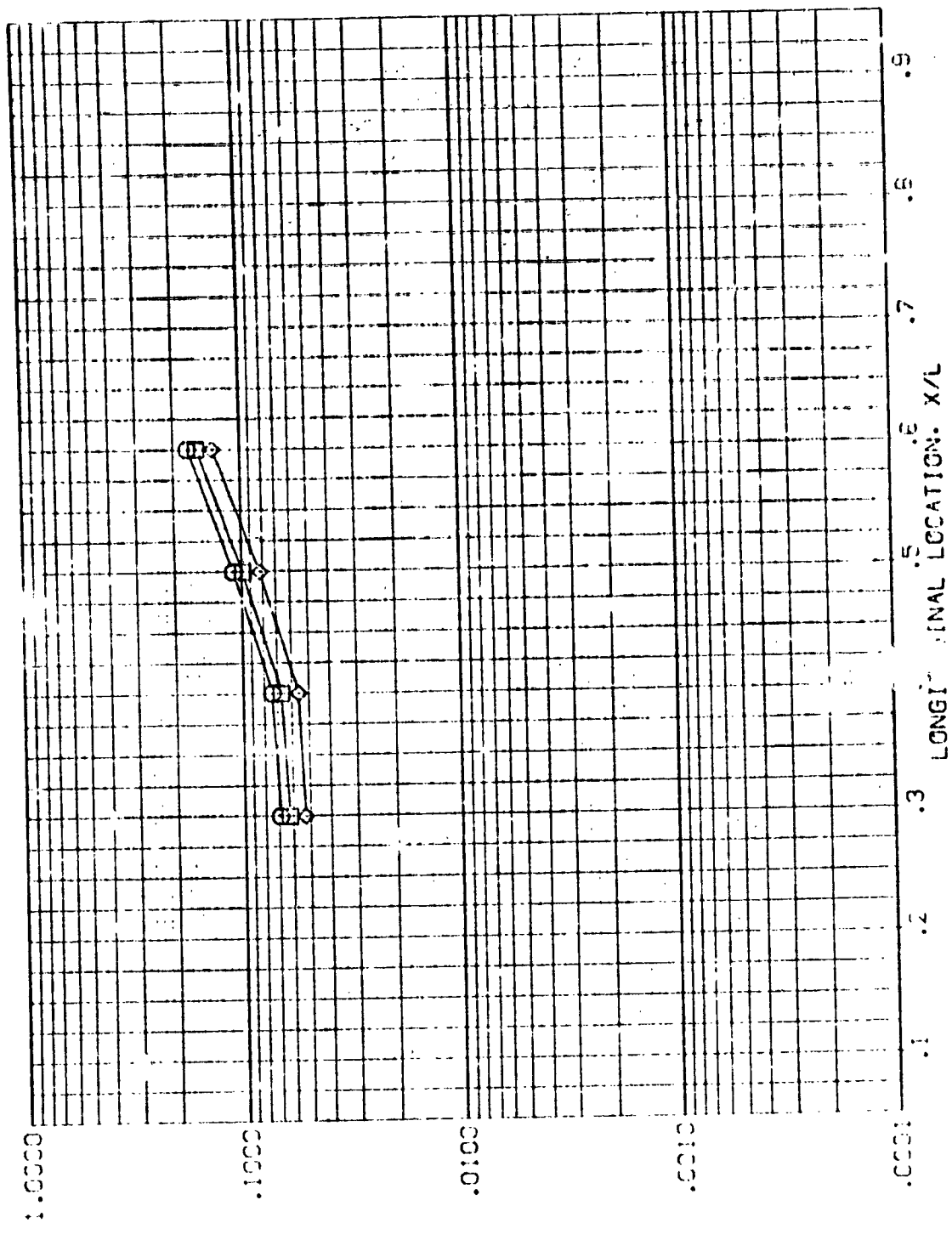


FIG. 11 ORBITER BODY SIDEWALL, OR. PR IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB07)

SYMBOL    MAW/HT    Z    MACH  
 ○        .850    501.000    5.219  
 □        .900  
 ◇        1.000

PARAMETRIC VALUES  
 -90.000    BETA    .000  
 1.000    RN/L

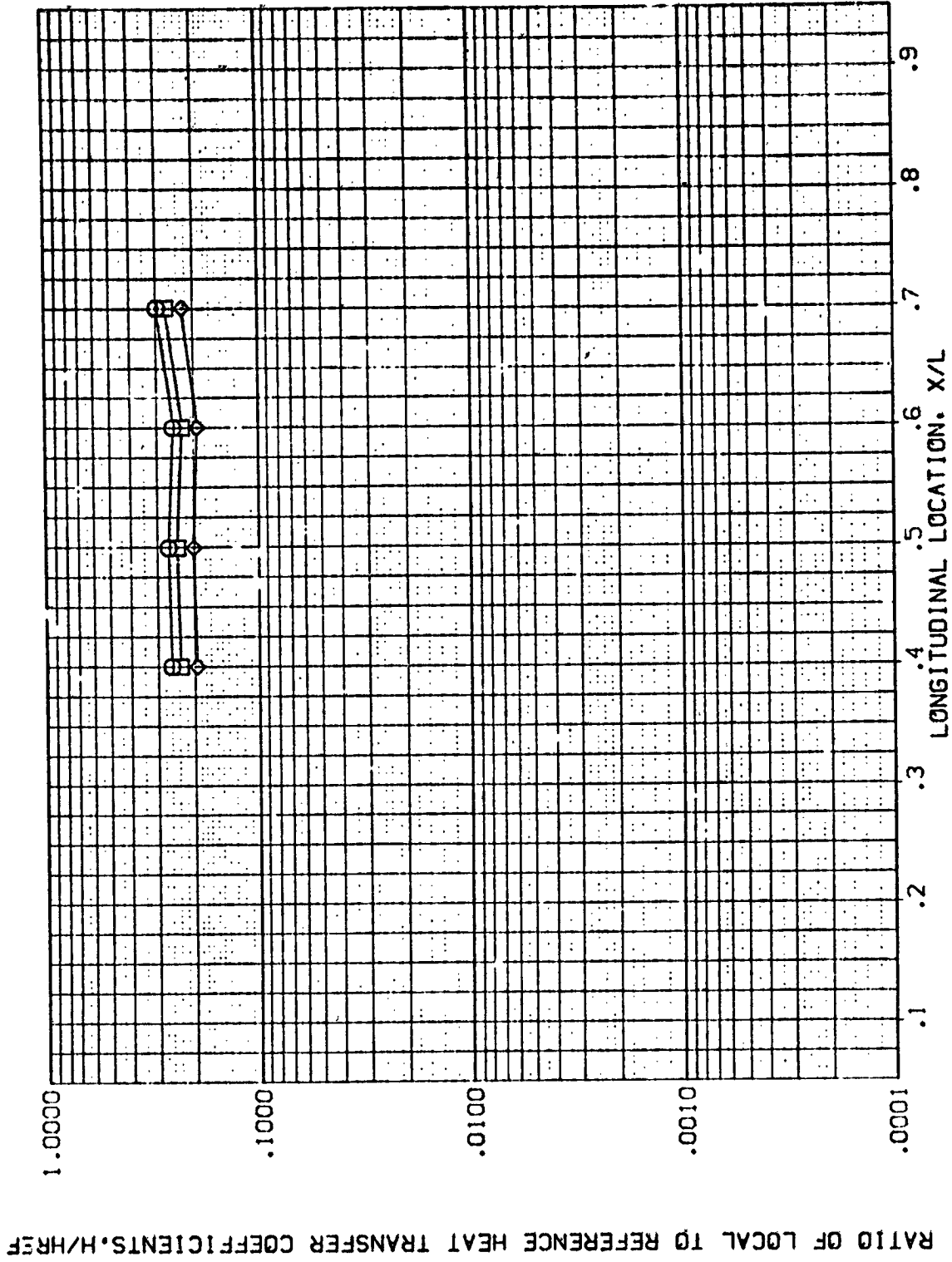


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV008)

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .300  
 RV/L 1.000

WAV/HT Z MACH  
 .850 375.000 5.220  
 .900  
 1.000

SYMBOL  
 ◊ □

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

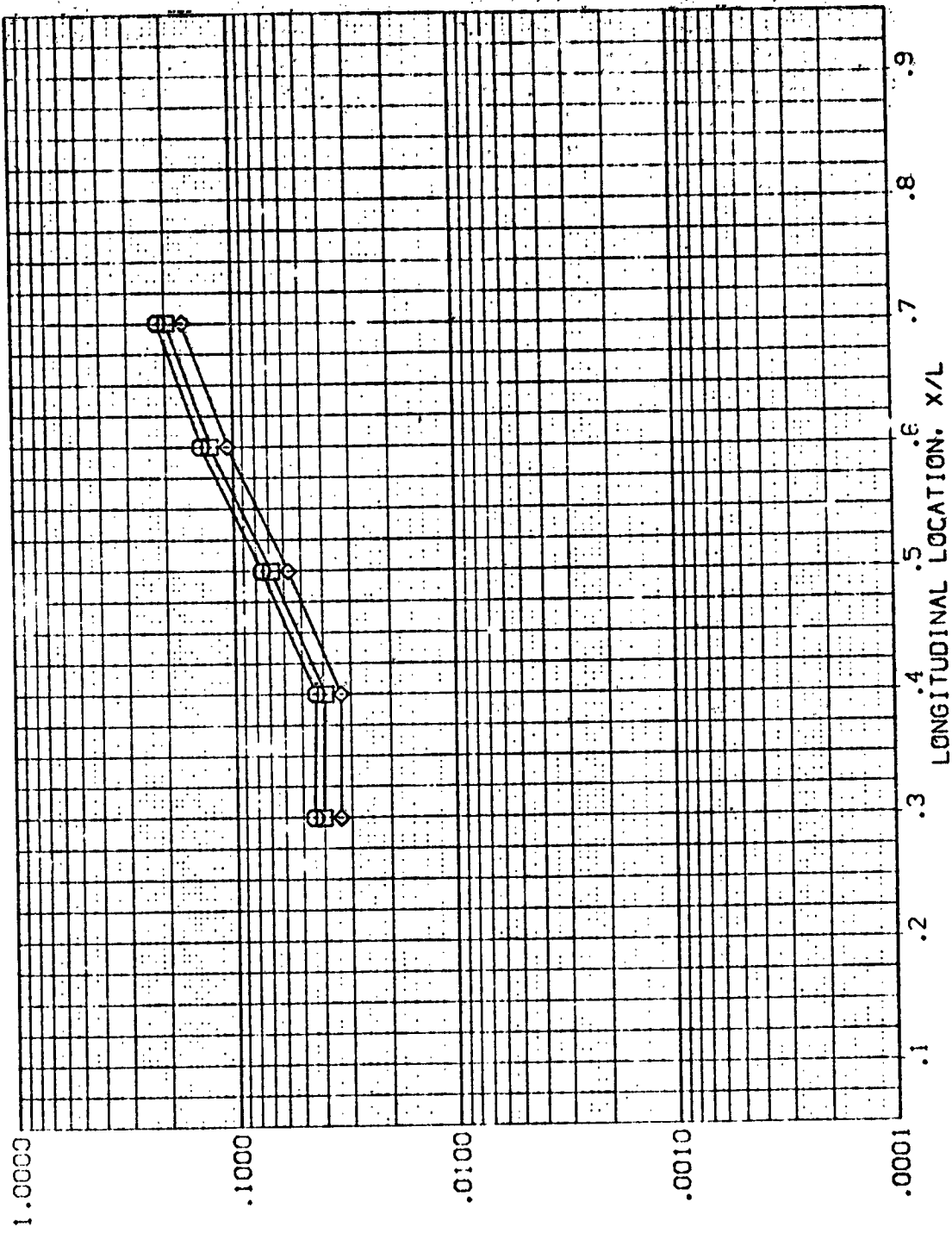


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV B08)

PARAMETRIC VALUES  
 ALPHA -60.060 BETA .000  
 RH/L 1.000

SYMBOL HAW/HT Z MACH  
 □ .850 425.000 5.220  
 ○ .900  
 ◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

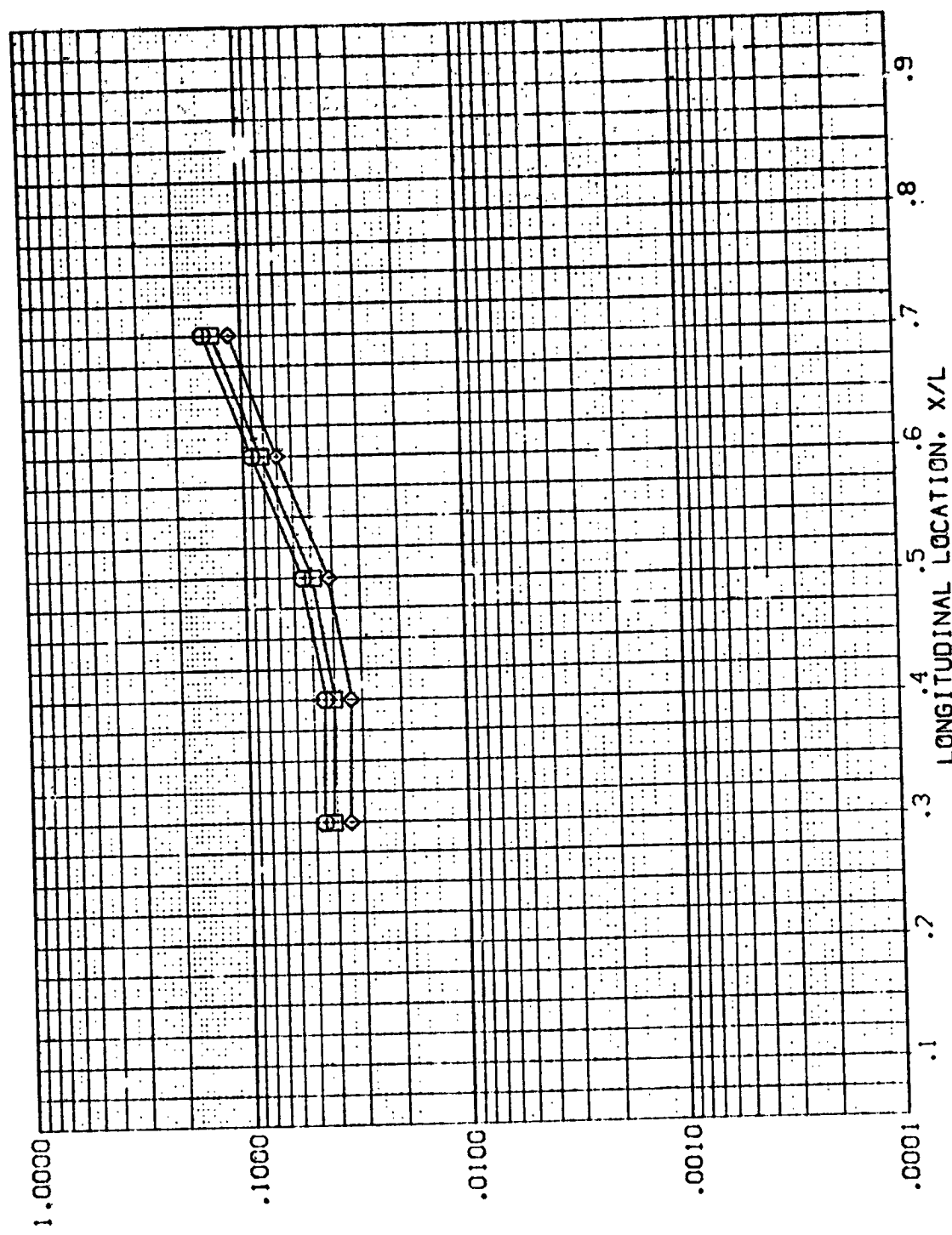


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV808)

SYMBOL    HAW/HT    Z    MACH  
 ◊    .850    501.000    5.220  
 ◻    .300  
 ○    1.000

PARAMETRIC VALUES  
 ALPHA    -60.000    BETA    .000  
 RN/L    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

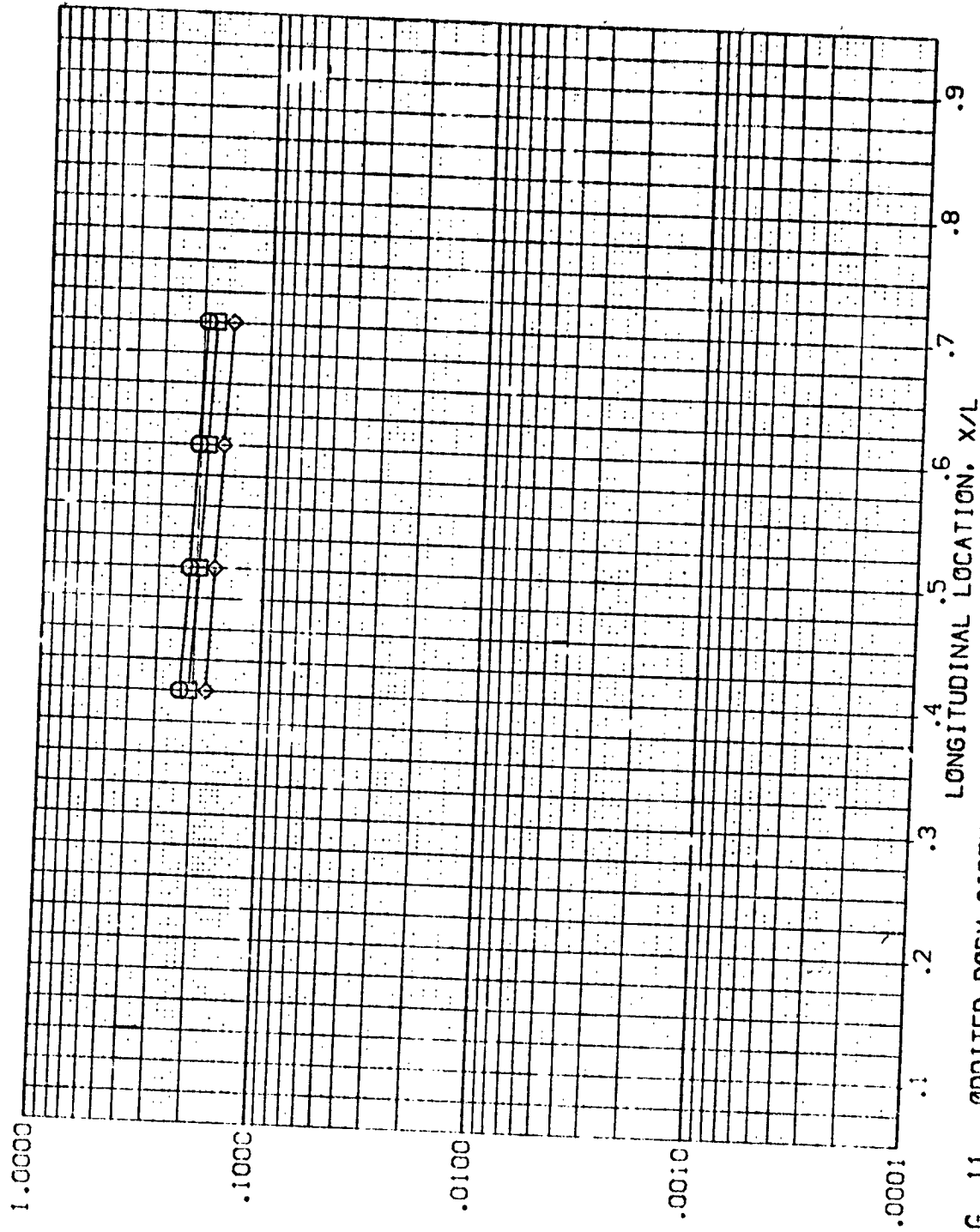


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

FOR THE QUALITY OF THE ORIGINAL PAGE IN POOR

(REVB09)

AMES 3.5-195 IH<sup>00</sup> 31+T1 BODY SIDEWALL

SYMBOL    HAW/H<sub>T</sub>    Z    MACH

□        .850    375.000    5.220

◇        .930

          1.000

PARAMETRIC VALUES

ALPHA    BETA

RN/L    -30.000    .000

          1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

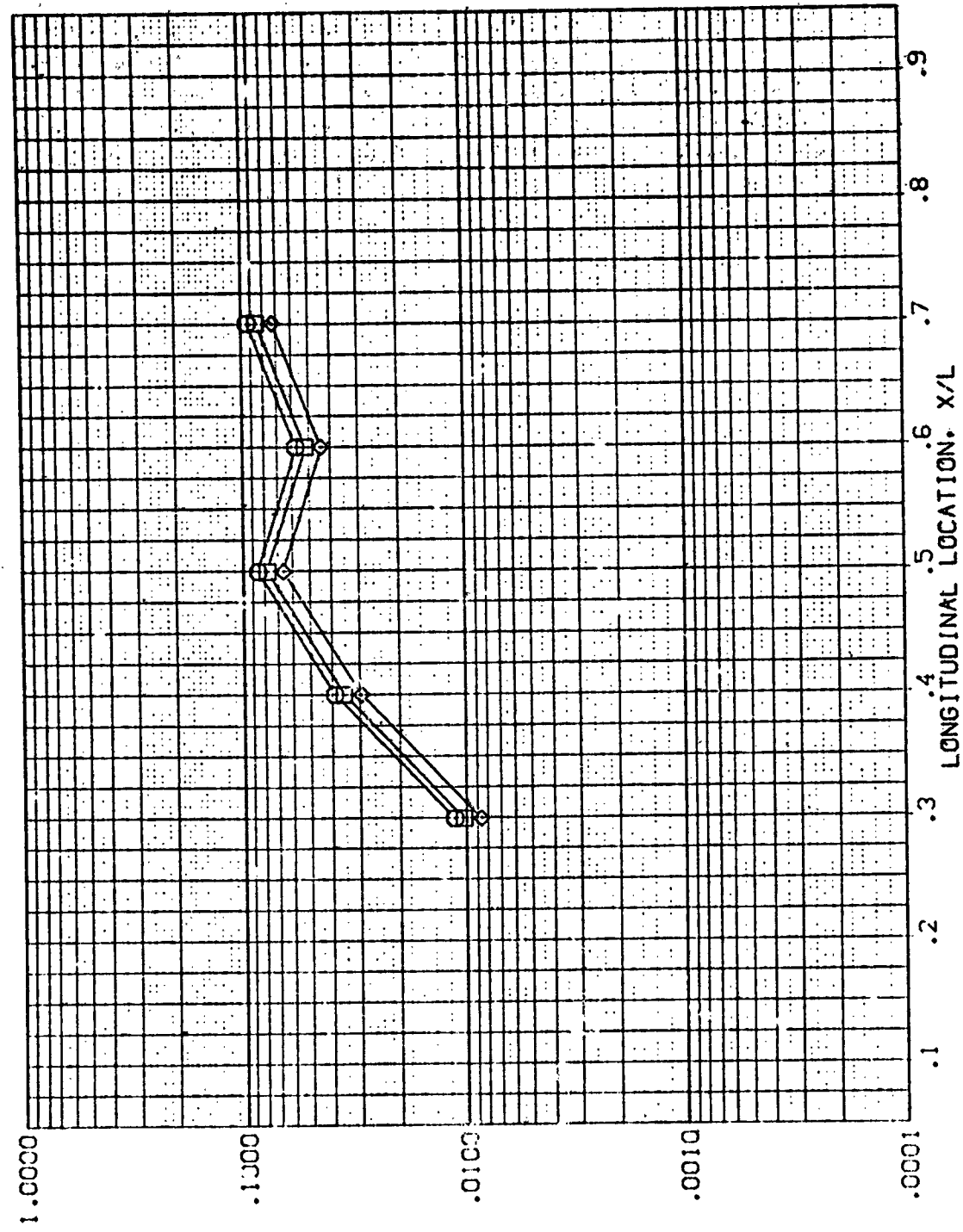


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REVB09)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA -30.000 BETA .000  
RV/L 1.000

SYMBOL HAW/HT Z MACH  
◇ .850 425.000 5.220  
□ .900  
○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

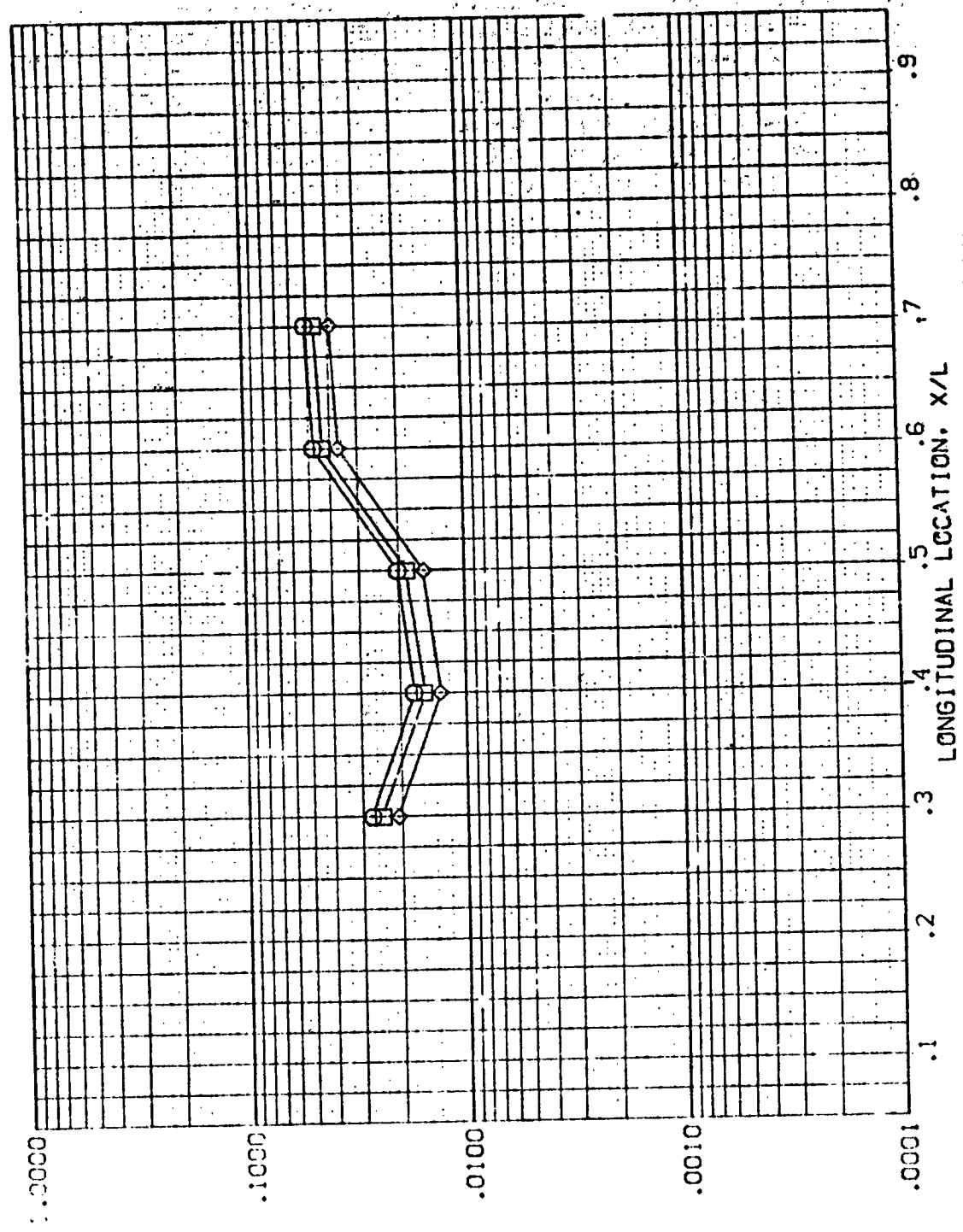


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REVB09)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA: -30.000  
RN/L: 1.000  
BETA: .000

SYMBOL:  $\diamond$   $\square$   $\circ$   
H/W/H/T: .850  
Z: 501.000  
MACH: 5.220  
.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

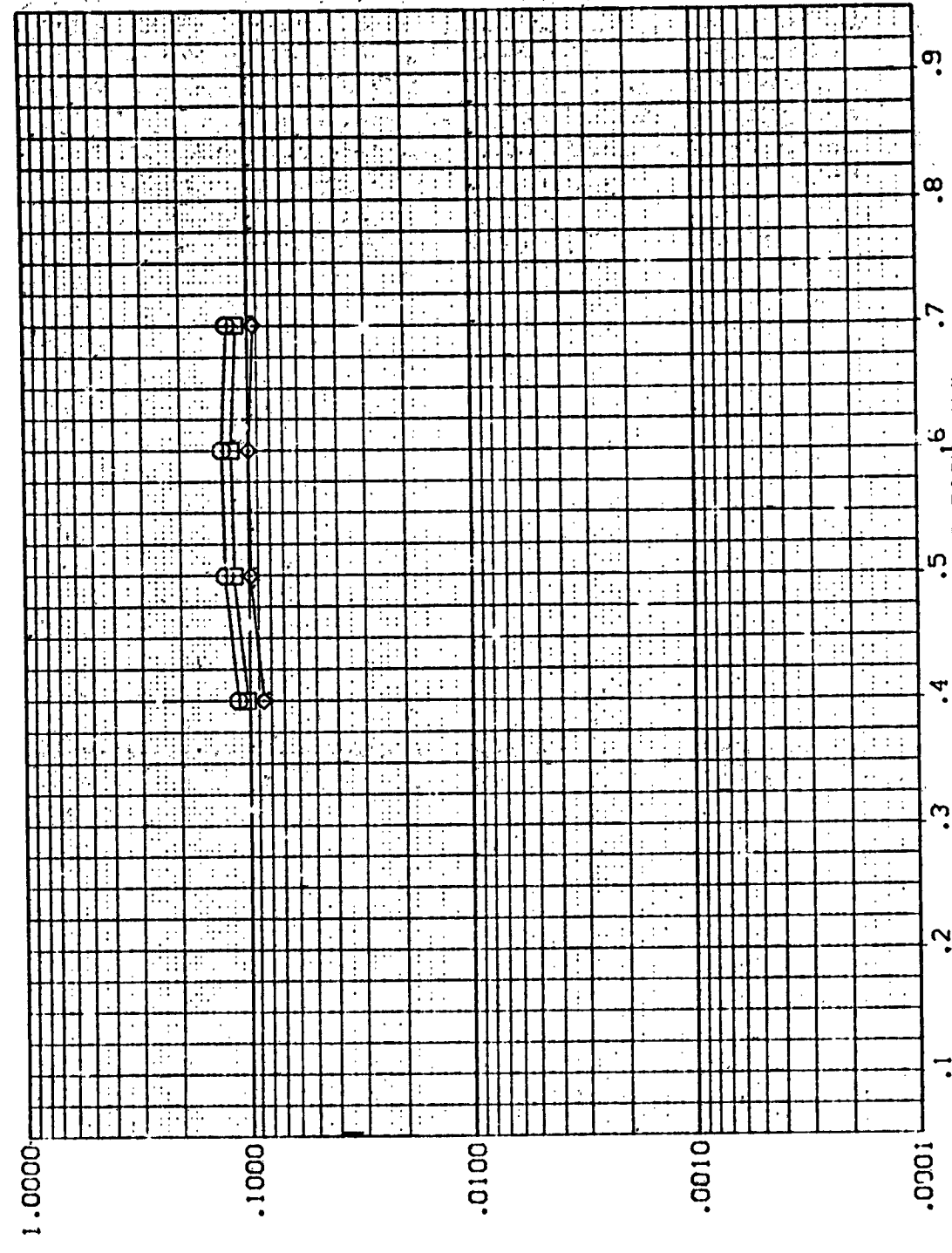


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 C1+T1 BODY SIDEWALL (REV B10)

PARAMETRIC VALUES  
 ALPHA 60.00  
 BETA 4.000  
 RNY/L

SYMBOL HAW/HT Z MACH  
 ◊ .850 375.000 5.299  
 □ .900  
 ○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

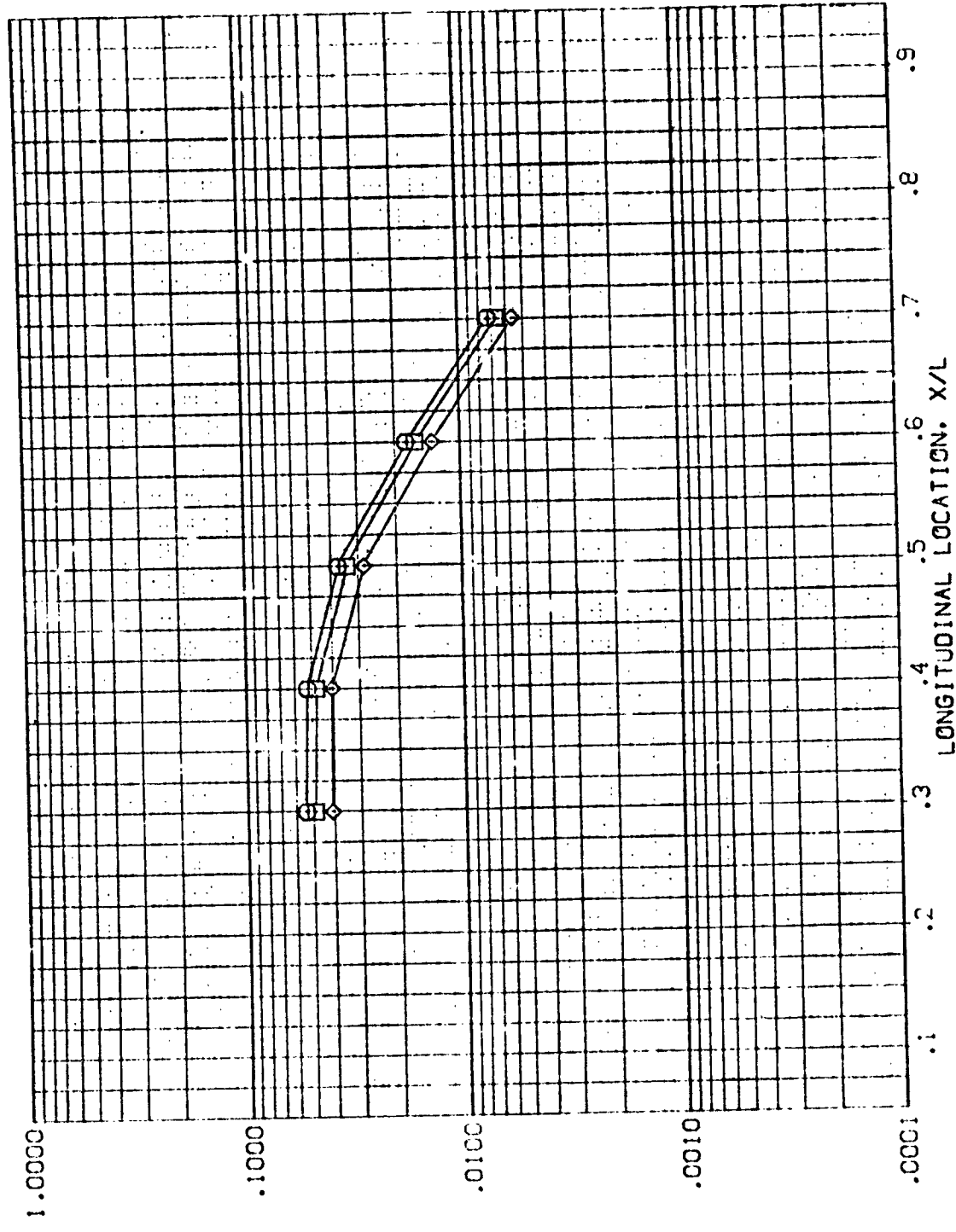


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB10)

SYMBOL	WAVELENGTH	Z	MACH	PARAMETRIC VALUES
□	.850	425.000	5.299	60.000 BETA
◇	.900			4.000
	1.000			.000

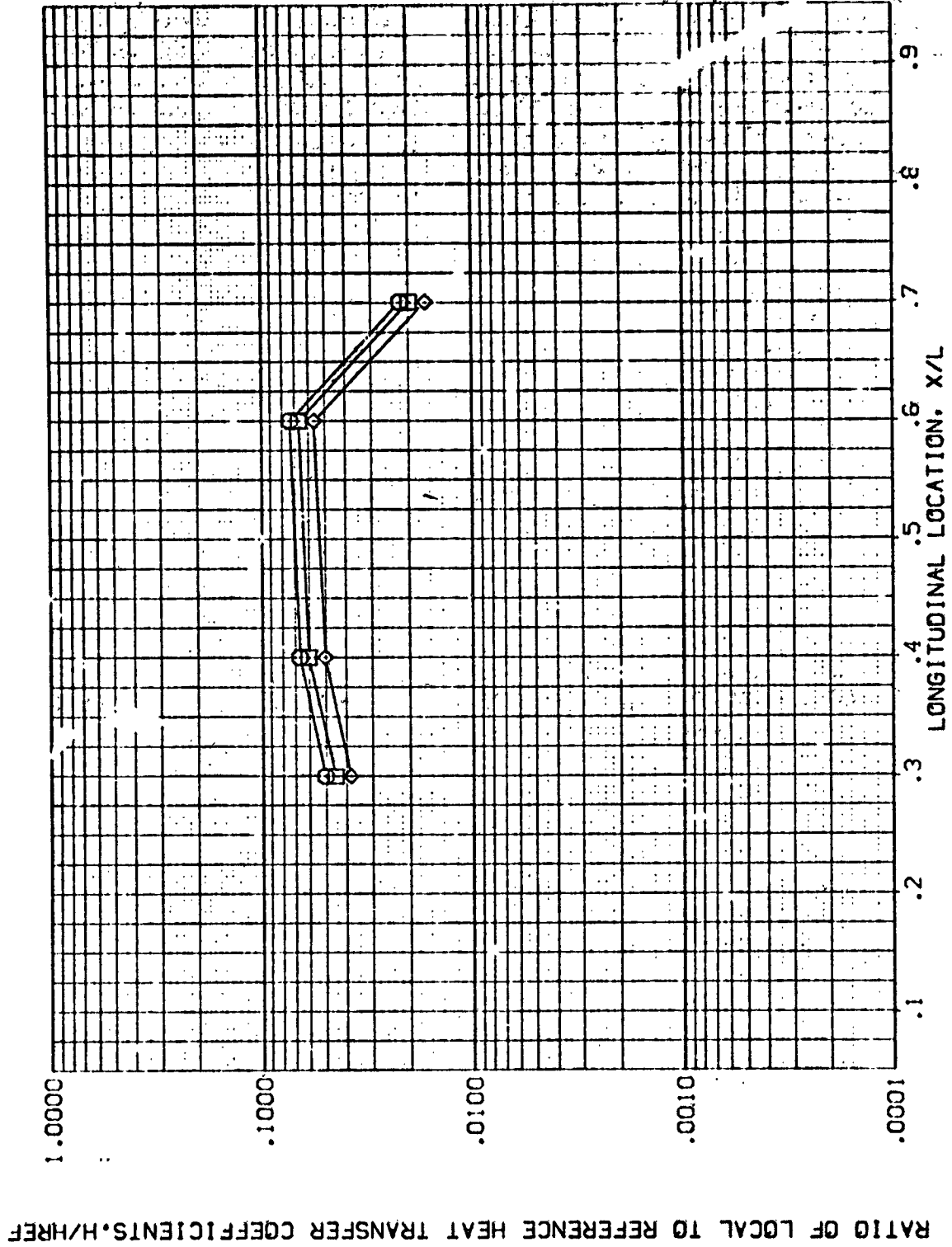


FIG. 11 ORBITER BODY SIDEWALL. ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB10)

SYMBOL     $\square$      $\diamond$   
 HP/W/HT    .85C    .900    1.000  
 Z    501.000  
 MACH    5.299

PARAMETRIC VALUES  
 ALPHA    60.000  
 BETA    4.000  
 RN/L    .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

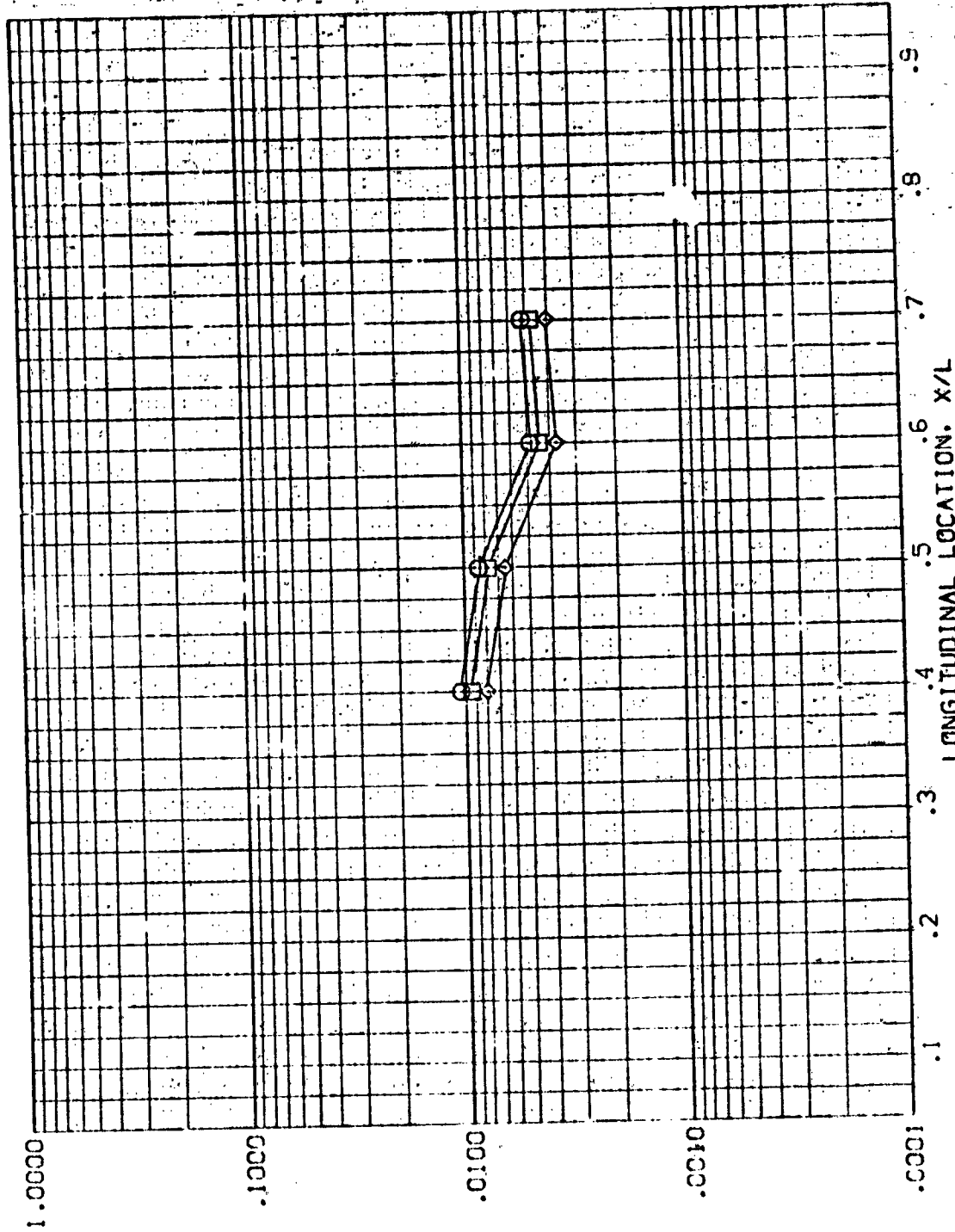


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB )

SYMBOL	◇	HAU/HT	Z	MACH	PARAMETRIC VALUES
	□	.850	375.000	5.300	
		.900			RV/S
		1.000			BETA
					.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

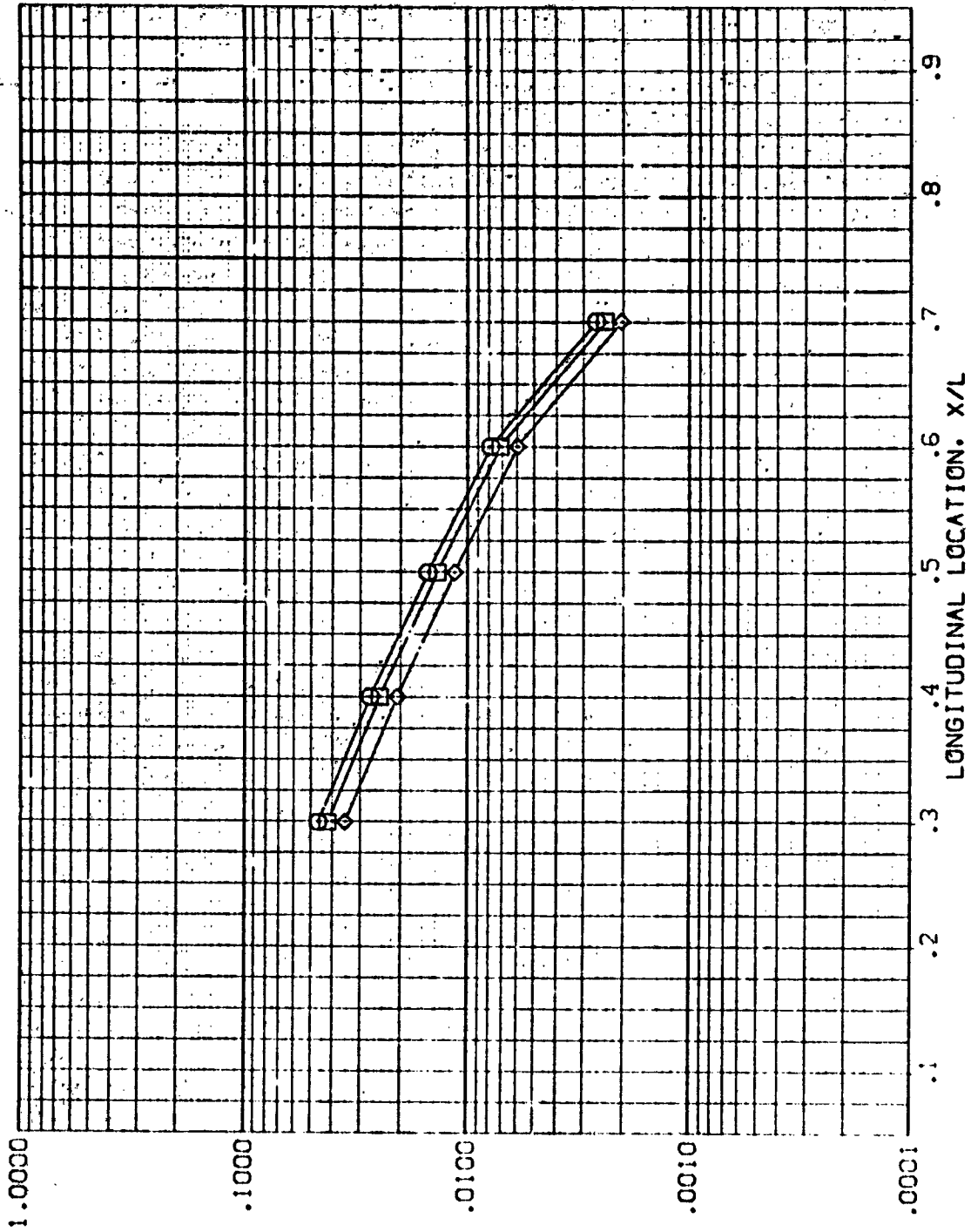


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV. 5/11)

SIZE: H/HREF 2 MACH  
 .850 425.000 5.303  
 .900  
 1.000

PARAMETRIC VALUES  
 A-504 0.000  
 BETA 4.000  
 C-500 0.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

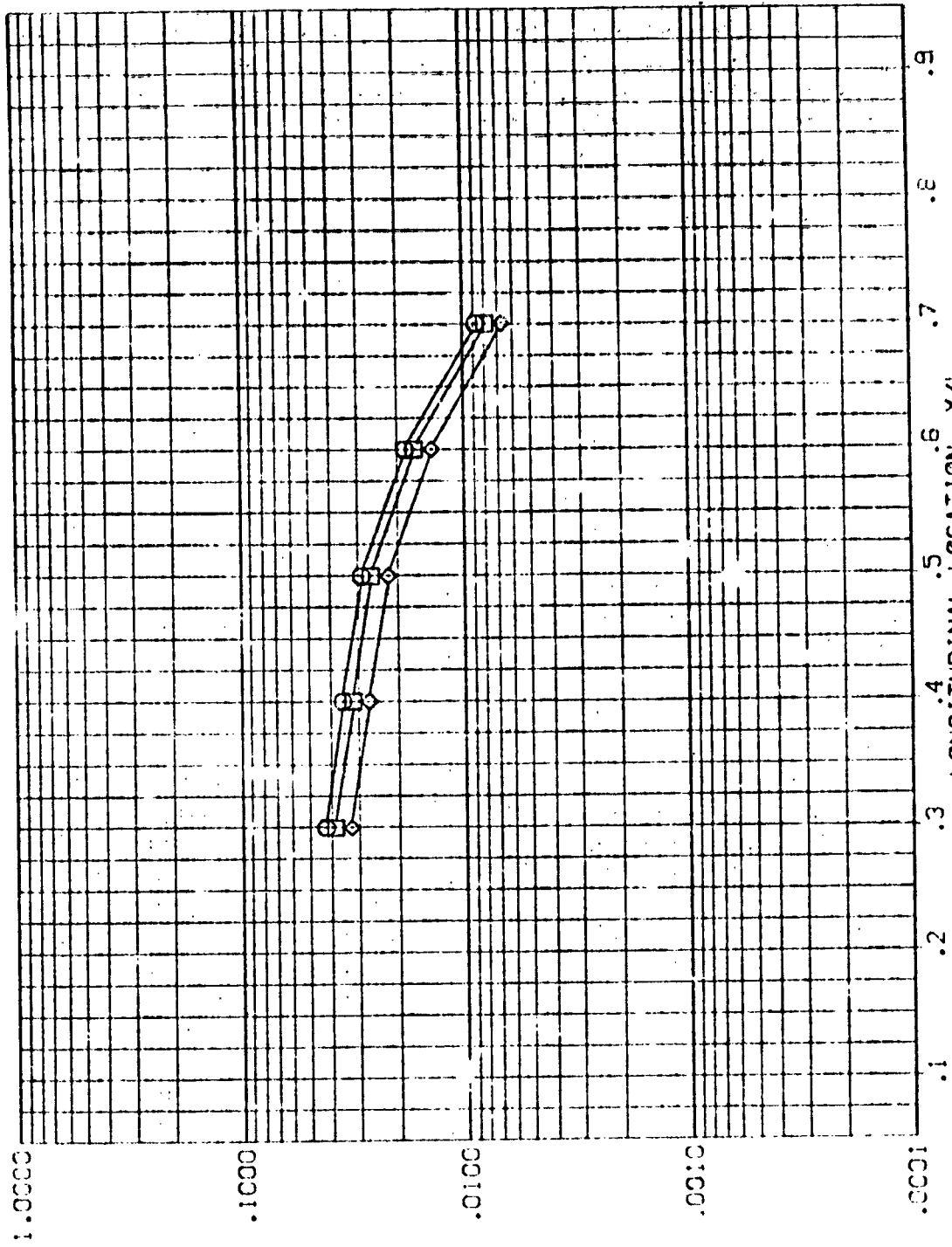


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REV811)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA 30.000 BETA .000  
RM/L 4.000

SYMBOL HAW/HT Z MACH  
□ .850 501.000 5.300  
○ .900  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

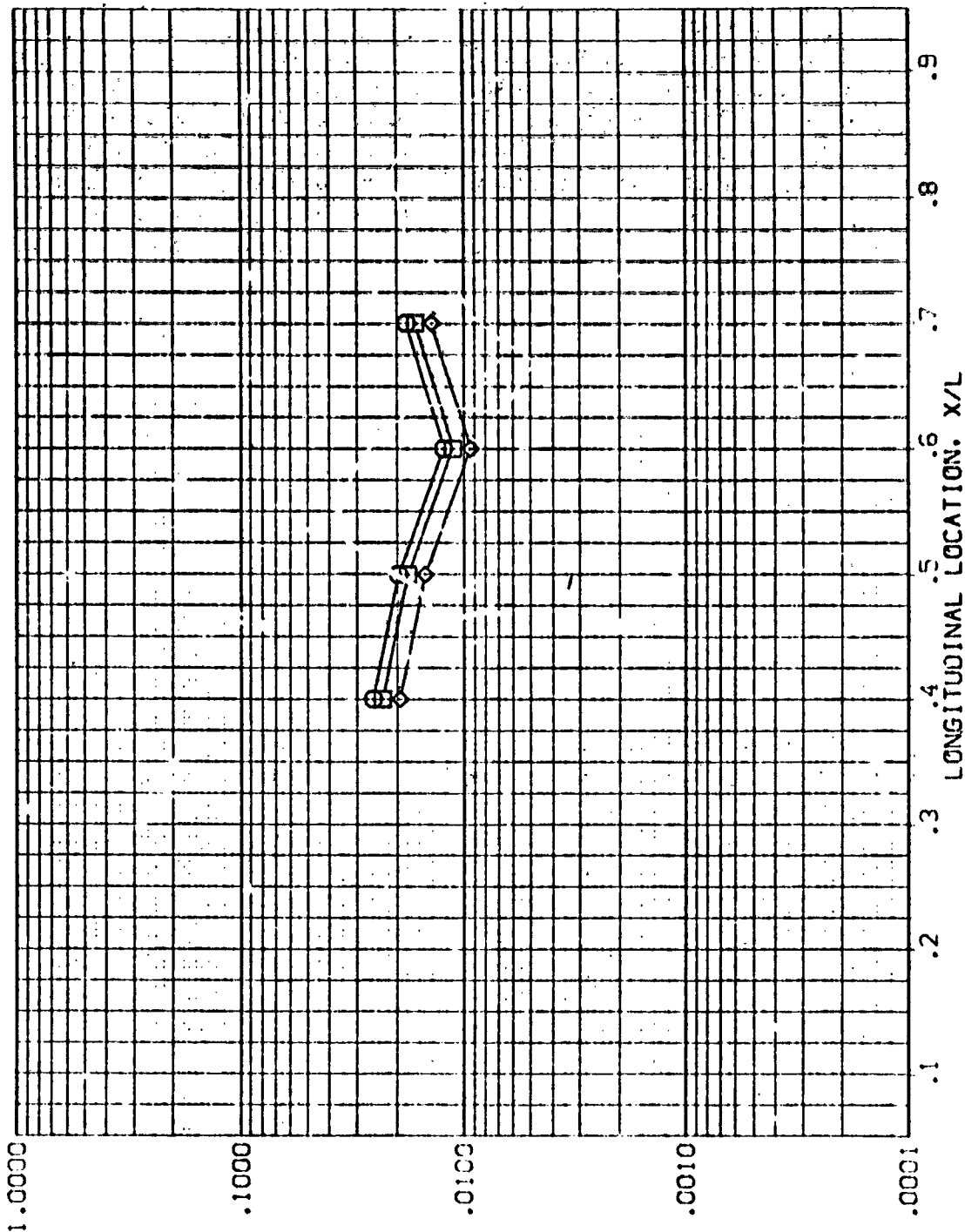


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH2P 01+T1 BODY SIDEWALL (REV.312)

SPEC: HAW/HT Z MACH  
 .850 375.000 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 30.000 DEG  
 R.L. 1.000  
 -5.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

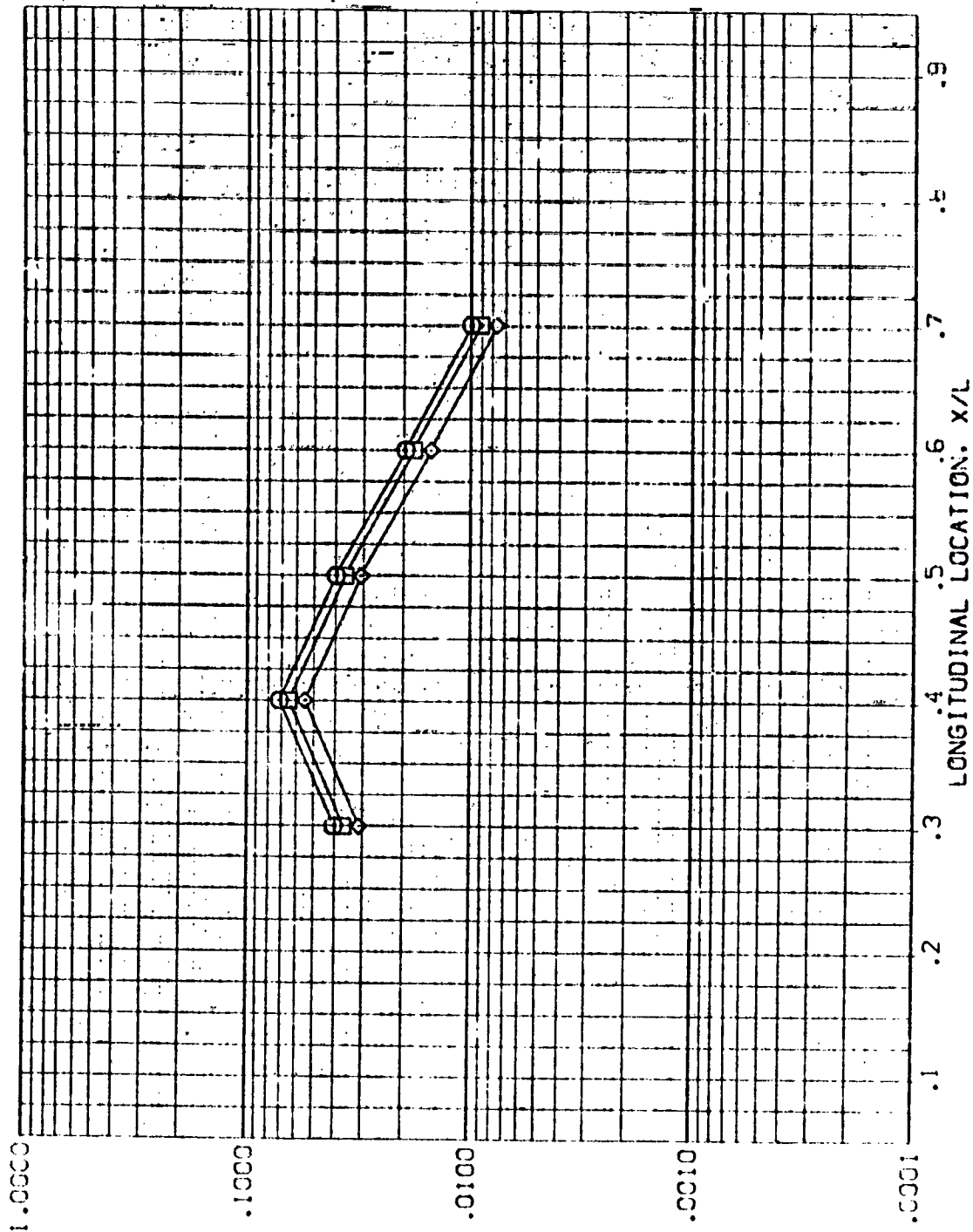


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB12)

SYMBOL  $\square$   $\diamond$

HAW/HT .850  
Z 425.000  
MACH 5.220

PARAMETRIC VALUES  
ALPHA 30.000  
RN/L 1.000  
BETA -5.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

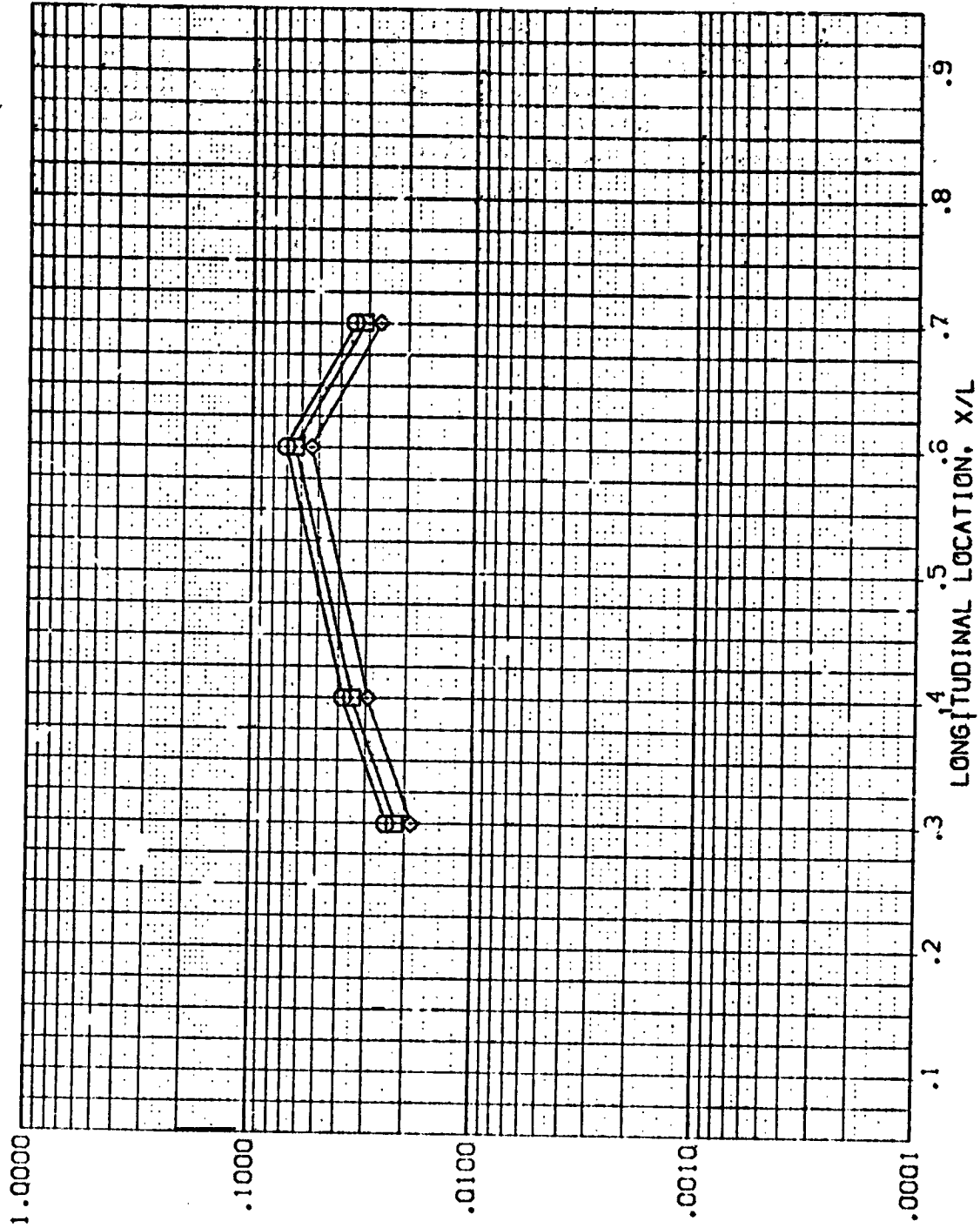


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



(REVB12)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PSI METRIC VALUES  
ALPHA 33 000 BETA -5.000  
RN/L 3.000

MACH 5.220

Z 501.000

HAW/HT .850  
.900  
1.000

SYMBOL  
◇  
□  
○

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

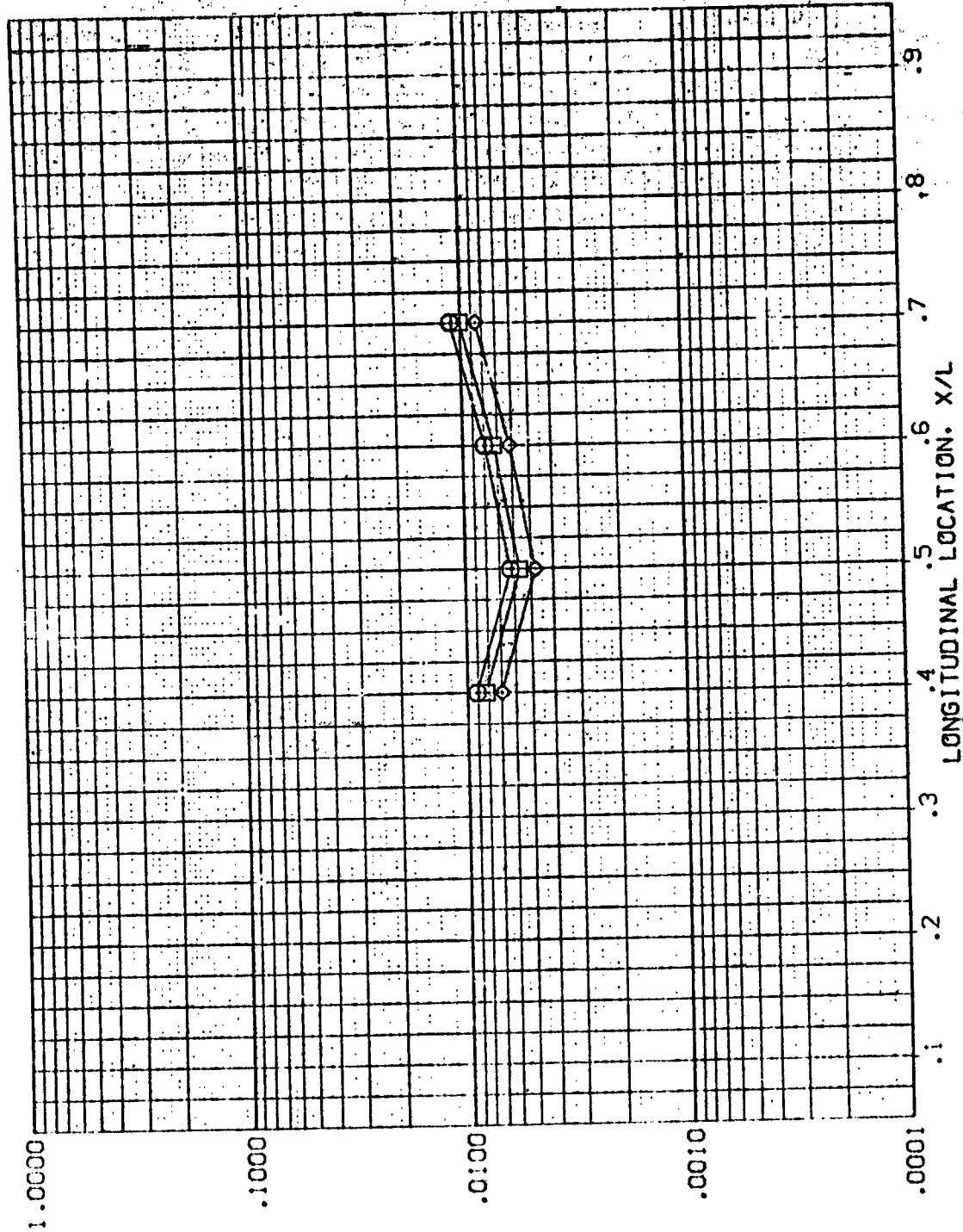


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REV B01)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

SYMBOL	HAW/HT	X/L	MACH	ALPHA	BETA
◇	.850	.300	5.228	.008	.000
□	.900			1.000	
◇	1.000				

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

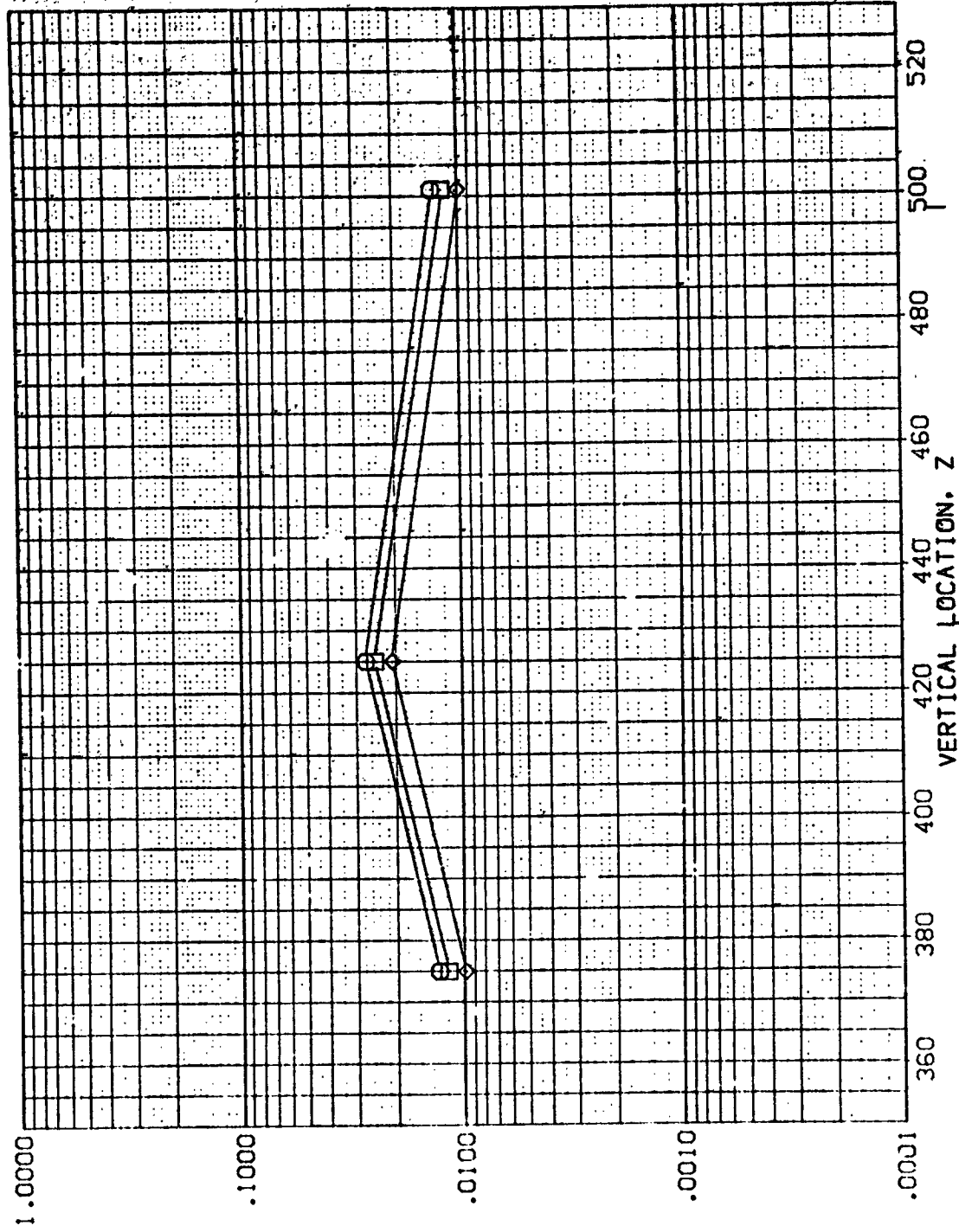


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV B01)

SYMBOL	HAW/HT	X/L	MACH	PARAMETRIC VALUES	
				ALPHA	BETA
◇	.850	.400	5.228	.000	.000
□	.300			1.000	
◇	1.000				

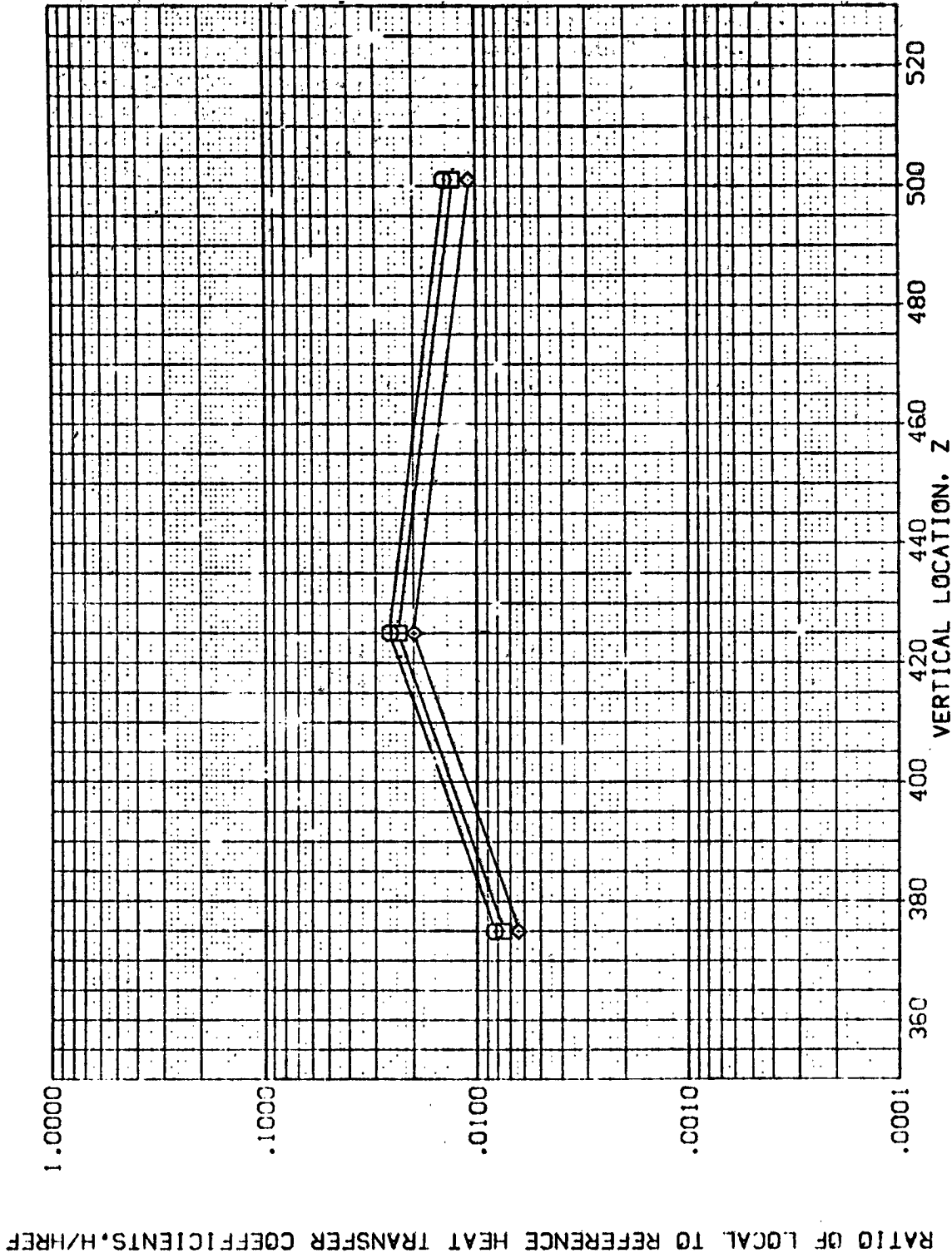


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV B01)

SYMBOL:  $\diamond$   $\square$   $\circ$   $\square$   $\circ$

PARAMETRIC VALUES

HAW/HT	X/L	MACH	ALPHA	BETA
.850	.500	5.228	RN/L	
.900			1.000	.000
1.000				

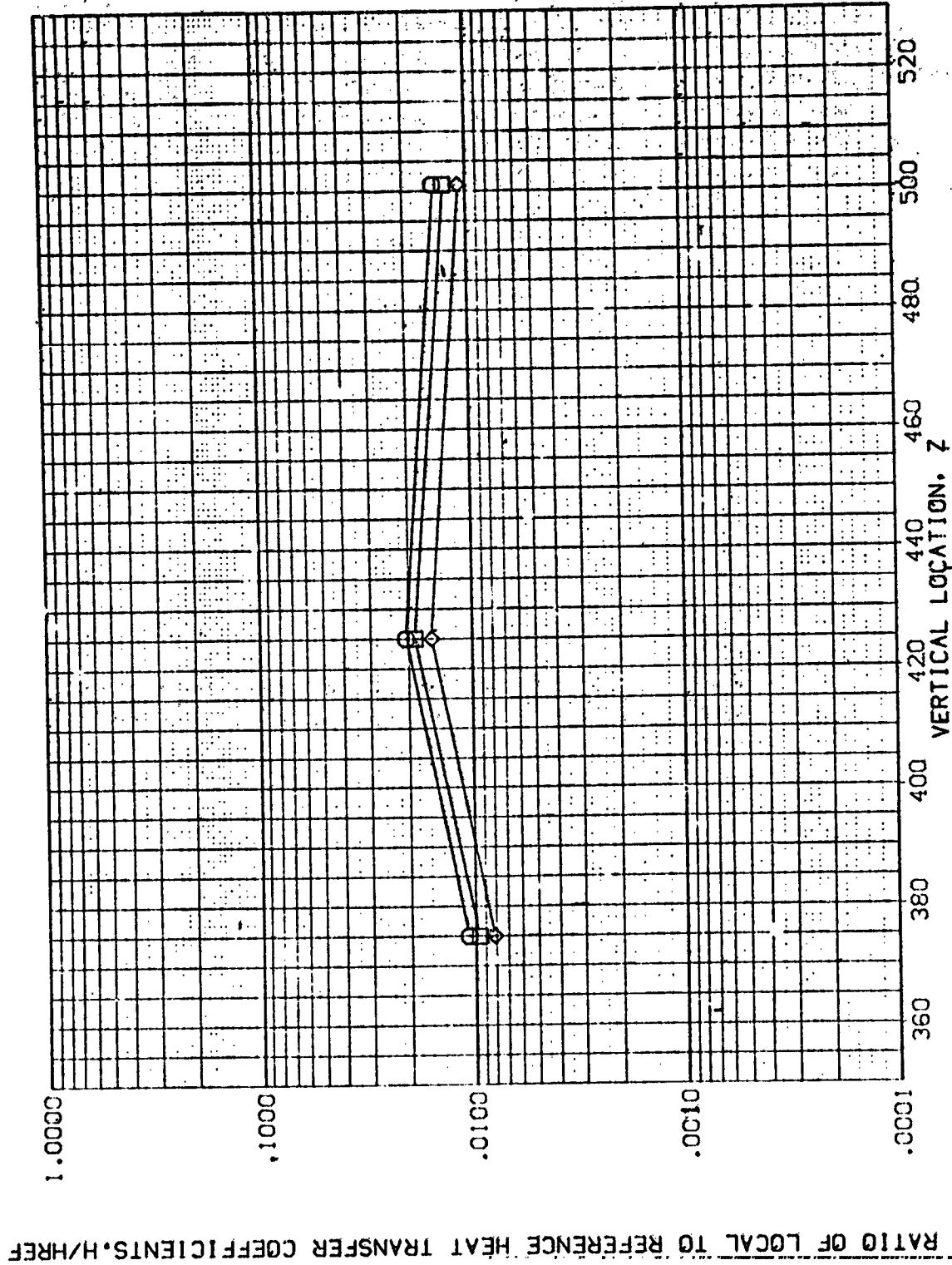


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV B01)

PARAMETRIC VALUES  
 ALPHA .000  
 BETA 1.000  
 RN/L .060

SYMBOL  
 HAV/HT .850  
 X/L .600  
 MACH 5.228  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

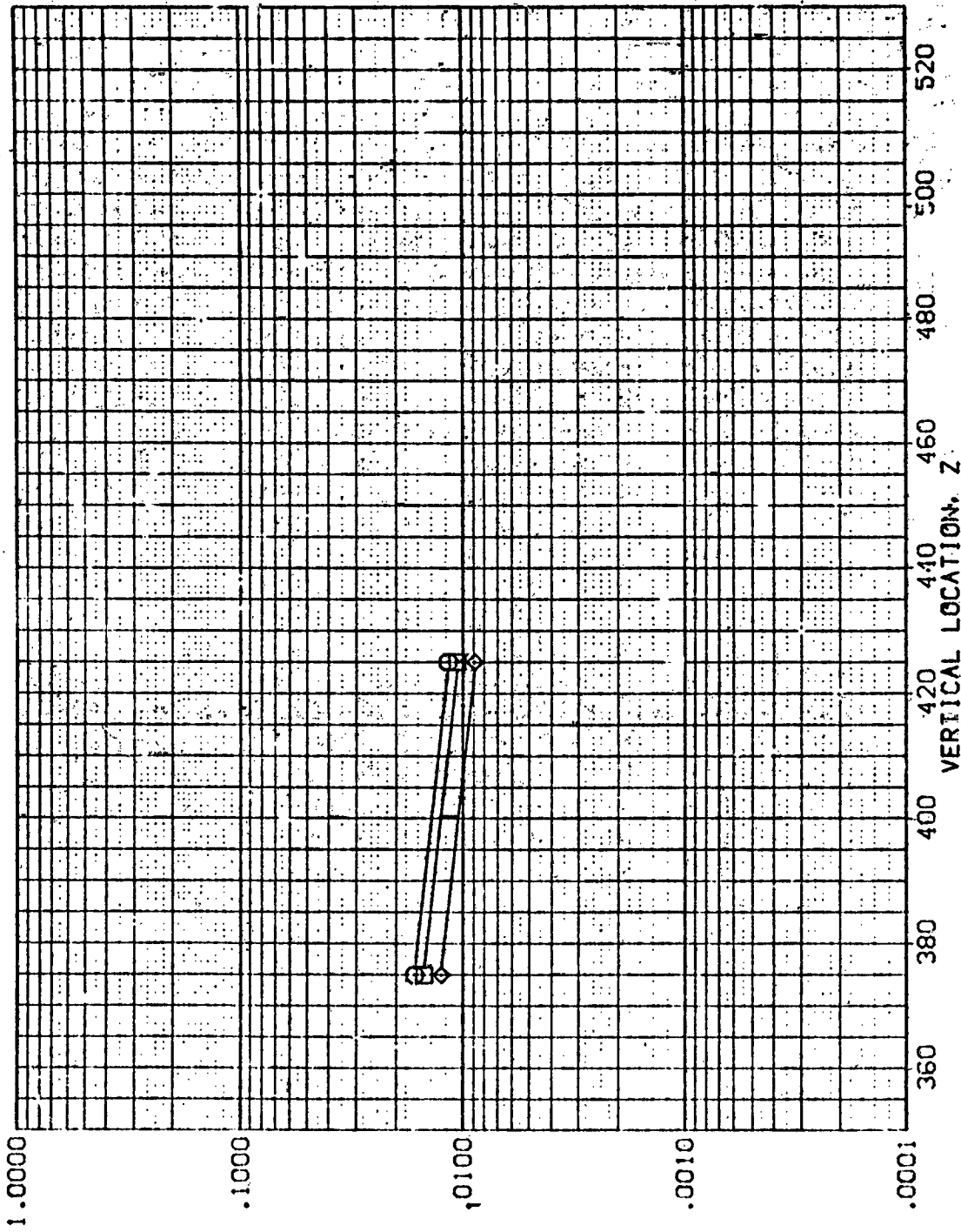


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL-

(REVB01)

SYMBOL  
 ◊  
 □  
 ○

HAW/HT .850  
 .900  
 1.000

X/L .700

MACH 5.228

PARAMETRIC VALUES  
 ALPHA .000  
 RN/L 1.000  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

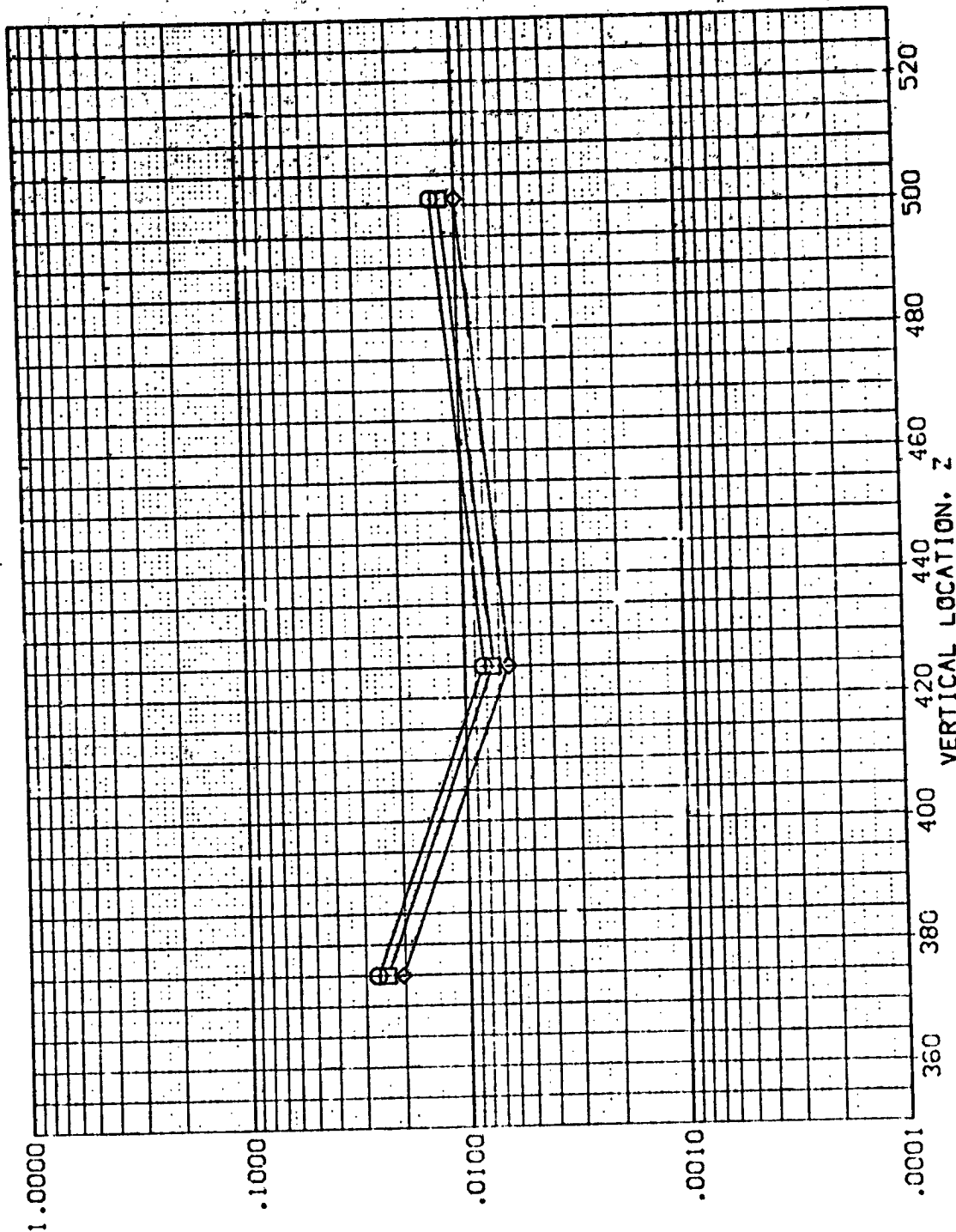


FIG. 11 ORBITER BODY SIDEWALL. ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV B02)

PARAMETRIC VALUES  
 ALPMA: 30,000 BETA .000  
 RM/L: 1.000

SYMBOL:  $\square$   $\diamond$   
 HW/HT: .950  
 A/L: .300  
 MACH: 5.219

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

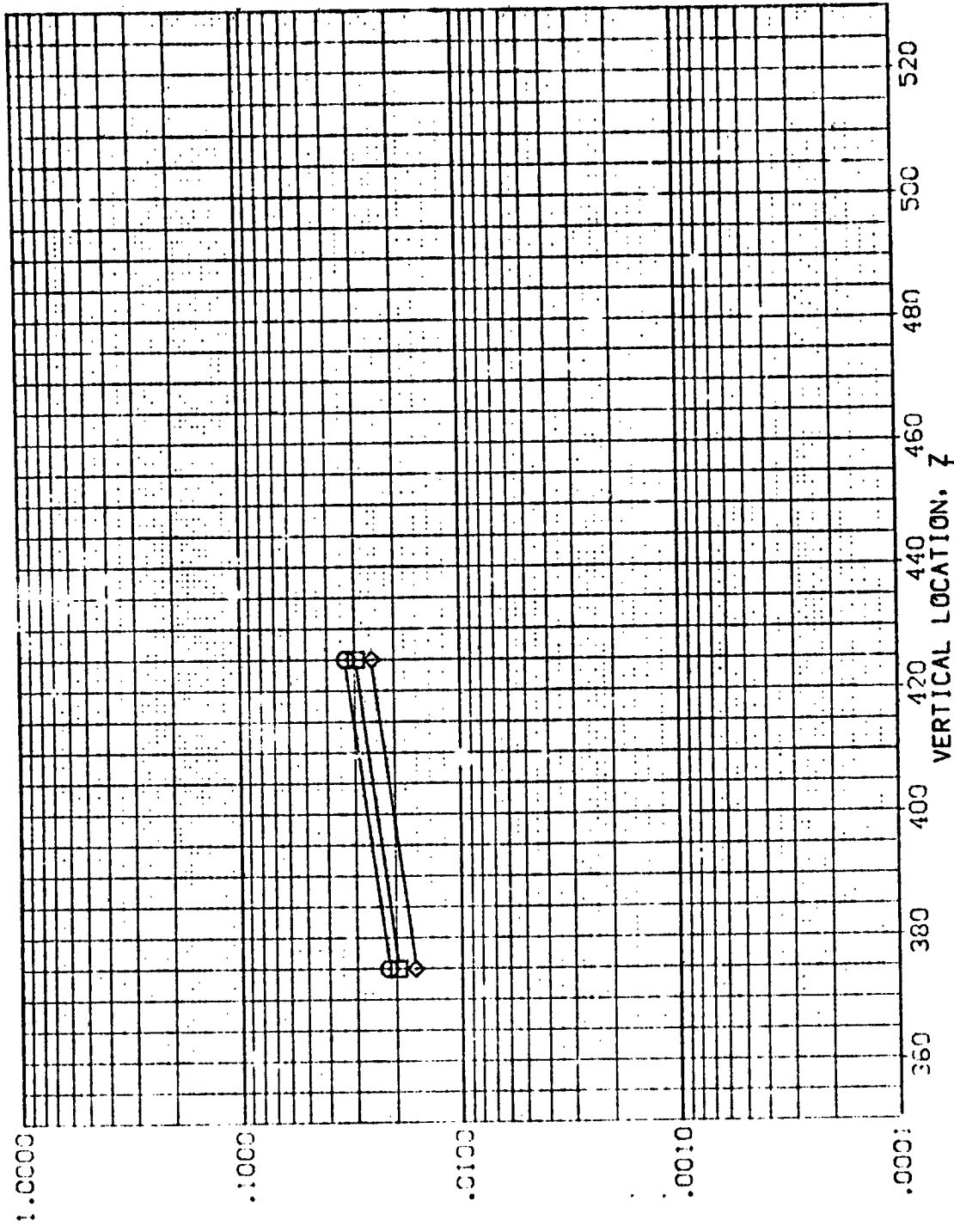


FIG. 11: ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

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 NATIONAL BUREAU OF STANDARDS

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB02)

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 RNU/L .000

SYNOPSIS  
 HAW/HT .850  
 X/L .100  
 MACH 5.219  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

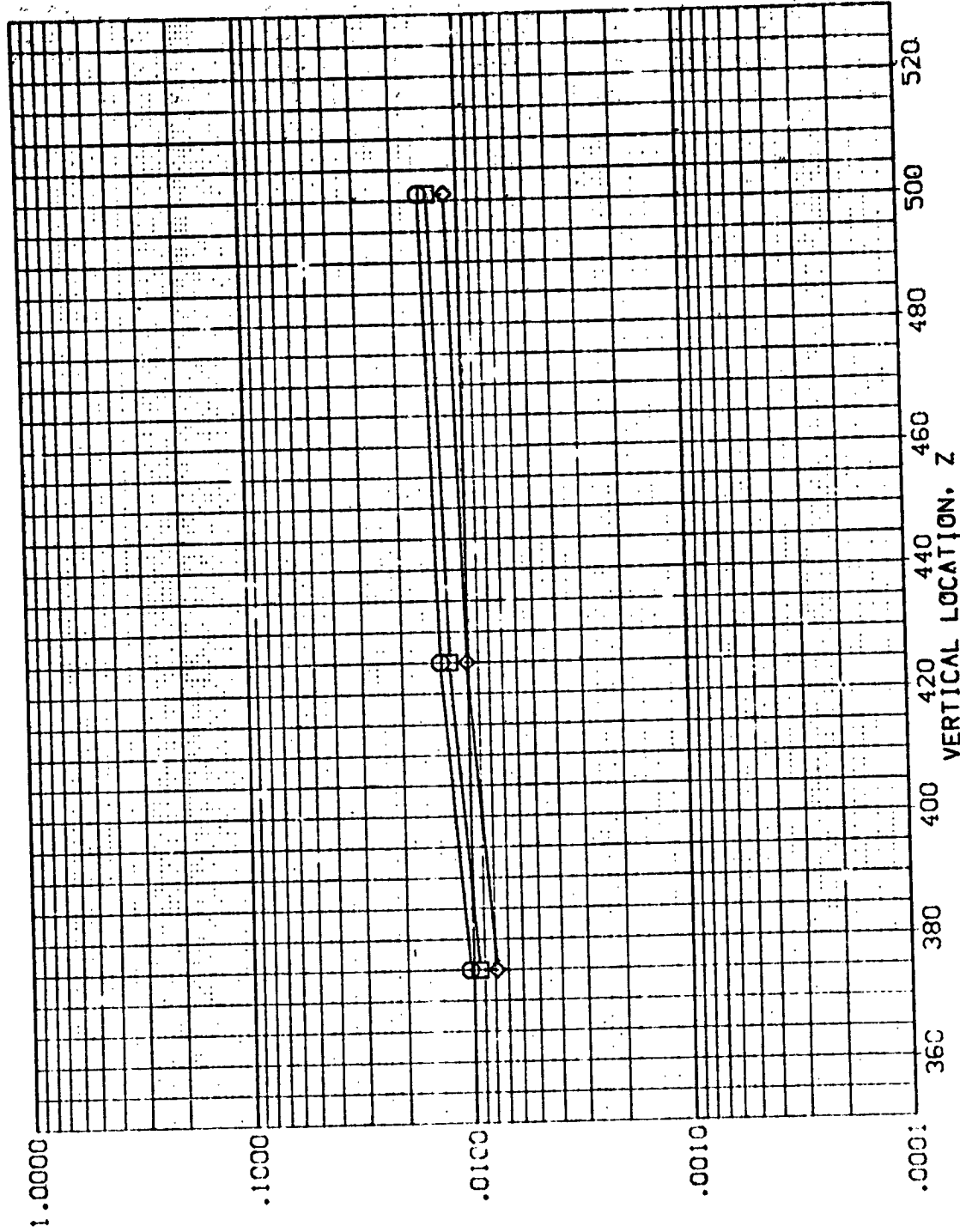


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB02)

SYMBOLS  
 ◊ □

HA/HT .850  
 X/L .500  
 MACH 5.219

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 RN/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

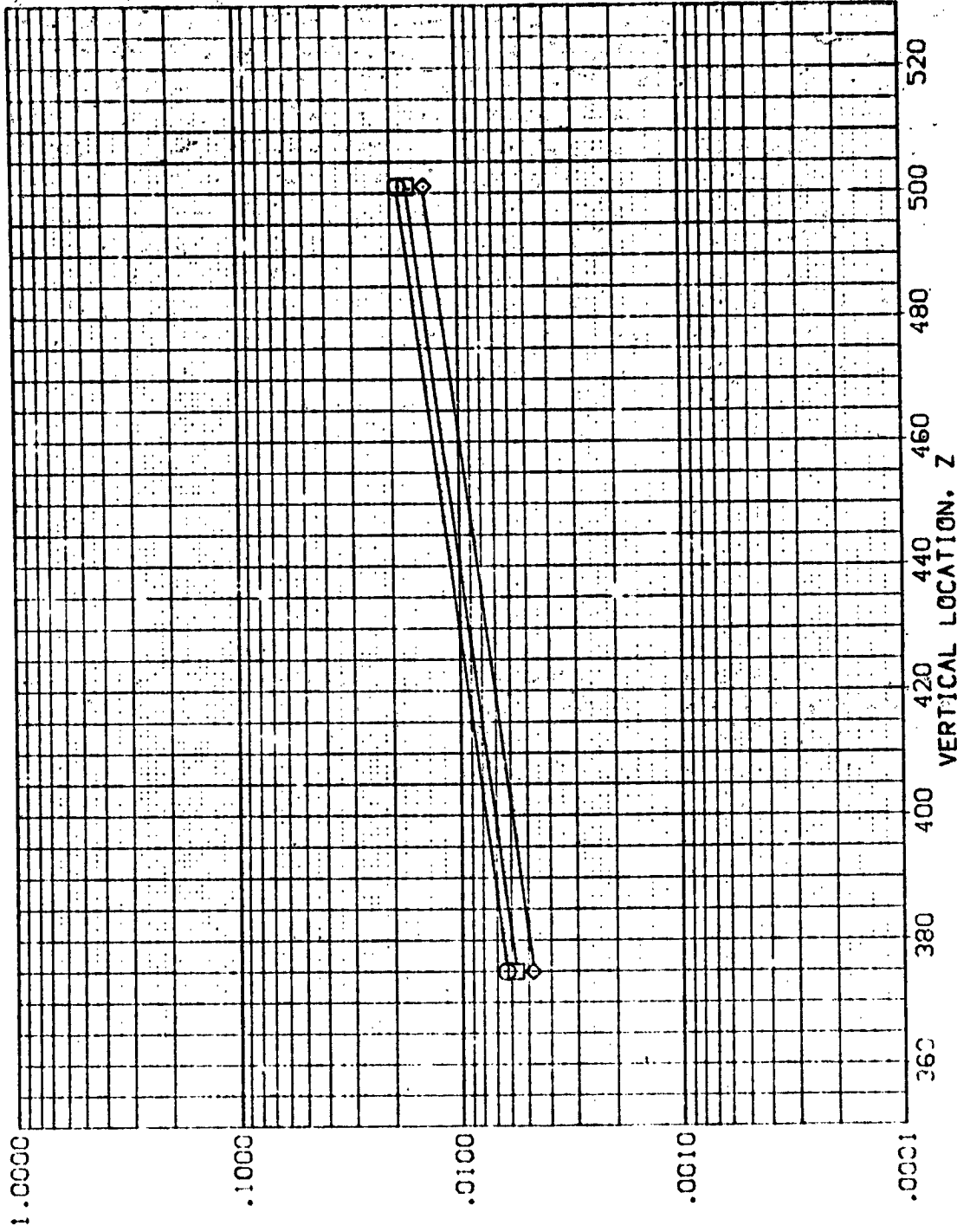


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB02)

SYMBOL	MAV/HT	X/L	MACH	PARAMETRIC VALUES	
□	.850	.600	5.219	ALPHA	BETA
◇	.900			RN/L	
	1.000				.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

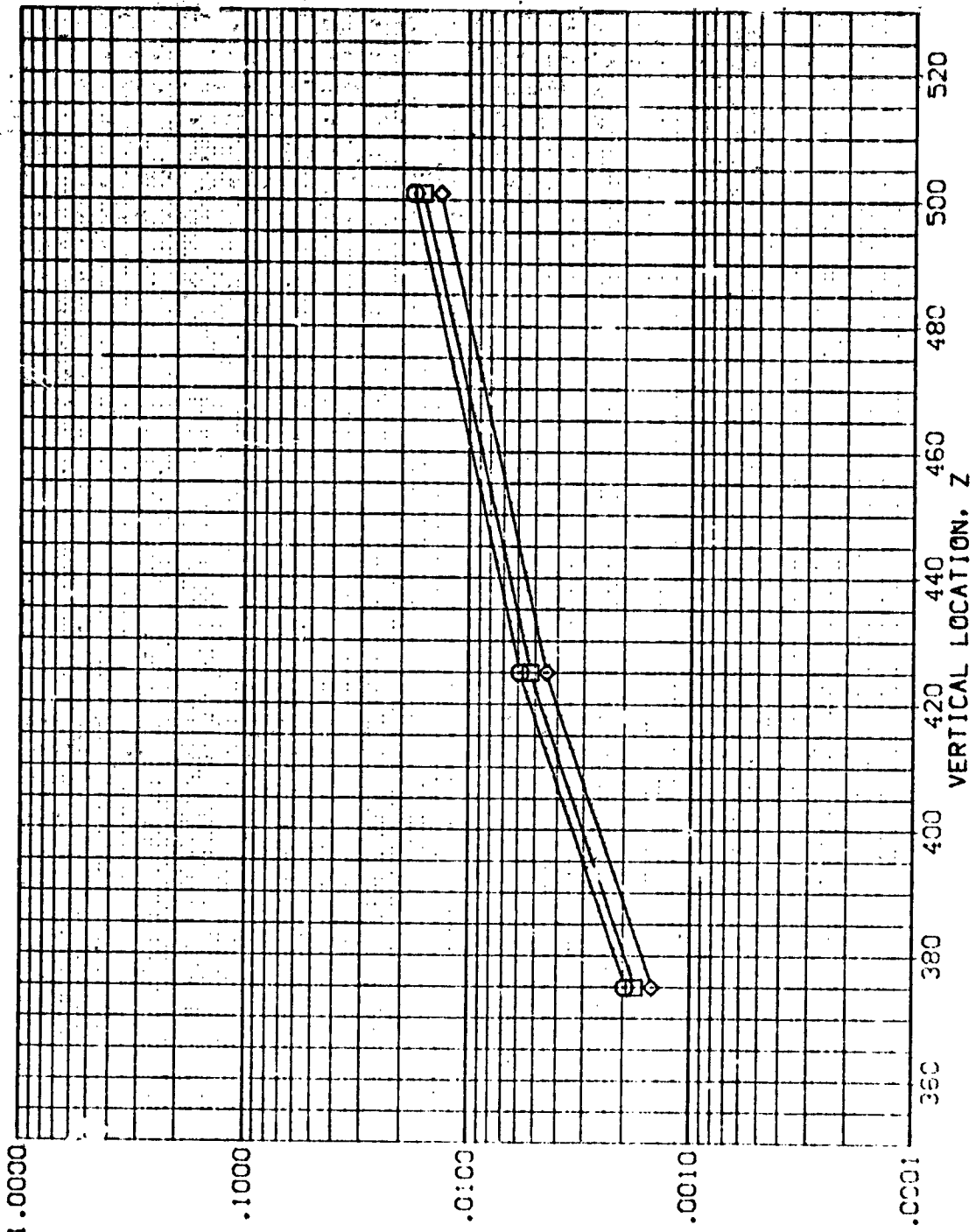


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(RE. 802)

AMES 3.5-195 1428 01+T1 BODY SIDEWALL

SYMB.  $\diamond$   $\square$   
W<sub>0</sub>/HT .850  
X/L .700  
MACH 5.279

PARAMETRIC VALUES  
ALPHA 30.000  
BE<sup>2</sup>A 1.000  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

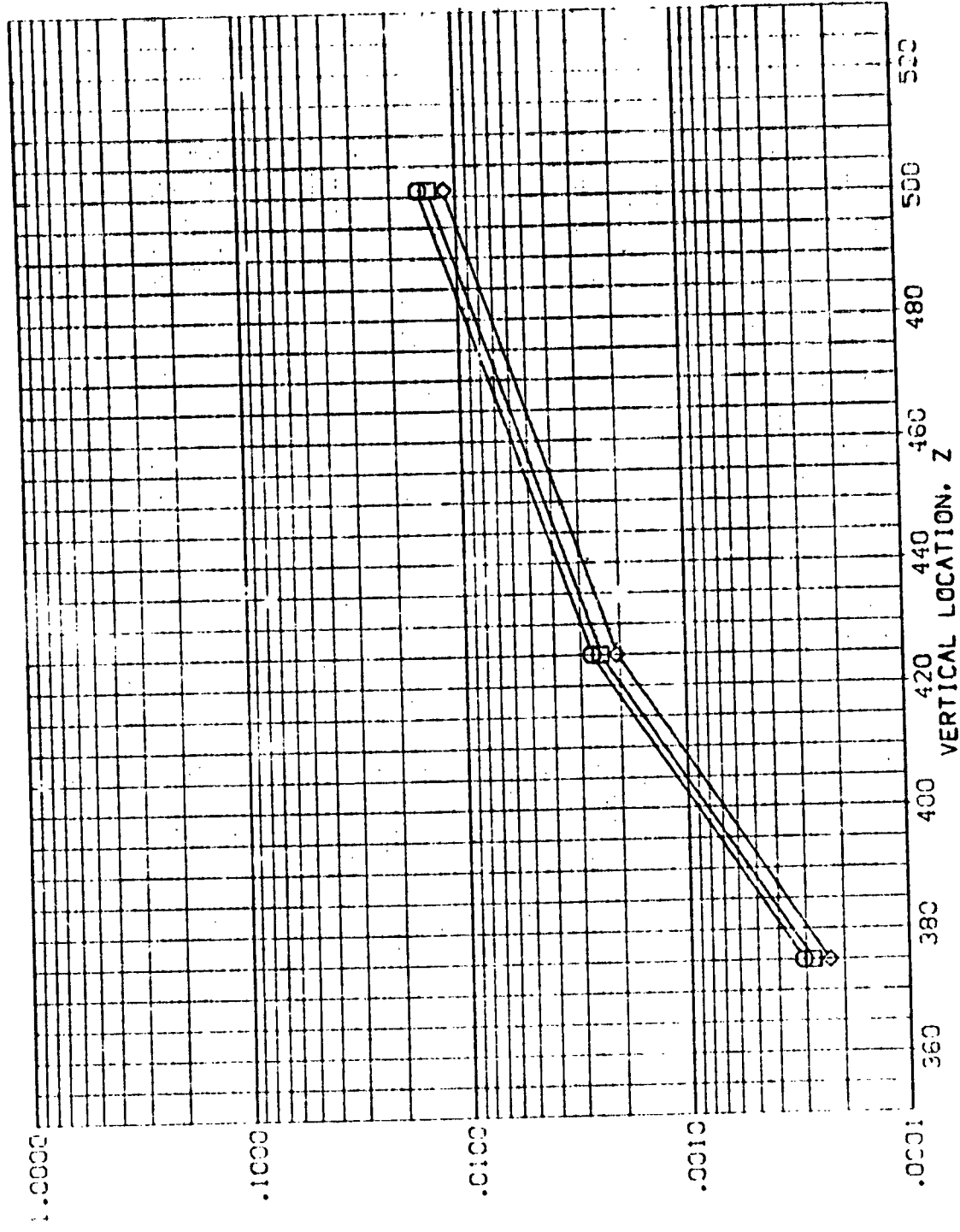


FIG. 11 ORBITER BODY SIDEWALL. ORBITER IN PRESENCE OF THE TANK

(REVB03)

AMES 3.5-195 1428 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
60.000 BETA .000  
1.000

ALPHA  
RN/L

MACH  
5.220

X/L  
.300

HAW/HT  
.850  
.900  
1.000

SYMBOL  
◇  
◇

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

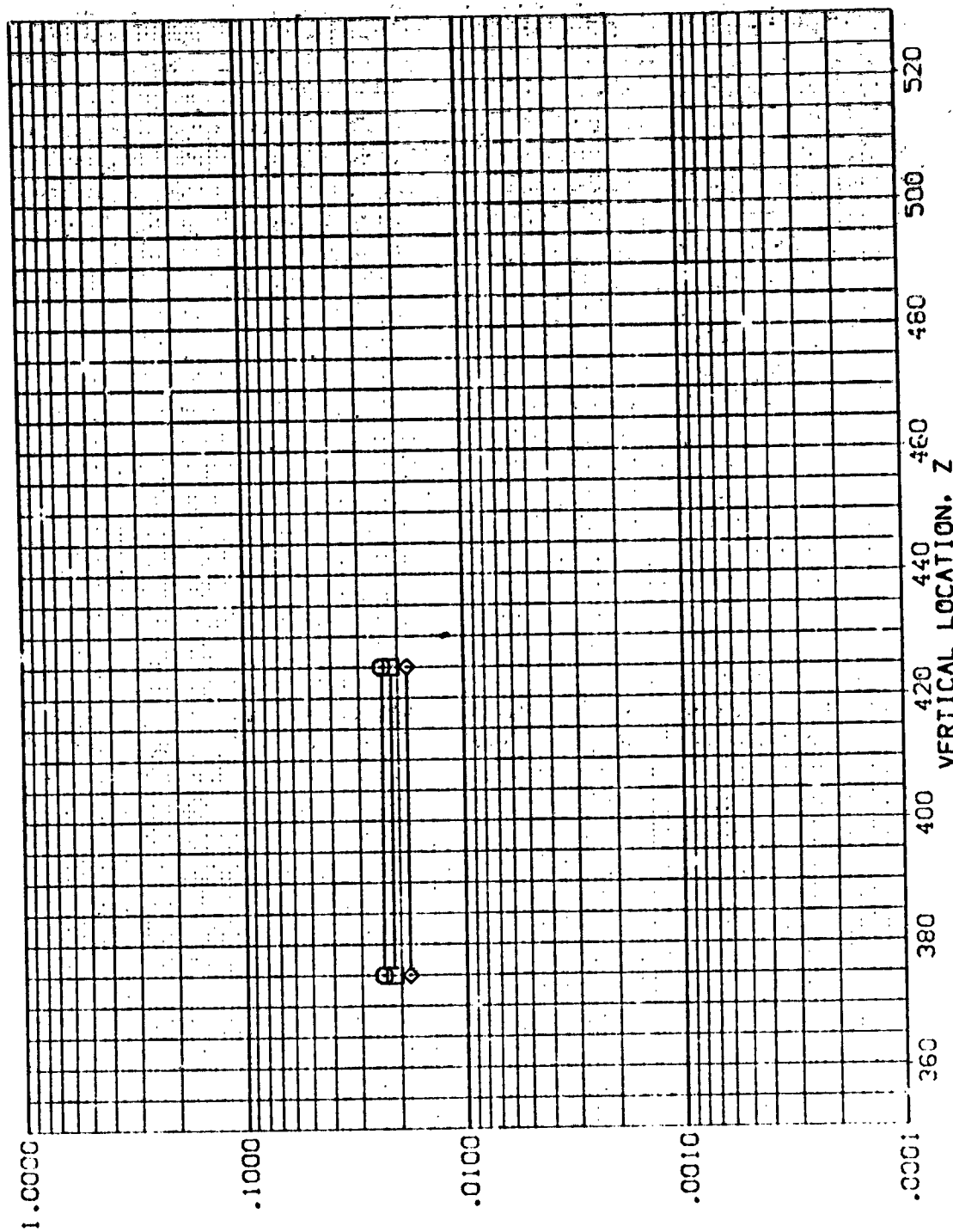


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVISED)

SYMBOL MACH/HT X/L MACH  
◇ .850 .400 5.220  
○ .900  
□ 1.020

PARAMETRIC VALUES  
ALPHA .000  
BETA .000  
SCALE  
RANGE

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

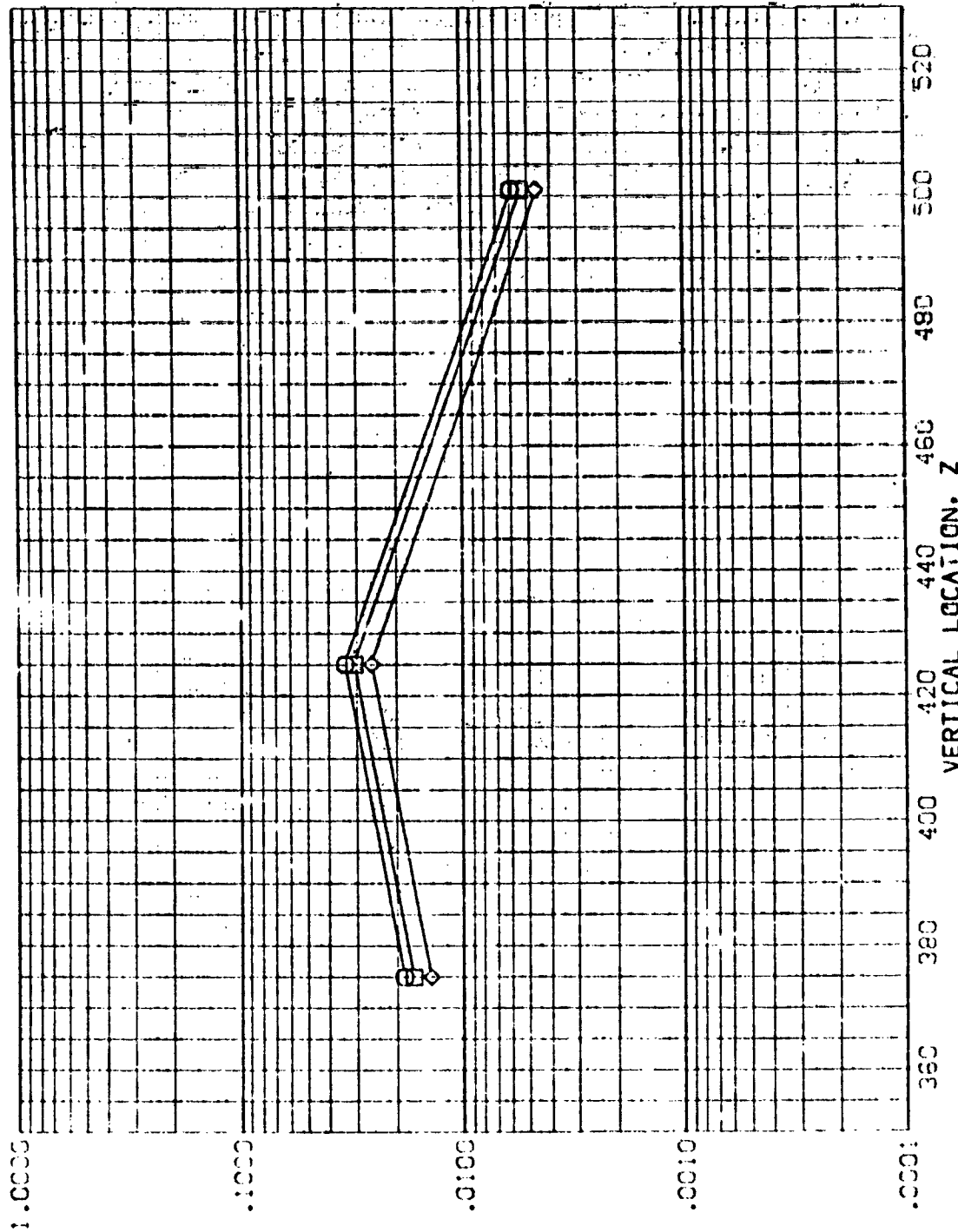


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB03)

SYMBOL	MAV/HT	X/L	MACH	PARAMETRIC VALUES
◊	.950	.500	5.220	ALPHA 60.000
□	.900			BETA 1.000
◇	1.000			

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

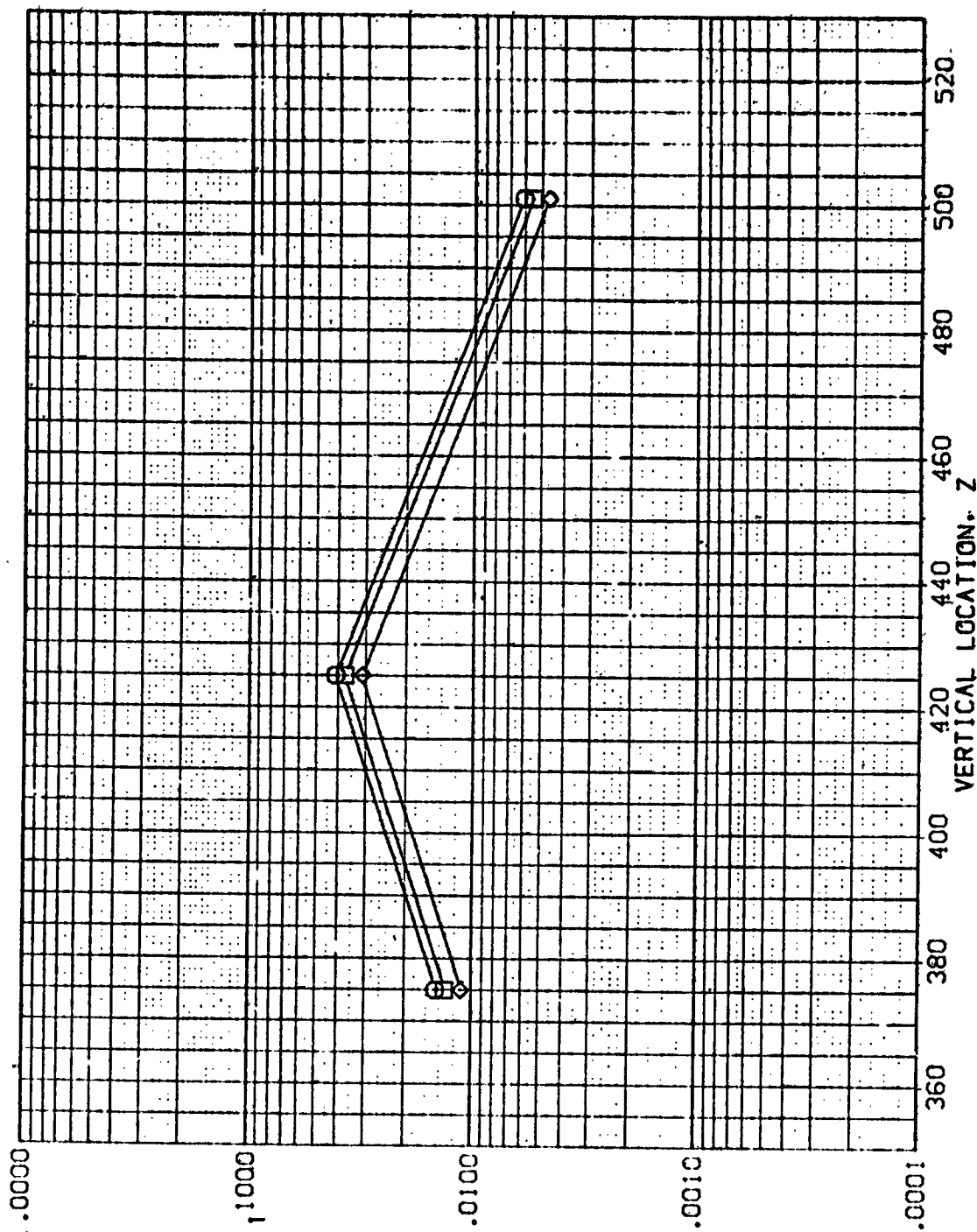


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REVB03)

