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WIND TUNNEL TEST OA113 OF THE 0.010-SCALE SPACE SHUTTLE ORBITER MODEL 51-O IN THE CALSPAN HYPERSONIC SHOCK TUNNEL (48-INCH LEG)

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WIND TUNNEL TEST SPECIFICS:

Test Number:	Calspan 48-inch HST (I84-220)
NASA Series Number:	OA113
Model Number:	51-0
Test Dates:	10 through 28 August and 28 September through 4 October 1974
Occupancy Hours:	336

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WIND TUNNEL TEST OA113 OF THE 0.013-SCALE SPACE SHUTTLE ORBITER MODEL 51-O IN THE CALSPAN HYPERSONIC SHOCK TUNNEL (48-INCH LEG)

By

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ABSTRACT

This report presents results of wind tunnel test OA113, an experimental investigation conducted in the Calspan Hypersonic Shock Tunnel, from 10 through 28 August and 28 September through 4 October 1974 using a 0.010-scale "140A/B" configuration Orbiter model designated 51-O.

The test objectives were:

1) To obtain force and moment data at various Mach numbers and Reynolds numbers from which viscous interaction effects on stability and control may be determined.

2) To provide flow visualization data from which the effects of control surface separation may be evaluated.

3) To obtain pressure data in conjunction with force and moment data to assist in analyzing viscous interaction and flow-separation effects.

A total of 121 runs were made, 108 of which provided useable data. Data were obtained at angles-of-attack of 20°, 30°, 40°, and 50° (all at $\beta = 0°$ and a combined attitude, $\alpha = 30°$, $\beta = 5°$). The Mach number range covered was from 10 to 16 and the viscous interaction parameter, $\bar{V}'_\infty$, range was from 0.01 to 0.06.

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INTRODUCTION

This report contains information pertaining to wind tunnel test OA113, using model 51-0 in the Calspan 48-inch Hypersonic Shock Tunnel. The test began 10 August 1974 and ended 4 October 74 for a total of 121 runs. The model used was a 0.010 scale-replica of the "140A/B" configuration Orbiter, termed vehicle 4.

The purpose of the test was to: 1) obtain force and moment data at various Mach numbers and Reynolds numbers from which viscous interaction effect on stability and control may be determined, 2) provide flow visualization data from which the effects of control surface separation may be evaluated, and 3) obtain pressure data in conjunction with force and moment data to assist in analyzing viscous interaction and flow-separation effects.

Detailed model, instrumentation, and pretest information are given in Reference 15.

NOMENCLATURE

Symbol	Plot Symbol	Definition
a		calibration constant, lb/mv or in-lb/mv
A		axial force, lbs.
b_w	BREF	wing span; lateral reference length, in
$\bar{c}$	LREF	wing MAC length, longitudinal reference length, in.
c_p		specific heat at constant pressure, ft-lbs/slug-°R
C_A	CA	axial force coefficient, $\frac{Ac}{q_\infty S_W}$
C_{cp}	C(CP)	cavity pressure coefficient, $\frac{p_{cav} - p_\infty}{q_\infty}$
C_ℓ	CBL	rolling moment coefficient, $\frac{\ell c}{q_\infty b_w S_W}$
C_m	CLM	pitching moment coefficient, $\frac{m_c}{q_\infty S_W \bar{c}}$
C_N	CN	normal force coefficient, $\frac{N}{q_\infty S_W}$
C_n	CYN	yawing moment coefficient $\frac{n_c}{q_\infty S_W b_w}$
C_p	CP	pressure coefficient, $\frac{p_m - p_\infty}{q_\infty}$
C_Y	CY	side force coefficient, $\frac{Y}{q_\infty S_W}$
C'_∞		(see Data Reduction Section)
C^*_∞	C*	(see Data Reduction Section)
$\sqrt{C^*_\infty}$	SQRTC*	(see Data Reduction Section)
$\bar{h}$		vertical distance from balance center to model MRC, inches

NOMENCLATURE (Continued)

H_o	H(0)	total enthalpy, ft-lbs/slug, H_o was multiplied by 10^{-6} for data display
H_w	H(W)	enthalpy at wall conditions, ft-lbs/slug, H_w was multiplied by 10^{-6} for data display
ℓ		rolling moment about the balance center, in-lbs
ℓ_b		Orbiter reference body length, inches
m		pitching moment about the balance center, in-lbs
M_i	M(I)	incident shock Mach number
M_∞	MACH	Mach number
MRC	MRP	model moment reference center (X_o, Y_o, Z_o), in
n		yawing moment about the balance center, in-lbs
N		normal force, lbs.
p		pressure, psia
p_{mj}	PMj	pressure measured on model at tap number j = 1,2,3,4, psia
p_o	P(0)	stagnation pressure, psia
p'_o	PITOT	stagnation pressure behind a normal shock, psia
P_{TS}	P(TS)	pressure in the test section before a test, microns
p_∞	P	freestream static pressure, psia
q_∞	Q(PSI)	freestream dynamic pressure
Re/ft	RN/L	Reynolds number per foot, $\frac{\rho_\infty U_\infty}{\mu_\infty}$, $\frac{1}{ft}$, Re/ft was multiplied by 10^{-6} for data display
Re_ℓ	REFTL	Reynolds number, $\frac{\rho_\infty U_\infty \ell_b}{\mu_\infty}$, Re_ℓ was multiplied by 10^{-6} for data display, based on orbiter reference length.
$S_{cav.}$		model reference cavity area, $in.^2$
S_W	SREF	model wing reference area, in^2

NOMENCLATURE (Continued)

T		temperature, °R
T_o	T(0)	total temperature, °R
T_W	T(W)	temperature at wall conditions, °R
T*	T*	(see Data Reduction section)
T_∞	T	freestream static temperature, °R
$\bar{u}$		longitudinal distance between the balance center and the model MRC, inches
U_∞	U	freestream velocity, ft. per sec.
$\bar{v}$		spanwise distance between the balance center and the model MRC, inches
$\bar{V}_\infty^*$	VBAR	(see Data Reduction section)
$\bar{V}_\infty'$	VLBAR	(see Data Reduction section)
X_{cp}/ℓ_b	XCP/L	normal force center of pressure, $0.65-(\frac{C_m}{CN})(\frac{\bar{c}}{\ell_b})$, percent model length
X_i		ith component balance capsule output, i = 1,2,...6, mv
X_{MRC}	XMRP	longitudinal location of MRP, in. X_o Orbiter longitudinal station, in.
X_o	XO	Orbiter longitudinal station, in.
Y		side force, lbs
Y_{MRC}	YMRP	lateral location of MRP, in. Y_o
Y_o	YO	Orbiter lateral station, in.
Z_{MRC}	ZMRP	vertical location of MRP, in. Z_o
Z_o	ZO	Orbiter vertical station, in.

NOMENCLATURE (Continued)

α	ALPHA	model angle-of-attack, degrees
γ		specific heat ratio
δ_a	AILRON	aileron deflection $(\delta_{E_L} - \delta_{E_R})/2$, degrees
δ_{BF}	BDFLAP	body flap deflection, degrees
δ_E	ELEVON	elevon deflection $(\delta_{E_L} + \delta_{E_R})/2$, degrees
δ_R	RUDDER	rudder deflection, degrees
δ_{SB}	SPDBRK	speedbrake deflection, degrees
μ_∞	MU	freestream absolute viscosity coefficient, slugs/ft-sec, μ_∞ was multiplied by 10^8 for data display
ρ_∞	RHO	freestream density, slugs/ft^2, ρ_∞ was multiplied by 10^6 for data display
σ	SIGMA	standard deviation
ϕ	PHI	angle of roll, degrees
β	BETA	angle of sideslip, degrees

SUBSCRIPTS

1	driven gas initial conditions
4	denotes region behind reflected shock
AF	data based on tunnel airflow calibrations
c	corrected
cav.	cavity
cp	center of pressure
E	data based on estimated values for q_∞ (ref. 14)
i	incident shock in driven gas
L	left

NOMENCLATURE (Concluded)

m	model
0	nozzle supply stagnation conditions; Orbiter reference system
o'	stagnation conditions behind a normal shock
R	right
ref.	reference
W	wing reference; conditions at wall
∞	freestream conditions

REMARKS (PRECISION OF DATA)

The stagnation enthalpy and the test section free stream conditions were calculated using the thermodynamic properties of real air, the incident shock wave velocity and the nozzle supply pressure. The speed of the incident shock wave was measured to within ±1 percent. Based on the agreement of pressure transducers, the nozzle supply pressure is considered accurate to within ± 3.5 percent. The dynamic pressure was determined from a linear correlation of measured model pressures and forces (see Data Reduction section); therefore one would expect the most probable error in dynamic pressure to reflect the accuracy of these measurements which is ± 5% and ± 3%, respectively. The resultant most probable error in dynamic pressure is, calculated as ± 5.8%. The test section Mach number which is in turn dependent upon the ratio of $p_{0'}/p_{0} \propto q_{\infty}/p_{0}$ is then estimated to be accurate to ± 2%.

The model attitude was set with an inclinometer at the desired angles of pitch and roll, and they are estimated to be within ± 0.1°.

On the basis of calibration repeatability and on the consistency and the repeatability of the pressure data, it is estimated that these data have a "most probable error" of ± 5%.

Uncertainties in force coefficients arise from errors in q_{∞}, reference area and balance loads. The error in q_{∞} is covered in the Data Reduction section. If one assumes a negligible error in the reference area, then all that is needed to obtain the overall accuracy of the force data is a knowledge of the precision of measuring the balance loads. On the balance

output there will be an incremental error which is based on the capability of the balance to read a given load. This type of uncertainty would put on the data plot a band which would be independent of angle of attack. These incremental errors are obtained by calculating the standard deviation between applied and calculated calibration loads. The calculated loads were determined by using the calibration constants and the balance output data produced by the applied loads. For the calibrations used in the program, the results are as follows:

Component	Standard Deviation (σ)
N	$\pm$ .232 pounds
m	$\pm$ .418 inch-pounds
Y	$\pm$ .775 pounds
n	$\pm$ .670 inch-pounds
ℓ	$\pm$ .081 inch-pounds
A	$\pm$ .066 pounds

For a normal or Gaussian distribution of errors, 1σ contains 68.3% of the data compared to 99.7% of the data for 3σ. Therefore, 3σ is considered to be more applicable here.

Component	(3σ)
N	$\pm$ .696 pounds
m	$\pm$1.254 inch-pounds
Y	$\pm$2.325 pounds
n	$\pm$2.010 inch-pounds
ℓ	$\pm$ .243 inch-pounds
A	$\pm$ .198 pounds

CONFIGURATIONS INVESTIGATED

The test article was a 0.010-scale replica of the "140 A/B" configuration of the SSV Orbiter, vehicle 4. The model was constructed of AZ31B magnesium and consisted of the following removable items: fuselage, wing, vertical tail, orbital maneuvering system (OMS) pods and nozzles, simulated Orbiter main engine nozzles, elevons, and body flap. (See reference 16 for drawing numbers).

The following nomenclature was used to designate the model components:

$$O_1 = B_{26}\ C_9\ E_{44}\ F_7\ M_7\ N_{28}\ N_{77}\ R_5\ V_8\ W_{116}$$

Component	Definition
B_{26}	Body
C_9	Canopy
E_{44}	Elevon (left and right)
F_7	Body flap
M_7	OMS pods (left and right)
N_{28}	OMS nozzles (left and right)
N_{77}	SSME nozzles (top, lower left, lower right)
R_5	Rudder
V_8	Vertical tail
W_{116}	Wing

The above nomenclature is depicted in Figure 2a and defined in Table III.

CONFIGURATIONS INVESTIGATED (Concluded)

The entire test was performed with all of the above components in place. Various combinations of elevon and body flap deflections were tested. They are as follows:

Left δ_e	Right δ_e	δ_{BF}
-40°	-40°	-11.7°
-40°	-40°	0°
0°	0°	0°
0°	0°	-11.7°
0°	0°	+16.3°
+12°	+12°	0°
+12°	+12°	+16.3°
+15°	+15°	+16.3°
+12°	0°	0°

INSTRUMENTATION

The force measurement system used for test OA113 consisted of the Calspan 1.312 inch diameter six-component "E" balance and an accelerometer balance for inertial compensation. The "E" balance, which was mounted internally in model 51-0 consists of six piezoelectric load cells mounted to a non-metric platform which was integral with the sting support. The accelerometer balance consisted of six accelerometers (equal in number to the number of force and moment components) whose locations were selected for maximum imposed acceleration, i.e., at model extremities for pitch, roll, yaw. An analog computer was used to combine signals from the balance's six force-beams (3 normal, 2 side, and 1 axial) and the accelerometer balance system, to yield inertially compensated force beam output directly in forces and moments.

Pressure instrumentation consisted of five Calspan transducers mounted in the model. One measured balance cavity pressure, two measured lower wing surface pressure and the remaining two measured pressure on the lower fuselage centerline. Their locations are shown in Figure 2b.

The model, model cavity, and pitot pressures were measured by a system developed to meet the particular requirements of shock tunnel testing (Ref. 2). The pressure transducers employ piezoelectric elements, and their small size permits installation within the model. The transducers used in this test have a dual-element feature which reduces acceleration effects to an indicated pressure of .0003 psi/g. Pressures as low as .0008 psi may be accurately measured by these transducers. Proper shielding of

the elements precludes temperature effects in the short test time.

The outputs from the pressure transducers and the force-balance system were recorded on the magnetic drum of a Navigational Computer Corporation MCL-100 data acquisition system (NAVCOR), which samples the data from each of 48 channels every 50 microseconds. The data from the drum are transferred to a Brush recorder for immediate examination and preliminary calculations. The average voltages obtained from the Brush recorder were subsequently punched on cards for reduction on an IBM 370-168 computer.

The Schlieren system used was of the double-pass collimated type with the knife edge horizontal. This system was used for the sensitivity needed to obtain photographs of shock waves during the low density runs. Schlieren photographs were taken on most of the runs.

TEST FACILITY DESCRIPTION

The basic components of the 48-inch Hypersonic Shock Tunnel (HST) are shown in Figure 2.c and described in Reference 1. The tunnel employs a constant-area shock tube with an 8-inch inner diameter. The driver tube is 20 feet long and is externally heated by a resistance heater to temperatures of 1460° R. The driven tube is 50 feet long. The driver gas is generally a mixture of helium and nitrogen with a maximum helium purity of 100% while the driven gas is generally air. Steady-flow test times of duration sufficient to permit accurate measurement of the various parameters of interest are achieved with the tailored-interface technique. A basic discussion of shock tunnel operation technique can be found in Reference 1.

Three axisymmetric nozzles are available to expand the test gas to high velocities:

Nozzle	Type	Exit Diameter in inches	Test Section Mach Number
A	Contoured	24	5.5 to 8
D	Contoured	48	10 to 16
E	10-1/2° Semi-angle cone	48	9 to 20

The contoured nozzles provide parallel flow with no pressure gradients in the streamwise direction for several feet. This is very important since the presence of a streamwise pressure gradient can have a significant effect on model test results. The nozzles employ replaceable throat inserts of different diameters so that with the particular nozzle, the test Mach number can be varied. Test air passes downstream of the test section into a receiver tank of a size sufficient to maintain the desired flow for durations of 5 to 13 milliseconds. All nozzles have been calibrated using pitot-

pressure survey rakes over the Mach number range indicated.

The test section is equipped with two 16-inch diameter Schlieren windows mounted a short distance aft of the nozzle exit.

TEST PROCEDURE

The force balance system was first statically calibrated by hanging a series of weights on the balance and recording the force capsule voltage outputs. The model was then mounted on the balance and an inertial compensation procedure in which the model underwent known translational and rotational accelerations about three chosen axes was conducted. The resultant signals were used as inputs to an analog computer. The computer, by combining the force balance and accelerometer signals, supplied as outputs to the recording system the values for the aerodynamic forces and moments. Once the balance was compensated, a dynamic check calibration was made of the complete model balance system to verify the accuracy of the compensation. This procedure consisted of rapidly releasing known loads from the model and recording six-component acceleration-compensated balance data.

The pressure transducers were calibrated (i.e., voltage output vs. applied pressure) after installation in the model. The voltage variation of the transducer is linear over the range of pressure normally encountered during testing. This calibration, in conjunction with estimated values for the model pressures to be experienced during the actual test, provided the basis for adjusting the gain of the data recording system to achieve maximum "readability". The detailed calibration data are kept on file at Calspan.

The model was installed on the Calspan 1.312 inch diameter six-component "E" balance assembly, supported by a Calspan 1-inch diameter sting (H61-1042-5), as shown in Figures 2d and 2e. The sting was shock mounted

in the tunnel sector for vibration isolation. Model attitude could be adjusted in pitch, yaw or combined pitch and yaw, by pitching the sector from 0 to 53.5 degrees and rolling the sting between 0 and ± 180 degrees.

For the first three runs, the model was inverted (ϕ = 180°) and pitched to +30° angle-of-attack by means of a 45° bent sting adapter (H33-0004-1) which was inverted and pitched +15° at the sector (see Fig. 2e). This pitched the model nose below the tunnel centerline and was done to determine whether there were any radial flow gradients or flow angularities inherent to the tunnel. All of the remaining runs were performed with the model upright (ϕ = 0°), with the straight sting.

The entire program was performed using the contoured Mach 16 "D" nozzle in the 48-inch leg of the Calspan Hypersonic Shock Tunnel.

DATA REDUCTION

With the exception of q_∞ and p'_0, standard Calspan data reduction methods were used to compute force and moment coefficient data, center of pressure locations, and the remaining test section conditions. Reference 3 describes the Calspan standard data reduction methods used for the Hypersonic Shock Tunnel.

From the model-balance system static calibration data, a matrix was computed that relates the applied loads and moments to the balance outputs, accounting for all interactions and the location of the specified moment reference center. Aerodynamic forces and moments were then computed from the matrix, which for the six component balance has the form:

$$\begin{Bmatrix} N \\ m \\ Y \\ n \\ \ell \\ A \end{Bmatrix} = a_{i_j} \begin{Bmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \\ X_5 \\ X_6 \end{Bmatrix}$$

where X = balance capsule output in millivolts

a = calibration constant (lb/mv or in-lb/mv)

N = normal force

m = pitching moment about the balance center

A = axial force

Y = side force

ℓ = rolling moment about the balance center

n = yawing moment about the balance center

In addition, the pitching, yawing and rolling moment coefficients

about the model moment reference center and axial force corrected for model cavity pressure were computed from the following equations:

$$m_c = m + \bar{u}\, Y + \bar{h}\, A_c \qquad (1)$$

$$n_c = n + \bar{u}\, Y + \bar{v}\, A_c \qquad (2)$$

$$\ell_c = \ell + \bar{h}\, Y - \bar{v}\, N \qquad (3)$$

$$A_c = A + S_{cav.}(P_{cav.} - P_\infty) \qquad (4)$$

where:

$\bar{u} = -0.519$ inches

$\bar{h} = +0.250$ inches

$\bar{v} = 0.0$

$S_{cav.} = 4.500\ in^2$

The pressure transducers measure the difference between the initial test section pressure and the applied local pressure. The initial pressure is of the order of 5 microns and is added to the measured pressure to obtain the absolute model pressure. The local pressure coefficient C_p was then computed.

The test conditions of pressure, temperature and Reynolds number are computed by assuming isentropic expansion of the test gas from the conditions behind the reflected shock in the driven tube to the test section Mach number. The flow is expanded sufficiently so that the air in the test section is cool enough to obey the perfect gas laws.

The stagnation enthalpy and temperature of the air behind the reflected shock is determined from

$$H_o = H_1\ (H_4/H_1) \qquad (5)$$

and

$$T_o = T_1\ (T_4/T_1), \text{ respectively} \qquad (6)$$

where H_4/H_1 and T_4/T_1 are functions of U_i, the incident shock velocity, (References 4-6). U_i is obtained by measuring the time taken by the shock wave to pass between two stations in the shock tube. H_1 is taken from Reference 7. Free stream static temperature is obtained from

$$T_\infty = \frac{H_o}{C_p} \left(1 + \frac{\gamma - 1}{2} M_\infty^2\right)^{\gamma-1} \tag{7}$$

Free stream pressure is calculated using

$$P_\infty = P_p P_o \left[1 + \frac{\gamma-1}{2} M_\infty^2\right]^{\frac{(-\gamma)}{\gamma-1}} \tag{8}$$

where:

$$P_p = \left[\frac{(P/P_o)_{real}}{(P/P_o)_{perf.}}\right]$$

is the real gas correction to the ideal static-to-total pressure ratio as described in Reference 8. The source data used in this technique are References 7 and 9.

Values for absolute viscosity (μ) used to compute Reynolds numbers were obtained from Reference 10 for temperatures below 500°R and from Reference 11 for temperatures above 500°R.

Stagnation conditions behind a normal shock in the test section are based on the data of Reference 9. The balance of the primary test section properties is based on perfect gas theory.

The normal procedure used to determine free stream Mach number is through a correlation of Mach number and reservoir pressure and temperature determined from previous airflow calibrations (Reference 1). These calibrations consist of measured lateral pitot surveys for a range of tunnel operating conditions. Free stream Mach number used in the correlation

is determined from the ratio p_o'/p_o for each airflow run (Reference 3).

Dynamic pressure is then calculated from

$$q_\infty = \frac{\gamma}{2} p_\infty M_\infty^2 \qquad (9)$$

During this program, coefficient data scatter as high as ± 20% was noticed at some test conditions. Since X_{cp}/ℓ_b and L/D did not show this scatter it was concluded that the coefficient scatter was caused by insufficient knowledge of dynamic pressure. It was subsequently discovered that the forward model pressure (p_{m_4}) correlated very well with normal force as shown in Figure 4a. Correlations of p_{m_4}, normal force and dynamic pressure were then made using an iterative procedure. The resultant values are shown in the tabulations below and are plotted in Figures 4b to 4d.

	ALPHA			
	20°	30°	40°	50°
p_{m_4}/q_∞	0.3522	0.6689	0.9806	1.353
δ_e/δ_{BF}	-40°/-11°	0°/0°	+12°/+16.3°	+15°/16.3°
N/p_{m_4}	43.34	46.53	52.39	54.02

	ALPHA				
	20°	30°	40°	50°	δ_e/δ_{BF}
N/q_∞	15.26658	28.99053	42.49997	58.66109	-40°/-11.7°
N/q_∞	16.39050	31.12480	45.62880	62.97970	0°/0°
N/q_∞	18.45437	35.04398	51.37430	70.9100	+12°/+16.3°
N/q_∞	19.02763	36.13260	52.97020	73.11276	+15°/+16.3°

This procedure is based upon the assumption that viscous interaction effect on normal force is on the order of 1%, and can effectively be ignored. Therefore normal force is assumed to be linear with dynamic pressure. In addition, p_{m_4} is located on the model such that it is free from flow separation and control surface deflection effects. It can also be shown that test data for p_{m_4} is linear with the estimated value for dynamic pressure used for data reduction (see Figure 4d).

Test conditions were then obtained as follows:

1) Dynamic pressure for a given run was calculated from the ratio of p_{m_4}/q_∞ for the proper angle-of-attack and the measured p_{m_4} for that run.
2) Pitot pressure was calculated from the theoretically established ratio of p_o/q_∞ used in Reference 3.
3) Free stream Mach number and the balance of the test conditions were then calculated from the ratio p_o'/p_o, using the measured values of reservoir conditions for that run and equations 5 to 8 as discussed above. For a detailed discussion of the theoretical principles and experimental substantiation for deriving the estimated dynamic pressures, see Reference 14.

