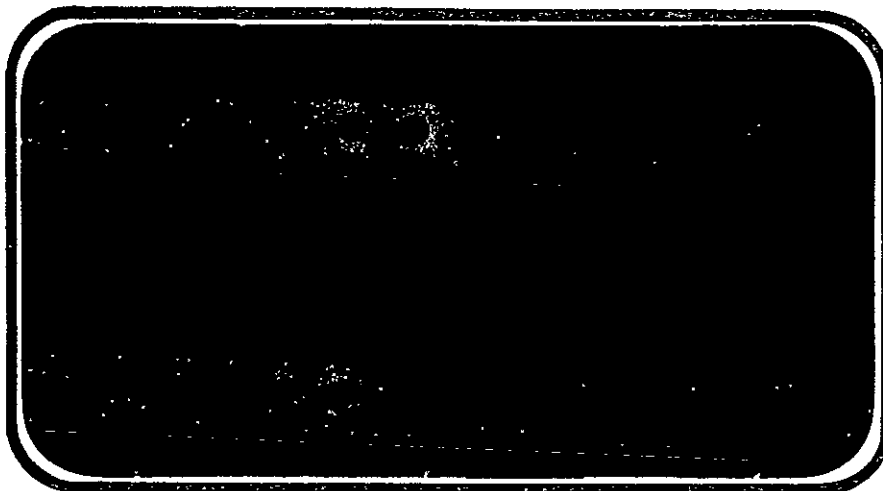


NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



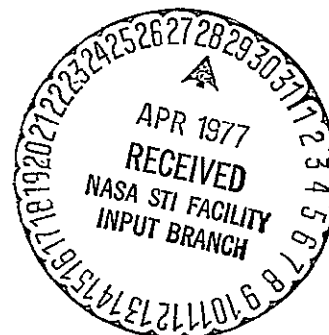
(NASA-CR-151065) RESULTS OF PHASE CHANGE
 PAINT THERMAL MAPPING TEST OH46 USING THE
 0.006-SCALE MODEL 90-0 IN THE NASA LaRC
 VARIABLE DENSITY TUNNEL (Chrysler Corp.)
 277 p HC A13/MF A01

N77-21178
 Unclas
 24457

CSCL 20D G3/16

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

DATA Management services

March 1977

DMS-DR-2350
NASA CR-151,065

RESULTS OF PHASE CHANGE PAINT
THERMAL MAPPING TEST OH46 USING THE 0.006-SCALE
MODEL 90-0 IN THE NASA LaRC
VARIABLE DENSITY TUNNEL

by

J. W. Cummings and W. H. Dye
Shuttle Aero Sciences
Rockwell International Space Division

Prepared under NASA Contract Number NAS9-13247

by

Data Management Services
Chrysler Corporation Michoud Defense-Space Division
New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number: NASA LaRC VDT 4502-4601
NASA Series Number: OH46
Model Number: 90-0
Test Dates: November 12 through 15 and December 4 through 7, 197
Occupancy Hours: 64

FACILITY COORDINATOR:

B. Spencer, Jr.
Mail Stop 365
Langley Research Center
Hampton, Va. 23665

Phone: (804) 827-3911

PROJECT ENGINEERS:

J. W. Cummings, W. H. Dye
Mail Code AD38
Rockwell International
Space Division
12214 Lakewood Blvd.
Downey, Ca. 90241

Phone: (213) 922-2030


P. L. Lawing
Mail Stop 160A
Langley Research Center
Hampton, Va. 23665


Phone: (804) 827-3294

DATA MANAGEMENT SERVICES:

Prepared by: Liaison--D. A. Sarver
Operations--Maurice Moser, Jr.

Reviewed by: G. G. McDonald

Approved: 
J. L. Glynn, Manager
Data Operations

Concurrence: 
N. D. Kemp, Manager
Data Management Services

Chrysler Corporation Michoud Defense-Space Division assumes no responsibility for the data presented other than publication and distribution.

RESULTS OF PHASE CHANGE PAINT THERMAL MAPPING TEST OH46

USING THE 0.006-SCALE MODEL 90-0

IN THE NASA LaRC VARIABLE DENSITY TUNNEL

J. W. Cummings and W. H. Dye, Rockwell International Space Division

ABSTRACT

Results of Test OH46 are presented in this document. This test was conducted in the NASA LaRC Mach 8 Variable Density Tunnel during November and December 1973 to obtain thermal contours on a 0.006-scale model (no. 90-0) of the configuration 140B Space Shuttle Orbiter using the phase change paint technique. The model was tested at 25°, 30°, and 35° angle of attack at unit Reynolds numbers ranging from 1.0 through 8.0 million per foot. The model was tested with and without a ventral fin mounted on its bottom centerline. Elevon deflections of 0° and 10° and bodyflap deflections of 0 and 13.75° were investigated.

(This page left blank intentionally.)

TABLE OF CONTENTS

	Page
ABSTRACT	iii
INDEX OF MODEL FIGURES	2
INDEX OF DATA FIGURES	3
NOMENCLATURE	9
CONFIGURATIONS INVESTIGATED	12
TEST FACILITY DESCRIPTION	14
TEST PROCEDURE	15
DATA REDUCTION	17
REFERENCE	20
TABLES	
I. TEST CONDITIONS	21
II. TEST PROGRAM	22
III. MODEL DIMENSIONAL DATA	27
FIGURES	
MODEL	36
DATA	45
APPENDIX - TABULATED THERMAL DATA FOR EACH TRACING CONTOUR	165

INDEX OF MODEL FIGURES

Figure	Title	Page
1.	Axes System.	36
2.	Model Sketches	
a.	Configuration Designations	37
b.	Orbiter General Arrangement	38
c.	Ventral Fin	39
3.	Model Photographs	
a.	Grid Model	40
b.	Test Model	41
c.	Top View of All Models	42
d.	Bottom View of All Models With Leveling Blocks Installed.	43

INDEX OF DATA FIGURES

Type of Sketch	Run number(s)	α (deg)	View	T_{PC} ($^{\circ}F$)	RE/FT (million per ft.)	Page	
Grid	4502-4525	30	Bottom	—	—	46	
Thermal Control	4502	↓	↓	350	3.0	47	
	4504			400		48	
	4505			350		49	
	4506			250		50	
	4507			300		51	
	4508			300		52	
	4509			300		1.0	53
	4510			300			54
	4511			300			55
	4512			450		6.0	56
	4513			175		1.0	57
	4514			550		6.0	58
	4515			150		1.0	59
	4516			500		6.0	60
	4517			550		8.0	61
	4518			175		1.0	62
	4519			350		6.0	63
	4520			350		6.0	64
	4521			350		6.0	65
	4523			300		1.0	66
	4524			400		8.0	67
	4525			300		1.0	68

INDEX OF DATA FIGURES (Continued)

<u>Type of Sketch</u>	<u>Run Number(s)</u>	<u>α (deg)</u>	<u>View</u>	<u>T_{PC} ($^{\circ}F$)</u>	<u>RE/FT (million per ft.)</u>	<u>Page</u>	
Grid	4526-4545	25	Bottom	—	—	69	
Thermal Contour	4526	↓	↓	350	3.0	70	
	4527			400		71	
	4528			400		72	
	4529			250		73	
	4530			300		74	
	4531			300		75	
	4532			450		6.0	76
	4533			300		1.0	77
	4534			550		6.0	78
	4535			500		6.0	79
	4536			250		1.0	80
	4537			300		1.0	81
	4538			300		6.0	82
	4539			175		1.0	83
	4540			550		8.0	84
	4541			350		6.0	85
	4542			150		1.0	86
	4543			350		6.0	87
	4544			175		1.0	88
	4545			400		8.0	89

INDEX OF DATA FIGURES (Continued)

Type of Sketch	Run Number(s)	α (deg)	View	T_{pc} ($^{\circ}F$)	RE/FT (million per ft.)	Page
Grid	4546-4552	35	Bottom	—	—	90
Thermal Contour	4546	↓	↓	400	3.0	91
	4548			400		92
	4549			250		93
	4550			300		94
	4551			450		95
	4552			300		96
Grid	4506-4522	30	Side	—	—	97
Thermal Contour	4506	↓	↓	250	3.0	98
	4513			175	1.0	99
	4519			350	6.0	100
	4522			150	3.0	101
	4529			25	—	—
Thermal Contour	4529	25	250	3.0	103	
Grid	4549-4552	35	—	—	—	104
Thermal Contour	4549	↓	↓	250	3.0	105
	4550			300	3.0	106
	4551			450	6.0	107
	4552			300	3.0	108


INDEX OF DATA FIGURES (Continued)

Type of Sketch	Run Number(s)	α (deg)	View	T_{pc} ($^{\circ}F$)	RE/FT (million per ft.)	Page
Grid	4556-4567	35	Bottom	—	—	109
Thermal Contour	4556	↓	↓	250	1.0	110
	4557			300	1.0	111
	4558			500	6.0	112
	4559			550	8.0	113
	4560			550	6.0	114
	4561			175	1.0	115
	4562			300	6.0	116
	4563			175	1.0	117
	4565			350	6.0	118
	4567			400	6.0	119
Grid	4568-4601			30		—
Thermal Contour	4568	↓	↓	550	8.0	121
	4569			550	3.5	122
	4570			400	8.0	123
	4571			400	3.5	124
	4572			400	4.0	125
	4573			300	1.0	126
	4574			300	4.0	127
	4575			200	1.0	128
	4577			350	1.0	129
	4579			200	1.0	130
	4581			500	3.0	131
	4582			300	3.0	132

INDEX OF DATA FIGURES (Continued)

Type of Sketch	Run number(s)	α (deg)	View	T_{pc} ($^{\circ}F$)	RE/FT (million per ft.)	Page
Thermal Contour	4583	30	Bottom	550	6.0	133
	4584			350	6.0	134
	4586			450	3.0	135
	4588			250	3.0	136
	4590			550	6.0	137
	4591			400	6.0	138
	4592			550	8.0	139
	4593			400	8.0	140
	4594			300	1.0	141
	4595			400	3.0	142
	4596			550	6.0	143
	4597			200	1.0	144
	4598			300	1.0	145
	4599			450	3.0	146
	4600			200	1.0	147
	4601			300	3.0	148
Grid	4556-4593	30&35	Side	—	—	149
Thermal Contour	4556	35		250	1.0	150
	4557			300	1.0	151
	4558			500	6.0	152
	4561			175	1.0	153
	4562			300	6.0	154
	4564			175	3.0	155
	4565			350	6.0	156
	4569	30		350	3.5	157

INDEX OF DATA FIGURES (Concluded)

<u>Type of Sketch</u>	<u>Run number(s)</u>	<u>α (deg)</u>	<u>View</u>	<u>T_{pc} ($^{\circ}F$)</u>	<u>RE/FT (million per ft.)</u>	<u>Page</u>
<u>Thermal Contour</u> 	4570	30	Side	400	8.0	158
	4573			300	1.0	159
	4574			300	4.0	160
	4584			350	6.0	161
	4586			450	3.0	162
	4588			250	3.0	163
	4593			400	8.0	164

NOMENCLATURE

<u>SYMBOL</u>	<u>Mnemonic</u>	<u>Definition</u>
C_p		specific heat at constant pressure of model material, BTU/lb.-°F
$C_{p_{air}}$		specific heat at constant pressure of air, BTU/lb.-°F
g		acceleration due to gravity, ft./sec ²
h	H	thin film heat transfer coefficient at a given point melt line on the model, BTU/ft ² -sec-°F
h_s, h_{ref}	HS	stagnation thin film heat transfer coefficient on a scaled foot radius sphere, reference value, BTU/ft ² -sec-°F
K		thermal conductivity of model material, BTU/ft-sec-°F
K_{air}		thermal conductivity of air, BTU/ft-sec-°F
M_∞	MINF	freestream Mach number
N_R		nose radius, ft.
OML		outer mold line
P_o, P_{Total}	PT	stagnation pressure, psf
P_1		pressure upstream of normal shock, psf
P_2		pressure behind normal shock, psf
P_r		Prandtl number
\dot{q}		heat transfer rate, BTU/ft ² -sec
\dot{q}_s		stagnation heat transfer rate on scaled 1 foot radius sphere, reference value, BTU/ft ² -sec
R		gas constant for air, $\frac{ft-lb_F}{lbm-°R}$

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Mnemonic</u>	<u>Definition</u>
$R_{\infty}/ft,$ R_e/ft	R/FT, RE/FT SQROCK	freestream unit Reynolds number, million per foot square root of $\rho C_p K$, BTU/ft ² -°F-sec ^{.5}
t	T	time, sec
T_{aw}	TAW	adiabatic wall temperature, °F
T_{IN}, T_I	TIN	initial model wall temperature, °F
T_0, T_{Total}	T0	freestream stagnation temperature, °F
T_{PC}	TPC	temperature at which paint changes phase, °F
\bar{T}	T-BAR	nondimensional temperature parameter defined in context
V_e		velocity at edge of boundary layer, ft/sec
X		longitudinal streamwise coordinate, ft.
X_0		Orbiter longitudinal coordinate, in.
Y_0		Orbiter lateral coordinate, in.
Z_0		Orbiter vertical coordinate, in.
α	ALPHA	angle of attack, deg.
β	BETA	temperature parameter or sideslip angle in degrees as defined in context
δ		local model surface deflection angle to freestream flow, deg.
δ_{BF}		body flap deflection angle, deg.
δ_e		elevon deflection angle, deg.

NOMENCLATURE (Concluded)

<u>Symbol</u>	<u>Mnemonic</u>	<u>Definition</u>
δ_v		ventral fin deflection angle, deg.
γ		ratio of specific heats of air
θ		local surface angle with respect to fuselage reference line (axis), deg.
ϕ	PHI	model roll angle, deg.
ρ		density of model material, lb/ft ³
ρ_{air}		freestream density of air, lb/ft ³
ρ_s		stagnation air density lb/ft ³
ρ_w		air density along model wall, lb/ft ³
μ_{air}		freestream air viscosity, lbm/ft.-sec
μ_s		air stagnation viscosity, lbm/ft.-sec
μ_w		air viscosity along model wall, lbm/ft.-sec

CONFIGURATIONS INVESTIGATED

The models were 0.006-scale representations of the VL70-000140B Space Shuttle Orbiter Configuration. They were cast in a single piece around an aluminum and fiber glass sleeve using Grumman Aerospace Material G. A metal cap was put on the nose of each test model to protect it in the high Reynolds number environment in the tunnel. Three (3) test models and one (1) grid model were used. They were identified as follow:

<u>Designation</u>	<u>Type</u>	<u>δ_e</u>	<u>δ_{BF}</u>
-22	Test	0°	0°
-31	Test	+10°	0°
-41	Test	+10°	+13°
Grid or -21	Grid	0°	0°

Each test model had two ventrals which were mounted on its body flap bottom centerline. The ventrals were at either 0° or 30° incidence to freestream flow. Ventrals are designated as:

<u>Designation</u>	<u>δ_v</u>
VENO	0°
VEN30	30°

The models were tested both with and without ventrals.

The model components correspond to the following Orbiter component nomenclature:

<u>Component Nomenclature</u>	<u>Description</u>
B ₂₆	fuselage

CONFIGURATIONS INVESTIGATED (Concluded)

<u>Component Nomenclature</u>	<u>Description</u>
C ₉	canopy
F ₈	body flap
L ₆	ventral fin
M ₇	OMS pod
R ₅	rudder
V ₈	vertical tail
W ₁₁₆	wing

Table III provides dimensional data for each model component. Figure 2 presents sketches of the model. Figure 3 presents photographs of the model.

TEST FACILITY DESCRIPTION

The Langley Mach 8 Variable-Density Hypersonic Tunnel is located in Building 1247D and is under the direction of the Aero-Physics Division. This tunnel is used for fundamental aerodynamic and fluid dynamic investigations over large Reynolds number ranges using pressure and heat transfer measurements. The test medium is air and is heated by a combination of Dowtherm and electrical resistance. Model mounting consists of sting mount with injection mechanism. The tunnel has an axially symmetric contoured nozzle. The test section diameter is 18 inches with a core of 4 to 14 inches depending on pressure. It exhausts into a vacuum tank or the atmosphere.

Examples of operating conditions are as follows:

Stagnation pressure (psia)15 to 2930

Stagnation temperature (°R).....1160 to 1510

Mach Number7.5 to 8.0

Reynolds number per foot(1/ft)..... 0.1×10^6 to 12.0×10^6

Running time (SEC) for

Exhausting into vacuum tank—90

Exhausting into atmosphere — 600

TEST PROCEDURE

The general test procedures used during the test were as follows:

- 1) Prior to each run, the models were cleaned with solvent, dried and spray painted with predetermined paint, and installed inverted in the injection chamber.
- 2) The initial model temperature was measured and recorded by a contact thermometer placed against the test model.
- 3) After flow was established, two 35mm cameras were activated. The model was then injected into the flow stream. This process enabled the film reader to determine the exact time the model reached tunnel centerline. Continuous pictures were taken at a constant frame rate of 10 frames per second. Time duration for each run was determined by tunnel operating conditions and paint melt temperatures but usually averaged about 10 to 12 seconds. The model was retracted from the flow stream at the end of this time period.
- 4) The model was then removed from the injection chamber and more detailed photographs were taken of areas of interest which were not clearly defined on the 35mm cameras.
- 5) After each model attitude change, the paint stripe model was installed in the tunnel and photographed with the 35mm cameras. The paint stripe model clearly locates various X/L (body) locations as well as particular water planes and chord wise and span wise locations of the wing which would normally be difficult to locate with attitude changes by tracings made using

TEST PROCEDURE (Concluded)

an overhead projector. These tracings are presented in the data figures.

- 6) This procedure was repeated for each configuration, test condition, and paint temperature.
- 7) Resulting photographs of both melt lines and grid models were traced onto paper using an overhead projector table. Resulting tracings are presented in the data figures.

Table.II describes the test program.

DATA REDUCTION

Thin film coefficients were calculated for each melt line. Adiabatic wall temperature was calculated as:

$$\begin{aligned} T_{aw} &= T_o \left(\frac{T_{aw}}{T_o} \right) \\ &= T_o [0.876 + 0.133(\sin\delta)^{1.55}] \end{aligned}$$

where:

$$\delta = \alpha + \theta$$

= local surface angle to freestream flow, deg.

The temperature parameter, β , was then calculated by an solution of the following equation:

$$1 - \bar{T} = e^{\beta^2} (1 - \text{erf } \beta)$$

where:

$$\bar{T} = \frac{T_{PC} - T_{IN}}{T_{aw} - T_{IN}}$$

Thin film coefficients were then calculated:

$$h = \beta \sqrt{\frac{K\rho C_p}{\sqrt{\tau}}}$$

and heat transfer rates were calculated as:

$$\dot{q} = h (T_{aw} - T_{PC})$$

Reference thin film coefficients were calculated for a scaled 1 foot full scale radius sphere using the Faye-Riddell method:

DATA REDUCTION (Continued)

$$h_s = \frac{.768 C_p}{(P_r)^{.6}} (\rho_w \mu_w)^{.1} (\rho_s \mu_s)^{.4} \sqrt{\frac{dV_e}{dx}}$$

where:

$$P_r = \frac{\mu_{air} C_{p,air}}{K_{air}}$$

$$\frac{dV_e}{dx} = \frac{1}{N_R} \sqrt{2Rg T_0 \left[1 - \frac{1}{P_1 P_2} \right]}$$

$$P_1 = \left[\frac{\gamma+1}{2} M_\infty^2 \right]^{\frac{\gamma}{\gamma-1}}$$

$$P_2 = \left[\frac{\gamma+1}{2\gamma M_\infty^2 - (\gamma-1)} \right]^{\frac{1}{\gamma-1}}$$

$$g = 32.2 \frac{\text{lbm ft}}{\text{lb}_f \text{ Sec}^2}$$

$$N_R = 0.006 \text{ ft}$$

$$R = 53.35 \frac{\text{ft} \cdot \text{lb}_f}{\text{lb}_M \cdot ^\circ\text{R}}$$

Stagnation heat transfer rate was then calculated as:

$$\dot{q}_s = h_s (T_{aw} - T_{PC})$$

Resulting values of h , h/h_s , T , β , and T_{aw}/T_0 are tabulated in the appendix as a function of model time on tunnel centerline. Each time for which these values are given is indexed by a sequential number called

DATA REDUCTION (Concluded)

"Contour." Tracings given in the data figures are identified by a frame number which is not necessarily consecutive. The lowest valued frame number corresponds to data given for Contour 1. The highest valued frame number corresponds to the largest contour number. Intermediate frame and contour numbers are similarly matched in order of increasing numbers. The first data figure presents 60th frame and contour numbers as an example of how they are matched.

REFERENCE

1. Cummings, J. W., "Pretest Report For Phase Change Paint Test On 0.006-Scale Models of the Rockwell International Space Shuttle Orbiter in the NASA-LRC Variable Density Wind Tunnel-(OH46)", Rockwell International Report No. SD73-SH-0265, September 27, 1973.

TABLE II. - TEST PROGRAM (Continued)

Run No.	VDT Tun No.	Config.	α	RE/FT $\times 10^{-6}$	T_{pc} °F	T_i °F	T_o °F	P_o psig	Run Time	Remarks	
19	4520	-22	30	6.0	350	82	940	1405	10.5	Check focus	
20	4521	-41	↓	↓	350	81	925	1390	10.3		
21	4522	-22		3.0	150	81	850	625	15.2	Side painted only	
22	4523	-31		1.0	300	82	775	165	16.7	Repeat of 4510	
23	4524	-22		↓	8.0	400	83	925	1935	10.5	
24	4525	-41		30	1.0	300	82	770	163	16.3	Repeat 4510
Grid Model		-21	25	←-----→							Reset cameras
25	4526	-22	↓	3.0	350	77	890	625	13.6		
26	4527	-31		↓	400	81	880	625	13.9		
27	4528	-41		↓	400	82	880	635	13.6		
28	4529	-22		↓	250	81	875	635	13.5		
29	4530	-31		↓	300	83	885	630	13.2		
30	4531	-41		↓	300	82	865	625	13.1		
31	4532	-22		↓	6.0	450	83	955	1400	10.4	
32	4533	-31		↓	1.0	300	83	760	164	13.9	No side camera
33	4534	-41		↓	6.0	550	83	950	1400	10.5	
34	4535	-31		↓	↓	500	84	940	1400	10.4	
35	4536	-22		↓	1.0	250	83	745	160	13.7	
36	4537	-41		↓	↓	350	82	735	156	13.6	
37	4538	-22		↓	6.0	300	82	940	1405	10.5	
38	4539	-31	↓	1.0	175	82	770	150	13.5		

23

TABLE II. - TEST PROGRAM (Continued)

Run No.	VDT Run No.	Config.	α	RE/FT $\times 10^{-6}$	T_{pc} °F	T_i °F	T_o °F	P_o psig	Run Time	Remarks	
39	4540	-22	25	8.0	550	82	935	1935	10.3		
40	4541	-41	↓	6.0	350	84	950	1400	10.5		
41	4542	-22	↓	1.0	150	85	780	152	13.7		
42	4543	-31	↓	6.0	350	85	980	1390	10.6		
43	4544	-41	↓	1.0	175	82	820	160	13.5		
44	4545	-22	↓	8.0	400	82	940	1930	10.4		
Grid Model		-21	35	←-----→							
24	45	4546	-31	↓	3.0	400	83	850	625	10.6	
	46	4547	-22	↓	↓	350	82	860	620	10.4	
	47	4548	-41	35	3.0	400	82	865	655	13.8	
	48	4549	-22	↓	↓	250	84	875	635	17.1	
	49	4550	-31	↓	↓	300	82	885	630	17.7	
	50	4551	-22	↓	6.0	450	82	950	1375	12.4	
	51	4552	-41	↓	3.0	300	81	865	660	16.6	
	52	4553	-31	↓	1.0	175					
	53	4556	22	35	1	250	76	840	157		*
	54	4557	41	↓	1	300	73	815	157		↓
55	4558	31	↓	6	500	74	955	1435			
56	4559	22	↓	8	550	76	965	1960			
57	4560	41	↓	6	550	74	970	1410			
58	4561	31	↓	1	175	78	815	146			

* Run times for run numbers 53 through 98 are unavailable.

TABLE II. - TEST PROGRAM (Continued)

Run No.	VDT Run No.	Config.	α	RE/FT $\times 10^{-6}$	T_{pc} °F	T_i °F	T_o °F	P_o psig	Run Time	Remarks	
59	4562	22	35	6	300	81	965	1380	↓		
60	4563	41	↓	1	175	76	785	151			
61	4564	22		3	175	79	930	645			
62	4565	31		6	350	78	975	1455			
63	4566	22		1	150	77	825	161			
64	4567	41		6	400	77	965	1450			
65	4568	31		30	8	550	80	980		1915	
66	4569	22		3.5	350	79	930	780			
67	4570	31		8	400	82	990	1870			
68	4571	22		3.5	400	88	825	775			
69	4572	22		4	400	83	880	900			
70	4573	31 ven 0		1	300	84	750	153			
71	4574	22		4	300	79	915	855			
72	4575	31 ven 0		1	200	76	825	172			
73	4576	22		3	oil	oil	875	610			
74	4577	31 ven 30		1	350	76	795	150			
75	4578	22		6	oil	oil	935	1400			
76	4579	31 ven 30		1	200	76	765	156			
77	4580	22		6	oil	oil	965	1470			
78	4581	31 ven 30		30	3	500	80	895		625	
79	4582	31 ven 30	↓	3	300	79	880	620			

25

TABLE II. - TEST PROGRAM (Concluded)

Run No.	VDT Run No.	Config.	α	RE/FT $\times 10^{-6}$	T_{pc} °F	T_i °F	T_o °F	P_o psig	Run Time	Remarks
80	4583	31 ven 30	30	6	550	80	970	1430	↓	
81	4584	31 ven 30		6	350	82	985	1405		
82	4585	22		3	oil	oil	950	1400		
83	4586	31 ven 0		3	450	82	900	630		
84	4587	22		6	oil	oil	945	1435		
85	4588	31 ven 0		3	250	82	905	635		
86	4589	22		3	oil	oil	920	635		
26 87	4590	31 ven 0		6	550	76	960	1385		
88	4591	31 ven 0		6	400	79	950	1390		
89	4592	31 ven 0		8	550	79	965	1895		
90	4593	31 ven 0		8	400	79	955	1895		
91	4594	41		1	300	76	755	152		
92	4595	41		3	400	76	880	630		
93	4596	41		6	550	74	940	1380		
94	4597	41		1	200	77	765	163		
95	4598	41 ven 30		1	300	76	780	145		
96	4599	41 ven 30		3	450	75	900	635		
97	4600	41 ven 30		1	200	76	805	163		
98	4601	41 ven 30		3	300	76	920	650		

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT: BODY - B₂₆

GENERAL DESCRIPTION: Orbiter Fuselage Configuration T40A/B

NOTE: B₂₆ identical to B₂₄ except underside of fuselage refaired to accept W116.

Model Scale = 0.006

DRAWING NUMBER: VL70-000193

VL70-000140A

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length (Body Fwd Sta X ₀ =235) - in	<u>1293.3</u>	<u>7.759</u>
Max. Width (at X ₀ -1520) - in	<u>262.0</u>	<u>1.572</u>
Max. Depth (at X ₀ = 1464) - in.	<u>250.0</u>	<u>1.500</u>
Fineness Ratio	<u>0.26357</u>	<u>0.26357</u>
Area - ft ²		
Max. Cross-Sectional.	<u>340.88462</u>	<u>.01227</u>

TABLE III. - Continued

MODEL COMPONENT: Canopy (C9)

GENERAL DESCRIPTION: Configuration 140B

Model Scale = 0.006

DRAWING NUMBER: VL70-000140B

VL70-000143A

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL-SCALE</u>
Length ($X_0=434.643$ to 670.0)	<u>235.357</u>	<u>1.412</u>
Max Width @ $X_0 = 513.127$)	<u>152.412</u>	<u>.914</u>
Max Depth @ $X_0 = 485.0$)	<u>25.00</u>	<u>.150</u>

TABLE III. - Continued

MODEL COMPONENT: Body Flap - F8

GENERAL DESCRIPTION: Configuration 4 body flap

Model Scale = 0.006

DRAWING NUMBER: VL70-000140B
VL70-000200

<u>DIMENSION:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length in.	<u>84.7</u>	<u>.508</u>
Max Width in.	<u>262.308</u>	<u>1.574</u>
Max Depth in.	<u>23.000</u>	<u>.138</u>
Area - ft ²		
Planform	<u>158.85350</u>	<u>.0057</u>
Wetted	<u>41.89642</u>	<u>.00151</u>
Base		

TABLE III. - Continued

MODEL COMPONENT: Ventral Fin - L₆

GENERAL DESCRIPTION: Single ventral fin located on lower surface of
body flap at model centerline.

Model Scale = 0.006

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Span, in.	<u>52.3</u>	<u>0.314</u>
Chords, in	<u></u>	<u></u>
root	<u>80.5</u>	<u>0.483</u>
tip	<u>50.5</u>	<u>0.303</u>
m.a.c.	<u>74.35</u>	<u></u>
Taper ratio	<u>0.627</u>	<u>0.627</u>
Aspect Ratio	<u>0.79</u>	<u>0.79</u>
Planform area, ft ²	<u>23.8</u>	<u>0.0008569</u>
Airfoil		
Leading edge radius, in.	<u>6.0</u>	<u>0.036</u>
Max thickness, in.	<u>25.33</u>	<u>0.152</u>
Sweep Angle, deg.		
Leading edge	<u>30</u>	<u>30</u>
Trailing edge	<u>0</u>	<u>0</u>

TABLE III. - Continued.

MODEL COMPONENT: OMS Pod - M7

GENERAL DESCRIPTION: Configuration 140B Orbiter OMS Pod

Model Scale = 0.006

DRAWING NUMBER:

DIMENSIONS	FULL-SCALE	MODEL SCALE
Length (Fwd Sta $X_0=1233.0$ in)	<u>327.000</u>	<u>1.962</u>
Max Width (@ $X_0=1450.0$) - in.	<u>94.50</u>	<u>.567</u>
Max Depth (@ $X_0=1493.0$) - in.	<u>109.000</u>	<u>.654</u>

MODEL DIMENSIONAL DATA- Continued.

MODEL COMPONENT : RUDDER - R5

GENERAL DESCRIPTION : 2A, 3 and 3A Configuration per Rockwell Lines

VL70-000095

Model Scale = 0.006

DRAWING NUMBER : VL70-000095

DIMENSIONS :

	FULL-SCALE	MODEL SCALE
Area - FT ²	<u>106.38</u>	<u>.0038</u>
Span (equivalent)	<u>201.0</u>	<u>1.206</u>
Inb'd equivalent chord	<u>91.585</u>	<u>.549</u>
Outb'd equivalent chord	<u>50.833</u>	<u>.304</u>
Ratio movable surface chord/ total surface chord	<u> </u>	<u> </u>
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees	<u> </u>	<u> </u>
Leading Edge	<u>34.83</u>	<u>34.83</u>
Trailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
Area Moment (Normal to hinge line)-FT ³	<u>526.13</u>	<u>0.189</u>
Product of Area and Mean Chord		

TABLE III. - Continued.

MODEL COMPONENT: Vertical Tail - Vg

GENERAL DESCRIPTION: Configuration 140B Orbiter Vertical Tail

NOTE: Similar to V5 with radius of T.E. upper corner and L.E. corner where vertical meets fuselage.

Model Scale = 0.006

DRAWING NUMBER: VL70-000140B

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
<u>TOTAL DATA</u>		
Area (Theo) Ft ² Planform	<u>413.253</u>	<u>.0148</u>
Span (Theo) In	<u>315.72</u>	<u>1.894</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep Back Angles, Degrees		
Leading Edge	<u>45.00</u>	<u>45.00</u>
Trailing Edge	<u>25.947</u>	<u>25.947</u>
.025 Element Line	<u>41.130</u>	<u>41.130</u>
Chords:		
Root (Theo) WP	<u>268.500</u>	<u>1.611</u>
Tip (Theo) WP	<u>108.470</u>	<u>0.651</u>
MAC	<u>199.807</u>	<u>1.198</u>
Fus. Sta. of .25 MAC	<u>1463.50</u>	<u>8.781</u>
W. P. of .25 MAC	<u>635.52</u>	<u>3.813</u>
B. L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle Deg	<u>10.00</u>	<u>10.00</u>
Trailing Wedge Angle Deg	<u>14.920</u>	<u>14.92</u>
Leading Edge Radius	<u>2.00</u>	<u>2.00</u>
Void Area	<u>13.17</u>	<u>13.17</u>
Blanketed Area	<u>0.0</u>	<u>0.00</u>

TABLE III. - Continued

MODEL COMPONENT: WING W₁₁₆

GENERAL DESCRIPTION: Configuration 4

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

Model Scale = 0.006

DRAWING NUMBER: VL70-000140B
VL70-000200

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
<u>Total Data</u>		
Area (Theo.) Ft ²		
Planform	<u>2690.00</u>	<u>.09684</u>
Span (Theo In)	<u>936.6816</u>	<u>5.620'</u>
Aspect Ratio	<u>2.265</u>	<u>2.265</u>
Rate of Taper	<u>1.177</u>	<u>1.177</u>
Taper Ratio	<u>0.200</u>	<u>0.200</u>
Dihedral Angle, degrees (at X ₀ =1506.623, Y ₀	<u>3.500</u>	<u>3.500</u>
Incidence Angle, degrees 105, Z ₀ =282.75)	<u>0.500</u>	<u>0.500</u>
Aerodynamic Twist, degrees	<u>+3.000</u>	<u>+3.000</u>
Sweep Back Angles, degrees		
Leading Edge	<u>45.00</u>	<u>45.00</u>
Trailing Edge	<u>-10.056</u>	<u>-10.056</u>
0.25 Element Line	<u>35.209</u>	<u>35.209</u>
<u>Chords:</u>		
Root (Theo) B.P. = zero	<u>689.2429</u>	<u>4.135</u>
Tip, (Theo) B.P.	<u>137.8486</u>	<u>.827</u>
MAC	<u>474.8117</u>	<u>2.849</u>
Fus. Sta. of .25 MAC	<u>1126.721</u>	<u>6.760</u>
W.P. of .25 MAC	<u>291.00</u>	<u>1.746</u>
B.L. of .25 MAC	<u>187.33491</u>	<u>1.124</u>
<u>Exposed Data</u>		
Area, (Theo) Ft ²	<u>1812.2205</u>	<u>.0652</u>
Span, (Theo) In. BP108	<u>736.6816</u>	<u>4.420</u>
Aspect Ratio	<u>2.058</u>	<u>2.058</u>
Taper Ratio	<u>0.2451</u>	<u>0.2451</u>
<u>Chords</u>		
Root BP108	<u>570.6230</u>	<u>3.424</u>
Tip 1.00 b	<u>137.8512</u>	<u>.827</u>
2		
MAC	<u>354.2376</u>	<u>2.1254</u>
Fus. Sta. of .25 MAC	<u>1164.237</u>	<u>6.985</u>
W.P. of .25 MAC	<u>292.00</u>	<u>1.752</u>
B.L. of .25 MAC	<u>239.67786</u>	<u>1.438</u>
<u>Airfoil Section (Rockwell Mod NASA)</u>		
<u>XXXX-64</u>		
Root $\frac{b}{2} = 0.425$	<u>0.113</u>	<u>0.113</u>
Tip $\frac{b}{2} = 1.00$	<u>0.12</u>	<u>0.12</u>

TABLE III. - Concluded.

MODEL COMPONENT: W116

	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Data for (1) of (2) Sies		
Planform Area Ft ²	<u>118.33</u>	<u>.00426</u>
Leading Edge Intersect Fus M. L. @ Sta	<u>505.0</u>	<u>3.030</u>
Leading Edge Intersects Wing @ Sta	<u>1003.5</u>	<u>6.021</u>

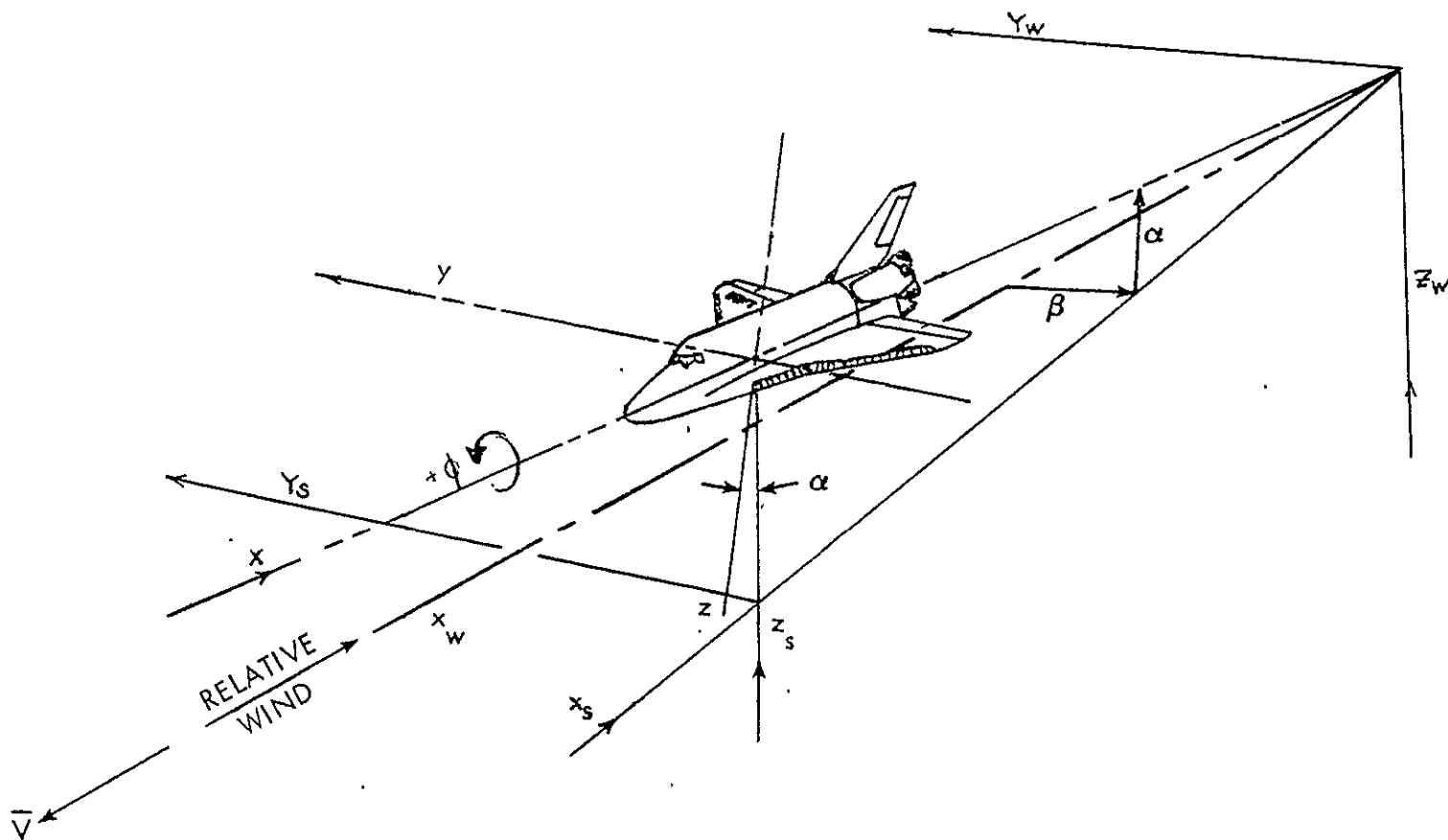
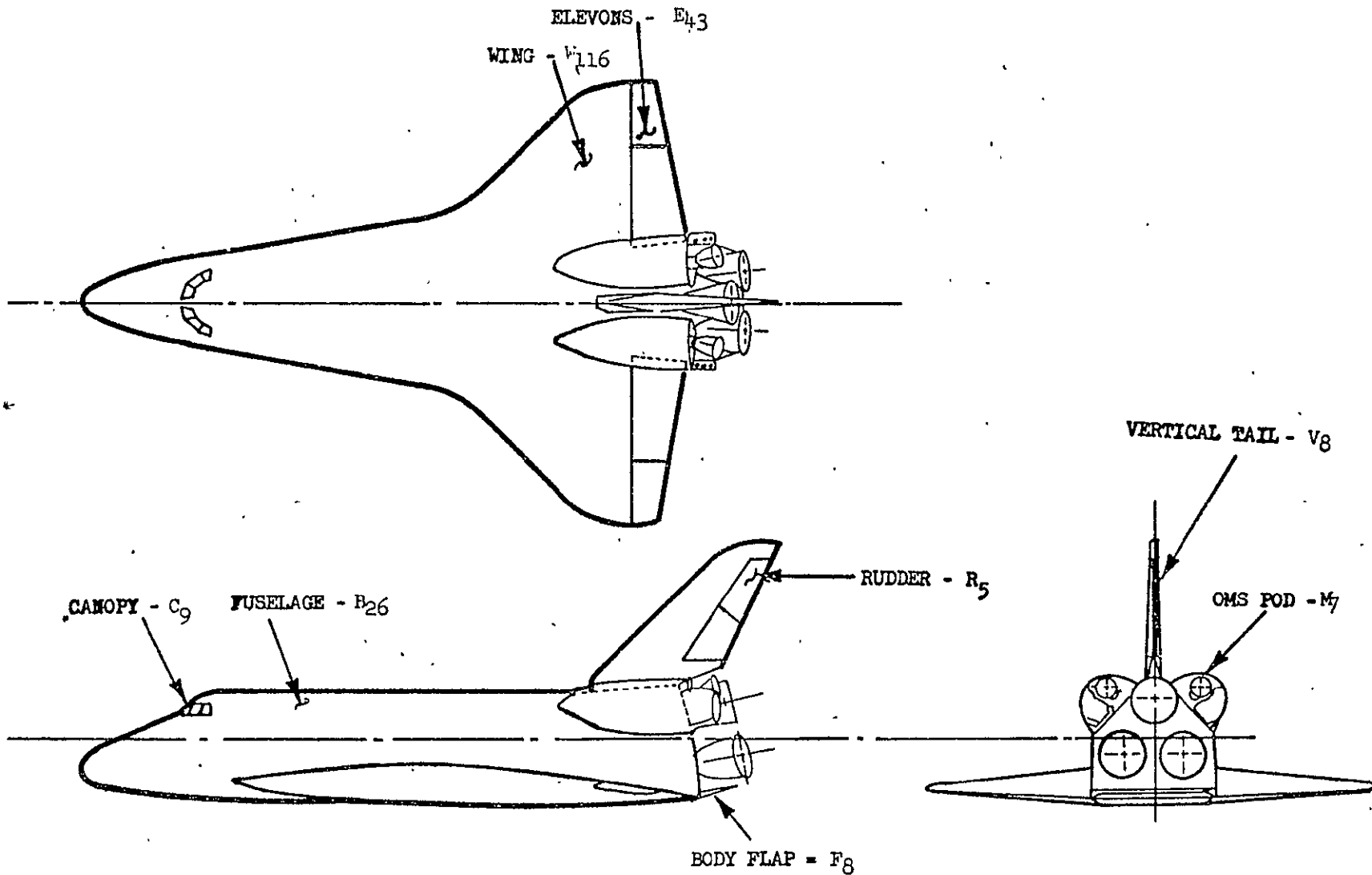
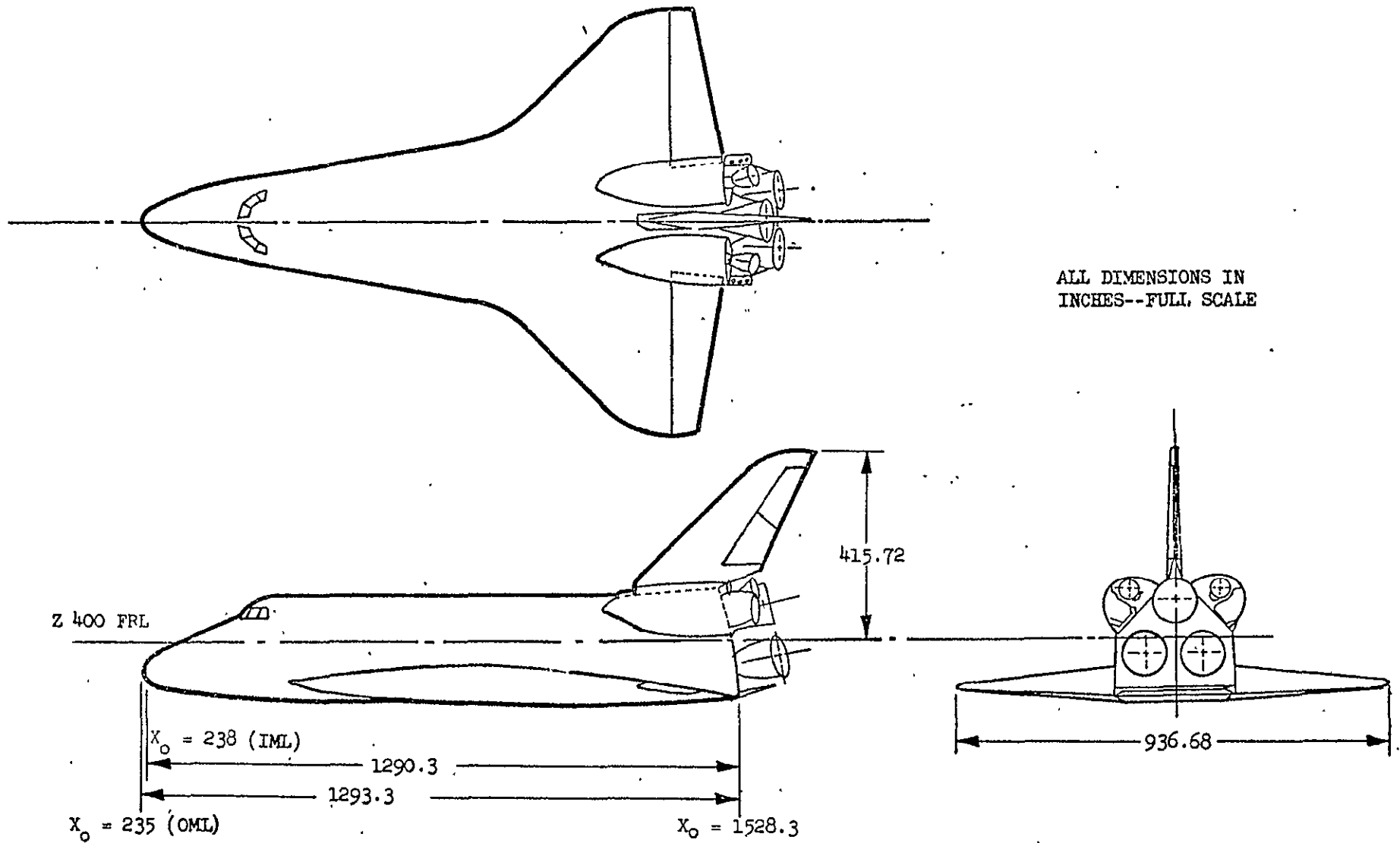


Figure 1. - Axes System.



a. Configuration Designations

Figure 2. - Model Sketches.



b. Orbiter General Arrangement

Figure 2. - Continued.

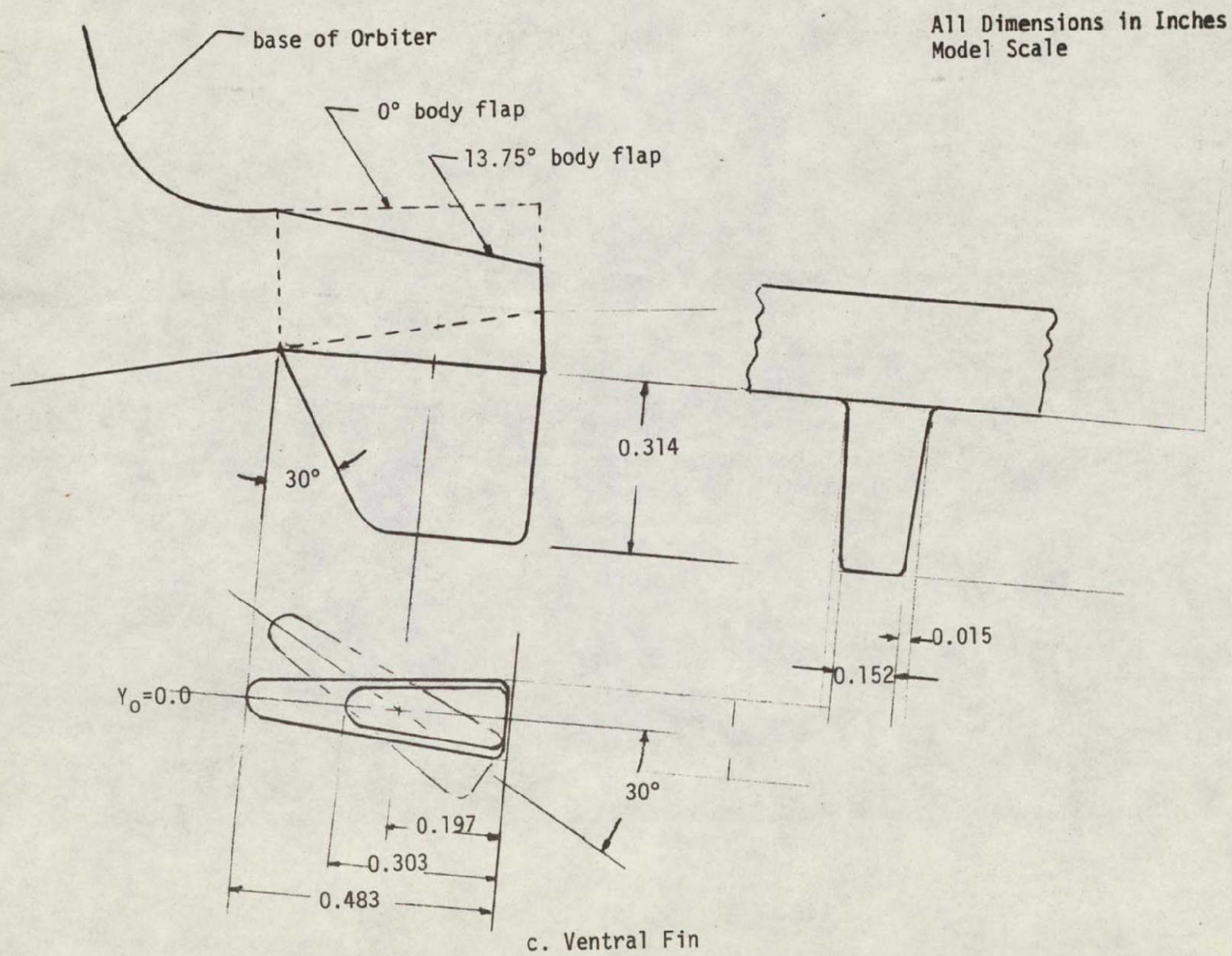
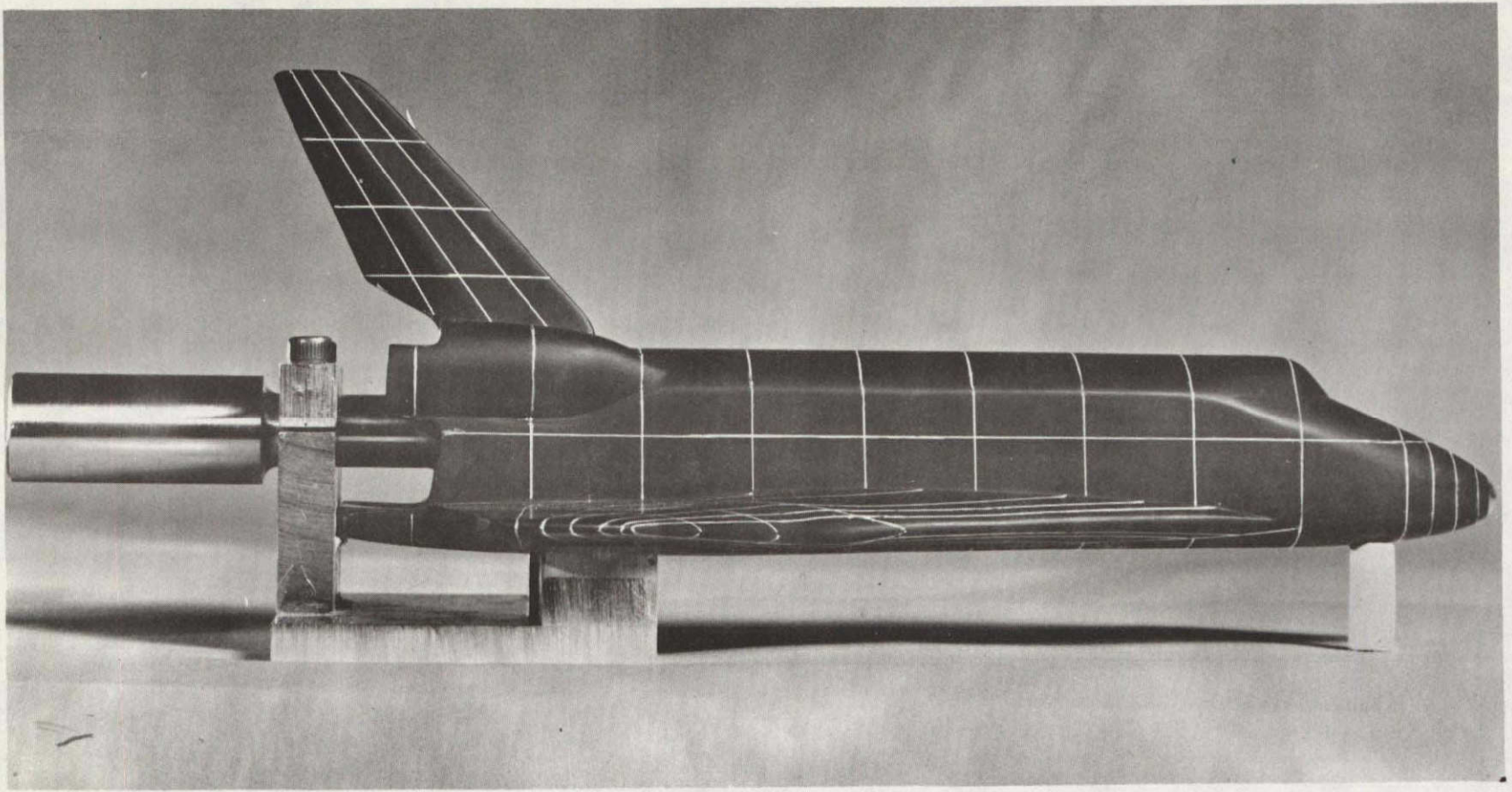
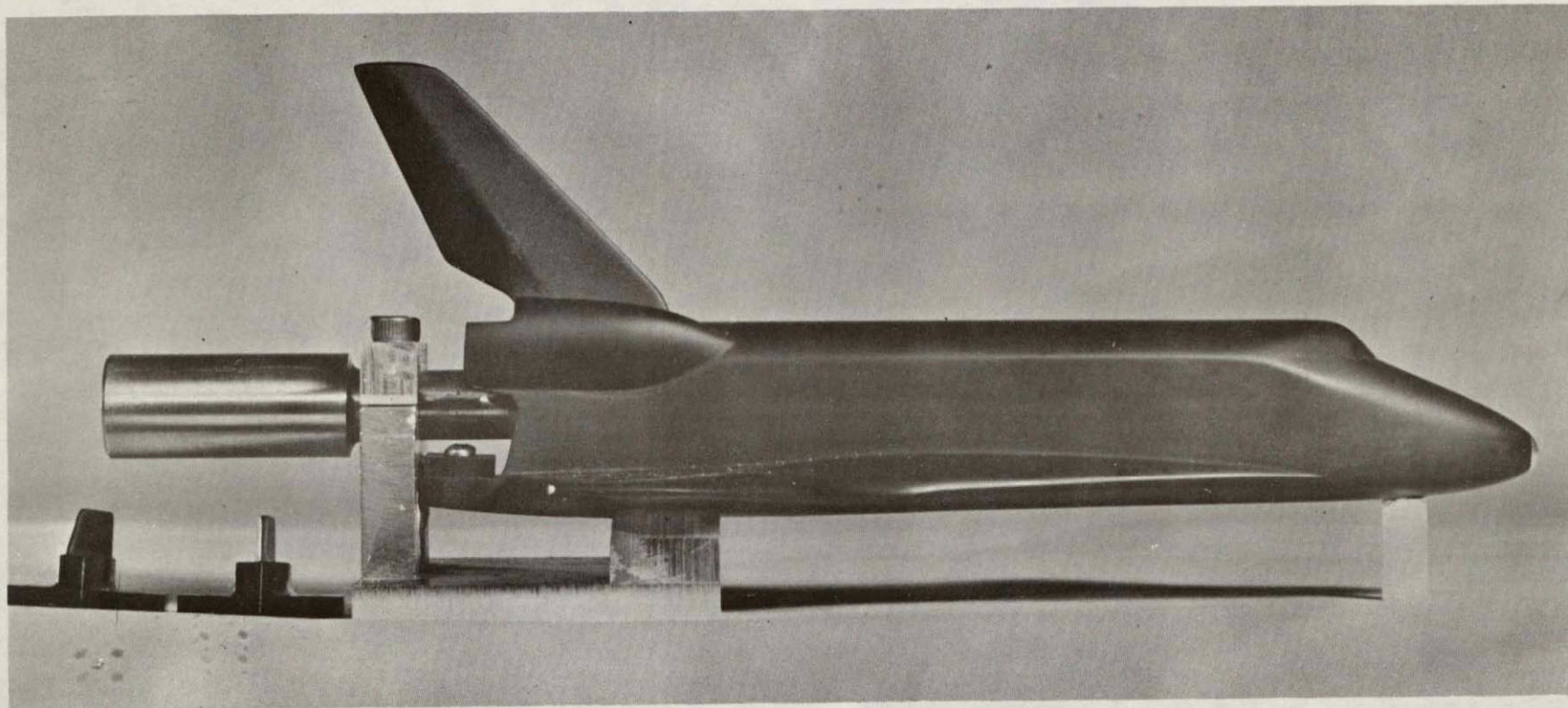


Figure 2. - Concluded.



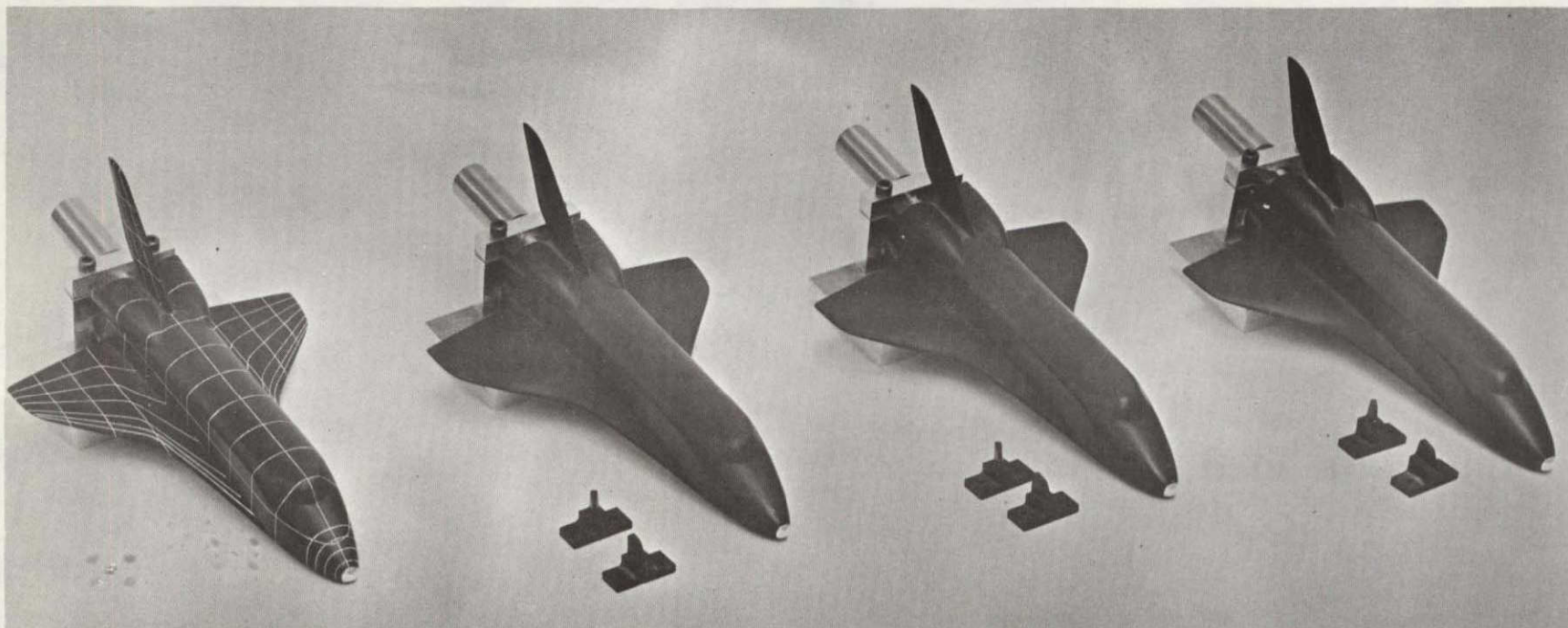
a. Grid Model

Figure 3. - Model Photographs.



b. Test Model

Figure 3. - Continued.

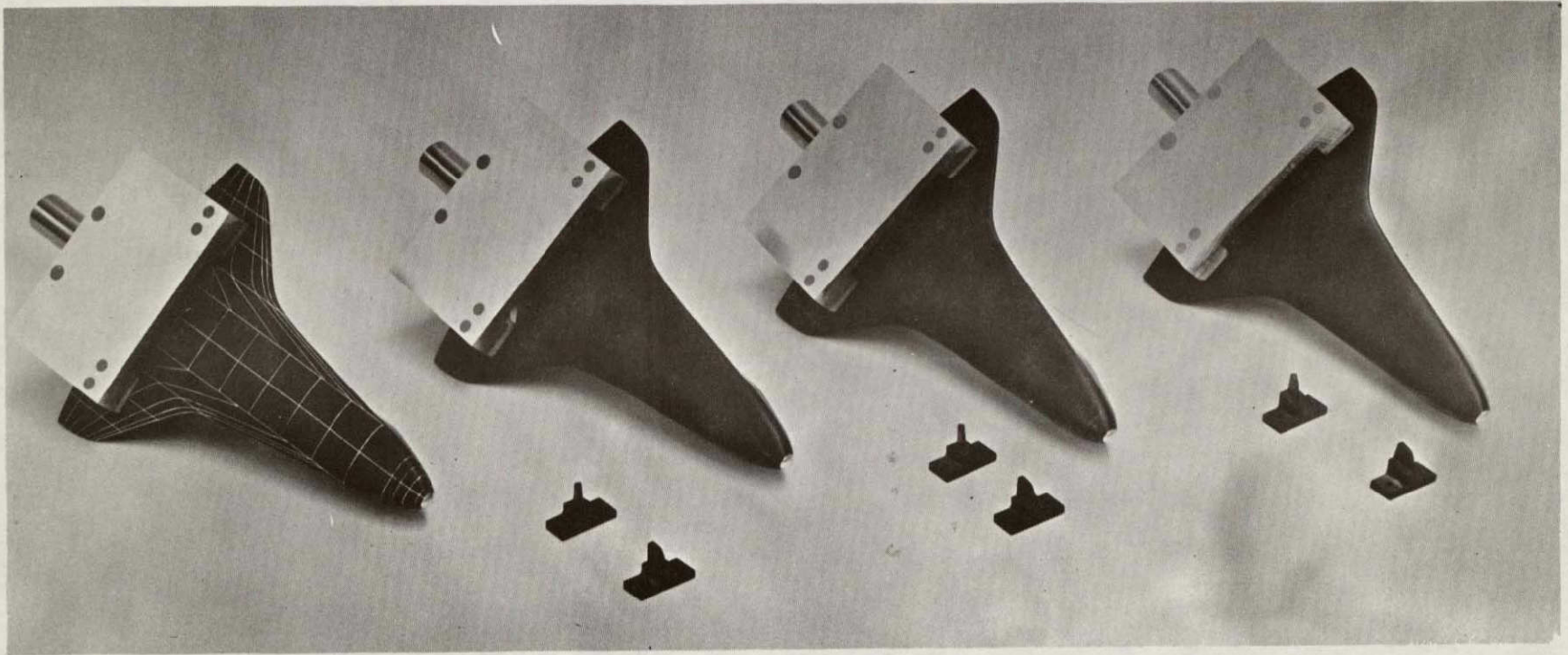


c. Top View of All Models

Figure 3. - Continued.

(Reverse of this page is blank.)

43



d. Bottom View of All Models With Leveling Blocks Installed

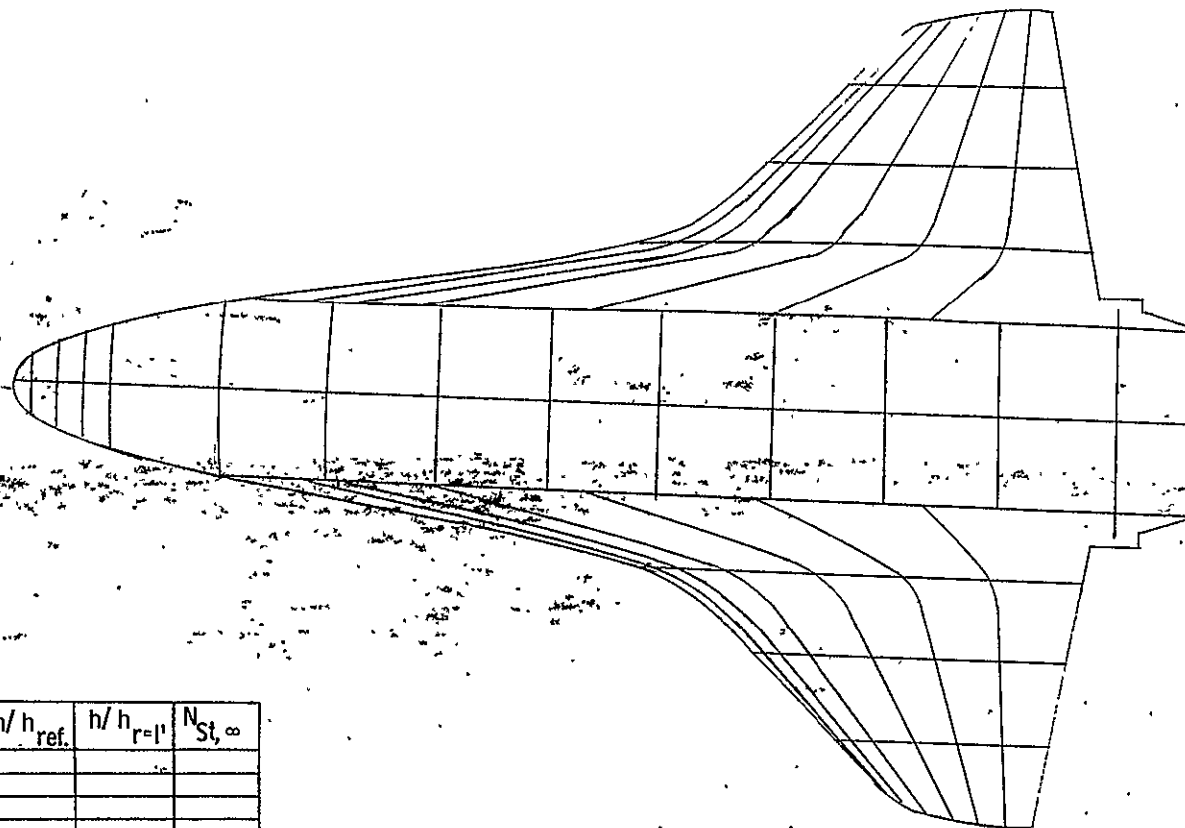
Figure 3. - Concluded.

DATA FIGURES

Notes: On data figures, P_{total} value is given as psig and T_{total} value as °F. These values agree with those in Table II and with those in the appendix, which are given as psia and °R.

Data figures are tracings of thermal contours made from frames of photographs taken during the test. Thermal characteristics associated with each tracing are given in the appendix. See Data Reduction section for relationship between index number on each tracing and contour number in the appendix.

