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DEPARTMENT OF ELECTRICAL ENGINEERING**

**NUMBER THREE**



SHADOWGRAM OF A SUPERSONIC JET (MACH NUMBER  $U/a_1 = 1.70$ ) AROUND A CONE  
OF  $20^\circ$  SEMI-APEX ANGLE, INCLINED TO THE DIRECTION OF THE STREAM BY  $5^\circ$ .

*By courtesy of Professor R. W. Ladenburg and his collaborators of the  
Palmer Physical Laboratory, Princeton University.*

MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF ELECTRICAL ENGINEERING, CENTER OF ANALYSIS

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# Tables of Supersonic Flow Around Yawing Cones

BY THE STAFF OF THE COMPUTING SECTION  
CENTER OF ANALYSIS

Under the direction of  
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CAMBRIDGE, MASSACHUSETTS

1947



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## INTRODUCTION

In the first volume of these Reports<sup>1</sup> a discussion and tables have been given describing the properties of a supersonic flow around cones when the direction of the stream is exactly parallel to the axis of the solid. Such conditions can be realized experimentally, for instance, in a wind tunnel where a model exposed to the stream can be rigidly maintained in a fixed position, but *not* in the much more important practical case of a solid travelling at supersonic speed through air at rest: for any actual projectile in free flight will necessarily yaw, and the yawing motion superposed upon ordinary translation will bring about deviations from a purely axial flow, the amount of which must be investigated. If the missile is reasonably stable, its yaw may be expected to remain small; and the possibility of modifying an axial flow by appropriate perturbation methods to account for the effects of a small yaw suggests itself.

An approximate method along these lines, based on the assumption of isentropy and irrotationality of the stream around a slightly yawing cone has been developed by Tsien,<sup>2</sup> and a more refined method, based, however, on similar simplifying assumptions, has later been given by Sauer.<sup>3</sup> With the outbreak of the recent war the interest in the flow of air around yawing conical-headed projectiles became at once acute and stimulated renewed attacks at more general types of solution of the underlying hydrodynamical problem. As a result, an investigation based on less restrictive simplifying assumptions has been produced by Karush and Critchfield,<sup>4</sup> and their method was later greatly perfected by Stone.<sup>5</sup> In January 1945, an advance version of Stone's work was brought to the writer's attention by Dr. Raymond J. Seeger, then of Section Re2c of the Bureau of Ordnance of U.S. Navy Department, with the request that its consequences be investigated quantitatively. The project was subsequently approved by Commander Charles C. Bramble, then acting as the liaison officer between the U.S. Naval Proving Ground at Dahlgren, Virginia, and our group. A substantial part of the results obtained in the course of this investigation in the years 1945-47 is now being presented in this volume. Since the hydrodynamical theory which was used as a basis for our computations has, however, not yet been made public, it seems appropriate to open this book with a brief outline of the theory and a discussion of its merits and limitations. In what follows such an outline will be given.

### EQUATIONS OF THE PROBLEM

Consider (cf. Fig. 1) a rectangular system of coordinates (1, 2, 3), where  $r, \theta, \phi$  denote the usual spherical polars. The equation of a circular cone with the vertex at the origin, and the axis making an angle  $\epsilon$  with the coordinate axis (1) can be expressed as

$$r \cos \theta \cos \epsilon + r \sin \theta \sin \epsilon \cos \phi = r \cos \theta, \quad (1)$$

where  $\theta_0$  denotes the semi-apex angle of the solid cone. Let us, in what follows, consider the angle of yaw  $\epsilon$  to be a quantity so small that its squares and all higher powers can be ignored. To this order of accuracy the equation (1) of the cone can be reduced to

$$\theta = \theta_0 + \epsilon \cos \phi + \dots, \quad (1.1)$$

and our problem will be to specify the properties of a supersonic air stream around such a cone to the same degree of approximation.

Let, as usual,  $p$  and  $\rho$  denote the pressure and density of the gas at any point of the flow. The equations

1. *Supersonic Flow of Air around Cones*, Massachusetts Institute of Technology, Cambridge, Mass., 1947.
2. *Journ. Aero. Sci.*, 5, 490, 1938.
3. *Zeitschr. f. Luftfahrtforschung*, 19, 148, 1942.
4. *The Pressure on a Cone moving with Small Yaw at High Velocity*, NDRC Report Div. A, 1944.
5. *The Aerodynamics of a Slightly Yawing Supersonic Cone*, NDRC Report Div. 1, 1944. The writer understands from a recent letter by Dr. Stone that a full-dress version of his theory may soon be published in a scientific periodical.

TABLES OF SUPERSONIC FLOW ABOUT YAWING CONES

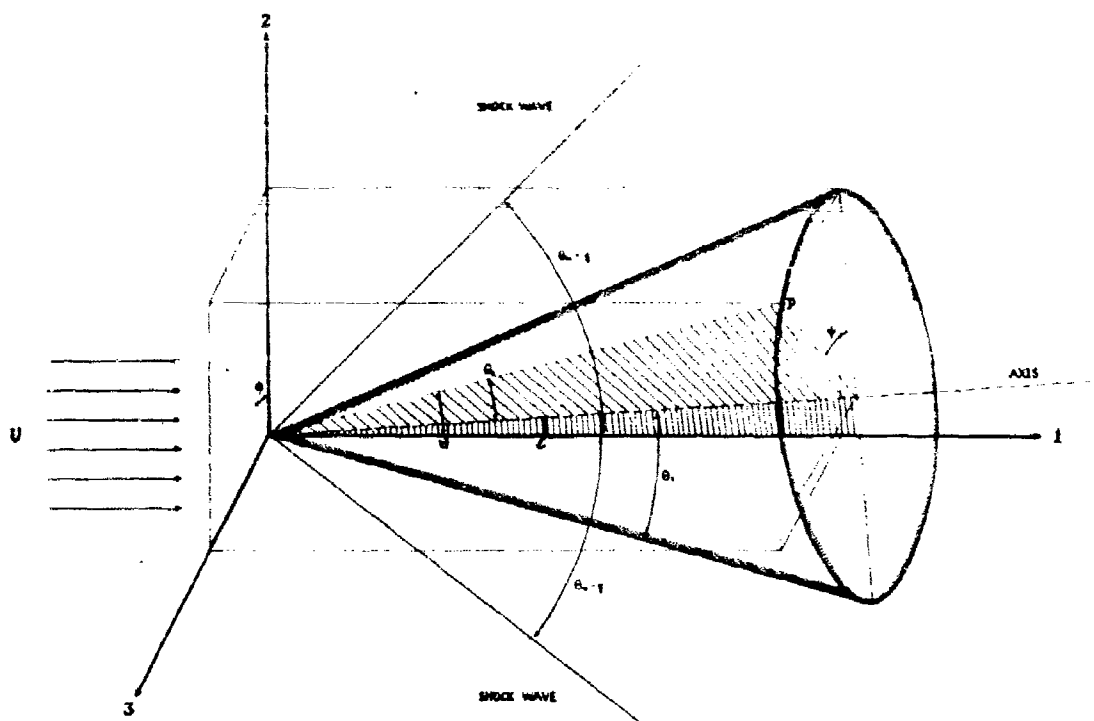


FIG. 5. (Continued)



TABLES OF SUPERSONIC FLOW AROUND YAWING CONES

of motion of a perfect fluid in a steady state then assume the form

$$\left. \begin{aligned} u \frac{\partial u}{\partial r} + \frac{v}{r} \frac{\partial u}{\partial \theta} + \frac{w}{r \sin \theta} \frac{\partial u}{\partial \phi} + \frac{1}{\rho} \frac{\partial p}{\partial r} - \frac{r^2 + z^2}{r} &= 0, \\ u \frac{\partial v}{\partial r} + \frac{v}{r} \frac{\partial v}{\partial \theta} + \frac{w}{r \sin \theta} \frac{\partial v}{\partial \phi} + \frac{1}{\rho r} \frac{\partial p}{\partial \theta} + \frac{ur - v^2 \cot \theta}{r} &= 0, \\ u \frac{\partial w}{\partial r} + \frac{v}{r} \frac{\partial w}{\partial \theta} + \frac{w}{r \sin \theta} \frac{\partial w}{\partial \phi} + \frac{1}{\rho r \sin \theta} \frac{\partial p}{\partial \phi} + \frac{ur + rv \cot \theta}{r} &= 0, \end{aligned} \right\} \quad (2)$$

while the equation of continuity can be expressed as

$$\frac{\partial}{\partial r} (\rho r^2 u \sin \theta) + \frac{\partial}{\partial \theta} (\rho r v \sin \theta) + \frac{\partial}{\partial \phi} (\rho r w) = 0, \quad (3)$$

where  $u, v, w$  denote the velocity components in the direction of increasing  $r, \theta,$  and  $\phi$ . Let us seek now such solutions of these equations which are independent of  $r,$  and expand  $u, v, w$  as well as  $p$  and  $\rho$  in series of the form<sup>6</sup>

$$\left. \begin{aligned} u &= \bar{u} + \epsilon \sum_{n=0}^{\infty} x_n \cos n\phi + \dots \\ v &= \bar{v} + \epsilon \sum_{n=0}^{\infty} y_n \cos n\phi + \dots \\ w &= \epsilon \sum_{n=0}^{\infty} z_n \sin n\phi + \dots \\ p &= \bar{p} + \epsilon \sum_{n=0}^{\infty} \eta_n \cos n\phi + \dots \\ \rho &= \bar{\rho} + \epsilon \sum_{n=0}^{\infty} \xi_n \cos n\phi + \dots \end{aligned} \right\} \quad (4)$$

where  $\bar{u}, \bar{v}, \bar{p},$  and  $\bar{\rho}$  stand for the respective quantities characteristic of the purely axial flow, and  $x, y, z, \eta,$  and  $\xi$  specify the first-order effects of yaw. The velocity components  $\bar{u}$  and  $\bar{v}$  are known to satisfy the following differential equation

$$\frac{d^2 \bar{u}}{d\theta^2} + \bar{u} = \frac{a^2 (\bar{u} + \bar{v} \cot \theta)}{r^2 - a^2} \quad (5)$$

of Taylor and Maccoll,<sup>7</sup> where

$$\bar{v} = \frac{d\bar{u}}{d\theta}, \quad (6)$$

and

$$a^2 = \frac{1}{2} (\gamma - 1) (c^2 - \bar{u}^2 - \bar{v}^2)$$

denotes the square of the local velocity of sound;  $\gamma,$  the ratio of specific heats of the streaming gas; and  $c,$  the velocity which the gas would attain if allowed to expand adiabatically into a vacuum. As all barred quantities, also  $x, y, z, \eta,$  and  $\xi$  will similarly hereafter be supposed to be functions of  $\theta$  only, and their forms sought as solutions of ordinary differential equations with  $\theta$  as the independent variable. Inserting (4) in (2) and (3) we find

6. Justification for neglecting the sine terms in these Fourier expansions will be found in Stone's forthcoming paper on the subject. It should suffice here to say that such terms could not meet the appropriate boundary conditions on the cone.

7. Proc. Roy. Soc., A, 139, 278, 1935. Cf. also the introduction to volume 1 of these Reports.

indeed the new functions to be defined by

$$y_n = z_n', \quad (7)$$

$$\delta y_n' + (\delta'' + \delta)y_n + \delta x_n + \eta_n/\delta - \xi_n S'/\delta^2 = 0, \quad (8)$$

$$\delta z_n' + (\delta + \delta \cot \theta)z_n - \pi \eta_n/\delta \sin \theta = 0, \quad (9)$$

$$y_n' + \{\cot \theta + (\log \delta)'\} y_n + \delta x_n + \pi z_n \csc \theta + \delta(\xi_n/\delta)' = 0, \quad (10)$$

where accents denote differentiations with respect to  $\theta$ .

The equation of state relating  $p$  and  $\rho$  remains to be specified. If there were no yaw, the ratio  $p/\rho^\gamma$  should be constant everywhere behind the shock wave (if any), though different from that in front of it. The appearance of yaw will change this situation, since a shock wave would alter the entropy by amounts which vary with the angle of incidence and therefore with  $\theta$ . If, however, we agree to ignore the effects of viscosity and heat conduction in the flow behind the shock wave, it can be proved<sup>8</sup> that the flow will remain adiabatic at least for each individual air particle. Since the motion is assumed to be steady, the actual paths of the particles coincide with the mathematical streamlines; therefore, for small yaw, the equation of state along each streamline should sensibly reduce to

$$\frac{1}{p} \frac{\partial p}{\partial \theta} = \frac{\gamma}{\rho} \frac{\partial \rho}{\partial \theta}, \quad (11)$$

which is integrable with respect to  $\theta$ . If, ultimately, we insert in (11) the above expansions for  $p$  and  $\rho$ , we find that, to the first order in small quantities, the equation of state can be reduced to

$$\frac{\eta_n}{\delta} - \gamma \frac{\xi_n}{\delta} = d_n, \quad (12)$$

where  $d_n$  is a constant. Equations (7)–(10) and (12) together with their appropriate boundary conditions contain a complete specification of our problem.

The boundary conditions are, in general, the same as for a purely axial flow: namely, at the surface of the solid cone the normal velocity component must vanish, whereas at the shock wave the standard Rankine-Hugoniot conditions must be met. It can be shown that a requirement of disappearance of the normal velocity component at  $\theta = \theta_0$  is tantamount to a statement that, if

$$\pi = 1, \quad y_1 = 2\delta, \quad \text{while if} \quad \pi \neq 1, \quad y_n = 0. \quad (13)$$

It follows that, if equations (4) are to satisfy this requirement, all variables with subscripts other than 1 are identically zero. In consequence, all subscripts will hereafter be discarded. To the degree of accuracy we are working, the equation of the shock wave then assumes the form

$$\theta = \theta_0 + \alpha \cos \phi, \quad (14)$$

where  $\theta_0$  is the undisturbed shock-wave angle, and  $\alpha$  is an undetermined constant. Inserting this in the Rankine-Hugoniot shock-wave conditions (guaranteeing the continuity of the tangential velocity component, of energy, and of impulse) we find that, at  $\theta = \theta_0$ ,

$$\alpha = -x/(\delta + U \sin \theta), \quad (15)$$

$$x + z \sin \theta = 0, \quad (16)$$

$$2x \cot \theta + y + \delta \xi/\delta = 0, \quad (17)$$

$$-x \cot \theta + y + \eta/\delta = 0, \quad (18)$$

$$\alpha \{\delta(\log \delta)' + 4\delta/(\gamma + 1)\} + y(\delta + \rho \tan \theta) = 0, \quad (19)$$

where  $U$  denotes the velocity of the undisturbed stream in front of the shock wave.

8. Cf., for instance, Vamony, *Quart. of Appl. Math.*, 3, 29, 1945.

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### SOLUTION OF THE EQUATIONS

Equations (15)-(19) together with (13) specify the requisite boundary conditions of our problem. In order to proceed with its solution let us eliminate, in equation (8),  $y$  and  $\xi$  by means of (7) and (12); we obtain

$$\bar{u}x'' + (\bar{u}'' + \bar{u})x' + \bar{v}x + \frac{\bar{\eta}'}{\bar{\rho}} - \frac{\bar{p}'}{\gamma\bar{\rho}} \left\{ \frac{\bar{\eta}}{\bar{p}} - d \right\} = 0. \quad (20)$$

This equation can be integrated once and yields

$$\bar{v}x' + \bar{u}x + \frac{\bar{\eta}}{\bar{\rho}} + \frac{d}{\gamma-1} \frac{\bar{p}}{\bar{\rho}} + k = 0, \quad (21)$$

where  $k$  is a constant. If we set, in this equation,  $\theta = \theta_w$ , an insertion of (17), (18), and (19) into (21) proves that  $k=0$ . Hence,

$$\bar{v}x' + \bar{u}x + \frac{\bar{\eta}}{\bar{\rho}} + \frac{d}{\gamma-1} \frac{\bar{p}}{\bar{\rho}} = 0, \quad (22)$$

which represents an analogon to the Bernoulli equation, and could in fact have been derived from it.<sup>9</sup>

Next combine (9) and (22) to obtain a differential equation for  $x+z \sin \theta$  of the form

$$\bar{v}(x+z \sin \theta)' + \bar{u}(x+z \sin \theta) + \frac{d}{\gamma-1} \frac{\bar{p}}{\bar{\rho}} = 0. \quad (23)$$

This is a first-order linear equation whose integrating factor is  $(-\bar{v}^2 \sin^2 \theta)^{-1}$ ; its solution takes the form

$$x+z \sin \theta = \frac{d\sqrt{-\bar{v}\bar{\rho}} \sin \theta}{\gamma-1} \int_{\theta_w}^{\theta} \frac{\bar{p}d\theta}{-\bar{v}\bar{\rho}\sqrt{-\bar{v}\bar{\rho}} \sin \theta}, \quad (24)$$

where the limits of integration have been adopted so as to make, in accordance with (16),  $x+z \sin \theta$  vanish on the shock wave. Now equations (7), (12), (22), and (24) enable all unknowns other than  $x$  to be eliminated from (10). Going through the requisite and rather troublesome algebra we can ultimately rewrite (10) in the form

$$x''/d + A(x'/d) + B(x/d) + C = 0, \quad (25)$$

where

$$A = \cot \theta + \lambda[2\bar{u} + 3\bar{v} \cot \theta + (\gamma+1)\lambda\bar{v}(\bar{u} + \bar{v} \cot \theta)],$$

$$B = 1 - \cot^2 \theta + \lambda[\lambda(\gamma-1)\bar{u}(\bar{u} + \bar{v} \cot \theta) - \bar{v} \cot^2 \theta],$$

$$C = \frac{1 + \lambda\bar{v}}{(\gamma-1) \sin^2 \theta} \sqrt{-\bar{v}\bar{\rho}} \sin \theta \int_{\theta_w}^{\theta} \frac{1 d\theta}{-\bar{v}\bar{\rho}\sqrt{-\bar{v}\bar{\rho}} \sin \theta},$$

and

$$\lambda = \frac{\bar{v}}{a^2 - \bar{v}^2},$$

subject to the boundary conditions that, when  $\theta = \theta_w$ ,

$$\frac{x}{d} = -\frac{a^2}{\gamma(\gamma-1)(\bar{u} + \bar{v} \cot \theta)} \quad (26.0)$$

and

$$\frac{x'}{d} = \frac{2a^2 \cot \theta (2\bar{u} - \bar{v} \cot \theta)}{\gamma(\gamma^2-1)(\bar{u} + \bar{v} \cot \theta)^2} \quad (26.1)$$

whereas if  $\theta = \theta_s$ ,

$$x' = 2\bar{u}_s. \quad (27)$$

<sup>9</sup> Care being taken, however, to allow for the fact that the present flow is neither irrotational nor isentropic.

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Once equation (25) with the above boundary conditions has been integrated — numerically or otherwise — the solution of our problem is complete, for all other unknowns required for a unique description of the flow can be obtained from  $x$  or its derivatives by a series of purely algebraic operations. It transpires that the shock wave attached to a slightly yawing cone in supersonic flight will continue to be a circular cone, of the same apex angle as in the non-yaw case, but with a yaw  $\delta$  of its own, given by

$$\delta = \alpha \epsilon, \quad (26)$$

where

$$\alpha = \frac{a^2 d \cot \theta}{\gamma(\gamma-1)(\bar{u} + \theta \cot \theta)^2} = \frac{(\gamma+1)\bar{u}_1}{2\bar{u} - \theta \cot \theta} \frac{y'}{N_1}, \quad (28.1)$$

evaluated at  $\theta = \theta_0$ . Furthermore, it is evident that the plane of yaw of the shock wave will be the same as the plane of yaw of the cone.

The forces acting on a slightly yawing cone are all expressible in terms of  $\eta$ . In particular, the pressure at a point  $P(r, \theta_1 + \epsilon \cos \phi, \phi)$  of the cone can be written as

$$p = \hat{p}_1 + \eta_1 \epsilon \cos \psi, \quad (29)$$

where  $\psi$  (cf. Fig. 1) is the azimuthal angle measured from the plane of yaw around the axis of the cone. The normal force  $N_H$  on a cone of finite size, and the distance  $h_H$  from the vertex to the center of head pressure follow readily by integration: we obtain

$$N_H = \frac{\pi}{4} D l \eta_1, \quad (30)$$

and

$$h_H = \frac{2}{3} l \sec^2 \theta_1, \quad (31)$$

respectively, where  $D$  denotes the diameter of the base of the cone and  $l$ , the distance from the vertex to the base. The coefficient  $K_N$  of the force acting on the cone in the direction perpendicular to its motion is then defined by

$$K_N = \frac{N_H}{\rho_1 D^2 U^2 \sin \epsilon} = \frac{\pi}{8} \frac{\eta_1}{\rho_1 U^2} \cot \theta_1, \quad (32)$$

while the coefficient  $K_D$  of the head drag acting on the cone in the direction of its axis is found to have a value

$$K_D = \frac{\pi}{4} (\hat{p}_1 - p_1) D^2, \quad (33)$$

which is identical with that for a purely axial flow. In these equations  $p_1$  and  $\rho_1$  denote the pressure and density of undisturbed air in front of the shock wave.

It may be added parenthetically that the above equations (28) and (32) should continue to hold good as long as terms of the order of  $\epsilon^2$  and higher remain negligible. When squares of the angle of yaw are taken into account,<sup>10</sup> there arises a contribution, due to yaw, to the head drag, and the shock wave ceases to be a circular cone (its basis being defined by a curve of the sixth degree); but the yaw of the shock wave and the normal force coefficient remain unaffected.

### DESCRIPTION OF THE TABLES

Equation (25) given above represents the fundamental equation of our problem in much the same way as equation (5) has been our basis for investigations of axial supersonic flow. It is a second-order nonhomogeneous differential equation with variable coefficients, the solution of which cannot obviously be expected to be expressible in a finite number of terms. The problem for computation therefore consists in solving (25)

<sup>10</sup> These effects have also been investigated by Dr. Stone and are contained in a paper, now in manuscript, which the present writer was privileged to see in advance of publication.

## TABLES OF SUPERSONIC FLOW AROUND YAWING CONES

numerically for  $x/d$ , starting at  $\theta = \theta_0$  with the initial conditions (26) and integrating backwards until the solid cone is reached; the inner boundary condition (27) then determines the value of  $d$ . Once this has been accomplished and  $x$  with  $x'$  tabulated as functions of  $\theta$ , the remaining unknowns  $y$ ,  $z$ ,  $\eta$ , and  $\xi$  can, as already mentioned, be expressed in terms of  $x$  and  $x'$  by a series of purely algebraic operations. In more explicit terms, equation (7) asserts that  $y = x'$  and, by (24),

$$\frac{z}{d} = \frac{C \sin \theta}{1 + \lambda \delta} - \frac{x}{d \sin \theta}, \quad (34)$$

while (remembering that  $\beta/\rho = a^2/\gamma$ ) the "Bernoulli integral" (22) yields

$$\frac{\eta}{\beta} = -\frac{d}{\gamma - 1} - \frac{\gamma(2x + \theta x')}{a^2} \quad (35)$$

and, from the equation of state (12) it follows that

$$\gamma \frac{\xi}{\rho} = \frac{\eta}{\beta} - d.$$

In order to be able to integrate equation (25) numerically, we first have to evaluate its coefficients  $A$ ,  $B$  and  $C$  as functions of  $\theta$ . These coefficients are, in turn, known functions of the velocity components  $\bar{u}$  and  $\bar{\theta}$  of the corresponding non-yaw case, the values of which were published extensively in Volume I of these Reports. The coefficients  $A$  and  $B$  are purely algebraic functions of  $\bar{u}$  and  $\bar{\theta}$ , while  $C$  involves an additional quadrature.<sup>11</sup> Tables of all three coefficients have been prepared on the basis of the velocity components  $\bar{u}$  and  $\bar{\theta}$  which themselves were computed to six decimal figures, and the integrations of (25) for  $x/d$  carried out to five figures. The remaining unknowns  $y$ ,  $z$ ,  $\eta$ , and  $\xi$  were then computed from equations (7), (34), (35), and (12), and eventually rounded off (in most cases) to four decimal figures which are regarded to be reliable within one unit of the last place. More decimals were retained only in certain solutions for slender cones where, in the majority of values given in some columns, the decimal point was followed by one or more zeros.

Part I of this volume, which follows the introduction, contains the results of 160 such integrations, carried out for a value of  $\gamma = 1.405$  which appears to be the best existing approximation to the ratio of specific heats of dry air. It includes 12 groups of integrations for cones of semi-apex angles ranging from  $5^\circ$  to  $50^\circ$ ; and within each group  $\bar{u}_1/c$  increases in regular increments from 0.3, which is well within the domain of the "second" solutions of equation (5)<sup>12</sup> (marked with "S" following the particular value of the Mach number  $U/a_1 = M$  in the heading of a table), up to the limit for which the Mach number becomes infinite. Successive columns of the individual tables contain, respectively, the quantities  $x$ ,  $y$ ,  $z$ ,  $\eta/\beta$ , and  $\xi/\rho$ , by means of which the actual velocity components  $u$ ,  $v$ ,  $w$ , the pressure  $p$ , and the density  $\rho$  at any point between a slightly yawing cone in supersonic flight and its shock wave can be found from equations (4). As the velocity components  $\bar{u}$  and  $\bar{\theta}$  in Volume I of these Reports, also the present quantities  $x$ ,  $y$ , and  $z$  have been expressed in terms of the velocity  $c$  which the air would attain if allowed to expand adiabatically into a vacuum. The absolute value of  $c$ , for a given stream, can easily be found from the equation

$$c^2 = U^2 + \frac{2a_1^2}{\gamma - 1}, \quad (36)$$

where  $U$  denotes, as before, the velocity of the undisturbed stream (equal to the actual speed of a cone through air) and  $a_1$ , the velocity of sound in the undisturbed stream which, for perfect gas, is likewise a known function of absolute temperature. The absolute values of  $x$ ,  $y$ , or  $z$  at any point behind the shock wave may then be found by multiplying the tabulated non-dimensional quantities by the absolute value of  $c$  following from the above equation (36) and appropriate to the given particular case.

11. A check on this quadrature is afforded by the requirement (based on equation (23)) that, on the cone,

$$C = -\frac{\sin^2 \theta_0}{\gamma - 1} \left( \frac{\bar{x}}{\rho a_1} \right)_0 = \frac{\sigma^2 - \bar{u}_1^2}{2\gamma \bar{u}_1 \sin^2 \theta_0}.$$

12. For a discussion of the meaning of the "first" and "second" solutions of the introduction to Volume I of these Reports.

## TABLES OF SUPERSONIC FLOW AROUND YAWING CONES

A selection of the interval of tabulation for all solutions presented in Part I has been guided by the desire to enable the user to interpolate  $\theta$ -wise for intermediate entries of any tabulated quantity with the aid of proportional parts alone. In order to make this possible, the second differences of all tabulated quantities have, in general, been kept under 20 units of the last place by a suitable choice of interval. In consequence, the errors committed by a linear interpolation between any two neighboring entries should not, in general, exceed one unit of the last tabulated place.<sup>13</sup> The interval of tabulation as shown in the tables does not, therefore, necessarily correspond to the one in which the integration was originally carried out. In preparing the tables for publication the columns of all quantities were, after their evaluation, differenced mechanically using two National Cash machines by a technique described by Comrie<sup>14</sup> as a safeguard against any accidental error. After all obvious slips had thus been eliminated, the entries were punched on cards (the line for each  $\theta$  on a separate card), tabulated, and proofread with greatest care against the original work sheets. The corrected sets of cards were then printed by an I.B.M. tabulator on prepared forms, and tables eventually reproduced by photo-offset.

The data presented in Part I permit one to determine the velocity, pressure and density of air at any point between a slightly yawing cone in supersonic flight and its shock wave. A comprehensive summary of the principal physical characteristics of these solutions is given in Part II, the successive columns of which indicate: (1), the adopted velocity component  $\bar{u}$ , along the solid surface and expressed in terms of  $c$ ; (2) and (3), the corresponding semi-apex angle  $\theta_s$  of the shock wave and the Mach number  $U/a_1 = M$ ; (4), the value of  $d$  occurring in the equation of state (12) and specifying, incidentally, the amount of entropy change across the streamlines; (5), the shock-to-cone yaw ratio  $\delta/\epsilon$  as defined by equation (28.1); (6), the coefficient of head drag  $K_D$  as defined by equation (33); and (7), the coefficient of normal drag  $K_N$  following from equation (32). The values given in columns (1)–(5) are identical with those already published in Part II of Volume 1 of these Reports — save for those few lines where the values of  $\bar{u}$ , in Volume 1 are prefixed with an asterisk. The respective integration of axial flow, carried out to only five decimal figures for Volume 1, was subsequently done over to six decimals for the purpose of yaw, and the outcome indicated sometimes a slight change in the formerly published values of  $\theta_s$  and (or)  $M$ . As the reader can verify by direct comparison, such changes turned out to be barely significant (one or two units of the last place) — which reaffirms our confidence in the statements, made in the introduction to Volume 1 of these Reports, concerning the general accuracy of our work. Column (6), containing the values of head drag  $K_D$ , calls for an additional word of explanation. This quantity has also been published before in Part II of Volume 1. For the present work it was multiplied by a normalizing factor of  $v/4$ , in accordance with equation (33), so as to make it consistent with the general ballistic usage and with values of  $K_N$  which have been normalized in the same way.

As has already been mentioned, a small yaw of a solid cone moving at supersonic speed will, to the first order in small quantities, make the cone of the shock wave yaw at an angle  $\delta$  which is generally different from  $\epsilon$ , and give rise to a force acting on the solid in the direction perpendicular to its motion. The subsequent Parts III and IV of the present volume contain detailed tabulations of  $\delta/\epsilon$  and of  $K_N$  in terms of  $\theta$ , and  $\bar{u}/c$ , while the diagrams in the concluding Part V represent their variation graphically. The reader who wishes to look them up for a particular pair of  $\theta$ , and the Mach number  $M$  rather than  $\bar{u}$ , may do so with the aid of a conversion table in Part III of Volume 1 of these Reports, giving  $\bar{u}$ , in terms of  $M$  and  $\theta$ . One feature of these tables and diagrams should be noted particularly: namely, the rapid rise of both  $\delta/\epsilon$  and  $K_N$  in the domain of the "second" solutions. The reader may recall that, for every semi-apex angle of a solid cone, two values of  $\bar{u}/c$  can be found which correspond to the same velocity of undisturbed stream in front of the shock wave. Solutions corresponding to the larger and smaller value of  $\bar{u}/c$  leading to identical velocities of free stream are customarily referred to, respectively, as the "first" and "second" solutions of our hydrodynamical problem. As long as we limit ourselves to a purely axial flow, both solutions are equally admissible from the mathematical point of view.

13. An exception to this arose in certain solutions in the immediate neighborhood of the solid cone, where any interpolation for  $s$  becomes very difficult. Instead of breaking down our tabulation to very small steps — which would have been entirely superfluous for all other columns — we decided to bridge the neighborhood of the cone at larger intervals. Such cases can be easily recognized by an odd group of three lines at the beginning of the respective tabulation.

14. *Suppl. to Journ. Roy. Astr. Soc.*, 3, 87, 1904.

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When, however, we come to consider the first-order effects of yaw, we are confronted with a different situation. For a given pair of  $\theta$ , and  $U/a_1$ , the values of both  $\delta/\epsilon$  and  $K_N$  corresponding to a "second" solution are found to be several times as large as those appropriate for the "first" one, and their disparity increases rapidly with increasing Mach number. Yet this is in discord with our initial assumption that the yawing shock wave should remain "close" to its non-yaw position, and makes it therefore questionable to what extent our theory is actually applicable to the "second" solutions. At any rate, there seems but little room for doubt that the "second" solutions for a supersonic flow, around yawing cones, characterized by fairly large Mach numbers must be unstable to a high degree. Whether or not this has anything to do with the fact that shock waves corresponding to these "second" solutions have never as yet been observed on spark-range photographs (where even a very small yaw, variable in time, might smooth out the pressure gradient across the shock and thus considerably blur its features), while their discoveries have from time to time been reported from various wind tunnels (where the model can be maintained in a fixed position) remains, however, to be clarified by future investigations.

### DISCUSSION

Before proceeding to discuss the applications of the foregoing theory to practical cases, a recapitulation of the physical assumptions involved in it may be in order. First, we have tacitly assumed that the Mach number  $U/a_1$  of free stream is high enough, and the semi-apex angle  $\theta$ , of the cone is small enough, for the non-yaw case to give rise to a conical shock wave attached to the vertex of the cone. This amounts to a requirement that  $U/a_1$  be somewhat larger than unity, and  $\theta$ , less than  $56^\circ$ , the exact limits being given in Volume 1 of these Reports. Secondly, the angle of yaw  $\epsilon$  is assumed to be small enough for quantities of the order of  $\epsilon^2$  and higher powers to be negligible, and the shock wave is assumed to be "close" to its non-yaw position (i.e., it is expected to deviate from the latter by amounts of the order of  $\epsilon$ ). Third, the flow relative to the cone is assumed to be steady, and its properties to be independent of  $r$  and constant over co-axial cones (not necessarily circular) passing through the same vertex. Lastly, the flow is supposed to be adiabatic along each streamline, though not isentropic over the whole field. That is, the entropy should be constant — except for a discontinuous increase at the shock wave — along each streamline, but will in general vary from one streamline to another. It can be shown that this amounts to a neglect of the effects of viscosity and heat conduction in the flow between the shock wave and the cone. The air will then behave like a perfect fluid and an ideal gas; and the standard Rankine-Hugoniot conditions should be obeyed at the shock wave. It should, however, be emphasized that at no stage of our analysis did we assume the flow to be irrotational.

The preceding theory is concerned with an idealized projectile consisting of an infinite cone which moves with a constant speed and yaw. Consider, instead, an actual projectile having a conical head. Its speed will be changing slowly, and its yaw may vary considerably, though the change in yaw is ordinarily slow when compared with the velocity of translation of the projectile. Under such circumstances, the flow of air around it can indeed be regarded as steady to a high degree of approximation, and to be very nearly the same as the one defined by our theory — provided only that it remains locally supersonic in the whole region between the cone and its shock wave.<sup>15</sup> Thus for an actual, fairly stable conical-headed projectile moving at a requisite supersonic speed and subject to a small yaw  $\epsilon$ , the shock wave should remain a circular cone of the same semi-apex angle  $\theta_0$  as if there were no yaw, but yawed at an angle  $\delta$ , proportional to  $\epsilon$  as given by equation (28.1) with respect to the direction of free stream.

This provides an experimental check on the theory. By means of spark photography, shadowgrams can be obtained which give, in effect, the projections of a missile in supersonic flight and of its accompanying shock wave upon the planes of strategically oriented photographic plates. Appropriate measurements of a pair of such plates can then disclose the instantaneous plane and magnitude of the yaw. Careful investigations of such photographs, taken at the spark range of Free Flight Aerodynamics Branch of the Ballistic Research Laboratories, U.S. Army Proving Ground at Aberdeen, Maryland, of a  $15^\circ$ -cone characterized by the Mach

15. Without this reservation, the effect of the truncation of the cone might be propagated downstream and thus modify the flow around the conical head.

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number  $U/a_1 = 1.80$  by I. E. Segal disclosed the agreement between theory and observations to be very satisfactory for values of  $\epsilon$  up to at least  $5^\circ$ . A more extensive series of observations aiming at an observational verification of Stone's theory was recently undertaken by Professor R. W. Ladenburg and his collaborators at the Palmer Physical Laboratory of Princeton University. The Princeton investigators used a supersonic jet of compressed air, characterized by a Mach number of 1.70, and experimented with three different cones of semi-apex angles of  $10^\circ$ ,  $20^\circ$ , and  $30^\circ$ , exposed to the supersonic stream at various angles of inclination (see the Frontispiece). In a memorandum report, kindly communicated to the writer in advance of publication, Ladenburg and Bernhader concluded that . . . "Qualitatively, the experimental results confirm the theoretical expectation," while "The quantitative agreement is . . . within the relatively large uncertainties of the measurements." On the strength of this observational evidence, from both the spark range and the laboratory, we contend that Stone's non-linear theory of a supersonic flow around slightly yawing cones appears to provide quite a close description of the respective physical phenomena — certainly the best one available so far — and the numerical data presented in this volume should enable one to compare its consequences with the observations for any particular case with a minimum of difficulty.

A knowledge of these data puts us, incidentally, in a position to determine quantitatively the error of earlier representations of the supersonic flow around yawing cones based on linearized equations, of which the one by Tsien<sup>3</sup> appears to be the simplest. Tsien, in effect, extended the von Kármán-Moore's linearized approximation to non-axial flow around slender cones to the order of accuracy to which squares and higher powers of  $\epsilon$  can be ignored. The details of his investigation cannot be reproduced here; but in what follows we shall briefly compare its consequences with the outcome of Stone's non-linear theory. We found that, according to the latter, the first-order yaw terms should cause the axis of the shock wave to depart from the axis of the solid, and give rise to a force acting on the cone in a direction perpendicular to its motion. The former phenomenon has no counterpart in Tsien's theory, since the linearized equations do not account for the existence of any shock wave. For the normal-force coefficient acting on a slightly yawing slender cone Tsien derived, however, an expression of the form

$$K_N = \frac{\pi}{4} \left\{ 1 + \frac{\cosh^{-1} f}{\sqrt{f^2 - 1}} \right\}^{-1} \quad (37)$$

where

$$f = \frac{\cot \theta_s}{\sqrt{(U/a_1)^2 - 1}}$$

The following tabulation shows a comparison of Tsien's values of  $K_N$  as computed from the foregoing equation (37) with those evaluated from (32) and based on the outcome of our numerical integrations of Stone's non-linear equations for three different cones and a fairly wide range of Mach numbers:

$\bar{u}_1$	$U/a_1$	$K_N$ (Tsien)	$K_N$ (Stone)	Error
$\theta_s = 10^\circ$				
0.4	1.000	0.771	0.715	-7.8%
0.5	1.408	0.731	0.719	-1.7%
0.6	1.817	0.684	0.715	4.3%
0.7	2.227	0.626	0.715	12.5%
0.8	2.636	0.545	0.718	24.1%
0.9	3.042	0.400	0.733	44.9%
0.96	3.100	(imaginary)	0.762	—



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$\theta_1 = 15^\circ$				
0.4	1.192	0.731	0.668	-9.4%
0.45	1.538	0.699	0.673	-3.8%
0.5	1.514	0.665	0.675	1.5%
0.6	1.954	0.595	0.679	12.7%
0.7	2.579	0.511	0.687	25.6%
0.8	3.634	0.410	0.701	41.5%
0.95	16.855	(imaginary)	0.742	—
$\theta_1 = 20^\circ$				
0.35	1.217	0.662	0.615	-12.2%
0.45	1.467	0.621	0.629	1.3%
0.55	1.871	0.586	0.640	16.2%
0.65	2.443	0.448	0.652	31.3%
0.75	3.369	(imaginary)	0.667	—
0.85	5.546	(imaginary)	0.686	—

A glance at this tabulation reveals that the linearized theory would, on the whole, be a very poor substitute for the more correct non-linear one. In particular, according to the linearized theory the coefficient  $K_M$  should decrease with the increasing Mach number and vanish when  $U/a_1 = \cos \theta_1$ , whereas according to the non-linear theory  $K_M$  behaves in exactly the opposite way and would not vanish even should the Mach number become infinite. The departures from linearity — or, in physical language, from isentropy and irrotationality — thus turn out to exert a significant influence on the supersonic flow around yawing cones, and this influence is found to increase very rapidly with increasing velocity of the free stream.

ACKNOWLEDGMENTS

The work contained in this volume represents further results of the numerical investigations carried out by the Computing Section of the Center of Analysis of Massachusetts Institute of Technology from 1945 up to the present. As was the case with our Tables of axial flow around cones, published in Volume 1 of these Reports, also this entire work has been performed under the auspices of the Bureau of Ordnance, United States Navy Department, under contracts N 178a-2946, NOrd 9107 (Task D), and NOrd 9169 (Task B) with Professor (then Commander and later Captain, USNR) Charles C. Bramble of the U.S. Naval Proving Ground at Dahlgren and Professor (then Commander, USNR) Willard E. Bleick of the Bureau of Ordnance as the liaison officers, and since July, 1946, with Commander John H. Carmichael, USN, acting in the same capacity. It is a pleasure to express to these gentlemen our sincere appreciation of their interest and wholehearted support in this work.

The shadowgram of a yawing cone exposed to a supersonic jet — facing the title page — illustrating vividly the nature of physical phenomena described in this volume was taken at the Palmer Physical Laboratory of Princeton University, and was made available to us through the courtesy of Professor Rudolf W. Ladenburg.

It is a difficult task to give all members of our staff proper credit for their share in the present undertaking. At the inception of this work a prominent part in the computations was taken by Dr. Luigi G. Jacchia, Miss Jeannie R. B. Carmichael, Dr. Marjorie Williams of Smith College, and Dr. Alice H. Farnsworth of Mt. Holyoke College, then members of our staff. Later on, as the work drifted gradually into more routine channels, the majority of integrations presented in Part I of this volume was carried out by Miss Laurelle Baron, Miss Dorothy C. Fisher, Mrs. Margaret D. Hill, Miss Katherine E. Kavanagh, Miss Beatrice Robbins, and Miss Nancy K. Rodier, under the leadership of Miss Fisher and Mrs. Hill. A large part of routine computations involved in the preparation of tables of the coefficients  $A$ ,  $B$ , and  $C$  of the fundamental equation (25) was

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carried out on I.B.M. machines under the able supervision of Miss Hester L. Bassett, who also took charge of the tabulation and printing of all solutions presented in this volume; while the painstaking proofreading at all stages of preparation of the manuscript was the principal responsibility of Mr. Francis G. Davoren. Miss Virginia K. Brenton did most of the work on Part II, while the tables given in Parts III and IV represent the contributions of Dr. Jacchia. The diagrams presented in the concluding Part V were prepared jointly by Miss Brenton and Dr. Jacchia. All members of our staff contributed in various degrees to the editorial preparation of this volume; although it is appropriate to emphasize, in this connection, the particular contributions of Miss Virginia K. Brenton, Miss Katherine E. Kavanagh, and Mr. Francis G. Davoren, to whose exacting care the final form of the manuscript owes a great deal.

Last but not least, the writer would like to express his sincere thanks to Dr. Arthur H. Stone of the Geophysical Laboratory, Carnegie Institution in Washington, and now of Trinity College in Cambridge, England, for making the manuscript of his theory available to us in advance of publication and for many helpful suggestions — both personally and in correspondence — which materially facilitated our task. Grateful acknowledgments are also due to the academic authorities of the Massachusetts Institute of Technology for putting un- sparingly at our disposal all facilities necessary to carry the work to this end.

While every effort has been made to check all data presented in this volume as thoroughly as possible, it is perhaps too much to hope that the whole work could be entirely free from errors. The reader who may discover any is requested to communicate with us so that the necessary corrections can be made. Any such information will be greatly appreciated.

ZDENĚK KOPAL

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June, 1947.

## TABLES OF SUPERSONIC FLOW OF AIR AROUND SLIGHTLY YAWING CONES

These tables give, successively, the contributions  $x$ ,  $y$ ,  $z$  to the velocity components  $u$ ,  $v$ ,  $w$  taken in the direction of increasing spherical polar coordinates  $r$ ,  $\theta$ ,  $\phi$ , due to a small yaw, as functions of the angular variable  $\theta$ ; and the corresponding proportional changes in pressure ( $\eta/\bar{p}$ ) and density ( $\xi/\bar{\rho}$ ) due to the same cause.

The velocities are expressed in terms of the velocity which the air in front of the shock wave would attain if allowed to expand adiabatically into a vacuum.