Other equations and methods special to this test are outlined below:

1) Calculation of viscous parameter $\bar{V}_\infty^*$ (Rockwell Method)

$$\frac{T^*}{T_\infty} = 0.5\,\frac{T(W)}{T_\infty} + (1 + 0.2\,M_\infty^2)[0.31462(\sin^2\alpha) + 0.18538] \qquad (10)$$

$$C_\infty^* = \left(\frac{T^*}{T_\infty}\right)^{1/2}\left(\frac{T_\infty + 198.6}{T^* + 198.6}\right) \qquad (11)$$

$$\bar{V}_\infty^* = \frac{M_\infty\sqrt{C_\infty^*}}{\sqrt{Re_\ell}} \qquad (12)$$

DATA REDUCTION (Concluded)

2) Calculation of viscous parameter $\bar{V}'_\infty$ (LANGLEY METHOD)

$$\frac{T'}{T_\infty} = (0.468 + 0.532\,\frac{T(W)}{T_\infty} + 0.039\,M_\infty^2) \tag{13}$$

$$C'_\infty = (\frac{T'}{T_\infty})^{1/2}[\frac{T_\infty + 122.1 \times 10^{-(5/T_\infty)}}{T' + 122.1 \times 10^{-(5/T')}}] \tag{14}$$

$$\bar{V}'_\infty = \frac{M_\infty\sqrt{C'_\infty}}{\sqrt{Re_\ell}} \tag{15}$$

The following reference dimensions and constants were used to compute force and moment coefficient data and center of pressure locations. These values are shown in Figure 2f.

Symbol	Full Scale	Model Scale
b_w	936.7 in	9.367 in.
$\bar{c}$	474.8 in	4.748 in
ℓ_b	1290.3 in	12.903 in
S_w	2690.0 ft^2	0.269 ft^2
X_{MRC}	1076.7 in	10.767 in
$S_{cav.}$	———	4.50 in^2
$\bar{u}$	———	-0.519 in
Y_{MRC}	0.0 in	0.0 in
$\bar{v}$	———	0.0
Z_{MRC}	375.0 in	3.75 in
$\bar{h}$	———	0.250 in

DISCUSSION OF TEST RESULTS

A total of 121 runs were completed at Calspan. Of these 108 runs yielded useable data. Six test conditions were run and these are listed in Tables I and IV.

As a result of the problem with dynamic pressure, all of the coefficient data presented in this report are based upon a procedure to provide estimated dynamic pressure based on model pressure (p_{m_4}) correlations. This procdure is described in the Data Reduction section of this report.

In general, preliminary force results show less viscous interaction effect than data from test OA81 (Reference 12). ΔC_A and ΔC_m ($0.65\ell_b$) data from test OA113 are about 60 percent as large as that obtained from test OA81. Positive deflection of control surfaces show little viscous interaction effect on pitching moment except at higher angles of attack (40 and 50 degrees exhibit pitch up).

Shock wave structure can not be seen in the Schlieren photographs for test conditions where $\bar{V}^*_\infty$ is greater than 0.036, because of the very low freestream density.

Before the test began, certain model discrepancies and errors in configuration were discovered. These model inaccuracies were corrected before test OA113, and are documented in reference 13. However, during the test, it was discovered that the +10 degree elevon brackets were actually + 12 degrees. This was indicated by data trends and later substantiated by making + 15 degree elevon deflection runs and thorough measurements.

A complete analysis and discussion of test data and results can be found in Reference 14.

REFERENCES

1. Description and Capabilities, Calspan Corporation, Hypersonic Shock Tunnel, March 1973.

2. Bogdan, L., "Instrumentation Techniques for Short-Duration Test Facilities," Calspan Report No. WTH-030, March 1967.

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9. Neel, C. A. and Lewis, Clark H., "Interpolations of Imperfect Air Thermodynamic Data, II at Constant Pressure", AEDC-TDR-64-184, September 1964.

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11. Hansen, F. C., "Approximations for Thermodynamic and Transport Properties of High-Temperature Air", NACA TN-4150, March 1958 (Revised NASA TR - 50, 1959).

12. Elder, D. J., "Results of an Investigation of Hypersonic Viscous Interaction Effects on an 0.01-Scale Space Shuttle Orbiter 51-O Model in the AEDC-VKF Hypervelocity Wind Tunnel (OA81), "Space Shuttle Aero-Thermodynamic Data Report, DMS-DR-2152, NASA CR-134,423, October 1974.

REFERENCES (Concluded)

13. Daileda, J. J., "Information Concerning the Preparation of Model 51-O for Tests OA93 and OA113," Rockwell Internal Letter SAS/WTO/ 74-181, addendum #1, dated August 1, 1974.

14. Elder, D. J., "Estimation of the Perfect Gas Hypersonic Viscous Interaction Effects of the Rockwell International Space Division Orbiter Vehicle," Internal Letter SAS/AERO/75-283.7

15. Burrows, R. R., Daileda, J. J., "Pretest Information for Wind Tunnel Test OA113 of the 0.010-Scale Space Shuttle Orbiter Configuration 140A/B in the Calspan Hypersonic Shock Tunnel (48-inch leg)," SD74-SH-0121A dated June 14, 1974.

TABLE I.

TEST : 0A-113; CAL I84-220 | DATE : 10 Aug. 74

TEST CONDITIONS

T.C.	MACH NUMBER	REYNOLDS NUMBER (per foot)	DYNAMIC PRESSURE (pounds/sq. inch)	(RESERVOIR) STAGNATION TEMPERATURE (degrees Fahrenheit)
2	9.8	0.0323×10^6	0.282	5,140
1	10.6	0.482×10^6	0.724	1,840
3	14.2	0.065×10^6	0.281	5,040
4A	15.0	0.081×10^6	0.176	3,540
10A	15.7	0.250×10^6	0.452	3,440
5	15.9	0.0397×10^6	0.066	3,440

BALANCE UTILIZED: CALSPAN "E" Low-Load Balance

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE: *
NF	96.3 lbs	± 3% measured load	
SF	62.4 lbs	± 3% measured load	
AF	41.0 lbs	± 3% measured load	
PM	60.86 in-lbs	± 3% measured load	
RM	12.04 in-lbs	± 3% measured load	
YM	43.13 in-lbs	± 3% measured load	

COMMENTS: *See Data Reduction section

T.C. = Test Condition Code No. used by Calspan

TABLE II.

TEST : OA-113 ; CAL IB4-220

DATA SET/RUN NUMBER COLLATION SUMMARY

DATE : 10 AUG74

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	PARAMETERS/VALUES δ_E	δ_{BF}	δ_R	δ_{SB}	NO. OF RUNS	NOMINAL RUN SCHEDULE VALUES 9.8	10.6	14.2	15.0	15.7	15.9
RUH001	*$\emptyset_1$ MODEL INVERTED	30	0	-40	-11.7	0	0	2		1				3
002	MODEL UPRIGHT	20						3				26	98	17
003		30						6	7	4	11	20	78	5
004		40						6	23	22	27	80	79	18
005		50						4	99			25	97	15
006	REPEAT	30						2		10				8
007	REPEAT	30						1						9
008		20		0	0			2				39		32
009		30						6	41	40	77	34	74	33
010		30	5					3				116	115	45
011		40	0					6	42	44	76	35	75	36
012		50						4	100			38	101	37
013		20		12	16.3			4	96			58	95	57
014		30						6	68	64	63	59	82	54
015		40						6	67	66	62	60	81	55
016		50						6	86	85	84	61	83	56
017		30		15				5	94	106		91	107	110
018		40						5	93	105		90	89	92

TEST RUN NUMBERS

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

CN CA CLM CY CYN CBL PM1 PM2 PM3 PM4 MACH ALPHA 1.0

IDVAR (1) IDVAR (2) NDV

S DATA VBAR, VLBAR, T*, REFTL, SQRTC*, PIPOT, P(TS), H(W), T(W), C(CP)
T DATA M(I), P(O), H(O), T(O), U, T, P, Q(PSI), RHO, MU

$* \emptyset_1 = B_{26}\ C_9\ E_{44}\ F_7\ M_7\ N_{28}\ N_{77}\ R_5\ V_8\ W_{116}$

TABLE II. - Concluded

TEST: OA-113 CALIBA-220 — DATA SET/RUN NUMBER COLLATION SUMMARY — DATE: 10 AUG 74

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	CONTROL DEFLECTION δ_{E}^{R}	CONTROL DEFLECTION δ_{BF}	CONTROL DEFLECTION δ_{R}	CONTROL DEFLECTION δ_{SB}	NO. OF RUNS	NOMINAL RUN SCHEDULE VALUES 9.8	10.6	14.2	15.0	15.7	15.9	TEST RUN NUMBERS
RUN 019	Q1	50	0	15	16.3	0	0	5	103	104		108	102	109	
020		30		0				3				52	111	53	
021		40						3				51	112	50	
022		30			-11.7			2				47		46	
023		40						2				48		49	
024		30		-40	0			3				29	114	30	
025		40						3				28	113	31	
026		30		12				3				69	121	72	
027		40						2				70		71	
028		30		12°/6°R				5	120	119		117	118	73	

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

IDVAR (1) IDVAR (2) NDV

α OR β SCHEDULES

*REVISED 4/24/74

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT: BODY - B_{26}

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Fuselage

NOTE: B_{26} identical to B_{24} except underside of fuselage refaired to accept W_{116}

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-000193, VL70-000140A

DIMENSIONS	FULL SCALE	MODEL SCALE
Length (Body Fwd Sta X_o=235) -In.	1293.3	12.933
* Max Width (@ X_o = 1528.3)-In.	264.0	2.640
Max Depth (@ X_o = 1464) - In.	250.0	2.500
Fineness Ratio		
Area - $Ft.^2$		
Max. Cross-Sectional	340.88	0.034
Planform		
Wetted		
Base		

*REVISED 4/24/74

TABLE III. - MODEL DIMENSIONAL DATA- Continued.

MODEL COMPONENT : CANOPY - C_9

GENERAL DESCRIPTION : Configuration 3A

Canopy to match the nose 140A/B

MODEL SCALE: 0.010

DRAWING NUMBER : VL70-000143A & VL70-000140A

DIMENSIONS :	FULL SCALE	MODEL SCALE
* Length (X_o=434.643 to 578)	143.357	1.434
Max Width (@ X_o = 513.127)	152.412	1.524
Max Depth (@ X_o = 485.0)	25.000	.250
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELEVON - E_{44} (See Figure 2g)

GENERAL DESCRIPTION: 6.0 IN. F.S. gaps machined into E_{26} elevon. Flapper doors, centerbody pieces, and tipseals are not simulated. (Data are for one side).

MODEL SCALE: 0.010

DRAWING NUMBER: Not available

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - Ft^2	210.0	0.0210
Span (equivalent), In.	349.2	3.492
Inb'd equivalent chord , In.	118.0	1.180
Outb'd equivalent chord , In.	55.19	0.552
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.2096	0.2096
At Outb'd equiv. chord	0.4004	0.4004
Sweep Back Angles, degrees		
Leading Edge	0.00	0.00
Trailing edge	- 10.056	- 10.056
Hingeline	0.00	0.00
Area Moment (Product of area & $\bar{c}$), Ft^3	1587.25	0.00159
Mean Aerodynamic Chord, In.	90.7	0.907

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: BODY FLAP - F_7

GENERAL DESCRIPTION: Configuration 140A/B Orbiter Body Flap

MODEL SCALE: 0.010 MODEL DRAWING: SS-A00147, RELEASE 12

DRAWING NUMBER: VL70-000140A, VL70-000145

DIMENSIONS	FULL SCALE	MODEL SCALE
Length (X_o=1520 to X_o=1613) - In.	93.000*	0.930
Max Width - In.	262.000	2.620
Max Depth (X_o = 1520) - In.	23.000	0.230
Fineness Ratio		
Area - Ft^2		
Max. Cross-Sectional		
Planform	142.6	0.0143
Wetted		
Base	41.847	0.0042

*Model dim. measured from Model Sta. 15.20

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT OMS/RCS PODS - M7

GENERAL DESCRIPTION Configuration 140A/B Orbiter OMS/RCS pods.

MODEL SCALE: 0.010 MODEL DRAWING: SS-A00147, RELEASE 12

DRAWING NUMBER VL70-000145

DIMENSIONS	FULL SCALE	MODEL SCALE
Length (OMS Fwd Sta X_o=1233.0) In.	327.000	3.270
Max Width (@ X_o = 1450.0) - In.	94.5	0.945
Max Depth (@ X_o = 1493.0) - In.	109.000	1.090
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: OMS NOZZLES - N_{28}

GENERAL DESCRIPTION: Configuration 140A/B Orbiter OMS Nozzles

MODEL SCALE: 0.010

DRAWING NO.: VL70-000140A (Location); SS-A00106, RELEASE 5 (Contour)

DIMENSIONS:	X_o	Y_o	Z_o
GIMBAL ORIGIN:			
Left Nozzle - In.	1518.0	- 88.0	492.0
Right Nozzle - In.	1518.0	+ 88.0	492.0

NULL POSITION:	PITCH	YAW
Left Nozzle (Null Pitch 15°49'; Yaw 12°17' OUTB'D)	± 8	13°17' OUTB'D 2°30' INB'D
Right Nozzle (Null Pitch 15°49'; Yaw 12°17' OUTB'D)	± 8°	13°17' OUTB'D 2°17' INB'D

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: MPS NOZZLES - N 77

GENERAL DESCRIPTION: Simulation of the three SSME nozzles for the 140A/B Orbiter configuration. Heat shields are included and cutouts for sting clearance.

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-005106A, SS-A01247

DIMENSIONS:		FULL SCALE	MODEL SCALE
MACH NO.			
Length - In.			
Gimbal Point to Exit Plane		153.00	1.530
Throat to Exit Plane			
Diameter - In.			
Exit (External)		94.00	0.940
Throat			
Inlet			
Area - ft^2			
Exit		48.193	0.0048
Throat			
Gimbal Point (Station) - In.			
Upper Nozzle			
X		1445.00	14.450
Y		0.00	0.000
Z		443.00	4.430
Lower Nozzles			
X		1468.17	14.682
Y	±	53.00	± 0.530
Z		342.64	3.426
Null Position - Deg.			
Upper Nozzle			
Pitch		16.0	16.0
Yaw		0.0	0.0
Lower Nozzle			
Pitch		10.0	10.0
Yaw		3.5 OUTBOARD	3.5 OUTBOARD

*REVISED 4/24/74

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: RUDDER - R_5

GENERAL DESCRIPTION: 2A, 3, 3A and 140A/B Configuration per Rockwell Lines VL70-000095

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-000095

DIMENSIONS:	FULL-SCALE	MODEL SCALE
* Area - Ft^2	100.15	0.0100
Span (equivalent) - In.	201.0	2.010
Inb'd equivalent chord - In.	91.585	0.916
Outb'd equivalent chord - In.	50.833	0.508
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.400	0.400
At Outb'd equiv. chord	0.400	0.400
Sweep Back Angles, degrees		
Leading Edge	34.83	34.83
Trailing Edge	26.25	26.25
Hingeline	34.83	34.83
*Area Moment (Product of area & $\bar{c}$) - Ft^3	610.92	0.000611
*Mean Aerodynamic Chord, Inches	73.2	0.732

*REVISED 4/24/74

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: VERTICAL - V_8

GENERAL DESCRIPTION: Configuration 3A.

NOTE: Similar to V_5 with radius on TE upper corner and LE lower corner where vertical meets fuselage.

MODEL SCALE: 0.010

DRAWING NUMBER: VL70-000140A, VL70-000146A

DIMENSIONS:	FULL SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) - Ft^2		
Planform	413.253	0.041
Span (Theo) - In.	315.720	3.157
Aspect Ratio	1.675	1.675
Rate of Taper	0.507	0.507
Taper Ratio	0.40399	0.40399
Sweep-Back Angles, Degrees.		
Leading Edge	45.00	45.00
* Trailing Edge	26.2	26.2
0.25 Element Line	41.130	41.13
Chords:		
Root (Theo) WP - In.	268.500	2.685
Tip (Theo) WP	108.470	1.0847
MAC	199.80756	1.9980
Fus. Sta. of .25 MAC	1463.50	14.635
W.P. of .25 MAC	635.522	6.3552
B.L. of .25 MAC	0.00	0.00
Airfoil Section		
Leading Wedge Angle - Deg.	10.00	10.00
Trailing Wedge Angle - Deg.	14.930	14.920
Leading Edge Radius	2.00	0.020
Void Area	13.17	0.001317
Blanketed Area	0.00	0.00

TABLE III. - MODEL DIMENSIONAL DATA - Concluded.

MODEL COMPONENT: WING-W_{116}

GENERAL DESCRIPTION: Configuration 4

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

MODEL SCALE: 0.010

TEST NO.

DIMENSIONS:	DWG. NO. VL70-000140B VL70-000200 FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo.) Ft^2		
Planform	2690.00	0.269
Span (Theo In.	936.68	9.367
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Dihedral Angle, degrees	3.500	3.500
Incidence Angle, degrees	0.500	0.500
Aerodynamic Twist, degrees	+ 3.000	+ 3.000
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	- 10.056	- 10.056
0.25 Element Line	35.209	35.209
Chords:		
Root (Theo) B.P.0.0.	689.24	6.892
Tip, (Theo) B.P. 468.34	137.85	1.379
MAC	474.81	4.748
Fus. Sta. of .25 MAC	1136.83	11.368
W.P. of .25 MAC	290.58	2.906
B.L. of .25 MAC	182.13	1.821
EXPOSED DATA		
Area (Theo) Ft^2	1751.50	0.175
Span, (Theo) In. BP108	720.68	7.207
Aspect Ratio	2.059	2.059
Taper Ratio	0.245	0.245
Chords		
Root BP108	562.09	5.621
Tip 1.00 $\frac{b}{2}$	137.85	1.379
MAC	392.83	3.928
Fus. Sta. of .25 MAC	1185.98	11.860
W.P. of .25 MAC	294.30	2.943
B.L. of .25 MAC	251.77	2.518
Airfoil Section (Rockwell Mod NASA) XXXX-64		
Root $\frac{t}{c}$ =	0.113	0.113
Tip $\frac{t}{c}$ =	0.12	0.12
Data for (1) of (2) Sides		
Leading Edge Cuff		
Planform Area Ft^2	113.18	1.132
Leading Edge Intersects Fus M. L. @ Sta	500.00	5.000
Leading Edge Intersects Wing @ Sta	1024.00	10.240

Table IV Tunnel Operating Conditions
(Nominal)

M	M_i	RE/FT x 10^{-6}	Q, psi	RESERVOIR PRESSURE, PSIA	VBAR	THROAT DIA., IN.
10.6	2.9	0.482	0.724	600	0.012	1.6
9.8	5.5	0.0323	0.282	300	0.036	1.125
14.2	5.34	0.0647	0.281	1600	0.037	0.50
15.0	4.28	0.081	0.176	1000	0.037	↓
15.9	4.05	0.0397	0.0656	475	0.060	0.40
15.65	4.13	0.250	0.452	3000	0.025	0.50

Notes:

