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**ANALYSIS AND COMPUTER PROGRAM
FOR EVALUATION OF AIRBREATHING
PROPULSION EXHAUST NOZZLE PERFORMANCE**

S. Wehofer and W. C. Moger

ARO, Inc.

May 1973

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FOREWORD

The work reported herein was conducted at the Arnold Engineering Development Center (AEDC). The initial development of the work was sponsored by the Air Force Aerospace Propulsion Laboratory (AFAPL), Air Force Systems Command (AFSC), Wright-Patterson Air Force Base, Ohio. The final phase of the work was sponsored by the Air Force Flight Dynamics Laboratory (AFFDL), Air Force Systems Command (AFSC), Wright-Patterson Air Force Base, Ohio, under Program Element 65401F.

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This technical report has been reviewed and is approved.

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ABSTRACT

An analytical technique based on the time-dependent flow equations has been developed to predict the inviscid transonic flow field in axisymmetric propulsion nozzles. The analysis includes the treatment of axisymmetric nonuniform nozzle inlet profiles of total pressure, total temperature, specific heat, and molecular weight. The analysis is also capable of considering convergent-divergent, convergent, and shrouded or unshrouded plug nozzle geometries. A computer listing and three sample calculations are presented to illustrate some of the capabilities of the program.

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NOMENCLATURE

A	Cross-sectional area
a, b, c	Constants in expression for specific heat
C_D	Discharge coefficient
C_F	Thrust coefficient
c_p	Specific heat at constant pressure
c_v	Specific heat at constant volume
D	Diameter
E	Internal energy per unit volume
e	Energy per unit volume
ℓ	Time station index
M	Mach number or downstream boundary axial station
m	Axial station index
n	Radial station index
P	Static pressure
P_o	Total pressure
R	Gas constant
R_c	Normalized radius of wall curvature (radius of curvature/throat radius)
r	Radial distance from nozzle centerline
s_i	Radial coordinate of nozzle centerbody
s_o	Radial coordinate of nozzle wall
T	Static temperature
T_o	Total temperature
t	Time
u	Axial velocity component
V	Vector velocity
v	Radial velocity component

W, F, G, H	Variables
W_f	Weight flow
w	Tangential velocity
x	Axial distance from nozzle inlet
y	Transformed radial coordinate
Δ	Small increment
θ	Flow angle
ρ	Density

SUBSCRIPTS

1-D	One dimensional
g	Gas
w	Wall
∞	Ambient

SUPERSCRIPTS

*	Sonic
'	Differentiation with respect to x

SECTION I INTRODUCTION

An analytical method for predicting the exhaust nozzle performance of airbreathing propulsion systems must consider a wide variety of flow conditions for both convergent-divergent and convergent conical nozzle geometries. There are several analytical analyses available (i. e., Refs. 1, 2, and 3) which can be used to evaluate the performance of some turbojet nozzle flow fields. Unfortunately, there are inherent limitations in the analytical approaches generally available to systems groups which preclude their use in the quantitative evaluation of some of today's turbojet nozzle flows. One of the most restrictive features is that the flow is assumed to have uniform flow stagnation conditions and gas properties. The purpose of the present work was to develop a computer program to predict the inviscid subsonic-transonic flow field for actual operating conditions in axisymmetric turbine engine exhaust nozzles.

The most logical candidate for solving the general nozzle flow field is the direct numerical integration of the main governing differential equations - continuity, axial and radial momentum, and energy. The equations are posed in time-dependent form and use a Lax-Wendroff (L-W) (Ref. 4) finite differencing scheme. The present computation method was adopted after the work presented in Réf. 5. The first version of the present computer program was reported in Ref. 6. Since publication of Ref. 6, a centerbody option has been added to the program, and the analysis has been extended to evaluate flow fields for both subsonic and supersonic nozzles. Also, several programming improvements have been made to reduce machine time requirements and to improve the accuracy near the boundaries.

This report presents the method of analysis, a description of the numerical scheme, and a description of the program boundary conditions. Sample calculations for a supersonic convergent-divergent, plug, and unchoked convergent-divergent nozzle are presented. A complete computer listing is presented in Appendix VI.

SECTION II METHOD OF ANALYSIS

The fluid is assumed to be inviscid, non-heat conducting, and thermally perfect. The flow field is assumed to be axisymmetric. The general solution consists of solving the following relations:

Continuity:

$$\frac{\partial}{\partial t} (\rho r) + \frac{\partial}{\partial x} (\rho u r) + \frac{\partial}{\partial r} (r \rho v) = 0 \quad (2.1a)$$

Axial Momentum:

$$\rho \frac{\partial}{\partial t} (ur) + \rho u \frac{\partial}{\partial x} (ur) + \rho v r \frac{\partial u}{\partial r} = - \frac{\partial}{\partial x} (Pr) \quad (2.1b)$$

Radial Momentum:

$$\rho \frac{\partial}{\partial t} (vr) + \rho u \frac{\partial}{\partial x} (vr) + \rho v r \frac{\partial v}{\partial r} - \rho w^2 = -r \frac{\partial P}{\partial r} \quad (2.1c)$$

Tangential Momentum:

$$\rho \frac{\partial}{\partial t} (wr) + \rho u \frac{\partial}{\partial x} (wr) + \rho v r \frac{\partial w}{\partial r} + \rho vw = 0 \quad (2.1d)$$

Energy:

$$\frac{\partial}{\partial t} (er) + \frac{\partial}{\partial x} [(e + P)ur] + \frac{\partial}{\partial r} [(e + P)vr] = 0 \quad (2.1e)$$

¹While this expression is included in the derivation, the tangential velocity has not been added to the computer program.

Multiplying the continuity equation (2.1a) by u , v , and w successively and adding each expression successively with (2.1b), (2.1c), and (2.1d), give

$$\frac{\partial}{\partial t}(\rho u r) + \frac{\partial}{\partial x}(\rho u^2 r) + \frac{\partial}{\partial r}(\rho u v r) = -\frac{\partial}{\partial x}(P r) \quad (2.2a)$$

$$\frac{\partial}{\partial t}(\rho v r) + \frac{\partial}{\partial x}(\rho u v r) + \frac{\partial}{\partial r}(\rho v^2 r) = -\frac{\partial}{\partial r}(P r) + P + \rho w^2 \quad (2.2b)$$

$$\frac{\partial}{\partial t}(\rho w r) + \frac{\partial}{\partial x}(\rho u w r) + \frac{\partial}{\partial r}(\rho v w r) = -\rho v w \quad (2.2c)$$

Letting

$$\left. \begin{aligned} h &= \rho r, \quad d = \rho u r, \quad k = \rho v r, \\ z &= \rho w r, \quad f = e r, \quad q = P r \end{aligned} \right\} \quad (2.3a)$$

and noting that

$$\left. \begin{aligned} \frac{d^2}{h} &= \rho u^2 r, \quad \frac{k^2}{h} = \rho v^2 r, \quad \frac{dk}{h} = \rho u v r, \quad \frac{dz}{h} = \rho u w r, \\ \frac{kz}{h} &= \rho v w r, \quad \frac{z^2}{hr} = \rho w^2, \quad \frac{kz}{hr} = \rho v w \end{aligned} \right\} \quad (2.3b)$$

then Eqs. (2.1a), (2.1e), (2.2a), (2.2b), and (2.2c) can be written as

$$\frac{\partial h}{\partial t} + \frac{\partial d}{\partial x} + \frac{\partial k}{\partial r} = 0 \quad (2.4a)$$

$$\frac{\partial d}{\partial t} + \frac{\partial}{\partial x} \left(\frac{d^2}{h} + q \right) + \frac{\partial}{\partial r} \left(\frac{dk}{h} \right) = 0 \quad (2.4b)$$

$$\frac{\partial k}{\partial t} + \frac{\partial}{\partial x} \left(\frac{dk}{h} \right) + \frac{\partial}{\partial r} \left(\frac{k^2}{h} + q \right) = \frac{q}{r} + \frac{z^2}{hr} \quad (2.4c)$$

$$\frac{\partial z}{\partial t} + \frac{\partial}{\partial x} \left(\frac{dz}{h} \right) - \frac{\partial}{\partial r} \left(\frac{kz}{h} \right) = -\frac{kz}{hr} \quad (2.4d)$$

$$\frac{\partial f}{\partial t} + \frac{\partial}{\partial x} \left[(f - q) \frac{d}{h} \right] + \frac{\partial}{\partial r} \left[(f + q) \frac{k}{h} \right] = 0 \quad (2.4e)$$

These are the desired conservation forms for the main differential equations. Next, these conservation forms will be expressed as one single vector equation.

2.1 VECTOR FORM OF CONSERVATION EQUATIONS

Using a second order polynomial to represent the specific heat temperature relation gives

$$c_p(T) = a + bT + cT^2 \quad (2.5)$$

and from the definition of E

$$E = \frac{e}{\rho} - \frac{V^2}{2} \quad (2.6)$$

the equation of state may be written as,

$$E = \int c_v dT = \frac{P}{\rho} \left(\frac{a}{R_g} - 1 \right) + \left(\frac{P}{\rho} \right)^2 \frac{b}{2R_g^2} + \left(\frac{P}{\rho} \right)^3 \frac{c}{3R_g^3} \quad (2.7)$$

Now noting from Eq. (2.3) that

$$V^2 = \frac{d^2 + k^2 + z^2}{h^2} \quad (2.8)$$

Then Eq. (2.6) may be written as

$$q \left(\frac{a}{R_g} - 1 \right) + \frac{b}{2R_g^2} \frac{q^2}{h} + \frac{c}{3R_g^3} \frac{q^3}{h^2} = f - \frac{1}{2} \frac{d^2 + k^2 + z^2}{h} \quad (2.9)$$

This relation shows that q can be expressed in terms of only the variables appearing in the first terms of Eq. (2.4).

Now consider four vectors (W, F, G, and H) defined by the variables h, d, k, z, and f. Let these vectors be defined by the following components:

$$\left. \begin{aligned} W_1 &= h, \quad W_2 = d, \quad W_3 = k, \quad W_4 = z, \quad W_5 = f \\ F_1 &= d, \quad F_2 = \frac{d^2}{h} + q, \quad F_3 = \frac{dk}{h}, \quad F_4 = \frac{dz}{h}, \quad F_5 = (f+q)\frac{d}{h} \\ G_1 &= k, \quad G_2 = \frac{dk}{h}, \quad G_3 = \frac{k^2}{h} + q, \quad G_4 = \frac{kz}{h}, \quad G_5 = (f+q)\frac{k}{h} \\ H_1 &= 0, \quad H_2 = 0, \quad H_3 = \frac{q}{r} + \frac{z^2}{hr}, \quad H_4 = -\frac{kz}{hr}, \quad H_5 = 0 \end{aligned} \right\} \quad (2.10)$$

From these definitions and Eq. (2.9), it is seen that the vectors F , G , and H are a function of W . Therefore, the conservation forms of Eq. (2.4) may be expressed in terms of the above vectors as one single vector equation.

$$\frac{\partial}{\partial t} W + \frac{\partial}{\partial x} F(W) + \frac{\partial}{\partial r} G(W) = H(W) \quad (2.11)$$

The system (2.11) is called the conservation-law form.

2.2 FINITE DIFFERENCING SCHEME (LAX-WENDROFF)

The components of the vectors in Eq. (2.11) from Eq. (2.10) can also be written as

$$\begin{aligned} W_1 &= h, \quad W_2 = d, \quad W_3 = k, \quad W_4 = z, \quad W_5 = f \\ F_1 &= W_2, \quad F_2 = \frac{W_2^2}{W_1} + q, \quad F_3 = \frac{W_2 W_3}{W_1}, \quad F_4 = \frac{W_2 W_4}{W_1}, \quad F_5 = \frac{W_2}{W_1} (W_5 + q) \\ G_1 &= W_3, \quad G_2 = \frac{W_2 W_3}{W_1}, \quad G_3 = \frac{W_3^2}{W_1} + q, \quad G_4 = \frac{W_3 W_4}{W_1}, \quad G_5 = \frac{W_3}{W_1} (W_5 + q) \\ H_1 &= 0, \quad H_2 = 0, \quad H_3 = \frac{W_4^2}{W_1 r} + \frac{q}{r}, \quad H_4 = -\frac{W_3 W_4}{W_1 r}, \quad H_5 = 0 \end{aligned} \quad (2.12)$$

Also from Eq. (2.9),

$$q \left(\frac{q}{R_g} - 1 \right) + \frac{b}{2R_g^2} \frac{q^2}{W_1} + \frac{c}{3R_g^3} \frac{q^3}{W_1^2} = W_5 - \frac{W_2^2 + W_3^2 + W_4^2}{2W_1} \quad (2.13)$$

Let $W_{m,n}^\ell$ represent the function $W(t + \ell \Delta t, x + m \Delta x, r + n \Delta r)$ where ℓ, m, n can be integers or $\pm 1/2$. $F(W_{m,n}^\ell)$ will be abbreviated by $F_{m,n}^\ell$. Finally, $\langle W \rangle_{m,n}^\ell$ will stand for the difference approximation to the partial derivative, W_t , centered at ℓ, m, n .

All functions are assumed to be known at the grid points of the initial data surface, $\ell = 0$. The function W can then be calculated at $\ell = 1$ by a forward difference scheme. Second-order accuracy is achieved if the differences are centered at $(t + \frac{\Delta t}{2}, x, r)$. Thus, the difference approximation to Eq. (2.11) reads:

$$\langle W_t \rangle_{0,0}^{1/2} = -\langle F_x \rangle_{0,0}^{1/2} - \langle G_r \rangle_{0,0}^{1/2} + \langle H \rangle_{0,0}^{1/2} \quad (2.14a)$$

where

$$\langle W_t \rangle_{0,0}^{1/2} = \frac{1}{\Delta t} (W_{0,0}^1 - W_{0,0}^0), \quad \langle F_x \rangle_{0,0}^{1/2} = \frac{1}{\Delta x} (F_{1/2,0}^{1/2} - F_{-1/2,0}^{1/2}), \quad \langle G_r \rangle_{0,0}^{1/2} = \frac{1}{\Delta r} (G_{0,1/2}^{1/2} - G_{0,-1/2}^{1/2}) \quad (2.14b)$$

Substituting Eq. (2.14b) into Eq. (2.14a) gives

$$W_{0,0}^1 = W_{0,0}^0 + \Delta t \left[-\frac{1}{\Delta x} (F_{1/2,0}^{1/2} - F_{-1/2,0}^{1/2}) - \frac{1}{\Delta r} (G_{0,1/2}^{1/2} - G_{0,-1/2}^{1/2}) + H_{0,0}^{1/2} \right] \quad (2.15)$$

To calculate the function $F_{\pm 1/2,0}^{1/2}$, etc., first the calculation of $W_{\pm 1/2,0}^{1/2}$, $W_{0,\pm 1/2}^{1/2}$, and $W_{0,0}^{1/2}$ is required. These terms can be obtained from a truncated Taylor series expansion as

$$W(t + \frac{\Delta t}{2}, x \pm \frac{\Delta x}{2}, r) = W(t, x \pm \frac{\Delta x}{2}, r) + \frac{\Delta t}{2} W_t(t, x \pm \frac{\Delta x}{2}, r) \quad (2.16a)$$

$$W(t + \frac{\Delta t}{2}, x, r \pm \frac{\Delta r}{2}) = W(t, x, r \pm \frac{\Delta r}{2}) + \frac{\Delta t}{2} W_t(t, x, r \pm \frac{\Delta r}{2}) \quad (2.16b)$$

$$W(t + \frac{\Delta t}{2}, x, r) = W(t, x, r) + \frac{\Delta t}{2} W_t(t, x, r) \quad (2.16c)$$

Here the first terms of Eq. (2.16a) can be taken as the average of $W_{0,0}^0$ and $W_{\pm 1,0}^0$. Similarly, the first term of Eq. (2.16b) can be taken as the average of $W_{0,0}^0$ and $W_{0,\pm 1}^0$. The first term of Eq. (2.16c) is assumed given by

$$W_{0,0}^0 = \frac{1}{4} (W_{1,0}^0 + W_{-1,0}^0 + W_{0,1}^0 + W_{0,-1}^0)$$

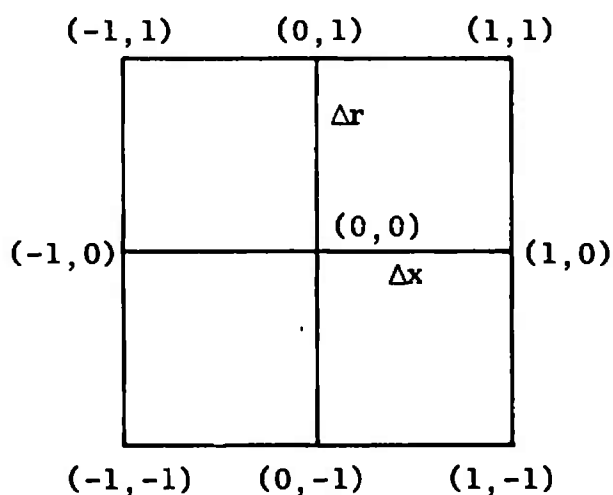
The second term in Eq. (2.16) can be replaced by spatial derivatives using the differential equation (2.11). In this way the following equations are obtained:

$$W_{\pm 1/2,0}^{1/2} = \frac{1}{2}(W_{0,0}^0 + W_{\pm 1,0}^0) + \frac{\Delta t}{2}[-\langle F_x \rangle_{\pm 1/2,0}^0 - \langle G_r \rangle_{\pm 1/2,0}^0 + \langle H \rangle_{\pm 1/2,0}^0]$$

$$W_{0,\pm 1/2}^{1/2} = \frac{1}{2}(W_{0,0}^0 + W_{0,\pm 1}^0) + \frac{\Delta t}{2}[-\langle F_x \rangle_{0,\pm 1/2}^0 - \langle G_r \rangle_{0,\pm 1/2}^0 + \langle H \rangle_{0,\pm 1/2}^0] \quad (2.17)$$

$$W_{0,0}^{1/2} = \frac{1}{4}(W_{1,0}^0 + W_{-1,0}^0 + W_{0,1}^0 + W_{0,-1}^0) + \frac{\Delta t}{2}[-\langle F_x \rangle_{0,0}^0 - \langle G_r \rangle_{0,0}^0 + H_{0,0}^0]$$

Now approximate the derivatives by difference quotients (refer to the sketch below):



Sketch Showing the Grid Points and the Values of Indices (m and n) around a Point (m = n = 0)

$$\begin{aligned}
\langle F_x \rangle_{\pm \frac{1}{2}, 0}^0 &= \pm \frac{1}{\Delta x} (F_{\pm 1, 0}^0 - F_{0, 0}^0) \\
\langle G_r \rangle_{\pm \frac{1}{2}, 0}^0 &= \frac{1}{2\Delta r} \left(\frac{G_{0, 1}^0 + G_{\pm 1, 1}^0}{2} - \frac{G_{0, -1}^0 + G_{\pm 1, -1}^0}{2} \right) \\
&= \frac{1}{4\Delta r} (G_{0, 1}^0 + G_{\pm 1, 1}^0 - G_{0, -1}^0 - G_{\pm 1, -1}^0) \\
\langle F_x \rangle_{0, \pm \frac{1}{2}}^0 &= \frac{1}{2\Delta x} \left(\frac{F_{1, 0}^0 + F_{1, \pm 1}^0}{2} - \frac{F_{-1, 0}^0 + F_{-1, \pm 1}^0}{2} \right) \\
&= \frac{1}{4\Delta x} (F_{1, 0}^0 + F_{1, \pm 1}^0 - F_{-1, 0}^0 - F_{-1, \pm 1}^0) \\
\langle G_r \rangle_{0, \pm \frac{1}{2}}^0 &= \pm \frac{1}{\Delta r} (G_{0, \pm 1}^0 - G_{0, 0}^0) \\
\langle F_x \rangle_{0, 0}^0 &= \frac{1}{2\Delta x} (F_{1, 0}^0 - F_{-1, 0}^0) \\
\langle G_r \rangle_{0, 0}^0 &= \frac{1}{2\Delta r} (G_{0, 1}^0 - G_{0, -1}^0)
\end{aligned} \tag{2.18a}$$

and

$$\begin{aligned}
\langle H \rangle_{\pm \frac{1}{2}, 0}^0 &= \frac{1}{2} (H_{0, 0}^0 + H_{\pm 1, 0}^0) \\
\langle H \rangle_{0, \pm \frac{1}{2}}^0 &= \frac{1}{2} (H_{0, 0}^0 + H_{0, \pm 1}^0)
\end{aligned} \tag{2.18b}$$

Substituting Eqs. (2.18a) and (2.18b) into Eq. (2.17) gives

$$\begin{aligned}
W_{\pm \frac{1}{2}, 0}^{\frac{1}{2}} &= \frac{1}{2} (W_{0, 0}^0 + W_{\pm 1, 0}^0) \pm \frac{1}{2} \frac{\Delta t}{\Delta x} (F_{\pm 1, 0}^0 - F_{0, 0}^0) - \frac{1}{8} \frac{\Delta t}{\Delta r} (G_{0, 1}^0 + G_{\pm 1, 1}^0 - G_{0, -1}^0 - G_{\pm 1, -1}^0) \\
&\quad + \frac{1}{4} \Delta t (H_{0, 0}^0 + H_{\pm 1, 0}^0)
\end{aligned} \tag{2.19a}$$

$$\begin{aligned}
W_{0, \pm \frac{1}{2}}^{\frac{1}{2}} &= \frac{1}{2} (W_{0, 0}^0 + W_{0, \pm 1}^0) - \frac{1}{8} \frac{\Delta t}{\Delta x} (F_{1, 0}^0 + F_{1, \pm 1}^0 - F_{-1, 0}^0 - F_{-1, \pm 1}^0) \pm \frac{1}{2} \frac{\Delta t}{\Delta r} (G_{0, \pm 1}^0 - G_{0, 0}^0) \\
&\quad + \frac{1}{4} \Delta t (H_{0, 0}^0 + H_{0, \pm 1}^0)
\end{aligned} \tag{2.19b}$$

$$\begin{aligned}
W_{0, 0}^{\frac{1}{2}} &= \frac{1}{4} (W_{1, 0}^0 + W_{-1, 0}^0 + W_{0, 1}^0 + W_{0, -1}^0) \\
&\quad + \frac{\Delta t}{2} \left[-\frac{1}{2\Delta x} (F_{1, 0}^0 - F_{-1, 0}^0) - \frac{1}{2\Delta r} (G_{0, 1}^0 - G_{0, -1}^0) + H_{0, 0}^0 \right]
\end{aligned} \tag{2.19c}$$

Finally, writing Eqs. (2.15) and (2.19) in the notations previously defined gives

$$W(\ell+1, m, n) = W(\ell, m, n) + \Delta t \left\{ -\frac{1}{\Delta x} [F(\ell+\frac{1}{2}, m+\frac{1}{2}, n) - F(\ell+\frac{1}{2}, m-\frac{1}{2}, n)] \right. \\ \left. - \frac{1}{\Delta r} [G(\ell+\frac{1}{2}, m, n+\frac{1}{2}) - G(\ell+\frac{1}{2}, m, n-\frac{1}{2})] + H(\ell+\frac{1}{2}, m, n) \right\} \quad (2.20a)$$

$$W(\ell+\frac{1}{2}, m\pm\frac{1}{2}, n) = \frac{1}{2} [W(\ell, m, n) + W(\ell, m\pm 1, n)] - \frac{1}{2} \Delta t \left\{ \frac{1}{\Delta x} [F(\ell, m\pm 1, n) - F(\ell, m, n)] \right. \\ \left. - \frac{1}{4} \frac{1}{\Delta r} [G(\ell, m, n+1) + G(\ell, m\pm 1, n+1) - G(\ell, m, n-1) - G(\ell, m\pm 1, n-1)] \right. \\ \left. + \frac{1}{2} [H(\ell, m, n) + H(\ell, m\pm 1, n)] \right\} \quad (2.20b)$$

$$W(\ell+\frac{1}{2}, m, n\pm\frac{1}{2}) = \frac{1}{2} [W(\ell, m, n) + W(\ell, m, n\pm 1)] + \frac{1}{2} \Delta t \left\{ -\frac{1}{4} \frac{1}{\Delta x} [F(\ell, m+1, n) + F(\ell, m-1, n\pm 1)] \right. \\ \left. - F(\ell, m-1, n) - F(\ell, m-1, n\pm 1) \right\} + \frac{1}{\Delta r} [G(\ell, m, n\pm 1) - G(\ell, m, n)] \\ - \frac{1}{2} [H(\ell, m, n) + H(\ell, m, n\pm 1)] \quad (2.20c)$$

and

$$W(\ell+\frac{1}{2}, m, n) = \frac{1}{4} [W(\ell, m+1, n) + W(\ell, m-1, n) + W(\ell, m, n+1) + W(\ell, m, n-1)] \\ + \frac{\Delta t}{2} \left\{ -\frac{1}{2\Delta x} [F(\ell, m+1, n) - F(\ell, m-1, n)] \right. \\ \left. - \frac{1}{2\Delta r} [G(\ell, m, n+1) - G(\ell, m, n-1)] + H(\ell, m, n) \right\} \quad (2.20d)$$

SECTION III COORDINATE TRANSFORMATION

In Section II, the conservation-law form (2.11) was written in cylindrical coordinates (x , r , and θ). The finite difference net in these coordinates will be a rectangular lattice. Therefore, on the nozzle wall boundaries, the lattice points will not fall on the wall curve. One way to eliminate this difficulty is to use a variable net size near the boundaries, but this would considerably complicate the finite difference scheme. Another solution is to use a coordinate transformation from x , r to x , y such that the wall shape is expressed as $y = \text{const.}$

This transformation can be accomplished in the following manner: Let $s = s(x)$ be a function describing the nozzle shape. Consider the coordinate transformation:

$$(x, r) \rightarrow \left(x, y = \frac{r - s_i(x)}{s_o(x) - s_i(x)} \right) \quad (3.1)$$

Then,

$$\left. \begin{aligned} \frac{\partial}{\partial x} \Big|_r &= \frac{\partial}{\partial x} \Big|_y - \frac{[s_i' + y(s_o' - s_i')]}{s_o - s_i} \frac{\partial}{\partial y} \\ \frac{\partial}{\partial r} &= \frac{1}{(s_o - s_i)} \frac{\partial}{\partial y} \end{aligned} \right\} \quad (3.2)$$

Substituting into Eq. (2.11) gives

$$\frac{\partial}{\partial t} W + \frac{\partial}{\partial x} F(W) - \frac{[s_i' + y(s_o' - s_i')]}{s_o - s_i} \frac{\partial}{\partial y} F(W) + \frac{1}{(s_o - s_i)} \frac{\partial}{\partial y} G(W) = H(W) \quad (3.3)$$

It is seen from Eq. (3.1) that, in the x, y coordinate system, the wall shapes are expressed as

$$y_{\text{wall}} = \text{constant} \quad (3.4)$$

and, therefore, a constant value of y can be maintained throughout the entire field and the logic of the computer program considerably reduced.

Let $W_{m,n}^\ell$ represent $W(t + \Delta t, x + m\Delta x, y + n\Delta y)$ in the x, y system. Also let $m = 1$ be the nozzle inlet

$m = M$ be the downstream boundary

$n = 0$ be the centerbody wall

$n = N$ be the outer nozzle wall

Then the finite difference form of Eq. (3.1) becomes

$$\langle W_t \rangle_{0,0}^{1/2} = - \langle F_x \rangle_{0,0}^{1/2} + K_1 \langle F_y \rangle_{0,0}^{1/2} - K_2 \langle G_y \rangle_{0,0}^{1/2} + \langle H \rangle_{0,0}^{1/2} \quad (3.5)$$

where the terms within the brackets are given in (2.14b) with the understanding that Δr is replaced by Δy

and

$$K_1 = \frac{[s_i' + n\Delta y(s_o' - s_i')]}{s_o - s_i}$$

$$K_2 = \frac{1}{s_o - s_i}$$

With the coordinate transformation, Eq. (2.15) becomes

$$W_{0,0}^1 = W_{0,0}^0 + \Delta t \left[-\frac{1}{\Delta x} (F_{1/2,0}^{1/2} - F_{-1/2,0}^{1/2}) + K_1 \frac{1}{\Delta y} (F_{0,1/2}^{1/2} - F_{0,-1/2}^{1/2}) - K_2 \frac{1}{\Delta y} (G_{0,1/2}^{1/2} - G_{0,-1/2}^{1/2}) + H_{0,0}^{1/2} \right] \quad (3.6)$$

and Eq. (2.19) becomes

$$W_{\pm 1/2,0}^{1/2} = \frac{1}{2} (W_{0,0}^0 + W_{\pm 1,0}^0) \mp \frac{1}{2} \frac{\Delta t}{\Delta x} (F_{\pm 1,0}^0 - F_{0,0}^0) + K_1 \frac{\Delta t}{8\Delta y} (F_{0,1}^0 + F_{\pm 1,1}^0 - F_{0,-1}^0 - F_{\pm 1,-1}^0) - K_2 \frac{\Delta t}{8\Delta y} (G_{0,1}^0 + G_{\pm 1,1}^0 - G_{0,-1}^0 - G_{\pm 1,-1}^0) + \frac{1}{4} \Delta t (H_{0,0}^0 + H_{\pm 1,0}^0) \quad (3.7a)$$

$$W_{0,\pm 1/2}^{1/2} = \frac{1}{2} (W_{0,0}^0 + W_{0,\pm 1}^0) - \frac{\Delta t}{8\Delta x} (F_{1,0}^0 + F_{1,\pm 1}^0 - F_{-1,0}^0 - F_{-1,\pm 1}^0) + \frac{K_1}{2} \frac{\Delta t}{\Delta y} (F_{0,\pm 1}^0 - F_{0,0}^0) - \frac{1}{2} K_2 \frac{\Delta t}{\Delta y} (G_{0,\pm 1}^0 - G_{0,0}^0) + \frac{1}{4} \Delta t (H_{0,0}^0 + H_{0,\pm 1}^0) \quad (3.7b)$$

$$W_{0,0}^{1/2} = \frac{1}{4} (W_{1,0}^0 + W_{-1,0}^0 + W_{0,1}^0 + W_{0,-1}^0) + \frac{\Delta t}{2} \left[-\frac{1}{2\Delta x} (F_{1,0}^0 - F_{-1,0}^0) + \frac{K_1}{2\Delta y} (F_{0,1}^0 - F_{0,-1}^0) - \frac{1}{2} \frac{K_2}{\Delta y} (G_{0,1}^0 - G_{0,-1}^0) + H_{0,0}^0 \right] \quad (3.7c)$$

The differencing scheme consists of the following two steps:

1. Calculate $W_{\pm 1/2,0}^{1/2}$, $W_{0,\pm 1/2}^{1/2}$, and $W_{0,0}^{1/2}$ using Eq. (3.7).

From these results, evaluate $F_{\pm 1/2,0}^{1/2}$, $G_{0,\pm 1/2}^{1/2}$, and $H_{0,0}^{1/2}$ using the algebraic relations (2.13a) and (2.13b).

2. Introduce these functions together with $W_{0,0}^0$ into Eq. (3.6) to obtain $W_{0,0}^1$.

Examination of these steps reveals that the calculation of the components W_i at a point (m,n) on a time level $\ell + 1$ required the components W_i at the points

$$(m,n), (m \pm 1,n), (m,n \pm 1), (m \pm 1,n \pm 1)$$

on the time level ℓ . That is, in order to calculate a new vector W at a point (m, n) on the time level $\ell + 1$, the values at point (m, n) and its eight nearest surrounding grid points on time level ℓ are required. Therefore, the scheme represents a 9-point forward difference scheme.

The above explanation shows that for every new time cycle the scheme cannot furnish values at the mesh points lying on the boundaries of the region where the flow is desired. As in all problems, these values must come from boundary conditions imposed on the flow.

SECTION IV BOUNDARY CONDITIONS

4.1 WALL BOUNDARIES

The values of W_1 's at the walls of the nozzle can be obtained from consideration that certain wall boundary conditions must be satisfied at steady state.

For the case of no swirl (i. e., $W_4 = 0$), Eqs. (2. 1b) and (2. 1c) can be solved for the pressure gradient normal to the nozzle walls. Rewriting Eqs. (2. 1b) and (2. 1c) for $W_4 = 0$ gives, respectively,

$$\frac{\partial}{\partial t} u + u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial r} + \frac{1}{\rho} \frac{\partial P}{\partial x} = 0 \quad (4. 1)$$

$$\frac{\partial}{\partial t} v + u \frac{\partial v}{\partial x} + v \frac{\partial v}{\partial r} + \frac{1}{\rho} \frac{\partial P}{\partial r} = 0 \quad (4. 2)$$

By making the coordinate transformation and noting that at the wall, Eq. (3. 2) is given by

$$\left. \begin{aligned} \frac{\partial}{\partial x} \Big|_r &= \frac{\partial}{\partial x} \Big|_y - \frac{s'}{s_o - s_i} \frac{\partial}{\partial y} \\ \frac{\partial}{\partial r} &= \frac{1}{s_o - s_i} \frac{\partial}{\partial y} \end{aligned} \right\} \quad (4. 3)$$

and

then Eqs. (4. 1) and (4. 2) become, respectively,

$$\frac{\partial u}{\partial t} + u \left[\frac{\partial u}{\partial x} - \frac{s'}{(s_o - s_i)} \frac{\partial u}{\partial y} \right] + \frac{v}{(s_o - s_i)} \frac{\partial u}{\partial y} + \frac{1}{\rho} \left[\frac{\partial P}{\partial x} - \frac{s'}{(s_o - s_i)} \frac{\partial P}{\partial y} \right] = 0 \quad (4. 4)$$

$$\frac{\partial v}{\partial t} - u \left[\frac{\partial v}{\partial x} - \frac{s'}{(s_o - s_i)} \frac{\partial v}{\partial y} \right] + \frac{v}{(s_o - s_i)} \frac{\partial v}{\partial y} + \frac{1}{\rho(s_o - s_i)} \frac{\partial P}{\partial y} = 0 \quad (4.5)$$

However, at the walls, $s = \frac{v}{u}$, and $v = u \tan \theta$; therefore, Eqs. (4.4) and (4.5) can be written, respectively, as

$$\frac{\partial u}{\partial t} + u \frac{\partial u}{\partial x} + \frac{1}{\rho} \left[\frac{\partial P}{\partial x} - \frac{s'}{(s_o - s_i)} \frac{\partial P}{\partial y} \right] = 0 \quad (4.6)$$

and

$$\tan \theta \frac{\partial u}{\partial t} + u \tan \theta \frac{\partial u}{\partial x} + u^2 \sec^2 \theta \frac{\partial \theta}{\partial x} + \frac{1}{\rho(s_o - s_i)} \frac{\partial P}{\partial y} = 0 \quad (4.7)$$

Eliminating $\frac{\partial}{\partial t} u$ from Eqs. (4.6) and (4.7) gives

$$\frac{\partial}{\partial y} P = \frac{1}{2} \sin 2\theta_w (s_o - s_i) \frac{\partial}{\partial x} P - \rho u^2 (s_o - s_i) \frac{\partial}{\partial x} \theta_w \quad (4.8)$$

Equation (4.8) can be written in finite difference form and used to evaluate the static pressure on both the nozzle outer wall and center-body. In order to define all of the variables on the boundaries, one more flow property must be calculated. Since the flow is inviscid and only the steady-state solution is of interest, the following isentropic relation can be used to solve for static temperature.

$$\frac{P_o}{P} = \left(\frac{T_o}{T} \right)^{\gamma/R_g} \left[\frac{e^{(bT_o + \frac{c}{2} T_o^2)}}{e^{(bT + \frac{c}{2} T^2)}} \right]^{1/R_g} \quad (4.9)$$

The density is given by

$$\rho = \frac{P}{R_g T} \quad (4.10)$$

The velocity is given by

$$V = [2a(T_o - T) + b(T_o^2 - T^2) + \frac{2}{3}c(T_o^3 - T^3)]^{1/2} \quad (4.11)$$

where

$$u = V \cos \theta \quad (4.12)$$

and

$$v = V \sin \theta \quad (4.13)$$

Hence, Eqs. (4.8) through (4.13) supply the wall boundary values.

The present analysis assumes that there is always a centerbody present. For nozzles without a centerbody, s_i can be made small with respect to the outer wall (i. e., $s_i < 0.01s_0^*$).

It should be noted that if Eq. (4.9) were applied along interior flow field streamlines, the energy equation (2.1e) could be eliminated entirely from the present solution. Elimination of the energy equation would reduce the computation time and should improve the numerical stability. However, with the energy equation, the present computer program can easily be extended to transfer of energy between streamlines.

4.2 DOWNSTREAM BOUNDARY CONDITION (CHOKED FLOW)

A coordinate line $x = \text{constant}$ and $m = M$ is chosen as the downstream boundary several grid stations downstream of the sonic line. In the case of a simple convergent conical nozzle, this may be done by initially assuming that the nozzle after the exit is extended through a short rounded throat section and a short divergent conical diffuser. Since the flow is entirely supersonic, no errors will be generated upstream from this end line. A linear extrapolation will be sufficient to obtain flow properties at the downstream boundary. The extrapolation formula used is

$$P_M = 2P_{M-1} - P_{M-2}$$

4.3 DOWNSTREAM BOUNDARY CONDITION (UNCHOKED FLOW)

For subsonic flow, the radial distribution of static pressure and flow angle at the downstream boundary are input. From these two properties, all other flow variables can be defined. In reality, defining the downstream distribution over specifies the problem and, therefore, the input distribution must be reasonably correct. It is planned in the near future to investigate using a linear extrapolation of flow properties similar to the one used for choked flow at the downstream boundary. It must be determined if an extrapolated downstream boundary will converge to a reasonable distribution with time.

4.4 UPSTREAM BOUNDARY CONDITIONS

A coordinate line $x = \text{constant}$ at $m = 1$ is chosen as the upstream boundary. The inputs are the radial distribution of stagnation pressure, stagnation temperature, mass-weighted gas composition, and normalized static pressure. The static pressure can be normalized by either the outer or inner wall static pressure.

4.5 FREE-JET EXPANSION (CHOKED)

To calculate the flow field for a convergent nozzle exhausting to a prescribed pressure field, the free-jet portion of the outer contour is adjusted with time until the prescribed and calculated pressures on the boundary agree. The free boundary contour is adjusted with the following expression:

$$\theta_{new} = \theta_{old} - \frac{1}{2} \frac{(P_{old} - P_{new})}{(\rho V^2)_{old}} (|M_{old}^2 - 1|)^{1/2} \quad (4.15)$$

The absolute value of $M^2 - 1$ is used so that Eq. (4.15) will also apply for slightly subsonic flow (i. e., $M > 0.9$). If the nozzle exit radius and the new axial distribution of flow angle are known, a new free boundary contour is calculated from

$$s_o = \sum_{i=s_{exit}}^i (s_o)_i + \Delta x \tan \frac{(\theta_o)_i - (\theta_o)_{i+1}}{2} \quad (4.16)$$

By using this subroutine, the computer program is restarted until the specified and calculated pressures agree within some preselected tolerance.

4.6 INITIAL FLOW PARAMETERS

As previously stated, to calculate the components W_i at time level $\ell + 1$ requires the components W_i at time level ℓ . The steady-state solution is independent of the path; however, the prescribed initial flow field does have some influence on the time required to reach steady state. The present solution is initiated from a pseudo one-dimensional flow field. To establish the initial flow field, it is assumed that all flow properties are independent of axial distance (x), or

$$P_o(x,r) = P_o \Big|_{m=1} \left(\frac{r-s_i}{s_o-s_i} \right) \quad (4.17)$$

$$T_o(x,r) = T_o \Big|_{m=1} \left(\frac{r-s_i}{s_o-s_i} \right) \quad (4.18)$$

$$c_p(x,r) = c_p \Big|_{m=1} \left(\frac{r-s_i}{s_o-s_i} \right) \quad (4.19)$$

$$\frac{P}{P_w}(x,r) = \frac{P}{P_w} \Big|_{m=1} \left(\frac{r-s_i}{s_o-s_i} \right) \quad (4.20)$$

The local flow angle is assumed to vary linearly with radius, or

$$\theta_{local} = \theta_i + (\theta_o - \theta_i) \frac{r-s_i}{s_o-s_i} \quad (4.21)$$

For choked flow, it is necessary to maximize the weight flow to ensure that the flow downstream of the throat is supersonic, or

$$W_{F \ 1-D}^* = 2\pi P \int_{s_i}^{s_o} \frac{u}{R_g T} r dr \quad (4.22)$$

where T can be evaluated from Eq. (4.9) and u from Eq. (4.12). For the case of radial nonuniformities of stagnation properties, values of P are assumed until $W_{F \ 1-D}^*$ is a maximum. The value of P at each axial station is found by iterating on P to satisfy the throat mass flow. Since the static pressure is initially assumed constant, this start procedure will not work for nozzles having large convergence angles (i. e., ≥ 50 deg) since for this case one-dimensional flow is a poor assumption.

4.7 TIME STEP

The finite differencing scheme used in this report is conditionally stable. Stability can usually be achieved if the spatial and time intervals satisfy the following condition:

$$\frac{\Delta t}{\Delta} \approx \frac{(M_{max} + 1)^{-1}}{3u_{max}^*} \quad (4.23)$$

where Δ is the smaller of Δx or Δy . Large numerical instabilities are readily apparent when negative or large oscillations of pressure are observed in the output for the higher Mach number regions of the nozzle. When this condition is encountered, a smaller time step should

be used and the calculations restarted from time zero. Oscillations in the numerical results can be limited by use of finer mesh size and possibly sometimes by a reduced time step. In general, however, it has been found to be desirable to maintain the largest time step consistent with numerical stability. Numerical oscillations less than one percent in pressure ratio ($P_{\text{local}}/P_{\text{stagnation}}$) are considered acceptable.

4.8 SPECIAL PROGRAM RESTRAINTS

In calculating various flow fields with the present set of equations, it was found necessary to add some programming restraints. These numerical restrictions could possibly be avoided if adequate computer storage were available so that the variation of flow properties both with time and across grid points could be kept small. These restraints are, (1) smoothing the nozzle density profiles, and (2) maintaining the radial distribution of the flow angle monotonic in the subsonic portion of the nozzle.

The density smoothing process consists of applying a weighting factor (a weighting factor of four is generally used) to the local value of density and then linearly smoothing with the surrounding values of density. All other variables are then recalculated to correspond to the smoothed density distribution. This smoothing process has an effect similar to adding a dampening factor to the numerical procedure to increase the apparent viscosity term. Such factors do not disappear at steady state; however, an analytical investigation of varying the value of the weighting factor and a comparison with experimental data revealed that the smoothing process has no significant influence on the accuracy of the results. Some influence may be felt at a point where the flow is being rapidly expanded.

The flow angle restraint subroutine is optional and is generally only required when there are insufficient grid points to adequately describe the geometry and inlet flow variations. This subroutine ensures that the flow angle is radially monotonic in the inlet region of the nozzle when the flow angle is known to be monotonic such as on a conical convergent nozzle (see sample calculations).

There is also a restriction on the minimum flow Mach number (~ 0.1 to 0.2), and any calculated value less than this minimum value

is reset to the minimum value. Therefore, flow fields where expected Mach numbers are less than (0.1 to 0.2) should not be attempted.

SECTION V GENERAL PROGRAM INFORMATION

5.1 PROGRAM INPUTS

In order to make a nozzle calculation, the information required is the nozzle and centerbody radial coordinates and slope, radial distribution of total pressure, total temperature, and gas composition, and the normalized radial distribution of static pressure all at the nozzle inlet plane. For the case of an unchoked nozzle, the radial distribution of normalized static pressure and absolute values for the flow angle at the downstream boundary must also be specified. For convergent nozzles the nozzle ambient pressure or ambient pressure distribution must be specified. Appendix II gives the detailed information required to make up the input card deck.

5.2 PROGRAM OUTPUTS

In general, the program prints all the flow parameters at each grid point; that is density, axial and radial velocity, static pressure and temperature, flow angle, and Mach number. In addition the mass flow and axial thrust at each axial station are tabulated. Appendix III gives the specific printouts.

SECTION VI SAMPLE CALCULATIONS

To illustrate capabilities of the computer program, sample calculations for three basic turbine engine exhaust nozzle configurations are presented: (1) choked convergent-divergent, (2) choked unshrouded plug, and (3) unchoked convergent-divergent.

6.1 CHOKED CONVERGENT-DIVERGENT NOZZLE

A schematic of the nozzle geometry is presented in Fig. 1 (Appendix I). The flow stagnation conditions at the nozzle inlet are presented

in Fig. 2. The card format sheets for the program inputs are presented in Appendix IV. First, it should be mentioned that the nozzle was started at an inlet radius of 2.714 in. rather than 3.605 in. It has been found that for choked nozzles the flow conditions at the inlet region for Mach numbers less than ~ 0.3 have no apparent effect on flow conditions at the throat plane. By limiting the region of interest, a finer grid network can be obtained in the region of the nozzle throat. Second, it should be noted that the nozzle wall forms an apex at the throat plane (the wall slope instantaneously changes from -0.44 to 0.0267). Since only a single value of wall slope can be specified, the average slope (-0.20664 for the present case) is used. A comparison of experimental (Ref. 7) and theoretical wall pressures is presented in Fig. 3. The complete printout is presented in Appendix V. In general, the calculated wall static pressure distribution agrees quite well with experiment. The same is true of the theoretical and experimental thrust and discharge coefficients. In calculating the nozzle performance coefficients, a first order boundary layer correction was applied to the inviscid flow field results. The computer program used for the boundary layer correction is described in Ref. 8.

As the results demonstrate, the present analysis can be used for supersonic flow. This is only true as long as there are no strong shocks present. It is much more expedient, however, to use the rotational method of characteristics for the supersonic flow regime.

6.2 PLUG NOZZLE (UNSHROUDED)

A schematic of the nozzle geometry is presented in Fig. 4. The flow stagnation conditions at the nozzle inlet are presented in Fig. 5. The card format sheets for the program inputs are presented in Appendix IV. Here again, because of the low inlet Mach number, the flow field was started at an outer radius of $3.31R$ rather than $3.605R$. The first guess on the free-stream portion of the outer flow field boundary is a divergent conical section. Three program restarts were used to obtain the specified pressure (960 ± 40 psfa) along the free streamline. A comparison of experimental (Ref. 7) and theoretical² wall pressures is presented in Fig. 6. For this calculation, the supersonic portion of

²This calculation was made using an earlier subroutine which extrapolated internal flow conditions to obtain wall conditions. The results obtained using this subroutine should closely agree with the results obtained from the present program.

the flow was obtained from the rotational method of characteristics. Except for the aft end of the plug, the calculated and experimental pressures agree quite well. This discrepancy in plug pressure is attributed to flow separation caused by the shock which originates from the flow expansion process at the cowl exit plane. The present calculation assumes that the flow remains attached to the plug. In calculating the nozzle performance coefficients, a first-order boundary layer correction (Ref. 8) was applied to the inviscid flow field results.

When using the free-jet subroutine, some caution is required. First, Eqs. (4.15) and (4.17) assume close agreement between the old and the new values for the boundary pressure. For example, if the calculated pressure ratio at a point is 5.0 and the target pressure is 2.5, it is best to reduce the boundary pressure in several increments (i. e., 5-4, 4-3, 4-3, 3-2.5) rather than in one step (i. e., 5-2.5). Second, for nozzle geometries having large flow expansions the numerical calculations cannot adjust in one grid point. For example, a 40-deg sharp lip convergent nozzle expanding to a pressure ratio greater than 4 can require one and possibly two grid points to make the transition from the last wall pressure to the value for the free-stream pressure.

Nozzle flow separation is another condition frequently encountered. Evaluation of nozzle separation pressure is a function of the particular nozzle geometry and boundary layer characteristics. In lieu of better information, there is some experimental evidence for convergent conical nozzles having small throat radius of curvatures that flow separation will occur when the wall pressure is approximately 0.85 of the free-stream pressure. Therefore, in making a convergent nozzle calculation, it is assumed that the nozzle flow remains attached to the wall if the wall pressure is ≥ 0.85 of the external pressure. If the wall pressure is < 0.85 of the external pressure, it is assumed that the flow will separate from the wall and readjust through a weak compression back to the nozzle external pressure. The free-jet subroutine is used to solve the separated portion of the nozzle flow.

6.3 UNCHOKED CONVERGENT-DIVERGENT NOZZLE

The nozzle configuration for this calculation consisted of a circular arc nozzle inlet and throat which merges into a 6-deg half-angle divergent conical section. The flow stagnation conditions at the nozzle inlet are presented in Fig. 7. The card format sheets for the program inputs are presented in Appendix IV. At the nozzle exit plane, a linear

radial variation of flow angle was used and a radial variation of static pressure profile was assumed. The radial distribution of composition was estimated by assuming complete combustion for the local values of fuel and air ratio from Fig. 7. In making this calculation, the flow angle restraint was used for the entire flow field. The first calculation made without the flow angle restraint exhibited some flow divergence near the nozzle centerline. The final plot from the program plot routine is shown in Fig. 8. This plot presents the nozzle geometry and lines of constant static pressure. The blip in the static pressure profile near $r = 2.5$ is attributed to the dip in the total temperature radial profile and the rapid decrease in fuel-air ratio at this radial position.

SECTION VII SUMMARY

An analytical method and computer program has been presented which is capable of predicting the flow field and performance coefficients for axisymmetric exhaust nozzles representative of turbine engines. To make a calculation for choked nozzle flow, the description of the nozzle geometry and the radial distribution of flow stagnation conditions is required. To make a calculation for choked nozzle flow, a description of the nozzle geometry, radial distribution of flow stagnation conditions, and downstream radial distribution of flow angle and normalized static pressure is required. The magnitude of the radial variation in stagnation conditions which can be handled by this computer program will be a function of the available mesh size and nozzle configuration. This factor can be determined with operating experience for the individual computer.

The computer program in its present state is capable of calculating the inviscid flow field for most nozzles of practical interest. With some modification, additional nozzle configurations could be considered. For instance, the free-jet boundary subroutine can be used on the nozzle centerbody surface for truncated plug nozzles. Also, the case of two intersecting jets could be solved simultaneously by alternately matching the pressure along the jet interface. This case could be representative of ejector nozzles which have a step profile in stagnation conditions providing, of course, viscous effects do not predominate the flow field. Any gas composition can be calculated as long as the specific heat-temperature relation is expressed as a second-order polynomial.

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APPENDIXES

- I. ILLUSTRATIONS**
- II. PROGRAM INPUT CARDS**
- III. PROGRAM PRINTOUT**
- IV. CARD FORMAT SHEETS FOR
SAMPLE CASES**
- V. SAMPLE PRINTOUT FOR C-D
NOZZLE**
- VI. COMPUTER LISTING**

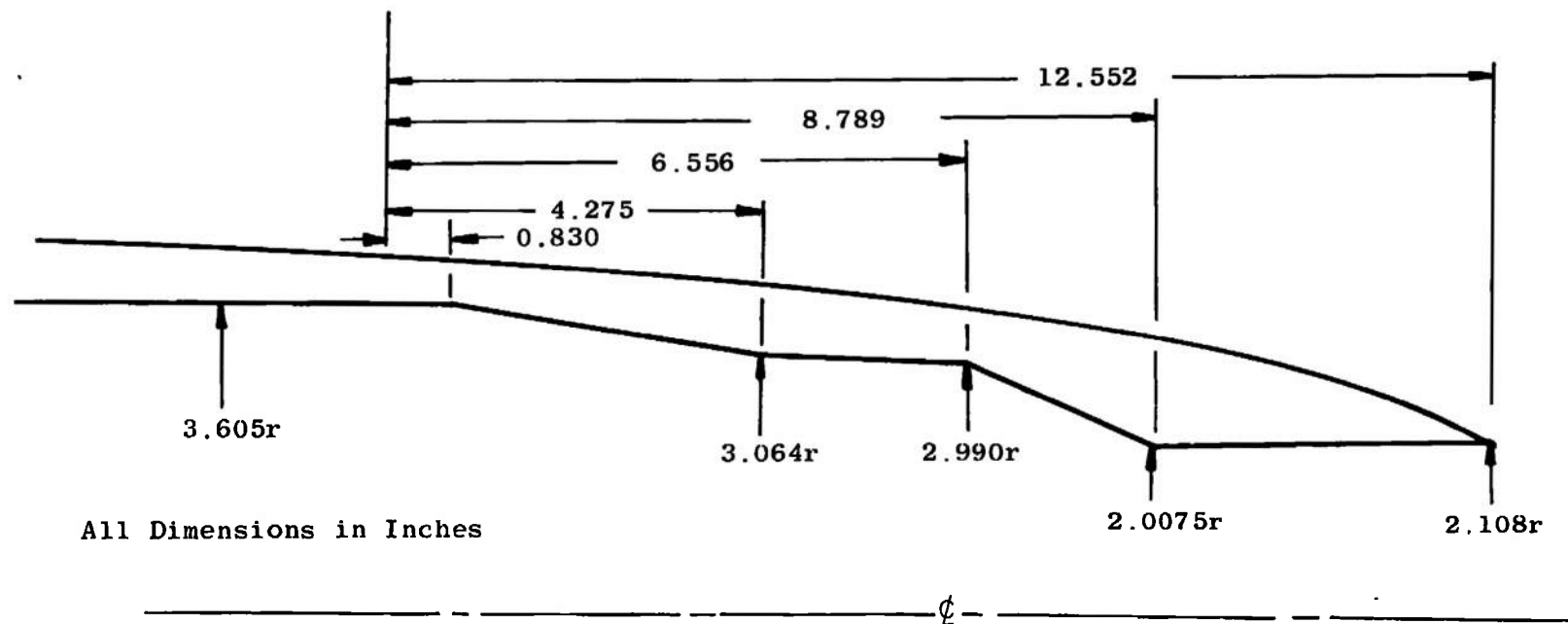


Fig. 1 Convergent-Divergent (C-D) Nozzle Configuration

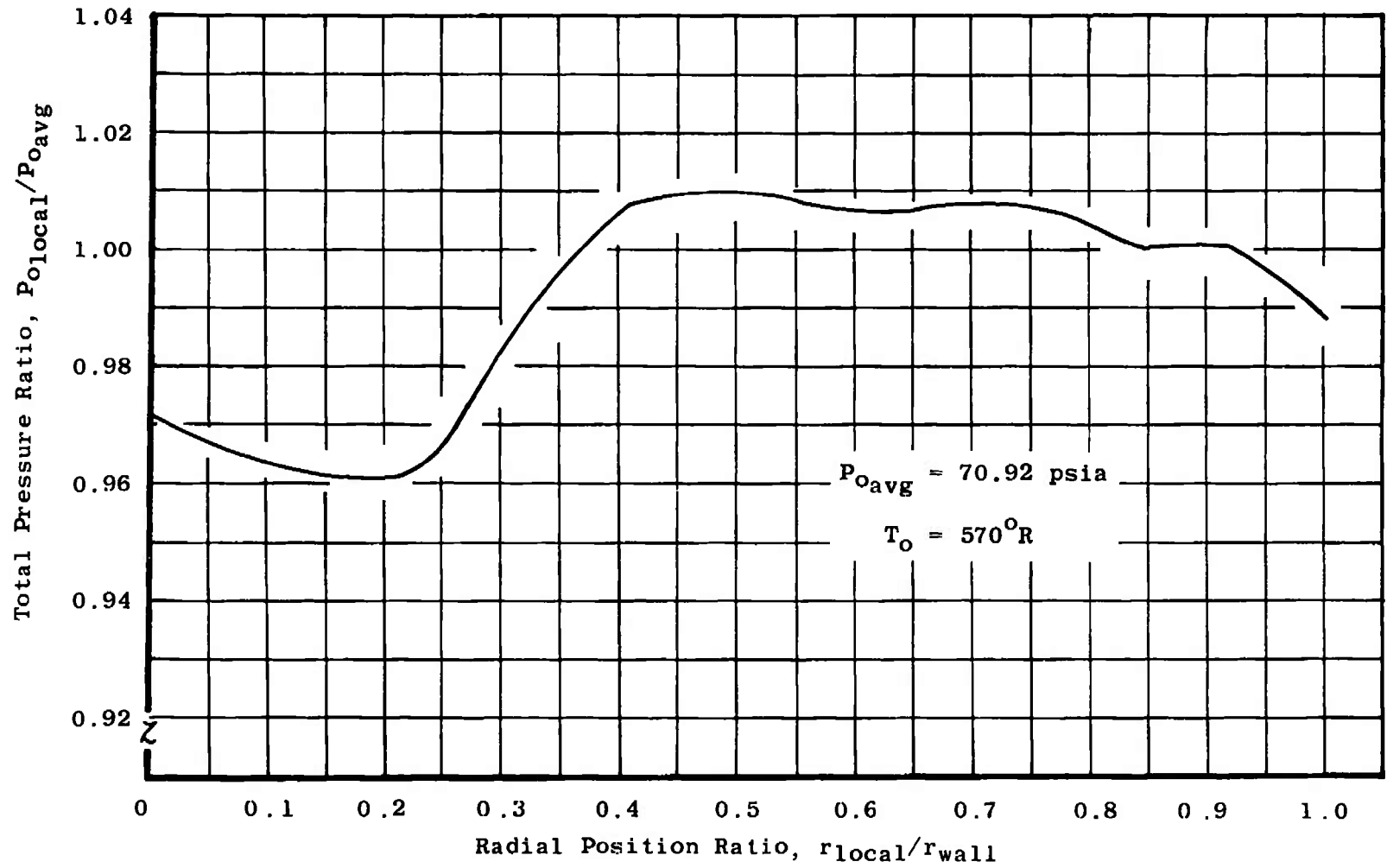


Fig. 2 C-D Nozzle Inlet Radial Total Pressure Distribution

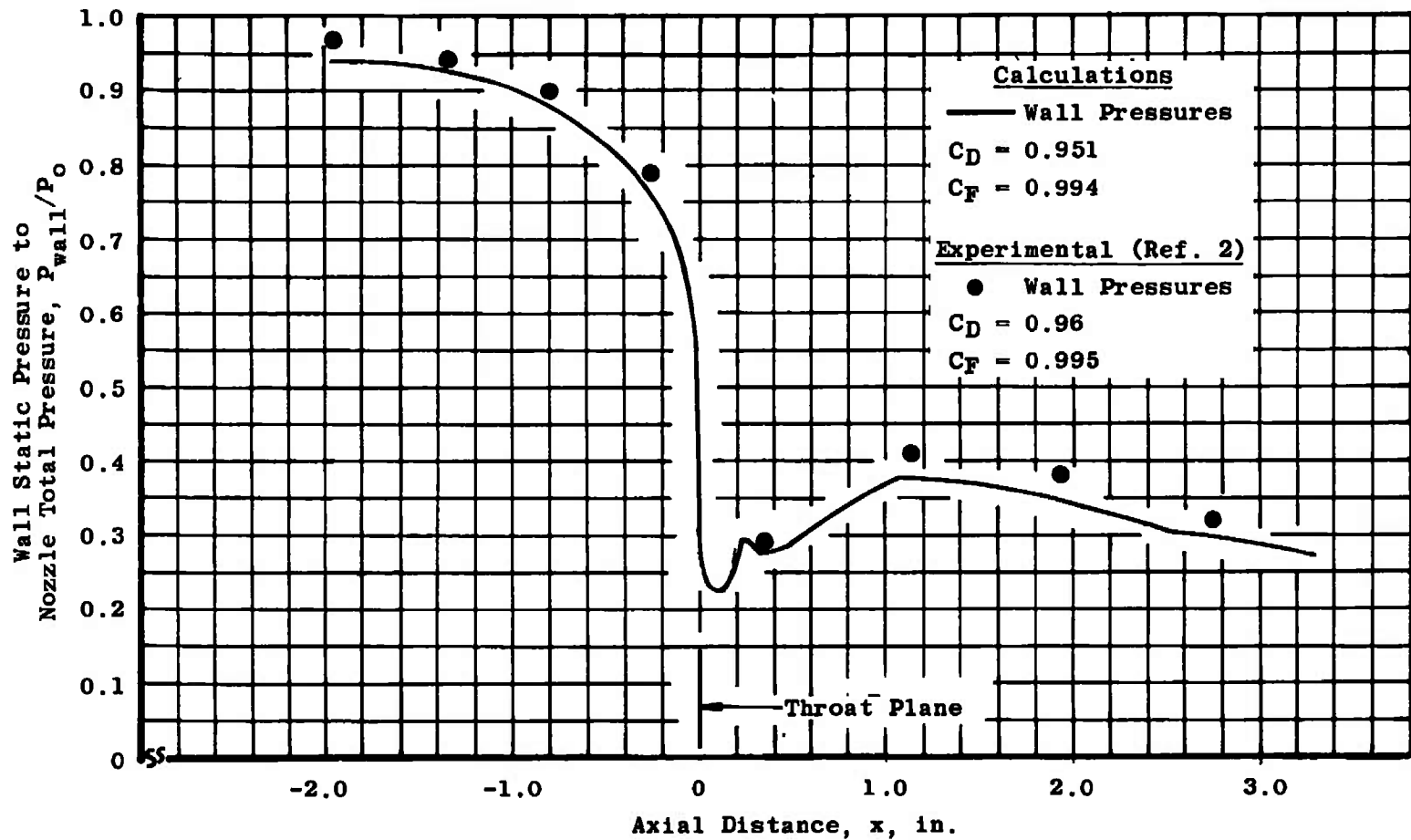


Fig. 3 C-D Nozzle Wall Pressure Profile

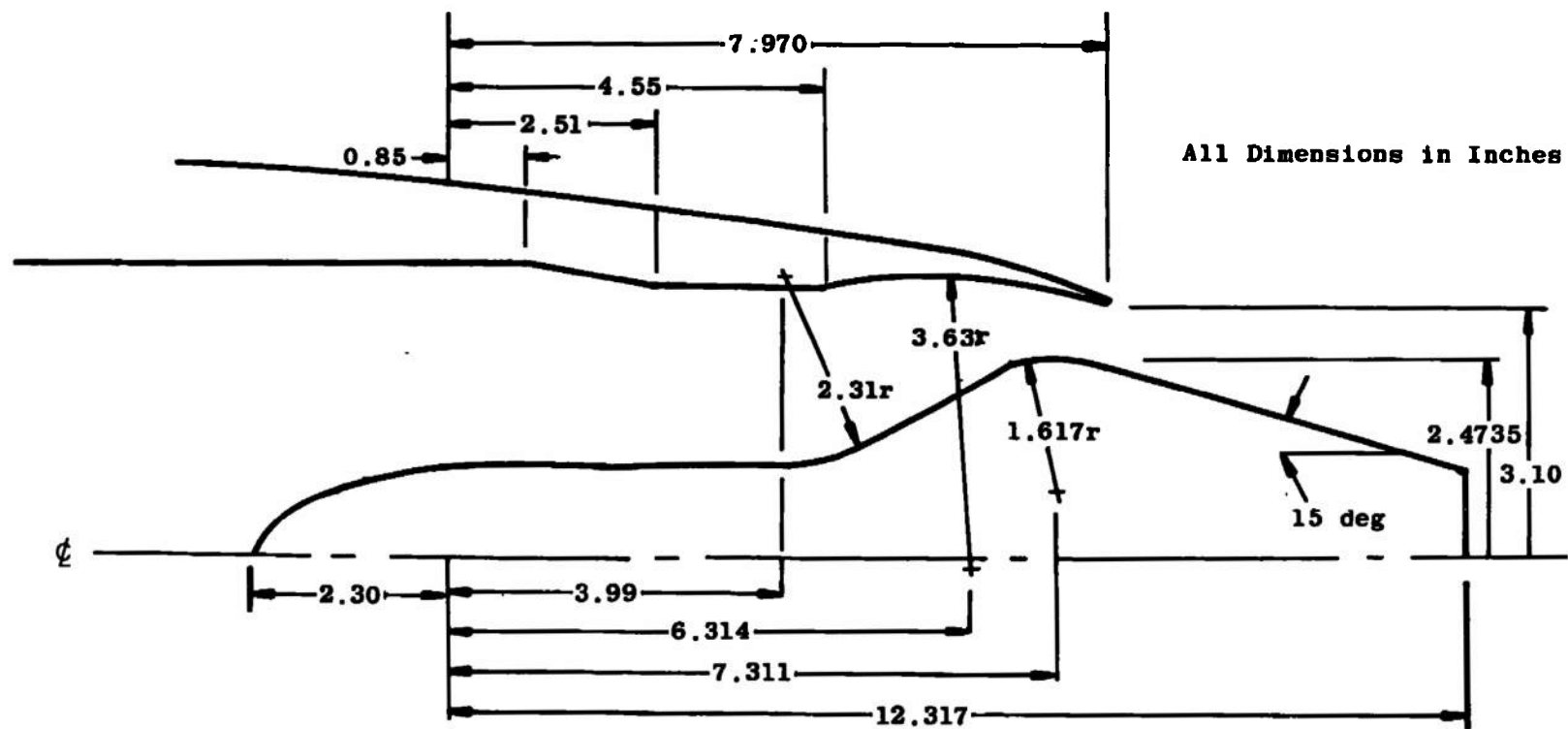


Fig. 4 Unshrouded Plug Nozzle Configuration

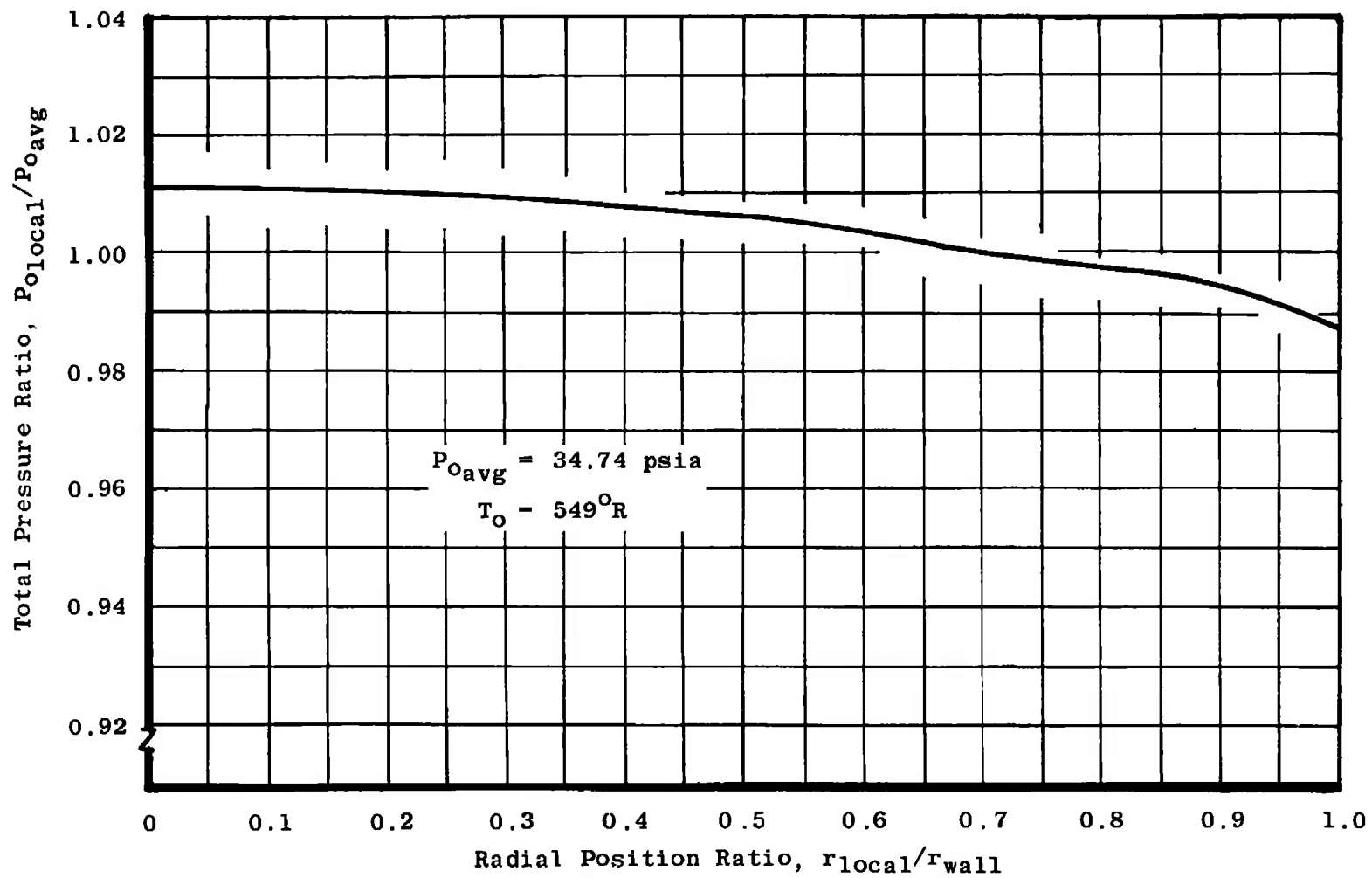


Fig. 5 Unshrouded Nozzle Inlet Radial Total Pressure Distribution

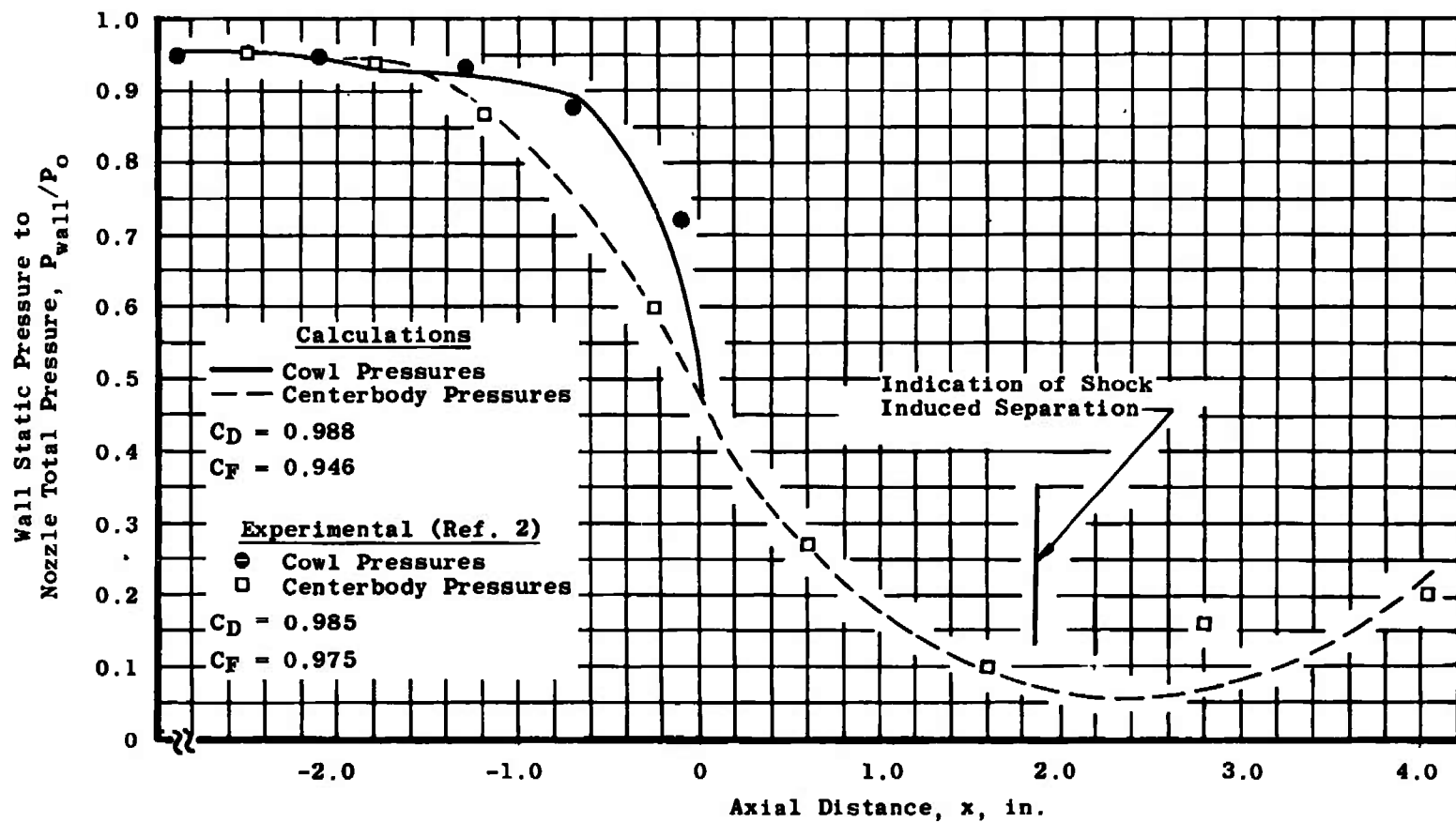


Fig. 6 Unshrouded Nozzle Wall Pressure Profile

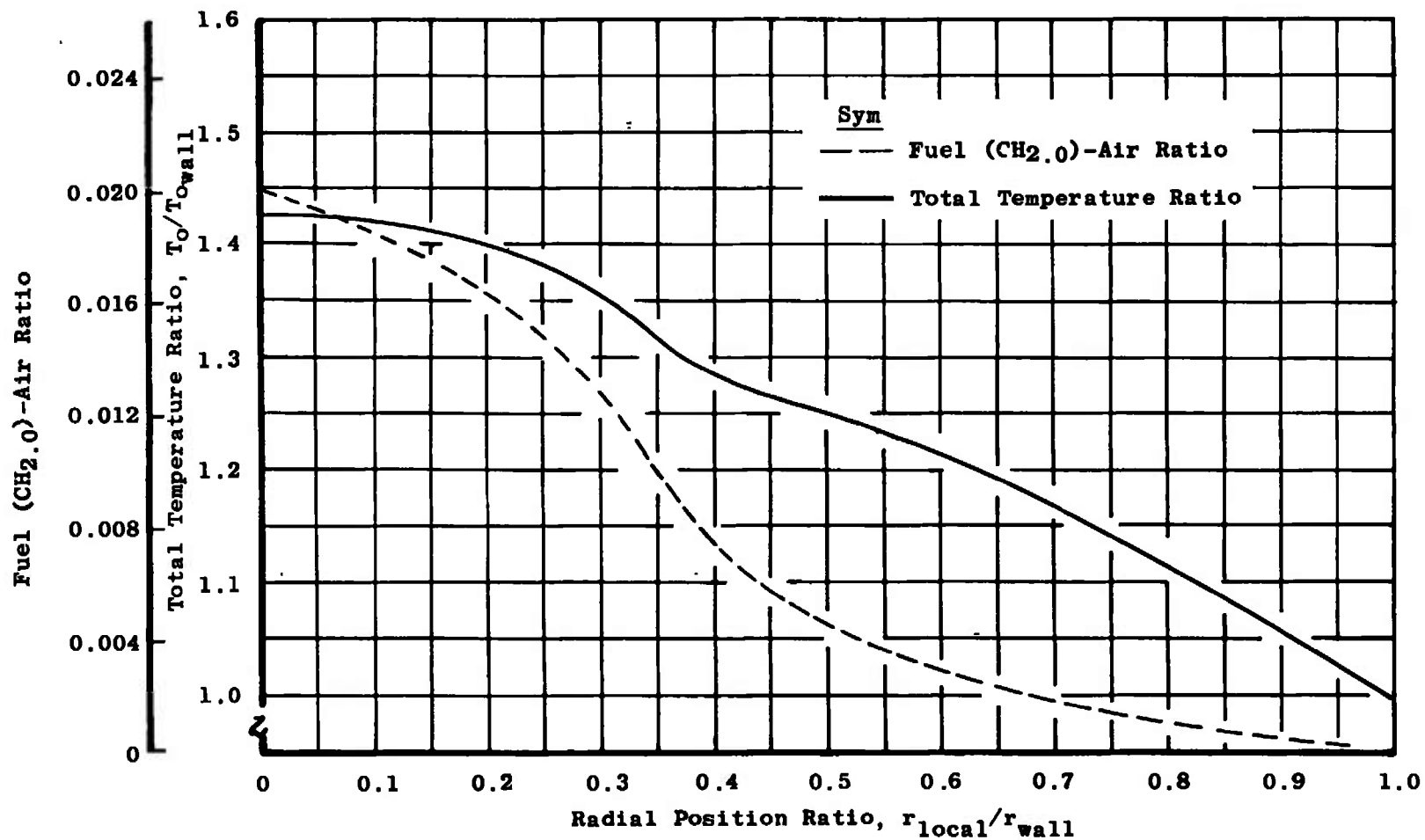


Fig. 7 C-D Nozzle Inlet Radial Profile Distribution of Inlet Temperature and Fuel-Air Ratio

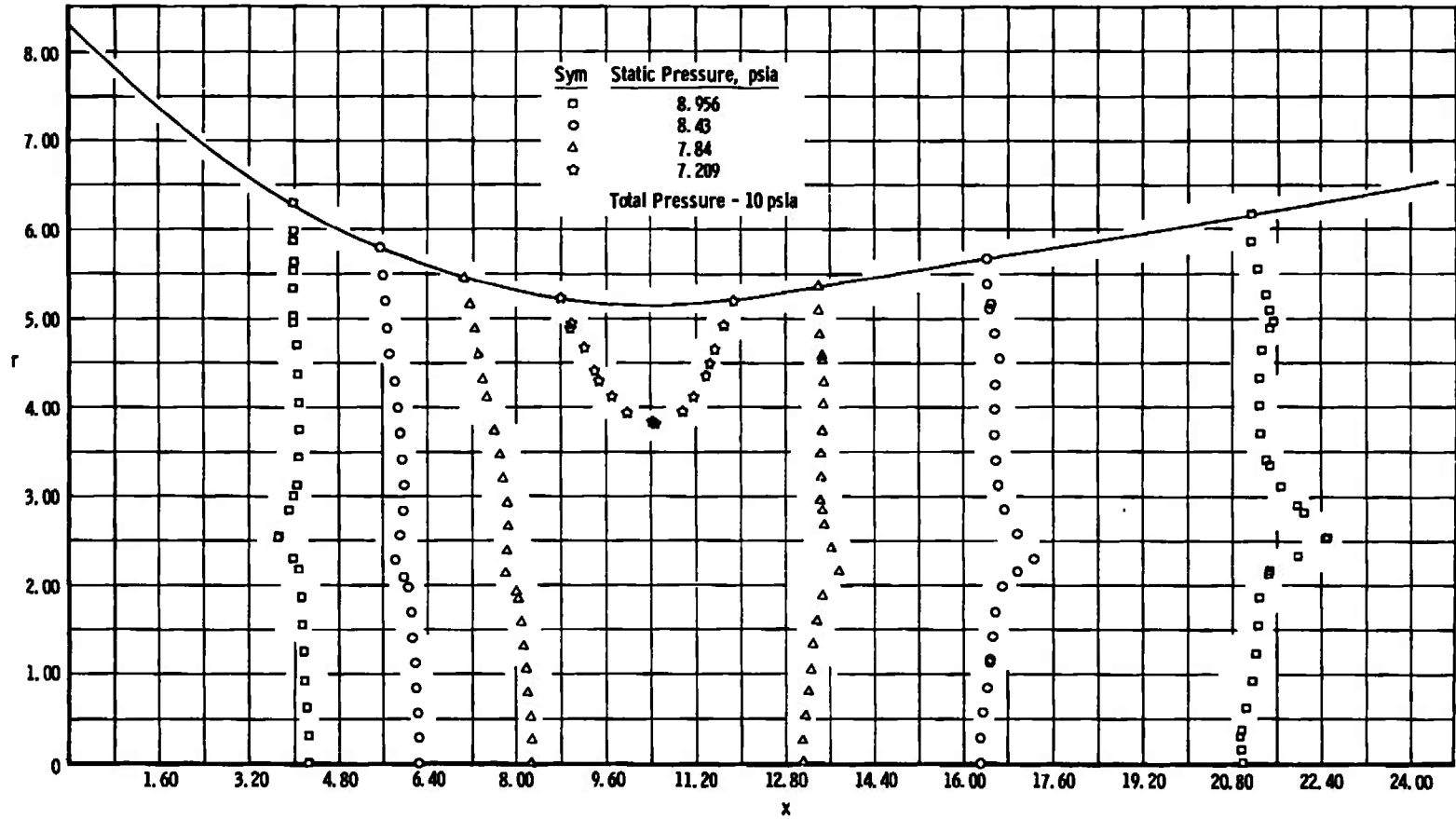


Fig. 8 Isobars for Subsonic Flow in a C-D Nozzle

APPENDIX II PROGRAM INPUT CARDS

Card 1 - Identification Card

Cols. 1-4, 1- **
Cols. 5-80, Title identification

Card 2

This card specifies the number of times printed and the number of cycles per output. For instance, 3 and 50 means that the flow field will print out every 50 iterations for a total of 150 iterations.

Cols. 1-5, Number of times printed (I-5 format)
Cols. 6-10, Number of cycles per output (I-5 format)
Cols. 11-15, any positive number in this space indicates a re-start of the flow field, for instance, in going from 150 to 300 iterations. If these columns are left blank, it indicates that a new case is being started. Any negative number in this space indicates a new free-jet boundary is to be evaluated before the calculations are continued.

Additional Cards for Free-Jet Subroutines

These cards are used only if there is a negative number in Columns 11-15, Card 2.

Additional Card 1

Cols. 1-5, First X station for free pressure reset (I-5 format)
Cols. 5-10, Last X station for free pressure reset (I-5 format)
Cols. 11-20, Downstream pressure control (psfa) (E-10 format)

The downstream pressure control is used only for the choked nozzle program. The purpose of this control is to prevent the downstream boundary from becoming subsonic. The magnitude of the control

pressure should be approximately equal to the static pressure value for sonic flow on the axis.

Additional Card 2

These cards contain the desired pressure ratio ($P_{\text{stagnation}} / P_{\text{static}}$) (E-10 format) at each X station. The pressure ratios must be input in consecutive order from upstream to downstream and the number of input pressure ratios must correspond to the number of X stations implied on additional card 1. If the pressure is constant with X, then the pressure ratio should be input as a negative number in Cols. 1-10 (E-10 format).

This is the end of the additional cards.

Card 3 and 4

These two cards specify the lines of constant static pressure to be used in a plot subroutine. Pressure should be input in psia. A total of 16 pressures can be input (E-10 format).

Card 5

This card is for the density smoothing or weighting factors. A

1-4-1 weighting distribution has generally been used. These factors

can be varied to determine if they are influencing the results. As long as the gradients in the flow field are fairly locally uniform (about a point), no significant influence has been found.

Cols. 1-5, upper factor, (i. e., 1) (I-5 format)

Cols. 6-10, lower factor, (i. e., 1) (I-5 format)

Cols. 11-15, left factor, (i. e., 1) (I-5 format)

Cols. 16-20, mid factor, (i. e., 4) (I-5 format)

Cols. 21-25, right factor, (i. e., 1) (I-5 format)

Card 6

Cols. 1-5, the number of y stations (I-5 format)

There are a minimum of 3 and a maximum of 21 stations available. More stations may be added by recompiling. Δy and Δx should be approximately equal at the throat.

Cols. 6-10, the number of x stations (I-5 format)

There are a maximum of 57 stations available. More stations may be added by recompiling.

Card 7

Cols. 1-12, Δx , ft (E-12 format)

Cols. 13-24, Δt sec (E-12 format)

Cards 8 $\rightarrow$ N

These cards contain the nozzle geometry, and for a convergent nozzle, the first assumption on the coordinates for the free streamline. The number of geometry cards must be equal to the number of x stations in Cols. 6-10, Card 6, (4E15.0 format)

Cols. 1-15, value of y^3 (ft) for the outer nozzle wall

Cols. 16-30, value of $\tan \theta$ for each y value on the outer nozzle wall

Cols. 31-45, value of y (ft) for the centerbody (for no centerbody let s_i centerbody be a very small number, for instance $0.001 s_0^*$).

Cols. 46-60, value of $\tan \theta$ which corresponds to centerbody y value (for no centerbody, $\tan \theta = 0$).

The values of y and $\tan \theta$ are input in sequence starting at the nozzle inlet.

³Since single precision is used, y for the outer wall should not be less than 0.1. The nondimensional flow field is not affected by the units on y; only the relative values of x and y are important.

Card N + 1 Insert blank cardCard N + 2

This card is for the flow angle restraint. Leave this card blank and the subroutine is bypassed. For a conical nozzle having a sharp lip and without a centerbody the flow restraint may be used up to the nozzle exit plane. For a contoured nozzle or centerbody the flow restraint should be used up to the first geometry inflection point (refer to sample cases).

Cols. 1-5, axial (x) station for flow angle control (I-5 format)

Card N + 3

This card specifies whether the real or perfect gas subroutine is used. For real gas, cp is represented with a quadratic in temperature. The constants used for the cp-T relation have a temperature range from 400 to 2000°R. For temperatures greater than 2000°R, new constants are required. The perfect gas calculations drop the temperature coefficients on the quadratic. Perfect air is computed to have a specific heat ratio of 1.4.

Cols. 1-4, for perfect gas calculations, write PERF in Cols. 1-4.
For real gas calculations, write REAL in Cols. 1-4.

Card N + 4

This card indicates the number of radial stations for which flow properties will be input at the nozzle inlet plane. There is a minimum of 3 points that can be input. The flow conditions on the wall and centerbody or centerline must be two of the inputs.

Cols. 1-5, number of inputs (I-5 format)

Cards N + 5 → M

These cards specify the stagnation properties and gas properties radially across the nozzle inlet plane. The sequence of inputs is from the centerline to the nozzle wall.

Cols. 1-12, radial position

$$\left(\frac{r^2 - s_i^2}{s_o^2 - s_i^2} \right) \quad (\text{E-12, Format})$$

Cols. 13-24, stagnation pressure (psia) which corresponds to radial position. (E-12, format)

Cols. 25-36, stagnation temperature (°Rankine) which corresponds to radial position. (E-12 format)

Cols. 37-40, for information or identification. These columns may be left blank.

Cols. 41-45, Mass fraction of air (E-5 format)

Cols. 46-50, Mass fraction of carbon dioxide (E-5 format)

Cols. 51-55, Mass fraction of carbon monoxide (E-5 format)

Cols. 56-60, Mass fraction of water vapor (E-5 format)

Cols. 61-65, Mass fraction of oxygen (E-5 format)

Cols. 66-70, Mass fraction of nitrogen (E-5 format)

Cols. 71-75, Mass fraction of argon (E-5 format)

Cols. 76-80, Mass fraction of hydrogen (E-5 format)

If the total mass fraction does not add up to one, the individual mass fractions will be normalized by the total mass fraction.

Card M + 1

This card indicates the number of radial stations which will be used to specify the nozzle inlet static pressure profile. If a uniform profile is assumed, leave this card blank.

Cols. 1-5, number of radial stations (I-5 format)

Card M + 2 $\rightarrow$ L (for Choked Flow)

These cards specify the radial position and static pressure profile. The sequence of inputs is from the centerbody to the nozzle wall.

Cols. 1-12, radial position, $\left(\frac{r - s_i}{s_o - s_i}\right)$ (E-12 format)

Cols. 13-24, ratio of local static pressure to either the centerbody or wall static pressure (E-12 format).

Card M + 2 $\rightarrow$ L (for Unchoked Flow)

Providing card M + 1 is not blank, these cards specify the radial position and static pressure profile. The sequence of inputs is from the centerbody to the nozzle wall.

Cols. 1-12, radial position, $\left(\frac{r - s_i}{s_o - s_i}\right)$ (E-12 format)

Cols. 13-24, ratio of local static pressure to either the centerbody or wall static pressure (E-12 format).

If card M + 1 is blank, then card M + 2 indicates the number of radial stations which will be used to specify the exit plane profile. The following cards (M + 3 $\rightarrow$...) should contain the same information as specified above, that is, the exit plane radial position, static pressure profile, and in addition the $\tan \theta$ profile (Cols. 25-36). If a uniform exit profile is assumed, leave this card blank.

Card L + 1 (for Unchoked Flow)

This card specifies the mean value of the static pressure at either the inlet or exit plane. For the inlet plane, use a positive value for static pressure. For the exit plane, use a negative value of static pressure.

Cols. 1-12, static pressure (psia) (E-12 format)

APPENDIX III PROGRAM PRINTOUT

1. Nozzle Geometry - The nozzle coordinates, area, and slope are printed. A check should be made to see that the values of SO' and SI' agree closely with $\frac{DSO}{DX}$ and $\frac{DSI}{DX}$, respectively.
2. Gas Properties - The specific heat versus temperature for various components, molecular weight, and specific heat ratio versus radial position are printed.
3. Stagnation Conditions - The ratio of specific heats, enthalpy, speed of sound versus radial position are printed. Also, the minimum velocity is printed. The minimum velocity is the smallest value permitted to be used in the calculations. A velocity, whose value is calculated to be less than the minimum, is reset to the minimum value.
4. Flow Field - The flow field is printed at each axial station for each time iteration specified to be printed. The first column of vertical numbers corresponds to the radial station, starting with the centerline or centerbody. The second vertical column (percent streamline) gives the percent of mass flow contained below this radial position. The third number (W_1) is the product of ρr . W_2 is the product of $\rho u r$. W_3 is the product of $\rho v r$. W_4 is the product of the internal energy (e) and radius (r). The other printouts are self explanatory.
5. Nozzle Coefficients - The first vertical column (W_F) is the calculated weight flow (lbm/sec) at each axial station. The second vertical column (W_f/W_f^*) is the ratio of the mass flow at each axial station to the mass flow at the throat axial station. If the ratio of W_f/W_f^* deviates significantly from unity at any one given axial station, this is an indication that more grid points are required at this station. The next column VD is the value of the integral $2\pi \int_{s_i}^{s_o} \rho u^2 r dr$ at each axial station, and PD is the value of the integral $2\pi \int_{s_i}^{s_o} P r dr$ at each axial station. The last vertical column is the nozzle thrust (lbf) at each axial station.

6. Wall and Axis Flow Conditions - The flow conditions on the wall and axis are separately tabulated after the last flow field has been printed.
7. Plot Coordinates - The x, y coordinates for the isobars specified by Cards 3 and 4 are tabulated.
8. Convergence Criteria - This portion of the printout is used to determine when steady-state conditions are achieved. The first horizontal line gives the axial station for which the wall and axial pressure ratios are tabulated. The last vertical column is the time iteration. The computations should be continued until the variation in pressure with time is considered to be negligible; furthermore, the pressure field should go through at least one or two minimums. Numerical oscillations less than one percent in pressure ratio are considered acceptable. If the flow will not converge, the time step should be reduced and/or increase the number of grid points.

**APPENDIX IV
PROGRAM INPUTS FOR SAMPLE CASES**

CARD FORMAT

JOB TITLE Sample Case
PROJECT NO. C-D Nozzle

SHEET 1 OF 4
PROGRAMMER _____

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80

1. ** C-D NOZZLE, LOCKHEED CONFIG.

65.	60.	55.	50.	45.	40.	35.	30.
25.	20.						

1	1	1	4	1
21	50			

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80

1. 100375 .00003
2. 71416 -44 .0001 1

2. 67 2
2. 6258 3

2. 58117 4
2. 5375 5

2. 4933 6
2. 4192 7

2. 4050 8
2. 3608 9

2. 3167 10
2. 2725 11

DE 2

CARD FORMAT

JOB TITLE Sample Case
PROJECT NO. C-D Nozzle

SHEET 2 OF 3 4
PROGRAMMER _____

[illegible]

CARD FORMAT

JOB TITLE Sample Case
PROJECT NO. C-D Nozzle

SHEET 3 OF 4
PROGRAMMER _____

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80															
2.04235															.0267074															.0001															30									
2.04503																																													31									
2.04771																																													32									
2.05039																																													33									
2.05307																																													34									
2.05575																																													35									
2.05843																																													36									
2.06112																																													37									
2.06380																																													38									
2.06648																																													39									
2.06916																																													40									
2.07184																																													41									
2.07452																																													42									
2.0772																																													43									
2.07989																																													44									
2.08257																																													45									
2.08525																																													46									
2.08793																																													47									

DR ?

45

CARD FORMAT

JOB TITLE Sample Case
PROJECT NO. C-D NOTE

SHEET _____ 4 _____ OF _____ 4 _____
PROGRAMMER _____

[illegible][illegible][illegible]

SHEET 1 OF 4
PROGRAMMER

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	
1. ** UNSHROUDED PLUG NOZZLE																																								
1. 250																																								

[illegible][illegible][illegible][illegible][illegible][illegible]

3.31	.0565	1.1318	.174
3.3213	.1695	1.1666	.509

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
3.3439																.2260																1.2336																.6541																1.0															
3.3665																.1390																1.2974																.541																1.1															

UC 7

CARD FORMAT

 JOB TITLE _____
 PROJECT NO. PLUG NO. 216

 SHEET 2 OF 4
 PROGRAMMER _____

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	
3.	38	90								.133										1.	34	18																		12
3.	39	31								.0935										1.	38	75																		13
3.	40	24																		1.	43	92																	14	
3.	41	18																		1.	49	66																	15	
3.	42	11																		1.	55	49																	16	
3.	43	04																		1.	61	33																	17	
3.	43	98																		1.	67	17																	18	
3.	44	91																		1.	73	01																	19	
3.	45	85								.0935										1.	78	84																	20	
3.	46	78								.093										1.	84	68																	21	
3.	47	71								.093										1.	90	52																	22	
3.	48	64								.083										1.	96	36																	23	
3.	49	37								.059										2.	02	19																	24	
3.	49	82								.0315										2.	08	03																	25	
3.	50	00								.004										2.	13	87																	26	
3.	49	90								.024										2.	19	71																	27	
3.	49	52								.0515										2.	25	54																	28	
3.	48	87								.079										2.	30	88																	29	

CARD FORMAT

JOB TITLE _____
PROJECT NO. PLUG NOZZLE

SHEET 3 OF 4
PROGRAMMER _____

[illegible]

DE 2

CARD FORMAT

JOB TITLE _____
PROJECT NO. PLNG Nozzle

SHEET 4 OF 4
PROGRAMMER _____

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79										
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80										
3.1491										- .05										2.2119										- .2680										48									
3.1432										- .0538										2.1852										1										49									
3.1383										- .0393										2.1584										7										56									
0																																																	

[illegible][illegible]

CARD FORMAT

JOB TITLE Sample Case
PROJECT NO. PLUG NOZZLE (Restarts)

SHEET 1 OF 1
PROGRAMMER _____

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
1 ** UNSHROUDED PLUG NOZZLE - FREE PRESSURE RESTART, FIRST																																							
1 100 -10																																							

43	50																																						
-4.99																																							

1 ** UNSHROUDED PLUG NOZZLE - FREE PRESSURE RESTART, SECOND																																							
1 100 -10																																							

43	50																																						
-4.99																																							

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
1 ** UNSHROUDED PLUG NOZZLE - FREE PRESSURE RESTART, THIRD																																							
1 100 -10																																							

43	50																																						
-4.99																																							

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80

CARD FORMAT

JOB TITLE _____
PROJECT NO. UNCHOKED C-D Nozzle

SHEET 1 OF 5
PROGRAMMER _____

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	
1 ** SUBSONIC CONVERGENT DIVERGENT NOZZLE (SAMPLE CALCULATION)																																								
1 300																																								

8.956	8.430	7.84	7.209	6.886

[illegible][illegible]

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
8.0079								- .6250																															
7.7060								- .5833																															

7.4254	- .5416	4
7.1644	- .5024	5

[illegible]

6.4918	- .3971	
6.3012	- .3649	

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79		
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80		
6.1269																- .3350																10									
5.9662																- .3051																11									

CARD FORMAT

JOB TITLE _____
PROJECT NO. UNCRACKED C-D NOZZLE

SHEET 2 OF 5
PROGRAMMER _____

[illegible]

DE 2

CARD FORMAT

JOB TITLE _____
 PROJECT NO. UNCHOXED C-D Nozzle

SHEET 3 OF 5
 PROGRAMMER _____

1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
5.4757										.1051																													30
5.5283																																							31
5.5808																																							32
5.6334																																							33
5.6859																																							34
5.7385																																							35
5.7910																																							36
5.8436																																							37
5.8961																																							38
5.9487																																							39
6.0012																																							40
6.0538																																							41
6.1063																																							42
6.1589																																							43
6.2114																																							44
6.2640																																							45
6.3165																																							46
6.3691																																							47

CARD FORMAT

JOB TITLE _____
PROJECT NO. UNBOXED C-D NOZZLE

SHEET 4 OF 5
PROGRAMMER _____

3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79		
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	
6.4216										.1051										.0001																				48
6.4792																																								49
6.5267																																								50
0																																								

[illegible][illegible][illegible]

DF 2

CARD FORMAT

JOB TITLE _____
PROJECT NO. UNLOADED C-D NOZZLE

SHEET 5 OF 5
PROGRAMMER _____

[illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible][illegible]

APPENDIX V SAMPLE PRINTOUT FOR C-D NOZZLE

NOMENCLATURE FOR COMPUTER PRINTOUT (in chronological order)

DT	Increment of time used for calculations
DX	Increment of axial distance used for calculations
SO	Radial coordinate of nozzle wall
SOP	Slope of nozzle wall
SI	Radial coordinate of nozzle centerbody
SIP	Slope of nozzle centerbody
A	Area
A*	Minimum area
R	Radius
R*	Radius at minimum area
S	Difference in radial distance, $S = SO - SI$
DSO	Radial increment of nozzle wall
DX	Axial increment
SO'	Slope of nozzle wall, $SO' = SOP$
SO'(D)	Slope of nozzle wall in degrees
DSI	Radial increment of nozzle centerbody
SI'	Slope of nozzle centerbody, $SI' = SIP$
SI'(D)	Slope of nozzle centerbody in degrees
A0, A1, A2	Constants in specific heat-temperature relation
W ₁	Flow variable, $W_1 = pr$
W ₂	Flow variable, $W_2 = pur$
W ₃	Flow variable, $W_3 = pvr$
W ₄	Flow variable, $W_4 = er$
P-STAT	Static pressure
P-STAG	Stagnation pressure

Temp (R)	Static temperature
T-Stag	Stagnation temperature
WF	Weight flow
VD	$\int \rho u^2 r dr$
PD	$\int P r dr$

1 00 C-D NOZZLE LOCKHEED								1
1	300							2
65.	EC.	55.	50.	45.	40.	35.	30.	3
25.	20.							4
1	1	1	1					5
21	50							6
.100375 .09001								7
(4615.01								8
2.71416	-.44	.C001						9
2.059996	-.44	.C001						10
2.0258	-.44	.C001						11
2.5817	-.44	.C001						12
2.5375	-.44	.C001						13
2.4933	-.44	.C001						14
2.4492	-.44	.C001						15
2.4050	-.44	.C001						16
2.3608	-.44	.C001						17
2.3167	-.44	.C001						18
2.2725	-.44	.C001						19
2.2284	-.44	.C001						20
2.1842	-.44	.C001						21
2.1400	-.44	.C001						22
2.0959	-.44	.C001						23
2.0517	-.44	.C001						24
2.0075	-.20664	.C001						25
2.01018	.0267074	.C001						26
2.01286	.0267074	.C001						27
2.01554	.0267074	.C001						28
2.01822	.0267074	.C001						29
2.02090	.0267074	.C001						30
2.02358	.0267074	.C001						31
2.02627	.0267074	.C001						32
2.02895	.0267074	.C001						33
2.03163	.0267074	.C001						34
2.03431	.0267074	.C001						35
2.03699	.0267074	.C001						36
2.03967	.0267074	.C001						37
2.04235	.0267074	.C001						38
2.04503	.0267074	.C001						39
2.04771	.0267074	.C001						40
2.05039	.0267074	.C001						41
2.05307	.0267074	.C001						42
2.05575	.0267074	.C001						43
2.05843	.0267074	.C001						44
2.06112	.0267074	.C001						45
2.06380	.0267074	.C001						46
2.06648	.0267074	.C001						47
2.06916	.0267074	.C001						48
2.07184	.0267074	.C001						49
2.07452	.0267074	.C001						50

2.07720	.0267074	.C701	43	51
2.07789	.0267074	.0001	44	52
2.08257	.0267074	.0001	45	53
2.08525	.0267074	.C001	46	54
2.08793	.0267074	.0001	47	55
2.09061	.0267074	.0001	48	56
2.09329	.0267074	.0001	49	57
2.09597	.0267074	.0001	50	58
0				59
10				60
PERF				61
11				62
0	68.93	57C	1.0	63
.0536	69.26	57C	1.0	64
.1674	71.49	57C	1.0	65
.2776	71.56	57C	1.0	66
.3895	71.33	57C	1.0	67
.5003	71.49	57C	1.0	68
.6119	71.42	57C	1.0	69
.7205	70.99	57C	1.0	70
.8254	71.06	57C	1.0	71
.9426	70.42	57C	1.0	72
1.00	70.14	57C	1.0	73
				74
				75

***** END OF INPUT DATA *****

NO. PSIA LINES = 10					
1	65.0000	2	40.0000	3	55.0000
5	45.0000	6	40.0000	7	35.0000
9	25.0000	10	20.0000	8	50.0000
4	50.0000	3	35.0000	6	40.0000
INTERPOLATION FACTORS					
1	1.00000	1	1.00000	1	1.00000
2	1.00000	2	1.00000	2	1.00000
3	1.00000	3	1.00000	3	1.00000
4	1.00000	4	1.00000	4	1.00000
5	1.00000	5	1.00000	5	1.00000
6	1.00000	6	1.00000	6	1.00000
7	1.00000	7	1.00000	7	1.00000
8	1.00000	8	1.00000	8	1.00000
9	1.00000	9	1.00000	9	1.00000
10	1.00000	10	1.00000	10	1.00000
NO. POINTS ON VERTICAL LINE(INF) = 21 NO. OF WALL POINTS(INF) = 50					
07	0.00000	08	0.00000	09	0.00000
NOZZLE GEOMETRY					
NO	SOP	SI	SIP	NO	SOP
1	2.714100	-0.440000	0.000100	0.0	1
2	2.669999	-0.440000	0.000100	0.0	2
3	2.625799	-0.440000	0.000100	0.0	3
4	2.581599	-0.440000	0.000100	0.0	4
5	2.537399	-0.440000	0.000100	0.0	5
6	2.493199	-0.440000	0.000100	0.0	6
7	2.448999	-0.440000	0.000100	0.0	7
8	2.404799	-0.440000	0.000100	0.0	8
9	2.360599	-0.440000	0.000100	0.0	9
10	2.316399	-0.440000	0.000100	0.0	10
11	2.272199	-0.440000	0.000100	0.0	11
12	2.227999	-0.440000	0.000100	0.0	12
13	2.183799	-0.440000	0.000100	0.0	13
14	2.139599	-0.440000	0.000100	0.0	14
15	2.095399	-0.440000	0.000100	0.0	15
16	2.051199	-0.440000	0.000100	0.0	16
17	2.006999	-0.440000	0.000100	0.0	17
18	1.962799	-0.440000	0.000100	0.0	18
19	1.918599	-0.440000	0.000100	0.0	19
20	1.874399	-0.440000	0.000100	0.0	20
21	1.830199	-0.440000	0.000100	0.0	21
22	1.785999	-0.440000	0.000100	0.0	22
23	1.741799	-0.440000	0.000100	0.0	23
24	1.697599	-0.440000	0.000100	0.0	24
25	1.653399	-0.440000	0.000100	0.0	25
26	1.609199	-0.440000	0.000100	0.0	26
27	1.564999	-0.440000	0.000100	0.0	27
28	1.520799	-0.440000	0.000100	0.0	28

29	2.039670	0.026707	0.000100	0.0	29
30	2.042350	0.026707	0.000100	0.0	30
31	2.045030	0.026707	0.000100	0.0	31
32	2.047709	0.026707	0.000100	0.0	32
33	2.050389	0.026707	0.000100	0.0	33
34	2.053069	0.026707	0.000100	0.0	34
35	2.055750	0.026707	0.000100	0.0	35
36	2.058430	0.026707	0.000100	0.0	36
37	2.061110	0.026707	0.000100	0.0	37
38	2.063790	0.026707	0.000100	0.0	38
39	2.066470	0.026707	0.000100	0.0	39
40	2.069150	0.026707	0.000100	0.0	40
41	2.071830	0.026707	0.000100	0.0	41
42	2.074510	0.026707	0.000100	0.0	42
43	2.077190	0.026707	0.000100	0.0	43
44	2.079870	0.026707	0.000100	0.0	44
45	2.082550	0.026707	0.000100	0.0	45
46	2.085230	0.026707	0.000100	0.0	46
47	2.087910	0.026707	0.000100	0.0	47
48	2.090590	0.026707	0.000100	0.0	48
49	2.093270	0.026707	0.000100	0.0	49
50	2.095950	0.026707	0.000100	0.0	50

== ARRAY

1	C.0001	0.1358	0.2715	C.4072	0.5429	0.6786	0.8143	0.9500	1.0857	1.2214	1.3571	1.4928
	1.6285	1.7642	1.8999	2.0356	2.1713	2.3070	2.4428	2.5785	2.7142			
2	C.0001	0.1336	0.2671	C.4006	0.5341	0.6676	0.8011	0.9346	1.0681	1.2016	1.3350	1.4685
	1.6020	1.7355	1.8690	2.0025	2.1360	2.2695	2.4030	2.5365	2.6700			
3	C.0001	0.1314	0.2627	C.3940	0.5252	0.6565	0.7878	0.9191	1.0504	1.1817	1.3129	1.4442
	1.5755	1.7068	1.8381	1.9694	2.1007	2.2319	2.3632	2.4945	2.6258			
4	C.0001	0.1292	0.2563	C.3873	0.5166	0.6455	0.7746	0.9037	1.0327	1.1618	1.2909	1.4200
	1.5651	1.6961	1.8272	1.9583	2.0894	2.2205	2.3516	2.4827	2.6138			
5	C.0001	0.1270	0.2538	C.3807	0.5076	0.6364	0.7651	0.8942	1.0231	1.1519	1.2808	1.3997
	1.5525	1.6834	1.8143	1.9451	2.0760	2.2069	2.3378	2.4687	2.5996			
6	C.0001	0.1248	0.2494	C.3741	0.4987	0.6274	0.7561	0.8848	1.0135	1.1422	1.2709	1.3714
	1.5400	1.6707	1.8014	1.9321	2.0628	2.1935	2.3242	2.4549	2.5856			
7	C.0001	0.1226	0.2452	C.3675	0.4899	0.6184	0.7468	0.8753	1.0037	1.1322	1.2607	1.3471
	1.4696	1.5980	1.7264	1.8548	1.9832	2.1116	2.2400	2.3684	2.4968			
8	C.0001	0.1203	0.2406	C.3608	0.4811	0.6093	0.7376	0.8659	0.9942	1.1225	1.2508	1.3722
	1.4470	1.5752	1.7034	1.8316	1.9598	2.0880	2.2162	2.3444	2.4726			
9	C.0001	0.1181	0.2362	C.3542	0.4722	0.5993	0.7253	0.8513	0.9773	1.1033	1.2293	1.3553
	1.4145	1.5405	1.6665	1.7925	1.9185	2.0445	2.1705	2.2965	2.4225			
10	C.0001	0.1159	0.2318	C.3476	0.4634	0.5897	0.7157	0.8417	0.9677	1.0937	1.2197	1.3457
	1.3901	1.5161	1.6421	1.7681	1.8941	2.0201	2.1461	2.2721	2.3981			
11	C.0001	0.1137	0.2273	C.3410	0.4546	0.5807	0.7067	0.8327	0.9587	1.0847	1.2107	1.3367
	1.3635	1.4895	1.6155	1.7415	1.8675	2.0201	2.1461	2.2721	2.3981			
12	C.0001	0.1115	0.2225	0.3343	0.4458	0.5572	0.6686	0.7800	0.8914	1.0028	1.1142	1.2257
	1.3371	1.4485	1.5599	1.6713	1.7827	1.8941	2.0055	2.1169	2.2283			
13	C.0001	0.1093	0.2185	C.3277	0.4369	0.5461	0.6553	0.7645	0.8737	0.9829	1.0921	1.2014
	1.3106	1.4198	1.5290	1.6382	1.7474	1.8566	1.9658	2.0750	2.1842			
14	C.0001	0.1071	0.2141	0.3211	0.4281	0.5351	0.6421	0.7491	0.8561	0.9631	1.0700	1.1770
	1.2740	1.3810	1.4880	1.5950	1.7020	1.8090	1.9160	2.0230	2.1300			
15	C.0001	0.1049	0.2057	C.3145	0.4193	0.5240	0.6288	0.7336	0.8384	0.9432	1.0480	1.1528
	1.2576	1.3574	1.4572	1.5570	1.6568	1.7566	1.8564	1.9562	2.0560			
16	C.0001	0.1027	0.2053	C.3078	0.4104	0.5130	0.6156	0.7182	0.8208	0.9234	1.0259	1.1285
	1.2311	1.3250	1.4189	1.5128	1.6067	1.7006	1.7945	1.8884	1.9823			
17	C.0001	0.1005	0.2038	C.3012	0.4016	0.5019	0.6023	0.7027	0.8031	0.9035	1.0039	1.1042
	1.2045	1.3049	1.4053	1.5056	1.6060	1.7064	1.8068	1.9071	2.0075			
18	C.0001	0.1006	0.2011	C.3016	0.4021	0.5026	0.6031	0.7036	0.8041	0.9046	1.0051	1.1056
	1.2041	1.3047	1.4052	1.5057	1.6062	1.7067	1.8072	1.9077	2.0082			
19	C.0001	0.1007	0.2014	0.3020	0.4027	0.5033	0.6039	0.7046	0.8052	0.9058	1.0065	1.1071
	1.2078	1.3084	1.4090	1.5097	1.6103	1.7109	1.8116	1.9122	2.0129			
20	C.0001	0.1009	0.2016	0.3024	0.4032	0.5040	0.6047	0.7055	0.8063	0.9070	1.0078	1.1086
	1.2096	1.3101	1.4109	1.5117	1.6125	1.7132	1.8140	1.9148	2.0155			
21	C.0001	0.1010	0.2015	C.3028	0.4037	0.5046	0.6055	0.7064	0.8073	0.9083	1.0092	1.1101
	1.2112	1.3119	1.4128	1.5137	1.6146	1.7155	1.8164	1.9173	2.0182			
22	C.0001	0.1011	0.2022	0.3032	C.4043	0.5052	0.6063	0.7074	0.8084	0.9095	1.0105	1.1115
	1.2126	1.3136	1.4147	1.5157	1.6167	1.7178	1.8188	1.9199	2.0209			
23	C.0001	0.1013	C.2024	C.3036	0.4048	0.5060	C.6071	0.7083	0.8095	0.9107	1.0118	1.1130
	1.2142	1.3154	1.4165	1.5177	1.6189	1.7201	1.8212	1.9224	2.0236			
24	C.0001	0.1014	C.2027	C.3040	0.4053	C.5066	C.6077	0.7093	0.8106	0.9119	1.0132	1.1145
	1.2158	1.3171	1.4184	1.5197	1.6210	1.7223	1.8237	1.9250	2.0263			
25	C.0001	0.1015	0.2030	C.3044	0.4059	0.5073	C.6084	0.7102	0.8116	0.9131	1.0145	1.1160
	1.2174	1.3189	1.4203	1.5217	1.6232	1.7246	1.8261	1.9275	2.0289			
26	C.0001	0.1017	0.2037	C.3048	0.4064	0.5080	C.6090	C.7111	0.8127	0.9143	1.0159	1.1174
	1.2190	1.3206	1.4222	1.5237	1.6253	1.7269	1.8285	1.9301	2.0316			
27	C.0001	0.1018	0.2035	C.3052	0.4069	0.5087	0.6104	0.7121	0.8138	0.9154	1.0172	1.1189
	1.2206	1.3223	1.4240	1.5258	1.6275	1.7292	1.8309	1.9326	2.0343			

28	0.0001	0.1019	0.2038	0.3056	0.4075	0.5093	0.6112	0.7130	0.8149	0.9167	1.0185	1.1204
29	1.2222	1.3241	1.4259	1.5278	1.6294	1.7315	1.8333	1.9351	2.0370	2.1389	2.2408	2.3426
30	0.0001	0.1021	0.2041	0.3060	0.4080	0.5100	0.6120	0.7139	0.8159	0.9179	1.0199	1.1219
31	1.2238	1.3258	1.4278	1.5298	1.6318	1.7337	1.8357	1.9377	2.0397	2.1417	2.2437	2.3457
32	0.0001	0.1022	0.2043	0.3064	0.4084	0.5107	0.6128	0.7149	0.8170	0.9191	1.0212	1.1233
33	1.2254	1.3276	1.4297	1.5318	1.6339	1.7360	1.8381	1.9402	2.0423	2.1444	2.2465	2.3486
34	0.0001	0.1023	0.2046	0.3068	0.4091	0.5113	0.6136	0.7158	0.8181	0.9203	1.0226	1.1248
35	1.2271	1.3293	1.4315	1.5338	1.6360	1.7383	1.8405	1.9429	2.0450	2.1472	2.2494	2.3516
36	0.0001	0.1025	0.2045	0.3072	0.4096	0.5120	0.6144	0.7166	0.8191	0.9215	1.0239	1.1263
37	1.2287	1.3310	1.4334	1.5359	1.6382	1.7406	1.8429	1.9453	2.0477	2.1500	2.2524	2.3548
38	0.0001	0.1026	0.2051	0.3076	0.4102	0.5127	0.6152	0.7177	0.8202	0.9227	1.0252	1.1278
39	1.2303	1.3328	1.4353	1.5378	1.6403	1.7424	1.8454	1.9479	2.0504	2.1529	2.2554	2.3579
40	0.0001	0.1027	0.2054	0.3080	0.4107	0.5133	0.6160	0.7186	0.8213	0.9239	1.0266	1.1292
41	1.2319	1.3345	1.4372	1.5398	1.6425	1.7451	1.8478	1.9504	2.0531	2.1558	2.2585	2.3612
42	0.0001	0.1029	0.2057	0.3084	0.4112	0.5140	0.6168	0.7196	0.8224	0.9251	1.0279	1.1307
43	1.2335	1.3363	1.4391	1.5418	1.6446	1.7474	1.8502	1.9530	2.0557	2.1585	2.2613	2.3641
44	0.0001	0.1030	0.2055	0.3088	0.4116	0.5147	0.6176	0.7205	0.8234	0.9263	1.0293	1.1322
45	1.2351	1.3380	1.4409	1.5438	1.6468	1.7497	1.8526	1.9555	2.0584	2.1613	2.2643	2.3672
46	0.0001	0.1032	0.2062	0.3093	0.4123	0.5154	0.6184	0.7215	0.8245	0.9276	1.0306	1.1337
47	1.2367	1.3398	1.4429	1.5459	1.6490	1.7520	1.8550	1.9581	2.0611	2.1642	2.2673	2.3704
48	0.0001	0.1033	0.2065	0.3097	0.4125	0.5160	0.6182	0.7224	0.8256	0.9288	1.0319	1.1351
49	1.2383	1.3415	1.4447	1.5479	1.6511	1.7542	1.8574	1.9606	2.0638	2.1670	2.2702	2.3734
50	0.0001	0.1034	0.2067	0.3101	0.4134	0.5167	0.6200	0.7233	0.8267	0.9300	1.0333	1.1366
51	1.2399	1.3432	1.4466	1.5499	1.6532	1.7565	1.8598	1.9632	2.0665	2.1699	2.2732	2.3766
52	0.0001	0.1036	0.2070	0.3105	0.4139	0.5174	0.6205	0.7243	0.8277	0.9312	1.0346	1.1381
53	1.2415	1.3450	1.4484	1.5519	1.6553	1.7588	1.8623	1.9657	2.0692	2.1727	2.2762	2.3797
54	0.0001	0.1037	0.2073	0.3109	0.4144	0.5183	0.6216	0.7252	0.8288	0.9324	1.0360	1.1396
55	1.2431	1.3467	1.4503	1.5539	1.6574	1.7611	1.8647	1.9683	2.0718	2.1754	2.2790	2.3826
56	0.0001	0.1038	0.2075	0.3113	0.4155	0.5197	0.6224	0.7261	0.8299	0.9336	1.0373	1.1418
57	1.2448	1.3485	1.4522	1.5559	1.6596	1.7633	1.8671	1.9708	2.0745	2.1783	2.2820	2.3857
58	0.0001	0.1040	0.2078	0.3117	0.4155	0.5194	0.6229	0.7271	0.8309	0.9348	1.0386	1.1425
59	1.2464	1.3502	1.4541	1.5579	1.6619	1.7654	1.8693	1.9733	2.0772	2.1812	2.2852	2.3892
60	0.0001	0.1041	0.2081	0.3121	0.4161	0.5200	0.6240	0.7280	0.8320	0.9360	1.0400	1.1440
61	1.2480	1.3520	1.4560	1.5599	1.6639	1.7679	1.8719	1.9759	2.0799	2.1839	2.2879	2.3919
62	0.0001	0.1042	0.2083	0.3125	0.4166	0.5207	0.6248	0.7290	0.8331	0.9372	1.0413	1.1453
63	1.2496	1.3537	1.4576	1.5619	1.6661	1.7702	1.8743	1.9784	2.0826	2.1867	2.2908	2.3949
64	0.0001	0.1044	0.2086	0.3129	0.4171	0.5214	0.6256	0.7299	0.8342	0.9384	1.0427	1.1469
65	1.2512	1.3554	1.4597	1.5640	1.6682	1.7725	1.8767	1.9810	2.0852	2.1895	2.2938	2.3980
66	0.0001	0.1045	0.2089	0.3133	0.4177	0.5221	0.6264	0.7308	0.8352	0.9396	1.0440	1.1484
67	1.2528	1.3572	1.4616	1.5660	1.6704	1.7748	1.8791	1.9835	2.0879	2.1923	2.2967	2.4010
68	0.0001	0.1046	0.2092	0.3137	0.4182	0.5227	0.6273	0.7318	0.8363	0.9408	1.0454	1.1499
69	1.2544	1.3588	1.4635	1.5680	1.6725	1.7770	1.8816	1.9861	2.0906	2.1952	2.2997	2.4042
70	0.0001	0.1048	0.2094	0.3141	0.4187	0.5234	0.6281	0.7327	0.8374	0.9420	1.0467	1.1514
71	1.2560	1.3607	1.4653	1.5700	1.6747	1.7793	1.8840	1.9886	2.0933	2.1980	2.3027	2.4073
72	0.0001	0.1049	0.2097	0.3145	0.4193	0.5241	0.6289	0.7337	0.8384	0.9432	1.0480	1.1528
73	1.2576	1.3624	1.4672	1.5720	1.6768	1.7816	1.8864	1.9912	2.0960	2.1999	2.3048	2.4096

MIN X-STA = 17 MIN AREA= 4.0301 EFFECTIVE RADIUS = 2.0075

	AREA	A/A0	R/R0
1	7.3667	1.0279	1.3320
2	7.1289	1.7689	1.3300
3	6.6648	1.7109	1.3080
4	6.6652	1.6539	1.2860
5	6.4389	1.5077	1.2640
6	6.2165	1.5429	1.2420
7	5.9916	1.4389	1.2200
8	5.7640	1.4352	1.1980
9	5.5734	1.3830	1.1760
10	5.3671	1.3318	1.1540
11	5.1647	1.2814	1.1320
12	4.9658	1.2322	1.1100
13	4.7707	1.1838	1.0880
14	4.5796	1.1366	1.0660
15	4.3928	1.0900	1.0440
16	4.2095	1.0446	1.0220
17	4.0301	1.0000	1.0000
18	4.0408	1.0027	1.0013
19	4.0316	1.0053	1.0027
20	4.0624	1.0080	1.0040
21	4.0732	1.0107	1.0053
22	4.0640	1.0134	1.0067
23	4.0549	1.0161	1.0080
24	4.1058	1.0188	1.0093
25	4.1166	1.0215	1.0107
26	4.1275	1.0242	1.0120
27	4.1384	1.0269	1.0134
28	4.1493	1.0296	1.0147
29	4.1603	1.0323	1.0160
30	4.1712	1.0350	1.0174
31	4.1821	1.0377	1.0187
32	4.1931	1.0403	1.0200
33	4.2041	1.0437	1.0214
34	4.2151	1.0459	1.0227
35	4.2261	1.0486	1.0240
36	4.2371	1.0514	1.0254
37	4.2482	1.0541	1.0267
38	4.2593	1.0569	1.0280
39	4.2703	1.0596	1.0294
40	4.2814	1.0624	1.0307
41	4.2925	1.0651	1.0320
42	4.3036	1.0679	1.0334
43	4.3146	1.0706	1.0347
44	4.3259	1.0734	1.0361
45	4.3371	1.0762	1.0374
46	4.3483	1.0790	1.0387
47	4.3594	1.0817	1.0401
48	4.3706	1.0845	1.0414
49	4.3819	1.0873	1.0427
50	4.3931	1.0901	1.0441

NOZZLE GEOMETRY

	X	AREA	S	SO	OS1/OS	SO*	SO*101	S1	OS1/OS	S1*	S1*101
1	0.0	7.3667	2.7141	2.7142	0.0	-0.4400	0.0	0.0001	0.0	0.0	0.0
2	0.1004	7.1204	2.5659	2.6700	-0.4402	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
3	0.2007	6.8948	2.5257	2.6258	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
4	0.3011	6.6652	2.5816	2.5817	-0.4396	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
5	0.4015	6.4329	2.5374	2.5375	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
6	0.5019	6.2165	2.4932	2.4933	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
7	0.6022	5.9986	2.4491	2.4492	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
8	0.7026	5.7847	2.4049	2.4050	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
9	0.8030	5.5734	2.3607	2.3608	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
10	0.9034	5.3671	2.3166	2.3167	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
11	1.0037	5.1642	2.2724	2.2725	-0.4399	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
12	1.1041	4.9658	2.2283	2.2284	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
13	1.2045	4.7707	2.1841	2.1842	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
14	1.3049	4.5754	2.1399	2.1400	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
15	1.4052	4.3828	2.0958	2.0959	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
16	1.5056	4.2095	2.0516	2.0517	-0.4403	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
17	1.6060	4.0351	2.0074	2.0075	-0.4398	-0.4400	-23.7495	0.0001	0.0	0.0	0.0
18	1.7064	3.8606	2.0101	2.0102	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
19	1.8067	3.6856	2.0128	2.0129	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
20	1.9071	3.5124	2.0154	2.0155	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
21	2.0075	3.3392	2.0181	2.0182	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
22	2.1079	3.1640	2.0208	2.0209	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
23	2.2082	2.9899	2.0235	2.0236	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
24	2.3086	2.8156	2.0262	2.0263	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
25	2.4090	2.6414	2.0288	2.0289	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
26	2.5094	2.4675	2.0315	2.0316	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0

27	2.6057	4.1354	2.7342	2.0343	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
28	2.7101	4.1493	2.7369	2.0370	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
29	2.8105	4.1603	2.7396	2.0397	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
30	2.9109	4.1712	2.7422	2.0423	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
31	3.0112	4.1821	2.7449	2.0450	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
32	3.1116	4.1931	2.7476	2.0477	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
33	3.2120	4.2041	2.7503	2.0504	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
34	3.3124	4.2151	2.7530	2.0531	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
35	3.4127	4.2261	2.7556	2.0557	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
36	3.5131	4.2371	2.7583	2.0584	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
37	3.6135	4.2482	2.7610	2.0611	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
38	3.7139	4.2593	2.7637	2.0638	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
39	3.8142	4.2703	2.7664	2.0665	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
40	3.9146	4.2814	2.7691	2.0692	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
41	4.0150	4.2925	2.7717	2.0718	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
42	4.1154	4.3036	2.7744	2.0745	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
43	4.2157	4.3146	2.7771	2.0772	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
44	4.3161	4.3259	2.7798	2.0799	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
45	4.4165	4.3371	2.7825	2.0826	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
46	4.5169	4.3483	2.7851	2.0852	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
47	4.6172	4.3594	2.7878	2.0879	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
48	4.7176	4.3706	2.7905	2.0906	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
49	4.8180	4.3819	2.7932	2.0933	0.0267	0.0267	1.5299	0.0001	0.0	0.0	0.0
50	4.9184	4.3931	2.7959	2.0960	0.0	0.0267	0.0	0.0001	0.0	0.0	0.0

.....INFLECTION POINT NO. 16..