PHASE CHANGE PAINT TEST



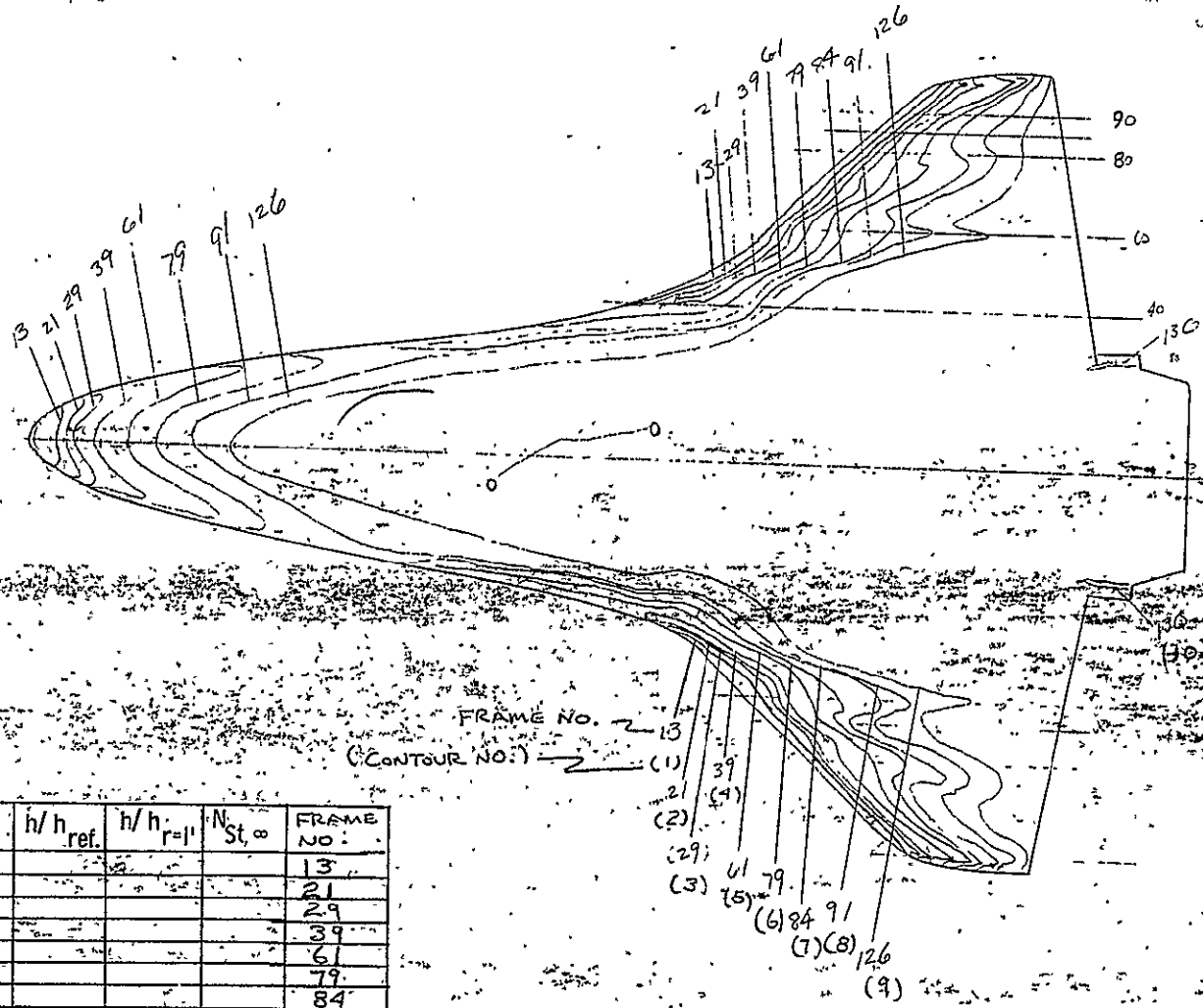
CONFIGURATION	GRID
FACILITY	LaRC/VDT
TEST	OH46
RUNS	4502 thru 4525
LENGTH	
NOSE RADIUS	
SCALE	
M_∞	
P_{total} (psia) =	
T_{total} ($^{\circ}R$) =	
R_∞ / ft =	
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	30
β =	
ϕ =	
CAMERA POSITION	BOTTOM VIEW
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

46

PHASE CHANGE PAINT TEST

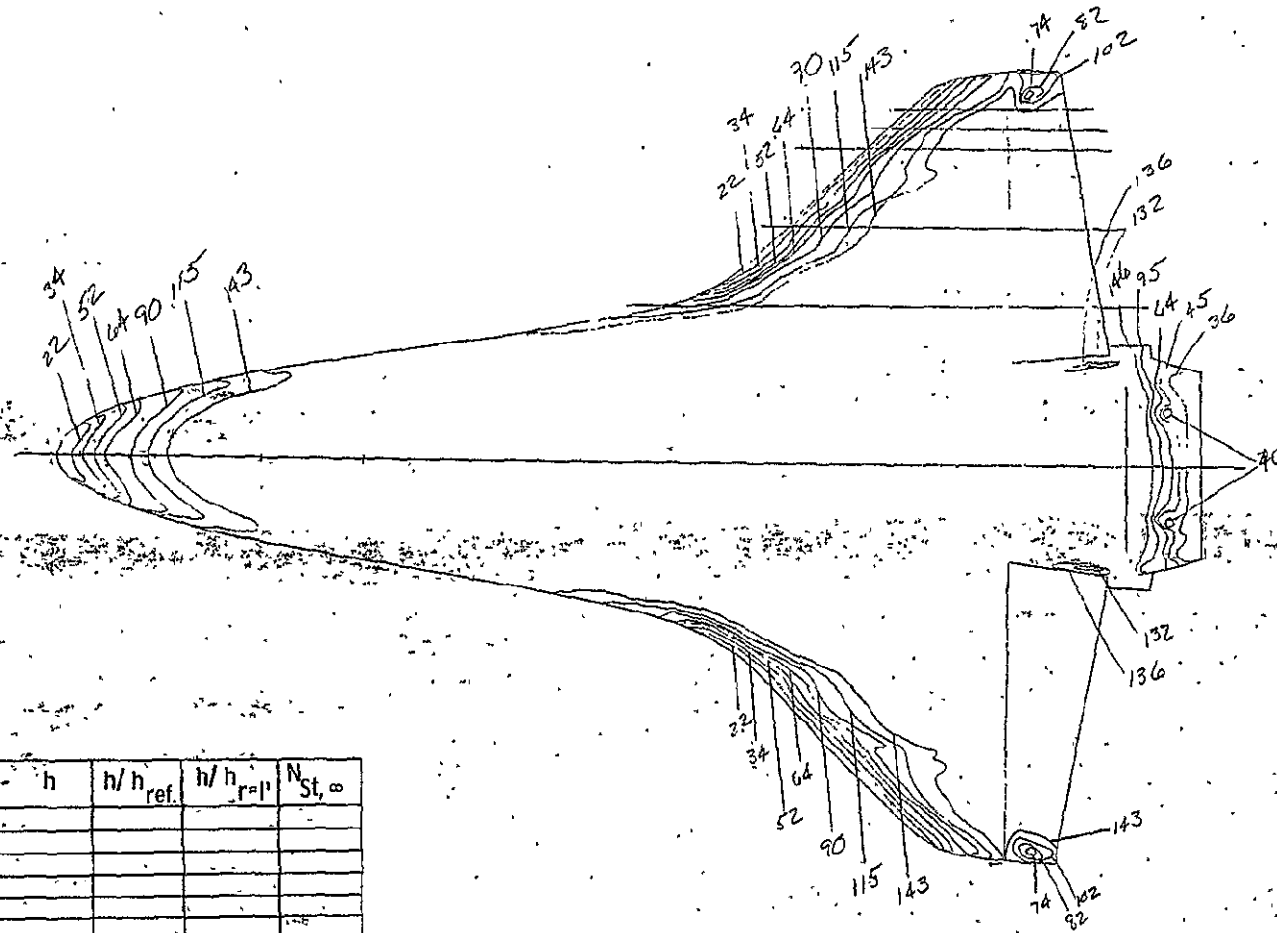
RUN 4502



ISOTHERM Frame No.	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}	FRAME NO.
1					13
2					21
3					29
4					39
5					61
6					79
7					84
8					91
9					126
10					130

CONFIGURATION	.140B .N ^V
FACILITY	LRC/VOT
TEST	OH-46
RUN	4502
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia)	620
T _{total} (°R)	915 °F
R _∞ / ft	3.0(10 ⁶)
T _{aw} / T _{total}	
T _{aw} (°R)	
T _∞ (°E)	72
T _∞ (°F)	350
h _∞	
T _∞	
(ρC _p k)/2	
α	30°
β	
φ	
CAMERA POSITION	Bottom
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

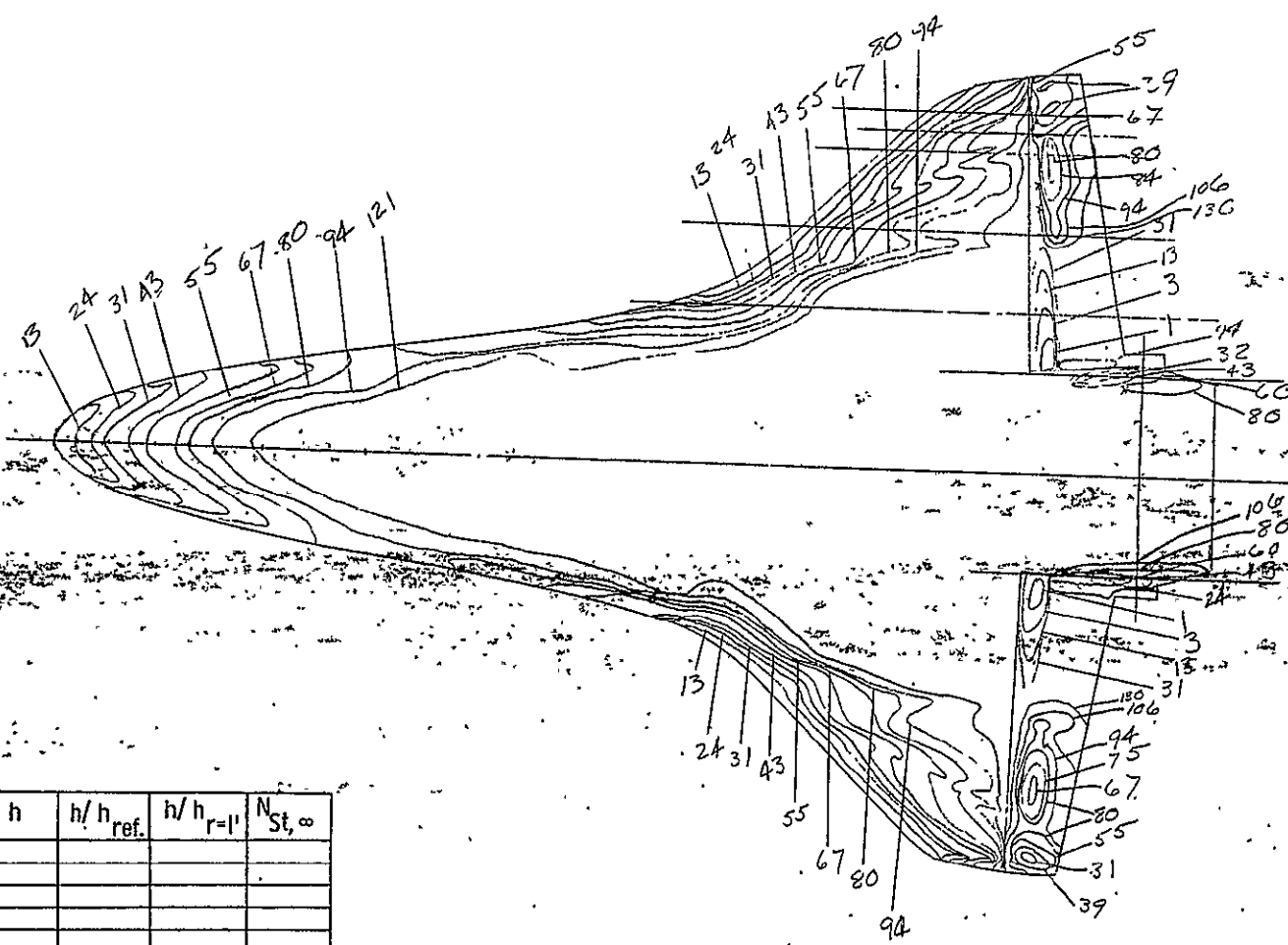


CONFIGURATION	41
FACILITY	LRC/VDT
TEST	04-46
RUN	4504
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia)	625
T_{total} ($^{\circ}R$)	850
R_∞ / ft	3(106)
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_1 ($^{\circ}F$)	76
T_{pc} ($^{\circ}F$)	400
$h_{r=1}$	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	30
β	
Φ	
CAMERA POSITION	Bottom
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

88

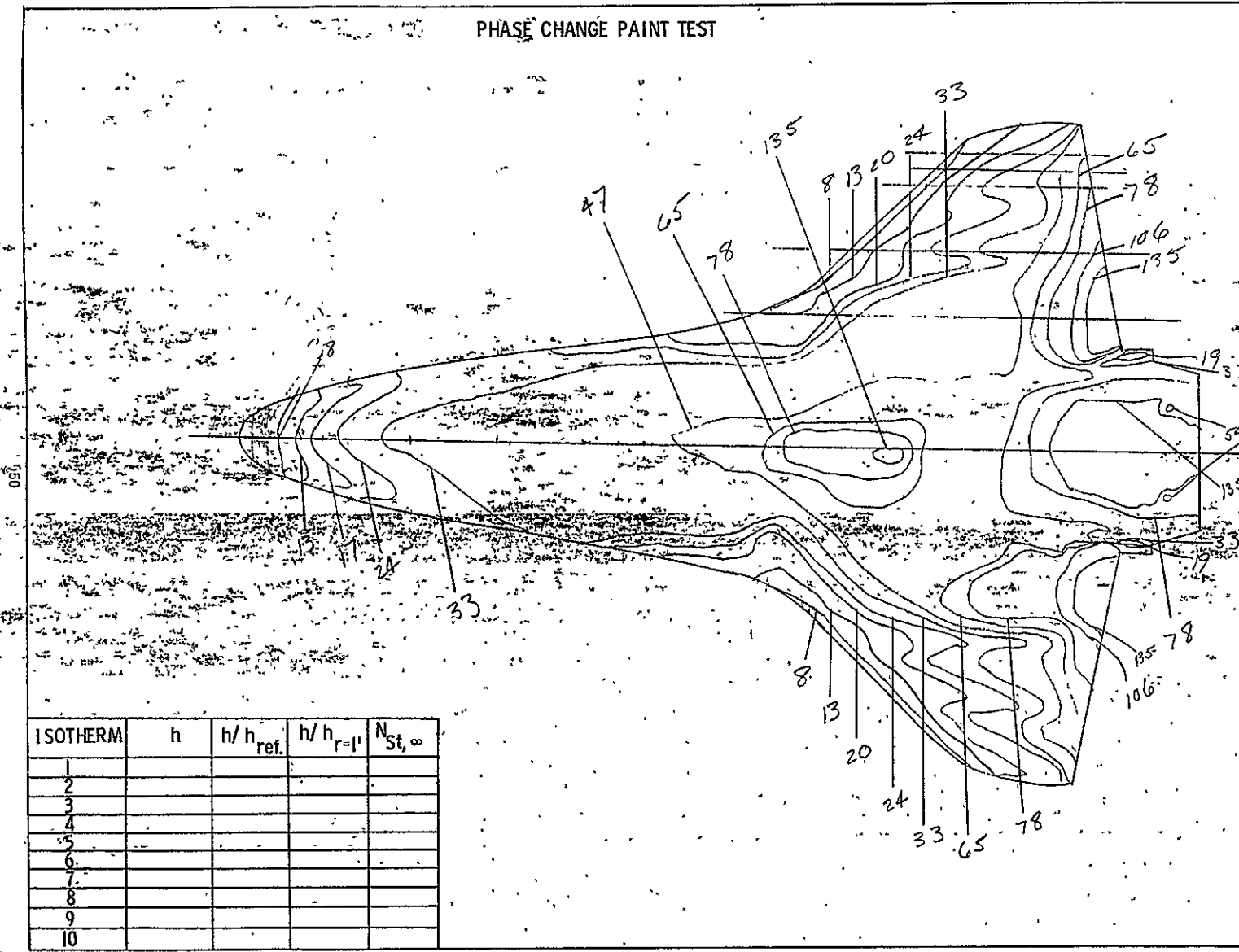
PHASE CHANGE PAINT TEST



CONFIGURATION	-31
FACILITY	LRC/UDT
TEST	OH-46
RUN	4505
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia)	= 630
T_{total} ($^{\circ}R$)	= 875
R_∞ / ft	= $3(10^4)$
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 82
T_{pc} ($^{\circ}F$)	= 350
h_{ref}	=
\bar{T}	=
$(\rho C_p k)^{1/2}$	=
α	= 30
β	=
ϕ	=
CAMERA POSITION	Bottom
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

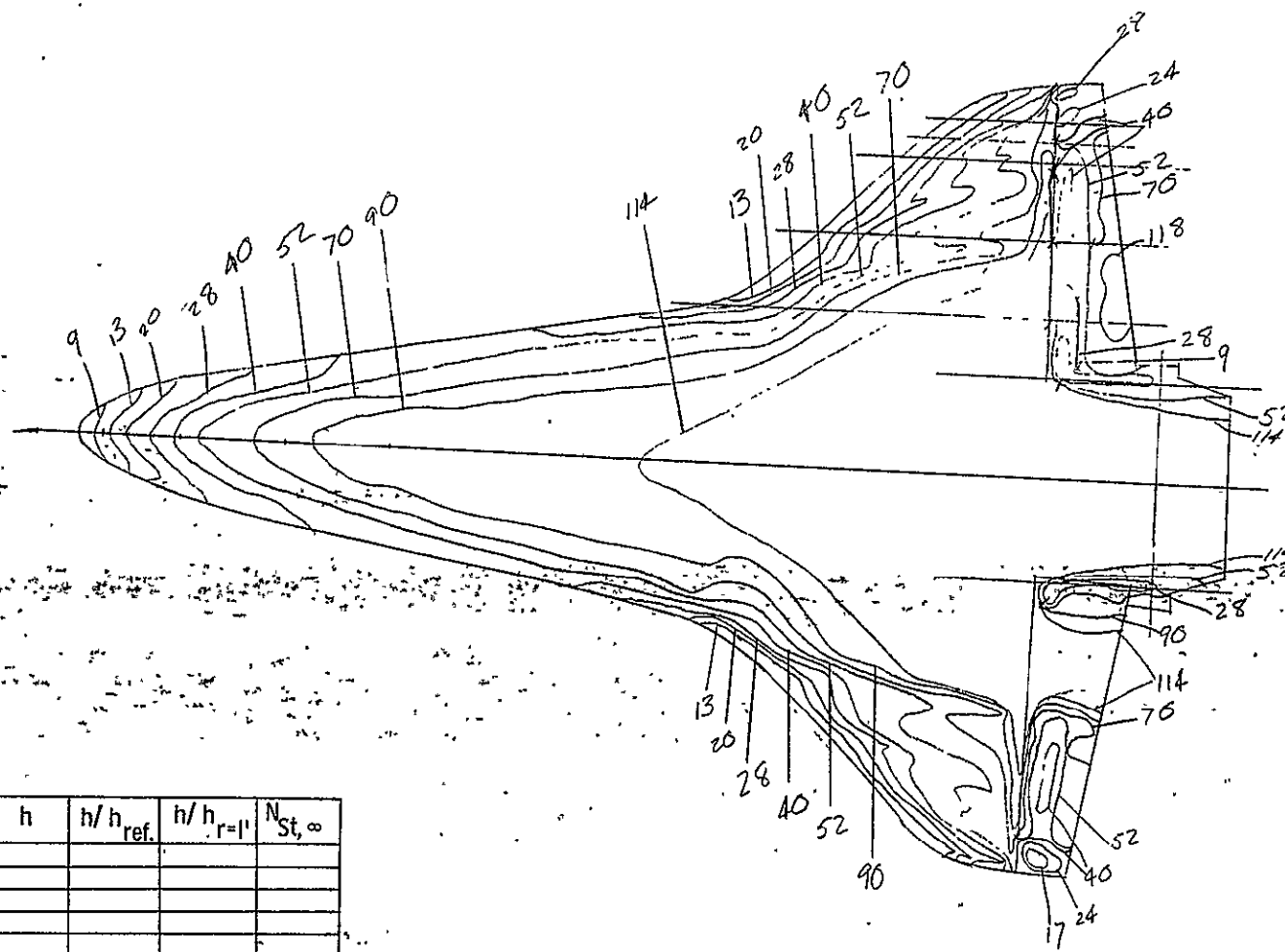


CONFIGURATION	-22
FACILITY	LRC/VDT
TEST	OH-46
RUN	4506
LENGTH	
NOSE RADIUS	
SCALE	1006
M_∞	= 8
P_{total} (psia)	= 645
T_{total} ($^{\circ}R$)	= 905
R_∞ / ft	
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_f ($^{\circ}F$)	= 80
T_{pc} ($^{\circ}F$)	= 250
ρ	
μ	
$(\rho c_p k)^{1/2}$	
α	= 30
β	
ϕ	
CAMERA POSITION	Bottom
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ORIGINAL PHOTO
 OF POOR QUALITY

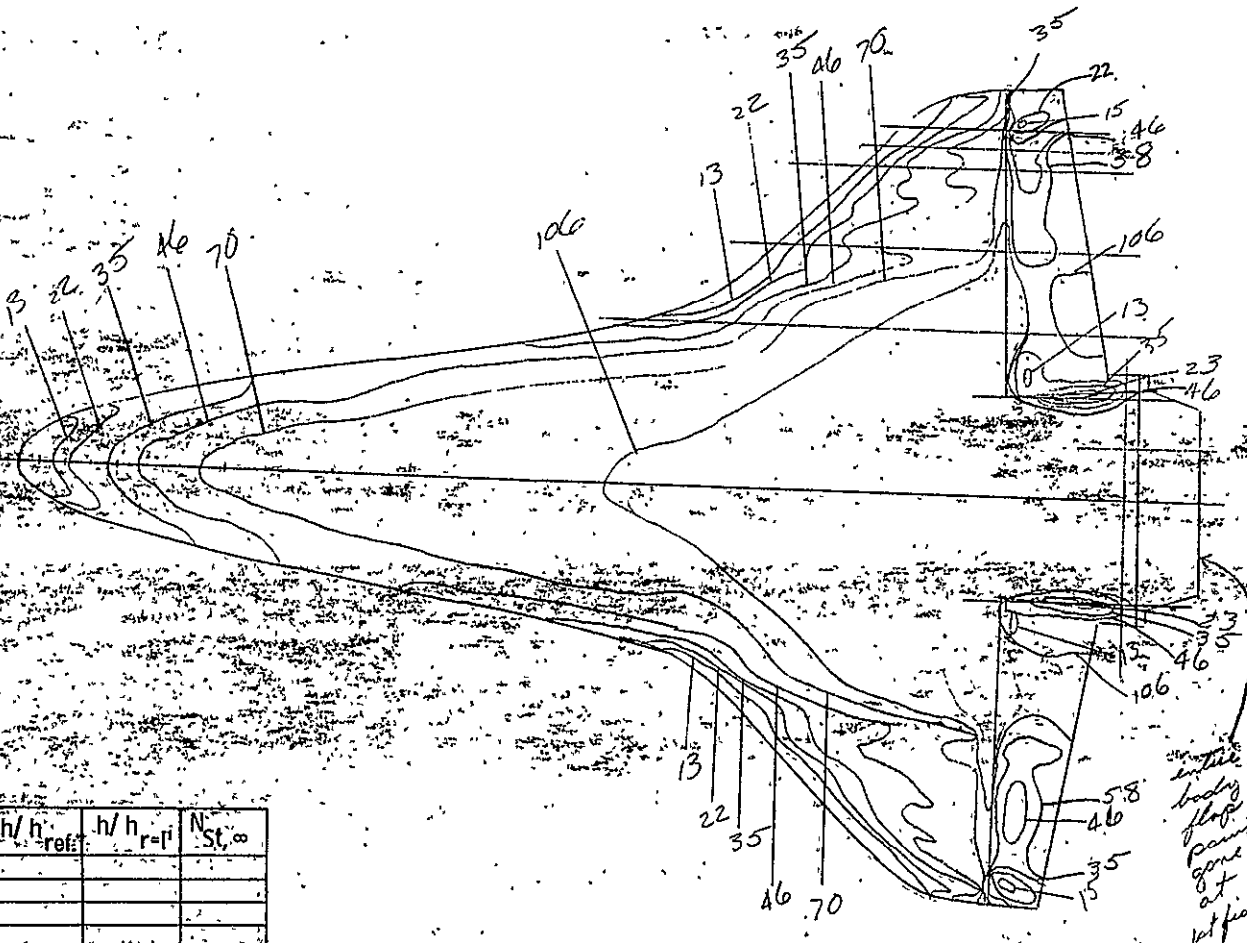
PHASE CHANGE PAINT TEST



CONFIGURATION	-31
FACILITY	R-106T
TEST	OH-46
RUN	4507
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia)	625
T_{total} ($^{\circ}R$)	880
R_∞ / ft	3.0 (100)
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_1 ($^{\circ}F$)	82
T_{pc} ($^{\circ}F$)	300
h_{ref}	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	30
β	
ϕ	
CAMERA POSITION	Bottom
Engineer	

ISOTHERM	h	h/h _{ref.}	h/h _{r=1"}	$N_{St,\infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST



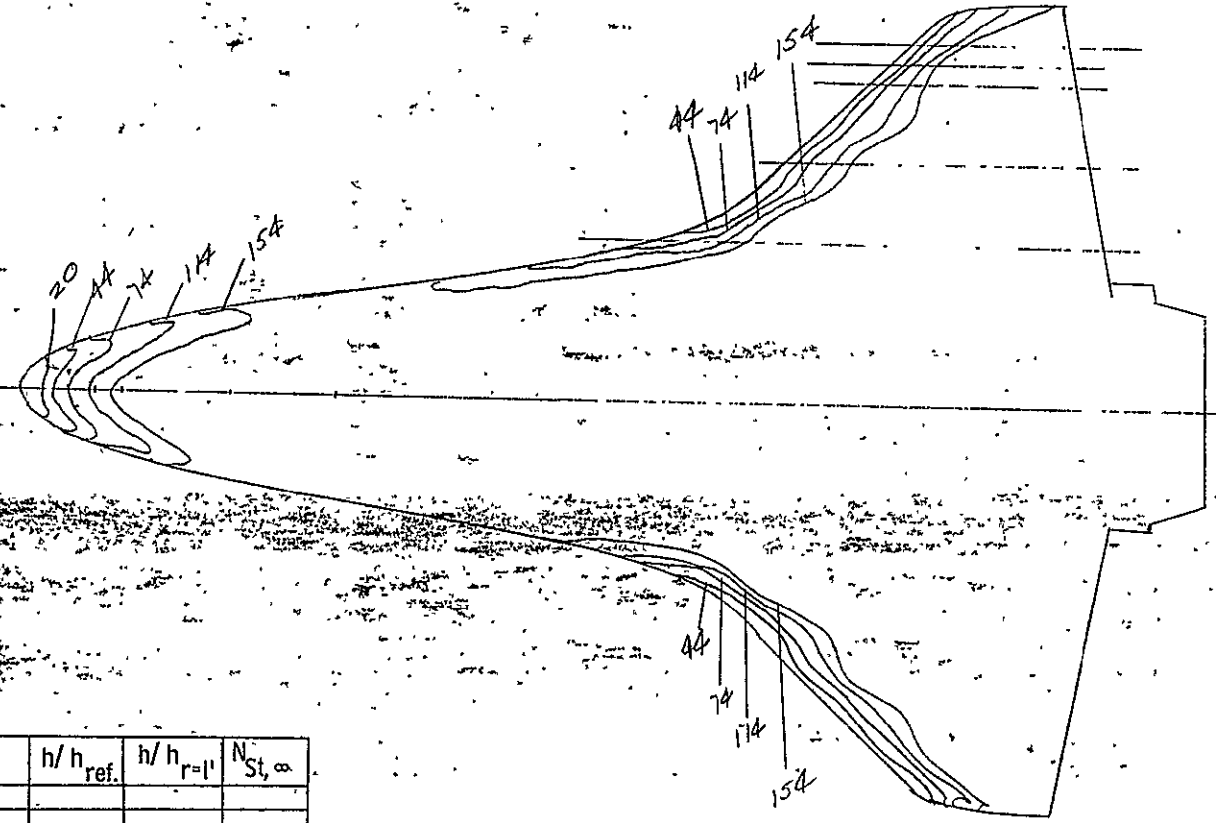
ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	LI-100T
TEST	OH-46
RUN	4508
LENGTH	
NOSE RADIUS	
SCALE	
M_{∞}	= 8
P_{total} (psia)	= 625
T_{total} ($^{\circ}R$)	= 855
R_{∞} / ft	= 3.0 (10^6)
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_i ($^{\circ}F$)	= 80
T_{pc} ($^{\circ}F$)	= 300
D	
T	
$(\rho C_p k)^{1/2}$	
α	= 30
β	
Φ	
CAMERA POSITION	Bottom
Engineer	
	CFFS-HVD

52

APPROXIMATE PAINT TEST
 FOR QUALITY

PHASE CHANGE PAINT TEST

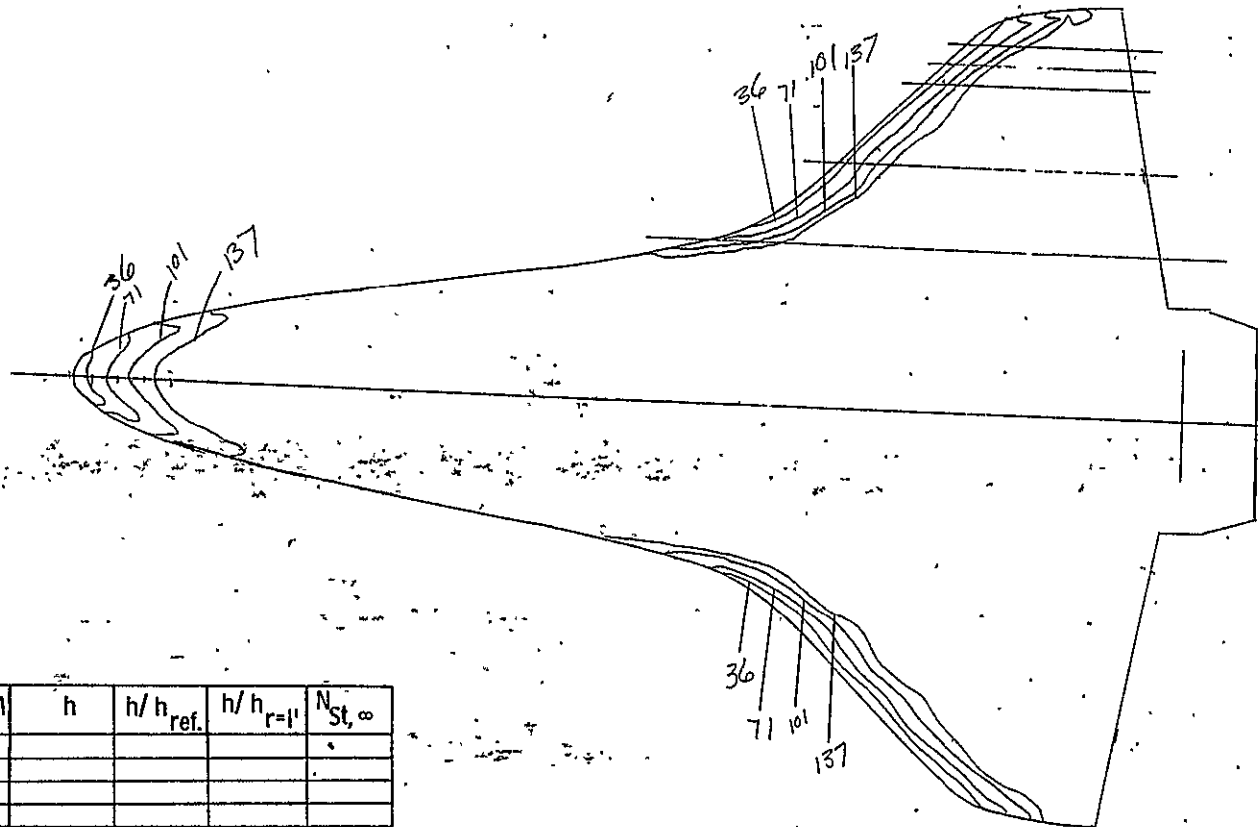


ISOTHERM	h	h/h _{ref.}	h/h _{r=l'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-22
FACILITY	LRC/VDT
TEST	04-46
RUN	4509
LENGTH	
NOSE RADIUS	
SCALE	
M _∞	
P _{total} (psia) =	163
T _{total} (°R) =	785
R _∞ / ft =	10(10 ⁶)
T _{aw} / T _{total} =	
T _{aw} (°R) =	
T _i (°F) =	80
T _{pc} (°F) =	300
h _{r=l'} =	
T̄ =	
(ρC _p k) ^{1/2} =	
α =	30
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

CONFIGURATION -31
FACILITY LRC/VDT
TEST OH-46
RUN 4510
LENGTH
NOSE RADIUS
SCALE .006
$M_\infty = 8$
P_{total} (psia) = 155
T_{total} (°R) = 800
R_∞ / ft = 1.0 (10 ⁶)
$T_{aw} / T_{total} =$
T_{aw} (°R) =
T_i (°F) = 76
T_{pc} (°F) = 306
$h_{r=1} =$
$\bar{T} =$
$(\rho C_p k)^{1/2} =$
$\alpha = 30$
$\beta =$
$\phi =$
CAMERA POSITION
Engineer
CFFS-HVD

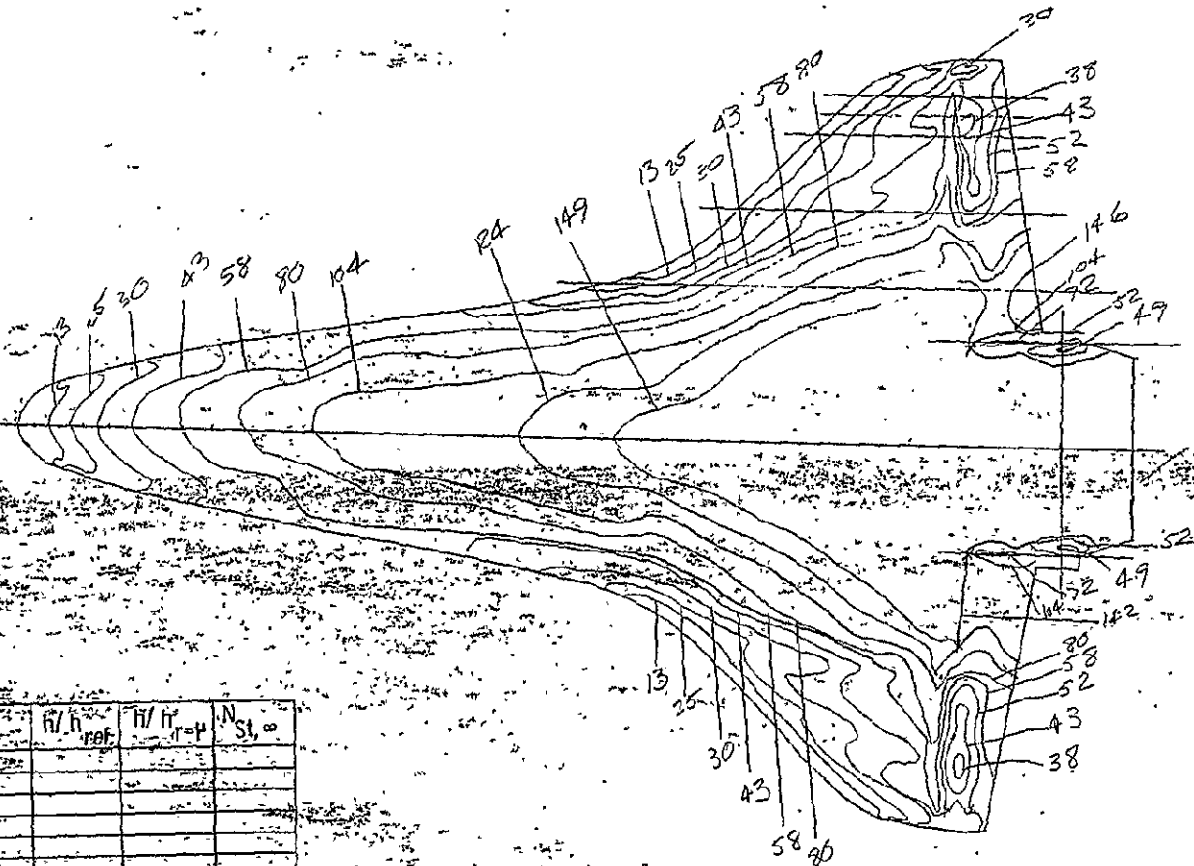


54

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ORIGINAL PAGE IS
OF POOR QUALITY

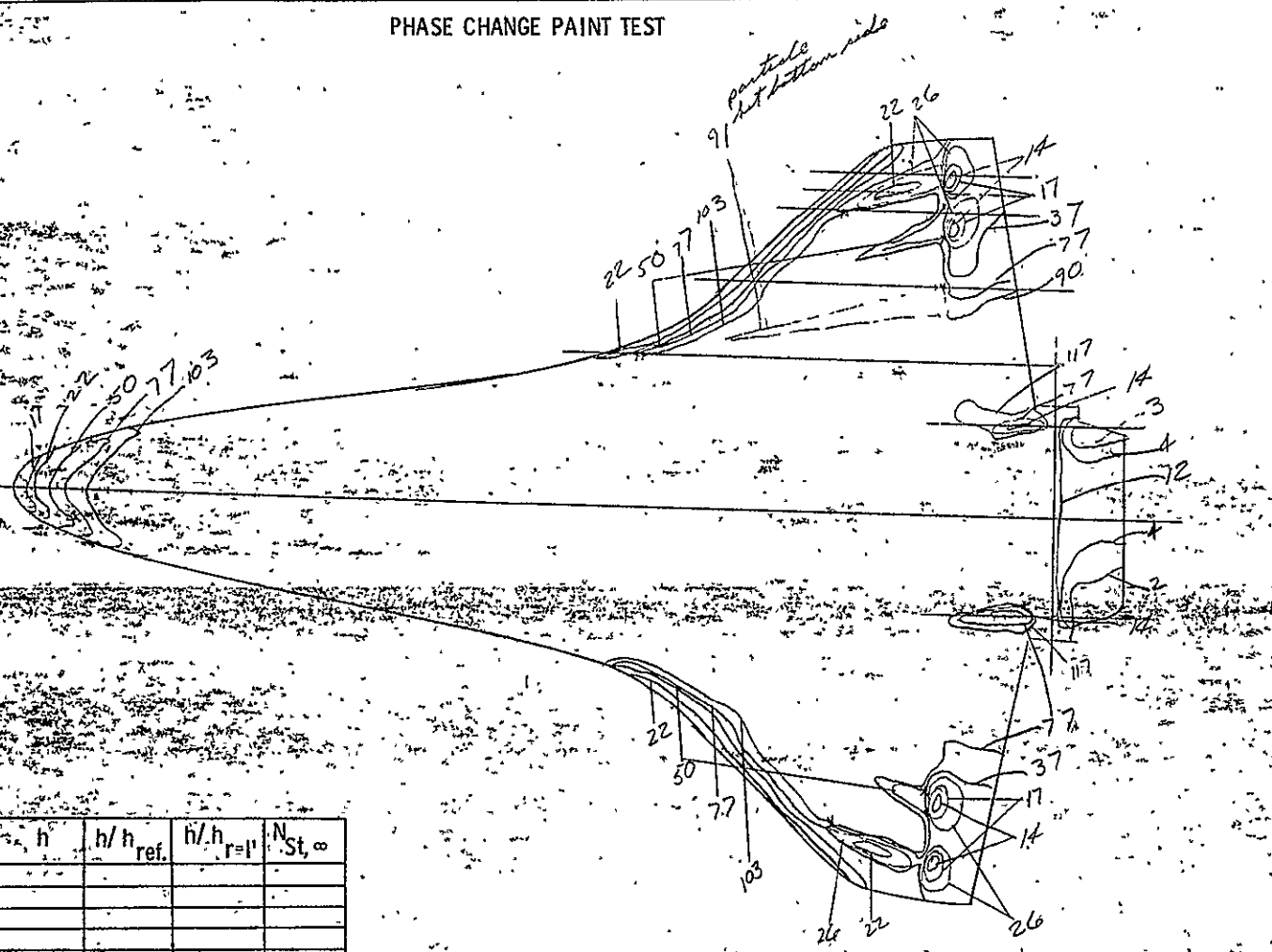
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h_{ref}	h/h_{ref}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-37
FACILITY	ARC/VOT
TEST	OH-46
RUN	4513
LENGTH	
NOSE RADIUS	
SCALE	.006
M_{∞}	8
P_{total} (psia)	.157
T_{total} ($^{\circ}R$)	770
R_{∞}/ft	1.0 (10 $^{\circ}$)
T_{aw}/T_{total}	
T_{aw} ($^{\circ}R$)	
T_f ($^{\circ}F$)	81
T_{OC} ($^{\circ}F$)	.175
$\eta_{T=1}$	
T	
$(\rho C_p k)^{1/2}$	
α	.30
β	
ϕ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

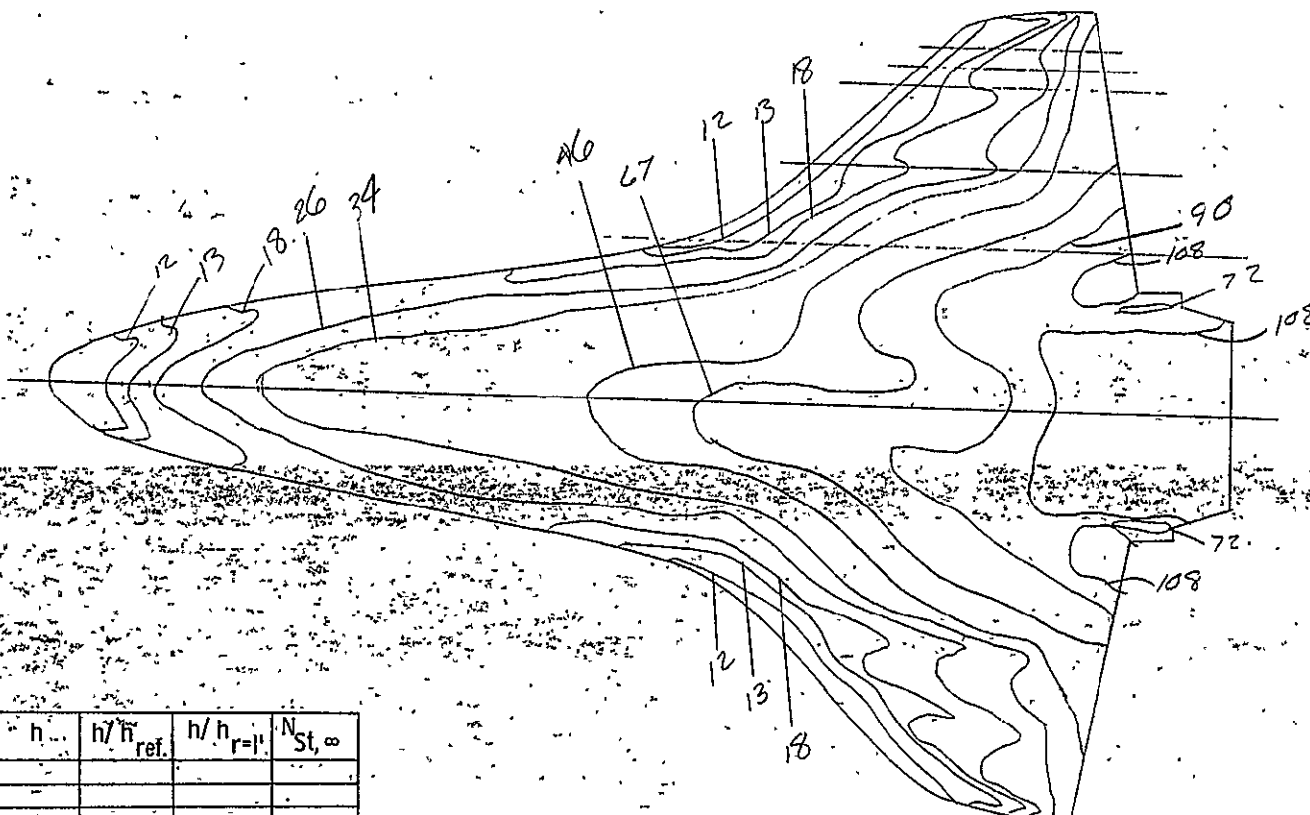


CONFIGURATION	140-B 41
FACILITY	LRC/VDT
TEST	OH-46
RUN	4514
LENGTH	
NOSE RADIUS	
SCALE	1006
M_∞	8
P_{total} (psia)	= 1380
T_{total} ($^{\circ}R$)	= 905
R_∞ / ft	= 6.0 (10^6)
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 80
T_{DC} ($^{\circ}F$)	= 550
h_{ref}	=
T	=
$(\rho C_p k)^{1/2}$	=
α	= 30
β	=
ϕ	=
CAMERA POSITION	
Engineer	
	CFFS-HVD.

ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ORIGINAL PAGE IS
OF POOR QUALITY

PHASE CHANGE PAINT TEST



CONFIGURATION	-22
FACILITY	LRC/VOT
TEST	OH-46
RUN	4515
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia)	164
T_{total} ($^{\circ}R$)	795
R_∞ / ft	.110 (10 ⁶)
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_1 ($^{\circ}F$)	79
T_{pc} ($^{\circ}F$)	150
h_{ref}	
T_{ref}	
$(\rho C_p k)^{1/2}$	
α	30
β	
ϕ	
CAMERA POSITION	

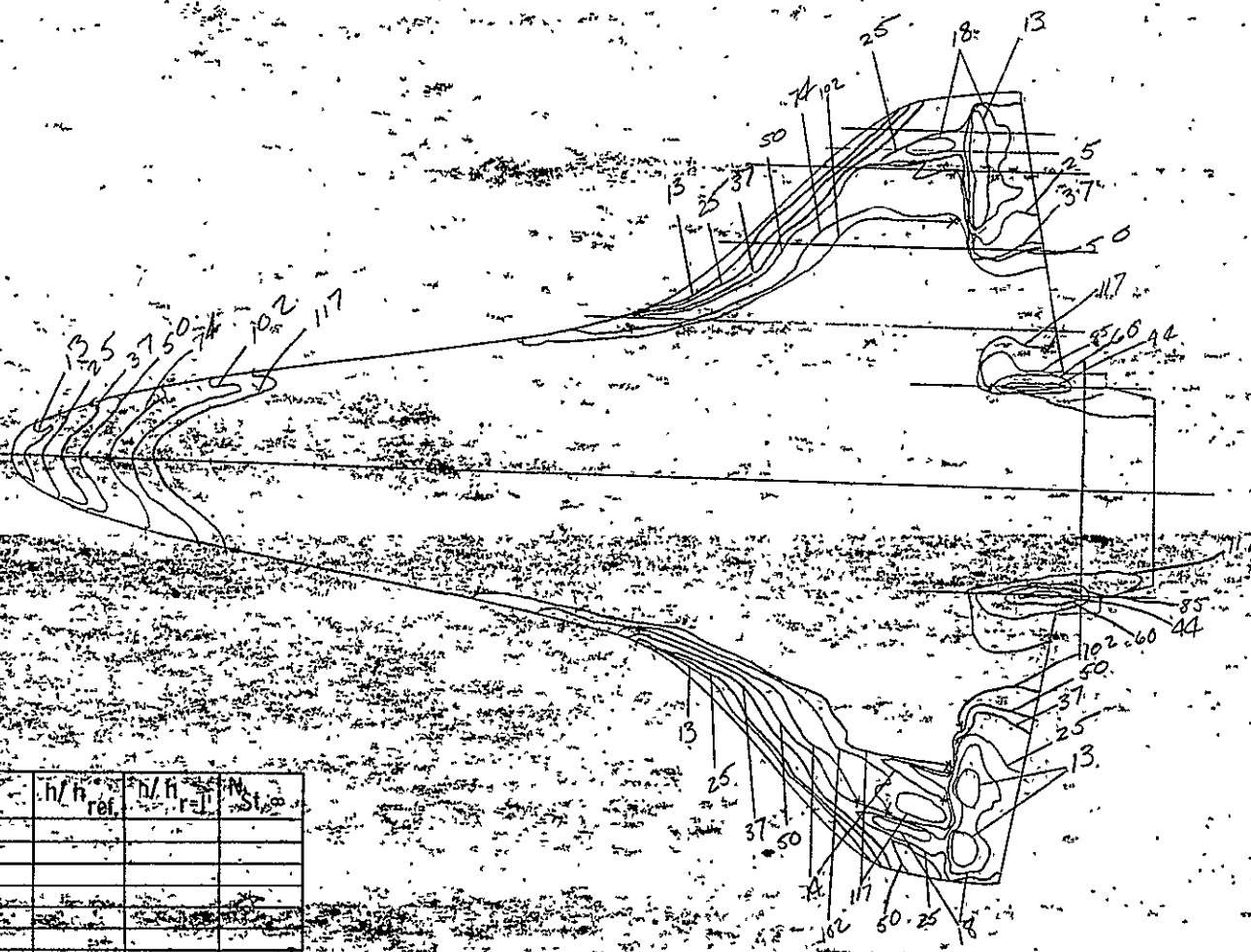
Engineer

CFFS-HVD

ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

ORIGINAL DATA

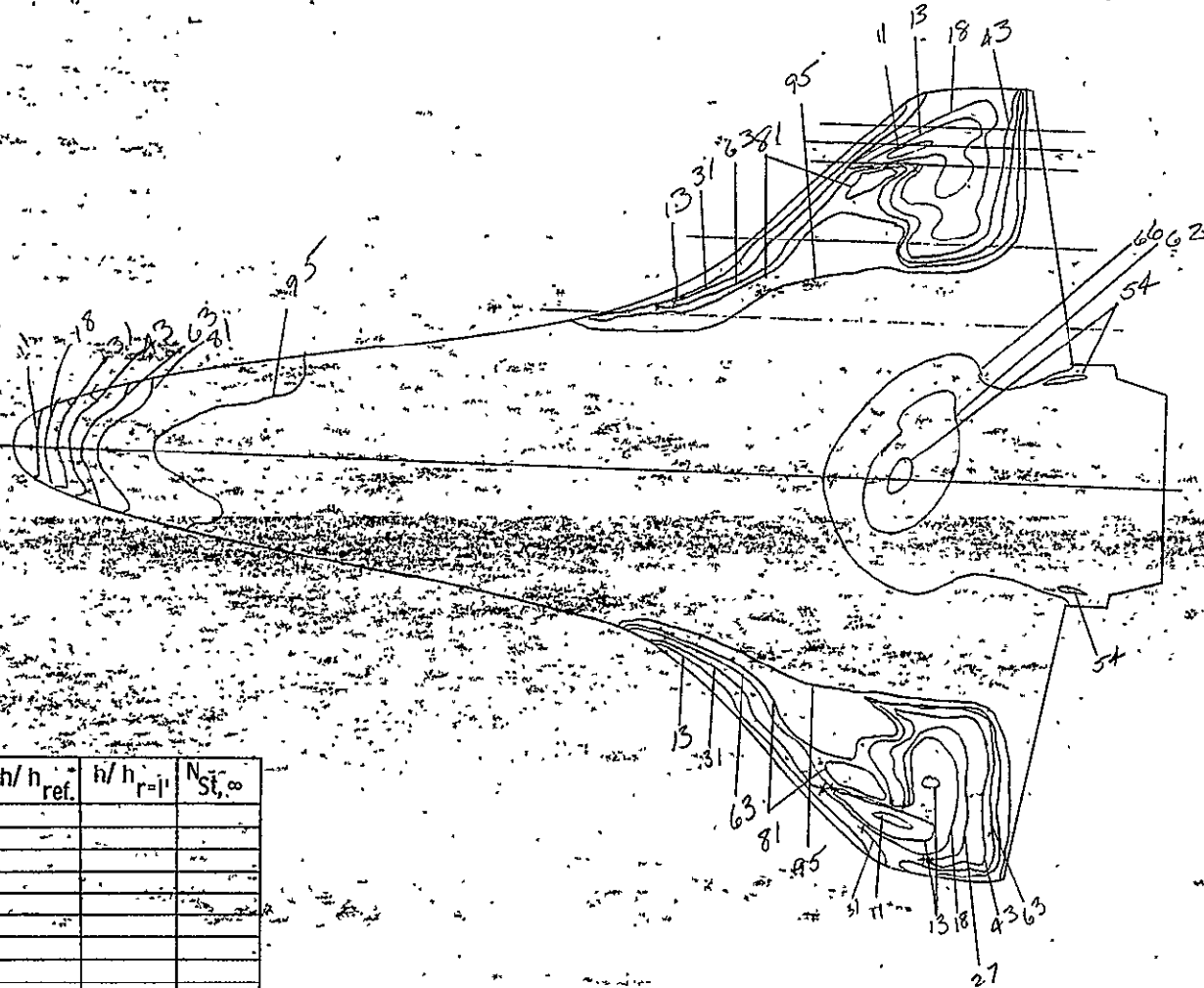


ISOTHERM	h	h/h _{ref}	h/h _{ref}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-31
FACILITY	ZRC/VDT
TEST	OH-46
RUN	4516
LENGTH	
NOSE RADIUS	
SCALE	1006
M _∞	8
P _{total} (psia)	= 1405
T _{total} (°R)	= 950
R _∞ / ft	= 6.0 (10 ⁴)
T _{aw} / T _{total}	=
T _{aw} (°R)	=
T _{pc} (°F)	= 500
T _{pc} (°R)	=
(ρC _p k) ^{1/2}	=
α	= .30
β	=
Φ	=
CAMERA POSITION	
Engineer	
	CFFS-HVD

ORIGINAL PAGE IS
OF POOR QUALITY

PHASE CHANGE PAINT TEST

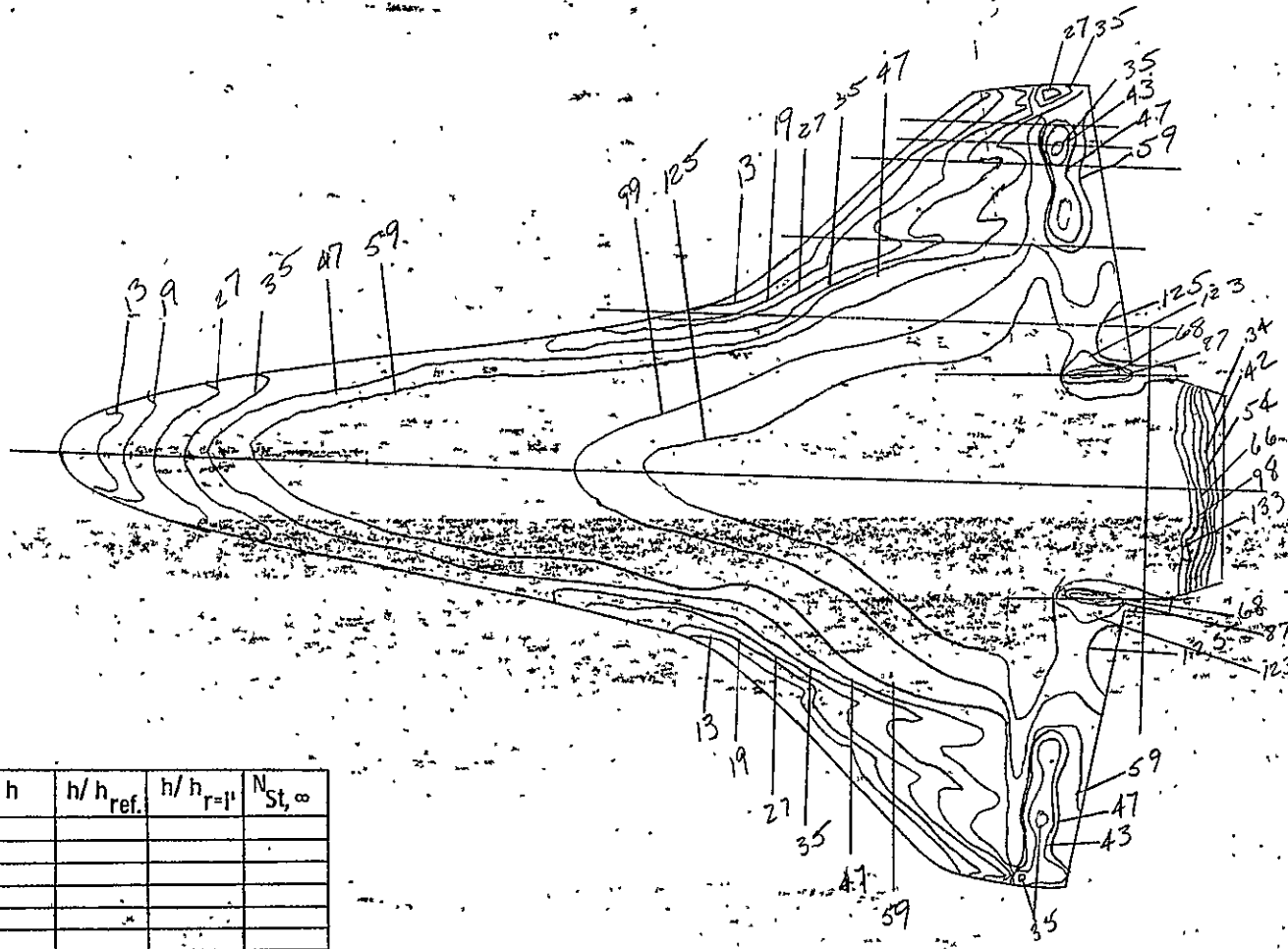


ISOTHERM	h	h/h _{ref}	h/h _{r=1}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-22
FACILITY	2RC/VDT
TEST	04-46
RUN	4517
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia)	= 1920
T _{total} (°R)	= 425
R _∞ / ft	= 8.0(106)
T _{aw} / T _{total}	=
T _{aw} (°R)	=
T _∞ (°F)	= 81
T _{pc} (°F)	= 350
h _{ref}	
T _∞	
(ρC _p k) ^{1/2}	
α	= 30
β	=
Φ	=
CAMERA POSITION	
Engineer	

CFFS-HVD

PHASE CHANGE PAINT TEST

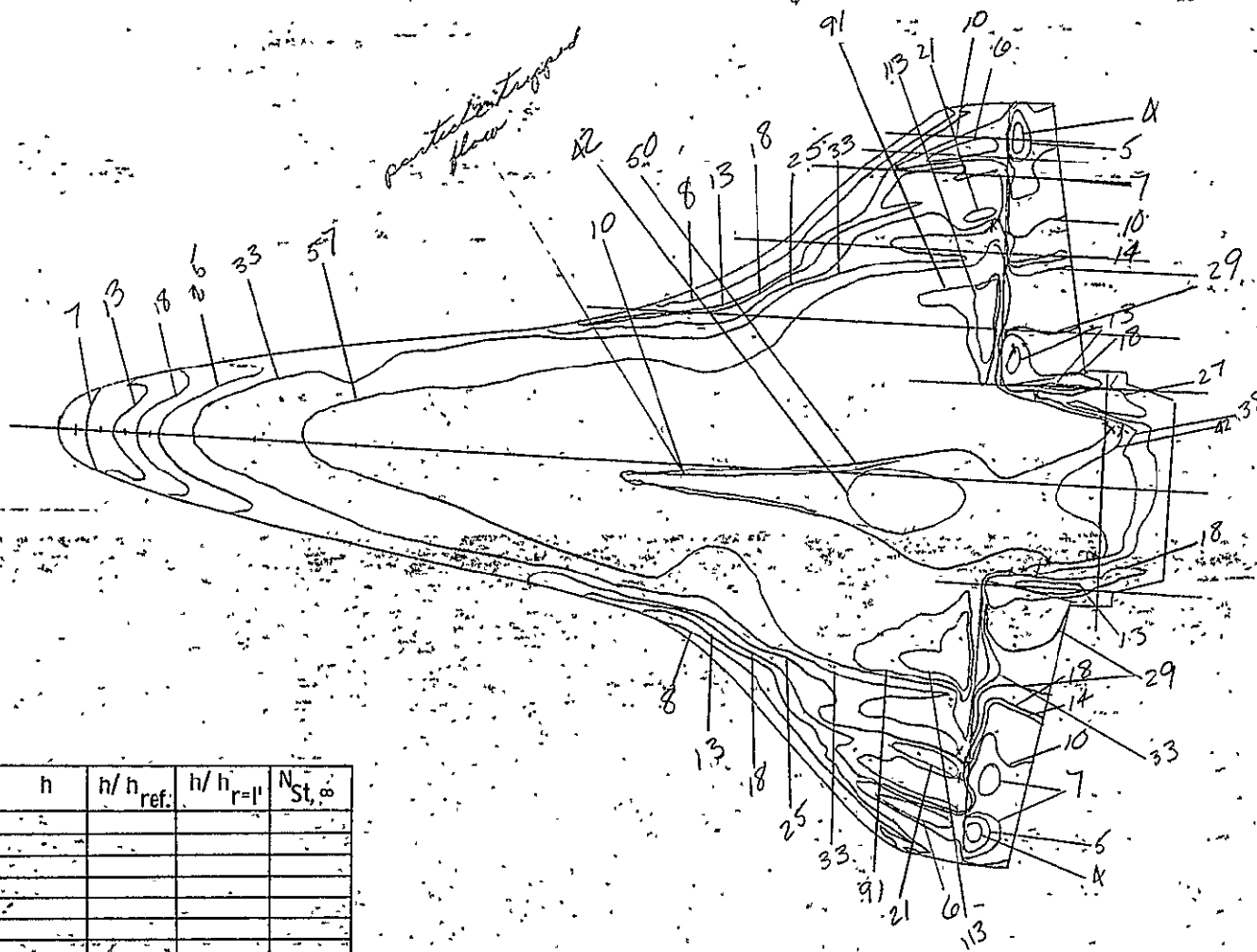


ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St, ∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	ARR-VOT
TEST	OH-86
RUN	451.8
LENGTH	
NOSE RADIUS	
SCALE	1000
M _∞	8
P _{total} (psia)	165
T _{total} (°R)	760
R _∞ / ft	1.0 (10 ⁹)
T _{aw} / T _{total}	
T _{aw} (°R)	
T _∞ (°F)	
T _{pc} (°F)	175
h _{ref} / ft	
T _∞	
(ρC _p k) / 2	
α	30
β	
Φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

62

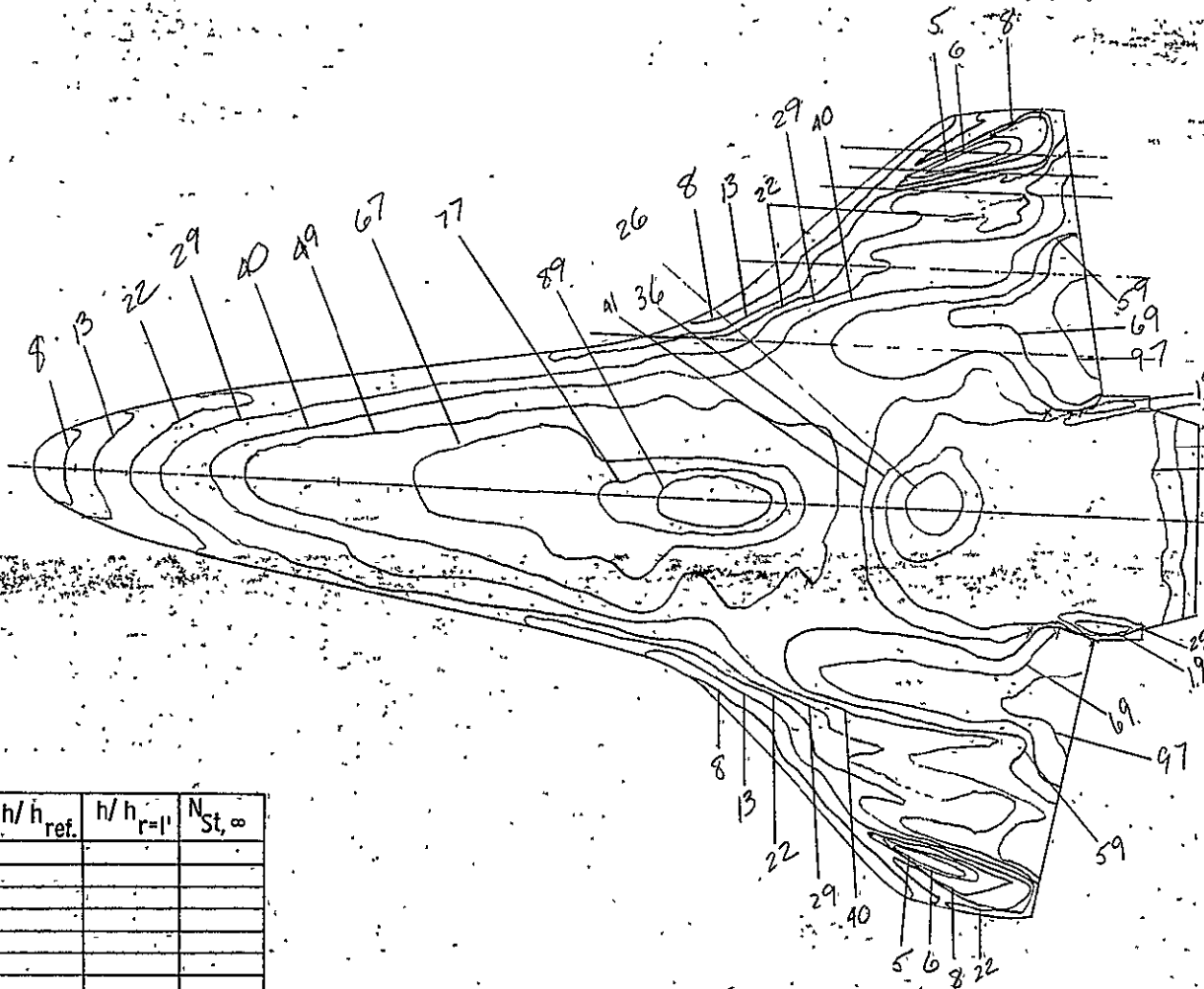
PHASE-CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1"}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-31
FACILITY	LRJ/VDT
TEST	PH-46
RUN	4519
LENGTH	
NOSE RADIUS	
SCALE	.00%
M _∞	8
P _{total} (psia)	1200
T _{total} (°R)	930
R _∞ / ft	6.0(10 ⁶)
T _{aw} / T _{total}	
T _{aw} (°R)	
T _i (°F)	80
T _{pc} (°F)	350
h _{r=1"}	
T	
(ρC _p k) ^{1/2}	
α	30
β	
φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

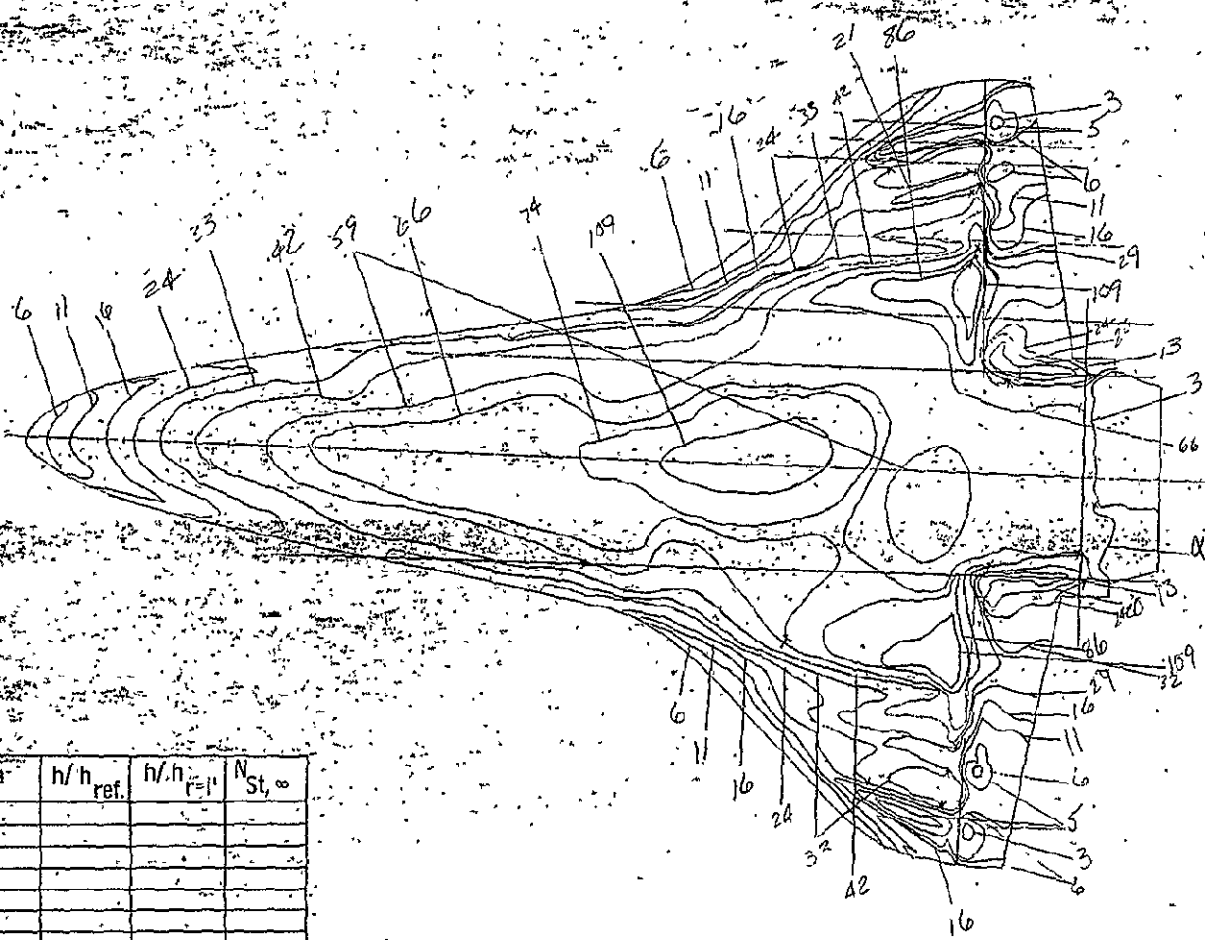
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-22
FACILITY	2001 VDT
TEST	OH-46
RUN	4520
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia)	1405
T _{total} (°R)	940
R _∞ / ft	6.0 (106)
T _{aw} / T _{total}	
T _{aw} (°R)	
T _i (°F)	82
T _{pc} (°F)	350
h _{r=1'}	
T _i	
(ρC _p k) ^{1/2}	
α	30
β	
Φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

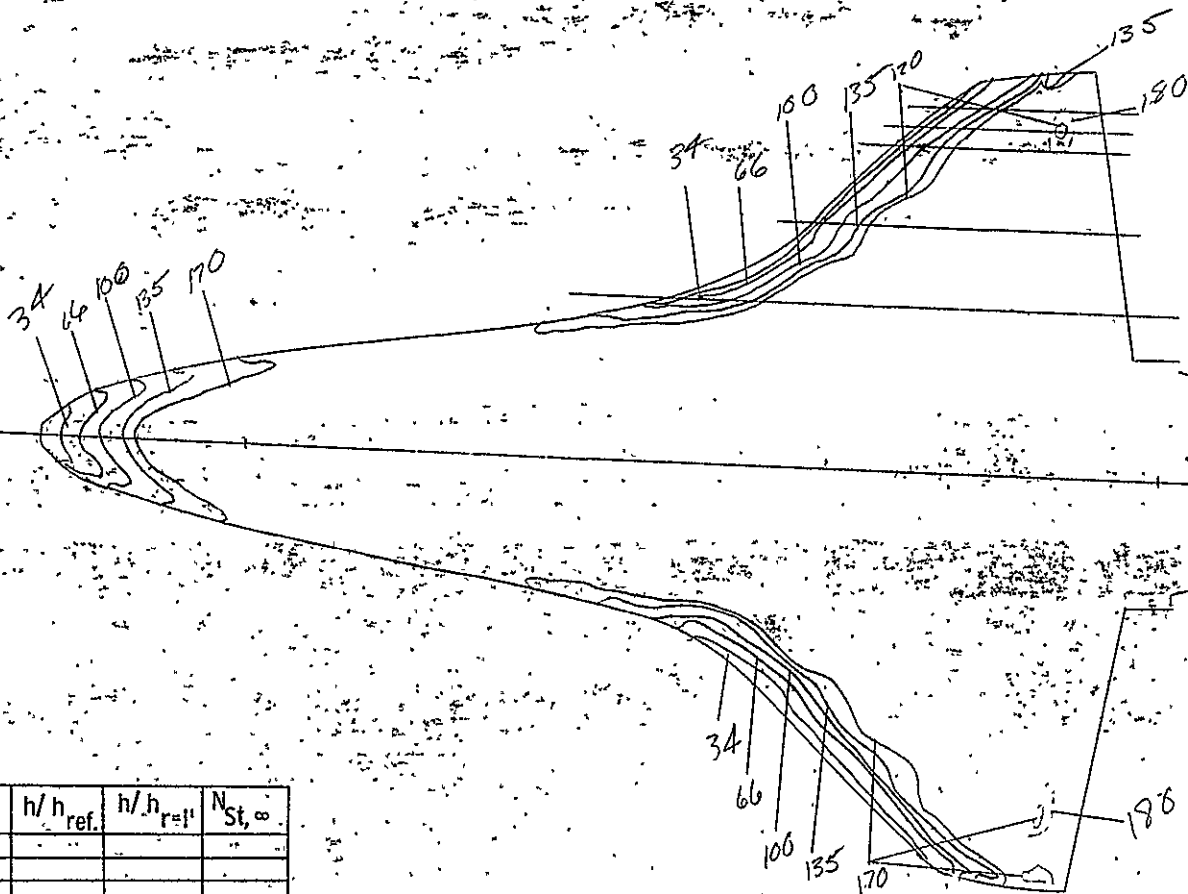


CONFIGURATION	- 4T
FACILITY	LR/VLT
TEST	OH-46
RUN	4521
LENGTH	
NOSE RADIUS	
SCALE	
M_∞	
P_{total} (psia)	= 1405
T_{total} ($^{\circ}R$)	= 940
R_∞ / ft	= $6.0(10^6)$
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_t ($^{\circ}F$)	= 82
T_{pc} ($^{\circ}F$)	= 350
\dot{m}_{ref}	=
\bar{T}	=
$(\rho C_p k)^{1/2}$	=
α	= 30
β	=
ϕ	=
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

55

PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

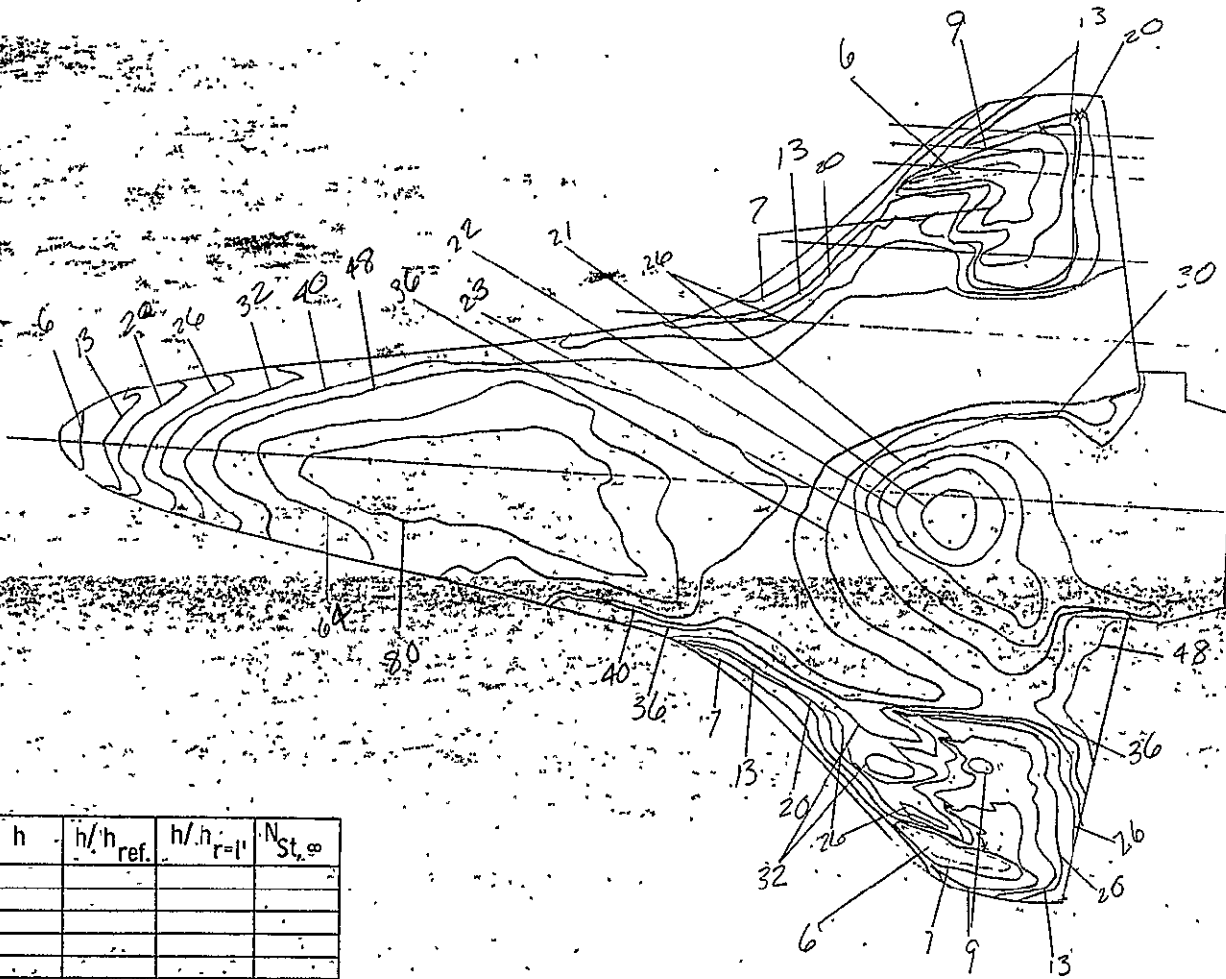
CONFIGURATION	231
FACILITY	ARC/VDT
TEST	04-46
RUN	4523
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia)	165
T _{total} (°R)	775
R _∞ / ft	1.0 (10°)
T _{aw} / T _{total}	
T _{aw} (°R)	
T _i (°F)	82
T _{pc} (°F)	300
h _{ref.}	
T _i	
(ρC _p k) ^{1/2}	
α	30
β	
φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

99

ORIGINAL PAGE IS OF POOR QUALITY

PHASE CHANGE PAINT TEST

MODEL HAS BEEN ROLLED

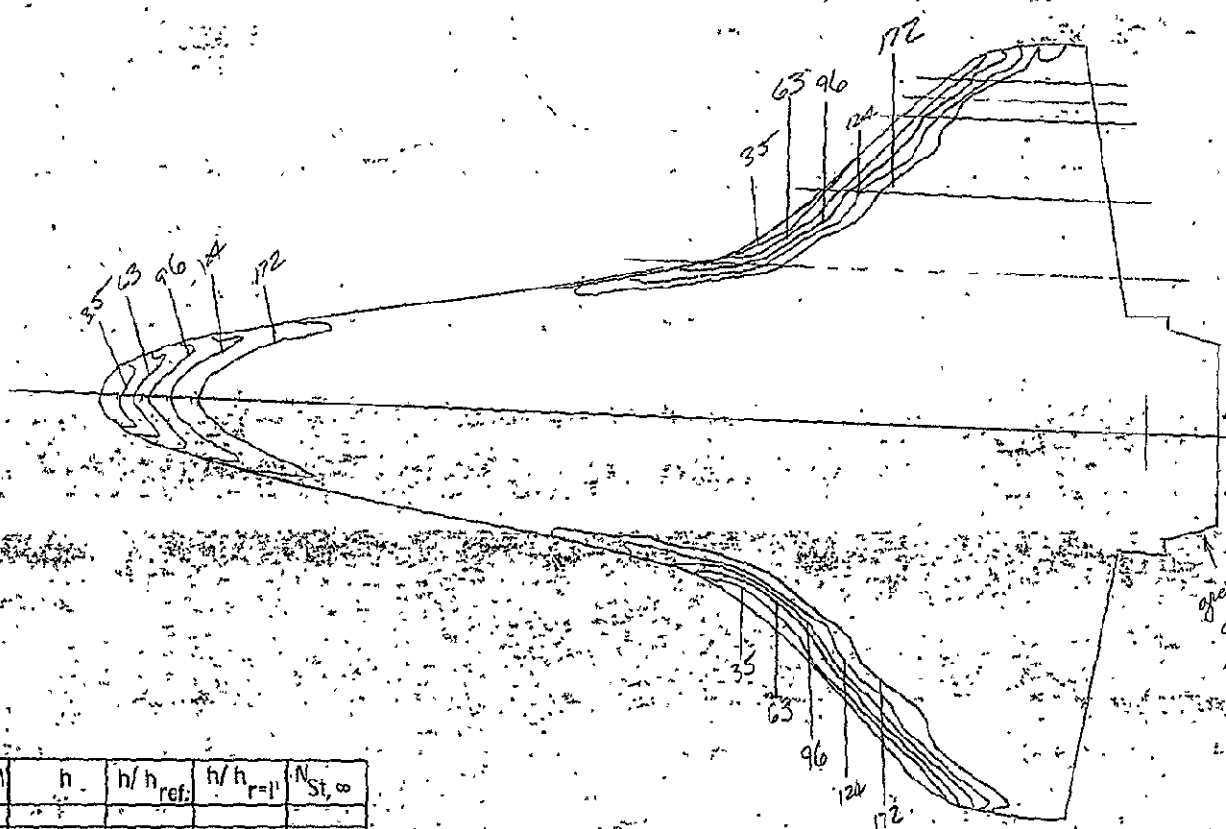


ISOTHERM	h	h/h _{ref.}	h/h _{r=l}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRD/VDT
TEST	OH-AC
RUN	4524
LENGTH	
NOSE RADIUS	
SCALE	1000
M _∞	0
P _{total} (psia)	1935
T _{total} (°R)	925
R _∞ / ft	8.0 (10 ⁶)
T _{aw} / T _{total}	
T _{aw} (°R)	
T _i (°F)	83
T _{pc} (°F)	400
h _{r=l}	
T	
(ρC _p k) ^{1/2}	
α	30
β	
φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

67

PHASE CHANGE PAINT TEST

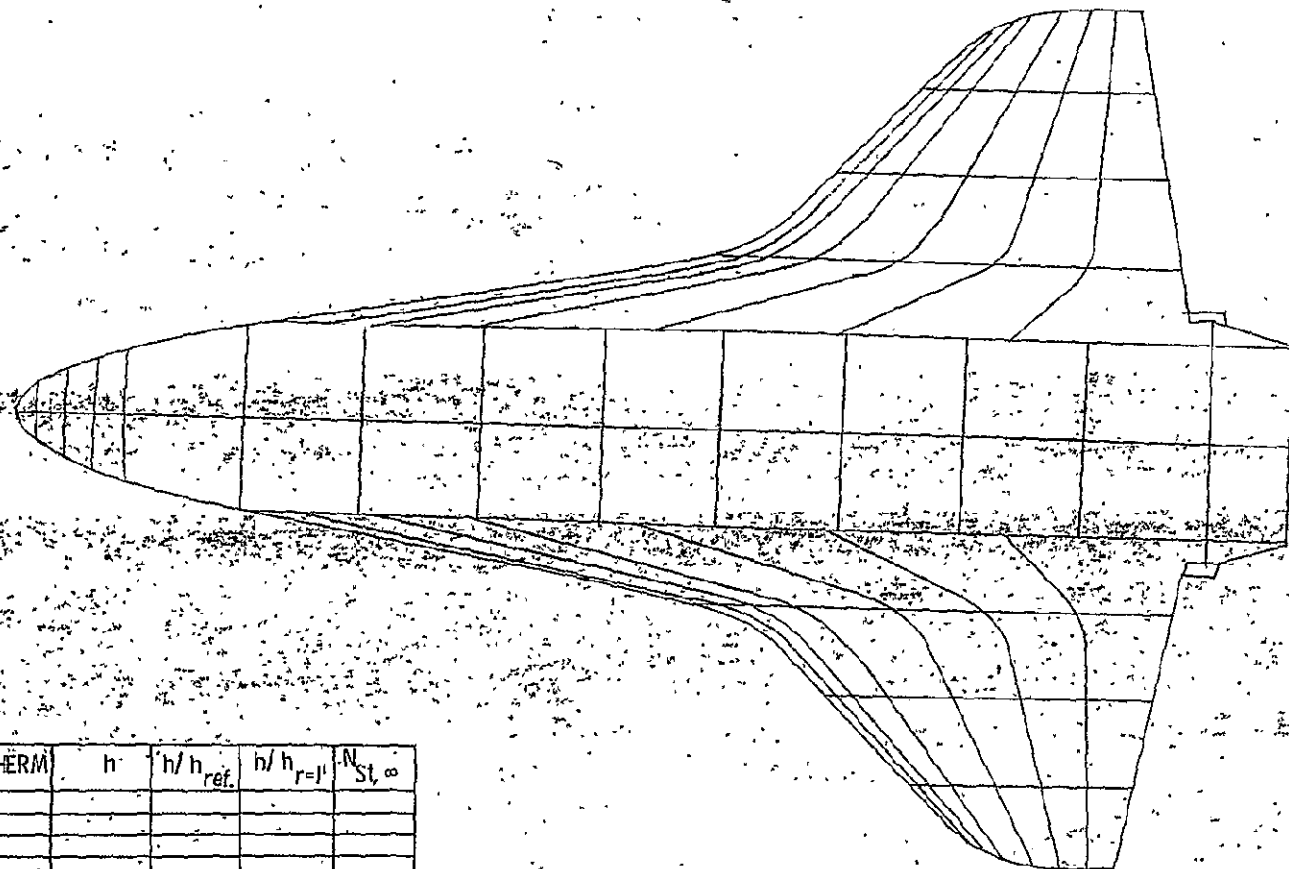


CONFIGURATION: -41
FACILITY LRC/VDT
TEST OH-46
RUN 4525
LENGTH
NOSE RADIUS
SCALE .006
M_∞ 8
P_{total} (psia) = 163
T_{total} ($^{\circ}R$) = 770
$R_\infty / ft = 1.0(10^0)$
$T_{aw} / T_{total} =$
T_{aw} ($^{\circ}R$) =
T_{aw} ($^{\circ}F$) = 8.2
T_{DC} ($^{\circ}F$) = 300
$h_{ref} =$
$T_{ref} =$
$(\rho C_p k)^{1/2} =$
$\Pi = 30$
$\beta =$
$\phi =$
CAMERA POSITION
Engineer
CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ORIGINAL PAGE IS
OF POOR QUALITY