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

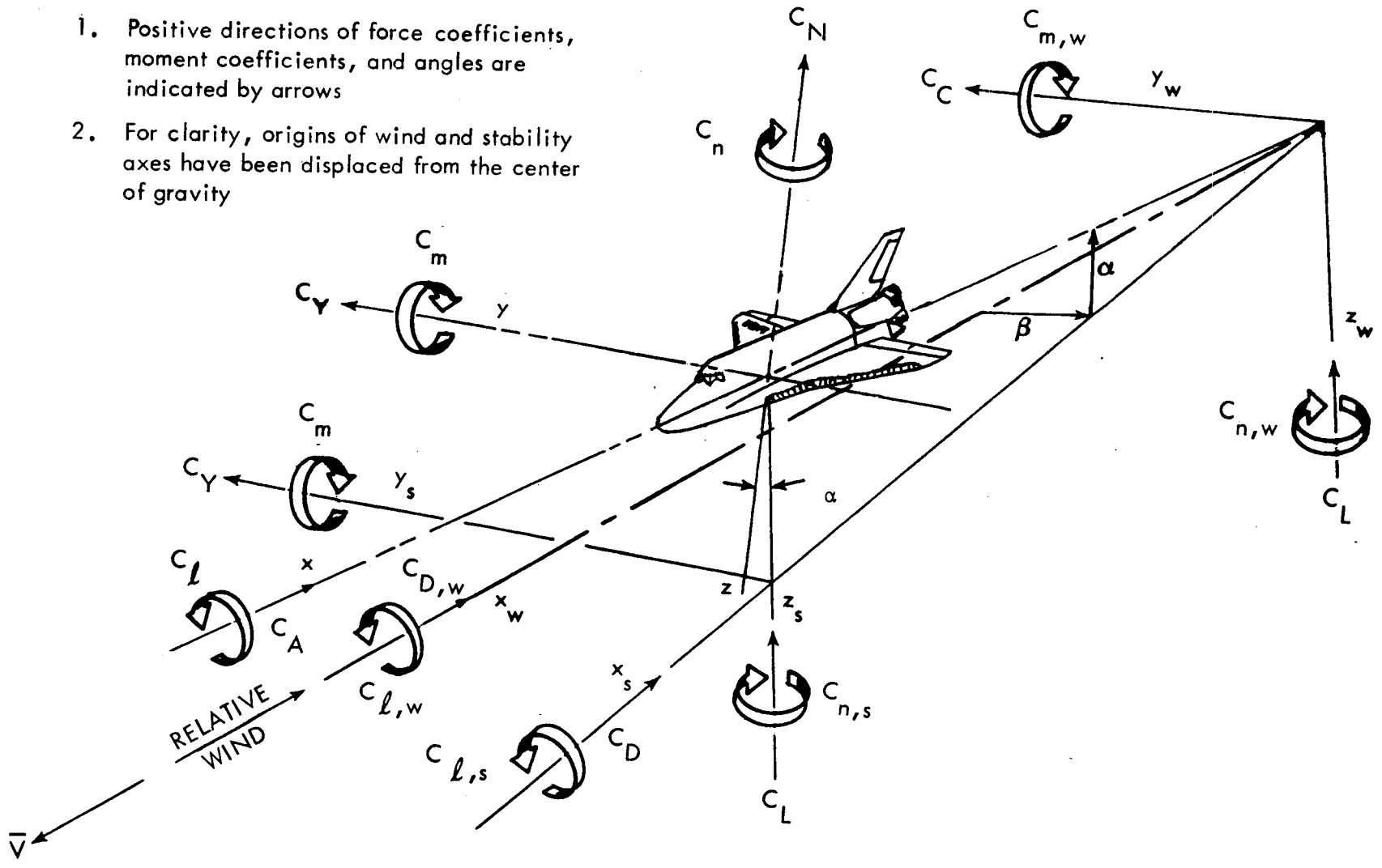
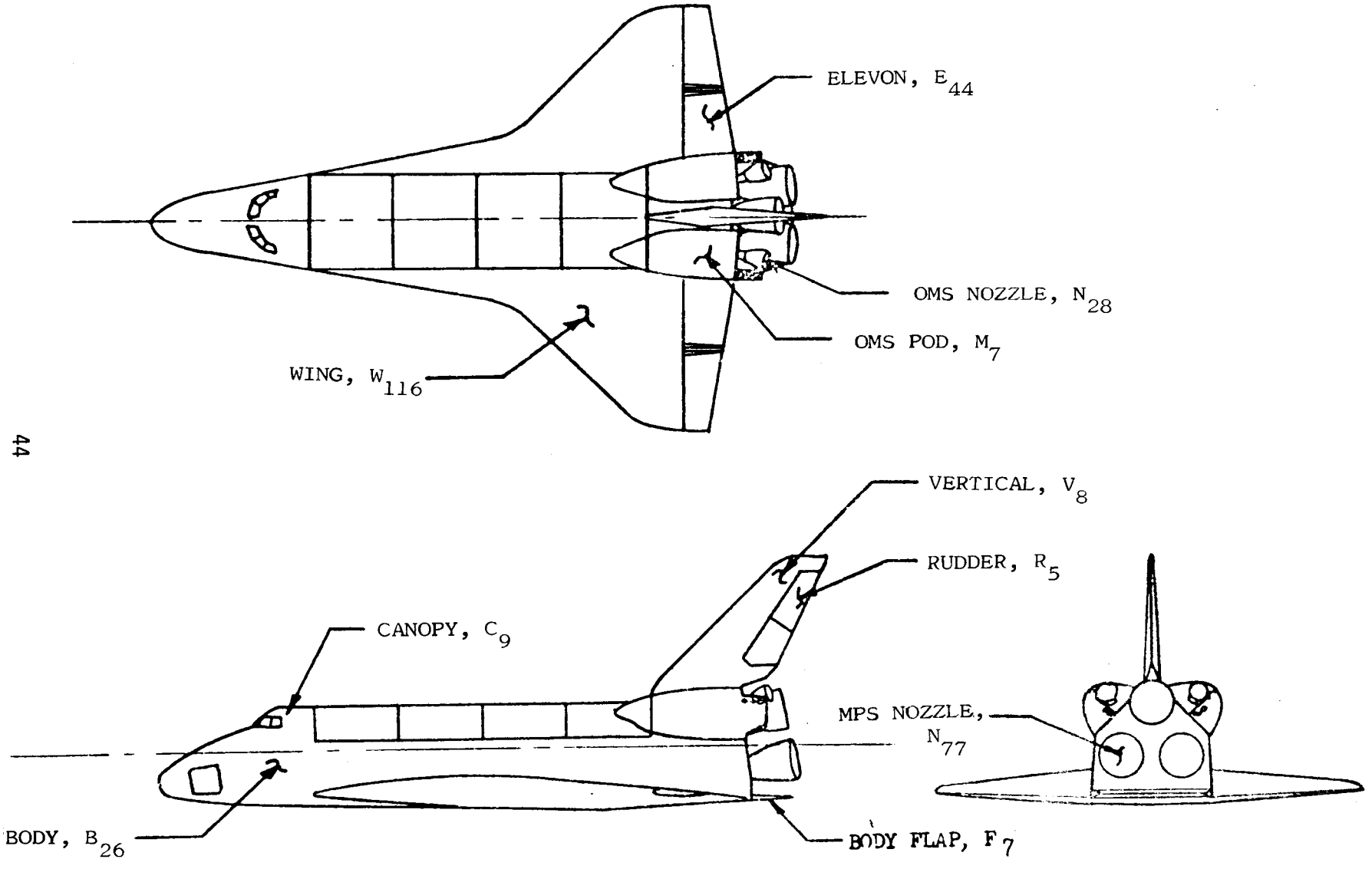
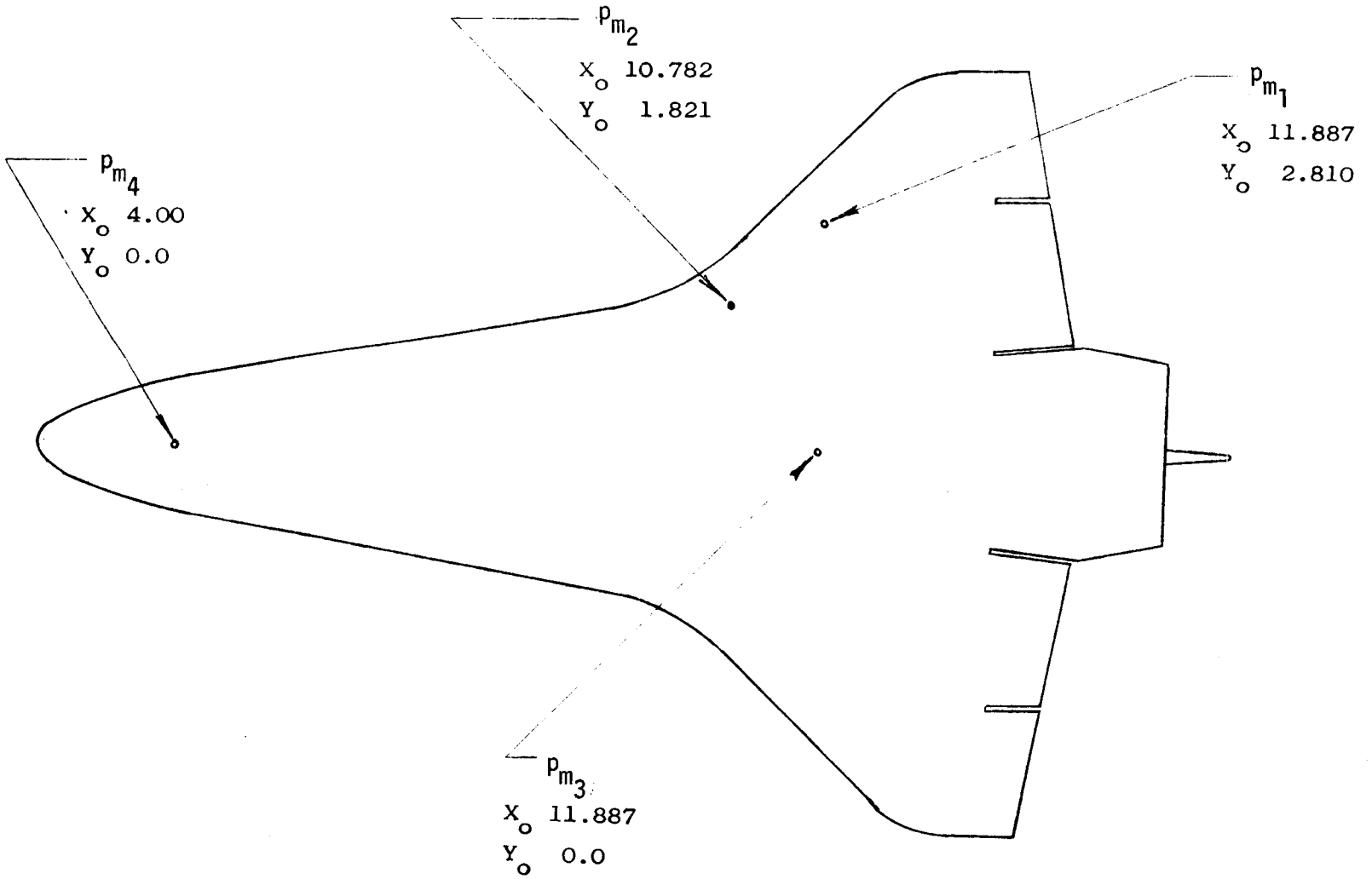


Figure 1. - Axis systems.



a. Orbiter Three View

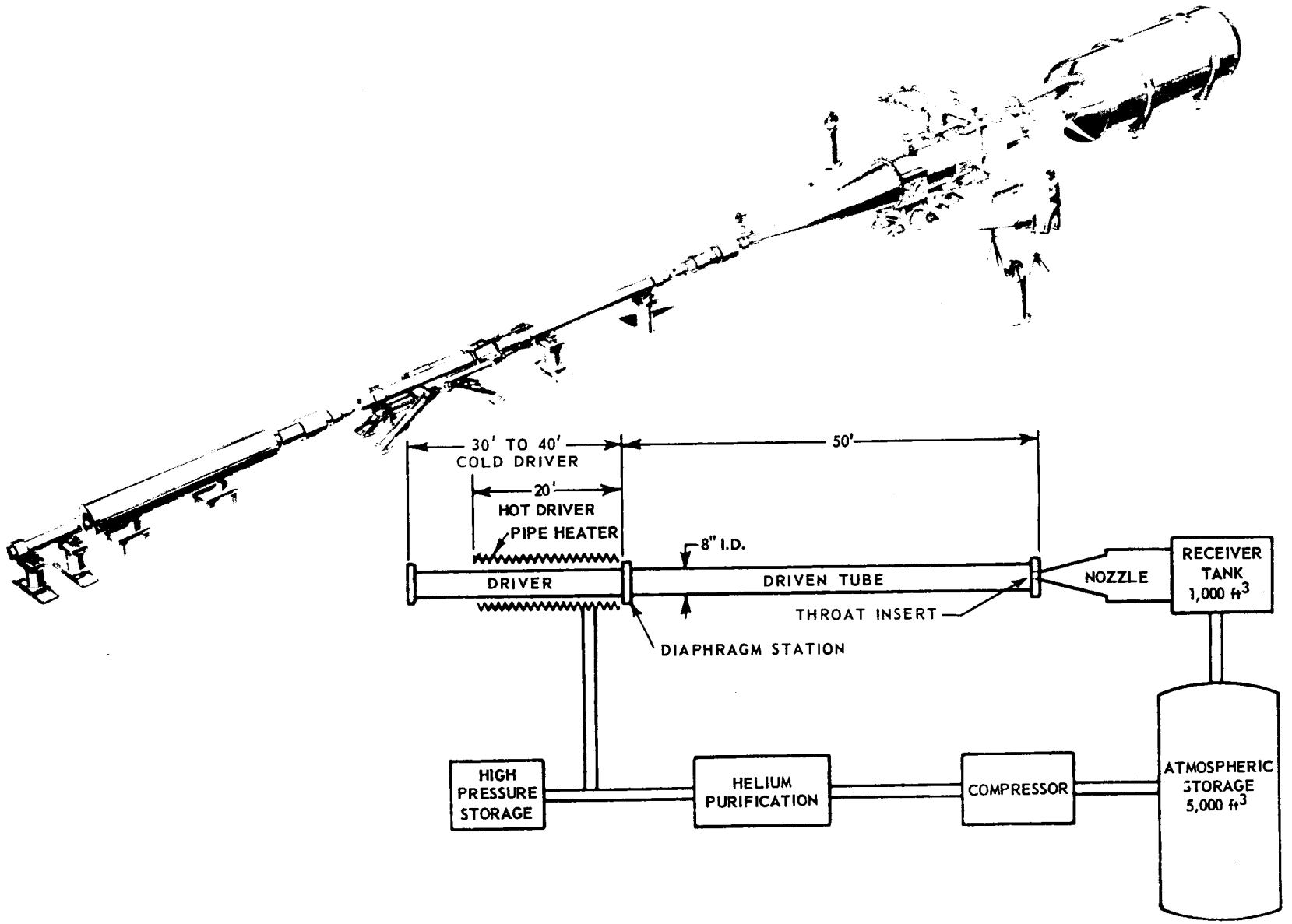
Figure 2. - Model sketches.



NOTE: ALL ORBITER COORDINATES ARE MODEL SCALE, INCHES.

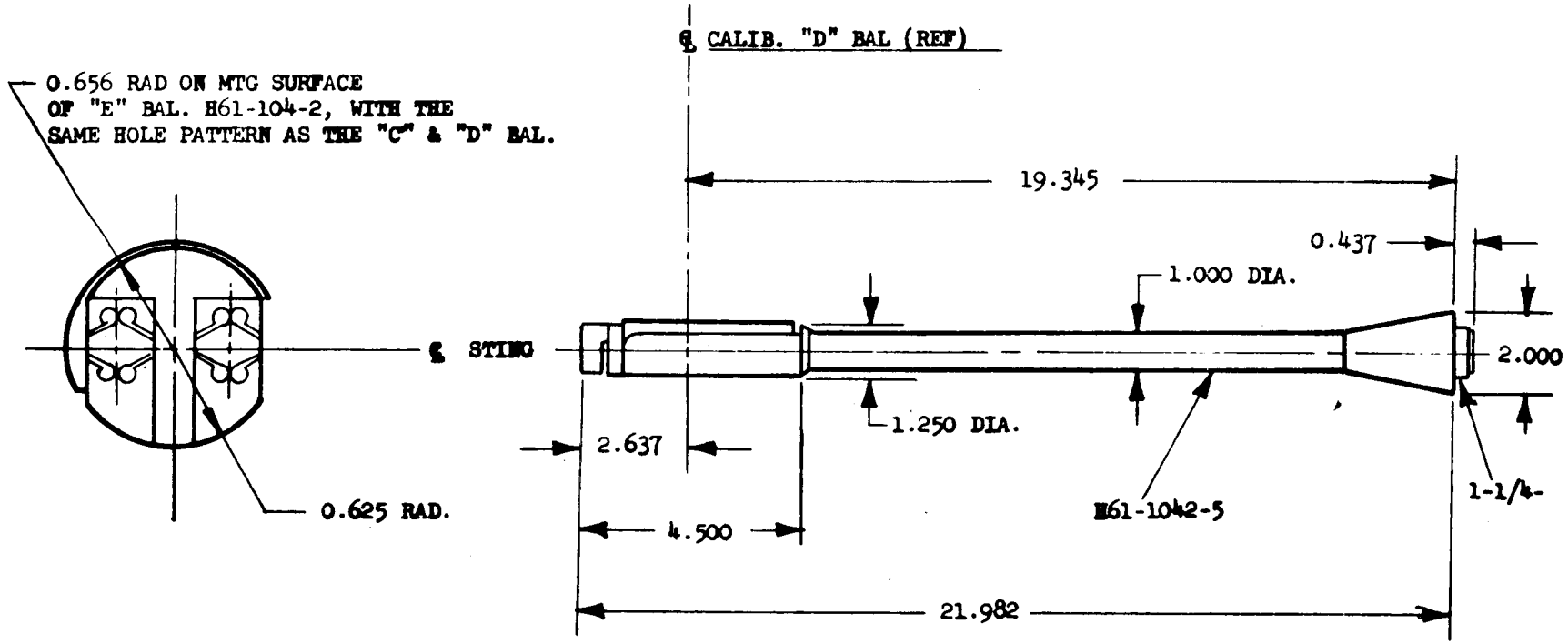
b. Static Pressure Tap Locations

Figure 2. - Continued.



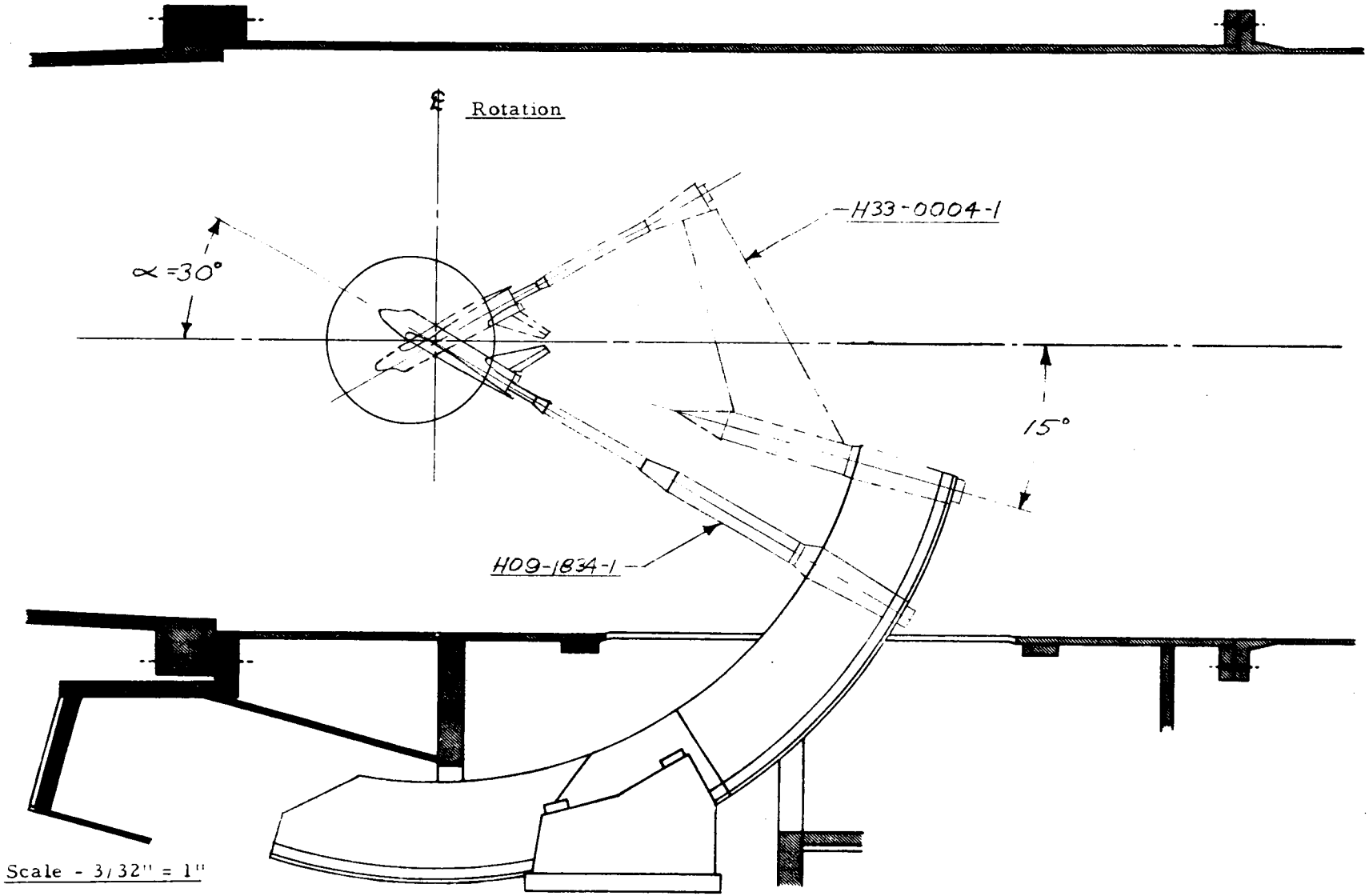
c. Basic Components of the Calspan Hypersonic Shock Tunnel - 48" Leg

Figure 2. - Continued.



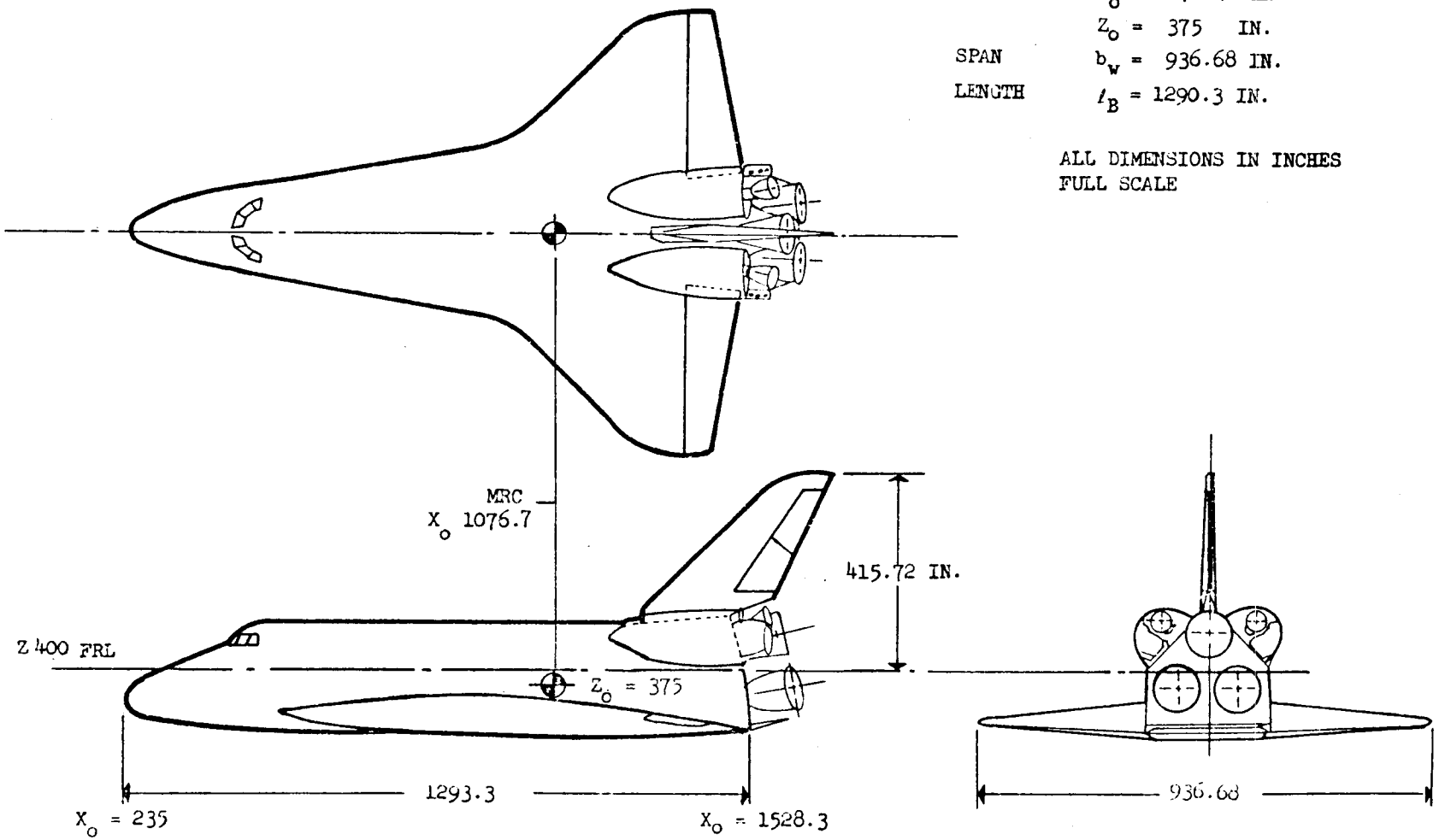
d. "E" Balance Assy 6 Component - Ceramic

Figure 2. - Continued.



e. Installation of Model 51-0 in the Calspan Hypersonic Shock Tunnel (48 Inch Leg)

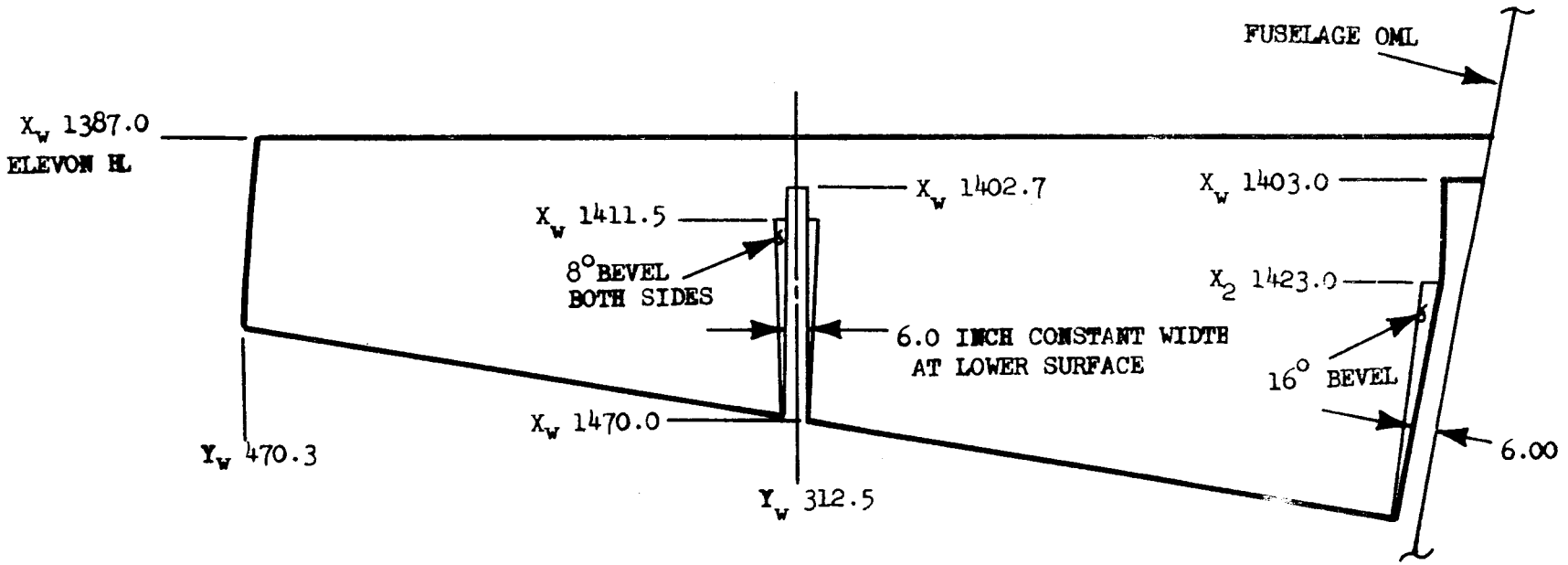
Figure 2. - Continued.



f. SSV Orbiter Configuration 140A/B

Figure 2. - Continued.