	(SUP-SIP)/S	SIP/S	1/S
1	-0.142116	C.O	0.368452
2	-0.1449CC	C.O	0.374547
3	-0.167574	C.O	0.344951
4	-0.170437	C.O	0.387357
5	-0.173408	C.O	0.394104
6	-0.17648C	C.O	0.401491
7	-0.17945A	C.O	0.408313
8	-0.18246C	C.C	0.415818
9	-0.186385	C.C	0.423603
10	-0.189433	C.O	0.431067
11	-0.192628	C.O	0.440064
12	-0.197460	C.C	0.446773
13	-0.201426	C.C	0.457453
14	-0.205617	O.O	0.467312
15	-0.209944	C.O	0.477145
16	-0.214467	C.O	0.487425
17	-0.219299	C.O	0.498157
18	1.228674E-C2	C.C	0.497493
19	1.2260CFE-C2	C.C	0.496830
20	1.225144E-C2	C.C	0.496175
21	1.223382E-C2	C.C	0.495511
22	1.221524E-C2	C.O	0.494854
23	1.219755E-C2	C.O	0.494198
24	1.218122E-C2	C.C	0.493542
25	1.216351E-C2	C.C	0.492890
26	1.214645E-C2	C.C	0.492240
27	1.212917E-C2	C.O	0.491591
28	1.211186E-C2	C.O	0.490945
29	1.209462E-C2	C.O	0.490299
30	1.207744E-C2	C.O	0.489656
31	1.20603CE-C2	C.C	0.489014
32	1.204321E-C2	C.C	0.488374
33	1.202616E-C2	C.C	0.487736
34	1.200916E-C2	C.O	0.487099
35	1.299219E-C2	C.O	0.486464
36	1.297528E-C2	C.O	0.485831
37	1.295834E-C2	C.C	0.485197
38	1.294151E-C2	C.O	0.484567
39	1.292473E-C2	C.O	0.483948
40	1.290795E-C2	C.O	0.483311
41	1.289124E-C2	C.C	0.482686
42	1.287464E-C2	C.O	0.482063
43	1.285802E-C2	C.C	0.481440
44	1.284145E-C2	C.C	0.480818
45	1.282487E-C2	C.C	0.480199
46	1.280836E-C2	C.C	0.479592
47	1.279184E-C2	C.C	0.478986
48	1.277544E-C2	C.O	0.478352
49	1.275919E-C2	C.O	0.477749
50	1.274287E-C2	C.O	0.477129

	150P-SIP1/S	SIP/S	1/S	*C.5*DT/DY
1	-4.843560E-04	C.0	1.105155E-04	
2	-4.944013E-05	C.0	1.123633E-04	
3	-5.027231E-05	C.0	1.142543E-04	
4	-5.113108E-05	C.0	1.162073E-04	
5	-5.202174E-05	C.0	1.182313E-04	
6	-5.294407E-05	C.0	1.203273E-04	
7	-5.389733E-05	C.0	1.224940E-04	
8	-5.488252E-05	C.0	1.247453E-04	
9	-5.591560E-05	C.0	1.270829E-04	
10	-5.699303E-05	C.0	1.295001E-04	
11	-5.812083E-05	C.0	1.320190E-04	
12	-5.929354E-05	C.0	1.346318E-04	
13	-6.052078E-05	C.0	1.373554E-04	
14	-6.180127E-05	C.0	1.401935E-04	
15	-6.313505E-05	C.0	1.431434E-04	
16	-6.452201E-05	C.0	1.462273E-04	
17	-6.596217E-05	C.0	1.494470E-04	
18	-6.745552E-05	C.0	1.528047E-04	
19	-6.899917E-05	C.0	1.563015E-04	
20	-7.059912E-05	C.0	1.609407E-04	
21	-7.225917E-05	C.0	1.657222E-04	
22	-7.398434E-05	C.0	1.706480E-04	
23	-7.577062E-05	C.0	1.757204E-04	
24	-7.761401E-05	C.0	1.809526E-04	
25	-7.951142E-05	C.0	1.863570E-04	
26	-8.146984E-05	C.0	1.919369E-04	
27	-8.348536E-05	C.0	1.976947E-04	
28	-8.555508E-05	C.0	2.036429E-04	
29	-8.768500E-05	C.0	2.097840E-04	
30	-8.987212E-05	C.0	2.161206E-04	
31	-9.211344E-05	C.0	2.226563E-04	
32	-9.441506E-05	C.0	2.293947E-04	
33	-9.677407E-05	C.0	2.363395E-04	
34	-9.918748E-05	C.0	2.434944E-04	
35	-1.017537E-04	C.0	2.508632E-04	
36	-1.044682E-04	C.0	2.584506E-04	
37	-1.073207E-04	C.0	2.662604E-04	
38	-1.103137E-04	C.0	2.742964E-04	
39	-1.134487E-04	C.0	2.825624E-04	
40	-1.167272E-04	C.0	2.910634E-04	
41	-1.201507E-04	C.0	2.998044E-04	
42	-1.237207E-04	C.0	3.087904E-04	
43	-1.274387E-04	C.0	3.180264E-04	
44	-1.313062E-04	C.0	3.275174E-04	
45	-1.353247E-04	C.0	3.372684E-04	
46	-1.394957E-04	C.0	3.472844E-04	
47	-1.438207E-04	C.0	3.575704E-04	
48	-1.483022E-04	C.0	3.681324E-04	
49	-1.529427E-04	C.0	3.789754E-04	
50	-1.577447E-04	C.0	3.901044E-04	

X-PLT PARAMETERS X-ZERO = 1.00000 UNITS/INCH = 4.00000					
1.00000	2.00000	3.00000	4.00000	5.00000	6.00000
7.00000	8.00000	9.00000	10.0000	11.0000	12.0000
13.0000	14.0000	15.0000	16.0000	17.0000	18.0000
19.0000	20.0000	21.0000	22.0000	23.0000	24.0000
25.0000	26.0000	27.0000	28.0000	29.0000	30.0000
31.0000	32.0000	33.0000	34.0000	35.0000	36.0000
37.0000	38.0000	39.0000	40.0000	41.0000	42.0000
43.0000	44.0000	45.0000	46.0000	47.0000	48.0000
49.0000	50.0000				
Y-PLT PARAMETERS Y-ZERO = 0.0 UNITS/INCH = 0.40000					
1 2.7142	2 2.6700	3 2.6258	4 2.5817	5 2.5375	
6 2.4923	7 2.4482	8 2.4040	9 2.3608	10 2.3167	
11 2.2725	12 2.2284	13 2.1842	14 2.1400	15 2.0959	
16 2.0517	17 2.0075	18 1.9632	19 1.9190	20 1.8748	
21 1.8306	22 1.7864	23 1.7422	24 1.6980	25 1.6538	
26 1.6096	27 1.5654	28 1.5212	29 1.4770	30 1.4328	
31 1.3886	32 1.3444	33 1.3002	34 1.2560	35 1.2118	
36 1.1675	37 1.1233	38 1.0791	39 1.0349	40 0.9907	
41 0.9465	42 0.9023	43 0.8581	44 0.8139	45 0.7697	
46 0.7255	47 0.6813	48 0.6371	49 0.5929	50 0.5487	
51 0.5045	52 0.4603	53 0.4161	54 0.3719	55 0.3277	
56 0.2835	57 0.2393	58 0.1951	59 0.1509	60 0.1067	
61 0.0625	62 0.0183	63 0.0000	64 0.0000	65 0.0000	
66 0.0000	67 0.0000	68 0.0000	69 0.0000	70 0.0000	
71 0.0000	72 0.0000	73 0.0000	74 0.0000	75 0.0000	
76 0.0000	77 0.0000	78 0.0000	79 0.0000	80 0.0000	
81 0.0000	82 0.0000	83 0.0000	84 0.0000	85 0.0000	
86 0.0000	87 0.0000	88 0.0000	89 0.0000	90 0.0000	
91 0.0000	92 0.0000	93 0.0000	94 0.0000	95 0.0000	
96 0.0000	97 0.0000	98 0.0000	99 0.0000	100 0.0000	

CP DATA									
COEFFICIENTS FOR CP(BTU/LB-MASS)= F(T-RANKINE)									
	MOL. WT.	AC	A1+T	A2+T**2					
1	AIR	28.970	0.240090	0.0	0.0				
2	CO2	44.011	0.170765	0.0	0.0				
3	CO	28.011	0.241531	0.0	0.0				
4	H2O	18.016	0.430062	0.0	0.0				
5	O2	32.000	0.152481	0.0	0.0				
6	N2	28.000	0.246445	0.0	0.0				
7	A	39.944	0.124345	0.0	0.0				
8	H2	2.016	3.22600	0.0	0.0				
RANKINE	AIR	CO2	CO	H2O	O2	N2	A	H2	CP(BTU/LBMASS-R)
0.0	0.2401	0.1209	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	0.0
100.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	100.0
200.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	200.0
300.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	300.0
400.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	400.0
500.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	500.0
600.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	600.0
700.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	700.0
800.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	800.0
900.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	900.0
1000.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1000.0
1100.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1100.0
1200.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1200.0
1300.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1300.0
1400.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1400.0
1500.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1500.0
1600.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1600.0
1700.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1700.0
1800.0	0.2401	0.1208	0.2615	0.4301	0.1905	0.2464	0.1243	3.2260	1800.0

RANKINE	AIR	CO2	CO	H2O	O2	N2	A	H2	CP(BTU/LBMOLE-R)
0.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	0.0
100.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	100.0
200.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	200.0
300.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	300.0
400.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	400.0
500.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	500.0
600.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	600.0
700.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	700.0
800.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	800.0
900.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	900.0
1000.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1000.0
1100.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1100.0
1200.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1200.0
1300.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1300.0
1400.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1400.0
1500.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1500.0
1600.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1600.0
1700.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1700.0
1800.0	6.9554	5.3150	7.3257	7.7480	6.0954	6.9005	4.9670	6.5036	1800.0
RANKINE	AIR	CO2	CO	H2O	O2	N2	A	H2	CP(CV GAMMA
0.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	0.0
100.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	100.0
200.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	200.0
300.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	300.0
400.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	400.0
500.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	500.0
600.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	600.0
700.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	700.0
800.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	800.0
900.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	900.0
1000.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1000.0
1100.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1100.0
1200.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1200.0
1300.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1300.0
1400.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1400.0
1500.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1500.0
1600.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1600.0
1700.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1700.0
1800.0	1.4000	1.5972	1.3723	1.3450	1.4837	1.4045	1.6669	1.4400	1800.0

GAS PROPERTIES

STAGNATION PARAMETERS NC INPUT POINTS= 11

STREAM FRACT.	STAGNATION		RELATIVE MASS OF SPECIE							
	PSIA	T-R	AIR	CO2	CO	H2O	O2	N2	A	H2
1 0.0	69.930	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 0.0556	69.256	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 0.1674	71.490	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4 0.2778	71.556	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5 0.3889	71.350	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6 0.5073	71.490	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7 0.6119	71.420	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8 0.7205	70.590	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9 0.8354	71.060	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10 0.9426	70.420	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11 1.0000	70.140	570.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

GAS PROPERTIES

	PSFA	T-R	AIR	CO2	CO	H2O	O2	N2	A	H2
1	0.0	9525.618	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
2	0.0556	9879.438	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
3	0.1674	10244.559	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
4	0.2776	10304.637	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
5	0.3865	10274.358	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
6	0.5003	10244.559	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
7	0.6119	10284.477	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
8	0.7205	10224.559	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
9	0.8354	10232.637	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
10	0.9426	10143.477	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
11	1.0000	10100.156	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
	PSFA	T-R	AIR	CO2	CO	H2O	O2	N2	A	H2
1	0.0	9525.618	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
2	0.0500	9839.144	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
3	0.1000	10014.192	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
4	0.1500	10272.164	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
5	0.2000	10297.531	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
6	0.2500	10332.590	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
7	0.3000	10248.625	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
8	0.3500	10245.090	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
9	0.4000	10276.125	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
10	0.4500	10289.402	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
11	0.5000	10294.502	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
12	0.5500	10290.046	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
13	0.6000	10245.567	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
14	0.6500	10262.750	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
15	0.7000	10234.242	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
16	0.7500	10225.141	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
17	0.8000	10229.523	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
18	0.8500	10223.082	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
19	0.9000	10177.004	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
20	0.9500	10135.273	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0
21	1.0000	10100.156	570.C	1.0000	0.0	0.0	0.0	C.0	0.0	0.0

----- GAS PROPERTIES -----

	MOL WT	GAS CON	CP COEFFICIENTS			CV COEFFICIENTS		
1	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
2	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
3	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
4	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
5	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
6	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
7	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
8	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
9	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
10	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
11	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
12	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
13	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
14	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
15	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
16	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
17	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
18	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
19	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
20	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0
21	28.97	1716.	6007.	0.0	0.0	4291.	0.0	0.0

----- STAGNATION EVALUATION -----

	GAMMA	CP	CV	ENTHAL	SPEED OF SOUND
1	1.4000	6007.06	4290.75	3.424023E 06	1170.30
2	1.4000	6007.05	4290.75	3.424019E 06	1170.30
3	1.4000	6007.06	4290.75	3.424023E 06	1170.30
4	1.4000	6007.05	4290.75	3.424018E 06	1170.30
5	1.4000	6007.05	4290.75	3.424018E 06	1170.30
6	1.4000	6007.05	4290.75	3.424019E 06	1170.30
7	1.4000	6007.05	4290.75	3.424019E 06	1170.30
8	1.4000	6007.05	4290.75	3.424019E 06	1170.30
9	1.4000	6007.05	4290.75	3.424019E 06	1170.30
10	1.4000	6007.05	4290.75	3.424019E 06	1170.30
11	1.4000	6007.05	4290.75	3.424019E 06	1170.30
12	1.4000	6007.05	4290.75	3.424019E 06	1170.30
13	1.4000	6007.05	4290.75	3.424019E 06	1170.30
14	1.4000	6007.05	4290.75	3.424019E 06	1170.30
15	1.4000	6007.05	4290.75	3.424018E 06	1170.30
16	1.4000	6007.05	4290.75	3.424019E 06	1170.30
17	1.4000	6007.05	4290.75	3.424019E 06	1170.30
18	1.4000	6007.05	4290.75	3.424019E 06	1170.30
19	1.4000	6007.05	4290.75	3.424019E 06	1170.30
20	1.4000	6007.05	4290.75	3.424019E 06	1170.30
21	1.4000	6007.06	4290.75	3.424023E 06	1170.30

INDEX OF MAX. STAGNATION SOUND SPEED = 21 SPEED = 1170.30(FT/SEC) VMAX = 59.92(FT/SEC)

-----INLET STATIC PRESSURE DISTRIBUTION FACTORS-----		
COMPUTEC.	R/RW	PRES. FACT.
1	0.0	1.00000
2	0.05000	1.00000
3	0.10000	1.00000
4	0.15000	1.00000
5	0.20000	1.00000
6	0.25000	1.00000
7	0.30000	1.00000
8	0.35000	1.00000
9	0.40000	1.00000
10	0.45000	1.00000
11	0.50000	1.00000
12	0.55000	1.00000
13	0.60000	1.00000
14	0.65000	1.00000
15	0.70000	1.00000
16	0.75000	1.00000
17	0.80000	1.00000
18	0.85000	1.00000
19	0.90000	1.00000
20	0.95000	1.00000
21	1.00000	1.00000

[illegible]

[illegible]

42	C=C	C=7025	C=01C3	C=0225	C=0400	C=6625	C=0400	C=1125	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
43	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
44	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
45	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
46	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
47	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
48	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
49	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
50	C=C	C=0025	C=01C0	C=0225	C=0400	C=0625	C=0900	C=1225	C=1600	C=2025	C=2500
	C=3025	C=3600	C=4225	C=4900	C=5625	C=6400	C=7225	C=8100	C=9025	C=10000	
WEIGHT= 281.857 PYMKOT= 5392.38 PANIC= 4639.15											

ITERATION NO. = C X-STATION NO. = 1 Y-INNER = 0.0001 Y-OUTER = 2.7142 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STATG	T-STATG	VELOCITY	
1	0.0	9.72495E-07	3.28202E-04	0.0	2.3955	9360.6	560.53	0.29065
1.4000	9.72995E-03	337.31	0.0	0.0	9925.9	570.00	337.31	
2	0.25	1.32119E-03	0.44385	-9.76567E-03	3252.6	9360.6	560.60	0.28956
1.4000	9.72874E-03	335.98	-7.2916	-1.2603	9921.5	570.00	336.06	
3	1.00	2.64042E-03	0.97651	-3.85662E-02	6499.4	9360.6	561.81	0.28624
1.4000	9.72505E-03	331.96	-14.606	-2.5194	9908.5	570.00	332.28	
4	2.25	3.65766E-03	1.2869	-8.49330E-02	9739.4	9360.6	561.16	0.28063
1.4000	9.71900E-03	325.16	-21.440	-3.7760	9896.8	570.00	325.86	
5	4.00	5.27133E-03	1.6629	-0.14033	12969.	9360.6	561.66	0.27256
1.4000	9.71046E-03	315.42	-27.757	-5.0291	9856.5	570.00	316.64	
6	6.25	6.59471E-03	2.1264	-0.23413	16226.	9360.6	561.23	0.27960
1.4000	9.71790E-03	322.75	-35.502	-6.2773	9882.9	570.00	324.69	
7	9.00	7.92540E-03	2.7711	-0.36579	19549.	9360.6	559.67	0.28075
1.4000	9.74485E-03	349.21	-46.046	-7.5196	9979.2	570.00	352.24	
8	12.25	9.29175E-03	3.5405	-0.54523	22922.	9360.6	557.65	0.33306
1.4000	9.78057E-03	351.03	-58.679	-8.7548	10108.	570.00	385.53	
9	16.00	1.06577E-02	4.3651	-0.76825	26329.	9360.6	555.60	0.35992
1.4000	9.81620E-03	409.57	-72.084	-9.9818	10237.	570.00	415.86	
10	20.25	1.20100E-02	5.0559	-1.03011	29689.	9360.6	554.67	0.37173
1.4000	9.83274E-03	420.98	-83.354	-11.202	10296.	570.00	429.15	
11	25.00	1.33459E-02	5.6058	-1.2333	32993.	9360.6	554.60	0.37256
1.4000	9.83397E-03	420.04	-92.408	-12.407	10302.	570.00	430.08	
12	30.25	1.46787E-02	6.1232	-1.4818	36286.	9360.6	554.67	0.37177
1.4000	9.83279E-03	417.15	-107.95	-13.604	10299.	570.00	429.14	
13	36.00	1.60065E-02	6.5933	-1.7406	39563.	9360.6	554.89	0.36895
1.4000	9.82880E-03	411.91	-119.75	-14.789	10283.	570.00	426.05	
14	42.25	1.73389E-02	7.0915	-2.0282	42955.	9360.6	554.94	0.36839
1.4000	9.82800E-03	408.99	-116.97	-15.961	10280.	570.00	425.39	
15	49.00	1.86790E-02	7.6414	-2.3526	46173.	9360.6	554.75	0.37076
1.4000	9.83135E-03	409.09	-124.60	-17.119	10293.	570.00	428.06	
16	56.25	2.00111E-02	8.1189	-2.6793	49463.	9360.6	554.81	0.37004
1.4000	9.83033E-03	405.72	-133.89	-18.263	10289.	570.00	427.24	
17	64.00	2.13322E-02	8.5021	-2.9927	52717.	9360.6	555.14	0.36584
1.4000	9.82442E-03	398.56	-145.24	-19.392	10267.	570.00	422.53	
18	72.25	2.26420E-02	8.7855	-3.2353	55911.	9360.6	555.72	0.35950
1.4000	9.81425E-03	388.02	-145.12	-20.506	10210.	570.00	416.27	
19	81.00	2.39721E-02	9.2206	-3.6514	59215.	9360.6	555.75	0.35800
1.4000	9.81356E-03	394.64	-152.32	-21.664	10228.	570.00	413.70	
20	90.25	2.52666E-02	9.5025	-3.9134	62377.	9360.6	556.57	0.34729
1.4000	9.79913E-03	370.55	-154.89	-22.685	10175.	570.00	401.62	
21	100.00	2.65403E-02	9.5194	-4.1506	65468.	9360.6	557.75	0.33139
1.4000	9.77844E-03	351.15	-154.51	-23.746	10100.	570.00	381.64	

ITERATION NO. = C X-STATION NO. = 2 V-INNER = C.CCC1 V-OUTER = 2.67C0 OUTPUT NO. = 1								
STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLE	P-STAT P-STAG	TEMPER T-STAG	MACH NO VELOCITY	
1 C.0 1.4000	9.68294E-07 9.68284E-03	3.44491E-04 356.15	0.0 0.0	2.7857 0.0	9297.2 9925.9	559.44 570.00	0.30719 356.15	
2 0.25 1.4000	1.29342E-03 9.68103E-03	0.45900 356.88	-1.03991E-02 -7.3073	3190.6 -1.26C3	9297.2 9921.6	559.51 570.00	0.30614 354.95	
3 1.00 1.4000	2.58491E-03 9.67609E-03	0.90743 351.05	-3.95270E-02 -15.446	6367.5 -2.5194	9297.2 9908.5	559.72 570.00	0.30300 351.39	
4 2.25 1.4000	3.67443E-03 9.67195E-03	1.3351 344.80	-6.41175E-02 -22.743	9541.8 -3.7760	9297.2 9886.9	560.07 570.00	0.29769 345.35	
5 4.00 1.4000	5.16104E-03 9.66344E-03	1.7329 335.37	-9.15232 -29.513	12776. -5.0291	9297.2 9866.5	560.57 570.00	0.29000 336.67	
6 6.25 1.4000	6.45601E-03 9.65728E-03	2.2090 325.18	-1.07430 -37.643	15899. -6.2773	9297.2 9822.9	560.14 570.00	0.28073 324.24	
7 9.00 1.4000	7.76849E-03 9.65767E-03	2.8519 317.11	-0.37645 -48.458	19182. -7.9196	9297.2 9974.2	559.59 570.00	0.31962 370.29	
8 12.25 1.4000	9.09631E-03 9.73922E-03	3.6143 307.34	-0.55661 -61.151	22457. -8.7548	9297.2 10108.	559.55 570.00	0.34765 402.03	
9 16.00 1.4000	1.04335E-02 9.70868E-03	4.4303 294.62	-0.77973 -74.734	25705. -9.9818	9297.2 10237.	559.53 570.00	0.37351 431.15	
10 20.25 1.4000	1.17574E-02 9.78514E-03	5.1203 285.20	-1.0138 -86.229	29086. -11.200	9297.2 10298.	559.59 570.00	0.39493 443.05	
11 25.00 1.4000	1.30852E-02 9.78631E-03	5.8764 276.46	-1.2448 -95.582	32723. -12.467	9297.2 10362.	559.53 570.00	0.39573 444.88	
12 30.25 1.4000	1.43699E-02 9.79518E-03	6.2012 271.50	-1.5007 -104.43	35550. -13.604	9297.2 10298.	559.50 570.00	0.38496 443.99	
13 36.00 1.4000	1.56599E-02 9.70121E-03	6.6896 266.33	-1.7637 -112.55	38759. -14.789	9297.2 10283.	559.87 570.00	0.38274 440.94	
14 42.25 1.4000	1.69742E-02 9.78942E-03	7.1861 263.35	-2.0552 -121.08	41984. -15.961	9297.2 10240.	559.46 570.00	0.38169 440.33	
15 49.00 1.4000	1.82861E-02 9.78376E-03	7.7601 263.28	-2.3919 -130.37	45235. -17.119	9297.2 10293.	559.67 570.00	0.39399 442.90	
16 56.25 1.4000	1.95901E-02 9.78274E-03	8.2248 261.85	-2.7142 -138.45	48459. -18.263	9297.2 10246.	559.73 570.00	0.39326 442.12	
17 64.00 1.4000	2.08835E-02 9.77685E-03	8.6195 261.74	-3.0461 -145.28	51647. -19.362	9297.2 10247.	559.06 570.00	0.37923 437.56	
18 72.25 1.4000	2.21657E-02 9.76674E-03	8.9192 262.39	-3.3358 -150.49	54766. -20.506	9297.2 10230.	559.04 570.00	0.37214 429.61	
19 81.00 1.4000	2.34679E-02 9.76605E-03	9.3619 268.03	-3.7073 -157.97	58013. -21.604	9297.2 10228.	559.68 570.00	0.37166 429.07	
20 90.25 1.4000	2.47351E-02 9.75166E-03	9.6266 265.16	-3.9622 -161.00	61111. -22.685	9297.2 10175.	559.49 570.00	0.36133 417.45	
21 100.00 1.4000	2.59820E-02 9.73110E-03	9.5179 266.33	-4.1879 -161.18	64139. -23.749	9297.2 10100.	559.67 570.00	0.34605 400.22	

ITERATION NO. = 0 K-STATION NO. = 3 V-INNER = 0.0001 V-OUTER = 2.6258 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAY	T-SPRINT	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	9.63050E-07 9.63050E-03	3.42111E-04 376.00	0.0 0.0	2.3748 0.0	9227.0 9925.9	555.23 570.00	0.32465 376.00
2	0.25 1.4000	1.26515E-03 9.62938E-03	0.47417 374.79	-1.34317E-07 -8.2456	3114.6 -1.2503	9227.0 9921.5	555.30 570.00	0.32367 374.88
3	1.00 1.4000	2.57940E-03 9.62577E-03	0.93861 371.15	-4.12902E-02 -16.331	6233.6 -2.5194	9227.0 9908.5	555.51 570.00	0.32069 371.51
4	2.25 1.4000	3.78975E-03 9.61574E-03	1.27433 365.01	-9.12442E-02 -24.091	9341.1 -3.7763	9227.0 9866.8	555.86 570.00	0.31567 365.81
5	4.00 1.4000	5.74823E-03 9.61124E-03	1.7945 356.27	-0.15877 -31.352	12439. -5.0291	9227.0 9846.5	556.35 570.00	0.30850 357.64
6	8.25 1.4000	6.31488E-03 9.61053E-03	2.2697 342.58	-0.25146 -39.884	15565. -6.2773	9227.0 9832.9	556.63 570.00	0.31476 346.77
7	9.00 1.4000	7.56468E-03 9.64533E-03	2.5334 386.05	-0.26721 -55.059	19749. -7.5196	9227.0 9970.2	557.38 570.00	0.33448 386.39
8	12.25 1.4000	8.85746E-03 9.68089E-03	2.6401 414.76	-0.25527 -63.869	21985. -8.7548	9227.0 10106.	555.54 570.00	0.36326 414.62
9	16.00 1.4000	1.02054E-02 9.71595E-03	4.4083 447.77	-0.79169 -77.576	25252. -9.9818	9227.0 10237.	553.33 570.00	0.38814 447.55
10	20.25 1.4000	1.15003E-02 9.73232E-03	5.1879 451.11	-1.0272 -89.320	26474. -11.200	9227.0 10280.	555.40 570.00	0.39616 450.87
11	25.00 1.4000	1.27796E-02 9.73349E-03	5.7505 449.97	-1.2641 -96.794	31643. -12.407	9227.0 10302.	555.33 570.00	0.39994 460.73
12	30.25 1.4000	1.40558E-02 9.71237E-03	6.2630 447.00	-1.5205 -104.17	34401. -13.604	9227.0 10298.	557.59 570.00	0.39919 459.90
13	36.00 1.4000	1.53273E-02 9.72342E-03	6.7720 441.83	-1.7675 -116.64	37044. -14.760	9227.0 10283.	552.62 570.00	0.39656 456.97
14	42.25 1.4000	1.66031E-02 9.72763E-03	7.2852 478.78	-2.0456 -125.49	41101. -15.951	9227.0 10290.	557.66 570.00	0.39493 458.38
15	49.00 1.4000	1.78863E-02 9.73094E-03	7.8435 436.52	-2.4158 -135.06	44283. -17.119	9227.0 10293.	552.48 570.00	0.39025 458.45
16	56.25 1.4000	1.91619E-02 9.72994E-03	8.3150 435.02	-2.7508 -143.56	47439. -18.263	9227.0 10280.	557.53 570.00	0.40757 458.10
17	64.00 1.4000	2.04270E-02 9.72408E-03	8.7423 427.58	-3.2773 -150.65	50565. -19.392	9227.0 10247.	557.84 570.00	0.40365 453.72
18	72.25 1.4000	2.16311E-02 9.71402E-03	9.0594 417.80	-3.3478 -156.26	53442. -20.506	9227.0 10230.	553.44 570.00	0.40661 448.07
19	81.00 1.4000	2.25548E-02 9.71333E-03	9.5099 414.24	-3.7655 -164.04	56797. -21.604	9227.0 10229.	555.49 570.00	0.39835 445.54
20	90.25 1.4000	2.41344E-02 9.69031E-03	9.6569 400.79	-4.0533 -167.53	59825. -22.685	9227.0 10175.	554.29 570.00	0.37640 434.40
21	100.00 1.4000	2.54143E-02 9.67958E-03	9.7211 392.51	-4.2773 -168.30	62790. -23.749	9227.0 10107.	555.46 570.00	0.36179 417.90

ITERATION NO. = 3 X-SECTION NO. = 4 V-INNER = 0.0001 V-OUTER = 2.5817 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	F-STAT	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLCN ANGLE(D)	P-STAT	T-STAT	VFLOCITY	
1	0.0	9.57255E-07	2.79081E-04	0.0	2.3627	9149.3	556.89	0.34315
1.4000	9.57255E-03	396.95	0.0	0.0	9925.9	573.00	396.95	
2	0.25	1.23643E-03	0.48938	-1.07663E-02	3051.7	9149.3	556.95	0.34222
1.4000	9.57136E-03	395.80	-0.17079	-1.2603	9921.5	573.00	395.80	
3	1.00	2.47097E-03	0.96944	-4.26552E-02	6097.8	9149.3	557.16	0.33941
1.4000	9.56777E-03	392.33	-17.263	-2.5194	9908.5	573.00	392.33	
4	2.25	3.70360E-03	1.4314	-6.44765E-02	9137.5	9149.3	557.51	0.33465
1.4000	9.56178E-03	394.49	-25.508	-3.7760	9886.8	570.00	387.33	
5	4.00	4.53355E-03	1.8658	-0.16419	12168.	9149.3	558.00	0.32787
1.4000	9.55337E-03	376.19	-33.281	-5.2291	9856.4	570.00	379.65	
6	6.25	6.17143E-03	2.3701	-0.26371	15275.	9149.3	557.58	0.33379
1.4000	9.56070E-03	394.04	-42.244	-6.2773	9852.9	570.00	386.35	
7	9.00	7.42606E-03	3.0158	-0.39808	18340.	9149.3	556.03	0.35439
1.4000	9.56721E-03	406.11	-53.606	-7.5196	9979.2	570.00	409.63	
8	12.25	9.64533E-03	3.7676	-0.58021	21505.	9149.3	556.00	0.37997
1.4000	9.56236E-03	433.29	-66.727	-8.7544	10109.	570.00	439.40	
9	16.00	9.97399E-03	4.5688	-0.80411	24701.	9149.3	551.99	0.40388
1.4000	9.65741E-03	458.09	-83.624	-9.9918	10237.	570.00	465.13	
10	20.25	1.12391E-02	5.2586	-1.0412	27855.	9149.3	551.06	0.41451
1.4000	9.67368E-03	467.89	-92.842	-11.200	10298.	570.00	476.97	
11	25.00	1.24492E-02	5.8280	-1.2922	30953.	9149.3	551.00	0.41425
1.4000	9.67484E-03	466.65	-102.66	-12.437	10302.	570.00	477.80	
12	30.25	1.37365E-02	6.3696	-1.5412	34042.	9149.3	551.06	0.41454
1.4000	9.67373E-03	463.82	-112.20	-13.504	10298.	570.00	477.01	
13	36.00	1.49791E-02	6.6675	-1.8130	37116.	9149.3	551.28	0.41200
1.4000	9.66980E-03	458.47	-121.04	-14.789	10283.	570.00	474.18	
14	42.25	1.62259E-02	7.3886	-2.1131	40204.	9149.3	551.33	0.41149
1.4000	9.66902E-03	459.36	-130.23	-15.961	10280.	570.00	473.61	
15	49.00	1.74800E-02	7.9517	-2.4401	43317.	9149.3	551.14	0.41363
1.4000	9.67231E-03	444.91	-140.11	-17.119	10293.	570.00	475.09	
16	56.25	1.87265E-02	9.4518	-2.7801	46404.	9149.3	551.20	0.41297
1.4000	9.67131E-03	451.33	-148.04	-18.263	10289.	570.00	475.27	
17	64.00	1.96429E-02	8.8702	-3.1223	49457.	9149.3	551.53	0.40919
1.4000	9.66550E-03	444.34	-156.41	-19.392	10267.	570.00	471.68	
18	72.25	2.11866E-02	9.2026	-3.4418	52472.	9149.3	552.10	0.40260
1.4000	9.65549E-03	434.33	-162.44	-21.508	10239.	570.00	463.71	
19	81.00	2.24333E-02	9.6616	-3.8259	55555.	9149.3	552.16	0.40215
1.4000	9.65481E-03	430.67	-170.55	-21.604	10228.	570.00	463.21	
20	90.25	2.36447E-02	9.8720	-4.1265	58520.	9149.3	552.96	0.39259
1.4000	9.64059E-03	417.51	-174.52	-22.885	10175.	570.00	452.52	
21	100.00	2.48366E-02	9.9288	-4.3687	61420.	9149.3	554.12	0.37890
1.4000	9.62026E-03	399.76	-175.00	-23.749	10100.	570.00	436.75	

ITERATION NO. = 6 X-SECTION NO. = 5 V-INNER = 0.001 V-OUTER = 2.5375 OUTPUT NO. = 1							
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANG(°)	P-STAT P-STAT	TEMPER 1-STAT	MACH NO VELOC(17)
1 0.0 1.4000	9.50757E-07 9.50757E-03	3.98609E-04 419.25	0.0 0.0	2.3692 0.0	9062.5 9925.9	555.37 570.00	0.36293 419.25
2 0.25 1.4000	1.25703E-03 9.50633E-03	6.50472 419.15	-1.11039E-02 -9.1954	2482.2 -1.2603	9062.5 9921.6	555.44 570.00	0.36204 418.26
3 1.00 1.4000	7.41219E-03 9.50282E-03	1.0007 414.85	-6.40306E-02 -18.253	5959.0 -2.5194	9062.5 9908.5	555.45 570.00	0.35938 415.25
4 2.25 1.4000	3.61555E-03 9.4987E-03	1.4798 409.29	-9.76679E-02 -27.323	8929.6 -3.7760	9062.5 9886.8	556.00 570.00	0.35488 410.15
5 4.00 1.4000	4.51619E-03 9.49833E-03	1.5332 401.41	-0.17013 -35.324	11551. -5.0201	9062.5 9856.4	556.48 570.00	0.34848 402.96
6 6.25 1.4000	6.02461E-03 9.49579E-03	2.4509 406.81	-0.26950 -46.740	14879. -6.2773	9062.5 9882.9	556.06 570.00	0.35406 409.26
7 9.00 1.4000	7.26529E-03 9.52213E-03	2.0994 427.56	-0.40912 -56.475	17923. -7.5196	9062.5 9979.2	554.52 570.00	0.37300 431.26
8 12.25 1.4000	8.43546E-03 9.55704E-03	3.6474 453.25	-0.59259 -69.900	21015. -8.7548	9062.5 10108.	552.50 570.00	0.39802 458.99
9 16.00 1.4000	9.73629E-03 9.59185E-03	4.6424 476.61	-0.81706 -89.016	24138. -9.9818	9062.5 10237.	550.49 570.00	0.42096 484.14
10 20.25 1.4000	1.09717E-02 9.50802E-03	5.3329 466.06	-1.0559 -94.240	27274. -11.200	9062.5 10298.	549.56 570.00	0.43119 495.50
11 22.00 1.4000	1.21921E-02 9.60916E-03	5.5098 484.76	-1.1001 -106.63	30248. -12.407	9062.5 10302.	549.50 570.00	0.43191 496.30
12 30.25 1.4000	1.34957E-02 9.60006E-03	6.4485 491.83	-1.5629 -116.55	33267. -13.604	9062.5 10298.	549.56 570.00	0.43122 495.53
13 36.00 1.4000	1.46227E-02 9.60416E-03	6.9676 476.69	-1.8396 -125.79	36270. -14.789	9062.5 10283.	549.78 570.00	0.42877 492.82
14 42.25 1.4000	1.58399E-02 9.60338E-03	7.4970 473.10	-2.1441 -135.96	39288. -15.961	9062.5 10280.	549.83 570.00	0.42828 492.27
15 48.00 1.4000	1.70641E-02 9.60665E-03	8.0653 472.64	-2.4541 -145.57	42310. -17.119	9052.5 10293.	549.64 570.00	0.42034 494.55
16 56.25 1.4000	1.82810E-02 9.60545E-03	8.2735 468.58	-2.5293 -152.74	45247. -18.263	9062.5 10299.	549.70 570.00	0.42912 493.86
17 64.00 1.4000	1.94873E-02 9.55788E-03	9.0041 462.04	-3.1694 -162.64	48130. -19.392	9062.5 10267.	550.03 570.00	0.42607 489.82
18 72.25 1.4000	2.06045E-02 9.58995E-03	9.3533 452.19	-3.4981 -164.12	51277. -20.508	9062.5 10230.	550.60 570.00	0.41973 482.78
19 81.00 1.4000	2.18996E-02 9.58927E-03	9.8202 448.42	-3.8888 -177.57	54288. -21.694	9062.5 10228.	550.64 570.00	0.41830 482.30
20 90.25 1.4000	2.30521E-02 9.57514E-03	10.053 435.55	-4.2024 -182.06	57187. -22.685	9062.5 10175.	551.45 570.00	0.41010 472.07
21 100.00 1.4000	2.42451E-02 9.55496E-03	10.142 418.32	-4.4626 -184.06	60072. -23.749	9062.5 10100.	552.02 570.00	0.39661 457.02

ITERATION NO. = 0 X-STATION NO. = 6 7-INNER = 0.0301 7-OUTER = 2.4933 OUTPUT NO. = 1								
STREAMLINE & CP/CV	#1 DENSITY	#2 U	#3 V	#4 FLOW ANG10	#5 P-STAG P-STAG	#6 TEMP1 7-STAG	#7 MACH NO VELOCITY	
1 0.0 1.4000	9.43457E-07 9.43457E-03	4.1418E-04 443.07	0.0 0.0	2.3339 0.3	8965.2 9925.9	553.66 570.00	0.29414 443.07	
2 0.25 1.4000	1.17591E-03 9.43339E-03	5.52022 442.02	-1.14448E-02 -0.7245	2911.3 -1.2603	8965.2 9921.5	553.73 570.00	0.32338 442.13	
3 1.00 1.4000	2.35199E-03 9.42985E-03	1.03222 438.87	-4.54174E-02 -19.310	9617.2 -2.5194	8965.2 9908.5	553.94 570.00	0.38077 439.30	
4 2.25 1.4000	3.5253E-03 9.42395E-03	1.5235 433.58	-0.10008 -28.617	8717.0 -3.7760	8965.2 9886.8	554.28 570.00	0.37652 434.53	
5 4.00 1.4000	4.65597E-03 9.41567E-03	2.0009 426.09	-0.17608 -37.496	1160E -5.0291	8965.2 9856.5	554.77 570.00	0.37047 427.73	
6 6.25 1.4000	5.87422E-03 9.42289E-03	2.5321 411.08	-0.27894 -47.516	14525. -6.2773	8965.2 9852.9	554.35 570.00	0.37375 433.66	
7 9.00 1.4000	7.06843E-03 9.44902E-03	3.1843 450.49	-0.42033 -56.485	17496. -7.5196	8965.2 9796.2	552.81 570.00	0.39427 454.40	
8 12.25 1.4000	8.27657E-03 9.45368E-03	3.6293 474.75	-0.60512 -73.112	20515. -8.7548	8965.2 10108.	550.79 570.00	0.41754 480.35	
9 16.00 1.4000	9.45226E-03 9.51821E-03	4.7190 497.09	-0.83954 -97.449	23563. -9.9318	8965.2 10237.	548.40 570.00	0.43053 504.73	
10 20.25 1.4000	1.06578E-02 9.53424E-03	5.4107 505.78	-1.0713 -100.14	26570. -11.200	8965.2 10298.	547.87 570.00	0.44938 515.60	
11 25.00 1.4000	1.18075E-02 9.53538E-03	5.9951 504.31	-1.3189 -110.05	29527. -12.407	8965.2 10302.	547.81 570.00	0.45007 516.37	
12 30.25 1.4000	1.30747E-02 9.53424E-03	6.5527 511.16	-1.5357 -121.28	32474. -13.604	8965.2 10298.	547.87 570.00	0.44940 515.63	
13 36.00 1.4000	1.42577E-02 9.53041E-03	7.0723 498.34	-1.8671 -130.95	35476. -14.789	8965.2 10263.	548.09 570.00	0.44705 513.53	
14 42.25 1.4000	1.54449E-02 9.52766E-03	7.6153 492.75	-2.1766 -140.93	38353. -15.961	8965.2 10270.	548.14 570.00	0.44658 512.51	
15 49.00 1.4000	1.66391E-02 9.52891E-03	8.1842 491.60	-2.3207 -151.90	41322. -17.119	8965.2 10293.	547.95 570.00	0.44856 514.70	
16 56.25 1.4000	1.78246E-02 9.53190E-03	8.7039 486.14	-2.8713 -161.09	44267. -18.263	8965.2 10289.	548.01 570.00	0.44796 514.03	
17 64.00 1.4000	1.90015E-02 9.52617E-03	9.1439 481.22	-3.2187 -166.39	47179. -19.382	8965.2 10267.	548.34 570.00	0.44445 512.17	
18 72.25 1.4000	2.01621E-02 9.51631E-03	9.5098 471.53	-3.5567 -176.35	50056. -20.506	8965.2 10230.	548.90 570.00	0.43816 503.43	
19 81.00 1.4000	2.13529E-02 9.51564E-03	9.8854 467.64	-3.8542 -185.18	52935. -21.604	8965.2 10228.	548.94 570.00	0.43794 502.97	
20 90.25 1.4000	2.25059E-02 9.50162E-03	10.241 456.05	-4.2608 -190.71	55825. -22.685	8965.2 10175.	549.75 570.00	0.42912 493.20	
21 100.00 1.4000	2.36405E-02 9.46159E-03	10.362 438.70	-4.5592 -192.85	58593. -23.749	8965.2 10170.	550.91 570.00	0.41620 478.86	

ITERATION NO. = 0 X-STATION NO. = 7 V-INNER = 0.0001 V-OUTER = 2.4442 OUTPUT NO. = 1							
STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLE	P-STAT P-STAG	TEMPER T-STAG	MACH NO VELOCITY
1 0.0 1.4000	9.35221E-07 9.35231E-03	4.36235E-04 466.58	0.0 0.0	2.3167 0.0	8855.9 9925.9	551.72 570.00	0.40697 466.58
2 0.25 1.4000	1.14603E-03 9.35114E-03	0.53587 467.58	-1.17890E-02 -10.287	2838.7 -1.2603	8855.9 9921.5	551.79 570.00	0.40618 467.70
3 1.00 1.4000	2.29026E-03 9.34764E-03	1.0640 464.58	-4.66166E-02 -20.442	5672.1 -2.5194	8855.9 9908.5	552.00 570.00	0.40379 465.03
4 2.25 1.4000	3.43278E-03 9.34178E-03	1.5775 459.56	-0.10411 -30.320	8499.6 -3.7780	8855.9 9886.8	552.35 570.00	0.39976 460.54
5 4.00 1.4000	4.57271E-03 9.33358E-03	2.0689 452.41	-0.18205 -39.912	11318. -5.0291	8855.9 9856.4	552.83 570.00	0.39405 444.16
6 6.25 1.4000	5.72003E-03 9.34073E-03	2.6129 456.97	-0.26753 -50.267	14162. -6.2773	8855.9 9882.9	552.41 570.00	0.39903 459.73
7 9.00 1.4000	6.85289E-03 9.36603E-03	3.2704 475.15	-0.43170 -62.720	17067. -7.5196	8855.9 9979.2	550.68 570.00	0.41658 479.26
8 12.25 1.4000	8.05931E-03 9.40097E-03	4.0135 497.99	-0.61807 -76.691	20003. -8.7548	8855.9 10108.	548.67 570.00	0.43675 503.66
9 16.00 1.4000	9.24405E-03 9.43521E-03	4.7985 519.09	-0.84454 -91.361	22375. -9.9818	8855.9 10237.	546.88 570.00	0.45980 527.07
10 20.25 1.4000	1.04170E-02 9.45111E-03	5.4920 527.22	-1.0874 -104.39	25907. -11.202	8855.9 10298.	545.96 570.00	0.46925 537.45
11 25.00 1.4000	1.15757E-02 9.45225E-03	6.0644 525.62	-1.3386 -115.64	28750. -12.407	8855.9 10302.	545.89 570.00	0.46992 538.19
12 30.25 1.4000	1.27317E-02 9.45115E-03	6.6511 522.41	-1.6096 -126.42	31664. -13.604	8855.9 10299.	544.95 570.00	0.46927 537.48
13 36.00 1.4000	1.38834E-02 9.44733E-03	7.1616 517.28	-1.8959 -136.56	34522. -14.789	8855.9 10283.	544.18 570.00	0.46701 535.00
14 42.25 1.4000	1.50390E-02 9.44635E-03	7.7286 513.90	-2.2104 -146.98	37335. -15.961	8855.9 10280.	546.22 570.00	0.46656 534.50
15 49.00 1.4000	1.62014E-02 9.44975E-03	8.3084 517.82	-2.5590 -157.95	40290. -17.119	8855.9 10283.	544.03 570.00	0.46846 536.59
16 56.25 1.4000	1.73567E-02 9.44879E-03	8.8339 506.96	-2.9152 -167.96	43162. -18.263	8855.9 10289.	546.06 570.00	0.46788 535.06
17 64.00 1.4000	1.85026E-02 9.44312E-03	9.2896 502.07	-3.2699 -176.73	46071. -19.392	8855.9 10267.	546.42 570.00	0.46452 532.26
18 72.25 1.4000	1.96396E-02 9.43335E-03	9.6723 492.21	-3.6174 -184.20	48806. -20.508	8855.9 10239.	546.99 570.00	0.45857 525.83
19 81.00 1.4000	2.07923E-02 9.43268E-03	10.157 486.49	-4.0221 -193.44	51672. -21.604	8855.9 10228.	547.02 570.00	0.45827 525.39
20 90.25 1.4000	2.19151E-02 9.41878E-03	10.435 476.16	-4.3619 -199.03	54432. -22.685	8855.9 10175.	547.83 570.00	0.44982 516.08
21 100.00 1.4000	2.30198E-02 9.39592E-03	10.587 449.89	-4.6561 -202.35	57139. -23.749	8855.9 10100.	546.99 570.00	0.43746 502.44

ITERATION NO. = 1 X-STATION NO. = 8 V-INNER = 0.0001 V-OUTER = 7.4050 OUTPUT NO. = 1								
STREAMLINE #	h1	h2	h3	h4	P-STAG	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY	
1 0.0	9.2585E-07	4.99427E-04	0.0	2.2970	8731.9	549.50	0.43184	
1.4000	9.2585E-03	496.22	0.0	0.0	9923.9	570.00	496.22	
2 0.25	1.1140E-03	6.55177	-1.21148E-02	2763.5	8731.9	549.57	0.43109	
1.4000	9.25730E-02	459.27	-16.956	-1.2603	9921.5	570.00	495.29	
3 1.00	2.2264E-03	1.0963	-4.8236E-02	5522.6	8731.9	549.78	0.42883	
1.4000	9.25393E-03	497.40	-21.666	-2.5194	9908.5	570.00	482.88	
4 2.25	3.3370E-03	1.6272	-0.10730	8275.3	8731.9	550.12	0.42553	
1.4000	9.24813E-03	457.60	-32.162	-3.7762	9886.8	570.00	488.66	
5 4.00	4.44518E-03	2.1273	-0.18809	11020.	8731.9	550.61	0.41964	
1.4000	9.24000E-02	496.02	-42.312	-5.0261	9856.4	570.00	482.68	
6 6.25	5.55629E-03	2.6657	-0.29664	13769.	8731.9	550.19	0.42434	
1.4000	9.24775E-03	454.57	-51.347	-6.2773	9892.9	570.00	487.90	
7 9.00	6.66992E-03	3.3584	-0.44321	16409.	8731.9	548.66	0.44004	
1.4000	9.21727E-03	501.93	-66.255	-7.5166	9876.2	570.00	506.29	
8 12.25	7.83454E-03	4.1003	-0.63144	19479.	8731.9	546.66	0.46203	
1.4000	9.19974E-03	523.36	-80.997	-3.7548	10118.	570.00	529.53	
9 16.00	8.96622E-03	4.8815	-0.83915	22358.	8731.9	544.68	0.48214	
1.4000	9.34062E-03	543.22	-95.607	-9.4818	10237.	570.00	551.37	
10 20.25	1.01264E-02	5.5773	-1.1743	25222.	8731.9	543.76	0.49120	
1.4000	9.33630E-03	550.77	-100.05	-11.200	10298.	570.00	561.66	
11 25.00	1.12528E-02	6.1782	-1.3592	28029.	8731.9	543.70	0.49184	
1.4000	9.35740E-03	549.03	-120.79	-12.407	10302.	570.00	562.16	
12 30.25	1.23766E-02	6.7544	-1.6346	30827.	8731.9	543.76	0.49122	
1.4000	9.35642E-03	545.76	-132.07	-13.804	10298.	570.00	561.49	
13 36.00	1.34962E-02	7.2951	-1.9262	33511.	8731.9	543.98	0.48905	
1.4000	9.35261E-03	540.60	-142.72	-14.789	10283.	570.00	559.13	
14 42.25	1.46196E-02	7.8524	-2.2458	36437.	8731.9	544.02	0.48862	
1.4000	9.35185E-03	537.12	-151.61	-15.561	10280.	570.00	558.65	
15 49.00	1.57495E-02	8.4386	-2.5991	39226.	8731.9	543.84	0.49044	
1.4000	9.35594E-03	535.80	-165.03	-17.119	10261.	570.00	560.64	
16 56.25	1.68726E-02	8.9733	-2.9612	42522.	8731.9	543.89	0.48989	
1.4000	9.35406E-03	531.83	-175.50	-18.261	10249.	570.00	560.04	
17 64.00	1.79966E-02	9.4419	-1.3236	44786.	8731.9	544.22	0.48866	
1.4000	9.34844E-03	526.94	-184.78	-19.397	10257.	570.00	556.52	
18 72.25	1.90404E-02	9.8417	-3.6879	47517.	8731.9	544.78	0.46106	
1.4000	9.33876E-03	513.52	-132.80	-20.509	10240.	570.00	550.39	
19 81.00	2.02124E-02	10.335	-4.0928	50307.	8731.9	544.82	0.48068	
1.4000	9.33811E-03	511.54	-202.49	-21.604	10228.	570.00	549.98	
20 90.25	2.13039E-02	10.836	-4.4460	52995.	8731.9	544.43	0.47259	
1.4000	9.33455E-03	499.26	-206.69	-22.685	10175.	570.00	541.13	
21 100.00	2.23778E-02	11.819	-4.7607	55822.	8731.9	546.78	0.46088	
1.4000	9.30469E-03	484.45	-212.72	-23.749	10160.	570.00	528.18	

ITERATION NO. =	C	X-STATION NO. =	Y	V-INNER =	0.0001	V-OUTER =	2.36C8	OUTPUT NO. =	Y
STREAMLINE #	h1	h2	h3	h4	P-STAY	Y-4P(P)	MACH NO		
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	Y-STAG	VFLOC1TV		
1	0.0 1.4000	9.1100E-07 9.15100E-03	4.91636E-04 526.32	0.0 0.0	2.2743 0.0	8590.2 9925.9	546.94 570.00	0.45911 526.32	
2	0.25 1.4000	1.08092E-03 9.14966E-03	0.56793 525.41	-1.24944E-02 -11.559	2680.3 -1.2503	8590.2 9921.5	547.01 570.00	0.45840 525.54	
3	1.00 1.4000	2.16011E-03 9.14443E-03	1.1291 522.68	-4.96782E-02 -22.998	5367.5 -2.5194	8590.2 9908.5	547.22 570.00	0.45826 525.10	
4	2.25 1.4000	3.23764E-03 9.14070E-03	1.6775 518.11	-0.11071 -24.195	9043.2 -3.7760	8590.2 9886.8	547.56 570.00	0.45808 519.74	
5	4.00 1.4000	4.31251E-03 9.13267E-03	2.2067 511.66	-0.19419 -35.026	10711. -5.0261	8590.2 9856.4	548.04 570.00	0.44760 513.63	
6	6.25 1.4000	5.35492E-03 9.13067E-03	2.7806 515.41	-0.30587 -56.695	13402. -6.2772	8590.2 9842.9	547.62 570.00	0.45203 518.52	
7	9.00 1.4000	6.45168E-03 9.12592E-03	3.4482 531.17	-0.45516 -70.115	16143. -7.5196	8590.2 9879.2	546.11 570.00	0.44772 535.78	
8	12.25 1.4000	7.60122E-03 9.12516E-03	4.1895 551.20	-0.64522 -85.864	18926. -8.7548	8590.2 10109.	544.11 570.00	0.44774 557.69	
9	16.00 1.4000	8.71963E-03 9.23213E-03	4.9680 564.81	-0.87436 -100.29	21740. -9.9818	8590.2 10237.	542.14 570.00	0.50692 578.57	
10	20.25 1.4000	9.82487E-03 9.24768E-03	5.6666 578.76	-1.1220 -114.20	24514. -11.200	8590.2 10298.	541.73 570.00	0.51558 587.98	
11	25.00 1.4000	1.09177E-02 9.24879E-03	6.2764 574.88	-1.3809 -126.47	27242. -12.407	8590.2 10302.	541.16 570.00	0.51620 586.63	
12	30.25 1.4000	1.27080E-02 9.24772E-03	6.8625 571.49	-1.6607 -139.30	29941. -13.604	8590.2 10288.	541.22 570.00	0.51561 587.99	
13	36.00 1.4000	1.30943E-02 9.24397E-03	7.4158 566.34	-1.9578 -149.51	32667. -14.789	8590.2 10263.	541.44 570.00	0.51359 585.74	
14	42.25 1.4000	1.41942E-02 9.24322E-03	7.9518 582.73	-2.2428 -160.94	35385. -15.561	8590.2 10260.	541.49 570.00	0.51312 585.29	
15	49.00 1.4000	1.52835E-02 9.24638E-03	8.5749 561.17	-2.6411 -177.84	38124. -17.119	8590.2 10293.	541.30 570.00	0.51406 587.18	
16	56.25 1.4000	1.67701E-02 9.24541E-03	9.1191 557.06	-3.1093 -183.83	40842. -18.263	8590.2 10269.	541.36 570.00	0.51433 586.61	
17	64.00 1.4000	1.74509E-02 9.23985E-03	9.6010 550.17	-3.3796 -193.66	43529. -19.392	8590.2 10267.	541.68 570.00	0.51124 583.26	
18	72.25 1.4000	1.85224E-02 9.23029E-03	10.018 540.86	-3.7467 -207.28	46183. -20.596	8590.2 10230.	542.74 570.00	0.50589 577.65	
19	81.00 1.4000	1.96105E-02 9.22964E-03	10.521 536.52	-4.1665 -212.66	48895. -21.604	8590.2 10228.	542.28 570.00	0.50553 577.05	
20	90.25 1.4000	2.06694E-02 9.21604E-03	10.845 524.67	-4.5331 -219.31	51507. -22.685	8590.2 10175.	543.08 570.00	0.49781 568.67	
21	100.00 1.4000	2.17114E-02 9.19561E-03	11.058 509.30	-4.8653 -224.09	54760. -23.749	8590.2 10100.	544.23 570.00	0.48658 556.42	

ITERATION NO. = C X-STATION NO. = 10 Y-INNER = C.0001 V-OUTER = 2.3167 OUTPUT NO. = 1							
STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(01)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1 C.0 1.4000	9.02670E-07 9.02670E-03	5.04905E-04 559.35	0.0 0.0	2.2480 0.3	8427.3 9925.9	543.96 579.00	0.49926 559.35
2 C.25 1.4000	1.04033E-03 9.02670E-03	0.56436 558.48	-1.28559E-02 -12.287	2609.7 -1.2603	8427.3 9921.6	544.03 570.00	0.45859 556.61
3 1.00 1.4000	2.07398E-03 9.02670E-03	1.1623 559.67	-5.11421E-02 -24.458	5206.4 -2.9194	8427.3 9921.6	544.23 570.00	0.48657 556.41
4 2.25 1.4000	3.13436E-03 9.02670E-03	1.7285 551.92	-0.11438 -35.400	7801.8 -3.7763	8427.3 9866.8	544.57 570.00	0.48319 552.72
5 4.00 1.4000	1.17477E-03 9.02670E-03	2.2768 545.38	-0.22036 -47.994	10355. -5.0291	8427.3 9856.4	545.05 570.00	0.47861 547.49
6 6.25 1.4000	5.22224E-03 9.02670E-03	2.6657 546.74	-0.31522 -62.362	13300. -6.2773	8427.3 9882.9	547.63 570.00	0.48758 552.05
7 9.00 1.4000	6.28188E-03 9.02670E-03	3.5398 563.32	-0.46726 -74.358	15655. -7.5166	8427.3 9975.2	547.13 570.00	0.49739 568.71
8 12.25 1.4000	7.3572E-03 9.02670E-03	4.2819 591.94	-0.65941 -89.619	18368. -8.7548	8427.3 10108.	541.14 570.00	0.51636 588.80
9 16.00 1.4000	5.43955E-03 9.02670E-03	5.0578 599.30	-0.89017 -105.43	21047. -9.9818	8427.3 10237.	539.18 570.00	0.53461 608.51
10 20.25 1.4000	9.51038E-02 9.12206E-03	5.7598 675.64	-1.1404 -119.92	23778. -11.200	8427.3 10298.	538.27 570.00	0.54288 617.39
11 25.00 1.4000	1.05082E-02 9.12315E-03	6.2780 693.59	-1.4034 -132.79	26424. -12.407	8427.3 10302.	538.21 570.00	0.54366 618.02
12 30.25 1.4000	1.16236E-02 9.12210E-03	6.9753 670.10	-1.6580 -15.22	29281. -13.804	8427.3 10298.	538.27 570.00	0.54288 617.39
13 36.00 1.4000	1.26751E-02 9.11540E-03	7.5406 594.91	-1.9907 -157.06	31685. -14.789	8427.3 10283.	538.48 570.00	0.54082 615.29
14 42.25 1.4000	1.37302E-02 9.11760E-03	8.1168 71.1	-2.3214 -15.22	34322. -15.961	8427.3 10280.	538.53 570.00	0.54052 614.87
15 49.00 1.4000	1.47513E-02 9.11777E-03	8.7171 584.34	-2.6849 -181.52	3779. -17.118	8427.3 10283.	538.35 570.00	0.54219 616.66
16 56.25 1.4000	1.5751E-02 9.11742E-03	9.2712 585.08	-3.0595 -193.07	39615. -17.263	8427.3 10289.	538.43 570.00	0.54168 616.11
17 64.00 1.4000	1.67921E-02 9.1143E-03	9.7667 778.11	-3.4379 -203.52	42221. -19.392	8427.3 10287.	538.73 570.00	0.53874 612.95
18 72.25 1.4000	1.77429E-02 9.1066E-03	10.2011 588.96	-3.8157 -212.79	4776. -20.506	8427.3 10280.	539.29 570.00	0.53363 607.45
19 81.00 1.4000	1.89827E-02 9.10426E-03	10.714 584.43	-4.2429 -223.51	47426. -21.604	8427.3 10229.	539.37 570.00	0.53328 607.07
20 90.25 1.4000	2.00778E-02 9.09085E-03	11.060 592.80	-4.6272 -231.07	49960. -22.685	8427.3 10175.	540.12 570.00	0.52593 599.15
21 100.00 1.4000	2.10164E-02 9.07169E-03	11.304 537.84	-4.9725 -236.65	52437. -23.749	8427.3 10100.	541.26 570.00	0.51525 587.66

ITERATION NO. = C X-STATN NO. = 11 Y-INNER = 0.0001 Y-OUTER = 2.2725 OUTPUT NO. = 1								
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANG(°)	P-STAT P-STAG	TEMPER T-STAG	MACH NO VELOCITY	
1 0.0 1.4000	8.84035E-07 8.84035E-07	5.29447E-04 596.20	0.0 0.0	2.2170 0.0	8236.7 9925.9	540.41 570.00	0.52320 596.20	
2 C.29 1.4000	1.00975E-03 8.87525E-03	6.60118 595.27	-1.37250E-02 -13.998	2520.7 -1.2603	8236.7 9921.6	542.48 570.00	0.52257 595.52	
3 1.00 1.4000	2.01785E-03 8.87592E-03	1.1544 592.89	-5.26403E-02 -26.067	5236.6 -2.5194	8236.7 9908.5	542.68 570.00	0.52067 593.47	
4 2.25 1.4000	3.02444E-03 8.87536E-03	1.7806 588.75	-0.11752 -34.857	7547.4 -3.7760	8236.7 9886.8	541.02 570.00	0.51749 590.03	
5 4.00 1.4000	4.02874E-03 8.86256E-03	2.3484 592.51	-0.22666 -51.298	10255. -5.0291	8236.7 9856.5	541.50 570.00	0.51300 585.16	
6 6.25 1.4000	5.03557E-03 8.86338E-03	2.9524 585.68	-0.32478 -64.444	17576. -6.2773	8236.7 9822.9	541.68 570.00	0.51682 589.41	
7 9.00 1.4000	6.05408E-03 8.89396E-03	3.6340 595.27	-0.47968 -79.103	15148. -7.5196	8236.7 9975.2	539.59 570.00	0.53086 604.47	
8 12.25 1.4000	7.10054E-03 8.92858E-03	4.3773 616.48	-0.67411 -94.937	17761. -8.7548	8236.7 10108.	537.62 570.00	0.54879 623.74	
9 16.00 1.4000	8.14433E-03 8.95905E-03	5.1516 622.54	-0.90668 -111.53	20399. -9.9219	8236.7 10257.	535.67 570.00	0.56611 642.26	
10 20.25 1.4000	9.17769E-03 8.97417E-03	5.8576 638.24	-1.1594 -126.57	23001. -11.250	8236.7 10248.	534.76 570.00	0.57397 650.63	
11 25.00 1.4000	1.01986E-02 8.97525E-03	6.4864 636.01	-1.4270 -135.92	25561. -12.407	8236.7 10302.	534.73 570.00	0.57452 651.22	
12 30.25 1.4000	1.12170E-02 8.97421E-03	7.0626 632.40	-1.7167 -153.04	28112. -13.654	8236.7 10295.	534.76 570.00	0.57400 650.63	
13 36.00 1.4000	1.22317E-02 8.97057E-03	7.6712 627.16	-2.0252 -165.57	30651. -14.789	8236.7 10283.	534.98 570.00	0.57211 648.65	
14 42.25 1.4000	1.32499E-02 8.96594E-03	8.2541 623.26	-2.3618 -178.25	33201. -15.961	8236.7 10280.	534.02 570.00	0.57173 648.24	
15 49.00 1.4000	1.42739E-02 8.97290E-03	8.8661 621.14	-2.7307 -191.31	35771. -17.119	8236.7 10293.	534.84 570.00	0.57332 649.93	
16 56.25 1.4000	1.52918E-02 8.97197E-03	9.4306 616.71	-3.1121 -203.51	38321. -18.263	8236.7 10249.	534.40 570.00	0.57284 649.42	
17 64.00 1.4000	1.63014E-02 8.96659E-03	9.9400 609.76	-3.4989 -214.64	40842. -19.392	8236.7 10267.	534.22 570.00	0.57003 646.43	
18 72.25 1.4000	1.73223E-02 8.95730E-03	10.492 600.63	-3.8867 -224.53	43333. -20.508	8236.7 10230.	533.77 570.00	0.56517 641.26	
19 81.00 1.4000	1.83187E-02 8.95066E-03	10.916 595.89	-4.2227 -235.97	45877. -21.604	8236.7 10228.	535.41 570.00	0.56486 642.91	
20 90.25 1.4000	1.93070E-02 8.94347E-03	11.265 594.43	-4.7169 -246.30	48324. -22.685	8236.7 10175.	536.60 570.00	0.55787 633.46	
21 100.00 1.4000	2.02812E-02 8.92461E-03	11.558 586.89	-5.0856 -250.75	50725. -23.749	8236.7 10106.	537.73 570.00	0.54774 622.62	

ITERATION NO. = 0 X-SECTION NO. = 12 V-INNER = 0.0001 V-OUTER = 2.7264 OUTPUT NO. = 1								
STREAMLINE #	#1	#2	#3	#4	P-STAT	YFMP(P)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	8.70569E-07 8.70569E-03	5.55284E-04 637.84	0.0 0.0	2.1799 0.0	8010.7 9925.9	534.14 570.00	0.56197 637.84
2	0.25 1.4000	9.70694E-04 8.70469E-03	0.61838 637.75	-1.36044E-02 -14.015	2499.4 -1.2693	8010.7 9921.6	536.20 570.00	0.56138 637.21
3	1.00 1.4000	1.93579E-03 8.70134E-03	1.2312 634.69	-5.41715E-02 -27.926	4956.0 -2.5194	8010.7 9909.4	534.40 570.00	0.55960 635.31
4	2.25 1.4000	2.92743E-03 8.65589E-03	1.8339 630.75	-0.12133 -41.629	7276.7 -3.7760	8010.7 9886.8	536.74 570.00	0.55662 632.12
5	4.00 1.4000	3.87287E-03 8.66825E-03	2.4213 625.20	-0.21338 -55.018	9689.9 -5.0291	8010.7 9856.4	537.21 570.00	0.55241 627.62
6	6.25 1.4000	4.84459E-03 8.65491E-03	3.0412 627.76	-0.33454 -69.053	12125. -6.2773	8010.7 9822.9	534.00 570.00	0.55608 631.55
7	8.00 1.4000	5.82945E-03 8.71902E-03	3.7326 639.96	-0.49244 -84.475	14604. -7.5196	8010.7 9799.2	535.32 570.00	0.56016 645.51
8	12.25 1.4000	6.62582E-03 8.75099E-03	4.4759 655.73	-0.68929 -130.98	17123. -8.7548	8010.7 10108.	539.36 570.00	0.58606 663.46
9	16.00 1.4000	7.82922E-03 8.78286E-03	5.2491 670.45	-0.92384 -118.00	19666. -9.9618	8010.7 10237.	531.42 570.00	0.60243 680.76
10	20.25 1.4000	8.82259E-03 8.76766E-03	5.9595 675.48	-1.1870 -132.75	22175. -11.292	8010.7 10298.	535.53 570.00	0.60989 688.60
11	25.00 1.4000	9.80395E-03 8.79871E-03	6.5986 673.06	-1.4517 -148.07	24643. -12.407	8010.7 10302.	530.47 570.00	0.61041 689.15
12	30.25 1.4000	1.07830E-02 8.79770E-03	7.2171 669.30	-1.7465 -161.97	27103. -13.654	8010.7 10298.	525.53 570.00	0.60991 689.67
13	36.00 1.4000	1.17564E-02 8.79413E-03	7.8075 663.99	-2.0612 -175.29	29550. -14.789	8010.7 10283.	530.74 570.00	0.60812 686.74
14	42.25 1.4000	1.27372E-02 8.79141E-03	8.4053 659.90	-2.4039 -188.73	32009. -15.961	8010.7 10280.	534.79 570.00	0.60776 686.36
15	48.00 1.4000	1.37216E-02 8.79642E-03	9.0215 657.47	-2.7786 -202.50	34487. -17.119	8010.7 10293.	539.61 570.00	0.60927 687.95
16	56.25 1.4000	1.47791E-02 8.79550E-03	9.5968 652.84	-3.1468 -215.44	36945. -18.263	8010.7 10289.	530.66 570.00	0.60831 687.46
17	64.00 1.4000	1.56707E-02 8.79221E-03	10.121 645.83	-3.5624 -227.33	39376. -19.392	8010.7 10267.	539.98 570.00	0.60615 684.67
18	72.25 1.4000	1.56328E-02 8.78112E-03	10.591 636.75	-3.9610 -238.15	41777. -20.506	8010.7 10230.	541.53 570.00	0.60155 679.62
19	81.00 1.4000	1.70999E-02 8.78049E-03	11.125 631.76	-4.4056 -250.18	44230. -21.604	8010.7 10228.	531.57 570.00	0.60123 679.49
20	90.25 1.4000	1.85628E-02 8.76758E-03	11.517 620.50	-4.8141 -259.37	46594. -22.685	8010.7 10175.	532.35 570.00	0.59463 672.52
21	100.00 1.4000	1.94964E-02 8.74908E-03	11.821 636.31	-5.2012 -266.78	48905. -23.749	8010.7 10100.	533.48 570.00	0.58567 662.41

ITERATION NO. = C X-SECTION NO. = 15 Y-INNER = 0.0001 Y-OUTER = 2.1842 OUTPUT NO. = 1								
STREAMLINE #	h1	h2	h3	h4	P-STAT	TEMPER	MACH NO	
CP/CY	DENSITY	U	V	FLOW ANGLE	P-STAT	T-STAT	VELOCITY	
1	0.2	8.49042E-07	5.87686E-04	0.0	2.1337	7735.1	570.00	0.60767
1.4000	8.49062E-05	686.27	0.0	0.0	9925.9	570.00	686.27	
2	0.25	9.27951E-04	0.63613	-1.34949E-02	2351.8	7755.1	570.87	0.60712
1.4000	8.46959E-03	635.52	-15.092	-1.2903	9921.6	570.00	685.69	
3	1.00	1.85456E-03	1.2670	-5.57500E-02	4659.2	7735.1	531.06	0.60546
1.4000	8.48538E-03	685.28	-50.064	-2.5194	9906.5	570.00	685.94	
4	2.25	2.77937E-03	1.8687	-0.12465	6961.7	7755.1	551.40	0.60268
1.4000	8.46107E-03	679.53	-6.949	-5.7760	9886.8	570.00	681.01	
5	4.00	3.70229E-03	2.4993	-0.21968	9297.1	7735.1	531.86	0.59875
1.4000	8.47362E-05	674.27	-59.356	-9.0291	9896.4	570.00	676.88	
6	6.25	4.63120E-05	3.1526	-0.34458	11633.	7755.1	531.46	0.60218
1.4000	8.48011E-03	676.40	-74.404	-4.2773	9882.9	570.00	680.48	
7	8.00	5.57264E-05	3.8505	-0.50565	14012.	7735.1	529.99	0.61440
1.4000	8.50365E-05	687.37	-90.735	-7.5196	9974.2	570.00	693.74	
8	12.25	6.52516E-03	4.5783	-0.70506	16429.	7735.1	525.05	0.63024
1.4000	8.55481E-03	701.64	-108.09	-8.7548	10108.	570.00	709.67	
9	16.00	7.48435E-05	5.3510	-0.94177	18868.	7735.1	526.14	0.64564
1.4000	8.56589E-05	714.05	-125.83	-9.9818	10217.	570.00	725.94	
10	20.25	8.43348E-03	6.0663	-1.2011	21275.	7735.1	525.25	0.65267
1.4000	8.58032E-03	719.27	-142.41	-11.200	10298.	570.00	755.23	
11	25.00	9.37211E-03	6.7161	-1.4775	25642.	7755.1	524.19	0.65917
1.4000	8.58135E-05	716.61	-157.65	-12.407	10302.	570.00	735.74	
12	30.25	1.02080E-02	7.3463	-1.7778	26402.	7735.1	525.25	0.65264
1.4000	8.59236E-05	712.69	-172.47	-13.664	10298.	570.00	735.23	
13	36.00	1.12605E-02	7.5501	-2.0988	28350.	7755.1	525.46	0.65100
1.4000	8.57688E-05	737.27	-186.72	-14.789	10285.	570.00	751.50	
14	42.25	1.21761E-02	8.5594	-2.4490	30709.	7755.1	525.50	0.65067
1.4000	8.58185E-03	702.67	-271.05	-15.961	10210.	570.00	731.15	
15	49.00	1.31172E-02	9.1842	-2.8287	35087.	7735.1	525.52	0.65209
1.4000	8.57911E-03	700.16	-215.65	-17.119	10293.	570.00	732.62	
16	56.25	1.40526E-02	9.7737	-3.2243	35445.	7755.1	525.38	0.65165
1.4000	8.57821E-03	695.29	-229.45	-18.263	10299.	570.00	732.17	
17	64.00	1.45804E-02	10.309	-3.6289	37777.	7735.1	525.70	0.64915
1.4000	8.57506E-05	688.19	-242.24	-19.392	10267.	570.00	729.56	
18	72.25	1.59001E-02	10.798	-4.0386	40081.	7735.1	526.24	0.64461
1.4000	8.56618E-03	679.13	-254.00	-20.506	10230.	570.00	725.08	
19	81.00	1.68362E-02	11.344	-4.4922	47439.	7735.1	526.28	0.64451
1.4000	8.56359E-03	673.86	-266.85	-21.604	10224.	570.00	724.77	
20	90.25	1.77432E-02	11.759	-4.9153	44703.	7735.1	527.05	0.63629
1.4000	8.55097E-05	652.74	-277.02	-22.685	10175.	570.00	718.31	
21	100.00	1.86576E-02	12.094	-5.3214	46921.	7735.1	528.17	0.62951
1.4000	8.55294E-03	648.93	-285.52	-23.749	10109.	570.00	708.44	

ITERATION NO. = 0 X-STATION NO. = 14 T-INNER = C.0001 V-OUTER = 2.1470 OUTPUT NO. = 1							
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANG(0)	P-STAT P-STAG	TEMP(0) T-STAG	MACH NO VELOCITY
1 0.0 1.4000	8.21459E-07 8.21459E-03	6.11817E-06 744.79	0.0 0.0	2.0742 0.0	7385.3 9025.9	523.83 570.00	0.66387 744.79
2 0.25 1.4000	8.79632E-04 8.21358E-03	0.65452 744.58	-1.43904E-02 -16.370	2220.9 -1.2603	7385.3 9021.6	523.89 570.00	0.66339 744.26
3 1.00 1.4000	1.75778E-03 8.21048E-03	1.3042 741.98	-5.73847E-02 -32.646	4437.8 -2.5194	7385.3 9009.5	524.09 570.00	0.66181 742.67
4 2.25 1.4000	2.63401E-03 8.20535E-03	1.9454 738.41	-0.12440 -46.739	6649.7 -3.1760	7385.3 9006.8	524.42 570.00	0.65923 740.01
5 4.00 1.4000	3.50546E-03 8.19914E-03	2.5739 733.43	-0.22651 -64.541	8854.9 -5.0251	7385.3 9006.4	524.88 570.00	0.65560 736.26
6 6.25 1.4000	4.38598E-03 8.20443E-03	3.2071 735.10	-0.35408 -82.867	11080. -6.2773	7385.3 9002.9	524.48 570.00	0.65077 739.54
7 9.00 1.4000	5.26242E-03 8.22717E-03	3.9342 744.77	-0.51921 -98.309	13345. -7.5196	7385.3 9079.2	523.03 570.00	0.67011 751.23
8 12.25 1.4000	6.18528E-03 8.24513E-03	4.6848 757.52	-0.72147 -118.85	15648. -8.7548	7385.3 10108.	521.12 570.00	0.68485 766.37
9 16.00 1.4000	7.05457E-03 8.28741E-03	5.4572 769.21	-0.96046 -135.38	17969. -9.9815	7385.3 10237.	519.23 570.00	0.69924 781.33
10 20.25 1.4000	7.95468E-03 8.30137E-03	6.1776 772.72	-1.2252 -153.00	20261. -11.200	7385.3 10298.	519.35 570.00	0.70582 787.72
11 25.00 1.4000	8.88394E-03 8.30237E-03	6.8387 769.78	-1.5045 -169.35	22516. -12.407	7385.3 10302.	518.29 570.00	0.70629 788.19
12 30.25 1.4000	9.77112E-03 8.30141E-03	7.4811 765.64	-1.8104 -185.28	24764. -13.604	7385.3 10298.	518.35 570.00	0.70584 787.74
13 36.00 1.4000	1.06550E-02 8.29904E-03	8.0988 760.09	-2.1381 -200.66	27000. -14.789	7385.3 10283.	519.56 570.00	0.70426 786.13
14 42.25 1.4000	1.15419E-02 8.29737E-03	8.7201 755.52	-2.4940 -216.08	29247. -15.961	7385.3 10280.	518.60 570.00	0.70395 785.81
15 49.00 1.4000	1.24398E-02 8.30020E-03	9.3539 752.29	-2.8810 -231.70	31511. -17.119	7385.3 10293.	518.63 570.00	0.70528 787.18
16 56.25 1.4000	1.33208E-02 8.29934E-03	9.9521 749.12	-3.2842 -246.55	33757. -18.263	7385.3 10289.	518.48 570.00	0.70487 786.75
17 64.00 1.4000	1.42001E-02 8.29435E-03	10.506 739.87	-3.6982 -260.43	35978. -19.392	7385.3 10267.	518.79 570.00	0.70252 784.36
18 72.25 1.4000	1.50719E-02 8.28578E-03	11.015 730.80	-4.1194 -273.32	38173. -20.506	7385.3 10230.	519.33 570.00	0.69846 780.24
19 81.00 1.4000	1.59573E-02 8.28518E-03	11.572 725.17	-4.5874 -287.17	40414. -21.604	7385.3 10228.	519.37 570.00	0.69819 779.05
20 90.25 1.4000	1.68190E-02 8.27289E-03	12.011 714.15	-5.0207 -298.52	42574. -22.685	7385.3 10175.	520.13 570.00	0.69237 774.03
21 100.00 1.4000	1.76649E-02 8.25554E-03	12.378 700.64	-5.4464 -308.28	44687. -23.749	7385.3 10100.	521.23 570.00	0.68399 765.46

ITERATION NO. = 0 X-STATION NO. = 15 Y-INNER = 0.0001 Y-OUTER = 2.0959 OUTPUT NO. = 1							
STREAMLINE #	#1	#2	#3	#4	P-STAT	VEPPIR	MACH NO
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY
1	0.0 1.4000	7.62479E-07 7.62479E-02	6.42967E-04 821.18	0.0 0.0	1.9904 0.0	6935.6 9925.9	513.97 570.00
2	0.25 1.4000	9.21165E-04 7.82862E-03	0.67378 820.51	-1.48230E-02 -18.051	2787.4 -1.2603	6905.6 9921.6	513.94 570.00
3	1.00 1.4000	1.64393E-03 7.82588E-03	1.3431 818.50	-5.90966E-02 -36.014	4170.6 -2.5194	6905.6 9908.5	514.13 570.00
4	2.25 1.4000	2.45545E-03 7.82098E-03	2.0048 815.16	-0.13232 -53.800	6243.7 -3.7760	6905.6 9886.8	514.45 570.00
5	4.00 1.4000	3.21615E-03 7.81411E-03	2.6552 810.44	-0.21368 -71.321	8322.4 -5.0291	6905.6 9856.4	514.90 570.00
6	6.25 1.4000	4.00612E-03 7.80515E-03	3.3261 811.61	-0.30537 -89.277	10413. -6.2773	6905.6 9827.9	514.51 570.00
7	8.00 1.4000	4.91123E-03 7.84179E-03	4.0426 819.80	-0.53362 -108.21	12542. -7.5196	6905.6 9795.2	513.99 570.00
8	12.25 1.4000	5.17406E-03 7.87054E-03	4.7960 810.62	-0.73859 -127.92	14174. -8.7546	6905.6 10108.	511.21 570.00
9	16.00 1.4000	6.62285E-03 7.69921E-03	5.5675 840.45	-0.97987 -147.93	16887. -9.9818	6905.6 10237.	509.36 570.00
10	20.25 1.4000	7.46319E-03 7.91251E-03	6.2930 843.20	-1.7460 -166.95	19041. -11.200	6905.6 10295.	508.50 570.00
11	25.00 1.4000	8.29330E-03 7.91346E-03	6.9657 839.92	-1.5324 -184.78	21159. -17.437	6905.6 10302.	508.44 570.00
12	30.25 1.4000	9.12159E-03 7.91255E-03	7.6208 835.46	-1.8442 -272.19	23277. -13.604	6905.6 10299.	505.55 570.00
13	36.00 1.4000	9.94662E-03 7.90934E-03	8.2529 829.72	-2.1798 -210.05	25373. -14.769	6905.6 10283.	504.79 570.00
14	42.25 1.4000	1.07746E-02 7.90873E-03	8.8868 824.79	-2.5416 -235.89	27494. -15.961	6905.6 10280.	504.74 570.00
15	49.00 1.4000	1.16073E-02 7.91140E-03	9.5297 821.01	-2.9352 -257.87	29612. -17.110	6905.6 10293.	503.57 570.00
16	56.25 1.4000	1.24350E-02 7.91057E-03	10.140 815.45	-3.3462 -260.70	31727. -18.263	6905.6 10289.	506.42 570.00
17	64.00 1.4000	1.32567E-02 7.90582E-03	10.710 807.97	-3.7701 -284.40	33815. -19.362	6905.6 10267.	528.93 570.00
18	72.25 1.4000	1.40697E-02 7.89763E-03	11.239 798.81	-4.2035 -299.76	35872. -20.506	6905.6 10230.	509.46 570.00
19	81.00 1.4000	1.48764E-02 7.88708E-03	11.809 792.71	-4.6762 -313.91	37979. -21.604	6905.6 10228.	509.49 570.00
20	90.25 1.4000	1.57076E-02 7.85544E-03	12.274 781.76	-5.1305 -326.77	40010. -22.663	6905.6 10175.	510.25 570.00
21	100.00 1.4000	1.64923E-02 7.86982E-03	12.675 768.51	-5.5768 -338.15	41996. -23.740	6905.6 10100.	511.32 570.00

ITERATION NO. = 5 X-STATION NO. = 16 V-INNER = 0.0001 V-OUTER = 2.0517 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	7.1C742E-07 7.10740E-03	6.77561E-04 953.32	0.0 0.0	3.2306 0.0	6030.4 9925.9	494.32 570.00	0.87470 953.32
2	0.25 1.4000	7.29697E-04 7.10952E-03	6.69518 952.70	-1.52939E-02 -25.939	1879.3 -1.2603	6030.4 9921.9	494.42 570.00	0.87428 952.93
3	1.00 1.4000	1.45814E-03 7.10385E-03	1.3864 950.83	-6.10036E-02 -41.837	3754.9 -2.5194	6030.4 9905.5	494.60 570.00	0.87304 951.75
4	2.25 1.4000	2.16549E-03 7.09940E-03	7.0713 947.74	-8.1357C -62.551	5626.7 -3.7760	6030.4 9885.9	494.91 570.00	0.87098 949.80
5	4.00 1.4000	2.91118E-03 7.09317E-03	2.7464 943.40	-9.24185 -83.019	7492.9 -5.0291	6030.4 9858.5	495.25 570.00	0.86807 947.04
6	6.25 1.4000	3.64159E-03 7.08961E-03	3.4368 943.75	-C.37804 -123.81	9375.3 -6.2773	6030.4 9822.9	494.57 570.00	0.86708 949.65
7	9.00 1.4000	4.38188E-03 7.11829E-03	4.1620 949.83	-0.54739 -125.38	11291. -7.5196	6030.4 9779.2	493.60 570.00	0.87973 958.07
8	12.25 1.4000	5.13281E-03 7.14439E-03	4.9154 958.01	-C.75697 -147.53	13137. -8.7544	6030.4 10108.	491.80 570.00	0.89168 969.31
9	16.00 1.4000	5.89504E-03 7.17041E-03	5.6818 965.46	-0.99999 -159.92	15201. -9.9818	6030.4 10237.	490.01 570.00	0.90343 980.50
10	20.25 1.4000	6.63173E-03 7.18249E-03	6.4101 966.57	-1.2692 -191.38	17139. -11.200	6030.4 10288.	489.19 570.00	0.90884 985.34
11	25.00 1.4000	7.36939E-03 7.18335E-03	7.0943 962.68	-1.5608 -211.79	19066. -12.407	6030.4 10302.	489.13 570.00	0.90922 985.70
12	30.25 1.4000	8.10532E-03 7.18232E-03	7.7625 957.71	-1.8785 -221.77	20948. -13.604	6030.4 10298.	489.18 570.00	0.90886 985.35
13	36.00 1.4000	8.83853E-03 7.17961E-03	8.4102 951.54	-2.2203 -251.21	22840. -14.789	6030.4 10283.	489.38 570.00	0.90755 984.14
14	42.25 1.4000	9.57423E-03 7.17903E-03	9.0569 945.97	-2.5903 -270.55	24740. -15.961	6030.4 10280.	489.42 570.00	0.90729 983.90
15	49.00 1.4000	1.03142E-02 7.18148E-03	9.7086 941.28	-2.9902 -289.92	26655. -17.119	6030.4 10293.	489.25 570.00	0.90839 984.92
16	56.25 1.4000	1.10497E-02 7.18273E-03	10.332 935.01	-3.4094 -318.55	28555. -18.263	6030.4 10289.	489.31 570.00	0.90905 984.61
17	64.00 1.4000	1.17792E-02 7.17641E-03	10.920 927.04	-3.8438 -326.32	30434. -19.392	6030.4 10287.	489.68 570.00	0.90612 982.81
18	72.25 1.4000	1.25124E-02 7.16898E-03	11.473 917.63	-4.2907 -343.19	32292. -20.506	6030.4 10230.	490.11 570.00	0.90279 979.70
19	81.00 1.4000	1.32369E-02 7.16548E-03	12.055 910.69	-4.7736 -360.63	34185. -21.604	6030.4 10228.	490.14 570.00	0.90257 979.49
20	90.25 1.4000	1.39516E-02 7.15797E-03	12.551 899.62	-5.2464 -376.04	36017. -22.685	6030.4 10175.	490.87 570.00	0.89781 975.25
21	100.00 1.4000	1.46549E-02 7.14283E-03	12.993 886.61	-5.7170 -390.11	37806. -23.749	6030.4 10100.	491.90 570.00	0.89097 968.64

ITERATION NO. = 0 X-STATION NO. = 17 V-INNER = 0.9201 V-OUTER = 2.0075 OUTPUT NO. = 1								
STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG101	P-STAT P-STAG	TEMPER T-STAG	MACH NO WFLCITY	
1 C.0 1.4000	6.56179E-07 6.56179E-03	6.46918E-04 1046.7	0.0 0.0	1.7075 0.0	5392.4 9925.9	479.81 570.00	0.97583 1046.7	
2 C.25 1.4000	6.56181E-04 6.56297E-03	6.48970 1249.3	-7.12594E-03 -12.810	1714.3 -6.59196	5392.4 9921.9	479.87 570.00	0.97545 1046.3	
3 1.00 1.4000	1.31721E-03 6.55852E-03	1.3766 1045.1	-2.84462E-02 -21.596	3677.2 -1.1439	5392.4 9908.9	479.05 570.00	0.97431 1045.3	
4 2.25 1.4000	1.97425E-03 6.55441E-03	2.0593 1043.1	-6.35107E-02 -32.332	9135.6 -1.7756	5392.4 9886.8	479.35 570.00	0.97239 1043.6	
5 4.00 1.4000	2.62981E-03 6.54665E-03	2.7357 1040.3	-0.11706 -42.992	6039.0 -2.3666	5392.4 9856.4	479.77 570.00	0.96970 1041.2	
6 6.25 1.4000	3.28962E-03 6.53895E-03	3.4274 1041.9	-0.17706 -53.824	8557.0 -2.9573	5392.4 9826.9	479.40 570.00	0.97205 1043.3	
7 8.00 1.4000	3.95815E-03 6.57184E-03	4.1518 1046.9	-0.25738 -65.022	10306. -3.5473	5392.4 9796.2	479.08 570.00	0.98049 1050.9	
8 12.25 1.4000	4.63490E-03 6.59594E-03	4.9040 1258.1	-0.35468 -76.523	12081. -4.1366	5392.4 10108.	476.33 570.00	0.99158 1040.8	
9 16.00 1.4000	5.31623E-03 6.61997E-03	5.6720 1066.9	-0.46883 -88.168	13872. -4.7251	5392.4 10237.	474.60 570.00	1.0025 1070.6	
10 20.25 1.4000	5.99075E-03 6.63112E-03	6.4124 1070.4	-0.59629 -99.536	15641. -5.3125	5392.4 10298.	473.60 570.00	1.0075 1075.0	
11 25.00 1.4000	6.65711E-03 6.63191E-03	7.1208 1064.7	-0.73572 -110.52	17381. -5.8989	5392.4 10302.	473.75 570.00	1.0079 1075.4	
12 30.25 1.4000	7.32190E-03 6.63115E-03	7.8210 1068.2	-0.88488 -121.60	19116. -6.4939	5392.4 10298.	473.40 570.00	1.0075 1075.0	
13 36.00 1.4000	7.99424E-03 6.62646E-03	8.5097 1065.8	-1.0551 -132.14	20847. -7.0677	5392.4 10263.	473.99 570.00	1.0062 1074.0	
14 42.25 1.4000	8.66883E-03 6.62792E-03	9.2041 1064.2	-1.2363 -142.94	22577. -7.6499	5392.4 10263.	474.03 570.00	1.0061 1073.8	
15 48.00 1.4000	9.31726E-03 6.61718E-03	9.9097 1063.6	-1.4334 -153.85	24325. -8.2306	5392.4 10230.	473.67 570.00	1.0071 1074.7	
16 56.25 1.4000	1.04316E-03 6.62949E-03	10.598 1061.7	-1.6424 -164.54	26058. -8.8295	5392.4 10229.	473.42 570.00	1.0068 1074.4	
17 64.00 1.4000	1.06407E-02 6.62553E-03	11.762 1058.4	-1.8618 -174.97	27774. -9.3868	5392.4 10267.	474.21 570.00	1.0050 1072.8	
18 72.25 1.4000	1.12940E-02 6.61865E-03	11.933 1053.9	-2.0905 -185.13	29469. -9.9620	5392.4 10230.	474.70 570.00	1.0019 1070.0	
19 81.00 1.4000	1.19575E-02 6.61819E-03	12.577 1051.8	-2.3300 -195.61	31200. -10.535	5392.4 10229.	474.73 570.00	1.0017 1069.8	
20 90.25 1.4000	1.26031E-02 6.61843E-03	13.182 1049.9	-2.5878 -205.33	32869. -11.106	5392.4 10175.	475.43 570.00	0.99727 1069.9	
21 100.00 1.4000	1.32185E-02 6.59450E-03	13.745 1038.3	-2.8404 -214.55	34504. -11.675	5397.4 10100.	476.44 570.00	0.99042 1060.2	

ITERATION NO. = 0 X-STATION NO. = 18 Y-INNER = 0.0001 Y-OUTER = 2.0102 OUTPUT NO. = 1								
STREAMLINE S	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO	
CP/CD	DENSITY	U	V	Flow ANG(D)	P-STAG	7-STAG	VELOCITY	
1	0.0	5.86452E-07	6.90579E-04	0.0	1.5673	4607.6	457.77	1.1072
1.4000	5.86452E-03	1161.2	0.0	0.0	4925.9	570.00	1161.2	
2	0.25	5.86921E-04	6.60483	0.14502E-04	1556.4	4607.6	457.43	1.1068
1.4000	5.86379E-03	1160.9	1.5902	7.95110E-02	9921.5	570.00	1160.9	
3	1.00	1.17881E-02	1.3674	3.45205E-03	7109.7	4607.6	458.00	1.1058
1.4000	5.86159E-03	1160.0	3.0980	0.15302	9938.5	570.00	1160.0	
4	2.25	1.76562E-03	2.00469	6.14993E-03	4659.9	4607.6	458.79	1.1040
1.4000	5.85792E-03	1159.9	4.6411	0.22953	9886.8	570.00	1158.9	
5	4.00	2.35350E-03	2.7216	1.45371E-02	6205.6	4607.6	458.69	1.1019
1.4000	5.85278E-03	1158.4	6.1769	0.30604	9856.4	570.00	1156.4	
6	6.25	2.94198E-03	2.4098	2.27665E-02	7764.4	4607.6	458.34	1.1037
1.4000	5.84727E-03	1158.2	7.7332	0.38255	9882.9	570.00	1158.2	
7	8.00	3.56245E-03	4.1261	3.30503E-02	9350.5	4607.6	457.07	1.1119
1.4000	5.87351E-03	1164.8	9.3321	0.49906	9976.2	570.00	1164.8	
8	12.25	4.14792E-03	4.8666	4.54932E-02	10961	4607.6	455.40	1.1217
1.4000	5.89304E-03	1171.3	10.968	0.53556	10178.8	570.00	1173.4	
9	16.00	4.75769E-03	5.6223	6.00828E-02	12585	4607.6	453.75	1.1318
1.4000	5.91651E-03	1181.7	12.624	0.61207	10237.	570.00	1181.8	
10	20.25	5.36131E-03	4.3563	7.63924E-02	14149	4607.6	452.98	1.1365
1.4000	5.92648E-03	1185.4	14.249	0.68857	10298.	570.00	1185.7	
11	25.00	5.95765E-03	7.0649	9.43422E-02	15768	4607.6	452.93	1.1368
1.4000	5.92719E-03	1185.8	15.835	0.76506	10302.	570.00	1186.0	
12	30.25	6.55260E-03	7.7685	0.11411	17362	4607.6	452.98	1.1365
1.4000	5.92651E-03	1185.8	17.433	0.84194	10299.	570.00	1185.7	
13	36.00	7.14533E-03	8.4644	0.13864	18978	4607.6	453.17	1.1354
1.4000	5.92410E-03	1184.4	18.983	0.91805	10283.	570.00	1184.8	
14	42.25	7.74010E-03	9.1673	0.15914	20482	4607.6	453.20	1.1351
1.4000	5.92362E-03	1184.4	20.961	0.99454	10280.	570.00	1184.4	
15	49.00	8.11825E-03	9.8821	0.18675	22067	4607.6	453.05	1.1361
1.4000	5.92564E-03	1185.1	22.157	1.0710	10293.	570.00	1185.4	
16	56.25	8.93231E-03	10.584	0.21201	23600	4607.6	453.10	1.1359
1.4000	5.92503E-03	1184.9	23.774	1.1475	10289.	570.00	1185.1	
17	64.00	9.52268E-03	11.270	0.24079	25196	4607.6	453.37	1.1341
1.4000	5.92146E-03	1183.3	25.246	1.2240	10267.	570.00	1183.7	
18	72.25	1.01073E-02	11.937	0.27099	26735	4607.6	453.84	1.1313
1.4000	5.91335E-03	1181.0	26.811	1.3005	10230.	570.00	1181.3	
19	81.00	1.07011E-02	12.636	0.30374	28305	4607.6	453.87	1.1311
1.4000	5.91492E-03	1180.8	28.344	1.3769	10228.	570.00	1181.2	
20	90.25	1.12789E-02	13.280	0.33693	29825	4607.6	454.54	1.1270
1.4000	5.90521E-03	1177.4	29.873	1.4534	10175.	570.00	1177.4	
21	100.00	1.18475E-02	13.891	0.37098	31304	4607.6	455.50	1.1211
1.4000	5.89375E-03	1172.5	31.313	1.5299	10100.	570.00	1172.9	

ITERATION NO. = C X-STATION NO. = 19 V-INNER = 0.0001 V-OUTER = 2.0129 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMP101	WACH NO	
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	5.79554E-07 5.79554E-03	6.79418E-04 1172.3	0.0 0.0	1.5312 0.0	4531.9 9925.9	455.61 570.00	1.1704 1172.3
2	0.25 1.4000	5.83758E-04 5.79482E-03	0.68417 1172.0	9.13e26E-04 1.5651	1542.3 7.85110E-02	4531.9 9921.5	455.67 570.00	1.1201 1172.0
3	1.00 1.4000	1.16550E-03 5.79265E-03	1.3601 1171.1	3.64858E-02 3.1278	3051.5 0.15302	4531.9 9908.5	455.84 570.00	1.1190 1171.1
4	2.25 1.4000	1.74836E-03 5.78922E-03	2.0450 1169.7	8.19240E-03 4.6858	4617.7 0.22753	4531.9 9886.8	456.12 570.00	1.1173 1169.7
5	4.00 1.4000	2.32891E-03 5.78393E-03	2.7192 1167.6	1.45247E-02 0.2367	6149.5 0.30604	4531.9 9856.4	456.52 570.00	1.1148 1167.6
6	6.25 1.4000	2.91323E-03 5.78337E-03	3.4067 1169.4	2.27460E-02 7.8078	7694.1 0.38255	4531.9 9882.9	456.17 570.00	1.1170 1169.4
7	9.00 1.4000	3.50545E-03 5.90442E-03	4.1218 1175.8	3.30251E-02 9.4211	9265.8 0.45906	4531.9 9979.2	456.91 570.00	1.1247 1175.8
8	12.25 1.4000	4.10459E-03 5.82570E-03	4.6810 1184.3	4.54385E-02 11.070	10861. 0.53556	4531.9 10108.	458.25 570.00	1.1349 1184.3
9	16.00 1.4000	4.70796E-03 5.84692E-03	5.6146 1192.6	5.99806E-02 12.745	12471. 0.61207	4531.9 10237.	451.61 570.00	1.1449 1192.6
10	20.25 1.4000	5.30531E-03 5.85977E-03	6.3471 1196.4	7.62820E-02 14.378	14060. 0.68857	4531.9 10298.	450.85 570.00	1.1499 1196.5
11	25.00 1.4000	5.85542E-03 5.85747E-03	7.0546 1198.6	9.42754E-02 15.979	15625. 0.76506	4531.9 10302.	450.79 570.00	1.1499 1198.7
12	30.25 1.4000	6.48416E-03 5.85680E-03	7.7573 1198.3	0.11395 17.573	17185. 0.84156	4531.9 10298.	450.84 570.00	1.1496 1198.5
13	36.00 1.4000	7.07071E-03 5.85442E-03	8.4523 1195.4	0.13544 19.156	18737. 0.91805	4531.9 10289.	451.03 570.00	1.1484 1195.6
14	42.25 1.4000	7.65926E-03 5.85395E-03	9.1543 1195.2	0.15892 20.758	20296. 0.99454	4531.9 10280.	451.06 570.00	1.1482 1195.4
15	49.00 1.4000	8.25121E-03 5.85594E-03	9.8679 1195.9	0.18448 22.358	21867. 1.0710	4531.9 10293.	450.91 570.00	1.1492 1196.1
16	56.25 1.4000	8.83961E-03 5.85533E-03	10.569 1195.7	0.21171 23.950	23425. 1.1475	4531.9 10289.	450.96 570.00	1.1488 1195.9
17	64.00 1.4000	9.42322E-03 5.85182E-03	11.254 1194.3	0.24045 25.517	24968. 1.2240	4531.9 10267.	451.23 570.00	1.1472 1194.5
18	72.25 1.4000	1.00019E-02 5.84576E-03	11.921 1191.9	0.27062 27.057	26492. 1.3009	4531.9 10230.	451.70 570.00	1.1444 1192.2
19	81.00 1.4000	1.05893E-02 5.84535E-03	12.619 1191.7	0.30332 28.644	28048. 1.3769	4531.9 10278.	451.73 570.00	1.1442 1192.0
20	90.25 1.4000	1.11511E-02 5.83874E-03	13.263 1180.3	0.33650 30.149	29550. 1.4534	4531.9 10175.	452.39 570.00	1.1401 1188.7
21	100.00 1.4000	1.17239E-02 5.82443E-03	13.874 1183.4	0.37054 31.606	31020. 1.5299	4531.9 10109.	453.35 570.00	1.1393 1183.8

ITERATION NO. = 0 X-STATION NO. = 20 Y-INLET = 0.0001 Y-OUTER = 2.0155 OUTPUT NO. = 1							
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO
CP/CV	DENSITY	U	V	FLUX ANG(0)	P-STAG	T-STAG	VELOCITY
1	C.0	5.73221E-07	6.77836E-04	0.0	1.5164	4462.7	1.1327
1.4000	5.73220E-03	1182.5	0.0	0.0	4925.9	570.00	1182.5
2	C.25	5.78147E-04	6.58349	9.1271E-04	1529.4	4462.7	1.1323
1.4000	5.73149E-02	1177.2	1.5787	7.65113E-02	4921.5	570.00	1182.2
3	1.00	1.15529E-03	1.3648	3.64501E-03	3055.8	4462.7	1.1313
1.4000	5.72934E-03	1181.3	3.1521	0.15302	4906.5	570.00	1181.3
4	2.25	1.73194E-03	2.0431	8.18479E-03	4574.3	4462.7	1.1295
1.4000	5.72576E-03	1179.9	4.7265	0.22953	4984.8	570.00	1179.9
5	4.00	2.30653E-03	2.7158	1.45115E-02	6099.3	4462.7	1.1271
1.4000	5.72073E-03	1177.9	6.2915	0.39604	4956.5	570.00	1177.9
6	6.25	2.86523E-03	3.4035	2.27245E-02	7632.0	4462.7	1.1262
1.4000	5.72312E-03	1179.6	7.8761	0.39255	4982.9	570.00	1179.6
7	9.00	1.47176E-03	4.1175	3.29800E-02	9198.6	4462.7	1.1369
1.4000	5.74095E-03	1176.0	9.5024	0.45906	4979.2	570.00	1186.0
8	12.25	4.06514E-03	4.5551	4.53832E-02	10771.	4462.7	1.1470
1.4000	5.76203E-03	1174.3	11.164	0.59556	10108.	570.00	1194.4
9	16.00	4.86271E-03	5.6070	5.98999E-02	12367.	4462.7	1.1577
1.4000	5.78103E-03	1202.5	12.846	0.61207	10237.	570.00	1202.6
10	20.25	5.25431E-03	6.3381	7.61731E-02	13943.	4462.7	1.1616
1.4000	5.79277E-03	1205.3	14.497	0.68857	10298.	570.00	1205.3
11	25.00	5.83676E-03	7.0445	9.40704E-02	15494.	4462.7	1.1619
1.4000	5.76345E-03	1206.5	16.111	0.76506	10202.	570.00	1206.6
12	30.25	6.42184E-03	7.7462	0.11378	17041.	4462.7	1.1616
1.4000	5.75280E-03	1206.2	17.718	0.84156	10298.	570.00	1206.4
13	36.00	7.00274E-03	8.4404	0.13525	18587.	4462.7	1.1605
1.4000	5.79044E-03	1205.3	19.314	0.91805	10283.	570.00	1205.5
14	42.25	7.56664E-03	9.1414	0.15869	20127.	4462.7	1.1603
1.4000	5.78197E-03	1205.1	20.920	0.99454	10250.	570.00	1205.3
15	49.00	8.17150E-03	9.8539	0.18422	21684.	4462.7	1.1612
1.4000	5.79195E-03	1205.8	22.543	1.0710	10293.	570.00	1206.0
16	56.25	8.75664E-03	10.554	0.21141	23230.	4462.7	1.1609
1.4000	5.79135E-03	1205.6	24.148	1.1475	10289.	570.00	1205.8
17	64.00	9.22760E-03	11.238	0.24011	24759.	4462.7	1.1593
1.4000	5.78787E-03	1204.2	25.728	1.2240	10267.	570.00	1204.5
18	72.25	9.60564E-03	11.905	0.27025	26171.	4462.7	1.1564
1.4000	5.78187E-03	1201.8	27.283	1.3095	10230.	570.00	1202.1
19	81.00	1.04875E-02	12.602	0.30291	27814.	4462.7	1.1562
1.4000	5.78146E-03	1201.6	28.863	1.3769	10228.	570.00	1202.0
20	90.25	1.10539E-02	13.245	0.33607	29304.	4462.7	1.1522
1.4000	5.77295E-03	1198.3	30.403	1.4534	10175.	570.00	1198.7
21	100.00	1.16111E-02	13.857	0.37009	30762.	4462.7	1.1464
1.4000	5.76576E-03	1193.5	31.674	1.5299	10100.	570.00	1193.9

ITERATION NO. = 0 X-STATION NO. = 21 Y-INNER = C.0001 Y-OUTER = 2.0182 OUTPUT NO. = 1								
STREAMLINE X CP/CY	W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLE	P-STAT P-STAT	TEMPER T-STAT	MACH NO VELOCITY	
1 0.0 1.4000	5.67331E-07 5.67331E-03	6.76241E-04 1192.0	0.0 0.0	1.5027 0.0	4398.7 9925.9	441.74 570.00	1.1441 1192.0	
2 0.25 1.4000	5.72967E-04 5.67260E-03	6.68279 1191.7	9.11762E-04 1.5913	1517.6 7.99112E-02	4398.7 9921.5	441.87 570.00	1.1437 1191.7	
3 1.00 1.4000	1.74494E-03 5.67047E-03	1.7616 1190.8	3.64133E-03 3.1804	7032.1 0.15302	4398.7 9902.5	441.97 570.00	1.1427 1190.8	
4 2.25 1.4000	1.71605E-03 5.66692E-03	2.0410 1189.4	5.17664E-03 4.7648	4543.8 0.22953	4398.7 9894.8	442.24 570.00	1.1414 1189.4	
5 4.00 1.4000	2.26586E-03 5.66194E-03	2.7142 1187.4	5.64976E-02 6.7423	6051.0 0.30604	4398.7 9856.5	442.65 570.00	1.1395 1187.4	
6 6.25 1.4000	2.85939E-03 5.66629E-03	3.4031 1189.1	2.27021E-02 7.9395	7470.9 0.34255	4398.7 9842.9	442.30 570.00	1.1407 1189.1	
7 9.00 1.4000	3.44060E-03 5.65207E-03	4.1130 1195.4	3.75541E-02 9.9775	9117.3 0.45906	4398.7 9979.2	441.65 570.00	1.1403 1195.4	
8 12.25 1.4000	4.02872E-03 5.70287E-03	4.6491 1203.6	4.53277E-02 11.251	10647.6 0.53556	4398.7 10108.6	440.40 570.00	1.1483 1203.7	
9 16.00 1.4000	4.62094E-03 5.72366E-03	5.5093 1211.7	5.98176E-02 12.945	12271.6 0.51206	4398.7 10237.6	442.77 570.00	1.1683 1211.8	
10 20.25 1.4000	5.25724E-03 5.73324E-03	6.3291 1215.4	7.60657E-02 14.608	13835.6 0.61857	4398.7 10298.6	442.02 570.00	1.1728 1215.9	
11 25.00 1.4000	5.78645E-03 5.73393E-03	7.0345 1215.7	9.39769E-02 16.234	15374.6 0.76506	4398.7 10302.6	446.06 570.00	1.1732 1215.8	
12 30.25 1.4000	6.36430E-03 5.73327E-03	7.7332 1215.4	1.11362 17.853	16846.6 0.84156	4398.7 10248.6	442.02 570.00	1.1729 1215.5	
13 36.00 1.4000	6.94001E-03 5.73095E-03	8.4246 1214.5	0.13506 19.462	18416.6 0.91805	4398.7 10283.6	442.20 570.00	1.1718 1214.6	
14 42.25 1.4000	7.51768E-03 5.72044E-03	9.1266 1214.3	0.15847 21.090	19970.6 0.99454	4398.7 10290.6	442.23 570.00	1.1715 1214.9	
15 49.00 1.4000	8.09869E-03 5.73244E-03	9.8400 1215.0	0.18396 22.715	21514.6 1.0710	4398.7 10243.6	442.08 570.00	1.1725 1215.7	
16 56.25 1.4000	8.67622E-03 5.72194E-03	10.539 1214.7	0.21111 24.352	23040.6 1.1475	4398.7 10289.6	442.13 570.00	1.1722 1215.0	
17 64.00 1.4000	9.25004E-03 5.72819E-03	11.223 1213.4	0.23978 25.924	24547.6 1.2243	4398.7 10267.6	442.40 570.00	1.1709 1213.7	
18 72.25 1.4000	9.81440E-03 5.72244E-03	11.869 1211.1	0.26469 27.492	26067.6 1.3005	4398.7 10230.6	442.06 570.00	1.1677 1211.4	
19 81.00 1.4000	1.01936E-02 5.72206E-03	12.585 1210.9	0.29259 29.125	27598.6 1.3769	4398.7 10220.6	442.49 570.00	1.1675 1211.7	
20 90.25 1.4000	1.06544E-02 5.71363E-03	13.228 1207.5	0.33563 30.638	29076.6 1.4534	4398.7 10175.6	442.44 570.00	1.1655 1207.9	
21 100.00 1.4000	1.15070E-02 5.71581E-03	13.840 1207.8	0.36964 32.123	30523.6 1.5259	4398.7 10170.6	442.50 570.00	1.1577 1203.2	

ITERATION NO. = 0 X-STATION NO. = 22 Y-INLET = 0.0001 Y-OUTLET = 2.0209 OUTPUT NO. = 1								
STREAMLINE #	M1	M2	M3	M4	P-STAG	TEMP (R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	5.61905E-07 5.61805E-03	6.74633E-04 1200.8	0.0 0.0	1.4898 0.0	4338.8 9925.9	449.98 570.00	1.1549 1200.8
2	0.25 1.4000	5.61139E-04 5.61173E-03	6.54208 1200.5	9.10874E-04 1.6032	1506.5 7.63112E-02	4338.8 9921.5	450.03 570.00	1.1545 1200.5
3	1.00 1.4000	1.12529E-03 5.61524E-03	1.3620 1199.7	3.63756E-03 3.2041	3010.0 0.15102	4338.8 9909.5	450.20 570.00	1.1535 1199.7
4	2.25 1.4000	1.70159E-03 5.61173E-03	2.0390 1198.2	4.16837E-03 4.8004	4510.7 0.22053	4338.8 9886.8	450.48 570.00	1.1518 1198.2
5	4.00 1.4000	2.26667E-03 5.60000E-03	2.7115 1196.3	1.44834E-02 6.3899	6009.9 0.30604	4338.8 9856.5	450.48 570.00	1.1493 1196.3
6	6.25 1.4000	2.83520E-03 5.61110E-03	3.3567 1196.0	2.26732E-02 7.9989	7515.7 0.38255	4338.8 9822.9	450.53 570.00	1.1515 1196.0
7	8.00 1.4000	3.41167E-03 5.62666E-03	4.1084 1204.2	3.23170E-02 9.6485	9050.8 0.45306	4338.8 9794.2	449.29 570.00	1.1590 1204.2
8	12.25 1.4000	3.99477E-03 5.64728E-03	4.8432 1212.4	4.52718E-02 11.333	10609. 0.53556	4338.8 10108.	447.65 570.00	1.1690 1212.4
9	16.00 1.4000	4.59200E-03 5.66785E-03	5.5918 1220.4	5.97366E-02 13.037	12181. 0.61206	4338.8 10237.	448.02 570.00	1.1789 1220.4
10	20.25 1.4000	5.16337E-03 5.67740E-03	6.3232 1224.0	7.59561E-02 14.711	13734. 0.68857	4338.8 10298.	445.27 570.00	1.1825 1224.1
11	25.00 1.4000	5.73770E-03 5.67808E-03	7.0248 1224.3	9.38041E-02 16.349	15262. 0.75506	4338.8 10302.	445.22 570.00	1.1898 1224.4
12	30.25 1.4000	6.31068E-03 5.67743E-03	7.7243 1224.0	0.11346 17.980	16755. 0.84156	4338.8 10298.	445.27 570.00	1.1935 1224.1
13	36.00 1.4000	6.88154E-03 5.67513E-03	8.4168 1221.1	0.13447 19.599	18301. 0.91805	4338.8 10283.	445.45 570.00	1.1824 1223.3
14	42.25 1.4000	7.44434E-03 5.67466E-03	9.1159 1222.9	0.15825 21.229	19824. 0.99454	4338.8 10280.	445.49 570.00	1.1822 1223.1
15	49.00 1.4000	8.03046E-03 5.67660E-03	9.8262 1223.6	0.18370 22.876	21399. 1.0710	4338.8 10293.	445.33 570.00	1.1831 1223.8
16	56.25 1.4000	8.60412E-03 5.67601E-03	10.525 1223.4	0.21041 24.504	22981. 1.1475	4338.8 10249.	445.38 570.00	1.1828 1223.6
17	64.00 1.4000	9.17111E-03 5.67260E-03	11.207 1222.0	0.23945 26.109	24387. 1.2240	4338.8 10257.	445.65 570.00	1.1812 1222.3
18	72.25 1.4000	9.74113E-03 5.66871E-03	11.873 1219.7	0.26953 27.689	25977. 1.3005	4338.8 10230.	444.11 570.00	1.1784 1220.0
19	81.00 1.4000	1.03760E-02 5.66833E-03	12.568 1219.5	0.30210 29.313	27397. 1.3769	4338.8 10228.	446.14 570.00	1.1792 1219.9
20	90.25 1.4000	1.09625E-02 5.65798E-03	13.211 1216.2	0.33520 30.858	28864. 1.4534	4338.8 10173.	446.80 570.00	1.1742 1216.6
21	100.00 1.4000	1.14101E-02 5.64505E-03	13.823 1211.5	0.36919 32.356	30300. 1.5299	4338.8 10100.	447.74 570.00	1.1684 1211.4