SYMBOL HAN/HT X/L MACH  
 ◊ .950 .600 5.220  
 ○ .900  
 ◊ 1.000

PARAMETRIC VALUES  
 60.000 ALPHA  
 1.000 BETA  
 1.000 RNL

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

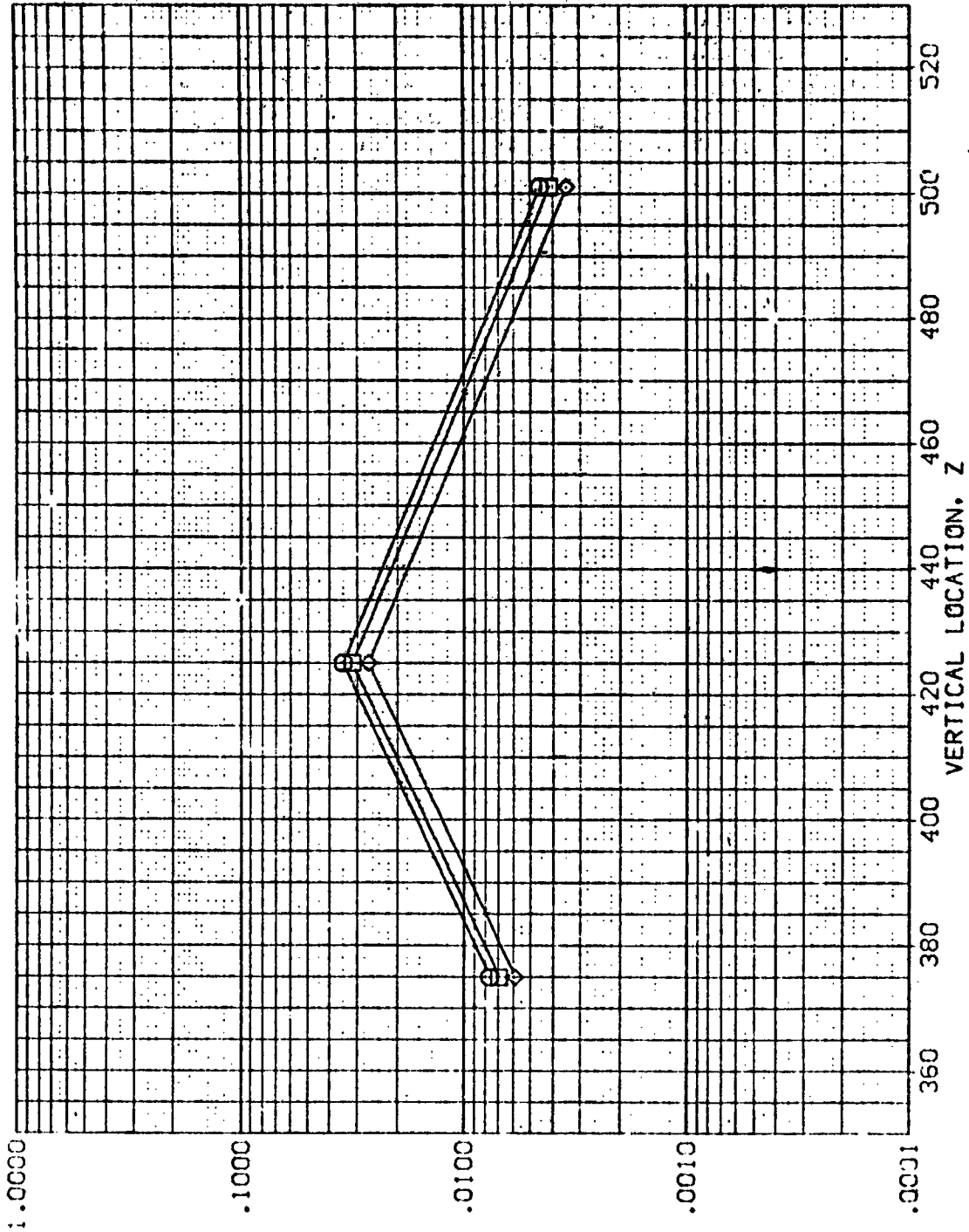


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB03)

PARAMETRIC VALUES  
 ALPHA 60,000  
 BETA 1,000  
 RAYL .000

SYMBOL MAX/HT X/L MACH  
 ◊ .850 .700 5.220  
 ◻ .900  
 ◊ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

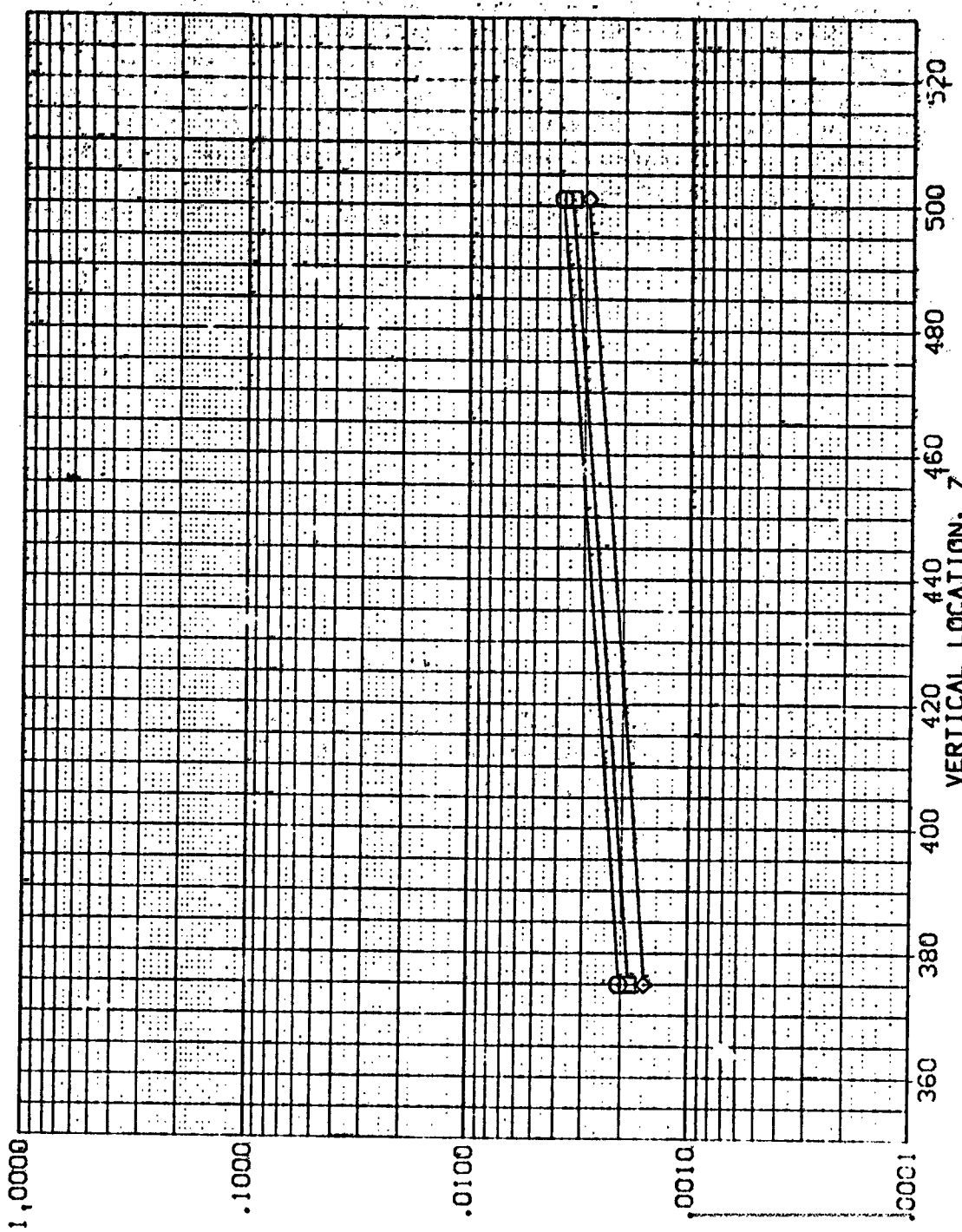


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB04)

SYMBOL:  $\square$   $\diamond$   
 HAWAHT .850  
 X/L .300  
 MACH 5.219

PARAMETRIC VALUES  
 ALPHA 90.000  
 RNV/L 1.000  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

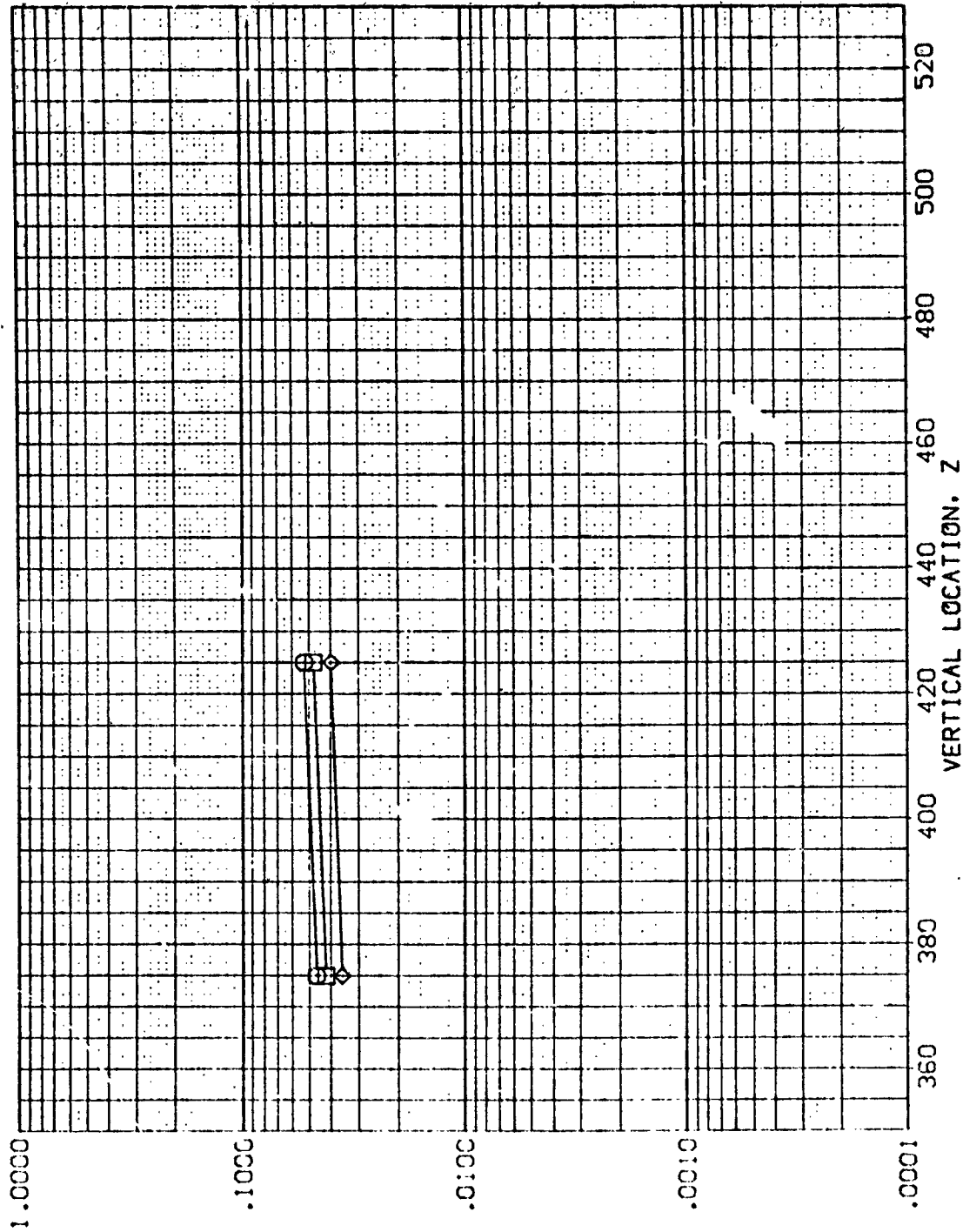


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB04)

SYMBOL    HAV/HT    X/L    MACH    ALPHA    R/V/L    BETA    .000  
 ◊        .850    .400    5.219    90.000    1.000    1.000  
 ◻        .900  
 ◊        1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

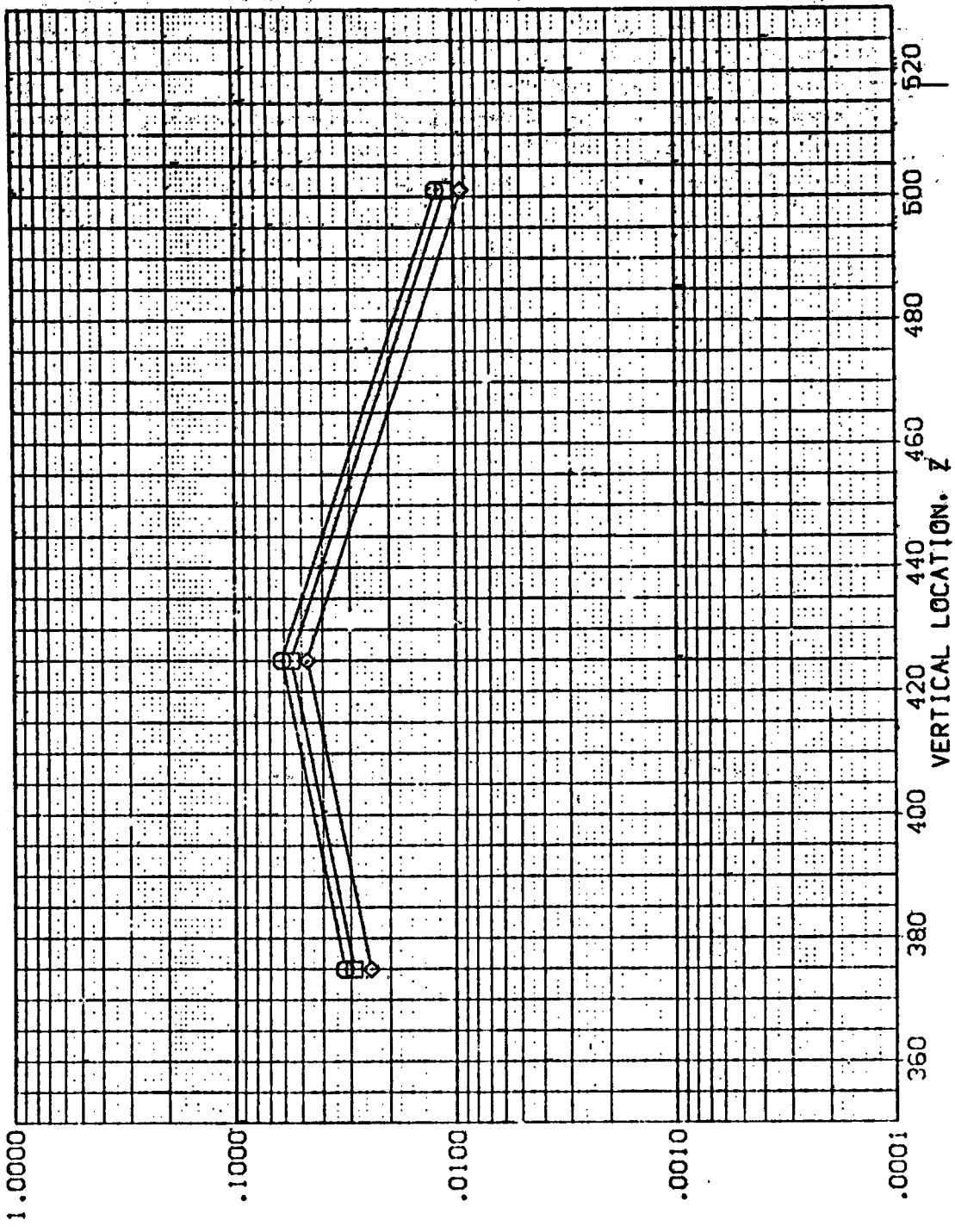


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV B04)

PARAMETRIC VALUES  
 ALPHA 90.002 BETA .000  
 RW/L 1.000

SYMBOL HAW/HT X/L MACH  
 ◊ .850 .500 5.219  
 □ .930  
 ◊ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

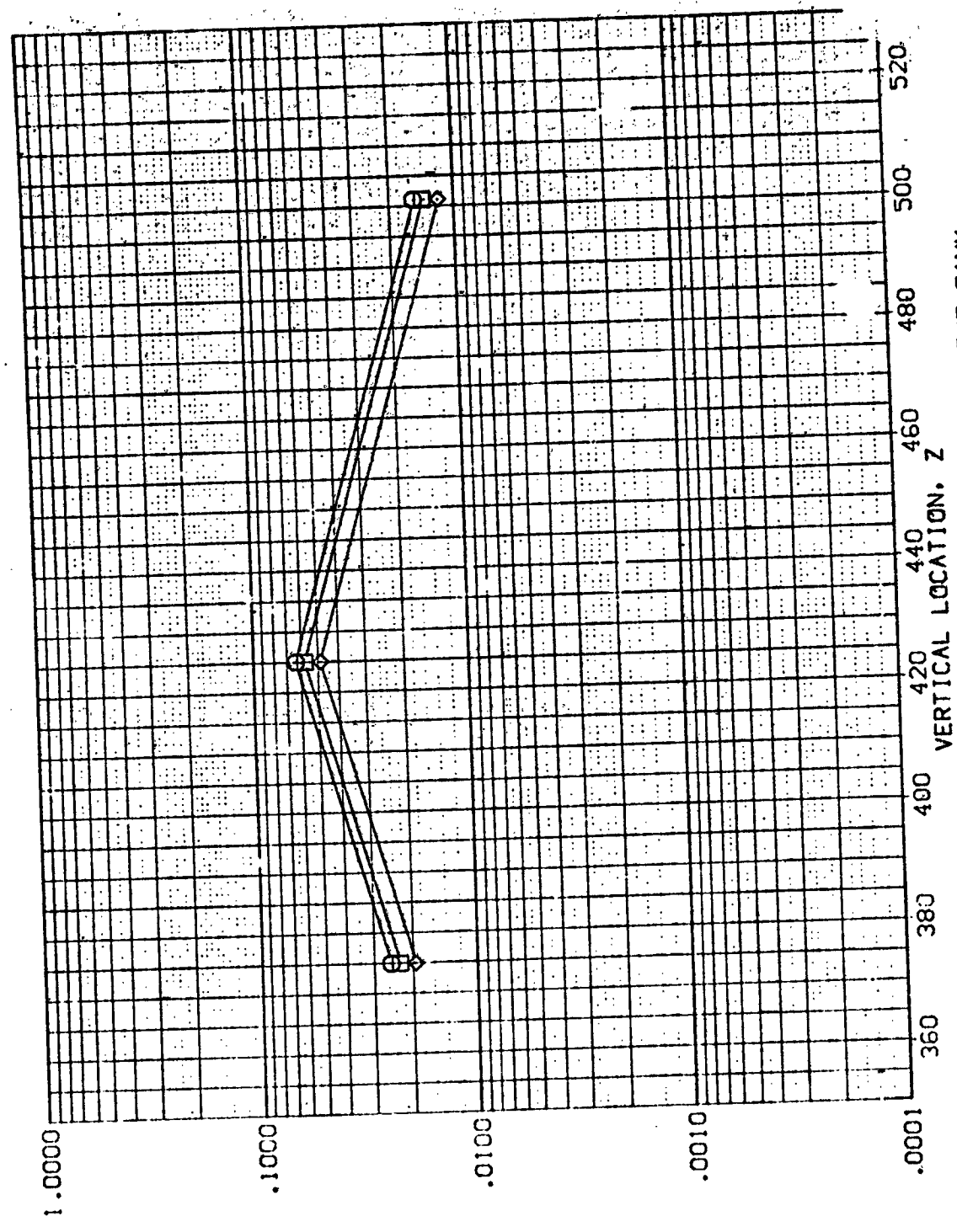


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

REPRODUCIBILITY OF THIS  
 MATERIAL PAGE 18 FOUR

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV B04)

PARAMETRIC VALUES  
 ALPHA 90.000  
 BETA 1.000  
 RV/L .000

SYMBOL HAY/HT X/L MACH  
 ◊ .850 .600 5.219  
 ◻ .900  
 ◊ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

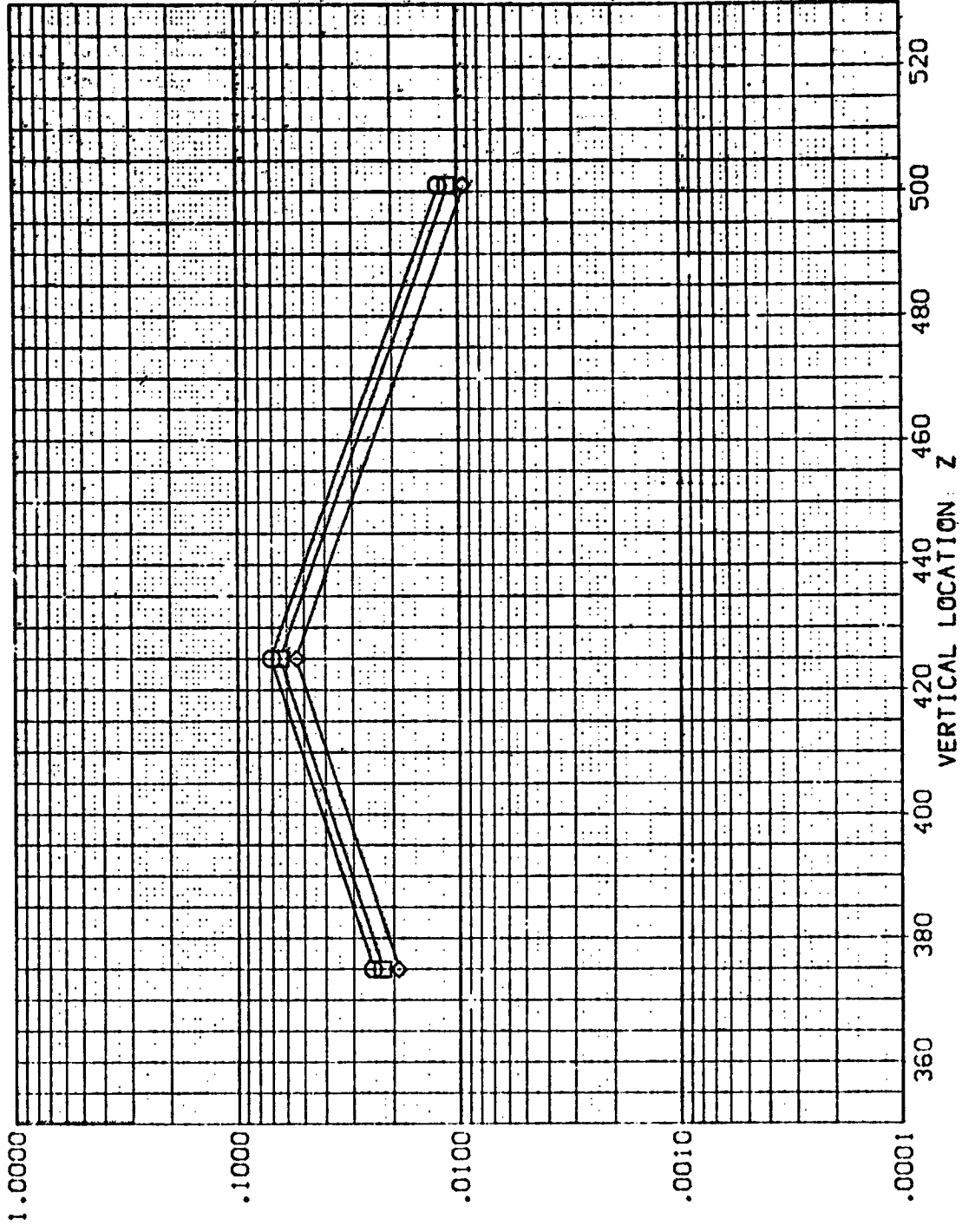


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV804)

PARAMETRIC VALUES	
ALPHA	BETA
90.000	.500
RN/L	1.000

SYMBOL	PARAM	X/L	MACH
◇	.850	.700	5.219
□	.900		
◇	1.000		

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

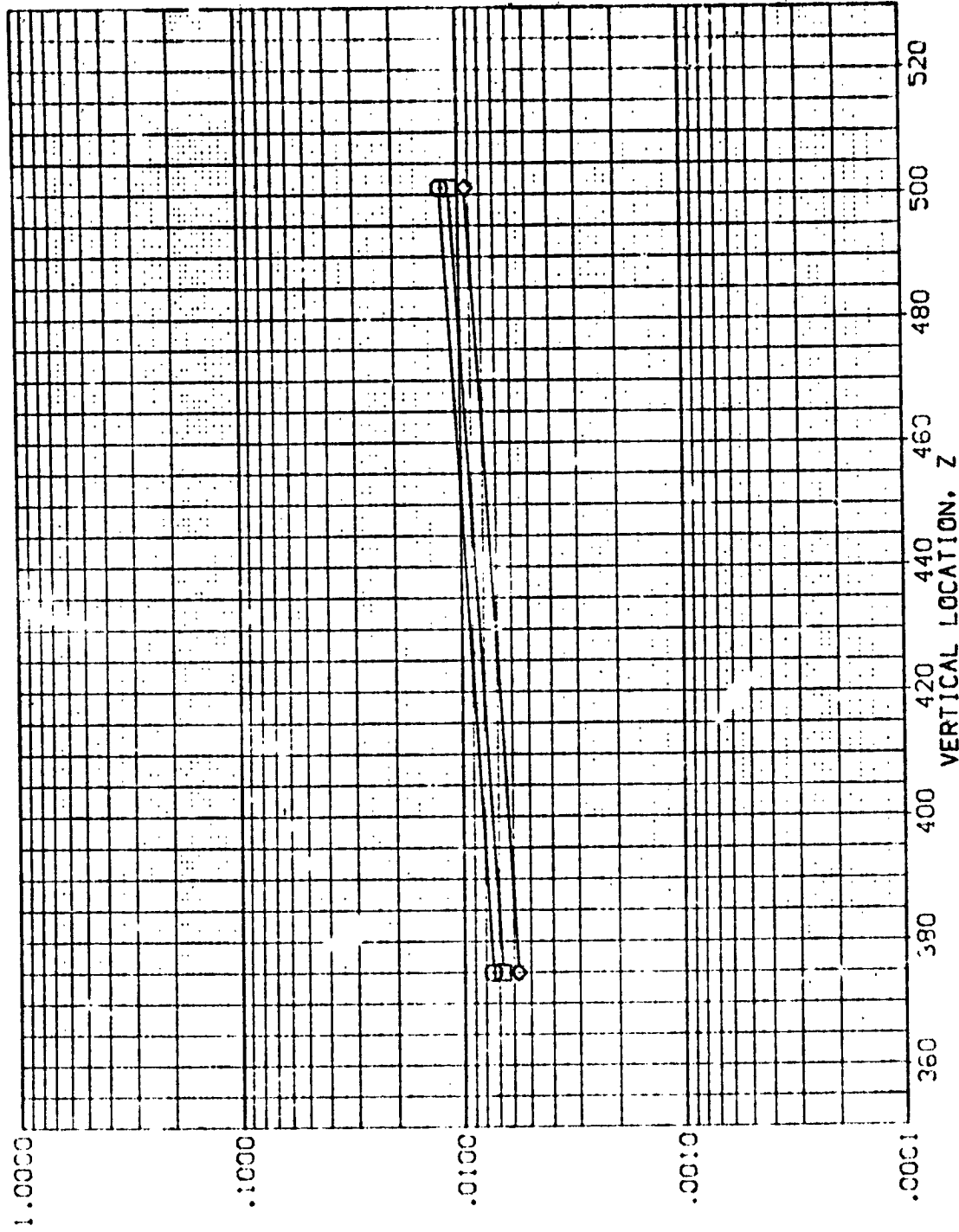


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB05)

SYMBOL MAW/HT X/L MACH  
 ◊ .850 .300 5.220  
 □ .900  
 ○ .000

PARAMETRIC VALUES  
 ALPHA 120.000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

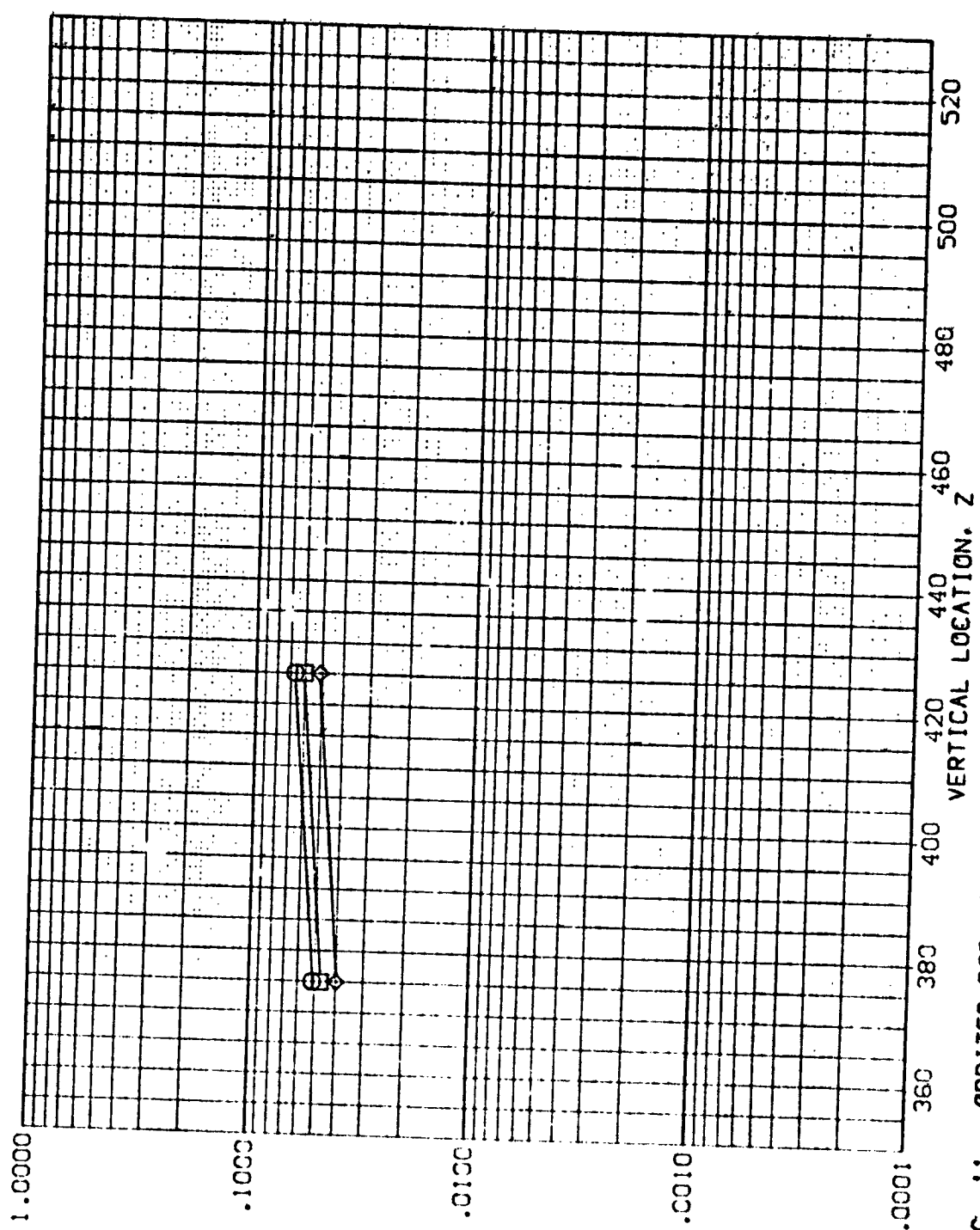


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV B05)

PARAMETRIC VALUES  
 ALPHA 120.000 BETA .000  
 RN/L 1.000

SYMBOL HAV/HT X/L MACH  
 □ .850 .400 5.220  
 ○ .930 .400 5.220  
 ◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

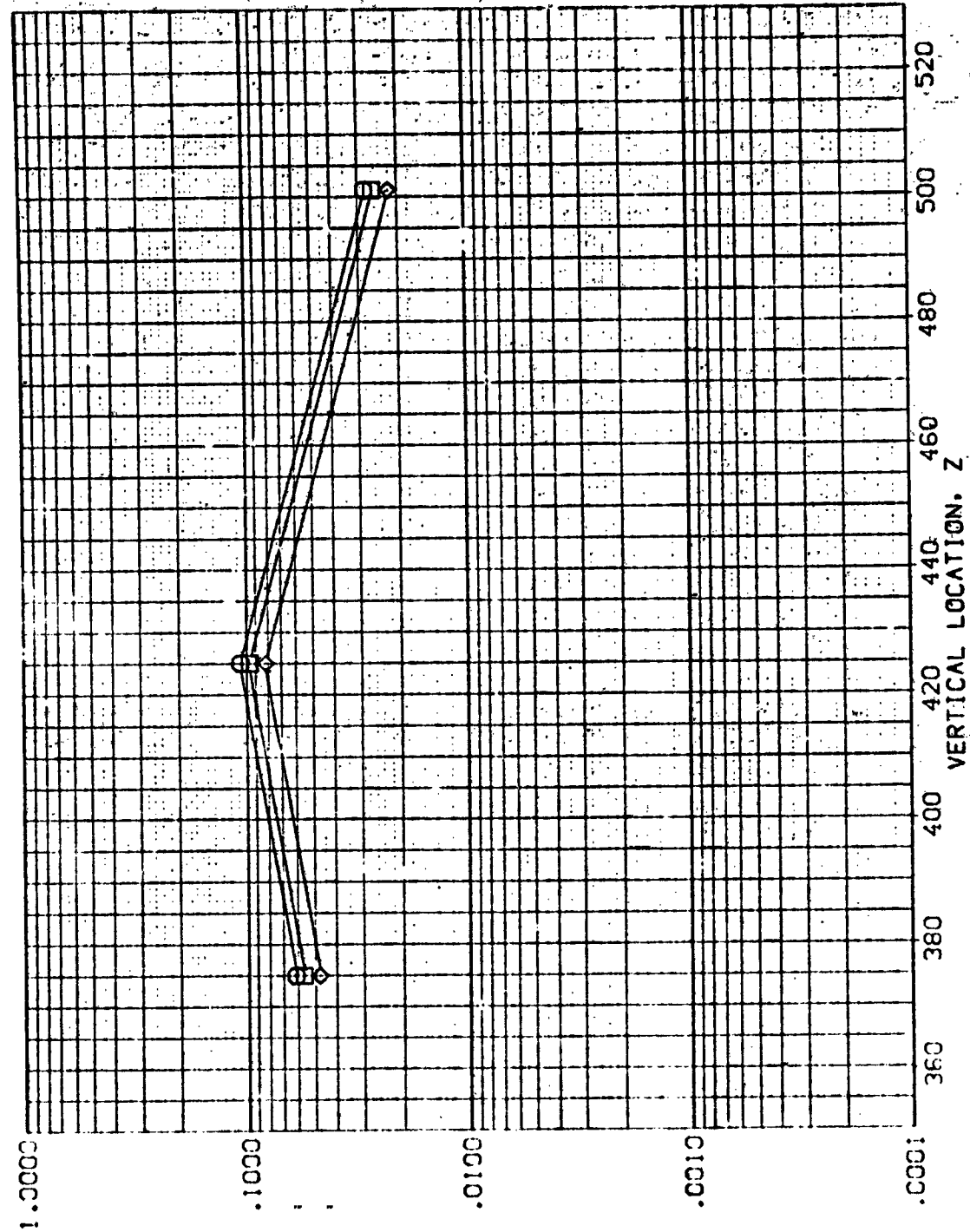


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REV B05)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

SYMBOL    MAX/HT    X/L    MACH

◇    .850    .500    5.220

□    .900

○    1.000

PARAMETRIC VALUES

BETA    .000

ALPHA    120.000

RV/L    1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

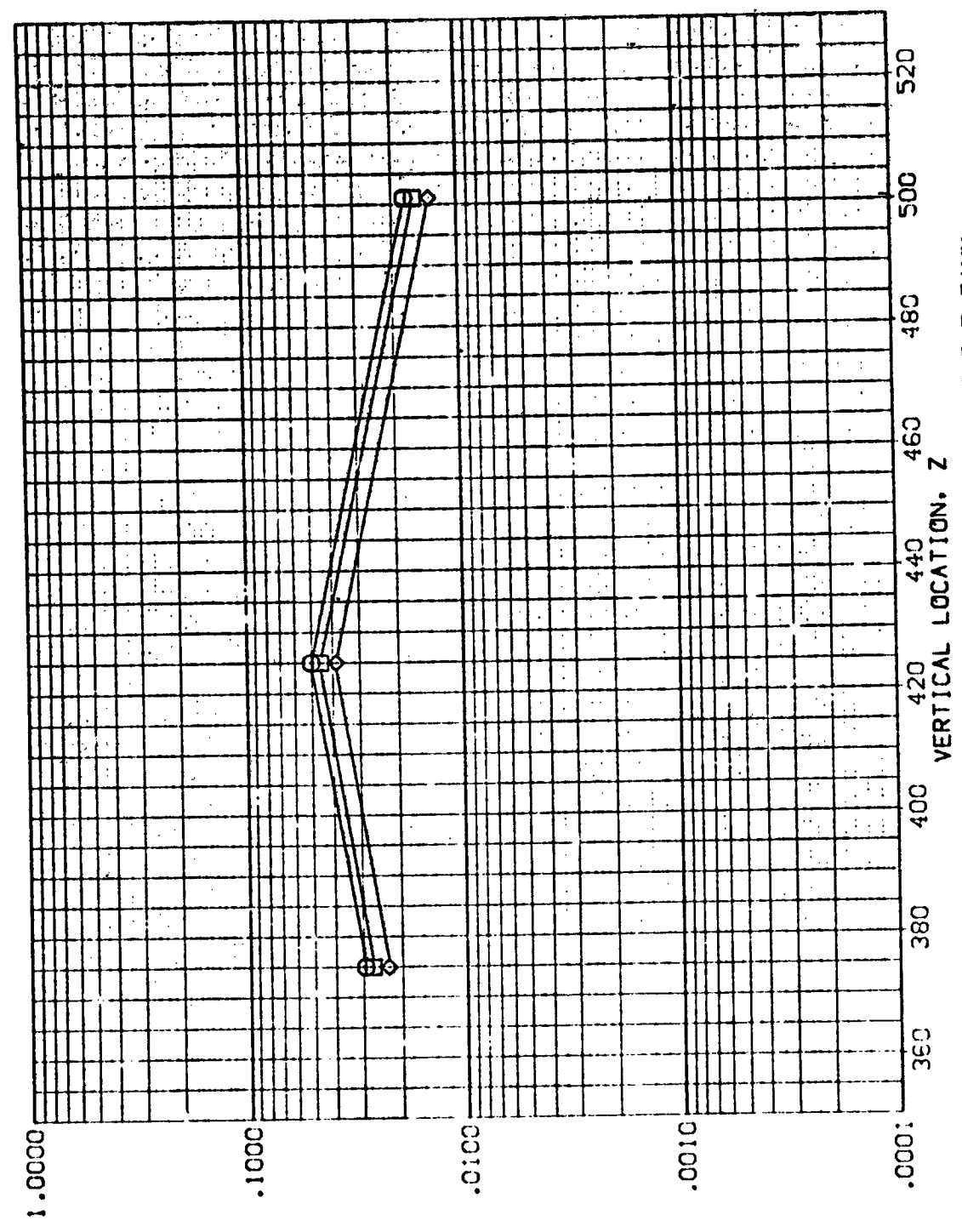


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 H28 O1+T1 BODY SIDEWALL

(REV BCS)

SYMBOL HAW/HT A/L MACH  
 .850 .600 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 120.000  
 BETA 1.000  
 .500

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

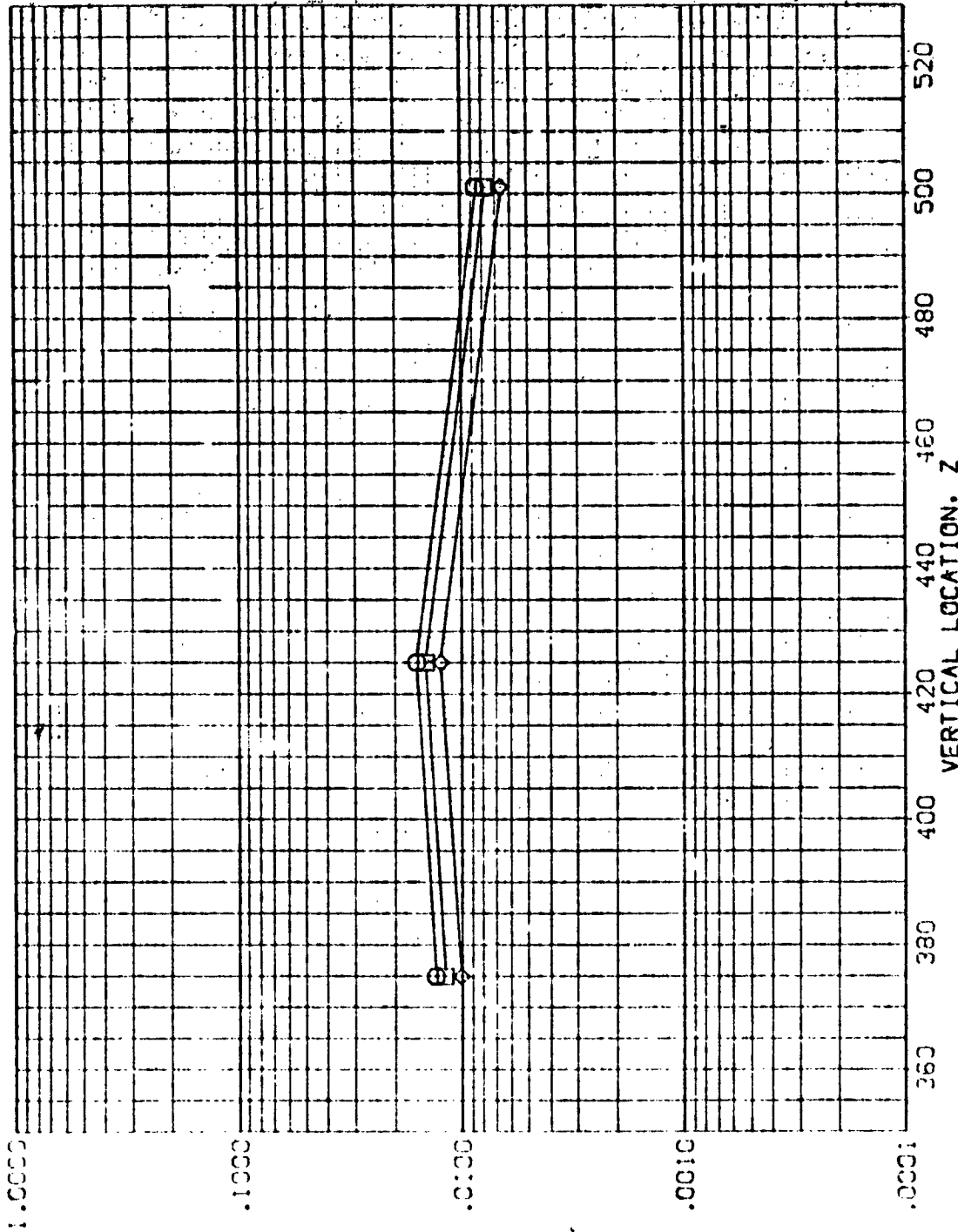


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AYES 3.5-.95 IH28 01+T1 BODY SIDEWALL (REVB05)

PARAMETRIC VALUES  
 ALPHA 120.000 BETA .000  
 RV/L 1.000

SYMBOL H/W/H/T K/L MACH  
 ◊ .850 .700 5.220  
 ◻ .900  
 ◻ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

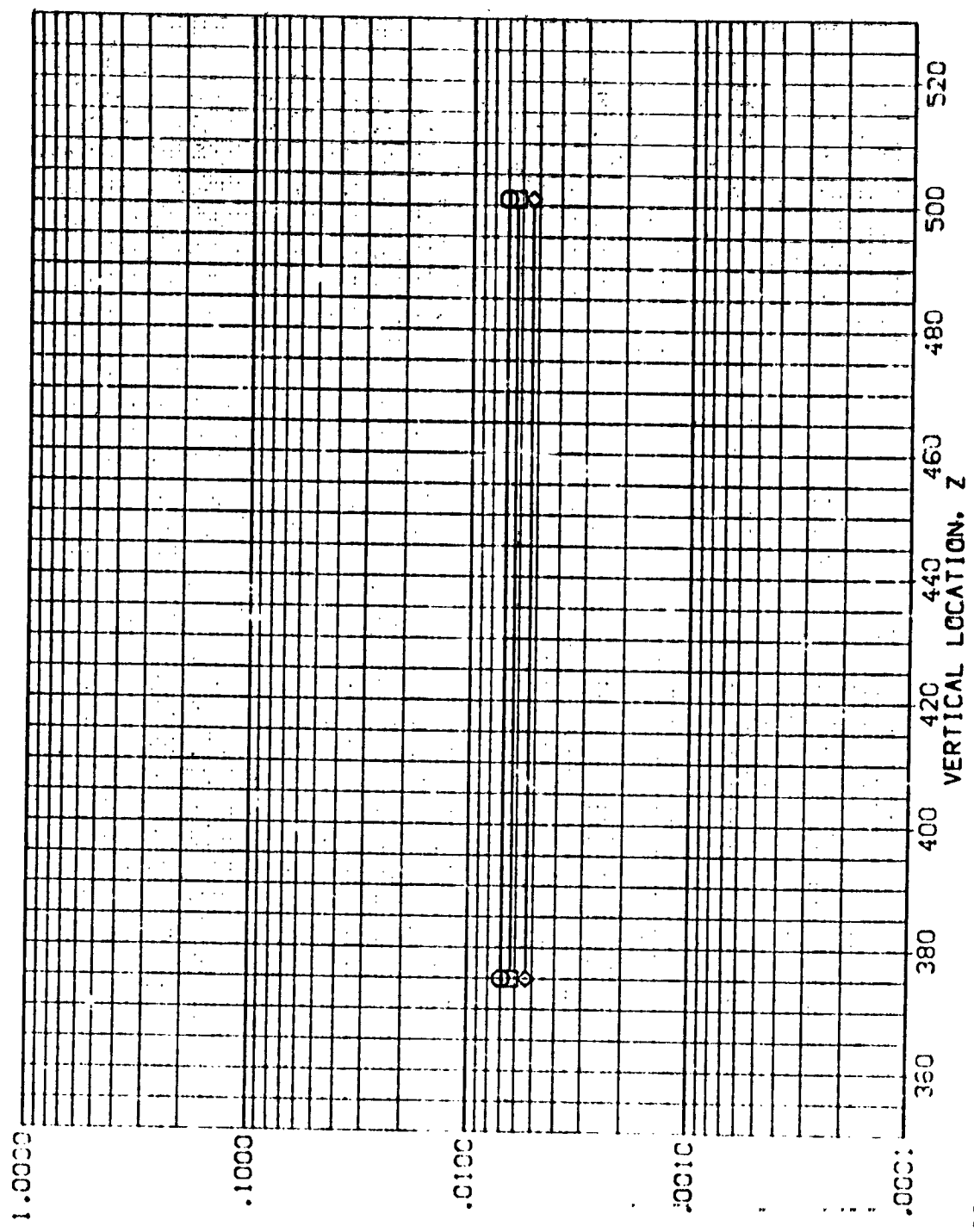


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REVISED)

AMES 3.5-195 I-28 01+1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA - .120, .200, .300  
BETA 1.000

MACH 5.220  
WALL THICKNESS .000  
REF. COEFF. 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

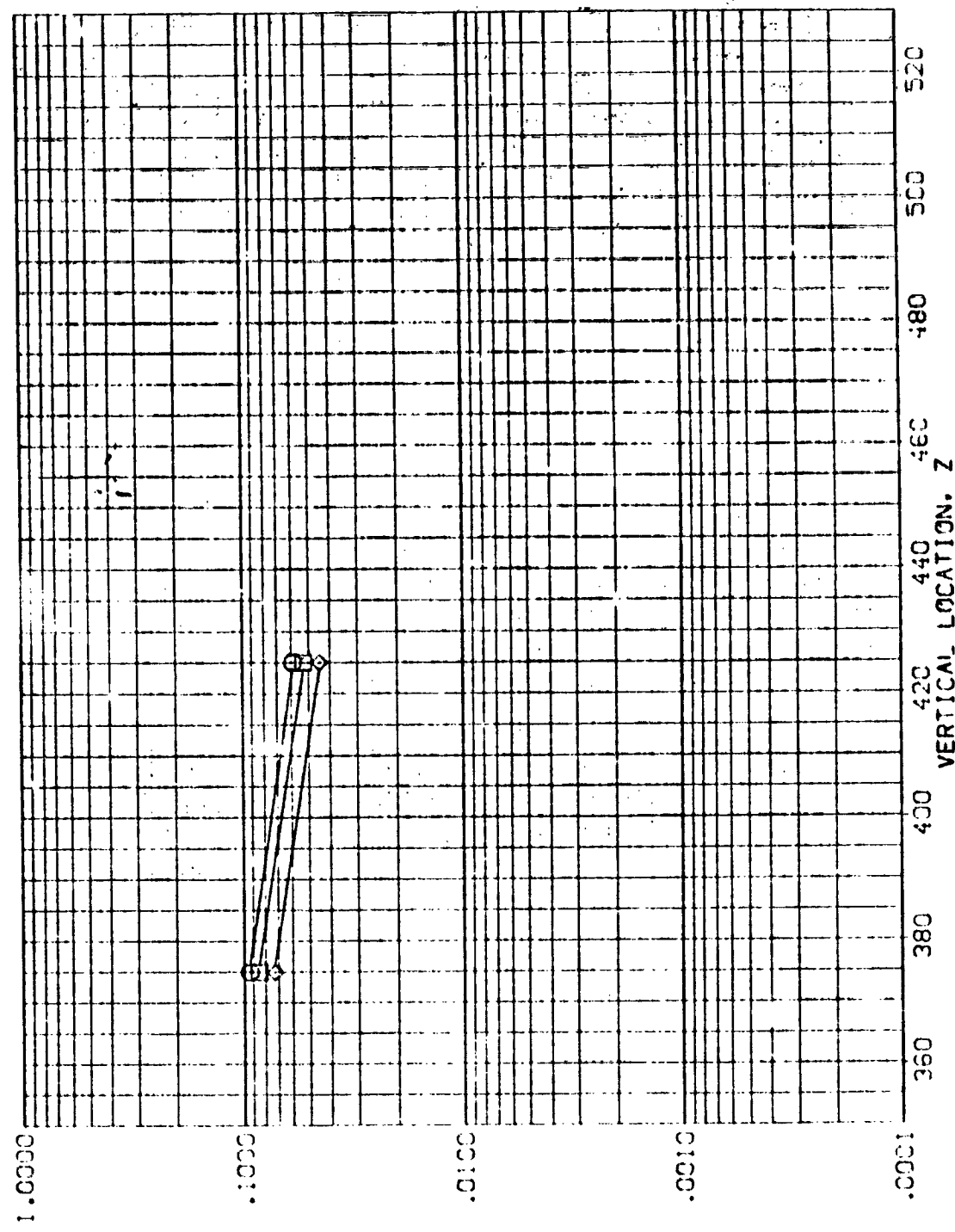


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB06)

SYMBOL    HAW/HT    X/L    MACH  
 ◊        .850     .400    5.220  
 ◻        .900  
 ◻        1.000

PARAMETRIC VALUES  
 ALPHA    1.20.000  
 RV/L     1.000  
 BETA     .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

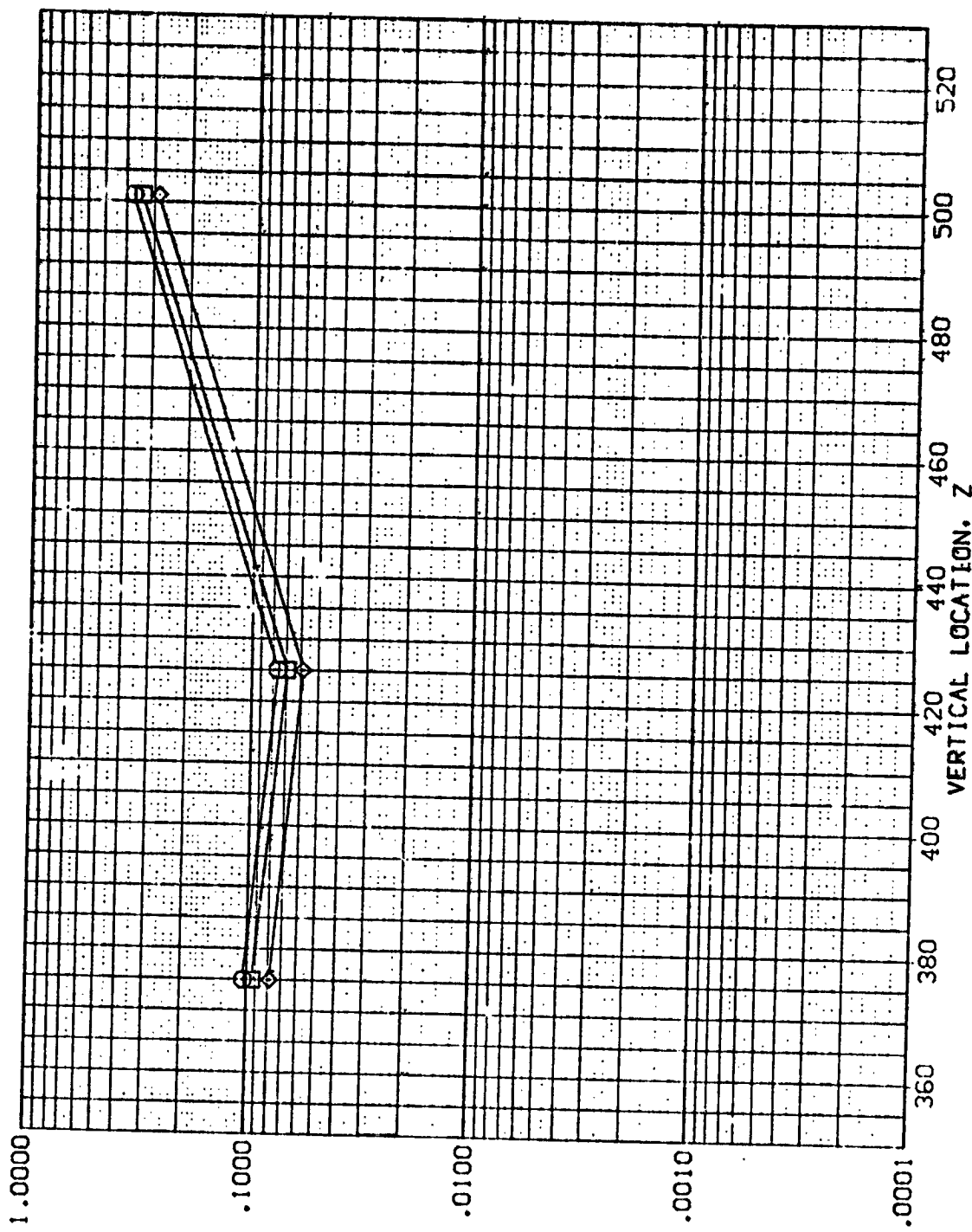


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

SYMBOL	HA/HT	X/L	MACH	PARAMETRIC VALUES
□	.850	.500	5.220	ALPHA -120.000
○	.900			BETA 1.000
◇	1.000			

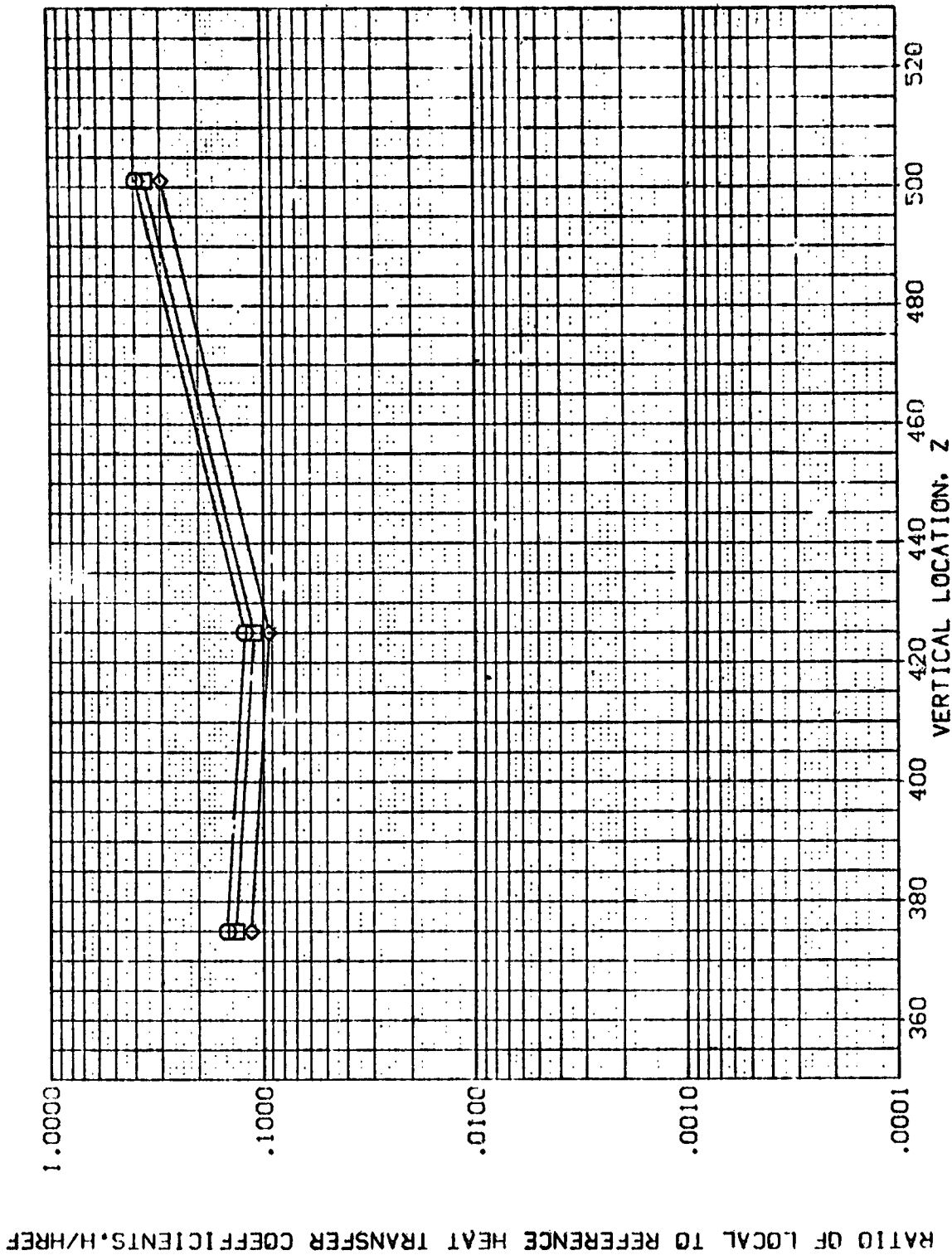


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

REPRODUCED FROM THE  
ORIGINAL PAGE IS FOR

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB06)

SYMBOL MAW/HT X/L MACH  
 □ .850 .600 5.220  
 ○ .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA .20.000 BETA .000  
 RN/L 1.000

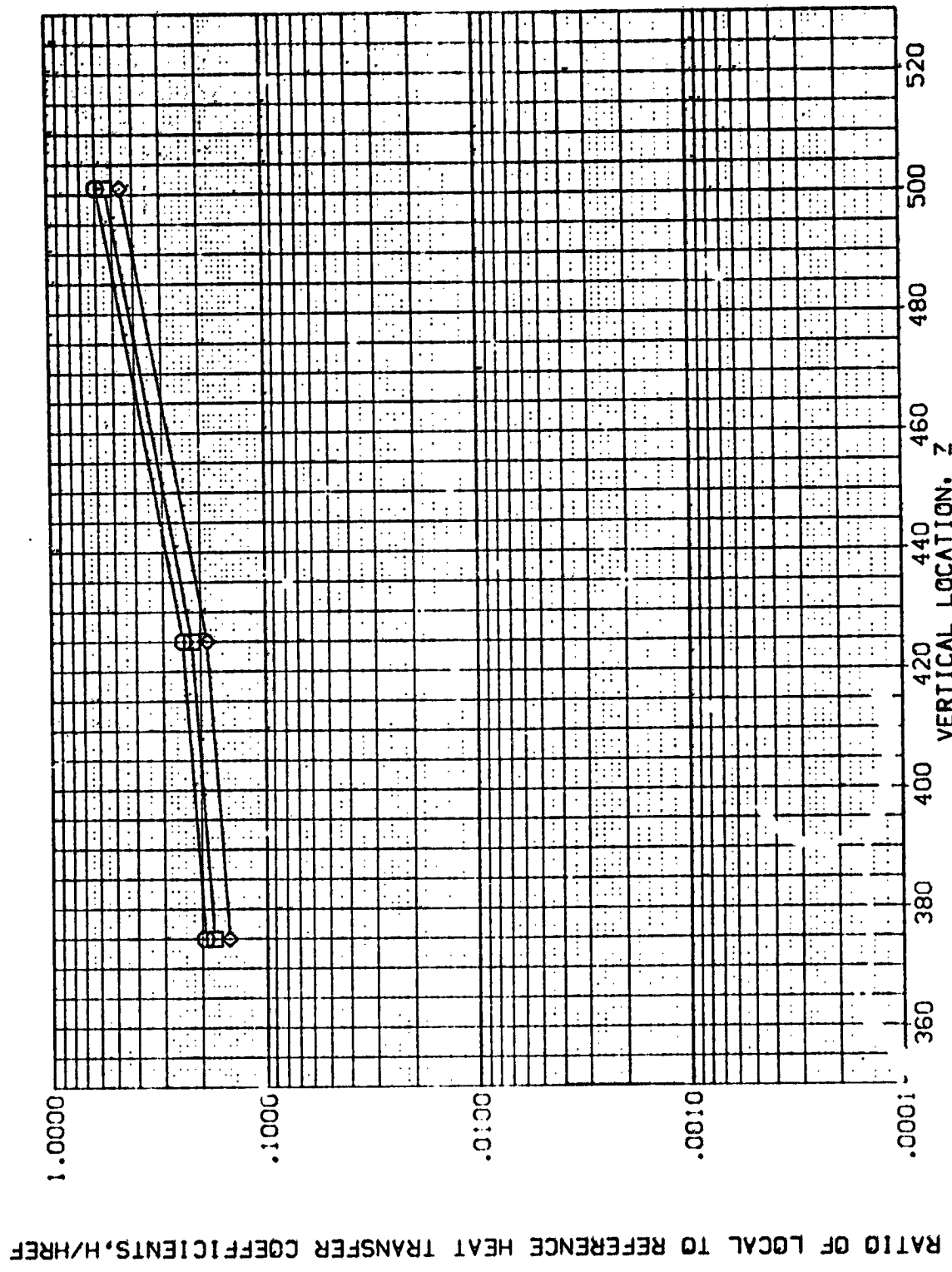


FIG 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5 195 IH28 C1+T1 BODY SIDEWALL

(REV06)

SYMBOL  
 ◊  
 ◻  
 ◊

HAW/HT .850  
 .900  
 1.000

X/L .700

MACH 5.220

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA 1.000  
 RH/L .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

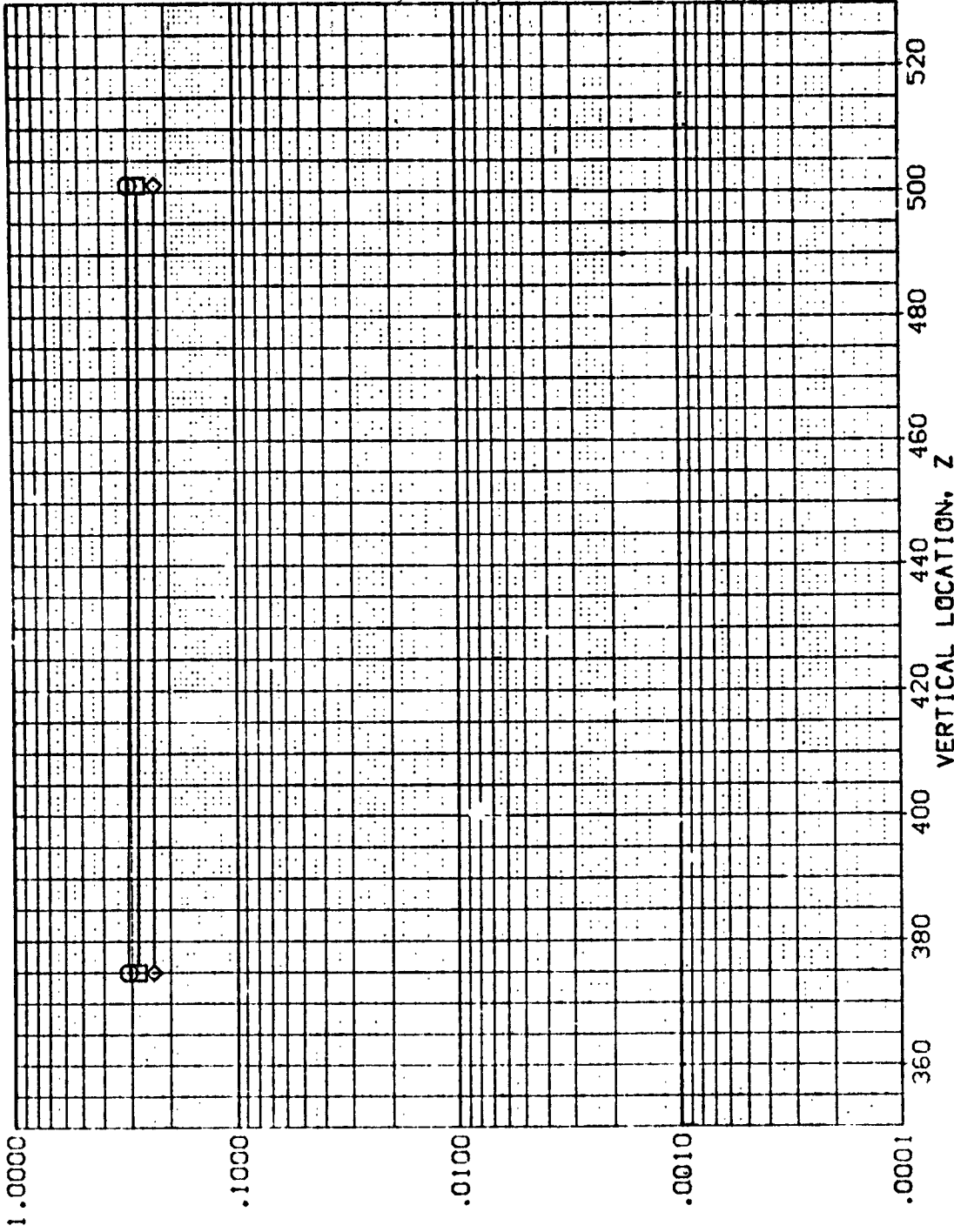


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB07)

SYMBOL	MAV/HT	X/L	MACH	PARAMETRIC VALUES
◇	.850	.300	5.219	-90.080 BETA
□	.900			1.000
	1.000			

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

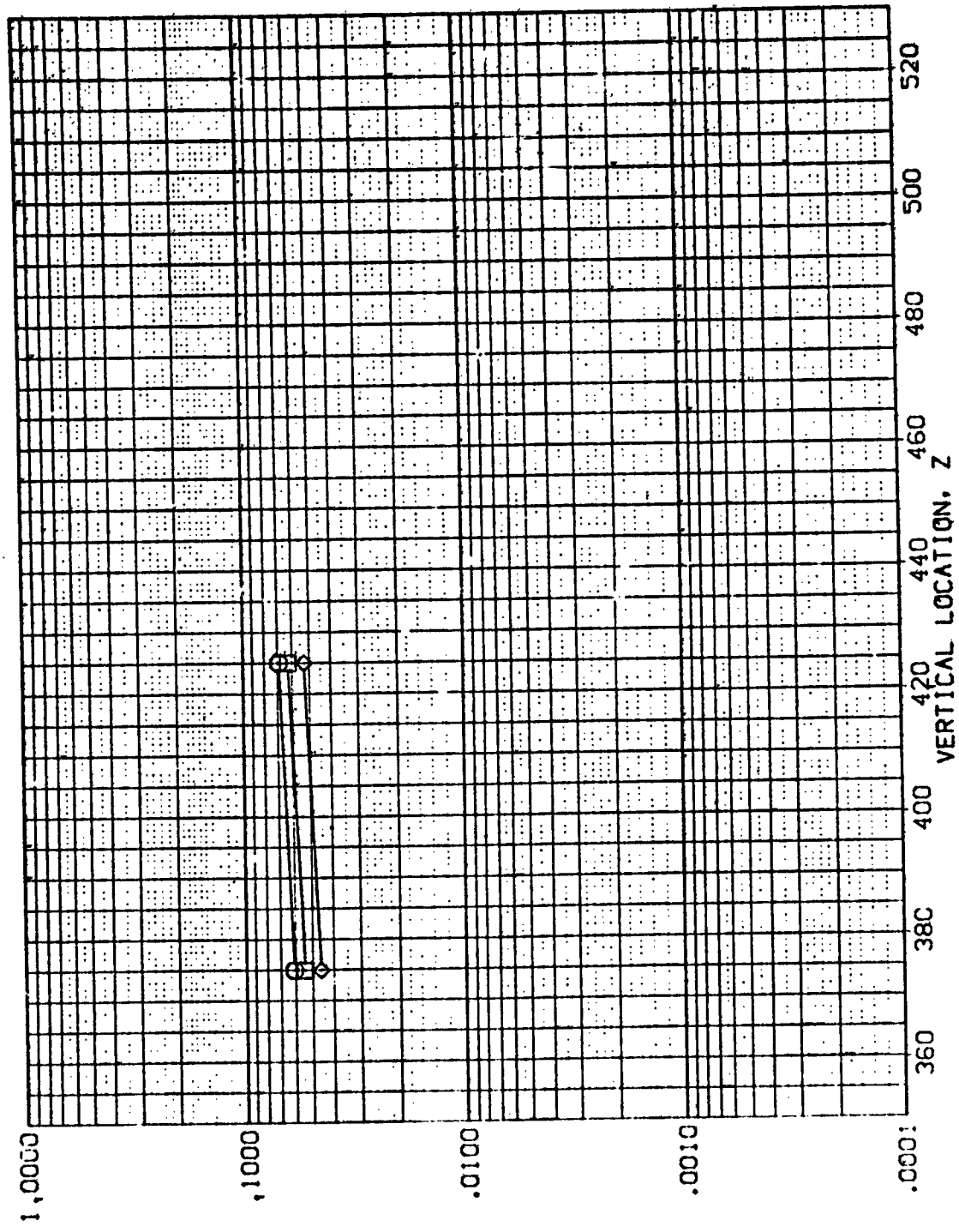


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV B07)

SYMBOL  
 ◊  
 □  
 ○

HA# / HT    X/L    MACH  
 .850    .400    5.219  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA    BETA  
 RV/L    1.000    .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

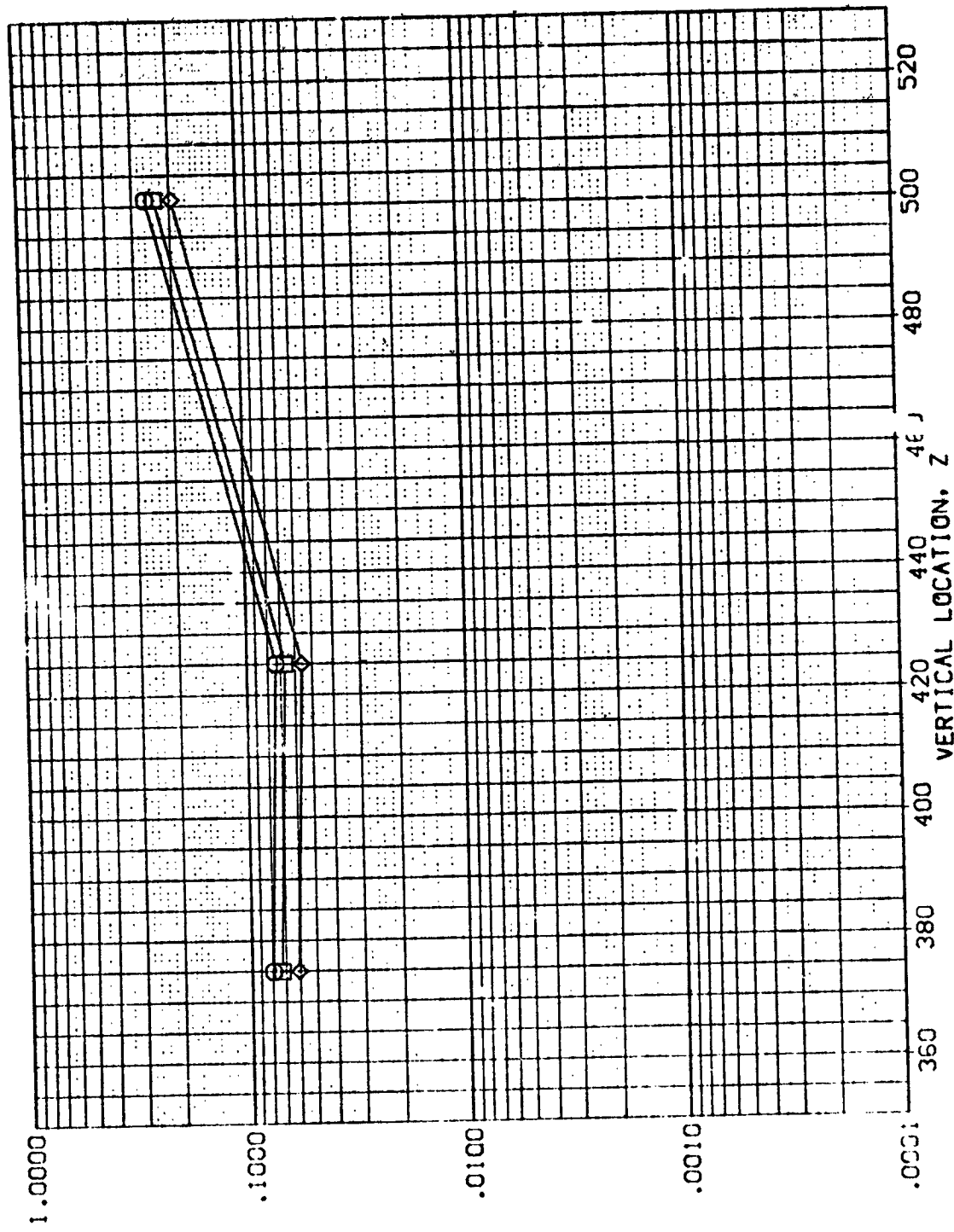


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB07)

PARAMETRIC VALUES  
 ALPHA -90.000 BETA .000  
 RN/L 1.000

SYMBOL  
 ◊ □ ○  
 MACH 5.219  
 X/L .500  
 HAV/NT .850  
 .900  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

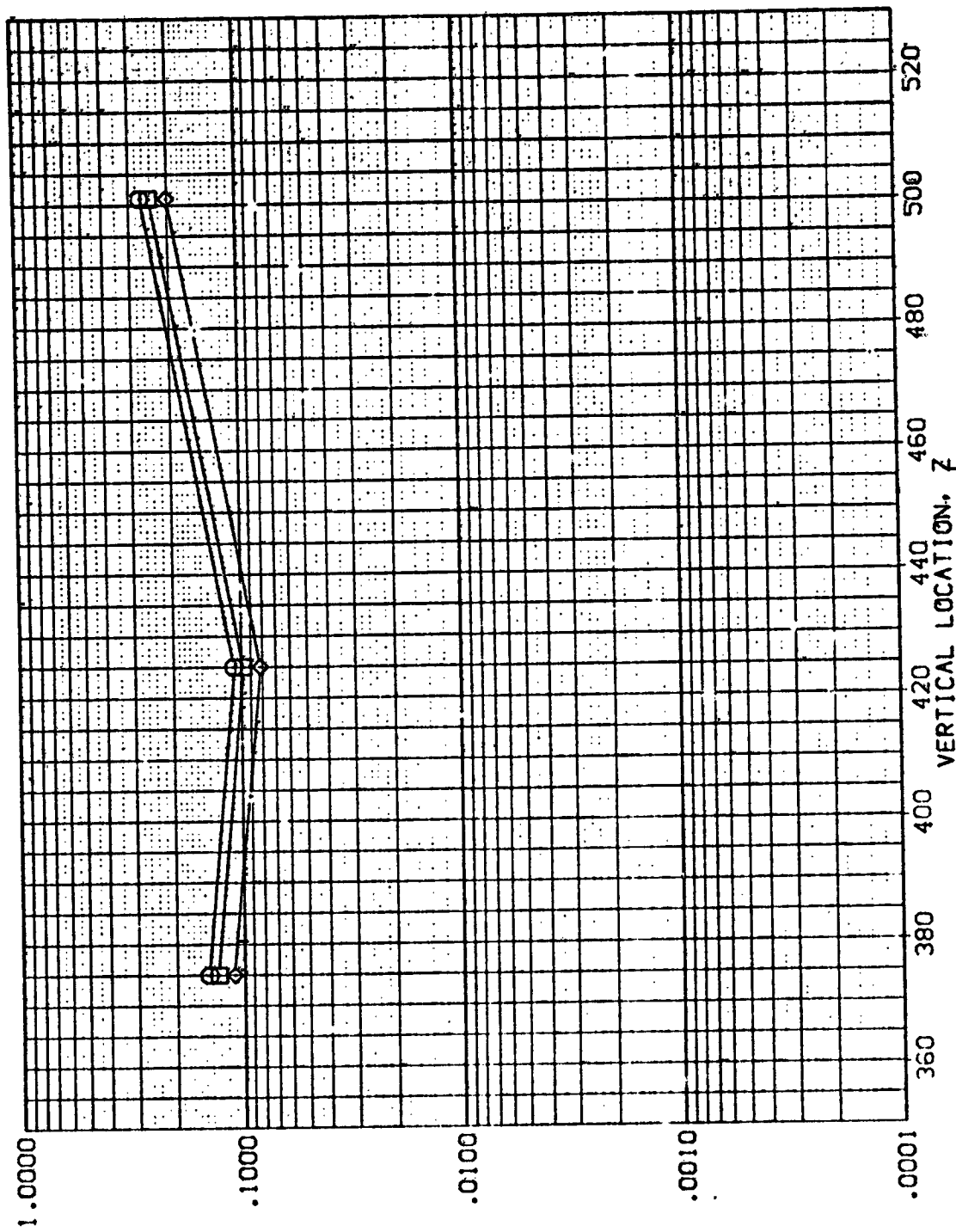


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 1428 01+T1 BODY SIDEWALL-

(REVB07)

SYMBOL  
 ◊  
 □  
 ○

MAW/HT .850  
 X/L .600  
 MACH 5.219

PARAMETRIC VALUES  
 ALPHA RN/L  
 BETA .000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

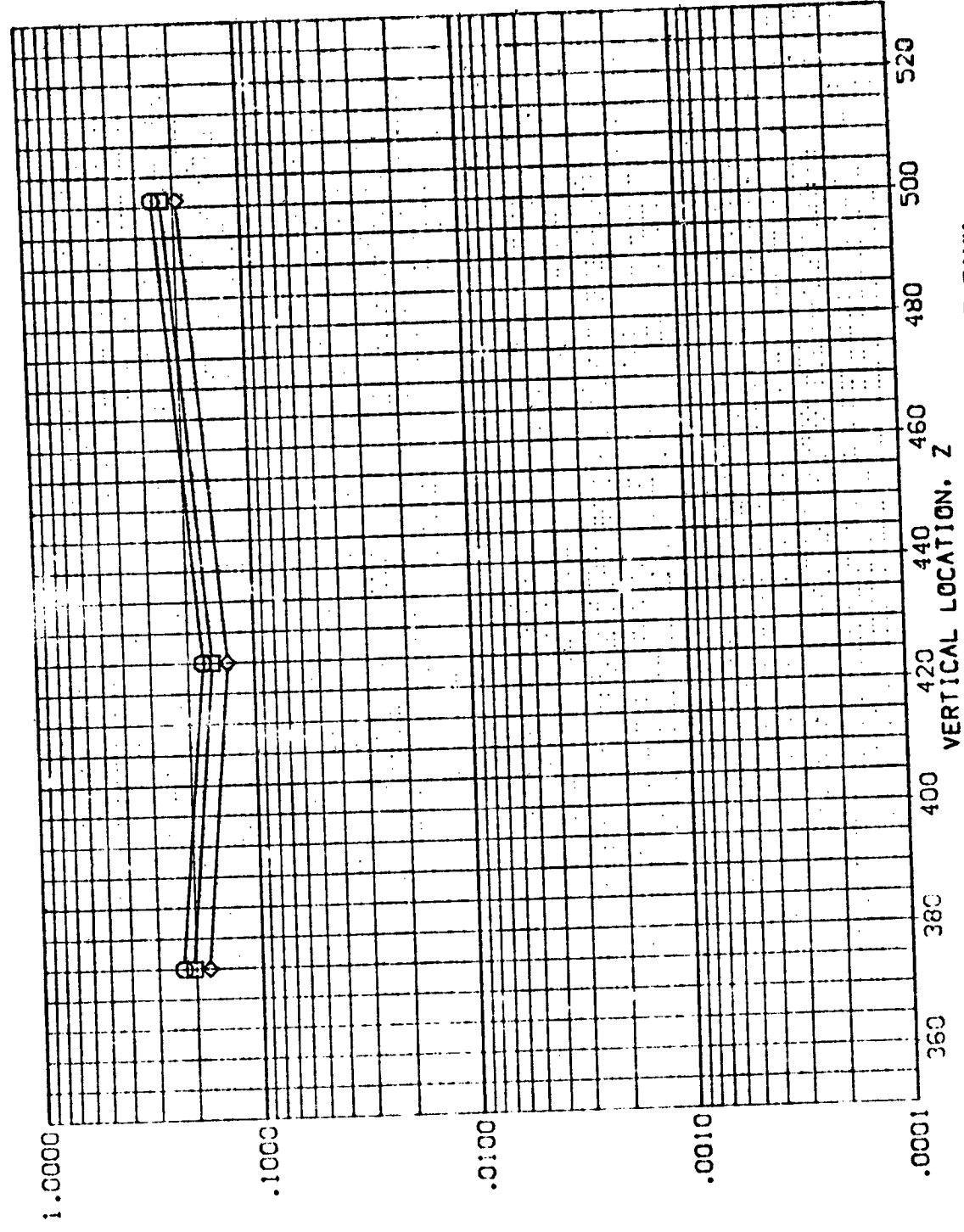


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV807)

SYMBOL	MAW/HT	X/L	MACH	PARAMETRIC VALUES	
				-90,000	BETA
◇	.850	.700	5.219	1.000	.000
□	.900				
◇	1.000				

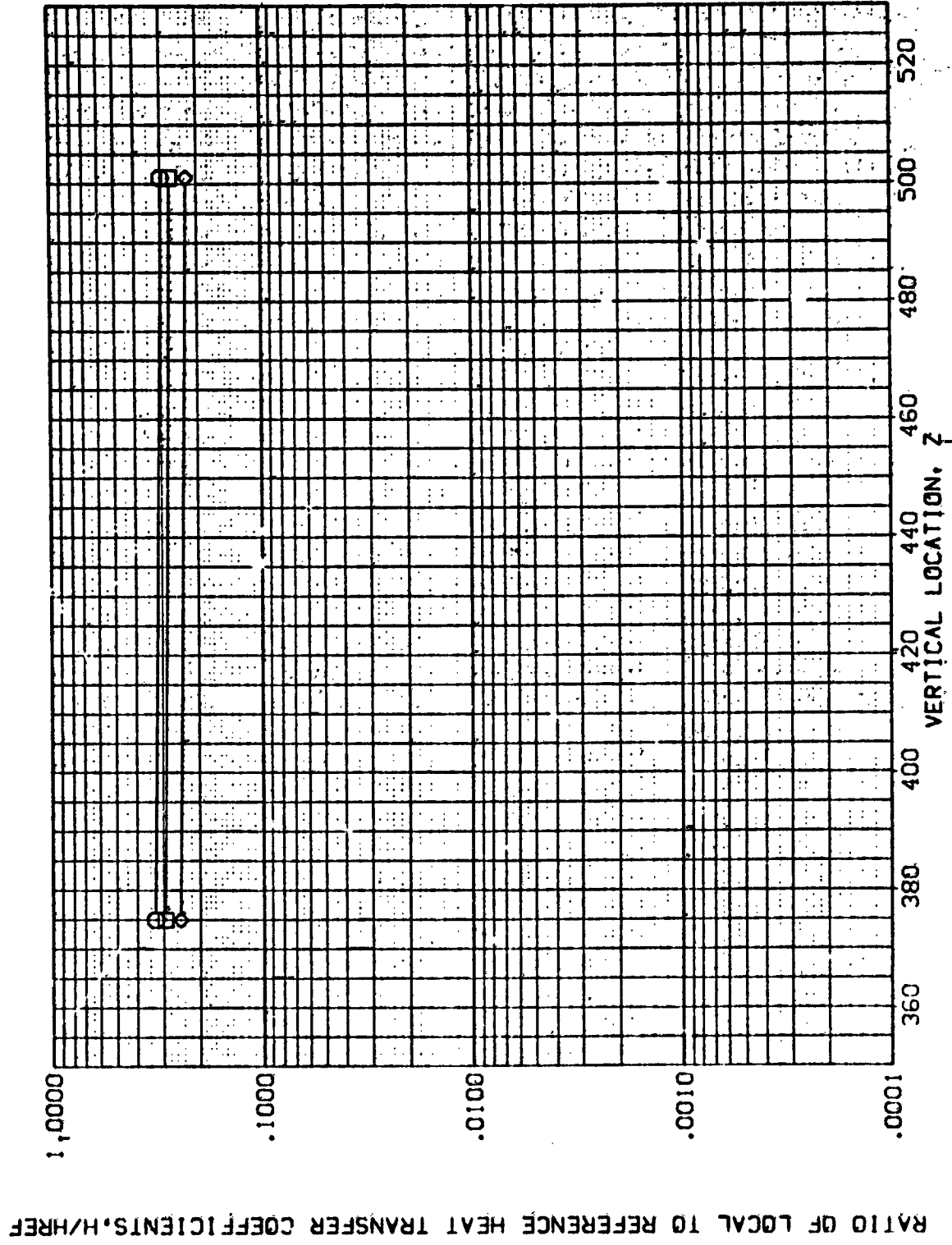


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVISED)

SYMBOL  
 □  
 ◇  
 ○

HEIGHT  
 .850  
 .900  
 1.000

X/L  
 .300

MACH  
 5.220

PARAMETRIC VALUES  
 ALPHA  
 RR/L  
 -60.000  
 1.000  
 BETA  
 .000

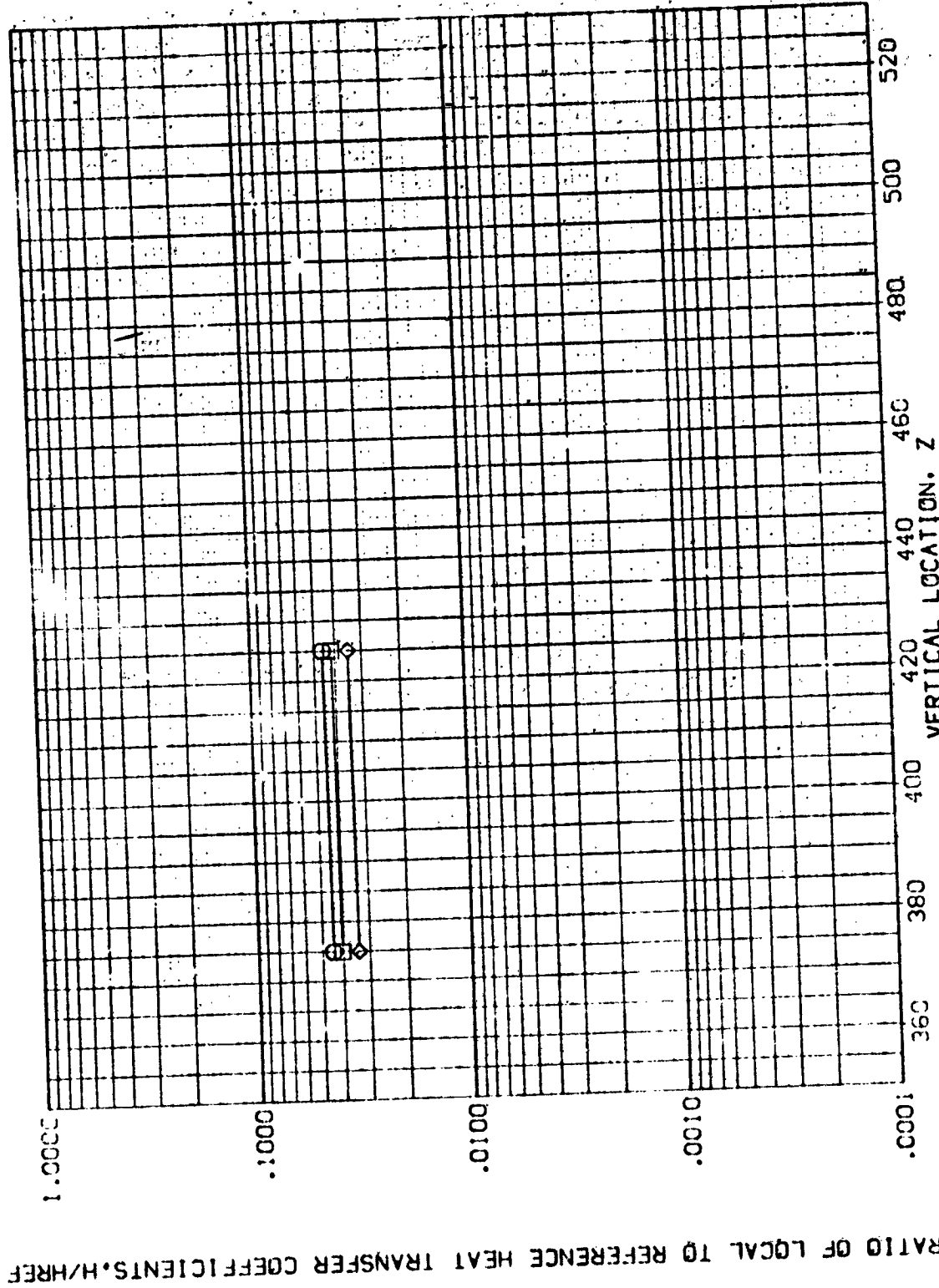


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV808)

SYMBOL	HA/WHT	X/L	MACH	PARAMETRIC VALUES
◇	.850	.400	5.220	ALPHA
□	.900			-50.000 BETA
	1.000			1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

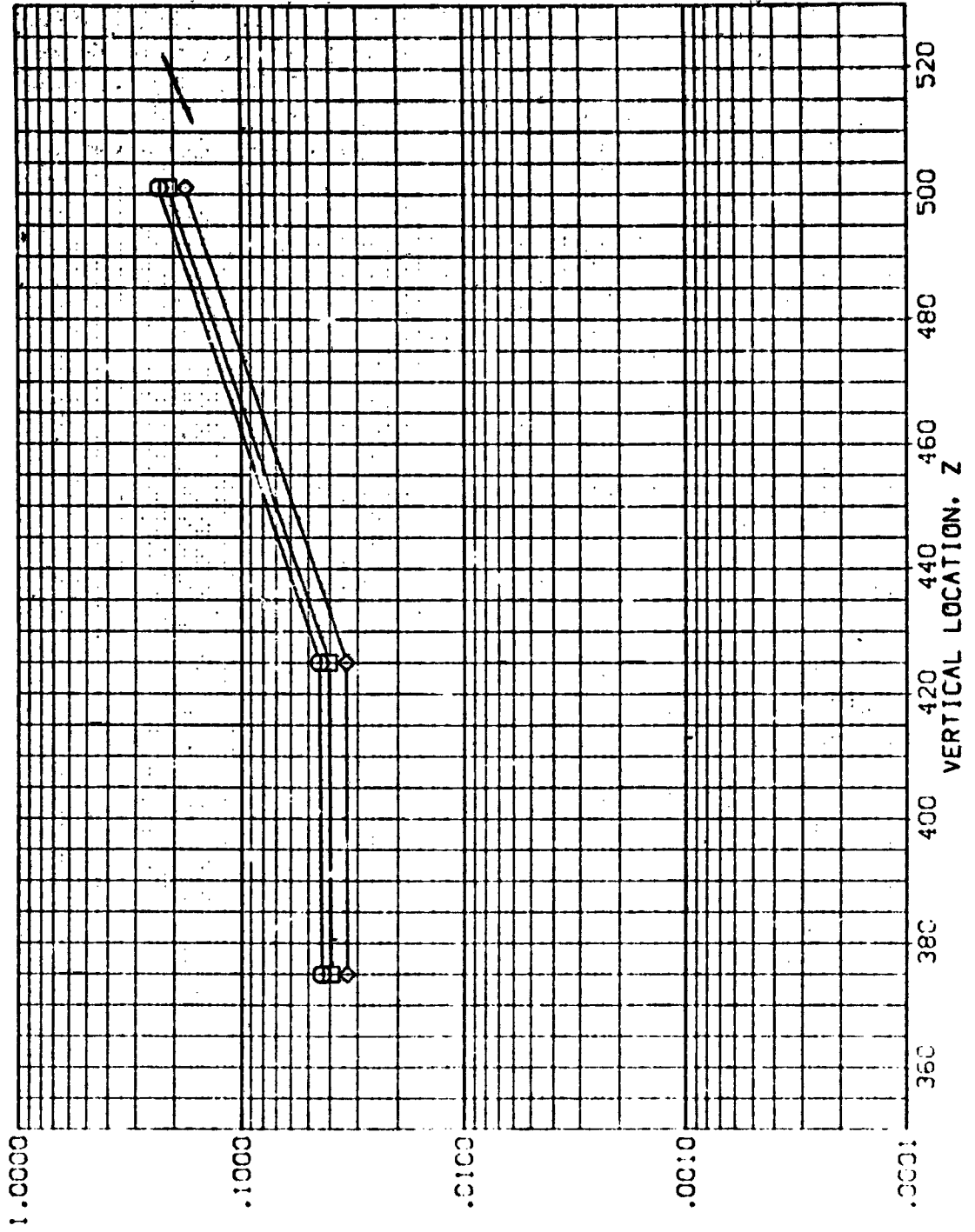


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 1H28 01+T1 BODY SIDEWALL (REV808)

SYMBOL PARAMETER VALUE  
 ◊ P/WHT .850 MACH 5.220  
 ○ K/L .500  
 □ .900  
 △ 1.000

PARAMETRIC VALUES  
 ALPHA -60.000  
 BETA 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

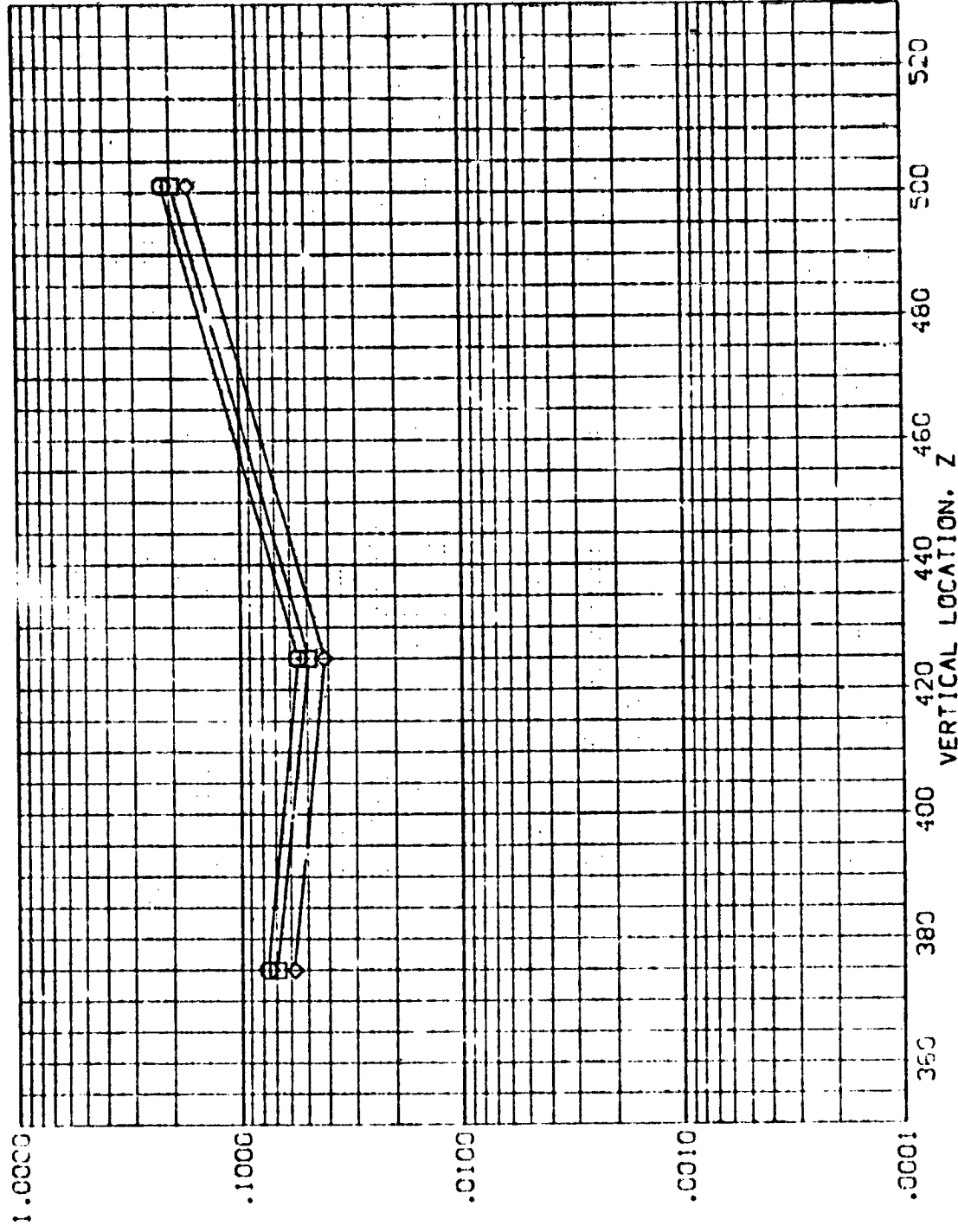


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REV808)

SYMBOL HAW/H<sub>T</sub> X/L MACH

□ .850 .600 5.220

◇ .900 1.000

PARAMETRIC VALUES  
ALPHA 50.000  
RN/L 1.000  
BETA 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

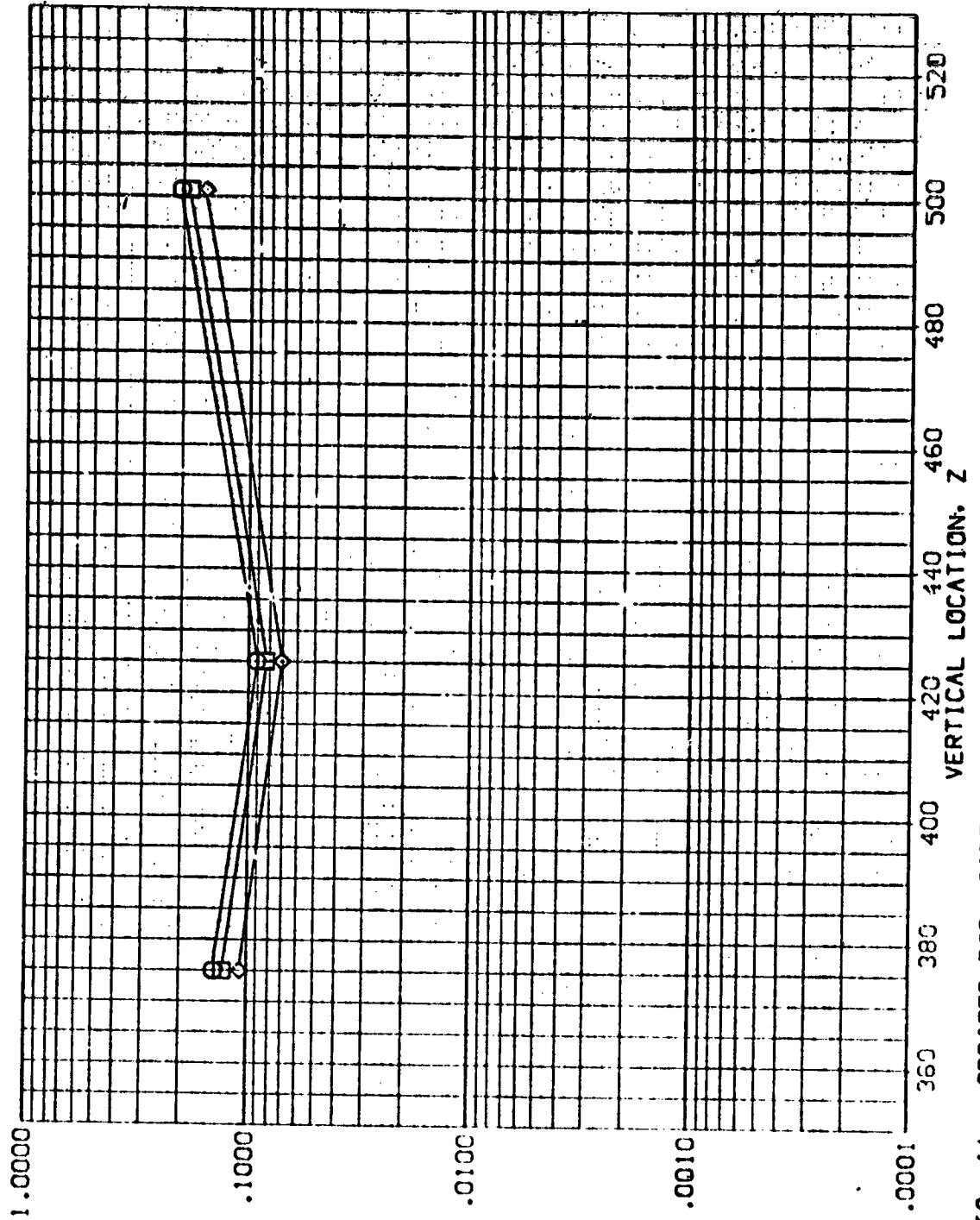


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REVERSED)

SYNOPSIS: HAW/HT .850 MACH 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA -60.000 BETA .000  
 P/W/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

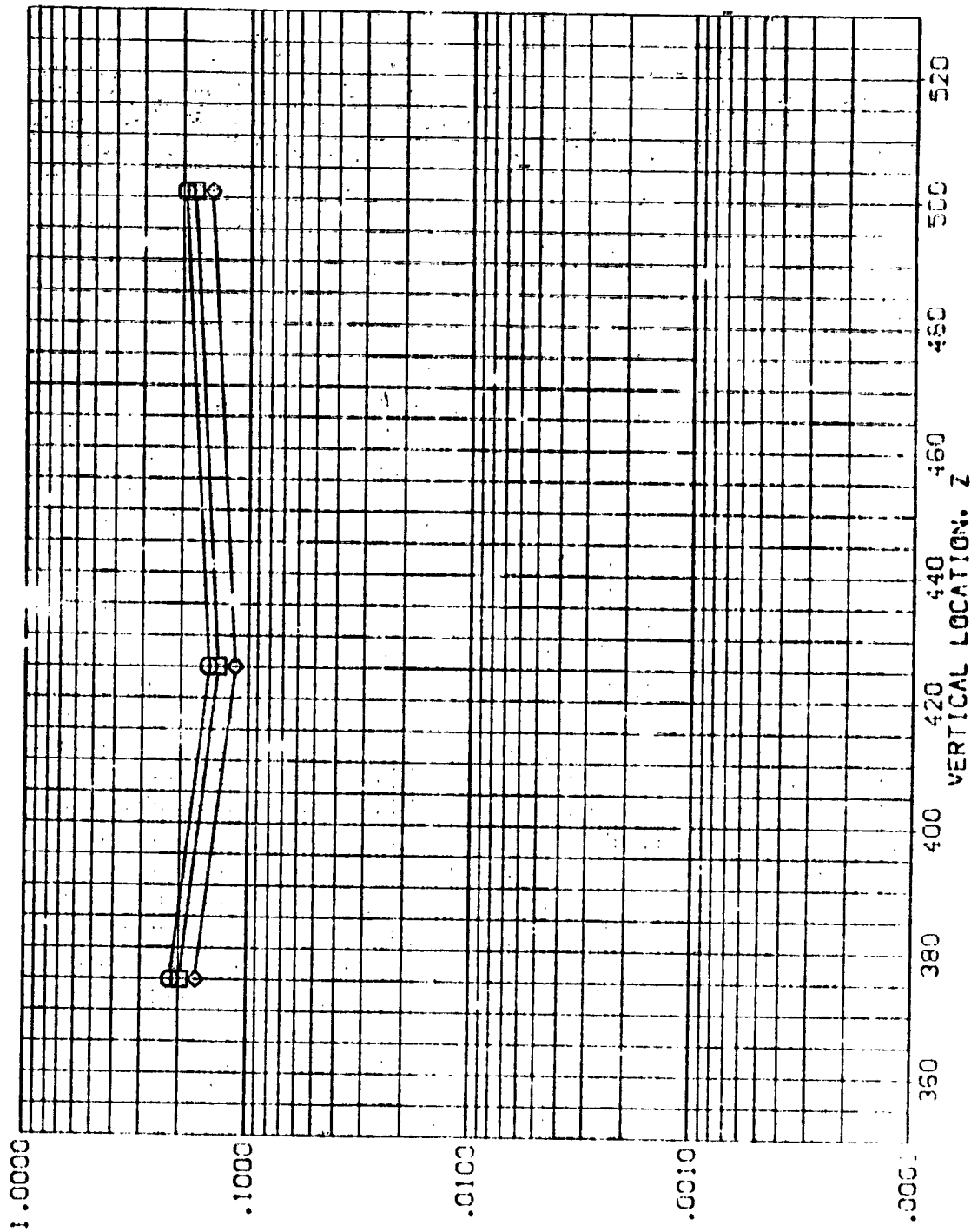


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

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AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB09)

PARAMETRIC VALUES  
 -30.000 BETA .000  
 1.000

ALPHA  
 RN/L

MACH  
 5.220

X/L  
 .300

HAY/HT  
 .850  
 .900  
 1.000

SYMBOL  
 ◊  
 ◻  
 ◊

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

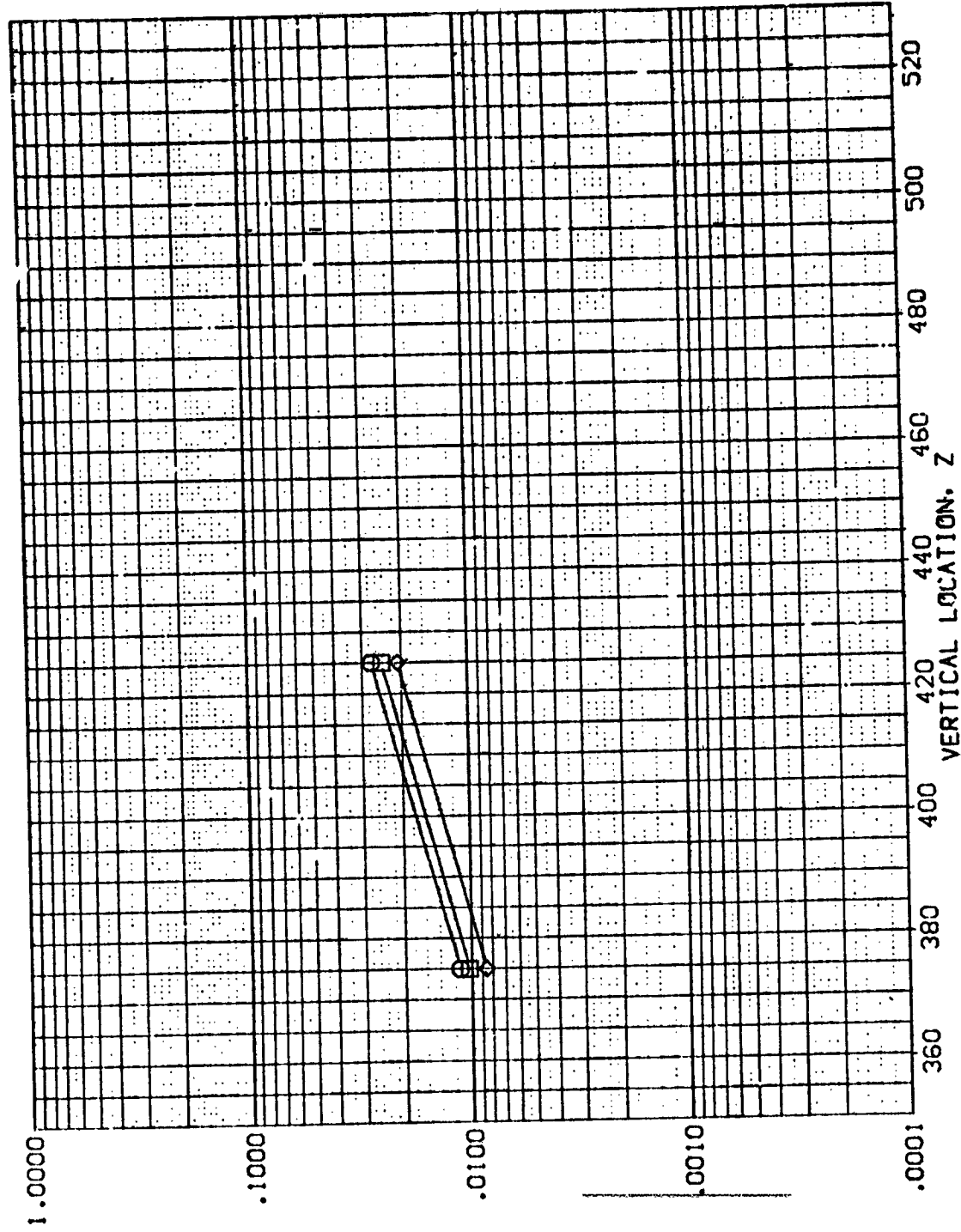


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REVB09)

PARAMETRIC VALUES  
 ALPHA -30.000 BETA .000  
 RN/L 1.000

MAY/HT .850 MACH 5.220  
 X/L .400

SYMBOL  
 ◊  
 ◻  
 ◇

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

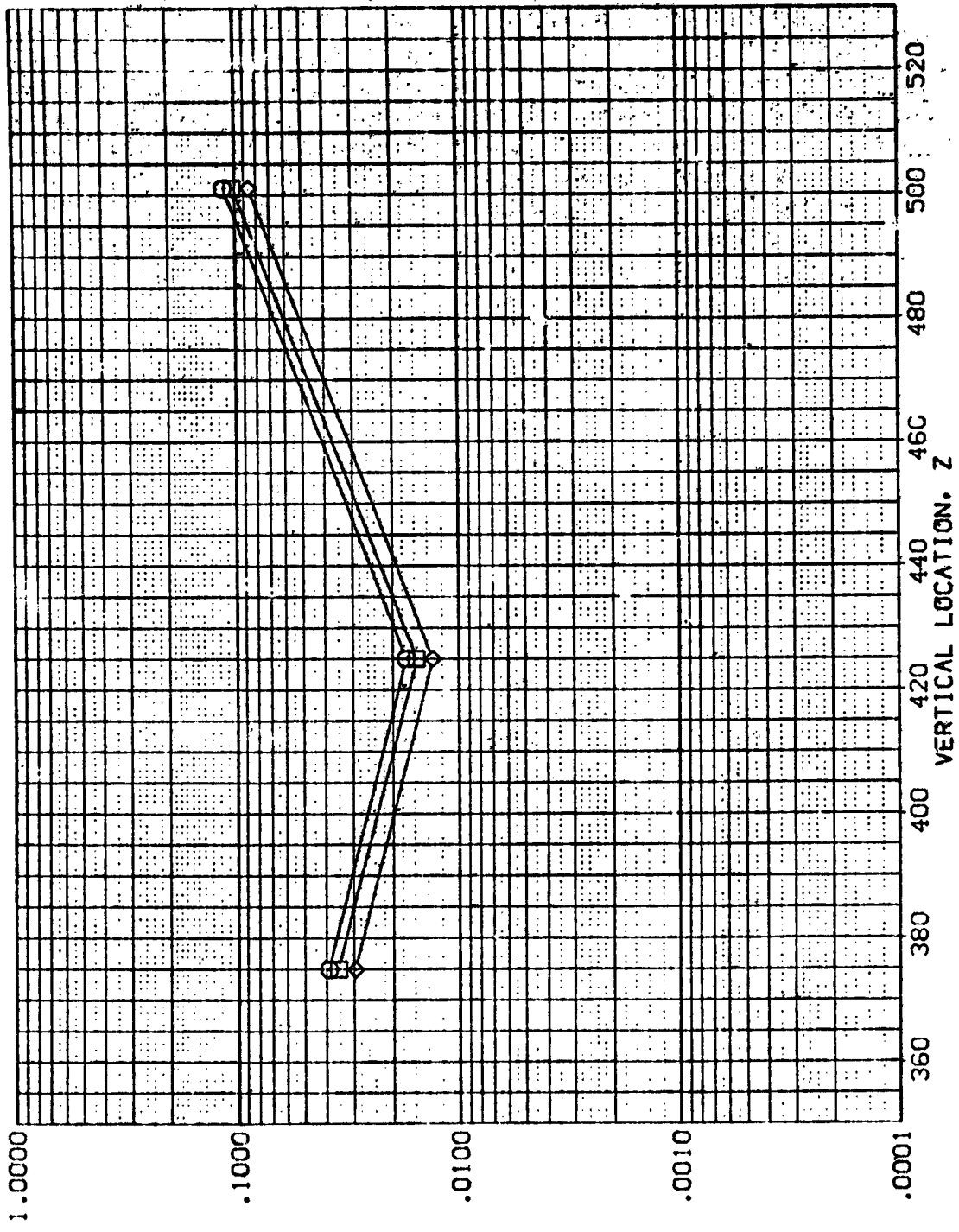


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REV009)

SYMBOL  
 ◊ □

HAW/HT .850  
 .900  
 1.000

X/L .500

MACH 5.220

PARAMETRIC VALUES  
 -30.000 BETA .000  
 .1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

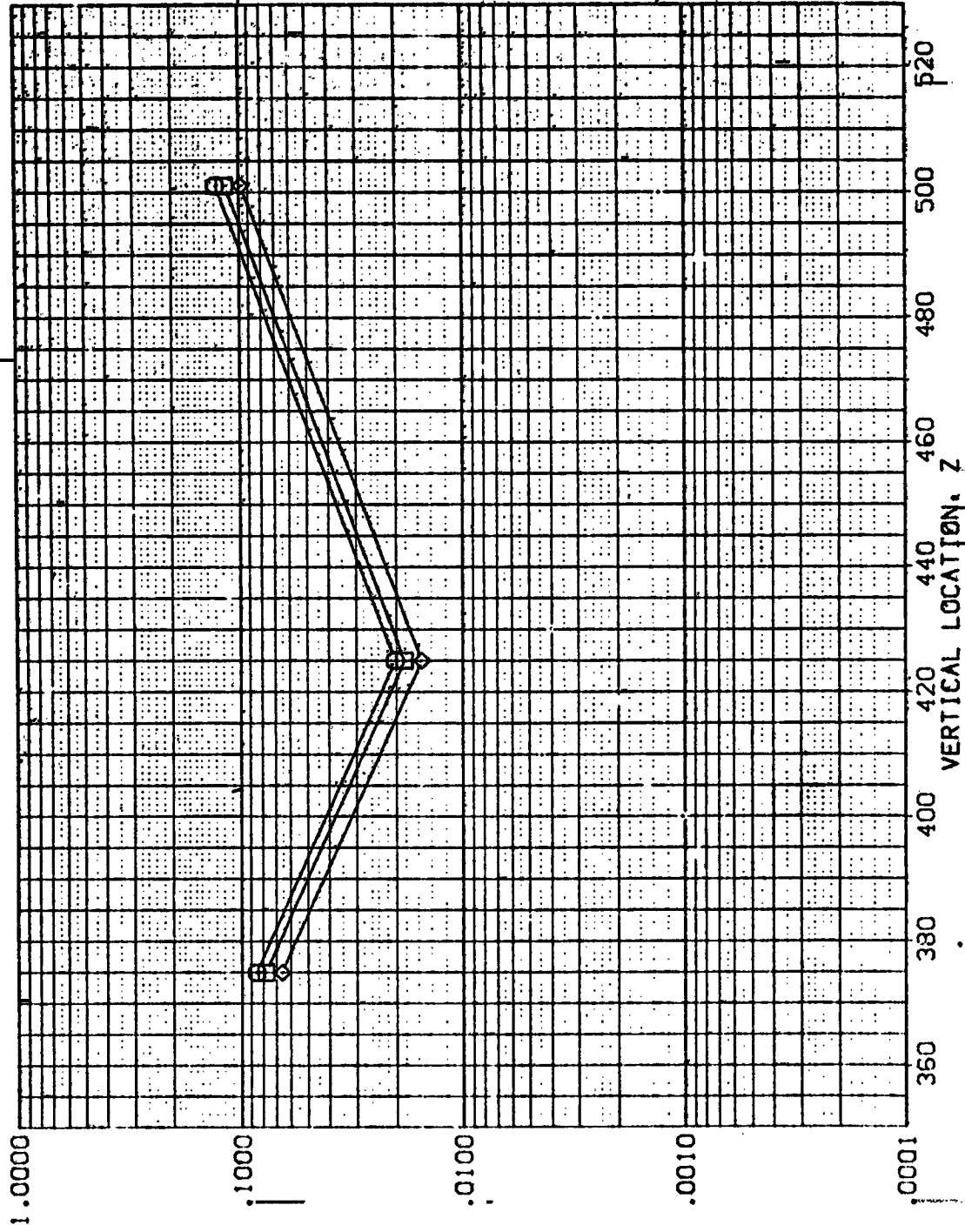


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB09)