A sign of (S) following the value of the Mach number  $M = U/a_1$  in the headings indicates a 'second' solution.

$$\theta_0 = 5^\circ \quad \bar{u}_0 = 0.30 \quad M = 1.4593(8) \quad \theta_w = 89.612$$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
5.000	-0.0969	0.6000	1.1271	0.2187	0.1548
5.125	-0.0957	0.5595	1.0855	0.2213	0.1566
5.250	-0.0945	0.5219	1.0468	0.2232	0.1580
5.375	-0.0934	0.4869	1.0107	0.2246	0.1590
5.500	-0.0924	0.4543	0.9771	0.2255	0.1596
5.625	-0.0914	0.4239	0.9457	0.2260	0.1599
5.750	-0.0905	0.3954	0.9163	0.2261	0.1600
5.875	-0.0897	0.3687	0.8887	0.2259	0.1599
6.000	-0.0889	0.3437	0.8628	0.2254	0.1596
6.125	-0.0882	0.3202	0.8385	0.2247	0.1591
6.250	-0.0875	0.2982	0.8156	0.2238	0.1584
6.375	-0.0869	0.2774	0.7940	0.2227	0.1576
6.500	-0.0863	0.2578	0.7737	0.2215	0.1568
6.625	-0.0857	0.2393	0.7544	0.2202	0.1559
6.750	-0.0952	0.2218	0.7362	0.2188	0.1549
6.875	-0.0847	0.2053	0.7190	0.2173	0.1538
7.000	-0.0843	0.1897	0.7027	0.2157	0.1527
7.125	-0.0839	0.1749	0.6872	0.2141	0.1515
7.250	-0.0835	0.1608	0.6725	0.2123	0.1502
7.375	-0.0832	0.1475	0.6586	0.2106	0.1490
7.50	-0.0829	0.1348	0.6453	0.2088	0.1477
7.75	-0.0824	0.1113	0.6206	0.2052	0.1452
8.00	-0.0820	0.0900	0.5982	0.2016	0.1426
8.25	-0.0816	0.0706	0.5777	0.1979	0.1400
8.50	-0.0813	0.0529	0.5590	0.1942	0.1374
8.75	-0.0811	0.0367	0.5419	0.1906	0.1348
9.00	-0.0810	0.0219	0.5261	0.1870	0.1323
9.25	-0.0809	0.0083	0.5116	0.1835	0.1298
9.50	-0.0809	-0.0043	0.4982	0.1801	0.1273
9.75	-0.0810	-0.0157	0.4858	0.1767	0.1249
10.00	-0.0811	-0.0264	0.4743	0.1734	0.1226
10.25	-0.0812	-0.0363	0.4636	0.1702	0.1203
10.50	-0.0814	-0.0455	0.4537	0.1671	0.1181
10.75	-0.0816	-0.0540	0.4444	0.1641	0.1159
11.00	-0.0819	-0.0619	0.4357	0.1611	0.1138
11.25	-0.0822	-0.0693	0.4276	0.1582	0.1117
11.50	-0.0825	-0.0762	0.4200	0.1554	0.1097
11.75	-0.0828	-0.0827	0.4129	0.1527	0.1078
12.00	-0.0832	-0.0887	0.4062	0.1501	0.1060
12.25	-0.0836	-0.0943	0.3999	0.1476	0.1043
12.5	-0.0840	-0.0996	0.3940	0.1450	0.1023
13.0	-0.0849	-0.1092	0.3831	0.1402	0.0989
13.5	-0.0859	-0.1177	0.3734	0.1357	0.0957
14.0	-0.0870	-0.1252	0.3647	0.1315	0.0927
14.5	-0.0881	-0.1319	0.3569	0.1275	0.0899

$\theta_0 = 5^\circ$     $U_0 = 0.30$     $M = 1.4593(8)$     $G_1 = 89.612$

$\theta$	x	y	z	$\eta/\rho$	$\epsilon/\rho$
15.0	-0.0293	-0.1379	0.3498	0.1237	0.0872
15.5	-0.0305	-0.1432	0.3433	0.1201	0.0846
16.0	-0.0318	-0.1479	0.3374	0.1167	0.0822
16.5	-0.0331	-0.1521	0.3321	0.1134	0.0799
17.0	-0.0344	-0.1559	0.3272	0.1103	0.0777
17.5	-0.0358	-0.1594	0.3227	0.1074	0.0756
18.0	-0.0372	-0.1625	0.3185	0.1046	0.0736
18.5	-0.0386	-0.1652	0.3147	0.1019	0.0717
19.0	-0.1001	-0.1676	0.3112	0.0993	0.0698
19.5	-0.1016	-0.1696	0.3075	0.0969	0.0681
20.0	-0.1031	-0.1716	0.3048	0.0946	0.0665
20.5	-0.1046	-0.1736	0.3020	0.0924	0.0649
21.0	-0.1061	-0.1751	0.2994	0.0903	0.0634
21.5	-0.1076	-0.1764	0.2969	0.0883	0.0620
22.0	-0.1092	-0.1776	0.2946	0.0863	0.0606
22.5	-0.1108	-0.1787	0.2924	0.0844	0.0592
23.0	-0.1123	-0.1797	0.2904	0.0826	0.0579
23.5	-0.1138	-0.1805	0.2885	0.0809	0.0567
24.0	-0.1154	-0.1812	0.2867	0.0792	0.0555
24.5	-0.1170	-0.1817	0.2850	0.0776	0.0544
25.0	-0.1186	-0.1821	0.2834	0.0761	0.0533
25.5	-0.1202	-0.1825	0.2819	0.0746	0.0522
26.0	-0.1218	-0.1828	0.2805	0.0731	0.0512
26.5	-0.1234	-0.1830	0.2791	0.0717	0.0502
27.0	-0.1250	-0.1831	0.2778	0.0704	0.0493
28.0	-0.1262	-0.1831	0.2755	0.0679	0.0475
29.0	-0.1274	-0.1828	0.2733	0.0655	0.0458
30.0	-0.1285	-0.1822	0.2713	0.0632	0.0442
31.0	-0.1297	-0.1814	0.2695	0.0611	0.0427
32.0	-0.1309	-0.1805	0.2679	0.0591	0.0413
33.0	-0.1340	-0.1794	0.2664	0.0572	0.0399
34.0	-0.1371	-0.1781	0.2650	0.0555	0.0386
35.0	-0.1402	-0.1767	0.2638	0.0539	0.0375
36.0	-0.1433	-0.1751	0.2627	0.0523	0.0364
37.0	-0.1463	-0.1734	0.2616	0.0508	0.0353
38.0	-0.1493	-0.1716	0.2605	0.0494	0.0343
39.0	-0.1523	-0.1696	0.2595	0.0480	0.0333
40.0	-0.1553	-0.1675	0.2586	0.0467	0.0324
41.0	-0.1582	-0.1654	0.2578	0.0455	0.0315
42.0	-0.1611	-0.1632	0.2570	0.0443	0.0307
43.0	-0.1639	-0.1608	0.2563	0.0431	0.0299
44.0	-0.1667	-0.1583	0.2556	0.0420	0.0291
45.0	-0.1694	-0.1557	0.2550	0.0410	0.0284
46.0	-0.1721	-0.1531	0.2544	0.0400	0.0277
47.0	-0.1747	-0.1504	0.2538	0.0391	0.0270

$\theta_0 = 5^\circ$     $\mu_0 = 0.30$     $M = 1.4593(6)$     $C_0 = 89.618$

$\theta$	$x$	$y$	$z$	$\sqrt{r}$	$r/p$
48	-0.1873	-0.1476	0.2532	0.0382	0.0263
49	-0.1899	-0.1448	0.2527	0.0373	0.0257
50	-0.1924	-0.1419	0.2522	0.0365	0.0251
51	-0.1948	-0.1389	0.2517	0.0357	0.0246
52	-0.1972	-0.1358	0.2513	0.0349	0.0241
53	-0.1996	-0.1327	0.2509	0.0342	0.0236
54	-0.2019	-0.1296	0.2505	0.0335	0.0231
55	-0.2041	-0.1264	0.2501	0.0328	0.0226
56	-0.2063	-0.1231	0.2497	0.0322	0.0221
57	-0.2084	-0.1198	0.2493	0.0316	0.0216
58	-0.2105	-0.1164	0.2489	0.0310	0.0212
59	-0.2125	-0.1129	0.2486	0.0304	0.0208
60	-0.2144	-0.1094	0.2483	0.0298	0.0204
61	-0.2163	-0.1059	0.2480	0.0293	0.0200
62	-0.2181	-0.1024	0.2477	0.0288	0.0196
63	-0.2199	-0.0988	0.2474	0.0283	0.0192
64	-0.2216	-0.0951	0.2471	0.0278	0.0189
65	-0.2232	-0.0914	0.2468	0.0273	0.0186
66	-0.2247	-0.0877	0.2466	0.0269	0.0183
67	-0.2262	-0.0839	0.2463	0.0265	0.0180
68	-0.2277	-0.0801	0.2460	0.0261	0.0177
69	-0.2291	-0.0763	0.2458	0.0257	0.0174
70	-0.2304	-0.0724	0.2456	0.0254	0.0172
71	-0.2316	-0.0685	0.2453	0.0251	0.0170
72	-0.2327	-0.0646	0.2451	0.0248	0.0168
73	-0.2338	-0.0607	0.2449	0.0245	0.0166
74	-0.2348	-0.0567	0.2447	0.0242	0.0164
75	-0.2358	-0.0527	0.2445	0.0239	0.0162
76	-0.2367	-0.0487	0.2442	0.0237	0.0160
77	-0.2375	-0.0446	0.2440	0.0235	0.0158
78	-0.2383	-0.0406	0.2438	0.0233	0.0157
79	-0.2389	-0.0365	0.2436	0.0231	0.0156
80	-0.2395	-0.0324	0.2434	0.0229	0.0155
81	-0.2400	-0.0282	0.2432	0.0227	0.0154
82	-0.2405	-0.0240	0.2430	0.0226	0.0153
83	-0.2409	-0.0199	0.2428	0.0225	0.0152
84	-0.2412	-0.0158	0.2427	0.0224	0.0151
85	-0.2414	-0.0116	0.2425	0.0223	0.0150
86	-0.2416	-0.0074	0.2423	0.0222	0.0149
87	-0.2417	-0.0032	0.2421	0.0222	0.0149
88	-0.2417	0.0010	0.2419	0.0222	0.0149
89	-0.2417	0.0052	0.2417	0.0222	0.0149
89.618	-0.2416	0.0079	0.2416	0.0223	0.0150

$\theta_0 = 5^\circ$     $\bar{u}_0 = 0.35$     $M = 1.1816(8)$     $\theta_1 = 89.243$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
5.000	-0.0699	0.7000	0.8038	0.1928	0.1371
5.125	-0.0684	0.6642	0.7675	0.1966	0.1398
5.250	-0.0670	0.6309	0.7338	0.1997	0.1420
5.375	-0.0656	0.5999	0.7025	0.2021	0.1437
5.500	-0.0643	0.5711	0.6733	0.2039	0.1450
5.625	-0.0631	0.5442	0.6460	0.2052	0.1459
5.750	-0.0620	0.5190	0.6204	0.2061	0.1465
5.875	-0.0609	0.4954	0.5964	0.2066	0.1469
6.000	-0.0598	0.4732	0.5739	0.2069	0.1471
6.125	-0.0588	0.4524	0.5528	0.2068	0.1471
6.250	-0.0578	0.4329	0.5329	0.2065	0.1469
6.375	-0.0569	0.4145	0.5142	0.2060	0.1465
6.500	-0.0560	0.3971	0.4966	0.2054	0.1460
6.625	-0.0552	0.3807	0.4799	0.2046	0.1454
6.750	-0.0544	0.3652	0.4641	0.2036	0.1447
6.875	-0.0536	0.3506	0.4492	0.2025	0.1440
7.000	-0.0528	0.3368	0.4350	0.2013	0.1432
7.125	-0.0521	0.3237	0.4216	0.2001	0.1423
7.250	-0.0514	0.3112	0.4089	0.1988	0.1413
7.375	-0.0507	0.2994	0.3968	0.1974	0.1403
7.500	-0.0501	0.2881	0.3853	0.1960	0.1393
7.625	-0.0495	0.2774	0.3744	0.1945	0.1383
7.750	-0.0489	0.2672	0.3640	0.1930	0.1373
7.875	-0.0483	0.2575	0.3541	0.1915	0.1362
8.000	-0.0478	0.2483	0.3446	0.1900	0.1351
8.25	-0.0468	0.2310	0.3269	0.1868	0.1328
8.50	-0.0458	0.2153	0.3108	0.1836	0.1305
8.75	-0.0449	0.2009	0.2960	0.1804	0.1282
9.00	-0.0440	0.1877	0.2824	0.1773	0.1260
9.25	-0.0432	0.1755	0.2699	0.1742	0.1238
9.50	-0.0425	0.1643	0.2584	0.1711	0.1216
9.75	-0.0418	0.1540	0.2478	0.1680	0.1194
10.00	-0.0411	0.1444	0.2379	0.1650	0.1173
10.25	-0.0405	0.1355	0.2287	0.1621	0.1152
10.50	-0.0399	0.1273	0.2202	0.1592	0.1132
10.75	-0.0394	0.1196	0.2122	0.1564	0.1112
11.00	-0.0389	0.1124	0.2048	0.1537	0.1093
11.25	-0.0384	0.1057	0.1979	0.1511	0.1074
11.50	-0.0380	0.0995	0.1914	0.1485	0.1055
11.75	-0.0376	0.0936	0.1853	0.1460	0.1037
12.0	-0.0372	0.0882	0.1796	0.1435	0.1020
12.5	-0.0365	0.0782	0.1691	0.1387	0.0986
13.0	-0.0358	0.0693	0.1599	0.1342	0.0954
13.5	-0.0352	0.0614	0.1516	0.1300	0.0924
14.0	-0.0347	0.0544	0.1442	0.1260	0.0895

$\theta_0 = 5^\circ$     $U_0 = 0.35$     $M = 1.1815(8)$     $\theta_1 = 89.243$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
14.5	-0.0343	0.04812	0.1376	0.1222	0.0868
15.0	-0.0339	0.04245	0.1316	0.1186	0.0848
15.5	-0.0335	0.03734	0.1261	0.1152	0.0817
16.0	-0.0332	0.03271	0.1211	0.1119	0.0794
16.5	-0.0329	0.02851	0.1166	0.1088	0.0772
17.0	-0.0327	0.02469	0.1125	0.1058	0.0751
17.5	-0.0325	0.02122	0.1087	0.1030	0.0732
18.0	-0.0323	0.01803	0.1052	0.1003	0.0713
18.5	-0.0322	0.01511	0.1020	0.0978	0.0695
19.0	-0.0321	0.01243	0.0991	0.0954	0.0678
19.5	-0.0320	0.00997	0.0964	0.0931	0.0661
20.0	-0.0319	0.00771	0.0938	0.0909	0.0645
20.5	-0.0318	0.00563	0.0914	0.0887	0.0630
21.0	-0.0318	0.00371	0.0892	0.0866	0.0615
21.5	-0.0318	0.00193	0.0872	0.0846	0.0601
22.0	-0.0318	0.00028	0.0853	0.0827	0.0587
22.5	-0.0318	-0.00124	0.0835	0.0809	0.0574
23.0	-0.0318	-0.00265	0.0818	0.0792	0.0562
23.5	-0.0318	-0.00396	0.0802	0.0775	0.0550
24.0	-0.0319	-0.00518	0.0787	0.0759	0.0539
24.5	-0.0320	-0.00631	0.0773	0.0743	0.0528
25.0	-0.0320	-0.00735	0.0760	0.0728	0.0517
25.5	-0.0320	-0.00832	0.0748	0.0714	0.0507
26.0	-0.0321	-0.00923	0.0736	0.0700	0.0497
26.5	-0.0322	-0.01008	0.0725	0.0686	0.0487
27	-0.0323	-0.01086	0.0715	0.0673	0.0478
28	-0.0325	-0.01226	0.0695	0.0648	0.0460
29	-0.0327	-0.01347	0.0678	0.0623	0.0443
30	-0.0329	-0.01451	0.0662	0.0603	0.0428
31	-0.0332	-0.01541	0.0648	0.0582	0.0413
32	-0.0335	-0.01617	0.0635	0.0562	0.0399
33	-0.0338	-0.01682	0.0623	0.0544	0.0386
34	-0.0341	-0.01736	0.0612	0.0527	0.0374
35	-0.0344	-0.01781	0.0602	0.0511	0.0362
36	-0.0347	-0.01817	0.0593	0.0495	0.0351
37	-0.0350	-0.01846	0.0585	0.0480	0.0340
38	-0.0354	-0.01868	0.0577	0.0466	0.0330
39	-0.0357	-0.01883	0.0569	0.0452	0.0320
40	-0.0360	-0.01893	0.0562	0.0439	0.0311
41	-0.0363	-0.01898	0.0556	0.0427	0.0302
42	-0.0367	-0.01898	0.0550	0.0415	0.0294
43	-0.0371	-0.01893	0.0544	0.0404	0.0286
44	-0.0374	-0.01884	0.0539	0.0393	0.0278
45	-0.0377	-0.01871	0.0534	0.0382	0.0270
46	-0.0380	-0.01854	0.0530	0.0372	0.0263



$e_s = 5^\circ$     $U_s = 0.35$     $M = 1.1615(8)$     $\theta_s = 89.243$

$\theta$	x	y	z	$\gamma/\beta$	$\epsilon/\beta$
47	-0.0383	-0.01834	0.0526	0.0363	0.0256
48	-0.0386	-0.01811	0.0522	0.0354	0.0250
49	-0.0389	-0.01786	0.0518	0.0345	0.0244
50	-0.0392	-0.01758	0.0514	0.0336	0.0238
51	-0.0395	-0.01727	0.0510	0.0328	0.0232
52	-0.0398	-0.01693	0.0507	0.0320	0.0226
53	-0.0401	-0.01657	0.0504	0.0312	0.0221
54	-0.0404	-0.01619	0.0501	0.0305	0.0216
55	-0.0407	-0.01579	0.0498	0.0298	0.0211
56	-0.0410	-0.01537	0.0495	0.0291	0.0206
57	-0.0412	-0.01493	0.0492	0.0284	0.0201
58	-0.0415	-0.01448	0.0490	0.0277	0.0196
59	-0.0418	-0.01401	0.0488	0.0271	0.0191
60	-0.0420	-0.01352	0.0486	0.0265	0.0187
61	-0.0422	-0.01301	0.0484	0.0259	0.0183
62	-0.0425	-0.01249	0.0482	0.0254	0.0179
63	-0.0427	-0.01196	0.0480	0.0249	0.0176
64	-0.0429	-0.01141	0.0478	0.0244	0.0173
65	-0.0431	-0.01085	0.0476	0.0239	0.0169
66	-0.0432	-0.01028	0.0474	0.0234	0.0165
67	-0.0434	-0.00970	0.0472	0.0229	0.0162
68	-0.0436	-0.00911	0.0470	0.0225	0.0159
69	-0.0437	-0.00850	0.0469	0.0221	0.0156
70	-0.0439	-0.00788	0.0468	0.0217	0.0153
71	-0.0440	-0.00725	0.0467	0.0213	0.0150
72	-0.0441	-0.00662	0.0465	0.0209	0.0147
73	-0.0442	-0.00598	0.0463	0.0206	0.0145
74	-0.0443	-0.00532	0.0461	0.0203	0.0143
75	-0.0444	-0.00465	0.0460	0.0200	0.0141
76	-0.0445	-0.00397	0.0459	0.0197	0.0139
77	-0.0446	-0.00329	0.0458	0.0194	0.0137
78	-0.0447	-0.00260	0.0456	0.0192	0.0135
79	-0.0447	-0.00190	0.0455	0.0190	0.0134
80	-0.0447	-0.00119	0.0454	0.0188	0.0132
81	-0.0447	-0.00047	0.0453	0.0186	0.0130
82	-0.0447	0.00025	0.0452	0.0184	0.0129
83	-0.0447	0.00098	0.0450	0.0183	0.0129
84	-0.0447	0.00172	0.0449	0.0182	0.0128
85	-0.0446	0.00247	0.0448	0.0181	0.0127
86	-0.0446	0.00322	0.0447	0.0180	0.0127
87	-0.0445	0.00398	0.0446	0.0180	0.0127
88	-0.0444	0.00475	0.0445	0.0180	0.0127
89	-0.0444	0.00552	0.0444	0.0180	0.0127
89.243	-0.0443	0.00571	0.0443	0.0180	0.0127

$\theta_0 = 5^\circ$     $u_0 = 0.40$     $M = 1.0152$     $\theta_1 = 81.656$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
5.0	-0.0701	0.8000	0.8045	0.2317	0.1649
5.1	-0.0688	0.7691	0.7734	0.2359	0.1680
5.2	-0.0675	0.7400	0.7440	0.2395	0.1706
5.3	-0.0662	0.7125	0.7163	0.2428	0.1727
5.4	-0.0650	0.6865	0.6901	0.2451	0.1744
5.5	-0.0638	0.6620	0.6653	0.2471	0.1758
5.6	-0.0626	0.6388	0.6418	0.2487	0.1770
5.7	-0.0615	0.6168	0.6196	0.2500	0.1779
5.8	-0.0605	0.5959	0.5985	0.2510	0.1786
5.9	-0.0595	0.5761	0.5785	0.2517	0.1791
6.0	-0.0585	0.5573	0.5594	0.2521	0.1794
6.1	-0.0575	0.5394	0.5412	0.2522	0.1795
6.2	-0.0566	0.5223	0.5239	0.2522	0.1795
6.3	-0.0557	0.5060	0.5075	0.2520	0.1794
6.4	-0.0548	0.4905	0.4918	0.2516	0.1791
6.5	-0.0540	0.4758	0.4768	0.2511	0.1787
6.6	-0.0532	0.4617	0.4625	0.2505	0.1782
6.7	-0.0524	0.4482	0.4488	0.2497	0.1777
6.8	-0.0516	0.4353	0.4357	0.2488	0.1771
6.9	-0.0508	0.4230	0.4232	0.2478	0.1764
7.0	-0.0501	0.4112	0.4112	0.2468	0.1757
7.1	-0.0494	0.3999	0.3997	0.2457	0.1749
7.2	-0.0487	0.3890	0.3887	0.2445	0.1740
7.3	-0.0480	0.3786	0.3782	0.2433	0.1731
7.4	-0.0474	0.3686	0.3681	0.2420	0.1722
7.5	-0.0468	0.3590	0.3583	0.2407	0.1713
7.6	-0.0462	0.3498	0.3489	0.2393	0.1703
7.7	-0.0456	0.3409	0.3399	0.2379	0.1693
7.8	-0.0450	0.3324	0.3312	0.2365	0.1683
7.9	-0.0444	0.3242	0.3229	0.2350	0.1673
8.00	-0.0438	0.3163	0.3149	0.2336	0.1663
8.25	-0.0425	0.2979	0.2961	0.2298	0.1636
8.50	-0.0412	0.2810	0.2789	0.2260	0.1609
8.75	-0.0400	0.2655	0.2631	0.2222	0.1581
9.00	-0.0389	0.2513	0.2487	0.2184	0.1554
9.25	-0.0378	0.2382	0.2354	0.2146	0.1527
9.50	-0.0368	0.2262	0.2231	0.2109	0.1501
9.75	-0.0359	0.2151	0.2117	0.2072	0.1475
10.00	-0.0350	0.2048	0.2012	0.2036	0.1449
10.25	-0.0341	0.1952	0.1915	0.2000	0.1424
10.50	-0.0332	0.1863	0.1824	0.1965	0.1399
10.75	-0.0324	0.1780	0.1739	0.1931	0.1374
11.00	-0.0317	0.1703	0.1660	0.1898	0.1350
11.25	-0.0310	0.1631	0.1587	0.1865	0.1327
11.50	-0.0303	0.1563	0.1518	0.1833	0.1305

$\theta_0 = 5^\circ$     $U_0 = 0.40$     $M = 1.016$     $C_0 = 1.656$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
11.75	-0.02959	0.1500	0.1453	0.1802	0.1283
12.00	-0.02895	0.1441	0.1392	0.1772	0.1261
12.25	-0.02833	0.1385	0.1335	0.1743	0.1240
12.50	-0.02774	0.1332	0.1282	0.1714	0.1220
12.75	-0.02717	0.1283	0.1231	0.1686	0.1200
13.00	-0.02662	0.1236	0.1183	0.1659	0.1180
13.25	-0.02609	0.1192	0.1138	0.1632	0.1161
13.50	-0.02558	0.1150	0.1096	0.1606	0.1143
13.75	-0.02509	0.1111	0.1056	0.1581	0.1125
14.00	-0.02462	0.1074	0.1018	0.1556	0.1108
14.25	-0.02415	0.1039	0.0982	0.1532	0.1091
14.50	-0.02370	0.1005	0.0947	0.1509	0.1074
14.75	-0.02327	0.0973	0.0914	0.1486	0.1058
15.00	-0.02286	0.0943	0.0883	0.1464	0.1042
15.25	-0.02246	0.0915	0.0854	0.1442	0.1027
15.5	-0.02206	0.0886	0.0825	0.1422	0.1012
16.0	-0.02131	0.0835	0.0773	0.1382	0.0983
16.5	-0.02060	0.0788	0.0725	0.1343	0.0956
17.0	-0.01993	0.0746	0.0682	0.1306	0.0930
17.5	-0.01930	0.0707	0.0642	0.1271	0.0905
18.0	-0.01870	0.0671	0.0605	0.1238	0.0881
18.5	-0.01813	0.0638	0.0571	0.1206	0.0858
19.0	-0.01758	0.0607	0.0540	0.1175	0.0836
19.5	-0.01706	0.0579	0.0511	0.1146	0.0815
20.0	-0.01657	0.0553	0.0485	0.1118	0.0795
20.5	-0.01610	0.0529	0.0460	0.1091	0.0776
21.0	-0.01565	0.0506	0.0437	0.1065	0.0758
21.5	-0.01522	0.0485	0.0415	0.1041	0.0741
22.0	-0.01480	0.0465	0.0395	0.1017	0.0724
22.5	-0.01440	0.0447	0.0376	0.0994	0.0708
23.0	-0.01402	0.0430	0.0358	0.0972	0.0692
23.5	-0.01365	0.0414	0.0342	0.0951	0.0677
24.0	-0.01329	0.0399	0.0327	0.0931	0.0662
24.5	-0.01294	0.0385	0.0313	0.0911	0.0648
25.0	-0.01261	0.0371	0.0299	0.0892	0.0635
25.5	-0.01230	0.0358	0.0286	0.0873	0.0622
26.0	-0.01200	0.0346	0.0274	0.0855	0.0609
26.5	-0.01170	0.0335	0.0262	0.0838	0.0597
27.0	-0.01141	0.0324	0.0251	0.0822	0.0585
27.5	-0.01113	0.0314	0.0241	0.0806	0.0573
28.0	-0.01086	0.0305	0.0231	0.0790	0.0562
28.5	-0.01060	0.0296	0.0222	0.0775	0.0551
29.0	-0.01035	0.0287	0.0213	0.0760	0.0541
29.5	-0.01010	0.0279	0.0205	0.0746	0.0531
30.0	-0.00986	0.0271	0.0197	0.0732	0.0521

$\theta_1 = 5^\circ$     $U_1 = 0.40$     $M = 1.0152$     $\theta_2 = 81.636$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
30.5	-0.00963	0.02632	0.01697	0.0715	0.0511
31.0	-0.00940	0.02560	0.01825	0.0705	0.0508
31.5	-0.00918	0.02491	0.01757	0.0692	0.0493
32.0	-0.00896	0.02426	0.01692	0.0679	0.0484
32.5	-0.00876	0.02360	0.01630	0.0667	0.0475
33	-0.00855	0.02303	0.01571	0.0655	0.0467
34	-0.00816	0.02190	0.01460	0.0633	0.0451
35	-0.00779	0.02086	0.01358	0.0612	0.0436
36	-0.00743	0.01990	0.01265	0.0591	0.0421
37	-0.00709	0.01901	0.01179	0.0571	0.0407
38	-0.00677	0.01818	0.01100	0.0552	0.0393
39	-0.00646	0.01741	0.01027	0.0534	0.0380
40	-0.00616	0.01669	0.00959	0.0517	0.0368
41	-0.00587	0.01601	0.00896	0.0500	0.0356
42	-0.00560	0.01537	0.00837	0.0484	0.0345
43	-0.00534	0.01477	0.00783	0.0469	0.0334
44	-0.00509	0.01421	0.00732	0.0454	0.0323
45	-0.00484	0.01367	0.00685	0.0440	0.0313
46	-0.00460	0.01316	0.00641	0.0426	0.0303
47	-0.00438	0.01268	0.00599	0.0413	0.0294
48	-0.00417	0.01222	0.00560	0.0400	0.0285
49	-0.00396	0.01178	0.00524	0.0387	0.0276
50	-0.00376	0.01136	0.00490	0.0375	0.0267
51	-0.00356	0.01096	0.00458	0.0363	0.0258
52	-0.00337	0.01058	0.00428	0.0351	0.0250
53	-0.00319	0.01021	0.00400	0.0340	0.0242
54	-0.00302	0.00985	0.00373	0.0329	0.0234
55	-0.00285	0.00951	0.00348	0.0318	0.0226
56	-0.00268	0.00918	0.00324	0.0308	0.0219
57	-0.00252	0.00886	0.00301	0.0298	0.0212
58	-0.00237	0.00855	0.00280	0.0288	0.0205
59	-0.00223	0.00824	0.00260	0.0278	0.0198
60	-0.00209	0.00794	0.00241	0.0268	0.0191
61	-0.00195	0.00766	0.00223	0.0259	0.0185
62	-0.00182	0.00739	0.00206	0.0250	0.0179
63	-0.00169	0.00712	0.00190	0.0241	0.0172
64	-0.00157	0.00685	0.00175	0.0232	0.0165
65	-0.00145	0.00659	0.00161	0.0223	0.0159
66	-0.00134	0.00634	0.00147	0.0215	0.0153
67	-0.00123	0.00609	0.00134	0.0207	0.0147
68	-0.00113	0.00585	0.00122	0.0199	0.0142
69	-0.00103	0.00561	0.00110	0.0191	0.0136
70	-0.00093	0.00538	0.00099	0.0183	0.0130
71	-0.00084	0.00515	0.00089	0.0175	0.0124
72	-0.00075	0.00493	0.00079	0.0167	0.0119

$\theta_0 = 5^\circ$     $U_0 = 0.40$     $M = 1.0152$     $\theta_v = 81.656$

$\theta$	x	y	z	$\eta/\delta$	$\xi/\beta$
73.0	-0.00067	0.00471	0.00070	0.01600	0.01140
73.5	-0.00063	0.00460	0.00065	0.01568	0.01116
74.0	-0.00059	0.00450	0.00061	0.01532	0.01090
74.5	-0.00055	0.00439	0.00057	0.01496	0.01065
75.0	-0.00051	0.00429	0.00053	0.01461	0.01040
75.5	-0.00047	0.00419	0.00049	0.01427	0.01016
76.0	-0.00044	0.00409	0.00045	0.01394	0.00992
76.5	-0.00040	0.00399	0.00041	0.01361	0.00969
77.0	-0.00037	0.00390	0.00038	0.01329	0.00946
77.5	-0.00033	0.00380	0.00034	0.01298	0.00924
78.00	-0.00030	0.00372	0.00031	0.01268	0.00902
78.25	-0.00029	0.00368	0.00029	0.01254	0.00893
78.50	-0.00027	0.00364	0.00028	0.01240	0.00883
78.75	-0.00025	0.00360	0.00026	0.01227	0.00873
79.00	-0.00024	0.00356	0.00024	0.01215	0.00865
79.25	-0.00022	0.00353	0.00023	0.01204	0.00857
79.50	-0.00021	0.00350	0.00021	0.01194	0.00850
79.75	-0.00019	0.00347	0.00020	0.01185	0.00843
80.00	-0.00018	0.00345	0.00018	0.01178	0.00838
80.25	-0.00016	0.00343	0.00016	0.01173	0.00835
80.500	-0.00015	0.00343	0.00015	0.01171	0.00833
80.625	-0.00014	0.00343	0.00014	0.01172	0.00834
80.750	-0.00013	0.00344	0.00013	0.01174	0.00836
80.875	-0.00013	0.00345	0.00013	0.01178	0.00838
81.000	-0.00012	0.00346	0.00012	0.01184	0.00843
81.1	-0.00012	0.00348	0.00012	0.01192	0.00848
81.2	-0.00011	0.00351	0.00011	0.01200	0.00854
81.3	-0.00010	0.00354	0.00010	0.01211	0.00862
81.4	-0.00009	0.00359	0.00009	0.01226	0.00873
81.5	-0.00009	0.00364	0.00009	0.01247	0.00888
81.6	-0.00008	0.00372	0.00008	0.01273	0.00906
81.656	-0.00008	0.00378	0.00008	0.01293	0.00920

$\theta_1 = 5^\circ$     $\theta_2 = 0.45$     $M = 1.1554$     $\theta_3 = 60.026$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
5.000	-0.0778	0.9000	0.8928	0.3046	0.2155
5.125	-0.0759	0.8572	0.8496	0.3116	0.2217
5.250	-0.0741	0.8174	0.8095	0.3173	0.2258
5.375	-0.0723	0.7804	0.7721	0.3217	0.2290
5.500	-0.0706	0.7459	0.7372	0.3253	0.2323
5.625	-0.0690	0.7137	0.7047	0.3280	0.2334
5.750	-0.0675	0.6836	0.6742	0.3299	0.2348
5.875	-0.0661	0.6554	0.6456	0.3312	0.2357
6.000	-0.0647	0.6289	0.6188	0.3320	0.2362
6.125	-0.0633	0.6040	0.5936	0.3323	0.2364
6.250	-0.0620	0.5806	0.5699	0.3322	0.2364
6.375	-0.0608	0.5586	0.5476	0.3317	0.2361
6.500	-0.0596	0.5378	0.5266	0.3309	0.2355
6.625	-0.0585	0.5182	0.5067	0.3298	0.2347
6.750	-0.0574	0.4997	0.4879	0.3285	0.2338
6.875	-0.0563	0.4822	0.4701	0.3270	0.2327
7.000	-0.0552	0.4656	0.4533	0.3253	0.2315
7.125	-0.0542	0.4499	0.4373	0.3235	0.2302
7.250	-0.0533	0.4350	0.4222	0.3216	0.2288
7.375	-0.0524	0.4208	0.4078	0.3195	0.2274
7.500	-0.0515	0.4073	0.3941	0.3173	0.2259
7.625	-0.0506	0.3945	0.3811	0.3151	0.2243
7.750	-0.0497	0.3823	0.3687	0.3128	0.2226
7.875	-0.0489	0.3707	0.3569	0.3104	0.2209
8.000	-0.0481	0.3597	0.3456	0.3080	0.2192
8.25	-0.0466	0.3390	0.3246	0.3031	0.2157
8.50	-0.0452	0.3201	0.3054	0.2981	0.2128
8.75	-0.0438	0.3028	0.2878	0.2931	0.2087
9.00	-0.0425	0.2869	0.2717	0.2881	0.2051
9.25	-0.0413	0.2723	0.2568	0.2831	0.2015
9.50	-0.0401	0.2588	0.2431	0.2782	0.1980
9.75	-0.0390	0.2463	0.2304	0.2733	0.1945
10.00	-0.0380	0.2347	0.2186	0.2685	0.1911
10.25	-0.0370	0.2240	0.2077	0.2638	0.1878
10.50	-0.0360	0.2140	0.1976	0.2592	0.1845
10.75	-0.0351	0.2047	0.1882	0.2547	0.1813
11.00	-0.0342	0.1961	0.1794	0.2502	0.1781
11.25	-0.0334	0.1880	0.1711	0.2459	0.1750
11.50	-0.0326	0.1804	0.1634	0.2417	0.1720
11.75	-0.0318	0.1733	0.1562	0.2376	0.1691
12.00	-0.0311	0.1666	0.1494	0.2336	0.1663
12.25	-0.0304	0.1603	0.1431	0.2297	0.1635
12.50	-0.0297	0.1544	0.1371	0.2259	0.1607
12.75	-0.0290	0.1488	0.1314	0.2222	0.1581
13.00	-0.0284	0.1436	0.1261	0.2185	0.1555

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.45$     $M = 1.1554$     $\theta_2 = 60.026$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
13.25	-0.02776	0.1386	0.1811	0.2149	0.1530
13.50	-0.02716	0.1339	0.1163	0.2115	0.2506
13.75	-0.02658	0.1294	0.1118	0.2082	0.1482
14.00	-0.02603	0.1252	0.1076	0.2050	0.1459
14.25	-0.02550	0.1212	0.1036	0.2018	0.1436
14.50	-0.02498	0.1174	0.0997	0.1987	0.1414
14.75	-0.02447	0.1138	0.0961	0.1957	0.1393
15.00	-0.02398	0.1103	0.0927	0.1927	0.1372
15.25	-0.02350	0.1070	0.0894	0.1898	0.1351
15.50	-0.02304	0.1039	0.0862	0.1870	0.1331
15.75	-0.02259	0.1010	0.0832	0.1843	0.1312
16.00	-0.02216	0.0982	0.0804	0.1816	0.1293
16.25	-0.02174	0.0955	0.0777	0.1790	0.1274
16.50	-0.02133	0.0929	0.0751	0.1764	0.1256
16.75	-0.02093	0.0904	0.0726	0.1739	0.1238
17.00	-0.02054	0.0880	0.0703	0.1715	0.1221
17.25	-0.02016	0.0857	0.0680	0.1691	0.1204
17.50	-0.01979	0.0836	0.0658	0.1668	0.1187
17.75	-0.01943	0.0815	0.0637	0.1645	0.1171
18.00	-0.01908	0.0795	0.0617	0.1623	0.1155
18.25	-0.01874	0.0776	0.0598	0.1601	0.1140
18.50	-0.01841	0.0757	0.0580	0.1580	0.1125
18.75	-0.01808	0.0739	0.0562	0.1559	0.1110
19.00	-0.01776	0.0722	0.0545	0.1539	0.1095
19.25	-0.01744	0.0707	0.0529	0.1519	0.1081
19.5	-0.01715	0.0690	0.0514	0.1500	0.1068
20.0	-0.01656	0.0660	0.0485	0.1468	0.1041
20.5	-0.01599	0.0632	0.0457	0.1426	0.1015
21.0	-0.01543	0.0606	0.0431	0.1391	0.0990
21.5	-0.01493	0.0582	0.0407	0.1357	0.0966
22.0	-0.01444	0.0559	0.0385	0.1325	0.0943
22.5	-0.01396	0.0537	0.0364	0.1294	0.0921
23.0	-0.01350	0.0517	0.0345	0.1264	0.0900
23.5	-0.01306	0.0498	0.0327	0.1235	0.0880
24.0	-0.01263	0.0481	0.0310	0.1207	0.0860
25	-0.01182	0.0448	0.0280	0.1154	0.0822
26	-0.01106	0.0419	0.0252	0.1104	0.0786
27	-0.01035	0.0393	0.0227	0.1057	0.0753
28	-0.00969	0.0369	0.0205	0.1013	0.0722
29	-0.00907	0.0347	0.0186	0.0971	0.0692
30	-0.00848	0.0327	0.0169	0.0931	0.0663
31	-0.00792	0.0309	0.0154	0.0894	0.0636
32	-0.00739	0.0293	0.0140	0.0859	0.0611
33	-0.00689	0.0278	0.0127	0.0825	0.0587
34	-0.00642	0.0264	0.0115	0.0792	0.0564

$\theta_s = 5^\circ$     $\bar{u}_s = 0.45$     $M = 1.1554$     $\theta_v = 60^\circ.026$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
35	-0.00597	0.02502	0.01050	0.0761	0.0542
36	-0.00554	0.02378	0.00944	0.0731	0.0520
37	-0.00514	0.02262	0.00855	0.0702	0.0499
38	-0.00476	0.02152	0.00773	0.0674	0.0479
39	-0.00439	0.02048	0.00698	0.0647	0.0460
40	-0.00404	0.01950	0.00629	0.0621	0.0442
41	-0.00371	0.01856	0.00566	0.0596	0.0424
42	-0.00340	0.01767	0.00508	0.0571	0.0406
43	-0.00309	0.01681	0.00454	0.0546	0.0388
44	-0.00281	0.01599	0.00404	0.0521	0.0371
45.0	-0.00254	0.01519	0.00359	0.0500	0.0356
45.5	-0.00241	0.01481	0.00338	0.0488	0.0348
46.0	-0.00228	0.01443	0.00317	0.0477	0.0340
46.5	-0.00215	0.01405	0.00297	0.0466	0.0332
47.0	-0.00203	0.01368	0.00278	0.0455	0.0324
47.5	-0.00192	0.01331	0.00260	0.0444	0.0316
48.0	-0.00180	0.01295	0.00243	0.0433	0.0308
48.5	-0.00169	0.01259	0.00226	0.0422	0.0300
49.0	-0.00158	0.01223	0.00210	0.0411	0.0293
49.5	-0.00148	0.01188	0.00194	0.0400	0.0285
50.0	-0.00137	0.01153	0.00179	0.0389	0.0277
50.5	-0.00127	0.01118	0.00165	0.0378	0.0269
51.0	-0.00118	0.01083	0.00152	0.0367	0.0261
51.5	-0.00109	0.01048	0.00139	0.0356	0.0253
52.0	-0.00100	0.01013	0.00127	0.0345	0.0245
52.5	-0.00091	0.00978	0.00115	0.0334	0.0237
53.0	-0.00083	0.00943	0.00103	0.0322	0.0229
53.5	-0.00074	0.00908	0.00092	0.0310	0.0221
54.0	-0.00067	0.00873	0.00082	0.0299	0.0213
54.5	-0.00059	0.00837	0.00073	0.0288	0.0205
55.0	-0.00052	0.00801	0.00064	0.0276	0.0196
55.5	-0.00045	0.00766	0.00055	0.0264	0.0187
56.0	-0.00039	0.00726	0.00047	0.0251	0.0178
56.5	-0.00033	0.00687	0.00039	0.0238	0.0169
57.0	-0.00027	0.00646	0.00032	0.0224	0.0160
57.2	-0.00025	0.00629	0.00029	0.0219	0.0156
57.4	-0.00022	0.00612	0.00027	0.0213	0.0152
57.6	-0.00020	0.00595	0.00025	0.0207	0.0147
57.8	-0.00018	0.00577	0.00022	0.0201	0.0143
58.0	-0.00016	0.00559	0.00019	0.0195	0.0139
58.1	-0.00015	0.00550	0.00018	0.0191	0.0136
58.2	-0.00014	0.00540	0.00017	0.0188	0.0134
58.3	-0.00013	0.00530	0.00016	0.0185	0.0132
58.4	-0.00012	0.00520	0.00015	0.0181	0.0129
58.5	-0.00012	0.00510	0.00014	0.0177	0.0126



$\theta_0 = 5^\circ$     $\bar{u}_0 = 0.45$     $M = 1.1554$     $\theta_1 = 60.026$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\zeta$
58.6	-0.00010	0.00500	0.00017	5.0174	0.0124
58.7	-0.00009	0.00489	0.00016	5.0170	0.0121
58.8	-0.00009	0.00478	0.00016	5.0167	0.0118
58.9	-0.00008	0.00467	0.00009	6.0163	0.0116
59.0	-0.00007	0.00455	0.00008	6.0159	0.0113
59.05	-0.00007	0.00449	0.00008	1.0157	0.0112
59.10	-0.00006	0.00443	0.00007	7.0155	0.0110
59.15	-0.00006	0.00437	0.00007	2.0153	0.0109
59.20	-0.00005	0.00431	0.00006	7.0151	0.0107
59.25	-0.00005	0.00425	0.00006	3.0149	0.0106
59.30	-0.00005	0.00419	0.00005	9.0146	0.0104
59.35	-0.00004	0.00413	0.00005	5.0144	0.0102
59.40	-0.00004	0.00406	0.00005	1.0142	0.0101
59.45	-0.00004	0.00399	0.00004	7.0139	0.0099
59.50	-0.00003	0.00392	0.00004	3.0137	0.0097
59.55	-0.00003	0.00385	0.00003	9.0135	0.0096
59.60	-0.00003	0.00378	0.00003	5.0133	0.0094
59.65	-0.00002	0.00371	0.00003	1.0130	0.0092
59.70	-0.00002	0.00364	0.00002	7.0127	0.0090
59.75	-0.00002	0.00357	0.00002	4.0125	0.0089
59.775	-0.00001	0.00353	0.00002	2.0124	0.0088
59.800	-0.00001	0.00349	0.00002	0.0123	0.0087
59.825	-0.00001	0.00346	0.00001	8.0121	0.0086
59.850	-0.00001	0.00343	0.00001	6.0120	0.0085
59.875	-0.00001	0.00340	0.00001	4.0119	0.0085
59.90	-0.00001	0.00338	0.00001	3.0118	0.0084
59.91	-0.00001	0.00337	0.00001	2.0118	0.0084
59.92	-0.00001	0.00336	0.00001	2.0118	0.0084
59.93	-0.00001	0.00336	0.00001	2.0118	0.0084
59.94	-0.00000	0.00336	0.00001	1.0118	0.0084
59.95	-0.00000	0.00336	0.00001	0.0118	0.0084
59.96	-0.00000	0.00337	0.00000	9.0118	0.0084
59.97	-0.00000	0.00338	0.00000	8.0118	0.0084
59.98	-0.00000	0.00340	0.00000	8.0119	0.0085
59.99	-0.00000	0.00343	0.00000	8.0120	0.0085
60.00	-0.00000	0.00348	0.00000	7.0122	0.0086
60.01	-0.00000	0.00356	0.00000	6.0124	0.0088
60.02	-0.00000	0.00367	0.00000	5.0129	0.0091
60.026	-0.00000	0.00378	0.00000	4.0132	0.0094

$\theta_0 = 5^\circ$     $\mu_0 = 0.50$     $M = 1.3210$     $\theta_0 = 49^\circ.262$

$\theta$	x	y	z	$\eta$	$\frac{1}{\rho}$
5.0	-0.0854	1.0000	0.9796	0.3949	0.2311
5.1	-0.0837	0.9619	0.9412	0.4024	0.2864
5.2	-0.0820	0.9260	0.9050	0.4087	0.2909
5.3	-0.0804	0.8931	0.8708	0.4140	0.2947
5.4	-0.0789	0.8601	0.8385	0.4185	0.2979
5.5	-0.0774	0.8298	0.8079	0.4222	0.3005
5.6	-0.0750	0.8011	0.7789	0.4251	0.3025
5.7	-0.0746	0.7740	0.7514	0.4274	0.3041
5.8	-0.0733	0.7483	0.7253	0.4291	0.3053
5.9	-0.0720	0.7239	0.7006	0.4303	0.3062
6.0	-0.0708	0.7007	0.6771	0.4311	0.3068
6.1	-0.0696	0.6786	0.6547	0.4315	0.3071
6.2	-0.0684	0.6576	0.6334	0.4315	0.3071
6.3	-0.0673	0.6375	0.6131	0.4312	0.3069
6.4	-0.0662	0.6184	0.5937	0.4306	0.3065
6.5	-0.0651	0.6002	0.5752	0.4298	0.3059
6.6	-0.0641	0.5828	0.5576	0.4286	0.3052
6.7	-0.0631	0.5662	0.5407	0.4275	0.3043
6.8	-0.0621	0.5503	0.5246	0.4261	0.3033
6.9	-0.0612	0.5351	0.5091	0.4245	0.3021
7.0	-0.0603	0.5205	0.4943	0.4228	0.3009
7.1	-0.0594	0.5065	0.4801	0.4209	0.2996
7.2	-0.0585	0.4931	0.4665	0.4189	0.2982
7.3	-0.0576	0.4803	0.4535	0.4168	0.2967
7.4	-0.0568	0.4680	0.4410	0.4146	0.2951
7.5	-0.0560	0.4561	0.4290	0.4124	0.2935
7.6	-0.0552	0.4447	0.4174	0.4101	0.2919
7.7	-0.0544	0.4338	0.4063	0.4077	0.2902
7.8	-0.0537	0.4233	0.3956	0.4053	0.2885
7.9	-0.0530	0.4132	0.3853	0.4029	0.2868
8.00	-0.0522	0.4034	0.3754	0.4004	0.2850
8.25	-0.0505	0.3806	0.3522	0.3941	0.2805
8.50	-0.0489	0.3597	0.3310	0.3876	0.2759
8.75	-0.0474	0.3405	0.3116	0.3811	0.2712
9.00	-0.0460	0.3229	0.2937	0.3746	0.2666
9.25	-0.0446	0.3067	0.2773	0.3682	0.2620
9.50	-0.0433	0.2918	0.2622	0.3618	0.2575
9.75	-0.0420	0.2780	0.2482	0.3554	0.2530
10.00	-0.0408	0.2652	0.2352	0.3491	0.2485
10.25	-0.0397	0.2533	0.2232	0.3430	0.2441
10.50	-0.0386	0.2422	0.2120	0.3370	0.2398
10.75	-0.0376	0.2319	0.2016	0.3311	0.2356
11.00	-0.0366	0.2222	0.1919	0.3253	0.2315
11.25	-0.0357	0.2132	0.1828	0.3197	0.2275
11.50	-0.0347	0.2048	0.1743	0.3142	0.2235

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.50$     $M = 1.3210$     $\theta_2 = 40^\circ.262$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
12.0	-0.03303	0.1894	0.1588	0.3036	0.2161
12.5	-0.03143	0.1758	0.1452	0.2934	0.2089
13.0	-0.02995	0.1638	0.1332	0.2838	0.2020
13.5	-0.02857	0.1530	0.1224	0.2747	0.1955
14.0	-0.02728	0.1433	0.1128	0.2660	0.1893
14.5	-0.02607	0.1346	0.1041	0.2577	0.1834
15.0	-0.02493	0.1267	0.0963	0.2498	0.1778
15.5	-0.02386	0.1195	0.0893	0.2423	0.1725
16.0	-0.02285	0.1129	0.0829	0.2352	0.1674
16.5	-0.02189	0.1069	0.0770	0.2284	0.1625
17.0	-0.02098	0.1015	0.0717	0.2219	0.1579
17.5	-0.02011	0.0965	0.0669	0.2156	0.1535
18.0	-0.01929	0.0918	0.0625	0.2096	0.1492
18.5	-0.01851	0.0875	0.0584	0.2039	0.1451
19.0	-0.01776	0.0835	0.0546	0.1984	0.1412
19.5	-0.01705	0.0798	0.0511	0.1931	0.1374
20.0	-0.01637	0.0764	0.0479	0.1880	0.1338
20.5	-0.01571	0.0732	0.0449	0.1831	0.1303
21.0	-0.01508	0.0702	0.0421	0.1784	0.1270
21.5	-0.01448	0.0674	0.0395	0.1739	0.1238
22.0	-0.01391	0.0648	0.0371	0.1695	0.1207
22.5	-0.01336	0.0623	0.0349	0.1653	0.1177
23.0	-0.01283	0.0600	0.0328	0.1612	0.1148
23.5	-0.01232	0.0578	0.0308	0.1573	0.1120
24.0	-0.01182	0.0557	0.0290	0.1535	0.1093
24.5	-0.01134	0.0537	0.0273	0.1498	0.1066
25.0	-0.01088	0.0519	0.0257	0.1462	0.1040
25.5	-0.01043	0.0501	0.0242	0.1427	0.1015
26.0	-0.01000	0.0484	0.0228	0.1393	0.0991
26.5	-0.00959	0.0468	0.0215	0.1360	0.0968
27.0	-0.00919	0.0453	0.0202	0.1328	0.0945
27.5	-0.00880	0.0438	0.0190	0.1297	0.0923
28.0	-0.00842	0.0424	0.0179	0.1266	0.0901
28.5	-0.00805	0.0411	0.0169	0.1236	0.0880
29.0	-0.00770	0.0398	0.0159	0.1207	0.0859
29.5	-0.00736	0.0386	0.0150	0.1179	0.0839
30.0	-0.00703	0.0374	0.0141	0.1152	0.0820
30.5	-0.00671	0.0363	0.0132	0.1125	0.0801
31.0	-0.00640	0.0352	0.0124	0.1098	0.0782
31.5	-0.00610	0.0341	0.0117	0.1072	0.0763
32.0	-0.00581	0.0331	0.0110	0.1046	0.0745
32.5	-0.00552	0.0321	0.0103	0.1021	0.0727
33.0	-0.00524	0.0311	0.0096	0.0997	0.0709
33.5	-0.00497	0.0302	0.0090	0.0973	0.0692
34.0	-0.00471	0.0293	0.0084	0.0949	0.0675