ITERATION NO. = 0 X-STATION NO. = 23 V-INNER = 0.0331 V-OUTER = 2.0236 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO	
CP/CL	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0	5.56584E-07	6.73017E-04	0.0	1.4775	4282.4	449.30	1.1651
	1.4000	5.56584E-03	1206.2	0.0	0.0	5025.9	570.00	1206.2
2	0.25	5.63605E-04	6.46135	9.06853E-04	1496.1	4282.4	449.35	1.1647
	1.4000	5.56514E-03	1208.9	1.6143	7.6511E-02	5021.6	570.00	1208.9
3	1.00	1.12623E-03	1.3606	3.63372E-03	2089.3	4282.4	448.52	1.1637
	1.4000	5.56305E-03	1208.1	3.2264	0.15302	9908.5	570.00	1208.1
4	2.25	1.66801E-03	2.0369	8.15001E-03	4476.5	4282.4	448.80	1.1620
	1.4000	5.55957E-03	1206.7	4.8340	0.22953	9886.8	570.00	1206.7
5	4.00	2.24851E-03	2.7038	1.44688E-02	5955.4	4282.4	449.20	1.1594
	1.4000	5.55468E-03	1204.7	6.4348	0.30604	9856.4	570.00	1204.7
6	6.25	2.81266E-03	3.3032	2.26559E-02	7443.8	4282.4	448.95	1.1617
	1.4000	5.55895E-03	1206.6	8.0550	0.39255	9882.9	570.00	1206.6
7	8.00	3.38444E-03	4.1038	3.28807E-02	8983.3	4282.4	447.91	1.1692
	1.4000	5.57436E-03	1212.6	9.7152	0.45406	4479.2	570.00	1212.6
8	12.25	3.96290E-03	4.6372	4.52158E-02	15536.	4282.4	443.98	1.1792
	1.4000	5.56480E-03	1220.6	11.419	0.53556	10108.	570.00	1220.7
9	16.00	4.54544E-03	5.5842	5.96559E-02	12097.	4282.4	444.36	1.1890
	1.4000	5.61517E-03	1228.5	13.124	0.61206	10237.	570.00	1228.6
10	20.25	5.12217E-03	6.3113	7.58517E-02	13639.	4282.4	443.61	1.1935
	1.4000	5.62464E-03	1232.2	14.809	0.68857	10298.	570.00	1232.3
11	25.00	5.69191E-03	7.0147	9.36724E-02	15154.	4282.4	443.56	1.1939
	1.4000	5.62531E-03	1232.4	16.457	0.76506	10302.	570.00	1232.5
12	30.25	6.26032E-03	7.7135	0.11330	16469.	4282.4	443.61	1.1936
	1.4000	5.62466E-03	1232.1	18.099	0.84154	10298.	570.00	1232.3
13	36.00	6.82662E-03	8.4751	0.13469	18175.	4282.4	443.79	1.1975
	1.4000	5.62238E-03	1231.2	19.730	0.91805	10289.	570.00	1231.4
14	42.25	7.35486E-03	9.1032	0.15803	19687.	4282.4	443.83	1.1922
	1.4000	5.62192E-03	1231.0	21.370	0.99454	10280.	570.00	1231.2
15	48.00	7.96637E-03	9.8124	0.18345	21211.	4282.4	443.67	1.1932
	1.4000	5.62384E-03	1231.7	23.027	1.0710	10293.	570.00	1231.9
16	56.25	8.57447E-03	10.510	0.21052	22723.	4282.4	443.72	1.1929
	1.4000	5.62325E-03	1231.5	24.667	1.1475	10289.	570.00	1231.7
17	64.00	9.05793E-03	11.192	0.23912	24219.	4282.4	443.99	1.1913
	1.4000	5.61998E-03	1230.1	26.283	1.2240	10267.	570.00	1230.4
18	72.25	9.65651E-03	11.857	0.26916	25696.	4282.4	444.45	1.1905
	1.4000	5.61406E-03	1227.9	27.874	1.3105	10230.	570.00	1228.2
19	81.00	1.02239E-02	12.591	0.30169	27207.	4282.4	444.48	1.1893
	1.4000	5.61367E-03	1227.7	29.509	1.3769	10278.	570.00	1228.0
20	90.25	1.07758E-02	13.194	0.33476	28644.	4282.4	445.13	1.1843
	1.4000	5.60540E-03	1224.4	31.066	1.4534	10175.	570.00	1224.6
21	100.00	1.13190E-02	13.806	0.36873	30091.	4282.4	445.57	1.1786
	1.4000	5.59358E-03	1219.8	32.576	1.5299	10100.	570.00	1220.2

ITERATION NO. = 6 A-SECTION NO. = 24 V-INNER = 0.0051 V-OUTER = 2.0263 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAG	TEMP(R)	MACH NO	
CP/CL	DENSITY	U	V	FLOW ANG(D)	P-STAG	7-STAG	VELOCITY	
1	C.0 1.4000	5.51405E-07 5.51405E-03	6.71390E-04 1217.2	C.0 0.0	1.4458 0.0	4228.9 9925.9	446.69 570.00	1.1749 1217.2
2	0.25 1.4000	5.59205E-04 5.51534E-03	6.68661 1218.9	9.65662E-04 1.6259	1486.2 7.65100E-02	4228.9 9921.6	446.76 570.00	1.1745 1216.9
3	1.00 1.4000	1.11764E-03 5.51329E-03	1.3591 1216.0	3.62941E-03 3.2477	2969.5 0.15302	4228.9 9976.5	446.91 570.00	1.1739 1216.1
4	2.25 1.4000	1.87513E-03 5.50984E-03	2.0347 1214.7	5.15127E-03 4.8660	4450.0 0.22353	4228.9 9884.8	447.14 570.00	1.1718 1214.7
5	4.00 1.4000	2.23136E-03 5.50500E-03	2.7060 1212.7	1.44540E-02 8.4776	5926.1 0.30604	4228.9 9856.4	447.58 570.00	1.1696 1212.7
6	6.25 1.4000	2.79121E-03 5.50322E-03	3.3896 1214.4	2.26320E-02 1.1783	7414.6 0.38755	4228.9 9862.9	447.24 570.00	1.1715 1214.4
7	9.00 1.4000	3.35463E-03 5.52450E-03	4.0991 1220.5	3.28433E-02 9.7708	8929.0 0.45906	4228.9 9976.2	446.01 570.00	1.1790 1220.3
8	12.25 1.4000	3.93267E-03 5.54475E-03	4.8311 1228.5	4.51594E-02 11.4483	10466. 0.53556	4228.9 10108.	446.38 570.00	1.1889 1228.5
9	16.00 1.4000	4.51077E-03 5.56495E-03	5.5767 1236.3	5.45754E-02 13.267	12017. 0.61206	4228.9 10237.	442.76 570.00	1.1987 1236.4
10	20.25 1.4000	5.08109E-03 5.57432E-03	6.3025 1239.9	7.57455E-02 14.901	13548. 0.68857	4228.9 10298.	442.62 570.00	1.2032 1240.0
11	25.00 1.4000	5.64844E-03 5.57499E-03	7.0049 1240.1	9.35411E-02 16.560	15056. 0.76506	4228.9 10302.	442.97 570.00	1.2035 1240.2
12	30.25 1.4000	6.21257E-03 5.57439E-03	7.7027 1239.9	0.11315 18.214	16554. 0.84156	4228.9 10298.	442.07 570.00	1.2032 1240.0
13	36.00 1.4000	6.77455E-03 5.57209E-03	8.3935 1239.0	0.13450 19.454	18055. 0.91905	4228.9 10289.	442.20 570.00	1.2021 1239.1
14	42.25 1.4000	7.33945E-03 5.57163E-03	9.0906 1238.8	0.15741 21.505	19457. 0.99454	4228.9 10280.	442.23 570.00	1.2019 1239.0
15	49.00 1.4000	7.90561E-03 5.57354E-03	9.7987 1239.5	0.18319 23.172	21071. 1.0710	4228.9 10294.	442.39 570.00	1.2028 1239.7
16	56.25 1.4000	8.46917E-03 5.57296E-03	10.495 1239.2	0.21023 24.822	22573. 1.1475	4228.9 10289.	442.13 570.00	1.2025 1239.5
17	64.00 1.4000	9.02854E-03 5.56961E-03	11.176 1237.9	0.23979 26.449	24059. 1.2240	4228.9 10267.	442.39 570.00	1.2009 1238.2
18	72.25 1.4000	9.59284E-03 5.56384E-03	11.841 1235.6	0.26880 28.050	25526. 1.3005	4228.9 10230.	442.85 570.00	1.1981 1235.9
19	81.00 1.4000	1.01456E+02 5.56345E-03	12.535 1235.4	0.30129 29.696	27027. 1.3769	4228.9 10278.	442.88 570.00	1.1980 1235.8
20	90.25 1.4000	1.06936E-02 5.55925E-03	13.177 1232.2	0.33432 31.266	28475. 1.4534	4228.9 10170.	443.56 570.00	1.1940 1232.6
21	100.00 1.4000	1.12127E-02 5.56354E-03	13.789 1227.6	0.36829 32.786	29892. 1.5299	4228.9 10100.	444.47 570.00	1.1883 1228.0

ITERATION NO. = 0 X-STATION NO. = 25 V-INNER = 0.0501 V-OUTER = 2.0289 OUTPUT NO. = 1								
STREAMLINE #	#1	#2	#3	#4	P-STAT	TEMPER	MACH NO	
CP/CD	DENSITY	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY	
1	0.0	5.46874E-07	6.65765E-04	0.0	1.4547	4178.2	448.19	1.1842
1.4000	5.46874E-03	1224.7	0.0	0.0	9928.9	570.00	1224.7	
2	0.25	5.55240E-04	0.47986	6.07863E-04	1476.9	4178.2	445.21	1.1838
1.4000	5.46890E-03	1224.6	1.6351	7.65110E-02	9921.5	570.00	1224.6	
3	1.00	1.10552E-03	1.3576	3.62596E-03	2950.9	4178.2	445.38	1.1828
1.4000	5.46601E-03	1223.6	3.2690	0.15302	9904.5	570.00	1223.6	
4	2.25	1.66256E-03	2.0325	6.14257E-03	4422.0	4178.2	445.65	1.1811
1.4000	5.46259E-03	1222.2	4.8964	0.22953	9886.8	570.00	1222.3	
5	4.00	2.21515E-03	2.7032	1.44390E-02	5888.9	4178.2	446.05	1.1788
1.4000	5.45779E-03	1220.3	6.5182	0.30604	9856.4	570.00	1220.3	
6	6.25	2.77593E-03	3.3860	2.26079E-02	7353.1	4178.2	445.70	1.1808
1.4000	5.46199E-03	1222.0	8.1590	0.38255	9882.9	570.00	1222.0	
7	9.00	3.23423E-03	4.0945	3.28057E-02	8872.9	4178.2	444.47	1.1803
1.4000	5.47712E-03	1228.0	9.8341	0.45906	9976.2	570.00	1228.0	
8	12.25	3.60410E-03	4.8251	4.81633E-02	10450.0	4178.2	442.85	1.1982
1.4000	5.46720E-03	1235.9	11.553	0.55556	10108.9	570.00	1236.0	
9	16.00	4.47900E-03	5.5692	5.94954E-02	11942.0	4178.2	441.24	1.2079
1.4000	5.51722E-03	1243.7	13.286	0.61207	10237.0	570.00	1243.7	
10	20.25	5.04617E-03	6.2938	7.56406E-02	13440.3	4178.2	440.50	1.2124
1.4000	5.52652E-03	1247.2	14.990	0.65857	10298.0	570.00	1247.3	
11	25.00	5.60746E-03	6.9951	9.34111E-02	14961.0	4178.2	440.45	1.2127
1.4000	5.52718E-03	1247.5	16.658	0.76406	10302.0	570.00	1247.6	
12	30.25	6.16743E-03	7.6921	0.11299	16455.0	4178.2	440.50	1.2124
1.4000	5.52654E-03	1247.2	18.320	0.86156	10298.0	570.00	1247.3	
13	36.00	6.72534E-03	8.3819	0.13432	17941.0	4178.2	440.58	1.2113
1.4000	5.52430E-03	1246.3	19.972	0.91605	10283.0	570.00	1246.3	
14	42.25	7.22514E-03	9.0781	0.15759	19434.0	4178.2	440.71	1.2111
1.4000	5.52385E-03	1246.1	21.632	0.99454	10280.0	570.00	1246.3	
15	49.00	7.84817E-03	9.7852	0.18294	20938.0	4178.2	440.56	1.2120
1.4000	5.52574E-03	1246.8	23.309	1.0710	10273.0	570.00	1247.0	
16	56.25	8.46783E-03	10.441	0.20494	22430.0	4178.2	440.61	1.2117
1.4000	5.52516E-03	1246.6	24.969	1.1475	10279.0	570.00	1246.8	
17	64.00	9.06294E-03	11.161	0.23847	23907.0	4178.2	440.87	1.2101
1.4000	5.52184E-03	1245.2	26.606	1.2240	10267.0	570.00	1245.5	
18	72.25	9.51723E-03	11.825	0.26444	25368.0	4178.2	441.33	1.2074
1.4000	5.51612E-03	1243.0	28.218	1.3005	10230.0	570.00	1243.3	
19	81.00	1.00721E-02	12.518	0.30789	26857.0	4178.2	441.34	1.2072
1.4000	5.51574E-03	1242.8	29.873	1.3769	10228.0	570.00	1243.2	
20	90.25	1.06140E-02	13.160	0.35389	28296.0	4178.2	442.71	1.2032
1.4000	5.50761E-03	1239.6	31.452	1.4534	10175.0	570.00	1240.0	
21	100.00	1.11511E-02	14.772	0.36782	29704.0	4178.2	442.95	1.1976
1.4000	5.49609E-03	1235.1	32.685	1.5259	10100.0	570.00	1235.5	

ITERATION NO. = 0 K-STATION NO. = 20 V-INNER = 0.0001 V-OUTER = 2.0314 OUTPUT NO. = 1								
STREAMLINE #	M1	M2	M3	M4	P-STAT	TEMP(R)	MACH NO	
CP/CL	SENSITV	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	5.4234E-07 5.4234E-02	6.6013E-04 1232.0	0.0 0.0	1.4440 0.0	4129.8 9925.9	443.47 570.00	1.1932 1232.0
2	0.25 1.4000	5.5136E-04 5.42274E-03	0.67910 1231.7	9.76855E-04 1.4447	1468.0 7.65103E-02	4129.8 9921.5	443.75 570.00	1.1920 1231.7
3	1.00 1.4000	1.10178E-03 5.42071E-03	1.2561 1230.9	3.82188E-03 3.2873	2933.1 0.15302	4129.8 9908.5	443.90 570.00	1.1918 1230.9
4	2.25 1.4000	1.65136E-03 5.41731E-03	2.0203 1229.7	6.13376E-03 4.9229	4355.4 0.22953	4129.8 9896.8	444.17 570.00	1.1901 1229.7
5	4.00 1.4000	2.19569E-03 5.41295E-03	2.7003 1227.4	1.44236E-02 6.5571	5853.4 0.30604	4129.8 9886.5	444.56 570.00	1.1878 1227.4
6	6.25 1.4000	2.75156E-03 5.41671E-03	3.3824 1229.2	2.25835E-02 8.2074	7323.6 0.38255	4129.8 9882.9	444.72 570.00	1.1868 1229.2
7	9.00 1.4000	3.31096E-03 5.43172E-03	4.0897 1235.2	3.27679E-02 9.8588	8819.4 0.45906	4129.8 9979.2	447.99 570.00	1.1973 1235.2
8	12.25 1.4000	3.87685E-03 5.45144E-03	4.6161 1243.0	4.50449E-02 11.519	10338. 0.53554	4129.8 10108.	441.38 570.00	1.2071 1243.0
9	16.00 1.4000	4.44674E-03 5.47149E-03	5.5617 1250.7	5.94157E-02 13.362	11869. 0.61206	4129.8 10237.	439.77 570.00	1.2168 1250.8
10	20.25 1.4000	5.01095E-03 5.46071E-03	6.2551 1254.3	7.55361E-02 15.074	13342. 0.68857	4129.8 10298.	439.04 570.00	1.2213 1254.4
11	25.00 1.4000	5.56633E-03 5.48137E-03	6.9455 1254.5	9.32819E-02 16.752	14871. 0.76506	4129.8 10302.	438.98 570.00	1.2216 1254.6
12	30.25 1.4000	6.12439E-03 5.46076E-03	7.6814 1254.2	0.11283 18.424	16395. 0.84158	4129.8 10298.	439.03 570.00	1.2213 1254.4
13	36.00 1.4000	6.67845E-03 5.47851E-03	8.3704 1253.4	0.13413 20.084	17833. 0.91803	4129.8 10283.	439.21 570.00	1.2207 1253.5
14	42.25 1.4000	7.23430E-03 5.47807E-03	9.0657 1253.2	0.15738 21.755	19317. 0.99454	4129.8 10280.	439.25 570.00	1.2206 1253.3
15	49.00 1.4000	7.79341E-03 5.47994E-03	9.7717 1253.8	0.18268 23.441	20811. 1.0710	4129.8 10293.	439.10 570.00	1.2209 1254.1
16	56.25 1.4000	8.34916E-03 5.47937E-03	10.446 1253.6	0.20663 25.110	22293. 1.1475	4129.8 10289.	439.14 570.00	1.2206 1253.8
17	64.00 1.4000	8.90039E-03 5.47607E-03	11.144 1252.3	0.23014 26.796	23763. 1.2240	4129.8 10267.	439.41 570.00	1.2190 1252.6
18	72.25 1.4000	9.44684E-03 5.47041E-03	11.809 1250.1	0.26408 28.378	25214. 1.3005	4129.8 10230.	439.96 570.00	1.2163 1250.4
19	81.00 1.4000	1.00018E-02 5.47002E-03	12.561 1249.9	0.30048 30.043	26695. 1.3769	4129.8 10228.	439.89 570.00	1.2161 1250.2
20	90.25 1.4000	1.05419E-02 5.46196E-03	13.143 1246.7	0.33346 31.632	28125. 1.4534	4129.8 10175.	440.54 570.00	1.2121 1247.1
21	100.00 1.4000	1.10733E-02 5.46045E-03	13.755 1242.2	0.36736 33.176	29525. 1.5299	4129.8 10109.	441.47 570.00	1.2065 1242.6

ITERATION NO. = 0 X-STATION NO. = 27 V-INLET = 0.0001 V-OUTER = 2.0343 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	5.37986E-03 5.37986E-03	6.66510E-04 1238.9	0.0 0.0	1.4337 0.0	4083.5 9925.9	442.24 570.00	1.2018 1238.9
2	0.25 1.4000	5.47657E-04 5.37919E-03	0.67834 1238.6	9.05840E-04 1.8540	1459.5 7.65110E-02	4083.5 9921.9	442.30 570.00	1.2015 1238.6
3	1.00 1.4000	1.05437E-03 5.37771E-03	1.3546 1237.8	3.61785E-03 3.3059	7916.1 0.15302	4083.5 9998.5	442.47 570.00	1.2005 1237.8
4	2.25 1.4000	1.64025E-03 5.37390E-03	2.0281 1236.9	8.12487E-03 4.9534	4369.9 0.22953	4083.5 9856.8	442.74 570.00	1.1988 1236.9
5	4.00 1.4000	2.18490E-03 5.36905E-03	2.6574 1234.6	1.44082E-02 6.5944	5819.4 0.30604	4083.5 9856.4	442.13 570.00	1.1964 1234.6
6	6.25 1.4000	2.73109E-03 5.37377E-03	3.3787 1236.2	2.25589E-02 8.2540	7281.1 0.39255	4083.5 9832.9	442.79 570.00	1.1985 1236.2
7	9.00 1.4000	3.28879E-03 5.36810E-03	4.0850 1242.1	3.27299E-02 9.9522	8768.2 0.45906	4083.5 9979.2	441.57 570.00	1.2059 1242.2
8	12.25 1.4000	3.85079E-03 5.40785E-03	4.8131 1249.9	4.44907E-02 11.883	15277. 0.53556	4083.5 10108.	439.96 570.00	1.2157 1249.9
9	16.00 1.4000	4.41687E-03 5.42755E-03	5.5543 1257.5	5.93363E-02 12.434	11800. 0.61207	4083.5 10247.	438.36 570.00	1.2256 1257.6
10	20.25 1.4000	4.97726E-03 5.43669E-03	6.2764 1261.0	7.54322E-02 15.155	13304. 0.68857	4083.5 10298.	437.62 570.00	1.2298 1261.1
11	25.00 1.4000	5.55089E-03 5.43735E-03	6.9758 1261.3	9.31533E-02 16.842	14784. 0.76506	4083.5 10302.	437.57 570.00	1.2301 1261.4
12	30.25 1.4000	6.08322E-03 5.43672E-03	7.6709 1261.0	0.11268 18.523	16240. 0.84156	4083.5 10298.	437.62 570.00	1.2298 1261.1
13	36.00 1.4000	6.63351E-03 5.43451E-03	8.3540 1260.1	0.13394 20.193	17729. 0.91805	4083.5 10283.	437.80 570.00	1.2288 1260.3
14	42.25 1.4000	7.18566E-03 5.42407E-03	9.0533 1259.9	0.15714 21.872	19204. 0.99454	4083.5 10260.	437.93 570.00	1.2285 1260.1
15	49.00 1.4000	7.74101E-03 5.43592E-03	9.7583 1260.6	0.18243 23.567	20690. 1.0710	4083.5 10293.	437.68 570.00	1.2295 1260.8
16	56.25 1.4000	8.29303E-03 5.43536E-03	10.452 1260.3	0.20996 25.245	22165. 1.1475	4083.5 10289.	437.73 570.00	1.2292 1260.6
17	64.00 1.4000	8.84955E-03 5.43209E-03	11.131 1259.1	0.23782 26.901	23625. 1.2240	4083.5 10267.	437.99 570.00	1.2276 1259.3
18	72.25 1.4000	9.38113E-03 5.42647E-03	11.793 1258.9	0.26773 28.532	25068. 1.3005	4083.5 10250.	438.45 570.00	1.2248 1257.2
19	81.00 1.4000	9.93456E-03 5.42609E-03	12.484 1256.7	0.30008 30.206	26540. 1.3769	4083.5 10228.	438.48 570.00	1.2246 1257.0
20	90.25 1.4000	1.04710E-02 5.41810E-03	13.128 1253.5	0.33303 31.805	27981. 1.4534	4083.5 10175.	438.12 570.00	1.2207 1253.9
21	100.00 1.4000	1.05988E-02 5.40667E-03	13.738 1249.0	0.36691 33.359	29353. 1.5299	4083.5 10100.	440.05 570.00	1.2151 1249.5

ITERATION NO. = 0 X-STATCN NO. = 28 V-INNER = 0.0001 V-OUTER = 2.0370 OUTPUT NO. = 1								
STREAMLINE & CP/CV	h1 DENSITY	h2 U	h3 V	h4 FLOW ANG(D)	P-STAG P-STAG	TEMP(P) T-STAG	MACH NO VELOCITY	
1 0.0 1.4000	5.33788E-07 5.33788E-03	6.6480E-04 1245.6	0.0 0.0	1.4238 0.0	4038.9 9925.9	440.86 570.00	1.2102 1245.6	
2 0.25 1.4000	5.44593E-04 5.33722E-03	0.67758 1245.3	9.64818E-04 1.6630	1431.3 7.65110E-02	4038.9 9921.9	440.92 570.00	1.2099 1245.3	
3 1.00 1.4000	1.06726E-03 5.33521E-03	1.3531 1244.5	3.61341E-03 3.3738	2899.7 0.15302	4038.9 9908.5	441.78 570.00	1.2089 1244.5	
4 2.25 1.4000	1.62560E-03 5.33187E-03	2.0259 1243.2	8.11590E-03 4.9903	4345.3 0.22953	4038.9 9896.8	441.36 570.00	1.2072 1243.2	
5 4.00 1.4000	2.17071E-03 5.32719E-03	2.6565 1241.5	1.43925E-02 6.6333	5786.8 0.30604	4038.9 9856.4	441.75 570.00	1.2058 1241.5	
6 6.25 1.4000	2.71534E-03 5.32127E-03	3.3750 1242.9	2.25343E-02 5.2588	7246.3 0.38255	4038.9 9882.9	441.41 570.00	1.2049 1242.9	
7 9.00 1.4000	3.26734E-03 5.34066E-03	4.0902 1248.8	3.26917E-02 15.006	8719.0 0.45906	4038.9 9970.2	440.18 570.00	1.2163 1248.8	
8 12.25 1.4000	3.82578E-03 5.36586E-03	4.8071 1258.5	4.49345E-02 11.765	10220. 0.53358	4038.9 10108.	438.58 570.00	1.2240 1258.5	
9 16.00 1.4000	4.38816E-03 5.38527E-03	5.5469 1264.1	5.92071E-02 15.504	11734. 0.61207	4038.9 10237.	436.98 570.00	1.2337 1264.1	
10 20.25 1.4000	4.94493E-03 5.39927E-03	6.2678 1267.5	7.53297E-02 15.234	13229. 0.68857	4038.9 10298.	436.25 570.00	1.2381 1267.6	
11 25.00 1.4000	5.44454E-03 5.34492E-03	6.9863 1267.8	9.32252E-02 16.929	14701. 0.76506	4038.9 10302.	436.20 570.00	1.2384 1267.9	
12 30.25 1.4000	6.04371E-03 5.35430E-03	7.6603 1267.5	0.11252 18.618	16169. 0.84156	4038.9 10298.	436.25 570.00	1.2381 1267.6	
13 36.00 1.4000	6.55041E-03 5.39211E-03	8.3476 1266.4	0.13377 20.297	17629. 0.91805	4038.9 10283.	436.43 570.00	1.2370 1266.8	
14 42.25 1.4000	7.13899E-03 5.39167E-03	9.0410 1266.4	0.15695 21.985	19096. 0.99454	4038.9 10280.	436.46 570.00	1.2368 1266.4	
15 49.00 1.4000	7.65073E-03 5.39351E-03	9.7490 1267.1	0.18218 23.689	20574. 1.0710	4038.9 10293.	436.91 570.00	1.2377 1267.3	
16 56.25 1.4000	8.23916E-03 5.39295E-03	10.438 1266.9	0.20904 25.376	22041. 1.1475	4038.9 10289.	436.38 570.00	1.2375 1267.1	
17 64.00 1.4000	8.78313E-03 5.38971E-03	11.116 1265.6	0.23750 27.040	23492. 1.2240	4038.9 10267.	436.62 570.00	1.2359 1265.6	
18 72.25 1.4000	9.37041E-03 5.38413E-03	11.778 1263.4	0.26737 28.681	24927. 1.3005	4038.9 10230.	437.07 570.00	1.2331 1263.7	
19 81.00 1.4000	9.87004E-03 5.38375E-03	12.468 1263.2	0.29969 30.363	26391. 1.3769	4038.9 10228.	437.10 570.00	1.2330 1263.6	
20 90.25 1.4000	1.04030E-02 5.37582E-03	13.109 1260.1	0.35280 31.971	27804. 1.4534	4038.9 10175.	437.75 570.00	1.2290 1260.3	
21 100.00 1.4000	1.09774E-02 5.36449E-03	13.721 1255.6	0.36645 33.535	29188. 1.5299	4038.9 10105.	438.47 570.00	1.2235 1246.1	

ITERATION NO. = 0 X-STATION NO. = 29 Y-INLET = 0.0001 Y-OUTLET = 2.0397 OUTPUT NO. = 1								
STREAMLINE S	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAT	T-STAT	VELOCITY	
1	0.0 1.4000	5.29753E-07 5.29733E-03	6.45251E-04 1252.0	0.0 0.0	1.4142 0.0	5996.0 9925.9	439.52 570.00	1.2185 1252.0
2	0.25 1.4000	5.40676E-04 5.29667E-03	0.67681 1251.8	5.03739E-04 1.6716	1445.4 7.65110E-02	5996.0 9921.5	439.57 570.00	1.2180 1251.8
3	1.00 1.4000	1.08042E-02 5.25468E-03	1.5514 1251.0	3.6074E-05 3.5411	2884.0 0.15302	5996.0 9908.5	439.74 570.00	1.2170 1251.0
4	2.25 1.4000	1.61935E-03 5.29137E-03	2.0236 1249.7	8.10686E-05 5.0065	4321.7 0.22955	5996.0 9884.8	440.01 570.00	1.2153 1249.7
5	4.00 1.4000	2.15706E-03 5.28872E-05	2.6915 1247.8	1.43768E-02 5.8650	5755.4 0.50604	5996.0 9856.4	440.40 570.00	1.2130 1247.8
6	6.25 1.4000	2.69826E-05 5.25078E-03	5.5912 1249.4	2.25090E-02 8.5421	7203.9 0.38255	5996.0 9882.9	440.04 570.00	1.2150 1249.4
7	9.00 1.4000	3.24678E-03 5.30545E-05	4.0754 1255.2	3.28534E-02 10.057	8671.6 0.45908	5996.0 9974.2	438.85 570.00	1.2224 1255.3
8	12.25 1.4000	5.80171E-05 5.52490E-03	4.8010 1262.9	4.48783E-02 11.805	10164. 0.55556	5996.0 10109.	437.24 570.00	1.2321 1262.9
9	16.00 1.4000	4.36056E-03 5.54429E-05	5.5395 1270.4	5.91787E-02 13.571	11670. 0.61207	5996.0 10257.	435.64 570.00	1.2417 1270.4
10	20.25 1.4000	4.51585E-03 5.53550E-05	6.2555 1273.8	7.52258E-02 15.509	13157. 0.68857	5996.0 10298.	434.92 570.00	1.2461 1273.9
11	25.00 1.4000	5.46040E-03 5.35394E-03	6.9567 1274.0	9.28979E-02 17.015	14621. 0.76506	5996.0 10302.	434.87 570.00	1.2465 1274.1
12	30.25 1.4000	6.00569E-03 5.55552E-03	7.6499 1275.8	0.11237 18.710	16081. 0.84134	5996.0 10298.	434.92 570.00	1.2462 1273.9
13	36.00 1.4000	6.54896E-03 5.35115E-03	8.5262 1272.9	0.15358 20.598	17575. 0.91505	5996.0 10285.	435.10 570.00	1.2451 1275.1
14	42.25 1.4000	7.09409E-03 5.35072E-03	9.0288 1272.7	0.19674 22.094	18992. 0.99454	5996.0 10280.	435.13 570.00	1.2449 1272.9
15	49.00 1.4000	7.64235E-05 5.35254E-05	9.7317 1273.4	0.18194 23.806	20462. 1.0710	5996.0 10295.	434.99 570.00	1.2458 1273.6
16	56.25 1.4000	8.18754E-03 5.55198E-05	10.424 1273.1	0.20879 25.502	21921. 1.1475	5996.0 10279.	435.03 570.00	1.2455 1273.4
17	64.00 1.4000	8.72788E-03 5.34876E-05	11.101 1271.9	0.25718 27.175	23364. 1.2240	5996.0 10267.	435.29 570.00	1.2439 1272.2
18	72.25 1.4000	9.26174E-05 5.35373E-03	11.762 1269.7	0.26702 28.824	24761. 1.3005	5996.0 10230.	435.74 570.00	1.2412 1270.0
19	81.00 1.4000	9.80794E-03 5.54285E-05	12.451 1269.5	0.29929 30.515	26247. 1.3769	5996.0 10228.	434.77 570.00	1.2410 1269.9
20	90.25 1.4000	1.03376E-02 5.35498E-03	13.092 1266.4	0.33217 32.132	27655. 1.4554	5996.0 10173.	435.42 570.00	1.2371 1266.8
21	100.00 1.4000	1.09587E-02 5.32374E-03	13.704 1262.0	0.36599 35.705	29070. 1.5259	5996.0 10100.	437.54 570.00	1.2315 1262.5

ITERATION NO. = 0		X-SECTION NO. = 30		Y-INNER = 0.0001		Y-OUTER = 2.0423		OUTPUT NO. = 1	
STREAMLINE #	W1	W2	W3	W4	P-STAT	YFNP(R)	MACRO NO		
CP/CV	DENSITY	U	V	FLOW ANG(0)	P-STAG	Y-STAG	VELOCITY		
1	0.0 1.4000	5.25810E-07 3.23810E-03	6.61622E-04 1238.3	0.0 0.0	1.4049 0.0	3954.7 9525.0	438.21 570.00	1.2262 1258.3	
2	0.25 1.4000	5.37377E-04 5.25745E-03	0.67604 1238.0	9.62758E-04 1.6799	1435.8 7.65110E-02	3954.7 9921.6	438.27 570.00	1.2259 1258.0	
3	1.00 1.4000	1.07783E-03 5.25548E-03	1.3501 1257.2	3.60364E-03 3.3578	2868.8 0.15302	3954.7 9978.5	438.41 570.00	1.2249 1257.2	
4	2.25 1.4000	1.63947E-03 5.25219E-03	2.0714 1255.9	8.09779E-03 5.0317	4299.0 0.22953	3954.7 9886.8	438.71 570.00	1.2233 1255.9	
5	4.00 1.4000	2.14390E-03 5.24757E-03	2.6886 1254.1	1.63610E-02 6.6986	3725.1 0.30604	3954.7 9556.4	439.09 570.00	1.2208 1254.1	
6	6.25 1.4000	2.66180E-03 5.24162E-03	3.3674 1239.7	2.24854E-02 1.3829	7163.0 0.38755	3954.7 9892.9	439.76 570.00	1.2230 1255.7	
7	8.00 1.4000	3.22697E-03 5.26616E-03	4.0707 1261.4	3.26149E-02 10.107	8625.9 0.43906	3954.7 9979.2	437.94 570.00	1.2303 1261.5	
8	12.25 1.4000	3.77832E-03 5.28547E-03	4.7950 1269.0	4.48217E-02 11.862	10111. 0.33556	3954.7 10108.	435.95 570.00	1.2400 1269.1	
9	16.00 1.4000	4.37355E-03 5.30472E-03	5.5321 1276.5	3.90996E-02 13.636	11609. 0.61236	3954.7 10237.	436.36 570.00	1.2495 1276.5	
10	20.25 1.4000	4.88354E-03 5.31363E-03	6.2507 1279.9	7.51233E-02 15.382	13048. 0.68837	3954.7 10298.	437.63 570.00	1.2539 1290.0	
11	25.00 1.4000	4.42708E-03 5.31429E-03	6.5472 1280.1	9.27711E-02 17.094	14544. 0.76506	3954.7 10302.	433.58 570.00	1.2543 1280.2	
12	30.25 1.4000	5.96905E-03 5.31368E-03	7.6394 1279.8	0.11222 18.800	15966. 0.86156	3954.7 10298.	433.63 570.00	1.2540 1280.0	
13	36.00 1.4000	6.50900E-03 5.31132E-03	8.3230 1279.0	0.13340 20.493	17441. 0.91803	3954.7 10283.	434.81 570.00	1.2529 1279.2	
14	42.25 1.4000	7.05080E-03 5.31109E-03	9.0165 1278.8	0.15633 22.200	18892. 0.99434	3954.7 10280.	435.84 570.00	1.2527 1279.0	
15	48.00 1.4000	7.59577E-03 5.31290E-03	9.7184 1279.5	0.18169 23.920	20354. 1.0710	3954.7 10293.	437.69 570.00	1.2536 1279.7	
16	30.25 1.4000	8.13739E-03 5.31233E-03	17.409 1279.2	0.70851 25.623	21803. 1.1473	3954.7 10289.	437.76 570.00	1.2533 1279.5	
17	64.00 1.4000	8.67463E-03 5.30916E-03	11.086 1278.0	0.23686 27.305	23241. 1.2240	3954.7 10287.	434.00 570.00	1.2517 1278.2	
18	72.25 1.4000	9.20721E-03 3.30366E-03	11.747 1273.8	0.26665 78.962	24660. 1.3003	3954.7 10230.	434.43 570.00	1.2490 1276.1	
19	81.00 1.4000	9.74810E-03 5.30329E-03	12.435 1273.6	0.29889 30.662	26109. 1.3769	3954.7 10228.	434.48 570.00	1.2488 1276.0	
20	90.25 1.4000	1.02745E-02 3.29369E-03	13.073 1272.6	0.33174 32.287	27507. 1.4534	3954.7 10175.	435.12 570.00	1.2468 1273.0	
21	100.00 1.4000	1.07924E-02 5.28431E-03	13.687 1269.2	0.36553 33.870	28877. 1.5299	3954.7 10100.	436.04 570.00	1.2394 1268.6	

ITERATION NO. = 0 X-STATION NO. = 31 Y-INNER = 0.0001 Y-OUTER = 2.0490 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAT	T-STAT	VELOCITY	
1	0.0 1.4000	5.22007E-07 5.22007E-03	6.59996E-04 1264.3	0.0 0.0	1.5559 0.0	5914.7 9925.9	436.94 570.00	1.2339 1264.3
2	0.25 1.4000	5.34189E-04 5.21862E-05	6.67526 1264.1	9.31771E-04 1.6940	1428.4 7.65109E-02	5914.7 9921.5	437.00 570.00	1.2356 1264.1
3	1.00 1.4000	1.06746E-05 5.21746E-03	1.3485 1263.3	3.60155E-03 3.5739	2954.1 0.15302	5914.7 9908.5	437.16 570.00	1.2326 1263.3
4	2.25 1.4000	1.54992E-03 5.21420E-05	2.0191 1262.0	6.09846E-03 3.0557	4277.0 0.22955	5914.7 9886.8	437.44 570.00	1.2510 1262.0
5	4.00 1.4000	2.13178E-03 5.20961E-03	2.4896 1260.1	1.43451E-02 6.7311	5695.8 0.30604	5914.7 9856.4	437.92 570.00	1.2286 1260.2
6	6.25 1.4000	2.66586E-05 5.21161E-03	3.5437 1261.7	2.24524E-02 8.6244	7126.4 0.39255	5914.7 9877.9	437.68 570.00	1.2307 1261.8
7	9.00 1.4000	5.20783E-05 5.22807E-03	4.0658 1267.5	3.25764E-02 10.155	8581.7 0.45904	5914.7 9879.2	436.27 570.00	1.2360 1267.5
8	12.25 1.4000	3.75611E-05 5.24724E-03	4.7890 1275.0	4.47655E-02 11.918	10359. 0.53556	5914.7 10108.	436.68 570.00	1.2476 1275.0
9	16.00 1.4000	4.50825E-05 5.26654E-03	5.5248 1282.4	5.90212E-02 15.700	11549. 0.61207	5914.7 10217.	437.10 570.00	1.2571 1282.4
10	20.25 1.4000	4.95488E-05 5.27522E-05	6.2422 1285.8	7.30212E-02 15.453	13020. 0.68857	5914.7 10298.	437.58 570.00	1.2615 1285.9
11	25.00 1.4000	5.35489E-03 5.27555E-03	6.6378 1286.0	9.76444E-02 17.173	14469. 0.76556	5914.7 10302.	432.22 570.00	1.2619 1286.1
12	30.25 1.4000	5.63304E-03 5.27524E-03	7.4291 1285.7	0.11208 18.886	15914. 0.84156	5914.7 10298.	437.37 570.00	1.2616 1285.9
13	36.00 1.4000	5.47040E-03 5.27510E-03	8.3137 1284.9	0.15522 20.590	17151. 0.91805	5914.7 10283.	432.55 570.00	1.2605 1285.0
14	42.25 1.4000	7.00899E-03 5.27268E-05	9.0044 1284.7	0.19651 22.502	18795. 0.99456	5914.7 10280.	437.58 570.00	1.2603 1284.9
15	49.00 1.4000	7.55067E-05 5.27447E-03	9.7033 1285.3	0.18144 24.050	20250. 1.0710	5914.7 10293.	432.44 570.00	1.2612 1285.6
16	56.25 1.4000	8.08912E-03 5.27392E-03	10.3495 1285.1	0.20873 24.741	21895. 1.1475	5914.7 10289.	437.48 570.00	1.2609 1285.4
17	64.00 1.4000	8.62319E-03 5.27070E-03	11.071 1283.9	0.23654 27.431	23121. 1.2240	5914.7 10267.	432.74 570.00	1.2593 1284.1
18	72.25 1.4000	9.15262E-03 5.26530E-05	11.731 1281.7	0.26651 29.097	24534. 1.5005	5914.7 10230.	433.19 570.00	1.2566 1282.0
19	81.00 1.4000	9.65029E-03 5.26493E-03	12.418 1281.5	0.29850 30.894	25975. 1.5769	5914.7 10228.	435.22 570.00	1.2584 1281.9
20	90.25 1.4000	1.02136E-02 5.25717E-03	13.058 1278.5	0.35131 32.498	27366. 1.4554	5914.7 10175.	433.86 570.00	1.2526 1278.9
21	100.00 1.4000	1.07284E-02 5.24603E-03	15.670 1274.1	0.36508 34.025	28729. 1.5299	5914.7 10100.	434.78 570.00	1.2470 1274.6

ITERATION NO.= 0 X-STATION NO.= 32 V-INNER = 0.0001 V-OUTER = 2.6477 OUTPUT NO. = 1							
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(P)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOC.177
1	C.C	5.18313E-07	6.96371E-04	0.0	1.3871	3875.9	1.2414
1.4000	5.18313E-03	1276.2	0.0	0.0	9925.9	570.00	1270.2
2	0.25	5.31103E-04	6.07448	9.00680E-04	1421.3	3875.9	1.2411
1.4000	5.18249E-03	1270.0	1.4959	7.65110E-02	9921.6	570.00	1270.0
3	1.00	1.66129E-03	1.3470	3.59740E-03	2139.9	3875.9	1.2401
1.4000	5.18094E-03	1269.2	3.3898	0.15302	9908.5	570.00	1269.2
4	2.25	1.59069E-03	2.0168	8.07950E-03	4255.7	3875.9	1.2389
1.4000	5.17730E-03	1267.9	5.0793	0.22293	9896.8	570.00	1267.9
5	4.00	2.11897E-03	2.6825	1.43251E-02	5667.4	3875.9	1.2361
1.4000	5.17279E-03	1266.1	6.7626	0.30694	9956.4	570.00	1266.1
6	6.25	2.65649E-03	3.3998	2.24332E-02	7030.8	3875.9	1.2382
1.4000	5.17472E-03	1267.6	8.6638	0.39255	9882.9	570.00	1267.7
7	9.00	3.19031E-03	4.0610	3.29378E-02	8938.9	3875.9	1.2455
1.4000	5.18107E-03	1273.3	10.202	0.45906	9979.2	570.00	1273.4
8	12.25	3.73641E-03	4.7830	4.47092E-02	10009.	3875.9	1.2551
1.4000	5.21010E-03	1280.8	11.972	0.53596	10108.	570.00	1280.8
9	16.00	4.28336E-03	5.5175	5.89431E-02	11491.	3875.9	1.2646
1.4000	5.22908E-03	1288.1	13.761	0.61206	10237.	570.00	1288.2
10	20.25	4.82684E-03	6.2338	7.49195E-02	12955.	3875.9	1.2690
1.4000	5.23769E-03	1291.5	15.921	0.69857	10258.	570.00	1291.6
11	25.00	5.36176E-03	6.9284	9.29191E-02	14397.	3875.9	1.2693
1.4000	5.23852E-03	1291.7	17.249	0.76506	10302.	570.00	1291.8
12	30.25	5.89538E-03	7.6187	0.11101	15834.	3875.9	1.2690
1.4000	5.23791E-03	1291.4	18.970	0.84156	10298.	570.00	1291.8
13	36.00	6.43303E-03	8.3025	0.13304	17265.	3875.9	1.2679
1.4000	5.23979E-03	1290.6	20.681	0.91825	10283.	570.00	1290.8
14	42.25	6.96890E-03	8.9923	0.15610	18701.	3875.9	1.2677
1.4000	5.23536E-03	1290.4	22.401	0.99454	10280.	570.00	1290.6
15	49.00	7.50707E-03	9.6621	0.18120	20148.	3875.9	1.2686
1.4000	5.23715E-03	1291.1	24.137	1.0710	10293.	570.00	1291.3
16	56.25	8.04241E-03	10.381	0.20794	21585.	3875.9	1.2683
1.4000	5.23660E-03	1290.8	25.894	1.1475	10289.	570.00	1291.1
17	64.00	8.57338E-03	11.056	0.23622	23096.	3875.9	1.2667
1.4000	5.23346E-03	1289.6	27.553	1.2240	10267.	570.00	1289.9
18	72.25	9.09575E-03	11.716	0.26596	24411.	3875.9	1.2640
1.4000	5.22804E-03	1287.9	29.227	1.3075	10230.	570.00	1287.8
19	81.00	9.63433E-03	12.402	0.29810	25845.	3875.9	1.2639
1.4000	5.22767E-03	1287.3	30.942	1.3769	10228.	570.00	1287.7
20	90.25	1.01946E-02	13.041	0.33358	27229.	3875.9	1.2600
1.4000	5.21997E-03	1284.3	32.584	1.4534	10175.	570.00	1284.7
21	100.00	1.06664E-02	13.652	0.36662	28585.	3875.9	1.2545
1.4000	5.20896E-03	1279.9	34.184	1.5299	10100.	570.00	1280.4

ITERATION NO. = C X-STATION NO. = 33 Y-INNER = 0.0001 Y-OUTER = 2.0504 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO	
CP/SC	DENSITY	U	V	FLOW ANG(0)	P-STAT	T-STAT	VELOCITY	
1	0.0	5.14720E-03	6.56747E-04	0.0	1.3766	3838.4	434.49	1.2487
	1.4000	5.14720E-03	1275.9	0.0	0.0	9925.9	570.00	1275.9
2	0.25	5.28111E-04	6.6737C	8.99625E-04	1414.4	3838.4	434.55	1.2484
	1.4000	5.14625E-03	1275.7	1.7035	7.65109E-02	9921.9	570.00	1275.7
3	1.00	1.05531E-03	1.3454	3.59326E-03	2826.0	3838.4	434.71	1.2474
	1.4000	5.14463E-03	1274.9	3.4049	0.15302	9908.5	570.00	1274.9
4	2.25	1.50172E-03	2.0143	8.07027E-03	4235.0	3838.4	434.98	1.2458
	1.4000	5.14161E-03	1273.6	3.1022	0.22953	9896.8	570.00	1273.6
5	4.00	2.10694E-03	2.6798	1.42130E-02	5639.9	3838.4	435.36	1.2435
	1.4000	5.13688E-03	1271.8	6.7933	0.39604	9856.5	570.00	1271.8
6	6.25	2.63556E-03	3.3500	2.24097E-02	7056.4	3838.4	435.39	1.2455
	1.4000	5.14083E-03	1273.4	8.5020	0.38255	9882.9	570.00	1273.4
7	9.00	3.17134E-03	4.0562	3.24091E-02	8497.4	3838.4	433.63	1.2528
	1.4000	5.15503E-03	1279.0	10.248	0.45906	9979.2	570.00	1279.1
8	12.25	3.71337E-03	4.7770	4.46530E-02	9959.9	3838.4	432.24	1.2623
	1.4000	5.17393E-03	1286.4	12.025	0.53556	10108.	570.00	1286.5
9	16.00	4.25924E-03	5.5102	5.98651E-02	11439.	3838.4	430.68	1.2718
	1.4000	5.15283E-03	1293.7	13.821	0.61206	10237.	570.00	1293.8
10	20.25	4.75965E-03	6.2253	7.44818E-02	12892.	3838.4	429.95	1.2762
	1.4000	5.20157E-03	1297.0	15.568	0.68857	10298.	570.00	1297.1
11	25.00	5.23333E-03	6.9190	9.23924E-02	14327.	3838.4	429.90	1.2765
	1.4000	5.20220E-03	1297.3	17.323	0.76506	10302.	570.00	1297.4
12	30.25	5.66615E-03	7.6084	0.11176	15737.	3838.4	429.95	1.2762
	1.4000	5.20169E-03	1297.0	19.052	0.86156	10298.	570.00	1297.1
13	36.00	6.25679E-03	8.2913	0.13286	17180.	3838.4	430.12	1.2751
	1.4000	5.16949E-03	1296.2	20.770	0.91803	10298.	570.00	1296.3
14	42.25	6.92926E-03	9.9802	0.15529	18610.	3838.4	430.16	1.2749
	1.4000	5.19907E-03	1296.0	22.498	0.99456	10298.	570.00	1296.2
15	49.00	7.46479E-03	9.6793	0.18095	20350.	3838.4	430.01	1.2758
	1.4000	5.20084E-03	1296.6	24.241	1.0710	10293.	570.00	1296.9
16	56.25	7.99711E-03	10.369	0.20766	21805.	3838.4	430.06	1.2756
	1.4000	5.20030E-03	1296.4	25.967	1.1475	10289.	570.00	1296.6
17	64.00	8.52509E-03	11.041	0.23591	22894.	3838.4	430.32	1.2740
	1.4000	5.19717E-03	1295.2	27.672	1.2240	10267.	570.00	1295.4
18	72.25	9.04600E-03	11.700	0.26561	24293.	3838.4	430.76	1.2713
	1.4000	5.19180E-03	1293.0	29.354	1.3005	10230.	570.00	1293.4
19	81.00	9.58006E-03	12.386	0.29771	25719.	3838.4	430.79	1.2711
	1.4000	5.19143E-03	1292.9	31.076	1.3769	10228.	570.00	1293.2
20	90.25	1.00974E-02	13.024	0.33045	27097.	3838.4	431.43	1.2673
	1.4000	5.16379E-03	1289.9	32.727	1.4524	10175.	570.00	1290.3
21	100.00	1.06044E-02	13.635	0.36414	28446.	3838.4	432.34	1.2618
	1.4000	5.17285E-03	1285.6	34.334	1.5299	10100.	570.00	1286.0

ITERATION NO. = 0 X-STATION NO. = 34 Y-INNER = 0.0001 Y-OUTER = 2.05% OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMP(R)	NACH NO	
CP/CV	DENSITY	M	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	5.11224E-07 5.11224E-03	6.55127E-04 1281.5	0.0 0.0	1.3762 0.0	3801.9 9925.9	433.31 570.00	1.2559 1291.5
2	0.25 1.4000	5.25204E-04 5.11162E-03	6.67292 1291.2	8.98591E-04 1.7109	1407.7 7.65110E-02	3801.9 9921.5	433.36 570.00	1.2556 1291.2
3	1.00 1.4000	1.04991E-03 5.10968E-03	1.3459 1280.5	3.58912E-05 3.4198	2812.7 0.15302	3801.9 9908.5	433.53 570.00	1.2546 1289.5
4	2.25 1.4000	1.57303E-03 5.10649E-03	2.0122 1279.2	8.06107E-03 5.1253	4214.9 0.2233	3801.9 9886.8	451.80 570.00	1.2529 1279.2
5	4.00 1.4000	2.05536E-03 5.10200E-03	2.6766 1277.4	1.42969E-02 6.4231	5615.1 0.50604	3801.9 9856.4	454.18 570.00	1.2506 1277.4
6	6.25 1.4000	2.62108E-03 5.10551E-03	3.3522 1279.9	2.23821E-02 8.5393	7022.9 0.38255	3801.9 9852.9	455.55 570.00	1.2526 1279.0
7	9.00 1.4000	3.15392E-03 5.12007E-03	4.0514 1284.5	3.24604E-02 10.292	8457.1 0.65906	3801.9 9879.2	452.65 570.00	1.2549 1284.6
8	12.25 1.4000	3.69257E-03 5.13894E-03	4.7710 1291.9	4.45969E-02 12.076	9912.4 0.93356	3801.9 10108.	451.07 570.00	1.2694 1292.0
9	16.00 1.4000	4.2584E-03 5.15750E-03	5.5029 1296.1	5.87876E-02 13.879	11381. 0.81207	3801.9 10257.	429.50 570.00	1.2739 1296.2
10	20.25 1.4000	4.77328E-03 5.16925E-03	6.2170 1302.5	7.47175E-02 15.653	12831. 0.68837	3801.9 10298.	425.78 570.00	1.2853 1302.5
11	25.00 1.4000	5.30422E-03 5.16687E-03	6.9996 1302.7	9.22692E-02 17.595	14259. 0.76506	3801.9 10502.	428.73 570.00	1.2836 1302.8
12	30.25 1.4000	5.83392E-03 5.19827E-03	7.5982 1302.4	0.11161 19.131	15882. 0.84156	3801.9 10298.	426.78 570.00	1.2833 1302.6
13	36.00 1.4000	6.36165E-03 5.16418E-03	8.2802 1301.6	0.15249 20.857	17099. 0.91805	3801.9 10283.	426.95 570.00	1.2822 1301.8
14	42.25 1.4000	6.89118E-03 5.16576E-03	8.9682 1301.4	0.15569 22.592	18522. 0.99454	3801.9 10280.	428.99 570.00	1.2820 1301.4
15	49.00 1.4000	7.47377E-03 5.16552E-03	9.6680 1302.0	0.18071 24.342	19955. 1.0710	3801.9 10295.	428.84 570.00	1.2829 1302.3
16	56.25 1.4000	7.95317E-03 5.16458E-03	10.353 1301.8	0.20738 26.076	21477. 1.1475	3801.9 10289.	428.89 570.00	1.2826 1302.1
17	64.00 1.4000	8.47824E-03 5.16167E-03	11.027 1300.6	0.23559 27.788	22785. 1.2240	3801.9 10267.	429.14 570.00	1.2811 1300.9
18	72.25 1.4000	8.99879E-03 5.15654E-03	11.665 1298.5	0.26526 29.477	24177. 1.3005	3801.9 10250.	429.59 570.00	1.2784 1298.8
19	81.00 1.4000	9.52274E-03 5.15617E-03	12.349 1298.5	0.29752 31.207	25597. 1.3769	3801.9 10228.	429.62 570.00	1.2782 1298.7
20	90.25 1.4000	1.00419E-02 5.14837E-03	13.007 1295.9	0.33003 32.885	26968. 1.4554	3801.9 10175.	430.25 570.00	1.2744 1295.7
21	100.00 1.4000	1.05481E-02 5.13772E-03	13.618 1291.1	0.56371 34.481	28311. 1.5299	3801.9 10106.	431.16 570.00	1.2689 1291.5

ITERATION NO. = 0 X-STATIC NO. = 33 7-INNER = 0.0301 7-OUTER = 2.0557 OUTPUT NO. = 1								
STREAMLINE #	M1	M2	M3	M4	P-STAT	TEMP(R)	MACH NO	
CP/CV	SENSITV	U	V	FLOW ANG(10)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	5.0781E-07 5.07813E-03	6.53509E-04 1286.9	0.0 0.0	1.3621 0.0	3766.5 9925.9	432.15 570.00	1.2629 1286.9
2	0.25 1.4000	5.22386E-06 5.07750E-03	0.67713 1286.7	8.97541E-04 1.7142	1401.2 7.65112E-02	3766.5 9921.9	432.21 570.00	1.2626 1286.7
3	1.00 1.4000	1.04387E-03 5.07559E-03	1.3423 1285.9	3.58695E-03 3.4343	2799.6 0.15202	3766.5 9908.5	432.37 570.00	1.2616 1285.9
4	2.25 1.4000	1.56457E-03 5.07261E-03	2.0096 1284.6	8.09181E-03 5.1463	4195.4 0.22953	3766.5 9886.8	432.44 570.00	1.2600 1284.6
5	4.00 1.4000	2.08410E-03 5.06796E-03	2.6735 1282.6	1.42507E-02 6.8522	5567.1 0.30604	3766.5 9856.9	432.02 570.00	1.2577 1282.6
6	6.25 1.4000	2.60665E-03 5.07186E-03	3.3494 1280.6	2.23565E-02 8.5736	6995.4 0.39255	3766.5 9827.9	432.68 570.00	1.2597 1280.6
7	9.00 1.4000	3.13697E-03 5.06591E-03	4.0663 1284.9	3.24216E-02 10.335	8417.9 0.45906	3766.5 9979.2	431.49 570.00	1.2669 1290.0
8	12.25 1.4000	3.67313E-03 5.06456E-03	4.7690 1287.2	4.45409E-02 12.126	9866.6 0.52556	3766.5 10108.6	429.01 570.00	1.2764 1297.3
9	16.00 1.4000	4.21307E-03 5.12315E-03	5.4957 1304.4	5.87101E-02 13.935	11328. 0.61207	3766.5 10237.6	428.99 570.00	1.2858 1304.5
10	20.25 1.4000	4.74761E-03 5.13178E-03	6.2066 1307.7	7.46170E-02 15.717	12771. 0.68857	3766.5 10298.6	427.63 570.00	1.2902 1307.8
11	25.00 1.4000	5.27571E-03 5.12240E-03	6.9003 1307.9	9.71448E-02 17.466	14192. 0.76506	3766.5 10302.6	427.58 570.00	1.2905 1306.1
12	30.25 1.4000	5.80256E-03 5.13182E-03	7.5880 1307.7	0.11146 19.209	15609. 0.84156	3766.5 10298.6	427.63 570.00	1.2902 1307.8
13	36.00 1.4000	6.37746E-03 5.12572E-03	8.2691 1306.9	0.13251 20.942	17019. 0.91805	3766.5 10289.6	427.81 570.00	1.2891 1307.0
14	42.25 1.4000	6.85414E-03 5.12930E-03	8.9562 1309.7	0.15548 22.686	18436. 0.99454	3766.5 10280.6	427.84 570.00	1.2889 1306.9
15	49.00 1.4000	7.38326E-03 5.13105E-03	9.6530 1307.3	0.18047 24.441	19862. 1.0719	3766.5 10293.6	427.69 570.00	1.2878 1307.5
16	56.25 1.4000	7.91042E-03 5.13052E-03	10.340 1307.1	0.20711 26.181	21278. 1.1475	3766.5 10289.6	427.76 570.00	1.2889 1307.3
17	64.00 1.4000	8.43268E-03 5.12743E-03	11.012 1305.9	0.23528 27.901	22679. 1.2240	3766.5 10267.6	428.00 570.00	1.2880 1306.2
18	72.25 1.4000	8.95041E-03 5.12213E-03	11.669 1303.9	0.26491 29.597	24065. 1.3003	3766.5 10239.6	428.44 570.00	1.2853 1304.1
19	81.00 1.4000	9.47622E-03 5.12177E-03	12.343 1303.6	0.29693 31.334	25478. 1.3769	3766.5 10220.6	428.47 570.00	1.2851 1304.0
20	90.25 1.4000	9.98791E-03 5.11422E-03	12.991 1300.6	0.32960 33.000	26542. 1.4534	3766.5 10175.6	429.10 570.00	1.2813 1301.1
21	100.00 1.4000	1.04914E-02 5.10344E-03	13.601 1296.4	0.36325 34.624	28180. 1.5299	3766.5 10105.6	430.01 570.00	1.2758 1296.9

ITERATION NO. = 0 X-STATION NO. = 36 Y-INNER = 0.0001 Y-OUTER = 2.0E6 OUTPUT NO. = 1								
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANGLE	P-STAT P-STAG	TEMPER T-STAG	MACH NO VELOCITY	
1 0.0 1.4000	5.04486E-03 5.04486E-03	6.51893E-04 1292.2	0.0 0.0	1.3542 0.0	3732.0 9925.9	431.02 570.00	1.2698 1292.2	
2 0.25 1.4000	5.15640E-04 5.04424E-03	6.67134 1291.9	6.46442E-04 1.7252	1394.8 7.65110E-02	3732.0 9921.5	431.07 570.00	1.2694 1291.9	
3 1.00 1.4000	1.03839E-03 5.04234E-03	1.3407 1291.2	3.58078E-03 5.4484	2756.9 0.15302	3732.0 9908.5	431.23 570.00	1.2694 1291.2	
4 2.25 1.4000	1.85624E-03 5.03919E-03	2.0076 1289.9	6.04255E-03 5.1676	4176.4 0.22953	3732.0 9886.9	431.30 570.00	1.2668 1289.9	
5 4.00 1.4000	2.07315E-03 5.03476E-03	2.6705 1288.1	1.42644E-02 6.7906	5561.8 0.30604	3732.0 9856.4	431.88 570.00	1.2645 1288.2	
6 6.25 1.4000	2.59329E-03 5.03802E-02	3.3649 1289.7	2.23304E-02 8.6110	6998.7 0.39255	3732.0 9862.9	431.85 570.00	1.2665 1289.7	
7 9.00 1.4000	3.12049E-03 5.05260E-03	4.0417 1295.2	3.23829E-02 13.378	8379.7 0.45906	3732.0 9979.2	435.36 570.00	1.2737 1295.3	
8 12.25 1.4000	3.65382E-03 5.07112E-03	4.7590 1302.5	4.44849E-02 18.175	9821.8 0.53556	3732.0 10108.9	426.79 570.00	1.2832 1302.5	
9 16.00 1.4000	4.15007E-03 5.08959E-03	5.4985 1309.6	5.86329E-02 19.990	11277.9 0.61206	3732.0 10237.9	427.23 570.00	1.2926 1309.7	
10 20.25 1.4000	4.72268E-03 5.09816E-03	6.2603 1312.9	7.45170E-02 15.779	12713.9 0.68657	3732.0 10298.9	426.51 570.00	1.2970 1313.0	
11 25.00 1.4000	5.24798E-03 5.09678E-03	6.8911 1313.1	9.20211E-02 17.535	14128.9 0.76506	3732.0 10302.9	426.48 570.00	1.2979 1313.2	
12 30.25 1.4000	5.77206E-03 5.09819E-02	7.5778 1312.8	0.11131 19.284	15538.9 0.84159	3732.0 10298.9	426.51 570.00	1.2970 1313.0	
13 36.00 1.4000	6.29420E-03 5.09612E-03	8.2581 1312.0	0.13233 21.074	16942.9 0.91803	3732.0 10283.9	426.68 570.00	1.2959 1312.2	
14 42.25 1.4000	6.81812E-03 5.09570E-03	8.9442 1311.8	0.15527 22.773	18352.9 0.99454	3732.0 10280.9	426.72 570.00	1.2957 1312.0	
15 49.00 1.4000	7.34506E-03 5.09744E-03	9.6401 1312.5	0.18022 24.537	19772.9 1.0710	3732.0 10293.9	426.57 570.00	1.2966 1312.7	
16 56.25 1.4000	7.86225E-03 5.09691E-03	10.326 1312.2	0.20683 26.245	21181.9 1.1475	3732.0 10289.9	426.62 570.00	1.2963 1312.5	
17 64.00 1.4000	8.38037E-03 5.09385E-03	10.997 1311.0	0.23497 28.011	22576.9 1.2240	3732.0 10267.9	426.87 570.00	1.2948 1311.3	
18 72.25 1.4000	8.90338E-03 5.08859E-03	11.654 1309.0	0.26456 29.715	23956.9 1.3005	3732.0 10230.9	427.31 570.00	1.2921 1309.3	
19 81.00 1.4000	9.42641E-03 5.08821E-03	12.337 1308.8	0.29454 31.458	25362.9 1.3769	3732.0 10228.9	427.34 570.00	1.2919 1309.1	
20 90.25 1.4000	9.95942E-03 5.08072E-03	12.974 1307.9	0.32918 33.132	26721.9 1.4534	3732.0 10175.9	427.98 570.00	1.2881 1306.3	
21 100.00 1.4000	1.04363E-02 5.07001E-03	13.584 1301.6	0.36280 34.763	28052.9 1.5269	3732.0 10100.9	428.88 570.00	1.2827 1302.1	

ITERATION NO. = 0 X-STATION NO. = 37 V-INNER = 0.0301 V-OUTER = 2.0611 OUTPUT NO. = 1							
STREAMLINE #	W1	W2	W3	W4	P-STAT	TFMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAT	T-STAT	VELOCITY
1	0.0 1.4000	5.01275E-07 5.01225E-03	5.50277E-04 1297.4	0.0 0.0	1.3464 0.0	3698.2 9925.9	429.90 579.00
2	0.25 1.4000	5.16954E-04 5.01163E-03	6.67755 1297.1	8.95436E-04 1.7321	1388.4 7.95110E-02	3698.2 9921.5	429.95 579.20
3	1.00 1.4000	1.03302E-03 5.00974E-03	1.3392 1296.4	3.57659E-03 3.4623	2774.5 0.15302	3698.2 9978.5	430.12 575.00
4	2.25 1.4000	1.54611E-03 5.00661E-03	2.0752 1295.1	8.33320E-03 5.1894	4157.7 0.22953	3699.2 9976.8	430.38 570.00
5	4.00 1.4000	2.06243E-03 5.00221E-03	2.6675 1293.4	1.42481E-02 6.9084	5537.0 0.33604	3698.2 9856.4	430.76 570.00
6	6.25 1.4000	2.27989E-03 5.00005E-03	3.3476 1294.9	2.21049E-02 8.6457	6927.7 0.48255	3698.2 9882.0	430.43 570.00
7	9.00 1.4000	3.10436E-03 5.01993E-03	4.0368 1300.4	3.22439E-02 10.419	8342.4 0.49906	3698.2 9979.2	429.24 575.00
8	12.25 1.4000	3.67494E-03 5.03833E-03	4.7530 1307.6	4.44288E-02 12.223	9778.0 0.53559	3698.2 10108.0	427.67 570.00
9	16.00 1.4000	4.16527E-03 5.05688E-03	5.4812 1314.7	5.85508E-02 14.045	11226. 0.61207	3698.2 10237.0	426.12 570.00
10	20.25 1.4000	4.63827E-03 5.06520E-03	6.1919 1317.9	7.44163E-02 15.839	12657. 0.68857	3698.2 10298.0	425.41 570.00
11	25.00 1.4000	5.22087E-03 5.06921E-03	6.8818 1316.1	9.18973E-02 17.602	14065. 0.76506	3699.2 10302.0	425.35 570.00
12	30.25 1.4000	5.74224E-03 5.06923E-03	7.5676 1317.9	0.11116 19.358	15469. 0.94150	3698.2 10298.0	425.40 570.00
13	36.00 1.4000	6.26168E-03 5.06317E-03	8.2671 1317.1	0.13215 21.105	16966. 0.91505	3698.2 10283.0	425.58 570.00
14	42.25 1.4000	6.78289E-03 5.06276E-03	8.9323 1316.9	0.15506 22.861	18270. 0.99454	3698.2 10260.0	425.61 570.00
15	49.00 1.4000	7.30711E-03 5.06449E-03	9.6272 1317.5	0.17998 24.631	19684. 1.07710	3698.2 10293.0	425.47 570.00
16	56.25 1.4000	7.82810E-03 5.06396E-03	10.312 1317.3	0.20655 26.358	21087. 1.16475	3698.2 10289.0	425.51 570.00
17	64.00 1.4000	8.34502E-03 5.06091E-03	10.983 1316.1	0.23465 28.119	22473. 1.2240	3698.2 10276.0	425.77 570.00
18	72.25 1.4000	8.85777E-03 5.05568E-03	11.639 1314.0	0.26421 29.839	23849. 1.3005	3698.2 10230.0	426.21 570.00
19	81.00 1.4000	9.37771E-03 5.05532E-03	12.321 1313.8	0.29615 31.980	25249. 1.3769	3698.2 10228.0	426.24 570.00
20	90.25 1.4000	9.89409E-03 5.04788E-03	12.957 1310.9	0.32875 33.261	26602. 1.4539	3698.2 10175.0	426.87 570.00
21	100.00 1.4000	1.03823E-02 5.03723E-03	13.567 1306.7	0.36234 34.930	27927. 1.5299	3698.2 10105.0	427.77 570.00

ITERATION NO. = 0 STATION NO. = 38 V-INNER = 0.0001 V-OUTER = 2.0638 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAG	TEMP(°)	MACH NO	
CP/CV	DENSITY	M	V	FLOW ANG(°)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	4.98047E-07 4.98047E-03	6.49667E-04 1302.4	0.0 0.0	1.3388 0.0	3665.4 9925.9	428.81 570.00	1.2831 1302.4
2	0.25 1.4000	5.14343E-04 4.97953E-03	0.86576 1302.2	8.94383E-04 1.7389	1382.5 7.8911E-02	3665.4 9921.5	428.86 570.00	1.2828 1302.2
3	1.00 1.4000	1.02780E-03 4.97798E-02	1.3376 1301.4	3.57241E-03 3.4758	2762.4 0.15302	3665.4 9908.5	429.02 570.00	1.2818 1301.4
4	2.25 1.4000	1.54049E-03 4.97486E-02	2.0029 1300.2	8.0230E-03 5.2087	4130.6 9.22955	3665.4 9896.8	429.29 570.00	1.2802 1300.2
5	4.00 1.4000	2.05202E-03 4.97349E-02	2.6644 1298.4	1.42315E-02 6.9355	5517.9 0.30604	3665.4 9886.4	429.67 570.00	1.2779 1298.4
6	6.25 1.4000	2.56687E-03 4.97430E-02	3.3358 1299.9	2.22701E-02 8.6795	6897.3 0.38255	3665.4 9882.9	429.34 570.00	1.2799 1300.0
7	9.00 1.4000	3.08068E-03 4.98810E-02	4.0320 1305.4	3.23055E-02 10.459	8306.0 0.45906	3665.4 9979.2	428.15 570.00	1.2871 1305.4
8	12.25 1.4000	3.61659E-03 5.00638E-02	4.7476 1312.4	4.41729E-02 17.269	9735.4 0.53556	3665.4 10109.	428.59 570.00	1.2965 1312.4
9	16.00 1.4000	4.14822E-03 5.02462E-02	5.4740 1319.6	5.84788E-02 14.097	11177. 0.61207	3665.4 10237.	429.04 570.00	1.3059 1319.7
10	20.25 1.4000	4.67455E-03 5.03309E-02	6.1837 1322.8	7.43173E-02 19.498	12601. 0.68837	3665.4 10298.	429.32 570.00	1.3102 1322.9
11	25.00 1.4000	5.19451E-03 5.03369E-02	6.8726 1323.0	9.17749E-02 17.668	14004. 0.76506	3665.4 10302.	429.27 570.00	1.3105 1323.2
12	30.25 1.4000	5.71325E-03 5.03311E-02	7.5575 1322.8	0.11101 19.433	15402. 0.84156	3665.4 10298.	429.32 570.00	1.3102 1322.9
13	36.00 1.4000	6.23007E-03 5.03107E-02	8.2261 1322.0	0.13198 21.184	16793. 0.91805	3665.4 10283.	429.49 570.00	1.3091 1322.2
14	42.25 1.4000	6.74865E-03 5.03066E-02	8.9204 1321.8	0.15486 22.966	18190. 0.99454	3665.4 10280.	429.53 570.00	1.3088 1322.0
15	48.00 1.4000	7.27021E-03 5.03237E-02	9.6144 1322.4	0.17974 24.723	19598. 1.0710	3665.4 10293.	429.39 570.00	1.3098 1322.7
16	56.25 1.4000	7.78827E-03 5.03165E-02	10.298 1322.2	0.20628 26.484	20999. 1.1473	3665.4 10289.	429.43 570.00	1.3093 1322.5
17	64.00 1.4000	8.30289E-03 5.02883E-02	10.968 1321.6	0.23434 28.224	22377. 1.2240	3665.4 10267.	429.68 570.00	1.3080 1321.3
18	72.25 1.4000	8.81265E-03 5.02362E-02	11.624 1319.0	0.26187 29.962	23745. 1.3093	3665.4 10230.	429.12 570.00	1.3053 1319.3
19	81.00 1.4000	9.33037E-03 5.02327E-02	12.303 1318.8	0.29576 31.649	25139. 1.3769	3665.4 10228.	429.15 570.00	1.3052 1319.2
20	90.25 1.4000	9.83419E-03 5.01587E-02	12.941 1319.9	0.32833 33.387	26486. 1.4534	3665.4 10175.	429.78 570.00	1.3014 1316.3
21	100.00 1.4000	1.03299E-02 5.00529E-02	13.550 1311.7	0.36189 35.033	27805. 1.5299	3665.4 10100.	428.88 570.00	1.2959 1312.2

ITERATION NO. = 0 N-STATION NO. = 39 Y-INNER = 0.0001 Y-OUTER = 2.0665 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	4.94928E-07 4.94938E-03	8.47063E-04 1307.4	0.0 0.0	1.3313 0.0	3633.5 9925.9	427.76 570.00	1.2996 1307.4
2	0.25 1.4000	5.11797E-04 4.94877E-03	6.66898 1307.1	8.9333GE-04 1.7455	1376.6 7.65110E-02	3633.5 9921.5	427.79 570.00	1.2893 1307.1
3	1.00 1.4000	1.02272E-03 4.94691E-03	1.3360 1306.4	3.56823E-03 3.4890	2750.6 0.15302	3633.5 9928.5	427.95 570.00	1.2893 1306.4
4	2.25 1.4000	1.53267E-03 4.94382E-03	2.0006 1305.1	8.01457E-03 5.2285	4122.0 0.27953	3633.5 9886.9	428.22 570.00	1.2867 1305.1
5	4.00 1.4000	2.04196E-03 4.93947E-03	2.6613 1303.4	1.42155E-02 8.9620	5489.4 0.30604	3633.5 9856.4	428.59 570.00	1.2844 1303.4
6	6.25 1.4000	2.55416E-03 4.94326E-02	3.3529 1304.9	2.22532E-02 8.7126	6868.1 0.38255	3633.5 9882.9	428.27 570.00	1.2864 1304.9
7	8.00 1.4000	3.07339E-03 4.95696E-03	4.0271 1310.3	3.22462E-02 10.499	8270.6 0.45906	3633.5 9979.2	427.08 570.00	1.2835 1310.3
8	12.25 1.4000	3.59865E-03 4.97514E-03	4.7410 1317.4	4.43173E-02 12.315	9693.8 0.53556	3633.5 10108.	425.52 570.00	1.3029 1317.4
9	16.00 1.4000	4.12769E-03 4.99326E-03	5.4669 1324.4	5.84022E-02 14.149	11130. 0.61206	3633.5 10237.	423.98 570.00	1.3123 1324.5
10	20.25 1.4000	4.65141E-03 5.00167E-03	6.1754 1327.6	7.42193E-02 15.956	12567. 0.68857	3633.5 10298.	423.26 570.00	1.3166 1327.7
11	25.00 1.4000	5.16889E-03 5.00228E-03	6.8634 1327.9	9.16520E-02 17.732	13944. 0.75506	3633.5 10302.	423.21 570.00	1.3169 1327.0
12	30.25 1.4000	5.68497E-03 5.03170E-03	7.5474 1327.6	0.11086 19.501	15336. 0.84156	3633.5 10298.	423.26 570.00	1.3166 1327.0
13	36.00 1.4000	6.19972E-03 4.96667E-03	8.2252 1326.8	0.13180 21.261	16721. 0.91805	3633.5 10283.	423.43 570.00	1.3156 1327.0
14	42.25 1.4000	6.71524E-03 4.99926E-03	8.9086 1326.6	0.15445 23.030	18112. 0.99454	3633.5 10280.	423.47 570.00	1.3153 1326.8
15	49.00 1.4000	7.22423E-03 5.00097E-03	9.6016 1327.2	0.17950 24.813	19514. 1.0710	3633.5 10293.	423.72 570.00	1.3162 1327.5
16	56.25 1.4000	7.75011E-03 5.00049E-03	10.284 1327.0	0.20600 26.581	20905. 1.1475	3633.5 10299.	423.37 570.00	1.3160 1327.3
17	64.00 1.4000	8.26178E-03 4.95744E-03	10.954 1325.8	0.23403 28.327	22287. 1.2240	3633.5 10267.	423.62 570.00	1.3144 1326.1
18	72.25 1.4000	8.76901E-03 4.99227E-02	11.608 1323.8	0.26352 30.052	23643. 1.3005	3633.5 10230.	424.06 570.00	1.3118 1324.1
19	81.00 1.4000	9.28417E-03 4.99192E-03	12.289 1323.6	0.29538 31.815	25032. 1.3769	3633.5 10278.	424.09 570.00	1.3116 1324.0
20	90.25 1.4000	9.79550E-03 4.98456E-03	12.924 1325.7	0.32791 33.510	26373. 1.4538	3633.5 10175.	424.72 570.00	1.3078 1321.2
21	100.00 1.4000	1.07278E-02 4.97405E-03	13.533 1316.6	0.36143 35.163	27696. 1.5299	3633.5 10100.	425.61 570.00	1.3024 1317.1

ITERATION NO. = 0 X-STATION NO. = 40 V-INLET = 0.0531 V-OUTER = 2.0692 OUTPUT NO. = 1							
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	RACH NO
CP/CV	DENSITY	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY
1	0.0	4.91897E-07	6.43463E-06	0.0	1.3240	3607.2	426.08
1.4000	4.91897E-03	1312.2	0.0	0.0	4923.9	570.00	1.2999
2	0.23	5.09319E-04	0.66819	8.92277E-04	1375.0	3602.2	426.74
1.4000	4.91897E-03	1311.9	1.7319	7.63109E-02	4921.5	570.00	1.2956
3	1.00	1.01775E-03	1.3343	3.3444E-03	2739.1	3602.2	426.90
1.4000	4.91631E-03	1311.2	3.3019	0.15302	4908.3	570.00	1.2946
4	2.23	1.42342E-03	1.5483	8.0526E-03	4104.7	3602.2	427.14
1.4000	4.91343E-03	1310.0	5.2479	0.22953	4846.8	570.00	1.2930
5	4.00	2.03194E-03	2.6583	1.41931E-02	3466.4	3602.2	427.54
1.4000	4.90911E-03	1308.2	6.9860	0.30604	4836.4	570.00	1.2908
6	6.23	2.34175E-03	3.3290	2.22274E-02	6739.3	3602.2	427.21
1.4000	4.91269E-03	1309.7	8.7449	0.39233	4827.9	570.00	1.2908
7	9.00	3.05846E-03	4.0223	3.22274E-02	6233.9	3602.2	426.09
1.4000	4.9263CE-03	1315.1	10.337	0.43906	4979.2	570.00	1.2999
8	12.23	3.38123E-03	4.7331	4.42616E-02	9653.1	3602.2	424.47
1.4000	4.94456E-03	1322.8	12.359	0.33556	10108	570.00	1.3099
9	16.00	4.10764E-03	5.4397	5.83260E-02	11083	3602.2	422.93
1.4000	4.96257E-03	1329.2	14.149	0.61206	10237	570.00	1.3186
10	20.23	4.82881E-03	6.1672	7.41197E-02	12449.5	3602.2	422.22
1.4000	4.97093E-03	1332.4	16.013	0.68857	10298	570.00	1.3229
11	23.00	5.14369E-03	6.8543	9.13300E-02	13883	3602.2	422.17
1.4000	4.97133E-03	1332.4	17.795	0.76506	10362	570.00	1.3232
12	30.23	5.63733E-03	7.5374	0.11072	15271	3602.2	422.22
1.4000	4.97076E-03	1332.3	19.970	0.84196	10298	570.00	1.3229
13	36.00	6.10911E-03	8.2143	0.13163	16631	3602.2	422.39
1.4000	4.96494E-03	1331.5	21.337	0.91603	10343	570.00	1.3219
14	42.23	6.68262E-03	8.6968	0.13445	18036	3602.2	422.42
1.4000	4.96934E-03	1331.3	23.112	0.99434	10280	570.00	1.3219
15	49.00	7.19909E-03	9.5888	0.17927	19432	3602.2	422.28
1.4000	4.97236E-03	1332.0	24.901	1.0710	10293	570.00	1.3229
16	56.23	7.71247E-03	10.271	0.20573	20417	3602.2	422.42
1.4000	4.96971E-03	1331.7	26.673	1.1473	10289	570.00	1.3229
17	64.00	8.22166E-03	10.939	0.23373	22189	3602.2	422.58
1.4000	4.96673E-03	1330.3	28.428	1.2240	10267	570.00	1.3207
18	72.25	8.72644E-03	11.353	0.24316	23544	3602.2	423.02
1.4000	4.96499E-03	1328.9	30.159	1.3003	10290	570.00	1.3181
19	81.00	9.23906E-03	12.273	0.29699	24927	3602.2	423.05
1.4000	4.96124E-03	1326.3	31.929	1.3769	10228	570.00	1.3179
20	90.23	9.73797E-03	12.907	0.32749	26262	3602.2	421.47
1.4000	4.93393E-03	1323.9	33.620	1.4334	10173	570.00	1.3141
21	100.00	1.02269E-02	13.516	0.36098	27370	3602.2	424.57
1.4000	4.94344E-03	1321.4	35.290	1.5299	10180	570.00	1.3087

ITERATION NO. = 0 X-STATION NO. = 41 Y-INNER = 0.0001 Y-OUTER = 2.0718 GUY/PUL NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAG	T-FMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	4.88914E-07 4.88913E-03	6.42845E-04 1316.9	0.0 0.0	1.3149 0.0	3571.7 9925.9	425.44 575.00	1.3022 1316.9
2	0.25 1.4000	5.06874E-04 4.88922E-03	0.66740 1316.7	8.91221E-04 1.7283	1365.2 7.65110E-02	3571.7 9921.5	425.70 570.00	1.3019 1316.7
3	1.00 1.4000	1.01288E-03 4.88669E-03	1.3329 1316.0	3.55985E-03 3.5146	2727.8 0.15302	3571.7 9904.5	425.86 575.00	1.3009 1316.0
4	2.25 1.4000	1.51813E-03 4.88363E-03	1.5959 1314.7	7.99590E-03 5.2669	4087.8 0.22953	3571.7 9886.8	426.12 570.00	1.2993 1314.7
5	4.00 1.4000	2.02223E-03 4.87934E-03	2.6552 1313.0	1.41827E-02 7.0134	5443.9 0.30504	3571.7 9856.8	426.50 575.00	1.2978 1313.0
6	6.25 1.4000	2.52961E-03 4.88308E-03	3.3251 1314.5	2.22015E-02 5.7767	6811.2 0.38255	3571.7 9882.9	426.17 570.00	1.2993 1314.5
7	9.00 1.4000	3.04395E-03 4.89663E-03	4.0174 1319.9	3.21884E-02 10.575	8202.0 0.45906	3571.7 9979.2	424.99 570.00	1.3061 1319.9
8	12.25 1.4000	3.56409E-03 4.91457E-03	4.7291 1326.9	4.42760E-02 12.403	9613.3 0.53556	3571.7 10108.9	425.44 570.00	1.3135 1326.9
9	16.00 1.4000	4.08801E-03 4.93247E-03	5.4526 1333.8	5.82498E-02 14.249	11037. 0.61206	3571.7 10237.	421.90 575.00	1.3248 1333.8
10	20.25 1.4000	4.60670E-03 4.94079E-03	6.1590 1337.0	7.40212E-02 16.068	12443. 0.68856	3571.7 10298.	421.20 570.00	1.3291 1337.1
11	25.00 1.4000	5.11911E-03 4.94136E-03	6.8452 1337.2	9.14083E-02 17.856	13828. 0.76506	3571.7 10302.	421.14 570.00	1.3290 1337.2
12	30.25 1.4000	5.63033E-03 4.94061E-03	7.5274 1334.9	0.11057 19.638	15208. 0.84156	3571.7 10298.	421.19 570.00	1.3291 1337.1
13	36.00 1.4000	6.13566E-03 4.93880E-03	8.2034 1336.1	0.13146 21.411	16582. 0.91805	3571.7 10283.	421.34 570.00	1.3281 1336.3
14	42.25 1.4000	6.65069E-03 4.93840E-03	8.8850 1336.0	0.15424 23.192	17962. 0.99454	3571.7 10280.	421.40 570.00	1.3279 1336.2
15	49.00 1.4000	7.16469E-03 4.94009E-03	9.5761 1336.6	0.17903 24.987	19352. 1.0710	3571.7 10293.	421.25 570.00	1.3287 1336.8
16	56.25 1.4000	7.67562E-03 4.93957E-03	10.257 1336.3	0.20544 26.768	20731. 1.1475	3571.7 10289.	421.36 570.00	1.3285 1336.6
17	64.00 1.4000	8.18238E-03 4.93661E-03	10.925 1335.2	0.23342 28.527	22297. 1.2240	3571.7 10267.	421.59 570.00	1.3269 1335.3
18	72.25 1.4000	8.68475E-03 4.93349E-03	11.578 1333.2	0.26284 30.264	23447. 1.3005	3571.7 10230.	421.98 570.00	1.3243 1333.2
19	81.00 1.4000	9.19494E-03 4.93115E-03	12.257 1333.0	0.29461 32.040	24824. 1.3769	3571.7 10226.	422.02 570.00	1.3241 1333.4
20	90.25 1.4000	9.69145E-03 4.92384E-03	12.891 1330.1	0.32707 33.748	26154. 1.4534	3571.7 10179.	422.64 570.00	1.3259 1330.6
21	100.00 1.4000	1.01800E-02 4.91350E-03	13.499 1326.1	0.36053 35.415	27457. 1.5299	3571.7 10100.	423.53 570.00	1.3150 1326.5

ITERATION NO. = 0 X-STATIC NO. = 42 Y-INNER = 0.0001 Y-OUTER = 2.0745 OUTPUT NO. = 1							
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANG(D)	P-STA7 P-STA6	TEMP(F) T-STA6	MACH NO VELOCITY
1 0.0 1.4000	4.83990E-07 4.85989E-03	4.42272E-04 1321.6	0.0 0.0	1.3099 C.0	3541.8 9925.9	424.62 570.00	1.3084 1321.6
2 0.25 1.4000	5.04494E-04 4.85929E-03	0.46661 1321.3	8.90167E-04 1.7645	1359.7 7.65110E-02	3541.8 9921.5	424.68 570.00	1.3080 1321.3
3 1.00 1.4000	1.00813E-03 4.85747E-03	1.3313 1320.6	3.55565E-03 1.5270	2716.8 0.15362	3541.8 9908.5	424.84 570.00	1.3071 1320.6
4 2.25 1.4000	1.51100E-03 4.85443E-03	1.9936 1319.4	7.98656E-03 5.2856	4071.3 0.22953	3541.8 9836.8	425.10 570.00	1.3055 1319.4
5 4.00 1.4000	2.01274E-03 4.85016E-03	2.6521 1317.7	1.41663E-02 7.0383	5421.9 0.30406	3541.8 9856.8	425.48 570.00	1.3032 1317.7
6 6.25 1.4000	2.51773E-03 4.85385E-03	3.3213 1319.1	2.21756E-02 8.8078	6785.6 0.38255	3541.8 9882.9	425.15 570.00	1.3052 1319.2
7 9.00 1.4000	3.02956E-03 4.86734E-03	4.0126 1324.5	3.21497E-02 10.612	8168.8 0.45908	3541.8 9979.2	423.98 570.00	1.3123 1324.5
8 12.25 1.4000	3.54736E-03 4.88519E-03	4.7232 1331.5	4.41506E-02 12.446	9574.4 0.53556	3541.8 10108.	422.63 570.00	1.3216 1331.5
9 16.00 1.4000	4.06882E-03 4.90298E-03	5.4455 1338.3	5.81747E-02 14.298	10992. 0.61267	3541.8 10237.	420.89 570.00	1.3309 1338.4
10 20.25 1.4000	4.58508E-03 4.91124E-03	6.1509 1341.5	7.39232E-02 16.123	12343. 0.68857	3541.8 10298.	420.19 570.00	1.3352 1341.6
11 25.00 1.4000	5.09508E-03 4.91183E-03	6.8361 1341.7	9.12871E-02 17.917	13772. 0.76506	3541.8 10362.	420.16 570.00	1.3353 1341.8
12 30.25 1.4000	5.60389E-03 4.91124E-03	7.5174 1341.5	0.11047 19.705	15147. 0.84156	3541.8 10298.	420.18 570.00	1.3352 1341.6
13 36.00 1.4000	6.11082E-03 4.90927E-03	8.1926 1340.7	0.13128 21.483	16515. 0.91805	3541.8 10283.	420.35 570.00	1.3362 1340.8
14 42.25 1.4000	6.61947E-03 4.90887E-03	8.8733 1340.5	0.15604 23.271	17889. 0.99454	3541.8 10279.	420.59 570.00	1.3360 1340.7
15 49.00 1.4000	7.13106E-03 4.91034E-03	9.5636 1341.1	0.17879 25.072	19273. 1.0710	3541.8 10293.	420.29 570.00	1.3368 1341.3
16 56.25 1.4000	7.63959E-03 4.91003E-03	10.244 1340.9	0.20519 26.558	20647. 1.1475	3541.8 10289.	420.29 570.00	1.3366 1341.1
17 64.00 1.4000	8.14396E-03 4.90708E-03	10.910 1339.7	0.23311 28.624	22007. 1.2240	3541.8 10267.	420.56 570.00	1.3330 1340.0
18 72.25 1.4000	8.64398E-03 4.90201E-03	11.563 1337.7	0.26250 30.368	23352. 1.3005	3541.8 10230.	420.98 570.00	1.3304 1338.0
19 81.00 1.4000	9.15178E-03 4.90166E-03	12.241 1337.5	0.29423 32.150	24723. 1.3769	3541.8 10228.	421.01 570.00	1.3302 1337.9
20 90.25 1.4000	9.64595E-03 4.89444E-03	12.874 1336.7	0.32665 33.864	26048. 1.4534	3541.8 10175.	421.63 570.00	1.3263 1335.1
21 100.00 1.4000	1.01322E-02 4.88612E-03	13.482 1336.6	0.36008 35.538	27345. 1.5299	3541.8 10100.	422.52 570.00	1.3211 1331.1

ITERATION NO. = 0 X-STATION NO. = 43 V-INNER = 0.0001 V-OUTER = 2.0772 OUTPUT NO. = 1								
STREAMLINE #	b1	b2	b3	b4	P-STAY	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	4.83121E-07 4.83121E-33	6.40682E-04 1326.1	0.0 0.0	1.3030 0.0	3512.6 9925.9	423.62 570.00	1.3144 1326.1
2	0.25 1.4000	5.02166E-04 4.83061E-03	6.66562 1325.9	8.69112E-04 1.7709	1354.3 7.65110E-02	3512.6 9921.3	423.67 570.00	1.3141 1325.9
3	1.00 1.4000	1.03347E-03 4.82480E-03	1.3298 1325.2	3.55146E-03 3.5392	2706.0 0.19302	3512.6 9928.5	423.83 570.00	1.3131 1325.2
4	2.25 1.4000	1.50403E-02 4.82577E-03	1.9913 1324.0	7.97720E-03 5.3039	4599.1 0.22933	3512.6 9886.8	424.10 570.00	1.3115 1324.0
5	4.00 1.4000	2.00345E-03 4.82154E-03	2.6491 1322.3	1.41490E-02 7.0628	5400.3 0.30604	3512.6 9854.4	424.47 570.00	1.3093 1322.3
6	6.25 1.4000	2.50611E-03 4.82324E-03	3.3174 1323.7	2.21407E-02 8.8383	6756.6 0.38255	3512.6 9882.9	424.13 570.00	1.3113 1323.7
7	9.00 1.4000	3.01557E-03 4.83061E-03	4.0077 1326.0	3.21110E-02 10.669	8136.2 0.45926	3512.6 9970.2	422.97 570.00	1.3103 1326.1
8	12.25 1.4000	3.53050E-03 4.85635E-03	4.7173 1336.0	4.40951E-02 12.688	9736.2 0.53356	3512.6 10108.	421.43 570.00	1.3077 1336.0
9	16.00 1.4000	4.05004E-03 4.87404E-03	5.4384 1342.8	5.80983E-02 14.945	10949. 0.61207	3512.6 10237.	419.90 570.00	1.3069 1342.8
10	20.25 1.4000	4.56391E-03 4.88225E-03	6.1427 1345.9	7.38255E-02 16.176	12343. 0.68857	3512.6 10298.	419.19 570.00	1.3042 1346.0
11	25.00 1.4000	5.07155E-03 4.88284E-03	6.8270 1346.1	9.11662E-02 17.976	13717. 0.76506	3512.6 10302.	419.14 570.00	1.3045 1346.3
12	30.25 1.4000	5.57802E-03 4.88220E-03	7.5075 1345.9	0.11028 19.770	15086. 0.84156	3512.6 10298.	419.19 570.00	1.3042 1346.0
13	36.00 1.4000	6.09263E-03 4.88329E-03	8.1818 1345.1	0.13111 21.555	16440. 0.91865	3512.6 10283.	419.36 570.00	1.3052 1345.3
14	42.25 1.4000	6.58891E-03 4.87990E-03	8.8616 1344.9	0.15384 23.348	17818. 0.99456	3512.6 10280.	419.39 570.00	1.3000 1345.1
15	49.00 1.4000	7.09813E-03 4.88156E-03	9.5508 1345.3	0.17855 25.155	19197. 1.0710	3512.6 10293.	419.25 570.00	1.3008 1345.8
16	56.25 1.4000	7.60431E-03 4.88105E-03	10.230 1345.3	0.20492 26.947	20565. 1.1475	3512.6 10290.	419.29 570.00	1.3006 1345.6
17	64.00 1.4000	8.10637E-03 4.87812E-03	10.896 1344.1	0.23281 28.719	21910. 1.2240	3512.6 10267.	419.55 570.00	1.3000 1344.5
18	72.25 1.4000	8.67406E-03 4.87307E-03	11.548 1342.2	0.26216 30.449	23259. 1.3025	3512.6 10230.	419.98 570.00	1.3004 1342.5
19	81.00 1.4000	9.10952E-03 4.87273E-03	12.225 1342.0	0.29385 32.257	24624. 1.3769	3512.6 10228.	420.01 570.00	1.3002 1342.4
20	90.25 1.4000	9.60141E-03 4.86555E-03	12.858 1339.3	0.32623 33.977	25944. 1.4536	3512.6 10179.	420.63 570.00	1.3025 1339.6
21	100.00 1.4000	1.00854E-02 4.85529E-03	13.465 1335.1	0.35963 35.658	27236. 1.5299	3512.6 10100.	421.52 570.00	1.3271 1335.6

ITERATION NO. = 0 X-SECTION NO. = 44 Y-INNER = 0.0001 Y-OUTER = 2.0799 OUTPUT NO. = 1							
STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLE	P-STAT P-STAT	TEMPER T-STAT	MACH NO VELOCITY
1 0.0 1.4000	4.80297E-07 4.80297E-03	6.39092E-04 1330.4	0.0 0.0	1.2962 0.0	3483.9 9925.9	422.63 570.00	1.3204 1330.6
2 0.25 1.4000	4.49876E-04 4.80297E-03	6.06502 1330.4	8.88054E-04 1.7765	1344.5 7.65113E-02	3483.9 9921.9	422.68 570.00	1.3201 1330.4
3 1.00 1.4000	9.98653E-04 4.80037E-03	1.3282 1329.7	3.54726E-03 3.5512	2595.3 0.15302	3483.9 9908.5	422.84 570.00	1.3191 1329.7
4 2.23 1.4000	1.46717E-03 4.79756E-03	1.6889 1328.5	7.46782E-03 3.3219	4039.1 0.22953	3483.9 9886.8	423.10 570.00	1.3179 1328.5
5 4.00 1.4000	1.99431E-03 4.76533E-03	2.4460 1326.8	1.41334E-02 7.0869	5379.1 0.30664	3483.9 9836.4	423.48 570.00	1.3153 1326.8
6 6.23 1.4000	2.44688E-03 4.79707E-03	3.3135 1328.2	2.71735E-02 8.8643	6730.1 0.37255	3483.9 9802.9	423.15 570.00	1.3179 1328.2
7 9.00 1.4000	3.00197E-03 4.81033E-03	4.0029 1333.5	3.20771E-02 10.684	8104.2 0.43906	3483.9 9794.2	421.98 570.00	1.3243 1333.5
8 12.23 1.4000	3.31484E-03 4.82796E-03	4.7113 1340.6	4.40397E-02 12.829	9498.7 0.53556	3483.9 10108.7	425.44 570.00	1.3336 1340.6
9 16.00 1.4000	4.03157E-03 4.84534E-03	5.6313 1347.2	5.80226E-02 14.392	10906. 0.61207	3483.9 10237.	418.01 570.00	1.3429 1347.3
10 20.25 1.4000	4.34310E-03 4.85371E-03	6.1344 1330.3	7.37273E-02 16.229	12205. 0.68857	3483.9 10298.	418.21 570.00	1.3471 1350.4
11 25.00 1.4000	5.04847E-03 4.85429E-03	8.8180 1350.5	9.10454E-02 18.034	13663. 0.74506	3483.9 10302.	418.16 570.00	1.3479 1350.6
12 30.25 1.4000	5.55259E-03 4.85373E-03	7.4975 1350.3	0.11013 19.834	15027. 0.84134	3483.9 10298.	418.21 570.00	1.3471 1350.4
13 36.00 1.4000	6.05487E-03 4.83176E-03	8.1710 1344.5	0.13094 21.425	16384. 0.91805	3483.9 10283.	418.38 570.00	1.3461 1344.7
14 42.25 1.4000	6.53897E-03 4.85137E-03	8.9300 1349.3	0.15363 23.424	17748. 0.99454	3483.9 10280.	418.41 570.00	1.3489 1349.5
15 49.00 1.4000	7.04577E-03 4.85303E-03	9.3382 1349.9	0.17852 25.237	19121. 1.07110	3483.9 10293.	418.27 570.00	1.3488 1350.2
16 56.23 1.4000	7.56564E-03 4.85252E-03	10.217 1349.7	0.20465 27.035	20484. 1.1475	3483.9 10289.	418.31 570.00	1.3465 1350.0
17 64.00 1.4000	8.06941E-03 4.86960E-03	10.882 1348.5	0.23230 28.875	21833. 1.2240	3483.9 10267.	418.56 570.00	1.3450 1348.8
18 72.25 1.4000	8.56833E-03 4.86439E-03	11.513 1348.6	0.26181 30.569	23167. 1.3005	3483.9 10237.	419.00 570.00	1.3424 1348.9
19 81.00 1.4000	9.06798E-03 4.86424E-03	12.209 1346.4	0.29344 32.343	24527. 1.3769	3483.9 10228.	419.03 570.00	1.3422 1346.8
20 90.25 1.4000	9.55763E-03 4.83711E-03	12.941 1343.9	0.32581 34.088	25942. 1.4524	3483.9 10175.	419.45 570.00	1.3384 1344.0
21 100.00 1.4000	1.00394E-02 4.82490E-03	13.449 1339.6	0.35918 35.776	27129. 1.5299	3483.8 10100.	420.53 570.00	1.3331 1340.0

ITERATION NO. = 0 X-SECTION NO. = 45 Y-INNER = 0.0001 Y-OUTER = 2.0026 OUTPUT NO. = 1							
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP (R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAT	T-STAT	VELOCITY
1	0.0 1.4000	4.77533E-07 4.77533E-03	6.37511E-04 1335.0	0.0 0.0	1.2895 0.0	3455.8 9925.9	471.65 570.00
2	0.25 1.4000	4.57629E-04 4.77473E-03	0.66423 1334.8	8.86979E-04 1.7825	1343.7 7.65110E-07	3455.8 9921.5	471.71 570.00
3	1.00 1.4000	9.94428E-04 4.77294E-03	1.3266 1334.1	3.54306E-03 3.5629	2684.9 0.15302	3455.8 9908.3	471.86 570.00
4	2.25 1.4000	1.49747E-03 4.76995E-03	1.9566 1332.9	7.91948E-03 5.3396	4023.6 0.22953	3455.8 9886.8	472.13 570.00
5	4.00 1.4000	1.96539E-03 4.76577E-03	2.4429 1331.2	1.41170E-02 7.1105	5358.3 0.30504	3455.8 9856.4	472.50 570.00
6	6.25 1.4000	2.46352E-03 4.76942E-03	3.3096 1332.6	2.25977E-02 5.6977	6704.1 0.35255	3455.8 9882.9	472.18 570.00
7	9.00 1.4000	2.98839E-03 4.75264E-03	3.9981 1337.9	3.20334E-02 10.719	8073.0 0.45906	3455.8 9979.2	471.91 570.00
8	12.25 1.4000	3.49916E-03 4.80018E-03	4.7055 1344.7	4.39846E-02 12.570	9462.0 0.53256	3455.8 10108.0	474.47 570.00
9	16.00 1.4000	4.01353E-03 4.81766E-03	5.4243 1351.5	5.79475E-02 14.438	10865. 0.61207	3455.8 10237.0	474.95 570.00
10	20.25 1.4000	4.52277E-03 4.82578E-03	6.1265 1354.6	7.36308E-02 16.280	12247. 0.68857	3455.8 10298.0	477.25 570.00
11	25.00 1.4000	5.02595E-03 4.82936E-03	6.8090 1354.8	9.09755E-02 18.092	13610. 0.76596	3455.8 10302.0	477.20 570.00
12	30.25 1.4000	5.52774E-03 4.82980E-03	7.4877 1354.6	0.10999 19.897	14949. 0.84156	3455.8 10298.0	477.24 570.00
13	36.00 1.4000	6.02778E-03 4.82584E-03	8.1603 1353.8	0.13076 21.694	16321. 0.91805	3455.8 10283.0	477.41 570.00
14	42.25 1.4000	6.52952E-03 4.82345E-03	8.8384 1353.6	0.15343 23.498	17679. 0.99455	3455.8 10280.0	477.45 570.00
15	49.00 1.4000	7.03416E-03 4.82510E-03	9.5257 1354.2	0.17808 25.317	19047. 1.0716	3455.8 10293.0	477.30 570.00
16	56.25 1.4000	7.53578E-03 4.82459E-03	10.203 1354.0	0.20438 27.121	20405. 1.1475	3455.8 10299.0	477.35 570.00
17	64.00 1.4000	8.03331E-03 4.82170E-03	10.868 1352.8	0.23220 28.904	21749. 1.2246	3455.8 10267.0	477.60 570.00
18	72.25 1.4000	8.52652E-03 4.81670E-03	11.518 1350.9	0.26148 30.666	23077. 1.3003	3455.8 10230.0	478.03 570.00
19	81.00 1.4000	9.02742E-03 4.81636E-03	12.193 1350.7	0.29308 32.466	24433. 1.3769	3455.8 10228.0	478.06 570.00
20	90.25 1.4000	9.51487E-03 4.80927E-03	12.825 1347.9	0.32540 34.199	25742. 1.4574	3455.8 10175.0	478.68 570.00
21	100.00 1.4000	9.99452E-03 4.79913E-03	13.432 1343.9	0.35873 35.897	27024. 1.5299	3455.8 10100.0	479.56 570.00

ITERATION NO. = 0 X-SECTION NO. = 46 V-INNER = 0.0701 V-OUTER = 2.0832 OUTPUT NO. = 1								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0	4.74815E-07	6.35235E-04	0.0	1.2879	3428.3	420.69	1.3321
	1.4000	4.74415E-03	1339.3	0.0	0.0	9925.9	570.00	1339.3
2	0.25	4.95443E-04	0.66344	8.85844E-04	1338.6	3428.3	420.74	1.3318
	1.4000	4.74796E-03	1339.1	1.7882	7.65113E-02	9921.5	570.00	1339.1
3	1.00	9.90041E-04	1.3231	3.53866E-03	2674.7	3428.3	420.90	1.3308
	1.4000	4.74578E-03	1338.4	3.5745	0.15302	9908.5	570.00	1338.4
4	2.25	1.48384E-03	1.9942	7.94911E-03	4008.2	3428.3	421.17	1.3293
	1.4000	4.74280E-03	1337.2	5.3569	0.27953	9886.8	570.00	1337.2
5	4.00	1.97663E-03	2.6398	1.41706E-02	5338.0	3428.3	421.54	1.3278
	1.4000	4.73864E-03	1335.5	1.1336	0.30604	9856.4	570.00	1335.5
6	6.25	2.47296E-03	3.3057	2.20717E-02	6678.6	3428.3	421.21	1.3290
	1.4000	4.74227E-03	1337.9	8.9267	0.38255	9882.9	570.00	1337.9
7	9.00	2.97521E-03	3.9932	3.19847E-02	8042.3	3428.3	420.05	1.3360
	1.4000	4.75543E-03	1342.2	10.754	0.45906	9974.2	570.00	1342.2
8	12.25	3.48372E-03	4.6995	4.39294E-02	9426.0	3428.3	418.51	1.3453
	1.4000	4.77286E-03	1349.0	12.610	0.53556	10108.9	570.00	1349.1
9	16.00	3.95583E-03	5.4173	5.78774E-02	10822.9	3428.3	417.00	1.3545
	1.4000	4.79025E-03	1355.7	14.483	0.61207	10237.9	570.00	1355.8
10	20.25	4.50262E-03	6.1185	7.35338E-02	12201.5	3428.3	416.29	1.3587
	1.4000	4.79831E-03	1358.8	16.731	0.68857	10298.9	570.00	1358.9
11	25.00	5.00368E-03	6.8000	9.08059E-02	13558.6	3428.3	416.24	1.3590
	1.4000	4.75689E-03	1359.0	18.148	0.76506	10302.5	570.00	1359.1
12	30.25	5.50394E-03	7.4778	0.10984	14912.7	3428.3	416.29	1.3587
	1.4000	4.75833E-03	1358.8	19.959	0.84156	10298.9	570.00	1358.9
13	36.00	6.00116E-03	8.1496	0.13059	16259.8	3428.3	416.46	1.3577
	1.4000	4.75639E-03	1358.0	21.761	0.91805	10283.9	570.00	1358.2
14	42.25	6.50072E-03	8.8268	0.15323	17612.5	3428.3	416.50	1.3575
	1.4000	4.75600E-03	1357.8	23.971	0.99456	10280.9	570.00	1358.0
15	49.00	7.00313E-03	9.5131	0.17745	18974.9	3428.3	416.55	1.3584
	1.4000	4.75763E-03	1358.4	25.396	1.0710	10293.9	570.00	1358.6
16	56.25	7.50294E-03	1.0190	0.20411	20327.9	3428.3	416.40	1.3501
	1.4000	4.75716E-03	1358.2	27.205	1.1475	10289.9	570.00	1358.5
17	64.00	7.95787E-03	10.853	0.23189	21666.9	3428.3	416.65	1.3566
	1.4000	4.75425E-03	1357.0	28.994	1.2240	10267.9	570.00	1357.4
18	72.25	8.46851E-03	11.503	0.26114	22990.9	3428.3	417.08	1.3540
	1.4000	4.78429E-03	1355.1	30.762	1.3705	10230.9	570.00	1355.4
19	81.00	8.95760E-03	12.177	0.29271	24349.9	3428.3	417.11	1.3538
	1.4000	4.78895E-03	1354.9	32.568	1.3769	10228.9	570.00	1355.3
20	90.25	9.47290E-03	12.809	0.32498	25644.9	3428.3	417.72	1.3501
	1.4000	4.79190E-03	1352.1	34.307	1.4534	10175.9	570.00	1352.4
21	100.00	9.95043E-03	13.415	0.35828	26922.9	3428.3	418.61	1.3467
	1.4000	4.77181E-03	1348.2	36.006	1.5299	10100.9	570.00	1348.7

ITERATION NO.= 0 X-STATION NO.= 47 V-INNER = 0.0001 V-OUTER = 2.0879 OUTPUT NO. = 1							
STREAMLINE #	m1	m2	m3	m4	P-STAG	T-FRAME	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(°)	P-STAG	T-STAG	VELOCITY
1	0.0 1.4000	4.72146E-07 4.72146E-03	6.34364E-04 1343.6	0.0 0.0	1.2765 0.0	3401.4 9925.9	419.74 570.00
2	2.25 1.4000	4.92201E-04 4.72207E-03	6.56266 1343.3	6.64892E-04 1.7939	1333.6 7.65110E-02	3401.4 9921.6	419.80 570.00
3	1.00 1.4000	4.82741E-04 4.71910E-03	1.3235 1342.6	3.53468E-03 3.5858	2664.7 0.15302	3401.4 9909.5	419.95 570.00
4	2.25 1.4000	1.47745E-03 4.71615E-03	1.9619 1341.4	7.93976E-03 5.3740	3993.2 0.22953	3401.4 9886.8	420.22 570.00
5	4.00 1.4000	1.96804E-03 4.71200E-03	2.6367 1339.8	1.40841E-02 7.1564	5318.0 0.30604	3401.4 9856.4	420.59 570.00
6	6.25 1.4000	2.46187E-03 4.71562E-03	3.3018 1341.2	2.26459E-02 8.9551	6653.6 0.38255	3401.4 9882.9	420.26 570.00
7	9.00 1.4000	2.96229E-03 4.72870E-03	3.9884 1346.4	2.19560E-02 10.788	8012.1 0.45906	3401.4 9979.2	419.10 570.00
8	12.25 1.4000	3.46859E-03 4.74603E-03	4.6937 1352.2	4.38743E-02 12.647	9390.7 0.53556	3401.4 10108	417.57 570.00
9	16.00 1.4000	3.97847E-03 4.76332E-03	5.4103 1359.9	5.77975E-02 14.528	10781. 0.61206	3401.4 10237.1	416.06 570.00
10	20.25 1.4000	4.48327E-03 4.77134E-03	6.1105 1362.9	7.34375E-02 16.380	12155. 0.68857	3401.4 10298.	415.36 570.00
11	25.00 1.4000	4.98194E-03 4.77191E-03	6.7911 1363.1	9.08865E-02 18.203	13507. 0.76506	3401.4 10302.	415.31 570.00
12	30.25 1.4000	5.47644E-03 4.77137E-03	7.4680 1362.9	0.10970 20.020	14856. 0.84156	3401.4 10298.	415.35 570.00
13	36.00 1.4000	5.97513E-03 4.76943E-03	8.1390 1362.1	0.13042 21.827	16198. 0.91805	3401.4 10293.	415.52 570.00
14	42.25 1.4000	6.47249E-03 4.76904E-03	8.8153 1362.0	0.15303 23.643	17546. 0.99454	3401.4 10280.	415.56 570.00
15	49.00 1.4000	6.95727E-03 4.77087E-03	9.5007 1362.6	0.17762 25.473	18903. 1.0710	3401.4 10293.	415.42 570.00
16	56.25 1.4000	7.46996E-03 4.77017E-03	10.177 1362.3	0.20364 27.288	20251. 1.1475	3401.4 10289.	415.46 570.00
17	64.00 1.4000	7.96314E-03 4.76731E-03	10.839 1361.2	0.23159 29.083	21584. 1.2240	3401.4 10267.	415.71 570.00
18	72.25 1.4000	8.45204E-03 4.76237E-03	11.488 1359.2	0.26290 30.937	22903. 1.3005	3401.4 10230.	416.14 570.00
19	81.00 1.4000	8.94855E-03 4.76203E-03	12.162 1359.1	0.29233 32.668	24248. 1.3769	3401.4 10228.	416.17 570.00
20	90.25 1.4000	9.43176E-03 4.75502E-03	12.792 1358.3	0.32437 34.432	25548. 1.4536	3401.4 10175.	416.78 570.00
21	100.00 1.4000	9.90721E-03 4.74499E-03	13.398 1352.4	0.35783 36.118	26821. 1.5299	3401.4 10100.	417.66 570.00

ITERATION NO. = 0 X-STATION NO. = 48 Y-INNER = 0.0001 Y-OUTER = 2.0996 OUTPUT NO. = 1								
STREAMLINE #	M1	M2	M3	M4	P-STAT	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLCN ANGLE	P-STAG	7-STAG	VELOCITY	
1	0.0	4.65521E-07	6.72795E-04	0.0	1.2702	3374.9	418.01	1.3433
1.4000	4.69520E-03	1347.7	0.0	0.0	9925.9	570.00	1347.7	
2	0.25	4.61176E-04	6.46167	6.61837E-04	1328.7	3374.9	418.06	1.3432
1.4000	4.69462E-03	1347.9	1.7994	7.65110E-02	9925.5	570.00	1347.5	
3	1.00	9.81517E-04	1.3219	3.53049E-03	2654.9	3374.9	419.02	1.3422
1.4000	4.64286E-03	1346.8	3.5970	0.15302	9908.5	570.00	1346.8	
4	2.25	1.47112E-03	1.6796	7.63741E-03	3978.5	3374.9	419.28	1.3406
1.4000	4.66992E-03	1345.6	5.3907	0.22953	9886.8	570.00	1345.6	
5	4.00	1.95961E-03	2.6337	1.40677E-02	5298.3	3374.9	419.65	1.3384
1.4000	4.66586E-03	1344.0	7.1789	0.39604	9856.4	570.00	1344.0	
6	6.25	2.45128E-03	3.2980	2.20199E-02	6629.1	3374.9	419.33	1.3404
1.4000	4.68942E-03	1345.4	8.9930	0.38255	9842.9	570.00	1345.4	
7	9.00	2.94460E-03	3.6836	3.19174E-02	7982.5	3374.9	418.17	1.3474
1.4000	4.70240E-03	1350.6	10.821	0.45906	9974.2	570.00	1350.6	
8	12.25	3.45373E-03	4.6878	4.38197E-02	9355.9	3374.9	418.64	1.3564
1.4000	4.71964E-03	1357.3	12.658	0.53956	10108.	570.00	1357.4	
9	16.00	3.96143E-03	5.4633	5.77229E-02	10742.	3374.9	415.13	1.3698
1.4000	4.73583E-03	1364.0	14.371	0.61207	10237.	570.00	1364.0	
10	20.25	4.46404E-03	6.1025	7.33413E-02	12116.	3374.9	414.43	1.3700
1.4000	4.76481E-03	1367.0	16.429	0.68857	10298.	570.00	1367.1	
11	25.00	4.96342E-03	6.7822	9.05676E-02	13457.	3374.9	414.38	1.3703
1.4000	4.78538E-03	1367.2	18.257	0.76506	10302.	570.00	1367.3	
12	30.25	5.45599E-03	7.4582	0.10955	14801.	3374.9	414.43	1.3700
1.4000	4.76643E-03	1367.0	20.080	0.86156	10298.	570.00	1367.1	
13	36.00	5.94353E-03	8.1283	0.13025	16178.	3374.9	414.60	1.3690
1.4000	4.74291E-03	1366.2	21.893	0.91895	10283.	570.00	1366.4	
14	42.25	6.44475E-03	8.8038	0.15283	17481.	3374.9	414.63	1.3688
1.4000	4.74252E-03	1366.0	23.714	0.99456	10280.	570.00	1366.2	
15	49.00	6.94284E-03	9.4883	0.17738	18833.	3374.9	414.69	1.3694
1.4000	4.74414E-03	1366.6	25.549	1.0710	10259.	570.00	1366.9	
16	56.25	7.43795E-03	10.163	0.20337	20176.	3374.9	414.73	1.3694
1.4000	4.74365E-03	1366.4	27.370	1.1475	10259.	570.00	1366.7	
17	64.00	7.92992E-03	10.825	0.22129	21504.	3374.9	414.78	1.3679
1.4000	4.74079E-03	1365.3	29.170	1.2240	10267.	570.00	1365.6	
18	72.25	8.41583E-03	11.474	0.26046	22817.	3374.9	415.21	1.3653
1.4000	4.73509E-03	1363.3	30.949	1.3005	10230.	570.00	1363.7	
19	81.00	8.91022E-03	12.144	0.29195	24159.	3374.9	415.24	1.3651
1.4000	4.73556E-03	1363.2	32.766	1.3769	10228.	570.00	1363.6	
20	90.25	9.39135E-03	12.776	0.32616	25453.	3374.9	415.85	1.3614
1.4000	4.72858E-03	1360.4	34.917	1.4534	10175.	570.00	1360.9	
21	100.00	9.86477E-03	13.381	0.35738	26722.	3374.9	416.73	1.3561
1.4000	4.71861E-03	1356.5	36.228	1.5299	10106.	570.00	1357.0	