E_{44} elevon with 6.0 inch gaps installed. Flapper doors, centerbody pieces, and tip seals are not simulated.

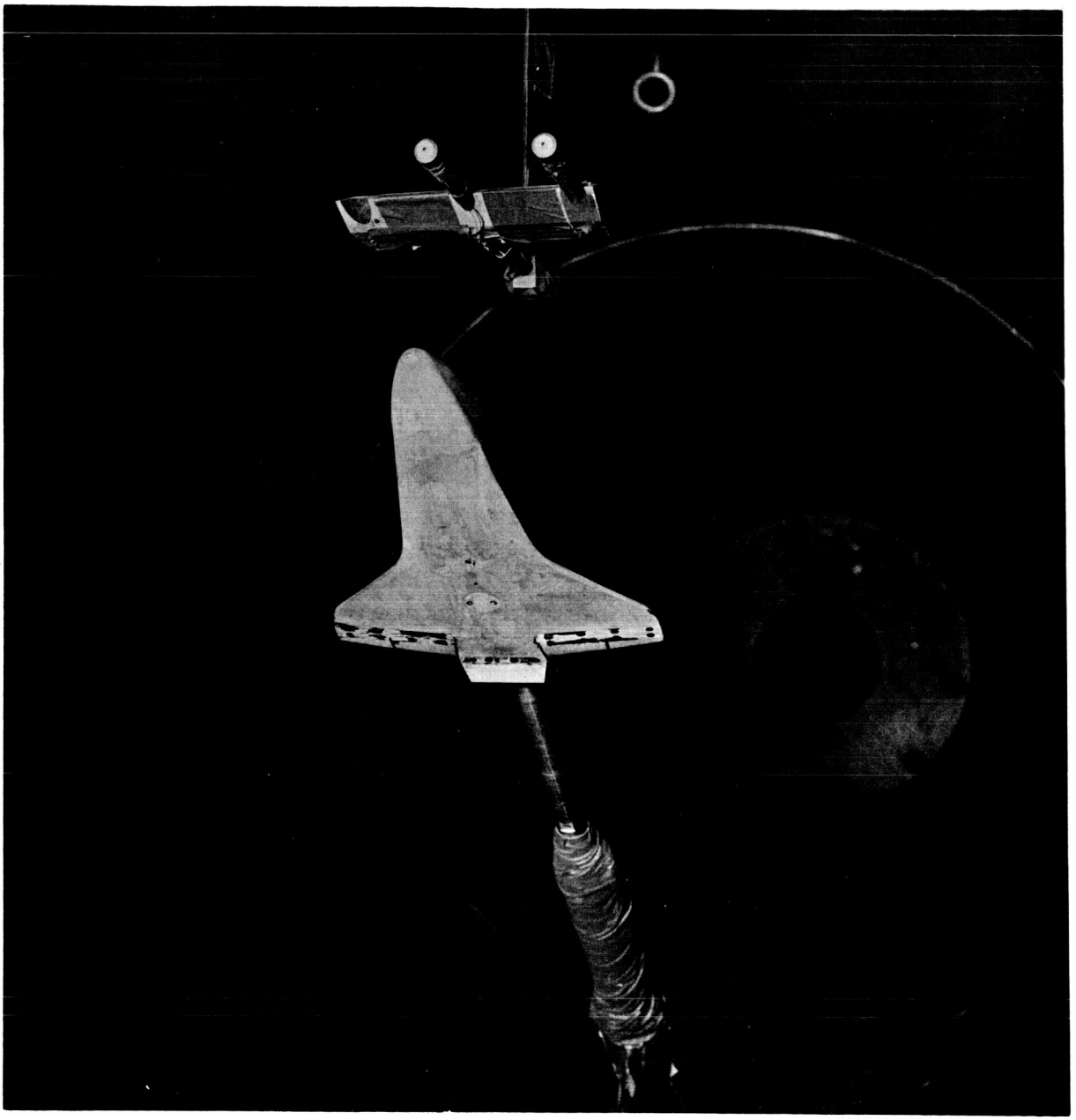


(ALL DIMENSIONS ARE FULL SCALE INCHES)

(VIEW IS PERPENDICULAR TO WING REFERENCE PLANE)

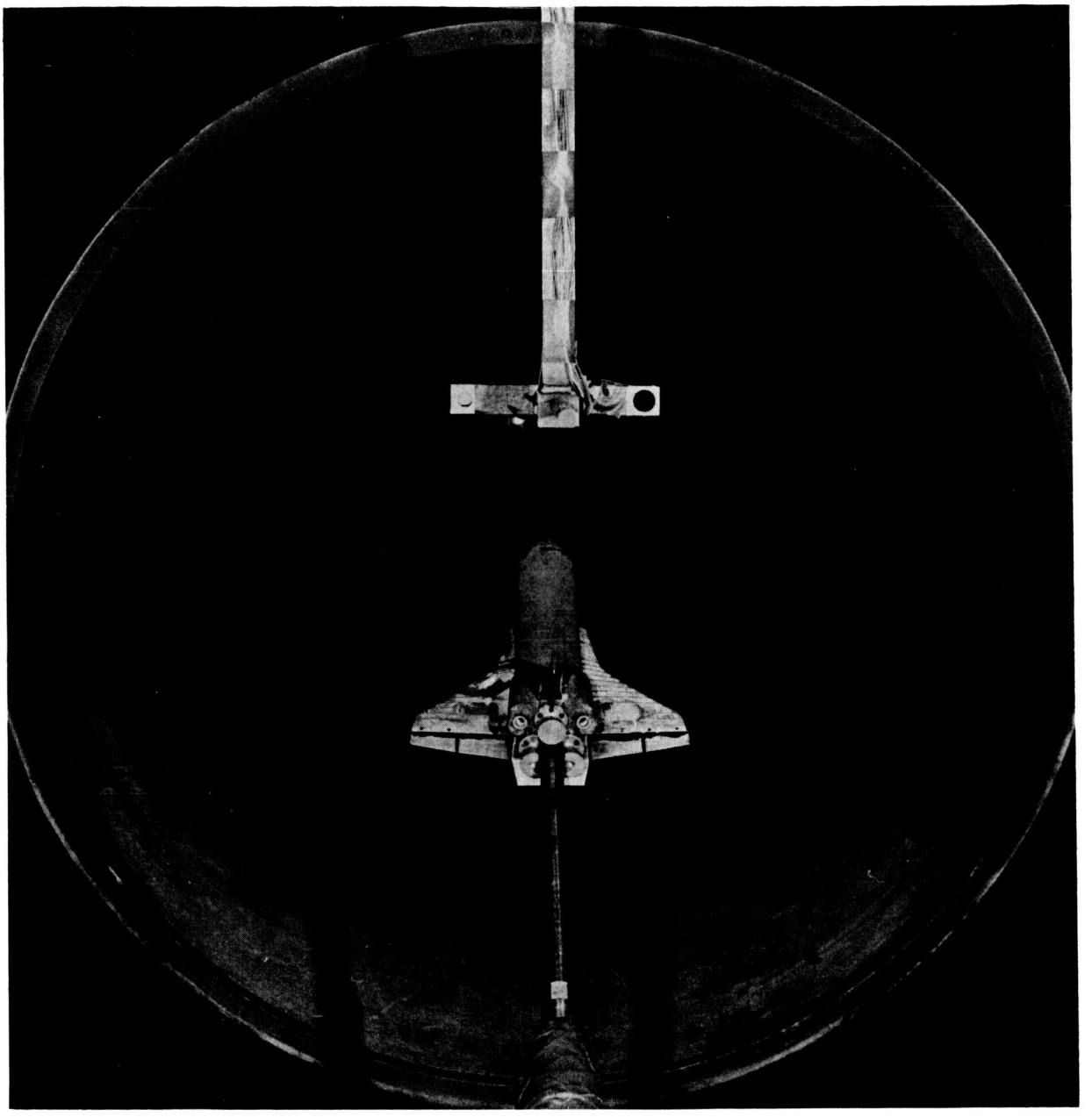
g. Elevon - E_{44}

Figure 2. - Concluded.



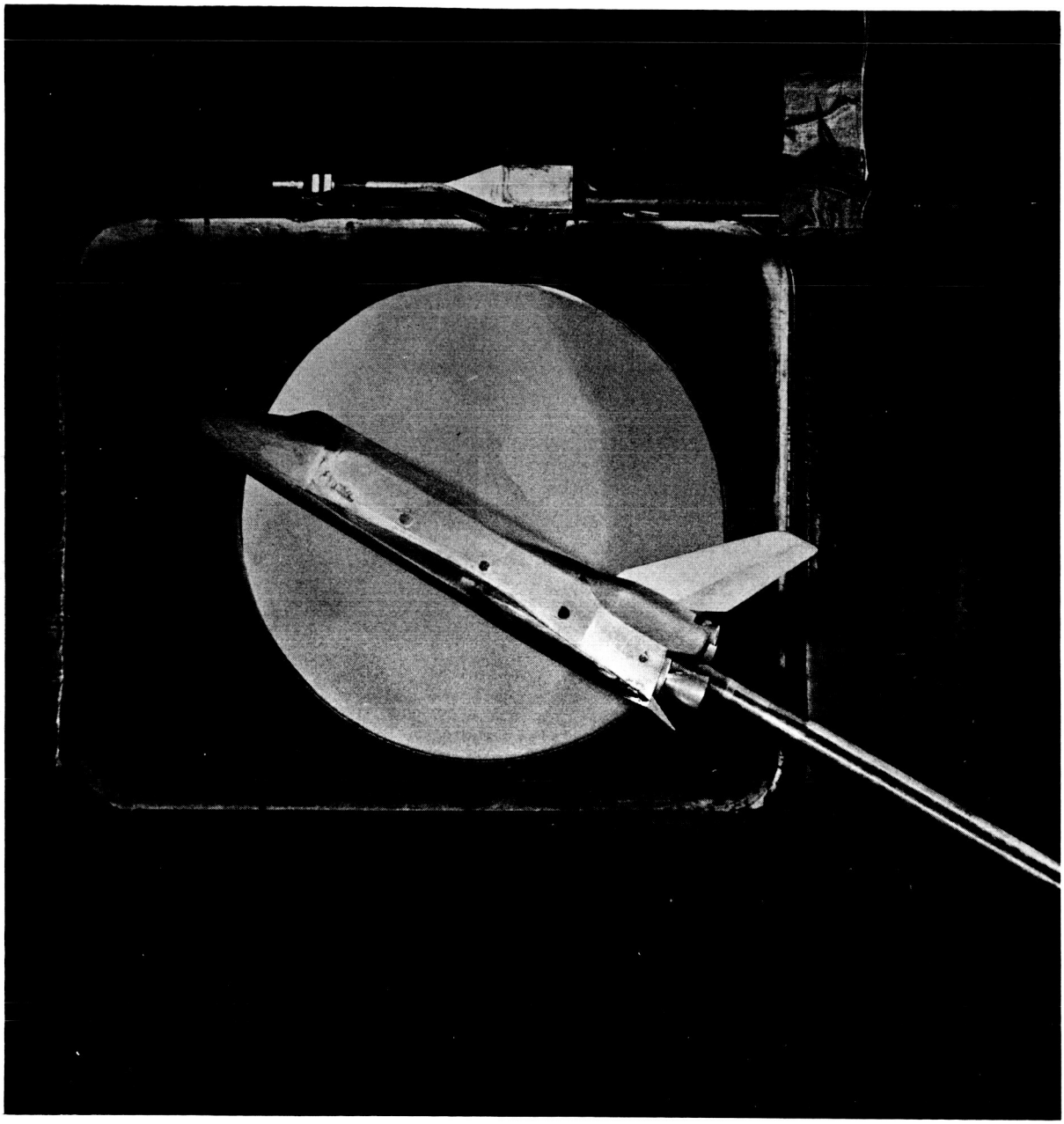
a. Downstream View of Model and Pitot Rake in 48-Inch HST Test Section

Figure 3. - Model photographs.



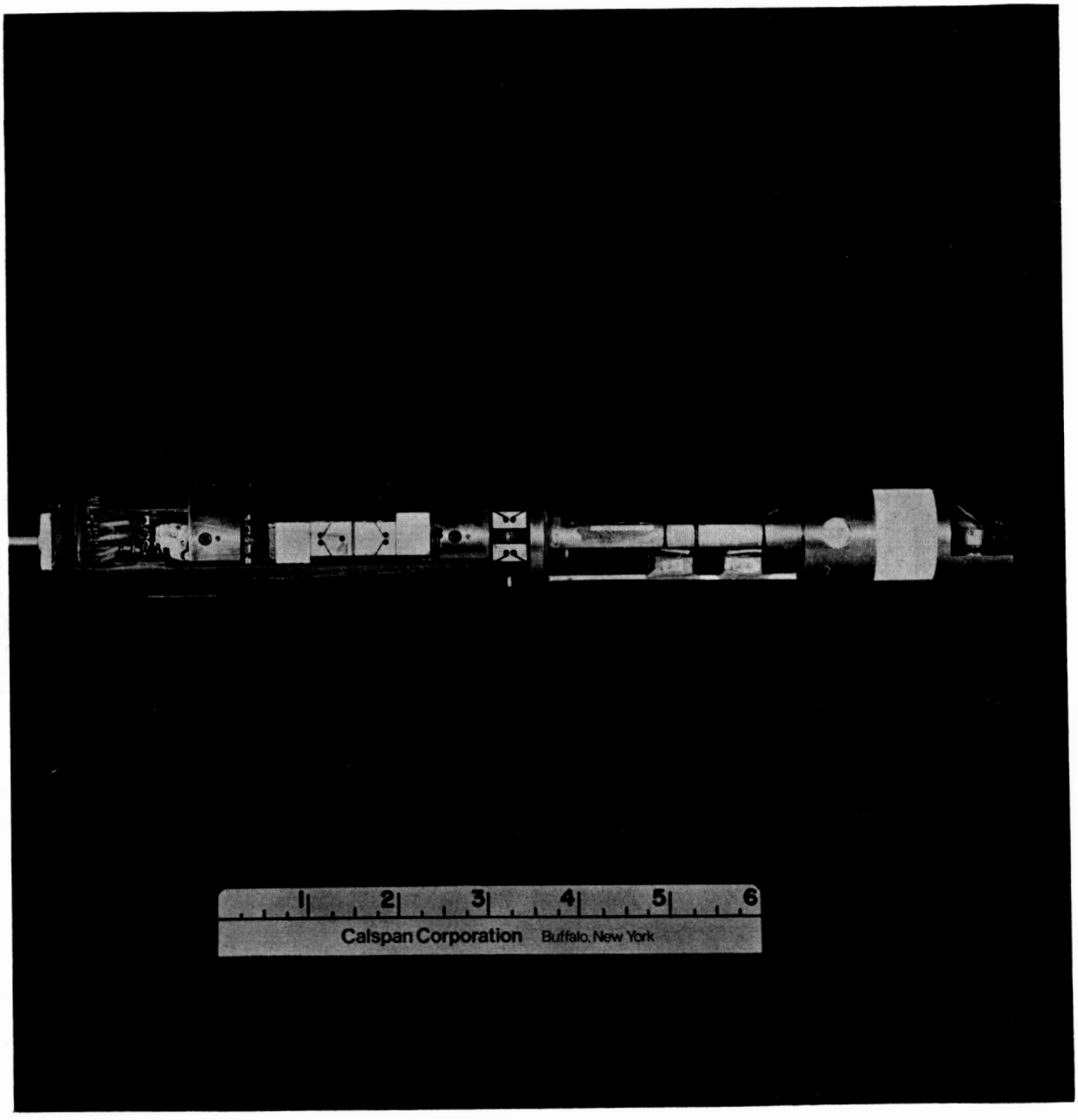
b. Upstream View of Model and Pitot Rake Looking Toward Throat Area of 48-Inch HST

Figure 3. - Continued.



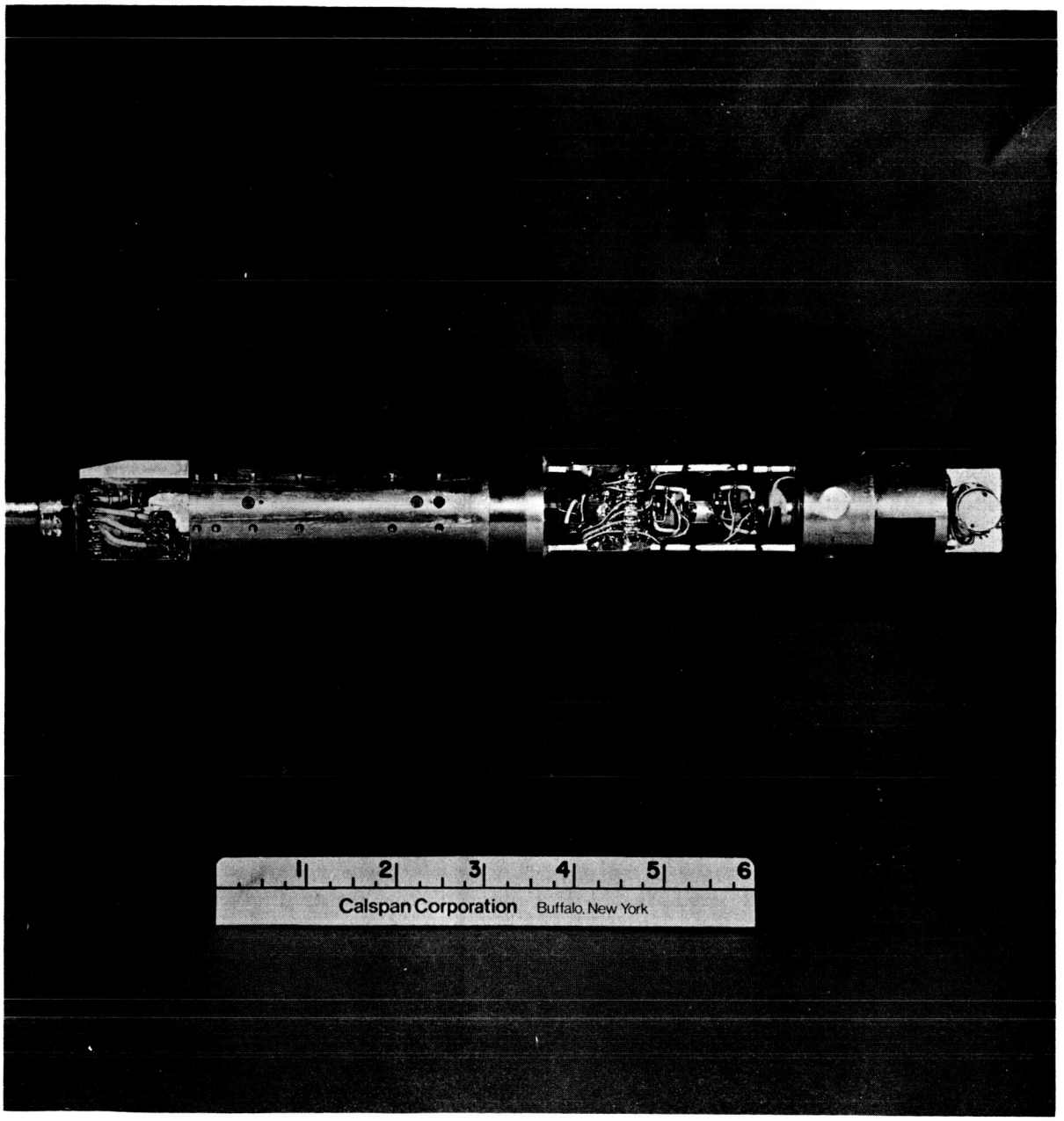
c. Sideview of Pitot Rake and Model, Mounted in Test Section of 48-Inch HST

Figure 3. - Continued.



