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MEASUREMENTS IN THE TURBULENT BOUNDARY LAYER AT CONSTANT PRESSURE IN SUBSONIC AND SUPERSONIC FLOW

Part I. Mean Flow

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20. ABSTRACT (Continued)

The present Part I of this report is limited to a description of the mean flow as observed using Pitot-tube, Preston-tube, and floating-element instrumentation. Emphasis is on the use of similarity laws with Van Driest scaling and on the inference of the shearing-stress profile and the normal velocity component from the equations of mean motion. The experimental data are tabulated.

Part II of this work, published separately, is a description of the mean flow and Reynolds-stress field as observed in the same flows using a single-particle laser-Doppler velocimeter.

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Summary

Experiments have been carried out to test the accuracy of laser-Doppler instrumentation for measurement of Reynolds stresses in turbulent boundary layers in supersonic flow. Two facilities were used to study flow at constant pressure. In one facility, data were obtained on a flat plate at $M_e = 0.1$, with Re_θ up to 8,000. In the other, data were obtained on an adiabatic nozzle wall at $M_e = 0.6$, 0.8, 1.0, 1.3, and 2.2, with $Re_\theta = 23{,}000$ and 40,000. The present Part I of this report is limited to a description of the mean flow as observed using Pitot-tube, Preston-tube, and floating-element instrumentation. Emphasis is on the use of similarity laws with Van Driest scaling and on the inference of the shearing-stress profile and the normal velocity component from the equations of mean motion. The experimental data are tabulated.

Part II of this report, published separately, is a description of the mean flow and Reynolds-stress field as observed in the same flows using a single-particle laser-Doppler velocimeter.

Preface

This report represents the results of one phase of research carried out at the Jet Propulsion Laboratory of the California Institute of Technology, under Contract NAS 7-100. The work described in this report was supported by the United States Air Force, Office of Scientific Research, under Contract F 44620-75-C-0007; by the Arnold Engineering Development Center, under MIPR EY 7483-76-0003 and EY 7483-76-0009; and by the California Institute of Technology, President's Fund, under Grant PF-075. The Program Element No. was 65807F.

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Part I. Mean Flow

I. Introduction

The turbulent boundary layer at constant pressure has been studied experimentally and theoretically for many years. Collected experimental mean-velocity data for low-speed flow have been carefully reviewed by Coles (1962, Appendix A), who recommends taking the measurements by Wieghardt (1943) as the best available standard. A catalog and a comparable review of mean-velocity data for high-speed flow (including flow with pressure gradient) are presently being prepared for AGARD by Fernholz and Finley (1977). One method being used by Fernholz (1976) to organize the information in this AGARD catalog is recasting of the compressible-flow results into a form appropriate for incompressible flow. For this purpose, the wall-wake model for the mean-velocity profile (a model which has been thoroughly exercised for incompressible flow by Coles (1968)) and the mixing-length scaling proposed for compressible flow by Van Driest (1951) appear to be quite useful.

Measurements of Reynolds stresses in high-speed turbulent boundary layers are rare. For incompressible flow, the turbulent shearing stress can be measured directly, or it can be calculated from the distribution of mean velocity with the aid of well-established similarity laws. Good agreement between measured and calculated values, as in the case of the hot-wire measurements by Klebanoff (1954), helps to establish confidence in the extension of hot-wire methods to more complicated flows. Recent measurements by Johnson and Rose (1973), Yanta and Lee (1974), and Abbiss (1976) have attempted to extend this process to the use of laser-Doppler instrumentation in supersonic flow at Mach numbers in the range 1.5 to 3.0. However, a serious anomaly appears in the case of the turbulent shearing stress, defined as $-\rho\overline{u'v'}$. The maximum value occurs much further from the wall than is reasonable for flow at constant

pressure. The anomaly has been discussed by Sandborn (1974), who supports the conjecture by some of the authors cited that density fluctuations may contribute substantially to the turbulent stresses near the wall. This conjecture is in direct opposition to the conclusion by Morkovin (1961) that effects of density fluctuations should be small compared to effects of variations in mean density for Mach numbers up to 4 or 5.

The purpose of the present experiments is to obtain redundant data over a substantial range of Mach numbers (M_e = 0.1 to 2.2), in an effort to resolve the anomaly in turbulent shearing stress. Essentially the same range of Mach numbers has also been studied by Winter and Gaudet (1970), who used a Pitot tube to determine mean velocity and a floating-element balance to determine surface friction. However, no measurements were made of turbulent stresses.

The present measurements have sufficient redundancy to permit a realistic assessment of their accuracy. The primary instrumentation is a Pitot tube which traverses the boundary layer. In addition, surface-friction measurements are made using both a floating-element balance and a Preston tube. The mean-flow scaling suggested by Van Driest is applied to the data, to test the adequacy of a single similarity formulation for both compressible and incompressible flow, and the shearing-stress distribution is calculated as part of the analysis.

The results are discussed in Part I of this work. An Appendix contains a complete record of the experimental data in tabular and graphic form.

A laser-Doppler velocimeter has also been used to measure mean velocity and three components of Reynolds stress in the same flow. The results of the LDV studies will be reported by P. E. Dimotakis, D. J. Collins, and D. B. Lang in Part II of this work.

II. Flow Facilities

A. High-Speed Flow

Measurements were made in the ceiling boundary layer of the 20-inch wind tunnel at the Jet Propulsion Laboratory, at nominal free-stream Mach numbers M_e of 0.6, 0.8, 1.0, 1.3, and 2.2, at nominal Reynolds numbers Re_θ of 23,000 and 40,000. The JPL facility is a continuously operating, variable-density tunnel, with a test section 45.7 cm wide by 50.8 cm high. The top and bottom walls of the tunnel diverge slightly to compensate for boundary-layer growth.

For the present experiments, the region of uniform flow in the test section was extended approximately 150 cm beyond the end of the flexible nozzle, or 60 cm beyond the center of the schlieren windows, by installation of a pair of instrumented flat plates on the floor and ceiling of the tunnel. Particular care was taken to obtain a smooth junction between the plates and the nozzle wall.

From the experience, for example, of Liepmann and Ashkenas (1947), it has long been known that the experimental treatment of the downstream boundary condition is important at transonic speeds. The unsteady behavior often observed in transonic shock-wave boundary-layer interactions may be partly a consequence of unsteady flows generated in the diffuser. For the present experiments, stable flow at high subsonic free-stream Mach numbers was achieved by introducing a variable-thickness double-diamond airfoil choke in the diffuser.* The choke was oriented vertically in the diffuser, normal to the test plate, with the leading edge of the choke located 70 cm downstream from the balance station.

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*The advice of H. Ashkenas during this development is much appreciated.

The point of maximum thickness was located 15 cm further downstream. Flow past the choke was relieved by expanding the diffuser doors by 7.3° on each side in order to maintain constant area at the minimum thickness setting. High-speed schlieren movies showed that this arrangement eliminated the upstream-running waves observed in previous experiments and provided a quiet environment in which to perform transonic boundary-layer experiments.

Local static pressure was measured at 82 static-pressure orifices located throughout the test section and diffuser. The measurements used the JPL multiport measuring system, which simultaneously recorded the stagnation temperature and pressure, the free-stream static pressure, and the pressure from two 0-15 psia Statham pressure transducers, each of which sequentially sampled 50 orifices.

Typical free-stream Mach-number distributions for the present experiments are shown in Fig. 1. There is no substantial pressure gradient over a distance of about 140 cm upstream and about 40 cm downstream from the balance station.

B. Low-Speed Flow

Additional measurements were made in the Merrill wind tunnel of the Graduate Aeronautical Laboratories at the California Institute of Technology, at a free-stream velocity of 37 m/sec. This tunnel is a continuously operating closed-return facility with the downstream end of the test section vented to ambient pressure. The test section is 115 cm wide by 82 cm high and has diverging walls to account for boundary-layer growth.

The test plate for these experiments was made from 1.9-cm thick plywood, surfaced on both sides with 1-mm thick formica to provide a smooth finish. The leading edge was elliptical, with a transition strip located immediately

downstream from the elliptical section. The horizontal plate spanned the test section and extended 244 cm downstream from the beginning of the test section. The plate was supported from the ceiling of the tunnel, and all measurements were made on the lower surface.

Twenty static pressure taps were provided on the surface of the plate. A Scanivalve was used to select the pressure to be read by a Barocel digital manometer. The resulting free-stream Mach-number distribution, shown in Fig. 2, indicates that pressure-gradient effects should be small.

III. Pitot-Pressure Data

A. Instrumentation

For the experiments at JPL, a Pitot-pressure probe could be introduced into the boundary layer through the ceiling of the tunnel at any one of the five axial stations listed in Table 1. The origin for the x-coordinate is the center of the floating-element friction balance, 11.3 cm downstream from the junction between the nozzle wall and the test plate. During the probe measurements, the balance was replaced by a blank port which was instrumented with static-pressure taps.

The Pitot-pressure probe was constructed from stainless steel hypodermic tubing. The probe tip was formed by flattening 0.127-cm diameter tubing to an oval measuring 0.0127 cm inside (in the direction normal to the plate), with the lip thickness honed to 0.003 cm. The center of the support stem was 5.08 cm downstream from the probe tip. The probe position, the Pitot pressure, the tunnel stagnation temperature, and the tunnel stagnation and static pressures were recorded by the data system.

For the experiments at CIT, two techniques were employed. Within the first 100 cm from the leading edge of the plate, Pitot measurements were made

using a seven-tube rake. Further downstream, Pitot measurements were made by traversing a small probe through the boundary layer, as in the high-speed experiments. The probe tip was flattened to an oval measuring 0.0203 cm inside (in the direction normal to the plate), with a lip thickness of 0.020 cm. Boundary-layer measurements were made at the stations listed in Table 2.

B. Data Reduction

For each Pitot-pressure profile, a change of slope in the pressure data was used to define the point of contact of the probe with the wall. No displacement correction was made. The free-stream static pressure for each profile was taken as the average static pressure in the test section in the vicinity of the probe. The flow properties at the edge of the boundary layer were then computed using the average Pitot pressure well outside the boundary layer. Assuming constant static pressure, the local Mach number was computed either directly or through the normal shock relations, as appropriate.

The local stagnation temperature in the boundary layer was not measured. However, for the JPL experiments, the temperature measured by a thermocouple embedded in the surface-friction balance structure indicated that the flow was essentially adiabatic. Hence the temperature may be estimated from a variant of the adiabatic Crocco relation,*

*Equation (1) is often used in the reduction of experimental data, despite the fact that it does not conserve energy in adiabatic flow. The present data analysis assumes that p and M are measured exactly. Hence so are $T_o/T = 1 + (\gamma-1)M^2/2$, $u/(\gamma RT)^{\frac{1}{2}} = M$, and $\rho u^2 = \gamma p M^2$. If use of Eq. (1) introduces a local relative error of ϵ in T_o, the relative errors in T, u, ρ, and ρu are ϵ, $\epsilon/2$, $-\epsilon$, and $-\epsilon/2$, respectively.

$$\frac{T}{T_e} = \frac{\rho_e}{\rho} = 1 + r\left(\frac{\gamma - 1}{2}\right) M_e^2 \left[1 - \left(\frac{u}{u_e}\right)^2\right] = \frac{1 + r\left(\frac{\gamma - 1}{2}\right) M_e^2}{1 + r\left(\frac{\gamma - 1}{2}\right) M^2} , \quad (1)$$

where the recovery factor r is defined by

$$r = \frac{T_w - T_e}{T_{o_e} - T_e} , \quad (2)$$

and is assigned the constant value r = 0.885.

C. Results for the Mean Flow

Typical mean-velocity profiles measured at the balance station (JPL-4) for nominal Reynolds numbers Re_θ of 23,000 and 40,000 are presented in Figs. 3 and 4. Values for viscosity are obtained from the Sutherland viscosity law,

$$\frac{\mu}{\mu_r} = \left(\frac{T_r + S}{T + S}\right)\left(\frac{T}{T_r}\right)^{3/2} , \quad (3)$$

where T_r = 291.75 ^oK, S = 110 ^oK, and $\mu_r = 1.827 \times 10^{-4}$ gm/cm-sec. One profile at Re_θ = 8000 from the low-speed experiments (CIT-9) is also included in the figures for comparison. A complete data tabulation appears in the Appendix.

Integral thicknesses for the boundary layer are computed from

$$\delta^* = \int_o^\delta \left(1 - \frac{\rho u}{\rho_e u_e}\right) dy , \quad (4)$$

and

$$\theta = \int_o^\delta \frac{\rho u}{\rho_e u_e}\left(1 - \frac{u}{u_e}\right) dy . \quad (5)$$

The boundary-layer form parameter H is defined as

$$H = \frac{\delta^*}{\theta} \quad . \tag{6}$$

For two-dimensional mean flow, the surface friction can be obtained from von Kármán's momentum-integral equation,

$$C_f = 2 \frac{d\theta}{dx} - 2 \left(2 + H - M_e^2\right) \frac{\theta}{\gamma M_e^2} \frac{1}{P} \frac{dP}{dx} \quad . \tag{7}$$

The accuracy of Eq. (7) is expected to be low, primarily because of difficulty in differentiating experimental data for $\theta(x)$ and $u_e(x)$ (see Table A3 of the Appendix). For the present measurements, the second term in Eq. (7) is at most 3 percent of the first term, and is uncertain by a comparable amount. Hence this term has been discarded. Values for $C_f = 2\ d\theta/dx$ are listed in Table 3, which compares values obtained for C_f by this and several other methods.

D. Van Driest Scaling

The compressibility transformation proposed by Van Driest (1951) uses the mixing-length expression

$$\tau = \tau_w = \rho \ell^2 \left(\frac{du}{dy}\right)^2 \quad , \tag{8}$$

together with Prandtl's hypothesis

$$\ell = \kappa y \quad , \tag{9}$$

to obtain

$$\rho^{1/2} \frac{du}{dy} = \frac{\tau_w}{\kappa y}^{1/2} \quad . \tag{10}$$

The appearance of the combination ($\rho^{1/2}$du) suggests that the velocity u should be replaced by an effective velocity u^* defined by

$$u^* = \int_0^u \left(\frac{\rho}{\rho^*}\right)^{1/2} du \quad , \tag{11}$$

where ρ^* is a constant reference density included for dimensional reasons. Integration of the mixing-length equation (8) then gives

$$u^* = \frac{1}{\kappa} \left(\frac{\tau_w}{\rho^*}\right)^{1/2} \ln \left(\frac{y}{y^*}\right) + \text{constant} \quad , \tag{12}$$

where y^* is a constant reference length also included for dimensional reasons.

Equation (12) is typical of mixing-length formulas in that it is at best an unclear description of a small fragment of the mean-velocity profile. The choice for ρ^* and y^* and the value of the constant in Eq. (12) are customarily resolved by emphasizing quantities evaluated at the wall. For example, the definition (11) is readily integrated in closed form for the energy integral (1). The result is the Van Driest scaling for velocity in the case of adiabatic flow,

$$m \left(\frac{\rho^*}{\rho_w}\right)^{1/2} \frac{u^*}{u_e} = \sin^{-1}\left(m \frac{u}{u_e}\right) , \tag{13}$$

where m, defined by

$$m^2 = \frac{T_w - T_e}{T_w} = \frac{r\left(\frac{\gamma-1}{2}\right) M_e^2}{1 + r\left(\frac{\gamma-1}{2}\right) M_e^2} \quad , \tag{14}$$

obviously cannot exceed unity.

The form of Eqs. (12) and (13) suggests, but does not require, choosing $\rho^* = \rho_w$ and $y^* = \nu_w/u_\tau$, where

$$u_\tau = \left(\frac{\tau_w}{\rho_w}\right)^{1/2} \quad , \tag{15}$$

is the friction velocity. The choice $y^* = \nu_w/u_\tau$, in particular, is necessary if the functional dependence of u on y in Eq. (12) is to hold at the wall. Such reasoning, however, is not part of the mixing-length argument, which applies only outside the sublayer. Given these choices, then in a usual notation Eq. (12) becomes

$$u^+ = \frac{1}{\kappa} \ln y^+ + c \quad , \tag{16}$$

where

$$u^+ = \frac{u^*}{u_\tau} \quad , \quad y^+ = \frac{y u_\tau}{\nu_w} \quad , \tag{17}$$

and

$$m \frac{u^*}{u_e} = \sin^{-1}\left(m \frac{u}{u_e}\right) . \tag{18}$$

The choice for ρ^*, u_τ, and y^* is important because it controls the dependence of κ and c on M_e and γ. What is wanted is the particular choice which minimizes this dependence. There is substantial evidence, for example, in papers by Fenter and Stalmach (1957), Rotta (1960), Moore and Harkness (1964), Maise and McDonald (1968), Michel, Quemart, and Elena (1969), Danberg (1971), Squire (1971), and Fernholz (1976), that use of wall quantities as in Eqs. (16)-(18) is very nearly optimum from this point of view, at least for adiabatic flow at constant pressure at Mach numbers up to 5.

Most of these authors have also gone beyond the mixing-length argument to consider a more general fit to a defect law or to a combined wall-wake formulation of the mean profile, in the manner adopted by Coles (1968) for low-speed flow; i.e., a fit to

$$u^+ = \frac{1}{\kappa} \ln y^+ + c + 2 \frac{\Pi}{\kappa} \sin^2 Y \quad , \tag{19}$$

where

$$Y = \frac{\pi}{2} \frac{y}{\delta} \quad . \tag{20}$$

Such a fit has been carried out for the present measurements, with quite satisfactory results. The constants κ and c are given their incompressible values, $\kappa = 0.41$ and $c = 5.0$. The parameters u_τ, Π, and δ are then determined by a two-parameter least-squares fit of the experimental data to Eq. (19), taking as a third condition the constraint imposed by the local friction law,

$$u_e^+ = \frac{1}{\kappa} \ln \delta^+ + c + 2 \frac{\Pi}{\kappa} \quad . \tag{21}$$

As proposed by Coles (1968), data near the wall and near the free stream are excluded. For the JPL experiments, data are retained for $y^+ \geq 200$ and $y/\delta \leq 0.95$. For the CIT experiments, data are retained for $y^+ \geq 80$ and $y/\delta \leq 0.95$. Typical examples of the resulting fit are shown in Fig. 5. The values obtained for δ are indicated by tick marks in Figs. 3 and 4; they correspond to values for u/u_e of 0.996 to 0.998.

The quality of Van Driest scaling, when universal constant values are assumed for κ and c, can be tested in different ways. One test is to compare values inferred for the local friction coefficient

$$C_f = 2 \frac{\rho_w}{\rho_e} \left(\frac{u_\tau}{u_e} \right)^2 , \tag{22}$$

with values obtained by other means. Table 3 makes this comparison. If the floating-element data are taken as a standard, the conclusion for the present experiments is that the profile fit gives values for C_f which are slightly high. The discrepancy is small at subsonic speeds, but increases to about 6 percent at $M_e = 2.2$.

A second test is to compare values obtained for the profile parameter Π with corresponding values for low-speed flow, as defined by the low-speed data of Wieghardt (1943). This comparison is made in Fig. 6.* The main conclusion is that there is very little effect of compressibility on the shape of the mean-velocity profile in Van Driest coordinates, at least for

*The particular choice of $C_f Re_\theta$ for the abscissa in Fig. 6 (Coles 1962) is not important for these data, although it might become important if the figure included data at higher Mach numbers and lower Reynolds numbers.

Mach numbers up to 2.2. This conclusion is supported by the inclusion of a few representative points from the work by Winter and Gaudet (1970). There may be a tendency for Π to decrease slightly at large Reynolds numbers, as noted for low-speed flow by Coles (1962, Appendix A).

E. Inferred Data for v/u and τ/τ_w

The distributions of normal velocity and shearing stress through the boundary layer are of central interest in these experiments because of the direct comparison with LDV measurements to be made in Part II of this report. From the equation of continuity,

$$\rho v = -\int_o^y \frac{\partial \rho u}{\partial x}\, dy \ , \tag{23}$$

and from the equation for conservation of momentum in flow at constant pressure,

$$\tau - \tau_w = \rho uv + \int_o^y \frac{\partial \rho u^2}{\partial x}\, dy \ . \tag{24}$$

It is desired to evaluate the integrals in Eqs. (23) and (24) for the Van Driest description of the mean velocity profile with similarity, Eq. (19). A useful first step is a change of variable. Put

$$m \frac{u^*}{u_e} = U \ , \tag{25}$$

so that Eq. (18) becomes

$$m \frac{u}{u_e} = \sin U \ . \tag{26}$$

The corresponding form of Eq. (1) is

$$\frac{\rho_e}{\rho} = \frac{T_w}{T_e} \cos^2 U \quad . \tag{27}$$

These may be substituted in Eqs. (23) and (24) to obtain

$$\rho v = \rho_e u_e \frac{T_e}{T_w} \frac{d\delta}{dx} P \quad , \tag{28}$$

and

$$\tau = \tau_w - \rho_e u_e^2 \frac{T_e}{T_w} \frac{d\delta}{dx} \left(2Q - \frac{u}{u_e} P\right) \quad , \tag{29}$$

where the quantities denoted by P and Q are the definite integrals

$$\frac{d\delta}{dx} P = -\frac{1}{m} \int_o^y \frac{\left(1 + \sin^2 U\right)}{\cos^3 U} \frac{\partial U}{\partial x} dy \quad , \tag{30}$$

and

$$\frac{d\delta}{dx} Q = -\frac{1}{m^2} \int_o^y \frac{\sin U}{\cos^3 U} \frac{\partial U}{\partial x} dy \quad . \tag{31}$$

Note that $d\delta/dx$ is a phantom factor in these expressions. If Eqs. (28) and (29) are evaluated at the edge of the boundary layer, where $\tau = 0$, $\rho = \rho_e$, $u = u_e$, and $v = v_e$, the result is

$$\frac{v_e}{u_e} = \frac{T_e}{T_w} \frac{d\delta}{dx} P_e = \frac{d\delta^*}{dx} \quad , \tag{32}$$

and

$$\frac{\tau_w}{\rho_e u_e^2} = \frac{T_e}{T_w} \frac{d\delta}{dx} (2 Q_e - P_e) = \frac{d\theta}{dx} \quad . \tag{33}$$

It follows that

$$\frac{d\delta}{dx} P_e = \frac{T_w}{T_e} \frac{d\delta^*}{dx} \quad , \tag{34}$$

and that

$$\frac{d\delta}{dx} Q_e = \frac{1}{2} \frac{T_w}{T_e} \frac{d}{dx} (\delta^* + \theta) \quad . \tag{35}$$

Given U(x,y), the most convenient form for calculation is probably the normalized form

$$\frac{v}{v_e} = \frac{\rho_e}{\rho} \frac{P}{P_e} \quad , \tag{36}$$

and

$$\frac{\tau}{\tau_w} = 1 - \frac{\left(2 Q - \frac{u}{u_e} P\right)}{\left(2 Q_e - P_e\right)} \quad . \tag{37}$$

To undo the normalization in Eq. (37), a value must be specified for $\tau_w/\rho_e u_e^2$; i.e., for C_f. The derivative $d\delta/dx$ may then be calculated from Eq. (33) and inserted in Eq. (32) to obtain a value for v_e/u_e. This value can be used in turn to undo the normalization in Eq. (36), with the result

$$\frac{v}{u} = \frac{\tau_w}{\rho_e u_e^2} \frac{\rho_e u_e}{\rho u} \frac{P}{(2 Q_e - P_e)} \quad . \tag{38}$$

The analysis so far involves only the formalism of Van Driest scaling, inasmuch as the function U(x,y) has not been specified. For purposes of curve fitting, this function is defined by Eq. (19) outside the sublayer. Other authors, notably Maise and McDonald (1968) have also made calculations equivalent to using Eq. (19) in Eq. (29) to obtain the distribution of τ/τ_w. However, for accurate evaluation of the integrals P and Q near the wall, both U and $\partial U/\partial X$ need to be more accurately defined in the sublayer. We therefore revise Eq. (19) to read

$$u^+ = \frac{1}{m} \frac{u_e}{u_\tau} U = f(y^+) + 2 \frac{\Pi}{\kappa} \sin^2 Y \ , \tag{39}$$

and we describe the flow near the wall by an implicit formula for $f(y^+)$ proposed by Spalding (1961) and independently by Kleinstein (1967),

$$y^+ = f + e^{-\kappa c} \left[e^{\kappa f} - 1 - (\kappa f) - \frac{(\kappa f)^2}{2} - \frac{(\kappa f)^3}{6} \right] \quad . \tag{40}$$

This formula has the proper behavior near the wall, where $f = y^+ + O(y^+)^4$, and also outside the sublayer, because for $(\kappa f) \gg 1$ Eq. (40) reduces to Eq. (16). It is Eq. (40) which is plotted in the sublayer region in Fig. 5.

For Π, u_e and m constant, differentiation of Eq. (39) gives

$$\frac{1}{m} \frac{u_e}{u_\tau} \frac{\partial U}{\partial x} = \left[u^+ + y^+ f'(y^+) \right] \frac{1}{u_\tau} \frac{du_\tau}{dx} - 2 \frac{\Pi}{\kappa} Y \sin(2 Y) \frac{1}{\delta} \frac{d\delta}{dx} \ , \tag{41}$$

where, from Eq. (40),

$$\frac{1}{f'(y^+)} = 1 + \kappa e^{-\kappa c}\left[e^{\kappa f} - 1 - (\kappa f) - \frac{(\kappa f)^2}{2}\right] \quad . \tag{42}$$

The derivative du_τ/dx in Eq. (41) can be eliminated by noting from Eq. (21) that

$$\frac{1}{\delta}\frac{d\delta}{dx} = -(1 + \kappa u_e^+)\frac{1}{u_\tau}\frac{du_\tau}{dx} \quad . \tag{43}$$

Consequently, the integrals P and Q may be written

$$P = \frac{1}{\delta}\frac{u_\tau}{u_e}\int_o^y \left(\frac{1 + \sin^2 U}{\cos^3 U}\right)\left[\frac{(u^+ + y^+ f')}{(\kappa u_e^+ + 1)} + 2\,\Pi\, Y \sin(2Y)\right] dy \quad , \tag{44}$$

and

$$Q = \frac{1}{m\delta}\frac{u_\tau}{u_e}\int_o^y \left(\frac{\sin U}{\cos^3 U}\right)\left[\frac{(u^+ + y^+ f')}{(\kappa u_e^+ + 1)} + 2\,\Pi\, Y \sin(2Y)\right] dy \quad . \tag{45}$$

The integrals P and Q are readily determined for a given profile once the parameters u_τ, Π, and δ are specified. For convenience of tabulation, we use experimental values for y and we determine y^+ from (17), Y from (20), U from (25), u^+ from (39), and f and f′ by interpolation in (40) and (42), respectively. Thus the measured data influence the calculations only indirectly, through the fit which determines u_τ, Π, and δ.

Figures 7 and 8 show typical distributions for v/u and τ/τ_w calculated by this method, using profile parameters taken from the fit described in Section III-D. From these figures it is clear that both

quantities scale with outer variables, and that in normalized form they are relatively insensitive to changes in Mach number and Reynolds number.

Several authors, including Meier and Rotta (1970), Bushnell and Morris (1971), Horstman and Owen (1972), and Sturek (1973), have used a different and less structured method for calculating τ/τ_w in flow at constant pressure. Instead of wall-wake similarity with Van Driest scaling, the basic assumption is that u/u_e and ρ/ρ_e are functions only of y/δ or y/θ. In the former case, the problem of defining δ must be faced at the outset. In the latter case, this problem can be postponed. For generality, we take the independent variable as y/L. Then Eq. (28) is replaced by

$$v = u \frac{dL}{dx}\left(\frac{y}{L} - \frac{\rho_e u_e}{\rho u}\int_o^{y/L} \frac{\rho u}{\rho_e u_e}\, d\,\frac{y}{L}\right) , \tag{46}$$

and Eq. (29) is replaced by

$$\tau = \tau_w - \rho_e u_e^2 \frac{dL}{dx}\left(\frac{u}{u_e}\int_o^{y/L} \frac{\rho u}{\rho_e u_e}\, d\,\frac{y}{L} - \int_o^{y/L} \frac{\rho u^2}{\rho_e u_e^2}\, d\,\frac{y}{L}\right) . \tag{47}$$

When the integrals extend to the free stream, these become

$$v_e = u_e \frac{\delta^*}{L} \frac{dL}{dx} , \tag{48}$$

and

$$\tau_w = \rho_e u_e^2 \frac{\theta}{L}\frac{dL}{dx} . \tag{49}$$

The last two equations are clearly not compatible if L is the same for both. To satisfy the condition $v_e/u_e = d\delta^*/dx$, it is necessary to take $L = \delta^*$. To satisfy the condition $\tau_w/\rho_e u_e^2 = d\theta/dx$, it is necessary to take $L = \theta$. In neither case is $L = \delta$ a satisfactory choice.

To illustrate the problem, some typical results according to these equations, with $L = \theta$, are compared in Figs. 9 and 10 to earlier results based on Eqs. (44) and (45). Experimental points now have a direct influence on the calculation, because they define the functions to be integrated. The distributions in the figures are therefore properly rounded in the vicinity of the boundary-layer edge, avoiding the corner which is present in the earlier results. There is a slight problem with Eqs. (46) and (47) at small values of y/θ, where the experimental values of M/M_e, u/u_e, and ρ/ρ_e are all larger (perhaps because of probe interference) than the values associated with the profile fit. The integrals thus become permanently biased during the passage through small values of y. However, the main source of the discrepancy in v/u outside the boundary layer is the fact that Eq. (48) requires $v_e/u_e = (\delta^*/\theta)d\theta/dx$, rather than the correct value $d\delta^*/dx$. When the difference $\theta dH/dx$ is estimated independently, using the tabulated material of the Appendix, the discrepancies in Fig. 9 are quite well accounted for. Because of these discrepancies, and because the wall-wake fit provides an unambiguous definition for δ, we consider the calculation based on Eqs. (44) and (45) to be superior.

IV. Surface-Friction Data

A. Floating-Element Balance

A floating-element balance used by Coles (1953) was recommissioned for use in the present experiments.* The only important design change was

*The expert assistance of George Tennant in preparing the balance is gratefully acknowledged.

in the method of achieving the null position for the element. The balance, shown in Figs. 11 and 12, is a sealed unit mounted in a 23.5 cm-diameter port flush with the ceiling plate in the 20-inch wind tunnel. The original element occupies a 10-cm diameter circle which is located 5.08 cm upstream of the port centerline, as indicated in Fig. 12.

The balance is a null device with the floating element supported by a four-flexure linkage. The total force on the element is inferred from the displacement required at the supporting beam to return the element to null. In the present configuration, the supporting beam is driven by a differential micrometer powered by a small variable-speed motor. Two independent measurements were made of the beam motion. The counter shown in Fig. 11 measured the rotation of the micrometer drive shaft and counted in units of 10^{-6} inches of axial displacement. In addition, a Schaevitz coil was mechanically linked to the beam through the drive wire. The null position of the element was monitored by a second Schaevitz coil, as in the original design. The demodulated output from the Schaevitz coils was low-pass filtered with a time constant of 0.25 sec. The dashpots shown in Fig. 11 were filled with Dow Corning 710 silicone oil having a viscosity $\nu = 5.0$ cm^2/sec. A thermocouple measured the temperature of the balance chamber.

The rectangular floating element, shown in Fig. 12, is 0.622 cm in the streamwise direction and 3.785 cm in the cross-stream direction. The area of the element is thus $A = 2.356$ cm^2. The gap is 0.007 cm upstream and downstream when the element is nulled, and 0.010 cm on each side. The element was flush with the surrounding surface within 0.0001 cm. No correction was made to account for the effect of the gap on the measured force.

The balance was calibrated using the technique described by Coles (1953). The beam displacement required to return the element to null was measured with the balance tilted at various angles with respect to the horizontal. These measurements were repeated after adding various small weights to the element, and the results were analyzed to yield the mass of the unweighted element and the spring constant for the flexures. Four angles were used between 0.0^{o} and 0.6^{o}, with weights of 0, 5, 10 and 20 grams. The spring constant was measured to be 73.98 gm/cm, with a maximum deviation of 2 parts in 1000.

The JPL 20-inch tunnel is a variable-density facility. The balance was located on the tunnel ceiling, which flexes with changes in free-stream static pressure. To compensate for the resulting zero offset in the surface-friction balance, the element was covered by a thin gasket-sealed plate, which was held in place by evacuating the balance chamber, and flow was established at the desired Mach number and Reynolds number. When the balance achieved thermal equilibrium, the null position of the element was measured. The flow was then bypassed, the element cover was removed, and flow was re-established at the same free-stream conditions. When thermal equilibrium was again achieved, the null position of the element was again measured. The difference between the beam positions required for null, with and without applied shearing stress, is a direct measure of the force on the element.

The measurement just described is not quite correct, because any differential pressure between the sealed balance chamber and the test section causes additional bending of the balance port. The resulting zero offset was determined with the tunnel off and with the test-section pressure set at appropriate values. The maximum correction applied to the data was 6.5 percent.

Finally, because the equilibrium temperature may not be the same for the various null measurements, effects of thermal distortion must also be considered. The zero offset from this source was measured separately; the maximum correction applied to the data was 0.4 percent. The streamwise force on the element due to free-stream pressure gradient is negligible.

Measurements using the balance were made at only one station, as indicated in Table 1. The data, together with the free-stream static and stagnation conditions, were recorded by the data-acquisition system. The surface-friction balance yields a direct measurement of the tangential stress on the floating element,

$$\tau_w = \frac{F}{A} \tag{50}$$

The associated friction coefficients,

$$C_f = 2 \frac{\tau_w}{\rho_e u_e^2} , \tag{51}$$

are listed in Table 3.

B. Preston Tube

An independent estimate of surface friction was obtained from measurements with a Preston tube, a flat-faced circular cylinder in contact with the wall. For the JPL experiments, three probes were used, having outer diameters D of 0.082 cm, 0.162 cm, and 0.317 cm, with a ratio of inner to outer diameter of 0.60. The largest probe was tested only at station JPL-2. The probes were positioned at the wall by the traverse mechanism.

For the CIT experiments, a single Preston tube was used, having an outer diameter of 0.210 cm, with a ratio of inner to outer diameter of 0.76.

There is no concensus on the question of proper interpretation of Preston-tube data at supersonic speeds. For example, Hopkins and Keener (1966) took as the geometric parameter

$$Re_D = \frac{\rho_e u_e D}{\mu_e} \quad , \tag{52}$$

and as the response parameter, the Mach number M_p implied by the ratio of Preston-tube pressure to local static pressure. They proposed, as a correlation between this parameter M_p and the surface friction coefficient C_f, the expression

$$f_2(T') \, Re_D^2 \left(\frac{M_p}{M_e}\right)^2 = 32.885 \left[f_2(T') \, Re_D^2 \, C_f\right]^{1.132} \quad , \tag{53}$$

where

$$f_2(T') = \left(\frac{\mu_e}{\mu'}\right)^2 \frac{\rho'}{\rho_e} \quad , \tag{54}$$

with μ' and ρ' evaluated at the reference temperature T' proposed by Sommer and Short (1955),

$$\frac{T'}{T_e} = 1 + 0.035 \, M_e^2 + 0.45\left(\frac{T_w}{T_e} - 1\right) \quad . \tag{55}$$

Values of local friction coefficient C_f calculated from these equations are included in Table 3 and are listed in more detail in Table A2 of the Appendix.

Bradshaw and Unsworth (1974) have taken the position that only wall quantities should appear in any Preston-tube correlation and that it is unrealistic to insist on an explicit formula for C_f. They took as a point of departure a recent survey by Allen (1973). Using Allen's own calibration data (but not other data considered by Allen), they proposed a formula representing Patel's low-speed calibration (1965), with an additive term to account for compressibility. The formula applies for adiabatic flow and for $50 < D^+ < 1000$, where

$$D^+ = \frac{Du_\tau}{\nu_w} \quad , \tag{56}$$

and $\tau_w = \rho_w u_\tau^2$ as before.

Unfortunately, Allen has recently reported (1977) that his published friction measurements are incorrect, because of a defective or poorly calibrated balance. He did not repeat his experiment, but simply replaced the original measured values of surface friction by computed ones. He also made the corresponding revision in the Bradshaw-Unsworth formula (again using only his own revised calibration), with the final result

$$\frac{C_p}{C_f} = 96 + 60 \log_{10}\left(\frac{D^+}{50}\right) + 23.7 \left[\log_{10}\left(\frac{D^+}{50}\right)\right]^2 + 10^4 M_\tau^2 \left[\left(D^+\right)^{0.30} - 2.38\right] \quad , \tag{57}$$

where

$$M_\tau^2 = \frac{u_\tau^2}{\gamma R T_w} \quad , \tag{58}$$

and

$$C_p = 2 \frac{(p_p - p_s)}{\gamma p_s M_e^2} \quad . \tag{59}$$

Here p_p is the pressure measured by the Preston tube and p_s is the ambient static pressure.

The present Preston-tube data have also been processed in terms of Eq. (57) to obtain the values of local friction coefficient C_f which are listed in Table 3 and in Table A2 of the Appendix*.

C. Friction-Law Scaling

It has been pointed out by Spalding and Chi (1964) and others that most analytical formulations for compressible turbulent boundary layers are reducible to a description of the surface friction in terms of the surface friction for an equivalent incompressible boundary layer at a different Reynolds number. The equivalence is usually expressed by two semi-empirical scaling functions F_f and F_θ, thus:

$$C_f^i = F_f C_f \ , \tag{60}$$

and

$$Re_\theta^i = F_\theta Re_\theta \ . \tag{61}$$

*The experiments described in the present report should eventually be viewed as a producer rather than as a consumer of Preston-tube calibration data. However, a full-scale critique of the Preston-tube technique for supersonic flow is outside the scope of this research, and the present measurements have therefore been interpreted as if no friction-balance data were available.

For the particular case of adiabatic flow, the scaling functions

$$F_f = \frac{\left(\frac{T_w}{T_e} - 1\right)}{\left[\sin^{-1}\left(1 - \frac{T_e}{T_w}\right)^{1/2}\right]^2} = \frac{1}{\left(1 - m^2\right)}\left(\frac{m}{\sin^{-1} m}\right)^2 , \tag{62}$$

and

$$F_\theta = \frac{\mu_e}{\mu_w} , \tag{63}$$

were first proposed by Wilson (1949). Use of Eq. (63) for flow with heat transfer was later recommended by Van Driest (1955) and is sometimes referred to as Van Driest II. For adiabatic flow, given M_e and r (and hence F_f and F_θ), and given also Re_θ, the surface friction is determined by computing Re_θ^i from Eq. (61) by looking up the associated value for C_f^i, using some convenient low-speed friction law; and finally by computing C_f from Eq. (60). That is,

$$C_f = \frac{1}{F_f} C_f^i\left(Re_\theta^i\right) = \frac{1}{F_f} C_f^i\left(F_\theta\, Re_\theta\right) . \tag{64}$$

A "convenient low-speed friction law" is implicit in the survey by Coles (1968), who recommends the value $\Pi = 0.62$ for flow at constant pressure when $Re_\theta^i > 5000$. For lower Reynolds numbers, we multiply $\Pi(\delta u_\tau/\nu)$ from Table 2 of Coles (1962, Appendix A) by 0.62/0.55. With $\delta u_\tau/\nu$ as independent variable, the quantities u_e/u_τ and $C_f^i = 2\left(u_\tau/u_e\right)^2$ follow immediately from the local friction law (21) above. Finally, we compute $Re_{\delta^*}^i$ and Re_θ^i from Eqs. (7) and (8) of Coles (1968), after replacing Re_{δ^*} by $Re_{\delta^*} - 65$ to take account of the real profile in the sublayer. The

result of these calculations is recorded in Table 4.

Values calculated for C_f from Eq. (64), using interpolation in Table 4 to define the function $C_f^i(Re_\theta^i)$, are included in Table 3.

V. Discussion and Conclusions

According to Table 3, five different methods have been used to measure or to estimate the local friction coefficient C_f for the present experiments. Three of these methods (Van Driest scaling, Preston tube, friction-law scaling) depend on some empirical means for taking account of compressibility. In particular, the friction-law scaling of Section IV-C replaces the measured Re_θ by Re_θ^i and the measured or estimated C_f by C_f^i. When the data of Table 3 are subjected to this same scaling, they appear as shown in Fig. 13. The solid curves represent low-speed experience according to Table 4. Any discrepancy between the data and the solid curves should not be interpreted as error, because the friction-law scaling itself would then have to be viewed as error-free. This scaling is in fact of uncertain accuracy, and is used primarily to remove most of the effects of Mach number in the data, so that one technique for evaluating C_f can be readily compared with another. The required displacements from (C_f, Re_θ) to (C_f^i, Re_θ^i) are indicated by the line segments next to the lowest curve in Fig. 13. These displacements are not very substantial, because the Mach numbers for the present experiments are relatively low.

We consider the floating-element friction data to be the most reliable data in the figure. For the estimates of C_f from $d\theta/dx$, the scatter is large, as expected. The largest scatter, however, is in the Preston-tube data, indicating that this technique needs further development.

Of the two Preston-tube correlations, the one by Bradshaw and Unsworth (as revised by Allen; see Section IV B) underestimates C_f slightly, especially at $M_e = 2.2$. The correlation by Hopkins and Keener is satisfactory except at $M_e = 2.2$, where it overestimates C_f by a large amount. The profile fit gives values for C_f which are systematically a little high (except for the CIT measurements), with a maximum discrepancy of about 6 percent at $M_e = 2.2$.

In general, scaling of the measured mean-velocity profiles according to the Van Driest version of the mixing-length theory (Eq. (18)) seems to be quite successful. The scaled profiles can be well represented by conventional low-speed wall-wake similarity laws. Except for discontinuities in slope at the edge of the boundary layer, the inferred profiles for v/u and τ/τ_w provide a quite acceptable standard for interpretation of the LDV measurements reported in Part II of this work. Estimates for v/u and τ/τ_w based on the assumption of similarity in y/δ or y/θ are less satisfactory.

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Station	Location (cm from floating-element balance)	Pitot Tube	Preston Tube	Balance	LDV
JPL-1	-48.4	x			
JPL-2	-26.2	x	x		x
JPL-3	- 7.6	x			
JPL-4	0.0	x	x	x	x
JPL-5	7.6	x			

Table 1. High-Speed Flow Measurements
JPL 20-Inch Wind Tunnel

Station	Location (cm from leading edge)	Pitot Tube	Pitot Rake	Preston Tube	LDV
CIT-1	30.4		x	x	
CIT-2	60.9		x	x	
CIT-3	91.4		x	x	
CIT-4	152.4	x		x	
CIT-5	167.6	x		x	
CIT-6	182.8	x		x	x
CIT-7	198.1	x		x	
CIT-8	213.3	x		x	
CIT-9	228.6	x		x	

Table 2. Low-Speed Flow Measurements
CIT Merrill Wind Tunnel

TABLE 3.

SKIN FRICTION SUMMARY

STATION	ME	RE-THETA	CF 2*DTDX	CF FIT	CF PRESTON (H/K)	CF PRESTON (B/U)	CF BALANCE	CF COMPUTED
CIT-1	.1050	1029.			.004057	.003911		.004410
CIT-2	.1050	1875.			.003458	.003331		.003703
CIT-3	.1050	2798.			.003087	.002982		.003321
CIT-4	.1058	5932.		.002787	.002630	.002715		.002826
CIT-5	.1072	6209.		.002786	.002553	.002637		.002808
CIT-6	.1031	6604.	.002768	.002756	.002683	.002772		.002782
CIT-7	.1036	7270.		.002689	.002736	.002825		.002739
CIT-8	.1052	7475.		.002689	.002611	.002700		.002725
CIT-9	.1070	8068.		.002676	.002493	.002575		.002687
JPL-1	.5927	18870.		.002179				.002249
JPL-2	.5927	20180.		.002201	.002173	.002169		.002227
JPL-3	.5986	22190.		.002196				.002194
JPL-4	.6018	22400.	.002096	.002198	.002109	.002106	.002165	.002190
JPL-5	.5962	22300.		.002195				.002192
JPL-1	.5973	31460.		.002090				.002072
JPL-2	.5964	34330.		.002057	.002012	.002015		.002048
JPL-3	.5952	37280.		.002056				.002025
JPL-4	.5931	36470.	.001992	.002065	.001983	.001985	.001994	.002032
JPL-5	.5935	37930.		.002041				.002020
JPL-1	.7958	19770.		.002136				.002177
JPL-2	.7882	21850.		.002109	.002139	.002090		.002148
JPL-3	.8049	23540.		.002132				.002117
JPL-4	.8016	23710.	.002042	.002120	.002066	.002027	.002086	.002116
JPL-5	.7995	24570.		.002105				.002103
JPL-1	.7980	33940.		.002005				.001998
JPL-2	.7943	37360.		.001993	.001971	.001935		.001974
JPL-3	.7940	40190.		.001987				.001953
JPL-4	.7921	41090.	.001942	.001978	.001920	.001884	.001942	.001947
JPL-5	.7919	42600.		.001953				.001936

TABLE 3. (CONT.)

STATION	ME	RE-THETA	CF					
			2*DTDX	FIT	PRESTON (H/K)	PRESTON (B/U)	BALANCE	COMPUTED
JPL-1	.9664	18650.		.002108				.002144
JPL-2	.9669	20890.		.002065	.002118	.002024		.002103
JPL-3	.9719	22720.		.002097				.002076
JPL-4	.9672	22840.	.002054	.002081	.002081	.002008	.002057	.002076
JPL-5	.9651	23850.		.002067				.002062
JPL-1	.9648	32330.		.001970				.001963
JPL-2	.9626	36250.		.001940	.001932	.001863		.001930
JPL-3	.9613	38500.		.001953				.001915
JPL-4	.9637	39900.	.002014	.001925	.001870	.001810	.001947	.001905
JPL-5	.9606	41550.		.001911				.001894
JPL-2	1.3141	19780.		.002000	.001906	.001793		.001994
JPL-3	1.3215	21880.		.001983				.001958
JPL-4	1.3197	21900.	.001854	.001983	.001913	.001808	.001867	.001958
JPL-5	1.3151	24190.		.001959				.001931
JPL-2	1.3082	37230.		.001844	.001778	.001701		.001802
JPL-3	1.3173	37550.		.001858				.001796
JPL-4	1.3125	37900.	.001750	.001860	.001802	.001697	.001788	.001795
JPL-5	1.3130	40210.		.001832				.001782
JPL-2	2.1722	23070.		.001656	.001740	.001478		.001607
JPL-3	2.1666	23520.		.001649				.001603
JPL-4	2.1642	24690.	.001532	.001633	.001683	.001497	.001532	.001590
JPL-5	2.1722	25060.		.001624				.001583
JPL-2	2.1812	38050.		.001534	.001613	.001385		.001476
JPL-3	2.1737	40570.		.001530				.001462
JPL-4	2.1820	41600.	.001444	.001527	.001573	.001378	.001445	.001454
JPL-5	2.1797	43060.		.001507				.001447

Table 4.

LOW-SPEED FRICTION LAW

DELTA-PLUS	PI	UE/UT	CF	RE-DSTAR	RE-THETA
240.	.000	18.37	.005928	650.	430.
300.	.135	19.57	.005221	896.	607.
400.	.259	20.88	.004588	1294.	896.
500.	.338	21.81	.004206	1697.	1189.
600.	.406	22.58	.003922	2122.	1498.
800.	.485	23.67	.003570	2962.	2114.
1000.	.541	24.49	.003335	3824.	2749.
1500.	.598	25.75	.003016	5910.	4308.
2000.	.620	26.56	.002834	7967.	5865.
3000.	.620	27.55	.002635	11920.	8908.
4000.	.620	28.25	.002505	15870.	11980.
5000.	.620	28.80	.002412	19820.	15060.
6000.	.620	29.24	.002339	23770.	18160.
8000.	.620	29.94	.002230	31680.	24380.
10000.	.620	30.49	.002152	39580.	30640.
15000.	.620	31.48	.002018	59330.	46380.
20000.	.620	32.18	.001931	79090.	62210.
30000.	.620	33.17	.001818	118600.	94070.

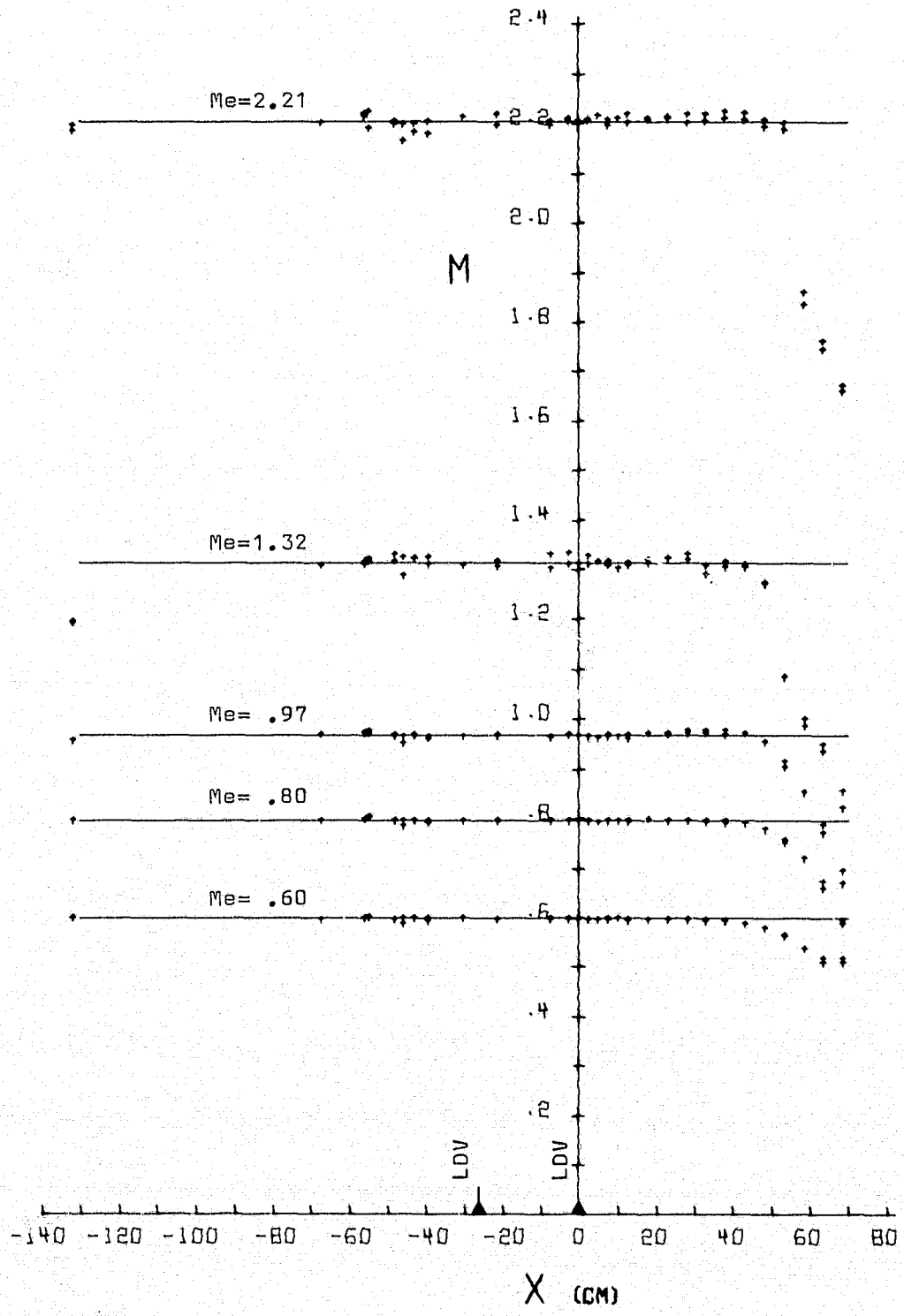

Figure 1. Free-stream Mach-Number Distribution, Re_θ=40,000. JPL 20-inch Wind Tunnel

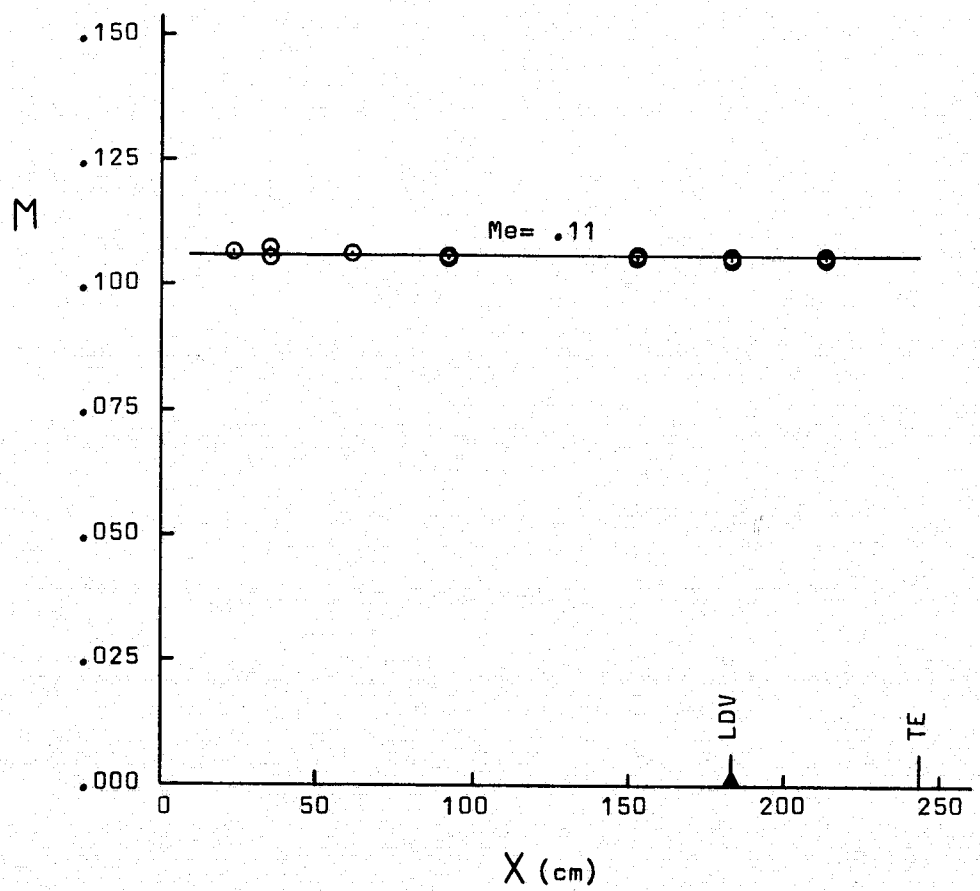

Figure 2. Free-stream Mach Number Distribution.
CIT Merrill Wind Tunnel

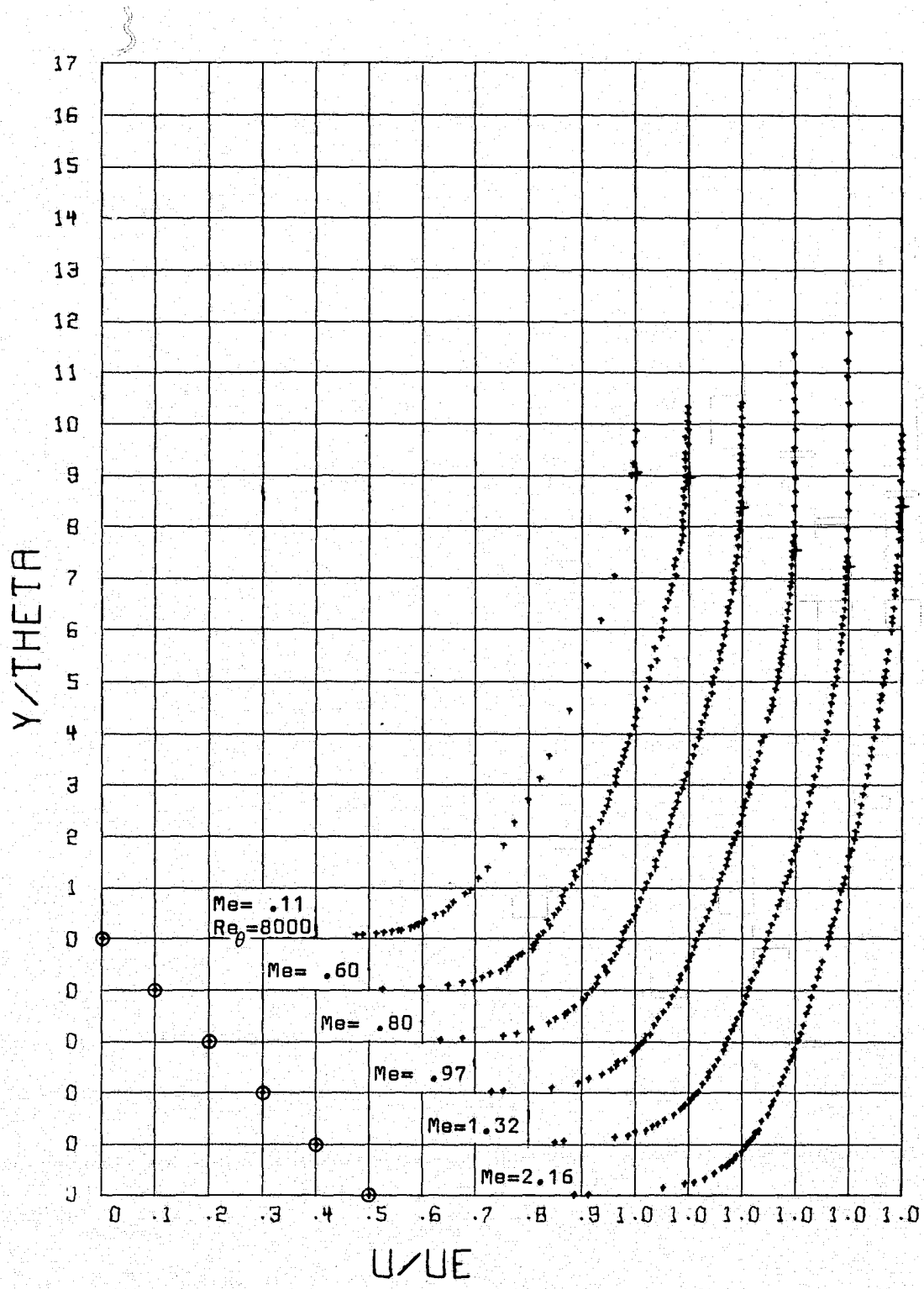

Figure 3. Mean Velocity Profiles. $Re_\theta = 23{,}000$

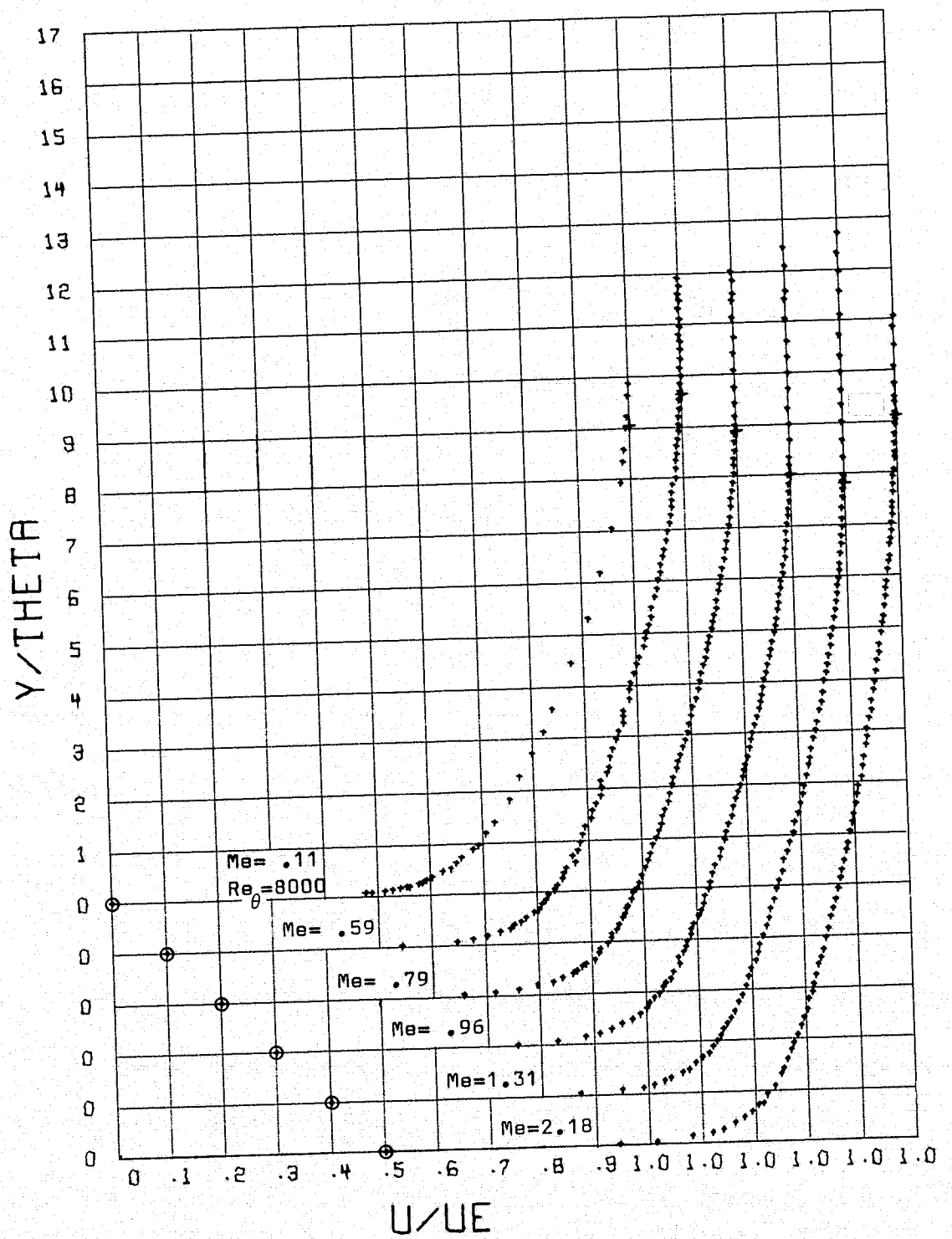

Figure 4. Mean Velocity Profiles. Re_θ =40,000

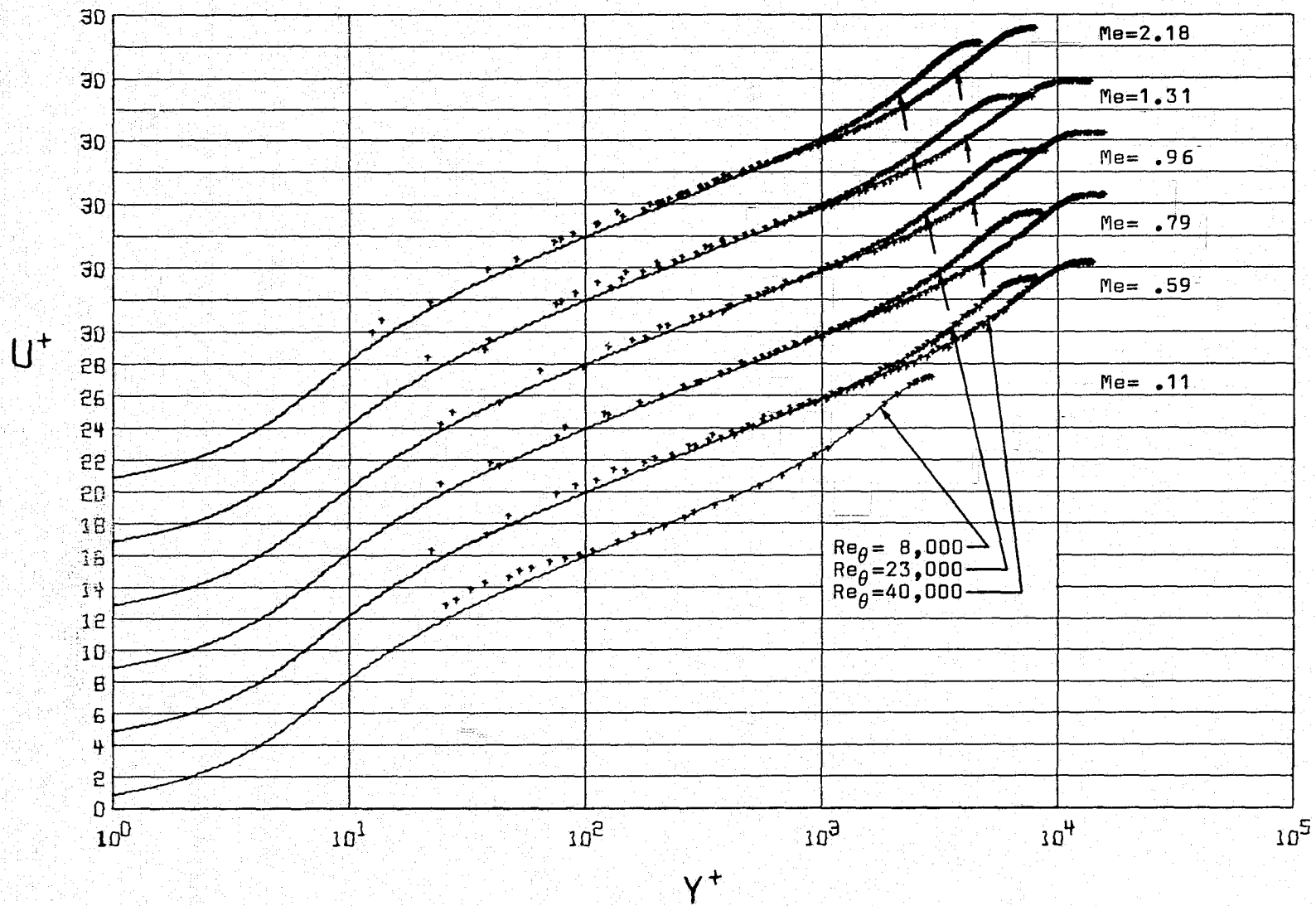

Figure 5. Mean Velocity Profiles with Van Driest Scaling.

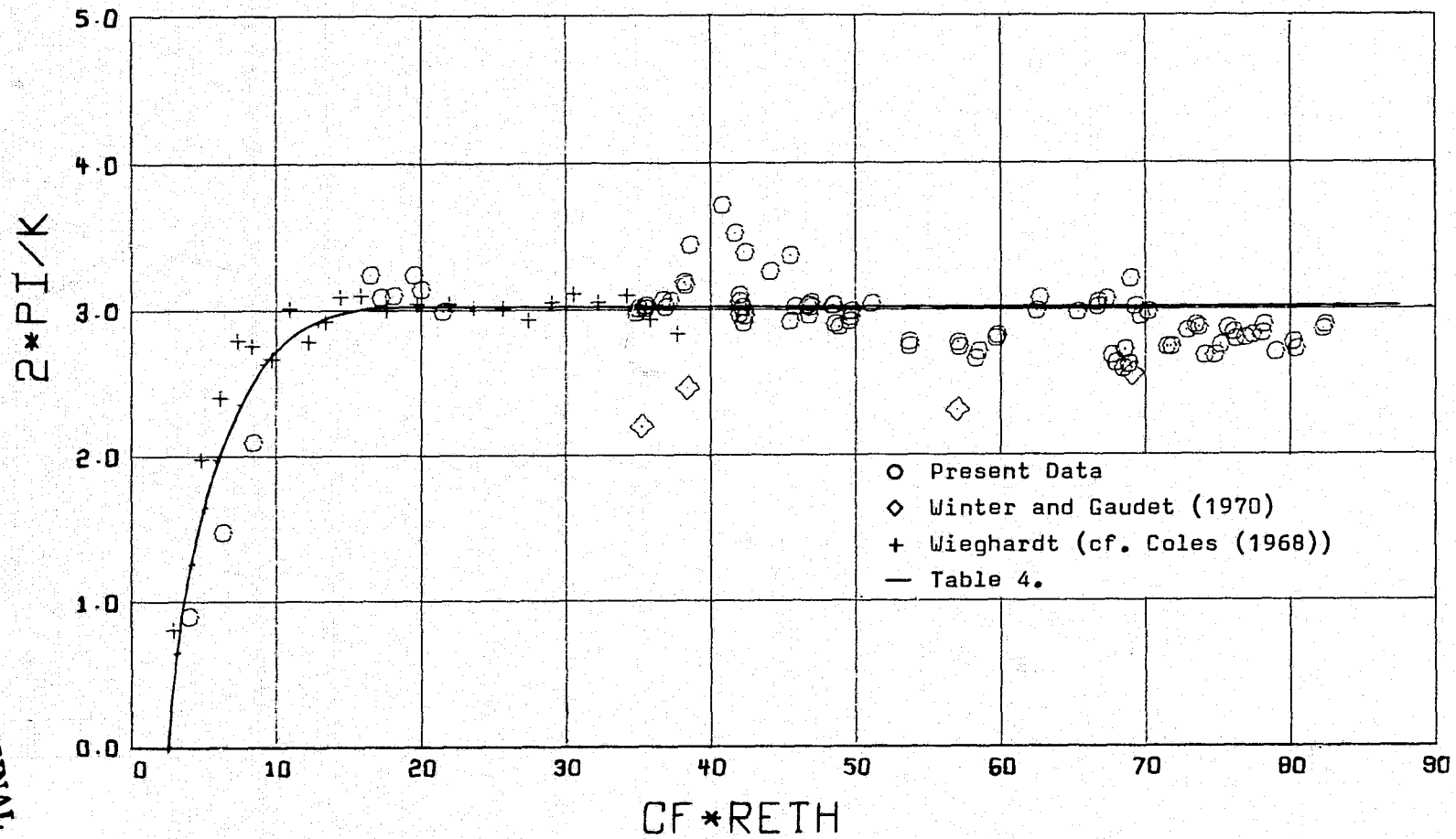

Figure 6. The Magnitude of the Wake Component with Van Driest Scaling.

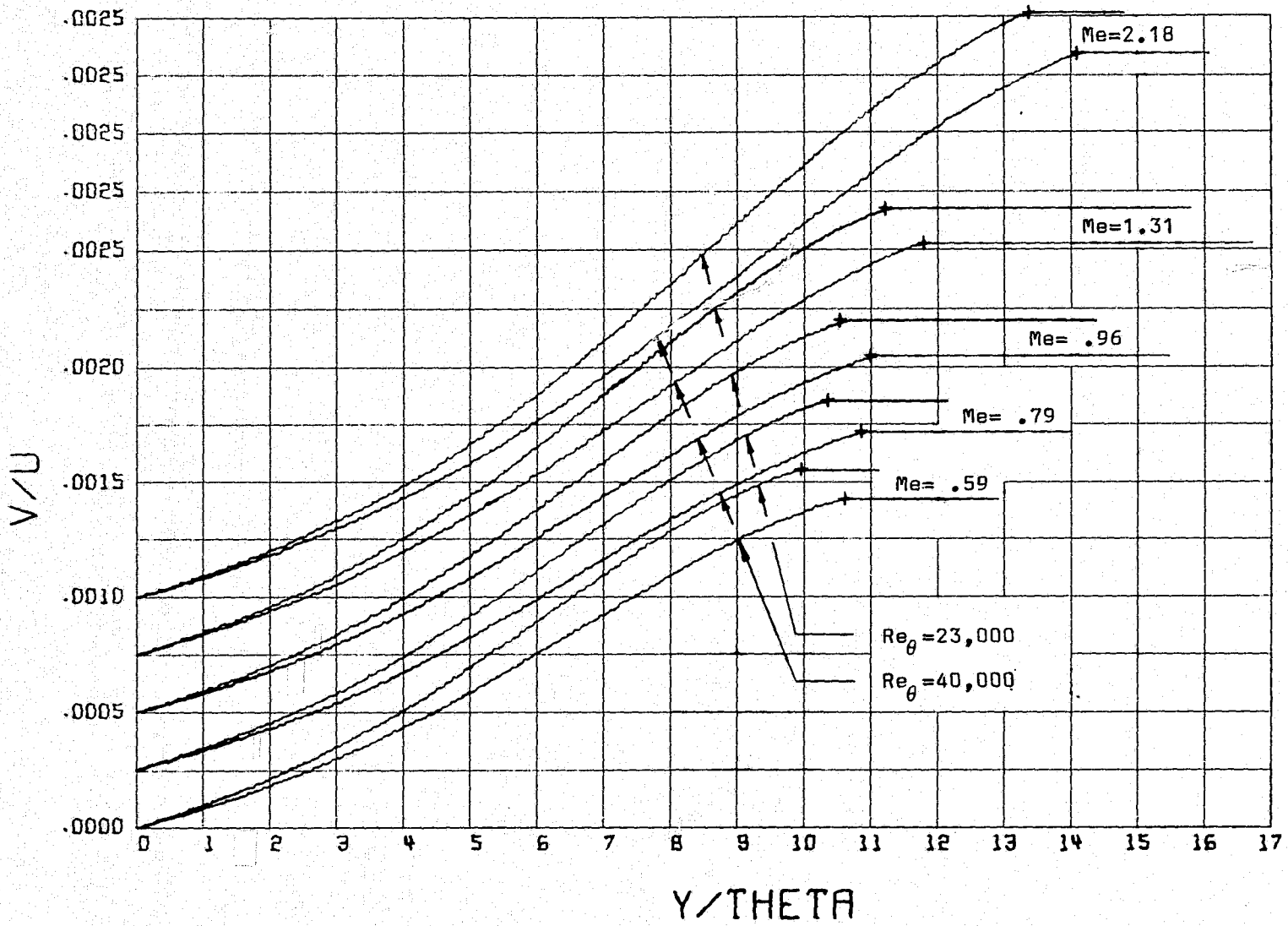

Figure 7. Distribution of Normal Velocity According to Equation (38).

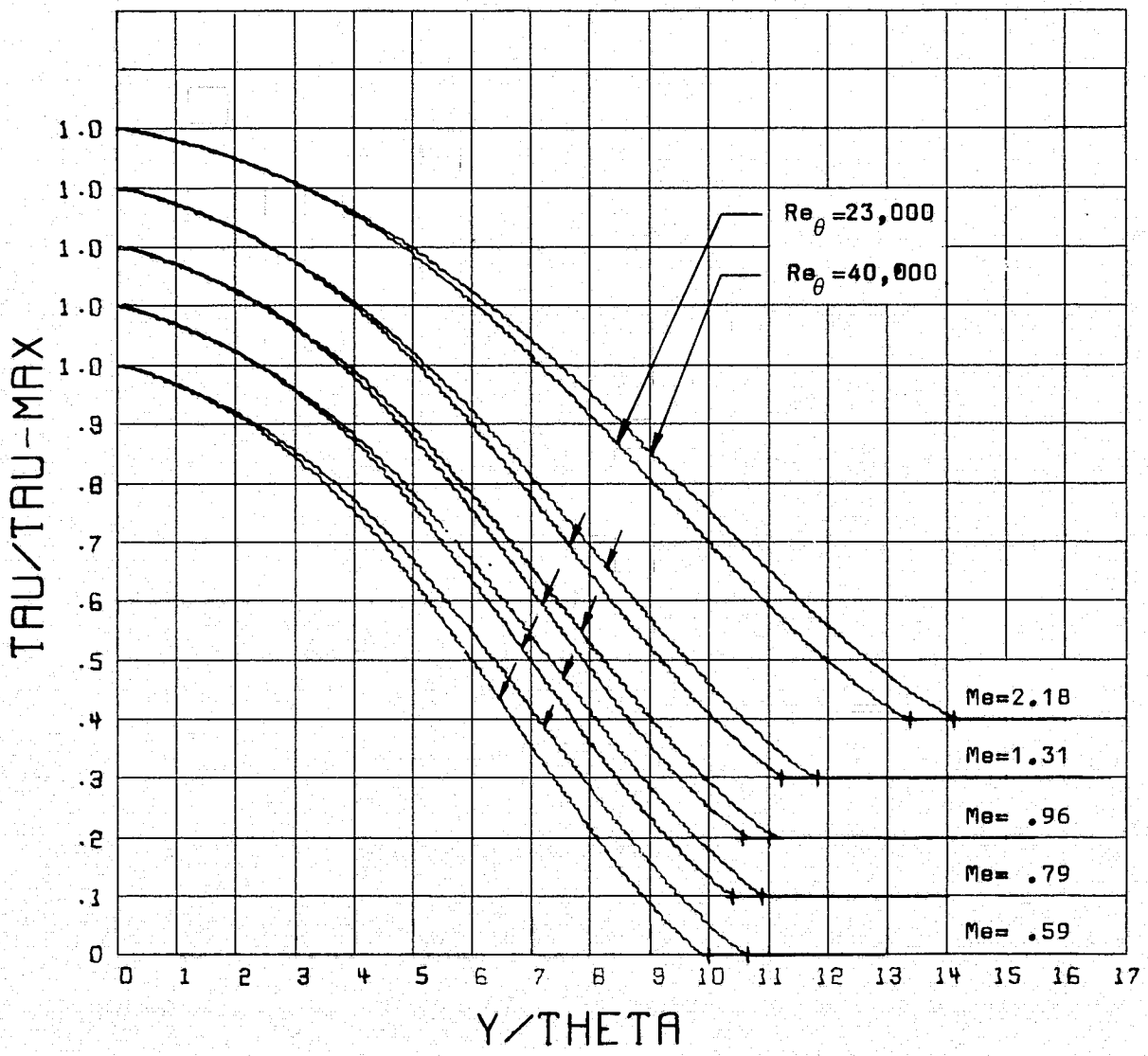

Figure 8. Distribution of Shearing Stress According to Equation (37).

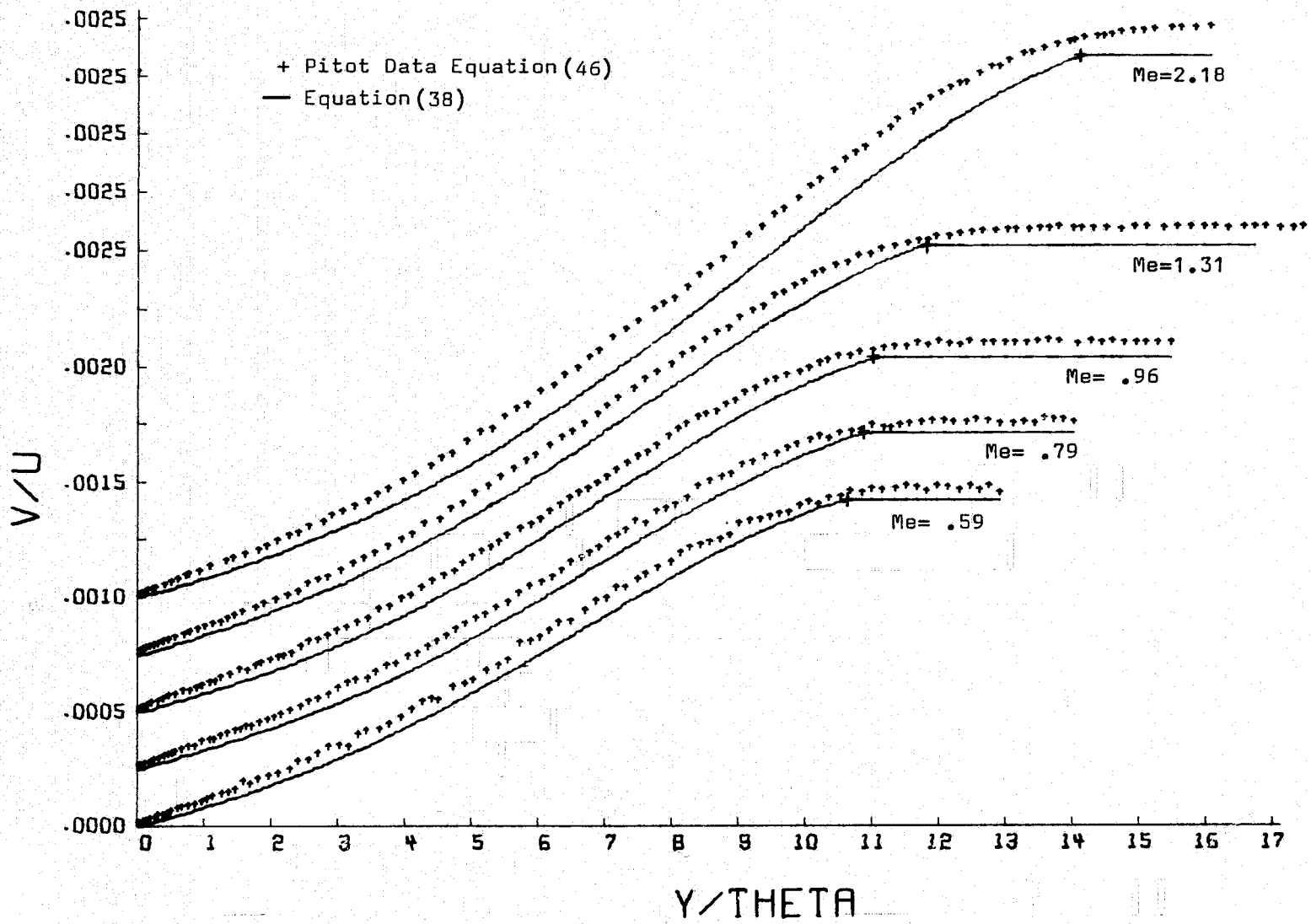

Figure 9. Comparison Between Direct Integration of Pitot Data and Integration Using the Fitted Profile. Re_θ=40,000

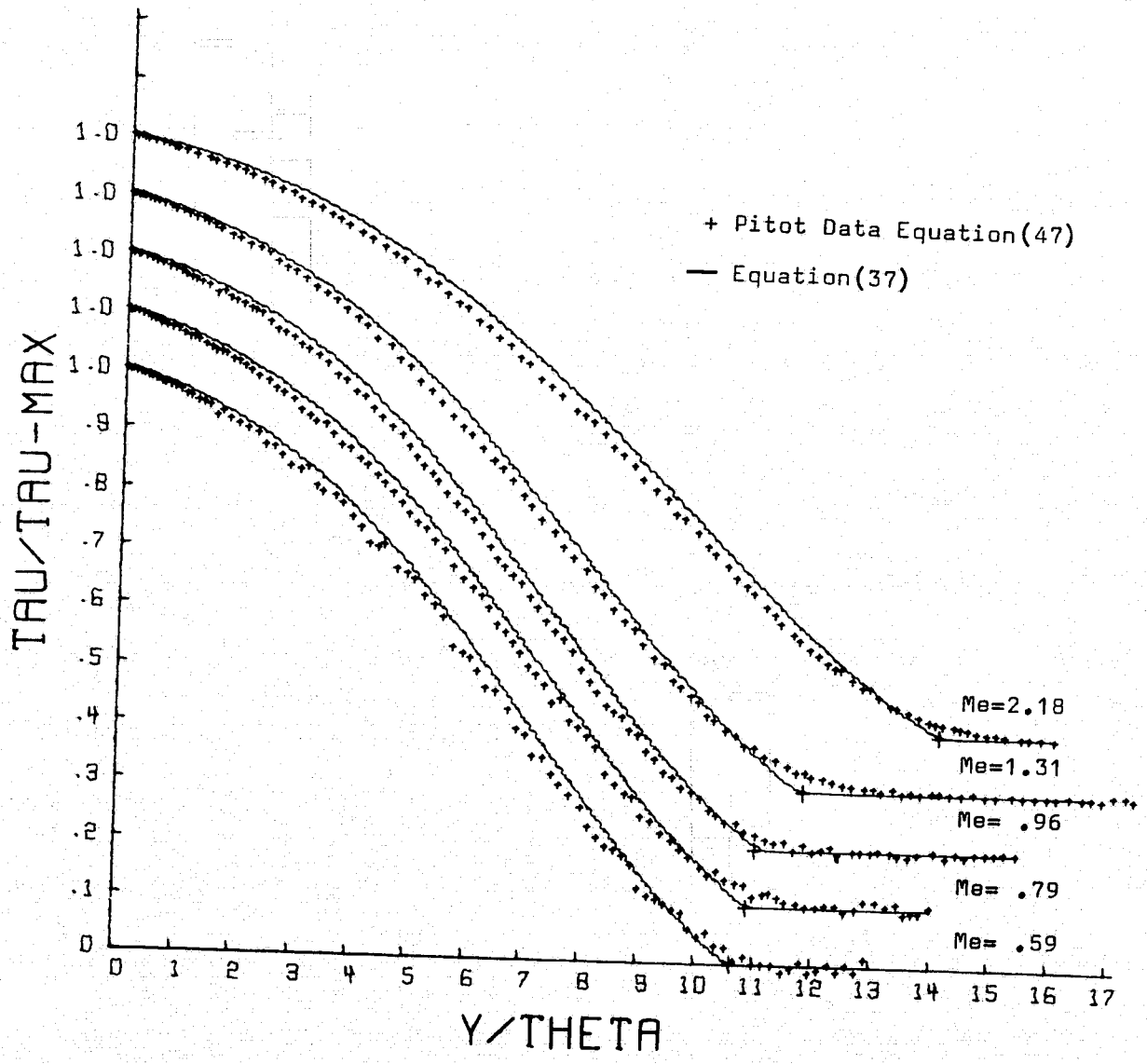

Figure 10. Comparison Between Direct Integration of Pitot Data and Integration Using the Fitted Profile. Re_θ=40,000

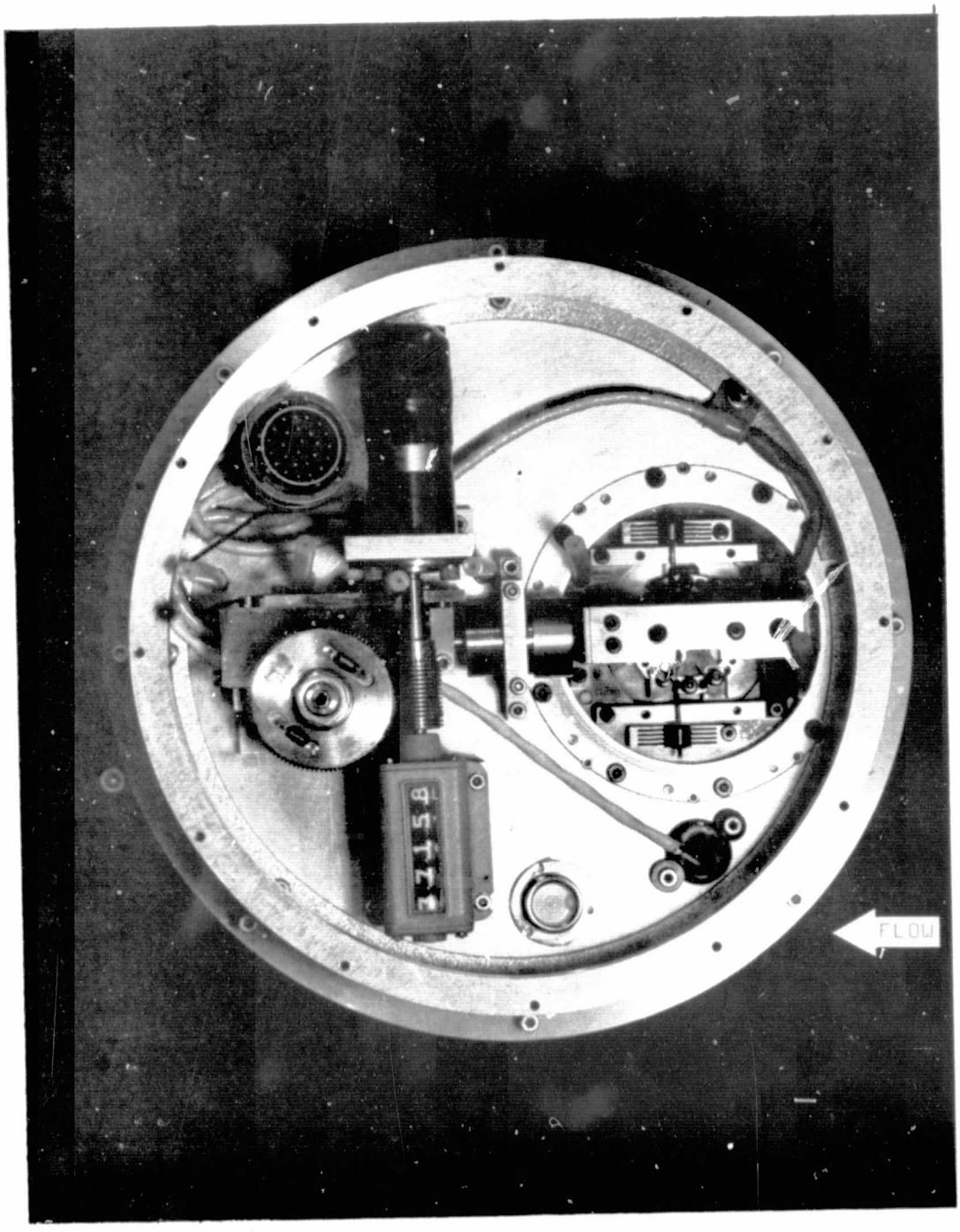

Figure 11. Floating-Element Balance.