$\theta_0 = 5'$     $L_0 = 0.50$     $M = 1.3210$     $\theta_1 = 49'.252$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
34.5	-0.00446	0.02843	0.00788	0.0925	0.0652
35.0	-0.00422	0.02757	0.00735	0.0902	0.0642
35.5	-0.00398	0.02674	0.00685	0.0879	0.0626
36.0	-0.00375	0.02593	0.00638	0.0856	0.0610
36.5	-0.00353	0.02514	0.00593	0.0834	0.0594
37.0	-0.00331	0.02436	0.00550	0.0812	0.0578
37.5	-0.00310	0.02359	0.00509	0.0790	0.0562
38.0	-0.00290	0.02284	0.00470	0.0768	0.0547
38.5	-0.00270	0.02211	0.00434	0.0747	0.0532
39.0	-0.00251	0.02139	0.00400	0.0726	0.0517
39.5	-0.00233	0.02068	0.00367	0.0704	0.0501
40.0	-0.00215	0.01997	0.00335	0.0682	0.0485
40.5	-0.00198	0.01927	0.00305	0.0660	0.0470
41.0	-0.00182	0.01858	0.00277	0.0639	0.0455
41.5	-0.00166	0.01789	0.00250	0.0618	0.0440
42.00	-0.00151	0.01721	0.00225	0.0596	0.0424
42.25	-0.00143	0.01687	0.00213	0.0586	0.0417
42.50	-0.00136	0.01653	0.00201	0.0575	0.0409
42.75	-0.00129	0.01619	0.00190	0.0564	0.0401
43.00	-0.00122	0.01584	0.00179	0.0553	0.0394
43.25	-0.00115	0.01550	0.00168	0.0542	0.0386
43.50	-0.00108	0.01516	0.00157	0.0531	0.0378
43.75	-0.00101	0.01482	0.00147	0.0519	0.0370
44.00	-0.00095	0.01447	0.00137	0.0508	0.0362
44.25	-0.00089	0.01412	0.00128	0.0497	0.0354
44.50	-0.00083	0.01377	0.00119	0.0485	0.0345
44.75	-0.00077	0.01342	0.00110	0.0473	0.0336
45.00	-0.00071	0.01306	0.00101	0.0461	0.0328
45.25	-0.00065	0.01270	0.00092	0.0449	0.0320
45.50	-0.00060	0.01233	0.00084	0.0437	0.0311
45.75	-0.00055	0.01196	0.00076	0.0425	0.0302
46.00	-0.00050	0.01158	0.00069	0.0412	0.0293
46.25	-0.00045	0.01119	0.00062	0.0399	0.0284
46.50	-0.00040	0.01080	0.00055	0.0385	0.0274
46.75	-0.00035	0.01040	0.00048	0.0371	0.0264
47.0	-0.00031	0.00998	0.00042	0.0357	0.0254
47.1	-0.00029	0.00981	0.00039	0.0351	0.0250
47.2	-0.00027	0.00964	0.00037	0.0345	0.0246
47.3	-0.00026	0.00946	0.00035	0.0339	0.0241
47.4	-0.00025	0.00928	0.00033	0.0333	0.0237
47.5	-0.00023	0.00910	0.00031	0.0327	0.0233
47.6	-0.00021	0.00891	0.00028	0.0321	0.0229
47.7	-0.00019	0.00872	0.00026	0.0315	0.0224
47.8	-0.00017	0.00853	0.00024	0.0308	0.0219
47.9	-0.00016	0.00833	0.00022	0.0301	0.0214

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.50$     $M = 1.3210$     $\theta_2 = 49^\circ.262$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
48.0	-0.000150	0.00613	0.000202	0.0293	0.0209
48.1	-0.000136	0.00792	0.000183	0.0285	0.0204
48.2	-0.000122	0.00771	0.000164	0.0278	0.0198
48.3	-0.000109	0.00749	0.000146	0.0270	0.0192
48.4	-0.000096	0.00726	0.000129	0.0262	0.0186
48.50	-0.000084	0.00702	0.000112	0.0253	0.0180
48.55	-0.000078	0.00690	0.000104	0.0249	0.0177
48.60	-0.000072	0.00677	0.000096	0.0245	0.0174
48.65	-0.000066	0.00664	0.000088	0.0240	0.0171
48.70	-0.000060	0.00651	0.000080	0.0235	0.0167
48.75	-0.000055	0.00638	0.000073	0.0230	0.0163
48.80	-0.000049	0.00624	0.000066	0.0225	0.0160
48.85	-0.000044	0.00609	0.000058	0.0220	0.0157
48.90	-0.000038	0.00594	0.000051	0.0215	0.0153
48.95	-0.000033	0.00579	0.000044	0.0210	0.0149
49.00	-0.000028	0.00564	0.000038	0.0204	0.0145
49.05	-0.000023	0.00549	0.000031	0.0198	0.0141
49.10	-0.000019	0.00533	0.000025	0.0193	0.0137
49.15	-0.000014	0.00519	0.000019	0.0188	0.0134
49.20	-0.000010	0.00511	0.000013	0.0185	0.0132
49.21	-0.000009	0.00512	0.000012	0.0186	0.0132
49.22	-0.000008	0.00514	0.000010	0.0187	0.0133
49.23	-0.000007	0.00516	0.000009	0.0188	0.0134
49.24	-0.000006	0.00525	0.000008	0.0191	0.0136
49.25	-0.000005	0.00540	0.000007	0.0196	0.0140
49.26	-0.000004	0.00569	0.000006	0.0207	0.0147
49.262	-0.000004	0.00575	0.000005	0.0209	0.0149

$\theta_0 = 5^\circ$     $\mu_0 = 0.65$     $\lambda = 1.5058$     $\theta_1 = 41.675^\circ$

$\theta$	$x$	$y$	$z$	$\eta/\mu$	$\xi/\mu$
5.000	-0.0927	1.1000	1.0632	0.5070	0.3609
5.125	-0.0903	1.0483	1.0112	0.5189	0.3693
5.250	-0.0881	1.0003	0.9627	0.5286	0.3762
5.375	-0.0860	0.9557	0.9176	0.5363	0.3817
5.500	-0.0840	0.9141	0.8755	0.5424	0.3861
5.625	-0.0820	0.8753	0.8363	0.5471	0.3894
5.750	-0.0801	0.8389	0.7995	0.5506	0.3919
5.875	-0.0783	0.8049	0.7650	0.5530	0.3936
6.000	-0.0766	0.7730	0.7327	0.5544	0.3946
6.125	-0.0749	0.7431	0.7023	0.5550	0.3950
6.250	-0.0733	0.7149	0.6737	0.5549	0.3949
6.375	-0.0718	0.6883	0.6467	0.5542	0.3944
6.500	-0.0703	0.6633	0.6213	0.5530	0.3936
6.625	-0.0689	0.6397	0.5974	0.5513	0.3924
6.750	-0.0675	0.6174	0.5747	0.5492	0.3909
7.00	-0.0649	0.5762	0.5329	0.5441	0.3873
7.25	-0.0625	0.5392	0.4953	0.5379	0.3828
7.50	-0.0602	0.5059	0.4615	0.5310	0.3779
7.75	-0.0581	0.4757	0.4308	0.5235	0.3726
8.00	-0.0561	0.4482	0.4029	0.5156	0.3670
8.25	-0.0542	0.4232	0.3776	0.5075	0.3612
8.50	-0.0524	0.4003	0.3544	0.4992	0.3553
8.75	-0.0507	0.3794	0.3331	0.4909	0.3494
9.00	-0.0491	0.3601	0.3136	0.4825	0.3434
9.25	-0.0476	0.3423	0.2957	0.4742	0.3375
9.50	-0.0461	0.3259	0.2792	0.4659	0.3316
9.75	-0.0447	0.3108	0.2639	0.4577	0.3258
10.00	-0.0434	0.2967	0.2497	0.4497	0.3201
10.25	-0.0421	0.2836	0.2365	0.4418	0.3144
10.50	-0.0409	0.2714	0.2244	0.4340	0.3089
11.0	-0.0386	0.2495	0.2024	0.4190	0.2982
11.5	-0.0365	0.2303	0.1832	0.4045	0.2879
12.0	-0.0345	0.2133	0.1664	0.3907	0.2781
12.5	-0.0327	0.1983	0.1515	0.3776	0.2688
13.0	-0.0311	0.1850	0.1384	0.3651	0.2599
13.5	-0.0296	0.1730	0.1267	0.3531	0.2514
14.0	-0.0281	0.1622	0.1162	0.3417	0.2433
14.5	-0.0267	0.1525	0.1068	0.3309	0.2355
15.0	-0.0254	0.1437	0.0983	0.3206	0.2281
15.5	-0.0242	0.1357	0.0906	0.3107	0.2211
16.0	-0.0231	0.1284	0.0837	0.3013	0.2144
16.5	-0.0220	0.1217	0.0774	0.2923	0.2080
17.0	-0.0209	0.1155	0.0716	0.2836	0.2019
17.5	-0.0200	0.1098	0.0664	0.2753	0.1960
18.0	-0.0190	0.1046	0.0616	0.2674	0.1903

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.55$     $M = 1.5058$     $\theta_2 = 41^\circ.073$

$\theta$	x	y	z	$\eta/\bar{p}$	$\xi/\bar{p}$
18.5	-0.01814	0.0997	0.05716	0.2598	0.1848
19.0	-0.01789	0.0958	0.05310	0.2525	0.1796
19.5	-0.01648	0.0910	0.04936	0.2454	0.1746
20.0	-0.01570	0.0871	0.04590	0.2385	0.1698
20.5	-0.01495	0.0834	0.04270	0.2319	0.1651
21.0	-0.01424	0.0799	0.03974	0.2256	0.1606
21.5	-0.01356	0.0767	0.03699	0.2195	0.1562
22.0	-0.01290	0.0737	0.03444	0.2136	0.1520
22.5	-0.01227	0.0708	0.03207	0.2078	0.1479
23.0	-0.01166	0.0681	0.02986	0.2022	0.1439
23.5	-0.01108	0.0655	0.02780	0.1968	0.1400
24.0	-0.01052	0.0630	0.02587	0.1915	0.1363
24.5	-0.00998	0.0607	0.02407	0.1864	0.1327
25.0	-0.00946	0.0585	0.02239	0.1814	0.1292
25.5	-0.00896	0.0564	0.02082	0.1765	0.1257
26.0	-0.00848	0.0544	0.01934	0.1718	0.1223
26.5	-0.00801	0.0525	0.01796	0.1672	0.1190
27.0	-0.00756	0.0506	0.01666	0.1627	0.1158
27.5	-0.00713	0.0488	0.01544	0.1582	0.1126
28.0	-0.00671	0.0471	0.01429	0.1538	0.1095
28.5	-0.00631	0.0454	0.01322	0.1495	0.1064
29.0	-0.00592	0.0438	0.01221	0.1453	0.1034
29.5	-0.00554	0.0423	0.01125	0.1412	0.1005
30.0	-0.00518	0.0408	0.01035	0.1371	0.0976
30.5	-0.00483	0.0393	0.00951	0.1331	0.0947
31.0	-0.00449	0.0379	0.00872	0.1291	0.0919
31.5	-0.00417	0.0365	0.00798	0.1251	0.0891
32.0	-0.00386	0.0352	0.00728	0.1212	0.0863
32.5	-0.00356	0.0339	0.00662	0.1173	0.0835
33.0	-0.00327	0.0326	0.00600	0.1134	0.0807
33.5	-0.00299	0.0313	0.00541	0.1096	0.0780
34.0	-0.00272	0.0300	0.00486	0.1058	0.0753
34.5	-0.00246	0.0288	0.00434	0.1020	0.0726
35.0	-0.00222	0.0276	0.00386	0.0981	0.0698
35.5	-0.00198	0.0264	0.00341	0.0942	0.0670
36.00	-0.00175	0.0252	0.00299	0.0903	0.0643
36.25	-0.00165	0.0246	0.00279	0.0884	0.0629
36.50	-0.00154	0.0240	0.00259	0.0864	0.0615
36.75	-0.00144	0.0233	0.00240	0.0844	0.0601
37.00	-0.00134	0.0227	0.00222	0.0824	0.0587
37.25	-0.00124	0.0221	0.00205	0.0803	0.0572
37.50	-0.00114	0.0215	0.00188	0.0782	0.0557
37.75	-0.00105	0.0209	0.00172	0.0761	0.0542
38.00	-0.00096	0.0202	0.00156	0.0739	0.0527
38.25	-0.00087	0.0196	0.00141	0.0717	0.0511

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.55$     $M = 1.5056$     $\theta_2 = 41.673^\circ$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
38.50	-0.000791	0.01896	0.001270	0.0695	0.0495
38.75	-0.000709	0.01830	0.001133	0.0672	0.0479
39.00	-0.000630	0.01762	0.001002	0.0649	0.0462
39.25	-0.000555	0.01694	0.000877	0.0625	0.0445
39.50	-0.000483	0.01623	0.000759	0.0600	0.0427
39.75	-0.000414	0.01550	0.000647	0.0574	0.0408
40.00	-0.000348	0.01473	0.000541	0.0547	0.0389
40.25	-0.000285	0.01394	0.000442	0.0518	0.0369
40.50	-0.000226	0.01309	0.000349	0.0488	0.0347
40.75	-0.000169	0.01219	0.000263	0.0456	0.0324
40.8	-0.000161	0.01199	0.000246	0.0448	0.0319
40.9	-0.000140	0.01160	0.000214	0.0434	0.0309
41.0	-0.000120	0.01119	0.000183	0.0419	0.0298
41.1	-0.000101	0.01076	0.000154	0.0403	0.0287
41.2	-0.000083	0.01031	0.000126	0.0386	0.0275
41.30	-0.000065	0.00983	0.000099	0.0369	0.0263
41.35	-0.000057	0.00958	0.000086	0.0360	0.0256
41.40	-0.000048	0.00933	0.000073	0.0351	0.0250
41.45	-0.000040	0.00908	0.000061	0.0341	0.0243
41.50	-0.000033	0.00882	0.000049	0.0332	0.0236
41.51	-0.000031	0.00877	0.000047	0.0330	0.0235
41.52	-0.000030	0.00872	0.000044	0.0328	0.0233
41.53	-0.000028	0.00867	0.000042	0.0326	0.0232
41.54	-0.000027	0.00862	0.000040	0.0324	0.0231
41.55	-0.000025	0.00858	0.000038	0.0322	0.0230
41.56	-0.000024	0.00854	0.000035	0.0321	0.0229
41.57	-0.000022	0.00850	0.000033	0.0320	0.0228
41.58	-0.000021	0.00847	0.000031	0.0319	0.0227
41.59	-0.000019	0.00844	0.000029	0.0318	0.0226
41.60	-0.000018	0.00842	0.000027	0.0317	0.0225
41.61	-0.000016	0.00841	0.000024	0.0317	0.0225
41.62	-0.000015	0.00841	0.000022	0.0317	0.0225
41.63	-0.000013	0.00844	0.000020	0.0318	0.0226
41.64	-0.000012	0.00850	0.000018	0.0320	0.0228
41.65	-0.000010	0.00862	0.000015	0.0325	0.0231
41.66	-0.000009	0.00883	0.000013	0.0333	0.0237
41.67	-0.000007	0.00927	0.000011	0.0349	0.0248
41.673	-0.000007	0.00946	0.000010	0.0356	0.0253



$\theta_0 = 5^\circ$     $u_0 = 0.60$     $M = 1.7153$     $\theta_0 = 35.738$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
5.0	-0.0995	1.2000	1.1426	0.6478	0.4611
5.1	-0.0975	1.1549	1.0972	0.6604	0.4700
5.2	-0.0955	1.1124	1.0543	0.6711	0.4776
5.3	-0.0936	1.0723	1.0138	0.6801	0.4841
5.4	-0.0918	1.0345	0.9756	0.6877	0.4895
5.5	-0.0900	0.9988	0.9394	0.6939	0.4939
5.6	-0.0883	0.9649	0.9051	0.6989	0.4975
5.7	-0.0867	0.9328	0.8726	0.7029	0.5003
5.8	-0.0851	0.9024	0.8418	0.7060	0.5025
5.9	-0.0835	0.8735	0.8125	0.7082	0.5041
6.0	-0.0820	0.8461	0.7846	0.7097	0.5051
6.1	-0.0806	0.8200	0.7581	0.7105	0.5057
6.2	-0.0792	0.7952	0.7329	0.7107	0.5059
6.3	-0.0778	0.7715	0.7089	0.7104	0.5057
6.4	-0.0765	0.7489	0.6859	0.7096	0.5051
6.5	-0.0752	0.7274	0.6640	0.7084	0.5042
6.6	-0.0739	0.7068	0.6431	0.7068	0.5030
6.7	-0.0727	0.6871	0.6231	0.7048	0.5016
6.8	-0.0715	0.6683	0.6040	0.7025	0.5000
6.9	-0.0704	0.6503	0.5857	0.7000	0.4982
7.0	-0.0693	0.6331	0.5682	0.6973	0.4963
7.1	-0.0682	0.6166	0.5514	0.6943	0.4942
7.2	-0.0671	0.6007	0.5353	0.6911	0.4919
7.3	-0.0661	0.5855	0.5199	0.6878	0.4895
7.4	-0.0651	0.5709	0.5051	0.6843	0.4870
7.5	-0.0641	0.5569	0.4909	0.6807	0.4844
7.6	-0.0631	0.5435	0.4772	0.6769	0.4817
7.7	-0.0622	0.5306	0.4640	0.6731	0.4790
7.8	-0.0613	0.5181	0.4514	0.6692	0.4763
7.9	-0.0604	0.5060	0.4392	0.6652	0.4735
8.00	-0.0595	0.4944	0.4271	0.6612	0.4706
8.25	-0.0574	0.4673	0.4071	0.6508	0.4632
8.50	-0.0554	0.4424	0.3871	0.6403	0.4557
8.75	-0.0535	0.4196	0.3519	0.6296	0.4481
9.00	-0.0517	0.3987	0.3308	0.6189	0.4405
9.25	-0.0500	0.3794	0.3114	0.6083	0.4330
9.50	-0.0484	0.3616	0.2935	0.5977	0.4254
9.75	-0.0469	0.3451	0.2770	0.5872	0.4179
10.00	-0.0454	0.3298	0.2616	0.5768	0.4105
10.25	-0.0440	0.3155	0.2473	0.5666	0.4033
10.50	-0.0427	0.3022	0.2341	0.5566	0.3962
10.75	-0.0414	0.2898	0.2218	0.5468	0.3892
11.00	-0.0401	0.2782	0.2103	0.5372	0.3823
11.25	-0.0389	0.2674	0.1996	0.5278	0.3756
11.50	-0.0378	0.2572	0.1896	0.5186	0.3690

$\theta_0 = 5^\circ$     $\bar{u}_0 = 0.60$     $M = 1.7153$     $\theta_1 = 35.732$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
11.75	-0.03670	0.2476	0.1802	0.5096	0.3626
12.00	-0.03564	0.2386	0.1714	0.5007	0.3563
12.25	-0.03462	0.2301	0.1631	0.4920	0.3502
12.50	-0.03363	0.2221	0.1553	0.4836	0.3442
12.75	-0.03268	0.2146	0.1480	0.4754	0.3383
13.00	-0.03176	0.2074	0.1412	0.4673	0.3326
13.25	-0.03087	0.2006	0.1347	0.4595	0.3271
13.50	-0.03001	0.1942	0.1285	0.4518	0.3216
13.75	-0.02917	0.1881	0.1227	0.4443	0.3168
14.00	-0.02836	0.1823	0.1172	0.4369	0.3110
14.25	-0.02758	0.1768	0.1120	0.4297	0.3059
14.50	-0.02682	0.1715	0.1071	0.4227	0.3009
14.75	-0.02608	0.1665	0.1024	0.4158	0.2960
15.00	-0.02536	0.1617	0.0980	0.4091	0.2912
15.25	-0.02466	0.1571	0.0938	0.4025	0.2865
15.50	-0.02399	0.1528	0.0898	0.3961	0.2819
15.75	-0.02334	0.1487	0.0850	0.3898	0.2774
16.00	-0.02270	0.1447	0.0824	0.3835	0.2730
16.25	-0.02208	0.1408	0.0789	0.3775	0.2687
16.50	-0.02147	0.1371	0.0756	0.3716	0.2645
16.75	-0.02088	0.1336	0.0724	0.3658	0.2604
17.00	-0.02030	0.1302	0.0694	0.3602	0.2564
17.25	-0.01974	0.1269	0.0665	0.3547	0.2524
17.50	-0.01919	0.1238	0.0638	0.3492	0.2485
17.75	-0.01866	0.1208	0.0612	0.3438	0.2447
18.0	-0.01814	0.1179	0.0587	0.3385	0.2409
18.5	-0.01714	0.1124	0.0540	0.3283	0.2337
19.0	-0.01618	0.1072	0.0497	0.3184	0.2267
19.5	-0.01526	0.1024	0.0458	0.3089	0.2199
20.0	-0.01439	0.0979	0.0422	0.2996	0.2133
20.5	-0.01356	0.0937	0.0388	0.2906	0.2069
21.0	-0.01276	0.0897	0.0356	0.2819	0.2007
21.5	-0.01199	0.0859	0.0327	0.2735	0.1947
22.0	-0.01125	0.0823	0.0300	0.2653	0.1888
22.5	-0.01055	0.0789	0.0275	0.2573	0.1831
23.0	-0.00988	0.0757	0.0252	0.2495	0.1775
23.5	-0.00923	0.0726	0.0231	0.2419	0.1721
24.0	-0.00861	0.0696	0.0211	0.2344	0.1668
24.5	-0.00801	0.0668	0.0193	0.2271	0.1616
25.0	-0.00744	0.0641	0.0176	0.2199	0.1565
25.5	-0.00689	0.0615	0.0160	0.2128	0.1515
26.0	-0.00637	0.0590	0.0145	0.2058	0.1466
26.5	-0.00587	0.0566	0.0131	0.1990	0.1417
27.0	-0.00539	0.0543	0.0118	0.1923	0.1369
27.5	-0.00493	0.0520	0.0107	0.1856	0.1321

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.00$     $M = 1.7153$     $\theta_2 = 35.732$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
28.0	-0.004481	0.0498	0.009546	0.1789	0.1273
28.5	-0.004257	0.0476	0.008503	0.1723	0.1226
29.0	-0.003851	0.0454	0.007531	0.1657	0.1179
29.5	-0.003264	0.0433	0.006629	0.1590	0.1132
30.0	-0.002895	0.0412	0.005791	0.1524	0.1085
30.5	-0.002544	0.0392	0.005013	0.1457	0.1037
31.0	-0.002211	0.0372	0.004293	0.1389	0.0989
31.5	-0.001896	0.0351	0.003629	0.1320	0.0940
32.0	-0.001599	0.0330	0.003017	0.1249	0.0889
32.5	-0.001320	0.0309	0.002456	0.1176	0.0837
33.00	-0.001059	0.0288	0.001945	0.1100	0.0783
33.25	-0.000936	0.0277	0.001707	0.1061	0.0755
33.50	-0.000814	0.0266	0.001481	0.1020	0.0726
33.75	-0.000705	0.0254	0.001268	0.0978	0.0696
34.00	-0.000596	0.0242	0.001067	0.0934	0.0665
34.1	-0.000555	0.0237	0.000989	0.0916	0.0652
34.2	-0.000514	0.0232	0.000914	0.0897	0.0638
34.3	-0.000474	0.0226	0.000841	0.0878	0.0625
34.4	-0.000435	0.0221	0.000770	0.0859	0.0611
34.5	-0.000397	0.0216	0.000700	0.0839	0.0597
34.6	-0.000359	0.0211	0.000633	0.0818	0.0582
34.7	-0.000323	0.0205	0.000568	0.0797	0.0567
34.8	-0.000288	0.0199	0.000505	0.0775	0.0551
34.9	-0.000254	0.0193	0.000444	0.0752	0.0535
35.0	-0.000221	0.0187	0.000385	0.0729	0.0519
35.1	-0.000189	0.0180	0.000328	0.0705	0.0502
35.2	-0.000158	0.0173	0.000274	0.0680	0.0484
35.3	-0.000128	0.0166	0.000222	0.0653	0.0465
35.4	-0.000100	0.0159	0.000172	0.0625	0.0445
35.5	-0.000072	0.0152	0.000125	0.0596	0.0424
35.60	-0.000047	0.0145	0.000080	0.0569	0.0405
35.61	-0.000044	0.0144	0.000076	0.0567	0.0404
35.62	-0.000042	0.0144	0.000071	0.0565	0.0403
35.63	-0.000039	0.0144	0.000067	0.0563	0.0401
35.64	-0.000037	0.0143	0.000063	0.0562	0.0400
35.65	-0.000034	0.0142	0.000058	0.0561	0.0399
35.66	-0.000032	0.0142	0.000054	0.0560	0.0399
35.67	-0.000029	0.0142	0.000050	0.0560	0.0399
35.68	-0.000027	0.0142	0.000046	0.0562	0.0400
35.69	-0.000024	0.0143	0.000041	0.0565	0.0402
35.70	-0.000022	0.0145	0.000037	0.0570	0.0405
35.71	-0.000019	0.0147	0.000033	0.0579	0.0412
35.72	-0.000016	0.0151	0.000028	0.0594	0.0423
35.73	-0.000014	0.0158	0.000024	0.0622	0.0443
35.732	-0.000013	0.0160	0.000023	0.0630	0.0448

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.65$     $M = 1.9580$     $\theta_2 = 30.804$

$\theta$	$x$	$y$	$z$	$r/p$	$r/p$
5.0	-0.1060	1.3000	1.2167	0.8281	0.5894
5.1	-0.1038	1.2517	1.1678	0.8445	0.6011
5.2	-0.1017	1.2055	1.1218	0.8585	0.6110
5.3	-0.0996	1.1629	1.0783	0.8703	0.6194
5.4	-0.0976	1.1223	1.0372	0.8802	0.6265
5.5	-0.0957	1.0839	0.9983	0.8883	0.6323
5.6	-0.0938	1.0475	0.9615	0.8949	0.6370
5.7	-0.0920	1.0132	0.9266	0.9002	0.6407
5.8	-0.0903	0.9805	0.8934	0.9043	0.6436
5.9	-0.0886	0.9495	0.8619	0.9073	0.6458
6.0	-0.0870	0.9201	0.8320	0.9094	0.6473
6.1	-0.0854	0.8921	0.8035	0.9105	0.6481
6.2	-0.0839	0.8654	0.7764	0.9109	0.6483
6.3	-0.0824	0.8400	0.7506	0.9106	0.6481
6.4	-0.0809	0.8158	0.7259	0.9097	0.6475
6.5	-0.0795	0.7927	0.7023	0.9082	0.6465
6.6	-0.0781	0.7706	0.6798	0.9063	0.6451
6.7	-0.0768	0.7495	0.6584	0.9039	0.6434
6.8	-0.0755	0.7293	0.6379	0.9011	0.6414
6.9	-0.0743	0.7100	0.6183	0.8980	0.6391
7.0	-0.0731	0.6915	0.5995	0.8945	0.6367
7.1	-0.0719	0.6737	0.5814	0.8908	0.6340
7.2	-0.0707	0.6567	0.5641	0.8868	0.6312
7.3	-0.0696	0.6404	0.5475	0.8826	0.6282
7.4	-0.0685	0.6247	0.5316	0.8782	0.6251
7.5	-0.0674	0.6096	0.5163	0.8737	0.6219
7.6	-0.0663	0.5951	0.5016	0.8690	0.6185
7.7	-0.0653	0.5812	0.4875	0.8641	0.6150
7.8	-0.0643	0.5678	0.4739	0.8591	0.6115
7.9	-0.0633	0.5548	0.4608	0.8541	0.6079
8.00	-0.0624	0.5424	0.4482	0.8489	0.6042
8.25	-0.0600	0.5132	0.4186	0.8358	0.5949
8.50	-0.0578	0.4864	0.3917	0.8223	0.5853
8.75	-0.0558	0.4618	0.3670	0.8087	0.5756
9.00	-0.0539	0.4393	0.3443	0.7950	0.5658
9.25	-0.0520	0.4185	0.3234	0.7813	0.5561
9.50	-0.0502	0.3992	0.3042	0.7677	0.5464
9.75	-0.0485	0.3813	0.2864	0.7542	0.5368
10.00	-0.0469	0.3647	0.2699	0.7409	0.5273
10.25	-0.0453	0.3493	0.2547	0.7278	0.5180
10.50	-0.0438	0.3349	0.2405	0.7149	0.5088
10.75	-0.0424	0.3214	0.2273	0.7022	0.4998
11.00	-0.0410	0.3088	0.2150	0.6897	0.4909
11.25	-0.0397	0.2970	0.2035	0.6775	0.4822
11.50	-0.0384	0.2859	0.1927	0.6655	0.4737

$\theta_0 = 5^\circ$     $U_0 = 0.65$     $M = 1.9580$     $\theta_v = 30^\circ.804$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
11.75	-0.03720	0.2755	0.18267	0.6538	0.4653
12.00	-0.03602	0.2657	0.17324	0.6423	0.4571
12.25	-0.03488	0.2564	0.16439	0.6310	0.4491
12.50	-0.03378	0.2476	0.15608	0.6200	0.4413
12.75	-0.03272	0.2393	0.14825	0.6092	0.4336
13.00	-0.03169	0.2314	0.14089	0.5987	0.4261
13.25	-0.03070	0.2240	0.13394	0.5883	0.4187
13.50	-0.02974	0.2169	0.12739	0.5782	0.4115
13.75	-0.02881	0.2102	0.12120	0.5683	0.4045
14.00	-0.02790	0.2038	0.11534	0.5586	0.3976
14.25	-0.02702	0.1977	0.10980	0.5491	0.3909
14.50	-0.02617	0.1919	0.10455	0.5399	0.3843
14.75	-0.02534	0.1863	0.09958	0.5308	0.3778
15.00	-0.02454	0.1809	0.09486	0.5219	0.3714
15.25	-0.02377	0.1758	0.09038	0.5131	0.3652
15.50	-0.02302	0.1710	0.08613	0.5045	0.3591
15.75	-0.02229	0.1664	0.08209	0.4961	0.3531
16.00	-0.02157	0.1619	0.07824	0.4878	0.3472
16.25	-0.02087	0.1576	0.07458	0.4797	0.3414
16.50	-0.02019	0.1534	0.07109	0.4718	0.3358
16.75	-0.01953	0.1494	0.06776	0.4640	0.3303
17.00	-0.01889	0.1455	0.06459	0.4563	0.3248
17.25	-0.01826	0.1419	0.06157	0.4487	0.3194
17.50	-0.01765	0.1383	0.05868	0.4413	0.3141
17.75	-0.01705	0.1348	0.05593	0.4340	0.3089
18.00	-0.01647	0.1315	0.05330	0.4268	0.3038
18.25	-0.01590	0.1283	0.05078	0.4197	0.2988
18.50	-0.01535	0.1252	0.04837	0.4123	0.2938
18.75	-0.01481	0.1222	0.04607	0.4060	0.2889
19.00	-0.01428	0.1193	0.04387	0.3992	0.2841
19.25	-0.01377	0.1165	0.04176	0.3925	0.2794
19.50	-0.01327	0.1137	0.03974	0.3859	0.2747
19.75	-0.01278	0.1110	0.03781	0.3794	0.2701
20.00	-0.01230	0.1084	0.03596	0.3730	0.2655
20.25	-0.01183	0.1059	0.03419	0.3667	0.2609
20.5	-0.01137	0.1034	0.03248	0.3604	0.2565
21.0	-0.01049	0.0987	0.02928	0.3481	0.2477
21.5	-0.00965	0.0942	0.02633	0.3361	0.2391
22.0	-0.00885	0.0899	0.02362	0.3243	0.2307
22.5	-0.00808	0.0857	0.02112	0.3126	0.2225
23.0	-0.00735	0.0817	0.01881	0.3011	0.2143
23.5	-0.00665	0.0779	0.01659	0.2897	0.2062
24.0	-0.00599	0.0742	0.01473	0.2784	0.1981
24.5	-0.00536	0.0706	0.01293	0.2672	0.1901
25.0	-0.00476	0.0670	0.01126	0.2560	0.1822

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.65$     $M = 1.9580$     $\theta_2 = 30^\circ.804$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
25.25	-0.004471	0.06	0.01048	0.2504	0.1782
25.50	-0.004190	0.06	0.00973	0.2448	0.1748
25.75	-0.003917	0.06	0.00902	0.2392	0.1702
26.00	-0.003651	0.06	0.00834	0.2336	0.1662
26.25	-0.003392	0.06	0.00768	0.2279	0.1622
26.50	-0.003140	0.0568	0.00704	0.2222	0.1581
26.75	-0.002896	0.0551	0.00643	0.2164	0.1540
27.00	-0.002659	0.0534	0.00585	0.2106	0.1499
27.25	-0.002430	0.0517	0.00530	0.2047	0.1457
27.50	-0.002208	0.0500	0.00478	0.1987	0.1414
27.75	-0.001993	0.0483	0.00428	0.1926	0.1371
28.00	-0.001786	0.0466	0.00380	0.1864	0.1327
28.25	-0.001586	0.0449	0.00335	0.1800	0.1282
28.50	-0.001394	0.0431	0.00292	0.1735	0.1235
28.75	-0.001210	0.0413	0.00251	0.1668	0.1187
29.0	-0.001034	0.0395	0.00213	0.1599	0.1138
29.1	-0.000965	0.0387	0.00198	0.1570	0.1117
29.2	-0.000896	0.0379	0.00184	0.1541	0.1096
29.3	-0.000833	0.0371	0.00170	0.1511	0.1075
29.4	-0.000769	0.0363	0.00157	0.1481	0.1054
29.5	-0.000706	0.0355	0.00144	0.1450	0.1032
29.6	-0.000645	0.0347	0.00131	0.1418	0.1009
29.7	-0.000585	0.0339	0.00118	0.1385	0.0986
29.8	-0.000526	0.0330	0.00106	0.1351	0.0962
29.9	-0.000470	0.0321	0.00094	0.1317	0.0937
30.00	-0.000414	0.0312	0.00083	0.1282	0.0912
30.05	-0.000387	0.0308	0.00077	0.1264	0.0899
30.10	-0.000361	0.0303	0.00072	0.1245	0.0886
30.15	-0.000334	0.0298	0.00067	0.1226	0.0873
30.20	-0.000309	0.0293	0.00061	0.1207	0.0859
30.25	-0.000283	0.0288	0.00056	0.1187	0.0845
30.30	-0.000258	0.0283	0.00051	0.1167	0.0831
30.35	-0.000234	0.0278	0.00046	0.1147	0.0817
30.40	-0.000210	0.0273	0.00041	0.1127	0.0802
30.45	-0.000186	0.0268	0.00037	0.1106	0.0787
30.50	-0.000163	0.0263	0.00033	0.1085	0.0772
30.55	-0.000140	0.0258	0.00028	0.1064	0.0757
30.60	-0.000119	0.0253	0.00023	0.1045	0.0744
30.65	-0.000096	0.0248	0.00019	0.1029	0.0733
30.70	-0.000075	0.0246	0.00015	0.1018	0.0725
30.71	-0.000070	0.0245	0.00014	0.1017	0.0724
30.72	-0.000066	0.0245	0.00013	0.1017	0.0724
30.73	-0.000062	0.0246	0.00012	0.1018	0.0725
30.74	-0.000057	0.0245	0.00011	0.1021	0.0727
30.75	-0.000053	0.0247	0.00010	0.1026	0.0730

$\theta_1 = 5^\circ$     $u_1 = 0.65$     $M = 1.9780$     $\theta_2 = 30.804$

$\theta$	$x$	$y$	$z$	$\eta/\pi$	$E/\beta$
30.76	-0.000049	0.0249	0.00009	0.1033	0.0735
30.77	-0.000044	0.0251	0.00009	0.1043	0.0742
30.78	-0.000040	0.0255	0.00008	0.1059	0.0754
30.79	-0.000036	0.0261	0.00007	0.1084	0.0772
30.80	-0.000031	0.0271	0.00006	0.1124	0.0800
30.804	-0.000029	0.0275	0.00006	0.1144	0.0814

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.70$     $M = 2.2473$     $\theta_2 = 26.544$

$\theta$	x	y	z	$\eta/\bar{u}$	$\xi/\bar{u}$
5.000	-0.1118	1.4000	1.2831	1.0649	0.7579
5.125	-0.1088	1.3359	1.2186	1.0914	0.7768
5.250	-0.1060	1.2765	1.1584	1.1130	0.7982
5.375	-0.1033	1.2213	1.1024	1.1304	0.8246
5.500	-0.1007	1.1698	1.0502	1.1447	0.8544
5.625	-0.0982	1.1217	1.0015	1.1551	0.8821
5.750	-0.0958	1.0768	0.9559	1.1632	0.9279
5.875	-0.0935	1.0348	0.9131	1.1690	0.9820
6.000	-0.0913	0.9954	0.8729	1.1728	0.8347
6.125	-0.0892	0.9583	0.8352	1.1748	0.8362
6.250	-0.0871	0.9234	0.7997	1.1753	0.8365
6.375	-0.0851	0.8906	0.7663	1.1744	0.8359
6.500	-0.0832	0.8597	0.7348	1.1724	0.8345
6.625	-0.0814	0.8305	0.7050	1.1694	0.8323
6.750	-0.0796	0.8028	0.6769	1.1655	0.8295
7.00	-0.0762	0.7519	0.6250	1.1555	0.8224
7.25	-0.0730	0.7050	0.5784	1.1432	0.8137
7.50	-0.0700	0.6646	0.5363	1.1292	0.8037
7.75	-0.0672	0.6270	0.4982	1.1139	0.7928
8.00	-0.0645	0.5921	0.4636	1.0977	0.7813
8.25	-0.0620	0.5616	0.4321	1.0809	0.7693
8.50	-0.0596	0.5330	0.4033	1.0636	0.7570
8.75	-0.0573	0.5067	0.3770	1.0461	0.7445
9.00	-0.0551	0.4825	0.3529	1.0285	0.7320
9.25	-0.0531	0.4601	0.3306	1.0109	0.7195
9.50	-0.0512	0.4394	0.3100	0.9933	0.7078
9.75	-0.0493	0.4202	0.2911	0.9758	0.6946
10.00	-0.0475	0.4023	0.2736	0.9585	0.6823
10.25	-0.0458	0.3856	0.2573	0.9415	0.6701
10.50	-0.0441	0.3700	0.2422	0.9247	0.6581
10.75	-0.0425	0.3555	0.2281	0.9081	0.6463
11.00	-0.0410	0.3419	0.2150	0.8918	0.6347
11.25	-0.0396	0.3291	0.2028	0.8758	0.6233
11.50	-0.0382	0.3170	0.1914	0.8601	0.6121
11.75	-0.0368	0.3057	0.1807	0.8446	0.6011
12.0	-0.0355	0.2949	0.1707	0.8295	0.5904
12.5	-0.0330	0.2752	0.1525	0.8001	0.5695
13.0	-0.0307	0.2575	0.1364	0.7718	0.5493
13.5	-0.0285	0.2415	0.1221	0.7445	0.5299
14.0	-0.0265	0.2270	0.1094	0.7183	0.5112
14.5	-0.0245	0.2137	0.0980	0.6930	0.4932
15.0	-0.0227	0.2015	0.0878	0.6686	0.4759
15.5	-0.0210	0.1903	0.0787	0.6450	0.4591
16.0	-0.0194	0.1800	0.0704	0.6222	0.4428
16.5	-0.0179	0.1704	0.0629	0.6000	0.4270



$\theta_s = 5^\circ$     $\bar{u}_s = 0.70$     $M = 2.2473$     $\theta_v = 26.544$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
17.0	-0.01643	0.1614	0.05620	0.5784	0.4117
17.5	-0.01506	0.1530	0.05008	0.5574	0.3968
18.0	-0.01376	0.1451	0.04452	0.5369	0.3822
18.5	-0.01252	0.1377	0.03947	0.5169	0.3679
19.0	-0.01135	0.1306	0.03488	0.4972	0.3539
19.5	-0.01024	0.1239	0.03069	0.4779	0.3401
20.0	-0.00919	0.1175	0.02687	0.4588	0.3265
20.5	-0.00819	0.1113	0.02339	0.4399	0.3131
21.0	-0.00725	0.1054	0.02022	0.4212	0.2998
21.5	-0.00635	0.0996	0.01733	0.4025	0.2865
22.00	-0.00551	0.0940	0.01470	0.3837	0.2731
22.25	-0.00510	0.0912	0.01348	0.3743	0.2664
22.50	-0.00471	0.0885	0.01231	0.3648	0.2596
22.75	-0.00433	0.0858	0.01120	0.3552	0.2528
23.00	-0.00396	0.0831	0.01014	0.3456	0.2460
23.25	-0.00360	0.0803	0.00914	0.3359	0.2391
23.50	-0.00326	0.0776	0.00818	0.3260	0.2321
23.75	-0.00293	0.0749	0.00727	0.3159	0.2249
24.00	-0.00261	0.0722	0.00641	0.3057	0.2176
24.25	-0.00230	0.0694	0.00560	0.2953	0.2102
24.3	-0.00224	0.0688	0.00544	0.2933	0.2087
24.4	-0.00212	0.0677	0.00513	0.2890	0.2057
24.5	-0.00200	0.0666	0.00483	0.2846	0.2026
24.6	-0.00188	0.0655	0.00454	0.2802	0.1994
24.7	-0.00177	0.0644	0.00425	0.2757	0.1962
24.8	-0.00166	0.0632	0.00397	0.2712	0.1930
24.9	-0.00155	0.0620	0.00369	0.2666	0.1898
25.0	-0.00144	0.0608	0.00342	0.2620	0.1865
25.1	-0.00134	0.0596	0.00316	0.2573	0.1831
25.2	-0.00124	0.0584	0.00291	0.2525	0.1797
25.3	-0.00114	0.0572	0.00266	0.2476	0.1762
25.4	-0.00104	0.0560	0.00242	0.2426	0.1727
25.5	-0.00094	0.0547	0.00219	0.2375	0.1691
25.6	-0.00085	0.0534	0.00196	0.2322	0.1653
25.7	-0.00076	0.0520	0.00174	0.2268	0.1614
25.75	-0.00071	0.0514	0.00164	0.2242	0.1596
25.80	-0.00067	0.0507	0.00153	0.2214	0.1576
25.85	-0.00062	0.0500	0.00143	0.2186	0.1556
25.90	-0.00057	0.0493	0.00133	0.2158	0.1535
25.95	-0.00053	0.0486	0.00123	0.2129	0.1515
26.00	-0.00049	0.0479	0.00113	0.2100	0.1495
26.05	-0.00045	0.0472	0.00103	0.2071	0.1474
26.10	-0.00041	0.0465	0.00093	0.2042	0.1453
26.15	-0.00037	0.0458	0.00084	0.2013	0.1433
26.20	-0.00033	0.0451	0.00075	0.1985	0.1413

$\theta_s = 5^\circ$     $\bar{U}_s = 0.70$     $M = 2.2473$     $\theta_v = 26.544$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
26.25	-0.00029	0.0445	0.00066	0.1957	0.1393
26.30	-0.00025	0.0439	0.00057	0.1932	0.1375
26.35	-0.00022	0.0433	0.00048	0.1910	0.1359
26.40	-0.00018	0.0430	0.00040	0.1897	0.1350
26.45	-0.00014	0.0430	0.00032	0.1899	0.1352
26.46	-0.00013	0.0431	0.00030	0.1903	0.1354
26.47	-0.00013	0.0432	0.00028	0.1909	0.1359
26.48	-0.00012	0.0434	0.00027	0.1918	0.1365
26.49	-0.00011	0.0436	0.00025	0.1930	0.1374
26.50	-0.00010	0.0439	0.00023	0.1946	0.1385
26.51	-0.00010	0.0444	0.00021	0.1968	0.1400
26.52	-0.00009	0.0451	0.00020	0.1997	0.1421
26.53	-0.00008	0.0461	0.00018	0.2039	0.1451
26.54	-0.00007	0.0474	0.00016	0.2100	0.1495
26.544	-0.00007	0.0482	0.00015	0.2133	0.1518

$\theta_s = 5^\circ$     $Q_s = 0.75$     $M = 2.6064$     $\theta_v = 22.735$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
5.000	-0.1167	1.5000	1.3395	1.3885	0.9883
5.125	-0.1135	1.4332	1.2711	1.4239	1.0135
5.250	-0.1105	1.3694	1.2075	1.4529	1.0341
5.375	-0.1076	1.3097	1.1774	1.4653	1.0429
5.500	-0.1076	1.3110	1.1483	1.4765	1.0509
5.625	-0.1062	1.2833	1.1202	1.4865	1.0580
5.750	-0.1048	1.2566	1.0930	1.4953	1.0643
5.875	-0.1034	1.2308	1.0667	1.5031	1.0698
5.9375	-0.1021	1.2058	1.0413	1.5100	1.0747
6.0000	-0.1008	1.1817	1.0168	1.5160	1.0790
6.0625	-0.0995	1.1584	0.9931	1.5212	1.0827
6.1250	-0.0982	1.1358	0.9701	1.5256	1.0858
6.1875	-0.0970	1.1140	0.9479	1.5293	1.0885
6.2500	-0.0958	1.0929	0.9263	1.5323	1.0906
6.3125	-0.0946	1.0724	0.9054	1.5347	1.0923
6.3750	-0.0934	1.0526	0.8851	1.5365	1.0936
6.4375	-0.0923	1.0334	0.8654	1.5378	1.0945
6.5000	-0.0912	1.0147	0.8464	1.5386	1.0951
6.5625	-0.0901	0.9965	0.8279	1.5389	1.0954
6.6250	-0.0890	0.9789	0.8099	1.5388	1.0953
6.6875	-0.0879	0.9618	0.7925	1.5383	1.0949
6.7500	-0.0869	0.9452	0.7756	1.5374	1.0942
6.8125	-0.0859	0.9291	0.7591	1.5360	1.0932
6.8750	-0.0849	0.9135	0.7431	1.5344	1.0920
6.9375	-0.0839	0.8983	0.7275	1.5324	1.0907
7.0000	-0.0829	0.8835	0.7124	1.5302	1.0892
7.0625	-0.0820	0.8691	0.6977	1.5277	1.0874
7.1250	-0.0810	0.8551	0.6834	1.5250	1.0854
7.1875	-0.0801	0.8414	0.6695	1.5220	1.0833
7.2500	-0.0792	0.8281	0.6560	1.5188	1.0810
7.3125	-0.0783	0.8152	0.6428	1.5154	1.0785
7.3750	-0.0774	0.8026	0.6300	1.5118	1.0759
7.4375	-0.0766	0.7903	0.6175	1.5080	1.0732
7.5000	-0.0757	0.7783	0.6053	1.5040	1.0704
7.5625	-0.0749	0.7667	0.5935	1.4999	1.0675
7.6250	-0.0740	0.7553	0.5819	1.4956	1.0645
7.6875	-0.0732	0.7442	0.5706	1.4912	1.0614
7.7500	-0.0724	0.7334	0.5596	1.4867	1.0582
7.8125	-0.0716	0.7228	0.5488	1.4820	1.0549
7.8750	-0.0708	0.7125	0.5383	1.4772	1.0515
7.9375	-0.0701	0.7024	0.5281	1.4724	1.0480
8.0000	-0.0693	0.6926	0.5182	1.4675	1.0445
8.0625	-0.0686	0.6830	0.5085	1.4625	1.0409
8.1250	-0.0677	0.6645	0.4898	1.4522	1.0336
8.1875	-0.0667	0.6468	0.4719	1.4417	1.0261
8.2500	-0.0657	0.6298	0.4548	1.4309	1.0184
8.3125	-0.0647	0.6136	0.4385	1.4199	1.0106
8.3750	-0.0637	0.5981	0.4229	1.4088	1.0027