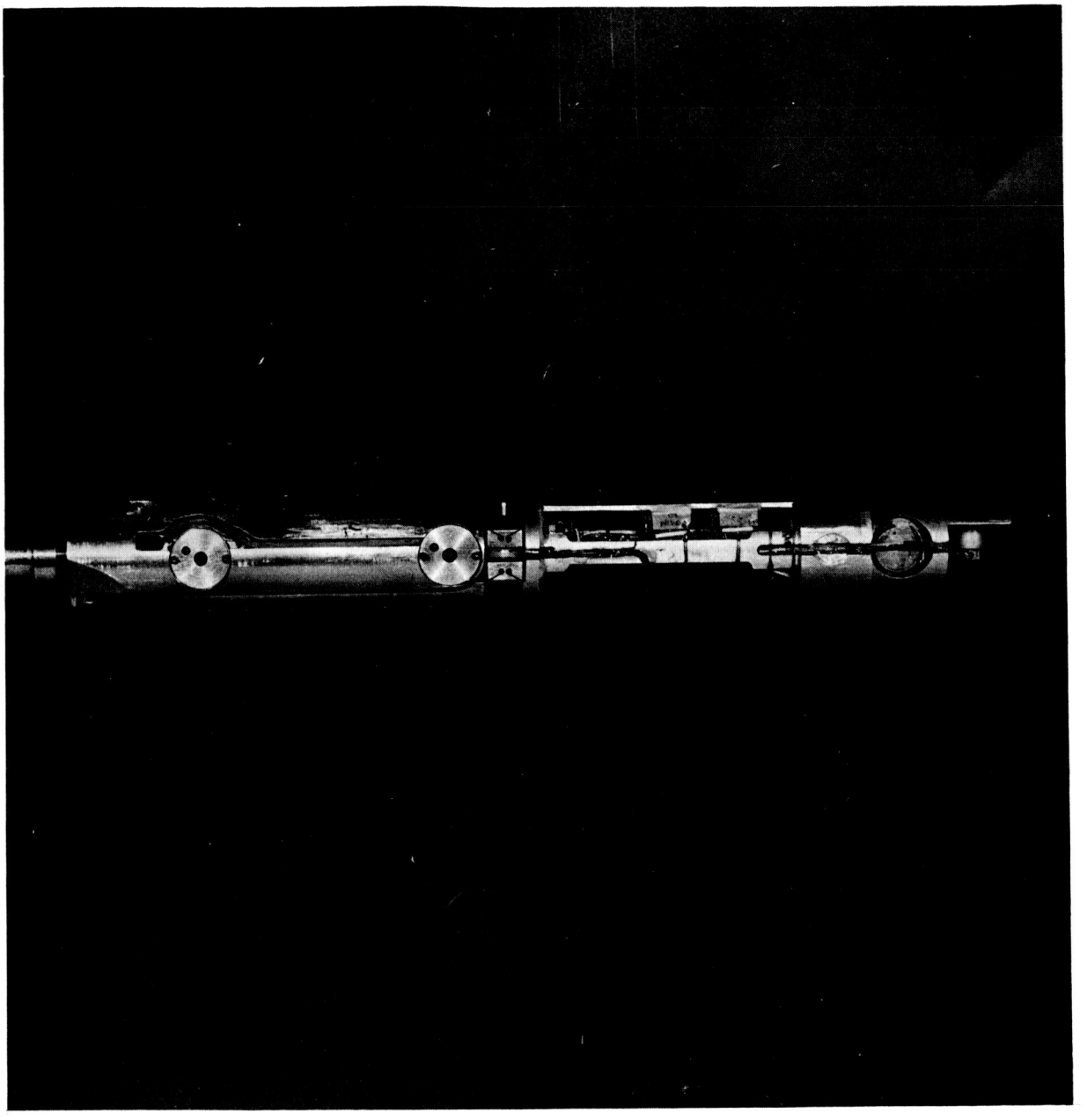
d. Right Sideview of Calspan "E" Force Balance Assembly with Accelerometer Bracket

Figure 3. - Continued.



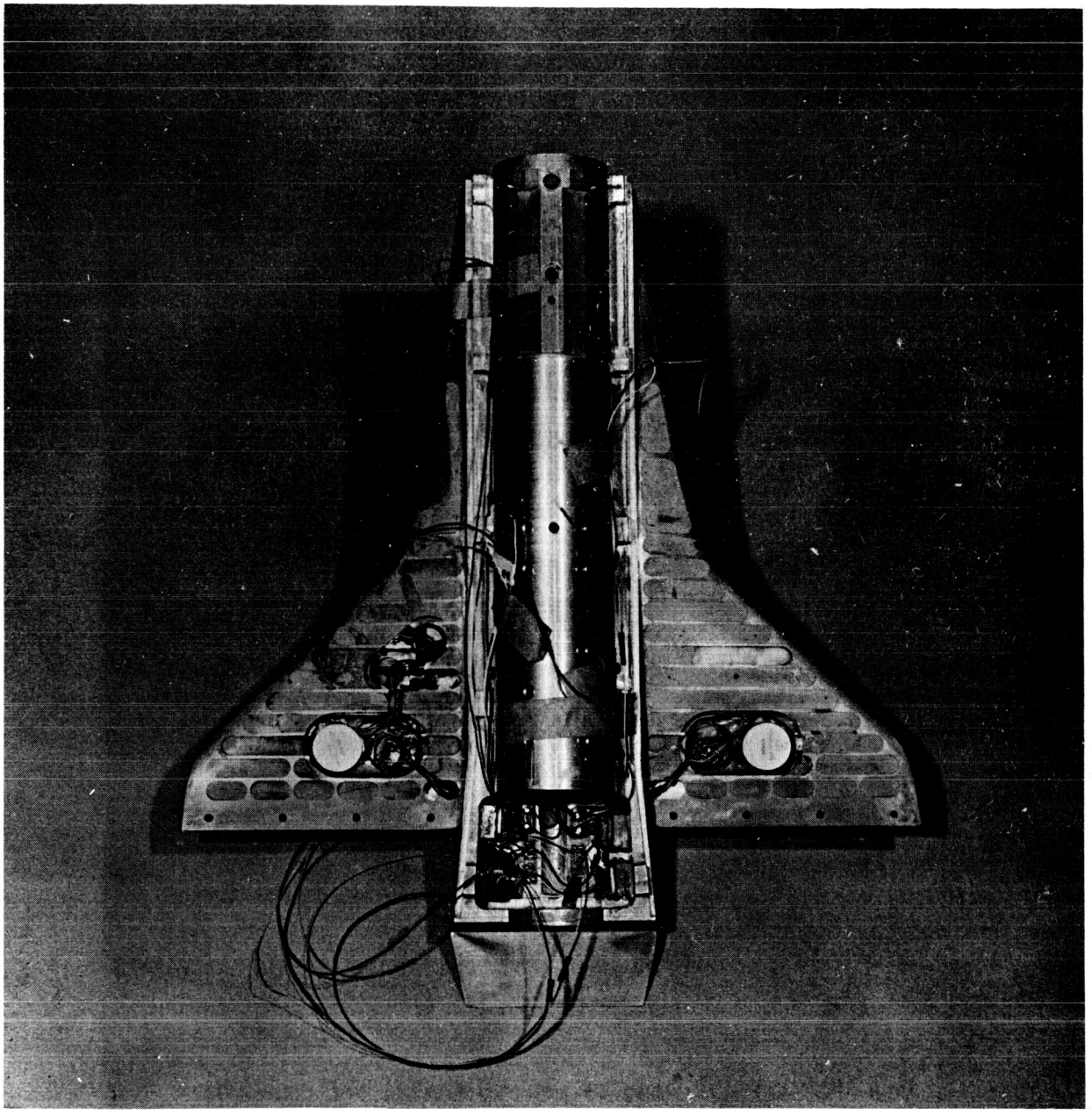
e. Top View of Calspan "E" Force Balance Assembly and Accelerometer Bracket

Figure 3. - Continued.



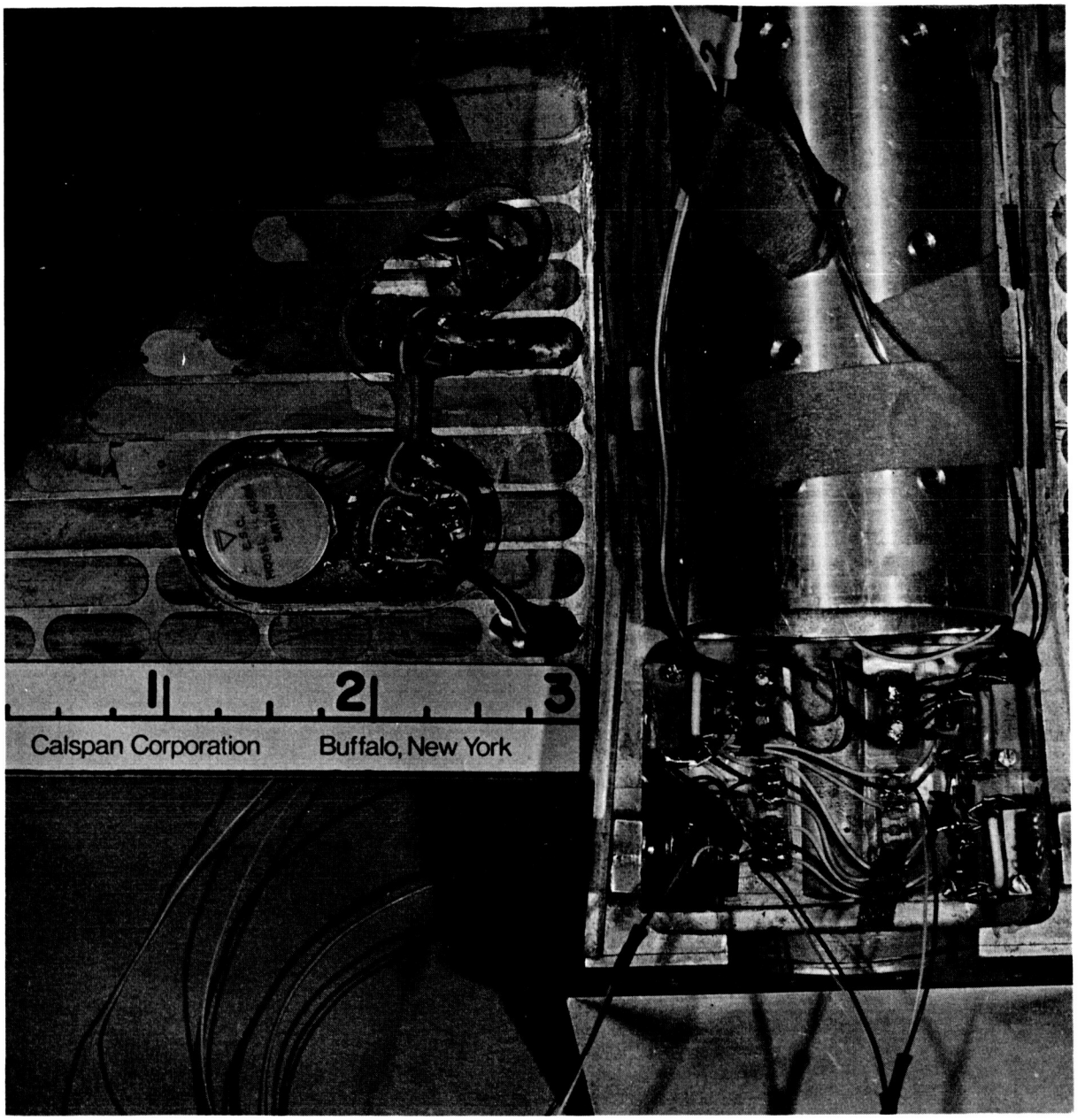
f. Left Side View of Calspan "E" Force Balance Assembly and Accelerometer Bracket

Figure 3. - Continued.



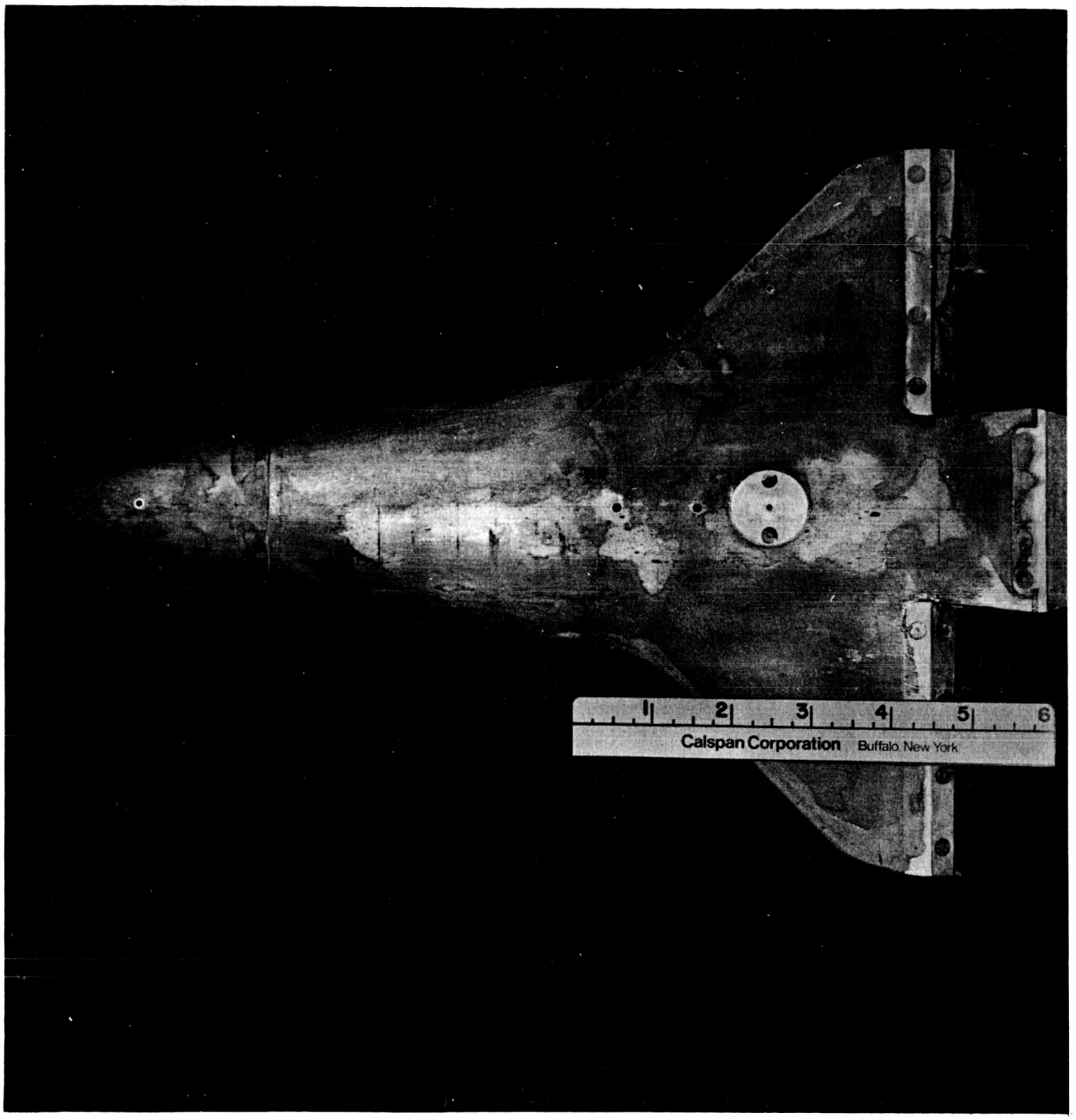
g. Top View of Model Showing Wing Accelerometers, Onboard Amplifiers and Field Effect Transistors

Figure 3. - Continued.



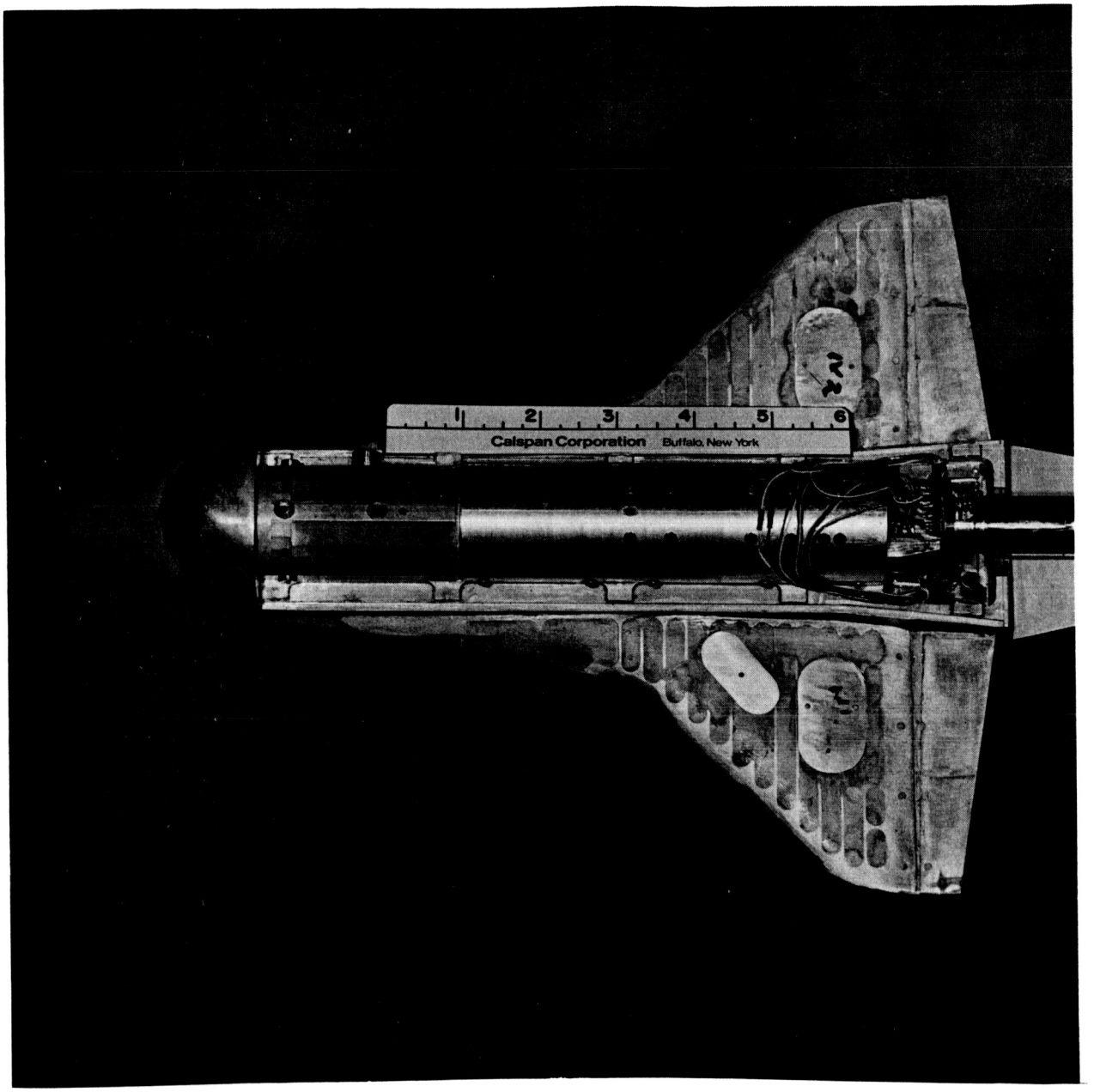
h. Close-up, Top View of Model Left Wing and Aft Body Showing Accelerometer, Pressure Transducers, FET, and Amplifiers

Figure 3. - Continued.



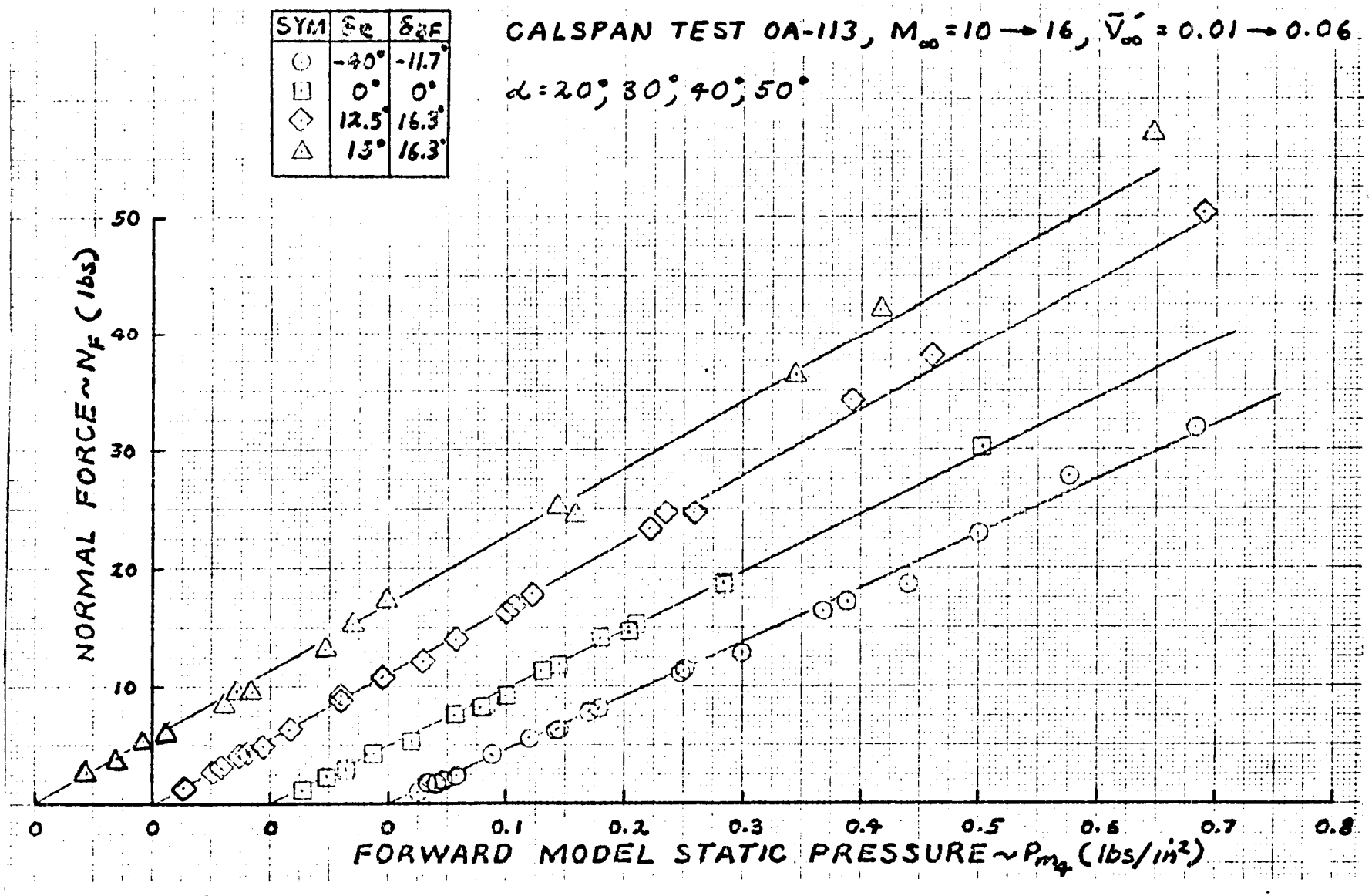
i. Bottom View of Model Showing Static Pressure Orifices, Balance Load Pan Holes, and Transducer Mount For p_{m_3}

Figure 3. - Continued.