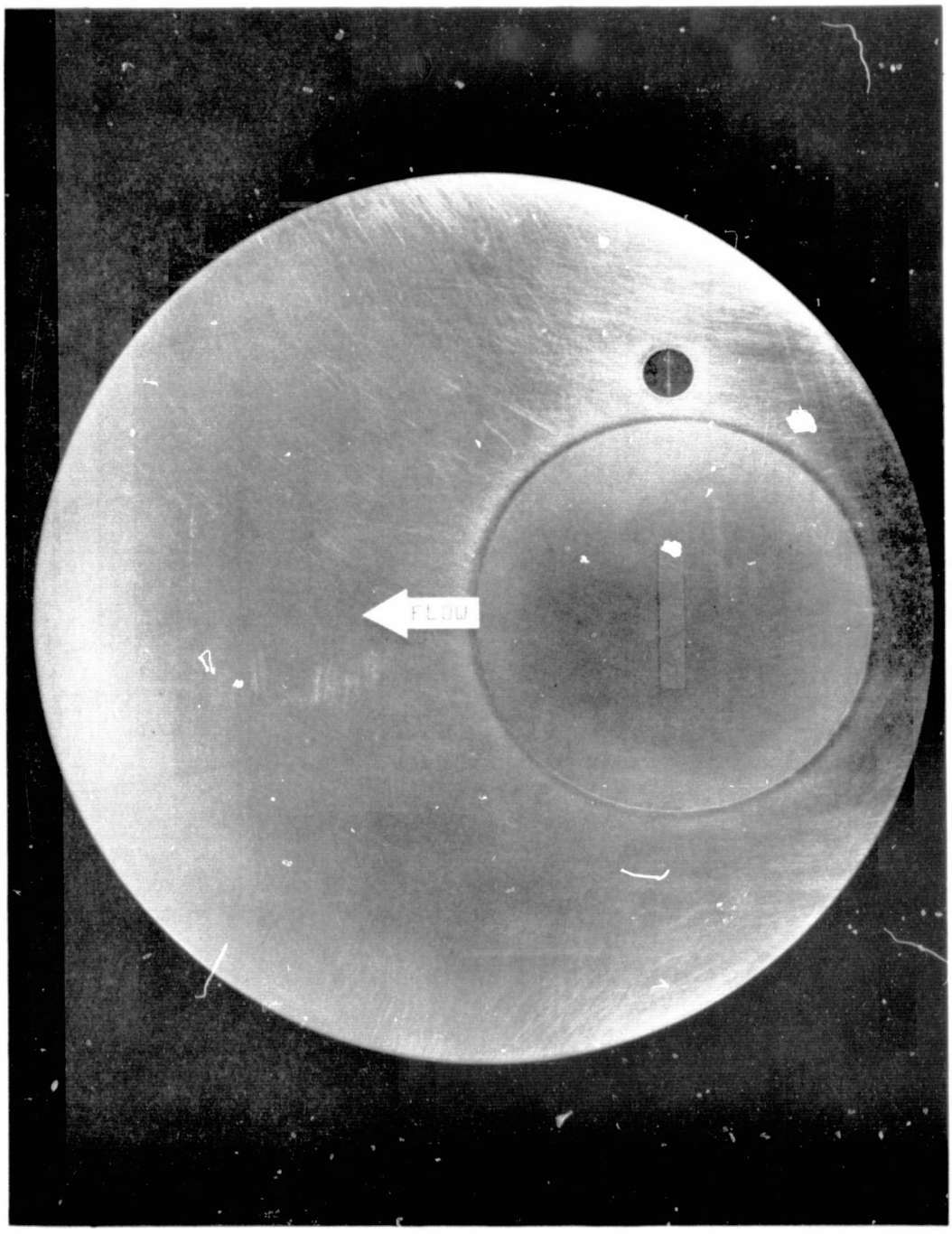

Figure 12. Floating-Element Balance.

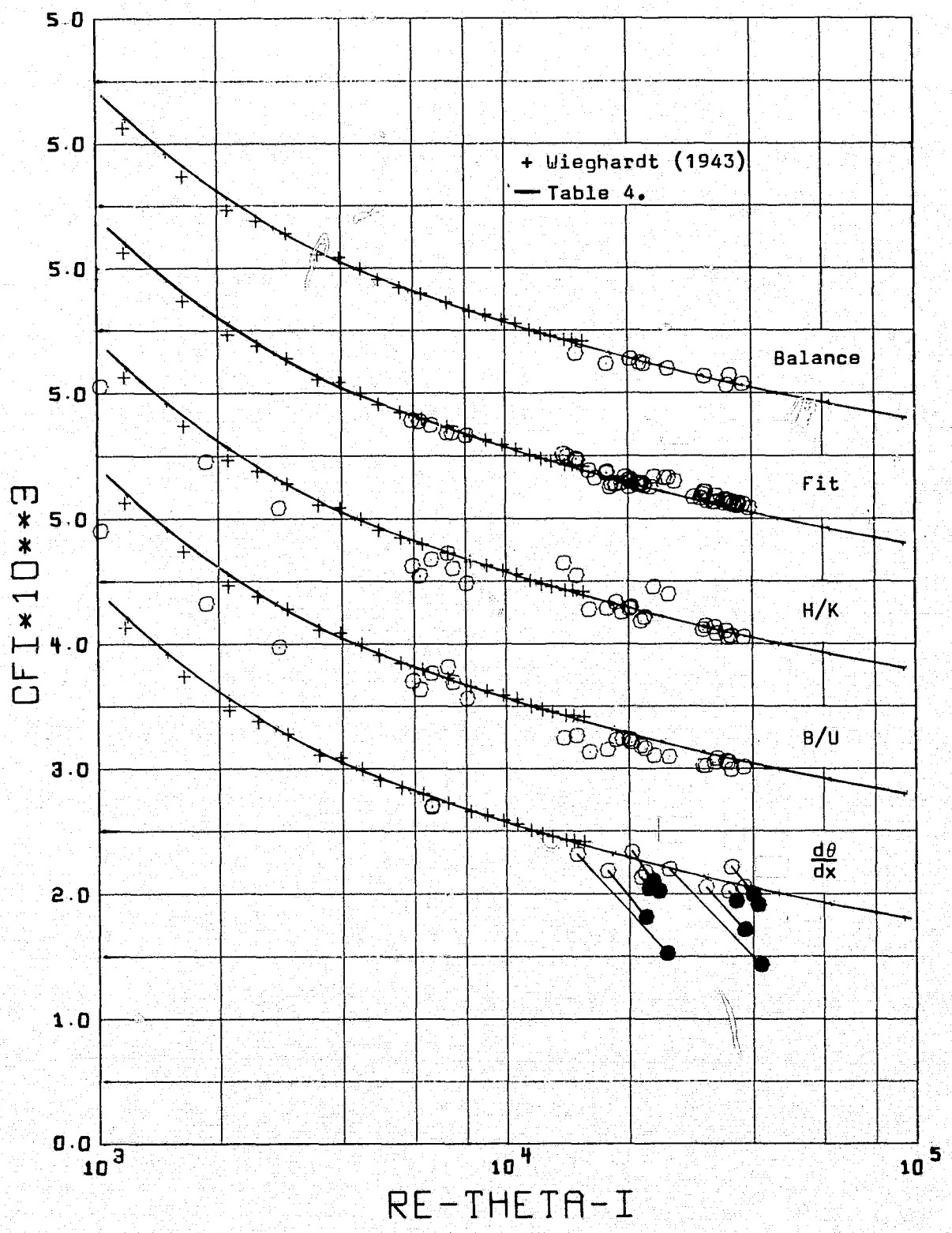

Figure 13. The Surface Friction as a Function of Reynolds Number.

Appendix

Tabulation of Experimental Data

Table A1

Table A1 summarizes various parameters for the profiles obtained from Pitot-tube surveys at the stations listed in Tables 1 and 2 of the main text. The quantities u_τ, Π, and δ are derived from the least-squares fit of each profile to the wall-wake formula,

$$\frac{u^*}{u_\tau} = \frac{1}{\kappa} \ln \frac{y u_\tau}{\nu_w} + c + 2 \frac{\Pi}{\kappa} \sin^2 \left(\frac{\pi}{2} \frac{y}{\delta} \right) \quad , \tag{19}$$

where u^* is velocity scaled according to Van Driest,

$$u^* = \int_0^u \left(\frac{\rho}{\rho_w} \right)^{1/2} du \quad . \tag{11}$$

The two integral thicknesses δ^* and θ are defined by

$$\delta^* = \int_0^\delta \left(1 - \frac{\rho u}{\rho_e u_e} \right) dy \quad , \tag{4}$$

and by

$$\theta = \int_0^\delta \frac{\rho u}{\rho_e u_e} \left(1 - \frac{u}{u_e} \right) dy \quad . \tag{5}$$

The quantity H is the ratio δ^*/θ.

Table A2

Table A2 contains Preston-tube data, including probe diameter D, pressure coefficient

$$C_p = 2 \frac{(p_p - p_s)}{\gamma p_s M_e^2} \quad , \tag{59}$$

and friction coefficient, as inferred by two different correlation methods. The method of Hopkins and Keener (1966), denoted by H/K, uses the formula

$$f_2(T') \, Re_D^2 \left(\frac{M_p}{M_e}\right)^2 = 32.885 \left[f_2(T') \, Re_D^2 \, C_f\right]^{1.132} \quad , \tag{53}$$

which is explicitly soluble for C_f. The quantity M_p is the Mach number implied by C_p, and the quantities Re_D and $f_2(T')$ are defined by Eqs. (52) and (54) of the main text. The method of Bradshaw and Unsworth (1974) as revised by Allen (1977), denoted by B/U, uses the formula

$$\frac{C_p}{C_f} = 96 + 60 \log_{10}\left(\frac{D^+}{50}\right) + 23.7 \left[\log_{10}\left(\frac{D^+}{50}\right)\right]^2 + 10^4 M_\tau^2 \left[(D^+)^{0.30} - 2.38\right] \quad . \tag{57}$$

This formula is soluble for C_f only by iteration, since the quantities D^+ and M_τ both depend on C_f. These quantities are defined by Eqs. (56) and (58) of the main text.

Table A3

Table A3 includes estimates of the pressure-gradient parameter

$$\text{BETA} = \frac{\theta}{\gamma M_e^2} \frac{1}{P} \frac{dP}{dx} \quad , \tag{A1}$$

and the momentum-thickness derivative

$$\text{DTDX} = \frac{d\theta}{dx} \quad . \tag{A2}$$

These are assigned to stations CIT-6 or JPL-4 as appropriate. The quantity

$$\text{MOMB} = \frac{2}{C_f} \frac{d\theta}{dx} \quad , \tag{A3}$$

where C_f is the value measured using the floating-element balance, should equal unity if the experiment is free of error.

Tables A4-A14

Tables A4-A14 and the associated Figs. A1-A44 are a detailed record of data obtained from the Pitot-tube surveys. Each table heading includes the integral properties δ^* and θ for the profile, together with the friction coefficient C_f measured using the floating-element balance, where applicable (i.e., station JPL-4). Listed next are the profile parameters u_τ, Π, δ, from the profile fit, with the associated friction coefficient

$$C_f = 2 \frac{\rho_w}{\rho_e} \left(\frac{u_\tau}{u_e} \right)^2 \quad . \tag{22}$$

The range of y used in the fit is specified as YMIN, YMAX. The mean square deviation of the fitted data from the wall-wake formula is given as CHISQR. The variable for this calculation is the Van Driest velocity u^*/u_e.

The body of the tables lists the distance from the wall as y, as y/θ, and as

$$\text{Y-PLUS} = \frac{yu_\tau}{\nu_w} \quad . \tag{A4}$$

Also listed are the local Mach number M, density ρ, and velocity u (all normalized by the corresponding free-stream values), and the Van Driest velocity

$$\text{U-PLUS} = \frac{u^*}{u_\tau} \quad . \tag{A5}$$

Finally, the tables give the shearing stress τ/τ_w and the normal velocity v/u computed from

$$\frac{\tau}{\tau_w} = 1 - \left(\frac{2Q - \frac{u}{u_e} P}{2Q_e - P_e} \right) \quad , \tag{37}$$

and

$$\frac{v}{u} = \frac{\tau_w}{\rho_e u_e^2} \frac{\rho_e u_e}{\rho u} \frac{P}{(2Q_e - P_e)} \quad , \tag{38}$$

where P and Q are definite integrals defined by Eqs. (44) and (45) of the main text.

Table A1.

INTEGRAL PROPERTIES OF THE BOUNDARY LAYER

STATION	ME	RE-THETA	UE (M/SEC)	UTAU (M/SEC)	PI	DELTA (CM)	DELTA-STAR (CM)	THETA (CM)	H
CIT-4	.1058	5932.	37.25	1.392	.6642	2.402	.3572	.2683	1.331
CIT-5	.1072	6209.	38.01	1.420	.6346	2.584	.3759	.2843	1.322
CIT-6	.1031	6604.	37.34	1.387	.6374	2.656	.3860	.2924	1.320
CIT-7	.1036	7270.	35.91	1.318	.6643	3.018	.4404	.3328	1.323
CIT-8	.1052	7475.	37.42	1.373	.6453	3.149	.4545	.3439	1.321
CIT-9	.1070	8068.	37.79	1.383	.6139	3.406	.4814	.3659	1.315
JPL-1	.5927	18870.	201.05	6.840	.7613	2.482	.3796	.2604	1.457
JPL-2	.5927	20180.	202.47	6.922	.6686	2.853	.4179	.2902	1.439
JPL-3	.5986	22190.	202.13	6.907	.6224	3.044	.4333	.3028	1.430
JPL-4	.6018	22400.	204.91	7.007	.5908	3.167	.4531	.3177	1.426
JPL-5	.5962	22300.	203.19	6.941	.5946	3.264	.4553	.3201	1.422
JPL-1	.5973	31460.	205.88	6.863	.6124	2.412	.3325	.2344	1.418
JPL-2	.5964	34330.	208.25	6.886	.6124	2.768	.3803	.2689	1.414
JPL-3	.5952	37280.	205.97	6.809	.5733	2.944	.3948	.2801	1.409
JPL-4	.5931	36470.	207.02	6.857	.5509	3.056	.4039	.2876	1.404
JPL-5	.5935	37930.	207.38	6.828	.5760	3.161	.4218	.3003	1.404
JPL-1	.7958	19770.	264.47	9.115	.7221	2.305	.3655	.2338	1.562
JPL-2	.7882	21850.	263.34	9.011	.6917	2.669	.4124	.2666	1.546
JPL-3	.8049	23540.	266.29	9.180	.5994	2.860	.4221	.2748	1.535
JPL-4	.8016	23710.	267.51	9.192	.6145	2.961	.4395	.2857	1.538
JPL-5	.7995	24570.	266.60	9.125	.6243	3.063	.4564	.2964	1.539
JPL-1	.7980	33940.	271.81	9.080	.6306	2.216	.3225	.2108	1.529
JPL-2	.7943	37360.	272.19	9.060	.5901	2.553	.3610	.2383	1.514
JPL-3	.7940	40190.	270.59	8.994	.5552	2.749	.3812	.2524	1.509
JPL-4	.7921	41090.	271.52	9.002	.5579	2.869	.3979	.2637	1.508
JPL-5	.7919	42600.	271.55	8.944	.5867	2.965	.4155	.2747	1.512

Table A1. (Cont.)

STATION	ME	RE-THETA	UE (M/SEC)	UTAU (M/SEC)	PI	DELTA (CM)	DELTA-STAR (CM)	THETA (CM)	H
JPL-1	.9664	18650.	313.76	10.997	.7057	2.104	.3487	.2079	1.677
JPL-2	.9669	20890.	314.63	10.916	.6968	2.430	.3983	.2385	1.670
JPL-3	.9719	22720.	314.66	11.007	.6076	2.609	.4084	.2466	1.656
JPL-4	.9672	22840.	315.09	10.974	.6222	2.696	.4228	.2556	1.653
JPL-5	.9651	23850.	314.15	10.902	.6222	2.816	.4407	.2665	1.653
JPL-1	.9648	32330.	321.78	10.901	.6331	2.015	.3113	.1898	1.639
JPL-2	.9626	36250.	322.24	10.829	.6210	2.345	.3559	.2175	1.636
JPL-3	.9613	38500.	321.05	10.822	.5501	2.551	.3667	.2273	1.613
JPL-4	.9637	39900.	322.66	10.804	.5887	2.628	.3894	.2386	1.631
JPL-5	.9606	41550.	322.04	10.738	.5925	2.750	.4076	.2505	1.627
JPL-2	1.3141	19780.	401.96	14.526	.6503	2.325	.4186	.2121	1.973
JPL-3	1.3215	21880.	402.38	14.498	.6356	2.504	.4474	.2262	1.978
JPL-4	1.3197	21900.	401.99	14.478	.6090	2.619	.4601	.2335	1.970
JPL-5	1.3151	24190.	396.85	14.197	.6205	2.713	.4777	.2433	1.963
JPL-2	1.3082	37230.	408.33	14.154	.6272	2.214	.3783	.1945	1.944
JPL-3	1.3173	37550.	409.20	14.260	.5508	2.402	.3969	.2047	1.938
JPL-4	1.3125	37900.	408.71	14.239	.5314	2.486	.4061	.2104	1.929
JPL-5	1.3130	40210.	406.36	14.052	.5630	2.566	.4242	.2189	1.937
JPL-2	2.1722	23070.	549.35	21.418	.6109	3.170	.7410	.2368	3.129
JPL-3	2.1666	23520.	550.76	21.404	.6175	3.253	.7595	.2435	3.119
JPL-4	2.1642	24690.	549.37	21.234	.6194	3.419	.7967	.2555	3.117
JPL-5	2.1722	25060.	552.35	21.325	.6275	3.489	.8137	.2601	3.127
JPL-2	2.1812	38050.	564.19	21.210	.5705	3.080	.6873	.2208	3.112
JPL-3	2.1737	40570.	560.66	21.016	.5692	3.125	.6942	.2240	3.098
JPL-4	2.1820	41600.	561.76	21.077	.5463	3.262	.7178	.2312	3.104
JPL-5	2.1797	43060.	562.73	20.963	.5751	3.381	.7507	.2415	3.107

Table A2.

PRESTON TUBE DATA SUMMARY

STATION	ME	RE-THETA	D	CP	CF(H/K)	CF(B/H)	CF(BAL)
CIT-1	.1050	1029.	.210	.560257	.004057	.003911	
CIT-2	.1050	1875.	.210	.464882	.003458	.003331	
CIT-3	.1050	2798.	.210	.407584	.003087	.002982	
CIT-4	.1058	5932.	.210	.367129	.002730	.002715	
CIT-5	.1072	6209.	.210	.353816	.002553	.002637	
CIT-6	.1031	6604.	.210	.377610	.002683	.002772	
CIT-7	.1036	7270.	.210	.382737	.002736	.002825	
CIT-8	.1052	7475.	.210	.362560	.002611	.002700	
CIT-9	.1070	8068.	.210	.345333	.002493	.002575	
JPL-2	.5927	20180.	.082	.316354	.002173	.002187	
JPL-2	.5927	20180.	.162	.379467	.002167	.002157	
JPL-2	.5927	20180.	.317	.458710	.002179	.002165	
JPL-4	.6018	22400.	.082	.303770	.002091	.002098	
JPL-4	.6018	22400.	.162	.373014	.002128	.002115	.002165
JPL-2	.5964	34330.	.082	.335341	.001982	.001992	
JPL-2	.5964	34330.	.162	.408831	.002004	.002004	
JPL-2	.5964	34330.	.162	.421421	.002056	.002053	
JPL-2	.5964	34330.	.162	.418002	.002042	.002040	
JPL-2	.5964	34330.	.317	.484368	.001979	.001988	
JPL-4	.5931	36470.	.082	.332704	.001972	.001979	
JPL-4	.5931	36470.	.162	.405812	.001995	.001992	.001994
JPL-2	.7882	21850.	.082	.328045	.002137	.002105	
JPL-2	.7882	21850.	.162	.398651	.002148	.002093	
JPL-2	.7882	21850.	.317	.477383	.002133	.002072	
JPL-4	.8016	23710.	.082	.315878	.002063	.002036	
JPL-4	.8016	23710.	.162	.383229	.002070	.002019	.002086

Table A2. (Cont.)

STATION	ME	RE-THETA	D	CP	CF(H/K)	CF(B/U)	CF(BAL)
JPL-2	.7943	37360.	.082	.348449	.001932	.001902	
JPL-2	.7943	37360.	.162	.425013	.001946	.001910	
JPL-2	.7943	37360.	.162	.439066	.002000	.001957	
JPL-2	.7943	37360.	.162	.435555	.001986	.001945	
JPL-2	.7943	37360.	.317	.528374	.001992	.001961	
JPL-4	.7921	41090.	.082	.344329	.001916	.001884	
JPL-4	.7921	41090.	.162	.418386	.001924	.001884	.001942
JPL-2	.9669	20890.	.082	.332683	.002108	.002037	
JPL-2	.9669	20890.	.162	.404747	.002112	.002012	
JPL-2	.9669	20890.	.317	.497931	.002135	.002024	
JPL-4	.9672	22840.	.082	.330050	.002084	.002027	
JPL-4	.9672	22840.	.162	.398956	.002078	.001990	.002057
JPL-2	.9626	36250.	.082	.350932	.001896	.001837	
JPL-2	.9626	36250.	.162	.430063	.001910	.001841	
JPL-2	.9626	36250.	.162	.450468	.001983	.001905	
JPL-2	.9626	36250.	.162	.447305	.001972	.001894	
JPL-2	.9626	36250.	.317	.520053	.001903	.001841	
JPL-4	.9637	39900.	.082	.344768	.001867	.001812	
JPL-4	.9637	39900.	.162	.420335	.001873	.001808	.001947
JPL-2	1.3141	19780.	.082	.304857	.001895	.001812	
JPL-2	1.3141	19780.	.162	.379365	.001920	.001801	
JPL-2	1.3141	19780.	.162	.379138	.001919	.001801	
JPL-2	1.3141	19780.	.162	.368889	.001878	.001763	
JPL-2	1.3141	19780.	.317	.465244	.001920	.001790	
JPL-4	1.3197	21900.	.082	.309447	.001915	.001827	
JPL-4	1.3197	21900.	.162	.378095	.001911	.001789	.001867

Table A2. (Cont.)

STATION	ME	RE-THETA	D	CP	CF(H/K)	CF(B/H)	CF(BAL)
JPL-2	1.3082	37230.	.082	.346958	.001775	.001707	
JPL-2	1.3082	37230.	.162	.431352	.001793	.001710	
JPL-2	1.3082	37230.	.162	.426238	.001776	.001696	
JPL-2	1.3082	37230.	.162	.423388	.001767	.001689	
JPL-2	1.3082	37230.	.317	.526062	.001782	.001707	
JPL-4	1.3125	37900.	.082	.347334	.001801	.001703	
JPL-4	1.3125	37900.	.162	.427147	.001804	.001692	.001788
JPL-2	2.1722	23070.	.082	.268505	.001628	.001552	
JPL-2	2.1722	23070.	.162	.322846	.001721	.001457	
JPL-2	2.1722	23070.	.162	.324205	.001716	.001463	
JPL-2	2.1722	23070.	.162	.317184	.001742	.001442	
JPL-2	2.1722	23070.	.317	.426345	.001896	.001479	
JPL-4	2.1642	24690.	.082	.265795	.001620	.001540	
JPL-4	2.1642	24690.	.162	.321750	.001747	.001455	.001532
JPL-2	2.1812	38050.	.082	.296896	.001570	.001414	
JPL-2	2.1812	38050.	.162	.368118	.001587	.001376	
JPL-2	2.1812	38050.	.162	.370214	.001581	.001378	
JPL-2	2.1812	38050.	.162	.361398	.001607	.001358	
JPL-2	2.1812	38050.	.317	.482945	.001723	.001402	
JPL-4	2.1820	41600.	.082	.293865	.001564	.001399	
JPL-4	2.1820	41600.	.162	.363573	.001583	.001358	.001445

Table A3.

STREAM-WISE VARIATION OF FLOW PROPERTIES

ME	RE-THETA	BETA	DTDX	MOMR
.1031	6604.	.883E-05	.001384	
.6018	22400.	.651E-05	.001048	.968
.5931	36470.	.650E-05	.000996	.999
.8016	23710.	.144E-05	.001021	.979
.7921	41090.	.366E-05	.000971	1.000
.9672	22840.	-.115E-04	.001027	.998
.9637	39900.	.871E-06	.001007	1.035
1.3197	21900.	.606E-05	.000927	.993
1.3125	37900.	.666E-05	.000875	.979
2.1642	24690.	.228E-06	.000766	1.000
2.1820	41600.	-.252E-05	.000722	.999

TABLE A 4. DATA SUMMARY
PROFILE - CIT-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .1058 TOTAL PRESSURE= .1006E+06 N/M**2
X= 152.40 CM TOTAL TEMPERATURE= 307.05 DEG-K

UE= 37.25 M/SEC DELTA STAR= .3572 CM THETA= .2683 CM H= 1.331
RE-DELTA-STAR= 7899. RE-THETA= 5932. NUWALL= .1685 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 1.3923 M/SEC CF= .002787 PI= .6642 DELTA= 2.4020 CM
CHISQR= .4833E-04 YMAX= 2.175 CM YMIN= .091 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	1.0000	0.0000	0.00	1.0000	0.000000
.031	.118	26.	.4961	1.0000	.4961	13.27	1.0000	0.000000
.035	.133	29.	.5080	1.0000	.5080	13.59	.9996	.000002
.040	.150	33.	.5212	1.0000	.5212	13.94	.9992	.000004
.047	.177	39.	.5403	1.0000	.5403	14.46	.9985	.000008
.055	.207	45.	.5543	1.0000	.5543	14.83	.9977	.000013
.071	.266	58.	.5738	1.0000	.5738	15.35	.9961	.000021
.091	.339	75.	.5927	1.0000	.5927	15.86	.9938	.000030
.111	.414	91.	.6055	1.0000	.6055	16.20	.9914	.000040
.143	.532	118.	.6248	1.0000	.6248	16.72	.9873	.000056
.176	.656	145.	.6423	1.0000	.6423	17.18	.9827	.000073
.187	.698	154.	.6669	1.0000	.6669	17.84	.9810	.000078
.206	.769	170.	.6566	1.0000	.6566	17.57	.9781	.000088
.271	1.012	224.	.6782	1.0000	.6782	18.15	.9674	.000121
.350	1.307	289.	.7028	1.0000	.7028	18.80	.9526	.000164
.430	1.603	355.	.7243	1.0000	.7243	19.38	.9357	.000209
.587	2.189	485.	.7619	1.0000	.7619	20.39	.8957	.000309
.749	2.792	619.	.7946	1.0000	.7946	21.26	.8446	.000425
.906	3.378	749.	.8230	1.0000	.8230	22.02	.7844	.000552
1.065	3.970	880.	.8544	1.0000	.8544	22.86	.7130	.000693
1.222	4.556	1010.	.8760	1.0000	.8760	23.44	.6323	.000843
1.540	5.739	1272.	.9231	1.0000	.9231	24.70	.4481	.001159
1.859	6.928	1536.	.9654	1.0000	.9654	25.83	.2533	.001465
2.016	7.514	1666.	.9794	1.0000	.9794	26.20	.1627	.001601
2.175	8.106	1797.	.9897	1.0000	.9897	26.48	.0810	.001719
2.333	8.698	1928.	.9965	1.0000	.9965	26.66	.0142	.001814
2.419	9.017	1999.	.9982	1.0000	.9982	26.71	0.0000	.001834
2.490	9.283	2058.	.9982	1.0000	.9982	26.71	0.0000	.001834
2.573	9.591	2126.	.9991	1.0000	.9991	26.73	0.0000	.001834
2.649	9.875	2189.	.9991	1.0000	.9991	26.73	0.0000	.001834
2.732	10.182	2257.	.9991	1.0000	.9991	26.73	0.0000	.001834
2.811	10.479	2323.	1.0000	1.0000	1.0000	26.76	0.0000	.001834
2.890	10.774	2388.	1.0000	1.0000	1.0000	26.76	0.0000	.001834

TABLE A 4. (CONT.)
PROFILE - CIT-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .1072 TOTAL PRESSURE= .1000E+06 N/M**2
X= 167.64 CM TOTAL TEMPERATURE= 312.75 DEG-K

UE= 38.01 M/SEC DELTA STAR= .3759 CM THETA= .2843 CM H= 1.322
RE-DELTA-STAR= 8210. RE-THETA= 6209. NUWALL= .1740 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 1.4204 M/SEC CF= .002786 PI= .6346 DELTA= 2.5844 CM
CHISQR= .9792E-05 YMAX= 2.383 CM YMIN= .097 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	1.0000	0.0000	0.00	1.0000	0.000000
.031	.111	25.	.4877	1.0000	.4877	13.05	1.0000	0.000000
.032	.114	26.	.4962	1.0000	.4962	13.28	.9999	0.000000
.035	.125	29.	.5078	1.0000	.5078	13.59	.9996	.000002
.040	.142	32.	.5255	1.0000	.5255	14.06	.9992	.000004
.043	.152	35.	.5319	1.0000	.5319	14.23	.9990	.000006
.051	.181	42.	.5487	1.0000	.5487	14.68	.9983	.000010
.057	.203	47.	.5562	1.0000	.5562	14.88	.9977	.000013
.067	.236	54.	.5695	1.0000	.5695	15.24	.9968	.000017
.081	.286	66.	.5840	1.0000	.5840	15.63	.9954	.000023
.097	.343	79.	.5925	1.0000	.5925	15.85	.9937	.000031
.114	.401	93.	.6036	1.0000	.6036	16.15	.9919	.000038
.129	.454	105.	.6131	1.0000	.6131	16.41	.9901	.000045
.145	.510	118.	.6279	1.0000	.6279	16.80	.9882	.000052
.161	.566	131.	.6359	1.0000	.6359	17.01	.9862	.000059
.192	.678	157.	.6487	1.0000	.6487	17.36	.9820	.000074
.226	.795	184.	.6627	1.0000	.6627	17.73	.9773	.000089
.256	.901	209.	.6752	1.0000	.6752	18.07	.9728	.000103
.288	1.015	235.	.6837	1.0000	.6837	18.30	.9677	.000119
.319	1.124	261.	.6982	1.0000	.6982	18.68	.9626	.000134
.399	1.403	325.	.7193	1.0000	.7193	19.25	.9484	.000173
.478	1.683	390.	.7376	1.0000	.7376	19.74	.9324	.000215
.637	2.241	520.	.7674	1.0000	.7674	20.54	.8949	.000306
.796	2.800	649.	.8003	1.0000	.8003	21.42	.8493	.000409
.954	3.358	779.	.8299	1.0000	.8299	22.21	.7949	.000523
1.113	3.916	909.	.8556	1.0000	.8556	22.89	.7317	.000648
1.273	4.480	1039.	.8729	1.0000	.8729	23.36	.6594	.000783
1.589	5.592	1297.	.9165	1.0000	.9165	24.53	.4973	.001064
1.909	6.716	1558.	.9557	1.0000	.9557	25.57	.3209	.001346
2.068	7.275	1688.	.9695	1.0000	.9695	25.94	.2348	.001476
2.224	7.825	1816.	.9831	1.0000	.9831	26.31	.1558	.001593
2.383	8.383	1945.	.9891	1.0000	.9891	26.47	.0853	.001694
2.545	8.953	2077.	.9958	1.0000	.9958	26.65	.0266	.001777
2.704	9.511	2207.	.9983	1.0000	.9983	26.71	0.0000	.001815
2.862	10.069	2337.	1.0000	1.0000	1.0000	26.76	0.0000	.001815
2.942	10.349	2402.	1.0000	1.0000	1.0000	26.76	0.0000	.001815

TABLE A 4. (CONT.)
PROFILE - CIT-6 -- - PITOT PRESSURE DATA

EDGE MACH NO.= .1031 TOTAL PRESSURE= .1075E+06 N/M**2
X= 182.88 CM TOTAL TEMPERATURE= 303.75 DEG-K

UE= 37.34 M/SEC DELTA STAR= .3860 CM THETA= .2924 CM H 1.320
RE-DELTA-STAR= 8718. RE-THETA= 6604. NUWALL= .1653 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 1.3875 M/SEC CF= .002756 PI= .6374 DELTA= 2.6563 CM
CHISQR= .3086E-04 YMAX= 2.257 CM YMIN= .091 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	1.0000	0.0000	0.00	1.0000	0.000000
.031	.108	26.	.4991	1.0000	.4991	13.43	1.0000	0.000000
.034	.119	29.	.5156	1.0000	.5156	13.87	.9997	.000001
.038	.130	31.	.5252	1.0000	.5252	14.13	.9994	.000003
.041	.140	34.	.5331	1.0000	.5331	14.34	.9992	.000004
.045	.154	37.	.5408	1.0000	.5408	14.55	.9988	.000006
.048	.165	40.	.5486	1.0000	.5486	14.76	.9986	.000008
.052	.178	43.	.5531	1.0000	.5531	14.88	.9982	.000010
.058	.200	49.	.5591	1.0000	.5591	15.04	.9976	.000013
.065	.222	54.	.5651	1.0000	.5651	15.20	.9971	.000015
.070	.241	59.	.5725	1.0000	.5725	15.40	.9965	.000018
.074	.254	62.	.5782	1.0000	.5782	15.56	.9961	.000020
.091	.314	77.	.5911	1.0000	.5911	15.91	.9944	.000027
.106	.363	89.	.6009	1.0000	.6009	16.17	.9928	.000034
.122	.417	102.	.6133	1.0000	.6133	16.50	.9911	.000041
.138	.474	116.	.6227	1.0000	.6227	16.76	.9891	.000048
.154	.529	129.	.6295	1.0000	.6295	16.94	.9872	.000055
.170	.582	143.	.6361	1.0000	.6361	17.12	.9852	.000062
.195	.669	164.	.6477	1.0000	.6477	17.43	.9818	.000073
.241	.825	202.	.6668	1.0000	.6668	17.94	.9754	.000094
.288	.987	242.	.6805	1.0000	.6805	18.31	.9682	.000116
.352	1.204	295.	.6987	1.0000	.6987	18.80	.9577	.000146
.431	1.476	362.	.7199	1.0000	.7199	19.37	.9432	.000185
.511	1.747	428.	.7382	1.0000	.7382	19.86	.9270	.000226
.669	2.290	562.	.7748	1.0000	.7748	20.85	.8890	.000317
.828	2.833	695.	.8075	1.0000	.8075	21.73	.8432	.000418
.987	3.376	828.	.8320	1.0000	.8320	22.39	.7888	.000530
1.304	4.462	1095.	.8741	1.0000	.8741	23.52	.6553	.000783
1.622	5.548	1361.	.9207	1.0000	.9207	24.77	.4945	.001059
1.939	6.634	1628.	.9546	1.0000	.9546	25.69	.3209	.001334
2.257	7.719	1894.	.9762	1.0000	.9762	26.27	.1562	.001579
2.574	8.805	2161.	.9907	1.0000	.9907	26.66	.0265	.001763
2.733	9.348	2294.	.9974	1.0000	.9974	26.84	0.0000	.001800
2.892	9.891	2427.	.9983	1.0000	.9983	26.86	0.0000	.001800
2.971	10.163	2494.	1.0000	1.0000	1.0000	26.91	0.0000	.001800

TABLE A 4. (CONT.)
PROFILE - CIT-7 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .1036 TOTAL PRESSURE= .9879E+05 N/M**2
X= 198.12 CM TOTAL TEMPERATURE= 302.75 DEG-K

UE= 35.91 M/SEC DELTA STAR= .4404 CM THETA= .3328 CM H= 1.323
RE-DELTA-STAR= 9621. RE-THETA= 7270. NUWALL= .1643 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 1.3180 M/SEC CF= .002689 PI= .6643 DELTA= 3.0186 CM
CHISQR= .2505E-04 YMAX= 2.851 CM YMIN= .087 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	1.0000	0.0000	0.00	1.0000	0.000000
.031	.095	25.	.5026	1.0000	.5026	13.69	1.0000	0.000000
.031	.095	25.	.5063	1.0000	.5063	13.79	.9999	0.000000
.040	.120	32.	.5237	1.0000	.5237	14.26	.9994	.000003
.047	.144	38.	.5406	1.0000	.5406	14.73	.9989	.000006
.057	.171	45.	.5474	1.0000	.5474	14.91	.9982	.000010
.071	.215	57.	.5619	1.0000	.5619	15.31	.9971	.000015
.087	.263	70.	.5794	1.0000	.5794	15.78	.9958	.000021
.103	.311	83.	.5886	1.0000	.5886	16.03	.9944	.000027
.120	.362	96.	.6008	1.0000	.6008	16.36	.9929	.000033
.151	.453	121.	.6171	1.0000	.6171	16.81	.9900	.000044
.182	.549	146.	.6286	1.0000	.6286	17.12	.9867	.000056
.214	.644	172.	.6456	1.0000	.6456	17.59	.9832	.000067
.247	.743	198.	.6581	1.0000	.6581	17.93	.9794	.000079
.278	.835	223.	.6663	1.0000	.6663	18.15	.9757	.000091
.309	.930	248.	.6744	1.0000	.6744	18.37	.9716	.000103
.389	1.169	312.	.6993	1.0000	.6993	19.05	.9607	.000134
.468	1.407	375.	.7171	1.0000	.7171	19.53	.9486	.000166
.628	1.888	504.	.7480	1.0000	.7480	20.37	.9202	.000236
.786	2.362	630.	.7741	1.0000	.7741	21.09	.8868	.000313
.944	2.839	757.	.7993	1.0000	.7993	21.77	.8470	.000399
1.103	3.316	885.	.8249	1.0000	.8249	22.47	.8007	.000493
1.263	3.796	1013.	.8486	1.0000	.8486	23.12	.7473	.000595
1.581	4.750	1268.	.8881	1.0000	.8881	24.19	.6231	.000817
1.898	5.704	1523.	.9279	1.0000	.9279	25.28	.4800	.001053
2.216	6.658	1777.	.9519	1.0000	.9519	25.93	.3292	.001285
2.533	7.612	2032.	.9753	1.0000	.9753	26.57	.1861	.001493
2.548	7.658	2044.	.9780	1.0000	.9780	26.64	.1796	.001502
2.564	7.704	2056.	.9798	1.0000	.9798	26.69	.1732	.001511
2.580	7.752	2069.	.9817	1.0000	.9817	26.74	.1666	.001520
2.660	7.994	2134.	.9845	1.0000	.9845	26.82	.1341	.001566
2.851	8.567	2287.	.9918	1.0000	.9918	27.02	.0666	.001659
3.008	9.040	2413.	.9963	1.0000	.9963	27.14	.0222	.001719
3.168	9.521	2541.	.9981	1.0000	.9981	27.19	0.0000	.001749
3.486	10.475	2796.	1.0000	1.0000	1.0000	27.24	0.0000	.001749
3.643	10.948	2922.	1.0000	1.0000	1.0000	27.24	0.0000	.001749

TABLE A 4. (CONT.)
PROFILE - CIT-8 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .1052 TOTAL PRESSURE= .1013E+06 N/M**2
X= 213.36 CM TOTAL TEMPERATURE= 310.85 DEG-K

UE= 37.42 M/SEC DELTA STAR= .4545 CM THETA= .3439 CM H= 1.321
RE-DELTA-STAR= 9878. RE-THETA= 7475. NUWALL= .1722 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 1.3737 M/SEC CF= .002689 PI= .6453 DELTA= 3.1494 CM
CHISQR= .1897E-04 YMAX= 2.946 CM YMIN= .097 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	1.0000	0.0000	0.00	1.0000	0.000000
.031	.092	25.	.4838	1.0000	.4838	13.18	1.0000	0.000000
.038	.110	30.	.4855	1.0000	.4855	13.22	.9995	.000002
.045	.133	36.	.4991	1.0000	.4991	13.59	.9990	.000005
.052	.152	41.	.5236	1.0000	.5236	14.26	.9986	.000008
.060	.175	48.	.5409	1.0000	.5409	14.73	.9980	.000011
.068	.198	54.	.5516	1.0000	.5516	15.02	.9974	.000014
.076	.223	61.	.5606	1.0000	.5606	15.27	.9967	.000017
.088	.258	70.	.5724	1.0000	.5724	15.59	.9958	.000021
.097	.283	77.	.5825	1.0000	.5825	15.87	.9950	.000024
.129	.375	103.	.5996	1.0000	.5996	16.33	.9922	.000035
.158	.461	126.	.6160	1.0000	.6160	16.78	.9894	.000046
.196	.572	157.	.6361	1.0000	.6361	17.32	.9855	.000059
.239	.694	190.	.6668	1.0000	.6668	18.16	.9809	.000075
.349	1.015	278.	.6879	1.0000	.6879	18.74	.9672	.000115
.428	1.244	342.	.7059	1.0000	.7059	19.23	.9561	.000146
.508	1.476	405.	.7234	1.0000	.7234	19.70	.9439	.000178
.670	1.948	534.	.7551	1.0000	.7551	20.57	.9152	.000248
.825	2.399	658.	.7801	1.0000	.7801	21.25	.8825	.000322
.984	2.861	785.	.8043	1.0000	.8043	21.91	.8436	.000405
1.144	3.327	913.	.8290	1.0000	.8290	22.58	.7982	.000497
1.305	3.794	1041.	.8459	1.0000	.8459	23.04	.7465	.000596
1.464	4.257	1168.	.8702	1.0000	.8702	23.70	.6892	.000701
1.619	4.707	1291.	.8855	1.0000	.8855	24.12	.6284	.000808
1.778	5.169	1418.	.9023	1.0000	.9023	24.58	.5613	.000921
1.940	5.640	1547.	.9216	1.0000	.9216	25.10	.4891	.001039
2.257	6.563	1800.	.9493	1.0000	.9493	25.86	.3427	.001265
2.575	7.486	2054.	.9745	1.0000	.9745	26.54	.2013	.001472
2.946	8.566	2350.	.9890	1.0000	.9890	26.94	.0628	.001667
3.052	8.875	2435.	.9949	1.0000	.9949	27.10	.0308	.001710
3.135	9.115	2501.	.9965	1.0000	.9965	27.14	.0092	.001740
3.206	9.323	2558.	.9982	1.0000	.9982	27.19	0.0000	.001752
3.286	9.554	2621.	1.0000	1.0000	1.0000	27.24	0.0000	.001752
3.365	9.784	2684.	1.0000	1.0000	1.0000	27.24	0.0000	.001752

TABLE A 4. (CONT.)
PROFILE - CIT-9 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .1070 TOTAL PRESSURE= .1001E+06 N/M**2
X= 228.60 CM TOTAL TEMPERATURE= 310.05 DEG-K

UE= 37.79 M/SEC DELTA STAR= .4814 CM THETA= .3659 CM H= 1.315
RE-DELTA-STAR= 10610. RE-THETA= 8068. NUWALL= .1714 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 1.3837 M/SEC CF= .002676 PI= .6139 DELTA= 3.4060 CM
CHISQR= .2197E-04 YMAX= 3.138 CM YMIN= .086 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	1.0000	0.0000	0.00	1.0000	0.000000
.031	.086	25.	.4774	1.0000	.4774	13.03	1.0000	0.000000
.035	.095	28.	.4894	1.0000	.4894	13.36	.9998	.000001
.040	.110	32.	.5127	1.0000	.5127	14.00	.9994	.000003
.046	.127	37.	.5287	1.0000	.5287	14.43	.9990	.000005
.058	.160	47.	.5426	1.0000	.5426	14.81	.9983	.000009
.065	.177	52.	.5562	1.0000	.5562	15.19	.9978	.000011
.073	.199	59.	.5622	1.0000	.5622	15.35	.9972	.000014
.086	.236	69.	.5783	1.0000	.5783	15.79	.9962	.000019
.101	.277	82.	.5854	1.0000	.5854	15.98	.9951	.000024
.117	.321	94.	.5938	1.0000	.5938	16.21	.9938	.000029
.133	.364	107.	.6036	1.0000	.6036	16.48	.9924	.000034
.169	.462	136.	.6226	1.0000	.6226	17.00	.9892	.000046
.196	.537	158.	.6384	1.0000	.6384	17.43	.9866	.000055
.231	.633	187.	.6488	1.0000	.6488	17.71	.9830	.000066
.263	.720	212.	.6589	1.0000	.6589	17.99	.9797	.000077
.323	.884	261.	.6800	1.0000	.6800	18.57	.9729	.000097
.355	.971	287.	.6910	1.0000	.6910	18.87	.9690	.000108
.435	1.188	351.	.7065	1.0000	.7065	19.29	.9589	.000136
.514	1.405	415.	.7239	1.0000	.7239	19.77	.9478	.000165
.677	1.852	547.	.7532	1.0000	.7532	20.57	.9218	.000228
.833	2.277	672.	.7749	1.0000	.7749	21.16	.8930	.000293
.995	2.719	803.	.7983	1.0000	.7983	21.80	.8582	.000368
1.149	3.140	927.	.8218	1.0000	.8218	22.44	.8205	.000445
1.308	3.574	1056.	.8389	1.0000	.8389	22.91	.7767	.000530
1.627	4.447	1314.	.8757	1.0000	.8757	23.91	.6735	.000718
1.943	5.309	1568.	.9102	1.0000	.9102	24.85	.5549	.000918
2.263	6.185	1827.	.9373	1.0000	.9373	25.59	.4229	.001127
2.578	7.044	2081.	.9609	1.0000	.9609	26.24	.2912	.001324
2.897	7.915	2338.	.9815	1.0000	.9815	26.80	.1660	.001503
3.054	8.345	2465.	.9857	1.0000	.9857	26.92	.1106	.001580
3.138	8.575	2533.	.9899	1.0000	.9899	27.03	.0835	.001617
3.295	9.004	2660.	.9941	1.0000	.9941	27.14	.0386	.001678
3.376	9.226	2726.	.9958	1.0000	.9958	27.19	.0186	.001705
3.525	9.633	2846.	.9983	1.0000	.9983	27.26	0.0000	.001731
3.611	9.868	2915.	1.0000	1.0000	1.0000	27.30	0.0000	.001731

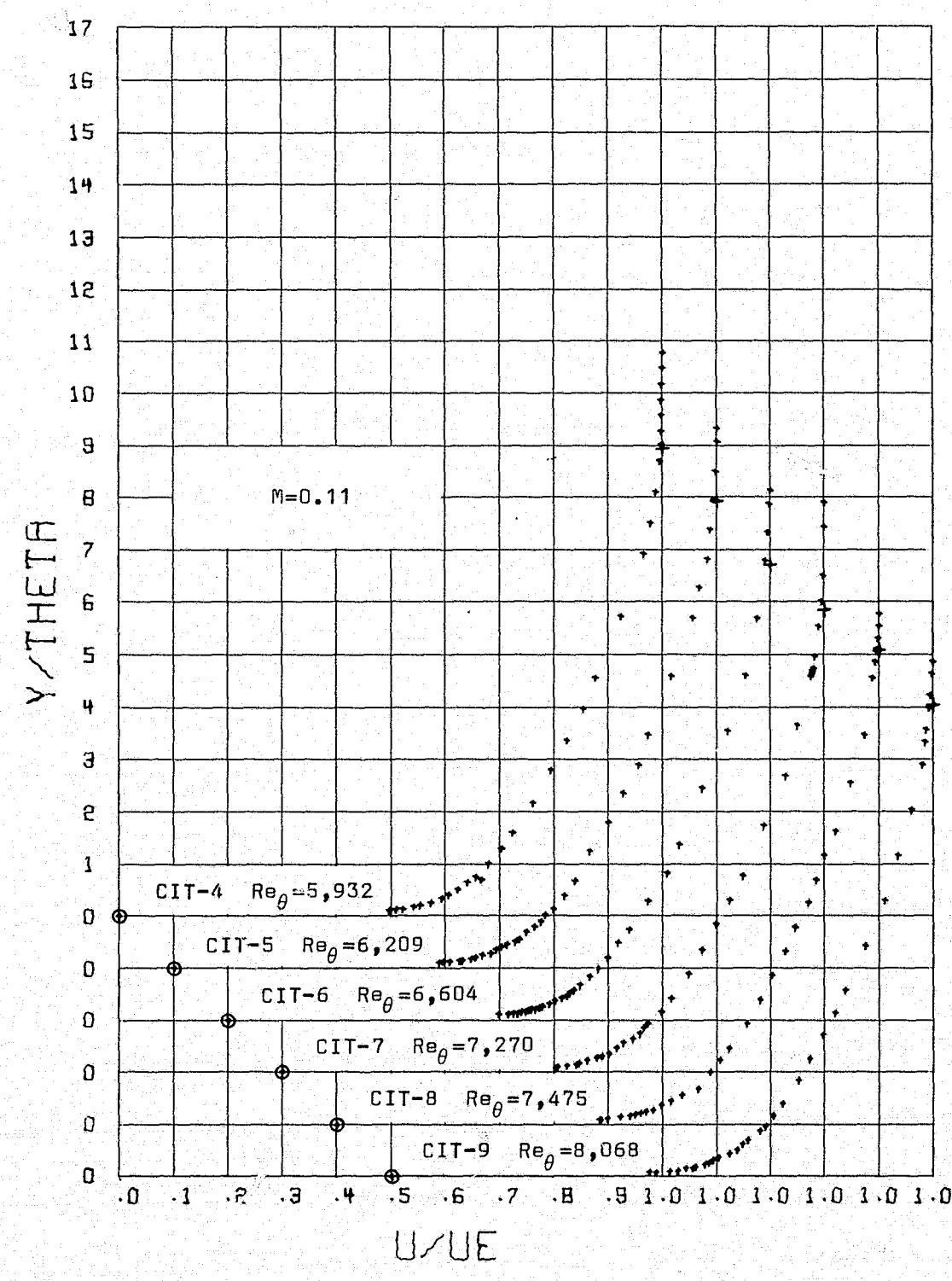

Figure A1. Mean Velocity Profiles.

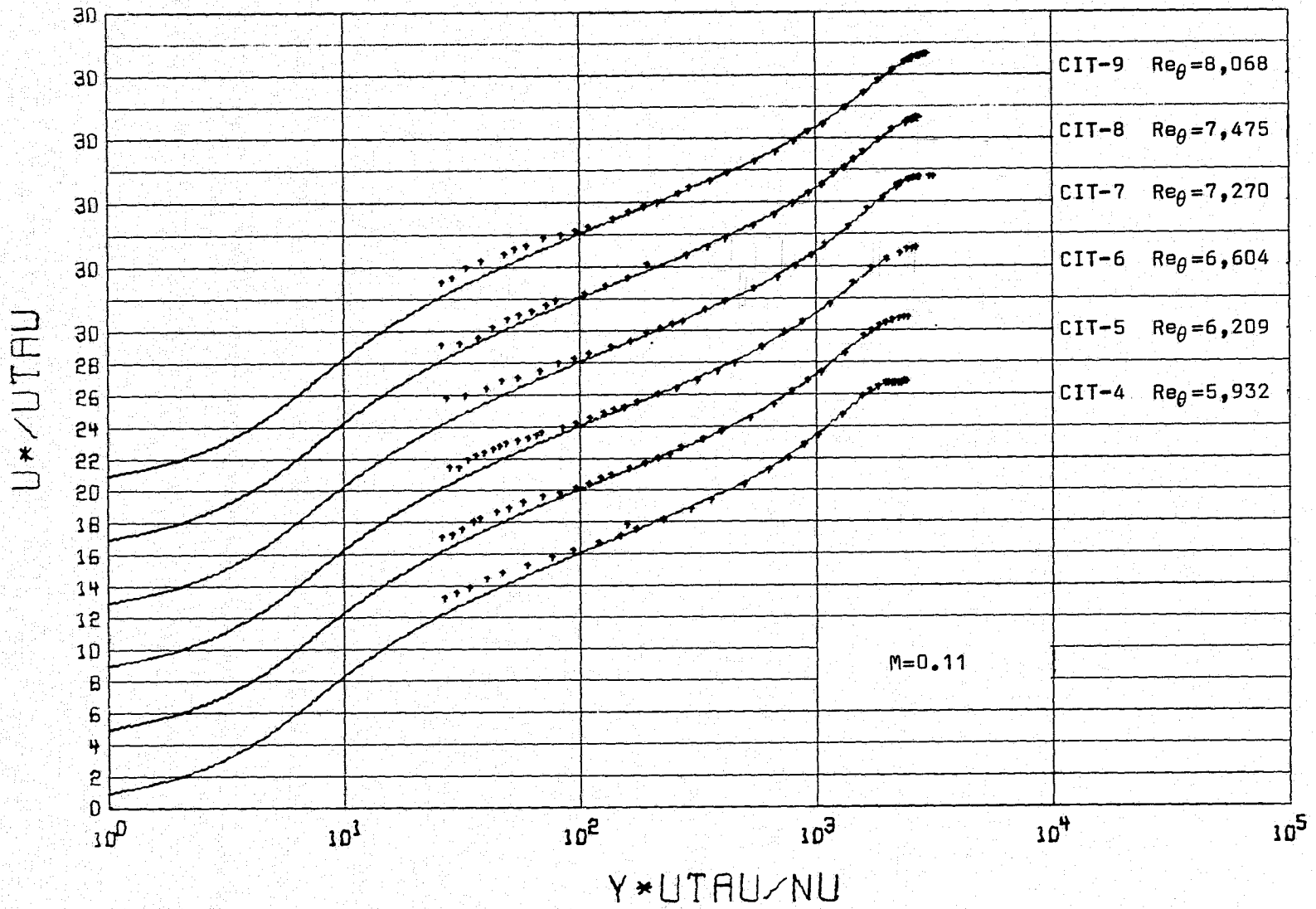

Figure A2. Van Driest Scaled Mean Velocity Profiles.

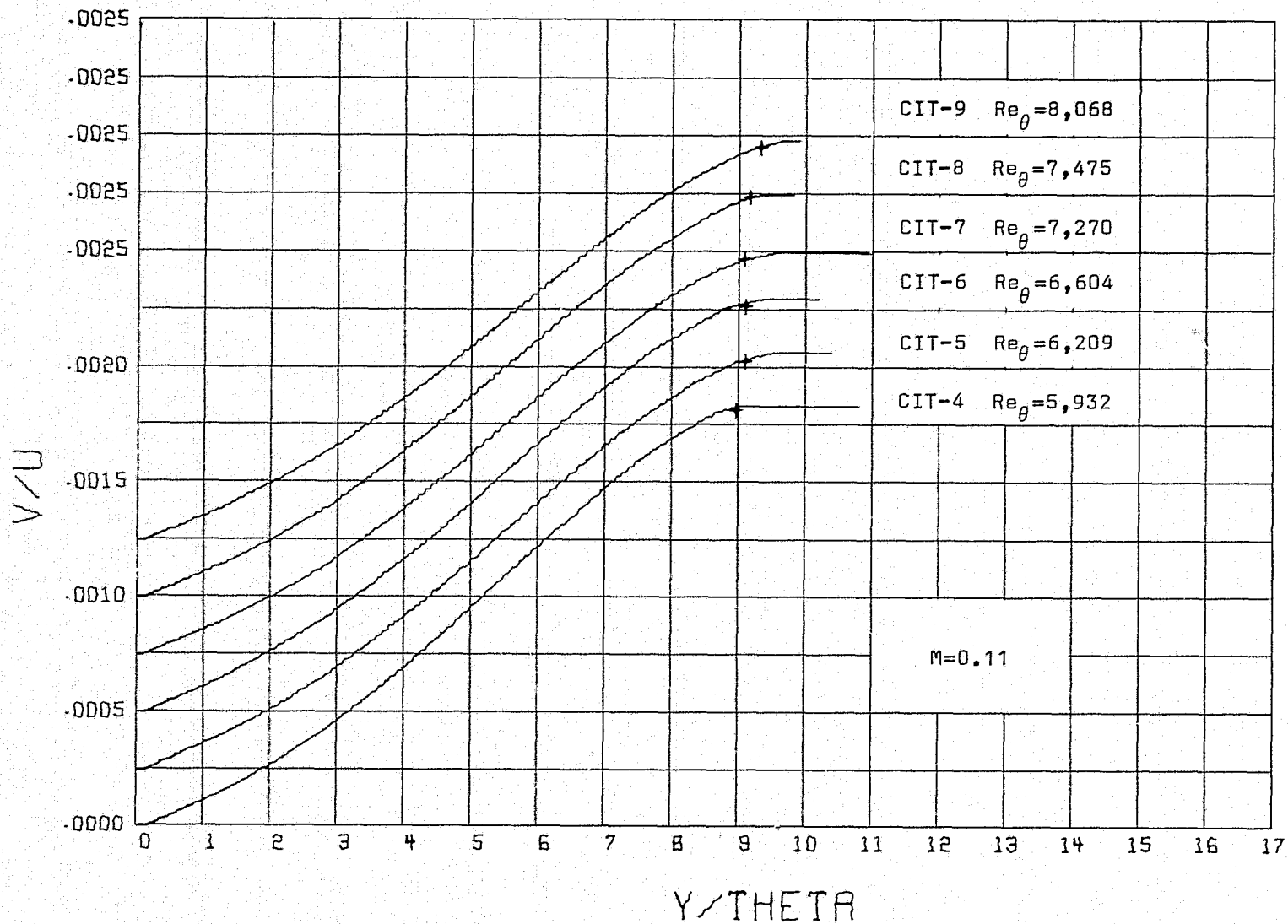

Figure A3. Normal Velocity Distribution.

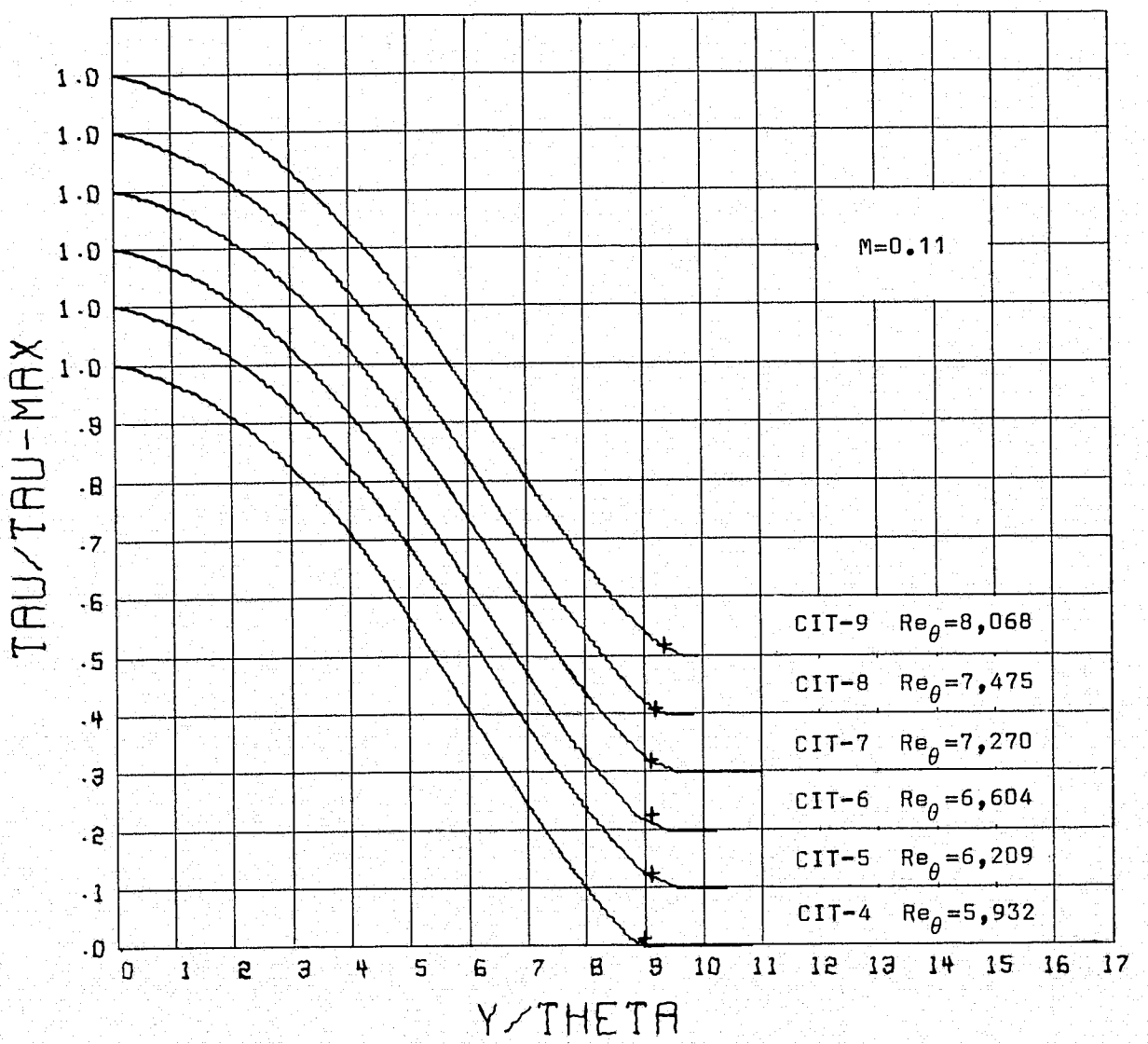

Figure A4. Shear Stress Distribution.

TABLE A 5. DATA SUMMARY
PROFILE - JPL-1 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5927 TOTAL PRESSURE= .6665E+05 N/M**2
X=-48.43 CM TOTAL TEMPERATURE= 305.73 DEG-K

UE= 201.05 M/SEC DELTA STAR= .3796 CM THETA= .2604 CM H= 1.457
RE-DELTA-STAR= 27510. RE-THETA= 18870. NUWALL= .3128 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.8401 M/SEC CF= .002179 PI= .7613 DELTA= 2.4827 CM
CHISQR= .1455E-04 YMAX= 2.340 CM YMIN= .069 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9414	0.0000	0.00	1.0000	0.000000
.010	.039	22.	.3695	.9494	.3792	11.16	1.0000	0.000000
.019	.073	41.	.4757	.9547	.4868	14.34	.9994	.000003
.035	.136	77.	.5252	.9576	.5367	15.82	.9982	.000009
.069	.268	152.	.5845	.9614	.5961	17.58	.9950	.000021
.101	.390	222.	.6065	.9629	.6180	18.23	.9917	.000032
.130	.502	286.	.6218	.9640	.6333	18.69	.9882	.000042
.157	.604	344.	.6394	.9653	.6508	19.20	.9849	.000052
.182	.702	399.	.6579	.9668	.6691	19.75	.9815	.000061
.213	.819	466.	.6640	.9672	.6751	19.93	.9772	.000073
.226	.867	494.	.6791	.9684	.6901	20.38	.9753	.000077
.261	1.004	572.	.6901	.9693	.7009	20.70	.9698	.000091
.294	1.131	644.	.6876	.9691	.6984	20.62	.9645	.000104
.316	1.213	691.	.7043	.9704	.7149	21.12	.9608	.000113
.345	1.326	755.	.7141	.9713	.7245	21.40	.9557	.000125
.388	1.491	849.	.7185	.9716	.7289	21.53	.9476	.000143
.425	1.633	930.	.7314	.9727	.7416	21.91	.9402	.000159
.449	1.725	983.	.7358	.9731	.7459	22.04	.9352	.000170
.505	1.940	1105.	.7543	.9747	.7640	22.58	.9228	.000196
.548	2.106	1199.	.7582	.9751	.7678	22.70	.9125	.000217
.577	2.218	1263.	.7646	.9756	.7740	22.88	.9052	.000232
.617	2.369	1349.	.7764	.9767	.7856	23.23	.8948	.000252
.651	2.501	1424.	.7760	.9767	.7852	23.22	.8853	.000271
.685	2.632	1499.	.7853	.9775	.7943	23.49	.8754	.000290
.741	2.847	1621.	.7957	.9785	.8044	23.79	.8582	.000322
.787	3.022	1721.	.7989	.9786	.8075	23.89	.8433	.000349
.839	3.222	1835.	.8143	.9802	.8225	24.33	.8252	.000382
.904	3.471	1977.	.8249	.9812	.8327	24.64	.8011	.000424
.944	3.627	2066.	.8330	.9820	.8405	24.88	.7852	.000452
.989	3.797	2163.	.8342	.9822	.8417	24.91	.7670	.000483
1.049	4.027	2293.	.8450	.9832	.8521	25.23	.7412	.000526
1.102	4.231	2410.	.8590	.9846	.8656	25.63	.7170	.000566
1.158	4.446	2532.	.8567	.9844	.8635	25.57	.6904	.000609
1.206	4.631	2638.	.8721	.9859	.8783	26.01	.6667	.000646
1.248	4.792	2729.	.8792	.9867	.8851	26.22	.6453	.000679
1.308	5.021	2860.	.8786	.9866	.8845	26.20	.6139	.000728
1.363	5.236	2982.	.8924	.9880	.8978	26.60	.5836	.000774
1.422	5.460	3110.	.9067	.9895	.9115	27.01	.5509	.000822
1.480	5.684	3238.	.9092	.9898	.9138	27.08	.5175	.000871
1.540	5.913	3368.	.9251	.9915	.9291	27.54	.4826	.000921
1.602	6.152	3504.	.9285	.9919	.9323	27.64	.4457	.000973

TABLE A 5. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.663	6.386	3638.	.9360	.9927	.9394	27.85	.4092	.001024
1.729	6.640	3782.	.9420	.9934	.9451	28.02	.3696	.001079
1.794	6.849	3901.	.9452	.9937	.9482	28.12	.3369	.001123
1.832	7.035	4007.	.9522	.9945	.9548	28.32	.3082	.001161
1.877	7.205	4104.	.9550	.9948	.9574	28.40	.2820	.001196
1.929	7.405	4218.	.9647	.9959	.9667	28.68	.2518	.001236
1.982	7.610	4335.	.9650	.9959	.9670	28.69	.2215	.001275
2.039	7.829	4460.	.9763	.9972	.9777	29.01	.1900	.001316
2.092	8.034	4576.	.9775	.9974	.9788	29.04	.1617	.001352
2.164	8.307	4732.	.9885	.9986	.9892	29.36	.1258	.001398
2.227	8.551	4871.	.9864	.9984	.9872	29.30	.0957	.001436
2.282	8.761	4990.	.9924	.9991	.9929	29.47	.0720	.001465
2.340	8.985	5118.	.9915	.9990	.9920	29.44	.0484	.001495
2.397	9.204	5243.	.9952	.9994	.9954	29.55	.0277	.001520
2.461	9.448	5382.	.9931	.9991	.9935	29.49	.0074	.001545
2.509	9.633	5487.	.9970	.9996	.9972	29.60	0.0000	.001554
2.562	9.838	5604.	1.0014	1.0001	1.0013	29.72	0.0000	.001554
2.670	10.253	5840.	1.0032	1.0003	1.0030	29.78	0.0000	.001554
2.798	10.706	6098.	1.0002	1.0000	1.0002	29.69	0.0000	.001554
2.903	11.145	6348.	1.0045	1.0005	1.0043	29.81	0.0000	.001554
3.002	11.525	6565.	1.0006	1.0000	1.0006	29.70	0.0000	.001554
3.094	11.881	6767.	1.0006	1.0000	1.0006	29.70	0.0000	.001554
3.191	12.251	6979.	1.0041	1.0004	1.0039	29.80	0.0000	.001554
3.288	12.622	7190.	.9977	.9997	.9978	29.62	0.0000	.001554
3.376	12.963	7384.	.9981	.9997	.9982	29.63	0.0000	.001554
3.455	13.266	7556.	1.0025	1.0003	1.0023	29.76	0.0000	.001554
3.535	13.573	7731.	.9990	.9994	.9991	29.66	0.0000	.001554

TABLE A 5. (CONT.)
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5927 TOTAL PRESSURE= .6665E+05 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 310.10 DEG-K

UE= 202.47 M/SEC DELTA STAR= .4179 CM THETA= .2902 CM H= 1.439
RE-DELTA-STAR= 29060. RE-THETA= 20180. NUWALL= .3209 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.9226 M/SEC CF= .002201 PI= .6686 DELTA= 2.8530 CM
CHISQR= .1125E-04 YMAX= 2.672 CM YMIN= .085 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9414	0.0000	0.00	1.0000	0.000000
.010	.035	21.	.3894	.9503	.3995	11.70	1.0000	0.000000
.020	.070	43.	.4825	.9550	.4937	14.47	.9994	.000003
.033	.113	71.	.5135	.9568	.5250	15.39	.9985	.000007
.048	.166	104.	.5482	.9590	.5598	16.42	.9973	.000012
.064	.223	139.	.5781	.9610	.5897	17.30	.9959	.000018
.085	.293	183.	.5945	.9621	.6061	17.79	.9940	.000024
.104	.358	224.	.6079	.9630	.6195	18.18	.9920	.000030
.120	.415	260.	.6275	.9645	.6389	18.76	.9903	.000036
.149	.516	323.	.6440	.9657	.6554	19.25	.9870	.000045
.170	.586	367.	.6563	.9666	.6676	19.61	.9846	.000052
.201	.695	435.	.6669	.9674	.6780	19.92	.9806	.000063
.224	.774	484.	.6812	.9686	.6922	20.34	.9777	.000070
.243	.840	526.	.6863	.9690	.6972	20.49	.9751	.000077
.265	.914	572.	.6914	.9694	.7022	20.63	.9721	.000084
.290	1.001	627.	.6925	.9695	.7033	20.67	.9685	.000093
.316	1.089	682.	.7097	.9709	.7203	21.17	.9647	.000102
.341	1.176	736.	.7111	.9710	.7216	21.21	.9608	.000111
.372	1.281	802.	.7180	.9716	.7284	21.41	.9559	.000122
.426	1.470	920.	.7224	.9720	.7328	21.54	.9467	.000143
.480	1.653	1035.	.7416	.9736	.7516	22.10	.9371	.000164
.535	1.846	1156.	.7484	.9742	.7583	22.30	.9263	.000186
.590	2.034	1273.	.7624	.9754	.7719	22.71	.9150	.000209
.645	2.222	1391.	.7694	.9761	.7788	22.91	.9030	.000233
.703	2.423	1517.	.7892	.9779	.7980	23.49	.8893	.000260
.753	2.594	1624.	.7869	.9777	.7958	23.42	.8770	.000284
.807	2.782	1742.	.7991	.9788	.8077	23.77	.8626	.000311
.852	2.935	1838.	.8081	.9796	.8164	24.03	.8503	.000333
.909	3.132	1961.	.8128	.9801	.8210	24.17	.8336	.000363
.951	3.276	2052.	.8198	.9808	.8278	24.37	.8208	.000386
.995	3.430	2147.	.8274	.9815	.8351	24.59	.8066	.000411
1.038	3.578	2241.	.8275	.9815	.8352	24.59	.7923	.000436
1.087	3.745	2345.	.8383	.9826	.8457	24.91	.7755	.000465
1.141	3.933	2463.	.8485	.9836	.8556	25.20	.7559	.000498
1.195	4.116	2578.	.8497	.9837	.8567	25.24	.7358	.000531
1.245	4.291	2687.	.8619	.9849	.8685	25.59	.7159	.000563
1.306	4.501	2819.	.8646	.9852	.8711	25.67	.6911	.000603
1.367	4.711	2950.	.8799	.9867	.8858	26.11	.6654	.000644
1.426	4.913	3076.	.8826	.9870	.8883	26.18	.6397	.000684
1.471	5.070	3175.	.8879	.9876	.8934	26.34	.6191	.000715
1.520	5.236	3279.	.8927	.9881	.8980	26.47	.5969	.000749

TABLE A 5. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.567	5.398	3380.	.9005	.9889	.9056	26.70	.5747	.000783
1.619	5.578	3493.	.9078	.9897	.9125	26.91	.5496	.000820
1.668	5.748	3600.	.9109	.9900	.9155	27.00	.5254	.000855
1.718	5.919	3706.	.9181	.9908	.9223	27.20	.5007	.000891
1.771	6.103	3821.	.9236	.9914	.9276	27.36	.4738	.000930
1.832	6.313	3953.	.9292	.9920	.9329	27.52	.4427	.000974
1.893	6.523	4084.	.9358	.9927	.9392	27.71	.4114	.001018
1.944	6.698	4194.	.9442	.9936	.9472	27.95	.3852	.001054
2.005	6.908	4326.	.9446	.9936	.9476	27.96	.3537	.001097
2.053	7.074	4430.	.9530	.9946	.9556	28.20	.3288	.001131
2.117	7.293	4567.	.9548	.9948	.9573	28.25	.2963	.001175
2.165	7.459	4671.	.9632	.9957	.9652	28.49	.2718	.001208
2.241	7.722	4835.	.9673	.9962	.9691	28.61	.2339	.001258
2.270	7.822	4898.	.9703	.9965	.9720	28.70	.2196	.001276
2.325	8.010	5016.	.9755	.9971	.9769	28.84	.1934	.001311
2.378	8.194	5131.	.9784	.9975	.9796	28.92	.1685	.001343
2.432	8.378	5246.	.9777	.9974	.9790	28.90	.1444	.001374
2.479	8.540	5347.	.9831	.9980	.9840	29.06	.1239	.001400
2.527	8.706	5452.	.9868	.9984	.9876	29.16	.1036	.001426
2.578	8.881	5561.	.9907	.9989	.9913	29.28	.0832	.001452
2.626	9.047	5665.	.9886	.9986	.9893	29.22	.0648	.001475
2.672	9.205	5764.	.9949	.9994	.9952	29.39	.0483	.001496
2.711	9.340	5849.	.9949	.9994	.9952	29.39	.0349	.001512
2.764	9.524	5964.	.9923	.9991	.9928	29.32	.0179	.001533
2.805	9.664	6052.	.9963	.9995	.9965	29.43	.0060	.001548
2.853	9.830	6156.	.9967	.9996	.9969	29.45	0.0000	.001556
2.894	9.970	6243.	.9976	.9997	.9978	29.47	0.0000	.001556
2.980	10.268	6430.	.9986	.9998	.9987	29.50	0.0000	.001556
3.055	10.526	6591.	.9967	.9996	.9969	29.45	0.0000	.001556
3.135	10.802	6764.	.9986	.9998	.9987	29.50	0.0000	.001556
3.204	11.038	6912.	.9986	.9998	.9987	29.50	0.0000	.001556
3.295	11.353	7109.	1.0004	1.0000	1.0004	29.55	0.0000	.001556
3.387	11.668	7306.	1.0006	1.0000	1.0006	29.56	0.0000	.001556
3.465	11.939	7476.	.9999	.9999	.9999	29.54	0.0000	.001556
3.544	12.210	7646.	1.0008	1.0001	1.0008	29.56	0.0000	.001556

TABLE A 5. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5986 TOTAL PRESSURE= .6665E+05 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 303.31 DEG-K

UE= 202.13 M/SEC DELTA STAR= .4333 CM THETA= .3028 CM H= 1.430
RE-DELTA-STAR= 31750. RE-THETA= 22190. NUWALL= .3090 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.9077 M/SEC CF= .002196 PI= .6224 DELTA= 3.0444 CM
CHISQR= .1785E-04 YMAX= 2.858 CM YMIN= .082 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9403	0.0000	0.00	1.0000	0.000000
.010	.033	22.	.4107	.9504	.4213	12.35	1.0000	0.000000
.017	.058	39.	.4796	.9540	.4910	14.40	.9995	.000002
.030	.100	68.	.5306	.9571	.5424	15.91	.9987	.000006
.041	.138	93.	.5556	.9587	.5674	16.65	.9979	.000010
.067	.222	150.	.5811	.9604	.5929	17.41	.9958	.000017
.082	.272	184.	.6038	.9620	.6156	18.08	.9945	.000022
.099	.327	221.	.6127	.9627	.6245	18.34	.9929	.000027
.107	.356	241.	.6271	.9638	.6388	18.77	.9920	.000030
.132	.436	295.	.6372	.9645	.6489	19.06	.9895	.000037
.148	.490	332.	.6533	.9658	.6647	19.53	.9877	.000042
.172	.570	386.	.6570	.9660	.6684	19.64	.9850	.000050
.218	.721	488.	.6811	.9680	.6923	20.35	.9795	.000064
.251	.830	562.	.6847	.9683	.6958	20.46	.9754	.000075
.275	.909	616.	.6981	.9694	.7090	20.85	.9722	.000083
.299	.989	670.	.7022	.9697	.7131	20.97	.9689	.000091
.332	1.098	743.	.7050	.9699	.7158	21.05	.9642	.000102
.361	1.194	809.	.7199	.9712	.7305	21.49	.9599	.000111
.392	1.295	877.	.7266	.9718	.7371	21.68	.9552	.000122
.414	1.366	925.	.7293	.9720	.7397	21.76	.9519	.000129
.438	1.446	979.	.7332	.9724	.7435	21.88	.9480	.000138
.471	1.555	1053.	.7358	.9726	.7461	21.95	.9425	.000150
.501	1.656	1121.	.7443	.9733	.7544	22.20	.9372	.000161
.534	1.765	1195.	.7539	.9742	.7638	22.48	.9313	.000173
.577	1.907	1291.	.7577	.9745	.7675	22.59	.9232	.000190
.614	2.029	1374.	.7657	.9753	.7753	22.82	.9161	.000204
.642	2.121	1436.	.7714	.9758	.7809	22.99	.9105	.000215
.683	2.255	1527.	.7793	.9765	.7886	23.22	.9020	.000232
.741	2.448	1658.	.7849	.9770	.7940	23.38	.8891	.000257
.781	2.578	1746.	.7861	.9772	.7952	23.41	.8801	.000274
.829	2.737	1853.	.7957	.9781	.8046	23.69	.8685	.000295
.882	2.914	1973.	.8063	.9791	.8149	24.00	.8550	.000320
.942	3.111	2106.	.8155	.9800	.8238	24.27	.8391	.000348
1.007	3.325	2251.	.8247	.9809	.8327	24.54	.8209	.000381
1.057	3.492	2364.	.8282	.9812	.8361	24.64	.8057	.000407
1.113	3.677	2489.	.8417	.9826	.8491	25.03	.7886	.000436
1.162	3.836	2597.	.8450	.9829	.8523	25.12	.7731	.000462
1.220	4.029	2728.	.8527	.9837	.8597	25.34	.7535	.000495
1.267	4.184	2833.	.8582	.9842	.8650	25.50	.7372	.000522
1.310	4.327	2929.	.8609	.9845	.8676	25.58	.7217	.000547
1.384	4.570	3094.	.8684	.9853	.8748	25.79	.6943	.000590

TABLE A 5. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.433	4.733	3205.	.8779	.9863	.8840	26.07	.6751	.000621
1.492	4.926	3335.	.8827	.9868	.8885	26.21	.6519	.000657
1.545	5.102	3455.	.8874	.9873	.8931	26.34	.6300	.000690
1.598	5.278	3574.	.8967	.9883	.9020	26.61	.6076	.000724
1.647	5.438	3682.	.8982	.9884	.9034	26.65	.5869	.000755
1.700	5.614	3801.	.9068	.9894	.9117	26.90	.5635	.000790
1.760	5.811	3935.	.9114	.9899	.9160	27.03	.5368	.000829
1.807	5.966	4040.	.9184	.9906	.9227	27.23	.5155	.000860
1.850	6.109	4136.	.9209	.9909	.9251	27.30	.4956	.000888
1.925	6.356	4304.	.9283	.9917	.9321	27.51	.4608	.000938
1.982	6.545	4431.	.9302	.9919	.9340	27.57	.4339	.000976
2.039	6.733	4559.	.9385	.9928	.9419	27.81	.4069	.001013
2.104	6.947	4704.	.9438	.9934	.9469	27.96	.3762	.001056
2.169	7.161	4849.	.9569	.9949	.9593	28.33	.3455	.001097
2.223	7.341	4971.	.9562	.9948	.9587	28.31	.3196	.001132
2.292	7.568	5124.	.9633	.9957	.9653	28.51	.2877	.001175
2.354	7.773	5263.	.9647	.9958	.9667	28.55	.2590	.001213
2.413	7.966	5394.	.9702	.9965	.9719	28.71	.2326	.001248
2.457	8.113	5493.	.9744	.9969	.9759	28.83	.2128	.001273
2.526	8.339	5646.	.9776	.9973	.9789	28.92	.1830	.001312
2.564	8.465	5732.	.9813	.9977	.9824	29.03	.1669	.001333
2.616	8.637	5848.	.9813	.9977	.9824	29.03	.1455	.001360
2.664	8.796	5956.	.9858	.9983	.9867	29.16	.1263	.001385
2.720	8.981	6081.	.9867	.9984	.9875	29.18	.1047	.001412
2.771	9.148	6194.	.9899	.9988	.9905	29.27	.0864	.001435
2.811	9.283	6285.	.9956	.9994	.9958	29.43	.0722	.001453
2.858	9.438	6390.	.9926	.9991	.9930	29.35	.0563	.001473
2.928	9.668	6546.	.9948	.9993	.9952	29.41	.0349	.001500
2.973	9.815	6646.	.9991	.9999	.9992	29.53	.0222	.001515
3.035	10.021	6785.	.9966	.9996	.9968	29.46	.0057	.001536
3.077	10.159	6879.	.9975	.9997	.9977	29.49	0.0000	.001543
3.129	10.331	6995.	.9984	.9998	.9985	29.51	0.0000	.001543
3.171	10.469	7089.	1.0014	1.0001	1.0013	29.60	0.0000	.001543
3.201	10.570	7157.	.9993	.9999	.9994	29.54	0.0000	.001543
3.268	10.792	7307.	.9993	.9999	.9994	29.54	0.0000	.001543
3.315	10.947	7412.	1.0002	1.0000	1.0002	29.56	0.0000	.001543
3.362	11.102	7517.	1.0002	1.0000	1.0002	29.56	0.0000	.001543
3.420	11.291	7645.	.9993	.9999	.9994	29.54	0.0000	.001543
3.482	11.497	7784.	1.0007	1.0000	1.0006	29.58	0.0000	.001543
3.539	11.685	7912.	.9993	.9999	.9994	29.54	0.0000	.001543
3.585	11.836	8014.	1.0002	1.0000	1.0002	29.56	0.0000	.001543
3.615	11.937	8082.	1.0002	1.0000	1.0002	29.56	0.0000	.001543

TABLE A 5. (CONT.)
PROFILE - JPL-4 -- - PITOT PRESSURE DATA

EDGE MACH NO.= .6018 TOTAL PRESSURE= .6665E+05 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 308.65 DEG-K

UE= 204.91 M/SEC DELTA STAR= .4531 CM THETA= .3177 CM H= 1.426
RE-DELTA-STAR= 31940. RE-THETA= 22400. NUWALL= .3185 CM**2/SEC CF= .002165

LEAST SQUARE FIT PARAMETERS
UTAU= 7.0079 M/SEC CF= .002198 PI= .5908 DELTA= 3.1670 CM
CHISQR= .2022E-04 YMAX= 2.995 CM YMIN= .080 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9397	0.0000	0.00	1.0000	0.000000
.010	.031	22.	.4144	.9500	.4252	12.45	1.0000	0.000000
.021	.067	47.	.4862	.9539	.4978	14.59	.9993	.000003
.034	.107	75.	.5360	.9570	.5479	16.07	.9985	.000007
.050	.159	111.	.5640	.9589	.5759	16.89	.9973	.000012
.059	.187	131.	.5863	.9604	.5982	17.55	.9965	.000015
.080	.251	176.	.6012	.9615	.6131	17.99	.9948	.000021
.105	.331	231.	.6170	.9626	.6289	18.46	.9924	.000029
.124	.391	273.	.6375	.9642	.6492	19.06	.9905	.000035
.149	.471	329.	.6488	.9651	.6605	19.39	.9878	.000042
.170	.535	374.	.6548	.9655	.6664	19.57	.9855	.000049
.194	.611	427.	.6604	.9660	.6719	19.73	.9827	.000056
.209	.659	460.	.6706	.9668	.6820	20.03	.9809	.000061
.233	.735	513.	.6763	.9673	.6876	20.20	.9780	.000069
.257	.811	567.	.6980	.9691	.7090	20.83	.9749	.000076
.279	.879	614.	.6976	.9690	.7087	20.82	.9721	.000083
.295	.931	651.	.7024	.9694	.7134	20.96	.9699	.000088
.334	1.051	734.	.7085	.9699	.7194	21.14	.9646	.000101
.364	1.146	801.	.7183	.9708	.7290	21.43	.9603	.000111
.402	1.266	885.	.7308	.9719	.7413	21.79	.9546	.000124
.431	1.358	950.	.7268	.9715	.7373	21.68	.9500	.000134
.472	1.486	1039.	.7385	.9726	.7488	22.02	.9434	.000148
.499	1.570	1098.	.7469	.9733	.7571	22.26	.9390	.000157
.539	1.698	1187.	.7528	.9739	.7629	22.43	.9320	.000172
.581	1.830	1279.	.7524	.9738	.7625	22.42	.9244	.000188
.622	1.958	1369.	.7587	.9744	.7686	22.60	.9168	.000203
.660	2.078	1453.	.7720	.9756	.7816	22.99	.9093	.000218
.704	2.217	1550.	.7781	.9762	.7875	23.17	.9003	.000236
.742	2.337	1634.	.7759	.9760	.7853	23.10	.8922	.000251
.774	2.437	1704.	.7879	.9771	.7970	23.45	.8852	.000264
.803	2.529	1768.	.7994	.9782	.8082	23.79	.8786	.000277
.847	2.665	1863.	.8041	.9787	.8128	23.92	.8686	.000296
.880	2.769	1936.	.8058	.9788	.8145	23.97	.8607	.000310
.914	2.889	2020.	.8065	.9789	.8151	23.99	.8512	.000328
.957	3.013	2106.	.8140	.9796	.8224	24.21	.8411	.000346
1.007	3.169	2215.	.8129	.9795	.8214	24.18	.8278	.000369
1.051	3.308	2313.	.8270	.9809	.8350	24.59	.8155	.000391
1.101	3.464	2422.	.8337	.9816	.8415	24.78	.8012	.000416
1.141	3.592	2512.	.8414	.9824	.8489	25.00	.7891	.000437
1.182	3.720	2601.	.8431	.9825	.8505	25.05	.7766	.000458
1.230	3.872	2707.	.8475	.9830	.8547	25.18	.7612	.000483

TABLE A 5. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.278	4.024	2813.	.8561	.9839	.8631	25.43	.7454	.000510
1.325	4.172	2917.	.8556	.9838	.8626	25.41	.7295	.000536
1.367	4.303	3009.	.8593	.9842	.8662	25.52	.7149	.000559
1.405	4.423	3093.	.8684	.9851	.8749	25.78	.7012	.000581
1.443	4.543	3176.	.8731	.9856	.8794	25.91	.6873	.000603
1.484	4.671	3266.	.8741	.9857	.8804	25.94	.6721	.000627
1.532	4.823	3372.	.8798	.9863	.8859	26.11	.6537	.000656
1.581	4.975	3478.	.8829	.9867	.8889	26.20	.6348	.000685
1.635	5.147	3599.	.8938	.9878	.8992	26.51	.6129	.000719
1.682	5.295	3702.	.8968	.9882	.9021	26.60	.5936	.000748
1.734	5.459	3817.	.8987	.9884	.9040	26.65	.5718	.000780
1.799	5.662	3959.	.9135	.9900	.9180	27.07	.5442	.000821
1.870	5.886	4116.	.9158	.9902	.9203	27.14	.5132	.000867
1.926	6.062	4238.	.9217	.9909	.9259	27.31	.4885	.000902
1.995	6.278	4389.	.9235	.9911	.9276	27.36	.4578	.000946
2.043	6.430	4496.	.9369	.9926	.9403	27.74	.4359	.000977
2.113	6.649	4649.	.9332	.9922	.9369	27.64	.4042	.001021
2.175	6.845	4786.	.9462	.9937	.9492	28.01	.3756	.001061
2.227	7.009	4901.	.9472	.9938	.9501	28.04	.3519	.001093
2.287	7.197	5032.	.9508	.9942	.9535	28.14	.3247	.001131
2.360	7.429	5194.	.9545	.9946	.9571	28.25	.2914	.001175
2.407	7.577	5298.	.9601	.9952	.9624	28.40	.2703	.001204
2.456	7.728	5404.	.9633	.9956	.9654	28.50	.2489	.001232
2.500	7.868	5502.	.9656	.9959	.9676	28.56	.2295	.001258
2.559	8.052	5630.	.9736	.9968	.9751	28.79	.2044	.001291
2.617	8.236	5759.	.9729	.9967	.9745	28.77	.1798	.001323
2.654	8.352	5840.	.9757	.9971	.9771	28.85	.1646	.001342
2.710	8.528	5962.	.9836	.9980	.9845	29.07	.1421	.001372
2.767	8.708	6088.	.9845	.9981	.9854	29.10	.1199	.001400
2.802	8.819	6166.	.9867	.9984	.9875	29.16	.1066	.001417
2.851	8.971	6273.	.9867	.9984	.9875	29.16	.0892	.001439
2.895	9.111	6371.	.9880	.9985	.9888	29.20	.0736	.001459
2.941	9.255	6471.	.9878	.9985	.9885	29.19	.0583	.001478
2.995	9.427	6591.	.9925	.9991	.9930	29.33	.0410	.001500
3.039	9.563	6686.	.9900	.9988	.9906	29.26	.0280	.001517
3.096	9.743	6812.	.9900	.9988	.9906	29.26	.0119	.001537
3.136	9.871	6902.	.9952	.9994	.9955	29.40	.0013	.001550
3.176	9.994	6988.	.9965	.9995	.9967	29.44	0.0000	.001552
3.225	10.151	7097.	.9927	.9991	.9931	29.33	0.0000	.001552
3.276	10.310	7209.	.9936	.9992	.9940	29.36	0.0000	.001552
3.313	10.426	7290.	.9945	.9993	.9948	29.38	0.0000	.001552
3.374	10.618	7424.	.9974	.9996	.9975	29.46	0.0000	.001552
3.416	10.750	7516.	.9945	.9993	.9948	29.38	0.0000	.001552
3.460	10.890	7614.	.9978	.9997	.9979	29.48	0.0000	.001552
3.514	11.057	7731.	.9978	.9997	.9979	29.48	0.0000	.001552
3.559	11.202	7832.	.9978	.9997	.9979	29.48	0.0000	.001552
3.600	11.329	7921.	.9983	.9997	.9984	29.49	0.0000	.001552
3.648	11.481	8028.	1.0081	1.0009	1.0076	29.53	0.0000	.001552
3.685	11.597	8109.	.9978	.9997	.9979	29.48	0.0000	.001552

TABLE A 5. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5962 TOTAL PRESSURE= .6771E+05 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 308.89 DEG-K

UE= 203.19 M/SEC DELTA STAR= .4553 CM THETA= .3201 CM H= 1.422
RE-DELTA-STAR= 31710. RE-THETA= 22300. NUWALL= .3136 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.9410 M/SEC CF= .002195 PI= .5946 DELTA= 3.2642 CM
CHISQR= .1818E-04 YMAX= 3.069 CM YMIN= .078 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9408	0.0000	0.00	1.0000	0.000000
.010	.031	22.	.4087	.9506	.4192	12.29	1.0000	0.000000
.012	.039	28.	.4458	.9525	.4567	13.39	.9998	0.000000
.021	.067	47.	.5178	.9566	.5294	15.54	.9993	.000003
.041	.130	92.	.5541	.9589	.5659	16.61	.9980	.000009
.059	.186	132.	.5820	.9608	.5938	17.44	.9967	.000014
.078	.245	174.	.6045	.9624	.6162	18.10	.9951	.000020
.109	.341	241.	.6219	.9637	.6335	18.62	.9923	.000029
.123	.384	272.	.6256	.9639	.6372	18.72	.9909	.000033
.146	.456	323.	.6455	.9654	.6569	19.31	.9886	.000040
.167	.523	371.	.6569	.9663	.6683	19.65	.9863	.000046
.191	.598	424.	.6618	.9667	.6731	19.79	.9837	.000053
.217	.678	480.	.6811	.9682	.6922	20.36	.9808	.000061
.245	.765	542.	.6858	.9686	.6968	20.49	.9774	.000069
.265	.829	587.	.6910	.9690	.7019	20.65	.9749	.000075
.293	.916	649.	.7021	.9699	.7128	20.97	.9714	.000084
.335	1.047	742.	.7089	.9705	.7196	21.17	.9658	.000097
.356	1.114	789.	.7187	.9713	.7292	21.46	.9628	.000104
.387	1.209	857.	.7266	.9720	.7370	21.69	.9585	.000114
.415	1.297	919.	.7240	.9718	.7344	21.61	.9544	.000123
.449	1.404	995.	.7355	.9728	.7457	21.95	.9493	.000134
.485	1.515	1073.	.7420	.9734	.7521	22.14	.9437	.000146
.508	1.586	1124.	.7452	.9736	.7552	22.23	.9400	.000154
.529	1.654	1172.	.7546	.9745	.7644	22.50	.9365	.000161
.562	1.757	1245.	.7590	.9749	.7687	22.63	.9309	.000173
.599	1.872	1326.	.7663	.9755	.7758	22.85	.9244	.000186
.632	1.975	1399.	.7663	.9755	.7758	22.85	.9184	.000198
.665	2.078	1472.	.7737	.9762	.7831	23.06	.9122	.000210
.708	2.213	1568.	.7840	.9771	.7931	23.36	.9038	.000227
.741	2.316	1641.	.7834	.9771	.7925	23.34	.8971	.000240
.767	2.395	1697.	.7876	.9775	.7966	23.47	.8919	.000250
.798	2.494	1768.	.7989	.9785	.8076	23.79	.8851	.000262
.842	2.629	1863.	.7959	.9783	.8047	23.71	.8756	.000280
.872	2.724	1931.	.8012	.9788	.8099	23.86	.8687	.000293
.913	2.851	2021.	.7995	.9786	.8081	23.81	.8592	.000310
.947	2.959	2096.	.8107	.9797	.8190	24.13	.8509	.000325
.988	3.085	2186.	.8100	.9796	.8184	24.11	.8407	.000343
1.018	3.181	2254.	.8198	.9805	.8279	24.40	.8329	.000357
1.046	3.268	2316.	.8238	.9809	.8318	24.52	.8255	.000370
1.090	3.407	2414.	.8267	.9812	.8346	24.60	.8135	.000391
1.130	3.530	2501.	.8380	.9823	.8455	24.93	.8025	.000410

TABLE A 5. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOF	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.160	3.625	2569.	.8380	.9823	.8455	24.93	.7937	.000425
1.183	3.696	2619.	.8380	.9823	.8455	24.93	.7870	.000436
1.234	3.855	2732.	.8425	.9828	.8498	25.06	.7717	.000462
1.299	4.057	2875.	.8481	.9833	.8552	25.22	.7514	.000495
1.327	4.145	2937.	.8564	.9842	.8632	25.46	.7424	.000510
1.362	4.256	3016.	.8608	.9846	.8675	25.58	.7307	.000529
1.405	4.390	3111.	.8619	.9847	.8686	25.62	.7161	.000553
1.437	4.490	3182.	.8691	.9855	.8754	25.82	.7051	.000570
1.473	4.601	3260.	.8658	.9851	.8723	25.73	.6926	.000590
1.508	4.712	3339.	.8750	.9861	.8812	25.99	.6798	.000610
1.544	4.823	3418.	.8772	.9863	.8832	26.06	.6668	.000630
1.595	4.981	3530.	.8831	.9869	.8889	26.23	.6478	.000660
1.635	5.108	3620.	.8873	.9874	.8930	26.35	.6323	.000683
1.676	5.235	3710.	.8958	.9883	.9011	26.59	.6165	.000707
1.714	5.354	3794.	.8898	.9876	.8954	26.42	.6014	.000730
1.804	5.636	3994.	.9018	.9889	.9069	26.77	.5648	.000784
1.855	5.795	4106.	.9127	.9901	.9173	27.08	.5437	.000815
1.907	5.957	4222.	.9121	.9900	.9167	27.06	.5218	.000847
1.945	6.076	4306.	.9212	.9910	.9254	27.32	.5055	.000870
1.996	6.235	4418.	.9201	.9909	.9243	27.29	.4836	.000902
2.019	6.306	4469.	.9256	.9915	.9296	27.45	.4737	.000916
2.057	6.425	4553.	.9317	.9922	.9354	27.62	.4571	.000939
2.123	6.632	4699.	.9377	.9928	.9411	27.79	.4280	.000980
2.164	6.758	4789.	.9380	.9928	.9414	27.80	.4101	.001005
2.208	6.897	4888.	.9434	.9934	.9465	27.96	.3904	.001032
2.247	7.020	4975.	.9481	.9940	.9509	28.09	.3729	.001056
2.306	7.203	5104.	.9513	.9943	.9540	28.18	.3470	.001091
2.360	7.373	5225.	.9570	.9950	.9594	28.34	.3228	.001124
2.395	7.480	5301.	.9578	.9951	.9601	28.37	.3077	.001144
2.438	7.615	5397.	.9600	.9953	.9622	28.43	.2888	.001169
2.495	7.794	5523.	.9651	.9959	.9671	28.58	.2640	.001202
2.537	7.925	5616.	.9675	.9962	.9693	28.64	.2458	.001226
2.584	8.071	5720.	.9721	.9967	.9737	28.78	.2261	.001252
2.632	8.222	5827.	.9733	.9968	.9748	28.81	.2059	.001278
2.663	8.317	5894.	.9779	.9974	.9792	28.94	.1934	.001294
2.710	8.464	5998.	.9816	.9978	.9827	29.05	.1744	.001319
2.766	8.639	6122.	.9793	.9975	.9805	28.98	.1523	.001347
2.797	8.738	6192.	.9827	.9979	.9837	29.08	.1401	.001363
2.835	8.857	6276.	.9866	.9984	.9874	29.19	.1257	.001381
2.876	8.984	6366.	.9907	.9989	.9912	29.30	.1108	.001400
2.908	9.083	6437.	.9929	.9991	.9933	29.37	.0994	.001415
2.947	9.206	6524.	.9893	.9987	.9899	29.26	.0856	.001432
2.983	9.317	6602.	.9870	.9984	.9878	29.20	.0736	.001447
3.030	9.464	6706.	.9922	.9990	.9926	29.35	.0583	.001466
3.069	9.587	6794.	.9933	.9992	.9937	29.38	.0461	.001482
3.121	9.749	6909.	.9968	.9996	.9970	29.48	.0306	.001501
3.168	9.896	7013.	.9923	.9991	.9928	29.35	.0175	.001517
3.208	10.019	7100.	.9959	.9995	.9961	29.45	.0069	.001530
3.268	10.209	7235.	.9959	.9995	.9961	29.45	0.0000	.001539
3.319	10.368	7347.	.9979	.9997	.9980	29.51	0.0000	.001539
3.387	10.578	7496.	1.0026	1.0003	1.0024	29.64	0.0000	.001539
3.418	10.677	7567.	1.0026	1.0003	1.0024	29.64	0.0000	.001539
3.464	10.820	7668.	.9997	.9999	.9997	29.56	0.0000	.001539
3.553	11.098	7865.	.9950	.9994	.9953	29.43	0.0000	.001539
3.647	11.391	8073.	1.0021	1.0002	1.0020	29.63	0.0000	.001539
3.690	11.526	8168.	1.0008	1.0001	1.0008	29.59	0.0000	.001539

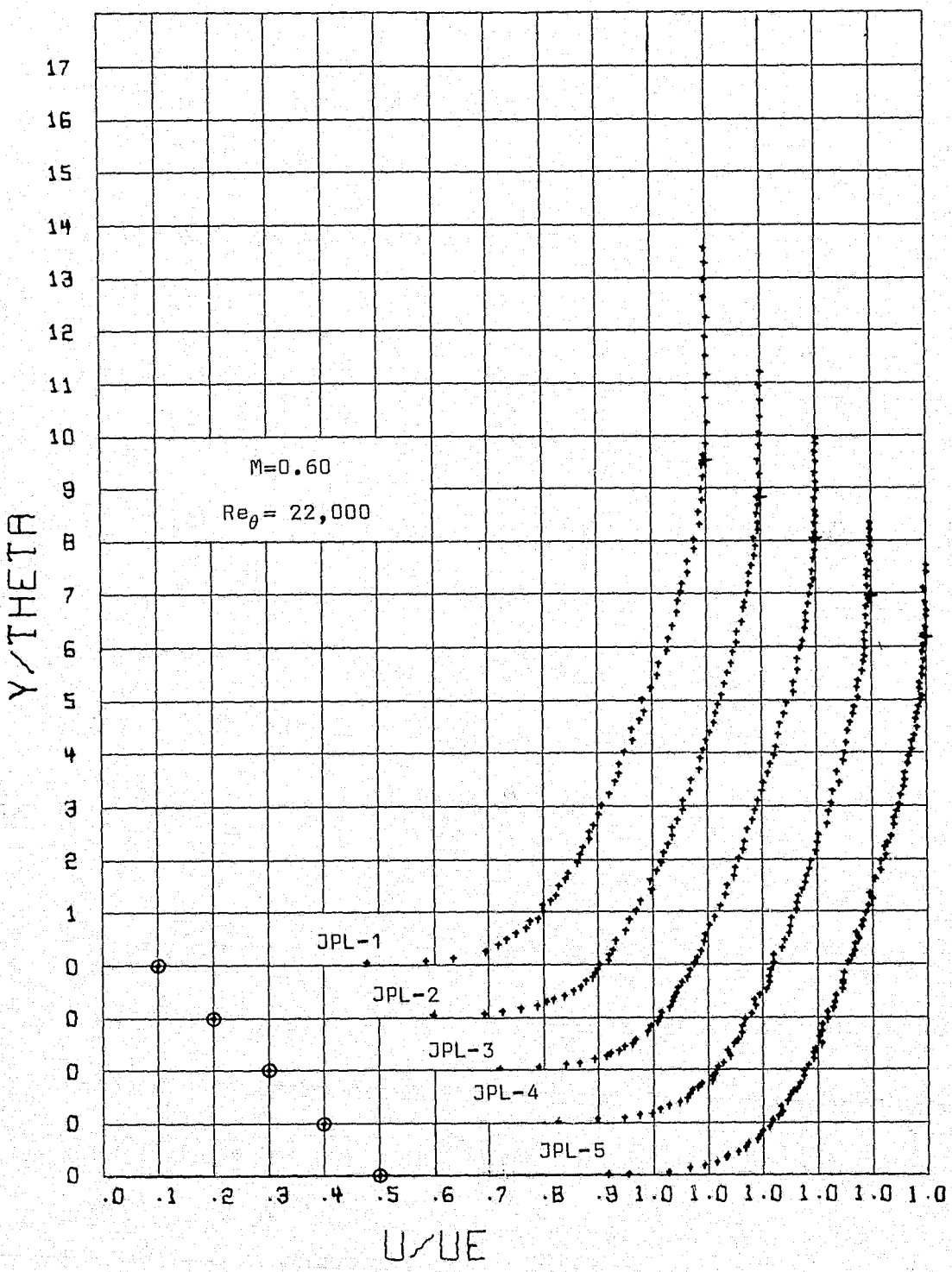

Figure A5. Mean Velocity Profiles.