SYMBOL  
 □  
 ○  
 ◇

HA/HT .850  
 .900  
 1.000

X/L .600

MACH 5.220

PARAMETRIC VALUES  
 ALPHA -30.000  
 RV/L 1.000

BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

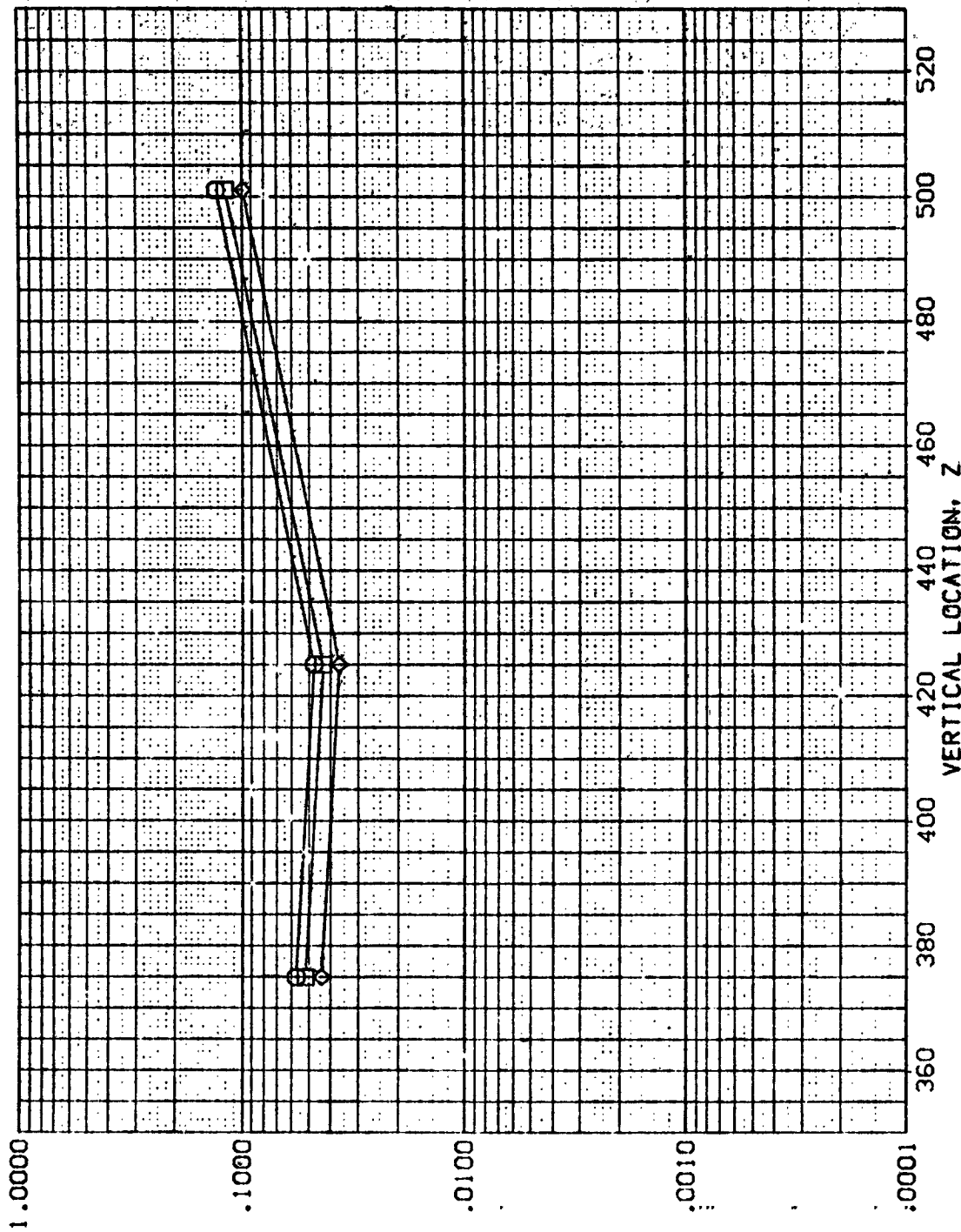


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3,5-195 IH28 01+T1 BODY SIDEWALL

(REVB09)

SYMBOL  
 ◊ □

NAV/HT .850  
 .900  
 1.000

X/L .700  
 MACH 5.228

ALPHA  
 RN/L

PARAMETRIC VALUES  
 -30 .000 BETA  
 1.000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

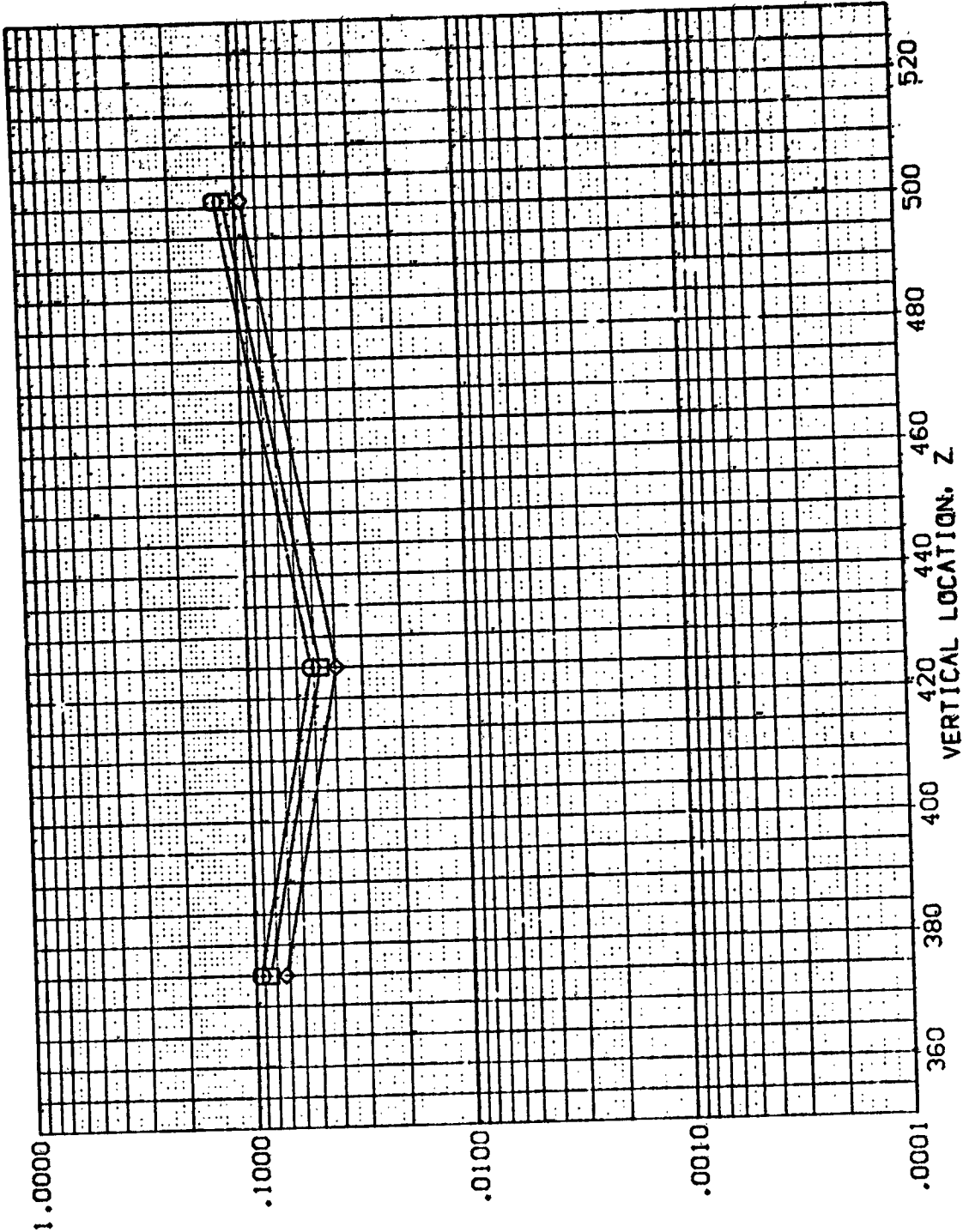


FIG. 11 ORBITER BODY SIDEWALL. ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB10)

SYMBOL  $\square$   $\diamond$   
 HAW/HT .850  
 .900  
 1.000

X/L .300  
 MACH 5.293

PARAMETRIC VALUES  
 ALPHA RNV/L  
 BETA 4.000  
 .500

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

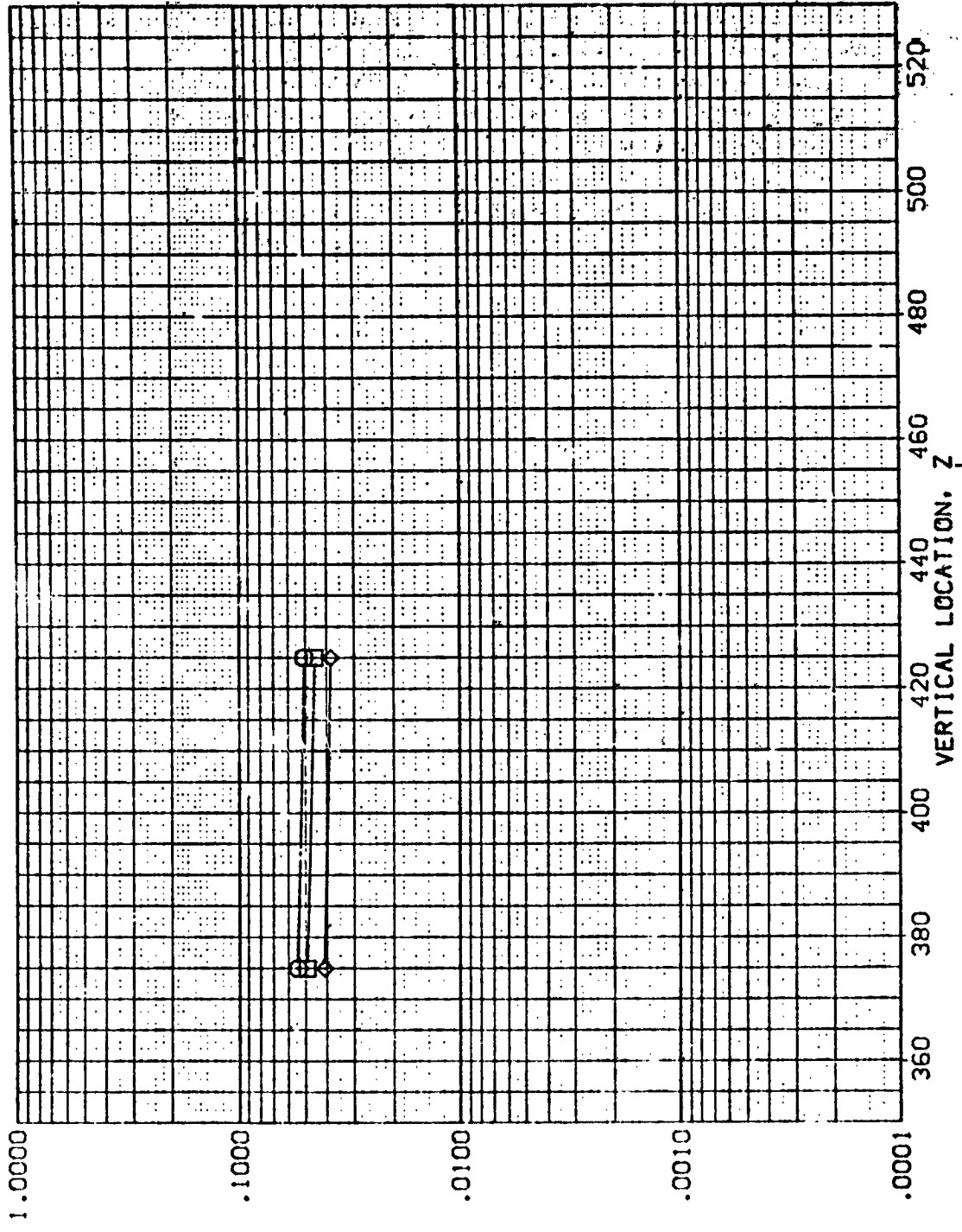


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

6:

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REVB10)

SYMBOL  $\diamond$   $\square$   
 HAW/HT .850  
 .900  
 1.000

X/L .400  
 MACH 5.299

PARAMETRIC VALUES  
 ALPHA 60.000  
 BETA 4.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

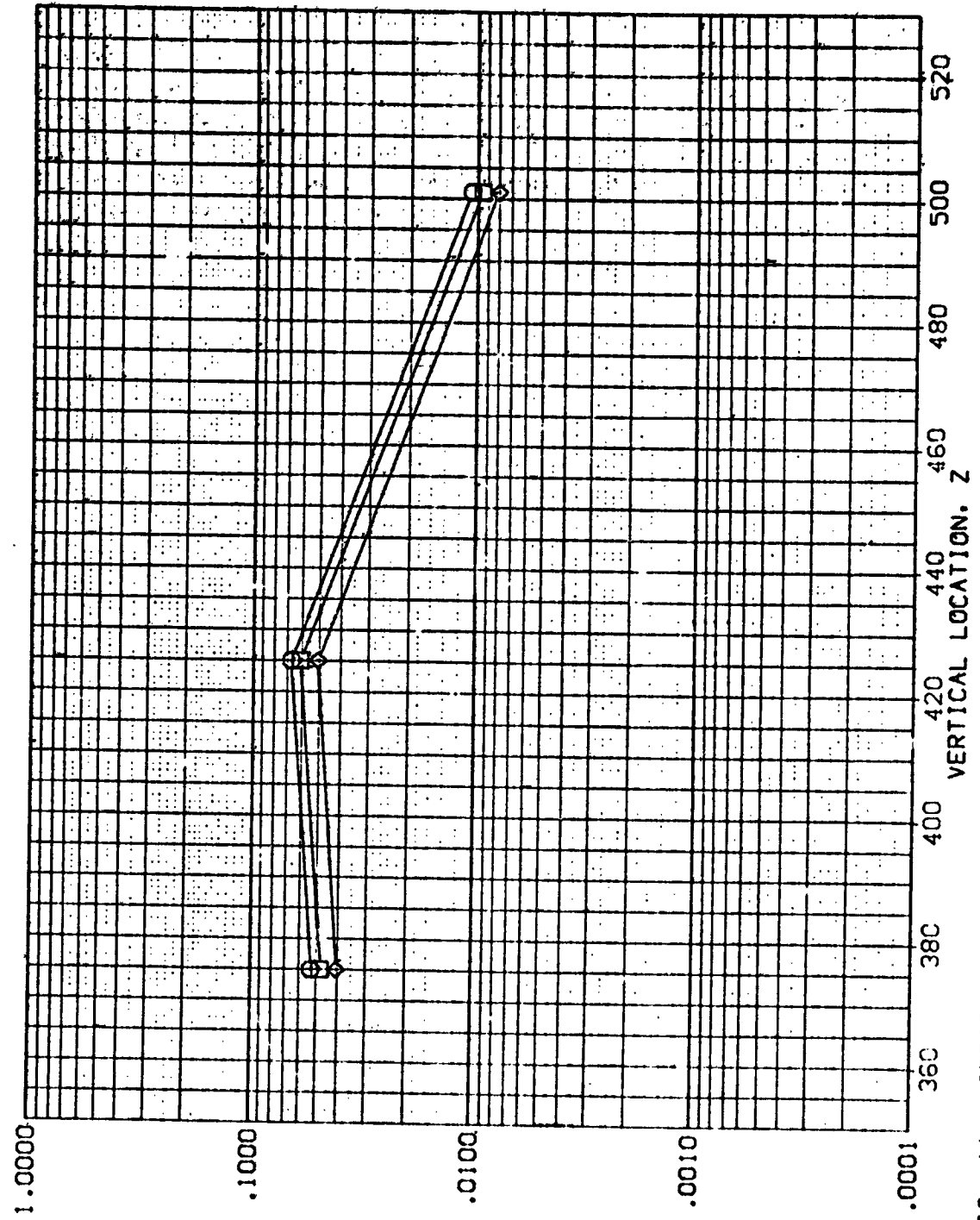


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 1-28 01-T1 BODY SIDEWALL

(REVB10)

SYMBOL  
 □  
 ◇

HAW/HT .850  
 X/L .500  
 MACH 5.299

PARAMETRIC VALUES  
 ALPHA 4.000  
 PN/L 4.000  
 BET. .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

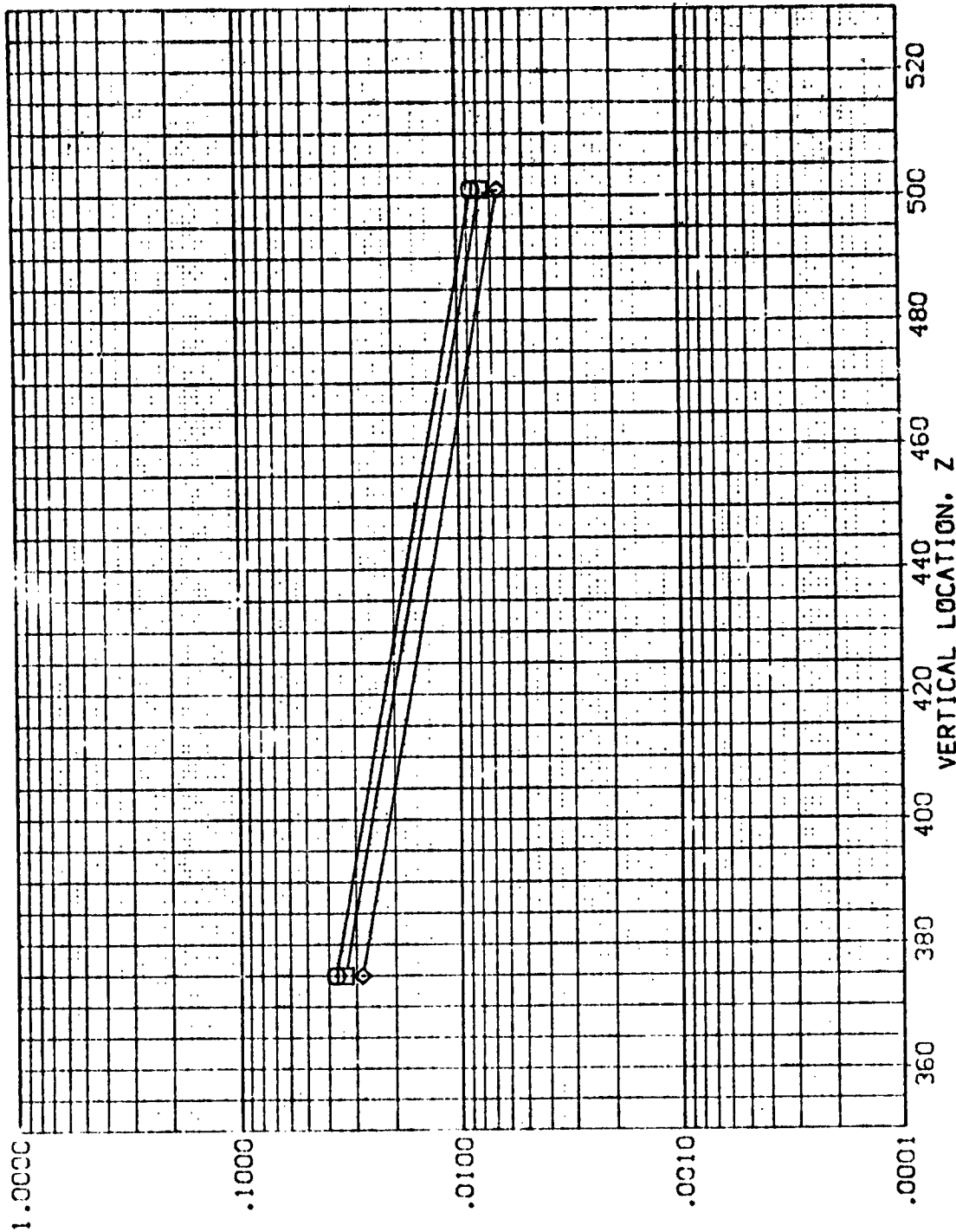


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REV B10)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA 60.000 BETA .000  
RV/L 4.000

MACH 5.299  
X/L .600

SYMBOL  
◇ □

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

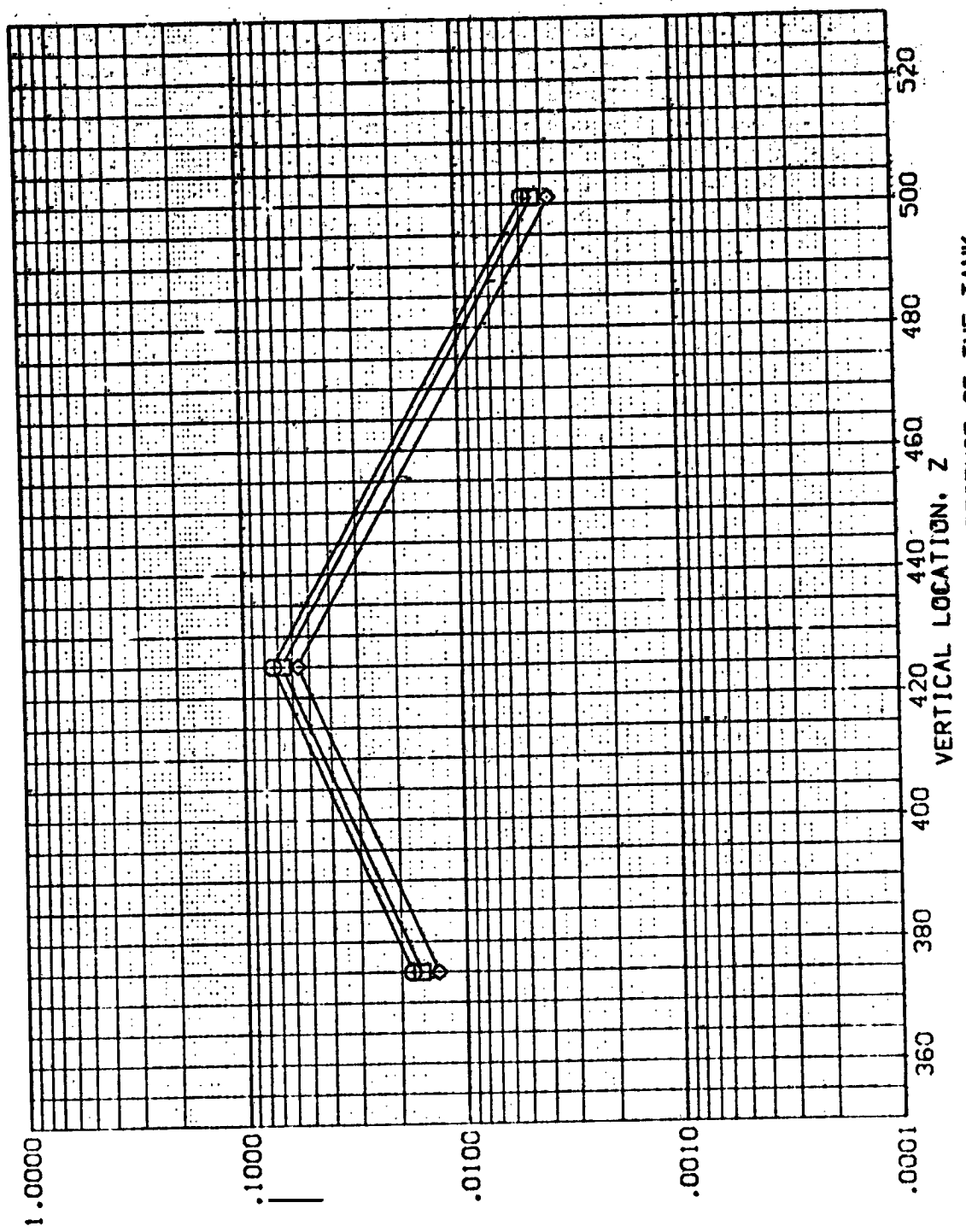


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REVB10)

SYMBOL:  $\square$   $\diamond$   
 MAW/HT .850  
 X/L .700  
 MACH 5.299

PARAMETRIC VALUES  
 ALPHA 60.000  
 RN/L 4.030  
 BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

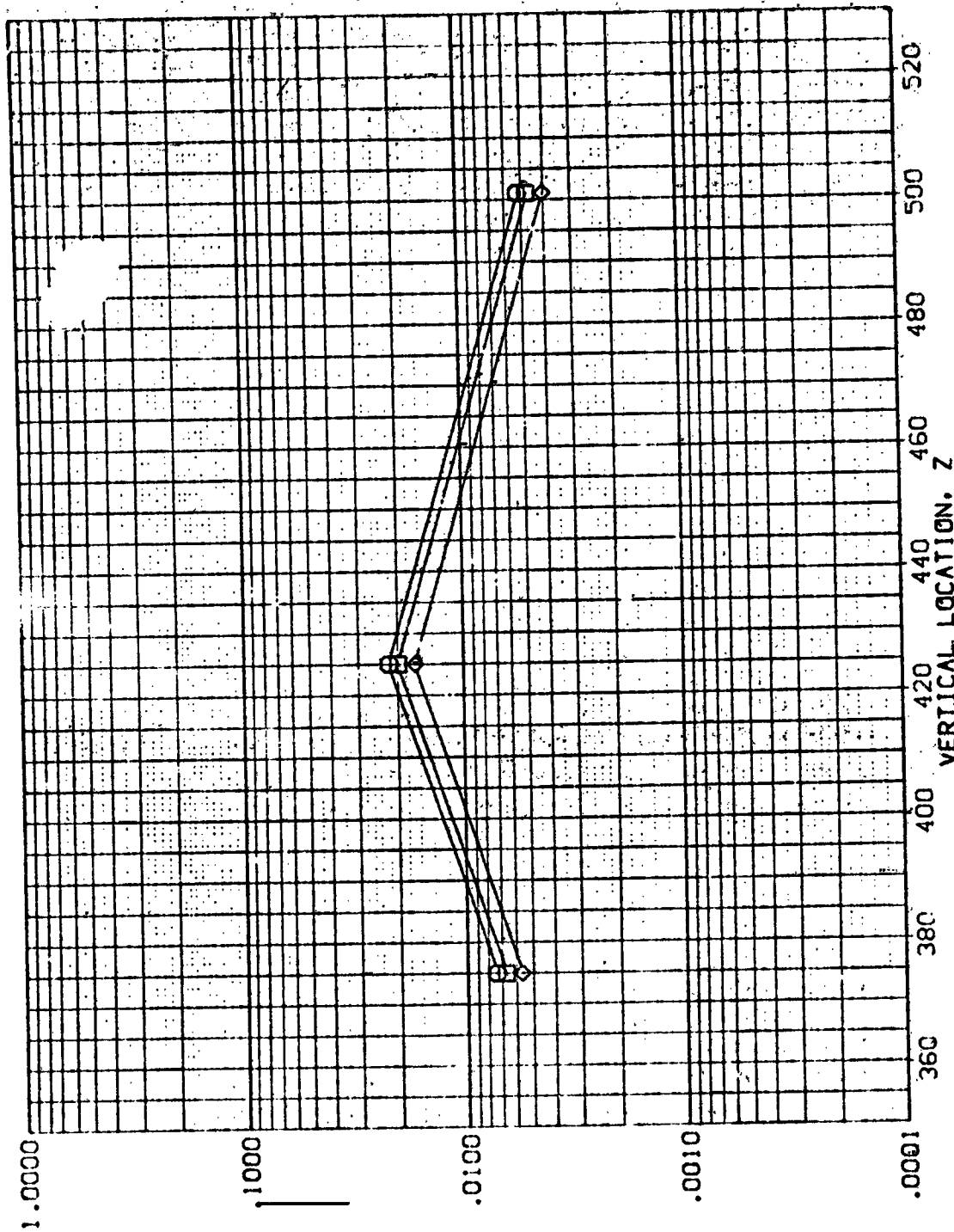


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB11)

PARAMETRIC VALUES  
 ALPHA 20.080  
 BETA 4.000

SYMBOL HAW/HT X/L MACH  
 ◊ .850 .300 5.300  
 □ .900  
 ◊ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

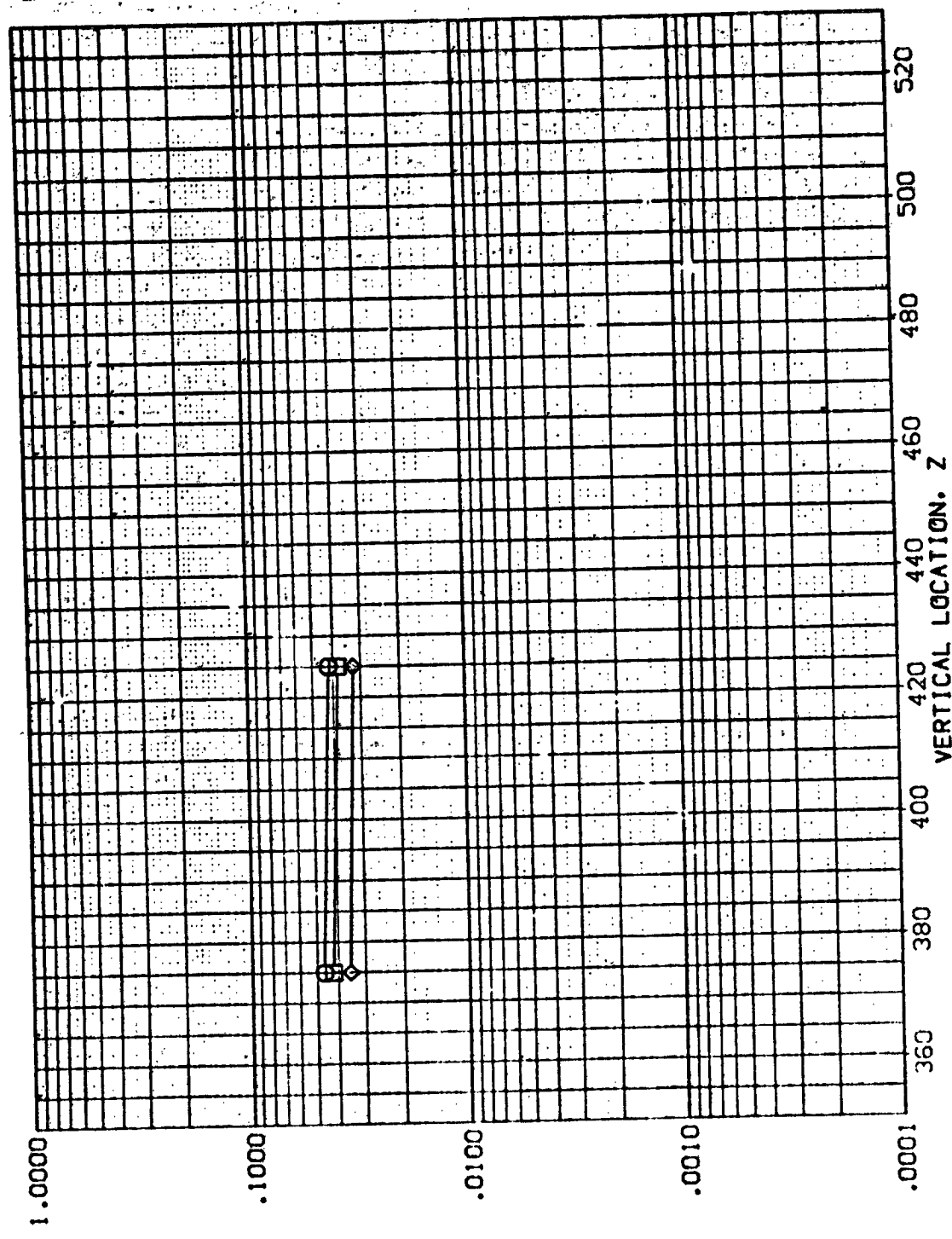


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REV811)

AMES 3.5-195 1428 01+T1 BODY SIDEWALL

PARAMETER VALUES

500

BETA

30.000

ALPHA

1.000

RV/L

MACH

.400

5.300

X/L

.850

.900

1.000

SYMBOL

◇ □ ○

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

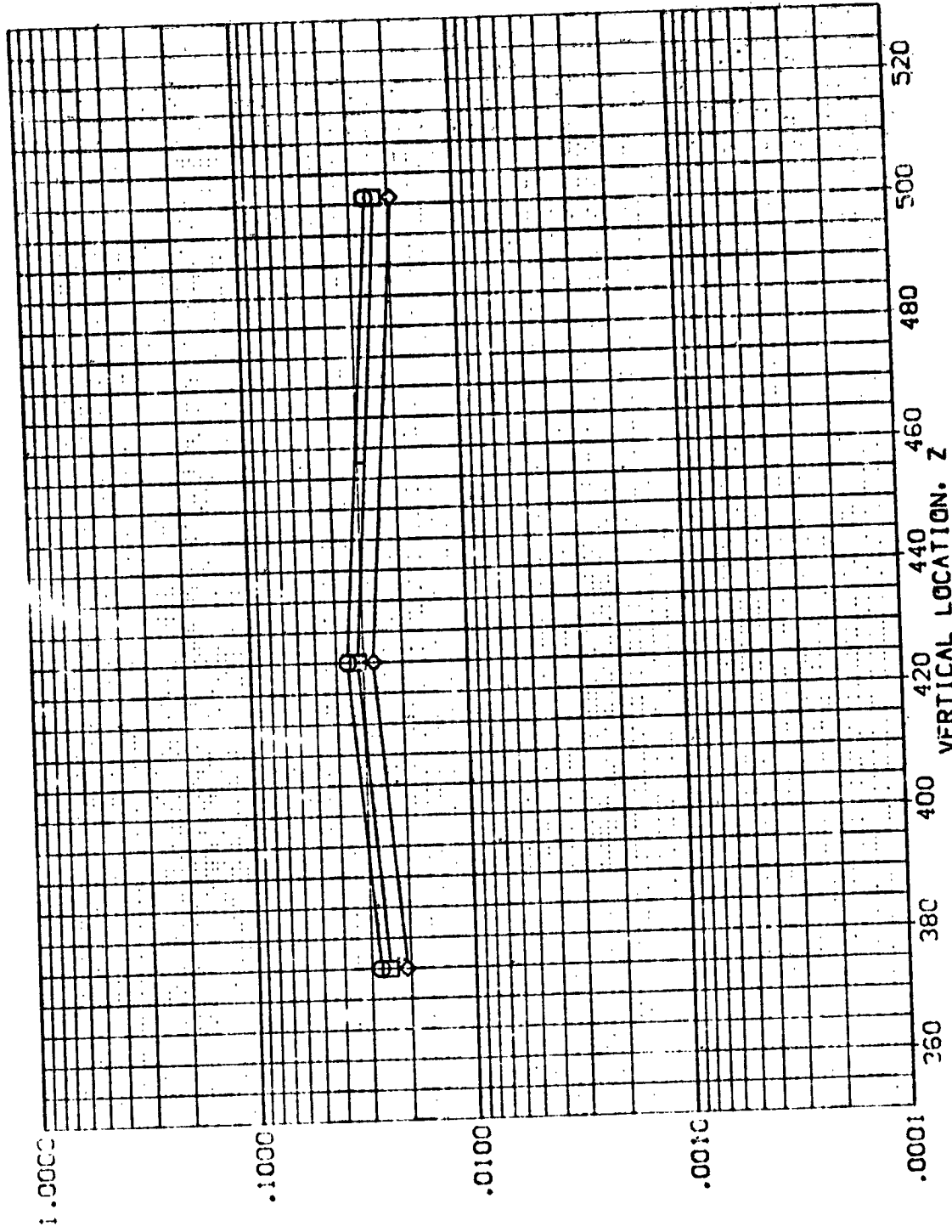


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMERICAN ROCKET ENGINEERING SOCIETY  
TECHNICAL PAPER IS 61-10

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB11)

SYMBOL	MAW/HT	X/L	MACH	ALPHA	BETA
○	.850	.500	5.300	30.000	.000
◇	.900			4.000	
◇	1.000				

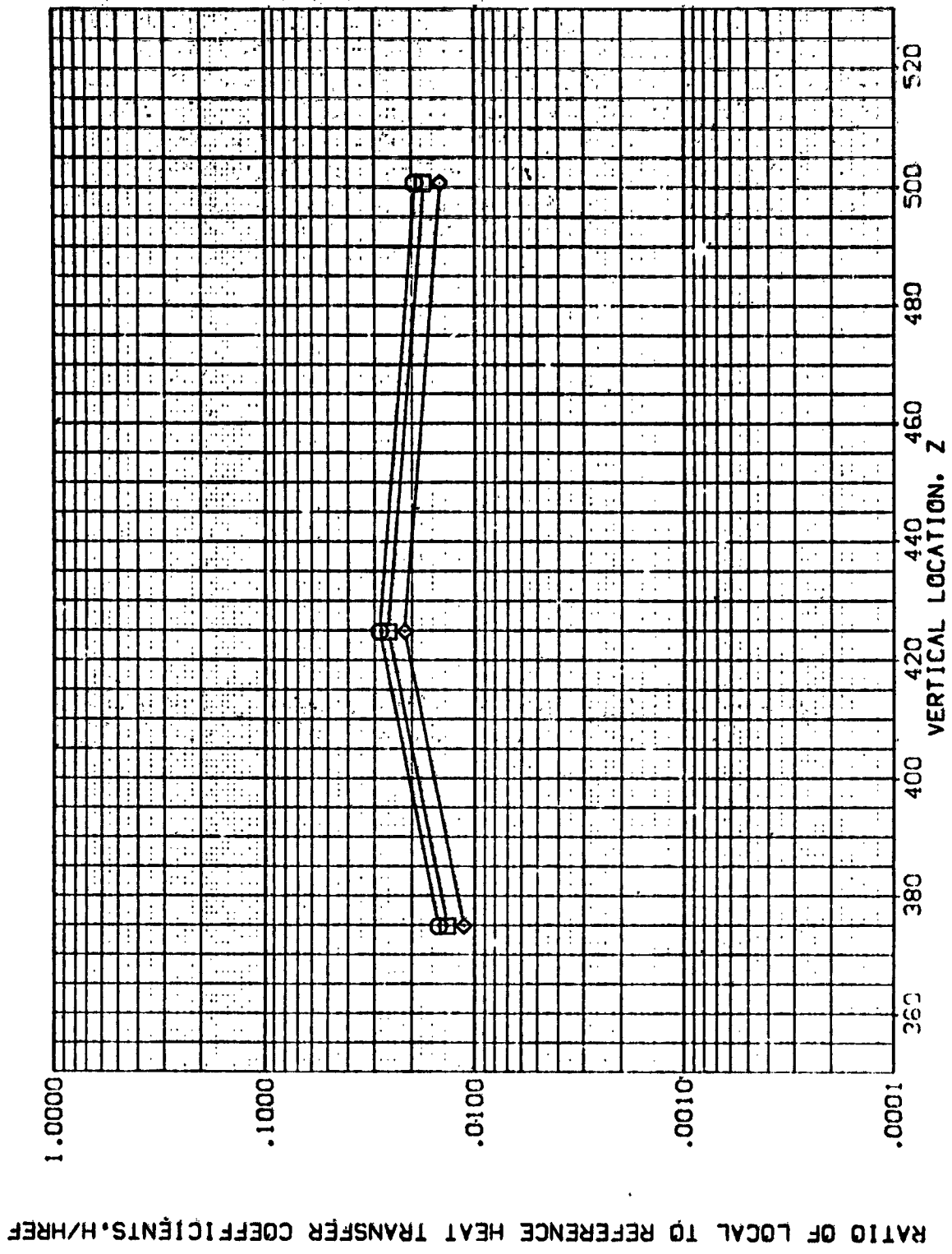


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (REVS 10)

SYMBOL:  $\square$   $\diamond$   
 MAW/HT .850  
 X/L .600  
 MACH 5.300  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 4.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

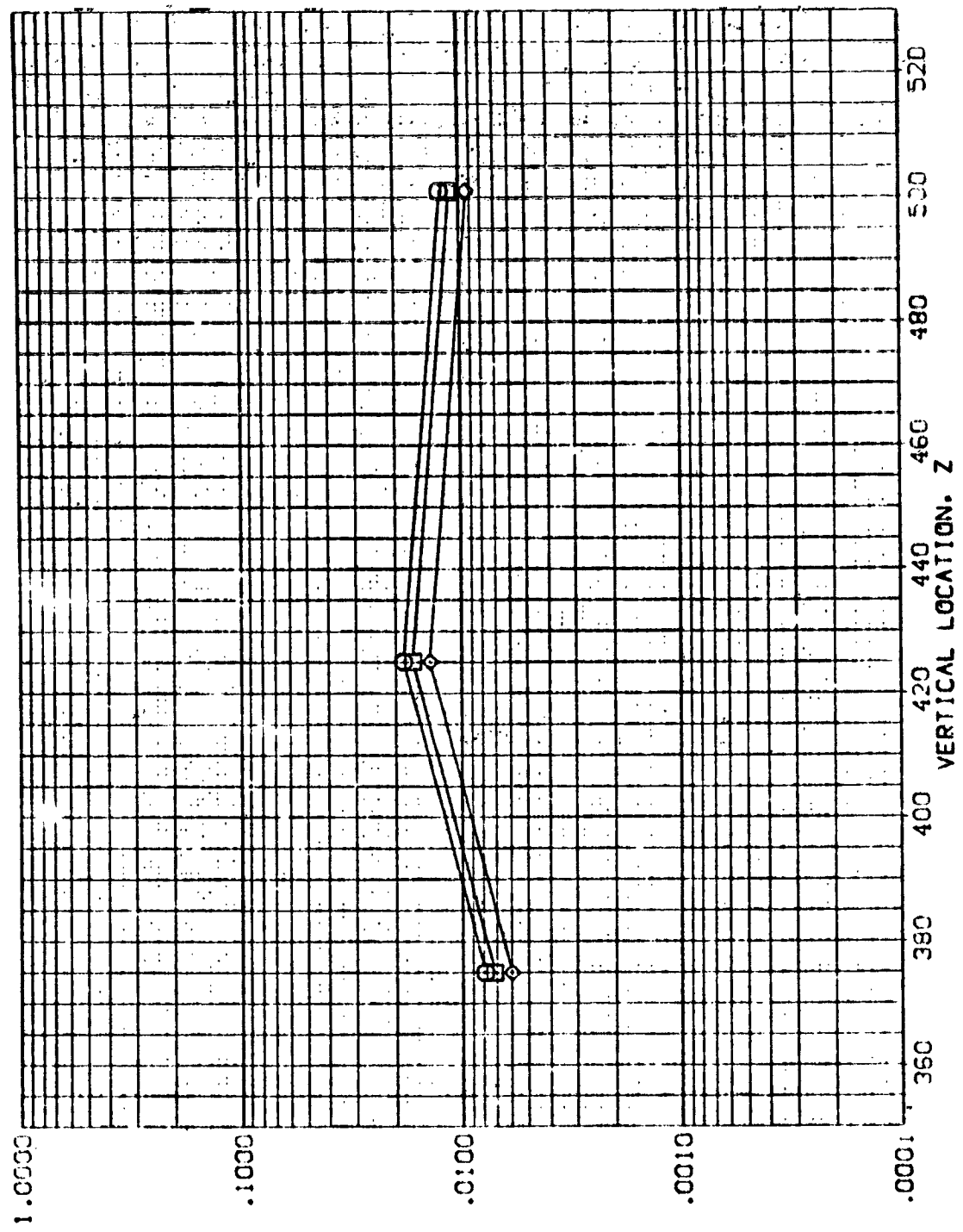


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB11)

PARAMETRIC VALUES  
 ALPHA 30.000 BETA .000  
 RV/L 4.000

SYMBOL MAV/HT X/L MACH  
 ◊ .850 .700 5.300  
 ◻ .900  
 ◻ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

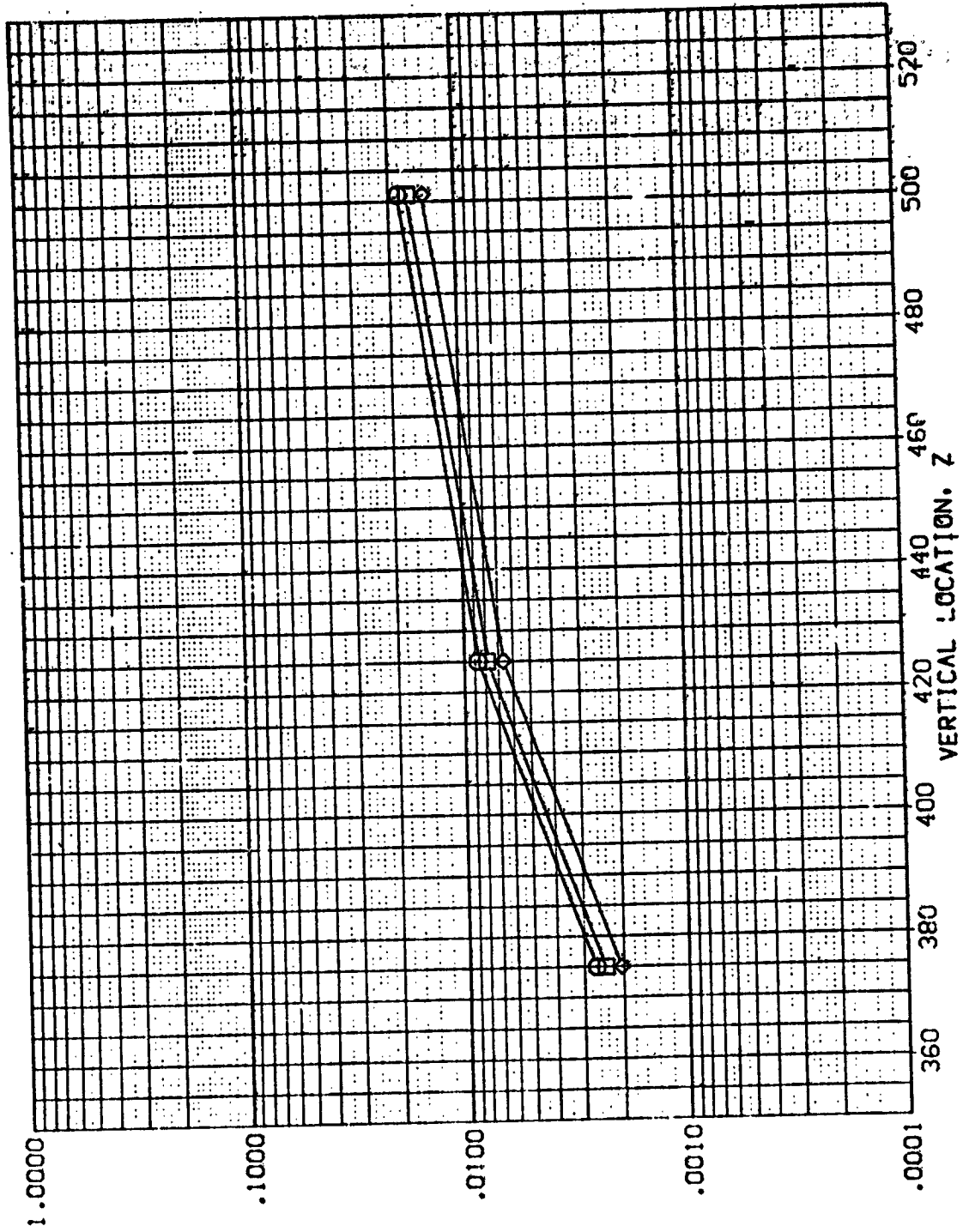


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



(REVB12)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETER VALUES  
ALPHA 30.0  
RN/L 1.000  
BETA -5.000

MACH 5.220  
X/L .300

SYMBOL  
◇  
□  
○

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

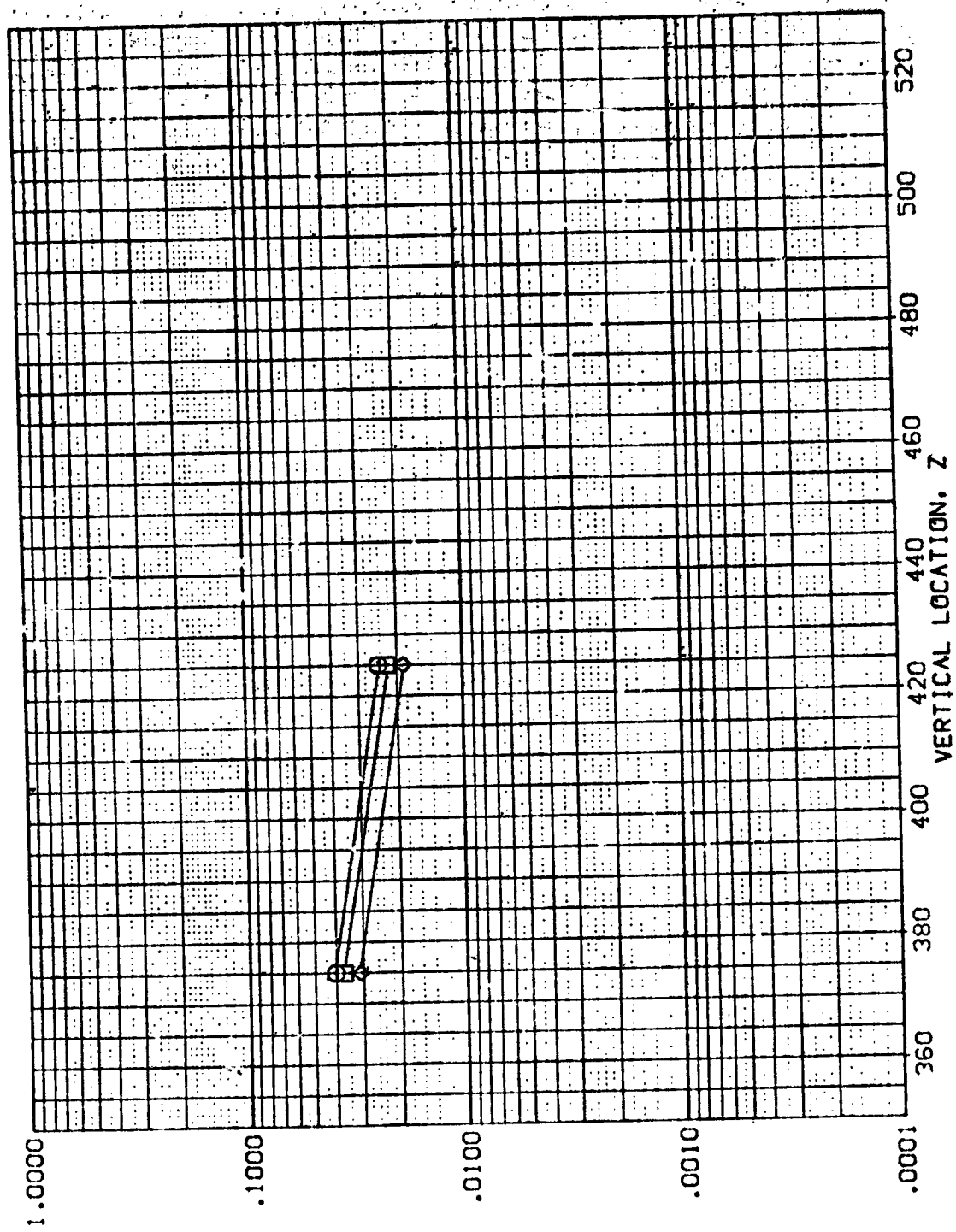


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB12)

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 RV/T -5.000

MACH 5.220  
 X/L .400

SYMBOL  
 ◇ .850  
 □ .900  
 ○ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

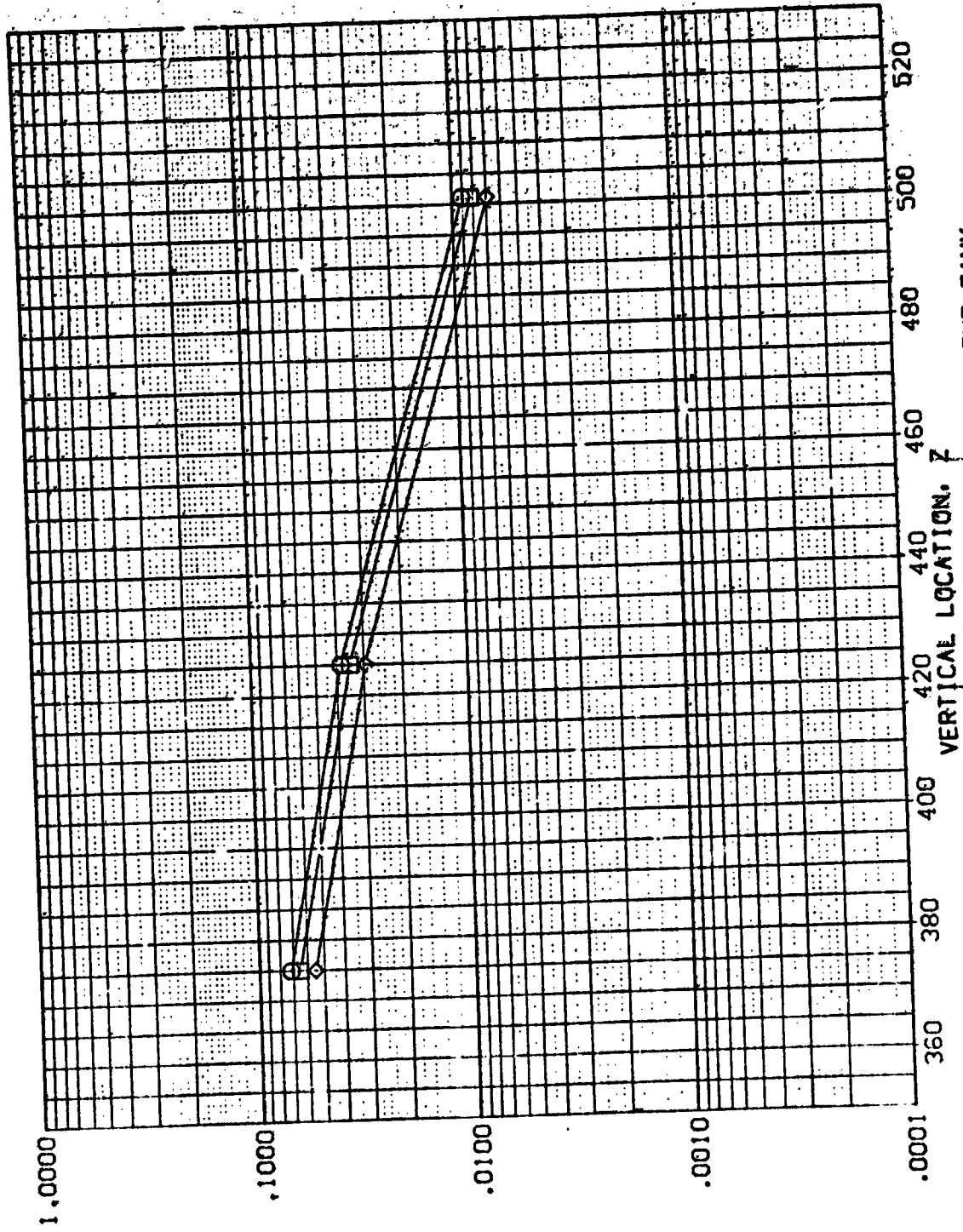


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REVB12)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

SYMBOL    HAW/HT    X/L    MACH  
□    .850    .500    5.220  
◇    .900  
   1.000

PARAMETER C VALUES  
BETA    -5.050  
ALPHA  
RV/L

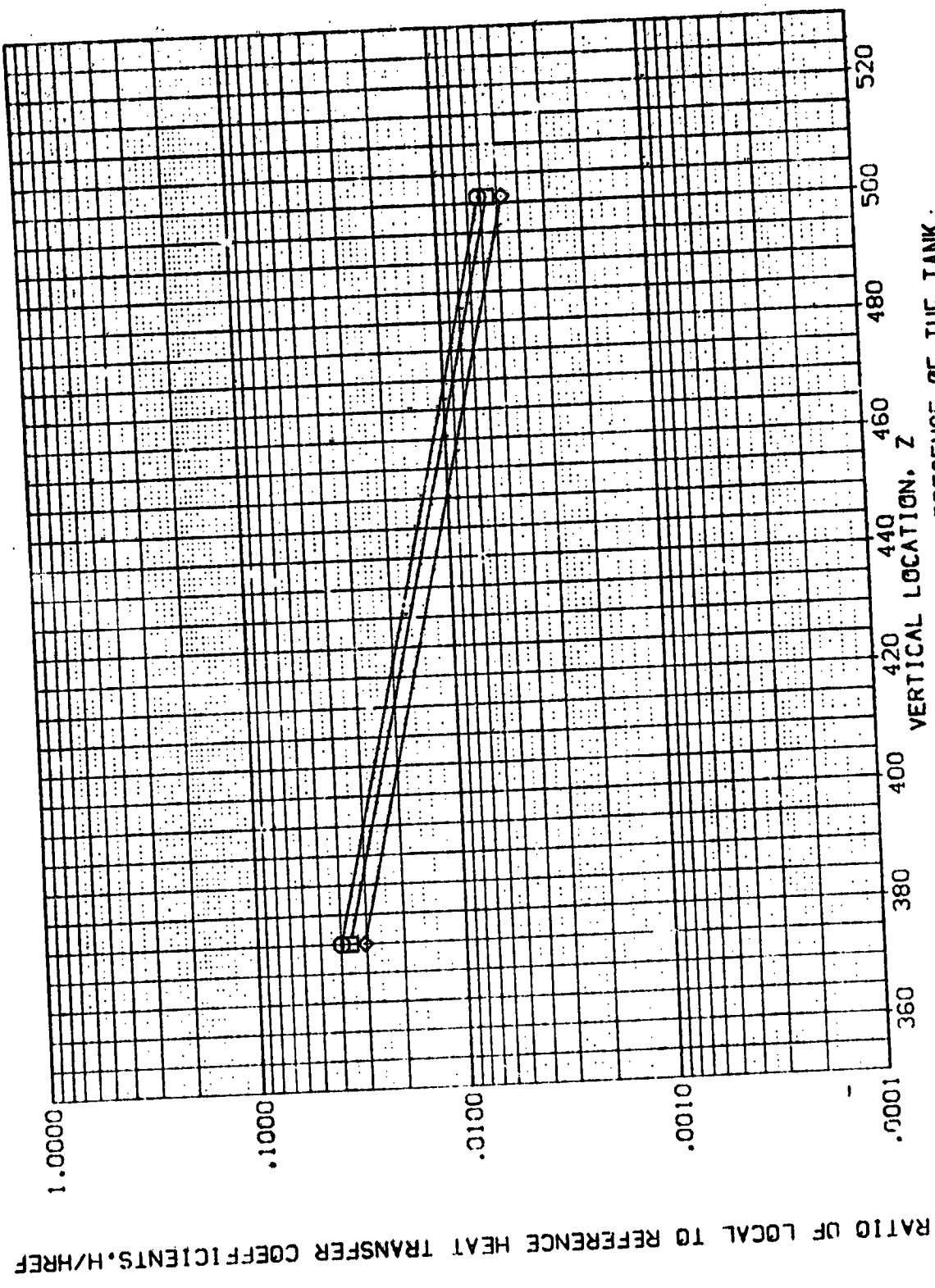


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(REVB12)

SYMBOL    MAW/HT    X/L    MACH  
 ○        .850     .600    5.220  
 □        .900  
 ◇        1.000

PARAMETRIC VALUES  
 ALPHA    BETA  
 RW/L    30.000  
 1.000    -5.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

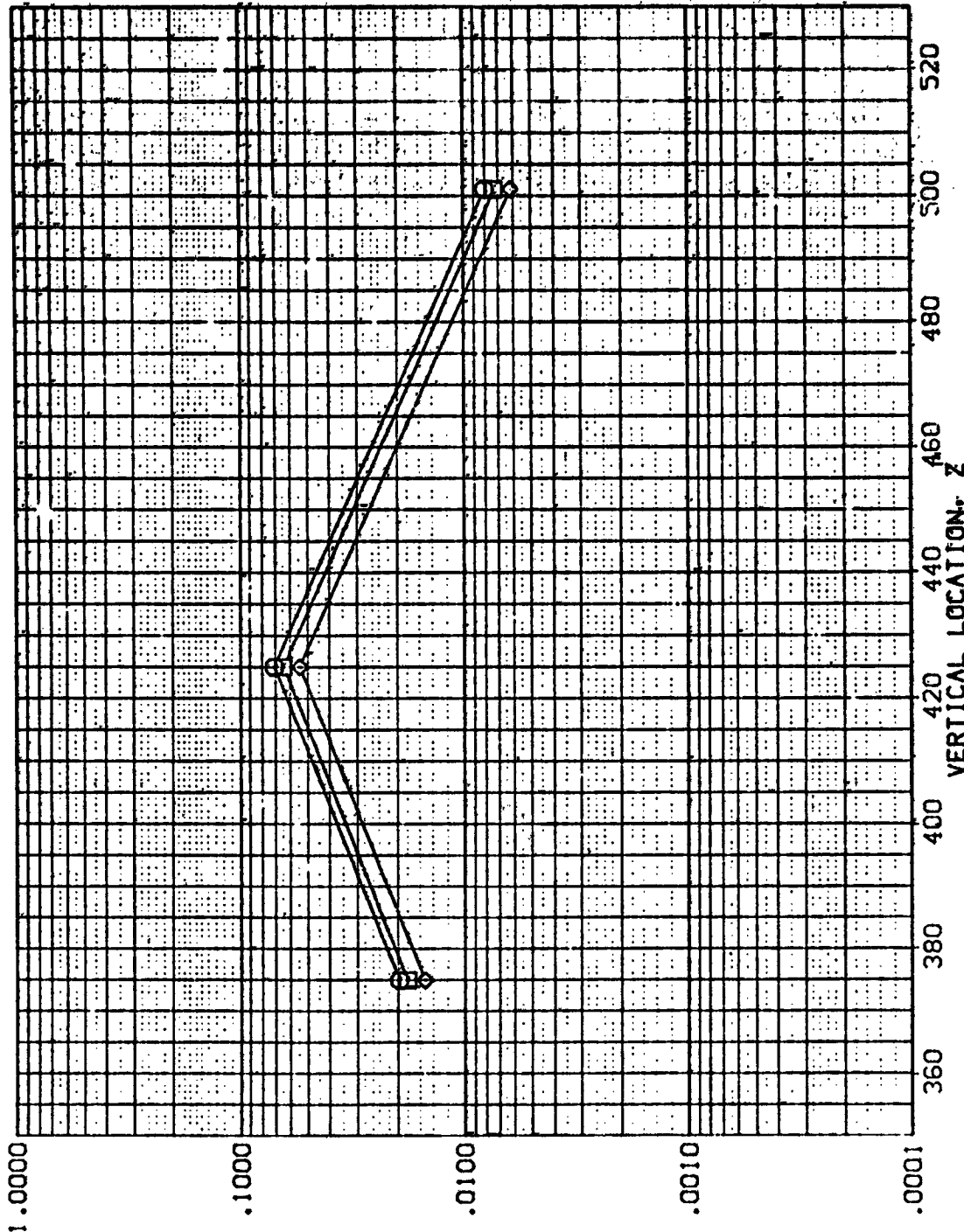


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

(REVB12)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

SYMBOL  
□  
◇

HAWAHT .850  
.900  
1.000

X/L .700  
MACH 5.220

ALPHA  
RN/L

30.00  
1.000

PAP RIC VALUES  
BETA -5.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

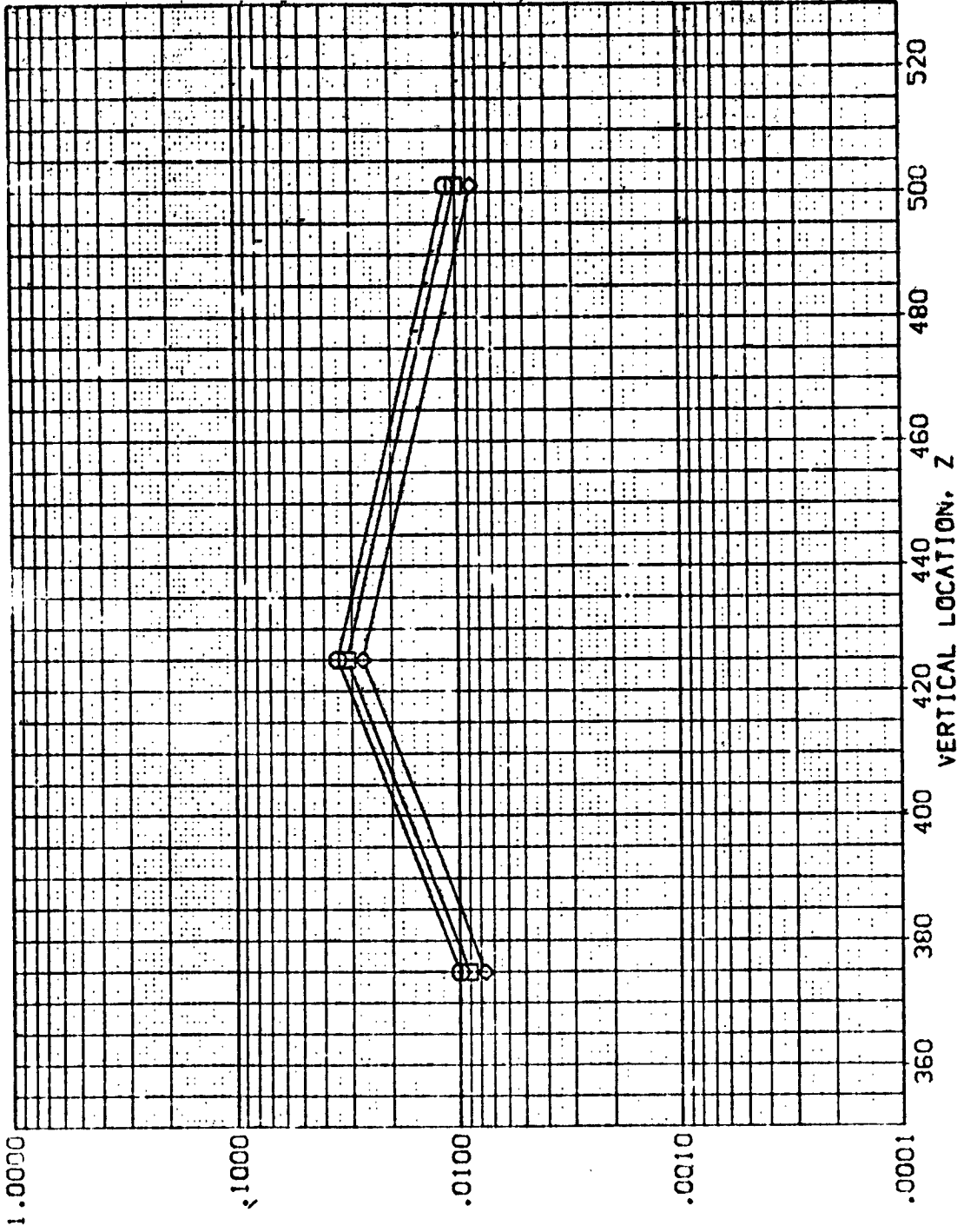


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

DATA SET SYMBOL  
 (REV801)  
 (REV802)  
 (REV803)  
 (REV804)  
 (REV805)

CONFIGURATION DESCRIPTION  
 AMES 3.5-195 1H28 01+11 BODY SIDEWALL  
 AMES 3.5-195 1H28 01+11 BODY SIDEWALL  
 AMES 3.5-195 1H28 01+11 BODY SIDEWALL  
 AMES 3.5-195 1H28 01+11 BODY SIDEWALL  
 AMES 3.5-195 1H28 01+11 BODY SIDEWALL

ALPHA  
 .000  
 30.000  
 60.000  
 90.000  
 120.000

BETA  
 .000  
 .000  
 .000  
 .000

RM/L  
 1.000  
 1.000  
 1.000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

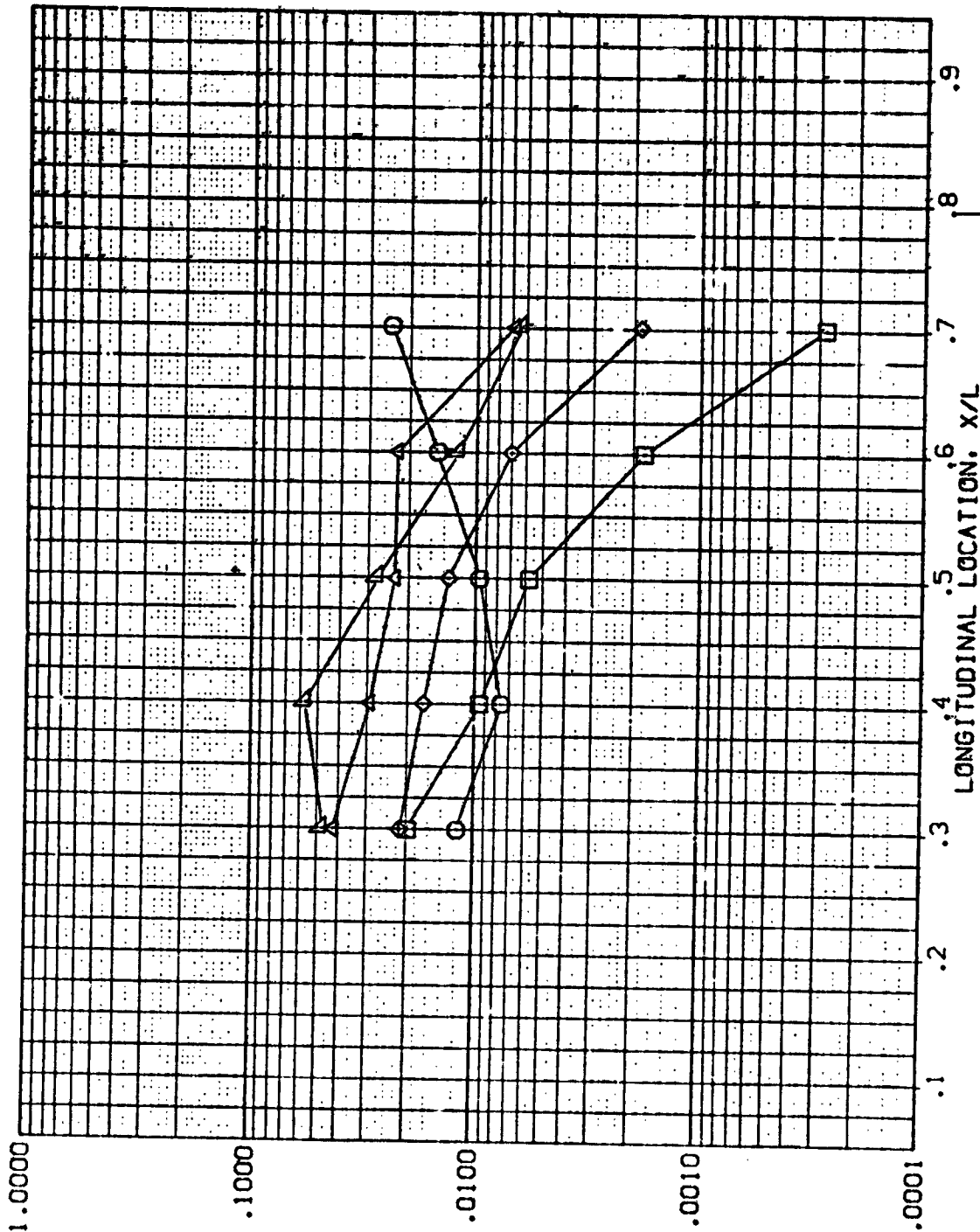


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 Z = 375.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RM/L
(REVB01)	AVES 3.5-195 1428 01+11 BODY SIDEWALL	.000	.000	1.000
(REVB02)	AVES 3.5-195 1428 01+11 BODY SIDEWALL	30.000	.000	1.000
(REVB03)	AVES 3.5-195 1428 01+11 BODY SIDEWALL	60.000	.000	1.000
(REVB04)	AVES 3.5-195 1428 01+11 BODY SIDEWALL	90.000	.000	1.000
(REVB05)	AVES 3.5-195 1428 01+11 BODY SIDEWALL	120.000	.000	1.000

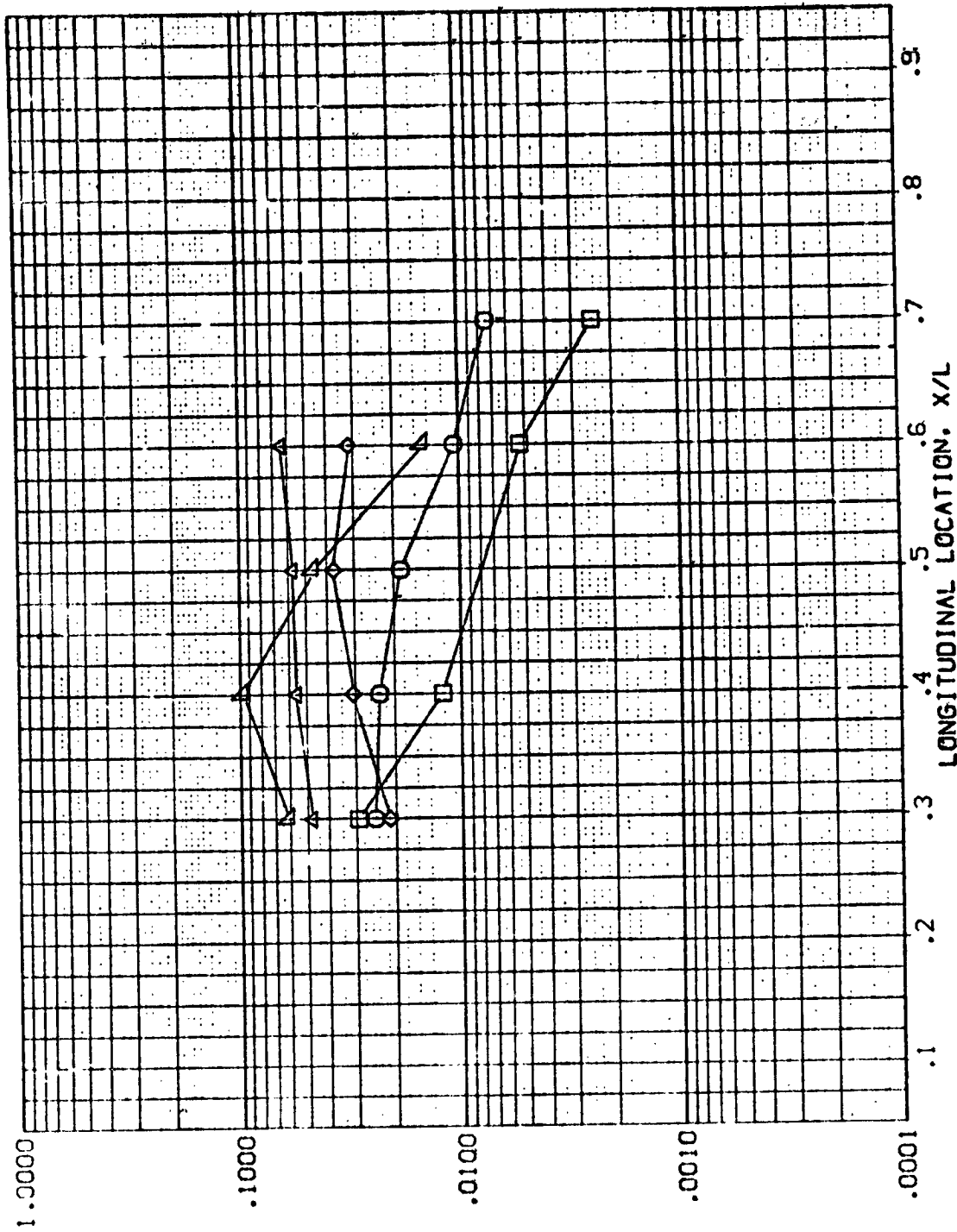


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 Z = 4.25 000

AVES 3.5-195 1428 01+11 BODY SIDEWALL

ALPHA BETA RV/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (REV801) AMES 3.5-195 (H28 01+11) BODY SIDEWALL  
 (REV802) AMES 3.5-195 (H28 01+11) BODY SIDEWALL  
 (REV803) AMES 3.5-195 (H28 01+11) BODY SIDEWALL  
 (REV804) AMES 3.5-195 (H28 01+11) BODY SIDEWALL  
 (REV805) AMES 3.5-195 (H28 01+11) BODY SIDEWALL

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

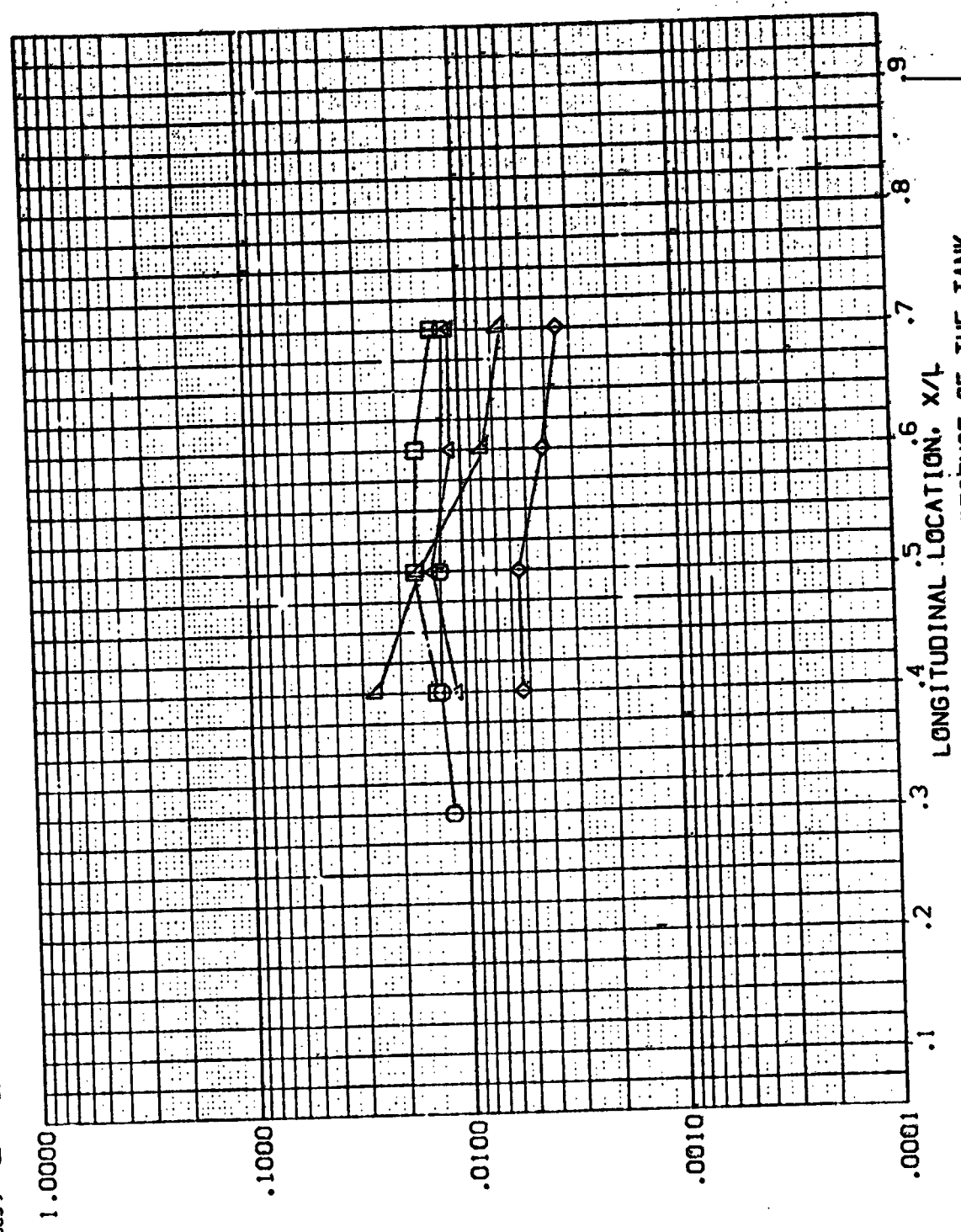


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 Z = 501.000



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

DATA SET SYMBOL CONFIGURATION DESCRIPTION

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL  
 AMES 3.5-195 IH28 01+T1 BODY SIDEWALL  
 AMES 3.5-195 IH28 01+T1 BODY SIDEWALL  
 AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

ALPHA BETA RN/L  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

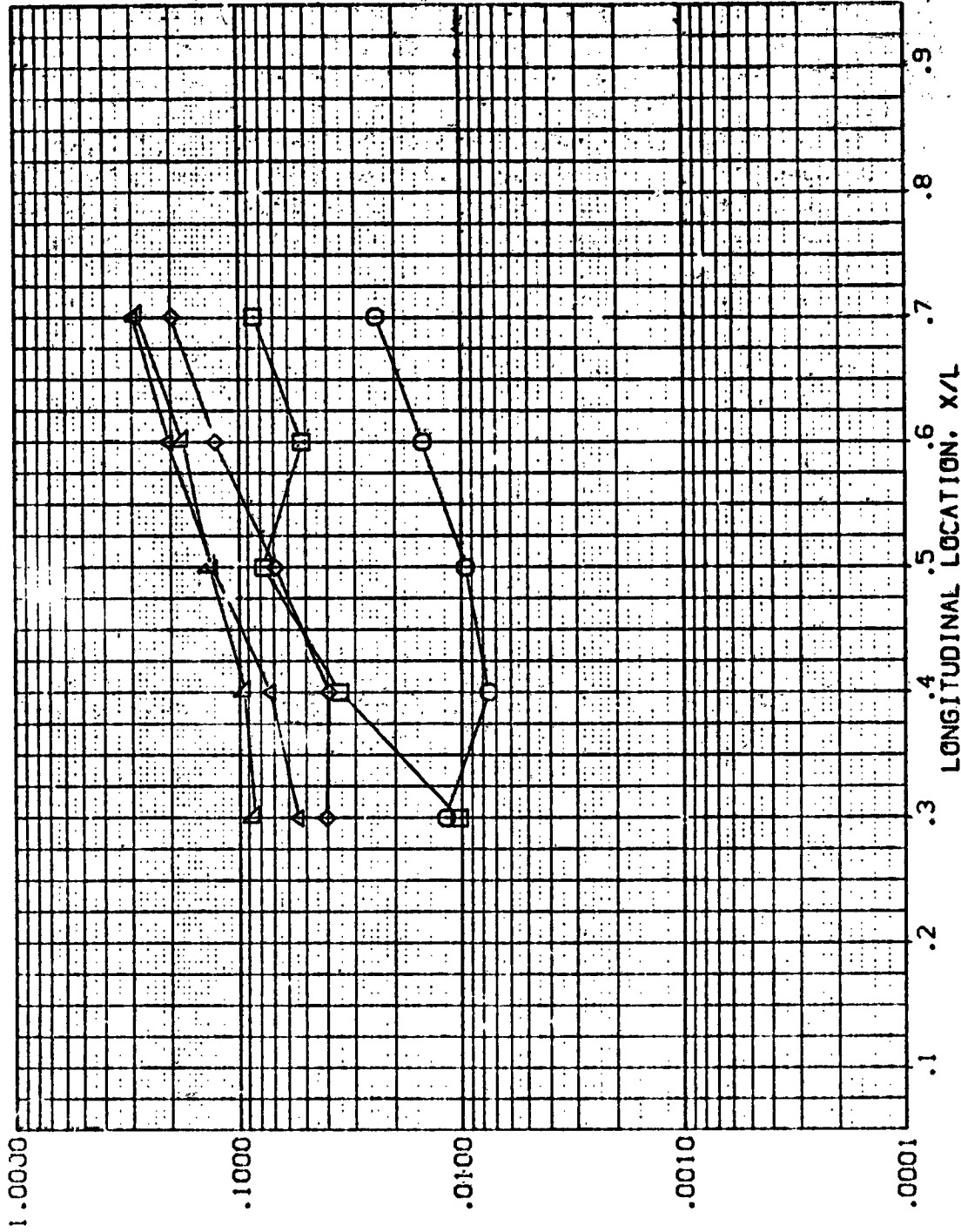


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 Z = 375.000

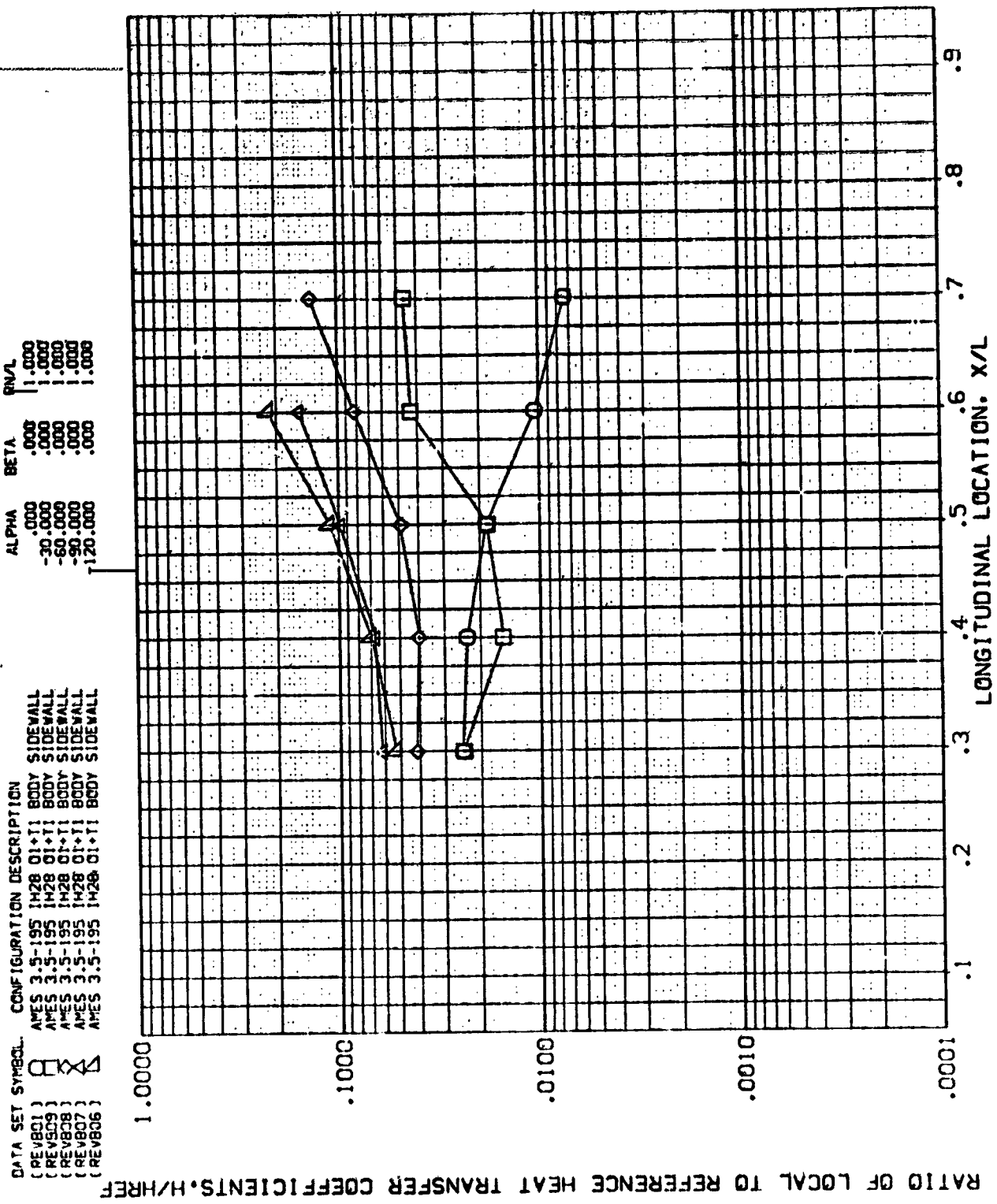


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



DATA SET SYMBOL  
 (REB02)  
 (REB01)  
 (REB03)  
 (REB10)

CONFIGURATION DESCRIPTION  
 ARES 3.5-185 1428 01\*11 BODY SIDEWALL  
 ARES 3.5-185 1428 01\*11 BODY SIDEWALL  
 ARES 3.5-185 1428 01\*11 BODY SIDEWALL  
 ARES 3.5-185 1428 01\*11 BODY SIDEWALL

ALPHA BETA PV/L  
 30.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 60.000 .000 4.000

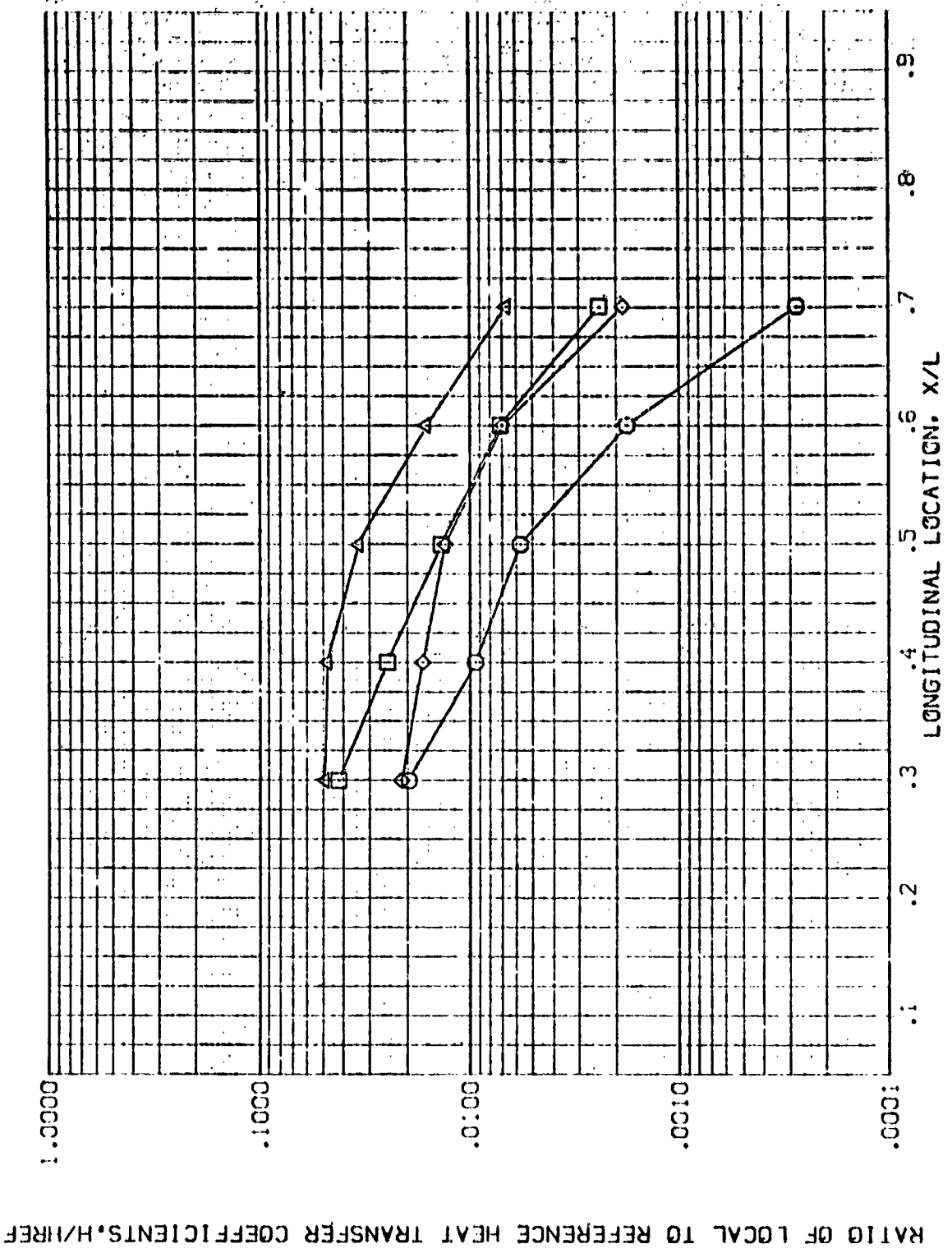


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

WACH = 5.200 WACH/WT = .900 Z = 375.000

```

DATA SET SWEN
1001.0000
1002.0000
1003.0000
1004.0000
1005.0000
1006.0000
1007.0000
1008.0000
1009.0000
1010.0000
1011.0000
1012.0000
1013.0000
1014.0000
1015.0000
1016.0000
1017.0000
1018.0000
1019.0000
1020.0000

```

```

COORDINATE DESCRIPTION
1001.0000 BODY
1002.0000 BODY
1003.0000 BODY
1004.0000 BODY
1005.0000 BODY
1006.0000 BODY
1007.0000 BODY
1008.0000 BODY
1009.0000 BODY
1010.0000 BODY
1011.0000 BODY
1012.0000 BODY
1013.0000 BODY
1014.0000 BODY
1015.0000 BODY
1016.0000 BODY
1017.0000 BODY
1018.0000 BODY
1019.0000 BODY
1020.0000 BODY

```

```

ALPHA BETA P
21.0000 .0000 1.0000
22.0000 .0000 4.0000
23.0000 .0000 4.0000
24.0000 .0000 4.0000
25.0000 .0000 4.0000
26.0000 .0000 4.0000

```

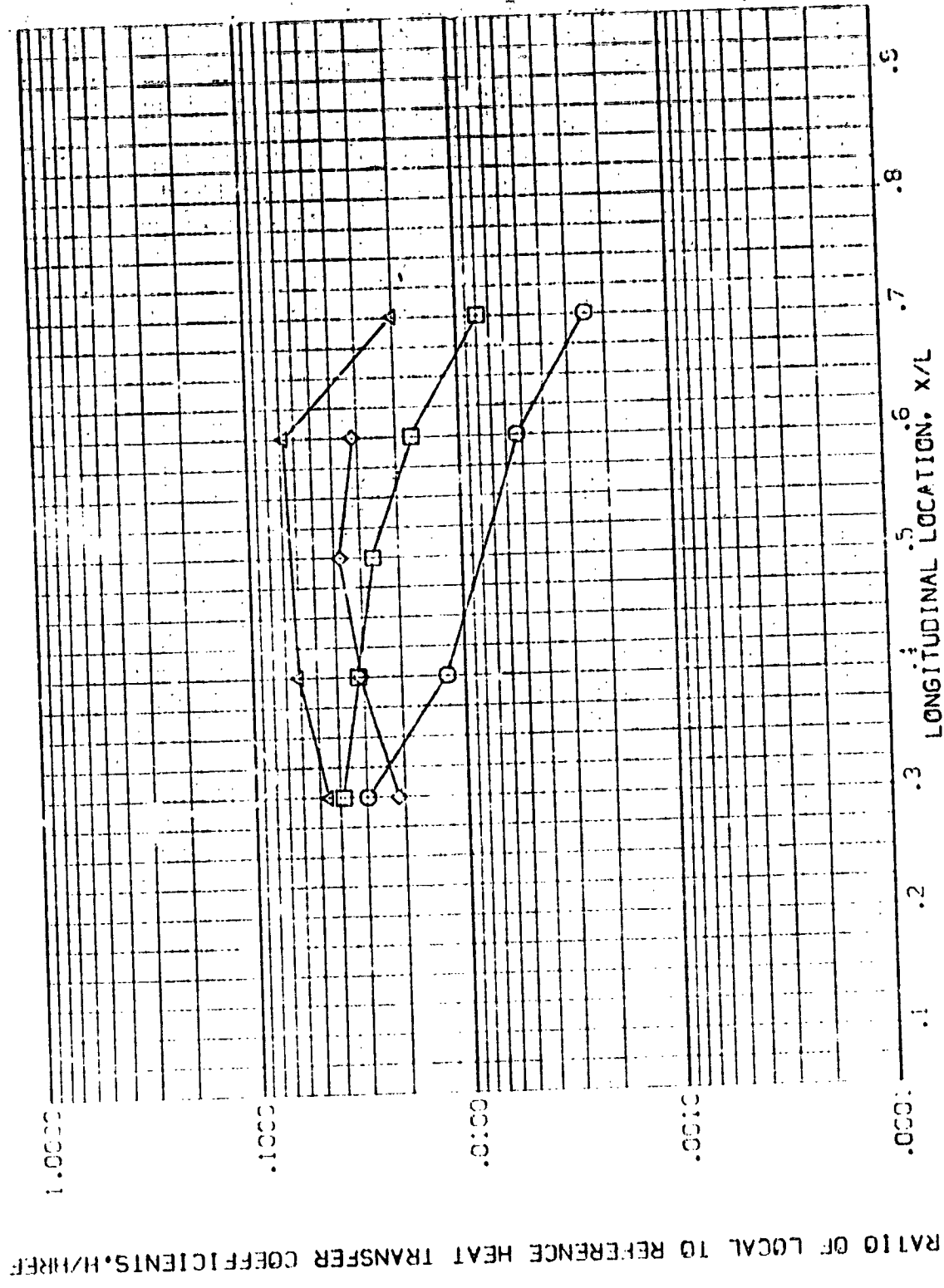


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 2.000,  $\mu/\mu_w = 1.000$ , Z = 625.000

ALPHA RETS %w/L  
 30.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 60.000 .000 4.000

CONFIGURATION DESCRIPTION  
 AMES 3.5-195 (R28 01+T) BODY SIDEWALL  
 AMES 3.5-195 (R28 01+T) BODY SIDEWALL  
 AMES 3.5-195 (R28 01+T) BODY SIDEWALL  
 AMES 3.5-195 (R28 01+T) BODY SIDEWALL

SET SYMBO  
 ( )  
 ( )  
 ( )  
 ( )

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

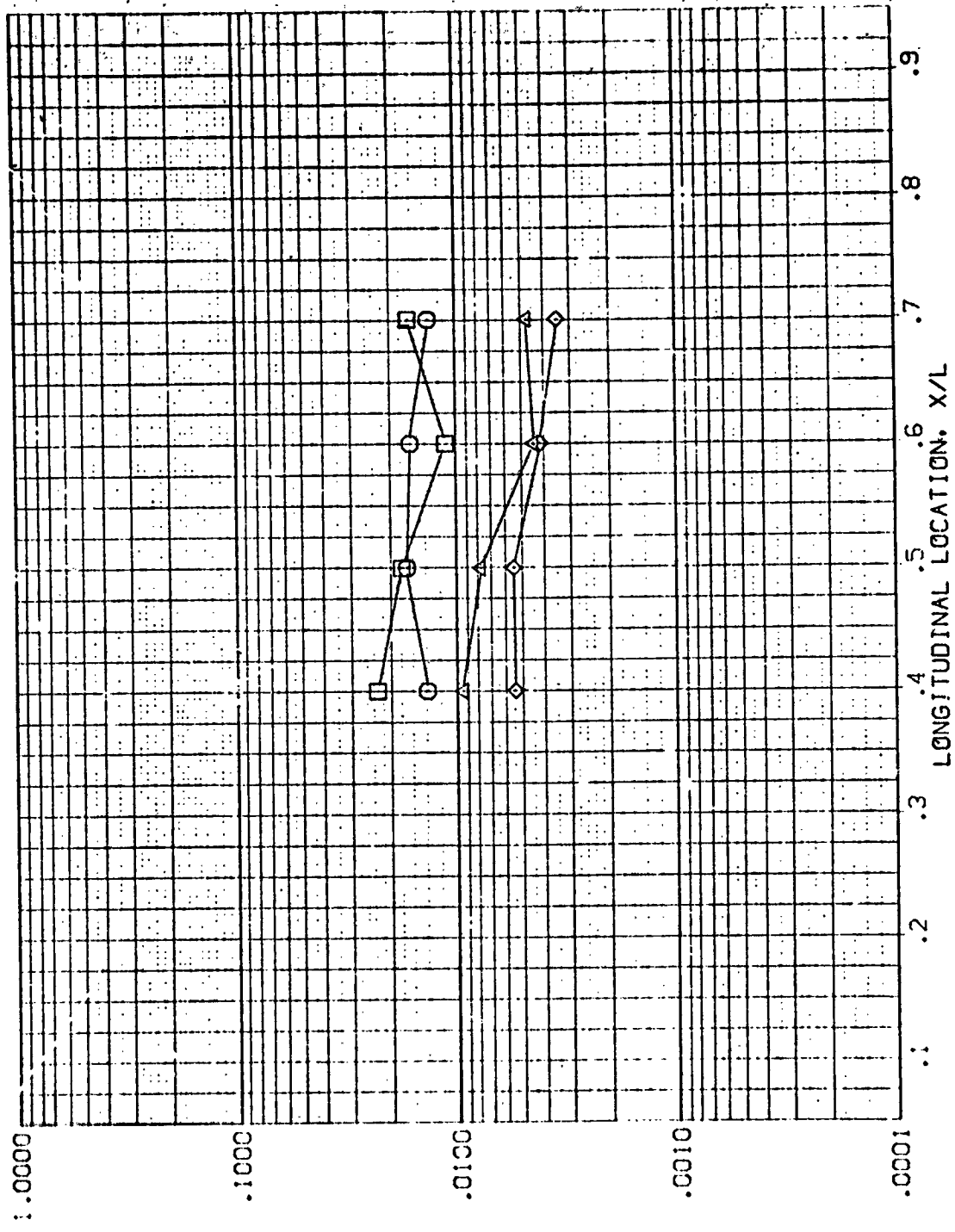


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

DATA SET SYMBOL: B  
 CONFIGURATION DESCRIPTION:  
 AXES 3.5-195 1428 01\*11 BODY SIDEWALL  
 AXES 3.5-195 1428 01\*11 BODY SIDEWALL

ALPHA BET/ FV/L  
 30.000 .000 1.000  
 30.000 -5.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

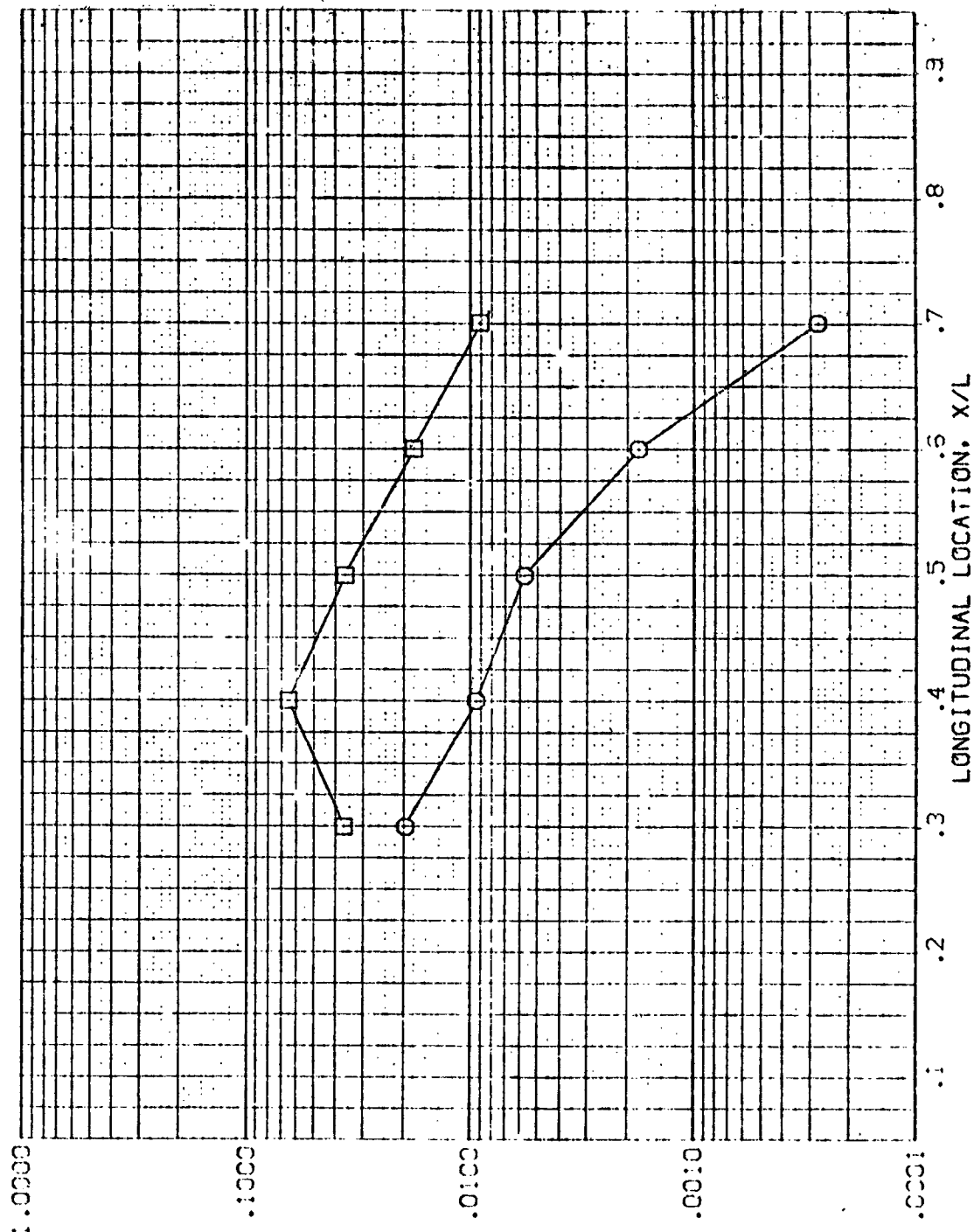


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.000 HAW/HREF = .900 Z = 375.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (RE1B02) ② AXES 3.5-195 (P28 01\*11) BODY SIDEWALL  
 (RE1B12) ② AXES 3.5-195 (P28 01\*11) BODY SIDEWALL

ALPHA BETA RV/L  
 30.000 .000 1.000  
 30.000 -5.000 1.000

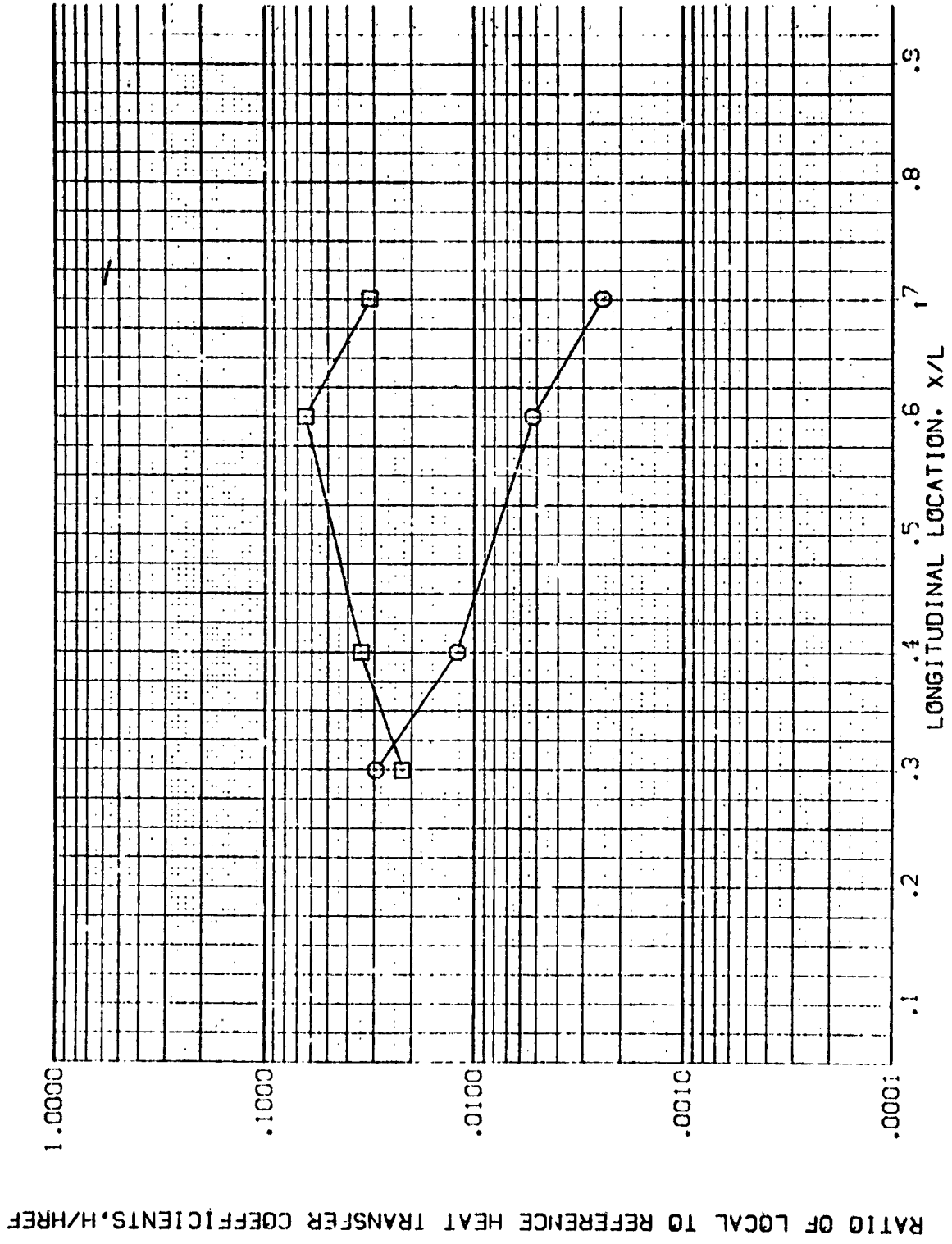


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 Z = 425.000



DATA SET SYMBOL: 8  
 CONFIGURATION DESCRIPTION:  
 AYES 313-135 1-28 01-11 BODY SIDEWALL  
 AYES 315-135 1-28 01-11 BODY SIDEWALL

ALPHA 30.000  
 BETA .000  
 P/W/L 30.000 1.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

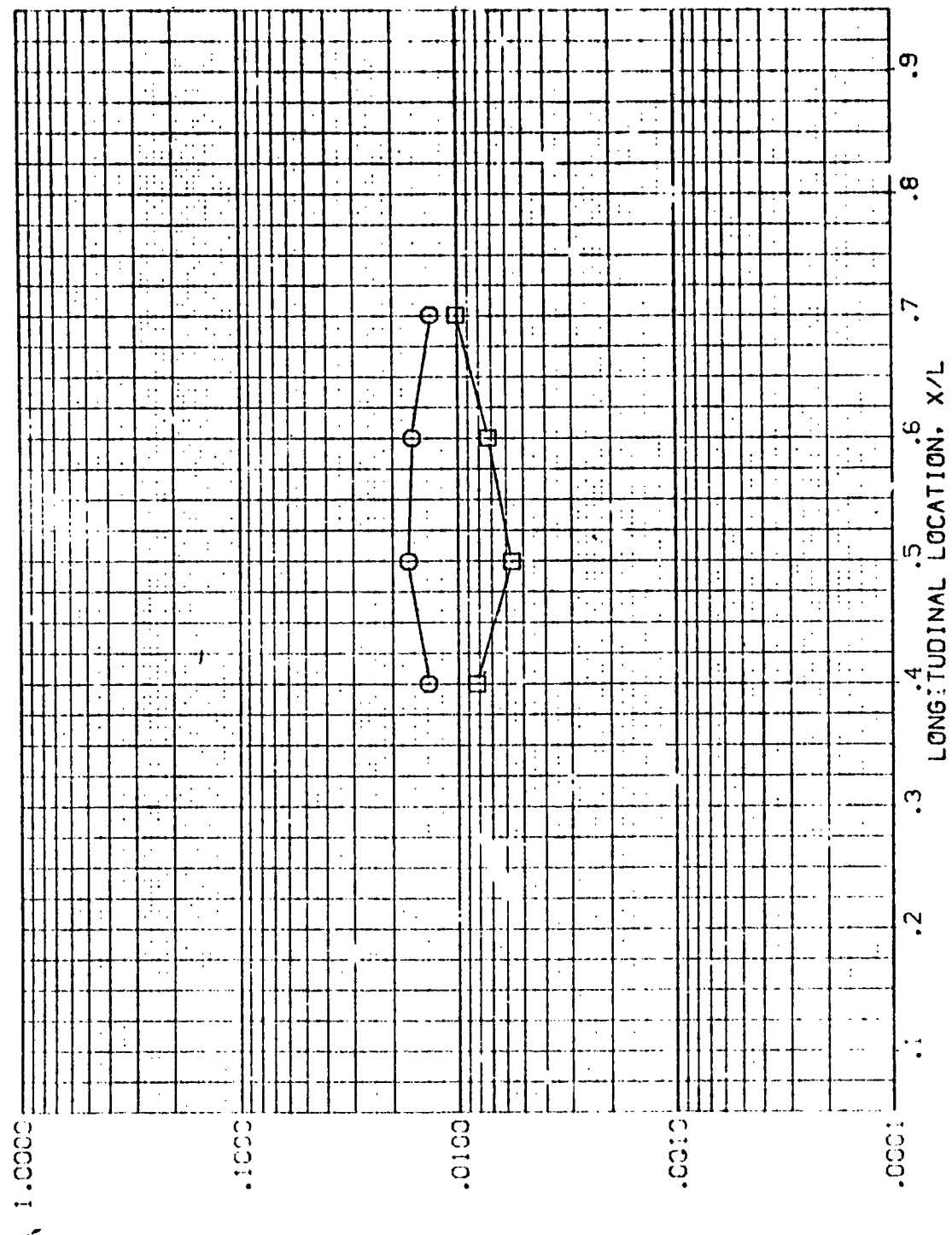


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 H\*W/H\*H = .990 Z = 501.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(P)301)	AXES 3.5-195	1428 01+11	BODY SIDEWALL
(P)302)	AXES 3.5-195	1428 01+11	BODY SIDEWALL
(P)303)	AXES 3.5-195	1428 01+11	BODY SIDEWALL
(P)304)	AXES 3.5-195	1428 01+11	BODY SIDEWALL
(P)305)	AXES 3.5-195	1428 01+11	BODY SIDEWALL

ALPHA	BETA	RN/L
.000	.000	1.000
30.000	.000	1.000
60.000	.000	1.000
90.000	.000	1.000
120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

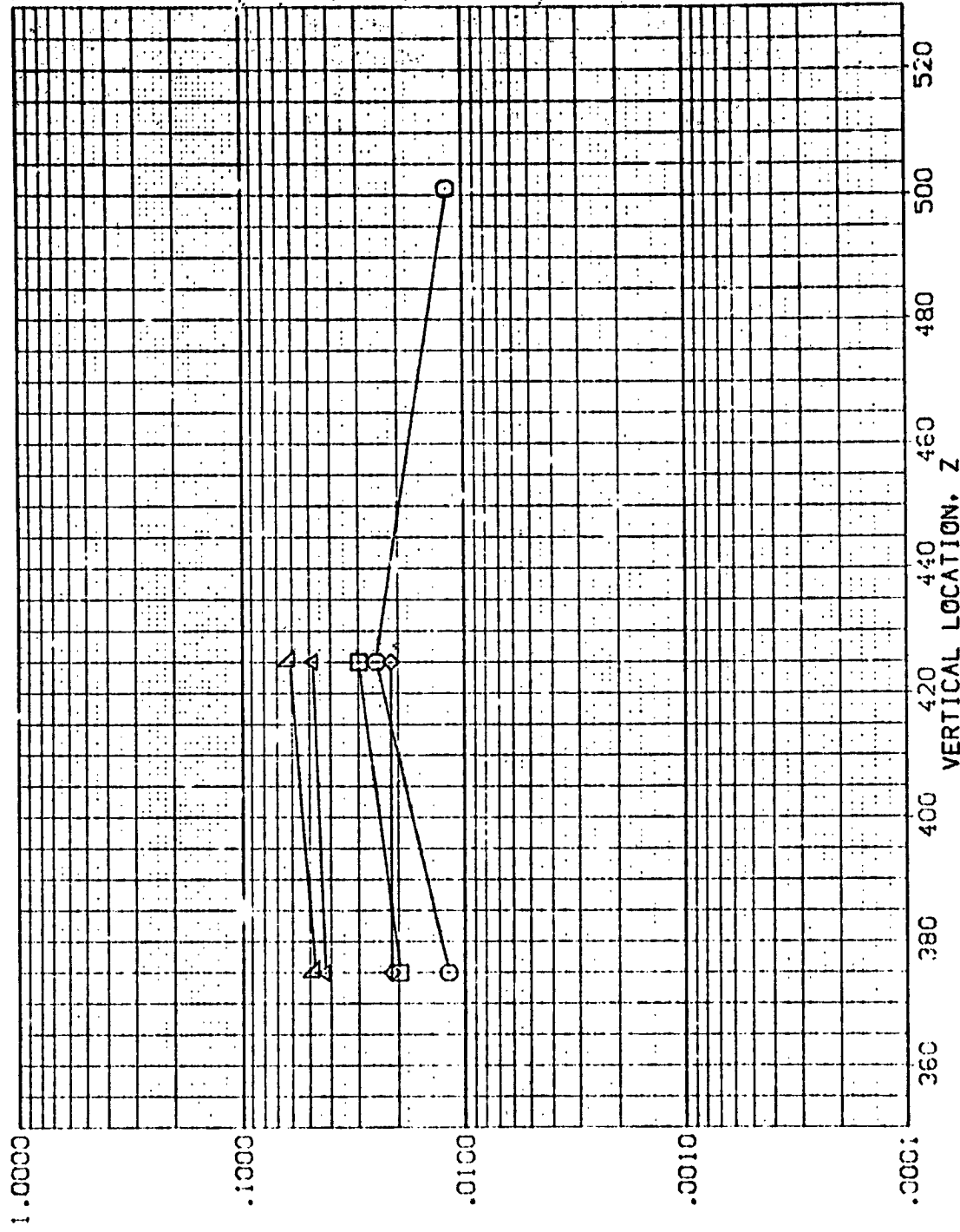


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

DATA SET SYMBOL

CONFIGURATION: DESCRIPTION  
AVES 3.5.195 [H28 O1\*1] BODY SIDEWALL  
AVES 3.5.195 [H28 O1\*1] BODY SIDEWALL  
AVES 3.5.195 [H28 O1\*1] BODY SIDEWALL  
AVES 3.5.195 [H28 O1\*1] BODY SIDEWALL  
AVES 3.5.195 [H28 O1\*1] BODY SIDEWALL

ALPHA BETA  
.000 .000  
30.000 .000  
60.000 .000  
90.000 .000  
120.000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

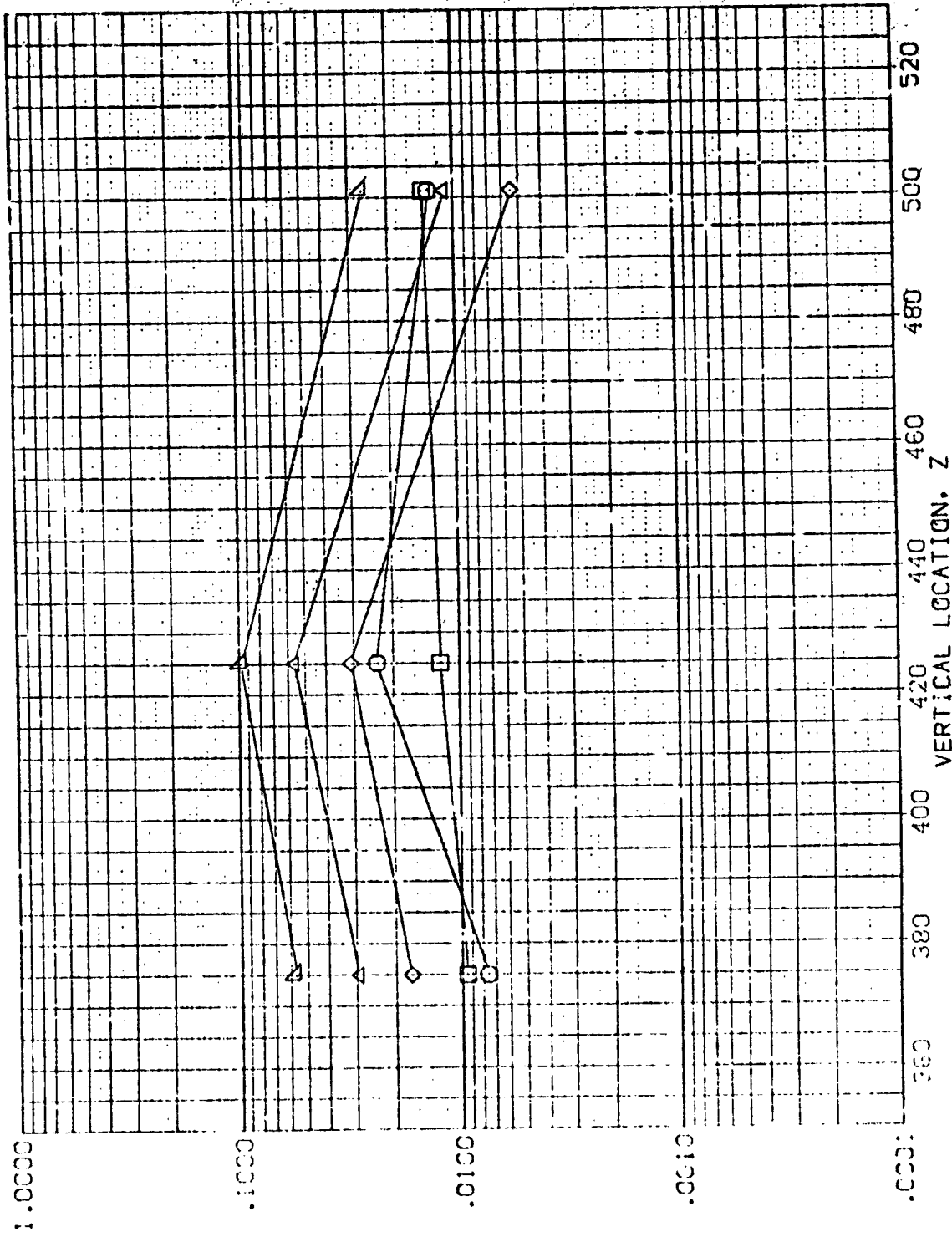


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.200 H/W/HREF = .300 X/L = .400