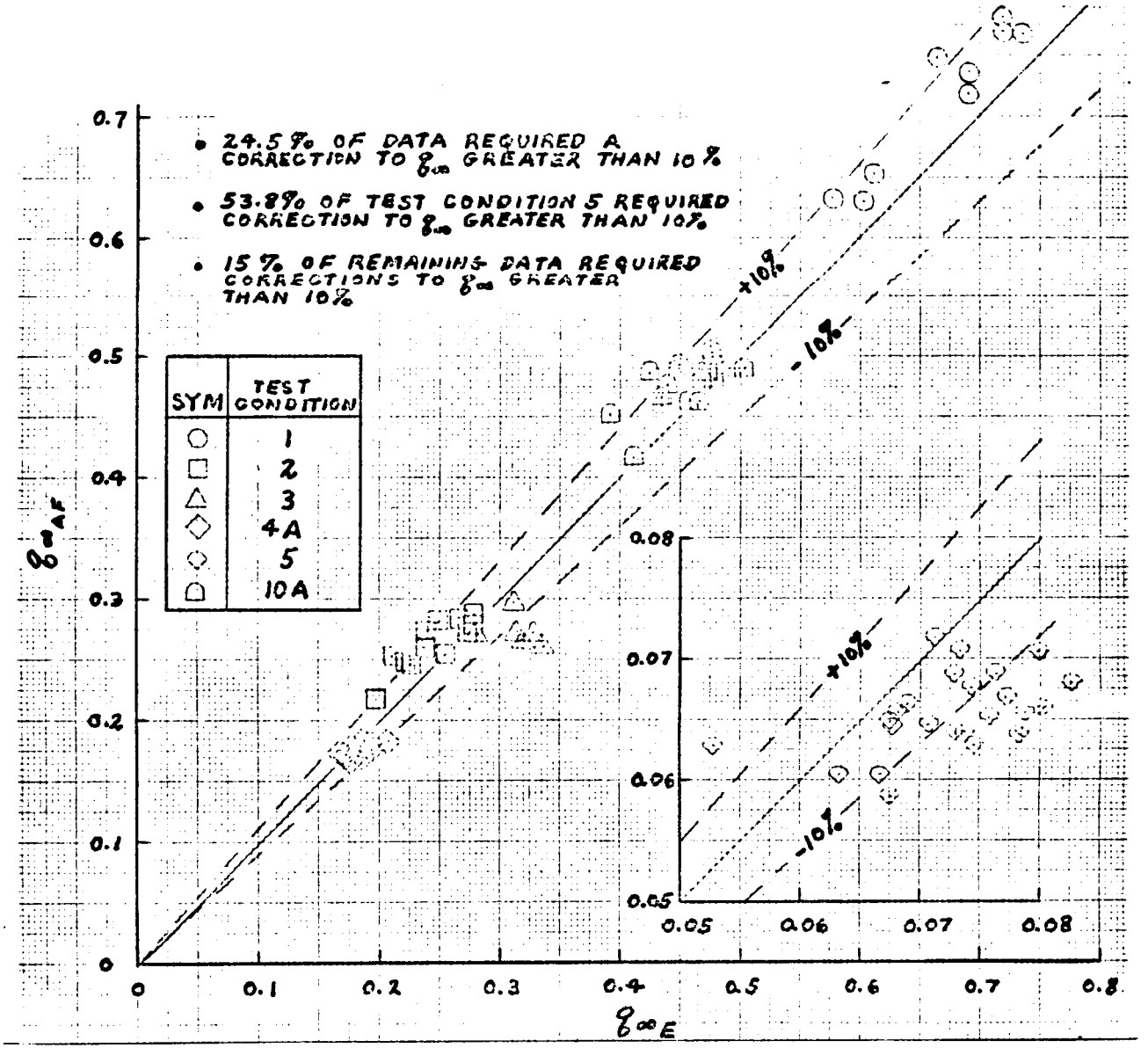
J. Top View Showing Model Mounted on Sting-Balance Assembly and Cavity Pressure Transducer on Forward Right Side of Balance Housing

Figure 3. - Concluded.



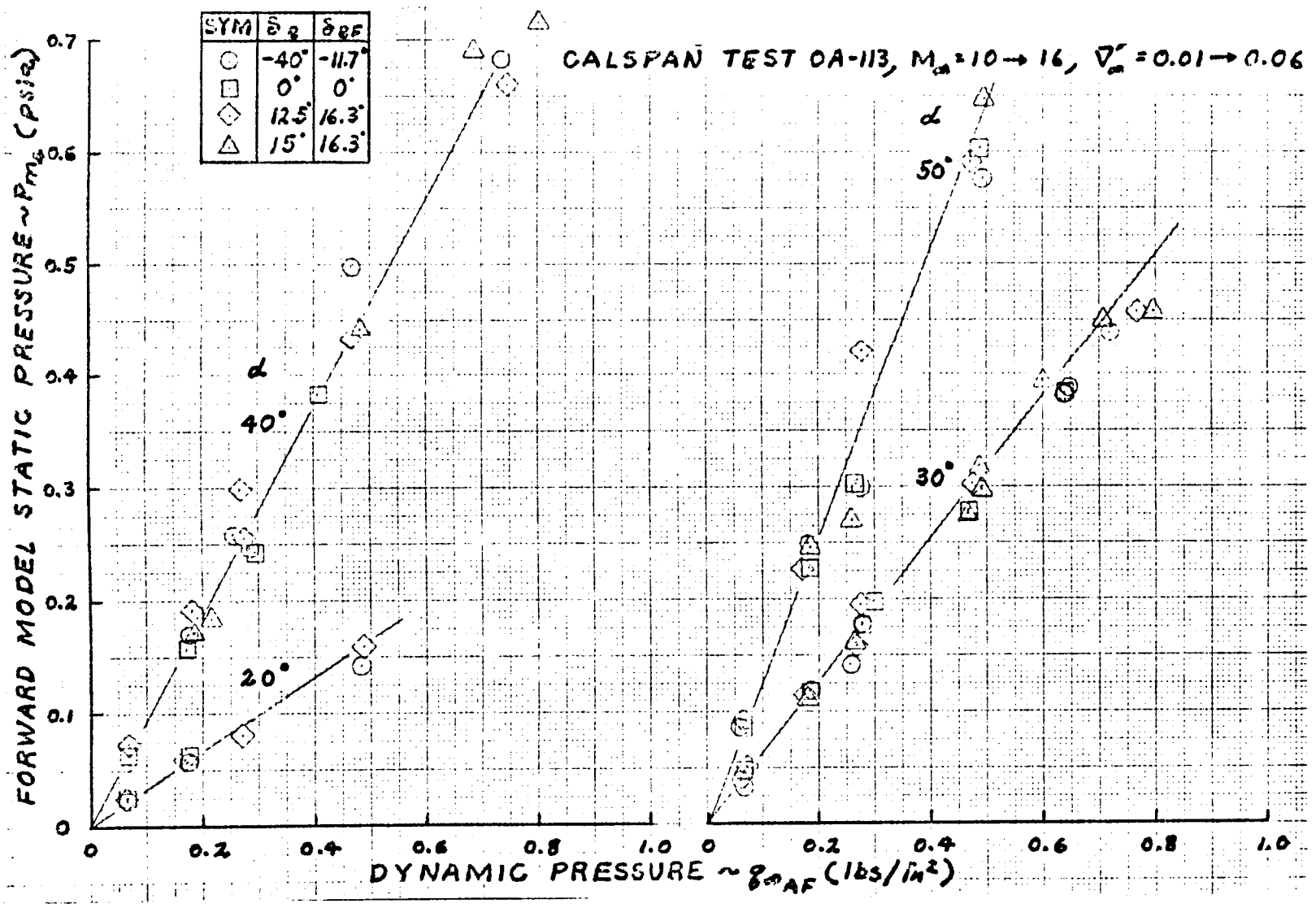
a. Normal Force Versus Forward Model Static Pressure for the 140A/B Model 51-0 Test 0A113

Figure 4. - Plots



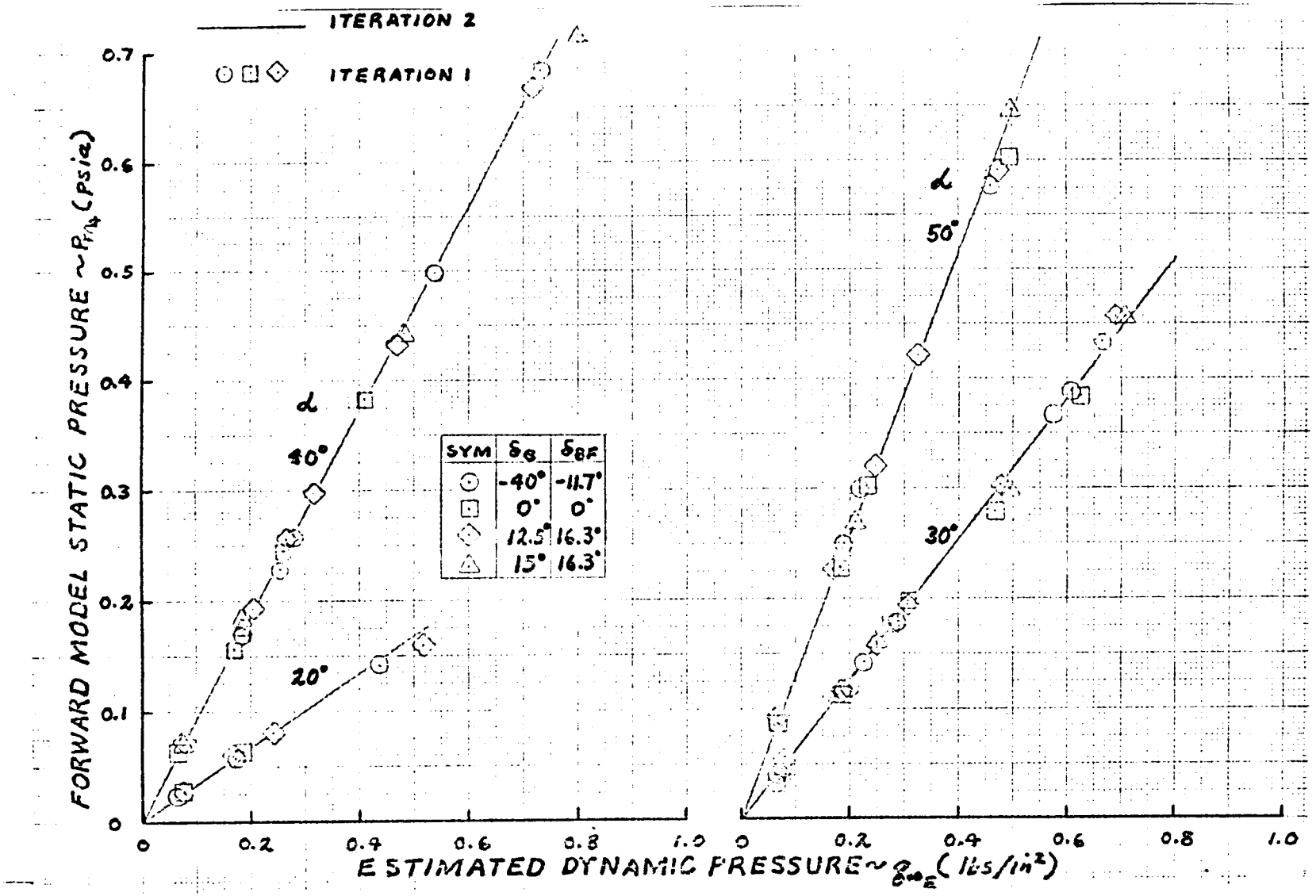
b. Comparison of Calspan Test OA113 Data Based on Measured Airflow q_∞ and Corrected q_∞

Figure 4. - Continued.



c. Forward Model Static Pressure Versus Airflow Dyanamic Pressure for the 140A/B Model 51-0 - Test OA113

Figure 4. - Continued.



d. Forward Model Static Pressure Versus Estimated Dyanamic Pressure for the 140A/B Model 51-0 - Test 0A113

Figure 4. - Concluded.

APPENDIX

TABULATED SOURCE DATA

Data arranged in ascending order of the first independent variable, Mach number.

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH001) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	180.000	AILRON =	.000

RUN NO. 1/ 0 RN/L = .47

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.640	-30.000	.69400	.07336	.00000	.00581	.00107	.00141	.31760	.41940	.37550	.46220

RUN NO. 3/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.740	-30.000	.73320	.14830	.02476	.00307	.00059	.00185	.04488	.05258	.04239	.04889

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH001) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	180.000	AILRON =	.000

RUN NO. 1/ 0 RN/L = .47

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.640	-30.000	.01365	.01215	878.30000	.50070	.90780	1.27600	.00029	3.18900	531.00000	-.01220

RUN NO. 3/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.740	-30.000	.06340	.05570	1400.00000	.04438	.84870	.13560	.00019	3.21300	535.00000	-.00267

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH001) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = -40.000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = 180.000 AILRON = .000

RUN NO. 1/ 0 RN/L = .47

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.640	-30.000	2.90000	596.80000	13.99000	2198.00000	5170.00000	98.25000	.00872	.69110	7.44700	8.26600

RUN NO. 3/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.740	-30.000	4.07900	510.60000	25.85000	3775.00000	7109.00000	84.84000	.00042	.07273	.41450	7.13700

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH002) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 20.000 BETA = .000
ELEVON = -40.000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 26/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.080	20.000	.36790	.10520	.01497	.01070	-.00251	.00118	.05020	.06494	.04956	.06116

RUN NO. 17/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.550	20.000	.37020	.11380	.00335	.01975	-.00505	.00113	.02084	.03138	.02142	.02585

RUN NO. 98/ 0 RN/L = .25

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
16.100	20.000	.36940	.09214	.02213	-.01047	.00022	-.00097	.13200	.19000	.13290	.15000

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH002) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	20.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 28/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.080	20.000	.04264	.03696	1258.00000	.09159	.85580	.32190	.00029	3.23700	539.00000	-.00422

RUN NO. 17/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.550	20.000	.06375	.05457	1195.00000	.04548	.87430	.13590	.00019	3.24300	540.00000	-.00321

RUN NO. 98/ 0 RN/L = .25

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
16.100	20.000	.02702	.02303	1215.00000	.27210	.87540	.79180	.00029	3.18300	530.00000	-.00377

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH002) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	20.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 28/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.080	20.000	4.13300	994.50000	26.83000	3902.00000	7237.00000	95.78000	.00108	.17250	.94860	8.05800

RUN NO. 17/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.550	20.000	3.97200	476.50000	25.08000	3685.00000	7002.00000	84.30000	.00043	.07294	.42850	7.09100

RUN NO. 98/ 0 RN/L = .25

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
16.100	20.000	4.11500	3183.00000	25.77000	3766.00000	7101.00000	80.86000	.00234	.42450	2.42400	6.80100

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUN003) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = -40.000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 7/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.080	30.000	.73690	.12190	.02700	.00351	.00058	.00101	.10520	.14010	.11390	.13810

RUN NO. 4/ 0 RN/L = .38

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.670	30.000	.73320	.08228	.03555	.00035	-.00002	.00019	.28570	.40270	.34940	.40990

RUN NO. 11/ 0 RN/L = .06

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.120	30.030	.74610	.12360	.03157	.00000	.00000	.00000	.15640	.19930	.16010	.18880

RUN NO. 20/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.020	40.000	.77300	.11810	.03577	-.00078	-.00021	.00115	.10530	.14370	.10950	.12580

RUN NO. 78/ 0 RN/L = .25

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.680	30.000	.75050	.09547	.03290	.00181	-.00126	.00195	.00000	.00000	.00000	.00000

RUN NO. 5/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
16.560	30.000	.90930	.19240	.03647	.00000	-.00028	.00178	.03211	.05039	.02718	.03476

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH003) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 7/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.080	30.000	.04474	.04378	2158.00000	.02916	.75820	.42750	.00019	3.24300	540.00000	-.01259

RUN NO. 4/ 0 RN/L = .38

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.670	30.000	.01492	.01334	914.80000	.41240	.89850	1.13100	.00015	3.23100	538.00000	-.01189

RUN NO. 11/ 0 RN/L = .06

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.120	30.030	.04047	.03791	2093.00000	.06877	.75140	.53100	.00023	3.24300	540.00000	-.00618

RUN NO. 20/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.020	40.000	.03927	.03607	1711.00000	.09479	.80480	.34980	.00025	3.22500	537.00000	-.00413

RUN NO. 78/ 0 RN/L = .25

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.680	30.000	.02559	.02256	1436.00000	.26590	.84160	.85610	.00023	3.24300	540.00000	-.00432

RUN NO. 5/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
16.560	30.000	.07584	.06584	1393.00000	.03519	.85920	.09630	.00019	3.23100	538.00000	-.00089

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH003) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = -40.000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 7/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.080	30.000	5.39200	273.50000	43.10000	5698.00000	9052.00000	335.50000	.00319	.22670	.79660	28.58000

RUN NO. 4/ 0 RN/L = .38

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.670	30.000	2.92500	544.60000	14.74000	2300.00000	5308.00000	103.00000	.00768	.61240	6.26000	8.66100

RUN NO. 11/ 0 RN/L = .06

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.120	30.030	5.25600	1597.00000	41.58000	5604.00000	8996.00000	188.70000	.00202	.28180	1.00300	14.10000

RUN NO. 20/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.020	40.000	4.21200	1074.00000	27.56000	3990.00000	7334.00000	99.15000	.00119	.18730	1.00300	8.34100

RUN NO. 78/ 0 RN/L = .25

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.680	30.000	4.10800	3076.00000	26.61000	3882.00000	7213.00000	88.03000	.00268	.45870	2.54000	7.40600

RUN NO. 5/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
16.560	30.000	4.03800	462.80000	25.65000	3754.00000	7089.00000	76.21000	.00027	.05164	.29600	6.40900

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH004) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 23/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.100	40.000	1.07600	.10940	.03929	-.00220	-.00073	-.00098	.20670	.24780	.23310	.26110

RUN NO. 22/ 0 RN/L = .47

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.530	40.020	1.11900	.07274	.02917	.00000	-.00131	.00068	.54580	.70530	.63950	.71980

RUN NO. 27/ 0 RN/L = .06

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
13.910	40.170	1.13700	.11340	.04358	-.04694	.00107	-.00187	.19930	.25850	.23590	.27200

RUN NO. 80/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.940	40.000	1.12000	.11150	.03619	.01039	.00027	.00323	.15939	.18480	.15880	.17960

RUN NO. 79/ 0 RN/L = .27

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.210	40.030	1.10400	.08830	.03025	.00278	-.00124	.00170	.39250	.52020	.46040	.52500

RUN NO. 18/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.240	40.000	1.09700	.13570	.03422	-.04150	.00698	-.00042	.06057	.07916	.07232	.00000

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH004) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 40.000 BETA = .000
ELEVON = -40.000 BOFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 23/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.100	40.000	.03976	.04017	2497.00000	.03479	.73450	.49990	.00025	3.23700	539.00000	-.01238

RUN NO. 22/ 0 RN/L = .47

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.530	40.020	.01309	.01194	1018.00000	.50480	.88330	1.35500	.00025	3.23700	539.00000	-.01201

RUN NO. 27/ 0 RN/L = .06

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
13.910	40.170	.03919	.03801	2429.00000	.06875	.72810	.52200	.00023	3.24300	540.00000	-.00604

RUN NO. 80/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.940	40.000	.03949	.03626	1697.00000	.09305	.80620	.34090	.00023	3.25500	542.00000	-.00433

RUN NO. 79/ 0 RN/L = .27

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.210	40.030	.02296	.02098	1674.00000	.28900	.81190	.99810	.00019	3.25500	542.00000	-.00495

RUN NO. 18/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.240	40.000	.05842	.05332	1670.00000	.04499	.81290	.15410	.00021	3.24300	540.00000	-.00231

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH004) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1078.7000 IN.	XO	
LREF =	474.8000 INCHES	YMRP =	.0000 IN.	YO	
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN.	ZO	
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 23/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.100	40.000	5.36400	318.80000	42.57000	5641.00000	8997.00000	330.30000	.00371	.26520	.94340	26.23000

RUN NO. 22/ 0 RN/L = .47

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.530	40.020	2.89000	606.80000	14.29000	2245.00000	5223.00000	102.40000	.00944	.73340	7.74300	8.61100

RUN NO. 27/ 0 RN/L = .06

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
13.910	40.170	5.22500	1448.00000	41.14000	5556.00000	8944.00000	172.00000	.00204	.27710	.99750	14.37000

RUN NO. 80/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.940	40.000	4.14500	1016.00000	27.26000	3958.00000	7292.00000	99.03000	.00117	.18260	.98890	8.33200

RUN NO. 79/ 0 RN/L = .27

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.210	40.030	4.10800	3105.00000	26.80000	3907.00000	7234.00000	94.12000	.00330	.53480	2.94300	7.91800

RUN NO. 18/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.240	40.000	4.11800	505.90000	26.75000	3893.00000	7227.00000	93.47000	.00051	.08259	.45530	7.86300

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH005) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 50.000 BETA = .000
ELEVON = -40.000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 99/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.050	50.000	1.42400	.10410	.08065	-.02154	.00218	-.00364	.23420	.28640	.27570	.31810

RUN NO. 25/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.760	50.000	1.51300	.09952	.04453	-.03475	.00396	-.00151	.20810	.23570	.23700	.26330

RUN NO. 15/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.550	50.000	1.58700	.13220	.04698	-.00687	.00122	-.00044	.08121	.08934	.08312	.09182

RUN NO. 97/ 0 RN/L = .26

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.950	49.980	1.59400	.08884	.00000	-.01333	-.00413	-.00316	.45180	.59680	.58900	.60680

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH005) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 50.000 BETA = .000
ELEVON = -40.000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 99/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.050	50.000	.04179	.04369	2963.00000	.02910	.70970	.44040	.00029	3.18900	531.00000	-.01186

RUN NO. 25/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.760	50.000	.03693	.03488	1920.00000	.09865	.78570	.36300	.00029	3.22500	537.00000	-.00417

RUN NO. 15/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.550	50.000	.05973	.05497	1736.00000	.04548	.81880	.12600	.00015	3.24300	540.00000	-.00268

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH005) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 97/ 0 RN/L = .26

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.950	49.980	.02432	.02252	1859.00000	.27850	.80480	.83580	.00029	3.17700	529.00000	-.00383

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH005) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 99/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.050	50.000	5.55400	282.90000	43.95000	5753.00000	9140.00000	344.20000	.00330	.23340	.80460	27.16000

RUN NO. 25/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.760	50.000	4.15600	1013.00000	26.91000	3910.00000	7244.00000	100.20000	.00127	.19450	1.06700	8.42600

RUN NO. 15/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.550	50.000	3.86400	432.40000	23.88000	3533.00000	6831.00000	80.24000	.00040	.06769	.41770	6.74900

RUN NO. 97/ 0 RN/L = .26

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.950	49.980	4.14200	3219.00000	25.98000	3792.00000	7129.00000	83.07000	.00251	.44810	2.53900	8.98800

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH006) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 10/ 0 RN/L = .38

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.740	30.020	.73560	.08235	.03393	.00528	-.00018	.00142	.28110	.37650	.33410	.38720

RUN NO. 8/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.720	30.000	.72860	.14890	.02822	.00173	.00079	.00148	.03273	.04271	.03424	.04270

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH006) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 10/ 0 RN/L = .38

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.740	30.020	.01515	.01350	898.80000	.41000	.90390	1.06700	.00023	3.24300	540.00000	-.01161

RUN NO. 8/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.720	30.000	.06725	.05895	1380.00000	.03973	.85260	.11800	.00031	3.24300	540.00000	-.00042

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH008) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 10/ 0 RN/L = .38

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.740	30.020	2.88100	526.00000	14.35000	2254.00000	6238.00000	99.00000	.00715	.57780	6.06500	8.32900

RUN NO. 8/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.720	30.000	3.99400	438.30000	25.33000	3718.00000	7037.00000	83.32000	.00037	.06329	.36800	7.00800

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH007) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 9/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
16.510	30.000	.74660	.16170	.02410	.00000	.00000	.00057	.02933	.03756	.03064	.00000

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH007) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 9/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
16.510	30.000	.07438	.06449	1375.00000	.03662	.86220	.09837	.00023	3.23700	539.00000	-.00053

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH007) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = -40.000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 9/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
16.510	30.000	3.99400	462.20000	25.24000	3704.00000	7032.00000	75.45000	.00028	.05277	.30740	6.34400