PHASE CHANGE PAINT TEST



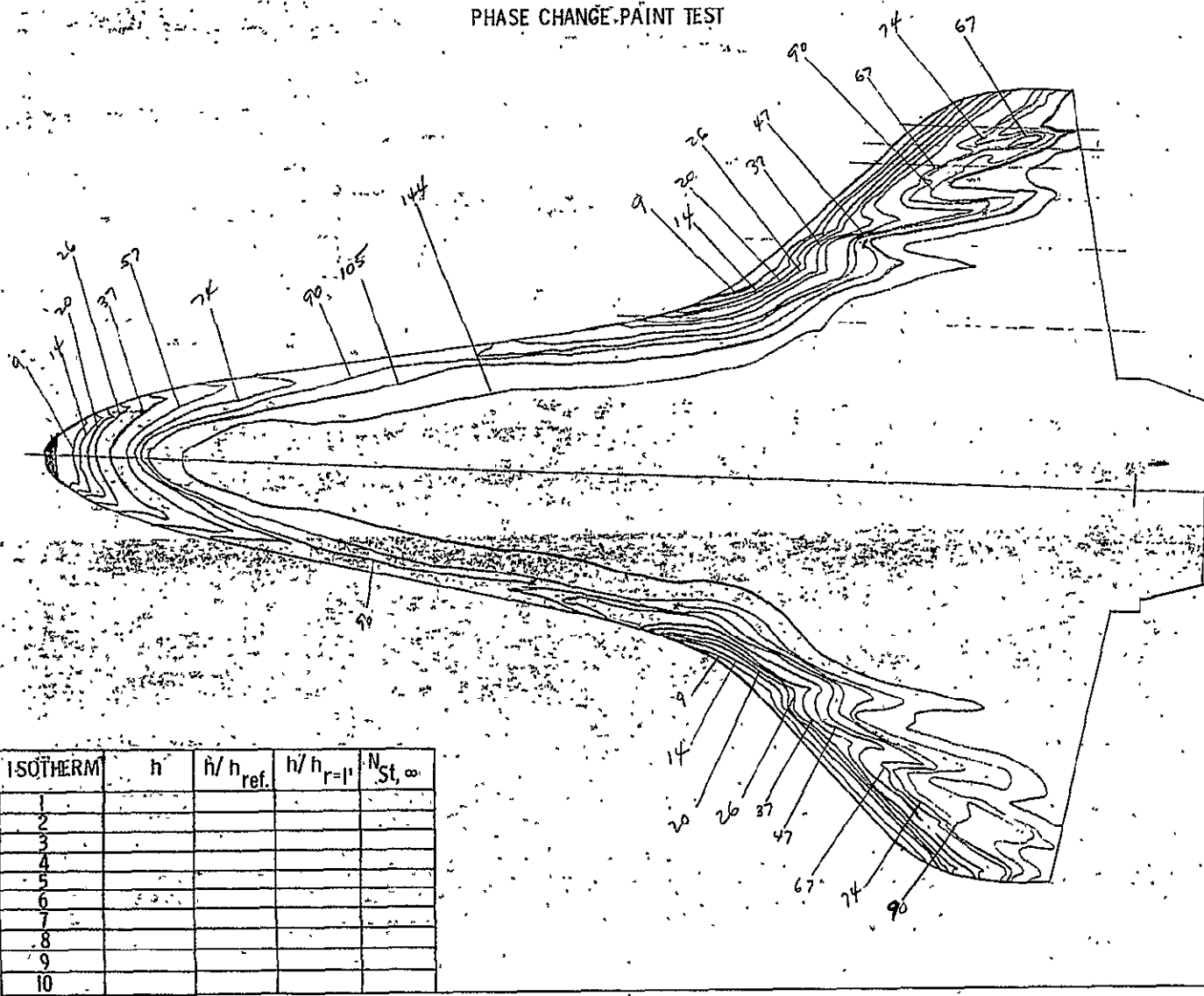
ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	GRID -21
FACILITY	LRC/VDT
TEST	OH-46
RUNS	4526 THRU 4545
LENGTH	
NOSE RADIUS	
SCALE	
M_{∞}	
P_{total} (psia) =	
T_{total} ($^{\circ}R$) =	
R_{∞} / ft =	
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_s ($^{\circ}F$) =	
T_{DC} ($^{\circ}F$) =	
π	
τ	
$(\rho C_p k)^{1/2}$	
α	25
β	0
ϕ	0
CAMERA POSITION	bottom VIEW
Engineer	
	CFFS-HVD

69

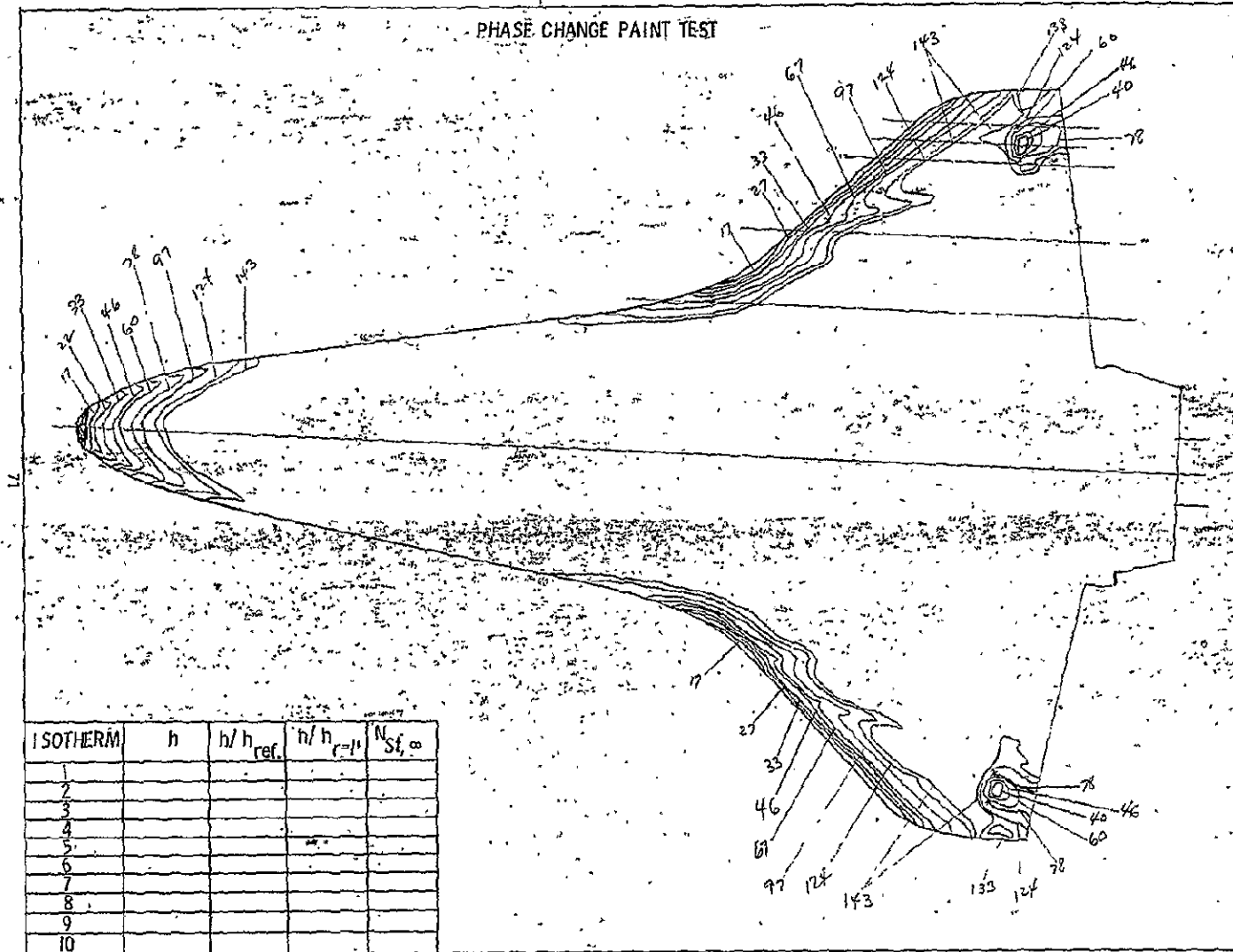
PHASE CHANGE PAINT TEST

CONFIGURATION	-22
FACILITY	LRC/VDT
TEST	0H-46
RUN	4526
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia)	625
T_{total} (°R)	1350
R_∞ / ft	3×10^6
T_{aw} / T_{total}	
T_{aw} (°R)	
T_f (°F)	77
T_{pc} (°F)	350
h_{ref}	
T_∞	
$(\rho C_p k)^{1/2}$	
α	25μ
β	
ϕ	
CAMERA POSITION	
	AT 13
Engineer	
	CFFS-HVD



ISOTHERM	h	h/h _{ref}	h/h _{r=1}	N _{St, ∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

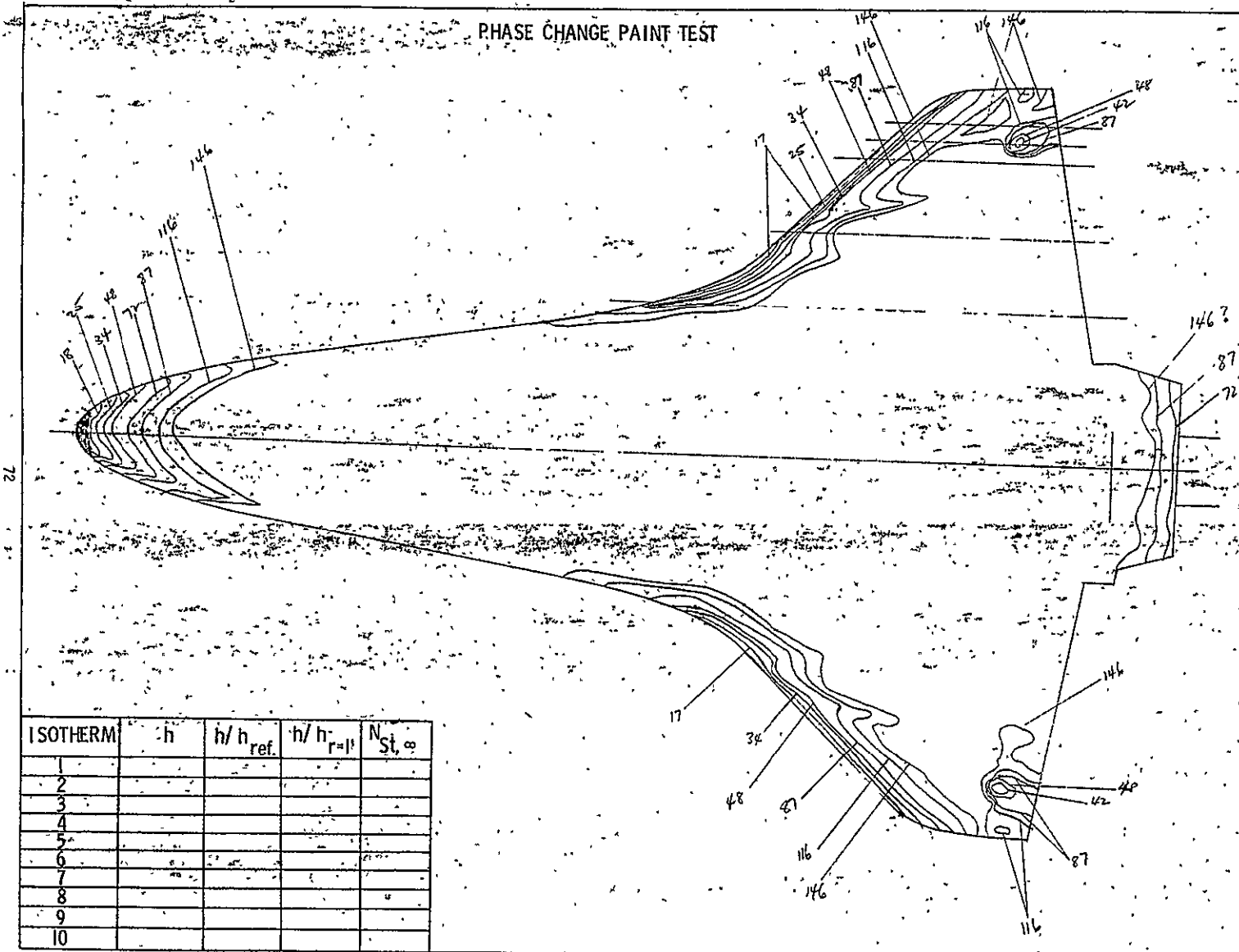
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref}	h/h _{r=1}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-31
FACILITY	LRC/VDT
TEST	OH-46
RUN	1527
LENGTH	
NOSE RADIUS:	
SCALE	
M _∞	8
P _{total} (psia)	625
T _{total} (°R)	1340
R _∞ / ft	3 × 10 ⁶
T _{aw} / T _{total}	
T _{aw} (°R)	
T _f (°F)	81
T _{pc} (°F)	400
h / (ρ C _p k) ^{1/2}	
α	25
β	
φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

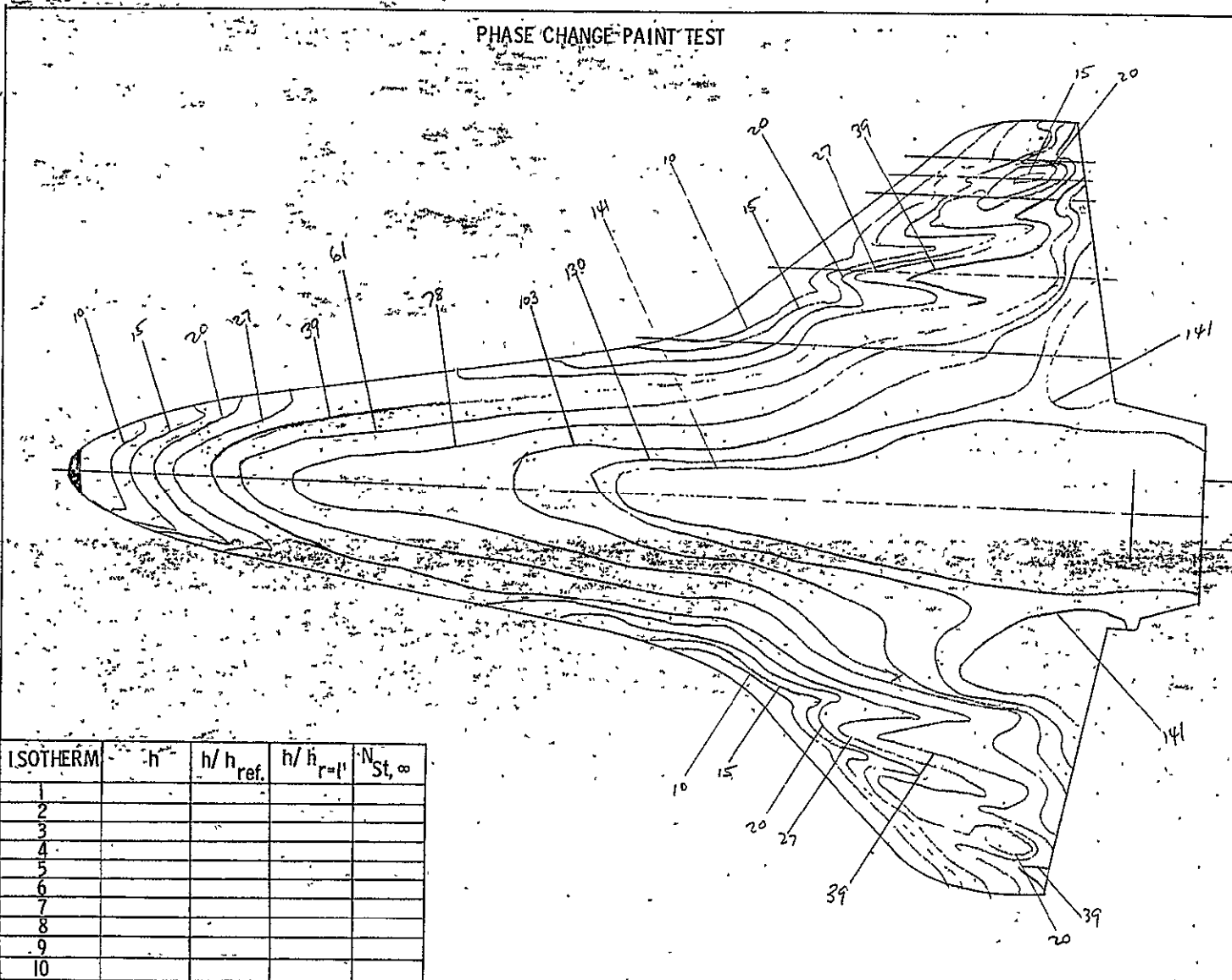


CONFIGURATION	
FACILITY:	LRC/VDT
TEST	OH-46
RUN	1528
LENGTH	
NOSE RADIUS	
SCALE	006
M_∞	8
P_{total} (psia)	635
T_{total} ($^{\circ}R$)	1340
R_∞ / ft	3×10^6
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_i ($^{\circ}E$)	
T_{pc} ($^{\circ}F$)	400
h_{ref}	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	25
β	
ϕ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ORIGINAL PAGE IS
OF POOR QUALITY

PHASE CHANGE PAINT TEST



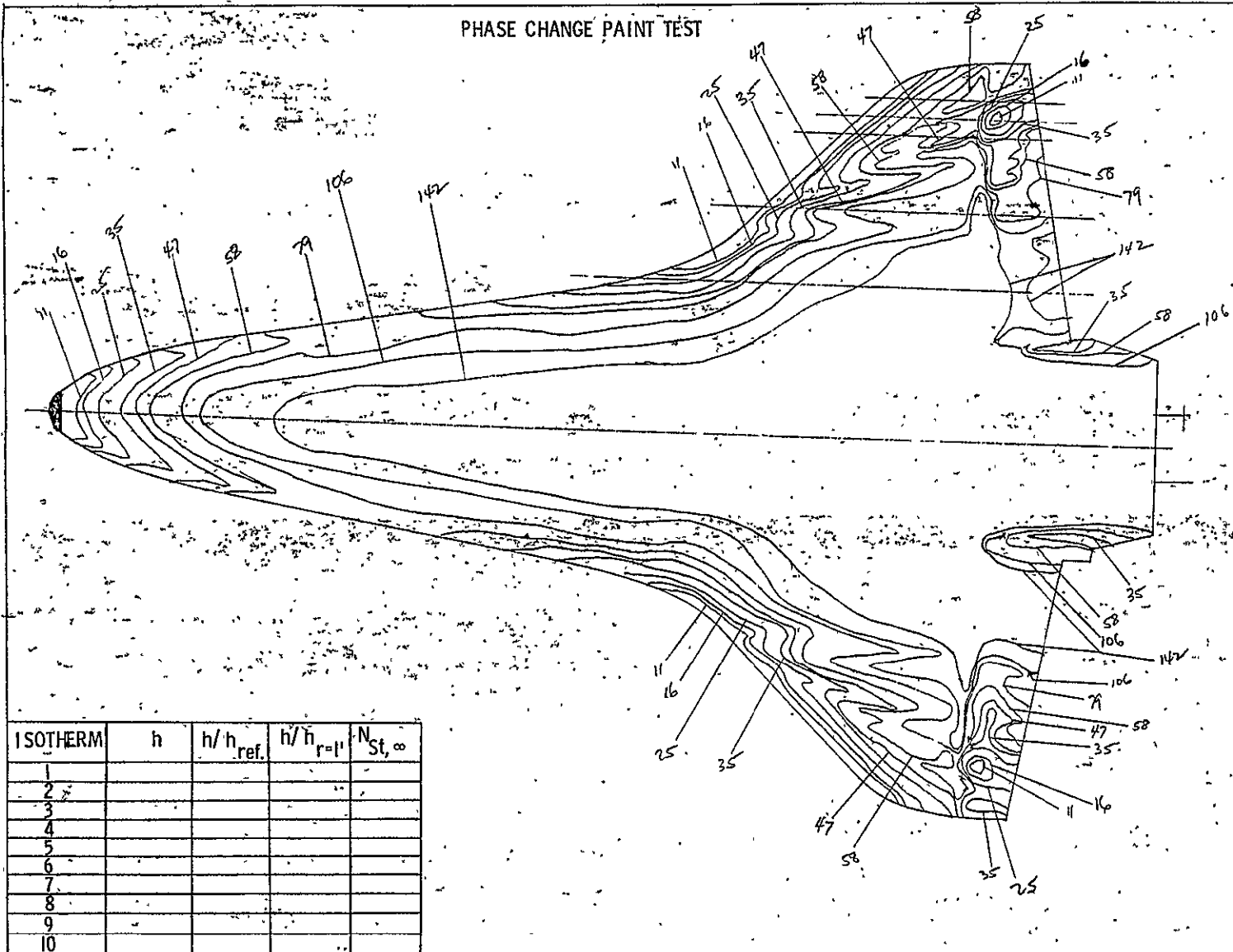
ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	OH-46
RUN	4529
LENGTH	
NOSE RADIUS	
SCALE	006
M_{∞}	8
P_{total} (psia) =	635
T_{total} ($^{\circ}R$) =	875
R_{∞} / ft =	3x106
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_1 ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	250
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	25
β =	
ϕ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

73

PHASE CHANGE PAINT TEST

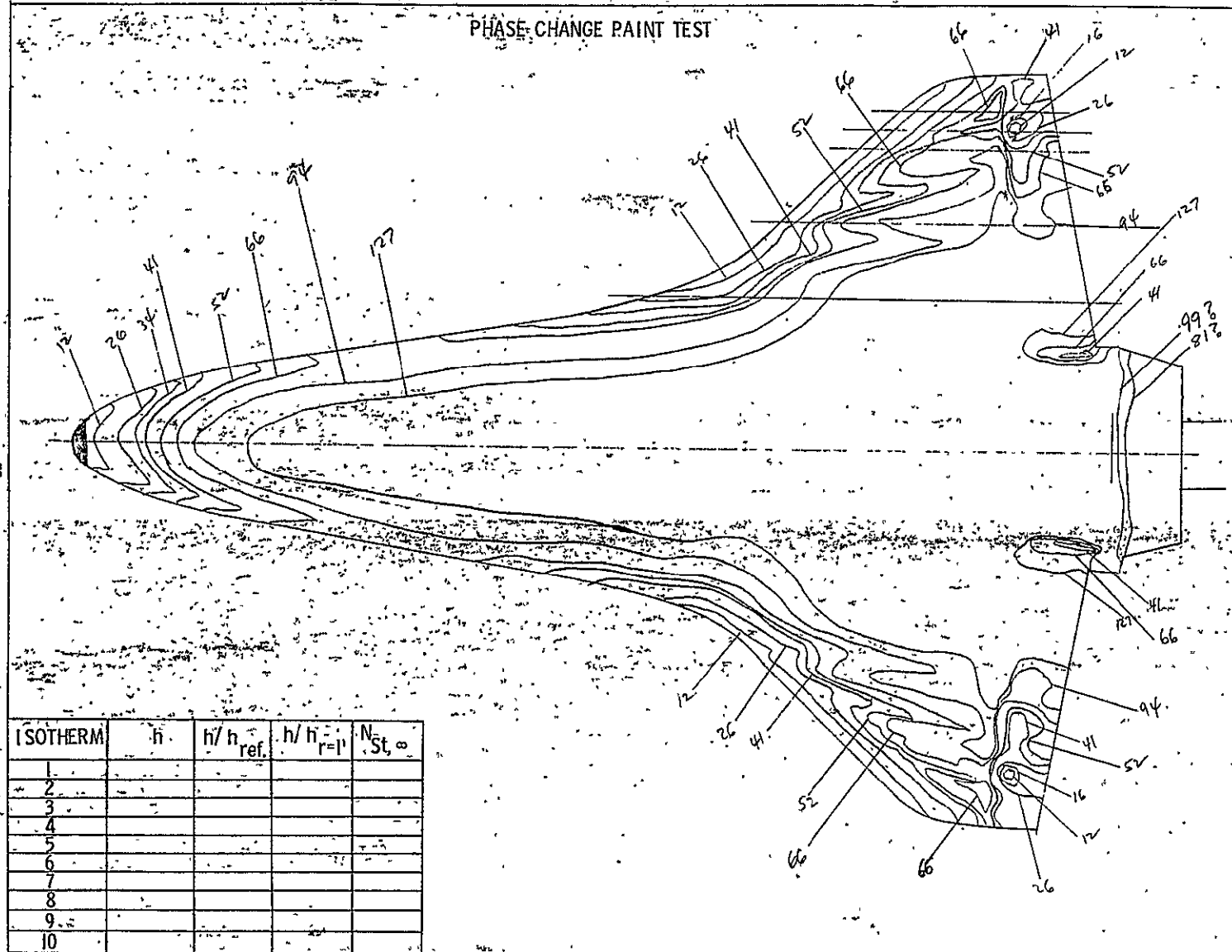
CONFIGURATION	31
FACILITY	LRQ/VDT
TEST	OH-46
RUN	4530
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia) =	.630
T_{total} (°R) =	885
R_∞ / ft =	3×10^6
T_{aw} / T_{total} =	
T_{aw} (°R) =	
T_i (°F) =	
T_{pc} (°F) =	300
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	.25
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ORIGINAL PAGE IS OF POOR QUALITY

PHASE CHANGE PAINT TEST

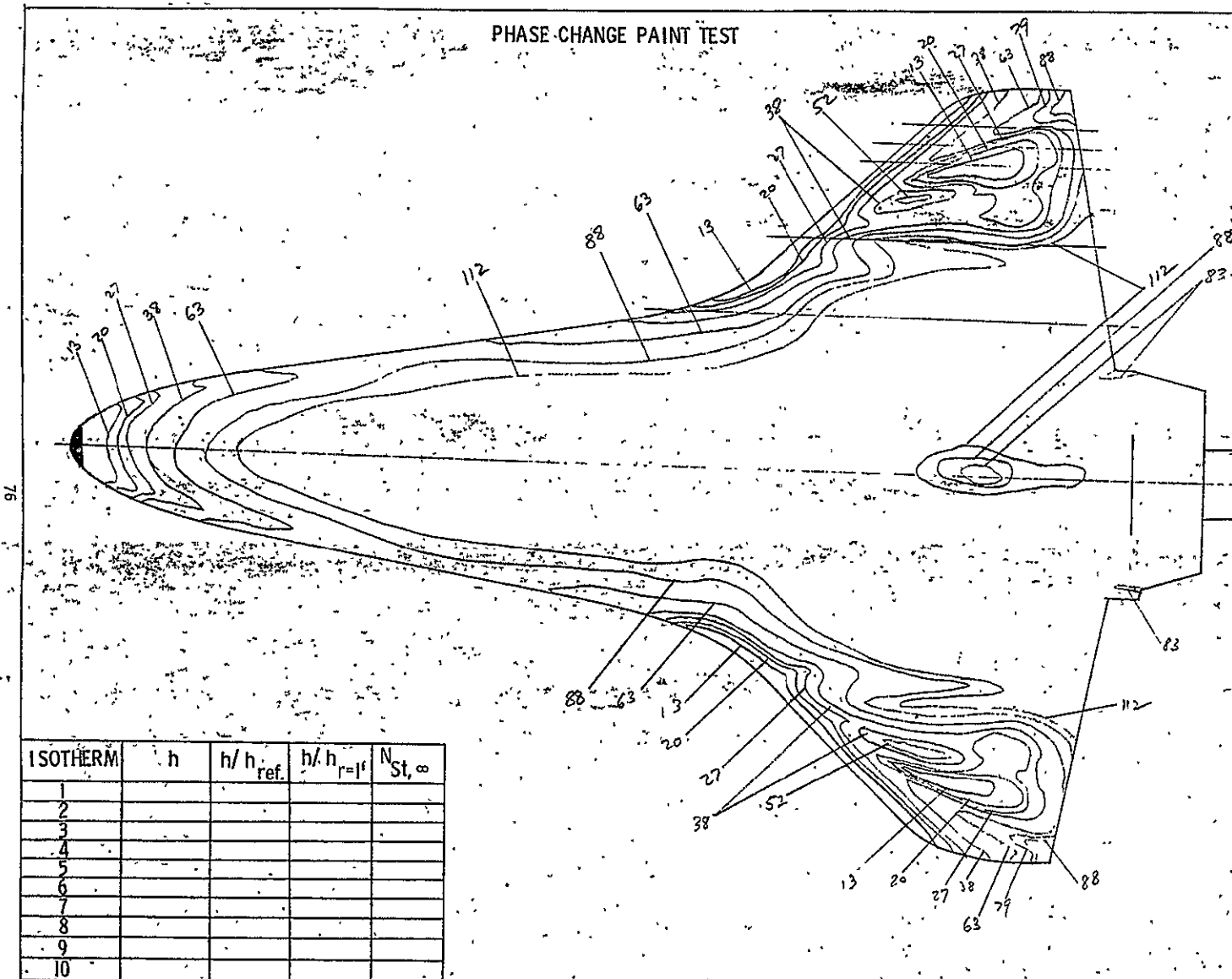


CONFIGURATION:	41
FACILITY	LRV/VDT
TEST	OH-46
RUN	45 31
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia) =	625
T_{total} ($^{\circ}R$) =	865
R_∞ / ft =	3×10^6
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	300
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	2.5
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1}	N_{St_∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

75

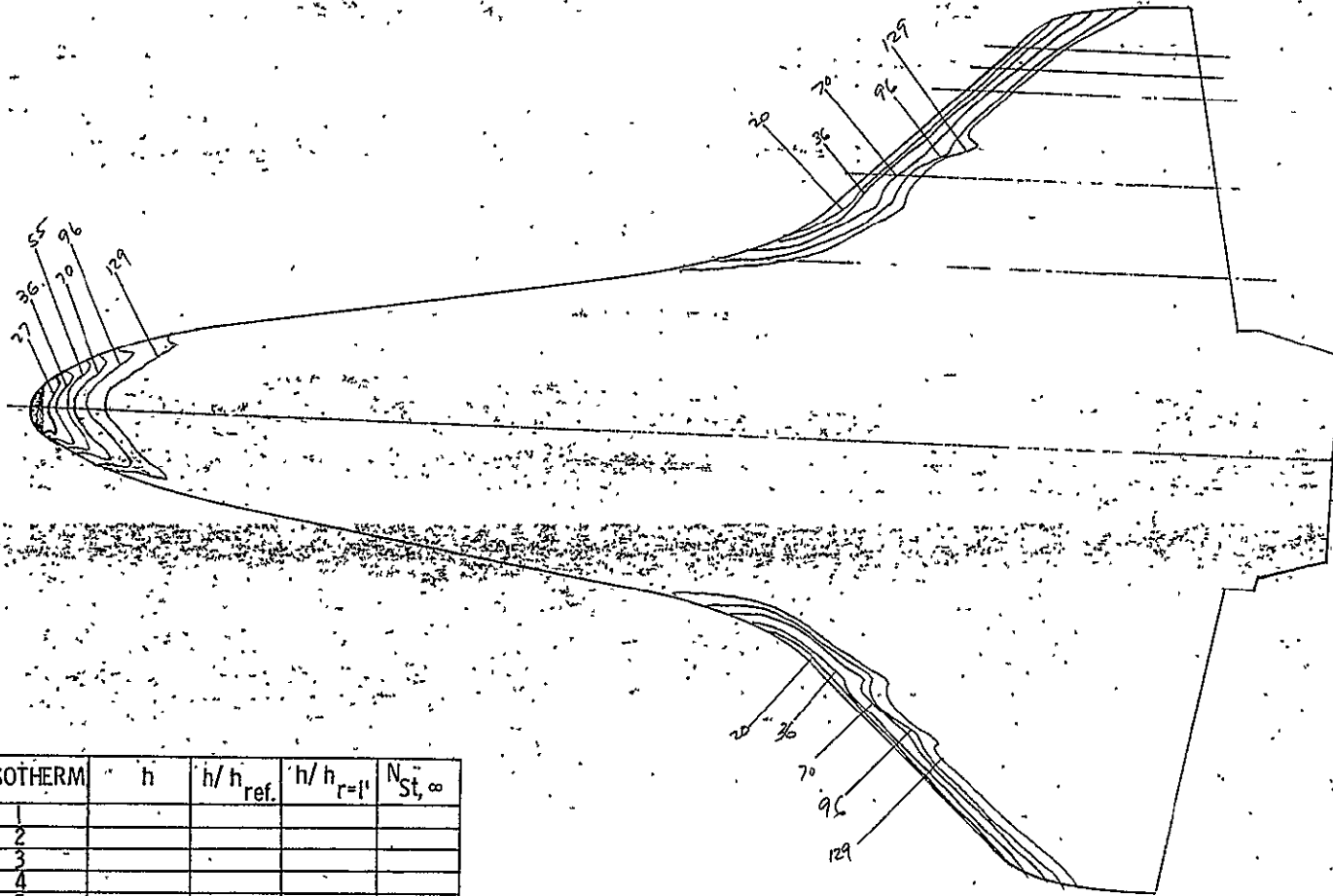
PHASE-CHANGE PAINT TEST



CONFIGURATION	2.2
FACILITY	LRC/VDT
TEST	OH-46
RUN	453.2
LENGTH	
NOSE RADIUS	
SCALE	006
M_∞	8
P_{total} (psia) =	1400
T_{total} ($^{\circ}R$) =	955
R_∞ / ft =	6x106
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	450
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	25
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1}	$N_{St,\infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST



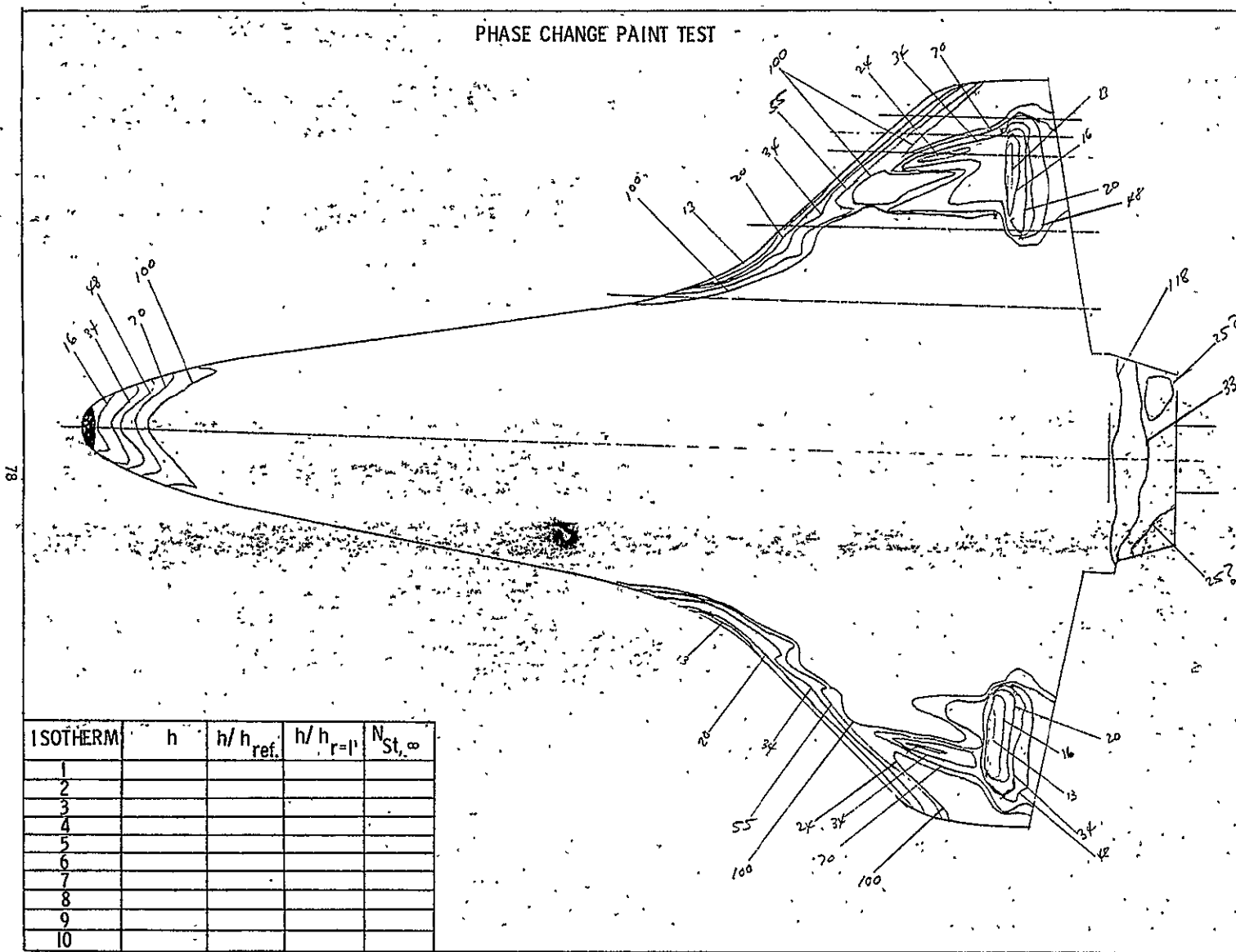
71

ORIGINAL PAGE IS
OF POOR QUALITY

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	OH-46
RUN	4533
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia)	= 167
T _{total} (°R)	= 1220
R _∞ / ft	= 1x10 ⁶
T _{aw} / T _{total}	=
T _{aw} (°R)	=
T _i (°F)	=
T _{pc} (°F)	= 300
h _{r=1'}	=
T̄	=
(ρC _p k) ^{1/2}	=
α	= 25
β	=
Φ	=
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST



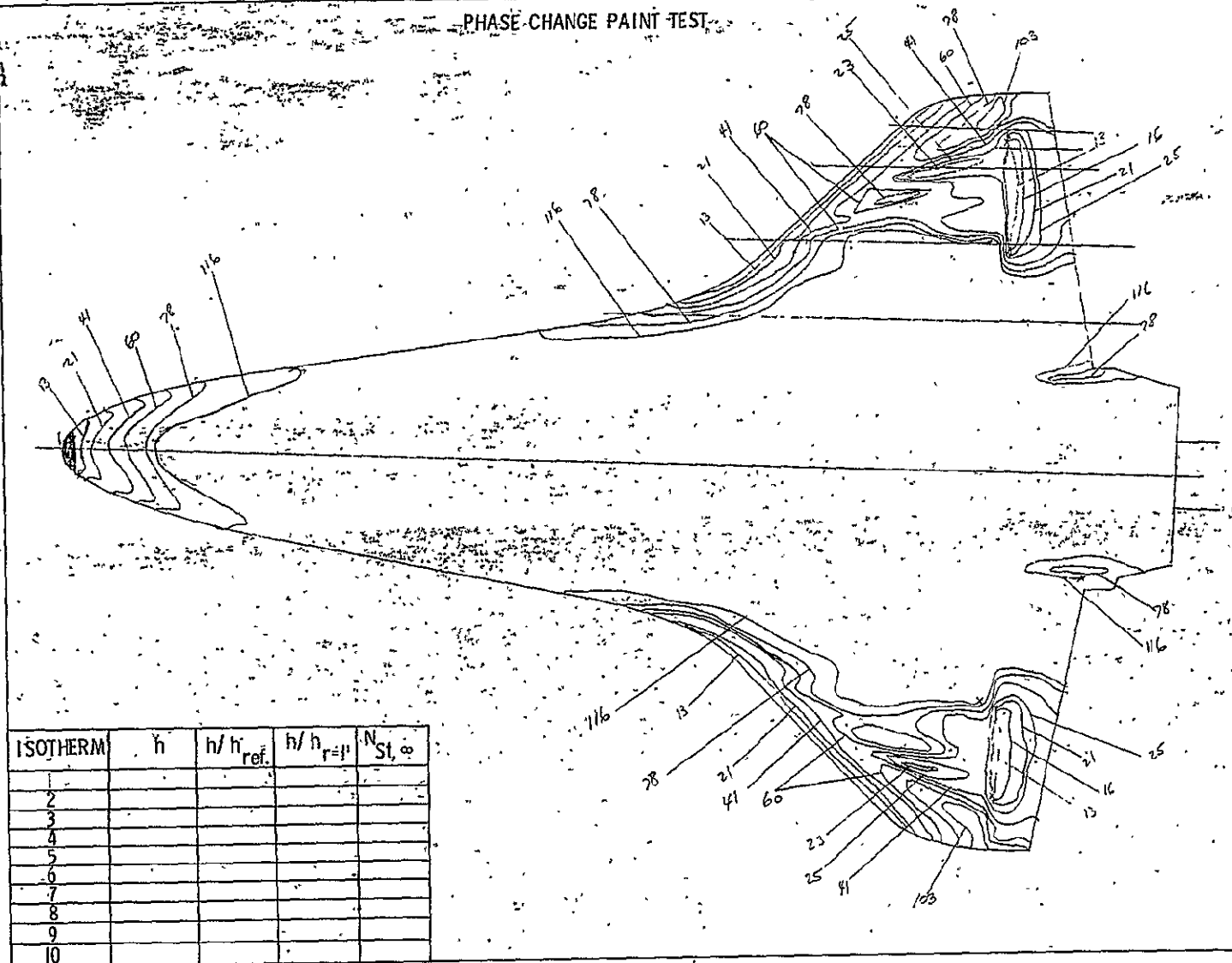
CONFIGURATION	41
FACILITY	LRC/VDT
TEST	CH-46
RUN	4534
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia) =	1400
T_{total} ($^{\circ}R$) =	950
R_∞ / ft =	6×10^6
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	550
$\frac{D}{r} =$	
\bar{T} =	
$(\rho C_p k)^{1/2} =$	
$\alpha =$	25
$\beta =$	
$\phi =$	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	$h/h_{ref.}$	$h/h_{r=1}$	$N_{St,\infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

ORIGINAL PAGE IS
OF POOR QUALITY

PHASE-CHANGE PAINT TEST

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	CH-46
RUN	1535
LENGTH	
NOSE RADIUS	∞
SCALE	.006
M_∞	8
P_{total} (psia)	1400
T_{total} (°R)	940
R_∞ / ft	6×10^6
T_{aw} / T_{total}	
T_{aw} (°R)	
T_i (°F)	
T_{pc} (°F)	500
$h_{r=1}$	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	.25
β	
Φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD



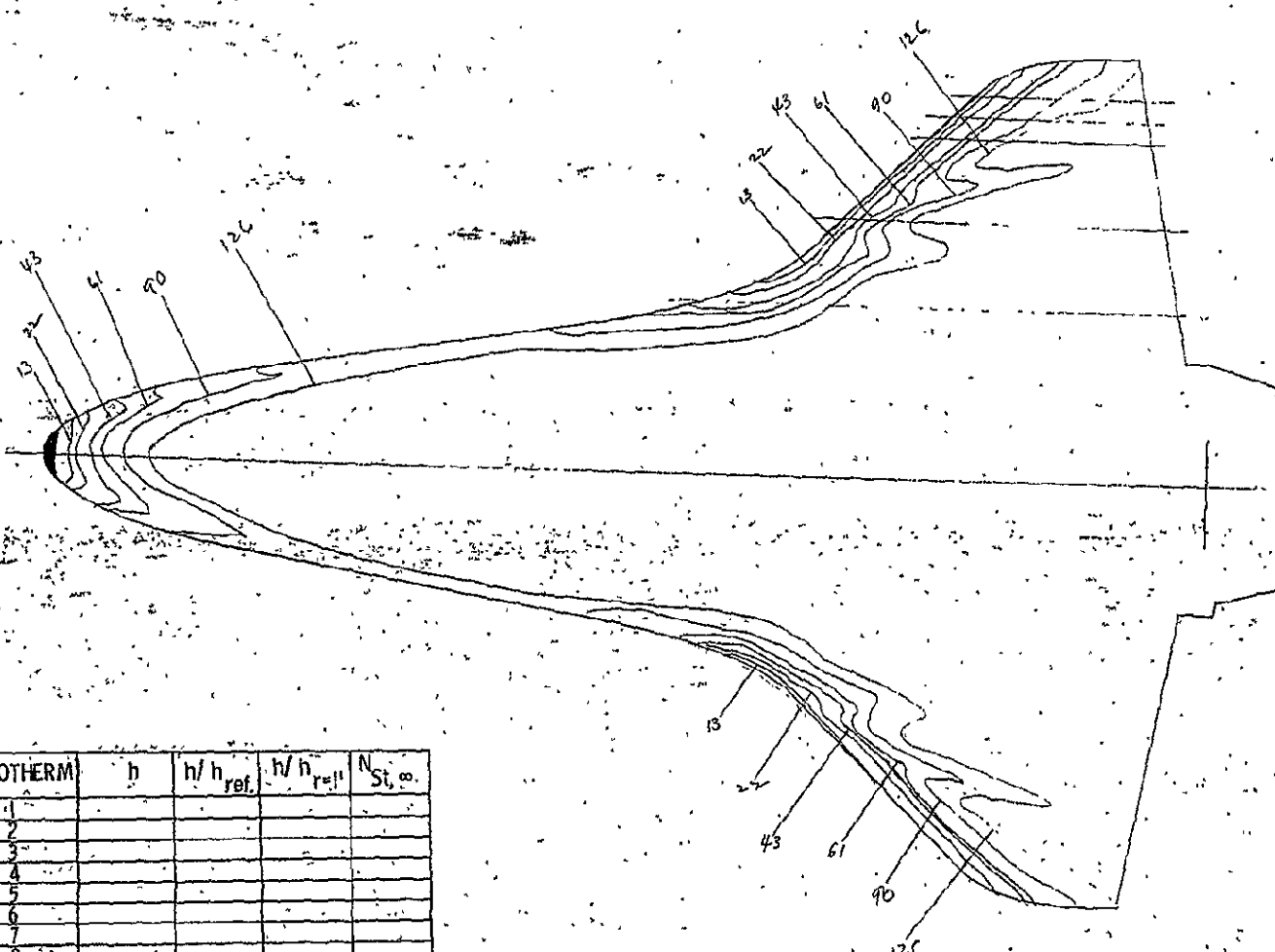
ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

79

PHASE CHANGE PAINT TEST

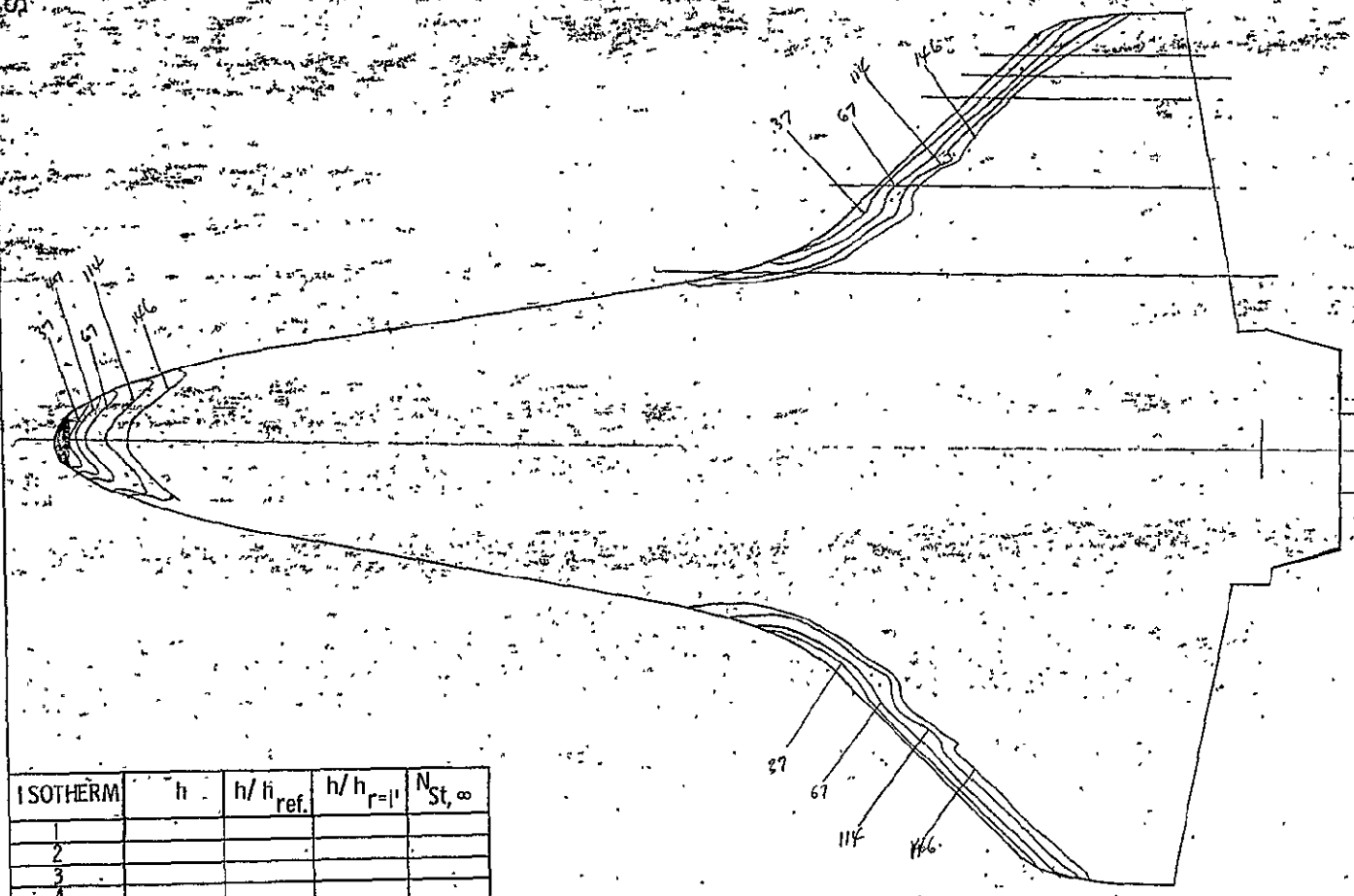
CONFIGURATION	22
FACILITY	LRC/VDT
TEST	OH-46
RUN	4536
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia) =	160
T_{total} ($^{\circ}R$) =	745
R_∞ / ft =	1×10^6
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	250
r_{ref} =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	.25
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{ref}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				



ORIGINAL PAINTS OF POOR QUALITY

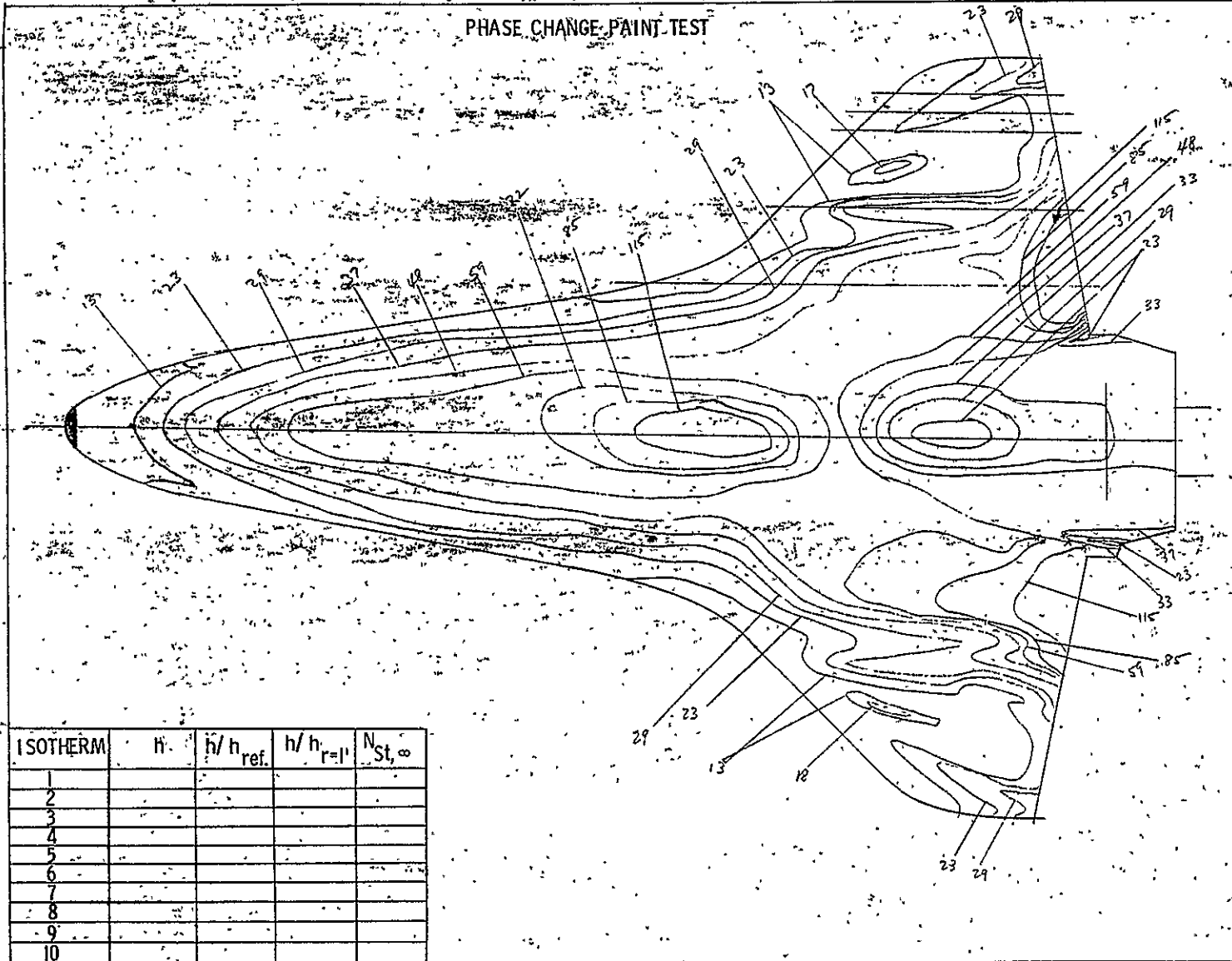
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St, ∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	44
FACILITY	LRC/VDT
TEST	OH-46
RUN	4537
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia)	156
T _{total} (°R)	735
R _∞ / ft	1x10 ⁶
T _{aw} / T _{total}	
T _{aw} (°R)	
T _i (°F)	
T _{pc} (°F)	300
h _{r=1'}	
T	
(ρ C _p k) ^{1/2}	
α	.25
β	
φ	
CAMERA POSITION	
Engineer	
	GFFS-HVD

PHASE CHANGE PAINT TEST

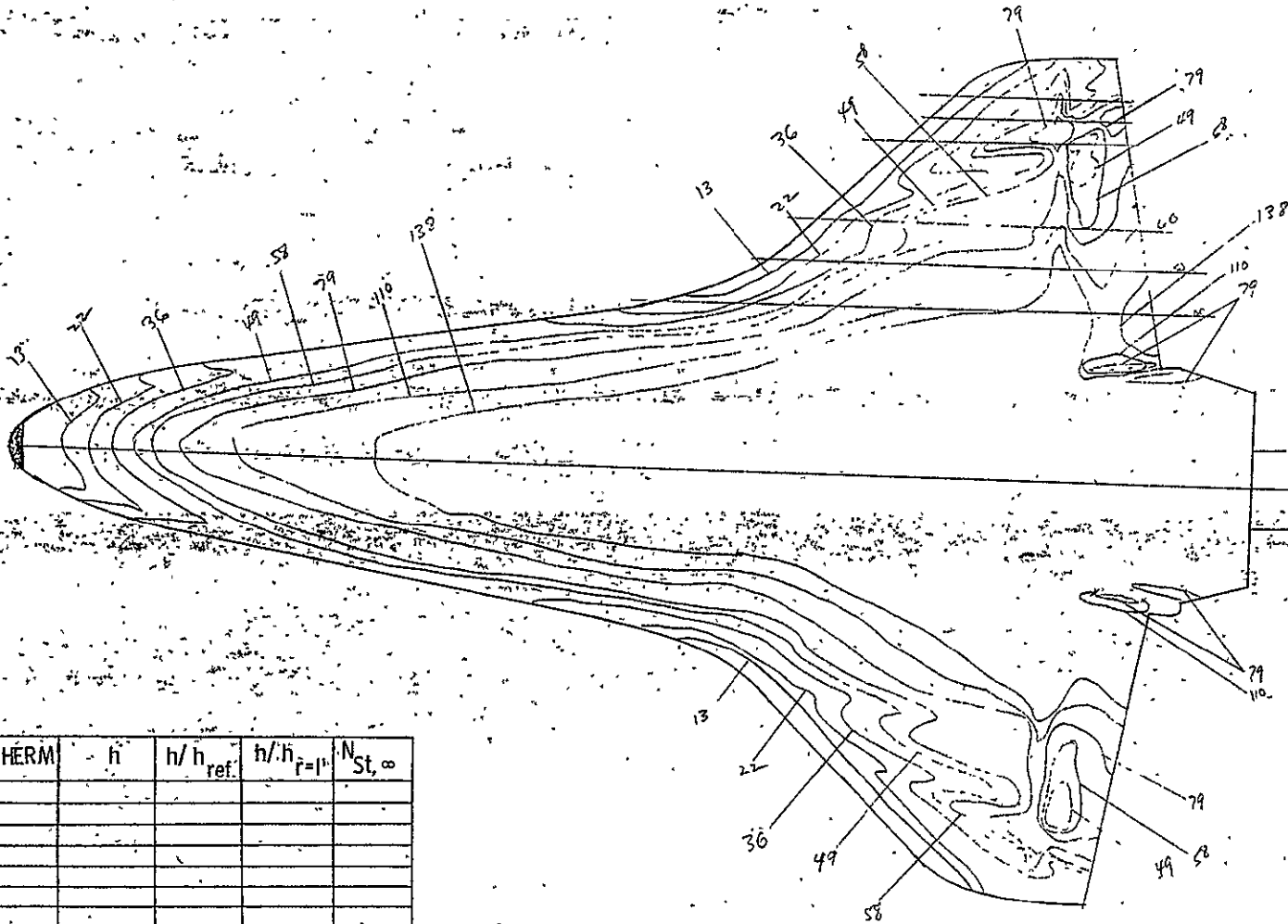


ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LR/MDT
TEST	8H-46
RUN	4538
LENGTH	
NOSE RADIUS	
SCALE	006
M_{∞}	8
P_{total} (psia)	1405
T_{total} ($^{\circ}R$)	940
R_{∞} / ft	6×10^6
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_i ($^{\circ}F$)	
T_{DC} ($^{\circ}F$)	360
h_{ref}	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	25
β	
Φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ORIGINAL PAGE IS
OF POOR QUALITY

PHASE CHANGE PAINT TEST



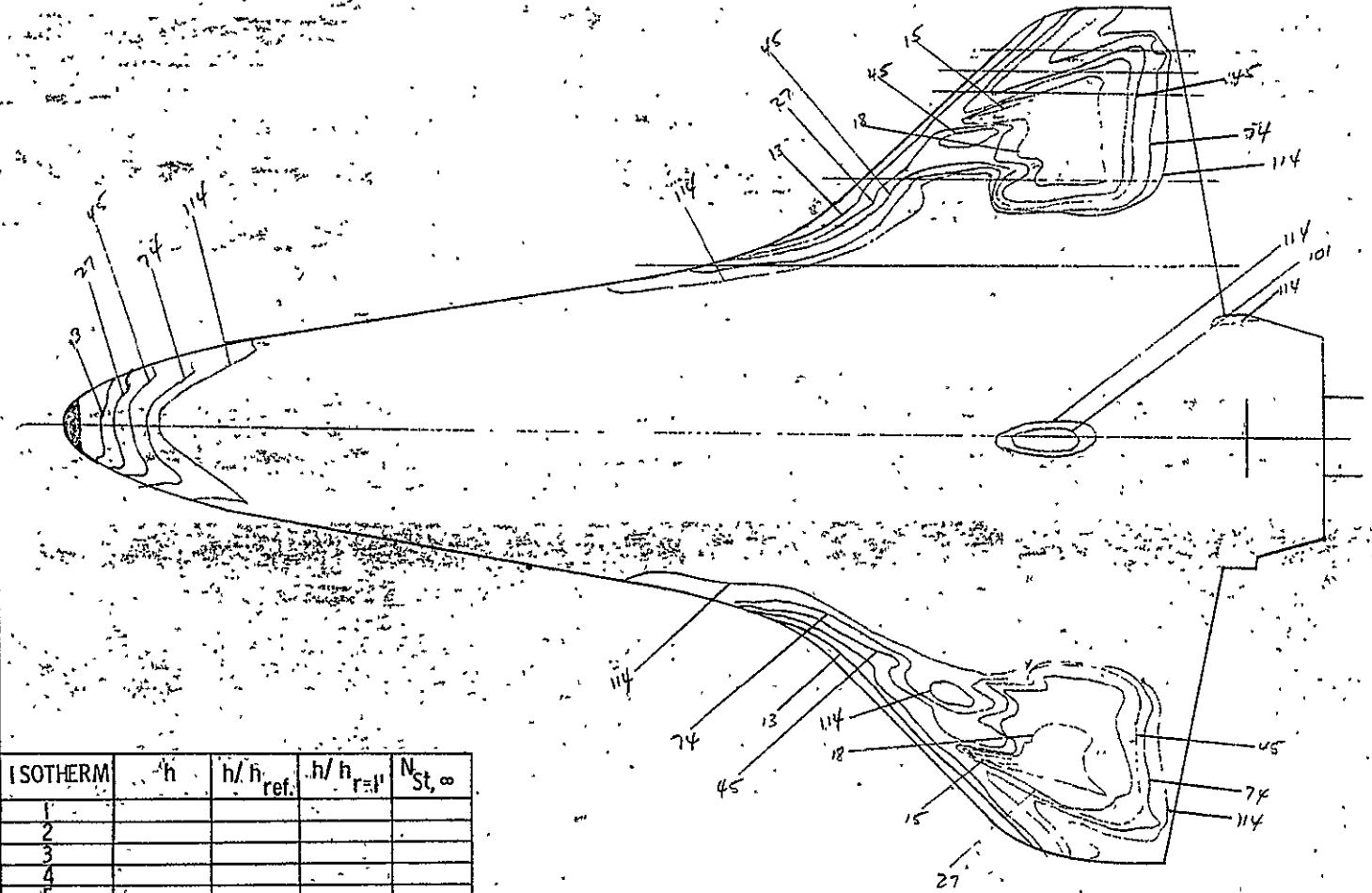
ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	6H-46
RUN	4539
LENGTH	
NOSE RADIUS	
SCALE	006
M _∞	8
P _{total} (psia) =	150
T _{total} (°R) =	770
R _∞ / ft =	1x10 ⁶
T _{aw} / T _{total} =	
T _{aw} (°R) =	
T _i (°F) =	
T _{pc} (°F) =	-175
h _{r=1} =	
T _i =	
(ρ C _p k) ^{1/2} =	
α =	25
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

83

PHASE CHANGE PAINT TEST

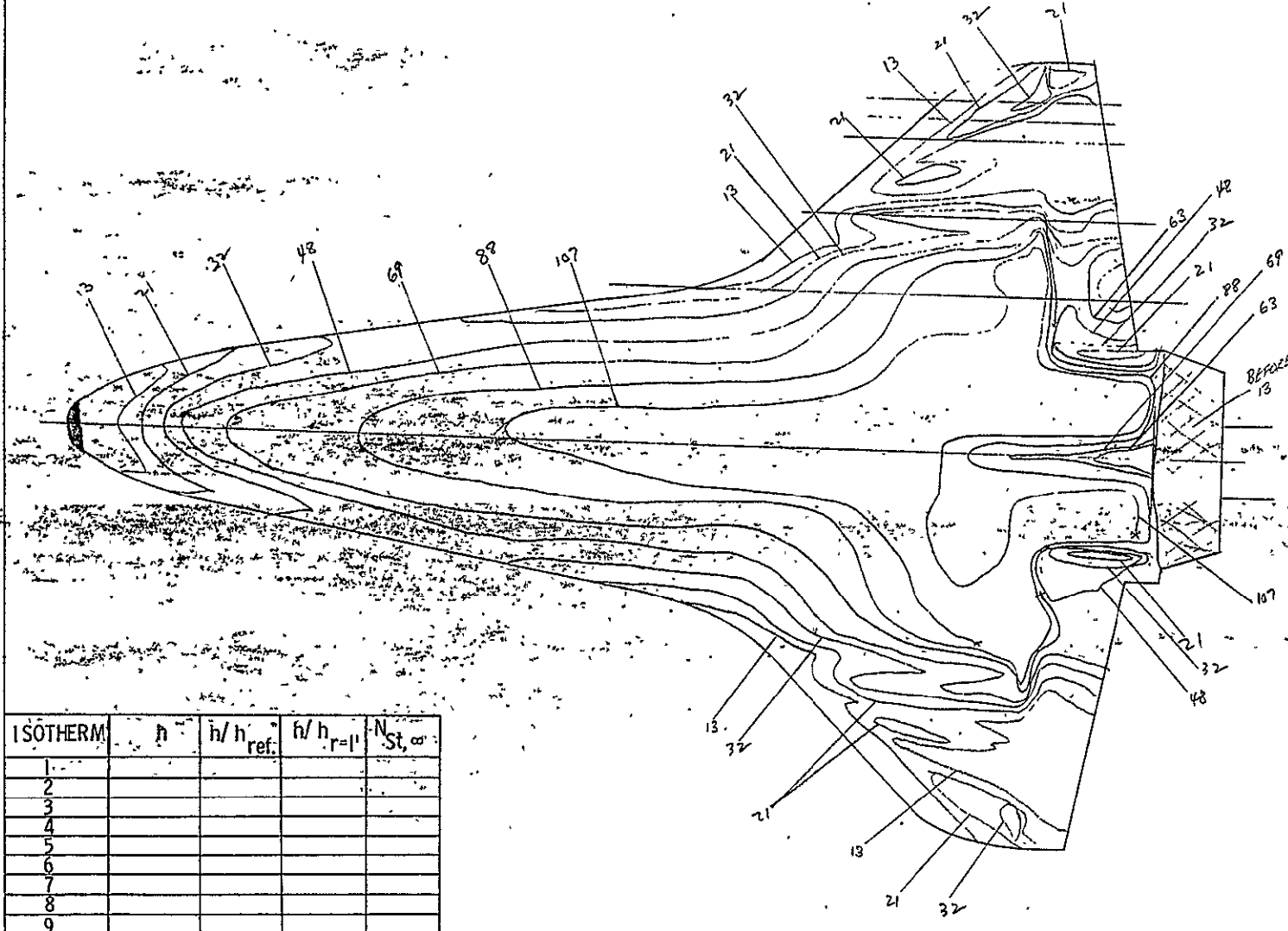
CONFIGURATION	22
FACILITY	LRC/VDT
TEST	OK-46
RUN	4540
LENGTH	
NOSE RADIUS	
SCALE	006
M_∞	8
P_{total} (psia)	1935
T_{total} ($^{\circ}R$)	935
R_∞ / ft	8.106
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_i ($^{\circ}F$)	
T_{pc} ($^{\circ}F$)	550
h_{ref}	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	25
β	
Φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD



ISOTHERM	h	h/h _{ref}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

84

PHASE CHANGE PAINT TEST

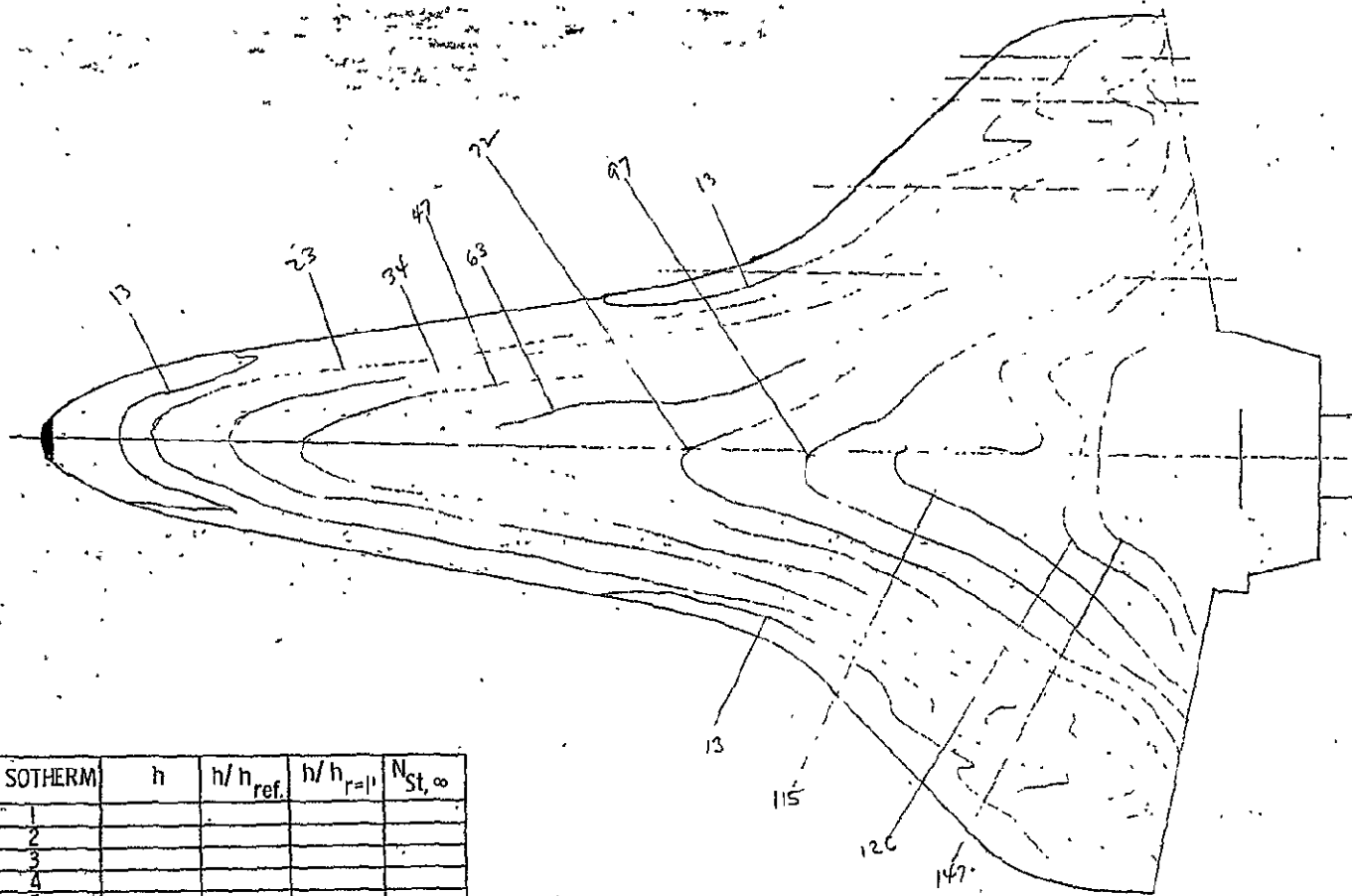


ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	44
FACILITY	LRC/VDT
TEST	OH-46
RUN	45A1
LENGTH	
NOSE RADIUS	
SCALE	006
M_{∞}	8
P_{total} (psia) =	1400
T_{total} ($^{\circ}R$) =	950
R_{∞} / ft =	6x106
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_{i} ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	350
h_{ref} =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	25
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

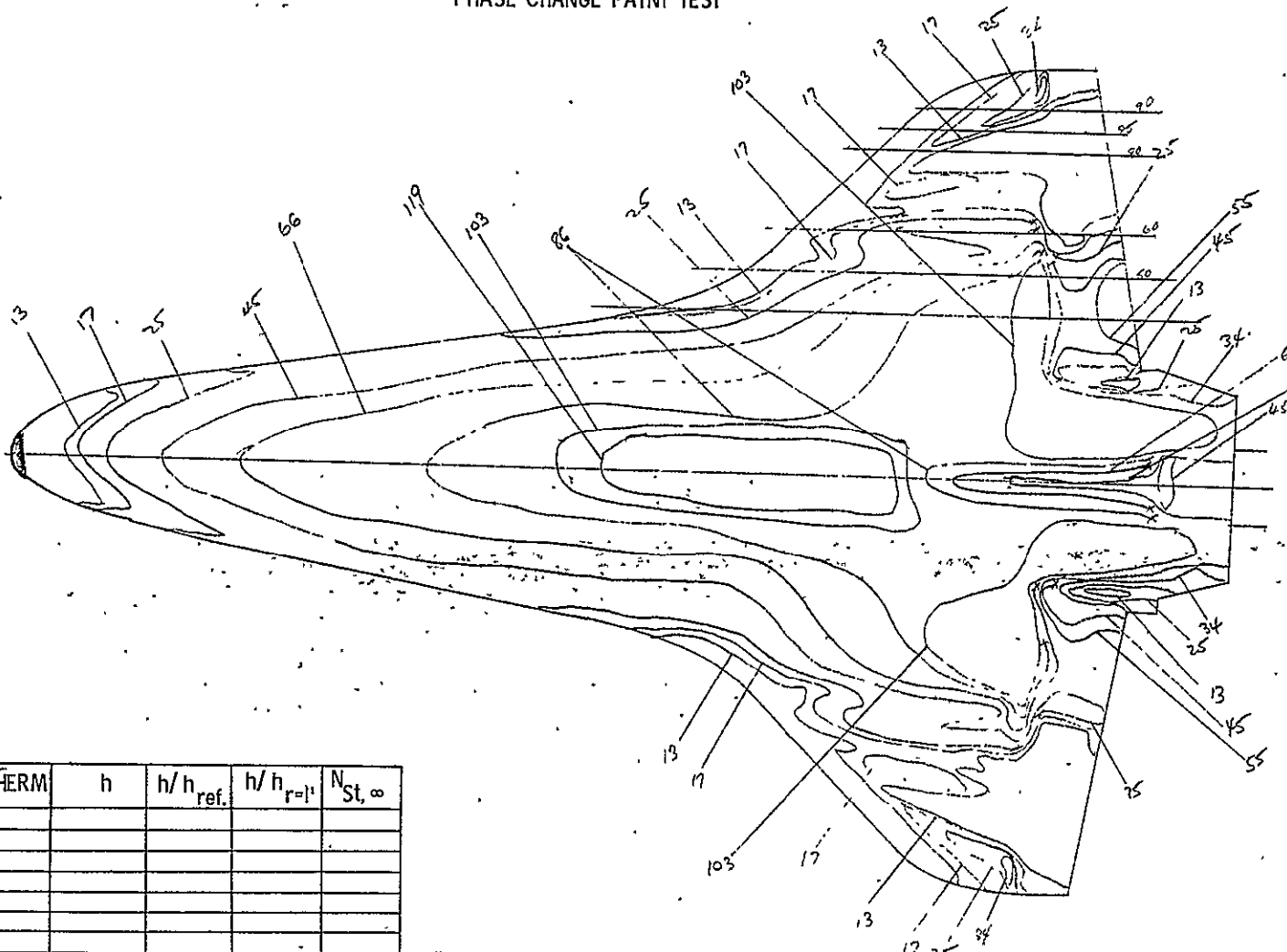
98



ISOTHERM	h	h/h _{ref}	h/h _{r=1}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	OH-46
RUN	4542
LENGTH	
NOSE RADIUS	
SCALE	006
M _∞	8
P _{total} (psia) =	152
T _{total} (°R) =	780
R _∞ / ft =	1X10 ⁶
T _{aw} / T _{total} =	
T _{aw} (°R) =	
T _i (°F) =	
T _{pc} (°F) =	150
h _{r=1} =	
T̄ =	
(ρC _p k) ^{1/2} =	
α =	25
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST



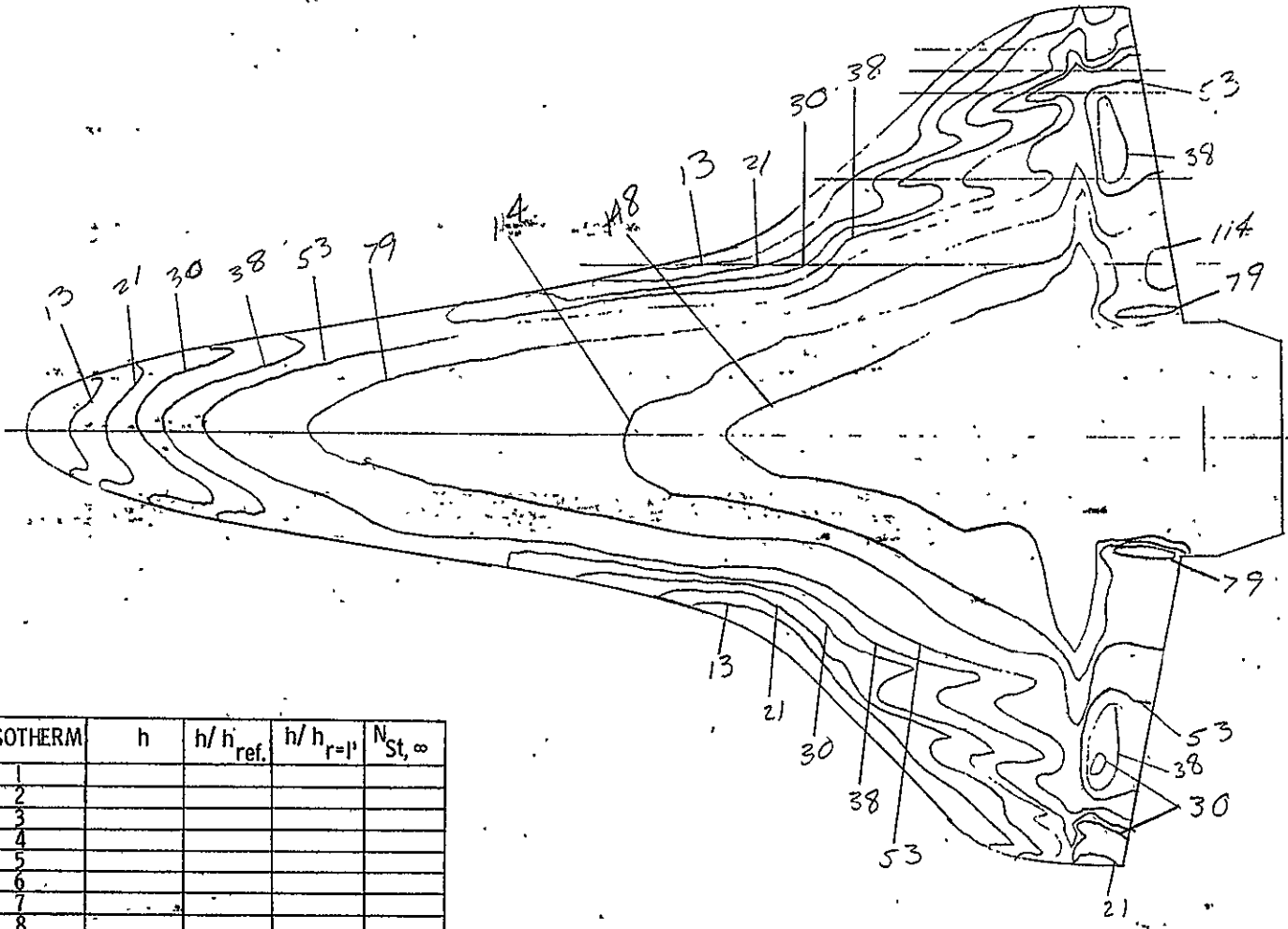
87

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	OH-46
RUN	4543
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia) =	1390
T _{total} (°R) =	980
R _∞ / ft =	6x10 ⁶
T _{aw} / T _{total} =	
T _{aw} (°R) =	
T _i (°F) =	
T _{pc} (°F) =	350
h _{r=1} =	
T̄ =	
(ρ C _p k) ^{1/2} =	
α =	25
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

CONFIGURATION	41
FACILITY	LRC/VDT
TEST	ON-46
RUN	d544
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia) =	160
T_{total} ($^{\circ}R$) =	820
R_∞ / ft =	1×10^6
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	175
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	25
β =	
ϕ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD



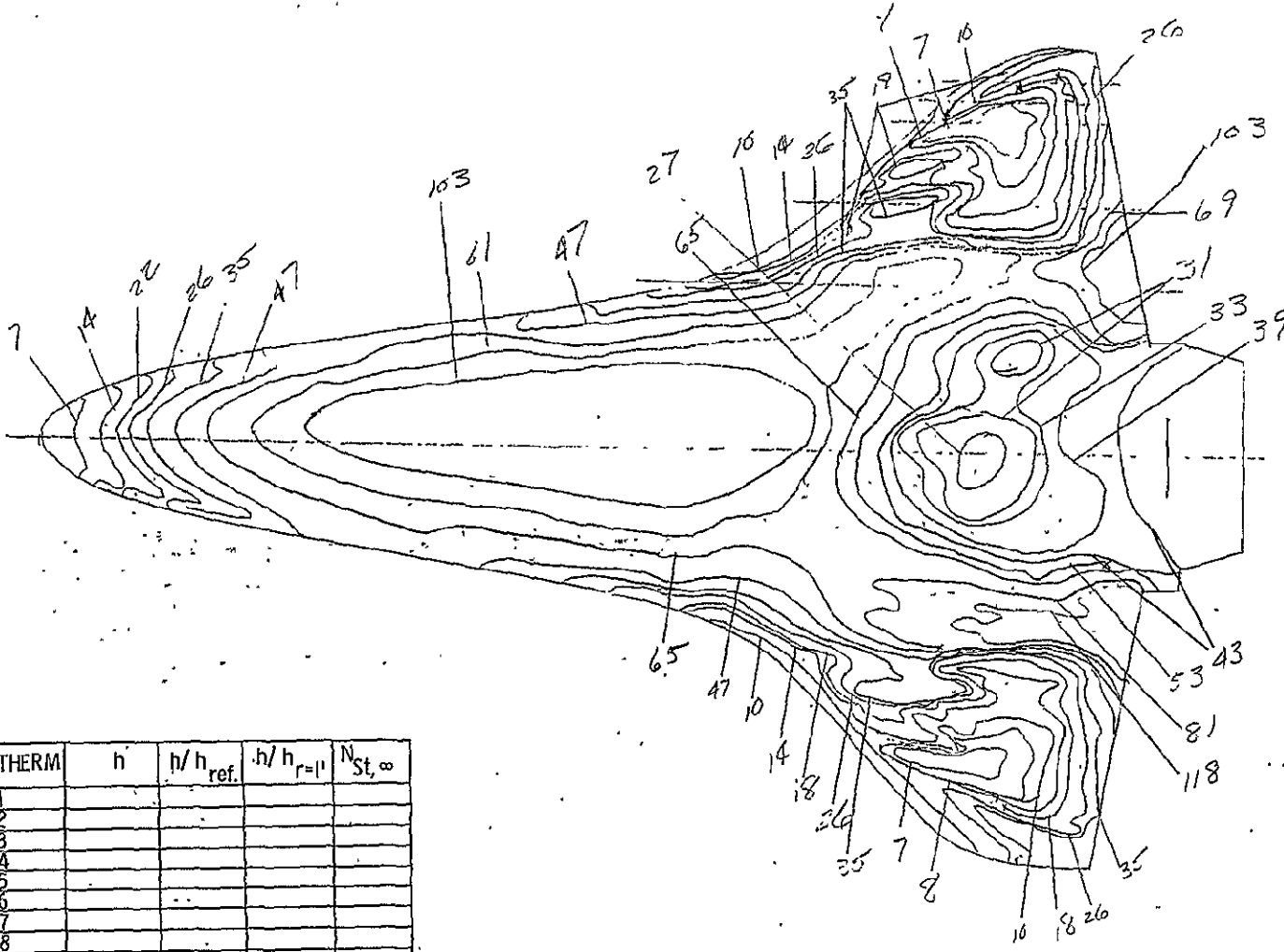
ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

*Pin - cable 4 3/8
in model*

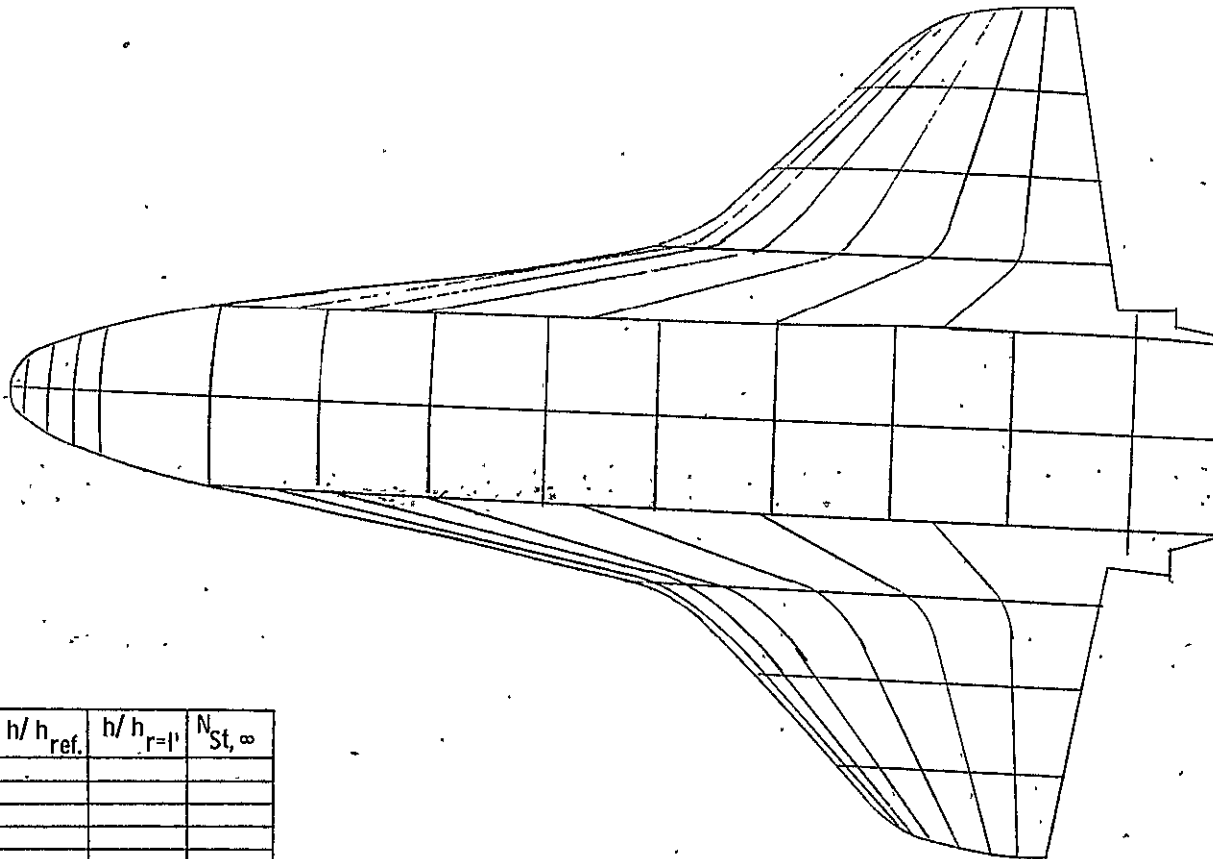
CONFIGURATION	- 22
FACILITY	LRC/VDT
TEST	OH-40
RUN	4545
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia)	1930
T_{total} ($^{\circ}R$)	940
R_∞ / ft	8.0 (10 $^{\circ}$)
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_i ($^{\circ}F$)	82
T_{pc} ($^{\circ}F$)	400
$\bar{h}_{r=1}$	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	25
β	
ϕ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				



68

PHASE CHANGE PAINT TEST

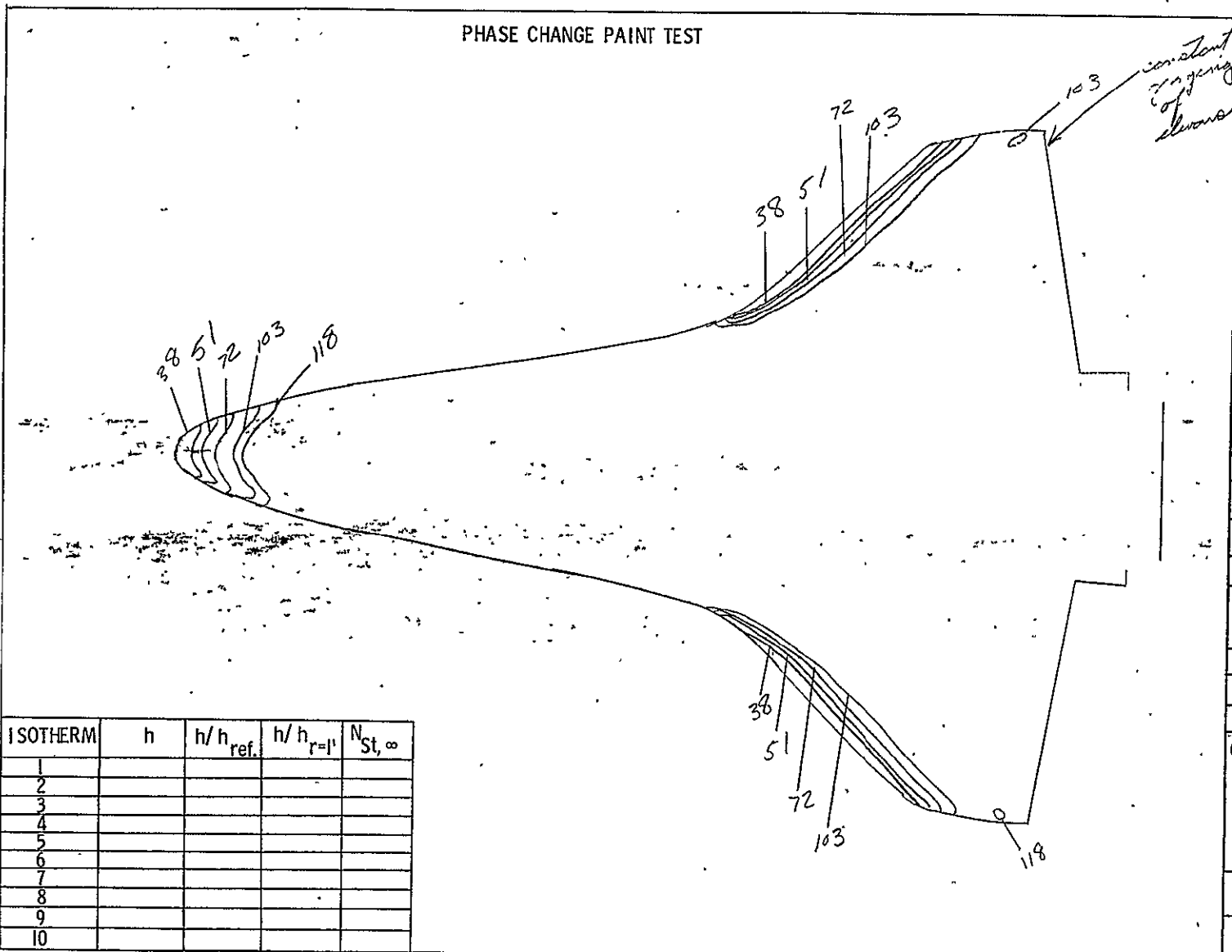


CONFIGURATION GRID
FACILITY LRC/VBT
TEST OH-46
RUNS 4546 THRU 4552
LENGTH
NOSE RADIUS
SCALE
M_∞
P_{total} (psia) =
T_{total} ($^{\circ}R$) =
R_∞ / ft =
T_{aw} / T_{total} =
T_{aw} ($^{\circ}R$) =
T_i ($^{\circ}F$) =
T_{pc} ($^{\circ}F$) =
$h_{r=1}$ =
\bar{T} =
$(\rho C_p k)^{1/2}$ =
$\alpha = 35^{\circ}$
$\beta =$
$\phi =$
CAMERA POSITION BOTTOM VIEW
Engineer
CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

06

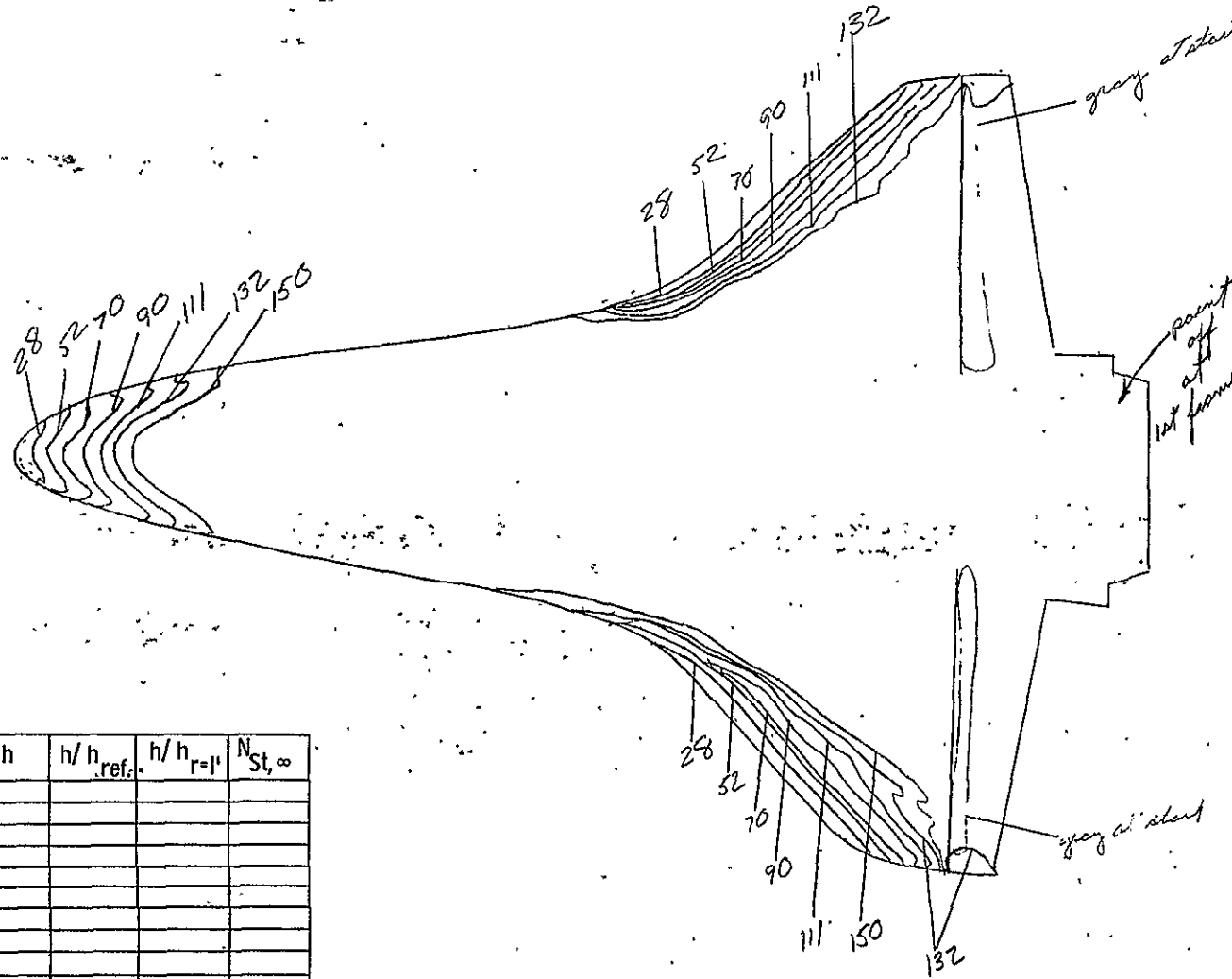
PHASE CHANGE PAINT TEST



CONFIGURATION	-31
FACILITY	LRC/VDT
TEST	OH-46
RUN	4546
LENGTH	
NOSE RADIUS	
SCALE	006
M_∞	8
P_{total} (psia)	625
T_{total} ($^{\circ}R$)	850
R_∞ / ft	3.0(100)
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_i ($^{\circ}F$)	83
T_{pc} ($^{\circ}F$)	400
$h_{r=1}$	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	35
β	
ϕ	
CAMERA POSITION	
Engineer	

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

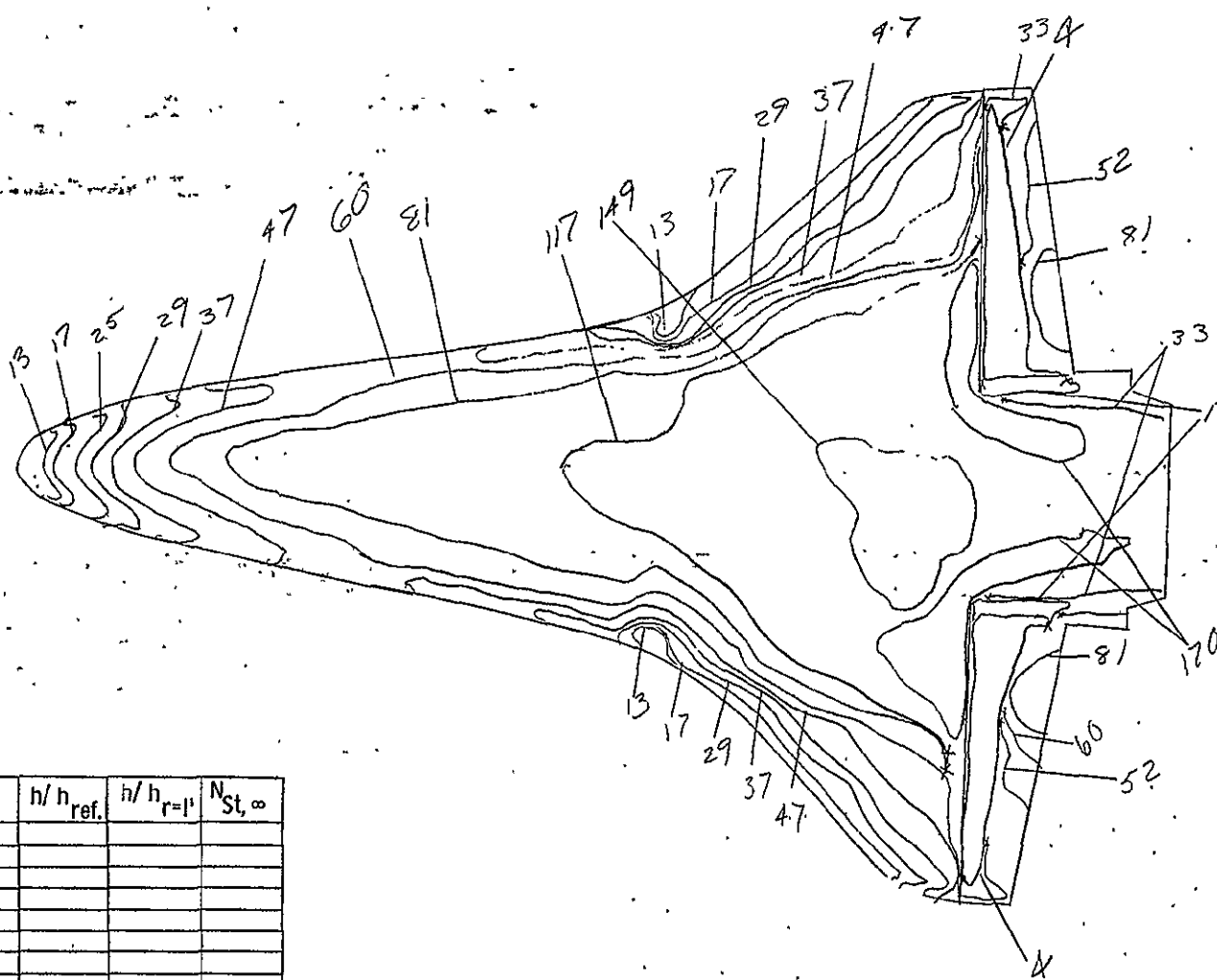
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	LAC/VNT
TEST	
RUN	4548
LENGTH	
NOSE RADIUS	
SCALE	1000
M _∞	8
P _{total} (psia)	655
T _{total} (°R)	865
R _∞ / ft	3.0 x 10 ⁶
T _{aw} / T _{total}	
T _{aw} (°R)	
T _i (°F)	82
T _{pc} (°F)	400
h _{ref.}	
T̄	
(ρC _p k) ^{1/2}	
α	35
β	
Φ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

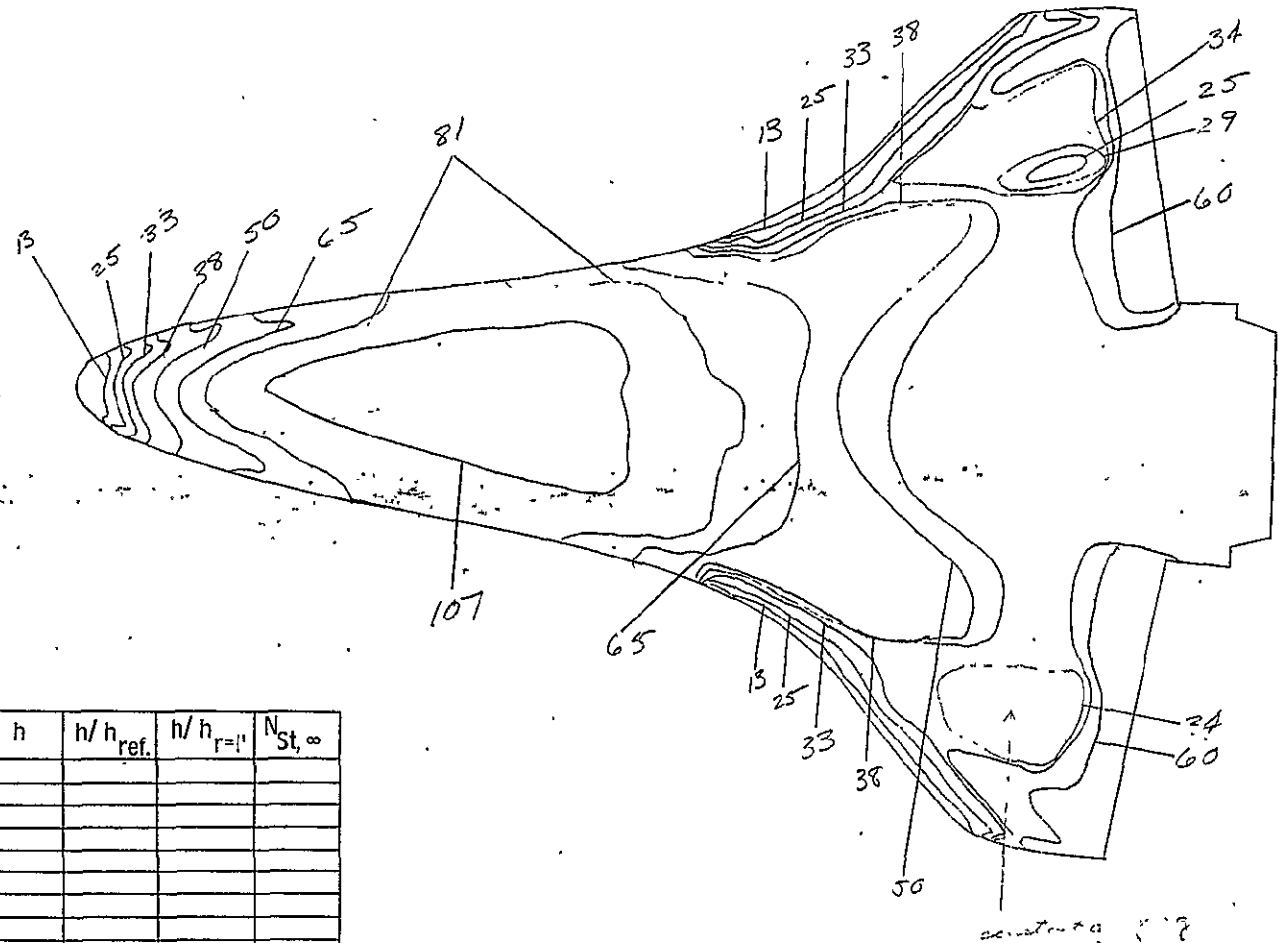


CONFIGURATION	31
FACILITY	LRU/PT
TEST	OH-46
RUN	1550
LENGTH	
NOSE RADIUS	
SCALE	1006
M_∞	8
P_{total} (psia)	636
T_{total} ($^{\circ}R$)	855
R_∞ / ft	3×10^6
T_{aw} / T_{total}	
T_{aw} ($^{\circ}R$)	
T_f ($^{\circ}F$)	82
T_{pc} ($^{\circ}F$)	300
$h_{r=1}$	
\bar{T}	
$(\rho C_p k)^{1/2}$	
α	35
β	
ϕ	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

94

PHASE CHANGE PAINT TEST

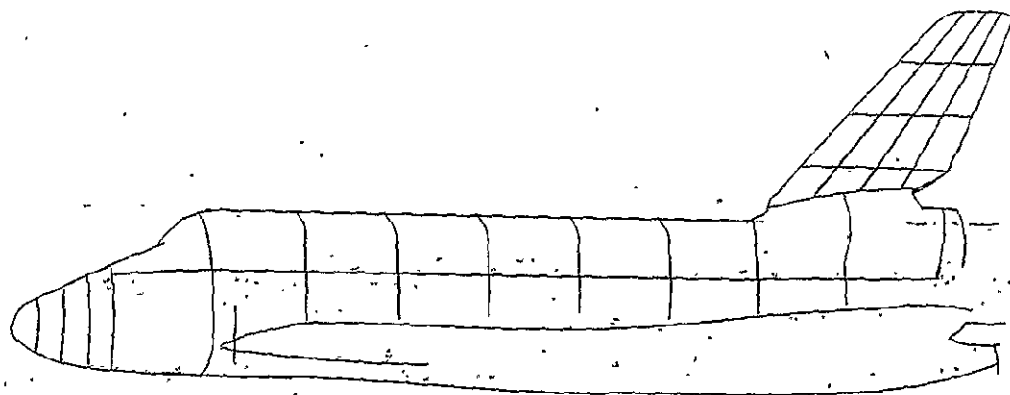


CONFIGURATION	22
FACILITY	LRC/NDT
TEST	OH-46
RUN	4551
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8.
P_{total} (psia)	= 1375
T_{total} ($^{\circ}R$)	= 950
R_∞ / ft	= 60 (10 ⁴)
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 82
T_{pc} ($^{\circ}F$)	= 450
$h_{r=1}$	=
\bar{T}	=
$(\rho C_p k)^{1/2}$	=
α	= 35
β	=
ϕ	=
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St,\infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

95

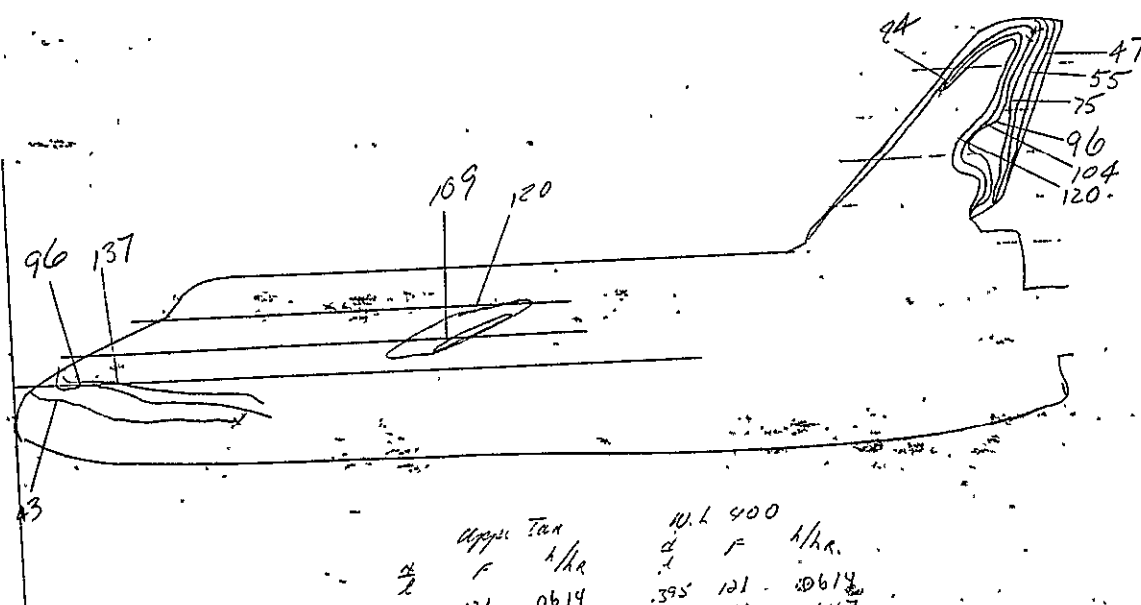
PHASE CHANGE PAINT TEST



CONFIGURATION	GRID
FACILITY	LRC/VDT
TEST	Q-T-46
RUNS	4506 THRU 4522
LENGTH	
NOSE RADIUS	
SCALE	
M_∞	
P_{total} (psia) =	
T_{total} ($^{\circ}R$) =	
R_∞ / ft =	
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	
T_{pc} ($^{\circ}F$) =	
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	30
β =	
ϕ =	
CAMERA POSITION	SIDE
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

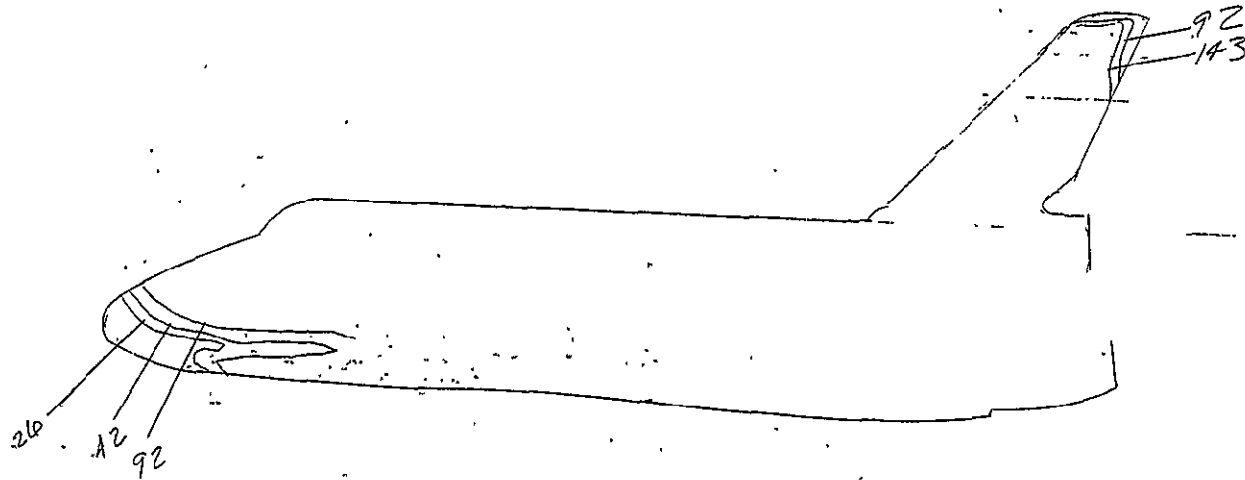


α	r	Appx. Tax h/hr	U.L. 400 α	r	h/hr
.49	121	.0614	.395	121	.0614
.52	121	.0614	.44	109	.0647
			.459	109	.0647
			.461	121	.0614

ISOTHERM	h	h/h_{ref}	$h/h_{r=1}$	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC-VDT
TEST	OH-40
RUN	4506
LENGTH	
NOSE RADIUS	
SCALE	.006
M_{∞}	8
P_{total} (psia)	= 645
T_{total} ($^{\circ}R$)	= 905
R_{∞} / ft	= 3.0(10 ⁶)
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 80
T_{pc} ($^{\circ}F$)	= 250
$h_{r=1}$	=
\bar{T}	=
$(PC_p k)^{1/2}$	=
α	= 30
β	=
ϕ	=
CAMERA POSITION	
Engineer	

PHASE CHANGE PAINT TEST

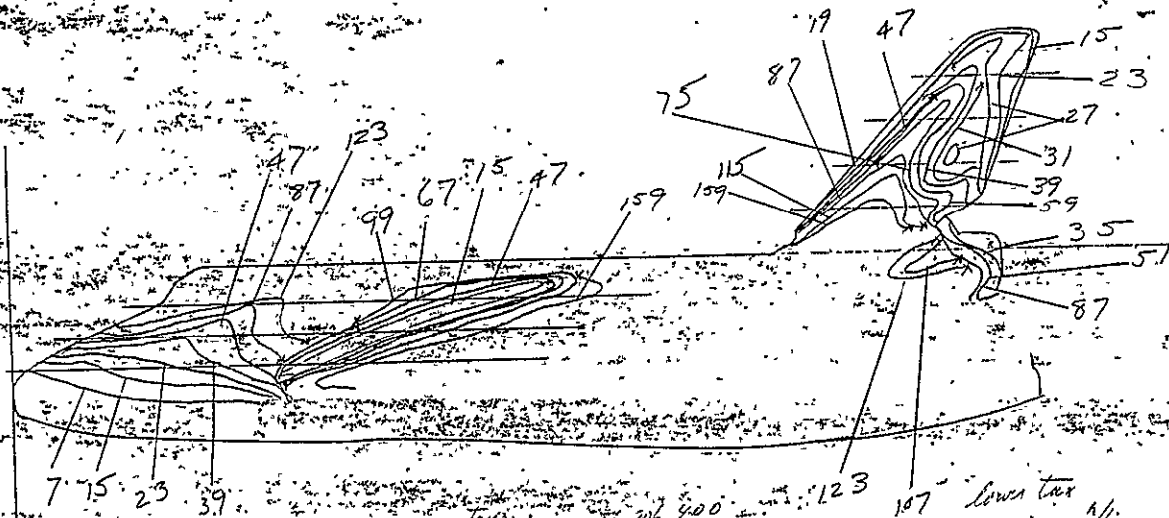


66

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St, ∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	31
FACILITY	CRG-VPT
TEST	04-46
RUN	4513
LENGTH	
NOSE RADIUS	
SCALE	.006
M _∞	8
P _{total} (psia)	= 157
T _{total} (°R)	= 770
R _∞ / ft	= 1.0 (10°)
T _{aw} / T _{total}	=
T _{aw} (°R)	=
T _i (°F)	= 81
T _{pc} (°F)	= 175
h _{r=1'}	=
T̄	=
(ρC _p k) ^{1/2}	=
α	= .30
β	=
Φ	=
CAMERA POSITION	
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

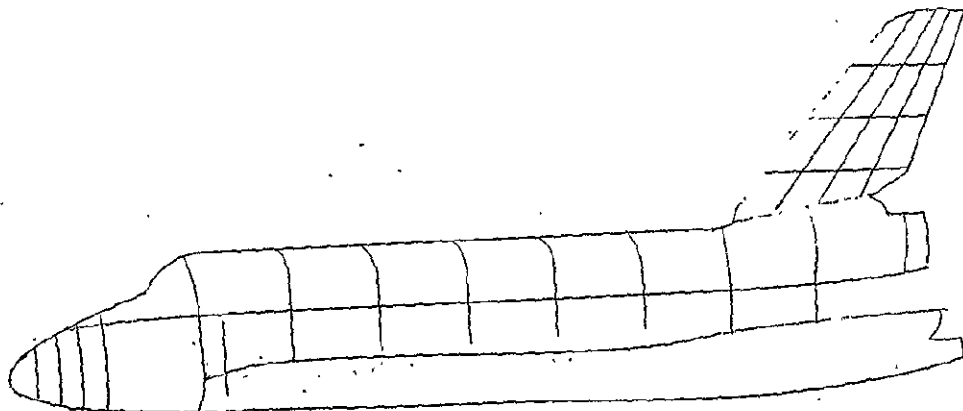


h	$\frac{h}{h_{ref}}$	$\frac{b}{h_{ref}}$	N_{St}
381	99	0245	329
405	67	0298	341
413	47	0356	355
45	15	0629	39
47	15	0629	4
497	15	0629	41
52	47	0356	44
541	99	0245	48
582	159	0193	

ISOTHERM	h	$\frac{h}{h_{ref}}$	$\frac{b}{h_{ref}}$	N_{St}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	-22
FACILITY	LRC/VOT
TEST	OH-46
RUN	1522
LENGTH	
NOSE RADIUS	
SCALE	.006
M_{∞}	8
P_{total} (psia)	= 625
T_{total} (°R)	= 850
R_{∞} / ft	= 3.0(10 ⁶)
T_{aw} / T_{total}	=
T_{aw} (°R)	=
T_1 (°F)	= 81
T_{pc} (°F)	= 150
h_{ref}	=
\bar{T}	=
$(P_{C,k})^{1/2}$	=
α	= 30
β	=
ϕ	=
CAMERA POSITION	
Engineer	
CFFS-HVD	

PHASE CHANGE PAINT TEST



102

ISOTHERM	h	h/h _{ref}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	GRID
FACILITY	LRC/UDJ
TEST	OH-46
RUN.	4529
LENGTH	
NOSE RADIUS	
SCALE	
M _∞	
P _{total} (psia) =	
T _{total} (°R) =	
R _∞ / ft =	
T _{aw} / T _{total} =	
T _{aw} (°R) =	
T _i (°F) =	
T _{pc} (°F) =	
h _{r=1'} =	
T̄ =	
(ρ C _k) ^{1/2} =	
α = 25°	
β =	
φ =	
CAMERA POSITION	SIDE
Engineer	
	CFFS-HVD

PHASE CHANGE PAINT TEST

CONFIGURATION - 22

FACILITY LRC/VDT

TEST 04-46

RUN 4529

LENGTH

NOSE RADIUS

SCALE 1006

M_∞ 8

P_{total} (psia) = 635

T_{total} (°R) = 875

R_∞ / ft = 3.0 (106)

T_{aw} / T_{total} =

T_{aw} (°R) =

T_i (°F) = 81

T_{pc} (°F) = 250

$h_{r=1}$ =

\bar{T} =

$(\rho C_p k)^{1/2}$ =

α = 25

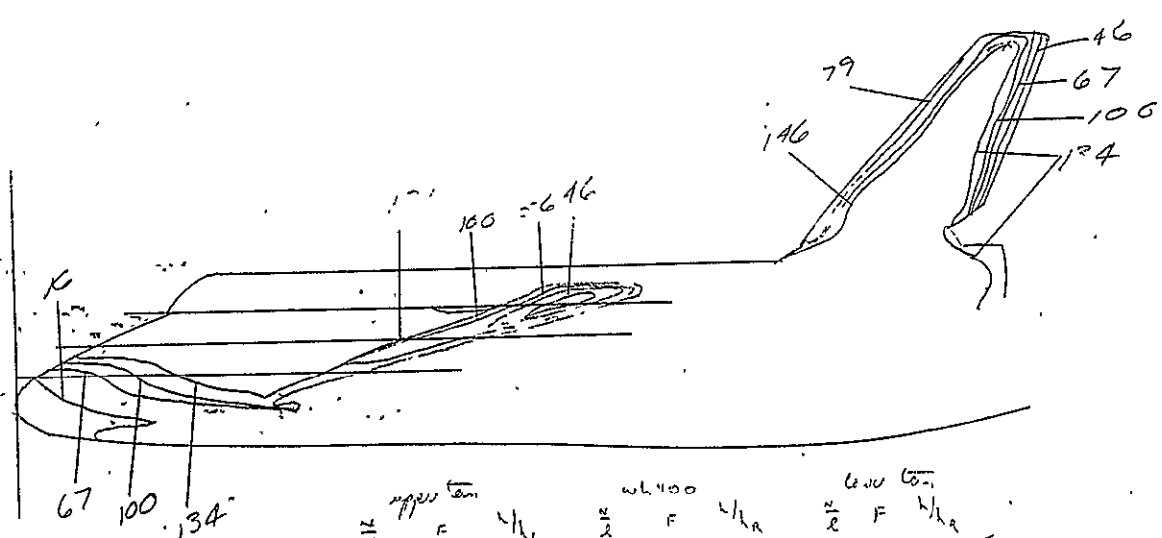
β =

Φ =

CAMERA POSITION

Engineer

CFFS-HVD



upper cam			w. 400			lower cam		
$\frac{h}{l}$	F	$\frac{1}{h} R$	$\frac{h}{l}$	F	$\frac{1}{h} R$	$\frac{h}{l}$	F	$\frac{1}{h} R$
.471	134	0618	.375	134	0618	.298	134	0618
.489	100	0715	.381	100	0715	.34	134	0618
.500	56	0956	.435	100	0715			
.515	46	.105	.452	134	0618			
.545	46	.105						
.56	56	0956						
.565	100	0715						
.58	134	0618						

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

CONFIGURATION

GRID

FACILITY LRC/VDT

TEST OH-46

RUNS 4549 THRU 4552

LENGTH

NOSE RADIUS

SCALE .006

M_∞

P_{total} (psia) =

T_{total} ($^{\circ}R$) =

R_∞ / ft =

T_{aw} / T_{total} =

T_{aw} ($^{\circ}R$) =

T_1 ($^{\circ}F$) =

T_{DC} ($^{\circ}F$) =

$h_{r=1}$ =

\bar{T} =

$(\rho C_p k)^{1/2}$ =

$\alpha = 35$

$\beta =$

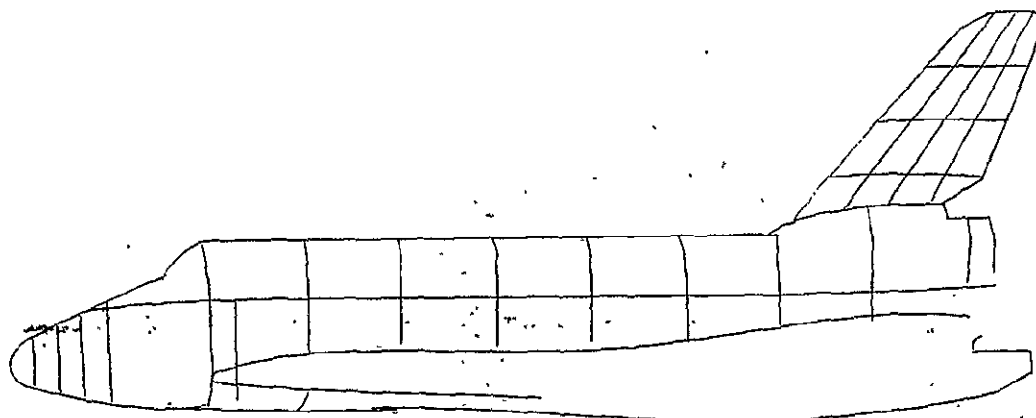
$\phi =$

CAMERA POSITION

SIDE

Engineer

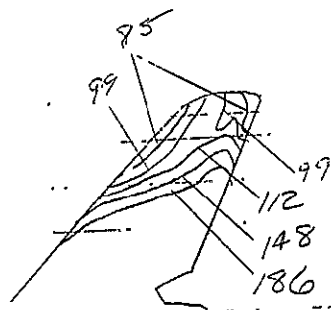
CFFS-HVD



104

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

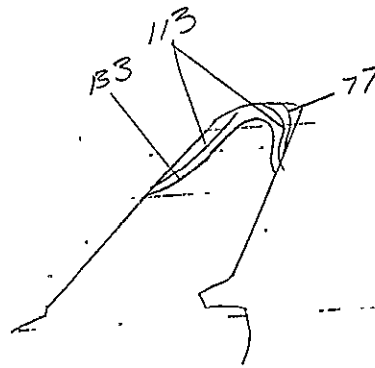
PHASE CHANGE PAINT TEST



CONFIGURATION	31
FACILITY	LRG/VDT
TEST	OH-46
RUN	4550
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia) =	630
T_{total} ($^{\circ}R$) =	825
$R_\infty / ft = 3.0(10^6)$	
$T_{aw} / T_{total} =$	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	82
T_{pc} ($^{\circ}F$) =	300
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2} =$	
$\alpha =$.35
$\beta =$	
$\phi =$	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

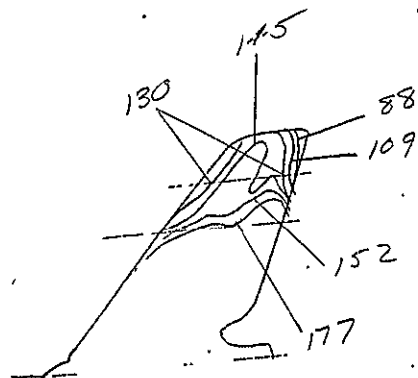
PHASE CHANGE PAINT TEST



CONFIGURATION	$\bar{z} = 2$
FACILITY	LRC/VDT
TEST	OH-46
RUN	4551
LENGTH	
NOSE RADIUS	
SCALE	.006
M_∞	8
P_{total} (psia)	= 1375
T_{total} ($^{\circ}R$)	= 950
R_∞ / ft	= 6×10^6
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 82
T_{pc} ($^{\circ}F$)	= 450
$h_{r=1'}$	=
\bar{T}	=
$(\rho C_p k)^{1/2}$	=
α	= 35
β	=
ϕ	=
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

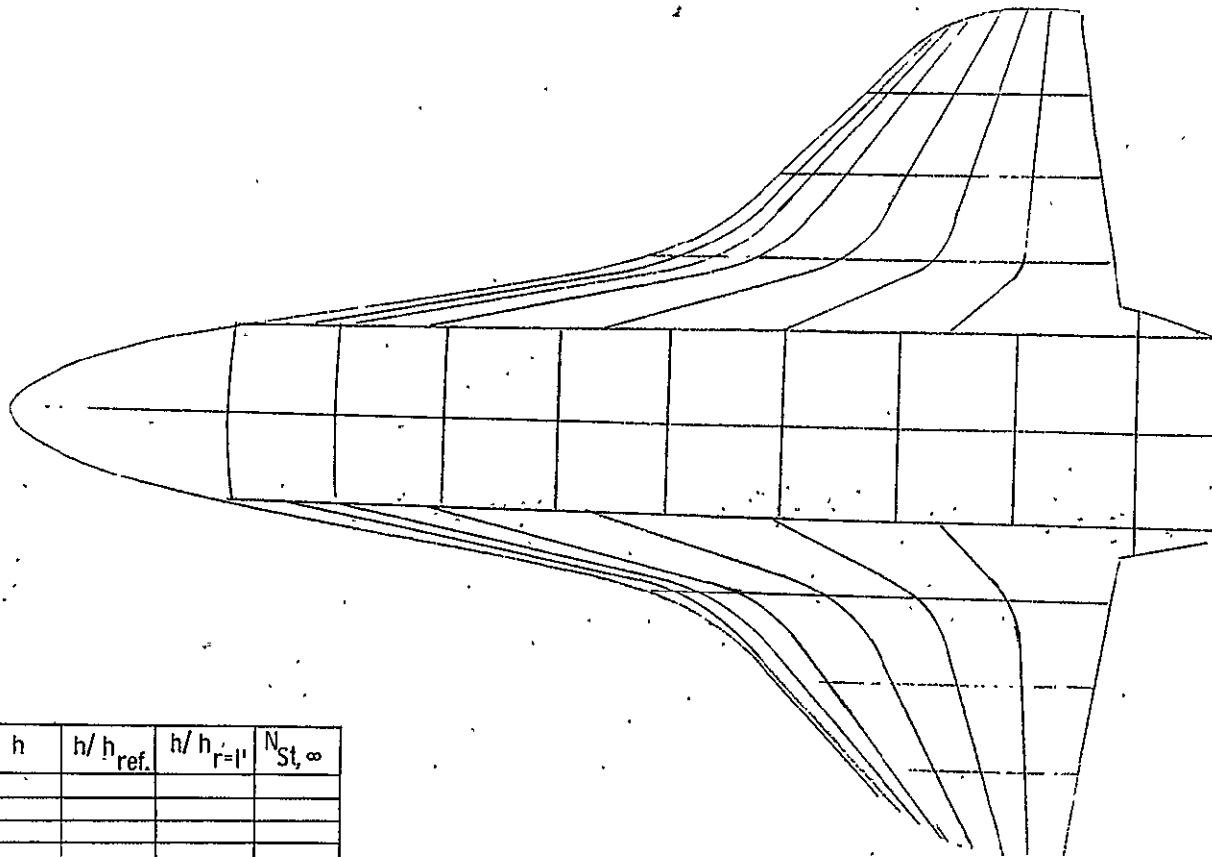
PHASE CHANGE PAINT TEST



CONFIGURATION	41
FACILITY	LRC/VDT
TEST	OH-46
RUN	4552
LENGTH	4552
NOSE RADIUS	
SCALE	006
M_∞	8
P_{total} (psia) =	1660
T_{total} ($^{\circ}R$) =	845
R_∞ / ft =	3×10^6
T_{aw} / T_{total} =	
T_{aw} ($^{\circ}R$) =	
T_i ($^{\circ}F$) =	81
T_{pc} ($^{\circ}F$) =	300
$h_{r=1}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
α =	35
β =	
Φ =	
CAMERA POSITION	
Engineer	
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST



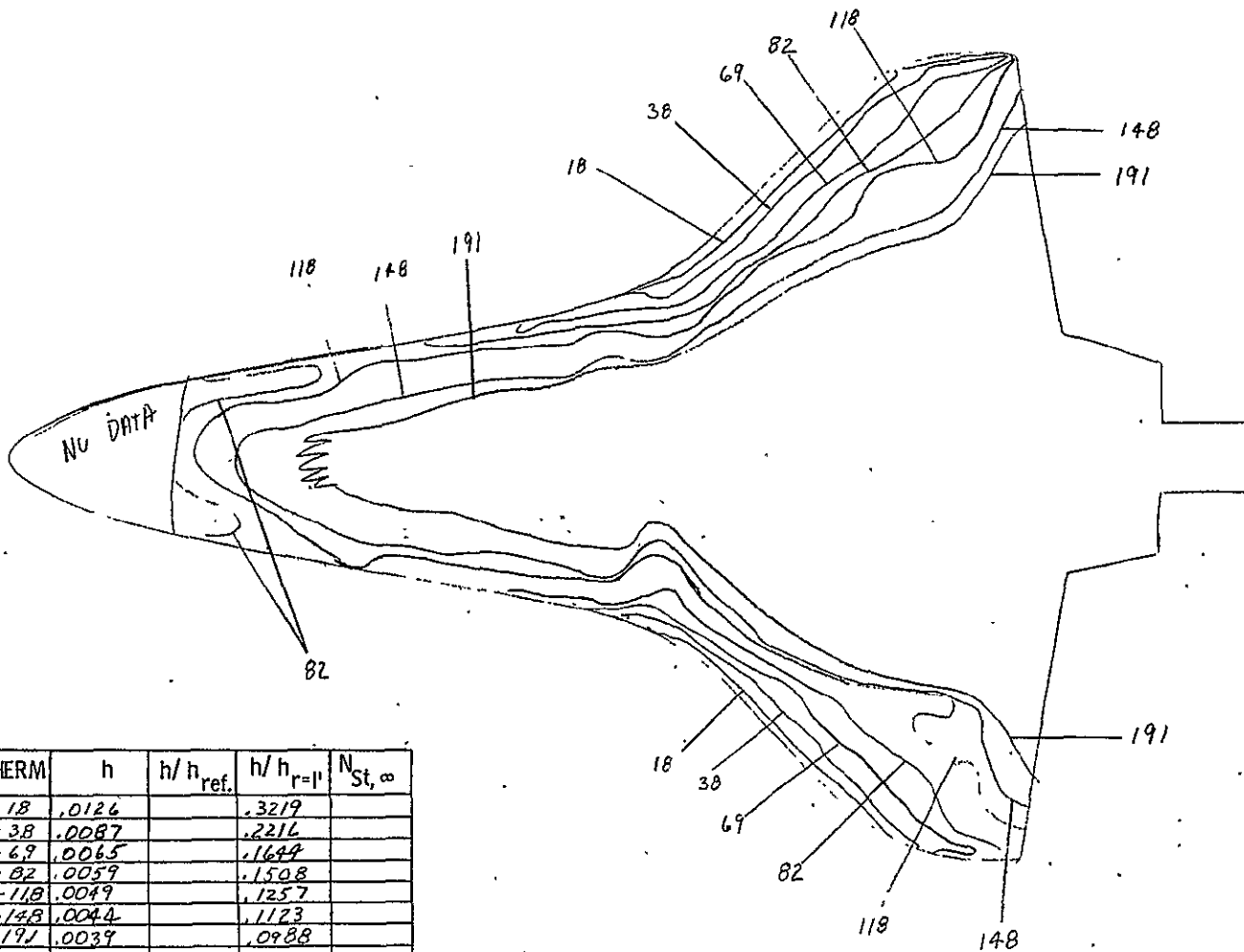
109

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION GRID
FACILITY LRC/VDT
TEST OH-46B
RUNS 4556 THRU 4567
LENGTH
NOSE RADIUS
SCALE .006
M _∞
P _{total} (psia) =
T _{total} (°R) =
R _∞ / ft =
T _{aw} / T _{total} =
T _{aw} (°R) =
T _i (°F) =
T _{pc} (°F) =
h _{r=1'} =
T _i =
(ρ C _p k) ^{1/2} =
α = 35°
β = 0
φ = 0
CAMERA POSITION BOTTOM VIEW
Engineer
CFFS-HVD

PHASE CHANGE PAINT TEST

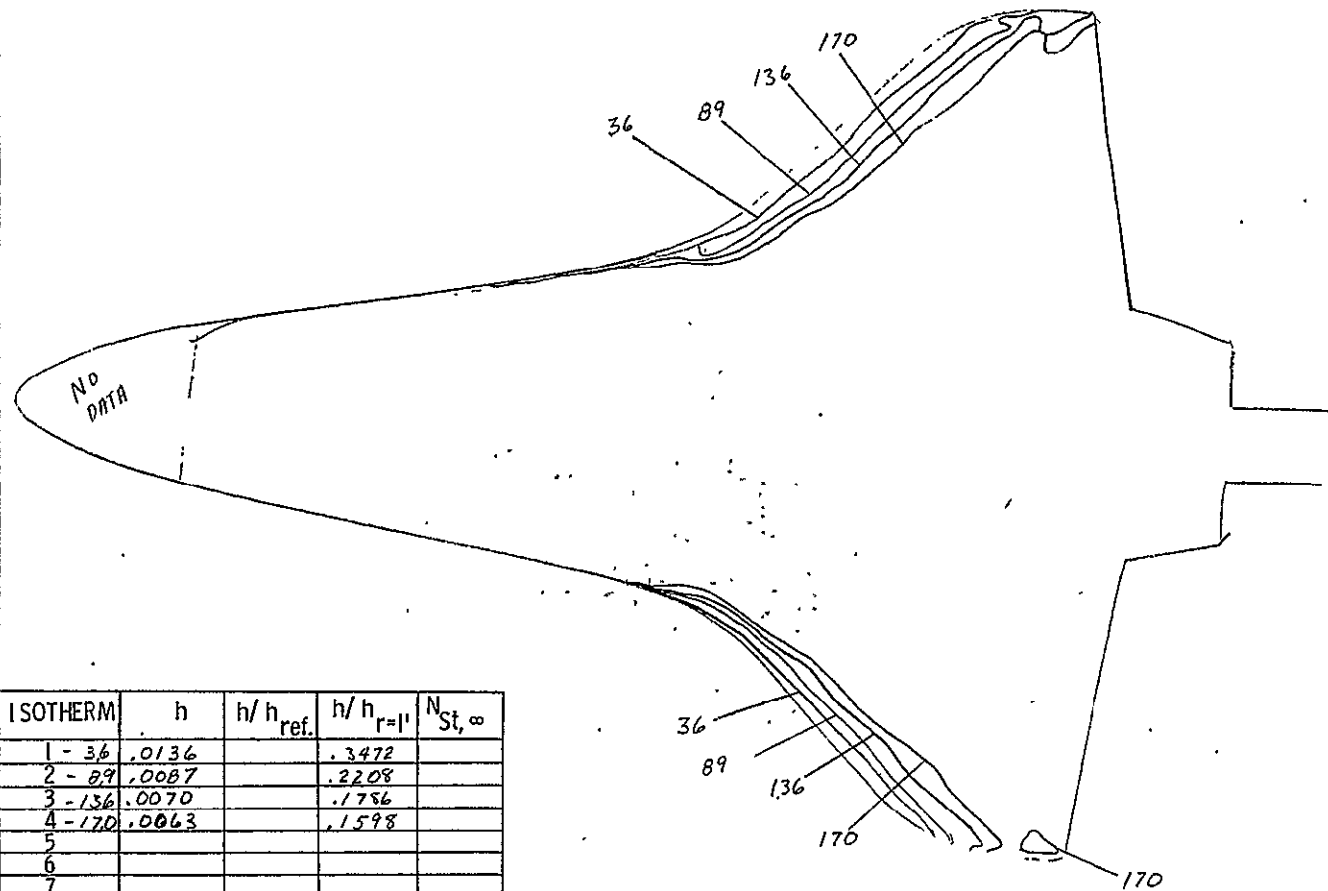
110



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-18	.0126		.3219	
2-38	.0087		.2216	
3-69	.0065		.1644	
4-82	.0059		.1508	
5-118	.0049		.1257	
6-148	.0044		.1123	
7-191	.0039		.0988	
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	ΦH-46B
RUN	1 (4556)
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 157
T _{total} (°R)	= 840
R _∞ / ft	= 1 × 10 ⁶
T _{aw} / T _{total}	= .923
T _{aw} (°R)	=
T _i (°F)	= 76
T _{pc} (°F)	= 250
h _{r=1'}	= .0392
T̄	= .2621
(ρC _p k) ^{1/2}	= .0574
α	= 35°
β	= 0
Φ	= 0
CAMERA POSITION	TOP
	BOTTOM VIEW
Engineer	W. DYE, P. LAWING
	CFFS-HVD

PHASE CHANGE PAINT TEST

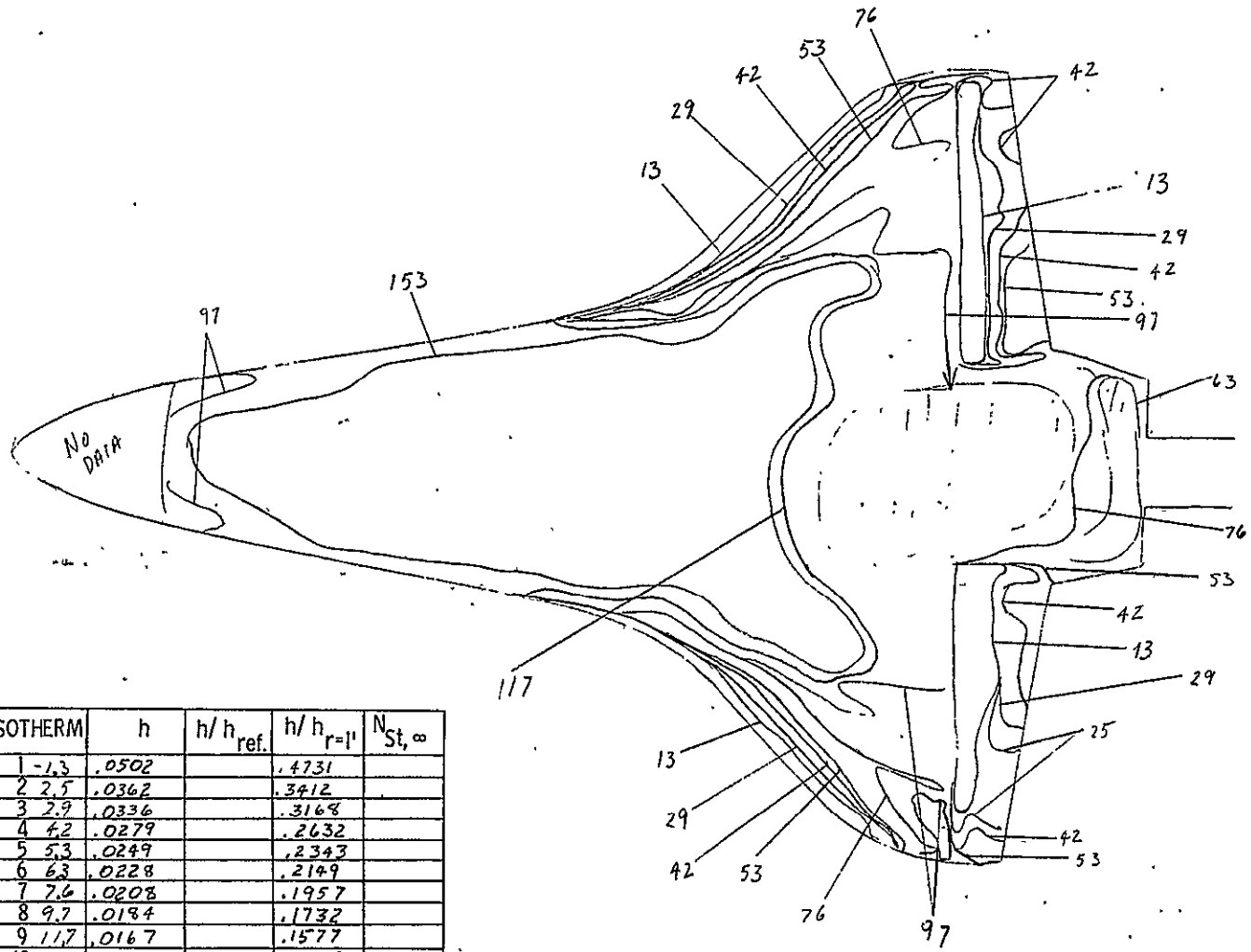


ISOTHERM	h	h/h _{ref.}	h/h _{r=1"}	N _{St,∞}
1 - 36	.0136		.3472	
2 - 89	.0087		.2208	
3 - 136	.0070		.1786	
4 - 170	.0063		.1598	
5				
6				
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	LRC/YDT
TEST	ØH-46'B
RUN	2 (4557)
LENGTH	7.7418m. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total}	(psia) = 157
T _{total}	(°R) = 815
R _∞ /ft	= 1 x 10 ⁶
T _{aw} /T _{total}	= .923
T _{aw}	(°R) =
T _i	(°F) = 73
T _{pc}	(°F) = 300
h _{r=1"}	= .0392
T̄	= .3525
(ρC _p k) ^{1/2}	= .0586
α	= 35
β	= 0
Φ	= 0
CAMERA POSITION	T=0
Engineer	D. ...
	CFFS-HVD

PHASE CHANGE PAINT TEST

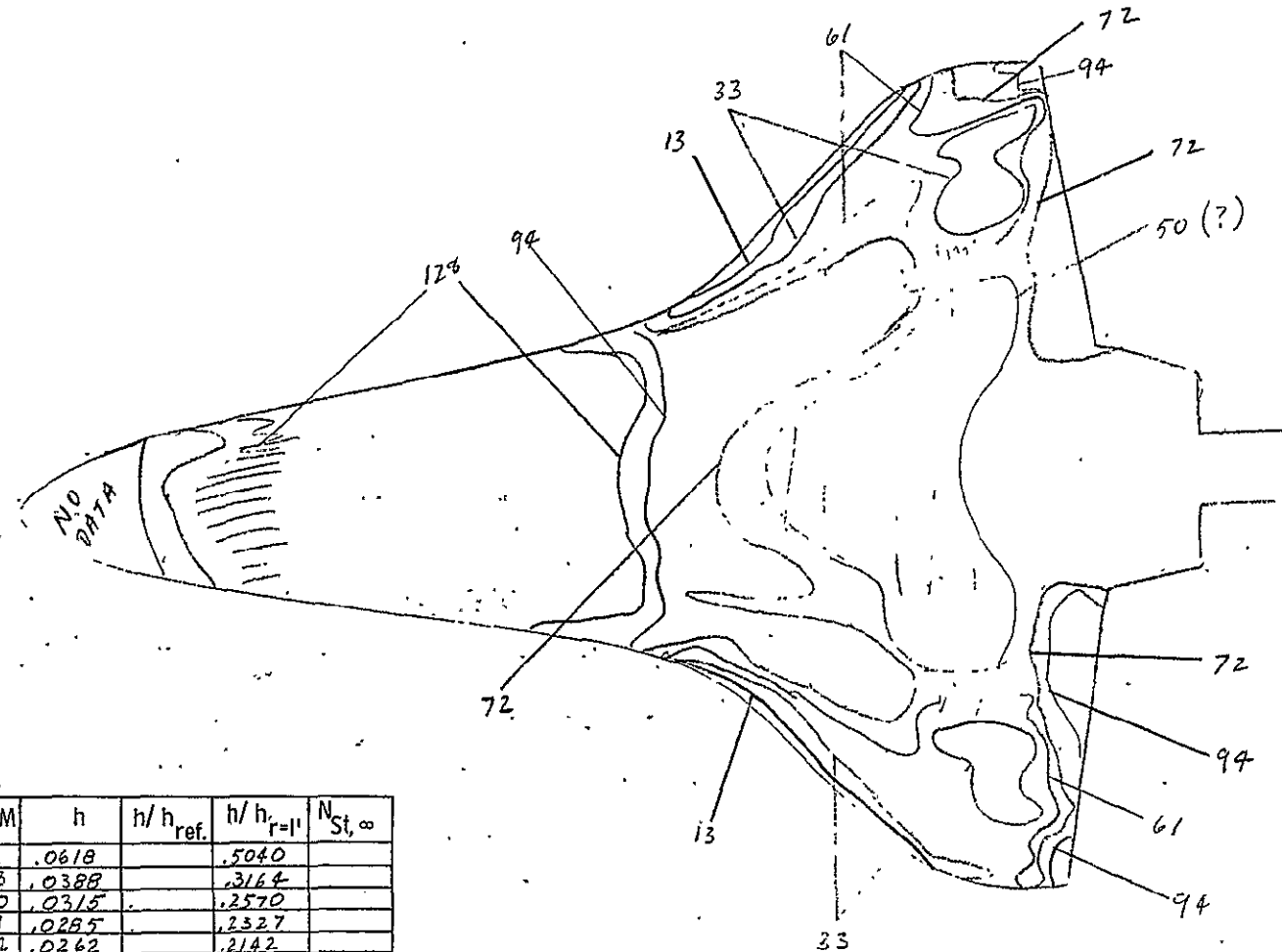
CONFIGURATION	31
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	3 (455E)
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1435
T_{total} (°R)	= 955
R_∞ / ft	= 6×10^6
T_{aw} / T_{total}	= .923
T_{aw} (°R)	=
T_i (°F)	= 74
T_{pc} (°F)	= 500
$h_{r=1}$	= .1061
\bar{T}	= .5518
$(\rho C_p k)^{1/2}$	= .0617
α	= .35
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye, P. LAWING
	CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1	-1.3	.0502	.4731	
2	2.5	.0362	.3412	
3	2.9	.0336	.3168	
4	4.2	.0279	.2632	
5	5.3	.0249	.2343	
6	6.3	.0228	.2149	
7	7.6	.0208	.1957	
8	9.7	.0184	.1732	
9	11.7	.0167	.1577	
10	15.3	.0143	.1379	

112

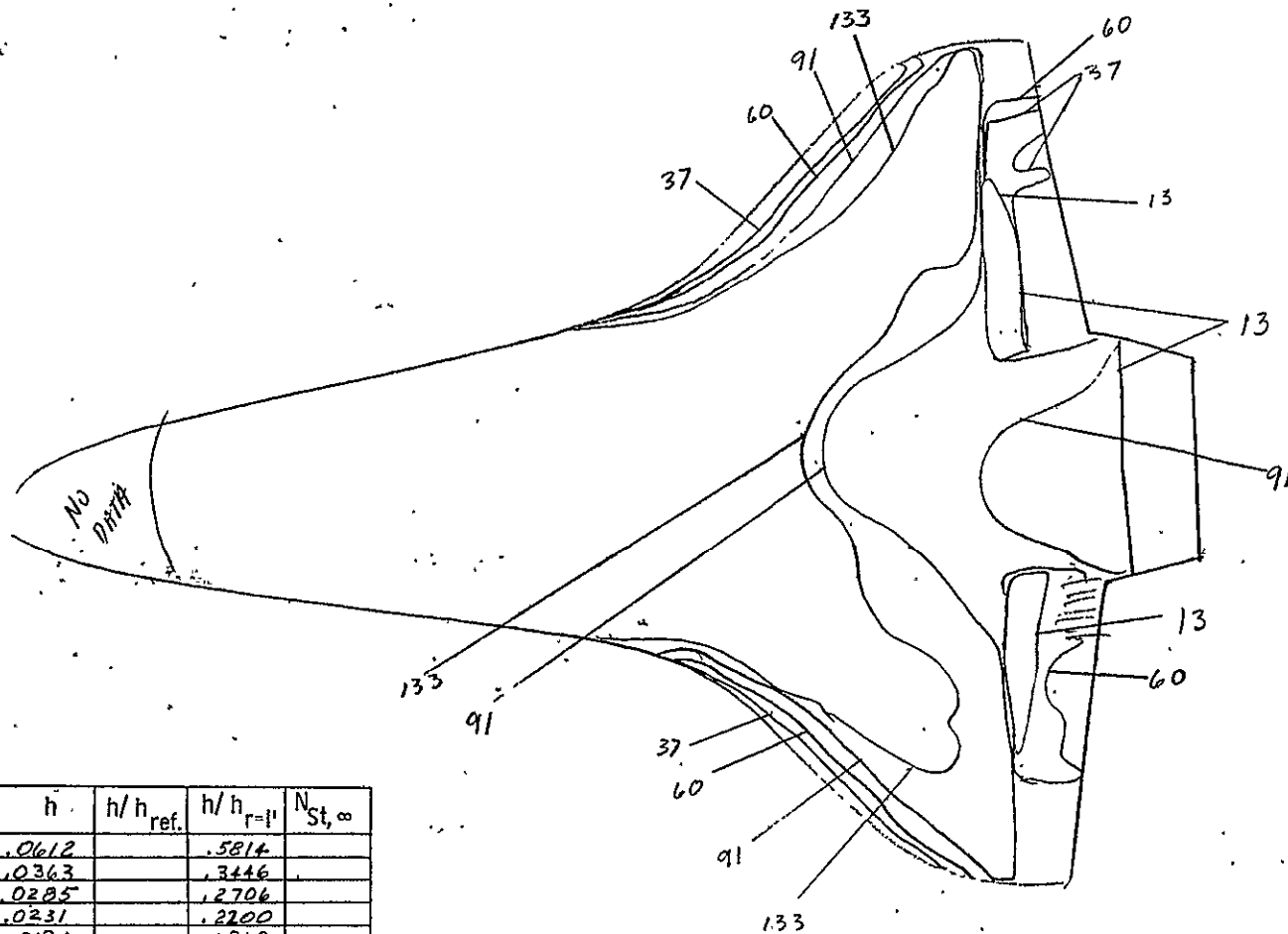
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref}	h/h _{r=1}	N _{St,∞}
1-13	.0618		.5040	
2-33	.0388		.3164	
3-50	.0315		.2570	
4-61	.0285		.2327	
5-72	.0262		.2142	
6-94	.0298		.1874	
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4559
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.002
SCALE	= .006
M _∞	= 8.
P _{total} (psia)	= 1960
T _{total} (°R)	= 965
R _∞ / ft	= 8 × 10 ⁶
T _{aw} / T _{total}	= .923
T _{aw} (°R)	=
T _i (°F)	= 76
T _{pc} (°F)	= 550
h _{r=1}	= .1224
\bar{T}	= .6083
(ρC _p k) ^{1/2}	= .0617
α	= 35°
β	= 0
φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

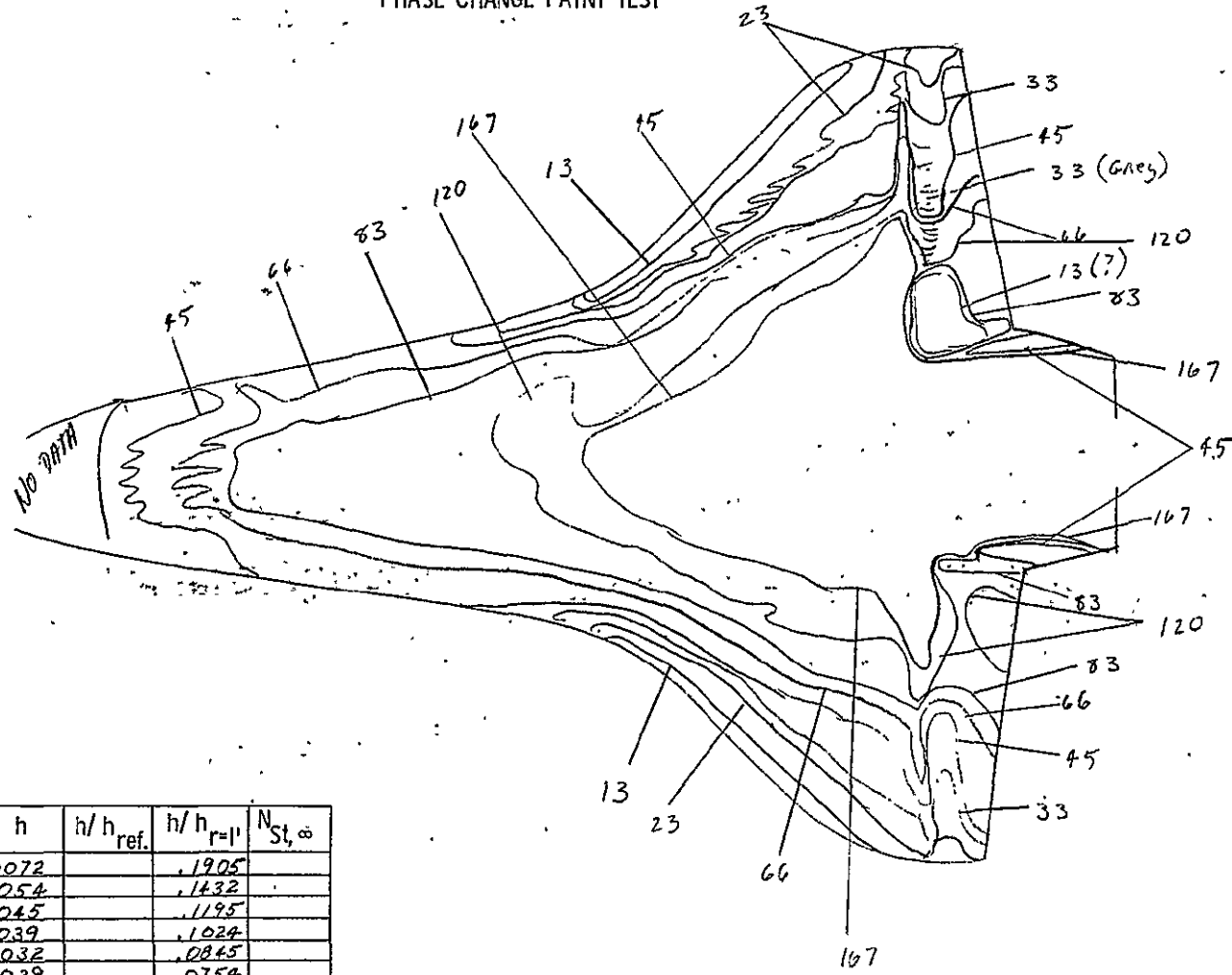


CONFIGURATION	41
FACILITY	LRC/VDT
TEST	ØH-46 B
RUN	4560
LENGTH	7.7418 in. m.s
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1410
T_{total} (°R)	= 970
R_∞ / ft	= 6
T_{aw} / T_{total}	= .923
T_{aw} (°R)	=
T_i (°F)	= 74
T_{pc} (°F)	= 550
$h_{r=1}$	= .1052
\bar{T}	= .6057
$(\rho C_p k)^{1/2}$	= .0617
α	= 35
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1-13	.0612		.5814	
2-37	.0363		.3446	
3-60	.0285		.2706	
4-91	.0231		.2200	
5-133	.0191		.1818	
6				
7				
8				
9				
10				