ITERATION NO. = 0 X-STATION NO. = 40 Y-INNER = 0.0501 Y-OUTER = 2.0933 OUTPUT NO. = 1								
STREAMLINE & CP/CV	m1 OENS17V	m2 U	m3 V	m4 FLOW ANG(1)	P-STAT P-STAG	YFNP(1) 7-STAG	MACH NO VELOC17V	
1 C.0 1.4000	4.66938E-07 4.66938E-03	6.31233E-04 1351.9	0.0 0.0	1.2439 0.0	3349.0 9925.9	417.89 570.00	1.3491 1351.9	
2 0.25 1.4000	4.66101E-04 4.6648CE-03	6.641C8 1351.6	6.6278CE-04 1.8049	1323.4 7.65110E-07	3349.0 9921.5	417.94 570.00	1.3486 1351.6	
3 1.00 1.4000	5.77349E-04 4.667C5E-03	1.3207 1350.9	3.52630E-03 3.6080	2645.2 0.13302	3349.0 9928.5	418.09 570.00	1.3478 1350.9	
4 2.25 1.4000	1.44445E-03 4.66613E-03	1.5773 1349.7	7.92105E-03 5.4072	3964.0 0.22953	3349.0 9966.8	418.34 570.00	1.3462 1349.8	
5 4.00 1.4000	1.55133E-03 4.66303E-03	2.4106 1348.1	1.45512E-02 7.2C09	5279.0 0.30804	3349.0 9956.4	418.73 570.00	1.3440 1348.1	
6 6.25 1.4000	2.44392E-03 4.6636CE-03	3.2941 1349.5	2.19645E-02 9.0189	6604.9 0.38255	3349.0 9982.9	418.46 570.00	1.3460 1349.6	
7 9.00 1.4000	2.53713E-03 4.67653E-03	2.5788 1354.6	3.18788E-02 10.854	7053.4 0.45906	3349.0 9979.2	417.75 570.00	1.3530 1354.7	
8 12.25 1.4000	3.43914E-03 4.64388E-03	4.6819 1361.4	4.37649E-02 12.726	9321.8 0.53556	3349.0 10108.	415.72 570.00	1.3622 1361.4	
9 16.00 1.4000	3.54488E-03 4.71077E-03	5.3963 1368.0	5.76485E-02 14.614	10702. 0.61207	3349.0 10237.	414.21 570.00	1.3713 1368.1	
10 20.25 1.4000	4.44520E-03 4.71871E-03	6.0945 1371.0	7.32455E-02 16.477	12066. 0.68857	3349.0 10298.	413.52 570.00	1.3755 1371.1	
11 25.00 1.4000	4.93964E-03 4.71927E-03	6.7733 1371.2	9.04422E-02 18.311	13408. 0.76506	3349.0 10302.	413.47 570.00	1.3758 1371.3	
12 30.25 1.4000	5.43292E-03 4.71879E-03	7.4485 1371.0	0.10941 20.139	14747. 0.84156	3349.0 10298.	413.52 570.00	1.3755 1371.1	
13 36.00 1.4000	5.92438E-03 4.71882E-03	8.1177 1370.2	0.13008 21.957	16079. 0.91805	3349.0 10283.	413.68 570.00	1.3795 1370.4	
14 42.25 1.4000	6.41757E-03 4.71444E-03	8.7923 1370.0	0.15263 23.784	17417. 0.99454	3349.0 10289.	413.72 570.00	1.3743 1370.3	
15 48.00 1.4000	6.91351E-03 4.71805E-03	9.4759 1370.6	0.17715 25.624	18745. 1.0710	3349.0 10293.	414.56 570.00	1.3752 1370.9	
16 56.25 1.4000	7.40552E-03 4.71755E-03	10.150 1379.4	0.20331 27.450	20102. 1.1475	3349.0 10289.	414.82 570.00	1.3748 1370.7	
17 64.00 1.4000	7.84551E-03 4.71472E-03	10.811 1369.3	0.23099 29.256	21426. 1.2240	3349.0 10257.	413.87 570.00	1.3734 1369.6	
18 72.25 1.4000	8.30026E-03 4.70984E-03	11.459 1367.4	0.26013 31.061	22733. 1.3005	3349.0 10230.	414.30 570.00	1.3708 1367.7	
19 81.00 1.4000	8.87237E-03 4.70950E-03	12.130 1367.7	0.29158 32.863	24070. 1.3769	3349.0 10228.	414.33 570.00	1.3706 1367.6	
20 90.25 1.4000	9.35167E-03 4.70257E-03	12.760 1364.3	0.32375 34.619	25360. 1.4534	3349.0 10175.	414.44 570.00	1.3669 1364.9	
21 100.00 1.4000	9.82309E-03 4.69266E-03	13.365 1360.5	0.35694 36.337	26624. 1.5299	3349.0 10100.	415.41 570.00	1.3616 1361.0	

ITERATION NO. = 0 X-STATION NO. = 50 Y-INNER = 0.0001 Y-OUTER = 2.0960 OUTPUT NO. = 1							
STREAMLINE #	b1	b2	b3	b4	P-STAG	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY
1	0.0 1.4000	4.64395E-07 4.64395E-03	6.29674E-04 1355.9	0.0 0.0	1.2578 0.0	3323.5 9925.9	416.97 570.00
2	0.25 1.4000	4.87059E-04 4.65337E-03	0.66029 1355.7	8.81733E-04 1.8103	1319.1 7.65110E-02	3323.5 9921.5	417.03 570.00
3	1.00 1.4000	9.72289E-04 4.64163E-03	1.2198 1355.0	3.52211E-03 3.6188	2635.7 0.15392	3323.5 9908.5	417.18 570.00
4	2.25 1.4000	1.45879E-03 4.63872E-03	1.6749 1355.8	7.91172E-03 5.4235	3549.8 0.22453	3323.5 9886.8	417.44 570.00
5	4.00 1.4000	1.94319E-03 4.63465E-03	2.6275 1352.2	1.40348E-02 7.2224	5260.1 0.30664	3323.5 9856.4	417.81 570.00
6	6.25 1.4000	2.43073E-03 4.62920E-03	3.2902 1353.6	2.19691E-02 9.0174	6581.1 0.38255	3323.5 9882.9	417.49 570.00
7	9.00 1.4000	2.92407E-03 4.63106E-03	3.9740 1338.7	3.18403E-02 15.886	7924.8 0.45906	3323.5 9979.2	416.34 570.00
8	12.25 1.4000	3.42478E-03 4.60811E-03	4.6761 1345.4	4.37102E-02 17.763	9288.2 0.53556	3323.5 10178	414.82 570.00
9	16.00 1.4000	3.92822E-03 4.68512E-03	5.3894 1372.0	5.75742E-02 14.657	10664 0.61208	3323.5 10237	413.31 570.00
10	20.25 1.4000	4.42664E-03 4.64931E-03	6.0865 1375.0	7.31497E-02 16.525	12022 0.68857	3323.5 10298	412.62 570.00
11	25.00 1.4000	4.91902E-03 4.649357E-03	6.7665 1375.2	9.01309E-02 18.364	13340 0.76506	3323.5 10362	412.57 570.00
12	30.25 1.4000	5.41025E-03 5.09303E-03	7.4388 1375.9	0.10927 20.197	14693 0.84156	3323.5 10499	412.61 570.00
13	36.00 1.4000	5.89966E-03 4.69113E-03	8.1072 1374.2	0.12091 22.020	16021 0.91805	3323.5 10283	412.78 570.00
14	42.25 1.4000	6.39074E-03 5.69075E-03	8.7809 1374.0	0.15243 23.852	17354 0.99456	3323.5 10289	412.81 570.00
15	49.00 1.4000	6.88466E-03 4.69235E-03	9.4635 1374.6	0.17692 25.698	18697 1.0710	3323.5 10293	412.67 570.00
16	56.25 1.4000	7.37561E-03 4.69186E-03	10.137 1374.6	0.20304 27.529	20030 1.1475	3323.5 10299	412.72 570.00
17	64.00 1.4000	7.86255E-03 4.68903E-03	10.797 1373.2	0.23069 29.360	21349 1.2240	3323.5 10267	412.97 570.00
18	72.25 1.4000	8.34329E-03 4.68418E-03	11.444 1371.3	0.25980 31.131	22653 1.3005	3323.5 10230	413.39 570.00
19	81.00 1.4000	8.83554E-03 4.68386E-03	12.113 1371.2	0.29120 32.956	23984 1.3769	3323.5 10228	413.62 570.00
20	90.25 1.4000	9.31264E-03 5.07696E-03	12.744 1368.4	0.32333 34.720	25269 1.4524	3323.5 10179	414.03 570.00
21	100.00 1.4000	9.78208E-03 4.66709E-03	13.348 1364.5	0.35649 36.444	26328 1.5299	3323.5 10100	414.91 570.00

ITERATION NO. = 0

DISCHARGE(CD), THRUST(VO), AND PRESSURE(PO) COEFFICIENTS

	MF	MF/MF0	MF/MF1	VO	VO/VO0	VO/VO-1	PO	THRUST(LB/F)
2848.5	1.00000	1.00000	1.00000	11046.	0.37072	0.37072	68956.	2.51333E 05 1
2848.5	1.00000	1.00000	1.00000	11461.	0.38467	0.38467	66278.	2.44227E 05 2
2848.5	1.00000	1.00000	1.00000	11907.	0.39963	0.39963	63619.	2.37271E 05 3
2848.5	1.00000	1.00000	1.00000	12386.	0.41569	0.41569	60981.	2.30489E 05 4
2848.5	1.00000	1.00000	1.00000	12905.	0.43303	0.43303	58352.	2.23853E 05 5
2848.5	1.00000	1.00000	1.00000	13462.	0.45182	0.45182	55722.	2.17311E 05 6
2848.5	1.00000	1.00000	1.00000	14076.	0.47220	0.47220	53123.	2.11091E 05 7
2848.5	1.00000	1.00000	1.00000	14735.	0.49454	0.49454	50595.	2.05095E 05 8
2848.5	1.00000	1.00000	1.00000	15460.	0.51915	0.51915	47878.	1.99004E 05 9
2848.5	1.00000	1.00000	1.00000	16281.	0.54642	0.54642	45230.	1.93243E 05 10
2848.5	1.00000	1.00000	1.00000	17197.	0.57715	0.57715	42536.	1.87656E 05 11
2848.5	1.00000	1.00000	1.00000	18241.	0.61220	0.61220	39779.	1.82275E 05 12
2848.5	1.00000	1.00000	1.00000	19465.	0.65330	0.65330	36902.	1.77083E 05 13
2848.5	1.00000	1.00000	1.00000	20994.	0.70338	0.70338	33822.	1.72044E 05 14
2848.5	1.00000	1.00000	1.00000	22921.	0.76928	0.76928	30355.	1.67308E 05 15
2848.5	1.00000	1.00000	1.00000	26356.	0.88435	0.88435	25385.	1.62528E 05 16
2848.5	1.00000	1.00000	1.00000	29796.	1.00000	1.00000	21732.	1.61877E 05 17
2848.5	1.00000	1.00000	1.00000	33246.	1.1159	1.1159	18618.	1.62943E 05 18
2848.5	1.00000	1.00000	1.00000	35554.	1.1261	1.1261	16361.	1.63098E 05 19
2848.5	1.00000	1.00000	1.00000	38333.	1.1356	1.1356	14124.	1.63250E 05 20
2848.5	1.00000	1.00000	1.00000	40995.	1.1443	1.1443	11917.	1.63400E 05 21
2848.5	1.00000	1.00000	1.00000	44331.	1.1525	1.1525	10720.	1.63548E 05 22
2848.5	1.00000	1.00000	1.00000	48370.	1.1602	1.1602	9536.	1.63695E 05 23
2848.5	1.00000	1.00000	1.00000	53178.	1.1676	1.1676	8363.	1.63840E 05 24
2848.5	1.00000	1.00000	1.00000	58997.	1.1748	1.1748	7206.	1.63983E 05 25
2848.5	1.00000	1.00000	1.00000	65997.	1.1813	1.1813	6066.	1.64125E 05 26
2848.5	1.00000	1.00000	1.00000	74388.	1.1877	1.1877	4999.	1.64265E 05 27
2848.5	1.00000	1.00000	1.00000	84373.	1.1939	1.1939	3959.	1.64404E 05 28
2848.5	1.00000	1.00000	1.00000	95951.	1.1999	1.1999	2962.	1.64542E 05 29
2848.5	1.00000	1.00000	1.00000	10923.	1.2057	1.2057	2040.	1.64679E 05 30
2848.5	1.00000	1.00000	1.00000	12460.	1.2113	1.2113	16372.	1.64814E 05 31
2848.5	1.00000	1.00000	1.00000	14252.	1.2167	1.2167	12552.	1.64947E 05 32
2848.5	1.00000	1.00000	1.00000	16310.	1.2220	1.2220	9117.	1.65080E 05 33
2848.5	1.00000	1.00000	1.00000	18663.	1.2271	1.2271	6025.	1.65212E 05 34
2848.5	1.00000	1.00000	1.00000	21333.	1.2322	1.2322	3917.	1.65343E 05 35
2848.5	1.00000	1.00000	1.00000	25385.	1.2371	1.2371	1913.	1.65472E 05 36
2848.5	1.00000	1.00000	1.00000	30002.	1.2419	1.2419	15711.	1.65601E 05 37
2848.5	1.00000	1.00000	1.00000	35141.	1.2465	1.2465	15612.	1.65729E 05 38
2848.5	1.00000	1.00000	1.00000	40977.	1.2511	1.2511	15516.	1.65856E 05 39
2848.5	1.00000	1.00000	1.00000	47611.	1.2556	1.2556	15423.	1.65982E 05 40
2848.5	1.00000	1.00000	1.00000	55142.	1.2600	1.2600	15331.	1.66107E 05 41
2848.5	1.00000	1.00000	1.00000	63700.	1.2643	1.2643	15243.	1.66233E 05 42
2848.5	1.00000	1.00000	1.00000	73566.	1.2685	1.2685	15154.	1.66358E 05 43
2848.5	1.00000	1.00000	1.00000	84920.	1.2727	1.2727	15071.	1.66484E 05 44
2848.5	1.00000	1.00000	1.00000	97942.	1.2767	1.2767	14988.	1.66609E 05 45
2848.5	1.00000	1.00000	1.00000	11261.	1.2808	1.2808	14907.	1.66735E 05 46
2848.5	1.00000	1.00000	1.00000	12978.	1.2847	1.2847	14828.	1.66860E 05 47
2848.5	1.00000	1.00000	1.00000	14886.	1.2885	1.2885	14751.	1.66985E 05 48
2848.5	1.00000	1.00000	1.00000	16997.	1.2924	1.2924	14675.	1.67109E 05 49
2848.5	1.00000	1.00000	1.00000	19361.	1.2961	1.2961	14600.	1.67233E 05 50

ITERATION NO. = 300 X-STATION NO. = 1 Y-INNER = 0.0091 Y-OUTER = 2.7142 OUTPUT NO. = 2

STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAT	T-STAT	VELOCITY
1	0.0 1.4000	9.77205E-07 9.77205E-03	3.11994E-04 319.25	0.0 0.0	2.4044 0.0	9418.4 9925.9	561.52 570.00
2	0.21 1.4000	1.32704E-03 9.77182E-03	6.42207 318.92	-9.28544E-03 -4.9971	3204.8 -1.2603	9418.4 9925.9	561.58 570.00
3	0.84 1.4000	2.55227E-03 9.76975E-03	0.93405 314.47	-3.46983E-02 -13.837	6524.3 -2.5194	9418.4 9911.3	561.75 570.00
4	1.87 1.4000	3.57586E-03 9.76370E-03	1.2266 308.50	-6.09524E-02 -20.361	9778.2 -3.7760	9418.4 9893.4	567.04 570.00
5	3.29 1.4000	5.29707E-03 9.75678E-03	1.5901 300.18	-0.13992 -26.419	13024. -9.0291	9418.4 9868.9	567.44 570.00
6	5.05 1.4000	6.61870E-03 9.74992E-03	1.9205 290.29	-0.21125 -31.932	16261. -6.2773	9418.4 9840.7	567.90 570.00
7	7.26 1.4000	7.95646E-03 9.77071E-03	2.4959 314.19	-0.32398 -41.473	19573. -7.5186	9418.4 9918.3	561.64 570.00
8	10.11 1.4000	9.30914E-03 9.79889E-03	3.1851 342.14	-0.49050 -52.690	22927. -8.7548	9418.4 10019.	560.03 570.00
9	13.74 1.4000	1.08844E-02 9.84086E-03	4.0554 379.58	-0.71375 -65.803	26358. -9.9818	9418.4 10170.	557.64 570.00
10	18.20 1.4000	1.23537E-02 9.86858E-03	4.8371 401.27	-0.95774 -79.456	29788. -11.200	9418.4 10270.	556.07 570.00
11	23.35 1.4000	1.34042E-02 9.87687E-03	5.4444 406.17	-1.1978 -89.357	33114. -12.407	9418.4 10361.	555.60 570.00
12	29.06 1.4000	1.47440E-02 9.87651E-03	5.6555 423.93	-1.4412 -97.751	36423. -13.604	9418.4 10299.	555.62 570.00
13	35.26 1.4000	1.60777E-02 9.87249E-03	6.4094 398.65	-1.6921 -105.24	39712. -14.789	9418.4 10295.	555.85 570.00
14	41.93 1.4000	1.74151E-02 9.87117E-03	6.8854 395.37	-1.9492 -113.08	43013. -15.961	9418.4 10280.	555.92 570.00
15	49.10 1.4000	1.87614E-02 9.87475E-03	7.4259 395.81	-2.2872 -121.91	46345. -17.119	9418.4 10243.	555.72 570.00
16	46.77 1.4000	2.00990E-02 9.87355E-03	7.8861 392.36	-2.6024 -129.48	49647. -18.263	9418.4 10248.	555.78 570.00
17	44.86 1.4000	2.14240E-02 9.86667E-03	8.2350 394.58	-2.8987 -135.30	52905. -19.392	9418.4 10263.	556.18 570.00
18	73.25 1.4000	2.27406E-02 9.85702E-03	8.5671 374.09	-3.1818 -139.91	56136. -20.596	9418.4 10228.	556.72 570.00
19	81.95 1.4000	2.40766E-02 9.85632E-03	8.5272 370.78	-3.5352 -146.83	59432. -21.604	9418.4 10226.	556.76 570.00
20	90.98 1.4000	2.53736E-02 9.85043E-03	9.0176 359.39	-3.7694 -148.55	62595. -22.883	9418.4 10169.	557.65 570.00
21	100.00 1.4000	2.66573E-02 9.82156E-03	8.9775 316.78	-3.9501 -148.18	65712. -23.749	9418.4 10100.	558.73 570.00

ITERATION NO. = 300 X-SECTION NO. = 2 Y-INNER = 0.0001 Y-OUTER = 2.6700 OUTPUT NO. = 2								
STREAMLINE & CP/CV	M1 DENSITY	M2	M3	M4 FLOW ANG(D)	P-STAY P-STAG	TEMP(T) T-STAG	MACH NO	VELOCITY
1 0.0 1.4000	9.65799E-07 9.65799E-03	3.53218E-04 365.73	0.0 0.0	2.3805 0.0	9263.8 9925.9	558.87 570.00	0.31560	365.73
2 0.30 1.4000	1.25608E-03 9.46213E-03	0.56782 452.06	-8.01833E-03 -6.3836	3108.7 -0.80904	8923.5 9921.9	557.99 570.00	0.39223	452.06
3 1.25 1.4000	2.47362E-03 9.26137E-03	1.2139 490.76	-1.58663E-02 -6.4142	6134.9 -0.74682	8741.6 9908.8	549.95 570.00	0.42695	490.80
4 2.69 1.4000	3.69012E-03 9.18739E-03	1.8612 525.71	-3.46670E-02 -9.4195	9135.6 -1.0671	8652.2 9885.5	546.71 570.00	0.44050	505.79
5 5.21 1.4000	4.87553E-03 9.12589E-03	2.5016 512.96	-0.10889 -22.934	12108. -2.4931	8586.9 9851.6	544.06 570.00	0.44743	513.49
6 8.33 1.4000	6.02001E-03 9.01774E-03	3.3398 556.78	-0.27925 -46.386	14990. -4.7795	8422.7 9804.9	544.20 570.00	0.46644	556.77
7 12.39 1.4000	7.18360E-03 8.94295E-03	4.2792 597.33	-0.56779 -76.465	17892. -7.2948	8285.5 10024.0	539.43 570.00	0.52877	602.21
8 17.46 1.4000	8.37409E-03 8.96044E-03	5.2344 625.07	-0.87466 -106.65	20961. -9.4664	8251.8 10196.0	536.57 570.00	0.55813	633.74
9 23.43 1.4000	9.70351E-03 9.0557E-03	5.9335 611.46	-1.1727 -126.85	24272. -11.160	8364.1 10286.0	537.66 570.00	0.54837	623.29
10 29.98 1.4000	1.12047E-02 9.24194E-03	6.4071 576.97	-1.3796 -126.16	27712. -12.143	8581.4 10302.0	541.01 570.00	0.51763	590.18
11 36.97 1.4000	1.25762E-02 9.42006E-03	6.7046 533.11	-1.6910 -115.38	31293. -12.711	8815.2 10298.0	545.24 570.00	0.47653	545.46
12 44.10 1.4000	1.41974E-02 9.64045E-03	6.6793 471.79	-1.4357 -101.41	35096. -12.131	9110.5 10263.0	550.62 570.00	0.41953	452.56
13 51.13 1.4000	1.57521E-02 9.83258E-03	6.5077 413.13	-1.4884 -94.467	38970. -12.882	9396.9 10290.0	555.05 570.00	0.36697	423.80
14 58.01 1.4000	1.72953E-02 9.96539E-03	6.4110 370.68	-1.6749 -96.844	42667. -16.642	9418.4 10170.0	550.67 567.89	0.33307	383.13
15 64.58 1.4000	1.86951E-02 1.01097E-02	6.9290 313.78	-1.9015 -99.942	46503. -16.901	9418.4 9973.3	549.81 551.76	0.28716	327.95
16 70.37 1.4000	2.00313E-02 1.02530E-02	6.4257 219.60	-1.7056 -83.112	50404. -19.108	9418.4 9753.0	538.22 540.99	0.22388	259.89
17 75.12 1.4000	2.20372E-02 1.03170E-02	3.6897 131.04	-1.9244 -69.175	54015. -20.911	9418.4 9419.6	531.90 535.03	0.37143	193.81
18 79.72 1.4000	2.33273E-02 1.02769E-02	4.6527 179.43	-1.8918 -61.999	57307. -22.127	9418.4 9638.8	531.89 537.75	0.19010	217.21
19 81.42 1.4000	2.44456E-02 1.01790E-02	6.0668 246.17	-2.5496 -104.30	60040. -22.795	9418.4 9792.2	539.43 545.47	0.27649	264.20
20 92.35 1.4000	2.55141E-02 1.00589E-02	6.0069 276.71	-2.9573 -115.91	67716. -23.379	9418.4 9811.8	545.56 557.77	0.25720	294.68
21 100.00 1.4000	2.56336E-02 9.97317E-03	7.4574 280.70	-3.2813 -123.20	65495. -23.749	9418.4 9493.4	550.13 557.92	0.26607	305.91

ITERATION NO. = 300 X-STATION NO. = 3 Y-INNER = 0.0001 Y-OUTER = 2.6258 OUTPUT NO. = 2								
STREAMLINE #	M1	M2	M3	M4	P-STAY	TEMP(P1	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	R-STAG	T-STAG	VELOCITY	
1	0.0	5.07328E-07	5.25508E-04	0.0	2.2473	8422.8	549.88	0.49004
1.4000	9.02328E-03	560.23	0.0	0.0	9425.9	570.00	349.23	
2	0.34	1.18557E-03	0.64203	-2.55028E-02	2952.5	8425.4	544.02	0.48866
1.4000	9.02345E-03	556.43	-17.274	-1.7738	9419.8	570.00	359.69	
3	1.35	2.36475E-03	1.3219	-6.1281E-02	2989.4	8404.4	543.92	0.48960
1.4000	9.00276E-03	556.98	-28.810	-2.9504	9901.2	570.00	359.73	
4	2.00	3.56533E-03	1.9256	-0.11153	8868.7	8477.7	549.76	0.47125
1.4000	9.05065E-03	536.74	-31.287	-3.3236	9870.3	570.00	379.65	
5	5.26	6.77149E-02	2.5170	-0.15813	11860.	8524.6	546.75	0.46114
1.4000	9.08445E-03	527.51	-33.142	-3.5949	9862.5	570.00	328.55	
6	8.29	3.89486E-03	3.4291	-0.27471	14704.	8347.1	541.65	0.51154
1.4000	9.07388E-03	551.71	-49.601	-4.5602	9478.7	570.00	389.58	
7	12.37	6.91765E-03	4.5804	-0.51544	27357.	8033.3	533.05	0.58875
1.4000	8.78086E-03	662.13	-74.511	-6.4206	10157.	570.00	666.31	
8	17.59	7.92179E-03	5.6634	-0.86097	19966.	7788.2	526.47	0.64293
1.4000	8.61312E-03	714.91	-108.68	-8.6461	10284.	570.00	723.12	
9	23.80	8.97703E-03	6.5324	-1.2372	22659.	7691.3	524.34	0.65981
1.4000	8.54647E-03	727.68	-137.81	-10.724	10301.	570.00	740.61	
10	30.83	1.01166E-02	7.2656	-1.5919	25574.	7713.6	524.96	0.65497
1.4000	8.54129E-03	718.58	-137.36	-12.352	10289.	570.00	735.61	
11	38.50	1.14726E-02	7.7869	-1.8596	28857.	7940.5	529.47	0.61868
1.4000	8.73803E-03	678.74	-162.09	-13.432	10279.	570.00	697.83	
12	46.50	1.31520E-02	7.9121	-1.9859	32884.	8468.4	537.98	0.54554
1.4000	9.10935E-03	691.59	-151.00	-14.090	10244.	570.00	620.25	
13	54.27	1.50678E-02	7.3499	-1.9673	37401.	9007.7	548.78	0.43974
1.4000	9.56371E-03	487.79	-138.56	-14.983	10217.	570.00	504.96	
14	61.03	1.70371E-02	5.9125	-1.7942	42037.	9418.4	540.11	0.31536
1.4000	9.99362E-03	346.63	-109.19	-16.881	12091.4	540.01	382.74	
15	65.80	1.89642E-02	3.4587	-1.2362	46493.	9418.4	531.98	0.17172
1.4000	1.03174E-02	182.38	-65.186	-19.668	9613.1	535.00	193.68	
16	68.70	2.04439E-02	2.2246	-0.89988	50138.	9418.4	527.59	0.10405
1.4000	1.04012E-02	138.60	-43.931	-22.024	9490.0	529.74	117.15	
17	71.80	2.16621E-02	3.4678	-1.5861	53095.	9418.4	537.16	0.17066
1.4000	1.03120E-02	176.55	-73.220	-22.297	9611.8	533.26	192.98	
18	76.85	2.26362E-02	6.0472	-2.4199	55637.	9415.4	541.01	0.23234
1.4000	1.01433E-02	267.11	-109.89	-21.810	9844.9	547.90	287.70	
19	83.87	2.35735E-02	7.7350	-3.0882	58075.	9418.4	550.13	0.30730
1.4000	9.97512E-03	328.12	-131.00	-21.764	10058.	560.32	333.31	
20	91.99	2.47021E-02	8.2506	-3.3734	60849.	9418.4	554.16	0.31104
1.4000	9.90259E-03	331.98	-136.56	-27.360	10072.	564.89	337.97	
21	100.00	2.61427E-02	7.5194	-3.3085	64307.	9418.4	551.18	0.27306
1.4000	9.95610E-03	287.63	-126.56	-23.749	9919.2	559.40	314.24	

ITERATION NO. = 300 X-STATION NO. = 4 Y-INNER = 0.0001 Y-OUTER = 2.5817 OUTPUT NO. = 8								
STREAMLINE #	W1	W2	W3	W4	P-STAT	YFAPR1	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG1	P-STAG	I-STAG	VELOCITY	
1	0.0 1.4000	9.21833E-07 9.21883E-03	4.67876E-04 507.52	0.0 0.0	2.2886 0.0	8679.5 9925.9	561.56 570.00	0.44206 507.52
2	0.25 1.4000	1.21735E-03 9.42395E-03	6.94114 444.21	-2.39094E-02 -19.649	3011.8 -2.5299	8952.8 9920.9	553.52 570.00	0.38582 444.95
3	0.94 1.4000	2.46482E-03 9.54397E-03	0.99422 299.31	-7.33044E-02 -20.740	6084.7 -4.2595	9118.2 9906.5	556.65 570.00	0.34622 400.41
4	1.98 1.4000	3.74376E-03 9.65330E-03	1.2936 345.32	-0.11091 -29.626	9220.5 -4.9007	9269.4 9883.7	559.99 570.00	0.29806 346.79
5	3.16 1.4000	5.07862E-03 9.83428E-03	1.2935 254.69	-0.10994 -21.647	12466. -4.8581	9418.4 9743.6	559.01 563.45	0.22075 255.61
6	4.39 1.4000	6.40305E-03 9.92245E-03	1.4276 222.94	-0.12531 -19.571	13707. -5.0169	9418.4 9669.2	553.16 557.38	0.19411 223.79
7	6.07 1.4000	7.65056E-03 9.98479E-03	2.2609 295.29	-0.25350 -33.109	18522. -6.3975	9418.4 9862.4	555.16 562.51	0.25727 297.16
8	8.70 1.4000	8.93707E-03 9.77921E-03	3.5043 396.95	-0.54721 -61.922	21816. -8.8752	9380.0 10184.	556.59 570.00	0.34705 401.35
9	12.53 1.4000	9.64763E-03 9.43545E-03	4.6150 499.10	-1.0037 -101.92	24450. -11.542	8975.0 10274.	544.40 570.00	0.44376 509.40
10	17.55 1.4000	1.07661E-02 9.26658E-03	6.1079 567.33	-1.5027 -139.58	26856. -13.822	8615.6 10302.	541.59 570.00	0.51215 584.25
11	23.45 1.4000	1.18724E-02 9.19753E-03	6.8562 577.49	-1.9159 -161.57	29447. -15.612	8925.0 10298.	540.07 570.00	0.52639 599.61
12	29.81 1.4000	1.22751E-02 9.34882E-03	7.1050 533.21	-2.1577 -182.54	33061. -16.893	8728.0 10280.	543.96 570.00	0.48926 559.55
13	36.24 1.4000	1.46157E-02 9.57724E-03	7.0671 476.36	-2.2852 -154.06	36815. -17.919	9026.4 10285.	549.14 570.00	0.43364 500.64
14	42.86 1.4000	1.63684E-02 9.75393E-03	7.0026 427.81	-2.4003 -166.64	40511. -18.920	9257.2 10294.	552.98 570.00	0.39234 452.22
15	49.21 1.4000	1.75754E-02 9.78344E-03	7.3729 417.13	-7.6227 -146.38	43724. -19.561	9294.3 10289.	553.68 570.00	0.38184 442.73
16	56.40 1.4000	1.86804E-02 9.64748E-03	6.4338 451.48	-2.9733 -159.17	46294. -19.420	9177.2 10276.	550.92 570.00	0.41607 478.72
17	64.52 1.4000	1.96796E-02 9.52636E-03	9.3825 476.86	-3.2410 -164.72	48836. -19.056	8973.2 10245.	544.81 570.00	0.43734 504.51
18	71.33 1.4000	2.08365E-02 9.49603E-03	9.5835 479.09	-3.5065 -168.27	51733. -19.393	8940.1 10225.	544.54 570.00	0.44429 507.78
19	92.54 1.4000	2.21819E-02 9.56600E-03	12.252 462.18	-3.8168 -172.07	55022. -20.421	9007.7 10223.	549.76 570.00	0.42409 493.17
20	91.64 1.4000	2.36834E-02 9.65939E-03	9.7377 411.16	-4.9373 -166.25	58599. -22.915	9175.4 10161.	553.63 570.00	0.38452 443.50
21	100.00 1.4000	2.43309E-02 9.81170E-03	6.6154 340.12	-3.7908 -149.65	62452. -23.749	9470.2 10100.	559.51 570.00	0.32076 371.58

ITERATION NO. = 300 X-STATION NO. = 5 Y-INNER = 0.0001 Y-OUTER = 2.5375 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(°)	P-STAT	T-STAT	VELOCITY	
1	0.0 1.4000	4.59847E-07 9.57847E-03	3.72154E-04 387.72	0.0 0.0	2.3681 0.3	9184.0 9925.9	557.49 570.00	0.33500 387.72
2	0.19 1.4000	1.24215E-03 9.78302E-03	0.38840 312.88	-2.14898E-02 -17.284	3055.4 -3.1640	9419.4 9006.9	560.93 569.10	0.28974 312.88
3	0.70 1.4000	2.90483E-03 9.86762E-03	0.66884 267.02	-6.15900E-02 -24.591	6151.8 -5.2618	9418.4 9778.0	560.12 562.11	0.23197 268.15
4	1.46 1.4000	3.77174E-03 9.90712E-03	0.89354 230.91	-0.10024 -28.167	9255.3 -4.7825	9418.4 9703.4	553.91 558.64	0.20600 238.37
5	2.31 1.4000	5.07215E-03 9.99282E-03	0.86200 169.95	-0.11562 -22.795	12426. -7.8398	9418.4 9566.1	549.16 551.60	0.14927 171.47
6	3.09 1.4000	6.36845E-03 1.00377E-02	0.73885 116.02	-0.10293 -16.162	15588. -7.9308	9418.4 9467.5	546.70 547.84	0.10220 117.14
7	3.88 1.4000	7.63150E-03 1.00240E-02	0.84217 115.60	-0.14912 -19.016	18680. -9.3418	9418.4 9467.4	547.45 549.59	0.10214 117.15
8	4.80 1.4000	8.88964E-03 1.00078E-02	1.0214 114.91	-0.20223 -22.751	21757. -11.109	9418.4 9487.2	548.33 549.48	0.10205 117.14
9	5.86 1.4000	1.02188E-02 1.00672E-02	1.1689 114.38	-0.25799 -25.248	25032. -12.448	9418.4 9457.6	545.10 545.24	0.10235 117.14
10	7.07 1.4000	1.16407E-02 1.01919E-02	1.3185 113.27	-0.34767 -29.867	28493. -13.772	9418.4 9488.3	539.32 539.56	0.10299 117.14
11	10.08 1.4000	1.24687E-02 9.82718E-03	4.8804 391.42	-1.4838 -119.00	30793. -16.911	9378.9 10227.	550.07 570.00	0.33392 409.11
12	15.53 1.4000	1.33834E-02 9.58925E-03	6.3785 476.59	-2.0641 -154.23	33212. -17.932	9037.4 10299.	549.11 570.00	0.43610 509.93
13	22.20 1.4000	1.44123E-02 9.46595E-03	7.3222 508.36	-2.3778 -164.99	35836. -17.991	8874.6 10300.	546.25 570.00	0.46626 514.17
14	29.76 1.4000	1.54111E-02 9.14319E-03	8.2542 535.60	-2.6178 -169.87	38388. -17.997	8710.1 10795.	543.72 570.00	0.49159 561.89
15	38.31 1.4000	1.63023E-02 9.17778E-03	9.3567 573.95	-2.9764 -176.28	40712. -17.256	8505.0 10281.	539.93 570.00	0.52765 601.00
16	47.91 1.4000	1.72077E-02 9.04173E-03	10.425 625.85	-3.2584 -189.37	43076. -17.358	8325.0 10293.	536.48 570.00	0.55908 639.75
17	58.32 1.4000	1.81706E-02 9.04949E-03	11.917 599.88	-3.5911 -195.48	45974. -18.055	8338.7 10282.	536.89 570.00	0.55532 630.74
18	69.01 1.4000	1.90124E-02 9.18544E-03	11.015 555.92	-3.6465 -194.13	49437. -19.250	8511.2 10223.	541.14 570.00	0.51642 588.87
19	79.67 1.4000	2.13472E-02 9.34739E-03	10.930 512.00	-4.1311 -194.44	53124. -20.797	8743.9 10228.	545.03 570.00	0.47858 547.68
20	90.08 1.4000	2.26565E-02 9.44156E-03	10.513 459.94	-4.3510 -190.36	56710. -22.884	8940.1 10171.	549.38 570.00	0.43325 497.77
21	100.00 1.4000	2.43380E-02 9.59132E-03	9.9118 408.08	-4.3700 -179.58	60215. -23.749	9110.8 10100.	553.44 570.00	0.38661 445.84

ITERATION NO. = 300 X-STATION NO. = 6 Y-INNER = 0.0001 Y-OUTER = 2.4033 OUTPUT NO. = 2								
STREAMLINE S	M1	M2	M3	M4	P-STAG	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	7-STAG	VELOCITY	
1	0.0 1.4000	9.63037E-07 9.83907E-03	3.62272E-04 376.19	0.0 0.0	2.3747 0.0	9226.3 9925.9	556.22 570.00	0.32482 376.19
2	0.20 1.4000	1.20194E-03 9.63494E-03	0.44838 373.05	-1.98895E-02 -16.548	2963.6 -2.5399	9233.0 9922.3	558.39 570.00	0.52257 373.61
3	0.82 1.4000	2.39408E-03 9.55848E-03	0.94379 395.87	-7.21860E-02 -30.278	5884.5 -4.3737	9135.8 9911.5	556.88 570.00	0.54323 397.03
4	1.91 1.4000	3.52791E-03 9.43095E-03	1.5234 431.82	-0.16339 -46.314	8723.6 -6.1217	8972.1 9993.4	554.30 570.00	0.57632 434.30
5	3.56 1.4000	4.63499E-03 9.29340E-03	2.1568 465.33	-0.30650 -66.127	11482. -8.0860	8798.4 9868.3	551.61 570.00	0.40825 470.00
6	5.68 1.4000	5.78132E-03 9.27335E-03	2.6666 481.25	-0.45353 -78.448	14320. -9.6523	8782.5 9940.1	551.78 570.00	0.42634 467.88
7	8.22 1.4000	7.03267E-03 9.40112E-03	3.0809 438.08	-0.57502 -81.765	17399. -10.572	8930.3 9899.2	553.47 570.00	0.38646 445.85
8	11.00 1.4000	8.36042E-03 9.61612E-03	3.1838 380.17	-0.65974 -78.650	20701. -11.686	9198.4 9943.5	557.46 570.00	0.33544 398.22
9	13.65 1.4000	9.84148E-03 9.86732E-03	2.6901 293.66	-0.62719 -63.726	24196. -12.244	9418.4 9871.5	556.14 563.68	0.25995 309.50
10	16.20 1.4000	1.12417E-02 1.00190E-02	2.7666 246.10	-0.64497 -57.373	27597. -13.123	9418.4 9742.2	547.72 553.06	0.22027 252.70
11	19.46 1.4000	1.22582E-02 9.83254E-03	4.5865 374.15	-1.2217 -99.664	30243. -14.916	9498.5 10168.	557.52 570.00	0.33454 387.26
12	24.31 1.4000	1.30990E-02 9.95187E-03	6.3753 486.70	-1.4522 -141.40	32517. -16.200	8994.0 10282.	548.62 570.00	0.44143 506.83
13	30.49 1.4000	1.39771E-02 9.34244E-03	7.5786 542.22	-2.2546 -161.36	34822. -16.567	8712.9 10302.	543.38 570.00	0.44509 545.70
14	37.62 1.4000	1.49338E-02 9.21455E-03	8.5073 569.67	-2.5273 -169.23	37277. -16.545	8549.6 10240.	540.60 570.00	0.52161 596.27
15	45.51 1.4000	1.59595E-02 9.14495E-03	9.2986 622.64	-2.7966 -175.23	39876. -16.739	8462.0 10279.	539.19 570.00	0.53453 605.42
16	54.05 1.4000	1.70668E-02 9.13735E-03	9.9958 586.71	-3.1521 -184.47	42707. -17.510	8448.3 10244.	538.71 570.00	0.51890 611.12
17	63.06 1.4000	1.81615E-02 9.20534E-03	10.347 563.50	-3.5224 -191.83	45637. -18.900	8539.5 10283.	540.51 570.00	0.52233 595.28
18	72.21 1.4000	1.94747E-02 9.31785E-03	10.311 524.15	-3.9050 -192.68	49171. -20.235	8703.3 10239.	544.22 570.00	0.48671 558.57
19	81.40 1.4000	2.11212E-02 9.41238E-03	10.428 493.64	-4.1464 -196.03	52508. -21.659	8828.7 10229.	546.52 570.00	0.46350 531.14
20	90.65 1.4000	2.23971E-02 9.49574E-03	10.447 466.43	-4.4076 -198.79	55598. -22.876	8904.3 10178.	548.67 570.00	0.44690 506.23
21	100.00 1.4000	2.34896E-02 9.42108E-03	10.669 454.20	-4.6943 -199.85	56275. -23.749	8983.2 10100.	549.50 570.00	0.43186 496.22

ITERATION NO.= 300 I-STATION NO.= 9 T-INNER = C.00C1 V-OUTER = 2.4462 OUTPUT NO. = 2							
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY
1	0.0 1.4000	9.51036E-07 9.51036E-03	3.27836E-04 418.32	0.0 0.0	2.3498 0.0	9066.2 9925.9	555.53 570.00
2	0.22 1.4000	1.15938E-03 9.43191E-03	0.50529 436.20	-1.31047E-02 -11.313	2866.6 -1.4856	8989.6 9922.1	584.18 570.00
3	0.92 1.4000	2.25720E-03 9.37598E-03	1.0480 456.22	-5.53352E-02 -24.098	5686.8 -3.0223	8892.9 9919.4	557.63 570.00
4	2.11 1.4000	3.41046E-03 9.29111E-03	1.6312 478.30	-0.13172 -38.622	8453.3 -4.6165	8774.3 9890.1	550.83 570.00
5	3.85 1.4000	4.47040E-03 9.12476E-03	2.2963 513.67	-0.25840 -57.803	11104. -6.4204	8576.4 9860.3	547.76 570.00
6	6.24 1.4000	5.47849E-03 8.94631E-03	3.0810 562.38	-0.45938 -83.852	13652. -8.4885	8338.9 9876.9	543.69 570.00
7	9.27 1.4000	6.49298E-03 8.83003E-03	3.9506 608.45	-0.71633 -110.32	16235. -10.277	8161.8 9876.5	538.17 570.00
8	13.26 1.4000	7.56025E-03 8.84217E-03	4.7940 632.43	-0.93590 -125.44	18929. -11.219	8125.1 10116.	535.40 570.00
9	17.40 1.4000	8.82594E-03 9.03907E-03	5.4209 616.12	-1.1216 -126.65	22154. -11.690	8338.3 10242.	537.48 570.00
10	22.73 1.4000	1.03034E-02 9.34804E-03	5.6688 550.19	-1.2584 -122.14	25667. -12.516	8720.9 10298.	543.56 570.00
11	27.83 1.4000	1.16952E-02 9.54987E-03	5.9198 477.62	-1.4319 -122.44	29042. -13.623	8584.3 10302.	548.14 570.00
12	33.22 1.4000	1.28904E-02 9.56896E-03	6.3007 486.79	-1.6953 -131.52	31998. -15.660	8511.0 10398.	548.67 570.00
13	39.11 1.4000	1.39870E-02 9.51783E-03	6.6429 496.38	-1.9830 -141.78	34741. -16.940	8948.9 10283.	547.82 570.00
14	45.57 1.4000	1.51018E-02 9.48597E-03	7.5911 502.66	-2.2639 -149.91	37526. -18.606	8997.2 10282.	547.10 570.00
15	52.56 1.4000	1.62887E-02 9.50070E-03	8.1392 499.64	-2.5507 -156.59	40476. -17.480	8922.3 10294.	547.18 570.00
16	59.94 1.4000	1.75449E-02 9.52233E-03	8.4534 481.76	-2.8334 -161.48	43562. -18.531	8992.7 10287.	548.51 570.00
17	67.51 1.4000	1.88245E-02 9.60736E-03	8.5838 453.99	-3.1022 -164.80	46672. -19.870	9076.2 10246.	548.43 570.00
18	75.22 1.4000	2.00637E-02 9.63844E-03	8.7546 436.30	-3.3808 -168.49	49702. -21.115	9126.1 10226.	551.79 570.00
19	83.19 1.4000	2.12615E-02 9.64552E-03	9.1380 430.73	-3.7299 -175.43	52657. -22.160	9138.1 10224.	552.00 570.00
20	91.45 1.4000	2.23678E-02 9.61334E-03	9.4366 421.89	-4.0094 -179.24	55377. -23.021	9118.1 10187.	552.51 570.00
21	100.00 1.4000	2.33972E-02 9.55300E-03	9.6002 418.86	-4.3121 -184.30	57923. -23.749	9059.9 10100.	552.57 570.00

ITERATION NO. = 300 X-STATN NO. = 8 Y-INNER = 0.0001 Y-OUTER = 2.4090 OUTPUT NO. = 2								
STREAMLINE #	W1 CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOD ANG(0)	P-STAT P-STAG	TEMP(0) T-STAG	MACH NO VFLOCITY
1	0.0 1.4000	9.3524E-07 9.3524E-03	4.3610E-04 454.41	0.0 0.0	2.3168 0.0	8856.7 9923.9	551.74 570.00	0.40882 466.41
2	0.24 1.4000	1.1228E-03 9.3303E-03	4.5321E-04 473.49	-1.1714E-02 -10.432	2752.3 -1.2610	8828.3 9921.8	551.29 570.00	0.41198 474.02
3	0.95 1.4000	7.2414E-03 9.3165E-03	1.0629 474.21	-6.9364E-02 -22.023	5554.2 -2.6590	8814.4 9909.6	551.24 570.00	0.41248 474.72
4	2.14 1.4000	3.3554E-03 9.2792E-03	1.5668 472.91	-0.11360 -33.856	8214.4 -4.3948	8768.7 9889.0	551.29 570.00	0.41104 474.12
5	3.80 1.4000	4.4444E-03 9.2488E-03	2.1298 477.66	-0.20862 -46.887	11029. -5.5945	8742.5 9859.7	550.75 570.00	0.41009 473.95
6	6.01 1.4000	5.5005E-03 9.1474E-03	2.8086 510.61	-0.76231 -65.867	13661. -7.3504	8602.5 9877.1	547.94 570.00	0.40869 514.84
7	8.91 1.4000	6.5222E-03 9.0390E-03	3.6637 561.72	-0.58944 -60.373	16253. -9.1398	8424.8 9880.8	542.06 570.00	0.40806 568.94
8	12.60 1.4000	7.5565E-03 8.9760E-03	4.5772 625.72	-0.86374 -114.30	18892. -10.686	8294.5 10129.	538.37 570.00	0.40406 616.41
9	17.04 1.4000	8.4977E-03 9.0407E-03	5.3365 613.55	-1.1350 -130.49	21761. -12.007	8374.3 10235.	537.25 570.00	0.39209 627.26
10	22.32 1.4000	9.6749E-03 9.2095E-03	5.8004 581.93	-1.3453 -134.97	24886. -13.058	8540.1 10299.	540.30 570.00	0.38229 597.38
11	27.34 1.4000	1.1279E-02 9.3799E-03	6.0899 536.89	-1.5084 -133.74	28086. -13.914	8761.8 10301.	544.23 570.00	0.40638 556.21
12	32.96 1.4000	1.2509E-02 9.4547E-03	6.4640 516.74	-1.7062 -136.39	31115. -14.786	8965.6 10291.	546.23 570.00	0.40649 534.63
13	38.95 1.4000	1.3676E-02 9.4786E-03	6.9219 508.06	-1.9453 -142.22	33993. -15.698	8898.7 10279.	547.00 570.00	0.40581 525.66
14	45.39 1.4000	1.4837E-02 9.4912E-03	7.4504 502.13	-2.2268 -150.06	36471. -16.639	8912.8 10286.	547.14 570.00	0.40707 474.07
15	52.26 1.4000	1.6032E-02 9.5228E-03	7.9027 492.93	-2.5190 -157.13	39823. -17.680	8952.0 10243.	547.72 570.00	0.40698 517.37
16	59.49 1.4000	1.7247E-02 9.5421E-03	8.2471 478.15	-2.8097 -162.85	42812. -18.607	9000.3 10260.	548.76 570.00	0.40989 505.12
17	66.98 1.4000	1.8439E-02 9.5838E-03	8.4980 460.86	-3.0771 -165.87	45731. -19.905	9046.9 10251.	550.00 570.00	0.42636 490.14
18	74.75 1.4000	1.9595E-02 9.5808E-03	8.6605 452.41	-3.3820 -172.68	48556. -20.891	9051.6 10275.	550.48 570.00	0.42105 486.25
19	82.91 1.4000	2.0717E-02 9.5714E-03	9.3554 451.57	-3.7460 -180.81	51369. -21.822	9040.1 10224.	550.31 570.00	0.42301 486.43
20	91.38 1.4000	2.1830E-02 9.5549E-03	9.5717 436.45	-4.0132 -183.93	44097. -22.747	9030.3 10168.	551.19 570.00	0.41312 475.43
21	100.00 1.4000	2.2446E-02 9.5413E-03	9.6847 422.06	-4.2617 -185.72	56819. -23.749	9044.4 10109.	552.30 570.00	0.40030 461.15

ITERATION NO. = 300 X-STATION NO. = 9 Y-INNER = 0.0001 Y-OUTER = 2.3600 OUTPUT NO. = 2							
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY
1	0.0 1.4000	9.24107E-07 9.24107E-03	4.63182E-04 501.22	0.0 0.0	2.2933 0.0	8708.8 9925.9	549.09 570.00
2	0.24 1.4000	1.09071E-03 9.23276E-03	0.54793 502.38	-1.23909E-02 -11.352	2706.9 -1.2955	9639.3 9921.8	549.58 570.00
3	0.95 1.4000	7.18191E-03 9.23873E-03	1.0843 496.97	-4.99807E-02 -22.907	5413.5 -2.6391	8711.5 9909.4	549.40 570.00
4	2.12 1.4000	3.27639E-03 9.24987E-03	1.5974 487.56	-0.11133 -36.133	8126.9 -4.0045	8733.4 9889.0	550.12 570.00
5	3.73 1.4000	4.37634E-03 9.26205E-03	2.0776 474.94	-0.10638 -44.893	10841 -5.3997	8760.7 9860.8	551.06 570.00
6	5.76 1.4000	5.47324E-03 9.27243E-03	2.5889 473.01	-0.31430 -57.425	13564 -6.9221	8770.4 9848.9	551.10 570.00
7	8.32 1.4000	6.56051E-03 9.28277E-03	3.2761 498.04	-0.49419 -75.324	16285 -8.5833	8724.6 9862.3	548.80 570.00
8	11.53 1.4000	7.63759E-03 9.29261E-03	4.0764 533.99	-0.73601 -96.665	19001 -10.242	8653.2 10092	545.44 570.00
9	15.46 1.4000	8.72158E-03 9.29557E-03	4.9327 555.55	-1.0197 -116.91	21767 -11.660	8595.1 10236	542.24 570.00
10	20.07 1.4000	9.83154E-03 9.2996E-03	5.6245 572.09	-1.2718 -129.36	24528 -12.741	8598.3 10258	541.36 570.00
11	25.22 1.4000	1.09578E-02 9.28276E-03	6.1825 564.21	-1.5892 -135.90	27327 -13.543	8634.6 10302	541.97 570.00
12	30.85 1.4000	1.20823E-02 9.32691E-03	6.7138 555.67	-1.7143 -151.89	30118 -14.324	8665.7 10295	542.62 570.00
13	36.93 1.4000	1.32004E-02 9.31921E-03	7.2216 547.06	-1.9607 -168.53	32892 -15.190	8689.1 10281	543.25 570.00
14	43.47 1.4000	1.43215E-02 9.33268E-03	7.7602 541.86	-2.2476 -186.94	35678 -16.132	8705.8 10283	543.51 570.00
15	50.48 1.4000	1.54498E-02 9.34886E-03	8.3012 537.30	-2.5670 -196.19	38484 -17.183	8723.5 10294	543.67 570.00
16	57.94 1.4000	1.65735E-02 9.36027E-03	8.7852 530.08	-2.8921 -174.50	41272 -18.221	8740.6 10287	544.08 570.00
17	65.78 1.4000	1.76343E-02 9.36343E-03	9.1879 519.55	-3.2051 -181.24	44016 -19.231	8754.2 10257	544.80 570.00
18	73.96 1.4000	1.88003E-02 9.36877E-03	9.5562 508.61	-3.5253 -187.52	46769 -20.253	8772.6 10279	545.56 570.00
19	82.49 1.4000	1.99419E-02 9.38562E-03	9.8752 500.21	-3.8973 -195.43	49594 -21.340	8795.2 10225	545.99 570.00
20	91.24 1.4000	2.10995E-02 9.40789E-03	10.075 477.51	-4.1775 -197.99	52409 -22.520	8844.4 10166	547.76 570.00
21	100.00 1.4000	2.22937E-02 9.44329E-03	9.9970 448.42	-4.3987 -197.31	55289 -23.744	8914.5 10100	550.02 570.00

ITERATION NO. = 300 X-SECTION NO. = 10 V-INNER = 0.0601 V-OUTER = 2.3167 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	RACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(°)	P-STAT	T-STAT	VELOCITY	
1	0.0 1.4000	9.15118E-07 9.15118E-03	4.81602E-04 526.27	0.0 0.0	2.2743 0.0	8590.5 9025.9	546.95 570.00	0.45907 526.27
2	0.24 1.4000	1.06357E-03 9.14639E-03	6.55772 525.86	-1.26095E-02 -11.489	2635.8 -1.2922	8588.2 9921.8	546.97 570.00	0.45882 526.90
3	0.95 1.4000	2.12043E-03 9.14925E-03	1.1071 522.09	-5.05492E-02 -23.839	5288.7 -2.6144	8593.6 9909.6	547.26 570.00	0.45576 522.63
4	2.12 1.4000	3.18137E-03 9.15265E-03	1.6392 515.24	-6.11374 -35.751	7502.0 -3.9692	8605.2 9869.0	547.90 570.00	0.45018 516.48
5	3.74 1.4000	4.24765E-03 9.16588E-03	2.1375 503.23	-6.20002 -47.089	10544. -5.3458	8632.4 9861.0	548.74 570.00	0.44017 505.43
6	5.78 1.4000	5.32841E-03 9.15980E-03	2.6231 496.16	-0.31089 -58.366	13220. -6.7388	8673.7 9866.9	549.39 570.00	0.43308 497.59
7	8.29 1.4000	6.42136E-03 9.23784E-03	3.2416 504.86	-0.46433 -72.313	15943. -8.1512	8694.1 9956.0	548.35 570.00	0.44432 510.02
8	11.36 1.4000	7.51050E-03 9.26183E-03	3.9515 526.14	-0.66411 -88.425	18674. -9.5402	8684.2 10075.	546.31 570.00	0.44656 533.51
9	15.11 1.4000	8.57776E-03 9.25595E-03	4.8052 560.20	-0.91755 -106.97	21377. -10.810	8624.8 10226.	542.93 570.00	0.44933 570.32
10	19.94 1.4000	9.62514E-03 9.23022E-03	5.9681 578.62	-1.1719 -121.78	24016. -11.885	8568.8 10296.	540.90 570.00	0.51666 591.29
11	24.56 1.4000	1.06634E-02 9.20525E-03	6.2200 584.06	-1.4138 -132.59	26626. -12.190	8533.7 10302.	543.14 570.00	0.52572 596.92
12	30.17 1.4000	1.17103E-02 9.19049E-03	6.8444 594.45	-1.6630 -142.01	29247. -13.657	8516.0 10298.	539.89 570.00	0.52807 601.46
13	36.27 1.4000	1.27681E-02 9.18525E-03	7.4085 593.23	-1.9262 -152.86	31883. -14.574	8514.3 10282.	540.08 570.00	0.52628 596.53
14	42.84 1.4000	1.38367E-02 9.18441E-03	7.6798 576.71	-2.2220 -160.58	34549. -15.560	8514.3 10282.	540.17 570.00	0.52547 595.65
15	49.92 1.4000	1.49094E-02 9.19359E-03	8.5740 575.07	-2.5560 -171.43	37231. -16.600	8521.1 10294.	540.03 570.00	0.52679 600.08
16	57.48 1.4000	1.59815E-02 9.19775E-03	9.1010 569.47	-2.9002 -181.47	39902. -17.675	8524.7 10289.	540.27 570.00	0.52457 597.68
17	65.44 1.4000	1.70575E-02 9.20361E-03	9.3332 558.88	-3.2422 -190.07	42568. -18.783	8545.6 10260.	540.99 570.00	0.51776 590.32
18	73.74 1.4000	1.81614E-02 9.22295E-03	9.8788 543.93	-3.5642 -197.25	45288. -19.942	8591.6 10227.	542.13 570.00	0.50697 578.62
19	82.35 1.4000	1.92999E-02 9.25587E-03	10.257 531.50	-3.9735 -206.00	48096. -21.185	8625.3 10225.	542.95 570.00	0.49906 570.03
20	91.16 1.4000	2.04450E-02 9.28953E-03	10.358 504.63	-4.2867 -209.67	50881. -22.482	8686.9 10167.	544.98 570.00	0.47914 548.30
21	100.00 1.4000	2.16109E-02 9.32832E-03	10.322 477.64	-4.5418 -210.18	53695. -23.749	8763.0 10100.	547.33 570.00	0.45903 521.83

ITERATION NO. = 300 X-STATION NO. = 11 Y-INNER = 0.0501 Y-OUTER = 2.2725 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	7-STAG	VELOCITY	
1	0.0 1.4000	9.06005E-07 9.06000E-03	4.98894E-04 550.65	0.0 0.0	2.2531 0.0	8470.9 9925.9	544.76 570.00	0.48130 550.65
2	0.24 1.4000	1.03019E-03 9.05902E-03	0.56641 549.81	-1.71382E-02 -11.782	2564.1 -1.2277	8471.0 9921.8	544.83 570.00	0.48064 549.93
3	0.93 1.4000	7.05842E-03 9.05435E-03	1.1274 547.68	-4.88988E-02 -23.722	5122.7 -2.4801	8469.1 9909.4	544.99 570.00	0.47905 546.20
4	2.12 1.4000	3.08433E-03 9.04672E-03	1.6787 544.28	-0.11079 -35.921	7674.5 -3.7759	8465.2 9889.0	545.23 570.00	0.47855 545.46
5	3.76 1.4000	4.10965E-03 9.04754E-03	2.2105 537.88	-0.19689 -47.907	10222. -5.0897	8467.7 9860.7	545.73 570.00	0.47150 540.01
6	5.84 1.4000	5.14320E-03 9.049174E-03	2.7543 535.51	-0.30760 -59.807	17792. -6.3725	8475.6 9868.2	545.83 570.00	0.47051 535.84
7	8.41 1.4000	6.19327E-03 9.08343E-03	3.3500 547.37	-0.45310 -73.160	15417. -7.6129	8490.5 9958.1	544.62 570.00	0.48275 552.24
8	11.55 1.4000	7.25263E-03 9.11777E-03	4.0947 564.58	-0.63276 -87.244	18076. -8.7845	8494.7 10078.	542.83 570.00	0.50022 571.29
9	15.33 1.4000	8.20426E-03 9.13901E-03	4.6056 590.73	-0.85640 -103.13	20737. -9.9826	8467.4 10227.	540.07 570.00	0.52641 596.67
10	19.75 1.4000	9.33322E-03 9.12625E-03	5.4408 604.38	-1.0911 -116.90	23332. -10.947	8434.1 10294.	538.46 570.00	0.54119 615.58
11	24.76 1.4000	1.03440E-02 9.10325E-03	6.3009 629.13	-1.3288 -126.46	25871. -11.909	8401.6 10302.	537.74 570.00	0.54766 622.53
12	30.31 1.4000	1.13521E-02 9.08223E-03	6.4337 610.78	-1.5825 -139.40	28401. -12.857	8375.9 10298.	537.53 570.00	0.55135 626.49
13	36.37 1.4000	1.23636E-02 9.06877E-03	7.3223 698.34	-1.8531 -149.96	30916. -13.839	8363.4 10283.	537.33 570.00	0.55139 626.52
14	42.93 1.4000	1.33903E-02 9.06496E-03	8.1170 626.18	-2.1451 -160.94	33502. -14.869	8358.8 10272.	537.24 570.00	0.55200 627.18
15	49.99 1.4000	1.44245E-02 9.06760E-03	8.7252 624.89	-2.4957 -173.02	36094. -15.982	8358.0 10294.	537.05 570.00	0.55384 629.14
16	57.53 1.4000	1.54642E-02 9.07368E-03	9.2584 598.66	-2.8524 -184.44	38691. -17.124	8368.1 10288.	537.34 570.00	0.55150 626.43
17	65.48 1.4000	1.65161E-02 9.03467E-03	9.6930 586.88	-3.2151 -194.67	41294. -18.351	8391.3 10260.	538.18 570.00	0.54374 618.57
18	73.75 1.4000	1.75537E-02 9.16813E-03	10.043 579.89	-3.5619 -203.70	43953. -19.639	8432.5 10247.	539.42 570.00	0.53258 608.31
19	82.34 1.4000	1.97015E-02 9.14381E-03	10.427 557.54	-4.2027 -214.03	46692. -21.701	8479.6 10225.	540.31 570.00	0.52413 597.21
20	91.14 1.4000	1.98132E-02 9.17535E-03	10.561 513.04	-4.3530 -219.70	49398. -22.400	8542.5 10188.	542.33 570.00	0.50505 576.54
21	100.00 1.4000	2.09404E-02 9.21472E-03	10.576 559.05	-4.6534 -222.22	52125. -23.749	8613.9 10160.	544.66 570.00	0.48233 551.78

ITERATION NO. = 300 X-STATIC NO. = 12 Y-INNER = 0.0001 Y-OUTER = 2.2284 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP (F)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG (DEG)	P-STAT	T-STAT	VELOCITY	
1	0.0	8.95714E-07	5.16926E-04	0.0	2.2333	8336.5	547.28	0.50558
1.4000	8.95714E-03	577.11	0.0	0.0	9925.9	570.00	577.11	
2	0.24	9.98654E-04	0.57573	-1.14002E-02	2480.9	8335.6	542.32	0.50513
1.4000	8.95537E-02	576.31	-11.615	-1.1344	9921.0	570.00	576.62	
3	0.95	1.95499E-03	1.1672	-4.59298E-02	4973.3	8330.8	542.43	0.50415
1.4000	9.94848E-03	575.00	-23.024	-2.2024	9906.3	570.00	575.56	
4	2.12	2.96753E-03	1.7122	-0.17444	7447.4	8320.7	542.56	0.50288
1.4000	8.93548E-03	573.11	-36.937	-3.4905	9880.1	570.00	574.18	
5	3.76	3.57640E-03	2.2647	-0.18640	9910.7	8310.7	542.82	0.50037
1.4000	8.92050E-03	565.53	-44.875	-4.7051	9860.7	570.00	571.46	
6	5.86	4.96525E-03	2.8381	-0.20205	12385.	8303.2	542.55	0.50288
1.4000	8.91688E-03	571.25	-50.965	-5.8932	9849.0	570.00	574.29	
7	8.46	5.57325E-03	3.5005	-0.43225	14907.	8290.2	540.98	0.51791
1.4000	8.93618E-03	556.03	-72.364	-7.0393	9860.0	570.00	590.48	
8	11.64	6.99099E-03	4.2204	-0.60203	17449.	8292.1	539.05	0.53581
1.4000	8.96274E-03	603.69	-80.115	-8.1184	10002.	570.00	609.80	
9	15.44	8.01211E-03	5.0149	-0.83831	20055.	8276.8	536.54	0.55836
1.4000	8.98803E-03	625.91	-100.84	-9.1564	10228.	570.00	633.99	
10	19.86	9.01662E-03	5.7366	-1.0274	22590.	8259.4	535.23	0.56995
1.4000	8.99114E-03	636.23	-113.94	-10.153	10295.	570.00	646.35	
11	24.85	1.00009E-02	6.3904	-1.2552	25064.	8236.6	534.70	0.57453
1.4000	8.97513E-03	639.01	-125.51	-11.113	10302.	570.00	651.22	
12	30.34	1.06753E-02	7.0285	-1.5054	27515.	8211.5	534.30	0.57801
1.4000	8.95459E-03	640.39	-137.16	-12.089	10298.	570.00	654.92	
13	36.39	1.19493E-02	7.6335	-1.7786	29959.	8193.6	534.19	0.57896
1.4000	8.93688E-03	638.82	-146.85	-13.116	10283.	570.00	655.43	
14	42.92	1.29316E-02	8.2437	-2.0671	32426.	8182.1	533.99	0.58067
1.4000	8.92762E-03	637.64	-161.40	-14.204	10282.	570.00	657.75	
15	49.94	1.39254E-02	8.8458	-2.4380	34925.	8177.3	533.71	0.58308
1.4000	8.92707E-03	636.66	-175.07	-15.375	10294.	570.00	660.30	
16	57.48	1.49270E-02	9.4130	-2.8125	37431.	8164.7	533.93	0.58105
1.4000	8.91123E-03	630.60	-188.41	-16.635	10288.	570.00	658.15	
17	65.41	1.59390E-02	9.8674	-3.2013	39947.	8205.6	534.74	0.57417
1.4000	8.94075E-03	619.07	-203.84	-17.874	10760.	570.00	650.86	
18	73.68	1.69758E-02	10.244	-3.6023	42510.	8243.7	535.94	0.56369
1.4000	8.96459E-03	623.46	-218.21	-19.375	10228.	570.00	659.88	
19	82.27	1.80452E-02	10.645	-4.0516	45161.	8290.1	536.84	0.55577
1.4000	8.97752E-03	549.93	-224.53	-20.837	10225.	570.00	631.21	
20	91.09	1.91272E-02	10.808	-4.4370	47800.	9357.4	535.94	0.53678
1.4000	8.93513E-03	565.69	-231.97	-22.319	10168.	570.00	610.84	
21	100.00	2.02344E-02	10.844	-4.7714	50479.	9438.4	541.46	0.51332
1.4000	9.98025E-03	535.93	-235.81	-25.749	10100.	570.00	585.51	

ITERATION NO.= 300 X-STATION NO.= 13 Y-INNER = 0.0501 Y-OUTER = 2.1842 OUTPUT NO. = 2								
STREAMLINE & CP/CY	W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLOS	P-STAT P-STAT	TEMPER T-STAG	MACH NO VELOCITY	
1	0.0 1.4000	8.84519E-07 8.84519E-03	5.34933E-04 604.77	0.0 0.0	2.2095 0.0	8191.0 9925.9	539.56 570.00	0.53114 604.77
2	0.24 1.4000	9.66363E-04 8.94098E-03	0.58447 604.81	-1.04561E-02 -10.850	2414.0 -1.0249	8186.9 9921.8	539.54 570.00	0.53127 604.91
3	0.94 1.4000	1.93010E-03 8.83302E-03	1.1654 603.80	-4.22502E-02 -21.890	4821.2 -2.0763	8180.6 9909.6	539.61 570.00	0.53061 604.19
4	2.11 1.4000	2.69013E-03 8.81909E-03	1.7406 602.27	-6.62352E-02 -33.498	7216.7 -3.1645	8169.2 9889.3	539.72 570.00	0.52967 603.10
5	3.74 1.4000	3.84581E-03 8.80210E-03	2.3035 596.49	-0.17217 -44.768	9604.4 -4.2707	8156.6 9861.0	539.92 570.00	0.52779 601.16
6	5.84 1.4000	4.56292E-03 8.79454E-03	2.8913 601.98	-0.27130 -56.484	11997. -5.3605	8144.3 9868.4	539.57 570.00	0.53101 604.63
7	8.44 1.4000	5.77326E-03 8.80513E-03	3.5615 617.37	-0.40173 -59.535	14471. -6.4242	8126.2 9859.4	537.65 570.00	0.54667 621.47
8	11.60 1.4000	6.74831E-03 8.82669E-03	4.2906 635.81	-0.55983 -82.958	16901. -7.4338	8116.7 10081.	535.78 570.00	0.56511 641.19
9	15.38 1.4000	7.73026E-03 8.84733E-03	5.0862 657.96	-0.75149 -97.214	19395. -8.4041	8096.2 10228.	533.18 570.00	0.58761 665.10
10	19.77 1.4000	8.65742E-03 8.86833E-03	5.8117 668.21	-0.95570 -109.88	21841. -9.3393	8076.6 10294.	531.83 570.00	0.59904 677.18
11	24.73 1.4000	9.66345E-03 8.82980E-03	6.4771 671.66	-1.1710 -121.43	24227. -10.246	8050.5 10362.	531.22 570.00	0.60414 682.53
12	30.21 1.4000	1.05775E-02 8.80466E-03	7.1504 674.11	-1.4110 -133.40	26585. -11.193	8019.6 10298.	535.69 575.00	0.60854 687.18
13	36.21 1.4000	1.15067E-02 8.78001E-03	7.7563 674.07	-1.6774 -145.40	28924. -12.203	7992.9 10263.	530.41 570.00	0.63089 689.63
14	42.72 1.4000	1.24408E-02 8.75250E-03	8.3905 674.43	-1.9824 -159.33	31280. -13.293	7971.2 10281.	530.03 570.00	0.61488 693.09
15	49.74 1.4000	1.33845E-02 8.75397E-03	9.0338 674.94	-2.3327 -174.28	33664. -14.479	7956.3 10294.	529.55 570.00	0.61797 697.08
16	57.25 1.4000	1.43345E-02 8.75046E-03	9.6114 675.53	-2.7141 -189.33	36053. -15.768	7933.6 10288.	529.59 570.00	0.61763 696.75
17	65.20 1.4000	1.52956E-02 8.75146E-03	10.105 660.63	-3.1203 -204.00	38453. -17.161	7945.6 10262.	530.21 570.00	0.61256 691.41
18	73.51 1.4000	1.62833E-02 8.75056E-03	10.516 655.85	-3.5509 -218.07	40905. -18.658	7998.0 10228.	531.32 570.00	0.60329 681.89
19	82.19 1.4000	1.73122E-02 8.80677E-03	10.936 631.67	-4.0428 -233.51	43443. -20.288	8045.0 10225.	532.25 570.00	0.59550 673.45
20	91.54 1.4000	1.83696E-02 8.85237E-03	11.113 623.02	-4.4958 -245.79	46042. -22.025	8121.5 10168.	534.54 570.00	0.57588 652.65
21	100.00 1.4000	1.94776E-02 8.91752E-03	11.130 571.40	-4.8970 -251.42	48721. -23.749	8227.5 10100.	537.56 570.00	0.54928 624.37

ITERATION NO. = 300 X-STAT(CN NO. = 14 Y-INNER = 0.0501 Y-OUTER = 2.1400 OUTPUT NO. = 2								
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANG(°)	P-STAT P-STATG	7FMP(R) T-STATG	MACH NO VELOCITY	
1	0.0 1.4000	8.72088E-07 8.72088E-03	5.53177E-04 634.31	0.0 0.0	2.1830 0.0	8030.3 9925.9	536.51 570.00	0.54866 634.31
2	0.23 1.4000	9.33503E-04 8.71659E-03	6.50221 624.39	-0.48943E-03 -15.165	2336.8 -0.91802	8026.1 9921.8	536.49 570.00	0.55882 634.57
3	0.93 1.4000	1.65419E-03 8.70749E-03	1.1815 633.77	-3.85194E-02 -20.663	4666.4 -1.8674	8018.3 9909.7	536.53 570.00	0.55847 634.11
4	2.10 1.4000	2.79105E-03 8.69255E-03	1.7658 632.66	-8.79653E-02 -31.517	6986.1 -2.8519	8005.6 9889.5	536.60 570.00	0.55764 633.65
5	3.72 1.4000	3.71326E-03 8.67423E-03	2.3413 630.51	-0.15774 -42.479	9293.5 -3.8943	7991.1 9861.3	536.74 570.00	0.55645 631.94
6	5.80 1.4000	4.63606E-03 8.66433E-03	2.9356 633.22	-0.24884 -53.676	11606. -4.8450	7976.4 9847.3	536.39 570.00	0.55577 635.69
7	8.39 1.4000	5.56710E-03 8.67056E-03	3.6127 648.94	-0.36828 -66.153	13954. -5.9206	7955.3 9837.8	534.58 570.00	0.55555 652.38
8	11.53 1.4000	6.50626E-03 8.69585E-03	4.3625 687.43	-0.51432 -79.050	16332. -6.7546	7936.8 1907.8	532.40 570.00	0.55423 672.10
9	15.28 1.4000	7.44662E-03 8.69595E-03	5.1408 690.34	-0.69117 -92.814	18729. -7.6573	7907.2 1022.6	529.61 570.00	0.61746 696.55
10	19.62 1.4000	8.37141E-03 8.69256E-03	5.8733 701.59	-0.88364 -103.420	21076. -8.5274	7878.9 10292.	528.11 570.00	0.62978 709.63
11	24.54 1.4000	9.27322E-03 8.66617E-03	6.5556 736.94	-1.0933 -116.82	23360. -9.3833	7842.4 10302.	527.27 570.00	0.63658 716.53
12	29.98 1.4000	1.01605E-02 8.67221E-03	7.2270 711.29	-1.3120 -129.13	25608. -10.290	7810.4 10299.	526.50 570.00	0.64272 722.91
13	35.94 1.4000	1.10388E-02 8.59693E-03	7.8753 713.42	-1.5709 -142.31	27832. -11.281	7760.4 10265.	525.95 570.00	0.64712 727.48
14	42.42 1.4000	1.19172E-02 8.56715E-03	8.5325 715.98	-1.8724 -157.12	30561. -12.377	7723.6 10281.	525.28 570.00	0.65247 733.02
15	49.43 1.4000	1.28007E-02 8.54500E-03	9.2014 718.83	-2.2269 -173.96	32327. -13.605	7691.8 10293.	524.47 570.00	0.65881 739.58
16	56.94 1.4000	1.36867E-02 8.52739E-03	9.8134 717.01	-2.6261 -191.87	34351. -14.982	7671.7 10288.	524.14 570.00	0.66139 742.23
17	64.90 1.4000	1.45807E-02 8.51664E-03	10.348 709.68	-3.0695 -210.45	36802. -16.517	7665.1 10263.	524.39 570.00	0.65944 740.23
18	73.25 1.4000	1.54544E-02 8.52081E-03	10.800 699.81	-3.5537 -229.76	39099. -18.213	7660.8 10228.	524.21 570.00	0.65100 733.54
19	81.96 1.4000	1.64655E-02 8.54702E-03	11.250 693.27	-4.1093 -249.57	41515. -20.065	7717.2 10226.	525.96 570.00	0.64707 727.42
20	90.93 1.4000	1.74853E-02 8.53977E-03	11.465 653.70	-4.6225 -264.36	44013. -21.958	7799.9 10169.	528.40 570.00	0.62744 706.99
21	100.00 1.4000	1.85931E-02 8.68835E-03	11.500 618.51	-5.0400 -272.14	46686. -23.749	7933.0 10100.	531.99 570.00	0.59767 675.74

ITERATION NO. = 300 X-STATION NO. = 15 Y-INNER = 0.0001 Y-OUTER = 2.0959 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-SYAT	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	8.59710E-07 8.59710E-03	5.69681E-04 662.64	0.0 0.0	2.1565 9925.9	7871.2 570.00	533.45 570.00	0.56529 662.64
2	0.23 1.4000	9.00744E-04 8.58751E-03	6.59806 663.96	-8.22136E-03 -9.1273	2259.7 -0.78759	7860.2 9921.9	533.30 570.00	0.58659 664.02
3	0.92 1.4000	1.79831E-03 8.57666E-03	1.1939 663.90	-3.37560E-02 -1.6.771	4511.5 -1.6196	7845.8 9909.8	533.28 570.00	0.58673 664.16
4	2.07 1.4000	2.69178E-03 8.55974E-03	1.7856 663.61	-7.76698E-02 -28.867	6752.9 -2.4898	7834.7 9889.9	533.30 570.00	0.58661 664.04
5	2.68 1.4000	3.57993E-03 8.53869E-03	2.3706 662.19	-0.13996 -39.096	8980.6 -3.3789	7816.6 9862.0	533.37 570.00	0.58595 663.55
6	5.74 1.4000	4.46733E-03 8.52622E-03	2.4721 663.29	-0.22135 -49.549	11210. -4.2596	7797.6 9865.2	532.65 570.00	0.58953 667.13
7	8.30 1.4000	5.36121E-03 8.52556E-03	3.4525 661.28	-0.32809 -61.197	13470. -5.1329	7770.6 9856.7	531.05 570.00	0.60554 684.02
8	11.41 1.4000	6.26095E-03 8.53420E-03	4.3824 699.99	-0.45852 -73.235	15756. -9.9731	7745.1 10073.	528.77 570.00	0.62436 703.77
9	15.10 1.4000	7.15995E-03 8.53982E-03	5.1825 723.82	-0.61680 -86.146	18055. -6.7571	7706.2 10224.	529.77 570.00	0.64853 728.93
10	19.39 1.4000	8.03981E-03 8.53389E-03	5.9210 736.47	-0.78660 -97.839	20297. -7.5674	7666.7 10288.	526.06 570.00	0.66207 742.94
11	24.23 1.4000	8.89378E-03 8.49645E-03	6.6217 746.93	-0.96998 -109.06	22471. -8.3337	7615.8 10351.	522.87 570.00	0.67133 752.48
12	29.62 1.4000	9.72870E-03 8.43927E-03	7.1123 751.62	-1.17860 -121.09	24549. -9.1519	7557.3 10299.	521.76 570.00	0.67994 761.31
13	35.53 1.4000	1.05475E-02 8.38718E-03	7.4975 757.28	-1.4170 -134.56	26688. -10.068	7496.4 10284.	520.76 570.00	0.68755 769.11
14	41.96 1.4000	1.13974E-02 8.33830E-03	8.6740 763.73	-1.6981 -149.51	28760. -11.976	7434.3 10280.	519.59 570.00	0.69649 778.23
15	48.94 1.4000	1.21632E-02 8.29023E-03	9.3797 771.15	-2.0315 -167.02	30830. -12.221	7373.0 10293.	518.18 570.00	0.70712 789.03
16	56.44 1.4000	1.29626E-02 8.24617E-03	10.063 774.80	-2.4114 -186.03	32879. -13.501	7419.2 10289.	517.13 570.00	0.71481 796.82
17	64.43 1.4000	1.37652E-02 8.20951E-03	10.643 773.19	-2.8380 -206.17	34925. -14.630	7290.3 10265.	516.70 570.00	0.71816 800.21
18	72.86 1.4000	1.45407E-02 8.18998E-03	11.168 765.40	-3.3148 -227.18	37014. -16.532	7250.4 10229.	516.94 570.00	0.71638 798.61
19	81.68 1.4000	1.53673E-02 8.20284E-03	11.680 756.84	-3.8871 -251.21	39242. -18.408	7203.1 10226.	517.32 570.00	0.71355 795.59
20	90.81 1.4000	1.62259E-02 8.24905E-03	11.948 727.20	-4.5351 -278.09	41993. -20.799	7357.5 10170.	519.64 570.00	0.69612 777.95
21	100.00 1.4000	1.76190E-02 8.40640E-03	11.893 672.87	-5.2163 -296.06	44451. -23.749	7574.9 10100.	525.02 570.00	0.68490 755.12

ITERATION NO. = 300 X-STATN NO. = 16 V-INNER = 0.0001 V-OUTER = 2.0917 OUTPUT NO. = 2							
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	OENSI17V	U	V	FLOW ANG(0)	P-STAG	T-STAG	VELOCITY
1	0.0	8.46143E-07	5.56075E-04	0.0	2.1274	7697.9	0.61373
1.4000	8.46143E-03	492.64	0.0	0.0	9925.9	570.00	692.64
2	0.23	8.66326E-04	0.60394	-6.98530E-03	2179.0	7668.2	0.61803
1.4000	8.63215E-03	697.12	-8.0631	-0.66247	9521.9	570.00	697.12
3	0.91	1.72899E-03	1.2064	-2.90980E-02	4349.0	7654.3	0.61881
1.4000	8.42340E-03	697.76	-16.624	-1.7812	9910.0	570.00	697.76
4	2.05	2.56721E-03	1.8058	-6.74750E-02	6537.9	7636.3	0.61927
1.4000	8.40439E-03	697.95	-76.680	-2.1400	9990.3	570.00	699.44
5	3.64	3.43954E-03	2.4002	-0.12233	8653.7	7612.6	0.61965
1.4000	8.37911E-03	697.44	-35.571	-2.9176	9862.7	570.00	698.84
6	5.68	4.26770E-03	3.0099	-0.19441	10796.	7586.0	0.62004
1.4000	8.35825E-03	701.57	-65.341	-3.6957	9963.1	570.00	703.43
7	8.28	5.14051E-03	3.6550	-0.28871	12954.	7549.3	0.62087
1.4000	8.35367E-03	716.79	-56.164	-4.4478	9951.8	570.00	720.98
8	11.29	5.96571E-03	4.4268	-0.40330	15135.	7511.9	0.62057
1.4000	8.34870E-03	738.33	-67.265	-5.2055	10068.	570.00	741.39
9	14.94	6.86723E-03	5.2272	-0.54073	17323.	7459.6	0.62156
1.4000	8.34276E-03	763.41	-78.971	-5.9060	10219.	570.00	767.48
10	19.17	7.67470E-03	5.9752	-0.68832	19444.	7402.3	0.62168
1.4000	8.31237E-03	778.56	-89.687	-6.5712	10285.	570.00	781.71
11	23.96	8.47204E-03	6.6937	-0.84910	21488.	7330.7	0.62141
1.4000	8.25822E-03	790.09	-100.22	-7.2293	10301.	570.00	798.42
12	29.29	9.24397E-03	7.4036	-1.0318	23672.	7248.4	0.62244
1.4000	8.19149E-03	800.92	-111.64	-7.9361	10299.	570.00	809.66
13	35.15	9.98963E-03	8.1054	-1.2422	25394.	7157.6	0.62389
1.4000	8.11467E-03	811.39	-124.35	-8.7128	10285.	570.00	820.86
14	41.54	1.07117E-02	8.8221	-1.4913	27264.	7057.0	0.62513
1.4000	8.03193E-03	823.69	-139.22	-9.5948	10279.	570.00	833.28
15	48.45	1.14141E-02	9.5624	-1.7981	29101.	6949.7	0.62649
1.4000	7.94730E-03	837.79	-157.53	-10.649	10242.	570.00	852.47
16	55.99	1.20903E-02	1.0271	-2.1734	30872.	6840.1	0.62855
1.4000	7.85698E-03	849.53	-179.77	-11.948	10249.	570.00	868.36
17	63.99	1.27601E-02	10.919	-2.6301	32620.	6744.9	0.62980
1.4000	7.77403E-03	859.68	-206.12	-13.544	10247.	570.00	880.16
18	72.46	1.34403E-02	11.495	-3.2005	34338.	6659.3	0.63075
1.4000	7.69532E-03	869.80	-236.48	-15.359	10230.	570.00	889.58
19	81.34	1.40745E-02	12.050	-3.9981	35997.	6572.8	0.63231
1.4000	7.62746E-03	880.23	-284.61	-18.347	10227.	570.00	904.20
20	90.61	1.45523E-02	12.414	-4.9799	37579.	6459.1	0.63231
1.4000	7.51723E-03	887.24	-339.88	-21.859	10172.	570.00	912.87
21	100.00	1.50101E-02	12.430	-5.4632	41022.	6181.4	0.76116
1.4000	7.84915E-03	771.86	-339.62	-23.749	10100.	570.00	843.27

ITERATION NO. = 100 X-STATN NO. = 17 Y-INNER = 0.0001 Y-OUTER = 2.0075 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG101	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	7.24864E-27 8.24464E-03	6.28558E-04 737.77	0.0 0.0	2.0815 0.0	7428.2 9925.9	524.69 570.00	0.65706 737.77
2	0.23 1.4000	9.28640E-04 8.24773E-03	0.61092 737.25	-4.87981E-03 -5.8889	2091.0 -0.45765	7428.2 9921.9	524.75 570.00	0.65659 737.28
3	0.90 1.4000	1.63375E-03 8.23419E-03	1.2204 737.93	-2.25477E-02 -13.634	4173.3 -1.0565	7414.7 9910.2	524.66 570.00	0.65734 738.06
4	2.03 1.4000	2.47373E-03 8.21243E-03	1.6277 738.64	-5.30825E-02 -23.458	6243.1 -1.6636	7393.4 9890.4	524.52 570.00	0.65940 739.14
5	2.61 1.4000	3.28557E-03 8.18181E-03	2.4323 740.29	-9.79885E-02 -28.824	8293.2 -2.3070	7362.4 9863.3	524.31 570.00	0.66008 740.89
6	5.64 1.4000	4.09165E-03 8.15151E-03	3.0519 745.87	-0.15368 -37.958	10333. -2.8427	7325.1 9861.5	523.58 570.00	0.66583 746.82
7	8.15 1.4000	4.86742E-03 8.13093E-03	3.7672 746.23	-0.22984 -46.930	12388. -3.5136	7273.3 9846.5	521.19 570.00	0.66428 755.77
8	11.20 1.4000	5.65906E-03 8.11035E-03	4.4807 746.21	-0.32049 -56.235	14444. -4.0912	7214.5 10044.	518.29 570.00	0.70632 768.22
9	14.81 1.4000	6.48998E-03 8.08157E-03	5.2824 815.93	-0.43186 -68.542	16491. -4.8757	7136.2 10214.	514.49 570.00	0.73449 816.65
10	19.00 1.4000	7.24849E-03 8.02330E-03	6.0446 833.92	-0.54933 -75.784	18434. -5.1927	7043.3 10263.	511.64 570.00	0.75521 837.35
11	23.75 1.4000	7.96980E-03 7.93964E-03	6.7821 850.97	-0.67198 -84.316	20375. -5.6183	6937.9 10301.	508.13 570.00	0.77314 855.14
12	29.04 1.4000	8.6528E-03 7.83964E-03	7.5120 867.81	-0.80762 -93.298	22113. -6.1363	6816.1 10299.	506.59 570.00	0.79118 872.81
13	34.87 1.4000	9.29815E-03 7.71926E-03	8.2399 886.14	-0.94493 -103.76	23798. -6.6762	6673.8 10285.	503.74 570.00	0.81109 892.24
14	41.25 1.4000	9.87727E-03 7.56932E-03	8.9872 904.89	-1.1646 -117.91	25345. -7.3636	6494.8 10279.	499.93 570.00	0.83712 917.69
15	48.19 1.4000	1.03943E-02 7.39659E-03	9.7597 938.95	-1.4061 -135.27	26758. -8.1981	6285.1 10291.	495.09 570.00	0.86975 946.64
16	55.70 1.4000	1.07645E-02 7.16936E-03	10.518 974.38	-1.6678 -154.51	27901. -9.0102	6016.9 10289.	488.94 570.00	0.91015 986.55
17	63.74 1.4000	1.11583E-02 6.94779E-03	11.219 1005.4	-1.9639 -176.00	28951. -9.9295	5762.9 10268.	483.28 570.00	0.94721 1020.7
18	72.29 1.4000	1.1543E-02 6.88014E-03	11.875 1041.7	-2.2401 -196.51	29709. -10.683	5462.9 10230.	476.66 570.00	0.99074 1060.1
19	81.32 1.4000	1.13846E-02 6.30111E-03	12.510 1098.9	-2.4891 -218.44	29885. -11.253	5034.3 10227.	465.51 570.00	1.0384 1120.4
20	90.74 1.4000	1.08811E-02 5.6501E-03	12.950 1192.3	-2.2689 -208.90	28837. -9.9377	4379.3 10171.	448.04 570.00	1.1646 1210.5
21	100.00 1.4000	8.68843E-03 4.32797E-03	12.068 1388.9	-2.4936 -287.01	23746. -11.675	2990.4 10100.	402.57 570.00	1.4420 1418.3

ITERATION NO. = 300 X-STATION NO. = 18 V-INNER = 0.0001 V-OUTER = 2.0102 OUTPUT NO. = 2							
STREAMLINE #	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(0)	P-STAG P-STAG	IFMPIR T-STAG	MACH NO VELOCITY
1	0.0 1.4000	8.17472E-07 8.13472E-03	6.19130E-04 761.10	0.0 0.0	2.0568 0.0	7285.0 9925.9	521.78 570.00 0.67972 761.10
2	0.23 1.4000	8.15992E-04 8.11093E-03	0.62442 763.23	-3.15500E-03 -3.8665	2064.0 -0.78747	7256.3 9921.9	521.26 570.00 0.68377 765.24
3	0.92 1.4000	1.62759E-03 8.09513E-03	1.2480 766.78	-1.75055E-02 -1C.755	4117.4 -0.80562	7237.6 9909.9	521.05 570.00 0.68535 766.65
4	2.07 1.4000	2.43316E-03 8.06710E-03	1.8701 768.60	-4.23218E-02 -17.394	6156.3 -1.22844	7210.9 9889.9	520.80 570.00 0.68723 768.80
5	3.69 1.4000	3.22912E-03 8.03031E-03	2.4905 771.25	-7.93352E-02 -24.569	8172.2 -1.8244	7172.9 9861.9	520.44 570.00 0.69003 771.64
6	5.74 1.4000	4.01711E-03 7.99233E-03	3.1365 775.29	-0.12474 -51.051	10174. -2.2818	7124.4 9855.8	519.37 570.00 0.69814 779.90
7	8.34 1.4000	4.80136E-03 7.96081E-03	3.8387 779.49	-0.18865 -39.292	12187. -2.8136	7059.3 9855.9	519.67 570.00 0.71861 800.46
8	11.45 1.4000	5.57589E-03 7.92449E-03	4.5493 824.14	-0.23951 -46.541	14180. -3.2322	6981.1 10073.	513.29 570.00 0.74528 823.43
9	15.15 1.4000	6.53470E-03 7.87770E-03	5.4096 853.97	-0.34245 -54.055	16156. -3.6228	6882.7 10224.	509.06 570.00 0.77369 853.68
10	19.43 1.4000	7.05181E-03 7.79520E-03	6.1860 877.22	-0.42779 -63.664	18024. -3.9560	6764.9 10289.	505.64 570.00 0.79774 879.32
11	24.28 1.4000	7.71755E-03 7.67610E-03	6.9385 899.05	-0.51736 -67.036	19771. -4.2643	6619.9 10391.	502.55 570.00 0.82059 901.54
12	29.65 1.4000	8.55740E-03 7.54078E-03	7.6873 922.03	-0.61535 -73.506	21410. -4.5766	6455.4 10499.	499.78 570.00 0.84492 924.98
13	35.65 1.4000	8.88748E-03 7.36849E-03	8.4371 946.53	-0.69257 -77.927	22588. -4.8927	6253.3 10284.	494.48 570.00 0.87389 952.52
14	42.17 1.4000	9.31055E-03 7.12539E-03	9.2125 959.49	-0.76555 -83.937	24082. -4.8762	5967.4 10240.	487.96 570.00 0.91687 992.80
15	49.26 1.4000	7.66100E-03 6.96562E-03	9.9446 1033.5	-0.80012 -82.820	25112. -4.5816	5662.2 10293.	480.52 570.00 0.96490 1074.8
16	56.90 1.4000	9.80530E-03 6.50366E-03	10.685 1089.8	-0.98340 -100.30	25699. -5.2585	5249.8 10288.	477.31 570.00 1.0295 1094.4
17	65.02 1.4000	9.90431E-03 6.15877E-03	11.287 1139.6	-1.2269 -123.87	26082. -6.2037	4869.0 10263.	460.63 570.00 1.0896 1146.3
18	73.54 1.4000	9.86110E-03 5.77122E-03	11.799 1196.3	-1.2873 -150.54	26158. -6.2268	4451.6 10228.	449.42 570.00 1.1582 1203.4
19	82.40 1.4000	9.54441E-03 5.27557E-03	12.160 1274.1	-1.1791 -123.54	25577. -5.5384	3926.2 10225.	437.61 570.00 1.2541 1266.1
20	91.39 1.4000	8.89336E-03 4.65700E-03	12.190 1370.7	-0.55550 -39.973	24142. -1.6704	5354.9 10165.	415.48 570.00 1.3758 1371.3
21	100.00 1.4000	7.23681E-03 3.60008E-03	11.101 1534.8	0.29649 45.970	20134. 1.5299	2310.8 10100.	573.99 570.00 1.6188 1534.8

ITERATION NO. = 300 X-STATION NO. = 19 Y-INNER = 0.0001 Y-OUTER = 2.0129 OUTPUT NO. = 2								
STREAMLINE #	M1	M2	M3	M4	P-STAG	TENP(I)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(DI	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	7.99113E-07 7.99113E-03	6.11129E-04 769.79	0.0 0.0	2.0256 0.0	7105.6 9925.9	514.08 570.00	0.70786 769.79
2	0.24 1.4000	7.96961E-04 7.91123E-03	0.64140 804.81	1.04174E-04 0.13071	2022.9 9.39583E-03	7007.5 9921.8	516.09 570.00	0.72272 804.81
3	0.96 1.4000	1.51800E-03 7.88576E-03	1.2829 807.64	-9.22942E-03 -5.8120	4031.9 -0.41220	6979.4 9909.5	515.68 570.00	0.72575 807.66
4	2.12 1.4000	2.37158E-03 7.85353E-03	1.9233 810.30	-2.52060E-02 -10.627	6023.8 -0.73084	6945.2 9889.1	515.26 570.00	0.72803 810.37
5	3.77 1.4000	3.16372E-03 7.80755E-03	2.5632 815.35	-4.93351E-02 -15.693	7957.4 -1.1027	6896.3 9860.5	514.64 570.00	0.73334 815.50
6	3.90 1.4000	3.90382E-03 7.75660E-03	3.2271 824.44	-7.42137E-02 -19.011	9929.0 -1.31174	6830.8 9870.5	513.09 570.00	0.74469 826.86
7	8.53 1.4000	4.65298E-03 7.70454E-03	3.9532 850.03	-0.11281 -24.244	11861. -1.6337	6761.4 9862.8	509.81 570.00	0.76833 850.16
8	11.73 1.4000	5.37940E-03 7.65304E-03	4.7938 879.18	-0.15603 -29.005	17752. -1.8879	6623.8 10016.	505.47 570.00	0.79891 880.46
9	15.51 1.4000	6.07958E-03 7.54762E-03	5.5563 916.01	-0.21134 -34.768	15594. -2.1783	6483.4 10230.	502.36 570.00	0.83418 916.67
10	19.88 1.4000	6.71646E-03 7.41661E-03	6.3495 953.37	-0.25574 -38.077	17286. -2.3065	6305.5 10296.	499.49 570.00	0.86711 948.14
11	24.83 1.4000	7.25421E-03 7.20752E-03	7.1154 980.87	-0.28697 -39.560	18740. -2.3996	6058.8 10302.	489.79 570.00	0.90489 981.86
12	30.33 1.4000	7.75771E-03 7.00713E-03	7.8628 1013.5	-0.29412 -37.914	20113. -2.1423	3825.3 10298.	484.37 570.00	0.94014 1014.3
13	36.37 1.4000	8.19708E-03 6.77875E-03	8.5913 1046.4	-0.22835 -27.892	21312. -1.5223	5544.5 10283.	474.28 570.00	0.97923 1049.7
14	42.95 1.4000	8.46266E-03 6.66798E-03	9.2968 1098.9	-0.26313 -31.095	22158. -1.6708	5210.8 10282.	469.40 570.00	1.0352 1099.9
15	50.03 1.4000	8.76805E-03 6.22275E-03	9.9838 1158.7	-0.32304 -36.842	23070. -1.8532	4933.9 10294.	461.97 570.00	1.0813 1159.2
16	57.59 1.4000	8.96944E-03 5.96064E-03	10.596 1181.5	-0.45994 -51.284	23728. -2.4455	4624.8 10288.	451.59 570.00	1.1328 1182.8
17	65.56 1.4000	9.03439E-03 5.61035E-03	11.107 1229.4	-0.61193 -67.733	24952. -3.1536	4273.6 10259.	443.82 570.00	1.1923 1231.2
18	73.81 1.4000	8.72401E-03 5.21503E-03	11.493 1287.9	-0.55898 -82.626	23945. -3.7839	3857.7 10227.	431.61 570.00	1.2662 1289.4
19	82.40 1.4000	9.63774E-03 4.76806E-03	11.724 1337.3	-0.45868 -52.871	23402. -2.2307	3407.8 10225.	416.42 570.00	1.3579 1358.3
20	91.07 1.4000	8.43537E-03 4.41182E-03	11.893 1409.7	7.14958E-02 8.4747	23028. 0.34445	3063.5 10168.	404.59 570.00	1.4298 1409.7
21	100.00 1.4000	8.78996E-03 4.36683E-03	12.408 1411.6	0.33139 37.701	24002. 1.5299	3029.0 10100.	404.02 570.00	1.4332 1412.1

ITERATION NO. = 300 X-STATON NO. = 20 Y-INNER = 0.0001 Y-OUTER = 2.0155 OUTPUT NO. = 2								
STREAMLINE & CP/UV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAT P-STAG	YFNPR1 Y-STAG	WACH NO VFLOCITY	
1 0.0 1.4000	7.53794E-07 7.53794E-03	0.0055CE-04 076.03	0.0 0.0	1.9262 0.0	6547.9 9925.9	500.12 570.00	0.7949 076.03	
2 0.25 1.4000	7.52762E-04 7.46259E-03	0.6699 039.25	3.70176E-03 4.9174	1926.1 0.51694	6457.5 9921.6	504.18 570.00	0.80794 087.26	
3 0.99 1.4000	1.45930E-35 7.42540E-05	1.3381 042.45	-1.10023E-03 -0.79385	3837.5 -5.09655E-02	6428.0 9908.7	503.70 570.00	0.81122 092.45	
4 2.22 1.4000	2.2754E-03 7.40020E-03	2.0051 055.99	-9.12685E-03 -4.1051	5730.0 -0.26252	6330.9 9887.3	503.18 570.00	0.81481 095.95	
5 3.95 1.4000	2.56243E-02 7.54751E-05	2.6705 051.45	-1.92118E-02 -6.4851	7589.2 -0.41218	6355.0 9857.4	502.36 570.00	0.82052 091.48	
6 6.17 1.4000	3.67107E-03 7.28445E-03	3.3025 015.94	-2.67341E-02 -7.2824	9418.4 -0.45553	6252.2 9850.2	500.17 570.00	0.83553 093.97	
7 8.95 1.4000	4.35855E-03 7.25713E-05	4.1064 042.19	-3.62187E-02 -4.7690	11212. -0.55324	6136.6 9976.7	496.10 570.00	0.86300 092.23	
8 12.25 1.4000	4.99178E-03 7.00754E-03	4.6569 580.99	-4.45154E-02 -8.9174	12895. -0.52081	5949.1 10108.	489.89 570.00	0.90422 091.03	
9 16.16 1.4000	5.60456E-03 6.95121E-03	5.6995 1016.9	-3.56560E-02 -6.0051	14555. -0.33833	5775.3 10240.	485.92 570.00	0.94510 1017.0	
10 20.05 1.4000	6.14558E-03 4.77977E-05	6.4643 1051.2	3.47018E-02 5.6430	16011. 0.30756	5562.3 10296.	475.02 570.00	0.98087 1051.2	
11 25.09 1.4000	6.55963E-05 6.50876E-03	7.1820 1094.9	3.15609E-02 4.8126	17160. 0.25184	5252.8 10502.	470.22 570.00	1.0501 1094.9	
12 31.24 1.4000	6.97554E-03 5.28777E-05	7.8706 1129.1	-2.41919E-02 -5.4706	18516. -0.17611	5006.1 10295.	463.88 570.00	1.0695 1129.1	
13 37.30 1.4000	7.38723E-03 6.10857E-03	8.5336 1155.9	4.39397E-02 5.9245	19477. 0.29417	4809.9 10291.	454.79 570.00	1.1009 1155.9	
14 45.84 1.4000	7.74748E-03 5.91350E-03	9.1016 1186.6	1.64445E-02 2.1226	20506. 0.10251	4596.1 10243.	447.84 570.00	1.1574 1186.4	
15 50.88 1.4000	8.08703E-03 5.73179E-03	9.4290 1215.4	-2.5752E-02 -3.1906	21485. -0.13083	4397.8 10294.	447.04 570.00	1.1727 1215.4	
16 58.33 1.4000	8.37346E-03 5.50011E-03	10.401 1240.5	-7.70662E-02 -0.2613	22214. -0.2465	4158.4 10267.	440.03 570.00	1.2152 1240.6	
17 66.17 1.4000	8.36051E-03 5.20731E-03	10.856 1292.9	-0.15070 -1.5345	22541. -0.48975	3850.5 10256.	430.84 570.00	1.2700 1292.0	
18 74.31 1.4000	8.33215E-03 4.86355E-03	11.196 1345.7	-2.70170E-02 -3.3138	22528. -0.14133	3503.9 10226.	419.71 570.00	1.3580 1343.7	
19 82.66 1.4000	8.17154E-03 4.50472E-03	11.433 1399.1	1.90663E-04 2.33526E-02	22270. 9.55527E-04	3147.3 10224.	407.07 570.00	1.4146 1399.1	
20 91.19 1.4000	8.14999E-03 4.25619E-03	11.684 1433.6	0.27630 33.901	22127. 1.3567	2913.6 10167.	398.84 570.00	1.4668 1434.0	
21 100.00 1.4000	8.47215E-03 4.20342E-03	12.178 1437.4	0.32524 38.390	23223. 1.5299	2870.6 10106.	397.90 570.00	1.4796 1457.9	

ITERATION NO. = 300 X-STATION NO. = 21 Y-INNER = 0.0001 Y-OUTER = 7.0102 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	6.93237E-07 6.93237E-03	6.81970E-04 993.75	0.0 0.0	1.7913 0.0	5823.5 9925.9	489.45 570.00	0.99713 983.75
2	0.26 1.4000	6.93206E-04 8.86301E-03	0.68981 993.10	6.92568E-03 9.1253	1793.5 0.32540	5743.1 9921.4	487.57 570.00	0.91940 993.14
3	1.03 1.4000	1.36168E-03 6.84298E-03	1.3775 996.98	7.04318E-03 5.0975	3575.4 0.29295	5722.7 9908.1	487.26 570.00	0.92140 997.00
4	2.30 1.4000	2.06112E-03 6.80448E-03	2.0624 1700.6	1.03542E-02 5.0236	5335.8 0.28745	5685.1 9885.9	486.66 570.00	0.92534 1000.6
5	4.09 1.4000	2.72426E-03 6.74783E-03	2.7434 1707.0	1.97523E-02 7.2505	7057.5 0.41252	5623.7 9854.9	485.59 570.00	0.93230 1007.1
6	6.39 1.4000	3.36960E-03 6.67737E-03	3.4463 1022.8	4.87034E-02 16.456	6744.8 0.80961	5514.3 9887.9	482.46 570.00	0.94462 1022.9
7	9.23 1.4000	3.96528E-03 6.58141E-03	4.1838 1049.8	0.11705 27.613	10375. 1.5567	5401.6 9987.2	479.20 570.00	0.97771 1050.2
8	12.03 1.4000	4.51946E-03 6.39749E-03	4.9458 1094.3	0.12470 27.591	11827. 1.4643	5163.4 10123.	475.26 570.00	1.0298 1094.7
9	16.36 1.4000	5.05087E-03 6.25613E-03	5.7034 1129.2	0.10440 20.709	13273. 1.0506	4980.4 10246.	463.83 570.00	1.0698 1129.4
10	21.10 1.4000	5.57541E-03 6.13860E-03	6.4247 1152.3	0.18126 32.511	14694. 1.6161	4840.0 10299.	459.39 570.00	1.0972 1152.8
11	26.33 1.4000	6.04954E-03 5.99664E-03	7.1080 1175.0	0.19899 32.893	15990. 1.6035	4681.3 10301.	455.00 570.00	1.1242 1175.4
12	31.66 1.4000	6.46720E-03 5.86399E-03	7.7712 1197.9	0.14030 21.628	17196. 1.0363	4518.7 10294.	450.52 570.00	1.1516 1198.1
13	37.60 1.4000	6.89922E-03 5.66726E-03	8.4119 1219.2	0.20234 29.327	18340. 1.3778	4363.0 10280.	444.19 570.00	1.1779 1219.6
14	44.18 1.4000	7.26106E-03 5.55773E-03	9.0490 1241.1	0.19279 26.442	19437. 1.2705	4213.6 10264.	441.73 570.00	1.2049 1241.4
15	51.13 1.4000	7.62294E-03 5.39571E-03	9.6568 1266.8	0.19468 25.538	20392. 1.1544	4041.1 10249.	436.37 570.00	1.2374 1267.1
16	58.52 1.4000	7.84094E-03 5.19278E-03	10.198 1287.4	0.31618 27.249	21115. 1.2032	3830.8 10287.	429.84 570.00	1.2768 1297.6
17	66.26 1.4000	7.96879E-03 4.93544E-03	10.636 1334.5	0.22067 27.692	21518. 1.1888	3572.1 10258.	421.70 570.00	1.3260 1334.8
18	74.31 1.4000	8.00337E-03 4.66398E-03	10.592 1379.7	0.34119 32.644	21726. 1.7779	3303.5 10228.	412.72 570.00	1.3803 1374.8
19	82.90 1.4000	7.99147E-03 4.39980E-03	11.307 1414.9	0.30410 38.053	21832. 1.5405	3044.9 10225.	403.24 570.00	1.4379 1415.4
20	91.14 1.4000	8.10905E-03 4.22978E-03	11.655 1427.3	0.42448 52.366	22229. 2.0858	2887.7 10168.	397.82 570.00	1.4711 1438.3
21	100.60 1.4000	8.45490E-03 4.18929E-03	12.172 1439.7	0.32309 38.449	23184. 1.5799	2857.1 10100.	397.36 570.00	1.4739 1440.2

ITERATION NO. = 300 X-STATION NO. = 22 Y-INNER = 0.0001 Y-OUTER = 2.0209 OUTPUT NO. = 2								
STREAMLINE #	W1 CP/CV	W2 DENSITY	W3 U	W4 V	W5 FLOW ANG(D)	P-STAT P-STAG	T-FRP(R) T-STAG	MACH NO VFLOCITY
1	0.0 1.4000	8.10535E-07 8.19334E-03	8.85079E-04 1122.1	0.0 0.0	1.8030 0.0	4874.8 9925.9	465.20 570.00	1.0617 1122.1
2	0.26 1.4000	8.22709E-06 8.13695E-03	0.64318 1113.2	8.56677E-03 10.961	1833.2 0.58256	4933.3 9921.8	466.85 570.00	1.0511 1113.2
3	1.03 1.4000	1.24316E-03 8.14677E-03	1.3838 1113.1	1.05813E-02 8.5117	3260.5 0.43810	4926.8 9908.0	466.86 570.00	1.0510 1113.2
4	2.32 1.4000	1.85637E-03 8.12119E-03	2.0702 1113.4	2.02483E-02 15.909	4966.3 0.56038	4900.3 9885.6	466.46 570.00	1.0536 1113.6
5	6.12 1.4000	2.65676E-03 8.07717E-03	2.7501 1113.4	3.83350E-02 15.690	6468.4 0.79280	4857.2 9854.4	465.68 570.00	1.0583 1113.5
6	6.43 1.4000	3.00827E-03 8.03265E-03	3.4447 1113.1	7.13394E-02 73.404	8011.5 1.1864	4800.5 9899.2	463.85 570.00	1.0709 1113.0
7	9.27 1.4000	3.66683E-03 8.01119E-03	4.1652 1102.8	8.18295 41.962	9595.2 2.1029	4757.7 9886.6	461.15 570.00	1.0866 1143.6
8	12.66 1.4000	4.22357E-03 8.96688E-03	4.6075 1162.7	8.19140 45.349	11139. 2.2335	4682.8 10125.	457.50 570.00	1.1101 1163.6
9	16.59 1.4000	6.77178E-03 8.90261E-03	5.6508 1184.2	8.17539 36.798	12627. 1.7769	4590.8 10266.	453.14 570.00	1.1356 1184.8
10	21.08 1.4000	8.29844E-03 8.02991E-03	6.3601 1200.4	8.24858 46.915	14051. 2.2382	4498.4 10298.	449.88 570.00	1.1554 1201.3
11	26.08 1.4000	8.81433E-03 8.75393E-03	7.0469 1211.6	8.28800 49.553	15442. 2.3410	4420.3 10301.	447.60 570.00	1.1693 1212.7
12	31.58 1.4000	8.27284E-03 8.68339E-03	7.7055 1225.6	8.25847 51.205	16895. 1.9212	4303.0 10296.	444.26 570.00	1.1896 1229.1
13	37.57 1.4000	8.68859E-03 8.51601E-03	8.3377 1244.5	8.33052 49.418	17346. 2.2701	4169.9 10281.	444.66 570.00	1.2127 1247.5
14	44.02 1.4000	7.07899E-03 8.38893E-03	8.9646 1266.4	8.34509 48.768	18937. 2.2045	4035.5 10286.	436.32 570.00	1.2377 1267.3
15	50.93 1.4000	7.40617E-03 8.23389E-03	9.5573 1260.8	8.33945 32.464	19874. 2.3275	3872.4 10294.	431.09 570.00	1.2603 1291.9
16	58.26 1.4000	7.65467E-03 8.05026E-03	10.070 1318.2	8.43712 50.717	20625. 2.5929	3684.5 10267.	425.08 570.00	1.2856 1319.5
17	65.96 1.4000	7.81616E-03 8.83651E-03	10.544 1369.0	8.49408 63.212	21152. 2.6829	3470.1 10257.	419.21 570.00	1.3172 1350.4
18	73.98 1.4000	7.95122E-03 8.62876E-03	10.956 1377.8	8.61647 77.531	21610. 3.2206	3269.0 10227.	411.48 570.00	1.3479 1380.8
19	82.31 1.4000	8.08760E-03 8.44651E-03	11.376 1404.7	8.52566 65.036	22071. 2.6471	3040.4 10225.	404.95 570.00	1.3775 1402.2
20	90.97 1.4000	8.22349E-03 8.23547E-03	11.822 1420.3	8.52622 62.981	22760. 2.5389	2899.5 10169.	401.76 570.00	1.4070 1421.7
21	100.09 1.4000	8.73862E-03 8.32412E-03	12.345 1418.4	8.33103 57.881	23886. 1.5289	2986.6 10160.	402.45 570.00	1.4428 1418.9

ITERATION NO. = 300 K-STATION NO. = 25 V-INNER = 0.0001 V-OUTER = 2.0256 OUTPUT NO. = 2							
STREAMLINE #	M3	M2	M1	M4	P-STAG	TEMP(1)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	7-STAG	VELOCITY
1	0.0 3.4000	5.82644E-07 5.80644E-73	6.79678E-04 1170.6	0.0 0.0	3.5538 0.0	4543.8 9925.9	1.1183 1170.6
2	0.26 1.4000	5.88494E-04 5.81091E-03	6.68816 1167.4	6.54145E-03 11.114	1544.5 0.55462	4549.6 9921.4	1.3170 1167.4
3	3.03 3.4000	1.17529E-03 5.80558E-03	1.3739 1169.0	1.34673E-02 11.427	3105.9 0.56364	4545.9 9908.0	3.3163 1169.0
4	2.51 3.4000	1.75477E-03 5.77945E-03	2.0549 1173.0	2.62632E-02 16.307	4655.5 0.78801	4521.6 9885.8	1.3190 1173.0
5	4.10 1.4000	2.52594E-03 5.74106E-03	2.7288 1174.2	3.22311E-02 22.484	6141.7 3.0970	4485.2 9834.8	1.1230 1174.2
6	6.39 1.4000	2.58514E-03 5.70229E-03	3.4143 1183.4	8.22797E-02 31.804	7636.0 1.3824	4436.9 9887.8	1.1342 1183.4
7	9.21 1.4000	3.45928E-03 5.65763E-03	4.3261 1192.8	0.15585 45.052	9164.3 2.3631	4414.3 9986.4	1.3461 1192.8
8	12.57 1.4000	4.04492E-03 5.71542E-03	4.8647 1202.1	0.25909 51.889	10735. 2.6737	4407.8 30121.	1.1377 1202.1
9	16.48 3.4000	4.60311E-03 5.68642E-03	5.6033 1217.3	0.23569 46.858	12234. 2.2045	4357.3 30244.	446.48 570.00
10	20.93 1.4000	5.12840E-03 5.63149E-03	6.5077 1230.0	0.28993 56.533	13653. 2.6317	4289.6 10299.	443.82 570.00
11	25.99 3.4000	5.64715E-03 5.58106E-03	6.9896 1237.7	0.34797 61.619	15050. 2.8500	4255.4 10301.	442.17 570.00
12	31.37 1.4000	6.11180E-03 5.49122E-03	7.6470 1231.2	0.53254 57.682	16318. 2.6596	4141.4 10795.	439.42 570.00
13	37.33 1.4000	6.52992E-03 5.37802E-03	8.2731 1267.0	0.44318 67.869	17472. 3.0663	4024.3 10283.	436.01 570.00
14	42.73 1.4000	6.93788E-03 5.25931E-03	8.8912 1285.2	0.48416 69.987	18557. 3.1169	3900.4 10283.	432.10 570.00
15	50.59 1.4000	7.24626E-03 5.31544E-03	9.4764 1307.8	0.55433 77.050	19499. 3.3918	3750.3 10294.	427.35 570.00
16	57.87 1.4000	7.52591E-03 4.95879E-03	10.015 1330.7	0.65473 86.996	20518. 3.7404	3593.3 10287.	421.97 570.00
17	65.24 1.4000	7.75630E-03 4.79145E-03	10.5033 1354.2	0.69849 90.048	21012. 3.8042	3426.5 10260.	416.67 570.00
18	75.57 1.4000	8.00524E-03 4.69605E-03	10.947 1372.4	0.81063 121.24	21744. 4.2198	3453.9 10228.	412.37 570.00
19	81.97 1.4000	8.28515E-03 4.54920E-03	11.515 1389.8	0.68110 82.207	22557. 3.3850	3190.7 10226.	408.84 570.00
20	90.78 1.4000	8.62681E-03 4.48793E-03	12.046 1399.4	0.59457 88.897	23508. 3.8247	3157.1 10171.	407.31 570.00
21	100.00 1.4000	9.06814E-03 4.48126E-03	32.658 1195.7	0.53753 37.223	24496. 3.5299	3139.7 10100.	405.22 570.00

ITERATION NO. = 300 X-STATION NO. = 24 Y-INNER = 0.0001 Y-OUTER = 2.0263 OUTPUT NO. = 2								
STREAMLINE #	M1	M2	M3	M4	P-STAT	TEMPER	MACH NO	
CP/CV	DENSITY	M	V	FLOW ANG(°)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	5.56602E-07 5.56650E-03	6.73023E-04 1209.2	0.0 0.0	1.4775 0.0	4262.6 9925.9	448.30 570.00	1.1650 1209.2
2	0.26 1.4000	5.64619E-04 5.56777E-03	0.66230 1248.9	6.60002E-03 11.699	1498.7 0.25421	4289.3 9921.5	448.44 570.00	1.1642 1208.2
3	1.02 1.4000	1.12758E-03 5.56233E-03	1.3622 1208.1	1.58695E-02 14.074	2992.9 0.66748	4291.7 9908.2	448.50 570.00	1.1638 1208.2
4	2.29 1.4000	1.68429E-03 5.53998E-03	2.0373 1209.8	3.40491E-02 20.216	4471.5 0.95748	4261.4 9886.1	448.18 570.00	1.1659 1209.8
5	4.07 1.4000	2.23394E-03 5.51135E-03	2.7059 1211.3	6.29163E-02 26.164	5932.1 1.3320	4235.9 9855.3	447.81 570.00	1.1680 1211.6
6	6.35 1.4000	2.77700E-03 5.48117E-03	3.3845 1212.8	9.07796E-02 30.890	7381.5 1.5164	4196.2 9886.2	446.27 570.00	1.1774 1212.8
7	9.14 1.4000	3.32994E-03 5.47731E-03	4.0878 1227.6	0.15262 45.633	8862.0 2.1382	4177.6 9884.0	444.39 570.00	1.1888 1228.4
8	12.47 1.4000	3.90117E-03 5.50034E-03	4.8181 1235.0	0.21370 54.779	10393. 2.5396	4150.0 10117.	442.79 570.00	1.1985 1236.3
9	16.35 1.4000	4.44935E-03 5.48917E-03	5.5699 1247.4	0.27926 55.774	11873. 2.4685	4147.7 10242.	440.25 570.00	1.2139 1248.9
10	20.76 1.4000	4.96778E-03 5.44786E-03	6.2486 1257.8	0.31685 63.781	13274. 2.9028	4095.1 10298.	437.97 570.00	1.2277 1259.9
11	25.69 1.4000	5.47766E-03 5.40619E-03	6.9241 1264.1	0.37092 71.366	14651. 3.2314	4051.0 10302.	436.58 570.00	1.2361 1266.1
12	31.12 1.4000	5.94036E-03 5.23011E-03	7.5756 1275.9	0.42573 71.667	15913. 3.2165	3972.2 10296.	434.21 570.00	1.2505 1277.2
13	37.02 1.4000	6.36117E-03 5.23208E-03	8.1961 1286.5	0.53514 94.126	17073. 3.7536	3872.4 10281.	431.23 570.00	1.2685 1291.2
14	43.38 1.4000	6.75468E-03 5.12841E-03	8.8091 1304.1	0.59980 84.799	18169. 3.8952	3765.2 10282.	427.78 570.00	1.2893 1307.2
15	50.19 1.4000	7.16189E-03 5.06691E-03	9.3965 1323.1	0.69772 97.340	19155. 4.2163	3639.3 10294.	423.50 570.00	1.3192 1326.7
16	57.43 1.4000	7.42786E-03 4.88763E-03	9.9547 1340.2	0.79956 107.64	20085. 4.5921	3519.4 10288.	419.54 570.00	1.3191 1344.5
17	65.08 1.4000	7.74035E-03 4.77476E-03	10.493 1355.7	0.83260 107.57	20975. 4.9366	3409.5 10262.	416.05 570.00	1.3602 1360.0
18	73.14 1.4000	8.10218E-03 4.70416E-03	11.049 1367.7	0.92480 114.14	21983. 4.7853	3343.5 10228.	414.12 570.00	1.3719 1368.3
19	81.44 1.4000	8.51334E-03 4.66829E-03	11.671 1370.9	0.77059 90.515	23117. 3.7776	3304.2 10226.	412.89 570.00	1.3793 1373.9
20	90.59 1.4000	8.64761E-03 4.64820E-03	12.270 1371.3	0.63982 71.508	24294. 2.9831	3294.3 10172.	413.06 570.00	1.3783 1373.1
21	100.00 1.4000	9.40581E-03 4.64193E-03	12.872 1368.5	0.34377 36.549	25527. 1.5299	3298.4 10100.	414.01 570.00	1.3729 1369.0