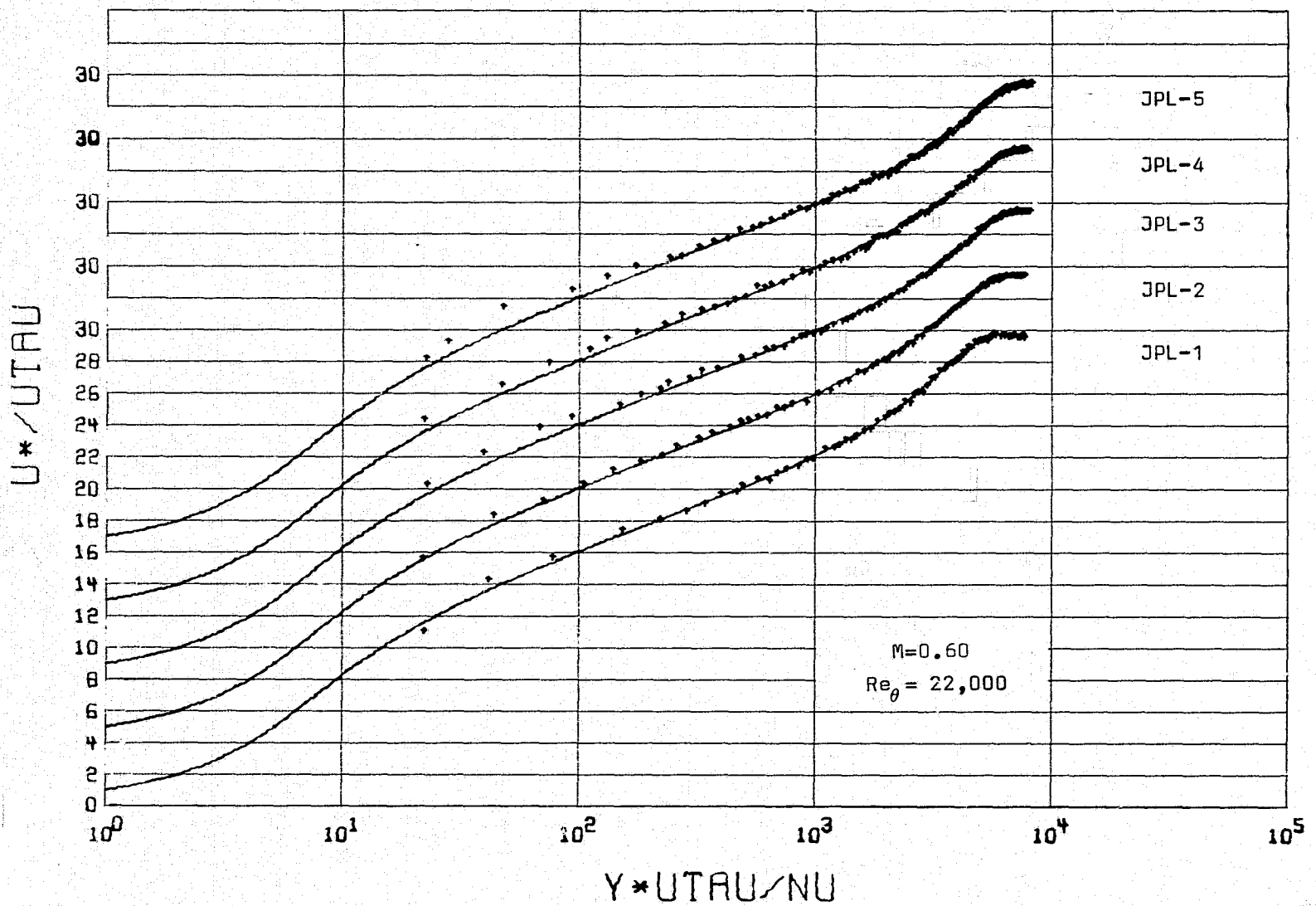

Figure A6. Van Driest Scaled Mean Velocity Profiles.

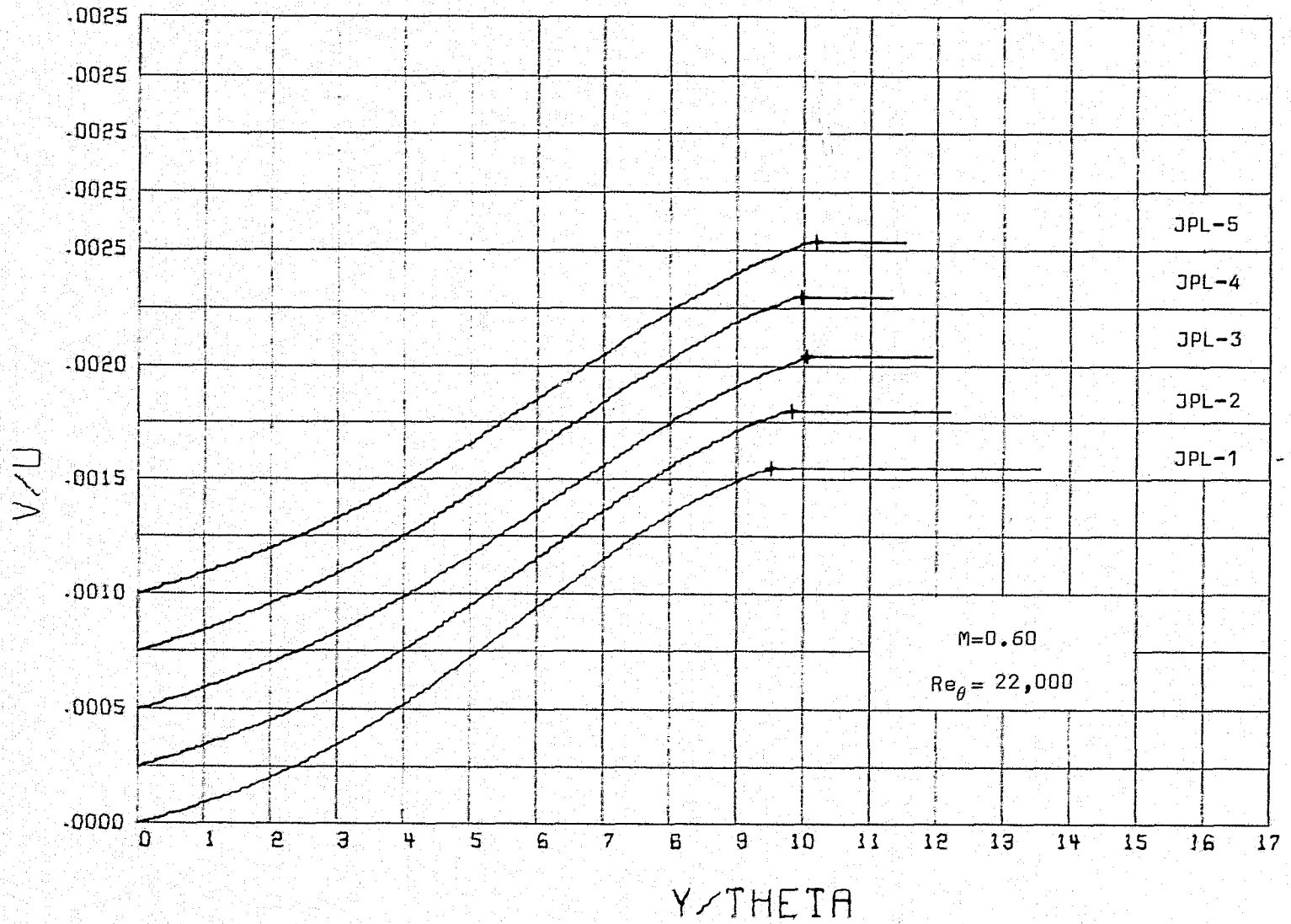

Figure A7. Normal Velocity Distribution.

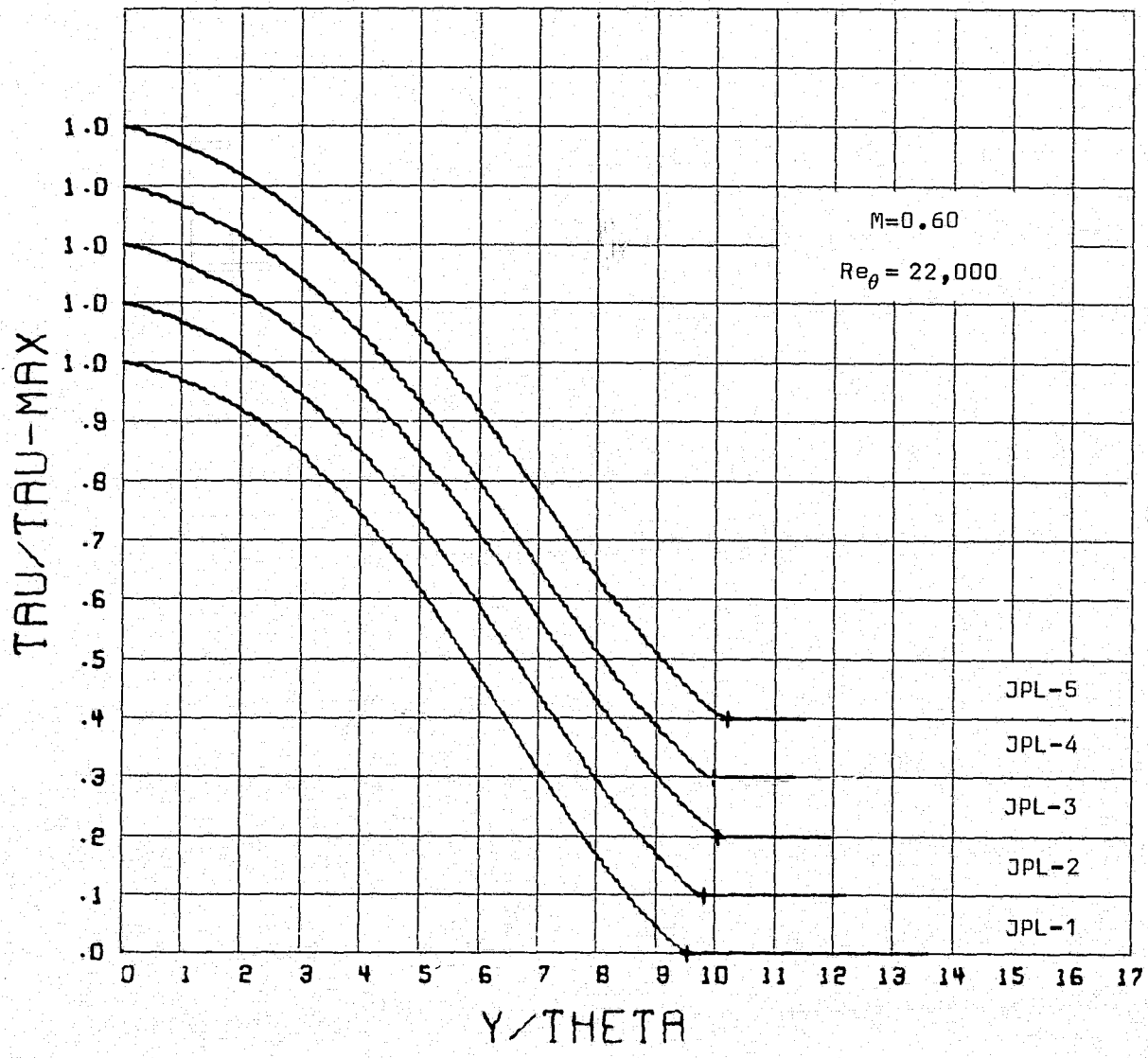

Figure A8. Shear Stress Distribution.

TABLE A 6. DATA SUMMARY
PROFILE - JPL-1 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5973 TOTAL PRESSURE= .1263E+06 N/M**2
X=-48.43 CM TOTAL TEMPERATURE= 315.93 DEG-K

UE= 205.88 M/SEC DELTA STAR= .3325 CM THETA= .2344 CM H= 1.418
RE-DELTA-STAR= 44630. RE-THETA= 31460. NUWALL= .1761 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.8636 M/SEC CF= .002090 PI= .6124 DELTA= 2.4128 CM
CHISQR= .1056E-04 YMAX= 2.274 CM YMIN= .038 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9405	0.0000	0.00	1.0000	0.000000
.010	.043	39.	.4499	.9526	.4609	13.85	1.0000	0.000000
.022	.097	89.	.5296	.9572	.5413	16.28	.9989	.000005
.038	.162	148.	.5663	.9596	.5781	17.40	.9974	.000010
.052	.222	202.	.5920	.9614	.6038	18.17	.9958	.000016
.074	.319	292.	.6206	.9634	.6323	19.04	.9930	.000024
.091	.390	356.	.6309	.9642	.6425	19.35	.9909	.000030
.102	.438	400.	.6500	.9656	.6614	19.92	.9893	.000034
.134	.574	524.	.6630	.9667	.6743	20.32	.9847	.000046
.151	.644	589.	.6673	.9670	.6786	20.44	.9822	.000053
.163	.698	638.	.6857	.9685	.6968	21.00	.9802	.000058
.181	.774	707.	.6878	.9686	.6988	21.06	.9773	.000064
.194	.829	757.	.6950	.9692	.7059	21.28	.9752	.000069
.219	.937	856.	.7076	.9703	.7183	21.65	.9708	.000079
.240	1.023	935.	.7035	.9699	.7143	21.53	.9672	.000087
.255	1.088	994.	.7203	.9714	.7308	22.04	.9644	.000093
.293	1.208	1103.	.7226	.9716	.7331	22.11	.9591	.000105
.313	1.338	1222.	.7330	.9725	.7433	22.42	.9530	.000117
.331	1.413	1291.	.7396	.9730	.7498	22.61	.9494	.000125
.359	1.533	1400.	.7452	.9735	.7552	22.78	.9435	.000137
.394	1.684	1539.	.7518	.9741	.7617	22.98	.9356	.000152
.414	1.765	1613.	.7574	.9746	.7672	23.14	.9313	.000161
.449	1.917	1752.	.7647	.9753	.7743	23.36	.9228	.000177
.481	2.053	1876.	.7722	.9760	.7817	23.59	.9149	.000192
.509	2.172	1984.	.7791	.9766	.7884	23.79	.9077	.000206
.549	2.345	2143.	.7857	.9772	.7948	23.99	.8967	.000226
.575	2.453	2242.	.7958	.9782	.8046	24.29	.8895	.000239
.605	2.583	2361.	.7975	.9783	.8063	24.34	.8807	.000254
.640	2.730	2494.	.8010	.9787	.8097	24.44	.8703	.000273
.670	2.860	2613.	.8058	.9791	.8143	24.58	.8607	.000289
.706	3.011	2752.	.8127	.9798	.8211	24.79	.8491	.000309
.730	3.114	2846.	.8188	.9804	.8269	24.97	.8409	.000323
.769	3.282	2999.	.8271	.9812	.8350	25.22	.8271	.000346
.802	3.423	3128.	.8321	.9817	.8398	25.37	.8150	.000366
.836	3.569	3262.	.8347	.9819	.8424	25.44	.8020	.000387
.882	3.764	3440.	.8439	.9829	.8512	25.72	.7840	.000416
.930	3.970	3628.	.8481	.9833	.8553	25.84	.7641	.000448
.975	4.160	3801.	.8602	.9845	.8669	26.20	.7449	.000478
1.024	4.371	3994.	.8657	.9851	.8722	26.36	.7227	.000512
1.065	4.545	4153.	.8694	.9854	.8758	26.47	.7038	.000540
1.103	4.707	4301.	.8789	.9864	.8849	26.75	.6855	.000568

TABLE A 6. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.167	4.978	4549.	.8850	.9871	.8907	26.93	.6539	.000615
1.205	5.140	4697.	.8885	.9874	.8941	27.03	.6342	.000643
1.240	5.292	4836.	.8970	.9894	.9023	27.28	.6154	.000670
1.280	5.460	4989.	.9030	.9890	.9080	27.46	.5943	.000700
1.324	5.650	5162.	.9067	.9894	.9115	27.57	.5698	.000735
1.365	5.823	5321.	.9121	.9900	.9167	27.73	.5470	.000767
1.410	6.018	5499.	.9177	.9906	.9220	27.89	.5207	.000803
1.437	6.132	5603.	.9238	.9912	.9279	28.07	.5055	.000824
1.482	6.321	5776.	.9243	.9913	.9283	28.08	.4795	.000859
1.522	6.495	5934.	.9327	.9922	.9364	28.33	.4555	.000891
1.581	6.744	6162.	.9357	.9926	.9392	28.42	.4207	.000938
1.621	6.917	6321.	.9416	.9932	.9448	28.59	.3963	.000970
1.677	7.156	6538.	.9482	.9940	.9511	28.79	.3627	.001014
1.738	7.416	6776.	.9532	.9945	.9558	28.93	.3262	.001061
1.783	7.605	6949.	.9560	.9948	.9584	29.01	.2997	.001094
1.847	7.881	7202.	.9688	.9963	.9706	29.39	.2616	.001143
1.911	8.152	7449.	.9749	.9970	.9763	29.56	.2250	.001188
1.967	8.391	7667.	.9759	.9971	.9773	29.60	.1933	.001227
2.015	8.597	7855.	.9796	.9976	.9808	29.70	.1674	.001259
2.070	8.829	8068.	.9826	.9979	.9836	29.79	.1387	.001294
2.112	9.008	8231.	.9849	.9982	.9858	29.86	.1175	.001320
2.160	9.214	8419.	.9879	.9985	.9886	29.94	.0942	.001348
2.195	9.366	8558.	.9888	.9986	.9895	29.97	.0777	.001368
2.233	9.528	8706.	.9905	.9988	.9910	30.02	.0609	.001388
2.274	9.702	8865.	.9924	.9991	.9929	30.08	.0439	.001408
2.320	9.897	9043.	.9921	.9990	.9926	30.07	.0260	.001430
2.368	10.103	9231.	.9964	.9995	.9966	30.19	.0083	.001450
2.421	10.330	9439.	.9948	.9993	.9951	30.14	0.0000	.001460
2.459	10.493	9588.	.9977	.9997	.9978	30.23	0.0000	.001460
2.555	10.899	9959.	.9974	.9996	.9975	30.22	0.0000	.001460
2.647	11.294	10320.	1.0012	1.0001	1.0012	30.33	0.0000	.001460
2.759	11.771	10756.	1.0019	1.0002	1.0018	30.35	0.0000	.001460
2.856	12.183	11132.	1.0006	1.0000	1.0006	30.31	0.0000	.001460
2.954	12.600	11513.	1.0003	1.0000	1.0003	30.31	0.0000	.001460
3.037	12.957	11840.	1.0012	1.0001	1.0012	30.33	0.0000	.001460
3.138	13.385	12231.	1.0000	.9999	1.0000	30.30	0.0000	.001460
3.219	13.732	12548.	1.0003	1.0000	1.0003	30.31	0.0000	.001460
3.298	14.068	12855.	1.0016	1.0001	1.0015	30.34	0.0000	.001460
3.374	14.393	13152.	.9987	.9998	.9987	30.26	0.0000	.001460
3.455	14.740	13468.	1.0006	1.0000	1.0006	30.31	0.0000	.001460
3.531	15.065	13765.	.9996	.9999	.9996	30.29	0.0000	.001460
3.618	15.433	14102.	.9980	.9997	.9981	30.24	0.0000	.001460
3.709	15.823	14458.	1.0006	1.0000	1.0006	30.31	0.0000	.001460

TABLE A 6. (CONT.)
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5964 TOTAL PRESSURE= .1270E+06 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 324.18 DEG-K

UE= 208.25 M/SEC DELTA STAR= .3803 CM THETA= .2689 CM H= 1.414
RE-DELTA-STAR= 48550. RE-THETA= 34330. NUWALL= .1832 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.8864 M/SEC CF= .002057 PI= .6124 DELTA= 2.7680 CM
CHISQR= .1319E-04 YMAX= 2.602 CM YMIN= .026 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9407	0.0000	0.00	1.0000	0.000000
.010	.037	38.	.4484	.9526	.4594	13.92	1.0000	0.000000
.026	.099	100.	.5307	.9574	.5424	16.45	.9988	.000005
.054	.203	205.	.5912	.9614	.6029	18.30	.9963	.000014
.076	.283	286.	.6163	.9632	.6280	19.06	.9941	.000021
.100	.373	377.	.6365	.9647	.6480	19.67	.9914	.000028
.121	.453	458.	.6553	.9662	.6667	20.25	.9888	.000035
.139	.519	525.	.6629	.9667	.6742	20.48	.9866	.000041
.160	.595	601.	.6737	.9676	.6848	20.80	.9840	.000047
.190	.708	716.	.6841	.9684	.6951	21.12	.9799	.000057
.201	.750	759.	.6928	.9692	.7038	21.38	.9783	.000061
.228	.850	859.	.7034	.9700	.7142	21.70	.9745	.000069
.261	.972	983.	.7085	.9705	.7192	21.86	.9695	.000080
.281	1.048	1059.	.7184	.9713	.7289	22.16	.9663	.000087
.317	1.180	1193.	.7267	.9720	.7371	22.41	.9606	.000099
.353	1.312	1327.	.7366	.9729	.7468	22.71	.9546	.000112
.383	1.426	1441.	.7372	.9729	.7474	22.73	.9492	.000122
.415	1.544	1561.	.7489	.9739	.7588	23.08	.9434	.000134
.452	1.681	1699.	.7555	.9745	.7653	23.28	.9364	.000148
.471	1.752	1771.	.7600	.9749	.7697	23.41	.9326	.000155
.500	1.860	1880.	.7656	.9754	.7752	23.58	.9267	.000166
.548	2.040	2062.	.7673	.9756	.7768	23.63	.9164	.000185
.568	2.115	2138.	.7746	.9763	.7840	23.85	.9120	.000193
.594	2.210	2234.	.7796	.9767	.7888	24.00	.9062	.000204
.633	2.356	2382.	.7853	.9772	.7944	24.17	.8970	.000220
.659	2.451	2477.	.7882	.9775	.7972	24.26	.8908	.000231
.683	2.540	2568.	.7950	.9782	.8038	24.46	.8848	.000241
.716	2.663	2692.	.7982	.9785	.8070	24.56	.8763	.000256
.753	2.800	2830.	.8047	.9791	.8132	24.75	.8665	.000273
.777	2.890	2921.	.8113	.9797	.8196	24.95	.8599	.000284
.816	3.036	3069.	.8174	.9803	.8256	25.13	.8486	.000303
.840	3.126	3160.	.8172	.9803	.8253	25.13	.8416	.000315
.876	3.258	3294.	.8301	.9815	.8378	25.51	.8308	.000332
.906	3.372	3408.	.8286	.9814	.8365	25.47	.8214	.000348
.938	3.490	3527.	.8346	.9820	.8422	25.65	.8112	.000364
.960	3.570	3609.	.8377	.9823	.8452	25.74	.8041	.000375
.984	3.660	3699.	.8399	.9825	.8473	25.81	.7960	.000388
1.018	3.787	3828.	.8423	.9827	.8497	25.88	.7843	.000407
1.051	3.910	3952.	.8500	.9835	.8571	26.11	.7726	.000425
1.084	4.033	4076.	.8524	.9838	.8594	26.18	.7606	.000443
1.109	4.127	4172.	.8595	.9845	.8663	26.39	.7511	.000458

TABLE A 6. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.136	4.226	4272.	.8593	.9845	.8660	26.38	.7410	.000473
1.168	4.344	4392.	.8652	.9851	.8717	26.56	.7287	.000492
1.196	4.448	4497.	.8705	.9856	.8768	26.72	.7177	.000508
1.221	4.543	4592.	.8744	.9860	.8805	26.83	.7074	.000523
1.254	4.666	4716.	.8728	.9858	.8790	26.79	.6938	.000543
1.292	4.769	4821.	.8780	.9864	.8840	26.94	.6821	.000561
1.313	4.883	4936.	.8871	.9873	.8928	27.21	.6691	.000580
1.343	4.996	5050.	.8860	.9872	.8917	27.18	.6558	.000599
1.376	5.119	5174.	.8880	.9874	.8937	27.24	.6412	.000620
1.408	5.237	5294.	.8952	.9882	.9005	27.45	.6269	.000640
1.446	5.379	5437.	.9010	.9888	.9061	27.62	.6094	.000664
1.474	5.483	5542.	.9070	.9894	.9118	27.80	.5964	.000683
1.510	5.615	5676.	.9071	.9895	.9119	27.80	.5796	.000706
1.534	5.705	5766.	.9078	.9895	.9126	27.83	.5680	.000722
1.564	5.818	5881.	.9129	.9901	.9175	27.98	.5533	.000742
1.600	5.950	6015.	.9176	.9906	.9219	28.11	.5359	.000766
1.630	6.064	6129.	.9177	.9906	.9220	28.12	.5208	.000786
1.661	6.177	6244.	.9224	.9911	.9265	28.26	.5056	.000806
1.699	6.319	6387.	.9284	.9918	.9322	28.43	.4864	.000832
1.720	6.399	6468.	.9263	.9915	.9302	28.37	.4754	.000947
1.760	6.545	6616.	.9348	.9925	.9383	28.62	.4554	.000873
1.791	6.663	6736.	.9345	.9925	.9380	28.62	.4391	.000894
1.826	6.791	6864.	.9387	.9929	.9421	28.74	.4215	.000917
1.861	6.923	6998.	.9439	.9935	.9470	28.89	.4032	.000941
1.894	7.046	7122.	.9471	.9939	.9501	28.99	.3861	.000963
1.932	7.188	7265.	.9499	.9942	.9527	29.07	.3664	.000988
1.971	7.329	7409.	.9517	.9944	.9543	29.12	.3467	.001013
2.004	7.452	7533.	.9575	.9950	.9598	29.29	.3295	.001034
2.037	7.575	7657.	.9603	.9953	.9625	29.38	.3129	.001056
2.072	7.707	7791.	.9632	.9957	.9653	29.46	.2948	.001078
2.100	7.811	7896.	.9633	.9957	.9654	29.47	.2806	.001095
2.124	7.901	7986.	.9660	.9960	.9680	29.55	.2685	.001110
2.161	8.038	8125.	.9674	.9962	.9693	29.59	.2502	.001133
2.214	8.236	8325.	.9728	.9968	.9744	29.75	.2241	.001165
2.258	8.397	8488.	.9778	.9974	.9791	29.89	.2034	.001190
2.303	8.567	8659.	.9785	.9974	.9797	29.91	.1819	.001216
2.358	8.770	8865.	.9845	.9981	.9854	30.09	.1571	.001246
2.400	8.926	9022.	.9828	.9979	.9838	30.04	.1386	.001268
2.452	9.119	9218.	.9884	.9986	.9891	30.20	.1165	.001294
2.504	9.313	9414.	.9891	.9987	.9897	30.22	.0954	.001319
2.542	9.454	9557.	.9911	.9989	.9916	30.28	.0807	.001336
2.607	9.676	9781.	.9917	.9990	.9922	30.30	.0589	.001362
2.654	9.870	9977.	.9940	.9992	.9944	30.37	.0412	.001383
2.702	10.050	10158.	.9976	.9997	.9977	30.47	.0260	.001400
2.753	10.238	10349.	.9956	.9994	.9959	30.42	.0114	.001417
2.828	10.517	10631.	.9979	.9997	.9980	30.48	0.0000	.001431
2.877	10.701	10817.	.9973	.9996	.9974	30.46	0.0000	.001431
2.992	11.126	11247.	.9976	.9997	.9977	30.47	0.0000	.001431
3.106	11.551	11677.	.9995	.9999	.9996	30.53	0.0000	.001431
3.185	11.844	11973.	.9989	.9998	.9990	30.51	0.0000	.001431
3.290	12.236	12369.	.9980	.9997	.9981	30.48	0.0000	.001431
3.371	12.538	12674.	.9999	.9999	.9999	30.54	0.0000	.001431
3.455	12.850	12989.	.9980	.9997	.9981	30.48	0.0000	.001431
3.545	13.185	13328.	1.0008	1.0001	1.0008	30.57	0.0000	.001431
3.619	13.459	13605.	.9999	.9999	.9999	30.54	0.0000	.001431
3.693	13.733	13882.	1.0002	1.0000	1.0002	30.55	0.0000	.001431

TABLE A 6. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5952 TOTAL PRESSURE= .1266E+06 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 318.36 DEG-K

UE= 205.97 M/SEC DELTA STAR= .3948 CM THETA= .2801 CM H= 1.409
RE-DELTA-STAR= 52540. RE-THETA= 37280. NUWALL= .1776 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.8091 M/SEC CF= .002056 PI= .5733 DELTA= 2.9440 CM
CHISQR= .8678E-05 YMAX= 2.759 CM YMIN= .033 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9409	0.0000	0.00	1.0000	0.000000
.010	.036	38.	.4257	.9516	.4364	13.22	1.0000	0.000000
.016	.058	63.	.4683	.9539	.4795	14.53	.9995	.000002
.033	.117	126.	.5394	.9581	.5510	16.72	.9983	.000007
.054	.194	209.	.5874	.9613	.5991	18.18	.9963	.000013
.074	.267	287.	.6152	.9633	.6268	19.03	.9943	.000020
.100	.358	384.	.6320	.9645	.6435	19.54	.9916	.000027
.107	.385	413.	.6483	.9657	.6597	20.04	.9907	.000030
.130	.466	501.	.6587	.9665	.6700	20.35	.9880	.000037
.152	.543	584.	.6625	.9668	.6738	20.47	.9853	.000043
.166	.593	637.	.6732	.9677	.6844	20.79	.9836	.000048
.191	.684	735.	.6865	.9688	.6975	21.20	.9802	.000055
.214	.766	822.	.6942	.9694	.7050	21.43	.9771	.000063
.247	.883	949.	.7052	.9703	.7159	21.76	.9724	.000073
.265	.947	1017.	.7139	.9710	.7245	22.03	.9698	.000079
.295	1.056	1134.	.7247	.9719	.7351	22.35	.9652	.000089
.328	1.174	1261.	.7250	.9720	.7354	22.36	.9600	.000100
.359	1.282	1377.	.7387	.9731	.7488	22.78	.9550	.000110
.410	1.464	1572.	.7529	.9744	.7627	23.20	.9463	.000127
.443	1.582	1699.	.7574	.9748	.7671	23.34	.9404	.000139
.469	1.677	1801.	.7670	.9757	.7765	23.63	.9354	.000148
.501	1.790	1923.	.7640	.9754	.7735	23.54	.9294	.000159
.532	1.899	2040.	.7705	.9760	.7799	23.73	.9234	.000171
.577	2.062	2215.	.7811	.9769	.7903	24.05	.9140	.000188
.612	2.184	2346.	.7810	.9769	.7901	24.05	.9066	.000201
.628	2.243	2410.	.7891	.9777	.7981	24.29	.9030	.000208
.666	2.379	2556.	.7953	.9783	.8041	24.48	.8944	.000223
.692	2.470	2653.	.7970	.9784	.8057	24.53	.8885	.000233
.722	2.579	2770.	.8039	.9791	.8125	24.74	.8812	.000246
.760	2.715	2916.	.8031	.9790	.8116	24.71	.8718	.000262
.788	2.815	3023.	.8121	.9799	.8203	24.98	.8646	.000274
.816	2.914	3130.	.8153	.9802	.8235	25.08	.8573	.000286
.839	2.996	3218.	.8170	.9803	.8251	25.13	.8512	.000296
.880	3.141	3374.	.8224	.9809	.8304	25.29	.8400	.000315
.911	3.254	3496.	.8264	.9812	.8342	25.41	.8309	.000330
.938	3.349	3598.	.8318	.9818	.8394	25.57	.8230	.000342
.974	3.476	3734.	.8388	.9825	.8462	25.78	.8125	.000359
1.012	3.612	3880.	.8390	.9825	.8464	25.78	.8007	.000378
1.032	3.685	3958.	.8450	.9831	.8523	25.97	.7942	.000388
1.065	3.803	4085.	.8460	.9832	.8532	26.00	.7835	.000405
1.108	3.957	4250.	.8475	.9833	.8546	26.04	.7691	.000427

TABLE A 6. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.140	4.070	4372.	.8551	.9841	.8620	26.27	.7582	.000444
1.170	4.179	4489.	.8622	.9848	.8688	26.48	.7475	.000460
1.207	4.311	4630.	.8648	.9851	.8713	26.55	.7343	.000480
1.277	4.560	4898.	.8709	.9857	.8771	26.73	.7082	.000519
1.310	4.678	5024.	.8753	.9862	.8814	26.87	.6955	.000537
1.355	4.836	5195.	.8761	.9862	.8821	26.89	.6780	.000563
1.395	4.981	5351.	.8896	.9876	.8951	27.29	.6616	.000587
1.426	5.090	5468.	.8898	.9877	.8954	27.30	.6490	.000604
1.464	5.226	5614.	.8940	.9881	.8993	27.42	.6331	.000627
1.508	5.385	5784.	.8969	.9884	.9021	27.51	.6140	.000654
1.549	5.530	5940.	.9053	.9893	.9102	27.76	.5963	.000679
1.586	5.661	6081.	.9079	.9896	.9127	27.84	.5800	.000701
1.629	5.815	6247.	.9096	.9898	.9143	27.89	.5605	.000728
1.662	5.933	6373.	.9146	.9903	.9190	28.03	.5455	.000748
1.697	6.060	6510.	.9200	.9909	.9242	28.20	.5290	.000771
1.731	6.178	6636.	.9230	.9912	.9271	28.28	.5136	.000791
1.769	6.314	6782.	.9248	.9914	.9288	28.34	.4957	.000815
1.789	6.387	6860.	.9268	.9916	.9306	28.39	.4861	.000828
1.828	6.527	7011.	.9310	.9921	.9347	28.52	.4673	.000853
1.868	6.668	7162.	.9349	.9925	.9384	28.63	.4484	.000878
1.906	6.804	7308.	.9381	.9929	.9414	28.73	.4299	.000902
1.960	6.999	7518.	.9410	.9932	.9442	28.82	.4034	.000936
2.000	7.139	7668.	.9452	.9937	.9482	28.94	.3842	.000960
2.034	7.262	7800.	.9511	.9943	.9538	29.11	.3675	.000982
2.068	7.384	7931.	.9518	.9944	.9544	29.13	.3507	.001003
2.095	7.479	8034.	.9539	.9946	.9564	29.20	.3378	.001019
2.150	7.674	8243.	.9594	.9953	.9617	29.36	.3114	.001053
2.175	7.765	8340.	.9604	.9954	.9626	29.39	.2991	.001068
2.218	7.919	8506.	.9626	.9956	.9646	29.45	.2784	.001094
2.261	8.073	8672.	.9669	.9961	.9688	29.58	.2579	.001119
2.299	8.209	8818.	.9710	.9966	.9727	29.70	.2398	.001141
2.330	8.318	8934.	.9750	.9970	.9765	29.82	.2258	.001158
2.372	8.467	9095.	.9741	.9969	.9756	29.79	.2066	.001182
2.418	8.631	9270.	.9758	.9971	.9771	29.84	.1860	.001206
2.456	8.767	9417.	.9791	.9975	.9803	29.94	.1692	.001227
2.485	8.871	9528.	.9795	.9976	.9807	29.95	.1565	.001242
2.529	9.029	9699.	.9841	.9981	.9850	30.09	.1376	.001265
2.620	9.351	10045.	.9865	.9984	.9873	30.15	.1011	.001309
2.670	9.533	10239.	.9907	.9989	.9913	30.28	.0817	.001331
2.713	9.687	10405.	.9901	.9988	.9907	30.26	.0659	.001349
2.759	9.850	10580.	.9921	.9990	.9926	30.32	.0498	.001368
2.815	10.049	10794.	.9928	.9991	.9932	30.34	.0315	.001390
2.848	10.167	10921.	.9937	.9992	.9941	30.37	.0212	.001402
2.899	10.349	11116.	.9960	.9995	.9963	30.44	.0063	.001419
2.948	10.525	11306.	.9970	.9996	.9972	30.46	0.0000	.001426
2.971	10.607	11393.	.9976	.9997	.9978	30.48	0.0000	.001426
3.067	10.947	11759.	.9967	.9996	.9969	30.45	0.0000	.001426
3.153	11.255	12090.	1.0000	.9999	1.0000	30.55	0.0000	.001426
3.249	11.600	12460.	.9993	.9999	.9993	30.53	0.0000	.001426
3.298	11.772	12645.	1.0000	.9999	1.0000	30.55	0.0000	.001426
3.380	12.067	12961.	1.0006	1.0000	1.0006	30.57	0.0000	.001426
3.445	12.298	13210.	.9990	.9998	.9990	30.52	0.0000	.001426
3.521	12.570	13502.	1.0003	1.0000	1.0003	30.56	0.0000	.001426
3.581	12.783	13731.	.9993	.9999	.9993	30.53	0.0000	.001426
3.625	12.942	13901.	1.0009	1.0001	1.0009	30.58	0.0000	.001426
3.689	13.168	14144.	.9990	.9998	.9990	30.52	0.0000	.001426

TABLE A 6. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5931 TOTAL PRESSURE= .1269E+06 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 323.70 DEG-K

UE= 207.02 M/SEC DELTA STAR= .4039 CM THETA= .2876 CM H= 1.404
RE-DELTA-STAR= 51210. RE-THETA= 36470. NUWALL= .1822 CM**2/SEC CF= .001994

LEAST SQUARE FIT PARAMETERS
UTAU= 6.8575 M/SEC CF= .002065 PI= .5509 DELTA= 3.0563 CM
CHISQR= .1842F-04 YMAX= 2.891 CM YMIN= .052 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9413	0.0000	0.00	1.0000	0.000000
.010	.035	38.	.4342	.9524	.4449	13.45	1.0000	0.000000
.024	.083	90.	.5340	.9580	.5455	16.51	.9990	.000004
.039	.136	147.	.5654	.9601	.5771	17.48	.9978	.000009
.052	.180	195.	.5926	.9619	.6042	18.30	.9967	.000012
.077	.269	291.	.6167	.9636	.6282	19.04	.9942	.000020
.091	.317	344.	.6381	.9652	.6495	19.69	.9928	.000024
.110	.383	415.	.6443	.9657	.6556	19.87	.9907	.000030
.128	.445	482.	.6565	.9666	.6678	20.25	.9887	.000035
.148	.516	558.	.6685	.9675	.6796	20.61	.9863	.000041
.177	.618	669.	.6822	.9686	.6932	21.02	.9826	.000050
.194	.675	731.	.6938	.9695	.7046	21.37	.9805	.000055
.219	.763	826.	.6989	.9700	.7096	21.53	.9771	.000063
.247	.860	931.	.7049	.9705	.7155	21.71	.9733	.000071
.276	.962	1041.	.7109	.9710	.7215	21.89	.9691	.000080
.302	1.050	1137.	.7227	.9719	.7330	22.24	.9654	.000088
.323	1.125	1218.	.7292	.9725	.7394	22.44	.9621	.000095
.364	1.266	1371.	.7360	.9733	.7480	22.70	.9557	.000108
.393	1.366	1481.	.7413	.9735	.7513	22.80	.9509	.000118
.422	1.470	1591.	.7463	.9740	.7562	22.95	.9460	.000127
.455	1.585	1715.	.7642	.9756	.7737	23.49	.9403	.000139
.488	1.699	1840.	.7589	.9751	.7685	23.33	.9343	.000150
.521	1.814	1964.	.7693	.9760	.7787	23.65	.9282	.000162
.545	1.964	2126.	.7740	.9764	.7832	23.79	.9199	.000177
.607	2.110	2284.	.7807	.9771	.7898	23.99	.9114	.000192
.657	2.286	2475.	.7852	.9775	.7941	24.12	.9007	.000211
.695	2.419	2619.	.7985	.9787	.8071	24.52	.8924	.000226
.740	2.574	2786.	.8003	.9789	.8088	24.57	.8822	.000244
.781	2.715	2939.	.8089	.9797	.8172	24.83	.8725	.000260
.824	2.865	3102.	.8180	.9806	.8261	25.10	.8619	.000278
.871	3.028	3278.	.8195	.9807	.8275	25.15	.8499	.000298
.910	3.165	3426.	.8176	.9805	.8257	25.09	.8395	.000315
.951	3.307	3580.	.8323	.9819	.8399	25.53	.8283	.000334
.985	3.426	3709.	.8366	.9824	.8441	25.66	.8186	.000349
1.045	3.633	3933.	.8389	.9826	.8462	25.73	.8010	.000377
1.087	3.779	4091.	.8437	.9831	.8510	25.87	.7882	.000397
1.136	3.951	4277.	.8512	.9838	.8582	26.10	.7726	.000421
1.182	4.110	4449.	.8579	.9845	.8646	26.29	.7576	.000444
1.225	4.260	4612.	.8666	.9854	.8730	26.55	.7430	.000467
1.266	4.401	4765.	.8682	.9855	.8745	26.60	.7289	.000488
1.296	4.507	4880.	.8669	.9854	.8733	26.56	.7181	.000504

TABLE A 6. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.340	4.728	5119.	.8791	.9866	.8850	26.92	.6949	.000538
1.410	4.905	5310.	.8812	.9869	.8870	26.99	.6757	.000566
1.447	5.033	5449.	.8840	.9871	.8897	27.07	.6614	.000587
1.503	5.227	5659.	.8913	.9879	.8967	27.28	.6393	.000618
1.555	5.408	5855.	.8954	.9883	.9007	27.41	.6181	.000648
1.596	5.549	6008.	.9002	.9888	.9053	27.55	.6013	.000671
1.649	5.735	6209.	.9124	.9901	.9169	27.91	.5784	.000703
1.695	5.894	6381.	.9142	.9903	.9186	27.96	.5590	.000730
1.734	6.031	6529.	.9163	.9905	.9206	28.02	.5418	.000753
1.774	6.167	6677.	.9210	.9911	.9251	28.17	.5244	.000777
1.817	6.318	6839.	.9271	.9917	.9309	28.34	.5051	.000803
1.865	6.486	7021.	.9279	.9918	.9317	28.37	.4833	.000832
1.929	6.706	7260.	.9343	.9925	.9378	28.56	.4543	.000870
1.974	6.865	7432.	.9407	.9932	.9439	28.75	.4332	.000897
2.023	7.033	7614.	.9424	.9934	.9455	28.80	.4108	.000926
2.059	7.161	7752.	.9491	.9941	.9519	28.99	.3937	.000948
2.104	7.315	7920.	.9492	.9942	.9520	29.00	.3731	.000975
2.153	7.488	8106.	.9540	.9947	.9565	29.14	.3500	.001004
2.189	7.611	8240.	.9572	.9950	.9595	29.23	.3335	.001025
2.239	7.784	8427.	.9603	.9954	.9625	29.33	.3106	.001054
2.296	7.982	8641.	.9634	.9957	.9655	29.42	.2844	.001086
2.336	8.124	8795.	.9685	.9963	.9703	29.57	.2659	.001109
2.381	8.278	8962.	.9716	.9967	.9732	29.66	.2459	.001134
2.424	8.428	9124.	.9736	.9969	.9751	29.72	.2267	.001158
2.462	8.561	9268.	.9746	.9970	.9761	29.75	.2100	.001178
2.508	8.720	9440.	.9760	.9972	.9774	29.79	.1903	.001202
2.551	8.870	9602.	.9781	.9974	.9793	29.85	.1721	.001224
2.590	9.007	9751.	.9840	.9981	.9850	30.02	.1558	.001244
2.640	9.179	9937.	.9858	.9983	.9866	30.07	.1358	.001267
2.683	9.329	10100.	.9864	.9984	.9872	30.09	.1189	.001288
2.724	9.470	10252.	.9874	.9985	.9882	30.12	.1034	.001306
2.766	9.616	10410.	.9888	.9986	.9894	30.16	.0880	.001324
2.805	9.753	10558.	.9894	.9987	.9900	30.18	.0740	.001341
2.848	9.903	10721.	.9927	.9991	.9932	30.28	.0593	.001358
2.891	10.053	10883.	.9944	.9993	.9947	30.32	.0452	.001375
2.932	10.195	11036.	.9934	.9992	.9938	30.30	.0325	.001390
2.978	10.353	11208.	.9963	.9995	.9966	30.38	.0191	.001405
3.026	10.521	11390.	.9967	.9996	.9969	30.39	.0057	.001421
3.070	10.676	11557.	.9993	.9999	.9993	30.47	0.0000	.001428
3.120	10.848	11744.	.9983	.9998	.9984	30.44	0.0000	.001428
3.163	10.998	11906.	1.0000	1.0000	1.0000	30.49	0.0000	.001428
3.209	11.157	12078.	.9996	.9999	.9997	30.48	0.0000	.001428
3.262	11.343	12279.	1.0000	1.0000	1.0000	30.49	0.0000	.001428
3.310	11.510	12461.	1.0013	1.0001	1.0012	30.53	0.0000	.001428
3.359	11.678	12642.	1.0006	1.0000	1.0006	30.51	0.0000	.001428
3.397	11.811	12786.	.9993	.9999	.9993	30.47	0.0000	.001428
3.441	11.965	12953.	1.0013	1.0001	1.0012	30.53	0.0000	.001428
3.486	12.120	13120.	1.0009	1.0001	1.0009	30.52	0.0000	.001428
3.542	12.314	13331.	.9996	.9999	.9996	30.48	0.0000	.001428
3.586	12.468	13498.	1.0009	1.0001	1.0009	30.52	0.0000	.001428
3.628	12.614	13656.	.9996	.9999	.9996	30.48	0.0000	.001428
3.667	12.751	13804.	1.0009	1.0001	1.0009	30.52	0.0000	.001428
3.712	12.906	13971.	.9986	.9998	.9987	30.45	0.0000	.001428

TABLE A 6. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .5935 TOTAL PRESSURE= .1266E+06 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 324.42 DEG-K

UE= 207.38 M/SEC DELTA STAR= .4218 CM THETA= .3003 CM H= 1.404
RE-DELTA-STAR= 53260. RE-THETA= 37930. NUWALL= .1832 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 6.8286 M/SEC CF= .002041 PI= .5760 DELTA= 3.1613 CM
CHISQR= .2270E-04 YMAX= 2.989 CM YMIN= .053 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9412	0.0000	0.00	1.0000	0.000000
.010	.033	37.	.4349	.9524	.4456	13.56	1.0000	0.000000
.013	.046	52.	.4752	.9545	.4864	14.80	.9997	.000001
.029	.097	108.	.5596	.9596	.5712	17.40	.9987	.000005
.053	.177	198.	.5970	.9622	.6086	18.55	.9968	.000012
.078	.262	293.	.6232	.9641	.6347	19.35	.9945	.000019
.107	.359	402.	.6443	.9656	.6557	19.99	.9916	.000027
.129	.431	482.	.6532	.9663	.6645	20.26	.9893	.000033
.153	.511	572.	.6707	.9677	.6818	20.80	.9866	.000040
.187	.625	700.	.6802	.9684	.6912	21.09	.9826	.000049
.223	.744	833.	.6937	.9695	.7045	21.50	.9782	.000060
.246	.820	918.	.7054	.9705	.7161	21.85	.9752	.000066
.274	.913	1022.	.7110	.9709	.7216	22.02	.9715	.000074
.306	1.018	1140.	.7209	.9718	.7312	22.32	.9671	.000084
.332	1.107	1240.	.7265	.9722	.7368	22.49	.9633	.000092
.360	1.200	1344.	.7243	.9720	.7346	22.43	.9592	.000100
.382	1.272	1424.	.7378	.9732	.7479	22.84	.9559	.000107
.414	1.378	1543.	.7426	.9736	.7526	22.98	.9510	.000117
.449	1.496	1675.	.7450	.9738	.7549	23.05	.9452	.000128
.482	1.606	1798.	.7548	.9747	.7646	23.35	.9397	.000138
.513	1.708	1912.	.7613	.9753	.7709	23.55	.9345	.000148
.546	1.818	2035.	.7618	.9753	.7714	23.56	.9286	.000159
.572	1.906	2134.	.7711	.9762	.7804	23.84	.9237	.000168
.599	1.995	2234.	.7750	.9765	.7843	23.96	.9187	.000177
.632	2.105	2357.	.7800	.9770	.7891	24.11	.9123	.000189
.679	2.262	2532.	.7881	.9777	.7971	24.36	.9029	.000206
.728	2.426	2717.	.7917	.9780	.8005	24.46	.8925	.000224
.773	2.574	2882.	.8032	.9791	.8117	24.81	.8828	.000240
.816	2.718	3043.	.8047	.9793	.8132	24.86	.8729	.000257
.853	2.841	3181.	.8135	.9801	.8217	25.12	.8642	.000272
.899	2.993	3351.	.8211	.9808	.8291	25.35	.8530	.000290
.937	3.120	3493.	.8210	.9809	.8289	25.34	.8434	.000306
.988	3.289	3682.	.8224	.9810	.8304	25.39	.8300	.000328
1.028	3.424	3834.	.8370	.9824	.8444	25.82	.8189	.000345
1.068	3.555	3981.	.8411	.9828	.8484	25.95	.8078	.000363
1.113	3.708	4151.	.8433	.9830	.8506	26.01	.7945	.000384
1.160	3.864	4326.	.8476	.9834	.8547	26.14	.7803	.000406
1.195	3.978	4454.	.8518	.9838	.8588	26.27	.7696	.000422
1.248	4.156	4653.	.8551	.9842	.8619	26.37	.7526	.000448
1.289	4.291	4804.	.8637	.9850	.8702	26.62	.7392	.000468
1.333	4.439	4970.	.8696	.9856	.8759	26.80	.7241	.000490

TABLE A 6. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.375	4.579	5126.	.8719	.9859	.8781	26.87	.7095	.000511
1.424	4.743	5311.	.8774	.9864	.8834	27.03	.6918	.000537
1.488	4.955	5548.	.8855	.9873	.8911	27.27	.6683	.000571
1.537	5.120	5732.	.8901	.9878	.8956	27.41	.6495	.000598
1.592	5.302	5936.	.8954	.9883	.9007	27.57	.6282	.000627
1.634	5.441	6092.	.8999	.9888	.9050	27.71	.6115	.000651
1.690	5.627	6300.	.9022	.9890	.9071	27.77	.5889	.000682
1.738	5.788	6480.	.9089	.9897	.9136	27.97	.5689	.000709
1.786	5.948	6660.	.9163	.9905	.9206	28.19	.5485	.000737
1.838	6.122	6854.	.9148	.9904	.9192	28.15	.5259	.000767
1.883	6.270	7020.	.9207	.9910	.9248	28.32	.5070	.000792
1.935	6.443	7214.	.9287	.9919	.9324	28.56	.4842	.000822
1.976	6.578	7365.	.9333	.9924	.9368	28.70	.4662	.000846
2.016	6.714	7517.	.9348	.9925	.9383	28.74	.4482	.000869
2.067	6.883	7706.	.9380	.9929	.9413	28.84	.4254	.000898
2.128	7.086	7933.	.9457	.9938	.9486	29.07	.3979	.000933
2.169	7.221	8085.	.9510	.9943	.9536	29.22	.3798	.000956
2.214	7.373	8255.	.9524	.9945	.9550	29.27	.3592	.000982
2.250	7.492	8388.	.9548	.9948	.9573	29.34	.3433	.001002
2.301	7.661	8577.	.9604	.9954	.9626	29.50	.3205	.001031
2.339	7.788	8719.	.9621	.9956	.9642	29.55	.3031	.001052
2.386	7.944	8894.	.9631	.9957	.9652	29.58	.2827	.001077
2.433	8.101	9070.	.9686	.9963	.9704	29.75	.2621	.001102
2.481	8.261	9249.	.9741	.9970	.9756	29.91	.2413	.001128
2.526	8.409	9415.	.9748	.9970	.9762	29.93	.2223	.001151
2.570	8.557	9581.	.9772	.9973	.9785	30.00	.2036	.001173
2.614	8.705	9746.	.9789	.9975	.9801	30.05	.1853	.001195
2.654	8.836	9893.	.9829	.9980	.9839	30.17	.1694	.001214
2.702	8.997	10073.	.9816	.9978	.9826	30.13	.1503	.001237
2.743	9.132	10225.	.9863	.9984	.9871	30.27	.1347	.001255
2.783	9.268	10376.	.9872	.9985	.9880	30.29	.1195	.001273
2.827	9.411	10537.	.9886	.9986	.9892	30.33	.1038	.001292
2.865	9.538	10679.	.9903	.9988	.9908	30.38	.0904	.001307
2.909	9.686	10845.	.9916	.9990	.9921	30.42	.0753	.001325
2.947	9.813	10987.	.9909	.9989	.9915	30.40	.0629	.001339
2.989	9.952	11143.	.9923	.9991	.9927	30.44	.0498	.001355
3.027	10.079	11285.	.9929	.9991	.9933	30.46	.0384	.001368
3.078	10.248	11474.	.9946	.9993	.9949	30.51	.0239	.001385
3.115	10.371	11612.	.9969	.9996	.9971	30.58	.0143	.001396
3.149	10.485	11739.	.9969	.9996	.9971	30.58	.0057	.001405
3.192	10.629	11900.	.9982	.9997	.9983	30.62	0.0000	.001412
3.233	10.764	12052.	.9982	.9997	.9983	30.62	0.0000	.001412
3.276	10.908	12213.	.9986	.9998	.9986	30.63	0.0000	.001412
3.314	11.035	12355.	.9982	.9997	.9983	30.62	0.0000	.001412
3.352	11.162	12497.	1.0002	1.0000	1.0002	30.68	0.0000	.001412
3.398	11.314	12667.	.9992	.9999	.9993	30.65	0.0000	.001412
3.431	11.424	12790.	.9999	.9999	.9999	30.67	0.0000	.001412
3.467	11.542	12923.	.9986	.9998	.9987	30.63	0.0000	.001412
3.497	11.644	13036.	.9989	.9998	.9990	30.64	0.0000	.001412
3.533	11.762	13169.	1.0009	1.0001	1.0008	30.70	0.0000	.001412
3.566	11.872	13292.	.9995	.9999	.9996	30.66	0.0000	.001412
3.596	11.974	13406.	.9982	.9997	.9983	30.62	0.0000	.001412
3.627	12.075	13519.	1.0002	1.0000	1.0002	30.68	0.0000	.001412
3.698	12.312	13784.	1.0009	1.0001	1.0008	30.70	0.0000	.001412

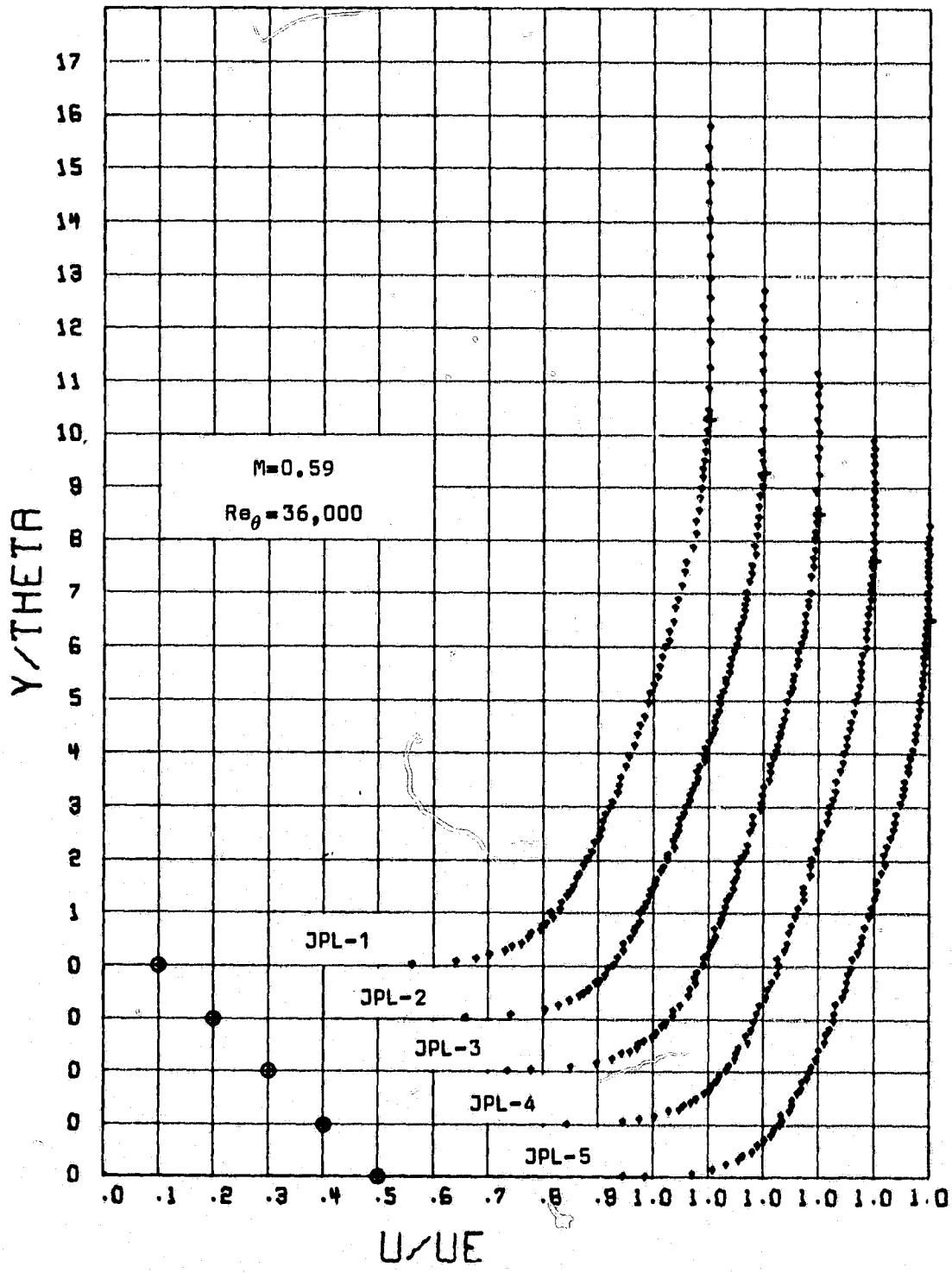

Figure A9. Mean Velocity Profiles.

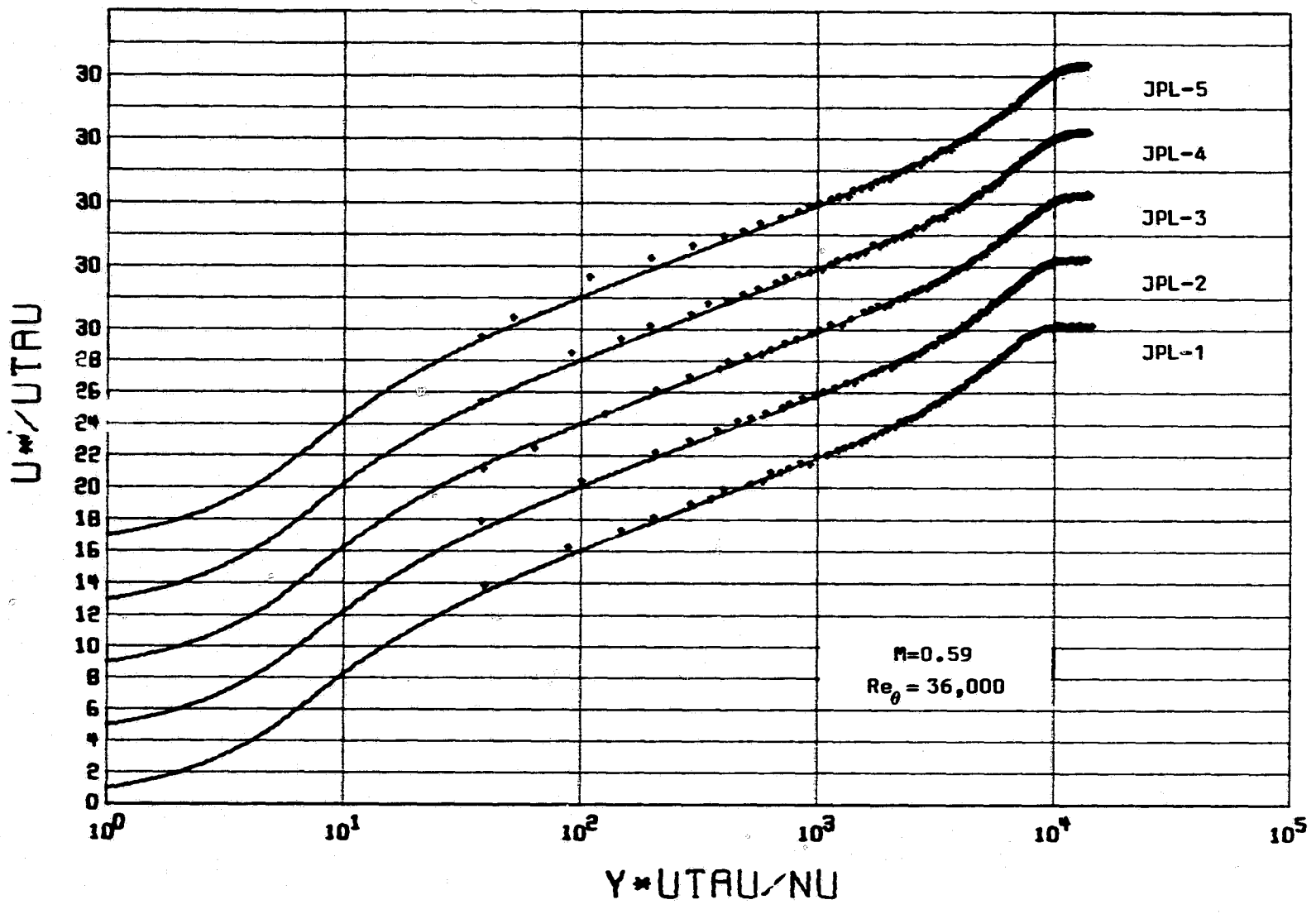

Figure A10. Van Driest Scaled Mean Velocity Profiles.

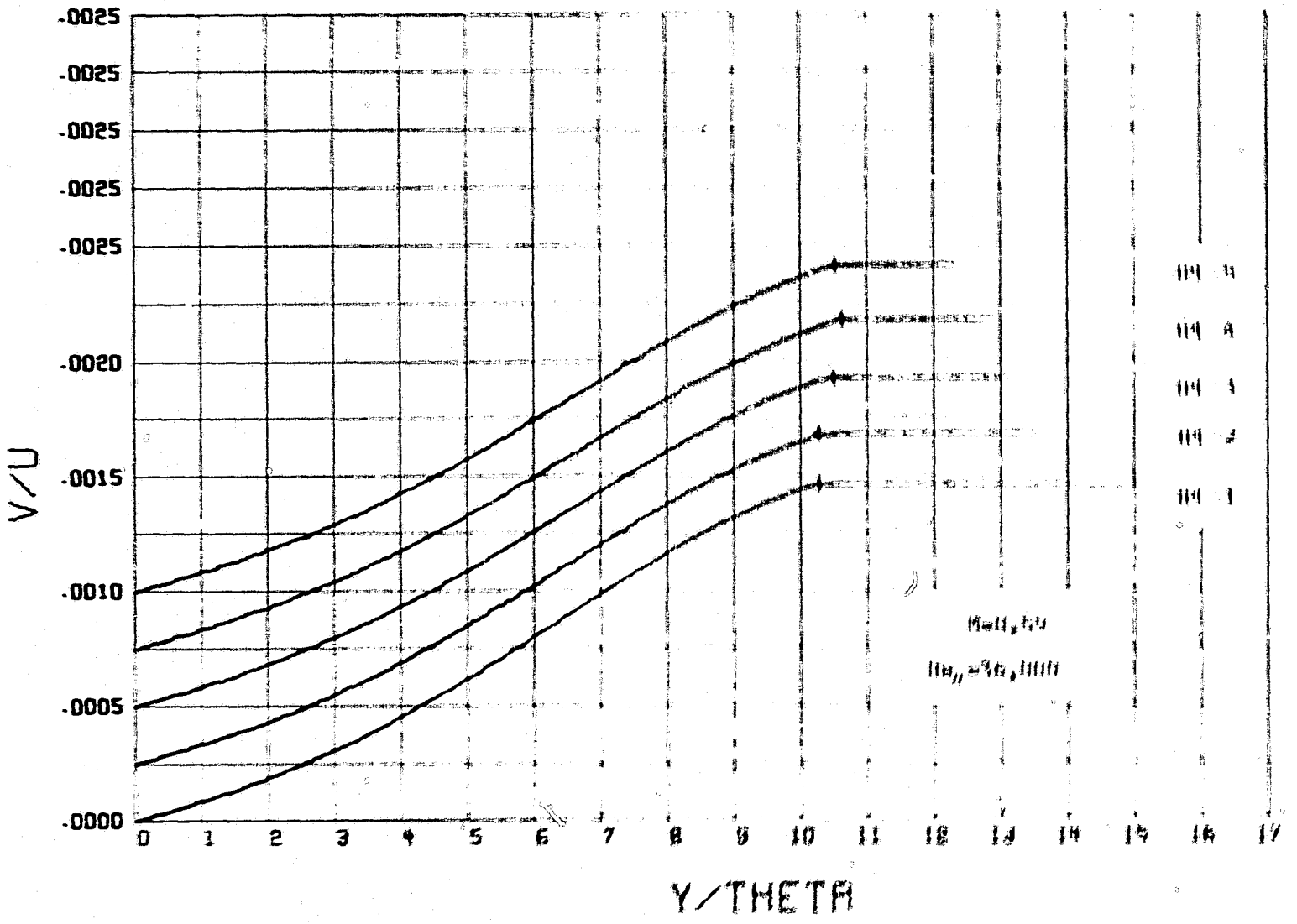

Figure A11. Normal Velocity Distribution.

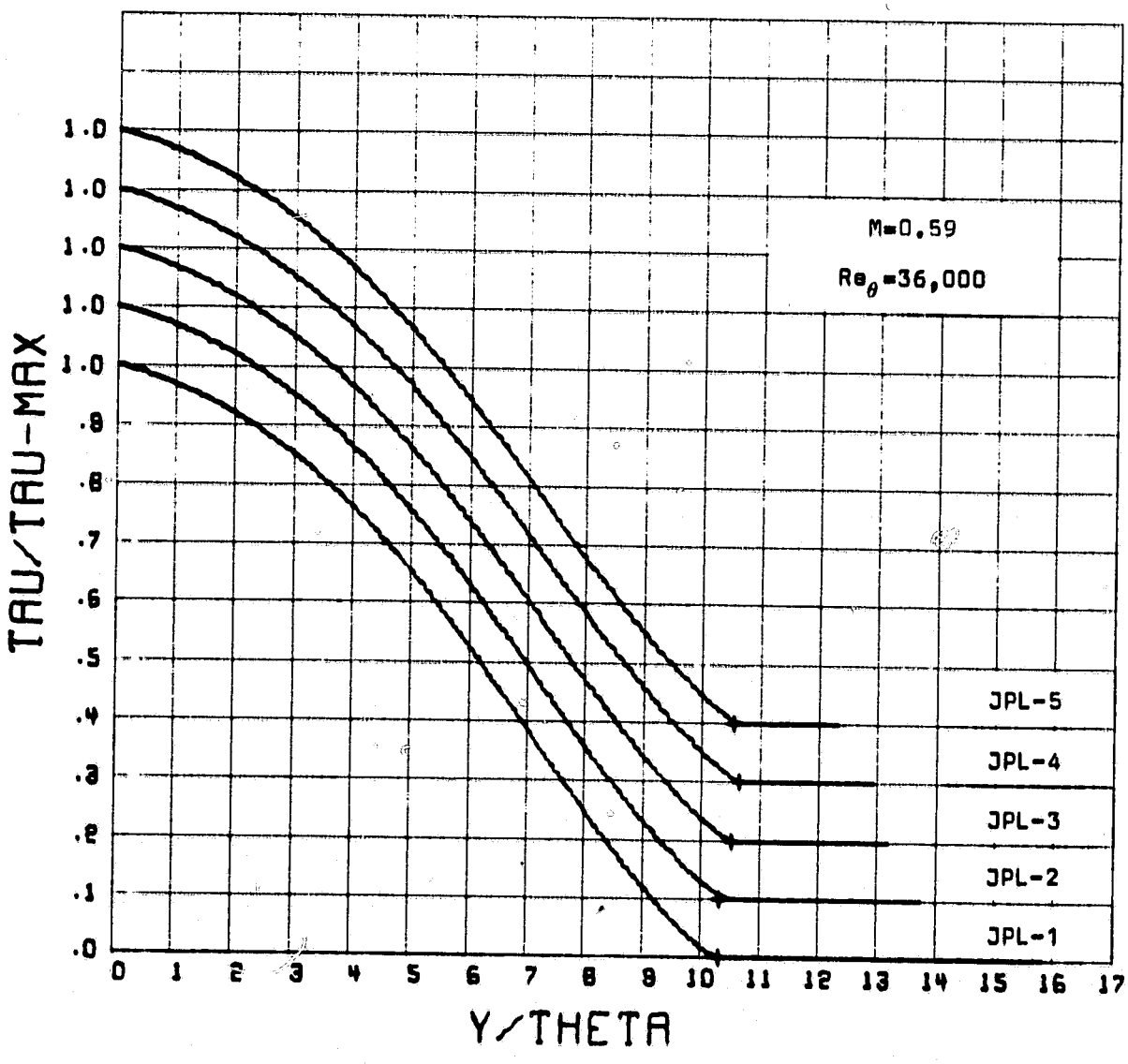

Figure A12. Shear Stress Distribution.