$\theta_s = 5^\circ$     $U_s = 0.75$     $M = 2.6064$     $\theta_v = 22.735$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
8.500	-0.0603	0.5832	0.4080	1.3976	0.9947
8.625	-0.0591	0.5690	0.3938	1.3863	0.9867
8.750	-0.0579	0.5553	0.3802	1.3749	0.9786
8.875	-0.0567	0.5421	0.3671	1.3634	0.9704
9.000	-0.0555	0.5294	0.3546	1.3519	0.9622
9.125	-0.0543	0.5172	0.3426	1.3404	0.9540
9.250	-0.0532	0.5055	0.3310	1.3289	0.9458
9.375	-0.0521	0.4943	0.3199	1.3174	0.9377
9.500	-0.0510	0.4835	0.3093	1.3059	0.9295
9.625	-0.0500	0.4730	0.2991	1.2944	0.9213
9.750	-0.0490	0.4629	0.2893	1.2830	0.9132
9.875	-0.0480	0.4531	0.2798	1.2716	0.9051
10.000	-0.0470	0.4437	0.2707	1.2603	0.8970
10.125	-0.0460	0.4346	0.2619	1.2489	0.8889
10.250	-0.0451	0.4258	0.2535	1.2377	0.8809
10.50	-0.0433	0.4091	0.2376	1.2154	0.8651
10.75	-0.0415	0.3934	0.2227	1.1934	0.8494
11.00	-0.0398	0.3786	0.2089	1.1717	0.8340
11.25	-0.0382	0.3647	0.1960	1.1503	0.8188
11.50	-0.0367	0.3516	0.1840	1.1293	0.8038
11.75	-0.0352	0.3392	0.1727	1.1086	0.7890
12.00	-0.0337	0.3275	0.1621	1.0882	0.7745
12.25	-0.0323	0.3164	0.1523	1.0681	0.7602
12.50	-0.0309	0.3059	0.1430	1.0483	0.7461
12.75	-0.0296	0.2959	0.1343	1.0288	0.7322
13.00	-0.0283	0.2864	0.1261	1.0097	0.7186
13.25	-0.0271	0.2773	0.1184	0.9908	0.7052
13.50	-0.0259	0.2686	0.1111	0.9722	0.6920
13.75	-0.0248	0.2603	0.1043	0.9539	0.6790
14.00	-0.0237	0.2523	0.0979	0.9359	0.6668
14.25	-0.0226	0.2447	0.0918	0.9181	0.6535
14.50	-0.0215	0.2374	0.0860	0.9006	0.6410
14.75	-0.0205	0.2304	0.0806	0.8833	0.6287
15.00	-0.0195	0.2236	0.0754	0.8662	0.6165
15.25	-0.0185	0.2171	0.0706	0.8493	0.6045
15.50	-0.0176	0.2108	0.0660	0.8326	0.5926
15.75	-0.0167	0.2047	0.0616	0.8161	0.5809
16.00	-0.0158	0.1988	0.0575	0.7997	0.5692
16.25	-0.0150	0.1931	0.0536	0.7835	0.5577
16.50	-0.0142	0.1875	0.0499	0.7674	0.5462
16.75	-0.0134	0.1821	0.0463	0.7514	0.5348
17.00	-0.0126	0.1768	0.0430	0.7355	0.5235
17.25	-0.0118	0.1717	0.0398	0.7198	0.5123
17.50	-0.0111	0.1667	0.0368	0.7041	0.5011
17.75	-0.0104	0.1618	0.0340	0.6884	0.4900

$$\theta_0 = 5^\circ \quad U_0 = 0.75 \quad M = 2.6064 \quad \theta_w = 22.735$$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$E/\beta$
18.00	-0.00966	0.1570	0.03127	0.6727	0.4789
18.25	-0.00898	0.1523	0.02870	0.6571	0.4677
18.50	-0.00833	0.1477	0.02626	0.6415	0.4566
18.75	-0.00770	0.1432	0.02395	0.6259	0.4455
19.00	-0.00709	0.1387	0.02176	0.6102	0.4344
19.25	-0.00649	0.1343	0.01968	0.5944	0.4232
19.50	-0.00591	0.1299	0.01771	0.5784	0.4118
19.75	-0.00535	0.1255	0.01585	0.5623	0.4003
20.00	-0.00481	0.1212	0.01409	0.5460	0.3887
20.25	-0.00429	0.1169	0.01242	0.5295	0.3769
20.50	-0.00379	0.1126	0.01084	0.5127	0.3649
20.75	-0.00331	0.1082	0.00935	0.4956	0.3527
21.00	-0.00285	0.1038	0.00795	0.4780	0.3402
21.25	-0.00241	0.0993	0.00664	0.4599	0.3273
21.50	-0.00199	0.0948	0.00542	0.4412	0.3140
21.6	-0.00182	0.0929	0.00495	0.4336	0.3086
21.7	-0.00166	0.0911	0.00449	0.4258	0.3031
21.8	-0.00150	0.0892	0.00405	0.4179	0.2975
21.9	-0.00135	0.0873	0.00362	0.4100	0.2918
22.0	-0.00120	0.0854	0.00320	0.4020	0.2861
22.05	-0.00112	0.0845	0.00299	0.3980	0.2833
22.10	-0.00105	0.0835	0.00279	0.3939	0.2804
22.15	-0.00098	0.0826	0.00259	0.3899	0.2775
22.20	-0.00091	0.0817	0.00240	0.3859	0.2747
22.25	-0.00084	0.0808	0.00221	0.3820	0.2719
22.30	-0.00077	0.0799	0.00202	0.3782	0.2692
22.35	-0.00070	0.0790	0.00183	0.3745	0.2665
22.40	-0.00063	0.0782	0.00165	0.3711	0.2641
22.45	-0.00056	0.0775	0.00147	0.3681	0.2620
22.50	-0.00049	0.0769	0.00129	0.3657	0.2603
22.525	-0.00046	0.0766	0.00120	0.3649	0.2597
22.550	-0.00043	0.0765	0.00111	0.3644	0.2594
22.575	-0.00039	0.0764	0.00102	0.3644	0.2594
22.600	-0.00036	0.0765	0.00094	0.3650	0.2598
22.625	-0.00033	0.0768	0.00085	0.3666	0.2609
22.6375	-0.00031	0.0770	0.00080	0.3679	0.2619
22.6500	-0.00029	0.0774	0.00076	0.3696	0.2631
22.6625	-0.00028	0.0778	0.00072	0.3718	0.2646
22.6750	-0.00026	0.0784	0.00068	0.3747	0.2667
22.6875	-0.00024	0.0792	0.00063	0.3786	0.2695
22.7000	-0.00022	0.0802	0.00058	0.3836	0.2730
22.7125	-0.00021	0.0816	0.00053	0.3904	0.2779
22.7250	-0.00019	0.0835	0.00049	0.3998	0.2846
22.735	-0.00017	0.0856	0.00045	0.4100	0.2918

$\theta_s = 5^\circ$     $\bar{u}_s = 0.80$     $M = 3.0774$     $\theta_w = 19.223$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
5.0	-0.1204	1.6000	1.3810	1.8555	1.3206
5.1	-0.1177	1.5427	1.3231	1.8954	1.3490
5.2	-0.1150	1.4887	1.2686	1.9896	1.3733
5.3	-0.1124	1.4380	1.2171	1.9588	1.3940
5.4	-0.1099	1.3901	1.1684	1.9834	1.4116
5.5	-0.1076	1.3448	1.1223	2.0041	1.4264
5.6	-0.1052	1.3021	1.0786	2.0213	1.4386
5.7	-0.1030	1.2616	1.0373	2.0352	1.4485
5.8	-0.1008	1.2232	0.9980	2.0463	1.4564
5.9	-0.0987	1.1867	0.9607	2.0549	1.4625
6.0	-0.0967	1.1521	0.9252	2.0612	1.4670
6.1	-0.0947	1.1192	0.8914	2.0655	1.4701
6.2	-0.0928	1.0879	0.8592	2.0680	1.4718
6.3	-0.0909	1.0580	0.8286	2.0688	1.4724
6.4	-0.0891	1.0295	0.7994	2.0682	1.4720
6.5	-0.0873	1.0023	0.7715	2.0663	1.4706
6.6	-0.0856	0.9763	0.7448	2.0632	1.4684
6.7	-0.0839	0.9515	0.7193	2.0591	1.4655
6.8	-0.0823	0.9277	0.6949	2.0540	1.4619
6.9	-0.0807	0.9049	0.6716	2.0481	1.4577
7.0	-0.0791	0.8831	0.6493	2.0414	1.4529
7.1	-0.0776	0.8621	0.6279	2.0341	1.4477
7.2	-0.0761	0.8420	0.6073	2.0261	1.4420
7.3	-0.0746	0.8227	0.5876	2.0175	1.4359
7.4	-0.0732	0.8041	0.5687	2.0085	1.4295
7.5	-0.0718	0.7863	0.5505	1.9990	1.4228
7.6	-0.0705	0.7691	0.5330	1.9892	1.4158
7.7	-0.0692	0.7525	0.5162	1.9790	1.4085
7.8	-0.0679	0.7365	0.5000	1.9684	1.4010
7.9	-0.0666	0.7211	0.4845	1.9576	1.3933
8.00	-0.0653	0.7063	0.4696	1.9466	1.3854
8.25	-0.0623	0.6714	0.4345	1.9181	1.3652
8.50	-0.0595	0.6393	0.4025	1.8887	1.3442
8.75	-0.0568	0.6097	0.3731	1.8586	1.3228
9.00	-0.0542	0.5824	0.3462	1.8281	1.3011
9.25	-0.0517	0.5570	0.3215	1.7973	1.2792
9.50	-0.0493	0.5335	0.2987	1.7664	1.2573
9.75	-0.0470	0.5115	0.2777	1.7356	1.2353
10.00	-0.0448	0.4910	0.2582	1.7049	1.2134
10.25	-0.0427	0.4718	0.2402	1.6743	1.1916
10.50	-0.0407	0.4538	0.2235	1.6439	1.1700
10.75	-0.0388	0.4368	0.2079	1.6138	1.1486
11.00	-0.0369	0.4208	0.1934	1.5840	1.1274
11.25	-0.0351	0.4057	0.1799	1.5545	1.1064
11.50	-0.0334	0.3915	0.1673	1.5253	1.0856

$$\theta_s = 5^\circ \quad \bar{U}_s = 0.80 \quad M = 3.0774 \quad \theta_v = 19^\circ.223$$

$\theta$	$x$	$y$	$z$	$r/p$	$r/p$
11.750	-0.03168	0.3780	0.1556	1.4965	1.0650
11.875	-0.03086	0.3715	0.1500	1.4822	1.0549
12.000	-0.03006	0.3651	0.1446	1.4679	1.0447
12.125	-0.02927	0.3589	0.1394	1.4537	1.0346
12.250	-0.02849	0.3528	0.1343	1.4396	1.0246
12.375	-0.02772	0.3469	0.1294	1.4256	1.0146
12.500	-0.02697	0.3411	0.1247	1.4116	1.0047
12.625	-0.02623	0.3354	0.1201	1.3977	0.9948
12.750	-0.02551	0.3299	0.1156	1.3839	0.9850
12.875	-0.02480	0.3245	0.1113	1.3702	0.9752
13.000	-0.02410	0.3192	0.1071	1.3565	0.9655
13.125	-0.02341	0.3140	0.1031	1.3429	0.9558
13.250	-0.02273	0.3090	0.0992	1.3294	0.9462
13.375	-0.02206	0.3041	0.0954	1.3159	0.9366
13.500	-0.02140	0.2992	0.0917	1.3025	0.9270
13.625	-0.02075	0.2944	0.0881	1.2891	0.9175
13.750	-0.02011	0.2897	0.0846	1.2758	0.9080
13.875	-0.01948	0.2851	0.0813	1.2625	0.8985
14.000	-0.01887	0.2806	0.0780	1.2493	0.8891
14.125	-0.01827	0.2762	0.0749	1.2361	0.8797
14.250	-0.01767	0.2718	0.0718	1.2229	0.8703
14.375	-0.01708	0.2675	0.0688	1.2098	0.8610
14.500	-0.01650	0.2633	0.0659	1.1967	0.8517
14.625	-0.01593	0.2591	0.0631	1.1836	0.8424
14.750	-0.01537	0.2550	0.0604	1.1706	0.8331
14.875	-0.01482	0.2509	0.0577	1.1576	0.8239
15.000	-0.01427	0.2469	0.0552	1.1446	0.8147
15.125	-0.01373	0.2430	0.0527	1.1316	0.8054
15.250	-0.01321	0.2391	0.0502	1.1186	0.7961
15.375	-0.01270	0.2353	0.0479	1.1056	0.7869
15.500	-0.01219	0.2315	0.0456	1.0927	0.7777
15.625	-0.01169	0.2278	0.0434	1.0797	0.7685
15.750	-0.01120	0.2241	0.0412	1.0667	0.7592
15.875	-0.01071	0.2205	0.0392	1.0537	0.7499
16.000	-0.01023	0.2168	0.0371	1.0407	0.7406
16.125	-0.00976	0.2132	0.0352	1.0276	0.7313
16.250	-0.00930	0.2096	0.0332	1.0145	0.7220
16.375	-0.00885	0.2060	0.0314	1.0014	0.7127
16.500	-0.00840	0.2025	0.0296	0.9882	0.7033
16.625	-0.00796	0.1990	0.0278	0.9750	0.6939
16.750	-0.00753	0.1955	0.0262	0.9617	0.6844
16.875	-0.00711	0.1921	0.0245	0.9483	0.6749
17.000	-0.00669	0.1887	0.0229	0.9349	0.6654
17.125	-0.00628	0.1853	0.0214	0.9214	0.6558
17.250	-0.00588	0.1819	0.0199	0.9078	0.6461

$\theta_0 = 5^\circ$     $\bar{u}_0 = 0.80$     $M = 3.0774$     $\theta_0 = 19.223$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
17.375	-0.00549	0.1785	0.01841	0.8941	0.6363
17.500	-0.00511	0.1752	0.01700	0.8803	0.6265
17.625	-0.00473	0.1718	0.01563	0.8665	0.6167
17.750	-0.00436	0.1684	0.01430	0.8526	0.6068
17.875	-0.00399	0.1650	0.01302	0.8386	0.5968
18.0	-0.00364	0.1617	0.01177	0.8245	0.5868
18.1	-0.00336	0.1591	0.01081	0.8131	0.5787
18.2	-0.00308	0.1564	0.00987	0.8018	0.5706
18.3	-0.00281	0.1538	0.00895	0.7906	0.5626
18.4	-0.00254	0.1512	0.00806	0.7794	0.5547
18.50	-0.00228	0.1487	0.00720	0.7685	0.5469
18.55	-0.00215	0.1474	0.00677	0.7631	0.5431
18.60	-0.00203	0.1462	0.00635	0.7579	0.5394
18.65	-0.00190	0.1450	0.00594	0.7529	0.5359
18.70	-0.00177	0.1439	0.00553	0.7481	0.5325
18.75	-0.00164	0.1429	0.00513	0.7437	0.5293
18.80	-0.00152	0.1419	0.00473	0.7396	0.5264
18.85	-0.00140	0.1410	0.00433	0.7362	0.5239
18.90	-0.00128	0.1403	0.00394	0.7335	0.5220
18.95	-0.00115	0.1398	0.00356	0.7321	0.5211
19.00	-0.00103	0.1397	0.00317	0.7325	0.5213
19.02	-0.00098	0.1397	0.00302	0.7333	0.5219
19.04	-0.00094	0.1399	0.00287	0.7346	0.5228
19.06	-0.00089	0.1402	0.00272	0.7366	0.5242
19.08	-0.00084	0.1406	0.00256	0.7394	0.5262
19.10	-0.00079	0.1412	0.00241	0.7433	0.5290
19.12	-0.00074	0.1421	0.00226	0.7484	0.5326
19.14	-0.00069	0.1433	0.00211	0.7552	0.5375
19.16	-0.00064	0.1450	0.00195	0.7644	0.5440
19.18	-0.00059	0.1472	0.00179	0.7768	0.5528
19.20	-0.00054	0.1504	0.00163	0.7940	0.5651
19.22	-0.00048	0.1549	0.00147	0.8188	0.5827
19.223	-0.00047	0.1559	0.00144	0.8240	0.5864



$$\theta_s = 5^\circ \quad \bar{u}_s = 0.85 \quad M = 3.7495 \quad \theta_v = 15^\circ.884$$

$\theta$	$x$	$y$	$z$	$\eta/\bar{r}$	$\xi/\bar{r}$
5.0	-0.1219	1.7000	1.3992	2.5892	1.8424
5.1	-0.1190	1.6404	1.3390	2.6477	1.8840
5.2	-0.1162	1.5845	1.2823	2.6981	1.9199
5.25	-0.1148	1.5578	1.2551	2.7206	1.9359
5.30	-0.1134	1.5319	1.2287	2.7413	1.9507
5.35	-0.1121	1.5067	1.2031	2.7604	1.9643
5.40	-0.1108	1.4823	1.1781	2.7780	1.9768
5.45	-0.1095	1.4586	1.1538	2.7942	1.9883
5.50	-0.1082	1.4355	1.1301	2.8090	1.9989
5.55	-0.1070	1.4131	1.1071	2.8226	2.0086
5.60	-0.1058	1.3913	1.0847	2.8349	2.0174
5.65	-0.1046	1.3701	1.0629	2.8461	2.0253
5.70	-0.1034	1.3494	1.0417	2.8563	2.0325
5.75	-0.1022	1.3293	1.0210	2.8655	2.0390
5.80	-0.1010	1.3098	1.0008	2.8737	2.0449
5.85	-0.0999	1.2908	0.9812	2.8810	2.0501
5.90	-0.0988	1.2723	0.9620	2.8874	2.0546
5.95	-0.0977	1.2541	0.9433	2.8931	2.0586
6.0	-0.0966	1.2365	0.9250	2.8980	2.0622
6.1	-0.0945	1.22025	0.90899	2.9057	2.0676
6.2	-0.0924	1.1703	0.8564	2.9108	2.0712
6.3	-0.0904	1.1394	0.8245	2.9135	2.0732
6.4	-0.0885	1.1100	0.7941	2.9141	2.0736
6.5	-0.0866	1.0819	0.7651	2.9128	2.0727
6.6	-0.0847	1.0551	0.7372	2.9099	2.0706
6.7	-0.0829	1.0295	0.7107	2.9055	2.0675
6.8	-0.0811	1.0049	0.6853	2.8997	2.0634
6.9	-0.0794	0.9814	0.6610	2.8927	2.0584
7.0	-0.0777	0.9588	0.6377	2.8846	2.0526
7.1	-0.0760	0.9371	0.6153	2.8755	2.0461
7.2	-0.0744	0.9163	0.5939	2.8655	2.0390
7.3	-0.0728	0.8963	0.5734	2.8546	2.0313
7.4	-0.0713	0.8771	0.5537	2.8430	2.0230
7.5	-0.0698	0.8586	0.5347	2.8308	2.0143
7.6	-0.0683	0.8408	0.5165	2.8180	2.0052
7.7	-0.0668	0.8236	0.4990	2.8046	1.9957
7.8	-0.0654	0.8070	0.4821	2.7908	1.9859
7.9	-0.0640	0.7910	0.4659	2.7766	1.9758
8.0	-0.0626	0.7756	0.4503	2.7620	1.9654
8.2	-0.0600	0.7462	0.4208	2.7317	1.9438
8.4	-0.0575	0.7187	0.3933	2.7003	1.9215
8.6	-0.0550	0.6930	0.3677	2.6681	1.8985
8.8	-0.0526	0.6688	0.3439	2.6358	1.8751
9.0	-0.0503	0.6460	0.3217	2.6018	1.8513
9.2	-0.0481	0.6245	0.3009	2.5680	1.8273
9.4	-0.0459	0.6041	0.2814	2.5339	1.8031
9.6	-0.0438	0.5848	0.2631	2.4997	1.7787
9.8	-0.0418	0.5665	0.2460	2.4653	1.7542

$\theta_s = 5^\circ$     $\bar{u}_s = 0.85$     $M = 3.7495$     $\theta_w = 15.884$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
10.0	-0.03990	0.5491	0.2299	2.4308	1.7297
10.2	-0.03801	0.5326	0.2148	2.3964	1.7052
10.4	-0.03618	0.5168	0.2006	2.3620	1.6807
10.6	-0.03440	0.5017	0.1872	2.3276	1.6562
10.8	-0.03267	0.4873	0.1746	2.2933	1.6317
11.0	-0.03100	0.4735	0.1627	2.2590	1.6073
11.2	-0.02937	0.4602	0.1514	2.2248	1.5830
11.4	-0.02778	0.4474	0.1407	2.1908	1.5588
11.6	-0.02625	0.4351	0.1306	2.1568	1.5346
11.8	-0.02475	0.4233	0.1211	2.1229	1.5105
12.0	-0.02329	0.4119	0.1121	2.0891	1.4864
12.2	-0.02187	0.4009	0.1036	2.0554	1.4624
12.4	-0.02049	0.3902	0.0955	2.0218	1.4385
12.6	-0.01915	0.3798	0.0878	1.9883	1.4146
12.8	-0.01784	0.3697	0.0806	1.9548	1.3908
13.0	-0.01657	0.3599	0.0737	1.9213	1.3670
13.2	-0.01533	0.3504	0.0672	1.8879	1.3432
13.4	-0.01412	0.3411	0.0610	1.8546	1.3194
13.6	-0.01295	0.3320	0.0551	1.8213	1.2957
13.8	-0.01181	0.3232	0.0495	1.7880	1.2721
14.0	-0.01070	0.3146	0.0442	1.7549	1.2486
14.2	-0.00961	0.3062	0.0392	1.7220	1.2252
14.4	-0.00855	0.2980	0.0344	1.6895	1.2020
14.6	-0.00752	0.2901	0.0299	1.6575	1.1792
14.8	-0.00652	0.2825	0.0256	1.6268	1.1574
14.85	-0.00628	0.2807	0.0246	1.6193	1.1521
14.90	-0.00603	0.2789	0.0235	1.6120	1.1469
14.95	-0.00579	0.2771	0.0225	1.6049	1.1418
15.00	-0.00555	0.2754	0.0215	1.5980	1.1369
15.05	-0.00531	0.2737	0.0205	1.5913	1.1321
15.10	-0.00507	0.2721	0.0195	1.5849	1.1275
15.15	0.00484	0.2706	0.0185	1.5788	1.1232
15.20	-0.00461	0.2691	0.0176	1.5732	1.1192
15.25	-0.00437	0.2677	0.0166	1.5681	1.1155
15.30	-0.00413	0.2664	0.0157	1.5635	1.1123
15.35	-0.00390	0.2652	0.0148	1.5597	1.1096
15.40	-0.00367	0.2642	0.0138	1.5568	1.1076
15.45	-0.00344	0.2634	0.0129	1.5551	1.1064
15.50	-0.00321	0.2628	0.0120	1.5549	1.1062
15.55	-0.00298	0.2626	0.0112	1.5567	1.1075
15.60	-0.00275	0.2628	0.0102	1.5613	1.1108
15.61	-0.00270	0.2629	0.0101	1.5626	1.1117
15.62	-0.00266	0.2630	0.0099	1.5640	1.1127
15.63	-0.00262	0.2632	0.0097	1.5656	1.1138
15.64	-0.00257	0.2634	0.0095	1.5674	1.1151

$\theta_1 = 5^\circ$      $U_1 = 0.85$      $M = 3.7495$      $\theta_2 = 15.884$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
15.65	-0.00252	0.2636	0.00936	1.5694	1.1165
15.66	-0.00248	0.2639	0.00918	1.5716	1.1181
15.67	-0.00244	0.2642	0.00900	1.5740	1.1199
15.68	-0.00239	0.2645	0.00883	1.5766	1.1218
15.69	-0.00234	0.2649	0.00866	1.5793	1.1238
15.70	-0.00229	0.2653	0.00848	1.5827	1.1260
15.71	-0.00224	0.2658	0.00830	1.5862	1.1285
15.72	-0.00220	0.2663	0.00812	1.5900	1.1312
15.73	-0.00216	0.2669	0.00794	1.5942	1.1342
15.74	-0.00211	0.2675	0.00777	1.5988	1.1375
15.75	-0.00206	0.2682	0.00759	1.6038	1.1410
15.76	-0.00202	0.2690	0.00741	1.6093	1.1449
15.77	-0.00196	0.2699	0.00723	1.6154	1.1492
15.78	-0.00192	0.2709	0.00706	1.6220	1.1540
15.79	-0.00187	0.2720	0.00688	1.6293	1.1592
15.80	-0.00182	0.2732	0.00670	1.6373	1.1649
15.81	-0.00177	0.2745	0.00652	1.6462	1.1710
15.82	-0.00173	0.2750	0.00634	1.6560	1.1782
15.83	-0.00168	0.2777	0.00616	1.6669	1.1859
15.84	-0.00163	0.2796	0.00598	1.6790	1.1945
15.85	-0.00158	0.2817	0.00580	1.6925	1.2041
15.86	-0.00153	0.2841	0.00561	1.7078	1.2150
15.87	-0.00148	0.2868	0.00542	1.7250	1.2273
15.88	-0.00143	0.2899	0.00524	1.7444	1.2411
15.884	-0.00141	0.2913	0.00516	1.7529	1.2476

θ	x	y	z	η/β	ξ/β
5.0	-0.1197	1.8000	1.3787	3.9201	2.7859
5.1	-0.1166	1.7392	1.3166	4.0163	2.8544
5.2	-0.1136	1.6822	1.2582	4.0995	2.9136
5.25	-0.1122	1.6549	1.2303	4.1367	2.9401
5.30	-0.1108	1.6286	1.2031	4.1713	2.9647
5.35	-0.1094	1.6031	1.1767	4.2033	2.9875
5.40	-0.1080	1.5783	1.1510	4.2329	3.0086
5.45	-0.1066	1.5543	1.1260	4.2603	3.0281
5.50	-0.1052	1.5309	1.1017	4.2856	3.0461
5.55	-0.1039	1.5082	1.0781	4.3090	3.0627
5.60	-0.1026	1.4862	1.0551	4.3305	3.0780
5.65	-0.1013	1.4648	1.0327	4.3502	3.0920
5.70	-0.1000	1.4440	1.0109	4.3682	3.1048
5.75	-0.0988	1.4237	0.9896	4.3847	3.1165
5.80	-0.0976	1.4040	0.9688	4.3997	3.1278
5.85	-0.0964	1.3848	0.9486	4.4133	3.1369
5.90	-0.0952	1.3661	0.9289	4.4256	3.1457
5.95	-0.0940	1.3479	0.9096	4.4367	3.1536
6.0	-0.0928	1.3301	0.8908	4.4465	3.1606
6.1	-0.0905	1.2960	0.8546	4.4629	3.1722
6.2	-0.0883	1.2633	0.8202	4.4753	3.1811
6.3	-0.0861	1.2325	0.7873	4.4841	3.1873
6.4	-0.0840	1.2030	0.7559	4.4896	3.1912
6.5	-0.0819	1.1748	0.7259	4.4922	3.1931
6.6	-0.0799	1.1479	0.6973	4.4898	3.1931
6.7	-0.0779	1.1222	0.6699	4.4903	3.1914
6.8	-0.0760	1.0975	0.6437	4.4852	3.1881
6.9	-0.0741	1.0739	0.6186	4.4787	3.1835
7.0	-0.0722	1.0512	0.5945	4.4705	3.1776
7.1	-0.0704	1.0294	0.5714	4.4607	3.1706
7.2	-0.0686	1.0085	0.5493	4.4495	3.1626
7.3	-0.0669	0.9884	0.5281	4.4369	3.1537
7.4	-0.0652	0.9690	0.5077	4.4232	3.1440
7.5	-0.0635	0.9504	0.4881	4.4084	3.1335
7.6	-0.0619	0.9324	0.4693	4.3927	3.1223
7.7	-0.0603	0.9151	0.4512	4.3761	3.1105
7.8	-0.0587	0.8984	0.4337	4.3588	3.0981
7.9	-0.0571	0.8822	0.4169	4.3408	3.0853
8.0	-0.0556	0.8666	0.4007	4.3221	3.0720
8.1	-0.0541	0.8515	0.3851	4.3028	3.0583
8.2	-0.0526	0.8369	0.3701	4.2830	3.0442
8.3	-0.0511	0.8228	0.3556	4.2627	3.0298
8.4	-0.0497	0.8091	0.3416	4.2420	3.0151
8.5	-0.0483	0.7958	0.3281	4.2210	3.0001
8.6	-0.0469	0.7829	0.3151	4.1996	2.9848
8.7	-0.0456	0.7702	0.3025	4.1779	2.9694
8.8	-0.0443	0.7583	0.2903	4.1560	2.9538
8.9	-0.0429	0.7465	0.2786	4.1338	2.9380

$\theta_s = 5^\circ$     $\bar{u}_s = 0.90$     $M = 4.8602$     $\theta_v = 12.593$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
9.0	-0.04165	0.7351	0.2673	4.1115	2.9221
9.1	-0.04038	0.7240	0.2563	4.0890	2.9061
9.2	-0.03913	0.7132	0.2456	4.0664	2.8900
9.3	-0.03789	0.7026	0.2353	4.0436	2.8738
9.4	-0.03667	0.6923	0.2253	4.0208	2.8576
9.5	-0.03547	0.6823	0.2156	3.9979	2.8413
9.6	-0.03429	0.6726	0.2063	3.9750	2.8250
9.7	-0.03313	0.6631	0.1973	3.9520	2.8086
9.8	-0.03198	0.6539	0.1885	3.9291	2.7923
9.9	-0.03085	0.6449	0.1800	3.9062	2.7760
10.0	-0.02973	0.6361	0.1718	3.8833	2.7597
10.1	-0.02863	0.6275	0.1638	3.8605	2.7435
10.2	-0.02754	0.6191	0.1560	3.8379	2.7274
10.3	-0.02646	0.6110	0.1485	3.8154	2.7114
10.4	-0.02540	0.6031	0.1412	3.7931	2.6956
10.5	-0.02435	0.5954	0.1341	3.7711	2.6799
10.6	-0.02332	0.5879	0.1272	3.7494	2.6644
10.7	-0.02230	0.5805	0.1205	3.7280	2.6492
10.8	-0.02129	0.5734	0.1140	3.7070	2.6342
10.9	-0.02030	0.5665	0.1077	3.6864	2.6196
11.0	-0.01932	0.5598	0.1016	3.6665	2.6054
11.1	-0.01835	0.5533	0.0956	3.6473	2.5917
11.2	-0.01739	0.5471	0.0898	3.6289	2.5786
11.3	-0.01644	0.5412	0.0841	3.6116	2.5663
11.4	-0.01550	0.5355	0.0786	3.5956	2.5549
11.45	-0.01503	0.5327	0.0759	3.5881	2.5496
11.50	-0.01457	0.5301	0.0733	3.5811	2.5446
11.55	-0.01411	0.5275	0.0707	3.5746	2.5400
11.60	-0.01365	0.5250	0.0681	3.5686	2.5357
11.65	-0.01319	0.5227	0.0655	3.5632	2.5319
11.70	-0.01273	0.5205	0.0630	3.5585	2.5286
11.75	-0.01228	0.5184	0.0605	3.5547	2.5258
11.80	-0.01183	0.5165	0.0580	3.5518	2.5237
11.85	-0.01138	0.5147	0.0555	3.5492	2.5224
11.90	-0.01093	0.5131	0.0531	3.5493	2.5220
11.95	-0.01048	0.5117	0.0507	3.5501	2.5226
12.00	-0.01004	0.5106	0.0484	3.5525	2.5243
12.05	-0.00960	0.5097	0.0461	3.5569	2.5274
12.10	-0.00916	0.5091	0.0437	3.5636	2.5322
12.15	-0.00871	0.5090	0.0414	3.5732	2.5390
12.175	-0.00848	0.5091	0.0402	3.5792	2.5433
12.200	-0.00826	0.5094	0.0391	3.5862	2.5483
12.225	-0.00804	0.5098	0.0380	3.5942	2.5540
12.250	-0.00782	0.5103	0.0369	3.6035	2.5606
12.275	-0.00759	0.5110	0.0358	3.6141	2.5681

$\theta_s = 5^\circ$     $\bar{u}_s = 0.90$     $M = 4.8602$     $\theta_v = 18.593$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
12.300	-0.00737	0.5119	0.0347	3.6262	2.5767
12.325	-0.00715	0.5130	0.0336	3.6400	2.5865
12.350	-0.00693	0.5144	0.0325	3.6558	2.5978
12.375	-0.00670	0.5161	0.0314	3.6738	2.6106
12.400	-0.00647	0.5183	0.0302	3.6944	2.6253
12.41	-0.00638	0.5193	0.0297	3.7035	2.6318
12.42	-0.00629	0.5203	0.0293	3.7131	2.6386
12.43	-0.00620	0.5214	0.0289	3.7232	2.6458
12.44	-0.00611	0.5226	0.0284	3.7339	2.6534
12.45	-0.00602	0.5239	0.0279	3.7452	2.6615
12.46	-0.00593	0.5253	0.0274	3.7572	2.6701
12.47	-0.00584	0.5267	0.0270	3.7700	2.6792
12.48	-0.00574	0.5282	0.0266	3.7836	2.6888
12.49	-0.00565	0.5298	0.0262	3.7980	2.6990
12.50	-0.00556	0.5316	0.0257	3.8133	2.7099
12.51	-0.00547	0.5335	0.0252	3.8296	2.7215
12.52	-0.00537	0.5356	0.0247	3.8470	2.7339
12.53	-0.00527	0.5378	0.0243	3.8656	2.7471
12.54	-0.00518	0.5402	0.0239	3.8854	2.7612
12.55	-0.00509	0.5428	0.0235	3.9067	2.7764
12.56	-0.00500	0.5456	0.0230	3.9295	2.7926
12.57	-0.00490	0.5486	0.0225	3.9540	2.8100
12.58	-0.00480	0.5519	0.0220	3.9803	2.8287
12.59	-0.00471	0.5554	0.0215	4.0085	2.8488
12.593	-0.00468	0.5566	0.0214	4.0181	2.8557

$\theta_1 = 5^\circ$     $U_1 = 0.95$     $M = 7.4152$     $\theta_2 = 1.174$

$\theta$	x	y	z	$\eta/\rho$	$E/\rho$
5.0	-0.1102	1.9000	1.3150	7.148	5.001
5.2	-0.1037	1.7850	1.1841	7.541	5.281
5.4	-0.0977	1.6852	1.0722	7.845	5.497
5.5	-0.0948	1.6400	1.0209	7.969	5.586
5.6	-0.0920	1.5977	0.9723	8.078	5.663
5.7	-0.0892	1.5579	0.9263	8.174	5.731
5.8	-0.0865	1.5205	0.8826	8.258	5.791
5.9	-0.0839	1.4852	0.8410	8.332	5.844
6.0	-0.0813	1.4519	0.8015	8.397	5.890
6.1	-0.0788	1.4204	0.7638	8.454	5.931
6.2	-0.0764	1.3906	0.7279	8.504	5.966
6.3	-0.0740	1.3624	0.6936	8.547	5.997
6.4	-0.0716	1.3356	0.6609	8.585	6.024
6.5	-0.0693	1.3102	0.6296	6.619	6.048
6.6	-0.0670	1.2860	0.5996	8.648	6.069
6.7	-0.0648	1.2630	0.5709	8.674	6.087
6.8	-0.0626	1.2411	0.5433	8.696	6.103
6.9	-0.0605	1.2203	0.5169	8.716	6.117
7.0	-0.0584	1.2006	0.4915	8.734	6.130
7.1	-0.0563	1.1819	0.4671	8.750	6.141
7.2	-0.0543	1.1641	0.4437	8.765	6.152
7.3	-0.0523	1.1472	0.4212	8.779	6.162
7.4	-0.0503	1.1311	0.3995	8.793	6.172
7.5	-0.0483	1.1159	0.3786	8.807	6.182
7.6	-0.0464	1.1016	0.3585	8.822	6.192
7.7	-0.0445	1.0882	0.3391	8.838	6.203
7.8	-0.0426	1.0755	0.3203	8.855	6.216
7.9	-0.0407	1.0638	0.3022	8.876	6.231
8.0	-0.0388	1.0529	0.2846	8.900	6.248
8.1	-0.0370	1.0430	0.2676	8.928	6.268
8.2	-0.0352	1.0342	0.2512	8.961	6.292
8.3	-0.0334	1.0265	0.2353	9.002	6.321
8.4	-0.0316	1.0201	0.2198	9.051	6.356
8.50	-0.0298	1.0152	0.2048	9.113	6.399
8.55	-0.0290	1.0133	0.1973	9.145	6.424
8.60	-0.0281	1.0121	0.1901	9.188	6.453
8.65	-0.0272	1.0114	0.1830	9.233	6.485
8.70	-0.0263	1.0113	0.1759	9.284	6.521
8.75	-0.0254	1.0119	0.1689	9.341	6.562
8.80	-0.0245	1.0133	0.1620	9.406	6.608
8.85	-0.0237	1.0156	0.1551	9.480	6.661
8.90	-0.0228	1.0190	0.1483	9.565	6.722
8.95	-0.0219	1.0238	0.1415	9.664	6.792
9.00	-0.0210	1.0301	0.1348	9.778	6.873
9.05	-0.0201	1.0384	0.1282	9.912	6.969
9.10	-0.0192	1.0491	0.1216	10.073	7.083
9.15	-0.0183	1.0630	0.1149	10.265	7.219
9.174	-0.0178	1.0710	0.1117	10.371	7.295

$\theta_s = 5^\circ$     $\mu_s = 0.96$     $M = 8.4925$     $\theta_w = 8.444$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
5.0	-0.1069	1.9200	1.3122	8.449	5.831
5.2	-0.1004	1.8073	1.1721	8.951	6.188
5.4	-0.0943	1.7103	1.0562	9.342	6.467
5.5	-0.0914	1.6666	1.0033	9.505	6.583
5.6	-0.0885	1.6257	0.9533	9.650	6.686
5.7	-0.0857	1.5874	0.9059	9.779	6.778
5.8	-0.0829	1.5516	0.8610	9.895	6.860
5.9	-0.0802	1.5180	0.8183	9.999	6.934
6.0	-0.0776	1.4864	0.7777	10.093	7.001
6.1	-0.0750	1.4567	0.7390	10.178	7.062
6.2	-0.0725	1.4287	0.7020	10.255	7.117
6.3	-0.0700	1.4023	0.6667	10.326	7.167
6.4	-0.0676	1.3774	0.6330	10.391	7.213
6.5	-0.0652	1.3540	0.6007	10.452	7.256
6.6	-0.0629	1.3319	0.5697	10.509	7.297
6.7	-0.0606	1.3112	0.5401	10.563	7.336
6.8	-0.0583	1.2917	0.5117	10.616	7.374
6.9	-0.0561	1.2734	0.4844	10.668	7.411
7.0	-0.0539	1.2564	0.4581	10.720	7.447
7.1	-0.0517	1.2406	0.4329	10.773	7.486
7.2	-0.0496	1.2259	0.4085	10.828	7.524
7.3	-0.0474	1.2124	0.3850	10.886	7.566
7.4	-0.0453	1.2003	0.3624	10.949	7.610
7.5	-0.0432	1.1895	0.3405	11.019	7.659
7.6	-0.0412	1.1802	0.3194	11.097	7.715
7.7	-0.0392	1.1725	0.2990	11.186	7.779
7.8	-0.0371	1.1667	0.2792	11.289	7.852
7.9	-0.0350	1.1630	0.2599	11.411	7.939
8.00	-0.0330	1.1620	0.2411	11.558	8.044
8.05	-0.0320	1.1626	0.2320	11.643	8.104
8.10	-0.0310	1.1642	0.2229	11.738	8.171
8.15	-0.0300	1.1669	0.2139	11.844	8.247
8.20	-0.0290	1.1709	0.2050	11.965	8.333
8.25	-0.0280	1.1763	0.1962	12.101	8.430
8.30	-0.0270	1.1835	0.1875	12.257	8.541
8.35	-0.0259	1.1929	0.1788	12.438	8.670
8.40	-0.0248	1.2050	0.1702	12.650	8.821
8.444	-0.0239	1.2183	0.1626	12.867	8.976



$\theta = 0.97$     $M = 10.146$     $\phi = 7.693$

$\theta$	$x$	$y$	$z$	$\frac{y}{z}$	$\frac{x}{z}$
5.0	-0.1032	1.9400	1.3329	10.282	6.893
5.1	-0.0999	1.8832	1.2432	10.644	7.251
5.2	-0.0967	1.8306	1.1728	10.966	7.560
5.25	-0.0951	1.8068	1.1400	11.113	7.485
5.30	-0.0935	1.7826	1.1084	11.252	7.584
5.35	-0.0919	1.7599	1.0779	11.384	7.678
5.40	-0.0904	1.7380	1.0484	11.509	7.767
5.45	-0.0889	1.7169	1.0198	11.628	7.851
5.50	-0.0874	1.6966	0.9921	11.741	7.931
5.55	-0.0859	1.6771	0.9652	11.848	8.007
5.60	-0.0844	1.6583	0.9391	11.950	8.080
5.65	-0.0830	1.6402	0.9137	12.048	8.150
5.70	-0.0816	1.6227	0.8890	12.141	8.217
5.75	-0.0802	1.6059	0.8649	12.230	8.280
5.80	-0.0788	1.5897	0.8414	12.316	8.341
5.85	-0.0774	1.5740	0.8185	12.399	8.400
5.90	-0.0761	1.5589	0.7962	12.479	8.457
5.95	-0.0748	1.5443	0.7744	12.556	8.512
6.00	-0.0734	1.5303	0.7532	12.631	8.565
6.05	-0.0720	1.5168	0.7325	12.704	8.617
6.10	-0.0707	1.5038	0.7123	12.775	8.668
6.15	-0.0694	1.4912	0.6925	12.844	8.717
6.20	-0.0681	1.4791	0.6732	12.912	8.765
6.25	-0.0668	1.4675	0.6543	12.979	8.813
6.30	-0.0656	1.4563	0.6359	13.045	8.860
6.35	-0.0644	1.4456	0.6178	13.110	8.906
6.40	-0.0631	1.4353	0.6001	13.175	8.952
6.45	-0.0618	1.4255	0.5828	13.240	8.998
6.50	-0.0605	1.4161	0.5659	13.304	9.044
6.55	-0.0593	1.4072	0.5493	13.369	9.090
6.60	-0.0581	1.3987	0.5331	13.435	9.137
6.65	-0.0569	1.3907	0.5172	13.502	9.185
6.70	-0.0557	1.3831	0.5016	13.571	9.234
6.75	-0.0545	1.3760	0.4863	13.641	9.284
6.80	-0.0533	1.3693	0.4713	13.712	9.335
6.85	-0.0521	1.3631	0.4566	13.786	9.388
6.90	-0.0509	1.3575	0.4421	13.864	9.443
6.95	-0.0497	1.3524	0.4279	13.945	9.501
7.00	-0.0485	1.3478	0.4139	14.030	9.561
7.05	-0.0473	1.3438	0.4002	14.119	9.624
7.10	-0.0461	1.3405	0.3868	14.213	9.691
7.15	-0.0450	1.3379	0.3736	14.314	9.763
7.20	-0.0439	1.3360	0.3605	14.422	9.840
7.25	-0.0427	1.3350	0.3477	14.539	9.923
7.30	-0.0415	1.3349	0.3350	14.665	10.013
7.35	-0.0404	1.3358	0.3225	14.803	10.111
7.40	-0.0392	1.3379	0.3102	14.954	10.219
7.45	-0.0380	1.3413	0.2981	15.121	10.338

$\theta_s = 5^\circ$	$\bar{u}_s = 0.97$	$M = 10.146$	$e_v = 7.683$
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$\theta$	$x$	$y$	$z$	$r/p$	$z/p$
7.50	-0.0365	1.3464	0.2861	18.307	10.470
7.55	-0.0357	1.3533	0.2742	15.517	10.619
7.60	-0.0345	1.3622	0.2625	15.754	10.788
7.65	-0.0333	1.3739	0.2509	16.025	10.982
7.683	-0.0325	1.3834	0.2432	16.229	11.136

$\theta_0 = 5^\circ$     $U_0 = 0.92$     $M = 13.196$     $\theta_1 = 6.878$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
5.0	-0.09995	1.96600	1.41227	13.064	8.134
5.1	-0.0962	1.92061	1.28889	13.619	8.529
5.2	-0.0930	1.85569	1.2040	14.116	8.633
5.25	-0.0914	1.8340	1.1652	14.347	9.047
5.30	-0.0898	1.8122	1.1284	14.567	9.204
5.35	-0.0882	1.7914	1.0931	14.777	9.353
5.40	-0.0866	1.7715	1.0591	14.978	9.496
5.45	-0.0851	1.7526	1.0263	15.172	9.634
5.50	-0.0836	1.7344	0.9946	15.359	9.760
5.55	-0.0821	1.7172	0.9640	15.540	9.897
5.60	-0.0806	1.7008	0.9343	15.715	10.022
5.65	-0.0791	1.6852	0.9054	15.886	10.143
5.70	-0.0776	1.6703	0.8774	16.058	10.261
5.75	-0.0761	1.6562	0.8502	16.215	10.377
5.80	-0.0747	1.6428	0.8237	16.375	10.491
5.85	-0.0733	1.6301	0.7979	16.534	10.604
5.90	-0.0719	1.6181	0.7728	16.691	10.716
5.95	-0.0705	1.6068	0.7483	16.848	10.827
6.00	-0.0691	1.5963	0.7244	17.004	10.938
6.05	-0.0677	1.5865	0.7011	17.161	11.050
6.10	-0.0663	1.5774	0.6784	17.320	11.163
6.15	-0.0649	1.5690	0.6563	17.481	11.277
6.20	-0.0635	1.5613	0.6344	17.645	11.394
6.250	-0.0622	1.5545	0.6131	17.813	11.514
6.275	-0.0616	1.5513	0.6026	17.900	11.576
6.300	-0.0609	1.5484	0.5923	17.987	11.638
6.32	-0.0603	1.5457	0.5821	18.075	11.701
6.350	-0.0595	1.5432	0.5720	18.166	11.765
6.375	-0.0588	1.5410	0.5620	18.259	11.831
6.400	-0.0582	1.5390	0.5520	18.354	11.899
6.425	-0.0576	1.5372	0.5422	18.451	11.969
6.450	-0.0569	1.5357	0.5325	18.551	12.040
6.475	-0.0563	1.5345	0.5229	18.653	12.113
6.500	-0.0555	1.5335	0.5133	18.759	12.188
6.525	-0.0548	1.5328	0.5038	18.868	12.265
6.550	-0.0542	1.5323	0.4944	18.987	12.345
6.575	-0.0535	1.5322	0.4852	19.097	12.428
6.600	-0.0528	1.5328	0.4760	19.218	12.514
6.625	-0.0521	1.5335	0.4669	19.343	12.603
6.650	-0.0515	1.5345	0.4578	19.473	12.696
6.675	-0.0508	1.5355	0.4488	19.609	12.793
6.700	-0.0501	1.5378	0.4399	19.751	12.894
6.725	-0.0495	1.5402	0.4311	19.900	13.000
6.750	-0.0488	1.5431	0.4223	20.057	13.111
6.775	-0.0481	1.5465	0.4136	20.222	13.228
6.800	-0.0474	1.5506	0.4050	20.395	13.352
6.825	-0.0468	1.5553	0.3964	20.578	13.483
6.850	-0.0461	1.5608	0.3879	20.773	13.621
6.875	-0.0454	1.5671	0.3794	20.980	13.767
6.878	-0.0453	1.5678	0.3785	21.004	13.786