ITERATION NO.= 300 X-STATION NO.= 25 V-INNER = 0.0001 V-OUTER = 2.0289 OUTPUT NO. = 2							
STREAMLINE #	W1	W2	W3	W4	P-STAY	YEN(P)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(C)	P-STAG	T-STAG	VELOCITY
1	0.2 1.4000	5.35879E-07 3.35879E-03	6.6370CE-04 1242.3	0.0 0.0	1.4288 0.0	4061.1 9923.9	1.2060 1242.3
2	0.23 1.4000	5.44162E-04 3.35899E-03	6.6093EE-03 1241.8	1450.8 0.56039	4062.0 9921.5	441.43 970.00	1.2033 1241.9
3	1.01 1.4000	1.08693E-03 5.35471E-03	1.3492 1241.3	1.74762E-02 16.079	2897.6 0.74212	4059.6 9906.3	1.2010 1241.4
4	2.27 1.4000	1.42477E-03 5.33712E-03	7.0181 1242.1	3.71946E-02 22.869	4432.0 1.0547	4044.3 9886.6	1.2061 1242.3
5	4.03 1.4000	2.15868E-03 5.31865E-03	2.6816 1242.2	6.91563E-02 32.036	5755.7 1.4773	4029.9 9853.9	1.2065 1242.6
6	6.29 1.4000	2.68810E-03 5.29179E-03	3.3541 1247.8	9.73345E-02 36.209	7172.7 1.6622	4004.2 9844.6	1.2136 1248.3
7	9.07 1.4000	3.22241E-03 5.29344E-03	4.0489 1256.3	0.15075 46.781	8606.9 2.1322	3983.0 9811.3	1.2251 1257.4
8	12.37 1.4000	3.77176E-03 5.31096E-03	4.7624 1264.2	0.21468 36.919	10588. 2.3779	3980.3 10113.	1.2334 1265.3
9	16.21 1.4000	4.30511E-03 5.30422E-03	5.4912 1275.3	0.23473 39.169	11932. 2.6560	3933.6 10240.	1.2500 1276.9
10	20.36 1.4000	4.81203E-03 5.27309E-03	6.1824 1284.8	0.33579 69.782	12907. 3.1099	3909.3 10298.	1.2626 1286.7
11	23.47 1.4000	5.30883E-03 5.23283E-03	6.8493 1290.2	0.42264 79.611	16251. 3.5309	3870.1 10302.	1.2704 1292.7
12	30.84 1.4000	5.76646E-03 5.16741E-03	7.4943 1299.6	0.48051 83.326	15551. 3.8486	3863.3 10296.	1.2829 1302.3
13	36.69 1.4000	6.19192E-03 5.08615E-03	8.1114 1310.0	0.60372 97.501	16670. 4.2566	3721.9 10262.	1.2970 1313.8
14	43.00 1.4000	6.59963E-03 5.00479E-03	8.7255 1322.1	0.68529 103.83	17799. 4.4909	3636.2 10242.	1.3145 1324.2
15	49.76 1.4000	6.97541E-03 4.91406E-03	9.3236 1336.2	0.78953 112.55	18862. 4.8150	3545.2 10244.	1.3362 1340.9
16	56.97 1.4000	7.36441E-03 4.83948E-03	9.9162 1346.3	0.89026 120.89	19934. 5.1302	3470.9 10288.	1.3492 1351.9
17	64.62 1.4000	7.76258E-03 4.78233E-03	10.311 1354.0	0.90142 116.12	21033. 4.9019	3416.8 10764.	1.3580 1354.0
18	72.73 1.4000	8.22760E-03 4.71067E-03	11.133 1352.2	0.96711 117.54	22291. 4.7847	3409.8 10229.	1.3578 1358.3
19	81.23 1.4000	8.75944E-03 4.78923E-03	11.825 1352.1	0.79928 91.394	23684. 5.8660	3428.7 10227.	1.3337 1353.2
20	90.43 1.4000	9.25476E-03 4.80142E-03	12.471 1347.6	0.66091 71.413	25042. 3.0335	3448.1 10173.	1.3458 1349.4
21	100.00 1.4000	9.77869E-03 4.79494E-03	13.081 1344.8	0.34934 35.910	26308. 1.5299	3451.4 10100.	1.3398 1345.0

ITERATION NO. = 300 X-STATION NO. = 26 V-INNER = 0.0001 V-OUTER = 2.0316 OUTPUT NO. = 2								
STREAMLINE #	W1 CP/CV	W2 DENSITY	W3 U	W4 V	M4 FLOW ANG(°)	P-STAT P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0 1.4000	5.17741E-07 5.17740E-03	6.38115E-04 1271.1	0.0 0.0	1.3858 0.0	1879.0 9825.9	435.51 570.00	1.2476 1271.1
2	0.25 1.4000	5.26320E-04 5.17642E-03	0.66888 1270.9	6.48901E-03 12.329	1408.7 0.55583	3869.6 9921.9	435.55 570.00	1.2423 1270.9
3	1.00 1.4000	1.05163E-03 5.17600E-03	1.3357 1270.1	1.83689E-02 17.467	2814.4 0.78791	3869.1 9908.5	435.70 570.00	1.2414 1270.2
4	2.25 1.4000	1.57306E-03 5.16047E-03	1.5983 1270.3	3.83115E-02 24.354	4210.1 1.0983	3854.3 9886.8	435.63 570.00	1.2419 1270.6
5	4.00 1.4000	2.06256E-03 5.14898E-03	2.4563 1269.4	7.19774E-02 34.397	5599.8 1.5521	3850.9 9856.5	435.77 570.00	1.2410 1269.9
6	6.24 1.4000	2.60937E-03 5.13673E-03	3.3228 1273.4	0.10228 39.199	6986.8 1.7631	3834.1 9827.6	434.90 570.00	1.2463 1274.0
7	8.99 1.4000	3.12713E-03 5.13014E-03	4.0092 1282.1	0.15161 48.619	8383.4 2.1628	3812.5 9788.6	432.99 570.00	1.2578 1283.0
8	12.27 1.4000	3.65507E-03 5.13376E-03	4.7169 1290.5	0.21697 59.361	9810.7 2.6337	3802.8 10108.	431.09 570.00	1.2693 1291.9
9	16.07 1.4000	4.17136E-03 5.13264E-03	5.4292 1301.6	0.26708 64.027	11214. 2.8163	3776.1 10238.	423.65 570.00	1.2840 1303.1
10	20.40 1.4000	4.66464E-03 5.10193E-03	6.1118 1310.3	0.35045 75.129	12356. 3.2817	3735.8 10298.	426.63 570.00	1.2962 1312.4
11	25.23 1.4000	5.14910E-03 5.05771E-03	6.7702 1315.1	0.46611 86.656	13868. 3.7699	3700.2 10302.	425.42 570.00	1.3095 1317.4
12	30.55 1.4000	5.60176E-03 5.01303E-03	7.4095 1322.7	0.51903 92.653	15107. 4.0069	3645.1 10297.	423.66 570.00	1.3142 1326.0
13	36.34 1.4000	6.07469E-03 4.95346E-03	8.0270 1330.1	0.64857 107.47	16294. 4.6194	3583.6 10283.	421.77 570.00	1.3256 1334.5
14	42.60 1.4000	6.46409E-03 4.89483E-03	8.6491 1338.0	0.73818 114.20	17475. 4.8782	3527.6 10281.	419.90 570.00	1.3369 1342.9
15	49.22 1.4000	6.88618E-03 4.84202E-03	9.2718 1346.4	0.83530 121.30	18640. 5.1479	3472.7 10293.	417.88 570.00	1.3491 1351.9
16	56.51 1.4000	7.33708E-03 4.81516E-03	9.8033 1349.8	0.92870 126.58	19871. 5.3574	3446.4 10289.	417.02 570.00	1.3593 1355.7
17	64.19 1.4000	7.81873E-03 4.81057E-03	10.553 1349.7	0.91235 118.69	21173. 4.9410	3444.8 10266.	417.23 570.00	1.3531 1354.8
18	72.36 1.4000	8.36833E-03 4.84598E-03	11.230 1341.9	0.94990 113.51	22635. 4.9351	3485.3 10229.	419.05 570.00	1.3421 1346.7
19	81.06 1.4000	8.96169E-03 4.90129E-03	11.965 1335.2	0.77736 26.741	24210. 3.7171	3541.5 10278.	421.00 570.00	1.3303 1338.0
20	90.29 1.4000	9.52452E-03 4.93485E-03	12.639 1327.0	0.55994 69.288	25697. 2.9889	3592.9 10175.	423.02 570.00	1.3180 1328.8
21	100.00 1.4000	1.00121E-02 4.92812E-03	13.254 1323.8	0.35397 35.355	26995. 1.3299	3586.6 10100.	424.04 570.00	1.3119 1324.2

ITERATION NO. = 300 X-STATION NO. = 27 Y-INNER = 0.0001 Y-OUTER = 2.0343 OUTPUT NO. = 2								
STREAMLINE #	h1	h2	h3	h4	P-STAG	YFMP(R)	MACH NO	
CP/EV	DENSITY	U	V	FLCM ANG(0)	P-STAG	Y-STAG	VELOCITY	
1	0.0 1.4000	5.01559E-07 5.01559E-03	6.50444E-04 1296.8	0.0 0.0	1.3472 0.0	3791.7 9925.9	430.01 570.00	1.2758 1296.8
2	0.25 1.4000	5.10446E-04 5.01391E-03	6.66193 1296.7	6.23231E-03 12.209	1371.1 0.53945	3700.6 9921.6	430.03 570.00	1.2757 1296.8
3	0.99 1.4000	1.02230E-03 5.01323E-03	1.3220 1295.7	1.87694E-02 18.596	2740.1 0.61341	3701.8 9908.6	430.23 570.00	1.2765 1295.8
4	2.23 1.4000	1.52688E-03 5.00237E-03	1.4782 1295.6	3.84304E-02 25.189	4100.6 1.1129	3693.8 9887.1	430.23 570.00	1.2765 1295.9
5	3.96 1.4000	2.02223E-03 4.99390E-03	2.4302 1294.3	7.28741E-02 35.825	5457.0 1.5855	3689.5 9857.1	430.47 570.00	1.2731 1294.8
6	6.19 1.4000	2.53623E-03 4.98617E-03	3.2901 1297.2	0.10606 41.818	6813.5 1.8464	3674.0 9880.7	429.79 570.00	1.2772 1297.9
7	8.91 1.4000	3.03883E-03 4.97873E-03	3.9678 1305.7	0.15395 50.660	8173.4 2.2219	3656.3 9976.1	427.88 570.00	1.2887 1306.7
8	12.16 1.4000	3.54765E-03 4.97214E-03	4.6638 1314.6	0.22093 62.275	9554.4 2.7121	3641.2 10104.9	425.83 570.00	1.3011 1318.1
9	15.92 1.4000	4.04764E-03 4.97385E-03	5.3657 1325.6	0.27807 68.700	10918. 2.9667	3613.9 10236.9	425.34 570.00	1.3161 1327.4
10	20.21 1.4000	4.52795E-03 4.94590E-03	6.0398 1333.9	0.36205 79.959	12229. 3.4305	3576.9 10298.9	421.37 570.00	1.3280 1336.3
11	24.99 1.4000	5.00031E-03 4.91594E-03	6.6907 1336.0	0.46229 92.441	13513. 3.9525	3546.0 10302.9	420.28 570.00	1.3346 1341.2
12	30.25 1.4000	5.45527E-03 4.87371E-03	7.3278 1343.7	0.54250 99.481	14751. 4.2362	3504.0 10298.9	418.90 570.00	1.3430 1347.4
13	35.99 1.4000	5.89832E-03 4.83221E-03	7.9593 1347.9	0.67049 115.67	15967. 4.8206	3464.2 10283.9	417.70 570.00	1.3502 1352.7
14	42.20 1.4000	6.35564E-03 4.80238E-03	8.5875 1351.2	0.75899 119.42	17215. 5.0909	3438.7 10280.9	416.86 570.00	1.3553 1356.4
15	48.90 1.4000	6.82569E-03 4.79317E-03	9.2399 1355.7	0.84348 123.57	18496. 5.2159	3423.9 10242.9	416.20 570.00	1.3593 1359.3
16	56.10 1.4000	7.34289E-03 4.81262E-03	9.9152 1350.3	0.91881 125.13	19888. 5.2943	3443.8 10289.9	416.93 570.00	1.3569 1356.1
17	63.81 1.4000	7.89420E-03 4.85306E-03	10.614 1343.8	0.87420 110.68	21368. 4.7085	3487.2 10268.9	415.67 570.00	1.3444 1348.4
18	72.05 1.4000	8.50555E-03 4.92139E-03	11.327 1331.9	0.88813 104.39	22980. 4.8834	3561.4 10230.9	421.64 570.00	1.3264 1325.1
19	80.84 1.4000	9.14686E-03 4.95586E-03	12.086 1321.1	0.71962 78.674	24659. 3.4081	3637.4 10228.9	424.22 570.00	1.3108 1323.4
20	90.18 1.4000	9.74031E-03 5.00021E-03	12.769 1311.0	0.64197 65.908	26220. 2.8781	3690.1 10176.9	424.59 570.00	1.2969 1312.4
21	100.00 1.4000	1.02384E-02 5.03264E-03	13.386 1307.4	0.35750 34.918	27542. 1.5299	3693.7 10160.9	427.62 570.00	1.2903 1307.9

ITERATION NO.= 330 X-STATON NO.= 28 Y-INNER = 0.0001 Y-OUTER = 2.0370 OUTPUT NO. = 2								
STREAMLINE #	M1	M2	M3	M4	P-STAG	TEMP(P)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	4.86843E-07 4.86841E-03	6.42740E-04 1320.2	0.0 0.0	1.3319 0.0	3550.5 9925.9	424.92 570.00	1.3066 1320.2
2	0.25 1.4000	4.96102E-04 4.89639E-03	0.65493 1320.2	5.87877E-03 11.850	1336.9 0.51420	3549.1 9921.6	424.92 570.00	1.3065 1320.2
3	0.98 1.4000	9.91419E-04 4.86689E-03	1.3082 1319.0	1.89317E-02 19.058	2672.3 0.82779	3551.6 9906.8	425.16 570.00	1.3051 1319.1
4	2.21 1.4000	1.48457E-03 4.85739E-03	1.9377 1318.7	3.82419E-02 25.760	3999.8 1.1191	3544.7 9887.5	425.19 570.00	1.3049 1319.0
5	3.93 1.4000	1.97595E-03 4.84922E-03	2.6032 1317.4	7.27824E-02 36.834	5322.9 1.6015	3540.7 9857.7	425.42 570.00	1.3035 1317.9
6	6.13 1.4000	2.46673E-03 4.84316E-03	3.2554 1315.8	0.10908 44.222	6647.5 1.9191	3531.5 9878.7	424.85 570.00	1.3070 1320.6
7	8.83 1.4000	2.95526E-03 4.83544E-03	3.9247 1326.0	0.15737 53.250	7973.6 2.2961	3410.2 9977.5	422.96 570.00	1.3184 1324.1
8	12.04 1.4000	3.44764E-03 4.83533E-03	4.6057 1337.1	0.22561 65.438	9314.6 2.8019	3492.5 10099.0	420.84 570.00	1.3312 1338.7
9	15.77 1.4000	3.93377E-03 4.82757E-03	5.3020 1347.8	0.28755 75.399	10645.0 3.1044	3466.3 10234.0	418.35 570.00	1.3463 1349.8
10	20.01 1.4000	4.40387E-03 4.80405E-03	5.9691 1355.4	0.37323 84.069	11931.0 3.5492	3434.1 10297.0	416.50 570.00	1.3575 1358.0
11	24.74 1.4000	4.86980E-03 4.78114E-03	6.6151 1396.4	0.47080 96.678	13200.0 4.0709	3410.6 10102.0	415.63 570.00	1.3627 1361.8
12	29.96 1.4000	5.32657E-03 4.75022E-03	7.2538 1361.8	0.58147 103.93	14447.0 4.3476	3384.2 10299.0	414.75 570.00	1.3681 1365.7
13	35.65 1.4000	5.78895E-03 4.73837E-03	7.8876 1362.5	0.67049 115.82	15725.0 4.8588	3368.3 10284.0	414.36 570.00	1.3704 1367.4
14	41.83 1.4000	6.27902E-03 4.74218E-03	8.5458 1361.0	0.74950 119.37	17031.0 5.0122	3374.7 10280.0	414.63 570.00	1.3688 1366.2
15	48.52 1.4000	6.79838E-03 4.76771E-03	9.2317 1357.9	0.81367 119.69	18432.0 5.2370	3388.5 10292.0	415.33 570.00	1.3646 1365.2
16	55.73 1.4000	7.37548E-03 4.82762E-03	9.9473 1348.7	0.86696 117.55	19970.0 4.9810	3458.8 10289.0	417.44 570.00	1.3518 1355.8
17	63.49 1.4000	7.98783E-03 4.90168E-03	10.682 1337.3	0.97988 99.887	21588.0 4.2717	3436.0 10270.0	420.32 570.00	1.3364 1341.8
18	71.80 1.4000	8.65573E-03 4.98913E-03	11.414 1321.6	0.79310 92.417	21789.0 4.0001	3429.1 10231.0	423.91 570.00	1.3127 1324.8
19	80.69 1.4000	9.28935E-03 5.06701E-03	12.173 1310.6	0.64241 69.136	25005.0 3.0204	3710.1 10228.0	426.62 570.00	1.2963 1312.5
20	90.09 1.4000	9.89452E-03 5.11307E-03	12.862 1299.9	0.41345 61.999	26593.0 2.7367	3764.1 10176.0	429.04 570.00	1.2817 1301.3
21	100.00 1.4000	1.03994E-02 5.10937E-03	13.479 1296.1	0.35999 34.616	27932.0 1.5299	3768.5 10100.0	430.07 570.00	1.2755 1296.6

ITERATION NO. = 300 X-STATIC NO. = 29 V-INNER = 0.0001 Y-OUTER = 2.0367 OUTPUT NO. = 2								
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANGLE	P-STAT P-STAG	TEMPER T-STAG	MACH NO VELOCITY	
1 0.0 1.4000	4.73212E-07 4.73212E-03	6.34993E-04 1341.9	0.0 0.0	1.7791 0.0	3412.1 9025.9	420.12 570.00	1.3350 1341.9	
2 0.24 1.4000	4.62823E-04 4.72992E-03	0.64748 1341.9	5.49095E-03 11.373	1305.1 0.48558	3410.3 9021.6	420.12 570.00	1.3350 1341.9	
3 0.98 1.4000	9.65372E-04 4.73090E-03	1.2942 1340.6	1.89318E-02 19.611	2609.0 0.83805	3413.2 9008.9	420.37 570.00	1.3341 1340.8	
4 2.16 1.4000	1.44504E-03 4.72179E-03	1.9369 1340.4	3.81507E-02 28.401	3905.2 1.1284	3406.9 9887.8	420.40 570.00	1.3339 1340.6	
5 3.85 1.4000	1.52279E-03 4.71255E-03	2.5752 1339.3	7.26135E-02 37.765	5195.7 1.6151	3401.7 9856.4	420.57 570.00	1.3328 1339.9	
6 6.07 1.4000	2.40037E-03 4.70668E-03	3.2198 1341.4	0.11157 46.480	6486.4 1.9845	3393.2 9876.7	420.65 570.00	1.3340 1342.2	
7 8.75 1.4000	2.57593E-03 4.69945E-03	3.8803 1345.2	~16072 55.864	7782.9 2.3718	3373.2 9706.3	418.21 570.00	1.3471 1350.4	
8 11.93 1.4000	3.35464E-03 4.69377E-03	4.5554 1357.9	0.22965 66.458	9090.5 2.8868	3355.8 10094.	416.12 570.00	1.3597 1359.7	
9 15.61 1.4000	3.83015E-03 4.68423E-03	5.2399 1368.1	0.29425 76.826	10395. 3.2142	3333.3 10231.	413.73 570.00	1.3743 1370.2	
10 19.81 1.4000	4.29408E-03 4.67812E-03	5.9018 1376.4	0.37375 87.038	11666. 3.6236	3309.1 10299.	412.16 570.00	1.3839 1377.1	
11 24.50 1.4000	4.75880E-03 4.66502E-03	6.5478 1375.9	0.47087 98.948	12932. 4.1132	3296.2 10302.	411.60 570.00	1.3871 1376.5	
12 29.67 1.4000	5.22539E-03 4.65178E-03	7.1933 1376.6	0.54566 104.46	14203. 4.3396	3288.4 10259.	411.36 570.00	1.3886 1380.6	
13 35.34 1.4000	5.71024E-03 4.64584E-03	7.8437 1373.8	0.64962 113.76	15515. 4.7345	3296.3 10284.	411.87 570.00	1.3953 1376.3	
14 41.50 1.4000	6.21574E-03 4.70731E-03	8.5768 1367.4	0.71230 114.23	16928. 4.7752	3336.1 10279.	413.28 570.00	1.3770 1372.2	
15 48.20 1.4000	6.80109E-03 4.76334E-03	9.2469 1359.3	0.75129 110.47	18841. 4.6456	3394.3 10211.	415.18 570.00	1.3654 1363.8	
16 55.44 1.4000	7.42544E-03 4.85394E-03	9.9923 1345.7	0.78217 105.36	20093. 4.6758	3485.2 10200.	418.35 570.00	1.3463 1349.8	
17 63.25 1.4000	8.07368E-03 4.94785E-03	10.748 1331.2	0.69845 88.262	21798. 3.7678	3582.6 10271.	421.88 570.00	1.3269 1334.0	
18 71.63 1.4000	8.73640E-03 5.07507E-03	11.485 1314.6	0.67611 79.620	23532. 3.5688	3681.1 10231.	425.63 570.00	1.3023 1317.0	
19 80.56 1.4000	9.34424E-03 5.11204E-03	12.239 1304.2	0.56019 59.695	25236. 2.6207	3756.3 10220.	428.13 570.00	1.2872 1305.5	
20 90.04 1.4000	9.98756E-03 5.15434E-03	12.921 1293.7	0.50053 58.126	26820. 2.5728	3807.6 10177.	430.41 570.00	1.2734 1295.8	
21 100.00 1.4000	1.04963E-02 5.14609E-03	13.538 1286.8	0.36156 34.446	28167. 1.5299	3810.8 10100.	431.44 570.00	1.2672 1290.2	

ITERATION NO. = 300 X-STATION NO. = 30 V-INNER = 0.0001 V-OUTER = 2.0429 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAG	TEMPER	MACN NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0	4.60378E-07	4.27171E-04	0.0	1.2480	3285.5	415.53	1.5654
1.4000	4.60378E-03	1.82.3	0.0	0.0	9925.9	570.00	1362.3	
2	0.24	4.70337E-04	0.64074	5.11210E-03	1275.0	5281.6	415.52	1.3634
1.4000	4.60156E-03	1.262.5	10.969	0.45717	9921.7	570.00	1362.3	
3	0.97	4.40403E-04	1.2800	1.89530E-02	2545.9	5284.2	415.76	1.3610
1.4000	4.60248E-03	1.361.1	20.154	0.84852	9909.1	570.00	1361.3	
4	2.17	1.40762E-03	1.9156	3.82864E-02	3815.2	5278.0	415.79	1.3618
1.4000	4.59351E-03	1.560.9	27.201	1.1451	9888.2	570.00	1361.1	
5	3.85	1.87237E-03	2.9466	7.25318E-02	5074.5	5271.3	415.90	1.3611
1.4000	4.58295E-03	1.360.1	38.736	1.6314	9859.0	570.00	1360.7	
6	6.01	2.33732E-03	5.1832	0.11346	6336.6	5263.4	415.42	1.3600
1.4000	4.57704E-03	1.361.9	48.569	2.0416	9846.6	570.00	1360.0	
7	8.66	2.80129E-03	5.9356	0.16319	7602.8	5245.7	413.67	1.3746
1.4000	4.57148E-03	1.569.2	58.256	2.4363	9817.3	570.00	1370.3	
8	11.81	3.26914E-03	4.5022	0.23182	8883.5	5231.4	411.71	1.3885
1.4000	4.57294E-03	1.577.2	70.912	2.9476	10089.9	570.00	1379.0	
9	15.46	3.73765E-03	5.1813	0.29687	10171.	5215.5	409.52	1.3998
1.4000	4.57485E-03	1.366.2	79.428	3.2793	10229.9	570.00	1388.5	
10	19.61	4.19556E-03	5.6415	0.37111	11437.	5202.5	408.33	1.4070
1.4000	4.56958E-03	1.390.8	88.361	3.6351	10292.9	570.00	1393.6	
11	24.27	4.66951E-03	6.4925	0.46109	12716.	5234.1	408.28	1.4075
1.4000	4.57246E-03	1.390.4	98.745	4.0624	10301.9	570.00	1393.6	
12	29.41	5.15180E-03	7.1459	0.52522	14025.	5217.9	408.81	1.4041
1.4000	4.56819E-03	1.387.9	101.75	4.2015	10299.9	570.00	1391.6	
13	35.06	5.66315E-03	7.8210	0.58879	15403.	5234.2	410.28	1.3951
1.4000	4.62128E-03	1.381.0	137.50	4.4515	10285.9	570.00	1385.2	
14	41.22	6.22563E-03	8.4296	0.65076	16901.	5321.0	412.75	1.3802
1.4000	4.66802E-03	1.370.5	104.56	4.3629	10278.9	570.00	1374.5	
15	47.94	6.82681E-03	9.2743	0.66344	18506.	5408.0	415.60	1.3629
1.4000	4.77528E-03	1.358.5	97.182	4.0917	10291.9	570.00	1362.0	
16	55.22	7.48132E-03	10.041	0.67588	20231.	5515.5	419.38	1.3400
1.4000	4.85405E-03	1.342.2	90.342	3.8509	10280.9	570.00	1345.2	
17	63.09	8.14346E-03	1.7.803	0.58407	21970.	5619.3	423.10	1.3178
1.4000	4.98407E-03	1.326.4	71.722	3.0948	10271.9	570.00	1326.4	
18	71.51	8.50124E-03	11.534	0.59527	23691.	5712.5	426.66	1.2961
1.4000	5.08983E-03	1.310.5	67.833	2.9583	10231.9	570.00	1312.2	
19	80.48	9.53213E-03	12.277	0.58314	25355.	5776.2	428.77	1.2833
1.4000	5.13139E-03	1.301.6	51.223	2.2537	10229.9	570.00	1302.6	
20	90.00	1.00257E-02	12.952	0.54760	26915.	5826.9	437.84	1.2708
1.4000	5.16726E-03	1.291.9	54.619	2.4210	10177.9	570.00	1293.0	
21	100.00	1.05353E-02	13.568	0.56256	28266.	5873.4	451.88	1.2647
1.4000	5.15844E-03	1.287.8	34.393	1.5259	10100.9	570.00	1288.3	

ITERATION NO.= 300 X-STATON NO.= 51 V-INNER = 0.0001 V-OUTER = 2.0450 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAG	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	4.49170E-07 4.49170E-03	6.15738E-04 1381.7	0.0 0.0	1.2183 0.0	3162.0 9925.9	411.04 570.00	1.3903 1381.7
2	0.24 1.4000	4.58464E-04 4.47993E-03	6.63349 1381.8	4.76824E-03 10.400	1246.3 0.43126	3160.4 9921.7	411.07 570.00	1.3903 1381.8
3	0.96 1.4000	9.16004E-04 4.46214E-03	1.2635 1380.6	1.89745E-02 20.701	2491.4 0.85901	3162.6 9909.3	411.30 570.00	1.3890 1380.6
4	2.15 1.4000	1.37204E-03 4.47151E-03	1.8940 1380.4	3.85704E-02 28.112	3729.3 1.1667	3156.7 9888.6	411.33 570.00	1.3888 1380.7
5	3.82 1.4000	1.82468E-03 4.46039E-03	2.5177 1379.8	7.24480E-02 39.704	4959.4 1.6483	3149.4 9859.7	411.40 570.00	1.3884 1380.4
6	5.99 1.4000	2.27812E-03 4.45526E-03	3.1466 1381.2	0.11456 50.287	6193.3 2.0851	3142.7 9872.5	411.00 570.00	1.3908 1382.1
7	8.57 1.4000	2.72228E-03 4.45331E-03	3.7917 1387.8	0.16403 60.034	7435.5 2.4771	3128.9 9864.2	409.40 570.00	1.4005 1389.1
8	11.69 1.4000	3.15227E-03 4.45997E-03	4.4519 1396.6	0.23101 72.367	8696.8 2.9735	3120.4 10084.	407.68 570.00	1.4109 1396.3
9	15.31 1.4000	3.65765E-03 4.47111E-03	5.1286 1402.1	0.29614 80.417	9976.4 3.2825	3114.2 10227.	405.82 570.00	1.4223 1404.3
10	19.43 1.4000	4.12326E-03 4.46025E-03	5.7912 1406.3	0.36077 87.498	11251. 3.5668	3115.5 10289.	405.17 570.00	1.4262 1407.2
11	24.05 1.4000	4.60349E-03 4.50191E-03	6.4516 1401.3	0.44005 95.391	12557. 3.9920	3135.1 10361.	405.76 570.00	1.4226 1404.7
12	29.18 1.4000	5.10690E-03 4.53571E-03	7.1257 1395.5	0.48916 95.795	13916. 3.9270	3172.3 10299.	407.15 570.00	1.4142 1398.8
13	34.82 1.4000	5.64571E-03 4.60102E-03	7.8191 1385.0	0.54939 97.312	15363. 4.0192	3234.1 10286.	409.55 570.00	1.3996 1386.4
14	41.00 1.4000	6.23676E-03 4.65175E-03	8.5457 1370.9	0.56917 91.293	16935. 3.8100	3324.8 10278.	412.88 570.00	1.3794 1373.9
15	47.75 1.4000	6.86548E-03 4.79583E-03	9.3118 1356.3	0.55901 81.423	18602. 3.4355	3426.8 10290.	416.33 570.00	1.3585 1358.8
16	55.07 1.4000	7.53162E-03 4.91045E-03	10.085 1339.1	0.56075 76.452	20356. 3.1823	3542.1 10290.	429.28 570.00	1.3346 1341.2
17	62.98 1.4000	8.18874E-03 5.00521E-03	10.842 1324.0	0.47346 57.818	22082. 2.9064	3640.7 10272.	423.81 570.00	1.3133 1325.3
18	71.44 1.4000	8.82940E-03 5.07936E-03	11.583 1307.9	0.50476 57.168	23767. 2.6998	3722.3 10233.	429.98 570.00	1.2941 1317.8
19	80.45 1.4000	9.43810E-03 5.12791E-03	12.292 1302.4	0.41659 44.139	25373. 1.9411	3772.6 10229.	428.46 570.00	1.2840 1303.1
20	89.98 1.4000	1.00184E-02 5.15676E-03	12.900 1293.6	0.51718 51.422	26971. 2.2852	3810.0 10177.	430.49 570.00	1.2730 1294.7
21	100.00 1.4000	1.05266E-02 5.16742E-03	13.575 1289.5	0.46254 34.441	28248. 1.5299	3912.0 10100.	431.49 570.00	1.2669 1290.0

ITERATION NO. = 300 X-STATION NO. = 32 V-INNER = 0.0001 V-OUTER = 2.0477 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAG	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(°)	P-STAG	T-STAG	VELOC(17)	
1	0.0 1.4000	4.36519E-07 4.36519E-03	4.11281E-04 1.40004	0.0 0.0	1.1499 0.0	3047.6 4925.9	406.78 570.00	1.4164 1.4004
2	0.24 1.4000	4.47134E-04 4.75312E-03	0.62615 1509.4	4.46307E-03 9.9813	1216.8 0.40839	3046.0 9921.8	406.77 570.00	1.4165 1.4004
3	0.93 1.4000	8.93905E-04 4.36347E-03	1.2509 1399.3	1.89420E-02 21.190	2436.4 0.86758	3047.9 4909.4	406.98 570.00	1.4152 1.3993
4	2.13 1.4000	1.33830E-03 4.35584E-03	1.8772 1399.9	3.82290E-02 29.029	3647.4 1.1879	3045.0 9889.0	407.03 570.00	1.4149 1.3992
5	3.78 1.4000	1.78004E-03 4.34555E-03	2.4890 1398.3	7.20393E-02 40.471	4891.1 1.6579	3036.4 9860.3	407.12 570.00	1.4143 1.3989
6	5.89 1.4000	2.22353E-03 4.34280E-03	3.1169 1399.1	0.11441 91.454	6360.8 2.1367	3032.3 9870.4	406.85 570.00	1.4140 1.4000
7	8.49 1.4000	2.67009E-03 4.34596E-03	3.7503 1404.6	0.16251 60.861	7294.2 2.4811	3024.3 9981.2	405.48 570.00	1.4263 1.4059
8	11.57 1.4000	3.12551E-03 4.34058E-03	4.4066 1409.9	0.22617 72.363	8534.0 2.9382	3024.4 10389.	404.11 570.00	1.4326 1.4117
9	15.16 1.4000	3.59197E-03 4.38503E-03	5.0863 1415.5	0.28489 76.313	9816.3 3.2071	3030.8 10275.	402.71 570.00	1.4412 1.4177
10	19.26 1.4000	4.06944E-03 4.61187E-03	5.7935 1415.1	0.34132 83.943	11111. 3.3951	3049.3 10286.	402.72 570.00	1.4411 1.4176
11	23.87 1.4000	4.56144E-03 4.45457E-03	6.4277 1408.1	0.40672 89.164	12455. 3.6206	3089.5 10301.	404.04 570.00	1.4390 1.4120
12	28.99 1.4000	5.0752E-03 4.51709E-03	7.1205 1399.6	0.47789 86.071	13872. 3.5191	3160.2 10299.	406.33 570.00	1.4191 1.4023
13	34.64 1.4000	5.65307E-03 4.60099E-03	7.8343 1385.4	0.47396 83.842	15383. 3.4620	3234.1 10286.	409.59 570.00	1.3496 1.3884
14	40.85 1.4000	6.26624E-03 4.70779E-03	8.5803 1369.3	0.47431 75.692	17009. 3.1639	3340.7 10278.	413.43 570.00	1.5759 1.3714
15	47.63 1.4000	6.90600E-03 4.81782E-03	9.3495 1353.8	0.44797 64.868	18703. 2.7432	3448.9 10290.	417.09 570.00	1.5539 1.3554
16	54.95 1.4000	7.56713E-03 4.92714E-03	10.119 1337.3	0.44849 59.268	20444. 2.5377	3556.6 10290.	420.85 570.00	1.3311 1.3386
17	62.93 1.4000	8.26604E-03 5.00231E-03	10.864 1323.9	0.37401 45.578	22127. 1.9717	3644.8 10272.	423.94 570.00	1.3123 1.3247
18	71.41 1.4000	9.05574E-03 5.06944E-03	11.572 1311.5	0.42502 40.622	23751. 2.1232	3717.1 10232.	426.65 570.00	1.2961 1.3124
19	80.43 1.4000	9.49889E-03 5.10589E-03	12.289 1305.9	0.46206 38.476	25309. 1.6876	3750.0 10229.	427.92 570.00	1.2885 1.3065
20	89.97 1.4000	9.67607E-03 5.12822E-03	12.950 1298.1	0.49029 49.146	26904. 2.1683	3780.6 10177.	429.53 570.00	1.2787 1.2991
21	100.00 1.4000	1.04612E-02 5.11450E-03	13.563 1294.1	0.54224 36.561	28143. 1.5299	3782.0 10100.	429.51 570.00	1.2728 1.2943

ITERATION NO. = 300 X-STATION NO. = 35 Y-INNER = 0.0001 Y-OUTER = 2.0304 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	MACH NO	
CP/CV	DENSITY	M	V	FLOW ANGLE	P-STAY	T-STAY	VELOCITY	
1	0.0	4.25432E-07	4.03323E-04	0.0	1.1628	2939.9	402.62	1.4418
	1.4000	4.25432E-03	1418.1	0.0	0.0	9925.9	570.00	1418.1
2	0.23	4.36375E-04	0.61981	4.18243E-03	1192.6	2938.5	402.61	1.4418
	1.4000	4.27257E-03	1518.1	0.38724	0.38724	9921.8	570.00	1418.1
3	0.44	8.72411E-04	1.2362	1.87712E-02	2394.0	2940.4	402.62	1.4405
	1.4000	4.25297E-03	1417.0	21.516	0.86992	9909.6	570.00	1417.2
4	2.11	1.30667E-03	1.8508	3.47628E-02	3570.4	2937.3	402.94	1.4398
	1.4000	4.24736E-03	1416.4	29.665	1.1998	9889.4	570.00	1416.7
5	3.74	1.73894E-03	2.4613	7.09960E-02	4731.1	2933.3	403.11	1.4387
	1.4000	4.23969E-03	1415.4	40.770	1.4499	9861.0	570.00	1416.0
6	5.84	2.17446E-03	3.0774	0.11250	5941.2	2934.1	403.06	1.4391
	1.4000	4.24343E-03	1415.3	51.737	2.0936	9864.4	570.00	1416.2
7	8.41	2.61808E-03	3.7131	0.15786	7132.4	2934.1	402.02	1.4456
	1.4000	4.25249E-03	1419.3	63.342	2.6344	9958.3	570.00	1426.6
8	11.47	3.07049E-03	4.3684	0.21637	8399.6	2945.3	401.11	1.4509
	1.4000	4.27828E-03	1422.7	70.467	2.8356	10073.0	570.00	1424.4
9	15.03	3.54222E-03	5.0908	0.26804	9695.1	2967.0	400.29	1.4568
	1.4000	4.31865E-03	1425.9	75.875	3.0379	10225.0	570.00	1427.9
10	19.11	4.02827E-03	5.7304	0.31170	11020.0	3005.0	401.06	1.4513
	1.4000	4.34560E-03	1422.6	77.378	3.1135	10284.0	570.00	1424.7
11	23.72	4.54280E-03	6.4209	0.36071	12411.0	3066.2	403.19	1.4383
	1.4000	4.43096E-03	1413.4	79.402	3.2153	10301.0	570.00	1415.7
12	28.83	5.09176E-03	7.1319	0.37273	13884.0	3148.1	404.25	1.4196
	1.4000	4.51494E-03	1400.7	73.203	2.9917	10299.0	570.00	1402.6
13	34.52	5.67773E-03	7.8614	0.38671	15445.0	3247.8	410.04	1.3966
	1.4000	4.61502E-03	1364.6	68.110	2.8162	10286.0	570.00	1366.5
14	40.74	6.30176E-03	8.6143	0.37312	17098.0	3361.1	414.17	1.3715
	1.4000	4.72825E-03	1367.9	59.209	2.4802	10278.0	570.00	1366.2
15	47.57	6.93849E-03	9.3806	0.34004	18784.0	3465.1	417.66	1.3505
	1.4000	4.83616E-03	1352.8	49.008	2.0760	10246.0	570.00	1352.4
16	54.97	7.58247E-03	10.140	0.34769	20484.0	3562.5	420.95	1.3304
	1.4000	4.93068E-03	1337.3	47.892	1.9653	10290.0	570.00	1339.1
17	62.92	8.19446E-03	10.869	0.29071	22107.0	3632.1	423.52	1.3150
	1.4000	4.99681E-03	1326.1	37.467	1.5320	10272.0	570.00	1326.6
18	71.41	8.75019E-03	11.563	0.36964	23674.0	3685.6	425.77	1.3014
	1.4000	5.04339E-03	1315.7	51.928	1.0237	10232.0	570.00	1314.3
19	80.44	9.35503E-03	12.271	0.31880	25193.0	3713.0	426.71	1.2938
	1.4000	5.06957E-03	1311.6	34.075	1.4882	10229.0	570.00	1312.1
20	89.98	9.40330E-03	12.927	0.44699	26645.0	3737.8	428.14	1.2871
	1.4000	5.08673E-03	1304.6	47.123	2.0689	10177.0	570.00	1305.5
21	100.00	1.04093E-02	13.538	0.36157	27975.0	3738.9	429.11	1.2813
	1.4000	5.07674E-03	1300.6	34.735	1.5299	10100.0	570.00	1301.6

ITERATION NO. = 300 X-STATION NO. = 34 V-INNER = 0.0001 V-OUTER = 2.0331 OUTPUT NO. = 2							
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	MACH NO
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY
1	0.0 1.4000	4.15082E-07 4.15082E-03	5.95330E-04 1434.7	0.0 0.0	1.1372 0.0	2840.1 9925.9	398.66 570.00
2	0.23 1.4000	4.26309E-04 4.14897E-03	0.41162 1434.7	3.89677E-03 9.1489	1148.0 0.34954	2838.8 9921.9	398.66 570.00
3	0.93 1.4000	8.52394E-04 4.14998E-03	1.2220 1433.6	1.81543E-02 21.533	2335.1 0.86251	2841.2 9929.8	398.80 570.00
4	2.08 1.4000	1.27764E-03 4.14796E-03	1.8302 1432.5	3.11792E-02 29.828	3499.5 1.1929	2841.1 9889.7	399.12 570.00
5	3.70 1.4000	1.70215E-03 4.14456E-03	2.4335 1430.8	6.55458E-02 40.270	4661.2 1.6121	2841.5 9861.6	399.46 570.00
6	5.78 1.4000	2.13203E-03 4.13725E-03	3.0476 1429.4	8.10821 59.734	5337.5 2.0335	2844.3 9846.4	399.72 570.00
7	8.33 1.4000	2.57170E-03 4.17490E-03	3.6819 1431.7	9.14931 58.561	7044.0 2.3273	2859.8 9855.7	399.11 570.00
8	11.37 1.4000	3.02884E-03 4.21469E-03	4.3394 1432.7	9.20058 66.222	8267.8 2.6444	2884.7 10071.9	398.78 570.00
9	14.92 1.4000	3.50978E-03 4.27351E-03	5.0297 1433.0	9.24278 69.171	9616.0 2.7634	2924.1 10219.0	398.67 570.00
10	19.00 1.4000	4.01127E-03 4.34150E-03	5.1228 1426.7	9.27154 67.894	10979.0 2.7166	2982.0 10282.0	400.20 570.00
11	23.61 1.4000	4.54512E-03 4.42742E-03	6.4296 1416.8	9.30271 66.002	12418.0 2.6956	3062.6 10301.0	403.06 570.00
12	28.76 1.4000	5.11312E-03 4.52797E-03	7.1552 1399.4	9.29668 28.023	13938.0 2.3744	3160.8 10299.0	406.72 570.00
13	34.66 1.4000	5.71069E-03 4.63575E-03	7.6930 1382.1	9.29349 51.393	15527.0 2.1295	3268.3 10287.0	410.77 570.00
14	40.73 1.4000	6.33365E-03 4.74599E-03	8.6446 1366.8	9.27336 43.238	17178.0 1.8145	3378.7 10278.0	414.80 570.00
15	47.58 1.4000	6.95626E-03 4.84022E-03	9.4012 1351.5	9.24302 34.935	18829.0 1.4807	3471.6 10240.0	417.87 570.00
16	54.98 1.4000	7.57647E-03 4.92034E-03	10.146 1339.2	9.24406 34.853	20472.0 1.4908	3552.1 10290.0	420.82 570.00
17	62.95 1.4000	8.16406E-03 4.97358E-03	10.861 1330.3	9.22454 27.303	22032.0 1.1844	3675.5 10272.0	422.63 570.00
18	71.44 1.4000	8.73571E-03 5.00579E-03	11.566 1321.6	9.32205 30.866	23547.0 1.5978	3647.0 10233.0	424.50 570.00
19	80.44 1.4000	9.24345E-03 5.02424E-03	12.243 1318.7	9.28507 30.707	25013.0 1.3339	3666.3 10224.0	425.17 570.00
20	89.99 1.4000	9.82327E-03 5.03649E-03	12.893 1312.5	9.44702 45.566	26445.0 1.9858	3686.2 10177.0	426.44 570.00
21	100.00 1.4000	1.03194E-02 5.02634E-03	13.502 1306.4	9.16961 34.945	27744.0 1.5299	3687.0 10168.0	427.60 570.00

ITERATION NO. = 300 X-SECTION NO. = 33 V-INNER = 0.0001 V-OUTER = 2.0551 OUTPUT NO. = 2

STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANGLE	P-STAT P-STAG	TEMP (R) T-STAG	MACH NO VELOCITY
1 0.0 1.4000	4.05578E-07 4.05578E-02	5.88104E-04 1450.0	0.0 0.0	1.1138 0.0	2749.5 9923.9	394.99 570.00	1.4884 1450.0
2 0.23 1.4000	4.17090E-04 4.05405E-03	6.60479 1450.0	3.56723E-03 8.5527	1145.4 0.33794	2748.3 9921.9	394.98 570.00	1.4884 1450.1
3 0.92 1.4000	8.34246E-04 4.05633E-03	1.2086 1448.7	1.75750E-02 21.007	2299.5 0.63311	2751.8 9909.9	395.26 570.00	1.4887 1448.9
4 2.06 1.4000	1.25184E-03 4.05851E-03	1.8113 1446.9	3.85683E-02 29.212	3436.2 1.1566	2756.1 9890.1	395.67 570.00	1.4885 1447.2
5 3.67 1.4000	1.67055E-03 4.06232E-03	2.4127 1444.2	6.45008E-02 38.611	4583.8 1.5314	2762.8 9862.2	396.26 570.00	1.4886 1444.8
6 5.73 1.4000	2.05744E-03 4.06892E-03	3.0228 1441.2	8.10092 48.117	5752.8 1.9122	2779.9 9844.7	396.93 570.00	1.4785 1442.0
7 8.27 1.4000	2.53840E-03 4.11547E-03	3.6585 1441.3	9.13608 53.610	6562.5 2.1302	2803.2 9853.5	396.86 570.00	1.4769 1442.3
8 11.30 1.4000	3.00182E-03 4.17164E-03	4.3213 1439.6	9.17802 59.302	8231.9 2.3588	2843.9 10068.	397.20 570.00	1.4749 1440.9
9 14.84 1.4000	3.45453E-03 4.24988E-03	5.0220 1436.9	9.20855 59.671	9580.3 2.5779	2901.9 10216.	397.94 570.00	1.4710 1438.2
10 18.93 1.4000	4.01310E-03 4.33782E-03	5.7293 1427.7	9.22113 55.104	10985. 2.8104	2978.6 10281.	400.08 570.00	1.4572 1428.8
11 23.55 1.4000	4.56396E-03 4.43998E-03	6.4503 1415.3	9.23491 51.471	12466. 2.8857	3073.0 10301.	403.52 570.00	1.4363 1416.2
12 28.73 1.4000	5.14408E-03 4.54945E-03	7.1845 1398.7	9.21438 41.676	14016. 1.7092	3181.8 10299.	407.49 570.00	1.4121 1397.3
13 34.46 1.4000	5.74300E-03 4.65590E-03	7.9228 1379.6	9.20106 33.010	15608. 1.4537	3288.2 10297.	411.49 570.00	1.3878 1380.0
14 40.76 1.4000	6.35468E-03 4.75535E-03	8.6662 1363.7	9.18360 28.892	17231. 1.2137	3388.3 10278.	415.13 570.00	1.3658 1365.1
15 47.62 1.4000	6.95637E-03 4.83399E-03	9.4098 1352.7	9.16152 23.219	18832. 0.98337	3465.1 10290.	417.65 570.00	1.3505 1352.9
16 55.04 1.4000	7.55102E-03 4.89742E-03	10.140 1342.9	9.14789 26.207	20414. 1.1180	3528.9 10290.	419.44 570.00	1.3373 1342.2
17 63.01 1.4000	8.11409E-03 4.93372E-03	10.841 1336.1	9.17394 21.437	21915. 0.91620	3568.1 10272.	421.38 570.00	1.3280 1336.2
18 71.49 1.4000	8.66665E-03 4.95973E-03	11.517 1329.8	9.28676 31.088	23384. 1.4264	3600.2 10231.	422.93 570.00	1.3186 1329.2
19 80.50 1.4000	9.19952E-03 4.97222E-03	12.206 1326.8	9.25907 28.161	24814. 1.2159	3613.3 10229.	423.40 570.00	1.3127 1327.1
20 90.01 1.4000	9.72723E-03 4.98075E-03	12.851 1321.2	9.42999 44.205	26218. 1.9164	3629.3 10177.	424.55 570.00	1.3088 1321.9
21 100.00 1.4000	1.02181E-02 4.97051E-03	13.459 1317.2	9.35945 35.178	27525. 1.5299	3629.8 10100.	425.49 570.00	1.3031 1317.8

ITERATION NO. = 300 X-STATION NO. = 36 Y-INNER = 0.0001 Y-OUTER = 2.5564 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMP (T)	MACH NO	
CP/CD	DENSITY	U	V	FLOW ANGLE	P-STAG	T-STAG	VELOCITY	
1	0.0	3.57179E-07	5.81318E-04	0.0	1.0929	2670.1	391.70	1.5087
1.4000	3.57179E-03	1463.6	0.0	0.0	9925.9	570.00	1463.6	
2	0.23	4.08991E-04	0.59860	3.15547E-03	1125.4	2669.0	391.69	1.5087
1.5000	3.57015E-03	1463.6	7.7122	0.39203	9921.9	570.00	1463.6	
3	0.91	0.18479E-04	1.1966	1.63244E-02	2251.0	2674.4	392.05	1.5065
1.4000	3.57449E-03	1442.0	10.920	0.78062	9910.1	570.00	1442.0	
4	2.05	1.23007E-03	1.7495	3.38445E-02	3382.7	2684.3	392.69	1.5025
1.4000	3.58274E-03	1459.3	27.514	1.0802	9890.3	570.00	1459.3	
5	3.64	1.04523E-03	2.3941	5.67890E-02	4521.6	2699.4	393.63	1.4967
1.4000	3.59955E-03	1455.2	35.428	1.3947	9862.7	570.00	1455.2	
6	5.49	2.07196E-03	3.0046	8.99932E-02	5690.4	2727.0	394.81	1.4893
1.4000	4.02571E-03	1450.1	43.454	1.7156	9843.3	570.00	1450.1	
7	8.22	2.51749E-03	3.6445	0.11751	6911.5	2766.0	395.37	1.4863
1.4000	4.07618E-03	1447.7	46.677	1.8467	9851.6	570.00	1446.3	
8	11.25	2.95014E-03	4.3157	0.14824	8204.0	2823.5	396.41	1.4797
1.4000	4.15000E-03	1443.3	49.576	1.9673	10066.1	570.00	1444.7	
9	14.80	3.49694E-03	5.0278	0.16551	9586.4	2899.1	397.75	1.4715
1.4000	4.24679E-03	1437.8	47.530	1.8855	10214.1	570.00	1436.5	
10	18.89	4.03034E-03	5.7481	0.18203	11030.1	2991.4	400.58	1.4542
1.4000	4.35095E-03	1426.1	40.200	1.6146	10201.6	570.00	1426.7	
11	23.54	4.59319E-03	6.4779	0.18093	12540.1	3096.9	404.14	1.4313
1.4000	4.46259E-03	1410.3	35.036	1.4231	10301.1	570.00	1410.8	
12	28.74	5.17667E-03	7.2138	0.13163	14097.1	3204.2	408.31	1.4071
1.4000	4.57231E-03	1393.5	25.428	1.0959	10299.1	570.00	1393.8	
13	34.51	5.76749E-03	7.9460	0.11599	15670.1	3301.8	411.97	1.3849
1.4000	4.66966E-03	1377.7	20.044	0.83561	10286.1	570.00	1377.9	
14	40.83	6.36090E-03	8.6775	0.10701	17249.1	3386.8	415.07	1.3661
1.4000	4.75404E-03	1364.2	16.823	0.70553	10278.1	570.00	1364.3	
15	47.70	6.93925E-03	9.4070	9.69509E-02	18793.1	3466.8	417.02	1.3543
1.4000	4.81582E-03	1355.6	13.971	0.59048	10290.1	570.00	1355.7	
16	55.12	7.50986E-03	10.124	0.14796	20317.1	3495.7	418.76	1.3441
1.4000	4.89438E-03	1349.1	10.702	0.83731	10290.1	570.00	1348.2	
17	63.08	8.09179E-03	10.813	0.13624	21767.1	3523.4	419.87	1.3371
1.4000	4.88944E-03	1342.9	16.420	0.72186	10271.1	570.00	1343.0	
18	71.56	8.58810E-03	11.481	0.26028	23198.1	3546.1	421.18	1.3292
1.4000	4.90842E-03	1336.8	30.306	1.2287	10231.1	570.00	1337.2	
19	80.54	9.10817E-03	12.163	0.23917	24597.1	3556.7	421.90	1.3272
1.4000	4.91643E-03	1335.4	26.256	1.1265	10228.1	570.00	1335.7	
20	90.04	9.62496E-03	12.804	0.41546	25976.1	3569.4	422.54	1.3206
1.4000	4.92191E-03	1330.3	43.165	1.8585	10177.1	570.00	1331.0	
21	100.00	1.01104E-02	13.410	0.35814	27270.1	3569.8	423.47	1.3133
1.4000	4.91169E-03	1326.3	35.423	1.5299	10100.1	570.00	1326.8	

ITERATION NO. = 300 X-STATION NO. = 37 Y-INNER = 0.0051 Y-OUTER = 2.0811 OUTPUT NO. = 2								
STREAMLINE #	M1 CP/CV	M2	M3	M4 FLOW ANG(0)	P-STAG P-STAG	TEMPER T-STAG	MACH NO VELOCITY	
1	0.0 1.4000	3.90173E-07 3.90173E-03	5.75496E-04 1475.0	0.0 0.0	1.0795 0.0	2604.4 9925.9	388.92 570.00	1.5258 1475.0
2	0.23 1.4000	4.02310E-04 3.90021E-03	0.55339 1475.0	2.61632E-03 6.5032	1109.0 0.25262	2633.4 9922.0	388.92 570.00	1.5258 1475.0
3	0.95 1.4000	8.05717E-04 3.90742E-03	1.1868 1472.9	1.44144E-02 17.890	2720.3 0.69587	2611.4 9910.2	388.39 570.00	1.5229 1473.0
4	2.03 1.4000	1.21327E-03 3.92323E-03	1.7823 1469.0	2.96515E-02 26.439	3341.5 0.95312	2628.3 9890.6	390.33 570.00	1.5171 1469.2
5	3.42 1.4000	1.62736E-03 3.94704E-03	2.3812 1463.2	4.94465E-02 30.383	4478.1 1.1865	2653.8 9863.1	391.71 570.00	1.5086 1463.6
6	5.66 1.4000	2.05687E-03 3.99117E-03	2.9945 1455.9	7.48710E-02 36.400	5651.7 1.4332	2695.3 9822.4	393.47 570.00	1.4978 1456.3
7	8.19 1.4000	2.50972E-03 4.05837E-03	3.6411 1450.8	9.30954E-02 37.094	6893.2 1.6666	2749.2 9950.8	394.69 570.00	1.4902 1451.3
8	11.22 1.4000	2.95360E-03 4.16939E-03	4.3214 1443.7	0.11126 37.167	8215.5 1.8747	2829.0 10065	396.40 570.00	1.4798 1444.2
9	14.79 1.4000	3.51363E-03 4.26148E-03	5.0450 1435.8	0.11482 32.678	9628.7 1.3037	2913.2 10213	398.31 570.00	1.4681 1436.2
10	18.95 1.4000	4.05873E-03 4.37571E-03	5.7743 1422.7	0.10807E-02 23.919	11100. 0.96320	3015.2 10281	401.48 570.00	1.4487 1422.9
11	23.58 1.4000	4.62591E-03 4.48852E-03	6.5076 1406.6	8.57123E-02 18.429	12621. 0.75468	3122.1 10301	405.28 570.00	1.4259 1406.6
12	28.81 1.4000	5.20407E-03 4.59051E-03	7.2384 1390.9	5.42944E-02 10.431	14166. 0.42968	3222.1 10299	408.96 570.00	1.4032 1391.0
13	34.60 1.4000	5.77973E-03 4.67347E-03	7.9401 1377.2	4.27761E-02 7.3889	15702. 0.30759	3305.6 10286	412.11 570.00	1.3840 1377.3
14	40.93 1.4000	6.35186E-03 4.74136E-03	8.6784 1366.3	4.60090E-02 7.2434	17229. 0.30375	3373.8 10276	414.62 570.00	1.3689 1366.3
15	47.81 1.4000	6.90746E-03 4.78749E-03	9.3944 1360.0	4.82169E-02 6.9854	18719. 0.29407	3418.5 10290	416.04 570.00	1.3603 1360.1
16	55.23 1.4000	7.45711E-03 4.82331E-03	10.099 1354.3	0.11151 14.953	20192. 0.43237	3455.0 10290	417.31 570.00	1.3526 1354.4
17	63.17 1.4000	7.98129E-03 4.84033E-03	10.778 1350.5	0.10862 13.609	21600. 0.47737	3476.0 10271	418.18 570.00	1.3473 1350.5
18	71.63 1.4000	8.50405E-03 4.85407E-03	11.440 1345.2	0.14053 20.284	22998. 3.2045	3493.2 10231	419.30 570.00	1.3405 1345.3
19	80.60 1.4000	9.01290E-03 4.85866E-03	12.117 1344.4	0.22408 24.462	24371. 1.0595	3498.3 10228	419.51 570.00	1.3392 1344.6
20	90.06 1.4000	9.51942E-03 4.86164E-03	12.793 1339.7	0.40312 42.147	25725. 1.8125	3509.4 10177	420.47 570.00	1.3335 1340.3
21	100.00 1.4000	9.99940E-03 4.86144E-03	13.357 1335.7	0.55672 55.674	27036. 1.5299	3508.7 10100	421.39 570.00	1.3279 1336.2

ITERATION NO. = 360 X-STATIC NO. = 38 V-INNER = 0.0001 V-OUTER = 2.0638 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAG	TEMPER	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANGLE	P-STAG	7-STAG	VELLOCITY	
1	0.0 1.4000	3.84935E-07 3.84935E-03	5.71047E-04 1482.5	0.0 0.0	1.0625 0.0	2555.6 9925.9	386.82 570.00	1.5388 1483.5
2	0.22 1.4000	3.47430E-04 3.86790E-03	0.58958 1482.5	1.90727E-03 4.7999	1297.0 0.18535	2554.6 9922.0	386.82 570.00	1.5387 1483.5
3	0.90 1.4000	7.96721E-04 3.45878E-03	1.1799 1460.9	1.17733E-02 14.777	2198.2 0.57171	2566.0 9910.3	387.44 570.00	1.5349 1481.0
4	2.03 1.4000	1.20255E-03 3.88350E-03	1.7744 1475.6	2.37109E-02 19.717	3315.2 0.76537	7591.1 9890.7	388.74 570.00	1.5269 1475.7
5	3.61 1.4000	1.61826E-03 3.91982E-03	2.3753 1467.6	3.75626E-02 23.212	4456.0 0.90801	7628.0 9863.3	392.62 570.00	1.5153 1468.0
6	5.63 1.4000	2.05323E-03 3.97892E-03	2.9637 1458.0	5.51667E-02 26.868	5645.4 1.0557	7683.8 9861.9	392.99 570.00	1.5007 1458.3
7	8.16 1.4000	2.51547E-03 4.06239E-03	3.6684 1450.4	6.27374E-02 26.980	6978.3 0.98594	7753.0 9950.6	394.65 570.00	1.4893 1450.6
8	11.23 1.4000	3.01279E-03 4.16779E-03	4.3389 1441.1	6.79393E-02 22.565	8257.0 0.89705	7840.5 10965.0	397.10 570.00	1.4755 1441.3
9	14.81 1.4000	3.54133E-03 4.28951E-03	5.0705 1431.8	5.88222E-02 16.610	9998.4 0.66465	7940.0 10214.0	398.34 570.00	1.4618 1431.9
10	18.96 1.4000	4.09198E-03 4.40583E-03	5.8034 1418.2	5.04676E-02 7.4457	11184.0 0.39080	8044.2 10782.0	402.57 570.00	1.4420 1418.3
11	23.66 1.4000	4.65589E-03 4.51174E-03	6.5330 1403.2	1.45707E-02 3.1315	12637.0 0.12787	8144.8 10301.0	406.12 570.00	1.4205 1403.2
12	28.92 1.4000	5.22175E-03 4.62013E-03	7.2555 1389.5	-1.29297E-02 -2.4761	14211.0 -0.10210	8231.5 10299.0	409.30 570.00	1.4011 1389.5
13	34.72 1.4000	5.77543E-03 4.66635E-03	7.9646 1376.5	-1.61244E-02 -2.7904	15701.0 -0.11599	8298.6 10256.0	411.97 570.00	1.3855 1375.3
14	41.06 1.4000	6.32916E-03 4.71796E-03	8.6701 1369.9	4.01466E-03 1.50339E-02	17176.0 6.28769E-04	8350.8 10278.0	413.81 570.00	1.3738 1369.9
15	47.93 1.4000	6.86456E-03 4.75158E-03	9.3741 1360.6	1.29421E-02 1.8766	18618.0 7.87371E-02	8382.6 10291.0	414.78 570.00	1.3679 1365.6
16	55.34 1.4000	7.39626E-03 4.77817E-03	10.069 1361.3	8.55423E-02 11.572	20044.0 0.48703	8409.7 10293.0	414.74 570.00	1.3621 1361.4
17	63.27 1.4000	7.90612E-03 4.78851E-03	10.749 1359.4	8.86618E-02 11.214	21421.0 0.47299	8422.1 10271.0	414.39 570.00	1.3581 1358.5
18	71.71 1.4000	8.41717E-03 4.79917E-03	11.396 1353.9	0.22589 26.837	22771.0 1.1356	8437.1 10231.0	417.37 570.00	1.3522 1354.1
19	80.65 1.4000	8.91619E-03 4.50029E-03	12.067 1353.4	9.21277 23.563	24140.0 1.0101	8439.6 10228.0	417.49 570.00	1.3515 1353.6
20	90.09 1.4000	9.41314E-03 4.80122E-03	12.698 1349.0	0.39262 41.709	25472.0 1.7709	8447.6 10176.0	418.38 570.00	1.3461 1349.7
21	100.00 1.4000	9.88789E-03 4.79110E-03	13.301 1345.2	0.35523 35.926	26741.0 1.5299	8447.7 10100.0	419.28 570.00	1.3407 1345.6

ITERATION NO. = 305 X-STATION NO. = 39 Y-INNER = 0.0001 Y-OUTER = 2.0685 OUTPUT NO. = 2								
STREAMLINE & CP/CV	h1 DENSITY	h2 U	h3 V	h4 FLOW ANGLE	P-S14T P-S14C	TEMPER T-S14C	MACH NO VELOCITY	
1 0.0 1.4000	3.81894E-07 3.81894E-23	5.68428E-04 1488.4	0.0 0.0	1.0549 0.0	2527.4 9925.9	385.59 570.00	1.5463 1488.4	
2 0.22 1.4000	3.96112E-04 3.81757E-03	6.58764 1488.4	9.83315E-04 2.4906	1090.5 9.58741E-02	2526.5 9922.0	385.60 570.00	1.5463 1488.4	
3 0.90 1.4000	7.92372E-04 3.83274E-23	1.1748 1485.2	8.24483E-03 10.405	2187.6 0.00141	2541.8 9912.5	386.39 570.00	1.5414 1485.2	
4 2.02 1.4000	1.19906E-03 3.86726E-23	1.7726 1478.3	1.57725E-02 13.154	3307.0 0.50980	2575.9 9900.7	388.09 570.00	1.5309 1478.3	
5 3.41 1.4000	1.61902E-03 3.91658E-23	2.3775 1468.5	2.23627E-02 15.812	4458.5 0.53891	2624.9 9863.3	392.49 570.00	1.5161 1468.5	
6 5.86 1.4000	2.06160E-03 3.98595E-23	3.0026 1456.4	3.08271E-02 16.953	5666.9 0.58823	2696.2 9862.2	393.62 570.00	1.4980 1456.5	
7 8.20 1.4000	2.53392E-03 4.08658E-23	3.6657 1446.7	2.71910E-02 18.731	6754.9 0.64249	2774.2 9951.3	395.79 570.00	1.4835 1446.7	
8 11.27 1.4000	3.03836E-03 4.20133E-23	4.3641 1436.1	2.01348E-02 20.625	8327.8 0.76434	2872.4 10067.5	398.34 570.00	1.4679 1436.1	
9 14.88 1.4000	3.57536E-03 4.32511E-23	5.1004 1426.5	1.03077E-03 22.830	9783.7 1.15193E-02	2973.8 10217.5	400.61 570.00	1.4540 1426.5	
10 19.05 1.4000	4.12467E-03 4.43527E-23	5.8314 1413.8	-3.30626E-02 -8.0158	11266. -0.32485	3072.5 10283.5	403.62 570.00	1.4356 1413.8	
11 23.78 1.4000	4.67855E-03 4.52782E-23	6.5531 1400.7	-4.78698E-02 -10.232	12754. -0.41853	3167.5 10301.5	406.69 570.00	1.4169 1400.7	
12 28.05 1.4000	5.22775E-03 4.59946E-23	7.2540 1389.5	-6.72438E-02 -12.863	14228. -0.53038	3230.8 10299.5	409.28 570.00	1.4012 1389.6	
13 34.86 1.4000	5.76457E-23 4.64912E-23	7.5604 1360.9	-8.05800E-02 -10.569	15669. -0.63602	3281.6 10285.5	411.26 570.00	1.3892 1381.0	
14 41.20 1.4000	6.29576E-03 4.68697E-23	8.6544 1374.6	-5.27113E-02 -5.1958	17097. -0.71656	3320.8 10278.5	412.71 570.00	1.3804 1374.7	
15 48.07 1.4000	6.81396E-03 4.71044E-23	9.3482 1371.9	-1.18529E-02 -1.7395	18497. -7.26438E-02	3341.6 10291.5	413.34 570.00	1.3766 1371.9	
16 55.47 1.4000	7.33144E-03 4.73031E-23	10.035 1368.7	6.98131E-02 9.223	19893. 0.39809	3361.6 10290.5	414.05 570.00	1.3723 1368.8	
17 63.38 1.4000	7.82858E-03 4.73540E-23	10.498 1368.6	7.44656E-02 9.5120	21235. 0.39860	3369.2 10270.5	414.55 570.00	1.3693 1368.6	
18 71.79 1.4000	8.32738E-03 4.74196E-23	11.349 1362.6	0.21523 27.849	22511. 1.08864	3380.9 10231.5	415.61 570.00	1.3641 1362.6	
19 80.71 1.4000	8.81963E-03 4.74214E-23	12.016 1362.4	0.20444 23.150	23910. 0.91477	3381.4 10228.5	415.46 570.00	1.3637 1362.6	
20 90.12 1.4000	9.30912E-03 4.74163E-23	12.643 1358.3	0.38370 41.222	25221. 1.7383	3387.6 10176.5	416.29 570.00	1.3588 1358.9	
21 100.00 1.4000	9.77727E-03 4.73136E-23	13.243 1354.5	0.35369 36.175	26477. 1.5299	3387.7 10100.5	417.18 570.00	1.3533 1355.0	

ITERATION NO. = 300 X-STATION NO. = 40 V-INNER = 0.0001 V-OUTER = 2.0692 OUTPUT NO. = 2								
STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(0)	P-STAY P-STAG	TEMP(0) T-STAG	MACH NO VELOCITY	
1	0.0 1.4000	3.81559E-07 3.81558E-03	5.68137E-04 1489.0	0.0 0.0	1.0340 0.0	2524.3 9925.9	389.46 570.00	1.5472 1489.0
2	0.22 1.4000	3.94982E-04 3.81430E-03	0.58811 1489.0	-1.96425E-04 -0.49710	1091.1 -1.91344E-02	2523.5 9922.0	385.47 570.00	1.5471 1489.0
3	0.90 1.4000	7.93646E-04 3.82393E-03	1.1786 1489.0	3.72690E-03 4.6959	2191.1 0.18118	2547.9 9910.3	386.44 570.00	1.5411 1485.0
4	2.03 1.4000	1.23392E-03 3.87808E-03	1.7778 1476.4	5.69132E-03 4.7271	3319.6 0.18343	2546.0 9890.7	388.52 570.00	1.5282 1476.6
5	3.62 1.4000	1.63050E-03 3.93925E-03	2.3894 1464.8	3.87740E-03 2.3458	4497.6 9.29340E-02	2646.2 9863.0	391.40 570.00	1.5105 1464.8
6	5.69 1.4000	2.08179E-03 4.02382E-03	3.0258 1451.1	2.41810E-03 1.1816	5717.7 4.95840E-02	2726.1 9843.2	394.74 570.00	1.4900 1451.1
7	8.25 1.4000	2.56315E-03 4.18666E-03	3.6912 1440.1	-1.20989E-02 -4.7203	7029.1 -0.18760	2815.8 9955.0	397.38 570.00	1.4738 1440.1
8	11.34 1.4000	3.07432E-03 4.24471E-03	4.3643 1429.4	-2.94612E-02 -9.4529	8416.3 -0.37891	2913.6 10070.	399.93 570.00	1.4581 1429.4
9	14.98 1.4000	3.61084E-03 4.36239E-03	5.1307 1420.4	-5.43359E-02 -15.340	9872.7 -0.60642	3009.3 10221.	401.93 570.00	1.4460 1421.0
10	19.18 1.4000	4.15240E-03 4.45939E-03	5.8951 1410.1	-8.91240E-02 -21.464	11335. -0.87211	3095.6 10249.	404.47 570.00	1.4305 1410.2
11	23.93 1.4000	4.69154E-03 4.53452E-03	6.5660 1399.5	-9.85697E-02 -21.010	12767. -0.86007	3167.0 10301.	406.93 570.00	1.4155 1399.7
12	29.21 1.4000	5.22242E-03 4.58880E-03	7.2646 1391.0	-0.10061 -29.683	14217. -0.85185	3220.4 10299.	408.96 570.00	1.4035 1391.2
13	35.02 1.4000	5.74044E-03 4.62366E-03	7.9492 1384.8	-9.20864E-02 -16.042	15612. -0.84171	3256.5 10245.	410.37 570.00	1.3946 1384.9
14	41.36 1.4000	6.25469E-03 4.65037E-03	8.6332 1380.3	-5.48061E-02 -8.7624	17000. -0.76372	3263.7 10279.	411.42 570.00	1.3883 1380.3
15	48.22 1.4000	6.75449E-03 4.66609E-03	9.3183 1378.6	-2.84910E-02 -4.2156	18365. -0.17518	3297.6 10291.	411.77 570.00	1.3861 1378.8
16	55.60 1.4000	7.26363E-03 4.69033E-03	9.9977 1376.4	5.56355E-02 7.6501	19731. 0.31883	3312.2 10290.	412.31 570.00	1.3829 1376.4
17	63.49 1.4000	7.75020E-03 4.69192E-03	10.655 1374.6	6.47091E-02 8.3443	21049. 0.34798	3316.1 10270.	412.48 570.00	1.3806 1374.8
18	71.68 1.4000	8.24111E-03 4.69609E-03	11.301 1371.2	0.20762 29.191	22372. 1.0523	3325.2 10231.	413.45 570.00	1.3760 1371.4
19	80.77 1.4000	8.72417E-03 4.68474E-03	11.943 1371.3	0.19853 22.756	23681. 0.95074	3324.3 10228.	413.45 570.00	1.3760 1371.4
20	90.15 1.4000	9.20466E-03 4.68262E-03	12.587 1367.4	0.37610 40.860	24973. 1.7115	3329.0 10176.	414.22 570.00	1.3713 1368.1
21	100.00 1.4000	9.68891E-03 4.67268E-03	13.185 1363.7	0.35213 36.420	26217. 1.5299	3329.0 10100.	415.10 570.00	1.3659 1364.2

ITERATION NO. = 300 X-STATION NO. = 41 V-INNER = 0.0001 V-OUTER = 2.0718 OUTPUT NO. = 2

STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMPER	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	7-STAG	VELOC(17)
1	0.0	3.84490E-07	5.70666E-04	0.0	1.0614	2591.4	1.5399
1.4000	3.84490E-23	1484.2	0.0	0.0	9925.9	570.00	1484.2
2	0.23	3.98542E-04	0.59150	-1.65857E-03	1100.1	2590.7	1.5398
1.4000	3.84170E-03	1484.2	-4.1614	-0.16046	9922.0	570.00	1484.2
3	0.71	8.01563E-04	1.1860	-1.82243E-03	2211.1	2573.8	1.5328
1.4000	3.86717E-03	1479.6	-2.2736	-0.80527E-02	9910.1	570.00	1479.6
4	2.05	1.21829E-03	1.7907	-6.48202E-03	3555.4	2624.4	1.5181
1.4000	3.91909E-03	1469.9	-5.3206	-0.20746	9896.4	570.00	1469.9
5	3.65	1.65297E-03	2.4080	-1.74965E-02	4943.9	2692.6	1.4985
1.4000	3.98836E-03	1456.7	-10.579	-0.41607	9862.5	570.00	1456.6
6	5.74	2.11263E-03	3.0471	-2.87527E-02	5794.8	2777.6	1.4771
1.4000	4.07816E-03	1447.3	-13.610	-0.54764	9865.0	570.00	1447.4
7	8.33	2.60926E-03	3.7221	-5.25614E-02	7120.8	2867.8	1.4613
1.4000	4.18302E-03	1431.4	-20.206	-0.85875	9955.8	570.00	1431.6
8	11.45	3.11273E-03	4.4262	-7.61156E-02	8512.3	2958.8	1.4477
1.4000	4.29218E-03	1422.0	-24.493	-0.98820	10274.0	570.00	1422.2
9	15.11	3.64372E-03	5.1590	-0.12308	9955.0	3041.9	1.4388
1.4000	4.39841E-03	1415.6	-29.291	-1.1444	10224.0	570.00	1415.9
10	19.33	4.17270E-03	5.6732	-0.13451	11387.0	3110.9	1.4272
1.4000	4.47531E-03	1407.5	-32.236	-1.3120	10287.0	570.00	1407.9
11	24.10	4.69475E-03	6.3718	-0.13648	12797.0	3164.3	1.4161
1.4000	4.53175E-03	1399.8	-39.070	-1.1897	10361.0	570.00	1400.1
12	29.34	5.20765E-03	7.2587	-0.13624	14182.0	3201.9	1.4076
1.4000	4.56990E-03	1393.9	-46.161	-1.0753	10299.0	570.00	1394.1
13	35.20	5.70890E-03	7.9327	-0.11286	15537.0	3225.7	1.4014
1.4000	4.59231E-03	1389.5	-49.768	-0.61508	10285.0	570.00	1389.7
14	41.53	6.20875E-03	8.6082	-6.86681E-02	16840.0	3244.1	1.3969
1.4000	4.61024E-03	1386.5	-51.069	-0.45704	10279.0	570.00	1386.9
15	48.37	6.70037E-03	9.2858	-3.90400E-02	18226.0	3252.0	1.3961
1.4000	4.61993E-03	1384.9	-58.8265	-0.24088	10242.0	570.00	1385.9
16	55.74	7.14498E-03	9.9587	4.81545E-02	19586.0	3262.5	1.3936
1.4000	4.63025E-03	1384.1	6.6928	0.27705	10289.0	570.00	1384.1
17	63.61	7.67209E-03	10.610	5.63095E-02	20860.0	3267.5	1.3920
1.4000	4.62873E-03	1382.9	7.6002	0.31487	10269.0	570.00	1383.0
18	71.97	8.15535E-03	11.292	6.20238	22164.0	3270.6	1.3878
1.4000	4.63089E-03	1379.7	20.916	1.0280	10231.0	570.00	1380.6
19	80.83	8.63051E-03	11.910	6.19448	23456.0	3268.5	1.3880
1.4000	4.62845E-03	1380.0	22.531	0.93541	10228.0	570.00	1380.1
20	90.18	9.10356E-03	12.530	6.3697	24731.0	3272.0	1.3836
1.4000	4.63520E-03	1374.4	40.607	1.6889	10176.0	570.00	1377.0
21	100.00	9.56221E-03	13.126	6.35055	25962.0	3272.0	1.3783
1.4000	4.61533E-03	1372.6	36.660	1.5296	10100.0	570.00	1375.1

ITERATION NO. = 300 X-STATION NO. = 42 V-INNER = 0.0001 V-OUTER = 2.0745 OUTPUT NO. = 2							
STREAMLINE #	W1	W2	W3	W4	P-STAG	T-STAT	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(°)	P-STAG	T-STAT	VELOCITY
1	0.0 1.4000	3.91226E-07 3.91226E-03	5.76380E-04 1473.5	0.0 0.0	1.0781 0.0	2614.3 9925.9	389.54 579.00
2	0.23 1.4000	4.06057E-04 3.91113E-03	5.5819 1473.2	-3.37109E-05 -0.2320	1119.0 -0.2228	2413.6 9921.9	389.33 579.00
3	0.92 1.4000	8.16988E-04 3.93650E-03	1.1996 1468.5	-8.25101E-03 -10.099	2249.8 -0.34609	2638.6 9909.9	397.55 579.00
4	2.07 1.4000	1.24251E-03 3.95183E-03	1.8115 1457.9	-7.32232E-02 -16.276	3416.2 -0.63961	2492.9 9899.9	393.05 579.00
5	5.70 1.4000	1.68583E-03 4.06240E-03	2.4352 1444.5	-4.03468E-02 -23.933	4625.7 -0.94920	2762.9 9861.7	396.27 579.00
6	5.81 1.4000	2.15200E-03 4.11880E-03	3.0792 1430.8	-6.01877E-02 -27.968	5592.9 -1.1198	2844.9 9867.5	399.53 579.00
7	8.45 1.4000	2.64183E-03 4.24440E-03	3.7555 1421.6	-9.05184E-02 -34.264	7224.3 -1.5867	2926.2 9859.1	401.70 579.00
8	11.58 1.4000	3.15038E-03 4.33848E-03	4.4570 1414.7	-0.11696 -37.125	8606.4 -1.9202	3063.0 10080.	403.29 579.00
9	15.27 1.4000	3.67112E-03 4.42379E-03	5.1808 1411.2	-0.14185 -38.638	10076. -1.5683	3068.2 10226.	404.18 579.00
10	19.51 1.4000	4.18488E-03 4.48257E-03	5.8856 1406.4	-0.16748 -40.015	11418. -1.6297	3117.6 10260.	405.23 579.00
11	24.29 1.4000	4.68957E-03 4.52090E-03	6.5719 1401.4	-0.18176 -34.494	12786. -1.6109	3153.6 10301.	406.44 579.00
12	29.57 1.4000	5.18565E-03 4.54498E-03	7.2480 1397.6	-0.19340 -29.378	14131. -1.6124	3177.5 10299.	407.34 579.00
13	35.38 1.4000	5.67264E-03 4.55725E-03	7.9126 1394.9	-0.12482 -22.004	15451. -0.90375	3191.5 10284.	408.01 579.00
14	41.70 1.4000	6.15017E-03 4.56826E-03	8.5808 1393.0	-7.59416E-02 -12.336	16774. -0.50740	3202.7 10279.	408.48 579.00
15	48.55 1.4000	6.64119E-03 4.57321E-03	9.2517 1393.1	-4.46690E-02 -6.7241	18084. -0.27663	3206.0 10292.	408.46 579.00
16	55.88 1.4000	7.12634E-03 4.58016E-03	9.9187 1391.8	-4.43039E-02 6.2169	19401. 0.25592	3213.2 10289.	408.75 579.00
17	63.72 1.4000	7.59497E-03 4.57629E-03	10.565 1391.0	5.48427E-02 7.2209	20673. 0.29743	3212.0 10269.	408.94 579.00
18	72.06 1.4000	8.07052E-03 4.57679E-03	11.203 1389.1	0.19912 20.672	21960. 1.0183	3217.2 10270.	409.57 579.00
19	80.90 1.4000	8.53970E-03 4.57946E-03	11.856 1388.5	0.19197 22.482	23216. 0.92744	3214.3 10228.	409.49 579.00
20	90.22 1.4000	9.00513E-03 4.56529E-03	12.475 1385.1	0.56417 40.441	24494. 1.6724	3216.8 10179.	410.19 579.00
21	100.00 1.4000	9.45874E-03 4.55948E-03	13.064 1381.4	0.34897 36.893	25714. 1.5299	3216.7 10100.	411.05 579.00

ITERATION NO. = 300 X-STATION NO. = 43 Y-INNER = 0.0001 Y-OUTER = 2.0772 OUTPUT NO. = 2

STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANGLE	P-STAY P-STAG	TEMPER T-STAG	MACH NO VELOCITY
1 0.0 1.4000	4.02110E-07 4.02110E-03	5.5327E-04 1435.6	0.0 0.0	1.1052 0.0	2716.6 9925.9	393.63 570.00	1.4967 1435.6
2 0.23 1.4000	4.17901E-04 4.02002E-03	6.6025 1435.6	-5.25836E-03 -12.503	1148.6 -0.40331	2716.1 9921.8	393.64 570.00	1.4966 1435.3
3 0.73 1.4000	8.40343E-04 4.04380E-03	1.2192 1430.8	-1.52133E-02 -18.104	2308.0 -0.71493	2739.9 9909.6	394.78 570.00	1.4997 1430.9
4 2.11 1.4000	1.27637E-03 4.09532E-03	1.6392 1441.0	-3.45754E-02 -27.089	3500.4 -1.0778	2791.2 9894.9	397.11 570.00	1.4754 1441.2
5 3.76 1.4000	1.72757E-03 4.15760E-03	2.4683 1428.8	-6.29255E-02 -36.395	4729.3 -1.4576	2854.1 9860.6	399.98 570.00	1.4579 1428.2
6 5.90 1.4000	2.19715E-03 4.23036E-03	3.1146 1417.6	-8.89978E-02 -47.506	6004.9 -1.6367	2923.1 9870.6	402.66 570.00	1.4419 1418.2
7 6.55 1.4000	2.68646E-03 4.30764E-03	3.7892 1411.4	-0.12269 -45.700	7370.7 -1.8543	2987.0 9863.3	404.61 570.00	1.4333 1412.2
8 11.72 1.4000	3.18479E-03 4.38021E-03	4.4851 1408.3	-0.14880 -44.721	8692.4 -1.9201	3042.7 10086.9	404.74 570.00	1.4288 1409.1
9 13.44 1.4000	3.69210E-03 4.44337E-03	5.1991 1408.1	-0.16935 -45.866	10077 -1.8636	3086.9 10229.9	404.78 570.00	1.4286 1408.9
10 19.69 1.4000	4.18587E-03 4.48212E-03	5.8930 1406.5	-0.18854 -45.000	11433. -1.8325	3116.9 10293.9	405.17 570.00	1.4262 1407.2
11 24.47 1.4000	4.67816E-03 4.50408E-03	6.5677 1403.9	-0.17643 -37.713	12760. -1.5388	3137.2 10302.9	405.83 570.00	1.4222 1406.4
12 29.77 1.4000	5.15984E-03 4.51626E-03	7.2341 1402.0	-0.16204 -31.407	14349. -1.2833	3144.4 10299.9	406.31 570.00	1.4191 1402.3
13 35.57 1.4000	5.63383E-03 4.52023E-03	7.8904 1400.5	-0.13039 -23.143	15358. -0.94470	3155.1 10284.9	406.69 570.00	1.4170 1400.9
14 41.88 1.4000	6.11755E-03 4.52567E-03	8.5520 1399.5	-7.88466E-02 -17.871	16659. -0.52689	3160.9 10280.9	406.95 570.00	1.4154 1399.8
15 48.69 1.4000	6.58206E-03 4.52665E-03	9.2167 1400.3	-6.89487E-02 -7.1328	17942. -0.29185	3160.4 10292.9	406.79 570.00	1.4166 1400.3
16 56.02 1.4000	7.05853E-03 4.53073E-03	9.8780 1398.4	4.31069E-02 6.1971	19238. 0.25003	3164.8 10289.9	406.98 570.00	1.4132 1399.5
17 63.84 1.4000	7.51930E-03 4.52485E-03	10.519 1398.9	5.32575E-02 7.0828	20492. 0.29004	3161.6 10268.9	407.11 570.00	1.4144 1398.9
18 72.15 1.4000	7.97761E-03 4.52293E-03	11.153 1399.3	0.19742 24.714	21761. 1.0141	3165.4 10230.9	407.67 570.00	1.4110 1399.3
19 80.96 1.4000	8.44984E-03 4.51986E-03	11.802 1398.8	0.19047 22.542	23022. 0.92499	3161.7 10228.9	407.57 570.00	1.4116 1398.8
20 90.25 1.4000	8.90945E-03 4.51492E-03	12.415 1393.5	0.35963 40.365	24264. 1.6592	3163.4 10179.9	408.23 570.00	1.4076 1394.1
21 100.00 1.4000	9.38066E-03 4.50513E-03	13.007 1389.9	0.34738 37.121	25472. 1.5299	3163.1 10160.9	409.09 570.00	1.4024 1390.4

ITERATION NO. = 500 X-SECTION NO. = 44 Y-INNER = 0.0001 Y-OUTER = 2.0799 OUTPUT NO. = 2							
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(°)	P-STAT	T-STAT	VELOCITY
1	0.0 1.4000	4.16976E-07 4.16976E-05	9.96976E-04 1491.7	0.0 0.0	1.1419 0.0	2858.3 9925.9	1.4413 1451.7
2	0.24 1.4000	4.33923E-04 4.16976E-03	0.62115 1491.7	-7.03569E-05 -16.214	1188.3 -0.64895	2857.8 9921.7	1.4413 1451.6
3	0.96 1.4000	8.71267E-04 4.16976E-03	1.2496 1427.7	-2.17217E-02 -24.937	2384.1 -1.0007	2875.9 9904.5	1.4560 1427.9
4	2.19 1.4000	1.31927E-05 4.22463E-05	1.8719 1419.9	-4.73726E-02 -39.933	3604.5 -1.4497	2915.5 9886.6	1.4490 1420.3
5	3.83 1.4000	1.77567E-05 4.26783E-03	2.9047 1410.6	-8.13978E-02 -49.837	4949.1 -1.8612	2960.8 9899.9	1.4321 1411.3
6	6.00 1.4000	2.24512E-03 4.31714E-05	3.1512 1409.9	-0.11087 -49.936	6123.6 -2.0131	3007.0 9876.3	1.4222 1404.4
7	8.68 1.4000	2.72636E-05 4.36890E-03	3.8216 1401.7	-0.14479 -53.092	7434.5 -2.1691	3046.0 9868.0	1.4198 1402.7
8	11.88 1.4000	3.21505E-05 4.41803E-03	4.9119 1407.9	-0.16852 -52.355	8768.2 -2.1372	3076.8 10092.6	1.4214 1405.9
9	15.62 1.4000	3.70760E-05 4.46817E-05	5.2137 1406.2	-0.18977 -49.566	10116. -2.0187	3099.0 10211.	1.4260 1407.1
10	19.89 1.4000	4.18964E-05 4.51609E-03	5.8971 1407.6	-0.19724 -47.079	11434. -1.9157	3110.4 10296.	1.4278 1408.3
11	24.67 1.4000	4.66292E-03 4.56367E-03	6.9610 1407.0	-0.18055 -38.720	12724. -1.5765	3117.2 10302.	1.4267 1407.6
12	29.94 1.4000	5.13159E-05 4.61569E-03	7.2185 1406.7	-0.16227 -31.622	14602. -1.2878	3116.4 10299.	1.4260 1407.1
13	35.74 1.4000	5.56429E-05 4.66267E-03	7.8679 1406.5	-0.12931 -23.114	15269. -0.94163	3116.5 10284.	1.4252 1406.5
14	42.09 1.4000	6.06118E-05 4.7125E-03	8.5227 1406.1	-7.62166E-02 -12.575	16936. -0.51257	3116.5 10280.	1.4247 1406.2
15	48.85 1.4000	6.52385E-05 4.76082E-03	9.1814 1407.4	-4.49942E-02 -8.8664	17802. -0.26076	3119.7 10292.	1.4264 1407.4
16	56.16 1.4000	6.94216E-05 4.8123E-03	9.6373 1406.9	4.49607E-02 0.6302	19574. 0.26186	3117.5 10249.	1.4258 1406.9
17	63.96 1.4000	7.44591E-05 4.87469E-05	10.473 1406.6	5.45453E-02 7.3259	20514. 0.29840	3112.7 10267.	1.4254 1406.7
18	72.24 1.4000	7.90691E-03 4.9253E-03	11.105 1406.3	0.19726 24.947	21566. 1.1178	3115.0 10230.	1.4273 1406.3
19	81.02 1.4000	8.36319E-03 4.96779E-05	11.749 1404.8	0.19060 22.790	22815. 0.92940	3110.8 10228.	1.4231 1404.0
20	90.28 1.4000	8.81663E-05 4.99209E-03	12.359 1401.7	0.35973 22.347	24040. 1.6687	3111.7 10179.	1.4192 1402.3
21	100.00 1.4000	9.26035E-03 4.95233E-05	12.949 1398.2	0.34580 37.942	25256. 1.9299	3111.3 10100.	1.4141 1398.7

ITERATION NO. = 300 X-STATION NO. = 45 V-INLET = 0.0001 V-OUTLET = 2.0026 OUTPUT NO. = 2

STREAMLINE #	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(D)	P-STAY P-STAG	TEMPER T-STAG	MACH NO VELOCITY	
1	0.0 1.4000	4.34911E-07 4.34911E-03	0.10148E-04 1402.9	0.0 0.0	1.1860 0.0	3031.4 9925.9	406.18 570.00	1.4201 1402.9
2	0.24 1.4000	4.53178E-04 4.34814E-03	0.62565 1432.7	-8.49291E-03 -18.751	1235.7 -0.76548	3031.4 9921.9	406.21 570.00	1.4199 1402.9
3	0.98 1.4000	9.07236E-04 4.35445E-03	1.2709 1400.6	-7.69512E-02 -29.707	2473.2 -1.2151	3039.1 9908.9	406.65 570.00	1.4172 1400.9
4	2.20 1.4000	1.36585E-03 4.37111E-03	1.4068 1396.1	-5.70455E-02 -41.769	3721.1 -1.7136	3058.1 9887.7	407.62 570.00	1.4113 1396.7
5	3.91 1.4000	1.62720E-03 4.35604E-03	2.5421 1391.2	-9.42874E-02 -51.602	4974.8 -2.1242	3076.4 9858.0	408.67 570.00	1.4049 1392.3
6	6.11 1.4000	2.29363E-03 4.40475E-03	3.1872 1389.4	-0.12452 -54.289	6243.2 -2.2373	3092.3 9870.1	409.04 570.00	1.4027 1390.6
7	8.82 1.4000	2.76603E-03 4.42677E-03	3.8522 1392.7	-0.15698 -56.754	7532.4 -2.3356	3102.1 9972.4	408.29 570.00	1.4072 1395.8
8	12.05 1.4000	3.24174E-03 4.44767E-03	4.5332 1398.4	-0.17771 -54.818	8835.4 -2.4449	3104.3 10099.	406.98 570.00	1.4152 1399.3
9	15.80 1.4000	3.71945E-03 4.46468E-03	5.2260 1405.0	-0.18937 -55.832	10147. -2.5720	3107.9 10234.	401.47 570.00	1.4244 1406.0
10	20.08 1.4000	4.18683E-03 4.46733E-03	5.8993 1409.0	-0.19871 -57.661	11429. -1.9292	3101.9 10298.	404.56 570.00	1.4299 1409.8
11	24.87 1.4000	4.64639E-03 4.46166E-03	6.5533 1410.4	-0.17958 -58.649	12685. -1.5697	3096.2 10302.	404.30 570.00	1.4315 1410.9
12	30.14 1.4000	5.10314E-03 4.45511E-03	7.2025 1411.5	-0.15926 -51.208	13934. -1.2667	3090.0 10290.	404.11 572.00	1.4327 1411.7
13	35.94 1.4000	5.55543E-03 4.44584E-03	7.8443 1412.0	-0.12647 -22.765	15170. -0.92388	3082.7 10263.	404.01 570.00	1.4339 1412.2
14	42.23 1.4000	6.01313E-03 4.44198E-03	8.4937 1412.5	-7.26182E-02 -12.077	16421. -0.48905	3079.4 10280.	403.91 570.00	1.4339 1412.4
15	49.01 1.4000	6.46737E-03 4.43630E-03	9.1465 1414.3	-4.29670E-02 -6.6437	17645. -0.26613	3072.4 10293.	403.51 570.00	1.4363 1414.3
16	56.29 1.4000	6.92778E-03 4.43534E-03	9.7970 1414.2	4.75187E-02 6.8591	18823. 0.27790	3071.9 10289.	403.84 570.00	1.4361 1414.2
17	64.07 1.4000	7.37401E-03 4.42598E-03	10.428 1414.1	5.52495E-02 7.4919	20142. 0.30354	3065.4 10267.	403.34 570.00	1.4361 1414.2
18	72.33 1.4000	7.82874E-03 4.42272E-03	11.054 1412.0	6.19793 7.2992	21377. 1.02258	3060.5 10230.	404.00 570.00	1.4333 1412.8
19	81.09 1.4000	8.27930E-03 4.41722E-03	11.696 1412.7	0.19022 22.975	22610. 0.93174	3061.7 10227.	403.84 570.00	1.4363 1412.9
20	90.31 1.4000	8.72690E-03 4.41099E-03	12.302 1409.7	0.55301 40.450	23823. 1.9436	3062.0 10174.	404.46 570.00	1.4306 1410.2
21	100.00 1.4000	9.16594E-03 4.40127E-03	12.809 1406.2	0.34424 37.557	25009. 1.5299	3061.5 10100.	405.29 570.00	1.4255 1406.7

ITERATION NO. = 300 X-STATION NO. = 46 7-INNER = 0.0001 V-OUTER = 2.0852 OUTPUT NO. = 2							
STREAMLINE & CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANGLE	P-STAY P-STAG	TEMPER T-STAG	MACH NO VELOCITY
1 0.0 1.4000	4.53509E-07 4.33909E-03	6.23035E-04 1372.6	0.0 0.0	1.2323 0.0	3218.9 9923.9	413.18 570.00	1.3776 1372.6
2 0.23 1.4000	4.7760CE-04 4.53825E-03	6.44592 1372.3	-8.97627E-03 -18.803	1285.7 -0.78512	3218.6 9921.3	413.22 570.00	1.3773 1372.4
3 1.00 1.4000	9.43144E-04 4.31056E-03	1.2971 1372.4	-2.36479E-02 -30.311	2566.0 -1.2653	3212.7 9958.3	413.16 570.00	1.3777 1372.7
4 2.23 1.4000	1.41635E-03 4.52054E-03	1.9406 1372.1	-9.94217E-02 -42.013	3839.8 -1.7339	3215.3 9886.9	413.16 570.00	1.3777 1372.7
5 3.99 1.4000	1.57828E-03 4.50286E-03	2.3777 1372.4	-9.36326E-02 -35.915	9099.8 -2.1247	3191.9 9856.7	413.01 570.00	1.3786 1373.3
6 6.22 1.4000	2.34028E-03 4.48855E-03	3.2213 1372.5	-0.12351 -52.778	6358.0 -2.1958	3174.5 9881.8	412.07 570.00	1.3863 1377.5
7 8.99 1.4000	2.50309E-03 4.48032E-03	3.6812 1384.6	-0.15238 -52.360	7624.5 -2.2683	3154.1 9877.3	410.18 570.00	1.3958 1385.7
8 12.20 1.4000	3.2660CE-03 4.47457E-03	4.5548 1395.6	-0.16968 -51.936	8896.3 -2.1336	3132.4 10106.	407.88 570.00	1.4097 1395.6
9 13.87 1.4000	3.72633E-03 4.47101E-03	5.2375 1404.3	-0.17773 -47.636	10173. -1.9436	3112.8 10237.	405.66 570.00	1.4233 1405.1
10 20.26 1.4000	4.18329E-03 4.45792E-03	5.9610 1410.6	-0.18433 -44.062	11422. -1.7892	3092.7 10298.	404.22 570.00	1.4320 1411.3
11 25.06 1.4000	4.63041E-03 4.44089E-03	6.5462 1413.7	-0.18446 -35.517	12648. -1.4391	3073.7 10302.	403.53 570.00	1.4362 1414.2
12 30.14 1.4000	5.07610E-03 4.42596E-03	7.1873 1415.9	-0.18361 -28.291	13869. -1.1446	3061.7 10298.	403.06 570.00	1.4391 1416.2
13 36.12 1.4000	5.51861E-03 4.41049E-03	7.8224 1417.3	-0.11204 -20.302	15081. -0.82060	3048.7 10283.	402.73 570.00	1.4411 1417.6
14 42.40 1.4000	5.96748E-03 4.40260E-03	8.4658 1418.7	-3.95818E-02 -9.9644	16311. -0.46324	3041.2 10281.	402.47 570.00	1.4426 1418.7
15 49.16 1.4000	6.41332E-03 4.39371E-03	9.1128 1420.9	-3.13932E-02 -6.8649	17533. -0.19736	3031.1 10293.	401.86 570.00	1.4438 1420.9
16 56.63 1.4000	6.86527E-03 4.38930E-03	9.7577 1421.1	5.59177E-02 6.1528	18774. 0.32869	3022.3 10289.	401.40 570.00	1.4462 1421.1
17 64.19 1.4000	7.30339E-03 4.37927E-03	10.384 1421.3	6.35386E-02 9.6932	19976. 0.35063	3020.3 10266.	401.04 570.00	1.4468 1421.4
18 72.42 1.4000	7.73586E-03 4.37579E-03	11.006 1419.9	0.20092 29.713	21196. 1.0459	3020.1 10235.	402.24 570.00	1.4440 1419.7
19 81.14 1.4000	8.19897E-03 4.36889E-03	11.644 1420.2	0.19416 29.681	22415. 0.93529	3014.7 10227.	402.66 570.00	1.4431 1420.4
20 90.34 1.4000	8.64605E-03 4.36189E-03	12.247 1417.9	0.34980 40.482	23815. 1.6360	3014.4 10176.	402.43 570.00	1.4413 1417.9
21 100.00 1.4000	9.07530E-03 4.35214E-03	12.832 1414.0	0.34271 37.763	24790. 1.3299	3013.8 10100.	403.47 570.00	1.4366 1414.5

ITERATION NO. = 300 X-STATION NO. = 47 Y-INNER = 0.0001 Y-OUTER = 2.0879 OUTPUT NO. = 2

STREAMLINE #	W1 CP/CV	W1 DENSITY	W2 U	W3 V	W4 FLOW ANG(0)	P-STAY P-STAG	TEMP(0) T-STAG	MACH NO VELOCITY
1	0.0 1.4000	4.71829E-07 4.71829E-03	6.34175E-04 1344.1	0.0 0.0	1.2757 0.0	3398.2 9425.9	419.63 570.00	1.3385 1344.1
2	0.26 1.4000	4.92957E-04 4.71749E-03	6.66239 1343.8	-8.69069E-03 -17.631	1332.8 -0.75171	3398.0 9421.5	419.68 570.00	1.3383 1343.9
3	1.02 1.4000	9.81039E-04 4.69659E-03	1.3204 1345.9	-2.81437E-02 -25.688	2653.3 -1.2211	3378.7 9408.2	419.16 570.00	1.3416 1346.2
4	2.29 1.4000	1.44016E-03 4.66096E-03	1.5707 1349.6	-5.77565E-02 -29.555	3951.4 -1.6787	3345.9 9386.2	419.23 570.00	1.3469 1350.2
5	4.06 1.4000	1.92657E-03 4.61271E-03	2.6101 1354.8	-9.23132E-02 -47.916	5217.7 -2.0256	3301.6 9355.5	417.03 570.00	1.3562 1356.6
6	6.52 1.4000	2.36475E-03 4.56798E-03	3.2550 1364.1	-0.11818 -49.555	6467.2 -2.7805	3252.9 9325.1	414.91 570.00	1.3671 1365.0
7	9.08 1.4000	2.83939E-03 4.55203E-03	3.5689 1376.8	-0.14614 -51.474	7713.5 -2.1411	3204.7 9291.8	412.00 570.00	1.3847 1377.8
8	12.55 1.4000	3.29047E-03 4.50231E-03	4.5763 1390.8	-0.16353 -49.697	8958.0 -2.0465	3158.9 10112.	408.79 570.00	1.4042 1391.7
9	16.14 1.4000	3.74096E-03 4.47895E-03	5.2498 1405.3	-0.17191 -45.955	10203. -1.8756	3120.3 10239.	405.96 570.00	1.4217 1404.1
10	20.44 1.4000	4.18210E-03 4.45082E-03	5.6048 1411.7	-0.17985 -43.005	11420. -1.7449	3085.8 10298.	405.96 570.00	1.4336 1412.4
11	25.24 1.4000	4.61721E-03 4.42256E-03	6.5407 1416.6	-0.16124 -14.922	12617. -1.4122	3058.0 10302.	402.87 570.00	1.4402 1417.0
12	30.52 1.4000	5.05218E-03 4.39930E-03	7.1742 1420.0	-0.14158 -28.023	13812. -1.1305	3036.0 10297.	402.09 570.00	1.4450 1420.3
13	36.30 1.4000	5.48481E-03 4.37805E-03	7.6021 1422.5	-0.11247 -20.542	15000. -0.82737	3017.2 10283.	401.54 570.00	1.4483 1422.6
14	42.56 1.4000	5.92467E-03 4.35540E-03	8.4393 1424.4	-5.90716E-02 -9.9704	16208. -0.40104	3005.2 10281.	401.10 570.00	1.4510 1424.3
15	49.31 1.4000	6.36243E-03 4.35312E-03	9.0803 1427.2	-3.48909E-02 -5.4839	17412. -0.22016	2992.0 10293.	400.46 570.00	1.4549 1427.2
16	56.56 1.4000	6.80734E-03 4.34764E-03	9.7195 1427.8	5.65860E-02 8.3125	18631. 0.35157	2886.6 10289.	400.51 570.00	1.4558 1427.8
17	64.30 1.4000	7.23978E-03 4.35425E-03	10.341 1428.3	5.85872E-02 8.0648	19817. 0.32351	2977.8 10246.	400.19 570.00	1.4586 1428.3
18	72.51 1.4000	7.67153E-03 4.32822E-03	10.659 1428.9	0.20198 20.294	21021. 1.5559	2975.4 10230.	400.53 570.00	1.4545 1428.9
19	81.20 1.4000	8.12101E-03 4.32165E-03	11.593 1427.5	0.13019 23.419	22777. 0.93985	2964.6 10227.	400.33 570.00	1.4557 1427.7
20	90.37 1.4000	8.55701E-03 4.31431E-03	12.193 1424.8	0.35011 40.952	23415. 1.6449	2968.5 10174.	400.69 570.00	1.4525 1424.4
21	100.00 1.4000	8.98784E-03 4.30467E-03	12.776 1421.4	0.54120 57.963	24578. 1.5299	2967.8 10160.	401.70 570.00	1.4473 1421.4

ITERATION NO. = 305 X-STATON NO. = 48 Y-INNER = 0.0001 Y-OUTER = 2.0406 OUTPUT NO. = 2								
STREAMLINE #	W1	W2	W3	W4	P-STAY	TEMP (°F)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAG	T-STAG	VELOCITY	
1	0.0 1.4000	4.86663E-07 4.86663E-03	6.42642E-04 1320.5	0.0 0.0	1.3115 0.0	3548.7 9925.9	424.86 570.00	1.3069 1320.5
2	0.26 1.4000	5.09147E-04 4.86638E-03	6.47214 1320.1	-6.34382E-03 -12.558	1372.0 -0.54501	3549.1 9921.4	424.93 570.00	1.3063 1320.2
3	1.04 1.4000	1.01111E-03 4.83435E-03	1.3388 1324.1	-2.04999E-02 -20.472	2726.2 -0.86581	3516.3 9907.9	424.04 570.00	1.3119 1324.2
4	2.32 1.4000	1.49920E-03 4.77944E-03	1.9054 1331.0	-4.27951E-02 -28.205	4046.2 -1.2140	3465.6 9885.6	422.48 570.00	1.3213 1331.3
5	4.11 1.4000	1.96890E-03 4.70801E-03	2.6381 1339.9	-6.68765E-02 -35.941	5120.7 -1.4511	3397.6 9854.3	420.48 570.00	1.3334 1340.5
6	6.40 1.4000	2.42524E-03 4.63959E-03	3.2821 1353.3	-8.44803E-02 -34.834	6566.4 -1.4744	3324.2 9888.0	417.45 570.00	1.3517 1353.8
7	9.18 1.4000	2.87351E-03 4.58110E-03	3.9361 1369.8	-0.10378 -36.116	7798.6 -1.5103	3252.9 9855.5	413.71 570.00	1.3743 1376.3
8	12.48 1.4000	3.31553E-03 4.53078E-03	4.5992 1387.2	-0.11501 -34.688	9020.8 -1.4725	3186.2 10117.	409.74 570.00	1.3984 1387.6
9	16.29 1.4000	3.75463E-03 4.48956E-03	5.2649 1402.2	-0.11968 -31.878	10238. -1.3023	3130.4 10242.	406.25 570.00	1.4196 1402.6
10	20.60 1.4000	4.18403E-03 4.44717E-03	5.9106 1412.6	-0.12328 -29.465	11426. -1.1949	3082.3 10298.	403.82 570.00	1.4344 1413.0
11	25.41 1.4000	4.60771E-03 4.40780E-03	6.5388 1419.1	-0.10571 -22.941	12595. -0.92617	3043.7 10342.	402.33 570.00	1.4435 1416.5
12	30.70 1.4000	5.03213E-03 4.37823E-03	7.1644 1423.7	-4.73900E-02 -17.366	13745. -0.69885	3013.6 10297.	401.26 570.00	1.4501 1423.8
13	36.47 1.4000	5.45467E-03 4.34841E-03	7.7947 1427.2	-6.05205E-02 -11.095	14928. -0.44542	2988.7 10282.	400.46 570.00	1.4550 1427.2
14	42.72 1.4000	5.88353E-03 4.33103E-03	8.4133 1429.8	-1.50009E-02 -7.5488	16113. -0.10213	2972.1 10281.	399.83 570.00	1.4588 1429.8
15	49.46 1.4000	6.31459E-03 4.31485E-03	9.0496 1433.1	9.59120E-03 1.5189	17297. 6.07246E-02	2955.2 10293.	399.05 570.00	1.4636 1433.1
16	56.69 1.4000	6.75179E-03 4.30604E-03	9.6829 1434.1	8.48388E-02 12.573	18497. 0.30229	2947.3 10288.	398.80 570.00	1.4651 1434.2
17	64.01 1.4000	7.17705E-03 4.29119E-03	10.299 1434.9	9.31435E-02 12.978	19664. 0.51819	2935.7 10285.	398.80 570.00	1.4663 1435.0
18	72.59 1.4000	7.61223E-03 4.28367E-03	10.912 1433.3	0.21271 27.944	20853. 1.1167	2932.6 10239.	398.88 570.00	1.4666 1433.8
19	81.26 1.4000	8.04600E-03 4.27624E-03	11.543 1434.6	0.20888 25.961	22043. 1.0367	2925.8 10227.	398.64 570.00	1.4669 1434.8
20	90.40 1.4000	8.47632E-03 4.26785E-03	12.139 1432.1	0.34346 49.570	23216. 1.6208	2925.9 10174.	399.17 570.00	1.4628 1432.6
21	100.00 1.4000	8.90154E-03 4.25787E-03	12.719 1428.8	0.33968 38.160	24369. 1.5299	2922.8 10100.	399.95 570.00	1.4580 1429.3

ITERATION NO.= 300 X-STATION NO.= 49 Y-INNER = 0.0001 Y-OUTER = 2.0439 OUTPUT NO. = 2								
STREAMLINE #	W1 CP/CV	W2 DENSITY	W3 U	W4 V	W5 FLOW ANG(D)	P-STAG P-STAG	TEMP(R) T-STAG	MACH NO VELOCITY
1	0.0 1.4000	5.01328E-07 5.01328E-03	6.50328E-04 1297.2	0.0 0.0	1.3466 0.0	3699.3 9925.9	429.94 570.00	1.2763 1297.2
2	0.26 1.4000	5.25172E-04 5.01312E-03	0.48166 1296.8	-5.27129E-03 -10.037	1410.6 -0.44345	3699.8 9921.3	430.01 570.00	1.2758 1296.9
3	1.05 1.4000	1.04192E-03 4.97531E-03	1.3562 1301.7	-1.42232E-02 -17.498	2000.5 -0.76981	3662.8 9907.6	429.94 570.00	1.2823 1301.6
4	2.36 1.4000	1.54155E-03 4.90816E-03	2.0201 1310.6	-3.93776E-02 -24.895	4140.5 -1.0884	3597.1 9885.0	427.01 570.00	1.2939 1310.7
5	4.17 1.4000	2.01817E-03 4.81965E-03	2.6679 1322.0	-6.46909E-02 -32.354	5440.0 -1.3890	3511.1 9853.6	424.45 570.00	1.3094 1322.5
6	6.48 1.4000	2.47717E-03 4.73287E-03	3.3161 1336.7	-8.46167E-02 -34.159	6693.1 -1.4617	3417.7 9800.9	420.74 570.00	1.3318 1336.1
7	9.30 1.4000	2.92376E-03 4.65524E-03	3.9713 1358.3	-0.11319 -38.713	7921.9 -1.6326	3326.3 9809.6	416.31 570.00	1.3586 1358.6
8	12.62 1.4000	3.35883E-03 4.58407E-03	4.6321 1379.1	-0.13643 -40.619	9128.1 -1.6871	3238.0 10123.	411.56 570.00	1.3874 1379.7
9	16.46 1.4000	3.78730E-03 4.52282E-03	5.2910 1397.0	-0.15247 -40.259	10320. -1.6586	3162.6 10244.	407.41 570.00	1.4126 1397.6
10	20.80 1.4000	4.20270E-03 4.46130E-03	5.9266 1410.2	-0.17189 -40.899	11474. -1.6613	3096.0 10298.	404.33 570.00	1.4313 1410.8
11	25.62 1.4000	4.61055E-03 4.40467E-03	6.5437 1419.3	-0.16147 -35.023	12604. -1.4435	3040.9 10302.	402.23 570.00	1.4441 1419.7
12	30.91 1.4000	5.02011E-03 4.36019E-03	7.1585 1426.0	-0.14829 -29.539	13737. -1.1867	2996.4 10296.	400.68 570.00	1.4556 1426.3
13	36.68 1.4000	5.42691E-03 4.32075E-03	7.7674 1431.5	-0.12874 -23.723	14861. -0.94458	2962.1 10282.	399.44 570.00	1.4612 1431.5
14	42.93 1.4000	5.84507E-03 4.29572E-03	8.3893 1435.3	-7.05468E-02 -12.079	16016. -0.48216	2938.2 10262.	398.52 570.00	1.4668 1435.3
15	49.65 1.4000	6.26054E-03 4.27244E-03	8.9133 1439.7	-5.92611E-02 -4.4658	17165. -0.37671	2914.5 10294.	397.47 570.00	1.4732 1439.7
16	56.86 1.4000	6.68841E-03 4.26016E-03	9.4398 1441.3	4.91178E-02 7.3637	18343. 0.29194	2893.4 10288.	397.04 570.00	1.4795 1441.3
17	64.55 1.4000	7.10249E-03 4.24117E-03	10.247 1442.7	3.17935E-02 4.4764	19483. 0.17777	2880.0 10265.	396.75 570.00	1.4776 1442.7
18	72.71 1.4000	7.52683E-03 4.23132E-03	10.854 1441.7	0.20170 26.790	20650. 1.0665	2882.6 10229.	396.93 570.00	1.4765 1442.0
19	81.34 1.4000	7.95592E-03 4.22295E-03	11.480 1443.0	0.17345 21.864	21825. 0.66810	2874.9 10227.	396.65 570.00	1.4782 1443.1
20	90.44 1.4000	8.37693E-03 4.21392E-03	12.071 1440.4	0.35546 42.337	22981. 1.6915	2872.3 10173.	397.15 570.00	1.4752 1441.1
21	100.00 1.4000	8.80041E-03 4.20411E-03	12.649 1437.3	0.33782 36.387	24122. 1.5298	2871.2 10100.	397.92 570.00	1.4704 1437.8

ITERATION NO. = 300 X-STATION NO. = 53 V-INLET = 0.0001 V-OUTER = 2.0000 OUTPUT NO. = 2							
STREAMLINE & CP/CV	M1 DENSITY	M2 U	M3 V	M4 FLOW ANG(0)	P-STAY P-STAG	TEMP(1) T-STAG	MACH NO VFLOCLTY
1	0.0 1.4000	5.15982E-07 5.15981E-03	6.57322E-04 1273.9	0.0 0.0	1.3816 0.0	3851.6 4425.4	1.7462 1273.9
2	0.27 1.4000	5.41335E-04 5.16653E-03	0.68960 1272.9	6.04402E-04 1.1156	1455.8 5.02337E-02	3859.3 4421.3	1.2443 1272.9
3	1.07 1.4000	1.07388E-03 5.12136E-03	1.3730 1276.5	2.63115E-03 2.4689	2877.2 0.11064	3814.3 4407.4	1.2521 1276.5
4	2.39 1.4000	1.58549E-03 5.04289E-03	2.0444 1289.1	6.18532E-03 3.5002	4255.2 0.17334	3736.2 4404.9	1.2658 1289.1
5	4.22 1.4000	2.06863E-03 4.93383E-03	2.6975 1304.0	1.25949E-02 6.0885	5561.8 0.26752	3628.2 4382.6	1.2852 1304.0
6	6.57 1.4000	2.53563E-03 4.82582E-03	3.3406 1324.0	2.07609E-02 8.2038	6523.0 0.35501	3514.7 4393.9	1.3116 1324.0
7	9.41 1.4000	2.97691E-03 4.73381E-03	4.0089 1346.7	3.09616E-02 10.401	8052.0 0.44250	3404.6 4393.6	1.3421 1346.7
8	12.77 1.4000	3.40612E-03 4.63994E-03	4.6681 1371.3	4.45705E-02 13.595	9249.1 0.54711	3292.6 4412.9	1.3759 1371.4
9	16.64 1.4000	3.82386E-03 4.56754E-03	5.223 1391.9	5.71406E-02 16.943	10411. 0.61510	3199.3 4424.7	1.4046 1391.9
10	21.00 1.4000	4.22377E-03 4.47794E-03	5.6476 1408.1	7.49114E-02 17.736	11527. 0.72162	3112.1 4429.0	1.4276 1408.2
11	25.84 1.4000	4.61303E-03 4.40158E-03	6.5508 1420.1	9.45675E-02 20.400	12611. 0.82704	3037.7 4430.1	1.4449 1420.2
12	31.13 1.4000	5.00481E-03 4.34567E-03	7.1556 1428.3	0.11032 22.071	13713. 0.88330	2984.3 4429.2	1.4568 1428.5
13	36.92 1.4000	5.35555E-03 4.29028E-03	7.7478 1436.0	0.13498 25.018	14786. 0.99813	2933.0 4428.7	1.4680 1436.2
14	43.13 1.4000	5.65610E-03 4.26162E-03	8.3632 1440.4	0.14932 29.718	15922. 1.0229	2865.6 4428.2	1.4766 1440.7
15	49.86 1.4000	6.20105E-03 4.22643E-03	8.9706 1446.6	0.17897 28.861	17021. 1.1430	2870.7 4424.4	1.4838 1446.9
16	57.05 1.4000	6.62804E-03 4.21631E-03	9.5961 1447.8	0.19411 28.834	18166. 1.1409	2861.7 4428.8	1.4853 1448.1
17	64.71 1.4000	7.02257E-03 4.18409E-03	10.187 1450.6	0.22747 32.392	19287. 1.2792	2837.6 4426.4	1.4898 1451.0
18	72.83 1.4000	7.44345E-03 4.17798E-03	10.792 1449.9	0.25475 34.223	20441. 1.3522	2831.9 4429.9	1.4888 1450.3
19	81.47 1.4000	7.86427E-03 4.16897E-03	11.412 1451.1	0.27809 35.361	21601. 1.3959	2823.6 4422.7	1.4907 1451.6
20	90.49 1.4000	8.28059E-03 4.15984E-03	12.001 1449.2	0.32192 38.874	22739. 1.5366	2819.6 4417.3	1.4879 1449.7
21	100.09 1.4000	8.70058E-03 4.15110E-03	12.578 1445.7	0.33760 38.802	23879. 1.5374	2820.7 4410.0	1.4828 1446.2