DATA SET 5-V22-  
 (15.1821)  
 (15.1822)  
 (15.1823)  
 (15.1824)  
 (15.1825)

CONFIGURATION DESCRIPTION  
 AVE5 3.5-195 1428 01+11 BODY SIDEWALL  
 AVE5 3.5-195 1428 01+11 BODY SIDEWALL  
 AVE5 3.5-195 1428 01+11 BODY SIDEWALL  
 AVE5 3.5-195 1428 01+11 BODY SIDEWALL  
 AVE5 3.5-195 1428 01+11 BODY SIDEWALL

ALPHA BETA RM/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

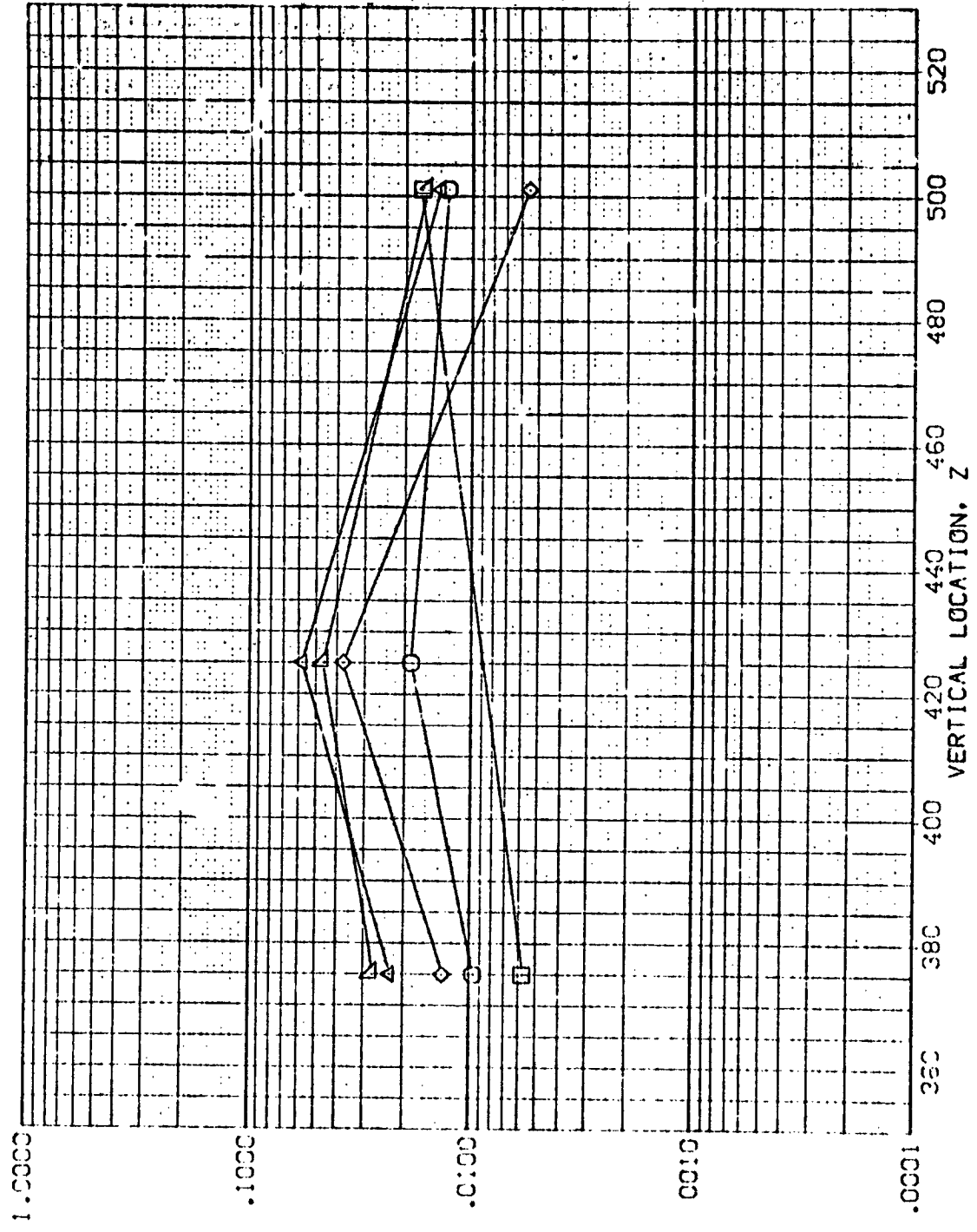


FIG. 11 ORBITER BCJY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.200 HAW/HT = .900 X/L = .500

DATA SET SIMPL  
 (0000000000)  
 (0000000000)  
 (0000000000)  
 (0000000000)  
 (0000000000)  
 (0000000000)

CONFIGURATION DESCRIPTION  
 A128 3.5-1.58 1428 01\*11 BODY SIDEWALL  
 A128 3.5-1.58 1428 01\*11 BODY SIDEWALL  
 A128 3.5-1.58 1428 01\*11 BODY SIDEWALL  
 A128 3.5-1.58 1428 01\*11 BODY SIDEWALL  
 A128 3.5-1.58 1428 01\*11 BODY SIDEWALL

ALPHA BETA  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000  
 .000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

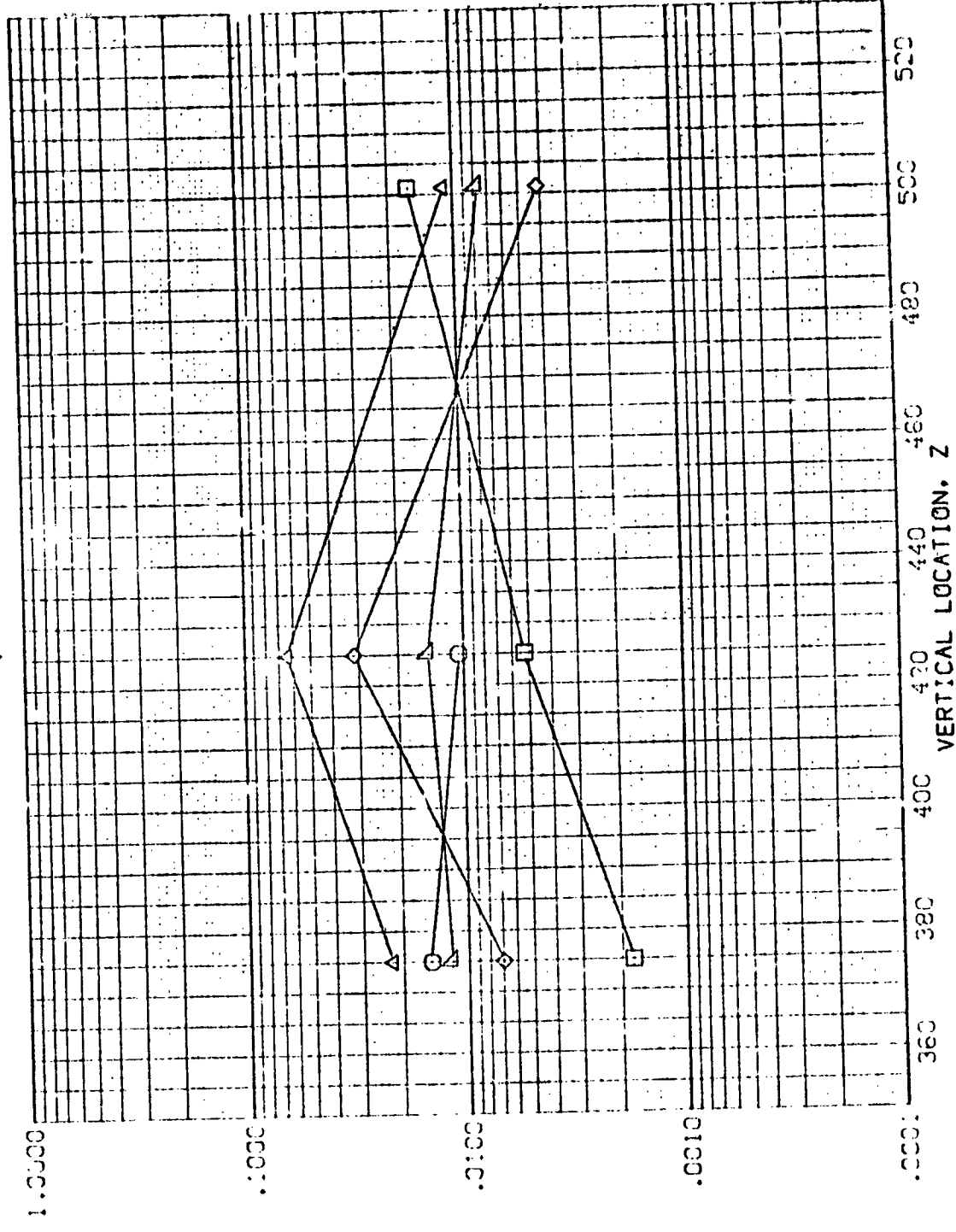


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HA/HTE = .900 Y/L = .300

REPRODUCIBILITY OF TEST  
 ORIGINAL PAGE IS POOR

DATA SET SYMBOL

CONFIGURATION DESCRIPTION	ALPHA	BETA	RV/L
120 01+11 BODY SIDEWALL	.000	.000	1.000
30 01+11 BODY SIDEWALL	.300	.000	1.000
90 01+11 BODY SIDEWALL	.900	.000	1.000
120 01+11 BODY SIDEWALL	1.200	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

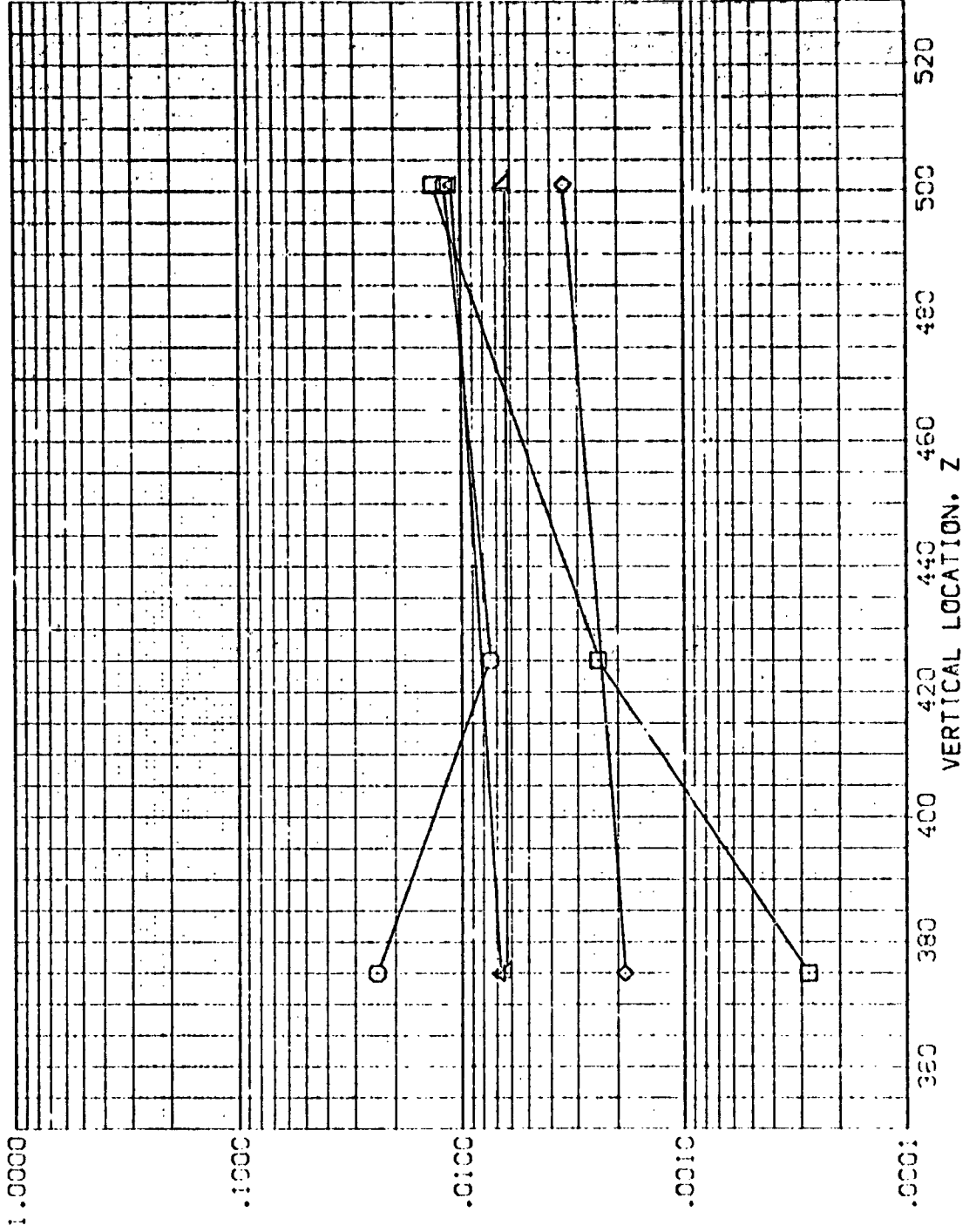


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



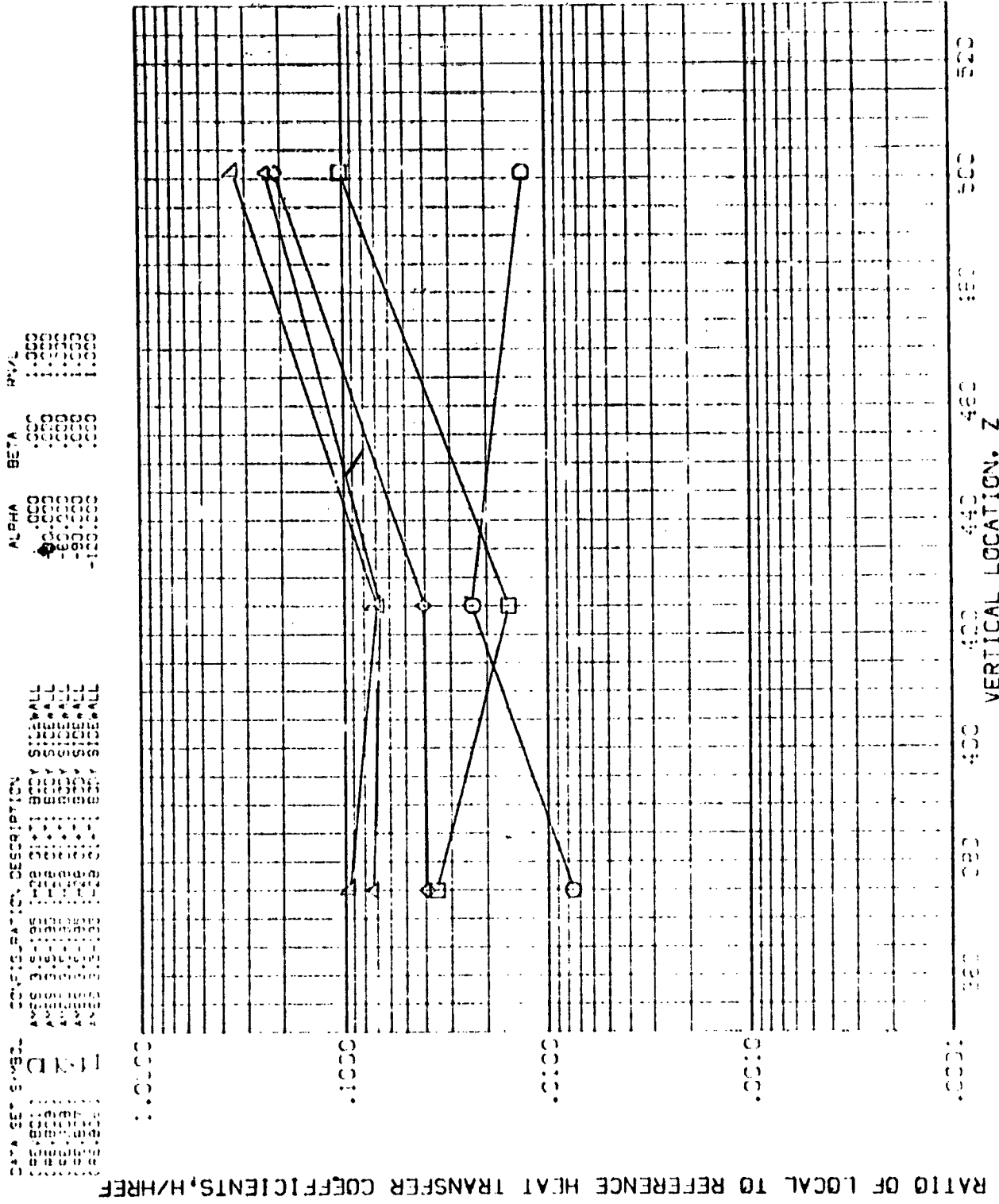


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/H<sub>REF</sub>

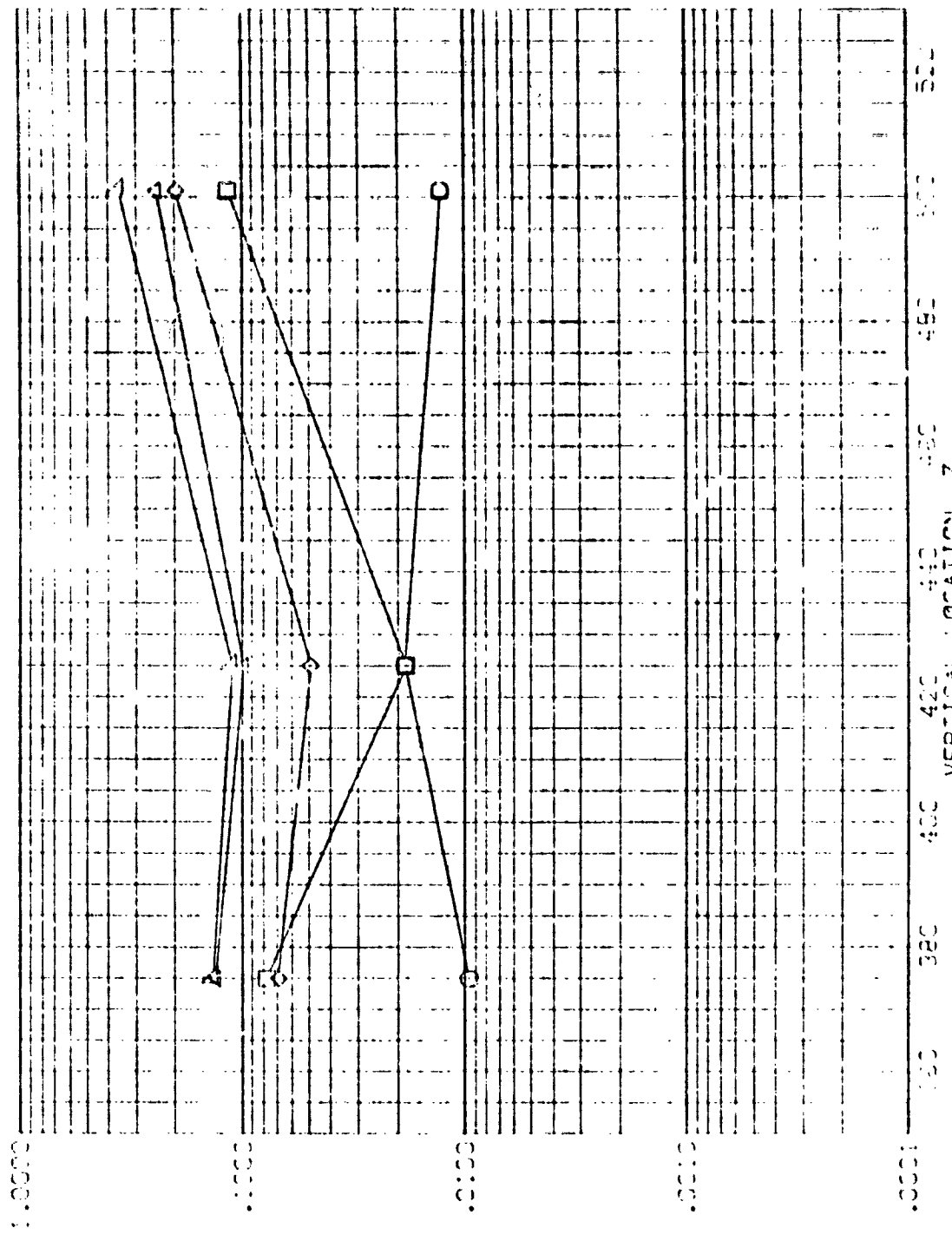


FIG. 11 CRATER BODY SIDEWALL, CRATER IN PRESENCE OF THE TANK

DATA SET	DESCRIPTION	ALPHA	BETA	PC
000001	000001	000001	000001	000001
000002	000002	000002	000002	000002
000003	000003	000003	000003	000003
000004	000004	000004	000004	000004
000005	000005	000005	000005	000005
000006	000006	000006	000006	000006
000007	000007	000007	000007	000007
000008	000008	000008	000008	000008
000009	000009	000009	000009	000009
000010	000010	000010	000010	000010
000011	000011	000011	000011	000011
000012	000012	000012	000012	000012
000013	000013	000013	000013	000013
000014	000014	000014	000014	000014
000015	000015	000015	000015	000015
000016	000016	000016	000016	000016
000017	000017	000017	000017	000017
000018	000018	000018	000018	000018
000019	000019	000019	000019	000019
000020	000020	000020	000020	000020
000021	000021	000021	000021	000021
000022	000022	000022	000022	000022
000023	000023	000023	000023	000023
000024	000024	000024	000024	000024
000025	000025	000025	000025	000025
000026	000026	000026	000026	000026
000027	000027	000027	000027	000027
000028	000028	000028	000028	000028
000029	000029	000029	000029	000029
000030	000030	000030	000030	000030
000031	000031	000031	000031	000031
000032	000032	000032	000032	000032
000033	000033	000033	000033	000033
000034	000034	000034	000034	000034
000035	000035	000035	000035	000035
000036	000036	000036	000036	000036
000037	000037	000037	000037	000037
000038	000038	000038	000038	000038
000039	000039	000039	000039	000039
000040	000040	000040	000040	000040
000041	000041	000041	000041	000041
000042	000042	000042	000042	000042
000043	000043	000043	000043	000043
000044	000044	000044	000044	000044
000045	000045	000045	000045	000045
000046	000046	000046	000046	000046
000047	000047	000047	000047	000047
000048	000048	000048	000048	000048
000049	000049	000049	000049	000049
000050	000050	000050	000050	000050
000051	000051	000051	000051	000051
000052	000052	000052	000052	000052
000053	000053	000053	000053	000053
000054	000054	000054	000054	000054
000055	000055	000055	000055	000055
000056	000056	000056	000056	000056
000057	000057	000057	000057	000057
000058	000058	000058	000058	000058
000059	000059	000059	000059	000059
000060	000060	000060	000060	000060
000061	000061	000061	000061	000061
000062	000062	000062	000062	000062
000063	000063	000063	000063	000063
000064	000064	000064	000064	000064
000065	000065	000065	000065	000065
000066	000066	000066	000066	000066
000067	000067	000067	000067	000067
000068	000068	000068	000068	000068
000069	000069	000069	000069	000069
000070	000070	000070	000070	000070
000071	000071	000071	000071	000071
000072	000072	000072	000072	000072
000073	000073	000073	000073	000073
000074	000074	000074	000074	000074
000075	000075	000075	000075	000075
000076	000076	000076	000076	000076
000077	000077	000077	000077	000077
000078	000078	000078	000078	000078
000079	000079	000079	000079	000079
000080	000080	000080	000080	000080
000081	000081	000081	000081	000081
000082	000082	000082	000082	000082
000083	000083	000083	000083	000083
000084	000084	000084	000084	000084
000085	000085	000085	000085	000085
000086	000086	000086	000086	000086
000087	000087	000087	000087	000087
000088	000088	000088	000088	000088
000089	000089	000089	000089	000089
000090	000090	000090	000090	000090
000091	000091	000091	000091	000091
000092	000092	000092	000092	000092
000093	000093	000093	000093	000093
000094	000094	000094	000094	000094
000095	000095	000095	000095	000095
000096	000096	000096	000096	000096
000097	000097	000097	000097	000097
000098	000098	000098	000098	000098
000099	000099	000099	000099	000099
000100	000100	000100	000100	000100

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

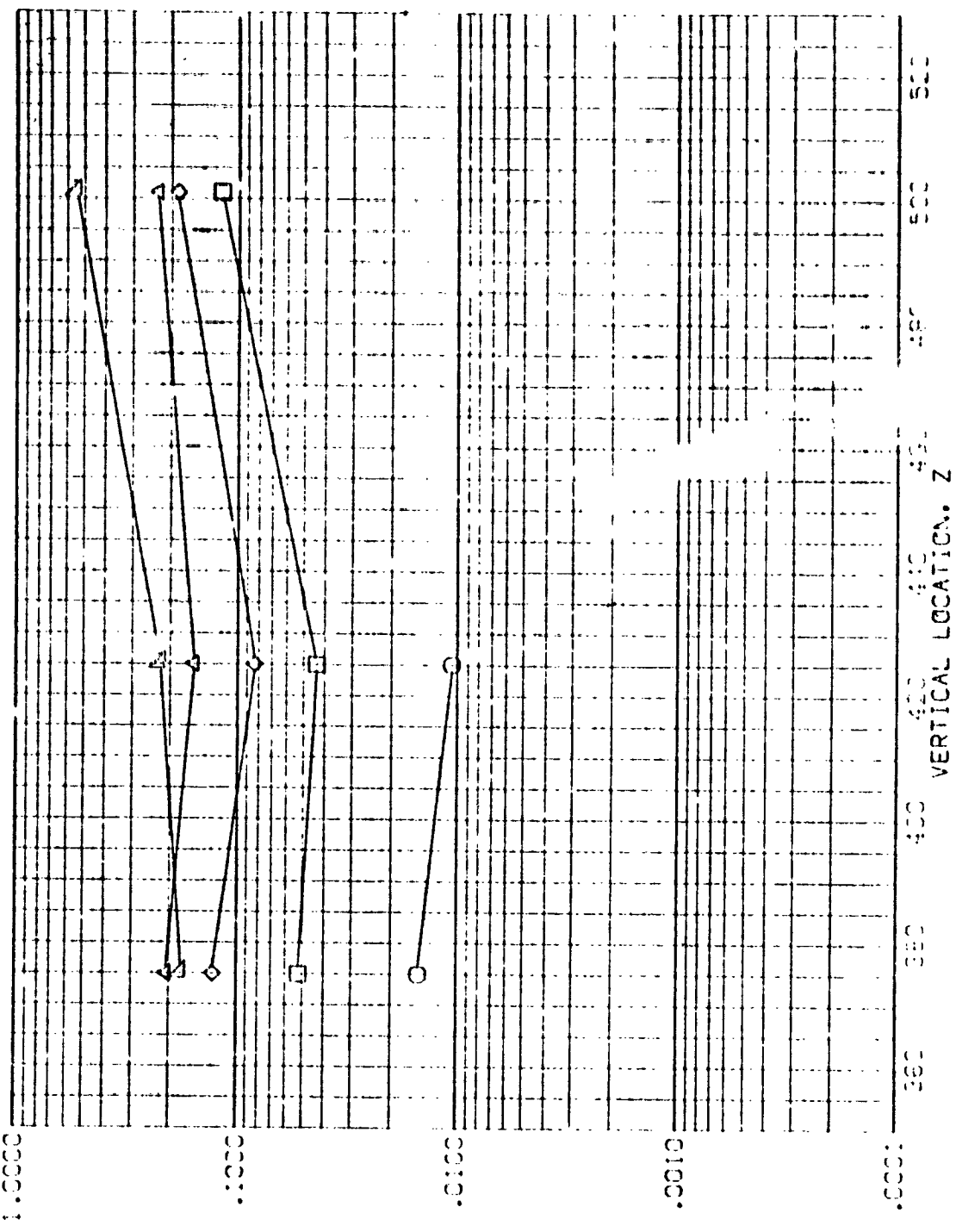


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

DATA SET SYMBL CONFIGURATION DESCRIPTION ALPHA BETA RV/L

PRE001	AVES 3-5-95	P28 01*11	BODY SIDEWALL	.000	.000	1.000
PRE002	AVES 3-5-95	P28 01*11	BODY SIDEWALL	-30.000	.000	1.000
PRE003	AVES 3-5-95	P28 01*11	BODY SIDEWALL	-60.000	.000	1.000
PRE004	AVES 3-5-95	P28 01*11	BODY SIDEWALL	-80.000	.000	1.000
PRE005	AVES 3-5-95	P28 01*11	BODY SIDEWALL	-120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

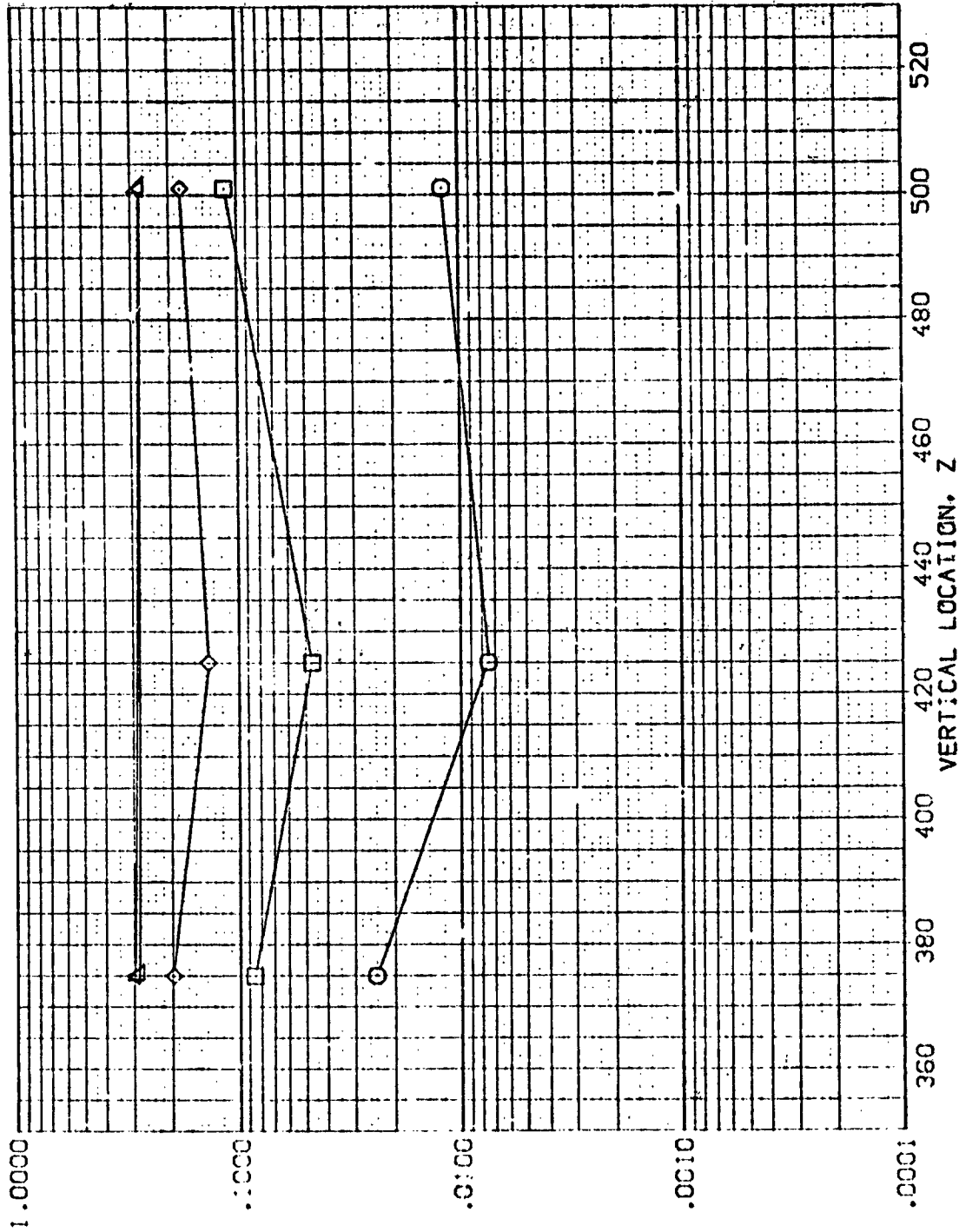


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 PAW/HREF = .900 X/L = .750

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    ALPHA    BET:    RV/L

(REV802)    AXES 3.5-195 :428 01-T1 BODY SIDEWALL    30.000    .000    1.000

(REV811)    AXES 3.5-195 :428 01-T1 BODY SIDEWALL    30.000    .000    4.000

(REV803)    AXES 3.5-135 :428 01-T1 BODY SIDEWALL    60.000    .000    1.000

(REV810)    AXES 3.5-135 :428 01-T1 BODY SIDEWALL    60.000    .000    4.000

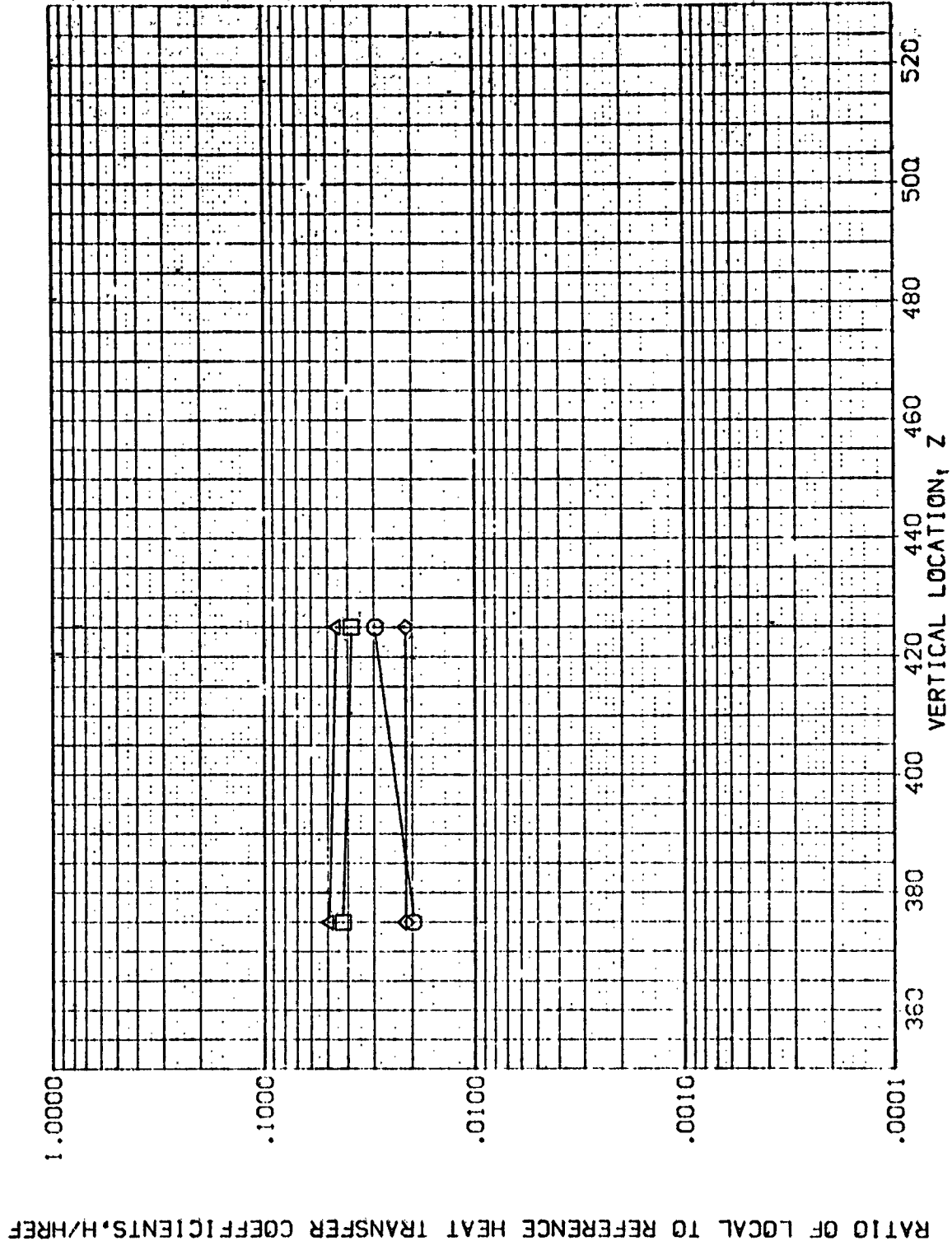


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300    HAW/HT = .900    X/L = .300

DATA SET SYMBOL  
 (RE:BC2)  
 (RE:BL1)  
 (RE:BC3)  
 (RE:BL0)

CONFIGURATION DESCRIPTION  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL  
 AXES 3.5-195 1423 01+11 BODY SIDEWALL  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL

ALPHA BETA X/Y/L  
 30.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 60.000 .000 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

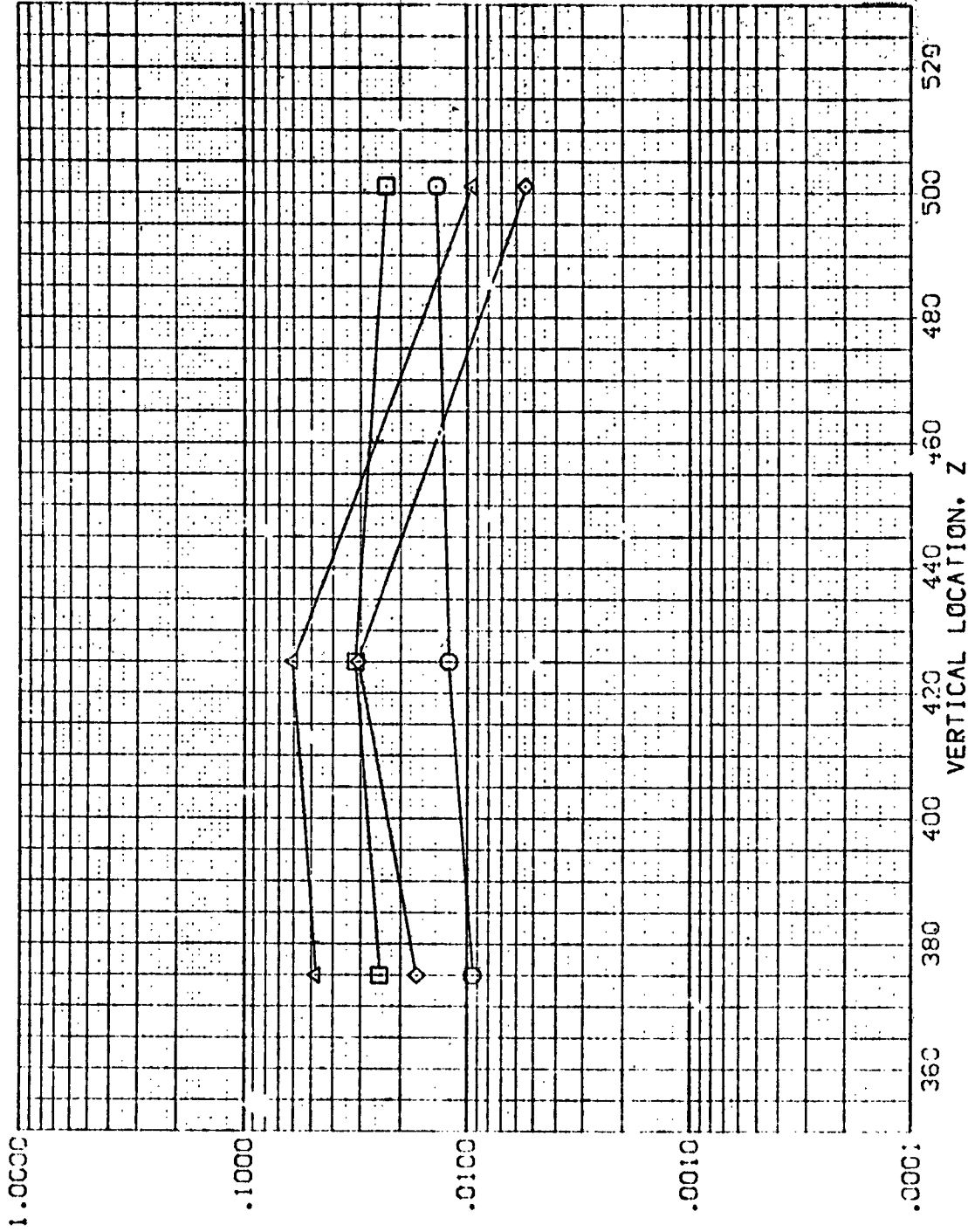


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 X/Y/L = .400 PAGE 648

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RN/L
(REYB02)	AMES 3.5-195 (428 C1+T1) BODY SIDEWALL	30.000	.000	1.000
(REYB11)	AMES 3.5-195 (428 C1+T1) BODY SIDEWALL	30.000	.000	4.000
(REYB03)	AMES 3.5-195 (428 C1+T1) BODY SIDEWALL	60.000	.000	1.000
(REYB10)	AMES 3.5-195 (428 C1+T1) BODY SIDEWALL	60.000	.000	4.000

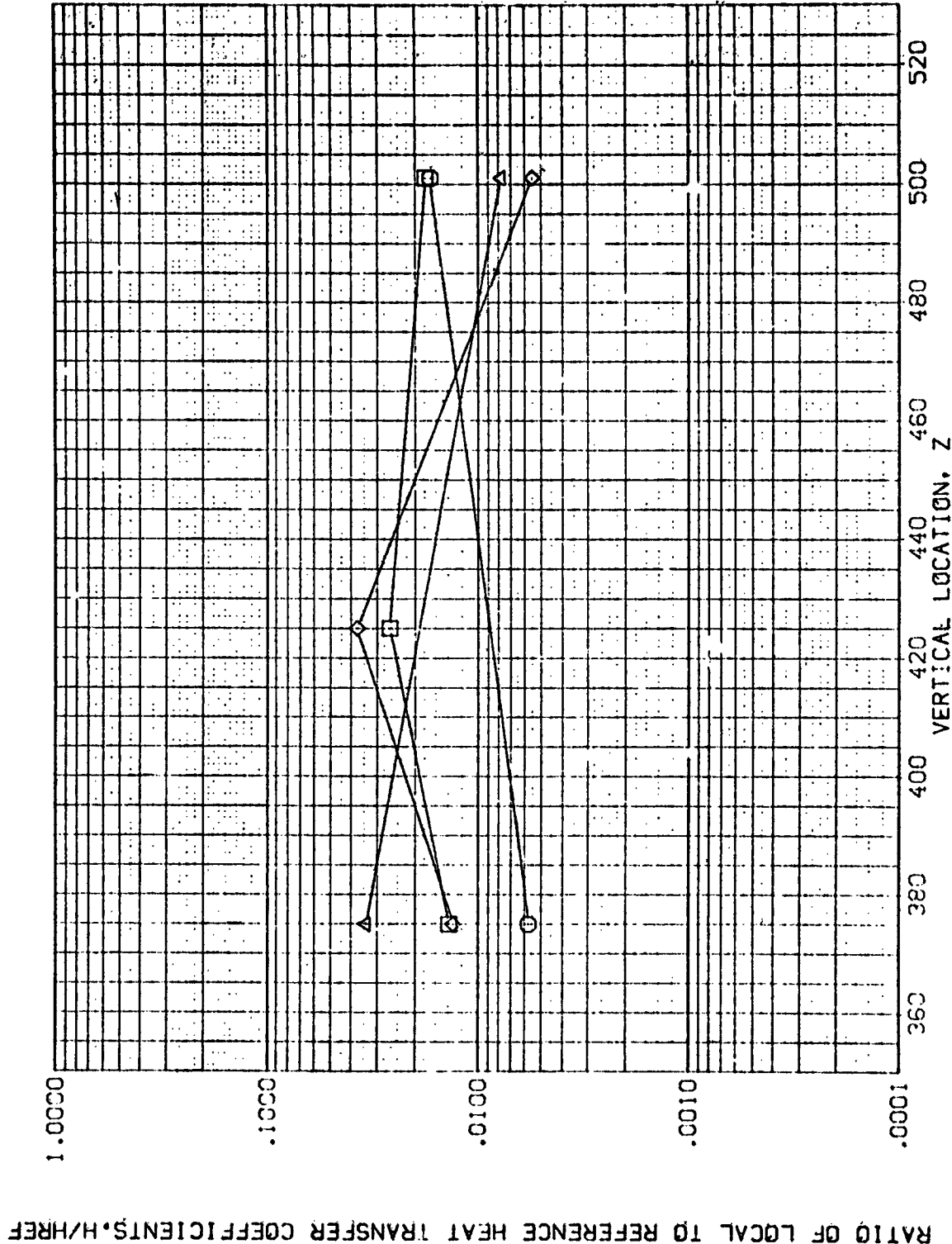


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

DATA SET 5492  
 (000000) AVE3 3.5 1.35 1428 01+11 BODY SIDEWALL  
 (000000) AVE3 3.5 1.35 1428 01+11 BODY SIDEWALL  
 (000000) AVE3 3.5 1.35 1428 01+11 BODY SIDEWALL  
 (000000) AVE3 3.5 1.35 1428 01+11 BODY SIDEWALL  
 (000000) AVE3 3.5 1.35 1428 01+11 BODY SIDEWALL

ALPHA BETA RNL  
 30.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 60.000 .000 4.000

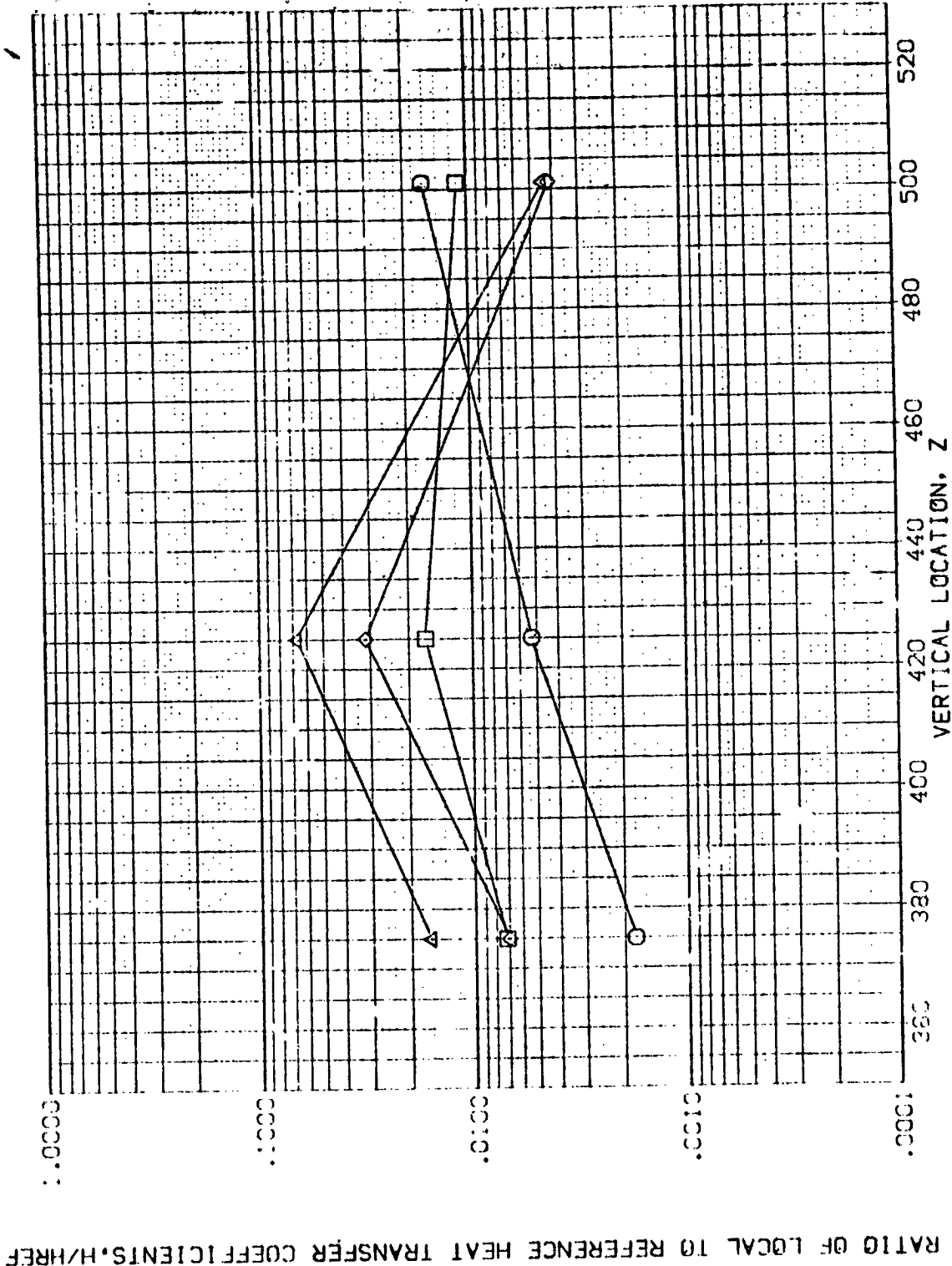


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MAC = 5.300 HAW/HT = .900 X/L = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA RM/L

(S1:827)	AMES 3.5-195	HCB 01*11	BODY SIDEWALL	30.000	.000	1.000
(S1:828)	AMES 3.5-195	HCB 01*11	BODY SIDEWALL	30.000	.000	4.000
(S1:829)	AMES 3.5-195	HCB 01*11	BODY SIDEWALL	60.000	.000	1.000
(S1:830)	AMES 3.5-195	HCB 01*11	BODY SIDEWALL	60.000	.000	4.000

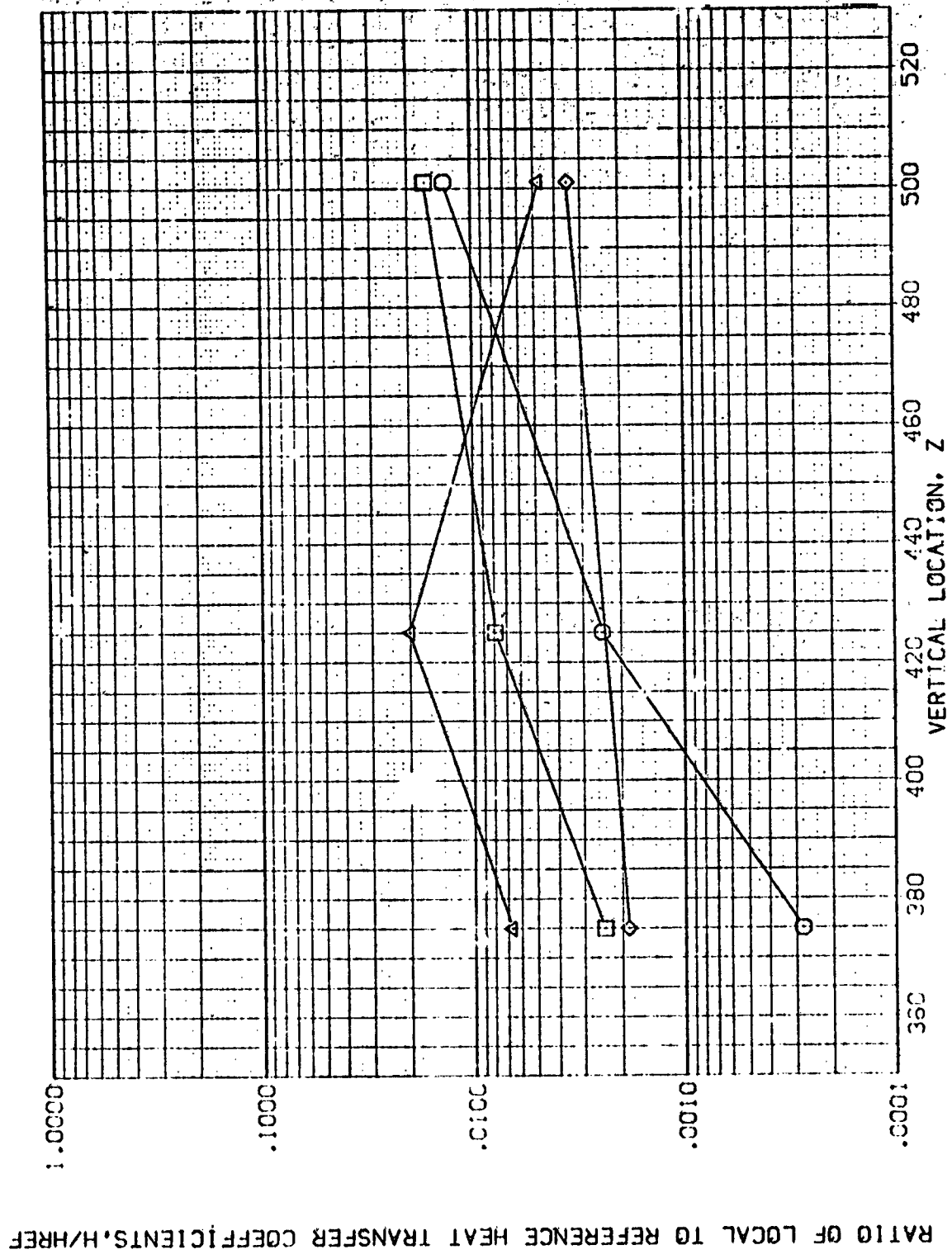


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 X/L = .700



DATA SET SYMBOL: (REV:02) B  
 CONFIGURATION DESCRIPTION: AMES 3.5-195 1-28 01-11 BODY SIDEWALL  
 AMES 3.5-195 1-28 01-11 BODY SIDEWALL

ALPHA: 30.000  
 BETA: 30.000  
 GAMMA: .000  
 DELTA: -5.000  
 EPSILON: 1.000

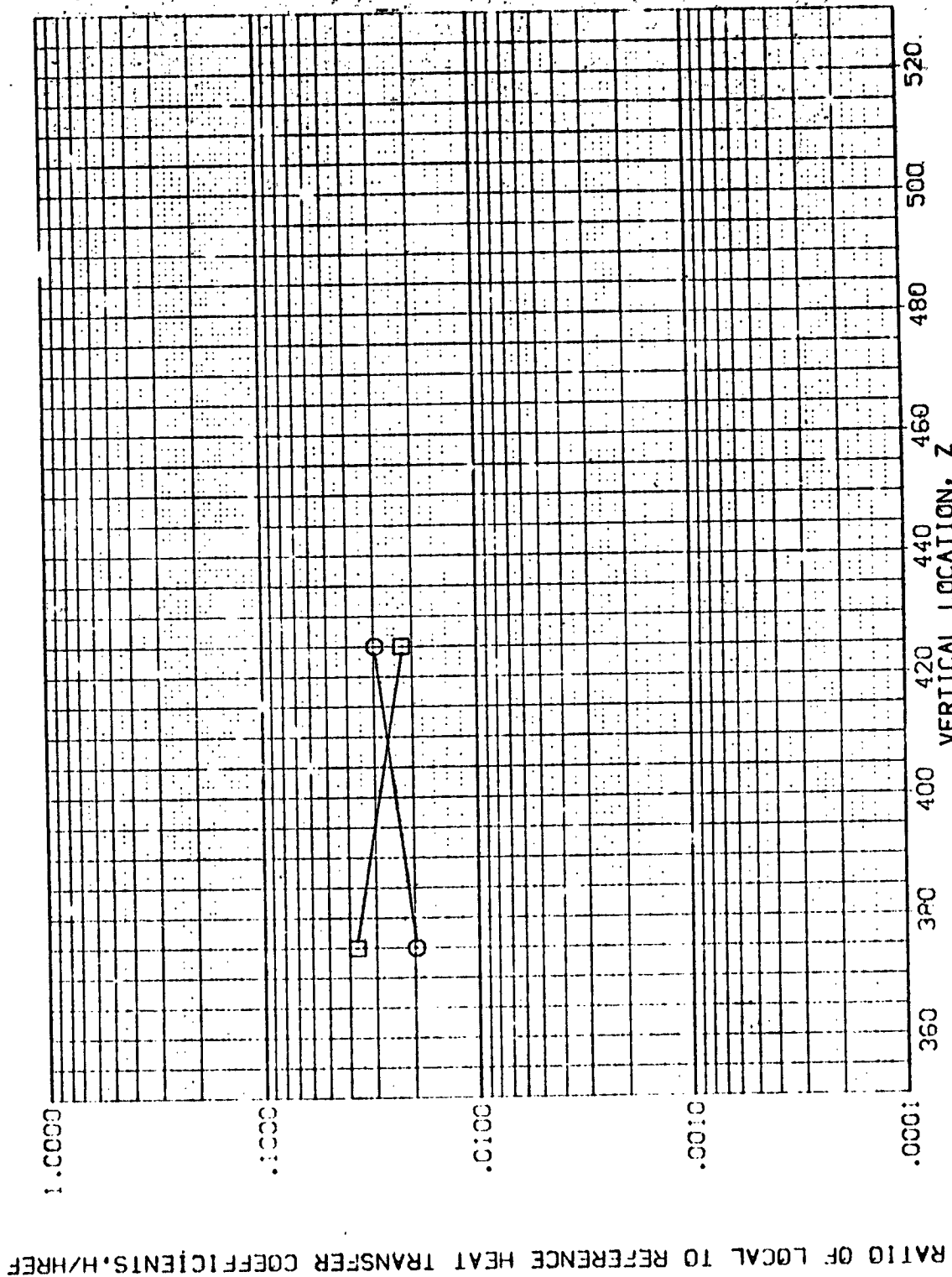


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 LAM/HT = .900 X/L = .300

DATA SET SYMBOL: (RE:BD2) (RE:BD2)

CONFIGURATION DESCRIPTION: AVES 3.5-195 1-28 01+11 BODY SIDE#ALL AVES 3.5-195 1-28 01+11 BODY SIDE#ALL

ALPHA: 30.000 30.000

BETA: -5.000 .000

RM/L: 1.000 1.000

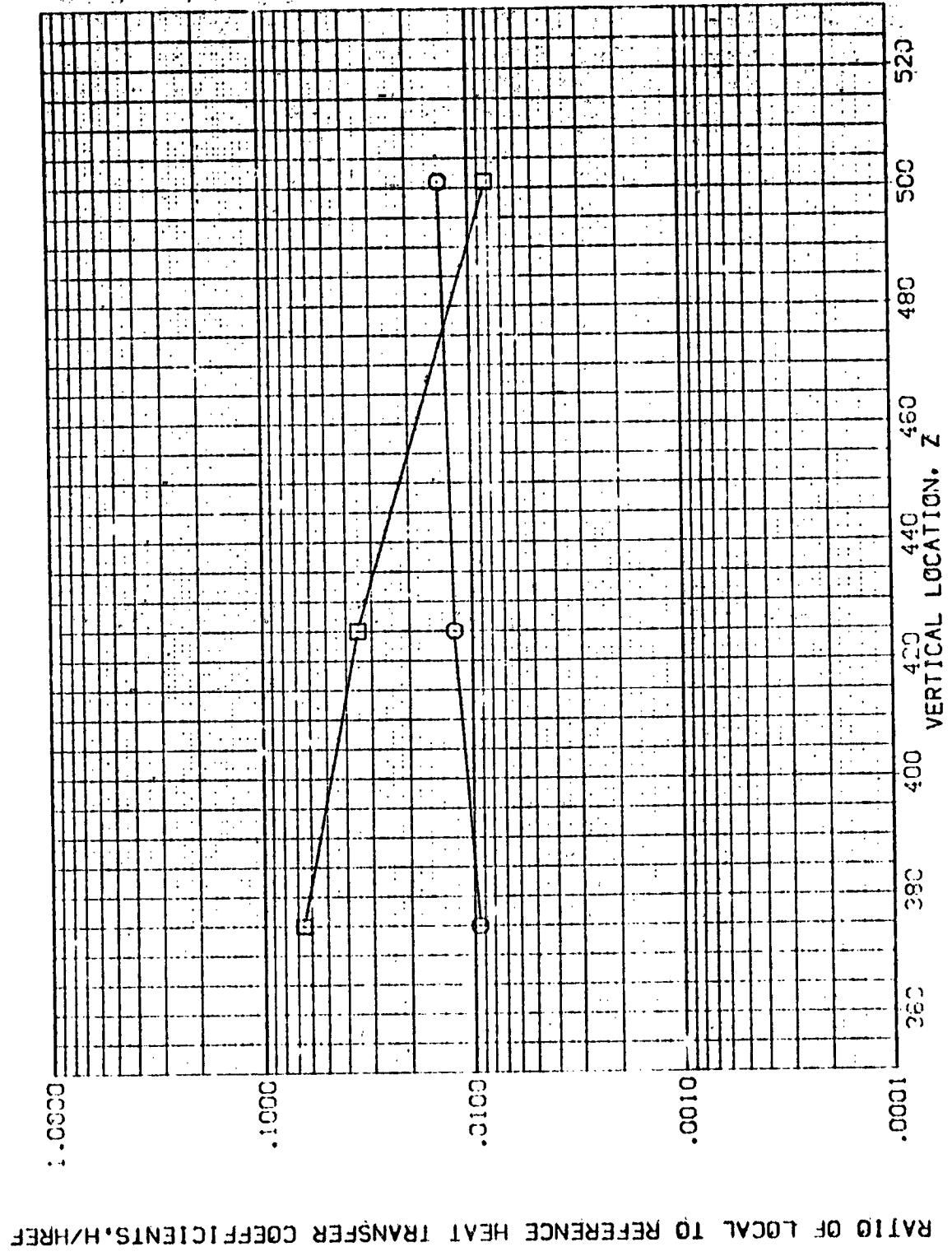


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MA = 5.300 HAY/LT = .900 X/L = .400

DATA SET SYMBOL: 8  
 (REV:02) (REV:02)  
 CONFIGURATION DESCRIPTION:  
 AMES 3.5-195 1-23 01-T1 BODY SIDEWALL  
 AMES 3.5-195 1-28 01-T1 BODY SIDEWALL

ALPHA BETA RV/L  
 30.000 0.000 1.000  
 30.000 -5.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

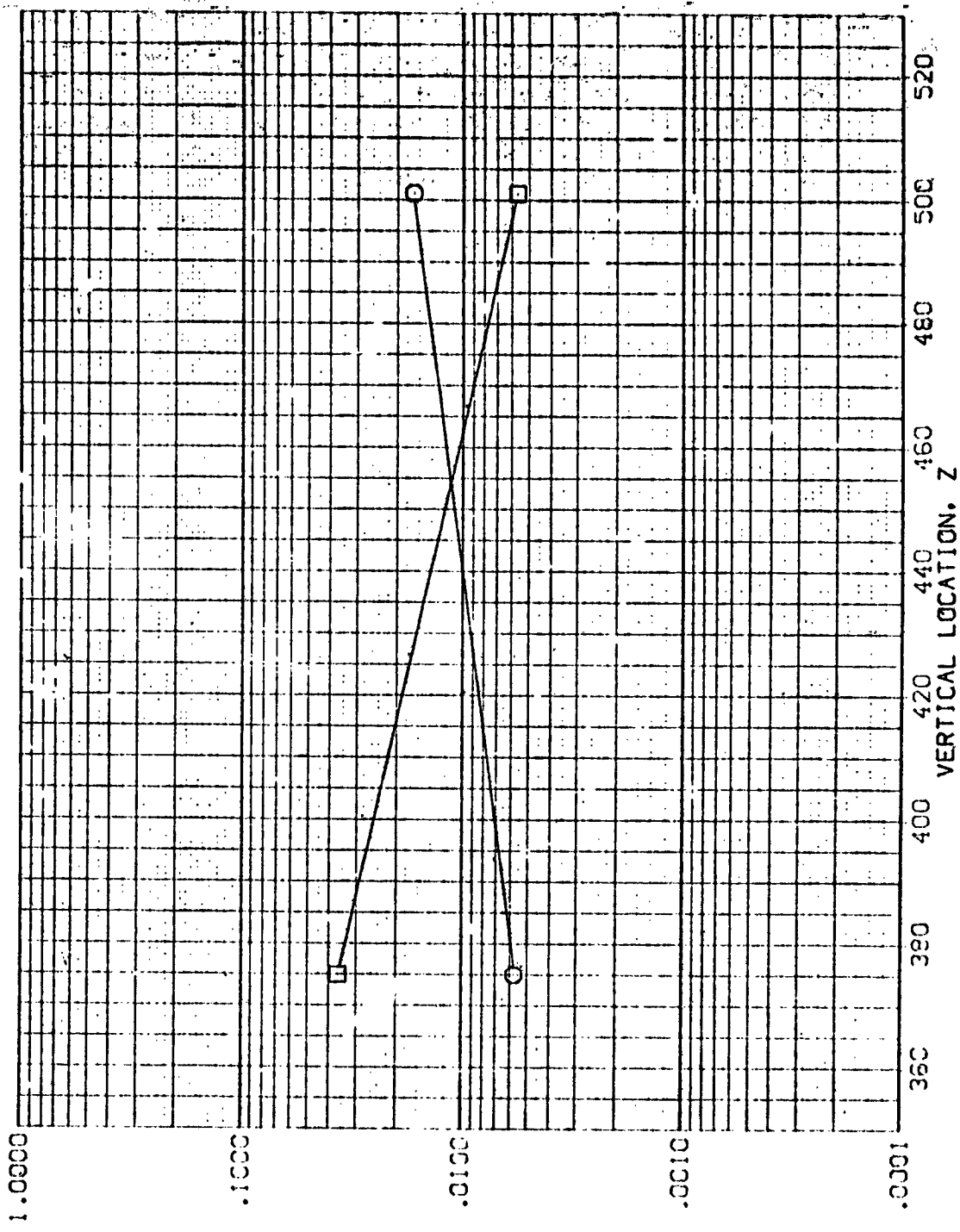


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HEIGHT = .900 X/L = .500

DATA SET SYMBO. CONFIGURATION DESCRIPTION  
 (REV B22) B AMES 3.5-195 1-28 01+11 BODY SIDEWALL  
 (REV B12) B AMES 3.5-195 1-28 01+11 BODY SIDEWALL

ALPHA BET1 RN/L  
 30.000 .000 1.000  
 30.000 -5.000 1.000

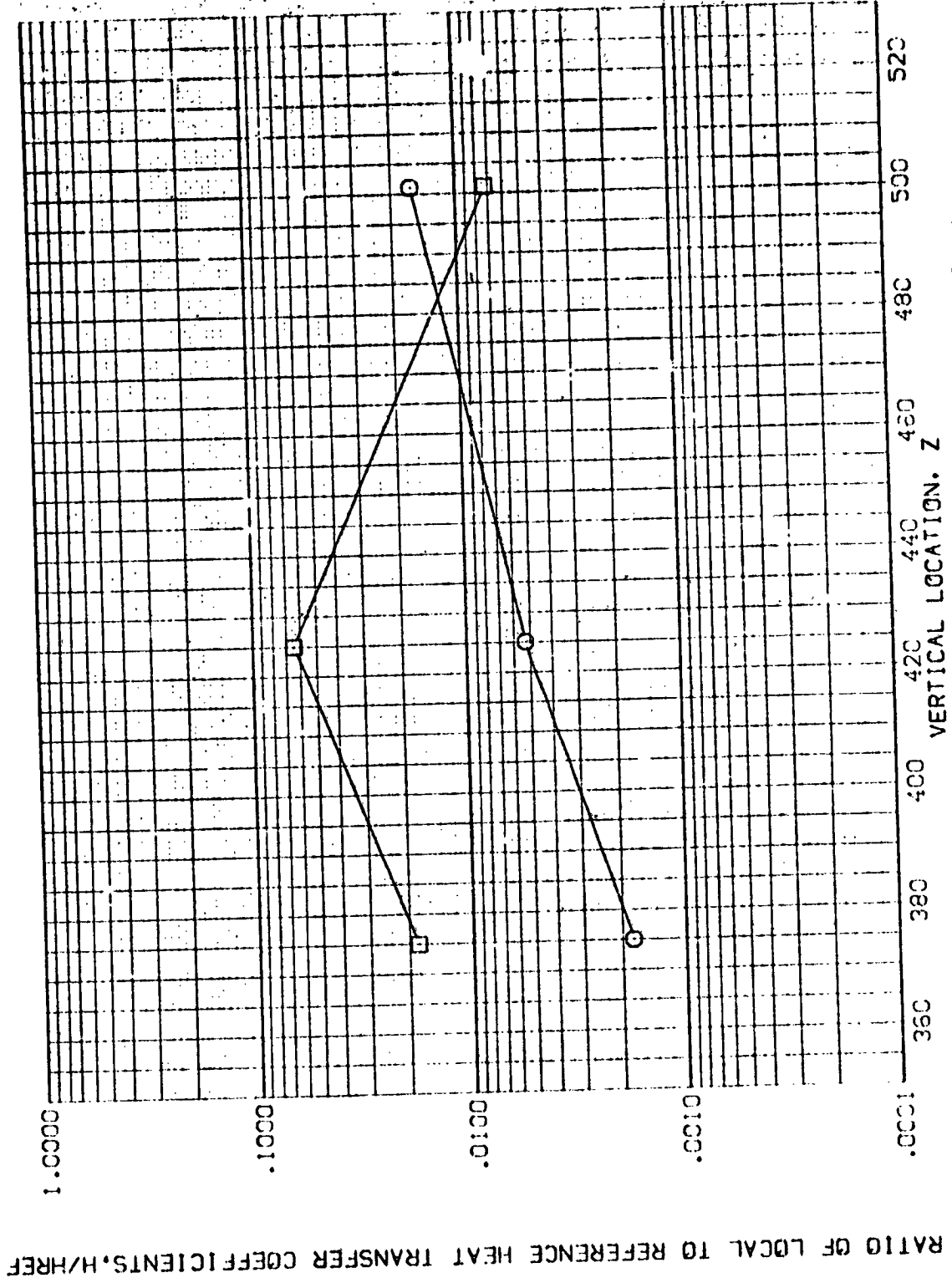


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300  $\mu$ W/TF = .900 X/L = .600

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (88.932) (88.932) AMES 315-195 (428 31\*1) BODY SIDEWALL  
 (88.932) (88.932) AMES 315-195 (428 31\*1) BODY SIDEWALL

ALPHA DATA R  
 30.000 1.000 1.000  
 30.000 1.000 1.000

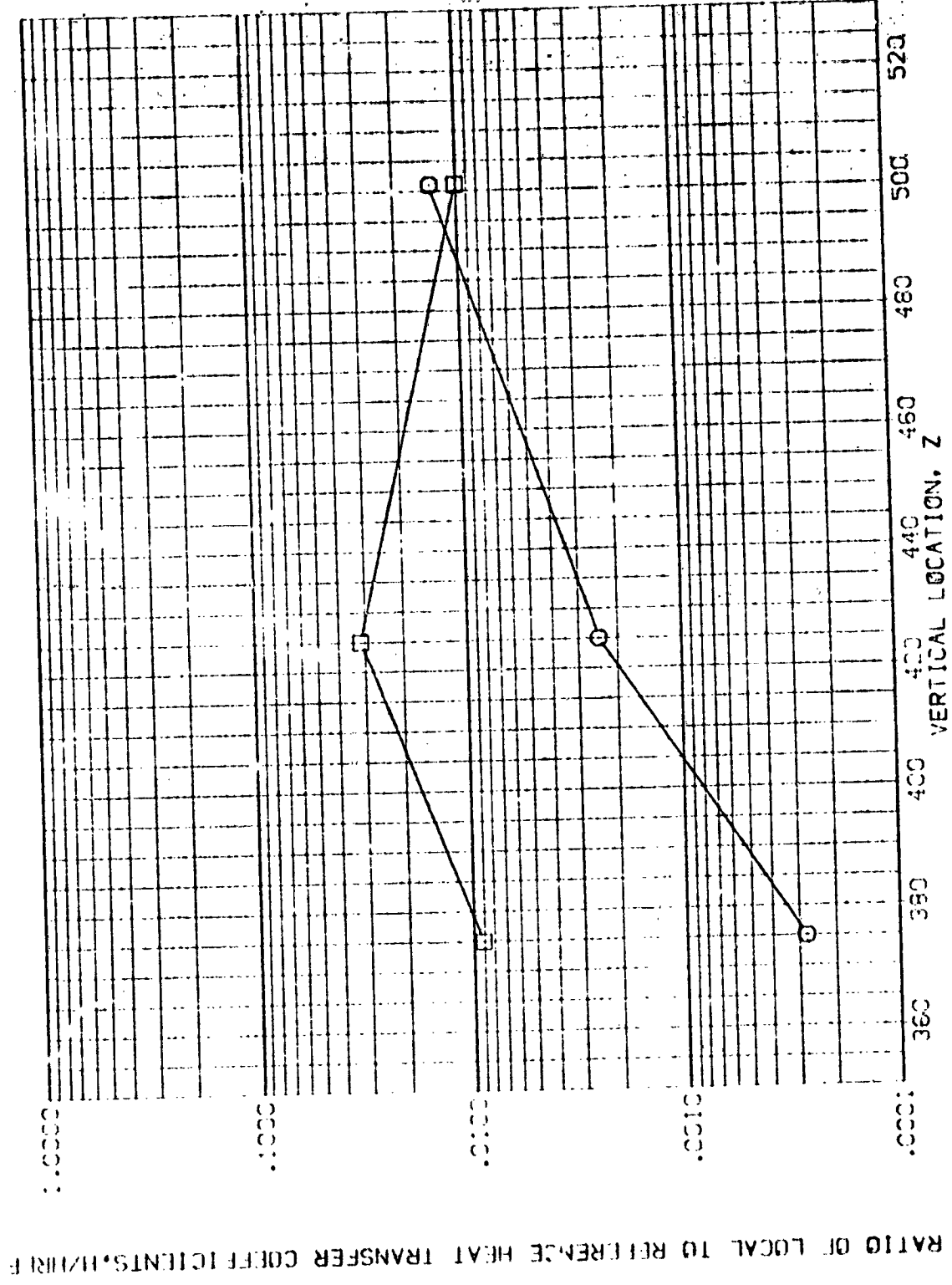


FIG. 11 ORBITER BODY SIDEWALL, ORBITER IN PRESENCE OF THE TANK

$\mu_{ref} = 5.300$   $\mu_{ref}/\mu = .900$   $X/L = .700$

AYES 2.5-195 1-28 01+T: BODY SIDEWALL

(BEVBC1)

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 RV/L 1.000

5-MACH Z HEIGHT MACH  
 275.000 .900 5.228  
 425.000  
 501.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/H<sub>∞</sub>

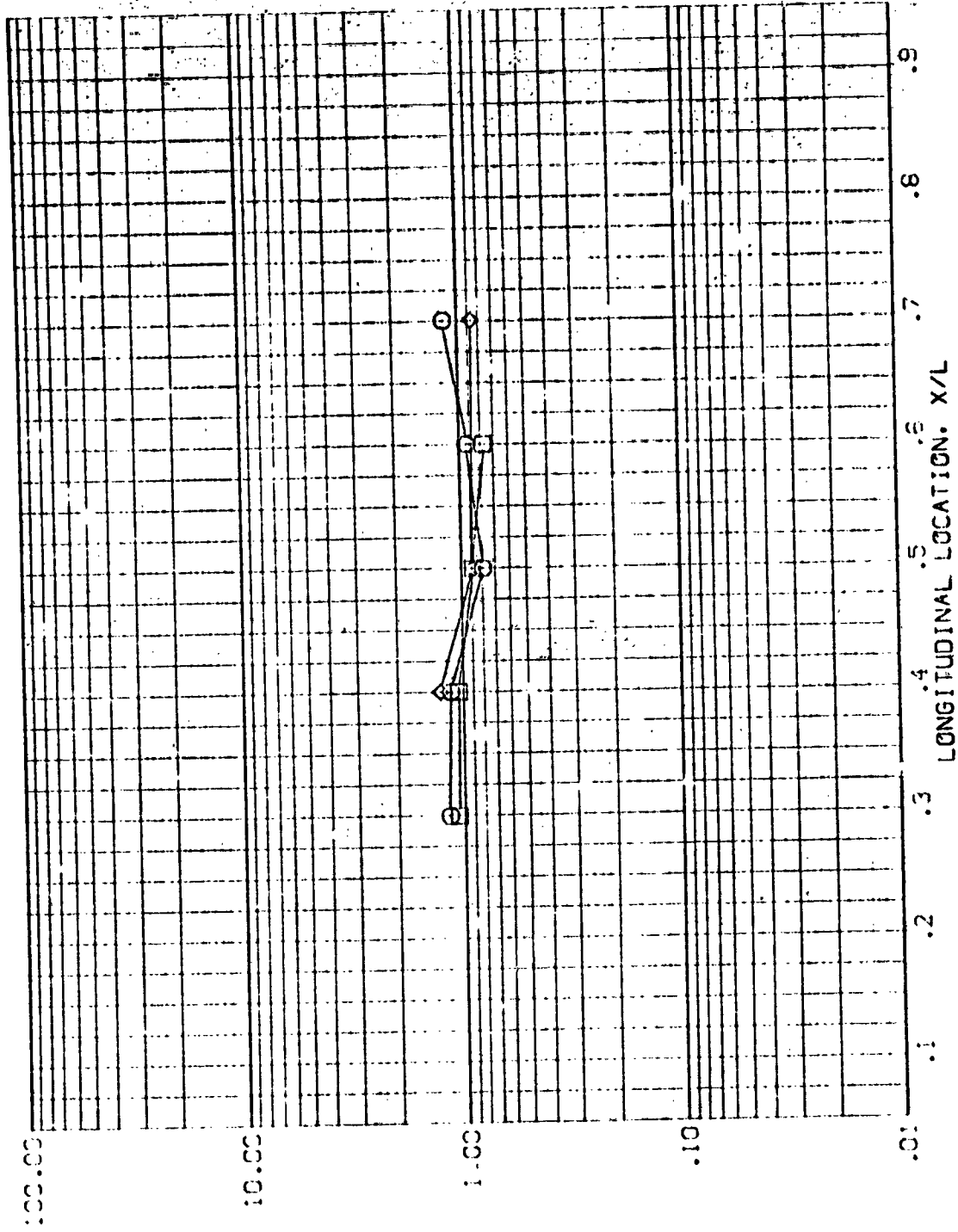


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

SYMBOL Z  
 375.000  
 425.000  
 501.000

HAW/HT MACH  
 .900 5.219

SURFACE VALUES  
 ALPHA  
 RAYL 1.600

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $h/h_u$

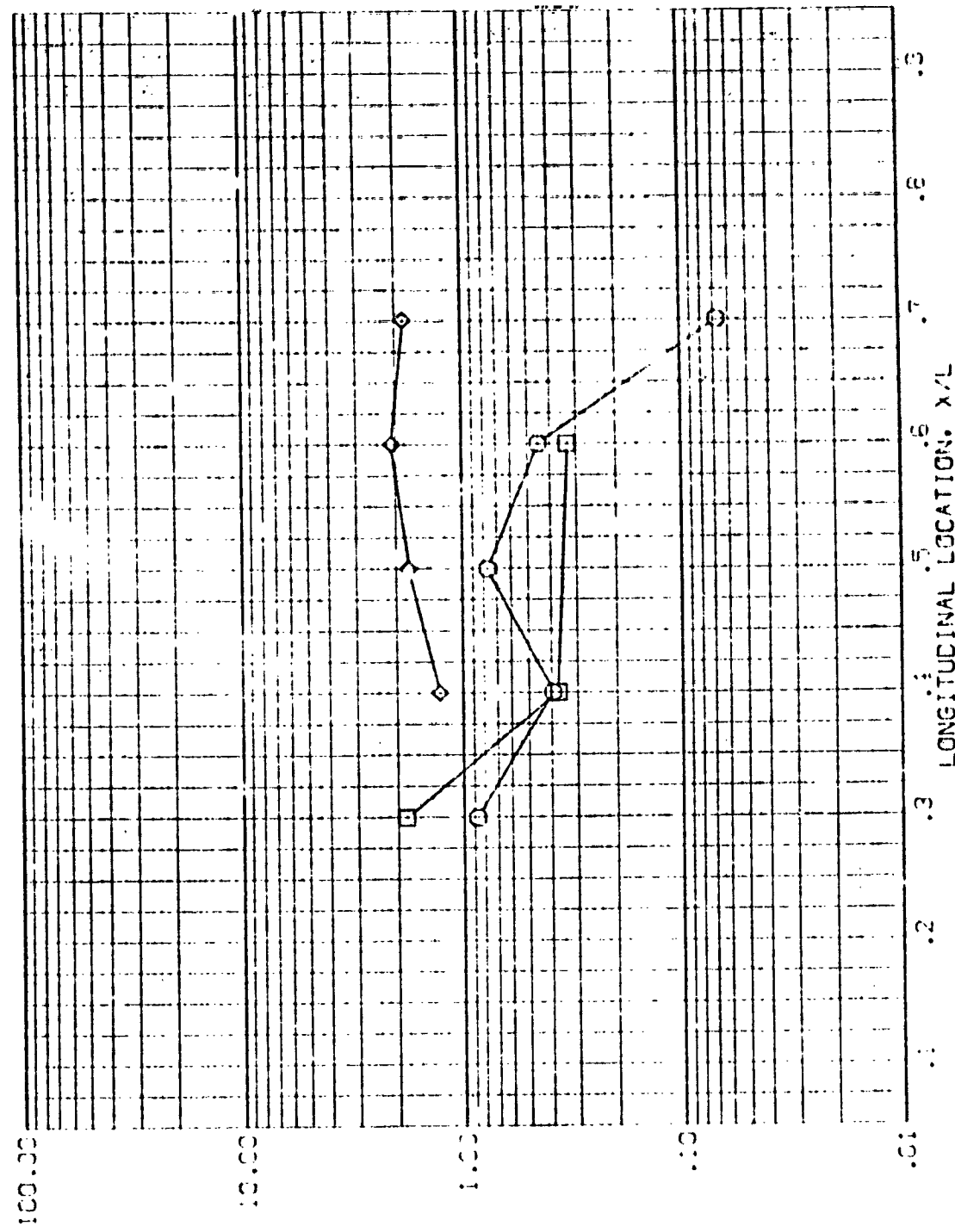


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AVES 3.5-195 1-28 01-71 BODY SIDEWALL (9E9B03)

PARAMETRIC VALUES  
 ALPHA 65.000 BETA .000  
 RA/L 1.000

MAW/MF 1.900 MACH 5.220

SYSES Z 375.000  
 425.000  
 501.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HI0

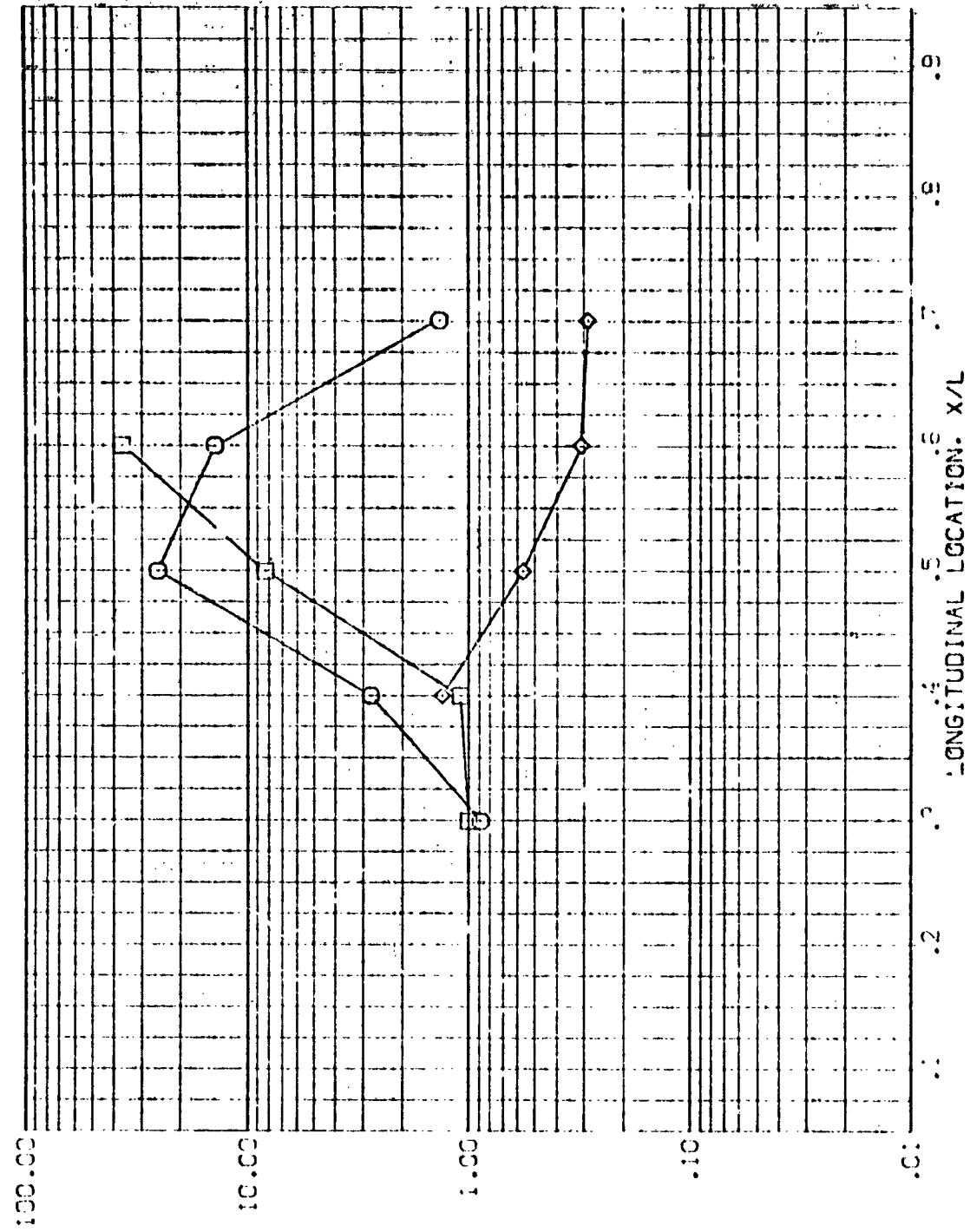


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED



(BEV804)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA 90.000  
BETA 1.000

HAW/HT .900  
MACH 5.219

Z 375.000  
425.000  
501.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

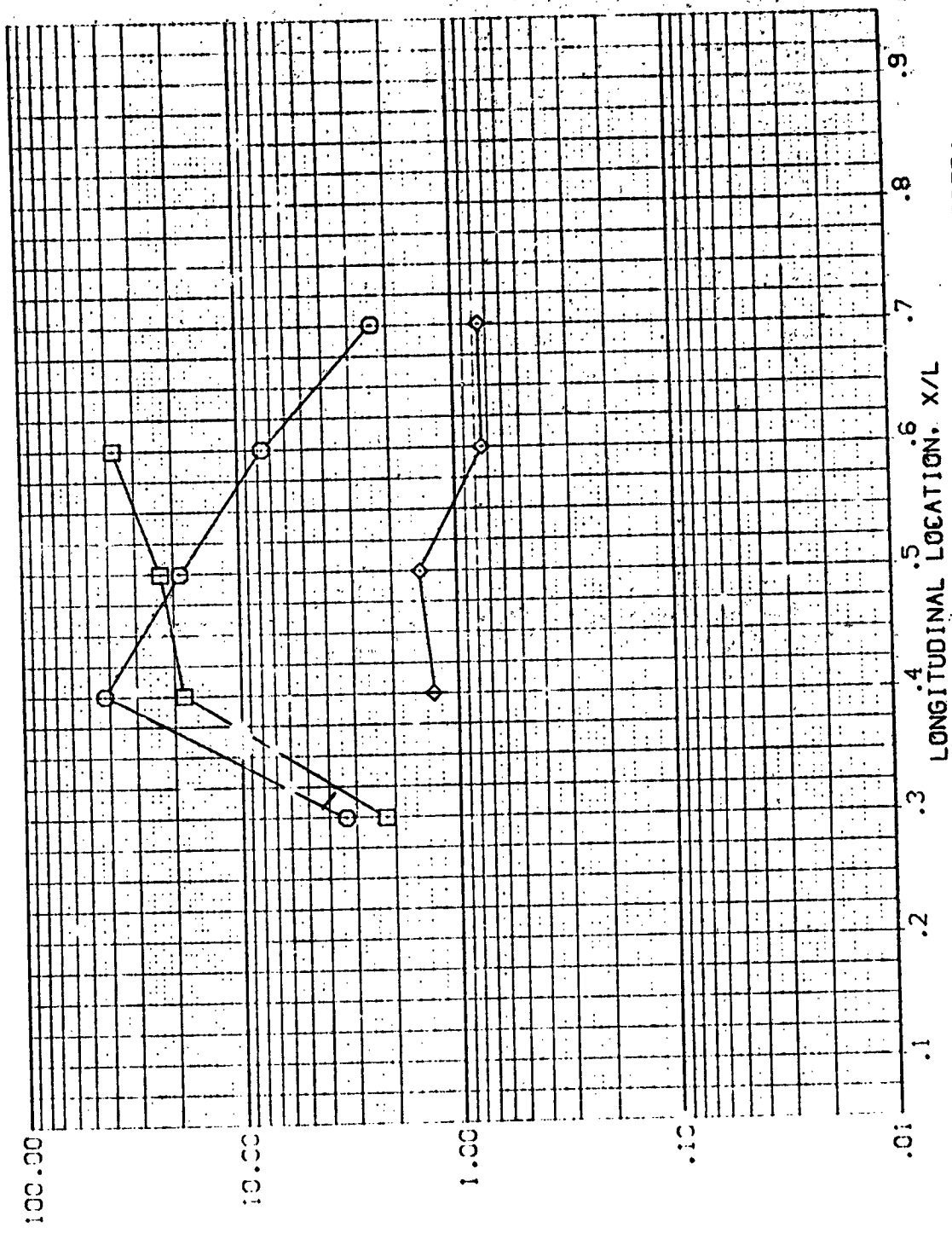


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

(BEVB05)

AMES 3.5-:95 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
 ALPHA 120.000  
 BETA 1.000  
 RV/L .000

Z 375.000  
 HAW/HT .900  
 MACH 5.220

SYNCH  
 □  
 ○  
 ◇

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

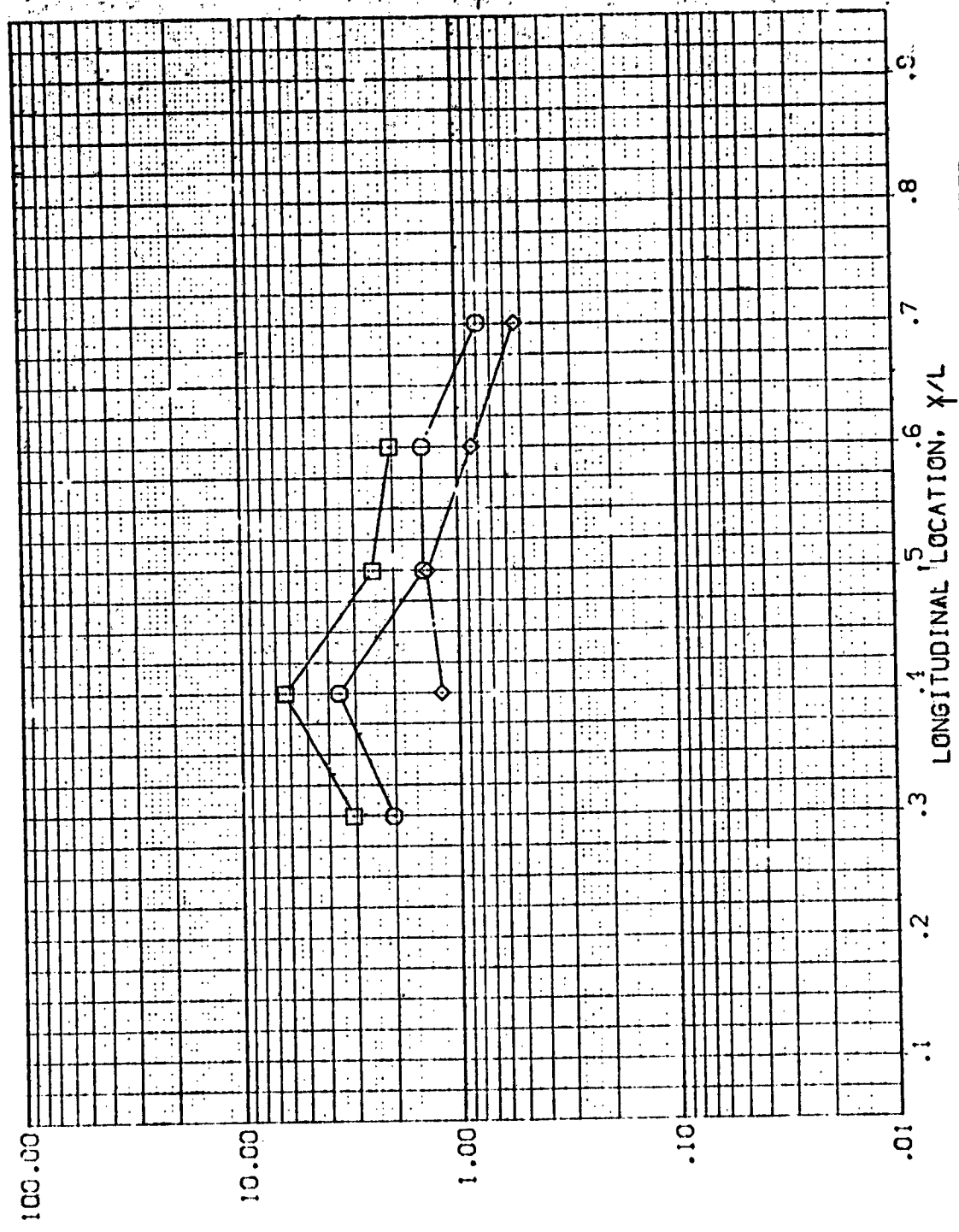


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL (SEVB06)

SYMBOL Z  
 □ 375.000  
 ○ 425.000  
 ◇ 501.000

HAW/HIC MACH  
 .900 5.220

PARAMETRIC VALUES  
 ALPHA -120.000  
 BETA 1.000  
 RNU/L .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

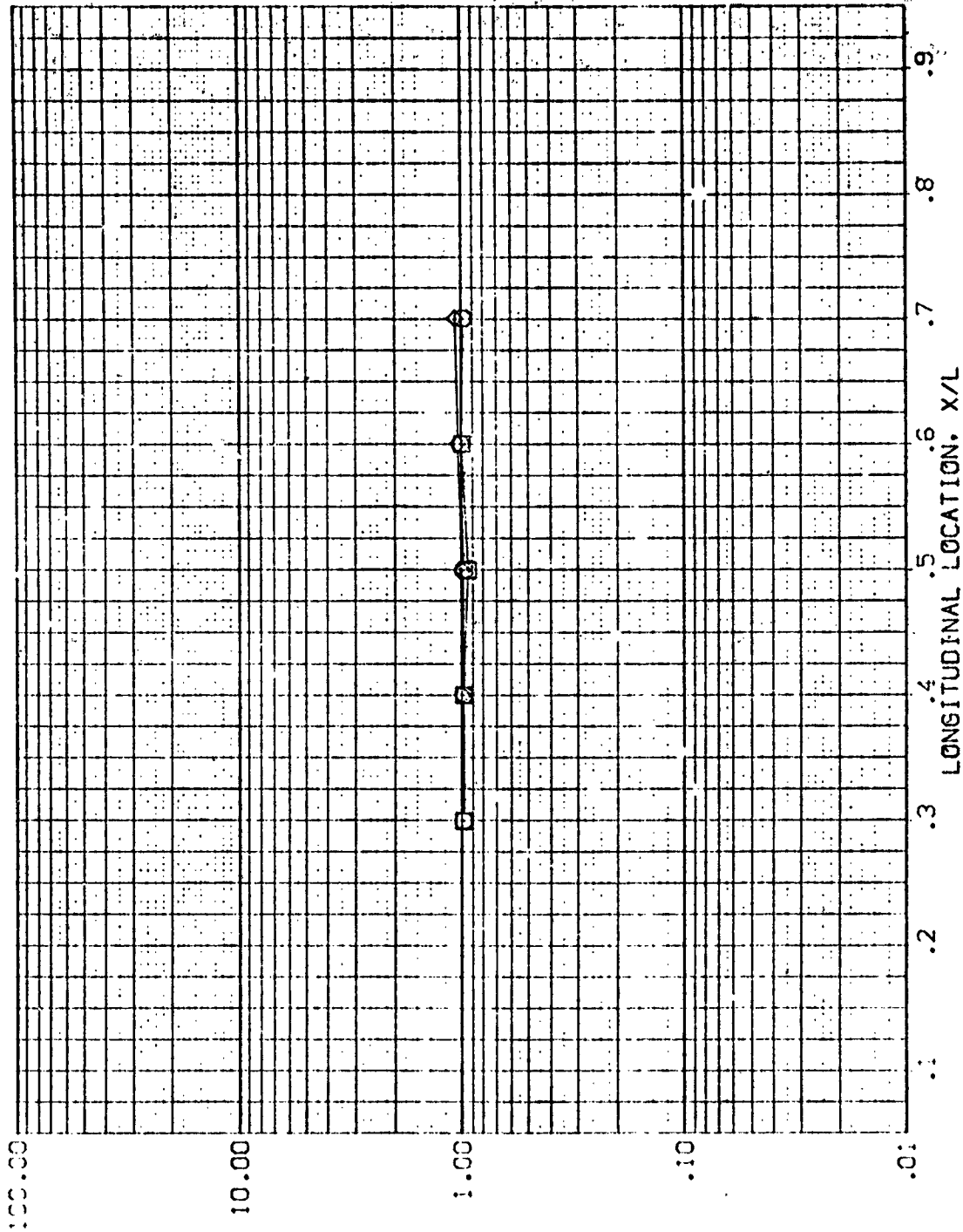


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(BEVB07)

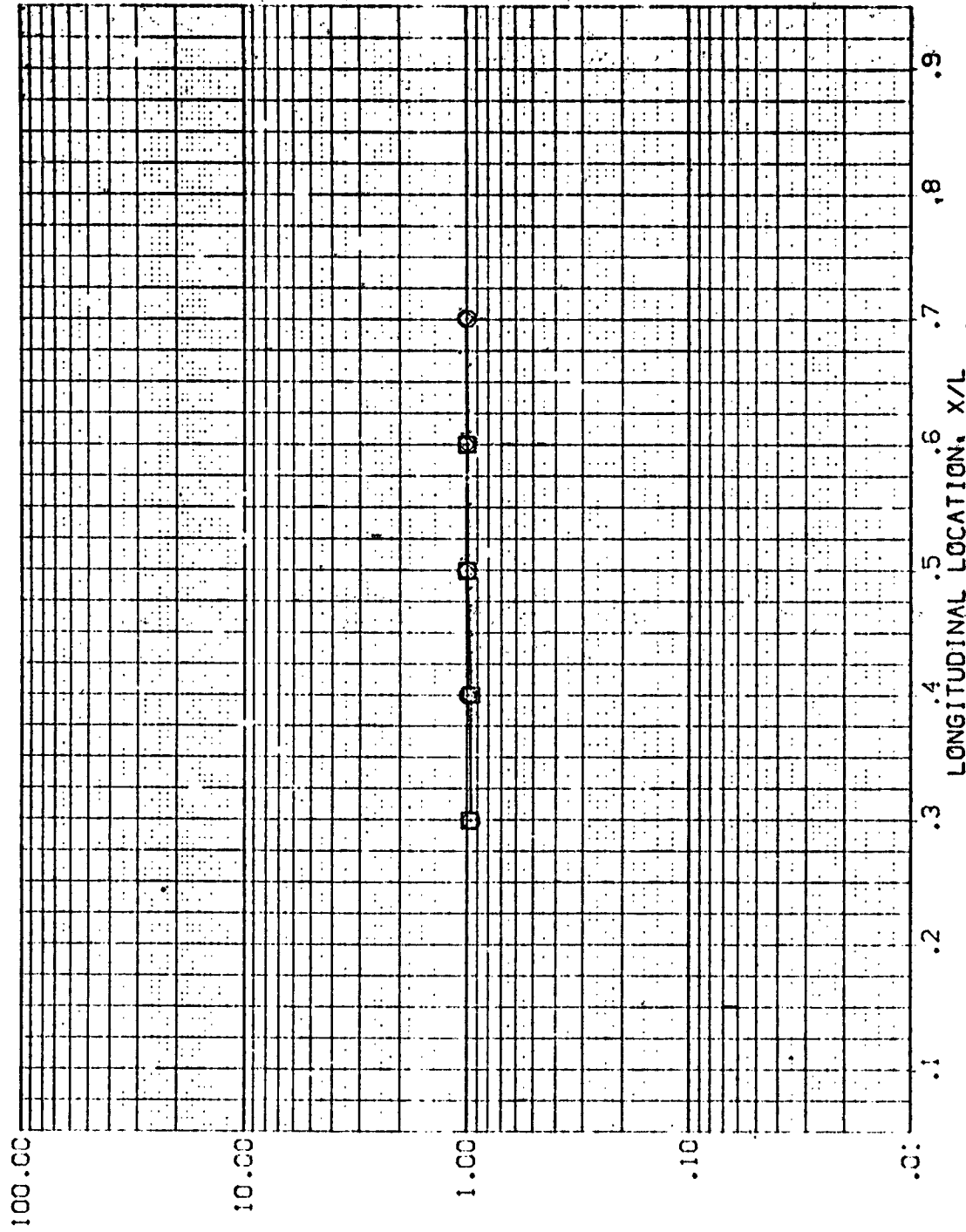
SYMBOL  
 ◊  
 □  
 ◇

Z  
 375.000  
 425.000  
 501.000

HAWAHT  
 .900

MACH  
 5.219

PARAMETRIC VALUES  
 ALPHA  
 RN/LE  
 -90.000  
 1.000  
 BETA  
 1.000



RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

(BEVB08)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES	
ALPHA	-.000
BETA	1.000
PR/L	.000

SYMBOL	Z	HAW/HT	MACH
Q170	375.000	.900	5.220
	425.000		
	501.000		

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

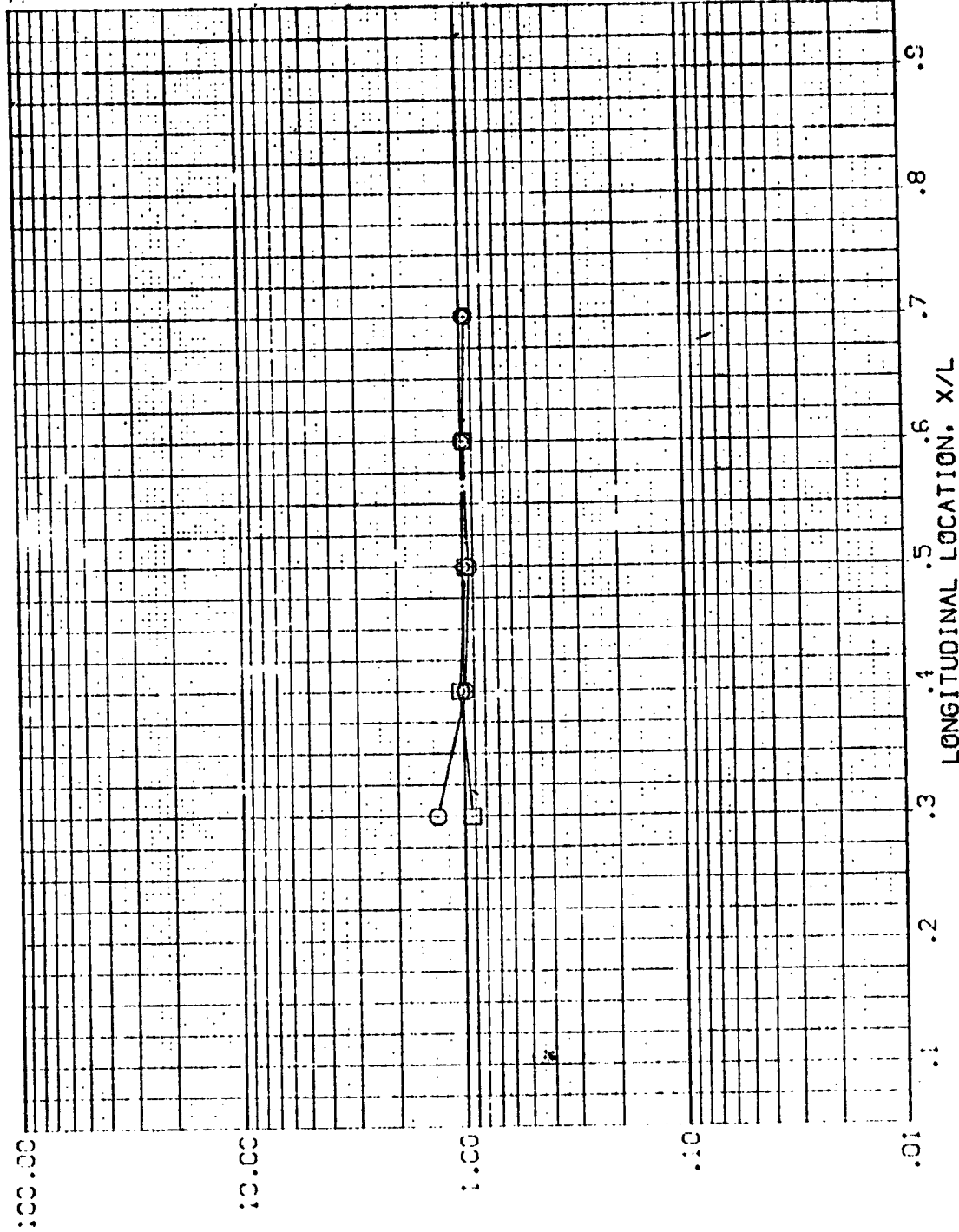


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 1-28 01+T1 BODY SIDEWALL

(BEVB09) |

SYMBOL Z  
 ◊ 375.000  
 □ 425.000  
 ◊ 501.000

HAW/HT MACH  
 .900 5.220

PARAMETRIC VALUES  
 -30.000 BETA  
 1.000

.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

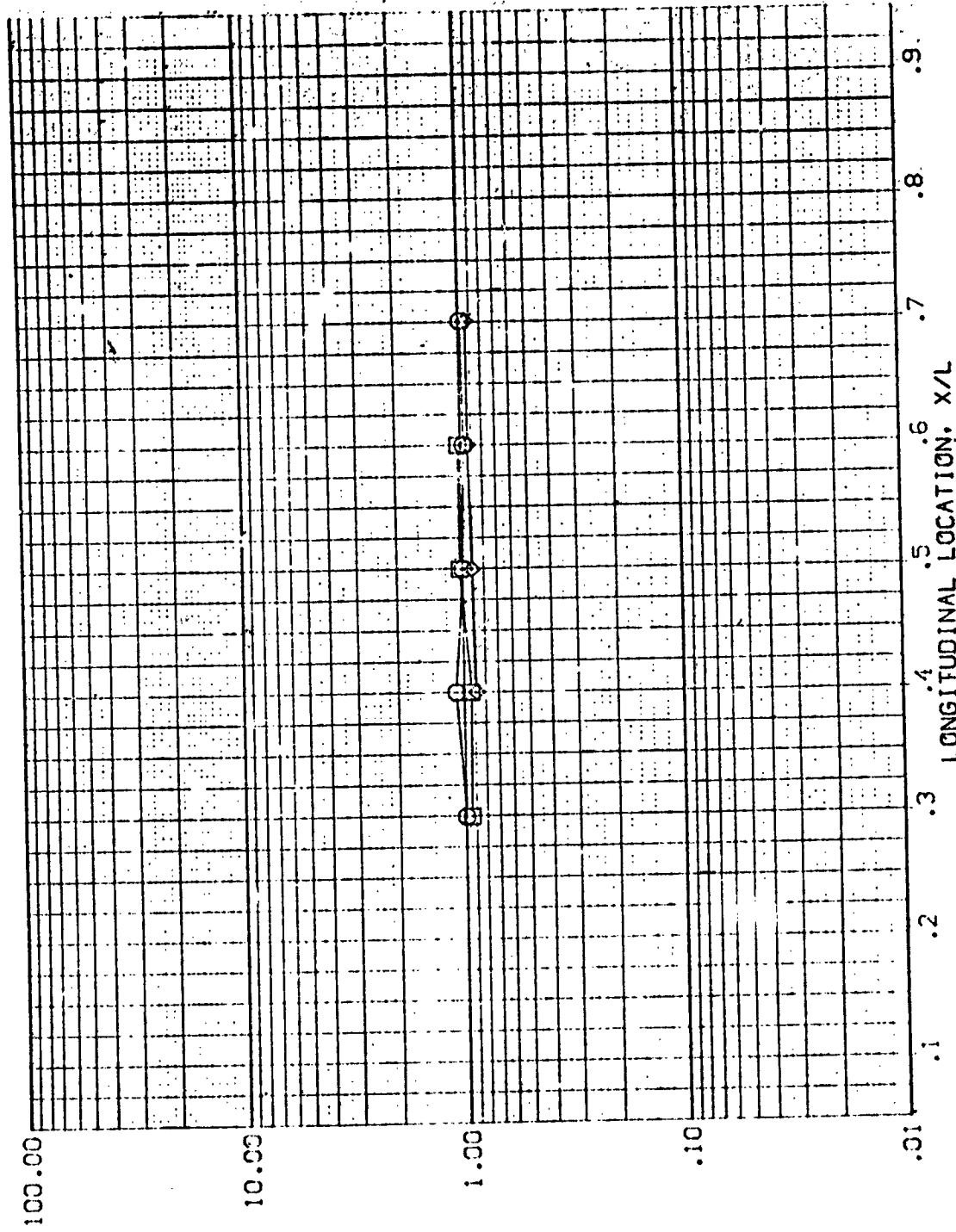


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

(6EVB01)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

PARAMETRIC VALUES  
ALPHA .000  
BETA .000  
RV/L 1.000

HA/WAC .500  
MACH 5.228

SYBCL X/L  
0.300  
0.400  
0.500  
0.600  
0.700

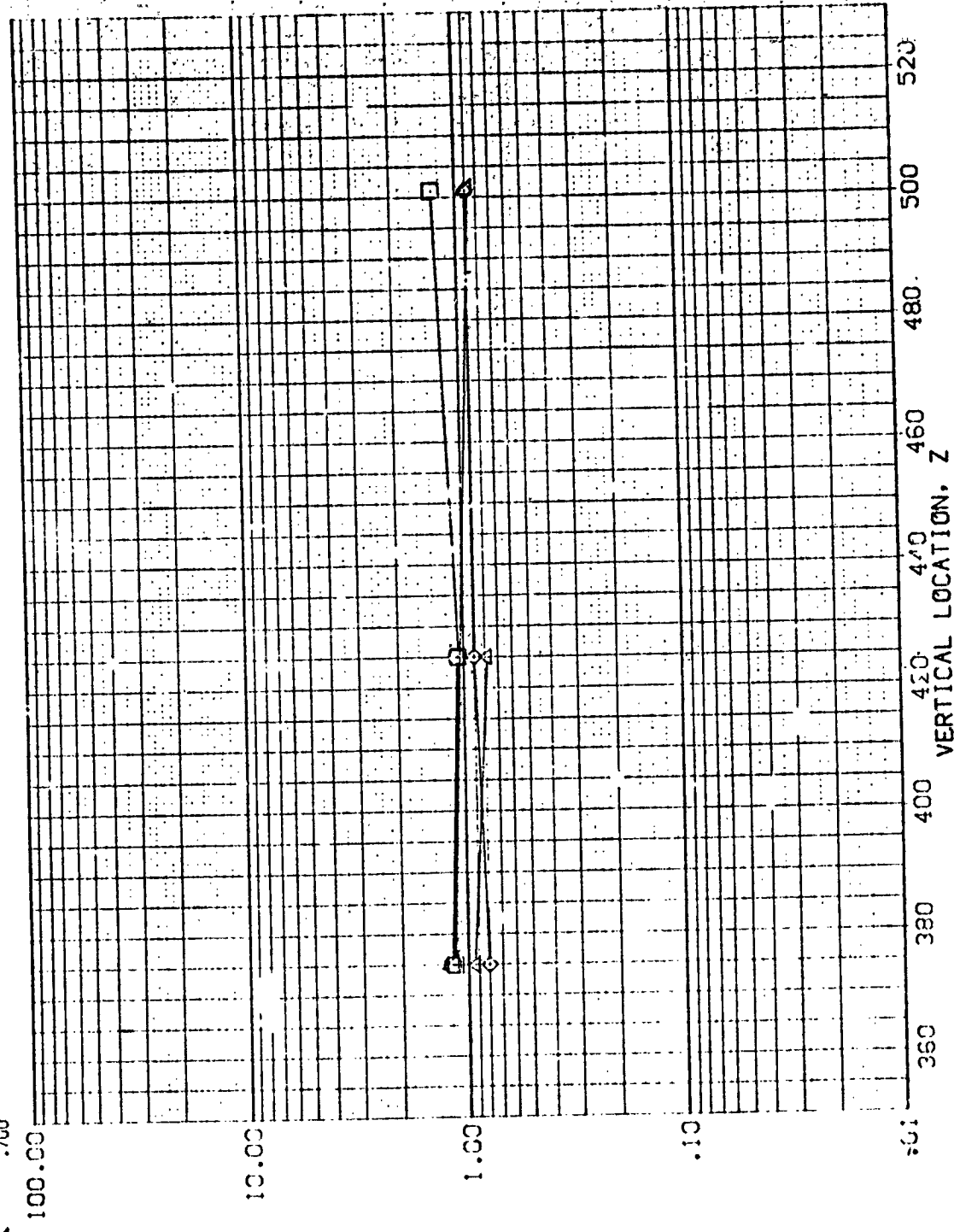


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(BEVB02)

PARAMETRIC VALUES  
 ALPHA 30.000 BETA .000  
 RN/L 1.000

MAX/HT .900 MACH 5.219

SYMBOL X/L  
 ○ .300  
 □ .400  
 △ .500  
 ◇ .600  
 ◆ .700

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

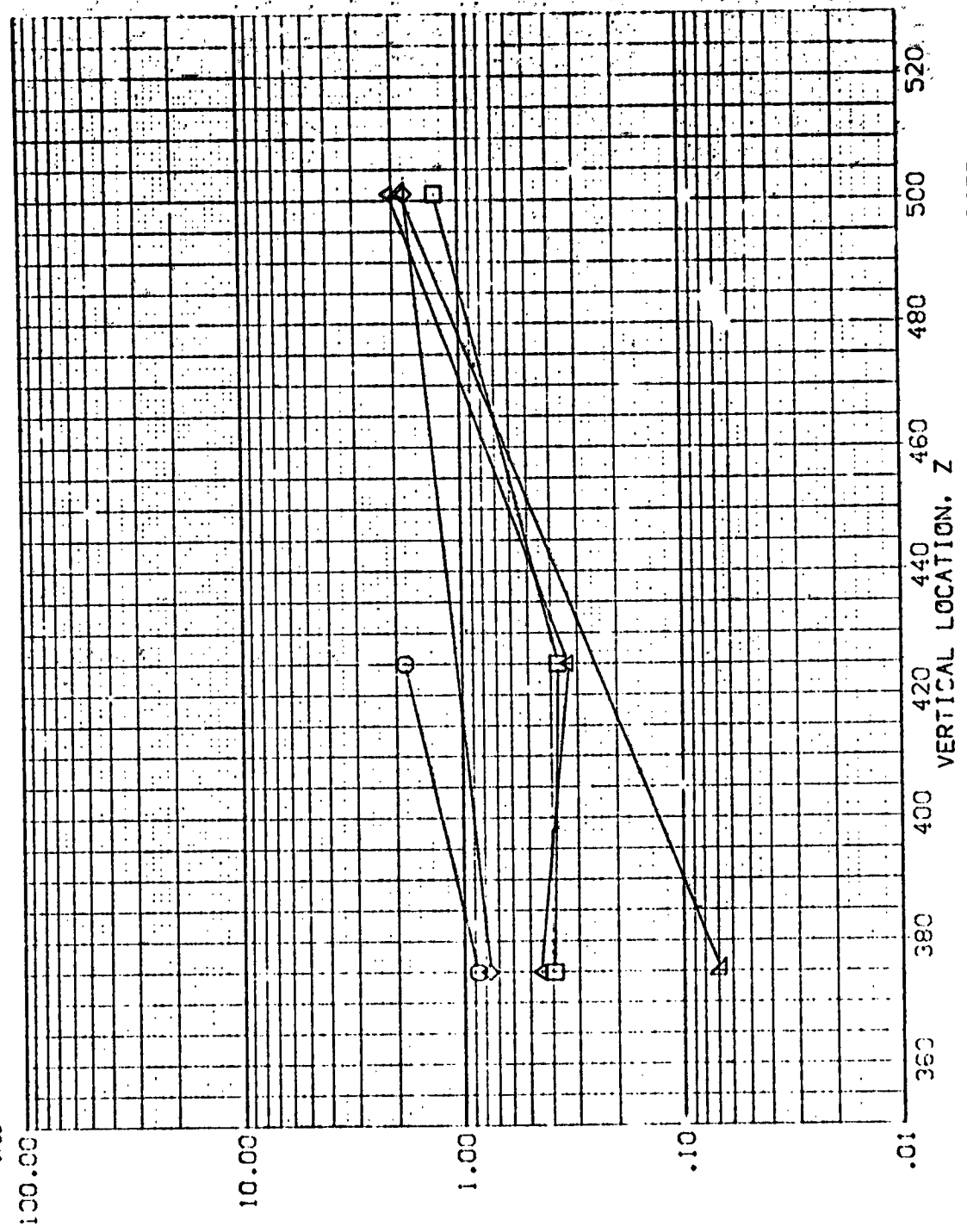


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED



(3E7B03)

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

SYM. X/L  
 .300  
 .400  
 .500  
 .600  
 .700

HAW/HT MACH  
 .900 5.220

PARAMETRIC VALUES  
 ED.C00 BETA .000  
 RN/L .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

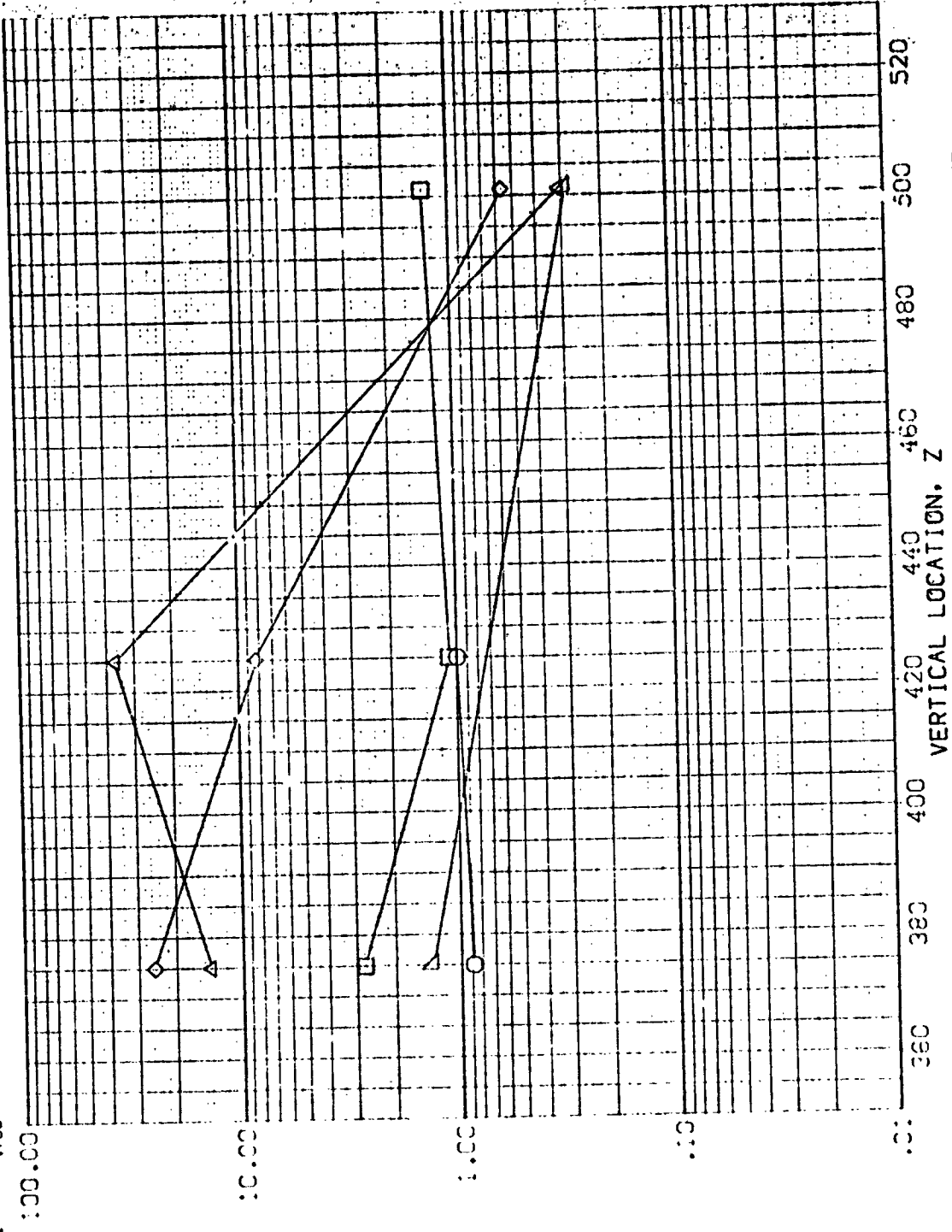


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 BODY SIDEWALL

(BEVB04)

PARAMETRIC VALUES  
 ALPHA 90.000 BETA .000  
 RN/L 1.000

MACH 5.219  
 HAW/HT .900

SVSEC- X/L  
 .300  
 .400  
 .500  
 .600  
 .700

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

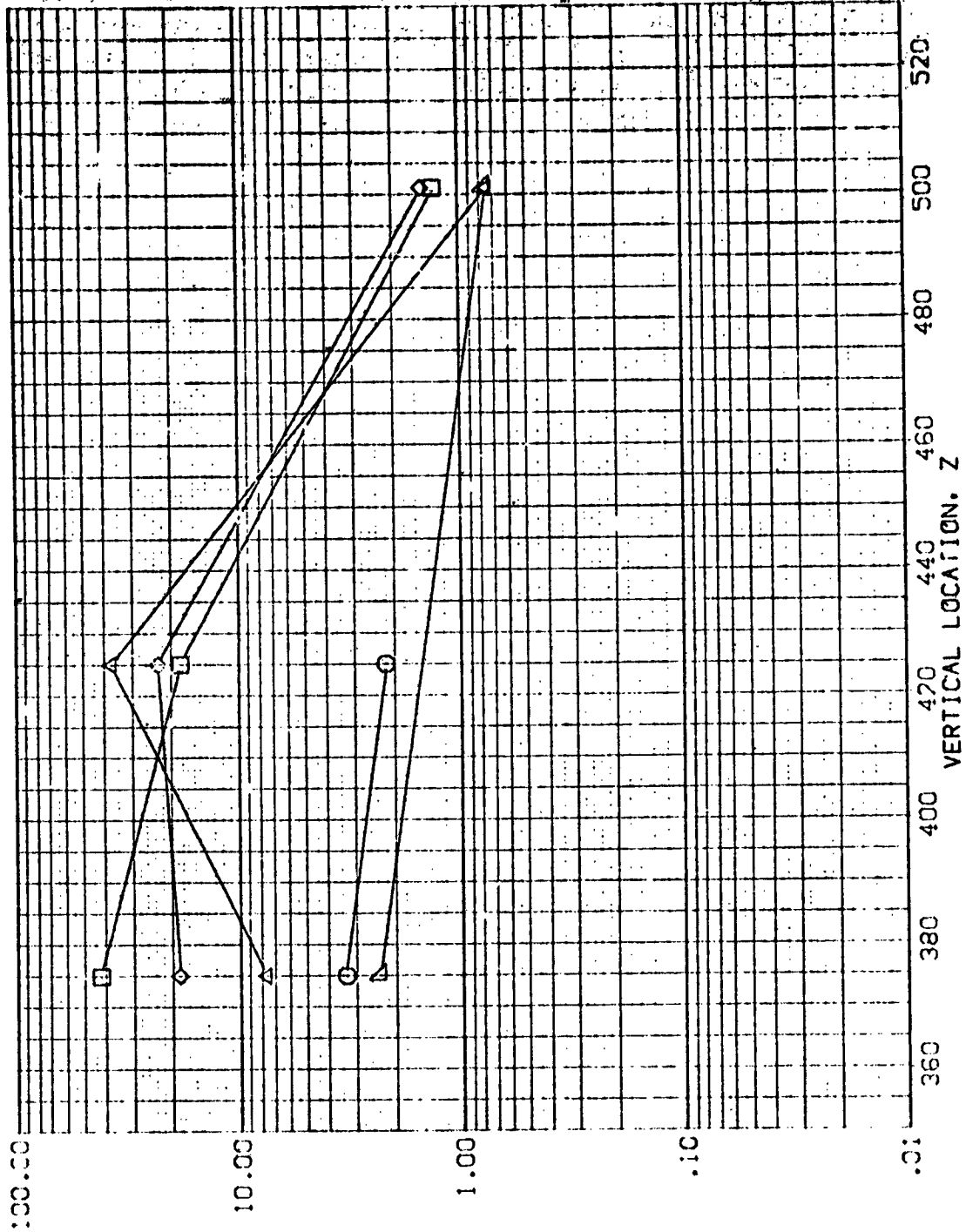


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED...