TABLE A 7. DATA SUMMARY
PROFILE - JPL-1 ---- PITOT PRESSURE DATA

EDGE MACH NO.= .7958 TOTAL PRESSURE= .6571E+05 N/M**2
X=-48.43 CM TOTAL TEMPERATURE= 308.89 DEG-K

UE= 264.47 M/SEC DELTA STAR= .3655 CM THETA= .2338 CM H= 1.562
RE-DELTA-STAR= 30900. RE-THETA= 19770. NUWALL= .3830 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 9.1159 M/SEC CF= .002136 PI= .7221 DELTA= 2.3057 CM
CHISQR= .4937E-05 YMAX= 2.188 CM YMIN= .073 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8991	0.0000	0.00	1.0000	0.000000
.010	.043	24.	.3800	.9137	.3975	11.56	1.0000	0.000000
.012	.054	30.	.4132	.9164	.4316	12.56	.9998	.000001
.024	.103	57.	.4635	.9208	.4830	14.07	.9989	.000005
.038	.162	90.	.5204	.9264	.5406	15.76	.9977	.000011
.044	.190	105.	.5382	.9283	.5586	16.29	.9971	.000014
.062	.266	148.	.5651	.9313	.5856	17.08	.9952	.000021
.073	.314	175.	.5852	.9337	.6056	17.68	.9939	.000025
.093	.401	223.	.6054	.9361	.6257	18.27	.9915	.000033
.124	.532	296.	.6297	.9391	.6498	18.99	.9875	.000045
.153	.657	365.	.6450	.9411	.6649	19.43	.9834	.000057
.176	.754	420.	.6579	.9428	.6776	19.81	.9800	.000067
.196	.841	468.	.6710	.9445	.6904	20.19	.9768	.000075
.240	1.026	571.	.6838	.9463	.7029	20.56	.9696	.000094
.280	1.200	668.	.6992	.9484	.7180	21.01	.9624	.000112
.311	1.330	740.	.7075	.9496	.7260	21.25	.9566	.000126
.340	1.455	810.	.7182	.9511	.7364	21.56	.9507	.000139
.394	1.688	940.	.7299	.9529	.7478	21.90	.9390	.000166
.436	1.868	1039.	.7439	.9549	.7612	22.30	.9293	.000187
.478	2.047	1139.	.7483	.9554	.7655	22.43	.9190	.000209
.534	2.286	1272.	.7614	.9576	.7780	22.81	.9041	.000241
.575	2.459	1369.	.7722	.9593	.7885	23.12	.8926	.000264
.618	2.644	1472.	.7834	.9610	.7991	23.44	.8795	.000291
.661	2.829	1574.	.7893	.9620	.8048	23.61	.8656	.000318
.706	3.019	1680.	.7956	.9630	.8108	23.79	.8505	.000347
.756	3.236	1801.	.8048	.9644	.8195	24.05	.8320	.000382
.806	3.448	1919.	.8152	.9661	.8294	24.35	.8129	.000418
.859	3.676	2046.	.8274	.9682	.8409	24.69	.7911	.000457
.913	3.904	2173.	.8307	.9687	.8440	24.79	.7680	.000499
.961	4.110	2288.	.8455	.9712	.8580	25.21	.7459	.000537
1.012	4.328	2409.	.8493	.9719	.8615	25.31	.7215	.000579
1.073	4.588	2554.	.8620	.9741	.8734	25.67	.6908	.000631
1.111	4.751	2644.	.8735	.9761	.8841	26.00	.6708	.000664
1.162	4.969	2765.	.8803	.9773	.8905	26.19	.6433	.000710
1.201	5.137	2859.	.8826	.9777	.8926	26.25	.6213	.000745
1.235	5.283	2941.	.8883	.9787	.8979	26.41	.6017	.000777
1.283	5.490	3056.	.8946	.9798	.9038	26.59	.5734	.000821
1.336	5.712	3179.	.9036	.9815	.9121	26.84	.5422	.000870
1.375	5.881	3273.	.9070	.9821	.9153	26.94	.5180	.000907
1.431	6.120	3406.	.9183	.9842	.9257	27.25	.4834	.000960
1.468	6.277	3494.	.9220	.9848	.9290	27.36	.4602	.000994

TABLE A 7. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.526	6.527	3633.	.9303	.9864	.9367	27.59	.4231	.001049
1.586	6.782	3775.	.9371	.9877	.9429	27.78	.3850	.001105
1.631	6.978	3884.	.9462	.9894	.9513	28.03	.3558	.001147
1.680	7.184	3999.	.9494	.9900	.9541	28.12	.3251	.001191
1.710	7.314	4071.	.9554	.9912	.9597	28.29	.3058	.001218
1.769	7.564	4210.	.9585	.9918	.9625	28.37	.2694	.001269
1.828	7.819	4352.	.9687	.9938	.9718	28.66	.2330	.001320
1.875	8.020	4464.	.9729	.9946	.9756	28.77	.2051	.001358
1.921	8.216	4573.	.9760	.9952	.9783	28.86	.1788	.001394
1.916	8.194	4561.	.9760	.9952	.9783	28.86	.1780	.001396
1.962	8.389	4670.	.9826	.9965	.9843	29.04	.1561	.001425
2.001	8.558	4763.	.9851	.9970	.9865	29.11	.1350	.001454
2.059	8.808	4902.	.9872	.9974	.9885	29.17	.1048	.001494
2.104	8.998	5008.	.9913	.9982	.9922	29.28	.0839	.001522
2.136	9.133	5084.	.9886	.9977	.9897	29.21	.0695	.001541
2.188	9.356	5208.	.9913	.9982	.9922	29.28	.0474	.001571
2.236	9.562	5323.	.9948	.9989	.9953	29.38	.0289	.001595
2.289	9.790	5450.	.9956	.9991	.9960	29.40	.0107	.001619
2.350	10.051	5595.	.9961	.9992	.9965	29.41	0.0000	.001633
2.406	10.290	5728.	.9988	.9997	.9989	29.49	0.0000	.001633
2.528	10.811	6018.	.9995	.9999	.9995	29.50	0.0000	.001633
2.647	11.322	6302.	1.0017	1.0003	1.0016	29.57	0.0000	.001633
2.760	11.805	6571.	.9985	.9997	.9987	29.48	0.0000	.001633
2.875	12.294	6843.	1.0013	1.0002	1.0011	29.55	0.0000	.001633
2.971	12.707	7073.	.9994	.9998	.9995	29.50	0.0000	.001633
3.084	13.190	7342.	.9992	.9998	.9993	29.50	0.0000	.001633
3.204	13.700	7626.	1.0012	1.0002	1.0011	29.55	0.0000	.001633
3.305	14.135	7868.	1.0005	1.0001	1.0005	29.53	0.0000	.001633
3.408	14.575	8113.	1.0014	1.0002	1.0012	29.56	0.0000	.001633
3.529	15.090	8400.	.9984	.9996	.9985	29.47	0.0000	.001633
3.576	15.291	8512.	1.0012	1.0002	1.0011	29.55	0.0000	.001633

TABLE A 7. (CONT.)
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .7882 TOTAL PRESSURE= .6691E+05 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 311.56 DEG-K

UE= 263.34 M/SEC DELTA STAR= .4124 CM THETA= .2666 CM H= 1.546
RE-DELTA-STAR= 33800. RE-THETA= 21850. NUWALL= .3792 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 9.0116 M/SEC CF= .002109 PI= .6917 DELTA= 2.6693 CM
CHISQR= .3524E-05 YMAX= 2.493 CM YMIN= .083 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9009	0.0000	0.00	1.0000	0.000000
.010	.038	24.	.3854	.9156	.4028	11.80	1.0000	0.000000
.017	.066	42.	.4512	.9210	.4701	13.79	.9995	.000002
.030	.114	72.	.5037	.9260	.5234	15.36	.9986	.000007
.044	.166	105.	.5383	.9296	.5583	16.40	.9975	.000012
.057	.214	135.	.5583	.9318	.5783	16.99	.9963	.000016
.083	.314	199.	.5870	.9350	.6070	17.84	.9937	.000025
.095	.357	226.	.5996	.9365	.6196	18.22	.9925	.000029
.107	.404	256.	.6164	.9385	.6363	18.72	.9911	.000033
.140	.528	335.	.6322	.9405	.6519	19.18	.9873	.000045
.163	.614	389.	.6505	.9428	.6699	19.72	.9845	.000053
.186	.700	443.	.6595	.9440	.6787	19.99	.9815	.000061
.215	.809	513.	.6750	.9460	.6940	20.44	.9775	.000071
.234	.881	558.	.6815	.9469	.7004	20.63	.9748	.000078
.260	.976	618.	.6904	.9481	.7090	20.89	.9711	.000087
.280	1.052	667.	.6918	.9483	.7104	20.93	.9680	.000095
.316	1.186	751.	.7030	.9498	.7213	21.26	.9624	.000108
.341	1.281	811.	.7075	.9505	.7256	21.39	.9582	.000118
.367	1.376	872.	.7140	.9514	.7320	21.58	.9539	.000128
.382	1.433	908.	.7218	.9525	.7396	21.81	.9512	.000134
.426	1.600	1014.	.7270	.9532	.7446	21.96	.9430	.000153
.466	1.748	1107.	.7346	.9543	.7520	22.18	.9353	.000169
.504	1.891	1198.	.7504	.9567	.7671	22.64	.9276	.000186
.544	2.043	1294.	.7581	.9578	.7746	22.86	.9188	.000204
.582	2.186	1385.	.7677	.9593	.7838	23.14	.9102	.000222
.615	2.310	1463.	.7672	.9592	.7833	23.13	.9024	.000238
.659	2.472	1566.	.7727	.9600	.7886	23.29	.8916	.000259
.697	2.615	1656.	.7798	.9611	.7954	23.49	.8817	.000279
.735	2.757	1747.	.7887	.9625	.8039	23.75	.8713	.000299
.759	2.848	1804.	.7944	.9634	.8093	23.91	.8645	.000312
.797	2.991	1895.	.7988	.9641	.8135	24.04	.8533	.000333
.839	3.148	1994.	.8078	.9655	.8221	24.30	.8405	.000357
.863	3.239	2052.	.8114	.9661	.8255	24.40	.8329	.000371
.904	3.391	2148.	.8162	.9669	.8300	24.54	.8196	.000395
.933	3.501	2218.	.8202	.9675	.8338	24.65	.8096	.000413
.960	3.601	2281.	.8246	.9683	.8380	24.78	.8003	.000430
.986	3.701	2345.	.8291	.9690	.8423	24.91	.7908	.000447
1.027	3.853	2441.	.8345	.9699	.8473	25.06	.7758	.000473
1.093	4.101	2598.	.8450	.9716	.8572	25.36	.7502	.000517
1.153	4.325	2740.	.8514	.9727	.8632	25.54	.7258	.000558
1.198	4.496	2849.	.8593	.9740	.8707	25.77	.7063	.000591

TABLE A 7. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.250	4.691	2972.	.8671	.9754	.8779	25.99	.6834	.000628
1.311	4.920	3117.	.8802	.9776	.8902	26.36	.6555	.000673
1.362	5.111	3238.	.8848	.9784	.8945	26.49	.6314	.000712
1.418	5.320	3371.	.8922	.9798	.9014	26.70	.6042*	.000756
1.477	5.539	3510.	.8977	.9807	.9065	26.86	.5749	.000800
1.530	5.739	3636.	.9063	.9823	.9144	27.10	.5475	.000842
1.581	5.930	3757.	.9106	.9830	.9184	27.22	.5209	.000862
1.644	6.168	3908.	.9193	.9846	.9264	27.47	.4871	.000932
1.703	6.387	4047.	.9236	.9854	.9304	27.59	.4555	.000979
1.752	6.573	4165.	.9330	.9871	.9390	27.85	.4284	.001018
1.804	6.768	4288.	.9369	.9878	.9426	27.96	.3999	.001059
1.852	6.949	4403.	.9425	.9889	.9478	28.12	.3734	.001097
1.901	7.130	4518.	.9499	.9903	.9545	28.33	.3469	.001135
1.950	7.316	4635.	.9540	.9910	.9582	28.44	.3199	.001173
2.021	7.583	4804.	.9592	.9920	.9630	28.59	.2815	.001226
2.077	7.792	4937.	.9638	.9929	.9672	28.72	.2518	.001267
2.142	8.035	5091.	.9712	.9943	.9739	28.92	.2182	.001312
2.197	8.240	5221.	.9731	.9947	.9757	28.98	.1907	.001349
2.249	8.435	5345.	.9779	.9956	.9800	29.11	.1652	.001384
2.305	8.645	5477.	.9821	.9964	.9838	29.23	.1390	.001418
2.366	8.874	5622.	.9860	.9972	.9873	29.34	.1117	.001455
2.426	9.102	5767.	.9885	.9977	.9896	29.40	.0860	.001488
2.493	9.350	5924.	.9909	.9982	.9918	29.47	.0603	.001522
2.540	9.526	6036.	.9923	.9984	.9931	29.51	.0434	.001544
2.594	9.731	6166.	.9950	.9990	.9955	29.59	.0253	.001567
2.655	9.960	6310.	.9941	.9988	.9947	29.56	.0073	.001591
2.703	10.141	6425.	.9983	.9996	.9985	29.68	0.0000	.001600
2.757	10.341	6552.	.9983	.9996	.9985	29.68	0.0000	.001600
2.867	10.755	6814.	.9973	.9994	.9976	29.65	0.0000	.001600
2.954	11.079	7020.	.9976	.9995	.9979	29.66	0.0000	.001600
3.046	11.427	7240.	.9999	.9999	.9999	29.72	0.0000	.001600
3.116	11.689	7406.	.9994	.9998	.9995	29.71	0.0000	.001600
3.190	11.965	7581.	1.0021	1.0004	1.0019	29.78	0.0000	.001600
3.241	12.156	7702.	1.0003	1.0000	1.0003	29.73	0.0000	.001600
3.285	12.322	7807.	.9975	.9995	.9977	29.65	0.0000	.001600
3.324	12.470	7901.	1.0010	1.0002	1.0009	29.75	0.0000	.001600
3.364	12.618	7995.	1.0015	1.0003	1.0014	29.77	0.0000	.001600
3.407	12.780	8097.	1.0000	1.0000	1.0000	29.73	0.0000	.001600
3.451	12.946	8203.	.9980	.9996	.9982	29.67	0.0000	.001600

TABLE A 7. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .8049 TOTAL PRESSURE= .6691E+05 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 306.95 DEG-K

UE= 266.29 M/SEC DELTA STAR= .4221 CM THETA= .2748 CM H= 1.535
RE-DELTA-STAR= 36160. RE-THETA= 23540. NUWALL= .3737 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 9.1807 M/SEC CF= .002132 PI= .5994 DELTA= 2.8609 CM
CHISQR= .1455E-04 YMAX= 2.719 CM YMIN= .080 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8971	0.0000	0.00	1.0000	0.000000
.010	.036	-24.	.4203	.9152	.4393	12.78	1.0000	0.000000
.017	.064	43.	.4848	.9212	.5051	14.71	.9995	.000002
.025	.092	62.	.5226	.9252	.5433	15.84	.9990	.000005
.039	.143	96.	.5523	.9285	.5732	16.72	.9979	.000010
.044	.161	109.	.5670	.9301	.5879	17.15	.9974	.000012
.080	.291	196.	.6046	.9347	.6253	18.26	.9941	.000024
.102	.374	252.	.6258	.9374	.6463	18.88	.9917	.000031
.120	.438	296.	.6361	.9387	.6565	19.18	.9897	.000037
.132	.480	324.	.6447	.9398	.6650	19.44	.9883	.000041
.157	.572	386.	.6527	.9409	.6729	19.67	.9853	.000050
.176	.642	433.	.6652	.9426	.6852	20.03	.9828	.000057
.207	.753	508.	.6752	.9440	.6950	20.33	.9788	.000067
.233	.850	574.	.6855	.9454	.7050	20.62	.9751	.000077
.264	.961	648.	.6942	.9467	.7135	20.88	.9707	.000088
.292	1.062	717.	.7020	.9478	.7210	21.10	.9665	.000098
.326	1.187	801.	.7092	.9488	.7280	21.31	.9612	.000111
.354	1.289	870.	.7175	.9500	.7362	21.55	.9566	.000121
.387	1.409	951.	.7282	.9516	.7465	21.86	.9510	.000134
.408	1.487	1004.	.7347	.9526	.7527	22.05	.9473	.000143
.441	1.608	1085.	.7383	.9532	.7562	22.15	.9413	.000156
.473	1.723	1163.	.7467	.9544	.7643	22.39	.9354	.000169
.511	1.862	1257.	.7510	.9551	.7684	22.52	.9279	.000185
.546	1.986	1341.	.7591	.9564	.7762	22.75	.9210	.000199
.571	2.079	1404.	.7630	.9570	.7799	22.86	.9156	.000210
.612	2.227	1503.	.7691	.9579	.7858	23.04	.9068	.000228
.646	2.351	1588.	.7743	.9588	.7907	23.19	.8990	.000244
.683	2.485	1678.	.7840	.9603	.8000	23.46	.8903	.000261
.715	2.601	1756.	.7847	.9604	.8007	23.49	.8825	.000276
.750	2.730	1843.	.7942	.9620	.8098	23.76	.8736	.000294
.799	2.874	1940.	.7978	.9626	.8132	23.86	.8632	.000314
.828	3.012	2034.	.8029	.9634	.8180	24.00	.8528	.000333
.873	3.179	2146.	.8143	.9653	.8288	24.33	.8398	.000358
.910	3.313	2237.	.8156	.9655	.8300	24.37	.8289	.000378
.952	3.465	2340.	.8208	.9664	.8349	24.51	.8161	.000401
.996	3.627	2449.	.8266	.9674	.8405	24.68	.8019	.000426
1.029	3.747	2530.	.8324	.9684	.8459	24.84	.7911	.000446
1.078	3.922	2648.	.8399	.9696	.8529	25.05	.7746	.000475
1.113	4.052	2736.	.8462	.9707	.8588	25.23	.7621	.000496
1.144	4.163	2811.	.8485	.9711	.8610	25.30	.7511	.000515
1.181	4.297	2901.	.8554	.9724	.8675	25.49	.7374	.000539

TABLE A 7. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.223	4.449	3004.	.8553	.9730	.8711	25.61	.7215	.000566
1.261	4.588	3098.	.8638	.9738	.8753	25.73	.7066	.000591
1.296	4.717	3185.	.8695	.9749	.8806	25.89	.6923	.000614
1.342	4.884	3297.	.8753	.9759	.8860	26.06	.6735	.000645
1.379	5.018	3388.	.8797	.9767	.8901	26.18	.6579	.000670
1.414	5.147	3475.	.8822	.9771	.8925	26.25	.6426	.000695
1.452	5.286	3569.	.8860	.9778	.8959	26.36	.6259	.000722
1.502	5.466	3691.	.8940	.9793	.9033	26.58	.6037	.000757
1.535	5.586	3772.	.8970	.9799	.9062	26.67	.5886	.000781
1.574	5.729	3868.	.9013	.9806	.9101	26.79	.5703	.000809
1.630	5.932	4006.	.9091	.9821	.9173	27.00	.5439	.000850
1.672	6.085	4109.	.9130	.9828	.9209	27.11	.5238	.000881
1.703	6.196	4183.	.9180	.9838	.9255	27.25	.5090	.000903
1.746	6.353	4290.	.9212	.9844	.9285	27.34	.4878	.000935
1.784	6.492	4383.	.9259	.9853	.9328	27.47	.4690	.000963
1.821	6.626	4474.	.9305	.9862	.9370	27.60	.4506	.000990
1.865	6.787	4583.	.9345	.9869	.9407	27.71	.4283	.001023
1.912	6.958	4698.	.9368	.9874	.9428	27.78	.4045	.001058
1.955	7.115	4804.	.9420	.9884	.9475	27.92	.3828	.001089
2.009	7.309	4935.	.9487	.9897	.9536	28.11	.3559	.001128
2.053	7.471	5045.	.9529	.9905	.9574	28.22	.3335	.001160
2.104	7.656	5169.	.9557	.9910	.9600	28.30	.3080	.001196
2.159	7.855	5304.	.9626	.9924	.9662	28.49	.2808	.001235
2.208	8.035	5425.	.9653	.9929	.9687	28.57	.2565	.001269
2.272	8.266	5581.	.9699	.9939	.9729	28.70	.2258	.001311
2.325	8.460	5712.	.9756	.9950	.9780	28.85	.2006	.001346
2.376	8.645	5837.	.9780	.9955	.9802	28.92	.1771	.001378
2.433	8.853	5977.	.9804	.9960	.9824	28.98	.1515	.001413
2.493	9.070	6124.	.9849	.9969	.9864	29.11	.1258	.001447
2.550	9.278	6265.	.9889	.9977	.9900	29.22	.1022	.001479
2.608	9.490	6408.	.9894	.9978	.9905	29.23	.0793	.001510
2.667	9.703	6552.	.9928	.9985	.9935	29.33	.0577	.001538
2.719	9.892	6679.	.9943	.9988	.9949	29.37	.0397	.001562
2.780	10.114	6829.	.9954	.9990	.9959	29.40	.0202	.001588
2.823	10.271	6935.	.9972	.9994	.9975	29.45	.0075	.001605
2.877	10.470	7070.	.9975	.9994	.9977	29.46	0.0000	.001615
2.932	10.669	7204.	.9985	.9997	.9987	29.48	0.0000	.001615
2.993	10.890	7353.	.9990	.9998	.9991	29.50	0.0000	.001615
3.051	11.103	7497.	.9990	.9998	.9991	29.50	0.0000	.001615
3.097	11.269	7609.	1.0001	1.0000	1.0001	29.53	0.0000	.001615
3.150	11.463	7740.	.9956	.9991	.9961	29.40	0.0000	.001615
3.194	11.621	7846.	1.0008	1.0001	1.0007	29.55	0.0000	.001615
3.244	11.805	7971.	.9993	.9998	.9994	29.50	0.0000	.001615
3.314	12.060	8143.	1.0001	1.0000	1.0001	29.53	0.0000	.001615
3.369	12.258	8277.	.9989	.9997	.9990	29.49	0.0000	.001615
3.449	12.549	8474.	1.0011	1.0002	1.0010	29.55	0.0000	.001615
3.514	12.785	8633.	1.0001	1.0000	1.0001	29.53	0.0000	.001615
3.561	12.956	8748.	.9972	.9994	.9975	29.45	0.0000	.001615
3.591	13.067	8823.	1.0003	1.0000	1.0003	29.53	0.0000	.001615
3.648	13.275	8963.	1.0011	1.0002	1.0010	29.55	0.0000	.001615

TABLE A 7. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .8016 TOTAL PRESSURE= .6665E+05 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 312.05 DEG-K

UE= 267.51 M/SEC DELTA STAR= .4395 CM THETA= .2857 CM H= 1.538
RE-DELTA-STAR= 36480. RE-THETA= 23710. NUWALL= .3845 CM**2/SEC CF= .002086

LEAST SQUARE FIT PARAMETERS
UTAU= 9.1926 M/SEC CF= .002120 PI= .6145 DELTA= 2.9611 CM
CHISQR= .8257E-05 YMAX= 2.799 CM YMIN= .071 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8978	0.0000	0.00	1.0000	0.000000
.010	.035	24.	.4146	.9154	.4333	12.65	1.0000	0.000000
.016	.057	39.	.4571	.9192	.4768	13.92	.9996	.000002
.034	.120	81.	.5321	.9268	.5527	16.17	.9984	.000008
.052	.182	124.	.5592	.9298	.5799	16.97	.9970	.000013
.071	.248	170.	.5853	.9328	.6060	17.74	.9953	.000019
.107	.377	258.	.6187	.9369	.6391	18.73	.9916	.000031
.128	.448	306.	.6302	.9384	.6505	19.07	.9894	.000038
.154	.542	370.	.6426	.9407	.6677	19.58	.9864	.000047
.170	.595	406.	.6533	.9414	.6733	19.74	.9846	.000052
.198	.693	473.	.6673	.9433	.6870	20.15	.9812	.000061
.234	.822	561.	.6836	.9456	.7030	20.63	.9764	.000073
.265	.929	634.	.6928	.9469	.7120	20.90	.9723	.000084
.292	1.022	698.	.7011	.9480	.7200	21.14	.9685	.000093
.323	1.133	774.	.7092	.9492	.7279	21.38	.9638	.000104
.356	1.249	853.	.7139	.9499	.7324	21.51	.9588	.000116
.392	1.373	938.	.7316	.9525	.7496	22.03	.9531	.000129
.419	1.466	1001.	.7243	.9514	.7425	21.81	.9487	.000139
.455	1.595	1090.	.7378	.9534	.7556	22.20	.9424	.000153
.495	1.733	1184.	.7474	.9549	.7648	22.48	.9353	.000168
.529	1.853	1266.	.7529	.9557	.7701	22.64	.9289	.000182
.563	1.973	1348.	.7584	.9566	.7754	22.80	.9222	.000195
.610	2.138	1460.	.7607	.9569	.7776	22.86	.9127	.000215
.641	2.244	1533.	.7676	.9580	.7842	23.06	.9063	.000228
.668	2.338	1597.	.7744	.9591	.7908	23.26	.9004	.000240
.707	2.475	1691.	.7834	.9605	.7994	23.52	.8916	.000257
.753	2.635	1800.	.7886	.9613	.8043	23.67	.8808	.000278
.796	2.787	1903.	.7952	.9624	.8106	23.86	.8701	.000299
.844	2.955	2019.	.8003	.9632	.8154	24.00	.8577	.000322
.886	3.102	2119.	.8064	.9642	.8212	24.18	.8464	.000344
.925	3.240	2213.	.8154	.9657	.8297	24.43	.8354	.000364
.976	3.418	2334.	.8240	.9672	.8379	24.68	.8205	.000391
1.009	3.533	2413.	.8257	.9675	.8395	24.73	.8105	.000409
1.050	3.711	2535.	.8319	.9685	.8453	24.91	.7947	.000437
1.103	3.862	2638.	.8391	.9697	.8520	25.11	.7806	.000462
1.145	4.009	2738.	.8411	.9701	.8539	25.17	.7665	.000486
1.176	4.116	2811.	.8458	.9709	.8584	25.30	.7560	.000504
1.214	4.249	2902.	.8531	.9722	.8652	25.51	.7425	.000527
1.258	4.405	3009.	.8574	.9729	.8692	25.63	.7262	.000555
1.296	4.538	3100.	.8635	.9740	.8749	25.80	.7119	.000579
1.336	4.676	3194.	.8688	.9749	.8798	25.95	.6967	.000604

TABLE A 7. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.376	4.818	3291.	.8704	.9752	.8813	26.00	.6807	.000630
1.410	4.938	3373.	.8771	.9764	.8876	26.18	.6666	.000653
1.454	5.089	3476.	.8812	.9771	.8914	26.30	.6491	.000681
1.492	5.222	3567.	.8856	.9779	.8955	26.42	.6330	.000707
1.550	5.427	3707.	.8927	.9792	.9021	26.63	.6078	.000746
1.596	5.587	3816.	.8989	.9803	.9078	26.80	.5876	.000778
1.647	5.765	3938.	.9025	.9810	.9112	26.90	.5647	.000813
1.692	5.925	4047.	.9116	.9827	.9196	27.16	.5438	.000845
1.733	6.067	4144.	.9143	.9832	.9220	27.23	.5249	.000874
1.779	6.227	4253.	.9161	.9835	.9237	27.28	.5034	.000906
1.817	6.360	4344.	.9235	.9849	.9305	27.49	.4853	.000933
1.860	6.512	4448.	.9276	.9857	.9343	27.60	.4646	.000964
1.899	6.649	4542.	.9305	.9863	.9370	27.69	.4456	.000992
1.936	6.778	4630.	.9369	.9875	.9428	27.87	.4277	.001019
1.985	6.947	4745.	.9384	.9878	.9442	27.91	.4038	.001053
2.021	7.076	4833.	.9403	.9881	.9459	27.96	.3863	.001079
2.067	7.236	4943.	.9452	.9891	.9503	28.10	.3639	.001110
2.122	7.427	5073.	.9549	.9910	.9592	28.37	.3373	.001148
2.162	7.569	5170.	.9547	.9909	.9591	28.36	.3176	.001176
2.203	7.712	5268.	.9596	.9919	.9635	28.50	.2980	.001203
2.249	7.872	5377.	.9615	.9922	.9652	28.55	.2756	.001234
2.291	8.018	5477.	.9656	.9931	.9690	28.67	.2562	.001261
2.327	8.147	5565.	.9678	.9935	.9710	28.73	.2390	.001285
2.376	8.316	5680.	.9717	.9943	.9745	28.83	.2162	.001316
2.407	8.427	5756.	.9722	.9944	.9749	28.85	.2023	.001335
2.444	8.556	5844.	.9766	.9952	.9789	28.97	.1859	.001357
2.503	8.761	5984.	.9818	.9963	.9836	29.11	.1604	.001392
2.537	8.881	6066.	.9820	.9963	.9837	29.12	.1459	.001411
2.569	8.992	6142.	.9833	.9966	.9850	29.15	.1324	.001430
2.617	9.161	6257.	.9829	.9965	.9846	29.14	.1133	.001455
2.654	9.290	6345.	.9880	.9975	.9892	29.28	.0989	.001474
2.689	9.414	6430.	.9897	.9979	.9907	29.33	.0855	.001492
2.748	9.619	6570.	.9927	.9985	.9935	29.42	.0646	.001520
2.799	9.796	6692.	.9898	.9979	.9908	29.34	.0474	.001542
2.838	9.934	6786.	.9954	.9990	.9958	29.49	.0349	.001559
2.882	10.090	6892.	.9962	.9992	.9966	29.51	.0215	.001576
2.933	10.268	7013.	.9970	.9993	.9973	29.53	.0074	.001594
2.988	10.459	7144.	.9978	.9995	.9980	29.55	0.0000	.001604
3.046	10.663	7284.	.9971	.9994	.9974	29.54	0.0000	.001604
3.079	10.779	7363.	.9988	.9997	.9989	29.58	0.0000	.001604
3.139	10.988	7505.	.9971	.9994	.9974	29.54	0.0000	.001604
3.177	11.121	7596.	.9983	.9996	.9984	29.57	0.0000	.001604
3.219	11.268	7697.	.9998	.9999	.9999	29.61	0.0000	.001604
3.260	11.410	7794.	.9993	.9998	.9994	29.60	0.0000	.001604
3.308	11.579	7909.	.9996	.9999	.9996	29.60	0.0000	.001604
3.365	11.779	8046.	.9998	.9999	.9999	29.61	0.0000	.001604
3.415	11.952	8164.	1.0001	1.0000	1.0001	29.62	0.0000	.001604
3.462	12.117	8277.	1.0001	1.0000	1.0001	29.62	0.0000	.001604
3.521	12.326	8419.	.9993	.9998	.9994	29.60	0.0000	.001604
3.545	12.410	8477.	1.0004	1.0000	1.0005	29.63	0.0000	.001604

TABLE A 7. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .7995 TOTAL PRESSURE= .6638E+05 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 311.32 DEG-K

UE= 266.60 M/SEC DELTA STAR= .4564 CM THETA= .2944 CM H= 1.539
RE-DELTA-STAR= 37820. RE-THETA= 24570. NUWALL= .3845 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 9.1258 M/SEC CF= .002105 PI= .6243 DELTA= 3.0638 CM
CHISQR= .8683E-05 YMAX= 2.870 CM YMIN= .068 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8983	0.0000	0.00	1.0000	0.000000
.010	.034	24.	.4090	.9153	.4275	12.53	1.0000	0.000000
.016	.055	39.	.4531	.9192	.4726	13.86	.9996	.000002
.036	.124	87.	.5186	.9256	.5390	15.82	.9983	.000008
.048	.162	114.	.5382	.9277	.5587	16.41	.9974	.000012
.068	.231	162.	.5709	.9314	.5915	17.38	.9957	.000018
.090	.304	214.	.5953	.9343	.6159	18.11	.9937	.000024
.115	.389	274.	.6206	.9375	.6410	18.86	.9912	.000032
.138	.466	328.	.6372	.9396	.6574	19.34	.9888	.000039
.160	.539	379.	.6501	.9413	.6701	19.72	.9865	.000046
.176	.595	418.	.6543	.9418	.6742	19.85	.9846	.000051
.198	.668	470.	.6630	.9430	.6827	20.10	.9820	.000058
.232	.783	551.	.6800	.9453	.6994	20.60	.9778	.000069
.278	.938	660.	.6934	.9472	.7125	20.99	.9718	.000084
.298	1.006	708.	.7055	.9489	.7243	21.35	.9691	.000091
.321	1.083	762.	.7051	.9488	.7239	21.34	.9658	.000099
.368	1.207	850.	.7120	.9498	.7305	21.53	.9605	.000111
.386	1.302	916.	.7186	.9508	.7370	21.73	.9563	.000121
.410	1.383	973.	.7224	.9514	.7407	21.84	.9525	.000129
.435	1.469	1033.	.7331	.9529	.7510	22.15	.9484	.000138
.471	1.589	1118.	.7348	.9532	.7526	22.20	.9425	.000151
.496	1.674	1178.	.7417	.9542	.7592	22.40	.9382	.000161
.516	1.743	1226.	.7465	.9549	.7639	22.54	.9346	.000168
.537	1.811	1275.	.7461	.9549	.7635	22.53	.9309	.000176
.563	1.901	1338.	.7557	.9563	.7727	22.80	.9260	.000186
.590	1.991	1401.	.7623	.9574	.7791	23.00	.9209	.000197
.619	2.090	1470.	.7612	.9572	.7780	22.97	.9152	.000209
.631	2.128	1498.	.7663	.9580	.7829	23.11	.9129	.000213
.694	2.343	1648.	.7732	.9591	.7895	23.31	.8997	.000240
.730	2.462	1733.	.7812	.9603	.7972	23.54	.8919	.000255
.762	2.570	1808.	.7843	.9608	.8001	23.63	.8848	.000269
.788	2.660	1871.	.7873	.9613	.8029	23.72	.8786	.000281
.828	2.792	1965.	.7931	.9623	.8085	23.89	.8691	.000299
.869	2.934	2064.	.8012	.9636	.8162	24.12	.8586	.000319
.895	3.019	2125.	.8063	.9644	.8211	24.27	.8521	.000331
.951	3.208	2257.	.8086	.9648	.8232	24.33	.8371	.000358
.981	3.311	2330.	.8157	.9659	.8300	24.54	.8286	.000374
1.017	3.431	2414.	.8164	.9661	.8306	24.56	.8185	.000392
1.050	3.542	2492.	.8238	.9673	.8376	24.77	.8087	.000409
1.092	3.683	2592.	.8349	.9692	.8481	25.08	.7960	.000432
1.123	3.790	2667.	.8390	.9699	.8520	25.20	.7861	.000449

TABLE A 7. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.154	3.893	2739.	.8438	.9707	.8564	25.34	.7763	.000466
1.174	3.962	2788.	.8394	.9699	.8523	25.21	.7696	.000478
1.212	4.090	2878.	.8485	.9715	.8608	25.47	.7569	.000499
1.245	4.202	2956.	.8481	.9714	.8605	25.46	.7456	.000518
1.306	4.407	3101.	.8564	.9729	.8683	25.70	.7240	.000555
1.344	4.536	3192.	.8624	.9739	.8739	25.87	.7099	.000578
1.383	4.664	3282.	.8717	.9756	.8826	26.13	.6958	.000601
1.408	4.750	3342.	.8701	.9753	.8811	26.09	.6861	.000617
1.442	4.865	3424.	.8753	.9762	.8859	26.23	.6728	.000639
1.484	5.007	3523.	.8816	.9773	.8918	26.41	.6561	.000665
1.517	5.118	3602.	.8841	.9778	.8941	26.48	.6428	.000686
1.548	5.221	3674.	.8885	.9785	.8981	26.61	.6302	.000706
1.593	5.375	3782.	.8910	.9790	.9005	26.68	.6111	.000736
1.639	5.529	3891.	.8948	.9797	.9040	26.78	.5916	.000767
1.696	5.722	4027.	.9051	.9816	.9136	27.08	.5666	.000805
1.741	5.872	4132.	.9085	.9822	.9167	27.17	.5469	.000835
1.774	5.983	4210.	.9103	.9825	.9184	27.22	.5320	.000857
1.807	6.095	4289.	.9157	.9836	.9234	27.38	.5170	.000880
1.827	6.163	4337.	.9191	.9842	.9264	27.47	.5077	.000894
1.869	6.305	4436.	.9223	.9848	.9294	27.56	.4884	.000922
1.901	6.412	4512.	.9253	.9853	.9321	27.65	.4737	.000944
1.931	6.515	4584.	.9301	.9862	.9365	27.78	.4594	.000965
2.014	6.793	4780.	.9377	.9877	.9435	27.99	.4206	.001022
2.048	6.909	4861.	.9379	.9877	.9437	28.00	.4043	.001045
2.094	7.029	4946.	.9370	.9876	.9429	27.97	.3874	.001069
2.127	7.174	5048.	.9439	.9889	.9492	28.17	.3669	.001098
2.157	7.277	5121.	.9445	.9890	.9497	28.18	.3525	.001119
2.188	7.380	5193.	.9502	.9901	.9549	28.34	.3380	.001139
2.235	7.538	5305.	.9564	.9913	.9606	28.52	.3158	.001170
2.279	7.688	5410.	.9576	.9915	.9616	28.55	.2950	.001199
2.348	7.920	5573.	.9616	.9923	.9653	28.66	.2631	.001243
2.396	8.082	5687.	.9682	.9936	.9713	28.85	.2411	.001273
2.429	8.194	5766.	.9696	.9939	.9726	28.89	.2261	.001294
2.463	8.309	5847.	.9740	.9947	.9765	29.01	.2108	.001314
2.513	8.476	5965.	.9738	.9947	.9763	29.00	.1891	.001344
2.562	8.644	6082.	.9787	.9957	.9808	29.14	.1679	.001372
2.600	8.772	6173.	.9797	.9959	.9817	29.17	.1520	.001394
2.650	8.939	6290.	.9829	.9965	.9846	29.26	.1318	.001420
2.699	9.072	6384.	.9856	.9971	.9870	29.33	.1163	.001441
2.733	9.217	6486.	.9893	.9978	.9904	29.43	.0998	.001463
2.781	9.380	6601.	.9892	.9978	.9903	29.43	.0821	.001486
2.821	9.517	6697.	.9893	.9978	.9904	29.43	.0677	.001505
2.870	9.680	6812.	.9916	.9983	.9924	29.50	.0515	.001526
2.909	9.809	6902.	.9941	.9988	.9947	29.56	.0393	.001542
2.947	9.941	6996.	.9954	.9990	.9958	29.60	.0274	.001558
2.995	10.104	7110.	.9949	.9989	.9954	29.59	.0136	.001575
3.031	10.224	7195.	.9959	.9991	.9963	29.62	.0041	.001588
3.067	10.344	7279.	.9976	.9995	.9979	29.66	0.0000	.001593
3.110	10.490	7381.	.9956	.9991	.9961	29.61	0.0000	.001593
3.199	10.790	7592.	.9974	.9994	.9976	29.66	0.0000	.001593
3.282	11.072	7791.	.9991	.9998	.9992	29.70	0.0000	.001593
3.359	11.329	7972.	.9980	.9996	.9982	29.67	0.0000	.001593
3.442	11.612	8171.	.9995	.9999	.9996	29.72	0.0000	.001593
3.540	11.942	8403.	.9994	.9998	.9995	29.71	0.0000	.001593
3.613	12.186	8575.	1.0006	1.0001	1.0005	29.75	0.0000	.001593
3.695	12.464	8771.	1.0015	1.0003	1.0014	29.77	0.0000	.001593

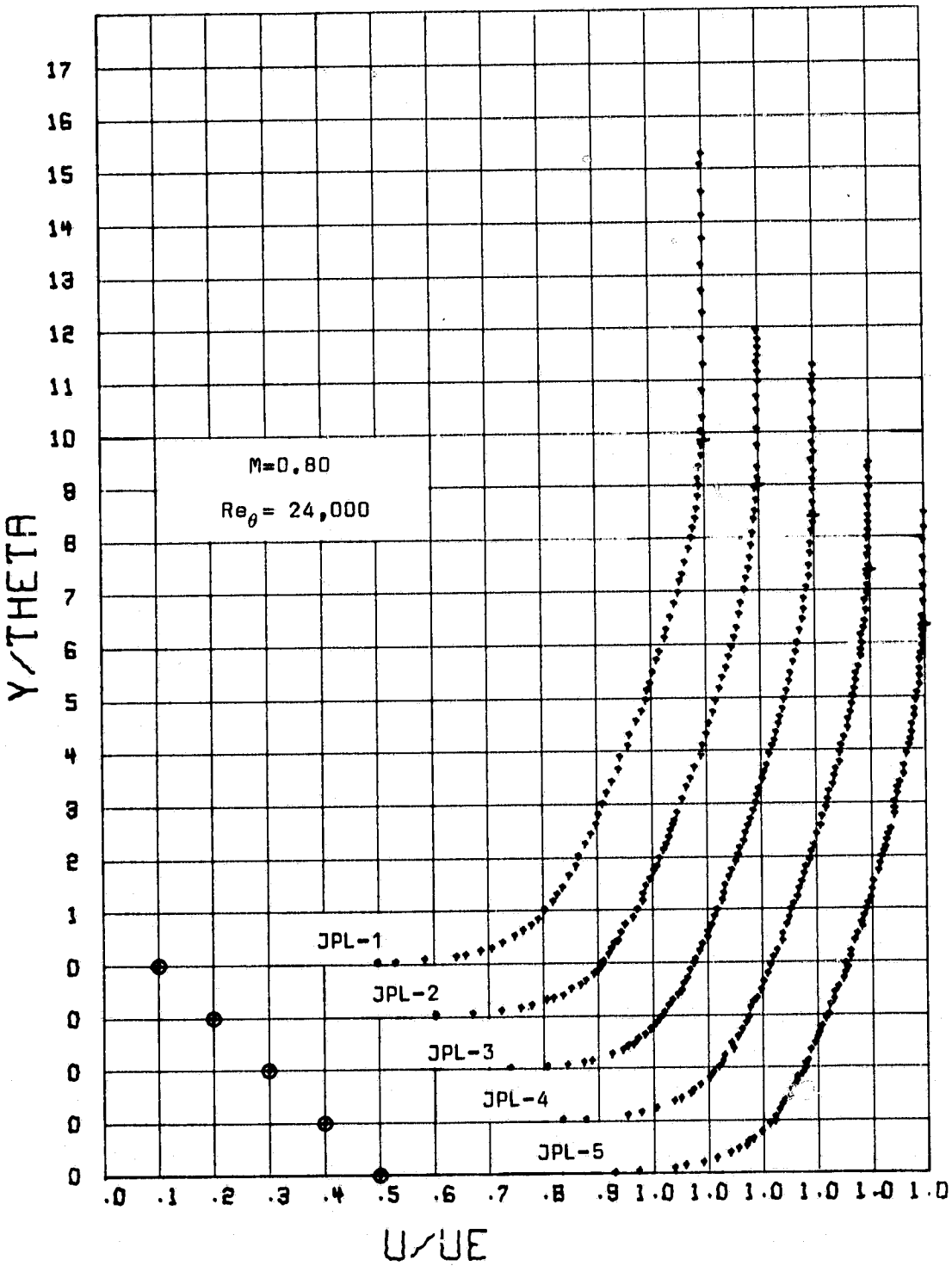

Figure A13. Mean Velocity Profiles.

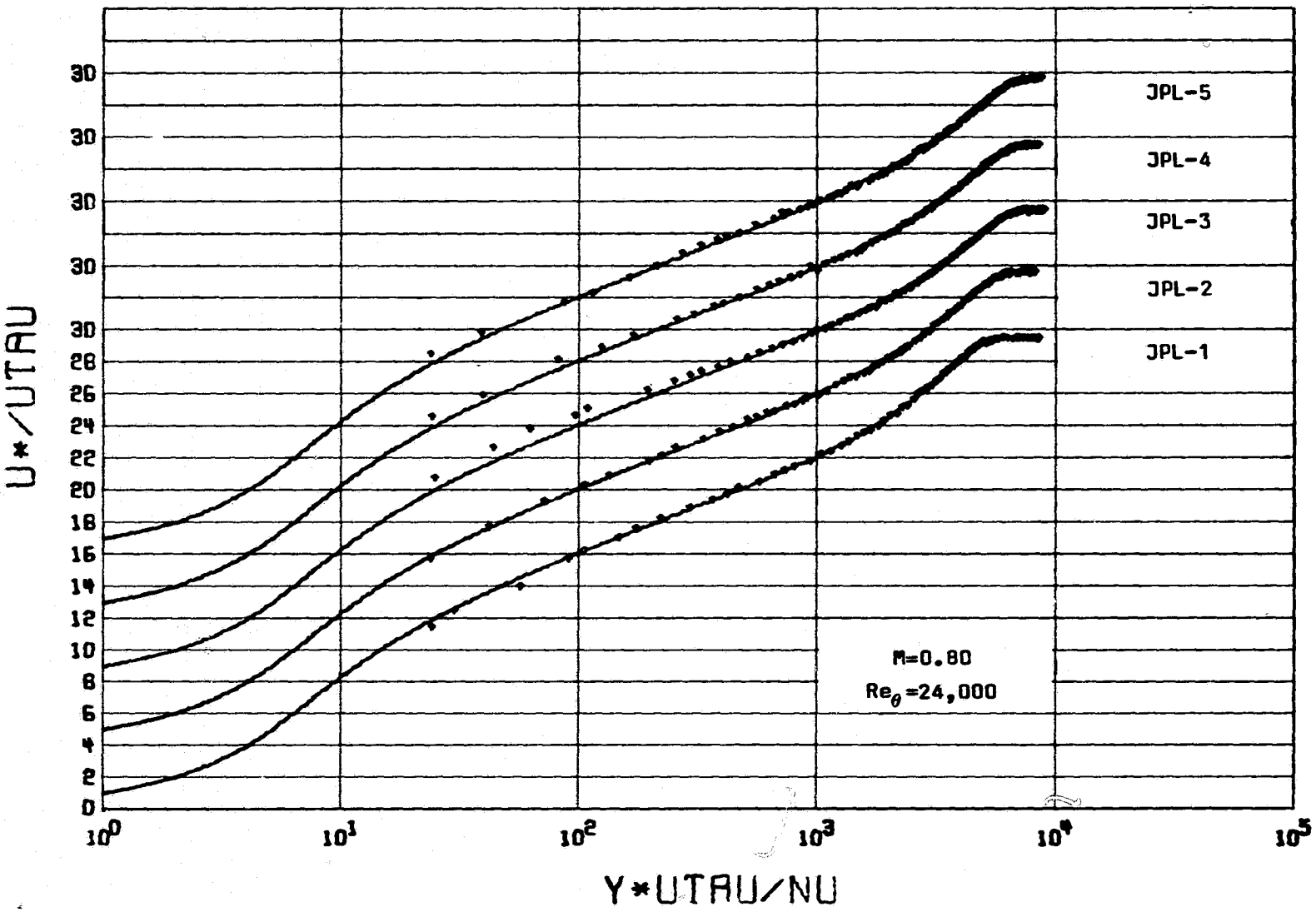

Figure A14. Van Driest Scaled Mean Velocity Profiles.

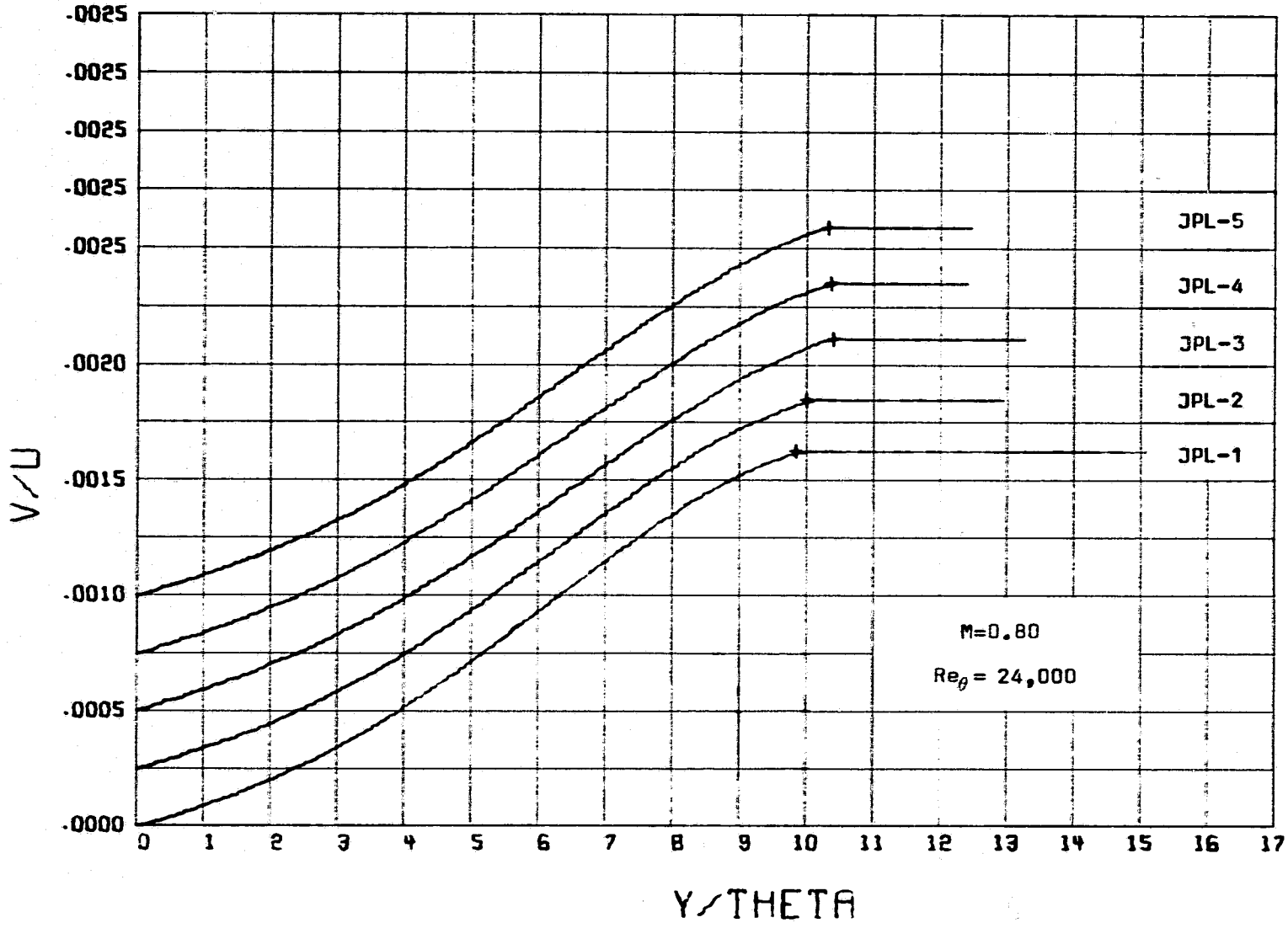

Figure A15. Normal Velocity Distribution.

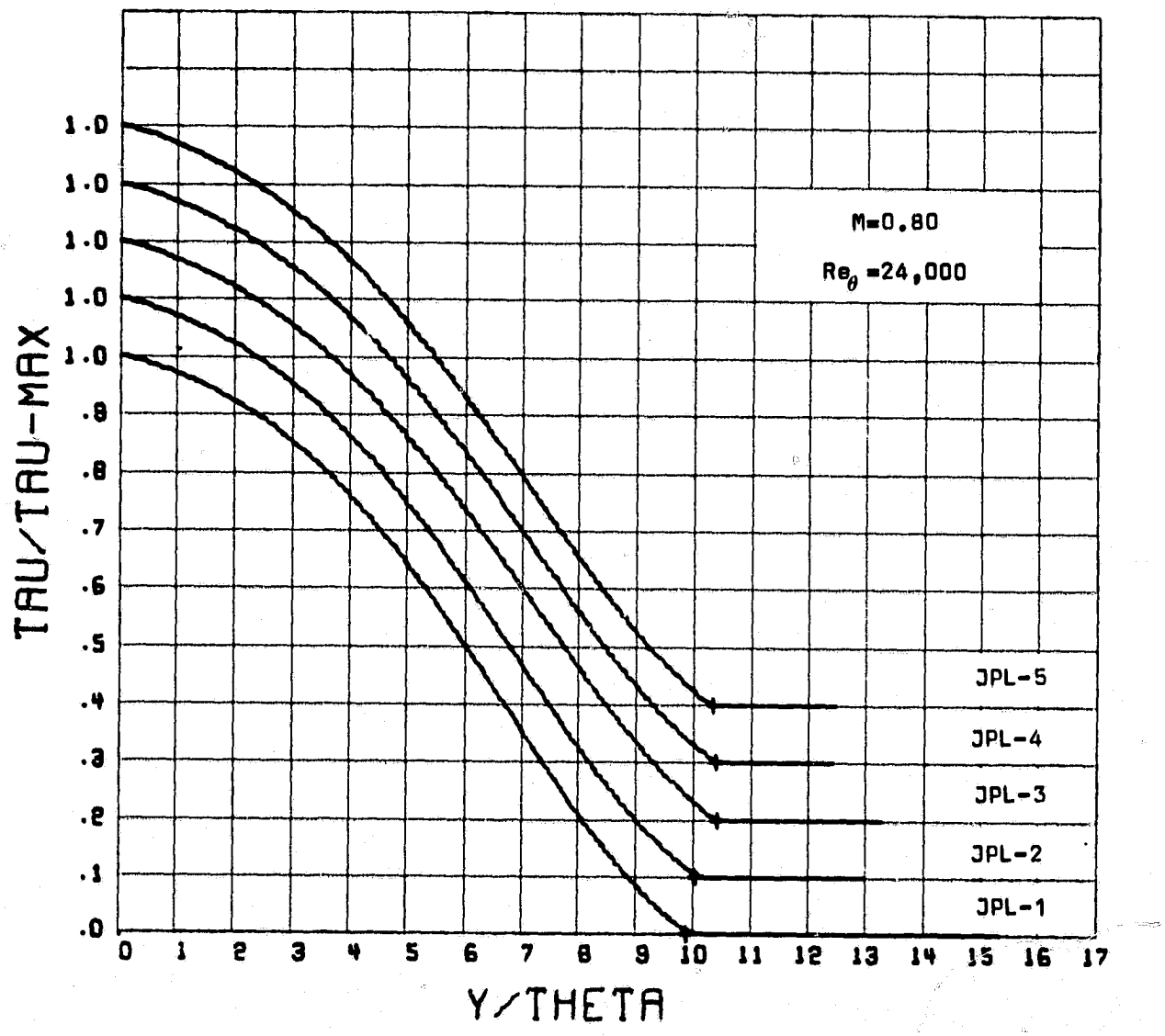

Figure A16. Shear Stress Distribution.

TABLE A 8. DATA SUMMARY
PROFILE - JPL-1 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .7980 TOTAL PRESSURE= .1333E+06 N/M**2
X=-48.43 CM TOTAL TEMPERATURE= 324.67 DEG-K

UE= 271.81 M/SEC DELTA STAR= .3225 CM THETA= .2108 CM H= 1.529
RE-DELTA-STAR= 51910. RE-THETA= 33940. NUWALL= .2077 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 9.0803 M/SEC CF= .002005 PI= .6306 DELTA= 2.2167 CM
CHISQR= .7371E-05 YMAX= 2.095 CM YMIN= .044 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8986	0.0000	0.00	1.0000	0.000000
.011	.054	49.	.4547	.9196	.4741	14.24	1.0000	0.000000
.031	.150	138.	.5280	.9269	.5484	16.50	.9980	.000008
.044	.210	194.	.5652	.9310	.5858	17.63	.9965	.000013
.055	.264	244.	.5874	.9336	.6080	18.31	.9951	.000018
.069	.331	305.	.6144	.9369	.6348	19.13	.9932	.000023
.082	.391	360.	.6320	.9391	.6521	19.66	.9914	.000028
.110	.523	483.	.6524	.9418	.6723	20.28	.9873	.000040
.139	.662	610.	.6673	.9437	.6868	20.72	.9826	.000052
.163	.776	716.	.6798	.9455	.6992	21.10	.9785	.000062
.194	.921	849.	.6923	.9472	.7114	21.48	.9730	.000075
.222	1.053	971.	.7036	.9488	.7223	21.81	.9677	.000087
.250	1.186	1093.	.7106	.9498	.7291	22.02	.9622	.000099
.262	1.246	1147.	.7214	.9514	.7396	22.34	.9596	.000105
.285	1.355	1249.	.7287	.9524	.7467	22.56	.9548	.000115
.309	1.469	1354.	.7397	.9541	.7573	22.89	.9495	.000126
.330	1.565	1443.	.7371	.9537	.7547	22.81	.9449	.000136
.351	1.668	1537.	.7481	.9553	.7653	23.14	.9398	.000146
.367	1.740	1604.	.7504	.9557	.7675	23.21	.9362	.000153
.386	1.830	1687.	.7565	.9566	.7735	23.39	.9315	.000163
.416	1.975	1821.	.7633	.9577	.7799	23.59	.9237	.000178
.457	2.168	1998.	.7697	.9587	.7861	23.78	.9127	.000199
.491	2.282	2104.	.7781	.9600	.7941	24.03	.9059	.000212
.525	2.493	2298.	.7812	.9605	.7971	24.12	.8927	.000237
.566	2.685	2476.	.7910	.9620	.8064	24.41	.8800	.000260
.586	2.782	2565.	.7971	.9630	.8122	24.59	.8733	.000272
.622	2.950	2720.	.8076	.9647	.8222	24.90	.8612	.000294
.641	3.137	2892.	.8106	.9652	.8250	24.99	.8472	.000318
.694	3.294	3037.	.8184	.9665	.8325	25.22	.8349	.000339
.721	3.420	3153.	.8218	.9671	.8356	25.32	.8246	.000357
.753	3.571	3292.	.8300	.9684	.8434	25.56	.8119	.000379
.789	3.745	3453.	.8332	.9690	.8465	25.65	.7966	.000404
.822	3.902	3597.	.8427	.9706	.8554	25.93	.7823	.000428
.848	4.022	3708.	.8441	.9708	.8567	25.97	.7710	.000446
.871	4.131	3808.	.8511	.9720	.8632	26.17	.7605	.000463
.929	4.408	4064.	.8577	.9732	.8694	26.37	.7327	.000508
.962	4.564	4208.	.8633	.9742	.8747	26.53	.7163	.000534
.988	4.685	4319.	.8695	.9752	.8804	26.71	.7033	.000554
1.029	4.884	4502.	.8741	.9761	.8848	26.84	.6814	.000588
1.060	5.028	4636.	.8785	.9768	.8888	26.97	.6649	.000613
1.090	5.173	4769.	.8864	.9783	.8962	27.20	.6481	.000638

TABLE A 8. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.115	5.287	4874.	.8899	.9789	.8994	27.30	.6346	.000659
1.153	5.468	5041.	.8968	.9801	.9058	27.50	.6127	.000691
1.188	5.636	5196.	.8987	.9805	.9076	27.56	.5918	.000722
1.231	5.841	5385.	.9023	.9811	.9109	27.66	.5659	.000760
1.262	5.986	5518.	.9082	.9822	.9164	27.83	.5473	.000786
1.295	6.142	5663.	.9131	.9831	.9209	27.97	.5269	.000816
1.318	6.251	5763.	.9194	.9843	.9267	28.16	.5126	.000836
1.353	6.419	5918.	.9209	.9846	.9281	28.20	.4901	.000868
1.386	6.576	6063.	.9284	.9860	.9350	28.42	.4690	.000897
1.414	6.708	6185.	.9319	.9866	.9382	28.51	.4511	.000922
1.455	6.901	6362.	.9347	.9872	.9407	28.60	.4248	.000958
1.492	7.076	6523.	.9397	.9881	.9453	28.74	.4008	.000991
1.536	7.287	6718.	.9464	.9894	.9515	28.93	.3719	.001030
1.574	7.467	6884.	.9520	.9905	.9566	29.09	.3472	.001063
1.620	7.684	7084.	.9560	.9912	.9602	29.21	.3176	.001103
1.671	7.925	7306.	.9601	.9920	.9639	29.32	.2850	.001146
1.697	8.051	7423.	.9643	.9929	.9678	29.44	.2681	.001168
1.744	8.274	7628.	.9697	.9939	.9726	29.60	.2387	.001206
1.790	8.491	7828.	.9722	.9944	.9749	29.67	.2108	.001242
1.837	8.714	8034.	.9758	.9951	.9781	29.77	.1829	.001278
1.871	8.874	8184.	.9817	.9963	.9835	29.94	.1630	.001303
1.915	9.081	8372.	.9825	.9964	.9842	29.96	.1389	.001334
1.950	9.250	8528.	.9851	.9970	.9866	30.04	.1197	.001358
1.997	9.473	8733.	.9886	.9977	.9897	30.14	.0955	.001389
2.049	9.720	8961.	.9910	.9981	.9919	30.20	.0704	.001420
2.095	9.936	9161.	.9928	.9985	.9935	30.26	.0498	.001446
2.125	10.081	9294.	.9928	.9985	.9935	30.26	.0370	.001461
2.171	10.298	9494.	.9943	.9988	.9949	30.30	.0192	.001483
2.209	10.478	9660.	.9959	.9991	.9963	30.34	.0057	.001500
2.240	10.623	9794.	.9966	.9993	.9970	30.37	0.0000	.001507
2.273	10.780	9938.	.9976	.9995	.9978	30.39	0.0000	.001507
2.316	10.984	10127.	.9977	.9995	.9980	30.40	0.0000	.001507
2.397	11.370	10482.	1.0001	1.0000	1.0001	30.46	0.0000	.001507
2.496	11.840	10915.	1.0010	1.0002	1.0009	30.49	0.0000	.001507
2.579	12.231	11276.	.9999	.9999	.9999	30.46	0.0000	.001507
2.661	12.622	11637.	.9986	.9997	.9988	30.42	0.0000	.001507
2.741	13.002	11987.	.9999	.9999	.9999	30.46	0.0000	.001507
2.839	13.466	12414.	1.0001	1.0000	1.0001	30.46	0.0000	.001507
2.926	13.875	12792.	1.0001	1.0000	1.0001	30.46	0.0000	.001507
3.023	14.339	13219.	.9997	.9999	.9998	30.45	0.0000	.001507
3.106	14.730	13580.	.9988	.9997	.9989	30.43	0.0000	.001507
3.186	15.110	13930.	1.0014	1.0002	1.0012	30.50	0.0000	.001507
3.251	15.417	14213.	.9995	.9999	.9996	30.45	0.0000	.001507
3.337	15.826	14591.	1.0004	1.0001	1.0004	30.47	0.0000	.001507
3.436	16.296	15024.	1.0004	1.0001	1.0004	30.47	0.0000	.001507
3.535	16.766	15457.	1.0001	1.0000	1.0001	30.46	0.0000	.001507

TABLE A 8. (CONT.)
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .7943 TOTAL PRESSURE= .1334E+06 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 328.31 DEG-K

UE= 272.19 M/SEC DELTA STAR= .3610 CM THETA= .2383 CM H= 1.514
RE-DELTA-STAR= 56600. RE-THETA= 37360. NUWALL= .2108 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 9.0604 M/SEC CF= .001993 PI= .5901 DELTA= 2.5533 CM
CHISQR= .1339E-04 YMAX= 2.419 CM YMIN= .039 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8995	0.0000	0.00	1.0000	0.000000
.012	.053	54.	.4661	.9213	.4856	14.64	1.0000	0.000000
.025	.106	109.	.5325	.9280	.5528	16.69	.9989	.000004
.039	.165	169.	.5706	.9322	.5910	17.86	.9975	.000009
.053	.223	229.	.5901	.9345	.6104	18.45	.9960	.000014
.069	.293	300.	.6135	.9373	.6336	19.16	.9940	.000020
.085	.357	365.	.6287	.9392	.6487	19.62	.9922	.000026
.096	.405	414.	.6420	.9409	.6619	20.03	.9907	.000030
.114	.479	491.	.6528	.9423	.6724	20.35	.9883	.000036
.137	.575	589.	.6705	.9447	.6899	20.89	.9851	.000044
.157	.660	676.	.6756	.9454	.6949	21.04	.9821	.000052
.184	.772	791.	.6915	.9475	.7104	21.52	.9780	.000061
.223	.937	960.	.7010	.9489	.7196	21.81	.9716	.000076
.243	1.023	1048.	.7084	.9499	.7268	22.03	.9682	.000084
.269	1.129	1157.	.7139	.9507	.7322	22.20	.9637	.000094
.302	1.268	1299.	.7282	.9528	.7460	22.62	.9577	.000106
.322	1.353	1386.	.7302	.9531	.7480	22.68	.9539	.000114
.344	1.444	1479.	.7390	.9544	.7565	22.95	.9497	.000123
.372	1.561	1599.	.7408	.9546	.7582	23.00	.9440	.000135
.402	1.689	1730.	.7519	.9563	.7689	23.33	.9377	.000147
.431	1.811	1855.	.7552	.9568	.7721	23.43	.9314	.000160
.462	1.939	1986.	.7607	.9576	.7773	23.59	.9245	.000173
.485	2.035	2085.	.7666	.9585	.7830	23.77	.9192	.000183
.510	2.142	2194.	.7720	.9594	.7881	23.93	.9137	.000195
.535	2.248	2303.	.7773	.9602	.7933	24.09	.9069	.000206
.574	2.408	2467.	.7818	.9609	.7975	24.22	.8972	.000224
.594	2.493	2554.	.7878	.9618	.8032	24.40	.8918	.000234
.627	2.632	2696.	.7965	.9632	.8116	24.65	.8828	.000250
.656	2.755	2822.	.7996	.9637	.8145	24.75	.8745	.000265
.693	2.909	2980.	.8077	.9650	.8222	24.98	.8637	.000284
.718	3.014	3089.	.8107	.9655	.8250	25.07	.8560	.000297
.762	3.197	3275.	.8166	.9665	.8306	25.25	.8424	.000321
.822	3.453	3537.	.8262	.9681	.8397	25.53	.8222	.000355
.850	3.570	3657.	.8300	.9687	.8433	25.64	.8125	.000371
.881	3.698	3788.	.8342	.9694	.8472	25.76	.8016	.000389
.918	3.852	3946.	.8370	.9699	.8499	25.85	.7880	.000411
.944	3.964	4061.	.8456	.9713	.8580	26.10	.7778	.000428
.976	4.097	4197.	.8474	.9716	.8597	26.15	.7654	.000448
1.005	4.220	4323.	.8520	.9724	.8640	26.29	.7538	.000466
1.043	4.380	4486.	.8595	.9737	.8711	26.51	.7390	.000491
1.069	4.486	4596.	.8630	.9743	.8743	26.61	.7274	.000508

TABLE A 8. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.104	4.636	4748.	.8668	.9750	.8778	26.72	.7120	.000531
1.144	4.801	4918.	.8711	.9757	.8818	26.85	.6945	.000558
1.176	4.934	5054.	.8760	.9766	.8864	26.99	.6800	.000580
1.209	5.073	5196.	.8816	.9776	.8916	27.15	.6646	.000604
1.238	5.195	5322.	.8847	.9781	.8945	27.24	.6507	.000624
1.277	5.360	5491.	.8905	.9792	.8999	27.41	.6316	.000653
1.305	5.478	5611.	.8970	.9803	.9059	27.60	.6178	.000673
1.342	5.632	5769.	.8964	.9802	.9054	27.58	.5993	.000700
1.371	5.755	5895.	.9011	.9811	.9097	27.72	.5844	.000722
1.407	5.904	6048.	.9063	.9820	.9146	27.87	.5659	.000748
1.437	6.032	6179.	.9103	.9827	.9182	27.99	.5499	.000771
1.474	6.186	6337.	.9145	.9835	.9221	28.11	.5302	.000799
1.508	6.330	6484.	.9184	.9842	.9257	28.22	.5117	.000825
1.553	6.517	6675.	.9232	.9851	.9302	28.36	.4874	.000859
1.596	6.698	6861.	.9275	.9859	.9341	28.49	.4636	.000892
1.625	6.821	6987.	.9329	.9869	.9390	28.64	.4474	.000914
1.658	6.959	7128.	.9363	.9876	.9422	28.74	.4289	.000939
1.736	7.284	7461.	.9440	.9890	.9492	28.96	.3853	.000998
1.770	7.428	7609.	.9504	.9902	.9551	29.15	.3660	.001024
1.818	7.631	7816.	.9517	.9905	.9562	29.18	.3389	.001060
1.849	7.758	7947.	.9550	.9911	.9593	29.28	.3215	.001083
1.879	7.886	8078.	.9595	.9920	.9634	29.41	.3047	.001105
1.913	8.030	8226.	.9638	.9928	.9673	29.53	.2857	.001130
1.944	8.158	8357.	.9667	.9934	.9699	29.61	.2689	.001152
1.981	8.313	8515.	.9654	.9931	.9687	29.58	.2488	.001178
2.006	8.419	8624.	.9704	.9941	.9733	29.72	.2351	.001195
2.037	8.547	8755.	.9729	.9946	.9755	29.79	.2188	.001216
2.070	8.686	8897.	.9754	.9951	.9778	29.86	.2014	.001238
2.101	8.819	9034.	.9760	.9952	.9783	29.88	.1850	.001259
2.136	8.963	9181.	.9797	.9959	.9817	29.99	.1676	.001281
2.169	9.101	9323.	.9814	.9963	.9833	30.04	.1511	.001302
2.194	9.208	9432.	.9837	.9967	.9853	30.10	.1388	.001318
2.230	9.357	9585.	.9843	.9968	.9858	30.12	.1218	.001339
2.254	9.458	9689.	.9876	.9975	.9888	30.21	.1107	.001353
2.288	9.602	9836.	.9898	.9979	.9909	30.28	.0952	.001372
2.354	9.879	10120.	.9912	.9982	.9920	30.31	.0669	.001407
2.378	9.981	10223.	.9919	.9983	.9927	30.33	.0571	.001419
2.419	10.151	10398.	.9934	.9986	.9940	30.38	.0414	.001439
2.453	10.295	10546.	.9941	.9988	.9947	30.40	.0287	.001454
2.489	10.444	10698.	.9967	.9993	.9970	30.47	.0164	.001469
2.519	10.572	10829.	.9961	.9992	.9965	30.46	.0064	.001481
2.561	10.748	11010.	.9967	.9993	.9970	30.47	0.0000	.001489
2.597	10.897	11162.	.9967	.9993	.9970	30.47	0.0000	.001489
2.684	11.265	11539.	.9984	.9996	.9985	30.52	0.0000	.001489
2.766	11.606	11888.	.9989	.9997	.9990	30.53	0.0000	.001489
2.843	11.931	12221.	.9995	.9999	.9995	30.55	0.0000	.001489
2.907	12.198	12494.	1.0004	1.0000	1.0003	30.58	0.0000	.001489
2.995	12.571	12876.	1.0000	1.0000	1.0000	30.57	0.0000	.001489
3.073	12.896	13209.	1.0004	1.0000	1.0003	30.58	0.0000	.001489
3.141	13.183	13504.	1.0002	1.0000	1.0002	30.57	0.0000	.001489
3.235	13.578	13908.	1.0006	1.0001	1.0005	30.58	0.0000	.001489
3.319	13.929	14268.	1.0000	1.0000	1.0000	30.57	0.0000	.001489
3.412	14.318	14667.	.9996	.9999	.9997	30.56	0.0000	.001489
3.489	14.644	15000.	1.0007	1.0001	1.0007	30.59	0.0000	.001489
3.553	14.910	15273.	1.0002	1.0000	1.0002	30.57	0.0000	.001489
3.657	15.347	15720.	.9995	.9999	.9995	30.55	0.0000	.001489

TABLE A 8. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .7940 TOTAL PRESSURE= .1333E+06 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 324.67 DEG-K

UE= 270.59 M/SEC DELTA STAR= .3812 CM THETA= .2524 CM H= 1.509
RE-DELTA-STAR= 60680. RE-THETA= 40190. NUWALL= .2065 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 8.9945 M/SEC CF= .001987 PI= .5552 DELTA= 2.7494 CM
CHISQR= .1032E-04 YMAX= 2.580 CM YMIN= .044 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8996	0.0000	0.00	1.0000	0.000000
.010	.040	44.	.4335	.9184	.4524	13.65	1.0000	0.000000
.013	.055	60.	.4675	.9215	.4870	14.71	.9997	.000001
.029	.115	127.	.5404	.9289	.5607	16.95	.9984	.000006
.044	.176	193.	.5760	.9329	.5963	18.04	.9970	.000011
.068	.271	298.	.6128	.9373	.6329	19.17	.9944	.000019
.087	.347	381.	.6330	.9398	.6530	19.78	.9923	.000025
.111	.442	486.	.6466	.9415	.6664	20.20	.9893	.000033
.130	.518	569.	.6630	.9437	.6825	20.69	.9868	.000040
.154	.613	674.	.6746	.9452	.6939	21.04	.9836	.000048
.176	.699	768.	.6883	.9471	.7073	21.46	.9805	.000055
.200	.794	874.	.6973	.9484	.7160	21.73	.9770	.000063
.228	.905	995.	.7053	.9495	.7238	21.97	.9727	.000073
.274	1.086	1194.	.7183	.9514	.7365	22.36	.9654	.000089
.295	1.171	1288.	.7280	.9528	.7458	22.65	.9617	.000097
.335	1.327	1460.	.7390	.9544	.7565	22.98	.9549	.000111
.365	1.448	1593.	.7459	.9554	.7630	23.18	.9494	.000123
.388	1.539	1692.	.7500	.9560	.7671	23.31	.9451	.000131
.416	1.649	1814.	.7517	.9563	.7687	23.36	.9397	.000142
.449	1.780	1958.	.7597	.9575	.7764	23.59	.9331	.000155
.477	1.891	2079.	.7651	.9583	.7815	23.75	.9273	.000166
.509	2.016	2218.	.7710	.9592	.7872	23.93	.9205	.000179
.528	2.092	2301.	.7721	.9594	.7883	23.96	.9163	.000186
.567	2.248	2472.	.7811	.9608	.7969	24.23	.9074	.000203
.596	2.364	2599.	.7853	.9615	.8009	24.36	.9006	.000215
.642	2.545	2799.	.7936	.9628	.8088	24.60	.8893	.000236
.675	2.675	2942.	.7995	.9637	.8144	24.78	.8810	.000251
.737	2.922	3213.	.8081	.9651	.8225	25.03	.8643	.000280
.772	3.058	3363.	.8130	.9659	.8272	25.18	.8547	.000296
.812	3.219	3540.	.8188	.9669	.8327	25.35	.8429	.000316
.835	3.309	3639.	.8241	.9678	.8378	25.51	.8361	.000328
.878	3.480	3827.	.8280	.9684	.8414	25.62	.8228	.000350
.910	3.606	3966.	.8333	.9693	.8464	25.78	.8126	.000367
.938	3.717	4087.	.8381	.9701	.8510	25.92	.8035	.000382
.970	3.842	4226.	.8405	.9705	.8532	25.99	.7928	.000399
1.005	3.983	4381.	.8467	.9715	.8590	26.17	.7805	.000419
1.037	4.109	4519.	.8509	.9722	.8629	26.29	.7692	.000437
1.070	4.240	4663.	.8555	.9730	.8672	26.43	.7572	.000456
1.102	4.365	4801.	.8613	.9740	.8727	26.60	.7453	.000474
1.135	4.496	4945.	.8634	.9744	.8746	26.66	.7327	.000494
1.170	4.637	5100.	.8692	.9754	.8801	26.83	.7187	.000515

TABLE A 8. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.196	4.738	5210.	.8724	.9760	.8830	26.92	.7086	.000531
1.229	4.868	5354.	.8715	.9758	.8822	26.89	.6951	.000551
1.264	5.009	5509.	.8777	.9769	.8880	27.08	.6802	.000574
1.292	5.120	5631.	.8822	.9777	.8922	27.21	.6684	.000591
1.319	5.226	5747.	.8867	.9785	.8964	27.34	.6568	.000609
1.386	5.492	6040.	.8928	.9796	.9021	27.52	.6270	.000652
1.419	5.623	6184.	.8964	.9802	.9054	27.62	.6120	.000674
1.447	5.734	6306.	.9020	.9812	.9106	27.78	.5991	.000693
1.473	5.834	6416.	.9051	.9818	.9134	27.88	.5872	.000710
1.506	5.965	6560.	.9102	.9827	.9182	28.02	.5716	.000732
1.546	6.126	6737.	.9139	.9834	.9216	28.13	.5521	.000760
1.582	6.267	6892.	.9187	.9843	.9260	28.27	.5348	.000784
1.623	6.428	7069.	.9221	.9849	.9291	28.37	.5148	.000812
1.653	6.548	7202.	.9250	.9855	.9317	28.45	.4997	.000833
1.673	6.629	7290.	.9262	.9857	.9329	28.49	.4895	.000847
1.705	6.755	7429.	.9287	.9861	.9351	28.56	.4735	.000869
1.732	6.860	7545.	.9342	.9872	.9402	28.72	.4600	.000888
1.770	7.011	7711.	.9385	.9880	.9441	28.84	.4406	.000914
1.808	7.162	7877.	.9413	.9885	.9467	28.92	.4212	.000940
1.835	7.268	7993.	.9423	.9887	.9477	28.95	.4075	.000959
1.873	7.419	8159.	.9477	.9897	.9526	29.11	.3875	.000986
1.935	7.665	8430.	.9501	.9902	.9548	29.18	.3560	.001027
1.965	7.786	8563.	.9548	.9911	.9591	29.31	.3403	.001048
2.001	7.927	8718.	.9568	.9915	.9609	29.37	.3221	.001072
2.032	8.047	8850.	.9603	.9921	.9641	29.47	.3066	.001092
2.062	8.168	8983.	.9642	.9929	.9676	29.58	.2912	.001112
2.099	8.314	9144.	.9652	.9931	.9686	29.61	.2727	.001136
2.125	8.420	9260.	.9689	.9938	.9719	29.72	.2593	.001153
2.169	8.591	9448.	.9718	.9944	.9745	29.80	.2381	.001180
2.202	8.721	9592.	.9712	.9943	.9740	29.78	.2221	.001201
2.230	8.832	9713.	.9767	.9953	.9790	29.94	.2085	.001218
2.270	8.993	9890.	.9775	.9955	.9797	29.96	.1894	.001242
2.308	9.144	10056.	.9818	.9963	.9836	30.09	.1716	.001265
2.374	9.405	10344.	.9854	.9970	.9868	30.19	.1422	.001302
2.415	9.566	10521.	.9843	.9968	.9858	30.16	.1246	.001324
2.448	9.697	10665.	.9875	.9975	.9887	30.25	.1107	.001341
2.490	9.863	10847.	.9912	.9982	.9920	30.36	.0937	.001362
2.537	10.049	11052.	.9901	.9980	.9911	30.32	.0754	.001385
2.580	10.220	11240.	.9932	.9986	.9939	30.42	.0595	.001404
2.618	10.371	11406.	.9936	.9987	.9942	30.43	.0460	.001421
2.661	10.542	11594.	.9949	.9989	.9954	30.46	.0316	.001438
2.705	10.713	11782.	.9958	.9991	.9962	30.49	.0181	.001455
2.745	10.874	11959.	.9966	.9993	.9969	30.51	.0063	.001469
2.785	11.030	12131.	.9973	.9994	.9976	30.53	0.0000	.001477
2.821	11.176	12291.	.9967	.9993	.9971	30.52	0.0000	.001477
2.900	11.488	12634.	.9991	.9998	.9992	30.58	0.0000	.001477
2.971	11.769	12944.	.9988	.9997	.9989	30.57	0.0000	.001477
3.055	12.101	13309.	.9995	.9999	.9996	30.59	0.0000	.001477
3.144	12.454	13696.	.9991	.9998	.9992	30.58	0.0000	.001477
3.218	12.745	14017.	1.0004	1.0000	1.0004	30.62	0.0000	.001477
3.305	13.092	14399.	1.0004	1.0000	1.0004	30.62	0.0000	.001477
3.384	13.404	14742.	1.0002	1.0000	1.0002	30.61	0.0000	.001477
3.454	13.681	15046.	1.0002	1.0000	1.0002	30.61	0.0000	.001477
3.536	14.008	15406.	.9995	.9999	.9996	30.59	0.0000	.001477
3.619	14.335	15765.	1.0004	1.0000	1.0004	30.62	0.0000	.001477
3.698	14.647	16108.	.9997	.9999	.9997	30.60	0.0000	.001477

TABLE A 8. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .7921 TOTAL PRESSURE= .1333E+06 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 328.31 DEG-K

UE= 271.52 M/SEC DELTA STAR= .3979 CM THETA= .2637 CM H= 1.508
RE-DELTA-STAR= 61990. RE-THETA= 41090. NUWALL= .2101 CM**2/SEC CF= .001942

LEAST SQUARE FIT PARAMETERS
UTAU= 9.0022 M/SEC CF= .001978 PI= .5579 DELTA= 2.8696 CM
CHISQR= .8759E-05 YMAX= 2.729 CM YMIN= .027 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9000	0.0000	0.00	1.0000	0.000000
.010	.038	43.	.4370	.9191	.4559	13.79	1.0000	0.000000
.017	.067	76.	.4966	.9246	.5164	15.64	.9994	.000002
.027	.105	119.	.5418	.9293	.5620	17.04	.9986	.000005
.049	.187	212.	.5760	.9332	.5963	18.09	.9967	.000012
.068	.259	293.	.6055	.9366	.6256	18.99	.9947	.000018
.087	.332	375.	.6241	.9389	.6441	19.56	.9926	.000024
.106	.404	457.	.6448	.9416	.6645	20.19	.9904	.000030
.121	.462	522.	.6516	.9424	.6712	20.40	.9886	.000035
.140	.534	604.	.6621	.9438	.6816	20.72	.9862	.000041
.152	.577	652.	.6703	.9449	.6895	20.96	.9847	.000045
.177	.674	761.	.6868	.9471	.7057	21.46	.9813	.000053
.205	.779	881.	.6945	.9482	.7132	21.70	.9774	.000062
.231	.876	990.	.6982	.9487	.7168	21.81	.9737	.000070
.256	.972	1099.	.7133	.9509	.7315	22.26	.9699	.000079
.287	1.088	1229.	.7210	.9520	.7390	22.49	.9652	.000089
.304	1.155	1305.	.7210	.9520	.7390	22.49	.9623	.000095
.327	1.242	1403.	.7298	.9532	.7475	22.76	.9585	.000103
.355	1.348	1523.	.7370	.9543	.7544	22.97	.9538	.000113
.387	1.468	1659.	.7440	.9553	.7612	23.18	.9482	.000124
.406	1.540	1741.	.7491	.9561	.7661	23.34	.9448	.000131
.431	1.636	1850.	.7529	.9567	.7698	23.45	.9401	.000140
.450	1.709	1931.	.7549	.9570	.7716	23.51	.9365	.000147
.485	1.839	2078.	.7626	.9581	.7791	23.74	.9298	.000160
.515	1.954	2209.	.7661	.9587	.7824	23.84	.9236	.000172
.538	2.041	2307.	.7721	.9596	.7881	24.02	.9189	.000181
.566	2.147	2426.	.7768	.9603	.7927	24.16	.9129	.000192
.601	2.282	2579.	.7834	.9613	.7990	24.36	.9051	.000206
.646	2.450	2769.	.7897	.9623	.8050	24.55	.8949	.000224
.678	2.570	2905.	.7972	.9635	.8121	24.77	.8874	.000238
.716	2.715	3069.	.8008	.9641	.8155	24.88	.8790	.000254
.759	2.879	3254.	.8061	.9649	.8206	25.03	.8669	.000274
.795	3.013	3406.	.8154	.9665	.8294	25.31	.8574	.000290
.831	3.153	3564.	.8205	.9673	.8341	25.46	.8472	.000307
.863	3.273	3700.	.8248	.9680	.8383	25.59	.8382	.000322
.903	3.442	3890.	.8267	.9683	.8401	25.64	.8252	.000344
.939	3.562	4026.	.8335	.9694	.8465	25.85	.8155	.000360
.982	3.726	4211.	.8407	.9706	.8533	26.06	.8020	.000382
1.021	3.870	4375.	.8426	.9710	.8551	26.11	.7896	.000402
1.069	4.053	4581.	.8497	.9722	.8618	26.32	.7734	.000428
1.104	4.188	4734.	.8527	.9727	.8646	26.41	.7611	.000447

TABLE A 8. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.148	4.352	4919.	.8587	.9737	.8702	26.59	.7457	.000471
1.183	4.487	5071.	.8631	.9745	.8743	26.72	.7326	.000491
1.221	4.631	5234.	.8677	.9753	.8787	26.85	.7183	.000513
1.259	4.775	5398.	.8736	.9763	.8842	27.03	.7035	.000536
1.296	4.915	5555.	.8786	.9772	.8888	27.17	.6888	.000558
1.336	5.064	5724.	.8830	.9779	.8929	27.30	.6731	.000581
1.374	5.209	5887.	.8861	.9785	.8957	27.39	.6573	.000605
1.417	5.372	6072.	.8912	.9794	.9006	27.54	.6391	.000631
1.463	5.546	6268.	.8954	.9801	.9044	27.66	.6193	.000660
1.503	5.700	6442.	.9023	.9814	.9108	27.86	.6014	.000686
1.550	5.878	6644.	.9071	.9823	.9153	28.00	.5803	.000716
1.595	6.046	6834.	.9102	.9828	.9181	28.09	.5599	.000745
1.638	6.210	7019.	.9135	.9834	.9212	28.19	.5399	.000773
1.673	6.345	7172.	.9180	.9842	.9253	28.32	.5231	.000796
1.713	6.494	7340.	.9239	.9853	.9307	28.49	.5044	.000822
1.752	6.643	7509.	.9267	.9858	.9333	28.57	.4855	.000848
1.788	6.778	7661.	.9300	.9864	.9363	28.67	.4683	.000872
1.821	6.903	7803.	.9335	.9871	.9396	28.77	.4522	.000894
1.859	7.048	7966.	.9381	.9880	.9438	28.90	.4333	.000919
1.896	7.187	8124.	.9408	.9885	.9463	28.98	.4154	.000943
1.930	7.317	8271.	.9441	.9891	.9493	29.08	.3985	.000966
1.965	7.452	8423.	.9494	.9901	.9541	29.23	.3810	.000989
2.006	7.606	8597.	.9481	.9899	.9529	29.19	.3609	.001016
2.049	7.770	8782.	.9547	.9911	.9590	29.38	.3396	.001043
2.087	7.914	8946.	.9566	.9915	.9607	29.44	.3209	.001068
2.125	8.059	9109.	.9592	.9920	.9630	29.51	.3023	.001092
2.169	8.223	9294.	.9623	.9926	.9659	29.60	.2813	.001119
2.213	8.391	9484.	.9694	.9939	.9723	29.81	.2599	.001146
2.263	8.579	9696.	.9721	.9945	.9748	29.89	.2365	.001176
2.307	8.747	9887.	.9745	.9949	.9769	29.95	.2157	.001203
2.343	8.882	10039.	.9755	.9951	.9778	29.98	.1994	.001223
2.385	9.041	10219.	.9803	.9961	.9823	30.12	.1805	.001247
2.429	9.210	10409.	.9815	.9963	.9833	30.16	.1609	.001272
2.479	9.397	10622.	.9842	.9968	.9857	30.23	.1397	.001298
2.522	9.561	10807.	.9859	.9972	.9873	30.28	.1218	.001320
2.564	9.720	10986.	.9881	.9976	.9893	30.35	.1046	.001341
2.603	9.869	11155.	.9900	.9980	.9910	30.40	.0897	.001360
2.654	10.062	11372.	.9920	.9984	.9928	30.46	.0708	.001383
2.691	10.201	11530.	.9937	.9987	.9943	30.51	.0578	.001399
2.729	10.346	11694.	.9928	.9985	.9935	30.48	.0448	.001415
2.771	10.505	11873.	.9948	.9989	.9954	30.54	.0313	.001431
2.819	10.688	12080.	.9952	.9990	.9957	30.55	.0168	.001449
2.857	10.832	12243.	.9958	.9991	.9962	30.56	.0060	.001462
2.898	10.986	12417.	.9980	.9996	.9982	30.63	0.0000	.001469
2.947	11.174	12629.	.9974	.9994	.9977	30.61	0.0000	.001469
3.012	11.419	12907.	.9980	.9996	.9982	30.63	0.0000	.001469
3.096	11.737	13266.	.9991	.9998	.9992	30.66	0.0000	.001469
3.183	12.069	13642.	.9996	.9999	.9997	30.68	0.0000	.001469
3.271	12.401	14017.	.9995	.9999	.9995	30.67	0.0000	.001469
3.357	12.729	14387.	1.0000	1.0000	1.0000	30.69	0.0000	.001469
3.456	13.104	14812.	.9987	.9997	.9989	30.65	0.0000	.001469
3.544	13.437	15187.	.9989	.9997	.9990	30.65	0.0000	.001469
3.581	13.576	15345.	1.0006	1.0001	1.0005	30.70	0.0000	.001469
3.651	13.841	15644.	1.0004	1.0000	1.0003	30.70	0.0000	.001469
3.695	14.010	15835.	.9995	.9999	.9995	30.67	0.0000	.001469

TABLE A 8. (CONT.)
PROFILE - JPL-5 -- - PITOT PRESSURE DATA

EDGE MACH NO.= .7919 TOTAL PRESSURE= .1330E+06 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 328.55 DEG-K

UE= 271.55 M/SEC DELTA STAR= .4155 CM THETA= .2747 CM H= 1.512
RE-DELTA-STAR= 64440. RE-THETA= 42600. NUWALL= .2105 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 8.9444 M/SEC CF= .001953 PI= .5867 DELTA= 2.9659 CM
CHISQR= .1002E-04 YMAX= 2.806 CM YMIN= .024 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.9000	0.0000	0.00	1.0000	0.000000
.010	.036	43.	.4350	.9190	.4538	13.82	1.0000	0.000000
.024	.087	102.	.5023	.9253	.5222	15.92	.9990	.000004
.050	.184	215.	.5700	.9325	.5903	18.02	.9968	.000012
.066	.240	280.	.6018	.9362	.6220	19.00	.9953	.000016
.088	.323	377.	.6191	.9383	.6391	19.53	.9930	.000023
.116	.425	496.	.6436	.9414	.6633	20.29	.9899	.000031
.132	.480	561.	.6625	.9439	.6819	20.86	.9881	.000036
.170	.619	723.	.6722	.9452	.6914	21.16	.9834	.000048
.187	.684	798.	.6835	.9467	.7025	21.50	.9811	.000053
.217	.790	922.	.6938	.9481	.7125	21.81	.9772	.000062
.246	.896	1046.	.7050	.9497	.7234	22.16	.9732	.000071
.273	.993	1160.	.7122	.9507	.7304	22.37	.9693	.000079
.302	1.100	1284.	.7186	.9516	.7367	22.57	.9649	.000089
.334	1.215	1419.	.7225	.9522	.7404	22.68	.9600	.000099
.361	1.317	1537.	.7354	.9541	.7529	23.08	.9555	.000108
.386	1.405	1640.	.7427	.9552	.7600	23.30	.9515	.000116
.411	1.497	1748.	.7447	.9555	.7619	23.36	.9472	.000125
.462	1.682	1964.	.7509	.9564	.7678	23.54	.9382	.000143
.485	1.765	2061.	.7615	.9580	.7780	23.86	.9340	.000151
.515	1.876	2190.	.7626	.9581	.7791	23.89	.9282	.000162
.556	2.024	2363.	.7701	.9593	.7863	24.12	.9202	.000177
.594	2.163	2525.	.7789	.9607	.7947	24.38	.9124	.000191
.626	2.279	2660.	.7800	.9608	.7957	24.42	.9056	.000203
.657	2.394	2795.	.7849	.9616	.8004	24.56	.8986	.000216
.685	2.496	2914.	.7901	.9624	.8054	24.72	.8923	.000227
.716	2.607	3043.	.7963	.9634	.8112	24.90	.8852	.000240
.756	2.755	3216.	.8036	.9646	.8182	25.12	.8754	.000257
.787	2.866	3345.	.8044	.9647	.8189	25.15	.8678	.000270
.828	3.014	3518.	.8109	.9657	.8252	25.34	.8573	.000288
.855	3.115	3637.	.8156	.9665	.8296	25.48	.8499	.000300
.892	3.249	3793.	.8188	.9670	.8327	25.58	.8398	.000317
.922	3.356	3917.	.8262	.9682	.8396	25.80	.8315	.000331
.967	3.522	4112.	.8344	.9696	.8473	26.04	.8182	.000352
1.003	3.652	4263.	.8358	.9698	.8487	26.08	.8074	.000370
1.029	3.744	4371.	.8411	.9707	.8537	26.24	.7996	.000382
1.080	3.934	4592.	.8425	.9710	.8550	26.28	.7828	.000409
1.112	4.049	4727.	.8491	.9721	.8612	26.48	.7725	.000425
1.143	4.160	4856.	.8512	.9724	.8632	26.54	.7622	.000441
1.177	4.285	5002.	.8532	.9728	.8651	26.60	.7503	.000460
1.214	4.419	5158.	.8606	.9740	.8720	26.82	.7372	.000480

TABLE A 8. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.257	4.576	5342.	.8665	.9751	.8775	26.99	.7215	.000504
1.287	4.687	5471.	.8704	.9757	.8811	27.11	.7101	.000521
1.330	4.844	5655.	.8733	.9762	.8839	27.19	.6935	.000546
1.363	4.964	5795.	.8774	.9770	.8877	27.31	.6807	.000565
1.393	5.071	5919.	.8839	.9781	.8937	27.50	.6691	.000582
1.470	5.353	6249.	.8897	.9791	.8991	27.68	.6373	.000628
1.501	5.464	6378.	.8940	.9799	.9031	27.80	.6242	.000647
1.540	5.607	6545.	.8990	.9808	.9078	27.95	.6076	.000671
1.579	5.750	6713.	.9007	.9811	.9094	28.00	.5905	.000695
1.611	5.866	6848.	.9040	.9817	.9123	28.09	.5764	.000715
1.651	6.009	7015.	.9106	.9829	.9184	28.29	.5588	.000740
1.689	6.148	7177.	.9140	.9835	.9216	28.39	.5415	.000764
1.719	6.259	7306.	.9190	.9844	.9262	28.53	.5275	.000783
1.760	6.407	7479.	.9217	.9849	.9287	28.61	.5087	.000809
1.795	6.536	7630.	.9260	.9857	.9327	28.74	.4920	.000831
1.833	6.675	7792.	.9275	.9860	.9340	28.78	.4741	.000856
1.866	6.795	7932.	.9322	.9869	.9384	28.92	.4584	.000877
1.898	6.911	8067.	.9347	.9873	.9406	28.99	.4432	.000897
1.935	7.045	8224.	.9381	.9880	.9438	29.09	.4255	.000921
1.968	7.165	8364.	.9409	.9885	.9464	29.18	.4096	.000942
2.000	7.281	8499.	.9428	.9888	.9480	29.23	.3943	.000962
2.033	7.401	8639.	.9472	.9897	.9521	29.36	.3784	.000983
2.075	7.553	8817.	.9500	.9902	.9546	29.44	.3581	.001009
2.110	7.683	8968.	.9544	.9911	.9587	29.57	.3410	.001031
2.139	7.789	9092.	.9547	.9911	.9590	29.58	.3270	.001050
2.167	7.891	9211.	.9596	.9920	.9634	29.72	.3136	.001067
2.208	8.039	9384.	.9611	.9923	.9648	29.76	.2942	.001092
2.247	8.182	9551.	.9650	.9931	.9684	29.88	.2755	.001115
2.273	8.274	9659.	.9662	.9933	.9694	29.91	.2636	.001130
2.310	8.409	9816.	.9673	.9935	.9704	29.94	.2464	.001152
2.339	8.515	9940.	.9702	.9941	.9731	30.03	.2328	.001169
2.373	8.640	10085.	.9738	.9948	.9763	30.13	.2173	.001189
2.411	8.778	10247.	.9756	.9951	.9780	30.18	.2002	.001210
2.435	8.866	10350.	.9769	.9954	.9791	30.22	.1895	.001223
2.523	9.185	10722.	.9820	.9964	.9838	30.37	.1518	.001270
2.556	9.305	10862.	.9825	.9965	.9842	30.38	.1380	.001287
2.593	9.439	11019.	.9856	.9971	.9870	30.47	.1231	.001305
2.626	9.560	11159.	.9863	.9973	.9877	30.49	.1099	.001321
2.669	9.717	11343.	.9890	.9978	.9901	30.57	.0934	.001341
2.719	9.897	11553.	.9909	.9981	.9918	30.62	.0752	.001363
2.768	10.077	11764.	.9916	.9983	.9924	30.64	.0579	.001384
2.806	10.216	11926.	.9926	.9985	.9933	30.67	.0452	.001400
2.842	10.346	12077.	.9937	.9987	.9943	30.70	.0338	.001413
2.887	10.512	12271.	.9957	.9991	.9961	30.76	.0202	.001430
2.923	10.641	12422.	.9961	.9992	.9965	30.77	.0101	.001442
2.997	10.910	12735.	.9976	.9995	.9978	30.82	0.0000	.001454
3.042	11.076	12929.	.9974	.9994	.9977	30.81	0.0000	.001454
3.115	11.339	13237.	.9976	.9995	.9978	30.82	0.0000	.001454
3.187	11.603	13545.	.9989	.9997	.9990	30.85	0.0000	.001454
3.274	11.917	13911.	.9981	.9996	.9983	30.83	0.0000	.001454
3.351	12.199	14241.	.9992	.9998	.9993	30.86	0.0000	.001454
3.435	12.504	14597.	1.0007	1.0001	1.0006	30.91	0.0000	.001454
3.525	12.833	14980.	1.0005	1.0001	1.0005	30.90	0.0000	.001454
3.604	13.119	15315.	.9991	.9998	.9992	30.86	0.0000	.001454
3.649	13.286	15509.	1.0000	1.0000	1.0000	30.89	0.0000	.001454
3.683	13.406	15649.	.9996	.9999	.9997	30.88	0.0000	.001454

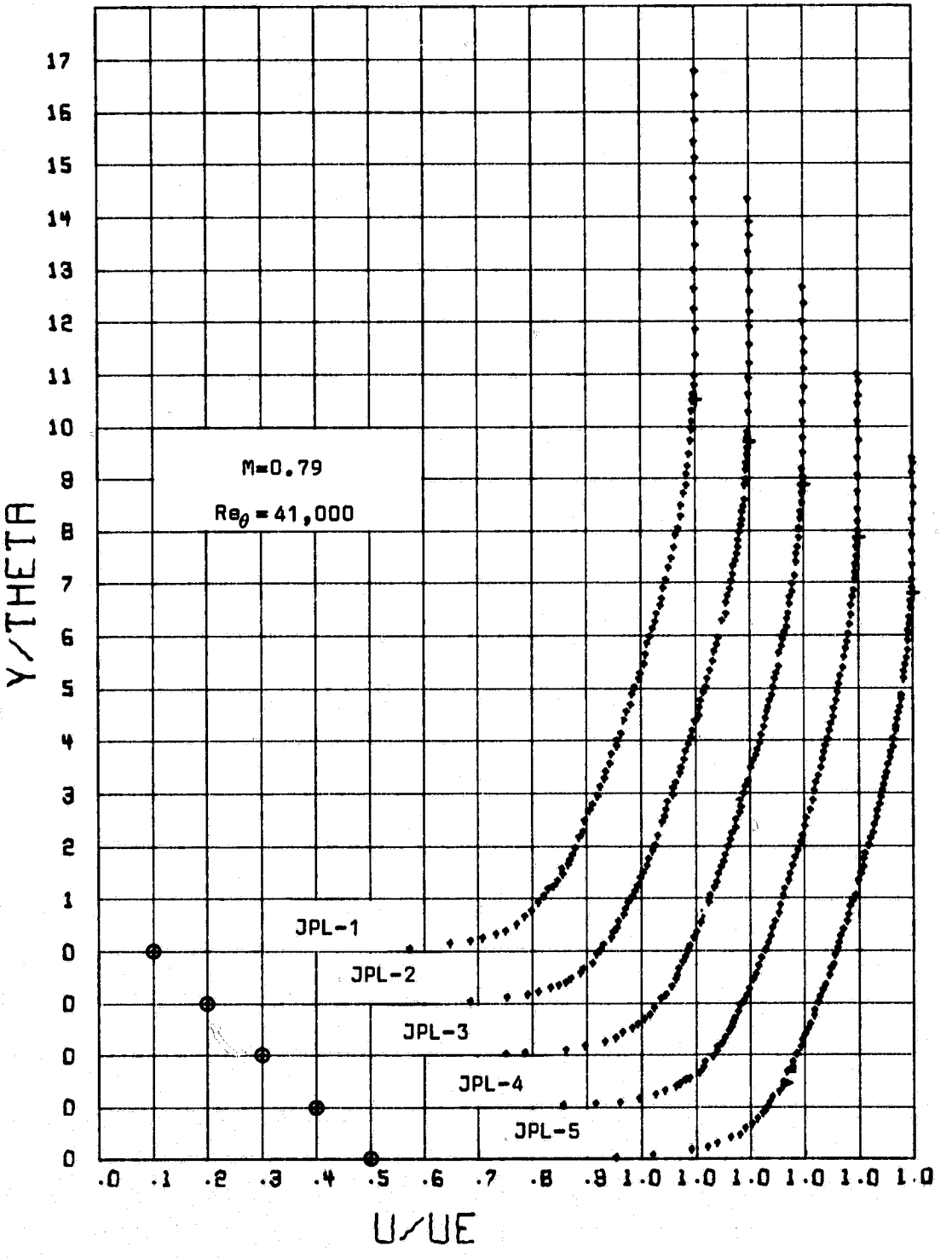

Figure A17. Mean Velocity Profiles.