DISCHARGE(CD), THROUST(VD) AND PRESSURE(PO) - COEFFICIENTS

MF	MF/MF0	MF/MF1	VD	VD/VD0	VD/VD-1	PO	THROUST(LBF)
2736.5	0.94843	C.46648	10164.	0.32698	0.34129	69982.	2.49917E 05 1
2732.0	0.92397	0.88903	10400.	0.39610	0.34933	65244.	2.37669E 05 2
2604.9	0.95042	0.91448	12531.	0.47468	0.42057	61681.	2.33144E 05 3
2603.9	1.04364	1.00609	12953.	0.49295	0.43474	60433.	2.30612E 05 4
2641.7	0.96382	0.92737	12994.	0.49441	0.43612	57230.	2.20616E 05 5
2644.4	1.03778	0.99853	14015.	0.53337	0.47039	34925.	2.14583E 05 6
2784.3	1.01569	C.97746	13337.	0.51300	0.45490	45410.	2.10583E 05 7
2715.3	0.99068	0.93122	13357.	0.50632	0.44629	51324.	2.03207E 05 8
2733.7	C.99740	0.95968	14115.	C.33714	0.47372	48643.	1.97317E 05 9
2738.8	0.99927	0.96148	14482.	0.56634	0.49944	46111.	1.91616E 05 10
2738.8	0.99925	0.96146	13458.	0.39589	0.32552	43574.	1.86384E 05 11
2738.2	0.99506	0.96126	14524.	0.62863	0.55438	41006.	1.80733E 05 12
2739.1	0.99937	C.96258	17528.	0.66703	0.58827	38385.	1.75657E 05 13
2736.4	0.99912	C.96134	16673.	0.71071	0.62679	35665.	1.70714E 05 14
2742.1	1.00045	C.96262	20114.	0.76544	0.67506	32822.	1.66309E 05 15
2743.7	1.00104	C.96318	27065.	0.83951	0.74938	29459.	1.61851E 05 16
2740.8	1.00090	0.96219	26277.	1.00000	0.88192	24202.	1.58586E 05 17
2749.5	1.02315	C.96522	26995.	1.1034	0.97312	21676.	1.539187E 05 18
2768.9	1.10126	C.97205	31785.	1.1830	1.0433	19863.	1.60559E 05 19
2760.0	1.00700	0.96892	32929.	1.2331	1.1052	17889.	1.59648E 05 20
2742.5	1.00062	C.96278	34202.	1.3016	1.1479	16407.	1.56999E 05 21
2737.3	0.99878	0.96171	34893.	1.3279	1.1711	15690.	1.538912E 05 22
2737.1	0.99865	0.96088	33248.	1.3414	1.1830	15370.	1.59019E 05 23
2737.2	0.99867	0.96091	35508.	1.3533	1.1917	15167.	1.59130E 05 24
2737.1	0.99866	0.96059	35715.	1.3592	1.1987	14976.	1.59252E 05 25
2737.1	0.99864	0.96068	35963.	1.3655	1.2043	14847.	1.59372E 05 26
2737.1	0.99862	C.96084	36025.	1.3709	1.2091	14745.	1.59497E 05 27
2737.0	0.99860	0.96094	36132.	1.3758	1.2133	14667.	1.59629E 05 28
2736.9	0.99858	0.96082	36272.	1.3804	1.2174	14583.	1.59765E 05 29
2736.9	0.99856	C.96090	36291.	1.3849	1.2214	14508.	1.59904E 05 30
2736.8	0.99854	0.96078	36512.	1.3895	1.2254	14432.	1.60043E 05 31
2736.8	0.99853	C.96077	36634.	1.3942	1.2295	14353.	1.60183E 05 32
2736.7	0.99851	0.96075	36760.	1.3989	1.2337	14272.	1.60320E 05 33
2736.7	C.99850	0.96074	36886.	1.4037	1.2380	14189.	1.60455E 05 34
2736.7	0.99848	0.96071	37012.	1.4085	1.2422	14105.	1.60588E 05 35
2736.6	0.99847	0.96072	37138.	1.4133	1.2464	14020.	1.60718E 05 36
2736.6	0.99847	C.96071	37264.	1.4181	1.2506	13935.	1.60846E 05 37
2736.6	0.99846	0.96070	37387.	1.4228	1.2548	13852.	1.60971E 05 38
2736.6	0.99846	0.96070	37508.	1.4274	1.2589	13769.	1.61095E 05 39
2736.6	0.99845	C.96070	37627.	1.4319	1.2628	13689.	1.61214E 05 40
2736.6	0.99846	0.96070	37741.	1.4363	1.2667	13612.	1.61331E 05 41
2736.6	C.99346	0.96071	37852.	1.4405	1.2704	13536.	1.61447E 05 42
2736.6	0.99847	C.96071	37954.	1.4445	1.2739	13458.	1.61561E 05 43
2736.7	0.99849	C.96073	38059.	1.4484	1.2773	13403.	1.61674E 05 44
2736.7	C.99850	0.96074	38153.	1.4520	1.2805	13344.	1.61783E 05 45
2736.6	0.99852	C.96076	38243.	1.4554	1.2835	13289.	1.61893E 05 46
2736.6	0.99852	C.96076	38325.	1.4585	1.2863	13240.	1.61996E 05 47
2736.6	0.998517	0.96081	38407.	1.4616	1.2890	13194.	1.62109E 05 48
2736.7	0.99851	0.96075	38471.	1.4641	1.2912	13156.	1.62192E 05 49
2736.6	0.99837	0.96082	38530.	1.4669	1.2932	13120.	1.62295E 05 50

AXIS ITERATION NO= 0

STREAMLINE #	W1 CP/CV	W2 SENSITV	W3 U	W4 V	W5 FLDN ANG(0)	P-STAT P-STATG	TEMPER T-STATG	MACH NO VELOC(10)
1	0.0 1.4000	4.72849E-07 9.72999E-03	3.2822E-04 337.31	0.0 0.0	2.3953 0.0	9360.6 9925.9	560.33 570.00	0.34065 337.31
2	0.0 1.4000	9.68284E-07 9.68284E-03	3.44891E-04 356.15	0.0 0.0	2.3857 0.0	9297.2 9925.9	559.44 570.00	-0.30718 356.15
3	0.0 1.4000	9.63058E-07 9.63058E-03	3.62111E-04 376.00	0.0 0.0	2.3748 0.0	9227.0 9925.9	558.23 570.00	0.32465 376.00
4	0.0 1.4000	9.57255E-07 9.57255E-03	3.75981E-04 396.95	0.0 0.0	2.3627 0.0	9169.3 9925.9	556.89 570.00	0.34315 396.95
5	0.0 1.4000	9.50757E-07 9.50757E-03	3.88688E-04 419.25	0.0 0.0	2.3492 0.0	9062.5 9925.9	555.37 570.00	0.36293 419.25
6	0.0 1.4000	9.43457E-07 9.43457E-03	4.18018E-04 443.07	0.0 0.0	2.3339 0.0	8965.2 9925.9	553.66 570.00	0.38416 443.07
7	0.0 1.4000	9.35231E-07 9.35231E-03	4.36235E-04 468.58	0.0 0.0	2.3167 0.0	8855.9 9925.9	551.72 570.00	0.40697 468.58
8	0.0 1.4000	9.25855E-07 9.25855E-03	4.59427E-04 496.22	0.0 0.0	2.2970 0.0	8731.9 9925.9	549.50 570.00	0.43184 496.22
9	0.0 1.4000	9.15100E-07 9.15100E-03	4.81636E-04 526.32	0.0 0.0	2.2745 0.0	8590.2 9925.9	546.94 570.00	0.45811 526.32
10	0.0 1.4000	9.02670E-07 9.02670E-03	5.04905E-04 559.35	0.0 0.0	2.2490 0.0	8427.9 9925.9	543.96 570.00	0.48426 559.35
11	0.0 1.4000	8.88633E-07 8.88633E-03	5.29447E-04 596.20	0.0 0.0	2.2170 0.0	8236.7 9925.9	540.41 570.00	0.51328 596.20
12	0.0 1.4000	8.70569E-07 8.70569E-03	5.55284E-04 637.84	0.0 0.0	2.1798 0.0	8010.7 9925.9	536.14 570.00	0.54197 637.84
13	0.0 1.4000	8.49662E-07 8.49662E-03	5.82688E-04 686.27	0.0 0.0	2.1337 0.0	7735.1 9925.9	530.80 570.00	0.60761 686.27
14	0.0 1.4000	8.21499E-07 8.21499E-03	6.11617E-04 744.79	0.0 0.0	2.0742 0.0	7395.3 9925.9	523.83 570.00	0.66387 744.79
15	0.0 1.4000	7.82479E-07 7.82479E-03	6.42967E-04 811.18	0.0 0.0	1.9904 0.0	6905.6 9925.9	513.87 570.00	0.71901 821.18
16	0.0 1.4000	7.10740E-07 7.10740E-03	6.77561E-04 933.32	0.0 0.0	1.8306 0.0	5930.4 9925.9	494.35 570.00	0.87470 953.32
17	0.0 1.4000	6.56179E-07 6.56179E-03	6.96818E-04 1046.7	0.0 0.0	1.7075 0.0	5392.4 9925.9	478.81 570.00	0.97583 1046.7
18	0.0	5.86552E-07	6.80975E-04	0.0	1.5473	4407.4	457.77	1.10272

	1.4000	5.86452E-03	1141.2	0.0	0.0	9925.9	570.00	1141.2
19	0.0	5.79554E-07	6.76418E-04	0.0	1.5312	4531.9	455.61	1.1204
	1.4000	5.79554E-03	1172.3	0.0	0.0	9925.9	570.00	1172.3
20	0.0	5.73221E-07	6.77836E-04	0.0	1.5164	4462.7	453.61	1.1327
	1.4000	5.73220E-03	1182.5	0.0	0.0	9925.9	570.00	1182.5
21	0.0	5.67331E-07	6.76241E-04	0.0	1.5027	4396.7	451.74	1.1441
	1.4000	5.67331E-03	1192.0	0.0	0.0	9925.9	570.00	1192.0
22	0.0	5.61805E-07	6.74633E-04	0.0	1.4898	4338.8	449.98	1.1549
	1.4000	5.61805E-03	1200.8	0.0	0.0	9925.9	570.00	1200.8
23	0.0	5.56584E-07	6.73017E-04	0.0	1.4775	4282.4	448.30	1.1651
	1.4000	5.56584E-03	1209.2	0.0	0.0	9925.9	570.00	1209.2
24	0.0	5.51605E-07	6.71390E-04	0.0	1.4658	4228.9	446.69	1.1749
	1.4000	5.51605E-03	1217.2	0.0	0.0	9925.9	570.00	1217.2
25	0.0	5.46874E-07	6.69765E-04	0.0	1.4547	4178.2	445.13	1.1842
	1.4000	5.46874E-03	1224.7	0.0	0.0	9925.9	570.00	1224.7
26	0.0	5.42341E-07	6.68138E-04	0.0	1.4440	4129.8	443.67	1.1932
	1.4000	5.42341E-03	1232.0	0.0	0.0	9925.9	570.00	1232.0
27	0.0	5.37986E-07	6.66510E-04	0.0	1.4337	4083.5	442.26	1.2018
	1.4000	5.37986E-03	1238.9	0.0	0.0	9925.9	570.00	1238.9
28	0.0	5.33789E-07	6.64880E-04	0.0	1.4238	4038.9	440.86	1.2102
	1.4000	5.33789E-03	1245.6	0.0	0.0	9925.9	570.00	1245.6
29	0.0	5.29733E-07	6.63251E-04	0.0	1.4142	3996.0	439.52	1.2183
	1.4000	5.29733E-03	1252.0	0.0	0.0	9925.9	570.00	1252.0
30	0.0	5.25810E-07	6.61622E-04	0.0	1.4049	3954.7	438.21	1.2262
	1.4000	5.25810E-03	1258.3	0.0	0.0	9925.9	570.00	1258.3
31	0.0	5.22007E-07	6.59996E-04	0.0	1.3959	3914.7	436.94	1.2339
	1.4000	5.22007E-03	1264.3	0.0	0.0	9925.9	570.00	1264.3
32	0.0	5.18313E-07	6.58371E-04	0.0	1.3871	3875.9	435.70	1.2414
	1.4000	5.18313E-03	1270.2	0.0	0.0	9925.9	570.00	1270.2
33	0.0	5.14720E-07	6.56747E-04	0.0	1.3786	3838.4	434.49	1.2487
	1.4000	5.14720E-03	1275.9	0.0	0.0	9925.9	570.00	1275.9
34	0.0	5.11274E-07	6.55127E-04	0.0	1.3702	3801.9	433.31	1.2559
	1.4000	5.11274E-03	1281.5	0.0	0.0	9925.9	570.00	1281.5
35	0.0	5.07813E-07	6.53509E-04	0.0	1.3621	3766.5	432.13	1.2629
	1.4000	5.07813E-03	1286.9	0.0	0.0	9925.9	570.00	1286.9
36	0.0	5.04486E-07	6.51893E-04	0.0	1.3542	3732.0	431.02	1.2698
	1.4000	5.04486E-03	1292.2	0.0	0.0	9925.9	570.00	1292.2
37	0.0	5.01223E-07	6.50277E-04	0.0	1.3464	3698.2	429.90	1.2765
	1.4000	5.01223E-03	1297.4	0.0	0.0	9925.9	570.00	1297.4
38	0.0	4.98047E-07	6.48667E-04	0.0	1.3388	3665.4	428.81	1.2831
	1.4000	4.98047E-03	1302.4	0.0	0.0	9925.9	570.00	1302.4
39	0.0	4.94938E-07	6.47063E-04	0.0	1.3313	3633.5	427.74	1.2896
	1.4000	4.94938E-03	1307.4	0.0	0.0	9925.9	570.00	1307.4
40	0.0	4.91897E-07	6.45463E-04	0.0	1.3240	3602.2	426.68	1.2959

	1.4000	4.91897E-03	1312.2	0.0	0.0	9925.9	570.00	1312.2
41	0.0	4.88914E-07	6.43865E-04	0.0	1.3169	3571.7	425.64	1.3022
	1.4000	4.88913E-03	1316.9	0.0	0.0	9925.9	570.00	1316.9
42	0.0	4.85990E-07	6.42272E-04	0.0	1.3099	3541.8	424.62	1.3084
	1.4000	4.85989E-03	1321.6	0.0	0.0	9925.9	570.00	1321.6
43	0.0	4.83121E-07	6.40582E-04	0.0	1.3030	3512.6	423.62	1.3144
	1.4000	4.83121E-03	1326.1	0.0	0.0	9925.9	570.00	1326.1
44	0.0	4.80297E-07	6.39092E-04	0.0	1.2962	3483.9	422.63	1.3204
	1.4000	4.80297E-03	1330.6	0.0	0.0	9925.9	570.00	1330.6
45	0.0	4.77533E-07	6.37511E-04	0.0	1.2895	3455.8	421.65	1.3263
	1.4000	4.77533E-03	1335.0	0.0	0.0	9925.9	570.00	1335.0
46	0.0	4.74815E-07	6.35935E-04	0.0	1.2829	3428.3	420.69	1.3321
	1.4000	4.74815E-03	1339.3	0.0	0.0	9925.9	570.00	1339.3
47	0.0	4.72146E-07	6.34364E-04	0.0	1.2765	3401.4	419.74	1.3379
	1.4000	4.72146E-03	1343.6	0.0	0.0	9925.9	570.00	1343.6
48	0.0	4.69521E-07	6.32795E-04	0.0	1.2702	3374.9	418.81	1.3435
	1.4000	4.69520E-03	1347.7	0.0	0.0	9925.9	570.00	1347.7
49	0.0	4.66938E-07	6.31233E-04	0.0	1.2639	3349.0	417.89	1.3491
	1.4000	4.66938E-03	1351.9	0.0	0.0	9925.9	570.00	1351.9
50	0.0	4.64395E-07	6.29674E-04	0.0	1.2576	3323.5	416.97	1.3546
	1.4000	4.64395E-03	1355.9	0.0	0.0	9925.9	570.00	1355.9

WALL ITERATION NO= 0

STREAMLINE #	W1 CP/CL	DENSITY	W2 U	W3 V	W4 FLOW ANGLE	P-STAT P-STAT	TEMPER T-STAT	MACH NO VELOCITY
1	100.00 1.4000	2.65403E-02 9.77844E-03	9.3196 351.15	-4.1086 -194.51	65468. -23.749	9560.6 10100.	557.75 570.00	0.33139 382.64
2	100.00 1.4000	2.59820E-02 9.75110E-03	9.5179 366.33	-4.1879 -161.18	64139. -23.749	9297.2 10100.	556.67 570.00	0.34603 400.22
3	100.00 1.4000	2.54147E-02 9.67858E-03	9.7211 382.51	-4.2773 -166.30	62790. -23.749	9227.0 10100.	555.46 570.00	0.36173 417.49
4	100.00 1.4000	2.48366E-02 9.62026E-03	9.9288 399.76	-4.3687 -175.98	61420. -23.749	9149.3 10100.	554.12 570.00	0.37850 436.78
5	100.00 1.4000	2.42657E-02 9.55496E-03	10.142 418.32	-4.4628 -184.06	60322. -23.749	9042.5 10100.	552.62 570.00	0.39661 457.02
6	100.00 1.4000	2.36435E-02 9.48159E-03	10.362 438.30	-4.5592 -192.85	58993. -23.749	8965.2 10100.	550.91 570.00	0.41620 478.86
7	100.00 1.4000	2.30198E-02 9.39892E-03	10.587 458.89	-4.6581 -202.35	57138. -23.749	8855.9 10100.	548.99 570.00	0.43746 502.44
8	100.00 1.4000	2.23778E-02 9.30469E-03	10.819 482.45	-4.7602 -212.72	55622. -23.749	8731.9 10100.	546.78 570.00	0.46080 528.18
9	100.00 1.4000	2.17114E-02 9.19661E-03	11.058 509.30	-4.8655 -224.09	54080. -23.749	8590.2 10100.	544.23 570.00	0.48658 556.42
10	100.00 1.4000	2.10164E-02 9.07169E-03	11.304 537.84	-4.9735 -236.65	52437. -23.749	8427.3 10100.	541.26 570.00	0.51325 587.60
11	100.00 1.4000	2.02812E-02 8.92461E-03	11.558 568.89	-5.0856 -250.75	50725. -23.749	8236.7 10100.	537.73 570.00	0.54774 622.62
12	100.00 1.4000	1.94964E-02 8.74908E-03	11.821 606.31	-5.2012 -266.78	48995. -23.749	8010.7 10100.	533.48 570.00	0.58507 662.41
13	100.00 1.4000	1.86376E-02 8.53294E-03	12.094 648.90	-5.3214 -285.52	46921. -23.749	7735.1 10100.	528.17 570.00	0.62931 709.94
14	100.00 1.4000	1.76668E-02 8.25554E-03	12.378 700.64	-5.4466 -308.28	44687. -23.749	7385.3 10100.	521.23 570.00	0.68399 765.46
15	100.00 1.4000	1.66423E-02 7.86882E-03	12.675 758.51	-5.5768 -338.15	41946. -23.749	6905.6 10100.	511.32 570.00	0.73748 839.62
16	100.00 1.4000	1.54654E-02 7.14283E-03	12.993 886.51	-5.7170 -390.11	37806. -23.749	6030.6 10100.	491.90 570.00	0.89097 968.64
17	100.00 1.4000	1.32385E-02 6.59450E-03	13.745 1038.3	-5.8654 -214.55	34304. -11.675	5343.4 10100.	476.46 570.00	0.96082 1060.2
18	100.00 1.4000	1.18455E-02 6.18455E-03	13.891 1370.9	-6.37098 -31324.	4607.6 -31324.	455.50 -31324.	455.50 -31324.	1.1211

	1.4000	5.49375E-03	1172.5	31.313	1.5299	10100.	570.00	1172.9
19	100.00 1.4000	1.17238E-02 5.42443E-03	13.876 1193.9	0.36754 31.606	31020. 1.5299	4531.9 10100.	451.35 570.00	1.1543 1193.8
20	100.00 1.4000	1.16111E-02 5.76078E-03	13.857 1193.5	0.37009 31.874	30762. 1.5299	4442.7 10100.	451.36 570.00	1.1466 1193.9
21	100.00 1.4000	1.15070E-02 5.70158E-03	13.840 1202.8	0.36964 32.123	30525. 1.5299	4398.7 10100.	449.50 570.00	1.1577 1203.2
22	100.00 1.4000	1.14101E-02 5.64605E-03	13.823 1211.5	0.36919 32.356	30300. 1.5299	4378.8 10100.	447.74 570.00	1.1684 1211.9
23	100.00 1.4000	1.13140E-02 5.59358E-03	13.806 1219.8	0.36873 32.576	30091. 1.5299	4362.4 10100.	446.07 570.00	1.1786 1220.2
24	100.00 1.4000	1.12327E-02 5.54354E-03	13.789 1227.6	0.36828 32.786	29892. 1.5299	4328.9 10100.	444.47 570.00	1.1883 1228.0
25	100.00 1.4000	1.11511E-02 5.49600E-03	13.772 1235.1	0.36782 32.985	29704. 1.5299	4178.2 10100.	442.95 570.00	1.1976 1235.9
26	100.00 1.4000	1.10733E-02 5.44904E-03	13.755 1242.2	0.36736 33.176	29525. 1.5299	4129.8 10100.	441.47 570.00	1.2065 1242.6
27	100.00 1.4000	1.09988E-02 5.40667E-03	13.738 1249.0	0.36691 33.359	29355. 1.5299	4095.5 10100.	440.05 570.00	1.2151 1249.3
28	100.00 1.4000	1.09274E-02 5.36449E-03	13.721 1255.6	0.36645 33.535	29186. 1.5299	4038.9 10100.	438.67 570.00	1.2235 1256.1
29	100.00 1.4000	1.08587E-02 5.32374E-03	13.704 1262.0	0.36599 33.705	29030. 1.5299	3996.0 10100.	437.34 570.00	1.2315 1262.5
30	100.00 1.4000	1.07924E-02 5.28431E-03	13.687 1268.2	0.36553 33.870	28877. 1.5299	3954.7 10100.	436.04 570.00	1.2394 1268.8
31	100.00 1.4000	1.07284E-02 5.24609E-03	13.670 1274.1	0.36508 34.029	28729. 1.5299	3914.7 10100.	434.78 570.00	1.2470 1274.6
32	100.00 1.4000	1.06664E-02 5.20966E-03	13.652 1279.9	0.36462 34.184	28589. 1.5299	3875.9 10100.	433.54 570.00	1.2545 1280.4
33	100.00 1.4000	1.06064E-02 5.17285E-03	13.635 1285.6	0.36416 34.334	28448. 1.5299	3836.4 10100.	432.34 570.00	1.2618 1286.0
34	100.00 1.4000	1.05481E-02 5.13772E-03	13.618 1291.1	0.36371 34.481	28311. 1.5299	3801.9 10100.	431.16 570.00	1.2689 1291.3
35	100.00 1.4000	1.04914E-02 5.10344E-03	13.601 1296.4	0.36325 34.624	28180. 1.5299	3766.9 10100.	430.01 570.00	1.2758 1296.9
36	100.00 1.4000	1.04363E-02 5.07001E-03	13.584 1301.6	0.36280 34.761	28052. 1.4299	3732.0 10100.	428.88 570.00	1.2827 1302.1
37	100.00 1.4000	1.03823E-02 5.03723E-03	13.567 1306.7	0.36236 34.900	27927. 1.5299	3698.2 10100.	427.77 570.00	1.2894 1307.2
38	100.00 1.4000	1.03299E-02 5.00524E-03	13.550 1311.7	0.36189 35.033	27805. 1.5299	3665.4 10100.	426.68 570.00	1.2959 1312.2
39	100.00 1.4000	1.02788E-02 4.97409E-03	13.533 1316.8	0.36143 35.163	27686. 1.5299	3633.5 10100.	425.61 570.00	1.3024 1317.1
40	100.00	1.02289E-02	13.516	0.36098	27570.	3602.2	424.57	1.3087

	1.4000	4.94348E-03	1321.4	35.290	1.5299	10100.	570.00	1321.8
41	100.00	1.01800E-02	13.499	0.36753	27457.	3571.7	425.63	1.3190
	1.4000	4.91350E-03	1326.1	35.415	1.5299	10100.	570.00	1326.5
42	100.00	1.01322E-02	13.482	0.36009	27345.	3541.8	422.52	1.3211
	1.4000	4.88412E-03	1330.4	35.538	1.5299	10100.	570.00	1331.1
43	100.00	1.00854E-02	13.465	0.35463	27238.	3512.6	421.52	1.3271
	1.4000	4.85529E-03	1335.1	35.658	1.5299	10100.	570.00	1335.6
44	100.00	1.00394E-02	13.449	0.35018	27129.	3483.9	420.53	1.3331
	1.4000	4.82690E-03	1339.6	35.776	1.5299	10100.	570.00	1340.0
45	100.00	9.99452E-03	13.432	0.34573	27024.	3455.8	419.56	1.3390
	1.4000	4.79913E-03	1343.9	35.892	1.5299	10100.	570.00	1344.4
46	100.00	9.95043E-03	13.415	0.34128	26922.	3428.3	418.61	1.3447
	1.4000	4.77181E-03	1348.2	36.006	1.5299	10100.	570.00	1348.7
47	100.00	9.90721E-03	13.398	0.33763	26821.	3401.4	417.66	1.3504
	1.4000	4.74499E-03	1352.4	36.118	1.5299	10100.	570.00	1352.8
48	100.00	9.86477E-03	13.381	0.33398	26722.	3374.9	416.73	1.3561
	1.4000	4.71801E-03	1356.5	36.228	1.5299	10100.	570.00	1357.0
49	100.00	9.82359E-03	13.365	0.33034	26624.	3348.0	415.81	1.3616
	1.4000	4.69260E-03	1360.5	36.337	1.5299	10100.	570.00	1361.0
50	100.00	9.78203E-03	13.348	0.32669	26529.	3323.5	414.91	1.3671
	1.4000	4.66704E-03	1364.5	36.444	1.5299	10100.	570.00	1365.0

PRINTOUT OF CONSTANT PRESSURE PLOT VALVES

ISOBAR = 65.300(PSTIA)

9360.0PSFA

1	1.009	0.000	2	1.009	0.136	3	1.009	0.271	4	1.009	0.407	5	1.009	0.543
6	1.009	0.679	7	1.009	0.814	8	1.009	0.950	9	1.009	1.086	10	1.009	1.221
11	1.009	1.357	12	1.009	1.493	13	1.009	1.628	14	1.009	1.764	15	1.009	1.900
16	1.009	2.035	17	1.009	2.171	18	1.009	2.307	19	1.009	2.442	20	1.009	2.578
21	1.009	2.714												

ISOBAR = 60.000(PSTIA)

8640.0PSFA

1	0.649	0.000	2	0.649	0.119	3	0.649	0.238	4	0.649	0.357	5	0.649	0.475
6	0.649	0.594	7	0.649	0.713	8	0.649	0.832	9	0.649	0.951	10	0.649	1.069
11	0.649	1.188	12	0.649	1.307	13	0.649	1.426	14	0.649	1.545	15	0.649	1.663
16	0.649	1.782	17	0.649	1.901	18	0.649	2.020	19	0.649	2.139	20	0.649	2.258
21	0.649	2.376												

ISOBAR = 55.000(PSTIA)

7920.0PSFA

1	12.329	0.000	2	12.329	0.111	3	12.329	0.221	4	12.329	0.332	5	12.329	0.443
6	12.329	0.554	7	12.329	0.664	8	12.329	0.775	9	12.329	0.886	10	12.329	0.996
11	12.329	1.107	12	12.329	1.218	13	12.329	1.328	14	12.329	1.439	15	12.329	1.550
16	12.329	1.660	17	12.329	1.771	18	12.329	1.882	19	12.329	1.992	20	12.329	2.103
21	12.329	2.214												

ISOBAR = 50.000(PSTIA)

7200.0PSFA

1	14.386	0.000	2	14.386	0.106	3	14.386	0.212	4	14.386	0.319	5	14.386	0.425
6	14.386	0.531	7	14.386	0.637	8	14.386	0.743	9	14.386	0.849	10	14.386	0.955
11	14.386	1.062	12	14.386	1.168	13	14.386	1.274	14	14.386	1.380	15	14.386	1.486
16	14.386	1.592	17	14.386	1.698	18	14.386	1.805	19	14.386	1.911	20	14.386	2.017
21	14.386	2.123												

ISOBAR = 45.000(PSTIA)

6480.0PSFA

1	15.486	0.000	2	15.486	0.104	3	15.486	0.208	4	15.486	0.311	5	15.486	0.415
6	15.486	0.516	7	15.486	0.622	8	15.486	0.726	9	15.486	0.830	10	15.486	0.934
11	15.486	1.037	12	15.486	1.141	13	15.486	1.245	14	15.486	1.348	15	15.486	1.452
16	15.486	1.556	17	15.486	1.660	18	15.486	1.763	19	15.486	1.867	20	15.486	1.971
21	15.486	2.074												

ISOBAR = 40.000(PSTIA)

5760.0PSFA

1	16.424	0.000	2	16.424	0.102	3	16.424	0.203	4	16.424	0.305	5	16.424	0.407
6	16.424	0.508	7	16.424	0.610	8	16.424	0.712	9	16.424	0.813	10	16.424	0.915
11	16.424	1.017	12	16.424	1.118	13	16.424	1.220	14	16.424	1.321	15	16.424	1.423
16	16.424	1.525	17	16.424	1.626	18	16.424	1.728	19	16.424	1.830	20	16.424	1.931
21	16.424	2.035												

ISOBAR = 35.000(P51A) 5040.0PSFA

1	17.449	0.000	2	17.449	0.101	3	17.449	0.201	4	17.449	0.301	5	17.449	0.402
6	17.449	0.502	7	17.449	0.603	8	17.449	0.703	9	17.449	0.804	10	17.449	0.904
11	17.449	1.004	12	17.449	1.105	13	17.449	1.205	14	17.449	1.306	15	17.449	1.406
16	17.449	1.507	17	17.449	1.607	18	17.449	1.707	19	17.449	1.808	20	17.449	1.908
21	17.449	2.009												

ISOBAR = 30.000(P51A) 4320.0PSFA

1	22.333	0.000	2	22.333	0.101	3	22.333	0.202	4	22.333	0.303	5	22.333	0.404
6	22.333	0.506	7	22.333	0.607	8	22.333	0.708	9	22.333	0.809	10	22.333	0.910
11	22.333	1.011	12	22.333	1.112	13	22.333	1.213	14	22.333	1.314	15	22.333	1.415
16	22.333	1.516	17	22.333	1.617	18	22.333	1.719	19	22.333	1.820	20	22.333	1.921
21	22.333	2.022												

ISOBAR = 25.000(P51A) 3600.0PSFA

1	40.073	0.000	2	40.073	0.104	3	40.073	0.207	4	40.073	0.310	5	40.073	0.414
6	40.073	0.517	7	40.073	0.621	8	40.073	0.724	9	40.073	0.828	10	40.073	0.931
11	40.073	1.035	12	40.073	1.138	13	40.073	1.242	14	40.073	1.345	15	40.073	1.448
16	40.073	1.552	17	40.073	1.656	18	40.073	1.759	19	40.073	1.862	20	40.073	1.966
21	40.073	2.069												

RETURN FROM "ISOBAR"

AXIS ITERATION NO= 300

STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STATG	T-STATG	VELOCITY
1	0.0 1.4000	9.77288E-07 9.77288E-03	3.11994E-04 319.25	0.0 0.0	2.4044 9925.9	9418.4 570.00	0.37484 319.25
2	0.0 1.4000	9.69795E-07 9.69795E-03	3.93210E-04 355.73	0.0 0.0	2.3803 9925.9	959.07 570.00	0.31560 365.73
3	0.0 1.4000	9.02328E-07 9.02328E-03	5.05508E-04 960.23	0.0 0.0	2.2473 9925.9	8422.8 570.00	0.49006 560.23
4	0.0 1.4000	9.21883E-07 9.21883E-03	4.67876E-04 557.52	0.0 0.0	2.2886 9925.9	8679.9 570.00	0.44206 507.52
5	0.0 1.4000	9.59347E-07 9.59347E-03	3.72154E-04 357.72	0.0 0.0	2.3681 9925.9	9184.0 570.00	0.39580 387.72
6	0.0 1.4000	9.63007E-07 9.63007E-03	3.62272E-04 276.19	0.0 0.0	2.3747 9925.9	9226.3 570.00	0.32482 376.19
7	0.0 1.4000	9.91036E-07 9.91036E-03	3.91836E-04 418.32	0.0 0.0	2.3498 9925.9	9066.2 570.00	0.36210 418.32
8	0.0 1.4000	9.35288E-07 9.35288E-03	4.18101E-04 468.41	0.0 0.0	2.3168 9925.9	8896.7 570.00	0.40682 468.41
9	0.0 1.4000	9.24107E-07 9.24107E-03	4.63142E-04 501.22	0.0 0.0	2.2833 9925.9	8708.0 570.00	0.43636 501.22
10	0.0 1.4000	9.15118E-07 9.15118E-03	4.91602E-04 526.27	0.0 0.0	2.2743 9925.9	8590.5 570.00	0.45907 526.27
11	0.0 1.4000	9.06003E-07 9.06003E-03	4.98894E-04 590.69	0.0 0.0	2.2551 9925.9	8470.9 570.00	0.48150 590.69
12	0.0 1.4000	8.95714E-07 8.95714E-03	5.16926E-04 577.11	0.0 0.0	2.2333 9925.9	8336.5 570.00	0.50558 577.11
13	0.0 1.4000	8.84519E-07 8.84519E-03	5.34933E-04 609.77	0.0 0.0	2.2095 9925.9	8191.0 570.00	0.53114 609.77
14	0.0 1.4000	8.72086E-07 8.72086E-03	5.53172E-04 634.31	0.0 0.0	2.1830 9925.9	8030.3 570.00	0.55866 634.31
15	0.0 1.4000	8.59710E-07 8.59710E-03	5.69681E-04 662.64	0.0 0.0	2.1565 9925.9	7871.2 570.00	0.58529 662.64
16	0.0 1.4000	8.46143E-07 8.46143E-03	5.86070E-04 692.64	0.0 0.0	2.1274 9925.9	7697.9 570.00	0.61373 692.64
17	0.0 1.4000	8.32464E-07 8.32464E-03	6.02558E-04 737.77	0.0 0.0	2.0815 9925.9	7428.2 570.00	0.65706 737.77
18	0.0 1.4000	8.18472E-07 8.18472E-03	6.19110E-04 780.00	0.0 0.0	2.0568 9925.9	7285.0 570.00	0.69722 780.00

	1.4000	8.13472E-03	761.10	0.0	0.0	9925.9	570.00	761.10
19	0.0	7.99113E-07	6.11129E-04	0.0	2.0256	7105.6	518.08	0.70794
	1.4000	7.99113E-03	761.79	0.0	0.0	9925.9	570.00	761.79
20	0.0	7.53794E-07	6.60350E-04	0.0	1.9262	6547.9	506.12	0.79439
	1.4000	7.53794E-03	876.03	0.0	0.0	9925.9	570.00	876.03
21	0.0	6.93237E-07	6.81970E-04	0.0	1.7913	5825.5	489.45	0.90713
	1.4000	6.93237E-03	983.75	0.0	0.0	9925.9	570.00	983.75
22	0.0	6.10935E-07	6.85078E-04	0.0	1.6030	4674.6	465.20	1.0613
	1.4000	6.10935E-03	1122.1	0.0	0.0	9925.9	570.00	1122.1
23	0.0	5.80644E-07	6.74676E-04	0.0	1.5338	4543.8	455.95	1.1189
	1.4000	5.80644E-03	1170.6	0.0	0.0	9925.9	570.00	1170.6
24	0.0	5.56600E-07	6.73023E-04	0.0	1.4775	4282.6	448.30	1.1650
	1.4000	5.56600E-03	1206.2	0.0	0.0	9925.9	570.00	1206.2
25	0.0	5.35879E-07	6.65700E-04	0.0	1.4288	4061.1	441.55	1.2060
	1.4000	5.35879E-03	1242.3	0.0	0.0	9925.9	570.00	1242.3
26	0.0	5.17741E-07	6.58115E-04	0.0	1.3858	3870.0	435.31	1.2426
	1.4000	5.17741E-03	1271.1	0.0	0.0	9925.9	570.00	1271.1
27	0.0	5.01559E-07	6.50444E-04	0.0	1.3472	3701.7	430.01	1.2758
	1.4000	5.01559E-03	1296.8	0.0	0.0	9925.9	570.00	1296.8
28	0.0	4.86843E-07	6.42740E-04	0.0	1.3119	3550.5	424.92	1.3086
	1.4000	4.86843E-03	1320.2	0.0	0.0	9925.9	570.00	1320.2
29	0.0	4.73212E-07	6.34993E-04	0.0	1.2791	3412.1	425.12	1.3396
	1.4000	4.73212E-03	1361.9	0.0	0.0	9925.9	570.00	1361.9
30	0.0	4.60378E-07	6.27171E-04	0.0	1.2480	3283.3	415.53	1.3636
	1.4000	4.60378E-03	1382.3	0.0	0.0	9925.9	570.00	1382.3
31	0.0	4.48170E-07	6.19258E-04	0.0	1.2183	3162.0	411.68	1.3903
	1.4000	4.48170E-03	1381.7	0.0	0.0	9925.9	570.00	1381.7
32	0.0	4.36519E-07	6.11281E-04	0.0	1.1899	3047.6	406.78	1.4164
	1.4000	4.36519E-03	1400.4	0.0	0.0	9925.9	570.00	1400.4
33	0.0	4.25452E-07	6.03323E-04	0.0	1.1628	2939.9	402.62	1.4418
	1.4000	4.25452E-03	1418.1	0.0	0.0	9925.9	570.00	1418.1
34	0.0	4.15082E-07	5.95530E-04	0.0	1.1372	2840.1	398.66	1.4659
	1.4000	4.15082E-03	1434.7	0.0	0.0	9925.9	570.00	1434.7
35	0.0	4.05578E-07	5.88104E-04	0.0	1.1136	2749.5	394.99	1.4886
	1.4000	4.05578E-03	1450.0	0.0	0.0	9925.9	570.00	1450.0
36	0.0	3.97179E-07	5.81318E-04	0.0	1.0929	2670.1	391.70	1.5087
	1.4000	3.97179E-03	1463.6	0.0	0.0	9925.9	570.00	1463.6
37	0.0	3.90173E-07	5.74696E-04	0.0	1.0735	2604.4	388.92	1.5258
	1.4000	3.90173E-03	1475.0	0.0	0.0	9925.9	570.00	1475.0
38	0.0	3.84435E-07	5.71047E-04	0.0	1.0625	2555.6	386.82	1.5388
	1.4000	3.84435E-03	1483.5	0.0	0.0	9925.9	570.00	1483.5
39	0.0	3.81844E-07	5.68678E-04	0.0	1.0549	2527.4	385.54	1.5483
	1.4000	3.81844E-03	1488.4	0.0	0.0	9925.9	570.00	1488.4
40	0.0	3.81558E-07	5.68137E-04	0.0	1.0550	2524.3	385.44	1.5482

	1.4000	3.81958E-23	1489.0	0.0	0.0	9925.9	570.00	1489.0
41	0.0	3.84490E-07	5.70666E-04	0.0	1.0614	2351.4	396.64	1.4569
	1.4000	3.84490E-03	1484.2	0.0	0.0	9925.9	570.00	1484.2
42	0.0	3.91224E-07	5.70380E-04	0.0	1.0781	2614.3	399.34	1.5232
	1.4000	3.91224E-03	1473.3	0.0	0.0	9925.9	570.00	1473.3
43	0.0	4.02116E-07	5.65327E-04	0.0	1.1022	2716.6	395.63	1.4467
	1.4000	4.02116E-03	1455.6	0.0	0.0	9925.9	570.00	1455.6
44	0.0	4.16974E-07	5.96970E-04	0.0	1.1419	2858.3	399.39	1.4615
	1.4000	4.16974E-03	1431.7	0.0	0.0	9925.9	570.00	1431.7
45	0.0	4.34911E-07	6.10148E-04	0.0	1.1840	3031.9	406.18	1.4201
	1.4000	4.34911E-03	1402.9	0.0	0.0	9925.9	570.00	1402.9
46	0.0	4.53909E-07	6.23035E-04	0.0	1.2323	3218.9	413.18	1.3776
	1.4000	4.53909E-03	1372.6	0.0	0.0	9925.9	570.00	1372.6
47	0.0	4.71829E-07	6.34175E-04	0.0	1.2797	3398.2	414.63	1.3385
	1.4000	4.71829E-03	1344.1	0.0	0.0	9925.9	570.00	1344.1
48	0.0	4.84665E-07	6.42642E-04	0.0	1.3115	3548.7	424.86	1.3069
	1.4000	4.84665E-03	1320.5	0.0	0.0	9925.9	570.00	1320.5
49	0.0	5.01328E-07	6.50322E-04	0.0	1.3446	3699.3	426.94	1.2783
	1.4000	5.01328E-03	1297.2	0.0	0.0	9925.9	570.00	1297.2
50	0.0	5.15362E-07	6.57322E-04	0.0	1.3816	3851.6	434.92	1.2462
	1.4000	5.15362E-03	1273.6	0.0	0.0	9925.9	570.00	1273.6

BALL ITERATION NUM= 300								
STREAMLINE #	W1	W2	W3	W4	P-STAT	TEMP(R)	MACH NO	
CP/CV	DENSITY	U	V	FLOW ANG(D)	P-STAT	T-STAT	VELOCITY	
1	100.00 1.4000	2.66573E-02 9.82156E-03	8.4775 336.78	-3.9501 -168.18	65712. -23.749	9418.4 10100.	558.73 570.00	0.31753 367.93
2	100.00 1.4000	2.66336E-02 9.97517E-03	7.4574 280.00	-3.2813 -123.20	65495. -23.749	9418.4 9893.4	557.13 557.92	0.26607 309.91
3	100.00 1.4000	2.61427E-02 9.95610E-03	7.5194 287.63	-3.3085 -126.56	64307. -23.749	9418.4 9910.2	551.18 559.40	0.27306 314.24
4	100.00 1.4000	2.53309E-02 9.81170E-03	8.6154 340.12	-3.7908 -149.65	62452. -23.749	9405.2 10100.	558.51 570.00	0.32076 371.58
5	100.00 1.4000	2.43386E-02 9.59132E-03	9.9318 408.08	-4.3700 -179.56	60218. -23.749	9110.8 10100.	553.66 570.00	0.36661 445.84
6	100.00 1.4000	2.34896E-02 9.42108E-03	10.669 454.20	-4.6943 -199.85	58275. -23.749	8880.2 10100.	549.50 570.00	0.43184 496.22
7	100.00 1.4000	2.25472E-02 9.25330E-03	9.8002 418.86	-4.5121 -164.30	57925. -23.749	9059.9 10100.	552.57 570.00	0.39714 457.61
8	100.00 1.4000	2.25469E-02 9.54133E-03	9.6857 422.09	-4.2617 -155.72	56819. -23.749	9044.4 10100.	552.30 570.00	0.40030 461.13
9	100.00 1.4000	2.22937E-02 9.44329E-03	9.4976 448.42	-4.3987 -197.31	55289. -23.749	8914.5 10100.	559.02 570.00	0.47615 489.91
10	100.00 1.4000	2.16109E-02 9.32832E-03	10.322 477.64	-4.5418 -210.16	53695. -23.749	8763.0 10100.	547.33 570.00	0.45503 521.83
11	100.00 1.4000	2.06404E-02 9.21472E-03	10.576 509.05	-4.6534 -222.22	52125. -23.749	8615.9 10100.	544.66 570.00	0.48233 551.78
12	100.00 1.4000	2.02344E-02 9.08025E-03	10.844 535.93	-4.7714 -235.81	50479. -23.749	8438.4 10100.	541.46 570.00	0.51332 583.51
13	100.00 1.4000	1.94776E-02 8.91752E-03	11.130 571.40	-4.8970 -251.42	48721. -23.749	8227.5 10100.	537.56 570.00	0.54428 624.27
14	100.00 1.4000	1.85931E-02 8.68835E-03	11.500 618.51	-5.0608 -272.14	46686. -23.749	7933.0 10100.	531.99 570.00	0.59767 679.74
15	100.00 1.4000	1.76190E-02 8.40440E-03	11.855 672.87	-5.2163 -296.96	44451. -23.749	7474.4 10100.	525.02 570.00	0.65450 739.12
16	100.00 1.4000	1.61041E-02 7.84915E-03	12.430 771.86	-5.4692 -339.62	41022. -23.749	6891.4 10100.	510.81 570.00	0.76116 843.27
17	100.00 1.4000	6.68840E-03 4.32797E-33	12.068 1388.9	-2.4936 -287.01	23766. -11.675	2490.4 10100.	402.57 570.00	1.4420 1418.3
18	100.00	7.23681E-03	11.101	0.29449	20134.	2310.8	373.99	1.40188

	1.4000	3.60008E-03	1534.0	40.970	1.5299	10100.	570.00	1534.6
19	100.00	8.7894E-03	12.408	0.33139	24002.	3028.0	404.02	1.4332
	1.4000	4.36685E-03	1411.6	37.701	1.5299	10100.	570.00	1412.1
20	100.00	8.47215E-03	12.178	0.32524	23273.	2870.6	397.90	1.4706
	1.4000	4.20342E-03	1437.4	38.340	1.5299	10100.	570.00	1437.9
21	100.00	8.45440E-03	12.172	0.32509	23184.	2857.1	397.36	1.4730
	1.4000	4.18929E-03	1439.7	38.449	1.5299	10100.	570.00	1440.2
22	100.00	8.73862E-03	12.395	0.33103	23896.	2986.6	402.43	1.4428
	1.4000	4.32412E-03	1417.4	37.881	1.5299	10100.	570.00	1418.9
23	100.00	9.06818E-03	12.638	0.33753	24696.	3134.7	408.22	1.4077
	1.4000	4.48126E-03	1393.7	37.221	1.5299	10100.	570.00	1394.2
24	100.00	9.46581E-03	12.872	0.34377	25522.	3298.4	414.01	1.3728
	1.4000	4.64193E-03	1368.5	36.549	1.5299	10100.	570.00	1369.0
25	100.00	9.72869E-03	13.081	0.34934	26308.	3451.6	419.42	1.3398
	1.4000	4.79496E-03	1344.6	35.910	1.5299	10100.	570.00	1345.0
26	100.00	1.00121E-02	13.254	0.35357	26995.	3586.6	424.04	1.3119
	1.4000	4.92812E-03	1323.8	35.355	1.5299	10100.	570.00	1324.2
27	100.00	1.02384E-02	13.348	0.35758	27542.	3693.7	427.62	1.2903
	1.4000	5.03284E-03	1307.4	34.918	1.5299	10100.	570.00	1307.9
28	100.00	1.03996E-02	13.479	0.35999	27932.	3768.5	430.07	1.2755
	1.4000	5.10537E-03	1296.1	34.616	1.5299	10100.	570.00	1296.6
29	100.00	1.04943E-02	13.538	0.36156	28157.	3810.6	431.44	1.2672
	1.4000	5.14409E-03	1289.8	34.446	1.5299	10100.	570.00	1290.2
30	100.00	1.05353E-02	13.568	0.36236	28264.	3823.4	431.86	1.2647
	1.4000	5.15844E-03	1287.8	34.395	1.5299	10100.	570.00	1288.3
31	100.00	1.05266E-02	13.578	0.36254	28248.	3812.8	431.49	1.2669
	1.4000	5.14742E-03	1289.5	34.441	1.5299	10100.	570.00	1290.0
32	100.00	1.04812E-02	13.563	0.36224	28143.	3782.8	430.51	1.2728
	1.4000	5.11650E-03	1294.1	34.581	1.5299	10100.	570.00	1294.5
33	100.00	1.04049E-02	13.538	0.36157	27875.	3736.8	428.11	1.2813
	1.4000	5.07674E-03	1300.6	34.735	1.5299	10100.	570.00	1301.0
34	100.00	1.03194E-02	13.502	0.36061	27764.	3687.0	427.40	1.2916
	1.4000	5.02634E-03	1328.4	34.945	1.5299	10100.	570.00	1308.9
35	100.00	1.02181E-02	13.439	0.35945	27525.	3629.8	425.49	1.3031
	1.4000	4.97051E-03	1317.2	35.178	1.5299	10100.	570.00	1317.6
36	100.00	1.01104E-02	13.410	0.35814	27270.	3569.8	423.47	1.3139
	1.4000	4.91169E-03	1326.3	35.423	1.5299	10100.	570.00	1326.8
37	100.00	9.99940E-03	13.337	0.35672	27006.	3508.7	421.39	1.3279
	1.4000	4.85144E-03	1315.7	35.674	1.5299	10100.	570.00	1316.2
38	100.00	9.88786E-03	13.301	0.35523	26741.	3447.7	419.28	1.3407
	1.4000	4.79110E-03	1345.2	35.926	1.5299	10100.	570.00	1345.6
39	100.00	9.77727E-03	13.243	0.35360	26477.	3387.7	417.18	1.3553
	1.4000	4.73136E-03	1354.5	36.175	1.5299	10100.	570.00	1354.0
40	100.00	9.66651E-03	13.185	0.35213	26217.	3329.0	415.10	1.3659

	1.4000	4.67268E-03	1363.7	36.420	1.5299	10100.	570.00	1364.2
41	100.00	9.56221E-03	13.126	0.35055	25962.	3272.0	413.06	1.3789
	1.4000	4.61533E-03	1372.6	36.660	1.5299	10100.	570.00	1373.1
42	100.00	9.43874E-03	11.066	0.34897	25714.	3216.7	411.05	1.3905
	1.4000	4.55948E-03	1381.4	36.893	1.5299	10100.	570.00	1381.9
43	100.00	9.35806E-03	13.001	0.34738	25472.	3163.1	409.09	1.4024
	1.4000	4.50513E-03	1389.9	37.121	1.5299	10100.	570.00	1390.4
44	100.00	9.26035E-03	12.948	0.34580	25236.	3111.3	407.16	1.4141
	1.4000	4.45233E-03	1398.2	37.342	1.5299	10100.	570.00	1398.7
45	100.00	9.16564E-03	12.889	0.34424	25009.	3061.3	405.28	1.4255
	1.4000	4.40127E-03	1406.2	37.557	1.5299	10100.	570.00	1406.7
46	100.00	9.07530E-03	12.832	0.34271	24790.	3013.8	403.47	1.4366
	1.4000	4.35214E-03	1414.6	37.763	1.5299	10100.	570.00	1414.3
47	100.00	8.98784E-03	12.778	0.34120	24576.	2967.8	401.70	1.4473
	1.4000	4.30467E-03	1421.6	37.963	1.5299	10100.	570.00	1421.9
48	100.00	8.90154E-03	12.719	0.33968	24369.	2922.8	399.95	1.4580
	1.4000	4.25787E-03	1428.8	38.160	1.5299	10100.	570.00	1428.3
49	100.00	8.80041E-03	12.669	0.33782	24122.	2871.2	397.92	1.4684
	1.4000	4.20411E-03	1437.3	38.387	1.5299	10100.	570.00	1437.8
50	100.00	8.70058E-03	12.578	0.33760	23879.	2820.7	395.91	1.4828
	1.4000	4.15110E-03	1445.7	38.602	1.5374	10100.	570.00	1446.7

PRINTOUT OF CONSTANT PRESSURE PLOT VALUES

ISOBAR = 65.000(P51A)				9360.OPSFA										
1	1.378	0.000	2	1.118	0.136	3	4.875	0.127	4	5.315	0.126	5	1.086	0.271
6	4.805	0.255	7	5.207	0.253	8	1.074	0.407	9	4.547	0.384	10	5.131	0.380
11	1.070	0.542	12	3.935	2.517	13	5.094	0.597	14	1.059	0.678	15	5.943	0.646
16	5.492	0.633	17	1.052	0.614	18	3.958	0.775	19	5.120	0.760	20	1.050	0.949
21	4.237	0.930	22	5.260	0.854	23	1.058	1.085	24	4.468	1.017	25	6.058	0.996
26	1.076	1.220	27	4.927	1.143	28	6.084	1.120	29	1.297	1.355	30	4.978	1.269
31	6.114	1.244	32	1.190	1.488	33	2.019	1.602	34	3.362	1.696	35	5.471	1.624
36	3.197	1.965	37	3.131	2.096	38	3.122	2.227	39	3.142	2.358	40	3.245	2.484
41	4.153	2.275	42	2.000	1.308	43	3.000	1.688	44	4.000	0.455	45	4.000	0.873
46	4.000	2.556	47	5.000	0.095	48	5.000	1.276	49	6.000	0.964	50	6.000	1.261

ISGBAR = 66.000(P51A)				8640.OPSFA										
1	2.742	0.000	2	3.846	0.000	3	9.581	0.000	4	2.569	0.132	5	3.407	3.130
6	9.534	0.117	7	2.301	0.266	8	3.330	0.261	9	9.607	0.233	10	2.070	0.400
11	3.200	0.393	12	5.728	0.349	13	1.936	0.535	14	3.129	0.524	15	6.720	0.492
16	7.376	0.457	17	9.941	0.464	18	1.782	0.670	19	3.273	0.654	20	6.321	0.620
21	8.273	0.549	22	10.174	0.577	23	1.687	0.805	24	3.438	0.782	25	6.378	0.743
26	8.719	0.712	27	10.264	0.692	28	1.667	0.940	29	3.548	0.911	30	6.520	0.665
31	8.963	0.827	32	10.233	0.807	33	1.753	1.072	34	3.739	1.037	35	6.721	0.965
36	1.970	1.203	37	4.733	1.161	38	7.448	1.045	39	2.200	1.331	40	4.135	1.288
41	8.958	1.181	42	2.670	1.452	43	3.725	1.427	44	9.172	1.294	45	9.281	1.409
46	5.467	1.636	47	6.253	1.613	48	9.351	1.524	49	4.829	1.742	50	6.387	1.733
51	9.412	1.640	52	4.865	1.916	53	6.352	1.858	54	4.475	1.759	55	4.525	2.047
56	6.187	1.988	57	9.550	1.869	58	4.734	2.167	59	5.432	2.133	60	9.694	1.981
61	9.913	2.688	62	10.334	2.187	63	10.825	2.285	64	2.000	2.426	65	2.000	1.239
66	2.000	1.495	67	4.000	1.152	68	4.000	1.364	69	5.000	1.696	70	5.000	2.222
71	6.000	1.542	72	6.000	2.071	73	7.000	0.451	74	7.000	1.076	75	8.000	0.569
76	8.000	1.136	77	9.000	0.853	78	9.000	1.201	79	10.000	0.495	80	10.000	0.897
81	10.000	2.112												

ISOBAR = 55.300(P51A)				7920.OPSFA										
1	14.693	0.000	2	14.839	0.106	3	14.584	0.212	4	14.501	0.318	5	14.407	0.424
6	14.315	0.532	7	14.151	0.640	8	2.716	0.925	9	3.085	0.918	10	14.089	0.748
11	2.670	1.056	12	3.178	1.047	13	15.032	0.857	14	2.762	1.186	15	3.229	1.177
16	13.742	0.467	17	13.627	1.078	18	13.456	1.146	19	13.313	1.302	20	13.207	1.416
21	13.137	1.525	22	13.119	1.634	23	13.152	1.742	24	13.246	1.847	25	13.381	1.951
26	13.627	2.049	27	14.036	2.158	28	2.000	0.848	29	3.000	1.721	30	14.000	0.810
31	14.000	2.130												

ISOBAR = 50.000(P51A)				7200.OPSFA										
1	16.474	0.000	2	16.226	0.161	3	16.145	0.201	4	16.541	0.302	5	17.857	0.602
6	17.623	0.502	7	17.343	0.603	8	17.062	0.703	9	16.803	0.807	10	16.567	0.912
11	16.333	1.019	12	16.117	1.126	13	15.876	1.234	14	15.621	1.345	15	15.409	1.455
16	15.249	1.546	17	15.150	1.671	18	15.109	1.777	19	15.114	1.882	20	15.175	1.984

21	15.541	2.072	22	16.000	1.183	23	17.000	0.721	24	18.000	0.330
ISOBAK = 45.000(P51A) 6480.0PSFA											
1	20.094	0.000	2	19.999	0.101	3	19.906	0.202	4	19.839	0.302
5	19.607	0.304	6	19.432	0.604	7	19.213	0.705	8	19.005	0.805
11	18.249	1.005	12	17.932	1.106	13	17.461	1.205	14	17.028	1.305
15	16.437	1.524	16	16.270	1.632	17	16.150	1.738	18	16.049	1.845
21	16.103	2.047	22	16.000	2.127	23	16.000	1.954	24	16.000	1.912
26	16.000	0.807	27	20.000	0.076						
ISOBAK = 40.000(P51A) 5760.0PSFA											
1	21.067	0.000	2	20.976	0.101	3	20.947	0.202	4	20.894	0.303
5	20.856	0.504	6	20.512	0.605	7	20.241	0.706	8	20.017	0.806
11	19.371	1.007	12	19.080	1.107	13	18.716	1.207	14	18.274	1.307
16	17.335	1.506	17	17.003	1.606	18	16.552	1.716	19	16.522	1.826
21	16.289	2.039	22	17.000	1.607	23	18.000	1.375	24	19.000	1.132
26	21.000	0.000									
ISOBAK = 35.000(P51A) 5040.0PSFA											
1	21.826	0.000	2	21.968	0.101	3	21.858	0.202	4	21.822	0.303
5	21.674	0.505	6	21.562	0.606	7	21.257	0.707	8	20.925	0.807
11	20.372	1.008	12	19.959	1.109	13	19.695	1.209	14	19.279	1.309
16	18.336	1.508	17	17.809	1.608	18	17.418	1.707	19	16.996	1.807
21	16.473	2.031	22	17.000	1.605	23	18.000	1.563	24	19.000	1.370
26	21.000	0.774									
ISOBAK = 30.000(P51A) 4320.0PSFA											
1	23.857	0.000	2	23.869	0.101	3	23.855	0.203	4	23.775	0.304
5	23.460	0.506	6	23.398	0.607	7	23.385	0.709	8	23.179	0.810
11	22.543	1.011	12	21.921	1.111	13	21.223	1.211	14	20.722	1.311
16	19.653	1.511	17	19.422	1.610	18	18.224	1.709	19	17.645	1.808
21	16.658	2.023	22	17.000	1.911	23	18.000	1.734	24	19.000	1.597
26	21.000	1.240	27	22.000	1.097	28	23.000	0.883			
ISOBAK = 25.000(P51A) 3600.0PSFA											
1	27.673	0.000	2	27.341	0.000	3	27.664	0.102	4	28.338	0.105
5	28.465	0.206	6	27.629	0.305	7	27.021	0.314	8	27.601	0.407
11	27.532	0.509	12	27.385	0.611	13	27.277	0.712	14	27.094	0.814
16	26.650	1.017	17	26.320	1.118	18	25.881	1.218	19	25.345	1.318
21	22.907	1.518	22	20.900	1.614	23	20.475	1.633	24	20.147	1.643
26	27.570	1.730	27	35.003	1.747	28	35.629	1.811	29	36.610	1.830
31	37.725	1.909	32	26.160	1.930	33	35.489	1.954	34	36.643	2.014
36	33.497	2.057	37	17.000	1.963	38	18.000	1.867	39	19.000	1.769
41	21.000	1.604	42	22.000	1.556	43	23.000	1.512	44	24.000	1.452
46	26.000	1.192	47	27.000	0.852	48	27.000	1.781	49	28.000	1.700
51	30.000	1.615	52	31.000	1.594	53	32.000	1.585	54	33.000	1.593
56	35.000	1.747	57	40.000	0.309	58	50.000	0.645			
ISOBAK = 20.000(P51A) 2880.0PSFA											
1	33.600	0.000	2	44.125	0.000	3	33.587	0.103	4	44.128	0.104
5	44.025	0.208	6	33.596	0.308	7	43.715	0.312	8	33.580	0.410
11	33.638	0.513	12	42.449	0.519	13	33.728	0.616	14	41.212	0.622
16	39.185	0.724	17	49.787	1.467	18	40.562	1.571	19	40.159	1.675
21	40.899	1.889	22	48.451	1.888	23	17.162	2.021	24	18.704	2.012
26	19.940	2.012	27	19.940	2.012	28	19.940	2.012	29	19.940	2.012

26	21.177	2.619	27	48.830	2.093	28	18.000	1.953	29	20.000	1.993	30	21.000	1.943
31	34.000	0.699	32	35.000	0.744	33	36.000	0.797	34	37.000	0.787	35	38.000	0.763
36	39.000	0.731	37	40.000	0.689	38	41.000	0.636	39	42.000	0.563	40	43.000	0.454
41	44.000	0.219	42	44.000	1.814	43	50.000	1.439						
RETURN FROM "ISOBAR"														

OUTPUT FROM DATA SET NO. 14

(P/PB) WALL/AXIS RESPECTIVELY

1	4	12	14	16	17	18	20	22
0.9268	0.9059	0.9931	0.7312	0.5971	0.5939	0.4562	0.4414	0.4298
0.9430	0.9219	0.8071	0.7440	0.6079	0.5633	0.4442	0.4496	0.4371
0.9290	0.9110	0.8070	0.7534	0.5733	0.5926	0.3604	0.4359	0.4234
0.9443	0.9229	0.9107	0.7502	0.6161	0.5633	0.4583	0.4433	0.4310
0.9282	0.9124	0.8111	0.7580	0.6099	0.5536	0.3443	0.4294	0.4175
0.9449	0.9221	0.8127	0.7543	0.6277	0.5632	0.4029	0.4371	0.4250
0.9269	0.9196	0.8152	0.7624	0.6293	0.5318	0.3270	0.4233	0.4116
0.9452	0.9205	0.8133	0.7564	0.6372	0.5491	0.4061	0.4311	0.4190
0.9295	0.9148	0.8105	0.7683	0.6407	0.5158	0.3585	0.4166	0.4059
0.9458	0.9197	0.8136	0.7581	0.6491	0.5541	0.4697	0.4257	0.4132
0.9294	0.9159	0.8211	0.7724	0.6497	0.5038	0.2916	0.4090	0.4002
0.9462	0.9188	0.8132	0.7595	0.6519	0.5594	0.4737	0.4210	0.4079
0.9299	0.9167	0.8232	0.7752	0.6579	0.5052	0.2779	0.3999	0.3846
0.9463	0.9177	0.8120	0.7581	0.6577	0.5047	0.4942	0.4172	0.4019
0.9296	0.9173	0.8250	0.7772	0.6641	0.5097	0.2668	0.3895	0.3809
0.9469	0.9166	0.8106	0.7574	0.6628	0.5705	0.5009	0.4144	0.3946
0.9299	0.9179	0.8266	0.7788	0.6691	0.5066	0.2560	0.3772	0.3642
0.9462	0.9193	0.8290	0.7964	0.6672	0.5774	0.5193	0.4129	0.3929
0.9297	0.9185	0.8280	0.7800	0.6726	0.5052	0.2912	0.3692	0.3541
0.9461	0.9149	0.8073	0.7590	0.6710	0.5045	0.5279	0.4184	0.3943
0.9296	0.9191	0.8293	0.7808	0.6732	0.5051	0.2468	0.3629	0.3530
0.9459	0.9125	0.8057	0.7538	0.6746	0.5097	0.5306	0.4290	0.3965
0.9295	0.9197	0.8305	0.7815	0.6773	0.5058	0.2442	0.3554	0.3405
0.9458	0.9111	0.8043	0.7529	0.6774	0.5039	0.5348	0.4412	0.3989
0.9294	0.9203	0.8317	0.7821	0.6788	0.5071	0.2426	0.3484	0.3370
0.9457	0.9097	0.8030	0.7523	0.6808	0.5075	0.5247	0.4345	0.4022
0.9293	0.9210	0.8327	0.7826	0.6799	0.5086	0.2418	0.3420	0.3326
0.9457	0.9083	0.8019	0.7519	0.6839	0.5007	0.5277	0.4687	0.4047
0.9293	0.9217	0.8337	0.7831	0.6807	0.5002	0.2412	0.3363	0.3673
0.9454	0.9072	0.8011	0.7518	0.6861	0.5034	0.5311	0.4924	0.4124
0.9293	0.9224	0.8346	0.7835	0.6799	0.5016	0.2407	0.3317	0.3616
0.9456	0.9062	0.8005	0.7521	0.6865	0.5058	0.5432	0.4945	0.4194
0.9291	0.9230	0.8354	0.7840	0.6788	0.5026	0.2402	0.3280	0.3535
0.9456	0.9054	0.8002	0.7527	0.6864	0.5089	0.5583	0.5058	0.4272
0.9293	0.9236	0.8362	0.7844	0.6785	0.5034	0.2397	0.3251	0.3444
0.9457	0.9048	0.8002	0.7535	0.6865	0.5130	0.5697	0.5167	0.4398
0.9294	0.9242	0.8370	0.7849	0.6785	0.5039	0.2392	0.3227	0.3435
0.9457	0.9043	0.8005	0.7545	0.6874	0.5176	0.5805	0.5293	0.4444
0.9296	0.9249	0.8377	0.7856	0.6786	0.5043	0.2386	0.3206	0.3402
0.9459	0.9041	0.8011	0.7556	0.6870	0.5227	0.5910	0.5191	0.4535
0.9297	0.9254	0.8384	0.7863	0.6792	0.5043	0.2379	0.3148	0.3335
0.9460	0.9039	0.8018	0.7569	0.6912	0.5283	0.6012	0.5478	0.4621
0.9299	0.9264	0.8390	0.7870	0.6797	0.5044	0.2370	0.3166	0.3296
0.9462	0.9039	0.8027	0.7583	0.6949	0.5343	0.6110	0.5632	0.4704
0.9300	0.9272	0.8396	0.7878	0.6894	0.5246	0.2361	0.3144	0.3265
0.9463	0.9038	0.8026	0.7597	0.6972	0.5407	0.6204	0.5764	0.4776
0.9302	0.9279	0.8402	0.7885	0.6811	0.5246	0.2355	0.3120	0.3240
0.9465	0.9038	0.8047	0.7611	0.7008	0.6474	0.6294	0.5901	0.4897
0.9304	0.9286	0.8407	0.7892	0.6819	0.5296	0.2346	0.3096	0.3219
0.9467	0.9037	0.8058	0.7626	0.7048	0.6544	0.6384	0.6024	0.4927
0.9305	0.9292	0.8412	0.7899	0.6826	0.5296	0.2339	0.3072	0.3201
0.9465	0.9037	0.8048	0.7642	0.7091	0.6612	0.6472	0.6134	0.4987

0.9307	0.4272	C.8417	0.7904	0.7639	0.6434	0.2946	0.2334	0.3049	0.3183	24
0.9470	0.9037	0.8079	0.7639	0.7138	0.6688	0.6359	0.6239	0.6239	0.5923	27
0.9308	0.9299	0.8421	0.7909	0.6840	0.2948	0.2331	0.3027	0.3165	0.5083	28
0.9472	0.9038	0.8090	0.7678	0.7182	0.6762	0.6546	0.6325	0.6325	0.5083	28
0.9310	0.9301	0.8425	0.7913	0.6846	0.2949	0.2329	0.3008	0.3146	0.5141	29
0.9473	0.9040	0.8100	0.7695	0.7229	0.6836	0.6731	0.6404	0.6404	0.5141	29
0.9311	0.9303	0.8428	0.7915	0.6852	0.2952	0.2327	0.2991	0.3125	0.5436	30
0.9475	0.9044	0.8110	0.7715	0.7277	0.6910	0.6814	0.6472	0.6472	0.5436	30
0.9313	0.9304	0.8431	0.7917	0.6856	0.2955	0.2327	0.2975	0.3105	0.5577	31
0.9476	0.9049	0.8121	0.7736	0.7326	0.6984	0.6894	0.6532	0.6532	0.5577	31
0.9314	0.9306	0.8434	0.7918	0.6860	0.2958	0.2328	0.2962	0.3084	0.5687	32
0.9477	0.9055	0.8131	0.7759	0.7375	0.7057	0.6971	0.6588	0.6588	0.5687	32
0.9315	0.9308	0.8436	0.7919	0.6863	0.2961	0.2328	0.2951	0.3064	0.5763	33
0.9478	0.9062	0.8143	0.7783	0.7426	0.7127	0.7043	0.6639	0.6639	0.5763	33
0.9316	0.9311	0.8437	0.7919	0.6865	0.2963	0.2330	0.2941	0.3048	0.5814	34
0.9479	0.9067	0.8155	0.7809	0.7474	0.7193	0.7112	0.6687	0.6687	0.5814	34
0.9317	0.9313	0.8438	0.7918	0.6868	0.2969	0.2331	0.2932	0.3029	0.5912	35
0.9480	0.9071	0.8168	0.7836	0.7522	0.7260	0.7177	0.6731	0.6731	0.5912	35
0.9318	0.9314	0.8439	0.7917	0.6866	0.2972	0.2332	0.2924	0.3016	0.5978	36
0.9481	0.9076	0.8182	0.7865	0.7570	0.7322	0.7237	0.6773	0.6773	0.5978	36
0.9319	0.9315	0.8439	0.7918	0.6865	0.2976	0.2332	0.2917	0.3001	0.5988	37
0.9482	0.9075	0.8198	0.7896	0.7617	0.7389	0.7292	0.6811	0.6811	0.5988	37
0.9320	0.9316	0.8439	0.7915	0.6863	0.2976	0.2332	0.2910	0.2990	0.5912	38
0.9483	0.9075	0.8215	0.7927	0.7662	0.7436	0.7363	0.6866	0.6866	0.5912	38
0.9321	0.9312	0.8438	0.7914	0.6861	0.2978	0.2331	0.2903	0.2980	0.5921	39
0.9484	0.9075	0.8233	0.7959	0.7705	0.7482	0.7390	0.6878	0.6878	0.5921	39
0.9321	0.9313	0.8437	0.7912	0.6858	0.2978	0.2330	0.2896	0.2971	0.5927	40
0.9485	0.9076	0.8252	0.7991	0.7745	0.7528	0.7431	0.6908	0.6908	0.5927	40
0.9322	0.9307	0.8436	0.7911	0.6855	0.2978	0.2329	0.2888	0.2965	0.5929	41
0.9486	0.9078	0.8273	0.8024	0.7783	0.7568	0.7468	0.6936	0.6936	0.5929	41
0.9323	0.9305	0.8434	0.7909	0.6852	0.2978	0.2327	0.2880	0.2955	0.5929	42
0.9487	0.9082	0.8294	0.8056	0.7817	0.7606	0.7501	0.6960	0.6960	0.5929	42
0.9324	0.9304	0.8432	0.7907	0.6849	0.2977	0.2326	0.2871	0.2948	0.5927	43
0.9487	0.9087	0.8317	0.8086	0.7849	0.7635	0.7529	0.6982	0.6982	0.5927	43
0.9324	0.9303	0.8430	0.7905	0.6846	0.2976	0.2321	0.2863	0.2941	0.5922	44
0.9488	0.9093	0.8339	0.8115	0.7876	0.7661	0.7553	0.7001	0.7001	0.5922	44
0.9325	0.9303	0.8428	0.7904	0.6843	0.2975	0.2318	0.2854	0.2934	0.5916	45
0.9488	0.9098	0.8362	0.8142	0.7899	0.7684	0.7572	0.7017	0.7017	0.5916	45
0.9325	0.9304	0.8426	0.7902	0.6841	0.2974	0.2315	0.2848	0.2927	0.5908	46
0.9489	0.9102	0.8384	0.8166	0.7919	0.7701	0.7588	0.7031	0.7031	0.5908	46
0.9326	0.9304	0.8423	0.7900	0.6839	0.2972	0.2312	0.2842	0.2920	0.5898	47
0.9489	0.9104	0.8406	0.8188	0.7934	0.7715	0.7600	0.7041	0.7041	0.5898	47
0.9326	0.9304	0.8421	0.7899	0.6838	0.2971	0.2309	0.2838	0.2914	0.5887	48
0.9490	0.9104	0.8425	0.8206	0.7966	0.7725	0.7608	0.7050	0.7050	0.5887	48
0.9326	0.9302	0.8418	0.7897	0.6836	0.2969	0.2306	0.2834	0.2909	0.5875	49
0.9490	0.9103	0.8443	0.8220	0.7994	0.7731	0.7615	0.7055	0.7055	0.5875	49
0.9327	0.9298	0.8416	0.7895	0.6835	0.2968	0.2304	0.2831	0.2904	0.5861	50
0.9490	0.9103	0.8459	0.8230	0.7999	0.7734	0.7614	0.7058	0.7058	0.5861	50
0.9327	0.9292	0.8413	0.7894	0.6834	0.2967	0.2301	0.2828	0.2898	0.5848	51
0.9490	0.9105	0.8472	0.8237	0.7990	0.7733	0.7613	0.7059	0.7059	0.5848	51
0.9327	0.9287	0.8411	0.7892	0.6834	0.2966	0.2299	0.2825	0.2877	0.5835	52
0.9491	0.9111	0.8482	0.8241	0.7999	0.7735	0.7609	0.7057	0.7057	0.5835	52
0.9327	0.9282	0.8409	0.7891	0.6833	0.2966	0.2297	0.2823	0.2864	0.5822	53
0.9491	0.9120	0.8489	0.8241	0.7995	0.7724	0.7603	0.7053	0.7053	0.5822	53
0.9327	0.9279	0.8406	0.7889	0.6833	0.2965	0.2295	0.2822	0.2853	0.5810	54
0.9491	0.9133	0.8492	0.8238	0.7998	0.7716	0.7599	0.7047	0.7047	0.5810	54
0.9327	0.9278	0.8403	0.7888	0.6832	0.2965	0.2294	0.2821	0.2842	0.5798	55
0.9491	0.9148	0.8493	0.8232	0.7990	0.7707	0.7585	0.7039	0.7039	0.5798	55
0.9327	0.9279	0.8403	0.7887	0.6832	0.2965	0.2293	0.2819	0.2841	0.5785	56
0.9491	0.9162	0.8490	0.8224	0.7990	0.7696	0.7575	0.7029	0.7029	0.5785	56
0.9327	0.9281	0.8401	0.7885	0.6831	0.2965	0.2292	0.2819	0.2841	0.5773	57
0.9491	0.9173	0.8485	0.8214	0.7989	0.7683	0.7563	0.7016	0.7016	0.5773	57
0.9327	0.9282	0.8400	0.7884	0.6831	0.2965	0.2292	0.2818	0.2842	0.5761	58
0.9490	0.9179	0.8478	0.8203	0.7987	0.7673	0.7530	0.7001	0.7001	0.5761	58
0.9327	0.9282	0.8398	0.7883	0.6830	0.2965	0.2292	0.2818	0.2843	0.5748	59
0.9490	0.9180	0.8469	0.8191	0.7984	0.7666	0.7536	0.6984	0.6984	0.5748	59

0.9323	0.9285	0.8401	0.7490	0.6837	0.2986	0.2311	0.2871	0.2483	92
0.9486	0.9064	0.6311	0.8012	0.7686	0.7414	0.7273	0.6529	0.4859	93
0.9322	0.9256	0.6401	0.7890	0.6837	0.2986	0.2312	0.2872	0.2986	94
0.9486	0.9038	0.6312	0.8013	0.7687	0.7415	0.7274	0.6532	0.4863	95
0.9322	0.9230	0.6401	0.7890	0.6837	0.2986	0.2312	0.2873	0.2986	96
0.9486	0.9039	0.6313	0.8014	0.7688	0.7416	0.7276	0.6535	0.4867	97
0.9322	0.9217	0.6401	0.7890	0.6837	0.2986	0.2312	0.2874	0.2990	98
0.9486	0.9035	0.6315	0.8015	0.7689	0.7418	0.7278	0.6539	0.4870	99
0.9322	0.9226	0.6402	0.7890	0.6837	0.2986	0.2312	0.2875	0.2992	100
0.9486	0.9116	0.6316	0.8016	0.7690	0.7420	0.7281	0.6542	0.4875	101
0.9322	0.9254	0.6402	0.7890	0.6837	0.2986	0.2312	0.2876	0.2994	102
0.9486	0.9186	0.6317	0.8017	0.7692	0.7422	0.7284	0.6546	0.4876	103
0.9322	0.9284	0.6402	0.7889	0.6837	0.2986	0.2312	0.2876	0.2996	104
0.9486	0.9232	0.6318	0.8018	0.7693	0.7424	0.7287	0.6549	0.4879	105
0.9322	0.9315	0.6402	0.7889	0.6837	0.2986	0.2312	0.2877	0.2997	106
0.9486	0.9237	0.6319	0.8020	0.7695	0.7426	0.7290	0.6552	0.4881	107
0.9322	0.9322	0.6402	0.7889	0.6836	0.2985	0.2312	0.2877	0.2998	108
0.9486	0.9201	0.6320	0.8021	0.7697	0.7429	0.7292	0.6556	0.4882	109
0.9322	0.9322	0.6402	0.7889	0.6836	0.2985	0.2312	0.2878	0.2999	110
0.9486	0.9142	0.6322	0.8023	0.7699	0.7431	0.7295	0.6559	0.4884	111
0.9322	0.9320	0.6402	0.7889	0.6836	0.2985	0.2312	0.2878	0.3000	112
0.9486	0.9084	0.6323	0.8025	0.7701	0.7433	0.7298	0.6562	0.4886	113
0.9323	0.9285	0.6402	0.7889	0.6836	0.2984	0.2312	0.2878	0.3001	114
0.9486	0.9030	0.6325	0.8026	0.7703	0.7436	0.7300	0.6565	0.4887	115
0.9323	0.9227	0.6402	0.7889	0.6836	0.2984	0.2312	0.2879	0.3001	116
0.9486	0.8978	0.6327	0.8028	0.7705	0.7438	0.7303	0.6567	0.4888	117
0.9323	0.9146	0.6403	0.7889	0.6836	0.2984	0.2311	0.2878	0.3002	118
0.9486	0.8931	0.6328	0.8030	0.7707	0.7440	0.7305	0.6570	0.4890	119
0.9323	0.9114	0.6403	0.7889	0.6835	0.2983	0.2311	0.2877	0.3002	120
0.9486	0.8970	0.6329	0.8031	0.7709	0.7442	0.7307	0.6572	0.4891	121
0.9323	0.9181	0.6403	0.7889	0.6835	0.2983	0.2311	0.2877	0.3002	122
0.9486	0.9132	0.6330	0.8033	0.7711	0.7444	0.7308	0.6574	0.4892	123
0.9323	0.9249	0.6403	0.7889	0.6835	0.2983	0.2310	0.2877	0.3002	124
0.9486	0.9257	0.6331	0.8034	0.7713	0.7446	0.7310	0.6575	0.4893	125
0.9323	0.9296	0.6403	0.7889	0.6835	0.2982	0.2310	0.2876	0.3002	126
0.9486	0.9325	0.6332	0.8036	0.7714	0.7447	0.7311	0.6576	0.4894	127
0.9323	0.9323	0.6403	0.7889	0.6835	0.2982	0.2310	0.2876	0.3001	128
0.9486	0.9208	0.6332	0.8037	0.7716	0.7448	0.7312	0.6577	0.4896	129
0.9323	0.9323	0.6403	0.7889	0.6835	0.2982	0.2309	0.2875	0.3001	130
0.9486	0.9229	0.6333	0.8039	0.7717	0.7449	0.7312	0.6578	0.4897	131
0.9323	0.9323	0.6403	0.7889	0.6835	0.2981	0.2309	0.2875	0.3001	132
0.9486	0.9135	0.6334	0.8040	0.7718	0.7450	0.7313	0.6578	0.4898	133
0.9323	0.9323	0.6403	0.7889	0.6835	0.2981	0.2309	0.2876	0.3000	134
0.9486	0.9064	0.6336	0.8041	0.7719	0.7451	0.7313	0.6578	0.4898	135
0.9323	0.9247	0.6403	0.7889	0.6834	0.2981	0.2309	0.2876	0.2999	136
0.9486	0.8992	0.6337	0.8042	0.7720	0.7452	0.7314	0.6578	0.4899	137
0.9323	0.9161	0.6403	0.7889	0.6834	0.2981	0.2308	0.2873	0.2999	138
0.9486	0.8867	0.6338	0.8043	0.7720	0.7452	0.7314	0.6578	0.4900	139
0.9323	0.9053	0.6404	0.7889	0.6834	0.2980	0.2308	0.2873	0.2998	140
0.9486	0.8845	0.6339	0.8043	0.7721	0.7452	0.7314	0.6578	0.4901	141
0.9323	0.9030	0.6404	0.7888	0.6834	0.2980	0.2308	0.2872	0.2998	142
0.9486	0.8945	0.6339	0.8044	0.7721	0.7453	0.7314	0.6578	0.4902	143
0.9323	0.9158	0.6404	0.7888	0.6834	0.2980	0.2307	0.2871	0.2997	144
0.9486	0.9197	0.6339	0.8044	0.7721	0.7453	0.7313	0.6577	0.4903	145
0.9323	0.9256	0.6403	0.7888	0.6834	0.2980	0.2307	0.2871	0.2996	146
0.9486	0.9358	0.6339	0.8044	0.7721	0.7453	0.7313	0.6577	0.4904	147
0.9323	0.9308	0.6403	0.7888	0.6834	0.2980	0.2307	0.2870	0.2996	148
0.9486	0.9415	0.6338	0.8044	0.7721	0.7453	0.7313	0.6577	0.4905	149
0.9323	0.9323	0.6403	0.7888	0.6834	0.2980	0.2307	0.2870	0.2995	150
0.9486	0.9335	0.6337	0.8044	0.7721	0.7453	0.7313	0.6577	0.4905	151
0.9323	0.9323	0.6403	0.7888	0.6834	0.2980	0.2307	0.2869	0.2995	152
0.9486	0.9198	0.6337	0.8045	0.7721	0.7452	0.7313	0.6577	0.4906	153
0.9323	0.9323	0.6402	0.7889	0.6834	0.2980	0.2307	0.2869	0.2994	154
0.9486	0.9073	0.6338	0.8044	0.7721	0.7452	0.7312	0.6577	0.4907	155
0.9323	0.9323	0.6403	0.7889	0.6834	0.2980	0.2307	0.2868	0.2994	156
0.9486	0.9028	0.6338	0.8044	0.7721	0.7452	0.7312	0.6577	0.4908	157

0.9323	0.9301	C.8433	0.7989	0.8044	0.7479	0.2307	0.2868	0.2993	125
0.9487	0.9151	0.8974	0.8329	0.8044	0.7721	0.7452	0.7312	0.6578	0.4909
0.9323	0.9487	0.8433	0.7869	0.8043	0.6834	0.2979	0.2307	0.2868	0.2993
0.9487	0.8874	0.8340	0.8043	0.7720	0.7452	0.7312	0.6578	0.4909	126
0.9323	0.9001	C.8403	0.7869	0.8043	0.6834	0.2979	0.2307	0.2867	0.2992
0.9487	0.8873	C.8340	0.8043	0.7720	0.7451	0.7312	0.6578	0.4910	127
0.9323	0.8959	0.8403	0.7869	0.8034	0.2980	0.2307	0.2867	0.2992	128
0.9487	0.9009	0.8339	0.8042	0.7720	0.7451	0.7312	0.6579	0.4911	129
0.9323	0.9095	0.8433	0.7869	0.8035	0.7980	0.2307	0.2867	0.2992	130
0.9487	0.9286	0.8338	0.8042	0.7720	0.7451	0.7312	0.6579	0.4912	131
0.9323	0.9258	0.8403	0.7869	0.8035	0.2980	0.2307	0.2867	0.2991	132
0.9487	0.9459	C.8338	0.8041	0.7719	0.7451	0.7312	0.6580	0.4913	133
0.9323	0.9319	C.8402	0.7869	0.8035	0.2980	0.2307	0.2867	0.2991	134
0.9487	0.9486	C.8334	0.8041	0.7719	0.7451	0.7312	0.6580	0.4913	135
0.9323	0.9323	0.8401	0.7869	0.8035	0.2980	0.2307	0.2867	0.2991	136
0.9487	0.9340	0.8332	C.8041	0.7719	0.7450	0.7312	0.6581	0.4914	137
0.9323	0.9323	C.8401	0.7869	0.8035	0.2980	0.2307	0.2867	0.2991	138
0.9487	0.9064	0.8331	C.8040	0.7719	0.7450	0.7312	0.6581	0.4914	139
0.9323	0.9323	C.8400	0.7869	0.8035	0.2980	0.2307	0.2866	0.2991	140
0.9487	0.8890	0.8331	0.8040	0.7718	0.7450	0.7312	0.6582	0.4915	141
0.9323	0.9323	C.8430	0.7869	0.8035	0.2980	0.2307	0.2866	0.2990	142
0.9487	0.8900	0.8332	0.8040	0.7718	0.7450	0.7312	0.6582	0.4915	143
0.9323	0.9314	0.8400	0.7869	0.8035	0.2980	0.2307	0.2866	0.2990	144
0.9487	0.8929	C.8334	0.8039	0.7718	0.7450	0.7312	0.6582	0.4916	145
0.9323	0.9156	C.8401	0.7869	0.8035	0.2980	0.2307	0.2867	0.2990	146
0.9487	0.8900	0.8335	C.8039	0.7717	0.7450	0.7312	0.6582	0.4916	147
0.9323	0.9000	C.8401	0.7869	0.8035	0.2980	0.2307	0.2867	0.2990	148
0.9487	0.8977	0.8336	C.8038	0.7717	0.7449	0.7312	0.6583	0.4916	149
0.9323	0.8912	C.8401	0.7869	0.8035	0.2981	0.2308	0.2867	0.2990	150
0.9487	0.9139	0.8335	C.8037	0.7717	0.7449	0.7312	0.6583	0.4916	151
0.9323	0.9044	C.8400	C.7868	0.8035	0.2981	0.2308	0.2867	0.2990	152
0.9487	0.9407	C.8334	0.8037	0.7717	0.7449	0.7311	0.6583	0.4916	153
0.9323	0.9220	0.8339	C.7868	0.8035	0.2981	0.2308	0.2867	0.2991	154
0.9487	0.9486	0.8332	C.8036	0.7716	0.7449	0.7311	0.6583	0.4916	155
0.9323	0.9323	C.8398	0.7868	0.8035	0.2991	0.2308	0.2867	0.2991	156
0.9487	0.9486	C.8330	0.8036	0.7716	0.7449	0.7311	0.6583	0.4916	157
0.9323	0.9323	0.8397	0.7868	0.8035	0.2981	0.2308	0.2867	0.2991	158
0.9487	0.9281	0.8328	C.8036	0.7716	0.7449	0.7311	0.6583	0.4916	159
0.9323	0.9323	C.8396	C.7867	0.8035	0.2981	0.2308	0.2867	0.2991	160
0.9487	0.8865	0.8327	0.8036	0.7716	0.7448	0.7311	0.6583	0.4915	161
0.9323	0.9323	C.8395	0.7867	0.8035	0.2981	0.2308	0.2867	0.2991	162
0.9487	0.8831	0.8327	0.8036	0.7715	0.7448	0.7311	0.6583	0.4915	163
0.9323	0.9323	0.8394	C.7867	0.8035	0.2981	0.2308	0.2868	0.2991	164
0.9487	0.8879	0.8328	0.8036	0.7715	0.7448	0.7311	0.6583	0.4916	165
0.9323	0.9323	0.8394	0.7866	0.8035	0.2981	0.2308	0.2868	0.2991	166
0.9487	0.8843	0.8330	0.8036	0.7715	0.7448	0.7310	0.6582	0.4914	167
0.9323	0.9196	0.8393	C.7866	0.8035	0.2981	0.2308	0.2868	0.2991	168
0.9487	0.8931	C.8332	0.8036	0.7715	0.7447	0.7310	0.6582	0.4913	169
0.9323	0.9036	0.8393	C.7865	0.8034	0.2981	0.2308	0.2868	0.2991	170
0.9487	0.9077	C.8334	0.8035	C.7714	0.7447	0.7310	0.6582	0.4913	171
0.9323	0.8904	0.8392	0.7865	0.8034	0.2981	0.2308	0.2868	0.2991	172
0.9487	0.9288	0.8335	0.8035	0.7714	0.7447	0.7310	0.6581	0.4912	173
0.9323	0.8867	0.8391	0.7864	0.8034	0.2981	0.2308	0.2868	0.2991	174
0.9487	0.9486	0.8335	0.8035	0.7714	0.7447	0.7310	0.6581	0.4911	175
0.9323	0.9142	0.8390	0.7863	0.8034	0.2981	0.2308	0.2868	0.2991	176
0.9487	0.9486	0.8335	C.8035	0.7714	0.7446	0.7310	0.6581	0.4911	177
0.9323	0.9290	0.8388	0.7862	0.8033	0.2980	0.2308	0.2868	0.2991	178
0.9487	0.9486	0.8333	0.8035	0.7714	0.7446	0.7309	0.6580	0.4910	179
0.9323	0.9323	0.8396	0.7862	0.8033	0.2980	0.2308	0.2868	0.2991	180
0.9487	0.9232	0.8032	0.8035	0.7714	0.7446	0.7309	0.6580	0.4909	181
0.9323	0.9323	0.8484	C.7861	0.8035	0.2980	0.2308	0.2868	0.2991	182
0.9487	0.8746	0.8332	C.8035	0.7714	0.7446	0.7309	0.6579	0.4908	183
0.9323	0.9323	0.8383	0.7860	0.8032	0.2980	0.2308	0.2868	0.2991	184
0.9487	0.8450	0.8333	0.8038	0.7714	0.7446	0.7309	0.6579	0.4907	185
0.9323	0.9323	C.8381	0.7864	0.8032	0.2980	0.2307	0.2868	0.2991	186
0.9487	0.8561	0.8333	C.8037	0.7714	0.7446	0.7309	0.6579	0.4906	187

0.9323	0.9487	0.9323	0.8785	0.8337	0.7878	0.6831	0.2979	0.2307	0.2868	0.2990	158
0.9323	0.9487	0.9237	0.8785	0.8337	0.7877	0.6830	0.2979	0.2307	0.2868	0.2990	159
0.9323	0.9487	0.9074	0.8695	0.8340	0.8038	0.7714	0.2978	0.2306	0.2868	0.2990	160
0.9323	0.9487	0.9163	0.8695	0.8343	0.8038	0.7714	0.2978	0.2306	0.2868	0.2990	161
0.9323	0.9487	0.8914	0.8695	0.8377	0.7875	0.6829	0.2978	0.2306	0.2868	0.2990	162
0.9323	0.9487	0.8433	0.8695	0.8376	0.7873	0.6828	0.2978	0.2306	0.2867	0.2989	163
0.9323	0.9487	0.8476	0.8695	0.8376	0.7872	0.6828	0.2977	0.2305	0.2867	0.2989	164
0.9323	0.9487	0.8202	0.8695	0.8347	0.8040	0.7715	0.2976	0.2305	0.2867	0.2988	165
0.9323	0.9487	0.8123	0.8695	0.8347	0.8041	0.7715	0.2976	0.2304	0.2867	0.2988	166
0.9323	0.9487	0.8185	0.8695	0.8348	0.8042	0.7716	0.2975	0.2304	0.2866	0.2987	167
0.9323	0.9487	0.8641	0.8695	0.8349	0.8043	0.7716	0.2975	0.2303	0.2866	0.2987	168
0.9323	0.9487	0.8366	0.8695	0.8366	0.8043	0.7717	0.2974	0.2303	0.2865	0.2986	169
0.9323	0.9487	0.8367	0.8695	0.8351	0.8045	0.7717	0.2974	0.2303	0.2865	0.2986	170
0.9323	0.9487	0.8367	0.8695	0.8364	0.8044	0.7715	0.2973	0.2302	0.2865	0.2985	171
0.9323	0.9487	0.8472	0.8695	0.8354	0.8044	0.7715	0.2973	0.2302	0.2865	0.2985	172
0.9323	0.9487	0.8476	0.8695	0.8357	0.8044	0.7718	0.2972	0.2301	0.2864	0.2984	173
0.9323	0.9487	0.8216	0.8695	0.8363	0.8043	0.7718	0.2972	0.2301	0.2864	0.2984	174
0.9323	0.9487	0.9027	0.8695	0.8361	0.8049	0.7719	0.2972	0.2301	0.2864	0.2983	175
0.9323	0.9487	0.9060	0.8695	0.8362	0.8051	0.7720	0.2971	0.2300	0.2863	0.2982	176
0.9323	0.9487	0.8513	0.8695	0.8362	0.8050	0.7720	0.2971	0.2300	0.2863	0.2982	177
0.9323	0.9487	0.8487	0.8695	0.8368	0.8053	0.7721	0.2970	0.2300	0.2862	0.2981	178
0.9323	0.9487	0.8533	0.8695	0.8361	0.8056	0.7719	0.2970	0.2299	0.2862	0.2981	179
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	180
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	181
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	182
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	183
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	184
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	185
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	186
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	187
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	188
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	189
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	190
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	191
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	192
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	193
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	194
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	195
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	196
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	197
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	198
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	199
0.9323	0.9487	0.8533	0.8695	0.8369	0.8054	0.7723	0.2969	0.2298	0.2861	0.2980	200

0.9325	C.9229	C.8353	0.7849	0.6808	0.2957	C.2285	0.2845	0.2961	191
0.9489	0.8885	0.8405	C.9092	0.7751	0.7477	0.7351	0.6581	0.4885	
0.9525	0.9171	0.8344	0.7450	0.6808	0.2957	0.2285	0.2844	0.2960	192
0.9489	0.9188	C.8408	0.8095	0.7753	0.7479	0.7333	0.6582	0.4886	
0.9325	0.9019	0.8355	0.7850	0.6808	0.2956	0.2284	0.2843	0.2959	193
0.9489	0.9489	0.8409	0.8094	0.7754	0.7480	0.7334	0.6583	0.4887	
0.9325	0.8696	C.8356	0.7850	0.6808	0.2956	0.2284	0.2842	0.2958	194
0.9489	0.9489	0.8410	0.8095	0.7756	0.7481	0.7335	0.6584	0.4889	
0.9325	0.8460	0.8356	0.7850	0.6809	0.2956	0.2284	0.2842	0.2957	195
0.9489	0.9489	C.8409	0.8096	0.7757	0.7485	0.7336	0.6585	0.4891	
0.9326	0.9113	0.8356	0.7850	0.6809	0.2956	0.2284	0.2841	0.2956	196
0.9489	0.9489	C.8408	0.8097	0.7759	0.7484	0.7337	0.6586	0.4892	
0.9326	0.9311	0.8355	0.7851	0.6809	0.2956	0.2283	0.2840	0.2956	197
0.9489	0.9489	C.8406	0.8099	0.7760	0.7485	0.7338	0.6587	0.4894	
0.9326	0.9326	0.8355	0.7851	0.6809	0.2956	0.2285	0.2840	0.2955	198
0.9489	0.9489	C.8406	0.8100	0.7761	0.7487	0.7340	0.6589	0.4896	
0.9326	0.9326	0.8354	0.7852	0.6810	0.2956	0.2283	0.2839	0.2955	199
0.9489	0.8544	C.8406	C.8101	0.7762	0.7488	0.7341	0.6590	0.4898	
0.9326	0.9326	0.8354	0.7852	0.6810	0.2956	0.2283	0.2838	0.2954	200
0.9489	0.9489	C.8407	0.8101	0.7763	0.7489	0.7342	0.6591	0.4900	
0.9326	0.9326	0.8354	0.7852	0.6810	0.2956	0.2283	0.2838	0.2954	201
0.9489	0.8645	C.8409	C.8102	0.7764	0.7490	0.7343	0.6595	0.4902	
0.9326	0.9246	0.8355	0.7853	0.6810	0.2956	0.2283	0.2838	0.2953	202
0.9489	0.8597	C.8410	C.8102	0.7764	0.7491	0.7343	0.6596	0.4904	
0.9326	0.9142	0.8356	0.7853	0.6811	0.2957	0.2283	0.2838	0.2953	203
0.9489	0.9291	C.8412	C.8102	0.7765	0.7491	0.7344	0.6595	0.4907	
0.9325	0.9016	0.8357	0.7853	0.6811	0.2957	0.2284	0.2837	0.2953	204
0.9489	0.9489	C.8412	0.8102	0.7765	0.7492	0.7345	0.6597	0.4909	
0.9325	0.8699	0.8358	0.7853	0.6811	0.2957	0.2284	0.2837	0.2953	205
0.9489	0.9489	0.8412	0.8101	0.7766	0.7495	0.7346	0.6598	0.4911	
0.9325	C.8977	0.8358	0.7853	0.6812	0.2957	0.2284	0.2837	0.2953	206
0.9489	0.9489	0.8410	C.8101	0.7766	0.7495	0.7346	0.6599	0.4912	
0.9325	0.9136	0.8357	0.7854	0.6812	0.2958	0.2284	0.2837	0.2953	207
0.9489	0.9489	0.8407	C.8101	0.7766	0.7494	0.7347	0.6600	0.4914	
0.9325	C.9319	0.8357	0.7854	0.6812	0.2958	0.2285	0.2837	0.2953	208
0.9489	0.9159	C.8405	C.8100	0.7766	0.7494	0.7347	0.6602	0.4916	
0.9325	0.9325	0.8356	0.7854	0.6813	0.2958	0.2285	0.2837	0.2953	209
0.9489	0.8864	0.8403	C.8100	0.7766	0.7494	0.7348	0.6603	0.4917	
0.9325	C.9325	0.8355	0.7854	0.6813	0.2959	0.2285	0.2838	0.2953	210
0.9489	C.8513	C.8403	C.8100	0.7766	0.7494	0.7348	0.6604	0.4919	
0.9325	0.9325	0.8354	0.7854	0.6813	0.2959	0.2286	0.2838	0.2953	211
0.9489	0.8414	C.8403	0.8099	0.7766	0.7494	0.7348	0.6604	0.4920	
0.9325	0.9325	0.8355	0.7854	0.6813	0.2959	0.2286	0.2838	0.2954	212
0.9489	0.8719	C.8404	0.8099	0.7765	0.7494	0.7348	0.6605	0.4921	
0.9325	0.9290	C.8356	0.7855	0.6813	0.2960	0.2286	0.2838	0.2954	213
0.9489	0.9092	C.8406	0.8098	0.7765	0.7494	0.7348	0.6606	0.4921	
0.9325	0.9154	0.8357	0.7855	0.6814	0.2960	0.2287	0.2839	0.2954	214
0.9489	0.9375	C.8407	0.8097	0.7764	0.7493	0.7348	0.6606	0.4922	
0.9325	0.9011	0.8358	0.7855	0.6814	0.2960	0.2287	0.2839	0.2954	215
0.9489	0.9489	C.8407	C.8096	0.7764	C.8495	0.7348	0.6607	0.4923	
0.9325	0.8406	0.8359	0.7855	0.6814	0.2960	0.2287	0.2839	0.2955	216
0.9489	0.9489	C.8406	C.8095	0.7765	0.7492	0.7348	0.6607	0.4923	
0.9325	0.8993	0.8359	0.7855	0.6814	0.2961	0.2288	0.2840	0.2955	217
0.9489	0.9489	0.8404	0.8094	0.7762	0.7492	0.7348	0.6607	0.4923	
0.9325	0.9156	0.8359	0.7855	0.6814	0.2961	0.2288	0.2840	0.2955	218
0.9489	0.9489	C.8401	0.8093	0.7761	0.7491	0.7347	0.6607	0.4923	
0.9325	0.9324	0.8358	0.7855	0.6814	0.2961	0.2288	0.2840	0.2956	219
0.9489	0.9308	C.8599	C.8092	0.7761	0.7490	0.7347	0.6607	0.4923	
0.9325	0.9325	0.8357	0.7855	0.6814	0.2961	0.2288	0.2841	0.2956	220
0.9489	0.8847	C.8397	0.8092	0.7760	0.7490	0.7346	0.6607	0.4923	
0.9325	C.9325	0.8356	0.7855	0.6814	0.2961	0.2289	0.2841	0.2956	221
0.9489	0.8523	0.8596	0.8091	0.7759	0.7489	0.7346	0.6607	0.4922	
0.9325	0.9525	0.8356	0.7855	0.6814	0.2962	0.2289	0.2841	0.2956	222
0.9489	0.8449	0.8597	0.8091	0.7758	0.7488	0.7345	0.6606	0.4922	
0.9325	0.9325	0.8357	0.7855	0.6814	0.2962	0.2289	0.2842	0.2957	223
0.9489	0.8744	0.8198	0.8090	0.7757	0.7487	0.7344	0.6606	0.4923	

0.9325	0.9290	0.8358	0.7855	0.6814	0.2962	0.2289	0.2842	0.2957	224
0.9325	0.9489	0.9138	0.8399	0.8089	0.7756	0.7486	0.7343	0.6605	0.4920
0.9325	0.9153	0.8359	0.7855	0.6814	0.2962	0.2289	0.2842	0.2957	225
0.9325	0.9489	0.9408	0.8400	0.8088	0.7756	0.7485	0.7343	0.6604	0.4919
0.9325	0.9005	0.8360	0.7855	0.6814	0.2962	0.2789	0.2843	0.2957	226
0.9325	0.9489	0.9489	0.8400	0.8087	0.7755	0.7485	0.7342	0.6603	0.4919
0.9325	0.8896	0.8361	0.7855	0.6814	0.2962	0.2289	0.2843	0.2958	227
0.9325	0.9489	0.9489	0.8400	0.8087	0.7756	0.7486	0.7341	0.6603	0.4918
0.9325	0.9004	0.8362	0.7855	0.6814	0.2962	0.2289	0.2843	0.2958	228
0.9325	0.9489	0.9489	0.8398	0.8086	0.7753	0.7483	0.7340	0.6602	0.4917
0.9325	0.9168	0.8361	0.7855	0.6814	0.2962	0.2289	0.2843	0.2958	229
0.9325	0.9489	0.9489	0.8396	0.8085	0.7753	0.7482	0.7339	0.6601	0.4918
0.9325	0.9325	0.8360	0.7856	0.6814	0.2962	0.2289	0.2843	0.2958	230
0.9325	0.9489	0.9278	0.8394	0.8085	0.7752	0.7481	0.7336	0.6600	0.4915
0.9325	0.9325	0.8359	0.7856	0.6814	0.2962	0.2289	0.2844	0.2958	231
0.9325	0.9489	0.8826	0.8392	0.8085	0.7751	0.7480	0.7338	0.6599	0.4914
0.9325	0.9325	0.8359	0.7856	0.6814	0.2962	0.2289	0.2844	0.2958	232
0.9325	0.9489	0.8516	0.8392	0.8085	0.7751	0.7480	0.7337	0.6598	0.4913
0.9325	0.9325	0.8358	0.7856	0.6814	0.2962	0.2289	0.2844	0.2959	233
0.9325	0.9489	0.8552	0.8392	0.8085	0.7750	0.7479	0.7336	0.6597	0.4912
0.9325	0.9325	0.8359	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	234
0.9325	0.9489	0.8771	0.8394	0.8085	0.7750	0.7478	0.7335	0.6596	0.4911
0.9325	0.9287	0.8359	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	235
0.9325	0.9489	0.9148	0.8395	0.8085	0.7749	0.7478	0.7335	0.6595	0.4911
0.9325	0.9148	0.8360	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	236
0.9325	0.9489	0.9429	0.8367	0.8084	0.7749	0.7477	0.7334	0.6594	0.4910
0.9325	0.9001	0.8361	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	237
0.9325	0.9489	0.9489	0.8358	0.8084	0.7749	0.7477	0.7334	0.6593	0.4909
0.9325	0.8893	0.8362	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	238
0.9325	0.9489	0.9489	0.8357	0.8084	0.7749	0.7477	0.7333	0.6592	0.4909
0.9325	0.9008	0.8362	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	239
0.9325	0.9489	0.9489	0.8356	0.8083	0.7749	0.7477	0.7333	0.6592	0.4908
0.9325	0.9173	0.8361	0.7857	0.6814	0.2962	0.2289	0.2844	0.2959	240
0.9325	0.9489	0.9489	0.8394	0.8083	0.7749	0.7476	0.7333	0.6591	0.4908
0.9325	0.9325	0.8360	0.7857	0.6813	0.2962	0.2289	0.2844	0.2959	241
0.9325	0.9489	0.9268	0.8352	0.8083	0.7748	0.7476	0.7332	0.6591	0.4907

0.9325	0.9283	0.8355	0.7855	0.6814	0.2962	0.2289	0.2845	0.2960	257
0.9489	0.9133	0.8357	0.8087	0.7752	0.7480	0.7336	0.6593	0.4907	
0.9325	0.9143	0.8356	0.7854	0.6814	0.2962	0.2289	0.2845	0.2960	258
0.9489	0.9393	0.8399	0.8087	0.7752	0.7481	0.7337	0.6594	0.4907	
0.9325	0.8993	0.8357	0.7854	0.6814	0.2962	0.2289	0.2845	0.2960	259
0.9489	0.9489	0.8400	0.8087	0.7752	0.7481	0.7337	0.6594	0.4907	
0.9325	0.8889	0.8357	0.7554	0.6813	0.2962	0.2289	0.2845	0.2960	260
0.9489	0.9489	0.8400	0.8087	0.7753	0.7481	0.7337	0.6594	0.4907	
0.9325	0.9013	0.8357	0.7853	0.6813	0.2962	0.2289	0.2844	0.2960	261
0.9489	0.9489	0.8399	0.8087	0.7753	0.7481	0.7338	0.6595	0.4907	
0.9325	0.9179	0.8357	0.7853	0.6813	0.2961	0.2289	0.2844	0.2960	262
0.9489	0.9489	0.8399	0.8087	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8356	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	263
0.9489	0.9271	0.8396	0.8087	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8356	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	264
0.9489	0.8805	0.8395	0.8087	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8356	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	265
0.9489	0.8487	0.8395	0.8088	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8353	0.7853	0.6813	0.2961	0.2289	0.2844	0.2959	266
0.9489	0.8422	0.8394	0.8088	0.7753	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9325	0.8354	0.7853	0.6812	0.2961	0.2288	0.2844	0.2959	267
0.9489	0.8742	0.8398	0.8089	0.7754	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9280	0.8354	0.7853	0.6812	0.2961	0.2288	0.2844	0.2959	268
0.9489	0.9130	0.8400	0.8089	0.7754	0.7482	0.7338	0.6595	0.4907	
0.9325	0.9140	0.8355	0.7553	0.6812	0.2961	0.2288	0.2844	0.2959	269
0.9489	0.9393	0.8401	0.8089	0.7754	0.7482	0.7338	0.6595	0.4907	
0.9325	0.8991	0.8357	0.7853	0.6812	0.2963	0.2288	0.2844	0.2959	270
0.9489	0.9489	0.8402	0.8089	0.7754	0.7482	0.7338	0.6595	0.4906	
0.9325	0.8889	0.8357	0.7853	0.6812	0.2960	0.2288	0.2844	0.2959	271
0.9489	0.9489	0.8402	0.8089	0.7754	0.7482	0.7338	0.6595	0.4908	
0.9325	0.9019	0.8357	0.7452	0.6812	0.2960	0.2288	0.2843	0.2958	272
0.9489	0.9489	0.8401	0.8089	0.7754	0.7482	0.7338	0.6595	0.4906	
0.9325	0.9185	0.8357	0.7852	0.6812	0.2960	0.2288	0.2843	0.2958	273
0.9489	0.9489	0.8399	0.8089	0.7754	0.7482	0.7338	0.6595	0.4906	
0.9325	0.9325	0.8356	0.7852	0.6812	0.2960	0.2288	0.2843	0.2958	274
0.9489	0.9268	0.8358	0.8089	0.7754	0.7482	0.7338	0.6595	0.4906	
0.9325	0.9325	0.8355	0.7853	0.6812	0.2960	0.2287	0.2843	0.2958	275
0.9489	0.8749	0.8357	0.8089	0.7754	0.7482	0.7338	0.6595	0.4906	
0.9325	0.9325	0.8354	0.7853	0.6812	0.2960	0.2287	0.2843	0.2958	276
0.9489	0.8481	0.8357	0.8090	0.7754	0.7482	0.7338	0.6594	0.4906	
0.9325	0.9325	0.8354	0.7853	0.6812	0.2960	0.2287	0.2843	0.2958	277
0.9489	0.8418	0.8398	0.8090	0.7754	0.7482	0.7339	0.6594	0.4908	
0.9325	0.9324	0.8354	0.7853	0.6812	0.2960	0.2287	0.2843	0.2957	278
0.9489	0.8740	0.8399	0.8090	0.7754	0.7482	0.7338	0.6594	0.4908	
0.9325	0.9275	0.8355	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	279
0.9489	0.9131	0.8401	0.8090	0.7754	0.7482	0.7338	0.6594	0.4906	
0.9325	0.9136	0.8354	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	280
0.9489	0.9399	0.8403	0.8090	0.7754	0.7482	0.7338	0.6594	0.4908	
0.9325	0.8488	0.8357	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	281
0.9489	0.9489	0.8403	0.8090	0.7754	0.7482	0.7338	0.6594	0.4906	
0.9325	0.8690	0.8358	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	282
0.9489	0.9489	0.8403	0.8090	0.7754	0.7482	0.7338	0.6594	0.4907	
0.9325	0.9028	0.8358	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	283
0.9489	0.9489	0.8402	0.8090	0.7755	0.7482	0.7338	0.6594	0.4907	
0.9325	0.9194	0.8358	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	284
0.9489	0.9489	0.8400	0.8090	0.7755	0.7482	0.7338	0.6594	0.4907	
0.9325	0.9325	0.8357	0.7853	0.6812	0.2960	0.2287	0.2842	0.2957	285
0.9489	0.9261	0.8398	0.8090	0.7755	0.7482	0.7339	0.6594	0.4907	
0.9325	0.9325	0.8356	0.7854	0.6812	0.2960	0.2287	0.2842	0.2957	286
0.9489	0.8791	0.8357	0.8090	0.7755	0.7482	0.7338	0.6594	0.4908	
0.9325	0.9325	0.8355	0.7854	0.6812	0.2960	0.2287	0.2842	0.2957	287
0.9489	0.8476	0.8357	0.8091	0.7755	0.7483	0.7338	0.6594	0.4908	
0.9325	0.9325	0.8355	0.7554	0.6813	0.2980	0.2287	0.2842	0.2957	288
0.9489	0.8415	0.8398	0.8091	0.7755	0.7483	0.7338	0.6594	0.4908	
0.9325	0.9319	0.8355	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	289
0.9489	0.8244	0.8399	0.8091	0.7755	0.7483	0.7338	0.6594	0.4908	

0.9325	0.9268	0.8356	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	290
0.9325	0.9489	0.9136	0.8401	0.8091	0.7755	0.7483	0.7338	0.6594	0.4909
0.9325	0.9130	0.8357	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	291
0.9325	0.9489	0.9407	0.8402	0.8091	0.7755	0.7483	0.7338	0.6595	0.4909
0.9325	0.8984	0.8358	0.7354	0.6813	0.2960	0.2287	0.2842	0.2957	292
0.9325	0.9489	0.9489	0.8403	0.8090	0.7755	0.7483	0.7338	0.6595	0.4909
0.9325	0.8892	0.8358	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	293
0.9325	0.9489	0.9489	0.8403	0.8090	0.7755	0.7483	0.7338	0.6595	0.4910
0.9325	0.9040	0.8358	0.7854	0.6813	0.2960	0.2287	0.2842	0.2957	294
0.9325	0.9489	0.9489	0.8401	0.8090	0.7755	0.7483	0.7339	0.6595	0.4910
0.9325	0.9206	0.8358	0.7854	0.6813	0.2960	0.2288	0.2842	0.2957	295
0.9325	0.9489	0.9489	0.8399	0.8090	0.7755	0.7483	0.7339	0.6596	0.4910
0.9325	0.9325	0.8357	0.7854	0.6813	0.2960	0.2286	0.2842	0.2957	296
0.9325	0.9489	0.9252	0.8397	0.8090	0.7755	0.7483	0.7339	0.6596	0.4910
0.9325	0.9325	0.8356	0.7854	0.6813	0.2961	0.2288	0.2842	0.2957	297
0.9325	0.9489	0.8780	0.8396	0.8090	0.7755	0.7484	0.7339	0.6596	0.4911
0.9325	0.9325	0.8355	0.7854	0.6813	0.2961	0.2288	0.2842	0.2957	298
0.9325	0.9489	0.8469	0.8396	0.8090	0.7755	0.7484	0.7339	0.6596	0.4911
0.9325	0.9325	0.8354	0.7854	0.6813	0.2961	0.2288	0.2842	0.2957	299
0.9325	0.9489	0.8415	0.8397	0.8090	0.7755	0.7484	0.7339	0.6597	0.4911
0.9325	0.9312	0.8355	0.7854	0.6813	0.2961	0.2288	0.2842	0.2957	300
0.9325	0.9489	0.8744	0.8399	0.8090	0.7755	0.7484	0.7339	0.6597	0.4911

**APPENDIX VI
COMPUTER LISTING**

Unchoked Version

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// SET00236,01,RF212-42YA1,W.C.ROGER,MSGLEVEL=1,CLASS=C,TIME=4
//STEP1 EXEC FTHSTORE,PARM.FTH='EHC01C,NOEDIT,NOXREF',PGMNO=SET00236
C ----- PROGRAM NO. SER00238 ----- A 2
C A 3
C UNCHOKED FLOW WITH FREE SUBSONIC EXPANSION. A 4
C A 5
C COMPUTATION BASED ON LAX-WENDROFF METHOD. A 6
C TIME-DEPENDENT APPROACH TO STEADY STATE. A 7
C A 8
C COMMON /PGMNO/ NPROG(5) A 9
C A 10
C DATA KR/8/,K14/14/ A 11
C A 12
C WRITE (6,1) NPROG A 13
C WRITE (8,2) K8 A 14
C WRITE (14,2) K14 A 15
C A 16
C CALL ERRSET (207,256,-1,1) A 17
C CALL ERRSET (208,256,-1,1) A 18
C CALL ERRSET (209,256,-1,1) A 19
C A 20
C CALL CARDIN A 21
C CALL START A 22
C CALL MAINP A 23
C CALL ENDJOB A 24
C CALL EXIT A 25
C STOP A 26
C A 27
C A 28
C A 29
C A 30
1 FORMAT ('1',20X,'PROGRAMME NO. ',5A4/'0',22X,'REAL GAS TIME-DEPENDENT UNCHOKED NOZZLE FLOW WITH FREE EXPANSION '/') A 31
2 FORMAT ('1',20X,'OUTPUT FROM DATA SET NO.',13/'0' ) A 32
END A 33
FUNCTION RANDIT (X1,X2,X3,X4,X5) A 34
C B 1
C COMMON /FUBAR/ F1,F2,F3,F4,F5 B 2
C B 3
C CENTRAL 4-POINT SMOOTHING B 4
C B 5
C B 6
C B 7
C B 8
C B 9
C B 10
C B 11
C B 12
C B 13
C B 14
END
SUBROUTINE BEDLAM C 1
C C 2
C COMPUTE THE MAXIMUM MASS FLOW/AREA AT THE THROAT STATION. C 3
C ITERION. ASSUMES STATIC PRESSURE TO SATISFY DM/DP = 0 C 4
C USE 3-POINT PARABOLIC FIT C 5
C C 6
C INITIAL PRESSURE = 0.3*P2-MIN C 7

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C		C	8
	COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC	C	9
	COMMON /COUNT/ L,LL	C	10
	COMMON /EROS/ W(21,60,4),P(21,60)	C	11
	COMMON /NERO/ MF,NF,NT	C	12
	COMMON /STAG/ AA(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)	C	13
	I,PZ(21),TZ(21),HZ(21),RHOZ(21)	C	14
C		C	15
	DIMENSION A(3), X(3), Y(3)	C	16
C		C	17
	ZERO=0.0	C	18
C		C	19
	CALL PHIN (PANIC)	C	20
C		C	21
	XLOW=0.3*PANIC	C	22
	DELX=0.005000001*PANIC	C	23
C		C	24
	JERK=0	C	25
C		C	26
	COMPUTE FIRST THREE POINTS	C	27
	DO 1 K=1,3	C	28
	X(K)=XLOW+(K-1)*DELX	C	29
	CALL SETWP (X(K),NT)	C	30
	Y(K)=XMASS(NT)	C	31
1	CONTINUE	C	32
C		C	33
	DO 2 K=1,69	C	34
	JERK=K	C	35
	CALL PARAB (X,Y,A)	C	36
	IF (A(3).EQ.ZERO) A(3)=1.0D+69	C	37
	XTEST=-0.5*A(2)/A(3)	C	38
	IF (A(3).GE.ZERO) GO TO 3	C	39
	IF ((X(1).LE.XTEST).AND.(X(3).GE.XTEST)) GO TO 4	C	40
C		C	41
	X(1)=X(2)	C	42
	Y(1)=Y(2)	C	43
	X(2)=X(3)	C	44
	Y(2)=Y(3)	C	45
	X(3)=X(3)+DELX	C	46
C		C	47
	CALL SETWP (X(3),NT)	C	48
	Y(3)=XMASS(NT)	C	49
2	CONTINUE	C	50
C		C	51
	CONTINUE	C	52
C		C	53
	NO SOLUTION	C	54
	CALL BOMBER ('BEDLAM',JERK)	C	55
	RETURN	C	56
C		C	57
	CONTINUE	C	58
4	SOLUTION FOUND	C	59
C		C	60
	CALL SETWP (XTEST,NT)	C	61
	WEIGHT=XMASS(NT)	C	62
	PTHROT=XTEST	C	63
C		C	64
	COMPUTE PRESSURES CORRESPONDING TO CHOKED FLOW.	C	65
	CALL PHINQU (I)	C	66
	CALL PHINQU (NF)	C	67