114

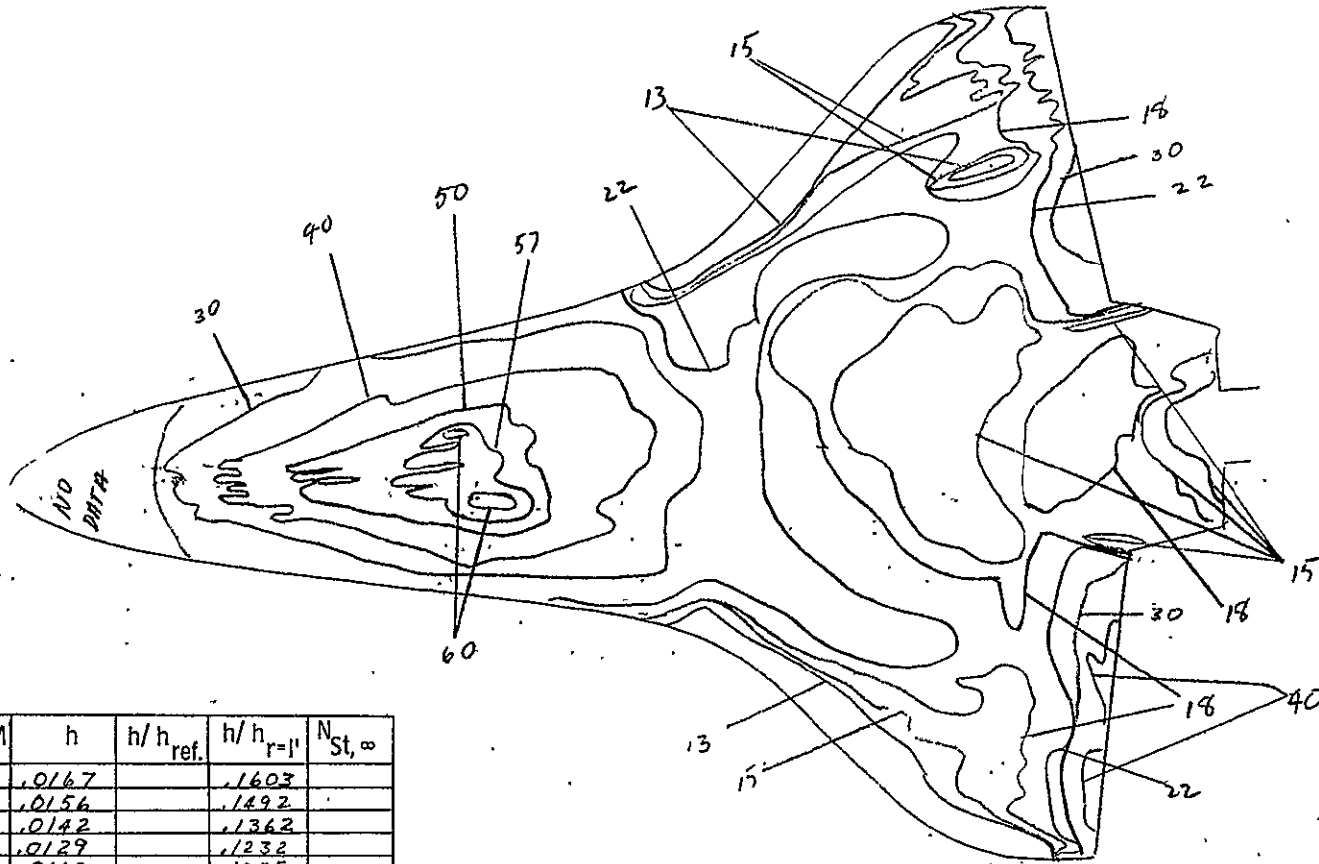
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref}	h/h _{r=1"}	N _{St, ∞}
1-13	.0072		.1905	
2-23	.0054		.1432	
3-33	.0045		.1195	
4-45	.0039		.1024	
5-66	.0032		.0845	
6-83	.0029		.0754	
7-120	.0024		.0627	
8-167	.0020		.0531	
9				
10				

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4561
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 146
T _{total} (°R)	= 815
R _∞ / ft	= 1 x 10 ⁶
T _{aw} / T _{total}	= .923
T _{aw} (°R)	=
T _i (°F)	= 78
T _{pc} (°F)	= 175
h _{r=1"}	= .0379
T̄	= .1518
(ρC _p k) ^{1/2}	= .0537
α	= 35
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W.Dye
	CFFS-HVD

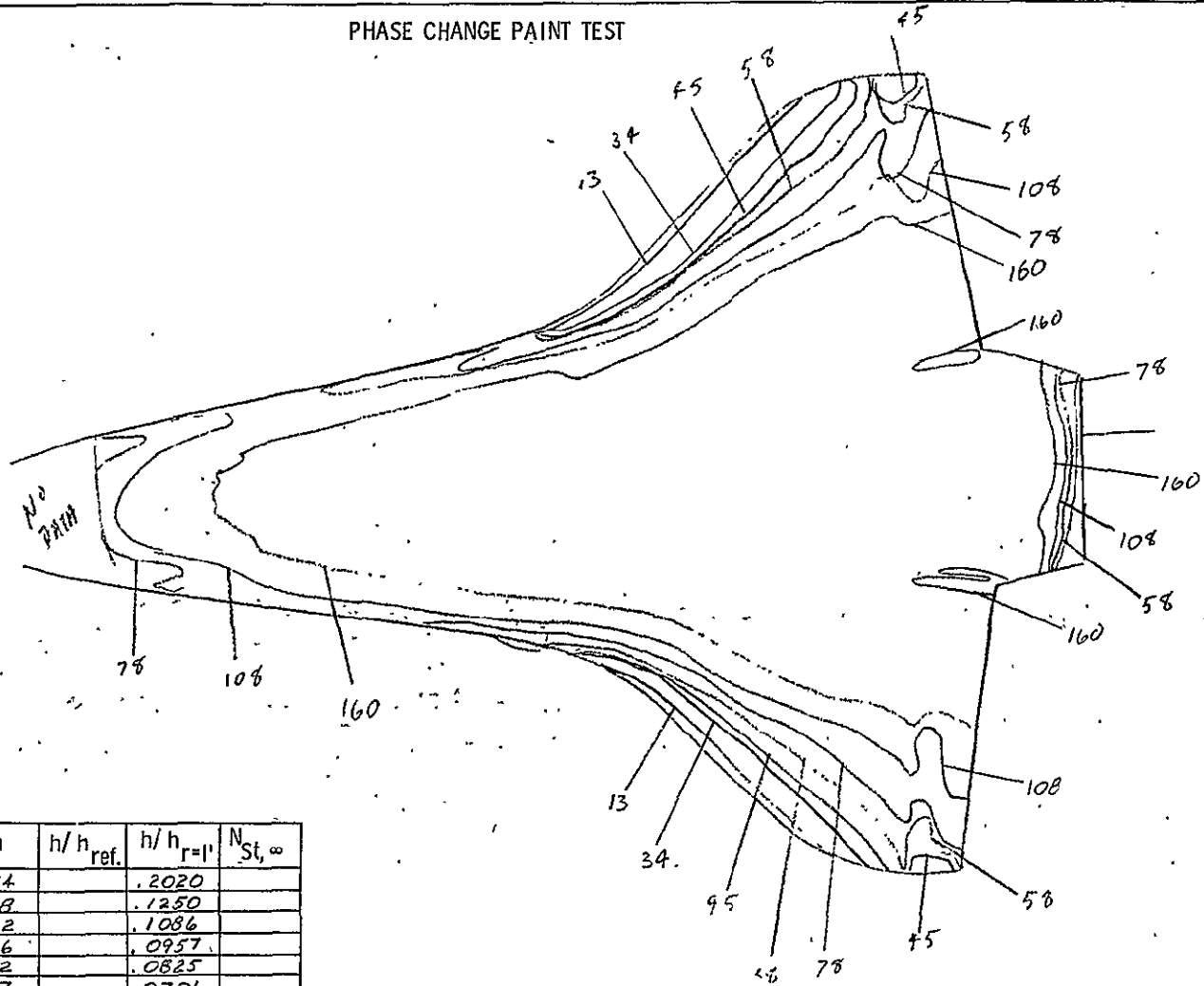
PHASE CHANGE PAINT TEST



ISOTHERM sec	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-13	.0167		.1603	
2-15	.0156		.1492	
3-18	.0142		.1362	
4-22	.0129		.1232	
5-30	.0110		.1055	
6-40	.0095		.0914	
7-50	.0085		.0817	
8-57	.0080		.0765	
9-60	.0078		.0746	
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	456 Z
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	Ø
P _{total} (psia)	= 1380
T _{total} (°R)	= 965
R _∞ / ft	= 6 x 10 ⁶
T _{aw} / T _{total}	= .923
T _{aw} (°R)	=
T _i (°F)	= 81
T _{pc} (°F)	= 300
h _{r=1'}	= .1045
T̄	= .2828
(ρC _p k) ^{1/2}	= .0586
α	= 35
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST



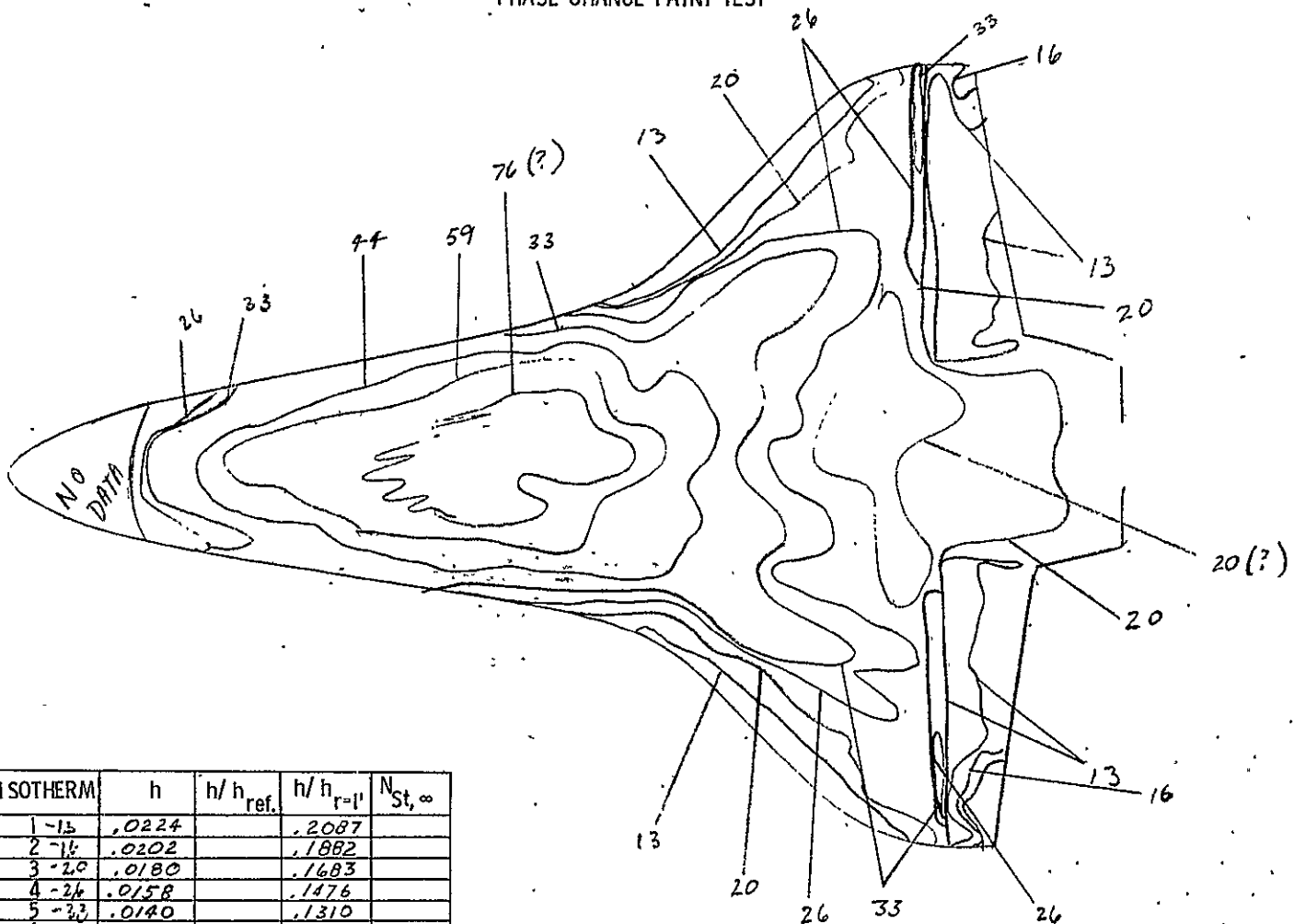
ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1 - 13	.0074		.2020	
2 - 34	.0048		.1250	
3 - 45	.0042		.1086	
4 - 55	.0036		.0957	
5 - 78	.0032		.0825	
6 - 108	.0027		.0701	
7 - 160	.0022		.0576	
8				
9				
10				

CONFIGURATION	41
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4563
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 151
T _{total} (°R)	= 785
R _∞ / ft	= 1 x 10 ⁶
T _{aw} / T _{total}	= .923
T _{aw} (°R)	=
T _i (°F)	= 76
T _{pc} (°F)	= 175
h _{r=1'}	= .0383
T _i	= .1615
(ρC _p k) ^{1/2}	= .0537
α	= 35°
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

117

PHASE CHANGE PAINT TEST

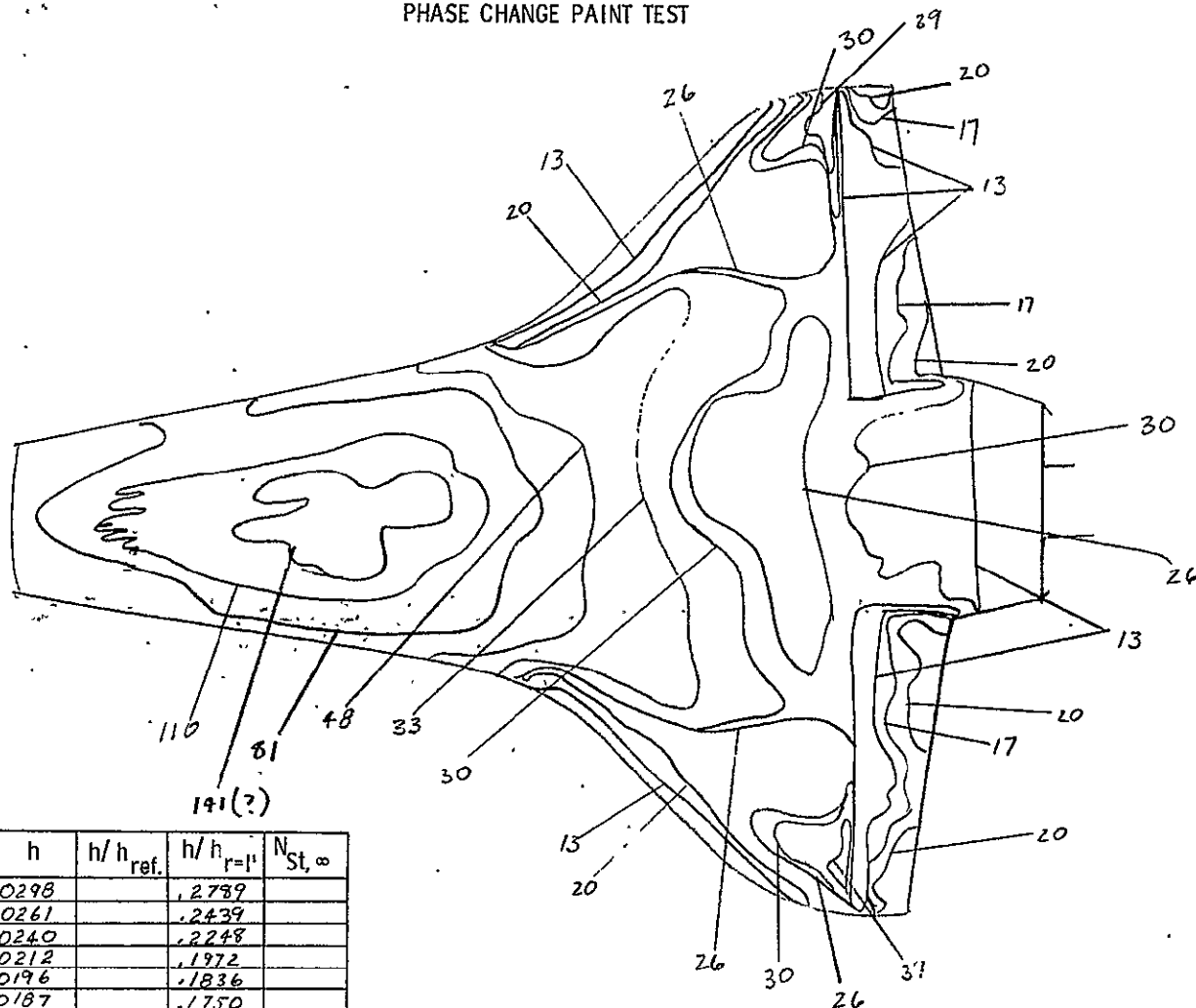
CONFIGURATION	31
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4565
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1455
T_{total} ($^{\circ}R$)	= 975
R_∞ / ft	= 6×10^6
T_{aw} / T_{total}	= .923
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 78
T_{pc} ($^{\circ}F$)	= 350
$h_{r=1}$	= .1072
\bar{T}	= .3458
$(\rho C_p k)^{1/2}$	= .0595
α	= 35
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	w. Dye
	CFFS-HVD



118

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1-15	.0224		.2087	
2-16	.0202		.1882	
3-20	.0180		.1683	
4-26	.0158		.1476	
5-33	.0140		.1310	
6-44	.0122		.1135	
7-59	.0105		.0980	
8-76	.0092		.0863	
9				
10				

PHASE CHANGE PAINT TEST



No
DATA

619

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-13	.0298		.2799	
2-17	.0261		.2439	
3-20	.0240		.2248	
4-26	.0212		.1972	
5-30	.0196		.1836	
6-33	.0187		.1750	
7-37	.0172		.1610	
8-48	.0155		.1451	
9-61	.0119		.1117	
10-110	.0102		.0959	
11-141	.0090		.0847	

CONFIGURATION	41
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4567
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 1450
T _{total} (°R)	= 965
R _∞ / ft	= 6 x 10 ⁶
T _{aw} / T _{total}	= .923
T _{aw} (°R)	=
T _i (°F)	= 77
T _{pc} (°F)	= 400
h _{r=1'}	= .1069
T̄	= .4150
(ρC _p k) ^{1/2}	= .0604
α	= 35
β	= 0
φ	= 0
CAMERA POSITION	TCP
Engineer	W. Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

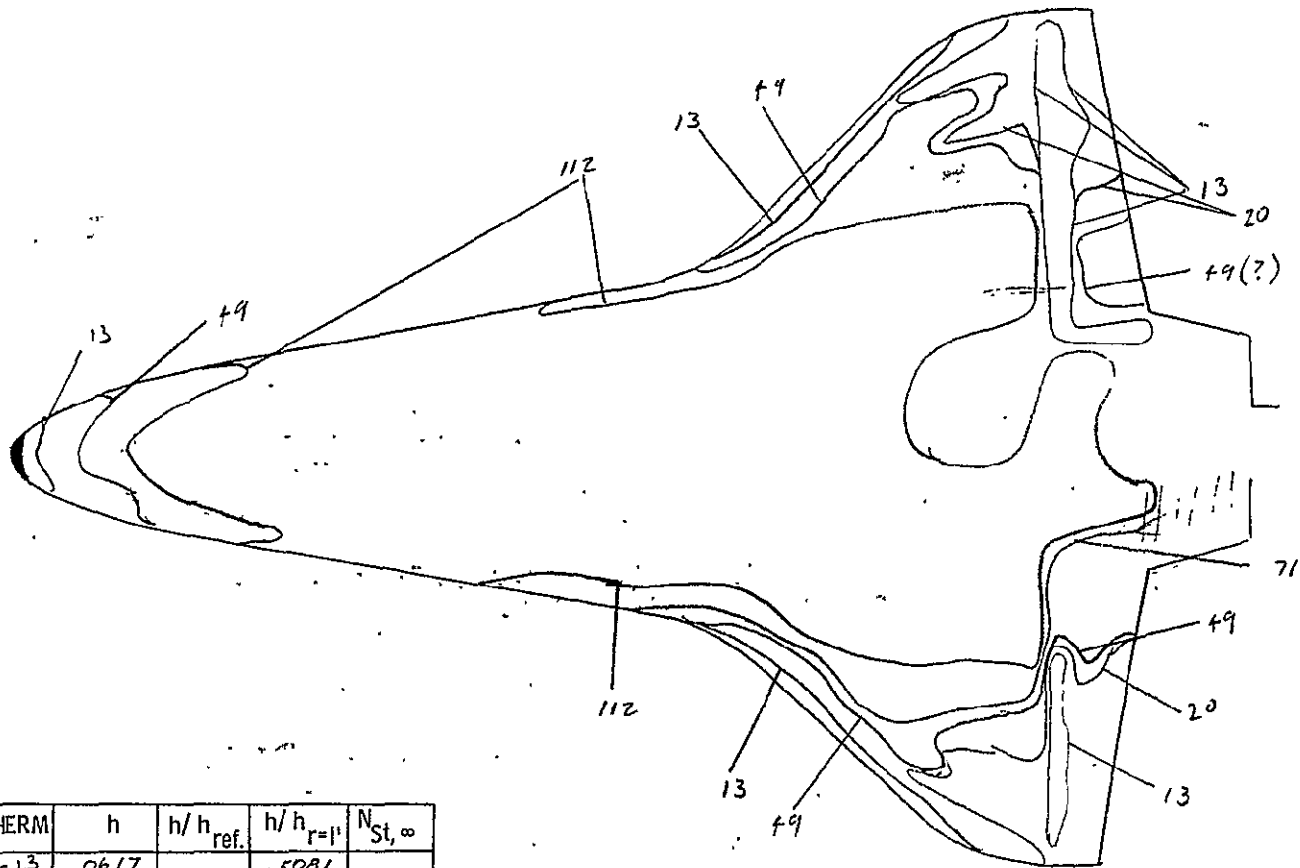
MISSING

120

CONFIGURATION GRID
FACILITY
TEST
RUNS 4568 thru 4601
LENGTH
NOSE RADIUS
SCALE
M_∞
P_{total} (psia) =
T_{total} ($^{\circ}R$) =
R_∞ / ft =
T_{aw} / T_{total} =
T_{aw} ($^{\circ}R$) =
T_i ($^{\circ}F$) =
T_{pc} ($^{\circ}F$) =
$h_{r=1}$ =
\bar{T} =
$(\rho C_p k)^{1/2}$ =
$\alpha = 30$
$\beta = 0$
$\phi = 0$
CAMERA POSITION
Engineer
CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

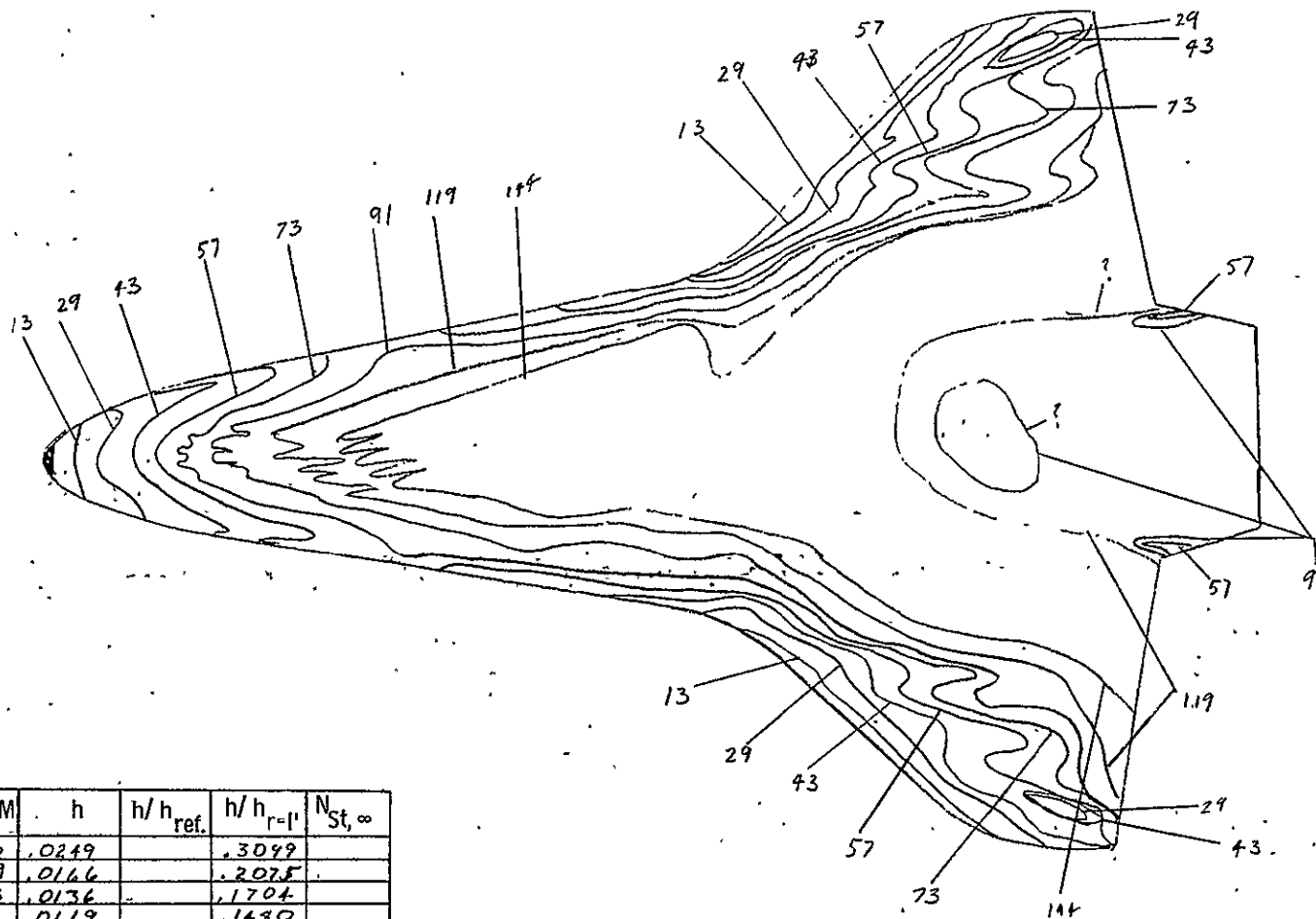


121

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St, ∞}
1	-1.3	.0617	.5081	
2	-2.0	.0497	.4097	
3	-4.1	.0318	.2617	
4	-7.1	.0264	.2174	
5	-11.2	.0210	.1731	
6				
7				
8				
9				
10				

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	OH46-B
RUN	456B
LENGTH	7.7418 in. m. s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 1915
T _{total} (°R)	= 980
R _∞ / ft	= 8 x 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 80
T _{pc} (°F)	= 550
h _{r=1'}	= .1214
T̄	= .6078
(ρC _p k) ^{1/2}	= .0617
α	= 30
β	= 0
φ	= 0
CAMERA POSITION	TOP
Engineer	W. D. e
	CFFS-HVD

PHASE CHANGE PAINT TEST

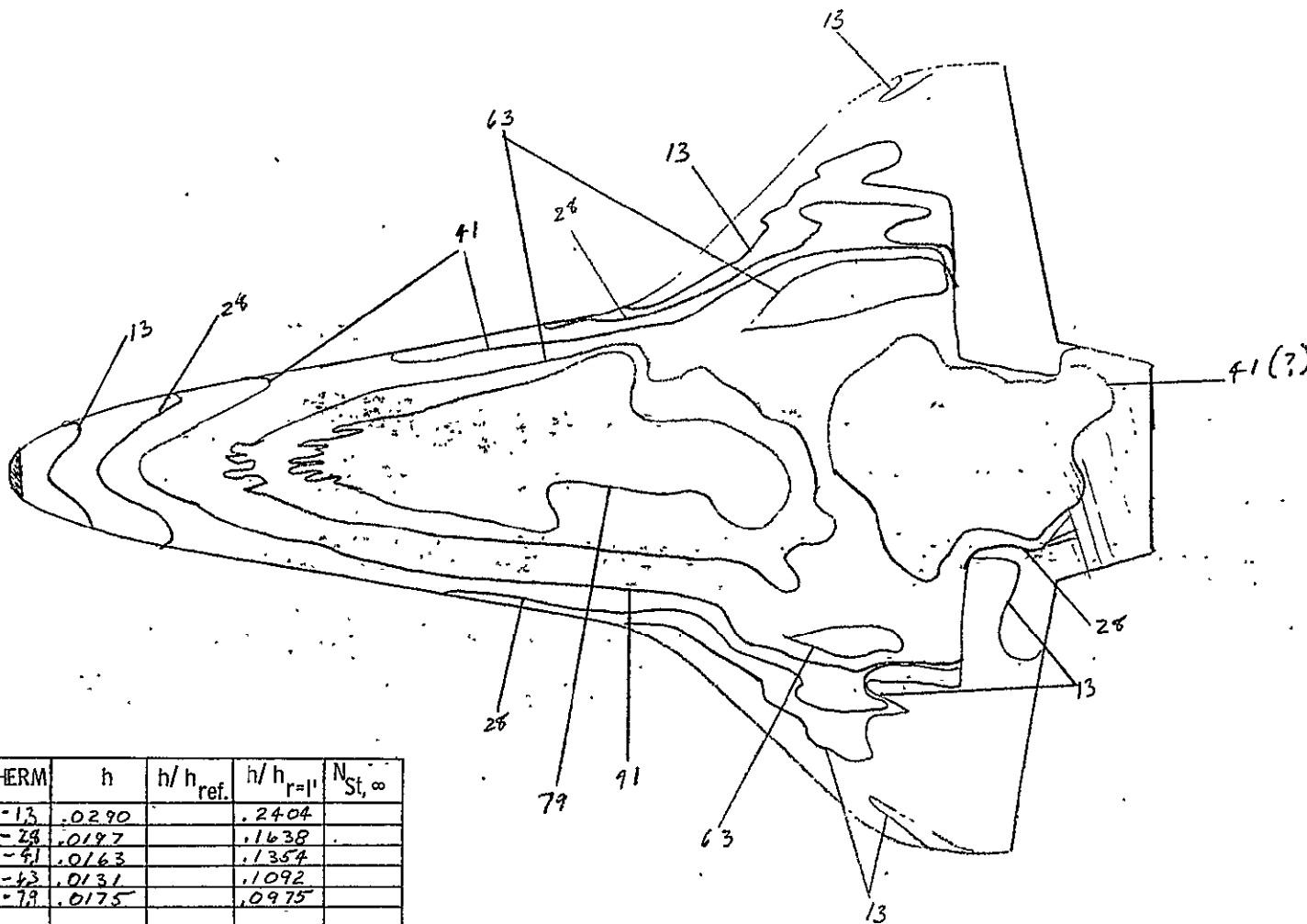


CONFIGURATION	22
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4569
LENGTH	7.7418 m. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1915
T_{total} (°R)	= 980
R_∞ / ft	= 3.5
T_{aw} / T_{total}	= .912
T_{aw} (°R)	=
T_i (°F)	= 80
T_{pc} (°F)	= 550
$h_{r=1}$	= .0802
\bar{T}	= .3719
$(\rho C_p k)^{1/2}$	= .0595
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	W. D. C.
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St,\infty}$
1-13	.0249		.3049	
2-29	.0166		.2075	
3-43	.0136		.1704	
4-57	.0119		.1490	
5-73	.0105		.1308	
6-91	.0094		.1171	
7-114	.0084		.1046	
8-144			.0954	
9				
10				

122

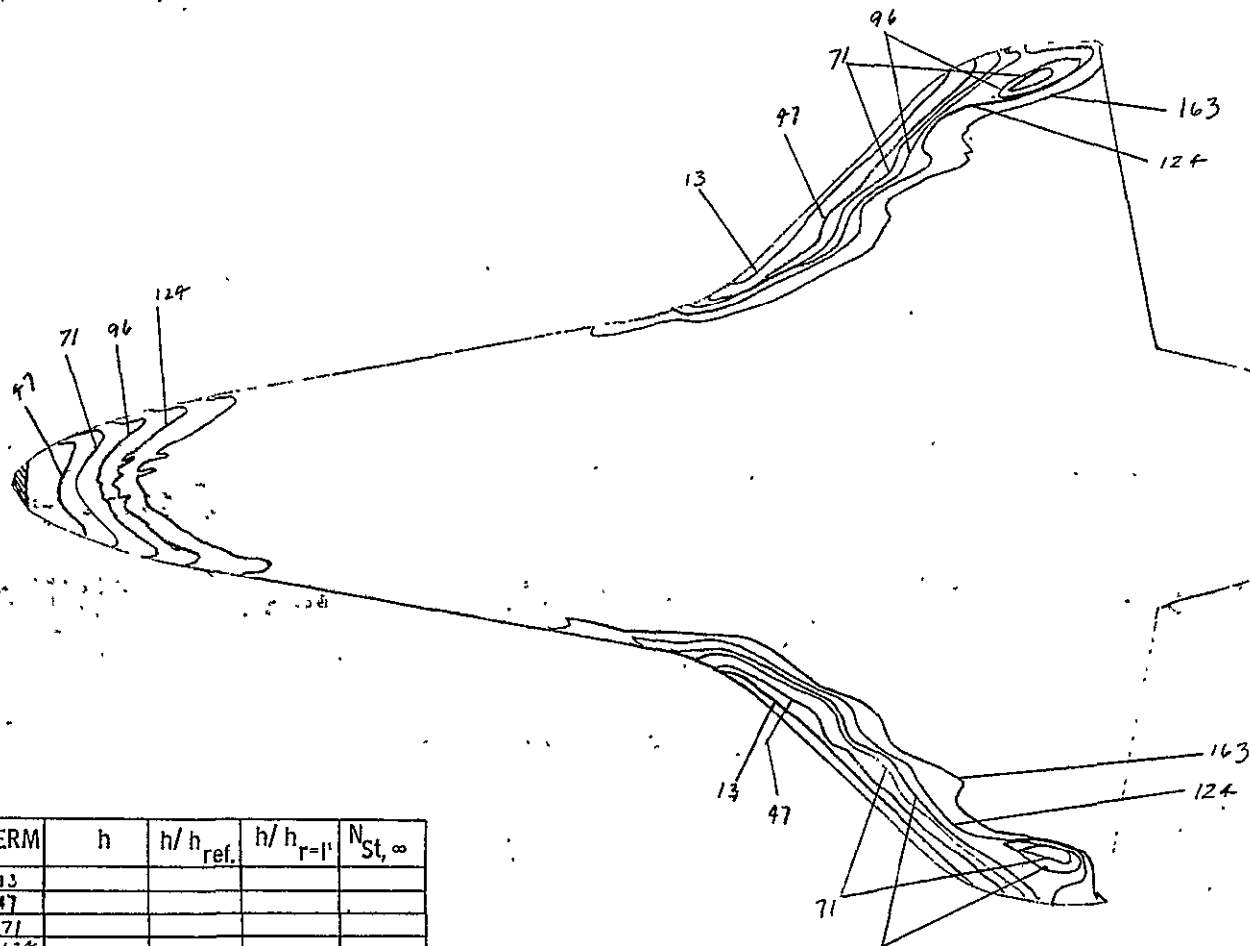
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1 - 13	.0290		.2404	
2 - 26	.0197		.1638	
3 - 41	.0163		.1354	
4 - 63	.0131		.1092	
5 - 79	.0175		.0975	
6				
7				
8				
9				
10				

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	0H46B
RUN	4570
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 1870
T _{total} (°R)	= 990
R _∞ / ft	= 8 × 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 82
T _{pc} (°F)	= 400
h _{r=1}	= .1204
T̄	= .4075
(ρC _p k) ^{1/2}	= .0604
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

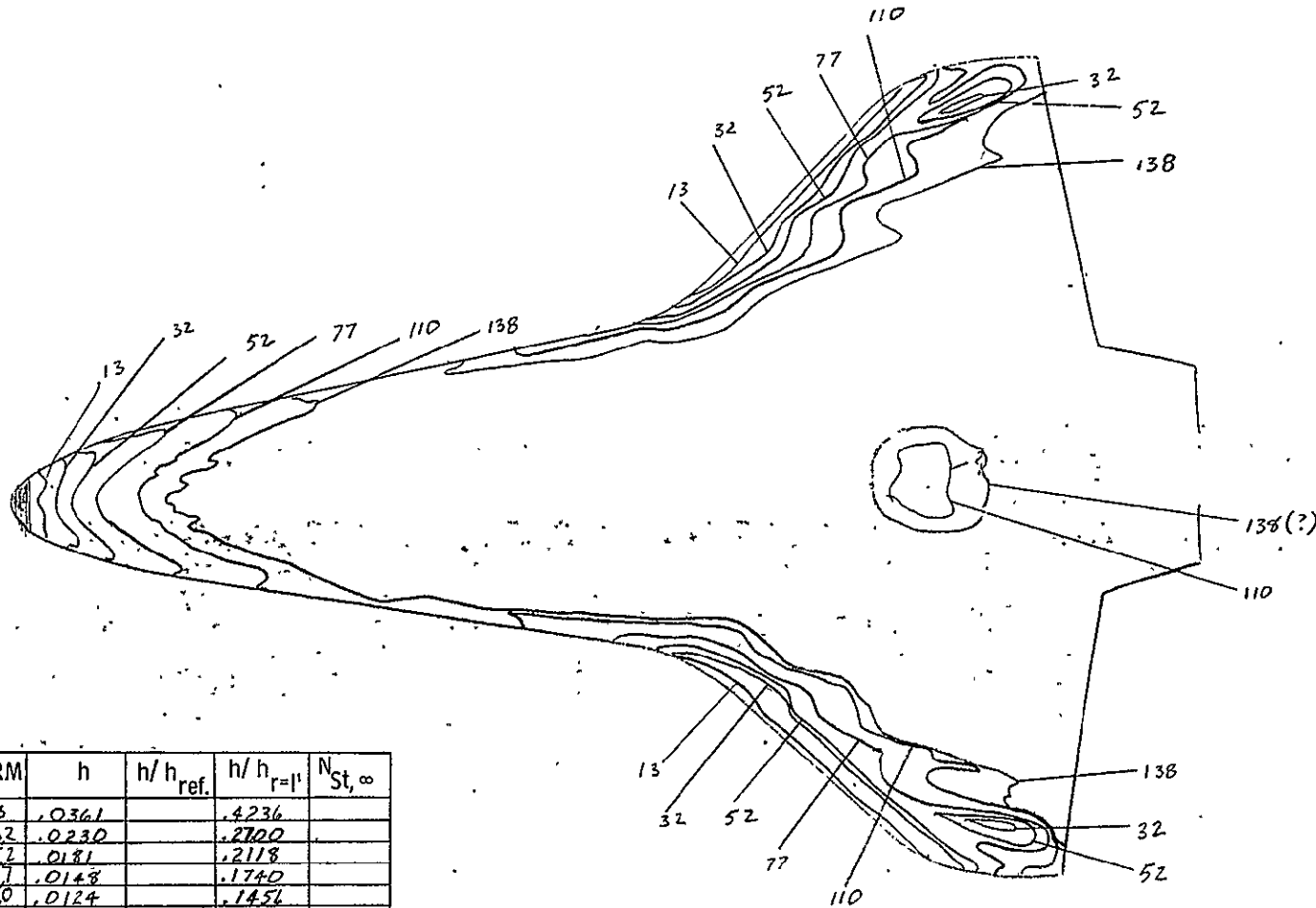


CONFIGURATION	22
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4571
LENGTH	7.7418 IN, M.S.
NOSE RADIUS	.006 M.S.
SCALE	.006
$M_\infty =$	
P_{total} (psia) =	775
T_{total} (°R) =	825
$R_\infty / ft =$	3.5
$T_{aw} / T_{total} =$	
T_{aw} (°R) =	
T_i (°F) =	88
T_{pc} (°F) =	400
$h_{r=1'} =$	
$\bar{T} =$	
$(\rho C_p k)^{1/2} =$	
$\alpha =$	30
$\beta =$	0
$\Phi =$	0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	$N_{St, \infty}$
1-13				
2-47				
3-71				
4-124				
5-163				
6				
7				
8				
9				
10				

124

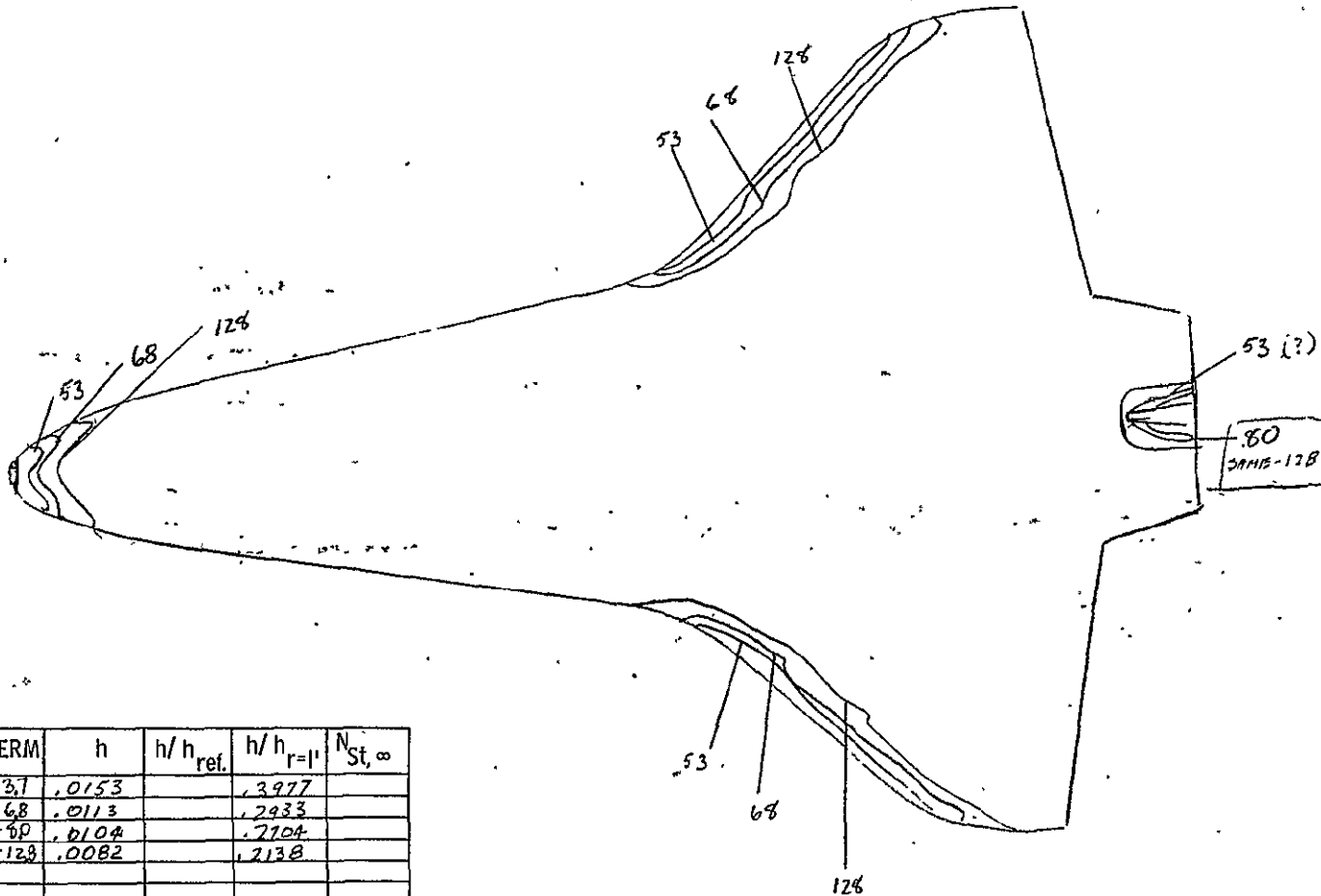
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref}	h/h _{r=1'}	N _{St,∞}
1-13	.0361		.4236	
2-32	.0230		.2700	
3-52	.0181		.2118	
4-77	.0148		.1740	
5-110	.0124		.1456	
6-138	.0111		.1300	
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/YDT
TEST	ØH-46B
RUN	457Z
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006 m.s.
SCALE	.006
M _∞	8
P _{total} (psia)	= 900
T _{total} (°R)	= 880
R _∞ / ft	= 4.0
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 83
T _{pc} (°F)	= 400
h _{r=1'}	= .0853
T̄	= .4668
(ρC _p k) ^{1/2}	= .0604
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

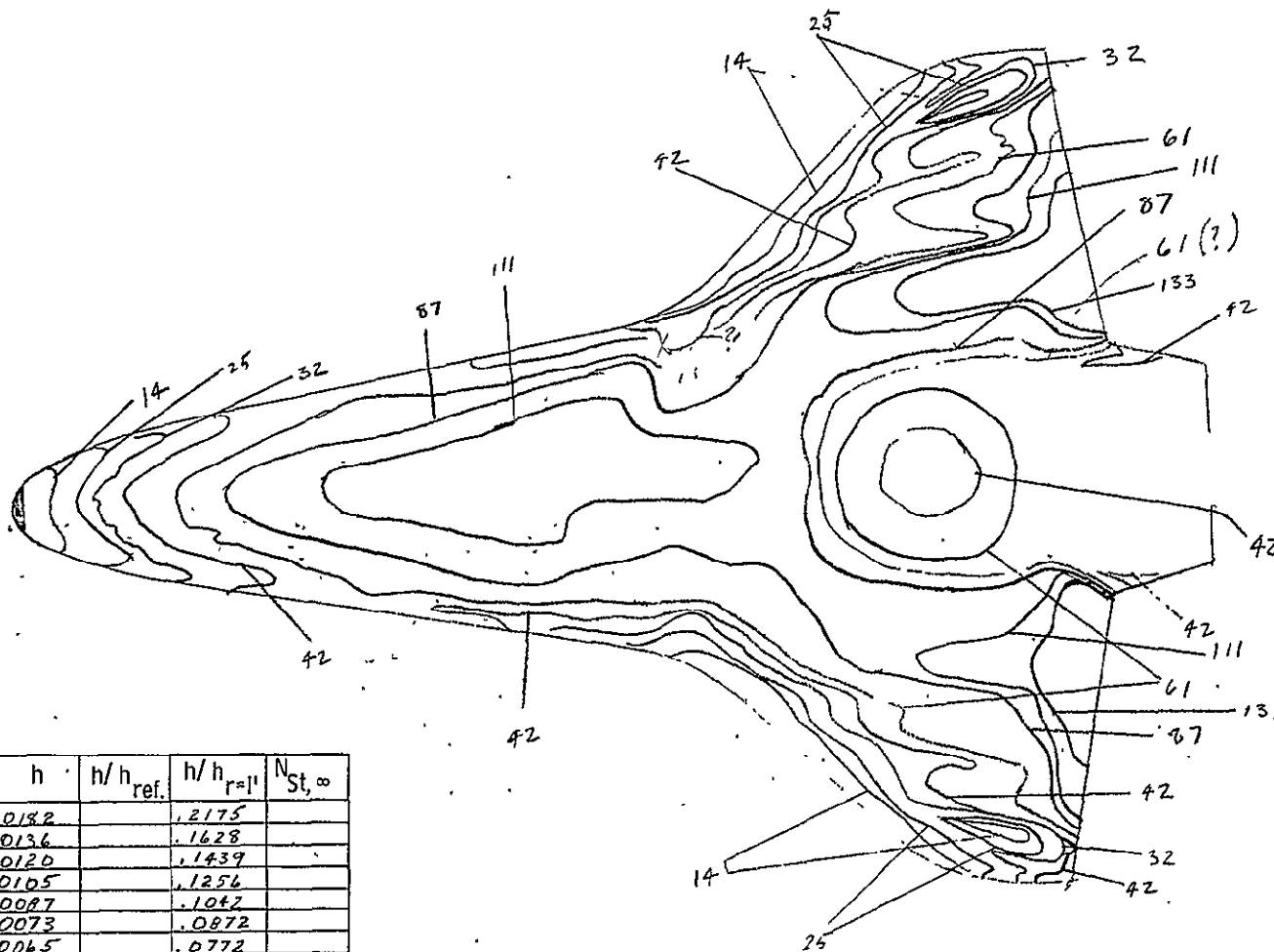
PHASE CHANGE PAINT TEST



CONFIGURATION	31 Ven D
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4573
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 153
T_{total} (°R)	= 750
R_∞ / ft	= 1×10^6
T_{aw} / T_{total}	= .912
T_{aw} (°R)	=
T_i (°F)	= 84
T_{pc} (°F)	= 300
$h_{r=1}$	= .0386
\bar{T}	= .3860
$(PC_k)_p^{1/2}$	= .0586
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	Top
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1-3.7	.0153		.3977	
2-68	.0113		.2933	
3-60	.0104		.2704	
4-128	.0082		.2138	
5				
6				
7				
8				
9				
10				

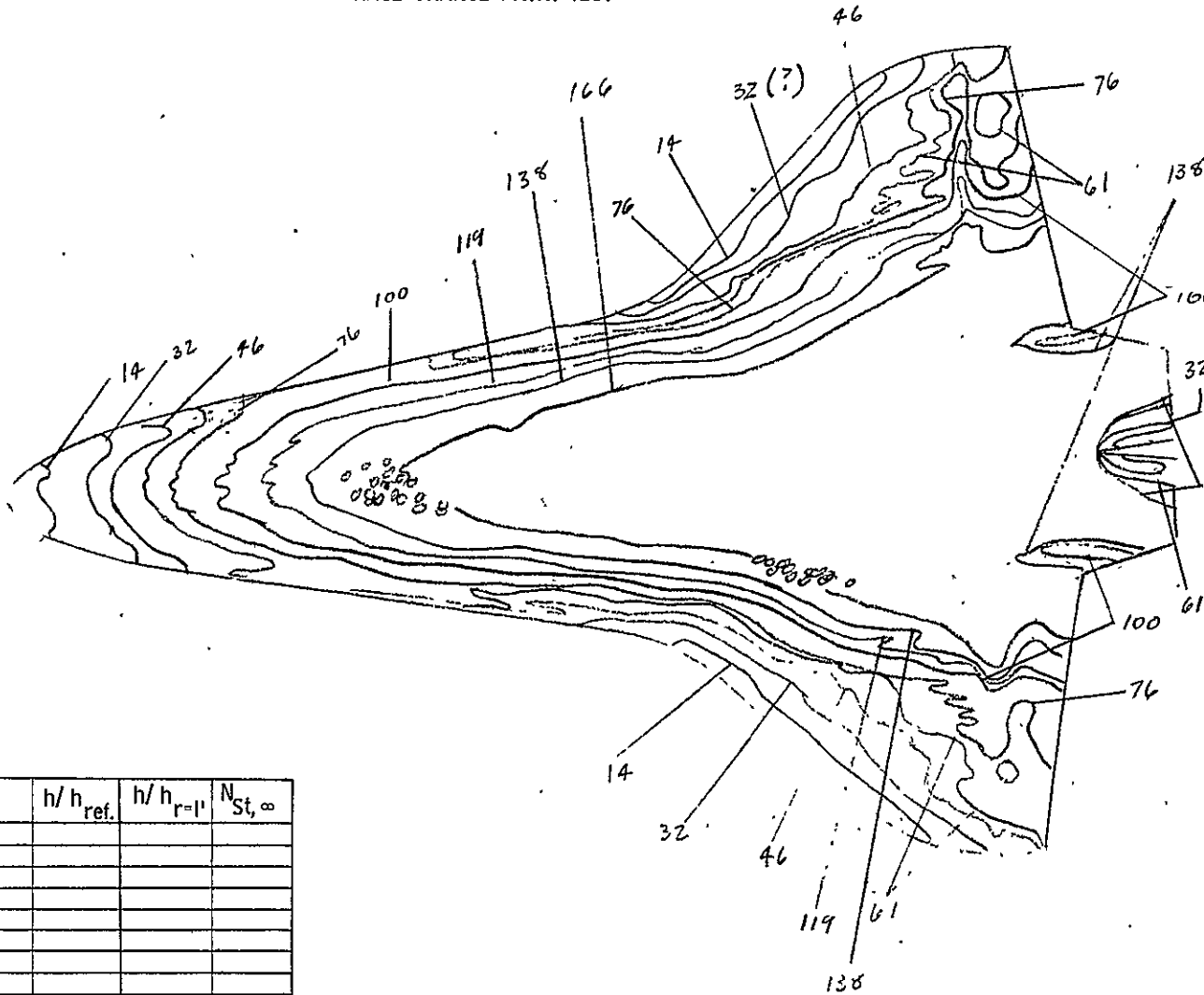
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-14	.0182		.2175	
2-25	.0136		.1628	
3-32	.0120		.1439	
4-42	.0105		.1256	
5-61	.0087		.1042	
6-67	.0073		.0872	
7-111	.0065		.0772	
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4574
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 855
T _{total} (°R)	= 915
R _∞ / ft	= 4.0
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 79
T _{pc} (°F)	= 300
h _{r=1'}	= .0835
T̄	= .3090
(ρC _p k) ^{1/2}	= .0586
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	L.W. Dye
	CFFS-HVD

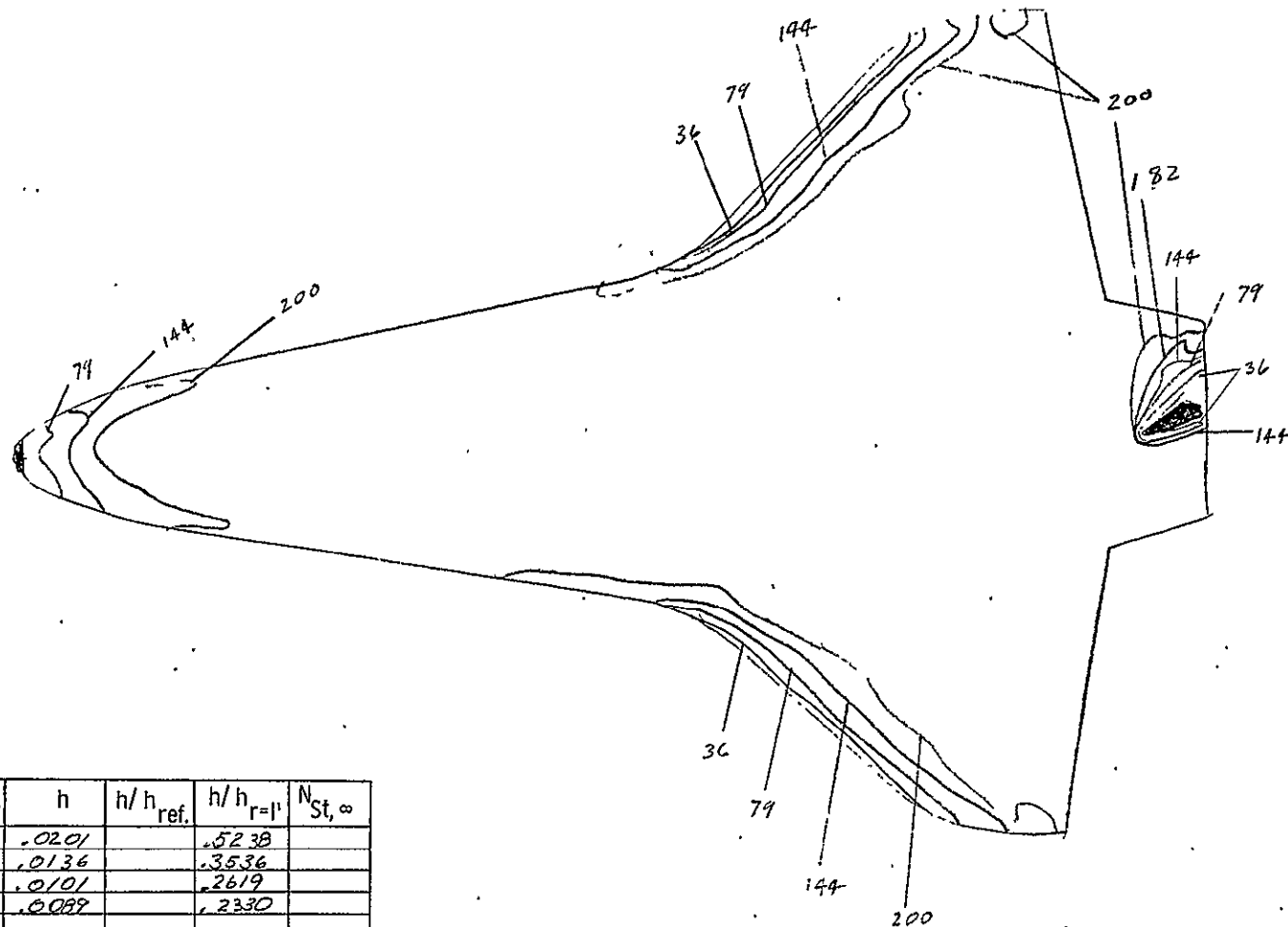
PHASE CHANGE PAINT TEST



CONFIGURATION	31 ven. 0
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4575
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	
P_{total} (psia)	= 172
T_{total} ($^{\circ}R$)	= 825
R_∞ / ft	= 1×10^6
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_1 ($^{\circ}F$)	= 76
T_{pc} ($^{\circ}F$)	= 200
$h_{r=1}$	=
\bar{T}	=
$(\rho C_p k)^{1/2}$	=
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	W.Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St,\infty}$
1 14				
2 32				
3 46				
4 61				
5 76				
6 100				
7 119				
8 138				
9 166				
10				

PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref}	h/h _{r=1'}	N _{St,∞}
1	3.6	.0201	.5238	
2	7.9	.0136	.3536	
3	14.4	.0101	.2619	
4	182	.0089	.2330	
5				
6				
7				
8				
9				
10				

CONFIGURATION	31VEN.30
FACILITY	LRC/VDT
TEST	OH46B
RUN	4577
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 150
T _{total} (°R)	= 795
R _∞ /ft	= 1 x 10 ⁶
T _{aw} /T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 76
T _{pc} (°F)	= 350
h _{r=1'}	= .0384
T̄	= -4502
(ρC _p k) ^{1/2}	= .0595
α	= 30
β	= 0
φ	= 0
CAMERA POSITION	TOP

Engineer *K. Dye*

129

PHASE CHANGE PAINT TEST

CONFIGURATION 31 Ven. 30

FACILITY LRC/VDT

TEST $\phi H-46B$

RUN 4579

LENGTH 7.7418 in. m.s.

NOSE RADIUS .006

SCALE .006

M_∞ 8

P_{total} (psia) = 156

T_{total} ($^{\circ}R$) = 765

R_∞ / ft = 1×10^6

T_{aw} / T_{total} = .912

T_{aw} ($^{\circ}R$) =

T_i ($^{\circ}F$) = 76

T_{pc} ($^{\circ}F$) = 200

$h_{r=1}$ = .0388

\bar{T} =

$(\rho C_p k)^{1/2}$ = .0546

α = 30

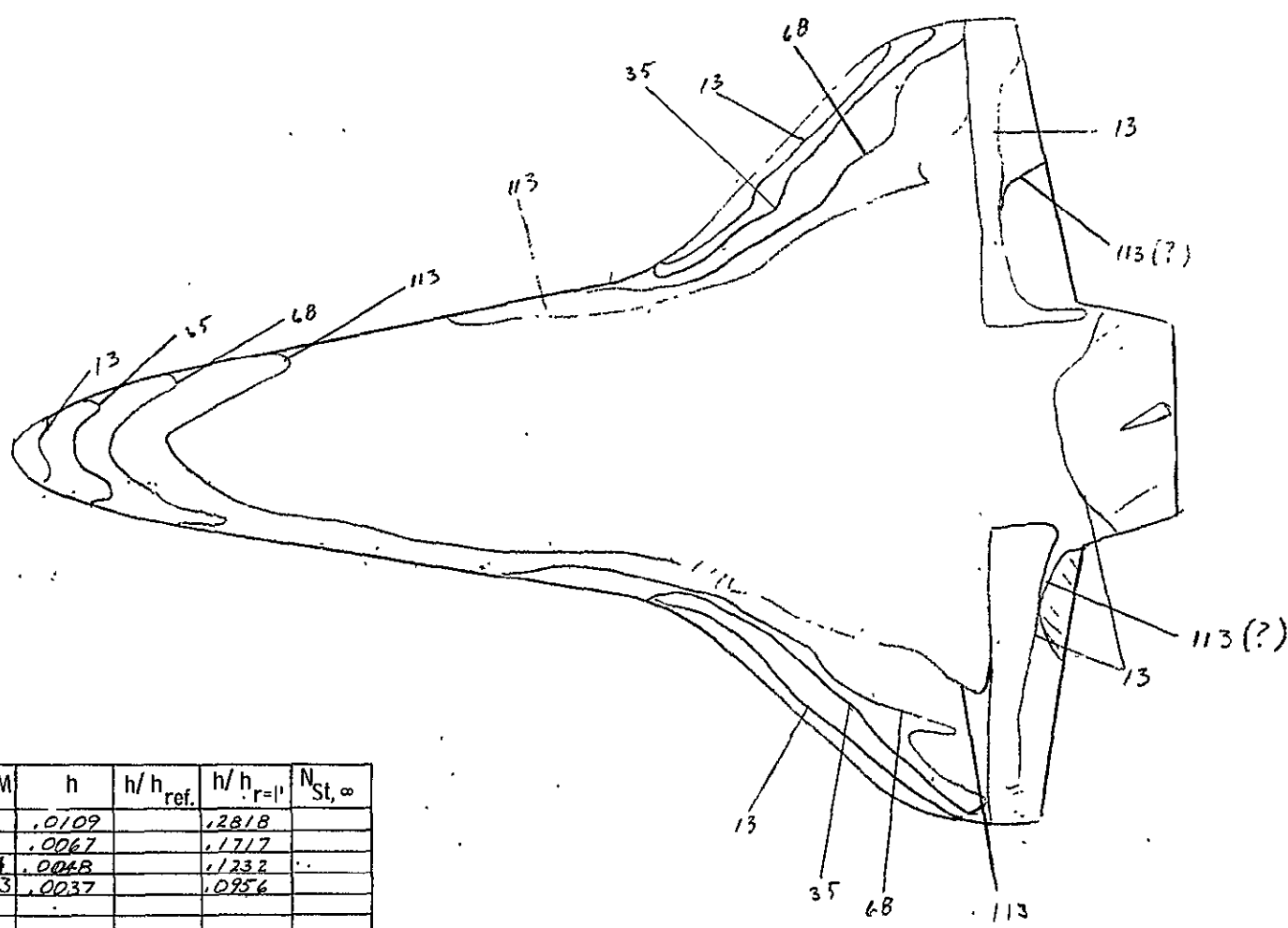
β = 0

ϕ = 0

CAMERA POSITION TOP

Engineer W. Dye

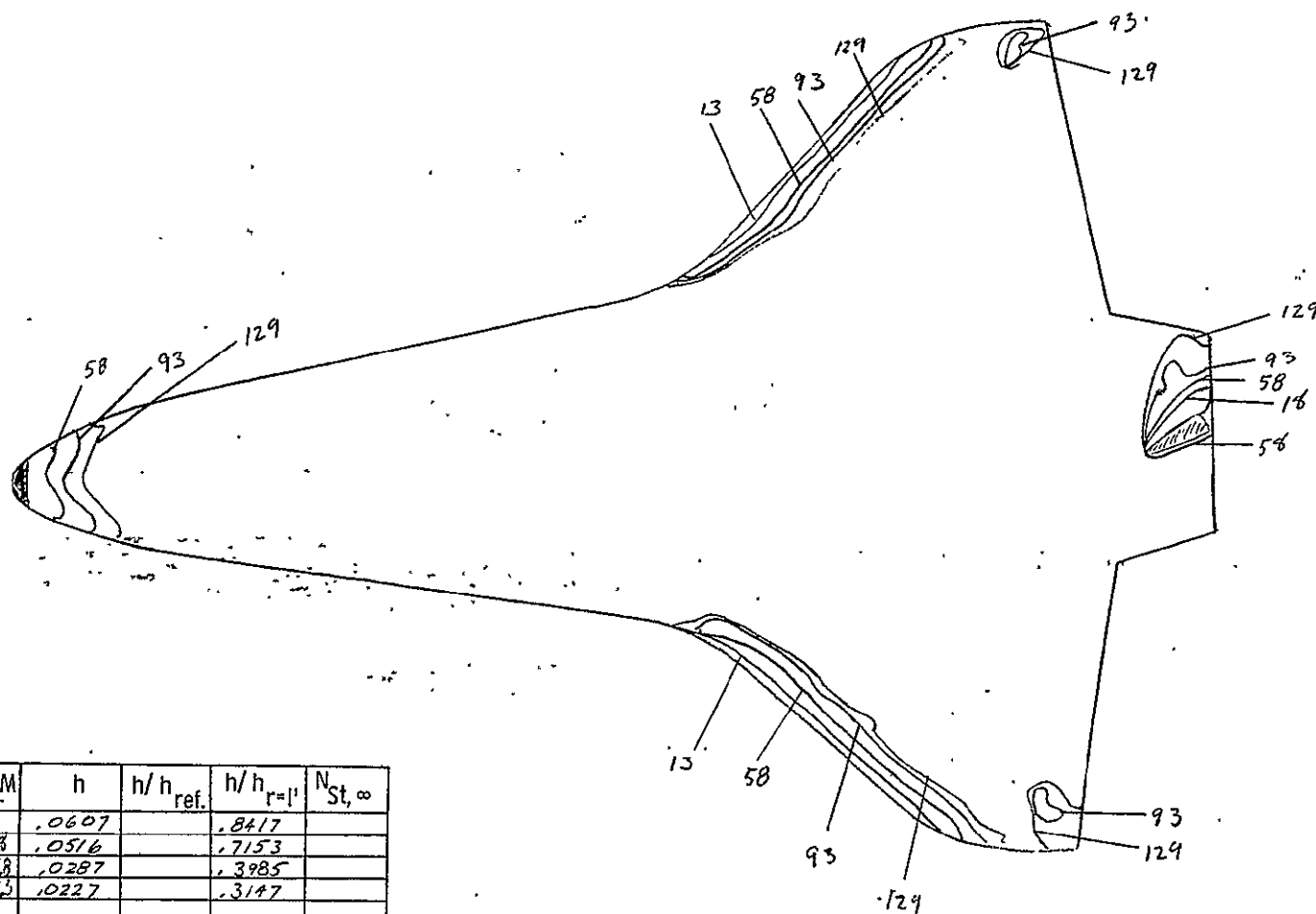
CFFS-HVD



130

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1-13	.0109		.2818	
2-35	.0067		.1717	
3-68	.0048		.1232	
4-113	.0037		.0956	
5				
6				
7				
8				
9				
10				

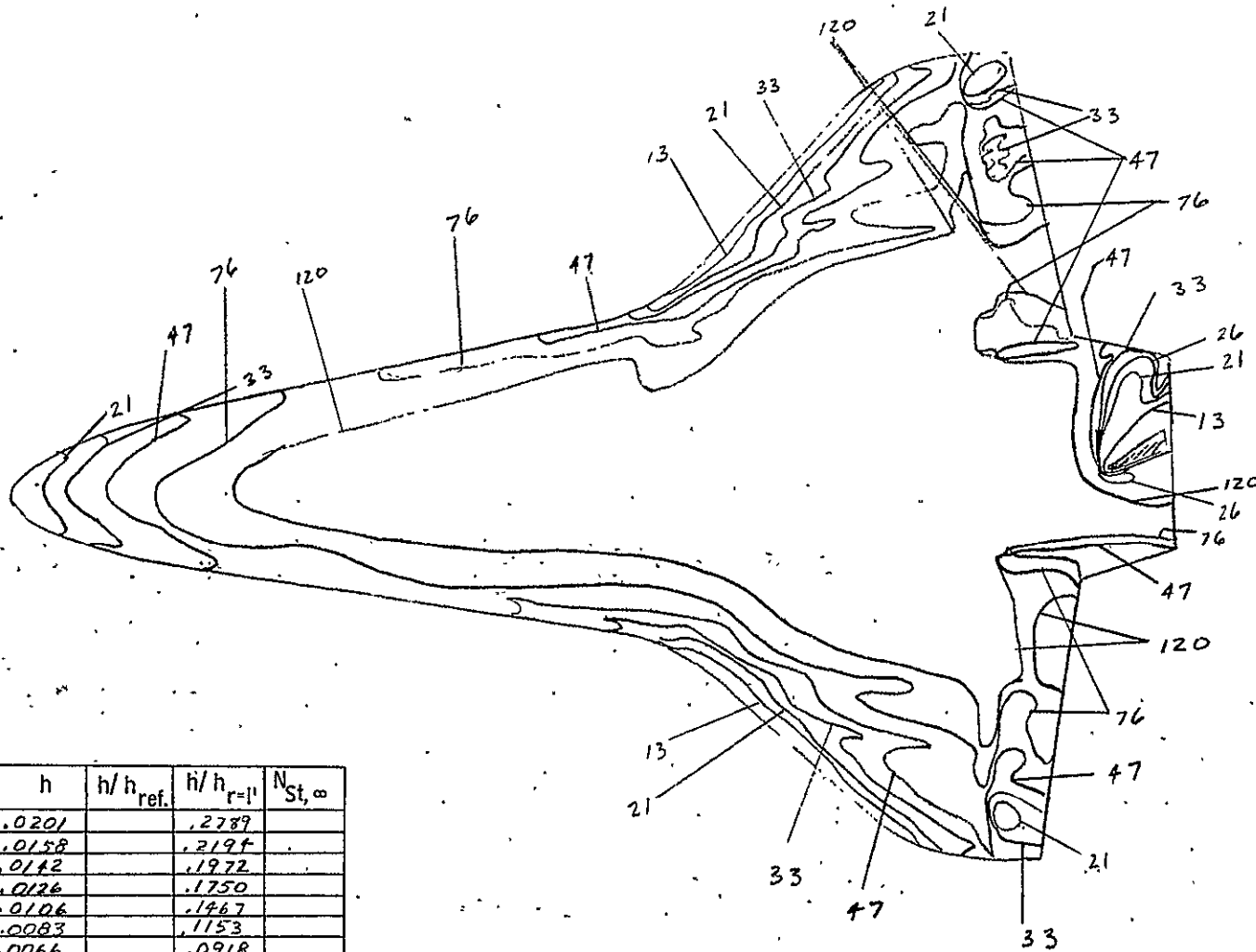
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-13	.0607		.8417	
2-13	.0516		.7153	
3-58	.0287		.3985	
4-93	.0227		.3147	
5				
6				
7				
8				
9				
10				

CONFIGURATION	31 ven 30
FACILITY	LRC/VDT
TEST	ØH46B
RUN	4581
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 625
T _{total} (°R)	= 895
R _∞ / ft	= 3.0 x 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 80
T _{pc} (°F)	= 500
h _{r=1'}	= .07215
T̄	= .6037
(ρC _p k) ^{1/2}	= .0617
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

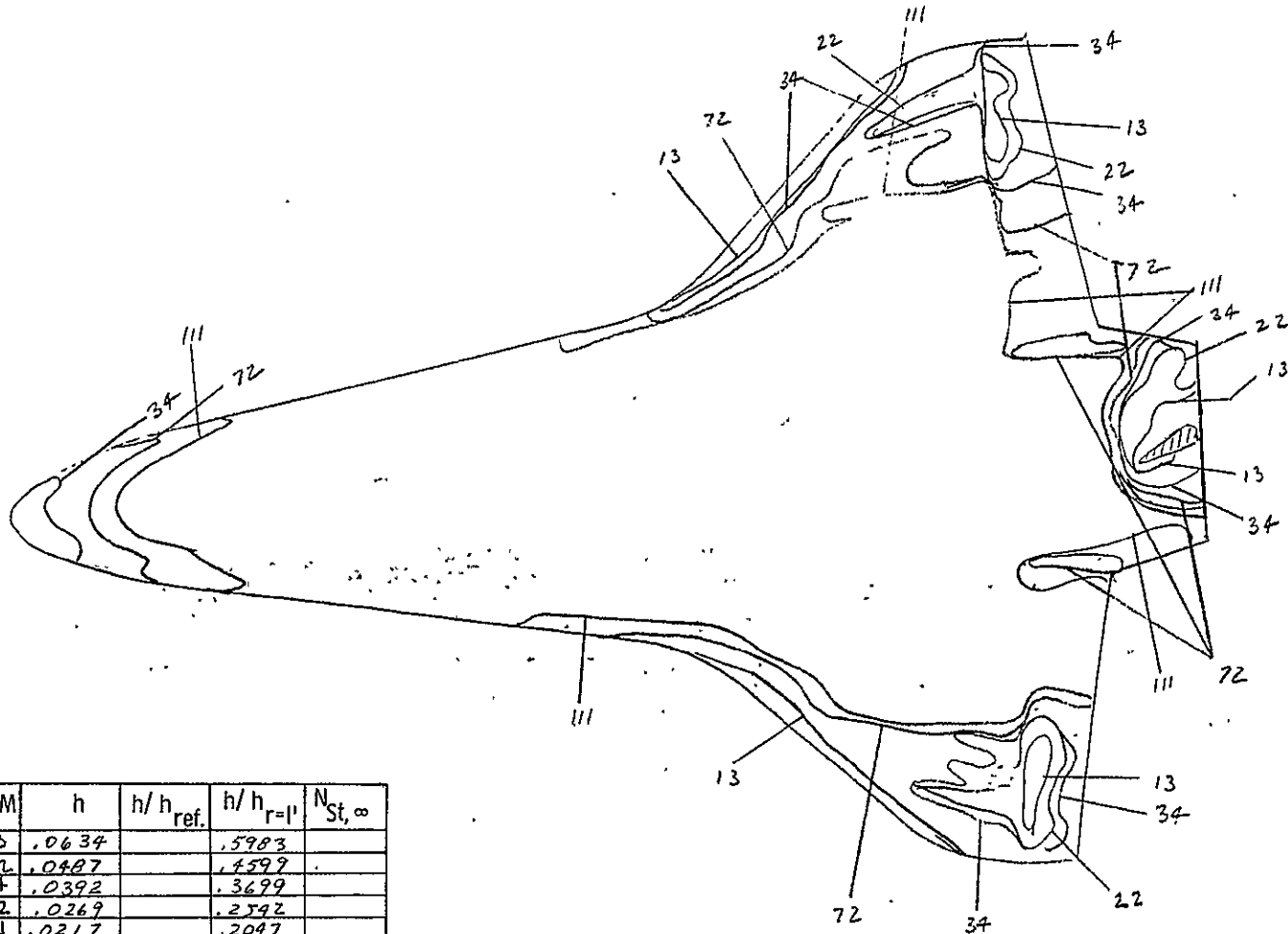


ISOTHERM	h	h/h _{ref}	h/h _{r=1}	N _{St,∞}
1-13	.0201		.2789	
2-21	.0158		.2194	
3-26	.0142		.1972	
4-33	.0126		.1750	
5-47	.0106		.1467	
6-76	.0083		.1153	
7-120	.0066		.0918	
8				
9				
10				

CONFIGURATION	31 ven30
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4582
LENGTH	7.7418
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 620
T _{total} (°R)	= 880
R _∞ / ft	= 3 × 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 79
T _{pc} (°F)	= 300
h _{r=1}	= .0719
\bar{T}	= .3235
(ρC _p k) ^{1/2}	= .0586
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	w. Dye
	CFFS-HVD

120

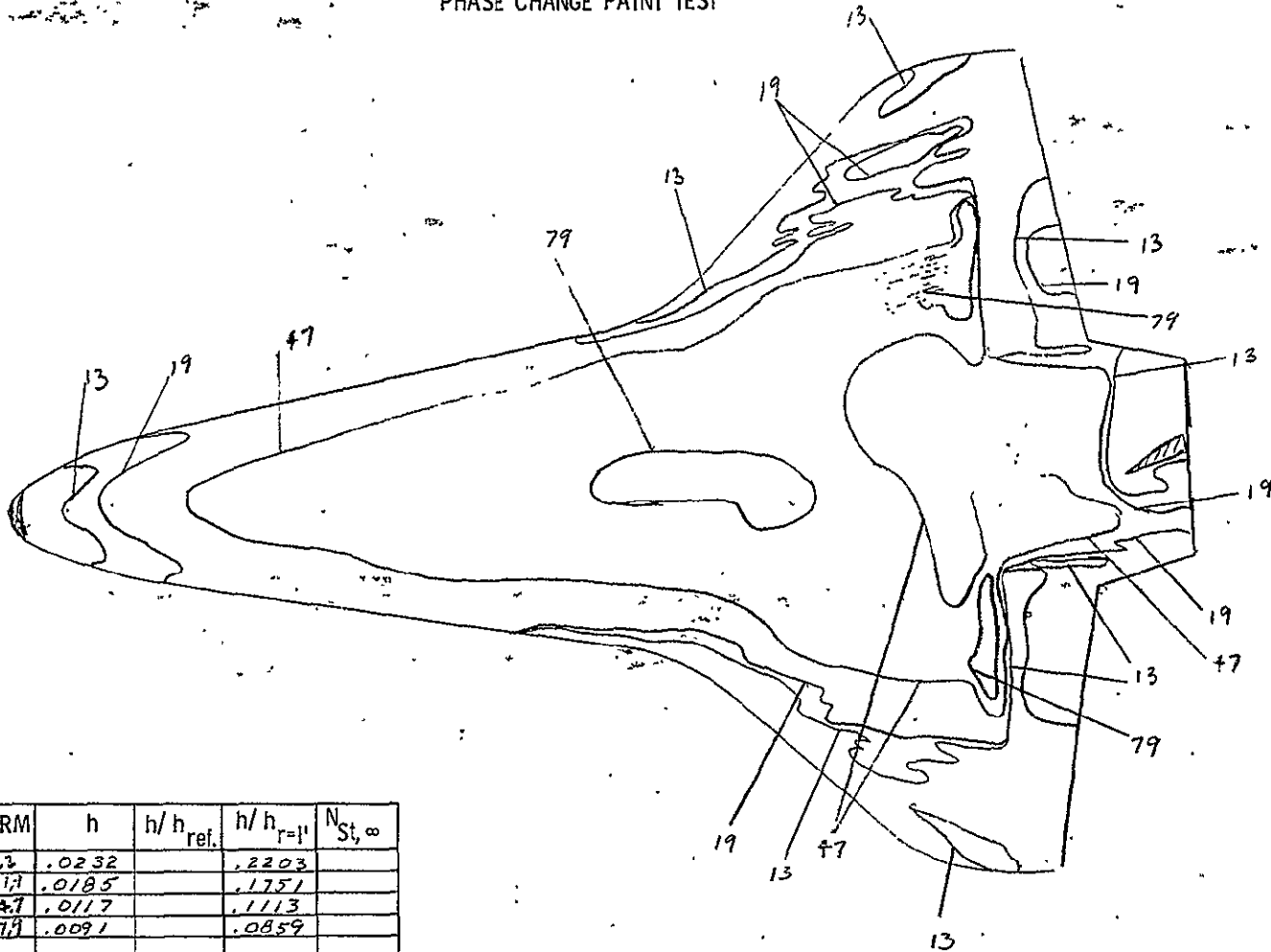
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=11}	N _{St,∞}
1-13	.0634		.5983	
2-22	.0487		.4599	
3-34	.0392		.3699	
4-72	.0269		.2592	
5-111	.0217		.2097	
6				
7				
8				
9				
10				

CONFIGURATION	31 VEN. 30
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4583
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 1430
T _{total} (°R)	= 970
R _∞ / ft	= 6 × 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 80
T _{pc} (°F)	= 550
h _{r=11}	= .1059
T̄	= .6150
(ρC _p k) ^{1/2}	= .0617
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. DYE
	CFFS-HVD

PHASE CHANGE PAINT TEST



CONFIGURATION 31 VEN. 30

FACILITY LRC/VDT

TEST OH-46B

RUN 4584

LENGTH 7.7418 in. m.s.