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH008) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 20.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 39/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.940	20.000	.38360	.10340	-.00288	-.00277	-.00009	-.00018	.05763	.07859	.05512	.06822

RUN NO. 32/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.330	20.000	.39170	.12540	-.01614	-.03525	.00354	-.00094	.02397	.03371	.02246	.02785

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH008) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 20.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 39/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.940	20.000	.04029	.03500	1261.00000	.10030	.85390	.35990	.00029	3.24900	541.00000	-.00462

RUN NO. 32/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.330	20.000	.06108	.05239	1186.00000	.04810	.87360	.14600	.00029	3.23700	539.00000	-.00086

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH008) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 20.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 39/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.940	20.000	4.12100	1084.00000	28.89000	3911.00000	7243.00000	97.69000	.00123	.19280	1.05900	8.21900

RUN NO. 32/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.330	20.000	3.96200	475.60000	24.88000	3658.00000	6971.00000	85.98000	.00048	.07833	.46430	7.23300

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH009) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 41/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
9.912	30.000	.76390	.11450	-.00991	.00360	.00067	.00150	.15750	.19970	.16070	.18680

RUN NO. 40/ 0 RN/L = .44

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.660	30.000	.80380	.07726	-.01686	-.00120	-.00099	-.00082	.29210	.42820	.34770	.40480

RUN NO. 77/ 0 RN/L = .07

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.190	30.000	.76600	.11160	-.00799	.00149	.00039	.00033	.16270	.22150	.18010	.20840

RUN NO. 34/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.040	30.000	.78600	.11120	-.01314	.00000	-.00120	-.00010	.10270	.13210	.10760	.12560

RUN NO. 33/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.440	30.000	.80360	.14940	-.01866	.00000	-.00141	.00120	.04670	.05444	.04394	.05105

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH009) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 74/ 0 RN/L = .24

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.910	30.030	.82650	.09258	-.01203	.00421	.00079	.00087	.22740	.32480	.25470	.29370

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH009) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 41/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
9.912	30.000	.04038	.03958	2166.00000	.03474	.75940	.52550	.00023	3.24900	541.00000	-.01260

RUN NO. 40/ 0 RN/L = .44

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.660	30.000	.01420	.01257	854.90000	.47190	.91580	1.11500	.00029	3.24900	541.00000	-.01165

RUN NO. 77/ 0 RN/L = .07

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.190	30.000	.03844	.03598	2087.00000	.07701	.75200	.58730	.00023	3.25500	542.00000	-.00583

RUN NO. 34/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.040	30.000	.03997	.03558	1451.00000	.09820	.83260	.34960	.00023	3.24300	540.00000	-.00431

RUN NO. 33/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.440	30.000	.06168	.05438	1398.00000	.04487	.84640	.14120	.00035	3.24300	540.00000	.00071

RUN NO. 74/ 0 RN/L = .24

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.910	30.030	.02623	.02308	1435.00000	.28210	.84410	.81940	.00023	3.23100	538.00000	-.00415

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH009) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN.	XO	
LREF =	474.8000 INCHES	YMRP =	.0000 IN.	YO	
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN.	ZO	
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 41/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
9.912	30.000	5.39400	312.50000	43.27000	5716.00000	9063.00000	347.70000	.00405	.27860	.97680	27.39000

RUN NO. 40/ 0 RN/L = .44

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.660	30.000	2.75800	522.00000	13.34000	2100.00000	5049.00000	93.36000	.00760	.60450	6.82900	7.85500

RUN NO. 77/ 0 RN/L = .07

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.190	30.000	5.22800	1794.00000	41.47000	5596.00000	8984.00000	166.80000	.00221	.31170	1.11200	13.95000

RUN NO. 34/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.040	30.000	4.13700	1069.00000	26.97000	3921.00000	7255.00000	96.74000	.00118	.18730	1.02500	8.13900

RUN NO. 33/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.440	30.000	4.02700	483.20000	25.70000	3763.00000	7087.00000	87.63000	.00045	.07572	.43420	7.37200

RUN NO. 74/ 0 RN/L = .24

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.910	30.030	4.12300	3159.00000	26.60000	3878.00000	7214.00000	85.49000	.00248	.43910	2.43000	7.19100

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH010) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	5.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 116/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.090	30.370	.85270	.12680	-.01754	-.03945	-.01005	-.00744	.09400	.11140	.09850	.11010

RUN NO. 45/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.570	30.400	.84810	.15260	-.02061	-.05087	-.01076	-.00880	.04724	.04994	.04614	.05050

RUN NO. 115/ 0 RN/L = .26

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.910	30.370	.86410	.09896	-.02382	-.04428	-.01034	-.00906	.22140	.30590	.27760	.29810

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH010) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	5.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 116/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.090	30.370	.04183	.03710	1405.00000	.09207	.84140	.30520	.00027	3.20100	533.00000	-.00344

RUN NO. 45/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.570	30.400	.06231	.05493	1416.00000	.04453	.84480	.13980	.00023	3.26100	543.00000	-.00124

RUN NO. 115/ 0 RN/L = .26

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.910	30.370	.02568	.02253	1408.00000	.27720	.84970	.83050	.00029	3.19500	532.00000	-.00408

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH010) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	5.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 116/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.090	30.370	4.09400	928.10000	25.83000	3772.00000	7100.00000	92.11000	.00103	.16360	.93470	7.74900

RUN NO. 45/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.570	30.400	4.02300	499.70000	25.93000	3794.00000	7119.00000	86.99000	.00044	.07494	.42580	7.31800

RUN NO. 115/ 0 RN/L = .26

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.910	30.370	4.10800	3155.00000	25.87000	3781.00000	7113.00000	83.13000	.00251	.44530	2.53500	6.99200

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH011) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 42/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.080	39.980	1.17700	.11050	-.03543	.00705	.00100	-.00022	.21150	.25710	.23020	.25780

RUN NO. 44/ 0 RN/L = .47

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.540	40.030	1.17800	.07050	-.04672	.01418	.00260	.00290	.57400	.74680	.64010	.00000

RUN NO. 76/ 0 RN/L = .07

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
13.520	40.000	1.17200	.10960	-.02105	-.00130	-.00021	-.00073	.25330	.33370	.28770	.32960

RUN NO. 35/ 0 RN/L = .08

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.170	40.000	1.16400	.11400	-.03921	-.00217	-.00136	-.00131	.13660	.15180	.14300	.16440

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH011) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 40.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 75/ 0 RN/L = .24

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.730	40.020	1.17400	.08991	-.03787	-.00513	-.00190	-.00262	.30950	.40370	.35400	.40350

RUN NO. 36/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.890	40.000	1.18400	.15650	-.03805	-.00740	-.00028	-.00041	.06003	.06750	.05900	.06764

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH011) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 40.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 42/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.080	39.980	.04038	.04086	2534.00000	.03347	.73310	.49410	.00023	3.22500	537.00000	-.01009

RUN NO. 44/ 0 RN/L = .47

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.540	40.030	.01300	.01190	1044.00000	.50560	.87730	1.42500	.00023	3.24300	540.00000	-.01179

RUN NO. 76/ 0 RN/L = .07

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
13.520	40.000	.03574	.03482	2450.00000	.07545	.72600	.63330	.00023	3.25500	542.00000	-.00636

RUN NO. 35/ 0 RN/L = .08

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.170	40.000	.04104	.03751	1671.00000	.09009	.81190	.31260	.00023	3.21900	536.00000	-.00392

RUN NO. 75/ 0 RN/L = .24

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.730	40.020	.02576	.02324	1606.00000	.25550	.82760	.76680	.00023	3.24300	540.00000	-.00460

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH011) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 36/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.890	40.000	.06239	.05598	1571.00000	.04526	.83500	.12820	.00025	3.22500	537.00000	-.00055

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH011) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 42/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
10.080	39.980	5.44100	317.50000	43.32000	5709.00000	9075.00000	337.30000	.00368	.26190	.91600	26.70000

RUN NO. 44/ 0 RN/L = .47

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
10.540	40.030	2.91800	645.50000	14.78000	2306.00000	5312.00000	105.70000	.00992	.77140	7.87300	8.89100

RUN NO. 76/ 0 RN/L = .07

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
13.520	40.000	5.24100	1548.00000	41.65000	5815.00000	8993.00000	183.90000	.00262	.33600	1.19700	15.33000

RUN NO. 35/ 0 RN/L = .08

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.170	40.000	4.15600	995.10000	26.82000	3897.00000	7236.00000	84.56000	.00104	.16750	.92140	7.95500

RUN NO. 75/ 0 RN/L = .24

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.730	40.020	4.01400	2757.00000	25.53000	3747.00000	7066.00000	83.85000	.00237	.41120	2.37200	7.05300

RUN NO. 36/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.890	40.000	3.98000	497.80000	24.90000	3659.00000	6980.00000	80.18000	.00039	.06880	.40680	6.74300

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH012) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 50.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 100/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.040	50.000	1.59000	.10400	-.01672	-.01823	.00101	-.00460	.22830	.28100	.28550	.31940

RUN NO. 38/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.130	50.030	1.66100	.10490	-.07951	.00000	-.00158	-.00215	.19290	.22490	.21750	.23990

RUN NO. 101/ 0 RN/L = .26

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.790	50.000	1.66400	.08301	-.07864	-.01615	.00420	-.00392	.48790	.61110	.58780	.63510

RUN NO. 37/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.890	50.030	1.65200	.12750	-.05880	-.00538	-.00058	-.00014	.07976	.08927	.08280	.09192

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH012) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 50.000 BETA = .000
ELEVON = .000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 100/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.040	50.000	.04106	.04285	2901.00000	.03030	.71200	.44450	.00029	3.18900	531.00000	-.01226

RUN NO. 38/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.130	50.030	.03915	.03687	1949.00000	.09215	.78550	.33120	.00023	3.24300	540.00000	-.00421

RUN NO. 101/ 0 RN/L = .26

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.790	50.000	.02378	.02206	1866.00000	.28410	.80220	.87480	.00033	3.18900	531.00000	-.00384

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH012) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 37/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.890	50.030	.06066	.05575	1767.00000	.04587	.81770	.12600	.00025	3.23100	538.00000	-.00085

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH012) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 100/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.040	50.000	5.47800	278.00000	42.92000	5654.00000	9032.00000	336.80000	.00334	.23570	.83200	26.67000

RUN NO. 38/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.130	50.030	4.16800	1049.00000	27.34000	3966.00000	7308.00000	98.97000	.00111	.17740	.95720	8.15800

RUN NO. 101/ 0 RN/L = .28

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.790	50.000	4.13500	3212.00000	26.08000	3806.00000	7141.00000	85.09000	.00269	.46900	2.64900	7.15800

RUN NO. 37/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.890	50.030	3.92600	484.10000	24.40000	3596.00000	6908.00000	78.60000	.00038	.06766	.40830	8.61000

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH013) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 20.000 BETA = .000
ELEVON = 12.000 BDFLAP = 16.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 98/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.040	20.030	.45280	.12790	-.05150	-.00788	-.00143	-.00059	.07255	.09629	.06599	.08507

RUN NO. 58/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.960	20.030	.44310	.12940	-.05479	.00277	.00143	.00026	.05514	.07544	.05039	.06237

RUN NO. 57/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.420	20.030	.45590	.15640	-.06087	.00000	.00136	.00050	.02681	.03462	.02234	.02834

RUN NO. 95/ 0 RN/L = .27

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.800	20.030	.45540	.10490	-.05873	-.00938	.00027	-.00097	.14050	.20980	.14500	.16740

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH013) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 20.000 BETA = .000
ELEVON = 12.000 BDFLAP = 16.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 98/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.040	20.030	.04534	.04310	1890.00000	.02988	.78050	.45360	.00029	3.19500	532.00000	-.01231

RUN NO. 58/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.960	20.030	.04191	.03636	1254.00000	.09325	.85580	.32860	.00023	3.27900	546.00000	-.00479

RUN NO. 57/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.420	20.030	.06150	.05285	1218.00000	.04735	.86790	.14880	.00023	3.27300	545.00000	-.00190

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH013) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	20.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	18.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 95/ 0 RN/L = .27

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.800	20.030	.02561	.02194	1228.00000	.28780	.86920	.88620	.00029	3.18300	530.00000	-.00422

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH013) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	20.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 98/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.040	20.030	5.54900	291.30000	44.03000	5764.00000	9148.00000	345.20000	.00340	.24040	.82720	27.23000

RUN NO. 58/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.960	20.030	4.05700	971.60000	26.60000	3880.00000	7204.00000	98.47000	.00112	.17610	.97740	8.11600

RUN NO. 57/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.420	20.030	3.98300	505.70000	25.65000	3760.00000	7079.00000	87.63000	.00048	.07982	.45870	7.37200

RUN NO. 95/ 0 RN/L = .27

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.800	20.030	4.14600	3272.00000	26.11000	3810.00000	7146.00000	85.02000	.00271	.47510	2.67900	7.15200

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH014) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = 12.000 BDFLAP = 18.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 68/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.110	30.000	.92320	.14880	-.10790	-.00263	.00015	.00020	.14460	.18110	.14260	.16710

RUN NO. 64/ 0 RN/L = .45

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.720	29.980	.88050	.10400	-.10940	-.00354	-.00073	-.00202	.33450	.48660	.39730	.48160

RUN NO. 63/ 0 RN/L = .08

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.140	29.980	.88550	.13890	-.11320	.00544	.00038	.00165	.16360	.21820	.17670	.20530

RUN NO. 59/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.930	30.000	.89770	.14700	-.10760	.00482	.00134	.00084	.09919	.13130	.10380	.12220

RUN NO. 54/ 0 RN/L = .05

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.660	29.950	.88170	.17620	-.10710	-.01183	-.00068	-.00032	.04494	.05838	.04777	.05396

RUN NO. 82/ 0 RN/L = .26

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.710	30.000	.91280	.12530	-.11580	.00024	-.00073	.00075	.23980	.34720	.27100	.32010

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH014) (26 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 68/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.110	30.000	.04244	.04148	2138.00000	.03265	.75880	.46880	.00029	3.27300	545.00000	-.01231

RUN NO. 64/ 0 RN/L = .45

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.720	29.980	.01381	.01234	921.00000	.48570	.89790	1.32900	.00023	3.27300	545.00000	-.01189

RUN NO. 63/ 0 RN/L = .08

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.140	29.980	.03656	.03398	1938.00000	.08752	.76510	.59070	.00023	3.26100	543.00000	-.00572

RUN NO. 59/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.930	30.000	.04046	.03608	1458.00000	.09400	.83080	.34090	.00023	3.27900	546.00000	-.00383

RUN NO. 54/ 0 RN/L = .05

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.660	29.950	.06013	.05280	1392.00000	.04898	.84950	.14910	.00048	3.24900	541.00000	.00120

RUN NO. 82/ 0 RN/L = .26

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.710	30.000	.02504	.02207	1435.00000	.27920	.84210	.89300	.00023	3.25500	542.00000	-.00459

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH014) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1078.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = 12.000 BDFLAP = 16.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 68/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.110	30.000	5.30300	300.60000	42.59000	5659.00000	9000.00000	329.80000	.00347	.24870	.88410	26.20000

RUN NO. 64/ 0 RN/L = .45

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.720	29.980	2.89100	652.70000	14.81000	2311.00000	5321.00000	102.50000	.00894	.71950	7.32000	8.61900

RUN NO. 63/ 0 RN/L = .08

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.140	29.980	4.97400	1655.00000	38.05000	5227.00000	8605.00000	154.10000	.00224	.31410	1.22200	12.91000

RUN NO. 59/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.930	30.000	4.09500	1008.00000	27.04000	3936.00000	7264.00000	98.41000	.00117	.18260	.99670	8.27900

RUN NO. 54/ 0 RN/L = .05

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.660	29.950	4.01200	546.00000	25.63000	3754.00000	7078.00000	84.89000	.00047	.07997	.45970	7.14100

RUN NO. 82/ 0 RN/L = .26

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.710	30.000	4.08800	3237.00000	26.58000	3879.00000	7209.00000	87.52000	.00277	.47850	2.65200	7.36200

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH015) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	18.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 67/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
9.925	40.050	1.31300	.15680	-.16640	.00000	-.00047	-.00243	.22080	.25660	.24410	.26980

RUN NO. 66/ 0 RN/L = .44

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.690	40.050	1.38400	.12270	-.17880	-.00195	.00011	-.00243	.52500	.68580	.63070	.69590

RUN NO. 62/ 0 RN/L = .08

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
13.950	40.000	1.32000	.15190	-.15620	.00454	.00060	.00141	.25640	.31020	.27550	.31390

RUN NO. 60/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.730	40.000	1.33400	.16310	-.15770	.01049	.00218	.00254	.17460	.20980	.18030	.20350

RUN NO. 55/ 0 RN/L = .05

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.450	40.000	1.35100	.17810	-.14900	.01667	.00395	.00252	.07071	.08196	.06995	.07906

RUN NO. 81/ 0 RN/L = .25

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.650	40.000	1.37800	.13940	-.16910	.00522	.00094	.00079	.34980	.45930	.40000	.45670

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH015) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 67/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
9.925	40.050	.03943	.03996	2550.00000	.03411	.73380	.51840	.00023	3.27900	546.00000	-.01308

RUN NO. 66/ 0 RN/L = .44

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.690	40.050	.01368	.01250	1056.00000	.46920	.87670	1.31000	.00029	3.27900	546.00000	-.01145

RUN NO. 62/ 0 RN/L = .08

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
13.950	40.000	.03511	.03378	2270.00000	.08639	.73980	.60180	.00021	3.25500	542.00000	-.00579

RUN NO. 60/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.730	40.000	.03751	.03464	1742.00000	.09831	.79830	.38730	.00023	3.27900	546.00000	-.00466

RUN NO. 55/ 0 RN/L = .05

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.450	40.000	.05725	.05165	1569.00000	.05026	.83070	.14970	.00025	3.25500	542.00000	-.00155

RUN NO. 81/ 0 RN/L = .25

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.650	40.000	.02468	.02239	1661.00000	.26940	.81820	.86760	.00019	3.24900	541.00000	-.00449

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH015) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN.	XO	
LREF =	474.8000 INCHES	YMRP =	.0000 IN.	YO	
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN.	ZO	
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	18.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 67/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
9.925	40.050	5.35600	311.60000	43.49000	5750.00000	9087.00000	348.60000	.00398	.27480	.95860	27.45000

RUN NO. 66/ 0 RN/L = .44

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.690	40.050	2.90200	835.90000	14.95000	2332.00000	5345.00000	104.00000	.00886	.70880	7.14500	8.75100

RUN NO. 62/ 0 RN/L = .08

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
13.950	40.000	4.99600	1588.00000	38.21000	5243.00000	8621.00000	158.90000	.00235	.32000	1.24000	13.30000

RUN NO. 60/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.730	40.000	4.18100	1094.00000	28.08000	4063.00000	7399.00000	104.90000	.00136	.20730	1.09100	8.82300

RUN NO. 55/ 0 RN/L = .05

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.450	40.000	3.93300	505.40000	24.82000	3653.00000	6963.00000	84.48000	.00048	.08033	.47710	7.10600

RUN NO. 81/ 0 RN/L = .25

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.650	40.000	4.09600	3094.00000	26.57000	3878.00000	7207.00000	88.14000	.00271	.46500	2.57800	7.41500

OA113(CAL184-220)B26C9F7M7N28N77 W118E44 V8R5 (RUH018) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 50.000 BETA = .000
ELEVON = 12.000 BDFLAP = 16.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 86/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.140	50.000	1.84700	.16930	-.23410	.02018	.00329	.00721	.27010	.32330	.31230	.33880

RUN NO. 85/ 0 RN/L = .47

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.710	50.000	1.88100	.12950	-.25080	.00107	-.00025	-.00158	.00000	.00000	.00000	.93610

RUN NO. 84/ 0 RN/L = .07

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
13.750	50.000	1.84400	.16930	-.24760	-.00400	.00535	-.00407	.34680	.46030	.43070	.44370

RUN NO. 61/ 0 RN/L = .08

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.950	50.000	1.76300	.15820	-.18930	.01280	.00178	.00168	.18950	.22440	.21380	.23880

RUN NO. 56/ 0 RN/L = .05

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.650	50.000	1.73700	.18760	-.17190	.01410	.00121	.00623	.08458	.09356	.08762	.10010

RUN NO. 83/ 0 RN/L = .25

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.770	50.000	1.92300	-.00037	-.27470	-.00047	-.00038	-.00292	.45710	.59190	.56340	.62290

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH016) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 86/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.140	50.000	.04003	.04174	2916.00000	.03238	.71050	.47090	.00023	3.22500	537.00000	-.01196

RUN NO. 85/ 0 RN/L = .47

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.710	50.000	.01311	.01214	1128.00000	.50680	.87160	1.27700	.00023	3.22500	537.00000	-.01088

RUN NO. 84/ 0 RN/L = .07

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
13.750	50.000	.03469	.03468	2758.00000	.07885	.70840	.61670	.00023	3.22500	537.00000	-.00542

RUN NO. 61/ 0 RN/L = .08

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.950	50.000	.03911	.03691	1946.00000	.08983	.78430	.32970	.00023	3.24900	541.00000	-.00360

RUN NO. 56/ 0 RN/L = .05

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.650	50.000	.05774	.05319	1762.00000	.04892	.81600	.13740	.00023	3.26100	543.00000	-.00152

RUN NO. 83/ 0 RN/L = .25

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.770	50.000	.02423	.02256	1903.00000	.26910	.79710	.85790	.00023	3.21900	536.00000	-.00320

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH018) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1078.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 938.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 50.000 BETA = .000
ELEVON = 12.000 BDFLAP = 16.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 88/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.140	50.000	5.42700	309.90000	43.13000	5691.00000	9059.00000	332.10000	.00347	.24970	.87620	26.35000

RUN NO. 85/ 0 RN/L = .47

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.710	50.000	2.86500	615.60000	14.00000	2200.00000	5173.00000	97.09000	.00881	.69170	7.44400	8.18800

RUN NO. 84/ 0 RN/L = .07

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
13.750	50.000	5.21500	1596.00000	40.56000	5488.00000	8879.00000	173.40000	.00247	.32750	1.19600	14.48000

RUN NO. 61/ 0 RN/L = .08

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.950	50.000	4.15600	985.20000	27.30000	3962.00000	7298.00000	99.13000	.00113	.17660	.95490	8.34000

RUN NO. 56/ 0 RN/L = .05

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.650	50.000	3.87700	489.30000	24.28000	3586.00000	6889.00000	80.57000	.00043	.07376	.44760	6.77600

RUN NO. 83/ 0 RN/L = .25

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.770	50.000	4.14200	3168.00000	26.64000	3880.00000	7217.00000	87.13000	.00264	.45970	2.54200	7.32900

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH017) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 94/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
9.886	30.000	.84740	.15460	-.08170	-.01208	.00245	-.00277	.12720	.17130	.14390	.16930

RUN NO. 108/ 0 RN/L = .47

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.730	29.970	.88110	.11260	-.09842	-.00818	.00257	.00000	.33980	.52370	.43440	.48170

RUN NO. 91/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.170	30.000	.88780	.15010	-.10780	-.00250	-.00074	.00089	.09890	.12650	.10290	.11760