AMES 3.5-:95 IH28 01+T1 BODY SIDEWALL (BEVB05)

PARAMETRIC VALUES  
ALPHA 120.000  
BETA 1.000

MACH 5.220  
H/W/HI .900

SYMBOL X/L  
1 300  
2 400  
3 500  
4 600  
5 700

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

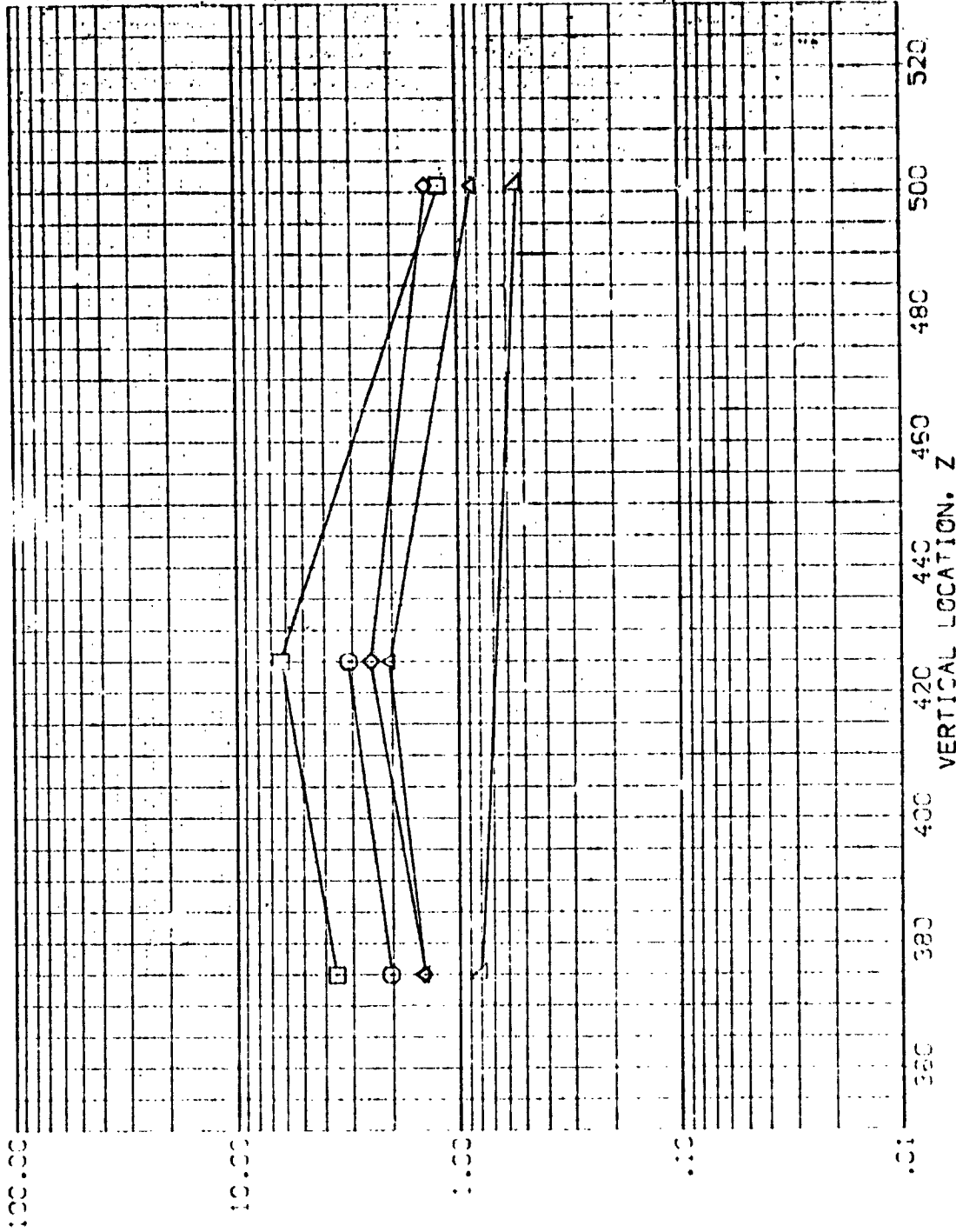


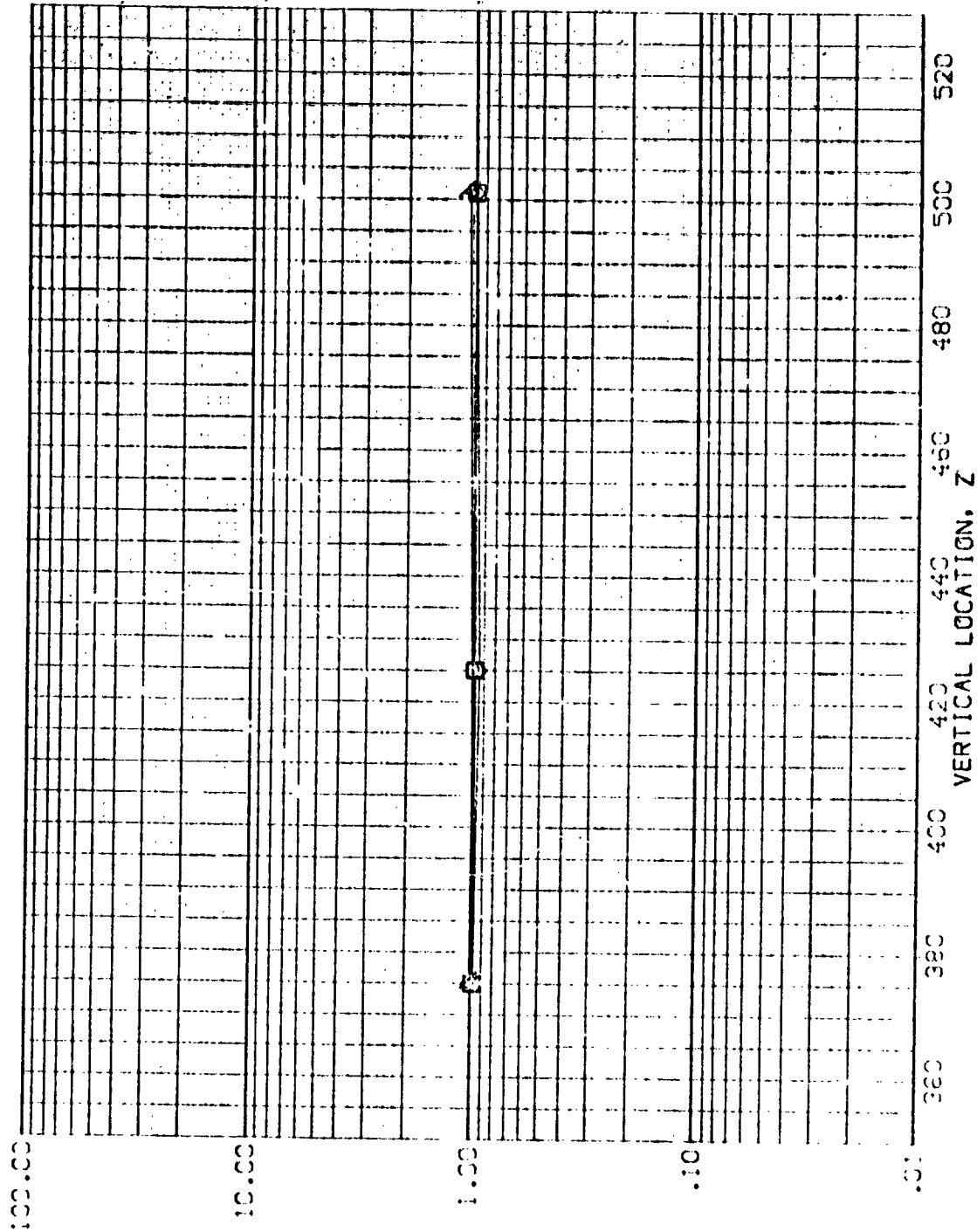
FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 1:28 0:1:1 BODY SIDEWALL

(BEV806)

$\rho/\rho_0$  .300  
 $\mu/\mu_0$  .400  
 $\gamma$  .500  
 $\beta$  .600  
 $\alpha$  .700  
 SPEED 1/2 MACH 5.220

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 $\rho/\rho_0$  1.000



RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $H_I/H_U$

FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AVES 3.5-195 I-F28 OI+T: BODY SIDEWALL (BEV807)

PARAMETRIC VALUES  
 -90.000 BEV  
 1.000

ALPHA  
 RVAL

MACH  
 5.219

HEIGHT  
 .900

SAVEC  
 X/L  
 .300  
 .400  
 .500  
 .600  
 .700

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

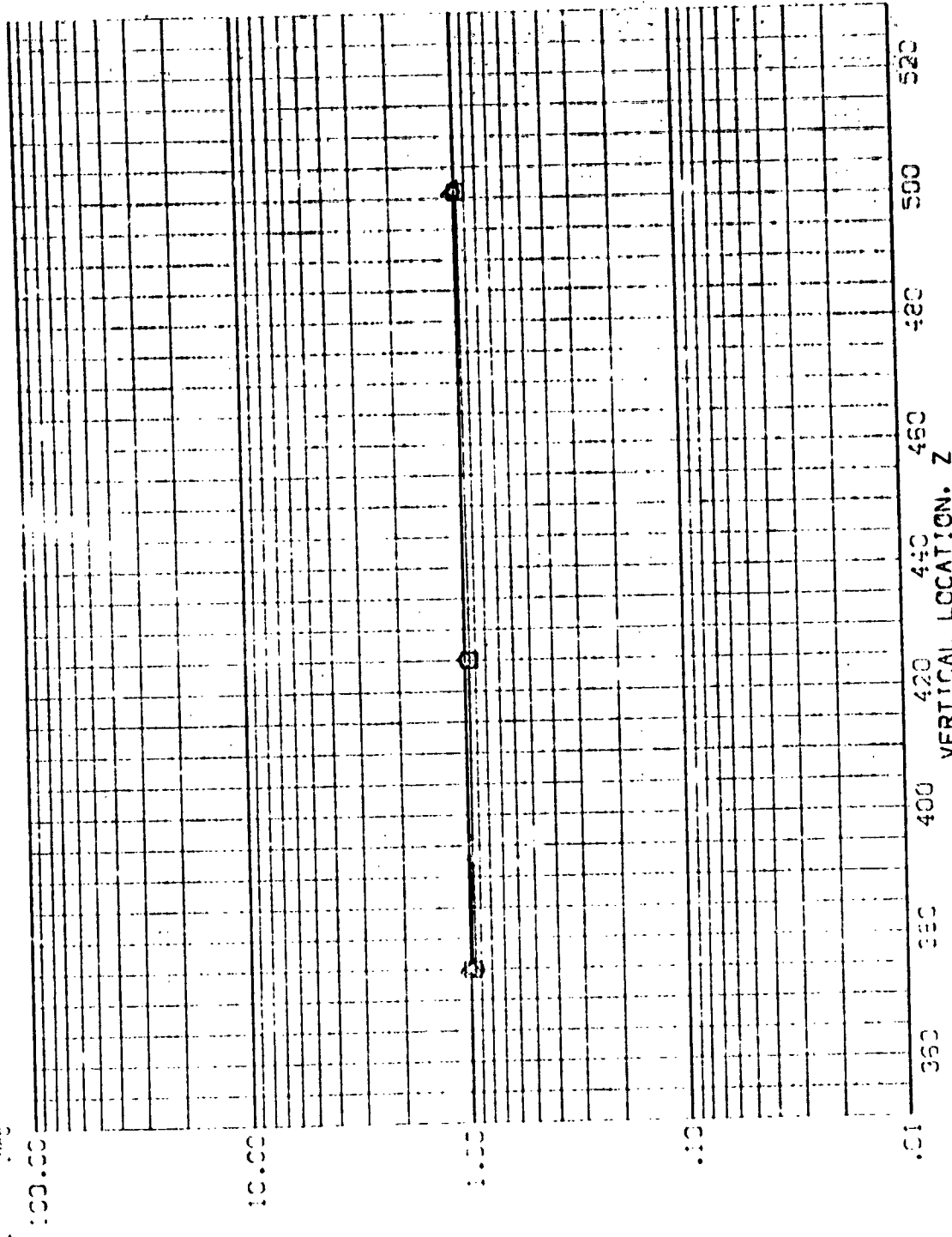


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 2.5-195 1-28 01+T: BODY SIDEWALL

(8EVB08)

PARAMETRIC VALUES  
ALPHA -63.000 BETA .000  
R/V/L 1.000

MACH 5.220

X/L  
.300  
.400  
.500  
.600  
.700

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H/H<sub>∞</sub>

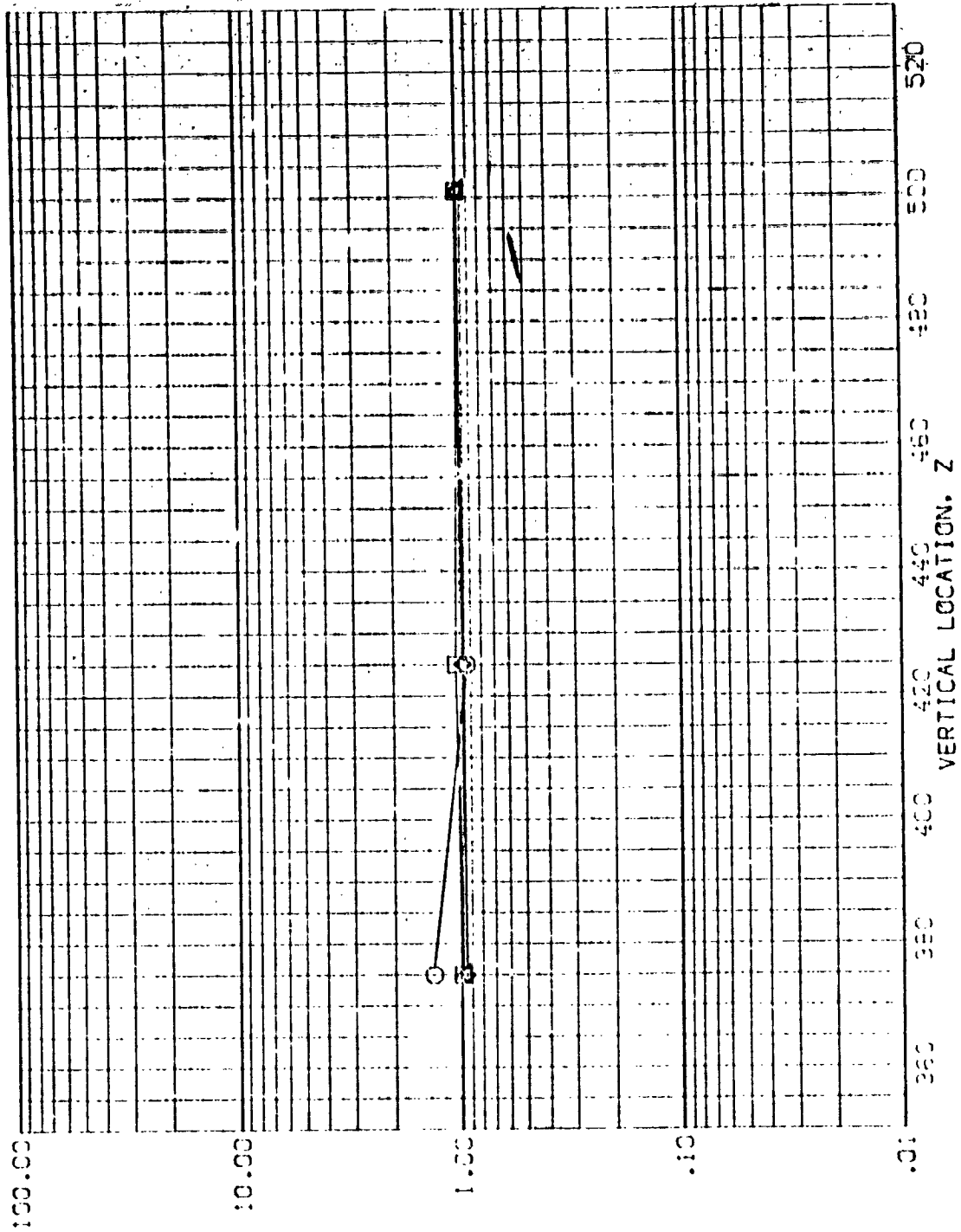


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

(BEV889)

AMES 3.5-195 IH28 01+T1 80DY SIDEWALL

SIMPL X/L  
 .300  
 .400  
 .500  
 .600  
 .700

HA#/HT  
 .900

MACH  
 5.220

PARAMETRIC VALUES  
 ALPHA  
 RN/L  
 BETA  
 1.000  
 .000

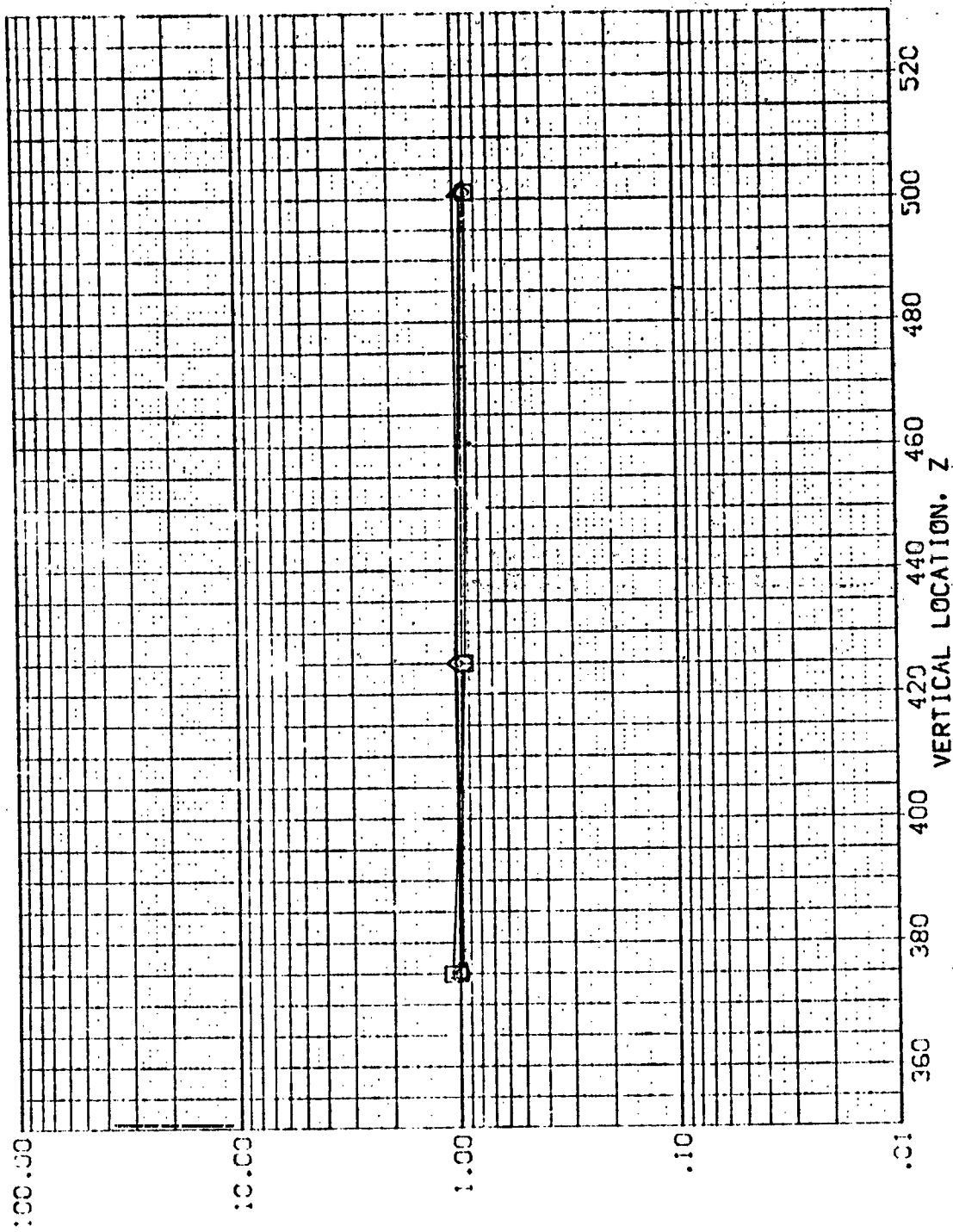


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

REPRODUCIBILITY OF THIS ORIGINAL PAGE IS FOUR

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

ALPHA	BETA	PAWL
.000	.000	1.000
30.000	.000	1.000
60.000	.000	1.000
90.000	.000	1.000
120.000	.000	1.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(BE1801)	AVES 3.5-195 1428 01*11 BODY SIDEWALL
(BE1802)	AVES 3.5-195 1428 01*11 BODY SIDEWALL
(BE1803)	AVES 3.5-195 1428 01*11 BODY SIDEWALL
(BE1804)	AVES 3.5-195 1428 01*11 BODY SIDEWALL
(BE1805)	AVES 3.5-195 1428 01*11 BODY SIDEWALL

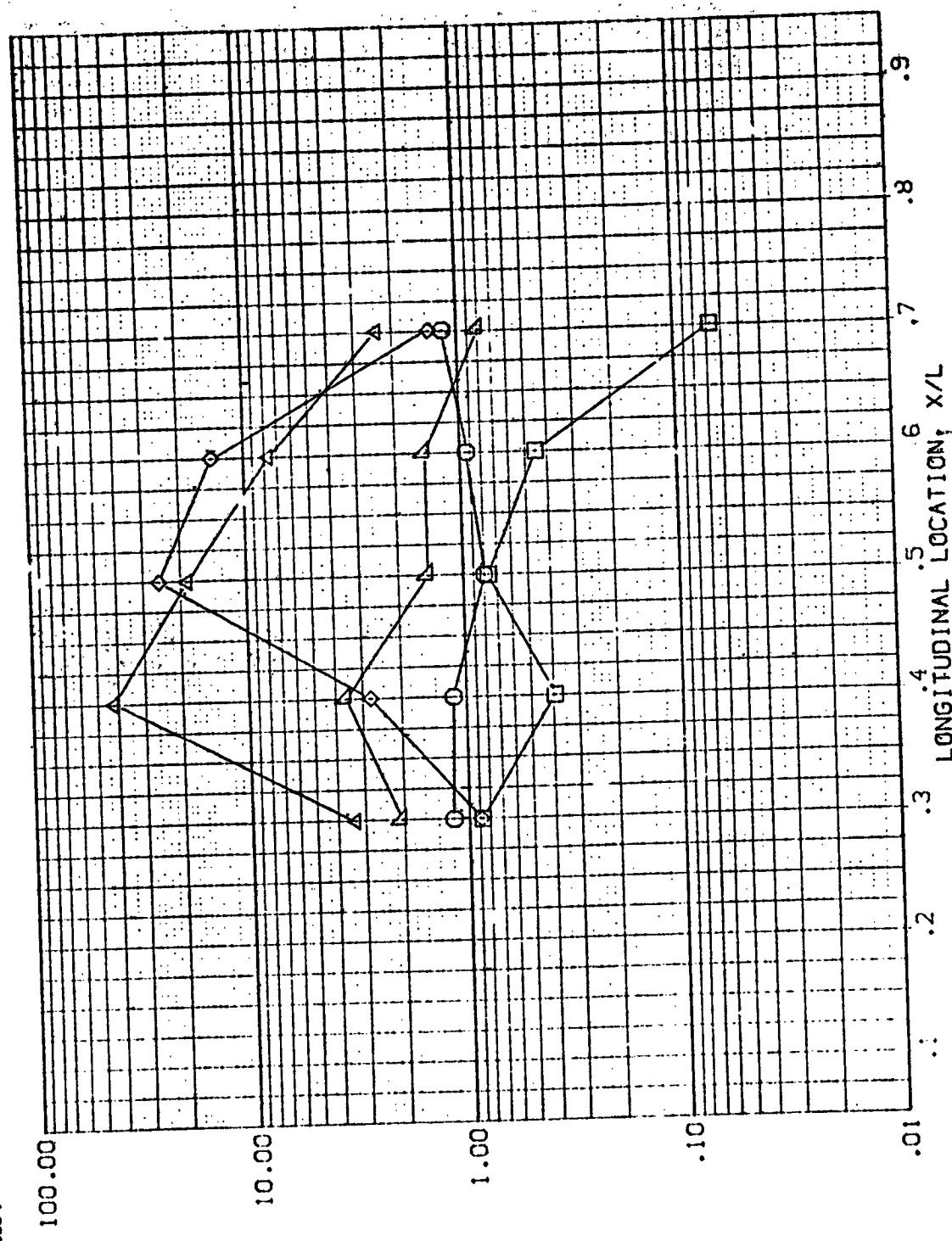


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU  
 RACH = 5.300 HAW/HT = .900 Z = 375.000



DATA SET SYSSC  
 (BE) (31) (1)  
 (BE) (30) (1)  
 (BE) (20) (1)  
 (BE) (10) (1)  
 (BE) (05) (1)

CONFIGURATION DESCRIPTION  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL  
 AXES 3.5-195 1428 01+11 BODY SIDEWALL

ALPHA BETA RMV  
 .000 1.000  
 30.000 1.000  
 60.000 1.000  
 90.000 1.000  
 120.000 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

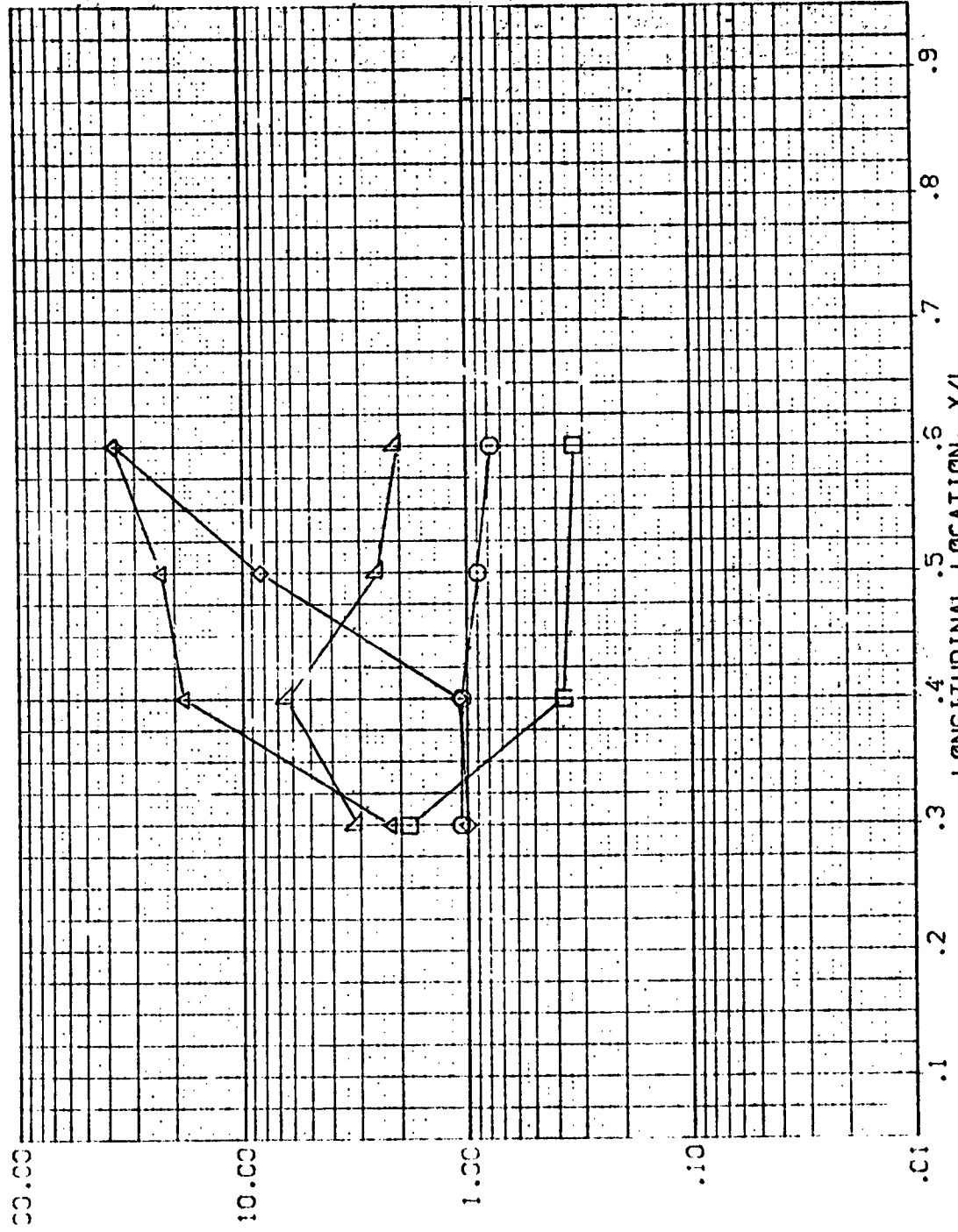


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

MACH = 5.300 HAW/UT = .900 Z = 425.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 AMES 3.5-195 1-28 CI+TI BODY SIDE+ALL  
 AMES 3.5-195 1-28 CI+TI BODY SIDEWALL  
 AMES 3.5-195 1-28 CI+TI BODY SIDEWALL  
 AMES 3.5-195 1-28 CI+TI BODY SIDEWALL  
 AMES 3.5-195 1-28 CI+TI BODY SIDEWALL

ALPHA BETA RN/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

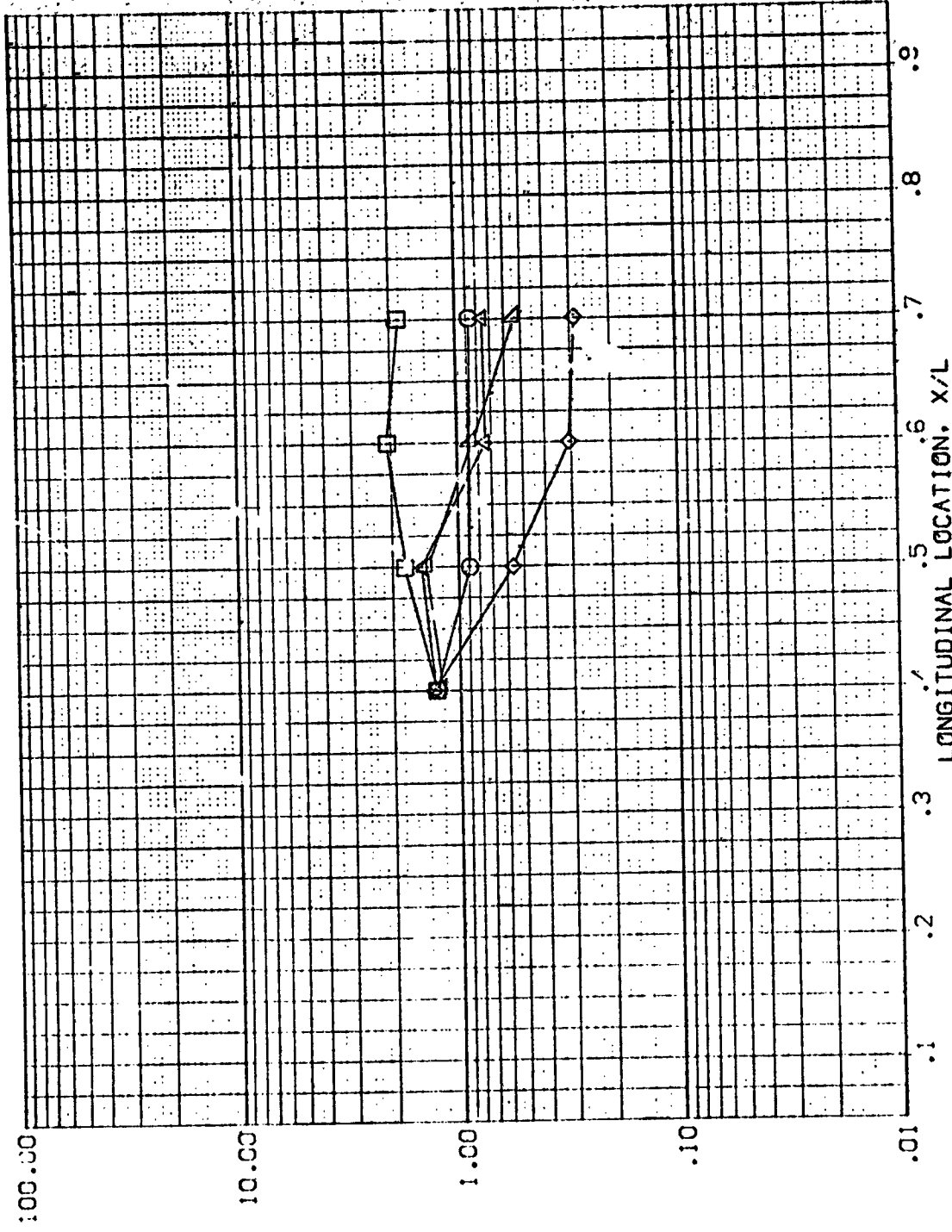


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

DATA SET NAME	CONFIGURATION DESCRIPTION	ALPHA	BETA	PM/L
AMES 3.5-195	1+28 OI+TI BCDY SIDEWALL	.000	.000	1.000
AMES 3.5-196	1+28 OI+TI BCDY SIDEWALL	-30.000	.000	1.000
AMES 3.5-197	1+28 OI+TI BCDY SIDEWALL	-60.000	.000	1.000
AMES 3.5-198	1+28 OI+TI BCDY SIDEWALL	-90.000	.000	1.000
AMES 3.5-199	1+28 OI+TI BCDY SIDEWALL	-120.000	.000	1.000

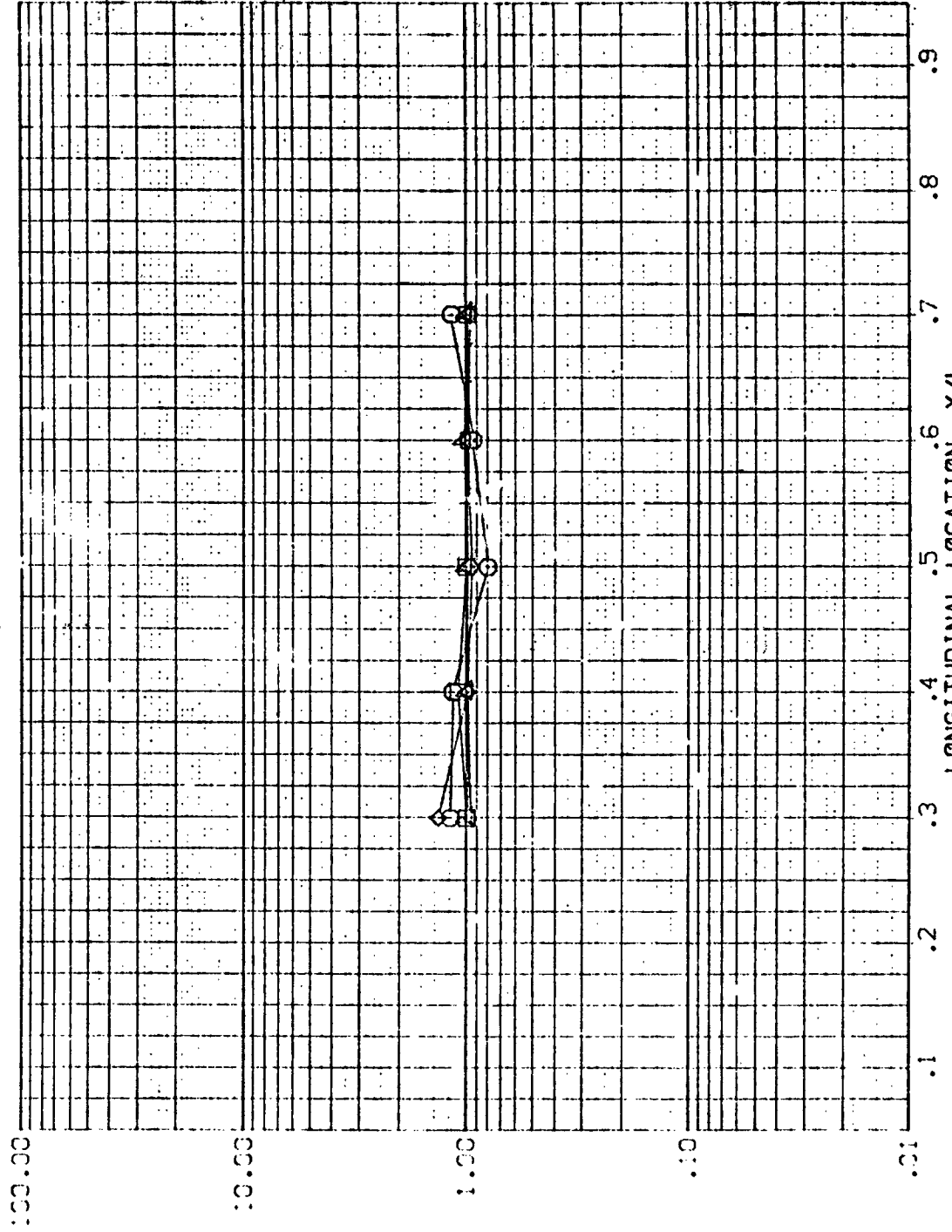


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

DATA SET SYMBS. CONFIGURATION DESCRIPTION

SYMBOL	CONFIGURATION	DESCRIPTION
(BEV501)	AVES 3.5-195	CI+TI BODY SIDE-ALL
(BEV509)	AVES 3.5-195	CI+TI BODY SIDEWALL
(BEV503)	AVES 3.5-195	CI+TI BODY SIDEWALL
(BEV507)	AVES 3.5-195	CI+TI BODY SIDEWALL
(BEV506)	AVES 3.5-195	CI+TI BODY SIDEWALL

ALPHA	BETA	RM/L
.000	.000	1.000
-30.000	.000	1.000
-60.000	.000	1.000
-90.000	.000	1.000
-120.000	.000	1.000

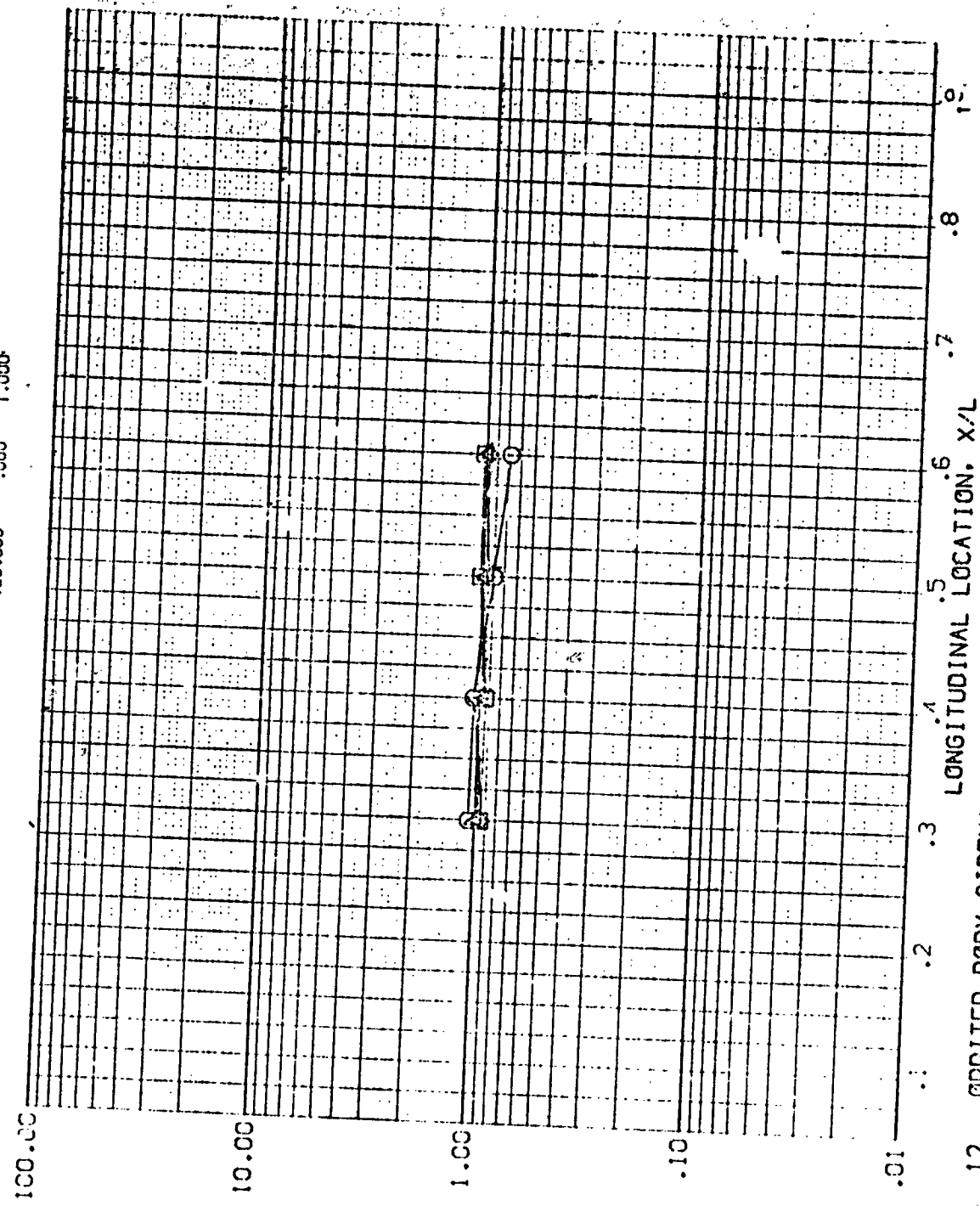


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

REYNOLDS NUMBER = 5.500 HAW/HT = .900 Z = 425.000

ALPHA	BETA	RN/L
.000	.000	1.000
-30.000	.000	1.000
-60.000	.000	1.000
-90.000	.000	1.000
-120.000	.000	1.000

CONFIGURATION DESCRIPTION	ALPHA	BETA	RN/L
01+11 BODY SIDEWALL	.000	.000	1.000
01+11 BODY SIDEWALL	-30.000	.000	1.000
01+11 BODY SIDEWALL	-60.000	.000	1.000
01+11 BODY SIDEWALL	-90.000	.000	1.000
01+11 BODY SIDEWALL	-120.000	.000	1.000

DATA SET SYMBO:  
 AMES 3 5-105 0428  
 AMES 3 5-105 0428  
 AMES 3 5-105 0428  
 AMES 3 5-105 0428  
 AMES 3 5-105 0428

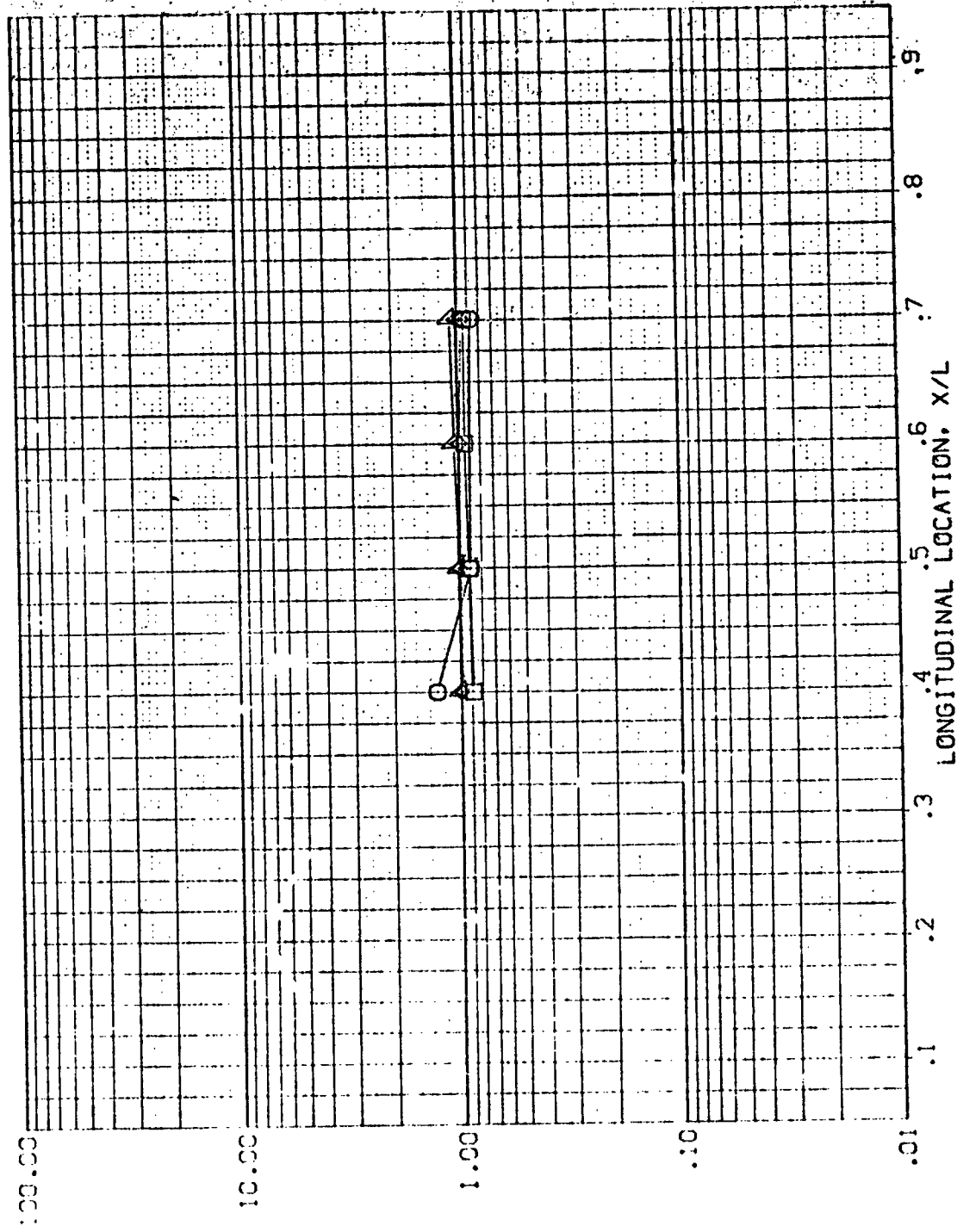
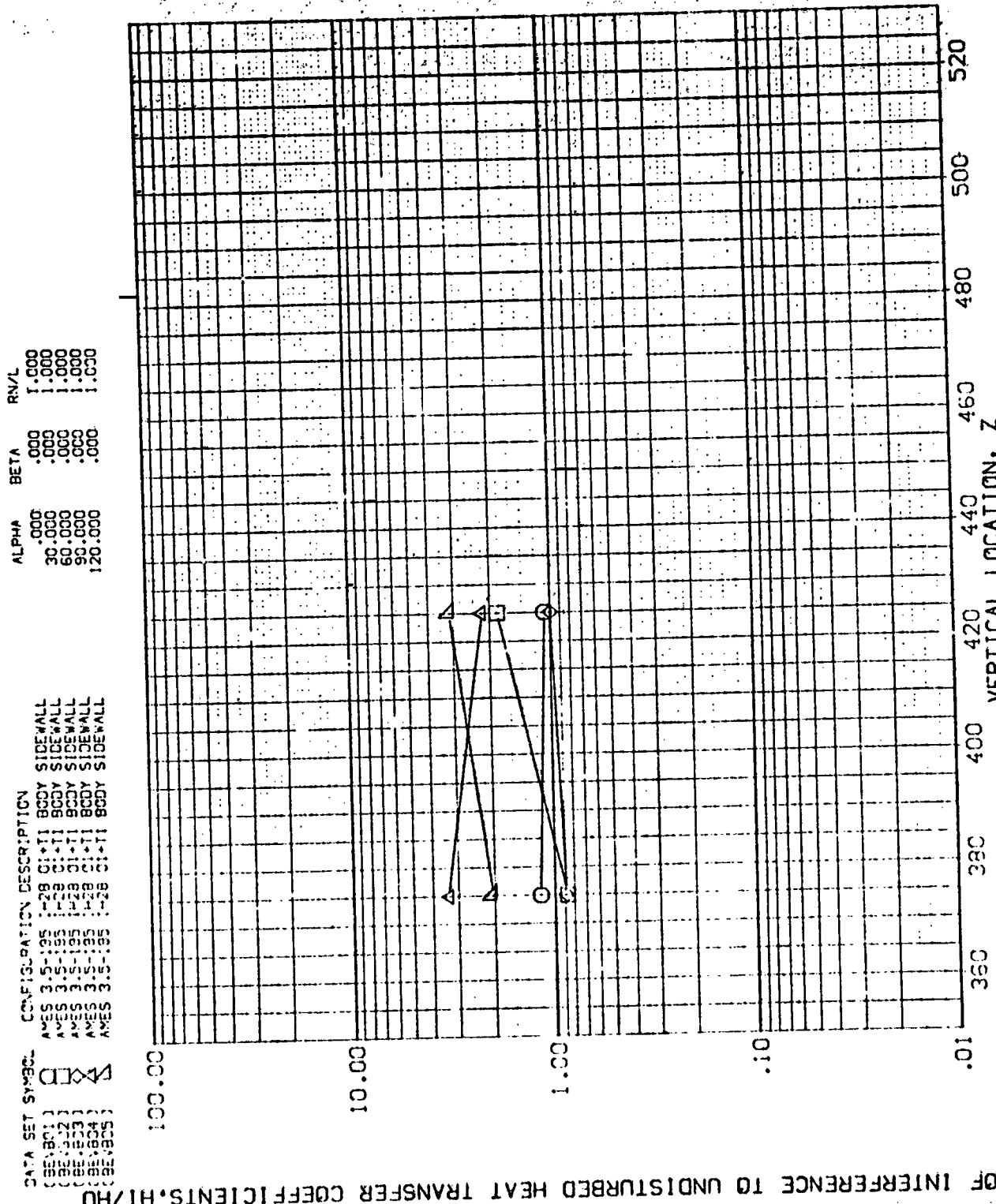


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU  
 PCH = 5.300 -P4/HT= .900 Z = 501.00C  
 PAGE 680



ALPHA .000  
30.000  
60.000  
90.000  
120.000

BETA .000  
.000  
.000  
.000

RV/L 1.000  
1.000  
1.000  
1.000

CONFIGURATION DESCRIPTION

AVES 3.5:1.95 1.28 01+11 BODY SIDEWALL  
 AVES 3.5:1.95 1.28 01+11 BODY SIDEWALL  
 AVES 3.5:1.95 1.28 01+11 BODY SIDEWALL  
 AVES 3.5:1.95 1.28 01+11 BODY SIDEWALL  
 AVES 3.5:1.95 1.28 01+11 BODY SIDEWALL

DATA SET SYMBOL

(BE1B01)  
 (BE1B02)  
 (BE1B03)  
 (BE1B04)  
 (BE1B05)

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

W/ACH = 5.200 H/W/H = .900 X/L = .300

DATA SET SVS22  
 (BEV) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) (AA) (AB) (AC) (AD) (AE) (AF) (AG) (AH) (AI) (AJ) (AK) (AL) (AM) (AN) (AO) (AP) (AQ) (AR) (AS) (AT) (AU) (AV) (AW) (AX) (AY) (AZ) (BA) (BB) (BC) (BD) (BE) (BF) (BG) (BH) (BI) (BJ) (BK) (BL) (BM) (BN) (BO) (BP) (BQ) (BR) (BS) (BT) (BU) (BV) (BW) (BX) (BY) (BZ) (CA) (CB) (CC) (CD) (CE) (CF) (CG) (CH) (CI) (CJ) (CK) (CL) (CM) (CN) (CO) (CP) (CQ) (CR) (CS) (CT) (CU) (CV) (CW) (CX) (CY) (CZ) (DA) (DB) (DC) (DD) (DE) (DF) (DG) (DH) (DI) (DJ) (DK) (DL) (DM) (DN) (DO) (DP) (DQ) (DR) (DS) (DT) (DU) (DV) (DW) (DX) (DY) (DZ) (EA) (EB) (EC) (ED) (EE) (EF) (EG) (EH) (EI) (EJ) (EK) (EL) (EM) (EN) (EO) (EP) (EQ) (ER) (ES) (ET) (EU) (EV) (EW) (EX) (EY) (EZ) (FA) (FB) (FC) (FD) (FE) (FF) (FG) (FH) (FI) (FJ) (FK) (FL) (FM) (FN) (FO) (FP) (FQ) (FR) (FS) (FT) (FU) (FV) (FW) (FX) (FY) (FZ) (GA) (GB) (GC) (GD) (GE) (GF) (GG) (GH) (GI) (GJ) (GK) (GL) (GM) (GN) (GO) (GP) (GQ) (GR) (GS) (GT) (GU) (GV) (GW) (GX) (GY) (GZ) (HA) (HB) (HC) (HD) (HE) (HF) (HG) (HH) (HI) (HJ) (HK) (HL) (HM) (HN) (HO) (HP) (HQ) (HR) (HS) (HT) (HU) (HV) (HW) (HX) (HY) (HZ) (IA) (IB) (IC) (ID) (IE) (IF) (IG) (IH) (II) (IJ) (IK) (IL) (IM) (IN) (IO) (IP) (IQ) (IR) (IS) (IT) (IU) (IV) (IW) (IX) (IY) (IZ) (JA) (JB) (JC) (JD) (JE) (JF) (JG) (JH) (JI) (JJ) (JK) (JL) (JM) (JN) (JO) (JP) (JQ) (JR) (JS) (JT) (JU) (JV) (JW) (JX) (JY) (JZ) (KA) (KB) (KC) (KD) (KE) (KF) (KG) (KH) (KI) (KJ) (KK) (KL) (KM) (KN) (KO) (KP) (KQ) (KR) (KS) (KT) (KU) (KV) (KW) (KX) (KY) (KZ) (LA) (LB) (LC) (LD) (LE) (LF) (LG) (LH) (LI) (LJ) (LK) (LL) (LM) (LN) (LO) (LP) (LQ) (LR) (LS) (LT) (LU) (LV) (LW) (LX) (LY) (LZ) (MA) (MB) (MC) (MD) (ME) (MF) (MG) (MH) (MI) (MJ) (MK) (ML) (MM) (MN) (MO) (MP) (MQ) (MR) (MS) (MT) (MU) (MV) (MW) (MX) (MY) (MZ) (NA) (NB) (NC) (ND) (NE) (NF) (NG) (NH) (NI) (NJ) (NK) (NL) (NM) (NN) (NO) (NP) (NQ) (NR) (NS) (NT) (NU) (NV) (NW) (NX) (NY) (NZ) (OA) (OB) (OC) (OD) (OE) (OF) (OG) (OH) (OI) (OJ) (OK) (OL) (OM) (ON) (OO) (OP) (OQ) (OR) (OS) (OT) (OU) (OV) (OW) (OX) (OY) (OZ) (PA) (PB) (PC) (PD) (PE) (PF) (PG) (PH) (PI) (PJ) (PK) (PL) (PM) (PN) (PO) (PP) (PQ) (PR) (PS) (PT) (PU) (PV) (PW) (PX) (PY) (PZ) (QA) (QB) (QC) (QD) (QE) (QF) (QG) (QH) (QI) (QJ) (QK) (QL) (QM) (QN) (QO) (QP) (QQ) (QR) (QS) (QT) (QU) (QV) (QW) (QX) (QY) (QZ) (RA) (RB) (RC) (RD) (RE) (RF) (RG) (RH) (RI) (RJ) (RK) (RL) (RM) (RN) (RO) (RP) (RQ) (RR) (RS) (RT) (RU) (RV) (RW) (RX) (RY) (RZ) (SA) (SB) (SC) (SD) (SE) (SF) (SG) (SH) (SI) (SJ) (SK) (SL) (SM) (SN) (SO) (SP) (SQ) (SR) (SS) (ST) (SU) (SV) (SW) (SX) (SY) (SZ) (TA) (TB) (TC) (TD) (TE) (TF) (TG) (TH) (TI) (TJ) (TK) (TL) (TM) (TN) (TO) (TP) (TQ) (TR) (TS) (TT) (TU) (TV) (TW) (TX) (TY) (TZ) (UA) (UB) (UC) (UD) (UE) (UF) (UG) (UH) (UI) (UJ) (UK) (UL) (UM) (UN) (UO) (UP) (UQ) (UR) (US) (UT) (UU) (UV) (UW) (UX) (UY) (UZ) (VA) (VB) (VC) (VD) (VE) (VF) (VG) (VH) (VI) (VJ) (VK) (VL) (VM) (VN) (VO) (VP) (VQ) (VR) (VS) (VT) (VU) (VV) (VW) (VX) (VY) (VZ) (WA) (WB) (WC) (WD) (WE) (WF) (WG) (WH) (WI) (WJ) (WK) (WL) (WM) (WN) (WO) (WP) (WQ) (WR) (WS) (WT) (WU) (WV) (WW) (WX) (WY) (WZ) (XA) (XB) (XC) (XD) (XE) (XF) (XG) (XH) (XI) (XJ) (XK) (XL) (XM) (XN) (XO) (XP) (XQ) (XR) (XS) (XT) (XU) (XV) (XW) (XX) (XY) (XZ) (YA) (YB) (YC) (YD) (YE) (YF) (YG) (YH) (YI) (YJ) (YK) (YL) (YM) (YN) (YO) (YP) (YQ) (YR) (YS) (YT) (YU) (YV) (YW) (YX) (YZ) (ZA) (ZB) (ZC) (ZD) (ZE) (ZF) (ZG) (ZH) (ZI) (ZJ) (ZK) (ZL) (ZM) (ZN) (ZO) (ZP) (ZQ) (ZR) (ZS) (ZT) (ZU) (ZV) (ZW) (ZX) (ZY) (ZZ)

CONFIGURATION DESCRIPTION  
 AMES 3 5 1 195 1428 01+11 BODY SIDE WALL  
 AMES 3 5 1 195 1428 01+11 BODY SIDE WALL  
 AMES 3 5 1 195 1428 01+11 BODY SIDE WALL  
 AMES 3 5 1 195 1428 01+11 BODY SIDE WALL  
 AMES 3 5 1 195 1428 01+11 BODY SIDE WALL  
 AMES 3 5 1 195 1428 01+11 BODY SIDE WALL

ALPHA BETA R/V/L  
 .000 1.000  
 .000 1.000  
 .000 1.000  
 .000 1.000  
 .000 1.000  
 .000 1.000

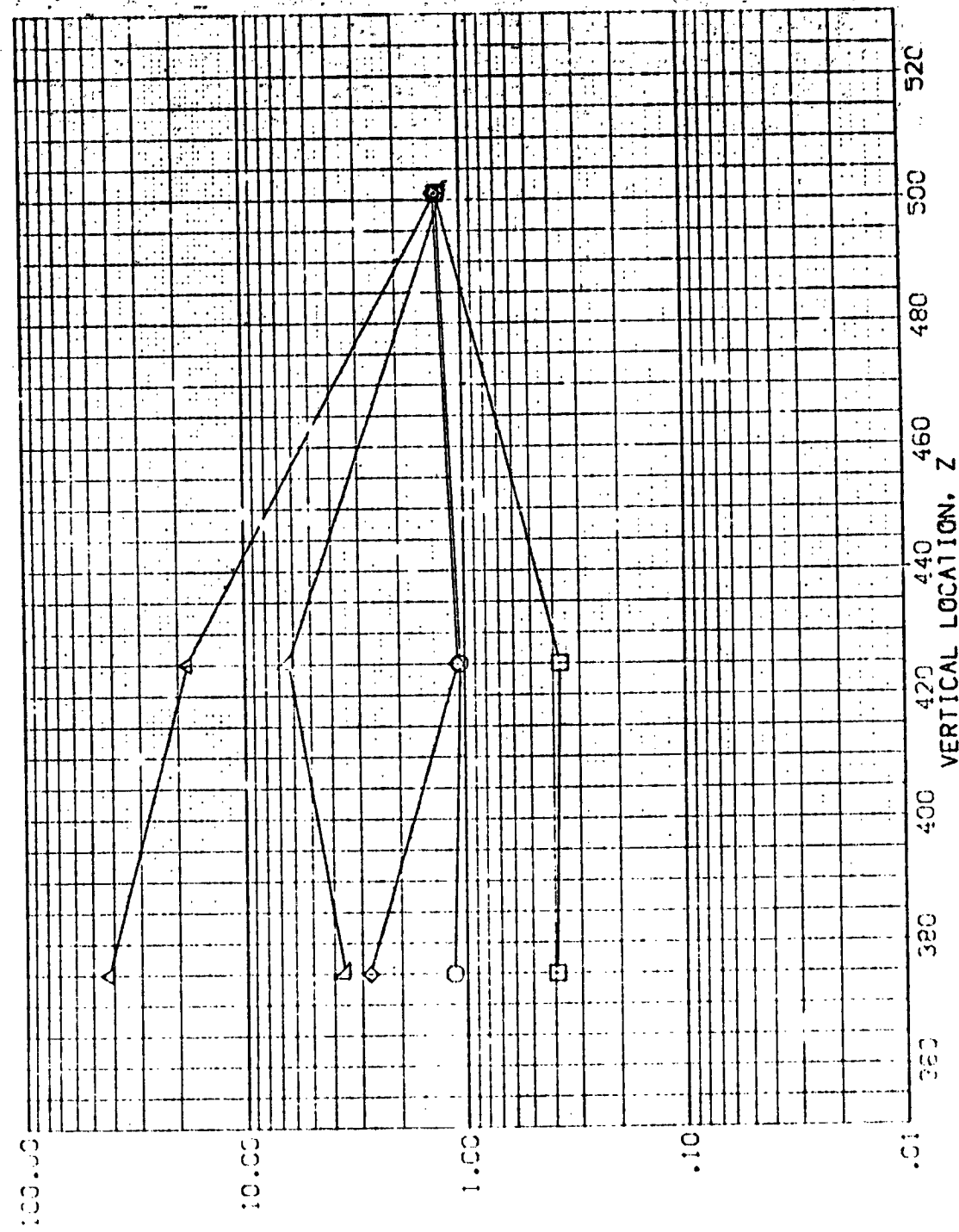


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PN/L

AVS 3 5-1 95	1-28	CI*11	BODY	1.000	1.000	1.000
AVS 3 5-1 95	1-28	CI*11	SIDEWALL	30.000	.000	1.000
AVS 3 5-1 95	1-28	CI*11	BODY	60.000	.000	1.000
AVS 3 5-1 95	1-28	CI*11	SIDEWALL	90.000	.000	1.000
AVS 3 5-1 95	1-28	CI*11	BODY	1.000	.000	1.000
AVS 3 5-1 95	1-28	CI*11	SIDEWALL	3.000	.000	1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H/H<sub>U</sub>

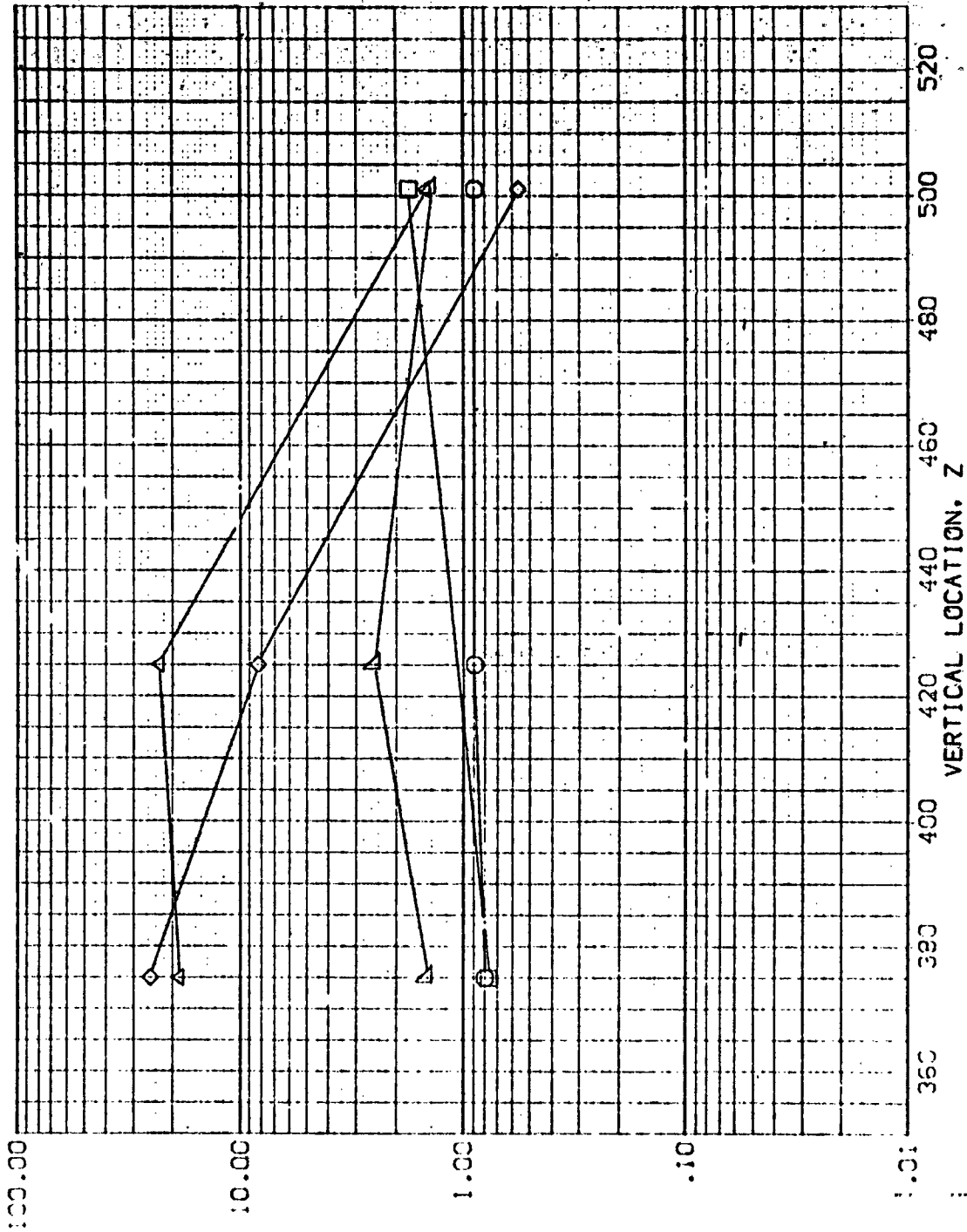


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

AVS = 5.300 H<sub>0</sub>/H<sub>U</sub> = .900 X/L = .500



DATA SET SYMBOL  
 INVESTIGATION DESCRIPTION  
 1000 0111 BODY SIDEWALL  
 2000 0111 BODY SIDEWALL  
 3000 0111 BODY SIDEWALL  
 4000 0111 BODY SIDEWALL  
 5000 0111 BODY SIDEWALL  
 6000 0111 BODY SIDEWALL  
 7000 0111 BODY SIDEWALL  
 8000 0111 BODY SIDEWALL  
 9000 0111 BODY SIDEWALL  
 1000 0111 BODY SIDEWALL

ALPHA BETA FV%  
 1.000 .000 1.000  
 2.000 .000 1.000  
 3.000 .000 1.000  
 4.000 .000 1.000  
 5.000 .000 1.000  
 6.000 .000 1.000  
 7.000 .000 1.000  
 8.000 .000 1.000  
 9.000 .000 1.000  
 10.000 .000 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H/H<sub>0</sub>

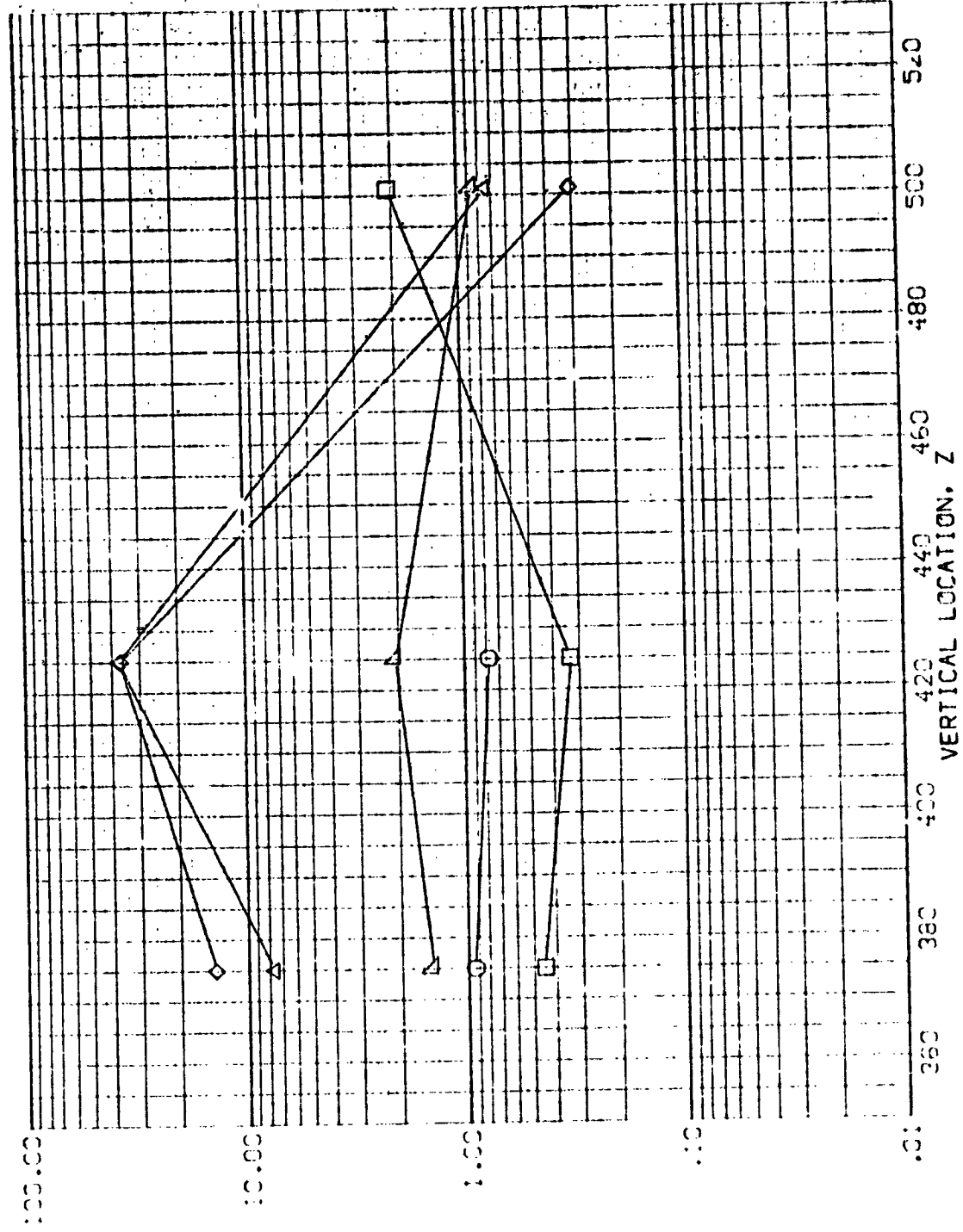
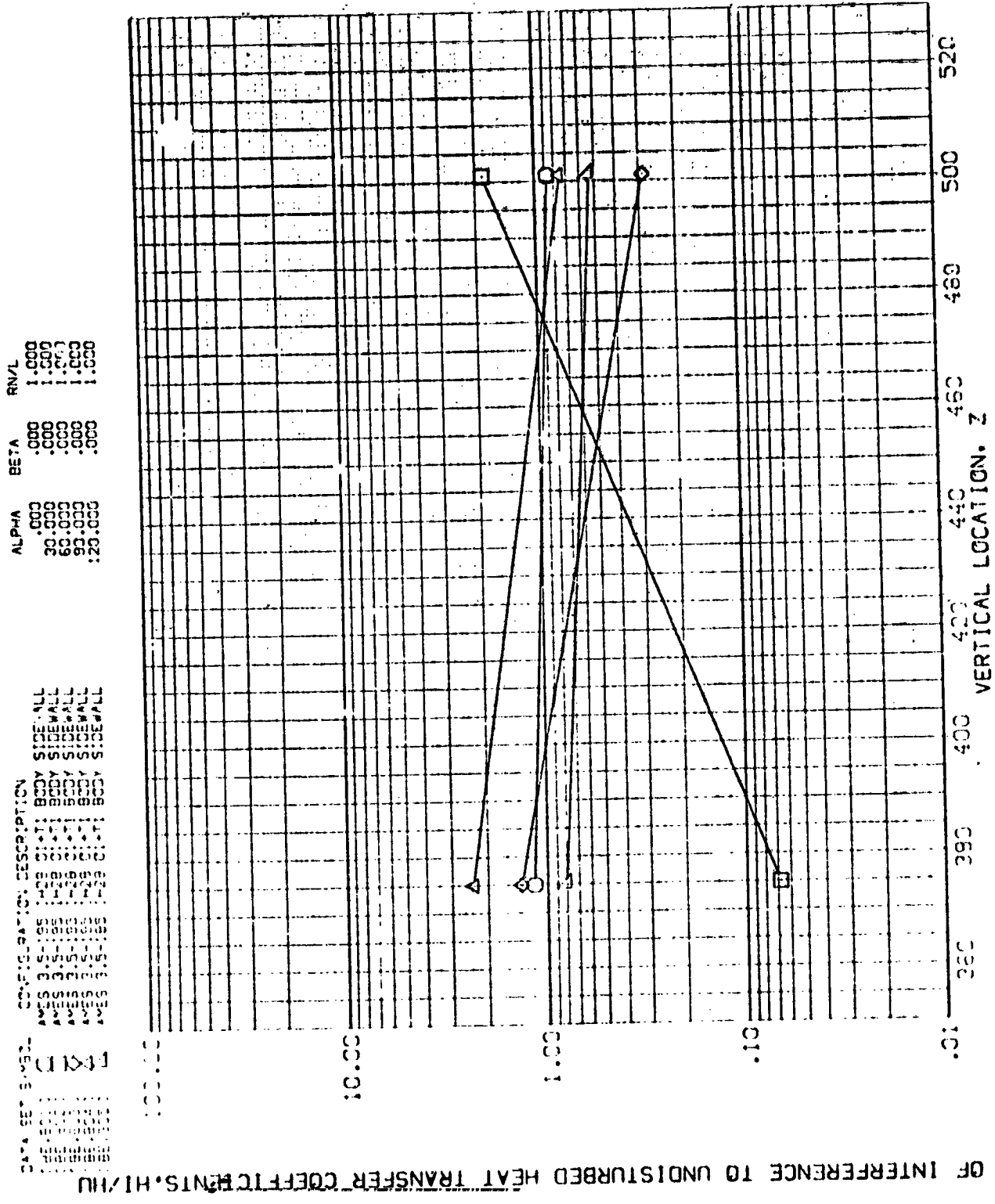


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED



ALPHA BETA RN/L  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 :20.000 .000 1.000

CONFIGURATION DESCRIPTION  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL  
 BODY SIDEWALL

DATA SET 3-1953  
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 PLOT 99  
 PLOT 100

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H<sub>i</sub>/H<sub>u</sub>

FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

PARAMETER = 5.300 W/W/FT = .900 X/L = .700





DATA SET SYMBOL  
 (001:001)  
 (002:002)  
 (003:003)  
 (004:004)  
 (005:005)  
 (006:006)

CONFIGURATION DESCRIPTION  
 AXES 3.5:1.95 1438 01+11 BODY SIDEWALL  
 AXES 3.5:1.95 1438 01+11 BODY SIDEWALL  
 AXES 3.5:1.95 1438 01+11 BODY SIDEWALL  
 AXES 3.5:1.95 1438 01+11 BODY SIDEWALL  
 AXES 3.5:1.95 1438 01+11 BODY SIDEWALL

ALPHA BETA ALPHA BETA  
 .000 .000 .000 .000  
 -30.000 .000 .000 .000  
 -30.000 .000 .000 .000  
 -30.000 .000 .000 .000  
 -120.000 .000 .000 .000

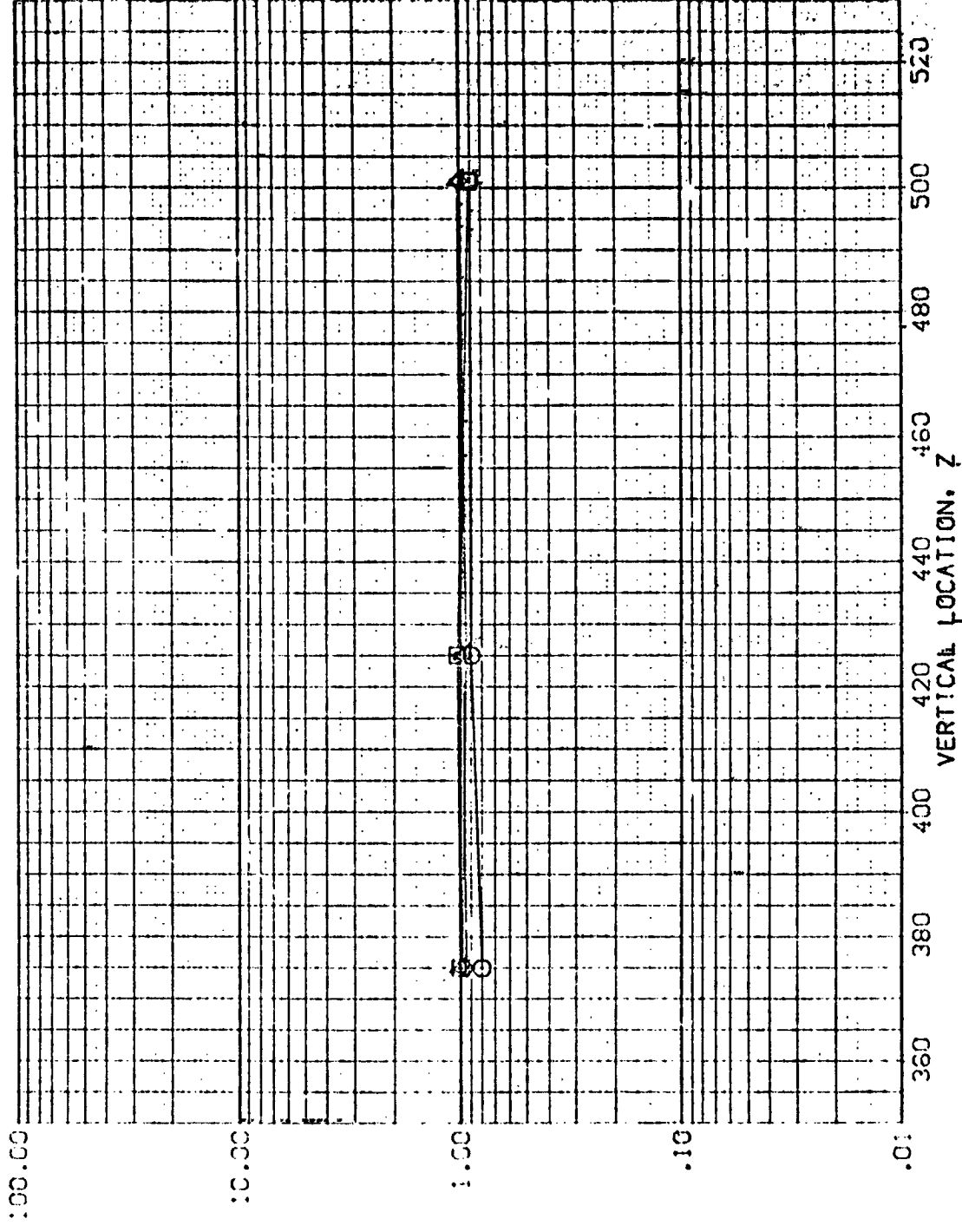


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

MACH = 5.300 HAW/HT = .900 X/L = .500 PAGE 688

REPRODUCIBILITY OF THIS  
 ORIGINAL PAGE IS

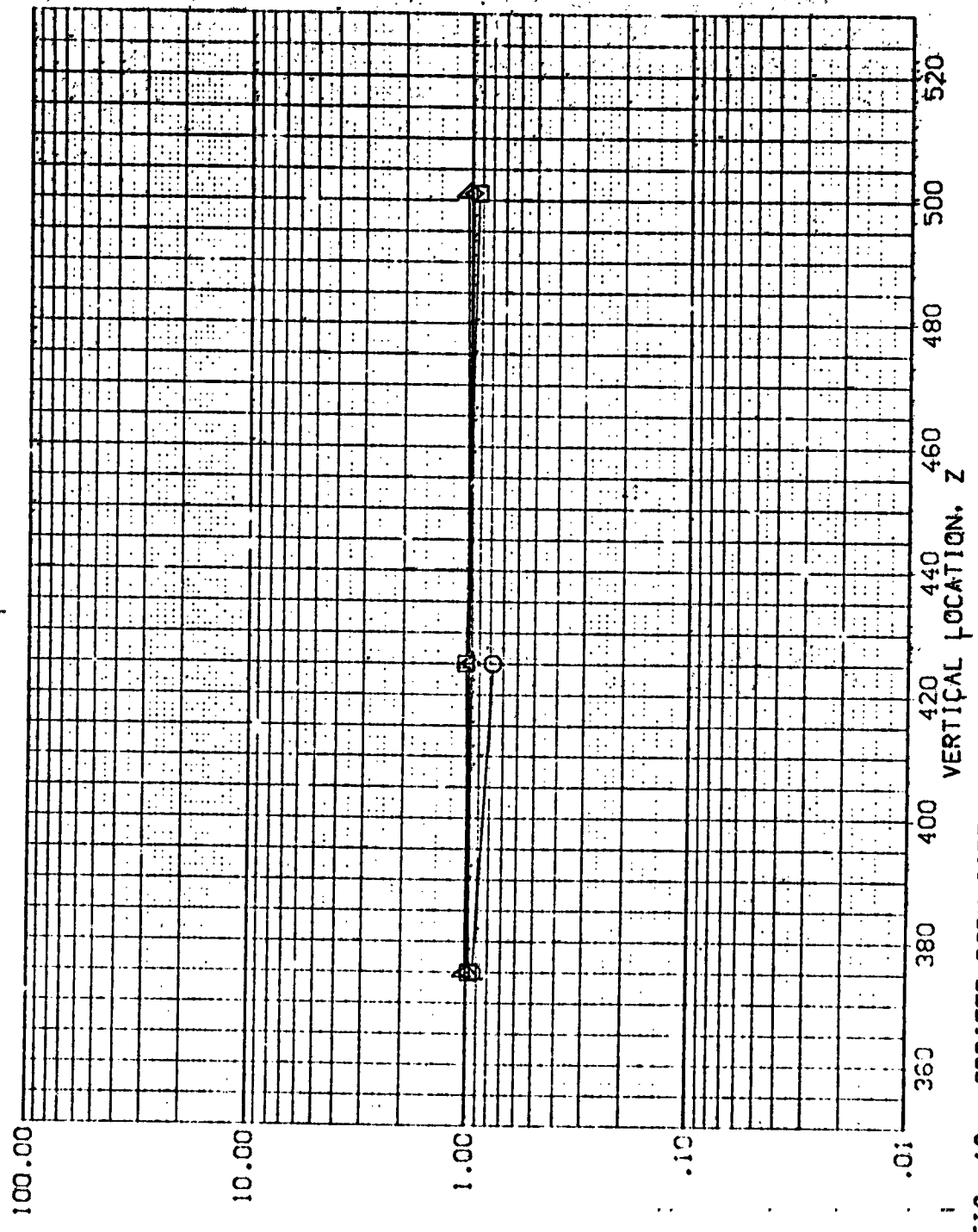
RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(BEV801)	OX	AMES 3.5-195	1-28	01+11	BODY	SIDEWALL
(BEV802)	OX	AMES 3.5-195	1-28	01+11	BODY	SIDEWALL
(BEV803)	OX	AMES 3.5-195	1-28	01+11	BODY	SIDEWALL
(BEV804)	OX	AMES 3.5-195	1-28	01+11	BODY	SIDEWALL
(BEV805)	OX	AMES 3.5-195	1-28	01+11	BODY	SIDEWALL

ALPHA BET RNL

.000	.000	1.000
-26.000	.000	1.000
-60.000	.000	1.000
-90.000	.000	1.000
-120.000	.000	1.000



RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

ALPHA BETA RM/L  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.300  
 -90.000 .000 1.000  
 -120.000 .000 1.000

CONFIGURATION DESCRIPTION  
 AMES 3.5-195 I-28 CI+TI BODY SIDE WALL  
 AMES 3.5-195 I-28 CI+TI BODY SIDE WALL  
 AMES 3.5-195 I-28 CI+TI BODY SIDE WALL  
 AMES 3.5-195 I-28 CI+TI BODY SIDE WALL  
 AMES 3.5-195 I-28 CI+TI BODY SIDE WALL

DATA SET SYMBOL  
 1000  
 1000  
 1000  
 1000  
 1000

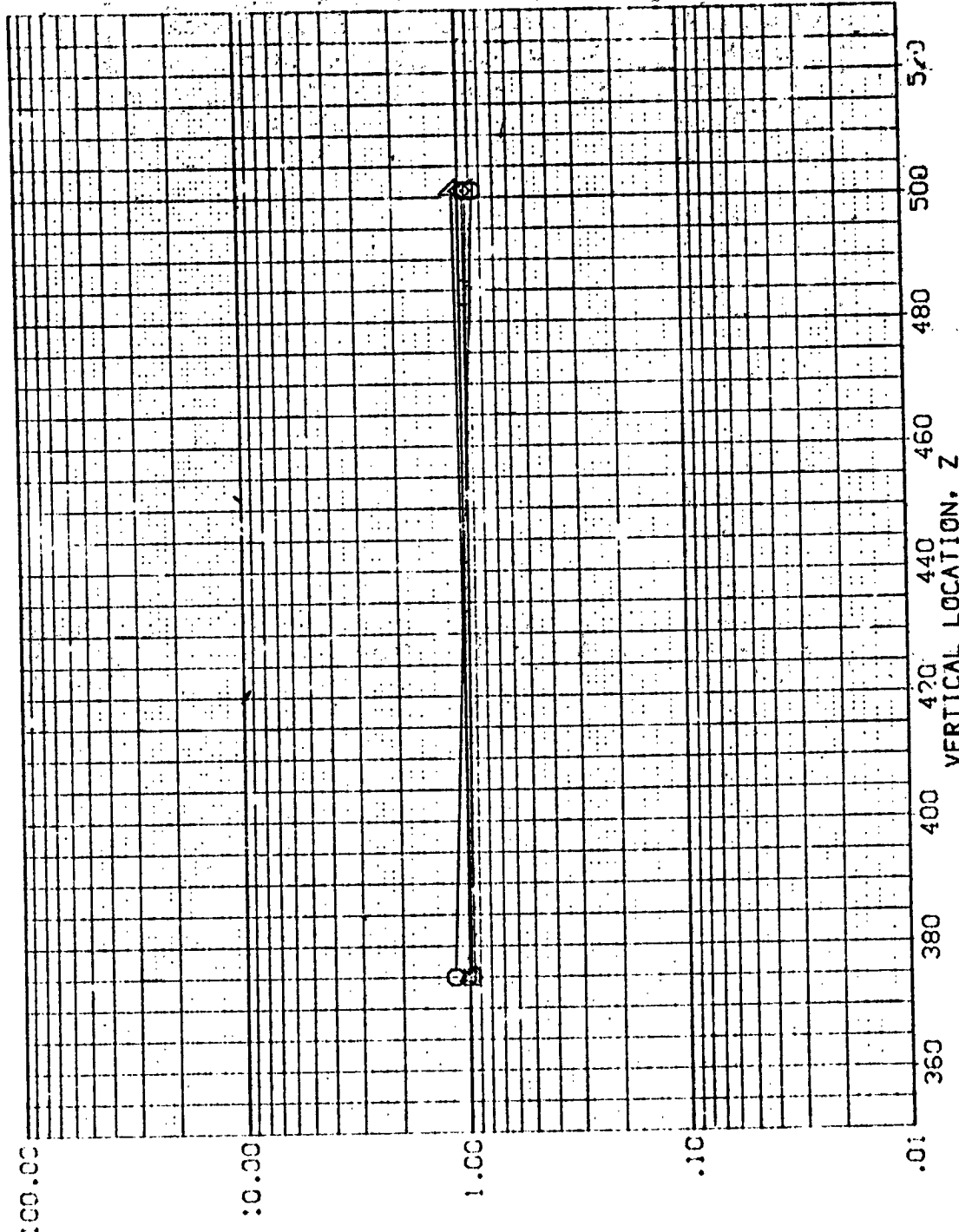


FIG. 12 ORBITER BODY SIDEWALL, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU  
 HAW/HT = 5.300 X/L = .900 X/L = .700  
 PAGE 690

AMES 3.5-195 1H28 01 CMS PODS

(REVC19)

SYMBOL    HAWAHT    X/L    MACH  
◇        .850    .825    5.229  
□        .900  
◇        1.000

PARAMETRIC VALUES  
ALPHA    .000    BETA    .000  
RN/L    1.000

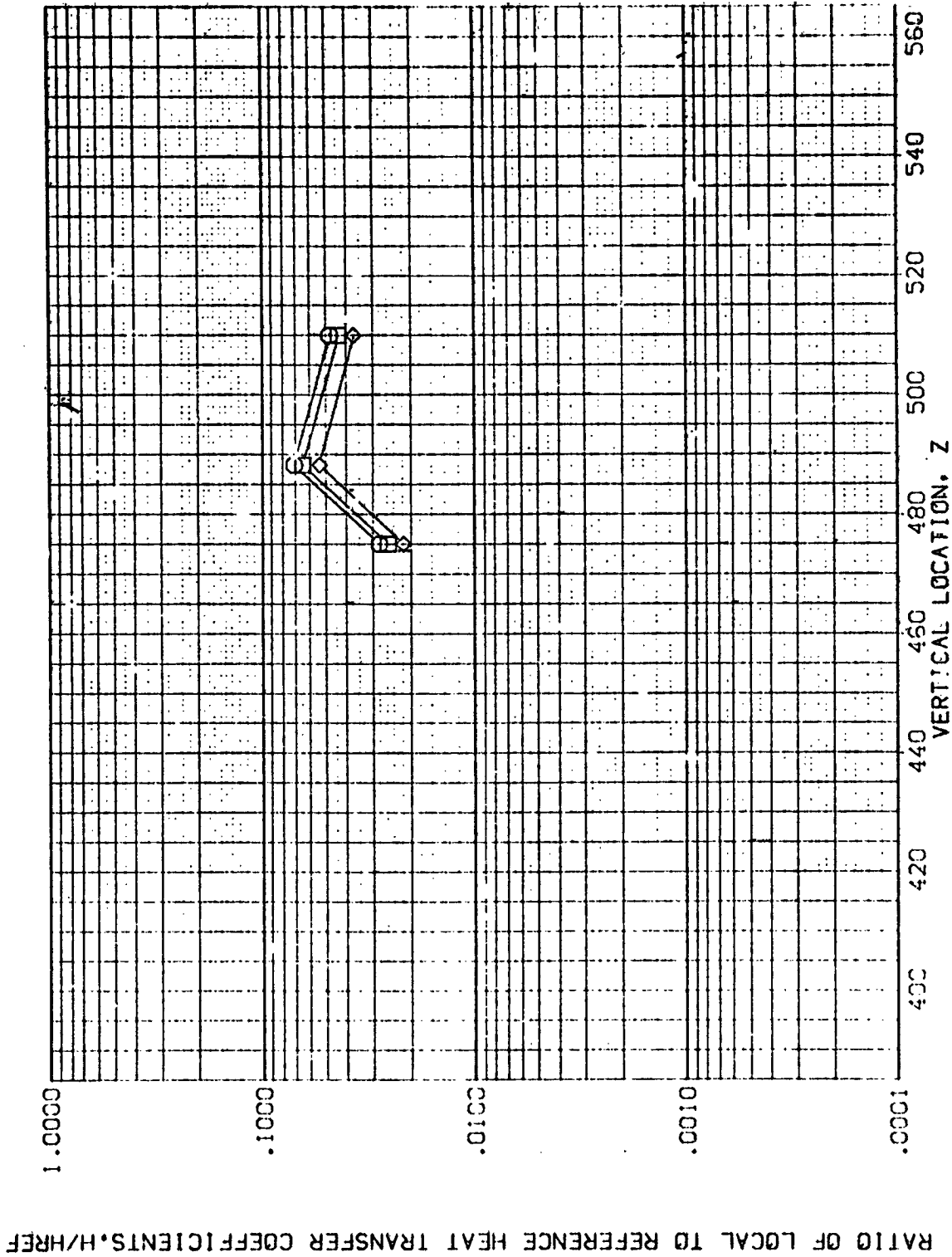


FIG. 13 CMS PODS, ORBITER ALONE



AMES 3.5-195 IH28 01 OMS PODS

(REVC19)

SYMBOL HA/W-T X/L MACH  
 ◇ .853 .900 5.220  
 .900  
 1.000

PARAMETRIC VALUES  
 ALPHA .000 BETA .000  
 RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

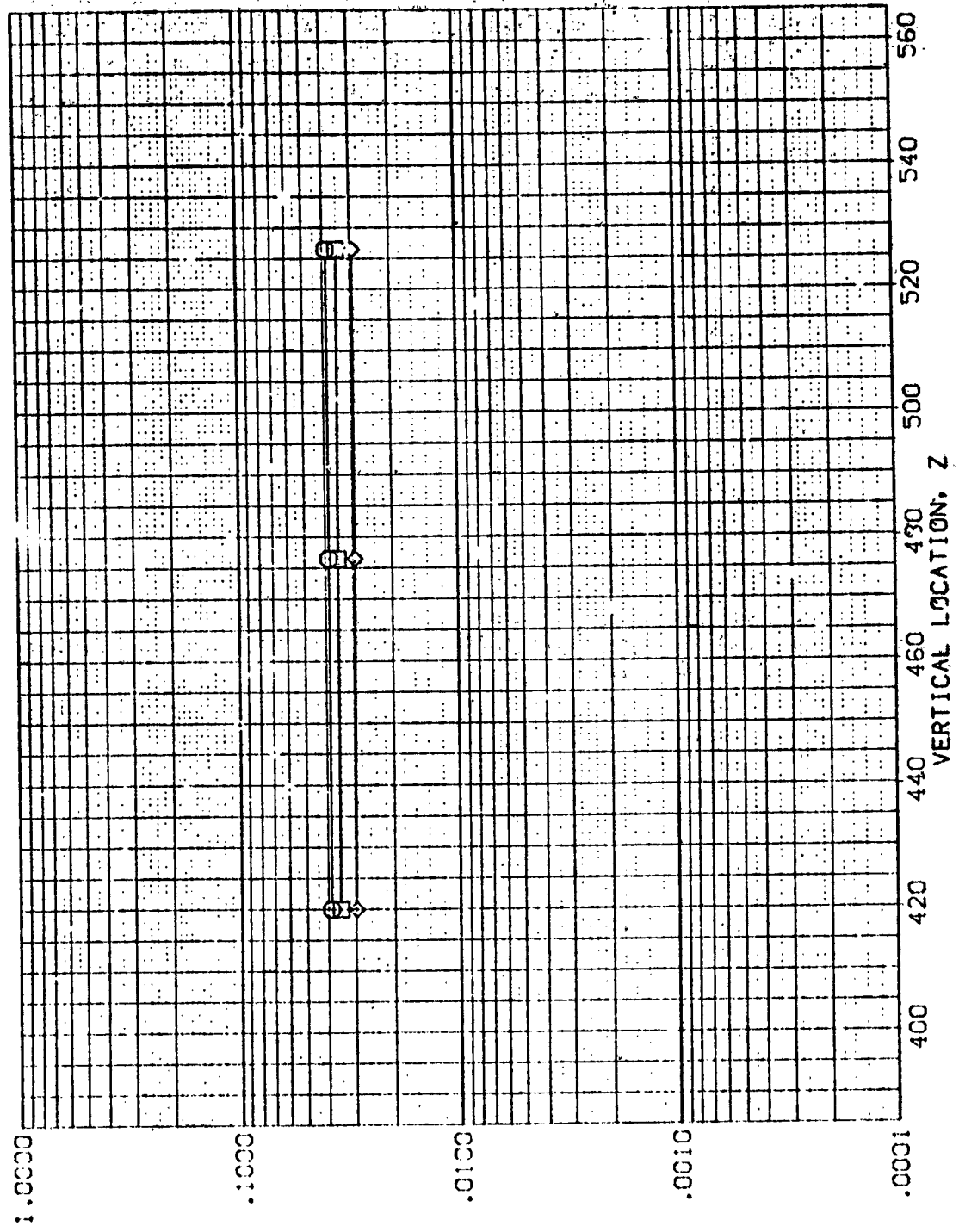


FIG. 13 OMS PODS, ORBITER ALONE

AMES 3.5-195 IH28 01 OMS PODS

(REVC20)

SYMBOL HEIGHT X/L MACH  
□ .950  
○ .900  
◇ 1.000

PARAMETRIC VALUES  
ALPHA 30.000  
RN/L 1.000  
BETA .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

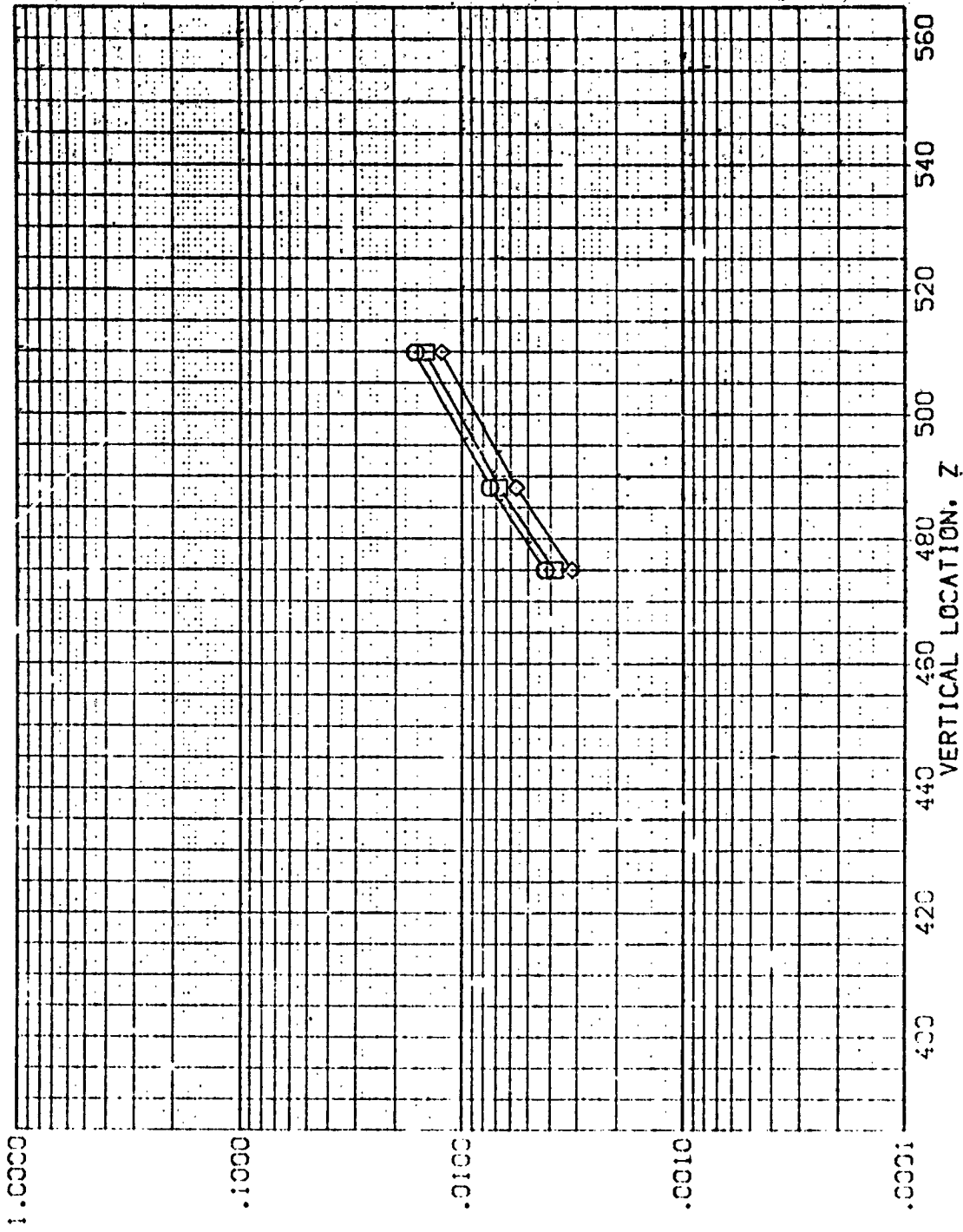


FIG. 13 OMS PODS, ORBITER ALONE

(REVC20)

AMES 3.5-195 IH28 01 QMS PODS

PARAMETRIC VALUES

ALPHA 30.000 BETA .000  
RN/L 1.000

MACH 5.219

X/L .900

HAW/HT .650

SYMBOL

◇ □

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

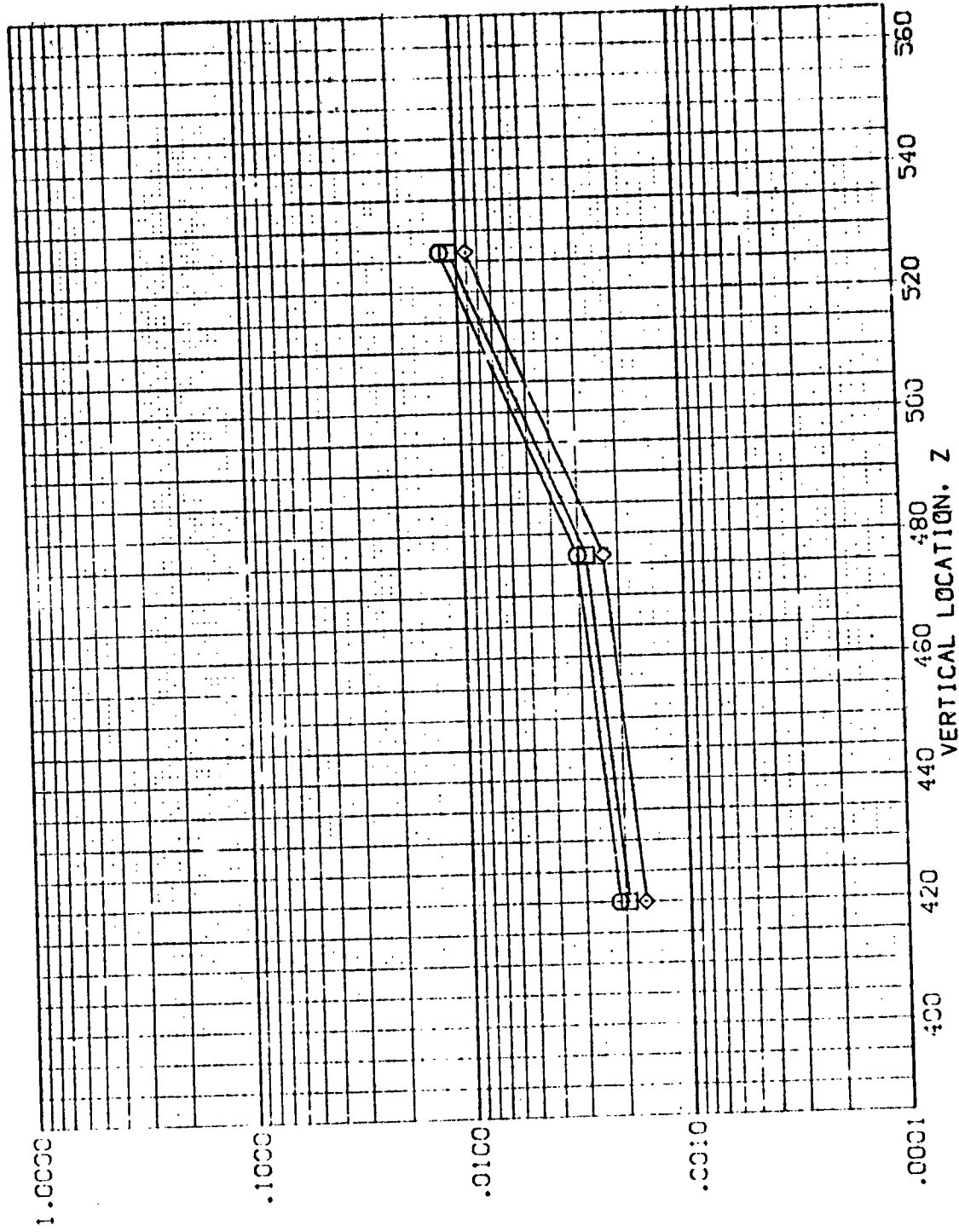


FIG. 13 QMS PODS, ORBITER ALONE

(REVC211)

AMES 3.5-195 IH28 01 OMS PODS

PARAMETRIC VALUES

C=.000 BETA .000  
ALPHA R/V/L 1.000

MAV/HT X/L V/ACH

.850 .825 5.220

.900  
1.000

SYMBOL  $\square$   $\square$   $\diamond$

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

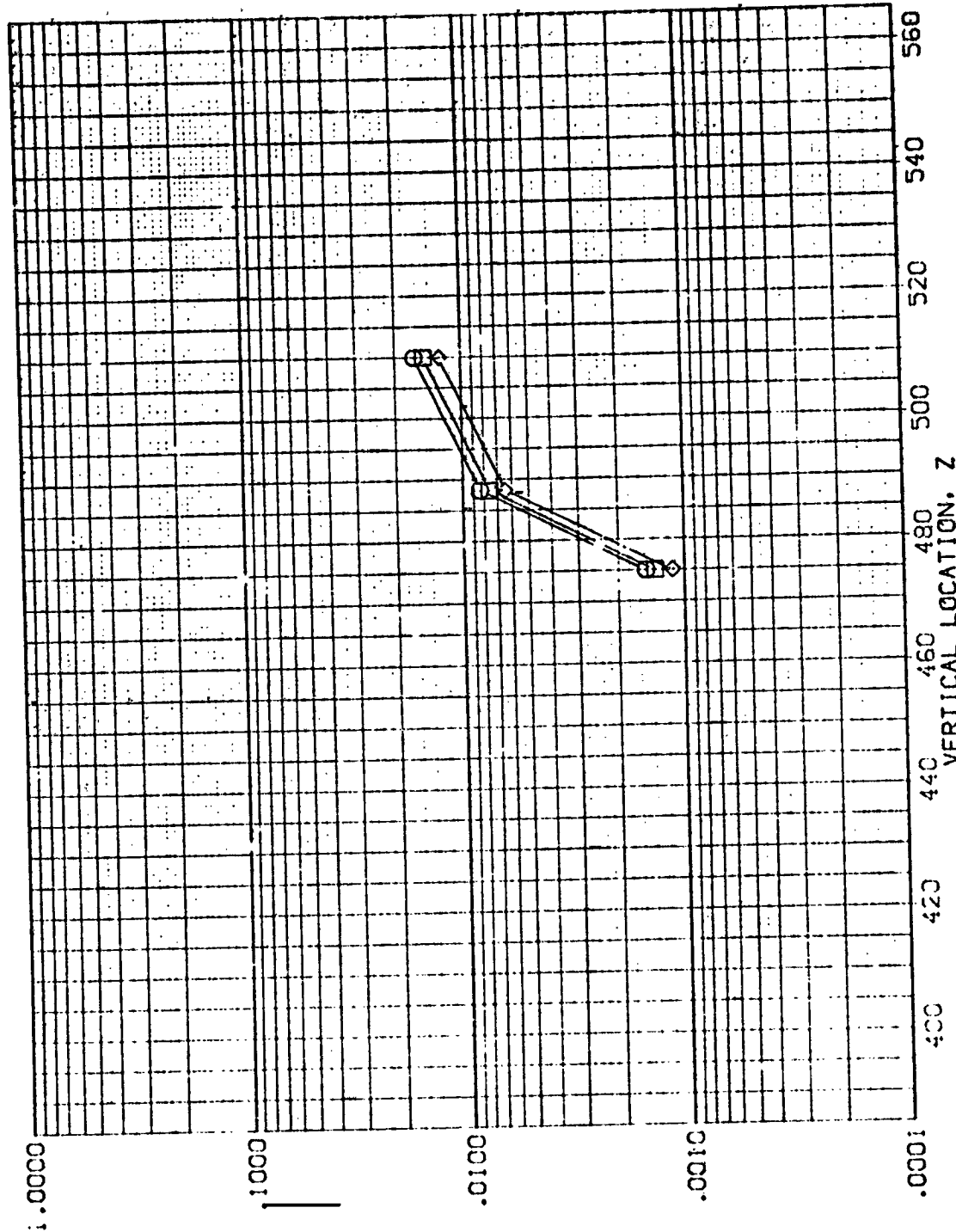


FIG. 13 OMS PODS, ORBITER ALONE

AMES 3.5-195 1H28 01 OMS P00S

(REVC21)

SYMBOL	PARAMETER	M/L	MACH
◇	ALPHA	.800	5.220
◇	RNVL	.900	
◇	BETA	1.000	

PARAMETER	VALUES
ALPHA	60.000
RNVL	1.000
BETA	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