$\theta_1 = 5^\circ$     $u_1 = 0.99$     $M = 22.513$     $\theta_2 = 6.003$

$\theta$	$x$	$y$	$z$	$r/\beta$	$r/\beta$
5.00	-0.0977	1.9800	1.6500	17.625	8.103
5.05	-0.0960	1.9549	1.5001	18.405	8.515
5.10	-0.0944	1.9313	1.4192	18.962	8.911
5.125	-0.0935	1.9200	1.3838	19.231	9.103
5.150	-0.0926	1.9091	1.3508	19.495	9.291
5.175	-0.0918	1.8986	1.3193	19.754	9.476
5.200	-0.0910	1.8885	1.2893	20.008	9.657
5.225	-0.0902	1.8787	1.2604	20.258	9.834
5.250	-0.0893	1.8693	1.232	20.505	10.009
5.275	-0.0885	1.8603	1.2057	20.749	10.182
5.300	-0.0877	1.8517	1.1796	20.990	10.354
5.325	-0.0869	1.8434	1.1542	21.228	10.524
5.350	-0.0861	1.8354	1.1295	21.464	10.692
5.375	-0.0853	1.8278	1.1054	21.699	10.859
5.400	-0.0845	1.8206	1.0819	21.933	11.025
5.425	-0.0837	1.8137	1.0589	22.166	11.191
5.450	-0.0829	1.8072	1.0365	22.398	11.357
5.475	-0.0821	1.8010	1.0145	22.630	11.523
5.500	-0.0813	1.7952	0.9930	22.863	11.689
5.525	-0.0806	1.7898	0.9719	23.097	11.855
5.550	-0.0798	1.7847	0.9512	23.332	12.022
5.575	-0.0790	1.7800	0.9309	23.569	12.190
5.600	-0.0782	1.7757	0.9110	23.807	12.359
5.625	-0.0774	1.7717	0.8916	24.047	12.530
5.650	-0.0767	1.7681	0.8721	24.291	12.704
5.675	-0.0760	1.7649	0.8532	24.538	12.880
5.700	-0.0752	1.7622	0.8346	24.789	13.059
5.725	-0.0744	1.7599	0.8163	25.045	13.241
5.750	-0.0736	1.7581	0.7982	25.307	13.427
5.775	-0.0728	1.7568	0.7804	25.575	13.618
5.800	-0.0721	1.7559	0.7629	25.851	13.814
5.825	-0.0713	1.7556	0.7457	26.132	14.014
5.850	-0.0706	1.7558	0.7287	26.424	14.222
5.875	-0.0698	1.7567	0.7119	26.726	14.437
5.900	-0.0690	1.7581	0.6954	27.038	14.659
5.925	-0.0683	1.7603	0.6791	27.362	14.890
5.950	-0.0675	1.7633	0.6630	27.700	15.130
5.975	-0.0667	1.7671	0.6470	28.054	15.382
6.000	-0.0659	1.7717	0.6313	28.426	15.647
6.002	-0.0659	1.7722	0.6299	28.461	15.672

$\theta_0 = 5^\circ$     $\mu_0 = 0.995$     $M = 74.722$     $\theta_r = 5.523$

$\theta$	$x$	$y$	$z$	$r/p$	$r/\beta$
5.00	-0.0992	1.9900	1.9145	21.775	1.992
5.02	-0.0985	1.9806	1.7497	22.252	2.332
5.04	-0.0978	1.9715	1.6730	22.728	2.666
5.06	-0.0971	1.9627	1.6113	23.186	2.996
5.08	-0.0964	1.9542	1.5574	23.645	3.323
5.10	-0.0957	1.9461	1.5085	24.100	3.647
5.12	-0.0951	1.9384	1.4634	24.551	3.968
5.14	-0.0944	1.9312	1.4211	24.999	4.287
5.16	-0.0937	1.9244	1.3812	25.444	4.604
5.18	-0.0930	1.9180	1.3432	25.888	4.920
5.20	-0.0924	1.9120	1.3068	26.332	5.236
5.22	-0.0917	1.9064	1.2719	26.777	5.552
5.24	-0.0910	1.9013	1.2383	27.223	5.869
5.26	-0.0904	1.8966	1.2058	27.670	6.187
5.28	-0.0897	1.8923	1.1743	28.120	6.507
5.30	-0.0890	1.8885	1.1437	28.573	6.830
5.32	-0.0884	1.8851	1.1140	29.030	7.156
5.34	-0.0878	1.8822	1.0850	29.492	7.485
5.36	-0.0871	1.8799	1.0568	29.961	7.819
5.38	-0.0864	1.8781	1.0293	30.438	8.158
5.40	-0.0857	1.8768	1.0024	30.924	8.504
5.42	-0.0851	1.8761	0.9762	31.421	8.858
5.44	-0.0845	1.8760	0.9505	31.930	9.220
5.46	-0.0838	1.8766	0.9253	32.452	9.592
5.48	-0.0831	1.8778	0.9006	32.989	9.974
5.50	-0.0825	1.8797	0.8764	33.543	10.368
5.52	-0.0818	1.8824	0.8527	34.117	10.777
5.523	-0.0817	1.8829	0.8493	34.198	10.834

$\theta_1 = 5^\circ$     $\bar{u}_1 = 0.99851$     $M = \text{Infinity}$     $\theta_2 = 5.472$

$\theta$	x	y	z	$r/p$	$r/\beta$
5.00	-0.0995	1.9910	1.9515	22.274	0.170
5.05	-0.0978	1.9684	1.6542	23.589	1.106
5.10	-0.0962	1.9460	1.5120	24.874	2.020
5.125	-0.0953	1.9389	1.4519	25.506	2.471
5.150	-0.0944	1.9304	1.3971	26.135	2.918
5.175	-0.0936	1.9226	1.3453	26.763	3.365
5.200	-0.0928	1.9156	1.2969	27.392	3.813
5.225	-0.0919	1.9093	1.2507	28.023	4.262
5.250	-0.0910	1.9038	1.2067	28.658	4.714
5.275	-0.0902	1.8991	1.1645	29.300	5.171
5.300	-0.0894	1.8952	1.1238	29.951	5.634
5.325	-0.0885	1.8922	1.0846	30.615	6.106
5.350	-0.0877	1.8900	1.0468	31.294	6.591
5.36	-0.0874	1.8894	1.0320	31.569	6.787
5.37	-0.0871	1.8890	1.0174	31.848	6.985
5.38	-0.0867	1.8887	1.0029	32.130	7.186
5.39	-0.0864	1.8886	0.9886	32.416	7.389
5.40	-0.0861	1.8886	0.9745	32.704	7.594
5.41	-0.0858	1.8888	0.9606	32.996	7.802
5.42	-0.0854	1.8892	0.9468	33.292	8.013
5.43	-0.0850	1.8899	0.9332	33.593	8.227
5.44	-0.0847	1.8907	0.9197	33.898	8.444
5.45	-0.0844	1.8917	0.9064	34.209	8.665
5.46	-0.0841	1.8928	0.8932	34.526	8.890
5.47	-0.0838	1.8940	0.8801	34.849	9.119
5.472	-0.0837	1.8945	0.8777	34.908	9.162

$\theta_1 = 7.5$     $\bar{u}_1 = 0.30$     $M = 1.4166(8)$     $\theta_2 = 89.060$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$t/\beta$
7.500	-0.1384	0.6000	1.0797	0.3106	0.2194
7.625	-0.1371	0.5739	1.0523	0.3134	0.2214
7.750	-0.1359	0.5491	1.0264	0.3157	0.2230
7.875	-0.1347	0.5255	1.0016	0.3176	0.2243
8.000	-0.1336	0.5030	0.9779	0.3191	0.2254
8.125	-0.1325	0.4815	0.9553	0.3203	0.2262
8.250	-0.1315	0.4610	0.9338	0.3212	0.2268
8.375	-0.1305	0.4415	0.9132	0.3218	0.2272
8.500	-0.1295	0.4228	0.8934	0.3221	0.2275
8.625	-0.1286	0.4049	0.8745	0.3222	0.2277
8.750	-0.1277	0.3878	0.8564	0.3222	0.2277
8.875	-0.1269	0.3714	0.8391	0.3220	0.2275
9.000	-0.1261	0.3557	0.8225	0.3216	0.2272
9.125	-0.1254	0.3407	0.8065	0.3211	0.2268
9.250	-0.1247	0.3263	0.7911	0.3204	0.2263
9.375	-0.1240	0.3124	0.7763	0.3196	0.2257
9.500	-0.1233	0.2991	0.7621	0.3185	0.2251
9.625	-0.1227	0.2863	0.7485	0.3176	0.2244
9.750	-0.1221	0.2740	0.7354	0.3165	0.2236
9.875	-0.1215	0.2622	0.7228	0.3154	0.2228
10.00	-0.1210	0.2509	0.7106	0.3141	0.2218
10.25	-0.1199	0.2294	0.6875	0.3114	0.2199
10.50	-0.1189	0.2094	0.6661	0.3085	0.2179
10.75	-0.1180	0.1909	0.6461	0.3055	0.2157
11.00	-0.1172	0.1736	0.6274	0.3024	0.2135
11.25	-0.1165	0.1575	0.6099	0.2991	0.2112
11.50	-0.1159	0.1424	0.5935	0.2958	0.2088
11.75	-0.1153	0.1283	0.5781	0.2924	0.2064
12.00	-0.1147	0.1151	0.5637	0.2890	0.2040
12.25	-0.1142	0.1027	0.5501	0.2856	0.2016
12.50	-0.1138	0.0911	0.5373	0.2821	0.1991
12.75	-0.1134	0.0802	0.5252	0.2787	0.1967
13.00	-0.1131	0.0699	0.5138	0.2753	0.1943
13.25	-0.1128	0.0602	0.5030	0.2719	0.1919
13.50	-0.1126	0.0511	0.4928	0.2686	0.1895
13.75	-0.1124	0.0425	0.4832	0.2653	0.1871
14.00	-0.1123	0.0343	0.4740	0.2621	0.1848
14.25	-0.1121	0.0266	0.4653	0.2589	0.1825
14.50	-0.1120	0.0193	0.4570	0.2557	0.1802
14.75	-0.1119	0.0124	0.4492	0.2525	0.1780
15.0	-0.1119	0.0059	0.4417	0.2494	0.1758
15.5	-0.1119	-0.0062	0.4277	0.2434	0.1715
16.0	-0.1120	-0.0172	0.4150	0.2376	0.1674
16.5	-0.1122	-0.0271	0.4034	0.2320	0.1634
17.0	-0.1125	-0.0360	0.3928	0.2265	0.1595

$\theta_0 = 71.5$     $u_0 = 0.30$     $M = 1.4166(8)$     $\theta_1 = 89.060$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
17.5	-0.1128	-0.0441	0.3831	0.2213	0.1558
18.0	-0.1132	-0.0515	0.3741	0.2163	0.1522
18.5	-0.1137	-0.0583	0.3658	0.2114	0.1487
19.0	-0.1143	-0.0644	0.3582	0.2067	0.1454
19.5	-0.1149	-0.0700	0.3511	0.2022	0.1422
20.0	-0.1155	-0.0752	0.3445	0.1979	0.1391
20.5	-0.1161	-0.0799	0.3383	0.1937	0.1361
21.0	-0.1168	-0.0842	0.3326	0.1897	0.1333
21.5	-0.1176	-0.0881	0.3272	0.1859	0.1306
22.0	-0.1184	-0.0917	0.3222	0.1821	0.1279
23	-0.1201	-0.0981	0.3131	0.1750	0.1228
24	-0.1219	-0.1034	0.3051	0.1683	0.1181
25	-0.1237	-0.1078	0.2979	0.1621	0.1137
26	-0.1255	-0.1115	0.2915	0.1563	0.1095
27	-0.1275	-0.1145	0.2858	0.1508	0.1056
28	-0.1295	-0.1170	0.2807	0.1457	0.1020
29	-0.1316	-0.1190	0.2760	0.1409	0.0986
30	-0.1337	-0.1206	0.2717	0.1364	0.0954
31	-0.1358	-0.1218	0.2678	0.1321	0.0923
32	-0.1380	-0.1226	0.2643	0.1280	0.0894
33	-0.1401	-0.1231	0.2611	0.1242	0.0867
34	-0.1423	-0.1234	0.2581	0.1206	0.0841
35	-0.1444	-0.1234	0.2555	0.1171	0.0816
36	-0.1466	-0.1231	0.2527	0.1138	0.0793
37	-0.1487	-0.1227	0.2504	0.1107	0.0771
38	-0.1509	-0.1221	0.2482	0.1077	0.0750
39	-0.1530	-0.1213	0.2461	0.1049	0.0730
40	-0.1551	-0.1203	0.2442	0.1022	0.0711
41	-0.1572	-0.1192	0.2424	0.0997	0.0693
42	-0.1593	-0.1179	0.2407	0.0972	0.0675
43	-0.1613	-0.1165	0.2391	0.0948	0.0658
44	-0.1633	-0.1150	0.2376	0.0926	0.0642
45	-0.1653	-0.1133	0.2362	0.0904	0.0626
46	-0.1673	-0.1116	0.2349	0.0883	0.0611
47	-0.1692	-0.1098	0.2336	0.0863	0.0597
48	-0.1711	-0.1078	0.2324	0.0844	0.0584
49	-0.1730	-0.1058	0.2313	0.0826	0.0571
50	-0.1748	-0.1037	0.2302	0.0808	0.0558
51	-0.1766	-0.1015	0.2292	0.0791	0.0546
52	-0.1783	-0.0992	0.2282	0.0775	0.0535
53	-0.1800	-0.0969	0.2273	0.0759	0.0524
54	-0.1817	-0.0945	0.2264	0.0744	0.0513
55	-0.1833	-0.0920	0.2255	0.0729	0.0502
56	-0.1849	-0.0894	0.2247	0.0715	0.0492
57	-0.1865	-0.0868	0.2239	0.0702	0.0483



$\theta_1 = 7.5$     $\bar{U}_1 = 0.30$     $M = 1.4166(3)$     $\theta_2 = 89.060$

s	x	y	z	$\eta/\beta$	$\xi/\beta$
58	-0.1880	-0.0841	0.2231	0.0689	0.0474
59	-0.1894	-0.0814	0.2224	0.0677	0.0465
60	-0.1908	-0.0786	0.2217	0.0665	0.0456
61	-0.1921	-0.0758	0.2210	0.0653	0.0448
62	-0.1934	-0.0729	0.2203	0.0642	0.0440
63	-0.1947	-0.0700	0.2197	0.0632	0.0433
64	-0.1959	-0.0670	0.2191	0.0622	0.0426
65	-0.1970	-0.0640	0.2185	0.0612	0.0419
66	-0.1981	-0.0610	0.2179	0.0603	0.0412
67	-0.1991	-0.0579	0.2173	0.0594	0.0406
68	-0.2001	-0.0548	0.2168	0.0586	0.0400
69	-0.2011	-0.0516	0.2163	0.0578	0.0394
70	-0.2020	-0.0484	0.2158	0.0571	0.0389
71	-0.2028	-0.0452	0.2152	0.0564	0.0384
72	-0.2035	-0.0419	0.2147	0.0557	0.0379
73	-0.2042	-0.0386	0.2143	0.0551	0.0375
74	-0.2049	-0.0353	0.2138	0.0545	0.0371
75	-0.2055	-0.0319	0.2133	0.0539	0.0367
76	-0.2060	-0.0285	0.2128	0.0534	0.0363
77	-0.2065	-0.0251	0.2124	0.0529	0.0360
78	-0.2069	-0.0217	0.2120	0.0525	0.0357
79	-0.2072	-0.0183	0.2115	0.0521	0.0354
80	-0.2075	-0.0148	0.2111	0.0518	0.0352
81	-0.2077	-0.0113	0.2107	0.0515	0.0350
82	-0.2079	-0.0078	0.2102	0.0512	0.0348
83	-0.2080	-0.0042	0.2098	0.0510	0.0346
84	-0.2080	-0.0007	0.2094	0.0508	0.0345
85	-0.2080	0.0029	0.2090	0.0506	0.0344
86	-0.2079	0.0065	0.2086	0.0505	0.0343
87	-0.2078	0.0101	0.2082	0.0504	0.0342
88	-0.2076	0.0137	0.2077	0.0504	0.0342
89	-0.2073	0.0173	0.2073	0.0504	0.0342
89.060	-0.2073	0.0175	0.2073	0.0504	0.0342

$$\theta_0 = 7.5 \quad \bar{u}_0 = 0.35 \quad M = 1.1473(8) \quad \theta_1 = 87.962$$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
7.500	-0.1032	0.7000	0.7928	0.2847	0.2024
7.625	-0.1017	0.6763	0.7686	0.2886	0.2052
7.750	-0.1002	0.6538	0.7455	0.2920	0.2076
7.875	-0.0988	0.6323	0.7235	0.2950	0.2097
8.000	-0.0975	0.6118	0.7025	0.2975	0.2115
8.125	-0.0962	0.5923	0.6825	0.2996	0.2130
8.250	-0.0949	0.5737	0.6633	0.3014	0.2143
8.375	-0.0936	0.5559	0.6450	0.3028	0.2153
8.500	-0.0924	0.5389	0.6275	0.3039	0.2161
8.625	-0.0913	0.5226	0.6108	0.3048	0.2167
8.750	-0.0902	0.5070	0.5947	0.3055	0.2172
8.875	-0.0891	0.4921	0.5793	0.3059	0.2175
9.000	-0.0880	0.4778	0.5646	0.3061	0.2177
9.125	-0.0870	0.4641	0.5505	0.3062	0.2177
9.250	-0.0860	0.4509	0.5369	0.3061	0.2176
9.375	-0.0850	0.4383	0.5238	0.3058	0.2174
9.500	-0.0841	0.4262	0.5113	0.3054	0.2171
9.625	-0.0832	0.4146	0.4992	0.3048	0.2167
9.750	-0.0823	0.4034	0.4876	0.3042	0.2163
9.875	-0.0814	0.3926	0.4764	0.3035	0.2158
10.00	-0.0805	0.3822	0.4657	0.3027	0.2152
10.25	-0.0789	0.3626	0.4453	0.3008	0.2138
10.50	-0.0774	0.3444	0.4263	0.2986	0.2123
10.75	-0.0759	0.3274	0.4087	0.2962	0.2106
11.00	-0.0745	0.3116	0.3923	0.2936	0.2087
11.25	-0.0732	0.2969	0.3769	0.2909	0.2068
11.50	-0.0719	0.2831	0.3624	0.2881	0.2048
11.75	-0.0707	0.2701	0.3488	0.2852	0.2027
12.00	-0.0696	0.2580	0.3361	0.2822	0.2006
12.25	-0.0685	0.2466	0.3242	0.2792	0.1985
12.50	-0.0674	0.2359	0.3129	0.2761	0.1963
12.75	-0.0664	0.2259	0.3023	0.2730	0.1941
13.00	-0.0654	0.2164	0.2923	0.2699	0.1919
13.25	-0.0645	0.2074	0.2829	0.2668	0.1896
13.50	-0.0636	0.1990	0.2739	0.2637	0.1874
13.75	-0.0628	0.1910	0.2654	0.2607	0.1853
14.00	-0.0620	0.1834	0.2574	0.2577	0.1832
14.25	-0.0612	0.1762	0.2498	0.2547	0.1810
14.50	-0.0604	0.1694	0.2426	0.2517	0.1789
14.75	-0.0597	0.1629	0.2357	0.2488	0.1768
15.0	-0.0590	0.1568	0.2292	0.2459	0.1748
15.5	-0.0577	0.1454	0.2171	0.2402	0.1707
16.0	-0.0565	0.1351	0.2060	0.2347	0.1668
16.5	-0.0554	0.1257	0.1959	0.2293	0.1630
17.0	-0.0543	0.1171	0.1867	0.2241	0.1593

$\theta_1 = 7.5$     $\Omega_1 = 0.35$     $M = 1.1473(8)$     $\theta_2 = 87.982$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
17.5	-0.0533	0.1093	0.1782	0.2190	0.1556
18.0	-0.0524	0.1022	0.1704	0.2141	0.1521
18.5	-0.0515	0.0956	0.1632	0.2094	0.1488
19.0	-0.0507	0.0895	0.1566	0.2049	0.1456
19.5	-0.0500	0.0839	0.1505	0.2005	0.1425
20.0	-0.0493	0.0787	0.1448	0.1963	0.1395
20.5	-0.0486	0.0739	0.1395	0.1922	0.1365
21.0	-0.0480	0.0695	0.1346	0.1882	0.1337
21.5	-0.0474	0.0654	0.1300	0.1844	0.1310
22.0	-0.0468	0.0615	0.1257	0.1807	0.1284
22.5	-0.0463	0.0580	0.1217	0.1771	0.1259
23.0	-0.0458	0.0547	0.1179	0.1737	0.1234
23.5	-0.0453	0.0516	0.1143	0.1704	0.1210
24.0	-0.0449	0.0487	0.1110	0.1671	0.1187
24.5	-0.0445	0.0460	0.1079	0.1639	0.1165
25.0	-0.0441	0.0435	0.1049	0.1609	0.1143
25.5	-0.0437	0.0410	0.1021	0.1580	0.1122
26.0	-0.0434	0.0388	0.0995	0.1551	0.1102
26.5	-0.0431	0.0367	0.0970	0.1523	0.1082
27.0	-0.0428	0.0347	0.0947	0.1497	0.1063
27.5	-0.0425	0.0328	0.0925	0.1471	0.1045
28.0	-0.0422	0.0311	0.0904	0.1446	0.1027
28.5	-0.0419	0.0295	0.0884	0.1422	0.1010
29.0	-0.0416	0.0279	0.0865	0.1398	0.0993
29.5	-0.0414	0.0264	0.0847	0.1375	0.0976
30.0	-0.0412	0.0250	0.0830	0.1352	0.0960
30.5	-0.0410	0.0237	0.0813	0.1330	0.0944
31.0	-0.0408	0.0224	0.0797	0.1308	0.0929
31.5	-0.0406	0.0212	0.0782	0.1287	0.0914
32.0	-0.0404	0.0201	0.0767	0.1267	0.0900
32.5	-0.0402	0.0191	0.0753	0.1247	0.0886
33.0	-0.0401	0.0181	0.0740	0.1228	0.0872
33.5	-0.0399	0.0172	0.0728	0.1209	0.0858
34.0	-0.0398	0.0163	0.0716	0.1191	0.0845
34.5	-0.0396	0.0155	0.0704	0.1173	0.0832
35.0	-0.0395	0.0147	0.0693	0.1156	0.0820
35.5	-0.0394	0.0139	0.0682	0.1139	0.0808
36.0	-0.0393	0.0132	0.0672	0.1123	0.0796
36.5	-0.0392	0.0125	0.0662	0.1107	0.0785
37.0	-0.0391	0.0119	0.0653	0.1091	0.0774
38	-0.0389	0.0107	0.0635	0.1060	0.0752
39	-0.0387	0.0096	0.0618	0.1031	0.0731
40	-0.0385	0.0087	0.0602	0.1003	0.0711
41	-0.0383	0.0079	0.0588	0.0976	0.0692
42	-0.0382	0.0071	0.0575	0.0950	0.0674

$\theta_s = 7.5$     $\bar{u}_s = 0.35$     $M = 1.1473(8)$     $\theta_w = 87.982$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
43	-0.0381	0.00648	0.0562	0.0926	0.0657
44	-0.0380	0.00590	0.0550	0.0902	0.0640
45	-0.0379	0.00538	0.0539	0.0879	0.0623
46	-0.0378	0.00493	0.0529	0.0857	0.0607
47	-0.0377	0.00454	0.0519	0.0836	0.0592
48	-0.0377	0.00421	0.0509	0.0816	0.0578
49	-0.0376	0.00393	0.0500	0.0796	0.0564
50	-0.0375	0.00369	0.0492	0.0777	0.0551
51	-0.0375	0.00350	0.0484	0.0759	0.0538
52	-0.0374	0.00335	0.0477	0.0741	0.0525
53	-0.0374	0.00324	0.0470	0.0724	0.0513
54	-0.0373	0.00316	0.0463	0.0708	0.0501
55	-0.0372	0.00312	0.0456	0.0692	0.0490
56	-0.0372	0.00311	0.0450	0.0677	0.0479
57	-0.0371	0.00313	0.0444	0.0662	0.0468
58	-0.0371	0.00318	0.0439	0.0647	0.0458
59	-0.0370	0.00325	0.0434	0.0633	0.0448
60	-0.0370	0.00335	0.0428	0.0620	0.0439
61	-0.0369	0.00347	0.0423	0.0607	0.0430
62	-0.0368	0.00362	0.0419	0.0595	0.0421
63	-0.0368	0.00379	0.0414	0.0583	0.0413
64	-0.0367	0.00398	0.0410	0.0572	0.0405
65	-0.0366	0.00419	0.0406	0.0561	0.0397
66	-0.0366	0.00442	0.0401	0.0550	0.0389
67	-0.0365	0.00467	0.0397	0.0540	0.0382
68	-0.0364	0.00493	0.0394	0.0530	0.0375
69	-0.0363	0.00521	0.0390	0.0521	0.0368
70	-0.0362	0.00551	0.0386	0.0512	0.0362
71	-0.0361	0.00583	0.0383	0.0504	0.0356
72	-0.0360	0.00617	0.0379	0.0496	0.0350
73	-0.0359	0.00652	0.0376	0.0488	0.0345
74	-0.0358	0.00689	0.0373	0.0481	0.0340
75	-0.0357	0.00727	0.0370	0.0475	0.0336
76	-0.0355	0.00767	0.0367	0.0469	0.0331
77	-0.0354	0.00808	0.0364	0.0463	0.0327
78	-0.0353	0.00851	0.0361	0.0458	0.0324
79	-0.0351	0.00896	0.0358	0.0454	0.0321
80	-0.0349	0.00943	0.0355	0.0450	0.0318
81	-0.0348	0.00990	0.0352	0.0447	0.0316
82	-0.0346	0.01040	0.0350	0.0444	0.0314
83	-0.0344	0.01092	0.0347	0.0442	0.0312
84	-0.0342	0.01145	0.0344	0.0440	0.0311
85	-0.0340	0.01200	0.0341	0.0439	0.0310
86	-0.0338	0.01257	0.0339	0.0438	0.0309
87	-0.0336	0.01315	0.0336	0.0439	0.0310
87.982	-0.0333	0.01375	0.0334	0.0440	0.0311

$\theta = 7.5$     $U = 0.40$     $M = 1.0484$     $G = 73.972$

$\theta$	$x$	$y$	$z$	$\eta/\bar{\rho}$	$k/\bar{\rho}$
7.500	-0.1054	0.8000	0.8075	0.3482	0.2478
7.625	-0.1037	0.7744	0.7814	0.3536	0.2517
7.750	-0.1020	0.7500	0.7565	0.3583	0.2550
7.875	-0.1004	0.7267	0.7328	0.3624	0.2579
8.000	-0.0989	0.7046	0.7102	0.3659	0.2604
8.125	-0.0974	0.6835	0.6887	0.3689	0.2626
8.250	-0.0959	0.6634	0.6681	0.3715	0.2644
8.375	-0.0945	0.6442	0.6484	0.3736	0.2659
8.500	-0.0931	0.6258	0.6296	0.3753	0.2671
8.625	-0.0917	0.6082	0.6116	0.3767	0.2681
8.750	-0.0904	0.5914	0.5943	0.3778	0.2689
8.875	-0.0891	0.5753	0.5777	0.3786	0.2695
9.000	-0.0879	0.5598	0.5618	0.3791	0.2698
9.125	-0.0867	0.5450	0.5465	0.3794	0.2700
9.250	-0.0855	0.5308	0.5319	0.3794	0.2700
9.375	-0.0844	0.5172	0.5179	0.3793	0.2699
9.500	-0.0833	0.5041	0.5044	0.3790	0.2697
9.625	-0.0822	0.4915	0.4914	0.3785	0.2694
9.750	-0.0811	0.4794	0.4789	0.3779	0.2690
9.875	-0.0801	0.4677	0.4669	0.3771	0.2684
10.00	-0.0791	0.4565	0.4553	0.3762	0.2678
10.25	-0.0771	0.4353	0.4334	0.3741	0.2663
10.50	-0.0752	0.4156	0.4130	0.3717	0.2646
10.75	-0.0735	0.3973	0.3940	0.3689	0.2626
11.00	-0.0716	0.3802	0.3763	0.3659	0.2604
11.25	-0.0702	0.3642	0.3597	0.3627	0.2581
11.50	-0.0686	0.3492	0.3442	0.3594	0.2557
11.75	-0.0671	0.3352	0.3296	0.3559	0.2532
12.00	-0.0657	0.3221	0.3159	0.3523	0.2507
12.25	-0.0643	0.3098	0.3031	0.3486	0.2481
12.50	-0.0630	0.2982	0.2910	0.3449	0.2455
12.75	-0.0617	0.2872	0.2796	0.3412	0.2428
13.00	-0.0605	0.2768	0.2688	0.3375	0.2402
13.25	-0.0593	0.2670	0.2587	0.3337	0.2375
13.50	-0.0582	0.2578	0.2491	0.3299	0.2348
13.75	-0.0571	0.2492	0.2400	0.3262	0.2322
14.00	-0.0560	0.2409	0.2314	0.3225	0.2295
14.25	-0.0549	0.2331	0.2232	0.3189	0.2269
14.50	-0.0539	0.2257	0.2154	0.3151	0.2243
14.75	-0.0529	0.2186	0.2080	0.3114	0.2217
15.00	-0.0520	0.2119	0.2010	0.3078	0.2191
15.25	-0.0511	0.2055	0.1943	0.3043	0.2166
15.50	-0.0502	0.1995	0.1880	0.3008	0.2141
15.75	-0.0493	0.1937	0.1819	0.2973	0.2116
16.00	-0.0485	0.1881	0.1761	0.2939	0.2092

$\theta_s = 7.5$     $\bar{u}_s = 0.40$     $M = 1.0484$     $\theta_v = 73.978$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
16.5	-0.0469	0.1778	0.1653	0.2872	0.2044
17.0	-0.0454	0.1684	0.1554	0.2807	0.1998
17.5	-0.0440	0.1598	0.1463	0.2744	0.1953
18.0	-0.0426	0.1519	0.1380	0.2683	0.1910
18.5	-0.0413	0.1446	0.1303	0.2624	0.1868
19.0	-0.0401	0.1378	0.1232	0.2567	0.1827
19.5	-0.0390	0.1315	0.1166	0.2512	0.1787
20.0	-0.0379	0.1257	0.1105	0.2458	0.1749
20.5	-0.0368	0.1203	0.1049	0.2406	0.1712
21.0	-0.0357	0.1153	0.0997	0.2356	0.1677
21.5	-0.0347	0.1106	0.0948	0.2308	0.1643
22.0	-0.0338	0.1062	0.0902	0.2261	0.1609
22.5	-0.0329	0.1021	0.0859	0.2215	0.1577
23.0	-0.0320	0.0983	0.0819	0.2171	0.1545
23.5	-0.0312	0.0948	0.0781	0.2129	0.1515
24.0	-0.0304	0.0915	0.0746	0.2087	0.1485
24.5	-0.0296	0.0883	0.0713	0.2047	0.1457
25.0	-0.0288	0.0853	0.0682	0.2008	0.1429
25.5	-0.0281	0.0825	0.0652	0.1971	0.1403
26.0	-0.0274	0.0798	0.0624	0.1934	0.1377
26.5	-0.0267	0.0773	0.0598	0.1899	0.1352
27.0	-0.0260	0.0749	0.0573	0.1864	0.1327
27.5	-0.0254	0.0726	0.0549	0.1830	0.1303
28.0	-0.0248	0.0705	0.0527	0.1798	0.1280
28.5	-0.0242	0.0685	0.0506	0.1766	0.1257
29.0	-0.0236	0.0666	0.0486	0.1735	0.1235
29.5	-0.0230	0.0647	0.0467	0.1705	0.1214
30.0	-0.0224	0.0629	0.0449	0.1675	0.1193
30.5	-0.0219	0.0612	0.0432	0.1647	0.1172
31.0	-0.0214	0.0596	0.0415	0.1619	0.1152
31.5	-0.0207	0.0581	0.0399	0.1592	0.1133
32.0	-0.0204	0.0566	0.0384	0.1565	0.1114
32.5	-0.0199	0.0552	0.0370	0.1539	0.1096
33.0	-0.0194	0.0539	0.0356	0.1514	0.1078
33.5	-0.0189	0.0526	0.0343	0.1489	0.1060
34	-0.0185	0.0514	0.0330	0.1465	0.1043
35	-0.0176	0.0490	0.0307	0.1418	0.1009
36	-0.0167	0.0469	0.0285	0.1373	0.0977
37	-0.0159	0.0449	0.0265	0.1330	0.0947
38	-0.0152	0.0430	0.0247	0.1289	0.0918
39	-0.0145	0.0412	0.0230	0.1250	0.0890
40	-0.0138	0.0396	0.0214	0.1212	0.0863
41	-0.0131	0.0381	0.0199	0.1175	0.0836
42	-0.0124	0.0367	0.0185	0.1139	0.0810
43	-0.0118	0.0353	0.0173	0.1105	0.0786

$\theta_0 = 7.5$     $\bar{u}_0 = 0.40$     $M = 1.0484$     $\theta_1 = 73.978$

$\theta$	x	y	z	$\eta/\bar{u}$	$\xi/\bar{u}$
44	-0.01118	0.0340	0.01609	0.1072	0.0763
45	-0.01050	0.0328	0.01498	0.1040	0.0740
46	-0.01004	0.0316	0.01395	0.1009	0.0718
47	-0.00950	0.0305	0.01293	0.0979	0.0697
48	-0.00897	0.0294	0.01207	0.0950	0.0675
49	-0.00846	0.0284	0.01122	0.0921	0.0656
50	-0.00797	0.0274	0.01042	0.0893	0.0636
51	-0.00750	0.0265	0.00966	0.0866	0.0616
52	-0.00705	0.0256	0.00895	0.0840	0.0598
53	-0.00661	0.0247	0.00828	0.0814	0.0579
54	-0.00619	0.0239	0.00765	0.0789	0.0561
55	-0.00578	0.0231	0.00705	0.0765	0.0544
56	-0.00538	0.0223	0.00649	0.0741	0.0527
57	-0.00500	0.0215	0.00596	0.0717	0.0510
58	-0.00463	0.0208	0.00546	0.0694	0.0494
59	-0.00427	0.0201	0.00498	0.0671	0.0478
60	-0.00393	0.0194	0.00453	0.0649	0.0462
61	-0.00359	0.0187	0.00411	0.0627	0.0446
62	-0.00327	0.0180	0.00371	0.0606	0.0431
63	-0.00295	0.0173	0.00333	0.0585	0.0416
64	-0.00267	0.0167	0.00297	0.0564	0.0401
65	-0.00238	0.0161	0.00263	0.0544	0.0387
66	-0.00210	0.0155	0.00231	0.0524	0.0373
67	-0.00184	0.0149	0.00200	0.0504	0.0359
68	-0.00158	0.0143	0.00171	0.0485	0.0345
68.5	-0.00146	0.0140	0.00157	0.0475	0.0338
69.0	-0.00134	0.0137	0.00143	0.0465	0.0331
69.5	-0.00122	0.0134	0.00130	0.0457	0.0325
70.0	-0.00110	0.0132	0.00117	0.0448	0.0319
70.5	-0.00099	0.0129	0.00105	0.0440	0.0313
71.00	-0.00088	0.0127	0.00093	0.0432	0.0307
71.25	-0.00083	0.0125	0.00087	0.0428	0.0304
71.50	-0.00077	0.0124	0.00081	0.0425	0.0302
71.75	-0.00072	0.0123	0.00075	0.0422	0.0300
72.00	-0.00066	0.0123	0.00070	0.0419	0.0298
72.25	-0.00061	0.0122	0.00064	0.0416	0.0296
72.50	-0.00056	0.0121	0.00058	0.0415	0.0295
72.75	-0.00050	0.0121	0.00053	0.0414	0.0295
73.00	-0.00045	0.0121	0.00047	0.0415	0.0296
73.25	-0.00040	0.0122	0.00041	0.0418	0.0298
73.5	-0.00034	0.0124	0.00036	0.0424	0.0302
73.6	-0.00032	0.0125	0.00034	0.0428	0.0305
73.7	-0.00030	0.0126	0.00031	0.0434	0.0309
73.8	-0.00028	0.0128	0.00029	0.0441	0.0314
73.9	-0.00026	0.0131	0.00027	0.0451	0.0321
73.978	-0.00024	0.0134	0.00025	0.0462	0.0329

$\theta_0 = 7.5$     $\bar{U}_0 = 0.45$     $M = 1.1908$     $\theta_1 = 57.588$

$\theta$	x	y	z	$\eta/\beta$	$z/\beta$
7.500	-0.1156	0.9000	0.8859	0.4527	0.3222
7.625	-0.1137	0.8715	0.8569	0.4599	0.3273
7.750	-0.1118	0.8444	0.8293	0.4668	0.3318
7.875	-0.1100	0.8186	0.8030	0.4717	0.3367
8.000	-0.1083	0.7941	0.7779	0.4764	0.3391
8.125	-0.1066	0.7707	0.7540	0.4805	0.3420
8.250	-0.1049	0.7483	0.7311	0.4839	0.3444
8.375	-0.1033	0.7269	0.7092	0.4868	0.3465
8.500	-0.1017	0.7065	0.6883	0.4892	0.3482
8.625	-0.1002	0.6870	0.6682	0.4911	0.3495
8.750	-0.0987	0.6684	0.6490	0.4926	0.3506
8.875	-0.0973	0.6505	0.6306	0.4937	0.3514
9.000	-0.0959	0.6333	0.6130	0.4944	0.3519
9.125	-0.0945	0.6169	0.5961	0.4948	0.3522
9.250	-0.0932	0.6011	0.5798	0.4950	0.3523
9.375	-0.0919	0.5859	0.5642	0.4949	0.3522
9.500	-0.0906	0.5714	0.5492	0.4946	0.3520
9.625	-0.0894	0.5574	0.5348	0.4940	0.3516
9.750	-0.0882	0.5440	0.5209	0.4932	0.3510
9.875	-0.0870	0.5311	0.5075	0.4923	0.3504
10.00	-0.0859	0.5186	0.4946	0.4912	0.3496
10.25	-0.0837	0.4951	0.4702	0.4886	0.3478
10.50	-0.0816	0.4732	0.4475	0.4855	0.3456
10.75	-0.0795	0.4528	0.4264	0.4820	0.3431
11.00	-0.0776	0.4338	0.4067	0.4781	0.3403
11.25	-0.0758	0.4160	0.3883	0.4740	0.3374
11.50	-0.0740	0.3994	0.3711	0.4697	0.3343
11.75	-0.0723	0.3838	0.3549	0.4652	0.3311
12.00	-0.0706	0.3692	0.3397	0.4606	0.3278
12.25	-0.0690	0.3554	0.3254	0.4558	0.3244
12.50	-0.0675	0.3424	0.3120	0.4510	0.3210
12.75	-0.0661	0.3302	0.2993	0.4462	0.3176
13.00	-0.0647	0.3187	0.2874	0.4413	0.3141
13.25	-0.0633	0.3079	0.2761	0.4364	0.3106
13.50	-0.0620	0.2976	0.2654	0.4315	0.3071
13.75	-0.0607	0.2878	0.2553	0.4266	0.3036
14.00	-0.0594	0.2786	0.2457	0.4218	0.3002
14.25	-0.0582	0.2699	0.2366	0.4169	0.2967
14.50	-0.0571	0.2616	0.2280	0.4121	0.2933
14.75	-0.0560	0.2537	0.2198	0.4074	0.2900
15.0	-0.0549	0.2462	0.2120	0.4027	0.2866
15.5	-0.0528	0.2322	0.1975	0.3934	0.2800
16.0	-0.0508	0.2195	0.1844	0.3844	0.2736
16.5	-0.0490	0.2079	0.1724	0.3756	0.2673
17.0	-0.0472	0.1973	0.1614	0.3670	0.2612



$\theta_1 = 7.5$     $U_1 = 0.45$     $M = 1.1902$     $\theta_2 = 57.528$

$\theta$	x	y	z	$\eta$	$\xi/\beta$
17.5	-0.0455	0.1876	0.1513	0.3587	0.2353
18.0	-0.0439	0.1786	0.1421	0.3506	0.2496
18.5	-0.0424	0.1703	0.1336	0.3488	0.2448
19.0	-0.0409	0.1627	0.1257	0.3358	0.2386
19.5	-0.0395	0.1556	0.1185	0.3279	0.2334
20.0	-0.0382	0.1490	0.1118	0.3208	0.2283
20.5	-0.0369	0.1428	0.1055	0.3139	0.2234
21.0	-0.0357	0.1371	0.0997	0.3072	0.2186
21.5	-0.0345	0.1318	0.0943	0.3007	0.2140
22.0	-0.0334	0.1268	0.0892	0.2944	0.2095
22.5	-0.0323	0.1221	0.0845	0.2883	0.2052
23.0	-0.0313	0.1177	0.0801	0.2824	0.2010
23.5	-0.0303	0.1135	0.0759	0.2767	0.1969
24.0	-0.0293	0.1096	0.0721	0.2711	0.1930
24.5	-0.0284	0.1060	0.0684	0.2657	0.1891
25.0	-0.0275	0.1025	0.0650	0.2604	0.1853
25.5	-0.0266	0.0992	0.0617	0.2553	0.1817
26.0	-0.0257	0.0961	0.0587	0.2503	0.1781
26.5	-0.0249	0.0931	0.0558	0.2454	0.1747
27.0	-0.0241	0.0903	0.0531	0.2407	0.1713
27.5	-0.0233	0.0876	0.0505	0.2361	0.1680
28.0	-0.0226	0.0850	0.0481	0.2316	0.1648
28.5	-0.0218	0.0826	0.0458	0.2272	0.1617
29.0	-0.0211	0.0803	0.0436	0.2229	0.1587
29.5	-0.0204	0.0781	0.0415	0.2188	0.1557
30.0	-0.0198	0.0759	0.0395	0.2147	0.1528
30.5	-0.0191	0.0739	0.0377	0.2107	0.1500
31.0	-0.0185	0.0719	0.0359	0.2068	0.1473
31.5	-0.0179	0.0701	0.0342	0.2030	0.1445
32.0	-0.0173	0.0683	0.0326	0.1993	0.1418
32.5	-0.0167	0.0665	0.0310	0.1956	0.1392
33.0	-0.0161	0.0648	0.0296	0.1920	0.1367
33.5	-0.0155	0.0632	0.0282	0.1885	0.1342
34.0	-0.0150	0.0617	0.0268	0.1850	0.1317
34.5	-0.0145	0.0602	0.0255	0.1816	0.1293
35.0	-0.0139	0.0587	0.0243	0.1783	0.1269
35.5	-0.0134	0.0573	0.0231	0.1751	0.1246
36.0	-0.0129	0.0560	0.0220	0.1719	0.1223
36.5	-0.0125	0.0546	0.0209	0.1687	0.1201
37.0	-0.0120	0.0534	0.0199	0.1656	0.1179
37.5	-0.0115	0.0521	0.0189	0.1625	0.1157
38.0	-0.0111	0.0509	0.0180	0.1595	0.1135
38.5	-0.0106	0.0497	0.0171	0.1566	0.1114
39.0	-0.0102	0.0486	0.0162	0.1537	0.1093
39.5	-0.0098	0.0475	0.0154	0.1508	0.1073

$\theta_s = 7.5$     $\bar{u}_s = 0.45$     $M = 1.1902$     $\theta_v = 57.528$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
40.0	-0.00938	0.0464	0.01459	0.1479	0.1053
40.5	-0.00898	0.0453	0.01383	0.1451	0.1033
41.0	-0.00859	0.0443	0.01310	0.1423	0.1013
41.5	-0.00821	0.0432	0.01239	0.1396	0.0994
42.0	-0.00783	0.0422	0.01171	0.1369	0.0974
42.5	-0.00747	0.0413	0.01106	0.1342	0.0955
43.0	-0.00711	0.0403	0.01043	0.1315	0.0936
43.5	-0.00677	0.0394	0.00983	0.1289	0.0917
44.0	-0.00643	0.0384	0.00925	0.1263	0.0899
44.5	-0.00610	0.0375	0.00869	0.1237	0.0880
45.0	-0.00577	0.0366	0.00816	0.1211	0.0862
45.5	-0.00546	0.0357	0.00765	0.1185	0.0844
46.0	-0.00515	0.0349	0.00716	0.1160	0.0826
46.5	-0.00485	0.0340	0.00669	0.1134	0.0807
47.0	-0.00455	0.0332	0.00623	0.1109	0.0789
47.5	-0.00427	0.0323	0.00579	0.1084	0.0772
48.0	-0.00399	0.0315	0.00537	0.1059	0.0754
48.5	-0.00372	0.0306	0.00497	0.1033	0.0735
49.0	-0.00346	0.0298	0.00458	0.1008	0.0717
49.5	-0.00320	0.0290	0.00421	0.0983	0.0700
50.0	-0.00295	0.0282	0.00385	0.0958	0.0682
50.5	-0.00271	0.0274	0.00351	0.0932	0.0663
51.0	-0.00247	0.0265	0.00318	0.0906	0.0645
51.5	-0.00224	0.0257	0.00287	0.0880	0.0626
52.0	-0.00202	0.0249	0.00257	0.0854	0.0608
52.2	-0.00194	0.0246	0.00245	0.0844	0.0601
52.4	-0.00185	0.0242	0.00234	0.0833	0.0593
52.6	-0.00177	0.0239	0.00223	0.0823	0.0586
52.8	-0.00169	0.0236	0.00212	0.0812	0.0578
53.0	-0.00160	0.0232	0.00201	0.0801	0.0570
53.2	-0.00152	0.0229	0.00190	0.0790	0.0562
53.4	-0.00144	0.0225	0.00180	0.0779	0.0554
53.6	-0.00137	0.0222	0.00170	0.0768	0.0547
53.8	-0.00129	0.0219	0.00160	0.0757	0.0539
54.0	-0.00121	0.0215	0.00150	0.0746	0.0531
54.2	-0.00114	0.0212	0.00140	0.0734	0.0522
54.4	-0.00107	0.0208	0.00131	0.0723	0.0515
54.6	-0.00099	0.0205	0.00122	0.0711	0.0506
54.8	-0.00092	0.0201	0.00113	0.0699	0.0498
55.0	-0.00085	0.0197	0.00104	0.0688	0.0490
55.2	-0.00078	0.0194	0.00096	0.0676	0.0481
55.4	-0.00072	0.0190	0.00087	0.0663	0.0472
55.6	-0.00065	0.0186	0.00079	0.0651	0.0463
55.8	-0.00059	0.0183	0.00071	0.0639	0.0455
56.0	-0.00052	0.0179	0.00063	0.0626	0.0446