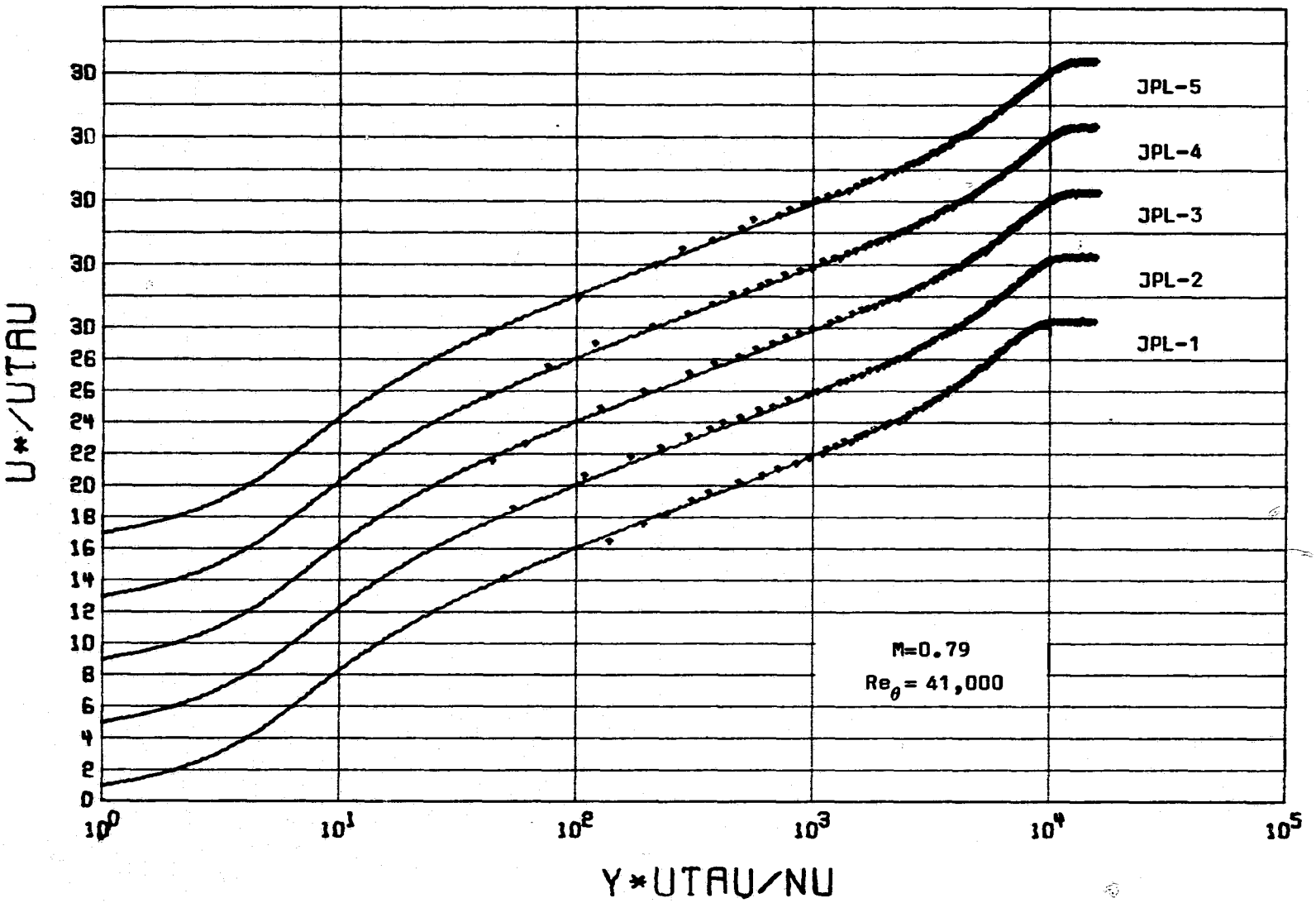

Figure A 18. Van Driest Scaled Mean Velocity Profiles.

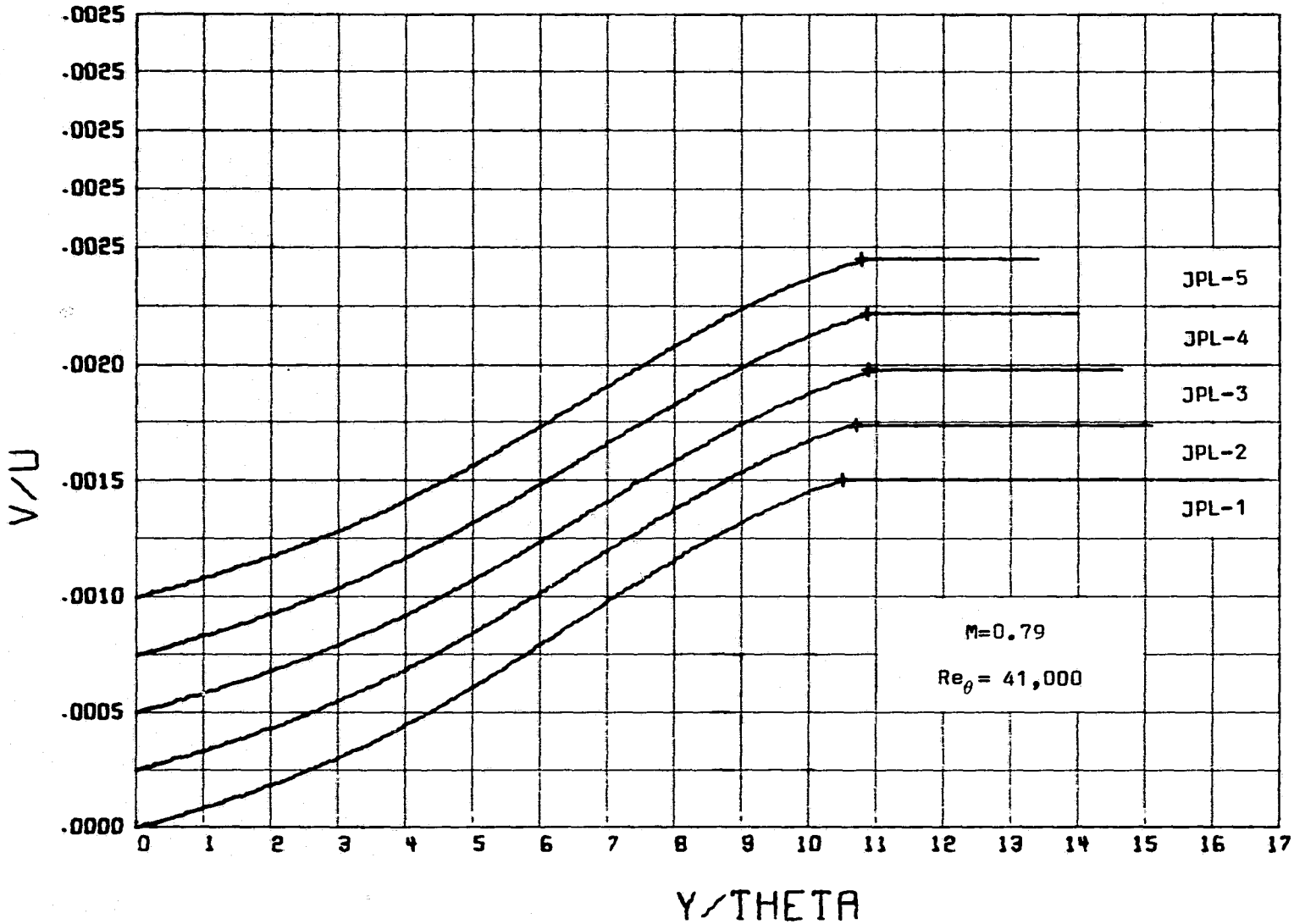

Figure A19. Normal Velocity Distribution.

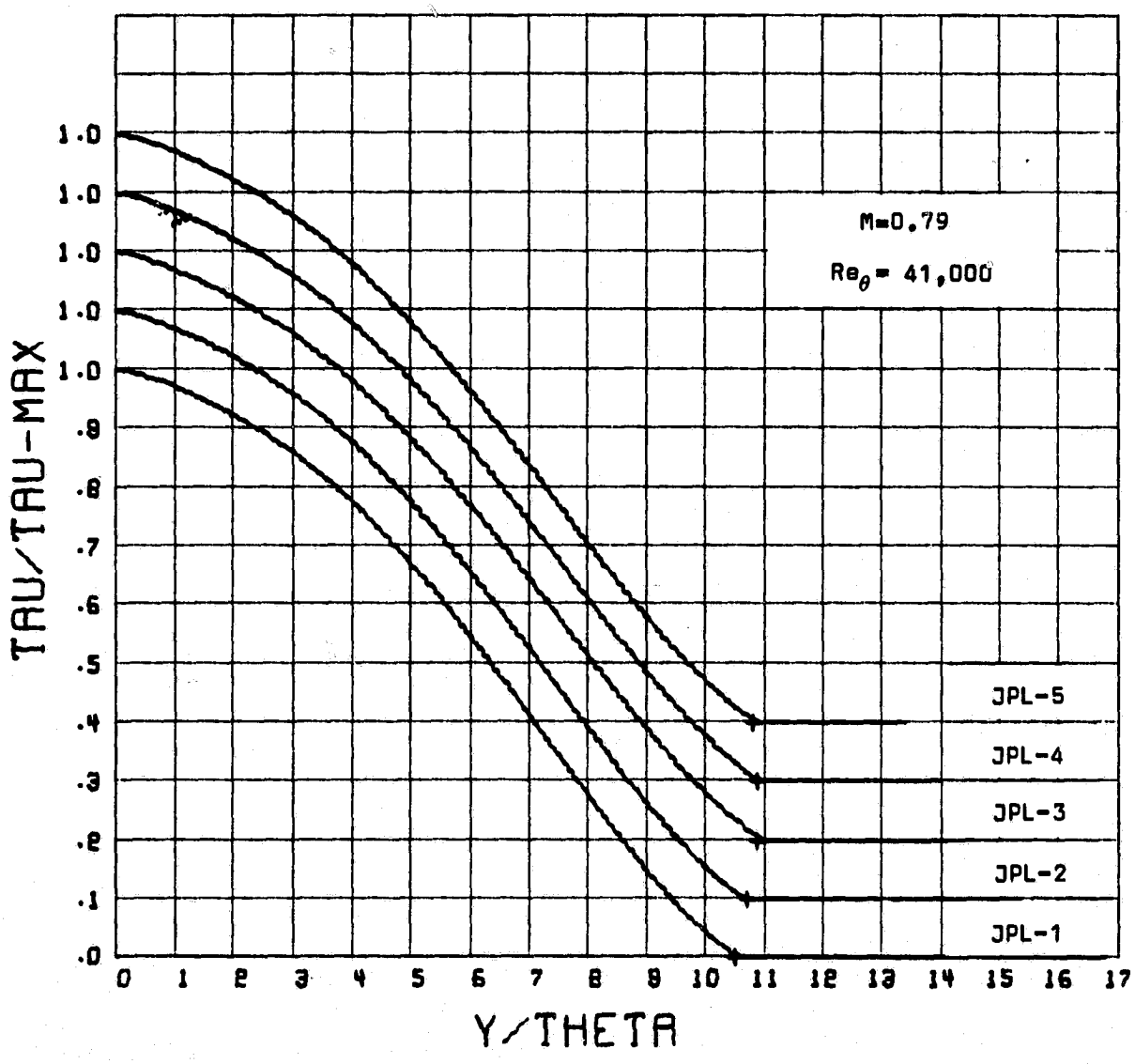

Figure A20. Shear Stress Distribution.

TABLE A 9. DATA SUMMARY
PROFILE - JPL-1 - -- PITOT PRESSURE DATA

EDGE MACH NO.= .9664 TOTAL PRESSURE= .6611E+05 N/M**2
X=-48.43 CM TOTAL TEMPERATURE= 310.59 DEG-K

UE= 313.76 M/SEC DELTA STAR= .3487 CM THETA= .2079 CM H= 1.677
RE-DELTA-STAR= 31290. RE-THETA= 18650. NUWALL= .4564 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 10.9979 M/SEC CF= .002108 PI= .7057 DELTA= 2.1042 CM
CHISQR= .2873E-05 YMAX= 1.991 CM YMIN= .081 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8581	0.0000	0.00	1.0000	0.000000
.010	.048	24.	.3807	.8787	.4061	11.63	1.0000	0.000000
.019	.091	45.	.4635	.8886	.4917	14.11	.9992	.000004
.045	.219	110.	.5480	.9007	.5774	16.60	.9966	.000016
.062	.299	149.	.5696	.9041	.5990	17.23	.9946	.000023
.081	.390	195.	.5903	.9075	.6197	17.84	.9922	.000032
.092	.445	223.	.6072	.9104	.6364	18.33	.9906	.000037
.118	.567	284.	.6248	.9135	.6537	18.84	.9869	.000049
.143	.690	345.	.6433	.9168	.6718	19.37	.9829	.000061
.161	.775	388.	.6527	.9185	.6810	19.64	.9799	.000070
.195	.940	471.	.6687	.9215	.6966	20.10	.9739	.000086
.227	1.093	547.	.6839	.9244	.7112	20.54	.9680	.000102
.269	1.294	648.	.6985	.9273	.7254	20.96	.9595	.000124
.293	1.410	706.	.7046	.9285	.7312	21.13	.9543	.000137
.327	1.575	789.	.7151	.9306	.7413	21.43	.9466	.000156
.356	1.715	859.	.7265	.9330	.7521	21.75	.9396	.000172
.388	1.868	936.	.7346	.9347	.7598	21.98	.9316	.000191
.416	2.002	1003.	.7390	.9356	.7640	22.11	.9242	.000208
.455	2.192	1098.	.7516	.9382	.7759	22.46	.9132	.000232
.481	2.314	1159.	.7567	.9393	.7807	22.60	.9057	.000249
.521	2.509	1257.	.7637	.9408	.7873	22.80	.8930	.000276
.557	2.681	1343.	.7748	.9433	.7977	23.11	.8813	.000301
.589	2.833	1419.	.7805	.9445	.8031	23.27	.8702	.000324
.623	2.998	1502.	.7871	.9460	.8092	23.46	.8577	.000350
.655	3.151	1579.	.7952	.9478	.8168	23.68	.8455	.000375
.697	3.352	1680.	.8013	.9492	.8224	23.85	.8286	.000408
.732	3.523	1765.	.8151	.9523	.8352	24.24	.8136	.000438
.781	3.755	1881.	.8233	.9543	.8428	24.46	.7920	.000479
.811	3.902	1955.	.8275	.9552	.8467	24.58	.7776	.000507
.844	4.061	2035.	.8345	.9569	.8531	24.77	.7616	.000537
.887	4.269	2139.	.8429	.9589	.8608	25.01	.7397	.000577
.943	4.537	2273.	.8539	.9615	.8708	25.31	.7098	.000631
.991	4.769	2389.	.8609	.9632	.8771	25.50	.6828	.000679
1.043	5.020	2515.	.8719	.9660	.8871	25.80	.6523	.000733
1.098	5.282	2647.	.8828	.9687	.8970	26.10	.6190	.000790
1.167	5.612	2812.	.8925	.9711	.9056	26.36	.5755	.000863
1.207	5.807	2910.	.9002	.9731	.9126	26.57	.5489	.000908
1.256	6.040	3026.	.9089	.9753	.9204	26.81	.5166	.000960
1.318	6.339	3176.	.9198	.9781	.9300	27.10	.4742	.001029
1.383	6.650	3332.	.9268	.9800	.9362	27.29	.4293	.001100
1.436	6.907	3461.	.9352	.9822	.9436	27.52	.3920	.001158

TABLE A 9. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.485	7.145	3580.	.9432	.9843	.9507	27.73	.3573	.001212
1.537	7.395	3705.	.9511	.9864	.9576	27.95	.3211	.001267
1.583	7.615	3816.	.9576	.9882	.9633	28.12	.2896	.001315
1.644	7.909	3963.	.9606	.9890	.9659	28.20	.2483	.001377
1.689	8.123	4070.	.9699	.9916	.9740	28.43	.2189	.001420
1.739	8.367	4192.	.9736	.9926	.9773	28.55	.1864	.001468
1.799	8.653	4336.	.9797	.9943	.9825	28.71	.1498	.001521
1.842	8.861	4440.	.9833	.9953	.9856	28.81	.1246	.001557
1.899	9.136	4578.	.9867	.9962	.9886	28.90	.0933	.001602
1.945	9.356	4688.	.9901	.9972	.9915	28.98	.0700	.001636
1.991	9.576	4798.	.9928	.9979	.9938	29.06	.0484	.001666
2.043	9.826	4924.	.9929	.9980	.9939	29.06	.0262	.001698
2.091	10.058	5040.	.9962	.9989	.9967	29.15	.0081	.001723
2.133	10.260	5141.	.9955	.9987	.9962	29.13	0.0000	.001734
2.194	10.553	5288.	.9975	.9993	.9979	29.18	0.0000	.001734
2.254	10.840	5431.	.9973	.9992	.9977	29.18	0.0000	.001734
2.360	11.353	5689.	.9987	.9996	.9989	29.21	0.0000	.001734
2.471	11.885	5955.	.9991	.9997	.9992	29.22	0.0000	.001734
2.553	12.281	6154.	.9992	.9998	.9994	29.23	0.0000	.001734
2.640	12.697	6362.	1.0007	1.0002	1.0006	29.27	0.0000	.001734
2.678	12.880	6454.	.9998	.9999	.9998	29.24	0.0000	.001734
2.772	13.332	6680.	1.0001	1.0000	1.0001	29.25	0.0000	.001734
2.868	13.796	6913.	.9997	.9999	.9998	29.24	0.0000	.001734
2.975	14.309	7170.	.9982	.9995	.9985	29.20	0.0000	.001734
3.074	14.785	7408.	.9993	.9998	.9994	29.23	0.0000	.001734
3.122	15.018	7525.	1.0016	1.0004	1.0014	29.29	0.0000	.001734
3.166	15.226	7629.	.9994	.9998	.9995	29.23	0.0000	.001734
3.221	15.494	7763.	1.0004	1.0001	1.0004	29.26	0.0000	.001734
3.263	15.696	7865.	.9995	.9998	.9996	29.23	0.0000	.001734
3.305	15.897	7966.	.9989	.9997	.9991	29.22	0.0000	.001734
3.356	16.142	8088.	.9985	.9995	.9987	29.21	0.0000	.001734
3.398	16.343	8189.	1.0008	1.0002	1.0007	29.27	0.0000	.001734
3.458	16.630	8333.	1.0001	1.0000	1.0001	29.25	0.0000	.001734

TABLE A 9. (CONT.)
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9669 TOTAL PRESSURE= .6691E+05 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 312.05 DEG-K

UE= 314.63 M/SEC DELTA STAR= .3983 CM THETA= .2385 CM H= 1.670
RE-DELTA-STAR= 34900. RE-THETA= 20890. NUWALL= .4546 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 10.9169 M/SEC CF= .002065 PI= .6968 DELTA= 2.4307 CM
CHISQR= .4764E-05 YMAX= 2.258 CM YMIN= .076 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8580	0.0000	0.00	1.0000	0.000000
.010	.042	24.	.3734	.8778	.3986	11.53	1.0000	0.000000
.011	.047	27.	.3891	.8795	.4149	12.00	.9999	0.000000
.013	.058	33.	.4342	.8847	.4616	13.37	.9997	.000001
.024	.101	57.	.4788	.8905	.5074	14.71	.9989	.000005
.043	.181	103.	.5340	.8985	.5633	16.36	.9973	.000013
.058	.244	140.	.5617	.9028	.5912	17.18	.9958	.000019
.076	.319	182.	.5862	.9068	.6156	17.90	.9939	.000025
.097	.410	234.	.6033	.9096	.6325	18.40	.9913	.000034
.111	.468	268.	.6128	.9113	.6420	18.68	.9896	.000039
.124	.521	298.	.6260	.9136	.6549	19.07	.9880	.000044
.142	.596	341.	.6333	.9149	.6621	19.28	.9856	.000051
.172	.724	414.	.6514	.9182	.6798	19.81	.9813	.000064
.199	.836	478.	.6605	.9199	.6887	20.07	.9773	.000074
.223	.937	536.	.6741	.9225	.7018	20.47	.9736	.000085
.251	1.054	603.	.6852	.9246	.7126	20.79	.9690	.000096
.287	1.203	689.	.6961	.9268	.7231	21.10	.9629	.000112
.284	1.192	683.	.6951	.9266	.7221	21.07	.9628	.000112
.308	1.293	741.	.6985	.9272	.7253	21.17	.9590	.000121
.330	1.384	792.	.7048	.9285	.7314	21.35	.9549	.000131
.360	1.512	866.	.7143	.9304	.7405	21.62	.9490	.000145
.393	1.650	945.	.7201	.9316	.7460	21.79	.9423	.000161
.424	1.778	1018.	.7309	.9338	.7563	22.10	.9358	.000176
.462	1.938	1110.	.7396	.9356	.7646	22.35	.9272	.000195
.490	2.055	1177.	.7463	.9371	.7709	22.54	.9206	.000210
.516	2.167	1241.	.7534	.9386	.7776	22.74	.9141	.000224
.556	2.332	1335.	.7568	.9393	.7809	22.84	.9039	.000246
.582	2.444	1399.	.7647	.9410	.7883	23.06	.8968	.000261
.599	2.513	1439.	.7711	.9424	.7943	23.25	.8922	.000270
.626	2.625	1503.	.7735	.9429	.7966	23.31	.8846	.000286
.661	2.774	1588.	.7837	.9452	.8061	23.60	.8741	.000308
.683	2.864	1640.	.7821	.9448	.8046	23.56	.8674	.000321
.728	3.056	1750.	.7938	.9475	.8155	23.89	.8527	.000350
.748	3.136	1796.	.7967	.9481	.8182	23.97	.8464	.000363
.779	3.269	1872.	.8018	.9493	.8230	24.11	.8354	.000384
.828	3.471	1988.	.8127	.9518	.8330	24.42	.8180	.000418
.868	3.642	2086.	.8214	.9538	.8411	24.66	.8026	.000447
.905	3.796	2174.	.8251	.9546	.8445	24.77	.7881	.000474
.949	3.983	2281.	.8306	.9559	.8495	24.92	.7697	.000508
.989	4.148	2375.	.8370	.9575	.8554	25.10	.7529	.000539
1.036	4.345	2488.	.8487	.9602	.8661	25.42	.7319	.000576

TABLE A 9. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.089	4.568	2616.	.8564	.9621	.8731	25.64	.7070	.000620
1.126	4.723	2705.	.8590	.9628	.8755	25.71	.6892	.000651
1.173	4.920	2818.	.8678	.9649	.8834	25.95	.6657	.000692
1.209	5.069	2903.	.8751	.9667	.8901	26.16	.6474	.000723
1.252	5.250	3007.	.8803	.9680	.8947	26.30	.6247	.000761
1.297	5.442	3116.	.8871	.9697	.9008	26.48	.5999	.000802
1.336	5.601	3208.	.8929	.9712	.9060	26.64	.5787	.000837
1.367	5.734	3284.	.9008	.9732	.9131	26.86	.5609	.000866
1.404	5.889	3373.	.9034	.9739	.9154	26.93	.5399	.000900
1.430	5.995	3434.	.9061	.9745	.9178	27.01	.5252	.000924
1.465	6.144	3519.	.9132	.9764	.9241	27.20	.5044	.000957
1.494	6.267	3589.	.9165	.9772	.9271	27.29	.4871	.000984
1.530	6.416	3675.	.9203	.9782	.9304	27.39	.4659	.001017
1.579	6.624	3793.	.9290	.9805	.9382	27.63	.4361	.001063
1.633	6.847	3922.	.9348	.9821	.9433	27.79	.4038	.001113
1.685	7.066	4047.	.9414	.9838	.9491	27.97	.3722	.001161
1.744	7.316	4190.	.9450	.9848	.9522	28.07	.3360	.001216
1.789	7.502	4297.	.9545	.9874	.9606	28.33	.3092	.001255
1.849	7.753	4440.	.9576	.9882	.9633	28.41	.2732	.001308
1.892	7.934	4544.	.9621	.9894	.9672	28.53	.2484	.001345
1.948	8.168	4678.	.9708	.9918	.9748	28.76	.2163	.001391
2.000	8.386	4803.	.9708	.9918	.9748	28.76	.1872	.001433
2.041	8.642	4949.	.9780	.9938	.9810	28.96	.1545	.001480
2.115	8.871	5081.	.9821	.9949	.9846	29.07	.1264	.001520
2.166	9.084	5202.	.9836	.9954	.9859	29.11	.1017	.001554
2.212	9.276	5312.	.9882	.9966	.9898	29.23	.0806	.001584
2.258	9.467	5422.	.9898	.9971	.9913	29.28	.0607	.001612
2.311	9.691	5550.	.9898	.9971	.9912	29.27	.0393	.001642
2.358	9.888	5663.	.9943	.9983	.9951	29.39	.0220	.001665
2.402	10.074	5770.	.9934	.9981	.9943	29.37	.0072	.001686
2.448	10.266	5880.	.9946	.9984	.9953	29.40	0.0000	.001696
2.493	10.452	5986.	.9965	.9990	.9970	29.45	0.0000	.001696
2.589	10.852	6215.	.9978	.9993	.9981	29.49	0.0000	.001696
2.669	11.193	6410.	.9988	.9996	.9989	29.51	0.0000	.001696
2.759	11.571	6627.	1.0003	1.0000	1.0002	29.55	0.0000	.001696
2.844	11.927	6831.	.9980	.9994	.9983	29.49	0.0000	.001696
2.931	12.289	7038.	.9985	.9996	.9987	29.51	0.0000	.001696
3.011	12.625	7231.	.9986	.9996	.9988	29.51	0.0000	.001696
3.083	12.928	7404.	.9986	.9996	.9988	29.51	0.0000	.001696
3.154	13.227	7575.	.9986	.9996	.9988	29.51	0.0000	.001696
3.239	13.583	7780.	1.0001	1.0000	1.0000	29.55	0.0000	.001696
3.309	13.876	7947.	.9993	.9998	.9994	29.53	0.0000	.001696
3.350	14.047	8045.	1.0001	1.0000	1.0000	29.55	0.0000	.001696
3.389	14.212	8139.	.9999	.9999	.9999	29.54	0.0000	.001696
3.427	14.372	8231.	1.0001	1.0000	1.0000	29.55	0.0000	.001696
3.455	14.489	8298.	.9997	.9999	.9997	29.54	0.0000	.001696
3.548	14.877	8521.	1.0001	1.0000	1.0000	29.55	0.0000	.001696

TABLE A 9. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9719 TOTAL PRESSURE= .6638E+05 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 309.38 DEG-K

UE= 314.66 M/SEC DELTA STAR= .4084 CM THETA= .2466 CM H= 1.656
RE-DELTA-STAR= 37630. RE-THETA= 22720. NUWALL= .4531 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 11.0079 M/SEC CF= .002097 PI= .6076 DELTA= 2.6090 CM
CHISQR= .7695E-05 YMAX= 2.454 CM YMIN= .077 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8567	0.0000	0.00	1.0000	0.000000
.010	.041	24.	.4100	.8808	.4369	12.54	1.0000	0.000000
.012	.051	30.	.4158	.8815	.4429	12.72	.9998	.000001
.016	.066	40.	.4736	.8888	.5023	14.44	.9995	.000002
.027	.113	67.	.5165	.8949	.5460	15.72	.9986	.000007
.038	.154	92.	.5444	.8992	.5741	16.54	.9978	.000011
.053	.216	129.	.5602	.9017	.5900	17.00	.9963	.000016
.063	.257	154.	.5752	.9041	.6049	17.44	.9953	.000020
.077	.314	188.	.5930	.9071	.6227	17.96	.9937	.000026
.088	.360	215.	.6078	.9096	.6373	18.39	.9924	.000030
.104	.422	253.	.6170	.9112	.6463	18.66	.9906	.000036
.125	.509	305.	.6283	.9133	.6574	18.99	.9879	.000044
.144	.587	351.	.6443	.9162	.6732	19.45	.9854	.000052
.166	.674	404.	.6561	.9184	.6846	19.79	.9824	.000060
.186	.757	453.	.6647	.9200	.6930	20.04	.9795	.000068
.207	.839	502.	.6742	.9218	.7022	20.31	.9765	.000077
.220	.896	536.	.6818	.9233	.7095	20.53	.9743	.000082
.245	.993	595.	.6855	.9240	.7131	20.64	.9705	.000092
.257	1.045	626.	.6899	.9249	.7174	20.76	.9685	.000098
.293	1.189	712.	.7012	.9271	.7282	21.09	.9625	.000113
.327	1.328	796.	.7146	.9299	.7411	21.47	.9564	.000127
.360	1.462	876.	.7221	.9314	.7482	21.68	.9503	.000142
.388	1.575	944.	.7295	.9329	.7553	21.89	.9449	.000155
.417	1.694	1015.	.7354	.9342	.7608	22.06	.9391	.000168
.449	1.823	1092.	.7386	.9348	.7639	22.15	.9324	.000183
.476	1.931	1157.	.7447	.9361	.7696	22.32	.9267	.000196
.501	2.034	1218.	.7541	.9382	.7786	22.59	.9210	.000209
.539	2.188	1311.	.7577	.9389	.7819	22.69	.9122	.000228
.577	2.343	1403.	.7637	.9403	.7876	22.86	.9029	.000248
.610	2.477	1484.	.7763	.9430	.7994	23.21	.8945	.000265
.650	2.636	1579.	.7802	.9439	.8031	23.32	.8841	.000287
.679	2.755	1650.	.7856	.9451	.8081	23.47	.8760	.000303
.718	2.914	1746.	.7898	.9461	.8120	23.59	.8648	.000326
.755	3.064	1835.	.7975	.9478	.8191	23.80	.8538	.000348
.783	3.177	1903.	.7992	.9482	.8207	23.85	.8451	.000365
.829	3.362	2014.	.8108	.9509	.8314	24.17	.8305	.000394
.867	3.517	2107.	.8169	.9523	.8371	24.34	.8177	.000419
.899	3.646	2184.	.8237	.9539	.8433	24.53	.8067	.000440
.941	3.816	2286.	.8286	.9551	.8478	24.67	.7916	.000468
.979	3.970	2378.	.8344	.9564	.8532	24.83	.7774	.000494
1.017	4.125	2471.	.8395	.9577	.8578	24.97	.7627	.000521

TABLE A 9. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.061	4.305	2579.	.8465	.9594	.8643	25.16	.7449	.000554
1.103	4.475	2681.	.8538	.9611	.8709	25.36	.7275	.000585
1.130	4.583	2746.	.8570	.9619	.8737	25.45	.7162	.000605
1.165	4.727	2832.	.8609	.9629	.8773	25.56	.7007	.000632
1.198	4.861	2912.	.8670	.9644	.8829	25.73	.6860	.000658
1.240	5.031	3014.	.8710	.9654	.8865	25.84	.6668	.000691
1.268	5.144	3082.	.8783	.9672	.8930	26.04	.6537	.000714
1.310	5.314	3184.	.8785	.9673	.8932	26.04	.6337	.000748
1.341	5.438	3258.	.8874	.9695	.9012	26.29	.6189	.000773
1.377	5.587	3347.	.8898	.9701	.9034	26.35	.6006	.000804
1.410	5.721	3427.	.8951	.9715	.9081	26.50	.5839	.000832
1.456	5.907	3538.	.9035	.9736	.9156	26.72	.5604	.000870
1.497	6.071	3637.	.9072	.9746	.9189	26.83	.5392	.000905
1.527	6.195	3711.	.9118	.9758	.9230	26.95	.5230	.000931
1.560	6.329	3791.	.9157	.9768	.9265	27.06	.5053	.000960
1.611	6.535	3915.	.9202	.9780	.9304	27.18	.4778	.001003
1.647	6.679	4001.	.9258	.9795	.9355	27.33	.4584	.001034
1.675	6.792	4069.	.9284	.9802	.9377	27.40	.4430	.001058
1.714	6.952	4165.	.9353	.9820	.9438	27.58	.4212	.001092
1.751	7.101	4254.	.9370	.9825	.9453	27.63	.4007	.001124
1.781	7.225	4328.	.9395	.9832	.9475	27.70	.3838	.001150
1.817	7.369	4415.	.9441	.9844	.9516	27.82	.3640	.001181
1.859	7.539	4517.	.9485	.9856	.9554	27.94	.3407	.001216
1.903	7.719	4625.	.9534	.9869	.9597	28.07	.3161	.001253
1.934	7.843	4699.	.9554	.9875	.9614	28.13	.2993	.001279
1.972	7.998	4791.	.9580	.9882	.9637	28.20	.2784	.001310
2.028	8.224	4927.	.9663	.9905	.9709	28.42	.2483	.001355
2.066	8.379	5019.	.9690	.9912	.9733	28.49	.2280	.001384
2.108	8.549	5121.	.9726	.9922	.9764	28.58	.2061	.001417
2.142	8.688	5205.	.9743	.9927	.9779	28.63	.1885	.001442
2.180	8.842	5297.	.9752	.9930	.9786	28.65	.1693	.001470
2.212	8.971	5374.	.9813	.9947	.9839	28.82	.1537	.001493
2.256	9.151	5482.	.9826	.9950	.9850	28.85	.1324	.001523
2.296	9.311	5578.	.9841	.9955	.9863	28.89	.1141	.001550
2.334	9.465	5671.	.9860	.9960	.9879	28.94	.0967	.001575
2.381	9.656	5785.	.9870	.9963	.9888	28.97	.0769	.001603
2.413	9.785	5862.	.9910	.9974	.9923	29.07	.0639	.001621
2.454	9.955	5964.	.9925	.9978	.9936	29.11	.0475	.001644
2.498	10.130	6069.	.9931	.9980	.9940	29.13	.0315	.001667
2.538	10.294	6167.	.9952	.9986	.9958	29.18	.0175	.001687
2.574	10.439	6254.	.9952	.9986	.9958	29.18	.0060	.001703
2.616	10.609	6355.	.9960	.9988	.9966	29.21	0.0000	.001711
2.665	10.809	6476.	.9965	.9990	.9970	29.22	0.0000	.001711
2.735	11.093	6645.	.9994	.9998	.9995	29.30	0.0000	.001711
2.820	11.438	6852.	.9989	.9996	.9990	29.28	0.0000	.001711
2.917	11.829	7087.	.9989	.9996	.9990	29.28	0.0000	.001711
3.011	12.210	7315.	.9996	.9999	.9997	29.30	0.0000	.001711
3.097	12.560	7525.	1.0009	1.0002	1.0008	29.34	0.0000	.001711
3.191	12.942	7753.	1.0014	1.0004	1.0012	29.35	0.0000	.001711
3.294	13.359	8003.	.9998	.9999	.9998	29.31	0.0000	.001711
3.392	13.755	8241.	.9990	.9997	.9991	29.28	0.0000	.001711
3.442	13.961	8364.	1.0006	1.0001	1.0005	29.33	0.0000	.001711
3.498	14.188	8500.	1.0011	1.0003	1.0009	29.34	0.0000	.001711
3.552	14.404	8629.	.9990	.9997	.9991	29.28	0.0000	.001711
3.589	14.554	8719.	1.0001	1.0000	1.0001	29.31	0.0000	.001711
3.641	14.765	8845.	.9997	.9999	.9998	29.30	0.0000	.001711

TABLE A 9. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9672 TOTAL PRESSURE= .6665E+05 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 312.77 DEG-K

UE= 315.09 M/SEC DELTA STAR= .4228 CM THETA= .2556 CM H= 1.653
RE-DELTA-STAR= 37790. RE-THETA= 22840. NUWALL= .4571 CM**2/SEC CF= .002057

LEAST SQUARE FIT PARAMETERS
UTAU= 10.9744 M/SEC CF= .002081 PI= .6222 DELTA= 2.6964 CM
CHISQR= .6317E-05 YMAX= 2.538 CM YMIN= .074 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8579	0.0000	0.00	1.0000	0.000000
.010	.039	24.	.4037	.8810	.4300	12.40	1.0000	0.000000
.011	.044	27.	.4269	.8838	.4541	13.10	.9999	0.000000
.026	.104	64.	.5148	.8955	.5440	15.73	.9988	.000006
.052	.203	125.	.5643	.9031	.5938	17.19	.9967	.000015
.074	.293	179.	.5847	.9065	.6142	17.79	.9944	.000023
.092	.362	222.	.6092	.9106	.6383	18.51	.9925	.000030
.118	.462	283.	.6266	.9137	.6555	19.01	.9896	.000039
.140	.551	338.	.6365	.9155	.6653	19.30	.9868	.000047
.158	.620	381.	.6396	.9160	.6682	19.39	.9845	.000054
.170	.665	408.	.6526	.9184	.6810	19.77	.9830	.000058
.207	.809	497.	.6688	.9214	.6968	20.24	.9780	.000072
.224	.879	539.	.6748	.9226	.7026	20.41	.9754	.000079
.240	.938	576.	.6801	.9236	.7076	20.56	.9731	.000085
.260	1.018	625.	.6887	.9253	.7159	20.81	.9701	.000093
.283	1.107	679.	.6921	.9259	.7192	20.91	.9665	.000102
.293	1.147	704.	.7011	.9277	.7279	21.17	.9648	.000106
.341	1.336	820.	.7100	.9295	.7364	21.42	.9568	.000125
.370	1.450	890.	.7165	.9308	.7426	21.61	.9516	.000138
.406	1.589	975.	.7286	.9333	.7542	21.95	.9451	.000153
.443	1.733	1064.	.7398	.9356	.7648	22.27	.9380	.000169
.485	1.897	1164.	.7453	.9368	.7700	22.43	.9295	.000188
.519	2.031	1247.	.7549	.9389	.7791	22.70	.9223	.000204
.561	2.195	1347.	.7585	.9396	.7825	22.80	.9130	.000224
.590	2.310	1417.	.7632	.9407	.7869	22.94	.9062	.000238
.624	2.444	1500.	.7725	.9427	.7957	23.20	.8980	.000256
.654	2.558	1570.	.7771	.9437	.8000	23.33	.8907	.000271
.688	2.692	1652.	.7848	.9454	.8071	23.54	.8818	.000289
.727	2.846	1747.	.7901	.9466	.8121	23.69	.8712	.000310
.764	2.990	1835.	.7921	.9470	.8139	23.75	.8609	.000331
.802	3.139	1927.	.7987	.9485	.8201	23.93	.8498	.000353
.833	3.258	2000.	.8052	.9500	.8261	24.12	.8406	.000371
.877	3.432	2106.	.8136	.9519	.8338	24.35	.8266	.000398
.915	3.581	2198.	.8178	.9529	.8378	24.47	.8141	.000421
.951	3.720	2283.	.8262	.9549	.8455	24.70	.8021	.000444
.988	3.865	2372.	.8314	.9561	.8502	24.85	.7892	.000468
1.023	4.004	2457.	.8340	.9567	.8526	24.92	.7763	.000492
1.061	4.153	2549.	.8408	.9583	.8589	25.11	.7621	.000518
1.096	4.287	2631.	.8459	.9595	.8635	25.25	.7489	.000541
1.134	4.436	2722.	.8531	.9613	.8701	25.45	.7338	.000568
1.164	4.555	2796.	.8570	.9622	.8737	25.56	.7214	.000590

TABLE A 9. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.200	4.694	2881.	.8610	.9632	.8772	25.67	.7066	.000616
1.240	4.853	2979.	.8653	.9643	.8812	25.79	.6893	.000646
1.266	4.953	3039.	.8706	.9656	.8860	25.93	.6782	.000665
1.299	5.082	3119.	.8758	.9669	.8907	26.08	.6635	.000691
1.347	5.270	3235.	.8817	.9683	.8960	26.24	.6414	.000728
1.385	5.420	3326.	.8866	.9696	.9004	26.37	.6236	.000758
1.423	5.569	3418.	.8899	.9704	.9033	26.46	.6055	.000788
1.454	5.688	3491.	.8943	.9715	.9073	26.58	.5907	.000812
1.493	5.842	3585.	.9009	.9732	.9132	26.76	.5713	.000944
1.522	5.956	3655.	.9024	.9736	.9146	26.81	.5568	.000868
1.545	6.045	3710.	.9047	.9742	.9166	26.87	.5452	.000886
1.581	6.185	3796.	.9112	.9758	.9224	27.04	.5271	.000915
1.619	6.334	3887.	.9132	.9764	.9241	27.10	.5075	.000947
1.654	6.473	3973.	.9174	.9775	.9279	27.21	.4890	.000976
1.695	6.632	4070.	.9226	.9788	.9325	27.35	.4676	.001009
1.746	6.830	4192.	.9280	.9802	.9373	27.50	.4408	.001051
1.776	6.950	4265.	.9331	.9816	.9418	27.64	.4245	.001076
1.859	7.273	4463.	.9412	.9837	.9489	27.86	.3803	.001144
1.901	7.436	4564.	.9458	.9850	.9530	27.98	.3580	.001178
1.925	7.531	4622.	.9520	.9867	.9584	28.15	.3450	.001197
1.960	7.670	4707.	.9526	.9868	.9590	28.17	.3262	.001226
2.007	7.854	4820.	.9580	.9883	.9636	28.31	.3013	.001263
2.038	7.973	4893.	.9603	.9889	.9656	28.37	.2853	.001286
2.065	8.077	4957.	.9630	.9897	.9680	28.45	.2714	.001307
2.099	8.211	5040.	.9636	.9898	.9686	28.46	.2533	.001333
2.132	8.341	5119.	.9693	.9914	.9735	28.61	.2368	.001357
2.157	8.440	5180.	.9697	.9915	.9739	28.63	.2240	.001376
2.188	8.559	5253.	.9733	.9925	.9769	28.72	.2088	.001398
2.218	8.678	5326.	.9754	.9931	.9788	28.78	.1938	.001420
2.251	8.808	5406.	.9780	.9938	.9810	28.85	.1779	.001443
2.287	8.947	5491.	.9796	.9942	.9824	28.89	.1611	.001467
2.317	9.066	5564.	.9803	.9944	.9831	28.91	.1470	.001487
2.358	9.225	5662.	.9831	.9952	.9854	28.98	.1288	.001513
2.397	9.379	5756.	.9852	.9958	.9873	29.04	.1113	.001538
2.432	9.513	5839.	.9864	.9961	.9883	29.07	.0972	.001558
2.475	9.682	5942.	.9889	.9968	.9905	29.14	.0798	.001582
2.513	9.831	6034.	.9897	.9970	.9911	29.16	.0652	.001603
2.538	9.930	6095.	.9914	.9975	.9926	29.21	.0558	.001616
2.574	10.069	6180.	.9931	.9980	.9941	29.25	.0432	.001633
2.623	10.263	6299.	.9937	.9982	.9946	29.27	.0268	.001656
2.659	10.402	6384.	.9952	.9986	.9959	29.31	.0159	.001671
2.691	10.527	6461.	.9962	.9989	.9967	29.33	.0068	.001684
2.733	10.690	6561.	.9966	.9990	.9971	29.34	0.0000	.001693
2.769	10.835	6650.	.9979	.9994	.9982	29.38	0.0000	.001693
2.830	11.073	6796.	.9987	.9996	.9988	29.40	0.0000	.001693
2.909	11.381	6985.	.9990	.9997	.9992	29.41	0.0000	.001693
2.988	11.689	7174.	1.0000	1.0000	1.0000	29.43	0.0000	.001693
3.054	11.947	7333.	1.0002	1.0000	1.0001	29.44	0.0000	.001693
3.133	12.255	7522.	.9991	.9997	.9992	29.41	0.0000	.001693
3.205	12.539	7696.	.9996	.9999	.9997	29.42	0.0000	.001693
3.294	12.886	7909.	1.0000	1.0000	1.0000	29.43	0.0000	.001693
3.380	13.224	8116.	1.0004	1.0001	1.0003	29.44	0.0000	.001693
3.446	13.482	8275.	.9996	.9999	.9997	29.42	0.0000	.001693
3.526	13.795	8467.	.9998	.9999	.9998	29.43	0.0000	.001693
3.583	14.019	8604.	1.0000	1.0000	1.0000	29.43	0.0000	.001693
3.674	14.372	8821.	.9996	.9999	.9997	29.42	0.0000	.001693

TABLE A 9. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9651 TOTAL PRESSURE= .6665E+05 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 312.05 DEG-K

UE= 314.15 M/SEC DELTA STAR= .4407 CM THETA= .2665 CM H= 1.653
RE-DELTA-STAR= 39440. RE-THETA= 23850. NUWALL= .4549 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 10.9025 M/SEC CF= .002067 PI= .6222 DELTA= 2.8165 CM
CHISQR= .7261E-05 YMAX= 2.663 CM YMIN= .074 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8584	0.0000	0.00	1.0000	0.000000
.010	.038	24.	.3929	.8803	.4188	12.11	1.0000	0.000000
.011	.042	27.	.4090	.8821	.4354	12.60	.9999	0.000000
.026	.100	63.	.5002	.8938	.5290	15.34	.9989	.000005
.033	.123	79.	.5259	.8976	.5551	16.11	.9984	.000008
.053	.200	127.	.5526	.9016	.5820	16.90	.9967	.000015
.049	.185	118.	.5522	.9016	.5815	16.89	.9967	.000015
.074	.281	179.	.5820	.9064	.6113	17.77	.9947	.000022
.105	.395	252.	.6129	.9116	.6419	18.68	.9915	.000032
.123	.462	295.	.6254	.9138	.6542	19.04	.9896	.000039
.140	.528	337.	.6352	.9155	.6638	19.33	.9875	.000045
.156	.586	374.	.6458	.9174	.6742	19.64	.9857	.000050
.186	.700	447.	.6627	.9206	.6907	20.13	.9818	.000061
.207	.776	496.	.6663	.9213	.6942	20.23	.9791	.000068
.238	.895	572.	.6770	.9233	.7045	20.54	.9748	.000080
.255	.957	611.	.6894	.9257	.7165	20.90	.9724	.000086
.265	.995	636.	.6880	.9254	.7152	20.86	.9709	.000089
.292	1.096	700.	.6920	.9262	.7191	20.98	.9670	.000099
.331	1.243	794.	.7044	.9286	.7309	21.33	.9608	.000115
.367	1.377	879.	.7174	.9313	.7434	21.71	.9550	.000128
.392	1.472	940.	.7204	.9319	.7463	21.79	.9507	.000138
.425	1.596	1019.	.7292	.9337	.7547	22.05	.9449	.000152
.466	1.748	1117.	.7317	.9342	.7570	22.12	.9374	.000169
.494	1.853	1184.	.7411	.9362	.7659	22.38	.9320	.000181
.519	1.949	1244.	.7509	.9382	.7752	22.66	.9270	.000192
.547	2.053	1311.	.7536	.9388	.7778	22.74	.9212	.000204
.580	2.177	1391.	.7622	.9407	.7859	22.99	.9142	.000219
.621	2.330	1488.	.7670	.9417	.7904	23.12	.9052	.000238
.638	2.396	1531.	.7693	.9422	.7926	23.19	.9012	.000247
.669	2.511	1604.	.7773	.9439	.8000	23.41	.8940	.000261
.707	2.654	1695.	.7824	.9451	.8048	23.56	.8848	.000280
.750	2.816	1798.	.7864	.9460	.8086	23.67	.8738	.000302
.792	2.973	1899.	.7927	.9474	.8144	23.85	.8626	.000324
.862	3.235	2066.	.8030	.9497	.8240	24.14	.8429	.000363
.891	3.345	2136.	.8090	.9510	.8295	24.30	.8343	.000379
.918	3.445	2200.	.8130	.9520	.8333	24.42	.8262	.000395
.952	3.573	2282.	.8157	.9526	.8357	24.49	.8155	.000415
.995	3.735	2386.	.8231	.9543	.8426	24.70	.8015	.000441
1.035	3.883	2480.	.8315	.9563	.8503	24.93	.7883	.000465
1.066	4.002	2556.	.8391	.9581	.8573	25.15	.7773	.000485
1.103	4.141	2645.	.8407	.9585	.8587	25.19	.7642	.000509

TABLE A 9. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.139	4.274	2730.	.8452	.9595	.8628	25.32	.7512	.000532
1.167	4.379	2797.	.8512	.9610	.8683	25.48	.7407	.000551
1.210	4.541	2900.	.8565	.9623	.8732	25.63	.7241	.000580
1.253	4.703	3004.	.8648	.9643	.8807	25.86	.7070	.000610
1.278	4.798	3065.	.8660	.9646	.8817	25.89	.6966	.000628
1.316	4.941	3156.	.8730	.9663	.8881	26.09	.6809	.000655
1.352	5.075	3241.	.8763	.9671	.8911	26.18	.6658	.000680
1.389	5.213	3329.	.8811	.9683	.8954	26.31	.6498	.000707
1.454	5.456	3485.	.8887	.9702	.9022	26.52	.6210	.000755
1.497	5.618	3588.	.8882	.9701	.9018	26.51	.6012	.000788
1.525	5.723	3655.	.8954	.9719	.9083	26.71	.5883	.000809
1.548	5.808	3710.	.8973	.9724	.9099	26.76	.5775	.000827
1.584	5.947	3798.	.9042	.9741	.9161	26.95	.5600	.000855
1.620	6.080	3883.	.9049	.9743	.9167	26.96	.5429	.000882
1.642	6.161	3935.	.9090	.9754	.9203	27.08	.5324	.000899
1.673	6.280	4011.	.9139	.9766	.9247	27.21	.5168	.000924
1.713	6.428	4106.	.9183	.9778	.9287	27.33	.4973	.000954
1.751	6.571	4197.	.9221	.9788	.9320	27.43	.4783	.000984
1.775	6.661	4255.	.9260	.9798	.9355	27.54	.4662	.001003
1.808	6.785	4334.	.9270	.9800	.9363	27.57	.4495	.001029
1.850	6.943	4434.	.9334	.9817	.9420	27.74	.4282	.001061
1.885	7.076	4520.	.9366	.9826	.9449	27.83	.4101	.001089
1.906	7.152	4568.	.9396	.9834	.9475	27.91	.3997	.001105
1.940	7.281	4650.	.9415	.9839	.9492	27.96	.3821	.001131
1.990	7.467	4769.	.9480	.9856	.9549	28.14	.3568	.001169
2.099	7.877	5031.	.9575	.9882	.9632	28.40	.3012	.001252
2.133	8.005	5113.	.9606	.9890	.9659	28.48	.2843	.001277
2.167	8.134	5195.	.9648	.9902	.9696	28.59	.2673	.001302
2.203	8.267	5281.	.9635	.9898	.9685	28.56	.2498	.001327
2.256	8.467	5408.	.9694	.9914	.9736	28.72	.2240	.001364
2.292	8.601	5494.	.9718	.9921	.9756	28.78	.2071	.001389
2.338	8.772	5603.	.9766	.9934	.9798	28.91	.1858	.001419
2.341	8.934	5707.	.9793	.9942	.9821	28.98	.1662	.001447
2.410	9.044	5777.	.9802	.9944	.9830	29.01	.1532	.001465
2.442	9.163	5853.	.9819	.9949	.9844	29.05	.1394	.001485
2.480	9.306	5944.	.9862	.9961	.9881	29.17	.1233	.001508
2.534	9.511	6075.	.9869	.9963	.9887	29.19	.1011	.001539
2.581	9.687	6188.	.9888	.9968	.9904	29.24	.0829	.001564
2.622	9.840	6285.	.9923	.9978	.9934	29.33	.0680	.001585
2.663	9.992	6382.	.9936	.9982	.9945	29.37	.0537	.001605
2.698	10.126	6468.	.9943	.9984	.9951	29.39	.0419	.001621
2.741	10.288	6571.	.9934	.9981	.9943	29.36	.0283	.001640
2.774	10.412	6650.	.9950	.9986	.9957	29.40	.0186	.001653
2.815	10.564	6748.	.9951	.9986	.9958	29.41	.0075	.001669
2.862	10.740	6860.	.9973	.9992	.9977	29.47	0.0000	.001679
2.894	10.860	6936.	.9976	.9993	.9980	29.47	0.0000	.001679
2.970	11.146	7119.	.9987	.9996	.9989	29.50	0.0000	.001679
3.045	11.427	7299.	.9993	.9998	.9994	29.52	0.0000	.001679
3.117	11.698	7472.	.9988	.9996	.9989	29.50	0.0000	.001679
3.181	11.937	7624.	1.0001	1.0000	1.0001	29.54	0.0000	.001679
3.272	12.280	7843.	1.0007	1.0002	1.0006	29.56	0.0000	.001679
3.347	12.561	8023.	1.0002	1.0000	1.0002	29.54	0.0000	.001679
3.439	12.904	8242.	1.0000	1.0000	1.0000	29.54	0.0000	.001679
3.536	13.271	8477.	.9991	.9997	.9992	29.51	0.0000	.001679
3.613	13.557	8659.	.9997	.9999	.9997	29.53	0.0000	.001679
3.684	13.824	8830.	1.0008	1.0002	1.0007	29.56	0.0000	.001679

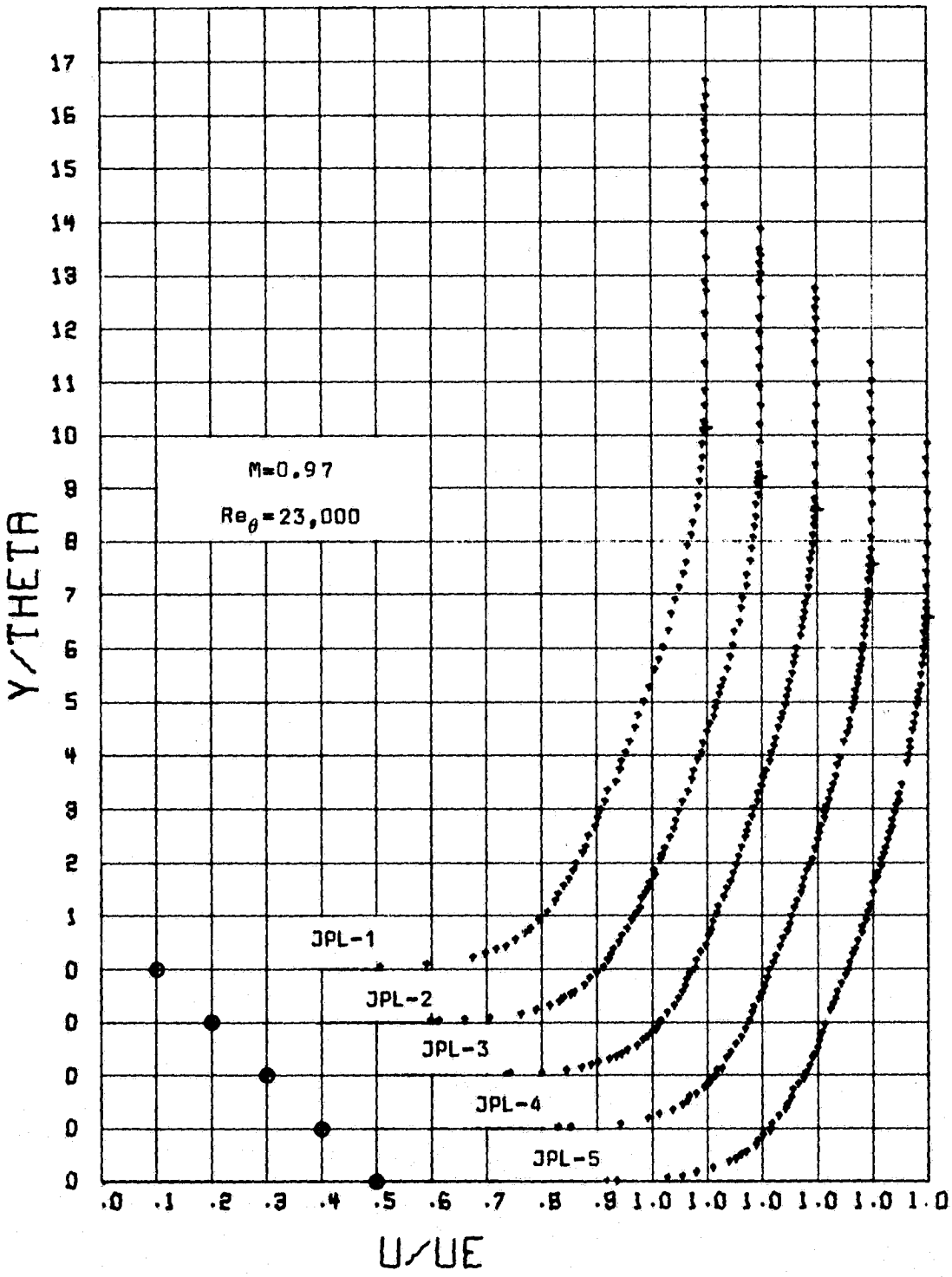

Figure A21. Mean Velocity Profiles.

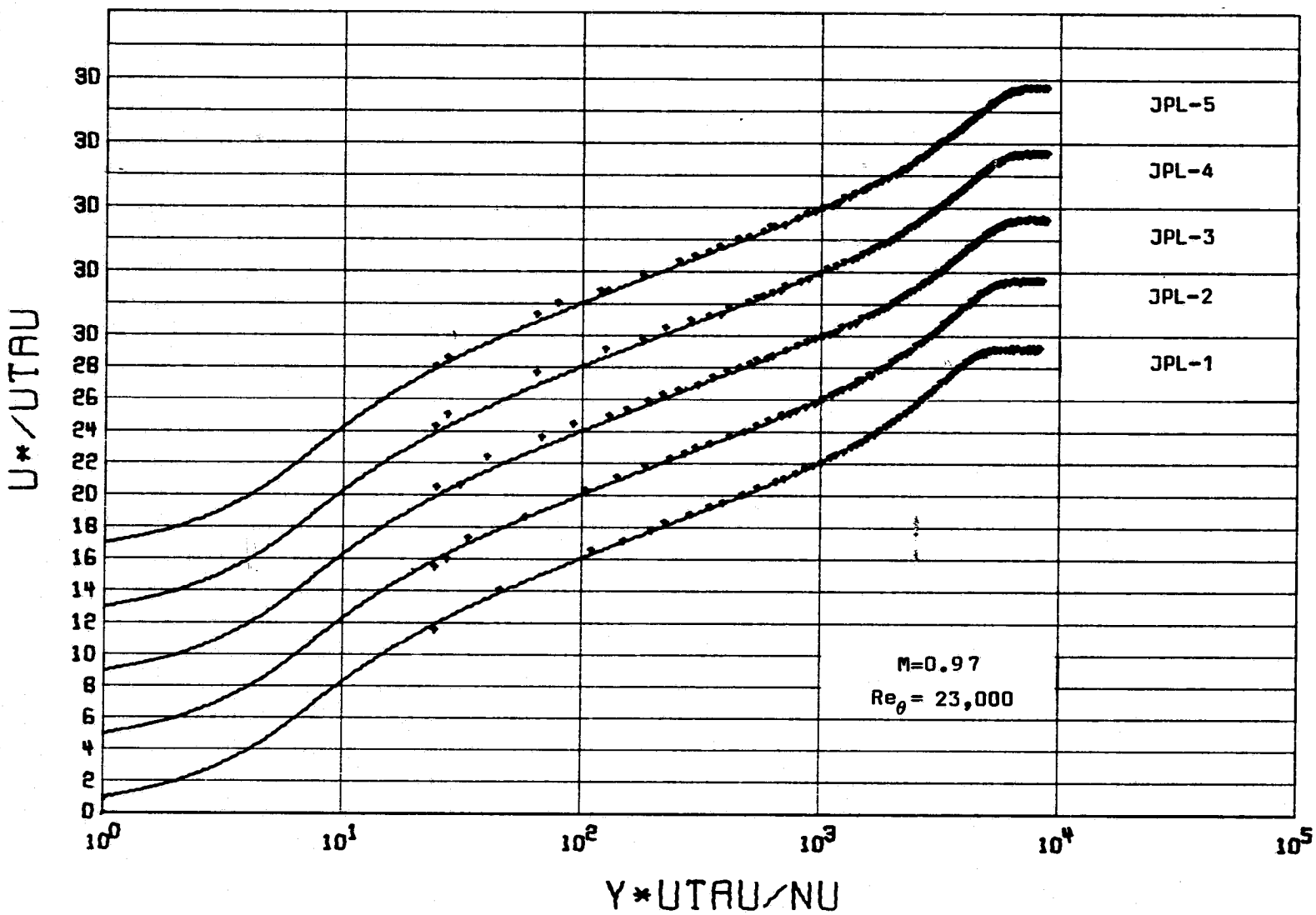

Figure A22. Van Driest Scaled Mean Velocity Profiles.

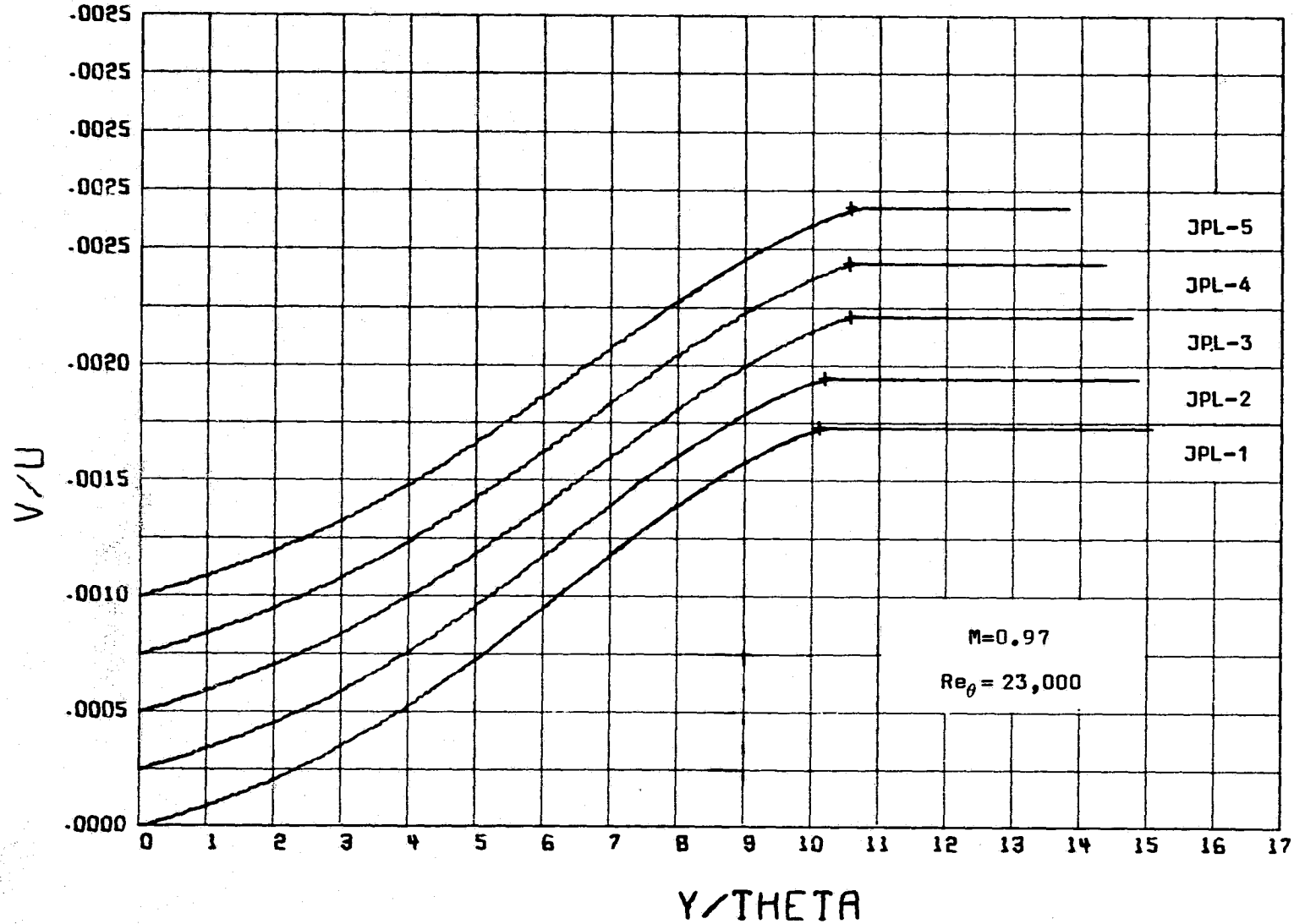

Figure A23. Normal Velocity Distribution.

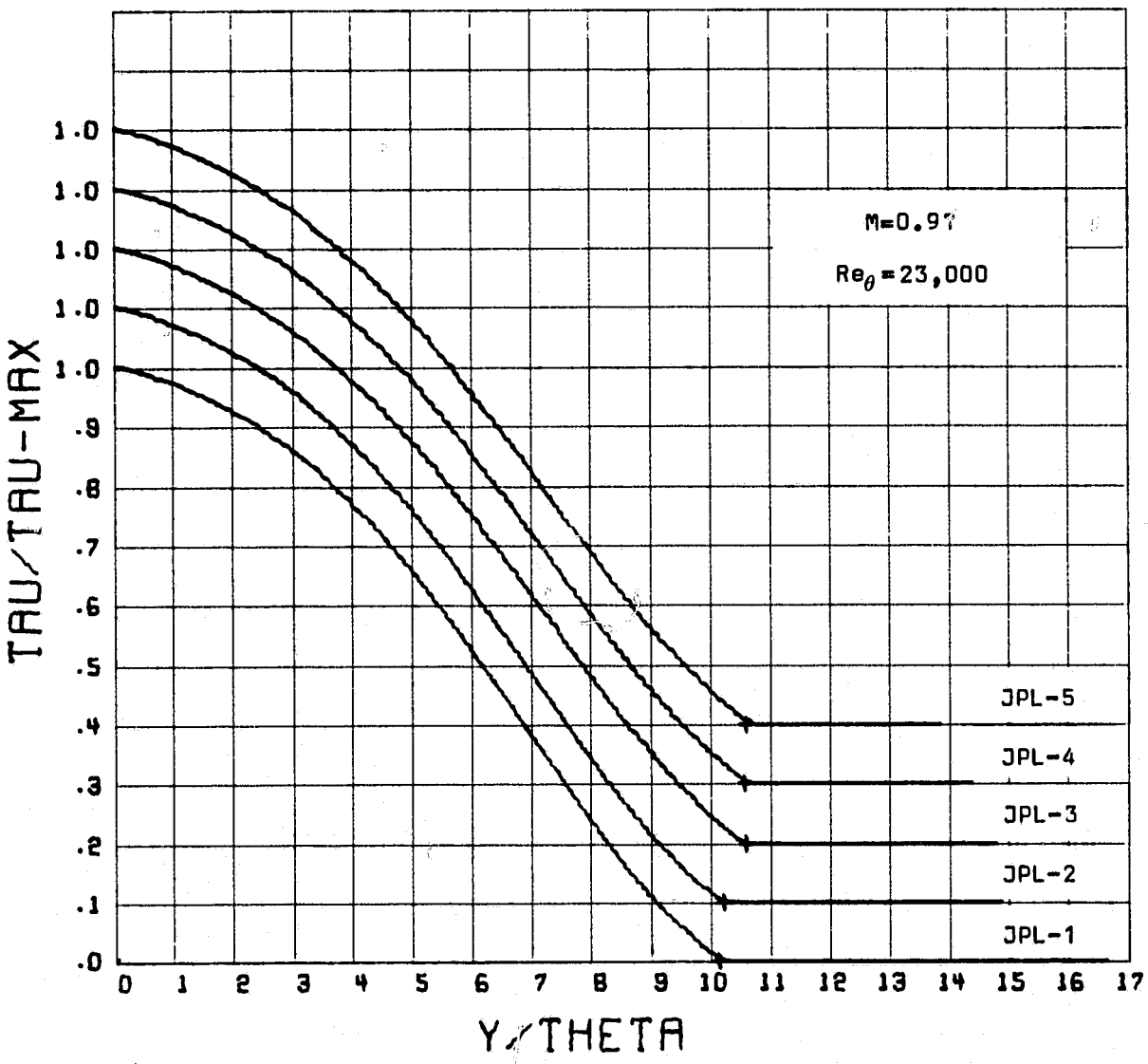

Figure A24. Shear Stress Distribution.

TABLE A10. DATA SUMMARY
PROFILE - JPL-1 - - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9648 TOTAL PRESSURE= .1336E+06 N/M**2
X=-48.43 CM TOTAL TEMPERATURE= 327.58 DEG-K

UE= 321.78 M/SEC DELTA STAR= .3113 CM THETA= .1898 CM H= 1.639
RE-DELTA-STAR= 53010. RE-THETA= 32330. NUWALL= .2491 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 10.9011 M/SEC CF= .001970 PI= .6331 DELTA= 2.0158 CM
CHISQR= .1104E-04 YMAX= 1.892 CM YMIN= .030 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8585	0.0000	0.00	1.0000	0.000000
.011	.060	50.	.4543	.8877	.4822	14.31	1.0000	0.000000
.021	.113	94.	.5297	.8982	.5589	16.62	.9989	.000004
.030	.160	133.	.5556	.9022	.5849	17.40	.9978	.000009
.052	.274	227.	.5922	.9081	.6214	18.51	.9950	.000018
.069	.367	305.	.6139	.9118	.6429	19.17	.9924	.000026
.087	.461	383.	.6337	.9153	.6623	19.76	.9896	.000035
.121	.642	533.	.6576	.9197	.6857	20.47	.9838	.000051
.143	.755	628.	.6704	.9221	.6981	20.85	.9798	.000061
.172	.909	755.	.6861	.9251	.7133	21.31	.9742	.000075
.203	1.070	889.	.6956	.9270	.7225	21.60	.9679	.000090
.231	1.217	1011.	.7069	.9292	.7334	21.93	.9619	.000104
.264	1.391	1156.	.7172	.9313	.7432	22.23	.9543	.000121
.279	1.471	1222.	.7226	.9324	.7484	22.39	.9507	.000129
.312	1.645	1367.	.7344	.9348	.7596	22.73	.9424	.000147
.337	1.779	1478.	.7404	.9360	.7652	22.91	.9358	.000161
.351	1.852	1539.	.7430	.9366	.7677	22.99	.9320	.000169
.372	1.959	1628.	.7504	.9381	.7747	23.20	.9263	.000181
.403	2.126	1767.	.7574	.9397	.7813	23.41	.9171	.000199
.430	2.267	1884.	.7663	.9416	.7897	23.66	.9090	.000216
.458	2.414	2006.	.7733	.9431	.7963	23.87	.9001	.000233
.494	2.601	2161.	.7786	.9443	.8012	24.02	.8883	.000256
.528	2.782	2312.	.7920	.9472	.8137	24.41	.8763	.000279
.568	2.996	2489.	.8003	.9491	.8215	24.65	.8611	.000308
.607	3.196	2656.	.8054	.9503	.8262	24.79	.8462	.000335
.647	3.410	2834.	.8131	.9520	.8333	25.02	.8294	.000366
.678	3.571	2967.	.8217	.9540	.8413	25.26	.8161	.000390
.703	3.705	3079.	.8230	.9543	.8424	25.30	.8047	.000410
.728	3.838	3190.	.8308	.9562	.8497	25.53	.7929	.000431
.760	4.006	3329.	.8368	.9576	.8551	25.70	.7776	.000457
.789	4.159	3456.	.8416	.9587	.8596	25.83	.7631	.000482
.819	4.313	3584.	.8466	.9599	.8641	25.98	.7481	.000508
.844	4.447	3695.	.8533	.9615	.8702	26.17	.7346	.000530
.881	4.641	3857.	.8607	.9633	.8769	26.38	.7145	.000564
.916	4.828	4012.	.8648	.9643	.8807	26.49	.6944	.000597
.944	4.975	4134.	.8713	.9659	.8865	26.68	.6781	.000623
.970	5.109	4246.	.8773	.9674	.8920	26.85	.6629	.000648
.996	5.250	4362.	.8826	.9687	.8968	27.00	.6467	.000674
1.028	5.417	4501.	.8852	.9693	.8990	27.07	.6270	.000705
1.043	5.497	4568.	.8887	.9702	.9022	27.17	.6173	.000720
1.075	5.664	4707.	.8937	.9715	.9067	27.31	.5969	.000752

TABLE A10. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.115	5.872	4879.	.9003	.9732	.9126	27.49	.5711	.000792
1.137	5.992	4979.	.9042	.9741	.9161	27.60	.5558	.000816
1.167	6.146	5107.	.9092	.9754	.9206	27.75	.5361	.000846
1.195	6.293	5229.	.9145	.9768	.9253	27.89	.5169	.000875
1.216	6.407	5324.	.9176	.9776	.9280	27.98	.5020	.000897
1.239	6.527	5424.	.9209	.9785	.9309	28.07	.4860	.000921
1.264	6.661	5535.	.9255	.9797	.9350	28.20	.4682	.000947
1.303	6.861	5702.	.9281	.9803	.9373	28.27	.4412	.000987
1.330	7.009	5824.	.9334	.9817	.9420	28.42	.4213	.001016
1.352	7.122	5919.	.9392	.9833	.9471	28.58	.4058	.001038
1.384	7.290	6057.	.9410	.9838	.9487	28.63	.3831	.001071
1.417	7.463	6202.	.9477	.9856	.9546	28.82	.3595	.001105
1.437	7.570	6291.	.9495	.9860	.9561	28.87	.3450	.001126
1.465	7.718	6413.	.9533	.9871	.9595	28.97	.3251	.001154
1.497	7.885	6552.	.9555	.9877	.9614	29.03	.3026	.001185
1.534	8.079	6713.	.9613	.9892	.9665	29.20	.2768	.001221
1.563	8.233	6841.	.9648	.9902	.9695	29.29	.2566	.001250
1.582	8.333	6924.	.9663	.9906	.9709	29.33	.2435	.001268
1.625	8.560	7113.	.9713	.9920	.9752	29.47	.2145	.001308
1.662	8.754	7275.	.9743	.9928	.9778	29.55	.1903	.001341
1.684	8.868	7369.	.9776	.9937	.9807	29.65	.1764	.001360
1.727	9.095	7558.	.9789	.9940	.9818	29.68	.1494	.001396
1.752	9.229	7669.	.9819	.9949	.9844	29.76	.1340	.001417
1.790	9.430	7836.	.9849	.9957	.9870	29.84	.1118	.001447
1.818	9.577	7958.	.9877	.9965	.9894	29.92	.0962	.001468
1.854	9.764	8114.	.9899	.9971	.9913	29.98	.0772	.001493
1.892	9.965	8281.	.9915	.9976	.9927	30.03	.0580	.001518
1.922	10.125	8414.	.9921	.9978	.9932	30.04	.0436	.001537
1.955	10.299	8558.	.9935	.9981	.9944	30.08	.0289	.001557
1.981	10.433	8670.	.9948	.9985	.9955	30.12	.0184	.001571
2.011	10.593	8803.	.9956	.9987	.9962	30.14	.0067	.001586
2.047	10.781	8959.	.9969	.9991	.9973	30.17	0.0000	.001595
2.067	10.888	9048.	.9969	.9991	.9973	30.17	0.0000	.001595
2.092	11.021	9159.	.9969	.9991	.9973	30.17	0.0000	.001595
2.172	11.443	9509.	.9984	.9995	.9986	30.22	0.0000	.001595
2.237	11.784	9792.	.9984	.9995	.9986	30.22	0.0000	.001595
2.321	12.225	10159.	.9992	.9997	.9993	30.24	0.0000	.001595
2.401	12.647	10509.	1.0000	1.0000	1.0000	30.26	0.0000	.001595
2.504	13.188	10959.	.9988	.9996	.9990	30.23	0.0000	.001595
2.599	13.690	11376.	1.0001	1.0000	1.0001	30.26	0.0000	.001595
2.692	14.178	11782.	.9997	.9999	.9998	30.25	0.0000	.001595
2.771	14.593	12127.	1.0000	1.0000	1.0000	30.26	0.0000	.001595
2.860	15.061	12516.	.9997	.9999	.9998	30.25	0.0000	.001595
2.947	15.523	12899.	1.0002	1.0000	1.0002	30.27	0.0000	.001595
3.039	16.004	13299.	.9997	.9999	.9998	30.25	0.0000	.001595
3.139	16.532	13738.	.9995	.9998	.9995	30.24	0.0000	.001595

TABLE A10. (CONT.)
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9626 TOTAL PRESSURE= .1327E+06 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 329.76 DEG-K

UE= 322.24 M/SEC DELTA STAR= .3559 CM THETA= .2175 CM H= 1.636
RE-DELTA-STAR= 59320. RE-THETA= 36250. NUWALL= .2531 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 10.8298 M/SEC CF= .001940 PI= .6210 DELTA= 2.3454 CM
CHISQR= .1512E-04 YMAX= 2.221 CM YMIN= .044 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8590	0.0000	0.00	1.0000	0.000000
.010	.046	43.	.4443	.8869	.4717	14.11	1.0000	0.000000
.016	.075	70.	.4724	.8905	.5006	14.98	.9994	.000002
.025	.116	108.	.5376	.8998	.5667	16.99	.9986	.000006
.044	.204	189.	.5719	.9051	.6011	18.04	.9966	.000013
.054	.250	233.	.5957	.9090	.6248	18.76	.9954	.000017
.074	.344	320.	.6118	.9118	.6407	19.25	.9929	.000025
.087	.402	374.	.6257	.9142	.6544	19.67	.9912	.000030
.100	.461	429.	.6383	.9165	.6667	20.05	.9894	.000035
.119	.548	510.	.6492	.9184	.6774	20.38	.9867	.000042
.139	.642	597.	.6671	.9218	.6949	20.91	.9836	.000050
.157	.723	673.	.6740	.9231	.7015	21.12	.9808	.000057
.175	.805	749.	.6813	.9245	.7086	21.34	.9779	.000064
.203	.934	869.	.6896	.9261	.7166	21.58	.9731	.000076
.217	.997	928.	.6969	.9275	.7236	21.80	.9707	.000082
.241	1.109	1032.	.7054	.9292	.7318	22.05	.9663	.000092
.274	1.260	1173.	.7147	.9310	.7407	22.33	.9600	.000106
.302	1.389	1293.	.7212	.9323	.7469	22.52	.9544	.000118
.327	1.505	1401.	.7289	.9339	.7542	22.75	.9491	.000129
.353	1.622	1510.	.7363	.9355	.7613	22.97	.9437	.000141
.378	1.739	1619.	.7422	.9367	.7668	23.14	.9380	.000153
.416	1.914	1782.	.7501	.9383	.7743	23.37	.9291	.000171
.453	2.083	1939.	.7570	.9398	.7809	23.58	.9200	.000189
.477	2.194	2043.	.7637	.9412	.7872	23.77	.9138	.000201
.508	2.335	2173.	.7690	.9424	.7921	23.93	.9057	.000217
.533	2.451	2282.	.7734	.9433	.7963	24.06	.8987	.000231
.572	2.632	2450.	.7852	.9459	.8073	24.40	.8874	.000252
.604	2.778	2586.	.7873	.9464	.8093	24.46	.8778	.000270
.628	2.889	2689.	.7939	.9479	.8154	24.65	.8703	.000284
.668	3.070	2858.	.8022	.9497	.8231	24.90	.8575	.000308
.685	3.152	2934.	.8071	.9508	.8277	25.04	.8515	.000318
.731	3.362	3130.	.8116	.9519	.8319	25.17	.8356	.000347
.759	3.490	3249.	.8145	.9525	.8346	25.25	.8254	.000365
.789	3.630	3379.	.8208	.9540	.8404	25.44	.8140	.000385
.812	3.736	3477.	.8254	.9551	.8446	25.57	.8051	.000400
.843	3.875	3607.	.8313	.9564	.8500	25.74	.7930	.000421
.875	4.022	3744.	.8363	.9574	.8546	25.88	.7798	.000443
.904	4.156	3868.	.8414	.9588	.8593	26.03	.7676	.000464
.934	4.296	3999.	.8475	.9603	.8649	26.21	.7543	.000486
.969	4.454	4146.	.8524	.9614	.8693	26.35	.7389	.000512
.995	4.576	4260.	.8572	.9626	.8737	26.48	.7266	.000532

TABLE A10. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.036	4.763	4434.	.8623	.9638	.8783	26.63	.7073	.000563
1.069	4.915	4575.	.8707	.9659	.8859	26.87	.6912	.000589
1.102	5.066	4716.	.8745	.9668	.8894	26.98	.6747	.000615
1.143	5.253	4890.	.8792	.9680	.8936	27.11	.6537	.000648
1.176	5.405	5031.	.8861	.9697	.8999	27.31	.6363	.000675
1.219	5.604	5216.	.8895	.9705	.9028	27.40	.6130	.000712
1.249	5.743	5346.	.8945	.9718	.9074	27.55	.5959	.000738
1.285	5.907	5499.	.9040	.9742	.9158	27.81	.5762	.000768
1.323	6.082	5662.	.9046	.9744	.9164	27.83	.5545	.000800
1.351	6.210	5781.	.9100	.9757	.9212	27.98	.5383	.000825
1.389	6.386	5944.	.9157	.9772	.9263	28.15	.5160	.000858
1.428	6.567	6113.	.9228	.9790	.9326	28.35	.4925	.000892
1.468	6.748	6281.	.9250	.9796	.9346	28.41	.4689	.000926
1.497	6.882	6406.	.9311	.9812	.9400	28.58	.4512	.000952
1.526	7.016	6531.	.9334	.9818	.9420	28.64	.4334	.000978
1.563	7.185	6689.	.9371	.9828	.9453	28.75	.4109	.001010
1.602	7.367	6857.	.9416	.9840	.9493	28.88	.3866	.001044
1.640	7.542	7020.	.9475	.9856	.9544	29.04	.3634	.001077
1.672	7.687	7156.	.9503	.9863	.9568	29.12	.3440	.001104
1.709	7.857	7314.	.9535	.9872	.9597	29.21	.3215	.001135
1.743	8.015	7461.	.9578	.9883	.9634	29.33	.3007	.001164
1.780	8.184	7618.	.9627	.9896	.9677	29.46	.2785	.001194
1.809	8.312	7737.	.9667	.9907	.9712	29.58	.2620	.001217
1.846	8.487	7900.	.9685	.9912	.9728	29.63	.2395	.001248
1.868	8.586	7993.	.9701	.9917	.9742	29.67	.2270	.001264
1.905	8.756	8151.	.9735	.9926	.9771	29.77	.2059	.001293
1.938	8.908	8292.	.9775	.9937	.9806	29.88	.1874	.001318
1.971	9.059	8433.	.9789	.9941	.9818	29.92	.1694	.001342
2.001	9.200	8564.	.9816	.9948	.9842	29.99	.1530	.001364
2.029	9.328	8683.	.9838	.9954	.9860	30.05	.1384	.001383
2.057	9.503	8846.	.9857	.9960	.9877	30.10	.1191	.001408
2.099	9.649	8982.	.9876	.9965	.9893	30.16	.1035	.001429
2.123	9.760	9085.	.9892	.9969	.9907	30.20	.0921	.001444
2.160	9.929	9243.	.9897	.9971	.9911	30.21	.0753	.001466
2.192	10.075	9379.	.9920	.9977	.9931	30.28	.0615	.001484
2.221	10.210	9504.	.9932	.9980	.9941	30.31	.0493	.001500
2.245	10.320	9607.	.9948	.9985	.9955	30.35	.0397	.001512
2.272	10.443	9721.	.9943	.9984	.9951	30.34	.0296	.001525
2.310	10.618	9884.	.9955	.9987	.9961	30.37	.0158	.001543
2.341	10.764	10020.	.9965	.9990	.9970	30.40	.0055	.001556
2.371	10.898	10145.	.9973	.9992	.9977	30.42	0.0000	.001564
2.397	11.021	10259.	.9982	.9995	.9985	30.45	0.0000	.001564
2.473	11.371	10585.	.9986	.9996	.9988	30.46	0.0000	.001564
2.537	11.663	10857.	.9995	.9998	.9996	30.49	0.0000	.001564
2.600	11.955	11128.	.9989	.9997	.9990	30.47	0.0000	.001564
2.654	12.200	11357.	.9995	.9998	.9996	30.49	0.0000	.001564
2.724	12.521	11656.	.9995	.9998	.9996	30.49	0.0000	.001564
2.796	12.854	11965.	.9995	.9998	.9996	30.49	0.0000	.001564
2.862	13.157	12248.	.9993	.9998	.9994	30.48	0.0000	.001564
2.933	13.485	12552.	1.0011	1.0003	1.0010	30.53	0.0000	.001564
2.999	13.788	12835.	.9993	.9998	.9994	30.48	0.0000	.001564
3.063	14.080	13107.	.9997	.9999	.9997	30.49	0.0000	.001564
3.124	14.360	13368.	.9992	.9997	.9993	30.48	0.0000	.001564
3.147	14.465	13465.	1.0005	1.0001	1.0004	30.51	0.0000	.001564
3.187	14.652	13639.	.9994	.9998	.9995	30.48	0.0000	.001564
3.235	14.874	13846.	1.0001	1.0000	1.0001	30.50	0.0000	.001564