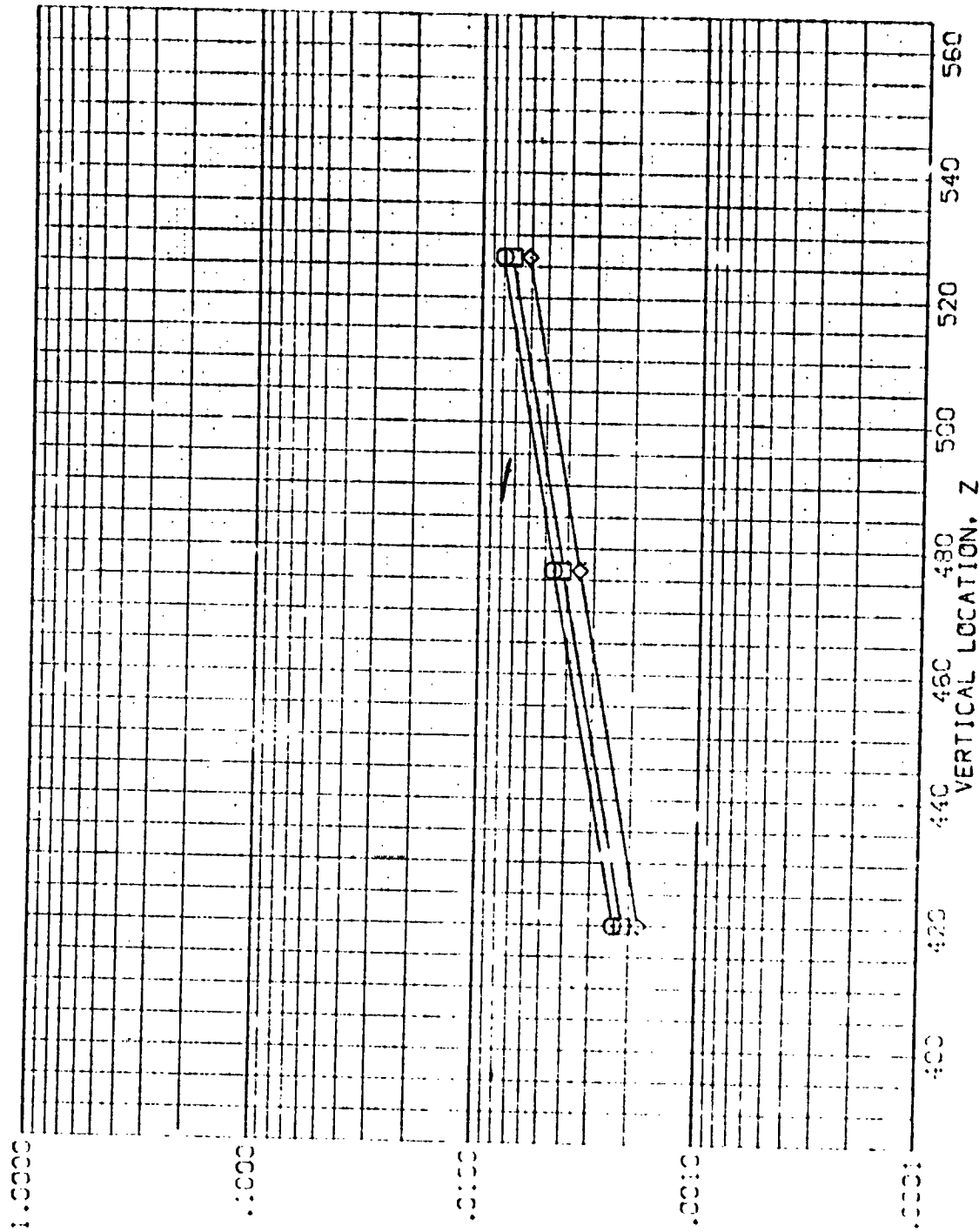


FIG. 13 OMS P00S, ORBITER ALONE

AMES 3.5-195 IH28 01 CMS PODS

(REVC22)

PARAMETRIC VALUES	
ALPHA	90.000
BETA	1.000
RV/L	.000

SYMBOL	HA/W/L	X/L	MACH
◇	.850	.825	5.220
□	.900		
○	1.000		

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

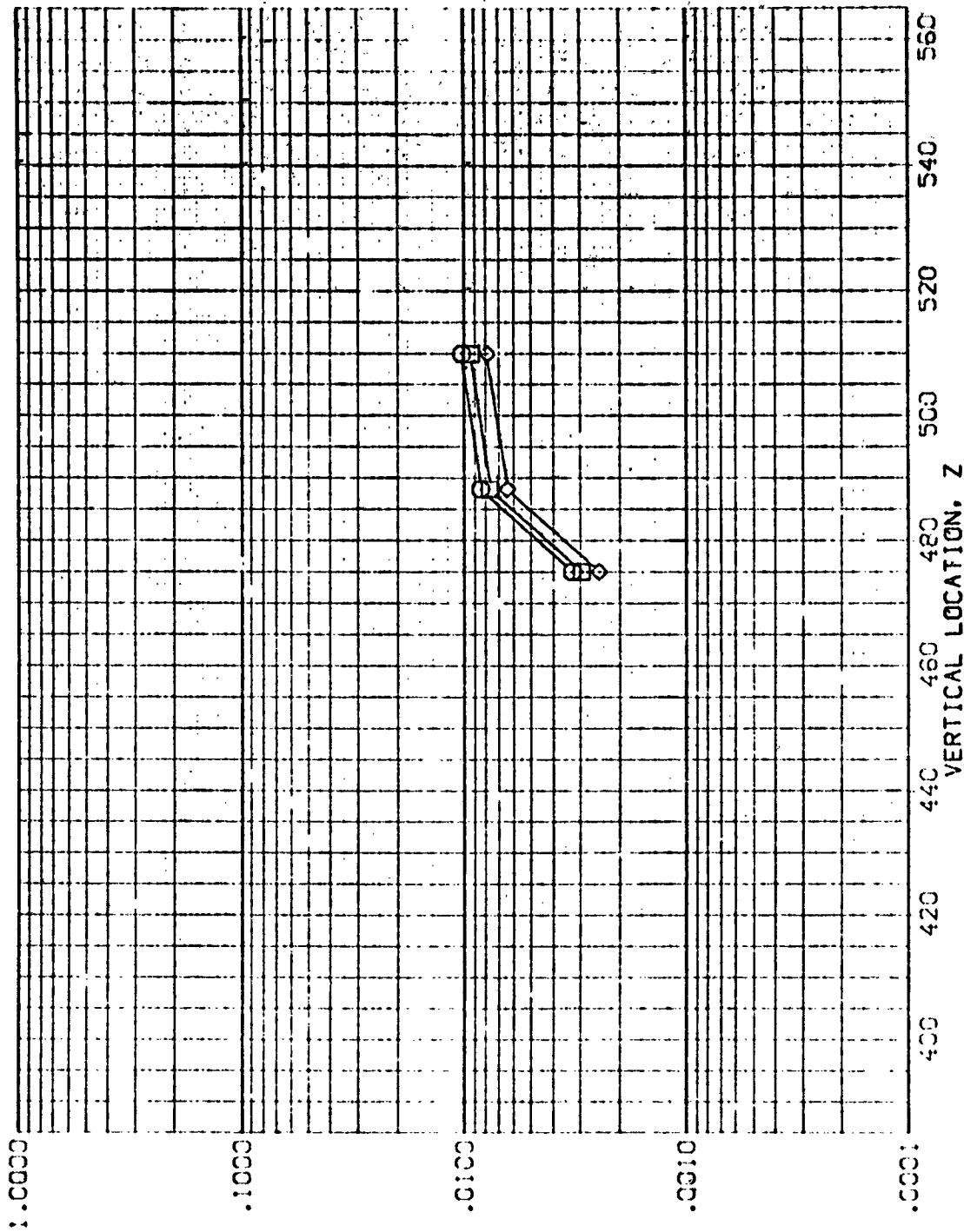


FIG. 13 CMS PODS, ORBITER ALONE

AMES 3.5-195 I-28 G1 OMS PODS

(REV C22)

SYSEL	HAWAII	V/L	WACH
0170	.850	.900	5.220
	.900		
	1.000		

PARAMETRIC VALUES		
ST.000	BETA	.000
1.000		

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

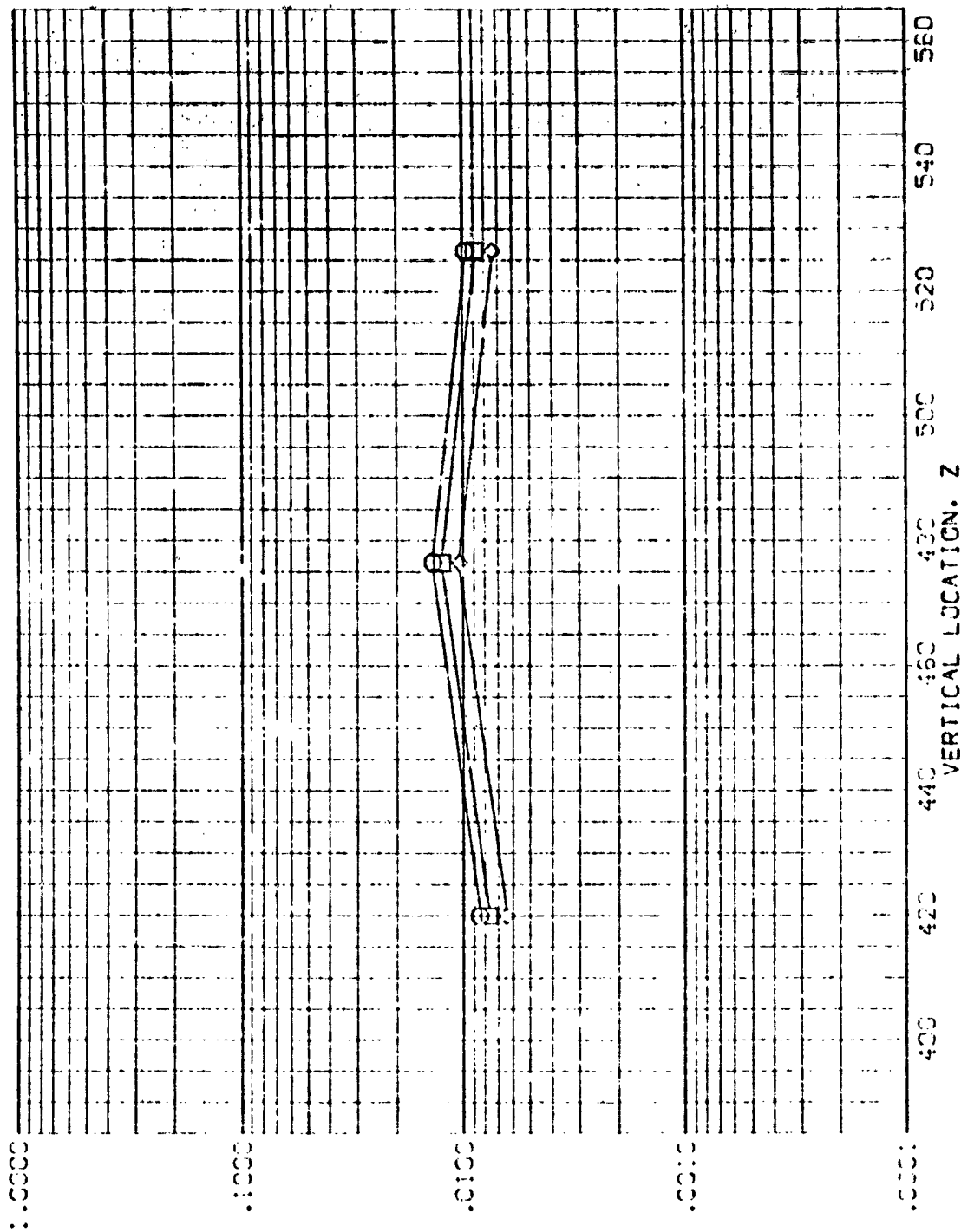


FIG. 13 OMS PODS, ORBITER ALONE



AVES 3.5-195 1H28 01 OMS PODS

(REVC23)

PARAMETRIC VALUES  
ALPHA 120.000 BETA .000  
R1:1 1.000

SYMBOL H/W/HT V/L WACH  
◇ .850 .500 5.220  
○ .900  
◇ 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

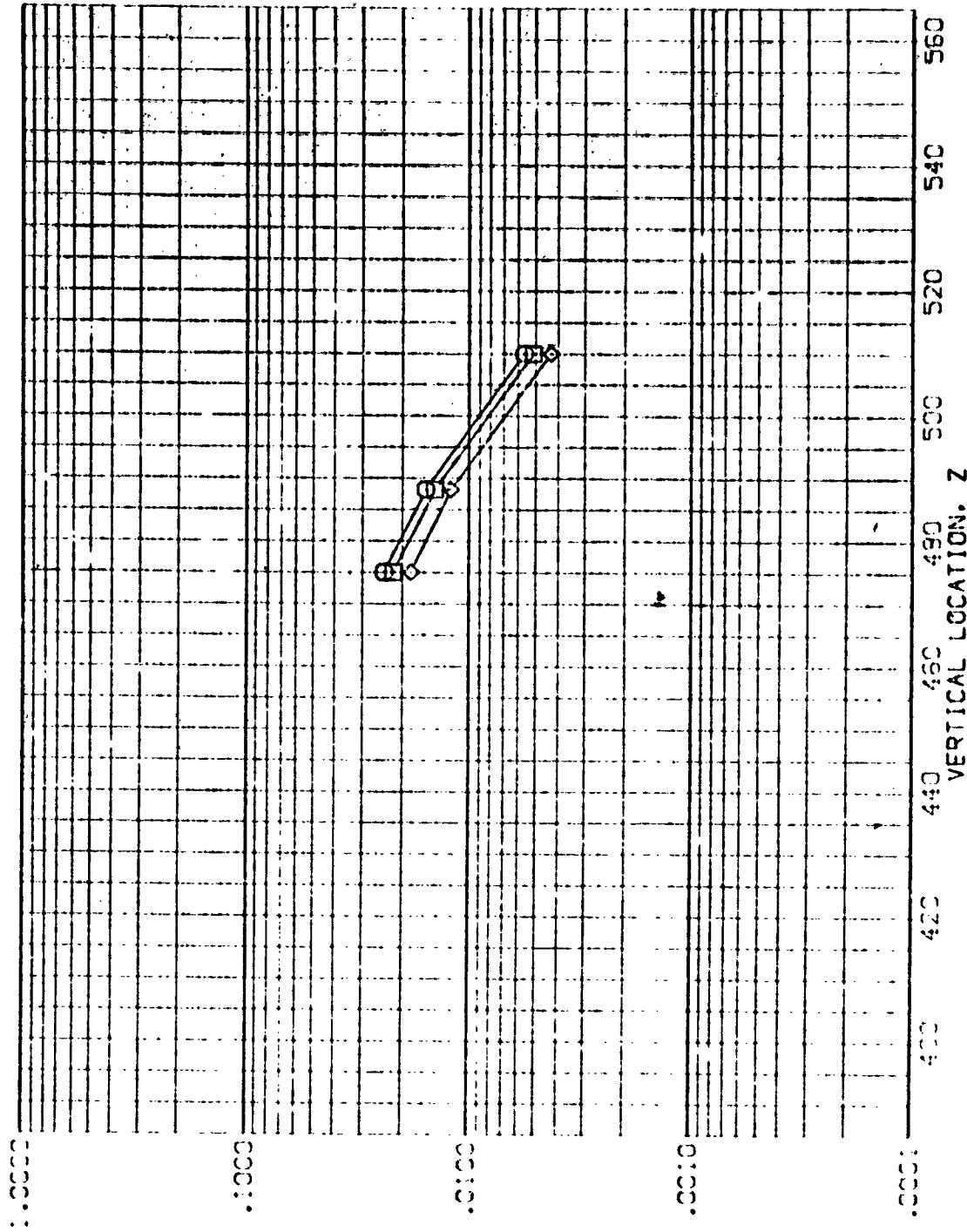


FIG. 13 OMS PODS, ORBITER ALONE



(PRE.0200)  
 ALPHA : 0.0000  
 BETA : 0.0000  
 R1 : 0.0000

CASE 3.5-105 PAGE 01 CMS PODS  
 MACH : 0.0000  
 S1200 : 0.0000

0.0000  
 0.0000  
 0.0000  
 0.0000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/REF

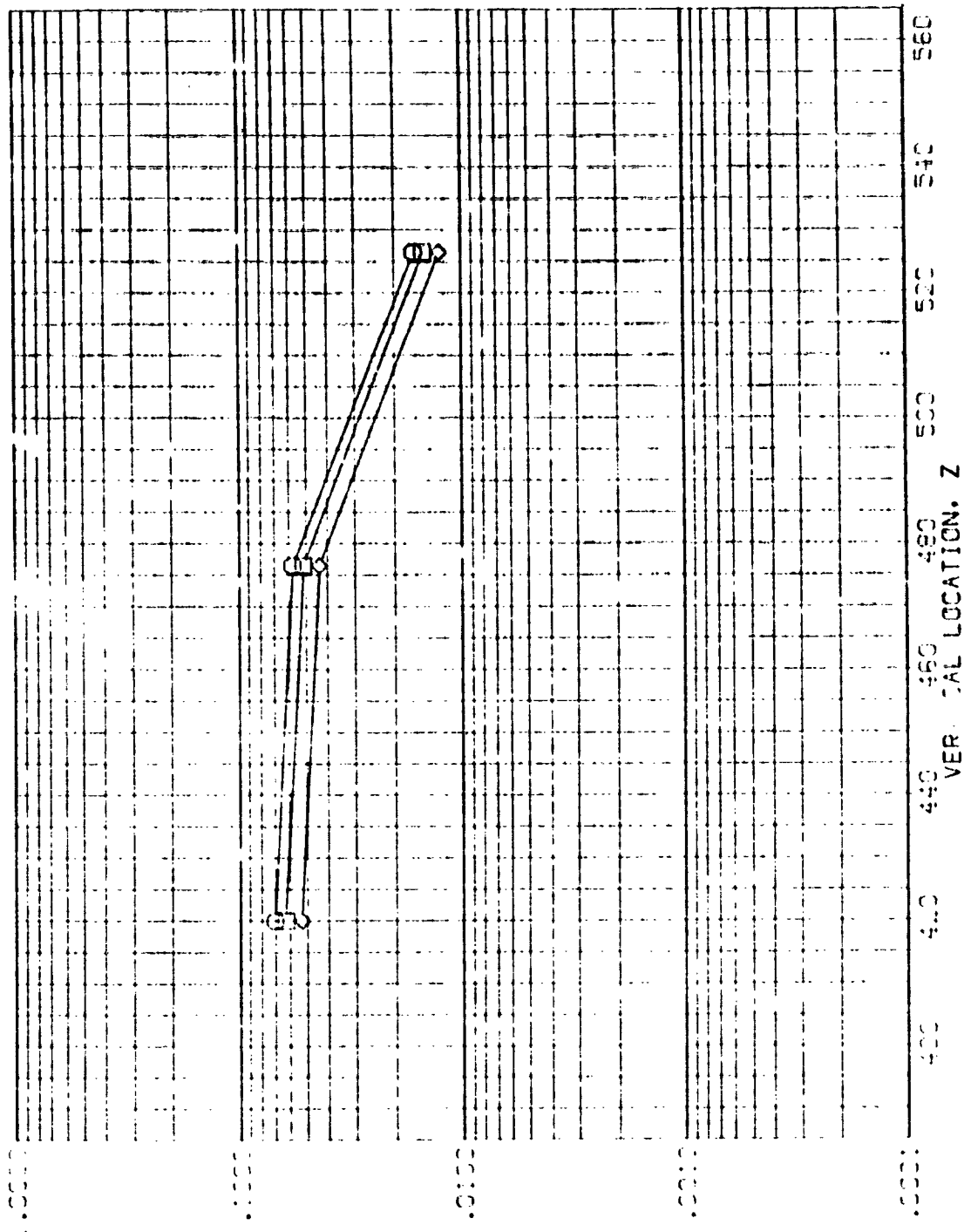


FIG. 13 CMS PODS, ORBITER ALONE

AVES 3.5-195 IH28 C: OMS PODS

(REVC24)

PARAMETRIC VALUES  
 ALPHA -120.000 BETA .000  
 SV/L 1.000

SEVER. MAX/MIN V/L MAG. MAG.  
 .850 .800 5.020  
 .900 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

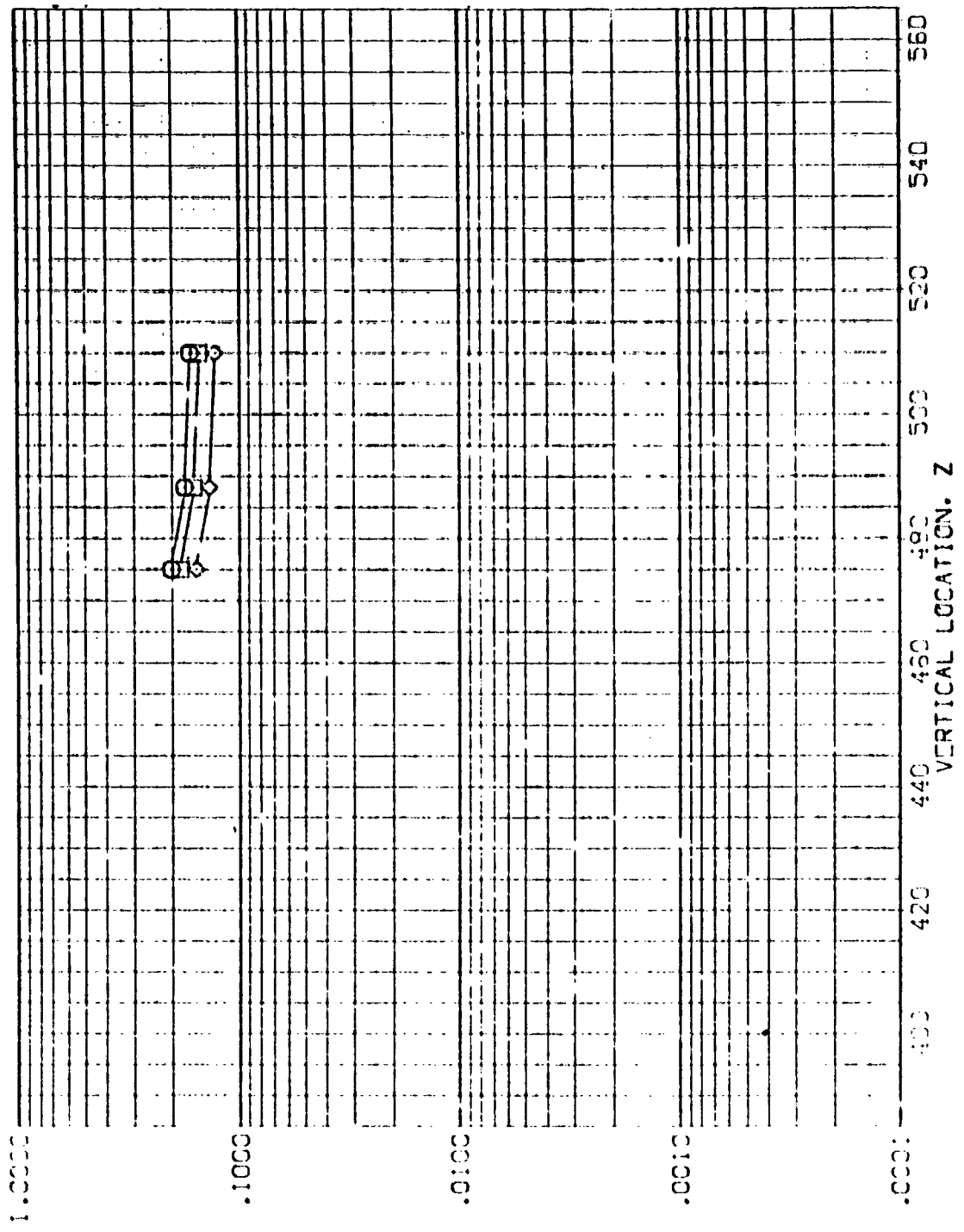


FIG. 17 OMS PODS, ORBITER ALONE

REV C24)

AMES 3.5-195 IH28 01 OMS PODS

SYSEC  
HA# / HT  
.85C  
.900  
1.000

X/L  
.900  
MACH  
5.220

PARAMETRIC VALUES  
ALPHA  
RNL  
-120.000  
1.000  
BETA  
.000

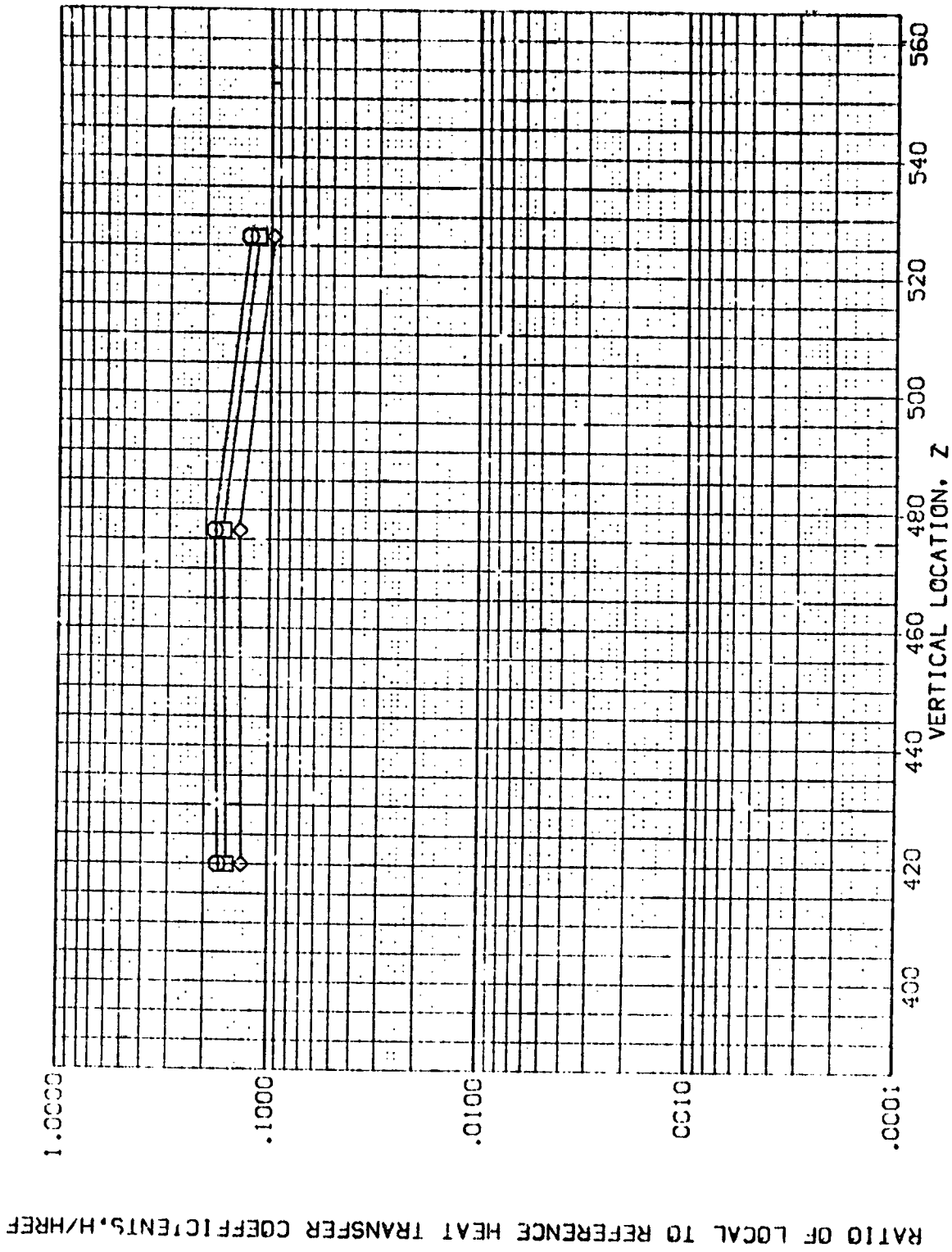


FIG. 13 OMS PODS, ORBITER ALONE

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AMES 3.5-195 IH28 01 OMS PODS

(REVC25)

SYMBOL

HAW/HT  
 .850  
 .900  
 1.000

X/L  
 .825

MACH  
 5.219

ALPHA  
 RN/L

PARAMETRIC VALUES  
 .000000 BETA  
 1.000000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

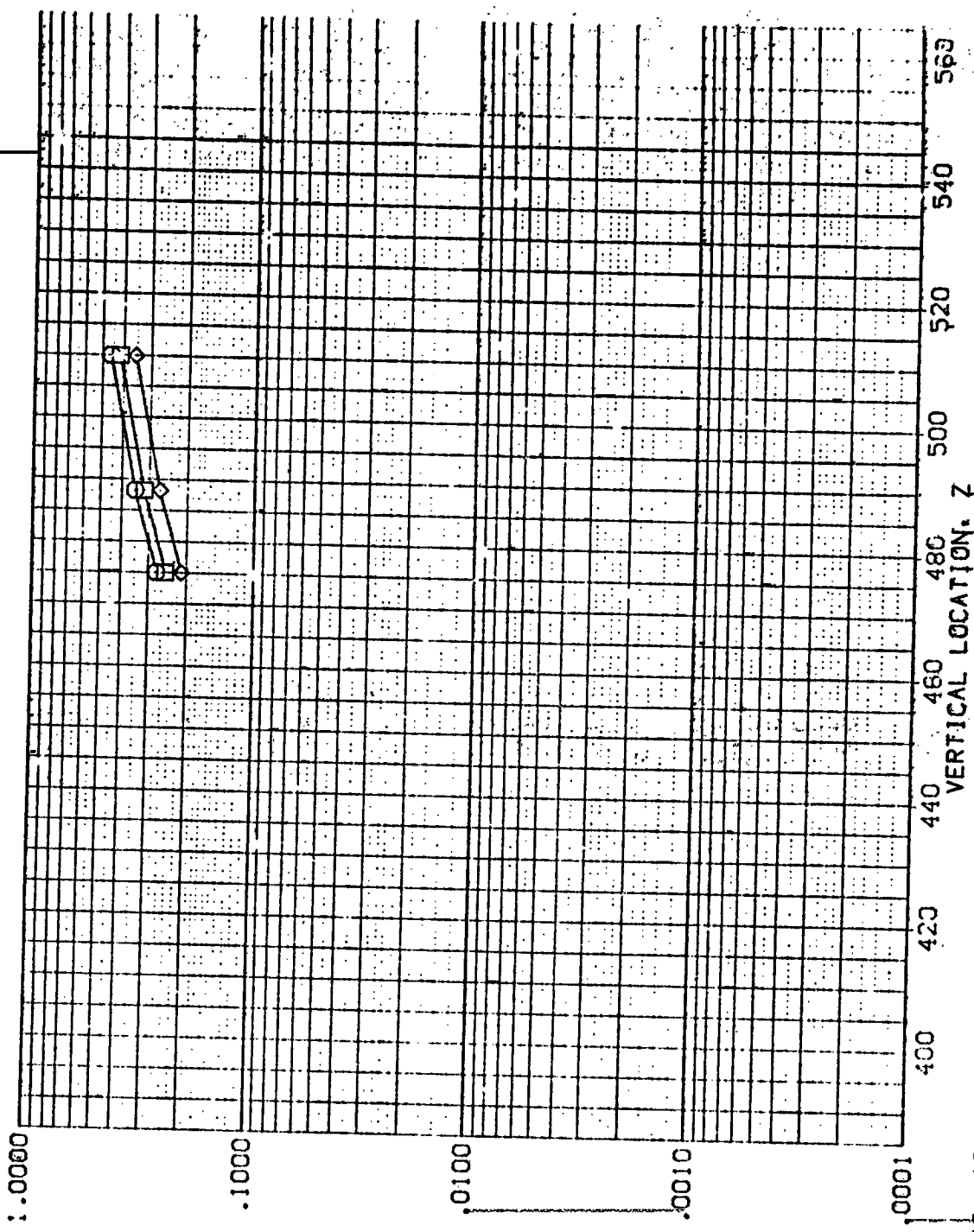


FIG. 13 OMS PODS, ORBITER ALONE

AMES 3.5-195 IH28 01 OMS PODS

(REVC25)

SYMBOL HAWAHT X/L MACH  
 □ .850 .570 5.219  
 ○ .900  
 ◇ 1.000

PARAMETRIC VALUES  
 ALPHA -90.000  
 BETA 1.000  
 RN/L .000

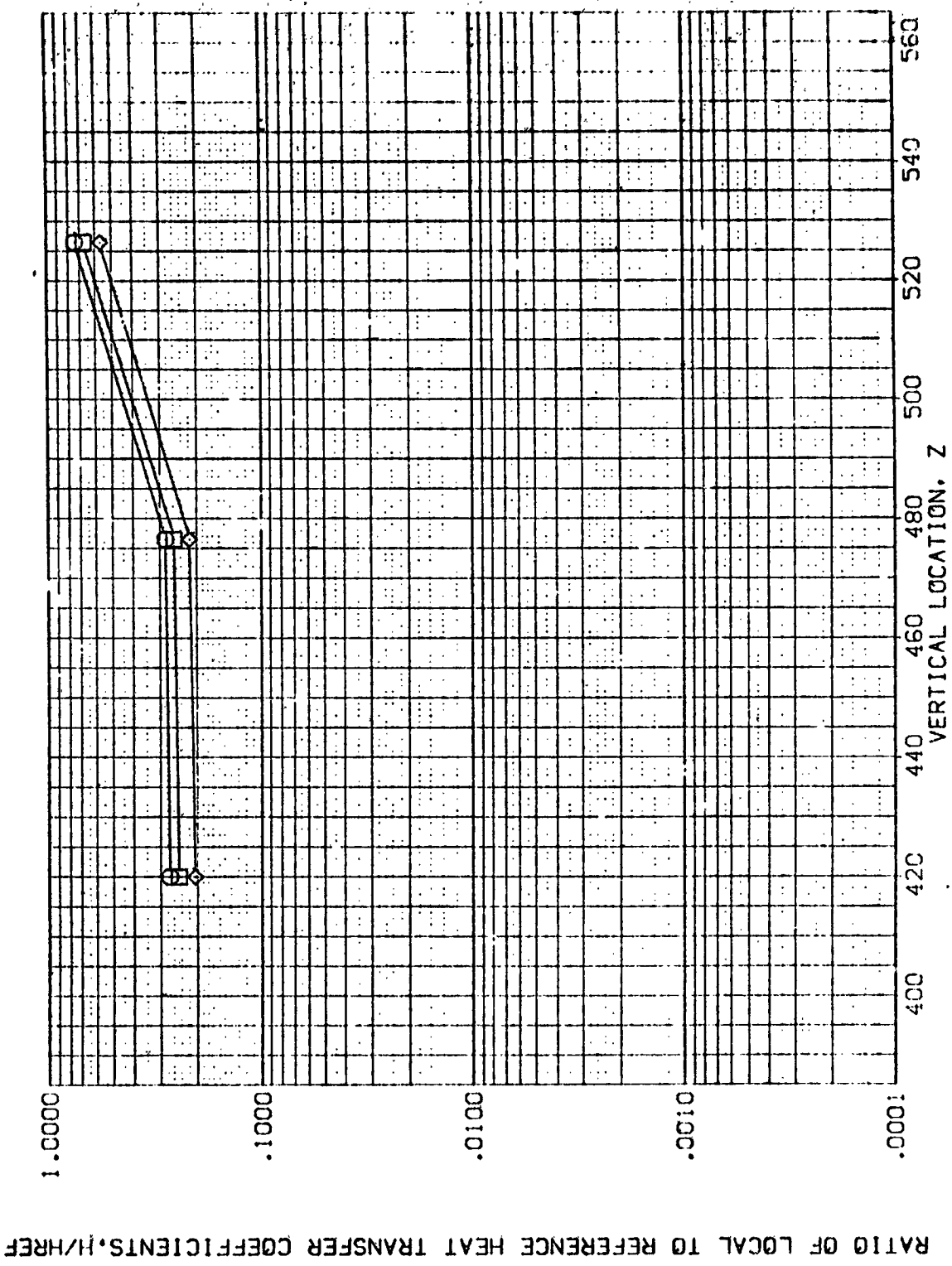


FIG. 13 OMS PODS, ORBITER ALONE

AMES 3.5-195 IH28 01 OMS PODS

(REVC26)

SYMBOL	HA/HT	X/L	MACH
◇	.850	.825	5.220
□	.900		
◇	1.000		

PARAMETRIC VALUES	
ALPHA	BETA
RN/L	1.000
	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

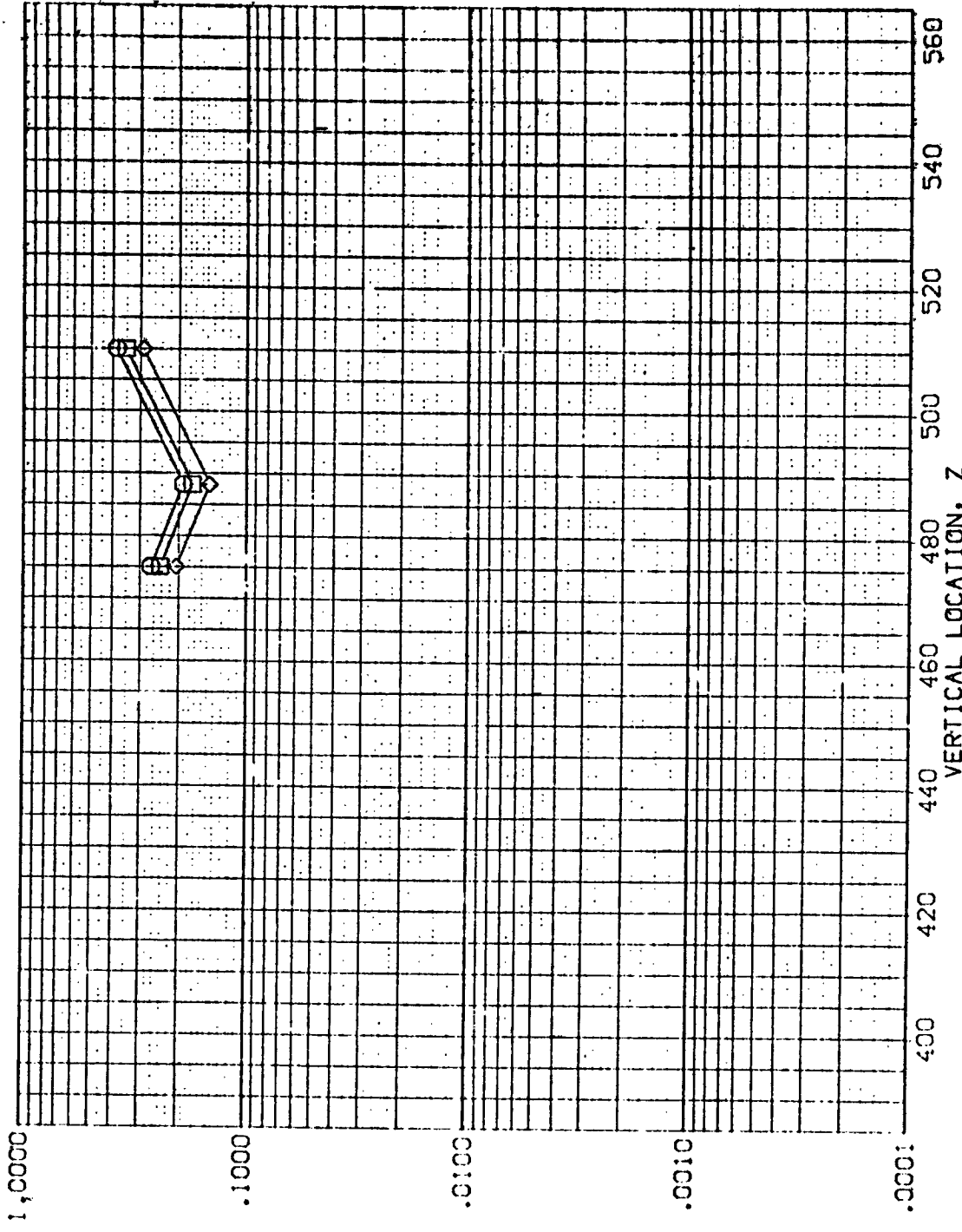


FIG. 13 OMS PODS, ORBITER ALONE

AMES 3.5-195 IH28 01 OMS PODS

(REVC26)

SYMBOL	MAN/HT	X/L	MACH
◇	.850	.900	5.220
□	.900		
◇	1.000		

PARAMETRIC VALUES	BETA	.000
ALPHA	RN/L	1.000

PARAMETRIC VALUES	BETA	.000
ALPHA	RN/L	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

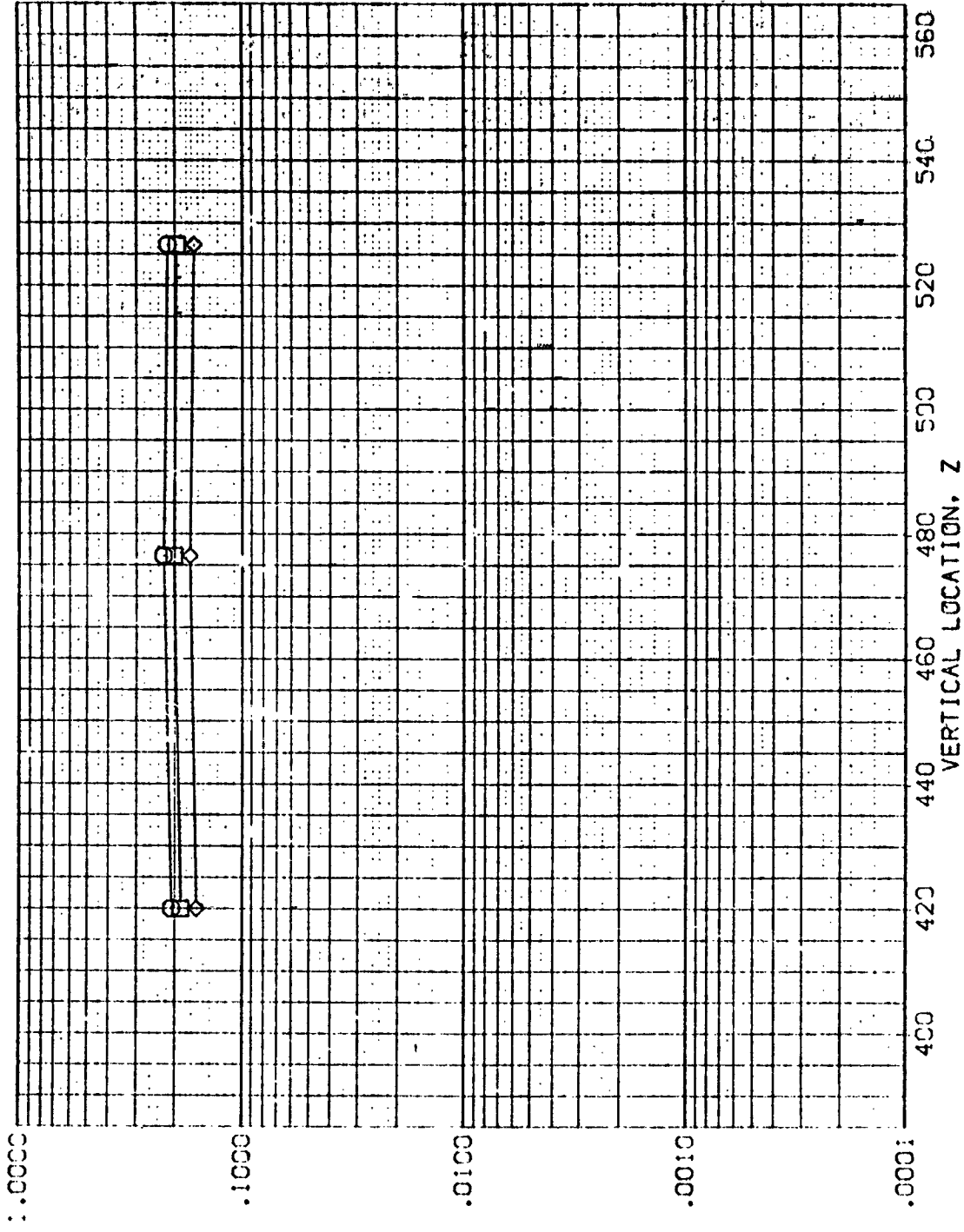


FIG. 13 OMS PODS, ORBITER ALONE

AMES 3.5-195 IH28 G1 CMS PODS

(REVC27)

PARAMETRIC VALUES  
ALPHA -30.000 BETA .000  
R<sub>x</sub>/L 1.000

SYMBOL MAW/HT X/L MACH  
□ .850 .825 5.220  
◇ .900 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

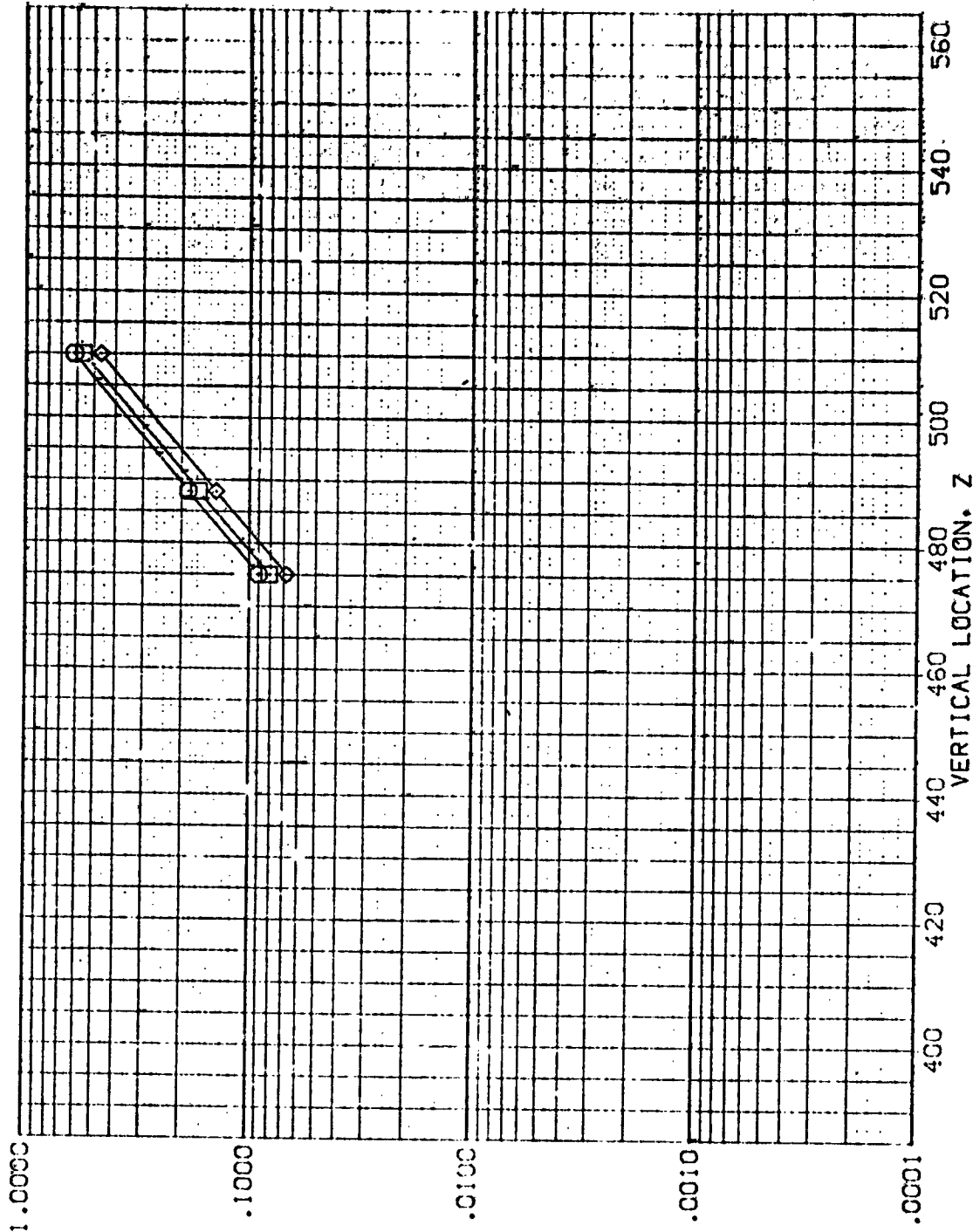


FIG. 13 CMS PODS, ORBITER ALONE



AMES 3.5-195 IH28 01 OMS PODS

(REVC27)

PARAMETRIC VALUES  
ALPHA  $\beta$  .000  
RN/L 1.000

SYMBOL  
MAN/HT X/L MACH  
.850 .900 5.220  
.900  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

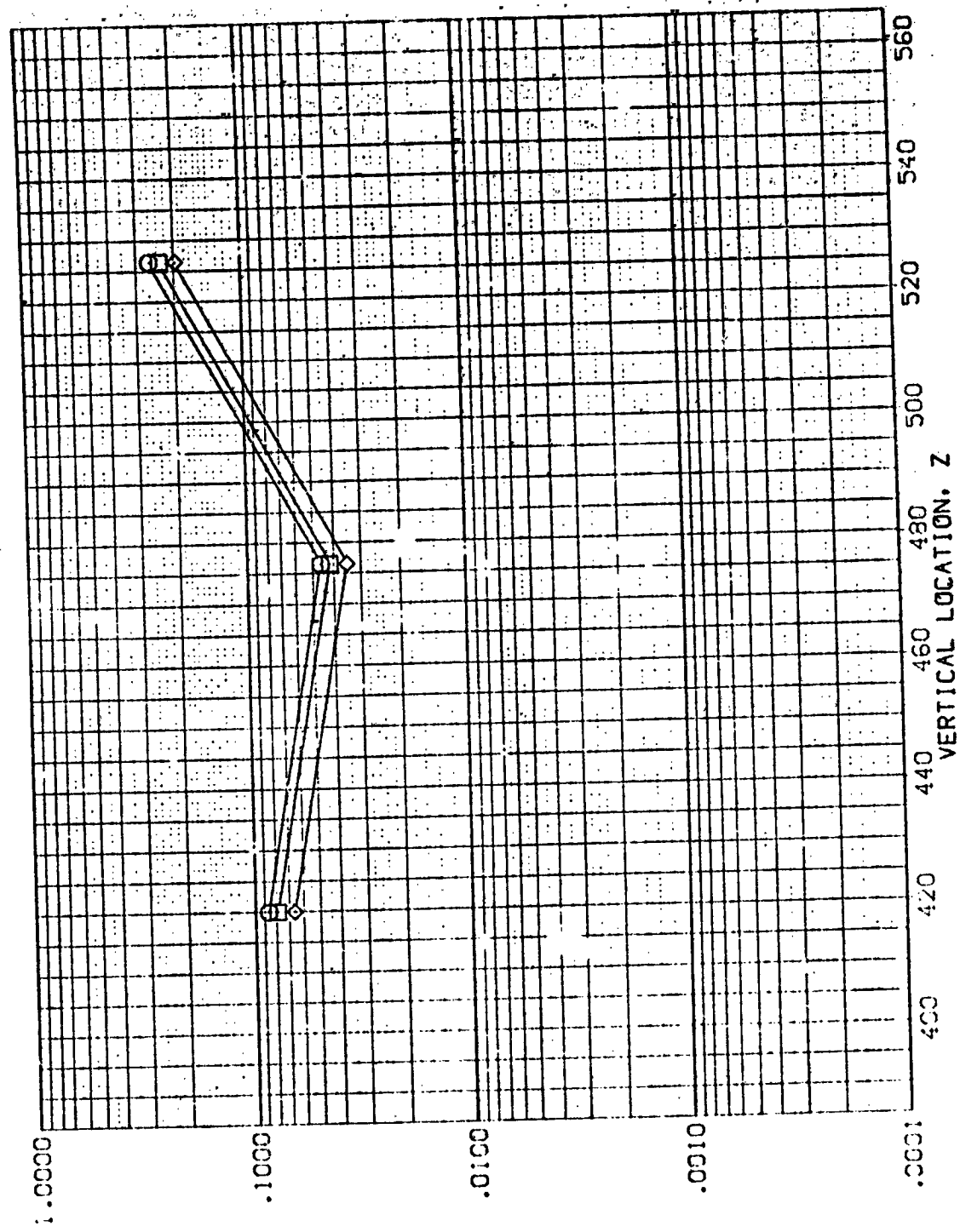


FIG. 13 OMS PODS, ORBITER ALONE

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RN/L
(REV19)	AVES 3.5-195 1128 01	.000	.000	1.000
(REV20)	CMS PCDS	30.000	.000	1.000
(REV21)	AVES 3.5-195 1128 01	60.000	.000	1.000
(REV22)	AVES 3.5-195 1128 01	90.000	.000	1.000
(REV23)	CMS PCDS	120.000	.000	1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

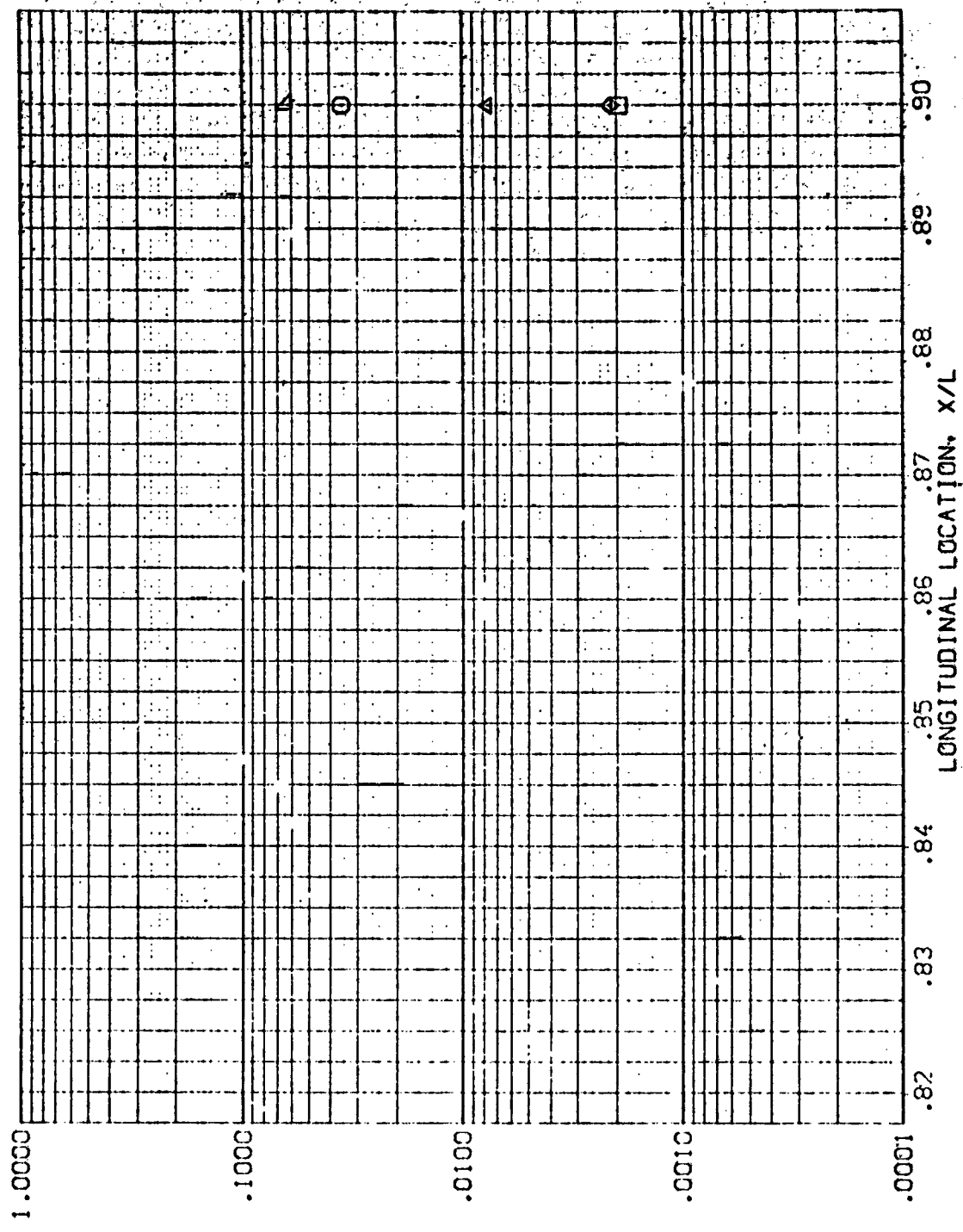


FIG. 13 CMS PCDS, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 Z = 420.000

DATA SET SYMBOL  
 (REV 191)  
 (REV 200)  
 (REV 210)  
 (REV 220)  
 (REV 230)

CONFIGURATION DESCRIPTION  
 AXES 3 5-195 1428 01 OMS PODS  
 AXES 3 2-195 1428 01 OMS PODS  
 AXES 3 3-195 1428 01 OMS PODS  
 AXES 3 5-195 1428 01 OMS PODS

ALPHA BETA  
 .000 .000  
 30.000 .000  
 60.000 .000  
 90.000 .000  
 120.000 .000

PN/L  
 1.000  
 1.000  
 1.000  
 1.000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

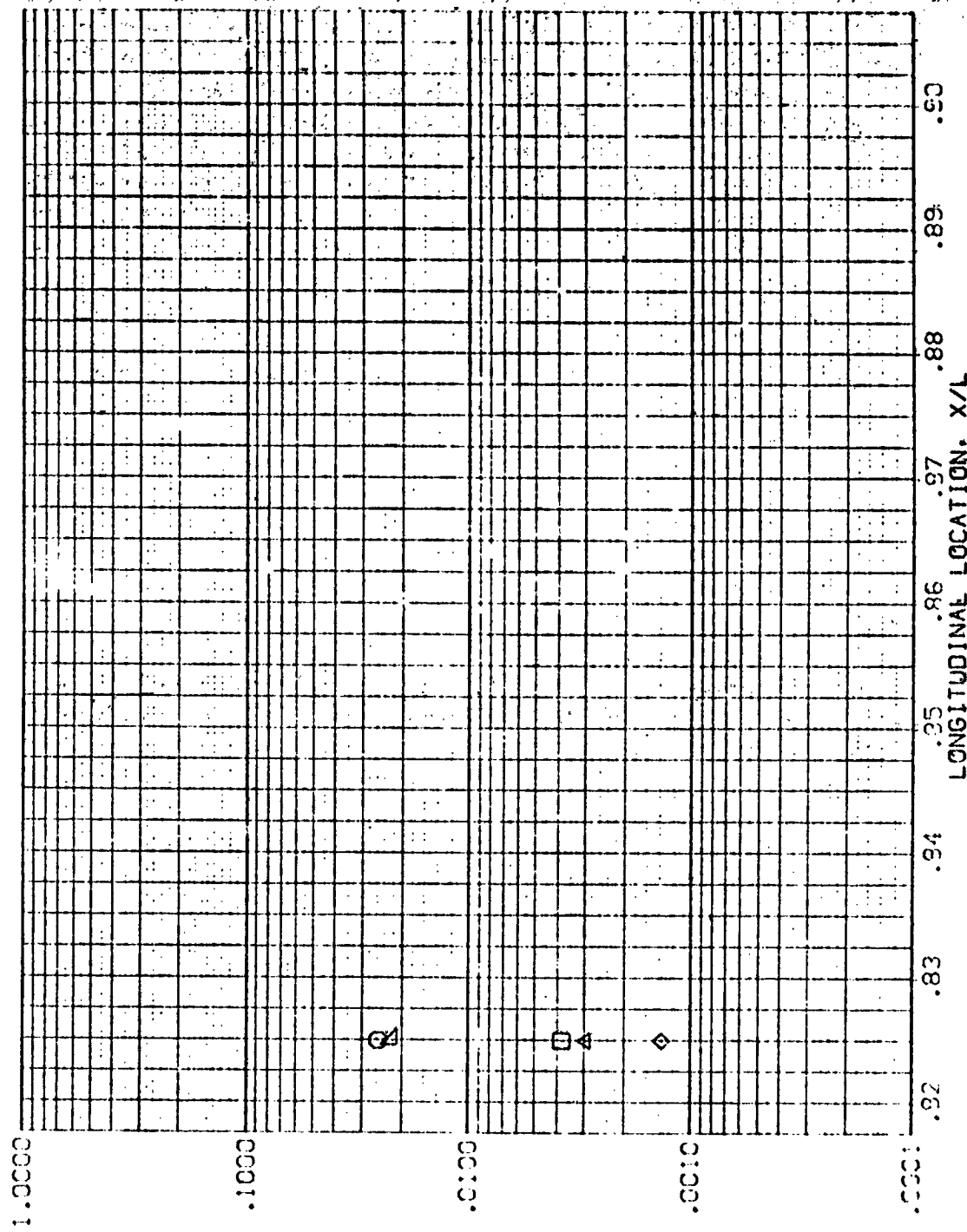
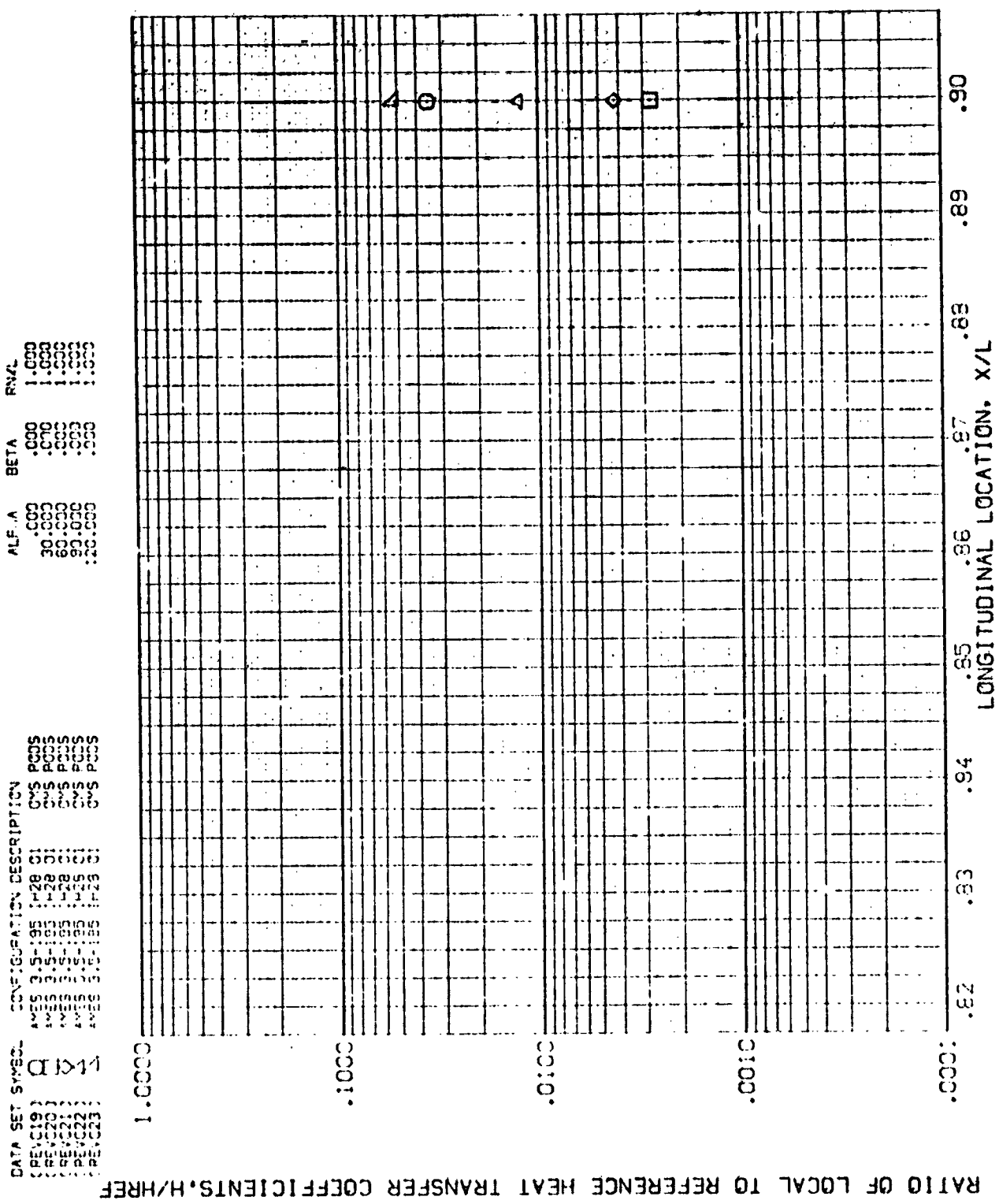


FIG. 13 OMS PODS, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 Z = 475.000



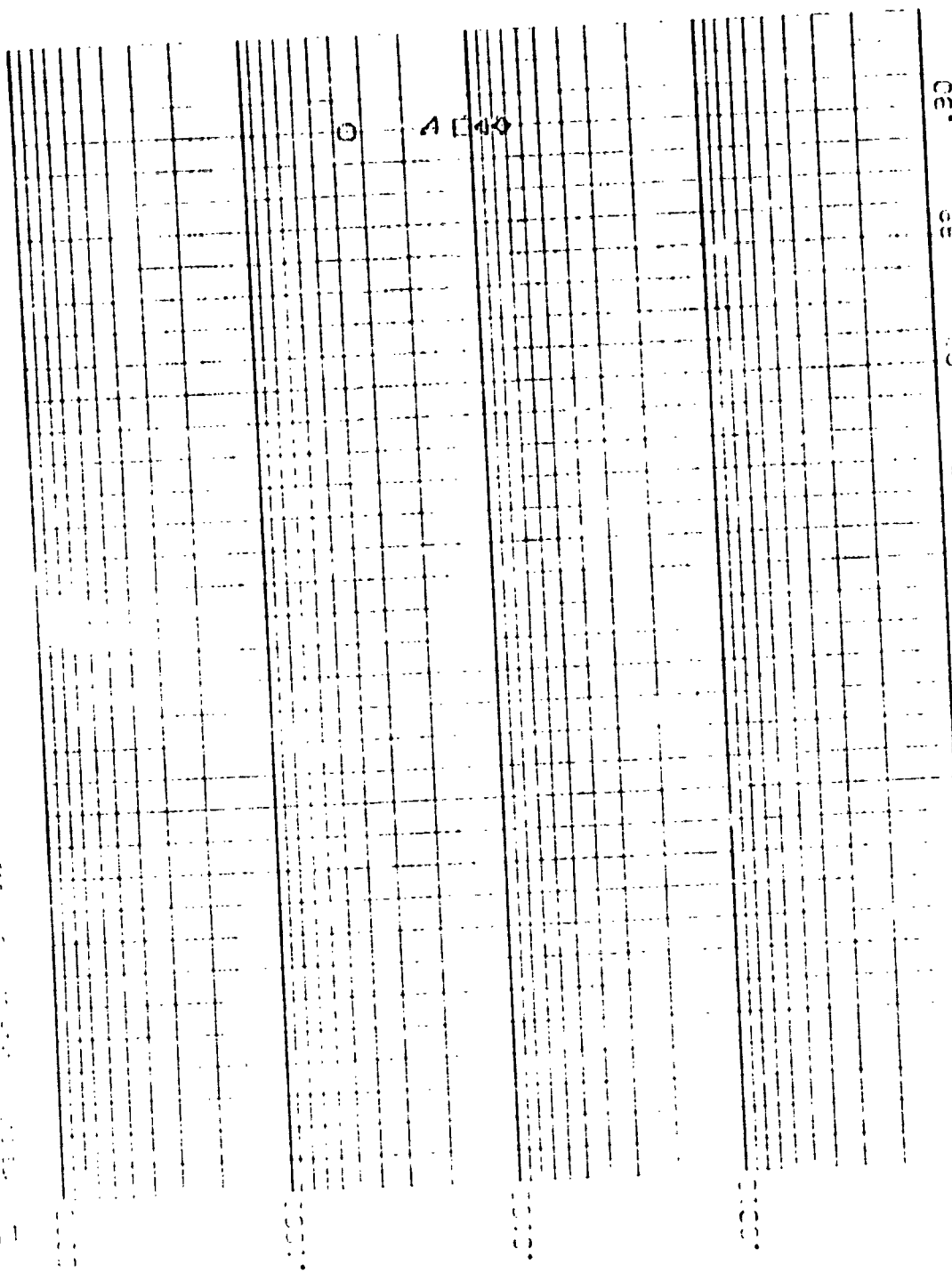
RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

FIG. 13 OMS PODS, ORBITER ALONE

MACH = 5.300 HAW/HTE = .900 Z = 476.660







PAGE 704

FIG. 13 3MS PODS. GREETER ALONE

500.000

PATD OF FOR AL TO REFERENCE GREAT TRANSFER COEFFICIENT





DATA SET NAME: COMPUTATION DESCRIPTION ALPHA BETA

001	001	.000	.000
002	002	.000	.000
003	003	.000	.000
004	004	.000	.000
005	005	.000	.000
006	006	.000	.000
007	007	.000	.000
008	008	.000	.000
009	009	.000	.000
010	010	.000	.000
011	011	.000	.000
012	012	.000	.000
013	013	.000	.000
014	014	.000	.000
015	015	.000	.000
016	016	.000	.000
017	017	.000	.000
018	018	.000	.000
019	019	.000	.000
020	020	.000	.000
021	021	.000	.000
022	022	.000	.000
023	023	.000	.000
024	024	.000	.000
025	025	.000	.000
026	026	.000	.000
027	027	.000	.000
028	028	.000	.000
029	029	.000	.000
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039	039	.000	.000
040	040	.000	.000
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043	043	.000	.000
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096	096	.000	.000
097	097	.000	.000
098	098	.000	.000
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100	100	.000	.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

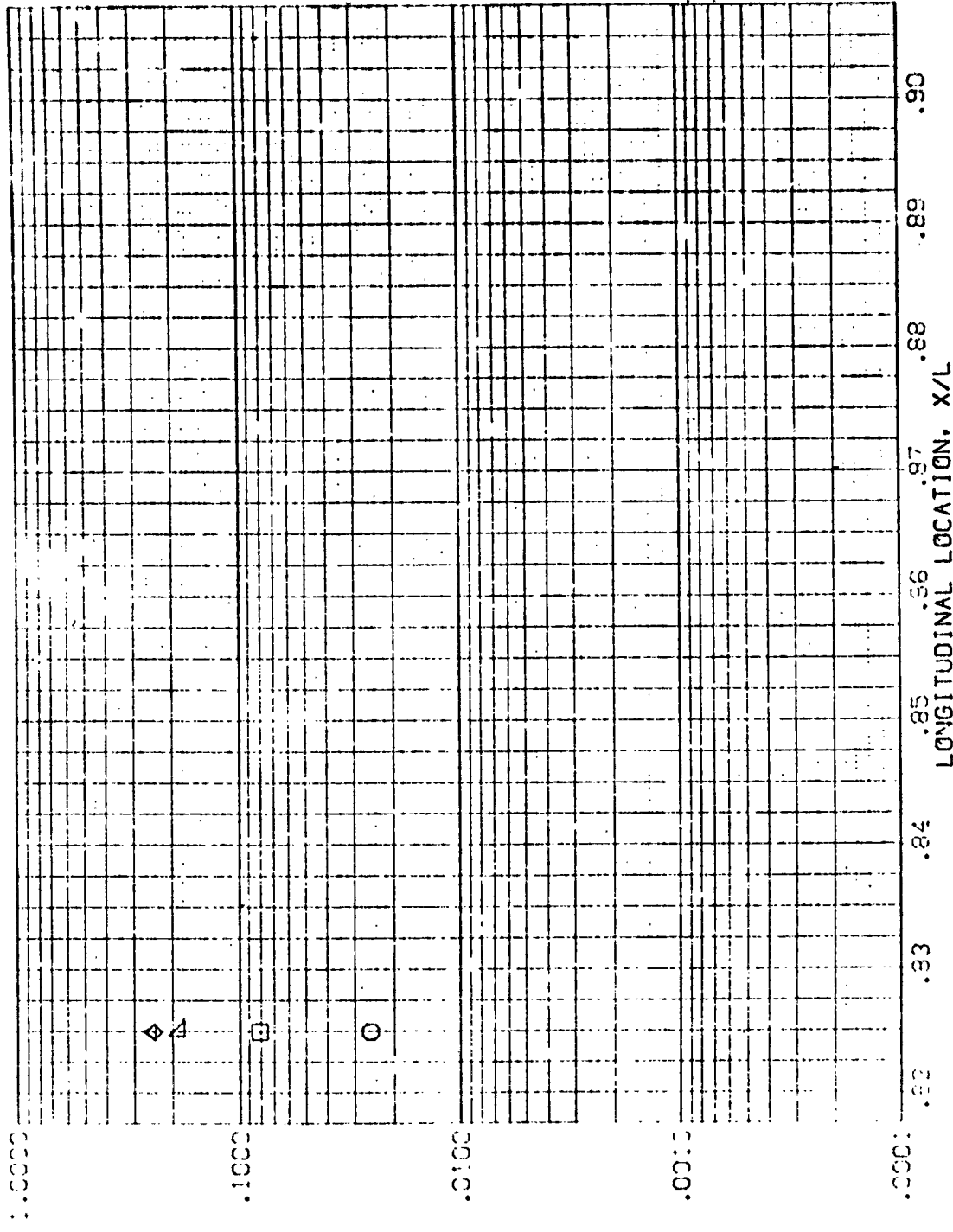


FIG. 13 OMS PODS, ORBITER ALONE

MACH = 5.300 HAW/HT = .300 Z = 475.000

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RW/L
(PREV19)	AMES 3.5-195 1428 01	.000	.000	1.000
(PREV20)	AMES 3.5-195 1428 01	-30.000	.000	1.000
(PREV21)	AMES 3.5-195 1428 01	-60.000	.000	1.000
(PREV22)	AMES 3.5-195 1428 01	-90.000	.000	1.000
(PREV23)	AMES 3.5-195 1428 01	-120.000	.000	1.000

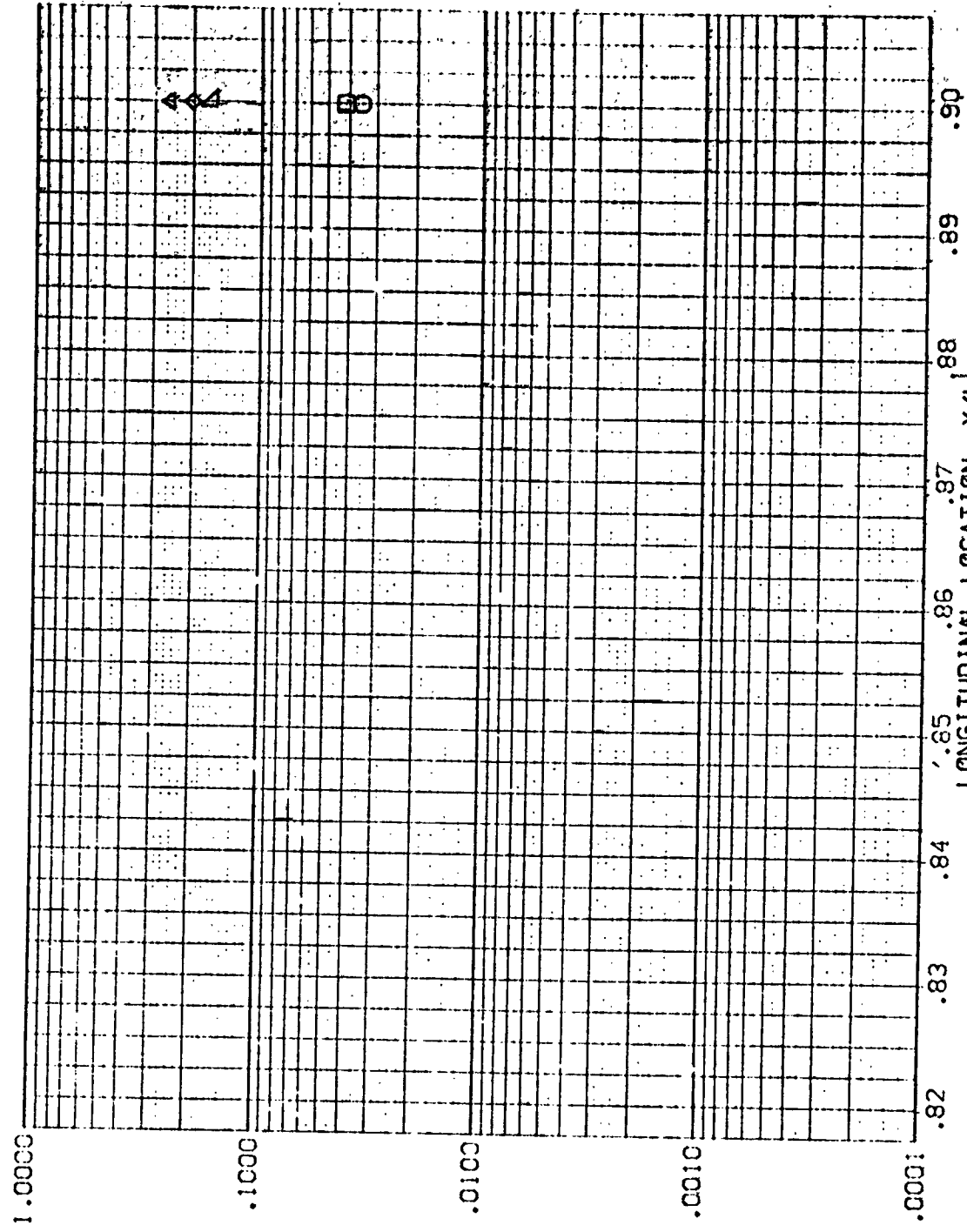


FIG. 13 OMS PODS, ORBITER ALONE

MACH = 5.300 HAW/HT = .900 Z = 476.650

DATA SET NUMBER	CONFIGURATION DESCRIPTION	ALPHA	BETA
00000001	00000000	0.000	0.000
00000002	00000000	0.000	0.000
00000003	00000000	0.000	0.000
00000004	00000000	0.000	0.000
00000005	00000000	0.000	0.000
00000006	00000000	0.000	0.000
00000007	00000000	0.000	0.000
00000008	00000000	0.000	0.000
00000009	00000000	0.000	0.000
00000010	00000000	0.000	0.000
00000011	00000000	0.000	0.000
00000012	00000000	0.000	0.000
00000013	00000000	0.000	0.000
00000014	00000000	0.000	0.000
00000015	00000000	0.000	0.000
00000016	00000000	0.000	0.000
00000017	00000000	0.000	0.000
00000018	00000000	0.000	0.000
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00000023	00000000	0.000	0.000
00000024	00000000	0.000	0.000
00000025	00000000	0.000	0.000
00000026	00000000	0.000	0.000
00000027	00000000	0.000	0.000
00000028	00000000	0.000	0.000
00000029	00000000	0.000	0.000
00000030	00000000	0.000	0.000
00000031	00000000	0.000	0.000
00000032	00000000	0.000	0.000
00000033	00000000	0.000	0.000
00000034	00000000	0.000	0.000
00000035	00000000	0.000	0.000
00000036	00000000	0.000	0.000
00000037	00000000	0.000	0.000
00000038	00000000	0.000	0.000
00000039	00000000	0.000	0.000
00000040	00000000	0.000	0.000
00000041	00000000	0.000	0.000
00000042	00000000	0.000	0.000
00000043	00000000	0.000	0.000
00000044	00000000	0.000	0.000
00000045	00000000	0.000	0.000
00000046	00000000	0.000	0.000
00000047	00000000	0.000	0.000
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00000049	00000000	0.000	0.000
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00000095	00000000	0.000	0.000
00000096	00000000	0.000	0.000
00000097	00000000	0.000	0.000
00000098	00000000	0.000	0.000
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00000100	00000000	0.000	0.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

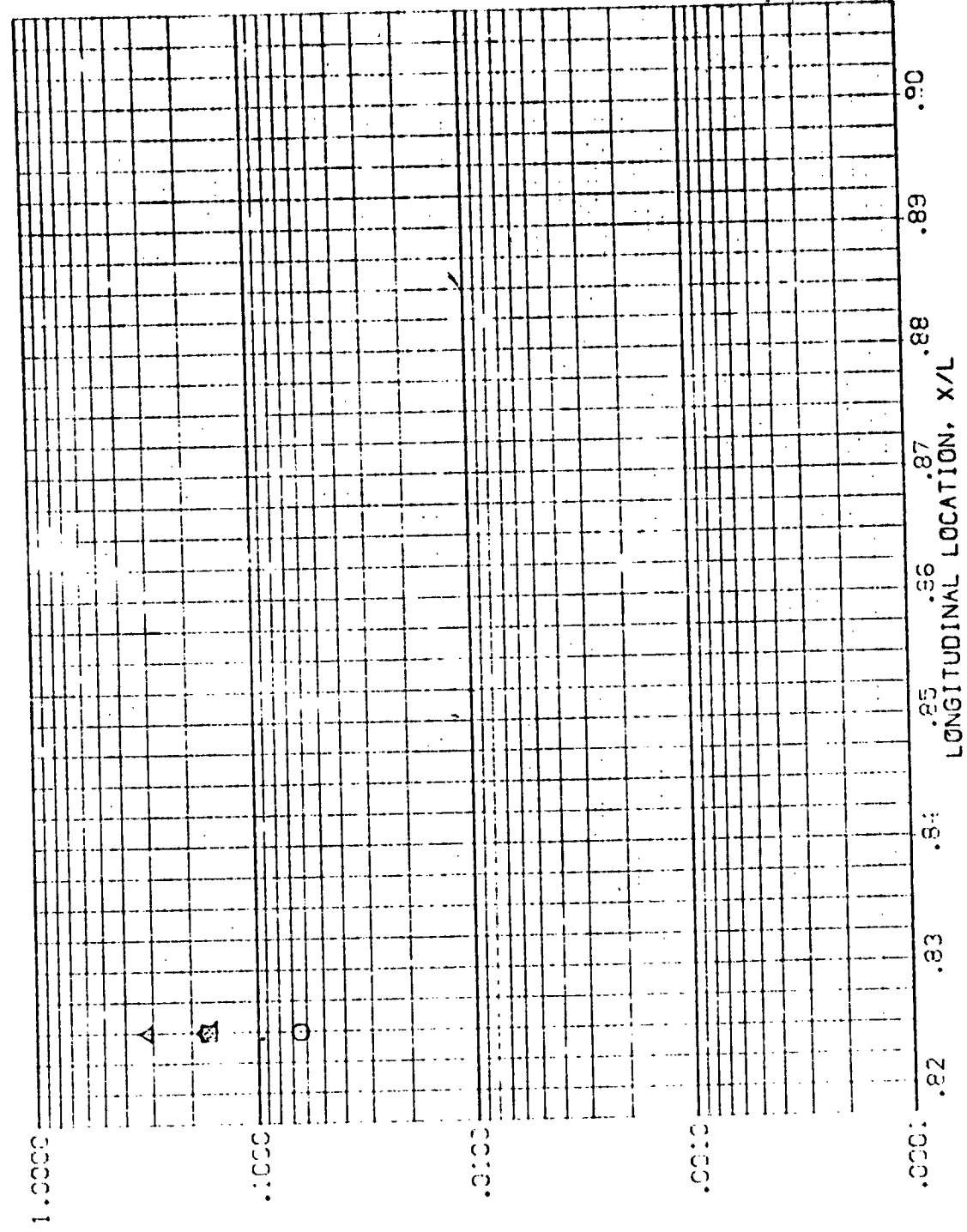


FIG. 13 CWS PODS, ORBITER ALONE  
MACH = 5.300 HAW/HTE = .900 Z = 48°.300

DATA SET SYMBOL CONFIGURATION DESCRIPTION

AMES 3.5-195 1-28 O1 CWS PODS  
 AMES 3.5-195 1-28 O1 CWS PODS  
 AMES 3.5-195 1-28 O1 CWS PODS  
 AMES 3.5-195 1-28 O1 CWS PODS  
 AMES 3.5-195 1-28 O1 CWS PODS

ALPHA BETA RNV/L  
 .000 .000 1.000  
 -90.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

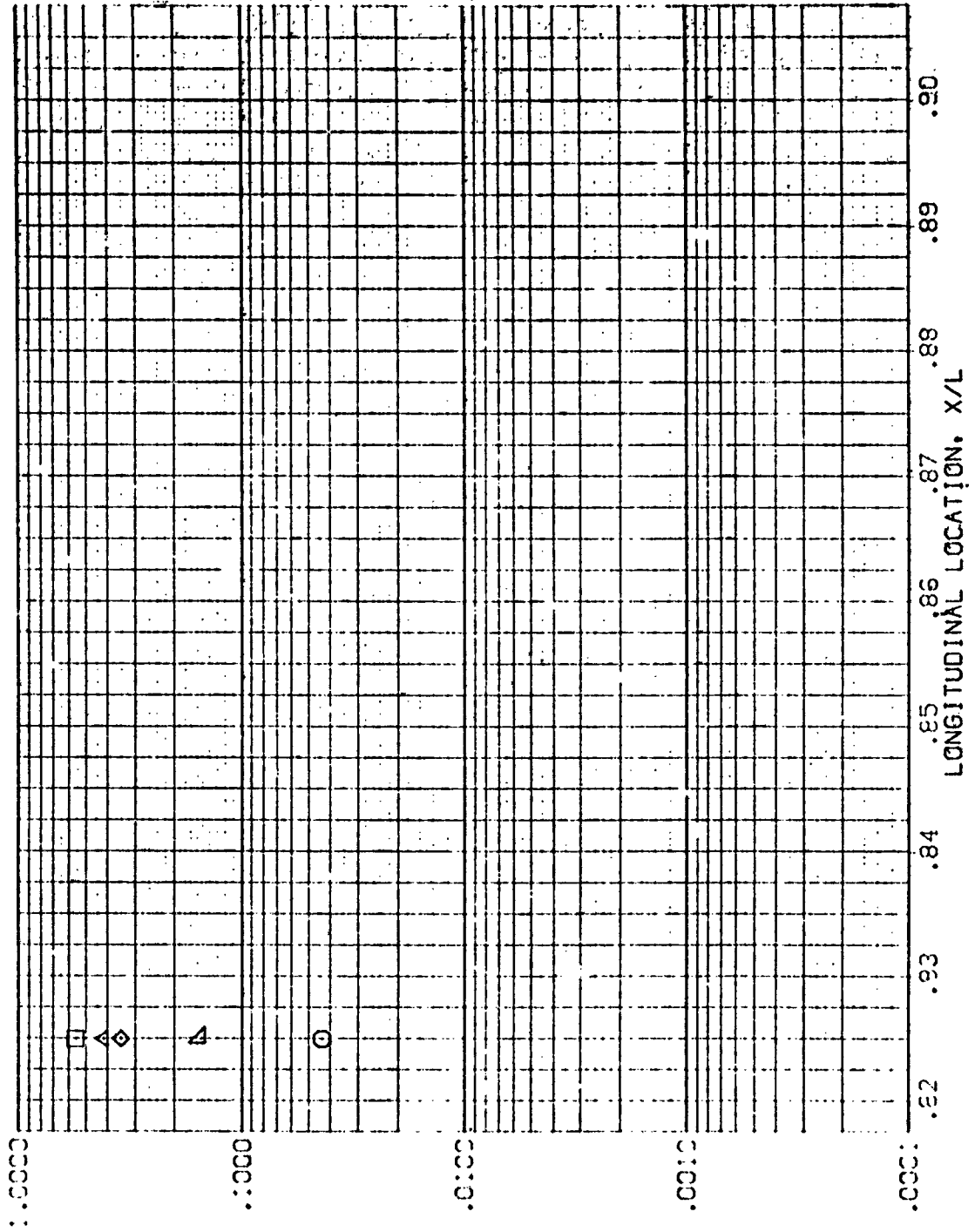


FIG. 13 OMS PODS, ORBITER ALONE

MACH = 5.200 HAW/HT = .900 Z = 5:0 000



AMES 3.5-195 IH28 01+T1 GMS PODS

(REV001)

SYMBOL PARAMETER VALUE  
 ◊ TITAN X/L .825  
 ○ MACH 5.228  
 △ .900  
 □ 1.000

PARAMETRIC VALUES  
 ALPHA .300  
 BETA 1.000  
 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

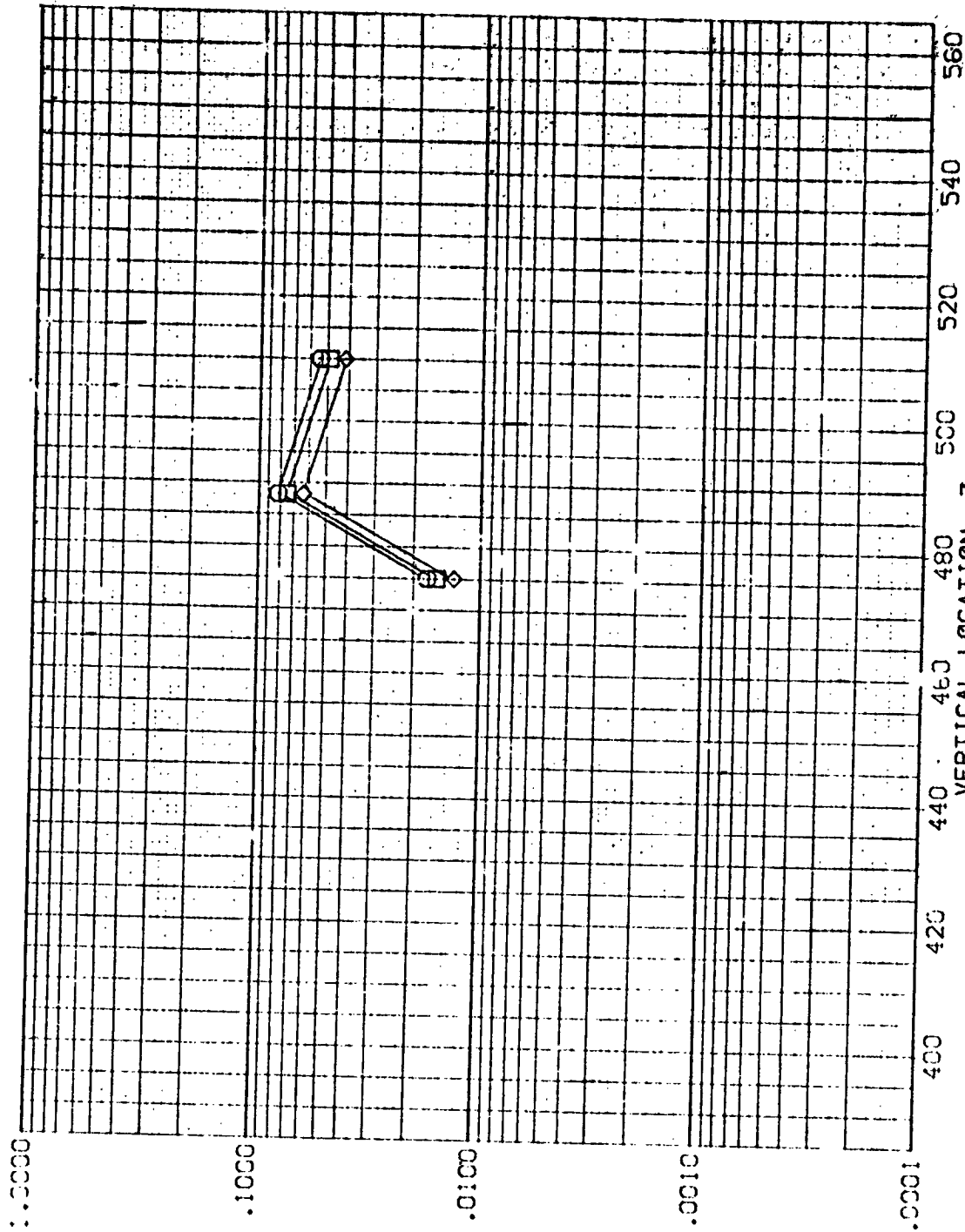


FIG. 14 GMS PODS, ORBITER IN PRESENCE OF THE TANK

AYES 3.5-195 IP28 CI+T1 CYS P30S

(REV001)

SCALE: HAW/HT .850  
.900  
1.000

XVL .900 MACH 5.228

PARAMETRIC VALUES  
ALPHA .000  
PNVL 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

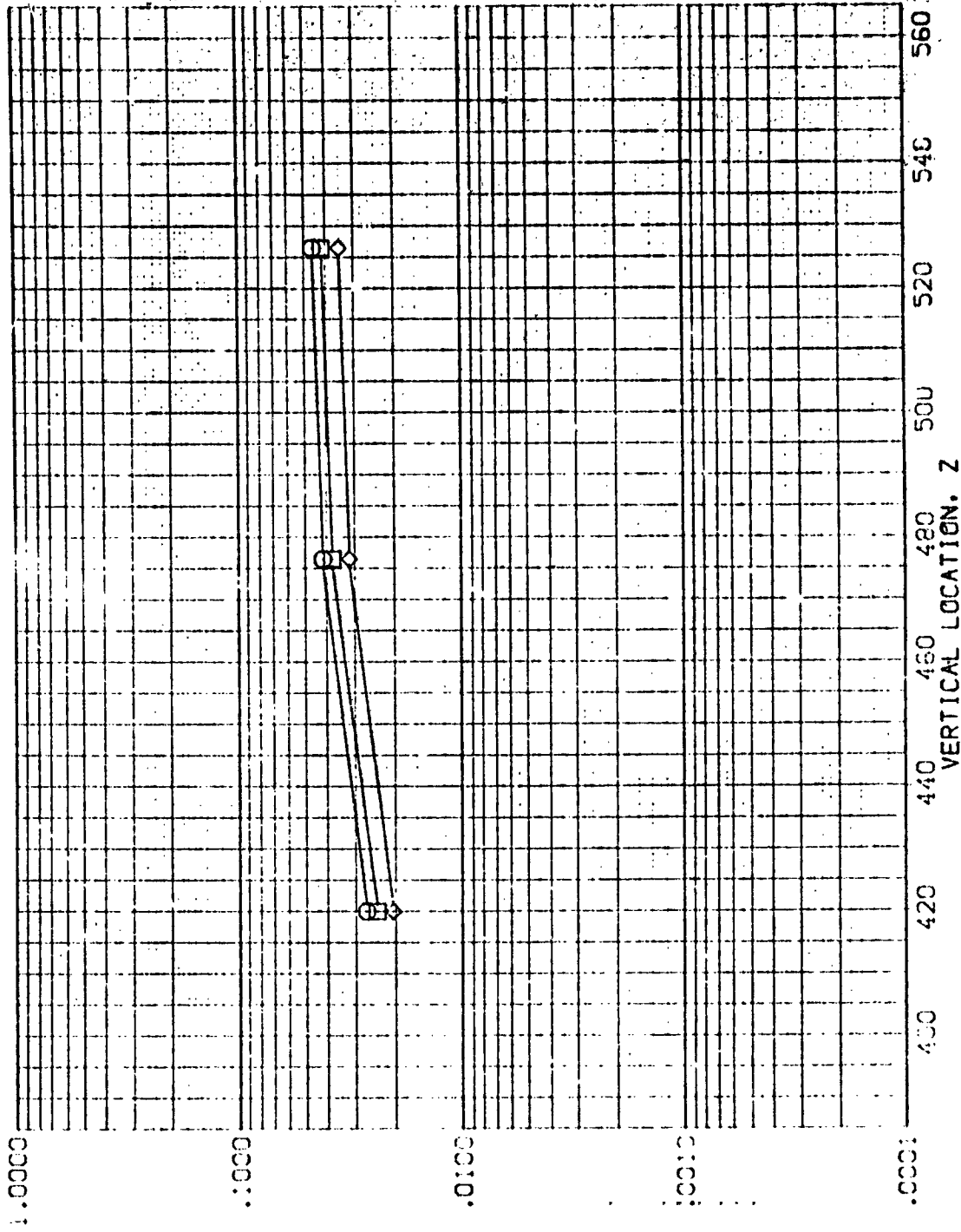


FIG. 14 6MS PODS, ORBITER IN PRESENCE OF THE TANK

AVES 3.5-195 IH28 01+T1 0MS PODS

(REVC02)

SYMBOL HAW/HT X/L Y/ACH  
□ .850 .825 5.219  
◇ .900 1.000

PARAMETRIC VALUES  
ALPHA 3C .000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

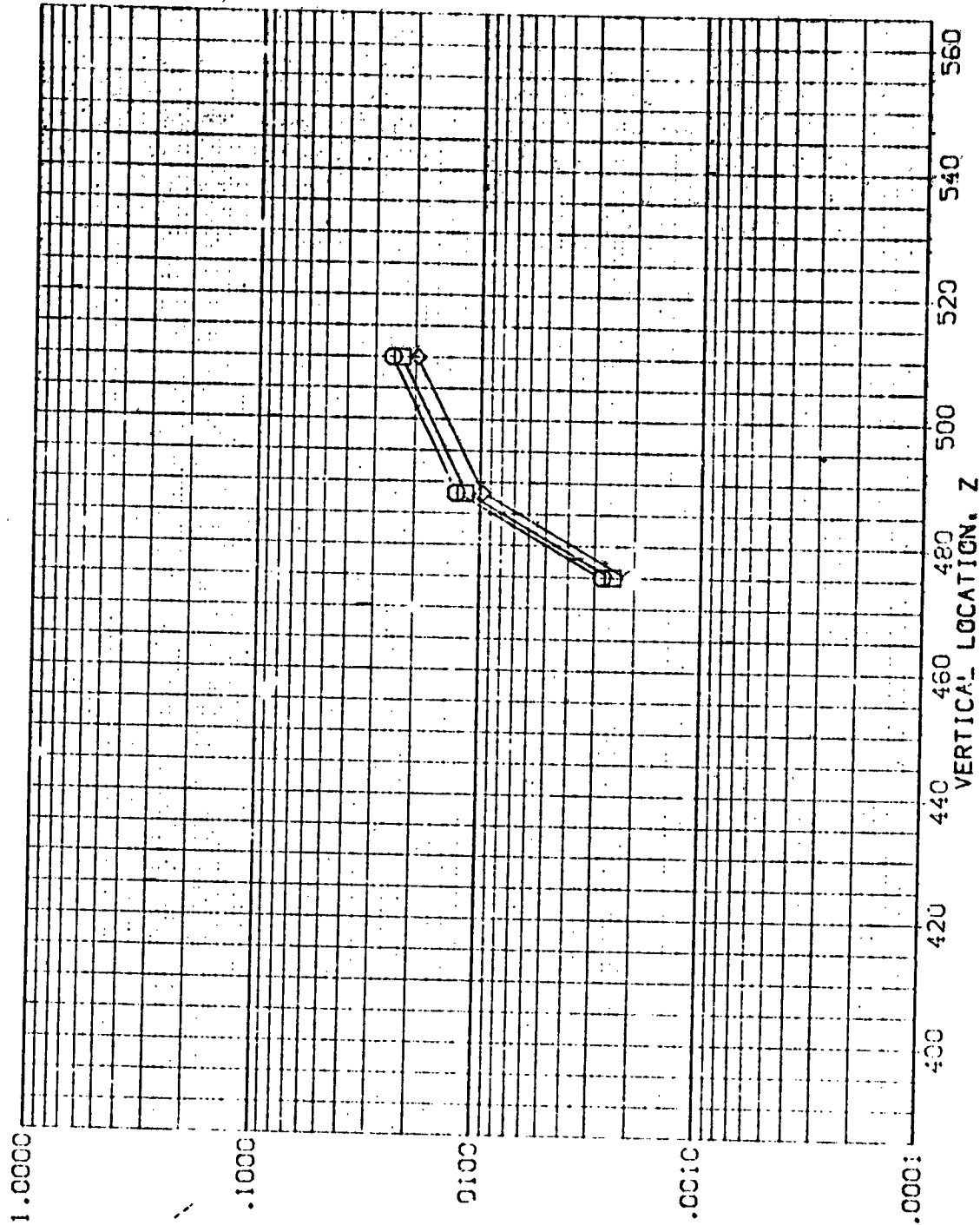


FIG. 14 0MS PODS, ORBITER IN PRESENCE OF THE TANK



AVES 3.5-195 IH28 01+T1 CMS PODS

(PREVCO2)

5.0000  
4.8500  
4.7000  
4.5500  
4.4000  
4.2500  
4.1000  
3.9500  
3.8000  
3.6500  
3.5000  
3.3500  
3.2000  
3.0500  
2.9000  
2.7500  
2.6000  
2.4500  
2.3000  
2.1500  
2.0000  
1.8500  
1.7000  
1.5500  
1.4000  
1.2500  
1.1000  
1.0000

PARAMETER VALUES  
ALPHA 33.000  
BETA 1.000  
RV/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

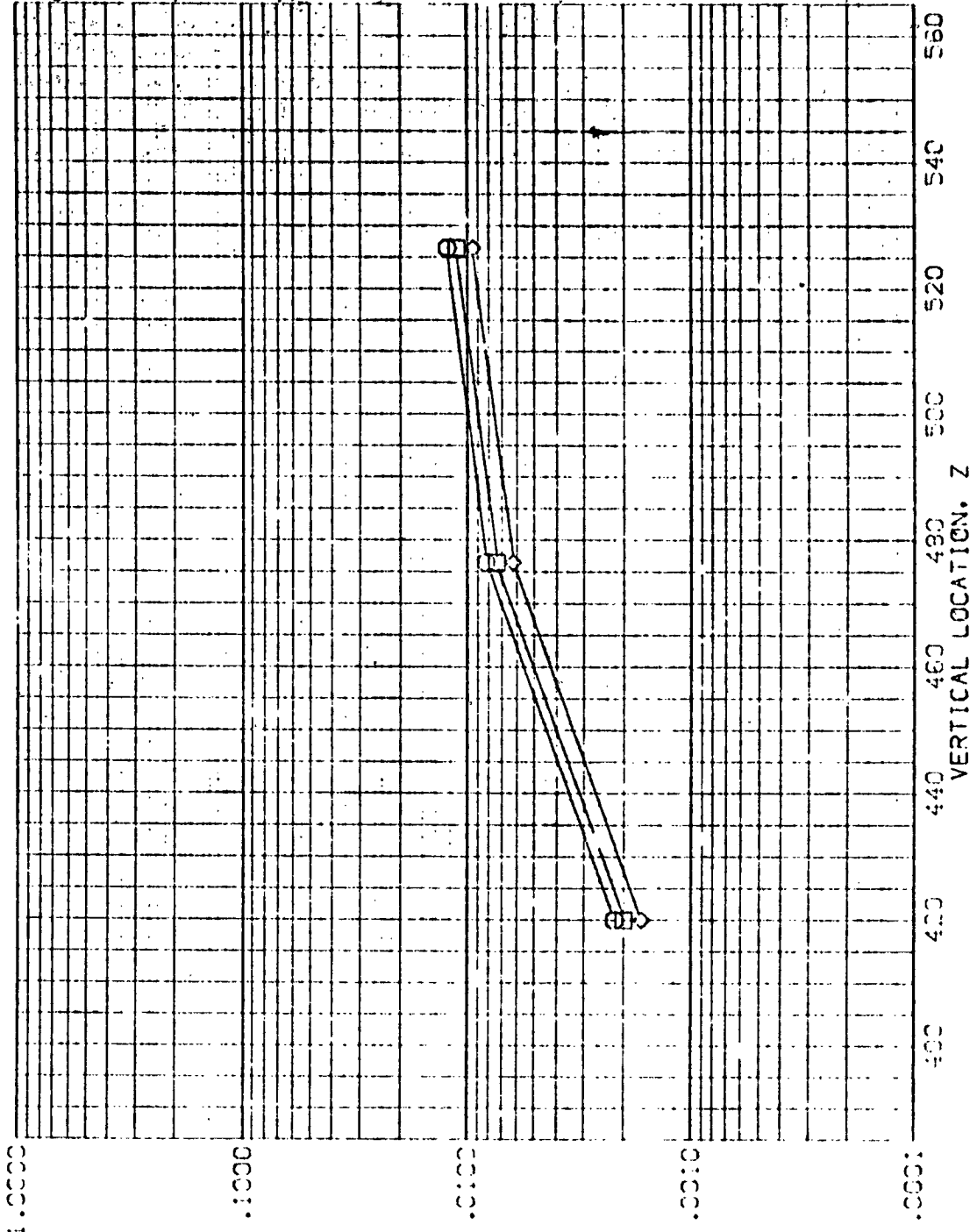


FIG. 14 CMS PODS, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 OMS PODS

(REVC03)

S/VESL    H/W/H/T    K/L    MACH  
 0.850    .825    5.220  
 .920  
 1.000

PARAMETRIC VALUES  
 ALPHA    BETA  
 60.000    .000  
 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

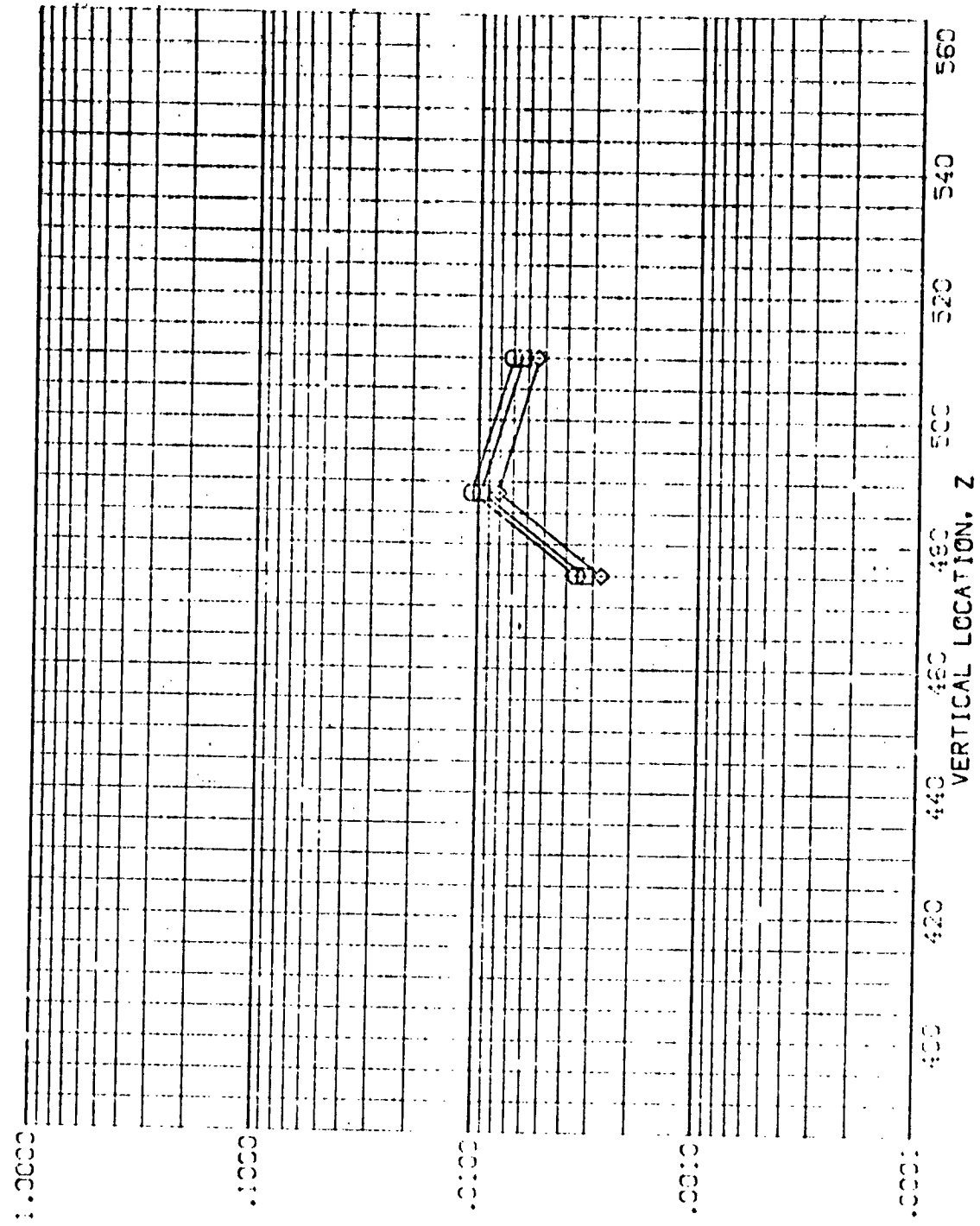


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

AVES 3.5-195 :H28 01+T1 OMS PODS

FEV90030

SIYES: 0110  
MARG: .850  
X/L: .900  
WACH: 5.1220  
1.000

PARAMETER VALUES  
ALPHA: 50.000  
ETA: 1.000  
1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

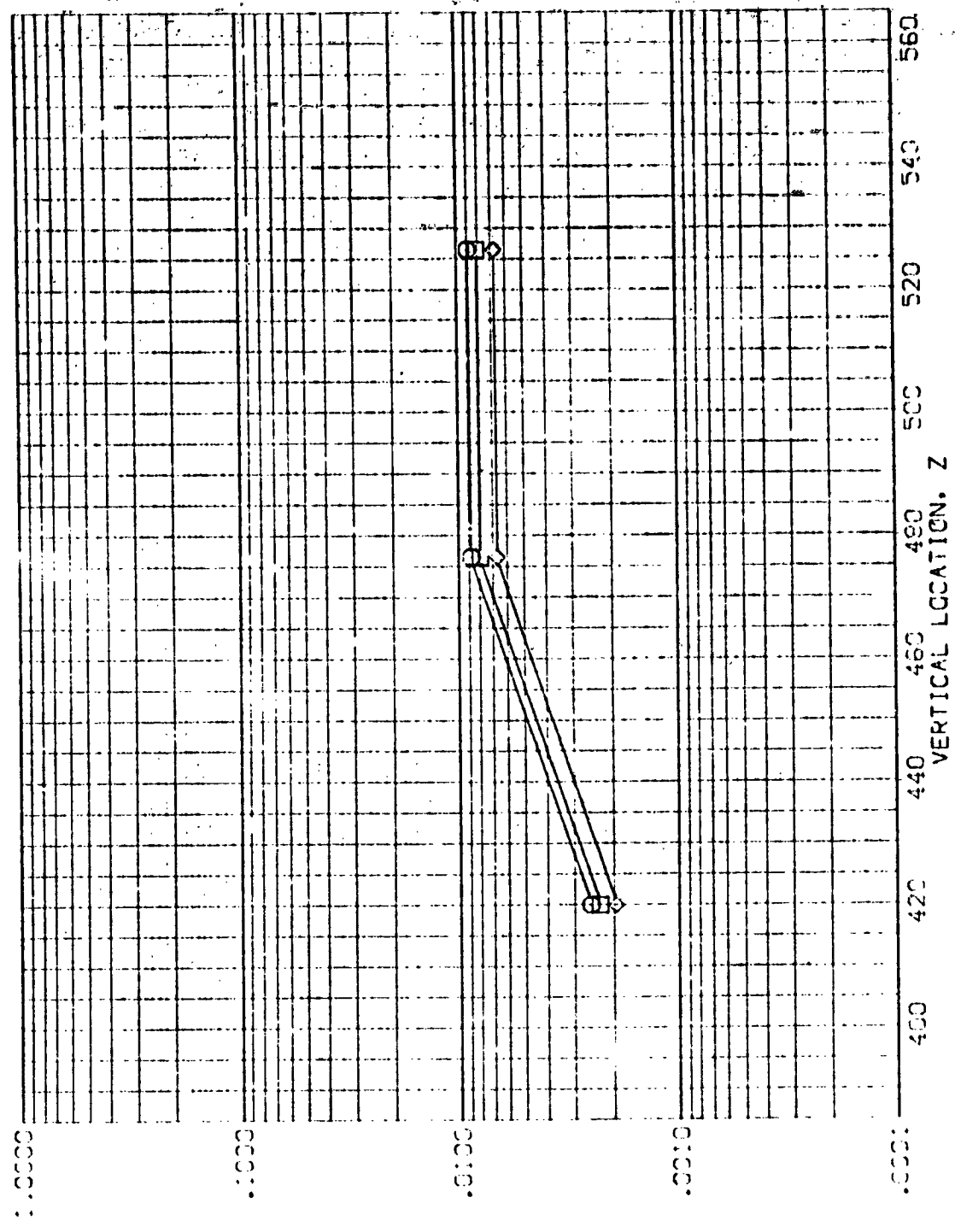


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

AVES 3.5-195 1-28 01-11 OMS PODS

(REVCC4)

SYSES  
MACH  
0.850  
0.900  
1.000

MACH  
0.925  
5.213

PARAMETRIC VALUES  
ALPHA 90.000  
BETA 1.000  
0.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

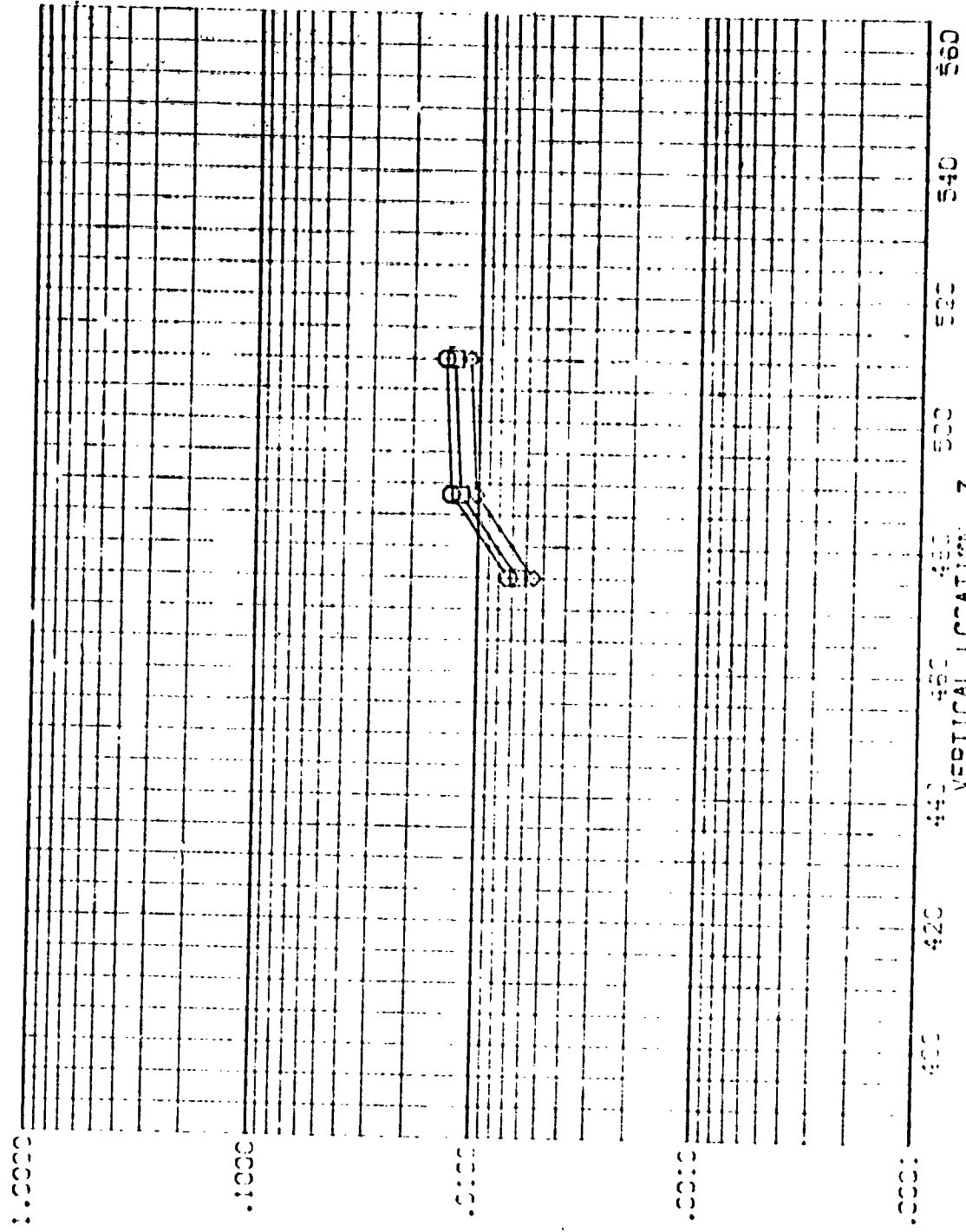


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

FIG. 14 - 0.5% POS. CENTER IN PRESENCE OF THE TANK

DATE: 10/10/55  
 TIME: 10:00 AM  
 DRAWN BY: J. H. ...  
 CHECKED BY: ...  
 SCALE: 1" = 100'

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

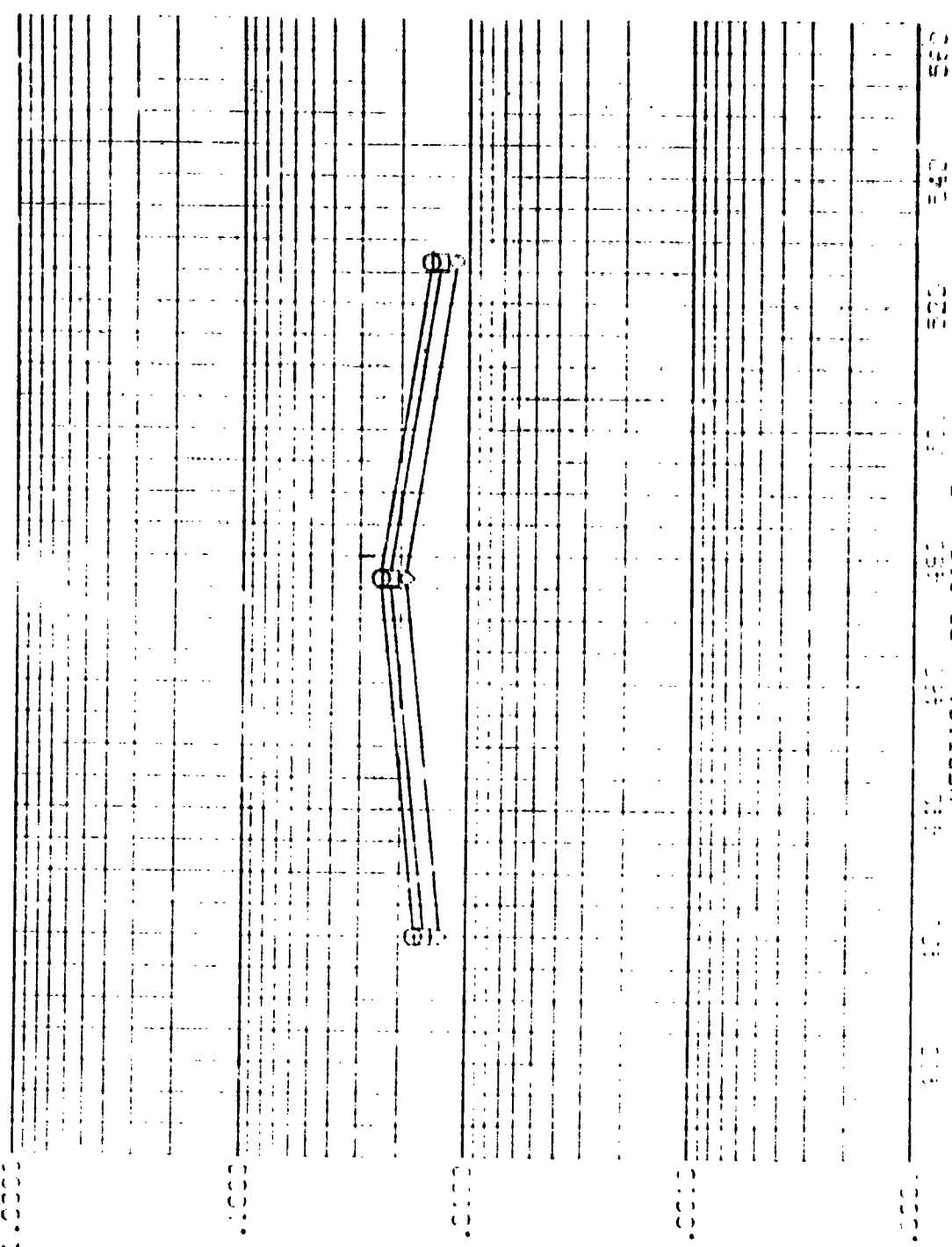


FIG. 14 - 0.5% POS. CENTER IN PRESENCE OF THE TANK

REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

AMES 2.5-128 1428 C1-T1 DMS B303

(FE.005)

PARAMETRIC VALUES  
ALPHA 1.000  
BETA 1.000  
GAMMA 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