$\theta_1 = 7.5$     $\theta_2 = 0.48$     $M = 1.1902$     $\theta_3 = 57.528$

$\theta$	x	y	z	$\frac{z}{y}$	$\frac{z}{x}$
56.1	-0.000493	0.01771	0.000594	0.0620	0.0441
56.2	-0.000482	0.01752	0.000555	0.0514	0.0437
56.3	-0.000432	0.01733	0.000519	0.0608	0.0433
56.4	-0.000402	0.01715	0.000483	0.0601	0.0428
56.5	-0.000372	0.01697	0.000446	0.0595	0.0423
56.6	-0.000343	0.01679	0.000411	0.0589	0.0419
56.7	-0.000314	0.01662	0.000375	0.0584	0.0416
56.8	-0.000285	0.01646	0.000340	0.0578	0.0411
56.9	-0.000256	0.01631	0.000306	0.0573	0.0408
57.0	-0.000228	0.01618	0.000272	0.0569	0.0405
57.05	-0.000214	0.01613	0.000255	0.0568	0.0404
57.10	-0.000200	0.01609	0.000238	0.0567	0.0404
57.15	-0.000185	0.01607	0.000221	0.0566	0.0403
57.20	-0.000172	0.01607	0.000204	0.0566	0.0403
57.25	-0.000158	0.01609	0.000187	0.0567	0.0404
57.30	-0.000143	0.01615	0.000170	0.0569	0.0405
57.32	-0.000138	0.01619	0.000164	0.0571	0.0406
57.34	-0.000132	0.01624	0.000157	0.0573	0.0408
57.36	-0.000126	0.01631	0.000150	0.0575	0.0409
57.38	-0.000121	0.01639	0.000143	0.0578	0.0411
57.40	-0.000115	0.01648	0.000137	0.0582	0.0414
57.42	-0.000109	0.01660	0.000130	0.0586	0.0417
57.44	-0.000103	0.01675	0.000123	0.0591	0.0421
57.46	-0.000098	0.01693	0.000116	0.0598	0.0426
57.48	-0.000092	0.01716	0.000109	0.0606	0.0431
57.49	-0.000089	0.01730	0.000105	0.0611	0.0435
57.50	-0.000086	0.01745	0.000101	0.0617	0.0439
57.51	-0.000083	0.01763	0.000098	0.0623	0.0443
57.52	-0.000079	0.01783	0.000094	0.0630	0.0448
57.528	-0.000077	0.01801	0.000091	0.0636	0.0453

$\theta = 7.5$     $\alpha = 0.50$     $M = 1.3577$     $\beta = 47.788$

$\theta$	$x$	$y$	$z$	$w$	$v/\beta$
7.500	-0.1256	1.0000	0.9619	0.5807	0.4133
7.625	-0.1234	0.9687	0.9300	0.5902	0.4201
7.750	-0.1213	0.9389	0.8997	0.5985	0.4260
7.875	-0.1193	0.9106	0.8708	0.6057	0.4311
8.000	-0.1173	0.8836	0.8432	0.6119	0.4355
8.125	-0.1154	0.8579	0.8169	0.6172	0.4393
8.250	-0.1136	0.8334	0.7917	0.6218	0.4426
8.375	-0.1118	0.8099	0.7677	0.6257	0.4453
8.500	-0.1101	0.7875	0.7447	0.6289	0.4475
8.625	-0.1084	0.7661	0.7227	0.6314	0.4493
8.750	-0.1067	0.7456	0.7016	0.6334	0.4508
8.875	-0.1051	0.7259	0.6814	0.6349	0.4520
9.000	-0.1036	0.7071	0.6620	0.6360	0.4528
9.125	-0.1021	0.6891	0.6434	0.6367	0.4532
9.250	-0.1006	0.6718	0.6256	0.6370	0.4533
9.375	-0.0991	0.6552	0.6084	0.6370	0.4534
9.500	-0.0977	0.6392	0.5920	0.6366	0.4531
9.625	-0.0963	0.6238	0.5761	0.6360	0.4527
9.750	-0.0950	0.6091	0.5608	0.6351	0.4521
9.875	-0.0937	0.5948	0.5461	0.6340	0.4518
10.00	-0.0924	0.5812	0.5320	0.6327	0.4503
10.25	-0.0899	0.5553	0.5052	0.6294	0.4480
10.50	-0.0875	0.5313	0.4803	0.6255	0.4452
10.75	-0.0853	0.5089	0.4571	0.6211	0.4431
11.00	-0.0831	0.4880	0.4354	0.6163	0.4386
11.25	-0.0810	0.4684	0.4151	0.6111	0.4349
11.50	-0.0790	0.4501	0.3961	0.6056	0.4310
11.75	-0.0771	0.4330	0.3784	0.5999	0.4270
12.00	-0.0752	0.4169	0.3618	0.5940	0.4228
12.25	-0.0734	0.4018	0.3461	0.5880	0.4185
12.50	-0.0717	0.3875	0.3313	0.5819	0.4142
12.75	-0.0700	0.3741	0.3174	0.5757	0.4098
13.00	-0.0684	0.3614	0.3042	0.5694	0.4053
13.25	-0.0669	0.3494	0.2918	0.5631	0.4008
13.50	-0.0654	0.3380	0.2801	0.5568	0.3963
13.75	-0.0639	0.3273	0.2690	0.5505	0.3918
14.00	-0.0625	0.3171	0.2585	0.5453	0.3874
14.25	-0.0612	0.3074	0.2485	0.5381	0.3830
14.50	-0.0599	0.2982	0.2390	0.5319	0.3786
14.75	-0.0586	0.2894	0.2300	0.5257	0.3742
15.00	-0.0573	0.2811	0.2215	0.5196	0.3698
15.25	-0.0561	0.2732	0.2134	0.5136	0.3655
15.50	-0.0549	0.2656	0.2056	0.5076	0.3613
15.75	-0.0538	0.2584	0.1982	0.5017	0.3571
16.00	-0.0527	0.2515	0.1911	0.4959	0.3530

$\theta_s = 7.5$     $\bar{U}_s = 0.50$     $M = 1.3577$     $\theta_v = 47.728$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
16.25	-0.0516	0.2449	0.1844	0.4902	0.3489
16.50	-0.0505	0.2386	0.1780	0.4845	0.3449
16.75	-0.0495	0.2325	0.1718	0.4789	0.3409
17.00	-0.0485	0.2267	0.1659	0.4734	0.3369
17.25	-0.0475	0.2211	0.1603	0.4679	0.3330
17.5	-0.0466	0.2158	0.1549	0.4625	0.3292
18.0	-0.0448	0.2058	0.1448	0.4520	0.3216
18.5	-0.0430	0.1965	0.1355	0.4418	0.3144
19.0	-0.0413	0.1879	0.1269	0.4318	0.3073
19.5	-0.0397	0.1799	0.1190	0.4221	0.3004
20.0	-0.0382	0.1725	0.1117	0.4127	0.2937
20.5	-0.0367	0.1656	0.1049	0.4036	0.2873
21.0	-0.0353	0.1591	0.0985	0.3947	0.2809
21.5	-0.0339	0.1530	0.0925	0.3861	0.2748
22.0	-0.0326	0.1473	0.0870	0.3777	0.2688
22.5	-0.0313	0.1419	0.0819	0.3696	0.2631
23.0	-0.0301	0.1368	0.0771	0.3617	0.2574
23.5	-0.0290	0.1321	0.0726	0.3540	0.2520
24.0	-0.0278	0.1276	0.0684	0.3465	0.2466
24.5	-0.0267	0.1233	0.0645	0.3392	0.2414
25.0	-0.0257	0.1192	0.0608	0.3321	0.2363
25.5	-0.0247	0.1154	0.0573	0.3251	0.2314
26.0	-0.0237	0.1117	0.0540	0.3183	0.2265
26.5	-0.0227	0.1082	0.0509	0.3116	0.2218
27.0	-0.0218	0.1049	0.0480	0.3051	0.2172
27.5	-0.0209	0.1017	0.0452	0.2988	0.2127
28.0	-0.0200	0.0987	0.0426	0.2926	0.2083
28.5	-0.0191	0.0958	0.0401	0.2865	0.2039
29.0	-0.0183	0.0930	0.0378	0.2806	0.1997
29.5	-0.0175	0.0903	0.0356	0.2747	0.1955
30.0	-0.0167	0.0877	0.0335	0.2690	0.1915
30.5	-0.0160	0.0852	0.0315	0.2634	0.1875
31.0	-0.0153	0.0828	0.0296	0.2578	0.1835
31.5	-0.0146	0.0805	0.0278	0.2524	0.1796
32.0	-0.0139	0.0782	0.0261	0.2470	0.1758
32.5	-0.0132	0.0760	0.0245	0.2418	0.1721
33.0	-0.0125	0.0739	0.0230	0.2366	0.1684
33.5	-0.0119	0.0719	0.0215	0.2314	0.1647
34.0	-0.0113	0.0699	0.0201	0.2264	0.1611
34.5	-0.0107	0.0680	0.0188	0.2214	0.1576
35.0	-0.0101	0.0661	0.0176	0.2164	0.1540
35.5	-0.0095	0.0642	0.0164	0.2115	0.1505
36.0	-0.0089	0.0624	0.0152	0.2067	0.1471
36.5	-0.0084	0.0607	0.0141	0.2019	0.1437
37.0	-0.0079	0.0590	0.0131	0.1971	0.1403

$\theta_1 = 7.5$     $\bar{u}_1 = 0.60$     $M = 1.3577$     $\theta_2 = 47.726$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\beta$
37.5	-0.00740	0.0573	0.01215	0.1924	0.1369
38.0	-0.00691	0.0556	0.01121	0.1877	0.1335
38.5	-0.00643	0.0539	0.01032	0.1830	0.1302
39.0	-0.00596	0.0523	0.00948	0.1783	0.1269
39.5	-0.00551	0.0507	0.00868	0.1735	0.1235
40.0	-0.00508	0.0492	0.00791	0.1688	0.1202
40.5	-0.00466	0.0476	0.00717	0.1641	0.1168
41.0	-0.00425	0.0460	0.00647	0.1594	0.1135
41.5	-0.00385	0.0444	0.00581	0.1546	0.1100
42.0	-0.00347	0.0429	0.00519	0.1498	0.1066
42.2	-0.00332	0.0423	0.00494	0.1479	0.1053
42.4	-0.00317	0.0417	0.00471	0.1459	0.1038
42.6	-0.00303	0.0411	0.00448	0.1440	0.1024
42.8	-0.00289	0.0404	0.00425	0.1420	0.1010
43.0	-0.00275	0.0398	0.00403	0.1400	0.0996
43.2	-0.00261	0.0392	0.00381	0.1380	0.0982
43.4	-0.00247	0.0387	0.00360	0.1360	0.0968
43.6	-0.00234	0.0379	0.00339	0.1340	0.0954
43.8	-0.00221	0.0373	0.00319	0.1319	0.0939
44.0	-0.00208	0.0367	0.00299	0.1299	0.0925
44.2	-0.00195	0.0360	0.00280	0.1278	0.0910
44.4	-0.00183	0.0354	0.00261	0.1257	0.0895
44.6	-0.00171	0.0347	0.00243	0.1235	0.0879
44.8	-0.00159	0.0341	0.00225	0.1214	0.0864
45.0	-0.00147	0.0334	0.00208	0.1192	0.0848
45.2	-0.00135	0.0327	0.00191	0.1169	0.0832
45.4	-0.00124	0.0320	0.00174	0.1147	0.0816
45.6	-0.00113	0.0314	0.00158	0.1124	0.0800
45.8	-0.00102	0.0307	0.00142	0.1100	0.0783
46.0	-0.00092	0.0299	0.00127	0.1076	0.0766
46.1	-0.00086	0.0296	0.00120	0.1065	0.0758
46.2	-0.00081	0.0292	0.00113	0.1052	0.0749
46.3	-0.00076	0.0289	0.00105	0.1040	0.0740
46.4	-0.00071	0.0285	0.00098	0.1028	0.0732
46.5	-0.00066	0.0281	0.00091	0.1016	0.0723
46.6	-0.00061	0.0278	0.00084	0.1003	0.0714
46.7	-0.00056	0.0274	0.00078	0.0991	0.0705
46.8	-0.00052	0.0271	0.00071	0.0979	0.0697
46.9	-0.00047	0.0267	0.00064	0.0967	0.0688
47.0	-0.00042	0.0264	0.00058	0.0955	0.0680
47.05	-0.00040	0.0262	0.00055	0.0949	0.0675
47.10	-0.00038	0.0260	0.00052	0.0943	0.0671
47.15	-0.00036	0.0259	0.00049	0.0938	0.0668
47.20	-0.00033	0.0257	0.00045	0.0933	0.0664
47.25	-0.00031	0.0256	0.00042	0.0929	0.0661

$\theta_s = 7.5$     $\bar{u}_s = 0.50$     $M = 1.3577$     $\theta_v = 47.728$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
47.30	-0.000288	0.02550	0.000393	0.0925	0.0658
47.35	-0.000266	0.02540	0.000362	0.0922	0.0656
47.40	-0.000244	0.02530	0.000332	0.0920	0.0655
47.45	-0.000222	0.02530	0.000302	0.0919	0.0655
47.50	-0.000200	0.02530	0.000272	0.0920	0.0655
47.52	-0.000191	0.02530	0.000259	0.0922	0.0656
47.54	-0.000182	0.02540	0.000247	0.0924	0.0658
47.56	-0.000174	0.02550	0.000235	0.0927	0.0660
47.58	-0.000165	0.02560	0.000223	0.0931	0.0663
47.60	-0.000156	0.02570	0.000211	0.0936	0.0666
47.62	-0.000147	0.02590	0.000199	0.0942	0.0670
47.64	-0.000138	0.02610	0.000186	0.0950	0.0676
47.66	-0.000129	0.02640	0.000174	0.0961	0.0684
47.68	-0.000119	0.02680	0.000161	0.0975	0.0694
47.70	-0.000110	0.02730	0.000149	0.0994	0.0707
47.72	-0.000100	0.02800	0.000136	0.1020	0.0726
47.728	-0.000096	0.02830	0.000130	0.1033	0.0735

$\theta_s = 7.5$     $\bar{U}_s = 0.55$     $M = 1.5462$     $\theta_v = 40.601$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
7.50	-0.1348	1.1000	1.0331	0.7377	0.5251
7.75	-0.1302	1.0336	0.9654	0.7609	0.5416
8.00	-0.1258	0.9736	0.9040	0.7784	0.5540
8.125	-0.1237	0.9457	0.8754	0.7855	0.5591
8.250	-0.1217	0.9190	0.8481	0.7915	0.5634
8.375	-0.1197	0.8935	0.8219	0.7965	0.5670
8.500	-0.1178	0.8692	0.7969	0.8007	0.5700
8.625	-0.1159	0.8460	0.7729	0.8042	0.5724
8.750	-0.1141	0.8237	0.7500	0.8070	0.5743
8.875	-0.1123	0.8024	0.7281	0.8091	0.5758
9.000	-0.1106	0.7819	0.7070	0.8106	0.5769
9.125	-0.1089	0.7623	0.6868	0.8116	0.5776
9.250	-0.1073	0.7435	0.6673	0.8121	0.5780
9.375	-0.1057	0.7255	0.6486	0.8122	0.5781
9.500	-0.1041	0.7082	0.6307	0.8119	0.5779
9.625	-0.1026	0.6915	0.6135	0.8112	0.5774
9.750	-0.1011	0.6755	0.5969	0.8102	0.5767
9.875	-0.0996	0.6601	0.5809	0.8089	0.5758
10.00	-0.0982	0.6452	0.5655	0.8073	0.5746
10.25	-0.0954	0.6171	0.5364	0.8034	0.5718
10.50	-0.0928	0.5910	0.5093	0.7986	0.5684
10.75	-0.0903	0.5666	0.4841	0.7931	0.5645
11.00	-0.0879	0.5439	0.4605	0.7871	0.5602
11.25	-0.0856	0.5226	0.4385	0.7806	0.5556
11.50	-0.0834	0.5027	0.4179	0.7738	0.5507
11.75	-0.0812	0.4840	0.3986	0.7666	0.5456
12.00	-0.0791	0.4664	0.3804	0.7592	0.5404
12.25	-0.0771	0.4499	0.3633	0.7516	0.5350
12.50	-0.0752	0.4344	0.3472	0.7439	0.5295
12.75	-0.0733	0.4197	0.3321	0.7360	0.5239
13.00	-0.0715	0.4058	0.3178	0.7281	0.5182
13.25	-0.0698	0.3927	0.3043	0.7201	0.5125
13.50	-0.0681	0.3803	0.2916	0.7121	0.5068
13.75	-0.0664	0.3685	0.2795	0.7041	0.5011
14.00	-0.0648	0.3573	0.2681	0.6961	0.4954
14.25	-0.0633	0.3467	0.2572	0.6882	0.4898
14.50	-0.0618	0.3366	0.2469	0.6803	0.4842
14.75	-0.0604	0.3270	0.2372	0.6725	0.4786
15.00	-0.0590	0.3179	0.2279	0.6647	0.4731
15.25	-0.0576	0.3092	0.2191	0.6570	0.4676
15.50	-0.0563	0.3008	0.2106	0.6493	0.4621
15.75	-0.0550	0.2920	0.2025	0.6417	0.4567
16.00	-0.0537	0.2852	0.1949	0.6342	0.4514
16.25	-0.0525	0.2779	0.1876	0.6268	0.4461
16.50	-0.0513	0.2709	0.1806	0.6195	0.4409
16.75	-0.0501	0.2642	0.1739	0.6122	0.4357
17.00	-0.0490	0.2578	0.1675	0.6050	0.4306
17.25	-0.0479	0.2516	0.1614	0.5979	0.4256



$\theta_s = 7.5$     $\bar{u}_s = 0.55$     $M = 1.5462$     $\theta_w = 40.601$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
17.5	-0.04679	0.2457	0.1556	0.5909	0.4206
18.0	-0.04469	0.2345	0.1446	0.5772	0.4108
18.5	-0.04269	0.2242	0.1345	0.5638	0.4013
19.0	-0.04078	0.2146	0.1252	0.5508	0.3920
19.5	-0.03895	0.2056	0.1167	0.5381	0.3830
20.0	-0.03719	0.1972	0.1088	0.5258	0.3742
20.5	-0.03550	0.1894	0.1014	0.5138	0.3657
21.0	-0.03388	0.1820	0.0945	0.5021	0.3574
21.5	-0.03232	0.1751	0.0882	0.4907	0.3493
22.0	-0.03082	0.1686	0.0823	0.4795	0.3413
22.5	-0.02938	0.1624	0.0768	0.4686	0.3335
23.0	-0.02799	0.1566	0.0716	0.4580	0.3260
23.5	-0.02665	0.1511	0.0668	0.4476	0.3186
24.0	-0.02535	0.1459	0.0623	0.4374	0.3114
24.5	-0.02410	0.1409	0.0581	0.4275	0.3043
25.0	-0.02289	0.1361	0.0542	0.4178	0.2974
25.5	-0.02172	0.1316	0.0505	0.4083	0.2906
26.0	-0.02059	0.1273	0.0470	0.3989	0.2839
26.5	-0.01950	0.1232	0.0437	0.3897	0.2773
27.0	-0.01844	0.1192	0.0406	0.3806	0.2709
27.5	-0.01742	0.1153	0.0377	0.3717	0.2646
28.0	-0.01643	0.1116	0.0350	0.3630	0.2584
28.5	-0.01547	0.1080	0.0324	0.3544	0.2523
29.0	-0.01454	0.1046	0.0300	0.3459	0.2462
29.5	-0.01364	0.1013	0.0277	0.3375	0.2402
30.0	-0.01277	0.0981	0.0255	0.3292	0.2343
30.5	-0.01193	0.0950	0.0235	0.3209	0.2284
31.0	-0.01112	0.0919	0.0216	0.3127	0.2226
31.5	-0.01033	0.0889	0.0198	0.3046	0.2168
32.0	-0.00956	0.0860	0.0181	0.2965	0.2110
32.50	-0.00882	0.0831	0.0164	0.2885	0.2053
32.75	-0.00846	0.0817	0.0156	0.2845	0.2024
33.00	-0.00811	0.0803	0.0149	0.2805	0.1996
33.25	-0.00776	0.0789	0.0142	0.2765	0.1968
33.50	-0.00742	0.0776	0.0135	0.2725	0.1940
33.75	-0.00709	0.0762	0.0128	0.2685	0.1912
34.00	-0.00676	0.0749	0.0121	0.2645	0.1884
34.25	-0.00644	0.0735	0.0114	0.2605	0.1855
34.50	-0.00612	0.0722	0.0108	0.2565	0.1826
34.75	-0.00581	0.0708	0.0102	0.2525	0.1797
35.00	-0.00550	0.0695	0.0096	0.2484	0.1768
35.25	-0.00520	0.0682	0.0090	0.2443	0.1739
35.50	-0.00490	0.0669	0.0084	0.2402	0.1710
35.75	-0.00461	0.0656	0.0079	0.2361	0.1681
36.00	-0.00433	0.0642	0.0074	0.2319	0.1651

$\theta_s = 7.5$     $\bar{u}_s = 0.55$     $M = 1.5462$     $\theta_v = 40.601$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
36.25	-0.00405	0.0629	0.00686	0.2277	0.1621
36.50	-0.00378	0.0616	0.00636	0.2235	0.1591
36.75	-0.00352	0.0603	0.00588	0.2192	0.1561
37.00	-0.00326	0.0589	0.00541	0.2149	0.1530
37.25	-0.00300	0.0576	0.00496	0.2106	0.1499
37.50	-0.00275	0.0562	0.00452	0.2062	0.1468
37.75	-0.00251	0.0549	0.00410	0.2017	0.1436
38.00	-0.00227	0.0535	0.00369	0.1971	0.1403
38.25	-0.00204	0.0521	0.00330	0.1934	0.1370
38.50	-0.00182	0.0507	0.00292	0.1877	0.1336
38.6	-0.00173	0.0501	0.00277	0.1858	0.1322
38.7	-0.00164	0.0496	0.00263	0.1839	0.1309
38.8	-0.00156	0.0490	0.00249	0.1820	0.1295
38.9	-0.00147	0.0484	0.00235	0.1800	0.1281
39.0	-0.00139	0.0479	0.00221	0.1780	0.1267
39.1	-0.00131	0.0473	0.00207	0.1761	0.1253
39.2	-0.00122	0.0467	0.00194	0.1741	0.1239
39.3	-0.00114	0.0461	0.00181	0.1721	0.1225
39.4	-0.00106	0.0455	0.00168	0.1701	0.1211
39.5	-0.00098	0.0449	0.00155	0.1681	0.1196
39.6	-0.00091	0.0444	0.00142	0.1661	0.1182
39.7	-0.00083	0.0438	0.00130	0.1641	0.1168
39.8	-0.00075	0.0432	0.00118	0.1622	0.1154
39.9	-0.00068	0.0427	0.00106	0.1604	0.1141
40.0	-0.00060	0.0422	0.00094	0.1586	0.1129
40.05	-0.00057	0.0420	0.00088	0.1578	0.1123
40.10	-0.00053	0.0418	0.00082	0.1571	0.1118
40.15	-0.00049	0.0416	0.00077	0.1565	0.1114
40.20	-0.00046	0.0414	0.00071	0.1560	0.1111
40.25	-0.00042	0.0413	0.00065	0.1556	0.1108
40.275	-0.00040	0.0412	0.00063	0.1555	0.1107
40.300	-0.00039	0.0412	0.00060	0.1555	0.1107
40.325	-0.00037	0.0412	0.00057	0.1555	0.1107
40.350	-0.00035	0.0412	0.00054	0.1556	0.1108
40.375	-0.00033	0.0413	0.00051	0.1558	0.1109
40.400	-0.00031	0.0414	0.00049	0.1562	0.1112
40.425	-0.00030	0.0415	0.00046	0.1568	0.1116
40.450	-0.00028	0.0417	0.00043	0.1576	0.1122
40.475	-0.00026	0.0420	0.00040	0.1585	0.1129
40.500	-0.00024	0.0423	0.00037	0.1601	0.1139
40.51	-0.00023	0.0425	0.00036	0.1608	0.1144
40.52	-0.00023	0.0427	0.00035	0.1616	0.1150
40.53	-0.00022	0.0430	0.00034	0.1625	0.1157
40.54	-0.00021	0.0432	0.00033	0.1636	0.1164
40.55	-0.00020	0.0435	0.00031	0.1648	0.1173

$\theta_s = 7.5$     $\bar{u}_s = 0.55$     $M = 1.5462$     $\theta_w = 40.601$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
40.56	-0.00020	0.0439	0.00030	0.1662	0.1183
40.57	-0.00019	0.0443	0.00029	0.1678	0.1194
40.58	-0.00018	0.0448	0.00028	0.1697	0.1208
40.59	-0.00017	0.0454	0.00027	0.1719	0.1223
40.60	-0.00017	0.0461	0.00025	0.1744	0.1241
40.601	-0.00016	0.0462	0.00025	0.1748	0.1244

$\theta_1 = 7^\circ.5$     $\bar{u}_1 = 0.60$     $M = 1.7610$     $\theta_2 = 34^\circ.962$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
7.500	-0.1433	1.2000	1.0973	0.9320	0.6633
7.625	-0.1407	1.1633	1.0605	0.9460	0.6748
7.750	-0.1382	1.1285	1.0250	0.9621	0.6848
7.875	-0.1358	1.0954	0.9911	0.9744	0.6935
8.000	-0.1334	1.0638	0.9568	0.9851	0.7011
8.125	-0.1311	1.0337	0.9280	0.9943	0.7077
8.250	-0.1289	1.0051	0.8986	1.0022	0.7133
8.375	-0.1268	0.9777	0.8704	1.0089	0.7181
8.500	-0.1247	0.9515	0.8434	1.0145	0.7221
8.625	-0.1226	0.9265	0.8176	1.0191	0.7253
8.750	-0.1206	0.9026	0.7929	1.0228	0.7279
8.875	-0.1187	0.8797	0.7693	1.0257	0.7300
9.000	-0.1168	0.8577	0.7466	1.0279	0.7316
9.125	-0.1149	0.8356	0.7248	1.0294	0.7327
9.250	-0.1131	0.8164	0.7039	1.0302	0.7333
9.375	-0.1114	0.7970	0.6838	1.0305	0.7335
9.500	-0.1097	0.7784	0.6644	1.0303	0.7333
9.625	-0.1080	0.7605	0.6458	1.0296	0.7328
9.750	-0.1063	0.7432	0.6279	1.0285	0.7320
9.875	-0.1047	0.7266	0.6107	1.0270	0.7310
10.00	-0.1032	0.7107	0.5941	1.0251	0.7296
10.25	-0.1002	0.6804	0.5627	1.0205	0.7263
10.50	-0.0973	0.6523	0.5335	1.0147	0.7222
10.75	-0.0945	0.6261	0.5063	1.0080	0.7175
11.00	-0.0918	0.6016	0.4809	1.0006	0.7123
11.25	-0.0892	0.5787	0.4571	0.9926	0.7066
11.50	-0.0867	0.5572	0.4349	0.9841	0.7005
11.75	-0.0843	0.5370	0.4141	0.9752	0.6941
12.00	-0.0820	0.5181	0.3945	0.9660	0.6875
12.25	-0.0798	0.5003	0.3761	0.9565	0.6808
12.50	-0.0777	0.4834	0.3588	0.9468	0.6739
12.75	-0.0756	0.4675	0.3425	0.9369	0.6669
13.00	-0.0736	0.4525	0.3271	0.9269	0.6598
13.25	-0.0716	0.4383	0.3125	0.9169	0.6526
13.50	-0.0697	0.4248	0.2987	0.9066	0.6454
13.75	-0.0679	0.4120	0.2857	0.8967	0.6382
14.00	-0.0661	0.3999	0.2734	0.8866	0.6310
14.25	-0.0644	0.3884	0.2617	0.8765	0.6238
14.50	-0.0628	0.3774	0.2506	0.8665	0.6167
14.75	-0.0612	0.3669	0.2401	0.8565	0.6096
15.00	-0.0596	0.3569	0.2301	0.8466	0.6026
15.25	-0.0580	0.3474	0.2206	0.8367	0.5955
15.50	-0.0565	0.3383	0.2115	0.8269	0.5885
15.75	-0.0551	0.3295	0.2028	0.8171	0.5816
16.00	-0.0536	0.3211	0.1946	0.8075	0.5748

$\theta_1 = 71.6$     $U_1 = 0.60$     $M = 1.7610$     $\theta_2 = 34.962$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
16.25	-0.05226	0.3131	0.1868	0.7980	0.5680
16.50	-0.05091	0.3054	0.1793	0.7886	0.5613
16.75	-0.04960	0.2981	0.1722	0.7792	0.5546
17.00	-0.04832	0.2910	0.1653	0.7699	0.5480
17.25	-0.04707	0.2842	0.1587	0.7608	0.5415
17.50	-0.04584	0.2776	0.1524	0.7517	0.5350
17.75	-0.04464	0.2713	0.1464	0.7427	0.5286
18.00	-0.04347	0.2652	0.1407	0.7338	0.5223
18.25	-0.04233	0.2593	0.1352	0.7250	0.5161
18.50	-0.04121	0.2537	0.1299	0.7164	0.5099
18.75	-0.04011	0.2482	0.1248	0.7079	0.5038
19.00	-0.03904	0.2429	0.1199	0.6995	0.4978
19.25	-0.03799	0.2378	0.1152	0.6911	0.4919
19.50	-0.03696	0.2328	0.1107	0.6828	0.4860
19.75	-0.03595	0.2280	0.1064	0.6746	0.4802
20.00	-0.03496	0.2234	0.1022	0.6665	0.4744
20.25	-0.03400	0.2189	0.0982	0.6585	0.4687
20.50	-0.03306	0.2146	0.0944	0.6506	0.4630
20.75	-0.03214	0.2104	0.0907	0.6427	0.4574
21.00	-0.03123	0.2063	0.0872	0.6349	0.4519
21.25	-0.03034	0.2023	0.0838	0.6272	0.4464
21.50	-0.02947	0.1984	0.0805	0.6196	0.4410
21.75	-0.02861	0.1946	0.0773	0.6121	0.4356
22.00	-0.02777	0.1909	0.0741	0.6046	0.4303
22.25	-0.02594	0.1873	0.0710	0.5972	0.4250
22.5	-0.02613	0.1838	0.0683	0.5899	0.4199
23.0	-0.02455	0.1770	0.0628	0.5754	0.4095
23.5	-0.02303	0.1706	0.0577	0.5612	0.3994
24.0	-0.02157	0.1645	0.0530	0.5472	0.3895
24.5	-0.02016	0.1586	0.0486	0.5334	0.3797
25.0	-0.01880	0.1529	0.0445	0.5198	0.3700
25.5	-0.01749	0.1474	0.0406	0.5064	0.3605
26.0	-0.01623	0.1422	0.0370	0.4932	0.3510
26.5	-0.01501	0.1372	0.0336	0.4801	0.3416
27.0	-0.01383	0.1323	0.0305	0.4670	0.3323
27.5	-0.01270	0.1275	0.0275	0.4540	0.3231
28.0	-0.01161	0.1228	0.0247	0.4410	0.3139
28.5	-0.01056	0.1183	0.0221	0.4281	0.3047
29.0	-0.00955	0.1139	0.0197	0.4152	0.2955
29.5	-0.00857	0.1095	0.0174	0.4023	0.2863
30.0	-0.00763	0.1052	0.0153	0.3892	0.2770
30.5	-0.00673	0.1009	0.0133	0.3761	0.2677
31.0	-0.00587	0.0967	0.0114	0.3628	0.2582
31.5	-0.00505	0.0925	0.0097	0.3493	0.2486
32.0	-0.00426	0.0882	0.0080	0.3356	0.2389

$\theta_1 = 7.5$     $\bar{u}_1 = 0.60$     $M = 1.7610$     $\theta_2 = 34.962$

$\theta$	$x$	$y$	$z$	$\eta/\bar{u}$	$\xi/\bar{u}$
32.2	-0.00395	0.0865	0.00742	0.3300	0.2349
32.4	-0.00365	0.0848	0.00682	0.3243	0.2308
32.6	-0.00336	0.0831	0.00624	0.3186	0.2268
32.8	-0.00307	0.0814	0.00568	0.3129	0.2227
33.0	-0.00279	0.0797	0.00513	0.3071	0.2186
33.2	-0.00252	0.0780	0.00460	0.3012	0.2144
33.4	-0.00225	0.0763	0.00409	0.2953	0.2102
33.6	-0.00199	0.0745	0.00359	0.2894	0.2060
33.8	-0.00173	0.0728	0.00311	0.2835	0.2018
34.0	-0.00148	0.0712	0.00264	0.2778	0.1977
34.1	-0.00135	0.0704	0.00242	0.2751	0.1958
34.2	-0.00123	0.0696	0.00219	0.2725	0.1940
34.3	-0.00111	0.0689	0.00197	0.2701	0.1922
34.4	-0.00099	0.0683	0.00175	0.2680	0.1907
34.5	-0.00087	0.0678	0.00154	0.2663	0.1896
34.55	-0.00081	0.0676	0.00143	0.2659	0.1893
34.60	-0.00075	0.0675	0.00133	0.2656	0.1890
34.65	-0.00069	0.0675	0.00122	0.2658	0.1892
34.70	-0.00064	0.0676	0.00112	0.2664	0.1897
34.75	-0.00058	0.0678	0.00101	0.2674	0.1903
34.76	-0.00057	0.0680	0.00099	0.2681	0.1908
34.78	-0.00054	0.0682	0.00095	0.2690	0.1915
34.80	-0.00052	0.0684	0.00091	0.2702	0.1923
34.82	-0.00049	0.0688	0.00087	0.2716	0.1933
34.84	-0.00047	0.0692	0.00082	0.2733	0.1945
34.86	-0.00045	0.0697	0.00078	0.2754	0.1960
34.87	-0.00043	0.0700	0.00076	0.2767	0.1969
34.88	-0.00042	0.0703	0.00074	0.2781	0.1979
34.89	-0.00041	0.0707	0.00072	0.2796	0.1990
34.90	-0.00040	0.0711	0.00069	0.2813	0.2008
34.91	-0.00038	0.0716	0.00067	0.2833	0.2016
34.92	-0.00037	0.0722	0.00065	0.2855	0.2032
34.93	-0.00036	0.0728	0.00063	0.2880	0.2050
34.94	-0.00035	0.0735	0.00060	0.2909	0.2070
34.95	-0.00033	0.0743	0.00058	0.2942	0.2093
34.96	-0.00032	0.0752	0.00056	0.2979	0.2120
34.962	-0.00032	0.0755	0.00055	0.2988	0.2127

$\theta_1 = 7.5$     $U_1 = 0.65$     $M = 2.0108$     $\theta_2 = 30.274$

$\theta$	$x$	$y$	$z$	$\gamma/\beta$	$k/\beta$
7.500	-0.1507	1.3000	1.1547	1.1768	0.8376
7.625	-0.1479	1.2809	1.1149	1.1977	0.8524
7.750	-0.1452	1.2237	1.0769	1.2160	0.8654
7.875	-0.1426	1.1883	1.0407	1.2320	0.8758
8.000	-0.1400	1.1546	1.0062	1.2459	0.8867
8.125	-0.1375	1.1225	0.9732	1.2580	0.8953
8.250	-0.1351	1.0919	0.9417	1.2684	0.9027
8.375	-0.1328	1.0627	0.9116	1.2773	0.9090
8.500	-0.1305	1.0348	0.8828	1.2848	0.9144
8.625	-0.1283	1.0082	0.8553	1.2910	0.9189
8.750	-0.1261	0.9827	0.8289	1.2961	0.9225
8.875	-0.1240	0.9583	0.8036	1.3001	0.9253
9.000	-0.1219	0.9349	0.7793	1.3032	0.9275
9.125	-0.1199	0.9125	0.7560	1.3054	0.9291
9.250	-0.1179	0.8910	0.7336	1.3068	0.9301
9.375	-0.1160	0.8703	0.7121	1.3074	0.9305
9.500	-0.1141	0.8504	0.6915	1.3074	0.9305
9.625	-0.1123	0.8313	0.6716	1.3069	0.9301
9.750	-0.1105	0.8129	0.6525	1.3058	0.9293
9.875	-0.1087	0.7952	0.6341	1.3041	0.9281
10.000	-0.1070	0.7782	0.6163	1.3019	0.9266
10.125	-0.1053	0.7618	0.5992	1.2994	0.9248
10.250	-0.1037	0.7460	0.5828	1.2965	0.9227
10.375	-0.1021	0.7307	0.5669	1.2933	0.9204
10.500	-0.1005	0.7160	0.5515	1.2897	0.9179
10.75	-0.0974	0.6880	0.5225	1.2817	0.9122
11.00	-0.0945	0.6619	0.4953	1.2727	0.9058
11.25	-0.0917	0.6374	0.4699	1.2629	0.8988
11.50	-0.0889	0.6144	0.4461	1.2524	0.8913
11.75	-0.0863	0.5929	0.4238	1.2414	0.8835
12.00	-0.0838	0.5726	0.4029	1.2300	0.8754
12.25	-0.0813	0.5535	0.3832	1.2182	0.8670
12.50	-0.0789	0.5354	0.3647	1.2061	0.8584
12.75	-0.0766	0.5184	0.3473	1.1938	0.8496
13.00	-0.0744	0.5023	0.3308	1.1814	0.8408
13.25	-0.0722	0.4870	0.3152	1.1688	0.8319
13.50	-0.0701	0.4725	0.3005	1.1561	0.8229
13.75	-0.0681	0.4587	0.2866	1.1434	0.8138
14.00	-0.0661	0.4456	0.2735	1.1306	0.8047
14.25	-0.0642	0.4331	0.2610	1.1178	0.7956
14.50	-0.0624	0.4212	0.2491	1.1050	0.7865
14.75	-0.0606	0.4098	0.2379	1.0923	0.7774
15.00	-0.0588	0.3990	0.2272	1.0797	0.7684
15.25	-0.0571	0.3886	0.2170	1.0671	0.7595
15.50	-0.0554	0.3786	0.2073	1.0546	0.7506

$\theta_0 = 7.5$     $\bar{u}_0 = 0.65$     $M = 2.0108$     $\theta_1 = 30.274$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
15.75	-0.0538	0.3691	0.1981	1.0421	0.7417
16.00	-0.0522	0.3600	0.1893	1.0297	0.7329
16.25	-0.0506	0.3512	0.1809	1.0174	0.7241
16.50	-0.0491	0.3428	0.1729	1.0052	0.7154
16.75	-0.0476	0.3347	0.1653	0.9931	0.7068
17.00	-0.0462	0.3269	0.1580	0.9811	0.6983
17.25	-0.0448	0.3194	0.1510	0.9692	0.6898
17.50	-0.0434	0.3121	0.1444	0.9574	0.6814
17.75	-0.0420	0.3051	0.1380	0.9457	0.6731
18.00	-0.0407	0.2984	0.1319	0.9342	0.6649
18.25	-0.0394	0.2919	0.1260	0.9227	0.6567
18.50	-0.0382	0.2856	0.1204	0.9113	0.6486
18.75	-0.0370	0.2795	0.1150	0.9000	0.6406
19.00	-0.0358	0.2735	0.1098	0.8888	0.6326
19.25	-0.0346	0.2677	0.1048	0.8777	0.6247
19.50	-0.0334	0.2622	0.1001	0.8667	0.6169
19.75	-0.0323	0.2568	0.0956	0.8558	0.6091
20.00	-0.0312	0.2515	0.0912	0.8450	0.6014
20.25	-0.0301	0.2464	0.0870	0.8342	0.5937
20.50	-0.0290	0.2414	0.0829	0.8235	0.5861
20.75	-0.0280	0.2366	0.0790	0.8129	0.5786
21.00	-0.0270	0.2319	0.0752	0.8024	0.5711
21.25	-0.0260	0.2273	0.0716	0.7919	0.5636
21.50	-0.0250	0.2228	0.0681	0.7815	0.5562
21.75	-0.0240	0.2184	0.0648	0.7712	0.5489
22.00	-0.0230	0.2141	0.0616	0.7609	0.5416
22.25	-0.0221	0.2099	0.0585	0.7507	0.5343
22.50	-0.0212	0.2058	0.0555	0.7405	0.5270
22.75	-0.0203	0.2018	0.0526	0.7304	0.5198
23.00	-0.0194	0.1978	0.0499	0.7203	0.5126
23.25	-0.0186	0.1939	0.0472	0.7102	0.5054
23.50	-0.0178	0.1901	0.0446	0.7002	0.4983
23.75	-0.0170	0.1864	0.0421	0.6902	0.4912
24.00	-0.0162	0.1827	0.0397	0.6803	0.4842
24.25	-0.0154	0.1791	0.0374	0.6704	0.4771
24.50	-0.0146	0.1755	0.0352	0.6604	0.4700
24.75	-0.0138	0.1720	0.0331	0.6504	0.4629
25.00	-0.0131	0.1686	0.0310	0.6405	0.4558
25.25	-0.0124	0.1652	0.0290	0.6306	0.4488
25.50	-0.0117	0.1618	0.0271	0.6207	0.4417
25.75	-0.0110	0.1584	0.0252	0.6107	0.4346
26.00	-0.0103	0.1551	0.0234	0.6007	0.4275
26.25	-0.0096	0.1518	0.0217	0.5907	0.4204
26.50	-0.0089	0.1486	0.0201	0.5806	0.4132
26.75	-0.0083	0.1454	0.0185	0.5705	0.4060



$\theta_1 = 7.5$     $\theta_2 = 0.65$     $M = 2.0108$     $\theta_3 = 30.274$

$\theta$	$x$	$y$	$z$	$\eta/\delta$	$\xi/\beta$
27.00	-0.00768	0.1422	0.01621	0.5603	0.3988
27.25	-0.00737	0.1390	0.01543	0.5501	0.3915
27.50	-0.00647	0.1358	0.01400	0.5398	0.3842
27.75	-0.00589	0.1326	0.01263	0.5295	0.3768
28.00	-0.00531	0.1295	0.01131	0.5191	0.3694
28.2	-0.00486	0.1270	0.01029	0.5108	0.3635
28.4	-0.00442	0.1245	0.00930	0.5025	0.3576
28.6	-0.00399	0.1221	0.00834	0.4942	0.3517
28.8	-0.00357	0.1197	0.00741	0.4860	0.3459
29.0	-0.00316	0.1173	0.00651	0.4779	0.3401
29.1	-0.00295	0.1161	0.00607	0.4740	0.3373
29.2	-0.00275	0.1150	0.00564	0.4702	0.3346
29.3	-0.00255	0.1139	0.00521	0.4665	0.3320
29.4	-0.00235	0.1129	0.00479	0.4631	0.3296
29.5	-0.00216	0.1119	0.00438	0.4600	0.3274
29.55	-0.00206	0.1115	0.00417	0.4584	0.3263
29.60	-0.00196	0.1111	0.00397	0.4573	0.3254
29.65	-0.00186	0.1107	0.00377	0.4561	0.3246
29.70	-0.00177	0.1104	0.00357	0.4551	0.3239
29.75	-0.00167	0.1101	0.00337	0.4544	0.3234
29.80	-0.00158	0.1099	0.00317	0.4540	0.3231
29.85	-0.00148	0.1098	0.00298	0.4540	0.3231
29.90	-0.00138	0.1098	0.00278	0.4544	0.3234
29.95	-0.00129	0.1099	0.00258	0.4554	0.3241
30.00	-0.00119	0.1102	0.00239	0.4572	0.3254
30.02	-0.00116	0.1104	0.00231	0.4582	0.3261
30.04	-0.00112	0.1107	0.00223	0.4594	0.3269
30.06	-0.00108	0.1110	0.00215	0.4608	0.3279
30.08	-0.00104	0.1114	0.00207	0.4625	0.3291
30.10	-0.00100	0.1118	0.00199	0.4646	0.3306
30.12	-0.00096	0.1123	0.00191	0.4670	0.3323
30.14	-0.00092	0.1129	0.00183	0.4698	0.3343
30.16	-0.00088	0.1137	0.00175	0.4731	0.3367
30.18	-0.00084	0.1146	0.00167	0.4771	0.3395
30.20	-0.00080	0.1157	0.00159	0.4818	0.3429
30.22	-0.00076	0.1170	0.00151	0.4876	0.3470
30.24	-0.00072	0.1186	0.00143	0.4946	0.3520
30.26	-0.00068	0.1207	0.00135	0.5032	0.3581
30.274	-0.00065	0.1224	0.00128	0.5108	0.3635

$\theta_s = 7.5$     $\bar{u}_s = 0.70$     $M = 2.3105$     $\theta_v = 26.239$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
7.5	-0.1568	1.4000	1.2017	1.4928	1.0624
7.6	-0.1544	1.3666	1.1677	1.5150	1.0782
7.7	-0.1520	1.3346	1.1350	1.5350	1.0924
7.8	-0.1497	1.3040	1.1035	1.5531	1.1053
7.9	-0.1475	1.2745	1.0732	1.5693	1.1169
8.0	-0.1453	1.2461	1.0441	1.5839	1.1273
8.1	-0.1431	1.2188	1.0161	1.5970	1.1366
8.2	-0.1410	1.1926	0.9891	1.6086	1.1448
8.3	-0.1390	1.1674	0.9636	1.6189	1.1521
8.4	-0.1370	1.1431	0.9378	1.6280	1.1586
8.5	-0.1350	1.1196	0.9135	1.6360	1.1643
8.6	-0.1331	1.0970	0.8900	1.6430	1.1693
8.7	-0.1312	1.0752	0.8673	1.6490	1.1736
8.8	-0.1293	1.0541	0.8454	1.6540	1.1772
8.9	-0.1275	1.0338	0.8242	1.6581	1.1801
9.00	-0.1257	1.0141	0.8037	1.6617	1.1826
9.25	-0.1214	0.9677	0.7552	1.6673	1.1866
9.50	-0.1173	0.9249	0.7105	1.6692	1.1880
9.75	-0.1133	0.8853	0.6692	1.6680	1.1871
10.00	-0.1095	0.8487	0.6309	1.6641	1.1843
10.25	-0.1059	0.8147	0.5952	1.6580	1.1799
10.50	-0.1024	0.7830	0.5620	1.6500	1.1742
10.75	-0.0990	0.7534	0.5311	1.6405	1.1575
11.00	-0.0958	0.7258	0.5023	1.6297	1.1599
11.25	-0.0927	0.6999	0.4753	1.6179	1.1515
11.50	-0.0897	0.6756	0.4501	1.6052	1.1424
11.75	-0.0868	0.6527	0.4264	1.5918	1.1328
12.00	-0.0840	0.6312	0.4042	1.5777	1.1229
12.25	-0.0813	0.6109	0.3833	1.5631	1.1125
12.50	-0.0787	0.5917	0.3636	1.5481	1.1018
12.75	-0.0762	0.5735	0.3451	1.5328	1.0909
13.00	-0.0737	0.5563	0.3276	1.5172	1.0798
13.25	-0.0713	0.5400	0.3111	1.5014	1.0686
13.50	-0.0690	0.5245	0.2955	1.4855	1.0573
13.75	-0.0667	0.5097	0.2807	1.4695	1.0459
14.00	-0.0645	0.4956	0.2667	1.4534	1.0344
14.25	-0.0624	0.4822	0.2534	1.4372	1.0228
14.50	-0.0603	0.4694	0.2408	1.4210	1.0113
14.75	-0.0583	0.4571	0.2289	1.4048	0.9998
15.00	-0.0563	0.4454	0.2176	1.3886	0.9883
15.25	-0.0544	0.4342	0.2069	1.3725	0.9768
15.50	-0.0525	0.4234	0.1966	1.3564	0.9653
15.75	-0.0507	0.4131	0.1868	1.3404	0.9539
16.00	-0.0489	0.4032	0.1775	1.3245	0.9426
16.25	-0.0472	0.3936	0.1687	1.3086	0.9313