	PSIAI=P(1,1)/144.0	C	64
	PSIAL=P(1,NF)/144.0	C	65
	PPDI=P(1,1)/PZ(21)	C	66
	PPOL=P(1,NF)/PZ(21)	C	67
	POT=PTHROT/PZ(21)	C	68
	CALL HEAD6	C	69
	WRITE (6,5)	C	70
	WRITE (6,7) WEIGHT,PTHROT,PANIC	C	71
	WRITE (6,6) POT,PSIAI,PPDI,PSIAL,PPOL	C	72
C		C	73
	RETURN	C	74
C		C	75
C		C	76
5	FORMAT (/20X,' CONDITIONS FOR CHOKED FLOW AT MINIMUM AREA ' /)	C	77
6	FORMAT (/20X,' THROAT P/PO =',F7.4,3X,' INLET PRESSURE =',F8.3,' IP	C	78
	1STIA)',3X,' P/PO =',F9.4//20X,' EXIT PRESSURE =',F8.3,' (PSIAI)',3X,' P	C	79
	2/PO =',F9.4 /)	C	80
7	FORMAT (/20X,' WEIGHT=',1P15.6,3X,' PTHROT=',1G15.6,3X,' PANIC=',1G15	C	81
	1.6 /)	C	82
	END	C	83-
	SUBROUTINE BNDRY	D	1
C		D	2
	COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4	D	3
	COMMON /SUPER/ R(21,60)	D	4
	COMMON /SPQR/ SI(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	D	5
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT	D	6
	COMMON /EROS/ W(21,60,4),P(21,60)	D	7
	DATA ZERO/0.0,ONE/1.0/	D	8
	COMMON /FRAN/ AD(60),AI(60),BD(60),BI(60)	D	9
	DIMENSION PP(100)	D	10
C		D	11
C	COMPUTE OUTER BOUNDARY PRESSURES	D	12
	DO 1 K=1,60	D	13
1	PP(K)=P(MF,K)	D	14
C		D	15
	DO 2 K=2,LIMIT	D	16
	X=W(MF,K,2)**2/W(MF,K,1)	D	17
	X=X/SI(K)	D	18
	DP=0.5*(PP(K+1)-PP(K-1))	D	19
	CORR=RO(K)*DP-AD(K)*X	D	20
	P(MF,K)=P(MF-1,K)+CORR	D	21
2	CONTINUE	D	22
	DO 3 K=2,LIMIT	D	23
	SOP<=SOP(K)	D	24
	DANGLE=ONE+SOPK**2	D	25
	DANGLE=SQRT(ONE/DANGLE)	D	26
	CALL GRONK (ONE,P(MF,K),RHO,VEL,EASY)	D	27
	W(MF,K,1)=RHO*R(MF,K)	D	28
	W(MF,K,2)=RHO*R(MF,K)*VEL*DANGLE	D	29
	W(MF,K,3)=W(MF,K,2)*SOPK	D	30
3	W(MF,K,4)=EASY*R(MF,K)	D	31
	DO 4 K=1,60	D	32
4	PP(K)=P(1,K)	D	33
	DO 5 K=2,LIMIT	D	34
	X=W(1,K,2)**2/W(1,K,1)	D	35
	X=X/SI(K)	D	36

	DP=0.5*(PP(K+1)-PP(K-1))	D	37
	CORR=BI(K)*OP-AI(K)*X	D	38
5	P(1,K)=P(2,K)+CORR	D	39
C		D	40
	DO 6 K=2,LIMIT	D	41
	SIPK=SIP(K)	D	42
	DINGLE=DNE+SIPK**2	D	43
	DANGLE=SQRT(ONE/DINGLE)	D	44
	CALL GRONK (ZERO,P(1,K),RHO,VEL,EASY)	D	45
	W(1,K,1)=RHO*R(1,K)	D	46
	W(1,K,2)=RHO*R(1,K)*VEL*DANGLE	D	47
	W(1,K,3)=W(1,K,2)*SIPK	D	48
6	W(1,K,4)=EASY*R(1,K)	D	49
C		D	50
	RETURN	D	51
	END	D	52
	SUBROUTINE BOMBER (NAME,KODE)	E	1
C		E	2
	DIMENSION NAME(2)	E	3
C		E	4
	WRITE (6,1) NAME(1),NAME(2),KODE	E	5
	CALL ENDJOB	E	6
	CALL EXIT	E	7
	RETURN	E	8
C		E	9
C		E	10
I	FORMAT (/20X,'BOMB-OUT IN ',2A4,3X,'CODE=',15/)	E	11
	END	E	12
	SUBROUTINE CAROIN	F	1
	COMMON /SPY/ KCLASS,KGROUP	F	2
	DIMENSION KARD(20)	F	3
	CALL DEMON	F	4
	READ (5,3) KCLASS,KGROUP	F	5
	WRITE (6,8) KCLASS,KGROUP	F	6
	CALL PCLASS	F	7
	DO 2 K=1,6969	F	8
	READ (5,4,END=9) KARD	F	9
	IF (MOD(K-1,50).NE.0) GO TO 1	F	10
	CALL PCL6	F	11
	WRITE (6,7)	F	12
1	WRITE (6,5) KARD,K	F	13
2	CONTINUE	F	14
9	REWIND 5	F	15
	WRITE (6,6)	F	16
	RETURN	F	17
C		F	18
3	FORMAT (16I5)	F	19
4	FORMAT (20A4)	F	20
5	FORMAT (10X,20A4,3X,15)	F	21
6	FORMAT (2X,50('*'),' END OF INPUT DATA ',50('*'))	F	22
7	FORMAT (18X,' INPUT DATA CARD IMAGE PROGRAM NO. SER00142' /)	F	23
8	FORMAT (/20X,'SECURITY CLASS AND GROUP CLASS=',15,' GROUP=',15/)	F	24
	END	F	25
	SUBROUTINE CDVD (CLAP,VENUS,PUNTZ,NASTY)	C	1
C		G	2
C	AT A GIVEN X-STATION.	G	3

C	COMPUTE DISCHARGE COEFFICIENT-CD AND THRUST COEFFICIENT-VD.	G	4
C		G	5
	COMMON /EROS/ W(21,60,4),P(21,60)	G	6
	COMMON /DELTAS/ DX,OY,OT	G	7
	COMMON /NERO/ M,N,NT,MUFF	G	8
	COMMON /SPQR/ S(60)	G	9
	COMMON /SUPER/ R(21,60)	G	10
C		G	11
	NX=NASTY	G	12
C		G	13
	CD=(W(M,NX,2)+W(1,NX,2))*0.5	G	14
	VD=(W(M,NX,2)**2/W(M,NX,1)+W(1,NX,2)**2/W(1,NX,1))*0.5	G	15
	PUNE=(P(M,NX)*R(M,NX)+P(1,NX)*R(1,NX))*0.5	G	16
C		G	17
	DO 1 K=2,MUFF	G	18
	CD=CD+W(K,NX,2)	G	19
	VD=VD+W(K,NX,2)**2/W(K,NX,1)	G	20
1	PUNE=PUNE+P(K,NX)*R(K,NX)	G	21
C		G	22
	SEX=S(NX)*DY*2.0	G	23
	CLAP=SEX*CD	G	24
	VENUS=SEX*VD	G	25
	PUNTZ=PUNE*SEX	G	26
C		G	27
	RETURN	G	28
C		G	29
	END	H	30
	SUBROUTINE CHECK	H	1
C		H	2
	COMPUTE THE MASS FLOW EITHER AT THE ENTRANCE OR EXIT.	H	3
C	PANZY > 0 ENTRANCE PSIA GIVEN	H	4
C	PANZY < 0 EXIT PSIA GIVEN	H	5
C		H	6
	READ (5,4) PANZY,PZ,GAMMA	H	7
	WRITE (6,2) PANZY,PZ,GAMMA	H	8
	IF (PZ.EQ.0.0) GO TO 1	H	9
	PANZY=SIGN(PZ*PRAT(PANZY,GAMMA),PANZY)	H	10
1	PSIA=PANZY	H	11
	PANZY=PSIA*144.0	H	12
	WRITE (6,3) PSIA,PANZY	H	13
C		H	14
	CALL FIRST (PANZY)	H	15
	CALL DOWN (-PANZY)	H	16
C		H	17
	RETURN	H	18
C		H	19
		H	20
2	FORMAT (/20X,'PANZY=',F10.4,3X,'PZ=',F10.3,2X,'GAMMA=',F7.3/)	H	21
3	FORMAT (/20X,'P(IN/OUT) =',F10.4,'(PSIA)',3X,F10.2,'(PSPA)' /)	H	22
4	FORMAT (6E12.0)	H	23
	END	H	24
	SUBROUTINE CIPORT (PO,TO,OEN,FUZZ,PSTAT,TEMP,VEL,EASY)	I	1
C	INPUT	I	2
C	COMPUTED	I	3
C		I	4
C	COMPUTE STATIC PROPERTIES FOR A GIVEN STATIC DENSITY.	I	5
C		I	5

C	PO = STAGNATION PRESSURE	6
C	TO = STAGNATION TEMPERATURE	7
C	DEN = STATIC DENSITY	8
C	FUZZ = STREAMLINE	9
C	-----	10
C	COMMON /LIMITS/ VMIN	11
C	COMMON /THERMO/ CPX(3),CVX(3),RAG	12
C	-----	13
1	CONTINUE	14
C	ZERO=0.0	15
C	-----	16
C	PZ=PO	17
C	TZ=TO	18
C	RHO=DEN	19
C	F=FUZZ	20
C	-----	21
C	RRATIO=RHO*RAG*TZ/PZ	22
C	-----	23
C	T = HANKY(CVX,RRATIO,TZ,RAG) *****	24
C	AZ=CVX(1)	25
C	A1=CVX(2)	26
C	A2=CVX(3)	27
C	X=RRATIO	28
C	RGAS=RAG	29
C	POWER=RGAS/AZ	30
C	FUDGE=X**POWER	31
C	RARF=A1/AZ	32
C	TRAF=A2*0.5/AZ	33
C	-----	34
C	LET FIRST GUESS FOR T = TZ	35
C	T=TZ	36
C	DO 2 K=1,5	37
C	TTZ=T/TZ	38
C	EPAR=(TZ-T)*(RARF+(TZ+T)*TRAF)	39
C	XLAX=EXP(EPAR)	40
C	TRAT=XLAX*FUDGE	41
C	COMPARE "TRAT" WITH "TTZ"	42
C	TCOMP=TRAT*TZ	43
C	ERROR=TCOMP-T	44
C	T=TCOMP	45
2	CONTINUE	46
C	-----	47
C	PRES=T*RHO*RAG	48
C	-----	49
C	DH=HOTS(CPX,T,TZ)	50
C	VELOC=SQRT(DH*DH)	51
C	VELOC=AMAX1(VELOC,VMIN)	52
C	H0=HZER0(F)	53
C	E=H0*RHO-PRES	54
C	-----	55
C	PSTAT=PRES	56
C	VEL=VELOC	57
C	EASY=E	58
C	TENP=T	59
C	-----	60
C	-----	61

	RETURN	J	62
C	END	J	63
	SUBROUTINE CPEVAL	J	64
C		J	1
	COMMON /CPDATA/ CP(3,8),WTN(8),NAME(8)	J	2
C		J	3
	DATA KRUD/'PERF'/	J	4
	DIMENSION X(8), Y(8)	J	5
C	CP ARRAY	J	6
C	1 - AIR 5 - O2	J	7
C	2 - CO2 6 - N2	J	8
C	3 - CO 7 - ARGON	J	9
C	4 - H2O 8 - H2	J	10
C		J	11
	INTEGER*4 LBMASS(4)/'CP(B','TU/L','BMAS','S-R)'/	J	12
	* , LBMOLE(4)/'CP(B','TU/L','BMOL','E-R)'/	J	13
	* , KGAMMA(4)/'CP(C','V GA','MNA ',' ')/	J	14
C		J	15
C	-----,IO) NOMEN,ADDA	J	16
C		J	17
	READ (5,IO) NOMEN,ADDA	J	18
C		J	19
	IF (NOMEN.NE.KRUD) GO TO 3	J	20
	DO 2 J=1,8	J	21
	DO 1 K=2,3	J	22
1	CP(K,J)=-0.0	J	23
C		J	24
2	CONTINUE	J	25
	CP(1,1)=0.24009	J	26
C		J	27
3	CONTINUE	J	28
	NCP=19	J	29
	R=1.98726	J	30
C		J	31
	CALL HEAD6	J	32
C		J	33
	WRITE (6,11)	J	34
C		J	35
	WRITE (6,12) (K,NAME(K),WTN(K),1CP(J,K),J=1,3),K=1,8)	J	36
C		J	37
	WRITE (6,14) NAME,LBMASS	J	38
C		J	39
	DO 5 J=1,NCP	J	40
	A=J-1	J	41
	A=A+ADDA	J	42
	T=A*100.0	J	43
	DO 4 K=1,8	J	44
	X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)	J	45
4	CONTINUE	J	46
C		J	47
	WRITE (6,13) T,X,T	J	48
	IF (MOD(J,5).EQ.0) WRITE (6,16)	J	49
5	CONTINUE	J	50
C		J	51
	WRITE (6,15)	J	52
	WRITE (6,14) NAME,LBMOLE	J	53

C		J	54
	DO 7 J=1,NCP	J	55
	A=J-1	J	56
	A=A+ADDA	J	57
	T=A*100.0	J	58
	DO 6 K=1,8	J	59
	X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)	J	60
	X(K)=X(K)*WTM(K)	J	61
6	CONTINUE	J	62
C		J	63
	WRITE (6,13) T,X,T	J	64
	IF (MOD(J,5).EQ.0) WRITE (6,14)	J	65
7	CONTINUE	J	66
C		J	67
C		J	68
	WRITE (6,14) NAME,KGAMMA	J	69
C		J	70
	DO 9 J=1,NCP	J	71
	A=J-1	J	72
	A=A+ADDA	J	73
	T=A*100.0	J	74
C		J	75
	DO 8 K=1,8	J	76
	X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)	J	77
	X(K)=X(K)*WTM(K)	J	78
	FUZZ=X(K)-R	J	79
	Y(K)=X(K)/FUZZ	J	80
8	CONTINUE	J	81
C		J	82
	WRITE (6,13) T,Y,T	J	83
	IF (MOD(J,5).EQ.0) WRITE (6,16)	J	84
C		J	85
9	CONTINUE	J	86
C		J	87
	RETURN	J	88
C		J	89
C		J	90
C		J	91
10	FORMAT (A4,E16.0)	J	92
11	FORMAT (' ',20X,'CP DATA' //20X,'COEFFICIENTS FOR CP(BTU/LB.MASS)	J	93
	I= FIT-RANKINE)' //23X,'MOL. WT.',5X,'A0',10X,'A1*T',13X,'A2*T**2')	J	94
12	FORMAT (/10X,15,2X,A4,0PF10.3,1P3G15.6)	J	95
13	FORMAT (10X,F8.1,5X,8F9.4,2X,F8.1)	J	96
14	FORMAT (/12X,'RANKINE',8X,8(A4,5X),2X,4A4/)	J	97
15	FORMAT ('1')	J	98
16	FORMAT (' ')	J	99
	END	J	100-
	FUNCTION CSUBP (TEMP)	K	1
	COMMON /THERMO/ CP(3),CV(3)	K	2
	T=TEMP	K	3
	C=CP(1)+T*(CP(2)+CP(3)*T)	K	4
	CSUBP=C	K	5
	RETURN	K	6
C	-----	K	7
C		K	8
	ENTRY CSUBV(TEMP)	K	9

C	COMPUTE CV AS A FUNCTION OF TEMPERATURE.	K	10
C		K	11
	T=TEMP	K	12
	C=CV(1)+T*(CV(2)+CV(3)*T)	K	13
	CSUBV=C	K	14
	RETURN	K	15
	END	K	16
	SUBROUTINE CYCLE	L	1
C		L	2
	COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4	L	3
	COMMON /DUPER/ HA(21),HB(21)	L	4
	COMMON /EROS/ W(21,60,4),P(21,60)	L	5
	COMMON /FANG/ F(9,4),G(9,4)	L	6
	COMMON /FURD/ WNORTH(4),WSOUTH(4),WWEST(4),WEAST(4)	L	7
	COMMON /NAVIER/ DTOX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8	L	8
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT	L	9
	COMMON /STOKES/ A(60),B(60),H(60)	L	10
	COMMON /STUPID/ FUZZ(21,60)	L	11
C		L	12
C	9-POINT GRID COMPUTATION SCHEME	L	13
C	4-POINT AT DT/2	L	14
C		L	15
C	7 8 9	L	16
C	NORTH 2	L	17
C		L	18
C	4 WEST 5 EAST 6 3 X 4	L	19
C		L	20
C	SOUTH 1	L	21
C		L	22
C	1 2 3	L	23
C		L	24
C		L	25
	DO 4 M=2,MUFF	L	26
	Y=HB(M)	L	27
C		L	28
	DO 3 N=2,LIMIT	L	29
	HN=H(N)	L	30
	EAST=A(N+1)*Y+B(N+1)	L	31
	WEST=A(N-1)*Y+B(N-1)	L	32
	ANYB=A(N)*Y+B(N)	L	33
	FUDGE=A(N)*DY2	L	34
	YANKEE=ANYB+FUDGE	L	35
	RETEL=ANYB-FUDGE	L	36
C		L	37
	CALL SNAFU (M,N)	L	38
C		L	39
	DO 1 K=1,4	L	40
C		L	41
	F64=F(6,K)-F(4,K)	L	42
	GR2=(G(8,K)-G(2,K))*HN	L	43
	F82=(F(8,K)-F(2,K))*ANYB	L	44
C		L	45
C	COMPUTE NORTH POINT	L	46
	WRAR=(W(M,N,K)+W(M+1,N,K))*0.5	L	47
	FX=(F64+F(9,K)-F(7,K))*DTDX8	L	48
	FY=(F(8,K)-F(5,K))*YANKEE	L	49

	GY=(G(8,K)-G(5,K))*HN	L	50
	WNORTH(K)=WBAR+FX+GY-FY	L	51
C		L	52
C	COMPUTE SOUTH POINT	L	53
	WBAR=(W(M,N,K)+W(M-1,N,K))*0.5	L	54
	FX=(F(64,K)-F(1,K))*DIOX8	L	55
	FY=(F(5,K)-F(2,K))*REBEL	L	56
	GY=(G(5,K)-G(2,K))*HN	L	57
	WSOUTH(K)=WBAR+FX+GY-FY	L	58
C		L	59
C	COMPUTE EAST POINT	L	60
	WBAR=(W(M,N+1,K)+W(M,N,K))*0.5	L	61
	FX=(F(6,K)-F(5,K))*DIOX2	L	62
	FY=(F(9,K)-F(3,K))*EAST	L	63
	GY=(G(9,K)-G(3,K))*H(N+1)	L	64
	WEAST(K)=WBAR+FX+(GY+G82-FY-F82)*0.25	L	65
C		L	66
C	COMPUTE WEST POINT	L	67
	WBAR=(W(M,N-1,K)+W(M,N,K))*0.5	L	68
	FX=(F(5,K)-F(4,K))*DIOX2	L	69
	FY=(F(7,K)-F(1,K))*WEST	L	70
	GY=(G(7,K)-G(1,K))*H(N-1)	L	71
1	WWEAST(K)=WBAR+FX+(GY+G82-FY-F82)*0.25	L	72
C		L	73
	WNORTH(3)=WNORTH(3)+DT4*(P(M,N)+P(M+1,N))	L	74
	WSOUTH(3)=WSOUTH(3)+DT4*(P(M,N)+P(M-1,N))	L	75
	WEAST(3)=WEAST(3)+DT4*(P(M,N)+P(M,N+1))	L	76
	WWEAST(3)=WWEAST(3)+DT4*(P(M,N)+P(M,N-1))	L	77
C		L	78
	CALL EVAL (WNORTH,2,(FUZZ(M,N)+FUZZ(M+1,N))*0.5)	L	79
	CALL EVAL (WSOUTH,1,(FUZZ(M,N)+FUZZ(M-1,N))*0.5)	L	80
	CALL EVAL (WEAST,4,(FUZZ(M,N)+FUZZ(M,N+1))*0.5)	L	81
	CALL EVAL (WWEAST,3,(FUZZ(M,N)+FUZZ(M,N-1))*0.5)	L	82
C		L	83
	DO 2 K=1,4	L	84
	FX=(F(4,K)-F(3,K))*DIOX	L	85
	FY=(F(2,K)-F(1,K))*ANYB	L	86
	GY=(G(2,K)-G(1,K))*HN	L	87
2	W(M-1,N-1,K)=W(M,N,K)+FX+2.0*(GY-FY)	L	88
	W(M-1,N-1,3)=W(M-1,N-1,3)+P(M,N)*DT	L	89
C		L	90
3	CONTINUE	L	91
4	CONTINUE	L	92
C		L	93
	CALL WEIRDO	L	94
	RETURN	L	95
	END	L	96
	SUBROUTINE DEMON	M	1
	IMPLICIT REAL*8(A-H,O-Z)	M	2
	COMMON /APE/ D(10),ARONUM,WEEKDY,KDATE(3)	M	3
	REAL*8 TWTF(7)	M	4
	* / ' TUESDAY', ' WEDNSDY', ' THURSDY', ' FRIDAY '	M	5
	* , ' SATURDY', ' SUNDAY ', ' MONDAY ' /	M	6
	INTEGER MONTH(13)/ ' JAN', ' FER', ' MAR', ' APR', ' MAY', ' JUN'	M	7
	* , ' JUL', ' AUG', ' SEPT', ' OCT', ' NOV', ' DEC '	M	8
	INTEGER JERK(12)/31,28,31,30,31,30,31,31,30,31,30,31/	M	9

	INTEGER LUSH/'1900', LULU/'00',	M	10
	CALL GETNMD (ARONUM,KYEAR)	M	11
	KDAY=MOD(KYEAR,1000)	M	12
	KYEAR=KEYEAR/1000	M	13
	IF(MOD(KYEAR,4).EQ.0) JERK(2)=29	M	14
	L = KYEAR - 69	M	15
	J = L/4 + L + KDAY	M	16
	L = MOD(J,7) + 1	M	17
	WEEKDY=TWTFS(L)	M	18
	K=KDAY	M	19
	DO 1 J=1,12	M	20
	M=J	M	21
	IF (K.LE.JERK(J)) GO TO 2	M	22
1	K=K-JERK(J)	M	23
	K=0	M	24
	M=13	M	25
2	MUNTH=MONTH(M)	M	26
	KDATE(1)=MUNTH	M	27
	KDATE(2)=LULU+256*((K/10)+256+MOD(K,10))	M	28
	KDATE(3) = LUSH + 256*(KEYEAR/10) + MOD(KEYEAR,10)	M	29
	RETURN	M	30
	END	M	31
	SUBROUTINE DDDOLE	N	1
	COMMON /EROS/ W(21,60,4),P(21,60)	N	2
	COMMON /FLIGNR/ WEIGHT	N	3
	COMMON /NERD/ MF,MF,NT,MUFF,LIMIT	N	4
	COMMON /STUPID/ F(21,60)	N	5
	COMMON /SUPER/ R(21,60)	N	6
	DATA ZERO/0.0/,ONE/1.0/,BIGGY/0.01/,SMALL/-0.01/,HUGE/1.69E+12/	N	7
	DO 2 J=2,LIMIT	N	8
	REL=(WEIGHT-XMASS(J))/WEIGHT	N	9
	DO 1 K=1,MF	N	10
	FACTOR=RIDDLE(K,J)	N	11
	IF (FACTOR.EQ.ZERO) FACTOR=HUGE	N	12
	EPAR=REL/FACTOR	N	13
	IF (EPAR.GT.BIGGY) EPAR=BIGGY	N	14
	IF (SMALL.GT.EPAR) EPAR=SMALL	N	15
1	W(K,J,1)=W(K,J,1)*(ONE+EPAR)	N	16
2	CONTINUE	N	17
	CALL ROGUE	N	18
	DO 4 K=1,MF	N	19
	DO 3 J=2,LIMIT	N	20
	FUZZ=F(K,J)	N	21
	RHO=W(K,J,1)	N	22
	RMAX=0.995*RHOMAX(FUZZ)	N	23
	RHO=DUMDUM(RHO,RMAX)	N	24
	CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,TANG)	N	25
	TANG=W(K,J,3)/W(K,J,2)	N	26
	COSN=ONE/SORT1(ONE+TANG**2)	N	27
	W(K,J,1)=RHO*RI(K,J)	N	28
	W(K,J,2)=W(K,J,1)*VEL*COSN	N	29
	W(K,J,3)=W(K,J,2)*TANG	N	30
	W(K,J,4)=EASY*RI(K,J)	N	31
3	P(K,J)=PSTAT	N	32
4	CONTINUE	N	33
	RETURN	N	34

	END	N	35-
	SUBROUTINE ENDJOB	O	1
C		O	2
	CALL HEAD6	O	3
	CALL HEAD8	O	4
	CALL HEAD14	O	5
C		O	6
	WRITE (6,1)	O	7
	WRITE (8,2)	O	8
	WRITE (14,3)	O	9
C		O	10
	WRITE (14,4)	O	11
	WRITE (14,4)	O	12
C		O	13
	CALL EXIT	O	14
	RETURN	O	15
C		O	16
C		O	17
1	FORMAT ('2',40('**'),' END OF DATA SET 6 ',40('**'))	O	18
2	FORMAT ('2',40('**'),' END OF DATA SET 8 ',40('**'))	O	19
3	FORMAT ('2',40('**'),' END OF DATA SET 14 ',40('**'))	O	20
4	FORMAT	O	21
	1(30X) ***** * * *** ***** ***** * ***** **** /	O	22
	2 30X' * ** * * * * * * * * * * * * * * /	O	23
	3 30X' *** * * * * * * * * * * * * * * /	O	24
	4 30X' * * * * * * * * * * * * * * /	O	25
	5 30X' ***** * * *** ***** * * * * * * * * * /	O	26
	END	O	27-
	SUBROUTINE ENIGMA	P	1
	COMMON /ERDS/ W(21,60,4),P(21,60)	P	2
	COMMON /COUNT/ L,LL	P	3
	COMMON /NERD/ MF,NF,NT	P	4
	COMMON /NITWIT/ CLOWN,VULGAR	P	5
	CALL HEAD6	P	6
	WRITE (6,6) L	P	7
	WRITE (6,3)	P	8
	WRITE (6,5)	P	9
	CALL CDVD (CDT,VDT,PUNTZ,NT)	P	10
	IF (L.NE.0) GO TO 1	P	11
	CLOWN=CDT	P	12
	VULGAR=VDT	P	13
1	DO 2 K=1,NF	P	14
	CALL CDVD (A,B,PUNTZ,K)	P	15
	AX=A/CDT	P	16
	AXX=A/CLOWN	P	17
	BX=B/VDT	P	18
	BXX=B/VULGAR	P	19
	SUM=PUNTZ+B	P	20
	THRUST=SUM*3.141593	P	21
	WF=A*3.141593*32.174	P	22
	WRITE (6,4) WF,AX,AXX,B,BX,BXX,PUNTZ,THRUST,K	P	23
	IF (K.EQ.NT) WRITE (6,7)	P	24
2	CONTINUE	P	25
	RETURN	P	26
C		P	27
3	FORMAT (/20X,'DISCHARGE(CD),THRUST(VD),AND PRESSURE(PD) COEFFICIE	P	28

	INTS' /)	P	29
4	FORMAT (10X,1PG14.5,OPF10.5,4X,F10.5,4X,1P5G14.5,1X,12)	P	30
5	FORMAT (/16X,'WF',11X,'WF/WF',6X,'WF/WF1',9X,'VO',11X,'VO/VO',7	P	31
	1X,'VO/VO-1',9X,'PD',11X,'THRUST(LBF)')/)	P	32
6	FORMAT (/20X,'ITERATION NO.=',15/)	P	33
7	FORMAT ('+',5X,'THROAT')	P	34
	END	P	35
	SUBROUTINE EQUATE (K,J,NERD)	Q	1
	DIMENSION K(1), J(1)	Q	2
	N=NERD	U	3
	DO 1 L=1,N	Q	4
1	K(L)=J(L)	Q	5
	RETURN	Q	6
	END	Q	7
	SUBROUTINE EVAL (A,ISW,ATE)	R	1
C	COMMON /FANG/ F(9,4),G(9,4)	R	2
C		R	3
C	DIMENSION A(4)	R	4
C		R	5
C	ZERO=0.0	R	6
	ETA=ATE	R	7
C		R	8
	IF (A(1).NE.ZERO) GO TO 1	R	9
	Z2=ZERO	R	10
	Z3=ZERO	R	11
	PR=ZERO	R	12
	GO TO 2	R	13
C		R	14
1	CONTINUE	R	15
	Z2=A(2)/A(1)	R	16
	Z3=A(3)/A(1)	R	17
	HO=HZERO(ETA)	R	18
	PR=HO*A(1)-A(4)	R	19
2	CONTINUE	R	20
	F(1SW,1)=-A(2)	R	21
	F(1SW,2)=- (Z2*A(2)+PR)	R	22
	F(1SW,3)=-Z2*A(3)	R	23
	F(1SW,4)=- (Z2*(A(4)+PR))	R	24
	G(1SW,1)=-A(3)	R	25
	G(1SW,2)=F(1SW,3)	R	26
	G(1SW,3)=- (Z3*A(3)+PR)	R	27
	G(1SW,4)=- (Z3*(A(4)+PR))	R	28
	RETURN	R	29
	END	R	30
	SUBROUTINE FIASCO	R	31
C		S	1
C	COMMON /EROS/ W(21,60,4),P(21,60)	S	2
	COMMON /NERD/ MF,NF,NY,MUFF,LIMIT,NASTY	S	3
	COMMON /SPQR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	S	4
	COMMON /\$EXX/ NASTIE,TDIDY	S	5
	DIMENSION X(21)	S	6
C		S	7
C	DATA ONE/1.0/	S	8
C		S	9
	IF (NASTIE.LE.0) RETURN	S	10
		S	11

	DO 3 J=2,NASTY	S	12
C		S	13
	X(1)=SIP(J)	S	14
	X(MF)=SNP(J)	S	15
	DO 1 K=2,MUFF	S	16
1	X(K)=W(K,J,3)/W(K,J,2)	S	17
C		S	18
	CALL SMOOTH (X,MF,3)	S	19
C		S	20
	DO 2 K=2,MUFF	S	21
	TN=X(K)	S	22
	RWR=SORTF(W(K,J,2)**2+W(K,J,3)**2)	S	23
	CN=SORTF(ONE/(TN**2+ONE))	S	24
	SN=CN*TN	S	25
	W(K,J,3)=SN*RWR	S	26
	W(K,J,2)=CN*RWR	S	27
2	CONTINUE	S	28
C		S	29
3	CONTINUE	S	30
C		S	31
	RETURN	S	32
C		S	33
	END	S	34
	SUBROUTINE FIRST (PP)	T	1
C		T	2
	COMMON /ABLE/ AX(21,2),BX(21,2)	T	3
	COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC	T	4
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY	T	5
C	"JX" IS X-STATION INDEX.	T	6
	P=PP	T	7
	IF (P) 1,2,4	T	8
1	RETURN	T	9
2	CALL ROMBER ('-FIRST--',98)	T	10
3	CALL ROMBER ('-FIRST--',97)	T	11
4	JX=1	T	12
C		T	13
C	IF JX= 1 , LUSH= 1	T	14
C	IF JX= NF, LUSH= 2	T	15
5	LUSH=(NF-2+JX)/(NF-1)	T	16
	DO 6 K=1,MF	T	17
	X=P*AX(K,LUSH)	T	18
	SLOPE=BX(K,LUSH)	T	19
6	CALL HUNTZ (K,JX,X,SLOPE)	T	20
C		T	21
	BLIVET=XMASS(JX)	T	22
	WRITE (6,13) BLIVET,JX	T	23
C		T	24
	IF (BLIVET-WEIGHT) 7,7,3	T	25
C		T	26
7	JX=NF+1-JX	T	27
	LUSH=3-LUSH	T	28
	WEIGHT=BLIVET	T	29
	XLOW=PTHROT	T	30
	XHIG=PANIC	T	31
C		T	32
	DO 11 KOUNT=1,20	T	33

	X=(XLOW+XHIG)*0.5	T	34
C		T	35
	DO 8 K=1,MF	T	36
	PIDDLE=X*AX(K,LUSH)	T	37
	SLOPE=BX(K,LUSH)	T	38
8	CALL HUNTZ (K,JX,PIDDLE,SLOPE)	T	39
C		T	40
	SEX=XMASS(JX)	T	41
	ERROR=SEX-BLIVET	T	42
	IF (ERROR) 9,9,10	T	43
C		T	44
9	XHIG=X	T	45
	GO TO 11	T	46
10	XLOW=X	T	47
11	CONTINUE	T	48
C		T	49
C	TEST FOR MASS	T	50
	RELERR=ERROR/BLIVET	T	51
	WRITE (6,14) JX,SEX,ERROR,RELERR	T	52
C		T	53
	RETURN	T	54
C		T	55
	ENTRY DOWN(PP)	T	56
	P=PP	T	57
	IF (P) 1,2,12	T	58
12	JX=NF	T	59
	GO TO 5	T	60
C		T	61
C		T	62
13	FORMAT (1/20X, 7H MASS =,E15.6,2X,15HAT STATION NO.,I3 /)	T	63
14	FORMAT (1/20X,15H AT X-STATION =,I3,2X, 6H MASS=,E15.6/20X, ' ABSO	T	64
	1LUTE ERROR=,E15.6,3X,17H RELATIVE ERROR =,2PF8.4,2H %/	T	65
	END	T	66
	SUBROUTINE FONKY (FUZZ,RHO,PSTAT,VEL,EASY,TEMP)	U	1
C	INPUT	U	2
C	COMPUTED	U	3
C	COMPUTE PROPERTIES AS A FUNCTION OF:	U	4
C	F = STREAMLINE VALUE	U	5
C	RHO = STATIC DENSITY	U	6
C		U	7
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	U	8
	1PZ(21),TZ(21),HZ(21)	U	9
	COMMON /THERMO/ CPX(3),CVX(3),RAG	U	10
C		U	11
T	CONTINUE	U	12
	ONE=1.0	U	13
	ZERO=0.0	U	14
C		U	15
	F=FUZZ	U	16
	D=RHO	U	17
C		U	18
	IF (F.EQ.ZERO) GO TO 3	U	19
	IF (F.EQ.ONE) GO TO 5	U	20
	IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('FONKY',1)	U	21
C		U	22
	X=F*20.0	U	23

	NEWKY=X	U	24
	DIGIT=NEWKY	U	25
	F2=X-DIGIT	U	26
	F1=ONE-F2	U	27
	J=NEWKY+1	U	28
	K=J+1	U	29
C		U	30
	PD=F1*PZ(J)+F2*PZ(K)	U	31
	TO=F1*TZ(J)+F2*TZ(K)	U	32
C		U	33
	DO 2 L=1,3	U	34
	CPX(L)=F1*CP(L,J)+F2*CP(L,K)	U	35
	CVX(L)=F1*CV(L,J)+F2*CV(L,K)	U	36
2	CONTINUE	U	37
C		U	38
	RAG=F1*RGAS(J)+F2*RGAS(K)	U	39
	GO TO 7	U	40
C		U	41
3	CONTINUE	U	42
	PD=PZ(1)	U	43
	TO=TZ(1)	U	44
	DO 4 L=1,3	U	45
	CPX(L)=CP(L,1)	U	46
	CVX(L)=CV(L,1)	U	47
4	CONTINUE	U	48
C		U	49
	RAG=RGAS(1)	U	50
	GO TO 7	U	51
C		U	52
5	CONTINUE	U	53
	PD=PZ(21)	U	54
	TO=TZ(21)	U	55
	DO 6 L=1,3	U	56
	CPX(L)=CP(L,21)	U	57
	CVX(L)=CV(L,21)	U	58
6	CONTINUE	U	59
	RAG=RGAS(21)	U	60
	GO TO 7	U	61
C		U	62
7	CONTINUE	U	63
C		U	64
	CALL CIPORT (PD,TO,D,F,PRES,TRANK,VELOC,E)	U	65
C		U	66
	PSTAT=PRES	U	67
	TEMP=TRANK	U	68
	EASY=E	U	69
	VEL=VELOC	U	70
C		U	71
	RETURN	U	72
C		U	73
	END	U	74
	SUBROUTINE FREAK (PRES,RHO,UU,VV,MY,NX,PO,TO,DEG,T,XM,VEL,GAM)	V	1
C	INPUT	V	2
C	COMPUTED	V	3
	COMMON /COUNT/ L,LL	V	4
	COMMON /NERD/ MF,NF,NT	V	5

	COMMON /STUPID/ FZ(21,60)	V	6
	COMMON /THERMO/ CPX(3),CVX(3),RAG	V	7
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)	V	8
C	-----	V	9
C	-----	V	10
C	-----	V	11
C	ZERO=0.0	V	12
C	-----	V	13
	P=PRES	V	14
	R=RHD	V	15
	U=UU	V	16
	V=VV	V	17
	M=MY	V	18
	N=NX	V	19
C	-----	V	20
	FUZZ=FZ(M,N)	V	21
	Q=V**2+U**2	V	22
C	-----	V	23
C	COMPUTE STREAMLINE PARAMETERS	V	24
	DO 1 K=2,MF	V	25
	J=K	V	26
	F2=FUZZ-FZ(K-1,1)	V	27
	F1=FZ(K,1)-FUZZ	V	28
	IF (F1*F2.GE.ZERO) GO TO 2'	V	29
1	CONTINUE	V	30
C	-----	V	31
C	FAIL TO FIND STREAMLINE	V	32
	CALL BOMBER ('FREAK...',1)	V	33
C	-----	V	34
2	CONTINUE	V	35
	SUM=F1+F2	V	36
	F1=F1/SUM	V	37
	F2=F2/SUM	V	38
	RAG=F1*RGAS(J-1)+F2*RGAS(J)	V	39
C	-----	V	40
	DO 3 K=1,3	V	41
	CPX(K)=F1*CP(K,J-1)+F2*CP(K,J)	V	42
	CVX(K)=F1*CV(K,J-1)+F2*CV(K,J)	V	43
3	CONTINUE	V	44
C	-----	V	45
	TEMP=P/(R*RAG)	V	46
	TZ=TSTAG(CPX,TEMP,Q)	V	47
	PZ=PTAG(CPX,TEMP,TZ,P,RAG)	V	48
C	-----	V	49
	TANG=V/U	V	50
	RAD=ATANF(TANG)	V	51
	DEGREE=RAD*57.29578	V	52
	SEX=CSUBP(TEMP)	V	53
	HEX=CSUBV(TEMP)	V	54
	GAMMA=SEX/HEX	V	55
	SONIC=SQRTF(GAMMA*RAG*TEMP)	V	56
	VELOC=SQRTF(Q)	V	57
	XMACH=VELOC/SONIC	V	58
C	-----	V	59
C	PQ=PZ	V	60
		V	61

	T0=T2	V	62
	DEG=DEGREE	V	63
	T=TEMP	V	64
	XM=XMACH	V	65
	VEL=VELOC	V	66
	GAM=GAMMA	V	67
C		V	68
	RETURN	V	69
C		V	70
	END	V	71
	SUBROUTINE GRONK (FUZZ,PP,RHO,VEL,EASY)	W	1
C		W	2
C	COMPUTE GAS PROPERTIES AS A FUNCTION OF:	W	3
C	F = STREAMLINE VALUE AND PP = STATIC PRESSURE	W	4
C		W	5
C	INPUT	W	6
C	FUZZ = STREAMLINE INDEX	W	7
C	PP = STATIC PRESSURE	W	8
C	CALCULATED	W	9
C	RHO = STATIC DENSITY	W	10
C	VEL = VELOCITY	W	11
C		W	12
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),NTM(21),GAMZ(21),RGAS(21),	W	13
	IPZ(21),TZ(21)	W	14
C		W	15
	COMMON /THERMO/ CPX(3),CVX(3),RAG	W	16
C		W	17
C		W	18
C		W	19
	F=FUZZ	W	20
	P=PP	W	21
C		W	22
	ONE=1.0	W	23
	ZERO=0.0	W	24
C		W	25
	IF (F.EQ.ZERO) GO TO 2	W	26
	IF (F.EQ.ONE) GO TO 4	W	27
	IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('GRONK',1)	W	28
C		W	29
	X=F*20.0	W	30
	NEWKY=X	W	31
	DIGIT=NEWKY	W	32
	F2=X-DIGIT	W	33
	F1=ONE-F2	W	34
	J=NEWKY+1	W	35
	K=J+1	W	36
	P0=F1*PZ(J)+F2*PZ(K)	W	37
	T0=F1*TZ(J)+F2*TZ(K)	W	38
C		W	39
	DO 1 L=1,3	W	40
	CPX(L)=F1*CP(L,J)+F2*CP(L,K)	W	41
	CVX(L)=F1*CV(L,J)+F2*CV(L,K)	W	42
1	CONTINUE	W	43
	RAG=F1*RGAS(J)+F2*RGAS(K)	W	44
	GO TO 6	W	45
2	CONTINUE	W	46

	PD=PZ(1)	W	47
	TD=TZ(1)	W	48
	DO 3 L=1,3	W	49
	CPX(L)=CP(L,1)	W	50
	CVX(L)=CV(L,1)	W	51
3	CONTINUE	W	52
	RAG=RGAS(1)	W	53
	GO TO 6	W	54
4	CONTINUE	W	55
	PD=PZ(2)	W	56
	TD=TZ(2)	W	57
	DO 5 L=1,3	W	58
	CPX(L)=CP(L,2)	W	59
	CVX(L)=CV(L,2)	W	60
5	CONTINUE	W	61
	RAG=RGAS(2)	W	62
	GO TO 6	W	63
C	**	W	64
6	CONTINUE	W	65
	CALL TROPIC (PD,TD,P,F,OEN,VELOC,E)	W	66
C		W	67
	RHO=DEN	W	68
	VEL=VELOC	W	69
	EASY=E	W	70
C	RETURN	W	71
		W	72
	END	W	73
C	FUNCTION HANKY (A,PANKY,TD,SAGR)	X	1
		X	2
C	D(MENSION A(1))	X	3
		X	4
C	AZ=A(1)	X	5
	A1=A(2)	X	6
	A2=A(3)	X	7
C		X	8
	X=PANKY	X	9
	TZ=TD	X	10
	RGAS=SAGR	X	11
C		X	12
C		X	13
	POWER=RGAS/AZ	X	14
	FUDGE=X**POWER	X	15
	BARF=A1/AZ	X	16
	TRAF=A2*0.5/AZ	X	17
C		X	18
C	LET FIRST GUESS FOR T = TZ	X	19
	T=TZ	X	20
	DO 1 K=1,5	X	21
	TTZ=T/TZ	X	22
	EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)	X	23
	XLAX=EXP(EPAR)	X	24
	TRAT=XLAX*FUDGE	X	25
C	COMPARE "TRAT" WITH "TTZ"	X	26
	TCOMP=TRAT*TZ	X	27
	ERROR=TCOMP-T	X	28
	T=TCOMP	X	29

1	CONTINUE	X	30
	HANKY=T	X	31
C		X	32
	RETURN	X	33
	END	X	34-
	SUBROUTINE HORN	Y	1
C		Y	2
C	ANNULAR NOZZLE	Y	3
C	COMPUTE THE STREAM FRACTION BASED ON 1-D GEOMETRY.	Y	4
C		Y	5
	COMMON /NERD/ M,N,NT,MUFF/STUPID/F(21,60)/SUPER/R(21,60)	Y	6
	COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	Y	7
C		Y	8
	CALL DREZ (F,1260)	Y	9
C		Y	10
	CALL HEAD6	Y	11
	DO 2 J=1,N	Y	12
	F(M,J)=1.0	Y	13
	ROGER=1.0/AREA(J)	Y	14
	DO 1 K=2,MUFF	Y	15
1	F(K,J)=(R(K,J)+R(1,J))*(R(K,J)-R(1,J))*ROGER	Y	16
	WRITE (6,3) J,(F(K,J),K=1,M)	Y	17
2	CONTINUE	Y	18
	RETURN	Y	19
C		Y	20
C		Y	21
3	FORMAT (10X,15,2X,11F10.4/17X,10F10.4/)	Y	22
	END	Y	23-
	FUNCTION HOTS (CP,TSTAT,TZERO)	Z	1
C		Z	2
C	COMPUTE THE ENTHALPY DIFFERENCE:	Z	3
C	HITZERO) - HITSTAT) = HOTS	Z	4
C	WHERE CP = CP(1) + CP(2)*T + CP(3)*T**2	Z	5
C		Z	6
	DIMENSION CP(1)	Z	7
C		Z	8
	A=CP(1)	Z	9
	B=CP(2)*0.5	Z	10
	C=CP(3)*0.3333333	Z	11
C		Z	12
	Y=TSTAT	Z	13
	X=TZERO	Z	14
	H=(X-Y)*(A+B*(X+Y)+C*(X**2+X*Y+Y**2))	Z	15
	HOTS=H	Z	16
C		Z	17
	RETURN	Z	18
C		Z	19
	END	Z	20-
	SUBROUTINE HUNT	AA	1
	COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	AA	2
	COMMON /NERD/ MF,NF,NT	AA	3
	DO 1 K=1,NF	AA	4
	S(K)=SO(K)-SI(K)	AA	5
1	AREA(K)=S(K)*(SO(K)+SI(K))	AA	6
	LITTLE=1	AA	7
	SMALL=AREA(1)	AA	8

	DO 2 K=2,NF	AA	9
	IF (SMALL.LE.AREA(K)) GO TO 2	AA	10
	SMALL=AREA(K)	AA	11
	LITTLE=K	AA	12
2	CONTINUE	AA	13
	AGONY=SORTF(SMALL)	AA	14
	CALL HEAD6	AA	15
	WRITE (6,4) LITTLE,SMALL,AGONY	AA	16
	WRITE (6,5)	AA	17
	DO 3 K=1,NF	AA	18
	AGONY=AREA(K)/SMALL	AA	19
	SNAFU=SORTF(AGONY)	AA	20
	WRITE (6,6) K,AREA(K),AGONY,SNAFU	AA	21
3	CONTINUE	AA	22
	NT=LITTLE	AA	23
	RETURN	AA	24
C		AA	25
C		AA	26
4	FORMAT (1/20X,'MIN X-STX =',14,3X,'MIN AREA=',F9.4,3X,' EFFECTIVE	AA	27
	RADIUS =',F10.4 /)	AA	28
5	FORMAT (1/33X,'AREA=',12X,'A/A=',11X,'R/R=', /)	AA	29
6	FORMAT (20X,15,3F15.4)	AA	30
	END	AA	31-
	SUBROUTINE HUNTZ (NY,NX,PRES,SLOPE)	AB	1
C		AB	2
C	GIVEN THE INDICIES (NY,NX) COMPUTE THE "W" AND "P" ARRAY VALUES.	AB	3
C	NY = ORDINATE INDEX	AB	4
C	NX = ABSCISSA INDEX	AB	5
C		AB	6
	COMMON /EROS/ W(21,60,4),P(21,60)	AB	7
	COMMON /NERD/ NF,NF,NT,HUFF,LIMIT	AB	8
	COMMON /STUPID/ F(21,60)	AB	9
	COMMON /SUPER/ R(21,60)	AB	10
	COMMON /SPQR/ SI(60),SD(60),SOP(60),SI(60),SIP(60),AREA(60)	AB	11
	COMMON /DUPER/ HA(21),HB(21)	AB	12
C		AB	13
C		AB	14
C		AB	15
	J=NY	AB	16
	K=NX	AB	17
	PP=PRES	AB	18
	FUZZ=F(J,K)	AB	19
C		AB	20
	COSIN=SORTF(1.0/(1.0+SLOPE**2))	AB	21
C		AB	22
C		AB	23
	CALL GRONK (FUZZ,PP,RHO,VEL,EASY)	AB	24
C		AB	25
	W1=RHO*R(J,K)	AB	26
	WV=W1*VEL	AB	27
	W2=WV*COSIN	AB	28
	W3=W2*SLOPE	AB	29
	W4=EASY*R(J,K)	AB	30
C		AB	31
	W(J,K,1)=W1	AB	32
	W(J,K,2)=W2	AB	33

	W(J,K,3)=W3	AB	34
	W(J,K,4)=W4	AB	35
	P(J,K)=PP	AB	36
C	RETURN	AB	37
C	END	AB	38
	FUNCTION HZERO (ETA)	AB	39
C		AC	40-
	COMPUTE STAGNATION ENTHALPY FOR STREAMLINE VALUE ETA	AC	1
C		AC	2
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	AC	3
	IPZ(21),YZ(21),HZ(21)	AC	4
C		AC	5
	ONE=1.0	AC	6
	ZERO=0.0	AC	7
	HZERO=HZ(21)	AC	8
	X=ETA	AC	9
	IF (X.EQ.ONE) RETURN	AC	10
	IF (X.LT.ZERO) CALL BOMBER ('HZERO',1)	AC	11
	IF (X.GT.ONE) CALL BOMBER ('HZERO',2)	AC	12
	X=X*20.0	AC	13
	N=X	AC	14
	R=N	AC	15
	R=X-R	AC	16
	F2=R	AC	17
	F1=ONE-F2	AC	18
	HOMO=HZ(N+1)*F1+HZ(N+2)*F2	AC	19
	HZERO=HOMO	AC	20
C		AC	21
	RETURN	AC	22
C		AC	23
	END	AC	24
	SUBROUTINE INITIAL	AC	25
C		AD	26-
	COMMON /COUNT/ L,LL	AD	1
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTV	AD	2
	COMMON /TYME/ T,FLIT	AD	3
	COMMON /FUBAR/ F1,F2,F3,F4,F5	AD	4
C		AD	5
	L=0	AD	6
	LL=0	AD	7
	T=0.0	AD	8
	FLIT=L	AD	9
	ZERO=0.0	AD	10
	READ (5,2) K1,K2,K3,K4,K5	AD	11
	WRITE (6,3) K1,K2,K3,K4,K5	AD	12
	F1=K1	AD	13
	F2=K2	AD	14
	F3=K3	AD	15
	F4=K4	AD	16
	F5=K5	AD	17
C		AD	18
	SUM=F1+F2+F3+F4+F5	AD	19
	IF (SUM.EQ.ZERO) CALL BOMBER ('FRITO',1)	AD	20
C		AD	21
		AD	22
		AD	23

	WRITE (6,4) F1,F2,F3,F4,F5,SUM	AD	24
C		AD	25
	F1=F1/SUM	AD	26
	F2=F2/SUM	AD	27
	F3=F3/SUM	AD	28
	F4=F4/SUM	AD	29
	F5=F5/SUM	AD	30
C		AD	31
	WRITE (6,4) F1,F2,F3,F4,F5	AD	32
C		AD	33
	CALL NAVSEA	AD	34
	CALL STAGG	AD	35
	CALL STATIC	AD	36
	CALL HORNY	AD	37
	CALL BEDLAM	AD	38
	CALL CHECK	AD	39
	DO 1 K=2,LIMIT	AD	40
1	CALL PHINDU (K)	AD	41
	CALL TRICKY	AD	42
	CALL OUTPUT	AD	43
C		AD	44
	RETURN	AD	45
C		AD	46
C		AD	47
2	FORMAT (16I5)	AD	48
3	FORMAT (/20X,'INTERPOLATION FACTORS'//20X,5I5)	AD	49
4	FORMAT (/20X,[P6G15.6])	AD	50
	END	AD	51
	FUNCTION LIBRARY (SDRFT)	AE	1
	SDRFT=0.0	AE	2
	LIBRARY=0	AE	3
	RETURN	AE	4
C		AE	5
	ENTRY COSRF(X)	AE	6
	COSRF=COS(X)	AE	7
	RETURN	AE	8
C		AE	9
	ENTRY SINRF(X)	AE	10
	SINRF=SIN(X)	AE	11
	RETURN	AE	12
C		AE	13
	ENTRY COSF(X)	AE	14
	COSF=COS(X)	AE	15
	RETURN	AE	16
C		AE	17
	ENTRY SINF(X)	AE	18
	SINF=SIN(X)	AE	19
	RETURN	AE	20
C		AE	21
	ENTRY TANF(X)	AE	22
	TANF=TAN(X)	AE	23
	RETURN	AE	24
C		AE	25
	ENTRY SORTF(X)	AE	26
	SORTF=0.0	AE	27
	IF (X.LE.0.00+0) RETURN	AE	28

	SORTF= SORT(X)	AE	29
	RETURN	AE	30
C		AE	31
	ENTRY ATANF(X)	AE	32
	ATANF=ATAN(X)	AE	33
	RETURN	AE	34
C		AE	35
	ENTRY DUMDUM(X,Y)	AE	36
	DUMDUM=Y	AE	37
	IF (X.LT.Y) DUMDUM=X	AE	38
	RETURN	AE	39
C	-----	AE	40
	ENTRY TANDF(X)	AE	41
	WDRGH=X/57.29578	AE	42
	TANDF=TAN(WDRGH)	AE	43
	RETURN	AE	44
	END	AE	45
	SUBROUTINE LINEAR (TARGET,X,NASTY,F1,F2,J1,J2,NOCON)	AF	1
C		AF	2
C	TARGET = INPUT VALUE	AF	3
C	X = MONOTONIC ARRAY	AF	4
C	NASTY = NO. OF "X'S"	AF	5
C	F1 & F2 = THE LINEAR INTERPOLATION FACTOR AND,	AF	6
C	J1 & J2 = THE " " INDICES, SUCH THAT:	AF	7
C	TARGET = F1*X(J1) + F2*X(J2)	AF	8
C	NOCON = NO SOLUTION CODE	AF	9
C		AF	10
	DIMENSION X(1)	AF	11
C	-----	AF	12
	ZERO=0.0	AF	13
	NX=NASTY	AF	14
	NOCON=1	AF	15
	IF (NX.LT.2) RETURN	AF	16
	NOCON=2	AF	17
	IF (NX.GT.21) RETURN	AF	18
C		AF	19
	NOCON=3	AF	20
	G1=TARGET-X(1)	AF	21
	G2=X(NX)-TARGET	AF	22
	SUM=G2*G1	AF	23
	IF (SUM.LT.ZERO) RETURN	AF	24
	DO 1 K=2,NX	AF	25
	J=K	AF	26
	G2=TARGET-X(K-1)	AF	27
	G1=X(K)-TARGET	AF	28
	IF ((G1*G2).GE.ZERO) GO TO 2	AF	29
1	CONTINUE	AF	30
	NOCON=4	AF	31
	RETURN	AF	32
C		AF	33
2	NOCON=5	AF	34
	SUM=G1+G2	AF	35
	IF (SUM.EQ.ZERO) RETURN	AF	36
	NOCON=0	AF	37
	F1=G1/SUM	AF	38
	F2=G2/SUM	AF	39

	J1=J-1	AF	40
	J2=J	AF	41
	RETURN	AF	42
	END	AF	43
	SUBROUTINE MAINP	AG	1
C		AG	2
	COMMON /DELTAS/ DX,DY,DY2,DY2,DY4	AG	3
	COMMON /COUNT/ L,LL	AG	4
	COMMON /NERD/ NF,NF,NT	AG	5
	COMMON /TYME/ T,FLIT	AG	6
C		AG	7
	READ (5,4) NOSEG,NOIT,K,KREEP	AG	8
	IF (K.LE.0) CALL INITIAL	AG	9
	IF (K.GT.0) CALL RESTOR	AG	10
	IF (K.LT.0) GO TO 3	AG	11
	IF (KREEP.NE.0) CALL MEYER	AG	12
C		AG	13
	CALL HEAD6	AG	14
C		AG	15
	K=NOSEG*NOIT	AG	16
	WRITE (6,5) NOSEG,NOIT,K	AG	17
C	IF (K.LE.0) CALL BOMBER ('MAINPROG',K)	AG	18
		AG	19
	CALL SAVEWP	AG	20
C		AG	21
	CALL PLOTP	AG	22
	CALL JINX	AG	23
	DO 2 K=1,NOSEG	AG	24
C		AG	25
	DO 1 J=1,NOIT	AG	26
	T=T+DT	AG	27
	L=L+1	AG	28
	FLIT=L	AG	29
	CALL RESET	AG	30
	CALL CYCLE	AG	31
	CALL RESET	AG	32
	CALL HNDRY	AG	33
	CALL DDDLE	AG	34
	CALL RESET	AG	35
	CALL FIASCO	AG	36
	CALL STREAM	AG	37
	CALL RESET	AG	38
1	CALL TRICKY	AG	39
C		AG	40
2	CALL OUTPUT	AG	41
	CALL JINX	AG	42
C		AG	43
3	CALL STORE	AG	44
C		AG	45
	RETURN	AG	46
C		AG	47
C		AG	48
C		AG	49
4	FORMAT (1615)	AG	50
5	FORMAT (720X,' NO. SEGMENTS =',14,5X,' NO. ITER/SEG. =',14,5X,'	AG	51
	TOTAL ITERATIONS =',15/)	AG	52

	END	AG	53-
	SUBROUTINE MAXIE (X,NDEX)	AM	1
C	FIND THE INDEX OF THE LARGEST VALUE OF ARRAY "X".	AM	2
	DIMENSION X(1)	AM	3
	N=NDEX	AM	4
	J=1	AM	5
	IF (N.LE.1) RETURN	AM	6
	BIG=X(1)	AM	7
	DO 1 K=2,N	AM	8
	IF (BIG.GT.X(K)) GO TO 1	AM	9
	J=K	AM	10
	BIG=X(K)	AM	11
1	CONTINUE	AM	12
	NDEX=J	AM	13
	RETURN	AM	14
C	-----	AM	15
C	-----	AM	16
	ENTRY MINNIE(X,NDEX)	AM	17
C	FIND THE INDEX OF THE SMALLEST VALUE OF ARRAY "X".	AM	18
	J=1	AM	19
	N=NDEX	AM	20
	IF (N.LE.1) RETURN	AM	21
	SMALL=X(1)	AM	22
	DO 2 K=2,N	AM	23
	IF (SMALL.LT.X(K)) GO TO 2	AM	24
	J=K	AM	25
	SMALL=X(K)	AM	26
2	CONTINUE	AM	27
	NDEX=J	AM	28
C	-----	AM	29
	RETURN	AM	30
	END	AM	31-
	SUBROUTINE MEYER	AI	1
C	THIS SUBROUTINE RESERVED FOR COMPUTING A FREE PRESSURE BOUNOARY.	AI	2
	RETURN	AI	3
	END	AI	4-
	SUBROUTINE MONO (X,NX)	AJ	1
	DIMENSION X(1)	AJ	2
	N=NX	AJ	3
C	-----	AJ	4
	DO 1 K=2,N	AJ	5
1	X(K)=DUMDUM(X(K-1),X(K))	AJ	6
	RETURN	AJ	7
	END	AJ	8-
	SUBROUTINE NAVSEA	AK	1
C	-----	AK	2
	COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)	AK	3
	COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4	AK	4
	COMMON /DUPER/ HA(21),HB(21)	AK	5
	COMMON /EROS/ DI(60,4),HAT(20),XODE(4),SOYOX(60)	AK	6
	COMMON /FLEX/ NFX	AK	7
	COMMON /NDEX/ INDEX(9)	AK	8
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NEWKY	AK	9
	COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	AK	10
	COMMON /SUPER/ RT(21,60)	AK	11
	COMMON /SEX/ NASTIE,IOTOT	AK	12

	DATA ZERO/0.07,ONE/1.07,ZUBER/57.295787	AK 13
C		AK 14
	CALL OREZ (5,360)	AK 15
	CALL OREZ (0,264)	AK 16
	READ (5,18) MF,NF	AK 17
	READ (5,20) DX,DT	AK 18
	WRITE (6,19) MF,NF	AK 19
C		AK 20
	LIMIT=NF-1	AK 21
	MUFF=MF-1	AK 22
	NEWKY=MUFF-1	AK 23
	DY=MUFF	AK 24
	DY=ONE/DY	AK 25
	DY2=DY*0.5	AK 26
	DT2=DT*0.5	AK 27
	DT4=DT2*0.5	AK 28
	WRITE (6,12) DY,DX,DY	AK 29
	READ (5,23) (ID(K,J),J=1,4),K=1,NF)	AK 30
	CALL EQUATE (50,0,240)	AK 31
C		AK 32
	ENTRY HOAX	AK 33
	WRITE (6,10)	AK 34
	WRITE (6,13)	AK 35
	WRITE (6,14) (K,SO(K),SOP(K),SI(K),SIP(K),K,K=1,NF)	AK 36
C		AK 37
	BUZZ=MF-1	AK 38
	FUZZ=ONE/BUZZ	AK 39
	DO 2 K=1,MF	AK 40
	F1=MF-K	AK 41
	HA(K)=F1/BUZZ	AK 42
	F2=K-1	AK 43
	HB(K)=F2/BUZZ	AK 44
	DO 1 J=1,NF	AK 45
1	RIK(J)=(F1*SI(J)+F2*SD(J))*FUZZ	AK 46
2	CONTINUE	AK 47
C		AK 48
	CALL HEAD6	AK 49
	WRITE (6,15)	AK 50
	DO 3 J=1,NF	AK 51
3	WRITE (6,21) J,(R(K,J),K=1,MF)	AK 52
C		AK 53
	CALL HUNT	AK 54
C		AK 55
	READ (5,18) NASTIE,IDTDT	AK 56
	IDTDT=MIN0(IDTDT,NT)	AK 57
	IF (NASTIE.LT.0) NASTIE=NT	AK 58
	WRITE (6,16) NT,NASTIE,IDTDT	AK 59
	CALL HEAD6	AK 60
C		AK 61
	WRITE (6,10)	AK 62
	WRITE (6,17)	AK 63
	K=1	AK 64
	DNK=0.0	AK 65
	DIK=0.0	AK 66
	DEGDK=0.0	AK 67
	DEGDK=0.0	AK 68

	X=ZERO	AK	69
	WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP	AK	70
	I(K),DEGIK	AK	71
C		AK	72
	EPAR=0.5/DX	AK	73
	EPARDY=EPAR*DY	AK	74
	DO 4 K=2,LIMIT	AK	75
	SDYDX(K)=S(K)*EPARDY	AK	76
	DIK=(SI(K+1)-SI(K-1))*EPAR	AK	77
	DOK=(SO(K+1)-SO(K-1))*EPAR	AK	78
	DEGIK=ZURER*ATANF(SI(K))	AK	79
	DEGOK=ZURER*ATANF(SOP(K))	AK	80
	X=(K-1)*DX	AK	81
	WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP	AK	82
	I(K),DEGIK	AK	83
4	CONTINUE	AK	84
	K=NF	AK	85
	X=(K-1)*DX	AK	86
	DOK=0.0	AK	87
	DIK=0.0	AK	88
	DEGIK=0.0	AK	89
	DEGOK=0.0	AK	90
	WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP	AK	91
	I(K),DEGIK	AK	92
C		AK	93
	DO 5 K=2,NT	AK	94
	NFLX=K-I	AK	95
	IF (SOP(K)-SOP(K-1)) 5,5,6	AK	96
5	CONTINUE	AK	97
6	WRITE (6,11) NFLX	AK	98
C		AK	99
	CALL NAVSTD	AK	100
C		AK	101
	INDEX(1)=1	AK	102
	INDEX(2)=4	AK	103
	INDEX(3)=NT-5	AK	104
	INDEX(4)=NT-3	AK	105
	INDEX(5)=NT-1	AK	106
	INDEX(6)=NT	AK	107
	INDEX(7)=NT+1	AK	108
	INDEX(8)=NT+3	AK	109
	INDEX(9)=NT+5	AK	110
C		AK	111
C	COMPUTE ANGLES.	AK	112
	DO 7 K=1,NF	AK	113
	RO(K)=ATANF(SOP(K))	AK	114
	RI(K)=ATANF(SIP(K))	AK	115
7	CONTINUE	AK	116
C		AK	117
	DO 8 K=2,LIMIT	AK	118
	AO(K)=SDYDX(K)*180(K+1)-BO(K-1))	AK	119
	AI(K)=-SDYDX(K)*(BI(K+1)-BI(K-1))	AK	120
8	CONTINUE	AK	121
	DO 9 K=2,LIMIT	AK	122
	BO(K)=SDYDX(K)*SINRF(BO(K)+BO(K))	AK	123
	BI(K)=-SDYDX(K)*SINRF(BI(K)+BI(K))	AK	124

9	CONTINUE	AK 125
C		AK 126
	RETURN	AK 127
C		AK 128
C		AK 129
10	FORMAT (/20X, ' NOZZLE GEOMETRY ' /)	AK 130
11	FORMAT (/20X, ' INFLECTION POINT NO. =', I3)	AK 131
12	FORMAT (/20X, ' DT =', 3PF10.4, ' (MILLISECONDS)', 5X, ' DX =', 0PF9.5, 3X, ' DY =', F9.5)	AK 132
13	FORMAT (/36X, ' SD', 13X, ' SOP', 13X, ' SI', 13X, ' SIP' /)	AK 133
14	FORMAT (5(20X, 15, 2X, 4F15.6, 5X, 15/))	AK 134
15	FORMAT (/20X, ' RM ARRAY' /)	AK 135
16	FORMAT (/20X, ' THROAT INDEX (NT) =', I3, 4X, ' LAST FLOW SMOOTH =', I3, 14X, ' LAST PRESSURE SMOOTH STATION =', I3)	AK 136
17	FORMAT (26X, ' X', 8X, ' AREA', 7X, ' S', 8X, ' SO', 6X, ' OSO/DX', 5X, 3HSD', 6X, 16HSD' (D), 7X, ' SI', 5X, ' OSI/DX', 4X, 3HSI', 6X, 6HSI' (D) /)	AK 137
18	FORMAT (16I5)	AK 138
19	FORMAT (/20X, ' NO. POINTS ON VERTICAL LINE (MF) =', I3, 5X, ' NO. OF WAL	AK 139
	IL POINTS (NF) =', I3 /)	AK 140
20	FORMAT (2E12.0)	AK 141
21	FORMAT (10X, 15, 2X, 12F9.4 / 17X, 12F9.4)	AK 142
22	FORMAT (5(10X, 15, 5X, 11F10.4 /))	AK 143
23	FORMAT (4G15.0)	AK 144
	END	AK 145
	SUBROUTINE NAVSTO	AL 1
C		AL 2
	COMMON /NERD/ MF, NF	AL 3
	COMMON /DELTAS/ DX, DY, DT	AL 4
	COMMON /NAVIER/ DTOX, DTDX2, DTDX4, DTDX8, DTDY, DTDY2, DTDY4, DTDY8	AL 5
	COMMON /STOKES/ A(60), B(60), H(60)	AL 6
	COMMON /SPOR/ SI(60), SOT(60), SOP(60), ST(60), SIP(60), AREA(60)	AL 7
C		AL 8
	ONE=1.0	AL 9
C		AL 10
	DTDX=DT/DX	AL 11
	DTDY=DT/DY	AL 12
	DTDY2=DTDY*0.5	AL 13
	DTDY4=DTDY2*0.5	AL 14
	DTDY8=DTDY4*0.5	AL 15
	DTDY2=DTDY*0.5	AL 16
	DTDY4=DTDY2*0.5	AL 17
	DTDY8=DTDY4*0.5	AL 18
C		AL 19
	DO 1 K=1, NF	AL 20
	A(K)=(SOP(K)-SIP(K))/S(K)	AL 21
	B(K)=SIP(K)/S(K)	AL 22
	H(K)=ONE/S(K)	AL 23
1	CONTINUE	AL 24
C		AL 25
	DO 2 K=1, 180	AL 26
2	A(K)=A(K)*DTDY2	AL 27
C		AL 28
	RETURN	AL 29
C		AL 30
	END	AL 31
	SUBROUTINE NORMAL (X, NERD)	AM 1

C	NORMALIZE A GIVEN VECTOR	AM	2
	DIMENSION X(1)	AM	3
	N=NERD	AM	4
	SUM=0.0	AM	5
	DO 1 K=1,N	AM	6
1	SUM=SUM+X(K)	AM	7
	IF (SUM.LE.0.0) RETURN	AM	8
	DO 2 K=1,N	AM	9
2	X(K)=X(K)/SUM	AM	10
	RETURN	AM	11
	END	AM	12
	SUBROUTINE QREZ (X,NERD)	AM	1
C		AN	2
	DIMENSION X(1)	AN	3
C		AN	4
	N=NERD	AN	5
C		AN	6
	DO 1 K=1,N	AN	7
1	X(K)=-0.0	AN	8
C		AN	9
	RETURN	AN	10
C		AN	11
	END	AN	12
	SUBROUTINE OUTPUT	AO	1
C		AO	2
	COMMON /COUNT/ L,LL	AO	3
	COMMON /NERD/ MF,NF,NT	AO	4
C		AO	5
	N6=6	AO	6
	N8=8	AO	7
C		AO	8
	LL=LL+1	AO	9
C		AO	10
	DO 2 K=1,NF	AO	11
	CALL HEAD6	AO	12
	CALL GROG 1K)	AO	13
C		AO	14
	DO 1 J=1,MF	AO	15
1	CALL PLINE (J,K,N6)	AO	16
C		AO	17
2	CONTINUE	AO	18
C		AO	19
	CALL ENTGMA	AO	20
C		AO	21
	WRITE OUT AXIS.	AO	22
	CALL HEAD8	AO	23
	WRITE (R,5) L	AO	24
C		AO	25
	CALL FROG	AO	26
C		AO	27
	DO 3 K=1,NF	AO	28
3	CALL PLINE (1,K,N8)	AO	29
C		AO	30
	WRITE OUT WALL.	AO	31
C		AO	32
	CALL HEAD8	AO	33

	WRITE (8,6) L	AO	34
C		AO	35
	CALL FROG	AO	36
	DO 4 K=1,NF	AO	37
4	CALL PLINE (MF,K,NB)	AO	38
C		AO	39
	RETURN	AO	40
C		AO	41
C		AO	42
5	FORMAT (/20X,'AXIS ITERATION NO=',15 / 1	AO	43
6	FORMAT (/20X,'WALL ITERATION NO=',15 /)	AO	44
	END	AO	45-
	SUBROUTINE PARAB(SX,SY,S)	AP	1
	IMPLICIT REAL*8(A-H,O-Z)	AP	2
	DIMENSION SX(1),SY(1),S(1)	AP	3
	S(1) = - 0.0	AP	4
	S(2) = - 0.0	AP	5
	S(3) = - 0.0	AP	6
	X1 = SX(1)	AP	7
	X2 = SX(2)	AP	8
	X3 = SX(3)	AP	9
	F1 = X1 - X2	AP	10
	F2 = X2 - X3	AP	11
	F3 = X3 - X1	AP	12
	D = F1*F2*F3	AP	13
	IF (D .EQ. 0.0D+0) RETURN	AP	14
	D = -1.0/D	AP	15
	Y1 = SY(1)	AP	16
	Y2 = SY(2)	AP	17
	Y3 = SY(3)	AP	18
	Y1 = Y1*F2	AP	19
	Y2 = Y2*F3	AP	20
	Y3 = Y3*F1	AP	21
	S(1) = D*(Y1*X2*X3 + Y2*X1*X3 + Y3*X1*X2)	AP	22
	S(2) = -D*(Y1*(X2*X3) + Y2*(X1*X3) + Y3*(X1*X2))	AP	23
	S(3) = D*(Y1+Y2+Y3)	AP	24
	RETURN	AP	25
	END	AP	26
	SUBROUTINE PCLASS	AO	1
	COMMON /SPV/ KCLASS,KGROUP	AO	2
	INTEGER*4 JERK(3,3) /	AO	20
	* 'UNCL','ASS1','FIED'	AO	21
	*, 'CONF','IDEN','TIAL'	AO	22
	*, '...S','ECRE','T...' /	AO	23
	DIMENSION M(3)	AO	3
	CALL EQUATE (M,JERK(1,KCLASS+1),3)	AO	4
	CALL DATE (KDAY,KYR)	AO	5
	RETURN	AO	6
	ENTRY PCL6	AO	7
	WRITE (6,1) M	AO	8
	WRITE (6,2) KDAY,KYR,KGROUP,M	AO	9
	RETURN	AO	10
	ENTRY PCL8	AO	11
	WRITE (8,1) M	AO	12
	WRITE (8,2) KDAY,KYR,KGROUP,M	AO	13
	RETURN	AO	14

	ENTRY PCL14	AO 15
	WRITE (14,1) M	AO 16
	WRITE (14,2) KDAY,KYR,XGROUP,M	AO 17
	RETURN	AO 18
C		AO 19
1	FORMAT ('2',T58,18('**')/T58,'*',T75,'**'/T58,'* ',3A4,T75,'**'/	AO 20
	T58,'**',T75,'**'/T58,18('**'))	AO 21
2	FORMAT ('0'/' DATE=' ,13,'/' ,12,T58,18('**')/' GROUP',12,T58,'**', T	AO 22
	175,'**')/ ARD INC.',T58,'* ',3A4,' **/' ARNOLD AIR FORCE STATION,	AO 23
	2TENN.',T58,'**',T75,'**'/T58,18('**') /)	AO 24
	END	AO 25-
	SUBROUTINE PHINOU (NXSTA)	AR 1
C		AR 2
C	COMPUTE THE PRESSURE CORRESPONDING TO A GIVEN MASS FLOW	AR 3
C	SUBSONIC REGIME	AR 4
C		AR 5
	COMMON /NERO/ MF,NF,NT,MUFF,LIMIT	AR 6
	COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC	AR 7
C		AR 8
	TARGET=WEIGHT	AR 9
	NX=NXSTA	AR 10
	IF ((NX.LE.0).OR.(NX.GT.NF)) CALL BOMBER ('PHINOU',NX)	AR 11
	XLOW=PTHROT	AR 12
	XHIG=PANIC	AR 13
C		AR 14
	DO 3 KOUNT=1,20	AR 15
	X=(XLOW+XHIG)*0.5	AR 16
	CALL SETNP (X,NX)	AR 17
	IF (XMASS(NX)-TARGET) 1,1,2	AR 18
1	XHIG=X	AR 19
	GO TO 3	AR 20
2	XLOW=X	AR 21
3	CONTINUE	AR 22
C		AR 23
	RETURN	AR 24
	END	AR 25-
	SUBROUTINE PLINE (MY,NX,NUNIT)	AS 1
	COMMON /COUNT/ L,LL	AS 2
	COMMON /EROS/ W(21,60,5)	AS 3
	COMMON /SPQR/ S(60),SD(60),SDP(60),SI(60),SIP(60),AREA(60)	AS 4
	COMMON /STUPIO/ F(21,60)	AS 5
	COMMON /SUPER/ R(21,60)	AS 6
	M=MY	AS 7
	N=NX	AS 8
	NU=NUNIT	AS 9
	P=W(M,N,5)	AS 10
	W1=W(M,N,1)	AS 11
	W2=W(M,N,2)	AS 12
	W3=W(M,N,3)	AS 13
	W4=W(M,N,4)	AS 14
	RHO=W1/R(M,N)	AS 15
	U=W2/W1	AS 16
	V=W3/W1	AS 17
	CALL FREAK (P,RHO,U,V,M,N,PZERO,TZERO,DEGRE,T,XN,VEL,0AM)	AS 18
	FUZZ=F(M,N)	AS 19
	IF (NU.NE.6) GO TO 1	AS 20

	WRITE (6,2) M,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER	AS	21
	10,VEL	AS	22
	RETURN	AS	23
1	CONTINUE	AS	24
	IF (NU.NE.8) CALL BOMBER ('PLINE',1)	AS	25
	WRITE (8,2) N,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER	AS	26
	10,VEL	AS	27
	RETURN	AS	28
C	-----	AS	29
	ENTRY GROGINASTY	AS	30
	N=NASTY	AS	31
	WRITE (6,3) L,N,SI(N),SO(N),LL	AS	32
	WRITE (6,4)	AS	33
	RETURN	AS	34
	ENTRY FROG	AS	35
	WRITE (8,4)	AS	36
	RETURN	AS	37
C	-----	AS	38
2	FORMAT (3X,15,2X,2PF12.2,3X,1P7G15.5/10X,1P8G15.5/)	AS	39
3	FORMAT (/20X,'ITERATION NO.=' ,I4,3X,'X-STATION NO.=' ,I3,3X,'Y-INN	AS	40
	IER =' ,F9.4,3X,'Y-OUTER =' ,F9.4,5X,'OUTPUT NO. =' ,I5 /)	AS	41
4	FORMAT (11X,'STREAMLINE % ',8X,'W1',14X,'W2',12X,'W3',14X,'W4',10	AS	42
	1X,'P-STAT',10X,'TEMP(R)',7X,'MACH NO' /15X,'CP/CV',9X,'DENSITY',11	AS	43
	2X,'U',13X,'V',10X,'FLOW ANG(D)',7X,'P-STAG',10X,'T-STAG',7X,'VELOC	AS	44
	SITY' /)	AS	45
	END	AS	46-
	SUBROUTINE PLOTP	AT	1
C	-----	AT	2
C	OUTPUT PLOT PRESSURE DATA ON UNIT 10.	AT	3
C	-----	AT	4
	COMMON /APE/ CURID(27)	AT	5
	COMMON /COUNT/ L,LL	AT	6
	COMMON /DELTA/ DX	AT	7
	COMMON /EROS/ W(21,60,4),P(21,60)	AT	8
	COMMON /NERD/ MY,NX	AT	9
	COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	AT	10
	COMMON /SUPER/ R(21,60)	AT	11
C	-----	AT	12
	WRITE (10) CURID	AT	13
	WRITE (10) R,SO,SI,DX,MY,NX	AT	14
	RETURN	AT	15
C	-----	AT	16
	ENTRY JINX	AT	17
C	-----	AT	18
	WRITE (10) L,P	AT	19
	RETURN	AT	20
C	-----	AT	21
	END	AT	22-
	SUBROUTINE PMIN (PM)	AU	1
C	-----	AU	2
C	"PZ" ARRAY SEARCH FOR MINIMUM VALUE = PM	AU	3
C	-----	AU	4
	COMMON /NERD/ MF,NF,NT	AU	5
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTN(21),GAM2(21),RGAS(21),	AU	6
	IPZ(21),IZ(21)	AU	7
C	-----	AU	8

C		AU	9
	X=PZ(1)	AU	10
	DO 1 K=2,MF	AU	11
	IF (X.GT.PZ(K)) X=PZ(K)	AU	12
I	CONTINUE	AU	13
C		AU	14
	PH=X	AU	15
C		AU	16
	RETURN	AU	17
C		AU	18
	END	AU	19
	FUNCTION PRAT (XMACH,GAMMA)	AV	1
C	P/PT = F(MACH NO.)	AV	2
	X=GAMMA/(1.0-GAMMA)	AV	3
	PRAT=(1.0+0.5*(GAMMA-1.0)*XMACH**2)**X	AV	4
	RETURN	AV	5
	END	AV	6
	FUNCTION PSTAG (CP,TSTAT,TZERO,PSTAT,SAGR)	AW	1
	DIMENSION CP(3)	AW	2
C		AW	3
	CPZ=CP(1)	AW	4
	CPA=CP(2)	AW	5
	CPB=CP(3)	AW	6
C		AW	7
	T=TSTAT	AW	8
	TZ=TZERO	AW	9
	P=PSTAT	AW	10
	RGAS=SAGR	AW	11
C		AW	12
	BARF=CPA/CPZ	AW	13
	TRAF=0.5*CPB/CPZ	AW	14
C		AW	15
	TRAT=TZ/T	AW	16
	POWER=CPZ/RGAS	AW	17
	EPAR=(TZ-T1*(BARF+(TZ+T)*TRAF)	AW	18
	XLAX=EXP(EPAR)	AW	19
	PRAT=(TRAT*XLAX)**POWER	AW	20
	PZERO=PRAT*P	AW	21
C		AW	22
	PSTAG=PZERO	AW	23
C		AW	24
	RETURN	AW	25
	END	AW	26
	SUBROUTINE PUNTZ (NY,NX,PRES)	AX	1
	COMMON /EROS/ W(21,60,4),P(21,60)	AX	2
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT	AX	3
	COMMON /STUPID/ F(21,60)	AX	4
	COMMON /SUPER/ R(21,60)	AX	5
	COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREAT(60)	AX	6
	COMMON /DUPER/ HA(21),HB(21)	AX	7
	J=NY	AX	8
	K=NX	AX	9
	PP=PRES	AX	10
	FLIZZ=F(J,K)	AX	11
	SLOPE=HA(J)*SIP(K)+HB(J)*SOP(K)	AX	12
	COSIN=SQRT(1.0/(1.0+SLOPE**2))	AX	13

	CALL GRONK (FUZZ,PP,RHO,VEL,EASY)	AX	14
	W1=RHO*R(J,K)	AX	15
	WV=W1*VEL	AX	16
	W2=WV*COSIN	AX	17
	W3=W2*SLOPE	AX	18
	W4=EASY*R(J,K)	AX	19
	W(J,K,1)=W1	AX	20
	W(J,K,2)=W2	AX	21
	W(J,K,3)=W3	AX	22
	W(J,K,4)=W4	AX	23
	P(J,K)=PP	AX	24
	RETURN	AX	25
	END	AX	26-
	FUNCTION PVNTS (WONE,WFOUR,MAMA,NERK)	AY	1
C	COMPUTE STATIC PRESSURE AS A FUNCTION OF (W1,W4,STREAMLINE)	AY	2
C		AY	3
	COMMON /STUPID/ F(21,60)	AY	4
	COMMON /SUPER/ R(21,60)	AY	5
C		AY	6
	W1=WONE	AY	7
	W4=WFOUR	AY	8
	M=MAMA	AY	9
	N=NERK	AY	10
C		AY	11
	FUZZ=F(M,N)	AY	12
	H0=HZERO(FUZZ)	AY	13
	P=(H0*W1-W4)/R(M,N)	AY	14
	PVNTS=P	AY	15
C		AY	16
	RETURN	AY	17
C		AY	18
	END	AY	19-
	FUNCTION RHOMAX (FUZZ)	AZ	1
C		AZ	2
C	"RHOMAX" COMPUTES THE STAGNATION DENSITY	AZ	3
C	AS A FUNCTION OF THE STREAMLINE VALUE.	AZ	4
C		AZ	5
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	AZ	6
	IPZ(21),TZ(21),HZ(21),RHOZ(21)	AZ	7
C		AZ	8
	ONE=1.0	AZ	9
	ZERO=0.0	AZ	10
C		AZ	11
	F=FUZZ	AZ	12
	IF (F.EQ.ONE) GO TO 3	AZ	13
	IF (F.EQ.ZERO) GO TO 2	AZ	14
	IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('*RHOMAX*',1)	AZ	15
	X=F*20.0	AZ	16
	NEWKY=X	AZ	17
	DIGIT=NEWKY	AZ	18
	F2=X-DIGIT	AZ	19
	F1=ONE-F2	AZ	20
	J=NEWKY+1	AZ	21
	K=J+1	AZ	22
	RZ=F1*RHOZ(J)+F2*RHOZ(K)	AZ	23
1	RHOMAX=RZ	AZ	24

C	RETURN	AZ	25
2	RZ=RHOZ(1)	AZ	26
	GO TO 1	AZ	27
C		AZ	28
3	RZ=RHOZ(2)	AZ	29
	GO TO 1	AZ	30
C		AZ	31
	END	AZ	32
	FUNCTION RIDDLE (NY,NX)	AZ	33
C		BA	1
C	COMPUTE THE DENSITY "DIDDLE" FACTOR FOR	BA	2
C	MASS CONSERVATION	BA	3
C		BA	4
	COMMON /STUPID/ F(21,60)	BA	5
	COMMON /EROS/ W(21,60,4),P(21,60)	BA	6
	COMMON /SUPER/ R(21,60)	BA	7
	COMMON /THERMO/ CPX(3),CVX(3),RAG	BA	8
C		BA	9
	ONE=1.0	BA	10
	ZERO=0.0	BA	11
	K=NY	BA	12
	J=NX	BA	13
	RIDDLE=ZERO	BA	14
	FUZZ=F(K,J)	BA	15
	RHO=W(K,J,1)/R(K,J)	BA	16
C	COMPUTE PROPERTIES AS A FUNCTION OF RHO.	BA	17
	CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,T)	BA	18
C		BA	19
	VV=VEL**2	BA	20
	IF (VV.EQ.ZERO) CALL BOMBER ('RIDDLE',2)	BA	21
	GAMMA=CSUBP(T)/CSUBV(T)	BA	22
C		BA	23
	BETA=GAMMA*RAG*T/VV	BA	24
	XM=SQRT(ONE/BETA)	BA	25
	RID=ONE-BETA	BA	26
	RIDDLE=RID	BA	27
C		BA	28
	RETURN	BA	29
C		BA	30
	END	BA	31
	SUBROUTINE ROGUE	BA	32
C		BB	1
	COMMON /EROS/ W(21,60,5)	BB	2
	COMMON /NERD/ MF,NF,NT	BB	3
	COMMON /SUPER/ R(21,60)	BB	4
C		BB	5
	SMOOTHING ROUTINE FOR DENSITY	BB	6
C		BB	7
	PRESERVE STATION 1.	BB	8
C	DO 1 J=1,5	BB	9
1	CALL EQUATE (W(1,60,J),W(1,1,J),MF)	BB	10
C		BB	11
	COMPUTE DENSITY AT EACH W(*,*,1)	BB	12
C	DO 3 K=1,MF	BB	13
	DO 2 J=1,NF	BB	14
		BB	15

2	W(K,J,1)=W(K,J,1)/R(K,J)	BB	16
3	CONTINUE	BB	17
C		BB	18
C		BB	19
C	SHIFT RHO UP + 2 FOR TEMPORARY STORAGE	BB	20
	DO 4 J=1,NF	BB	21
	K=NF+1-J	BB	22
4	CALL EQUATE (W(1,K+2,1),W(1,K,1),MF)	BB	23
C		BB	24
	CALL SLICK	BB	25
C		BB	26
C	RESTORE FIRST STATION	BB	27
	DO 5 J=1,5	BB	28
5	CALL EQUATE (W(1,1,J),W(1,60,J),MF)	BB	29
	RETURN	BB	30
	END	BB	31
	SUBROUTINE SAM	BC	1
C		BC	2
	COMMON /EROS/ W(21,60,4),P(21,60)	BC	3
	COMMON /NERD/ MF,NF,NT,MUFF	BC	4
	COMMON /STUPID/ F(21,60)	BC	5
	COMMON /SIUPER/ R(21,60)	BC	6
	COMMON /NDRK/ X(60)	BC	7
	COMMON /SEX/ NASTIE,IDIDOT	BC	8
C		BC	9
	IF (IDIDOT.LE.2) RETURN	BC	10
C		BC	11
C	PRESSURE SMOOTHING AT CONSTANT Y.	BC	12
	DO 3 K=2,MUFF	BC	13
C		BC	14
	DO 1 J=1,IDIDOT	BC	15
1	X(J)=P(K,J)	BC	16
C		BC	17
	CALL SMOOTH (X,IDIDOT,4)	BC	18
	MORON=IDIDOT-1	BC	19
	DO 2 J=2,MORON	BC	20
	CALL GRONK (F(K,J),X(J),RHO,VEL,EASY)	BC	21
	RWR=SQRT(F(W(K,J,2)**2+W(K,J,3)**2))	BC	22
	CSN=W(K,J,2)/RWR	BC	23
	SN=W(K,J,3)/RWR	BC	24
	W(K,J,1)=RHO*R(K,J)	BC	25
	W(K,J,2)=W(K,J,1)*VEL*CSN	BC	26
	W(K,J,3)=W(K,J,1)*VEL*SN	BC	27
	W(K,J,4)=EASY*R(K,J)	BC	28
	P(K,J)=X(J)	BC	29
2	CONTINUE	BC	30
C		BC	31
3	CONTINUE	BC	32
C		BC	33
	RETURN	BC	34
	END	BC	35
	SUBROUTINE SAVEWP	BD	1
	DIMENSION AT(21,5,2)	BD	2
	COMMON /EROS/ W(21,60,5)	BD	3
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY	BD	4
	DO 2 K=1,21	BD	5

	DO 1 J=1,5	BD 6
	A(K,J,1)=W(K,1,J)	BD 7
1	A(K,J,2)=W(K,NF,J)	BD 8
2	CONTINUE	BD 9
	RETURN	BD 10
C		BD 11
C	ENTRY RESET	BD 12
	DO 4 K=1,21	BD 13
	DO 3 J=1,5	BD 14
	W(K,1,J)=A(K,J,1)	BD 15
3	W(K,NF,J)=A(K,J,2)	BD 16
4	CONTINUE	BD 17
	RETURN	BD 18
	END	BD 19
	SUBROUTINE SETWP (PRES,NXSTA)	BD 20
	ENTRY ZETWP(PRES,NXSTA)	BE 1
C		BE 2
C	PRES = STATIC PRESSURE	BE 3
C	NXSTA = "X" STATION NO.	BE 4
C		BE 5
C	"SETWP" AND "ZETWP" COMPUTES THE "W" AND "P" ARRAY FOR A GIVEN	BE 6
C	"X" STATION AT A CONSTANT STATIC PRESSURE.	BE 7
C		BE 8
	COMMON /NERD/ MF	BE 9
1	NX=NXSTA	BE 10
	PP=PRES	BE 11
C		BE 12
C		BE 13
	DO 2 K=1,MF	BE 14
2	CALL PUNTZ (K,NX,PP)	BE 15
	RETURN	BE 16
C		BE 17
	END	BE 18
	SUBROUTINE SLICK	BE 19
C		BF 1
	COMMON /ERDS/ W(21,60,4)	BF 2
	COMMON /NERD/ MF,NF,NT,MUFF,NEWKY	BF 3
C		BF 4
C	COMPUTE A SMOOTHING BASED ON 4-POINT NEIGHBORHOOD.	BF 5
C		BF 6
	DO 2 J=2,NEWKY	BF 7
C		BF 8
	DO 1 K=2,MUFF	BF 9
	L=J+2	BF 10
	RU=W(K+1,L,1)	BF 11
	RD=W(K-1,L,1)	BF 12
	RL=W(K,L-1,1)	BF 13
	R=W(K,L,1)	BF 14
	RR=W(K,L+1,1)	BF 15
1	W(K,J,1)=BANDIT(RU,RD,RL,R,RR)	BF 16
2	CONTINUE	BF 17
C		BF 18
C	RESET AXIS AND WALL BOUNDARY.	BF 19
	DO 3 J=2,NF	BF 20
	W(1,J,1)=W(1,J+2,1)	BF 21
		BF 22

3	W(MF,J,1)=W(MF,J+2,1)	BF	23
C		BF	24
C	RESET LAST STATION	BF	25
	DO 4 K=2,MUFF	BF	26
4	W(K,NF,1)=W(K,NF+2,1)	BF	27
	RETURN	BF	28
C	END	BF	29
	SUBROUTINE SMOOTH (X,NX,NTIMES)	BF	30
C		BG	1
	DIMENSION X(1), Z(100)	BG	2
C		BG	3
		BG	4
C	N=NX	BG	5
	NERD=N-1	BG	6
	LIMIT=NTIMES	BG	7
	F=0.8125	BG	8
	F00=0.5-0.5*F	BG	9
C		BG	10
	DO 2 J=1,LIMIT	BG	11
	CALL EQUATE (Z,X,N)	BG	12
	DO 1 K=2,NERD	BG	13
1	X(K)=F*Z(K)+F00*(Z(K+1)+Z(K-1))	BG	14
2	CONTINUE	BG	15
C		BG	16
	RETURN	BG	17
C		BG	18
	END	BG	19
	SUBROUTINE SNAFU (MM,NN)	BH	1
C		BH	2
C	COMPUTE THE PARTIAL FUNCTIONS FOR A 3X3 SQUARE	BH	3
C	WITH A CENTER POINT LOCATED AT Y=M, X=N.	BH	4
C		BH	5
	COMMON /EROS/ W(21,60,4)	BH	6
	COMMON /STUPID/ F(21,60)	BH	7
	DIMENSION A(4)	BH	8
C		BH	9
	M=MM	BH	10
	N=NN	BH	11
C		BH	12
	KOUNT=0	BH	13
C		BH	14
	DO 2 KRUD=1,3	BH	15
	K=M+KRUD-2	BH	16
C		BH	17
	DO 1 JOLLY=1,3	BH	18
	J=N+JOLLY-2	BH	19
	KOUNT=KOUNT+1	BH	20
	A(1)=W(K,J,1)	BH	21
	A(2)=W(K,J,2)	BH	22
	A(3)=W(K,J,3)	BH	23
	A(4)=W(K,J,4)	BH	24
	FUZZ=F(K,J)	BH	25
	CALL EVAL (A,KOUNT,FUZZ)	BH	26
C		BH	27
I	CONTINUE	BH	28
C		BH	29

2	CONTINUE	BH	30
C		BH	31
C		BH	32
C	RETURN	BH	33
C		BH	34
C	END	BH	35-
C	SUBROUTINE STAGG	BI	1
C		BI	2
C	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAH2(21),RGAS(21),	BI	3
C	IPZ(21),TZ(21),MZ(21),RHOZ(21)	BI	4
C		BI	5
C	COMMON /CPDATA/ CPSPEC(3,8),SPCHWT(8),NAME(8)	BI	6
C		BI	7
C	COMMON /EROS/ B(8,50),X(50),P(50),T(50),F(50),NSTAG	BI	8
C	COMMON /LIMITS/ VMIN	BI	9
C		BI	10
C	-----	BI	11
C	CALL CPEVAL	BI	12
C		BI	13
C	CALL DREZ (A,420)	BI	14
C		BI	15
C	GCJ=32.174*777.648	BI	16
C	GRINCH=1.98726	BI	17
C	WENCH=GRINCH*GCJ	BI	18
C		BI	19
C	NS=21	BI	20
C	ONE=1.0	BI	21
C		BI	22
C	CALL HEAD6	BI	23
C		BI	24
C	READ (5,16) NSTAG	BI	25
C	WRITE (6,17) NSTAG	BI	26
C	NX=NSTAG	BI	27
C	INPUT DATA BASED ON FOLLOWING PARAMETERS:	BI	28
C	X - STREAMLINE FRACTION - 0.0 AXIS , 1.0 WALL	BI	29
C	P - PRESSURE (PSIA)	BI	30
C	T - TEMPERATURE (RANKINE)	BI	31
C	B - RELATIVE MASS	BI	32
C		BI	33
C	READ (5,18) (X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)	BI	34
C	WRITE (6,11) NAME	BI	35
C		BI	36
C	WRITE (6,19) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)	BI	37
C		BI	38
C	CALL HEAD6	BI	39-
C		BI	40
C	NORMALIZE B'S AND CONVERT PSTA TO PSFA.	BI	41
C	DO 1 K=1,NSTAG	BI	42
C	P(K)=P(K)*144.0	BI	43
1	CALL NORMAL (B(1,K),8)	BI	44
C		BI	45
C	WRITE (6,12) NAME	BI	46
C	WRITE (6,19) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)	BI	47
C		BI	48
C	FORD=NS-1	BI	49
C		BI	50

	DO 4 K=1,NS	81	51
	TARGET=K-1	81	52
	TARGET=TARGET/FURD	81	53
C	CALL LINEAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)	81	54
C		81	55
	IF (NOCON.NE.0) CALL BOMBER ('STAGG',NOCON)	81	56
C		81	57
	PZ(K)=P(J1)*F1+P(J2)*F2	81	58
	TZ(K)=T(J1)*F1+T(J2)*F2	81	59
	F(K)=TARGET	81	60
C		81	61
	SUM=0.0	81	62
	DO 3 J=1,8	81	63
	A(J,K)=R(J,J1)*F1+R(J,J2)*F2	81	64
C		81	65
	DO 2 L=1,3	81	66
2	CP(L,K)=CP(L,K)+A(J,K)*CPSPEC(L,J)	81	67
C		81	68
	SUM=SUM+A(J,K)/SPCMWT(J)	81	69
3	CONTINUE	81	70
C		81	71
	WTM(K)=ONE/SUM	81	72
	RGAS(K)=WENCH*SUM	81	73
4	CONTINUE	81	74
C		81	75
	DO 5 K=1,NS	81	76
5	RHOZ(K)=PZ(K)/(TZ(K)*RGAS(K))	81	77
C	CONVERT CP UNITS FROM BTU/LRM TO FT**2/SEC**2	81	78
	DO 6 K=1,63	81	79
6	CP(K,1)=CP(K,1)*GCJ	81	80
C		81	81
	DO 7 K=1,NS	81	82
	CV(1,K)=CP(1,K)-RGAS(K)	81	83
	CV(2,K)=CP(2,K)	81	84
	CV(3,K)=CP(3,K)	81	85
7	CONTINUE	81	86
C		81	87
	WRITE (6,12) NAME	81	88
C		81	89
	WRITE (6,19) (K,F(K),PZ(K),TZ(K),(A(J,K),J=1,8),K=1,NS)	81	90
C		81	91
	CALL HEAD6	81	92
	WRITE (6,13)	81	93
	WRITE (6,20) (K,WTM(K),RGAS(K),(CP(I,K),I=1,3),(CV(I,K),I=1,3),K=1,NS)	81	94
C		81	95
	COMPUTE EFFECTIVE GAMMA AT STAGNATION	81	96
C	WRITE (6,14)	81	97
	DO 8 K=1,NS	81	98
	HZ(K)=TZ(K)*(CP(1,K)+TZ(K)*(CP(2,K)+0.5+0.3333333*CP(3,K)*TZ(K)))	81	99
	G=CP(1,K)+TZ(K)*(CP(2,K)+TZ(K)*CP(3,K))	81	100
	H=CV(1,K)+TZ(K)*(CV(2,K)+TZ(K)*CV(3,K))	81	101
	GAMMA=G/H	81	102
		81	103
		81	104
		81	105
		81	106

	GAMZ(K)=GAMMA	BI 107
	WRITE (6,15) K,GAMMA,G,H,HZ(K)	BI 108
8	CONTINUE	BI 109
C		BI 110
C	COMPUTE MAXIMUM SPEED OF SOUND	BI 111
	DO 9 K=1,NS	BI 112
	X(K)=GAMZ(K)*RGAS(K)*YZ(K)	BI 113
9	CONTINUE	BI 114
C		BI 115
	K=21	BI 116
	CALL MAXIE (X,K)	BI 117
	AMAX=SQRT(X(K))	BI 118
	VMIN=AMAX*0.15	BI 119
	VMIN=AMAX*0.10	BI 120
	WRITE (6,10) K,AMAX,VMIN	BI 121
	RETURN	BI 122
C		BI 123
C		BI 124
C		BI 125
10	FORMAT (//20X,'INDEX OF MAX. STAGNATION SOUND SPEED =',13,3X,'SPEE	BI 126
	10 =',F9.2,'(FT/SEC)',5X,'VMIN =',F9.2,'(FT/SEC)' /)	BI 127
11	FORMAT (//16X,'STREAM FRACT.',8X,'STAGNATION',19X,'RELATIVE MASS O	BI 128
	IF SPECIE'/30X,'PSIA',7X,'T-R',8(5X,A4) /)	BI 129
12	FORMAT (//30X,'PSFA',7X,'T-R',8(5X,A4)/)	BI 130
13	FORMAT (//20X,'MOL WT',5X,'GAS CON',17X,'CP COEFFICIENTS',22X,'CV	BI 131
	1COEFFICIENTS' /)	BI 132
14	FORMAT (//20X,'STAGNATION EVALUATION' //32X,'GAMMA',10X,'CP',12X,'	BI 133
	1CV',10X,'ENTHAL' /)	BI 134
15	FORMAT (20X,15,5X,F8.4,2X,1P3G15.6)	BI 135
16	FORMAT (16I5)	BI 136
17	FORMAT (//20X,'STAGNATION PARAMETERS',5X,'NO. INPUT POINTS=',15/)	BI 137
18	FORMAT (3E12.0,4X,RE5.0)	BI 138
19	FORMAT (10X,15,F8.4,F12.3,F10.1,BF9.4)	BI 139
20	FORMAT (10X,15,2X,1P8G13.4)	BI 140
	END	BI 141-
	SUBROUTINE START	BJ 1
	COMMON /APE/ LINE(31)	BJ 2
	DIMENSION LUSH(27), KARD(20)	BJ 3
	EQUIVALENCE (LINE(1),LUSH(1),KARD(1))	BJ 4
	DATA KRUD/'1 **/,MING/'****/,MUD/'X<'/	BJ 5
	1 READ (5,2,END=99) KARD	BJ 6
	IF (KARD(1).EQ.MUNG) CALL ENDJOB	BJ 7
	IF (KARD(1).NE.KRUD) GO TO 1	BJ 8
	KARD(1)=MUD	BJ 9
	LINE(31)=0	BJ 10
C		BJ 11
	ENTRY HEAD6	BJ 12
	CALL PCL6	BJ 13
C		BJ 14
	CALL TIME (IDTOT,NSECS)	BJ 15
	MINUTE=NSECS/60	BJ 16
	NSEC=NSECS-MINUTE*60	BJ 17
	KHOUR=MINUTE/60	BJ 18
	MINUTE=MINUTE-KHOUR*60	BJ 19
	LINE(28)=KHOUR	BJ 20
	LINE(29)=MINUTE	BJ 21

	LINE(30)=NSEC	BJ	22
	LINE(31)=LINE(31)+1	BJ	23
	WRITE (6,2) LINE	BJ	24
	RETURN	BJ	25
	99 CALL ENDJOB	BJ	26
	RETURN	BJ	27
C	-----	BJ	28
	ENTRY HEAD8	BJ	29
	CALL PCL8	BJ	30
	WRITE (8,2) LUSH	BJ	31
	RETURN	BJ	32
C	-----	BJ	33
	ENTRY HEAD14	BJ	34
	CALL PCL14	BJ	35
	WRITE (14,2) LUSH	BJ	36
	RETURN	BJ	37
C	-----	BJ	38
2	FORMAT (27A4,14,'',I2,'.',I2,' PAGE',I4/)	BJ	39
	END	BJ	40
	SUBROUTINE STATIC	BL	1
C	-----	BL	2
C	COMPUTE EXTREMALS STATIC PRESSURE DIST. FACTORS.	BL	3
C	-----	BL	4
	COMMON /ABLE/ AX(21,2),BX(21,2)	BL	5
	COMMON /ZEROS/ BTB(50),XT(50),PT(50),YT(50),F(50),S(50)	BL	6
C	-----	BL	7
	COMMON /NERD/ MF,NF,NT,MUFF	BL	8
C	-----	BL	9
	DO 1 K=1,42	BL	10
	BX(K,1)=0.0	BL	11
1	AX(K,1)=1.0	BL	12
	FURO=MUFF	BL	13
	DO 2 K=1,MF	BL	14
	TARGET=K-1	BL	15
	TARGET=TARGET/FURO	BL	16
2	F(K)=TARGET	BL	17
	CALL HEAD6	BL	18
	WRITE (6,11)	BL	19
C	-----	BL	20
	DO 8 L=1,2	BL	21
	READ (5,14) NSTAT	BL	22
	IF (NSTAT) 10,7,3	BL	23
3	IF (NSTAT=21) 4,4,9	BL	24
4	N=NSTAT	BL	25
	READ (5,15) (X(K),P(K),S(K),K=1,N)	BL	26
	WRITE (6,12)	BL	27
	WRITE (6,16) (K,X(K),P(K),S(K),K=1,N)	BL	28
	NX=N	BL	29
	DO 6 K=1,MF	BL	30
	TARGET=F(K)	BL	31
	CALL LINPAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)	BL	32
	IF (NOCON) 9,5,9	BL	33
5	AX(K,L)=P(J1)*F1+P(J2)*F2	BL	34
	BX(K,L)=S(J1)*F1+S(J2)*F2	BL	35
	F(K)=TARGET	BL	36
6	CONTINUE	BL	37

C		BL	38
7	WRITE (6,13)	BL	39
	WRITE (6,16) (K,F(K),AX(K,L),BX(K,L),K=1,MF)	BL	40
8	CONTINUE	BL	41
C		BL	42
	RETURN	BL	43
9	CALL BOMBER ('-STATIC-',5)	BL	44
10	RETURN	BL	45
C		BL	46
C		BL	47
11	FORMAT ('/20X,'EXTREMAL STATIC PRESS. DIST. FACTORS ' /)	BL	48
12	FORMAT (18X,5HINPUT,6X,4HR/RW,6X,11HPRES. FACT./)	BL	49
13	FORMAT ('/16X,RHCOMPUTED,5X,4HR/RW,6X,11HPRES. FACT./)	BL	50
14	FORMAT (1615)	BL	51
15	FORMAT (3E12.0)	BL	52
16	FORMAT (20X,15,2X,3F10,5)	BL	53
	END	BL	54
	SUBROUTINE STORE	BM	1
C		BM	2
	COMMON /ARLE/ AX(21,4)	BM	3
	COMMON /APE/ KITLE,LABEL(19)	BM	4
	COMMON /COUNT/ L,LL	BM	5
	COMMON /CPDATA/ TGFH(40)	BM	6
	COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4	BM	7
	COMMON /DUPFR/ HA(21),HB(21)	BM	8
	COMMON /EROS/ W(21,60,4),P(21,60)	BM	9
	COMMON /FANG/ F(9,4),G(9,4)	BM	10
	COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC	BM	11
	COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)	BM	12
	COMMON /FUBAR/ F1,F2,F3,F4,F5	BM	13
	COMMON /FURD/ WMP(4),WHM(4),WNP(4),WNM(4),WNT(4)	BM	14
	COMMON /LIMITS/ VMIN	BM	15
	COMMON /NAVIER/ DTDX,OTDX2,OTDX4,OTDX8,OTOY,OTDY2,OTDY4,OTDY8	BM	16
	COMMON /NDEX/ INDEX(9)	BM	17
	COMMON /NERD/ 4F,NF,NT,MUFF,LIMIT,NASTY	BM	18
	COMMON /NITWIT/ CLOWN,VULGAR	BM	19
	COMMON /PSIA/ PSIA(16),NPSIA	BM	20
	COMMON /SKALE/ SIMPLE(4)	BM	21
	COMMON /SPQR/ S(60),SD(60),SOP(60),SI(60),SIP(60),AREA(60)	BM	22
	COMMON /SPY/ KCLASS,KGROUP	BM	23
	COMMON /STAG/ AA(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)	BM	24
	1,PZ(21),TZ(21),HZ(21),RHOZ(21)	BM	25
	COMMON /STOKES/ A(60),R(60),H(60)	BM	26
	COMMON /STUPID/ FNDL(21,60)	BM	27
	COMMON /SUPER/ RI(21,60)	BM	28
	COMMON /THERMO/ RHFI(7)	BM	29
	COMMON /TYME/ T,FLIT	BM	30
	COMMON /WALL/ XWALL(100)	BM	31
	COMMON /WORK/ XTRA(99)	BM	32
	COMMON /SEXX/ NASTIE,IDIOT	BM	33
C		BM	34
C		BM	35
C		BM	36
	REWIND 9	BM	37
	WRITE (9) KITLE,LABEL,L,LL,TGFH,DX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G	BM	38
	1,WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WHM,WNP,WNM,WNM,OTDX,OTDX2	BM	39

	2,DTDX4,DTDXR,DTDY,DTDY2,DTDY4,DTDY8,MF,NF,NT,MUFF,LIMIT,NASTY,CLOW	BN	40
	3N,VULGAR,S,SO,SOP,SI,SIP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RGAS	BN	41
	4,PZ,TZ,MZ,RHOZ,A,B,H,FODL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWA	BN	42
	5L,VMIN,AX,INDEX,AD,AI,RO,RI,NASTIE,IDIOI	BN	43
C		BN	44
	WRITE (14,1)	BN	45
C		BN	46
	RETURN	BN	47
C		BN	48
C	-----	BN	49
C		BN	50
	ENTRY RESTOR	BN	51
	READ (9) KITLE,LABEL,L,LL,TGFH,DX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G,	BN	52
	1WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WMM,WNP,WNN,WMY,OTDX,OTDX2,	BN	53
	2OTDX4,OTDXR,OTDY,OTDY2,OTDY4,OTDYR,MF,NF,NT,MUFF,LIMIT,NASTY,CLOWN	BN	54
	3,VULGAR,S,SO,SOP,SI,SIP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RGAS,	BN	55
	4PZ,TZ,MZ,RHOZ,A,B,H,FODL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWAL	BN	56
	5L,VMIN,AX,INDEX,AD,AI,RO,RI,NASTIE,IDIOI	BN	57
C		BN	58
C		BN	59
	WRITE (6,2)	BN	60
C		BN	61
	RETURN	BN	62
C		BN	63
	FORMAT ('1',20X,'STORED ON NINE' /)	BN	64
1		BN	65
2	FORMAT ('1',20X,'RESTORED FROM NINE' /)	BN	66
	END	BN	67
	SUBROUTINE STREAM	BN	1
C		BN	2
	COMPUTE THE STREAM FUNCTION "F" FOR EACH POINT IN THE FIELD.	BN	3
C		BN	4
C	INTEGRATE THE MASS INTEGRAND $W(*,*,2) = \text{RHO} * U * R$	BN	5
C	THEN NORMALIZE THE RESULTS.	BN	6
C		BN	7
	COMMON /EROS/ W(21,60,5)	BN	8
	COMMON /NFRD/ MF,NF,NT	BN	9
	COMMON /STUPIO/ F(21,60)	BN	10
C		BN	11
	DO 3 NX=1,NF	BN	12
	F(1,NX)=0.0	BN	13
	DO 1 K=2,MF	BN	14
1	F(K,NX)=F(K-1,NX)+0.5*(W(K-1,NX,2)+W(K,NX,2))	BN	15
C		BN	16
C		BN	17
C	NORMALIZE	BN	18
C		BN	19
	DO 2 K=1,MF	BN	20
2	F(K,NX)=F(K,NX)/F(MF,NX)	BN	21
C		BN	22
3	CONTINUE	BN	23
C		BN	24
	RETURN	BN	25
	END	BN	26
	SUBROUTINE TRICKY	BN	1
C		BO	2

COMMON /EROS/ W(21,60,4),P(21,60)	80	3
COMMON /COUNT/ L,LL	80	4
COMMON /NOEX/ INDEX(9)	80	5
COMMON /NERD/ MF,NF,NT	80	6
COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	80	7
IPZ(21),TZ(21),HZ(21),RHOZ(21)	80	8
C	80	9
DIMENSION X(9), Y(9)	80	10
C	80	11
J=MOD(L-1,25)	80	12
IF (J.NE.0) GO TO 1	80	13
CALL HEAD14	80	14
WRITE (14,5) INDEX	80	15
C	80	16
1 CONTINUE	80	17
DO 2 K=1,9	80	18
J=INDEX(K)	80	19
X(K)=P(MF,J)/PZ(MF)	80	20
Y(K)=P(1,J)/PZ(1)	80	21
CONTINUE	80	22
C	80	23
WRITE (14,3) X,L	80	24
WRITE (14,4) Y	80	25
C	80	26
RETURN	80	27
C	80	28
C	80	29
C	80	30
3 FORMAT (1X,9F12.4,18)	80	31
4 FORMAT (7X,9F12.4)	80	32
5 FORMAT (/20X,30H(P/PO) WALL/AXIS RESPECTIVELY//1X,9I12/)	80	33
END	80	34
SUBROUTINE TROPIC (PO,TQ,PSTAT,F,DEN,VEL,EASY)	8P	1
C	8P	2
INPUT	8P	3
C	8P	4
COMPUTE STATIC DENSITY,VELOCITY,AND "E" INTEGRAL	8P	5
C	8P	6
FOR AN ISENTROPIC EXPANSION FROM GIVEN	8P	7
C	8P	8
STAGNATION CONDITIONS FOR A REAL GAS OF THE FORM:	8P	9
C	8P	10
CP = A0 + A1*T + A2*T**2 & P = RHO*R*T	8P	11
C	8P	12
PO - STAGNATION PRESSURE	8P	13
C	8P	14
TQ - STAGNATION TEMPERATURE	8P	15
C	8P	16
PSTAT - STATIC PRESSURE	8P	17
C	8P	18
F - STREAMLINE VALUE	8P	19
C	8P	20
DEN - STATIC DENSITY	8P	21
C	8P	22
VEL - VELOCITY	8P	23
C	8P	24
EASY - SUM OF INTERNAL + KINETIC ENERGY PER UNIT VOLUME	8P	25
C	8P	26
COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	8P	27
IPZ(21),TZ(21)	8P	28
COMMON /THERMO/ CPX(3),CVX(3),RAG	8P	29
COMMON /LIMITS/ VMIN	8P	30
C	8P	31
C	8P	32
ZERO=0.0	8P	33

	PO=PO	BP	25
	TO=TO	BP	26
	P=PSTAT	BP	27
	FUZZ=F	BP	28
C		BP	29
	PRAT=P/PO	BP	30
C		BP	31
	T=HANKY(CPX,PRAT,TO,RAG)	BP	32
	RHO=P/(T*RAG)	BP	33
	DEN=RHO	BP	34
C		BP	35
	DM=HOTS(CPX,T,TO)	BP	36
	VELOC=SQRT(DM+DM)	BP	37
	VELOC=AMAX1(VELOC,VMIN)	BP	38
	VEL=VELOC	BP	39
C		BP	40
	HD=HZERO(FUZZ)	BP	41
	E=HD*RHO-P	BP	42
	EASY=E	BP	43
C		BP	44
	RETURN	BP	45
	END	BP	46
	FUNCTION TSTAG(CP,TSTAT,VSOR)	BO	1
	DIMENSION CP(3)	BO	2
C		BO	3
	T=TSTAT	BO	4
	W=VSOR*0.5	BO	5
	A=CSURP(TSTAT)	BO	6
C		BO	7
	TZ=T+W/A	BO	8
	DO 1 K=1,5	BO	9
	H=HOTS(CP,T,TZ)	BO	10
	ERROR=H-H	BO	11
	CPTZ=CSURP(TZ)	BO	12
	DT=ERROR/CPTZ	BO	13
	TZ=TZ+DT	BO	14
I	CONTINUE	BO	15
C		BO	16
	TSTAG=TZ	BO	17
C		BO	18
	RETURN	BO	19
	END	BO	20
	SUBROUTINE WEIRDO	BR	1
C		BR	2
	COMMON /EROS/ W(21,60,4),P(21,60)	BR	3
	COMMON /NERD/ M,N,NT,MUFF,LIMIT,NEWKY	BR	4
C		BR	5
	DO 3 I=1,NEWKY	BR	6
	K=M-I	BR	7
C		BR	8
	DO 2 J=2,LIMIT	BR	9
	DO 1 L=1,4	BR	10
I	W(K,J,L)=W(K-1,J-1,L)	BR	11
2	CONTINUE	BR	12
C		BR	13
3	CONTINUE	BR	14

C	DO 5 K=2,MUFF	BR	15
---	DO 4 J=2,LIMIT	BR	16
4	P(K,J)=PVNTS(W(K,J,1),W(K,J,4),K,J)	BR	17
5	CONTINUE	BR	18
C		BR	19
	RETURN	BR	20
	END	BR	21
	FUNCTION XMASS (NXSTA)	BR	22-
C		BS	1
C	COMPUTE THE MASS FLOW AT A GIVEN "X" STATION NO.	BS	2
C	TRAPEZOIDAL INTEGRATION OF THE RHO*U*W TERM.	BS	3
C		BS	4
C	NOTE: "W" ARRAY MUST BE PREVIOUSLY COMPUTED	BS	5
C		BS	6
---	COMMON /EROS/ W(21,60,4),P(21,60)	BS	7
---	COMMON /NERD/ MF,NF,NT,MUFF	BS	8
---	COMMON /SPQR/ S(60)	BS	9
C		BS	10
---	K=NXSTA	BS	11
---	SUM=(W(1,K,2)+W(MF,K,2))*0.5	BS	12
C		BS	13
---	DO 1 J=2,MUFF	BS	14
1	SUM=SUM+W(J,K,2)	BS	15
C		BS	16
---	XMASS=SUM*S(K)	BS	17
C		BS	18
---	RETURN	BS	19
C		BS	20
---	END	BS	21
		BS	22-
C	BLOCK DATA	BT	1
---		BT	2
---	COMMON /CPDATA/ CP(3,8),WTH(8),NAME(8)	BT	3
---	COMMON /PGMNO/ NPROG(5)	BT	4
---	COMMON /EROS/ KW(6300)	BT	5
---	COMMON /SUPER/ KR(1260)	BT	6
C		BT	7
C	CP COEFFICIENTS FOR EACH CHEMICAL SPECIE	BT	8
C	UNITS OF BTU/LB.MASS	BT	9
C		BT	10
---	DATA CP/0.231800,1.040000E-05,7.166000E-09,0.120765,1.720251E-04,-	BT	11
---	14.235305E-08,0.261531,-5.179134E-05,1.07508E-07,0.430062,1.676842E	BT	12
---	2-05,2.778587E-08,0.190481,5.646879E-05,-9.812500E-09,0.246445,-3.5	BT	13
---	364750E-06,1.251100E-08,0.124349,0.0,0.0,3.22600,1.757600E-04,1.0E-	BT	14
---	408/	BT	15
C		BT	16
---	DATA WTH/28.97,44.011,28.011,18.016,32.000,28.000,39.944,2.016/	BT	17
C		BT	18
---	DATA NAME/'AIR','CO2','CO','H2O','O2','N2','A','H2'/	BT	19
C		BT	20
---	DATA KR/1260*0/	BT	21
C		BT	22
---	DATA KW/6300*0/	BT	23
C	INTEGER*4 NPROG/'SER00238 (08-18-72) '/	BT	24
C		BT	25
---	END	BT	26-

Choked Version

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//LNK.SYSLIN DD *
INCLUDE SYSTFORT
ENTRY MAIN
C REAL GAS TIME-DEPENDENT ANNULAR NOZZLE FLOW. A 2
C RUN ON IBM 370/155 ARNOLD ENGINEERING DEVELOPMENT CENTER, A 3
C TULLAHOMA, TENNESSEE, 37389. A 4
C FOR INFORMATION CONCERNING THIS PROGRAM CONTACT, A 5
C ENGINEER -- SAM WEHNER PHONE. 615-455-2611 EXT 533. A 6
C ANALYST-- W. C. MOGER PHONE. 615-455-2611 EXT 7121. A 7
C A 8
C DATA K8/8/,K14/14/ A 9
C WRITE (6,1) A 10
C WRITE (8,2) K8 A 11
C WRITE (14,2) K14 A 12
C CALL SER142 A 13
C CALL ENDJOB A 14
C CALL EXIT A 15
C STOP A 16
C A 17
1 FORMAT ('1',20X,' PROGRAM NO. SER00142 AUG 8,1972 '/') A 18
2 FORMAT ('1',20X,'OUTPUT FROM DATA SET NO.',13/'0' ) A 19
END A 20-
---- FUNCTION RANDIT (X1,X2,X3,X4,X5) B 1
COMMON /FURAR/ F1,F2,F3,F4,F5 B 2
BAN=F1*X1+F2*X2 B 3
DIT=F3*X3+F5*X5 B 4
RANDIT=BAN+DIT B 5
RANDIT=RANDIT+F4*X4 B 6
RETURN B 7
END B 8-
STIRRUTIME BEGIN C 1
COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC C 2
COMMON /COUNT/ L,LL C 3
COMMON /NEKO/ NF,NF,NT C 4
DIMENS(DN A(3), X(3), Y(3)) C 5
ZERO=0.0 C 6
CALL PMIN (PANIC) C 7
XLOW=0.3*PANIC C 8
DELX=0.005000001*PANIC C 9
JERK=0 C 10
DO 1 K=1,3 C 11
X(K)=XLOW+(K-1)*DELX C 12
CALL SETUP (X(K),NT) C 13
Y(K)=XMASS(NT) C 14
1 CONTINUE C 15
DO 2 K=1,69 C 16
JERK=K C 17
CALL PARA9 (X,Y,A) C 18
IF (A(3).EQ.ZERO) A(3)=1.00*69 C 19
XTEST=-0.5*A(2)/A(3) C 20
IF (A(3).GE.ZERO) GO TO 3 C 21
IF ((X(1).LE.XTEST).AND.(X(3).GE.XTEST)) GO TO 4 C 22
X(1)=X(2) C 23
Y(1)=Y(2) C 24
X(2)=X(3) C 25
Y(2)=Y(3) C 26