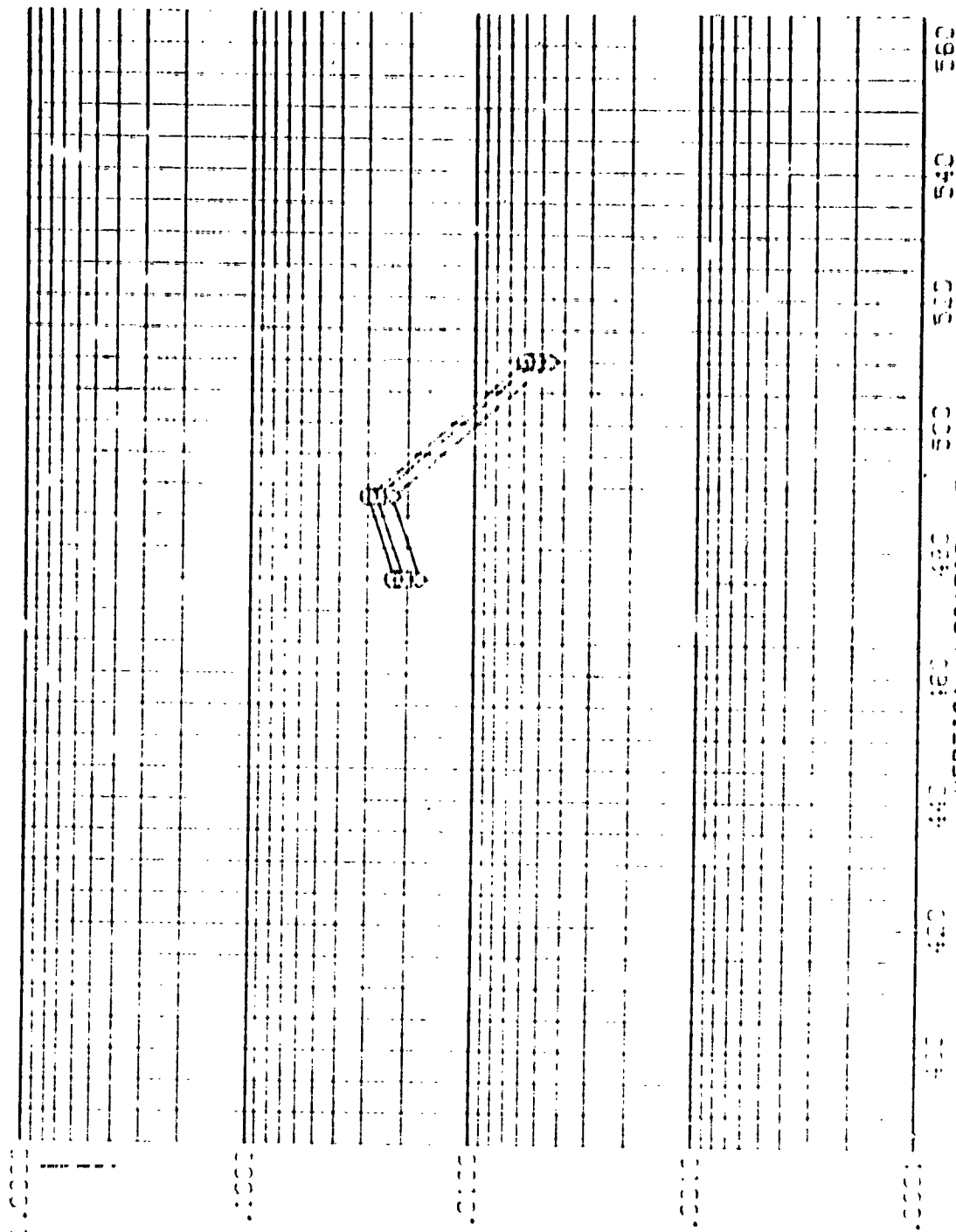


FIG. 14 DMS B303. CRIBTER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01-11 OMS PODS

(REVCC5)

SYMBOL    H/W/HT    %/L    MACH

□        .850     .900     5.230

◇        .900     .900     5.230

          1.000     .900     5.230

PARAMETRIC VALUES

ALPHA     120.000

BETA      1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

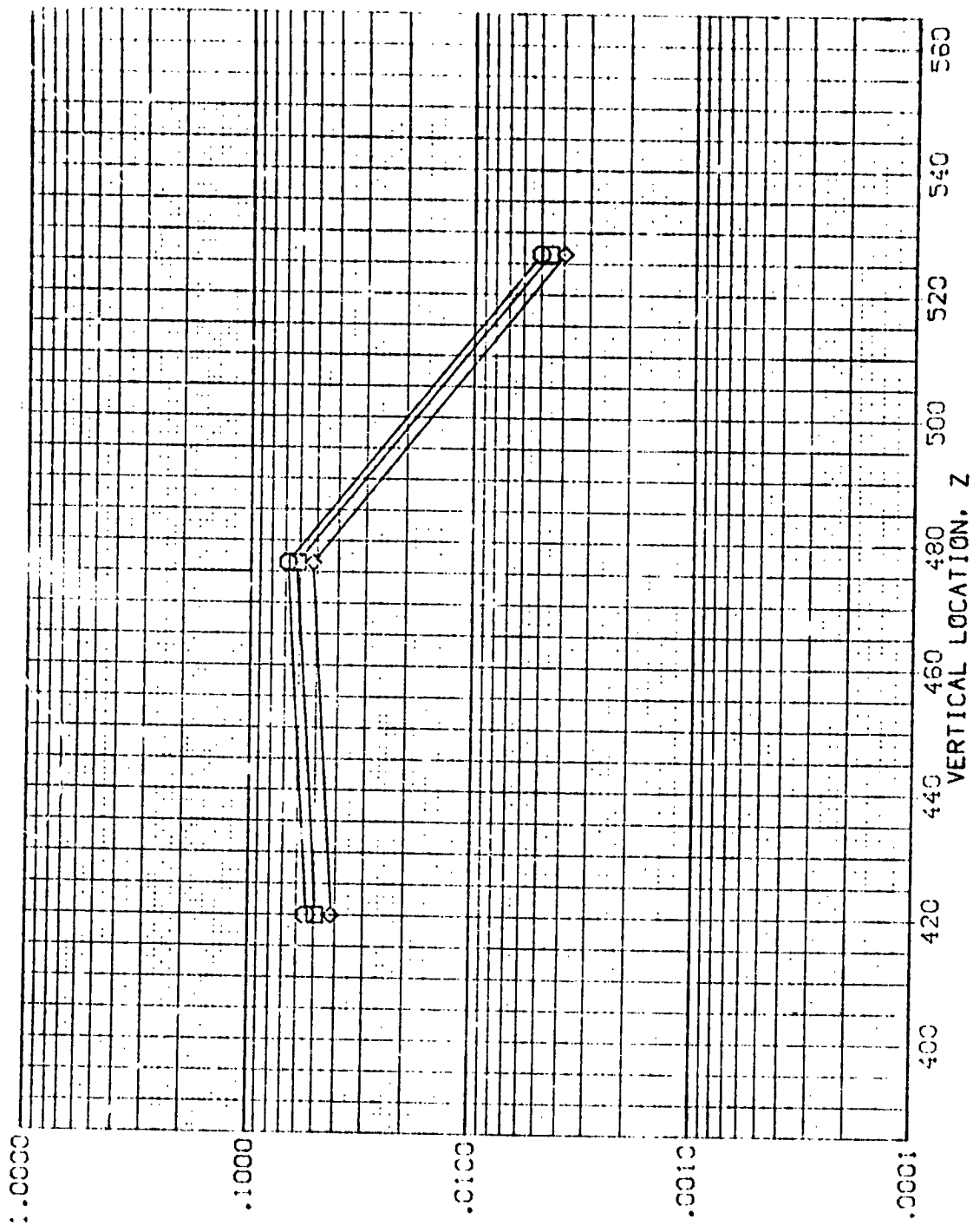


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

29

AMES 3.5-195 IH28 G1+T1 GMS PODS

(REVC06)

SYSSC- MAW/RT X/L MACH  
0.850 .625 5.220  
0.300  
1.000

PARAMETRIC VALUES  
ALPHA -12L.000 BETA .000  
RM/L 1.000

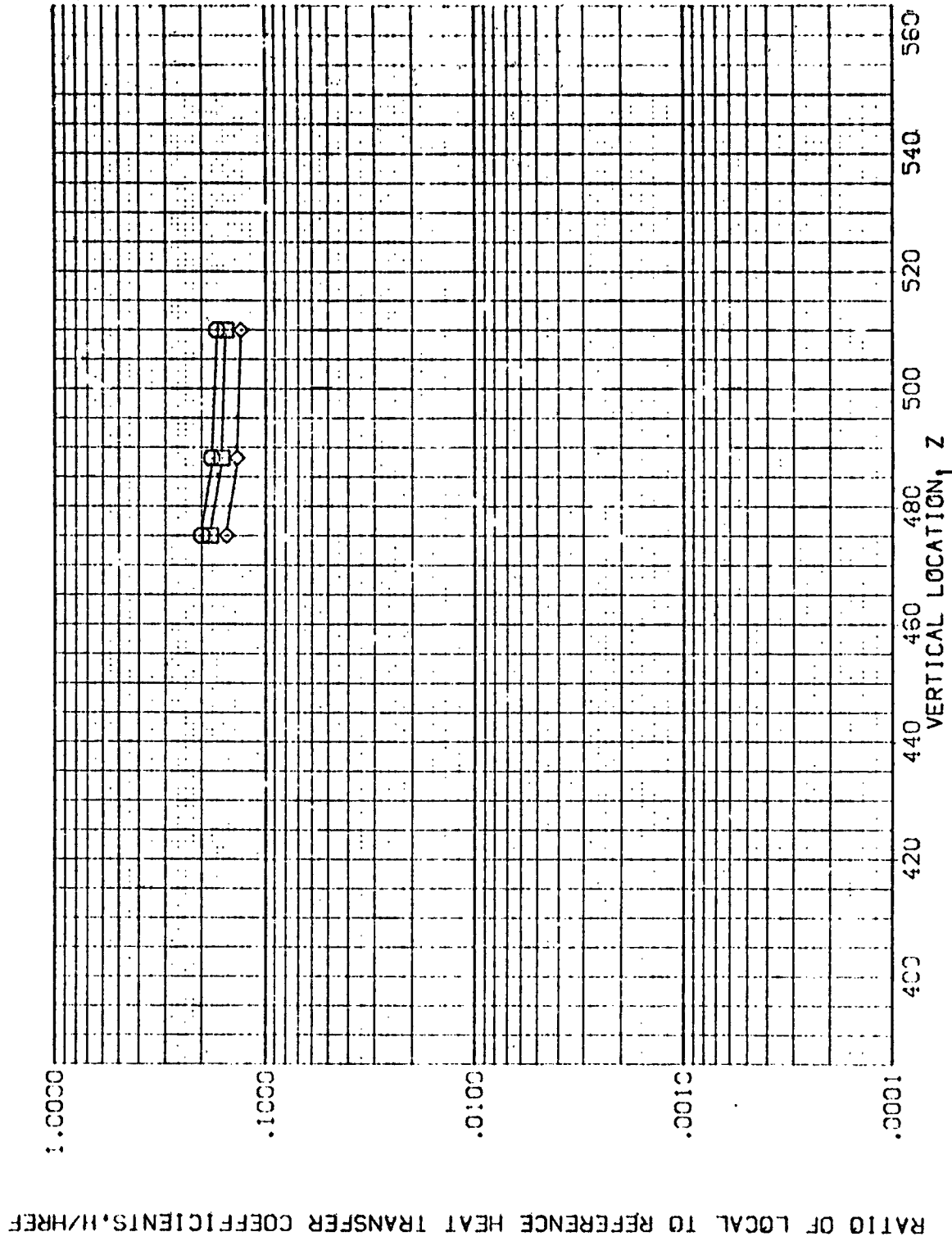


FIG. 14 GMS PODS, ORBITER IN PRESENCE OF THE TANK



AMES 3.5-195 IH28 01+T1 0MS PODS

(REV006)

SYMBOL H/HREF X/L MACH  
 ◊ .900 .900 5.220  
 □ .900  
 ◊ 1.000

PARAMETRIC VALUES  
 ALPHA -120.000  
 RN/L 1.000  
 BETA .500

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

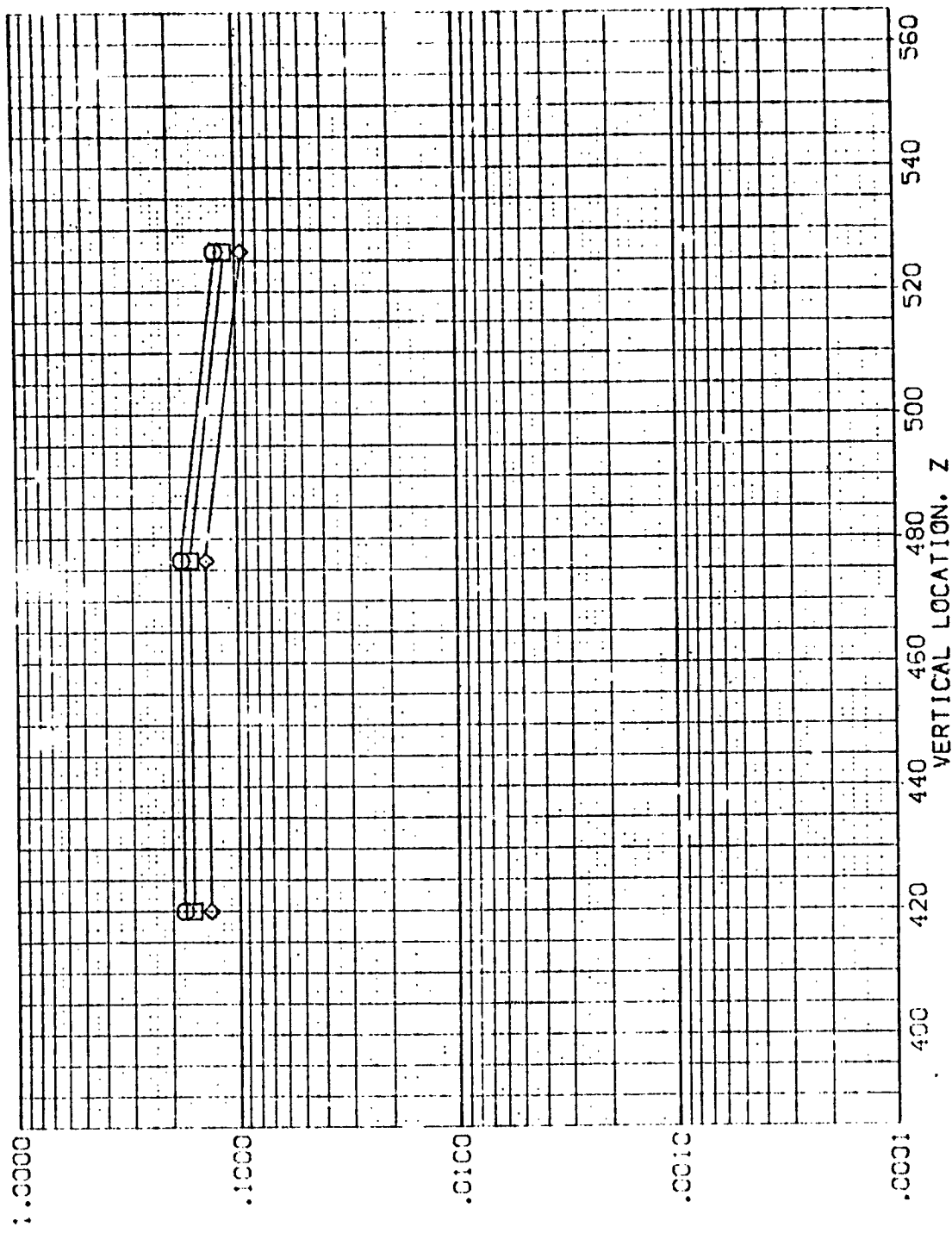


FIG. 14 7MS PODS, ORBITER IN PRESENCE OF THE TANK

(REVC07)

AMES 3.5-195 IH28 01+T1 OMS PODS

SYMBOL HAW/HT X/L MACH  
◇ .850  
□ .900  
◇ 1.000

PARAMETRIC VALUES  
ALPHA -90.000  
RN/VL 1.000  
BETA .000

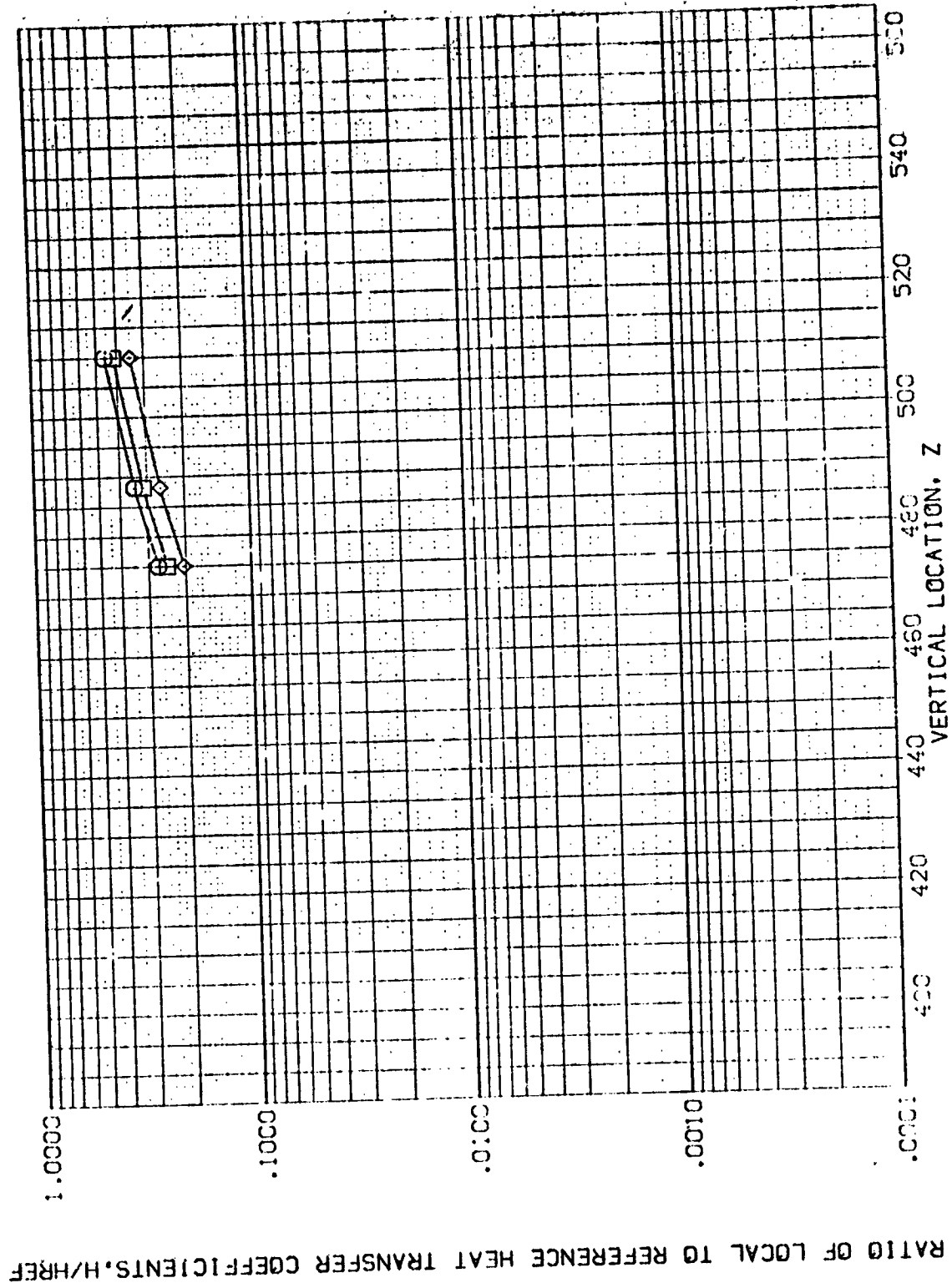


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 OMS PODS

(REV007)

SYMBOL HA/H<sub>T</sub> X/L MACH  
◇ .950  
□ .900  
◇ 1.000

MACH 5.219

PARAMETER VALUES  
ALPHA .30000  
BETA 1.000  
RN/L 1.000

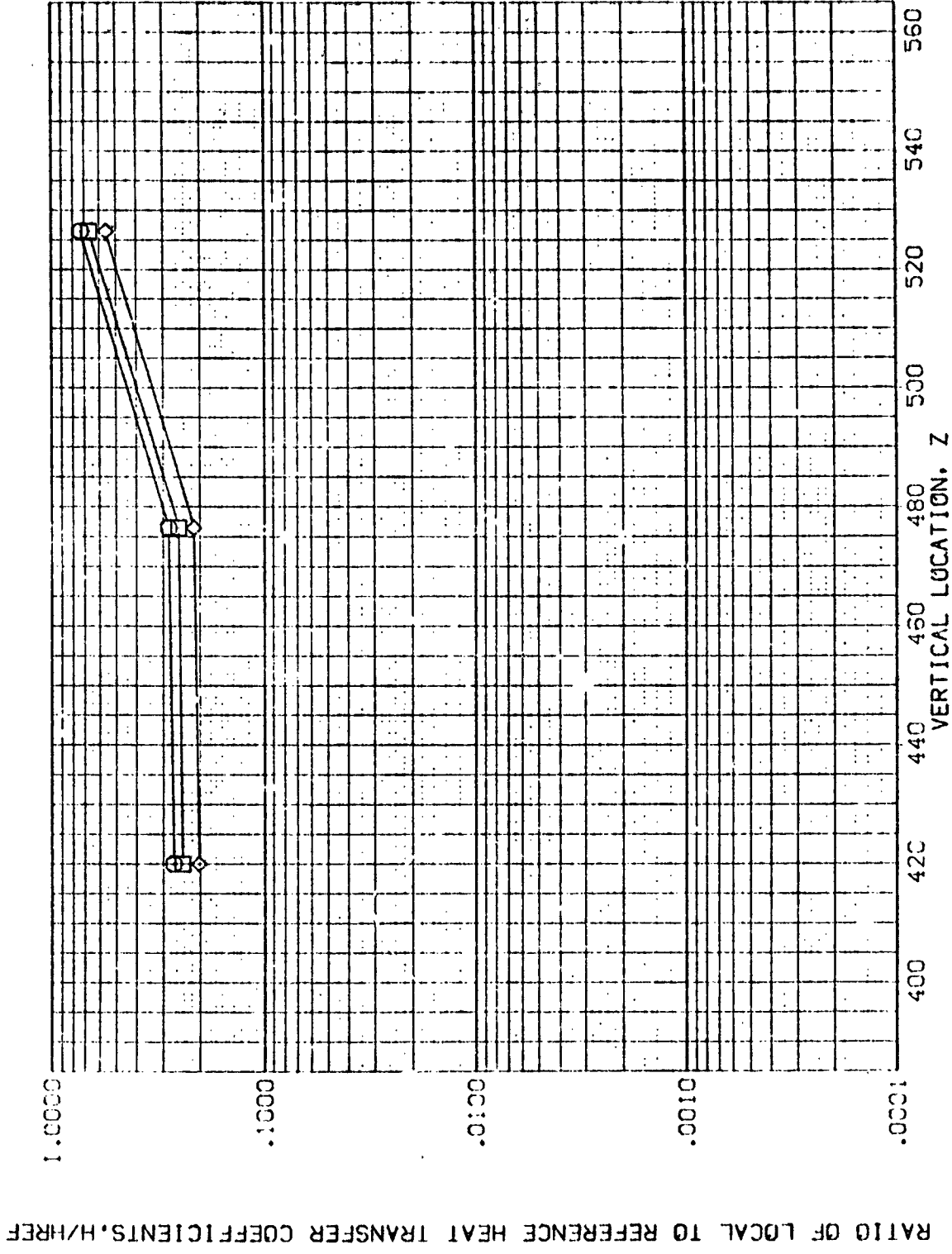


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 CMS PODS

(REV008)

PARAMETRIC VALUES  
ALPHA -60.000 BETA .000  
RN/L 1.000

PARAMETRIC VALUES  
ALPHA -60.000 BETA .000  
RN/L 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

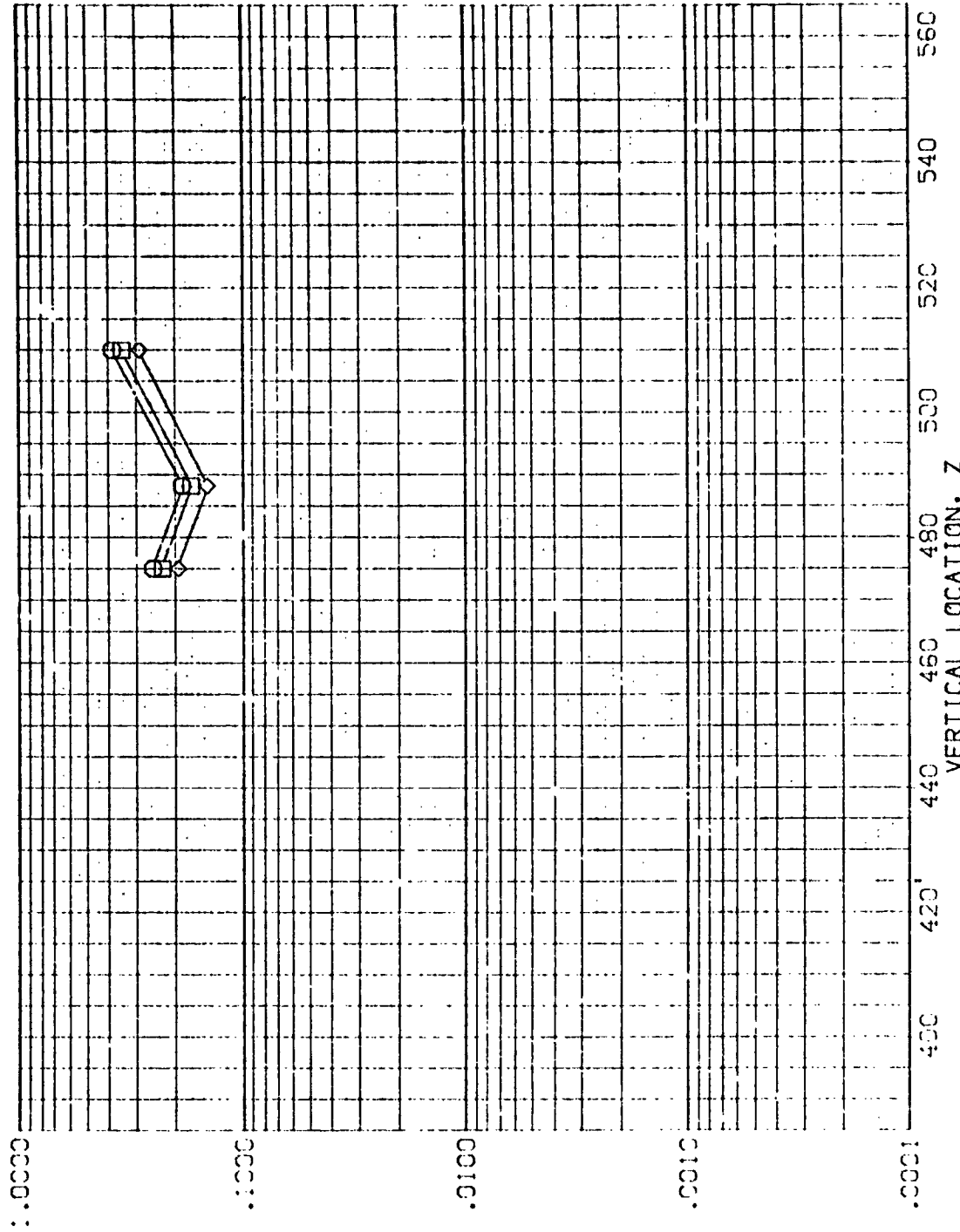


FIG. 14 CMS PODS, ORBITER IN PRESENCE OF THE TANK

AVES 2.5-195 1-28 01-T1 OMS PODS

SPD: .850  
MACH 5.220  
X: .900

BASELINE  
ALPHA  
EVL

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

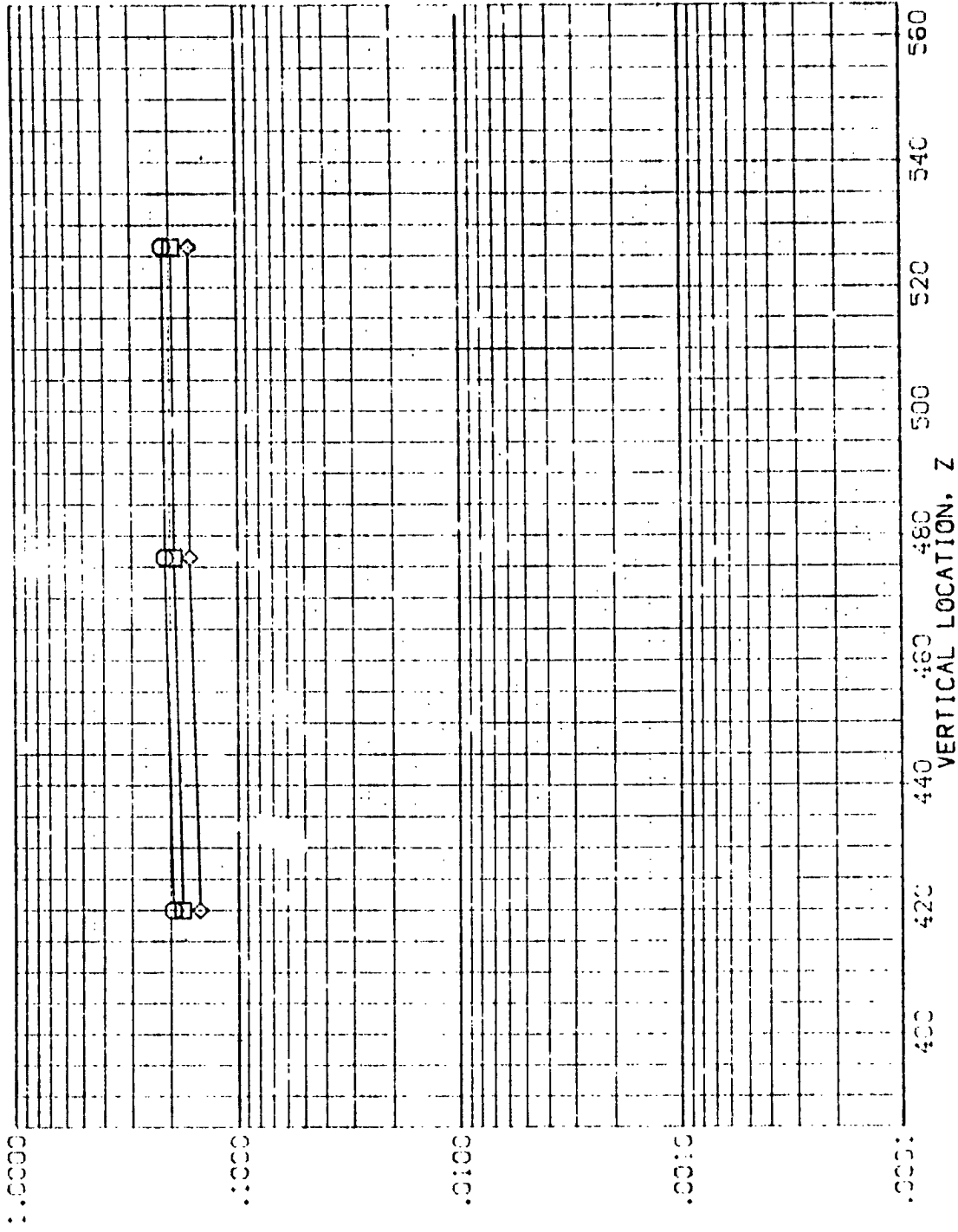


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 01+T1 QMS PODS

(REVC09)

S<sup>1</sup> = .850  
 S<sup>2</sup> = .300  
 S<sup>3</sup> = 1.000

PARAMETRIC VALUES  
 ALPHA -30.000  
 BETA 1.000  
 RV/L .000

X/L .825  
 MACH 5.220

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, HZ/REF

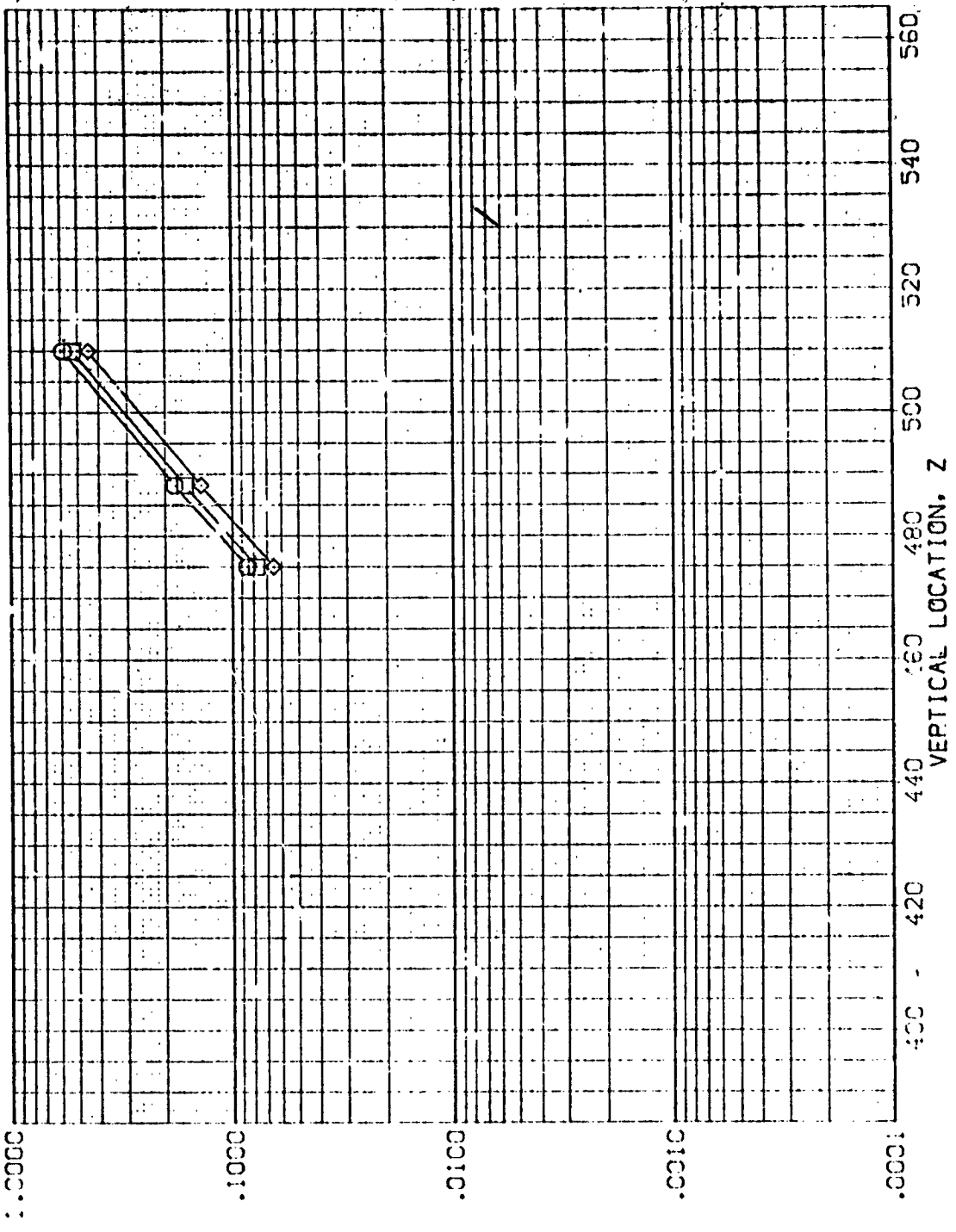


FIG. 14 QMS PODS, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 IH28 C1+T1 QMS PODS

(REV. 10-22-57)

WIND VELOCITY MACH  
850 .900 5.1220  
900  
1.000

ALPHA  
R/R/L  
1.0000

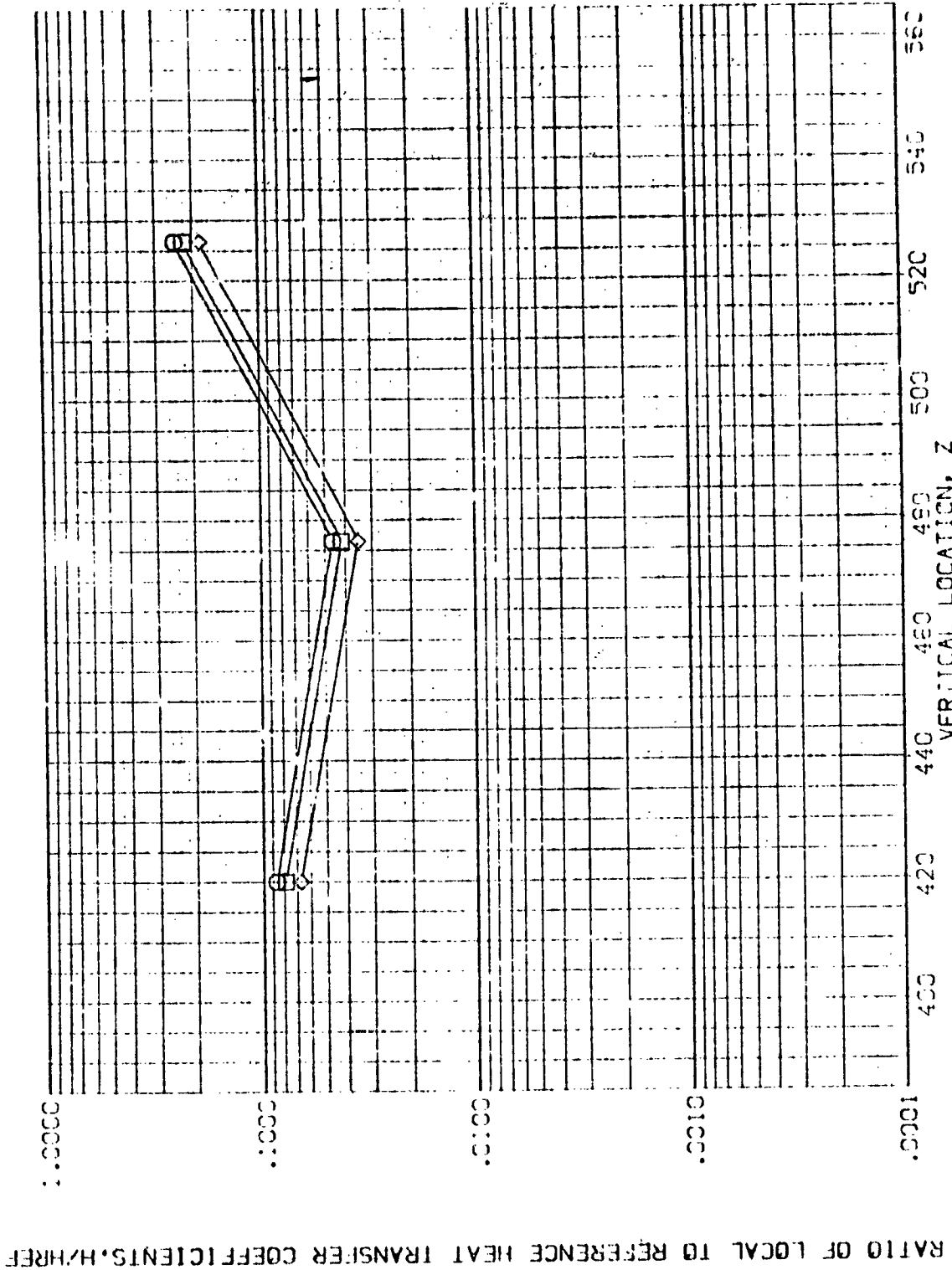


FIG. 14 QMS PODS, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 1-28 01-T1 OMS PODS

(REVC10)

SI-MEAS. MA\*H<sup>2</sup> X/L MACH  
◇ □ ○ .850 .825 5.299  
.900  
1.000

PARAMETRIC VALUES  
ALPHA 60.000 BETA .000  
R1/L 4.000

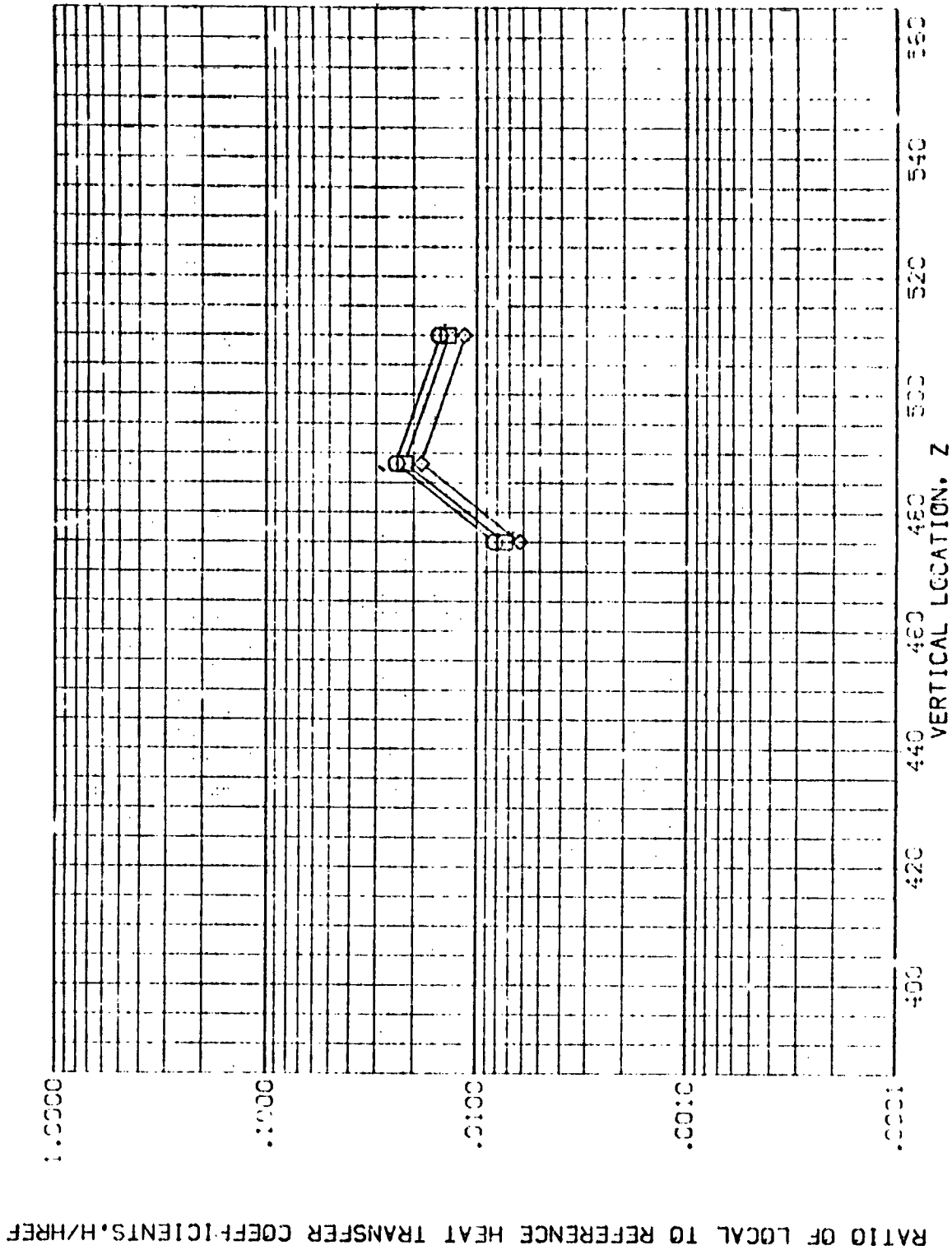


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENT IN AIR

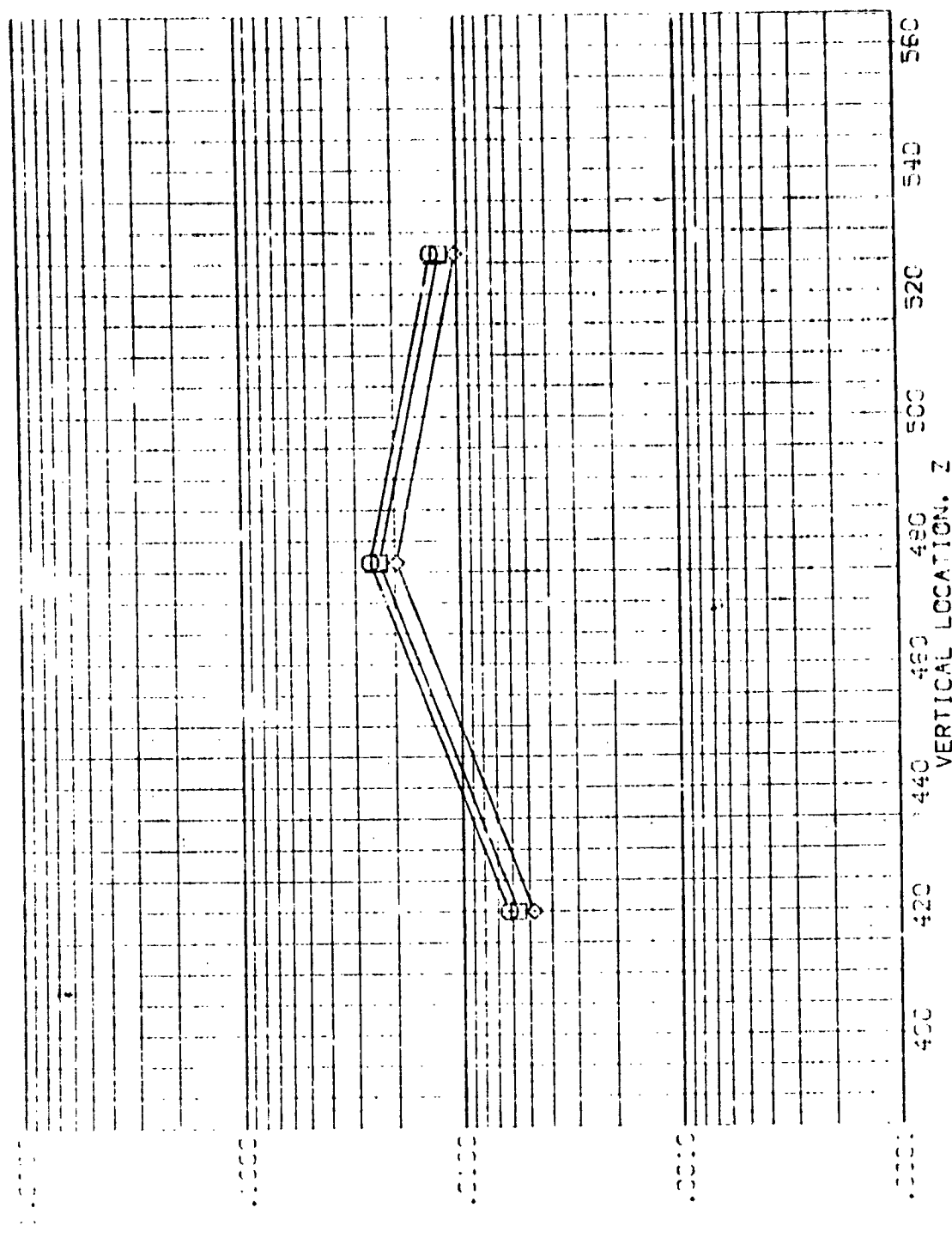


FIG. 14 0MS PODS, ORBITER IN PRESENCE OF THE TANK

REVISED

PARAMETRIC VALUES

ALPHA 30.000 BETA .000

RVAL 4.000

AMES 3.5-195 1H28 01+T1 0MS PODS

SYMBOL HAW/RT M/M YAC

◇ .850 .825 5.300

◇ .900 .900

◇ 1.000

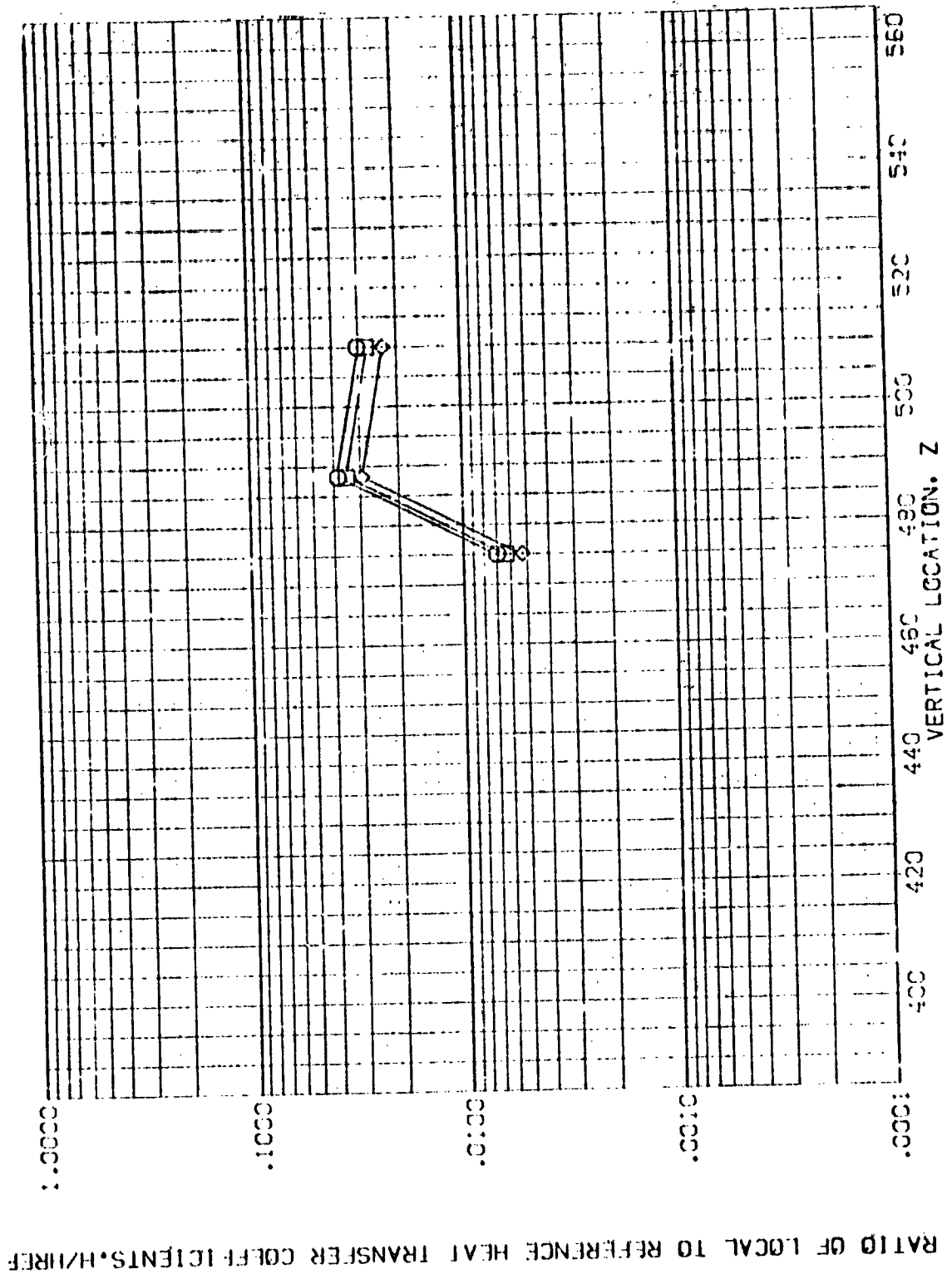


FIG. 14 0MS PODS, ORBITER IN PRESENCE OF THE TANK

AMES 3.5-195 (4-23 51-1) TMS 117E

51752-  
1800  
1900  
2000  
2100  
2200  
2300  
2400  
2500  
2600  
2700  
2800  
2900  
3000  
3100  
3200  
3300  
3400  
3500  
3600  
3700  
3800  
3900  
4000  
4100  
4200  
4300  
4400  
4500  
4600  
4700  
4800  
4900  
5000  
5100  
5200  
5300  
5400  
5500  
5600  
5700  
5800  
5900  
6000  
6100  
6200  
6300  
6400  
6500  
6600  
6700  
6800  
6900  
7000  
7100  
7200  
7300  
7400  
7500  
7600  
7700  
7800  
7900  
8000  
8100  
8200  
8300  
8400  
8500  
8600  
8700  
8800  
8900  
9000  
9100  
9200  
9300  
9400  
9500  
9600  
9700  
9800  
9900  
10000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

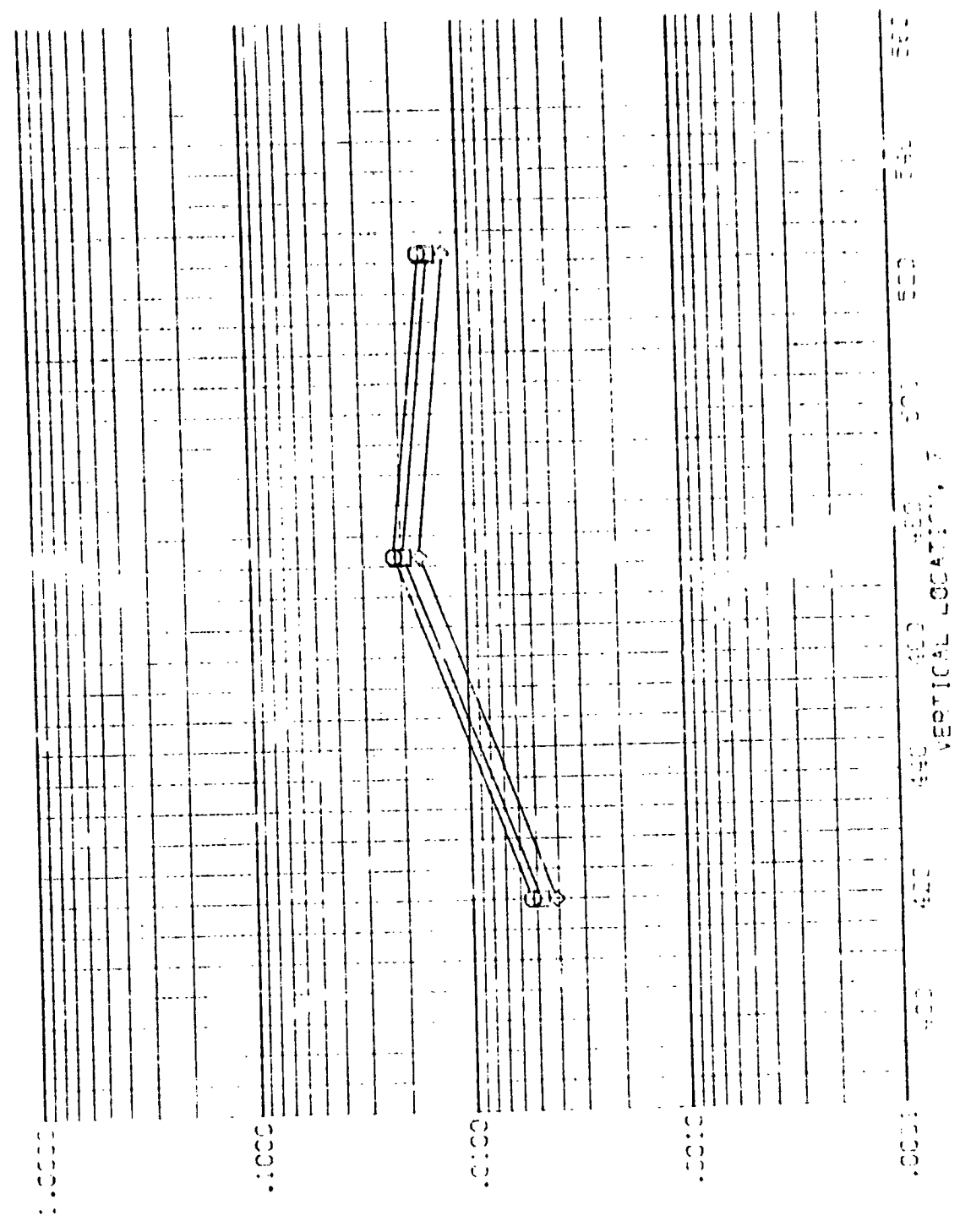


FIG. 14 0MS POGO ORBITER IN PRESENCE OF D TANK

AYES 3.5-195 1H28 01+T1 OMS PODS

(REVC12)

SYMBOL HAV. HT X/L VACH  
 ◇ .950 .825 5.220  
 ○ .900  
 △ 1.000

PARAMETRIC VALUES  
 ALPHA 30.000  
 BETA 1.000  
 -5.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

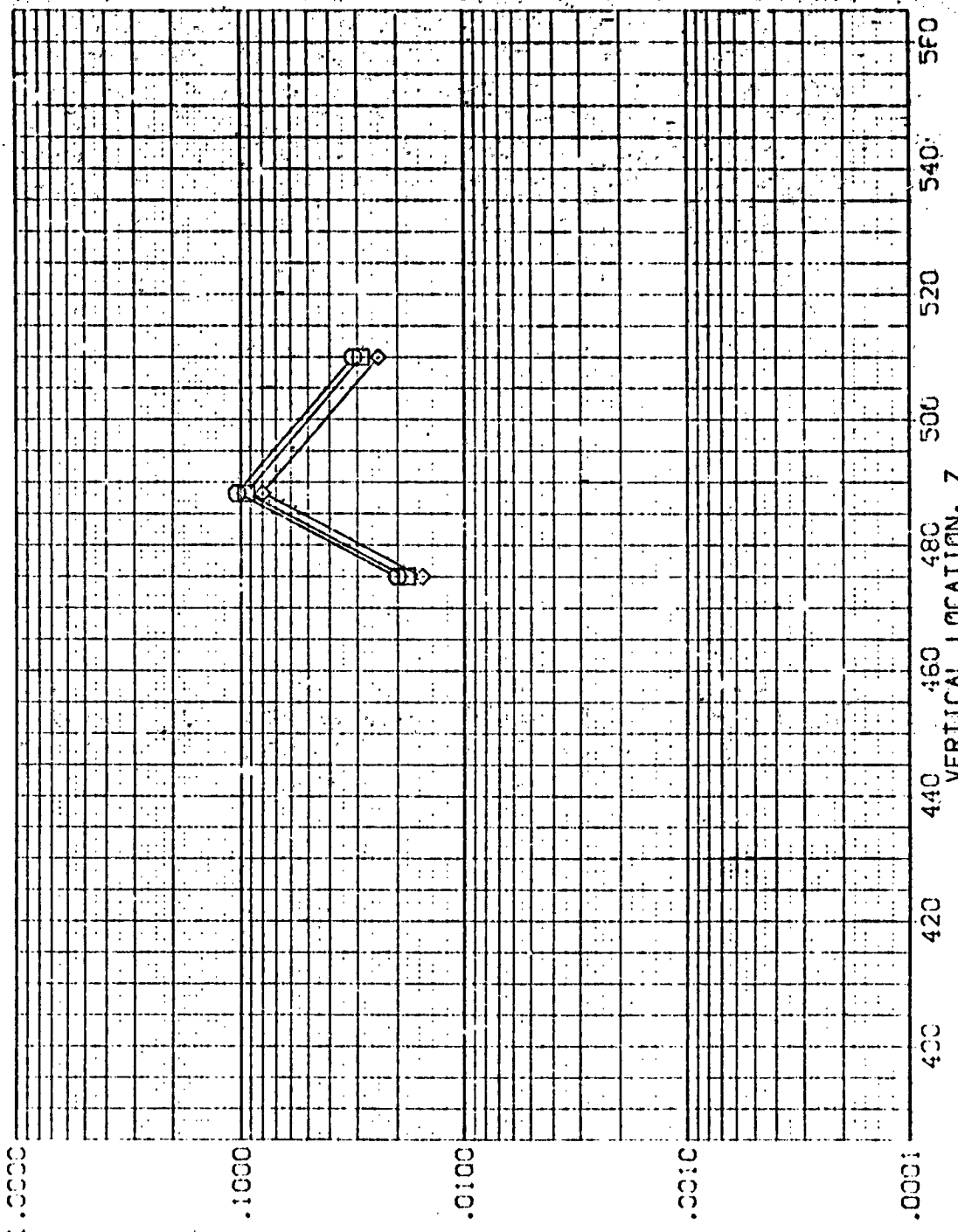


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

AYES 3.5-195 IH28 01+T1 OMS PODS

(REV C12)

SYMBS  
 □ .650  
 ○ .800  
 ◇ 1.000

HAW/HT X/L MACH  
 .650 .900 5.220

PARAMETER VALUES  
 ALPHA 30.000  
 RN/L 1.000  
 BETA -5.000

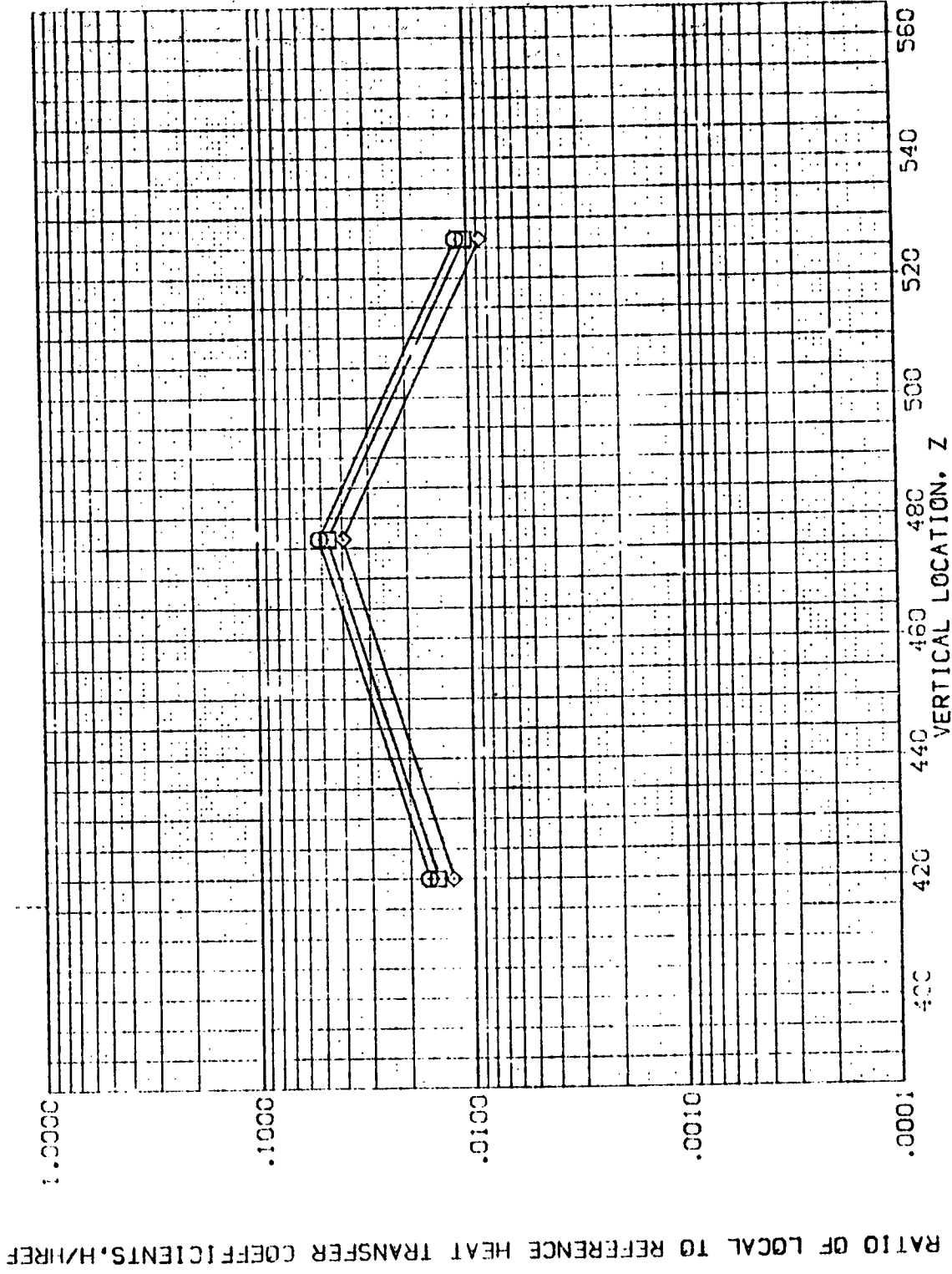


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RM/L
(REV001)	AMES 3.5-195 1428 01+11 OVS PODS	.000	.000	1.000
(REV002)	AMES 3.5-195 1428 01+11 OVS PODS	30.000	.000	1.000
(REV003)	AMES 3.5-195 1428 01+11 OVS PODS	60.000	.000	1.000
(REV004)	AMES 3.5-195 1428 01+11 OVS PODS	90.000	.000	1.000
(REV005)	AMES 3.5-195 1428 01+11 OVS PODS	120.000	.000	1.000

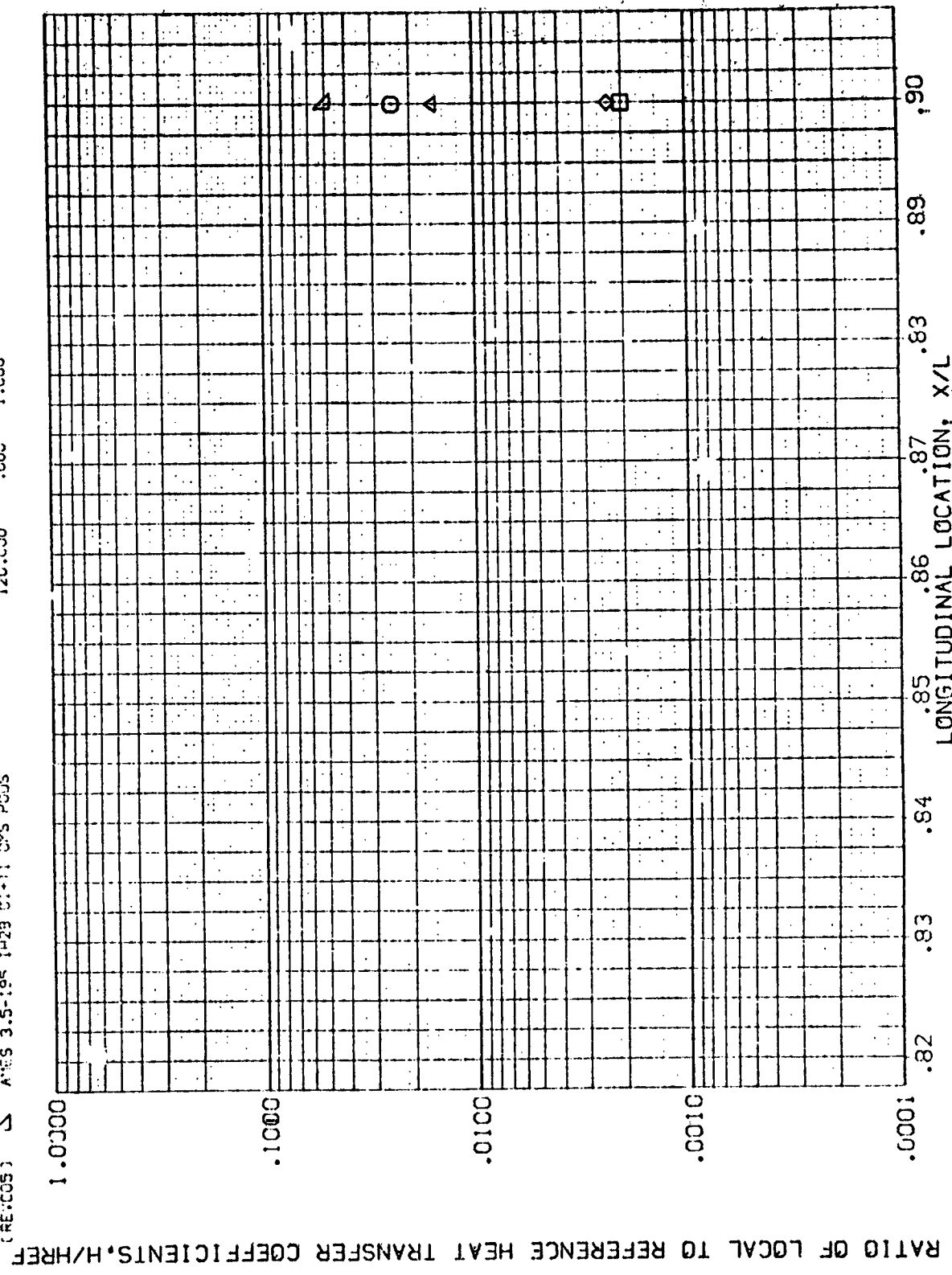


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.200 HAW/HTE = .900 Z = 420 000



DATA SET 3VBR...  
 (REVISION)  
 (REVISION)  
 (REVISION)  
 (REVISION)  
 (REVISION)

CONFIGURATION DESCRIPTION  
 AVES 3.5 195 1428 CI+TI CMS PODS  
 AVES 3.5 195 1428 CI+TI CMS PODS  
 AVES 3.5 195 1428 CI+TI CMS PODS  
 AVES 3.5 195 1428 CI+TI CMS PODS

ALPHA BETA RVL  
 .000 .000 1.000  
 20.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

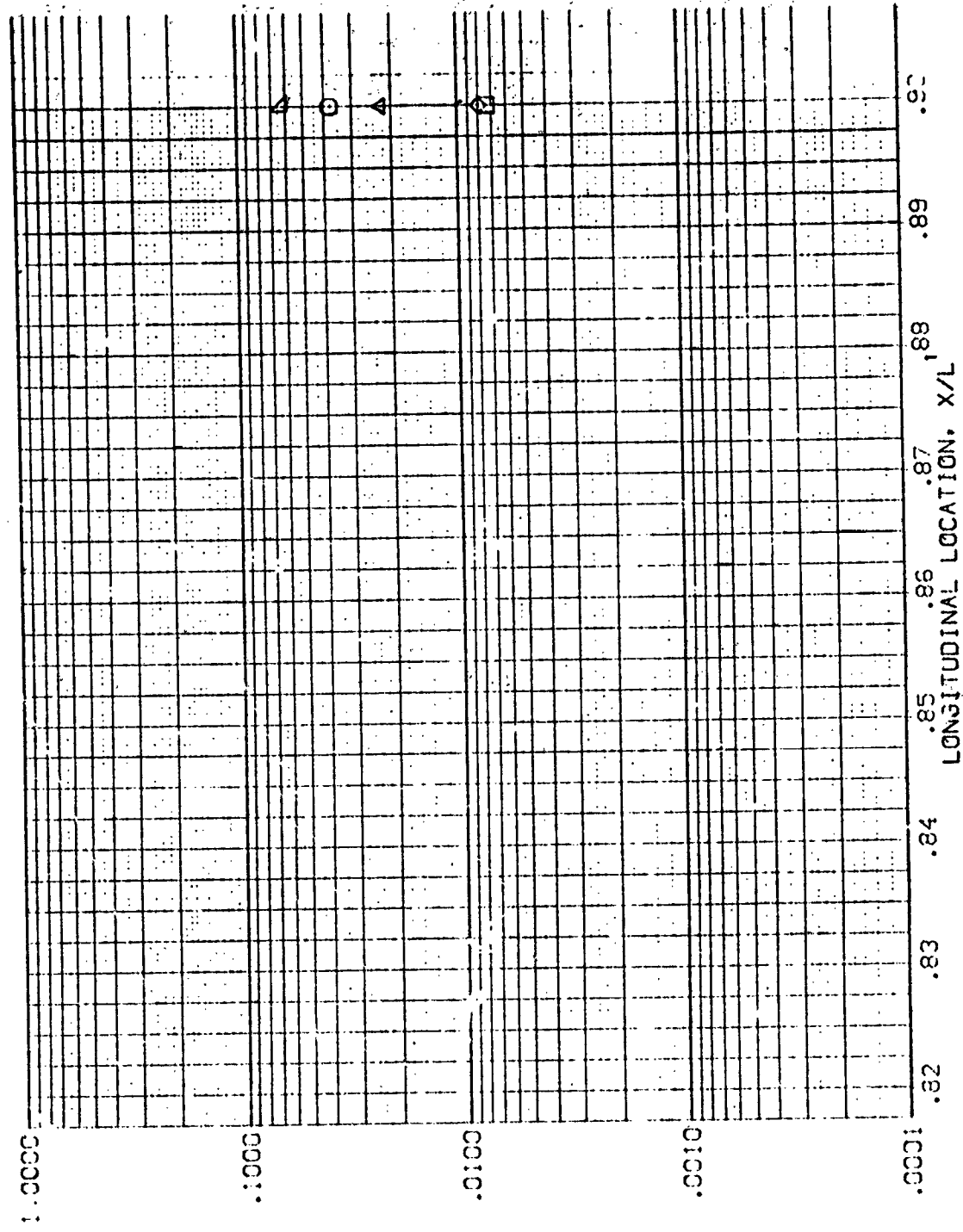


FIG. 14 CMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.200 HAW/HT = .900 Z = 476.660



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 XMS 3.5-195 1-28 01+11 CMS PODS  
 XMS 3.5-195 1-28 01+11 CMS PODS  
 XMS 3.5-195 1-28 01+11 CMS PODS  
 XMS 3.5-195 1-28 01+11 CMS PODS  
 XMS 3.5-195 1-28 01+11 CMS PODS

ALPHA BETA  
 .000 .000  
 30.000 .000  
 60.000 .000  
 90.000 .000  
 120.000 .000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

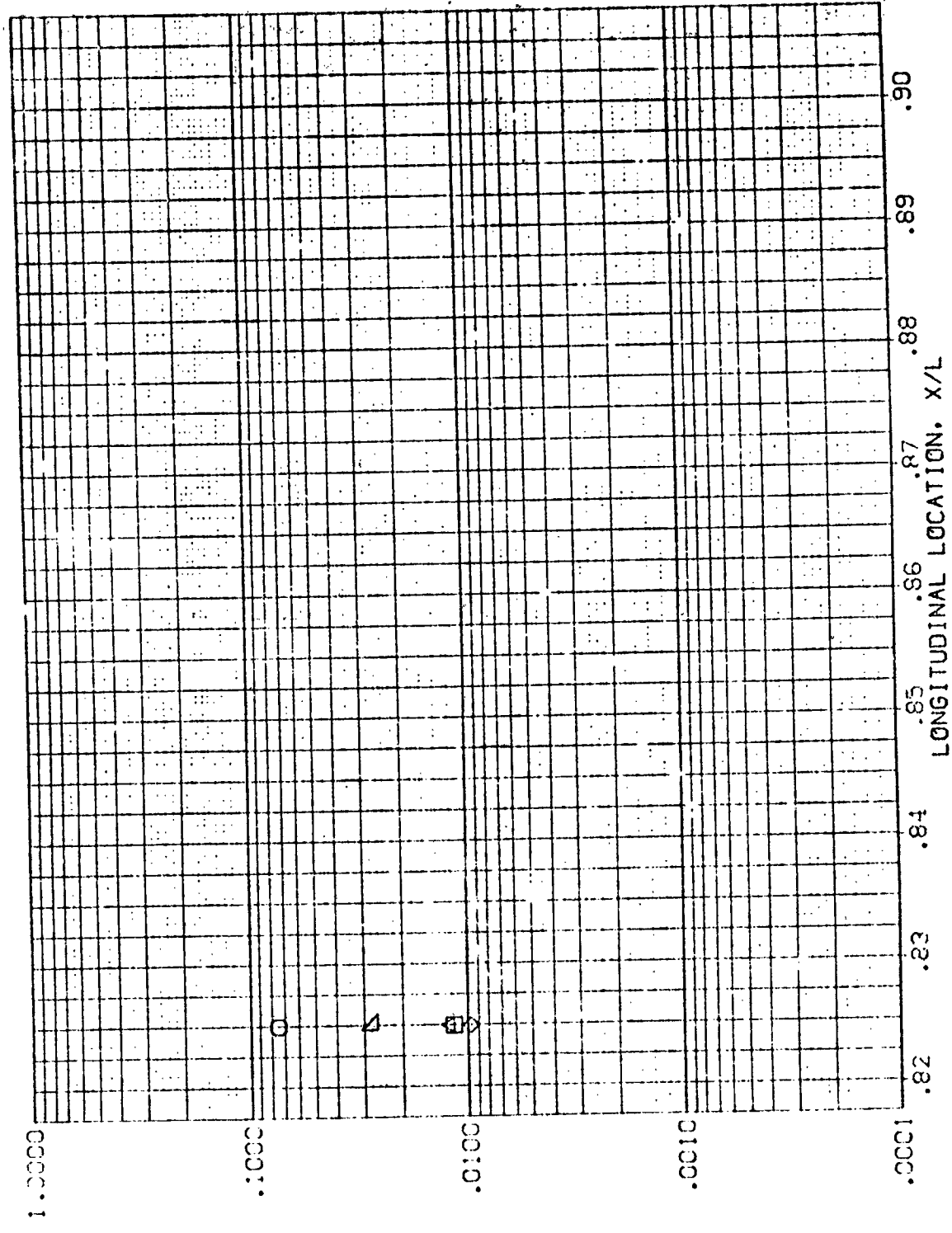
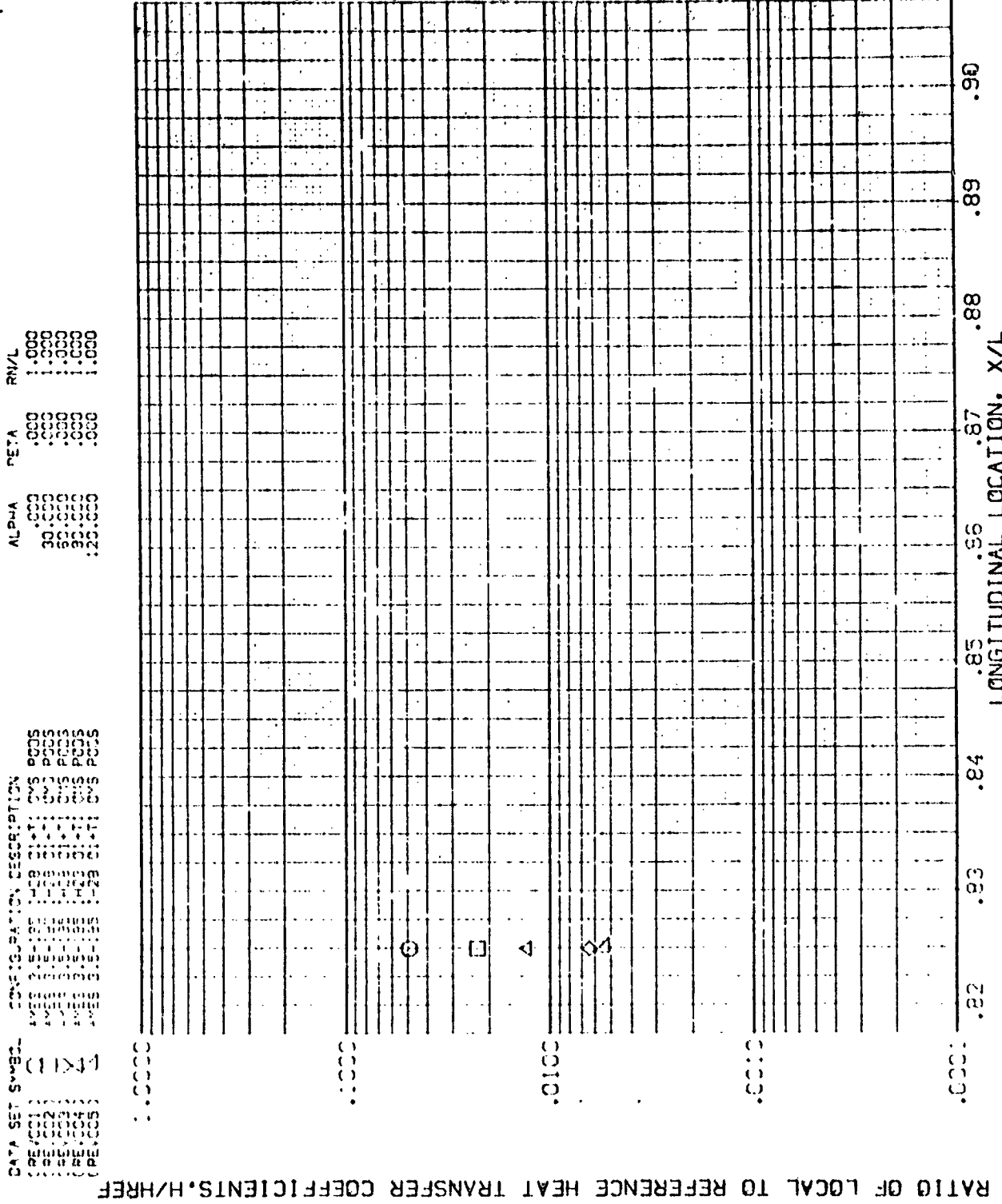


FIG. 14 CMS PODS, ORBITER IN PRESENCE OF THE TANK

WACU = 5.300 HAW/HT = .900 Z = 488.300



DATA SET 54821  
 X/L  
 Y/L  
 Z/L  
 ALPHA  
 BETA  
 RNU/L

CONFIGURATION DESCRIPTION  
 CMS  
 P005  
 P005  
 P005  
 P005  
 P005  
 P005

END

FIG. 14 CMS P005, ORBITER IN PRESENCE OF THE TANK  
 LONGITUDINAL LOCATION, X/L

DATA OF SUBJECT      LONGITUDINAL LOCATION, DESCRIPTION      ALPHA      SET      S      G

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

00000000      00000000      00000000      00000000      00000000      00000000

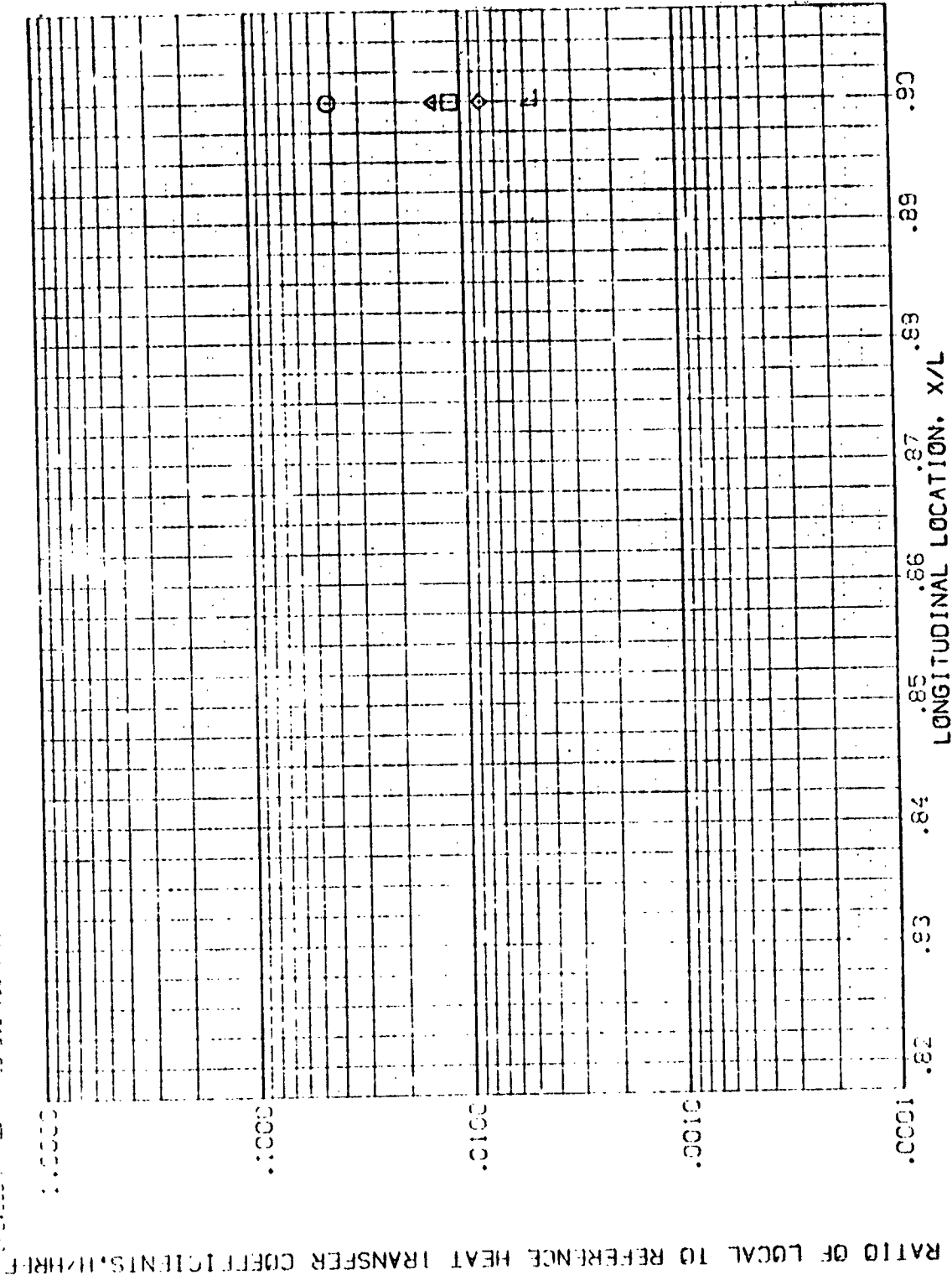


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

WICH = 5.300      H = 0.900      Z = 526.360

DATA SET NAME  
 1111111111  
 1111111111  
 1111111111  
 1111111111  
 1111111111  
 1111111111  
 1111111111  
 1111111111  
 1111111111

COMP. FIG. RA. T. C. DESCRIPTION  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS  
 111111 111111 0MS PODS

ALPHA BETA RV/L  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

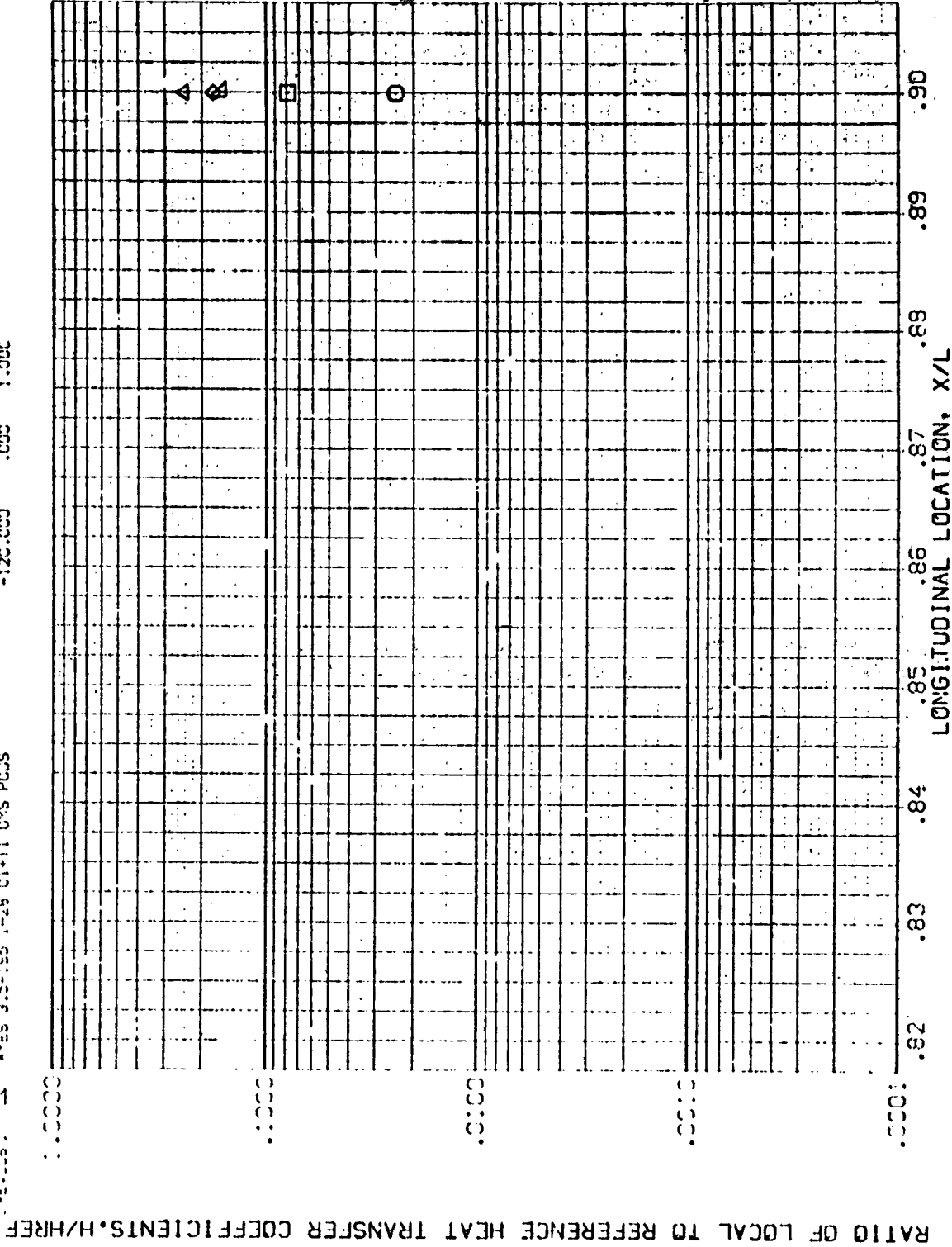


FIG. 14 0MS PODS. ORBITER IN PRESENCE OF THE TANK

DATA SET NUMBER: 000000  
 OPERATOR: J. R. B. (1)  
 DATE: 11/11/68  
 TIME: 11:15  
 ALPHA: 0.00000  
 BETA: 0.00000  
 GAMMA: 0.00000  
 DELTA: 0.00000  
 EPSILON: 0.00000  
 ZETA: 0.00000  
 ETA: 0.00000  
 THETA: 0.00000  
 IOTA: 0.00000  
 KAPPA: 0.00000  
 LAMDA: 0.00000  
 MU: 0.00000  
 NU: 0.00000  
 XI: 0.00000  
 PI: 0.00000  
 RHO: 0.00000  
 SIGMA: 0.00000  
 TAU: 0.00000  
 Upsilon: 0.00000  
 PHI: 0.00000  
 CHI: 0.00000  
 PSI: 0.00000  
 OMEGA: 0.00000  
 LAMBDA: 0.00000  
 MU: 0.00000  
 NU: 0.00000  
 XI: 0.00000  
 PI: 0.00000  
 RHO: 0.00000  
 SIGMA: 0.00000  
 TAU: 0.00000  
 Upsilon: 0.00000  
 PHI: 0.00000  
 CHI: 0.00000  
 PSI: 0.00000  
 OMEGA: 0.00000

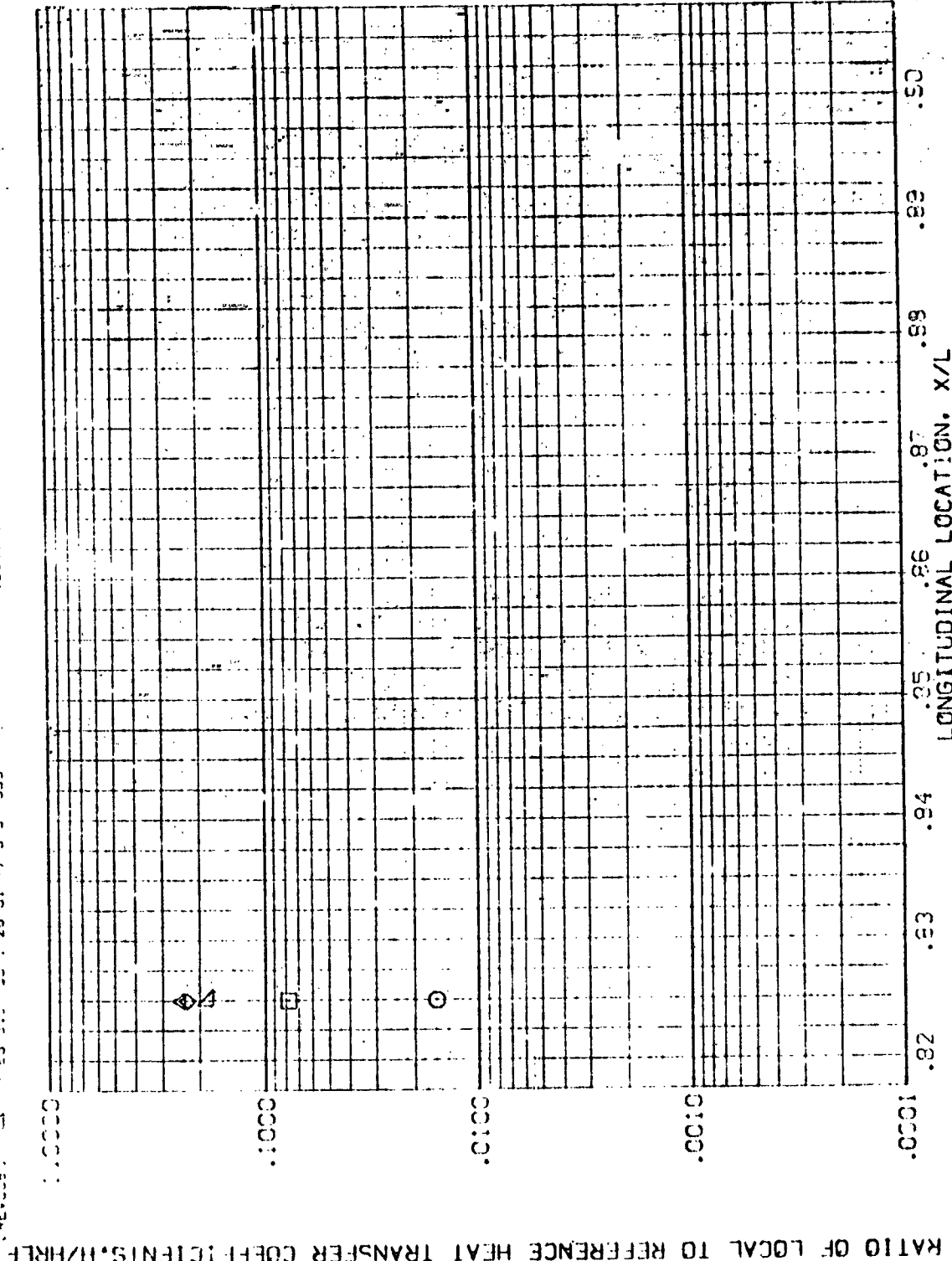


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MAC = 5.300     $\mu = 0.0001$      $Z = 475.000$     PAGE 752

OFFICE OF AERONAUTICAL RESEARCH AND DEVELOPMENT  
 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS,  $h_x/h_r$

10000  
5000  
0  
-5000  
-10000  
-15000  
-20000  
-25000  
-30000  
-35000  
-40000  
-45000  
-50000  
-55000  
-60000  
-65000  
-70000  
-75000  
-80000  
-85000  
-90000  
-95000  
-100000

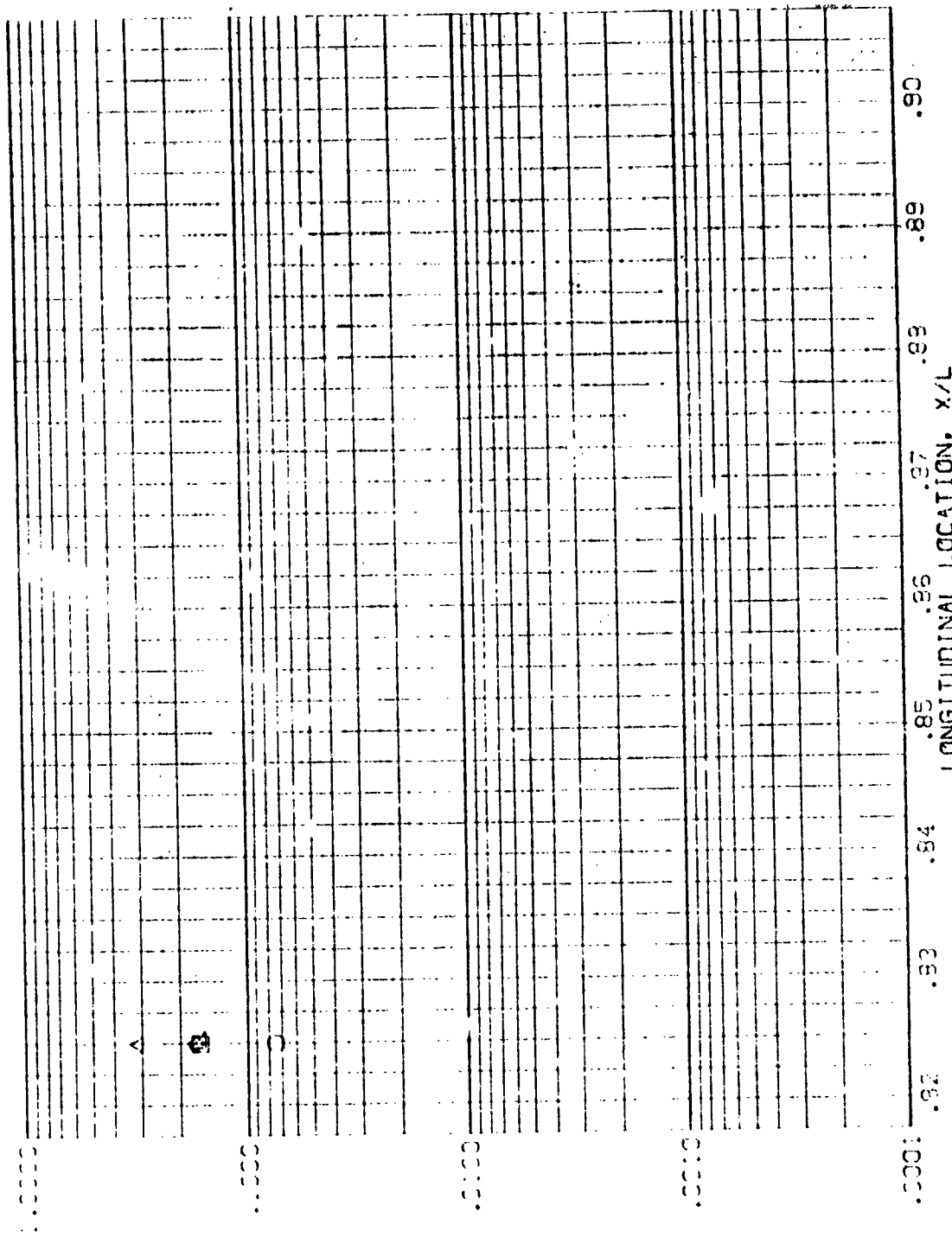


FIG. 14 CMS PODS, ORBITER IN PRESENCE OF THE TANK

$MAC = 5.000$      $W/T = 0.300$      $E = 489.300$

DATA SUMMARY  
COEFFICIENT DESCRIPTION  
ALPHA BETA DV/L

0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000
0.0000	0.000000	0.000000	0.000000

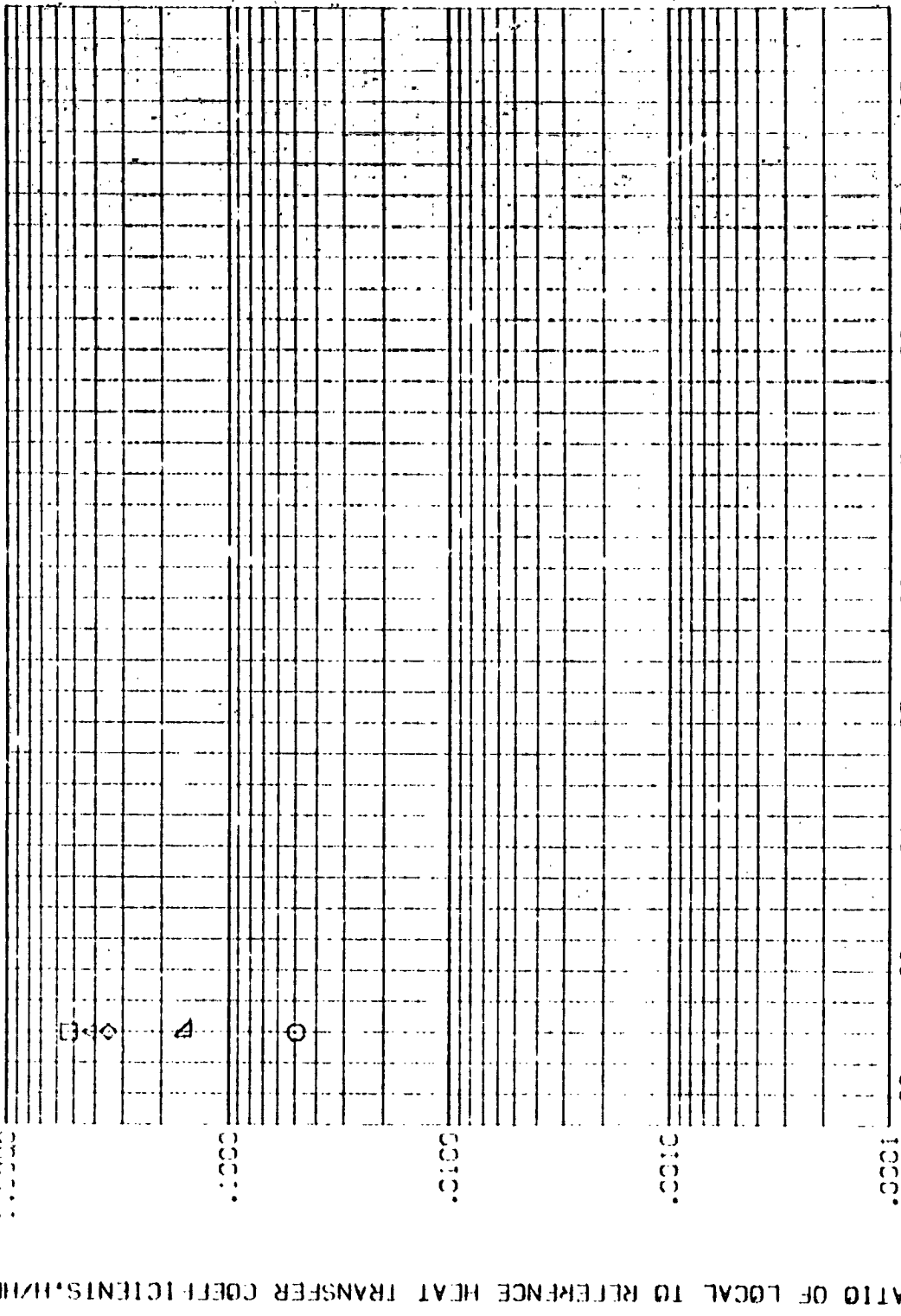


FIG. 14 GMS PODS, ORBITER IN PRESENCE OF THE TANK  
WACH = 5.000 WACH/PRE = .900 Z = 510.000





DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (REV. 02) AXS 3 5 1 05 1 28 01 411 0MS PODS  
 (REV. 03) AXS 3 5 1 03 1 29 01 411 0MS PODS  
 (REV. 04) AXS 3 5 1 05 1 29 01 411 0MS PODS  
 (REV. 05) AXS 3 5 1 05 1 28 01 411 0MS PODS

ALPHA BETA RIN/L  
 20.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 80.000 .000 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

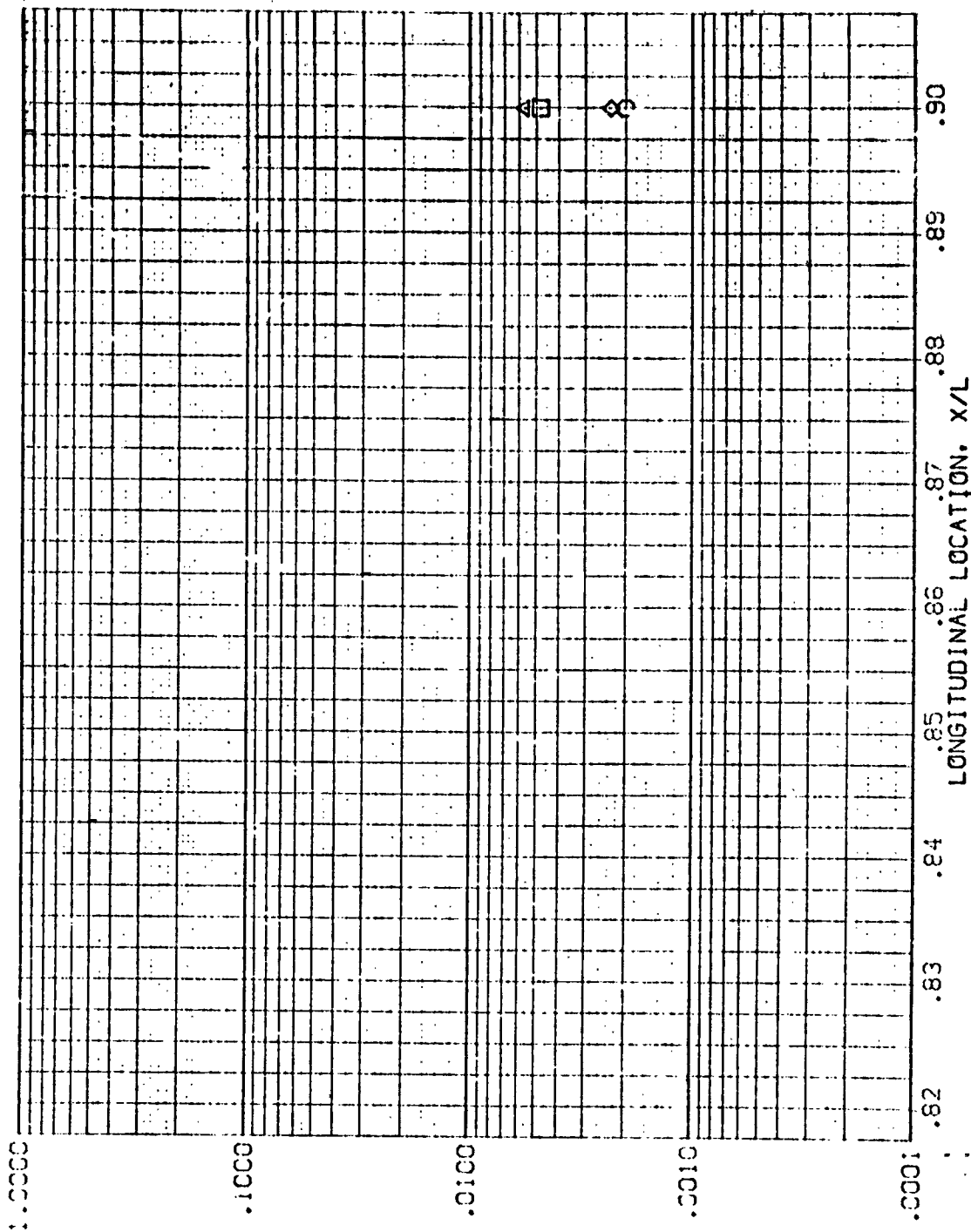


FIG. 14 0MS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.200 HAW/HREF = .900 Z = 420.000

DATA SET SYMBOLS: CONFIGURATION DESCRIPTION  
 128 01+1 0MS PODS  
 128 01+1 0MS  
 128 01+1 0MS  
 128 01+1 0MS  
 128 01+1 0MS

A-D-P-A BETA  
 30.000  
 30.000  
 30.000  
 30.000  
 30.000

FA/L  
 4.000  
 4.000  
 4.000  
 4.000  
 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, HZ/REF

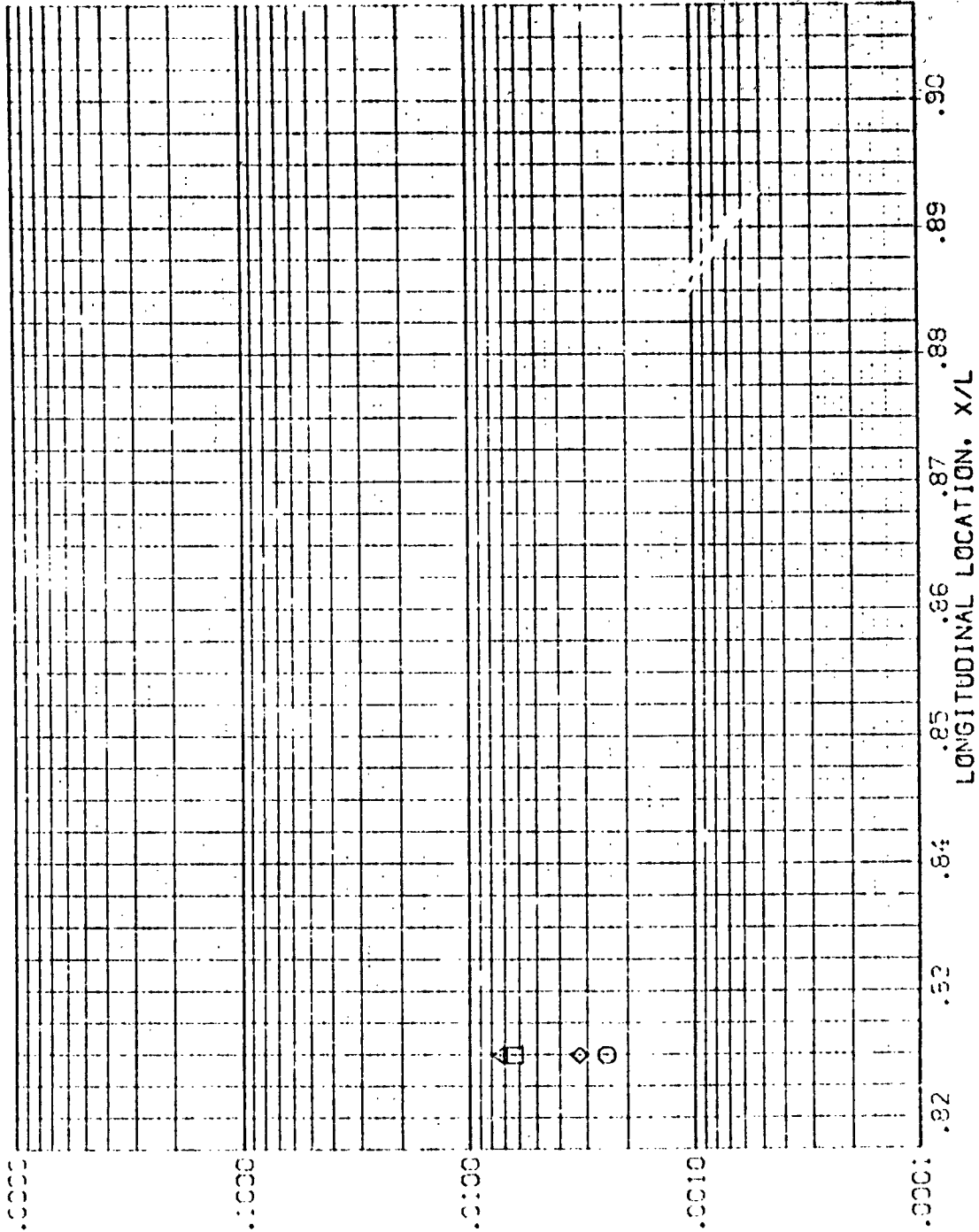


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.000 ALTITUDE = 9000 Z = 475.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	RN/L
AVES 3.5.195	H28 C1-T1 CMS P005	30.000	.000	1.000
AVES 3.5.195	H28 C1-T1 CMS P005	30.000	.000	4.000
AVES 3.5.195	H28 C1-T1 CMS P005	60.000	.000	1.000
AVES 3.5.195	H28 C1-T1 CMS P005	60.000	.000	4.000

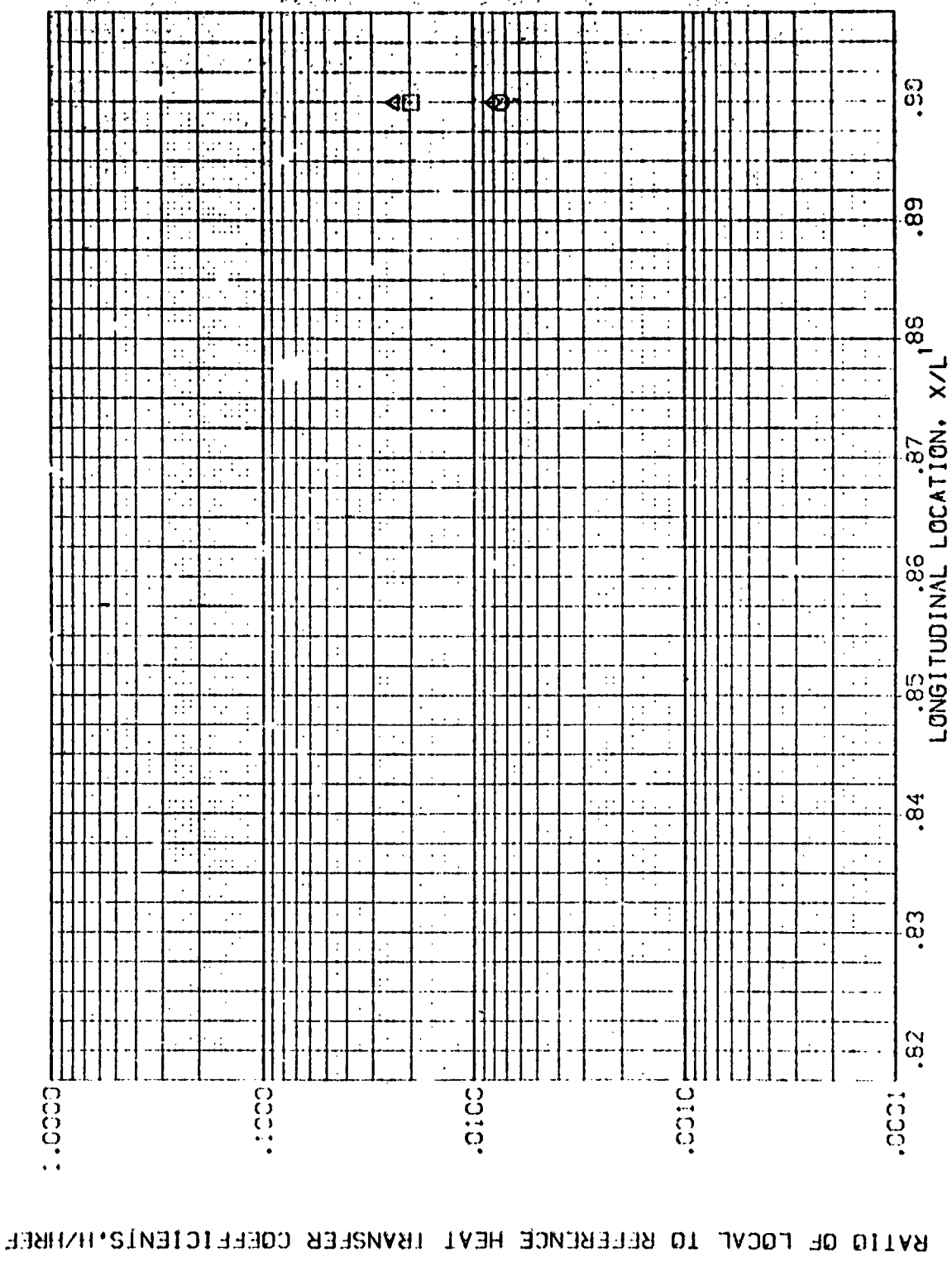


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 H/W/HT = .900 Z = 476.660

DATA SET 5M5C1  
 1.0000000  
 1.0000000  
 1.0000000  
 1.0000000  
 1.0000000

CONFIGURATION DESCRIPTION

AMES 3.5-135 1428 31+11 OMS PODS  
 AMES 3.5-135 1428 31+11 OMS PODS  
 AMES 3.5-135 1428 31+11 OMS PODS  
 AMES 3.5-135 1428 31+11 OMS PODS

ALPHA BETA PV/L  
 30.000 .000 1.000  
 30.000 .000 4.000  
 60.000 .000 1.000  
 60.000 .000 4.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

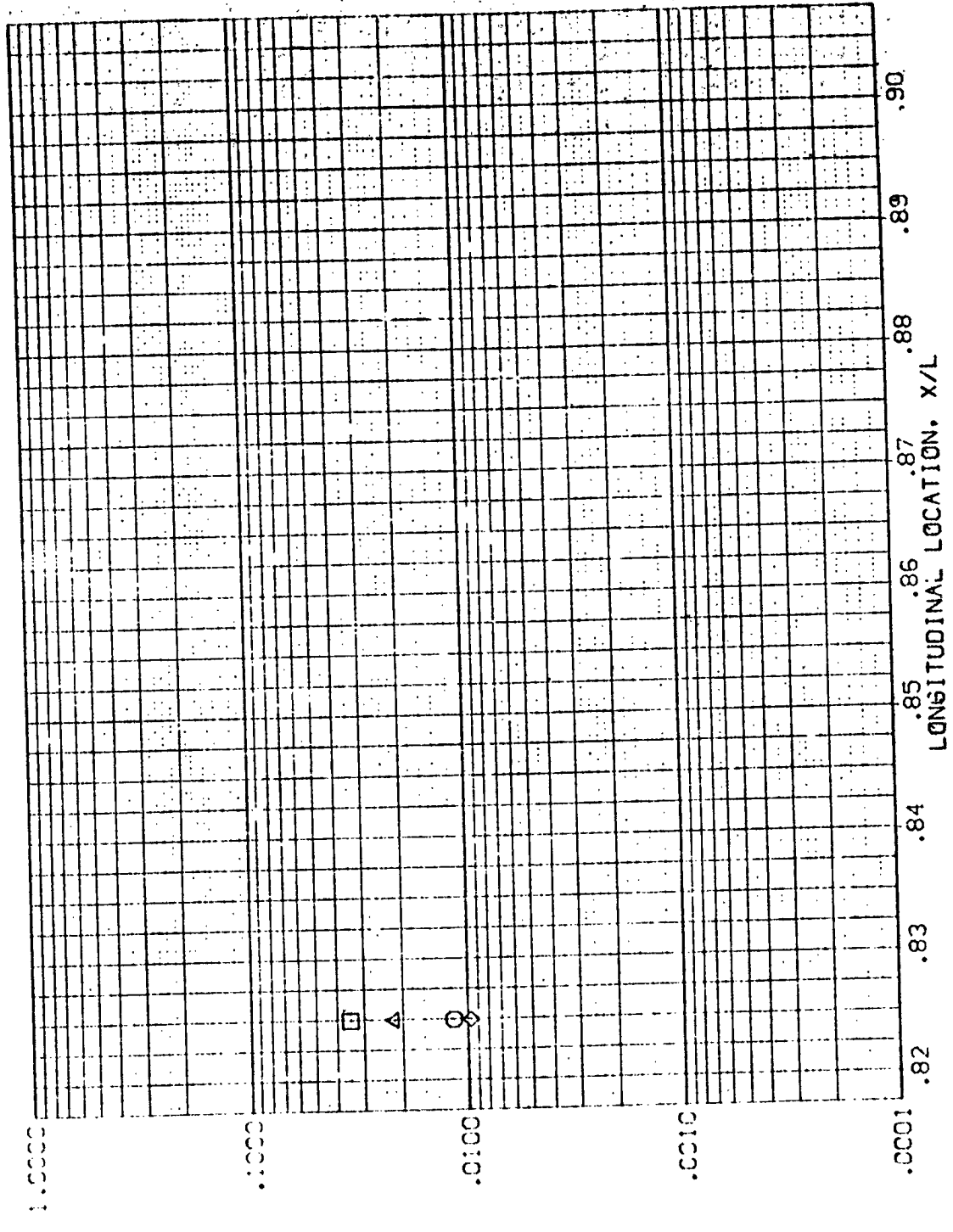


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 H<sub>A</sub>/H<sub>T</sub> = .900 Z = 488.000