$\theta_s = 7.5$     $\bar{u}_s = 0.70$     $M = 2.3105$     $\theta_y = 26.239$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
16.50	-0.04548	0.3843	0.1603	1.2928	0.9201
16.75	-0.04382	0.3754	0.1522	1.2771	0.9089
17.00	-0.04220	0.3669	0.1444	1.2614	0.8978
17.25	-0.04062	0.3586	0.1370	1.2458	0.8867
17.50	-0.03907	0.3506	0.1300	1.2303	0.8756
17.75	-0.03756	0.3428	0.1233	1.2149	0.8646
18.00	-0.03608	0.3353	0.1168	1.1996	0.8537
18.25	-0.03463	0.3280	0.1106	1.1844	0.8429
18.50	-0.03322	0.3209	0.1047	1.1692	0.8321
18.75	-0.03184	0.3141	0.0991	1.1541	0.8214
19.00	-0.03048	0.3075	0.0937	1.1391	0.8107
19.25	-0.02915	0.3010	0.0885	1.1241	0.8001
19.50	-0.02785	0.2946	0.0835	1.1092	0.7895
19.75	-0.02658	0.2884	0.0787	1.0944	0.7789
20.00	-0.02533	0.2824	0.0741	1.0797	0.7684
20.25	-0.02411	0.2765	0.0697	1.0650	0.7579
20.50	-0.02292	0.2707	0.0655	1.0503	0.7475
20.75	-0.02175	0.2651	0.0614	1.0357	0.7371
21.00	-0.02061	0.2596	0.0575	1.0211	0.7267
21.25	-0.01949	0.2542	0.0538	1.0065	0.7164
21.50	-0.01839	0.2489	0.0502	0.9919	0.7060
21.75	-0.01731	0.2437	0.0467	0.9774	0.6956
22.00	-0.01626	0.2386	0.0434	0.9629	0.6852
22.25	-0.01523	0.2336	0.0402	0.9484	0.6749
22.50	-0.01422	0.2287	0.0371	0.9339	0.6646
22.75	-0.01323	0.2238	0.0342	0.9194	0.6543
23.00	-0.01226	0.2190	0.0314	0.9049	0.6440
23.25	-0.01132	0.2143	0.0287	0.8905	0.6337
23.50	-0.01040	0.2097	0.0261	0.8761	0.6235
23.75	-0.00950	0.2052	0.0236	0.8618	0.6133
24.00	-0.00861	0.2007	0.0212	0.8476	0.6032
24.25	-0.00774	0.1963	0.0189	0.8335	0.5932
24.50	-0.00689	0.1920	0.0167	0.8197	0.5833
24.75	-0.00606	0.1879	0.0145	0.8065	0.5739
25.00	-0.00525	0.1841	0.0124	0.7941	0.5651
25.1	-0.00493	0.1826	0.0116	0.7895	0.5619
25.2	-0.00462	0.1812	0.0108	0.7853	0.5589
25.3	-0.00430	0.1799	0.0101	0.7814	0.5561
25.4	-0.00399	0.1788	0.0093	0.7781	0.5537
25.5	-0.00368	0.1778	0.0085	0.7755	0.5519
25.60	-0.00337	0.1771	0.0078	0.7739	0.5507
25.65	-0.00321	0.1768	0.0074	0.7736	0.5505
25.70	-0.00305	0.1766	0.0071	0.7737	0.5506
25.75	-0.00290	0.1765	0.0067	0.7743	0.5510
25.80	-0.00275	0.1766	0.0063	0.7755	0.5519

$\theta_1 = 7.5$     $\bar{L}_1 = 0.70$     $M = 2.3105$     $\theta_2 = 26.239$

$\theta$	$x$	$y$	$z$	$\frac{y}{z}$	$\frac{x}{z}$
25.85	-0.00260	0.1769	0.00596	0.7775	0.5533
25.90	-0.00245	0.1774	0.00560	0.7804	0.5554
25.95	-0.00229	0.1781	0.00523	0.7845	0.5583
26.00	-0.00213	0.1791	0.00486	0.7902	0.5624
26.05	-0.00198	0.1807	0.00450	0.7930	0.5679
26.06	-0.00194	0.1811	0.00442	0.7996	0.5690
26.08	-0.00188	0.1820	0.00427	0.8041	0.5722
26.10	-0.00181	0.1830	0.00413	0.8090	0.5757
26.12	-0.00175	0.1841	0.00398	0.8145	0.5796
26.14	-0.00169	0.1854	0.00383	0.8208	0.5841
26.16	-0.00163	0.1869	0.00368	0.8281	0.5893
26.18	-0.00156	0.1888	0.00353	0.8366	0.5954
26.20	-0.00149	0.1909	0.00337	0.8463	0.6024
26.22	-0.00142	0.1934	0.00322	0.8582	0.6107
26.239	-0.00136	0.1962	0.00307	0.8713	0.6201

$\theta_0 = 7.5$     $U_0 = 0.75$     $M = 2.6847$     $\theta_1 = 22.667$

$\theta$	$x$	$y$	$z$	$\eta/\xi$	$\xi/\rho$
7.5	-0.1612	1.5000	1.2361	1.9154	1.3627
7.6	-0.1586	1.4650	1.2003	1.9450	1.3838
7.7	-0.1561	1.4314	1.1659	1.9719	1.4029
7.8	-0.1536	1.3992	1.1328	1.9962	1.4202
7.9	-0.1512	1.3683	1.1010	2.0181	1.4359
8.0	-0.1488	1.3386	1.0704	2.0379	1.4500
8.1	-0.1465	1.3100	1.0409	2.0557	1.4626
8.2	-0.1443	1.2825	1.0124	2.0716	1.4739
8.3	-0.1421	1.2561	0.9849	2.0857	1.4840
8.4	-0.1399	1.2307	0.9584	2.0983	1.4929
8.5	-0.1377	1.2062	0.9328	2.1094	1.5008
8.6	-0.1356	1.1826	0.9081	2.1192	1.5078
8.7	-0.1336	1.1598	0.8842	2.1277	1.5138
8.8	-0.1316	1.1378	0.8611	2.1350	1.5190
8.9	-0.1296	1.1165	0.8388	2.1412	1.5234
9.0	-0.1277	1.0960	0.8172	2.1464	1.5271
9.1	-0.1258	1.0762	0.7963	2.1507	1.5302
9.2	-0.1239	1.0570	0.7761	2.1541	1.5326
9.3	-0.1221	1.0384	0.7565	2.1566	1.5344
9.4	-0.1203	1.0204	0.7375	2.1584	1.5357
9.5	-0.1186	1.0030	0.7191	2.1595	1.5365
9.6	-0.1169	0.9861	0.7013	2.1600	1.5369
9.7	-0.1152	0.9697	0.6840	2.1599	1.5368
9.8	-0.1135	0.9538	0.6672	2.1592	1.5363
9.9	-0.1118	0.9384	0.6510	2.1579	1.5353
10.00	-0.1102	0.9235	0.6351	2.1562	1.5341
10.25	-0.1062	0.8879	0.5976	2.1498	1.5296
10.50	-0.1024	0.8547	0.5627	2.1410	1.5233
10.75	-0.0988	0.8238	0.5301	2.1302	1.5156
11.00	-0.0953	0.7949	0.4997	2.1176	1.5067
11.25	-0.0919	0.7678	0.4712	2.1036	1.4967
11.50	-0.0886	0.7423	0.4446	2.0884	1.4858
11.75	-0.0854	0.7183	0.4196	2.0722	1.4743
12.00	-0.0823	0.6957	0.3961	2.0551	1.4622
12.25	-0.0793	0.6743	0.3741	2.0373	1.4495
12.50	-0.0764	0.6541	0.3533	2.0189	1.4364
12.75	-0.0736	0.6350	0.3337	2.0001	1.4230
13.00	-0.0709	0.6168	0.3152	1.9808	1.4093
13.25	-0.0682	0.5995	0.2978	1.9612	1.3953
13.50	-0.0656	0.5831	0.2814	1.9413	1.3812
13.75	-0.0631	0.5674	0.2658	1.9212	1.3669
14.00	-0.0607	0.5524	0.2510	1.9010	1.3525
14.25	-0.0583	0.5381	0.2370	1.8806	1.3380
14.50	-0.0560	0.5244	0.2238	1.8602	1.3234
14.75	-0.0537	0.5113	0.2112	1.8397	1.3088

$\theta_s = 7.5$     $\bar{u}_s = 0.75$     $M = 2.6847$     $\theta_v = 22.667$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
15.00	-0.05150	0.4988	0.1992	1.8192	1.2942
15.25	-0.04935	0.4867	0.1878	1.7987	1.2796
15.50	-0.04725	0.4751	0.1770	1.7781	1.2650
15.75	-0.04520	0.4639	0.1667	1.7575	1.2504
16.00	-0.04320	0.4531	0.1569	1.7370	1.2358
16.25	-0.04125	0.4427	0.1476	1.7165	1.2212
16.50	-0.03934	0.4327	0.1387	1.6961	1.2066
16.75	-0.03747	0.4230	0.1302	1.6757	1.1921
17.00	-0.03565	0.4136	0.1221	1.6553	1.1776
17.25	-0.03387	0.4045	0.1144	1.6350	1.1632
17.50	-0.03212	0.3957	0.1070	1.6148	1.1488
17.75	-0.03041	0.3872	0.0999	1.5947	1.1345
18.00	-0.02874	0.3789	0.0931	1.5747	1.1202
18.25	-0.02710	0.3708	0.0866	1.5547	1.1060
18.50	-0.02550	0.3629	0.0804	1.5348	1.0918
18.75	-0.02393	0.3553	0.0745	1.5150	1.0777
19.00	-0.02240	0.3479	0.0689	1.4953	1.0637
19.25	-0.02090	0.3407	0.0635	1.4758	1.0498
19.50	-0.01943	0.3336	0.0583	1.4565	1.0360
19.75	-0.01799	0.3267	0.0533	1.4373	1.0225
20.0	-0.01658	0.3200	0.0485	1.4184	1.0090
20.1	-0.01602	0.3174	0.0467	1.4109	1.0037
20.2	-0.01547	0.3148	0.0449	1.4035	0.9984
20.3	-0.01492	0.3123	0.0431	1.3962	0.9932
20.4	-0.01438	0.3098	0.0413	1.3890	0.9881
20.5	-0.01384	0.3073	0.0396	1.3819	0.9830
20.6	-0.01331	0.3049	0.0379	1.3749	0.9780
20.7	-0.01278	0.3025	0.0362	1.3680	0.9731
20.8	-0.01225	0.3002	0.0345	1.3612	0.9683
20.9	-0.01173	0.2979	0.0329	1.3546	0.9636
21.00	-0.01121	0.2957	0.0313	1.3483	0.9591
21.05	-0.01095	0.2946	0.0305	1.3452	0.9569
21.10	-0.01070	0.2935	0.0297	1.3422	0.9548
21.15	-0.01045	0.2925	0.0289	1.3393	0.9527
21.20	-0.01019	0.2915	0.0281	1.3364	0.9506
21.25	-0.00993	0.2905	0.0274	1.3336	0.9486
21.30	-0.00968	0.2895	0.0267	1.3309	0.9467
21.35	-0.00943	0.2885	0.0260	1.3283	0.9449
21.40	-0.00918	0.2876	0.0252	1.3258	0.9431
21.45	-0.00893	0.2867	0.0244	1.3235	0.9414
21.50	-0.00868	0.2858	0.0237	1.3213	0.9399
21.55	-0.00843	0.2850	0.0230	1.3193	0.9385
21.60	-0.00818	0.2842	0.0222	1.3175	0.9372
21.65	-0.00793	0.2835	0.0215	1.3158	0.9360
21.70	-0.00768	0.2828	0.0208	1.3143	0.9349

$\theta_s = 7.5$     $\bar{u}_s = 0.75$     $M = 2.6847$     $\theta_v = 22.667$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
21.75	-0.00744	0.2821	0.02008	1.3131	0.9340
21.80	-0.00720	0.2815	0.01938	1.3122	0.9334
21.85	-0.00695	0.2810	0.01868	1.3116	0.9330
21.90	-0.00670	0.2806	0.01798	1.3113	0.9328
21.95	-0.00645	0.2802	0.01728	1.3115	0.9329
22.00	-0.00621	0.2799	0.01659	1.3122	0.9334
22.05	-0.00597	0.2798	0.01590	1.3135	0.9343
22.10	-0.00572	0.2798	0.01522	1.3154	0.9357
22.15	-0.00547	0.2800	0.01454	1.3180	0.9376
22.20	-0.00523	0.2803	0.01386	1.3216	0.9401
22.25	-0.00499	0.2809	0.01318	1.3263	0.9434
22.30	-0.00475	0.2818	0.01250	1.3324	0.9478
22.35	-0.00450	0.2830	0.01183	1.3401	0.9533
22.40	-0.00425	0.2846	0.01116	1.3499	0.9602
22.45	-0.00400	0.2868	0.01048	1.3624	0.9691
22.500	-0.00375	0.2897	0.00980	1.3784	0.9805
22.525	-0.00362	0.2915	0.00945	1.3881	0.9874
22.550	-0.00349	0.2936	0.00911	1.3992	0.9953
22.575	-0.00336	0.2960	0.00877	1.4118	1.0043
22.600	-0.00323	0.2988	0.00842	1.4265	1.0148
22.625	-0.00310	0.3021	0.00807	1.4435	1.0269
22.650	-0.00297	0.3060	0.00772	1.4633	1.0410
22.667	-0.00286	0.3090	0.00748	1.4788	1.0520

$\theta_1 = 7.5$     $u_1 = 0.80$     $M = 3.1795$     $\theta_2 = 19.430$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
7.5	-0.1632	1.6000	1.2549	2.5085	1.7830
7.6	-0.1605	1.5635	1.2173	2.5495	1.8122
7.7	-0.1578	1.5286	1.1813	2.5868	1.8387
7.75	-0.1564	1.5117	1.1638	2.6041	1.8510
7.80	-0.1551	1.4951	1.1467	2.6206	1.8627
7.85	-0.1538	1.4789	1.1299	2.6363	1.8739
7.90	-0.1525	1.4630	1.1134	2.6512	1.8845
7.95	-0.1512	1.4474	1.0973	2.6654	1.8946
8.00	-0.1500	1.4322	1.0814	2.6789	1.9042
8.05	-0.1488	1.4173	1.0658	2.6917	1.9133
8.10	-0.1476	1.4027	1.0505	2.7039	1.9220
8.15	-0.1464	1.3884	1.0355	2.7154	1.9302
8.20	-0.1452	1.3743	1.0207	2.7264	1.9380
8.25	-0.1440	1.3605	1.0062	2.7368	1.9454
8.30	-0.1428	1.3470	0.9920	2.7466	1.9524
8.35	-0.1416	1.3337	0.9780	2.7559	1.9590
8.40	-0.1404	1.3207	0.9643	2.7647	1.9653
8.45	-0.1392	1.3079	0.9508	2.7730	1.9712
8.50	-0.1381	1.2954	0.9375	2.7808	1.9768
8.55	-0.1370	1.2831	0.9245	2.7882	1.9820
8.60	-0.1359	1.2710	0.9117	2.7951	1.9869
8.65	-0.1348	1.2591	0.8991	2.8016	1.9915
8.70	-0.1337	1.2474	0.8867	2.8077	1.9959
8.75	-0.1326	1.2360	0.8745	2.8134	2.0000
8.80	-0.1315	1.2248	0.8626	2.8188	2.0038
8.85	-0.1304	1.2138	0.8509	2.8238	2.0073
8.90	-0.1293	1.2029	0.8393	2.8284	2.0106
8.95	-0.1283	1.1922	0.8279	2.8327	2.0137
9.0	-0.1274	1.1817	0.8167	2.8366	2.0165
9.1	-0.1253	1.1612	0.7948	2.8436	2.0215
9.2	-0.1233	1.1414	0.7736	2.8494	2.0256
9.3	-0.1213	1.1223	0.7531	2.8541	2.0289
9.4	-0.1194	1.1038	0.7333	2.8578	2.0315
9.5	-0.1175	1.0859	0.7140	2.8606	2.0335
9.6	-0.1156	1.0685	0.6953	2.8625	2.0349
9.7	-0.1137	1.0516	0.6772	2.8635	2.0356
9.8	-0.1119	1.0352	0.6597	2.8638	2.0358
9.9	-0.1101	1.0194	0.6426	2.8634	2.0356
10.000	-0.1084	1.0040	0.6260	2.8623	2.0348
10.125	-0.1062	0.9854	0.6060	2.8602	2.0333
10.250	-0.1041	0.9675	0.5867	2.8571	2.0311
10.375	-0.1020	0.9502	0.5681	2.8532	2.0283
10.500	-0.0999	0.9334	0.5501	2.8485	2.0250
10.625	-0.0979	0.9172	0.5327	2.8432	2.0212
10.750	-0.0959	0.9016	0.5159	2.8373	2.0170
10.875	-0.0939	0.8865	0.4997	2.8308	2.0124
11.000	-0.0920	0.8718	0.4840	2.8237	2.0073
11.125	-0.0901	0.8576	0.4688	2.8161	2.0019



$\theta_0 = 7.5$     $\dot{\theta}_0 = 0.80$     $M = 3.1795$     $\theta_v = 19.430$

$\theta$	$x$	$y$	$z$	$r/r_0$	$E/\beta$
11.250	-0.0883	0.8438	0.4541	2.8081	1.9962
11.375	-0.0865	0.8305	0.4399	2.7997	1.9902
11.500	-0.0847	0.8176	0.4262	2.7909	1.9839
11.625	-0.0829	0.8050	0.4129	2.7817	1.9774
11.750	-0.0812	0.7928	0.3999	2.7722	1.9706
12.00	-0.0778	0.7695	0.3753	2.7524	1.9566
12.25	-0.0744	0.7474	0.3521	2.7316	1.9417
12.50	-0.0712	0.7265	0.3302	2.7099	1.9263
12.75	-0.0681	0.7067	0.3096	2.6876	1.9104
13.00	-0.0651	0.6878	0.2902	2.6647	1.8941
13.25	-0.0621	0.6699	0.2719	2.6413	1.8775
13.50	-0.0592	0.6528	0.2546	2.6175	1.8606
13.75	-0.0564	0.6365	0.2382	2.5935	1.8435
14.00	-0.0537	0.6209	0.2226	2.5692	1.8263
14.25	-0.0510	0.6060	0.2079	2.5448	1.8088
14.50	-0.0484	0.5918	0.1939	2.5203	1.7914
14.75	-0.0458	0.5782	0.1806	2.4958	1.7740
15.00	-0.0433	0.5651	0.1680	2.4714	1.7566
15.25	-0.0409	0.5526	0.1560	2.4470	1.7392
15.50	-0.0385	0.5406	0.1446	2.4227	1.7219
15.75	-0.0362	0.5290	0.1337	2.3987	1.7048
16.00	-0.0339	0.5178	0.1234	2.3750	1.6879
16.25	-0.0317	0.5071	0.1135	2.3517	1.6714
16.50	-0.0295	0.4969	0.1041	2.3289	1.6552
16.75	-0.0273	0.4872	0.0951	2.3069	1.6395
17.00	-0.0252	0.4779	0.0865	2.2859	1.6245
17.25	-0.0231	0.4691	0.0783	2.2660	1.6104
17.50	-0.0211	0.4609	0.0704	2.2477	1.5973
17.75	-0.0191	0.4534	0.0629	2.2319	1.5861
18.00	-0.0172	0.4467	0.0557	2.2193	1.5771
18.1	-0.0164	0.4442	0.0529	2.2155	1.5744
18.2	-0.0156	0.4420	0.0501	2.2126	1.5724
18.3	-0.0148	0.4401	0.0474	2.2108	1.5711
18.4	-0.0140	0.4384	0.0447	2.2104	1.5708
18.5	-0.0133	0.4370	0.0421	2.2116	1.5716
18.55	-0.0129	0.4364	0.0408	2.2129	1.5726
18.60	-0.0125	0.4360	0.0395	2.2146	1.5739
18.65	-0.0121	0.4357	0.0382	2.2173	1.5757
18.70	-0.0118	0.4356	0.0369	2.2205	1.5780
18.75	-0.0114	0.4356	0.0356	2.2245	1.5809
18.80	-0.0110	0.4357	0.0343	2.2294	1.5844
18.85	-0.0106	0.4360	0.0330	2.2354	1.5886
18.90	-0.0103	0.4366	0.0317	2.2426	1.5937
18.95	-0.0099	0.4375	0.0304	2.2512	1.5998
19.00	-0.0095	0.4386	0.0292	2.2615	1.6072

$\theta_0 = 7.5$     $\bar{u}_0 = 0.80$     $M = 3.1795$     $\theta_1 = 19.430$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
19.050	-0.00913	0.4401	0.0280	2.2736	1.6158
19.075	-0.00693	0.4410	0.0274	2.2806	1.6208
19.100	-0.00874	0.4421	0.0267	2.2882	1.6262
19.125	-0.00855	0.4433	0.0261	2.2965	1.6321
19.150	-0.00835	0.4446	0.0255	2.3056	1.6385
19.175	-0.00815	0.4461	0.0249	2.3155	1.6456
19.200	-0.00795	0.4477	0.0242	2.3263	1.6533
19.225	-0.00776	0.4495	0.0236	2.3382	1.6618
19.250	-0.00757	0.4516	0.0230	2.3513	1.6711
19.275	-0.00738	0.4539	0.0224	2.3658	1.6814
19.300	-0.00718	0.4565	0.0217	2.3818	1.6928
19.325	-0.00698	0.4594	0.0211	2.3996	1.7055
19.350	-0.00678	0.4627	0.0205	2.4195	1.7196
19.375	-0.00658	0.4665	0.0199	2.4418	1.7355
19.400	-0.00637	0.4706	0.0192	2.4667	1.7532
19.425	-0.00616	0.4755	0.0186	2.4944	1.7729
19.430	-0.00612	0.4765	0.0184	2.5004	1.7772

$\theta_1 = 7.5$     $Q_1 = 0.85$     $M = 3.8946$     $\theta_2 = 16.427$

$\theta$	$x$	$y$	$z$	$r/\bar{r}$	$r/\rho$
7.5	-0.1621	1.7000	1.2573	3.4039	2.4106
7.6	-0.1592	1.6625	1.2173	3.4641	2.4535
7.7	-0.1563	1.6267	1.1796	3.5189	2.4925
7.75	-0.1549	1.6094	1.1614	3.5445	2.5107
7.80	-0.1535	1.5924	1.1435	3.5689	2.5281
7.85	-0.1521	1.5758	1.1259	3.5921	2.5447
7.90	-0.1508	1.5596	1.1087	3.6143	2.5605
7.95	-0.1495	1.5437	1.0918	3.6355	2.5756
8.00	-0.1481	1.5282	1.0753	3.6557	2.5898
8.05	-0.1467	1.5130	1.0591	3.6750	2.6035
8.10	-0.1454	1.4981	1.0431	3.6933	2.6166
8.15	-0.1441	1.4835	1.0274	3.7108	2.6291
8.20	-0.1428	1.4692	1.0120	3.7274	2.6409
8.25	-0.1415	1.4552	0.9969	3.7432	2.6521
8.30	-0.1402	1.4415	0.9821	3.7583	2.6628
8.35	-0.1390	1.4280	0.9675	3.7726	2.6730
8.40	-0.1378	1.4148	0.9532	3.7862	2.6827
8.45	-1.1366	1.4018	0.9391	3.7991	2.6919
8.500	-0.1354	1.3891	0.9253	3.8114	2.7006
8.625	-0.1324	1.3584	0.8918	3.8392	2.7205
8.750	-0.1294	1.3291	0.8597	3.8636	2.7378
8.875	-0.1265	1.3011	0.8289	3.8848	2.7525
9.000	-0.1237	1.2743	0.7993	3.9030	2.7658
9.125	-0.1210	1.2487	0.7708	3.9185	2.7769
9.250	-0.1183	1.2241	0.7435	3.9315	2.7862
9.375	-0.1157	1.2005	0.7173	3.9423	2.7939
9.500	-0.1131	1.1779	0.6921	3.9511	2.8001
9.625	-0.1106	1.1562	0.6678	3.9580	2.8050
9.750	-0.1081	1.1353	0.6444	3.9632	2.8087
9.875	-0.1056	1.1152	0.6218	3.9668	2.8113
10.000	-0.1032	1.0959	0.6001	3.9690	2.8129
10.125	-0.1008	1.0773	0.5791	3.9699	2.8135
10.250	-0.0985	1.0593	0.5589	3.9696	2.8132
10.375	-0.0962	1.0420	0.5394	3.9682	2.8122
10.500	-0.0939	1.0253	0.5205	3.9658	2.8105
10.625	-0.0917	1.0091	0.5023	3.9626	2.8082
10.750	-0.0895	0.9935	0.4847	3.9585	2.8053
10.875	-0.0873	0.9784	0.4677	3.9536	2.8019
11.000	-0.0852	0.9639	0.4512	3.9480	2.7980
11.125	-0.0831	0.9498	0.4352	3.9418	2.7936
11.250	-0.0811	0.9361	0.4198	3.9350	2.7888
11.375	-0.0791	0.9228	0.4049	3.9278	2.7836
11.500	-0.0771	0.9100	0.3904	3.9201	2.7781
11.625	-0.0751	0.8976	0.3763	3.9120	2.7723
11.750	-0.0731	0.8855	0.3627	3.9035	2.7662
11.875	-0.0713	0.8738	0.3495	3.8946	2.7599
12.000	-0.0693	0.8625	0.3367	3.8855	2.7534
12.125	-0.0674	0.8515	0.3243	3.8762	2.7468

$\theta_0 = 7.5$     $\bar{u}_0 = 0.85$     $M = 3.8946$     $\theta_v = 16.427$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
12.250	-0.0656	0.8408	0.3122	3.8667	2.7400
12.375	-0.0638	0.8304	0.3005	3.8570	2.7331
12.500	-0.0620	0.8204	0.2891	3.8471	2.7261
12.625	-0.0602	0.8107	0.2781	3.8372	2.7190
12.750	-0.0584	0.8012	0.2674	3.8272	2.7119
12.875	-0.0567	0.7919	0.2570	3.8172	2.7048
13.000	-0.0550	0.7829	0.2468	3.8073	2.6977
13.125	-0.0533	0.7742	0.2369	3.7974	2.6907
13.250	-0.0516	0.7658	0.2273	3.7877	2.6838
13.375	-0.0499	0.7576	0.2179	3.7782	2.6770
13.500	-0.0483	0.7497	0.2088	3.7689	2.6703
13.625	-0.0467	0.7421	0.1999	3.7598	2.6638
13.750	-0.0451	0.7347	0.1913	3.7510	2.6576
13.875	-0.0435	0.7275	0.1829	3.7426	2.6517
14.000	-0.0419	0.7206	0.1747	3.7348	2.6461
14.125	-0.0404	0.7140	0.1667	3.7275	2.6409
14.250	-0.0389	0.7077	0.1589	3.7209	2.6362
14.375	-0.0373	0.7016	0.1513	3.7151	2.6321
14.500	-0.0357	0.6958	0.1439	3.7102	2.6286
14.625	-0.0342	0.6904	0.1366	3.7064	2.6259
14.750	-0.0327	0.6853	0.1295	3.7040	2.6242
14.875	-0.0312	0.6806	0.1225	3.7031	2.6236
15.000	-0.0298	0.6763	0.1157	3.7039	2.6241
15.125	-0.0283	0.6725	0.1091	3.7069	2.6261
15.250	-0.0268	0.6692	0.1026	3.7129	2.6306
15.30	-0.0262	0.6681	0.1000	3.7162	2.6329
15.35	-0.0256	0.6671	0.0974	3.7200	2.6356
15.40	-0.0251	0.6662	0.0949	3.7245	2.6388
15.45	-0.0245	0.6654	0.0924	3.7296	2.6425
15.50	-0.0239	0.6648	0.0900	3.7355	2.6467
15.55	-0.0233	0.6643	0.0875	3.7423	2.6515
15.60	-0.0228	0.6640	0.0850	3.7500	2.6570
15.65	-0.0222	0.6638	0.0826	3.7587	2.6632
15.70	-0.0216	0.6639	0.0802	3.7686	2.6702
15.75	-0.0210	0.6642	0.0778	3.7797	2.6781
15.800	-0.0204	0.6647	0.0754	3.7923	2.6870
15.825	-0.0201	0.6651	0.0742	3.7992	2.6920
15.850	-0.0198	0.6656	0.0730	3.8065	2.6972
15.875	-0.0195	0.6661	0.0718	3.8143	2.7027
15.900	-0.0193	0.6666	0.0706	3.8226	2.7086
15.925	-0.0190	0.6672	0.0694	3.8314	2.7149
15.950	-0.0187	0.6680	0.0682	3.8407	2.7216
15.975	-0.0184	0.6689	0.0670	3.8507	2.7287
16.000	-0.0181	0.6699	0.0659	3.8613	2.7362
16.025	-0.0178	0.6710	0.0647	3.8726	2.7442

$\theta_1 = 7.3$     $\theta_2 = 0.85$     $M = 3.8945$     $\theta_3 = 15.427$

$\theta$	$x$	$y$	$z$	$\eta/\xi$	$\xi/\beta$
16.050	-0.0175	0.6722	0.0635	3.8847	2.7528
16.075	-0.0172	0.6716	0.0623	3.8976	2.7620
16.100	-0.0169	0.6751	0.0611	3.9113	2.7718
16.125	-0.0166	0.6768	0.0600	3.9259	2.7822
16.150	-0.0163	0.6786	0.0589	3.9416	2.7934
16.175	-0.0160	0.6806	0.0578	3.9585	2.8054
16.200	-0.0157	0.6828	0.0566	3.9766	2.8182
16.225	-0.0154	0.6852	0.0554	3.9960	2.8320
16.250	-0.0151	0.6878	0.0542	4.0169	2.8469
16.275	-0.0148	0.6907	0.0530	4.0394	2.8630
16.300	-0.0145	0.6939	0.0519	4.0637	2.8802
16.325	-0.0142	0.6975	0.0507	4.0900	2.8989
16.350	-0.0139	0.7015	0.0495	4.1186	2.9193
16.375	-0.0136	0.7060	0.0483	4.1497	2.9415
16.400	-0.0133	0.7109	0.0472	4.1836	2.9656
16.425	-0.0130	0.7160	0.0460	4.2208	2.9921
16.427	-0.0130	0.7161	0.0459	4.2239	2.9942

$\epsilon_0 = 7.5$     $\bar{u}_0 = 0.90$     $M = 5.1033$     $\theta_0 = 13.560$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
7.5	-0.1569	1.8000	1.2574	4.9174	3.4312
7.6	-0.1538	1.7623	1.2112	5.0162	3.5015
7.7	-0.1507	1.7264	1.1703	5.1069	3.5660
7.75	-0.1492	1.7091	1.1506	5.1492	3.5962
7.80	-0.1477	1.6922	1.1314	5.1898	3.6251
7.85	-0.1462	1.6757	1.1126	5.2287	3.6528
7.90	-0.1447	1.6596	1.0942	5.2655	3.6793
7.95	-0.1433	1.6439	1.0762	5.3015	3.7047
8.00	-0.1419	1.6285	1.0586	5.3357	3.7290
8.05	-0.1405	1.6134	1.0413	5.3685	3.7523
8.10	-0.1391	1.5987	1.0243	5.3999	3.7747
8.15	-0.1377	1.5843	1.0076	5.4300	3.7961
8.20	-0.1364	1.5703	0.9912	5.4589	3.8166
8.25	-0.1351	1.5566	0.9752	5.4866	3.8363
8.30	-0.1337	1.5431	0.9595	5.5131	3.8552
8.35	-0.1323	1.5299	0.9441	5.5385	3.8733
8.40	-0.1310	1.5170	0.9289	5.5628	3.8906
8.45	-0.1297	1.5044	0.9140	5.5861	3.9072
8.50	-0.1284	1.4920	0.8993	5.6085	3.9231
8.55	-0.1271	1.4799	0.8849	5.6300	3.9383
8.60	-0.1258	1.4680	0.8707	5.6506	3.9530
8.65	-0.1245	1.4563	0.8568	5.6703	3.9671
8.70	-0.1232	1.4449	0.8431	5.6892	3.9806
8.75	-0.1219	1.4337	0.8296	5.7073	3.9936
8.80	-0.1207	1.4227	0.8164	5.7247	4.0060
8.85	-0.1195	1.4119	0.8034	5.7414	4.0178
8.90	-0.1183	1.4013	0.7906	5.7574	4.0291
8.95	-0.1170	1.3910	0.7780	5.7727	4.0400
9.00	-0.1158	1.3809	0.7656	5.7874	4.0505
9.05	-0.1146	1.3710	0.7534	5.8015	4.0606
9.10	-0.1134	1.3612	0.7414	5.8151	4.0702
9.15	-0.1122	1.3516	0.7296	5.8281	4.0794
9.20	-0.1110	1.3422	0.7179	5.8406	4.0883
9.25	-0.1099	1.3330	0.7064	5.8526	4.0968
9.30	-0.1088	1.3239	0.6951	5.8641	4.1050
9.35	-0.1077	1.3150	0.6840	5.8751	4.1129
9.40	-0.1065	1.3062	0.6730	5.8857	4.1204
9.45	-0.1053	1.2976	0.6622	5.8958	4.1276
9.50	-0.1042	1.2892	0.6516	5.9055	4.1345
9.55	-0.1031	1.2809	0.6412	5.9148	4.1411
9.60	-0.1020	1.2728	0.6309	5.9238	4.1475
9.65	-0.1009	1.2648	0.6207	5.9325	4.1537
9.70	-0.0998	1.2569	0.6107	5.9408	4.1596
9.8	-0.0976	1.2416	0.5911	5.9565	4.1708
9.9	-0.0954	1.2268	0.5721	5.9711	4.1812
10.0	-0.0933	1.2125	0.5536	5.9846	4.1908
10.1	-0.0912	1.1987	0.5356	5.9972	4.1997
10.2	-0.0891	1.1854	0.5181	6.0089	4.2080

$\theta_0 = 7.5$   $L_0 = 0.90$   $M = 6.1033$   $\theta_1 = 13.560$

$\theta$	$x$	$y$	$z$	$\eta/\mu$	$\epsilon/\rho$
10.3	-0.0870	1.1726	0.5011	6.0199	4.2159
10.4	-0.0850	1.1602	0.4846	6.0304	4.2234
10.5	-0.0830	1.1482	0.4685	6.0404	4.2305
10.6	-0.0810	1.1366	0.4528	6.0500	4.2373
10.7	-0.0790	1.1254	0.4375	6.0593	4.2439
10.8	-0.0770	1.1147	0.4226	6.0685	4.2505
10.9	-0.0751	1.1043	0.4081	6.0776	4.2570
11.0	-0.0732	1.0943	0.3939	6.0866	4.2634
11.1	-0.0713	1.0847	0.3801	6.0955	4.2697
11.2	-0.0694	1.0755	0.3666	6.1046	4.2762
11.3	-0.0676	1.0666	0.3534	6.1141	4.2830
11.4	-0.0658	1.0581	0.3405	6.1241	4.2901
11.5	-0.0639	1.0500	0.3280	6.1347	4.2976
11.6	-0.0620	1.0423	0.3157	6.1460	4.3057
11.7	-0.0602	1.0350	0.3037	6.1583	4.3144
11.75	-0.0593	1.0315	0.2978	6.1649	4.3191
11.80	-0.0584	1.0281	0.2920	6.1718	4.3240
11.85	-0.0575	1.0248	0.2862	6.1790	4.3292
11.90	-0.0566	1.0216	0.2805	6.1866	4.3346
11.95	-0.0557	1.0185	0.2749	6.1946	4.3403
12.00	-0.0549	1.0156	0.2693	6.2031	4.3463
12.05	-0.0540	1.0128	0.2638	6.2120	4.3526
12.10	-0.0531	1.0101	0.2583	6.2214	4.3593
12.15	-0.0522	1.0075	0.2529	6.2313	4.3664
12.20	-0.0513	1.0051	0.2475	6.2418	4.3739
12.25	-0.0504	1.0028	0.2422	6.2529	4.3818
12.30	-0.0496	1.0006	0.2370	6.2647	4.3902
12.35	-0.0487	0.9986	0.2318	6.2773	4.3992
12.40	-0.0478	0.9967	0.2266	6.2907	4.4087
12.45	-0.0469	0.9950	0.2215	6.3050	4.4188
12.50	-0.0461	0.9935	0.2165	6.3202	4.4296
12.55	-0.0453	0.9922	0.2115	6.3364	4.4412
12.60	-0.0444	0.9910	0.2065	6.3537	4.4535
12.65	-0.0435	0.9900	0.2016	6.3721	4.4666
12.70	-0.0426	0.9893	0.1967	6.3919	4.4807
12.75	-0.0417	0.9888	0.1919	6.4132	4.4959
12.80	-0.0408	0.9885	0.1871	6.4361	4.5122
12.85	-0.0400	0.9885	0.1823	6.4608	4.5297
12.90	-0.0392	0.9888	0.1776	6.4876	4.5487
12.95	-0.0384	0.9894	0.1729	6.5166	4.5694
13.00	-0.0375	0.9904	0.1683	6.5481	4.5919
13.05	-0.0366	0.9918	0.1637	6.5823	4.6162
13.10	-0.0357	0.9937	0.1591	6.6197	4.6428
13.15	-0.0348	0.9961	0.1545	6.6608	4.6721
13.20	-0.0340	0.9989	0.1500	6.7052	4.7037

$\theta_0 = 7.5$     $\bar{u}_0 = 0.90$     $M = 5.1033$     $\theta_w = 13.560$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
13.225	-0.0335	1.0006	0.1477	6.7292	4.7208
13.250	-0.0331	1.0024	0.1454	6.7542	4.7386
13.275	-0.0327	1.0044	0.1432	6.7802	4.7571
13.300	-0.0323	1.0065	0.1410	6.8076	4.7766
13.325	-0.0319	1.0088	0.1388	6.8366	4.7972
13.350	-0.0314	1.0114	0.1365	6.8673	4.8191
13.375	-0.0309	1.0142	0.1342	6.8998	4.8422
13.400	-0.0304	1.0173	0.1320	6.9341	4.8666
13.425	-0.0300	1.0206	0.1298	6.9703	4.8924
13.450	-0.0296	1.0242	0.1276	7.0087	4.9197
13.475	-0.0292	1.0281	0.1254	7.0494	4.9487
13.500	-0.0287	1.0324	0.1231	7.0927	4.9795
13.525	-0.0282	1.0371	0.1208	7.1389	5.0124
13.550	-0.0278	1.0422	0.1186	7.1881	5.0476
13.560	-0.0276	1.0442	0.1178	7.2076	5.0613



$G_1 = 7.5$     $U_1 = 0.95$     $M = 8.0589$     $G_2 = 10.695$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
7.5	-0.1480	1.9000	1.3557	8.0430	5.1596
7.6	-0.1447	1.8641	1.2766	8.2590	5.3114
7.7	-0.1415	1.8302	1.2209	8.4580	5.4550
7.725	-0.1407	1.8221	1.2079	8.5060	5.4890
7.750	-0.1399	1.8140	1.1951	8.5530	5.5226
7.775	-0.1391	1.8061	1.1826	8.5990	5.5553
7.800	-0.1383	1.7983	1.1704	8.6440	5.5874
7.825	-0.1375	1.7906	1.1584	8.6880	5.6190
7.850	-0.1367	1.7830	1.1466	8.7320	5.6500
7.875	-0.1360	1.7755	1.1349	8.7750	5.6805
7.900	-0.1351	1.7681	1.1234	8.8170	5.7105
7.925	-0.1343	1.7609	1.1121	8.8580	5.7400
7.950	-0.1336	1.7538	1.1009	8.8990	5.7689
7.975	-0.1329	1.7468	1.0898	8.9390	5.7973
8.000	-0.1321	1.7399	1.0789	8.9780	5.8252
8.025	-0.1314	1.7331	1.0682	9.0170	5.8527
8.050	-0.1306	1.7264	1.0576	9.0550	5.8799
8.075	-0.1299	1.7198	1.0471	9.0930	5.9066
8.100	-0.1291	1.7132	1.0367	9.1300	5.9333
8.125	-0.1284	1.7068	1.0264	9.1670	5.9595
8.150	-0.1276	1.7004	1.0162	9.2030	5.9853
8.175	-0.1269	1.6941	1.0062	9.2390	6.0107
8.200	-0.1261	1.6879	0.9963	9.2740	6.0358
8.225	-0.1254	1.6818	0.9865	9.3090	6.0605
8.250	-0.1246	1.6758	0.9768	9.3430	6.0849
8.275	-0.1238	1.6699	0.9672	9.3770	6.1089
8.300	-0.1231	1.6641	0.9577	9.4100	6.1326
8.325	-0.1224	1.6584	0.9483	9.4430	6.1559
8.350	-0.1217	1.6527	0.9390	9.4750	6.1789
8.375	-0.1210	1.6471	0.9298	9.5080	6.2017
8.400	-0.1203	1.6416	0.9207	9.5390	6.2242
8.425	-0.1196	1.6362	0.9116	9.5700	6.2465
8.450	-0.1189	1.6309	0.9026	9.6010	6.2685
8.475	-0.1182	1.6257	0.8937	9.6320	6.2903
8.500	-0.1175	1.6205	0.8849	9.6620	6.3119
8.525	-0.1168	1.6154	0.8762	9.6920	6.3334
8.550	-0.1161	1.6104	0.8676	9.7220	6.3547
8.575	-0.1154	1.6054	0.8590	9.7520	6.3758
8.600	-0.1147	1.6005	0.8505	9.7810	6.3966
8.625	-0.1140	1.5957	0.8421	9.8100	6.4172
8.650	-0.1133	1.5909	0.8338	9.8390	6.4375
8.675	-0.1126	1.5862	0.8256	9.8670	6.4577
8.700	-0.1119	1.5816	0.8174	9.8950	6.4778
8.725	-0.1112	1.5771	0.8093	9.9230	6.4978
8.750	-0.1105	1.5726	0.8013	9.9510	6.5176
8.775	-0.1098	1.5682	0.7933	9.9790	6.5373
8.800	-0.1091	1.5637	0.7854	10.0070	6.5570
8.825	-0.1084	1.5597	0.7776	10.0340	6.5765

$\theta_x = 7^\circ.5$     $\bar{U}_x = 0.95$     $M = 8.0589$     $\theta_y = 10^\circ.695$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
8.850	-0.1077	1.5555	0.7698	10.0610	6.5959
8.875	-0.1070	1.5514	0.7621	10.0880	6.6152
8.900	-0.1064	1.5473	0.7544	10.1150	6.6344
8.925	-0.1058	1.5433	0.7468	10.1420	6.6535
8.950	-0.1051	1.5394	0.7393	10.1690	6.6726
8.975	-0.1045	1.5355	0.7319	10.1960	6.6916
9.000	-0.1038	1.5317	0.7245	10.2230	6.7105
9.025	-0.1031	1.5280	0.7172	10.2500	6.7294
9.050	-0.1024	1.5243	0.7099	10.2760	6.7482
9.075	-0.1017	1.5207	0.7027	10.3020	6.7670
9.100	-0.1011	1.5172	0.6955	10.3280	6.7858
9.125	-0.1005	1.5137	0.6884	10.3540	6.8045
9.150	-0.0998	1.5103	0.6813	10.3800	6.8231
9.175	-0.0992	1.5070	0.6743	10.4060	6.8418
9.200	-0.0985	1.5037	0.6674	10.4330	6.8607
9.225	-0.0978	1.5005	0.6605	10.4600	6.8795
9.250	-0.0971	1.4973	0.6537	10.4860	6.8984
9.275	-0.0964	1.4942	0.6469	10.5130	6.9173
9.300	-0.0958	1.4912	0.6402	10.5390	6.9362
9.325	-0.0952	1.4883	0.6335	10.5650	6.9551
9.350	-0.0945	1.4854	0.6269	10.5920	6.9740
9.375	-0.0939	1.4826	0.6203	10.6190	6.9930
9.400	-0.0932	1.4798	0.6138	10.6460	7.0123
9.425	-0.0925	1.4771	0.6073	10.6730	7.0314
9.450	-0.0919	1.4745	0.6009	10.7000	7.0507
9.475	-0.0913	1.4720	0.5945	10.7270	7.0702
9.500	-0.0907	1.4695	0.5881	10.7550	7.0899
9.525	-0.0901	1.4671	0.5818	10.7830	7.1097
9.550	-0.0894	1.4648	0.5755	10.8110	7.1297
9.575	-0.0888	1.4625	0.5693	10.8390	7.1499
9.600	-0.0881	1.4603	0.5631	10.8680	7.1703
9.625	-0.0874	1.4582	0.5570	10.8970	7.1909
9.650	-0.0868	1.4562	0.5509	10.9260	7.2116
9.675	-0.0862	1.4542	0.5448	10.9560	7.2325
9.700	-0.0856	1.4523	0.5388	10.9850	7.2536
9.725	-0.0850	1.4505	0.5328	11.0150	7.2748
9.750	-0.0843	1.4487	0.5269	11.0450	7.2963
9.775	-0.0837	1.4470	0.5210	11.0760	7.3182
9.800	-0.0830	1.4454	0.5152	11.1070	7.3404
9.825	-0.0824	1.4439	0.5094	11.1390	7.3630
9.850	-0.0817	1.4425	0.5036	11.1710	7.3860
9.875	-0.0811	1.4412	0.4978	11.2040	7.4094
9.900	-0.0804	1.4400	0.4921	11.2370	7.4332
9.925	-0.0798	1.4389	0.4864	11.2710	7.4574
9.950	-0.0792	1.4379	0.4808	11.3060	7.4820

$\theta_s = 7.5$     $\bar{u}_s = 0.95$     $M = 8.0589$     $\theta_v = 10.695$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
9.975	-0.0786	1.4369	0.4752	11.3410	7.5071
10.000	-0.0780	1.4360	0.4696	11.3770	7.5325
10.025	-0.0774	1.4353	0.4641	11.4130	7.5583
10.050	-0.0768	1.4346	0.4586	11.4500	7.5846
10.075	-0.0762	1.4340	0.4531	11.4880	7.6116
10.100	-0.0756	1.4336	0.4477	11.5270	7.6393
10.125	-0.0750	1.4333	0.4423	11.5670	7.6675
10.150	-0.0743	1.4331	0.4369	11.6070	7.6963
10.175	-0.0736	1.4330	0.4315	11.6490	7.7258
10.200	-0.0730	1.4331	0.4262	11.6910	7.7561
10.225	-0.0724	1.4333	0.4209	11.7340	7.7873
10.250	-0.0718	1.4337	0.4157	11.7790	7.8194
10.275	-0.0712	1.4342	0.4105	11.8260	7.8524
10.300	-0.0706	1.4348	0.4053	11.8740	7.8863
10.325	-0.0700	1.4356	0.4001	11.9230	7.9211
10.350	-0.0693	1.4365	0.3949	11.9730	7.9568
10.375	-0.0687	1.4376	0.3898	12.0250	7.9936
10.400	-0.0680	1.4389	0.3847	12.0780	8.0315
10.425	-0.0674	1.4406	0.3797	12.1330	8.0707
10.450	-0.0667	1.4421	0.3747	12.1900	8.1112
10.475	-0.0661	1.4440	0.3697	12.2490	8.1531
10.500	-0.0655	1.4462	0.3646	12.3100	8.1966
10.525	-0.0649	1.4486	0.3596	12.3730	8.2417
10.550	-0.0643	1.4512	0.3546	12.4390	8.2885
10.575	-0.0637	1.4541	0.3496	12.5080	8.3373
10.600	-0.0630	1.4573	0.3447	12.5790	8.3881
10.625	-0.0624	1.4607	0.3398	12.6530	8.4409
10.650	-0.0617	1.4644	0.3349	12.7300	8.4957
10.675	-0.0611	1.4683	0.3300	12.8100	8.5525
10.695	-0.0605	1.4721	0.3261	12.8780	8.6009