TABLE A10. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9613 TOTAL PRESSURE= .1338E+06 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 328.06 DEG-K

UE= 321.05 M/SEC DELTA STAR= .3667 CM THETA= .2273 CM H= 1.613
RE-DELTA-STAR= 62110. RE-THETA= 38500. NUWALL= .2483 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 10.8227 M/SEC CF= .001953 PI= .5501 DELTA= 2.5515 CM
CHISQR= .2948E-04 YMAX= 2.418 CM YMIN= .038 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8594	0.0000	0.00	1.0000	0.000000
.010	.044	44.	.4647	.8897	.4927	14.70	1.0000	0.000000
.021	.094	94.	.5254	.8982	.5544	16.56	.9990	.000004
.030	.134	132.	.5568	.9029	.5859	17.52	.9982	.000007
.038	.167	166.	.5808	.9068	.6099	18.25	.9974	.000010
.050	.223	221.	.5991	.9098	.6280	18.80	.9960	.000015
.066	.290	287.	.6135	.9123	.6424	19.24	.9942	.000020
.085	.374	370.	.6295	.9151	.6581	19.72	.9918	.000027
.104	.458	453.	.6444	.9178	.6727	20.17	.9893	.000034
.110	.486	481.	.6465	.9181	.6747	20.23	.9884	.000037
.123	.541	536.	.6601	.9206	.6880	20.64	.9867	.000042
.142	.625	619.	.6628	.9211	.6906	20.72	.9839	.000049
.152	.670	664.	.6799	.9243	.7071	21.23	.9824	.000053
.132	.804	797.	.6857	.9255	.7129	21.40	.9776	.000064
.209	.921	913.	.6950	.9273	.7217	21.68	.9733	.000075
.237	1.044	1035.	.7045	.9292	.7309	21.96	.9685	.000086
.269	1.184	1173.	.7158	.9314	.7417	22.29	.9629	.000098
.294	1.296	1284.	.7225	.9328	.7481	22.49	.9582	.000109
.325	1.430	1417.	.7283	.9339	.7536	22.66	.9523	.000121
.354	1.558	1544.	.7389	.9361	.7636	22.97	.9465	.000134
.393	1.731	1716.	.7479	.9380	.7722	23.24	.9383	.000151
.415	1.826	1810.	.7538	.9393	.7778	23.41	.9337	.000160
.440	2.111	2092.	.7646	.9416	.7880	23.73	.9190	.000189
.506	2.228	2208.	.7731	.9434	.7960	23.97	.9126	.000202
.541	2.379	2358.	.7746	.9437	.7974	24.02	.9040	.000218
.563	2.480	2457.	.7841	.9458	.8062	24.29	.8982	.000230
.594	2.614	2590.	.7860	.9462	.8080	24.35	.8901	.000245
.617	2.714	2690.	.7910	.9473	.8127	24.49	.8839	.000256
.645	2.837	2812.	.7950	.9482	.8164	24.61	.8761	.000271
.671	2.955	2928.	.8002	.9494	.8212	24.76	.8684	.000285
.707	3.111	3083.	.8083	.9512	.8287	24.99	.8578	.000304
.739	3.251	3221.	.8100	.9516	.8303	25.04	.8480	.000322
.765	3.368	3337.	.8155	.9529	.8354	25.20	.8395	.000337
.800	3.519	3487.	.8208	.9541	.8403	25.36	.8282	.000357
.833	3.664	3631.	.8263	.9554	.8454	25.52	.8170	.000376
.859	3.781	3747.	.8302	.9563	.8490	25.63	.8077	.000392
.889	3.910	3874.	.8331	.9570	.8516	25.71	.7973	.000410
.919	4.044	4007.	.8408	.9588	.8587	25.93	.7860	.000429
.944	4.156	4118.	.8421	.9591	.8599	25.97	.7765	.000446
.970	4.267	4229.	.8459	.9600	.8633	26.08	.7667	.000462
.995	4.379	4339.	.8502	.9610	.8673	26.20	.7566	.000479

TABLE A10. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.033	4.547	4505.	.8557	.9623	.8722	26.36	.7412	.000504
1.065	4.686	4644.	.8597	.9633	.8759	26.47	.7280	.000526
1.094	4.815	4771.	.8676	.9652	.8831	26.70	.7156	.000546
1.132	4.983	4937.	.8720	.9663	.8871	26.82	.6990	.000573
1.168	5.139	5092.	.8740	.9668	.8889	26.88	.6831	.000598
1.191	5.239	5192.	.8796	.9681	.8939	27.04	.6727	.000614
1.228	5.401	5352.	.8847	.9694	.8985	27.18	.6556	.000641
1.264	5.564	5513.	.8857	.9697	.8995	27.21	.6381	.000669
1.297	5.709	5657.	.8908	.9709	.9040	27.36	.6221	.000693
1.324	5.826	5773.	.8953	.9721	.9080	27.48	.6090	.000713
1.356	5.966	5912.	.8979	.9727	.9104	27.56	.5931	.000738
1.393	6.128	6072.	.9056	.9747	.9172	27.77	.5745	.000766
1.455	6.401	6343.	.9139	.9768	.9246	28.01	.5422	.000814
1.494	6.530	6471.	.9163	.9774	.9268	28.08	.5269	.000837
1.521	6.692	6631.	.9214	.9787	.9313	28.22	.5073	.000866
1.554	6.837	6775.	.9235	.9793	.9332	28.28	.4895	.000892
1.581	6.955	6891.	.9278	.9804	.9370	28.40	.4751	.000913
1.617	7.117	7052.	.9310	.9812	.9398	28.49	.4550	.000942
1.647	7.245	7179.	.9350	.9823	.9433	28.60	.4390	.000965
1.681	7.396	7329.	.9386	.9832	.9466	28.70	.4198	.000993
1.706	7.508	7439.	.9412	.9839	.9488	28.77	.4061	.001012
1.737	7.642	7572.	.9447	.9848	.9519	28.87	.3892	.001036
1.770	7.787	7716.	.9468	.9854	.9538	28.93	.3709	.001062
1.805	7.943	7871.	.9517	.9867	.9580	29.07	.3513	.001090
1.841	8.100	8026.	.9552	.9877	.9612	29.16	.3316	.001117
1.869	8.223	8148.	.9574	.9883	.9631	29.23	.3163	.001138
1.889	8.312	8236.	.9605	.9891	.9658	29.31	.3052	.001154
1.917	8.435	8358.	.9625	.9896	.9675	29.37	.2899	.001175
1.985	8.731	8652.	.9688	.9913	.9730	29.54	.2537	.001225
2.012	8.854	8773.	.9717	.9921	.9756	29.62	.2389	.001245
2.045	8.999	8917.	.9727	.9924	.9764	29.65	.2216	.001268
2.073	9.122	9039.	.9765	.9934	.9797	29.75	.2072	.001288
2.103	9.250	9166.	.9778	.9938	.9809	29.79	.1923	.001308
2.132	9.379	9294.	.9787	.9940	.9816	29.82	.1776	.001327
2.160	9.502	9416.	.9814	.9948	.9839	29.89	.1639	.001346
2.186	9.619	9532.	.9843	.9956	.9865	29.97	.1510	.001363
2.221	9.770	9681.	.9860	.9960	.9879	30.02	.1347	.001385
2.255	9.921	9831.	.9862	.9961	.9881	30.02	.1190	.001406
2.288	10.066	9975.	.9873	.9964	.9891	30.05	.1042	.001425
2.313	10.178	10085.	.9903	.9973	.9917	30.14	.0932	.001440
2.349	10.334	10240.	.9913	.9975	.9925	30.16	.0782	.001459
2.392	10.524	10429.	.9927	.9979	.9938	30.20	.0609	.001482
2.418	10.636	10539.	.9935	.9982	.9944	30.23	.0511	.001495
2.452	10.787	10689.	.9947	.9985	.9955	30.26	.0384	.001511
2.481	10.915	10816.	.9956	.9987	.9962	30.28	.0282	.001525
2.520	11.088	10988.	.9963	.9989	.9968	30.30	.0151	.001542
2.550	11.217	11115.	.9963	.9989	.9968	30.30	.0060	.001554
2.584	11.368	11264.	.9972	.9992	.9976	30.33	0.0000	.001561
2.694	11.854	11746.	.9991	.9997	.9992	30.38	0.0000	.001561
2.951	12.982	12864.	.9996	.9998	.9996	30.39	0.0000	.001561
3.027	13.317	13196.	1.0004	1.0001	1.0003	30.41	0.0000	.001561
3.378	14.859	14724.	1.0002	1.0000	1.0002	30.41	0.0000	.001561
3.418	15.038	14901.	.9994	.9998	.9995	30.39	0.0000	.001561
3.489	15.351	15211.	.9987	.9996	.9989	30.37	0.0000	.001561

TABLE A10. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9637 TOTAL PRESSURE= .1330E+06 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 330.01 DEG-K

UE= 322.66 M/SEC DELTA STAR= .3894 CM THETA= .2386 CM H= 1.631
RE-DELTA-STAR= 65100. RE-THETA= 39900. NUWALL= .2528 CM**2/SEC CF= .001947

LEAST SQUARE FIT PARAMETERS
UTAU= 10.8043 M/SEC CF= .001925 PI= .5887 DELTA= 2.6280 CM
CHISQR= .9616E-05 YMAX= 2.465 CM YMIN= .036 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8588	0.0000	0.00	1.0000	0.000000
.010	.042	43.	.4300	.8849	.4571	13.72	1.0000	0.000000
.022	.095	97.	.5027	.8944	.5315	15.98	.9990	.000004
.036	.154	157.	.5549	.9022	.5842	17.59	.9977	.000009
.048	.202	206.	.5823	.9067	.6116	18.43	.9966	.000013
.072	.303	309.	.6044	.9103	.6334	19.10	.9939	.000021
.093	.393	401.	.6250	.9139	.6538	19.72	.9913	.000029
.114	.478	488.	.6443	.9174	.6726	20.30	.9888	.000036
.138	.579	591.	.6595	.9202	.6875	20.76	.9855	.000044
.163	.686	700.	.6739	.9229	.7014	21.19	.9820	.000053
.189	.792	808.	.6789	.9239	.7064	21.35	.9782	.000062
.213	.893	911.	.6896	.9259	.7166	21.67	.9745	.000071
.232	.973	993.	.6995	.9278	.7261	21.96	.9715	.000078
.257	1.080	1101.	.7072	.9294	.7336	22.19	.9673	.000088
.278	1.165	1188.	.7115	.9302	.7377	22.32	.9639	.000095
.299	1.255	1280.	.7220	.9324	.7477	22.63	.9601	.000104
.331	1.388	1416.	.7272	.9334	.7526	22.78	.9544	.000116
.365	1.532	1563.	.7409	.9363	.7657	23.19	.9479	.000130
.394	1.654	1688.	.7396	.9360	.7645	23.15	.9422	.000141
.420	1.761	1796.	.7483	.9378	.7727	23.41	.9371	.000152
.443	1.857	1894.	.7538	.9390	.7779	23.57	.9323	.000162
.473	1.984	2024.	.7586	.9400	.7824	23.71	.9258	.000175
.504	2.112	2154.	.7645	.9413	.7880	23.89	.9189	.000188
.524	2.197	2241.	.7666	.9417	.7899	23.95	.9143	.000197
.551	2.309	2355.	.7701	.9425	.7932	24.05	.9080	.000209
.585	2.452	2502.	.7801	.9447	.8026	24.34	.8996	.000225
.613	2.570	2621.	.7878	.9464	.8098	24.57	.8925	.000238
.646	2.708	2762.	.7909	.9471	.8127	24.66	.8838	.000255
.679	2.846	2903.	.7952	.9481	.8167	24.79	.8748	.000271
.712	2.985	3044.	.8028	.9498	.8237	25.01	.8655	.000288
.745	3.123	3186.	.8058	.9505	.8265	25.10	.8558	.000305
.786	3.293	3359.	.8116	.9518	.8319	25.26	.8435	.000327
.821	3.442	3511.	.8168	.9530	.8367	25.42	.8323	.000347
.862	3.612	3685.	.8260	.9551	.8452	25.68	.8190	.000370
.899	3.767	3842.	.8289	.9558	.8478	25.76	.8065	.000391
.942	3.948	4027.	.8377	.9579	.8559	26.02	.7912	.000417
.976	4.091	4173.	.8405	.9585	.8585	26.10	.7787	.000438
1.014	4.251	4336.	.8475	.9602	.8649	26.30	.7644	.000462
1.052	4.411	4499.	.8533	.9616	.8702	26.47	.7495	.000486
1.097	4.597	4689.	.8585	.9628	.8749	26.62	.7316	.000515
1.134	4.751	4847.	.8623	.9638	.8784	26.73	.7163	.000540

TABLE A10. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.164	4.879	4977.	.8689	.9654	.8843	26.92	.7035	.000561
1.196	5.012	5112.	.8738	.9666	.8888	27.06	.6897	.000582
1.230	5.155	5259.	.8787	.9678	.8932	27.20	.6745	.000606
1.263	5.294	5400.	.8817	.9685	.8959	27.28	.6595	.000630
1.289	5.400	5509.	.8855	.9695	.8993	27.39	.6478	.000648
1.322	5.539	5650.	.8908	.9708	.9041	27.55	.6323	.000671
1.369	5.735	5851.	.8954	.9720	.9082	27.68	.6098	.000706
1.405	5.890	6008.	.8992	.9729	.9116	27.78	.5918	.000733
1.437	6.023	6144.	.9023	.9737	.9144	27.87	.5760	.000757
1.474	6.177	6301.	.9084	.9753	.9198	28.05	.5575	.000784
1.511	6.331	6459.	.9128	.9764	.9238	28.17	.5383	.000813
1.543	6.464	6594.	.9174	.9776	.9279	28.30	.5222	.000836
1.576	6.603	6735.	.9206	.9784	.9307	28.39	.5050	.000861
1.609	6.741	6877.	.9238	.9793	.9335	28.48	.4874	.000887
1.644	6.890	7028.	.9266	.9800	.9360	28.56	.4687	.000914
1.680	7.039	7180.	.9310	.9811	.9398	28.68	.4496	.000941
1.713	7.177	7322.	.9348	.9822	.9432	28.79	.4319	.000966
1.751	7.337	7484.	.9392	.9833	.9472	28.92	.4113	.000995
1.786	7.486	7636.	.9430	.9843	.9504	29.02	.3921	.001022
1.819	7.624	7778.	.9453	.9849	.9525	29.09	.3742	.001047
1.855	7.773	7930.	.9491	.9860	.9559	29.20	.3550	.001074
1.896	7.944	8103.	.9544	.9874	.9604	29.34	.3330	.001104
1.929	8.082	8244.	.9582	.9884	.9638	29.45	.3153	.001129
1.960	8.215	8380.	.9612	.9892	.9664	29.53	.2983	.001152
2.002	8.391	8559.	.9652	.9903	.9699	29.65	.2761	.001182
2.032	8.513	8684.	.9666	.9907	.9711	29.68	.2608	.001203
2.068	8.667	8841.	.9680	.9911	.9723	29.72	.2417	.001229
2.101	8.806	8983.	.9716	.9921	.9754	29.82	.2247	.001251
2.134	8.944	9124.	.9732	.9925	.9768	29.87	.2081	.001274
2.171	9.098	9281.	.9773	.9936	.9804	29.98	.1898	.001298
2.208	9.253	9438.	.9792	.9942	.9821	30.04	.1719	.001322
2.244	9.402	9590.	.9827	.9951	.9851	30.13	.1550	.001344
2.280	9.556	9748.	.9838	.9954	.9860	30.16	.1380	.001366
2.317	9.710	9905.	.9862	.9961	.9881	30.23	.1215	.001388
2.363	9.902	10101.	.9874	.9964	.9891	30.26	.1017	.001414
2.396	10.040	10242.	.9890	.9969	.9906	30.31	.0879	.001432
2.434	10.200	10405.	.9916	.9976	.9927	30.38	.0727	.001451
2.465	10.327	10535.	.9926	.9979	.9937	30.41	.0607	.001467
2.503	10.487	10698.	.9945	.9984	.9952	30.46	.0471	.001484
2.546	10.668	10882.	.9944	.9984	.9951	30.46	.0322	.001504
2.581	10.817	11034.	.9963	.9989	.9968	30.51	.0207	.001518
2.627	11.009	11230.	.9970	.9991	.9974	30.53	.0070	.001536
2.668	11.179	11403.	.9979	.9994	.9982	30.55	0.0000	.001545
2.705	11.333	11561.	.9984	.9995	.9986	30.57	0.0000	.001545
2.787	11.679	11914.	1.0000	1.0000	1.0000	30.61	0.0000	.001545
2.863	11.998	12239.	1.0002	1.0000	1.0002	30.62	0.0000	.001545
2.937	12.307	12554.	.9991	.9997	.9992	30.59	0.0000	.001545
3.026	12.679	12934.	1.0000	1.0000	1.0000	30.61	0.0000	.001545
3.102	12.999	13260.	1.0001	1.0000	1.0001	30.62	0.0000	.001545
3.178	13.318	13585.	1.0000	1.0000	1.0000	30.61	0.0000	.001545
3.252	13.626	13900.	1.0007	1.0002	1.0006	30.63	0.0000	.001545
3.356	14.063	14345.	.9997	.9999	.9997	30.60	0.0000	.001545
3.445	14.435	14725.	.9999	.9999	.9999	30.61	0.0000	.001545
3.483	14.595	14888.	1.0005	1.0001	1.0004	30.63	0.0000	.001545
3.602	15.095	15398.	1.0001	1.0000	1.0001	30.61	0.0000	.001545
3.691	15.467	15778.	.9999	.9999	.9999	30.61	0.0000	.001545

TABLE A10. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= .9606 TOTAL PRESSURE= .1331E+06 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 330.49 DEG-K

UE= 322.04 M/SEC DELTA STAR= .4076 CM THETA= .2505 CM H= 1.627
RE-DELTA-STAR= 67630. RE-THETA= 41550. NUWALL= .2521 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 10.7382 M/SEC CF= .001911 PI= .5925 DELTA= 2.7502 CM
CHISQR= .1221E-04 YMAX= 2.603 CM YMIN= .038 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.8595	0.0000	0.00	1.0000	0.000000
.010	.040	43.	.4301	.8855	.4571	13.77	1.0000	0.000000
.011	.045	48.	.4526	.8883	.4803	14.48	.9999	0.000000
.021	.086	91.	.5081	.8958	.5368	16.21	.9991	.000003
.038	.152	162.	.5481	.9017	.5772	17.44	.9977	.000009
.052	.207	221.	.5784	.9065	.6075	18.38	.9963	.000013
.068	.273	292.	.5992	.9100	.6281	19.01	.9946	.000019
.081	.324	346.	.6218	.9138	.6505	19.70	.9932	.000023
.104	.415	443.	.6342	.9160	.6626	20.08	.9906	.000031
.127	.506	540.	.6503	.9189	.6784	20.57	.9877	.000038
.144	.577	616.	.6600	.9207	.6878	20.86	.9854	.000044
.192	.730	778.	.6734	.9232	.7008	21.26	.9802	.000057
.213	.851	908.	.6918	.9267	.7186	21.82	.9758	.000068
.236	.942	1006.	.7016	.9287	.7281	22.11	.9724	.000075
.266	1.064	1136.	.7092	.9302	.7353	22.34	.9676	.000086
.292	1.166	1244.	.7157	.9315	.7416	22.53	.9635	.000095
.332	1.328	1417.	.7223	.9328	.7479	22.73	.9566	.000110
.365	1.460	1557.	.7324	.9349	.7575	23.03	.9507	.000123
.398	1.591	1698.	.7404	.9365	.7651	23.27	.9446	.000135
.434	1.733	1850.	.7448	.9374	.7693	23.40	.9378	.000149
.471	1.880	2006.	.7556	.9397	.7794	23.72	.9304	.000164
.509	2.032	2169.	.7578	.9402	.7815	23.78	.9224	.000180
.546	2.179	2326.	.7704	.9429	.7934	24.16	.9144	.000195
.581	2.321	2477.	.7734	.9435	.7962	24.24	.9063	.000211
.612	2.443	2607.	.7765	.9442	.7991	24.33	.8991	.000224
.646	2.580	2753.	.7868	.9465	.8087	24.64	.8907	.000240
.678	2.707	2888.	.7917	.9476	.8133	24.78	.8827	.000254
.716	2.859	3050.	.7944	.9482	.8158	24.86	.8727	.000273
.758	3.026	3229.	.8050	.9505	.8256	25.17	.8612	.000293
.791	3.158	3370.	.8068	.9510	.8274	25.23	.8518	.000310
.835	3.335	3559.	.8129	.9523	.8330	25.40	.8387	.000333
.871	3.477	3710.	.8213	.9543	.8407	25.65	.8278	.000352
.906	3.619	3862.	.8253	.9552	.8444	25.76	.8165	.000371
.937	3.741	3992.	.8314	.9566	.8501	25.94	.8065	.000388
.971	3.878	4138.	.8359	.9577	.8542	26.07	.7950	.000407
1.000	3.994	4262.	.8386	.9583	.8566	26.15	.7849	.000424
1.033	4.126	4403.	.8424	.9592	.8601	26.26	.7732	.000444
1.078	4.304	4592.	.8473	.9604	.8646	26.40	.7569	.000470
1.121	4.476	4776.	.8563	.9625	.8728	26.66	.7405	.000497
1.165	4.653	4965.	.8597	.9633	.8759	26.76	.7231	.000525
1.206	4.816	5139.	.8668	.9650	.8823	26.97	.7067	.000551

TABLE A10. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.253	5.003	5339.	.8711	.9661	.8863	27.09	.6872	.000582
1.297	5.181	5528.	.8751	.9671	.8898	27.20	.6681	.000611
1.339	5.348	5707.	.8840	.9693	.8979	27.46	.6497	.000639
1.383	5.520	5891.	.8888	.9705	.9022	27.60	.6303	.000669
1.419	5.667	6047.	.8936	.9717	.9065	27.74	.6134	.000695
1.466	5.855	6248.	.9003	.9734	.9125	27.93	.5913	.000728
1.511	6.032	6437.	.9052	.9746	.9169	28.07	.5701	.000759
1.550	6.190	6605.	.9092	.9756	.9204	28.18	.5509	.000788
1.602	6.397	6826.	.9142	.9769	.9250	28.32	.5250	.000825
1.635	6.529	6967.	.9173	.9777	.9277	28.41	.5087	.000849
1.671	6.671	7118.	.9223	.9790	.9322	28.55	.4907	.000875
1.724	6.884	7346.	.9286	.9806	.9377	28.73	.4635	.000914
1.771	7.072	7546.	.9321	.9815	.9408	28.83	.4393	.000948
1.808	7.219	7703.	.9372	.9829	.9453	28.98	.4198	.000975
1.854	7.401	7897.	.9412	.9839	.9489	29.09	.3964	.001008
1.879	7.503	8006.	.9433	.9845	.9507	29.15	.3832	.001027
1.917	7.655	8168.	.9468	.9854	.9538	29.25	.3633	.001054
1.960	7.827	8352.	.9540	.9874	.9601	29.45	.3409	.001085
2.006	8.010	8547.	.9549	.9876	.9609	29.47	.3172	.001117
2.048	8.177	8725.	.9603	.9890	.9656	29.63	.2953	.001147
2.082	8.314	8871.	.9637	.9899	.9685	29.72	.2781	.001170
2.128	8.496	9066.	.9665	.9907	.9710	29.80	.2550	.001201
2.166	8.648	9228.	.9680	.9911	.9723	29.84	.2360	.001226
2.202	8.790	9380.	.9714	.9921	.9753	29.94	.2185	.001250
2.239	8.937	9537.	.9751	.9931	.9785	30.04	.2003	.001274
2.280	9.105	9715.	.9784	.9940	.9813	30.13	.1807	.001300
2.308	9.216	9834.	.9806	.9946	.9832	30.20	.1677	.001317
2.345	9.363	9991.	.9818	.9949	.9843	30.23	.1508	.001339
2.382	9.510	10148.	.9845	.9956	.9866	30.31	.1344	.001360
2.418	9.652	10299.	.9863	.9961	.9882	30.35	.1190	.001380
2.468	9.855	10516.	.9879	.9966	.9896	30.40	.0976	.001408
2.515	10.042	10716.	.9899	.9971	.9913	30.46	.0790	.001432
2.555	10.200	10884.	.9922	.9978	.9933	30.52	.0640	.001451
2.603	10.392	11089.	.9927	.9979	.9937	30.53	.0466	.001473
2.654	10.595	11305.	.9946	.9984	.9953	30.59	.0295	.001495
2.692	10.747	11468.	.9962	.9989	.9967	30.63	.0175	.001510
2.734	10.914	11646.	.9954	.9987	.9960	30.61	.0051	.001526
2.768	11.051	11792.	.9970	.9991	.9974	30.65	0.0000	.001533
2.804	11.193	11944.	.9970	.9991	.9974	30.65	0.0000	.001533
2.895	11.558	12333.	.9988	.9996	.9990	30.70	0.0000	.001533
2.987	11.923	12723.	.9991	.9997	.9992	30.71	0.0000	.001533
3.070	12.258	13080.	.9991	.9997	.9992	30.71	0.0000	.001533
3.154	12.593	13437.	.9999	.9999	.9999	30.73	0.0000	.001533
3.235	12.917	13783.	.9993	.9998	.9994	30.72	0.0000	.001533
3.329	13.292	14183.	.9997	.9999	.9998	30.73	0.0000	.001533
3.406	13.596	14508.	1.0001	1.0000	1.0001	30.74	0.0000	.001533
3.486	13.916	14849.	1.0003	1.0000	1.0002	30.74	0.0000	.001533
3.561	14.215	15168.	.9996	.9999	.9997	30.73	0.0000	.001533
3.632	14.499	15471.	1.0001	1.0000	1.0001	30.74	0.0000	.001533
3.698	14.762	15752.	1.0000	1.0000	1.0000	30.74	0.0000	.001533

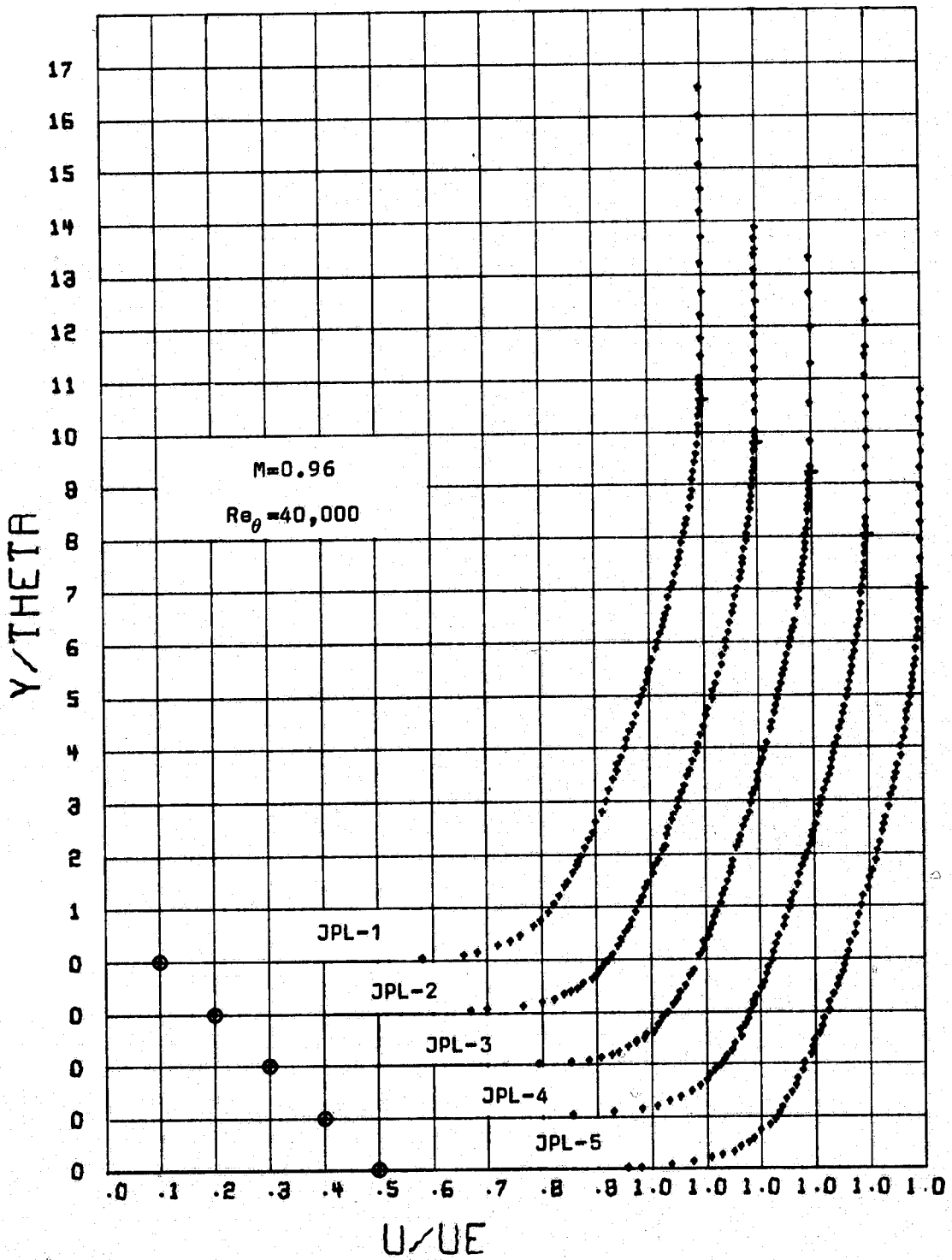

Figure A25. Mean Velocity Profiles.

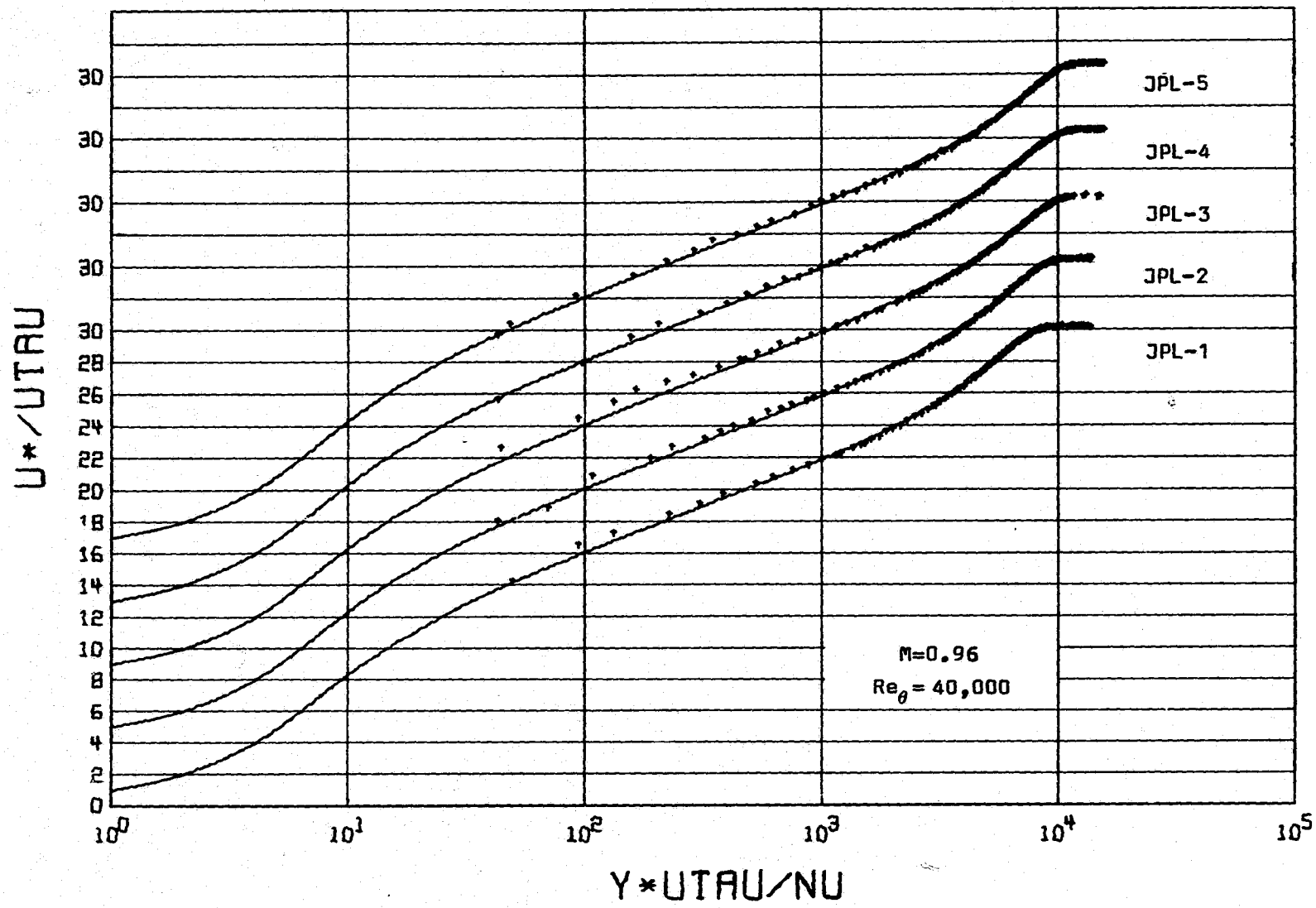

Figure A26. Van Driest Scaled Mean Velocity Profiles.

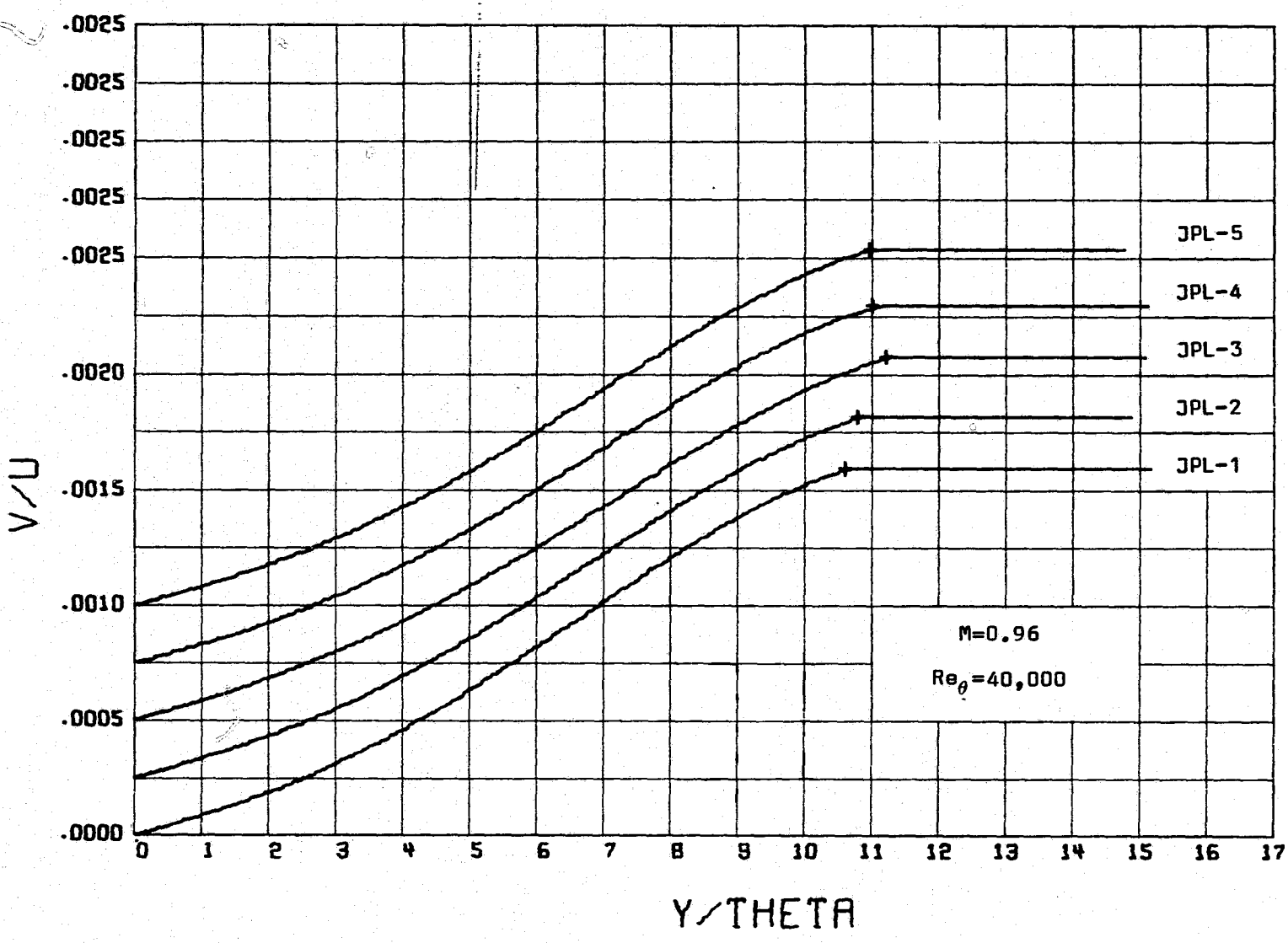

Figure A27. Normal Velocity Distribution.

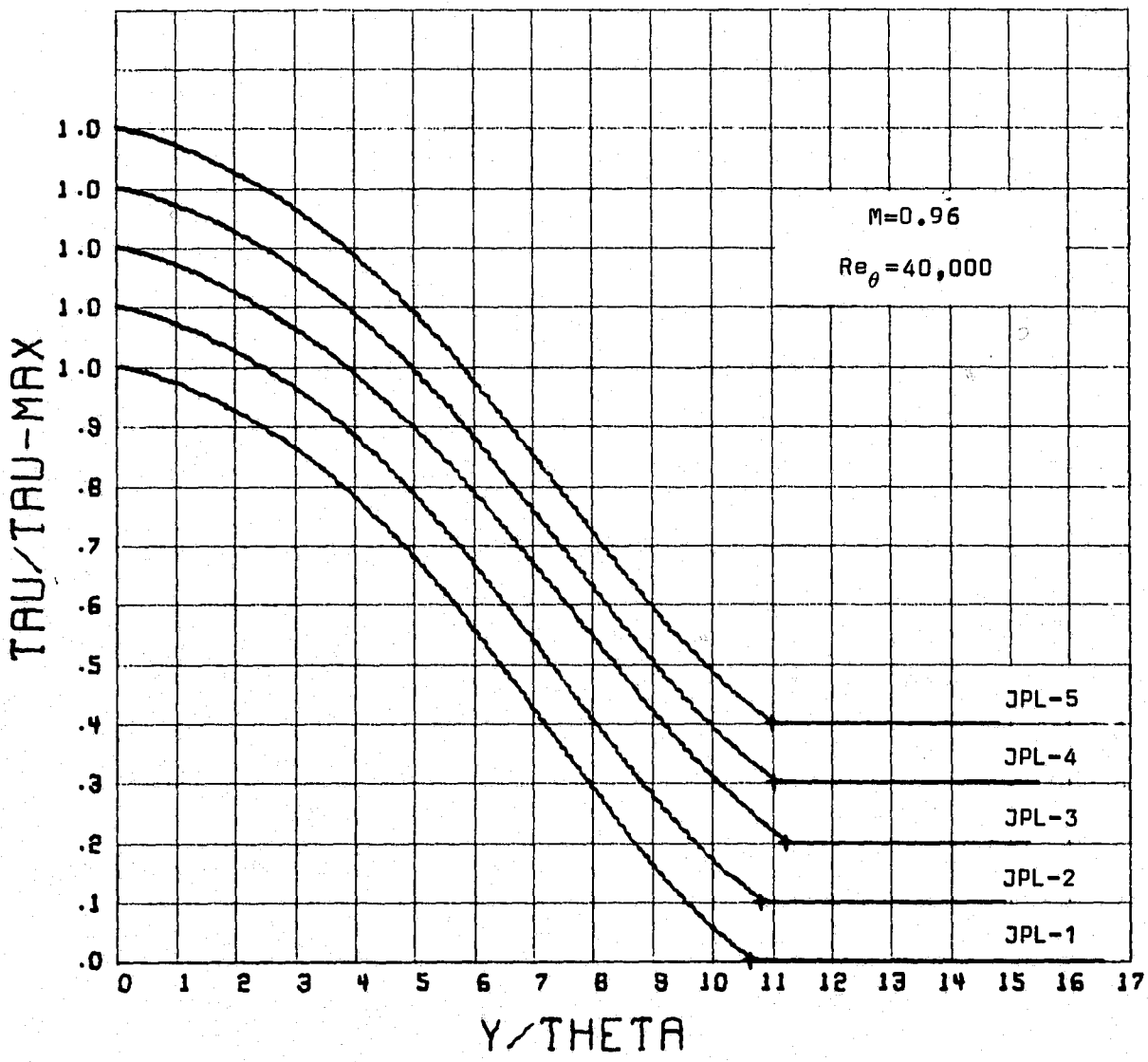

Figure A28. Shear Stress Distribution.

TABLE A11. DATA SUMMARY
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3141 TOTAL PRESSURE= .6691E+05 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 312.53 DEG-K

UE= 401.96 M/SEC DELTA STAR= .4186 CM THETA= .2121 CM H= 1.973
RE-DELTA-STAR= 39050. RE-THETA= 19780. NUWALL= .6931 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 14.5261 M/SEC CF= .002000 PI= .6503 DELTA= 2.3258 CM
CHISQR= .7536F-05 YMAX= 2.200 CM YMIN= .066 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7658	0.0000	0.00	1.0000	0.000000
.010	.047	21.	.3998	.8033	.4460	12.44	1.0000	0.000000
.017	.083	37.	.4543	.8142	.5035	14.07	.9994	.000003
.034	.161	71.	.5052	.8256	.5560	15.57	.9980	.000011
.043	.203	90.	.5363	.8332	.5875	16.48	.9971	.000015
.066	.311	138.	.5679	.8414	.6192	17.40	.9947	.000025
.100	.473	210.	.5932	.8482	.6440	18.12	.9904	.000040
.119	.562	250.	.6096	.8529	.6601	18.59	.9879	.000049
.148	.700	311.	.6312	.8591	.6810	19.20	.9837	.000063
.171	.808	359.	.6406	.8619	.6900	19.46	.9802	.000074
.213	1.005	447.	.6571	.8669	.7057	19.92	.9733	.000094
.245	1.155	513.	.6694	.8708	.7173	20.27	.9678	.000110
.285	1.347	598.	.6840	.8754	.7311	20.67	.9602	.000131
.323	1.526	678.	.6956	.8791	.7418	20.99	.9527	.000152
.370	1.748	777.	.7071	.8829	.7525	21.31	.9427	.000178
.406	1.915	851.	.7207	.8875	.7650	21.68	.9346	.000199
.439	2.071	920.	.7232	.8883	.7673	21.75	.9268	.000218
.486	2.293	1019.	.7343	.8921	.7774	22.05	.9149	.000248
.523	2.466	1096.	.7460	.8961	.7880	22.37	.9050	.000272
.561	2.646	1176.	.7534	.8987	.7947	22.57	.8942	.000297
.593	2.796	1243.	.7613	.9015	.8017	22.78	.8848	.000319
.622	2.933	1304.	.7709	.9050	.8103	23.04	.8758	.000340
.678	3.197	1421.	.7805	.9085	.8189	23.29	.8575	.000382
.715	3.371	1498.	.7861	.9105	.8238	23.44	.8448	.000410
.750	3.538	1573.	.7950	.9138	.8316	23.68	.8319	.000438
.788	3.718	1652.	.8049	.9175	.8403	23.94	.8175	.000470
.828	3.904	1735.	.8094	.9192	.8442	24.06	.8019	.000503
.871	4.107	1825.	.8176	.9224	.8513	24.28	.7841	.000541
.901	4.251	1889.	.8231	.9245	.8561	24.42	.7710	.000569
.941	4.436	1972.	.8316	.9278	.8633	24.64	.7534	.000605
.980	4.622	2054.	.8389	.9306	.8696	24.83	.7350	.000643
1.018	4.802	2134.	.8473	.9339	.8768	25.05	.7170	.000679
1.059	4.993	2219.	.8510	.9354	.8799	25.15	.6969	.000719
1.089	5.137	2283.	.8563	.9375	.8844	25.28	.6814	.000750
1.121	5.287	2350.	.8620	.9398	.8892	25.43	.6646	.000783
1.158	5.460	2427.	.8678	.9422	.8941	25.58	.6451	.000821
1.200	5.658	2515.	.8752	.9452	.9002	25.77	.6221	.000865
1.229	5.796	2576.	.8816	.9478	.9055	25.93	.6057	.000897
1.259	5.939	2640.	.8853	.9494	.9086	26.03	.5883	.000930
1.295	6.107	2714.	.8910	.9517	.9133	26.17	.5677	.000968
1.325	6.251	2778.	.8959	.9538	.9173	26.30	.5497	.001002

TABLE A11. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.363	6.430	2858.	.9000	.9555	.9207	26.40	.5269	.001044
1.404	6.622	2943.	.9068	.9584	.9263	26.58	.5022	.001090
1.447	6.826	3034.	.9135	.9612	.9318	26.74	.4757	.001138
1.493	7.041	3130.	.9182	.9632	.9355	26.86	.4472	.001189
1.526	7.197	3199.	.9256	.9664	.9415	27.05	.4265	.001226
1.562	7.364	3273.	.9297	.9682	.9448	27.15	.4042	.001266
1.600	7.544	3353.	.9344	.9703	.9486	27.27	.3801	.001308
1.637	7.718	3430.	.9381	.9719	.9515	27.36	.3569	.001349
1.668	7.867	3497.	.9435	.9743	.9558	27.49	.3369	.001384
1.709	8.059	3582.	.9496	.9770	.9607	27.65	.3114	.001428
1.752	8.263	3673.	.9539	.9789	.9641	27.75	.2845	.001474
1.793	8.454	3758.	.9578	.9807	.9672	27.85	.2597	.001516
1.833	8.645	3843.	.9643	.9836	.9723	28.01	.2351	.001558
1.879	8.861	3939.	.9677	.9851	.9750	28.09	.2075	.001605
1.922	9.065	4029.	.9706	.9864	.9772	28.16	.1830	.001646
1.973	9.304	4136.	.9756	.9887	.9811	28.29	.1545	.001693
2.010	9.478	4213.	.9794	.9904	.9841	28.38	.1346	.001726
2.047	9.652	4290.	.9840	.9926	.9877	28.49	.1154	.001758
2.098	9.891	4397.	.9852	.9931	.9886	28.52	.0900	.001799
2.131	10.047	4466.	.9884	.9946	.9910	28.60	.0744	.001825
2.169	10.227	4546.	.9896	.9951	.9920	28.63	.0571	.001853
2.200	10.376	4612.	.9916	.9961	.9936	28.68	.0436	.001875
2.240	10.562	4695.	.9928	.9966	.9944	28.70	.0277	.001901
2.261	10.664	4740.	.9930	.9967	.9946	28.71	.0195	.001914
2.302	10.855	4825.	.9938	.9971	.9952	28.73	.0051	.001938
2.334	11.005	4892.	.9962	.9982	.9971	28.79	0.0000	.001946
2.364	11.149	4956.	.9969	.9985	.9976	28.81	0.0000	.001946
2.433	11.472	5099.	.9988	.9994	.9991	28.85	0.0000	.001946
2.513	11.849	5267.	.9997	.9998	.9998	28.87	0.0000	.001946
2.595	12.238	5440.	.9988	.9994	.9991	28.85	0.0000	.001946
2.672	12.598	5600.	.9987	.9993	.9990	28.85	0.0000	.001946
2.759	13.011	5783.	.9996	.9998	.9997	28.87	0.0000	.001946
2.854	13.460	5983.	1.0005	1.0002	1.0004	28.89	0.0000	.001946
2.936	13.843	6153.	.9996	.9998	.9997	28.87	0.0000	.001946
3.017	14.226	6324.	1.0007	1.0003	1.0005	28.90	0.0000	.001946
3.103	14.634	6505.	.9997	.9999	.9998	28.87	0.0000	.001946
3.183	15.011	6672.	1.0007	1.0003	1.0005	28.90	0.0000	.001946
3.249	15.322	6811.	.9994	.9997	.9995	28.87	0.0000	.001946
3.331	15.705	6981.	.9992	.9996	.9994	28.86	0.0000	.001946
3.415	16.101	7157.	1.0001	1.0000	1.0001	28.88	0.0000	.001946
3.503	16.520	7343.	1.0001	1.0000	1.0001	28.88	0.0000	.001946

TABLE A11. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3215 TOTAL PRESSURE= .6651E+05 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 310.59 DEG-K

UE= 402.38 M/SEC DELTA STAR= .4474 CM THETA= .2262 CM H= 1.978
RE-DELTA-STAR= 43290. RE-THETA= 21880. NUWALL= .6952 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 14.4985 M/SEC CF= .001983 PI= .6356 DELTA= 2.5047 CM
CHISQR= .5243E-05 YMAX= 2.358 CM YMIN= .095 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7638	0.0000	0.00	1.0000	0.000000
.010	.044	21.	.4047	.8025	.4518	12.64	1.0000	0.000000
.031	.140	66.	.5071	.8245	.5584	15.69	.9985	.000009
.053	.235	111.	.5388	.8324	.5905	16.62	.9965	.000017
.066	.291	137.	.5610	.8382	.6128	17.26	.9952	.000023
.027	.123	58.	.4458	.8108	.4950	13.87	.9947	.000025
.076	.336	158.	.5759	.8421	.6275	17.69	.9941	.000027
.095	.421	198.	.5914	.8464	.6428	18.14	.9919	.000035
.113	.499	235.	.6060	.8506	.6571	18.56	.9897	.000042
.134	.595	280.	.6180	.8540	.6687	18.90	.9870	.000052
.161	.713	336.	.6332	.8585	.6833	19.33	.9833	.000063
.184	.814	384.	.6385	.8601	.6884	19.48	.9801	.000073
.200	.887	418.	.6521	.8643	.7014	19.86	.9776	.000081
.229	1.016	479.	.6621	.8674	.7110	20.14	.9731	.000094
.275	1.218	574.	.6795	.8729	.7273	20.63	.9656	.000115
.312	1.381	651.	.6912	.8767	.7382	20.95	.9591	.000133
.340	1.504	709.	.6968	.8785	.7434	21.11	.9539	.000147
.373	1.650	778.	.7083	.8823	.7540	21.42	.9476	.000163
.415	1.835	866.	.7195	.8861	.7644	21.73	.9391	.000185
.443	1.959	924.	.7215	.8868	.7662	21.79	.9331	.000200
.480	2.122	1001.	.7315	.8902	.7753	22.06	.9249	.000220
.518	2.290	1080.	.7397	.8931	.7828	22.28	.9160	.000242
.549	2.430	1146.	.7470	.8956	.7893	22.48	.9082	.000261
.591	2.616	1234.	.7580	.8995	.7992	22.78	.8974	.000286
.631	2.790	1316.	.7636	.9015	.8042	22.93	.8867	.000311
.669	2.958	1395.	.7707	.9041	.8105	23.12	.8759	.000336
.698	3.087	1456.	.7753	.9058	.8146	23.24	.8672	.000355
.726	3.211	1515.	.7793	.9073	.8182	23.35	.8587	.000375
.763	3.374	1591.	.7885	.9106	.8263	23.59	.8470	.000400
.803	3.553	1676.	.7940	.9127	.8310	23.74	.8335	.000430
.835	3.694	1742.	.8029	.9161	.8388	23.98	.8225	.000454
.872	3.856	1819.	.8052	.9169	.8408	24.04	.8093	.000482
.908	4.014	1893.	.8132	.9200	.8478	24.25	.7961	.000510
.958	4.238	1999.	.8212	.9231	.8548	24.46	.7764	.000551
.998	4.412	2081.	.8288	.9260	.8612	24.66	.7605	.000584
1.031	4.558	2150.	.8330	.9277	.8649	24.77	.7467	.000612
1.076	4.760	2246.	.8430	.9316	.8734	25.03	.7269	.000652
1.113	4.923	2322.	.8488	.9340	.8783	25.18	.7105	.000685
1.150	5.086	2399.	.8544	.9362	.8830	25.32	.6935	.000718
1.192	5.271	2487.	.8617	.9392	.8891	25.51	.6737	.000757
1.238	5.473	2582.	.8683	.9419	.8946	25.68	.6514	.000800

TABLE A11. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.282	5.670	2675.	.8746	.9445	.8999	25.85	.6292	.000843
1.336	5.906	2786.	.8839	.9483	.9076	26.08	.6017	.000895
1.371	6.063	2860.	.8870	.9496	.9102	26.16	.5830	.000930
1.407	6.220	2934.	.8939	.9525	.9159	26.34	.5639	.000966
1.449	6.405	3022.	.9004	.9553	.9212	26.50	.5411	.001008
1.497	6.619	3122.	.9046	.9571	.9247	26.61	.5143	.001057
1.541	6.815	3215.	.9128	.9606	.9314	26.82	.4894	.001102
1.579	6.984	3294.	.9179	.9628	.9354	26.95	.4677	.001141
1.612	7.130	3363.	.9222	.9647	.9389	27.06	.4486	.001175
1.648	7.287	3437.	.9272	.9668	.9429	27.18	.4284	.001211
1.697	7.506	3541.	.9312	.9686	.9462	27.28	.3998	.001262
1.724	7.624	3596.	.9349	.9702	.9491	27.37	.3844	.001289
1.742	7.702	3633.	.9393	.9722	.9526	27.48	.3741	.001307
1.775	7.848	3702.	.9411	.9730	.9541	27.53	.3550	.001340
1.812	8.011	3779.	.9461	.9752	.9581	27.65	.3333	.001377
1.838	8.129	3835.	.9498	.9769	.9609	27.74	.3185	.001403
1.874	8.286	3909.	.9521	.9779	.9628	27.80	.2982	.001437
1.902	8.410	3967.	.9560	.9797	.9659	27.90	.2823	.001464
1.940	8.578	4047.	.9600	.9815	.9690	28.00	.2610	.001501
1.971	8.713	4110.	.9644	.9834	.9724	28.11	.2440	.001529
2.014	8.904	4200.	.9673	.9848	.9747	28.18	.2205	.001569
2.052	9.072	4280.	.9687	.9854	.9758	28.21	.2001	.001603
2.094	9.257	4367.	.9750	.9883	.9807	28.37	.1782	.001639
2.128	9.409	4439.	.9765	.9890	.9819	28.40	.1607	.001668
2.166	9.577	4518.	.9798	.9906	.9845	28.49	.1418	.001699
2.207	9.757	4603.	.9825	.9918	.9865	28.55	.1223	.001731
2.244	9.920	4680.	.9853	.9931	.9887	28.62	.1050	.001760
2.268	10.027	4730.	.9876	.9942	.9905	28.68	.0945	.001777
2.321	10.262	4841.	.9899	.9952	.9923	28.73	.0717	.001814
2.358	10.425	4918.	.9910	.9958	.9931	28.76	.0569	.001838
2.387	10.554	4979.	.9914	.9959	.9934	28.77	.0453	.001856
2.425	10.723	5058.	.9929	.9967	.9946	28.81	.0320	.001878
2.470	10.919	5151.	.9944	.9974	.9957	28.84	.0171	.001902
2.504	11.071	5223.	.9961	.9981	.9970	28.88	.0065	.001919
2.540	11.228	5297.	.9959	.9981	.9969	28.88	0.0000	.001930
2.593	11.464	5408.	.9980	.9990	.9984	28.93	0.0000	.001930
2.665	11.784	5559.	.9996	.9998	.9997	28.97	0.0000	.001930
2.750	12.160	5736.	.9998	.9999	.9998	28.97	0.0000	.001930
2.832	12.519	5906.	1.0008	1.0003	1.0006	29.00	0.0000	.001930
2.921	12.912	6091.	1.0000	1.0000	1.0000	28.98	0.0000	.001930
3.012	13.317	6282.	1.0004	1.0002	1.0003	28.99	0.0000	.001930
3.105	13.726	6475.	1.0004	1.0002	1.0003	28.99	0.0000	.001930
3.181	14.063	6634.	1.0002	1.0001	1.0001	28.98	0.0000	.001930
3.260	14.411	6798.	.9994	.9997	.9995	28.96	0.0000	.001930
3.356	14.838	7000.	1.0005	1.0002	1.0004	28.99	0.0000	.001930
3.431	15.169	7156.	1.0000	1.0000	1.0000	28.98	0.0000	.001930
3.524	15.579	7349.	1.0011	1.0005	1.0008	29.00	0.0000	.001930
3.604	15.933	7516.	.9998	.9999	.9998	28.97	0.0000	.001930

TABLE A11. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3197 TOTAL PRESSURE= .6665E+05 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 310.59 DEG-K

UE= 401.99 M/SEC DELTA STAR= .4601 CM THETA= .2335 CM H= 1.970
RE-DELTA-STAR= 43170. RE-THETA= 21900. NUWALL= .6862 CM**2/SEC CF= .001867

LEAST SQUARE FIT PARAMETERS
UTAU= 14.4789 M/SEC CF= .001983 PI= .6090 DELTA= 2.6199 CM
CHISQR= .1029E-04 YMAX= 2.470 CM YMIN= .082 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7643	0.0000	0.00	1.0000	0.000000
.010	.043	21.	.4022	.8024	.4490	12.56	1.0000	0.000000
.017	.076	37.	.4190	.8057	.4668	13.07	.9995	.000003
.035	.152	75.	.5119	.8261	.5632	15.84	.9981	.000010
.043	.184	91.	.5362	.8321	.5878	16.55	.9974	.000013
.060	.261	128.	.5487	.8353	.6003	16.91	.9957	.000020
.067	.288	142.	.5685	.8405	.6201	17.48	.9951	.000023
.082	.353	174.	.5821	.8442	.6336	17.88	.9935	.000029
.096	.413	203.	.5936	.8474	.6449	18.21	.9919	.000034
.111	.478	235.	.6057	.8508	.6567	18.55	.9901	.000041
.139	.598	294.	.6231	.8558	.6736	19.05	.9866	.000052
.160	.685	337.	.6369	.8599	.6868	19.44	.9839	.000061
.180	.772	380.	.6451	.8624	.6946	19.67	.9811	.000069
.205	.881	434.	.6556	.8656	.7047	19.96	.9774	.000080
.224	.962	474.	.6627	.8678	.7114	20.16	.9746	.000089
.241	1.033	509.	.6707	.8703	.7189	20.39	.9721	.000096
.274	1.174	578.	.6796	.8732	.7273	20.63	.9668	.000111
.307	1.316	648.	.6893	.8763	.7363	20.90	.9612	.000126
.328	1.408	694.	.6922	.8772	.7391	20.98	.9575	.000136
.353	1.512	744.	.7038	.8810	.7498	21.30	.9531	.000148
.386	1.653	814.	.7114	.8836	.7568	21.51	.9469	.000164
.425	1.822	897.	.7224	.8873	.7669	21.81	.9392	.000183
.453	1.941	956.	.7249	.8881	.7692	21.88	.9334	.000198
.482	2.066	1018.	.7303	.8900	.7741	22.03	.9272	.000213
.518	2.219	1093.	.7388	.8929	.7818	22.26	.9193	.000232
.546	2.338	1152.	.7432	.8945	.7858	22.38	.9129	.000248
.574	2.458	1211.	.7503	.8970	.7922	22.57	.9062	.000264
.604	2.588	1275.	.7573	.8995	.7985	22.76	.8987	.000281
.637	2.730	1345.	.7621	.9012	.8028	22.89	.8901	.000301
.673	2.882	1420.	.7681	.9033	.8081	23.05	.8807	.000323
.713	3.056	1506.	.7751	.9059	.8144	23.24	.8693	.000348
.746	3.198	1575.	.7802	.9078	.8188	23.38	.8596	.000370
.786	3.366	1658.	.7896	.9112	.8271	23.63	.8478	.000396
.829	3.551	1749.	.7973	.9141	.8339	23.83	.8341	.000426
.858	3.676	1811.	.8039	.9166	.8397	24.01	.8245	.000446
.896	3.839	1891.	.8074	.9180	.8427	24.10	.8116	.000474
.932	3.992	1966.	.8109	.9193	.8458	24.19	.7991	.000500
.965	4.133	2036.	.8183	.9221	.8521	24.39	.7871	.000526
.999	4.280	2108.	.8237	.9242	.8568	24.53	.7742	.000552
1.038	4.449	2192.	.8312	.9271	.8632	24.73	.7590	.000583
1.084	4.644	2288.	.8378	.9297	.8689	24.90	.7406	.000621

TABLE A11. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.113	4.769	2350.	.8428	.9317	.8731	25.03	.7286	.000645
1.153	4.938	2433.	.8460	.9330	.8759	25.11	.7119	.000678
1.192	5.107	2516.	.8530	.9358	.8818	25.30	.6947	.000712
1.219	5.221	2572.	.8588	.9381	.8866	25.44	.6827	.000735
1.247	5.341	2631.	.8633	.9399	.8904	25.56	.6700	.000760
1.290	5.525	2722.	.8685	.9421	.8948	25.70	.6499	.000799
1.333	5.710	2813.	.8745	.9446	.8998	25.85	.6291	.000839
1.358	5.819	2867.	.8779	.9459	.9026	25.94	.6170	.000862
1.394	5.971	2942.	.8841	.9485	.9077	26.10	.5994	.000895
1.436	6.151	3030.	.8876	.9500	.9106	26.18	.5783	.000934
1.473	6.309	3108.	.8945	.9529	.9163	26.36	.5594	.000969
1.506	6.450	3178.	.8988	.9547	.9199	26.47	.5423	.001001
1.549	6.635	3269.	.9056	.9576	.9255	26.64	.5195	.001043
1.602	6.863	3381.	.9107	.9598	.9296	26.77	.4910	.001094
1.631	6.989	3443.	.9166	.9623	.9344	26.92	.4752	.001123
1.714	7.342	3617.	.9287	.9676	.9441	27.23	.4299	.001203
1.671	7.157	3526.	.9204	.9640	.9374	27.02	.4268	.001209
1.751	7.500	3695.	.9300	.9681	.9451	27.26	.4099	.001238
1.795	7.690	3789.	.9346	.9702	.9489	27.37	.3854	.001281
1.841	7.886	3885.	.9405	.9728	.9536	27.52	.3602	.001325
1.875	8.033	3957.	.9454	.9750	.9575	27.64	.3413	.001358
1.921	8.229	4054.	.9498	.9769	.9609	27.75	.3162	.001401
1.962	8.403	4140.	.9563	.9798	.9661	27.91	.2940	.001439
2.002	8.577	4225.	.9590	.9810	.9682	27.98	.2721	.001476
2.039	8.734	4303.	.9642	.9834	.9723	28.11	.2524	.001509
2.082	8.919	4394.	.9661	.9842	.9737	28.15	.2297	.001547
2.119	9.077	4472.	.9708	.9864	.9775	28.27	.2106	.001579
2.153	9.224	4544.	.9717	.9868	.9782	28.29	.1931	.001608
2.194	9.398	4630.	.9763	.9889	.9817	28.41	.1729	.001642
2.240	9.594	4727.	.9807	.9910	.9851	28.51	.1503	.001679
2.275	9.746	4802.	.9826	.9918	.9866	28.56	.1339	.001706
2.315	9.915	4885.	.9853	.9931	.9887	28.63	.1160	.001736
2.357	10.094	4973.	.9860	.9934	.9892	28.64	.0975	.001766
2.392	10.247	5048.	.9894	.9950	.9919	28.73	.0825	.001790
2.426	10.393	5120.	.9918	.9961	.9937	28.79	.0685	.001813
2.470	10.578	5212.	.9921	.9963	.9939	28.79	.0518	.001840
2.508	10.741	5292.	.9940	.9971	.9954	28.84	.0379	.001862
2.534	10.856	5348.	.9964	.9983	.9972	28.90	.0286	.001877
2.575	11.030	5434.	.9959	.9980	.9968	28.88	.0153	.001899
2.607	11.166	5501.	.9962	.9982	.9971	28.89	.0056	.001914
2.641	11.313	5573.	.9975	.9988	.9981	28.93	0.0000	.001923
2.667	11.421	5627.	.9972	.9986	.9978	28.92	0.0000	.001923
2.743	11.748	5788.	.9994	.9997	.9995	28.97	0.0000	.001923
2.795	11.971	5898.	.9999	.9999	.9999	28.98	0.0000	.001923
2.875	12.313	6066.	1.0001	1.0000	1.0001	28.99	0.0000	.001923
2.954	12.651	6233.	1.0001	1.0000	1.0001	28.99	0.0000	.001923
3.054	13.080	6444.	1.0005	1.0002	1.0004	29.00	0.0000	.001923
3.150	13.494	6648.	1.0005	1.0002	1.0004	29.00	0.0000	.001923
3.263	13.978	6886.	1.0003	1.0001	1.0002	28.99	0.0000	.001923
3.364	14.407	7098.	1.0007	1.0003	1.0005	29.00	0.0000	.001923
3.484	14.924	7353.	.9998	.9999	.9998	28.98	0.0000	.001923
3.561	15.250	7513.	.9999	.9999	.9999	28.98	0.0000	.001923
3.686	15.789	7779.	1.0001	1.0000	1.0001	28.99	0.0000	.001923

TABLE A11. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3151 TOTAL PRESSURE= .6678E+05 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 304.28 DEG-K

UE= 395.85 M/SEC DELTA STAR= .4777 CM THETA= .2433 CM H= 1.963
RE-DELTA-STAR= 47510. RE-THETA= 24190. NUWALL= .6598 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 14.1976 M/SEC CF= .001959 PI= .6205 DELTA= 2.7131 CM
CHISQR= .9072E-05 YMAX= 2.571 CM YMIN= .092 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7656	0.0000	0.00	1.0000	0.000000
.010	.041	21.	.3966	.8024	.4428	12.47	1.0000	0.000000
.022	.093	49.	.4758	.8186	.5258	14.86	.9992	.000005
.031	.130	68.	.5081	.8261	.5591	15.82	.9985	.000008
.050	.208	109.	.5303	.8315	.5816	16.48	.9969	.000015
.054	.224	117.	.5473	.8358	.5987	16.97	.9965	.000017
.072	.297	155.	.5667	.8409	.6180	17.54	.9948	.000024
.092	.381	199.	.5865	.8462	.6376	18.11	.9926	.000031
.120	.495	259.	.6113	.8532	.6619	18.83	.9894	.000042
.132	.542	284.	.6208	.8559	.6711	19.10	.9881	.000047
.153	.631	330.	.6267	.8576	.6767	19.27	.9854	.000055
.172	.709	371.	.6369	.8607	.6865	19.56	.9829	.000063
.186	.767	401.	.6459	.8634	.6951	19.81	.9810	.000069
.204	.840	439.	.6517	.8651	.7007	19.98	.9786	.000076
.236	.970	508.	.6642	.8690	.7125	20.33	.9740	.000089
.259	1.064	557.	.6725	.8716	.7203	20.56	.9706	.000099
.293	1.205	631.	.6813	.8744	.7286	20.81	.9652	.000114
.313	1.289	675.	.6870	.8762	.7339	20.97	.9619	.000123
.339	1.393	729.	.6968	.8794	.7431	21.24	.9576	.000134
.382	1.571	822.	.7058	.8823	.7514	21.49	.9500	.000154
.421	1.732	907.	.7131	.8848	.7581	21.69	.9426	.000172
.441	1.816	951.	.7176	.8863	.7623	21.82	.9387	.000182
.490	2.014	1054.	.7330	.8915	.7763	22.24	.9290	.000206
.538	2.213	1158.	.7391	.8936	.7818	22.41	.9186	.000231
.584	2.401	1257.	.7467	.8963	.7887	22.62	.9083	.000255
.632	2.599	1360.	.7552	.8993	.7964	22.85	.8967	.000282
.679	2.792	1462.	.7642	.9025	.8044	23.09	.8848	.000309
.707	2.907	1522.	.7708	.9048	.8103	23.27	.8774	.000326
.742	3.053	1598.	.7789	.9078	.8175	23.49	.8677	.000347
.791	3.251	1702.	.7821	.9090	.8203	23.58	.8539	.000378
.822	3.382	1770.	.7879	.9111	.8254	23.73	.8444	.000398
.858	3.528	1847.	.7964	.9142	.8329	23.96	.8334	.000422
.894	3.674	1923.	.8023	.9164	.8380	24.12	.8220	.000446
.935	3.846	2014.	.8096	.9192	.8444	24.31	.8081	.000475
.971	3.993	2090.	.8153	.9214	.8494	24.46	.7958	.000501
1.028	4.227	2213.	.8236	.9246	.8566	24.68	.7753	.000543
1.069	4.394	2301.	.8287	.9266	.8609	24.82	.7600	.000574
1.104	4.541	2377.	.8351	.9291	.8664	24.99	.7463	.000601
1.144	4.702	2462.	.8426	.9320	.8728	25.18	.7306	.000632
1.189	4.890	2560.	.8482	.9342	.8775	25.33	.7118	.000669
1.219	5.010	2623.	.8514	.9355	.8803	25.41	.6994	.000694

TABLE A11. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.262	5.189	2716.	.8600	.9389	.8875	25.64	.6807	.000730
1.322	5.433	2844.	.8654	.9411	.8921	25.78	.6540	.000781
1.371	5.637	2951.	.8724	.9440	.8979	25.96	.6311	.000824
1.417	5.825	3049.	.8796	.9469	.9039	26.15	.6094	.000865
1.456	5.986	3134.	.8844	.9489	.9079	26.27	.5903	.000900
1.517	6.237	3265.	.8936	.9528	.9155	26.51	.5601	.000956
1.565	6.435	3369.	.8988	.9549	.9197	26.64	.5357	.001000
1.607	6.608	3459.	.9074	.9586	.9268	26.86	.5141	.001039
1.677	6.895	3610.	.9135	.9612	.9317	27.02	.4776	.001104
1.720	7.072	3702.	.9188	.9634	.9360	27.15	.4547	.001144
1.771	7.281	3812.	.9256	.9664	.9416	27.32	.4276	.001192
1.809	7.438	3894.	.9308	.9687	.9457	27.46	.4072	.001227
1.845	7.584	3970.	.9337	.9699	.9481	27.53	.3880	.001260
1.879	7.725	4044.	.9368	.9713	.9505	27.61	.3696	.001292
1.932	7.944	4159.	.9433	.9741	.9557	27.77	.3409	.001341
1.981	8.142	4263.	.9475	.9760	.9591	27.88	.3146	.001386
2.014	8.278	4334.	.9528	.9784	.9633	28.01	.2974	.001415
2.061	8.471	4435.	.9570	.9802	.9666	28.11	.2726	.001456
2.100	8.633	4520.	.9611	.9821	.9698	28.21	.2520	.001490
2.139	8.795	4604.	.9652	.9839	.9730	28.32	.2317	.001524
2.176	8.946	4684.	.9687	.9855	.9758	28.40	.2130	.001555
2.209	9.082	4755.	.9706	.9864	.9773	28.45	.1964	.001582
2.244	9.223	4828.	.9752	.9885	.9809	28.57	.1795	.001610
2.289	9.411	4927.	.9754	.9886	.9810	28.57	.1575	.001646
2.307	9.484	4965.	.9792	.9903	.9839	28.66	.1492	.001660
2.332	9.588	5020.	.9806	.9910	.9850	28.70	.1374	.001679
2.363	9.713	5085.	.9818	.9915	.9860	28.73	.1235	.001701
2.397	9.854	5159.	.9858	.9934	.9891	28.83	.1083	.001726
2.452	10.079	5277.	.9868	.9938	.9898	28.85	.0850	.001763
2.481	10.199	5339.	.9887	.9947	.9913	28.90	.0731	.001782
2.520	10.361	5424.	.9906	.9956	.9928	28.94	.0577	.001807
2.571	10.569	5533.	.9918	.9961	.9937	28.97	.0389	.001837
2.607	10.716	5610.	.9937	.9970	.9951	29.02	.0265	.001857
2.632	10.820	5665.	.9946	.9975	.9959	29.04	.0181	.001870
2.670	10.976	5747.	.9954	.9978	.9965	29.06	.0061	.001889
2.716	11.164	5845.	.9967	.9984	.9975	29.09	0.0000	.001899
2.764	11.363	5949.	.9971	.9986	.9978	29.10	0.0000	.001899
2.840	11.676	6113.	.9990	.9995	.9992	29.15	0.0000	.001899
2.937	12.073	6320.	.9984	.9993	.9988	29.14	0.0000	.001899
3.039	12.490	6539.	.9992	.9996	.9994	29.16	0.0000	.001899
3.135	12.887	6747.	.9996	.9998	.9997	29.16	0.0000	.001899
3.248	13.351	6990.	.9990	.9995	.9993	29.15	0.0000	.001899
3.364	13.826	7239.	.9990	.9995	.9993	29.15	0.0000	.001899
3.460	14.223	7446.	.9998	.9999	.9998	29.17	0.0000	.001899
3.562	14.641	7665.	.9998	.9999	.9998	29.17	0.0000	.001899
3.601	14.803	7750.	1.0002	1.0001	1.0001	29.18	0.0000	.001899
3.635	14.943	7824.	1.0003	1.0001	1.0003	29.18	0.0000	.001899
3.671	15.090	7900.	.9996	.9998	.9997	29.17	0.0000	.001899

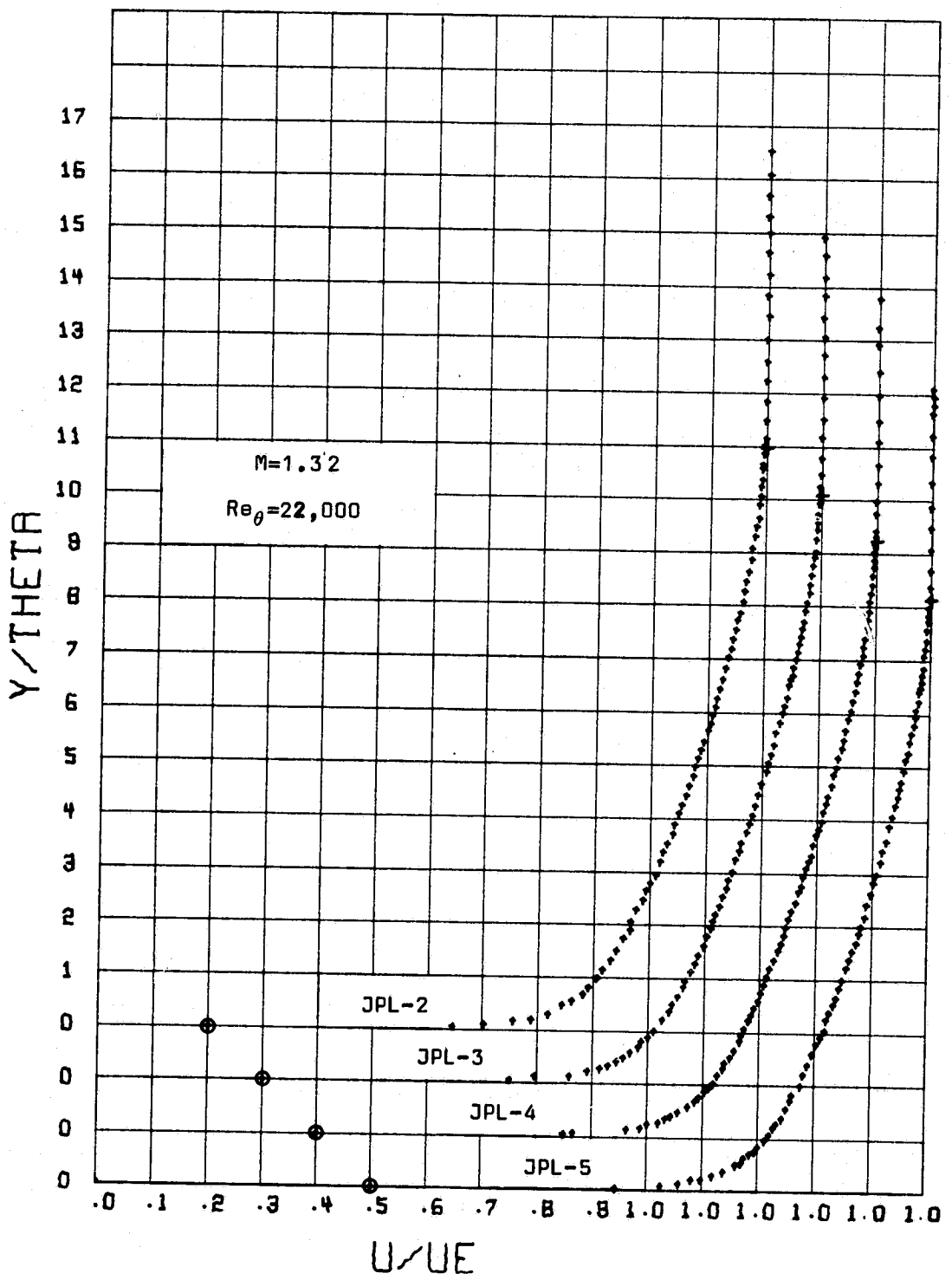

Figure A29. Mean Velocity Profiles.

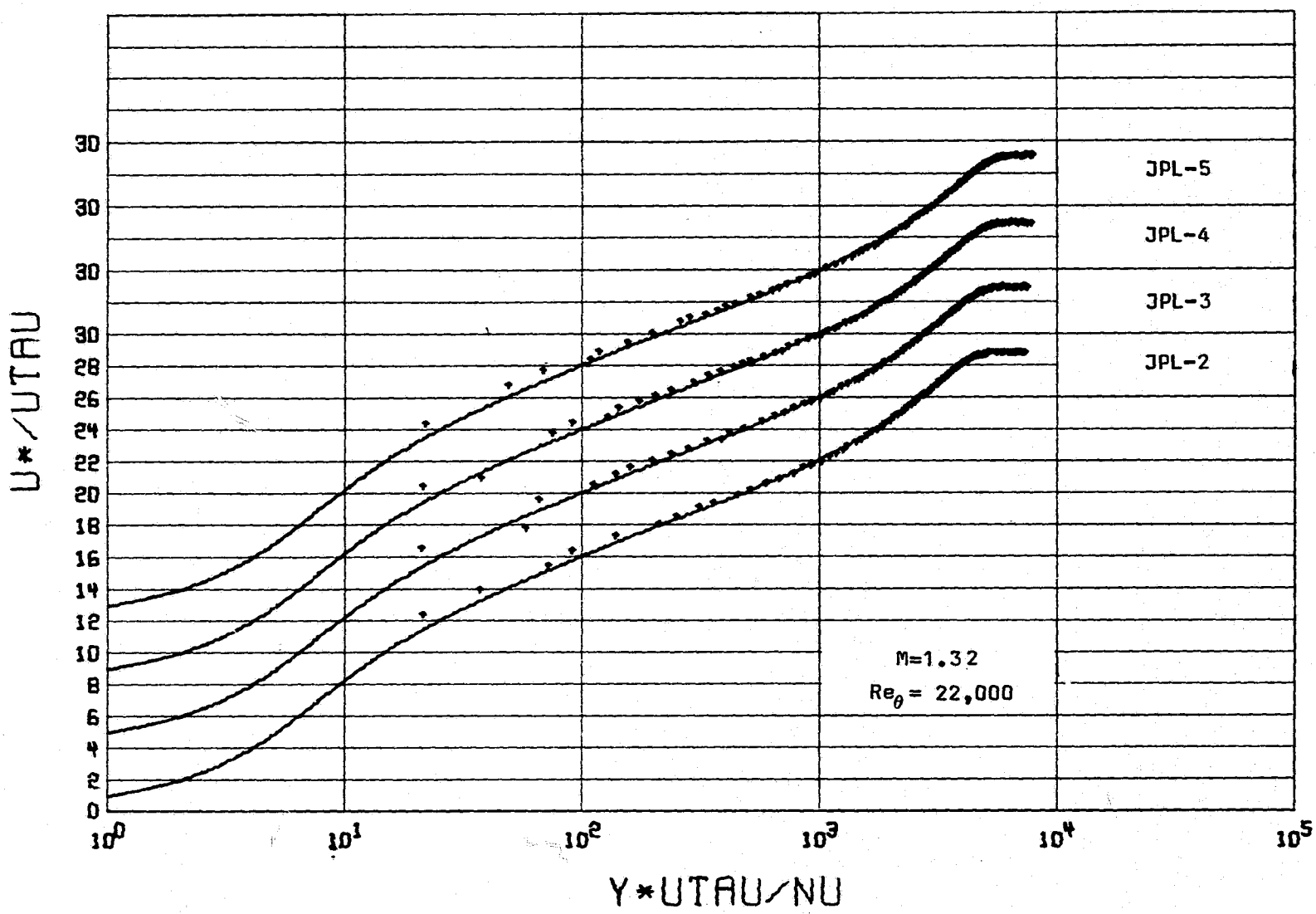

Figure A30. Van Driest Scaled Mean Velocity Profiles.

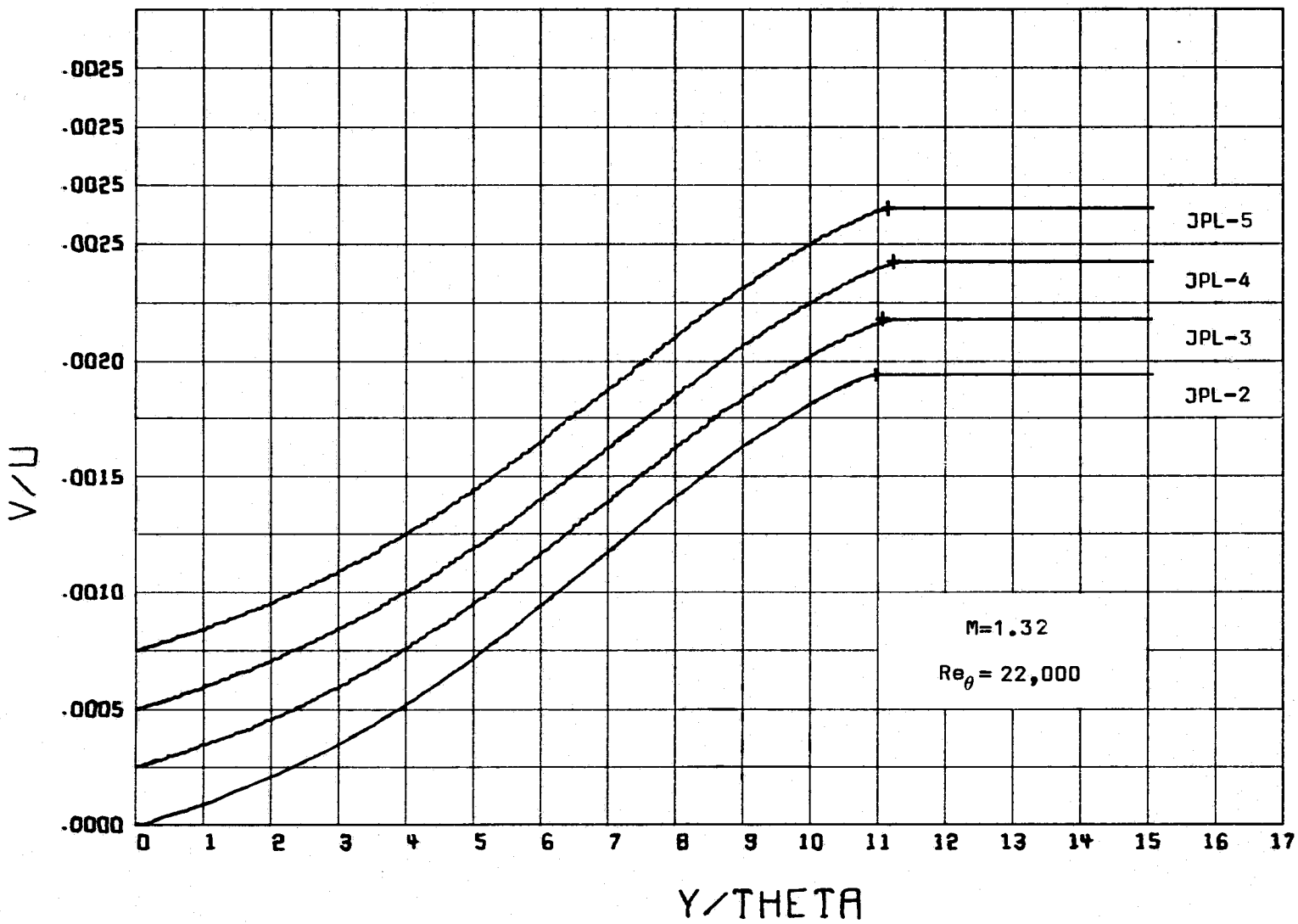

Figure A 31. Normal Velocity Distribution.

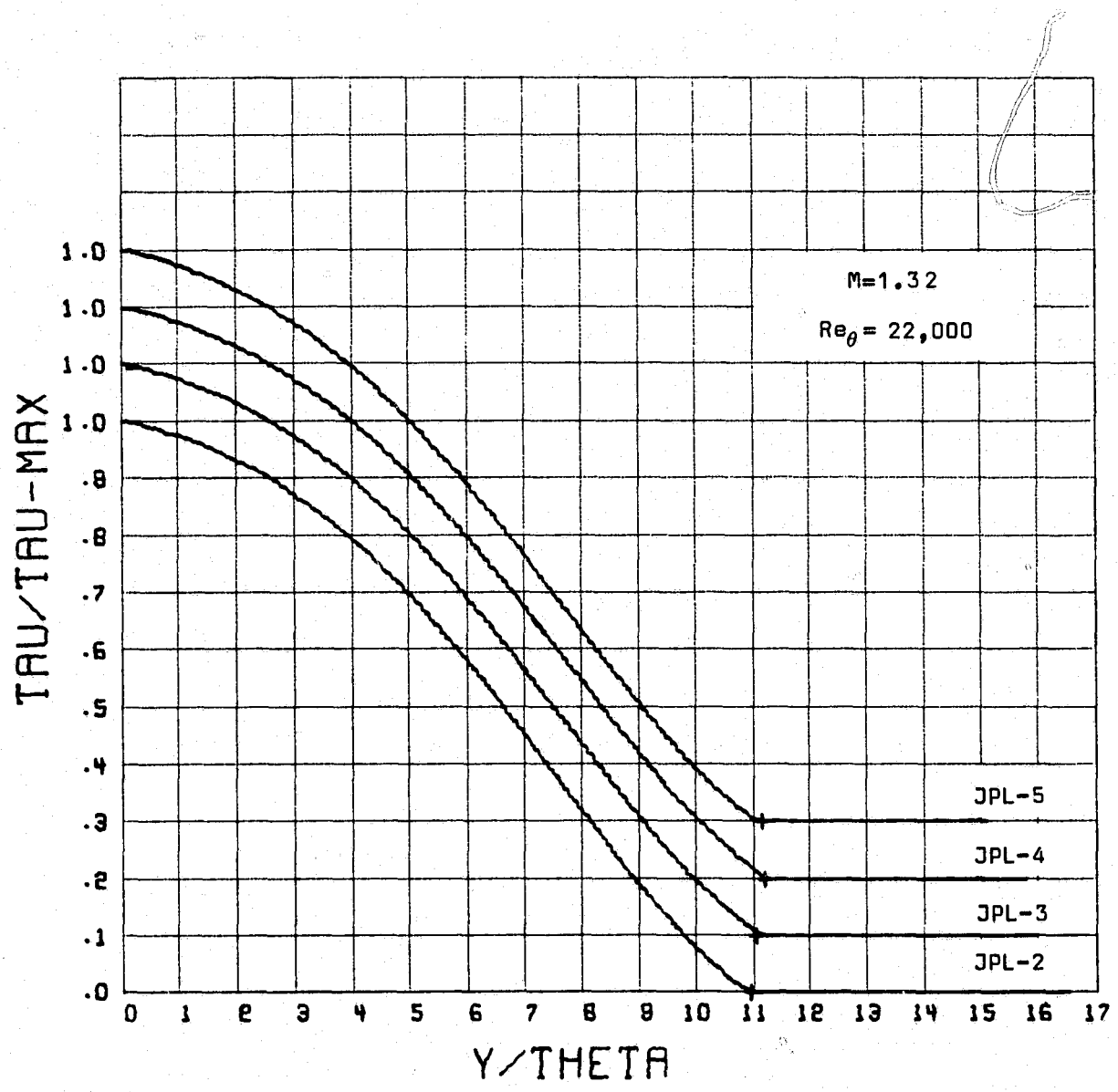

Figure A 32. Shear Stress Distribution.