ALPHA	BETA	RN/L
30.000	.000	1.000
30.000	.000	4.000
60.000	.000	1.000
60.000	.000	4.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
001	AVES 3.5-1.95 1428 CI+11 CWS PODS
002	AVES 3.5-1.95 1428 CI+11 CWS PODS
003	AVES 3.5-1.95 1428 CI+11 CWS PODS
004	AVES 3.5-1.95 1428 CI+11 CWS PODS

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

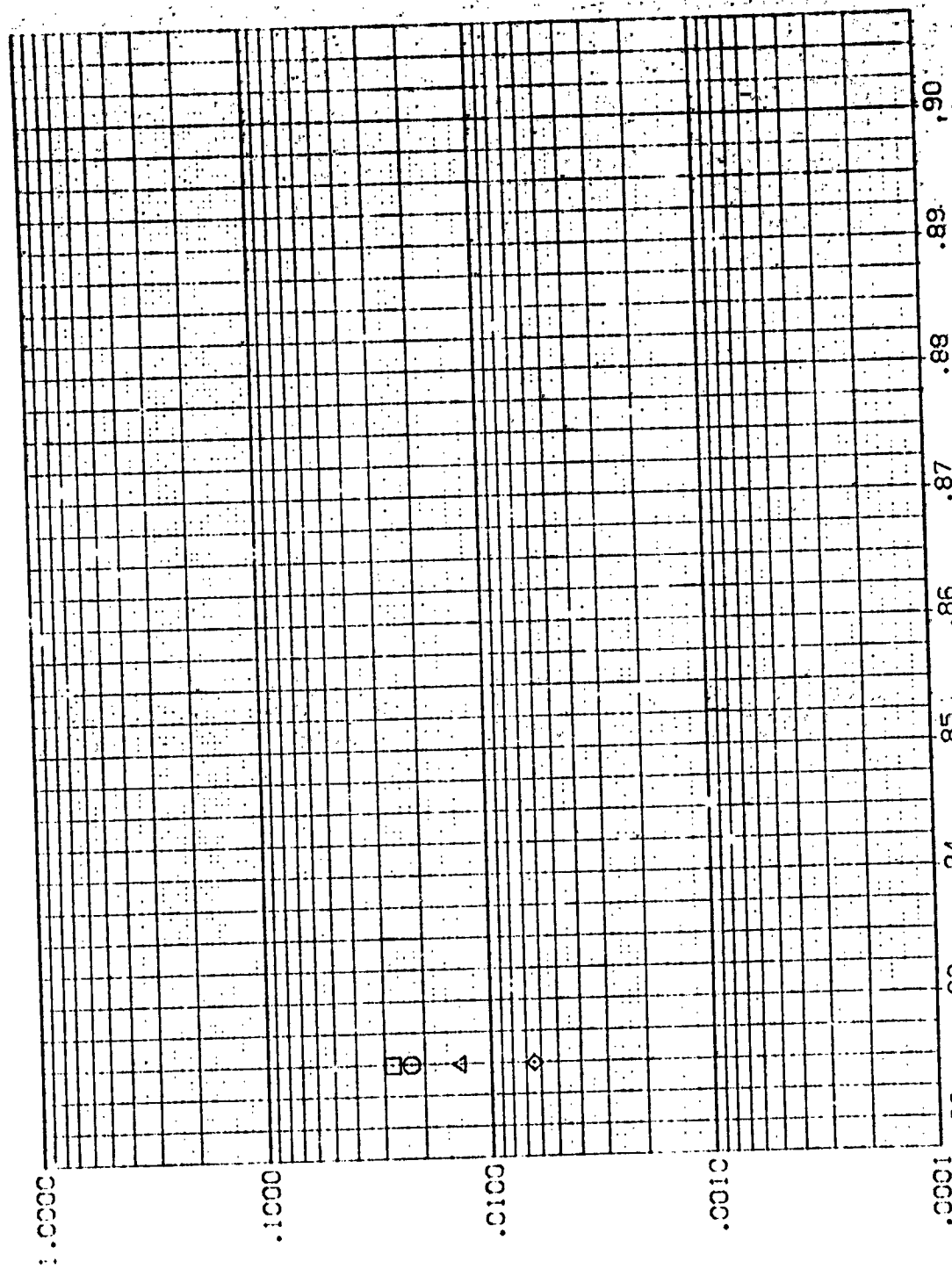


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HALL/HT = .900 Z = 510.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 OMS 3-5-195 1-28 OI+II OMS PODS  
 OMS 3-5-195 1-28 OI+I OMS PODS  
 OMS 3-5-195 1-28 OI+II OMS PODS  
 OMS 3-5-195 1-28 OI+I OMS PODS

ALPHA BETA FUEL  
 33.000 .000 1.800  
 33.000 .000 1.800  
 60.000 .000 1.800  
 60.000 .000 4.000

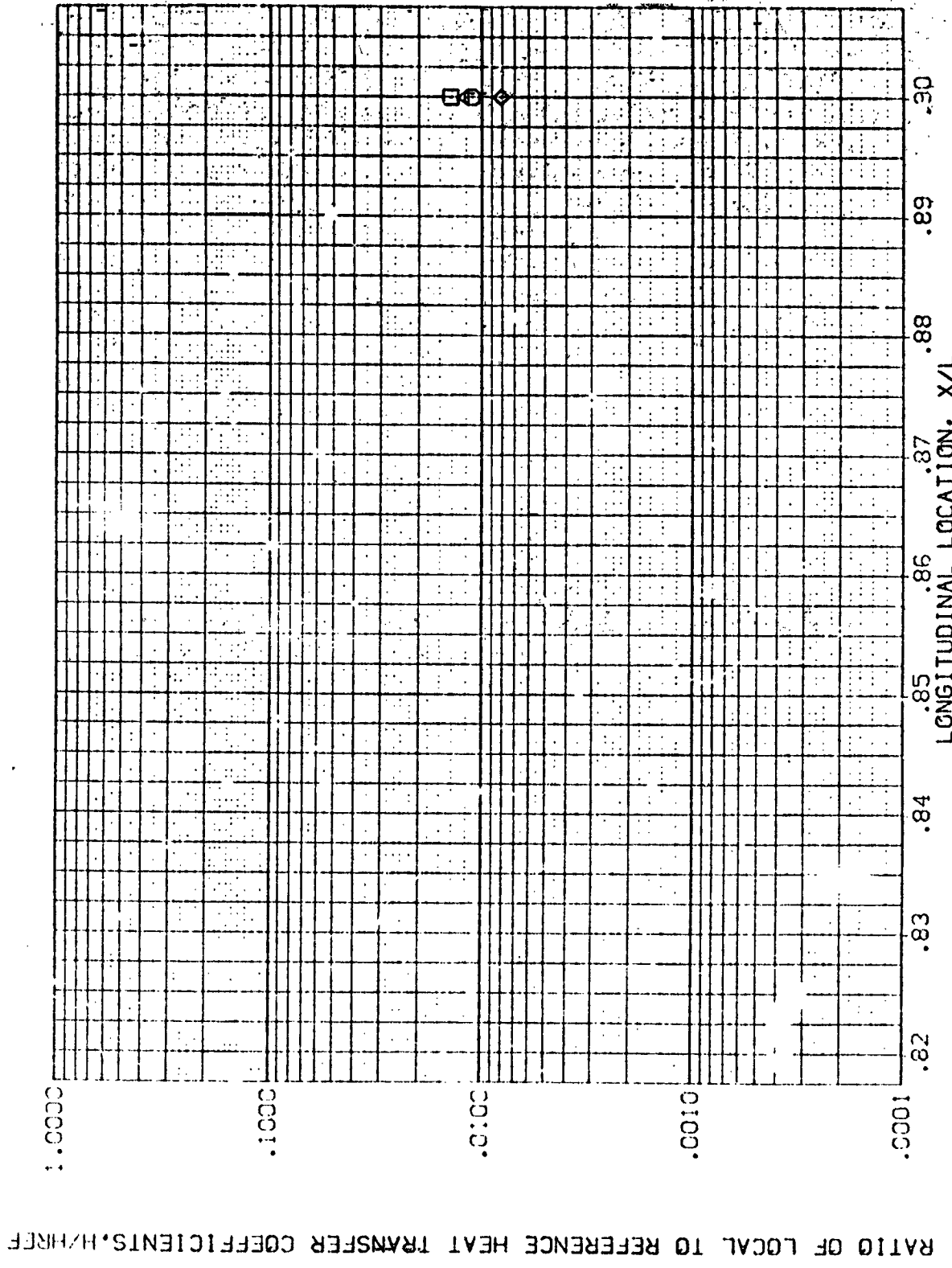


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 Z = 526.660 PAGE 762

DATA SET SYMBOL: 0  
 CONFIGURATION DESCRIPTION: AXES 3.5-195 1-28 01.71 0MS P005  
 AXES 3.5-195 1-28 01.71 0MS P005

ALPHA: 30.000  
 BETA: .000  
 RMVL: 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

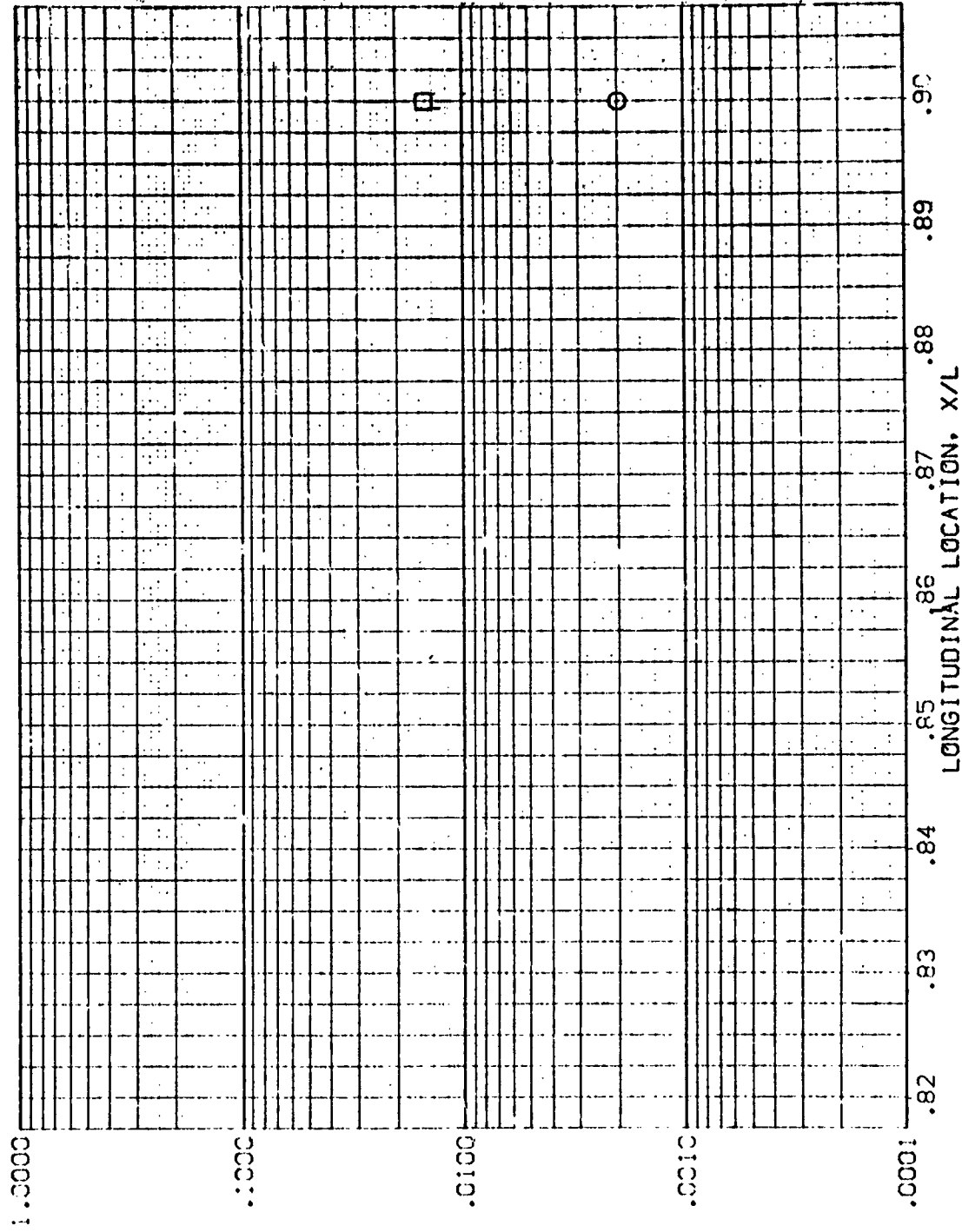


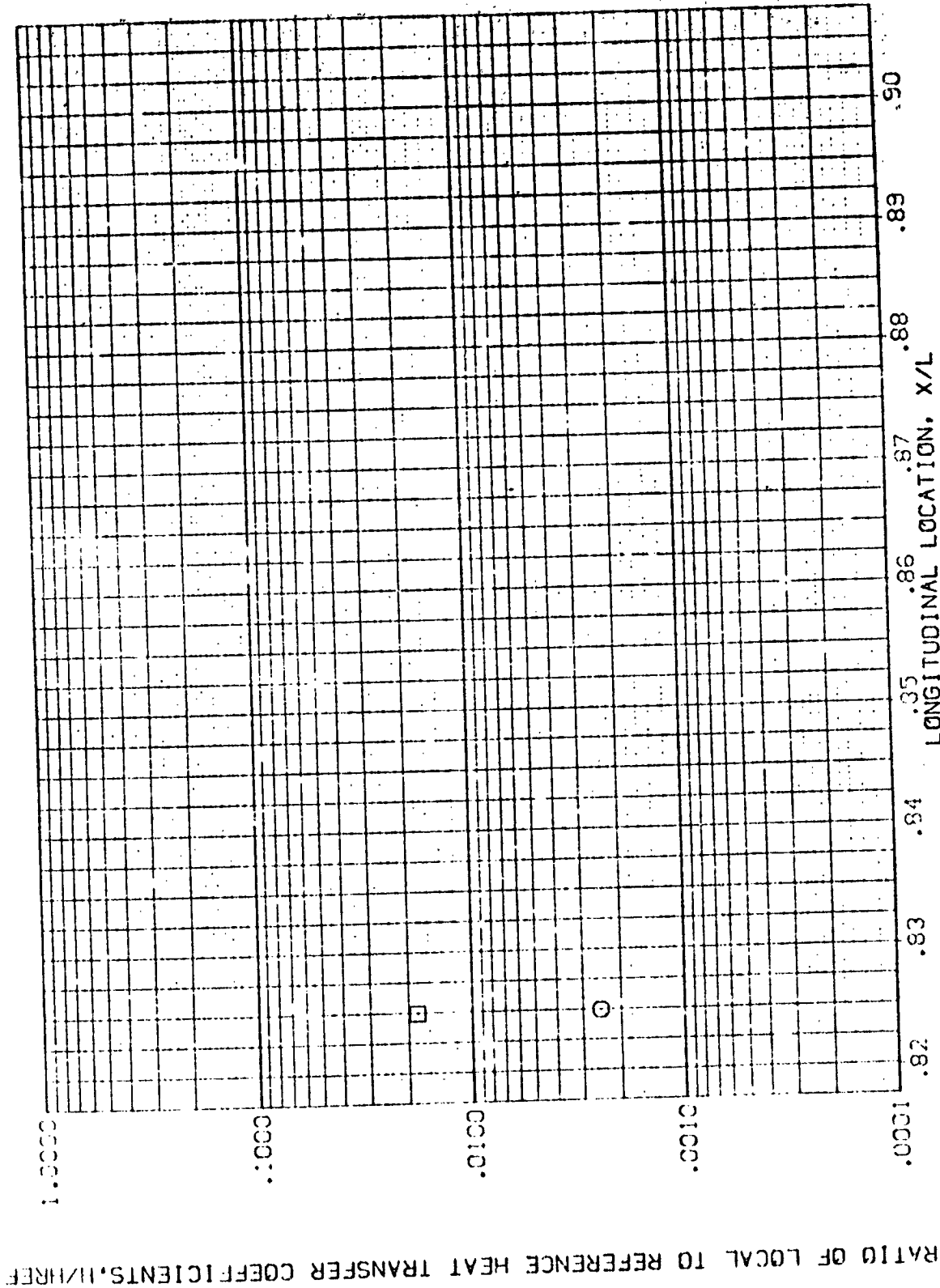
FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

YAC = 5.300 H<sub>0</sub>/HT = .900 Z = 420.000



DATA SET SYMBOL CONFIGURATIC. DESCRIPTION  
 (RECORD) AYES 305-193 1428 01:11 0MS P00S  
 (RECORD) 0 AYES 305-193 1428 01:11 0MS P00S

ALPHA BETA  
 30.000 .000  
 30.000 -5.000



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

FIG. 14 0MS P00S, ORBITER IN PRESENCE OF THE TANK

MACH = 5.300 HAW/HT = .900 Z = 475.000

DATA SET 5-2822  
 (E-022) (I)  
 (E-022) (I)

CONFIGURATION DESCRIPTION  
 AVES 3.5-195 1-28 Q1+T1 QMS PODS  
 AVES 3.5-195 1-28 Q1+T1 QMS PODS

ALPHA BETA RN/L  
 30.000 .200 1.000  
 30.000 -5.000 1.000

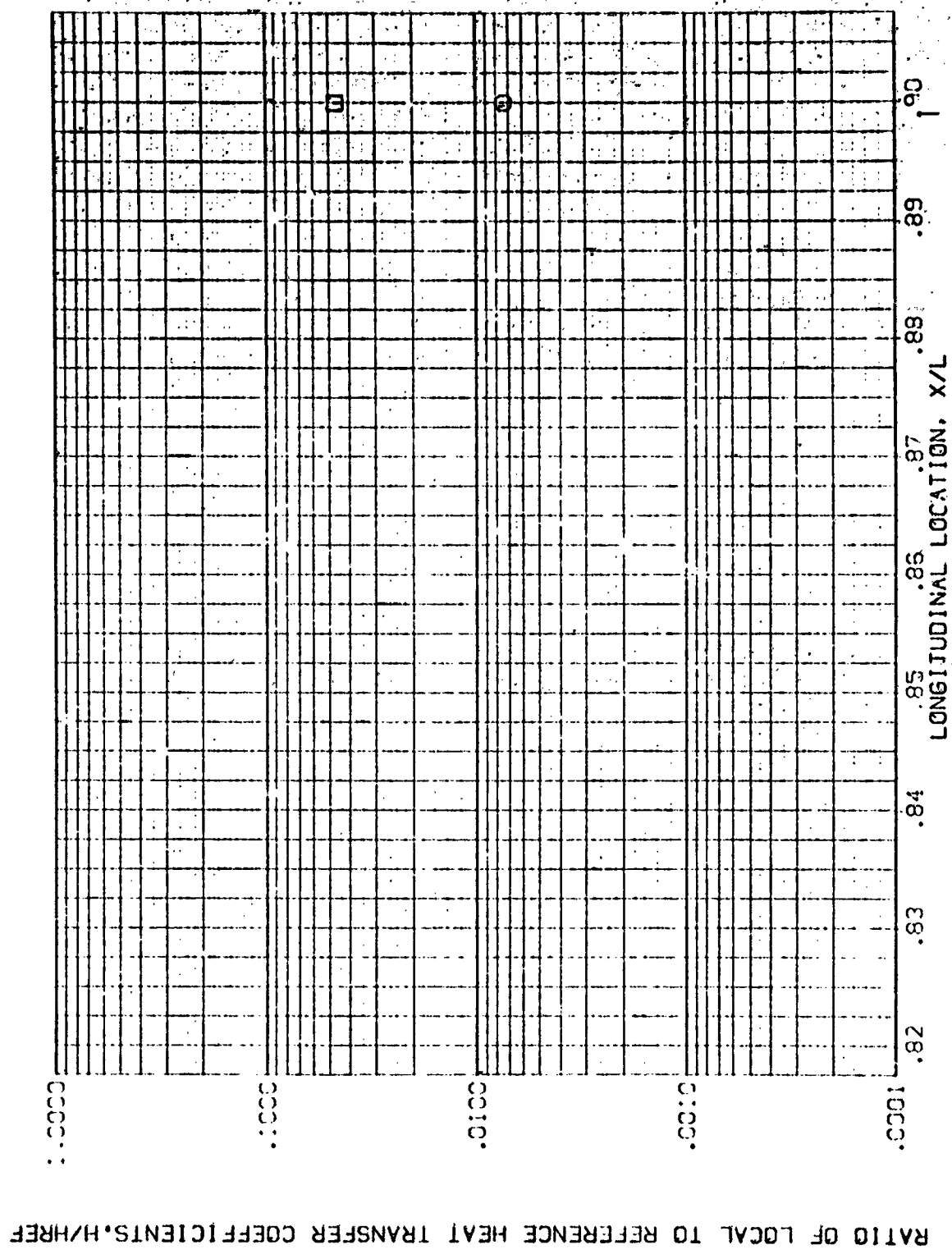


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

MAC = 5.300 - RW/HT = .900 Z = 477.060

DATA SET NAME: CONFIGURATION DESCRIPTION  
 CASE: 215-195 1-28 01-11 CMS PODS  
 CASE: 215-195 1-28 01-11 CMS PODS

ALPHA BETA CN/L  
 20.000 1.000  
 20.000 1.000

RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS, H/HREF

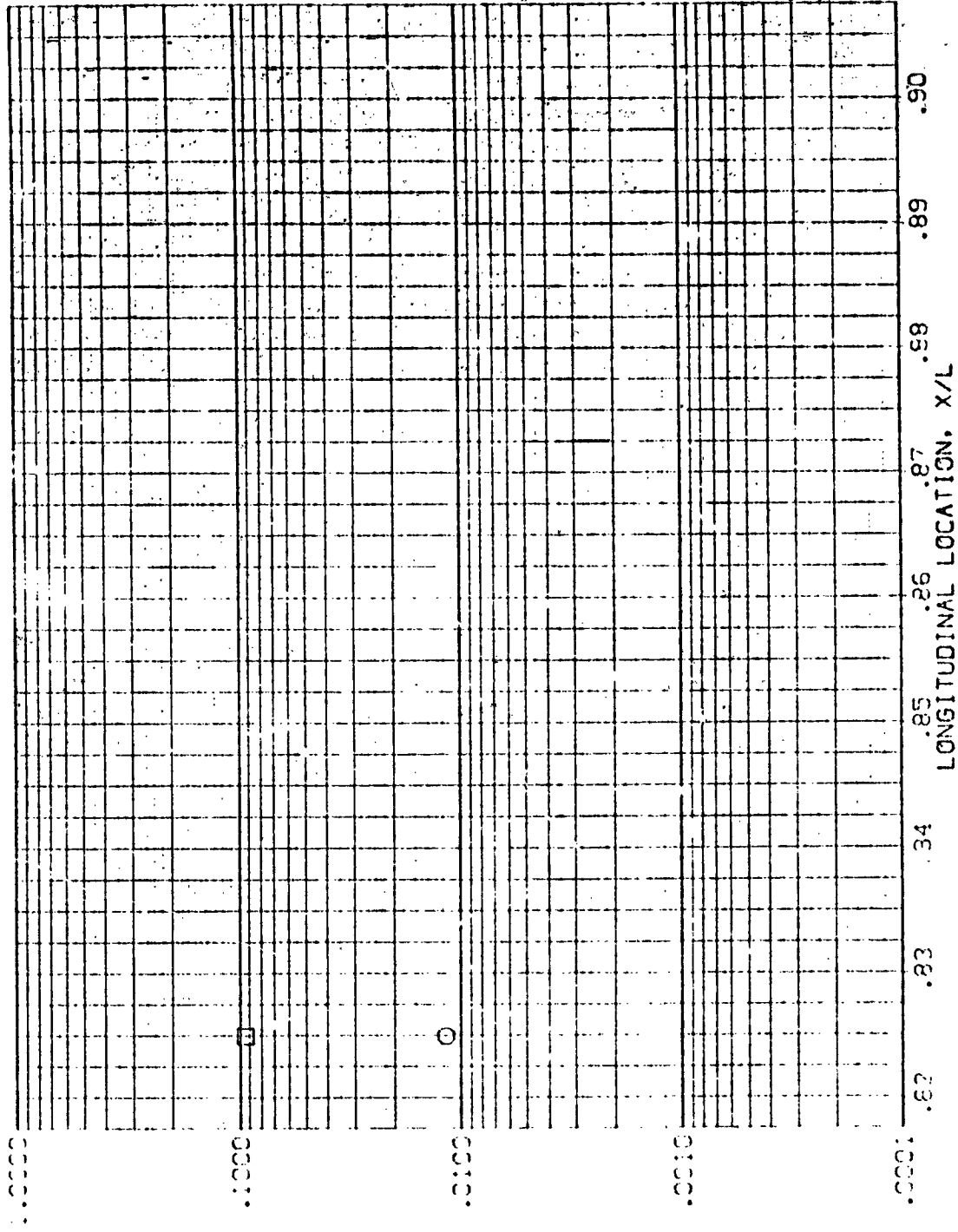


FIG. 14 CMS PODS, ORBITER IN PRESENCE OF THE TANK

MACH = 5.000 W/WREF = .900 Z = 488.000



RATIO OF LOCAL TO REFERENCE HEAT TRANSFER COEFFICIENTS,  $h_x/h_{ref}$

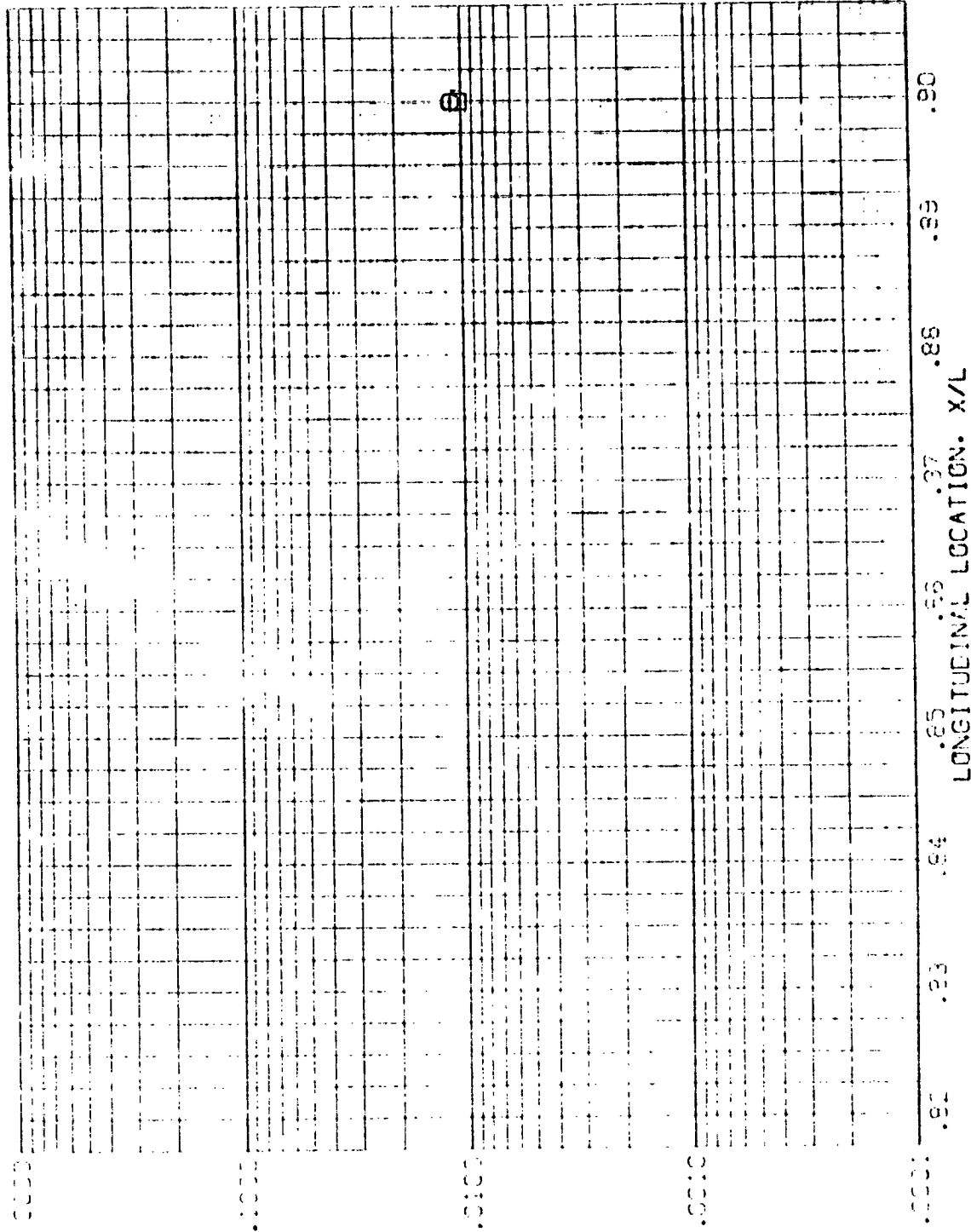


FIG. 14 OMS PODS, ORBITER IN PRESENCE OF THE TANK

WIND VELOCITY = 5.000 M/S (11.2 MPH)       $Re = 526,000$

(BEVC01)

AMES 3.5-195 IH28 01+T1 OMS PODS

PARAMETRIC VALUES  
ALPHA .000  
RN/L 1.000  
BETA .000

HAH/HT .900  
MACH 5.228

SYMBOL Z  
□ 420.000  
◇ 475.000  
◇ 476.660  
◇ 488.300  
◇ 510.000  
◇ 526.660  
100.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

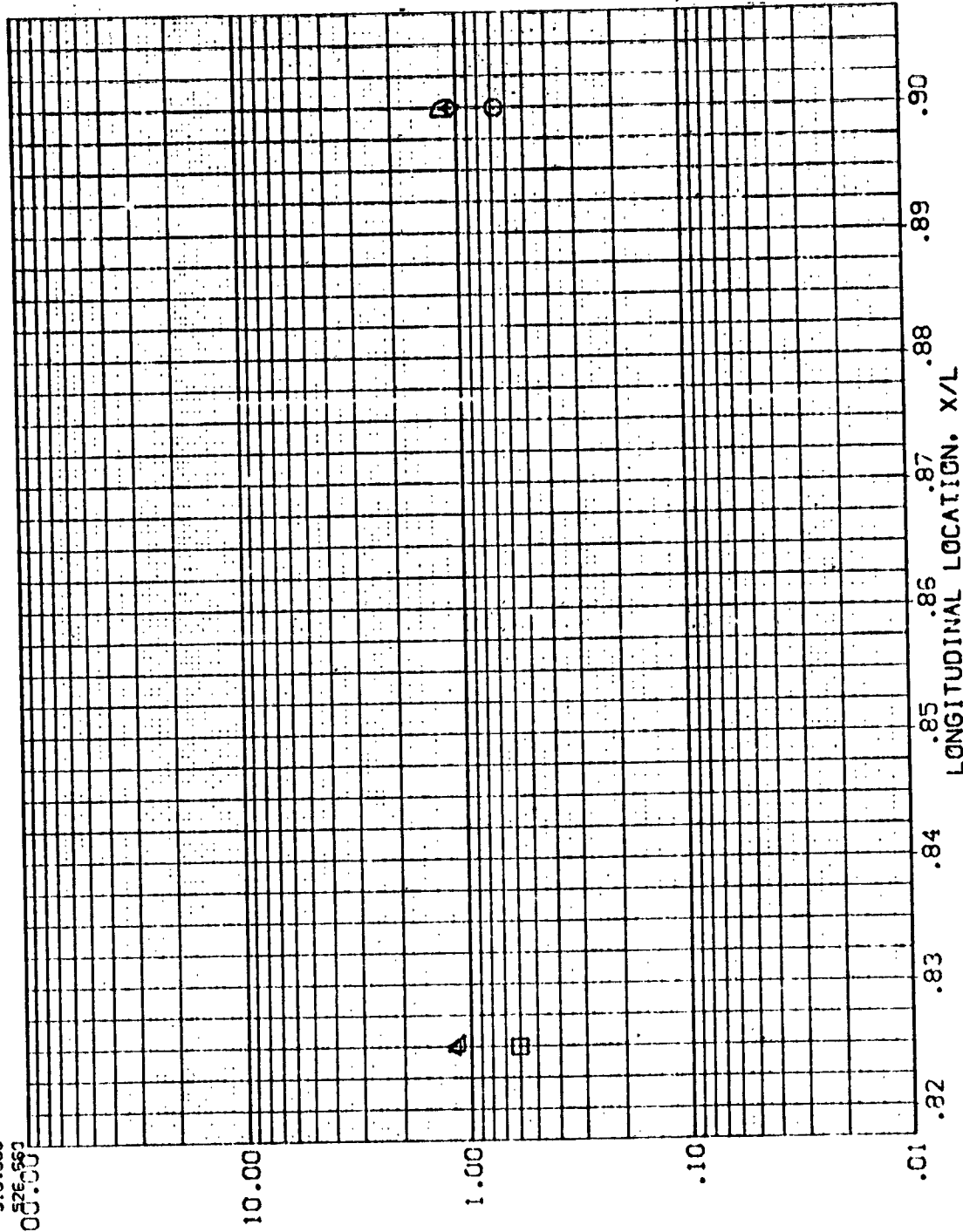


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

174-1100-1000

174-1100-1000

174-1100-1000

174-1100-1000

174-1100-1000

174-1100-1000

174-1100-1000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $\eta$

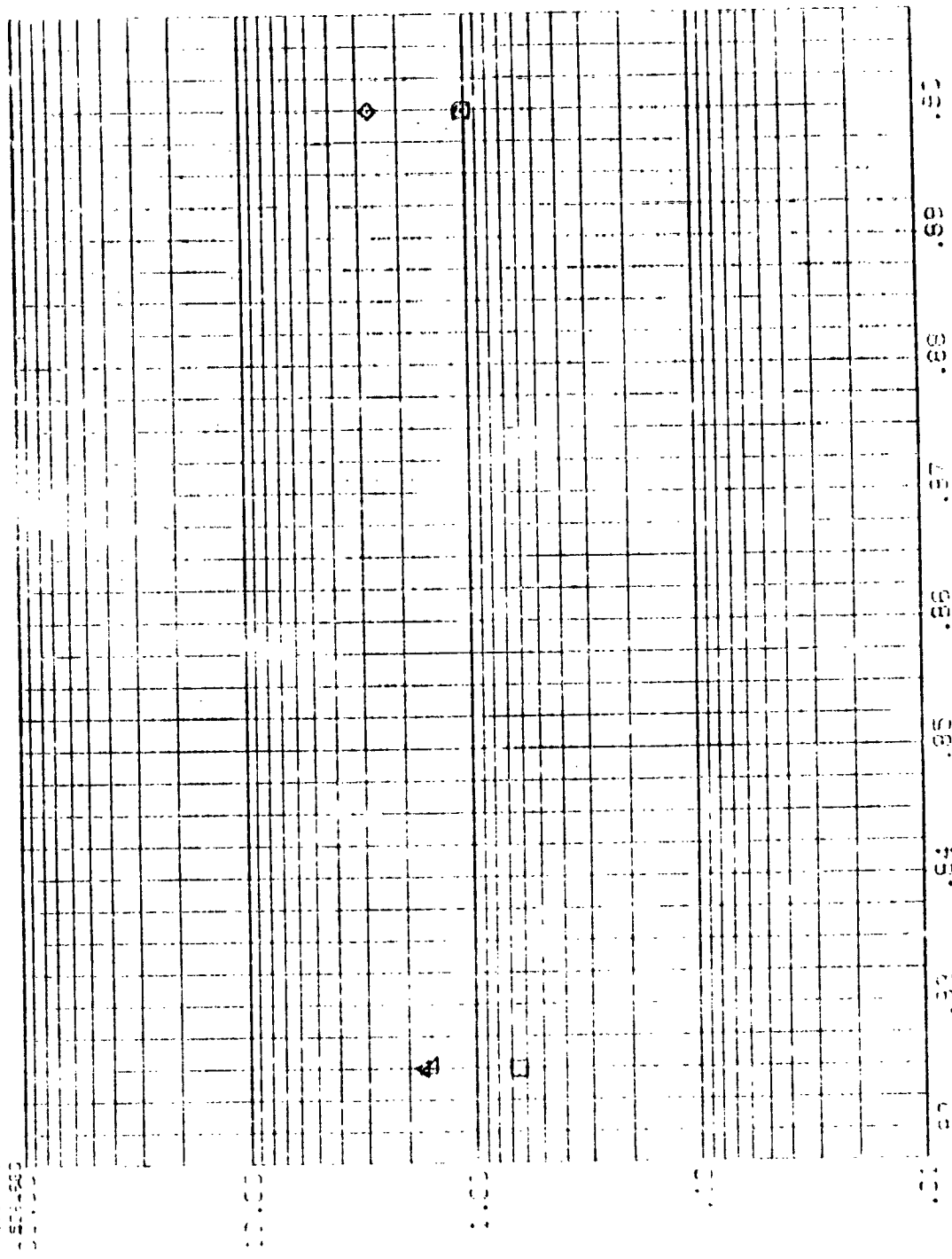


FIG. 15 CMS PDSs. RATIO OF INTERFERENCE TO UNDISTURBED

174-1100-1000

AMES 3.5-195 IH28 01+T1 OMS PODS

(BEVC03)

PARAMETRIC VALUES  
 ALPHA 60.000 BETA .000  
 RN/L 1.000

MAW/PT .900 MACH 5.220

Z  
 423.000  
 475.000  
 476.660  
 488.300  
 510.000  
 528.660  
 540.000

SYMBOL  
 □  
 ▽  
 △  
 ○  
 □

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

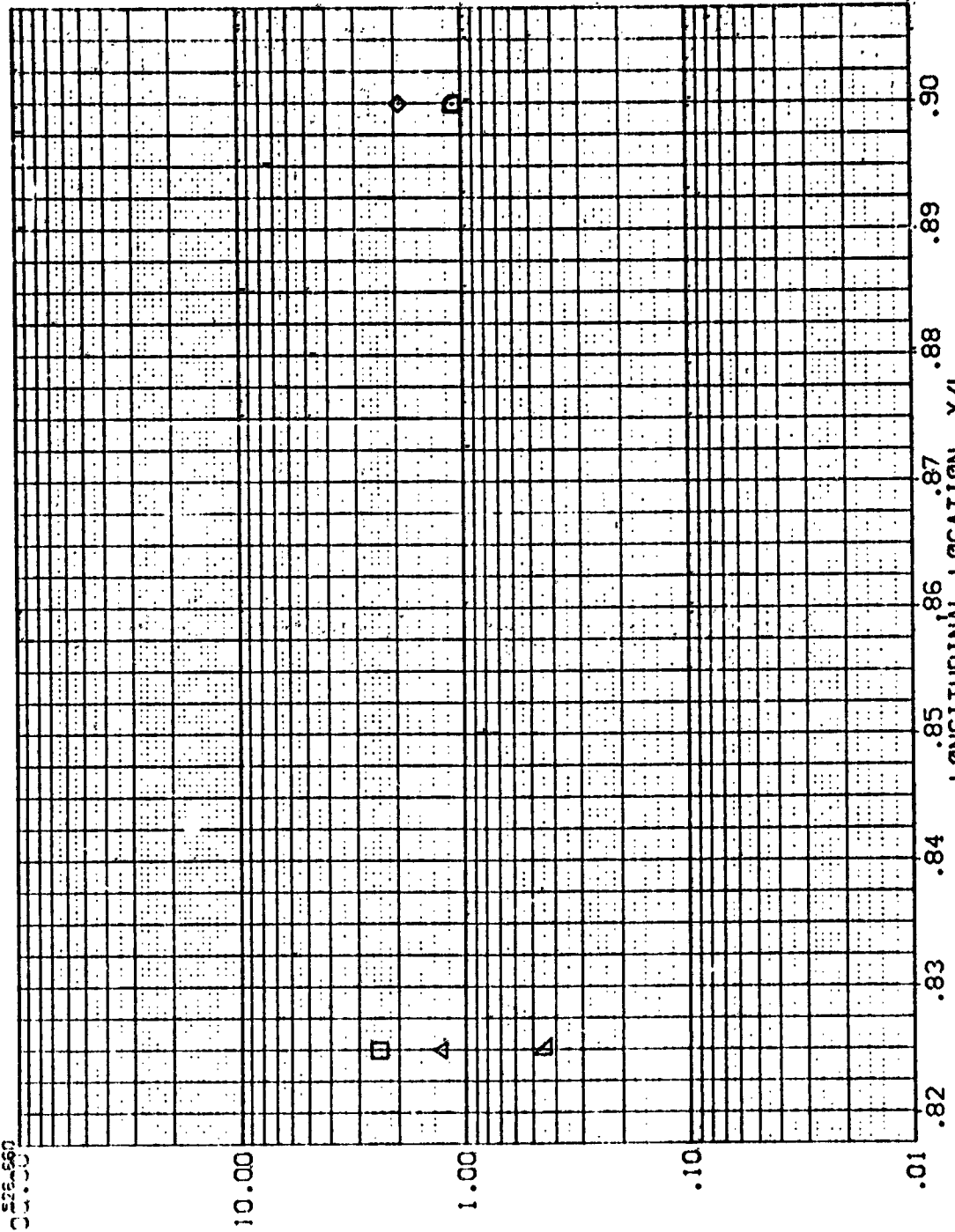


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED



AMES 3.5-195 IH28 01+T1 OMS PODS

(BE(CO4))

PARAMETRIC VALUES  
ALPHA 90.000 BETA .000  
RM/L 1.000

MAW/HT .900 MACH 5.219

Z  
420.000  
475.000  
476.660  
488.200  
510.000  
526.860  
100.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

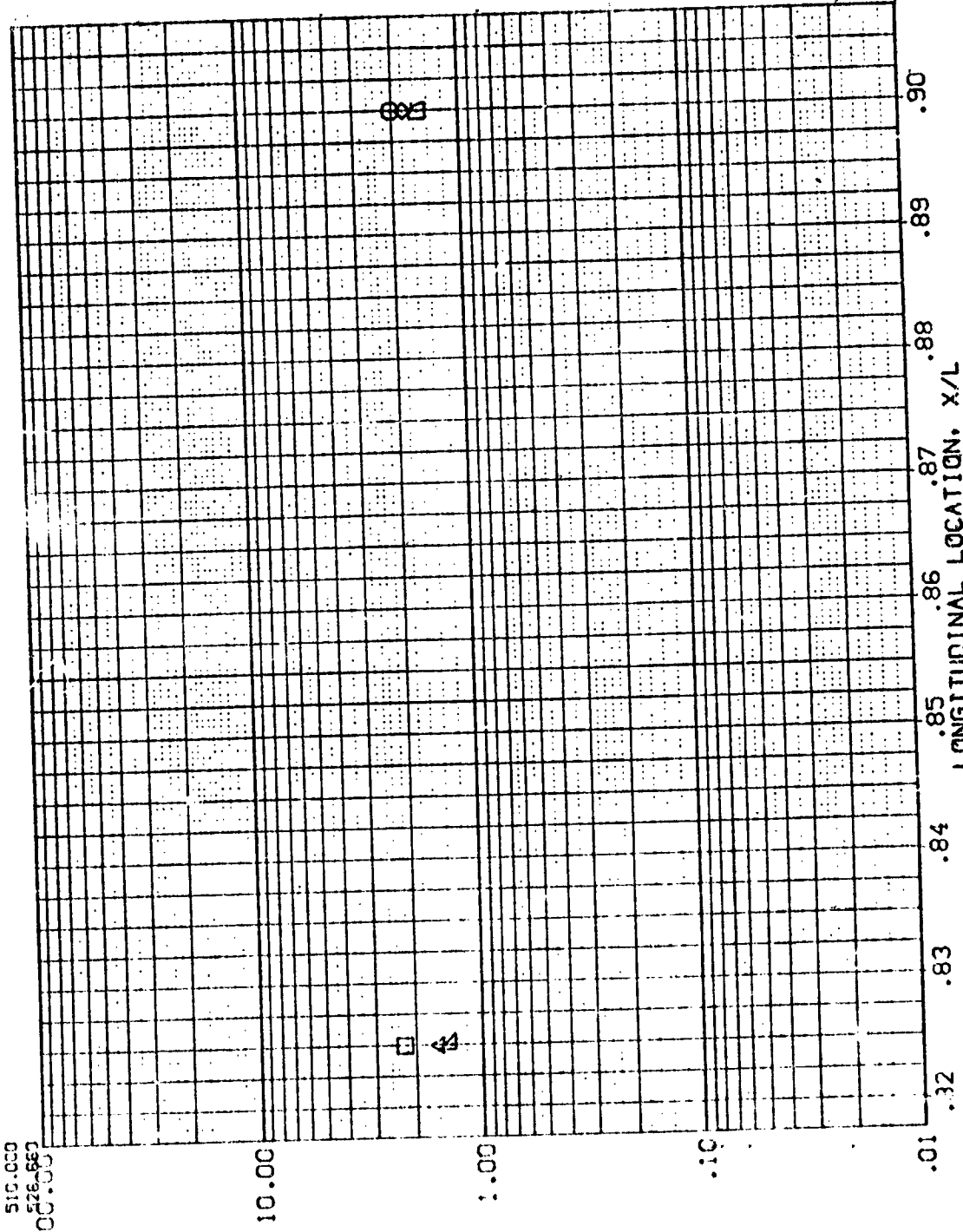


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 0MS PODS

(BEVC05)

SYMBOL Z  
 □ 426.000  
 ◊ 475.000  
 ◊ 476.650  
 ◊ 488.300  
 ◊ 510.000  
 ◊ 526.650  
 ◊ 1000.00

HAW/HT MACH  
 .900 5.220

PARAMETRIC VALUES  
 ALPHA 129.000 BETA .000  
 RV/L 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

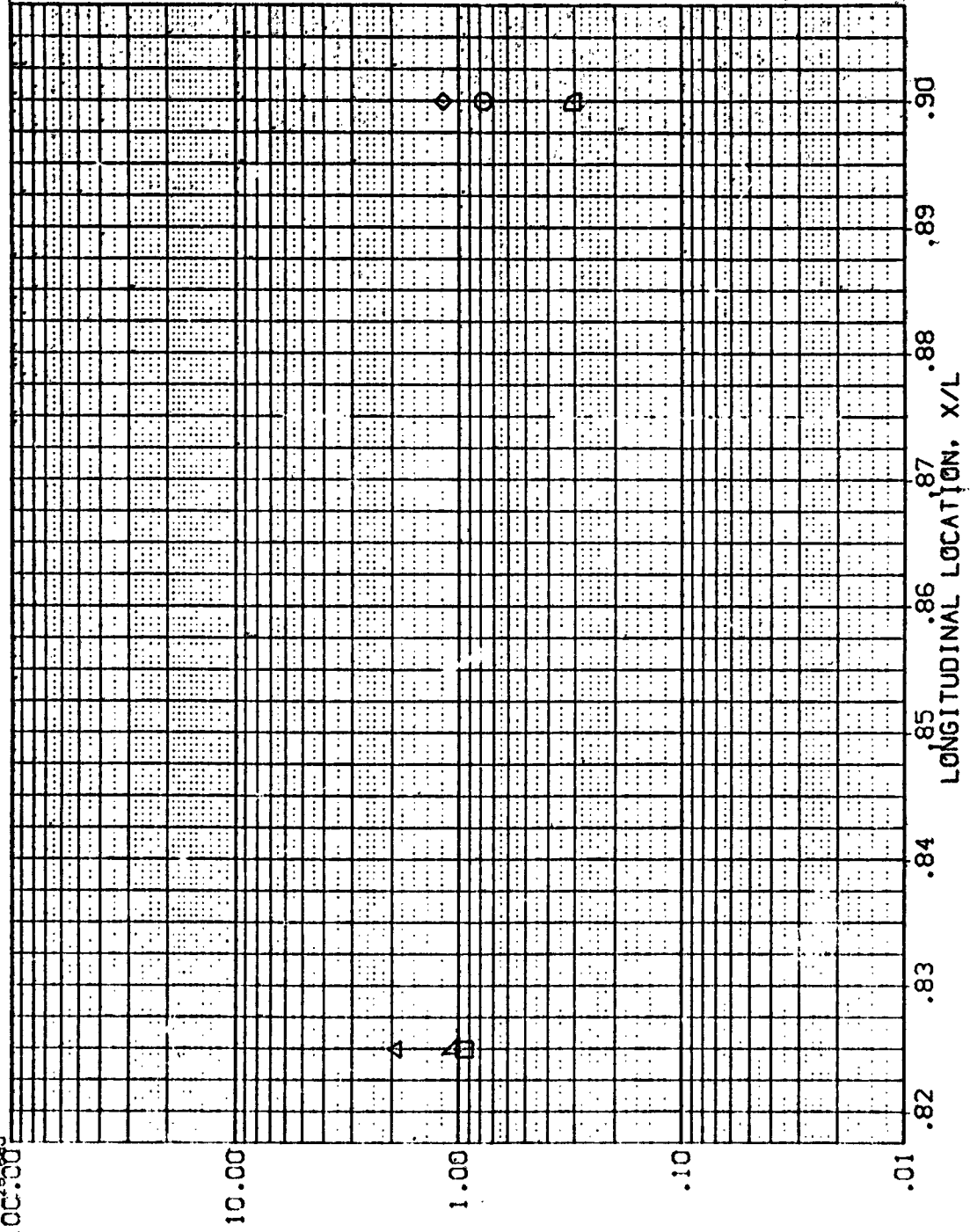


FIG. 15 0MS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-155 IH20 D-T, OMS PODS

(REV006)

SPEED I MACH  
420.000 .900  
475.000 1.000  
476.660 1.020  
488.300 1.040  
510.000 1.060  
526.660 1.080

PARAMETRIC VALUES  
ALPHA -120.000  
RN/L 1.000  
BETA .000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H1/H0

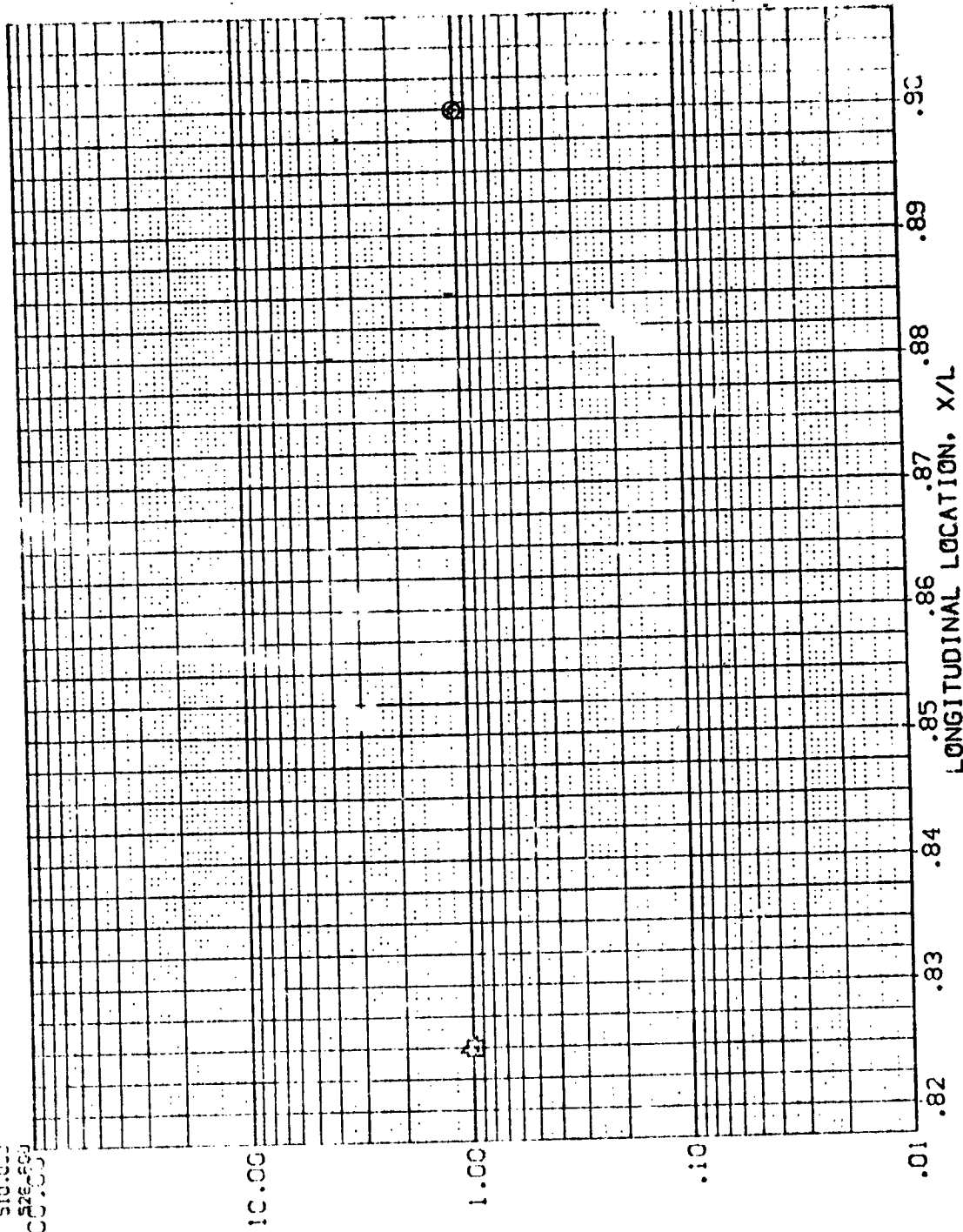


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED



(BEVC07)

AMES 3.5-195 IH28 01+T1 0MS PODS

PARAMETRIC VALUES  
ALPHA: .000  
BETA: .000  
RV/L: 1.000

MACH: 5.219  
HAW/HT: .900

Z: 420.000  
475.000  
476.650  
488.300  
510.000  
526.550  
SYMBOL: □ ◇ ◆ ▲ ▽

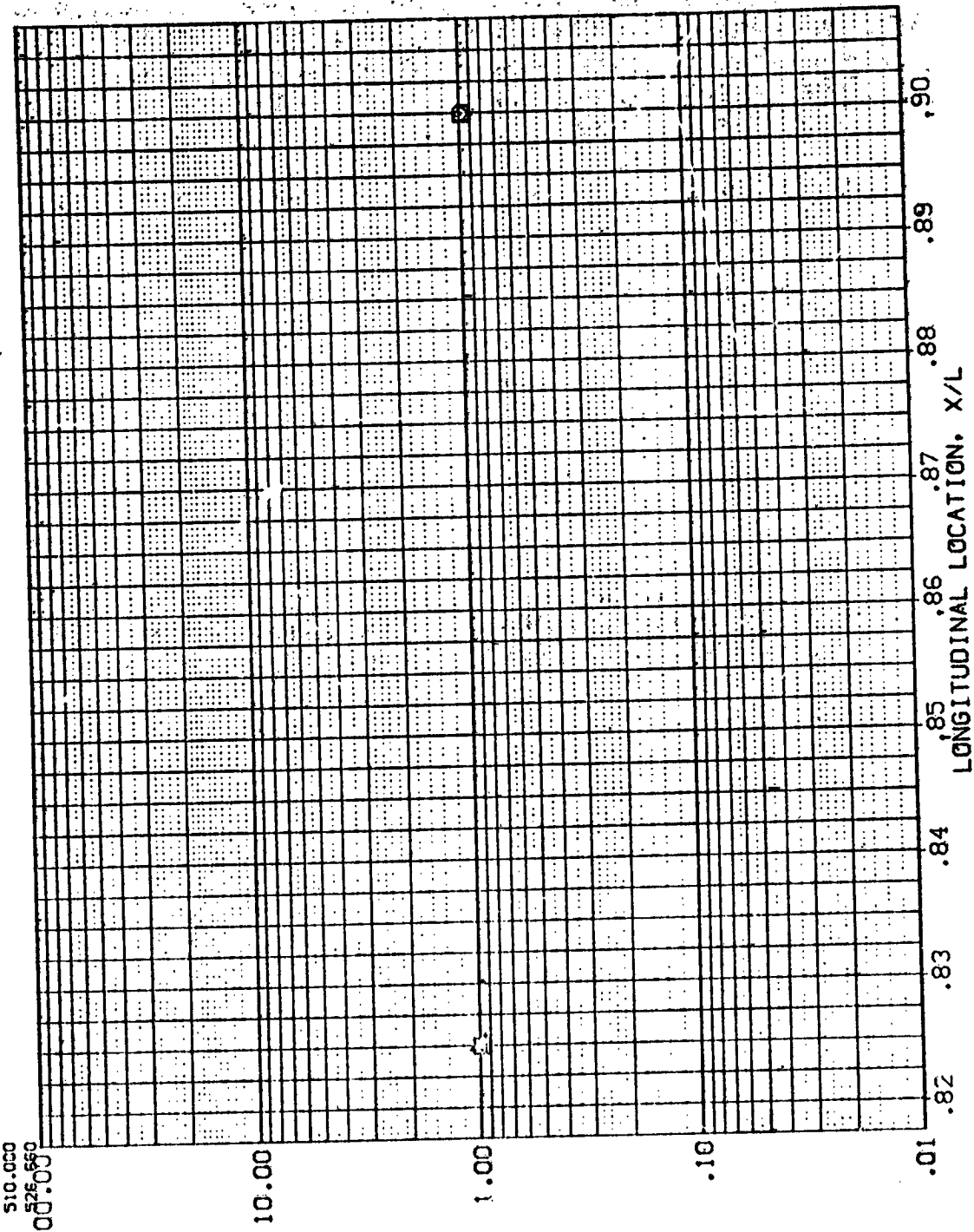


FIG. 15 0MS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 0MS PODS

(SEE ACC8)

SYMBOL	Z	HAW/HT	MACH
420.000	.900	5.220	
475.000			
475.660			
488.300			
510.000			
525.660			

PARAMETRIC VALUES	
ALPHA	BETA
RWL	
-60.000	1.000
	.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

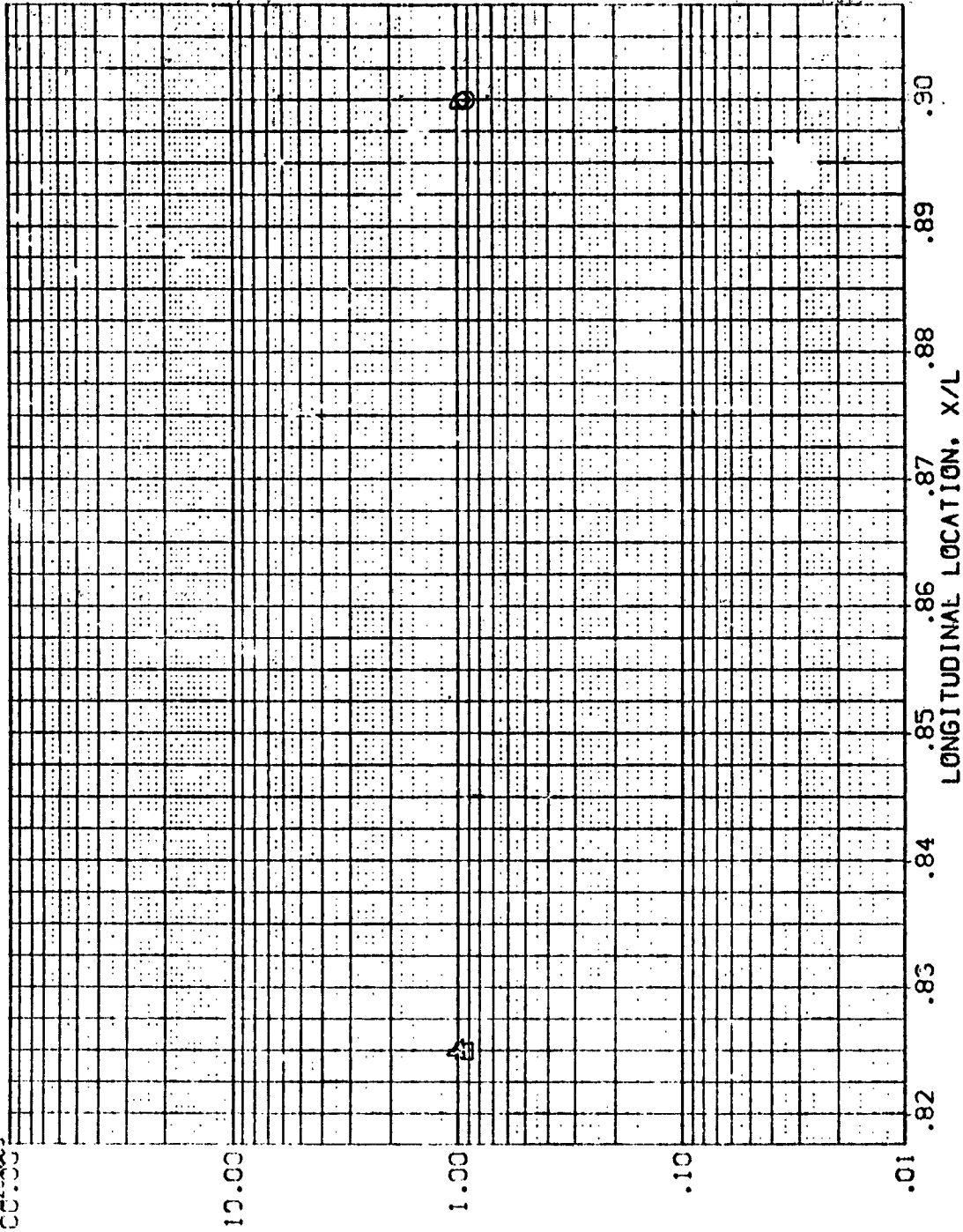


FIG. 15 0MS PODS. RATIO OF INTERFERENCE TO UNDISTURBED

AMES 3.5-195 IH28 01+T1 0MS PODS

(BEVC09)

SYMBOL Z HAW/HT MACH  
 □ 420.000  
 □ 475.000  
 □ 476.660  
 □ 488.300  
 □ 510.000  
 □ 526.660  
 □ 100.000

PARAMETRIC VALUES  
 ALPHA -30.000  
 RN/L 1.000  
 BETA .000

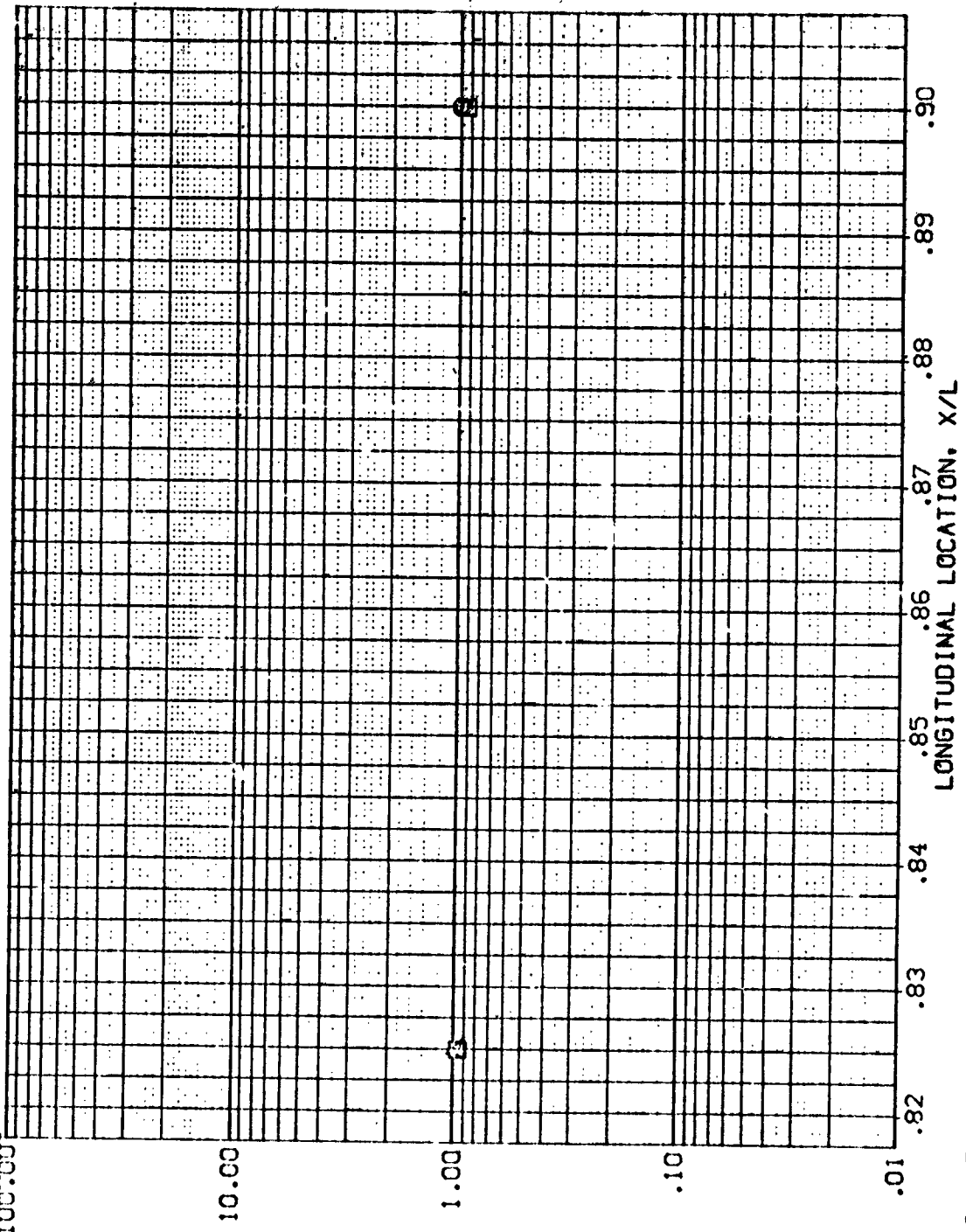


FIG. 15 0MS PODS, RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

DATA SET NAMES: INVESTIGATION DESCRIPTION  
 00000001 00000001 CMS PODS  
 00000002 00000002 CMS PODS  
 00000003 00000003 CMS PODS  
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 00000006 00000006 CMS PODS  
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 00000009 00000009 CMS PODS  
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 00000100 00000100 CMS PODS

ALPHA BETA PIVL  
 .000 .000 1.000  
 30.000 .000 1.000  
 60.000 .000 1.000  
 90.000 .000 1.000  
 120.000 .000 1.000

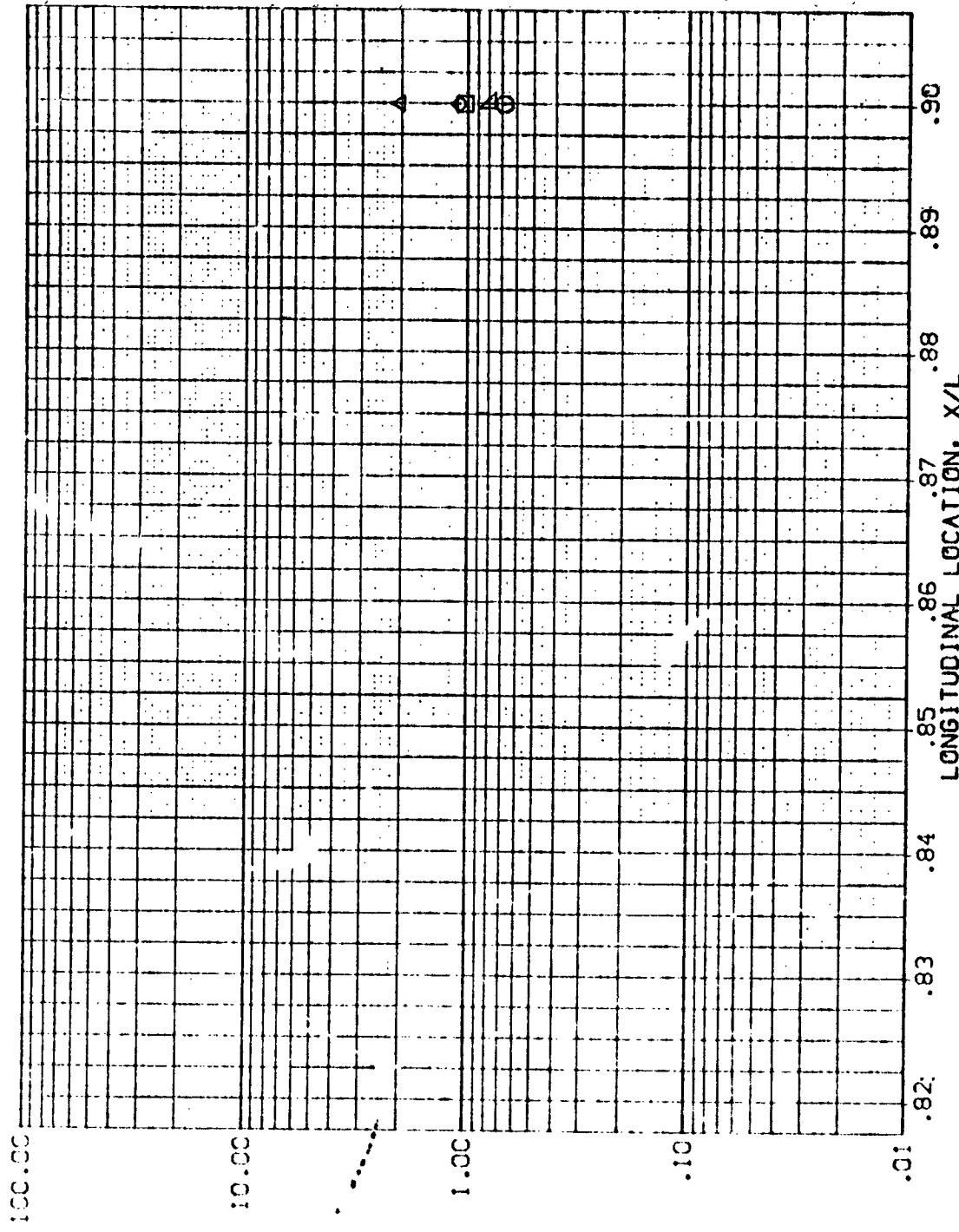
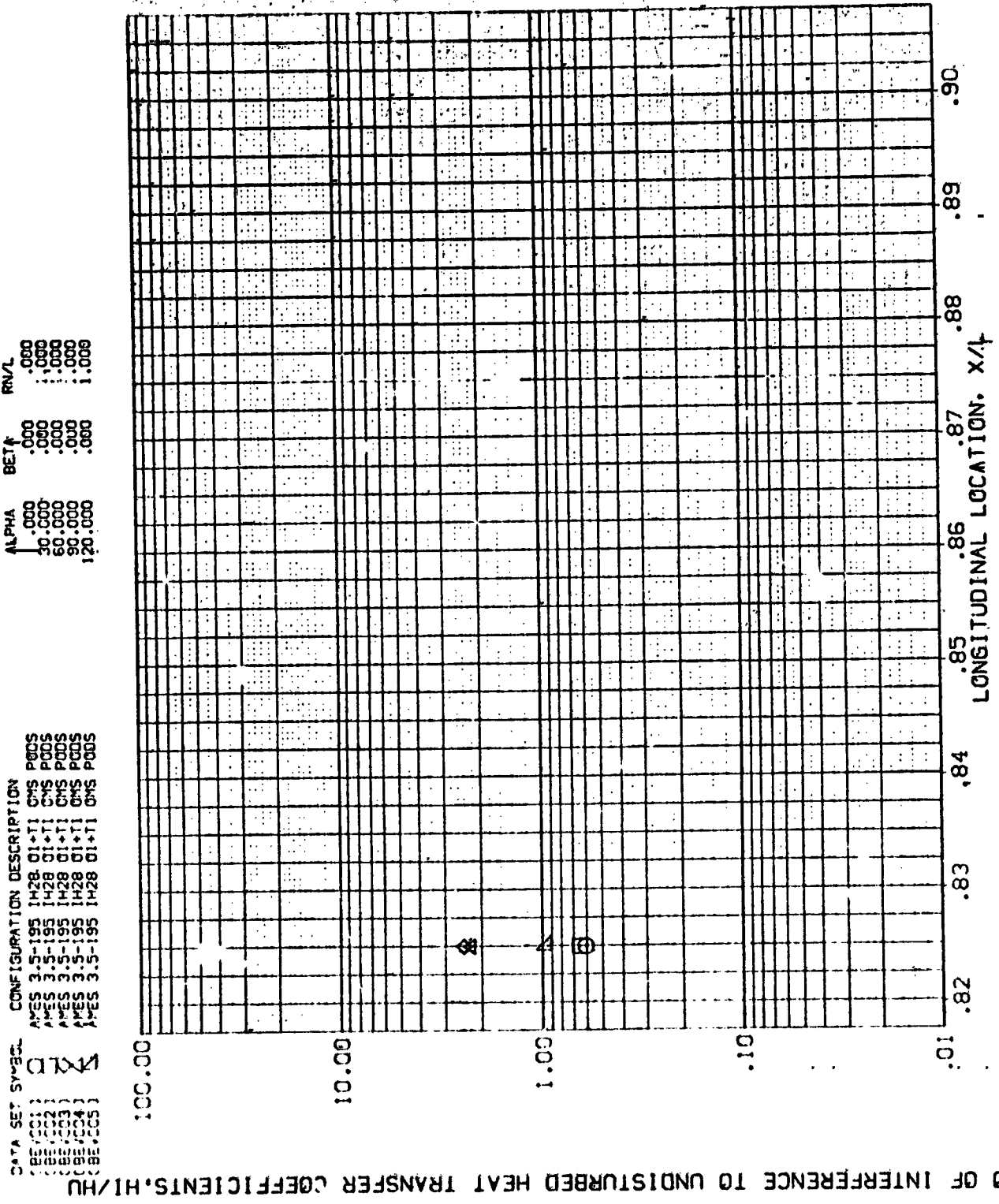


FIG. 15 CMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

MACH = 5.300 HEIGHT = .900 Z = 420.000



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      ALPHA      BETA      RV/L

(BE1001)      ASES 3.5-195 IH28 01+T1 CMS P005      .000      .000      .000

(BE1002)      ASES 3.5-193 IH28 01+T1 CMS P005      .000      .000      .000

(BE1003)      ASES 3.5-195 IH28 01+T1 CMS P005      .000      .000      .000

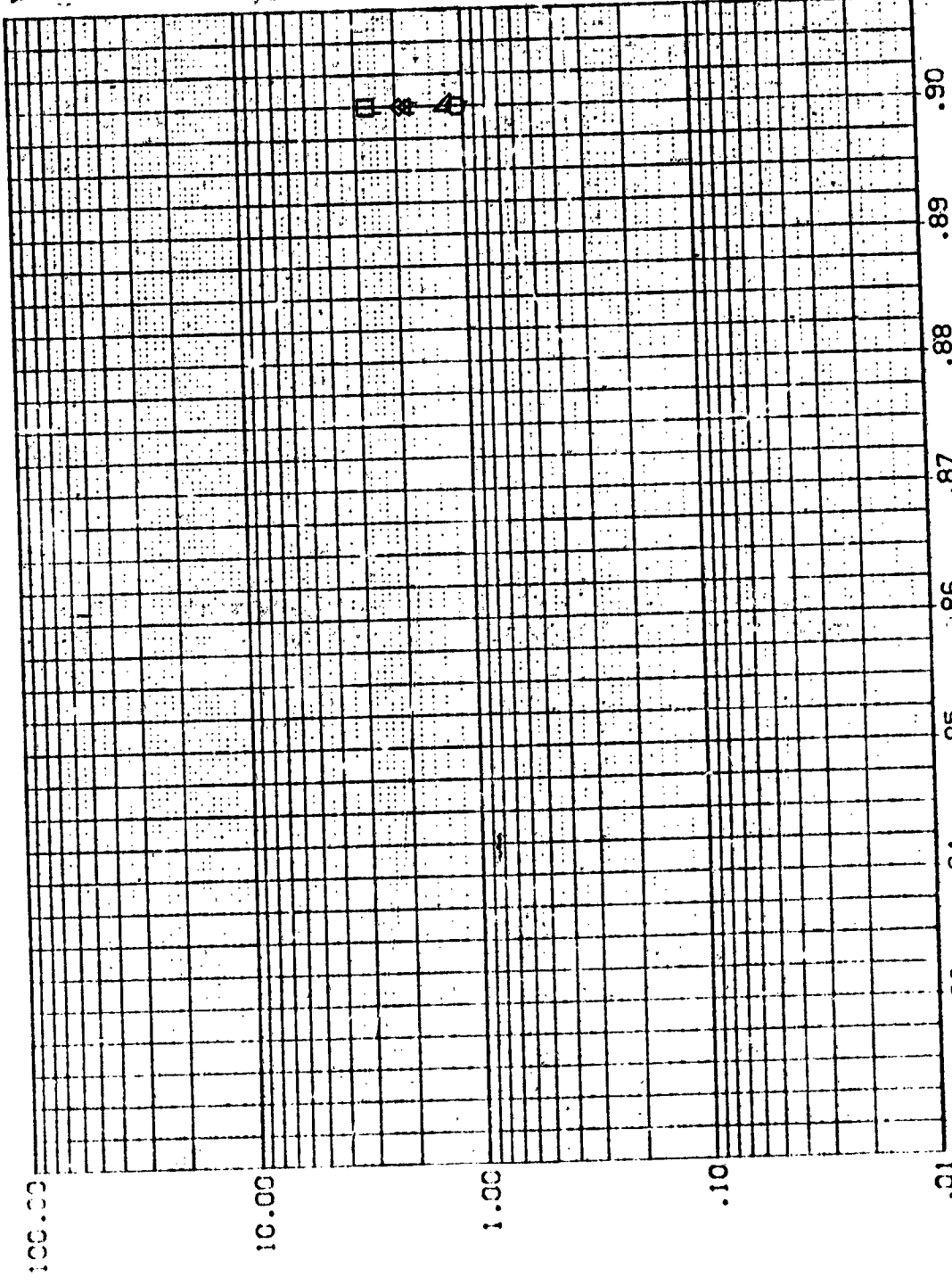
(BE1004)      ASES 3.5-195 IH28 01+T1 CMS P005      .000      .000      .000

(BE1005)      ASES 3.5-195 IH28 01+T1 CMS P005      .000      .000      .000

FIG. 15 CMS P005, RATIO OF INTERFERENCE TO UNDISTURBED

LONGITUDINAL LOCATION, X/L = 5.300      W/D/H/I = .900      Z = 475.000





CONFIGURATION DESCRIPTION	ALPHA	BETA	FINAL
AVS 3-1-15 1-28 01+11 OMS POOS	.000	.000	.000
AVS 3-1-15 1-28 01+11 OMS POOS	.000	.000	.000
AVS 3-1-15 1-28 01+11 OMS POOS	.000	.000	.000
AVS 3-1-15 1-28 01+11 OMS POOS	.000	.000	.000
AVS 3-1-15 1-28 01+11 OMS POOS	.000	.000	.000

DATA SET S-422  
 100.00  
 10.00  
 1.00  
 .10  
 .01

FIG. 15 OMS POOS. RATIO OF INTERFERENCE TO UNDISTURBED

BRANCH = 5.300 X/L = 0.80 Z = 476.660

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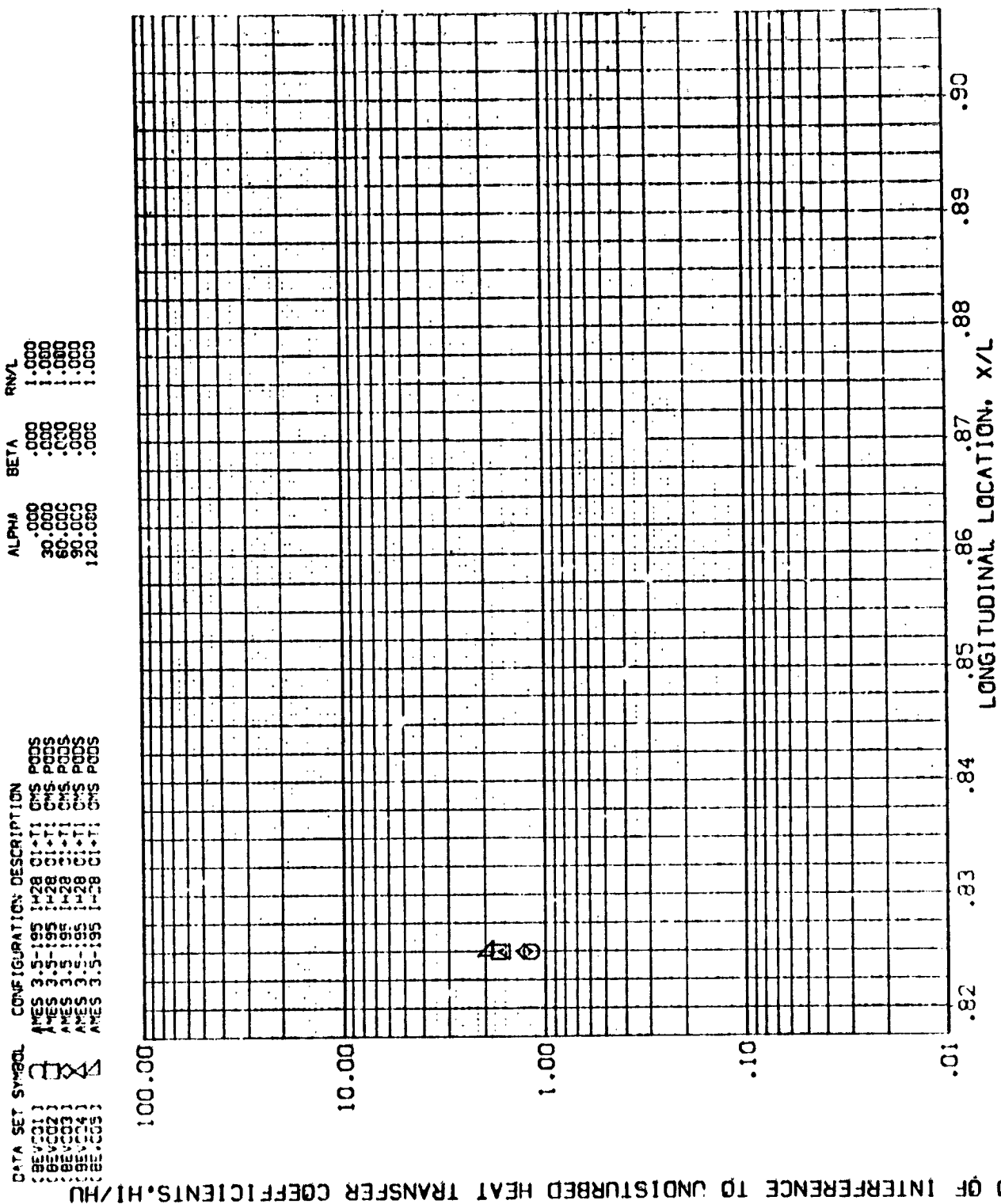
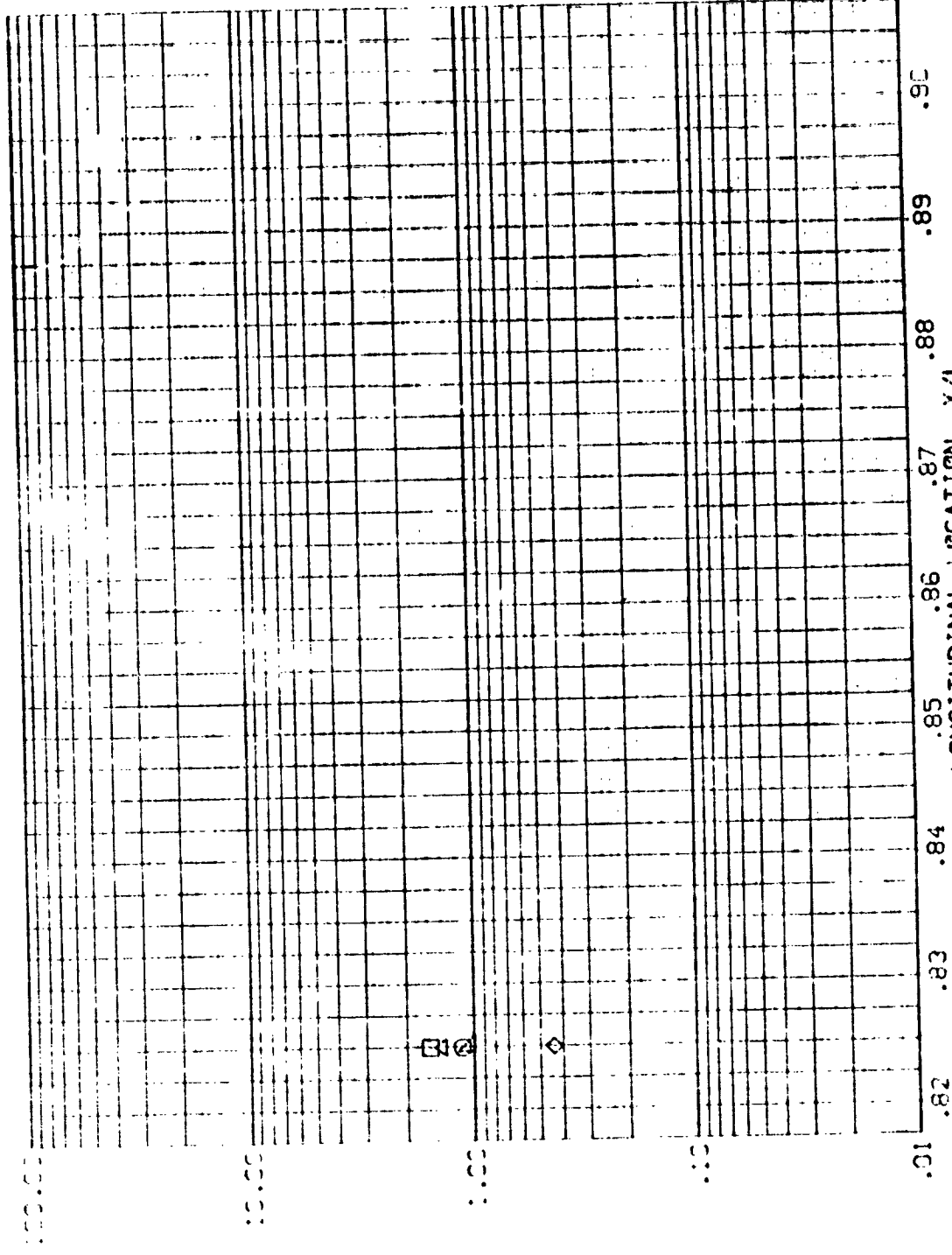


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, H/H<sub>0</sub>



DATA  
1.00  
0.90  
0.80  
0.70  
0.60  
0.50  
0.40  
0.30  
0.20  
0.10  
0.00

0.82 0.83 0.84 0.85 0.86 0.87 0.88 0.89 0.90

LONGITUDINAL LOCATION, X/L

FIG. 15 0MS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

RACH = 5.000 MAWATE = .900 Z = 510.000

DATA SET	SWEEP	CONFIGURATION DESCRIPTION
000000	01	AVS 3.5 195 148 C1.1 GMS P005
000000	02	AVS 3.5 195 148 C1.1 GMS P005
000000	03	AVS 3.5 195 148 C1.1 GMS P005
000000	04	AVS 3.5 195 148 C1.1 GMS P005
000000	05	AVS 3.5 195 148 C1.1 GMS P005
000000	06	AVS 3.5 195 148 C1.1 GMS P005
000000	07	AVS 3.5 195 148 C1.1 GMS P005
000000	08	AVS 3.5 195 148 C1.1 GMS P005
000000	09	AVS 3.5 195 148 C1.1 GMS P005
000000	10	AVS 3.5 195 148 C1.1 GMS P005
000000	11	AVS 3.5 195 148 C1.1 GMS P005
000000	12	AVS 3.5 195 148 C1.1 GMS P005
000000	13	AVS 3.5 195 148 C1.1 GMS P005
000000	14	AVS 3.5 195 148 C1.1 GMS P005
000000	15	AVS 3.5 195 148 C1.1 GMS P005
000000	16	AVS 3.5 195 148 C1.1 GMS P005
000000	17	AVS 3.5 195 148 C1.1 GMS P005
000000	18	AVS 3.5 195 148 C1.1 GMS P005
000000	19	AVS 3.5 195 148 C1.1 GMS P005
000000	20	AVS 3.5 195 148 C1.1 GMS P005

ALPHA	BETA	RN/L
.000	.000	1.000
30.000	.000	1.000
60.000	.000	1.000
90.000	.000	1.000
120.000	.000	1.000

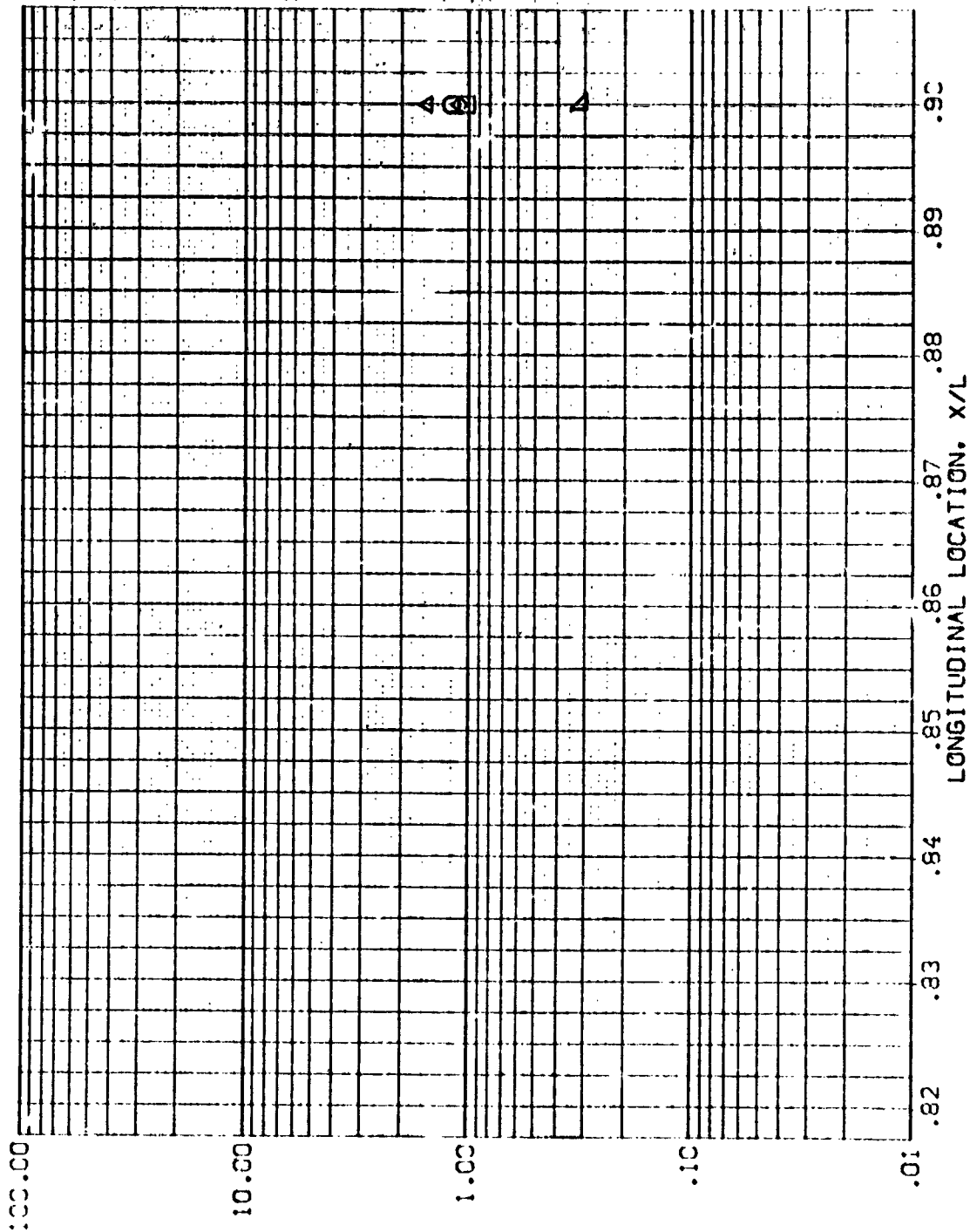


FIG. 15 GMS P005, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $h_{int}/h_{und}$

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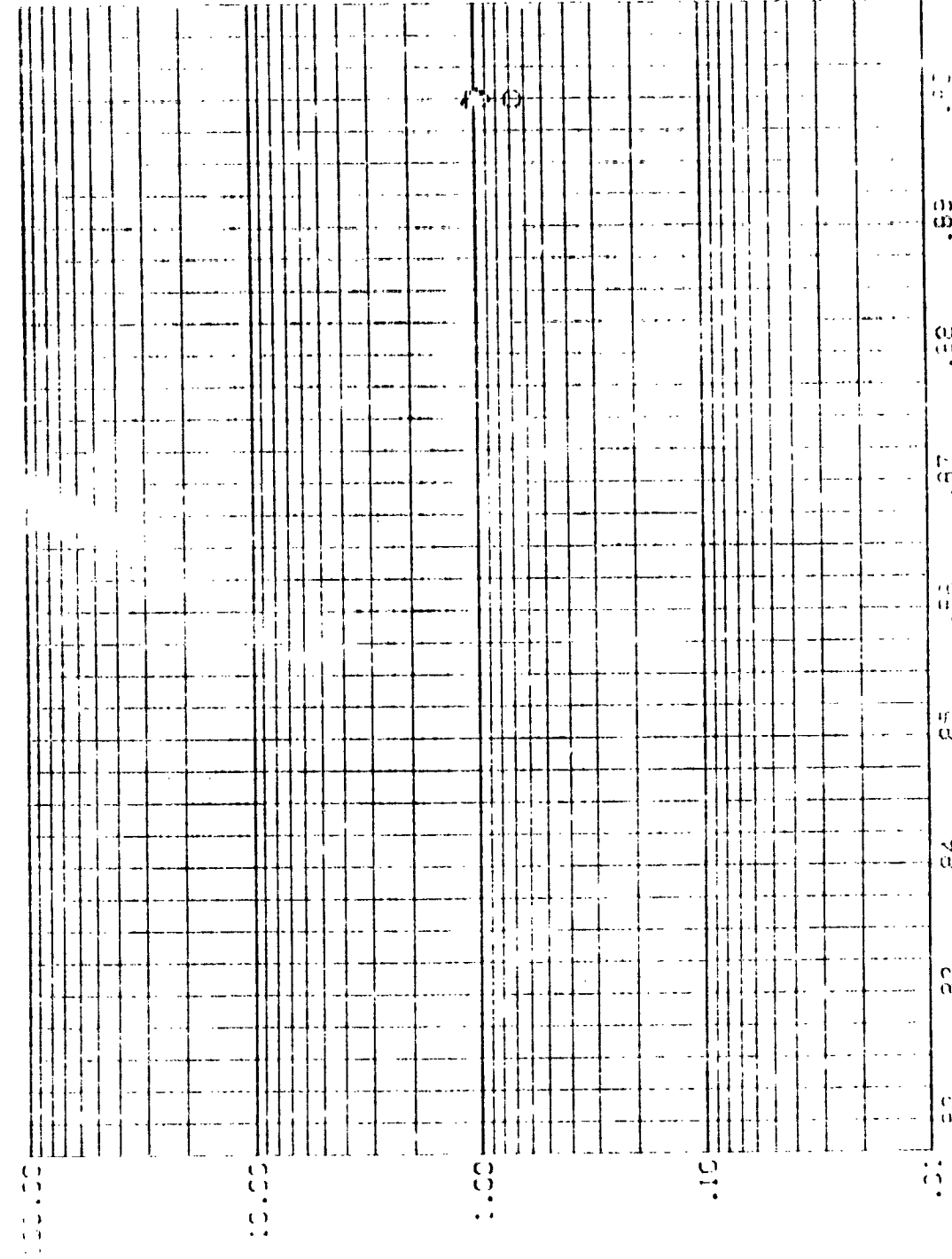


FIG. 15 0.75 PDS, RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS,  $h_{int}/h_{und}$  VERSUS LONGITUDINAL LOCATION, X/D

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (BEVCC1) AMES 3.5-195 (428 01+11) OMS PODS  
 (BEVCC2) AMES 3.5-195 (428 01+11) OMS PODS  
 (BEVCC3) AMES 3.5-195 (428 01+11) OMS PODS  
 (BEVCC4) AMES 3.5-195 (428 01+11) OMS PODS  
 (BEVCC5) AMES 3.5-195 (428 01+11) OMS PODS  
 (BEVCC6) AMES 3.5-195 (428 01+11) OMS PODS

ALPHA BETA RVAL  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

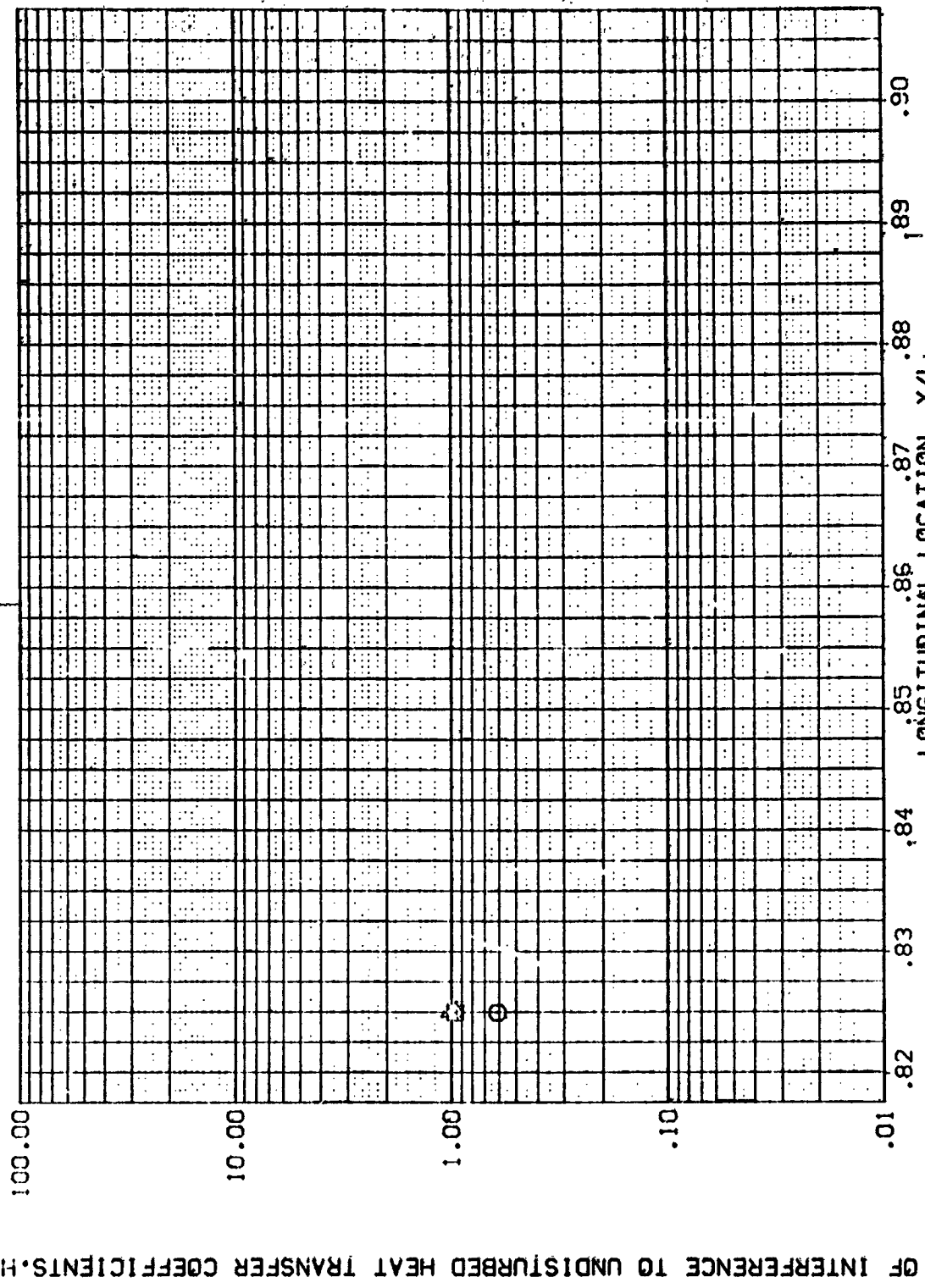


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

MACH = 5.300 HAW/HT = .900 Z = 475.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (BEV001) AMES 3 5-195 1428 01+11 GMS P003  
 (BEV002) AMES 3 5-195 1428 01+11 GMS P003  
 (BEV003) AMES 3 5-195 1428 01+11 GMS P003  
 (BEV004) AMES 3 5-195 1428 01+11 GMS P003  
 (BEV005) AMES 3 5-195 1428 01+11 GMS P003  
 (BEV006) AMES 3 5-195 1428 01+11 GMS P003

ALPHA BETA PN/L  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

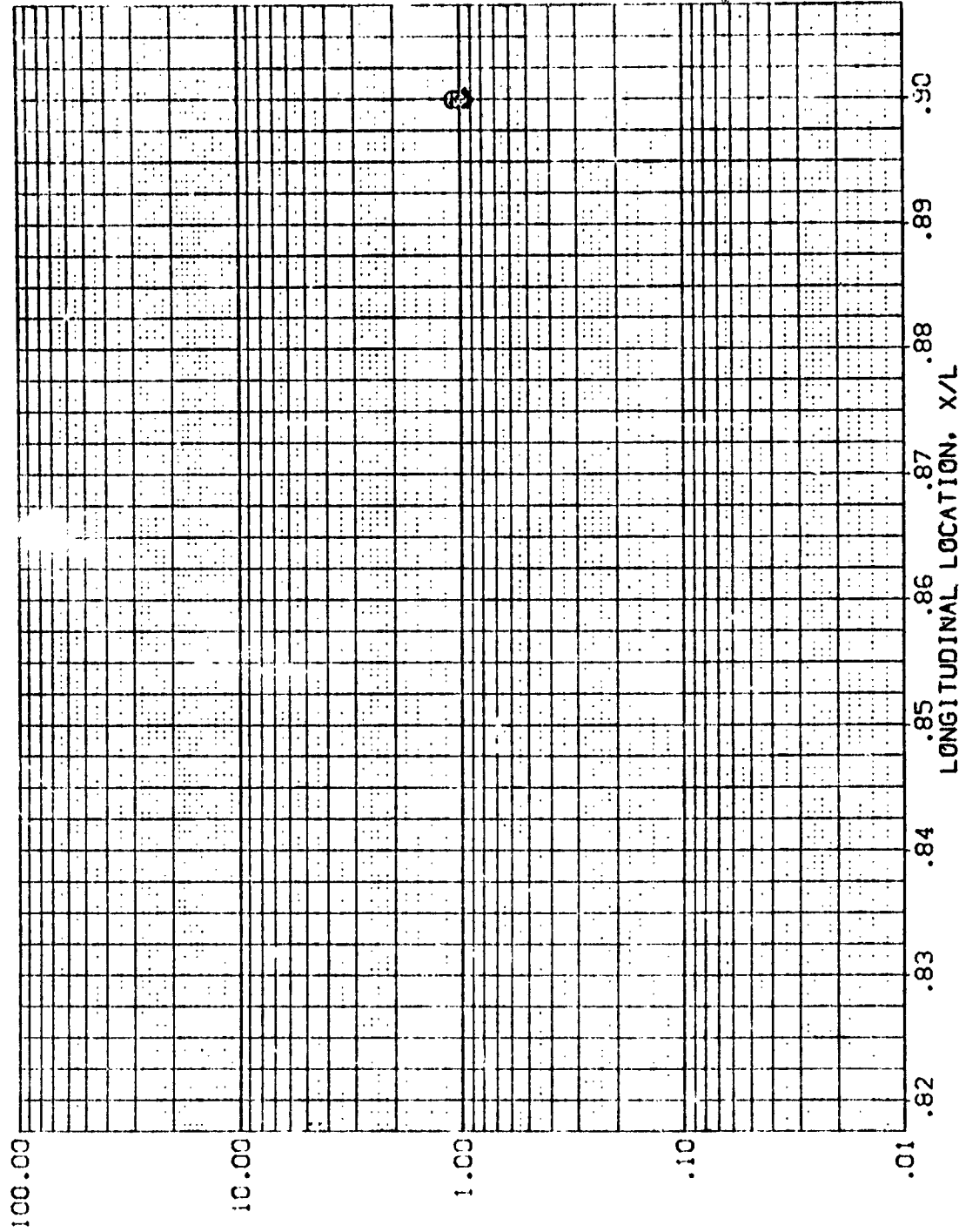


FIG. 15 GMS P003, RATIO OF INTERFERENCE TO UNDISTURBED

LONGITUDINAL LOCATION, X/L  
 MACH = 5.300 HAW/HT = .900 Z = 476.660

DATA SET SYMBOL      CONFIGURATION DESCRIPTION

(BEVC01)      AMES 3.5-195 IH28 01+11 OMS PODS

(BEVC09)      AMES 3.5-195 IH28 01+11 OMS PODS

(BEVC08)      AMES 3.5-195 IH28 01+11 OMS PODS

(BEVC07)      AMES 3.5-195 IH28 01+11 OMS PODS

(BEVC06)      AMES 3.5-195 IH28 01+11 OMS PODS

ALPHA      BETA      RM/L

1.000      .000      1.000

30.000      .000      1.000

160.000      .000      1.000

50.000      .000      1.000

-128.000      .000      1.000

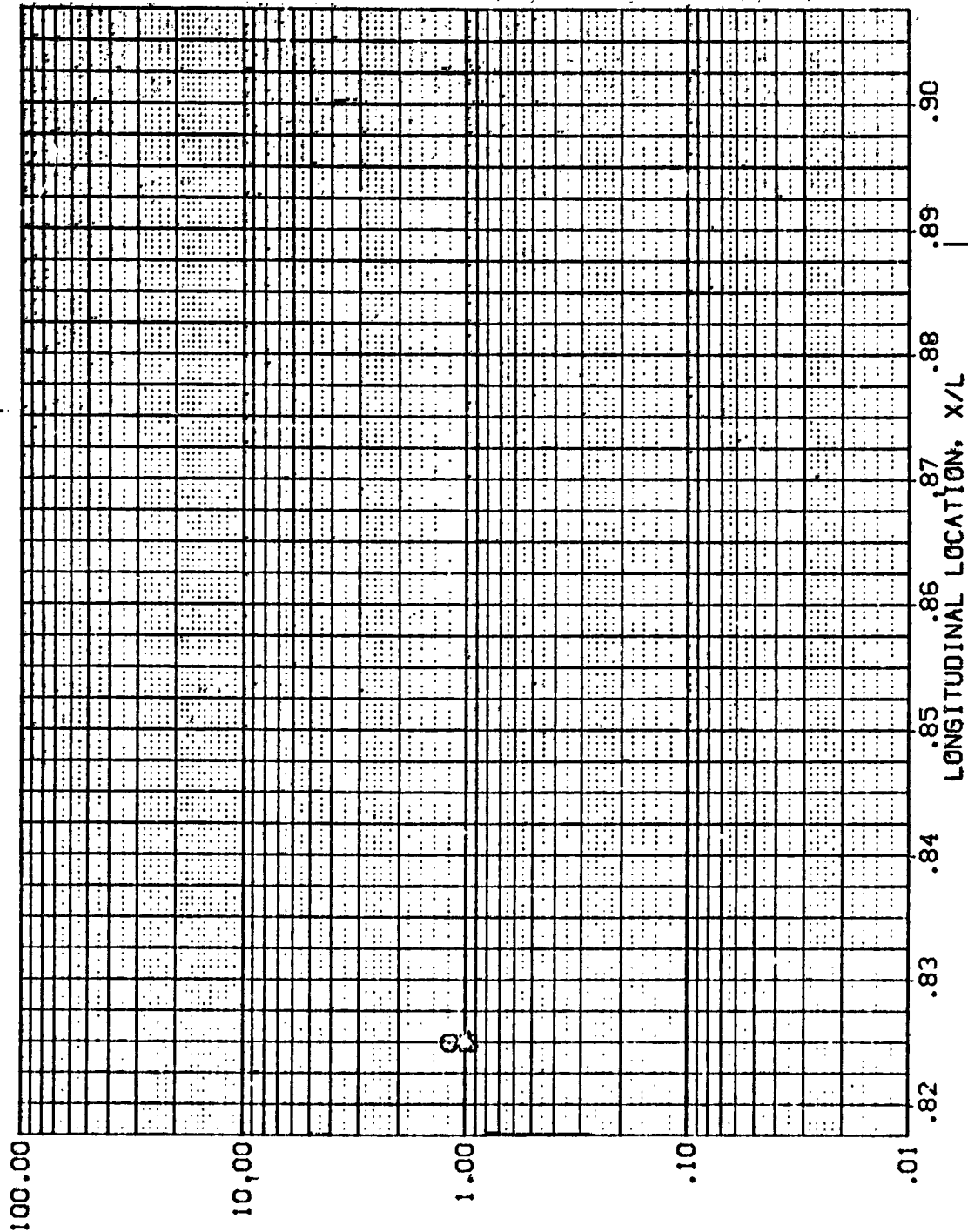


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

WAVELENGTH = 5.300 HAW/HT = .900 Z = 488.300



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (000000) ASES 3.5-95 H28 01\*11 CMS PGDS  
 (000000) ASES 3.5-95 H28 01\*11 CMS PGDS  
 (000000) ASES 3.5-95 H28 01\*11 CMS PGDS  
 (000000) ASES 3.5-95 H28 01\*11 CMS PGDS  
 (000006) ASES 3.5-95 H28 01\*11 CMS PGDS

ALPHA BETA RV/L  
 .000 .000 1.000  
 -30.000 .000 1.000  
 -60.000 .000 1.000  
 -90.000 .000 1.000  
 -120.000 .000 1.000

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU

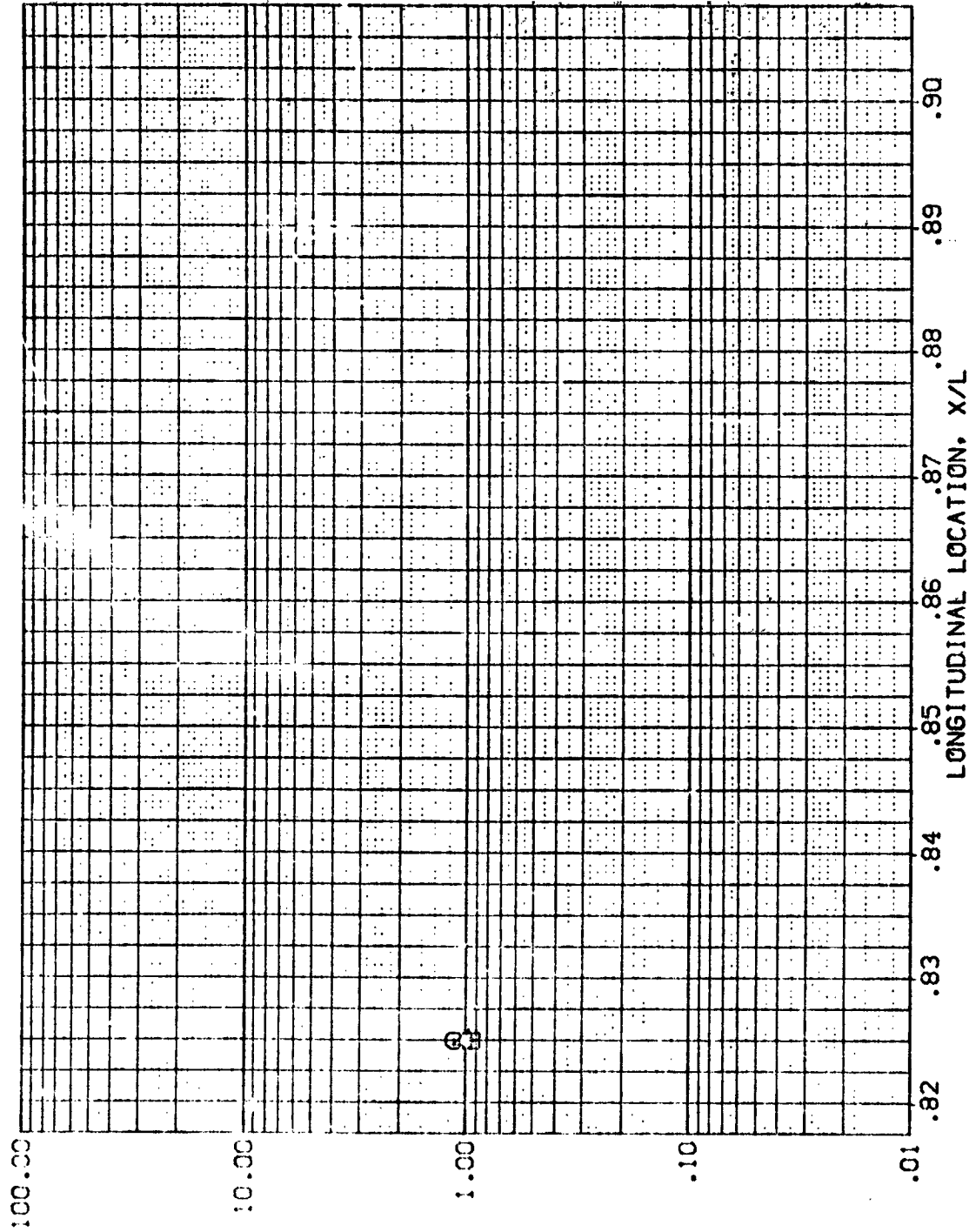


FIG. 15 0MS PGDS, RATIO OF INTERFERENCE TO UNDISTURBED

MACH = 5.300 HAW/HT = .900 Z = 510.000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (BEVCC1) AMES 3.5-195 IH28 01+11 OMS PODS  
 (BEVCC2) AMES 3.5-195 IH28 01+11 OMS PODS  
 (BEVCC3) AMES 3.5-195 IH28 01+11 OMS PODS  
 (BEVCC4) AMES 3.5-195 IH28 01+11 OMS PODS  
 (BEVCC5) AMES 3.5-195 IH28 01+11 OMS PODS  
 (BEVCC6) AMES 3.5-195 IH28 01+11 OMS PODS

ALPHA BETA RM/L  
 .000 .000 .000  
 -36.000 .000 .000  
 -60.000 .000 .000  
 -90.000 .000 .000  
 -120.000 .000 .000

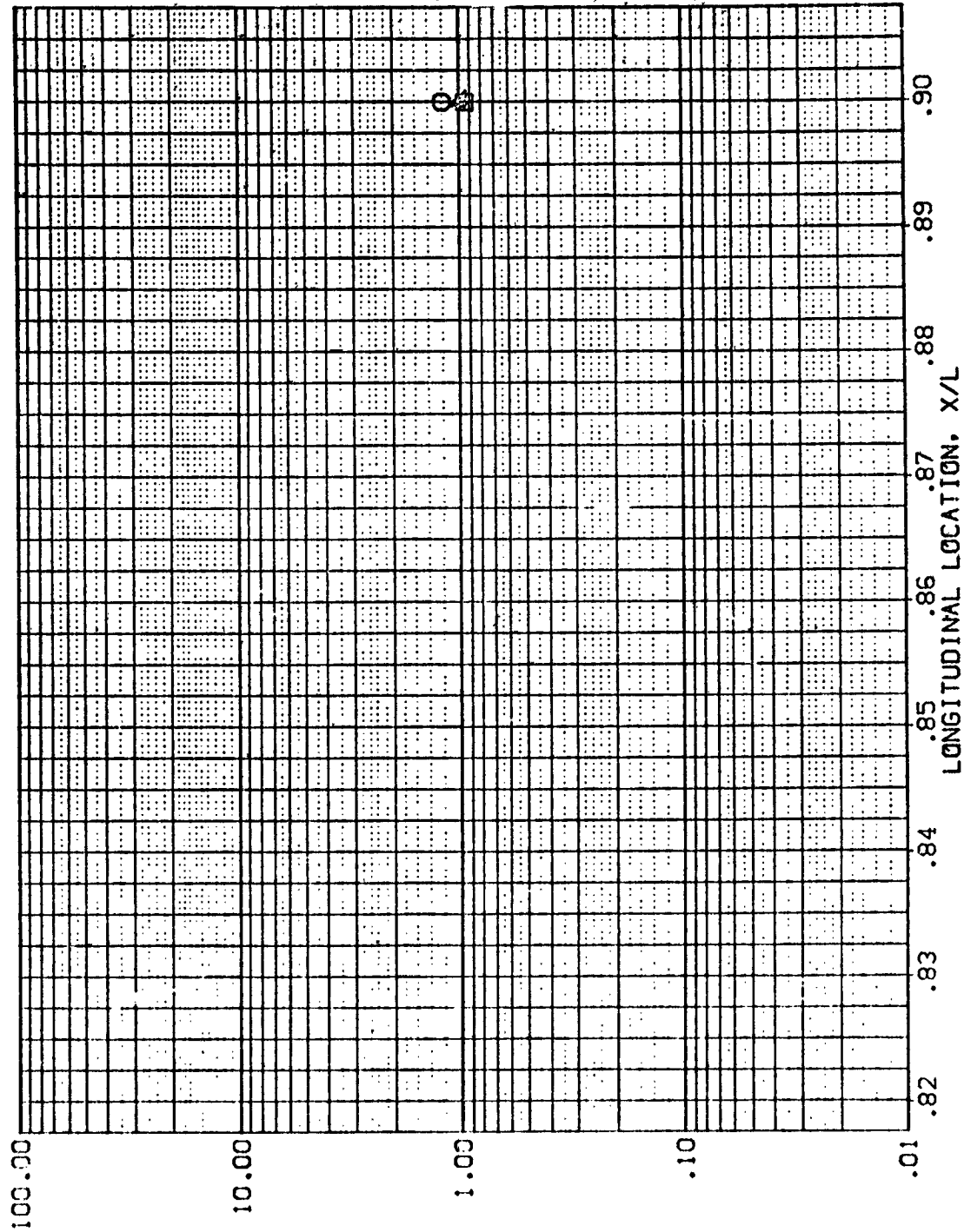


FIG. 15 OMS PODS, RATIO OF INTERFERENCE TO UNDISTURBED

RATIO OF INTERFERENCE TO UNDISTURBED HEAT TRANSFER COEFFICIENTS, HI/HU  
 HAW/HT = 5.300 HAW/HT = .900 Z = 526.660