NOSE RADIUS .006

SCALE .006

M_∞ 8

P_{total} (psia) = 1405

T_{total} ($^{\circ}R$) = 985

R_∞ / ft = 6×10^6

T_{aw} / T_{total} = .912

T_{aw} ($^{\circ}R$) =

T_i ($^{\circ}F$) = 82

T_{pc} ($^{\circ}F$) = 350

$h_{r=1}$ = .1055

\bar{T} = .3454

$(\rho C_p k)^{1/2}$ = .0595

α = 30

β = 0

ϕ = 0

CAMERA POSITION TOP

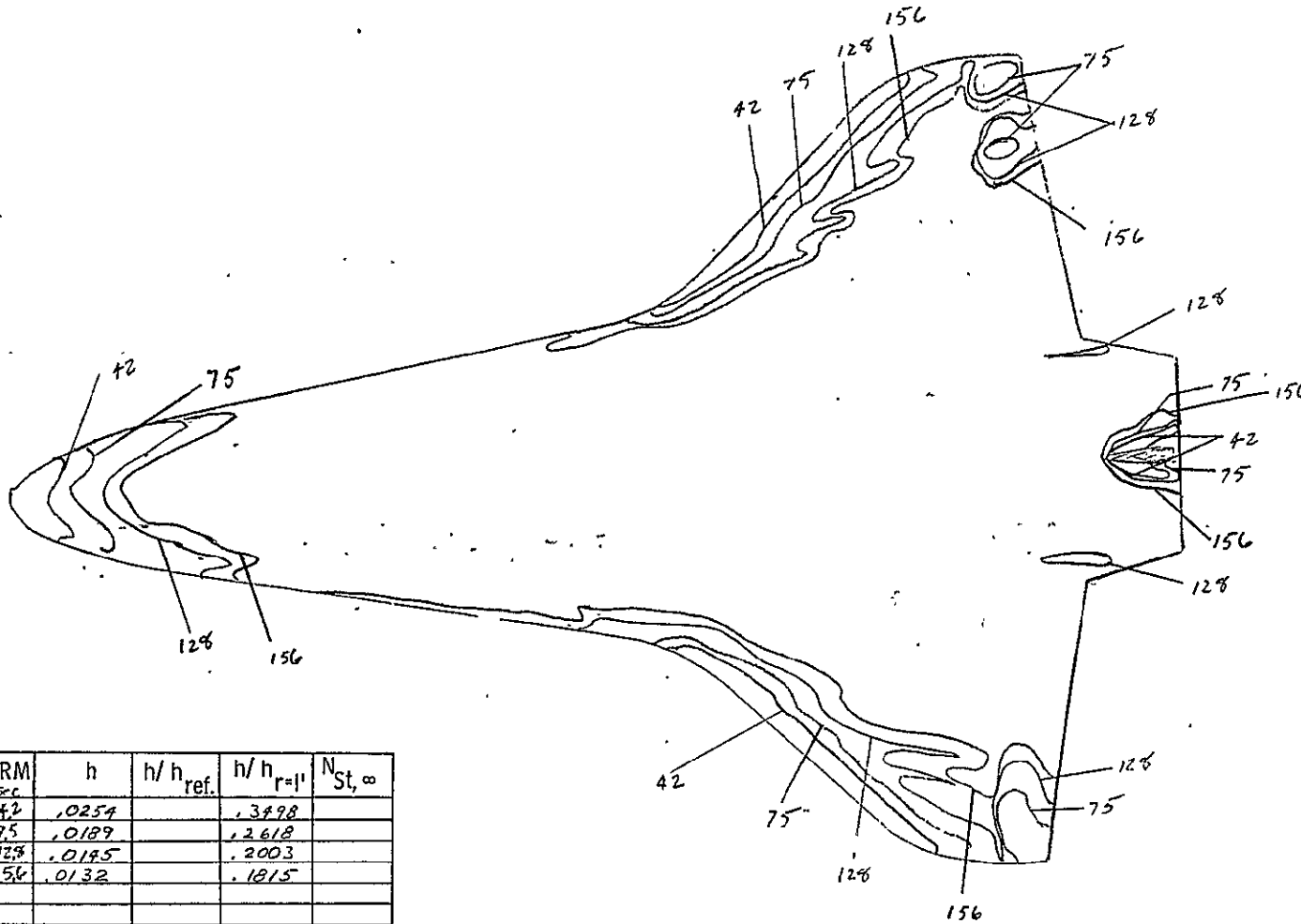
Engineer W. DYE

CFFS-HVD

134

ISOTHERM	h	$h/h_{ref.}$	$h/h_{r=1}$	$N_{St, \infty}$
1-13	.0232		.2203	
2-19	.0185		.1751	
3-47	.0117		.1113	
4-79	.0091		.0859	
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST



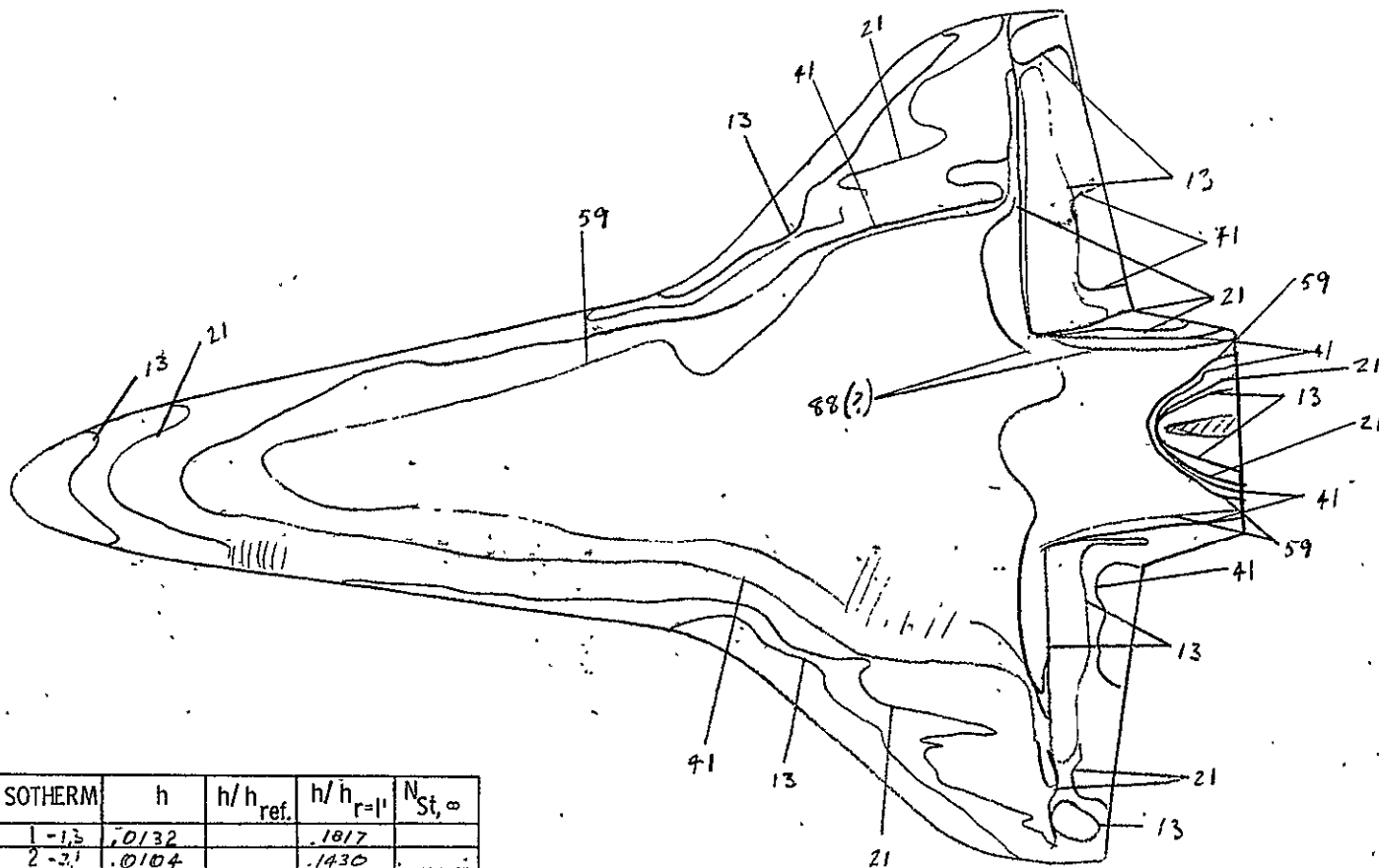
ISOTHERM SEC	h	h/h _{ref.}	h/h _{r=1"}	N _{St,∞}
1-42	.0254		.3498	
2-75	.0189		.2618	
3-128	.0145		.2003	
4-156	.0132		.1815	
5				
6				
7				
8				
9				
10				

CONFIGURATION	31 YEN O
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4586
LENGTH	7.7418
NOSE RADIUS	.006
SCALE	.006
M _∞	B
P _{total} (psia)	= 630
T _{total} (°R)	= 900
R _∞ / ft	= 3 × 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 82
T _{pc} (°F)	= 450
h _{r=1"}	= .0725
T̄	= .5270
(ρC _p K) ^{1/2}	= .0613
α	= 30
β	= 0
φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

* 135

PHASE CHANGE PAINT TEST

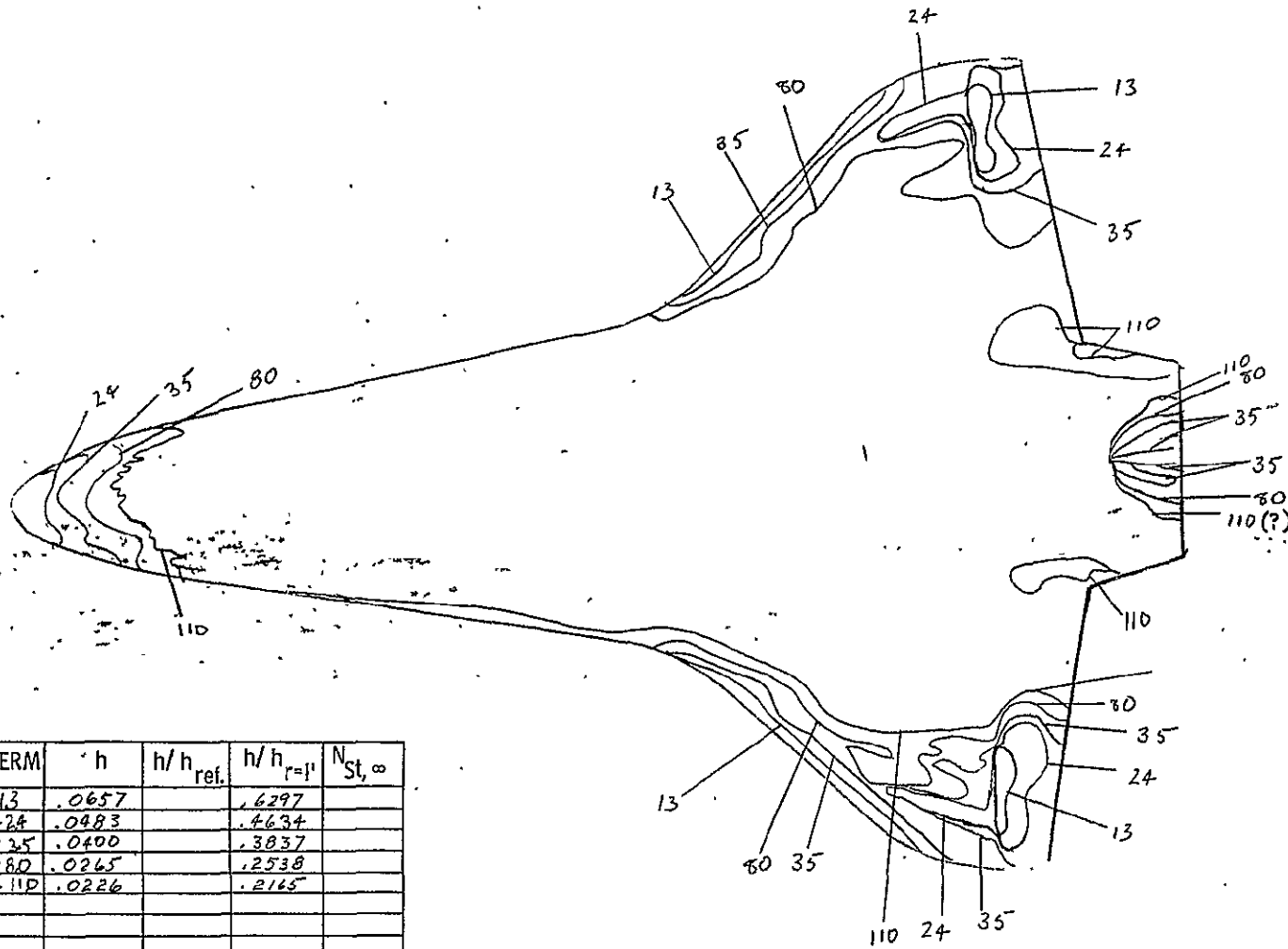
CONFIGURATION	31 ver. 0
FACILITY	LRC/VDT
TEST	OH-46 B
RUN	4588
LENGTH	7.7418 in. m.s
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 635
T_{total} ($^{\circ}R$)	= 905
R_∞ / ft	= 3×10^6
T_{aw} / T_{total}	= .912
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 82
T_{pc} ($^{\circ}F$)	= 250
$h_{r=1'}$	= .0728
\bar{T}	= .239
$(\rho C_p k)^{1/2}$	= .0574
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	w.p. ^o
	CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-13	.0132		.1817	
2-21	.0104		.1430	
3-41	.0074		.1023	
4-59	.0062		.0853	
5-88	.0051		.0698	
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

137

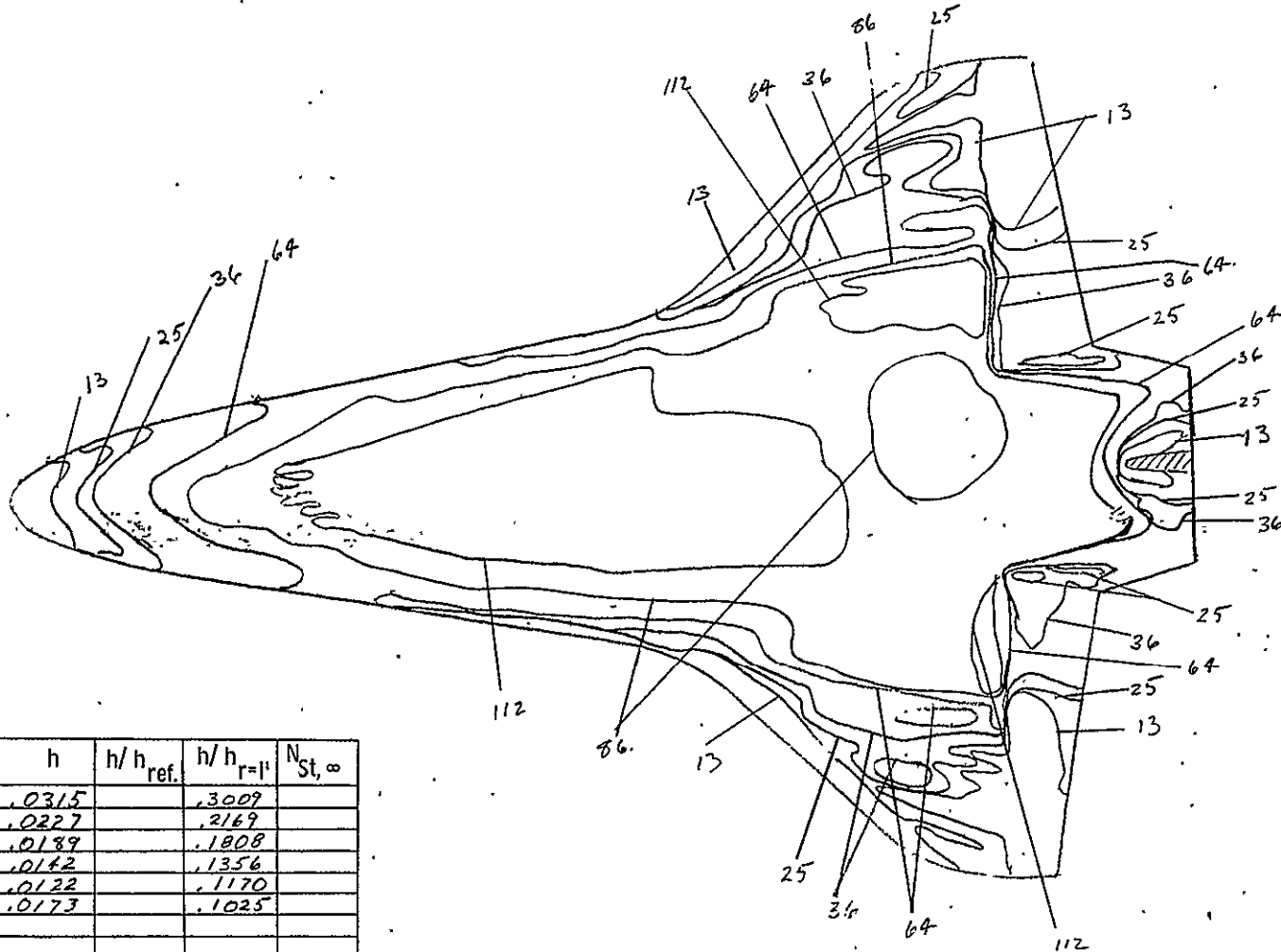


ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St, ∞}
1-13	.0657		.6297	
2-24	.0483		.4634	
3-35	.0400		.3837	
4-80	.0265		.2538	
5-110	.0226		.2165	
6				
7				
8				
9				
10				

CONFIGURATION	31VEN.0
FACILITY	LRC/VDT
TEST	OH46-B
RUN	4590
LENGTH	7.7418 in. m.s
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 1385
T _{total} (°R)	= 960
R _∞ /ft	= 6 x 10 ⁶
T _{aw} /T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 76
T _{pc} (°F)	= 550
h _{r=1'}	= .1043
T̄	= .6245
(ρC _p k) ^{1/2}	= .0617
α	= 30
β	= 0
φ	= 0
CAMERA POSITION	YOP
Engineer	I: Dyc
	CFFS-HVD

PHASE CHANGE PAINT TEST

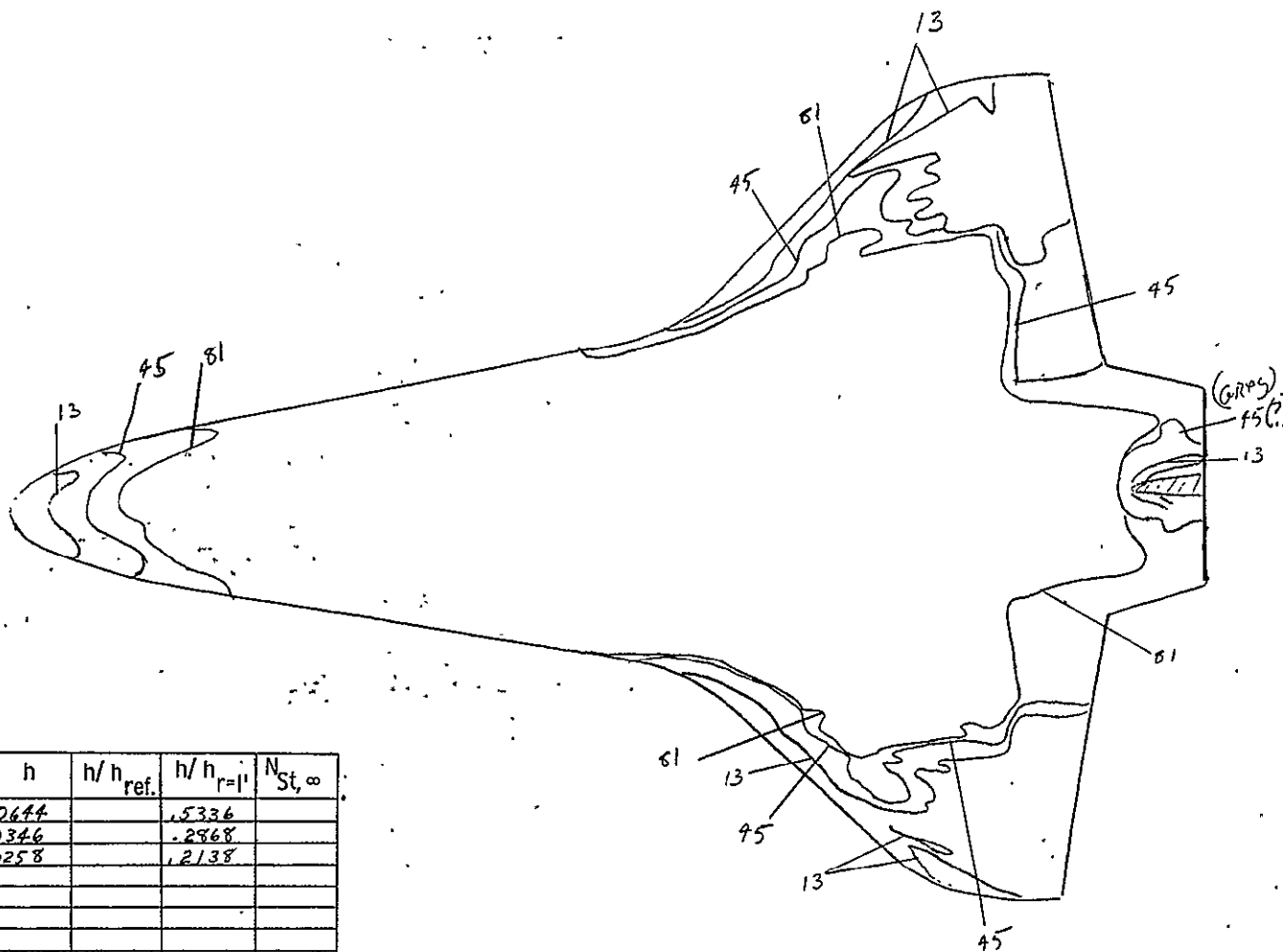
CONFIGURATION	31VEN.0
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4591
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1390
T_{total} (°R)	= 950
R_∞ / ft	= 6×10^6
T_{aw} / T_{total}	= .912
T_{aw} (°R)	=
T_i (°F)	= 79
T_{pc} (°F)	= 400
$h_{r=1}$	= .1047
\bar{T}	= .4298
$(\rho C_p k)^{1/2}$	= .0604
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1-13	.0315		.3009	
2-25	.0227		.2169	
3-36	.0189		.1808	
4-64	.0142		.1356	
5-86	.0122		.1170	
6-112	.0173		.1025	
7				
8				
9				
10				

138

PHASE CHANGE PAINT TEST

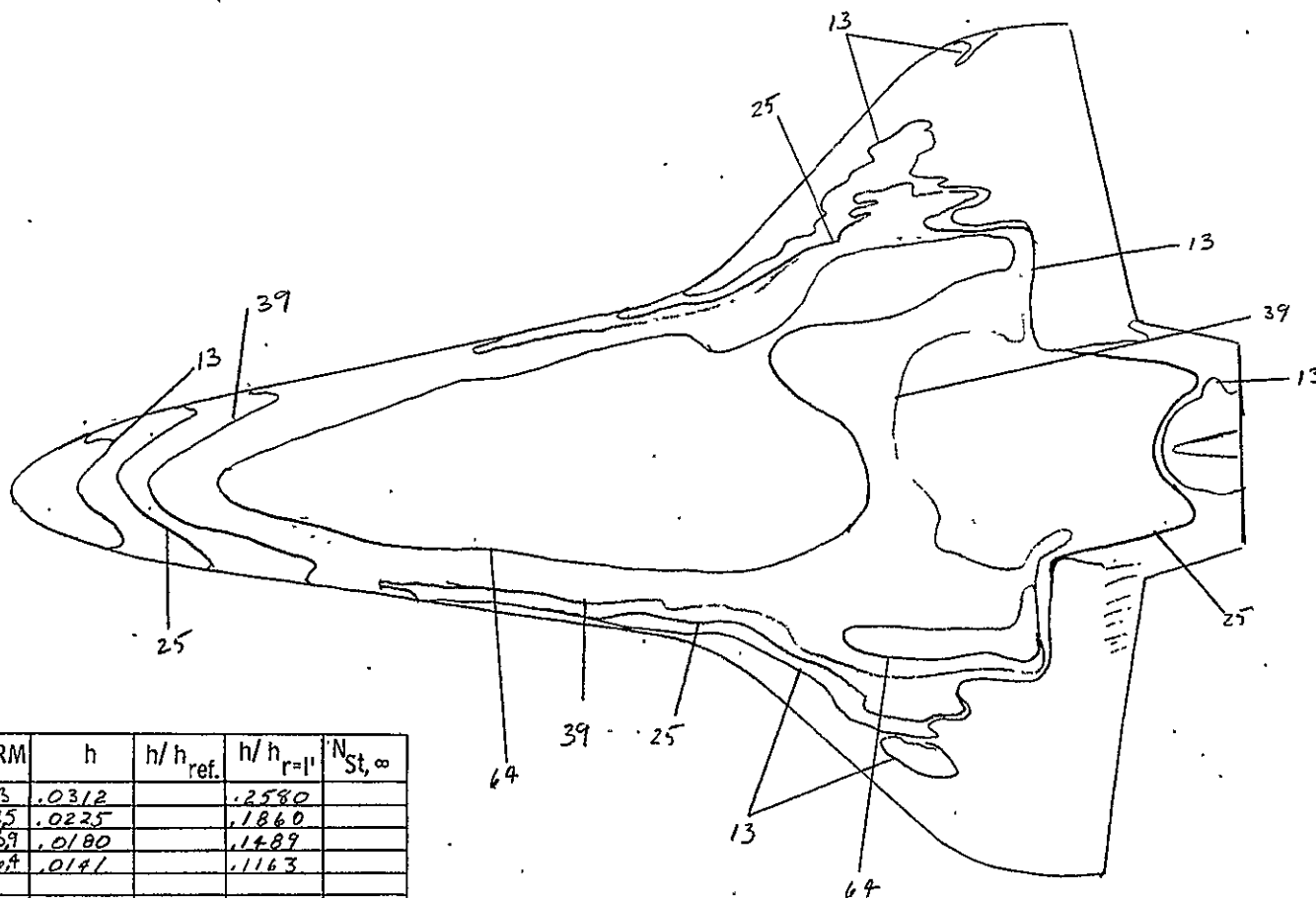


CONFIGURATION	31 ven. 0
FACILITY	LRC/VDT
TEST	$\phi H-46 B$
RUN	4592
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1895
T_{total} ($^{\circ}R$)	= 965
R_∞ / ft	= 8×10^6
T_{aw} / T_{total}	= .912
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 79
T_{pc} ($^{\circ}F$)	= 550
$h_{r=1}$	= .1207
\bar{T}	= .6192
$(\rho C_p k)^{1/2}$	= .0617
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	W Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1-13	.0644		.5336	
2-45	.0346		.2868	
3-81	.0258		.2138	
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

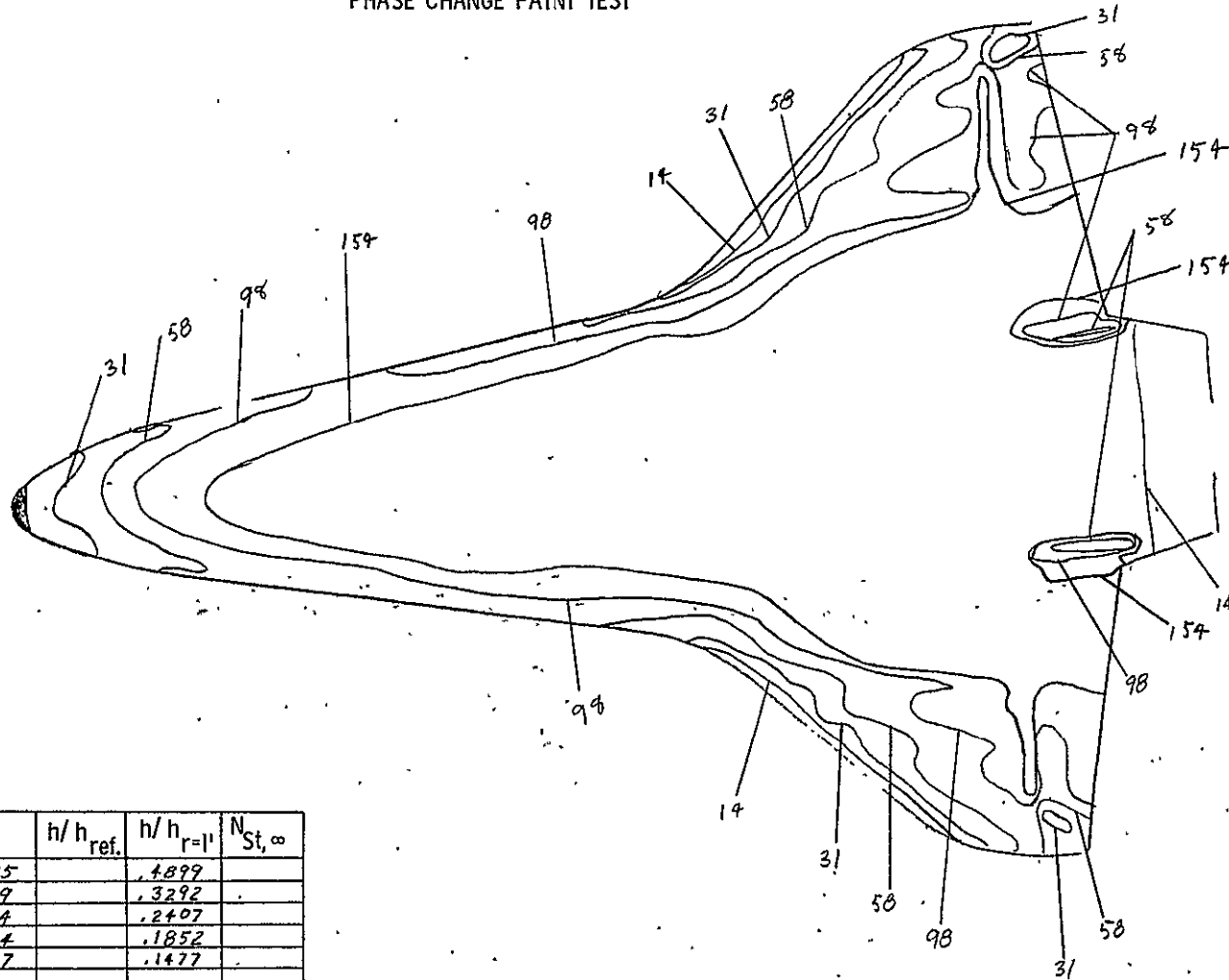
CONFIGURATION	31 ver. D
FACILITY	LRC/VDT
TEST	Ø446 B
RUN	4593
LENGTH	7.7418 in. m.s
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1895
T_{total} (°R)	= 955
R_∞ / ft	= 8×10^6
T_{aw} / T_{total}	= .912
T_{aw} (°R)	=
T_i (°F)	= 79
T_{pc} (°F)	= 400
$h_{r=1}$	= .1209
\bar{T}	= .4272
$(\rho C_p k)^{1/2}$	= .0604
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1-13	.0312		.2580	
2-25	.0225		.1860	
3-39	.0180		.1489	
4-64	.0141		.1163	
5				
6				
7				
8				
9				
10				

140

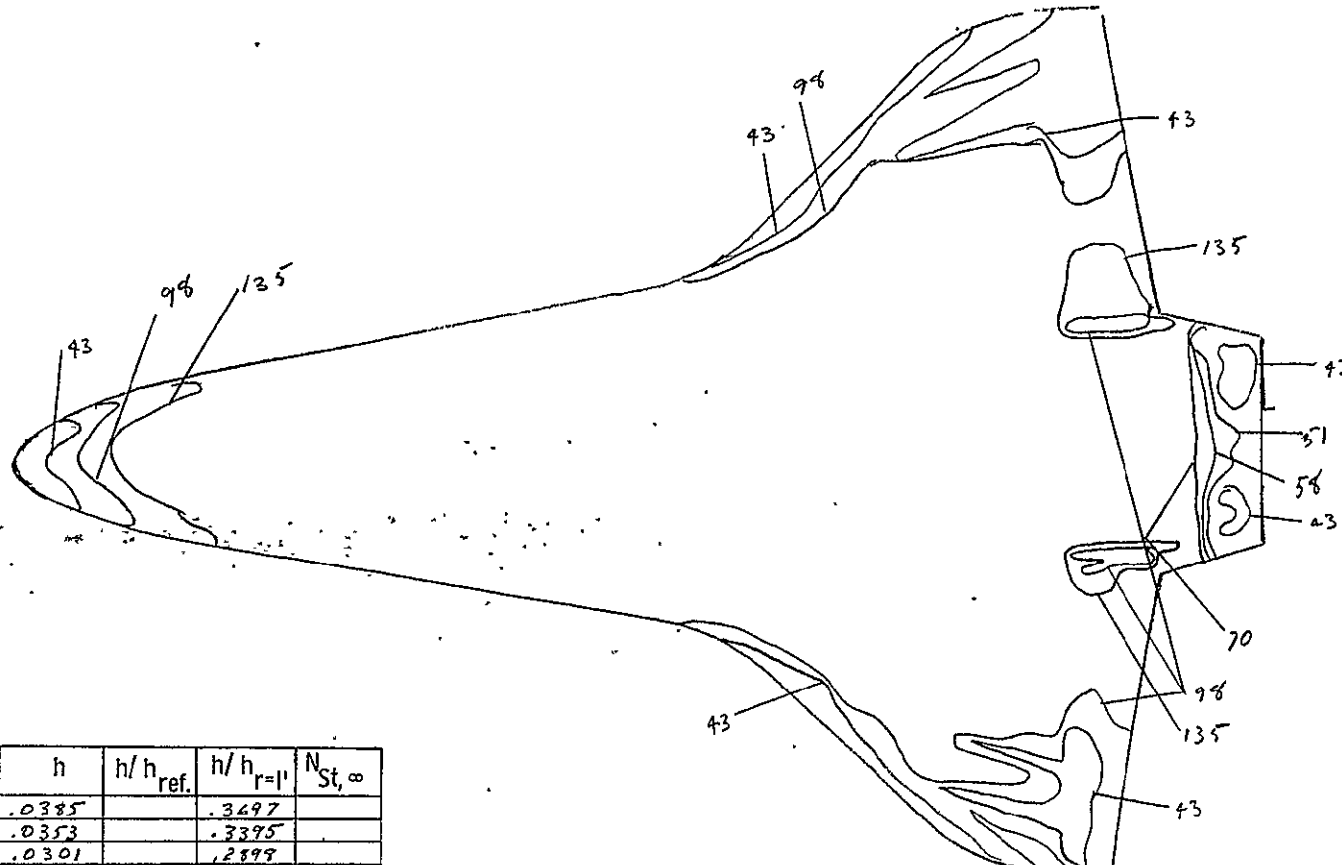
PHASE CHANGE PAINT TEST



ISOTHERM	h	h/h _{ref.}	h/h _{r=1"}	N _{St,∞}
1-14	.0355		.4899	
2-31	.0239		.3292	
3-58	.0174		.2407	
4-98	.0134		.1852	
5-154	.0107		.1477	
6				
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4595
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 630
T _{total} (°R)	= 880
R _∞ / ft	= 3 x 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= .76
T _{pc} (°F)	= 400
h _{r=1"}	= .0725
T̄	= .4722
(Pc _p k) ^{1/2}	= .0604
α	= 30°
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

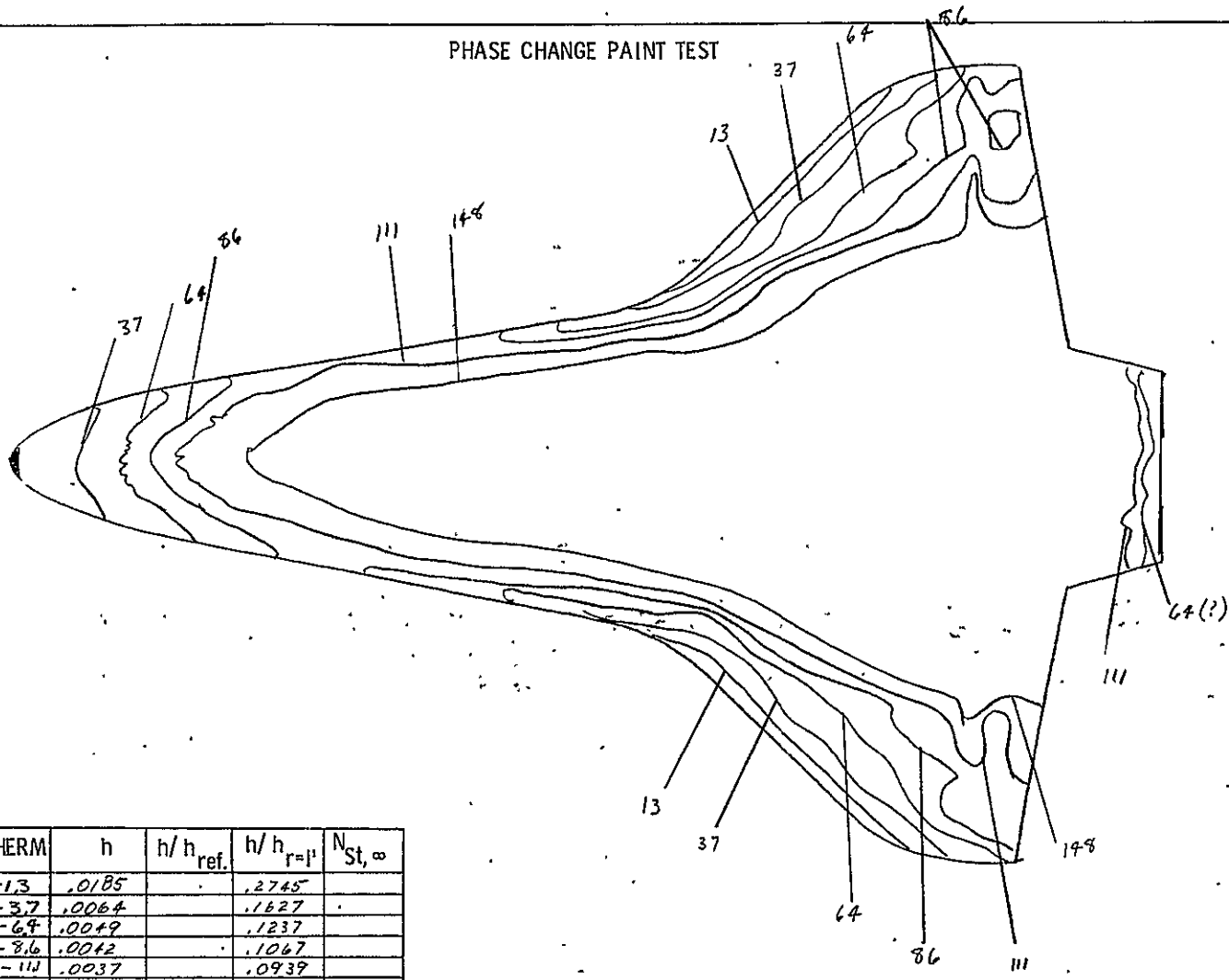


ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-43	.0385		.3497	
2-51	.0353		.3395	
3-70	.0301		.2899	
4-98	.0255		.2449	
5-135	.0217		.2087	
6				
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4596
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 1380
T _{total} (°R)	= 940
R _∞ / ft	= 6 × 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 74
T _{pc} (°F)	= 550
h _{r=1'}	= .10399
T̄	= .6408
(ρC _p k) ^{1/2}	= .0617
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

143

PHASE CHANGE PAINT TEST

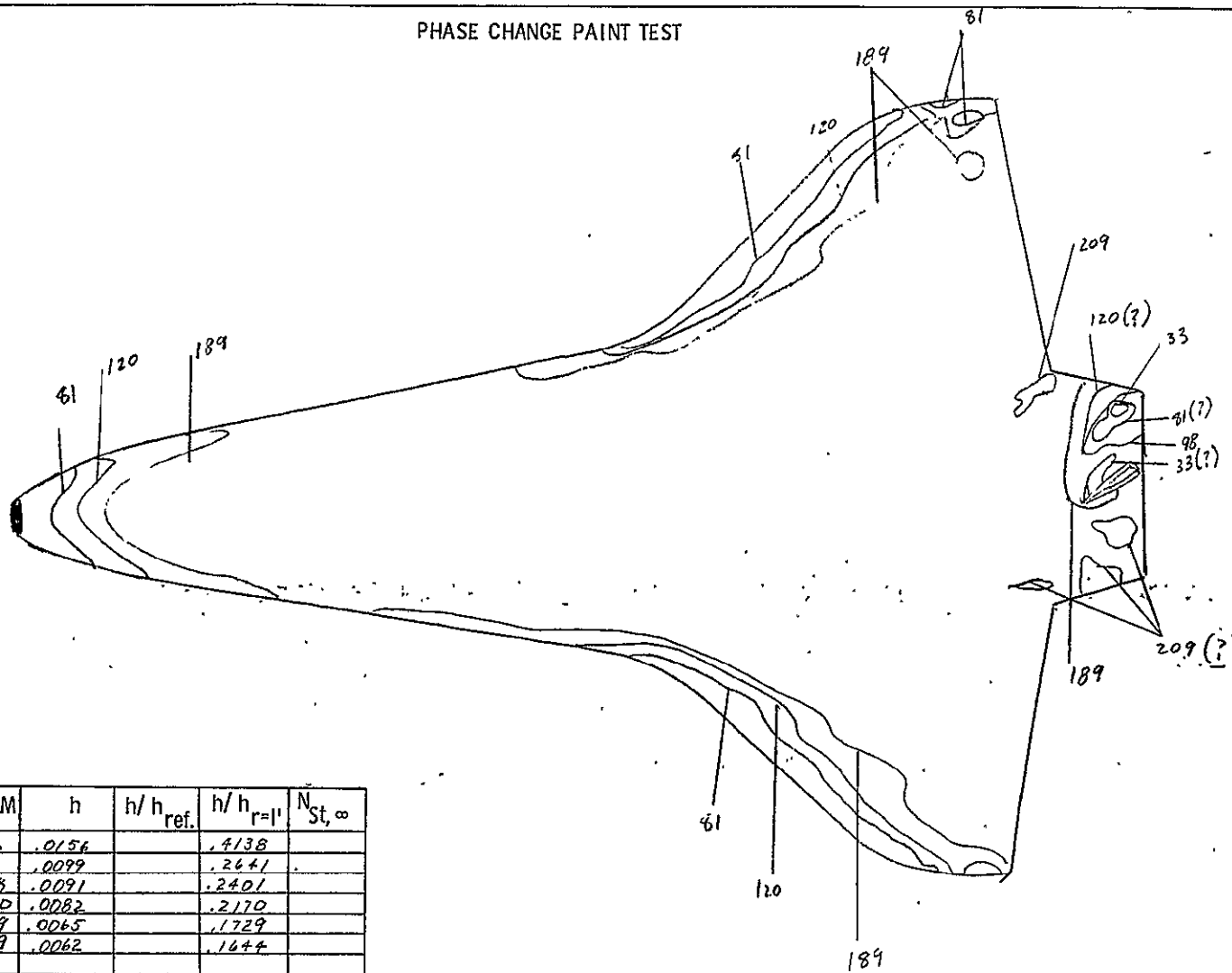


ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-13	.0185		.2745	
2-37	.0064		.1627	
3-64	.0049		.1237	
4-86	.0042		.1067	
5-111	.0037		.0939	
6-148	.0032		.0814	
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	LRC/VDT
TEST	OH46 B
RUN	4597
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 163
T _{total} (°R)	= 765
R _∞ / ft	= 1 x 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T ₁ (°F)	= 77
T _{pc} (°F)	= 200
h _{r=1'}	= .0395
T̄	= .2120
(ρC _p k) ^{1/2}	= .0546
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

144

PHASE CHANGE PAINT TEST

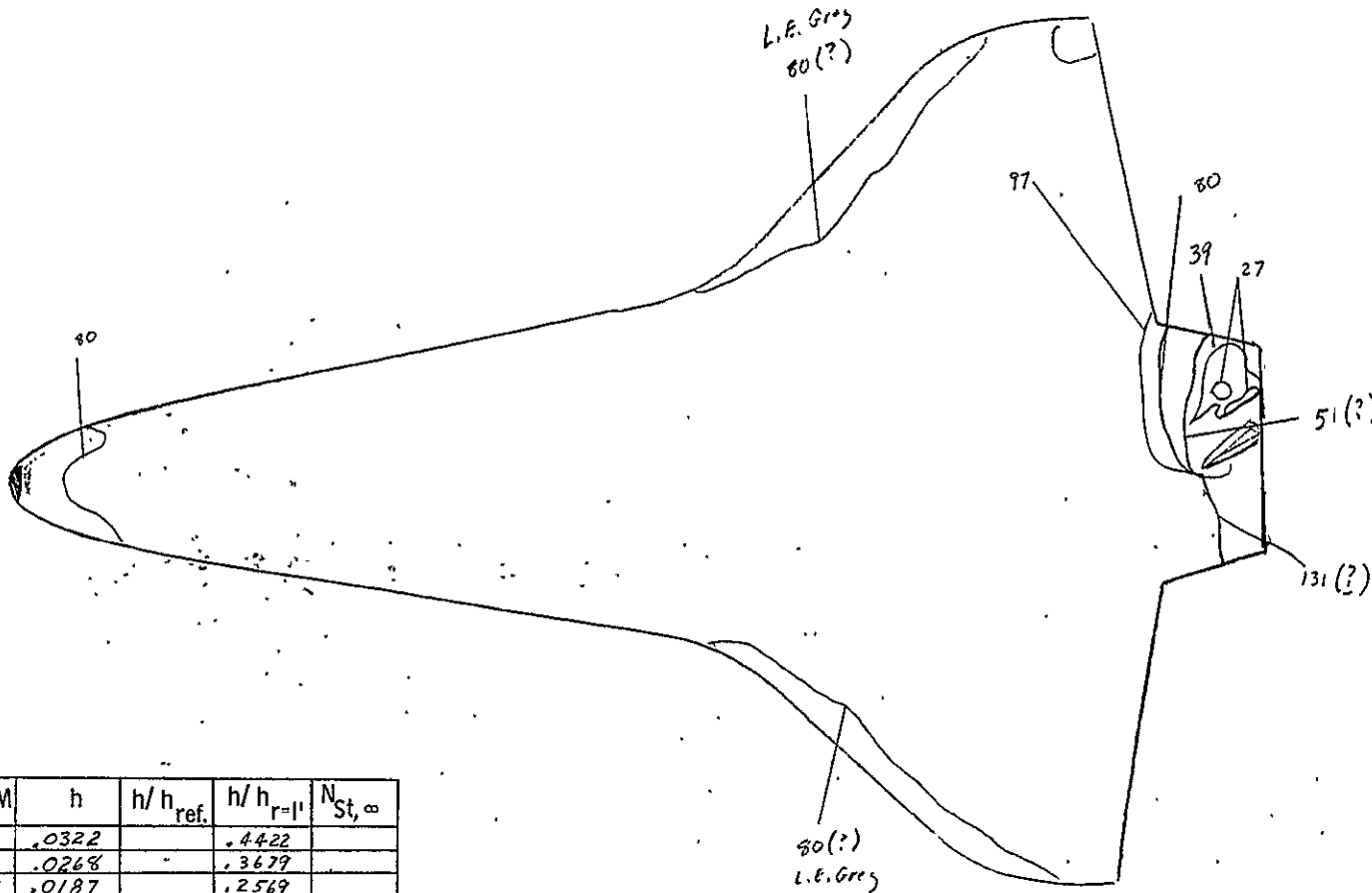


ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-3.3	.0156		.4138	
2-8.1	.0099		.2641	
3-9.8	.0091		.2401	
4-13.0	.0082		.2170	
5-13.9	.0065		.1729	
6-20.9	.0062		.1644	
7				
8				
9				
10				

CONFIGURATION	41VEN 30
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4598
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 145
T _{total} (°R)	= 780
R _∞ / ft	= 1 x 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	=
T _i (°F)	= 76
T _{pc} (°F)	= 300
h _{r=1'}	= .0379
T̄	=
(ρC _p k) ^{1/2}	= .0586
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

145

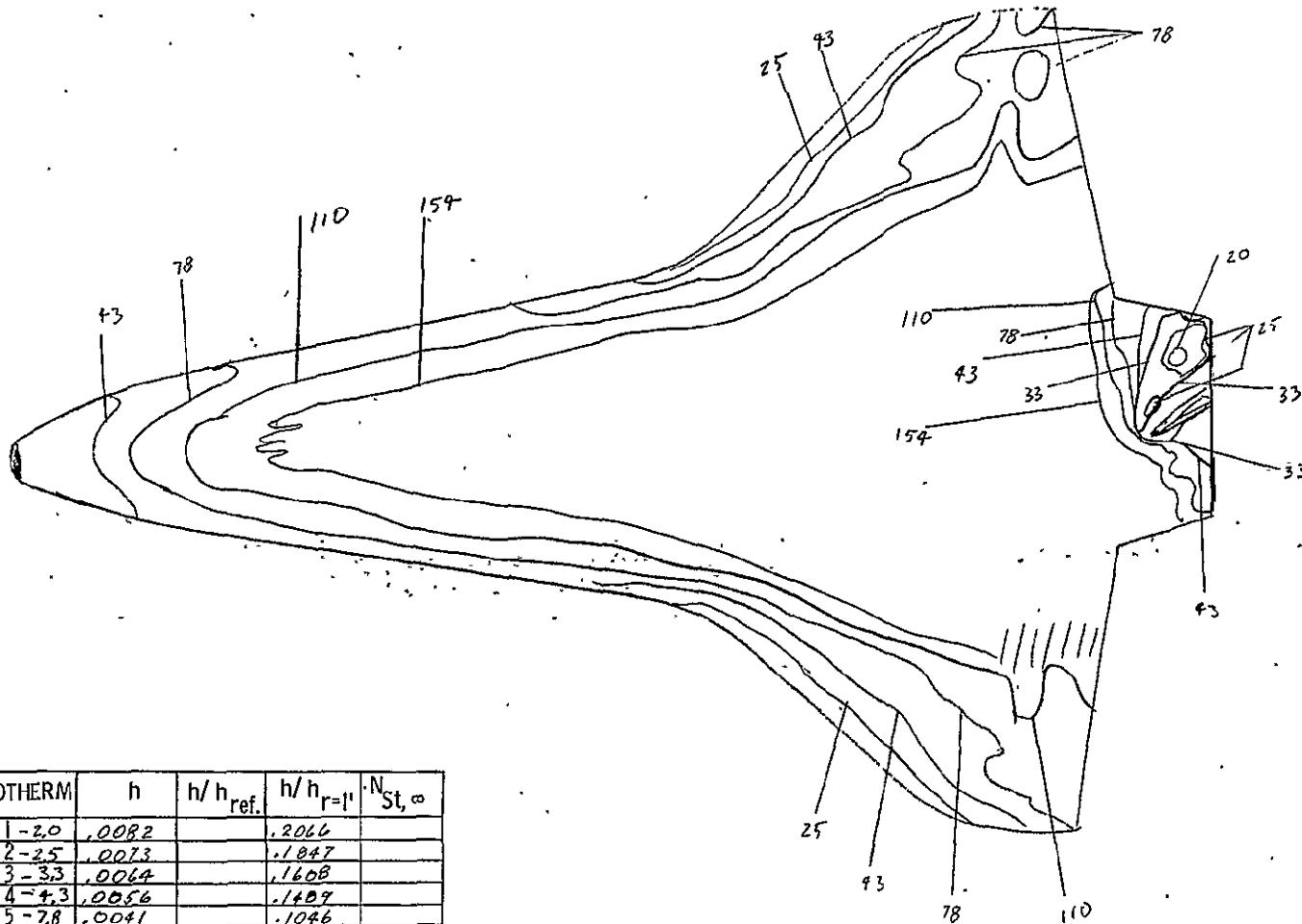
PHASE CHANGE PAINT TEST



CONFIGURATION	41ven 30
FACILITY	LRC/YDT
TEST	
RUN	4599
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 635
T_{total} ($^{\circ}R$)	= 900
R_∞ / ft	= 3×10^6
T_{aw} / T_{total}	= .912
T_{aw} ($^{\circ}R$)	=
T_1 ($^{\circ}F$)	= 75
T_{pc} ($^{\circ}F$)	= 450
$h_{r=1}$	= .0728
\bar{T}	= .5317
$(\rho C_p k)^{1/2}$	= .0613
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1-27	.0322		.4422	
2-39	.0268		.3679	
3-80	.0187		.2569	
4-97	.0170		.2333	
5-131	.0146		.2007	
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

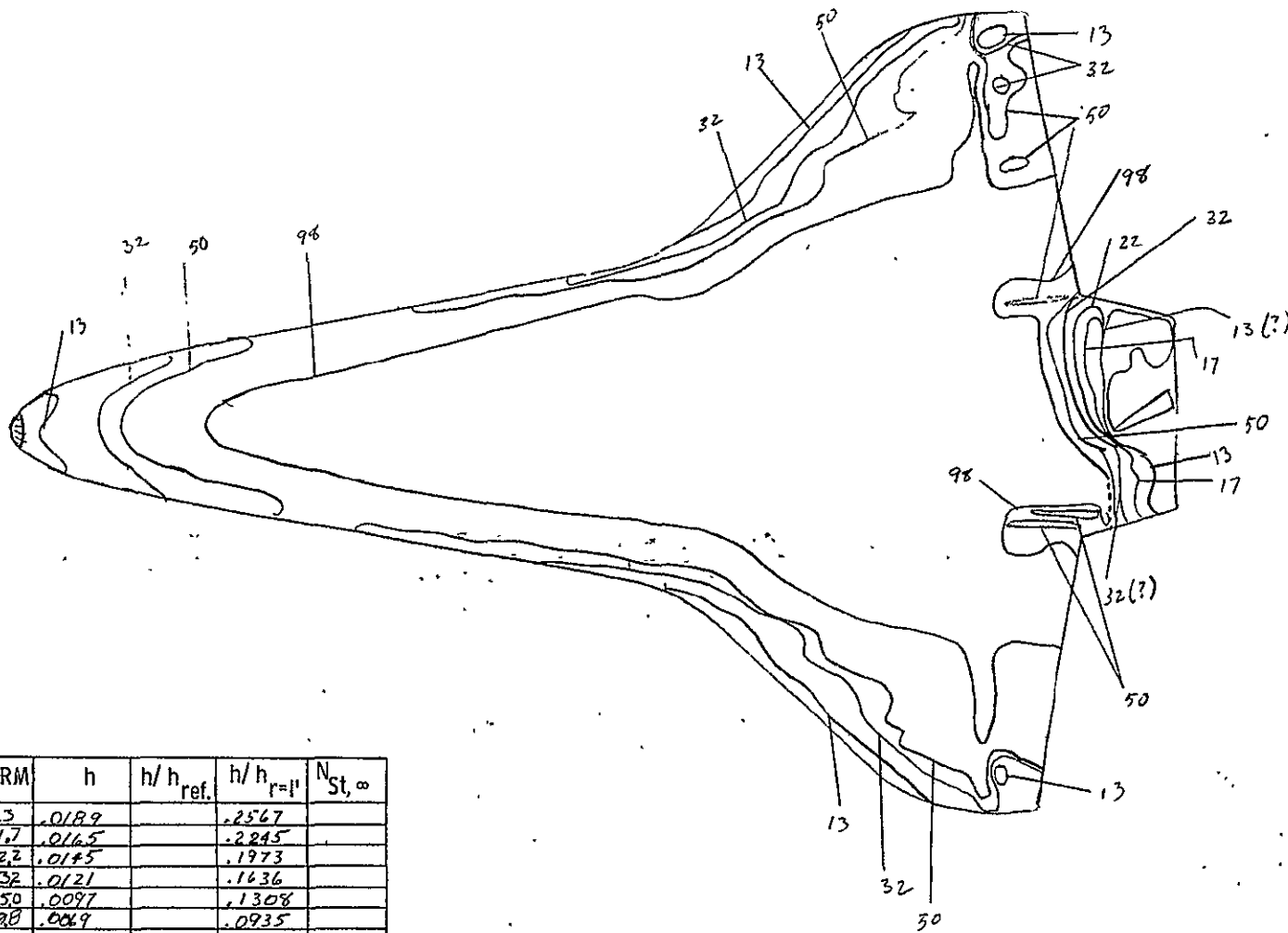


147

ISOTHERM	h	h/h _{ref.}	h/h _{r=1"}	N _{St,∞}
1-2.0	.0082		.2066	
2-2.5	.0073		.1847	
3-3.3	.0064		.1608	
4-4.3	.0056		.1407	
5-7.8	.0041		.1026	
6-110	.0035		.0881	
7-154	.0029		.0744	
8				
9				
10				

CONFIGURATION	41 ven 30
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4600
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 163
T _{total} (°R)	= 805
R _∞ / ft	= 1 x 10 ⁶
T _{aw} / T _{total}	= .912
T _{aw} (°R)	= 7
T _i (°F)	= 76
T _{pc} (°F)	= 200
h _{r=1"}	= .0397
T̄	= .2007
(ρC _p k) ^{1/2}	= .0516
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

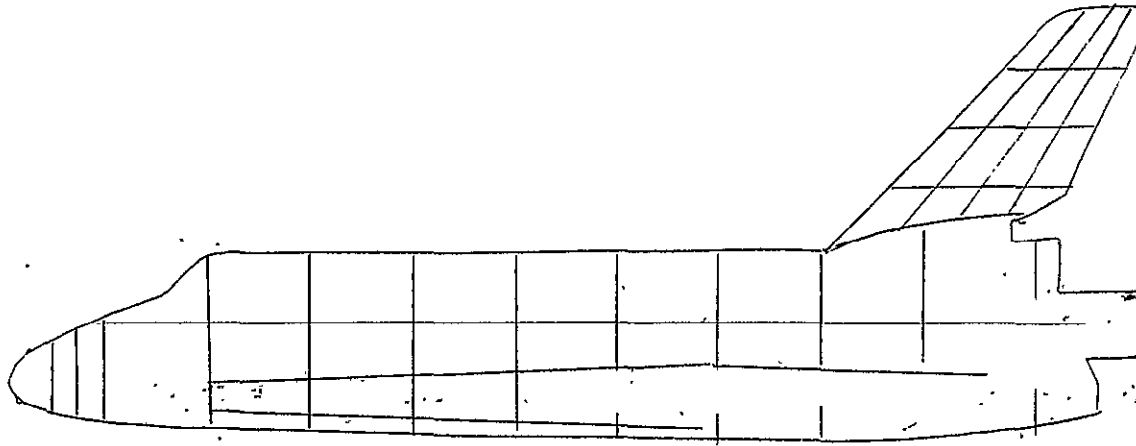


CONFIGURATION	41 ven 30
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4601
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 650
T_{total} (°R)	= 920
R_∞ / ft	= 3×10^6
T_{aw} / T_{total}	= .912
T_{aw} (°R)	=
T_i (°F)	= 76
T_{pc} (°F)	= 300
$h_{r=1}$	= .0737
\bar{T}	= .3100
$(\rho C_p k)^{1/2}$	= .0586
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	TOP
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1-13	.0189		.2567	
2-17	.0165		.2245	
3-22	.0145		.1973	
4-32	.0121		.1636	
5-50	.0097		.1308	
6-98	.0069		.0935	
7				
8				
9				
10				

148

PHASE CHANGE PAINT TEST

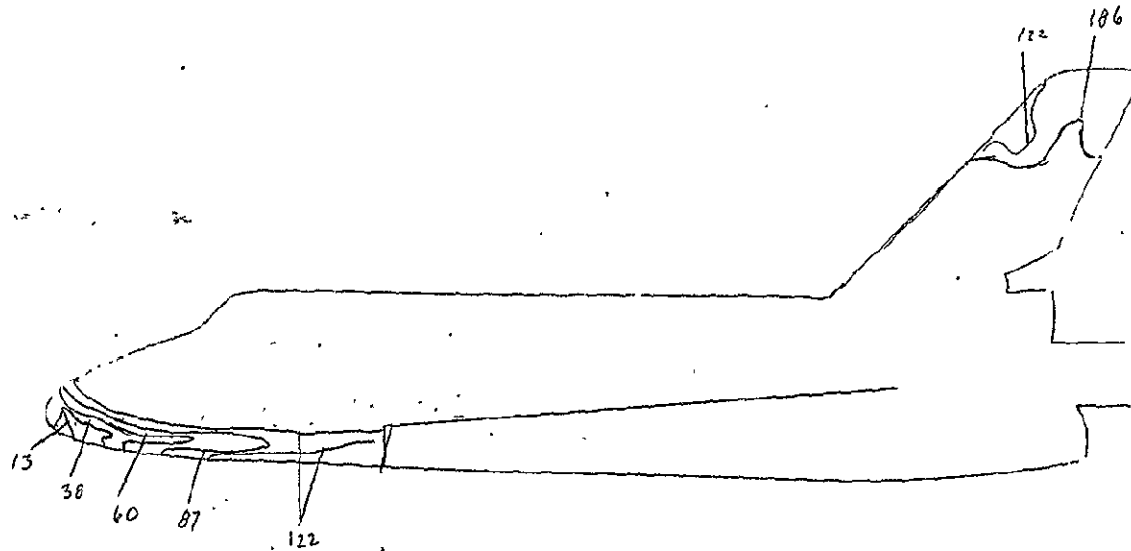


CONFIGURATION	22, 31, 41
GRID	
FACILITY	LRC/VDT
TEST	ØH-46B
RUNS	4556 thru 4593
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	
P_{total} (psia) =	
T_{total} (°R) =	
R_∞ / ft =	
T_{aw} / T_{total} =	
T_{aw} (°R) =	
T_i (°F) =	
T_{pc} (°F) =	
$h_{r=1'}$ =	
\bar{T} =	
$(\rho C_p k)^{1/2}$ =	
$\alpha = 30 \pm 35^\circ$	
$\beta =$	
$\phi =$	
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	$N_{St, \infty}$
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

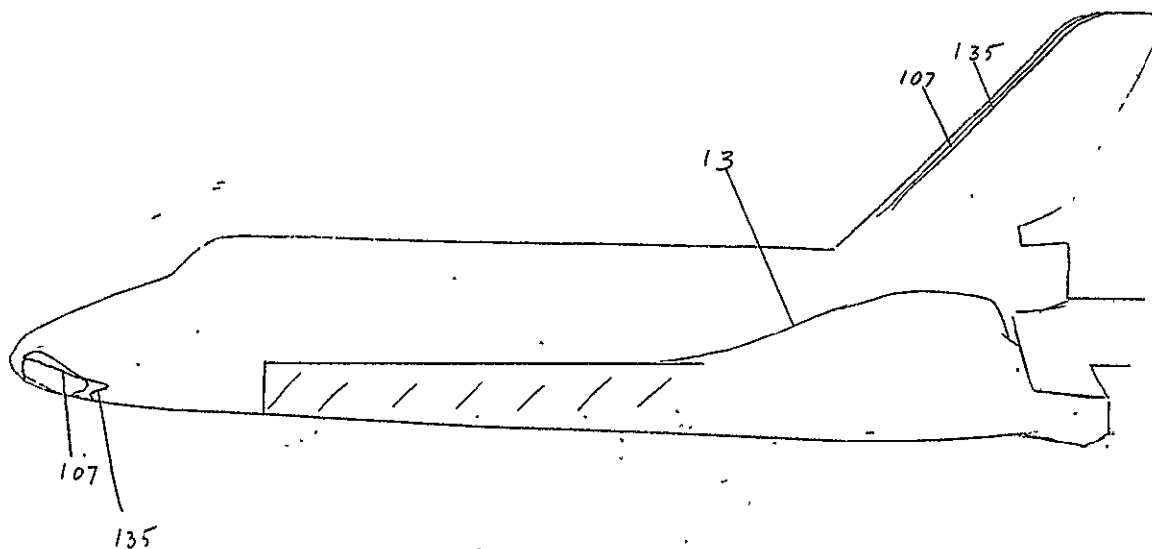
051



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St, ∞}
1-13	.0158		.4021	
2-38	.0092		.2352	
3-60	.0073		.1871	
4-87	.0061		.1554	
5-122	.0051		.1312	
6-186	.0042		.1063	
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	DH-46B
RUN	4556
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 157
T _{total} (°R)	= 840
R _∞ / ft	= 1 x 10 ⁶
T _{aw} / T _{total}	= .90
T _{aw} (°R)	=
T _i (°F)	= 76
T _{pc} (°F)	= 250
h _{r=1'}	= .0392
T̄	= .2744
(P _{C,p,k}) ^{1/2}	= .0574
α	= 35
β	= 0
φ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye F. LAUNDA
	CFFS-HVD

PHASE CHANGE PAINT TEST

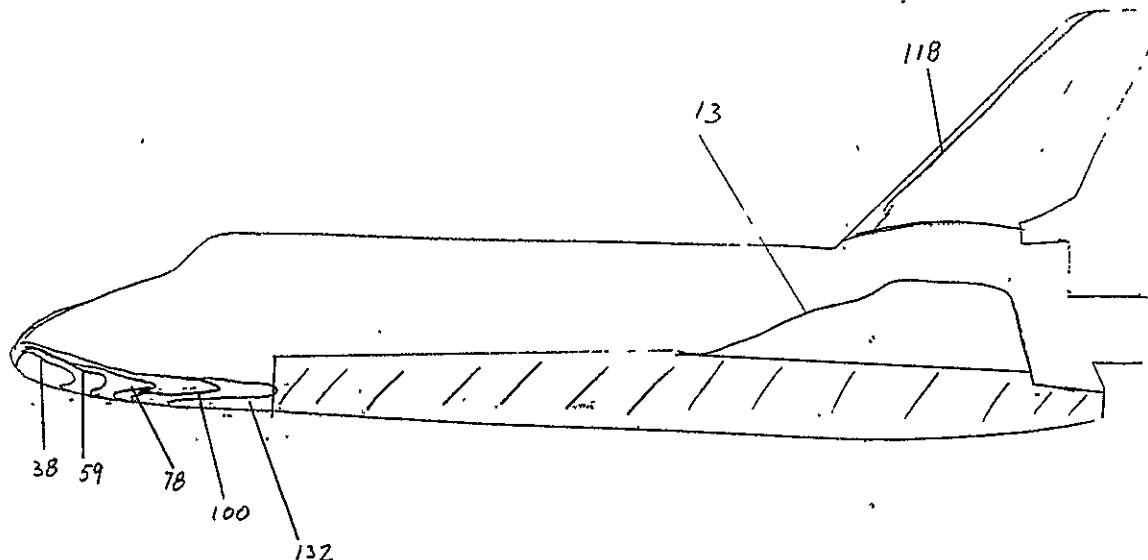


151

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-13	.0242		.6182	
2-107	.0084		.2155	
3-135	.0075		.1918	
4				
5				
6				
7				
8				
9				
10				

CONFIGURATION	41
FACILITY	LRC/VDT
TEST	PH-4613
RUN	4557
LENGTH	7.7418 m.m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	0
P _{total} (psia)	= 157
T _{total} (°R)	= 815
R _∞ / ft	= 1 x 10 ⁶
T _{aw} / T _{total}	= .90
T _{aw} (°R)	=
T _i (°F)	= 73
T _{pc} (°F)	= 300
h _{r=1'}	= .0392
T̄	= .3694
(ρC _p k) ^{1/2}	= .0586
α	= 35
β	= 0
φ	= 0
CAMERA POSITION	51°E
Engineer	W Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

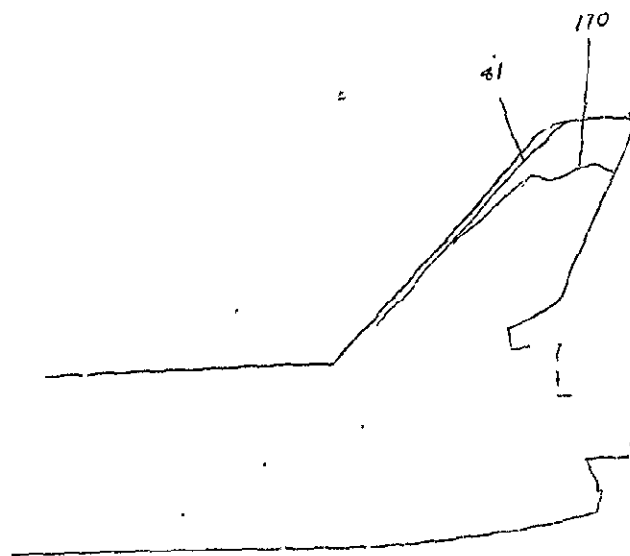


ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	N _{St,∞}
1-13	.0548		.5169	
2-38	.0321		.3023	
3-59	.0257		.2427	
4-78	.0224		.2110	
5-100	.0198		.1864	
6-118	.0182		.1716	
7-132	.0172		.1622	
8				
9				
10				

CONFIGURATION	31
FACILITY	LRC/VDT
TEST	ΦH-46B
RUN	3 (455B)
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 1435
T _{total} (°R)	= 955
R _∞ / ft	= 6 x 10 ⁶
T _{aw} / T _{total}	= .9
T _{aw} (°R)	=
T _i (°F)	= 74
T _{pc} (°F)	= 500
h _{r=1'}	= .1061
T̄	= .5761
(ρC _p k) ^{1/2}	= .0617
α	= 35°
β	= 0
Φ	= 0
CAMERA POSITION	SIDE
Engineer	U Dye
	CFFS-HVD

657

PHASE CHANGE PAINT TEST

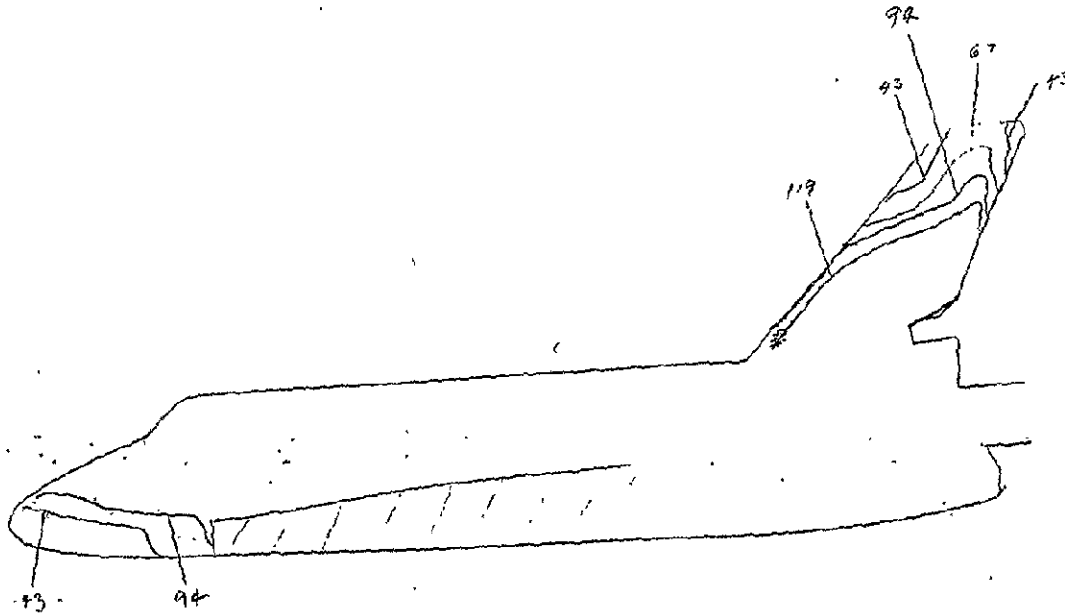


CONFIGURATION	31
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4561
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 146
T_{total} (°R)	= 815
R_∞ / ft	= 1×10^6
T_{aw} / T_{total}	= .9
T_{aw} (°R)	=
T_i (°F)	= 78
T_{pc} (°F)	= 175
$h_{r=1'}$	= .0379
\bar{T}	= .0379
$(\rho C_p k)^{1/2}$	= .0537
α	= 35
β	= 0
ϕ	= 0
CAMERA POSITION	SIDE
Engineer	W Dye
	CFFS-HVD

153

ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	$N_{St, \infty}$
1 -61	.00305		.0805	
2 -170	.0021		.0536	
3				
4				
5				
6				
7				
8				
9				
10				