RUN NO. 110/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.670	30.030	.92270	.19310	-.11030	-.00594	.00217	-.00181	.04707	.05601	.04590	.04920

RUN NO. 107/ 0 RN/L = .25

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.690	30.000	.96040	.13120	-.13380	-.00264	-.00026	.00017	.23740	.34920	.29450	.31320

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH017) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 94/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
9.886	30.000	.04157	.04068	2098.00000	.03292	.76290	.47780	.00029	3.18300	530.00000	-.01275

RUN NO. 108/ 0 RN/L = .47

MACH	ALPHA	VBAR	VLBAR	T°	REFTL	SQRTC°	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.730	29.970	.01369	.01221	899.80000	.50080	.90280	1.32900	.00029	3.16500	527.00000	-.01155

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH017) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = 15.000 BDFLAP = 16.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 91/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.170	30.000	.04071	.03605	1402.00000	.09848	.84220	.32570	.00023	3.17100	528.00000	-.00379

RUN NO. 110/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.670	30.030	.06385	.05629	1425.00000	.04283	.84320	.13690	.00029	3.17700	529.00000	-.00102

RUN NO. 107/ 0 RN/L = .25

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.690	30.000	.02550	.02251	1442.00000	.26750	.84020	.87240	.00029	3.18300	530.00000	-.00466

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH017) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = 15.000 BDFLAP = 16.300
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 94/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
9.886	30.000	5.41000	272.10000	41.85000	5547.00000	8912.00000	338.00000	.00370	.25350	.91910	26.75000

RUN NO. 106/ 0 RN/L = .47

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.730	29.970	2.96700	653.60000	14.53000	2268.00000	5271.00000	100.30000	.00891	.71950	7.45700	8.43800

RUN NO. 91/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.170	30.000	4.14800	1018.00000	25.97000	3784.00000	7121.00000	91.65000	.00108	.17460	.99180	7.71100

RUN NO. 110/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.670	30.030	4.18400	510.60000	26.47000	3846.00000	7193.00000	87.62000	.00043	.07336	.40830	7.37100

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH017) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 107/ 0 RN/L = .25

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.690	30.000	4.21300	3186.00000	26.88000	3904.00000	7249.00000	88.71000	.00271	.46740	2.56200	7.46200

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH018) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 93/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.120	40.070	1.24600	.16920	-.10680	-.01549	.00474	-.00569	.15180	.17430	.16390	.19430

RUN NO. 105/ 0 RN/L = .48

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.600	40.000	1.41500	.12360	-.19120	-.00113	-.00117	-.00072	.54820	.74100	.68000	.75390

RUN NO. 90/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.050	40.020	1.35000	.16370	-.14610	.00000	.00000	.00107	.15070	.18100	.16240	.18180

RUN NO. 92/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.400	40.030	1.32200	.20770	-.14310	-.02456	.00202	-.00703	.06686	.07301	.06804	.07306

RUN NO. 89/ 0 RN/L = .25

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.680	40.020	1.38400	.14420	-.17200	-.00153	-.00081	-.00079	.34040	.46910	.41540	.46440

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH018) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	18.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 93/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.120	40.070	.04517	.04554	2416.00000	.02731	.73790	.37220	.00029	3.18300	530.00000	-.01175

RUN NO. 105/ 0 RN/L = .48

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.600	40.000	.01303	.01191	1033.00000	.51270	.88000	1.41800	.00029	3.16500	527.00000	-.01108

RUN NO. 90/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.050	40.020	.03953	.03629	1709.00000	.09400	.80540	.34470	.00023	3.22500	537.00000	-.00383

RUN NO. 92/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.400	40.030	.06184	.05636	1666.00000	.04115	.81460	.13850	.00023	3.17100	528.00000	-.00158

RUN NO. 89/ 0 RN/L = .25

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.680	40.020	.02456	.02230	1668.00000	.27230	.81720	.88350	.00029	3.20700	534.00000	-.00432

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH018) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	18.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 93/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.120	40.070	5.35100	232.00000	41.07000	5469.00000	8838.00000	317.40000	.00276	.19760	.72850	25.35000

RUN NO. 105/ 0 RN/L = .48

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.600	40.000	2.98900	659.80000	14.71000	2292.00000	5300.00000	104.00000	.00975	.76780	7.87000	8.74800

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH018) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1078.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 90/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.050	40.020	4.20800	1067.00000	27.52000	3985.00000	7328.00000	98.63000	.00116	.18460	.99010	8.29800

RUN NO. 92/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.400	40.030	4.21900	478.00000	26.78000	3884.00000	7233.00000	91.74000	.00045	.07421	.40850	7.71800

RUN NO. 89/ 0 RN/L = .25

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.680	40.020	4.17000	3187.00000	26.76000	3894.00000	7233.00000	88.45000	.00275	.47340	2.60600	7.44100

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH019) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1078.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 103/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.180	50.000	1.87500	.17750	-.22160	-.00760	.00533	-.00790	.23820	.28990	.27890	.28450

RUN NO. 104/ 0 RN/L = .46

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.630	50.000	2.01000	.14320	-.30740	-.01214	-.00355	.00000	.71610	.93840	.94150	.99670

RUN NO. 108/ 0 RN/L = .10

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.030	50.000	1.82300	.16850	-.22170	-.00547	.00408	-.00648	.21730	.25600	.24090	.25180

RUN NO. 102/ 0 RN/L = .27

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.550	50.000	1.87200	.15250	-.25510	-.01711	.00397	-.01109	.50190	.64450	.60940	.67960

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH019) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1078.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 109/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PMN
15.610	50.000	1.87900	.20820	-.20910	-.01121	.00510	-.00711	.09218	.09824	.09528	.09687

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH019) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1078.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 103/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.180	50.000	.04338	.04519	2879.00000	.02789	.71170	.39610	.00029	3.15900	526.00000	-.01061

RUN NO. 104/ 0 RN/L = .46

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.630	50.000	.01307	.01220	1170.00000	.49080	.86120	1.36000	.00029	3.16500	527.00000	-.01069

RUN NO. 108/ 0 RN/L = .10

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.030	50.000	.03728	.03495	1859.00000	.10290	.79570	.34670	.00019	3.17700	529.00000	-.00412

RUN NO. 102/ 0 RN/L = .27

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.550	50.000	.02299	.02144	1882.00000	.29120	.79770	.93730	.00029	3.18900	531.00000	-.00382

RUN NO. 109/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.610	50.000	.06299	.05918	1987.00000	.03782	.78480	.13310	.00029	3.17700	529.00000	-.00031

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH019) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	50.000	BETA =	.000
ELEVON =	15.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 103/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.180	50.000	5.51100	262.80000	42.61000	5810.00000	9005.00000	325.40000	.00289	.21010	.74620	25.90000

RUN NO. 104/ 0 RN/L = .46

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.630	50.000	2.99700	641.70000	14.77000	2301.00000	5313.00000	103.90000	.00930	.73600	7.51000	8.73900

RUN NO. 108/ 0 RN/L = .10

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.030	50.000	4.14000	1037.00000	25.98000	3786.00000	7120.00000	93.31000	.00117	.18590	1.05600	7.85000

RUN NO. 102/ 0 RN/L = .27

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.550	50.000	4.15800	3218.00000	26.34000	3839.00000	7175.00000	88.50000	.00296	.50240	2.81000	7.44500

RUN NO. 109/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.610	50.000	4.32200	502.50000	28.07000	4043.00000	7407.00000	93.63000	.00042	.07127	.37410	7.87700

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH020) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 52/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.970	30.000	.82880	.12810	-.04384	.00000	-.00044	-.00064	.10640	.13790	.10890	.12600

RUN NO. 53/ 0 RN/L = .05

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.530	1.000	.82390	.14350	-.03681	.00000	.00000	.00000	.04527	.05803	.04707	.05306

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH020) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 111/ 0 RN/L = .23

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
16.050	30.000	.87760	.11080	-.04643	-.00205	-.00079	.00064	.21670	.29370	.22880	.26330

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH020) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 52/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.970	30.000	.04011	.03577	1465.00000	.09595	.82990	.34970	.00023	3.27300	545.00000	-.00539

RUN NO. 53/ 0 RN/L = .05

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.530	1.000	.06247	.05219	1039.00000	.04965	.89640	.14700	.00023	3.27900	546.00000	-.00192

RUN NO. 111/ 0 RN/L = .23

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
16.050	30.000	.02737	.02394	1389.00000	.25080	.85390	.73100	.00029	3.15900	528.00000	-.00396

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH020) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 52/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.970	30.000	4.11800	1050.00000	27.22000	3957.00000	7288.00000	98.57000	.00119	.18730	1.01600	8.29200

RUN NO. 53/ 0 RN/L = .05

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.530	1.000	3.90800	509.40000	24.88000	3665.00000	6973.00000	83.84000	.00047	.07887	.46710	7.05200

RUN NO. 111/ 0 RN/L = .23

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
16.050	30.000	4.14200	2902.00000	25.70000	3754.00000	7091.00000	81.13000	.00217	.39200	2.24500	6.82400

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH021) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 51/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.670	40.050	1.23700	.12140	-.07806	-.00260	-.00101	-.00066	.15520	.18490	.16890	.19150

RUN NO. 50/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.500	40.050	1.23300	.15600	-.07334	-.00682	-.00073	-.00018	.06369	.07041	.06614	.07333

RUN NO. 112/ 0 RN/L = .27

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.820	40.050	1.31300	.10240	-.08201	-.00553	.00204	-.00680	.37640	.48760	.45390	.46770

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH021) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 51/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.670	40.050	.03811	.03513	1705.00000	.09552	.80280	.36470	.00023	3.27300	545.00000	-.00424

RUN NO. 50/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.500	40.050	.05943	.05357	1570.00000	.04700	.83130	.13890	.00023	3.26700	544.00000	-.00188

RUN NO. 112/ 0 RN/L = .27

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.820	40.050	.02425	.02191	1629.00000	.28950	.82450	.88690	.00029	3.17700	529.00000	-.00418

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH021) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	16.300
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 51/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
14.670	40.050	4.12900	997.40000	27.36000	3974.00000	7303.00000	103.00000	.00129	.19530	1.05500	8.66700

RUN NO. 50/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.500	40.050	3.91500	476.30000	24.79000	3851.00000	6980.00000	83.86000	.00044	.07453	.44310	7.05400

RUN NO. 112/ 0 RN/L = .27

MACH	ALPHA	M(I)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.820	40.050	4.15000	3290.00000	26.07000	3802.00000	7140.00000	84.66000	.00271	.47550	2.68700	7.12200

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH022) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = .000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 47/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.900	30.000	.77760	.11080	-.00507	-.00267	-.00147	-.00127	.09812	.13320	.10450	.12790

RUN NO. 46/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.740	30.000	.86510	.15240	-.00460	-.00820	.00045	-.00109	.04353	.05682	.04514	.04775

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH022) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = .000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 47/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.900	30.000	.03994	.03569	1476.00000	.09526	.82740	.35570	.00023	3.26100	543.00000	-.00452

RUN NO. 46/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.740	30.000	.06323	.05534	1369.00000	.04527	.85490	.13200	.00029	3.26100	543.00000	.00168

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH022) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = .000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 47/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.900	30.000	4.15700	1049.00000	27.49000	3988.00000	7324.00000	100.50000	.00122	.19050	1.02300	8.45400

RUN NO. 46/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.740	30.000	3.94700	490.00000	25.06000	3685.00000	7000.00000	82.28000	.00041	.07084	.41630	6.92100

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH023) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 40.000 BETA = .000
ELEVON = .000 BDFLAP = -11.700
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 48/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.080	40.000	1.17700	.11720	-.01994	.00484	.00104	.00159	.23760	.17850	.15640	.17800

RUN NO. 49/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.740	40.030	1.19000	.14480	-.01879	.00000	-.00171	-.00013	.06698	.07382	.06825	.07523

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH023) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 48/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.080	40.000	.03998	.03668	1715.00000	.09232	.80480	.33890	.00023	3.24300	540.00000	-.00398

RUN NO. 49/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.740	40.030	.05953	.05362	1595.00000	.04815	.82960	.14230	.00023	3.25500	542.00000	-.00128

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH023) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	.000	BDFLAP =	-11.700
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 48/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.080	40.000	4.19200	1064.00000	27.62000	4001.00000	7343.00000	98.53000	.00114	.18150	.96950	8.28900

RUN NO. 49/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.740	40.030	3.97600	531.10000	25.30000	3714.00000	7033.00000	82.98000	.00044	.07635	.44450	6.98000

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH024) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = -40.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 29/ 0 RN/L = .07

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.310	30.000	.75870	.12640	.02178	.00880	-.00150	.00115	.08497	.10550	.08614	.10200

RUN NO. 114/ 0 RN/L = .26

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.810	30.000	.85630	.09584	-.01763	-.00127	-.00068	.00051	.23880	.34210	.28080	.30850

RUN NO. 30/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.900	30.000	.74050	.14280	.01562	-.05705	.01006	-.00081	.03597	.04643	.03868	.04542

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH024) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = -40.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 29/ 0 RN/L = .07

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.310	30.000	.04489	.03989	1471.00000	.08048	.83190	.28360	.00023	3.25500	542.00000	-.00420

RUN NO. 114/ 0 RN/L = .26

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.810	30.000	.02528	.02220	1404.00000	.28170	.84860	.86000	.00029	3.18900	531.00000	-.00471

RUN NO. 30/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.900	30.000	.06502	.05681	1372.00000	.04380	.85600	.12580	.00023	3.25500	542.00000	-.00165

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH024) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 29/ 0 RN/L = .07

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.310	30.000	4.15700	953.00000	27.40000	3975.00000	7315.00000	94.95000	.00093	.15190	.81760	7.98900

RUN NO. 114/ 0 RN/L = .26

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.810	30.000	4.12700	3181.00000	25.99000	3795.00000	7129.00000	84.51000	.00283	.46110	2.61300	7.10900

RUN NO. 30/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.900	30.000	3.96100	490.90000	25.14000	3693.00000	7012.00000	80.91000	.00038	.06751	.39540	6.80600

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH025) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	-40.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 28/ 0 RN/L = .08

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.320	40.000	1.12000	.11090	.02313	-.01548	.00088	.00007	.14180	.15470	.13920	.16170

RUN NO. 113/ 0 RN/L = .26

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.590	40.000	1.26300	.09123	-.04395	-.00208	-.00063	-.00146	.38910	.51520	.44750	.48180

RUN NO. 31/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.930	40.000	1.09200	.13640	.01964	-.00426	.00024	-.00011	.05891	.06332	.05693	.06714

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH025) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 40.000 BETA = .000
ELEVON = -40.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 28/ 0 RN/L = .08

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.320	40.000	.04231	.03878	1729.00000	.08498	.80500	.30690	.00019	3.25500	542.00000	-.00443

RUN NO. 113/ 0 RN/L = .26

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.590	40.000	.02408	.02186	1660.00000	.28070	.81740	.91550	.00029	3.18900	531.00000	-.00352

RUN NO. 31/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.930	40.000	.06248	.05598	1563.00000	.04553	.83700	.12700	.00029	3.23700	539.00000	-.00013

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH025) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 40.000 BETA = .000
ELEVON = -40.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 28/ 0 RN/L = .08

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.320	40.000	4.19600	1043.00000	27.87000	4034.00000	7378.00000	96.46000	.00100	.16430	.86930	8.11500

RUN NO. 113/ 0 RN/L = .26

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.590	40.000	4.18500	3202.00000	26.66000	3878.00000	7218.00000	89.12000	.00288	.49060	2.71200	7.49700

RUN NO. 31/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.930	40.000	3.94700	496.50000	24.72000	3838.00000	6954.00000	79.24000	.00038	.06816	.40600	6.66500

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH026) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 69/ 0 RN/L = .08

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.310	30.000	.89610	.15020	-.07821	-.00533	.00030	-.00040	.08731	.11400	.09943	.11000

RUN NO. 72/ 0 RN/L = .04

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.560	30.030	.90350	.16520	-.08309	.00962	.00148	.00047	.04457	.05709	.04673	.05175

RUN NO. 121/ 0 RN/L = .27

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.760	29.980	.94280	.11860	.00000	-.00124	.00028	.00012	.24870	.35460	.29150	.31660

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH026) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 69/ 0 RN/L = .08

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.310	30.000	.04276	.03791	1442.00000	.08975	.83670	.30550	.00025	3.23100	538.00000	-.00338

RUN NO. 72/ 0 RN/L = .04

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.560	30.030	.06057	.05317	1373.00000	.04795	.85220	.14380	.00023	3.24300	540.00000	-.00223

RUN NO. 121/ 0 RN/L = .27

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.760	29.980	.02501	.02199	1407.00000	.28500	.84730	.88060	.00029	3.18900	531.00000	-.00427

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH026) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = 12.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 69/ 0 RN/L = .08

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.310	30.000	4.13700	1014.00000	26.78000	3895.00000	7232.00000	92.81000	.00100	.16370	.90130	7.80800

RUN NO. 72/ 0 RN/L = .04

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.560	30.030	3.97900	506.50000	25.17000	3695.00000	7013.00000	84.43000	.00045	.07714	.45170	7.10200

RUN NO. 121/ 0 RN/L = .27

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.760	29.980	4.13500	3206.00000	26.08000	3806.00000	7141.00000	85.38000	.00271	.47210	2.66700	7.18300

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH027) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 40.000 BETA = .000
ELEVON = 12.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = .000

RUN NO. 70/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.880	39.970	1.28700	.14580	-.11110	.01253	.00285	.00226	.15580	.18440	.16070	.18180

RUN NO. 71/ 0 RN/L = .05

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.310	40.000	1.28700	.17870	-.11060	.01823	.00292	.00348	.07007	.07902	.06993	.07741

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH027) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN.	XO	
LREF =	474.8000 INCHES	YMRP =	.0000 IN.	YO	
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN.	ZO	
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 70/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.880	39.970	.03904	.03583	1681.00000	.09482	.80790	.34480	.00023	3.24900	541.00000	-.00463

RUN NO. 71/ 0 RN/L = .05

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.310	40.000	.05726	.05164	1546.00000	.04965	.83320	.14640	.00023	3.24900	541.00000	-.00205

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH027) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN.	XO	
LREF =	474.8000 INCHES	YMRP =	.0000 IN.	YO	
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN.	ZO	
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	40.000	BETA =	.000
ELEVON =	12.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	.000

RUN NO. 70/ 0 RN/L = .09

MACH	ALPHA	M(1)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
14.880	39.970	4.12900	1002.00000	26.98000	3922.00000	7254.00000	98.81000	.00119	.18470	1.01100	8.31300

RUN NO. 71/ 0 RN/L = .05

MACH	ALPHA	M(1)	P(0)	H(0)	T(0)	U	T	P	Q(PSI)	RHO	MU
15.310	40.000	3.90200	470.40000	24.38000	3597.00000	6900.00000	84.44000	.00048	.07861	.47540	7.10300

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (RUH028) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = 6.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = 6.000

RUN NO. 120/ 0 RN/L = .03

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.040	29.980	.80760	.13390	-.02981	.00194	-.00479	.00868	.11690	.15340	.12910	.14700

RUN NO. 119/ 0 RN/L = .44

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
10.820	29.980	.86540	.08533	-.04915	.00219	-.00552	.01126	.31770	.46810	.40360	.44480

RUN NO. 73/ 0 RN/L = .05

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.710	30.000	.86070	.12010	-.05432	.00554	-.00342	.00877	.06001	.07203	.06126	.06730

RUN NO. 117/ 0 RN/L = .09

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
14.990	29.980	.86250	.12540	-.04245	.00243	-.00543	.01023	.10160	.13650	.11140	.12330

RUN NO. 118/ 0 RN/L = .26

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	PM1	PM2	PM3	PM4
15.930	29.980	.89290	.10770	-.03627	.00473	-.00582	.01380	.23820	.34830	.27630	.29970

OA113(CAL184-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH028) (25 APR 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 1076.7000 IN. XO
LREF = 474.8000 INCHES YMRP = .0000 IN. YO
BREF = 936.7000 INCHES ZMRP = 375.0000 IN. ZO
SCALE = .0100

PARAMETRIC DATA

ALPHA = 30.000 BETA = .000
ELEVON = 6.000 BDFLAP = .000
RUDDER = .000 SPDBRK = .000
PHI = .000 AILRON = 6.000

RUN NO. 120/ 0 RN/L = .03

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.040	29.980	.04539	.04443	2153.00000	.02820	.75880	.41570	.00025	3.18900	531.00000	-.01251

RUN NO. 119/ 0 RN/L = .44

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
10.820	29.980	.01419	.01262	895.20000	.47690	.90550	1.22700	.00025	3.18900	531.00000	-.01147

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (SUH028) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	6.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	6.000

RUN NO. 73/ 0 RN/L = .05

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.710	30.000	.05178	.04585	1340.00000	.05819	.84920	.18680	.00023	3.21300	535.00000	-.00344

RUN NO. 117/ 0 RN/L = .09

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
14.990	29.980	.03967	.03524	1408.00000	.10060	.83920	.34340	.00025	3.17400	528.50000	-.00435

RUN NO. 118/ 0 RN/L = .26

MACH	ALPHA	VBAR	VLBAR	T*	REFTL	SQRTC*	PITOT	P(TS)	H(W)	T(W)	C(CP)
15.930	29.980	.02560	.02244	1396.00000	.28040	.85120	.83640	.00025	3.18000	529.50000	-.00404

OA113(CALI84-220)B26C9F7M7N28N77 W116E44 V8R5 (TUH028) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN. XO		
LREF =	474.8000 INCHES	YMRP =	.0000 IN. YO		
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN. ZO		
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	6.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	6.000

RUN NO. 120/ 0 RN/L = .03

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.040	29.980	5.49200	262.00000	43.11000	5672.00000	9052.00000	337.70000	.00312	.22040	.77460	26.73000

RUN NO. 119/ 0 RN/L = .44

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
10.820	29.980	2.92300	625.10000	14.38000	2245.00000	5245.00000	97.74000	.00810	.66440	6.95500	8.22300

RUN NO. 73/ 0 RN/L = .05

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.710	30.000	3.95800	495.10000	24.49000	3606.00000	6911.00000	91.76000	.00066	.10030	.60470	7.72000

RUN NO. 117/ 0 RN/L = .09

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
14.990	29.980	4.15800	1017.00000	26.13000	3804.00000	7140.00000	94.36000	.00117	.18410	1.04000	7.93800

OA113(CAL184-220)B26C9F7M7N28N77 W115E44 V8R5 (TUH028) (25 APR 75)

REFERENCE DATA

SREF =	2690.0000 SQ.FT.	XMRP =	1076.7000 IN.	XO	
LREF =	474.8000 INCHES	YMRP =	.0000 IN.	YO	
BREF =	936.7000 INCHES	ZMRP =	375.0000 IN.	ZO	
SCALE =	.0100				

PARAMETRIC DATA

ALPHA =	30.000	BETA =	.000
ELEVON =	6.000	BDFLAP =	.000
RUDDER =	.000	SPDBRK =	.000
PHI =	.000	AILRON =	6.000

RUN NO. 118/ 0 RN/L = .26

MACH	ALPHA	M(I)	P(O)	H(O)	T(O)	U	T	P	Q(PSI)	RHO	MU
15.930	29.980	4.12500	3192.00000	25.83000	3774.00000	7108.00000	82.82000	.00252	.44850	2.55600	6.96600