TABLE A12. DATA SUMMARY
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3082 TOTAL PRESSURE= .1333E+06 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 324.67 DEG-K

UE= 408.33 M/SEC DELTA STAR= .3783 CM THETA= .1945 CM H= 1.944
RE-DELTA-STAR= 72400. RE-THETA= 37230. NUWALL= .3710 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 14.1549 M/SEC CF= .001844 P1= .6272 DELTA= 2.2149 CM
CHISQR= .4842E-05 YMAX= 2.076 CM YMIN= .050 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7674	0.0000	0.00	1.0000	0.000000
.011	.058	43.	.4300	.8104	.4776	13.90	1.0000	0.000000
.022	.117	87.	.4953	.8245	.5455	15.92	.9989	.000005
.050	.261	193.	.5510	.8381	.6019	17.61	.9958	.000017
.066	.339	251.	.5803	.8458	.6310	18.49	.9939	.000023
.078	.404	300.	.6023	.8518	.6526	19.15	.9921	.000029
.100	.515	382.	.6170	.8560	.6669	19.58	.9890	.000039
.111	.574	426.	.6257	.8585	.6753	19.84	.9873	.000044
.129	.665	494.	.6365	.8617	.6857	20.16	.9845	.000052
.142	.731	542.	.6479	.8651	.6966	20.49	.9825	.000058
.172	.887	658.	.6562	.8676	.7045	20.73	.9773	.000072
.193	.992	736.	.6701	.8719	.7176	21.13	.9737	.000081
.223	1.148	852.	.6828	.8759	.7296	21.50	.9679	.000096
.245	1.259	935.	.6912	.8785	.7374	21.75	.9637	.000107
.275	1.416	1051.	.7041	.8827	.7494	22.11	.9575	.000122
.302	1.553	1153.	.7096	.8845	.7544	22.27	.9547	.000136
.317	1.631	1211.	.7152	.8864	.7597	22.43	.9483	.000144
.341	1.756	1303.	.7225	.8888	.7664	22.64	.9429	.000157
.365	1.880	1395.	.7315	.8919	.7746	22.90	.9371	.000170
.388	1.997	1482.	.7339	.8927	.7768	22.96	.9315	.000182
.429	2.206	1637.	.7451	.8966	.7869	23.28	.9210	.000206
.457	2.350	1744.	.7519	.8989	.7931	23.47	.9135	.000223
.490	2.519	1870.	.7580	.9011	.7986	23.64	.9041	.000243
.518	2.663	1976.	.7657	.9038	.8055	23.86	.8959	.000260
.560	2.878	2136.	.7751	.9071	.8138	24.12	.8828	.000288
.599	3.081	2287.	.7841	.9104	.8217	24.37	.8699	.000315
.637	3.276	2432.	.7880	.9119	.8252	24.48	.8567	.000342
.670	3.446	2558.	.7959	.9147	.8321	24.70	.8448	.000366
.703	3.616	2684.	.8049	.9181	.8400	24.95	.8324	.000390
.739	3.799	2820.	.8128	.9211	.8469	25.16	.8183	.000418
.769	3.955	2936.	.8171	.9227	.8506	25.28	.8060	.000442
.797	4.099	3042.	.8235	.9251	.8562	25.46	.7942	.000465
.828	4.256	3159.	.8279	.9268	.8599	25.58	.7809	.000490
.866	4.452	3304.	.8376	.9306	.8682	25.84	.7637	.000523
.889	4.569	3391.	.8407	.9318	.8709	25.92	.7531	.000543
.919	4.719	3503.	.8466	.9341	.8759	26.08	.7391	.000569
.957	4.922	3653.	.8514	.9360	.8800	26.21	.7197	.000604
.993	5.104	3789.	.8601	.9395	.8874	26.45	.7016	.000637
1.027	5.281	3920.	.8647	.9413	.8913	26.57	.6836	.000670
1.061	5.457	4050.	.8704	.9436	.8960	26.73	.6648	.000703
1.097	5.640	4186.	.8754	.9456	.9002	26.86	.6454	.000738

TABLE A12. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.132	5.822	4322.	.8823	.9485	.9059	27.04	.6252	.000773
1.158	5.953	4419.	.8860	.9500	.9090	27.14	.6105	.000799
1.191	6.123	4545.	.8913	.9522	.9134	27.28	.5910	.000832
1.229	6.318	4690.	.8983	.9551	.9192	27.47	.5682	.000872
1.261	6.482	4811.	.9020	.9566	.9222	27.56	.5488	.000905
1.292	6.645	4932.	.9079	.9591	.9271	27.72	.5290	.000938
1.325	6.815	5058.	.9125	.9611	.9308	27.84	.5084	.000973
1.356	6.971	5174.	.9172	.9630	.9346	27.96	.4890	.001005
1.388	7.134	5296.	.9216	.9650	.9382	28.08	.4687	.001038
1.432	7.363	5465.	.9256	.9667	.9414	28.19	.4400	.001085
1.457	7.494	5562.	.9305	.9688	.9453	28.31	.4236	.001112
1.496	7.689	5707.	.9349	.9707	.9489	28.43	.3987	.001153
1.529	7.859	5833.	.9403	.9730	.9532	28.57	.3772	.001187
1.569	8.068	5989.	.9436	.9745	.9559	28.65	.3507	.001230
1.607	8.264	6134.	.9495	.9771	.9606	28.81	.3259	.001269
1.637	8.414	6245.	.9529	.9786	.9632	28.89	.3071	.001299
1.681	8.642	6415.	.9574	.9806	.9668	29.01	.2786	.001343
1.711	8.799	6531.	.9601	.9818	.9690	29.08	.2593	.001373
1.752	9.008	6686.	.9656	.9843	.9733	29.22	.2339	.001413
1.785	9.178	6812.	.9692	.9859	.9761	29.31	.2137	.001444
1.826	9.387	6967.	.9719	.9871	.9782	29.38	.1893	.001482
1.856	9.543	7084.	.9750	.9885	.9806	29.46	.1712	.001509
1.897	9.752	7239.	.9783	.9900	.9832	29.55	.1483	.001544
1.925	9.896	7345.	.9800	.9908	.9846	29.59	.1329	.001568
1.953	10.039	7452.	.9833	.9923	.9871	29.67	.1179	.001590
1.993	10.248	7607.	.9844	.9928	.9880	29.70	.0965	.001623
2.024	10.405	7723.	.9868	.9939	.9898	29.76	.0817	.001645
2.051	10.542	7825.	.9885	.9947	.9911	29.81	.0690	.001664
2.076	10.673	7922.	.9902	.9954	.9924	29.85	.0570	.001682
2.115	10.875	8072.	.9912	.9959	.9932	29.87	.0403	.001707
2.147	11.038	8193.	.9927	.9966	.9944	29.91	.0275	.001726
2.176	11.188	8305.	.9936	.9970	.9951	29.94	.0163	.001742
2.207	11.345	8421.	.9939	.9972	.9953	29.94	.0055	.001758
2.232	11.476	8518.	.9945	.9974	.9958	29.96	0.0000	.001766
2.269	11.665	8658.	.9953	.9978	.9964	29.98	0.0000	.001766
2.341	12.037	8935.	.9969	.9985	.9976	30.02	0.0000	.001766
2.423	12.455	9245.	.9989	.9995	.9991	30.07	0.0000	.001766
2.514	12.925	9594.	.9994	.9997	.9995	30.08	0.0000	.001766
2.599	13.362	9918.	.9995	.9997	.9996	30.08	0.0000	.001766
2.679	13.773	10224.	.9990	.9995	.9992	30.07	0.0000	.001766
2.764	14.211	10548.	.9991	.9996	.9993	30.07	0.0000	.001766
2.840	14.602	10839.	.9998	.9999	.9999	30.09	0.0000	.001766
2.918	15.001	11134.	.9998	.9999	.9998	30.09	0.0000	.001766
2.989	15.366	11406.	.9998	.9999	.9998	30.09	0.0000	.001766
3.063	15.745	11687.	1.0004	1.0002	1.0003	30.11	0.0000	.001766
3.135	16.117	11963.	1.0005	1.0002	1.0004	30.11	0.0000	.001766
3.199	16.443	12205.	1.0007	1.0003	1.0005	30.12	0.0000	.001766

TABLE A12. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3173 TOTAL PRESSURE= .1335E+06 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 322.72 DEG-K

UE= 409.20 M/SEC DELTA STAR= .3969 CM THETA= .2047 CM H= 1.938
RE-DELTA-STAR= 72780. RE-THETA= 37550. NUWALL= .3709 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 14.2605 M/SEC CF= .001858 PI= .5508 DELTA= 2.4022 CM
CHISQR= .2328E-04 YMAX= 2.244 CM YMIN= .036 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7650	0.0000	0.00	1.0000	0.000000
.010	.049	39.	.4324	.8089	.4807	13.92	1.0000	0.000000
.021	.105	83.	.5072	.8254	.5582	16.22	.9990	.000005
.036	.179	141.	.5494	.8359	.6009	17.49	.9974	.000011
.052	.254	200.	.5795	.8439	.6308	18.39	.9957	.000017
.063	.310	244.	.6007	.8498	.6516	19.02	.9942	.000022
.090	.440	346.	.6142	.8536	.6648	19.42	.9907	.000034
.105	.514	405.	.6330	.8592	.6829	19.97	.9885	.000040
.125	.613	483.	.6440	.8624	.6934	20.29	.9855	.000049
.151	.737	581.	.6558	.8661	.7047	20.63	.9815	.000060
.173	.849	668.	.6656	.8691	.7140	20.92	.9777	.000071
.194	.948	747.	.6776	.8729	.7252	21.26	.9742	.000080
.222	1.085	854.	.6847	.8751	.7319	21.47	.9692	.000093
.248	1.215	957.	.6928	.8778	.7395	21.70	.9642	.000105
.269	1.314	1035.	.7010	.8805	.7471	21.93	.9603	.000115
.284	1.389	1093.	.7086	.8830	.7541	22.15	.9572	.000122
.311	1.519	1196.	.7157	.8853	.7606	22.35	.9518	.000135
.334	1.630	1284.	.7224	.8876	.7668	22.54	.9469	.000147
.372	1.817	1430.	.7306	.8904	.7742	22.77	.9385	.000166
.398	1.947	1533.	.7365	.8924	.7796	22.94	.9324	.000180
.430	2.102	1655.	.7453	.8955	.7876	23.18	.9248	.000197
.458	2.238	1762.	.7511	.8975	.7927	23.34	.9178	.000213
.486	2.375	1870.	.7564	.8994	.7975	23.49	.9106	.000229
.521	2.548	2006.	.7656	.9027	.8058	23.75	.9011	.000249
.571	2.790	2197.	.7767	.9067	.8156	24.06	.8871	.000279
.601	2.939	2314.	.7798	.9079	.8184	24.14	.8781	.000298
.637	3.113	2451.	.7886	.9111	.8261	24.39	.8671	.000320
.679	3.317	2612.	.7944	.9133	.8313	24.55	.8537	.000348
.712	3.479	2739.	.8006	.9156	.8367	24.72	.8426	.000370
.755	3.689	2905.	.8064	.9178	.8417	24.88	.8275	.000400
.789	3.857	3037.	.8149	.9210	.8491	25.11	.8151	.000424
.820	4.006	3154.	.8183	.9224	.8521	25.20	.8036	.000447
.864	4.223	3325.	.8261	.9253	.8587	25.41	.7863	.000480
.905	4.421	3481.	.8346	.9287	.8660	25.64	.7698	.000512
.935	4.570	3598.	.8389	.9304	.8697	25.76	.7569	.000536
.981	4.793	3774.	.8477	.9338	.8772	25.99	.7371	.000573
1.027	5.016	3950.	.8543	.9365	.8828	26.17	.7165	.000611
1.061	5.184	4082.	.8593	.9385	.8870	26.31	.7003	.000640
1.111	5.426	4272.	.8678	.9420	.8941	26.53	.6766	.000683
1.144	5.587	4399.	.8745	.9447	.8997	26.71	.6603	.000713
1.179	5.761	4536.	.8785	.9464	.9031	26.82	.6425	.000744

TABLE A12. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.217	5.947	4682.	.8829	.9482	.9067	26.93	.6228	.000779
1.250	6.108	4809.	.8874	.9500	.9104	27.05	.6054	.000810
1.283	6.269	4936.	.8936	.9526	.9155	27.22	.5877	.000840
1.319	6.443	5073.	.8993	.9550	.9202	27.37	.5683	.000874
1.360	6.641	5229.	.9041	.9571	.9241	27.49	.5457	.000912
1.395	6.815	5366.	.9094	.9593	.9285	27.63	.5257	.000947
1.423	6.951	5473.	.9148	.9616	.9329	27.77	.5098	.000973
1.463	7.144	5625.	.9188	.9634	.9361	27.88	.4871	.001012
1.494	7.299	5747.	.9238	.9655	.9401	28.01	.4686	.001042
1.534	7.491	5898.	.9285	.9676	.9439	28.13	.4455	.001081
1.565	7.646	6020.	.9321	.9692	.9468	28.22	.4268	.001111
1.601	7.820	6157.	.9360	.9709	.9499	28.32	.4058	.001146
1.639	8.006	6303.	.9409	.9730	.9538	28.45	.3831	.001183
1.680	8.204	6460.	.9447	.9747	.9569	28.55	.3590	.001222
1.720	8.402	6616.	.9488	.9765	.9601	28.65	.3349	.001261
1.748	8.539	6723.	.9506	.9773	.9615	28.70	.3184	.001287
1.797	8.775	6909.	.9578	.9805	.9672	28.88	.2900	.001332
1.835	8.961	7055.	.9617	.9823	.9703	28.98	.2678	.001367
1.863	9.097	7163.	.9637	.9832	.9718	29.03	.2517	.001393
1.905	9.302	7324.	.9673	.9849	.9747	29.13	.2279	.001430
1.949	9.519	7495.	.9720	.9870	.9784	29.25	.2030	.001469
1.993	9.736	7666.	.9750	.9884	.9807	29.32	.1787	.001507
2.023	9.878	7778.	.9789	.9902	.9837	29.42	.1631	.001531
2.063	10.077	7934.	.9809	.9911	.9853	29.47	.1419	.001563
2.096	10.238	8061.	.9838	.9924	.9875	29.55	.1252	.001589
2.127	10.387	8178.	.9852	.9931	.9886	29.58	.1101	.001612
2.167	10.585	8335.	.9875	.9941	.9904	29.64	.0908	.001642
2.217	10.827	8525.	.9900	.9953	.9923	29.70	.0683	.001676
2.244	10.958	8628.	.9907	.9956	.9929	29.72	.0567	.001693
2.286	11.162	8789.	.9920	.9962	.9938	29.75	.0394	.001720
2.327	11.367	8950.	.9951	.9977	.9962	29.83	.0231	.001744
2.343	11.441	9009.	.9947	.9975	.9959	29.82	.0175	.001753
2.373	11.590	9126.	.9954	.9978	.9965	29.84	.0066	.001769
2.413	11.782	9277.	.9966	.9984	.9974	29.87	0.0000	.001779
2.459	12.012	9458.	.9970	.9986	.9977	29.88	0.0000	.001779
2.526	12.334	9712.	.9980	.9990	.9985	29.90	0.0000	.001779
2.600	12.700	10000.	.9991	.9996	.9993	29.93	0.0000	.001779
2.643	13.004	10239.	.9994	.9997	.9995	29.94	0.0000	.001779
2.743	13.395	10547.	.9993	.9997	.9995	29.94	0.0000	.001779
2.835	13.847	10903.	.9995	.9998	.9996	29.94	0.0000	.001779
2.932	14.319	11274.	1.0004	1.0001	1.0003	29.96	0.0000	.001779
3.036	14.827	11675.	1.0006	1.0003	1.0005	29.97	0.0000	.001779
3.110	15.187	11958.	1.0003	1.0001	1.0002	29.96	0.0000	.001779
3.186	15.559	12251.	.9998	.9999	.9998	29.95	0.0000	.001779
3.282	16.030	12622.	.9999	.9999	.9999	29.95	0.0000	.001779
3.371	16.464	12964.	.9998	.9999	.9998	29.95	0.0000	.001779

TABLE A12. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3125 TOTAL PRESSURE= .1338E+06 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 323.70 DEG-K

UE= 408.71 M/SEC DELTA STAR= .4061 CM THETA= .2104 CM H= 1.929
RE-DELTA-STAR= 73130. RE-THETA= 37900. NUWALL= .3685 CM**2/SEC CF= .001788

LEAST SQUARE FIT PARAMETERS
UTAU= 14.2391 M/SEC CF= .001860 PI= .5314 DELTA= 2.4868 CM
CHISQR= .2778E-04 YMAX= 2.341 CM YMIN= .038 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7663	0.0000	0.00	1.0000	0.000000
.010	.048	39.	.4237	.8082	.4712	13.64	1.0000	0.000000
.020	.096	78.	.5008	.8249	.5514	16.02	.9991	.000004
.029	.138	112.	.5395	.8343	.5906	17.19	.9982	.000008
.038	.181	147.	.5611	.8399	.6123	17.84	.9973	.000011
.052	.247	201.	.5812	.8452	.6322	18.44	.9957	.000017
.066	.313	255.	.5919	.8481	.6427	18.75	.9940	.000023
.083	.398	323.	.6167	.8552	.6669	19.49	.9917	.000030
.099	.470	382.	.6292	.8588	.6789	19.85	.9897	.000037
.121	.579	471.	.6422	.8627	.6914	20.23	.9864	.000046
.148	.705	574.	.6551	.8666	.7038	20.61	.9823	.000058
.165	.794	637.	.6686	.8707	.7165	21.00	.9797	.000065
.190	.905	736.	.6764	.8732	.7238	21.22	.9755	.000076
.213	1.013	824.	.6846	.8758	.7315	21.46	.9715	.000086
.236	1.122	912.	.6923	.8783	.7387	21.68	.9674	.000097
.262	1.248	1015.	.6985	.8803	.7445	21.86	.9625	.000109
.283	1.345	1094.	.7060	.8828	.7514	22.07	.9586	.000118
.304	1.448	1177.	.7136	.8853	.7584	22.29	.9543	.000129
.330	1.568	1275.	.7223	.8882	.7664	22.53	.9492	.000141
.370	1.761	1432.	.7315	.8913	.7748	22.79	.9406	.000161
.397	1.888	1536.	.7373	.8933	.7800	22.95	.9346	.000174
.436	2.075	1688.	.7461	.8964	.7881	23.20	.9256	.000195
.473	2.250	1830.	.7515	.8983	.7929	23.35	.9167	.000214
.505	2.401	1953.	.7574	.9003	.7982	23.52	.9087	.000232
.537	2.552	2075.	.7684	.9043	.8080	23.82	.9004	.000249
.571	2.715	2208.	.7742	.9063	.8132	23.98	.8911	.000269
.601	2.859	2326.	.7778	.9077	.8164	24.09	.8825	.000287
.641	3.046	2478.	.7849	.9103	.8227	24.28	.8710	.000311
.678	3.221	2620.	.7935	.9134	.8303	24.52	.8597	.000334
.713	3.390	2757.	.7991	.9155	.8352	24.67	.8485	.000356
.749	3.559	2895.	.8045	.9175	.8398	24.82	.8368	.000380
.788	3.746	3047.	.8113	.9201	.8458	25.01	.8233	.000406
.830	3.945	3209.	.8177	.9226	.8514	25.18	.8084	.000435
.864	4.108	3341.	.8233	.9247	.8561	25.33	.7957	.000460
.901	4.283	3484.	.8320	.9281	.8637	25.57	.7817	.000487
.952	4.525	3680.	.8364	.9298	.8674	25.69	.7615	.000525
.985	4.682	3808.	.8444	.9329	.8742	25.90	.7479	.000550
1.026	4.875	3965.	.8492	.9348	.8783	26.03	.7307	.000582
1.062	5.050	4107.	.8577	.9382	.8855	26.26	.7146	.000612
1.143	5.430	4416.	.8694	.9429	.8953	26.57	.6781	.000678
1.106	5.255	4274.	.8623	.9401	.8894	26.39	.6760	.000681

TABLE A12. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.183	5.623	4573.	.8758	.9455	.9006	26.74	.6588	.000712
1.221	5.804	4720.	.8813	.9478	.9052	26.89	.6403	.000745
1.252	5.949	4838.	.8850	.9493	.9083	26.99	.6249	.000772
1.297	6.166	5015.	.8909	.9518	.9132	27.14	.6019	.000812
1.338	6.359	5172.	.8966	.9542	.9179	27.30	.5809	.000848
1.369	6.504	5290.	.8999	.9555	.9206	27.38	.5648	.000876
1.407	6.685	5437.	.9046	.9575	.9245	27.51	.5444	.000911
1.449	6.884	5599.	.9106	.9601	.9294	27.66	.5217	.000949
1.480	7.035	5722.	.9148	.9619	.9328	27.77	.5042	.000979
1.513	7.191	5849.	.9202	.9641	.9371	27.91	.4859	.001009
1.562	7.421	6036.	.9250	.9662	.9410	28.04	.4589	.001054
1.597	7.590	6173.	.9305	.9686	.9454	28.18	.4388	.001087
1.634	7.765	6315.	.9343	.9703	.9485	28.28	.4179	.001122
1.680	7.982	6492.	.9385	.9721	.9519	28.39	.3918	.001164
1.714	8.145	6624.	.9440	.9745	.9562	28.53	.3722	.001196
1.747	8.302	6752.	.9464	.9756	.9582	28.59	.3533	.001226
1.785	8.483	6899.	.9515	.9779	.9622	28.72	.3316	.001261
1.826	8.676	7056.	.9553	.9796	.9652	28.82	.3085	.001298
1.861	8.845	7194.	.9575	.9805	.9670	28.88	.2884	.001330
1.894	9.002	7321.	.9623	.9827	.9707	29.00	.2699	.001359
1.938	9.207	7488.	.9660	.9844	.9736	29.09	.2460	.001397
1.973	9.376	7626.	.9679	.9852	.9751	29.14	.2265	.001427
2.006	9.532	7753.	.9726	.9874	.9788	29.26	.2084	.001455
2.034	9.665	7861.	.9741	.9880	.9800	29.30	.1938	.001478
2.070	9.834	7999.	.9769	.9893	.9822	29.37	.1752	.001507
2.098	9.967	8106.	.9785	.9900	.9834	29.41	.1608	.001529
2.131	10.124	8234.	.9820	.9916	.9861	29.50	.1442	.001555
2.159	10.257	8342.	.9834	.9923	.9872	29.54	.1304	.001576
2.199	10.450	8499.	.9859	.9934	.9891	29.60	.1110	.001605
2.236	10.625	8641.	.9870	.9939	.9900	29.63	.0937	.001632
2.270	10.787	8774.	.9896	.9951	.9920	29.69	.0786	.001655
2.308	10.968	8921.	.9902	.9954	.9925	29.71	.0620	.001680
2.341	11.125	9049.	.9922	.9963	.9940	29.76	.0486	.001700
2.385	11.330	9216.	.9932	.9968	.9947	29.78	.0317	.001726
2.428	11.536	9382.	.9943	.9973	.9957	29.81	.0158	.001749
2.459	11.686	9505.	.9957	.9980	.9967	29.85	.0049	.001766
2.491	11.837	9628.	.9957	.9980	.9967	29.85	0.0000	.001773
2.515	11.952	9721.	.9967	.9985	.9975	29.87	0.0000	.001773
2.590	12.308	10011.	.9978	.9990	.9983	29.90	0.0000	.001773
2.661	12.646	10285.	.9987	.9994	.9990	29.92	0.0000	.001773
2.740	13.020	10590.	.9991	.9995	.9993	29.93	0.0000	.001773
2.807	13.340	10850.	.9991	.9996	.9993	29.93	0.0000	.001773
2.871	13.641	11095.	.9997	.9998	.9997	29.95	0.0000	.001773
2.948	14.009	11394.	.9996	.9998	.9997	29.95	0.0000	.001773
3.012	14.311	11640.	.9999	.9999	.9999	29.95	0.0000	.001773
3.098	14.721	11974.	.9995	.9998	.9996	29.94	0.0000	.001773
3.180	15.107	12288.	1.0001	1.0000	1.0001	29.96	0.0000	.001773
3.276	15.566	12661.	1.0000	1.0000	1.0000	29.96	0.0000	.001773
3.360	15.964	12984.	1.0000	1.0000	1.0000	29.96	0.0000	.001773
3.439	16.338	13289.	.9998	.9999	.9998	29.95	0.0000	.001773
3.520	16.724	13603.	1.0000	1.0000	1.0000	29.96	0.0000	.001773

TABLE A12. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 1.3130 TOTAL PRESSURE= .1330E+06 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 319.81 DEG-K

UE= 406.36 M/SEC DELTA STAR= .4242 CM THETA= .2189 CM H= 1.937
RE-DELTA-STAR= 77910. RE-THETA= 40210. NUWALL= .3649 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 14.0527 M/SEC CF= .001832 PI= .5630 DELTA= 2.5667 CM
CHISQR= .7885E-05 YMAX= 2.439 CM YMIN= .043 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.7661	0.0000	0.00	1.0000	0.000000
.010	.046	38.	.4244	.8083	.4721	13.77	1.0000	0.000000
.022	.104	87.	.4553	.8146	.5044	14.73	.9989	.000005
.031	.144	122.	.5179	.8289	.5689	16.66	.9981	.000008
.043	.196	165.	.5501	.8369	.6013	17.64	.9970	.000012
.054	.249	210.	.5683	.8417	.6194	18.19	.9957	.000017
.081	.370	312.	.5988	.8500	.6494	19.10	.9926	.000027
.092	.423	356.	.6108	.8534	.6612	19.46	.9911	.000032
.109	.498	420.	.6224	.8567	.6724	19.80	.9890	.000038
.119	.544	459.	.6383	.8614	.6877	20.27	.9876	.000042
.144	.660	557.	.6484	.8645	.6974	20.57	.9840	.000052
.157	.718	606.	.6568	.8670	.7054	20.81	.9821	.000058
.173	.794	669.	.6654	.8697	.7135	21.06	.9796	.000064
.194	.887	748.	.6711	.8715	.7188	21.23	.9764	.000073
.214	.980	826.	.6814	.8747	.7286	21.53	.9731	.000081
.238	1.090	919.	.6870	.8765	.7338	21.69	.9691	.000091
.260	1.189	1002.	.7001	.8808	.7460	22.06	.9653	.000101
.289	1.322	1114.	.7062	.8828	.7516	22.24	.9600	.000114
.304	1.392	1173.	.7074	.8831	.7527	22.27	.9572	.000120
.330	1.508	1271.	.7165	.8862	.7611	22.54	.9524	.000132
.364	1.664	1403.	.7232	.8884	.7672	22.73	.9456	.000147
.387	1.769	1491.	.7307	.8910	.7741	22.94	.9409	.000158
.410	1.873	1579.	.7366	.8930	.7794	23.11	.9360	.000169
.445	2.035	1716.	.7430	.8952	.7853	23.29	.9283	.000186
.469	2.146	1809.	.7499	.8976	.7915	23.48	.9228	.000199
.513	2.343	1975.	.7562	.8999	.7972	23.66	.9126	.000221
.542	2.476	2088.	.7613	.9017	.8017	23.80	.9054	.000236
.566	2.587	2181.	.7679	.9040	.8076	23.99	.8992	.000249
.601	2.749	2317.	.7728	.9058	.8120	24.13	.8899	.000269
.641	2.929	2469.	.7851	.9103	.8229	24.47	.8790	.000291
.678	3.097	2611.	.7866	.9108	.8242	24.51	.8685	.000312
.715	3.266	2753.	.7915	.9126	.8285	24.65	.8575	.000334
.750	3.428	2890.	.7999	.9158	.8359	24.88	.8465	.000356
.788	3.602	3037.	.8039	.9173	.8394	24.99	.8342	.000381
.811	3.706	3125.	.8112	.9200	.8457	25.19	.8266	.000395
.834	3.810	3212.	.8143	.9212	.8484	25.28	.8189	.000410
.875	3.996	3369.	.8201	.9234	.8534	25.43	.8046	.000438
.905	4.136	3487.	.8260	.9257	.8585	25.60	.7936	.000459
.930	4.252	3585.	.8296	.9271	.8616	25.70	.7841	.000477
.951	4.344	3663.	.8315	.9278	.8632	25.75	.7764	.000491
.996	4.553	3839.	.8411	.9316	.8715	26.01	.7586	.000524

TABLE A12. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.028	4.698	3961.	.8440	.9327	.8739	26.09	.7458	.000548
1.062	4.855	4093.	.8509	.9354	.8797	26.27	.7316	.000574
1.131	5.168	4357.	.8587	.9386	.8863	26.48	.7021	.000627
1.169	5.342	4504.	.8658	.9414	.8923	26.68	.6850	.000658
1.205	5.505	4641.	.8709	.9435	.8966	26.81	.6687	.000686
1.228	5.609	4729.	.8744	.9449	.8995	26.91	.6581	.000705
1.276	5.829	4915.	.8813	.9478	.9053	27.09	.6351	.000745
1.304	5.957	5022.	.8847	.9492	.9081	27.18	.6214	.000769
1.334	6.096	5140.	.8884	.9507	.9111	27.28	.6063	.000795
1.377	6.294	5306.	.8932	.9527	.9151	27.41	.5846	.000832
1.410	6.444	5433.	.8988	.9550	.9197	27.56	.5676	.000861
1.450	6.624	5585.	.9025	.9566	.9227	27.65	.5471	.000896
1.489	6.804	5737.	.9090	.9593	.9280	27.82	.5262	.000931
1.532	7.001	5903.	.9147	.9618	.9327	27.98	.5031	.000969
1.577	7.204	6074.	.9202	.9642	.9371	28.12	.4790	.001009
1.609	7.349	6196.	.9225	.9651	.9390	28.18	.4616	.001037
1.657	7.570	6382.	.9288	.9678	.9440	28.35	.4349	.001081
1.695	7.744	6529.	.9339	.9701	.9482	28.48	.4138	.001115
1.725	7.883	6646.	.9381	.9719	.9515	28.59	.3968	.001142
1.776	8.115	6842.	.9421	.9737	.9547	28.69	.3683	.001188
1.814	8.289	6989.	.9468	.9757	.9585	28.81	.3472	.001221
1.851	8.457	7130.	.9517	.9779	.9623	28.94	.3267	.001254
1.896	8.661	7302.	.9548	.9793	.9648	29.02	.3021	.001292
1.941	8.869	7478.	.9603	.9818	.9692	29.16	.2770	.001331
1.974	9.020	7605.	.9635	.9832	.9717	29.25	.2590	.001359
2.018	9.217	7771.	.9668	.9847	.9743	29.33	.2358	.001395
2.056	9.392	7918.	.9699	.9861	.9767	29.41	.2157	.001426
2.091	9.554	8055.	.9731	.9875	.9791	29.49	.1972	.001455
2.127	9.716	8192.	.9750	.9884	.9807	29.54	.1790	.001482
2.162	9.879	8329.	.9783	.9900	.9833	29.63	.1608	.001510
2.186	9.989	8422.	.9801	.9908	.9847	29.67	.1493	.001528
2.223	10.157	8563.	.9825	.9919	.9865	29.73	.1314	.001555
2.259	10.320	8700.	.9844	.9927	.9879	29.78	.1149	.001579
2.293	10.476	8832.	.9860	.9935	.9892	29.82	.0993	.001603
2.327	10.633	8965.	.9884	.9946	.9910	29.88	.0843	.001625
2.366	10.807	9111.	.9897	.9952	.9921	29.92	.0681	.001649
2.400	10.964	9243.	.9907	.9956	.9928	29.94	.0542	.001670
2.439	11.143	9395.	.9916	.9961	.9936	29.97	.0391	.001693
2.462	11.248	9483.	.9932	.9968	.9947	30.01	.0306	.001705
2.496	11.405	9615.	.9943	.9973	.9956	30.03	.0184	.001723
2.537	11.590	9771.	.9947	.9975	.9959	30.04	.0050	.001743
2.571	11.747	9903.	.9959	.9981	.9969	30.08	0.0000	.001751
2.602	11.886	10021.	.9973	.9987	.9979	30.11	0.0000	.001751
2.673	12.211	10295.	.9979	.9990	.9984	30.13	0.0000	.001751
2.747	12.547	10579.	.9986	.9993	.9989	30.14	0.0000	.001751
2.824	12.901	10877.	.9990	.9995	.9992	30.15	0.0000	.001751
2.912	13.302	11214.	.9995	.9997	.9996	30.17	0.0000	.001751
2.989	13.655	11512.	1.0004	1.0002	1.0003	30.19	0.0000	.001751
3.074	14.044	11840.	1.0004	1.0002	1.0003	30.19	0.0000	.001751
3.148	14.381	12124.	1.0001	1.0000	1.0001	30.18	0.0000	.001751
3.230	14.757	12442.	.9998	.9999	.9998	30.17	0.0000	.001751
3.318	15.158	12779.	.9998	.9999	.9998	30.17	0.0000	.001751
3.384	15.459	13034.	1.0000	1.0000	1.0000	30.18	0.0000	.001751
3.477	15.883	13391.	.9998	.9999	.9998	30.17	0.0000	.001751
3.567	16.295	13738.	.9997	.9999	.9998	30.17	0.0000	.001751
3.641	16.631	14021.	.9997	.9998	.9998	30.17	0.0000	.001751

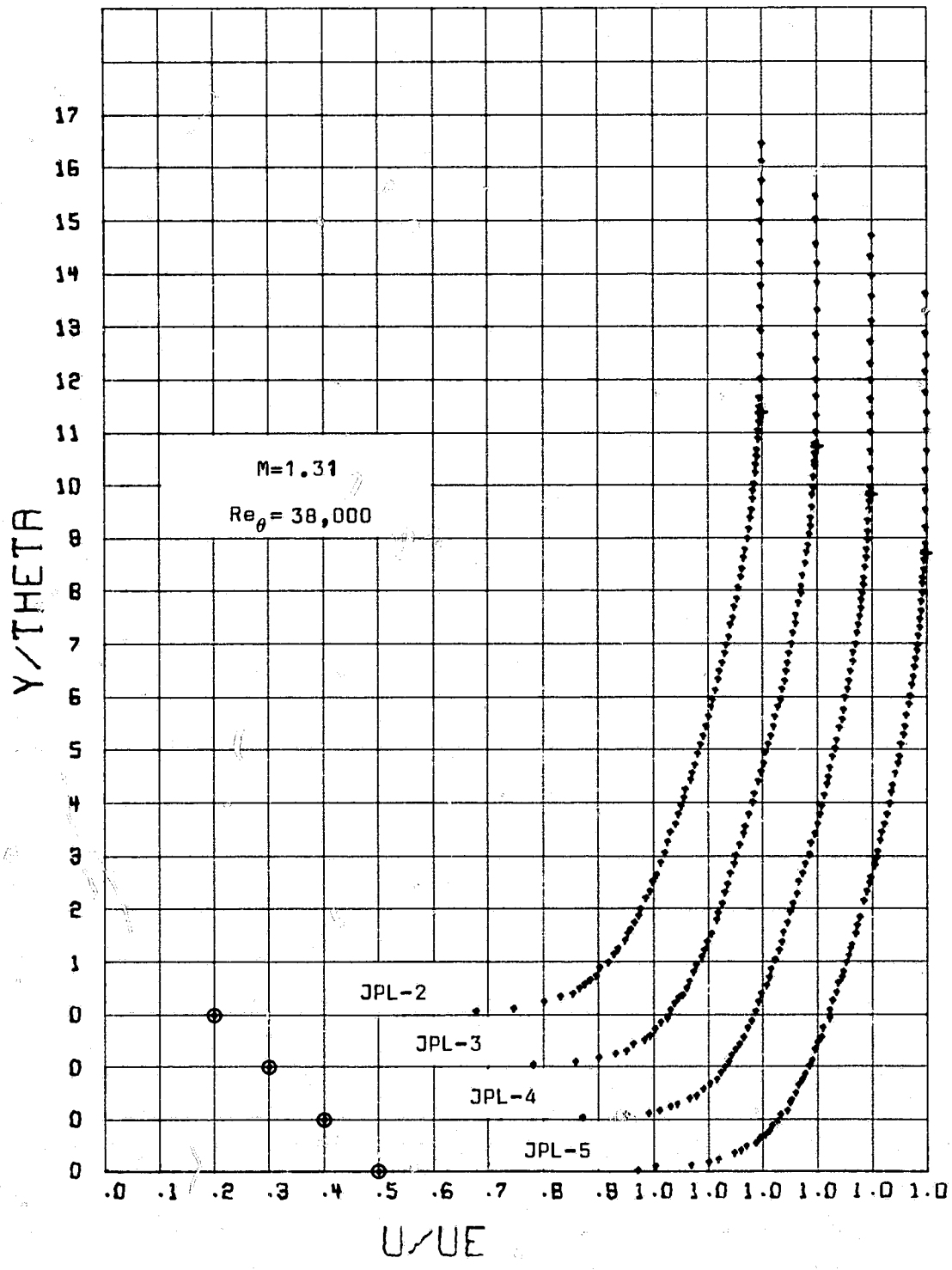

Figure A33. Mean Velocity Profiles.

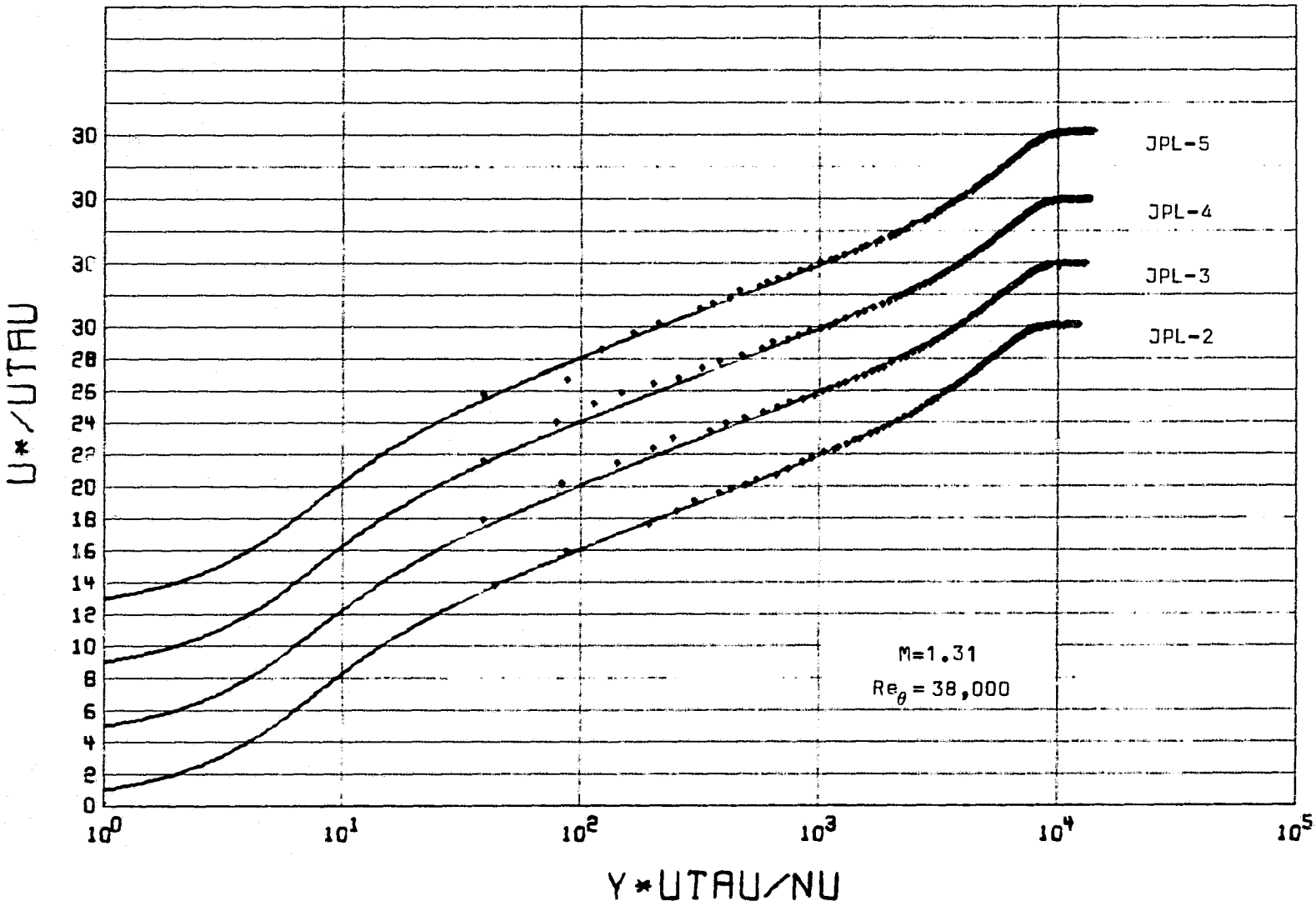

Figure A34. Van Driest Scaled Mean Velocity Profiles.

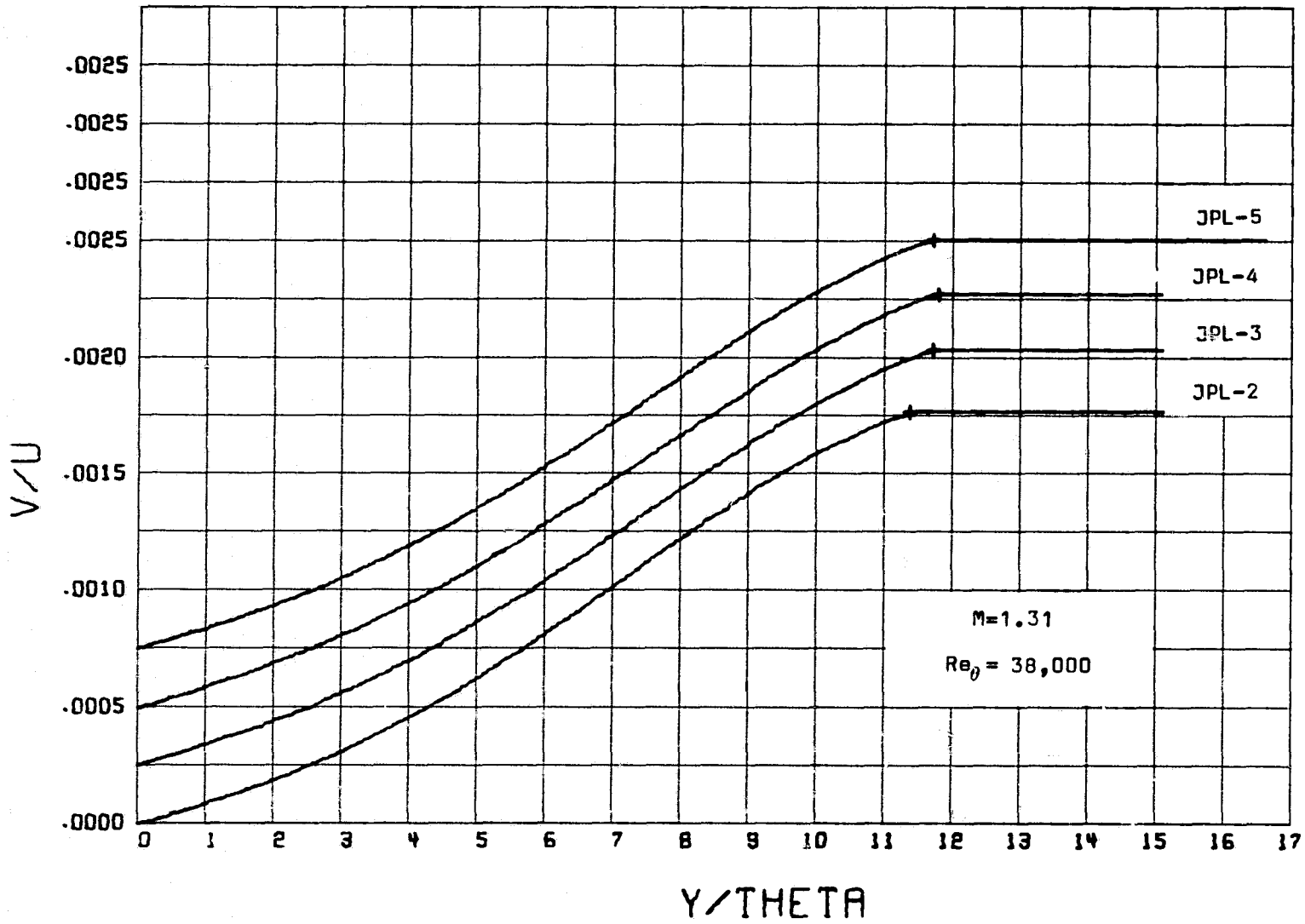

Figure A35. Normal Velocity Distribution.

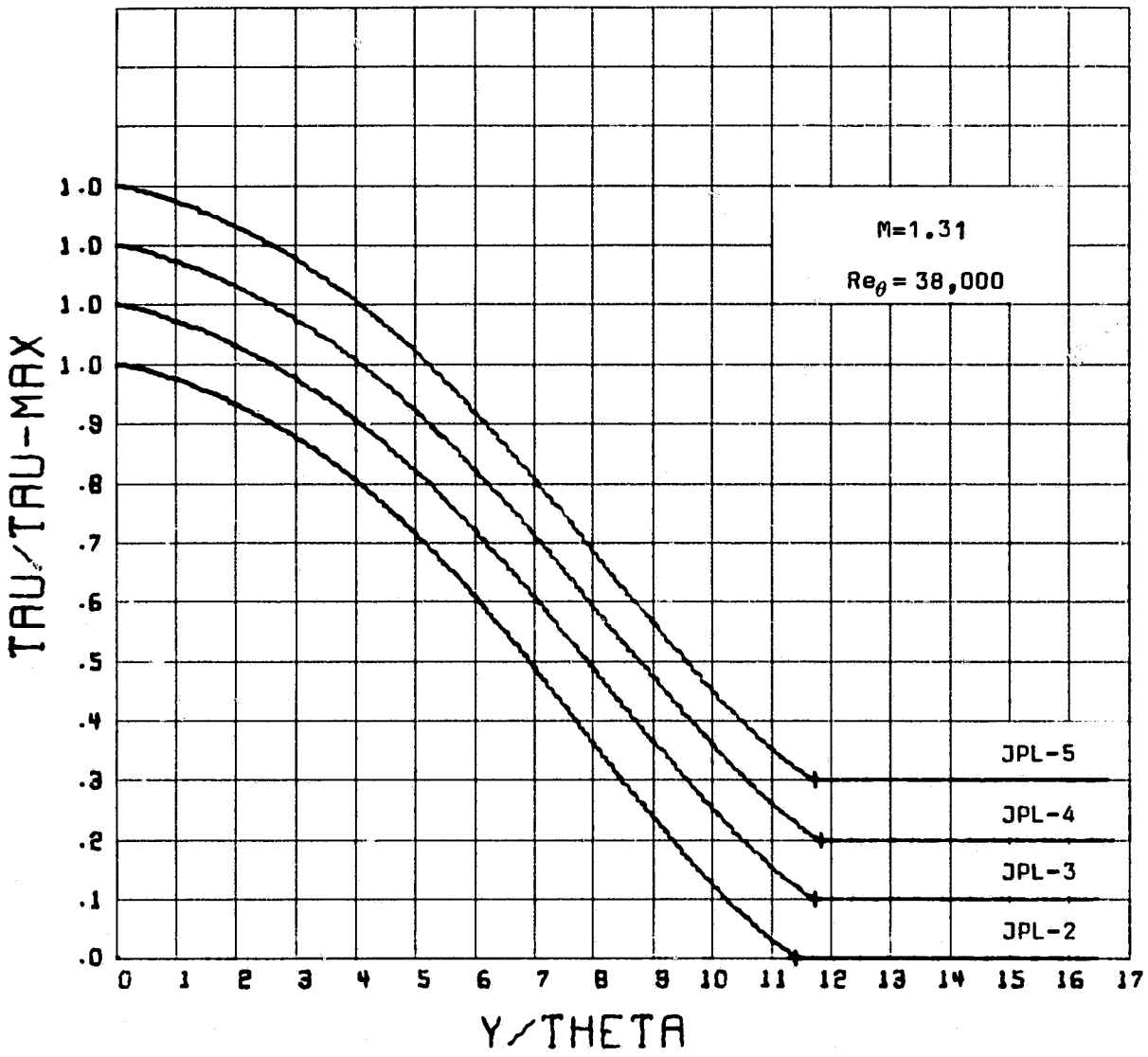

Figure A36. Shear Stress Distribution.

TABLE A13. DATA SUMMARY
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1722 TOTAL PRESSURE= .9331E+05 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 308.65 DEG-K

UE= 549.35 M/SEC DELTA STAR= .7410 CM THETA= .2368 CM H= 3.129
RE-DELTA-STAR= 72210. RE-THETA= 23070. NUWALL= 1.7380 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 21.4185 M/SEC CF= .001656 PI= .6109 DELTA= 3.1706 CM
CHISQR= .7262E-05 YMAX= 2.998 CM YMIN= .151 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5449	0.0000	0.00	1.0000	0.000000
.010	.042	12.	.2908	.5834	.3808	9.87	1.0000	0.000000
.013	.058	17.	.3564	.6027	.4591	11.97	.9998	.000001
.027	.117	34.	.4178	.6243	.5287	13.86	.9991	.000006
.044	.187	54.	.4583	.6405	.5727	15.08	.9982	.000012
.052	.219	64.	.4809	.6501	.5965	15.74	.9977	.000015
.071	.300	87.	.4972	.6574	.6132	16.21	.9963	.000022
.082	.348	101.	.5095	.6630	.6257	16.56	.9954	.000027
.090	.380	111.	.5167	.6664	.6330	16.77	.9948	.000029
.096	.407	118.	.5252	.6704	.6415	17.01	.9943	.000032
.113	.477	139.	.5361	.6757	.6522	17.32	.9929	.000038
.129	.547	159.	.5418	.6785	.6578	17.48	.9914	.000045
.140	.595	173.	.5491	.6821	.6649	17.68	.9903	.000049
.151	.638	186.	.5591	.6871	.6744	17.96	.9893	.000053
.170	.718	209.	.5688	.6921	.6837	18.22	.9874	.000061
.187	.793	231.	.5744	.6950	.6890	18.37	.9856	.000068
.201	.852	248.	.5854	.7008	.6992	18.67	.9841	.000074
.212	.895	261.	.5904	.7035	.7039	18.81	.9830	.000079
.240	1.013	295.	.5992	.7083	.7120	19.04	.9798	.000090
.265	1.120	327.	.6091	.7137	.7209	19.31	.9769	.000101
.295	1.249	364.	.6163	.7177	.7275	19.50	.9732	.000115
.326	1.378	402.	.6235	.7218	.7339	19.69	.9693	.000129
.355	1.501	438.	.6311	.7262	.7406	19.89	.9654	.000142
.382	1.614	471.	.6416	.7322	.7498	20.16	.9618	.000155
.422	1.785	521.	.6507	.7376	.7576	20.39	.9560	.000174
.448	1.893	552.	.6540	.7396	.7605	20.48	.9522	.000187
.499	2.107	615.	.6657	.7466	.7705	20.78	.9443	.000212
.524	2.214	646.	.6709	.7497	.7748	20.91	.9402	.000226
.547	2.311	674.	.6750	.7522	.7783	21.01	.9364	.000238
.589	2.488	726.	.6847	.7582	.7863	21.25	.9292	.000261
.628	2.654	774.	.6916	.7625	.7920	21.43	.9221	.000283
.678	2.863	835.	.7002	.7680	.7990	21.64	.9128	.000312
.718	3.035	885.	.7087	.7735	.8059	21.85	.9047	.000336
.779	3.292	960.	.7189	.7801	.8140	22.10	.8920	.000374
.861	3.636	1061.	.7319	.7887	.8241	22.41	.8739	.000428
.900	3.802	1109.	.7375	.7924	.8285	22.54	.8645	.000455
.946	3.995	1166.	.7485	.7999	.8369	22.81	.8533	.000487
.980	4.140	1208.	.7525	.8026	.8400	22.90	.8445	.000512
1.014	4.285	1250.	.7559	.8049	.8425	22.98	.8355	.000537
1.056	4.462	1302.	.7671	.8127	.8509	23.24	.8241	.000569
1.101	4.649	1356.	.7706	.8151	.8535	23.32	.8115	.000604

TABLE A13. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.131	4.778	1394.	.7778	.8202	.8588	23.49	.8027	.000629
1.172	4.950	1444.	.7813	.8227	.8614	23.57	.7906	.000662
1.220	5.154	1504.	.7905	.8293	.8681	23.78	.7756	.000702
1.258	5.314	1551.	.7955	.8329	.8717	23.90	.7635	.000735
1.306	5.518	1610.	.8009	.8368	.8755	24.02	.7476	.000778
1.341	5.663	1652.	.8070	.8413	.8799	24.16	.7360	.000808
1.383	5.840	1704.	.8119	.8449	.8833	24.27	.7215	.000847
1.416	5.979	1745.	.8199	.8509	.8888	24.44	.7097	.000878
1.459	6.162	1798.	.8254	.8549	.8927	24.57	.6940	.000919
1.489	6.291	1835.	.8304	.8587	.8961	24.68	.6826	.000948
1.532	6.473	1889.	.8367	.8635	.9004	24.81	.6664	.000990
1.573	6.644	1939.	.8418	.8674	.9039	24.93	.6506	.001030
1.612	6.811	1987.	.8469	.8713	.9073	25.04	.6349	.001070
1.659	7.009	2045.	.8528	.8759	.9112	25.17	.6162	.001118
1.697	7.170	2092.	.8609	.8822	.9165	25.34	.6005	.001157
1.729	7.304	2131.	.8642	.8848	.9187	25.41	.5873	.001190
1.779	7.513	2192.	.8702	.8895	.9227	25.54	.5664	.001242
1.825	7.878	2299.	.8820	.8990	.9303	25.79	.5291	.001334
1.911	8.071	2355.	.8878	.9036	.9340	25.91	.5090	.001383
1.958	8.270	2413.	.8925	.9074	.9369	26.01	.4881	.001434
1.996	8.430	2460.	.8973	.9113	.9399	26.11	.4710	.001475
2.028	8.564	2499.	.9016	.9148	.9426	26.20	.4567	.001509
2.113	8.924	2604.	.9122	.9236	.9492	26.42	.4177	.001603
2.160	9.122	2662.	.9183	.9287	.9529	26.54	.3965	.001653
2.213	9.348	2727.	.9238	.9332	.9562	26.65	.3721	.001710
2.240	9.460	2760.	.9269	.9359	.9581	26.72	.3599	.001739
2.286	9.653	2817.	.9319	.9401	.9611	26.82	.3390	.001788
2.332	9.852	2875.	.9375	.9448	.9644	26.93	.3177	.001838
2.371	10.013	2922.	.9434	.9499	.9679	27.05	.3004	.001878
2.449	10.345	3019.	.9495	.9552	.9715	27.17	.2652	.001959
2.493	10.527	3072.	.9540	.9591	.9741	27.26	.2462	.002003
2.532	10.694	3120.	.9577	.9623	.9763	27.33	.2290	.002042
2.584	10.956	3197.	.9626	.9666	.9791	27.43	.2024	.002103
2.616	11.048	3224.	.9665	.9700	.9813	27.50	.1929	.002125
2.659	11.230	3277.	.9700	.9731	.9833	27.57	.1755	.002164
2.702	11.412	3330.	.9728	.9756	.9849	27.63	.1580	.002204
2.747	11.600	3385.	.9763	.9787	.9868	27.69	.1404	.002244
2.790	11.739	3426.	.9792	.9813	.9885	27.75	.1277	.002272
2.858	12.072	3523.	.9833	.9849	.9908	27.83	.0987	.002337
2.899	12.201	3560.	.9851	.9865	.9918	27.86	.0879	.002362
2.937	12.405	3620.	.9873	.9885	.9930	27.90	.0712	.002399
2.970	12.544	3660.	.9898	.9908	.9944	27.95	.0606	.002422
2.998	12.662	3695.	.9900	.9909	.9945	27.96	.0518	.002442
3.039	12.834	3745.	.9923	.9931	.9958	28.00	.0395	.002470
3.082	13.016	3798.	.9936	.9942	.9965	28.03	.0271	.002497
3.121	13.182	3847.	.9941	.9946	.9967	28.03	.0164	.002521
3.161	13.348	3895.	.9959	.9963	.9978	28.07	.0062	.002543
3.201	13.520	3945.	.9967	.9970	.9982	28.08	0.0000	.002557
3.242	13.692	3995.	.9970	.9973	.9984	28.09	0.0000	.002557
3.308	13.971	4077.	.9977	.9979	.9987	28.10	0.0000	.002557
3.390	14.319	4178.	.9986	.9987	.9992	28.12	0.0000	.002557
3.482	14.705	4291.	.9994	.9994	.9996	28.14	0.0000	.002557
3.558	15.027	4385.	.9995	.9996	.9997	28.14	0.0000	.002557
3.595	15.183	4430.	1.0001	1.0001	1.0000	28.15	0.0000	.002557
3.625	15.311	4468.	1.0003	1.0002	1.0001	28.15	0.0000	.002557
3.656	15.440	4505.	.9999	.9999	.9999	28.15	0.0000	.002557

TABLE A13. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1666 TOTAL PRESSURE= .9331E+05 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 311.07 DEG-K

UE= 550.76 M/SEC DELTA STAR= .7595 CM THETA= .2435 CM H= 3.119
RE-DELTA-STAR= 73380. RE-THETA= 23520. NUWALL= 1.7470 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 21.4045 M/SEC CF= .001649 PI= .6175 DELTA= 3.2535 CM
CHISQR= .4343E-05 YMAX= 3.073 CM YMIN= .147 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5461	0.0000	0.00	1.0000	0.000000
.010	.041	12.	.3137	.5908	.4081	10.64	1.0000	0.000000
.015	.062	18.	.3685	.6078	.4727	12.38	.9998	.000002
.027	.114	34.	.4194	.6260	.5301	13.94	.9992	.000006
.040	.166	49.	.4500	.6380	.5633	14.86	.9985	.000011
.058	.239	71.	.4805	.6509	.5955	15.76	.9973	.000017
.086	.354	105.	.5079	.6632	.6237	16.56	.9953	.000027
.096	.396	118.	.5188	.6683	.6346	16.87	.9945	.000031
.119	.490	146.	.5365	.6768	.6521	17.37	.9925	.000039
.140	.578	172.	.5474	.6821	.6629	17.67	.9906	.000048
.147	.604	180.	.5544	.6856	.6695	17.87	.9900	.000050
.171	.704	210.	.5637	.6904	.6785	18.13	.9877	.000060
.189	.777	231.	.5756	.6965	.6897	18.45	.9859	.000067
.218	.897	267.	.5847	.7013	.6982	18.70	.9829	.000079
.238	.980	292.	.5951	.7069	.7078	18.98	.9807	.000087
.265	1.089	325.	.6060	.7128	.7177	19.27	.9776	.000098
.293	1.204	359.	.6130	.7167	.7241	19.46	.9744	.000110
.340	1.397	417.	.6290	.7257	.7384	19.88	.9686	.000130
.384	1.580	471.	.6369	.7302	.7453	20.09	.9627	.000150
.420	1.726	515.	.6492	.7374	.7560	20.41	.9578	.000167
.455	1.872	558.	.6567	.7419	.7625	20.60	.9527	.000184
.496	2.039	608.	.6623	.7452	.7672	20.74	.9467	.000204
.528	2.169	647.	.6716	.7509	.7751	20.98	.9417	.000220
.571	2.346	700.	.6765	.7538	.7791	21.10	.9347	.000242
.608	2.498	745.	.6856	.7595	.7867	21.33	.9284	.000261
.654	2.685	801.	.6930	.7641	.7928	21.52	.9203	.000287
.688	2.826	841.	.7027	.7702	.8006	21.76	.9140	.000306
.739	3.035	905.	.7112	.7757	.8075	21.96	.9042	.000336
.773	3.176	947.	.7158	.7787	.8111	22.08	.8973	.000356
.819	3.363	1003.	.7249	.7846	.8183	22.30	.8877	.000384
.876	3.598	1073.	.7308	.7886	.8230	22.44	.8752	.000421
.914	3.754	1120.	.7375	.7930	.8282	22.60	.8664	.000446
.967	3.973	1185.	.7451	.7981	.8340	22.78	.8537	.000483
1.005	4.130	1232.	.7538	.8040	.8406	22.99	.8442	.000510
1.041	4.276	1275.	.7562	.8057	.8424	23.05	.8350	.000536
1.102	4.526	1350.	.7671	.8132	.8506	23.30	.8186	.000581
1.135	4.662	1391.	.7725	.8170	.8546	23.43	.8094	.000606
1.170	4.808	1434.	.7769	.8201	.8579	23.53	.7993	.000634
1.215	4.990	1489.	.7852	.8260	.8640	23.73	.7861	.000670
1.267	5.204	1552.	.7935	.8319	.8699	23.91	.7702	.000713
1.314	5.397	1610.	.8005	.8370	.8750	24.07	.7553	.000753

TABLE A13. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.375	5.648	1685.	.8068	.8416	.8795	24.22	.7352	.000806
1.417	5.820	1736.	.8150	.8476	.8852	24.40	.7210	.000843
1.463	6.007	1792.	.8205	.8517	.8891	24.52	.7051	.000884
1.510	6.200	1850.	.8275	.8570	.8939	24.68	.6882	.000928
1.546	6.352	1895.	.8332	.8612	.8978	24.91	.6747	.000963
1.595	6.550	1954.	.8379	.8648	.9010	24.91	.6566	.001009
1.645	6.758	2016.	.8450	.8702	.9058	25.07	.6371	.001058
1.676	6.884	2053.	.8500	.8741	.9092	25.18	.6252	.001088
1.723	7.076	2111.	.8568	.8793	.9137	25.32	.6064	.001135
1.771	7.275	2170.	.8606	.8823	.9162	25.40	.5868	.001184
1.804	7.410	2211.	.8661	.8866	.9198	25.52	.5732	.001218
1.859	7.635	2278.	.8730	.8920	.9243	25.67	.5504	.001274
1.899	7.801	2327.	.8784	.8963	.9278	25.78	.5331	.001316
1.938	7.958	2374.	.8818	.8990	.9299	25.86	.5168	.001356
1.986	8.156	2433.	.8886	.9045	.9343	26.00	.4954	.001407
2.034	8.354	2492.	.8958	.9103	.9388	26.15	.4747	.001457
2.070	8.500	2536.	.9002	.9139	.9416	26.24	.4589	.001495
2.113	8.678	2589.	.9067	.9193	.9457	26.38	.4395	.001541
2.164	8.886	2651.	.9098	.9218	.9476	26.44	.4171	.001594
2.202	9.043	2698.	.9164	.9273	.9516	26.58	.4000	.001635
2.260	9.283	2769.	.9236	.9333	.9560	26.72	.3738	.001696
2.302	9.455	2821.	.9279	.9369	.9586	26.81	.3550	.001740
2.338	9.601	2864.	.9323	.9406	.9612	26.90	.3390	.001777
2.404	9.872	2945.	.9392	.9465	.9654	27.04	.3096	.001845
2.447	10.049	2998.	.9432	.9499	.9677	27.12	.2905	.001889
2.494	10.242	3056.	.9487	.9546	.9710	27.23	.2699	.001937
2.543	10.446	3116.	.9532	.9586	.9736	27.32	.2483	.001986
2.583	10.607	3164.	.9589	.9634	.9769	27.43	.2315	.002024
2.642	10.852	3238.	.9622	.9664	.9788	27.50	.2063	.002081
2.698	11.082	3306.	.9661	.9698	.9810	27.57	.1833	.002133
2.741	11.259	3359.	.9717	.9747	.9842	27.68	.1659	.002173
2.788	11.452	3417.	.9748	.9774	.9860	27.74	.1474	.002214
2.832	11.629	3469.	.9777	.9800	.9876	27.80	.1308	.002251
2.880	11.828	3529.	.9816	.9834	.9898	27.88	.1129	.002291
2.931	12.036	3591.	.9825	.9842	.9903	27.89	.0947	.002332
2.964	12.172	3631.	.9860	.9873	.9922	27.96	.0833	.002357
3.004	12.339	3681.	.9867	.9880	.9926	27.97	.0697	.002387
3.048	12.516	3734.	.9884	.9896	.9936	28.01	.0558	.002418
3.073	12.620	3765.	.9894	.9904	.9942	28.03	.0476	.002436
3.125	12.834	3829.	.9919	.9927	.9956	28.07	.0371	.002470
3.169	13.017	3883.	.9930	.9937	.9962	28.10	.0201	.002497
3.200	13.142	3921.	.9936	.9942	.9965	28.11	.0121	.002514
3.230	13.267	3958.	.9937	.9943	.9965	28.11	.0044	.002531
3.246	13.413	4002.	.9942	.9948	.9968	28.12	0.0000	.002541
3.304	13.569	4047.	.9962	.9966	.9979	28.16	0.0000	.002541
3.342	13.726	4095.	.9971	.9974	.9984	28.17	0.0000	.002541
3.401	13.966	4167.	.9973	.9975	.9985	28.18	0.0000	.002541
3.437	14.117	4212.	.9984	.9986	.9991	28.20	0.0000	.002541
3.470	14.253	4252.	.9988	.9989	.9993	28.21	0.0000	.002541
3.516	14.440	4308.	.9995	.9995	.9997	28.22	0.0000	.002541
3.554	14.597	4355.	.9991	.9992	.9995	28.21	0.0000	.002541
3.599	14.738	4397.	.9999	.9999	.9999	28.23	0.0000	.002541
3.627	14.894	4444.	.9998	.9998	.9999	28.22	0.0000	.002541
3.665	15.051	4490.	1.0002	1.0002	1.0001	28.23	0.0000	.002541
3.718	15.270	4556.	1.0008	1.0007	1.0004	28.24	0.0000	.002541

TABLE A13. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1642 TOTAL PRESSURE= .9331E+05 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 309.86 DEG-K

UE= 549.37 M/SEC DELTA STAR= .7967 CM THETA= .2555 CM H= 3.117
RE-DELTA-STAR= 77000. RE-THETA= 24690. NUWALL= 1.7200 CM**2/SEC CF= .001532

LEAST SQUARE FIT PARAMETERS
UTAU= 21.2347 M/SEC CF= .001633 PI= .6194 DELTA= 3.4195 CM
CHISQR= .9723E-05 YMAX= 3.226 CM YMIN= .152 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5467	0.0000	0.00	1.0000	0.000000
.010	.039	12.	.2958	.5864	.3864	10.11	1.0000	0.000000
.011	.043	13.	.3181	.5926	.4132	10.83	.9999	0.000000
.041	.161	50.	.4409	.6348	.5534	14.67	.9986	.000010
.060	.235	74.	.4792	.6508	.5940	15.81	.9975	.000016
.071	.280	88.	.4955	.6580	.6108	16.28	.9967	.000020
.090	.354	111.	.5165	.6676	.6321	16.89	.9953	.000027
.116	.454	143.	.5342	.6760	.6497	17.39	.9933	.000036
.144	.563	177.	.5475	.6826	.6627	17.77	.9910	.000046
.152	.598	188.	.5587	.6882	.6735	18.08	.9902	.000049
.170	.667	210.	.5654	.6916	.6799	18.27	.9886	.000056
.183	.717	226.	.5720	.6950	.6861	18.45	.9874	.000060
.198	.777	245.	.5781	.6982	.6919	18.62	.9859	.000066
.219	.856	270.	.5874	.7031	.7005	18.87	.9839	.000074
.249	.975	307.	.5955	.7075	.7080	19.09	.9808	.000085
.264	1.035	326.	.6026	.7113	.7145	19.28	.9791	.000091
.285	1.115	351.	.6108	.7158	.7219	19.50	.9769	.000099
.314	1.229	387.	.6156	.7185	.7263	19.63	.9736	.000111
.328	1.284	405.	.6251	.7238	.7347	19.88	.9720	.000117
.371	1.453	458.	.6303	.7268	.7394	20.02	.9668	.000135
.409	1.602	505.	.6441	.7348	.7514	20.38	.9619	.000151
.447	1.751	552.	.6497	.7381	.7563	20.53	.9569	.000168
.475	1.860	587.	.6564	.7420	.7620	20.70	.9531	.000180
.514	2.014	635.	.6639	.7465	.7684	20.89	.9475	.000199
.556	2.178	687.	.6701	.7503	.7737	21.05	.9412	.000218
.591	2.313	729.	.6750	.7532	.7777	21.17	.9359	.000235
.630	2.466	778.	.6848	.7593	.7859	21.42	.9296	.000255
.668	2.615	825.	.6909	.7631	.7909	21.57	.9233	.000274
.696	2.725	859.	.6977	.7674	.7965	21.74	.9184	.000289
.729	2.854	900.	.6992	.7683	.7977	21.78	.9126	.000306
.775	3.033	957.	.7100	.7752	.8064	22.05	.9042	.000331
.810	3.172	1000.	.7158	.7790	.8111	22.19	.8973	.000352
.852	3.336	1052.	.7211	.7824	.8152	22.32	.8890	.000376
.907	3.550	1120.	.7273	.7865	.8201	22.47	.8777	.000409
.941	3.684	1162.	.7351	.7917	.8262	22.66	.8702	.000430
.991	3.878	1223.	.7428	.7968	.8321	22.85	.8592	.000461
1.041	4.077	1286.	.7495	.8013	.8373	23.01	.8473	.000495
1.087	4.255	1342.	.7564	.8061	.8425	23.17	.8361	.000526
1.129	4.420	1394.	.7619	.8098	.8466	23.30	.8255	.000555
1.166	4.564	1440.	.7689	.8147	.8519	23.47	.8159	.000581
1.247	4.882	1540.	.7807	.8230	.8606	23.74	.7938	.000641

TABLE A13. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.284	5.026	1585.	.7851	.8261	.8637	23.84	.7833	.000669
1.311	5.130	1618.	.7883	.8284	.8661	23.92	.7755	.000690
1.346	5.269	1662.	.7935	.8321	.8698	24.04	.7651	.000718
1.382	5.409	1706.	.7989	.8360	.8737	24.16	.7542	.000746
1.425	5.587	1762.	.8062	.8414	.8790	24.33	.7400	.000784
1.466	5.737	1810.	.8107	.8446	.8821	24.43	.7278	.000815
1.516	5.935	1872.	.8160	.8485	.8858	24.55	.7111	.000858
1.562	6.075	1916.	.8225	.8534	.8903	24.70	.6991	.000889
1.586	6.209	1959.	.8264	.8563	.8931	24.79	.6873	.000919
1.640	6.417	2024.	.8350	.8628	.8990	24.98	.6685	.000967
1.689	6.611	2085.	.8399	.8665	.9023	25.08	.6507	.001012
1.725	6.750	2129.	.8442	.8697	.9052	25.18	.6376	.001044
1.773	6.939	2189.	.8537	.8770	.9115	25.39	.6196	.001089
1.816	7.108	2242.	.8557	.8787	.9129	25.43	.6031	.001130
1.856	7.262	2291.	.8632	.8845	.9179	25.59	.5879	.001167
1.904	7.451	2351.	.8694	.8893	.9219	25.73	.5689	.001214
1.951	7.635	2408.	.8733	.8924	.9244	25.81	.5501	.001259
1.998	7.819	2466.	.8788	.8968	.9280	25.93	.5311	.001305
2.041	7.988	2520.	.8843	.9011	.9315	26.04	.5134	.001348
2.089	8.181	2581.	.8903	.9060	.9353	26.17	.4928	.001397
2.139	8.370	2641.	.8963	.9108	.9391	26.30	.4726	.001445
2.187	8.559	2700.	.9018	.9154	.9426	26.42	.4523	.001493
2.224	8.703	2746.	.9056	.9184	.9449	26.49	.4365	.001530
2.281	8.927	2816.	.9115	.9233	.9486	26.62	.4123	.001587
2.332	9.126	2879.	.9181	.9288	.9526	26.75	.3906	.001638
2.367	9.265	2923.	.9218	.9319	.9549	26.83	.3753	.001673
2.416	9.454	2982.	.9270	.9362	.9580	26.93	.3547	.001721
2.461	9.633	3039.	.9335	.9417	.9619	27.07	.3351	.001766
2.493	9.757	3078.	.9365	.9443	.9637	27.13	.3216	.001797
2.541	9.946	3138.	.9414	.9485	.9667	27.23	.3011	.001843
2.578	10.090	3183.	.9449	.9514	.9687	27.30	.2856	.001879
2.607	10.204	3219.	.9482	.9543	.9707	27.36	.2734	.001906
2.659	10.408	3283.	.9514	.9570	.9725	27.43	.2517	.001955
2.705	10.587	3340.	.9568	.9617	.9757	27.54	.2330	.001998
2.808	10.990	3467.	.9652	.9690	.9805	27.70	.1918	.002090
2.845	11.134	3512.	.9692	.9725	.9828	27.78	.1775	.002122
2.875	11.253	3550.	.9707	.9738	.9836	27.81	.1658	.002148
2.921	11.432	3606.	.9734	.9762	.9852	27.86	.1485	.002186
2.978	11.656	3677.	.9775	.9798	.9875	27.94	.1276	.002233
3.005	11.760	3710.	.9800	.9820	.9889	27.99	.1181	.002254
3.058	11.969	3776.	.9822	.9840	.9901	28.03	.0996	.002295
3.093	12.103	3818.	.9840	.9854	.9911	28.07	.0881	.002320
3.122	12.217	3854.	.9856	.9871	.9920	28.10	.0785	.002341
3.175	12.426	3920.	.9890	.9901	.9939	28.17	.0617	.002378
3.260	12.759	4025.	.9915	.9924	.9953	28.22	.0366	.002433
3.312	12.963	4089.	.9932	.9939	.9962	28.25	.0224	.002463
3.345	13.092	4130.	.9948	.9953	.9971	28.28	.0139	.002482
3.383	13.241	4177.	.9953	.9958	.9974	28.29	.0046	.002502
3.425	13.405	4229.	.9964	.9967	.9980	28.31	0.0000	.002512
3.460	13.539	4271.	.9973	.9975	.9985	28.33	0.0000	.002512
3.546	13.877	4378.	.9983	.9985	.9991	28.35	0.0000	.002512
3.625	14.185	4475.	.9994	.9995	.9997	28.37	0.0000	.002512
3.663	14.334	4522.	.9994	.9995	.9997	28.37	0.0000	.002512
3.710	14.518	4580.	1.0000	1.0000	1.0000	28.38	0.0000	.002512
3.744	14.652	4622.	.9998	.9998	.9999	28.37	0.0000	.002512
3.782	14.801	4669.	1.0001	1.0001	1.0000	28.38	0.0000	.002512

TABLE A13. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1722 TOTAL PRESSURE= .9331E+05 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 312.05 DEG-K

UE= 552.35 M/SEC DELTA STAR= .8137 CM THETA= .2601 CM H= 3.127
RE-DELTA-STAR= 78400. RE-THETA= 25060. NUWALL= 1.7570 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 21.3250 M/SEC CF= .001624 PI= .6275 DELTA= 3.4898 CM
CHISQR= .9870E-05 YMAX= 3.295 CM YMIN= .153 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5448	0.0000	0.00	1.0000	0.000000
.010	.038	12.	.2989	.5855	.3906	10.23	1.0000	0.000000
.011	.043	13.	.3327	.5952	.4313	11.33	.9999	0.000000
.031	.121	38.	.4332	.6303	.5457	14.47	.9991	.000007
.059	.229	72.	.4762	.6481	.5915	15.76	.9976	.000016
.083	.322	101.	.5042	.6606	.6203	16.57	.9960	.000024
.099	.380	120.	.5221	.6689	.6383	17.09	.9949	.000029
.111	.429	135.	.5326	.6740	.6488	17.39	.9939	.000033
.134	.517	163.	.5425	.6788	.6585	17.67	.9921	.000041
.153	.590	186.	.5544	.6848	.6700	18.00	.9905	.000048
.191	.736	232.	.5746	.6951	.6891	18.56	.9871	.000061
.223	.859	271.	.5884	.7024	.7020	18.94	.9841	.000073
.248	.956	302.	.5962	.7067	.7093	19.15	.9815	.000082
.284	1.093	345.	.6103	.7144	.7221	19.53	.9778	.000096
.332	1.278	403.	.6217	.7208	.7322	19.83	.9725	.000115
.358	1.376	434.	.6281	.7244	.7380	20.00	.9696	.000125
.397	1.527	482.	.6368	.7294	.7456	20.23	.9649	.000141
.447	1.718	542.	.6476	.7358	.7550	20.52	.9587	.000162
.490	1.884	594.	.6538	.7394	.7603	20.67	.9530	.000180
.513	1.971	622.	.6610	.7437	.7664	20.86	.9498	.000190
.558	2.147	678.	.6711	.7499	.7750	21.12	.9433	.000211
.596	2.294	724.	.6757	.7527	.7788	21.24	.9377	.000229
.637	2.450	773.	.6818	.7564	.7839	21.39	.9314	.000249
.678	2.606	823.	.6909	.7621	.7914	21.62	.9248	.000269
.723	2.782	878.	.6958	.7652	.7954	21.74	.9171	.000292
.753	2.894	914.	.7020	.7692	.8004	21.90	.9121	.000307
.781	3.001	947.	.7030	.7698	.8013	21.92	.9071	.000322
.820	3.153	995.	.7138	.7767	.8099	22.19	.8998	.000344
.861	3.309	1045.	.7184	.7797	.8135	22.30	.8920	.000366
.894	3.436	1085.	.7252	.7842	.8189	22.47	.8855	.000385
.932	3.582	1131.	.7299	.7873	.8226	22.58	.8777	.000408
.975	3.748	1183.	.7371	.7922	.8282	22.76	.8685	.000434
1.000	3.846	1214.	.7410	.7948	.8312	22.85	.8630	.000450
1.036	3.983	1257.	.7431	.7962	.8328	22.90	.8550	.000472
1.082	4.158	1313.	.7521	.8023	.8397	23.12	.8445	.000502
1.116	4.290	1354.	.7569	.8056	.8433	23.23	.8363	.000524
1.153	4.431	1399.	.7623	.8093	.8473	23.36	.8272	.000549
1.203	4.627	1461.	.7692	.8141	.8524	23.52	.8143	.000585
1.239	4.764	1504.	.7749	.8182	.8567	23.66	.8049	.000610
1.273	4.895	1546.	.7787	.8208	.8595	23.74	.7957	.000635
1.322	5.081	1604.	.7872	.8269	.8657	23.94	.7822	.000671

TABLE A13. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.367	5.256	1660.	.7919	.8303	.8691	24.05	.7692	.000706
1.417	5.447	1720.	.8000	.8362	.8749	24.24	.7545	.000744
1.478	5.681	1794.	.8072	.8414	.8800	24.40	.7358	.000793
1.511	5.808	1834.	.8112	.8444	.8828	24.49	.7254	.000820
1.562	6.003	1895.	.8171	.8488	.8869	24.62	.7090	.000862
1.610	6.189	1954.	.8269	.8561	.8937	24.84	.6930	.000903
1.654	6.360	2008.	.8309	.8591	.8964	24.93	.6779	.000941
1.704	6.550	2068.	.8352	.8623	.8993	25.03	.6607	.000985
1.742	6.696	2114.	.8390	.8652	.9019	25.11	.6472	.001019
1.795	6.901	2179.	.8485	.8726	.9084	25.32	.6279	.001067
1.838	7.067	2231.	.8559	.8783	.9133	25.48	.6119	.001106
1.882	7.233	2284.	.8598	.8814	.9159	25.57	.5957	.001146
1.930	7.419	2342.	.8651	.8855	.9193	25.68	.5772	.001191
1.969	7.570	2390.	.8706	.8898	.9229	25.80	.5620	.001228
2.004	7.702	2432.	.8742	.8927	.9253	25.88	.5486	.001261
2.053	7.892	2492.	.8808	.8980	.9295	26.02	.5289	.001308
2.103	8.083	2552.	.8862	.9023	.9330	26.13	.5090	.001356
2.139	8.224	2597.	.8905	.9058	.9356	26.22	.4941	.001391
2.175	8.361	2640.	.8935	.9082	.9375	26.29	.4793	.001427
2.235	8.590	2712.	.8985	.9123	.9407	26.39	.4551	.001484
2.273	8.737	2759.	.9048	.9175	.9446	26.52	.4393	.001521
2.316	8.903	2811.	.9099	.9217	.9478	26.63	.4214	.001563
2.364	9.088	2870.	.9169	.9275	.9520	26.78	.4010	.001610
2.402	9.235	2916.	.9208	.9307	.9544	26.85	.3854	.001647
2.458	9.449	2984.	.9254	.9347	.9572	26.95	.3620	.001700
2.499	9.606	3033.	.9293	.9379	.9595	27.03	.3451	.001739
2.538	9.757	3081.	.9352	.9429	.9631	27.15	.3287	.001777
2.579	9.913	3130.	.9394	.9465	.9656	27.23	.3119	.001815
2.618	10.064	3178.	.9434	.9500	.9679	27.32	.2957	.001852
2.646	10.172	3212.	.9468	.9529	.9699	27.38	.2843	.001878
2.684	10.318	3258.	.9494	.9551	.9715	27.44	.2688	.001913
2.733	10.504	3317.	.9536	.9587	.9739	27.52	.2493	.001957
2.773	10.660	3366.	.9584	.9629	.9767	27.61	.2332	.001993
2.815	10.821	3417.	.9629	.9668	.9792	27.70	.2167	.002030
2.877	11.060	3492.	.9675	.9709	.9819	27.79	.1927	.002084
2.934	11.280	3562.	.9695	.9727	.9830	27.83	.1712	.002132
2.987	11.480	3625.	.9746	.9772	.9859	27.93	.1521	.002174
3.035	11.666	3683.	.9779	.9801	.9878	28.00	.1349	.002212
3.096	11.900	3757.	.9832	.9849	.9907	28.10	.1139	.002259
3.154	12.124	3828.	.9848	.9863	.9916	28.13	.0947	.002301
3.200	12.300	3884.	.9878	.9889	.9933	28.19	.0802	.002333
3.253	12.505	3949.	.9904	.9913	.9947	28.24	.0637	.002369
3.295	12.666	3999.	.9921	.9928	.9956	28.27	.0516	.002395
3.337	12.827	4050.	.9939	.9944	.9966	28.31	.0399	.002421
3.375	12.974	4097.	.9949	.9954	.9972	28.33	.0303	.002442
3.423	13.159	4155.	.9953	.9957	.9974	28.33	.0182	.002468
3.481	13.379	4224.	.9969	.9972	.9983	28.37	.0048	.002497
3.516	13.516	4268.	.9978	.9980	.9988	28.38	0.0000	.002508
3.552	13.652	4311.	.9989	.9990	.9994	28.40	0.0000	.002508
3.601	13.843	4371.	.9993	.9993	.9996	28.41	0.0000	.002508
3.637	13.979	4414.	1.0003	1.0003	1.0002	28.43	0.0000	.002508
3.665	14.087	4448.	1.0005	1.0005	1.0003	28.44	0.0000	.002508
3.716	14.282	4510.	1.0007	1.0006	1.0004	28.44	0.0000	.002508

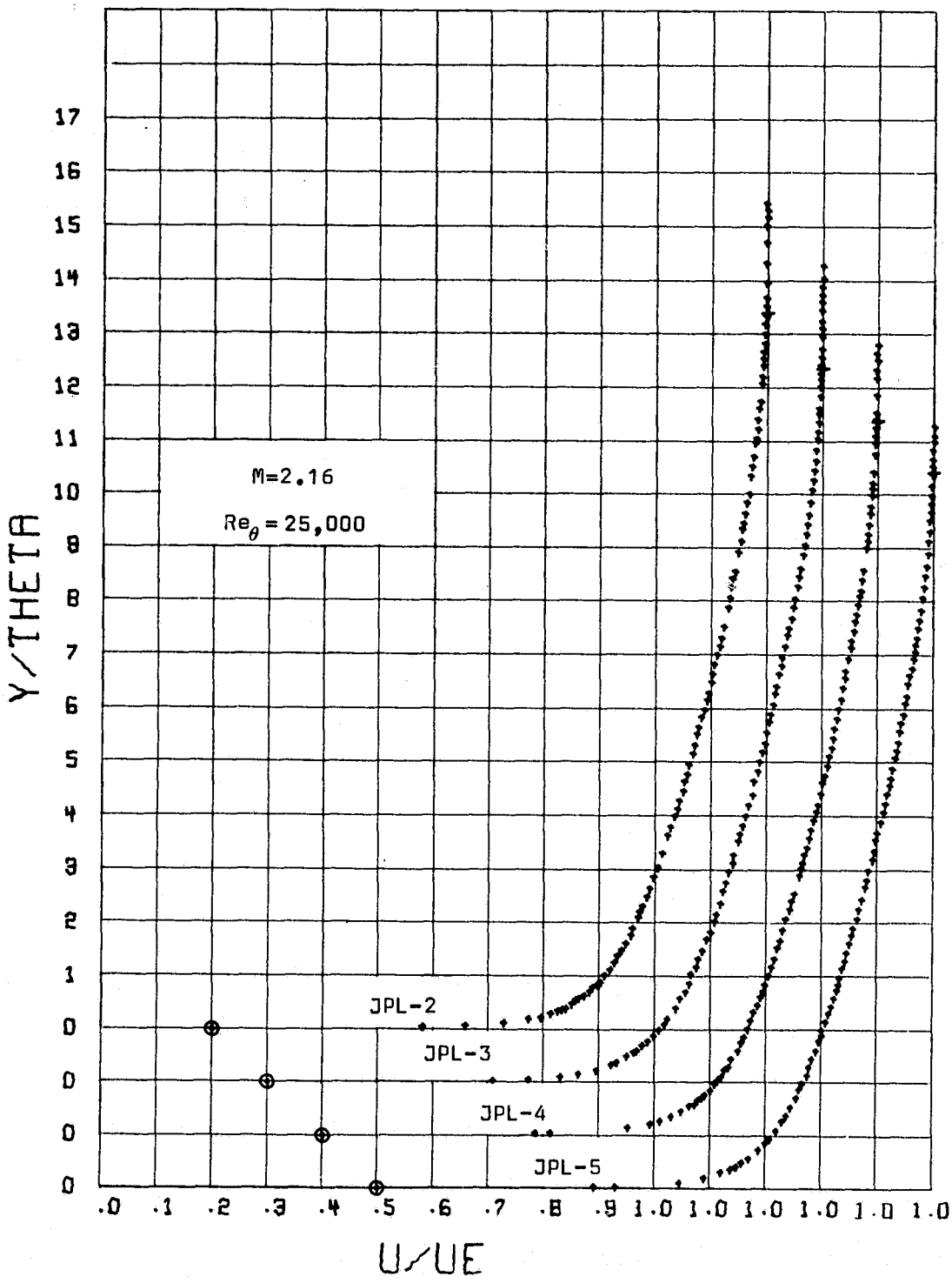

Figure A37. Mean Velocity Profiles.

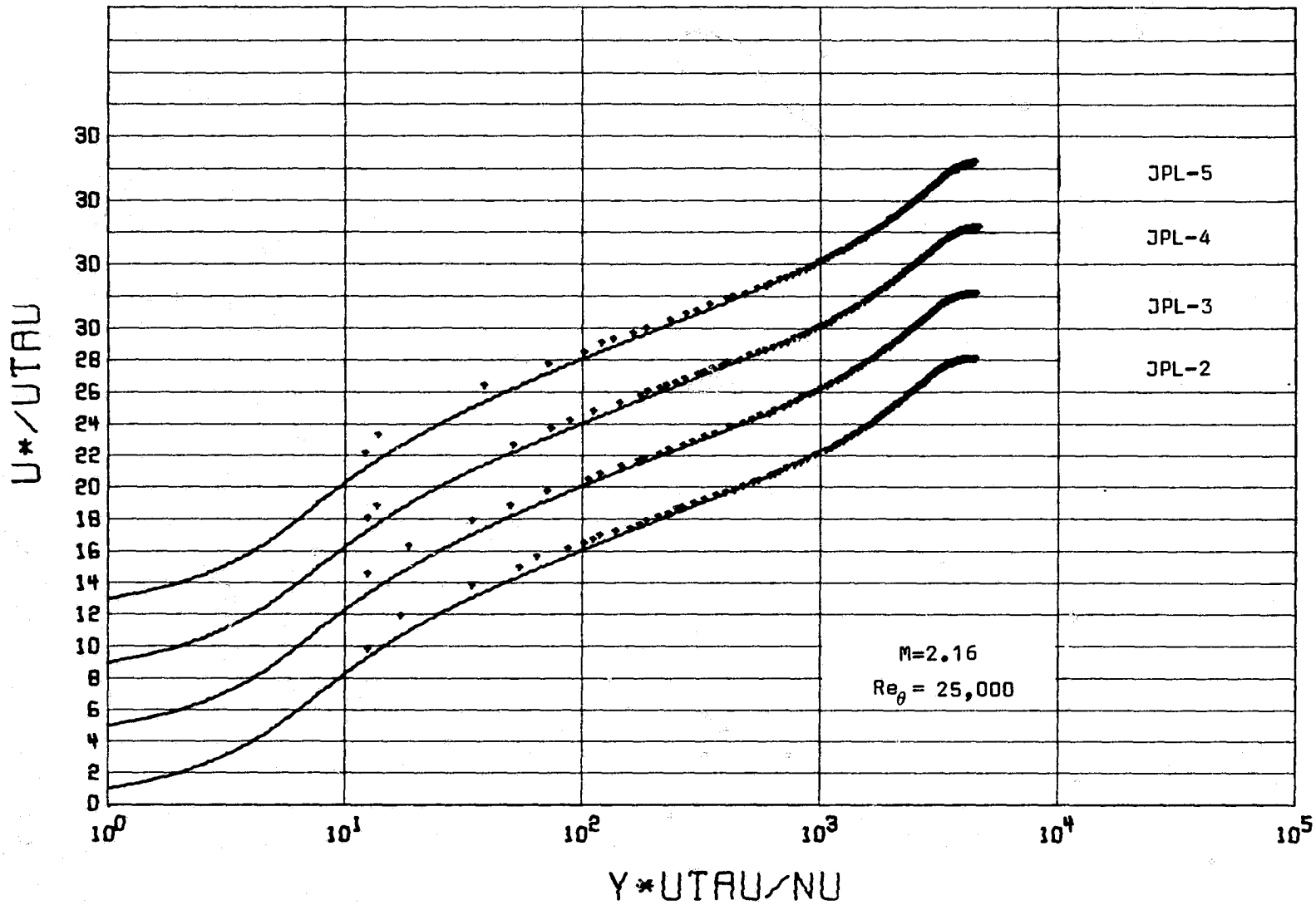

Figure A38. Van Driest Scaled Mean Velocity Profiles.