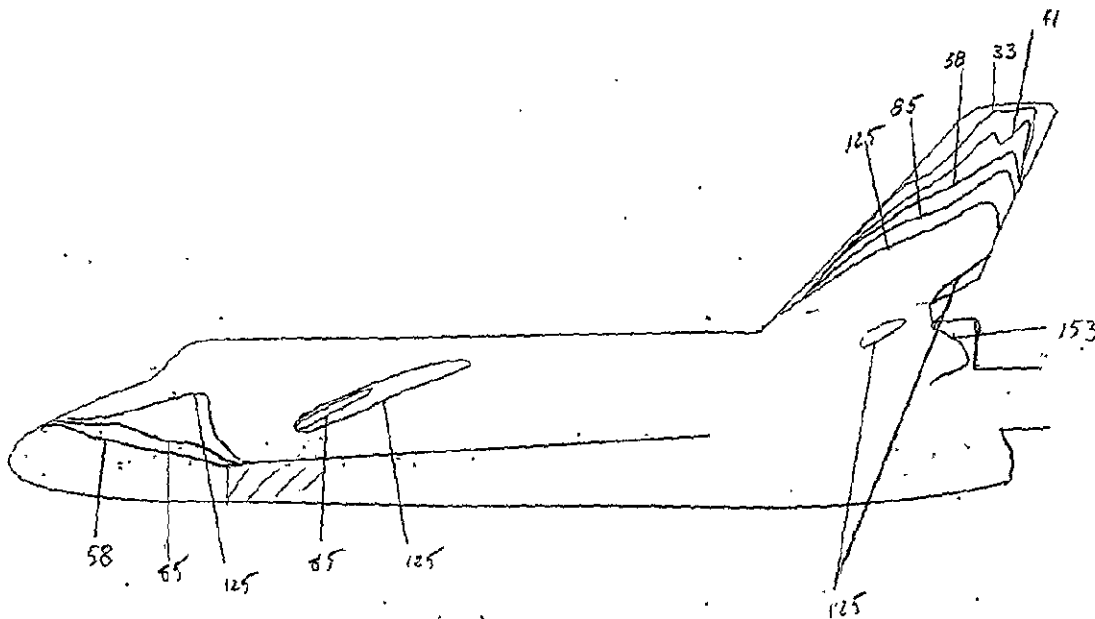
PHASE CHANGE PAINT TEST



CONFIGURATION	22
FACILITY	LRC/VDT
TEST	OH46B
RUN	4562
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	B
P_{total} (psia)	= 1380
T_{total} ($^{\circ}$ R)	= 965
R_∞ / ft	= 6×10^6
T_{aw} / T_{total}	= .90
T_{aw} ($^{\circ}$ R)	=
T_i ($^{\circ}$ F)	= 81.
T_{pc} ($^{\circ}$ F)	= 300
$h_{r=1}$	= .1045
\bar{T}	= .2953
$(PC_p k)^{1/2}$	= .0586
α	= 35
β	= 0
ϕ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref}	h/h _{r=1}	$N_{St,\infty}$
1-43	.0098		.0933	
2-67	.0079		.0748	
3-94	.0066		.0631	
4-119	.0059		.0561	
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

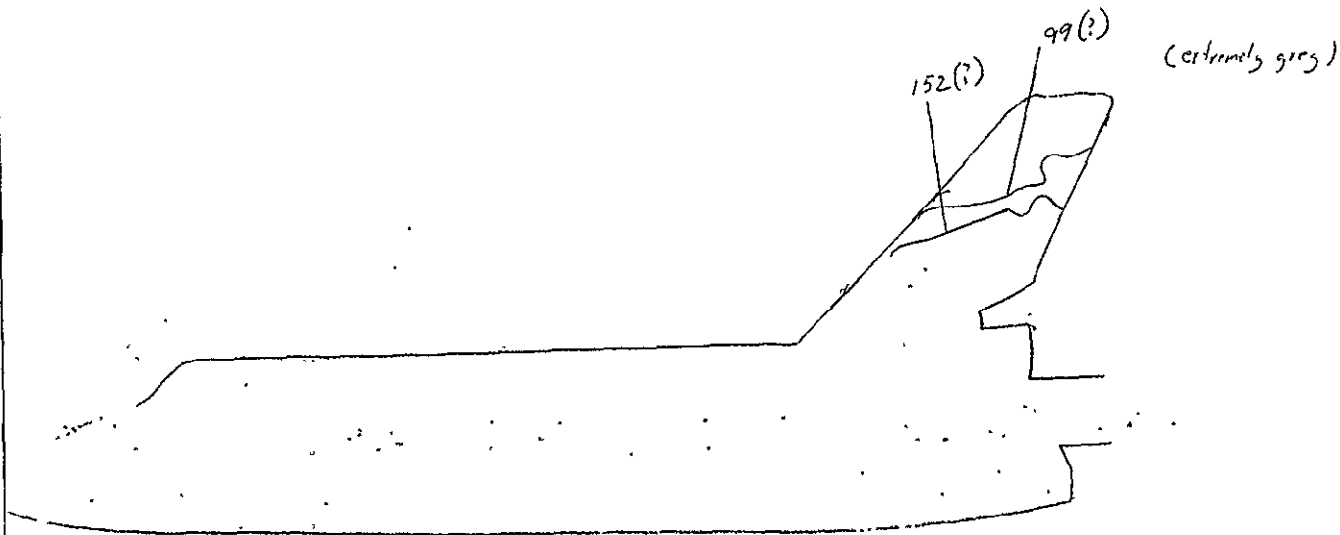


ISOTHERM	h	h/h _{ref}	h/h _{r=11}	N _{St,∞}
1-33	.00396		.0510	
2-41	.00355		.0485	
3-58	.00299		.0408	
4-85	.00247		.0337	
5-125	.00204		.0278	
6-153	.00184		.0251	
7				
8				
9				
10				

CONFIGURATION	22
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4564
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M _∞	8
P _{total} (psia)	= 645
T _{total} (°R)	= 930
R _∞ / ft	= 3.710 ⁶
T _{aw} / T _{total}	= .90
T _{aw} (°R)	=
T _i (°F)	= 79
T _{pc} (°F)	= 175
h _{r=11}	= .0732
T̄	= .1348
(ρC _p k) ^{1/2}	= .0537
α	= 35
β	= 0
Φ	= 0
CAMERA POSITION	SIDE
Engineer	W Dye
	CFFS-HVD

PHASE CHANGE PAINT TEST

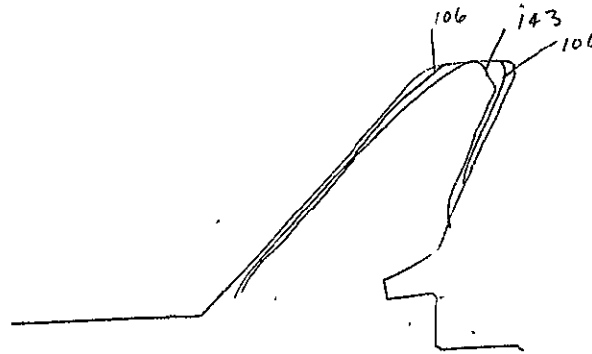
156



CONFIGURATION	31
FACILITY	LRC/YDT
TEST	ØH-46B
RUN	4565
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1455
T_{total} (°R)	= 975
R_∞ / ft	= 6×10^6
T_{aw} / T_{total}	= .9
T_{aw} (°R)	=
T_i (°F)	= 78
T_{pc} (°F)	= 350
$h_{r=1}$	= .1071
\bar{T}	= .3609
$(\rho C_p k)^{1/2}$	= .0595
α	= 35
β	= 0
ϕ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1 - 99	.00862		.0804	
2 - 152	.00696		.0649	
3				
4				
5				
6				
7				
8				
9				
10				

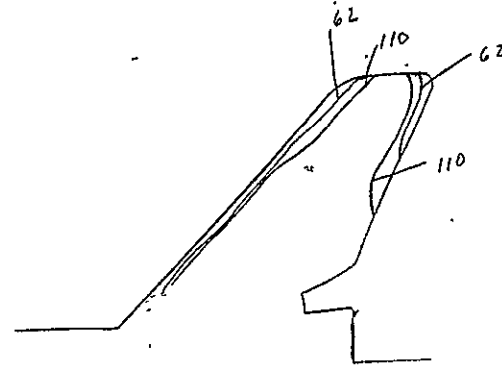
PHASE CHANGE PAINT TEST



CONFIGURATION	22
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4569
LENGTH	7.7418 in. i.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 780
T_{total} (°R)	= 930
R_∞ / ft	= 3.5×10^6
T_{aw} / T_{total}	= .90
T_{aw} (°R)	=
T_i (°F)	= 79
T_{pc} (°F)	= 350
$h_{r=1}$	= .0802
\bar{T}	= .3806
$(\rho C_p k)^{1/2}$	= .0595
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1-106	.0090		.1123	
2-143	.00775		.0967	
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

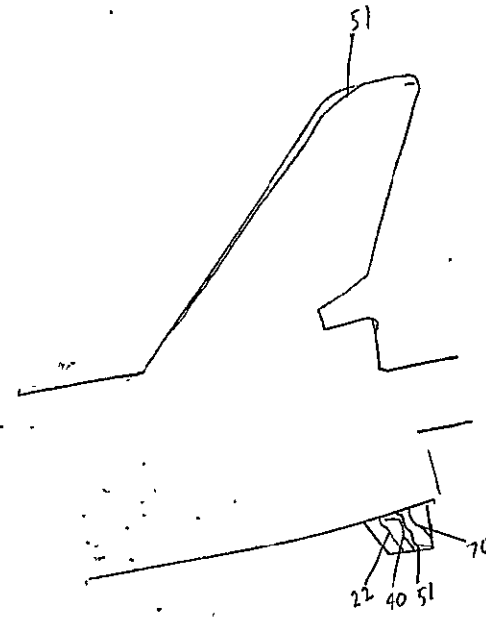


CONFIGURATION	31
FACILITY	LRC/VDT
TEST	OH-
RUN	4570
LENGTH	7.7418 in.m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 1870
T_{total} ($^{\circ}R$)	= 990
R_∞ / ft	= 8×10^6
T_{aw} / T_{total}	= .90
T_{aw} ($^{\circ}R$)	=
T_1 ($^{\circ}F$)	= 8.2
T_{pc} ($^{\circ}F$)	= 400
$h_{r=1}$	= .1204
\bar{T}	= .4168
$(\rho C_p k)^{1/2}$	= .0604
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1-62	.0137		.1140	
2-110	.0103		.0856	
3				
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

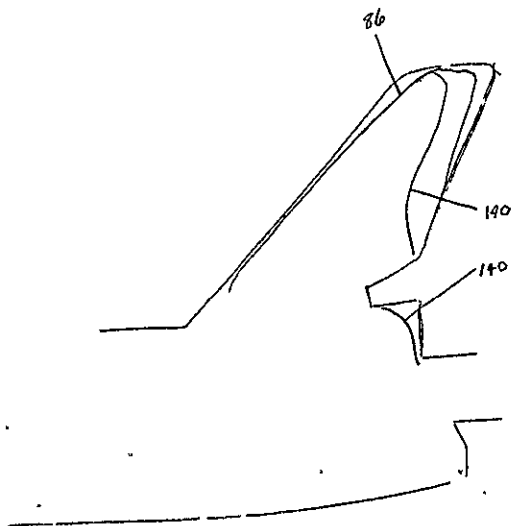
CONFIGURATION	31 vend
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4573
LENGTH	7.7418 in, m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 153
T_{total} (°R)	= 750
R_∞ / ft	= 1×10^6
T_{aw} / T_{total}	= .9
T_{aw} (°R)	=
T_i (°F)	= 84
T_{pc} (°F)	= 300
$h_{r=1}$	= .0386
\bar{T}	= .3963
$(\rho C_p k)^{1/2}$	= .0586
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St,∞}
1-2.2	.0207		.5367	
2-4.0	.0153		.3980	
3-5.1	.0136		.3525	
4-7.0	.0116		.3009	
5				
6				
7				
8				
9				
10				

159

PHASE CHANGE PAINT TEST

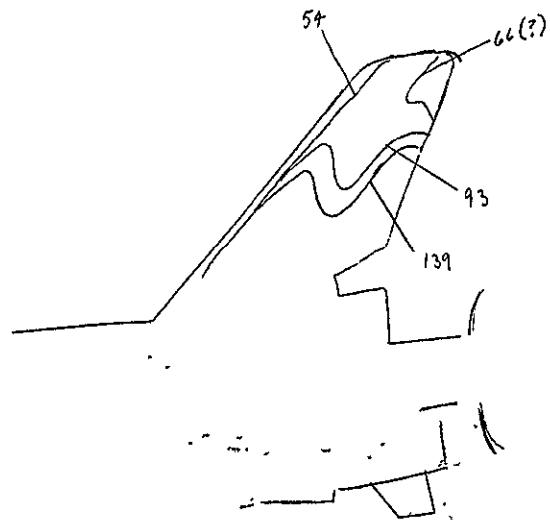


CONFIGURATION	22
FACILITY	LRC/VDT
TEST	OH-46B
RUN	4574
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	
P_{total} (psia)	= 855
T_{total} ($^{\circ}R$)	= 915
R_∞ / ft	= 4×10^6
T_{aw} / T_{total}	=
T_{aw} ($^{\circ}R$)	=
T_i ($^{\circ}F$)	= 79
T_{pc} ($^{\circ}F$)	= 300
$h_{r=1}$	=
\bar{T}	=
$(\rho C_p k)^{1/2}$	=
α	= 30
β	= 0
Φ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St, \infty}$
1 -46				
2 -140				
3				
4				
5				
6				
7				
8				
9				
10				

160

PHASE CHANGE PAINT TEST



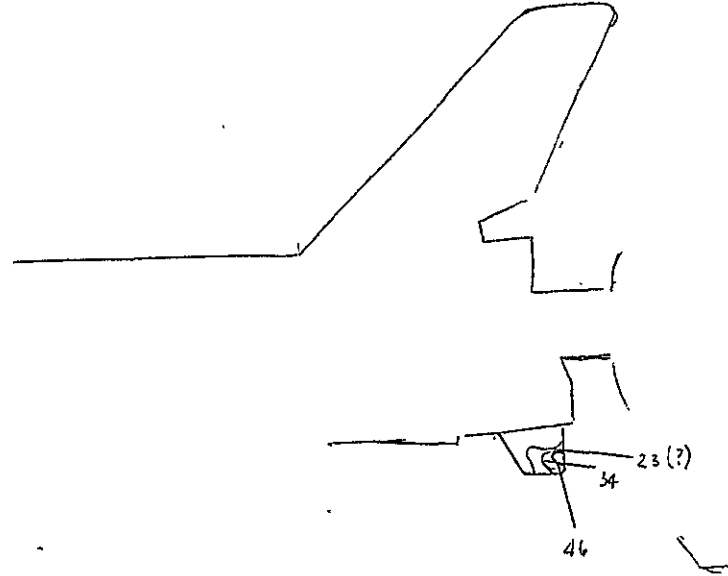
CONFIGURATION	31 ven 30
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4584
LENGTH	7.7418 in. m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	B
P_{total} (psia)	= 1405
T_{total} (°R)	= 985
R_∞ / ft	= 6×10^6
T_{aw} / T_{total}	= .90
T_{aw} (°R)	=
T_i (°F)	= 82
T_{pc} (°F)	= 350
$h_{r=1}$	= .1055
\bar{T}	= .4420
$(\rho C_p k)^{1/2}$	= .0595
α	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	$N_{St,\infty}$
1-54	.0113		.1073	
2-66	.0102		.0970	
3-93	.0086		.0817	
4-139	.0071		.0669	
5				
6				
7				
8				
9				
10				

161

ORIGINAL PAGE IS
OF POOR QUALITY

PHASE CHANGE PAINT TEST



CONFIGURATION	31 ven 0
FACILITY	LRC/VDT
TEST	ØH-46B
RUN	4586
LENGTH	7.7418 m.m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	8
P_{total} (psia)	= 630
T_{total} (°R)	= 900
R_∞ / ft	= 3×10^6
T_{aw} / T_{total}	= .90
T_{aw} (°R)	=
T_i (°F)	= 82
T_{pc} (°F)	= 450
$h_{r= l }$	= .0725
\bar{T}	= .5396
$(\rho C_p k)^{1/2}$	= .0613
α^∞	= 30
β	= 0
ϕ	= 0
CAMERA POSITION	SIDE
Engineer	W. Dye
	CFFS-HVD

ISOTHERM	h	h/h _{ref.}	h/h _{r= l}	$N_{St, \infty}$
1-23	.0359		.4948	
2-34	.0295		.4069	
3-46	.0254		.3498	
4				
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

CONFIGURATION 31vrn 0

FACILITY LRC/VDT

TEST OH 46B

RUN 4588

LENGTH 7.7418 in. m.s.

NOSE RADIUS .006

SCALE .006

M_∞ .8

P_{total} (psia) = 635

T_{total} ($^{\circ}R$) = 905

R_∞ / ft = 3×10^6

T_{aw} / T_{total} = .90

T_{aw} ($^{\circ}R$) =

T_f ($^{\circ}F$) = 82

T_{pc} ($^{\circ}F$) = 250

$h_{r=1}$ = .0728

\bar{T} = .2447

$(\rho C_p k)^{1/2}$ = .0574

α = 30

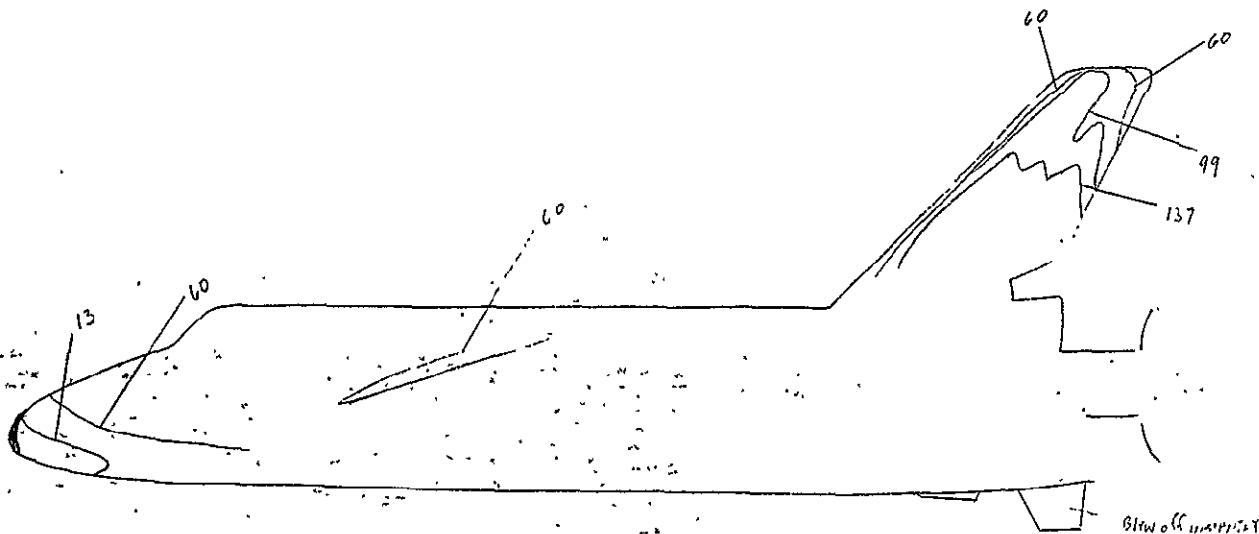
β = 0

ϕ = 0

CAMERA POSITION SIDE

Engineer W. Dye

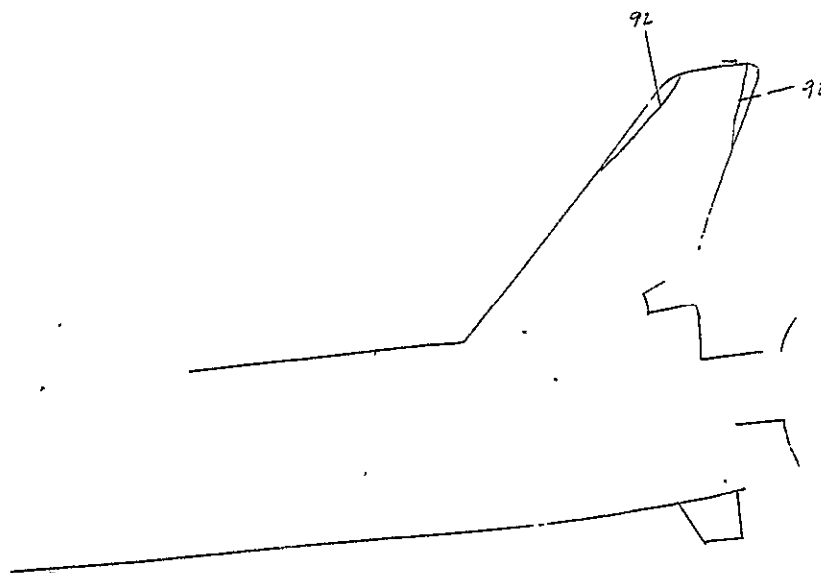
CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1}	N _{St, ∞}
1-13	.0136		.1871	
2-60	.0063		.0871	
3-99	.0049		.0678	
4-137	.0042		.0576	
5				
6				
7				
8				
9				
10				

PHASE CHANGE PAINT TEST

CONFIGURATION	31VPM 0
FACILITY	LRC/VDT
TEST	04-46B
RUN	4593
LENGTH	7.7418 in m.s.
NOSE RADIUS	.006
SCALE	.006
M_∞	B
P_{total} (psia)	= 12.15
T_{total} ($^{\circ}$ R)	= 455
R_∞ / ft	= 8×10^6
T_{aw} / T_{total}	= .90
T_{aw} ($^{\circ}$ R)	=
T_i ($^{\circ}$ F)	= 79
T_{pc} ($^{\circ}$ F)	= 400
$h_{r=1'}$	= .1208
\bar{T}	= .4370
$(\rho C_p k)^{1/2}$	= .0604
α	= 30°
β	= C
Φ	= C
CAMERA POSITION	11
Engineer	SW [unclear]
	CFFS-HVD



ISOTHERM	h	h/h _{ref.}	h/h _{r=1'}	$N_{St, \infty}$
1-92	.0122		.1006	
2				
3				
4				
5				
6				
7				
8				
9				
10				

APPENDIX
TABULATED THERMAL DATA FOR EACH TRACING CONTOUR

Note: See Data Reduction Section for definition of contour number and number given on tracings. Also, data are arranged by the same sequential run number as data figures:

RUN=4502 TOP AIR P1 = 034.70
 TPC = 810.00 DEG-R MLNF = 7.936
 TI = 532.00 DEG-R R/FI = 2.90553E+00
 TV = 1375.00 DEG-R
 SWROCK= .0595 ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 7.21644E-02 BTU/FT.SW-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SW-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.61671E-02	3.62003E-01	3.85042E-01	5.01429E-01	9.12000E-01
2	2.10	2.05881E-02	2.85295E-01	3.85042E-01	5.01429E-01	9.12000E-01
3	2.90	1.75197E-02	2.42775E-01	3.85042E-01	5.01429E-01	9.12000E-01
4	3.90	1.51076E-02	2.09349E-01	3.85042E-01	5.01429E-01	9.12000E-01
5	6.10	1.20798E-02	1.67393E-01	3.85042E-01	5.01429E-01	9.12000E-01
6	7.90	1.00140E-02	1.47092E-01	3.85042E-01	5.01429E-01	9.12000E-01
7	8.40	1.02941E-02	1.42047E-01	3.85042E-01	5.01429E-01	9.12000E-01
8	9.10	9.89022E-03	1.37051E-01	3.85042E-01	5.01429E-01	9.12000E-01
9	12.60	8.40507E-03	1.16471E-01	3.85042E-01	5.01429E-01	9.12000E-01
10	13.00	8.27475E-03	1.14685E-01	3.85042E-01	5.01429E-01	9.12000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4504 TJP AIR PT = 639.70
 IPC = 300.00 DEG-K MINF = 7.937
 TI = 336.00 DEG-K R/FT = 3.17+41E+06
 Ts = 1310.00 DEG-K
 SQRCK = .0504 ALPHA=30.000
 MODEL=41 PHI= 0.000
 HS= 7.20267E-02 BTU/FT.SW-SEC-DEG-K

CONTOUR	T, SEC	H, BTU/FT.SW-SEC-DEG-K	M/HS	T-BAR	BETA	TAW/TU
1	2.20	3.04088E-02	4.22188E-01	4.91863E-01	7.46747E-01	9.12000E-01
2	3.40	2.44608E-02	3.39508E-01	4.91863E-01	7.46747E-01	9.12000E-01
3	3.60	2.37717E-02	3.30039E-01	4.91863E-01	7.46747E-01	9.12000E-01
4	4.00	2.25518E-02	3.13103E-01	4.91863E-01	7.46747E-01	9.12000E-01
5	4.50	2.12620E-02	2.95196E-01	4.91863E-01	7.46747E-01	9.12000E-01
6	5.20	1.97792E-02	2.74009E-01	4.91863E-01	7.46747E-01	9.12000E-01
7	6.40	1.78287E-02	2.47529E-01	4.91863E-01	7.46747E-01	9.12000E-01
8	7.40	1.65804E-02	2.30198E-01	4.91863E-01	7.46747E-01	9.12000E-01
9	8.20	1.57508E-02	2.18680E-01	4.91863E-01	7.46747E-01	9.12000E-01
10	9.00	1.50345E-02	2.08735E-01	4.91863E-01	7.46747E-01	9.12000E-01
11	9.50	1.46335E-02	2.03168E-01	4.91863E-01	7.46747E-01	9.12000E-01
12	10.20	1.41225E-02	1.96073E-01	4.91863E-01	7.46747E-01	9.12000E-01
13	11.50	1.33003E-02	1.84658E-01	4.91863E-01	7.46747E-01	9.12000E-01
14	13.20	1.24143E-02	1.72357E-01	4.91863E-01	7.46747E-01	9.12000E-01
15	13.50	1.22304E-02	1.69804E-01	4.91863E-01	7.46747E-01	9.12000E-01
16	14.30	1.19273E-02	1.65596E-01	4.91863E-01	7.46747E-01	9.12000E-01
17	14.60	1.18041E-02	1.63885E-01	4.91863E-01	7.46747E-01	9.12000E-01

RUN=4505 TOP: AIR PI = 044.70
 TPC = 810.00 DEG-R MINF = 7.938
 TI = 542.00 DEG-R H/FT = 3.09858E+00
 T₃ = 1335.00 DEG-R
 SQROCK= .0595 ALPHA=30.000
 MODEL=31 PHI= 0.000
 HS= 7.24717E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.10	9.87154E-02	1.36212E+00	3.96731E-01	5.24648E-01	9.12000E-01
2	.30	5.69934E-02	7.86423E-01	3.96731E-01	5.24648E-01	9.12000E-01
3	1.30	2.73787E-02	3.77785E-01	3.96731E-01	5.24648E-01	9.12000E-01
4	2.40	2.01502E-02	2.78042E-01	3.96731E-01	5.24648E-01	9.12000E-01
5	3.10	1.77298E-02	2.44045E-01	3.96731E-01	5.24648E-01	9.12000E-01
6	3.90	1.58071E-02	2.18114E-01	3.96731E-01	5.24648E-01	9.12000E-01
7	4.30	1.50540E-02	2.07722E-01	3.96731E-01	5.24648E-01	9.12000E-01
8	5.30	1.33108E-02	1.83069E-01	3.96731E-01	5.24648E-01	9.12000E-01
9	6.30	1.27441E-02	1.75849E-01	3.96731E-01	5.24648E-01	9.12000E-01
10	6.70	1.20060E-02	1.66410E-01	3.96731E-01	5.24648E-01	9.12000E-01
11	7.50	1.13987E-02	1.57285E-01	3.96731E-01	5.24648E-01	9.12000E-01
12	8.00	1.10367E-02	1.52290E-01	3.96731E-01	5.24648E-01	9.12000E-01
13	8.40	1.07707E-02	1.48620E-01	3.96731E-01	5.24648E-01	9.12000E-01
14	9.40	1.01817E-02	1.40492E-01	3.96731E-01	5.24648E-01	9.12000E-01
15	10.60	9.58609E-03	1.32301E-01	3.96731E-01	5.24648E-01	9.12000E-01
16	12.10	8.97413E-03	1.23829E-01	3.96731E-01	5.24648E-01	9.12000E-01
17	13.00	8.65792E-03	1.19466E-01	3.96731E-01	5.24648E-01	9.12000E-01

RUN=4506 TOP AIR FT = 659.70
 TPC = 710.00 DEG-R MINF = 7.941
 TI = 540.00 DEG-R R/FI = 3.05244E+06
 T0 = 1365.00 DEG-R
 SQROCK=.0574 ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 7.3311E-02 BTU/FT.SW-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SW-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	.00	1.70510E-02	2.32585E-01	2.41176E-01	2.65695E-01	9.12000E-01
2	1.30	1.33759E-02	1.82454E-01	2.41176E-01	2.65695E-01	9.12000E-01
3	1.70	1.16969E-02	1.59552E-01	2.41176E-01	2.65695E-01	9.12000E-01
4	1.95	1.10642E-02	1.50921E-01	2.41176E-01	2.65695E-01	9.12000E-01
5	2.00	1.07840E-02	1.47099E-01	2.41176E-01	2.65695E-01	9.12000E-01
6	2.40	9.84442E-03	1.34283E-01	2.41176E-01	2.65695E-01	9.12000E-01
7	3.30	8.39535E-03	1.14517E-01	2.41176E-01	2.65695E-01	9.12000E-01
8	4.70	7.03470E-03	9.59571E-02	2.41176E-01	2.65695E-01	9.12000E-01
9	5.40	6.56295E-03	8.95219E-02	2.41176E-01	2.65695E-01	9.12000E-01
10	6.50	5.98190E-03	8.15961E-02	2.41176E-01	2.65695E-01	9.12000E-01
11	7.80	5.46070E-03	7.44867E-02	2.41176E-01	2.65695E-01	9.12000E-01
12	10.60	4.68428E-03	6.38959E-02	2.41176E-01	2.65695E-01	9.12000E-01
13	13.50	4.15077E-03	5.66186E-02	2.41176E-01	2.65695E-01	9.12000E-01

169

ORIGINAL PAGE IS
 OF POOR QUALITY

2187

RUN=4507 TOP AIR PT = 639.70
 IPC = 700.00 DEG-K MINP = 7.937
 TI = 542.00 DEG-K R/FT = 3.05629E+00
 T0 = 1340.00 DEG-K *
 SQRCKE = 0.0580 ALPHA = 0.000
 MODEL = 3I PHI = 0.000
 HS = 7.22281E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-K	H/HS	T-BAR	BETA	TAW/T0
1	.50	2.38134E-02	3.29697E-01	3.20551E-01	3.85518E-01	9.12000E-01
2	1.30	1.98139E-02	2.74324E-01	3.20551E-01	3.85518E-01	9.12000E-01
3	1.70	1.73268E-02	2.39890E-01	3.20551E-01	3.85518E-01	9.12000E-01
4	2.00	1.59745E-02	2.21167E-01	3.20551E-01	3.85518E-01	9.12000E-01
5	2.40	1.45827E-02	2.01897E-01	3.20551E-01	3.85518E-01	9.12000E-01
6	2.80	1.35009E-02	1.86920E-01	3.20551E-01	3.85518E-01	9.12000E-01
7	4.00	1.12957E-02	1.56389E-01	3.20551E-01	3.85518E-01	9.12000E-01
8	5.20	9.90090E-03	1.37162E-01	3.20551E-01	3.85518E-01	9.12000E-01
9	7.00	8.53873E-03	1.18219E-01	3.20551E-01	3.85518E-01	9.12000E-01
10	9.00	7.53045E-03	1.04259E-01	3.20551E-01	3.85518E-01	9.12000E-01
11	11.40	6.69098E-03	9.26368E-02	3.20551E-01	3.85518E-01	9.12000E-01
12	11.80	6.57660E-03	9.10531E-02	3.20551E-01	3.85518E-01	9.12000E-01

RUN=4500 TOP AIR PT = 039.70
 TPC = 700.00 DEG-R MINF = 7.937
 FI = 540.00 DEG-R R/FT = 3.15419E+00
 T0 = 1315.00 DEG-R
 SQROCK = .0586 ALPHA=30.000
 MODEL=41 PHI= 0.000
 HS = 7 20884E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	1.30	2.09500E-02	2.90615E-01	3.33697E-01	4.07622E-01	9.12000E-01
2	1.50	1.95034E-02	2.70548E-01	3.33697E-01	4.07622E-01	9.12000E-01
3	2.20	1.61044E-02	2.23398E-01	3.33697E-01	4.07622E-01	9.12000E-01
4	2.30	1.57504E-02	2.18487E-01	3.33697E-01	4.07622E-01	9.12000E-01
5	3.50	1.27679E-02	1.77115E-01	3.33697E-01	4.07622E-01	9.12000E-01
6	4.00	1.11372E-02	1.54494E-01	3.33697E-01	4.07622E-01	9.12000E-01
7	5.20	9.91839E-03	1.37587E-01	3.33697E-01	4.07622E-01	9.12000E-01
8	7.00	9.02830E-03	1.25239E-01	3.33697E-01	4.07622E-01	9.12000E-01
9	10.00	7.33672E-03	1.01774E-01	3.33697E-01	4.07622E-01	9.12000E-01

171

ORIGINAL PAGE IS
 OF POOR QUALITY

185

RUN=4509 TOP AIR "PT" = 177.70
 TPC = 760.00 DEG-R MINF = 7.761
 TI = 540.00 DEG-R R/FT = 1.01280E+06
 T3 = 1245.00 DEG-R
 SQROCKE = .0586 ALPHA = 30.000
 MODEL = 22 PHI = 0.000
 HS = 3.97190E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	2.00	1.95430E-02	4.92031E-01	3.69475E-01	4.71638E-01	9.12000E-01
2	4.40	1.31759E-02	3.31727E-01	3.69475E-01	4.71638E-01	9.12000E-01
3	7.40	1.01599E-02	2.55795E-01	3.69475E-01	4.71638E-01	9.12000E-01
4	11.40	8.18567E-03	2.06089E-01	3.69475E-01	4.71638E-01	9.12000E-01
5	15.40	7.04281E-03	1.77316E-01	3.69475E-01	4.71638E-01	9.12000E-01

RUN=4510 TOP AIR PT = 169.70
 TPC = 760.00 DEG-R MINF = 7.754
 TI = 536.00 DEG-R K/FT = 9.49967E+05
 T0 = 1200.00 DEG-R
 SQROCK = .0586 ALPHA = 30.000
 MODEL = 31 PHI = 0.000
 HS = 3.89412E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	3.60	1.43288E-02	3.67959E-01	3.65344E-01	4.63941E-01	9.12000E-01
2	7.10	1.02031E-02	2.62012E-01	3.65344E-01	4.63941E-01	9.12000E-01
3	10.10	8.55459E-03	2.19680E-01	3.65344E-01	4.63941E-01	9.12000E-01
4	13.70	7.34513E-03	1.88621E-01	3.65344E-01	4.63941E-01	9.12000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4511 TOP AIR PT = 164.70
 TPC = 760.00 DEG-R MINF = 7.750
 TI = 530.00 DEG-R R/FT = 9.61362E+05
 T0 = 1230.00 DEG-R
 SQROCK = .0586 ALPHA = 30.000
 MODEL = 41 --- PHI = 0.000
 HS = 3.83153E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	5.20	1.27539E-02	3.32867E-01	3.82409E-01	4.96303E-01	9.12000E-01
2	8.50	9.97550E-03	2.60353E-01	3.82409E-01	4.96303E-01	9.12000E-01
3	9.10	9.64103E-03	2.51623E-01	3.82409E-01	4.96303E-01	9.12000E-01
4	10.40	9.01830E-03	2.35372E-01	3.82409E-01	4.96303E-01	9.12000E-01
5	10.90	8.80909E-03	2.29910E-01	3.82409E-01	4.96303E-01	9.12000E-01
6	11.10	8.72937E-03	2.27830E-01	3.82409E-01	4.96303E-01	9.12000E-01
7	11.60	8.53910E-03	2.22866E-01	3.82409E-01	4.96303E-01	9.12000E-01
8	12.00	8.39564E-03	2.19120E-01	3.82409E-01	4.96303E-01	9.12000E-01
9	13.10	8.03542E-03	2.09718E-01	3.82409E-01	4.96303E-01	9.12000E-01
10	13.50	7.91548E-03	2.06588E-01	3.82409E-01	4.96303E-01	9.12000E-01
11	14.30	7.62088E-03	2.00726E-01	3.82409E-01	4.96303E-01	9.12000E-01

RUN=4512 TOP AIR PT = 1394.70
 TPC = 910.00 DEG-R MINF = 8.032
 TI = 535.00 DEG-R K/FT = 5.91383E+06
 TG = 1415.00 DEG-R
 SQROCK= .0613 **ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 1.04275E-01 BTU/FT.SQ-SEC-DEG-K

CONTOUR	T,SEC	H,BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.00	4.60801E-02	4.41911E-01	4.93692E-01	7.51714E-01	9.12000E-01
2	1.20	4.20652E-02	4.03408E-01	4.93692E-01	7.51714E-01	9.12000E-01
3	1.30	4.04149E-02	3.87582E-01	4.93692E-01	7.51714E-01	9.12000E-01
4	1.50	3.34300E-02	3.20596E-01	4.93692E-01	7.51714E-01	9.12000E-01
5	2.30	3.03843E-02	2.91388E-01	4.93692E-01	7.51714E-01	9.12000E-01
6	2.90	2.70592E-02	2.59499E-01	4.93692E-01	7.51714E-01	9.12000E-01
7	3.70	2.39559E-02	2.29739E-01	4.93692E-01	7.51714E-01	9.12000E-01
8	3.90	2.33330E-02	2.23770E-01	4.93692E-01	7.51714E-01	9.12000E-01
9	4.30	2.22210E-02	2.13108E-01	4.93692E-01	7.51714E-01	9.12000E-01
10	5.10	2.04040E-02	1.95682E-01	4.93692E-01	7.51714E-01	9.12000E-01
11	5.30	2.00159E-02	1.91954E-01	4.93692E-01	7.51714E-01	9.12000E-01
12	5.70	1.93008E-02	1.85096E-01	4.93692E-01	7.51714E-01	9.12000E-01
13	6.50	1.80741E-02	1.73332E-01	4.93692E-01	7.51714E-01	9.12000E-01
14	7.70	1.66061E-02	1.59254E-01	4.93692E-01	7.51714E-01	9.12000E-01
15	8.70	1.56220E-02	1.49822E-01	4.93692E-01	7.51714E-01	9.12000E-01
16	10.80	1.40217E-02	1.34469E-01	4.93692E-01	7.51714E-01	9.12000E-01

RUN=4513 TOP AIR PT = 171.70
 TPC = 635.00 DEG-R MINF = 7.756
 TI = 541.00 DEG-R R/FT = 1.00031E+06
 T₀ = 1230.00 DEG-R
 SQRCK= .0537 ALPHA=30.000
 MODEL=31 PHI= 0.000
 HS= 3.88940E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	7.76327E-03	1.99601E-01	1.61857E-01	1.64832E-01	9.12000E-01
2	2.50	5.59817E-03	1.43934E-01	1.61857E-01	1.64832E-01	9.12000E-01
3	3.60	5.11041E-03	1.31393E-01	1.61857E-01	1.64832E-01	9.12000E-01
4	3.80	4.54072E-03	1.16746E-01	1.61857E-01	1.64832E-01	9.12000E-01
5	4.30	4.20857E-03	1.09749E-01	1.61857E-01	1.64832E-01	9.12000E-01
6	4.90	3.99809E-03	1.02810E-01	1.61857E-01	1.64832E-01	9.12000E-01
7	5.20	3.88163E-03	9.98004E-02	1.61857E-01	1.64832E-01	9.12000E-01
8	5.60	3.67538E-03	9.44974E-02	1.61857E-01	1.64832E-01	9.12000E-01
9	7.20	3.29875E-03	8.48140E-02	1.61857E-01	1.64832E-01	9.12000E-01
10	8.00	3.12947E-03	8.04617E-02	1.61857E-01	1.64832E-01	9.12000E-01
11	10.40	2.74473E-03	7.05695E-02	1.61857E-01	1.64832E-01	9.12000E-01
12	12.40	2.51305E-03	6.46284E-02	1.61857E-01	1.64832E-01	9.12000E-01
13	14.20	2.34894E-03	6.03934E-02	1.61857E-01	1.64832E-01	9.12000E-01
14	14.00	2.31654E-03	5.95604E-02	1.61857E-01	1.64832E-01	9.12000E-01
15	14.90	2.29310E-03	5.89577E-02	1.61857E-01	1.64832E-01	9.12000E-01

RUN=4514 TOP AIR PT = 1394.70
 TPC = 1010.00 DEG-R MINF = 8.032
 TI = 540.00 DEG-R R/FT = 6.27978E+06
 Tu = 1303.00 DEG-R
 SQROCK= .0617 ALPHA=30.000
 MODEL=41 PHI= 0.000
 HS= 1.03728E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.30	1.61219E-01	1.55425E+00	6.66780E-01	1.43117E+00	9.12000E-01
2	.40	1.39019E-01	1.34602E+00	6.66780E-01	1.43117E+00	9.12000E-01
3	1.20	8.06093E-02	7.77124E-01	6.66780E-01	1.43117E+00	9.12000E-01
4	1.40	7.46297E-02	7.19477E-01	6.66780E-01	1.43117E+00	9.12000E-01
5	1.70	6.77253E-02	6.52915E-01	6.66780E-01	1.43117E+00	9.12000E-01
6	2.20	5.95339E-02	5.73944E-01	6.66780E-01	1.43117E+00	9.12000E-01
7	2.60	5.47632E-02	5.27952E-01	6.66780E-01	1.43117E+00	9.12000E-01
8	3.70	4.59066E-02	4.42568E-01	6.66780E-01	1.43117E+00	9.12000E-01
9	5.00	3.94903E-02	3.80711E-01	6.66780E-01	1.43117E+00	9.12000E-01
10	7.70	3.18222E-02	3.06780E-01	6.66780E-01	1.43117E+00	9.12000E-01
11	9.00	2.94343E-02	2.83765E-01	6.66780E-01	1.43117E+00	9.12000E-01
12	10.30	2.75142E-02	2.65254E-01	6.66780E-01	1.43117E+00	9.12000E-01
13	11.70	2.58156E-02	2.48879E-01	6.66780E-01	1.43117E+00	9.12000E-01

177

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4515 TOP AIR PI = 178.70
 TPC = 619.00 DEG-R MINF = 7.762
 TI = 539.00 DEG-R R/FT = 1.00460E+06
 TO = 1255.00 DEG-R
 SQRCK= .0527 ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 3.9633E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.20	5.51405E-03	1.39127E-01	1.17247E-01	1.14618E-01	9.12000E-01
2	1.30	5.29773E-03	1.33669E-01	1.17247E-01	1.14618E-01	9.12000E-01
3	1.80	4.50221E-03	1.13597E-01	1.17247E-01	1.14618E-01	9.12000E-01
4	2.80	3.74606E-03	9.45181E-02	1.17247E-01	1.14618E-01	9.12000E-01
5	3.40	3.27584E-03	8.26537E-02	1.17247E-01	1.14618E-01	9.12000E-01
6	4.60	2.81632E-03	7.10596E-02	1.17247E-01	1.14618E-01	9.12000E-01
7	6.70	2.33359E-03	5.88795E-02	1.17247E-01	1.14618E-01	9.12000E-01
8	7.20	2.25110E-03	5.67983E-02	1.17247E-01	1.14618E-01	9.12000E-01
9	9.40	2.01345E-03	5.08019E-02	1.17247E-01	1.14618E-01	9.12000E-01
10	10.80	1.83802E-03	4.63756E-02	1.17247E-01	1.14618E-01	9.12000E-01

RUN=4516 TOP AIR PT = 1419.70
 TPC = 900.00 DEG-R MINF = 3.034
 TI = 539.00 DEG-R R/FT = 0.05167E+06
 TL = 1410.00 DEG-R
 SQROCK = .0617 ALPHA = 30.000
 MODEL = 31 PHI = 0.000

HS = 1.05018E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TU
1	1.30	5.24060E-02	4.99044E-01	5.63648E-01	9.68477E-01	9.12000E-01
2	1.80	4.45388E-02	4.24106E-01	5.63648E-01	9.68477E-01	9.12000E-01
3	2.50	3.77924E-02	3.59806E-01	5.63648E-01	9.68477E-01	9.12000E-01
4	3.70	3.10052E-02	2.95008E-01	5.63648E-01	9.68477E-01	9.12000E-01
5	4.40	2.84871E-02	2.71259E-01	5.63648E-01	9.68477E-01	9.12000E-01
6	5.00	2.67233E-02	2.54463E-01	5.63648E-01	9.68477E-01	9.12000E-01
7	6.00	2.43949E-02	2.32292E-01	5.63648E-01	9.68477E-01	9.12000E-01
8	7.40	2.19064E-02	2.09168E-01	5.63648E-01	9.68477E-01	9.12000E-01
9	8.50	2.04958E-02	1.95164E-01	5.63648E-01	9.68477E-01	9.12000E-01
10	10.20	1.87100E-02	1.78160E-01	5.63648E-01	9.68477E-01	9.12000E-01
11	11.70	1.74695E-02	1.66348E-01	5.63648E-01	9.68477E-01	9.12000E-01

RUN=4517 TOP AIR PT = 1934.70
 TPC = 1010.00 DEG-R MINF = 0.070
 TI = 541.00 DEG-R K/FT = 0.40099E+00
 Tg = 1385.00 DEG-R
 SQROCK = .0617 ALPHA = 30.000
 MODEL = 22 PHI = 0.000
 HS = 1.21066E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	1.10	7.86250E-02	0.49445E-01	6.49477E-01	1.33652E+00	9.12000E-01
2	1.30	7.23252E-02	5.97402E-01	6.49477E-01	1.33652E+00	9.12000E-01
3	1.80	6.14040E-02	5.07694E-01	6.49477E-01	1.33652E+00	9.12000E-01
4	2.70	5.01856E-02	4.14531E-01	6.49477E-01	1.33652E+00	9.12000E-01
5	3.10	4.68301E-02	3.86863E-01	6.49477E-01	1.33652E+00	9.12000E-01
6	4.30	3.97674E-02	3.28470E-01	6.49477E-01	1.33652E+00	9.12000E-01
7	5.40	3.54866E-02	2.93117E-01	6.49477E-01	1.33652E+00	9.12000E-01
8	6.20	3.31181E-02	2.73554E-01	6.49477E-01	1.33652E+00	9.12000E-01
9	6.30	3.28542E-02	2.71374E-01	6.49477E-01	1.33652E+00	9.12000E-01
10	6.60	3.20988E-02	2.65135E-01	6.49477E-01	1.33652E+00	9.12000E-01
11	8.10	2.89747E-02	2.39329E-01	6.49477E-01	1.33652E+00	9.12000E-01
12	9.50	2.67547E-02	2.20992E-01	6.49477E-01	1.33652E+00	9.12000E-01

RUN=4518 TOP AIR PT = 179.70
 TPC = 535.00 DEG-R MINF = 1.763
 TI = 541.00 DEG-R R/FT = 1.05919E+06
 T_v = 1220.00 DEG-R
 SQROCK = 0.537 ALPHA = 30.000
 MODEL = 41 PHI = 0.000
 HS = 3.96771E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	1.30	7.90630E-03	1.99267E-01	1.64439E-01	1.67870E-01	9.12000E-01
2	1.50	6.93990E-03	1.64828E-01	1.64439E-01	1.67870E-01	9.12000E-01
3	2.70	5.48613E-03	1.38269E-01	1.64439E-01	1.67870E-01	9.12000E-01
4	3.40	4.88887E-03	1.23216E-01	1.64439E-01	1.67870E-01	9.12000E-01
5	3.50	4.81852E-03	1.21443E-01	1.64439E-01	1.67870E-01	9.12000E-01
6	4.20	4.39869E-03	1.10862E-01	1.64439E-01	1.67870E-01	9.12000E-01
7	4.30	4.34724E-03	1.09565E-01	1.64439E-01	1.67870E-01	9.12000E-01
8	4.70	4.15814E-03	1.04799E-01	1.64439E-01	1.67870E-01	9.12000E-01
9	5.40	3.87928E-03	9.77712E-02	1.64439E-01	1.67870E-01	9.12000E-01
10	5.90	3.71127E-03	9.35367E-02	1.64439E-01	1.67870E-01	9.12000E-01
11	6.00	3.50894E-03	8.84374E-02	1.64439E-01	1.67870E-01	9.12000E-01
12	6.80	3.45095E-03	8.71271E-02	1.64439E-01	1.67870E-01	9.12000E-01
13	8.70	3.05625E-03	7.70279E-02	1.64439E-01	1.67870E-01	9.12000E-01
14	9.80	2.87962E-03	7.25763E-02	1.64439E-01	1.67870E-01	9.12000E-01
15	9.90	2.86504E-03	7.22088E-02	1.64439E-01	1.67870E-01	9.12000E-01
16	12.30	2.57037E-03	6.47821E-02	1.64439E-01	1.67870E-01	9.12000E-01
17	12.50	2.54972E-03	6.42618E-02	1.64439E-01	1.67870E-01	9.12000E-01
18	13.30	2.47185E-03	6.22991E-02	1.64439E-01	1.67870E-01	9.12000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4519 TOP AIR PT = 1414.70
 TPC = 810.00 DEG-R MINF = 8.034
 TI = 540.00 DEG-R R/FT = 0.17649E+00
 TV = 1390.00 DEG-R
 SQROCK = .0595 ALPHA = 30.000
 MODEL = 31 PHI = 0.000
 HS = 1.04939E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	.40	4.46476E-02	4.25461E-01	3.71042E-01	4.74582E-01	9.12000E-01
2	.50	3.99340E-02	3.80544E-01	3.71042E-01	4.74582E-01	9.12000E-01
3	.60	3.64546E-02	3.47388E-01	3.71042E-01	4.74582E-01	9.12000E-01
4	.70	3.37504E-02	3.21618E-01	3.71042E-01	4.74582E-01	9.12000E-01
5	.80	3.15700E-02	3.00840E-01	3.71042E-01	4.74582E-01	9.12000E-01
6	1.00	2.82376E-02	2.69085E-01	3.71042E-01	4.74582E-01	9.12000E-01
7	1.30	2.47660E-02	2.36003E-01	3.71042E-01	4.74582E-01	9.12000E-01
8	1.40	2.38651E-02	2.27419E-01	3.71042E-01	4.74582E-01	9.12000E-01
9	1.80	2.10471E-02	2.00564E-01	3.71042E-01	4.74582E-01	9.12000E-01
10	2.10	1.94858E-02	1.85686E-01	3.71042E-01	4.74582E-01	9.12000E-01
11	2.50	1.78590E-02	1.70184E-01	3.71042E-01	4.74582E-01	9.12000E-01
12	2.70	1.71849E-02	1.63760E-01	3.71042E-01	4.74582E-01	9.12000E-01
13	2.90	1.65817E-02	1.58012E-01	3.71042E-01	4.74582E-01	9.12000E-01
14	3.30	1.55443E-02	1.48127E-01	3.71042E-01	4.74582E-01	9.12000E-01
15	3.80	1.44856E-02	1.38038E-01	3.71042E-01	4.74582E-01	9.12000E-01
16	4.20	1.37785E-02	1.31300E-01	3.71042E-01	4.74582E-01	9.12000E-01
17	5.00	1.26282E-02	1.20339E-01	3.71042E-01	4.74582E-01	9.12000E-01
18	5.70	1.18274E-02	1.12707E-01	3.71042E-01	4.74582E-01	9.12000E-01
19	9.10	9.36068E-03	8.92009E-02	3.71042E-01	4.74582E-01	9.12000E-01
20	11.30	8.40019E-03	8.00480E-02	3.71042E-01	4.74582E-01	9.12000E-01

k/l₀

9.6 0896

10.6 0853

RUN=4520 TOP AIR PT = 1419.70
 TPC = 810.00 DEG-R MINF = 8.034
 TI = 542.00 DEG-R R/FT = 0.12388E+06
 TG = 1400.00 DEG-R
 SQROCK = 0.0595 ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 1.05188E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.50	3.89421E-02	3.70213E-01	3.64725E-01	4.62793E-01	9.12000E-01
2	.60	3.55491E-02	3.37957E-01	3.64725E-01	4.62793E-01	9.12000E-01
3	.80	3.07864E-02	2.92679E-01	3.64725E-01	4.62793E-01	9.12000E-01
4	1.30	2.41509E-02	2.29596E-01	3.64725E-01	4.62793E-01	9.12000E-01
5	1.90	1.99769E-02	1.89915E-01	3.64725E-01	4.62793E-01	9.12000E-01
6	2.20	1.85649E-02	1.76492E-01	3.64725E-01	4.62793E-01	9.12000E-01
7	2.60	1.70772E-02	1.62349E-01	3.64725E-01	4.62793E-01	9.12000E-01
8	2.90	1.61698E-02	1.53723E-01	3.64725E-01	4.62793E-01	9.12000E-01
9	3.10	1.56395E-02	1.48681E-01	3.64725E-01	4.62793E-01	9.12000E-01
10	3.30	1.51582E-02	1.44105E-01	3.64725E-01	4.62793E-01	9.12000E-01
11	3.60	1.45129E-02	1.37970E-01	3.64725E-01	4.62793E-01	9.12000E-01
12	4.00	1.37681E-02	1.30890E-01	3.64725E-01	4.62793E-01	9.12000E-01
13	4.10	1.35992E-02	1.29284E-01	3.64725E-01	4.62793E-01	9.12000E-01
14	4.90	1.24396E-02	1.18260E-01	3.64725E-01	4.62793E-01	9.12000E-01
15	5.90	1.13365E-02	1.07773E-01	3.64725E-01	4.62793E-01	9.12000E-01
16	6.70	1.06382E-02	1.01134E-01	3.64725E-01	4.62793E-01	9.12000E-01
17	6.90	1.04829E-02	9.96580E-02	3.64725E-01	4.62793E-01	9.12000E-01
18	7.70	9.92336E-03	9.43390E-02	3.64725E-01	4.62793E-01	9.12000E-01
19	8.90	9.23016E-03	8.77489E-02	3.64725E-01	4.62793E-01	9.12000E-01
20	9.70	8.84134E-03	8.40525E-02	3.64725E-01	4.62793E-01	9.12000E-01

RUN= 4521 TOP AIR PT = 1404.70
 TPC = 810.00 DEG-R MINE = -8.033
 TI = 541.00 DEG-R R/FT = 6.17136E+06
 T_v = 1385.00 DEG-R
 SOROCK= .0595 ALPHA=30.000
 MODEL=41 PHI= 0.000
 HS= 1.04554E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.30	5.18561E-02	4.95974E-01	3.72514E-01	4.77358E-01	9.12000E-01
2	.40	4.49087E-02	4.29526E-01	3.72514E-01	4.77358E-01	9.12000E-01
3	.50	4.01676E-02	3.84180E-01	3.72514E-01	4.77358E-01	9.12000E-01
4	.60	3.66678E-02	3.50707E-01	3.72514E-01	4.77358E-01	9.12000E-01
5	1.10	2.70810E-02	2.59014E-01	3.72514E-01	4.77358E-01	9.12000E-01
6	1.30	2.49109E-02	2.38258E-01	3.72514E-01	4.77358E-01	9.12000E-01
7	1.60	2.24544E-02	2.14763E-01	3.72514E-01	4.77358E-01	9.12000E-01
8	2.00	2.00838E-02	1.92090E-01	3.72514E-01	4.77358E-01	9.12000E-01
9	2.10	1.95998E-02	1.87461E-01	3.72514E-01	4.77358E-01	9.12000E-01
10	2.40	1.83339E-02	1.75353E-01	3.72514E-01	4.77358E-01	9.12000E-01
11	2.90	1.66787E-02	1.59522E-01	3.72514E-01	4.77358E-01	9.12000E-01
12	3.20	1.58776E-02	1.51860E-01	3.72514E-01	4.77358E-01	9.12000E-01
13	3.30	1.56352E-02	1.49542E-01	3.72514E-01	4.77358E-01	9.12000E-01
14	4.20	1.38591E-02	1.32555E-01	3.72514E-01	4.77358E-01	9.12000E-01
15	5.90	1.16932E-02	1.11839E-01	3.72514E-01	4.77358E-01	9.12000E-01
16	6.60	1.10558E-02	1.05742E-01	3.72514E-01	4.77358E-01	9.12000E-01
17	7.40	1.04411E-02	9.98628E-02	3.72514E-01	4.77358E-01	9.12000E-01
18	8.60	9.68527E-03	9.26340E-02	3.72514E-01	4.77358E-01	9.12000E-01
19	10.90	8.60295E-03	8.22823E-02	3.72514E-01	4.77358E-01	9.12000E-01

184

RUN=4523 TOP AIR PT = 179.70
 IPC = 760.00 DEG-R MINF = 7.763
 TI = 542.00 DEG-R R/FT = 1.03764E+06
 TQ = 1235.00 DEG-R
 SQROCK= .0586 ALPHA=30.000
 MODEL=31 PHI= 0.000
 HS= 3.98886E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TQ
1	3.40	1.52048E-02	3.81181E-01	3.73083E-01	4.78433E-01	9.12000E-01
2	6.60	1.09131E-02	2.73589E-01	3.73083E-01	4.78433E-01	9.12000E-01
3	10.00	8.86582E-03	2.22265E-01	3.73083E-01	4.78433E-01	9.12000E-01
4	13.50	7.63048E-03	1.91295E-01	3.73083E-01	4.78433E-01	9.12000E-01
5	17.00	6.79977E-03	1.70409E-01	3.73083E-01	4.78433E-01	9.12000E-01
6	18.00	6.60819E-03	1.65666E-01	3.73083E-01	4.78433E-01	9.12000E-01

RUN=4524 TOP AIR PT = 1949.70
 TPC = 860.00 DEG-R MINF = 8.071
 TL = 543.00 DEG-R R/FT = 0.46996E+06
 TD = 1385.00 DEG-R
 SQROCK = .0604 ALPHA=30.000
 MODEL=22 PHI = 0.000
 HS = 1.21812E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.60	4.61997E-02	3.95689E-01	4.40204E-01	6.18135E-01	9.12000E-01
2	.70	4.46243E-02	3.66336E-01	4.40204E-01	6.18135E-01	9.12000E-01
3	.90	3.93549E-02	3.23078E-01	4.40204E-01	6.18135E-01	9.12000E-01
4	1.30	3.27453E-02	2.68817E-01	4.40204E-01	6.18135E-01	9.12000E-01
5	2.00	2.64001E-02	2.16728E-01	4.40204E-01	6.18135E-01	9.12000E-01
6	2.10	2.57638E-02	2.11504E-01	4.40204E-01	6.18135E-01	9.12000E-01
7	2.20	2.51715E-02	2.06042E-01	4.40204E-01	6.18135E-01	9.12000E-01
8	2.30	2.46182E-02	2.02100E-01	4.40204E-01	6.18135E-01	9.12000E-01
9	2.60	2.31544E-02	1.90083E-01	4.40204E-01	6.18135E-01	9.12000E-01
10	3.00	2.15550E-02	1.76957E-01	4.40204E-01	6.18135E-01	9.12000E-01
11	3.20	2.08711E-02	1.71338E-01	4.40204E-01	6.18135E-01	9.12000E-01
12	3.60	1.96775E-02	1.61539E-01	4.40204E-01	6.18135E-01	9.12000E-01
13	4.00	1.86077E-02	1.53250E-01	4.40204E-01	6.18135E-01	9.12000E-01
14	4.80	1.70412E-02	1.39897E-01	4.40204E-01	6.18135E-01	9.12000E-01
15	6.40	1.67581E-02	1.21154E-01	4.40204E-01	6.18135E-01	9.12000E-01
16	8.00	1.32000E-02	1.08364E-01	4.40204E-01	6.18135E-01	9.12000E-01

RUN=4525 TOP AIR PT = 177.70
 TPC = 750.00 DEG-R MINF = 7.761
 TI = 542.00 DEG-R R/FT = 1.03364E+06
 T0 = 1230.00 DEG-R
 SQRCK= .9985 ALPHA=30.000
 MODEL=41 PHI=0.000
 HS= 3.96680E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	3.50	1.51606E-02	3.82187E-01	3.76018E-01	4.84008E-01	9.12000E-01
2	6.30	1.13000E-02	2.84865E-01	3.76018E-01	4.84008E-01	9.12000E-01
3	9.50	9.15407E-03	2.30767E-01	3.76018E-01	4.84008E-01	9.12000E-01
4	12.40	8.05451E-03	2.03048E-01	3.76018E-01	4.84008E-01	9.12000E-01
5	17.20	6.83889E-03	1.72403E-01	3.76018E-01	4.84008E-01	9.12000E-01

ORIGINAL PAGES
 FOR QUANTITY

RUN=4526 TOP AIR PT = 639.70
 TPC = 810.00 DEG-R MINF = 7.937
 TI = 537.00 DEG-R R/FT = 3.01855E+06
 TO = 1350.00 DEG-R
 SQROCK= .0595 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 7.22928E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT. SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.90	3.34562E-02	4.62788E-01	4.01058E-01	5.33435E-01	9.02000E-01
2	1.40	2.68247E-02	3.71056E-01	4.01058E-01	5.33435E-01	9.02000E-01
3	2.00	2.24431E-02	3.10448E-01	4.01058E-01	5.33435E-01	9.02000E-01
4	2.60	1.96839E-02	2.72281E-01	4.01058E-01	5.33435E-01	9.02000E-01
5	3.70	1.65005E-02	2.28246E-01	4.01058E-01	5.33435E-01	9.02000E-01
6	4.70	1.46403E-02	2.02514E-01	4.01058E-01	5.33435E-01	9.02000E-01
7	5.70	1.32942E-02	1.83893E-01	4.01058E-01	5.33435E-01	9.02000E-01
8	6.70	1.22620E-02	1.69616E-01	4.01058E-01	5.33435E-01	9.02000E-01
9	7.40	1.16676E-02	1.61394E-01	4.01058E-01	5.33435E-01	9.02000E-01
10	9.00	1.05798E-02	1.46346E-01	4.01058E-01	5.33435E-01	9.02000E-01
11	10.50	9.79498E-03	1.35490E-01	4.01058E-01	5.33435E-01	9.02000E-01
12	14.40	8.36406E-03	1.15697E-01	4.01058E-01	5.33435E-01	9.02000E-01

881

AL

2
 1
 0
 9
 8
 7
 6
 5
 4
 3

RUN=4527 TOP AIR PT = 639.70
 TPC = 860.00 DEG-R MINF = 7.937
 TI = 541.00 DEG-R R/FT = 3.05629E+06
 TO = 1340.00 DEG-R
 SQROCK= .0604 ALPHA=25.000
 MODEL=31 PHI= 0.000
 HS= 7.21948E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.70	3.28676E-02	4.55263E-01	4.77774E-01	7.09505E-01	9.02000E-01
2	2.20	2.88922E-02	4.00198E-01	4.77774E-01	7.09505E-01	9.02000E-01
3	2.70	2.60802E-02	3.61247E-01	4.77774E-01	7.09505E-01	9.02000E-01
4	3.30	2.35904E-02	3.26761E-01	4.77774E-01	7.09505E-01	9.02000E-01
5	4.00	2.14271E-02	2.96795E-01	4.77774E-01	7.09505E-01	9.02000E-01
6	4.60	1.99808E-02	2.76763E-01	4.77774E-01	7.09505E-01	9.02000E-01
7	6.00	1.74951E-02	2.42332E-01	4.77774E-01	7.09505E-01	9.02000E-01
8	6.70	1.65560E-02	2.29324E-01	4.77774E-01	7.09505E-01	9.02000E-01
9	7.80	1.53442E-02	2.12539E-01	4.77774E-01	7.09505E-01	9.02000E-01
10	9.70	1.37596E-02	1.90590E-01	4.77774E-01	7.09505E-01	9.02000E-01
11	12.40	1.21697E-02	1.68568E-01	4.77774E-01	7.09505E-01	9.02000E-01
12	13.30	1.17508E-02	1.62765E-01	4.77774E-01	7.09505E-01	9.02000E-01
13	14.30	1.13325E-02	1.56971E-01	4.77774E-01	7.09505E-01	9.02000E-01

68L

MA

12

11

10

9

8

7

6

5

4

1121.

RUN=4528 TOP AIR PT = 649.70
 TPC = 860.00 DEG-R MINF = 7.939
 TI = 542.00 DEG-R R/FT = 3.10224E+06
 TO = 1340.00 DEG-R
 SQROCK= .0604 ALPHA=25.000
 MODEL=41 PHI= 0.000
 HS= 7.27165E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.70	3.27740E-02	4.50710E-01	4.76990E-01	7.07485E-01	9.02000E-01
2	1.80	3.18506E-02	4.38011E-01	4.76990E-01	7.07485E-01	9.02000E-01
3	2.50	2.70262E-02	3.71665E-01	4.76990E-01	7.07485E-01	9.02000E-01
4	3.40	2.31747E-02	3.18700E-01	4.76990E-01	7.07485E-01	9.02000E-01
5	4.20	2.08511E-02	2.86746E-01	4.76990E-01	7.07485E-01	9.02000E-01
6	4.80	1.95045E-02	2.68226E-01	4.76990E-01	7.07485E-01	9.02000E-01
7	7.20	1.59253E-02	2.19006E-01	4.76990E-01	7.07485E-01	9.02000E-01
8	8.70	1.44875E-02	1.99233E-01	4.76990E-01	7.07485E-01	9.02000E-01
9	11.60	1.25466E-02	1.72541E-01	4.76990E-01	7.07485E-01	9.02000E-01
10	14.60	1.11835E-02	1.53796E-01	4.76990E-01	7.07485E-01	9.02000E-01

190

12
11
10
9
8
7
6
5
4

113

RUN=4529 TOP AIR PT = 649.70
 TPC = 710.00 DEG-R MINF = 7.939
 TI = 541.00 DEG-R R/FT = 3.12170E+06
 TO = 1335.00 DEG-R
 SQRCK= .0574 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 7.26281E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.00	1.63484E-02	2.25098E-01	2.54837E-01	2.84816E-01	9.02000E-01
2	1.50	1.33484E-02	1.83792E-01	2.54837E-01	2.84816E-01	9.02000E-01
3	2.00	1.15601E-02	1.59168E-01	2.54837E-01	2.84816E-01	9.02000E-01
4	2.70	9.94933E-03	1.36990E-01	2.54837E-01	2.84816E-01	9.02000E-01
5	3.90	8.27835E-03	1.13983E-01	2.54837E-01	2.84816E-01	9.02000E-01
6	6.10	6.61928E-03	9.11394E-02	2.54837E-01	2.84816E-01	9.02000E-01
7	7.80	5.85368E-03	8.05979E-02	2.54837E-01	2.84816E-01	9.02000E-01
8	10.30	5.09398E-03	7.01379E-02	2.54837E-01	2.84816E-01	9.02000E-01
9	13.00	4.53424E-03	6.24309E-02	2.54837E-01	2.84816E-01	9.02000E-01
10	14.10	4.35378E-03	5.99462E-02	2.54837E-01	2.84816E-01	9.02000E-01

LOL
 MADE IN U.S.A.