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	X(3)=X(3)+DELX	C	27
	CALL SETWP (X(3),NT)	C	28
	Y(3)=XMASS(NT)	C	29
2	CONTINUE	C	30
3	CONTINUE	C	31
	CALL ROMBER ('BEDLAM',JERK)	C	32
	RETURN	C	33
4	CONTINUE	C	34
	CALL SETWP (XTEST,NT)	C	35
	WEIGHT=XMASS(NT)	C	36
	PTHROT=XTEST	C	37
	WRITE (6,5) WEIGHT,PTHROT,PANIC	C	38
	RETURN	C	39
C		C	40
5	FORMAT ('/20X,'WEIGHT=',1P615.6,3X,'PTHROT=',1P615.6,3X,'PANIC=',1P615.6,3X)	C	41
	1.6 /)	C	42
	END	C	43
	SUBROUTINE BNDRY	D	1
C		D	2
	COMMON /DELTA/ DX,DY,DT,DY2,DT2,DT4	D	3
	COMMON /SUPER/ R(21,60)	D	4
	COMMON /SPQR/ S(60),SD(60),SOP(60),SI(60),SIP(60),AREA(60)	D	5
	COMMON /NFRD/ MF,NF,NT,MUFF,LIMIT	D	6
	COMMON /EROS/ W(21,60,4),P(21,60)	D	7
	DATA ZERO/0.0/,ONE/1.0/	D	8
	COMMON /FRAN/ AD(60),AI(60),BD(60),BI(60)	D	9
	DIMENSION PP(100)	D	10
C		D	11
C	COMPUTE OUTER BOUNDARY PRESSURES	D	12
	DO 1 K=1,60	D	13
1	PP(K)=P(MF,K)	D	14
C		D	15
	DO 2 K=2,LIMIT	D	16
	X=W(MF,K,2)**2/W(MF,K,1)	D	17
	X=X/SD(K)	D	18
	DP=0.5*(PP(K+1)-PP(K-1))	D	19
	CORR=BD(K)*DP-AI(K)*X	D	20
	P(MF,K)=P(MF-1,K)+CORR	D	21
2	CONTINUE	D	22
	DO 3 K=2,LIMIT	D	23
	SOPK=SOP(K)	D	24
	DINGLE=ONE+SOPK**2	D	25
	DANGLE=SQRT(ONE/DINGLE)	D	26
	CALL GRDNK (ONE,P(MF,K),RHO,VEL,EASY)	D	27
	W(MF,K,1)=RHO*R(MF,K)	D	28
	W(MF,K,2)=RHO*R(MF,K)*VEL*DANGLE	D	29
	W(MF,K,3)=W(MF,K,2)*SOPK	D	30
3	W(MF,K,4)=EASY*R(MF,K)	D	31
	DO 4 K=1,60	D	32
4	PP(K)=P(1,K)	D	33
	DO 5 K=2,LIMIT	D	34
	X=W(1,K,2)**2/W(1,K,1)	D	35
	X=X/SI(K)	D	36
	DP=0.5*(PP(K+1)-PP(K-1))	D	37
	CORR=BI(K)*DP-AI(K)*X	D	38
5	P(1,K)=P(2,K)+CORR	D	39

C	DD 6 K=2,LIMIT	D 40
	SIPK=SIP(K)	D 41
	DINGLE=ONE+SIPK**2	D 42
	DANGLE=SORTF(ONE/DINGLE)	D 43
	CALL GRONK (ZERO,P(1,K),RHO,VEL,EASY)	D 44
	W(1,K,1)=RHO*R(1,K)	D 45
	W(1,K,2)=RHO*R(1,K)*VEL*DANGLE	D 46
	W(1,K,3)=W(1,K,2)*SIPK	D 47
6	W(1,K,4)=EASY*R(1,K)	D 48
C	RETURN	D 49
	END	D 50
	SUBROUTINE BOMBER (NAME,KODE)	D 51
	DIMENSION NAME(2)	D 52
	WRITE (6,1) NAME(1),NAME(2),KODE	F 1
	CALL ENDJOB	E 2
	CALL EXIT	E 3
	RETURN	E 4
C	FORMAT (1/20X,'BOMB-OUT IN ',2A4,3X,'CODE=',15/)	E 5
1	END	E 6
	SUBROUTINE CARDIN	E 7
	COMMON /SPY/ KCLASS,KGROUP	E 8
	DIMENSION KARD(20)	E 9
	CALL DEMON	F 1
	READ (5,3) KCLASS,KGROUP	F 2
	WRITE (6,8) KCLASS,KGROUP	F 3
	CALL PCLASS	F 4
	DD 2 K=1,6969	F 5
	READ (5,4,END=9) KARD	F 6
	IF (MOD(K-1,50).NE.0) GO TO 1	F 7
	CALL PCL6	F 8
	WRITE (6,7)	F 9
1	WRITE (6,5) KARD,K	F 10
2	CONTINUE	F 11
	9 REWIND 5	F 12
	WRITE (6,6)	F 13
	RETURN	F 14
C	FORMAT (16F15)	F 15
3	FORMAT (20A4)	F 16
4	FORMAT (10X,20A4,3X,15)	F 17
5	FORMAT (2X,50(' '), 'END OF INPUT DATA ',50(' '))	F 18
6	FORMAT (1RX, ' INPUT DATA CARD IMAGE PROGRAM NO. SER00142' /)	F 19
7	FORMAT (1/20X,'SECURITY CLASS AND GROUP CLASS=',15,' GROUP=',15/)	F 20
8	END	F 21
	SUBROUTINE CDVD (CLAP,VENUS,PUNTZ,NASTY)	F 22
	COMMON /ZERUS/ W(21,60,4),P(21,60)	F 23
	COMMON /DELTA/ DX,DY,DT	F 24
	COMMON /NERD/ M,N,NT,MUFF	F 25
	COMMON /SPOR/ S(50)	G 1
	COMMON /SUPER/ R(21,60)	G 2
	NX=NASTY	G 3
	CD=(W(M,NX,2)+W(1,NX,2))*0.5	G 4
	VD=(W(M,NX,2)**2/W(M,NX,1)+W(1,NX,2)**2/W(1,NX,1))*0.5	G 5
		G 6
		G 7
		G 8
		G 9

	PUNE=(P(H,NX)*R(H,NX)+P(T,NX)*R(T,NX))*0.5	G	10
	DO 1 K=2,MUFF	G	11
	CD=CD+W(K,NX,2)	G	12
	VD=VD+W(K,NX,2)**2/W(K,NX,1)	G	13
1	PUNE=PUNE+P(K,NX)*R(K,NX)	G	14
	SEX=S(NX)*DY*2.0	G	15
	CLAP=SEX*CD	G	16
	VENUS=SEX*VD	G	17
	PUNTZ=PUNE*SEX	G	18
	RETURN	G	19
	END	G	20
	SUBROUTINE CIPORT (PO,TO,DEN,FUZZ,PSTAT,TEMP,VEL,EASY)	H	1
	COMMON /LIMITS/ VMIN	H	2
	COMMON /THERMO/ CPX(3),CVX(3),RAG	H	3
1	CONTINUE	H	4
	ZERO=D.0	H	5
	PZ=PO	H	6
	TZ=TO	H	7
	RHO=DEN	H	8
	F=FUZZ	H	9
	RRATIO=RHO*RAG*TZ/PZ	H	10
	AZ=CVX(1)	H	11
	A1=CVX(2)	H	12
	A2=CVX(3)	H	13
	X=RRATIO	H	14
	RGAS=RAG	H	15
	POWER=RGAS/AZ	H	16
	FUDGE=X**POWER	H	17
	BARF=A1/AZ	H	18
	TRAF=A2*0.5/AZ	H	19
	T=TZ	H	20
	DO 2 K=1,5	H	21
	TTZ=T/TZ	H	22
	EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)	H	23
	XLAX=EXP(EPAR)	H	24
	TRAT=XLAX*FUDGE	H	25
	TCOMP=TRAT*TZ	H	26
	ERROR=TCOMP-T	H	27
	T=TCOMP	H	28
2	CONTINUE	H	29
	PRES=T*RHO*RAG	H	30
	DH=HOTS(CPX,T,TZ)	H	31
	VELOC=SQRT(DH+DH)	H	32
	VELOC=AMAX1(VELOC,VMIN)	H	33
	H0=HZERO(F)	H	34
	E=H0*RHO-PRES	H	35
	PSTAT=PRES	H	36
	VEL=VELOC	H	37
	EASY=E	H	38
	TEMP=T	H	39
	RETURN	H	40
	END	H	41
	SUBROUTINE CPEVAL	I	1
	COMMON /CPDATA/ CP(3,8),WTH(8),NAME(8)	I	2
	DATA KRUD/'PERF'/	I	3
	DIMENSION X(8), Y(8)	I	4

	INTEGER*4 LBMASS(4)/CP(8,*,TU/L*,BMAS*,S-R)/	1	40
	* LBMOLE(4)/CP(8,*,TU/L*,BMOL*,E-R)/	1	41
	* KGAMMA(4)/CP/C*,V GA*,MMA *,	1	42
	READ (5,10) NOMEN,ADDA	1	5
	IF (NOMEN,NE,KRUD) GO TO 3	1	6
	DO 2 J=1,8	1	7
	DO 1 K=2,3	1	8
1	CP(K,J)=-0.0	1	9
2	CONTINUE	1	10
	CP(1,1)=0.24009	1	11
3	CONTINUE	1	12
	NCP=19	1	13
	R=1.98726	1	14
	CALL HEAD6	1	15
	WRITE (6,11)	1	16
	WRITE (6,12) (K,NAME(K),WTM(K),(CP(J,K),J=1,3),K=1,8)	1	17
	WRITE (6,14) NAME,LBMASS	1	18
	DO 5 J=1,NCP	1	19
	A=J-1	1	20
	A=A+ADDA	1	21
	T=A*100.0	1	22
	DO 4 K=1,8	1	23
	X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)	1	24
4	CONTINUE	1	25
	WRITE (6,13) T,X,T	1	26
	IF (MOD(J,5).EQ.0) WRITE (6,16)	1	27
5	CONTINUE	1	28
	WRITE (6,15)	1	29
	WRITE (6,14) NAME,LBMOLE	1	30
	DO 7 J=1,NCP	1	31
	A=J-1	1	32
	A=A+ADDA	1	33
	T=A*100.0	1	34
	DO 6 K=1,8	1	35
	X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)	1	36
	X(K)=X(K)*WTM(K)	1	37
6	CONTINUE	1	38
	WRITE (6,13) T,X,T	1	39
	IF (MOD(J,5).EQ.0) WRITE (6,16)	1	40
7	CONTINUE	1	41
	WRITE (6,14) NAME,KGAMMA	1	42
	DO 9 J=1,NCP	1	43
	A=J-1	1	44
	A=A+ADDA	1	45
	T=A*100.0	1	46
	DO 8 K=1,8	1	47
	X(K)=CP(1,K)+T*(CP(2,K)+CP(3,K)*T)	1	48
	X(K)=X(K)*WTM(K)	1	49
	FUZZ=X(K)-R	1	50
	Y(K)=X(K)/FUZZ	1	51
8	CONTINUE	1	52
	WRITE (6,13) T,Y,T	1	53
	IF (MOD(J,5).EQ.0) WRITE (6,16)	1	54
9	CONTINUE	1	55
	RETURN	1	56
C		1	57

10	FORMAT (A4,E16.0)	I	58
11	FORMAT (' ',20X,'CP DATA' //20X,'COEFFICIENTS FOR CP(BTU/LB.MASS)	I	59
12	1= F(T-RANKINE)' //23X,'MOL. WT.',5X,'AO',10X,'A1*T',13X,'A2*T**2')	I	60
13	FORMAT (/10X,15,2X,A4,0PF10.3,1P3G15.6)	I	61
14	FORMAT (10X,FR,1,5X,8F9.4,2X,FR,1)	I	62
15	FORMAT (/12X,'RANKINE',RX,R(A4,5X),2X,4A4/)	I	63
16	FORMAT (' ')	I	64
17	END	I	65
18	FUNCTION CSUBP (TEMP)	J	66-
19	COMMON /THERMO/ CP(3),CV(3)	J	1
20	T=TEMP	J	2
21	C=CP(1)+T*(CP(2)+CP(3)*T)	J	3
22	CSUBP=C	J	4
23	RETURN	J	5
24	ENTRY CSUBV(TEMP)	J	6
25	T=TEMP	J	7
26	C=CV(1)+T*(CV(2)+CV(3)*T)	J	8
27	CSUBV=C	J	9
28	RETURN	J	10
29	END	J	11
30	SUBROUTINE CYCLE	K	12-
31	COMMON /DLTAS/ DX,DY,DT,DY2,DT2,DT4	K	1
32	COMMON /DIAPER/ HA(21),HB(21)	K	2
33	COMMON /EROS/ W(21,60,4),P(21,60)	K	3
34	COMMON /FANG/ F(9,4),G(9,4)	K	4
35	COMMON /FURN/ WNBORTH(4),WNSOUTH(4),WNWEST(4),WNEAST(4)	K	5
36	COMMON /NAVIER/ OTDX,OTDX2,OTDX4,OTDX8,OTDY,OTDY2,OTDY4,OTDY8	K	6
37	COMMON /NEFD/ MF,NF,NT,MUFF,LIMIT	K	7
38	COMMON /STOKES/ A(60),R(60),H(60)	K	8
39	COMMON /STUPID/ FUZZ(21,60)	K	9
40	DO 4 M=2,MUFF	K	10
41	Y=HB(M)	K	11
42	DO 3 N=2,LIMIT	K	12
43	HN=H(N)	K	13
44	EAST=A(N+1)*Y+B(N+1)	K	14
45	WEST=A(N-1)*Y+B(N-1)	K	15
46	ANYR=A(N)*Y+B(N)	K	16
47	FUDGE=A(N)*DY2	K	17
48	YANKEE=ANYR+FUDGE	K	18
49	REREL=ANYR-FUDGE	K	19
50	CALL SNAFU (M,N)	K	20
51	DO 1 K=1,4	K	21
52	F64=F(6,K)-F(4,K)	K	22
53	GR2=(G(8,K)-G(2,K))*HN	K	23
54	FR2=(F(8,K)-F(2,K))*ANYR	K	24
55	WRAR=(W(M,N,K)+W(M+1,N,K))*0.5	K	25
56	FX=(F64+F(9,K)-F(7,K))*DTDX8	K	26
57	FY=(F(8,K)-F(5,K))*YANKEE	K	27
58	GY=(G(8,K)-G(5,K))*HN	K	28
59	WNBORTH(K)=WRAR+FX+GY-FY	K	29
60	WRAR=(W(M,N,K)+W(M-1,N,K))*0.5	K	30
61	FX=(F64+F(3,K)-F(1,K))*DTDX8	K	31
62	FY=(F(5,K)-F(2,K))*REREL	K	32
63	GY=(G(5,K)-G(2,K))*HN	K	33
64	WNSOUTH(K)=WRAR+FX+GY-FY	K	34
65		K	35

	WBAR=(W(M,N+1,K)+W(M,N,K))*0.5	K	36
	FX=(F(6,K)-F(5,K))*DTDX2	K	37
	FY=(F(9,K)-F(3,K))*EAST	K	38
	GY=(G(9,K)-G(3,K))*H(N+1)	K	39
	WEAST(K)=WBAR+FX+(GY+GA2-FY-FA2)*0.25	K	40
	WBAR=(W(M,N-1,K)+W(M,N,K))*0.5	K	41
	FX=(F(5,K)-F(4,K))*DTDX2	K	42
	FY=(F(7,K)-F(1,K))*WEST	K	43
	GY=(G(7,K)-G(1,K))*H(N-1)	K	44
1	WWEAST(K)=WBAR+FX+(GY+GA2-FY-FA2)*0.25	K	45
	WNORTH(3)=WNORTH(3)+DT4*(P(M,N)+P(M+1,N))	K	46
	WSOUTH(3)=WSOUTH(3)+DT4*(P(M,N)+P(M-1,N))	K	47
	WEAST(3)=WEAST(3)+DT4*(P(M,N)+P(M,N+1))	K	48
	WWEAST(3)=WWEAST(3)+DT4*(P(M,N)+P(M,N-1))	K	49
	CALL EVAL (WNORTH,2,(FUZZ(M,N)+FUZZ(M+1,N))*0.5)	K	50
	CALL EVAL (WSOUTH,1,(FUZZ(M,N)+FUZZ(M-1,N))*0.5)	K	51
	CALL EVAL (WEAST,4,(FUZZ(M,N)+FUZZ(M,N+1))*0.5)	K	52
	CALL EVAL (WWEAST,3,(FUZZ(M,N)+FUZZ(M,N-1))*0.5)	K	53
	DO 2 K=1,4	K	54
	FX=(F(4,K)-F(3,K))*DTDX	K	55
	FY=(F(2,K)-F(1,K))*ANYB	K	56
	GY=(G(2,K)-G(1,K))*HN	K	57
2	W(M-1,N-1,K)=W(M,N,K)+FX+2.0*(GY-FY)	K	58
	W(M-1,N-1,3)=W(M-1,N-1,3)+P(M,N)*DT	K	59
3	CONTINUE	K	60
4	CONTINUE	K	61
	CALL WEIRDO	K	62
	RETURN	K	63
	END	K	64
	SUBROUTINE DEMON	L	1
	IMPLICIT REAL*8(A-H,O-Z)	L	2
	COMMON /APE/ D(10),ARONUM,WEWKDY,KDATE(3)	L	3
	REAL*8 TWTF(7)	L	4
	* / ' TUESDAY', ' WEDNSDY', ' THURSDY', ' FRIDAY '	L	5
	* , ' SATURDY', ' SUNDAY ', ' MONDAY ' /	L	6
	INTEGER MONTH(13) / ' JAN', ' FEB', ' MAR', ' APR', ' MAY', ' JUN'	L	7
	* , ' JUL', ' AUG', ' SEP', ' OCT', ' NOV', ' DEC' /	L	8
	INTEGER JERK(12) / 31,28,31,30,31,30,31,31,30,31,30,31 /	L	9
	INTEGER LUSH / ' 1900' / , LULU / ' 00' /	L	10
	CALL GETWHO (ARONUM,KYEAR)	L	11
	KDAY=MOD(KYEAR,1000)	L	12
	KYEAR=KYEAR/1000	L	13
	IF(MOD(KYEAR,4) .EQ. 0) JERK(2)=29	L	14
	L = KYEAR - 69	L	15
	J = L/4 + L + KDAY	L	16
	L = MOD(J,7) + 1	L	17
	WEWKDY=TWTF(L)	L	18
	K=KDAY	L	19
	DO 1 J=1,12	L	20
	M=J	L	21
	IF (K.EQ.JERK(J)) GO TO 2	L	22
1	K=K-JERK(J)	L	23
	K=0	L	24
	M=13	L	25
2	MONTH=MONTH(M)	L	26
	KDATE(1)=MONTH	L	27

KDATE(2)=LULU+256*((K/10)*256+MOD(K,10))	L	28
KDATE(3) = LUSH + 256*(KYEAR/10) + MOD(KYEAR,10)	L	29
RETURN	L	30
END	L	31-
SUBROUTINE DOODLE	M	1
COMMON /EROS/ W(21,60,4),P(21,60)	M	2
COMMON /NERD/ MF,NF,NT,MUFF,LIMIT	M	3
COMMON /STUPID/ F(21,60)	M	4
COMMON /SUPER/ R(21,60)	M	5
DATA ZERO/0.0/,ONE/1.0/,BIGGY/0.01/,SMALL/-0.01/,HUGE/1.0E+23/	M	6
XMASNT=XMASS(NT)	M	7
DO 2 J=2,NF	M	8
JAY=J	M	9
IF (JAY.EQ.NT) GO TO 2	M	10
XMASJ=XMASS(JAY)	M	11
ERR=XMASNT-XMASJ	M	12
REL=ERR/XMASNT	M	13
DO 1 K=1,MF	M	14
KAY=K	M	15
FACTOR=RIDDLE(KAY,JAY)	M	16
IF (FACTOR.EQ.ZERO) FACTOR=HUGE	M	17
PAR=REL/FACTOR	M	18
EPAR=PAR	M	19
IF (EPAR.GT.BIGGY) EPAR=BIGGY	M	20
IF (SMALL.GT.EPAR) EPAR=SMALL	M	21
G=EPAR+ONE	M	22
RHO=W(K,J,1)	M	23
W(K,J,1)=RHO*G	M	24
1 CONTINUE	M	25
2 CONTINUE	M	26
CALL ROGUE	M	27
DO 4 K=1,MF	M	28
DO 3 J=2,NF	M	29
FUZZ=F(K,J)	M	30
RHO=W(K,J,1)	M	31
RMAX=0.995*RHOMAX(FUZZ)	M	32
RHO=MINIMUM(RHO,RMAX)	M	33
CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,T)	M	34
TANG=W(K,J,3)/W(K,J,2)	M	35
COSN=ONE/SORTF(ONE+TANG**2)	M	36
W(K,J,1)=RHO*R(K,J)	M	37
W(K,J,2)=W(K,J,1)*VEL*COSN	M	38
W(K,J,3)=W(K,J,2)*TANG	M	39
W(K,J,4)=EASY*R(K,J)	M	40
3 P(K,J)=PSTAT	M	41
4 CONTINUE	M	42
RETURN	M	43
END	M	44-
SUBROUTINE DOWN	N	1
COMMON /EROS/ W(21,60,4),P(21,60)	N	2
COMMON /NERD/ MF,NF,NT,MUFF,LIMIT	N	3
DO 1 K=1,MF	N	4
W(K,NF,1)=W(K,NF-1,1)+0.5*(W(K,NF,1)-W(K,NF-2,1))	N	5
1 W(K,NF,2)=W(K,NF-1,2)+0.5*(W(K,NF,2)-W(K,NF-2,2))	N	6
RETURN	N	7
END	N	8-

	SUBROUTINE ENDOJOB	O	1
	CALL HEAD6	O	2
	CALL HEAD8	O	3
	CALL HEAD14	O	4
	WRITE (6,1)	O	5
	WRITE (8,2)	O	6
	WRITE (14,3)	O	7
	WRITE (14,4)	O	8
	WRITE (14,4)	O	9
	CALL ENDPLOT	O	10
	RETURN	O	11
C		O	12
1	FORMAT ('2',40(' '), 'END OF DATA SET 6 ',40(' '))	O	13
2	FORMAT ('2',40(' '), 'END OF DATA SET 8 ',40(' '))	O	14
3	FORMAT ('2',40(' '), 'END OF DATA SET 14 ',40(' '))	O	15
4	FORMAT	O	16
	1 30X ' ***** * * * * * ***** * * * * * * /	O	17
	2 30X ' * * * * * * * * * * * * * * * * * * * /	O	18
	3 30X ' * * * * * * * * * * * * * * * * * * * /	O	19
	4 30X ' * * * * * * * * * * * * * * * * * * * /	O	20
	5 30X ' ***** * * * * * ***** * * * * * *)	O	21
	END	O	22
	SUBROUTINE ENIGMA	P	1
	COMMON /ERDS/ M(21,60,4),P(21,60)	P	2
	COMMON /COUNT/ L,LL	P	3
	COMMON /NERD/ MF,NF,NT	P	4
	COMMON /NITWIT/ CLOWN,VULGAR	P	5
	CALL HEAD6	P	6
	WRITE (6,6) L	P	7
	WRITE (6,3)	P	8
	WRITE (6,5)	P	9
	CALL COVD (CDT,VDT,PUNTZ,NT)	P	10
	IF (L.NE.0) GO TO 1	P	11
	CLOWN=CDT	P	12
	VULGAR=VDT	P	13
1	DO 2 X=1,NF	P	14
	CALL COVD (A,B,PUNTZ,K)	P	15
	AX=A/CDT	P	16
	AXX=A/CLOWN	P	17
	BX=B/VDT	P	18
	BXX=B/VULGAR	P	19
	SUM=PUNTZ+B	P	20
	THRUST=SUM*3.141593	P	21
	WF=A*3.141593*32.174	P	22
	WRITE (6,4) WF,AX,AXX,B,BX,BXX,PUNTZ,THRUST,K	P	23
	IF (K.EQ.NT) WRITE (6,7)	P	24
2	CONTINUE	P	25
	RETURN	P	26
C		P	27
3	FORMAT (1/20X,'DISCHARGE(CD),THRUST(VDT),AND PRESSURE(PD) COEFFICIE	P	28
	INTS' /)	P	29
4	FORMAT (110X,1PG14.5,OPF10.5,4X,F10.5,4X,1PG14.5,11X,12)	P	30
5	FORMAT (1/18X,'WF',11X,'WF/WF*',6X,'WF/WF1',9X,'VD',11X,'VD/VD*',7	P	31
	1X,'VD/VD-1',9X,'PD',11X,'THRUST(LBF)')/)	P	32
6	FORMAT (1/20X,'ITERATION NO.=',15/)	P	33
7	FORMAT ('*',5X,'THRDAT')	P	34

	END	P	35-
	SUBROUTINE EQUATE (K,J,NERD)	O	1
	DIMENSION K(1), J(1)	O	2
	N=NERD	O	3
	DO 1 L=1,N	O	4
1	K(L)=J(L)	O	5
	RETURN	O	6
	END	O	7-
	SUBROUTINE EVAL (A,ISW,ATE)	R	1
	COMMON /FANG/ F(9,4),G(9,4)	R	2
	DIMENSION A(4)	R	3
	ZERO=0.0	R	4
	ETA=ATE	R	5
	IF (A(1),NE,ZERO) GO TO 1	R	6
	Z2=ZERO	R	7
	Z3=ZERO	R	8
	PR=ZERO	R	9
	GO TO 2	R	10
1	CONTINUE	R	11
	Z2=A(2)/A(1)	R	12
	Z3=A(3)/A(1)	R	13
	H0=HZERO(ETA)	R	14
	PR=H0*A(1)-A(4)	R	15
2	CONTINUE	R	16
	F(ISW,1)=-A(2)	R	17
	F(ISW,2)=-{Z2*A(2)+PR}	R	18
	F(ISW,3)=-Z2*A(3)	R	19
	F(ISW,4)=-{Z2*(A(4)+PR)}	R	20
	G(ISW,1)=-A(3)	R	21
	G(ISW,2)=F(ISW,3)	R	22
	G(ISW,3)=-{Z3*A(3)+PR}	R	23
	G(ISW,4)=-{Z3*(A(4)+PR)}	R	24
	RETURN	R	25
	END	R	26-
	SUBROUTINE FIASCO	S	1
	COMMON /DIAPER/ HA(21),HB(21)	S	2
	COMMON /ERDS/ W(21,60,4),P(1260)	S	3
	COMMON /NERD/ MF,NF,NT,MUFF,NEWKY	S	4
	COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	S	5
	COMMON /SEX/ NASTIE,IDIDT	S	6
	DIMENSION X(21)	S	7
	IF (NASTIE.EQ.0) RETURN	S	8
	ZERT=0.0	S	9
	NX=MF	S	10
	DO 3 J=1,NASTIE	S	11
	DO 1 K=2,MUFF	S	12
1	X(K)=W(K,J,3)/W(K,J,2)	S	13
	X(1)=SIP(J)	S	14
	X(MF)=SOP(J)	S	15
	CALL SMOOTH (X,MF,2)	S	16
	DO 2 K=2,MUFF	S	17
	TN=X(K)	S	18
	RWR=SQRT(W(K,J,2)**2+W(K,J,3)**2)	S	19
	TESTA=X(1)	S	20
	TESTB=X(NX)	S	21
	IF ((TN-TESTA)*(TESTA-TESTB).GE.ZERO) TN=TESTA	S	22

	IF ((TN-TESTB)*(TESTB-TESTA).GE.ZERO) TN=TESTB	S	23
	CN=SORTF(1.0/(TN**2+1.0))	S	24
	SN=CN*TN	S	25
	W(K,J,3)=SN*RWR	S	26
2	W(K,J,2)=CN*RWR	S	27
3	CONTINUE	S	28
	PVSSY = P(1)	S	29
	DO 4 K=1,1260	S	30
4	P(K)=AMIN1(P(K),PVSSY)	S	31
	IF (ID10T.NE.0) CALL SAM	S	32
	RETURN	S	33
	END	S	34
	SUBROUTINE FIRST	T	1
	COMMON /ARLE/ AX(21)	T	2
	COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC	T	3
	COMMON /NERD/ MF,NF,NT	T	4
	ONE=1.0	T	5
	ZERO=0.0	T	6
	XLOW=PTHROT	T	7
	XHIG=PANIC	T	8
	TARGET=XMASS(NT)	T	9
	DO 3 KOUNT=1,20	T	10
	X=(XHIG+XLOW)*0.5	T	11
	DO 1 K=1,MF	T	12
	PRESS=X*AX(K)	T	13
1	CALL PUNT2 (K,1,PRESS)	T	14
	TEST=TARGET-XMASS(I)	T	15
	IF (TEST.GT.ZERO) GO TO 2	T	16
	XLOW=X	T	17
	GO TO 3	T	18
2	XHIG=X	T	19
3	CONTINUE	T	20
	RETURN	T	21
	END	T	22
	SUBROUTINE FONKY (FUZZ,RHO,PSTAT,VEL,EASY,TEMP)	U	1
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAHZ(21),RGAS(21),	U	2
	IPZ(21),TZ(21),HZ(21)	U	3
	COMMON /THERMO/ CPX(3),CVX(3),RAG	U	4
1	CONTINUE	U	5
	ONE=1.0	U	6
	ZERO=0.0	U	7
	F=FUZZ	U	8
	D=RHO	U	9
	IF (F.EQ.ZERO) GO TO 3	U	10
	IF (F.EQ.ONE) GO TO 5	U	11
	IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('FONKY',1)	U	12
	X=F*20.0	U	13
	NEWKY=X	U	14
	DIGIT=NEWKY	U	15
	F2=X-DIGIT	U	16
	F1=ONE-F2	U	17
	J=NEWKY+1	U	18
	K=J+1	U	19
	PD=F1*PZ(J)+F2*PZ(K)	U	20
	TD=F1*TZ(J)+F2*TZ(K)	U	21
	DO 2 L=1,3	U	22

	CPX(L)=F1*CP(L,J)+F2*CP(L,K)	U	23
	CVX(L)=F1*CV(L,J)+F2*CV(L,K)	U	24
2	CONTINUE	U	25
	RAG=F1*RGAS(J)+F2*RGAS(K)	U	26
	GO TO 7	U	27
3	CONTINUE	U	28
	PD=PZ(1)	U	29
	TO=TZ(1)	U	30
	DO 4 L=1,3	U	31
	CPX(L)=CP(L,1)	U	32
	CVX(L)=CV(L,1)	U	33
4	CONTINUE	U	34
	RAG=RGAS(1)	U	35
	GO TO 7	U	36
5	CONTINUE	U	37
	PD=PZ(2)	U	38
	TO=TZ(2)	U	39
	DO 6 L=1,3	U	40
	CPX(L)=CP(L,2)	U	41
	CVX(L)=CV(L,2)	U	42
6	CONTINUE	U	43
	RAG=RGAS(2)	U	44
	GO TO 7	U	45
7	CONTINUE	U	46
	CALL CTPORT (PD,TO,D,F,PRES,TRANK,VELOC,E)	U	47
	PSTAT=PRES	U	48
	TEMP=TRANK	U	49
	EASY=E	U	50
	VEL=VELOC	U	51
	RETURN	U	52
	END	U	53
	SUBROUTINE FREAK (PRES,RHO,UU,VV,MY,NX,PD,TO,DEG,T,XM,VEL,GAM)	V	1
	COMMON /COUNT/ L,LL	V	2
	COMMON /NERD/ MF,NF,NT	V	3
	COMMON /STUPID/ FZ(21,60)	V	4
	COMMON /THERMO/ CPX(3),CVX(3),RAG	V	5
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)	V	6
	DATA ONE/1.0/	V	7
	P=PRES	V	8
	R=RHO	V	9
	U=UU	V	10
	V=VV	V	11
	M=MY	V	12
	N=NX	V	13
	Q=V**2+U**2	V	14
	X=FZ(M,N)	V	15
	Y=X*20.0+1.0	V	16
	N=Y	V	17
	IF (X*(ONE-X)) 6,4,1	V	18
1	X=N	V	19
	F2=Y-X	V	20
	F1=ONE-F2	V	21
	RAG=F1*RGAS(N)+F2*RGAS(N+1)	V	22
	DO 2 K=1,3	V	23
	CPX(K)=F1*CP(K,N)+F2*CP(K,N+1)	V	24
2	CVX(K)=F1*CV(K,N)+F2*CV(K,N+1)	V	25

C		V	26
3	CONTINUE	V	27
	TEMP=P/(R*RAG)	V	28
	TZ=TSTAG(CPX,TEMP,0)	V	29
	PZ=PTAG(CPX,TEMP,TZ,P,RAG)	V	30
	TANG=V/U	V	31
	RAD=ATANF(TANG)	V	32
	DEGREE=RAD*57.29578	V	33
	SEX=CSURP(TEMP)	V	34
	HEX=CSUBV(TEMP)	V	35
	GAMMA=SEX/HEX	V	36
	SONIC=SQRTF(GAMMA*RAG*TEMP)	V	37
	VELOC=SQRTF(D)	V	38
	XMACH=VELOC/SONIC	V	39
	PO=PZ	V	40
	TO=TZ	V	41
	DEG=DEGREE	V	42
	T=TEMP	V	43
	XM=XMACH	V	44
	VEL=VELOC	V	45
	GAM=GAMMA	V	46
	RETURN	V	47
4	RAG=RGAS(N)	V	48
	DO 5 K=1,3	V	49
	CPX(K)=CP(K,N)	V	50
5	CVX(K)=CV(K,N)	V	51
	GO TO 3	V	52
C		V	53
6	K=M*1000+N	V	54
	CALL BOMBER ('FREAK-FZ',K)	V	55
	RETURN	V	56
C		V	57
	END	V	58
	SUBROUTINE FRITO	W	1
	COMMON /FUBAR/ F1,F2,F3,F4,F5	W	2
	READ (5,1) K1,K2,K3,K4,K5	W	3
	WRITE (6,2) K1,K2,K3,K4,K5	W	4
	ZERO=0.0	W	5
	F1=K1	W	6
	F2=K2	W	7
	F3=K3	W	8
	F4=K4	W	9
	F5=K5	W	10
	SUM=F1+F2+F3+F4+F5	W	11
	IF (SUM.EQ.ZERO) CALL BOMBER ('FRITO',1)	W	12
	WRITE (6,3) F1,F2,F3,F4,F5,SUM	W	13
	F1=F1/SUM	W	14
	F2=F2/SUM	W	15
	F3=F3/SUM	W	16
	F4=F4/SUM	W	17
	F5=F5/SUM	W	18
	WRITE (6,3) F1,F2,F3,F4,F5	W	19
	RETURN	W	20
C		W	21
1	FORMAT (1615)	W	22
2	FORMAT (/20X,'INTERPOLATION FACTORS'//20X,515)	W	23

3	FORMAT (/20X,1P6G15.6)	W	24
	END	W	25-
	SUBROUTINE FUBARA	X	1
	COMMON /FUBAR/ F1,F2,F3,F4,F5	X	2
	A1=F1	X	3
	A2=F2	X	4
	A3=F3	X	5
	A4=F4	X	6
	A5=F5	X	7
	F1=0.0	X	8
	F2=0.0	X	9
	F3=0.0	X	10
	F4=1.0	X	11
	F5=0.0	X	12
	RETURN	X	13
	ENTRY FURARB	X	14
	F1=A1	X	15
	F2=A2	X	16
	F3=A3	X	17
	F4=A4	X	18
	F5=A5	X	19
	RETURN	X	20
	END	X	21-
	SUBROUTINE GRAFF	Y	1
	COMMON /SPQR/ SI(60),SO(60),SOP(60),SIP(60),SIP(60),AREA(60)	Y	2
	COMMON /EROS/ W(100),O(100)	Y	3
	COMMON /NERD/ NF,NF,NT,MUFF,LIMIT,NASTV	Y	4
	COMMON /DELTAS/ OX	Y	5
	COMMON /WALL/ XWALL(100)	Y	6
	DO 1 K=1,NF	Y	7
	W(K)=K	Y	8
	XWALL(K)=W(K)	Y	9
	O(K)=SO(K)	Y	10
1	O(K+NF)=SI(K)	Y	11
	CALL FARGX (W,NF)	Y	12
	CALL FARGY (O,NF+NF)	Y	13
	RETURN	Y	14
	END	Y	15-
	SUBROUTINE GRAPH	Z	1
	COMMON /APE/ KITLE,LABEL(19),NASTV(7)	Z	2
	COMMON /SCALE/ XZ,YZ, SX,SY	Z	3
	COMMON /TYME/ T,FLIT	Z	4
	DIMENSION X(1), Y(1)	Z	5
	DATA BIG/-0.0/,HT/0.14/,HH/0.10/,W/90.0/,Z/0.0/,DUDE/20.0/,XWIDE/1	Z	6
	16.0/,YHIGH/10.0/,KS/1/	Z	7
C		Z	8
C		Z	9
C		Z	10
	CALL CLASS ('SER00142')	Z	11
	CALL CALCMP (0.5,0.5,0.3)	Z	12
	RIG=-0.0	Z	13
	RETURN	Z	14
C		Z	15
C		Z	16
C		Z	17
	ENTRY FARGX(X,NPTS)	Z	18

	N=NPTS	2	19
	CALL SCALE (X,XWIDE,N,KS,DUDE)	2	20
	JUNK=N*KS+1	2	21
	KRUD=JUNK+KS	2	22
	XZ=X(JUNK)	2	23
	SX=X(KRUD)	2	24
	CALL HEAD6	2	25
	WRITE (6,1) XZ,SX,(X(J),J=1,N)	2	26
	RETURN	2	27
C	-----	2	28
C	-----	2	29
C	-----	2	30
	ENTRY FARGY(Y,NPTS)	2	31
	N=NPTS	2	32
	CALL SCALE (Y,YHIGH,N,KS,DUDE)	2	33
	JUNK=N*KS+1	2	34
	KRUD=JUNK+KS	2	35
	SY=Y(KRUD)	2	36
	YZ=Y(JUNK)	2	37
	WRITE (6,2) YZ,SY,(Y(J),J=1,N)	2	38
	RETURN	2	39
C	-----	2	40
C	-----	2	41
C	-----	2	42
	ENTRY NEWPLY	2	43
	CALL SYMBOL (0.25,10.3,MH,NASTY,Z,8)	2	44
	CALL SYMBOL (0.25,10.1,MH,NASTY(3),Z,20)	2	45
	CALL AXIS (Z,Z,'X',-1,XWIDE,Z,XZ,SX,DUDE)	2	46
	CALL AXIS (Z,Z,'Y',+1,YHIGH,N,YZ,SY,DUDE)	2	47
	CALL SYMBOL (2.0,10.1,HT,LABEL,Z,76)	2	48
	CALL SYMBOL (BIG,BIG,HT,'ITERATION NO.',Z,14)	2	49
	CALL NUMBER (BIG,BIG,HT,FLIT,Z,-1)	2	50
	CALL SYMBOL (BIG,BIG,HT,'-TIME=',Z,6)	2	51
	XXXX=T*1000.0	2	52
	CALL NUMBER (BIG,BIG,HT,XXXX,Z,2)	2	53
	CALL SYMBOL (BIG,BIG,HT,' MILLISECS',Z,11)	2	54
	RETURN	2	55
C	-----	2	56
C	-----	2	57
C	-----	2	58
	ENTRY LION(X,Y,NPTS,KSVM)	2	59
	K=KSVM	2	60
	N=NPTS	2	61
	JUNK=N*KS+1	2	62
	X(JUNK)=XZ	2	63
	Y(JUNK)=YZ	2	64
	KRUD=JUNK+KS	2	65
	X(KRUD)=SX	2	66
	Y(KRUD)=SY	2	67
	CALL LINE (X,Y,N,KS,-1,K)	2	68
	RETURN	2	69
C	-----	2	70
C	-----	2	71
C	-----	2	72
	ENTRY LOON(X,Y,NPTS)	2	73
	N=NPTS	2	74

	JUNK=N*KS+1	Z	75
	KRUD=JUNK+KS	Z	76
	X(KRUD)=SX	Z	77
	Y(KRUD)=SY	Z	78
	Y(JUNK)=YZ	Z	79
	X(JUNK)=XZ	Z	80
	CALL LINE (X,Y,N,KS,0,0)	Z	81
	RETURN	Z	82
C		Z	83
C	-----	Z	84
C		Z	85
	ENTRY NEXTP	Z	86
	CALL CALCHP (Z,Z,Z,Z)	Z	87
	RETURN	Z	88
C		Z	89
C	-----	Z	90
C		Z	91
	ENTRY ENDPLT	Z	92
	CALL CLASS ('SER00142')	Z	93
	RETURN	Z	94
C		Z	95
C		Z	96
C		Z	97
1	FORMAT ('0',20X,'X-PLOT PARAMETERS X-ZERO =',1PG15.6,5X,'UNITS/I	Z	98
	INCH =',G15.6/7(20X,1PG15.6/))	Z	99
2	FORMAT ('0',20X,'Y-PLOT PARAMETERS Y-ZERO =',1PG15.6,5X,'UNITS/I	Z	100
	INCH =',G15.6/7(10X,5(15,OPF10.4/))	Z	101
	END	Z	102
	SUBROUTINE GRONK (FUZZ,PP,RHO,VEL,EASY)	AA	1
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	AA	2
	IPZT(21),TZ(21)	AA	3
	COMMON /THERMO/ CPX(3),CVX(3),RAG	AA	4
	F=FUZZ	AA	5
	P=PP	AA	6
	ONE=1.0	AA	7
	ZERO=0.0	AA	8
	IF (F.EQ.ZERO) GO TO 2	AA	9
	IF (F.EQ.ONE) GO TO 4	AA	10
	IF (F*(ONE-F).LE.ZERO) CALL BOMBER ('GRONK',1)	AA	11
	X=F*20.0	AA	12
	NEWKY=X	AA	13
	DIGIT=NEWKY	AA	14
	F2=X-DIGIT	AA	15
	F1=ONE-F2	AA	16
	J=NEWKY+1	AA	17
	K=J+1	AA	18
	PO=F1*PZ(J)+F2*PZ(K)	AA	19
	TO=F1*TZ(J)+F2*TZ(K)	AA	20
	DO 1 L=1,3	AA	21
	CPX(L)=F1*CP(L,J)+F2*CP(L,K)	AA	22
	CVX(L)=F1*CV(L,J)+F2*CV(L,K)	AA	23
1	CONTINUE	AA	24
	RAG=F1*RGAS(J)+F2*RGAS(K)	AA	25
	GO TO 6	AA	26
2	CONTINUE	AA	27
	PO=PZ(1)	AA	28

	TD=TZ(1)	AA	29
	DO 3 L=1,3	AA	30
	CPX(L)=CPI(L,1)	AA	31
	CVX(L)=CV(L,1)	AA	32
3	CONTINUE	AA	33
	RAG=RGAS(1)	AA	34
	GO TO 6	AA	35
4	CONTINUE	AA	36
	PD=PZ(21)	AA	37
	TD=TZ(21)	AA	38
	DO 5 L=1,3	AA	39
	CPX(L)=CPI(L,21)	AA	40
	CVX(L)=CV(L,21)	AA	41
5	CONTINUE	AA	42
	RAG=RGAS(21)	AA	43
	GO TO 6	AA	44
6	CONTINUE	AA	45
	CALL TROPIC IPO,TO,P,F,OEN,VELOC,E)	AA	46
	RHO=DEN	AA	47
	VEL=VELOC	AA	48
	EASY=E	AA	49
	RETURN	AA	50
	END	AA	51-
	FUNCTION HANKY (A,PANKY,TO,SAGR)	AB	1
	DIMENSION A(1)	AB	2
	AZ=A(1)	AB	3
	A1=A(2)	AB	4
	A2=A(3)	AB	5
	X=PANKY	AB	6
	TZ=TO	AB	7
	RGAS=SAGR	AB	8
	POWER=RGAS/AZ	AB	9
	FUDGE=X**POWER	AB	10
	BARF=A1/AZ	AB	11
	TRAF=A2*0.57/AZ	AB	12
	T=TZ	AB	13
	DO 1 K=1,5	AB	14
	TTZ=T/TZ	AB	15
	EPAR=(TZ-T)*(BARF+TZ+T)*TRAF	AB	16
	XLAX=EXP(EPAR)	AB	17
	TRAT=XLAX*FUDGE	AB	18
	TCOMP=TRAT*TZ	AB	19
	ERROR=TCOMP-T	AB	20
	T=TCOMP	AB	21
1	CONTINUE	AB	22
	HANKY=T	AB	23
	RETURN	AB	24
	END	AB	25-
	SUBROUTINE HORNY	AC	1
	COMMON /NERO/ M,N,NT,MUFF/STUPID/F(21,60)/SUPER/R(21,60)	AC	2
	COMMON /SPOR/ S(60),SO(60),SOP(60),ST(60),SIP(60),AREA(60)	AC	3
	CALL OREZ (F,1260)	AC	4
	CALL HEAD6	AC	5
	DO 2 J=1,N	AC	6
	FM(J)=1.0	AC	7
	ROGER=1.0/AREA(J)	AC	8

	DO 1 K=2,MUFF	AC	9
1	FI(K,J)=(R(K,J)+R(1,J))*R(K,J)-R(1,J)*ROGER	AC	10
	WRITE (6,3) J,(FI(K,J),K=1,M)	AC	11
2	CONTINUE	AC	12
	RETURN	AC	13
C		AC	14
3	FORMAT (10X,15,2X,11F10.4/17X,10F10.4/)	AC	15
	END	AC	16-
	FUNCTION HOTS (CP,TSTAT,TZERO)	AD	1
	DIMENSION CP(1)	AD	2
	A=CP(1)	AD	3
	B=CP(2)*0.5	AD	4
	C=CP(3)*0.3333333	AD	5
	Y=TSTAT	AD	6
	X=TZERO	AD	7
	H=(X-Y)*(A+B*(X+Y)+C*(X**2+X*Y+Y**2))	AD	8
	HOTS=H	AD	9
	RETURN	AD	10
	END	AQ	11-
	SUBROUTINE HUNT	AE	1
	COMMON /SPQR/ SI(60),SD(60),SOP(60),S(160),SIP(60),AREA(60)	AE	2
	COMMON /NERD/ MF,NF,NT	AE	3
	DO 1 K=1,NF	AE	4
	SI(K)=SO(K)-SI(K)	AE	5
1	AREA(K)=SI(K)*(SO(K)+SI(K))	AE	6
	LITTLE=1	AE	7
	SMALL=AREA(1)	AE	8
	DO 2 K=2,NF	AF	9
	IF (SMALL.LE,AREA(K)) GO TO 2	AE	10
	SMALL=AREA(K)	AE	11
	LITTLE=K	AE	12
2	CONTINUE	AE	13
	AGONY=SORTF(SMALL)	AE	14
	CALL HEAD6	AE	15
	WRITE (6,4) LITTLE,SMALL,AGONY	AE	16
	WRITE (6,5)	AE	17
	DO 3 K=1,NF	AE	18
	AGONY=AREA(K)/SMALL	AE	19
	SNAFU=SORTF(AGONY)	AE	20
	WRITE (6,6) K,AREA(K),AGONY,SNAFU	AE	21
3	CONTINUE	AE	22
	NT=LITTLE	AF	23
	RETURN	AE	24
C		AE	25
C		AE	26
4	FORMAT (1/20X,'MIN X-STA =',14,3X,'MIN AREA=',F9.4,3X,' EFFECTIVE	AE	27
	RADIUS =',F10.4 /)	AE	28
5	FORMAT (1/33X,'AREA',12X,'A/A*',11X,'R/R*' /)	AE	29
6	FORMAT (20X,15,3F15.4)	AE	30
	END	AE	31-
	FUNCTION HZERO (ETA)	AF	1
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTH(21),GAMZ(21),RGAS(21),	AF	2
	IPZ(21),TZ(21),HZ(21)	AF	3
	ONE=1.0	AF	4
	ZERO=0.0	AF	5
	HZERO=HZ(21)	AF	6

X=ETA	AF	7
IF (X.EQ.ONE) RETURN	AF	8
IF (X.LT.ZERO) CALL BOMBER ('HZERO',1)	AF	9
IF (X.GT.ONE) CALL BOMBER ('HZERO',2)	AF	10
X=X*20.0	AF	11
N=X	AF	12
R=N	AF	13
R=X-R	AF	14
F2=R	AF	15
F1=ONE-F2	AF	16
HQHQ=HZIN+1)*F1+HZ(N+2)*F2	AF	17
HZERO=HQHQ	AF	18
RETURN	AF	19
END	AF	20-
SUBROUTINE TCHY	AG	1
COMMON /COUNT/ L,LL	AG	2
COMMON /NERD/ MF,NF,NT	AG	3
COMMON /PSIA/ PSIA(16),NPSIA	AG	4
COMMON /TYME/ T,PLIT	AG	5
ZERO=0.0	AG	6
NPSIA=0	AG	7
READ (5,3) PSIA	AG	8
DO 1 K=1,16	AG	9
IF (PSIA(K).LE.ZERO) GO TO 1	AG	10
NPSIA=NPSIA+1	AG	11
PSIA(NPSIA)=PSIA(K)	AG	12
1 CONTINUE	AG	13
IF (NPSIA.NE.0) WRITE (6,4) NPSIA,K,PSIA(K),K=1,NPSIA	AG	14
L=0	AG	15
LL=0	AG	16
T=0.0	AG	17
PLIT=L	AG	18
CALL FRITO	AG	19
CALL NAVSEA	AG	20
CALL GRAFF	AG	21
CALL STAGG	AG	22
CALL STATIC	AG	23
CALL HORNY	AG	24
CALL BEDLAM	AG	25
CALL FIRST	AG	26
DO 2 K=2,NF	AG	27
IF (K.NE.NT) CALL PHINOU (K)	AG	28
2 CONTINUE	AG	29
CALL TRICKY	AG	30
CALL OUTPUT	AG	31
RETURN	AG	32
C	AG	33
3 FORMAT (8E10.0)	AG	34
4 FORMAT (720X,'NO. PSIA LINES =',I3/1P8G15.6)	AG	35
END	AG	36-
SUBROUTINE ISOBAR	AH	1
COMMON /EROS/ W(21,60,4),PI(21,60)	AH	2
COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY	AH	3
COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	AH	4
COMMON /PSIA/ PSIA(16),NPSIA	AH	5
COMMON /SUPER/ RI(21,60)	AH	6

COMMON /WALL/ XWALL(100)	AH	7
DIMENSION X(100), Y(100)	AH	8
IF (NPSIA.EQ.0) RETURN	AH	9
IF (INPSIA.LE.0).OR.(NPSIA.GT.16) CALL BOMBER ('ISOBAR**',1)	AH	10
ZERO=0.0	AH	11
ONE=1.0	AH	12
MAX=95	AH	13
CALL HEAD8	AH	14
WRITE (8,7)	AH	15
CALL NEWPLT	AH	16
CALL LOON (XWALL,50,NF)	AH	17
CALL LOON (XWALL,51,NF)	AH	18
DO 6 JERK=1,NPSIA	AH	19
KOUNT=0	AH	20
JAZZ=JERK	AH	21
TARGET=PSIA(JERK)	AH	22
TARGET=TARGET*144.0	AH	23
DO 2 K=1,MF	AH	24
DO 1 J=2,NF	AH	25
DP=P(K,J)-P(K,J-1)	AH	26
IF (DP.EQ.ZERO) GO TO 1	AH	27
F=P(K,J)-TARGET	AH	28
F=F/DP	AH	29
IF ((F.LT.ZERO).OR.(F.GT.ONE)) GO TO 1	AH	30
FVCT=ONE-F	AH	31
KOUNT=KOUNT+1	AH	32
X(KOUNT)=XWALL(J-1)*F+XWALL(J)*FVCT	AH	33
Y(KOUNT)=R(K,J-1)*F+R(K,J)*FVCT	AH	34
IF (KOUNT.EQ.MAX) GO TO 5	AH	35
1 CONTINUE	AH	36
2 CONTINUE	AH	37
DO 4 J=1,NF	AH	38
XJ=XWALL(J)	AH	39
DO 3 K=2,MF	AH	40
DP=P(K,J)-P(K-1,J)	AH	41
IF (DP.EQ.ZERO) GO TO 3	AH	42
F=P(K,J)-TARGET	AH	43
F=F/DP	AH	44
IF ((F.LT.ZERO).OR.(F.GT.ONE)) GO TO 3	AH	45
KOUNT=KOUNT+1	AH	46
X(KOUNT)=XJ	AH	47
Y(KOUNT)=R(K-1,J)*F+R(K,J)*(ONE-F)	AH	48
IF (KOUNT.GT.MAX) GO TO 5	AH	49
3 CONTINUE	AH	50
4 CONTINUE	AH	51
5 CONTINUE	AH	52
IF (KOUNT.EQ.0) GO TO 6	AH	53
WRITE (8,8) PSIA(JERK),TARGET	AH	54
WRITE (8,9) (K,X(K),Y(K),K=1,KOUNT)	AH	55
CALL LION (X,Y,KOUNT,JAZZ)	AH	56
6 CONTINUE	AH	57
CALL NEXTP	AH	58
WRITE (8,10)	AH	59
RETURN	AH	60
C	AP	61
7 FORMAT (/20X,' PRINTOUT OF CONSTANT PRESSURE PLOT VALVES ' /)	AH	62

8	FORMAT (/20X,'ISOBAR =',F10.3,'(PSIA)',5X,F10.1,'(PSFA)/')	AM	63
9	FORMAT (/20(20X,5(15,F8.3,F7.3)/))	AM	64
10	FORMAT (/20X,'RETURN FROM "ISOBAR"'/)	AM	65
	END	AM	66-
	FUNCTION LIBRARY (SORF)	AI	1
	SORF=0.0	AI	2
	LIBRARY=0	AI	3
	RETURN	AI	4
	ENTRY COSRF(X)	AI	5
	COSRF=COS(X)	AI	6
	RETURN	AI	7
	ENTRY SINRF(X)	AI	8
	SINRF=SIN(X)	AI	9
	RETURN	AI	10
	ENTRY COSF(X)	AI	11
	COSF=COS(X)	AI	12
	RETURN	AI	13
	ENTRY SINF(X)	AI	14
	SINF=SIN(X)	AI	15
	RETURN	AI	16
	ENTRY TANF(X)	AI	17
	TANF=TAN(X)	AI	18
	RETURN	AI	19
	ENTRY SORTF(X)	AI	20
	SORTF=0.0	AI	21
	IF (X.LE.0.00+0) RETURN	AI	22
	SORTF=SORT(X)	AI	23
	RETURN	AI	24
	ENTRY ATANF(X)	AI	25
	ATANF=ATAN(X)	AI	26
	RETURN	AI	27
	ENTRY DUMDUM(X,Y)	AI	28
	DUMDUM=Y	AI	29
	IF (X.LT.Y) DUMDUM=X	AI	30
	RETURN	AI	31
	ENTRY TANDF(X)	AI	32
	WDRGH=X/57.29578	AI	33
	TANDF=TAN(WDRGH)	AI	34
	RETURN	AI	35
	END	AI	36-
	SUBROUTINE LINEAR (TARGET,X,NASTY,F1,F2,J1,J2,NOCON)	AJ	1
	DIMENSION X(1)	AJ	2
	ZERO=0.0	AJ	3
	NX=NASTY	AJ	4
	NOCON=1	AJ	5
	IF (NX.LT.2) RETURN	AJ	6
	NOCON=2	AJ	7
	IF (NX.GT.21) RETURN	AJ	8
	NOCON=3	AJ	9
	G1=TARGET-X(1)	AJ	10
	G2=X(NX)-TARGET	AJ	11
	SUM=G2*G1	AJ	12
	IF (SUM.LT.ZERO) RETURN	AJ	13
	DO 1 K=2,NX	AJ	14
	J=K	AJ	15
	G2=TARGET-X(K-1)	AJ	16

	G1=X(K)-YARGEY	AJ	17
	IF ((G1*G2).GE.ZERO) GO TO 2	AJ	18
1	CONTINUE	AJ	19
	NOCON=4	AJ	20
	RETURN	AJ	21
2	NOCON=5	AJ	22
	SUM=G1+G2	AJ	23
	IF (SUM.EQ.ZERO) RETURN	AJ	24
	NOCON=0	AJ	25
	F1=G1/SUM	AJ	26
	F2=G2/SUM	AJ	27
	J1=J-1	AJ	28
	J2=J	AJ	29
	RETURN	AJ	30
	END	AJ	31
	SUBROUTINE MAINP	AK	1
C		AK	2
	COMMON /DELTAS/ DX,DY,DT,DY2,DT2,DT4	AK	3
	COMMON /COUNT/ L,LL	AK	4
	COMMON /NERD/ MF,NF,NT	AK	5
	COMMON /TIME/ T,FLIT	AK	6
C		AK	7
	KOUNT=0	AK	8
	CALL CARDIN	AK	9
	CALL START	AK	10
	CALL GRAPH	AK	11
	READ (5,6) NTIMES,NEWKIE,IDIDOT	AK	12
C		AK	13
	IF (IDIDOT.NE.0) GO TO 1	AK	14
	CALL ICHI	AK	15
	GO TO 2	AK	16
1	CALL RESTOR	AK	17
	IF (IDIDOT.LE.0) CALL MEYER	AK	18
C		AK	19
2	IF ((NTIMES*NEWKIE).EQ.0) GO TO 5	AK	20
	CALL HEAD6	AK	21
	WRITE (6,7) NTIMES,NEWKIE,IDIDOT	AK	22
C		AK	23
	DO 4 K=1,NTIMES	AK	24
	DO 3 J=1,NEWKIE	AK	25
	T=T+DT	AK	26
	L=L+1	AK	27
	FLIT=L	AK	28
	CALL CYCLE	AK	29
	CALL RNDRY	AK	30
	CALL FIRST	AK	31
	CALL DOWN	AK	32
	CALL DDDOLE	AK	33
	CALL FIASCO	AK	34
	CALL STREAM	AK	35
3	CALL TRICKY	AK	36
4	CALL OUTPUT	AK	37
C		AK	38
5	CONTINUE	AK	39
	CALL STORE	AK	40
	RETURN	AK	41

C		AK	42
C		AK	43
C		AK	44
6	FORMAT (1615)	AK	45
7	FORMAT (/20X,'NUMBER OF PERIODS=',I5,3X,'ITERATIONS/PERIOD=',I3,3 IX,'RESTART =',I1/)	AK	46
	END	AK	47
	SUBROUTINE MAXIE (X,NDEX)	AK	48
	DIMENSION X(1)	AL	1
	N=NDEX	AL	2
	J=1	AL	3
	IF (N.LE.1) RETURN	AL	4
	BIG=X(1)	AL	5
	DO 1 K=2,N	AL	6
	IF (BIG.GT.X(K)) GO TO 1	AL	7
	J=K	AL	8
	BIG=X(K)	AL	9
1	CONTINUE	AL	10
	NDEX=J	AL	11
	RETURN	AL	12
	ENTRY MINW(ETX,NDEX)	AL	13
	J=1	AL	14
	N=NDEX	AL	15
	IF (N.LE.1) RETURN	AL	16
	SMALL=X(1)	AL	17
	DO 2 K=2,N	AL	18
	IF (SMALL.GT.X(K)) GO TO 2	AL	19
	J=K	AL	20
	SMALL=X(K)	AL	21
2	CONTINUE	AL	22
	NDEX=J	AL	23
	RETURN	AL	24
	END	AL	25
	SUBROUTINE MEYER	AM	26
C		AM	1
	COMMON /NERD/ MF,NF,NT	AM	2
	COMMON /PRNDTL/ PROUND(60),PMAXB,NANKER,NLAST	AM	3
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	AM	5
	1PZ(21),TZ(21),HZ(21),RHOZ(21)	AM	6
	DIMENSION X(60)		
C		AM	7
	ONE=1.0	AM	8
	PSTAG = PZ(MF)		
	READ (5,20) NANKER,NLAST,PMAXB		
	N = NLAST - NANKER + 1		
	READ (5,21) (X(K),K=1,N)		
	IF (X(1).GT. 0.0) GO TO 23		
	X(1) = - X(1)		
	DO 22 K=2,N		
22	X(K) = X(K-1)		
	GO TO 24		
23	IF (N.LE. 8) GO TO 24		
	READ (5,21) (X(K),K=9,N)		
C	CONVERT PSTAG/PSTATIC TO PSTATIC		
24	CONTINUE		
	DO 25 K=1,N		

	J = NANKER - 1 + K		
	PROUND(J) = PSTAG/X(K)		
25	CONTINUE		
	IF (NLAST .GE. NF) GO TO 27		
	M = NF - NLAST		
	DO 26 K=1,M		
26	PBOUND(NLAST+K) = PBOUND(NLAST+K-1)		
27	WRITE (6,28) (K,PBOUND(K),K=NANKER,NF)		
	RETURN		
20	FORMAT (215,G10.0)		
21	FORMAT (RG10.0)		
	END		
	SUBROUTINE MOND (X,NX)	AN	1
	DIMENSION X(1)	AN	2
	N=NX	AN	3
	DO 1 K=2,N	AN	4
1	X(K)=DUMDUM(X(K-1),X(K))	AN	5
	RETURN	AN	6
	END	AN	7
C	SUBROUTINE NAVSEA	AO	1
	COMMON /FRAN/ AO(60),AI(60),BO(60),BI(60)	AO	2
	COMMON /DELTA/ DX,DY,DT,DY2,DT2,DT4	AO	3
	COMMON /DIAPER/ HA(21),HB(21)	AO	4
	COMMON /ERDS/ DT(60,4),MAT(20),KODE(4),SOYDX(60)	AO	5
	COMMON /FLEX/ NFLX	AO	6
	COMMON /INDEX/ INDEX(9)	AO	7
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NEWKY	AO	8
	COMMON /SPQR/ SI(60),SO(60),SOP(60),SIP(60),AREA(60)	AO	9
	COMMON /SUPER/ R(21,60)	AO	10
	COMMON /SEX/ NASTIE,IDIDT	AO	11
	DATA ZERO/0.0/,ONE/1.0/,ZURER/57.29578/	AO	12
C	CALL DREZ (5,360)	AO	13
	CALL DREZ (D,264)	AO	14
	READ (5,18) MF,NF	AO	15
	READ (5,20) DX,DY	AO	16
	WRITE (6,19) MF,NF	AO	17
C	LIMIT=NF-1	AO	18
	MUFF=MF-1	AO	19
	NEWKY=MUFF-1	AO	20
	DY=MUFF	AO	21
	DY=ONE/DY	AO	22
	DY2=DY*0.5	AO	23
	DT2=DT*0.5	AO	24
	DT4=DT2*0.5	AO	25
	WRITE (6,12) DT,DX,DY	AO	26
	READ (5,23) ((DI(K,J),J=1,4),K=1,NF)	AO	27
	CALL EQUATE (SQ,D,240)	AO	28
C	ENTRY HOAX	AO	29
	WRITE (6,10)	AO	30
	WRITE (6,13)	AO	31
	WRITE (6,14) (K,SO(K),SOP(K),SI(K),SIP(K),K,K=1,NF)	AO	32
C		AO	33
		AO	34
		AO	35
		AO	36
		AO	37

	BUZZ=MF-1	AD	38
	FUZZ=ONE/BUZZ	AD	39
	DO 2 K=1,MF	AD	40
	F1=MF-K	AD	41
	HA(K)=F1/BUZZ	AD	42
	F2=K-1	AD	43
	HB(K)=F2/BUZZ	AD	44
	DN 1 J=1,NF	AD	45
1	R(K,J)=(F1*SI(J)+F2*SO(J))*FUZZ	AD	46
2	CONTINUE	AD	47
C		AD	48
	CALL HEAD6	AD	49
	WRITE (6,15)	AD	50
	DO 3 J=1,NF	AD	51
3	WRITE (6,21) J,(R(K,J),K=1,MF)	AD	52
C		AD	53
	CALL HUNT	AD	54
C		AD	55
	READ (5,18) NASTIE,IDIOY	AD	56
	IDIOY=MINO(IDIOY,NT)	AD	57
	IF (NASTIE.LT.0) NASTIE=NT	AD	58
	WRITE (6,16) NT,NASTIE,IDIOY	AD	59
	CALL HEAD6	AD	60
C		AD	61
	WRITE (6,10)	AD	62
	WRITE (6,17)	AD	63
	K=1	AD	64
	DOK=0.0	AD	65
	DIK=0.0	AD	66
	DEGIK=0.0	AD	67
	DEGOK=0.0	AD	68
	X=ZERO	AD	69
	WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP	AD	70
	1(K),DEGIK	AD	71
C		AD	72
	EPAR=0.5/DX	AD	73
	EPARDY=EPAR*DY	AD	74
	DO 4 K=2,LIMIT	AD	75
	SDYDX(K)=S(K)*EPARDY	AD	76
	DIK=(SI(K+1)-SI(K-1))*EPAR	AD	77
	DOK=(SO(K+1)-SO(K-1))*EPAR	AD	78
	DEGIK=ZURER*ATANF(SIP(K))	AD	79
	DEGOK=ZURER*ATANF(SOP(K))	AD	80
	X=(K-1)*DX	AD	81
	WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP	AD	82
	1(K),DEGIK	AD	83
4	CONTINUE	AD	84
	K=NF	AD	85
	X=(K-1)*DX	AD	86
	DOK=0.0	AD	87
	DIK=0.0	AD	88
	DEGIK=0.0	AD	89
	DEGOK=0.0	AD	90
	WRITE (6,22) K,X,AREA(K),S(K),SO(K),DOK,SOP(K),DEGOK,SI(K),DIK,SIP	AD	91
	1(K),DEGIK	AD	92
C		AD	93

	DO 5 K=2,NT	AO 94
	NFLX=K-1	AO 95
	IF (SOP(K)-SOP(K-1)) 5,5,6	AO 96
5	CONTINUE	AO 97
6	WRITE (6,11) NFLX	AO 98
C		AO 99
	CALL NAVSTO	AO 100
C		AO 101
	INDEX(1)=1	AO 102
	INDEX(2)=4	AO 103
	INDEX(3)=NT-5	AO 104
	INDEX(4)=NT-3	AO 105
	INDEX(5)=NT-1	AO 106
	INDEX(6)=NT	AO 107
	INDEX(7)=NT+1	AO 108
	INDEX(8)=NT+3	AO 109
	INDEX(9)=NT+5	AO 110
C		AO 111
C	COMPUTE ANGLES.	AO 112
	DO 7 K=1,NF	AO 113
	RO(K)=ATANF(SOP(K))	AO 114
	RI(K)=ATANF(SIP(K))	AO 115
7	CONTINUE	AO 116
C		AO 117
	DO 8 K=2,LIMIT	AO 118
	AO(K)=SDYDX(K)*(RO(K+1)-RO(K-1))	AO 119
	AI(K)=-SDYDX(K)*(BI(K+1)-BI(K-1))	AO 120
8	CONTINUE	AO 121
	DO 9 K=2,LIMIT	AO 122
	RO(K)=SDYDX(K)*SINRF(RO(K)+RO(K))	AO 123
	BI(K)=-SDYDX(K)*SINRF(BI(K)+BI(K))	AO 124
9	CONTINUE	AO 125
C		AO 126
	RETURN	AO 127
C		AO 128
10	FORMAT (/20X,' NOZZLE GEOMETRY ' /)	AO 129
11	FORMAT (/20X,' INFLECTION POINT NO. =',I3)	AO 130
12	FORMAT (/20X,' DT =',3PF10.4,' (MILLISECONDS)',5X,' DX =',0PF9.5,3X,	AO 131
	' DY =',F9.5)	AO 132
13	FORMAT (/36X,' SO',I3X,' SOP',I3X,' SI',I3X,' SIP' /)	AO 133
14	FORMAT (5(20X,I5,2X,4F15.6,5X,(5/))	AO 134
15	FORMAT (/20X,' *R* ARRAY' /)	AO 135
16	FORMAT (/20X,' THROAT INDEX(NT) =',I3,4X,' LAST FLOW SMOOTH =',I3,	AO 136
	' LAST PRESSURE SMOOTH STATION =',I3)	AO 137
17	FORMAT (26X,' X',8X,' AREA',7X,' S',8X,' SO',6X,' DSO/DX',5X,3H\$O',6X,	AO 138
	' 16H\$O'(D),7X,' SI',5X,' DSI/DX',4X,3H\$I',6X,6H\$I'(D) /)	AO 139
18	FORMAT (16I5)	AO 140
19	FORMAT (/20X,' NO. POINTS ON VERTICAL LINE(MF) =',I3,5X,' NO. OF MAL	AO 141
	' L POINTS(MF) =',I3/)	AO 142
20	FORMAT (2E12.0)	AO 143
21	FORMAT (10X,I5,2X,12F9.4/17X,12F9.4)	AO 144
22	FORMAT (5(10X,I5,5X,11F10.4/))	AO 145
23	FORMAT (4G15.0)	AO 146
	END	AO 147-
	SUBROUTINE NAVSTO	AP 1
	COMMON /NEKD/ MF,NF	AP 2

	COMMON /DELTAS/ DX,DY,DT	AP	3
	COMMON /NAVIER/ DTX,DTDX2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8	AP	4
	COMMON /STOKES/ A(60),B(60),H(60)	AP	5
	COMMON /SPQR/ S(60),SD(60),SOP(60),SI(60),SIP(60),AREA(60)	AP	6
	CALL DREZ (A,180)	AP	7
	ONE=1.0	AP	8
	DTDX=DT/DX	AP	9
	DTDX2=DTDX*0.5	AP	10
	DTDX4=DTDX2*0.5	AP	11
	DTDX8=DTDX4*0.5	AP	12
	DTDY=DT/DY	AP	13
	DTDY2=DTDY*0.5	AP	14
	DTDY4=DTDY2*0.5	AP	15
	DTDY8=DTDY4*0.5	AP	16
	DO 1 K=1,NF	AP	17
	A(K)=(SOP(K)-SIP(K))/S(K)	AP	18
	B(K)=SIP(K)/S(K)	AP	19
	H(K)=ONE/S(K)	AP	20
1	CONTINUE	AP	21
	CALL HEAD6	AP	22
	WRITE (6,3)	AP	23
	WRITE (6,5) (K,A(K),B(K),H(K),K=1,NF)	AP	24
	DO 2 K=1,180	AP	25
2	A(K)=A(K)*DTDY2	AP	26
	CALL HEAD6	AP	27
	WRITE (6,4)	AP	28
	WRITE (6,5) (K,A(K),B(K),H(K),K=1,NF)	AP	29
	RETURN	AP	30
3	FORMAT (29X,*(SOP-SIP)/S*,8X,*SIP/S*,10X,'1/S' /)	AP	31
4	FORMAT (29X,*(SOP-SIP)/S*,8X,*SIP/S*,10X,'1/S',15X,'*0.5*DT/DY' /)	AP	32
5	FORMAT (20X,15,2X,1P3G15.6)	AP	33
	END	AP	34
	SUBROUTINE NORMAL (X,NERD)	AP	35
	DIMENSION X(1)	AQ	1
	N=NERD	AQ	2
	SUM=0.0	AQ	3
	DO 1 K=1,N	AQ	4
1	SUM=SUM+X(K)	AQ	5
	IF (SUM.LE.0.0) RETURN	AQ	6
	DO 2 K=1,N	AQ	7
2	X(K)=X(K)/SUM	AQ	8
	RETURN	AQ	9
	END	AQ	10
	SUBROUTINE DREZ (X,NERD)	AR	11
	DIMENSION X(1)	AR	1
	N=NERD	AR	2
	DO 1 K=1,N	AR	3
1	X(K)=-0.0	AR	4
	RETURN	AR	5
	END	AR	6
	SUBROUTINE OUTPUT	AR	7
	COMMON /COUNT/ L,LL	AS	1
	COMMON /NERD/ MF,NF,NT	AS	2
	N6=6	AS	3
	N8=8	AS	4
		AS	5

	LL=LL+1	AS	6
	DO 2 K=1,NF	AS	7
	CALL HEAD6	AS	8
	CALL GROC (K)	AS	9
	DO 1 J=1,MF	AS	10
1	CALL PLINE (J,K,N6)	AS	11
2	CONTINUE	AS	12
	CALL ENIGMA	AS	13
	CALL HEAD8	AS	14
	WRITE (8,5) L	AS	15
	CALL FROC	AS	16
	DO 3 K=1,NF	AS	17
3	CALL PLINE (1,K,N8)	AS	18
	CALL HEAD8	AS	19
	WRITE (8,6) L	AS	20
	CALL FROC	AS	21
	DO 4 K=1,NF	AS	22
4	CALL PLINE (MF,K,N8)	AS	23
	CALL ISORAR	AS	24
	RETURN	AS	25
C		AS	26
5	FORMAT (/20X,'AXIS ITERATION NO=',I5 /)	AS	27
6	FORMAT (/20X,'WALL ITERATION NO=',I5 /)	AS	28
	END	AS	29
	SUBROUTINE PARAB(SX,SY,S)	AT	1
	IMPLICIT REAL*8(A-H,O-Z)	AT	2
	DIMENSION SX(1),SY(1),S(1)	AT	3
	S(1) = - 0.0	AT	4
	S(2) = - 0.0	AT	5
	S(3) = - 0.0	AT	6
	X1 = SX(1)	AT	7
	X2 = SX(2)	AT	8
	X3 = SX(3)	AT	9
	F1 = X1 - X2	AT	10
	F2 = X2 - X3	AT	11
	F3 = X3 - X1	AT	12
	D = F1*F2*F3	AT	13
	IF (D .EQ. 0.0D+0) RETURN	AT	14
	D = -1.0/D	AT	15
	Y1 = SY(1)	AT	16
	Y2 = SY(2)	AT	17
	Y3 = SY(3)	AT	18
	Y1 = Y1*F2	AT	19
	Y2 = Y2*F3	AT	20
	Y3 = Y3*F1	AT	21
	S(1) = D*(Y1*X2*X3 + Y2*X1*X3 + Y3*X1*X2)	AT	22
	S(2) = -D*(Y1*(X2+X3) + Y2*(X1+X3) + Y3*(X1+X2))	AT	23
	S(3) = D*(Y1+Y2+Y3)	AT	24
	RETURN	AT	25
	END	AT	26
	SUBROUTINE PCLASS	AU	1
	COMMON /SPY/ KCLASS,KGROUP	AU	2
	INTEGER*4 JERK(3,3) /	AU	20
	* 'UNCL','ASSI','FIED'	AU	21
	* 'CONF','IDEN','TIAL'	AU	22
	* '...S','ECRE','T...'	AU	23

	DIMENSION M(3)	AU	3
	CALL EQUATE (M,JERK11,KCLASS+1),3)	AU	4
	CALL DATE (KDAY,KYR)	AU	5
	RETURN	AU	6
	ENTRY PCL6	AU	7
	WRITE (6,1) M	AU	8
	WRITE (6,2) KDAY,KYR,KGROUP,M	AU	9
	RETURN	AU	10
	ENTRY PCL8	AU	11
	WRITE (8,1) M	AU	12
	WRITE (8,2) KDAY,KYR,KGROUP,M	AU	13
	RETURN	AU	14
	ENTRY PCL14	AU	15
	WRITE (14,1) M	AU	16
	WRITE (14,2) KDAY,KYR,KGROUP,M	AU	17
	RETURN	AU	18
C		AU	19
1	FORMAT (I2,T58,18(I**)/T58,I*,T75,I*/T58,I* ' ,3A4,T75,I*/	AU	20
	1T58,I*,T75,I*/T58,18(I**))	AU	21
2	FORMAT (I0/' DATE=' ,13,'/' ,12,T58,18(I**)/' GROUP',12,T58,I*, T	AU	22
	175,I*/' AND INC.',T58,I* ' ,3A4,' */' ARNOLD AIR FORCE STATION,	AU	23
	2TENN.',T58,I*,T75,I*/T58,18(I**)) /)	AU	24
	END	AU	25
	SUBROUTINE PHINQU (NXSTA)	AV	1
	COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC	AV	2
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT	AV	3
	NX=NXSTA	AV	4
	TARGET=WEIGHT	AV	5
	IF (NX.LT.NT) GO TO 1	AV	6
	IF (NX.GT.NT) GO TO 2	AV	7
	CALL BOMBER ('PHINQU',1)	AV	8
	RETURN	AV	9
1	CONTINUE	AV	10
	IF (NX.LE.0) CALL BOMBER ('PHINQU',NX)	AV	11
	DIDDLE=+1.0376	AV	12
	XLOW=PTHROT	AV	13
	XHIG=PANIC	AV	14
	GO TO 3	AV	15
2	CONTINUE	AV	16
	IF (NX.GT.NF) CALL BOMBER ('PHINQU',NX)	AV	17
	XLOW=0.0	AV	18
	XHIG=PTHROT	AV	19
	DIDDLE=-2.06	AV	20
	GO TO 3	AV	21
3	CONTINUE	AV	22
	KOUNT=-20	AV	23
4	KOUNT=KOUNT+1	AV	24
	IF (KOUNT.EQ.0) GO TO 6	AV	25
	X=(XLOW+XHIG)*0.5	AV	26
	CALL ZETWP (X,NX)	AV	27
	XMAZZ=XMASS(NX)	AV	28
	FONK=TARGET-XMAZZ	AV	29
	TEST=FONK/DIDDLE	AV	30
	IF (TEST.GT.0.0) GO TO 5	AV	31
	XLOW=X	AV	32
	GO TO 4	AV	33

5	XHTG=X	AV	34
	GO TO 4	AV	35
	ENTRY FINK(POUNDS)	AV	36
	TARGET=POUNDS	AV	37
	NX=1	AV	38
	GO TO 1	AV	39
6	CONTINUE	AV	40
	CALL SETWP (X,NX)	AV	41
	RETURN	AV	42
	END	AV	43
	SUBROUTINE PLINE (MY,NX,NUNIT)	AW	1
	COMMON /COUNT/ L,LL	AW	2
	COMMON /EROS/ W(21,60,5)	AW	3
	COMMON /SPQR/ S(60),SO(60),SNP(60),SI(60),SIP(60),AREA(60)	AW	4
	COMMON /STUPID/ F(21,60)	AW	5
	COMMON /SUPER/ R(21,60)	AW	6
	M=MY	AW	7
	N=NX	AW	8
	NU=NUNIT	AW	9
	P=W(M,N,5)	AW	10
	W1=W(M,N,1)	AW	11
	W2=W(M,N,2)	AW	12
	W3=W(M,N,3)	AW	13
	W4=W(M,N,4)	AW	14
	RHO=W1/R(M,N)	AW	15
	U=W2/W1	AW	16
	V=W3/W1	AW	17
	CALL FREAK (P,RHO,U,V,M,N,PZERO,TZERO,DEGRE,T,XM,VEL,GAM)	AW	18
	FUZZ=F(M,N)	AW	19
	IF (NU,NE,6) GO TO 1	AW	20
	WRITE (6,2) M,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER	AW	21
	10,VEL	AW	22
	RETURN	AW	23
1	CONTINUE	AW	24
	IF (NU,NE,8) CALL BOMBER ('PLINE',1)	AW	25
	WRITE (8,2) N,FUZZ,W1,W2,W3,W4,P,T,XM,GAM,RHO,U,V,DEGRE,PZERO,TZER	AW	26
	10,VEL	AW	27
	RETURN	AW	28
	ENTRY GROC(NASTY)	AW	29
	N=NASTY	AW	30
	WRITE (6,3) L,N,SI(N),SO(N),LL	AW	31
	WRITE (6,4)	AW	32
	RETURN	AW	33
	ENTRY FRQG	AW	34
	WRITE (8,4)	AW	35
	RETURN	AW	36
C		AW	37
2	FORMAT (3X,15,2X,2PF12.2,3X,1P7G15.5/10X,1PRG15.5/)	AW	38
3	FORMAT (/20X,'ITERATION NO.=',14,3X,'X-STATION NO.=',13,3X,'Y-INN	AW	39
	1ER =',F9.4,3X,'Y-OUTER =',F9.4,5X,'OUTPUT NO. =',15 /)	AW	40
4	FORMAT (11X,'STREAMLINE # ',8X,'W1',14X,'W2',12X,'W3',14X,'W4',10	AW	41
	1X,'P-STAT',10X,'TEMP(R)',7X,'MACH NO' /15X,'CP/CV',9X,'DENSITY',11	AW	42
	2X,'U',13X,'V',10X,'FLOW ANG(D)',7X,'P-STAG',10X,'T-STAG',7X,'VELOC	AW	43
	3ITY' /)	AW	44
	END	AW	45
	SUBROUTINE PHIN (PM)	AX	1

COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	AX	2
IPZ(21),TZ(21)	AX	3
X=PZ(1)	AX	4
DO 1 K=2,21	AX	5
IF (X.GT.PZ(K)) X=PZ(K)	AX	6
CONTINUE	AX	7
PH=X	AX	8
RETURN	AX	9
END	AX	10
FUNCTION PSTAG (CP,TSTAT,TZERO,PSTAT,SAGR)	AY	1
DIMENSION CP(3)	AY	2
CPZ=CP(1)	AY	3
CPA=CP(2)	AY	4
CPB=CP(3)	AY	5
T=TSTAT	AY	6
TZ=TZERO	AY	7
P=PSTAT	AY	8
RGAS=SAGR	AY	9
BARF=CPA/CPZ	AY	10
TRAF=0.5*CPB/CPZ	AY	11
TRAT=TZ/T	AY	12
POWER=CPZ/RGAS	AY	13
EPAR=(TZ-T)*(BARF+(TZ+T)*TRAF)	AY	14
XLAX=EXP(EPAR)	AY	15
PRAT=(TRAT*XLAX)**POWER	AY	16
PZERO=PRAT*P	AY	17
PSTAG=PZERO	AY	18
RETURN	AY	19
END	AY	20
SUBROUTINE PUNTZ (NY,NX,PRES)	AZ	1
COMMON /ERDS/ W(21,60,4),P(21,60)	AZ	2
COMMON /NERD/ MF,NF,NT,MUFF,LIMIT	AZ	3
COMMON /STUPID/ F(21,60)	AZ	4
COMMON /SUPER/ R(21,60)	AZ	5
COMMON /SPOR/ S(60),SO(60),SOP(60),SI(60),SIP(60),AREA(60)	AZ	6
COMMON /DUPER/ HA(21),HB(21)	AZ	7
J=NY	AZ	8
K=NX	AZ	9
PP=PRES	AZ	10
FUZZ=F(J,K)	AZ	11
SLOPE=HA(J)*SIP(K)+HB(J)*SOP(K)	AZ	12
COSIN=SQRTF(1.0/(1.0+SLOPE**2))	AZ	13
CALL GRONK (FUZZ,PP,RHO,VEL,EASY)	AZ	14
W1=RHO*R(J,K)	AZ	15
WV=W1*VEL	AZ	16
W2=WV*COSIN	AZ	17
W3=W2*SLOPE	AZ	18
W4=EASY*R(J,K)	AZ	19
W(J,K,1)=W1	AZ	20
W(J,K,2)=W2	AZ	21
W(J,K,3)=W3	AZ	22
W(J,K,4)=W4	AZ	23
P(J,K)=PP	AZ	24
RETURN	AZ	25
END	AZ	26
FUNCTION PVNTS (WONE,WFOUR,MAMA,NERK)	RA	1

COMMON /STUPID/ F(21,60)	BA	2
COMMON /SUPER/ R(21,60)	BA	3
W1=NONE	BA	4
W4=WFOUR	BA	5
M=MAMA	BA	6
N=NERK	BA	7
FUZZ=F(M,N)	BA	8
HO=HZERO(FUZZ)	BA	9
P=(HO*W1-W4)/R(M,N)	BA	10
PVNTS=P	BA	11
RETURN	BA	12
END	BA	13-
FUNCTION RHOMAX (FUZZ)	BB	1
COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	BB	2
IPZ(21),TZ(21),HZ(21),RHOZ(21)	BB	3
ONE=1.0	BB	4
ZERO=0.0	BB	5
F=FUZZ	BB	6
IF (F.EQ.ONE) GO TO 3	BB	7
IF (F.EQ.ZERO) GO TO 2	BB	8
IF (F*(ONE-F).LE.ZERO) CALL ROMBER ('*RHOMAX*',1)	BB	9
X=F*20.0	BB	10
NEWKY=X	BB	11
DIGIT=NEWKY	BB	12
F2=X-DIGIT	BB	13
F1=DNF-F2	BB	14
J=NEWKY+1	BB	15
K=J+1	BB	16
RZ=F1*RHOZ(J)+F2*RHOZ(K)	BB	17
1 RHOMAX=RZ	BB	18
RETURN	BB	19
2 RZ=RHOZ(1)	BB	20
GO TO 1	BB	21
3 RZ=RHOZ(21)	BB	22
GO TO 1	BB	23
END	BB	24-
FUNCTION RIDDLE (NV,NX)	BC	1
COMMON /STUPID/ F(21,60)	BC	2
COMMON /FROS/ W(21,60,4),P(21,60)	BC	3
COMMON /SUPER/ R(21,60)	BC	4
COMMON /THERMO/ CPX(3),CVX(3),RAG	BC	5
ONE=1.0	BC	6
ZERO=0.0	BC	7
K=NY	BC	8
J=NX	BC	9
RIDDLE=ZERO	BC	10
FUZZ=FI(K,J)	BC	11
RHO=W(K,J,1)/R(K,J)	BC	12
CALL FONKY (FUZZ,RHO,PSTAT,VEL,EASY,T)	BC	13
VV=VEL**2	BC	14
IF (VV.EQ.ZERO) CALL ROMBER ('*RIDDLE*',2)	BC	15
GAMMA=CSURP(T)/CSUBV(T)	BC	16
BETA=GAMMA*RAG*T/VV	BC	17
XM=SQRT(ONE/BETA)	BC	18
RID=ONE-BETA	BC	19
RIDDLE=RID	BC	20

	RETURN	BC	21
	END	BC	22-
	SUBROUTINE ROGUE	BD	1
	COMMON /EROS/ W(21,60,5)	BD	2
	COMMON /NERD/ MF,NF,NT	BD	3
	COMMON /SUPER/ R(21,60)	BD	4
	DO 1 J=1,5	BD	5
1	CALL EQUATE (W(1,60,J),W(1,1,J),MF)	BD	6
	DO 3 K=1,MF	BD	7
	DO 2 J=1,NF	BD	8
2	W(K,J,1)=W(K,J,1)/R(K,J)	BD	9
3	CONTINUE	BD	10
	DO 4 J=1,NF	BD	11
	K=NF+1-J	BD	12
4	CALL EQUATE (W(1,K+2,1),W(1,K,1),MF)	BD	13
	CALL SLICK	BD	14
	DO 5 J=1,5	BD	15
5	CALL EQUATE (W(1,1,J),W(1,60,J),MF)	BD	16
	RETURN	BD	17
	END	BD	18-
	SUBROUTINE SAM	BE	1
	COMMON /EROS/ W(21,60,4),P(21,60)	BE	2
	COMMON /NERD/ MF,NF,NT,MUFF	BE	3
	COMMON /STUPID/ F(21,60)	BE	4
	COMMON /SUPER/ R(21,60)	BE	5
	COMMON /WORK/ X(60)	BE	6
	COMMON /SEX/ NASTIE,IDTDT	BE	7
C	PRESSURE SMOOTHING	BE	8
	IF ((IDTDT.LT.2).OR.(IDTDT.GT.NT)) CALL BOMBER ('SAMIDTDT',0)	BE	9
	DO 3 K=2,MUFF	BE	10
	DO 1 J=1,IDTDT	BE	11
1	X(J)=P(K,J)	BE	12
C		BE	13
	CALL SMOOTH (X,IDTDT,4)	BE	14
	MORDN=IDTDT-1	BE	15
	DO 2 J=2,MORDN	BE	16
	CALL GRONK (F(K,J),X(J),RHO,VEL,EASY)	BE	17
	RWR=SQRT(W(K,J,2)**2+W(K,J,3)**2)	BE	18
	CSN=W(K,J,2)/RWR	BE	19
	SN=W(K,J,3)/RWR	BE	20
	W(K,J,1)=RHO*R(K,J)	BE	21
	W(K,J,2)=W(K,J,1)*VEL*CSN	BE	22
	W(K,J,3)=W(K,J,1)*VEL*SN	BE	23
	W(K,J,4)=EASY*R(K,J)	BE	24
	P(K,J)=X(J)	BE	25
2	CONTINUE	BE	26
3	CONTINUE	BE	27
	RETURN	BE	28
	END	BE	29-
	SUBROUTINE SER142	BF	1
	CALL ERRSET (207,256,-1,1)	BF	2
	CALL ERRSET (208,256,-1,1)	BF	3
	CALL ERRSET (209,256,-1,1)	BF	4
	CALL MAINP	BF	5
	RETURN	BF	6
	END	BF	7-

	SUBROUTINE SETWP (PRES,NXSTA)	RG	1
	ENTRY ZETWPI(PRES,NXSTA)	RG	2
	COMMON /NERD/ MF	RG	3
1	NX=NXSTA	RG	4
	PP=PRES	RG	5
	DO 2 K=1,MF	RG	6
2	CALL PUNTZ (K,NX,PP)	RG	7
	RETURN	RG	8
	END	RG	9
	SUBROUTINE SLICK	RM	1
	COMMON /EROS/ W(21,60,4)	RM	2
	COMMON /NERD/ MF,NF,NT,MUFF,NEWKY	RM	3
	DO 2 J=2,NEWKY	RM	4
	DO 1 K=2,MUFF	RM	5
	L=J+2	RM	6
	RU=W(K,L,1)	RM	7
	RD=W(K-1,L,1)	RM	8
	RL=W(K,L-1,1)	RM	9
	R=W(K,L,1)	RM	10
	RR=W(K,L+1,1)	RM	11
1	W(K,J,1)=RANDIT(RU,RD,RL,R,RR)	RM	12
2	CONTINUE	RM	13
	DO 3 J=2,NF	RM	14
	W(1,J,1)=W(1,J+2,1)	RM	15
3	W(MF,J,1)=W(MF,J+2,1)	RM	16
	DO 4 K=2,MUFF	RM	17
4	W(K,NF,1)=W(K,NF+2,1)	RM	18
	RETURN	RM	19
	END	RM	20
	SUBROUTINE SMOOTH (X,NX,NTIMES)	RI	1
	DIMENSION X(1), Z(100)	RI	2
	N=NX	RI	3
	NERD=N-1	RI	4
	LIMIT=NTIMES	RI	5
	F=0.4125	RI	6
	F00=0.5-0.5*F	RI	7
	DO 2 J=1,LIMIT	RI	8
	CALL EQUATE (Z,X,N)	RI	9
	DO 1 K=2,NERD	RI	10
1	X(K)=F*Z(K)+F00*(Z(K+1)+Z(K-1))	RI	11
2	CONTINUE	RI	12
	RETURN	RI	13
	END	RI	14
	SUBROUTINE SNAFU (MM,NN)	RJ	1
	COMMON /EROS/ W(21,60,4)	RJ	2
	COMMON /STUPID/ F(21,60)	RJ	3
	DIMENSION A(4)	RJ	4
	M=MM	RJ	5
	N=NN	RJ	6
	KOUNT=0	RJ	7
	DO 2 KRUD=1,3	RJ	8
	K=M+KRUD-2	RJ	9
	DO 1 JOLLY=1,3	RJ	10
	J=N+JOLLY-2	RJ	11
	KOUNT=KOUNT+1	RJ	12
	A(1)=W(K,J,1)	RJ	13

	A(2)=W(K,J,2)	BJ	14
	A(3)=W(K,J,3)	BJ	15
	A(4)=W(K,J,4)	BJ	16
	FUZZ=F(K,J)	BJ	17
	CALL EVAL (A,KOUNT,FUZZ)	BJ	18
1	CONTINUE	BJ	19
2	CONTINUE	BJ	20
	RETURN	BJ	21
	END	BJ	22
	SUBROUTINE STAGG	BK	1
	COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAM2(21),RGAS(21),	BK	2
	IPZ(21),TZ(21),HZ(21),RHOZ(21)	BK	3
	COMMON /CPDATA/ CPSPEC(3,8),SPCMWT(8),NAME(8)	BK	4
	COMMON /EOS/ R(8,50),X(50),P(50),T(50),F(50),NSTAG	BK	5
	COMMON /LIMITS/ VMIN	BK	6
	CALL CPEVAL	BK	7
	CALL OREZ (A,420)	BK	8
	GCJ=32.174*777.648	BK	9
	GRINCH=1.98726	BK	10
	WENCH=GRINCH*GCJ	BK	11
	NS=21	BK	12
	ONE=1.0	BK	13
	CALL HEAD6	BK	14
	WRITE (6,21)	BK	15
	READ (5,13) NSTAG	BK	16
	WRITE (6,14) NSTAG	BK	17
	NX=NSTAG	BK	18
	READ (5,15) (X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)	BK	19
	WRITE (6,9) NAME	BK	20
	WRITE (6,16) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)	BK	21
	CALL HEAD6	BK	22
	WRITE (6,21)	BK	23
	DO 1 K=1,NSTAG	BK	24
	PIK)=P(K)*144.0	BK	25
1	CALL NORMAL (B(1,K),8)	BK	26
	WRITE (6,10) NAME	BK	27
	WRITE (6,16) (K,X(K),P(K),T(K),(B(J,K),J=1,8),K=1,NSTAG)	BK	28
	FURD=NS-1	BK	29
	DO 4 K=1,NS	BK	30
	TARGET=K-1	BK	31
	TARGET=TARGET/FURD	BK	32
	CALL LINEAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)	BK	33
	IF (NOCON.NE.0) CALL BOMBER ('STAGG',NOCON)	BK	34
	PZ(K)=P(J1)*F1+P(J2)*F2	BK	35
	TZ(K)=T(J1)*F1+T(J2)*F2	BK	36
	F(K)=TARGET	BK	37
	SUM=0.0	BK	38
	DO 3 J=1,8	BK	39
	A(J,K)=R(J,J1)*F1+R(J,J2)*F2	BK	40
	DO 2 L=1,3	BK	41
2	CP(L,K)=CP(L,K)+A(J,K)*CPSPEC(L,J)	BK	42
	SUM=SUM+A(J,K)/SPCMWT(J)	BK	43
3	CONTINUE	BK	44
	WTM(K)=ONE/SUM	BK	45
	RGAS(K)=WENCH*SUM	BK	46
4	CONTINUE	BK	47

	DO 5 K=1,NS	BK	48
5	RHOZ(K)=PZ(K)/(TZ(K)*RGAS(K))	BK	49
	DO 6 K=1,63	BK	50
6	CP(K,1)=CP(K,1)*GCJ	BK	51
	DO 7 K=1,NS	BK	52
	CV(1,K)=CP(1,K)-RGAS(K)	BK	53
	CV(2,K)=CP(2,K)	BK	54
	CV(3,K)=CP(3,K)	BK	55
7	CONTINUE	BK	56
	WRITE (6,10) NAME	BK	57
	WRITE (6,16) (K,F(K),PZ(K),TZ(K),(A(J,K),J=1,8),K=1,NS)	BK	58
	CALL HEAD6	BK	59
	WRITE (6,21)	BK	60
	WRITE (6,11)	BK	61
	WRITE (6,17) (K,WTM(K),RGAS(K),(CP(J,K),J=1,3),(CV(J,K),J=1,3),K=1,NS)	BK	62
	WRITE (6,18)	BK	63
	DO 8 K=1,NS	BK	64
	HZ(K)=TZ(K)*(CP(1,K)+TZ(K)*ICP(2,K)*0.5+0.3333333*CP(3,K)*TZ(K))	BK	65
	G=CP(1,K)+TZ(K)*ICP(2,K)+TZ(K)*CP(3,K)	BK	66
	H=CV(1,K)+TZ(K)*ICV(2,K)+TZ(K)*CV(3,K)	BK	67
	GAMMA=G/H	BK	68
	GAMZ(K)=GAMMA	BK	69
	X(K)=SORTF(GAMZ(K)*RGAS(K)*TZ(K))	BK	70
	WRITE (6,12) K,GAMMA,G,H,HZ(K),X(K)	BK	71
8	CONTINUE	BK	72
	K=21	BK	73
	CALL MAX(E(X,K))	BK	74
	KMAX=K	BK	75
	AMAX=X(K)	BK	76
	VMAX=AMAX*0.05	BK	77
	WRITE (6,19) KMAX,AMAX,VMAX	BK	78
C		BK	79
	K=21	BK	80
	CALL MINNTE(X,K)	BK	81
	KMIN=K	BK	82
	AMIN=X(K)	BK	83
	VMIN=AMIN*0.05	BK	84
	WRITE (6,20) KMIN,AMIN,VMIN	BK	85
C		BK	86
	RETURN	BK	87
C		BK	88
	FORMAT (/16X,'STREAM FRACT.',8X,'STAGNATION',19X,'RELATIVE MASS O	BK	89
9	IF SPECIE'/30X,'PSIA',7X,'T-R',8(5X,A4) /)	BK	90
10	FORMAT (/30X,'PSFA',7X,'T-R',8(5X,A4)/)	BK	91
11	FORMAT (/20X,'MOL WT',5X,'GAS CON',17X,'CP COEFFICIENTS',22X,'CV	BK	92
	ICOEFFICIENTS' /)	BK	93
12	FORMAT (20X,15,5X,F8.4,2X,1P4G15.6)	BK	94
13	FORMAT (16I5)	BK	95
14	FORMAT (/20X,'STAGNATION PARAMETERS' ,5X,'NO. INPUT POINTS=',15/)	BK	96
15	FORMAT (3E12.0,4X,8E5.0)	BK	97
16	FORMAT (10X,15,F8.4,F12.3,F10.1,8F9.4)	BK	98
17	FORMAT (10X,15,2X,1P8G13.4)	BK	99
18	FORMAT (/20X,'STAGNATION EVALUATION' //32X,'GAMMA',10X,'CP',12X,'	BK	100
	ICV',10X,'ENTHAL',8X,'SPEED OF SOUND'/)	BK	101
19	FORMAT (/20X,'INDEX OF MAX. STAGNATION SOUND SPEED =',13,3X,'SPEE	BK	102
		BK	103

	ID =',F9.2,'(FT/SEC)',5X,'VMAX =',F9.2,'(FT/SEC)' /)	BK 104
20	FORMAT (/20X,'INDEX OF MIN. STAGNATION SOUND SPEED =',I3,3X,'SPEE	BK 105
	ID =',F9.2,'(FT/SEC)',5X,'VMIN =',F9.2,'(FT/SEC)' /)	BK 106
21	FORMAT (/20X,' GAS PROPERTIES'//)	BK 107
	END	BK 108-
	SUBROUTINE START	BL 1
	COMMON /APE/ LINE(30)	BL 2
	DIMENSION LUSH(27), KARD(20)	BL 3
	EQUIVALENCE (LINE,LUSH,KARD)	BL 4
	DATA KRUD/'1 **/,MUNG/'****/,MUD/'*C'//	BL 5
1	READ (5,3,END=2) KARD	BL 51
	IF (KARD(1).EQ.MUNG) GO TO 2	BL 6
	IF (KARD(1).NE.KRUD) GO TO 1	BL 7
	KARD(1)=MUD	BL 8
	ENTRY HEAD6	BL 9
	ENTRY HEAD	BL 10
	CALL PCL6	BL 11
	CALL TIME (IDTOT,NSECS)	BL 12
	MINUTE=NSECS/60	BL 13
	NSEC=NSECS-MINUTE*60	BL 14
	KHOUR=MINUTE/60	BL 15
	MINUTE=MINUTE-KHOUR*60	BL 16
	LINE(28)=KHOUR	BL 17
	LINE(29)=MINUTE	BL 18
	LINE(30)=NSEC	BL 19
	WRITE (6,3) LINE	BL 20
	RETURN	BL 21
	ENTRY HEAD8	BL 22
	CALL PCL8	BL 23
	WRITE (8,3) LUSH	BL 24
	RETURN	BL 25
	ENTRY HEAD14	BL 26
	CALL PCL14	BL 27
	WRITE (14,3) LUSH	BL 28
	RETURN	BL 29
2	CALL ENDJOB	BL 30
	RETURN	BL 31
C		BL 32
3	FORMAT (27A4,14,' ',12,' ',12 /)	BL 33
	END	BL 34-
	SUBROUTINE STATIC	BM 1
	COMMON /ABLE/ AX(21)	BM 2
	COMMON /EROS/ B(8,50),X(50),P(50),T(50),F(50),NSTAT	BM 3
	COMMON /NERD/ MF,NF,NT	BM 4
	FURD=MF-1	BM 5
	CALL HEAD6	BM 6
	WRITE (6,10)	BM 7
	DO 1 K=1,21	BM 8
1	AX(K)=1.0	BM 9
	DO 2 K=1,MF	BM 10
	TARGET=K-1	BM 11
	TARGET=TARGET/FURD	BM 12
2	F(K)=TARGET	BM 13
	READ (5,13) NSTAT	BM 14
	IF (NSTAT) 9,7,3	BM 15
3	IF (NSTAT-21) 4,4,B	BM 16

4	N=NSTAT	BM	17
	READ (5,14) (X(K),P(K),K=1,N)	BM	18
	WRITE (6,11)	BM	19
	WRITE (6,15) (K,X(K),P(K),K=1,N)	BM	20
	NX=N	BM	21
	DO 6 K=1,MF	BM	22
	TARGET=F(K)	BM	23
	CALL LINEAR (TARGET,X,NX,F1,F2,J1,J2,NOCON)	BM	24
	IF (NOCON) 8,5,8	BM	25
5	AX(K)=P(J1)*F1+P(J2)*F2	BM	26
6	CONTINUE	BM	27
7	WRITE (6,12)	BM	28
	WRITE (6,15) (K,F(K),AX(K),K=1,MF)	BM	29
	RETURN	BM	30
8	CALL BOMBER (BN STATIC ,5)	BM	31
9	RETURN	BM	32
C		BM	33
10	FORMAT (1/20X,43H INLET STATIC PRESSURE DISTRIBUTION FACTORS/)	BM	34
11	FORMAT (18X,5HINPUT,6X,4HR/RW,6X,11HPRES. FACT./)	BM	35
12	FORMAT (1/16X,8HCOMPUTED,5X,4HR/RW,6X,11HPRES. FACT./)	BM	36
13	FORMAT (11F15)	BM	37
14	FORMAT (2E12.0)	BM	38
15	FORMAT (20X,15,2X,2F10.5)	BM	39
	END	BM	40
	SUBROUTINE STORE	BN	1
	COMMON /ARLE/ AX(21)	BN	2
	COMMON /APE/ KITLE,LABEL(19)	BN	3
	COMMON /COUNT/ L,LL	BN	4
	COMMON /CPDATA/ TGFH(40)	BN	5
	COMMON /DELTA/ DX,DY,DT,DY2,DT2,DT4	BN	6
	COMMON /DUPER/ HA(21),HB(21)	BN	7
	COMMON /EROS/ H(21,60,4),P(21,60)	BN	8
	COMMON /FANG/ F(9,4),G(9,4)	BN	9
	COMMON /FLIGNR/ WEIGHT,PTHROT,PANIC	BN	10
	COMMON /FRAN/ A0(60),A1(60),B0(60),B1(60)	BN	11
	COMMON /FUBAR/ F1,F2,F3,F4,F5	BN	12
	COMMON /FURD/ WMP(4),WMM(4),WNP(4),WNM(4),WNN(4)	BN	13
	COMMON /LIMITS/ VMIN	BN	14
	COMMON /NAVIER/ OTDX,OTDX2,OTDX4,OTDXB,OTDY,OTDY2,OTDY4,OTDY8	BN	15
	COMMON /NERD/ MF,NF,NT,MUFF,LIMIT,NASTY	BN	16
	COMMON /NITWIT/ CLOWN,VULGAR	BN	17
	COMMON /SPOR/ S(60),S0(60),SOP(60),SI(60),SIP(60),AREA(60)	BN	18
	COMMON /SPY/ KCLASS,KGRDUP	BN	19
	COMMON /STAG/ AA(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21)	BN	20
	I,PZ(21),TZ(21),HZ(21),RHOZ(21)	BN	21
	COMMON /STOKES/ A(60),B(60),H(60)	BN	22
	COMMON /STUPID/ FOOL(21,60)	BN	23
	COMMON /SUPER/ RI(21,60)	BN	24
	COMMON /THERMO/ RHFJ(7)	BN	25
	COMMON /TYME/ T,FLIT	BN	26
	COMMON /WORK/ XTRA(99)	BN	27
	COMMON /SKALE/ SIMPLE(4)	BN	28
	COMMON /PSIA/ PSIA(16),NPSIA	BN	29
	COMMON /WALL/ XWALL(100)	BN	30
	COMMON /SEXX/ NASTIE,TDIDY	BN	31
	COMMON /PRNDTL/ PROUND(60),PHAXB,NANKER,NLAST		

	COMMON /INDEX/ INDEX(9)	BN	33
	COMMON /FLEX/ NFLX	BN	34
	REWIND 9	BN	35
	WRITE (9) KITLE,LABEL,L,LL,TGFH,OX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G	BN	36
	1,WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WMM,WNP,WNM,WMN,DTDX,DTDX2	BN	37
	2,DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8,MF,NF,NT,MUFF,LIMIT,NASTY,CLOW	BN	38
	3N,VULGAR,S,SO,SOP,SI,STP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RCAS	BN	39
	4,PZ,TZ,HZ,RHDZ,A,B,H,FOOL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWA	BN	40
	5LL,VMIN,AX,NASTIE,IDIOT,FPRAT,PBOUND,NANKER,INDEX,NFLX,AD,AI,BO,BI	BN	41
	END FILE 9	BN	42
	REWIND 9	BN	43
	WRITE (14,12)	BN	44
	RETURN	BN	45
	ENTRY RESTOR	BN	46
	REWIND 9	BN	47
	READ (9) KITLE,LABEL,L,LL,TGFH,OX,DY,DT,DY2,DT2,DT4,HA,HB,W,P,F,G,	BN	48
	1WEIGHT,PTHROT,PANIC,F1,F2,F3,F4,F5,WMP,WMM,WNP,WNM,WMN,DTDX,DTDX2,	BN	49
	2DTDX4,DTDX8,DTDY,DTDY2,DTDY4,DTDY8,MF,NF,NT,MUFF,LIMIT,NASTY,CLOW	BN	50
	3,VULGAR,S,SO,SOP,SI,STP,AREA,KCLASS,KGROUP,AA,CP,CV,WTM,GAMZ,RCAS,	BN	51
	4PZ,TZ,HZ,RHDZ,A,B,H,FOOL,R,RHFJ,T,FLIT,XTRA,PSIA,NPSIA,SIMPLE,XWA	BN	52
	5L,VMIN,AX,NASTIE,IDIOT,FPRAT,PBOUND,NANKER,INDEX,NFLX,AD,AI,BO,BI	BN	53
	REWIND 9	BN	54
	WRITE (6,13)	BN	55
	RETURN	BN	56
	ENTRY FREEP	BN	57
	IF (FPRAT) 2,1,2	BN	58
1	RETURN	BN	59
2	CONTINUE	BN	60
	NEWP=NANKER	BN	61
	ONE=1.0	BN	62
	CALL HEAD6	BN	63
	WRITE (6,11) (K,SO(K),SOP(K),K=1,NF)	BN	64
	CALL HEAD6	BN	65
	WRITE (6,9)	BN	66
	DO 3 K=NEWP,NF	BN	67
	RHD=W(MF,K,1)/R(MF,K)	BN	68
	U=W(MF,K,2)/W(MF,K,1)	BN	69
	V=W(MF,K,3)/W(MF,K,1)	BN	70
	PX=P(MF,K)	BN	71
	CALL FREAK (PX,RHD,U,V,MF,K,PD,TD,DEG,T,XM,VEL,GAM)	BN	72
	BETA=(XM+ONE)*(XM-ONE)	BN	73
	BETA=ABS(BETA)	BN	74
	BETA=SQRT(BETA)	BN	75
	DP = PX - PBOUND(K)		
	DGNU=DP*BETA/(RHD*VEL*VEL)	BN	77
	SOP(K)=SOP(K)+DGNU	BN	78
	WRITE (6,10) PX,RHD,VEL,XM,BETA,DP,DGNU,K	BN	79
3	CONTINUE	BN	80
	SOP(NEWP)=AMIN(SOP(NEWP),SOP(NEWP+1))	BN	81
	SP24=SOP(NEWP)	BN	82
	SPLW=0.5*SOP(NEWP-1)+0.5*SOP(NEWP+1)	BN	83
	SPHIG=0.1*SOP(NEWP-1)+0.9*SOP(NEWP+1)	BN	84
	TEST=(SP24-SPLW)*(SPLW-SPHIG)	BN	85
	IF (TEST) 5,5,4	BN	86
4	SOP(NEWP)=SPLW	BN	87
	GO TO 7	BN	88

5	YESY=(SP24-SPHTG)*(SPHTG-SPLOW)	BN	89
	IF (TEST) 7,7,6	BN	90
6	SOP(NEWP)=SPHTG	BN	91
7	CONTINUE	BN	92
	WRITE (6,11) (K,SOP(K),SOP(K),K=1,NF)	BN	93
	DINGLE=DX*0.5	BN	94
	DO 8 K=NEWP,NF	BN	95
	SOP(K)=SOP(K-1)+DINGLE*(SOP(K-1)+SOP(K))	BN	96
8	CONTINUE	BN	97
	CALL HMAX	BN	98
	RETURN	BN	99
C		BN	100
9	FORMAT (/21X,'PSFA',11X,'RHO',12X,'VEL',10X,'MACH NO.',8X,'BEYA',	BN	101
	11X,'D-PRES',8X,'D-PMA'//)	BN	102
10	FORMAT (10X,F15.2,E15.5,F15.2,F15.4,F15.5,F15.2,F15.5,18)	BN	103
11	FORMAT (20X,15,5X,2F15.5)	BN	104
12	FORMAT ('1',20X,'STORED ON NINE'//)	BN	105
13	FORMAT ('1',20X,'RESTORED FROM NINE'//)	BN	106
	END	BN	107
	SUBROUTINE STREAM	BO	1
	COMMON /EROS/ W(21,60,5)	BO	2
	COMMON /NERD/ MF,NF,NT	BO	3
	COMMON /STUPID/ F(21,60)	BO	4
	DO 3 NX=1,NF	BO	5
	F(1,NX)=0.0	BO	6
	DO 1 K=2,MF	BO	7
1	F(K,NX)=F(K-1,NX)+0.5*(W(K-1,NX,2)+W(K,NX,2))	BO	8
	DO 2 K=1,MF	BO	9
2	F(K,NX)=F(K,NX)/F(MF,NX)	BO	10
3	CONTINUE	BO	11
	RETURN	BO	12
	END	BO	13
	SUBROUTINE TRICKY	BP	1
	COMMON /EROS/ W(21,60,5),P(21,60)	BP	2
	COMMON /NDEX/ INDEX(9)	BP	3
	COMMON /COUNT/ L,LL	BP	4
	COMMON /NERD/ MF,NF,NT	BP	5
	COMMON /STAG/ AIR(21),CP(3,21),CV(3,21),WTN(21),GAMZ(21),RGAS(21),	BP	6
	PZ(21),TZ(21),HZ(21),RHOZ(21)	BP	7
	DIMENSION X(9), Y(9)	BP	8
	IF (L) 2,1,2	BP	9
1	WRITE (14,6) INDEX	BP	10
2	CONTINUE	BP	11
	DO 3 K=1,9	BP	12
	J=INDEX(K)	BP	13
	X(K)=P(MF,J)/PZ(MF)	BP	14
	Y(K)=P(1,J)/PZ(1)	BP	15
3	CONTINUE	BP	16
	WRITE (14,4) X,L	BP	17
	WRITE (14,5) Y	BP	18
	RETURN	BP	19
C		BP	20
4	FORMAT (1X,9F12.4,18)	BP	21
5	FORMAT (7X,9F12.4)	BP	22
6	FORMAT (/20X,30H(P/PO) WALL/AXIS RESPECTIVELY//1X,9F12.4)	BP	23
	END	BP	24

SUBROUTINE TROPIC (PO,TO,PSYAT,F,DEN,VEL,EASY)	BO	1
COMMON /STAG/ A(8,21),CP(3,21),CV(3,21),WTM(21),GAMZ(21),RGAS(21),	BO	2
IPZ(21),TZ(21)	BO	3
COMMON /THERMO/ CPX(3),CVX(3),RAG	BO	4
COMMON /LIMITS/ VMIN	BO	5
ZERO=0.0	BO	6
PO=PO	BO	7
TO=TO	BO	8
P=PSYAT	BO	9
FUZZ=F	BO	10
PRAT=P/PO	BO	11
T=HANKY(ICPX,PRAT,TO,RAG)	BO	12
RHO=P/(T*RAG)	BO	13
DEN=RHO	BO	14
DH=HOTS(ICPX,T,TO)	BO	15
VELOC=SQRT(DH+DH)	BO	16
VELOC=AMAX1(VELOC,VMIN)	BO	17
VEL=VELOC	BO	18
HO=HZERO(FUZZ)	BO	19
E=HO*RHO-P	BO	20
EASY=E	BO	21
RETURN	BO	22
END	BO	23
FUNCTION TSTAG (CP,TSTAT,VSOR)	RR	1
DIMENSION CP(3)	RR	2
T=TSTAT	RR	3
W=VSOR*0.5	RR	4
A=CSURP(TSTAT)	RR	5
TZ=T+W/A	RR	6
DO 1 K=1,5	RR	7
H=HOTS(CP,T,TZ)	RR	8
ERROR=W-H	RR	9
CPTZ=CSURP(TZ)	RR	10
DT=ERROR/CPTZ	RR	11
TZ=TZ+DT	RR	12
1 CONTINUE	RR	13
TSTAG=TZ	RR	14
RETURN	RR	15
END	RR	16
SUBROUTINE WEIRDO	BS	1
COMMON /EROS/ W(21,60,4),P(21,60)	BS	2
COMMON /NERD/ M,N,NT,MUFF,LIMIT,NEWKY	BS	3
DO 3 I=1,NEWKY	BS	4
K=M-I	BS	5
DO 2 J=2,LIMIT	BS	6
DO 1 L=1,4	BS	7
1 WIK(J,L)=WIK-1,J-1,L	BS	8
2 CONTINUE	BS	9
3 CONTINUE	BS	10
DO 5 K=2,MUFF	BS	11
DO 4 J=2,LIMIT	BS	12
4 P(K,J)=PVNTS(WIK,J,1),WIK(J,4),K,J	BS	13
5 CONTINUE	BS	14
RETURN	BS	15
END	BS	16
FUNCTION XMASS (NXSTA)	RT	1

COMMON /ERDS/ W(21,60,4),P(21,60)	BT	2
COMMON /NERD/ MF,NF,NT,MUFF	BT	3
COMMON /SPQR/ S(60)	BT	4
K=NXSTA	BT	5
SUM=(W(1,K,2)+W(MF,K,2))*0.5	BT	6
DO 1 J=2,MUFF	BT	7
1 SUM=SUM+W(J,K,2)	BT	8
XMASS=SUM*S(K)	BT	9
RETURN	BT	10
END	BT	11-
BLOCK DATA	BU	1
COMMON /CPDATA/ CP(3,8),WTM(8),NAME(8)	BU	2
C CP COEFFICIENTS FOR EACH CHEMICAL SPECIE	BU	3
C UNITS OF BTU/LB.MASS	BU	4
DATA CP/0.231800,1.040000E-05,7.166000E-09,0.120765,1.720251E-04,-	BU	5
14.235305E-08,0.261531,-5.179134E-05,1.07508E-07,0.430062,1.676842E	BU	6
2-05,2.778587E-08,0.190481,5.646879E-05,-9.812500E-09,0.246445,-3.5	BU	7
364750E-06,1.251100E-08,0.124349,0.0,0.0,3.22600,1.757600E-04,1.0E-	BU	8
408/	BU	9
DATA WTM/28.97,44.011,28.011,18.016,32.000,28.000,39.944,2.016/	BU	10
DATA NAME/'AIR','CO2','CO','H2O','O2','N2','A','H2'/	BU	11
END	BU	12-

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13. ABSTRACT An analytical technique based on the time-dependent flow equations has been developed to predict the inviscid transonic flow field in axisymmetric propulsion nozzles. The analysis includes the treatment of axisymmetric nonuniform nozzle inlet profiles of total pressure, total temperature, specific heat, and molecular weight. The analysis is also capable of considering convergent-divergent, convergent, and shrouded or unshrouded plug nozzle geometries. A computer listing and three sample calculations are presented to illustrate some of the capabilities of the program.			

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