C-3

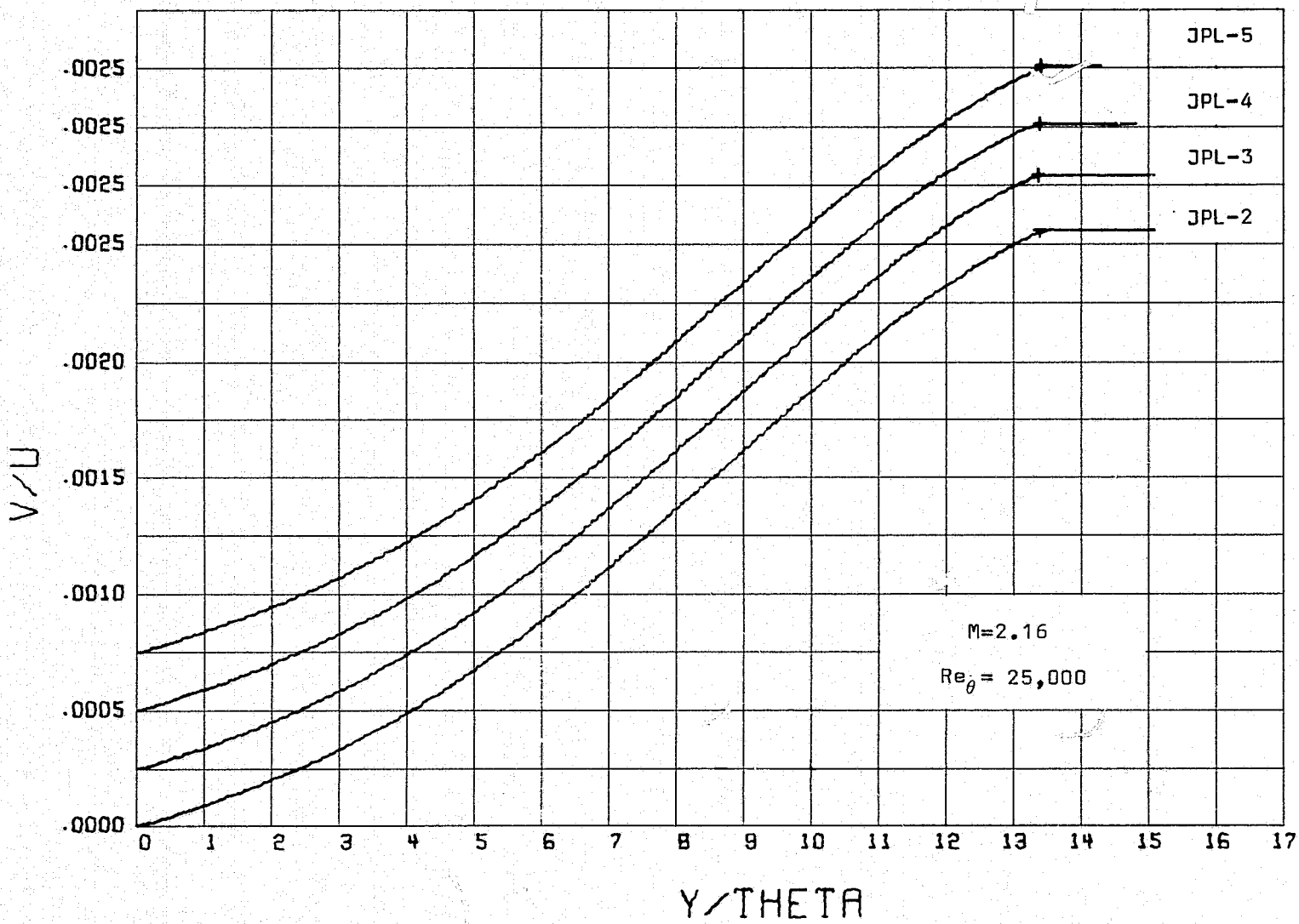

Figure A39. Normal Velocity Distribution.

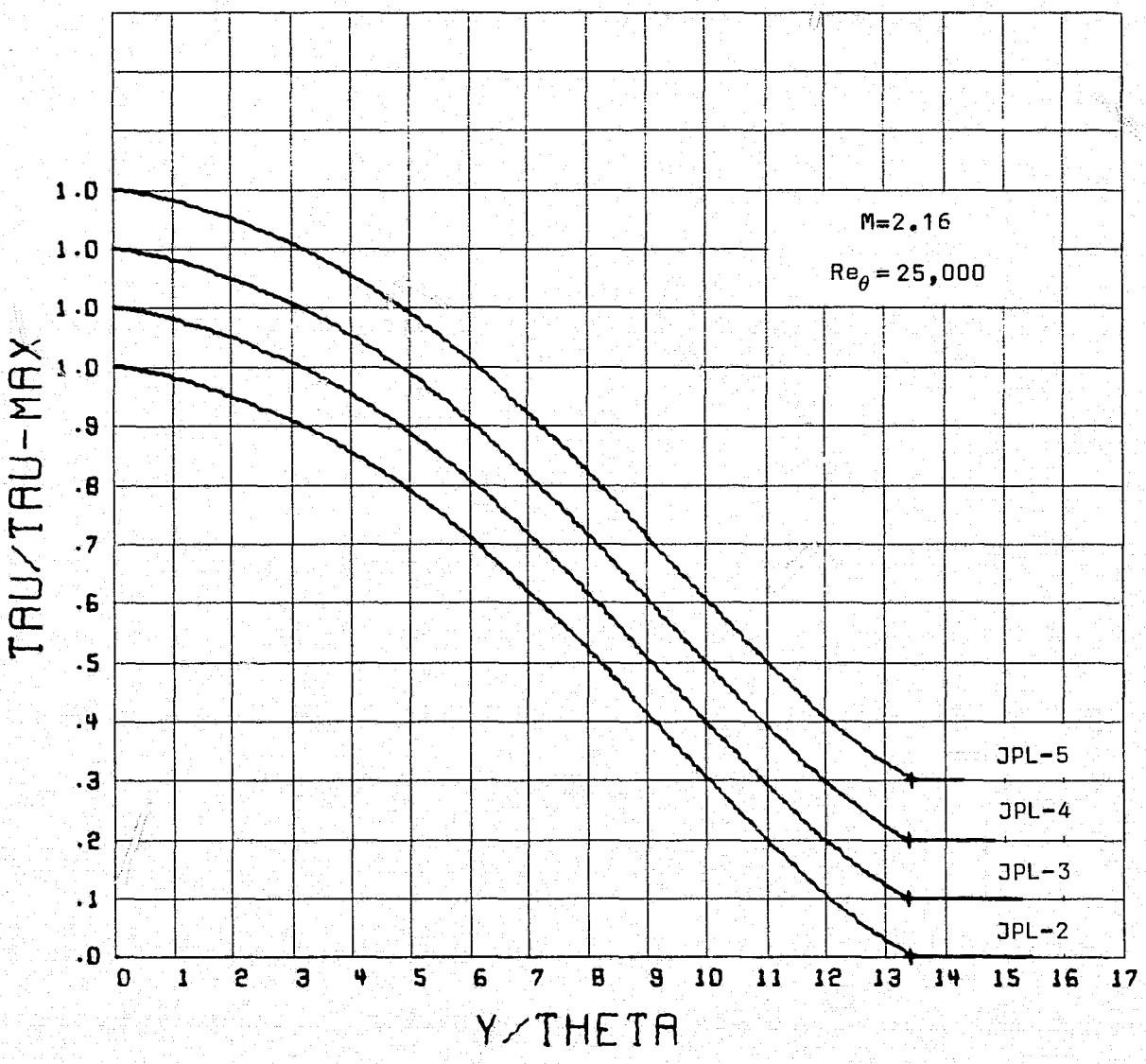

Figure A40. Shear Stress Distribution.

TABLE A14. DATA SUMMARY
PROFILE - JPL-2 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1812 TOTAL PRESSURE= .1799E+06 N/M**2
X=-26.21 CM TOTAL TEMPERATURE= 324.18 DEG-K

UE= 564.19 M/SEC DELTA STAR= .6873 CM THETA= .2208 CM H= 3.112
RE-DELTA-STAR= 118400. RE-THETA= 38050. NUWALL= .9992 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 21.2104 M/SEC CF= .001534 PI= .5705 DELTA= 3.0800 CM
CHISQR= .8426E-05 YMAX= 2.923 CM YMIN= .082 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5428	0.0000	0.00	1.0000	0.000000
.010	.046	21.	.3429	.5966	.4440	11.99	1.0000	0.000000
.022	.103	48.	.4149	.6215	.5263	14.31	.9993	.000004
.033	.149	70.	.4437	.6328	.5578	15.21	.9986	.000008
.055	.253	118.	.4964	.6555	.6131	16.81	.9969	.000016
.069	.316	148.	.5140	.6636	.6310	17.34	.9957	.000021
.082	.373	175.	.5305	.6715	.6474	17.82	.9946	.000026
.104	.471	221.	.5504	.6813	.6668	18.40	.9926	.000034
.133	.603	283.	.5741	.6935	.6894	19.07	.9896	.000046
.166	.753	353.	.5903	.7021	.7045	19.53	.9860	.000059
.195	.885	415.	.6024	.7087	.7155	19.86	.9826	.000071
.250	1.132	531.	.6232	.7204	.7343	20.44	.9758	.000093
.289	1.311	614.	.6380	.7289	.7472	20.83	.9706	.000110
.322	1.460	684.	.6459	.7335	.7541	21.05	.9660	.000125
.337	1.529	717.	.6502	.7361	.7578	21.16	.9638	.000132
.377	1.707	800.	.6584	.7410	.7648	21.38	.9580	.000150
.416	1.886	884.	.6668	.7461	.7720	21.60	.9518	.000168
.441	2.001	938.	.6743	.7507	.7782	21.80	.9477	.000181
.478	2.167	1016.	.6810	.7548	.7838	21.97	.9416	.000199
.504	2.282	1070.	.6877	.7590	.7893	22.14	.9372	.000212
.543	2.461	1153.	.6943	.7632	.7948	22.32	.9302	.000232
.577	2.616	1226.	.7025	.7684	.8014	22.52	.9238	.000250
.654	2.961	1388.	.7160	.7772	.8121	22.87	.9088	.000292
.688	3.116	1461.	.7217	.7810	.8167	23.01	.9016	.000312
.737	3.341	1566.	.7312	.7872	.8241	23.25	.8909	.000341
.767	3.473	1628.	.7368	.7910	.8285	23.39	.8843	.000359
.810	3.668	1719.	.7434	.7955	.8335	23.55	.8742	.000386
.852	3.858	1808.	.7507	.8004	.8390	23.73	.8640	.000413
.897	4.019	1884.	.7560	.8041	.8431	23.86	.8551	.000437
.970	4.393	2059.	.7683	.8127	.8522	24.16	.8332	.000494
1.008	4.565	2140.	.7727	.8158	.8555	24.26	.8225	.000521
1.043	4.726	2216.	.7804	.8213	.8611	24.45	.8123	.000547
1.080	4.893	2294.	.7856	.8250	.8649	24.57	.8013	.000575
1.115	5.048	2366.	.7915	.8292	.8692	24.71	.7909	.000601
1.203	5.451	2555.	.8044	.8386	.8784	25.01	.7624	.000672
1.242	5.623	2636.	.8092	.8422	.8817	25.13	.7497	.000704
1.308	5.923	2776.	.8223	.8519	.8908	25.43	.7268	.000760
1.357	6.147	2881.	.8272	.8556	.8942	25.54	.7089	.000803
1.389	6.291	2949.	.8327	.8599	.8980	25.67	.6973	.000831
1.430	6.475	3035.	.8390	.8646	.9022	25.81	.6818	.000868
1.473	6.670	3127.	.8430	.8677	.9049	25.90	.6653	.000907

TABLE A14. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.508	6.831	3202.	.8474	.8712	.9079	26.00	.6513	.000940
1.544	6.992	3278.	.8545	.8767	.9126	26.16	.6371	.000974
1.598	7.239	3394.	.8595	.8805	.9159	26.27	.6147	.001026
1.629	7.377	3458.	.8630	.8833	.9182	26.35	.6020	.001055
1.661	7.521	3526.	.8682	.8874	.9216	26.46	.5886	.001086
1.699	7.694	3607.	.8761	.8937	.9267	26.64	.5723	.001124
1.743	7.895	3701.	.8770	.8945	.9273	26.66	.5530	.001168
1.770	8.016	3758.	.8827	.8990	.9309	26.78	.5413	.001195
1.828	8.280	3882.	.8900	.9050	.9356	26.94	.5153	.001254
1.856	8.407	3941.	.8954	.9094	.9389	27.06	.5027	.001282
1.894	8.579	4022.	.8976	.9112	.9403	27.10	.4854	.001321
1.931	8.746	4100.	.9020	.9148	.9431	27.20	.4686	.001358
1.981	8.970	4205.	.9067	.9186	.9459	27.30	.4458	.001409
2.057	9.315	4367.	.9174	.9276	.9525	27.53	.4105	.001487
2.095	9.488	4448.	.9226	.9320	.9557	27.64	.3928	.001526
2.128	9.637	4518.	.9241	.9333	.9566	27.67	.3774	.001560
2.156	9.764	4577.	.9306	.9388	.9605	27.80	.3643	.001589
2.200	9.965	4671.	.9332	.9410	.9620	27.86	.3436	.001634
2.230	10.097	4733.	.9369	.9441	.9642	27.93	.3301	.001663
2.270	10.281	4820.	.9418	.9484	.9671	28.04	.3112	.001704
2.298	10.408	4879.	.9449	.9510	.9689	28.10	.2984	.001732
2.364	10.707	5019.	.9494	.9549	.9715	28.19	.2682	.001796
2.397	10.856	5089.	.9546	.9594	.9746	28.30	.2533	.001828
2.435	11.029	5170.	.9577	.9621	.9763	28.36	.2362	.001865
2.489	11.270	5283.	.9631	.9669	.9794	28.47	.2127	.001915
2.517	11.397	5343.	.9668	.9702	.9816	28.55	.2006	.001940
2.550	11.547	5413.	.9697	.9728	.9832	28.61	.1865	.001970
2.598	11.765	5515.	.9728	.9755	.9850	28.67	.1662	.002013
2.628	11.903	5580.	.9757	.9781	.9866	28.73	.1536	.002039
2.664	12.064	5655.	.9771	.9793	.9873	28.75	.1393	.002069
2.700	12.225	5731.	.9807	.9825	.9894	28.83	.1252	.002099
2.733	12.375	5801.	.9822	.9839	.9902	28.86	.1125	.002126
2.776	12.570	5893.	.9840	.9855	.9912	28.89	.0963	.002159
2.806	12.708	5957.	.9867	.9879	.9927	28.95	.0853	.002182
2.861	12.955	6073.	.9878	.9889	.9933	28.97	.0662	.002222
2.890	13.088	6135.	.9900	.9909	.9945	29.01	.0564	.002242
2.923	13.237	6205.	.9912	.9920	.9952	29.03	.0457	.002264
2.960	13.404	6284.	.9919	.9927	.9956	29.05	.0341	.002288
2.990	13.542	6348.	.9936	.9942	.9965	29.08	.0252	.002307
3.020	13.674	6410.	.9940	.9946	.9967	29.09	.0169	.002324
3.061	13.864	6499.	.9947	.9952	.9971	29.10	.0055	.002347
3.100	14.036	6580.	.9960	.9963	.9978	29.13	0.0000	.002359
3.139	14.215	6664.	.9965	.9968	.9981	29.14	0.0000	.002359
3.200	14.491	6793.	.9977	.9979	.9987	29.16	0.0000	.002359
3.265	14.784	6931.	.9986	.9987	.9992	29.18	0.0000	.002359
3.337	15.112	7084.	.9985	.9986	.9992	29.18	0.0000	.002359
3.395	15.376	7208.	.9992	.9993	.9996	29.19	0.0000	.002359
3.470	15.716	7367.	.9996	.9997	.9998	29.20	0.0000	.002359
3.545	16.055	7526.	.9996	.9997	.9998	29.20	0.0000	.002359
3.606	16.331	7656.	.9998	.9998	.9999	29.20	0.0000	.002359
3.637	16.469	7720.	.9996	.9996	.9998	29.20	0.0000	.002359
3.680	16.664	7812.	.9998	.9998	.9999	29.20	0.0000	.002359
3.713	16.814	7882.	1.0000	1.0000	1.0000	29.21	0.0000	.002359
3.760	17.027	7982.	1.0005	1.0005	1.0002	29.22	0.0000	.002359

TABLE A14. (CONT.)
PROFILE - JPL-3 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1737 TOTAL PRESSURE= .1802E+06 N/M**2
X= -7.62 CM TOTAL TEMPERATURE= 321.27 DEG-K

UE= 560.66 M/SEC DELTA STAR= .6942 CM THETA= .2240 CM H= 3.098
RE-DELTA-STAR= 125700. RE-THETA= 40570. NUWALL= .9729 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 21.0165 M/SEC CF= .001530 PI= .5692 DELTA= 3.1256 CM
CHISQR= .5273E-05 YMAX= 2.961 CM YMIN= .078 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5445	0.0000	0.00	1.0000	0.000000
.010	.045	21.	.3431	.5981	.4436	12.02	1.0000	0.000000
.026	.119	57.	.4316	.6294	.5441	14.86	.9991	.000005
.038	.170	82.	.4675	.6441	.5826	15.97	.9983	.000009
.062	.277	134.	.5028	.6597	.6191	17.03	.9965	.000018
.078	.351	170.	.5243	.6697	.6406	17.67	.9950	.000024
.099	.442	213.	.5454	.6800	.6614	18.29	.9932	.000032
.121	.544	263.	.5575	.6861	.6730	18.63	.9910	.000040
.138	.617	299.	.5707	.6929	.6856	19.01	.9893	.000046
.149	.668	323.	.5808	.6982	.6951	19.30	.9880	.000051
.168	.753	364.	.5886	.7023	.7023	19.52	.9860	.000058
.205	.918	444.	.6055	.7115	.7179	19.99	.9817	.000073
.238	1.065	515.	.6198	.7195	.7307	20.38	.9777	.000086
.271	1.213	587.	.6290	.7248	.7389	20.63	.9735	.000100
.294	1.315	636.	.6378	.7298	.7466	20.87	.9705	.000110
.332	1.485	718.	.6504	.7372	.7575	21.21	.9652	.000126
.369	1.649	798.	.6583	.7419	.7642	21.42	.9599	.000143
.400	1.785	864.	.6643	.7455	.7694	21.58	.9554	.000156
.439	1.961	949.	.6715	.7499	.7754	21.77	.9492	.000175
.482	2.153	1042.	.6819	.7563	.7841	22.04	.9422	.000195
.515	2.301	1113.	.6924	.7629	.7927	22.31	.9366	.000212
.551	2.460	1190.	.6961	.7652	.7957	22.41	.9303	.000230
.594	2.652	1283.	.7043	.7704	.8023	22.61	.9224	.000252
.641	2.862	1385.	.7128	.7760	.8092	22.83	.9134	.000277
.676	3.021	1462.	.7193	.7802	.8143	23.00	.9062	.000297
.715	3.191	1544.	.7268	.7851	.8202	23.19	.8983	.000318
.762	3.401	1646.	.7333	.7895	.8253	23.35	.8881	.000346
.800	3.571	1728.	.7398	.7938	.8303	23.51	.8796	.000369
.840	3.752	1816.	.7472	.7988	.8360	23.69	.8701	.000394
.880	3.928	1901.	.7552	.8043	.8421	23.89	.8605	.000419
.909	4.058	1964.	.7577	.8061	.8440	23.95	.8532	.000438
.941	4.200	2032.	.7643	.8106	.8489	24.11	.8451	.000459
.991	4.427	2142.	.7723	.8162	.8548	24.30	.8315	.000494
1.033	4.614	2233.	.7770	.8195	.8583	24.42	.8200	.000524
1.073	4.789	2318.	.7851	.8252	.8642	24.61	.8087	.000552
1.125	5.022	2430.	.7915	.8299	.8688	24.76	.7933	.000591
1.163	5.192	2512.	.7977	.8344	.8733	24.91	.7816	.000620
1.198	5.350	2589.	.8022	.8376	.8765	25.02	.7704	.000647
1.236	5.520	2672.	.8102	.8436	.8822	25.20	.7581	.000678
1.276	5.696	2757.	.8133	.8458	.8843	25.28	.7450	.000710
1.318	5.883	2847.	.8181	.8494	.8877	25.39	.7307	.000744

TABLE A14. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.357	6.059	2932.	.8252	.8547	.8926	25.55	.7169	.000777
1.404	6.269	3034.	.8319	.8597	.8972	25.70	.7000	.000818
1.447	6.461	3127.	.8367	.8634	.9005	25.82	.6841	.000856
1.503	6.711	3248.	.8482	.8723	.9082	26.08	.6629	.000905
1.531	6.836	3308.	.8515	.8747	.9104	26.15	.6521	.000931
1.567	6.994	3385.	.8542	.8769	.9122	26.21	.6381	.000963
1.612	7.198	3484.	.8604	.8817	.9163	26.35	.6196	.001007
1.656	7.391	3577.	.8666	.8866	.9203	26.49	.6022	.001047
1.691	7.550	3654.	.8688	.8884	.9218	26.54	.5874	.001081
1.727	7.708	3731.	.8750	.8932	.9258	26.67	.5724	.001115
1.770	7.901	3824.	.8816	.8986	.9300	26.82	.5540	.001157
1.799	8.032	3887.	.8842	.9006	.9317	26.87	.5414	.001185
1.832	8.179	3958.	.8882	.9039	.9342	26.96	.5271	.001218
1.884	8.411	4071.	.8952	.9095	.9386	27.11	.5041	.001269
1.920	8.570	4148.	.8980	.9118	.9404	27.18	.4883	.001304
1.953	8.717	4219.	.9023	.9154	.9431	27.27	.4735	.001337
2.004	8.944	4329.	.9088	.9207	.9471	27.41	.4506	.001388
2.037	9.092	4400.	.9118	.9232	.9490	27.47	.4356	.001421
2.056	9.177	4441.	.9144	.9253	.9505	27.53	.4270	.001440
2.098	9.364	4532.	.9184	.9287	.9530	27.61	.4079	.001482
2.156	9.624	4658.	.9269	.9358	.9581	27.79	.3811	.001540
2.193	9.789	4737.	.9296	.9381	.9597	27.85	.3643	.001576
2.242	10.010	4844.	.9353	.9429	.9631	27.97	.3417	.001625
2.280	10.180	4927.	.9400	.9470	.9660	28.07	.3243	.001663
2.315	10.333	5001.	.9440	.9505	.9683	28.15	.3088	.001696
2.360	10.537	5100.	.9484	.9542	.9709	28.24	.2882	.001740
2.416	10.786	5220.	.9519	.9573	.9729	28.31	.2632	.001793
2.457	10.968	5308.	.9588	.9632	.9769	28.45	.2452	.001831
2.514	11.223	5432.	.9638	.9677	.9798	28.56	.2205	.001883
2.550	11.382	5508.	.9667	.9702	.9815	28.61	.2053	.001915
2.590	11.563	5596.	.9675	.9709	.9819	28.63	.1882	.001951
2.640	11.784	5703.	.9731	.9758	.9851	28.74	.1678	.001994
2.680	11.965	5791.	.9761	.9785	.9867	28.80	.1515	.002028
2.727	12.175	5892.	.9787	.9808	.9882	28.86	.1331	.002066
2.773	12.379	5991.	.9818	.9836	.9900	28.92	.1155	.002103
2.811	12.549	6073.	.9828	.9845	.9905	28.94	.1017	.002132
2.847	12.708	6150.	.9854	.9868	.9919	28.99	.0888	.002158
2.882	12.867	6227.	.9874	.9886	.9931	29.03	.0767	.002183
2.921	13.037	6309.	.9885	.9896	.9937	29.05	.0640	.002210
2.961	13.218	6397.	.9900	.9909	.9945	29.08	.0509	.002236
3.012	13.445	6507.	.9909	.9918	.9950	29.10	.0355	.002268
3.053	13.626	6595.	.9921	.9929	.9957	29.12	.0238	.002292
3.089	13.785	6672.	.9935	.9941	.9964	29.15	.0141	.002312
3.124	13.944	6748.	.9949	.9954	.9972	29.18	.0050	.002331
3.154	14.080	6814.	.9951	.9955	.9973	29.18	0.0000	.002341
3.171	14.153	6850.	.9950	.9955	.9973	29.18	0.0000	.002341
3.213	14.340	6940.	.9964	.9968	.9980	29.21	0.0000	.002341
3.284	14.658	7094.	.9976	.9978	.9986	29.23	0.0000	.002341
3.361	15.004	7261.	.9986	.9987	.9992	29.25	0.0000	.002341
3.435	15.332	7421.	.9989	.9990	.9994	29.26	0.0000	.002341
3.535	15.780	7637.	.9997	.9997	.9998	29.27	0.0000	.002341
3.611	16.120	7802.	.9996	.9996	.9997	29.27	0.0000	.002341
3.698	16.506	7988.	1.0001	1.0001	1.0000	29.28	0.0000	.002341
3.731	16.653	8060.	1.0001	1.0001	1.0000	29.28	0.0000	.002341

TABLE A14. (CONT.)
PROFILE - JPL-4 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1820 TOTAL PRESSURE= .1798E+06 N/M**2
X= 0.00 CM TOTAL TEMPERATURE= 321.27 DEG-K

UE= 561.76 M/SEC DELTA STAR= .7178 CM THETA= .2312 CM H= 3.104
RE-DELTA-STAR= 129100. RE-THETA= 41600. NUWALL= .9781 CM**2/SEC CF= .001445

LEAST SQUARE FIT PARAMETERS
UTAU= 21.0772 M/SEC CF= .001527 PI= .5463 DELTA= 3.2627 CM
CHISQR= .2030E-04 YMAX= 3.094 CM YMIN= .063 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5426	0.0000	0.00	1.0000	0.000000
.010	.043	21.	.3418	.5961	.4427	11.98	1.0000	0.000000
.017	.076	38.	.4041	.6173	.5143	14.00	.9996	.000002
.036	.159	79.	.4662	.6420	.5818	15.94	.9984	.000009
.052	.225	112.	.5009	.6574	.6178	16.98	.9973	.000014
.063	.274	136.	.5214	.6670	.6384	17.59	.9964	.000018
.093	.406	202.	.5437	.6778	.6604	18.24	.9938	.000029
.118	.510	254.	.5615	.6868	.6775	18.76	.9916	.000038
.142	.615	306.	.5779	.6954	.6930	19.22	.9892	.000047
.167	.724	361.	.5915	.7026	.7056	19.60	.9865	.000056
.179	.774	385.	.6017	.7082	.7150	19.89	.9853	.000061
.215	.933	465.	.6127	.7143	.7249	20.19	.9811	.000075
.254	1.098	547.	.6276	.7228	.7382	20.60	.9765	.000090
.306	1.323	659.	.6414	.7308	.7503	20.97	.9699	.000111
.330	1.427	711.	.6480	.7347	.7560	21.15	.9667	.000121
.372	1.608	801.	.6565	.7397	.7633	21.37	.9609	.000139
.416	1.801	897.	.6646	.7446	.7701	21.59	.9544	.000159
.447	1.932	963.	.6727	.7496	.7770	21.80	.9498	.000173
.481	2.081	1037.	.6819	.7553	.7847	22.04	.9444	.000188
.523	2.262	1127.	.6900	.7603	.7912	22.25	.9376	.000208
.557	2.410	1201.	.6956	.7639	.7958	22.39	.9318	.000225
.594	2.569	1280.	.7048	.7698	.8033	22.63	.9254	.000243
.643	2.784	1387.	.7089	.7725	.8066	22.73	.9163	.000268
.673	2.910	1450.	.7177	.7782	.8136	22.96	.9108	.000284
.711	3.075	1532.	.7225	.7814	.8173	23.08	.9033	.000304
.753	3.255	1622.	.7285	.7854	.8220	23.23	.8948	.000327
.797	3.448	1718.	.7353	.7899	.8273	23.40	.8854	.000353
.831	3.595	1792.	.7416	.7942	.8322	23.55	.8780	.000373
.866	3.745	1866.	.7476	.7983	.8368	23.70	.8703	.000393
.919	3.975	1981.	.7549	.8033	.8423	23.88	.8578	.000426
.960	4.151	2068.	.7606	.8072	.8465	24.02	.8479	.000451
1.014	4.387	2186.	.7679	.8123	.8520	24.20	.8341	.000487
1.052	4.552	2268.	.7746	.8171	.8569	24.36	.8242	.000512
1.089	4.711	2348.	.7789	.8201	.8601	24.46	.8142	.000538
1.140	4.931	2457.	.7885	.8270	.8671	24.69	.8001	.000573
1.186	5.128	2556.	.7952	.8318	.8719	24.85	.7868	.000606
1.226	5.304	2643.	.7981	.8340	.8740	24.92	.7747	.000636
1.267	5.480	2731.	.8061	.8398	.8796	25.10	.7623	.000667
1.313	5.678	2829.	.8122	.8443	.8839	25.25	.7479	.000702
1.346	5.820	2900.	.8149	.8464	.8858	25.31	.7372	.000729
1.395	6.035	3007.	.8242	.8533	.8922	25.52	.7208	.000768

TABLE A14. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.438	6.221	3100.	.8283	.8564	.8950	25.62	.7061	.000803
1.475	6.381	3180.	.8348	.8614	.8995	25.77	.6933	.000833
1.522	6.584	3281.	.8393	.8648	.9025	25.87	.6766	.000873
1.564	6.765	3371.	.8463	.8702	.9072	26.03	.6613	.000909
1.600	6.919	3448.	.8498	.8729	.9096	26.11	.6481	.000940
1.645	7.116	3546.	.8581	.8794	.9150	26.29	.6309	.000980
1.689	7.303	3639.	.8630	.8832	.9182	26.40	.6142	.001019
1.732	7.490	3732.	.8676	.8869	.9213	26.50	.5973	.001058
1.798	7.731	3853.	.8750	.8928	.9261	26.67	.5750	.001109
1.822	7.880	3927.	.8775	.8948	.9276	26.72	.5611	.001141
1.859	8.039	4006.	.8809	.8975	.9298	26.80	.5459	.001175
1.903	8.231	4102.	.8867	.9023	.9335	26.92	.5275	.001217
1.944	8.407	4189.	.8931	.9075	.9376	27.06	.5104	.001255
1.982	8.572	4272.	.8969	.9105	.9399	27.14	.4943	.001291
2.029	8.775	4373.	.9014	.9143	.9427	27.24	.4742	.001336
2.067	8.940	4455.	.9079	.9196	.9467	27.38	.4578	.001373
2.115	9.148	4559.	.9126	.9235	.9496	27.48	.4369	.001419
2.162	9.351	4660.	.9165	.9268	.9520	27.56	.4164	.001464
2.202	9.522	4745.	.9229	.9322	.9558	27.70	.3992	.001502
2.235	9.664	4816.	.9249	.9339	.9571	27.74	.3848	.001533
2.287	9.890	4928.	.9303	.9384	.9603	27.85	.3620	.001583
2.329	10.071	5019.	.9357	.9430	.9635	27.97	.3437	.001622
2.359	10.203	5084.	.9389	.9458	.9654	28.03	.3304	.001651
2.410	10.422	5194.	.9434	.9497	.9681	28.13	.3083	.001699
2.448	10.587	5276.	.9480	.9537	.9707	28.22	.2918	.001734
2.486	10.752	5358.	.9508	.9561	.9724	28.28	.2755	.001769
2.519	10.894	5429.	.9535	.9585	.9740	28.33	.2614	.001799
2.567	11.103	5533.	.9587	.9630	.9769	28.44	.2410	.001842
2.606	11.268	5615.	.9613	.9653	.9784	28.49	.2251	.001876
2.630	11.372	5667.	.9649	.9684	.9804	28.57	.2151	.001897
2.683	11.603	5782.	.9682	.9714	.9824	28.63	.1934	.001943
2.707	11.707	5834.	.9705	.9735	.9837	28.68	.1837	.001963
2.745	11.872	5916.	.9734	.9760	.9853	28.74	.1686	.001995
2.780	12.020	5990.	.9757	.9781	.9866	28.78	.1549	.002024
2.816	12.179	6070.	.9780	.9801	.9879	28.83	.1412	.002052
2.844	12.300	6130.	.9797	.9816	.9888	28.86	.1308	.002074
2.871	12.416	6187.	.9803	.9821	.9891	28.88	.1209	.002095
2.915	12.608	6283.	.9837	.9852	.9911	28.94	.1049	.002128
2.956	12.784	6371.	.9861	.9874	.9924	28.99	.0907	.002157
2.987	12.915	6436.	.9861	.9874	.9924	28.99	.0804	.002179
3.020	13.058	6507.	.9889	.9899	.9939	29.05	.0695	.002201
3.070	13.278	6617.	.9913	.9921	.9953	29.10	.0532	.002235
3.094	13.382	6669.	.9920	.9927	.9956	29.11	.0460	.002250
3.140	13.580	6767.	.9932	.9938	.9963	29.13	.0325	.002278
3.183	13.766	6861.	.9945	.9949	.9970	29.16	.0204	.002303
3.224	13.942	6948.	.9958	.9961	.9977	29.18	.0096	.002325
3.246	14.036	6995.	.9962	.9965	.9979	29.19	.0042	.002336
3.277	14.173	7063.	.9969	.9972	.9983	29.20	0.0000	.002345
3.324	14.376	7164.	.9973	.9976	.9985	29.21	0.0000	.002345
3.347	14.475	7214.	.9976	.9978	.9987	29.22	0.0000	.002345
3.407	14.733	7342.	.9987	.9988	.9993	29.24	0.0000	.002345
3.487	15.079	7515.	.9991	.9992	.9995	29.25	0.0000	.002345
3.583	15.496	7723.	1.0001	1.0001	1.0000	29.27	0.0000	.002345
3.665	15.848	7898.	.9999	.9999	.9999	29.26	0.0000	.002345
3.716	16.067	8007.	1.0003	1.0003	1.0002	29.27	0.0000	.002345

TABLE A14. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1797 TOTAL PRESSURE= .1802E+06 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 322.72 DEG-K

UE= 562.73 M/SEC DELTA STAR= .7507 CM THETA= .2415 CM H= 3.107
RE-DELTA-STAR= 133800. RE-THETA= 43060. NUWALL= .9817 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 20.9635 M/SEC CF= .001507 PI= .5751 DELTA= 3.3810 CM
CHISQR= .1418E-04 YMAX= 3.188 CM YMIN= .085 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5431	0.0000	0.00	1.0000	0.000000
.010	.042	21.	.3410	.5963	.4416	12.03	1.0000	0.000000
.016	.068	35.	.3752	.6075	.4814	13.16	.9997	.000002
.036	.152	78.	.4521	.6365	.5667	15.61	.9985	.000008
.059	.241	124.	.4978	.6564	.6145	17.01	.9971	.000015
.085	.352	181.	.5320	.6725	.6488	18.02	.9950	.000024
.105	.436	225.	.5499	.6813	.6662	18.55	.9933	.000031
.130	.541	279.	.5700	.6916	.6854	19.13	.9910	.000039
.157	.651	336.	.5786	.6961	.6935	19.37	.9884	.000049
.181	.751	387.	.5933	.7039	.7071	19.79	.9860	.000057
.212	.877	452.	.6040	.7098	.7169	20.09	.9828	.000068
.240	.993	512.	.6140	.7154	.7259	20.36	.9797	.000079
.265	1.098	566.	.6251	.7217	.7358	20.67	.9768	.000088
.293	1.214	626.	.6333	.7264	.7431	20.89	.9734	.000099
.334	1.382	713.	.6417	.7313	.7504	21.12	.9684	.000115
.364	1.508	778.	.6519	.7373	.7592	21.40	.9645	.000127
.402	1.666	859.	.6587	.7414	.7650	21.58	.9594	.000142
.450	1.866	962.	.6685	.7473	.7733	21.84	.9526	.000162
.491	2.034	1049.	.6761	.7520	.7796	22.04	.9466	.000180
.527	2.181	1125.	.6824	.7559	.7849	22.20	.9412	.000196
.570	2.360	1217.	.6909	.7613	.7919	22.43	.9343	.000215
.608	2.518	1299.	.6996	.7668	.7990	22.65	.9280	.000233
.641	2.654	1369.	.7041	.7696	.8026	22.77	.9224	.000249
.689	2.854	1472.	.7110	.7741	.8081	22.94	.9138	.000272
.735	3.043	1570.	.7200	.7800	.8152	23.17	.9053	.000295
.760	3.148	1624.	.7223	.7815	.8171	23.23	.9004	.000309
.806	3.338	1722.	.7316	.7877	.8243	23.47	.8914	.000333
.858	3.553	1833.	.7388	.7925	.8299	23.65	.8806	.000361
.889	3.679	1898.	.7431	.7955	.8332	23.75	.8741	.000378
.938	3.884	2004.	.7504	.8004	.8388	23.93	.8631	.000407
.988	4.089	2109.	.7588	.8062	.8451	24.14	.8516	.000437
1.022	4.231	2183.	.7628	.8090	.8481	24.24	.8434	.000458
1.055	4.368	2253.	.7667	.8117	.8510	24.33	.8353	.000478
1.101	4.557	2351.	.7717	.8152	.8547	24.46	.8237	.000507
1.134	4.694	2421.	.7777	.8194	.8591	24.60	.8151	.000529
1.177	4.873	2514.	.7844	.8242	.8640	24.76	.8035	.000558
1.220	5.052	2606.	.7915	.8294	.8691	24.93	.7916	.000587
1.257	5.204	2684.	.7964	.8329	.8726	25.05	.7811	.000613
1.294	5.356	2763.	.8016	.8367	.8764	25.17	.7702	.000640
1.338	5.540	2858.	.8055	.8396	.8791	25.26	.7570	.000672
1.377	5.703	2942.	.8122	.8445	.8838	25.42	.7448	.000701

TABLE A14. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.419	5.877	3032.	.8187	.8494	.8884	25.57	.7316	.000733
1.463	6.056	3124.	.8235	.8530	.8917	25.69	.7176	.000766
1.504	6.229	3213.	.8303	.8581	.8963	25.84	.7037	.000799
1.540	6.376	3289.	.8354	.8620	.8998	25.96	.6916	.000827
1.598	6.618	3414.	.8424	.8674	.9045	26.12	.6713	.000875
1.637	6.776	3495.	.8456	.8698	.9067	26.19	.6578	.000906
1.667	6.902	3560.	.8466	.8706	.9073	26.22	.6467	.000932
1.715	7.102	3663.	.8550	.8771	.9129	26.40	.6290	.000973
1.748	7.238	3734.	.8578	.8793	.9148	26.47	.6166	.001001
1.772	7.338	3785.	.8632	.8836	.9183	26.59	.6075	.001022
1.804	7.470	3853.	.8666	.8862	.9205	26.67	.5953	.001050
1.863	7.712	3978.	.8721	.8906	.9241	26.79	.5726	.001101
1.885	7.806	4027.	.8761	.8938	.9267	26.88	.5636	.001121
1.922	7.959	4105.	.8781	.8954	.9280	26.92	.5490	.001154
1.963	8.127	4192.	.8848	.9008	.9322	27.07	.5326	.001191
1.996	8.264	4263.	.8899	.9050	.9355	27.18	.5191	.001221
2.021	8.369	4317.	.8911	.9059	.9362	27.21	.5086	.001244
2.056	8.511	4390.	.8945	.9087	.9383	27.28	.4945	.001275
2.114	8.753	4515.	.9011	.9141	.9425	27.42	.4704	.001328
2.152	8.910	4596.	.9067	.9187	.9459	27.54	.4545	.001363
2.193	9.078	4683.	.9095	.9211	.9477	27.61	.4374	.001400
2.244	9.289	4792.	.9181	.9282	.9529	27.79	.4159	.001447
2.273	9.410	4854.	.9202	.9300	.9542	27.83	.4035	.001474
2.320	9.604	4954.	.9246	.9337	.9568	27.93	.3835	.001517
2.358	9.762	5036.	.9297	.9381	.9599	28.04	.3673	.001551
2.399	9.930	5122.	.9329	.9408	.9618	28.10	.3500	.001588
2.432	10.067	5193.	.9376	.9448	.9646	28.20	.3360	.001618
2.485	10.288	5307.	.9402	.9470	.9661	28.26	.3135	.001666
2.520	10.435	5383.	.9435	.9499	.9681	28.33	.2986	.001698
2.566	10.624	5480.	.9504	.9558	.9721	28.47	.2795	.001738
2.623	10.861	5602.	.9539	.9589	.9742	28.54	.2558	.001788
2.661	11.018	5684.	.9577	.9621	.9763	28.62	.2403	.001820
2.708	11.213	5784.	.9635	.9672	.9796	28.74	.2213	.001860
2.754	11.402	5882.	.9652	.9688	.9806	28.77	.2030	.001898
2.791	11.555	5960.	.9680	.9713	.9822	28.83	.1887	.001928
2.835	11.739	6055.	.9729	.9756	.9850	28.93	.1716	.001963
2.886	11.949	6164.	.9760	.9783	.9867	28.99	.1525	.002003
2.922	12.096	6240.	.9784	.9804	.9881	29.04	.1394	.002030
2.983	12.348	6370.	.9822	.9839	.9902	29.12	.1173	.002075
3.028	12.538	6468.	.9839	.9854	.9911	29.15	.1018	.002107
3.069	12.706	6554.	.9860	.9873	.9923	29.19	.0882	.002135
3.115	12.895	6652.	.9878	.9890	.9933	29.23	.0735	.002165
3.148	13.032	6723.	.9904	.9913	.9947	29.28	.0632	.002186
3.188	13.200	6809.	.9915	.9923	.9953	29.30	.0509	.002211
3.235	13.394	6910.	.9926	.9933	.9960	29.33	.0374	.002238
3.277	13.568	6999.	.9943	.9948	.9969	29.36	.0260	.002261
3.310	13.705	7070.	.9955	.9959	.9975	29.38	.0173	.002279
3.355	13.889	7165.	.9967	.9970	.9982	29.41	.0063	.002301
3.406	14.099	7273.	.9972	.9974	.9984	29.42	0.0000	.002314
3.437	14.230	7341.	.9977	.9979	.9987	29.43	0.0000	.002314
3.502	14.498	7479.	.9986	.9988	.9992	29.44	0.0000	.002314
3.534	14.630	7547.	.9992	.9993	.9995	29.46	0.0000	.002314
3.580	14.819	7645.	.9998	.9998	.9998	29.47	0.0000	.002314
3.632	15.035	7756.	.9999	.9999	.9999	29.47	0.0000	.002314
3.669	15.187	7834.	1.0005	1.0005	1.0003	29.48	0.0000	.002314
3.691	15.282	7883.	1.0003	1.0003	1.0002	29.48	0.0000	.002314

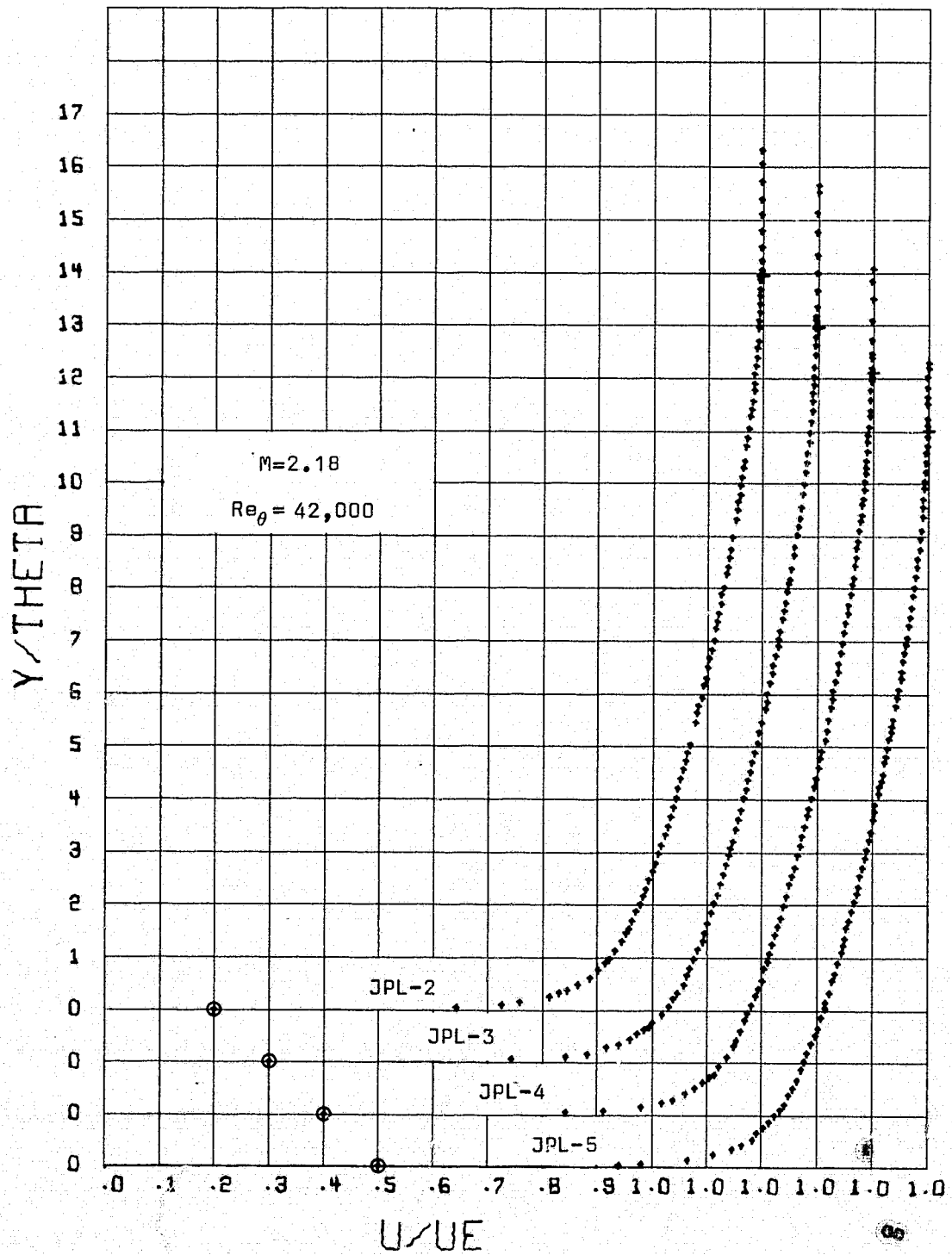

Figure A41. Mean Velocity Profiles.

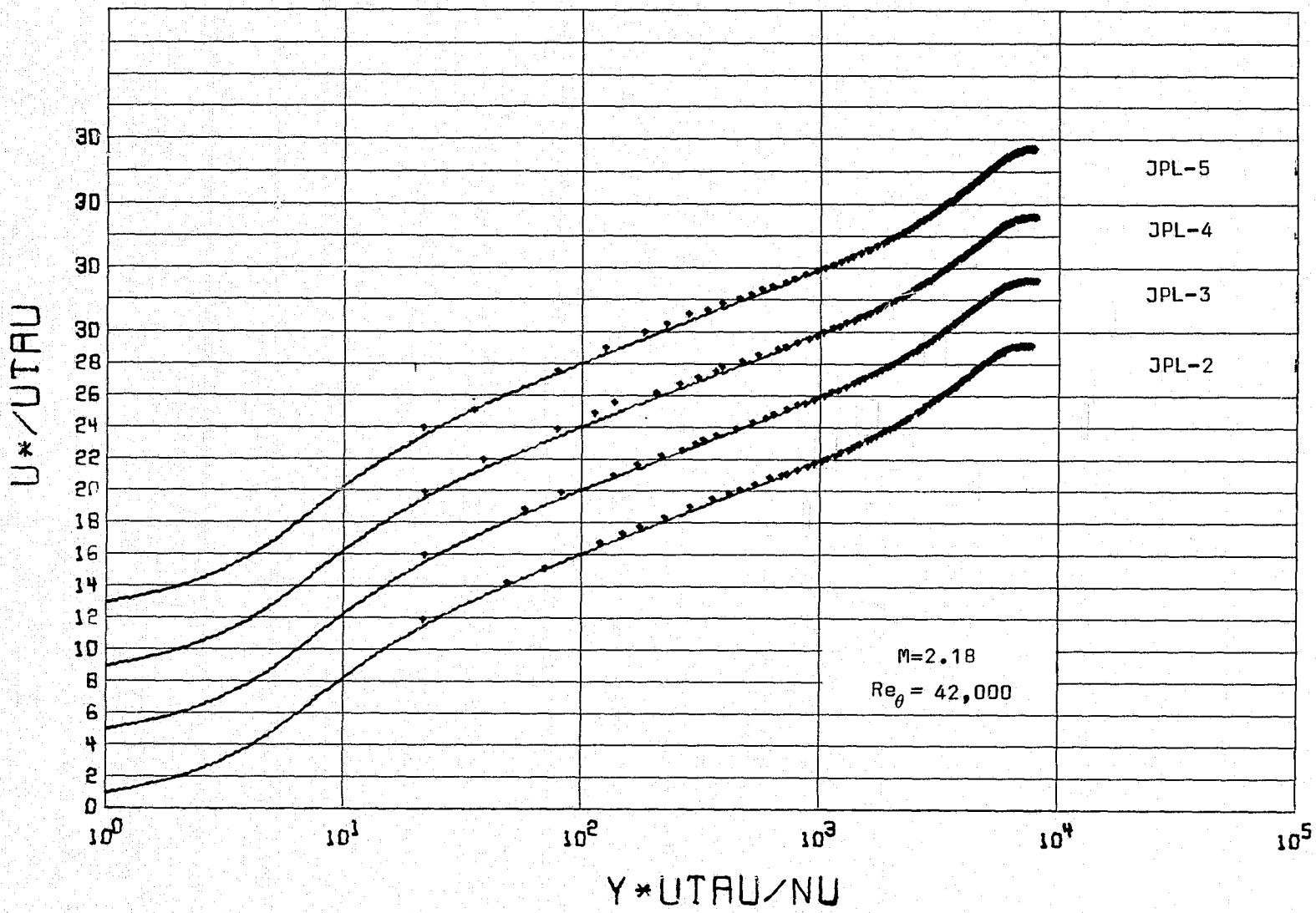

Figure A42. Van Driest Scaled Mean Velocity Profiles.

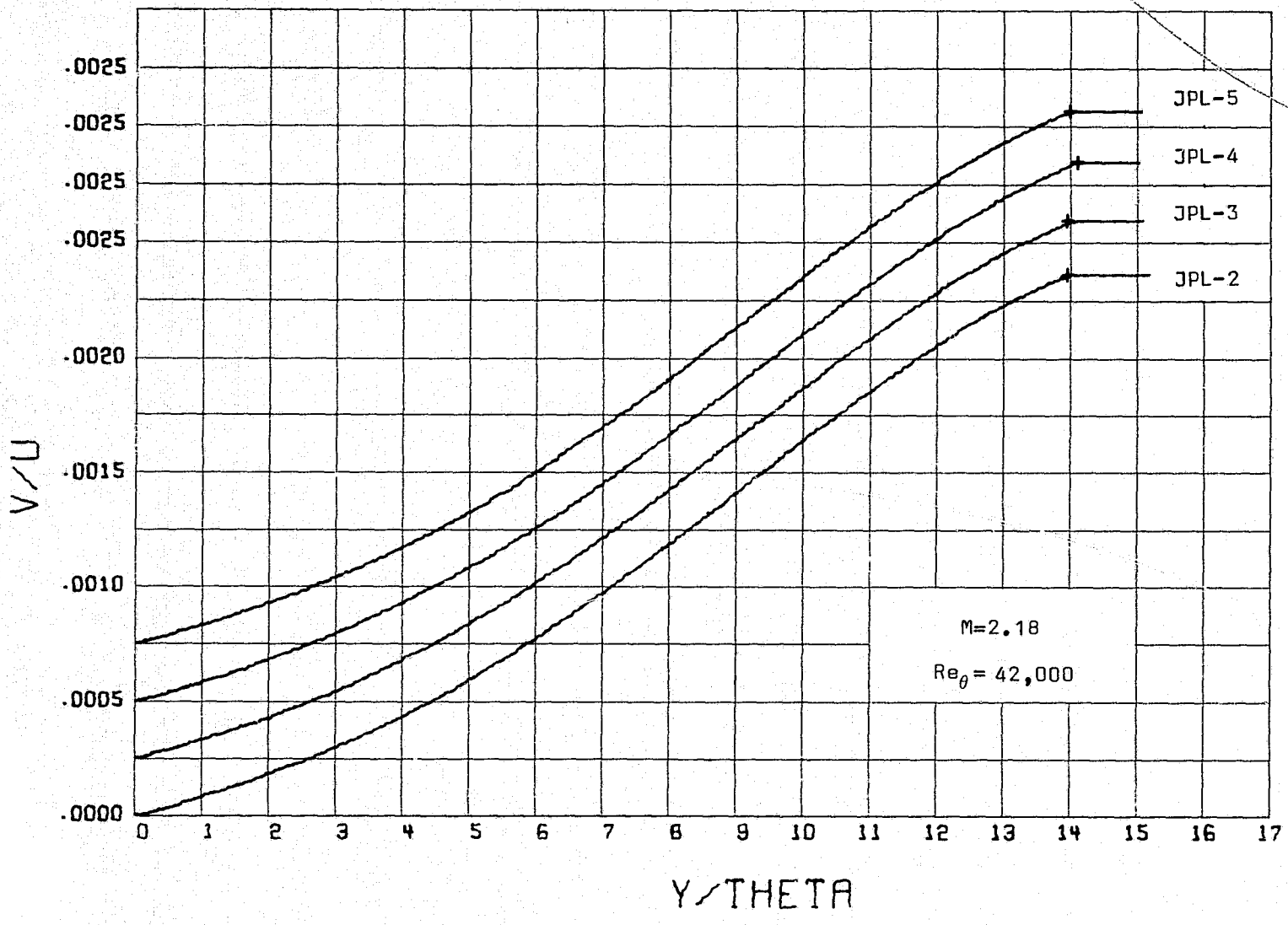

Figure A43. Normal Velocity Distribution.

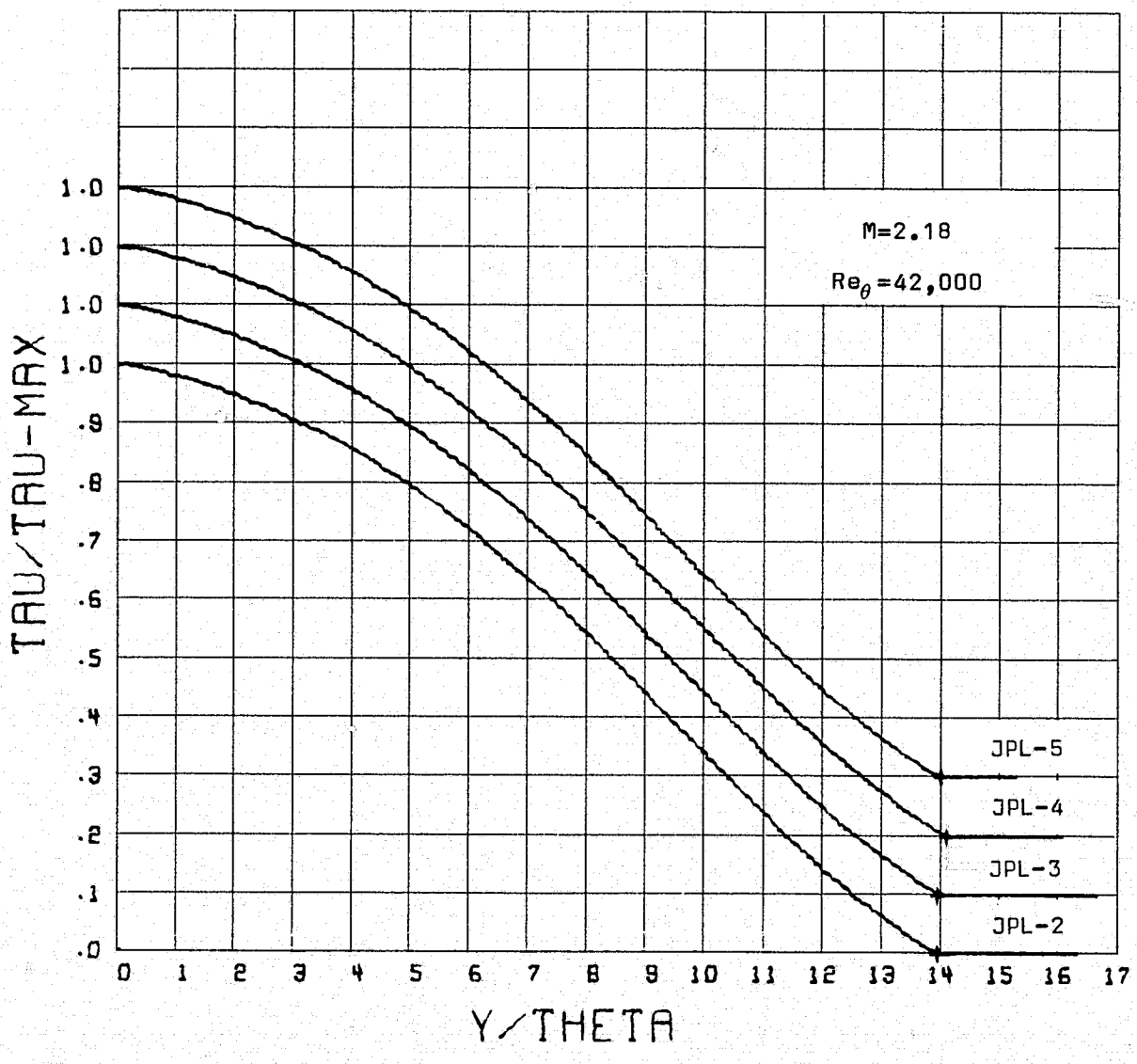

Figure A44. Shear Stress Distribution.

TABLE A14. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.438	6.221	3100.	.8283	.8564	.8950	25.62	.7061	.000803
1.475	6.381	3180.	.8348	.8614	.8995	25.77	.6933	.000833
1.522	6.584	3281.	.8393	.8648	.9025	25.87	.6766	.000873
1.564	6.765	3371.	.8463	.8702	.9072	26.03	.6613	.000909
1.600	6.919	3448.	.8498	.8729	.9096	26.11	.6481	.000940
1.645	7.116	3546.	.8581	.8794	.9150	26.29	.6309	.000980
1.689	7.303	3639.	.8630	.8832	.9182	26.40	.6142	.001019
1.732	7.490	3732.	.8676	.8869	.9213	26.50	.5973	.001058
1.798	7.731	3853.	.8750	.8928	.9261	26.67	.5750	.001109
1.822	7.880	3927.	.8775	.8948	.9276	26.72	.5611	.001141
1.859	8.039	4006.	.8809	.8975	.9298	26.80	.5459	.001175
1.903	8.231	4102.	.8867	.9023	.9335	26.92	.5275	.001217
1.944	8.407	4189.	.8931	.9075	.9376	27.06	.5104	.001255
1.982	8.572	4272.	.8969	.9105	.9399	27.14	.4943	.001291
2.029	8.775	4373.	.9014	.9143	.9427	27.24	.4742	.001336
2.067	8.940	4455.	.9079	.9196	.9467	27.38	.4578	.001373
2.115	9.148	4559.	.9126	.9235	.9496	27.48	.4369	.001419
2.162	9.351	4660.	.9165	.9268	.9520	27.56	.4164	.001464
2.202	9.522	4745.	.9229	.9322	.9558	27.70	.3992	.001502
2.235	9.664	4816.	.9249	.9339	.9571	27.74	.3848	.001533
2.297	9.890	4928.	.9303	.9384	.9603	27.85	.3620	.001583
2.329	10.071	5019.	.9357	.9430	.9635	27.97	.3437	.001622
2.359	10.203	5084.	.9389	.9458	.9654	28.03	.3304	.001651
2.410	10.422	5194.	.9434	.9497	.9681	28.13	.3083	.001699
2.448	10.587	5276.	.9480	.9537	.9707	28.22	.2918	.001734
2.486	10.752	5358.	.9508	.9561	.9724	28.28	.2755	.001769
2.519	10.894	5429.	.9535	.9585	.9740	28.33	.2614	.001799
2.567	11.103	5533.	.9587	.9630	.9769	28.44	.2410	.001842
2.606	11.268	5615.	.9613	.9653	.9784	28.49	.2251	.001876
2.630	11.372	5667.	.9649	.9684	.9804	28.57	.2151	.001897
2.683	11.603	5782.	.9682	.9714	.9824	28.63	.1934	.001943
2.707	11.707	5834.	.9705	.9735	.9837	28.68	.1837	.001963
2.745	11.872	5916.	.9734	.9760	.9853	28.74	.1686	.001995
2.780	12.020	5990.	.9757	.9781	.9866	28.78	.1549	.002024
2.816	12.179	6070.	.9780	.9801	.9879	28.83	.1412	.002052
2.844	12.300	6130.	.9797	.9816	.9888	28.86	.1308	.002074
2.871	12.416	6187.	.9803	.9821	.9891	28.88	.1209	.002095
2.915	12.608	6283.	.9837	.9852	.9911	28.94	.1049	.002128
2.956	12.784	6371.	.9861	.9874	.9924	28.99	.0907	.002157
2.987	12.915	6436.	.9861	.9874	.9924	28.99	.0804	.002179
3.020	13.0[illegible]	6507.	.9889	.9899	.9939	29.05	.0695	.002201
3.070	13.2[illegible]	6617.	.9913	.9921	.9953	29.10	.0532	.002235
3.094	13.382	6669.	.9920	.9927	.9956	29.11	.0460	.002250
3.140	13.580	6767.	.9932	.9938	.9963	29.13	.0325	.002278
3.183	13.766	6861.	.9945	.9949	.9970	29.16	.0204	.002303
3.224	13.942	6948.	.9958	.9961	.9977	29.18	.0096	.002325
3.246	14.036	6995.	.9962	.9965	.9979	29.19	.0042	.002336
3.277	14.173	7063.	.9969	.9972	.9983	29.20	0.0000	.002345
3.324	14.376	7164.	.9973	.9976	.9985	29.21	0.0000	.002345
3.347	14.475	7214.	.9976	.9978	.9987	29.22	0.0000	.002345
3.407	14.733	7342.	.9987	.9988	.9993	29.24	0.0000	.002345
3.487	15.079	7515.	.9991	.9992	.9995	29.25	0.0000	.002345
3.583	15.496	7723.	1.0001	1.0001	1.0000	29.27	0.0000	.002345
3.665	15.848	7898.	.9999	.9999	.9999	29.26	0.0000	.002345
3.715	16.067	8007.	1.0003	1.0003	1.0002	29.27	0.0000	.002345

TABLE A14. (CONT.)
PROFILE - JPL-5 - - - PITOT PRESSURE DATA

EDGE MACH NO.= 2.1797 TOTAL PRESSURE= .1802E+06 N/M**2
X= 7.62 CM TOTAL TEMPERATURE= 322.72 DEG-K

UE= 562.73 M/SEC DELTA STAR= .7507 CM THETA= .2415 CM H= 3.107
RE-DELTA-STAR= 133800. RE-THETA= 43060. NUWALL= .9817 CM**2/SEC

LEAST SQUARE FIT PARAMETERS
UTAU= 20.9635 M/SEC CF= .001507 PI= .5751 DELTA= 3.3810 CM
CHISQR= .1418E-04 YMAX= 3.188 CM YMIN= .085 CM

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOE	U/UE	U-PLUS	TAU/TAU-MAX	V/U
0.000	0.000	0.	0.0000	.5431	0.0000	0.00	1.0000	0.000000
.010	.042	21.	.3410	.5963	.4416	12.03	1.0000	0.000000
.016	.068	35.	.3752	.6075	.4814	13.16	.9997	.000002
.036	.152	78.	.4521	.6365	.5667	15.61	.9985	.000008
.059	.241	124.	.4978	.6564	.6145	17.01	.9971	.000015
.085	.352	181.	.5320	.6725	.6488	18.02	.9950	.000024
.105	.436	225.	.5499	.6813	.6662	18.55	.9933	.000031
.130	.541	279.	.5700	.6916	.6854	19.13	.9910	.000039
.157	.651	336.	.5786	.6961	.6935	19.37	.9884	.000049
.181	.751	387.	.5933	.7039	.7071	19.79	.9860	.000057
.212	.877	452.	.6040	.7098	.7169	20.09	.9828	.000068
.240	.993	512.	.6140	.7154	.7259	20.36	.9797	.000079
.265	1.098	566.	.6251	.7217	.7358	20.67	.9768	.000088
.293	1.214	626.	.6333	.7264	.7431	20.89	.9734	.000099
.334	1.382	713.	.6417	.7313	.7504	21.12	.9684	.000115
.364	1.508	778.	.6519	.7373	.7592	21.40	.9645	.000127
.402	1.666	859.	.6587	.7414	.7650	21.58	.9594	.000142
.450	1.866	962.	.6685	.7473	.7733	21.84	.9526	.000162
.491	2.034	1049.	.6761	.7520	.7796	22.04	.9466	.000180
.527	2.181	1125.	.6824	.7559	.7849	22.20	.9412	.000196
.570	2.360	1217.	.6909	.7613	.7919	22.43	.9343	.000215
.608	2.518	1299.	.6996	.7668	.7990	22.65	.9280	.000233
.641	2.654	1369.	.7041	.7696	.8026	22.77	.9224	.000249
.689	2.854	1472.	.7110	.7741	.8081	22.94	.9138	.000272
.735	3.043	1570.	.7200	.7800	.8152	23.17	.9053	.000295
.760	3.148	1624.	.7223	.7815	.8171	23.23	.9004	.000309
.806	3.338	1722.	.7316	.7877	.8243	23.47	.8914	.000333
.858	3.553	1833.	.7388	.7925	.8299	23.65	.8806	.000361
.889	3.679	1898.	.7431	.7955	.8332	23.75	.8741	.000378
.938	3.884	2004.	.7504	.8004	.8388	23.93	.8631	.000407
.988	4.089	2109.	.7588	.8062	.8451	24.14	.8516	.000437
1.022	4.231	2183.	.7628	.8090	.8481	24.24	.8434	.000458
1.055	4.368	2253.	.7667	.8117	.8510	24.33	.8353	.000478
1.101	4.557	2351.	.7717	.8152	.8547	24.46	.8237	.000507
1.134	4.694	2421.	.7777	.8194	.8591	24.60	.8151	.000529
1.177	4.873	2514.	.7844	.8242	.8640	24.76	.8035	.000558
1.220	5.052	2606.	.7915	.8294	.8691	24.93	.7916	.000587
1.257	5.204	2684.	.7964	.8329	.8726	25.05	.7811	.000613
1.294	5.356	2763.	.8016	.8367	.8764	25.17	.7702	.000640
1.338	5.540	2858.	.8055	.8396	.8791	25.26	.7570	.000672
1.377	5.703	2942.	.8122	.8445	.8838	25.42	.7448	.000701

TABLE A14. (CONT.)

Y (CM)	Y/THETA	Y-PLUS	M/ME	RHO/RHOS	U/UE	U-PLUS	TAU/TAU-MAX	V/U
1.419	5.877	3032.	.8187	.8494	.8894	25.57	.7316	.000733
1.463	6.056	3124.	.8235	.8530	.8917	25.69	.7176	.000766
1.504	6.229	3213.	.8303	.8581	.8963	25.84	.7037	.000799
1.540	6.376	3289.	.8354	.8620	.8998	25.96	.6916	.000827
1.598	6.618	3414.	.8424	.8674	.9045	26.12	.6713	.000875
1.637	6.776	3495.	.8456	.8698	.9067	26.19	.6578	.000906
1.667	6.902	3560.	.8466	.8706	.9073	26.22	.6467	.000932
1.715	7.102	3663.	.8550	.8771	.9129	26.40	.6290	.000973
1.748	7.238	3734.	.8578	.8793	.9148	26.47	.6166	.001001
1.772	7.338	3785.	.8632	.8836	.9183	26.59	.6075	.001022
1.804	7.470	3853.	.8666	.8862	.9205	26.67	.5953	.001050
1.863	7.712	3978.	.8721	.8906	.9241	26.79	.5726	.001101
1.885	7.806	4027.	.8761	.8938	.9267	26.88	.5636	.001121
1.922	7.959	4105.	.8781	.8954	.9280	26.92	.5490	.001154
1.963	8.127	4192.	.8848	.9008	.9322	27.07	.5326	.001191
1.996	8.264	4263.	.8899	.9050	.9355	27.18	.5191	.001221
2.021	8.369	4317.	.8911	.9059	.9362	27.21	.5086	.001244
2.056	8.511	4390.	.8945	.9087	.9383	27.28	.4945	.001275
2.114	8.753	4515.	.9011	.9141	.9425	27.42	.4704	.001328
2.152	8.910	4596.	.9067	.9187	.9459	27.54	.4545	.001363
2.193	9.078	4683.	.9095	.9211	.9477	27.61	.4374	.001400
2.244	9.289	4792.	.9181	.9282	.9529	27.79	.4159	.001447
2.273	9.410	4854.	.9202	.9300	.9542	27.83	.4035	.001474
2.320	9.604	4954.	.9246	.9337	.9568	27.93	.3835	.001517
2.358	9.762	5036.	.9297	.9381	.9599	28.04	.3673	.001551
2.399	9.930	5122.	.9329	.9408	.9618	28.10	.3500	.001588
2.432	10.067	5193.	.9376	.9448	.9646	28.20	.3360	.001618
2.485	10.288	5307.	.9402	.9470	.9661	28.26	.3135	.001666
2.520	10.435	5383.	.9435	.9499	.9681	28.33	.2986	.001698
2.566	10.624	5480.	.9504	.9558	.9721	28.47	.2795	.001738
2.623	10.861	5602.	.9539	.9589	.9742	28.54	.2558	.001788
2.661	11.018	5684.	.9577	.9621	.9763	28.62	.2403	.001820
2.708	11.213	5784.	.9635	.9672	.9796	28.74	.2213	.001860
2.754	11.402	5882.	.9652	.9688	.9806	28.77	.2030	.001898
2.791	11.555	5960.	.9680	.9713	.9822	28.83	.1887	.001928
2.835	11.739	6055.	.9729	.9756	.9850	28.93	.1716	.001963
2.886	11.949	6164.	.9760	.9783	.9867	28.99	.1525	.002003
2.922	12.096	6240.	.9784	.9804	.9881	29.04	.1394	.002030
2.983	12.348	6370.	.9822	.9839	.9902	29.12	.1173	.002075
3.028	12.538	6468.	.9839	.9854	.9911	29.15	.1018	.002107
3.069	12.706	6554.	.9860	.9873	.9923	29.19	.0882	.002135
3.115	12.895	6652.	.9878	.9890	.9933	29.23	.0735	.002165
3.148	13.032	6723.	.9904	.9913	.9947	29.28	.0632	.002186
3.188	13.200	6809.	.9915	.9923	.9953	29.30	.0509	.002211
3.235	13.394	6910.	.9926	.9933	.9960	29.33	.0374	.002238
3.277	13.568	6999.	.9943	.9948	.9969	29.36	.0260	.002261
3.310	13.705	7070.	.9955	.9959	.9975	29.38	.0173	.002279
3.355	13.889	7165.	.9967	.9970	.9982	29.41	.0063	.002301
3.406	14.095	7273.	.9972	.9974	.9984	29.42	0.0000	.002314
3.437	14.230	7341.	.9977	.9979	.9987	29.43	0.0000	.002314
3.502	14.498	7479.	.9986	.9988	.9992	29.44	0.0000	.002314
3.534	14.630	7547.	.9992	.9993	.9995	29.46	0.0000	.002314
3.580	14.819	7645.	.9998	.9998	.9998	29.47	0.0000	.002314
3.632	15.035	7756.	.9999	.9999	.9999	29.47	0.0000	.002314
3.669	15.187	7834.	1.0005	1.0005	1.0003	29.48	0.0000	.002314
3.691	15.282	7883.	1.0003	1.0003	1.0002	29.48	0.0000	.002314

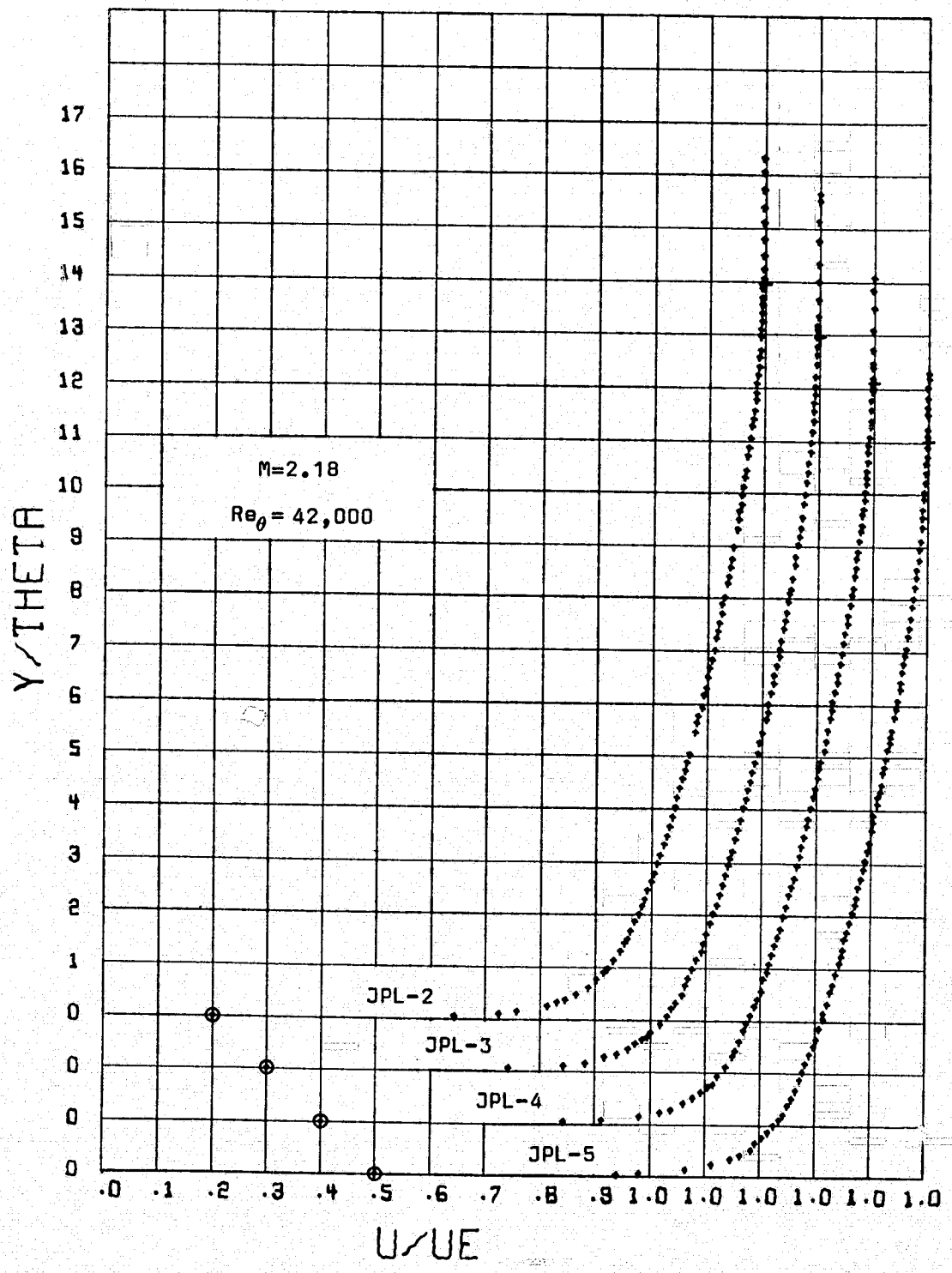

Figure A41. Mean Velocity Profiles.

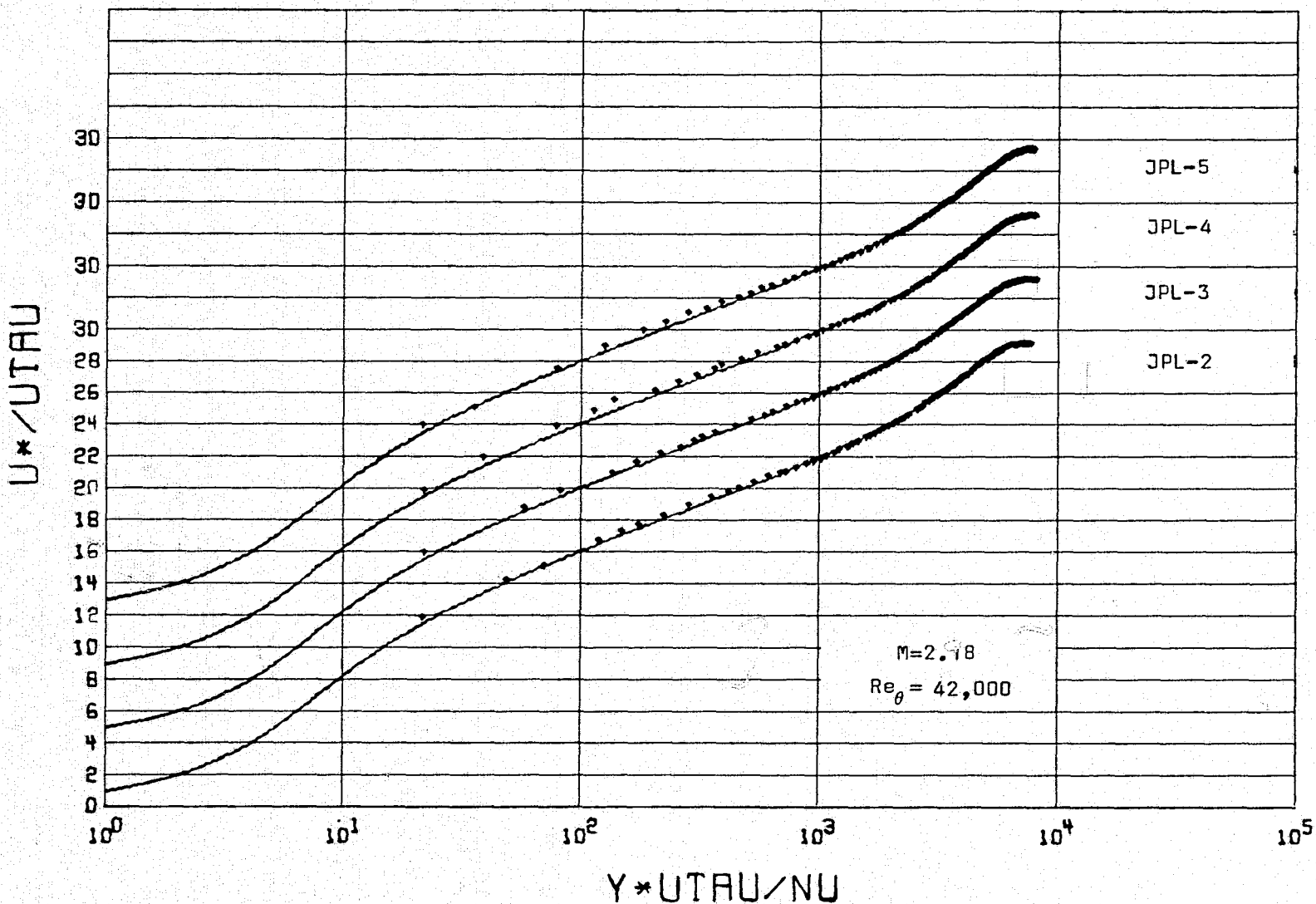

Figure A42. Van Driest Scaled Mean Velocity Profiles.

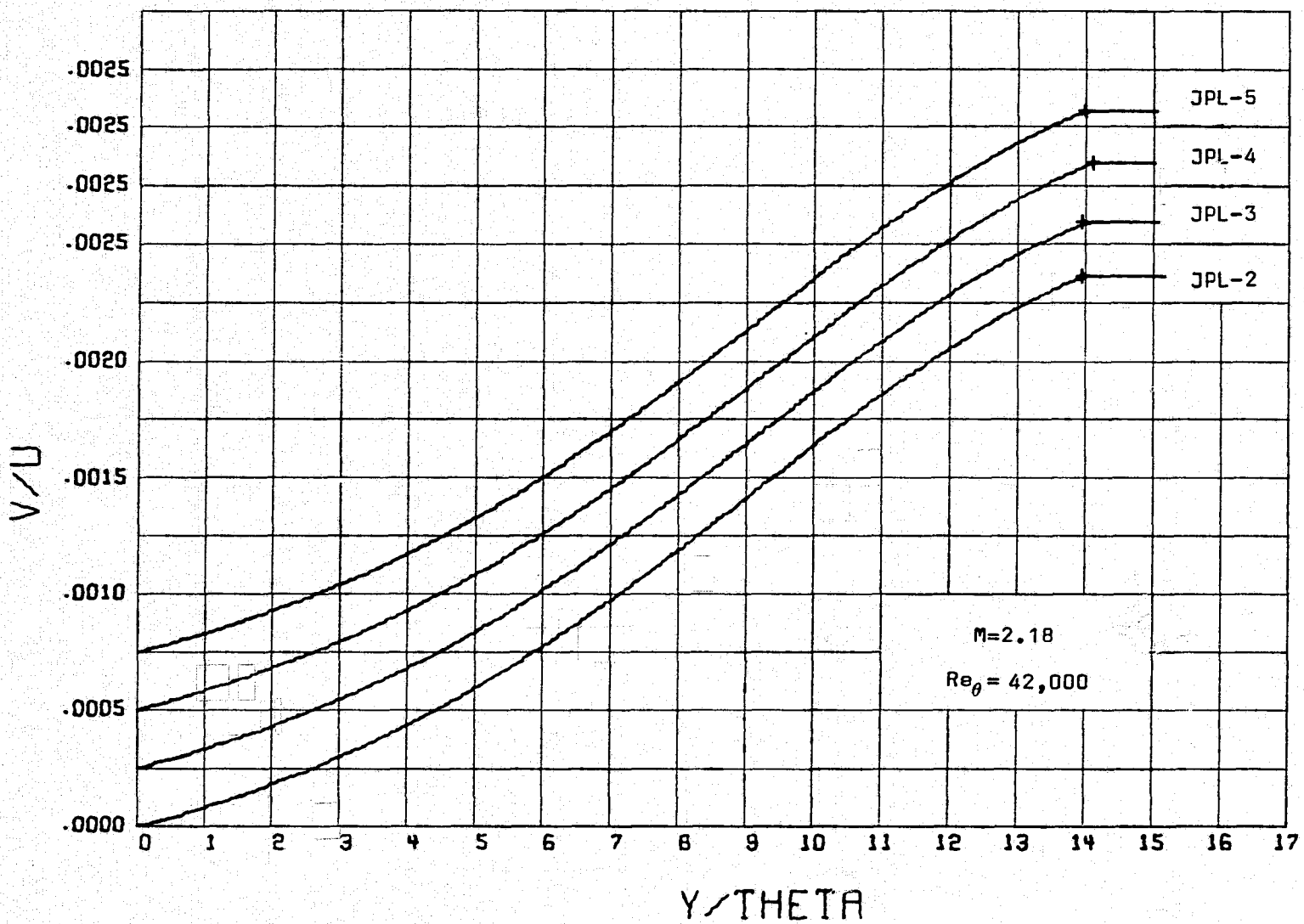

Figure A43. Normal Velocity Distribution.

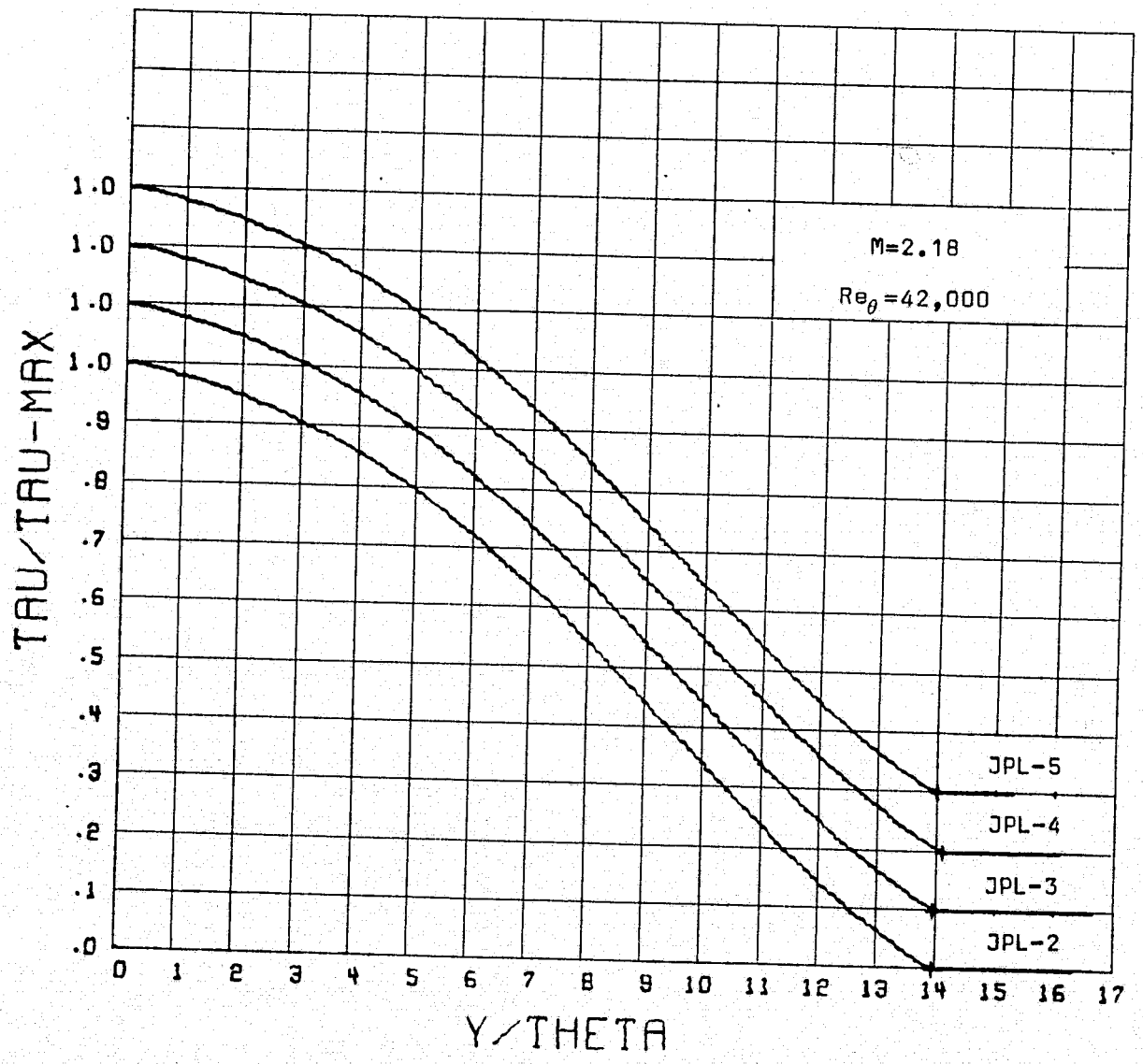

Figure A44. Shear Stress Distribution.

Nomenclature

Symbol	Equation	Meaning
c	(19)	constant in wall law (5.0)
C_f	(7)	local friction coefficient
C_p	(59)	pressure coefficient for Preston tube
D	(52)	diameter of Preston tube
$f(y^+)$	(40)	function in wall law
$f_2(T')$	(54)	function of reference temperature
F_f	(62)	scaling function for C_f
F_θ	(63)	scaling function for Re_θ
H	(6)	boundary-layer profile form parameter
m	(14)	function of Mach number
M_p	(53)	pressure Mach number for Preston tube
M_τ	(58)	friction Mach number for Preston tube
MOMB	(A3)	measure of momentum balance
P,Q	(30),(31)	definite integrals of velocity profile
r	(2)	temperature recovery factor (0.885)
Re_D	(52)	Reynolds number based on D
Re_θ		Reynolds number based on θ
u,v		streamwise and normal velocity components
u_τ	(15)	friction velocity
U	(25)	dimensionless velocity scaled according to Van Driest

Nomenclature (Cont.)

Symbol	Equation	Meaning
x,y		streamwise and normal coordinates
Y	(20)	distance from wall in outer variables
β	(A1)	pressure-gradient parameter
δ		boundary-layer thickness
δ^*	(4)	boundary-layer displacement thickness
θ	(5)	boundary-layer momentum thickness
$\varkappa$	(9)	Kármán constant (0.41)
μ		viscosity
ν		kinematic viscosity
Π	(19)	strength of wake component
τ		shearing stress

Subscripts

$( )_e$	edge or external value
$( )_o$	stagnation value
$( )_w$	wall value

Superscripts

$( )^i$	value for incompressible flow
$( )'$	value at effective temperature
$( )^+$	value made dimensionless with u_τ, ν_w
$( )^*$	value for Van Driest scaling