12
 11
 10
 9
 8
 7
 6
 5
 4
 3

RUN=4530 TOP AIR PT = 644.70
 TPC = 760.00 DEG-R MINF = 7.938
 TI = 543.00 DEG-R R/FT = 3.06015E+06
 TO = 1345.00 DEG-R
 SQROCK= .0586 ALPHA=25.000
 MODEL=31 PHI= 0.000
 HS= 7.25173E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.10	2.18405E-02	3.01177E-01	3.23789E-01	3.90896E-01	9.02000E-01
2	1.60	1.81092E-02	2.49722E-01	3.23789E-01	3.90896E-01	9.02000E-01
3	2.50	1.44873E-02	1.99778E-01	3.23789E-01	3.90896E-01	9.02000E-01
4	3.50	1.22440E-02	1.68843E-01	3.23789E-01	3.90896E-01	9.02000E-01
5	4.70	1.05660E-02	1.45703E-01	3.23789E-01	3.90896E-01	9.02000E-01
6	5.80	9.51141E-03	1.31161E-01	3.23789E-01	3.90896E-01	9.02000E-01
7	7.90	8.14977E-03	1.12384E-01	3.23789E-01	3.90896E-01	9.02000E-01
8	10.60	7.03568E-03	9.70207E-02	3.23789E-01	3.90896E-01	9.02000E-01
9	14.20	6.07876E-03	8.38250E-02	3.23789E-01	3.90896E-01	9.02000E-01

192

12
11
10
9
8
7
6
5
4

RUN=4531 TOP AIR PT = 639.70
 TPC = 760.00 DEG-R MINF = 7.937
 TI = 542.00 DEG-R R/FT = 3.11441E+06
 TO = 1325.00 DEG-R
 SQROCK= .0586 ALPHA=25.000
 MODEL=41 PHI= 0.000
 HS= 7.21447E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.20	2.18118E-02	3.02334E-01	3.33767E-01	4.07741E-01	9.02000E-01
2	1.60	1.88896E-02	2.61829E-01	3.33767E-01	4.07741E-01	9.02000E-01
3	2.60	1.48182E-02	2.05396E-01	3.33767E-01	4.07741E-01	9.02000E-01
4	3.40	1.29581E-02	1.79613E-01	3.33767E-01	4.07741E-01	9.02000E-01
5	4.10	1.18002E-02	1.63563E-01	3.33767E-01	4.07741E-01	9.02000E-01
6	5.20	1.04780E-02	1.45237E-01	3.33767E-01	4.07741E-01	9.02000E-01
7	6.60	9.30058E-03	1.28916E-01	3.33767E-01	4.07741E-01	9.02000E-01
8	8.10	8.39537E-03	1.16368E-01	3.33767E-01	4.07741E-01	9.02000E-01
9	9.40	7.79324E-03	1.08022E-01	3.33767E-01	4.07741E-01	9.02000E-01
10	9.90	7.59389E-03	1.05259E-01	3.33767E-01	4.07741E-01	9.02000E-01
11	12.70	6.70471E-03	9.29343E-02	3.33767E-01	4.07741E-01	9.02000E-01

193

ORIGINAL PAGE IS
 OF POOR QUALITY

12
11
10
9
8
7
6
5
4

RUN=4532 TOP AIR PT = 1414.70
 TPC = 910.00 DEG-R MINF = 8.034
 TI = 543.00 DEG-R R/FT = 5.99565E+06
 T0 = 1415.00 DEG-R
 SQROCK= .0613 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 1.04971E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	4.14170E-02	3.94558E-01	5.00457E-01	7.70352E-01	9.02000E-01
2	2.00	3.33914E-02	3.18103E-01	5.00457E-01	7.70352E-01	9.02000E-01
3	2.70	2.87388E-02	2.73779E-01	5.00457E-01	7.70352E-01	9.02000E-01
4	3.80	2.42247E-02	2.30776E-01	5.00457E-01	7.70352E-01	9.02000E-01
5	5.20	2.07085E-02	1.97279E-01	5.00457E-01	7.70352E-01	9.02000E-01
6	6.30	1.88139E-02	1.79230E-01	5.00457E-01	7.70352E-01	9.02000E-01
7	7.90	1.68010E-02	1.60055E-01	5.00457E-01	7.70352E-01	9.02000E-01
8	8.30	1.63912E-02	1.56150E-01	5.00457E-01	7.70352E-01	9.02000E-01
9	8.80	1.59187E-02	1.51649E-01	5.00457E-01	7.70352E-01	9.02000E-01
10	11.20	1.41104E-02	1.34423E-01	5.00457E-01	7.70352E-01	9.02000E-01

194

12
11
10
9
8
7
6
5
4

RUN=4533 TOP AIR PT = 178.70
 TPC = 760.00 DEG-R MINF = 7.762
 TI = 543.00 DEG-R R/FT = 1.05357E+06
 TO = 1220.00 DEG-R
 SQROCK= .0586 ALPHA=25.000
 MODEL=31 PHI= 0.000
 HS= 3.97352E-02 BTU/FT.SQ-SEC-DEG-R

COL. NO.	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	h/HS	T-BAR	BETA	TAW/TO
1	2.70	1.81795E-02	4.57515E-01	3.89280E-01	5.09760E-01	9.02000E-01
2	3.60	1.57439E-02	3.96220E-01	3.89280E-01	5.09760E-01	9.02000E-01
3	5.50	1.27374E-02	3.20558E-01	3.89280E-01	5.09760E-01	9.02000E-01
4	7.00	1.12905E-02	2.84144E-01	3.89280E-01	5.09760E-01	9.02000E-01
5	9.60	9.64113E-03	2.42634E-01	3.89280E-01	5.09760E-01	9.02000E-01
6	12.90	8.31704E-03	2.09311E-01	3.89280E-01	5.09760E-01	9.02000E-01

196
 MADE IN U.S.A.

12
 11
 10
 9
 8
 7
 6
 5
 4
 3

RUN=4534 TOP AIR PT = 1414.70
 TPC = 1010.00 DEG-R MINF = 8.034
 TI = 543.00 DEG-R R/FT = 6.03110E+06
 TO = 1410.00 DEG-R
 SQROCK = .0617 ALPHA = 25.000
 MODEL = 41 PHI = 0.000
 HS = 1.04762E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.99156E-02	6.67374E-01	6.40762E-01	1.29199E+00	9.02000E-01
2	1.60	6.30211E-02	6.01563E-01	6.40762E-01	1.29199E+00	9.02000E-01
3	2.00	5.63678E-02	5.38054E-01	6.40762E-01	1.29199E+00	9.02000E-01
4	2.40	5.14565E-02	4.91174E-01	6.40762E-01	1.29199E+00	9.02000E-01
5	2.50	5.04169E-02	4.81250E-01	6.40762E-01	1.29199E+00	9.02000E-01
6	3.30	4.38822E-02	4.18875E-01	6.40762E-01	1.29199E+00	9.02000E-01
7	3.40	4.32321E-02	4.12669E-01	6.40762E-01	1.29199E+00	9.02000E-01
8	4.80	3.63852E-02	3.47313E-01	6.40762E-01	1.29199E+00	9.02000E-01
9	5.50	3.39910E-02	3.24459E-01	6.40762E-01	1.29199E+00	9.02000E-01
10	7.00	3.01298E-02	2.87602E-01	6.40762E-01	1.29199E+00	9.02000E-01
11	10.00	2.52084E-02	2.40625E-01	6.40762E-01	1.29199E+00	9.02000E-01
12	11.80	2.32062E-02	2.21513E-01	6.40762E-01	1.29199E+00	9.02000E-01

196

12
11
10
9
8
7
6
5
4

RUN=4535 TOP AIR PT = 1414.70
 TPC = 960.00 DEG-R MINF = 8.034
 TI = 544.00 DEG-R R/FT = 6.10306E+06
 TO = 1400.00 DEG-R
 SQRDCK= .0617-- AL-PHA=25.000
 MODEL=31 PHI= 0.000
 HS= 1.04770E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	5.53841E-02	5.28624E-01	5.78742E-01	1.02346E+00	9.02000E-01
2	1.60	4.99225E-02	4.76495E-01	5.78742E-01	1.02346E+00	9.02000E-01
3	2.10	4.35760E-02	4.15919E-01	5.78742E-01	1.02346E+00	9.02000E-01
4	2.30	4.16383E-02	3.97424E-01	5.78742E-01	1.02346E+00	9.02000E-01
5	2.50	3.99380E-02	3.81196E-01	5.78742E-01	1.02346E+00	9.02000E-01
6	4.10	3.11864E-02	2.97664E-01	5.78742E-01	1.02346E+00	9.02000E-01
7	6.00	2.57799E-02	2.46061E-01	5.78742E-01	1.02346E+00	9.02000E-01
8	7.80	2.26105E-02	2.15810E-01	5.78742E-01	1.02346E+00	9.02000E-01
9	10.30	1.96761E-02	1.87802E-01	5.78742E-01	1.02346E+00	9.02000E-01
10	11.60	1.85408E-02	1.76966E-01	5.78742E-01	1.02346E+00	9.02000E-01

197
 MAL
 12
 11
 10
 9
 8
 7
 6
 5
 4
 3

RUN=4536 TOP AIR PT = 174.70
 TPC = 710.00 DEG-R MINF = 7.759
 TI = 543.00 DEG-R R/FT = 1.05276E+06
 TO = 1205.00 DEG-R
 SQROCK= .0574 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 3.92234E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.83009E-02	4.66581E-01	3.07036E-01	3.63524E-01	9.02000E-01
2	2.20	1.40680E-02	3.58664E-01	3.07036E-01	3.63524E-01	9.02000E-01
3	4.30	1.00626E-02	2.56546E-01	3.07036E-01	3.63524E-01	9.02000E-01
4	6.10	8.44850E-03	2.15394E-01	3.07036E-01	3.63524E-01	9.02000E-01
5	9.00	6.95542E-03	1.77328E-01	3.07036E-01	3.63524E-01	9.02000E-01
6	12.60	5.87840E-03	1.49870E-01	3.07036E-01	3.63524E-01	9.02000E-01

198

2
1
0
9
8
7
6
5
4
3

RUN=4537 TOP AIR PT = 170.70
 TPC = 760.00 DEG-R MINF = 7.755
 TI = 542.00 DEG-R R/FT = 1.04432E+06
 TO = 1195.00 DEG-R
 SQROCK= .0586 -- --ALPHA=25.000
 MODEL=41 PHI= 0.000
 HS= 3.88261E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	3.70	1.66113E-02	4.27838E-01	4.06800E-01	5.45264E-01	9.02000E-01
2	4.70	1.47386E-02	3.79605E-01	4.06800E-01	5.45264E-01	9.02000E-01
3	6.70	1.23443E-02	3.17939E-01	4.06800E-01	5.45264E-01	9.02000E-01
4	11.40	9.46351E-03	2.43741E-01	4.06800E-01	5.45264E-01	9.02000E-01
5	14.60	8.36235E-03	2.15379E-01	4.06800E-01	5.45264E-01	9.02000E-01

UUL

2
1
0
9
3
7
5
3
1
3

RUN=4538 TOP AIR PT = 1419.70
 TPC = 760.00 DEG-R MINF = 8.034
 TI = 542.00 DEG-R R/FT = 6.12388E+06
 TO = 1400.00 DEG-R
 SQROCK=.0586 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 1.05174E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.83075E-02	1.74069E-01	3.02442E-01	3.56208E-01	9.02000E-01
2	1.70	1.60095E-02	1.52219E-01	3.02442E-01	3.56208E-01	9.02000E-01
3	1.80	1.55584E-02	1.47930E-01	3.02442E-01	3.56208E-01	9.02000E-01
4	2.30	1.37638E-02	1.30866E-01	3.02442E-01	3.56208E-01	9.02000E-01
5	2.90	1.22575E-02	1.16545E-01	3.02442E-01	3.56208E-01	9.02000E-01
6	3.30	1.14906E-02	1.09253E-01	3.02442E-01	3.56208E-01	9.02000E-01
7	3.70	1.08518E-02	1.03179E-01	3.02442E-01	3.56208E-01	9.02000E-01
8	4.80	9.52753E-03	9.05882E-02	3.02442E-01	3.56208E-01	9.02000E-01
9	5.90	8.59360E-03	8.17083E-02	3.02442E-01	3.56208E-01	9.02000E-01
10	7.20	7.77920E-03	7.39650E-02	3.02442E-01	3.56208E-01	9.02000E-01
11	8.50	7.15965E-03	6.80742E-02	3.02442E-01	3.56208E-01	9.02000E-01
12	11.50	6.15534E-03	5.85253E-02	3.02442E-01	3.56208E-01	9.02000E-01

200

12
11
10
9
8
7
6
5
4

RUN=4539 TOP AIR PT = 164.70
 TPC = 635.00 DEG-R MINF = 7.750
 TI = 542.00 DEG-R R/FT = 9.61362E+05
 TO = 1230.00 DEG-R
 SQROCK= .0537 ALPHA=25.000
 MODEL=31 PHI= 0.000
 HS= 3.81618E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	7.87577E-03	2.06378E-01	1.63888E-01	1.67221E-01	9.02000E-01
2	2.20	6.05415E-03	1.58644E-01	1.63888E-01	1.67221E-01	9.02000E-01
3	3.60	4.73275E-03	1.24018E-01	1.63888E-01	1.67221E-01	9.02000E-01
4	4.90	4.05664E-03	1.06301E-01	1.63888E-01	1.67221E-01	9.02000E-01
5	5.80	3.72864E-03	9.77060E-02	1.63888E-01	1.67221E-01	9.02000E-01
6	7.90	3.19485E-03	8.37186E-02	1.63888E-01	1.67221E-01	9.02000E-01
7	11.00	2.70750E-03	7.09478E-02	1.63888E-01	1.67221E-01	9.02000E-01
8	13.80	2.41727E-03	6.33426E-02	1.63888E-01	1.67221E-01	9.02000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4540 TOP AIR PT = 1949.70
 TPC = 1010.00 DEG-R MINF = 8.071
 TI = 542.00 DEG-R R/FT = 8.36876E+06
 TO = 1395.00 DEG-R
 SQROCK= .0617 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 1.21593E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	7.34361E-02	6.03950E-01	6.53367E-01	1.35705E+00	9.02000E-01
2	1.50	6.83653E-02	5.62247E-01	6.53367E-01	1.35705E+00	9.02000E-01
3	1.80	6.24087E-02	5.13259E-01	6.53367E-01	1.35705E+00	9.02000E-01
4	2.70	5.09565E-02	4.19074E-01	6.53367E-01	1.35705E+00	9.02000E-01
5	4.50	3.94707E-02	3.24614E-01	6.53367E-01	1.35705E+00	9.02000E-01
6	7.40	3.07798E-02	2.53138E-01	6.53367E-01	1.35705E+00	9.02000E-01
7	10.10	2.63464E-02	2.16677E-01	6.53367E-01	1.35705E+00	9.02000E-01
8	11.40	2.47987E-02	2.03949E-01	6.53367E-01	1.35705E+00	9.02000E-01

202

12
11
10
9
8
7
6
5
4
3

RUN=4541 TOP AIR PT = 1414.70
 TPC = 810.00 DEG-R MINF = 8.034
 TI = 544.00 DEG-R R/FT = 6.03110E+06
 TO = 1410.00 DEG-R
 SQROCK= .0595 --- ALPHA=25.000
 MODEL=41 PHI= 0.000
 HS= 1.05090E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.42233E-02	2.30501E-01	3.65475E-01	4.64182E-01	9.02000E-01
2	2.10	1.90588E-02	1.81357E-01	3.65475E-01	4.64182E-01	9.02000E-01
3	3.20	1.54394E-02	1.46916E-01	3.65475E-01	4.64182E-01	9.02000E-01
4	4.80	1.26062E-02	1.19956E-01	3.65475E-01	4.64182E-01	9.02000E-01
5	6.30	1.10036E-02	1.04707E-01	3.65475E-01	4.64182E-01	9.02000E-01
6	6.90	1.05143E-02	1.00051E-01	3.65475E-01	4.64182E-01	9.02000E-01
7	8.80	9.31031E-03	8.85937E-02	3.65475E-01	4.64182E-01	9.02000E-01
8	10.70	8.44333E-03	8.03438E-02	3.65475E-01	4.64182E-01	9.02000E-01

RUN=4542 TOP AIR PT = 166.70
 TPC = 610.00 DEG-R MINF = 7.752
 TI = 545.00 DEG-R R/FT = 9.59352E+05
 T0 = 1240.00 DEG-R
 SQROCK= .0527 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 3.83459E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	1.30	5.10357E-03	1.33093E-01	1.13343E-01	1.10417E-01	9.02000E-01
2	2.30	3.83691E-03	1.00060E-01	1.13343E-01	1.10417E-01	9.02000E-01
3	3.40	3.15578E-03	8.22976E-02	1.13343E-01	1.10417E-01	9.02000E-01
4	4.70	2.68409E-03	6.99967E-02	1.13343E-01	1.10417E-01	9.02000E-01
5	6.30	2.31833E-03	6.04583E-02	1.13343E-01	1.10417E-01	9.02000E-01
6	7.20	2.16860E-03	5.65538E-02	1.13343E-01	1.10417E-01	9.02000E-01
7	9.70	1.86836E-03	4.87237E-02	1.13343E-01	1.10417E-01	9.02000E-01
8	11.50	1.71592E-03	4.47484E-02	1.13343E-01	1.10417E-01	9.02000E-01
9	12.60	1.63931E-03	4.27505E-02	1.13343E-01	1.10417E-01	9.02000E-01
10	14.70	1.51770E-03	3.95793E-02	1.13343E-01	1.10417E-01	9.02000E-01

204

12
11
10
9
8
7
6
5
4

RUN=4543 TOP AIR PT = 1404.70
 TPC = 810.00 DEG-R MINF = 8.033
 TI = 545.00 DEG-R R/FT = 5.78381E+06
 TO = 1440.00 DEG-R
 SQROCK= .0595 --ALPHA=25.000
 MODEL=31 PHI= 0.000
 HS= 1.04962E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.28969E-02	2.18144E-01	3.51515E-01	4.38765E-01	9.02000E-01
2	1.70	2.00228E-02	1.90762E-01	3.51515E-01	4.38765E-01	9.02000E-01
3	2.50	1.65112E-02	1.57306E-01	3.51515E-01	4.38765E-01	9.02000E-01
4	3.40	1.41582E-02	1.34889E-01	3.51515E-01	4.38765E-01	9.02000E-01
5	4.50	1.23067E-02	1.17249E-01	3.51515E-01	4.38765E-01	9.02000E-01
6	5.50	1.11319E-02	1.06056E-01	3.51515E-01	4.38765E-01	9.02000E-01
7	6.60	1.01619E-02	9.68152E-02	3.51515E-01	4.38765E-01	9.02000E-01
8	7.50	9.53275E-03	9.08207E-02	3.51515E-01	4.38765E-01	9.02000E-01
9	8.60	8.90225E-03	8.48138E-02	3.51515E-01	4.38765E-01	9.02000E-01
10	10.30	8.13449E-03	7.74992E-02	3.51515E-01	4.38765E-01	9.02000E-01
11	11.90	7.56790E-03	7.21011E-02	3.51515E-01	4.38765E-01	9.02000E-01

205

12
11
10
9
8
7
6
5
4
3

RUN=4544 TOP AIR PT = 174.70
 TPC = 635.00 DEG-R MINE = 7.759
 TI = 542.00 DEG-R R/FT = 9.51232E+05
 TO = 1280.00 DEG-R
 SQROCK= .0537 ALPHA=25.000
 MODEL=41 PHI= 0.000
 HS= 3.93680E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	7.21388E-03	1.83242E-01	1.51822E-01	1.53167E-01	9.02000E-01
2	2.10	5.67585E-03	1.44174E-01	1.51822E-01	1.53167E-01	9.02000E-01
3	3.00	4.74875E-03	1.20625E-01	1.51822E-01	1.53167E-01	9.02000E-01
4	3.80	4.21938E-03	1.07178E-01	1.51822E-01	1.53167E-01	9.02000E-01
5	5.30	3.57275E-03	9.07526E-02	1.51822E-01	1.53167E-01	9.02000E-01
6	7.90	2.92635E-03	7.43333E-02	1.51822E-01	1.53167E-01	9.02000E-01
7	11.40	2.43606E-03	6.18792E-02	1.51822E-01	1.53167E-01	9.02000E-01
8	14.80	2.13801E-03	5.43083E-02	1.51822E-01	1.53167E-01	9.02000E-01

206

MADE II

12

11

10

9

8

7

6

5

4

101

RUN=4545 TOP AIR PT = 1944.70
 TPC = 860.00 DEG-R MINF = 8.070
 TI = 542.00 DEG-R R/FT = 8.29830E+06
 TO = 1400.00 DEG-R
 SQROCK= .0604 --ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 1.21798E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.70	4.47854E-02	3.67702E-01	4.41176E-01	6.20366E-01	9.02000E-01
2	.80	4.18929E-02	3.43954E-01	4.41176E-01	6.20366E-01	9.02000E-01
3	1.00	3.74701E-02	3.07642E-01	4.41176E-01	6.20366E-01	9.02000E-01
4	1.40	3.16680E-02	2.60005E-01	4.41176E-01	6.20366E-01	9.02000E-01
5	1.80	2.79286E-02	2.29303E-01	4.41176E-01	6.20366E-01	9.02000E-01
6	2.20	2.52624E-02	2.07412E-01	4.41176E-01	6.20366E-01	9.02000E-01
7	2.60	2.32380E-02	1.90791E-01	4.41176E-01	6.20366E-01	9.02000E-01
8	2.70	2.28036E-02	1.87225E-01	4.41176E-01	6.20366E-01	9.02000E-01
9	3.10	2.12816E-02	1.74729E-01	4.41176E-01	6.20366E-01	9.02000E-01
10	3.30	2.06266E-02	1.69351E-01	4.41176E-01	6.20366E-01	9.02000E-01
11	3.50	2.00286E-02	1.64441E-01	4.41176E-01	6.20366E-01	9.02000E-01
12	3.90	1.89737E-02	1.55780E-01	4.41176E-01	6.20366E-01	9.02000E-01
13	4.30	1.80697E-02	1.48358E-01	4.41176E-01	6.20366E-01	9.02000E-01
14	4.70	1.72837E-02	1.41905E-01	4.41176E-01	6.20366E-01	9.02000E-01
15	5.30	1.62760E-02	1.33631E-01	4.41176E-01	6.20366E-01	9.02000E-01
16	6.50	1.46970E-02	1.20667E-01	4.41176E-01	6.20366E-01	9.02000E-01
17	6.90	1.42646E-02	1.17117E-01	4.41176E-01	6.20366E-01	9.02000E-01
18	8.10	1.31657E-02	1.08094E-01	4.41176E-01	6.20366E-01	9.02000E-01
19	10.30	1.16753E-02	9.58576E-02	4.41176E-01	6.20366E-01	9.02000E-01
20	11.80	1.09080E-02	8.95580E-02	4.41176E-01	6.20366E-01	9.02000E-01

207

ORIGINAL PAGE IS
 OF POOR QUALITY

12
 11
 10
 9
 8
 7
 6
 5
 4
 3

RUN=4546 TOP AIR PT = 639.70
 TPC = 860.00 DEG-R MINF = 7.937
 TI = 543.00 DEG-R R/FT = 3.17441E+06
 TO = 1310.00 DEG-R
 SQROCK= .0604 ALPHA=35.000
 MODEL=31 PHI= 0.000
 HS= 7.20267E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	3.80	2.18329E-02	3.03122E-01	4.75883E-01	7.04639E-01	9.23000E-01
2	5.10	1.88460E-02	2.61652E-01	4.75883E-01	7.04639E-01	9.23000E-01
3	7.20	1.58612E-02	2.20213E-01	4.75883E-01	7.04639E-01	9.23000E-01
4	10.30	1.32613E-02	1.84116E-01	4.75883E-01	7.04639E-01	9.23000E-01
5	11.80	1.23898E-02	1.72016E-01	4.75883E-01	7.04639E-01	9.23000E-01

208

MADE I

12

11

10

9

8

7

6

5

4

HB

RUN=4548 TOP AIR PT = 669.70
 TPC = 860.00 DEG-R MINF = 7.943
 TI = 542.00 DEG-R R/FT = 3.25480E+06
 TO = 1325.00 DEG-R
 SQROCK= .0604 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 7.36623E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	2.80	2.46217E-02	3.34251E-01	4.66977E-01	6.82118E-01	9.23000E-01
2	5.20	1.80674E-02	2.45273E-01	4.66977E-01	6.82118E-01	9.23000E-01
3	7.00	1.55721E-02	2.11399E-01	4.66977E-01	6.82118E-01	9.23000E-01
4	9.00	1.37333E-02	1.86436E-01	4.66977E-01	6.82118E-01	9.23000E-01
5	11.10	1.23662E-02	1.67877E-01	4.66977E-01	6.82118E-01	9.23000E-01
6	13.20	1.13399E-02	1.53945E-01	4.66977E-01	6.82118E-01	9.23000E-01
7	15.00	1.06378E-02	1.44413E-01	4.66977E-01	6.82118E-01	9.23000E-01

209

12
11
10
9
8
7
6
5
4

3

RUN=4549 TOP AIR PT = 649.70
 TPC = 710.00 DEG-R MINF = 7.939
 TI = 544.00 DEG-R R/ET = 3.12170E+06
 TO = 1335.00 DEG-R
 SQRCK= .0574 ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS= 7.26281E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.20	1.39244E-02	1.91722E-01	2.41207E-01	2.65739E-01	9.23000E-01
2	1.60	1.20589E-02	1.66036E-01	2.41207E-01	2.65739E-01	9.23000E-01
3	2.00	1.07858E-02	1.48507E-01	2.41207E-01	2.65739E-01	9.23000E-01
4	2.60	9.45975E-03	1.30249E-01	2.41207E-01	2.65739E-01	9.23000E-01
5	4.30	7.35584E-03	1.01281E-01	2.41207E-01	2.65739E-01	9.23000E-01
6	6.60	5.93738E-03	8.17504E-02	2.41207E-01	2.65739E-01	9.23000E-01

210

ADEN

12

11

10

9

8

7

6

5

4

3

RUN=4550 TOP AIR PT = 644.70
 TPC = 760.00 DEG-R MINF = 7.938
 TI = 542.00 DEG-R R/FT = 3.06015E+06
 TO = 1345.00 DEG-R
 SQROCK= .0586 ALPHA=35.000
 MODEL=31 PHI= 0.000
 HS= 7.25173E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.40	3.43750E-02	4.74025E-01	3.11680E-01	3.71001E-01	9.23000E-01
2	1.30	1.90678E-02	2.62942E-01	3.11680E-01	3.71001E-01	9.23000E-01
3	1.70	1.66743E-02	2.29936E-01	3.11680E-01	3.71001E-01	9.23000E-01
4	2.50	1.37500E-02	1.89610E-01	3.11680E-01	3.71001E-01	9.23000E-01
5	2.90	1.27666E-02	1.76049E-01	3.11680E-01	3.71001E-01	9.23000E-01
6	3.30	1.19678E-02	1.65034E-01	3.11680E-01	3.71001E-01	9.23000E-01
7	3.70	1.13024E-02	1.55859E-01	3.11680E-01	3.71001E-01	9.23000E-01
8	4.70	1.00282E-02	1.38287E-01	3.11680E-01	3.71001E-01	9.23000E-01
9	5.20	9.53391E-03	1.31471E-01	3.11680E-01	3.71001E-01	9.23000E-01
10	6.00	8.87559E-03	1.22393E-01	3.11680E-01	3.71001E-01	9.23000E-01
11	8.10	7.63889E-03	1.05339E-01	3.11680E-01	3.71001E-01	9.23000E-01
12	11.70	6.35594E-03	8.76473E-02	3.11680E-01	3.71001E-01	9.23000E-01
13	14.90	5.63222E-03	7.76673E-02	3.11680E-01	3.71001E-01	9.23000E-01
14	17.00	5.27288E-03	7.27121E-02	3.11680E-01	3.71001E-01	9.23000E-01

217

12
11
10
9
8
7
6
5
4
3

RUN=4551 TOP AIR PT = 1389.70
 TPC = 910.00 DEG-R MINF = 8.032
 TI = 542.00 DEG-R R/FT = 5.92822E+06
 TO = 1410.00 DEG-R
 SOROCK= .0613 ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS=1.04063E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	3.91002E-02	3.75736E-01	4.84574E-01	7.27261E-01	9.23000E-01
2	2.50	2.81956E-02	2.70947E-01	4.84574E-01	7.27261E-01	9.23000E-01
3	2.90	2.61789E-02	2.51568E-01	4.84574E-01	7.27261E-01	9.23000E-01
4	3.30	2.45411E-02	2.35829E-01	4.84574E-01	7.27261E-01	9.23000E-01
5	3.40	2.41775E-02	2.32335E-01	4.84574E-01	7.27261E-01	9.23000E-01
6	3.80	2.28696E-02	2.19767E-01	4.84574E-01	7.27261E-01	9.23000E-01
7	5.00	1.99373E-02	1.91589E-01	4.84574E-01	7.27261E-01	9.23000E-01
8	6.00	1.82002E-02	1.74896E-01	4.84574E-01	7.27261E-01	9.23000E-01
9	6.50	1.74861E-02	1.68034E-01	4.84574E-01	7.27261E-01	9.23000E-01
10	8.10	1.56642E-02	1.50526E-01	4.84574E-01	7.27261E-01	9.23000E-01
11	10.70	1.36288E-02	1.30967E-01	4.84574E-01	7.27261E-01	9.23000E-01

212
 2
 11
 0
 9
 8
 7
 6
 5
 4
 18

RUN=4552 TOP AIR PT = 674.70
 TPC = 760.00 DEG-R MINF = 7.944
 TI = 541.00 DEG-R R/FT = 3.27818E+06
 TO = 1325.00 DEG-R
 SQROCK= .0586 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 7.39513E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT. SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.98629E-02	2.68594E-01	3.21126E-01	3.86471E-01	9.23000E-01
2	2.20	1.52687E-02	2.06470E-01	3.21126E-01	3.86471E-01	9.23000E-01
3	2.60	1.40452E-02	1.89925E-01	3.21126E-01	3.86471E-01	9.23000E-01
4	3.00	1.30754E-02	1.76810E-01	3.21126E-01	3.86471E-01	9.23000E-01
5	3.80	1.16178E-02	1.57100E-01	3.21126E-01	3.86471E-01	9.23000E-01
6	4.60	1.05593E-02	1.42787E-01	3.21126E-01	3.86471E-01	9.23000E-01
7	5.50	9.65679E-03	1.30583E-01	3.21126E-01	3.86471E-01	9.23000E-01
8	6.50	8.88296E-03	1.20119E-01	3.21126E-01	3.86471E-01	9.23000E-01
9	8.80	7.63436E-03	1.03235E-01	3.21126E-01	3.86471E-01	9.23000E-01
10	10.00	7.16167E-03	9.68430E-02	3.21126E-01	3.86471E-01	9.23000E-01
11	10.50	6.98907E-03	9.45091E-02	3.21126E-01	3.86471E-01	9.23000E-01
12	12.10	6.51061E-03	8.80391E-02	3.21126E-01	3.86471E-01	9.23000E-01
13	13.70	6.11863E-03	8.27386E-02	3.21126E-01	3.86471E-01	9.23000E-01
14	15.00	5.84748E-03	7.90720E-02	3.21126E-01	3.86471E-01	9.23000E-01
15	16.80	5.52535E-03	7.47160E-02	3.21126E-01	3.86471E-01	9.23000E-01

213

ORIGINAL PAGE IS
 OF POOR QUALITY

12
 11
 10
 9
 8
 7
 6
 5
 4

RUN=4506 SIDE AIR PT = 659.70
 TPC = 710.00 DEG-R MINF = 7.941
 TI = 540.00 DEG-R R/FT = 3.05244E+06
 TO = 1365.00 DEG-R
 SQROCK= .0574 ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 7.83111E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	4.30	7.57503E-03	1.03327E-01	2.46914E-01	2.73657E-01	9.00000E-01
2	4.70	7.24552E-03	9.88325E-02	2.46914E-01	2.73657E-01	9.00000E-01
3	5.50	6.69788E-03	9.13624E-02	2.46914E-01	2.73657E-01	9.00000E-01
4	7.50	5.73572E-03	7.82381E-02	2.46914E-01	2.73657E-01	9.00000E-01
5	8.40	5.41975E-03	7.39280E-02	2.46914E-01	2.73657E-01	9.00000E-01
6	9.60	5.06971E-03	6.91533E-02	2.46914E-01	2.73657E-01	9.00000E-01
7	10.40	4.87082E-03	6.64404E-02	2.46914E-01	2.73657E-01	9.00000E-01
8	12.00	4.53448E-03	6.18526E-02	2.46914E-01	2.73657E-01	9.00000E-01
9	13.70	4.24383E-03	5.78880E-02	2.46914E-01	2.73657E-01	9.00000E-01

214

2
11
0
9
8
7
6
5
4

RUN=4513 SIDE AIR PT = 171.70
 TPC = 635.00 DEG-R MINF = 7.756
 TI = 541.00 DEG-R R/FT = 1.00031E+06
 TO = 1230.00 DEG-R
 SQROCK= .0537 ALPHA=30.000
 MODEL=31 PHI= 0.000
 HS= 3.88940E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	2.60	5.65510E-03	1.45398E-01	1.66078E-01	1.69806E-01	9.00000E-01
2	4.20	4.44941E-03	1.14399E-01	1.66078E-01	1.69806E-01	9.00000E-01
3	9.20	3.00631E-03	7.72949E-02	1.66078E-01	1.69806E-01	9.00000E-01
4	14.30	2.41134E-03	6.19979E-02	1.66078E-01	1.69806E-01	9.00000E-01

215

12
11
10
9
8
7
6
5
4

RUN=4519 SIDE AIR PT = 1414.70
 TPC = 810.00 DEG-R MINF = 8.034
 TF = 540.00 DEG-R R/FT = 6.17649E+06
 TO = 1390.00 DEG-R
 SROCK = .0595 ALPHA = 30.000
 MODEL = 31 PHI = 0.000
 HS = 1.04939E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.50	2.38611E-02	2.27380E-01	3.79747E-01	4.91155E-01	9.00000E-01
2	3.80	1.49915E-02	1.42858E-01	3.79747E-01	4.91155E-01	9.00000E-01
3	7.00	1.10455E-02	1.05256E-01	3.79747E-01	4.91155E-01	9.00000E-01
4	9.60	9.43192E-03	8.98798E-02	3.79747E-01	4.91155E-01	9.00000E-01
5	10.60	8.97600E-03	8.55352E-02	3.79747E-01	4.91155E-01	9.00000E-01
6	11.60	8.58039E-03	8.17652E-02	3.79747E-01	4.91155E-01	9.00000E-01

216

12
11
10
9
8
7
6
5
4

RUN=4522 SIDE AIR PT = 639.70
 TPC = 610.00 DEG-R MINF = 7.937
 TI = 541.00 DEG-R R/FT = 3.17441E+06
 TO = 1310.00 DEG-R
 SQRCK= .0527 ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 7.16596E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	.70	6.60590E-03	9.21844E-02	1.08150E-01	1.04875E-01	9.00000E-01
2	1.50	4.51269E-03	6.29739E-02	1.08150E-01	1.04875E-01	9.00000E-01
3	1.90	4.00963E-03	5.59538E-02	1.08150E-01	1.04875E-01	9.00000E-01
4	2.30	3.64432E-03	5.08560E-02	1.08150E-01	1.04875E-01	9.00000E-01
5	2.70	3.36356E-03	4.69380E-02	1.08150E-01	1.04875E-01	9.00000E-01
6	3.10	3.13906E-03	4.38052E-02	1.08150E-01	1.04875E-01	9.00000E-01
7	3.50	2.95425E-03	4.12261E-02	1.08150E-01	1.04875E-01	9.00000E-01
8	3.90	2.79865E-03	3.90548E-02	1.08150E-01	1.04875E-01	9.00000E-01
9	4.70	2.54937E-03	3.55760E-02	1.08150E-01	1.04875E-01	9.00000E-01
10	5.10	2.44735E-03	3.41524E-02	1.08150E-01	1.04875E-01	9.00000E-01
11	5.90	2.27539E-03	3.17527E-02	1.08150E-01	1.04875E-01	9.00000E-01
12	6.70	2.13522E-03	2.97968E-02	1.08150E-01	1.04875E-01	9.00000E-01
13	7.50	2.01814E-03	2.81628E-02	1.08150E-01	1.04875E-01	9.00000E-01
14	8.70	1.87379E-03	2.61485E-02	1.08150E-01	1.04875E-01	9.00000E-01
15	9.90	1.75656E-03	2.45126E-02	1.08150E-01	1.04875E-01	9.00000E-01
16	10.70	1.68962E-03	2.35784E-02	1.08150E-01	1.04875E-01	9.00000E-01
17	11.50	1.62979E-03	2.27435E-02	1.08150E-01	1.04875E-01	9.00000E-01
18	12.30	1.57590E-03	2.19914E-02	1.08150E-01	1.04875E-01	9.00000E-01
19	15.90	1.38606E-03	1.93423E-02	1.08150E-01	1.04875E-01	9.00000E-01

217

ORIGINAL PAGE IS
 OF POOR QUALITY

12
11
10
9
8
7
6
5
4

RUN=4529 SIDE AIR PT = 649.70
 TPC = 710.00 DEG-R MINF = 7.939
 TI = 541.00 DEG-R R/FT = 3.12170E+06
 TO = 1335.00 DEG-R
 SQROCK= .0574 ALPHA=25.000
 MODEL=22 PHI= 0.000
 HS= 7.26281E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.60	1.29910E-02	1.78871E-01	2.55867E-01	2.86281E-01	9.00000E-01
2	4.60	7.66170E-03	1.05492E-01	2.55867E-01	2.86281E-01	9.00000E-01
3	5.60	6.94401E-03	9.56105E-02	2.55867E-01	2.86281E-01	9.00000E-01
4	6.70	6.34844E-03	8.74102E-02	2.55867E-01	2.86281E-01	9.00000E-01
5	7.90	5.84643E-03	8.04982E-02	2.55867E-01	2.86281E-01	9.00000E-01
6	10.00	5.19642E-03	7.15483E-02	2.55867E-01	2.86281E-01	9.00000E-01
7	13.40	4.48902E-03	6.18083E-02	2.55867E-01	2.86281E-01	9.00000E-01
8	14.60	4.30059E-03	5.92138E-02	2.55867E-01	2.86281E-01	9.00000E-01

218

12
11
10
9
8
7
6
5
4

13

RUN=4549 SIDE AIR PT = 649.70
 TPC = 710.00 DEG-R MINE = 7.939
 TI = 544.00 DEG-R R/FT = 3.12170E+06
 TO = 1335.00 DEG-R
 SQROCK= .0574 ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS= 7.26281E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.80	1.20420E-02	1.65804E-01	2.52471E-01	2.81464E-01	9.00000E-01
2	5.90	6.65134E-03	9.15809E-02	2.52471E-01	2.81464E-01	9.00000E-01
3	10.10	5.08364E-03	6.99955E-02	2.52471E-01	2.81464E-01	9.00000E-01
4	14.90	4.68341E-03	6.44848E-02	2.52471E-01	2.81464E-01	9.00000E-01
5	14.60	4.22823E-03	5.82176E-02	2.52471E-01	2.81464E-01	9.00000E-01
6	18.10	3.79749E-03	5.22867E-02	2.52471E-01	2.81464E-01	9.00000E-01

RUN=4550 SIDE AIR PT = 644.70
TPC = 760.00 DEG-R MINF = 7.938
TI = 542.00 DEG-R R/FT = 3.06015E+06
T0 = 1345.00 DEG-R
SQROCK= .0586 ALPHA=35.000
MODEL=31 PHI= 0.000
HS= 7.25173E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	8.50	7.93466E-03	1.09418E-01	3.26103E-01	3.94766E-01	9.00000E-01
2	9.90	7.35225E-03	1.01386E-01	3.26103E-01	3.94766E-01	9.00000E-01
3	11.20	6.91240E-03	9.53207E-02	3.26103E-01	3.94766E-01	9.00000E-01
4	14.80	6.01322E-03	8.29212E-02	3.26103E-01	3.94766E-01	9.00000E-01
5	18.60	5.36391E-03	7.39673E-02	3.26103E-01	3.94766E-01	9.00000E-01

220

12
11
10
9
8
7
6
5
4

RUN=4551 SIDE AIR PT = 1389.70
TPC = 910.00 DEG-R MINF = 8.032
TI = 542.00 DEG-R R/FT = 5.92822E+06
TO = 1410.00 DEG-R
SQROCK= .0613 ALPHA=35.000
MODEL=22 PHI= 0.000
HS= 1.04063E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	7.70	1.73744E-02	1.66961E-01	5.06190E-01	7.86494E-01	9.00000E-01
2	11.30	1.43422E-02	1.37823E-01	5.06190E-01	7.86494E-01	9.00000E-01
3	13.30	1.32200E-02	1.27038E-01	5.06190E-01	7.86494E-01	9.00000E-01

221

12

11

10

9

8

7

6

5

4

0 H

RUN=4552 SIDE AIR PT = 674.70 PSLP
 TPC = 760.00 DEG-R MINF = 7.944
 TI = 541.00 DEG-R R/FT = 3.27818E+06
 TO = 1325.00 DEG-R
 SQROCK= .0586 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 7.39513E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	8.80	8.13514E-03	1.10007E-01	3.36147E-01	4.11821E-01	9.00000E-01
2	10.90	7.30960E-03	9.88434E-02	3.36147E-01	4.11821E-01	9.00000E-01
3	13.00	6.69322E-03	9.05084E-02	3.36147E-01	4.11821E-01	9.00000E-01
4	14.50	6.33757E-03	8.56992E-02	3.36147E-01	4.11821E-01	9.00000E-01
5	15.20	6.18992E-03	8.37026E-02	3.36147E-01	4.11821E-01	9.00000E-01
6	17.70	5.73614E-03	7.75665E-02	3.36147E-01	4.11821E-01	9.00000E-01

222

2
1
3
7
3
7
5
5
1
3

RUN=4556 TOP ATR PT = 171.70
 TPC = 710.00 DEG-R MINF = 7.756
 TI = 536.00 DEG-R R/FT = 9.11711E+05
 TO = 1300.00 DEG-R
 SQROCK= .0574 -- ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS= 3.92274E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T,SEC	H,BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.80	1.26297E-02	3.21960E-01	2.62088E-01	2.95200E-01	9.23000E-01
2	3.80	8.69233E-03	2.21588E-01	2.62088E-01	2.95200E-01	9.23000E-01
3	6.90	6.45065E-03	1.64442E-01	2.62088E-01	2.95200E-01	9.23000E-01
4	8.20	5.91726E-03	1.50845E-01	2.62088E-01	2.95200E-01	9.23000E-01
5	11.80	4.93272E-03	1.25747E-01	2.62088E-01	2.95200E-01	9.23000E-01
6	14.80	4.40450E-03	1.12281E-01	2.62088E-01	2.95200E-01	9.23000E-01
7	19.10	3.87714E-03	9.88375E-02	2.62088E-01	2.95200E-01	9.23000E-01

RUN=4557 TOP AIR PT = 171.70
 TPC = 760.00 DEG-R MINF = 7.756
 TI = 533.00 DEG-R R/FT = 9.41790E+05
 TO = 1275.00 DEG-R
 SQROCK= .0586 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 3.91988E-02 BTU/FT, SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT, SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	3.60	1.36101E-02	3.47208E-01	3.52580E-01	4.40672E-01	9.23000E-01
2	8.90	8.65602E-03	2.20824E-01	3.52580E-01	4.40672E-01	9.23000E-01
3	13.60	7.00235E-03	1.78637E-01	3.52580E-01	4.40672E-01	9.23000E-01
4	17.00	6.26309E-03	1.59778E-01	3.52580E-01	4.40672E-01	9.23000E-01

(.,\$,OR = EXPECTED, MISSING

ERROR NUMBER 0066 DETECTED BY INPUTN AT ADDRESS 011716
 CALLED FROM HEATS AT 000134

ERROR SUMMARY

ERROR	TIMES
0066	0001

224

12
11
10
9
8
7
6
5
4
3

RUN=4558 TOP AIR PT = 1449.70
 TPC = 960.00 DEG-R MINF = 8.037
 TT = 534.00 DEG-R R/FT = 6.13873E+06
 TO = 1415.00 DEG-R
 SOROCK = .0617 ALPHA = 35.000
 MODEL = 31 PHI = 0.000
 HS = 1.06087E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	5.01940E-02	4.73140E-01	5.51781E-01	9.27552E-01	9.23000E-01
2	2.50	3.61954E-02	3.41186E-01	5.51781E-01	9.27552E-01	9.23000E-01
3	2.90	3.36066E-02	3.16783E-01	5.51781E-01	9.27552E-01	9.23000E-01
4	4.20	2.79254E-02	2.63231E-01	5.51781E-01	9.27552E-01	9.23000E-01
5	5.30	2.48591E-02	2.34328E-01	5.51781E-01	9.27552E-01	9.23000E-01
6	6.30	2.28010E-02	2.14927E-01	5.51781E-01	9.27552E-01	9.23000E-01
7	7.60	2.07595E-02	1.95684E-01	5.51781E-01	9.27552E-01	9.23000E-01
8	9.70	1.83754E-02	1.73211E-01	5.51781E-01	9.27552E-01	9.23000E-01
9	11.70	1.67313E-02	1.57713E-01	5.51781E-01	9.27552E-01	9.23000E-01
10	15.30	1.46311E-02	1.37916E-01	5.51781E-01	9.27552E-01	9.23000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4559 TOR AIR PT = 1974.70
 TPC = 1010.00 DEG-R MINF = 8.072
 TI = -536.00 DEG-R R/FT = 8.17704E+06
 TO = 1425.00 DEG-R
 SQROCK= .0617 ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS= 1.22582E-01 BTU/FT.SQ-SEC-DEG-R

9

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.17861E-02	5.04041E-01	6.08258E-01	1.14177E+00	9.23000E-01
2	3.30	3.87798E-02	3.16359E-01	6.08258E-01	1.14177E+00	9.23000E-01
3	5.00	3.15049E-02	2.57011E-01	6.08258E-01	1.14177E+00	9.23000E-01
4	6.10	2.85232E-02	2.32687E-01	6.08258E-01	1.14177E+00	9.23000E-01
5	7.20	2.62540E-02	2.14176E-01	6.08258E-01	1.14177E+00	9.23000E-01
6	9.40	2.29773E-02	1.87445E-01	6.08258E-01	1.14177E+00	9.23000E-01

20

226

12
11
10
9
8
7
6
5
4

RUN=4563 TOP AIR PT = 1424.70
 TPC = 1010.00 DEG-R MINF = 8.035
 TI = 534.00 DEG-R R/FT = 5.93155E+06
 TO = 1430.00 DEG-R
 SQROCK= .0617 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 1.05255E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.11937E-02	5.81382E-01	6.05683E-01	1.13082E+00	9.23000E-01
2	3.70	3.62725E-02	3.44614E-01	6.05683E-01	1.13082E+00	9.23000E-01
3	6.00	2.84841E-02	2.70619E-01	6.05683E-01	1.13082E+00	9.23000E-01
4	9.10	2.31290E-02	2.19742E-01	6.05683E-01	1.13082E+00	9.23000E-01
5	13.30	1.91316E-02	1.81764E-01	6.05683E-01	1.13082E+00	9.23000E-01

RUN=4561 TOP AIR PT = 160.70
 TPC = 635.00 DEG-R MINF = 7.746
 TI = 538.00 DEG-R R/FT = 8.84160E+05
 TO = 1275.00 DEG-R
 SQROCK= .0537 ALPHA=35.000
 MODEL=31 PHI= 0.000
 HS= 3.78795E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	7.21493E-03	1.90471E-01	1.51841E-01	1.53190E-01	9.23000E-01
2	2.30	5.42425E-03	1.43198E-01	1.51841E-01	1.53190E-01	9.23000E-01
3	3.30	4.52842E-03	1.19548E-01	1.51841E-01	1.53190E-01	9.23000E-01
4	4.50	3.87791E-03	1.02375E-01	1.51841E-01	1.53190E-01	9.23000E-01
5	6.60	3.20208E-03	8.45333E-02	1.51841E-01	1.53190E-01	9.23000E-01
6	8.30	2.85539E-03	7.53808E-02	1.51841E-01	1.53190E-01	9.23000E-01
7	12.00	2.37472E-03	6.26915E-02	1.51841E-01	1.53190E-01	9.23000E-01
8	16.70	2.01301E-03	5.31424E-02	1.51841E-01	1.53190E-01	9.23000E-01

228

12
11
10
9
8
7
6
5
4
3

RUN=4562 TOP AIR PT = 1394.70
 TPC = 760.00 DEG-R MINF = 8.032
 TI = 541.00 DEG-R R/FT = 5.84493E+06
 TO = 1425.00 DEG-R
 SQROCK= .0586 ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS= 1.04489E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.67485E-02	1.60289E-01	2.82845E-01	3.25875E-01	9.23000E-01
2	1.50	1.55921E-02	1.49221E-01	2.82845E-01	3.25875E-01	9.23000E-01
3	1.80	1.42335E-02	1.36220E-01	2.82845E-01	3.25875E-01	9.23000E-01
4	2.20	1.28747E-02	1.23215E-01	2.82845E-01	3.25875E-01	9.23000E-01
5	3.00	1.10252E-02	1.05515E-01	2.82845E-01	3.25875E-01	9.23000E-01
6	4.00	9.54814E-03	9.13790E-02	2.82845E-01	3.25875E-01	9.23000E-01
7	5.00	8.54012E-03	8.17319E-02	2.82845E-01	3.25875E-01	9.23000E-01
8	5.70	7.99855E-03	7.65489E-02	2.82845E-01	3.25875E-01	9.23000E-01
9	6.00	7.79603E-03	7.46107E-02	2.82845E-01	3.25875E-01	9.23000E-01

RUN=4563 TOP AIR PT = 165.70
 TPC = 635.00 DEG-R MINF = 7.751
 TI = 536.00 DEG-R R/FT = 9.47438E+05
 TO = 1245.00 DEG-R
 SQROCK= .0537 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 3.83167E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	7.74163E-03	2.02043E-01	1.61465E-01	1.64373E-01	9.23000E-01
2	3.40	4.78701E-03	1.24933E-01	1.61465E-01	1.64373E-01	9.23000E-01
3	4.50	4.16100E-03	1.08595E-01	1.61465E-01	1.64373E-01	9.23000E-01
4	5.80	3.66514E-03	9.56538E-02	1.61465E-01	1.64373E-01	9.23000E-01
5	7.80	3.16051E-03	8.24839E-02	1.61465E-01	1.64373E-01	9.23000E-01
6	10.80	2.68591E-03	7.00978E-02	1.61465E-01	1.64373E-01	9.23000E-01
7	16.00	2.20670E-03	5.75912E-02	1.61465E-01	1.64373E-01	9.23000E-01

230

12
11
10
9
8
7
6
5
4
3

RUN=4565 TOP AIR PT = 1469.70
 TPC = 810.00 DEG-R MINF = 8.038
 TI = 538.00 DEG-R R/FT = 6.07688E+06
 TO = 1435.00 DEG-R
 SQROCK= .0595 ALPHA=35.000
 MODEL=31 PHI= 0.000
 HS= 1.07168E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.23707E-02	2.08745E-01	3.45834E-01	4.28681E-01	9.23000E-01
2	1.60	2.01647E-02	1.88160E-01	3.45834E-01	4.28681E-01	9.23000E-01
3	2.00	1.80358E-02	1.68295E-01	3.45834E-01	4.28681E-01	9.23000E-01
4	2.60	1.58185E-02	1.47605E-01	3.45834E-01	4.28681E-01	9.23000E-01
5	3.30	1.40409E-02	1.31018E-01	3.45834E-01	4.28681E-01	9.23000E-01
6	4.40	1.21598E-02	1.13465E-01	3.45834E-01	4.28681E-01	9.23000E-01
7	5.90	1.05009E-02	9.79854E-02	3.45834E-01	4.28681E-01	9.23000E-01
8	7.60	9.25220E-03	8.63338E-02	3.45834E-01	4.28681E-01	9.23000E-01

RUN=4567 TOP AIR PT = 1464.70
 TPC = 860.00 DEG-R MINF = 8.038
 TI = 537.00 DEG-R R/FT = 6.12777E+06
 TO = 1425.00 DEG-R
 SQROCK= .0604 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 1.06859E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.98002E-02	2.78874E-01	4.15020E-01	5.62540E-01	9.23000E-01
2	1.70	2.60595E-02	2.43868E-01	4.15020E-01	5.62540E-01	9.23000E-01
3	2.00	2.40257E-02	2.24835E-01	4.15020E-01	5.62540E-01	9.23000E-01
4	2.60	2.10719E-02	1.97194E-01	4.15020E-01	5.62540E-01	9.23000E-01
5	3.00	1.96169E-02	1.83577E-01	4.15020E-01	5.62540E-01	9.23000E-01
6	3.30	1.87040E-02	1.75034E-01	4.15020E-01	5.62540E-01	9.23000E-01
7	3.90	1.72051E-02	1.61008E-01	4.15020E-01	5.62540E-01	9.23000E-01
8	4.80	1.55085E-02	1.45131E-01	4.15020E-01	5.62540E-01	9.23000E-01
9	8.10	1.19385E-02	1.11722E-01	4.15020E-01	5.62540E-01	9.23000E-01
10	11.00	1.02446E-02	9.58702E-02	4.15020E-01	5.62540E-01	9.23000E-01
11	14.10	9.04860E-03	8.46779E-02	4.15020E-01	5.62540E-01	9.23000E-01

232

12
11
10
9
8
7
6
5
4

RUN=4568 TOP AIR PT = 1929.70
 TPC = 1010.00 DEG-R MINF = 8.070
 TI = 540.00 DEG-R R/FT = 7.85879E+06
 TO = 1440.00 DEG-R
 SQROCK= .0617 - ALPHA=30.000
 MODEL=31 PHI= 0.000
 HS= 1.21392E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.16804E-02	5.08111E-01	6.07801E-01	1.13981E+00	9.12000E-01
2	2.00	4.97283E-02	4.09652E-01	6.07801E-01	1.13981E+00	9.12000E-01
3	4.90	3.17703E-02	2.61717E-01	6.07801E-01	1.13981E+00	9.12000E-01
4	7.10	2.63931E-02	2.17421E-01	6.07801E-01	1.13981E+00	9.12000E-01
5	11.20	2.10141E-02	1.73110E-01	6.07801E-01	1.13981E+00	9.12000E-01

233

ORIGINAL PAGE IS
 OF 100% QUALITY

RUN=4569 TOP ATR PT = 794.70
 TPC = 810.00 DEG-R MINE = 7.964
 TI = 539.00 DEG-R R/FT = 3.54256E+06
 TO = 1390.00 DEG-R
 SROCK= .0595 ALPHA=30.000
 MODEL= 22 PHI= 0.000
 HS= 8.01982E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.48509E-02	3.09868E-01	3.71905E-01	4.76208E-01	9.12000E-01
2	2.90	1.66385E-02	2.07468E-01	3.71905E-01	4.76208E-01	9.12000E-01
3	4.30	1.36641E-02	1.70379E-01	3.71905E-01	4.76208E-01	9.12000E-01
4	5.70	1.18680E-02	1.47983E-01	3.71905E-01	4.76208E-01	9.12000E-01
5	7.30	1.04870E-02	1.30764E-01	3.71905E-01	4.76208E-01	9.12000E-01
6	9.10	9.39276E-03	1.17119E-01	3.71905E-01	4.76208E-01	9.12000E-01
7	11.40	8.39192E-03	1.04640E-01	3.71905E-01	4.76208E-01	9.12000E-01
8	144		9.54 E-02			

RUN=4570 TOP AIR PT = 1884.70
 TPC = 860.00 DEG-R MINF = 8.067
 TI = 542.00 DEG-R R/FT = 7.59384E+06
 TO = 1450.00 DEG-R
 SQROCK= .0604 ALPHA=30.000
 MODEL=31 PHI= 0.000
 HS= 1.20444E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.89603E-02	2.40446E-01	4.07483E-01	5.46685E-01	9.12000E-01
2	2.80	1.97331E-02	1.63836E-01	4.07483E-01	5.46685E-01	9.12000E-01
3	4.10	1.63073E-02	1.35393E-01	4.07483E-01	5.46685E-01	9.12000E-01
4	6.30	1.31554E-02	1.09224E-01	4.07483E-01	5.46685E-01	9.12000E-01
5	7.90	1.17479E-02	9.75383E-02	4.07483E-01	5.46685E-01	9.12000E-01

RUN=4571 TOP AIR PT = 789.70
 TPC = 860.00 DEG-R MINF = 7.964
 TI = 548.00 DEG-R R/FT = 4.01591E+06
 TO = 1285.00 DEG-R
 SQROCK= .0604 ALPHA=30.000
 MODEL=22 PHI= 0.000
 HS= 7.92744E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	4.07509E-02	5.14049E-01	5.00064E-01	7.69258E-01	9.12000E-01
2	4.70	2.14319E-02	2.70350E-01	5.00064E-01	7.69258E-01	9.12000E-01
3	7.10	1.74373E-02	2.19962E-01	5.00064E-01	7.69258E-01	9.12000E-01
4	12.40	1.31947E-02	1.66443E-01	5.00064E-01	7.69258E-01	9.12000E-01
5	16.30	1.15084E-02	1.45172E-01	5.00064E-01	7.69258E-01	9.12000E-01

236

12
11
10
9
8
7
6
5
4
3

RUN=4572 TOP AIR PT = 914.70
 TPC = 860.00 DEG-R MINF = 7.982
 TI = 543.00 DEG-R R/FT = 4.31229E+06
 TO = 1340.00 DEG-R
 SOROCK = .0604 ALPHA = 30.000
 MODEL = 22 PHI = 0.000
 HS = 8.52539E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	3.61124E-02	4.23586E-01	4.66808E-01	6.81696E-01	9.12000E-01
2	3.20	2.30172E-02	2.69984E-01	4.66808E-01	6.81696E-01	9.12000E-01
3	5.20	1.80562E-02	2.11793E-01	4.66808E-01	6.81696E-01	9.12000E-01
4	7.70	1.48382E-02	1.74048E-01	4.66808E-01	6.81696E-01	9.12000E-01
5	11.00	1.24146E-02	1.45619E-01	4.66808E-01	6.81696E-01	9.12000E-01
6	13.80	1.10838E-02	1.30009E-01	4.66808E-01	6.81696E-01	9.12000E-01

RUN=4573 TOP AIR PT = 167.70
 TPC = 760.00 DEG-R MINF = 7.753
 TI = 544.00 DEG-R R/FT = 1.00542E+06
 TO = 1210.00 DEG-R
 SQROCK= .0586 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 3.85647E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	3.70	1.53357E-02	3.97662E-01	3.86045E-01	5.03393E-01	9.12000E-01
2	6.80	1.13123E-02	2.93333E-01	3.86045E-01	5.03393E-01	9.12000E-01
3	8.00	1.04294E-02	2.70439E-01	3.86045E-01	5.03393E-01	9.12000E-01
4	12.80	8.24518E-03	2.13801E-01	3.86045E-01	5.03393E-01	9.12000E-01

238

12
11
10
9
8
7
6
5
4

RUN=4574 TOP AIR PT = 869.70
 TPC = 760.00 DEG-R MINF = 7.976
 TI = 539.00 DEG-R R/FT = 3.93447E+06
 TO = 1375.00 DEG-R
 SOROCK = .0586 ALPHA = 30.000
 MODEL = 22 PHI = 0.000
 HS = 8.35322E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT. SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.40	1.81672E-02	2.17488E-01	3.09091E-01	3.66822E-01	9.12000E-01
2	2.50	1.35951E-02	1.62753E-01	3.09091E-01	3.66822E-01	9.12000E-01
3	3.20	1.20165E-02	1.43855E-01	3.09091E-01	3.66822E-01	9.12000E-01
4	4.20	1.04889E-02	1.25567E-01	3.09091E-01	3.66822E-01	9.12000E-01
5	6.10	8.70338E-03	1.04192E-01	3.09091E-01	3.66822E-01	9.12000E-01
6	8.70	7.28775E-03	8.72447E-02	3.09091E-01	3.66822E-01	9.12000E-01
7	11.10	6.45196E-03	7.72391E-02	3.09091E-01	3.66822E-01	9.12000E-01

11.4

RUN=4577 TOP AIR PT = 164.70
 TPC = 810.00 DEG-R MINE = 7.750
 TI = 536.00 DEG-R R/FT = 9.29425E+05
 TO = 1255.00 DEG-R
 SQROCK= .0595 ALPHA=30.000
 MODEL=31V30 PHI= 0.000
 HS= 3.84023E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	3.60	2.01170E-02	5.23849E-01	4.50243E-01	6.41501E-01	9.12000E-01
2	7.90	1.35800E-02	3.53626E-01	4.50243E-01	6.41501E-01	9.12000E-01
3	14.40	1.00585E-02	2.61924E-01	4.50243E-01	6.41501E-01	9.12000E-01
4	18.20	8.94702E-03	2.32982E-01	4.50243E-01	6.41501E-01	9.12000E-01

240

12
11
10
9
8
7
6
5
4
3

RUN=4579 TOP AIR PT = 170.70
 TPC = 660.00 DEG-R MINF = 7.755
 TI = 536.00 DEG-R R/FT = 1.00159E+06
 TO = 1225.00 DEG-R
 SQROCK=0.0546 ALPHA=30.000
 MODEL=31V30 PHI= 0.000
 HS= 3.88214E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.09392E-02	2.81784E-01	2.13352E-01	2.28437E-01	9.12000E-01
2	3.50	6.66691E-03	1.71733E-01	2.13352E-01	2.28437E-01	9.12000E-01
3	6.80	4.78304E-03	1.23206E-01	2.13352E-01	2.28437E-01	9.12000E-01
4	11.30	3.71039E-03	9.55759E-02	2.13352E-01	2.28437E-01	9.12000E-01

RUN=4581 TOP AIR PT = 639.70
TPC = 960.00 DEG-R MINF = 7.937
TI = 540.00 DEG-R R/FT = 2.99997E+06
TO = 1355.00 DEG-R
SQROCK= .0617 ALPHA=30.000
MODEL=31V30 PHI= 0.000
HS= 7.21515E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.07323E-02	8.41732E-01	6.03656E-01	1.12229E+00	9.12000E-01
2	1.80	5.16125E-02	7.15335E-01	6.03656E-01	1.12229E+00	9.12000E-01
3	5.80	2.87526E-02	3.98503E-01	6.03656E-01	1.12229E+00	9.12000E-01
4	9.30	2.27065E-02	3.14705E-01	6.03656E-01	1.12229E+00	9.12000E-01

242

12
11
10
9
8
7
6
5
4
3

RUN=4582 TOP AIR PT = 634.70
 TPC = 760.00 DEG-R MINF = 7.936
 TI = 539.00 DEG-R R/FT = 3.03331E+06
 T0 = 1340.00 DEG-R
 SQROCK= .0586 ALPHA=30.000
 MODEL=31V30 PHI= 0.000
 HS= 7.19655E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	1.30	2.00686E-02	2.78864E-01	3.23535E-01	3.90472E-01	9.12000E-01
2	2.10	1.57899E-02	2.19409E-01	3.23535E-01	3.90472E-01	9.12000E-01
3	2.60	1.41906E-02	1.97186E-01	3.23535E-01	3.90472E-01	9.12000E-01
4	3.30	1.25959E-02	1.75028E-01	3.23535E-01	3.90472E-01	9.12000E-01
5	4.70	1.05545E-02	1.46661E-01	3.23535E-01	3.90472E-01	9.12000E-01
6	7.60	8.30006E-03	1.15334E-01	3.23535E-01	3.90472E-01	9.12000E-01
7	12.00	6.60537E-03	9.17853E-02	3.23535E-01	3.90472E-01	9.12000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4583 TOP AIR PT = 1444.70
 TPC =1010.00 DEG-R MINF = 8.036
 TI = 540.00 DEG-R R/FT = 6.01188E+06
 TO =1430.00 DEG-R
 SQRDCK= .0617 ALPHA=30.000
 MODEL=31V30 PHI= 0.000
 HS= 1.05943E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.33839E-02	5.98281E-01	6.15054E-01	1.17129E+00	9.12000E-01
2	2.20	4.87236E-02	4.59902E-01	6.15054E-01	1.17129E+00	9.12000E-01
3	3.40	3.91933E-02	3.69945E-01	6.15054E-01	1.17129E+00	9.12000E-01
4	7.20	2.69330E-02	2.54220E-01	6.15054E-01	1.17129E+00	9.12000E-01
5	11.10	2.16915E-02	2.04746E-01	6.15054E-01	1.17129E+00	9.12000E-01

244

12
11
10
9
8
7
6
5
4
3

RUN=4584 TOP AIR PT = 1419.70
 TPC = 810.00 DEG-R MINF = 8.034
 TI = 542.00 DEG-R R/FT = 5.80985E+06
 TO = 1445.00 DEG-R
 SQROCK= .0595 ALPHA=30.000
 MODEL=31V30 PHI= 0.000
 HS= 1.05521E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.20	2.32458E-02	2.20295E-01	3.45432E-01	4.27974E-01	9.12000E-01
2	1.90	1.84739E-02	1.75073E-01	3.45432E-01	4.27974E-01	9.12000E-01
3	4.70	1.17459E-02	1.11313E-01	3.45432E-01	4.27974E-01	9.12000E-01
4	7.90	9.05984E-03	8.58584E-02	3.45432E-01	4.27974E-01	9.12000E-01

RUN=4586 TOP AIR PT = .644.70
 TPC = 910.00 DEG-R MINF = 7.938
 TI = 542.00 DEG-R R/FT = 3.00399E+06
 TO = 1360.00 DEG-R
 SQRCK= .0613 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 7.25010E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	4.20	2.53609E-02	3.49801E-01	5.26979E-01	8.47869E-01	9.12000E-01
2	7.50	1.89783E-02	2.61767E-01	5.26979E-01	8.47869E-01	9.12000E-01
3	12.80	1.45273E-02	2.00374E-01	5.26979E-01	8.47869E-01	9.12000E-01
4	15.60	1.31591E-02	1.81503E-01	5.26979E-01	8.47869E-01	9.12000E-01

RUN=4588 TOP AIR PT = 649.70
 TPC = 710.00 DEG-R MINF = 7.939
 TI = 542.00 DEG-R R/FT = 3.00792E+06
 TO = 1365.00 DEG-R
 SQROCK= .0574 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 7.27930E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.32264E-02	1.81698E-01	2.39017E-01	2.62725E-01	9.12000E-01
2	2.10	1.04065E-02	1.42960E-01	2.39017E-01	2.62725E-01	9.12000E-01
3	4.10	7.44768E-03	1.02313E-01	2.39017E-01	2.62725E-01	9.12000E-01
4	5.90	6.20850E-03	8.52898E-02	2.39017E-01	2.62725E-01	9.12000E-01
5	8.80	5.08360E-03	6.98364E-02	2.39017E-01	2.62725E-01	9.12000E-01

247

2
 1
 0
 9
 8
 7
 6
 5
 4
 3

RUN=4590 TOP AIR PT = 1399.70
 TPC =1010.00 DEG-R MINF = 8.033
 TI = 536.00 DEG-R R/FT = 5.89955E+06
 TO =1420.00 DEG-R
 SQROCK= .0617 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 1.04315E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.56836E-02	6.29663E-01	6.24473E-01	1.21379E+00	9.12000E-01
2	2.40	4.83418E-02	4.63420E-01	6.24473E-01	1.21379E+00	9.12000E-01
3	3.50	4.00308E-02	3.83748E-01	6.24473E-01	1.21379E+00	9.12000E-01
4	8.00	2.64779E-02	2.53825E-01	6.24473E-01	1.21379E+00	9.12000E-01
5	11.00	2.25804E-02	2.16463E-01	6.24473E-01	1.21379E+00	9.12000E-01

248

12
11
10
9
8
7
6
5
4

RUN=4591 TOP AIR PT = 1404.70
 TPC = 860.00 DEG-R MINF = 8.033
 TI = 539.00 DEG-R R/FT = 5.98995E+06
 TO = 1410.00 DEG-R
 SQROCK= .0604 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 1.04680E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	3.14976E-02	3.00895E-01	4.29765E-01	5.94583E-01	9.12000E-01
2	2.50	2.27132E-02	2.16978E-01	4.29765E-01	5.94583E-01	9.12000E-01
3	3.60	1.89277E-02	1.80815E-01	4.29765E-01	5.94583E-01	9.12000E-01
4	6.40	1.41958E-02	1.35612E-01	4.29765E-01	5.94583E-01	9.12000E-01
5	8.60	1.22462E-02	1.16987E-01	4.29765E-01	5.94583E-01	9.12000E-01
6	11.20	1.07310E-02	1.02513E-01	4.29765E-01	5.94583E-01	9.12000E-01

RUN=4592 TOP AIR PT = 1909.70
 TPC =1010.00 DEG-R MINF = 8.068
 TI = 539.00 DEG-R R/FT = 7.91685E+06
 TO =1425.00 DEG-R
 SQROCK= .0617 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 1.20675E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	6.43952E-02	5.33625E-01	6.19248E-01	1.18998E+00	9.12000E-01
2	4.50	3.46114E-02	2.86815E-01	6.19248E-01	1.18998E+00	9.12000E-01
3	8.10	2.57978E-02	2.13779E-01	6.19248E-01	1.18998E+00	9.12000E-01

250

12
11
10
9
8
7
6
5
4
3

RUN=4593 TOP AIR PT = 1909.70
 TPC = 860.00 DEG-R MINF = 8.068
 TI = 539.00 DEG-R R/FT = 8.01028E+06
 TO = 1415.00 DEG-R
 SQROCK= .0604 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 1.20895E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	3.11920E-02	2.58008E-01	4.27157E-01	5.88814E-01	9.12000E-01
2	2.50	2.24929E-02	1.86052E-01	4.27157E-01	5.88814E-01	9.12000E-01
3	3.90	1.80087E-02	1.48961E-01	4.27157E-01	5.88814E-01	9.12000E-01
4	6.40	1.40580E-02	1.16283E-01	4.27157E-01	5.88814E-01	9.12000E-01

RUN=4594 TOP AIR PT = 166.70
TPC = 760.00 DEG-R MINF = 7.752
TI = 536.00 DEG-R R/FT = 9.92782E+05
TO = 1215.00 DEG-R
SQROCK= .0586 ALPHA=30.000
MODEL=41 PHI= 0.000
HS= 3.84766E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	5.60	1.27349E-02	3.30978E-01	3.91554E-01	5.14271E-01	9.12000E-01
2	12.00	8.69959E-03	2.26101E-01	3.91554E-01	5.14271E-01	9.12000E-01
3	15.20	7.72979E-03	2.00896E-01	3.91554E-01	5.14271E-01	9.12000E-01

252

12
11
10
9
8
7
6
5
4

RUN=4595 TOP AIR PT = 644.70
 TPC = 860.00 DEG-R MINF = 7.938
 TI = 536.00 DEG-R R/FT = 3.07927E+06
 TO = 1340.00 DEG-R
 SQROCK= .0604 ALPHA=30.000
 MODEL=41 PHI= 0.000
 HS= 7.24562E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.40	3.54967E-02	4.89905E-01	4.72248E-01	6.95368E-01	9.12000E-01
2	3.10	2.38545E-02	3.29227E-01	4.72248E-01	6.95368E-01	9.12000E-01
3	5.80	1.74396E-02	2.40692E-01	4.72248E-01	6.95368E-01	9.12000E-01
4	9.80	1.34165E-02	1.85167E-01	4.72248E-01	6.95368E-01	9.12000E-01
5	15.40	1.07026E-02	1.47712E-01	4.72248E-01	6.95368E-01	9.12000E-01

RUN=4596 TOP AIR PT = 1394.7J
 TPC =1010.00 DEG-R MINF = 8.032
 TI = 534.00 DEG-R R/FT = 6.01978E+06
 TO =1400.00 DEG-R
 SQROCK= .0617 ALPHA=30.000
 MODEL=41 PHI= 0.000
 HS= 1.03993E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	4.30	3.84509E-02	3.69744E-01	6.40819E-01	1.29228E+00	9.12000E-01
2	5.10	3.53066E-02	3.39509E-01	6.40819E-01	1.29228E+00	9.12000E-01
3	7.00	3.01365E-02	2.89792E-01	6.40819E-01	1.29228E+00	9.12000E-01
4	9.80	2.54700E-02	2.44919E-01	6.40819E-01	1.29228E+00	9.12000E-01
5	13.50	2.17007E-02	2.08674E-01	6.40819E-01	1.29228E+00	9.12000E-01

254

12
11
10
9
8
7
6
5
4
3

RUN=4597 TOP AIR PT = 177.70
 TPC = 660.00 DEG-R MINF = 7.761
 TI = 537.00 DEG-R R/FT = 1.04075E+06
 TO = 1225.00 DEG-R
 SQROCK = .0546 ALPHA=30.000
 MODEL=41 PHI= 0.000
 HS= 3.95407E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.08549E-02	2.74525E-01	2.11996E-01	2.26676E-01	9.12000E-01
2	3.70	6.43424E-03	1.62725E-01	2.11996E-01	2.26676E-01	9.12000E-01
3	6.40	4.89225E-03	1.23727E-01	2.11996E-01	2.26676E-01	9.12000E-01
4	8.60	4.22036E-03	1.06735E-01	2.11996E-01	2.26676E-01	9.12000E-01
5	11.10	3.71481E-03	9.39491E-02	2.11996E-01	2.26676E-01	9.12000E-01
6	14.80	3.21712E-03	8.13623E-02	2.11996E-01	2.26676E-01	9.12000E-01

RUN=4598 TOP AIR PT = 159.70
 TPC = 760.00 DEG-R MINF = 7.745
 TI = 536.00 DEG-R R/FT = 9.20892E+05
 TO = 1240.00 DEG-R
 SQRCK = .0586 ALPHA=30.000
 MODEL=41V30 PHI= 0.000
 HS= 3.78126E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	3.30	1.56458E-02	4.13771E-01	3.76547E-01	4.85017E-01	9.12000E-01
2	8.10	9.98647E-03	2.64104E-01	3.76547E-01	4.85017E-01	9.12000E-01
3	9.80	9.07907E-03	2.40107E-01	3.76547E-01	4.85017E-01	9.12000E-01
4	12.00	8.20472E-03	2.16984E-01	3.76547E-01	4.85017E-01	9.12000E-01
5	18.90	6.53768E-03	1.72897E-01	3.76547E-01	4.85017E-01	9.12000E-01
6	20.90	6.21701E-03	1.64416E-01	3.76547E-01	4.85017E-01	9.12000E-01

RUN=4599 TOP AIR PT = 649.70
 TPC = 910.00 DEG-R MINF = 7.939
 TI = 535.00 DEG-R R/FT = 3.02640E+06
 TO = 1360.00 DEG-R
 SQROCK = .0613 ALPHA = 30.000
 MODEL = 41V30 PHI = 0.000
 HS = 7.27615E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	2.70	3.21721E-02	4.42158E-01	5.31674E-01	8.62384E-01	9.12000E-01
2	3.90	2.67688E-02	3.67898E-01	5.31674E-01	8.62384E-01	9.12000E-01
3	8.00	1.86903E-02	2.56871E-01	5.31674E-01	8.62384E-01	9.12000E-01
4	9.70	1.69736E-02	2.33278E-01	5.31674E-01	8.62384E-01	9.12000E-01
5	13.10	1.46058E-02	2.00735E-01	5.31674E-01	8.62384E-01	9.12000E-01

RUN=4600 TOP AIR PT = 177.70
 TPC = 660.00 DEG-R MINF = 7.761
 TI = 536.00 DEG-R R/FT = 9.86084E+05
 TO = 1265.00 DEG-R
 SQROCK = .0546 ALPHA=30.000
 MODEL=41V30 PHI= 0.000
 HS= 3.96754E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	2.00	8.19498E-03	2.06551E-01	2.00751E-01	2.12261E-01	9.12000E-01
2	2.50	7.32981E-03	1.84745E-01	2.00751E-01	2.12261E-01	9.12000E-01
3	3.30	6.37978E-03	1.60799E-01	2.00751E-01	2.12261E-01	9.12000E-01
4	4.30	5.58893E-03	1.40866E-01	2.00751E-01	2.12261E-01	9.12000E-01
5	7.80	4.14969E-03	1.04591E-01	2.00751E-01	2.12261E-01	9.12000E-01
6	11.00	3.49435E-03	8.80735E-02	2.00751E-01	2.12261E-01	9.12000E-01
7	15.40	2.95327E-03	7.44357E-02	2.00751E-01	2.12261E-01	9.12000E-01

RUN=4601 TOP AIR PT = 664.70
 TPC = 760.00 DEG-R MINF = 7.942
 TI = 536.00 DEG-R R/FT = 3.01918E+06
 TO = 1380.00 DEG-R
 SQROCK = .0586 ALPHA=30.000
 MODEL=41V30 PHI= 0.000
 HS= 7.37455E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.89290E-02	2.56680E-01	3.10009E-01	3.68301E-01	9.12000E-01
2	1.70	1.65530E-02	2.24460E-01	3.10009E-01	3.68301E-01	9.12000E-01
3	2.20	1.45509E-02	1.97312E-01	3.10009E-01	3.68301E-01	9.12000E-01
4	3.20	1.20649E-02	1.63602E-01	3.10009E-01	3.68301E-01	9.12000E-01
5	5.00	9.65195E-03	1.30882E-01	3.10009E-01	3.68301E-01	9.12000E-01
6	9.80	6.89425E-03	9.34870E-02	3.10009E-01	3.68301E-01	9.12000E-01

RUN=4556 SIDE AIR PT = 171.70
 TPC = 710.00 DEG-R MINF = 7.756
 TI = 536.00 DEG-R R/FT = 9.11711E+05
 TO = 1300.00 DEG-R
 SQROCK= .0574 ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS= 3.92274E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT. SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.57721E-02	4.02068E-01	2.74448E-01	3.13292E-01	9.00000E-01
2	3.80	9.22506E-03	2.35169E-01	2.74448E-01	3.13292E-01	9.00000E-01
3	6.00	7.34151E-03	1.87153E-01	2.74448E-01	3.13292E-01	9.00000E-01
4	8.70	6.09679E-03	1.55422E-01	2.74448E-01	3.13292E-01	9.00000E-01
5	12.20	5.14851E-03	1.31248E-01	2.74448E-01	3.13292E-01	9.00000E-01
6	18.60	4.16970E-03	1.06296E-01	2.74448E-01	3.13292E-01	9.00000E-01

260

12
11
10
9
8
7
6
5
4

RUN=4557 SIDE AIR PT = 171.70
 TPC = 760.00 DEG-R MINF = 7.756
 TI = 533.00 DEG-R R/FT = 9.41790E+05
 TO =1275.00 DEG-R
 SQROCK= .0586 ALPHA=35.000
 MODEL=41 PHI= 0.000
 HS= 3.91988E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	2.42335E-02	6.18221E-01	3.69406E-01	4.71510E-01	9.00000E-01
2	10.70	8.44688E-03	2.15488E-01	3.69406E-01	4.71510E-01	9.00000E-01
3	13.50	7.52006E-03	1.91844E-01	3.69406E-01	4.71510E-01	9.00000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4558 SIDE AIR PT = 1449.70
 TPC = 960.00 DEG-R MINF = 8.037
 TI = 534.00 DEG-R R/FT = 6.13873E+06
 TO = 1415.00 DEG-R
 SQROCK= .0617 ALPHA=35.000
 MODEL=31 PHI= 0.000
 HS= 1.06087E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	5.48426E-02	5.16959E-01	5.76065E-01	1.01346E+00	9.00000E-01
2	3.80	3.20773E-02	3.02368E-01	5.76065E-01	1.01346E+00	9.00000E-01
3	5.90	2.57433E-02	2.42662E-01	5.76065E-01	1.01346E+00	9.00000E-01
4	7.80	2.23894E-02	2.11048E-01	5.76065E-01	1.01346E+00	9.00000E-01
5	10.00	1.97738E-02	1.86392E-01	5.76065E-01	1.01346E+00	9.00000E-01
6	11.80	1.82032E-02	1.71588E-01	5.76065E-01	1.01346E+00	9.00000E-01
7	13.20	1.72109E-02	1.62234E-01	5.76065E-01	1.01346E+00	9.00000E-01

262

12
11
10
9
8
7
6
5
4

RUN=4561 SIDE AIR PT = 160.70
TPC = 635.00 DEG-R MINF = 7.746
TI = 538.00 DEG-R R/FT = 8.84160E+05
TO = 1275.00 DEG-R
SQROCK= .0537 ALPHA=35.000
MODEL=31 PHI= 0.000
HS= 3.78795E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT. SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	8.10	3.05024E-03	8.05248E-02	1.59147E-01	1.61660E-01	9.00000E-01
2	17.00	2.10548E-03	5.55838E-02	1.59147E-01	1.61660E-01	9.00000E-01

RUN=4562 SIDE AIR PT = 1394.70
 TPC = 760.00 DEG-R MINF = 8.032
 TI = 541.00 DEG-R R/FT = 5.84493E+06
 TO =1425.00 DEG-R
 SQROCK= .0586 ALPHA=35.000
 MODECT=22 PHI= 0.000
 HS= 1.04489E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1.	4.30	9.75136E-03	9.33239E-02	2.95347E-01	3.45066E-01	9.00000E-01
2	6.70	7.81200E-03	7.47635E-02	2.95347E-01	3.45066E-01	9.00000E-01
3	9.40	6.59532E-03	6.31195E-02	2.95347E-01	3.45066E-01	9.00000E-01
4	11.90	5.86173E-03	5.60988E-02	2.95347E-01	3.45066E-01	9.00000E-01

264

12
11
10
9
8
7
6
5
4
3

RUN=4564 SIDE AIR PT = 659.70
 TPC = 635.00 DEG-R MINF = 7.941
 TI = 539.00 DEG-R R/FT = 2.96151E+06
 TO =1390.00 DEG-R
 SQROCK= .0537 ALPHA=35.000
 MODEL=22 PHI= 0.000
 HS= 7.32464E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	3.30	3.95864E-03	5.40456E-02	1.34831E-01	1.33915E-01	9.00000E-01
2	4.10	3.55150E-03	4.84870E-02	1.34831E-01	1.33915E-01	9.00000E-01
3	5.80	2.98600E-03	4.07665E-02	1.34831E-01	1.33915E-01	9.00000E-01
4	8.50	2.46657E-03	3.36750E-02	1.34831E-01	1.33915E-01	9.00000E-01
5	12.50	2.03399E-03	2.77691E-02	1.34831E-01	1.33915E-01	9.00000E-01
6	15.30	1.83848E-03	2.50999E-02	1.34831E-01	1.33915E-01	9.00000E-01

RUN=4565 SIDE AIR PT = 1469.70
TPC = 810.00 DEG-R MINE = 8.038
TI = 538.00 DEG-R R/FT = 6.07688E+06
TO = 1435.00 DEG-R
SQROCK= .0595 ALPHA=35.000
MODEL=31 PHI= 0.000
HS= 1.07168E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	9.90	8.62124E-03	8.04462E-02	3.60982E-01	4.55901E-01	9.00000E-01
2	15.20	6.95770E-03	6.49234E-02	3.60982E-01	4.55901E-01	9.00000E-01

266

12
11
10
9
8
7
6
5
4
3

RUN=4569 SIDE AIR PT = 794.70
TPC = 810.00 DEG-R MINF = 7.964
TI = 539.00 DEG-R R/FT = 3.54256E+06
T0 = 1390.00 DEG-R
SQROCK= .0595 ALPHA=30.000
MODEL=22 PHI= 0.000
HS= 8.01982E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/T0
1	10.60	9.00671E-03	1.12306E-01	3.80618E-01	4.92835E-01	9.00000E-01
2	14.30	7.75445E-03	9.66910E-02	3.80618E-01	4.92835E-01	9.00000E-01

RUN=4570 SIDE AIR PT = 1884.70
 TPC = 860.00 DEG-R MINF = 8.067
 TI = 542.00 DEG-R R/FT = 7.59384E+06
 TO =1450.00 DEG-R
 SQROCK= .0604 ALPHA=30.000
 MODEL=31 PHI= 0.000
 HS= 1.20444E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	6.20	1.37365E-02	1.14049E-01	4.16776E-01	5.66283E-01	9.00000E-01
2	11.00	1.03127E-02	8.56227E-02	4.16776E-01	5.66283E-01	9.00000E-01

268

12
11
10
9
8
7
6
5
4
3

RUN=4573 SIDE AIR PT = 167.70
TPC = 760.00 DEG-R MINF = 7.753
TI = 544.00 DEG-R R/FT = 1.00542E+06
TO = 1210.00 DEG-R
SQROCK= .0586 ALPHA=30.000
MODEL=31V0 PHI= 0.000
HS= 3.85647E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	2.20	2.06959E-02	5.36653E-01	3.96330E-01	5.23839E-01	9.00000E-01
2	4.00	1.53485E-02	3.97993E-01	3.96330E-01	5.23839E-01	9.00000E-01
3	5.10	1.35928E-02	3.52468E-01	3.96330E-01	5.23839E-01	9.00000E-01
4	7.00	1.16024E-02	3.00854E-01	3.96330E-01	5.23839E-01	9.00000E-01

RUN=4584 SIDE AIR PT = 1419.70
 TPC = 810.00 DEG-R MINF = 8.034
 TI = 542.00 DEG-R R/FT = 5.80985E+06
 TO = 1445.00 DEG-R
 SQROCK= .0595 ALPHA=30.000
 MODEL=31V30 PHI= 0.000
 HS= 1.05521E-01 BTU/FT.SQ-SFC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	5.40	1.13177E-02	1.07256E-01	3.53329E-01	4.42016E-01	9.00000E-01
2	6.60	1.02372E-02	9.70163E-02	3.53329E-01	4.42016E-01	9.00000E-01
3	9.30	8.62409E-03	8.17288E-02	3.53329E-01	4.42016E-01	9.00000E-01
4	13.90	7.05419E-03	6.68512E-02	3.53329E-01	4.42016E-01	9.00000E-01

270

12
11
10
9
8
7
6
5
4
3

RUN=4586 SIDE AIR PT = 644.70
 TPC = 910.00 DEG-R MINF = 7.938
 TI = 542.00 DEG-R R/FT = 3.00399E+06
 TO =1360.00 DEG-R
 SQROCK= .0613 ALPHA=30.000
 MODEL=31V0 PHI= 0.000
 HS= 7.25010E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	2.30	3.58705E-02	4.94759E-01	5.39589E-01	8.87443E-01	9.00000E-01
2	3.40	2.95027E-02	4.06928E-01	5.39589E-01	8.87443E-01	9.00000E-01
3	4.60	2.53643E-02	3.49847E-01	5.39589E-01	8.87443E-01	9.00000E-01

ORIGINAL PAGE IS
 OF POOR QUALITY

RUN=4588 SIDE AIR PT = 649.70
TPC = 710.00 DEG-R MINF = 7.939
TI = 542.00 DEG-R R/FT = 3.00792E+06
TO = 1365.00 DEG-R
SQROCK= .0574 ALPHA=30.000
MODEL=31V0 PHI= 0.000
HS= 7.27930E-02 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	1.30	1.36229E-02	1.87146E-01	2.44720E-01	2.70601E-01	9.00000E-01
2	6.00	6.34112E-03	8.71116E-02	2.44720E-01	2.70601E-01	9.00000E-01
3	9.90	4.93655E-03	6.78163E-02	2.44720E-01	2.70601E-01	9.00000E-01
4	13.70	4.19644E-03	5.76489E-02	2.44720E-01	2.70601E-01	9.00000E-01

RUN=4593 SIDE AIR PT = 1909.70
TPC = 860.00 DEG-R MINF = 8.068
TI = 539.00 DEG-R R/FT = 8.01028E+06
TO = 1415.00 DEG-R
SQRDCK= .0604 ALPHA=30.000
MODEL=31V0 PHI= 0.000
HS= 1.20895E-01 BTU/FT.SQ-SEC-DEG-R

CONTOUR	T, SEC	H, BTU/FT.SQ-SEC-DEG-R	H/HS	T-BAR	BETA	TAW/TO
1	9.20	1.21650E-02	1.00624E-01	4.37032E-01	6.10899E-01	9.00000E-01