$\theta_s = 7.5$     $\bar{u}_s = 0.98990$     $M = \text{Infinity}$     $\theta_v = 8.211$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
7.50	-0.1491	1.9798	1.9529	14.8070	0.1195
7.55	-0.1474	1.9647	1.7157	15.3900	0.5344
7.60	-0.1457	1.9505	1.6042	15.9610	0.9408
7.6125	-0.1452	1.9472	1.5801	16.1020	1.0415
7.6250	-0.1448	1.9439	1.5572	16.2430	1.1418
7.6375	-0.1444	1.9407	1.5353	16.3840	1.2418
7.6500	-0.1440	1.9375	1.5142	16.5240	1.3415
7.6625	-0.1435	1.9344	1.4937	16.6640	1.4409
7.6750	-0.1431	1.9314	1.4738	16.8030	1.5401
7.6875	-0.1427	1.9285	1.4545	16.9420	1.6390
7.7000	-0.1423	1.9256	1.4357	17.0810	1.7378
7.7125	-0.1418	1.9228	1.4173	17.2200	1.8364
7.7250	-0.1414	1.9201	1.3994	17.3580	1.9349
7.7375	-0.1410	1.9175	1.3819	17.4960	2.0334
7.7500	-0.1406	1.9150	1.3647	17.6340	2.1318
7.7625	-0.1402	1.9125	1.3479	17.7720	2.2302
7.7750	-0.1398	1.9101	1.3315	17.9100	2.3287
7.7875	-0.1394	1.9078	1.3154	18.0490	2.4272
7.8000	-0.1390	1.9056	1.2995	18.1880	2.5259
7.8125	-0.1385	1.9035	1.2839	18.3270	2.6247
7.8250	-0.1381	1.9014	1.2685	18.4660	2.7237
7.8375	-0.1377	1.8994	1.2533	18.6050	2.8229
7.8500	-0.1373	1.8975	1.2384	18.7450	2.9223
7.8625	-0.1369	1.8957	1.2237	18.8850	3.0219
7.8750	-0.1365	1.8940	1.2093	19.0250	3.1218
7.8875	-0.1361	1.8924	1.1951	19.1660	3.2219
7.9000	-0.1357	1.8908	1.1811	19.3070	3.3223
7.9125	-0.1353	1.8894	1.1672	19.4480	3.4230
7.9250	-0.1349	1.8880	1.1535	19.5900	3.5240
7.9375	-0.1344	1.8867	1.1400	19.7330	3.6255
7.9500	-0.1340	1.8855	1.1266	19.8760	3.7275
7.9625	-0.1336	1.8844	1.1134	20.0200	3.8302
7.9750	-0.1332	1.8834	1.1004	20.1650	3.9337
7.9875	-0.1328	1.8825	1.0875	20.3120	4.0380
8.0000	-0.1324	1.8817	1.0748	20.4600	4.1431
8.0125	-0.1320	1.8810	1.0622	20.6090	4.2490
8.0250	-0.1316	1.8804	1.0497	20.7590	4.3558
8.0375	-0.1311	1.8799	1.0374	20.9110	4.4637
8.0500	-0.1307	1.8795	1.0252	21.0640	4.5727
8.0625	-0.1303	1.8792	1.0131	21.2190	4.6828
8.0750	-0.1299	1.8790	1.0011	21.3750	4.7940
8.0875	-0.1295	1.8790	0.9893	21.5330	4.9063
8.1000	-0.1291	1.8791	0.9776	21.6920	5.0198
8.1125	-0.1287	1.8793	0.9660	21.8530	5.1345
8.1250	-0.1283	1.8796	0.9545	22.0160	5.2504
8.1375	-0.1278	1.8800	0.9431	22.1810	5.3675
8.1500	-0.1274	1.8805	0.9318	22.3470	5.4860
8.1625	-0.1270	1.8812	0.9206	22.5150	5.6059

$\theta_s = 7.5$     $\bar{u}_s = 0.98990$     $M = \text{Infinity}$     $\theta_v = 8.211$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
8.1750	-0.1266	1.8820	0.9095	22.6860	5.7273
8.1875	-0.1262	1.8830	0.8985	22.8590	5.8505
8.2000	-0.1258	1.8841	0.8877	23.0350	5.9757
8.211	-0.1254	1.8851	0.8783	23.1910	6.0867

$\theta_s = 10^\circ$     $U_s = 0.30$     $M = 1.3710(8)$     $\theta_v = 88.162$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
10.00	-0.1762	0.6000	1.0370	0.3941	0.2779
10.25	-0.1736	0.5632	0.9975	0.3993	0.2817
10.50	-0.1712	0.5290	0.9608	0.4034	0.2846
10.75	-0.1690	0.4972	0.9266	0.4064	0.2867
11.00	-0.1669	0.4677	0.8947	0.4084	0.2881
11.25	-0.1649	0.4401	0.8649	0.4097	0.2890
11.50	-0.1630	0.4143	0.8369	0.4103	0.2895
11.75	-0.1613	0.3902	0.8107	0.4103	0.2895
12.00	-0.1597	0.3676	0.7861	0.4098	0.2891
12.25	-0.1581	0.3464	0.7629	0.4089	0.2885
12.50	-0.1566	0.3265	0.7410	0.4076	0.2875
12.75	-0.1552	0.3078	0.7204	0.4059	0.2863
13.00	-0.1539	0.2902	0.7010	0.4040	0.2850
13.25	-0.1527	0.2736	0.6826	0.4019	0.2835
13.50	-0.1516	0.2579	0.6652	0.3996	0.2819
13.75	-0.1505	0.2431	0.6487	0.3971	0.2801
14.00	-0.1495	0.2291	0.6330	0.3944	0.2782
14.25	-0.1485	0.2159	0.6181	0.3916	0.2762
14.50	-0.1476	0.2034	0.6040	0.3888	0.2742
14.75	-0.1467	0.1915	0.5906	0.3859	0.2721
15.0	-0.1459	0.1802	0.5778	0.3829	0.2700
15.5	-0.1444	0.1593	0.5540	0.3767	0.2656
16.0	-0.1431	0.1404	0.5323	0.3704	0.2611
16.5	-0.1419	0.1232	0.5125	0.3641	0.2566
17.0	-0.1409	0.1076	0.4944	0.3577	0.2521
17.5	-0.1400	0.0934	0.4777	0.3514	0.2476
18.0	-0.1393	0.0805	0.4624	0.3451	0.2431
18.5	-0.1387	0.0686	0.4482	0.3389	0.2387
19.0	-0.1381	0.0577	0.4351	0.3328	0.2344
19.5	-0.1376	0.0477	0.4229	0.3269	0.2302
20.0	-0.1372	0.0385	0.4116	0.3211	0.2260
20.5	-0.1369	0.0301	0.4011	0.3154	0.2219
21.0	-0.1367	0.0223	0.3913	0.3098	0.2179
21.5	-0.1366	0.0151	0.3821	0.3044	0.2140
22.0	-0.1365	0.0084	0.3735	0.2991	0.2103
23	-0.1364	-0.0035	0.3658	0.2889	0.2031
24	-0.1366	-0.0137	0.3442	0.2793	0.1962
25	-0.1369	-0.0225	0.3319	0.2702	0.1897
26	-0.1374	-0.0300	0.3209	0.2615	0.1835
27	-0.1380	-0.0365	0.3111	0.2532	0.1777
28	-0.1387	-0.0421	0.3022	0.2454	0.1722
29	-0.1395	-0.0469	0.2942	0.2380	0.1669
30	-0.1403	-0.0511	0.2869	0.2310	0.1619
31	-0.1412	-0.0547	0.2803	0.2244	0.1571
32	-0.1422	-0.0577	0.2742	0.2181	0.1526

$\theta_s = 10^\circ$     $\bar{u}_s = 0.30$     $M = 1.3710(8)$     $\theta_v = 88.162$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
33	-0.1432	-0.0602	0.2686	0.2120	0.1483
34	-0.1443	-0.0623	0.2634	0.2062	0.1442
35	-0.1454	-0.0640	0.2587	0.2007	0.1403
36	-0.1465	-0.0654	0.2543	0.1955	0.1366
37	-0.1476	-0.0665	0.2502	0.1905	0.1331
38	-0.1488	-0.0673	0.2464	0.1857	0.1297
39	-0.1500	-0.0678	0.2428	0.1811	0.1264
40	-0.1512	-0.0681	0.2395	0.1768	0.1233
41	-0.1524	-0.0681	0.2364	0.1726	0.1203
42	-0.1536	-0.0679	0.2335	0.1686	0.1174
43	-0.1548	-0.0676	0.2308	0.1648	0.1146
44	-0.1560	-0.0672	0.2282	0.1611	0.1120
45	-0.1572	-0.0666	0.2257	0.1575	0.1095
46	-0.1583	-0.0658	0.2234	0.1541	0.1071
47	-0.1594	-0.0649	0.2213	0.1508	0.1048
48	-0.1605	-0.0639	0.2193	0.1477	0.1026
49	-0.1616	-0.0628	0.2173	0.1447	0.1004
50	-0.1627	-0.0615	0.2154	0.1418	0.0983
51	-0.1638	-0.0601	0.2136	0.1390	0.0963
52	-0.1648	-0.0586	0.2119	0.1363	0.0944
53	-0.1658	-0.0571	0.2103	0.1337	0.0926
54	-0.1668	-0.0555	0.2088	0.1312	0.0908
55	-0.1678	-0.0538	0.2073	0.1288	0.0891
56	-0.1687	-0.0520	0.2058	0.1265	0.0874
57	-0.1696	-0.0501	0.2044	0.1243	0.0858
58	-0.1705	-0.0482	0.2031	0.1221	0.0843
59	-0.1713	-0.0462	0.2019	0.1200	0.0828
60	-0.1721	-0.0441	0.2007	0.1180	0.0814
61	-0.1728	-0.0420	0.1995	0.1161	0.0801
62	-0.1735	-0.0398	0.1983	0.1143	0.0788
63	-0.1742	-0.0376	0.1972	0.1126	0.0776
64	-0.1748	-0.0353	0.1962	0.1109	0.0764
65	-0.1754	-0.0329	0.1952	0.1093	0.0753
66	-0.1760	-0.0305	0.1942	0.1078	0.0742
67	-0.1765	-0.0281	0.1932	0.1063	0.0731
68	-0.1770	-0.0256	0.1922	0.1049	0.0721
69	-0.1774	-0.0231	0.1913	0.1036	0.0712
70	-0.1778	-0.0205	0.1904	0.1024	0.0703
71	-0.1781	-0.0179	0.1895	0.1012	0.0695
72	-0.1784	-0.0153	0.1886	0.1001	0.0687
73	-0.1786	-0.0126	0.1877	0.0991	0.0680
74	-0.1788	-0.0099	0.1869	0.0981	0.0673
75	-0.1790	-0.0072	0.1861	0.0972	0.0666
76	-0.1791	-0.0044	0.1853	0.0964	0.0660
77	-0.1791	-0.0016	0.1846	0.0957	0.0655

$\theta_0 = 10^\circ$     $\bar{u}_0 = 0.30$     $M = 1.3710(8)$     $\theta_v = 88.162$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
78	-0.1791	0.0012	0.1838	0.0950	0.0651
79	-0.1791	0.0041	0.1830	0.0944	0.0647
80	-0.1790	0.0070	0.1823	0.0939	0.0643
81	-0.1788	0.0100	0.1815	0.0934	0.0639
82	-0.1786	0.0129	0.1808	0.0931	0.0637
83	-0.1784	0.0159	0.1800	0.0928	0.0635
84	-0.1781	0.0189	0.1794	0.0926	0.0634
85	-0.1777	0.0219	0.1786	0.0925	0.0633
86	-0.1773	0.0249	0.1778	0.0923	0.0631
87	-0.1769	0.0280	0.1772	0.0924	0.0632
88	-0.1763	0.0311	0.1765	0.0925	0.0633
88.162	-0.1763	0.0316	0.1763	0.0925	0.0633



$$\theta_s = 10^\circ \quad \bar{u}_s = 0.35 \quad M = 1.1134(9) \quad \theta_v = 85^\circ.421$$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
10.00	-0.1357	0.7000	0.7835	0.3745	0.2662
10.25	-0.1327	0.6656	0.7479	0.3821	0.2716
10.50	-0.1299	0.6337	0.7147	0.3882	0.2760
10.75	-0.1272	0.6040	0.6838	0.3931	0.2795
11.00	-0.1246	0.5764	0.6549	0.3969	0.2822
11.25	-0.1221	0.5507	0.6279	0.3997	0.2842
11.50	-0.1198	0.5266	0.6027	0.4017	0.2856
11.75	-0.1176	0.5040	0.5790	0.4030	0.2865
12.00	-0.1155	0.4829	0.5567	0.4037	0.2870
12.25	-0.1134	0.4631	0.5358	0.4038	0.2871
12.50	-0.1114	0.4445	0.5161	0.4035	0.2869
12.75	-0.1095	0.4270	0.4975	0.4028	0.2864
13.00	-0.1077	0.4105	0.4800	0.4017	0.2856
13.25	-0.1059	0.3949	0.4634	0.4003	0.2846
13.50	-0.1042	0.3802	0.4477	0.3986	0.2834
13.75	-0.1026	0.3663	0.4329	0.3967	0.2821
14.00	-0.1010	0.3532	0.4188	0.3947	0.2807
14.25	-0.0995	0.3407	0.4055	0.3925	0.2791
14.50	-0.0980	0.3289	0.3928	0.3901	0.2774
14.75	-0.0966	0.3177	0.3807	0.3876	0.2756
15.00	-0.0952	0.3070	0.3692	0.3850	0.2737
15.25	-0.0939	0.2969	0.3583	0.3823	0.2718
15.50	-0.0926	0.2873	0.3479	0.3796	0.2699
15.75	-0.0914	0.2781	0.3380	0.3768	0.2679
16.00	-0.0902	0.2693	0.3285	0.3739	0.2658
16.5	-0.0879	0.2530	0.3108	0.3681	0.2617
17.0	-0.0858	0.2382	0.2946	0.3622	0.2575
17.5	-0.0838	0.2246	0.2797	0.3563	0.2533
18.0	-0.0819	0.2121	0.2660	0.3503	0.2490
18.5	-0.0801	0.2006	0.2534	0.3444	0.2448
19.0	-0.0783	0.1900	0.2417	0.3386	0.2407
19.5	-0.0767	0.1803	0.2309	0.3328	0.2366
20.0	-0.0752	0.1713	0.2208	0.3271	0.2326
20.5	-0.0737	0.1629	0.2115	0.3215	0.2286
21.0	-0.0723	0.1552	0.2028	0.3161	0.2247
21.5	-0.0710	0.1480	0.1947	0.3108	0.2209
22.0	-0.0698	0.1413	0.1871	0.3055	0.2172
22.5	-0.0686	0.1350	0.1800	0.3004	0.2135
23.0	-0.0674	0.1291	0.1733	0.2954	0.2099
23.5	-0.0662	0.1235	0.1670	0.2905	0.2063
24	-0.0653	0.1185	0.1612	0.2858	0.2031
25	-0.0633	0.1092	0.1504	0.2766	0.1966
26	-0.0615	0.1010	0.1408	0.2678	0.1904
27	-0.0598	0.0937	0.1323	0.2595	0.1845
28	-0.0582	0.0872	0.1246	0.2516	0.1788

$$\theta_0 = 10^\circ \quad \bar{u}_0 = 0.15 \quad M = 1.1134(8) \quad \theta_1 = 85.421$$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
29	-0.0567	0.0813	0.1176	0.2441	0.1734
30	-0.0553	0.0760	0.1113	0.2369	0.1683
31	-0.0540	0.0713	0.1055	0.2300	0.1634
32	-0.0528	0.0671	0.1002	0.2235	0.1587
33	-0.0517	0.0633	0.0954	0.2172	0.1542
34	-0.0506	0.0598	0.0910	0.2112	0.1500
35	-0.0496	0.0566	0.0870	0.2055	0.1460
36	-0.0486	0.0537	0.0833	0.2001	0.1421
37	-0.0477	0.0511	0.0798	0.1949	0.1384
38	-0.0468	0.0487	0.0766	0.1899	0.1348
39	-0.0460	0.0465	0.0736	0.1851	0.1314
40	-0.0452	0.0445	0.0708	0.1804	0.1281
41	-0.0445	0.0426	0.0682	0.1759	0.1249
42	-0.0438	0.0409	0.0657	0.1716	0.1218
43	-0.0431	0.0393	0.0634	0.1675	0.1189
44	-0.0424	0.0379	0.0613	0.1635	0.1161
45	-0.0417	0.0366	0.0593	0.1597	0.1134
46	-0.0411	0.0354	0.0574	0.1560	0.1107
47	-0.0405	0.0343	0.0557	0.1524	0.1081
48	-0.0399	0.0333	0.0540	0.1490	0.1057
49	-0.0393	0.0323	0.0524	0.1457	0.1034
50	-0.0387	0.0314	0.0509	0.1425	0.1011
51	-0.0382	0.0306	0.0495	0.1394	0.0989
52	-0.0377	0.0299	0.0481	0.1364	0.0968
53	-0.0372	0.0292	0.0468	0.1335	0.0947
54	-0.0367	0.0286	0.0456	0.1307	0.0927
55	-0.0362	0.0280	0.0444	0.1280	0.0908
56	-0.0357	0.0275	0.0433	0.1254	0.0890
57	-0.0352	0.0270	0.0422	0.1229	0.0872
58	-0.0348	0.0265	0.0412	0.1205	0.0855
59	-0.0344	0.0261	0.0402	0.1181	0.0838
60	-0.0339	0.0258	0.0393	0.1158	0.0821
61	-0.0334	0.0255	0.0384	0.1136	0.0805
62	-0.0329	0.0252	0.0375	0.111	0.0791
63	-0.0325	0.0249	0.0367	0.1095	0.0776
64	-0.0321	0.0247	0.0359	0.1076	0.0763
65	-0.0317	0.0245	0.0351	0.1057	0.0750
66	-0.0312	0.0243	0.0343	0.1039	0.0737
67	-0.0308	0.0242	0.0336	0.1022	0.0725
68	-0.0304	0.0241	0.0329	0.1006	0.0713
69	-0.0300	0.0240	0.0322	0.0990	0.0702
70	-0.0296	0.0240	0.0315	0.0975	0.0692
71	-0.0291	0.0240	0.0309	0.0962	0.0682
72	-0.0287	0.0240	0.0303	0.0950	0.0673
73	-0.0283	0.0240	0.0297	0.0938	0.0665

$\theta_s = 10^\circ$     $\bar{u}_s = 0.35$     $M = 1.134(8)$     $\theta_w = 85.421$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\epsilon/\rho$
74	-0.0279	0.0241	0.0291	0.0927	0.0657
75	-0.0275	0.0242	0.0285	0.0917	0.0650
76	-0.0270	0.0243	0.0279	0.0908	0.0644
77	-0.0266	0.0245	0.0274	0.0901	0.0638
78	-0.0262	0.0247	0.0269	0.0895	0.0633
79	-0.0258	0.0250	0.0263	0.0890	0.0630
80	-0.0253	0.0253	0.0257	0.0887	0.0628
81	-0.0248	0.0256	0.0252	0.0885	0.0627
82	-0.0244	0.0259	0.0247	0.0885	0.0627
83	-0.0240	0.0263	0.0242	0.0887	0.0628
84	-0.0235	0.0268	0.0236	0.0890	0.0630
85	-0.0230	0.0274	0.0231	0.0895	0.0634
85.421	-0.0228	0.0276	0.0229	0.0898	0.0636

$\theta_0 = 10^\circ$     $\bar{u}_0 = 0.40$     $M = 1.0901$     $\theta_v = 68.653$

$\theta$	$x$	$y$	$z$	$r/p$	$E/p$
10.00	-0.1406	0.8000	0.8098	0.4645	0.3306
10.25	-0.1372	0.7625	0.7711	0.4750	0.3380
10.50	-0.1339	0.7278	0.7351	0.4835	0.3441
10.75	-0.1308	0.6955	0.7016	0.4903	0.3490
11.00	-0.1278	0.6654	0.6703	0.4957	0.3528
11.25	-0.1250	0.6374	0.6410	0.4998	0.3557
11.50	-0.1223	0.6112	0.6136	0.5028	0.3579
11.75	-0.1197	0.5867	0.5879	0.5049	0.3594
12.00	-0.1172	0.5637	0.5637	0.5062	0.3603
12.25	-0.1148	0.5421	0.5410	0.5068	0.3607
12.5	-0.1125	0.5218	0.5196	0.5067	0.3607
13.0	-0.1081	0.4848	0.4805	0.5051	0.3595
13.5	-0.1040	0.4518	0.4455	0.5019	0.3572
14.0	-0.1002	0.4223	0.4141	0.4974	0.3540
14.5	-0.0966	0.3958	0.3859	0.4920	0.3502
15.0	-0.0933	0.3719	0.3604	0.4860	0.3459
15.5	-0.0901	0.3503	0.3372	0.4795	0.3412
16.0	-0.0871	0.3307	0.3162	0.4726	0.3363
16.5	-0.0843	0.3128	0.2970	0.4655	0.3313
17.0	-0.0817	0.2965	0.2794	0.4585	0.3262
18	-0.0768	0.2678	0.2484	0.4436	0.3157
19	-0.0723	0.2435	0.2221	0.4289	0.3053
20	-0.0682	0.2227	0.1995	0.4146	0.2951
21	-0.0645	0.2048	0.1800	0.4008	0.2852
22	-0.0611	0.1892	0.1631	0.3874	0.2757
23	-0.0579	0.1755	0.1482	0.3745	0.2666
24	-0.0549	0.1635	0.1351	0.3622	0.2578
25	-0.0522	0.1529	0.1235	0.3505	0.2494
26	-0.0496	0.1434	0.1132	0.3393	0.2414
27	-0.0472	0.1349	0.1039	0.3285	0.2338
28	-0.0449	0.1273	0.0956	0.3182	0.2265
29	-0.0427	0.1204	0.0881	0.3084	0.2195
30	-0.0406	0.1142	0.0814	0.2990	0.2128
31	-0.0387	0.1085	0.0752	0.2900	0.2064
32	-0.0369	0.1033	0.0696	0.2814	0.2003
33	-0.0351	0.0985	0.0645	0.2732	0.1944
34	-0.0334	0.0941	0.0598	0.2653	0.1888
35	-0.0318	0.0901	0.0555	0.2577	0.1834
36	-0.0303	0.0863	0.0516	0.2504	0.1782
37	-0.0288	0.0828	0.0480	0.2433	0.1732
38	-0.0274	0.0796	0.0446	0.2365	0.1683
39	-0.0260	0.0766	0.0414	0.2299	0.1636
40	-0.0247	0.0737	0.0385	0.2236	0.1591
41	-0.0235	0.0710	0.0358	0.2175	0.1547
42	-0.0223	0.0685	0.0333	0.2115	0.1505

$\theta_1 = 10^\circ$     $\bar{u}_1 = 0.40$     $M = 1.0901$     $\theta_2 = 68.653$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
43	-0.08108	0.06661	0.03091	0.2057	0.1464
44	-0.01994	0.0638	0.02871	0.2001	0.1424
45	-0.01884	0.0617	0.02665	0.1947	0.1386
46	-0.01778	0.0597	0.02473	0.1895	0.1349
47	-0.01676	0.0578	0.02292	0.1844	0.1312
48	-0.01577	0.0559	0.02122	0.1794	0.1276
49	-0.01481	0.0541	0.01963	0.1745	0.1242
50	-0.01388	0.0524	0.01813	0.1697	0.1208
51	-0.01298	0.0507	0.01671	0.1651	0.1175
52	-0.01211	0.0491	0.01537	0.1606	0.1143
53	-0.01127	0.0476	0.01411	0.1562	0.1112
54	-0.01045	0.0461	0.01292	0.1519	0.1081
55	-0.00965	0.0447	0.01179	0.1476	0.1051
56	-0.00888	0.0433	0.01072	0.1434	0.1021
57	-0.00814	0.0420	0.00971	0.1394	0.0992
58	-0.00742	0.0407	0.00875	0.1355	0.0964
59	-0.00672	0.0394	0.00784	0.1316	0.0937
60	-0.00604	0.0382	0.00698	0.1278	0.0910
61	-0.00539	0.0370	0.00616	0.1242	0.0884
62	-0.00475	0.0358	0.00539	0.1207	0.0859
63	-0.00414	0.0347	0.00465	0.1173	0.0835
64	-0.00354	0.0337	0.00395	0.1141	0.0812
65	-0.00296	0.0328	0.00328	0.1113	0.0792
66	-0.00240	0.0320	0.00263	0.1092	0.0777
67	-0.00184	0.0317	0.00200	0.1083	0.0771
68	-0.00128	0.0324	0.00139	0.1111	0.0791
68.653	-0.00090	0.0351	0.00097	0.1207	0.0859

$\theta_s = 10^\circ$     $\bar{u}_s = 0.45$     $M = 1.2330$     $\theta_v = 55.162$

$\theta$	$x$	$y$	$z$	$\gamma/\beta$	$\epsilon/\beta$
10.00	-0.1523	0.9000	0.8771	0.5963	0.4244
10.25	-0.1485	0.8586	0.8344	0.6102	0.4343
10.50	-0.1448	0.8203	0.7947	0.6216	0.4424
10.75	-0.1413	0.7847	0.7576	0.6308	0.4490
11.00	-0.1380	0.7515	0.7230	0.6381	0.4542
11.25	-0.1348	0.7205	0.6907	0.6438	0.4582
11.50	-0.1317	0.6916	0.6605	0.6480	0.4612
11.75	-0.1287	0.6646	0.6321	0.6510	0.4633
12.00	-0.1258	0.6393	0.6054	0.6529	0.4646
12.25	-0.1231	0.6155	0.5803	0.6538	0.4652
12.5	-0.1205	0.5931	0.5567	0.6540	0.4655
13.0	-0.1155	0.5522	0.5135	0.6523	0.4643
13.5	-0.1108	0.5158	0.4748	0.6485	0.4616
14.0	-0.1064	0.4833	0.4402	0.6431	0.4577
14.5	-0.1023	0.4540	0.4090	0.6364	0.4529
15.0	-0.0985	0.4276	0.3808	0.6288	0.4475
15.5	-0.0949	0.4037	0.3552	0.6206	0.4417
16.0	-0.0915	0.3820	0.3320	0.6119	0.4355
16.5	-0.0883	0.3621	0.3108	0.6029	0.4291
17.0	-0.0852	0.3440	0.2913	0.5936	0.4225
18	-0.0795	0.3121	0.2571	0.5748	0.4091
19	-0.0743	0.2850	0.2281	0.5561	0.3958
20	-0.0695	0.2617	0.2032	0.5376	0.3826
21	-0.0651	0.2416	0.1817	0.5195	0.3697
22	-0.0610	0.2240	0.1630	0.5020	0.3573
23	-0.0572	0.2085	0.1466	0.4852	0.3453
24	-0.0537	0.1948	0.1322	0.4690	0.3338
25	-0.0505	0.1827	0.1194	0.4535	0.3228
26	-0.0474	0.1718	0.1081	0.4386	0.3122
27	-0.0445	0.1619	0.0979	0.4242	0.3020
28	-0.0417	0.1530	0.0888	0.4104	0.2922
29	-0.0391	0.1449	0.0807	0.3972	0.2828
30	-0.0366	0.1376	0.0733	0.3845	0.2737
31	-0.0343	0.1308	0.0666	0.3723	0.2650
32	-0.0321	0.1245	0.0606	0.3605	0.2566
33	-0.0300	0.1187	0.0550	0.3491	0.2485
34	-0.0279	0.1133	0.0499	0.3381	0.2406
35	-0.0259	0.1083	0.0453	0.3274	0.2330
36	-0.0241	0.1036	0.0411	0.3170	0.2256
37	-0.0224	0.0992	0.0372	0.3069	0.2184
38	-0.0207	0.0950	0.0336	0.2971	0.2115
39	-0.0191	0.0910	0.0303	0.2876	0.2047
40	-0.0175	0.0872	0.0272	0.2783	0.1981
41	-0.0160	0.0836	0.0244	0.2692	0.1916
42	-0.0146	0.0802	0.0218	0.2602	0.1852

$\theta_1 = 10^\circ$     $U_1 = 0.45$     $M = 1.2330$     $\theta_2 = 55.162$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
43	-0.01322	0.0769	0.01938	0.2515	0.1790
44	-0.01190	0.0737	0.01713	0.2428	0.1728
45	-0.01064	0.0706	0.01505	0.2343	0.1668
46	-0.00943	0.0676	0.01312	0.2259	0.1608
47	-0.00828	0.0647	0.01132	0.2175	0.1548
47.5	-0.00772	0.0633	0.01047	0.2134	0.1519
48.0	-0.00717	0.0619	0.00966	0.2092	0.1489
48.5	-0.00664	0.0604	0.00887	0.2051	0.1460
49.0	-0.00612	0.0591	0.00811	0.2010	0.1431
49.5	-0.00561	0.0577	0.00738	0.1969	0.1401
50.0	-0.00511	0.0563	0.00668	0.1928	0.1372
50.5	-0.00463	0.0549	0.00600	0.1887	0.1343
51.0	-0.00416	0.0536	0.00535	0.1846	0.1314
51.5	-0.00370	0.0523	0.00472	0.1806	0.1285
52.0	-0.00324	0.0510	0.00412	0.1766	0.1257
52.25	-0.00302	0.0503	0.00382	0.1747	0.1243
52.50	-0.00280	0.0497	0.00353	0.1728	0.1229
52.75	-0.00259	0.0491	0.00325	0.1709	0.1216
53.00	-0.00238	0.0485	0.00298	0.1691	0.1203
53.25	-0.00217	0.0479	0.00271	0.1675	0.1191
53.500	-0.00196	0.0474	0.00244	0.1660	0.1180
53.625	-0.00186	0.0472	0.00231	0.1653	0.1175
53.750	-0.00175	0.0470	0.00217	0.1647	0.1171
53.875	-0.00165	0.0458	0.00204	0.1642	0.1168
54.000	-0.00155	0.0466	0.00191	0.1637	0.1165
54.125	-0.00145	0.0465	0.00178	0.1634	0.1163
54.250	-0.00134	0.0464	0.00166	0.1633	0.1162
54.375	-0.00124	0.0464	0.00154	0.1634	0.1163
54.500	-0.00114	0.0465	0.00141	0.1638	0.1166
54.625	-0.00104	0.0467	0.00128	0.1646	0.1172
54.750	-0.00094	0.0471	0.00115	0.1661	0.1183
54.875	-0.00083	0.0477	0.00102	0.1686	0.1200
55.000	-0.00073	0.0489	0.00089	0.1728	0.1230
55.125	-0.00062	0.0508	0.00076	0.1800	0.1281
55.162	-0.00059	0.0517	0.00072	0.1832	0.1304

$\theta_1 = 10^\circ$     $\bar{u}_1 = 0.50$     $M = 1.4028$     $\theta_2 = 46^\circ.309$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
10.00	-0.1635	1.0000	0.9417	0.7562	0.5382
10.25	-0.1592	0.9848	0.8950	0.7746	0.5513
10.50	-0.1551	0.9129	0.8515	0.7896	0.5620
10.75	-0.1512	0.8740	0.8111	0.8018	0.5707
11.00	-0.1475	0.8378	0.7733	0.8115	0.5776
11.25	-0.1440	0.8041	0.7379	0.8191	0.5830
11.50	-0.1406	0.7726	0.7048	0.8249	0.5871
11.75	-0.1373	0.7431	0.6738	0.8290	0.5900
12.00	-0.1341	0.7154	0.6447	0.8318	0.5920
12.25	-0.1310	0.6895	0.6173	0.8334	0.5938
12.5	-0.1280	0.6651	0.5915	0.8339	0.5935
13.0	-0.1224	0.6205	0.5442	0.8323	0.5924
13.5	-0.1172	0.5808	0.5019	0.8279	0.5893
14.0	-0.1123	0.5452	0.4641	0.8214	0.5847
14.5	-0.1077	0.5133	0.4299	0.8133	0.5789
15.0	-0.1033	0.4844	0.3991	0.8040	0.5722
15.5	-0.0992	0.4582	0.3712	0.7938	0.5649
16.0	-0.0953	0.4344	0.3457	0.7829	0.5572
16.5	-0.0916	0.4127	0.3225	0.7716	0.5492
17.0	-0.0881	0.3928	0.3013	0.7600	0.5410
17.5	-0.0847	0.3745	0.2818	0.7482	0.5326
18.0	-0.0815	0.3576	0.2639	0.7363	0.5241
18.5	-0.0785	0.3421	0.2474	0.7243	0.5156
19.0	-0.0756	0.3277	0.2321	0.7124	0.5071
19.5	-0.0728	0.3143	0.2180	0.7005	0.4986
20.0	-0.0701	0.3018	0.2049	0.6887	0.4902
20.5	-0.0675	0.2902	0.1927	0.6771	0.4819
21.0	-0.0650	0.2794	0.1814	0.6656	0.4737
21.5	-0.0626	0.2692	0.1709	0.6542	0.4656
22.0	-0.0603	0.2596	0.1610	0.6430	0.4577
22.5	-0.0581	0.2506	0.1518	0.6320	0.4499
23.0	-0.0559	0.2422	0.1432	0.6212	0.4422
23.5	-0.0538	0.2343	0.1351	0.6106	0.4346
24.0	-0.0518	0.2268	0.1275	0.6001	0.4271
24.5	-0.0499	0.2197	0.1203	0.5898	0.4198
25.0	-0.0480	0.2129	0.1136	0.5797	0.4126
25.5	-0.0462	0.2065	0.1073	0.5698	0.4056
26.0	-0.0444	0.2004	0.1013	0.5600	0.3986
26.5	-0.0427	0.1946	0.0957	0.5504	0.3917
27.0	-0.0410	0.1891	0.0904	0.5410	0.3850
27.5	-0.0394	0.1838	0.0853	0.5317	0.3784
28.0	-0.0378	0.1788	0.0805	0.5226	0.3719
28.5	-0.0363	0.1740	0.0760	0.5136	0.3655
29.0	-0.0348	0.1693	0.0717	0.5047	0.3592
29.5	-0.0333	0.1648	0.0676	0.4960	0.3530



$\theta_s = 10^\circ$     $Q_s = 0.50$     $M = 1.4028$     $\theta_v = 46^\circ.309$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
30.0	-0.03188	0.1605	0.06377	0.4874	0.3469
30.5	-0.03050	0.1574	0.06010	0.4789	0.3409
31.0	-0.02915	0.1524	0.05661	0.4706	0.3350
31.5	-0.02784	0.1485	0.05329	0.4624	0.3292
32.0	-0.02656	0.1448	0.05013	0.4543	0.3234
32.5	-0.02531	0.1412	0.04712	0.4463	0.3177
33.0	-0.02409	0.1377	0.04425	0.4384	0.3120
33.5	-0.02291	0.1343	0.04151	0.4306	0.3064
34.0	-0.02175	0.1310	0.03890	0.4228	0.3009
34.5	-0.02062	0.1278	0.03641	0.4151	0.2954
35.0	-0.01952	0.1247	0.03403	0.4075	0.2900
35.5	-0.01844	0.1217	0.03176	0.4000	0.2847
36.0	-0.01739	0.1187	0.02960	0.3925	0.2794
36.5	-0.01637	0.1158	0.02753	0.3851	0.2741
37.0	-0.01537	0.1130	0.02555	0.3777	0.2688
37.5	-0.01440	0.1102	0.02366	0.3704	0.2636
38.0	-0.01345	0.1075	0.02185	0.3631	0.2584
38.5	-0.01252	0.1048	0.02012	0.3558	0.2532
39.0	-0.01162	0.1021	0.01847	0.3486	0.2481
39.5	-0.01074	0.0995	0.01689	0.3414	0.2430
40.0	-0.00988	0.0970	0.01538	0.3342	0.2379
40.5	-0.00904	0.0945	0.01394	0.3270	0.2327
41.0	-0.00823	0.0920	0.01256	0.3198	0.2276
41.5	-0.00744	0.0895	0.01124	0.3126	0.2225
42.0	-0.00667	0.0870	0.00998	0.3054	0.2174
42.25	-0.00629	0.0858	0.00937	0.3019	0.2149
42.50	-0.00592	0.0846	0.00877	0.2983	0.2123
42.75	-0.00556	0.0834	0.00819	0.2947	0.2098
43.00	-0.00520	0.0822	0.00762	0.2911	0.2072
43.25	-0.00484	0.0810	0.00707	0.2876	0.2047
43.50	-0.00449	0.0798	0.00653	0.2841	0.2022
43.75	-0.00414	0.0787	0.00600	0.2806	0.1998
44.00	-0.00380	0.0776	0.00548	0.2772	0.1974
44.25	-0.00347	0.0765	0.00497	0.2740	0.1951
44.50	-0.00314	0.0755	0.00447	0.2710	0.1929
44.75	-0.00281	0.0746	0.00398	0.2682	0.1909
45.00	-0.00248	0.0738	0.00351	0.2657	0.1891
45.25	-0.00216	0.0731	0.00305	0.2638	0.1878
45.50	-0.00185	0.0726	0.00259	0.2630	0.1872
45.75	-0.00155	0.0723	0.00214	0.2641	0.1880
45.8	-0.00147	0.0729	0.00205	0.2647	0.1885
45.9	-0.00134	0.0733	0.00187	0.2666	0.1898
46.0	-0.00121	0.0740	0.00169	0.2695	0.1918
46.1	-0.00108	0.0751	0.00150	0.2741	0.1951
46.2	-0.00095	0.0771	0.00131	0.2815	0.2004
46.3	-0.00081	0.0804	0.00112	0.2941	0.2093
46.309	-0.00080	0.0808	0.00110	0.2956	0.2104

$\theta_s = 10^\circ$     $\bar{u}_s = 0.55$     $M = 1.5956$     $\theta_v = 39.708$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
10.00	-0.1737	1.1000	1.0003	0.9499	0.6760
10.25	-0.1690	1.0511	0.9498	0.9738	0.6930
10.50	-0.1645	1.0058	0.9028	0.9935	0.7070
10.75	-0.1602	0.9638	0.8590	1.0095	0.7184
11.00	-0.1561	0.9247	0.8181	1.0223	0.7276
11.25	-0.1521	0.8883	0.7799	1.0325	0.7348
11.50	-0.1483	0.8543	0.7441	1.0403	0.7404
11.75	-0.1446	0.8225	0.7105	1.0460	0.7445
12.00	-0.1411	0.7927	0.6789	1.0499	0.7473
12.25	-0.1377	0.7647	0.6492	1.0523	0.7490
12.5	-0.1345	0.7384	0.6213	1.0534	0.7497
13.0	-0.1282	0.6903	0.5701	1.0522	0.7488
13.5	-0.1223	0.6474	0.5244	1.0474	0.7454
14.0	-0.1168	0.6090	0.4834	1.0398	0.7400
14.5	-0.1117	0.5744	0.4464	1.0307	0.7331
15.0	-0.1069	0.5432	0.4130	1.0189	0.7251
15.5	-0.1023	0.5149	0.3827	1.0065	0.7162
16.0	-0.0979	0.4891	0.3552	0.9932	0.7067
16.5	-0.0937	0.4655	0.3301	0.9792	0.6968
17.0	-0.0897	0.4436	0.3071	0.9648	0.6866
17.5	-0.0859	0.4238	0.2860	0.9501	0.6762
18.0	-0.0823	0.4054	0.2666	0.9353	0.6656
18.5	-0.0789	0.3884	0.2487	0.9204	0.6549
19.0	-0.0756	0.3726	0.2322	0.9054	0.6443
19.5	-0.0724	0.3579	0.2169	0.8904	0.6337
20.0	-0.0693	0.3442	0.2027	0.8755	0.6231
20.5	-0.0663	0.3314	0.1896	0.8607	0.6125
21.0	-0.0635	0.3194	0.1774	0.8461	0.6021
21.5	-0.0608	0.3082	0.1660	0.8316	0.5918
22.0	-0.0582	0.2976	0.1553	0.8173	0.5816
22.5	-0.0556	0.2876	0.1453	0.8032	0.5715
23.0	-0.0531	0.2781	0.1360	0.7892	0.5616
23.5	-0.0507	0.2691	0.1273	0.7754	0.5518
24.0	-0.0484	0.2606	0.1191	0.7618	0.5421
24.5	-0.0462	0.2526	0.1114	0.7484	0.5326
25.0	-0.0440	0.2449	0.1042	0.7352	0.5232
25.5	-0.0419	0.2376	0.0974	0.7221	0.5139
26.0	-0.0399	0.2306	0.0910	0.7092	0.5047
26.5	-0.0379	0.2239	0.0850	0.6965	0.4957
27.0	-0.0360	0.2175	0.0793	0.6839	0.4868
27.5	-0.0341	0.2113	0.0739	0.6715	0.4779
28.0	-0.0323	0.2054	0.0688	0.6592	0.4691
28.5	-0.0305	0.1997	0.0640	0.6471	0.4605
29.0	-0.0288	0.1942	0.0594	0.6351	0.4520
29.5	-0.0271	0.1889	0.0550	0.6232	0.4435

$\theta_s = 10^\circ$     $U_s = 0.55$     $M = 1.5956$     $\theta_v = 39^\circ.708$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
30.0	-0.08549	0.1838	0.05101	0.6114	0.4351
30.5	-0.08391	0.1788	0.04713	0.5997	0.4268
31.0	-0.08237	0.1739	0.04345	0.5881	0.4186
31.5	-0.08088	0.1692	0.03997	0.5766	0.4104
32.0	-0.01942	0.1646	0.03666	0.5652	0.4022
32.25	-0.01872	0.1623	0.03508	0.5595	0.3982
32.50	-0.01800	0.1601	0.03352	0.5538	0.3941
32.75	-0.01730	0.1579	0.03200	0.5482	0.3800
33.00	-0.01662	0.1558	0.03053	0.5425	0.3860
33.25	-0.01595	0.1537	0.02910	0.5369	0.3820
33.50	-0.01528	0.1516	0.02770	0.5313	0.3780
33.75	-0.01463	0.1495	0.02634	0.5257	0.3740
34.00	-0.01398	0.1474	0.02501	0.5201	0.3700
34.25	-0.01334	0.1453	0.02371	0.5145	0.3661
34.50	-0.01271	0.1433	0.02245	0.5089	0.3622
34.75	-0.01209	0.1413	0.02122	0.5033	0.3582
35.00	-0.01148	0.1393	0.02002	0.4977	0.3542
35.25	-0.01087	0.1373	0.01885	0.4922	0.3502
35.50	-0.01028	0.1353	0.01771	0.4867	0.3463
35.75	-0.00969	0.1334	0.01660	0.4812	0.3424
36.00	-0.00912	0.1315	0.01552	0.4757	0.3385
36.25	-0.00855	0.1296	0.01446	0.4702	0.3345
36.50	-0.00799	0.1277	0.01343	0.4648	0.3308
36.75	-0.00743	0.1258	0.01243	0.4595	0.3270
37.00	-0.00689	0.1240	0.01145	0.4543	0.3233
37.125	-0.00662	0.1232	0.01097	0.4517	0.3214
37.250	-0.00635	0.1223	0.01050	0.4492	0.3196
37.375	-0.00608	0.1214	0.01003	0.4467	0.3178
37.500	-0.00582	0.1205	0.00957	0.4442	0.3161
37.625	-0.00556	0.1197	0.00911	0.4418	0.3144
37.750	-0.00530	0.1189	0.00866	0.4395	0.3127
37.875	-0.00504	0.1181	0.00821	0.4373	0.3111
38.000	-0.00478	0.1173	0.00777	0.4351	0.3096
38.125	-0.00453	0.1166	0.00734	0.4330	0.3081
38.250	-0.00427	0.1159	0.00691	0.4311	0.3068
38.375	-0.00402	0.1153	0.00648	0.4294	0.3056
38.500	-0.00377	0.1148	0.00606	0.4280	0.3046
38.625	-0.00352	0.1143	0.00564	0.4269	0.3038
38.750	-0.00327	0.1139	0.00523	0.4262	0.3033
38.875	-0.00302	0.1137	0.00482	0.4260	0.3031
39.0000	-0.00298	0.1136	0.00441	0.4265	0.3035
39.0625	-0.00265	0.1137	0.00421	0.4272	0.3039
39.1250	-0.00253	0.1139	0.00401	0.4281	0.3046
39.1875	-0.00240	0.1141	0.00381	0.4294	0.3056
39.2500	-0.00228	0.1144	0.00360	0.4311	0.3069

$\theta_s = 10^\circ$     $\bar{u}_s = 0.55$     $M = 1.5956$     $\theta_v = 39^\circ.708$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
39.3125	-0.00215	0.1149	0.00340	0.4334	0.3085
39.3750	-0.00203	0.1156	0.00320	0.4364	0.3106
39.4375	-0.00190	0.1165	0.00399	0.4403	0.3133
39.5000	-0.00177	0.1177	0.00279	0.4454	0.3169
39.5625	-0.00164	0.1194	0.00258	0.4522	0.3218
39.6250	-0.00151	0.1217	0.00237	0.4613	0.3283
39.6875	-0.00138	0.1250	0.00216	0.4739	0.3372
39.708	-0.00133	0.1263	0.00209	0.4792	0.3410

$\theta_1 = 10^\circ$     $U_1 = 0.40$     $M = 1.8165$     $\theta_2 = 34.432^\circ$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
10.00	-0.1825	1.2000	1.0515	1.1864	0.8442
10.25	-0.1774	1.1476	0.9973	1.2175	0.8664
10.50	-0.1725	1.0991	0.9469	1.2431	0.8846
10.75	-0.1678	1.0542	0.8999	1.2641	0.8995
11.00	-0.1633	1.0124	0.8561	1.2811	0.9116
11.25	-0.1590	0.9735	0.8151	1.2946	0.9212
11.50	-0.1548	0.9372	0.7767	1.3051	0.9287
11.75	-0.1508	0.9032	0.7407	1.3130	0.9343
12.00	-0.1469	0.8714	0.7062	1.3186	0.9383
12.25	-0.1431	0.8415	0.6750	1.3223	0.9410
12.50	-0.1395	0.8134	0.6450	1.3243	0.9424
12.75	-0.1360	0.7870	0.6168	1.3248	0.9427
13.00	-0.1326	0.7621	0.5901	1.3239	0.9421
13.25	-0.1293	0.7386	0.5649	1.3219	0.9407
13.50	-0.1262	0.7163	0.5410	1.3189	0.9385
13.75	-0.1232	0.6952	0.5184	1.3150	0.9357
14.00	-0.1202	0.6752	0.4969	1.3103	0.9324
14.25	-0.1173	0.6563	0.4766	1.3050	0.9286
14.50	-0.1145	0.6383	0.4573	1.2991	0.9244
14.75	-0.1117	0.6211	0.4389	1.2927	0.9199
15.0	-0.1090	0.6048	0.4214	1.2858	0.9150
15.5	-0.1038	0.5744	0.3889	1.2710	0.9044
16.0	-0.0989	0.5467	0.3593	1.2550	0.8930
16.5	-0.0943	0.5213	0.3323	1.2381	0.8810
17.0	-0.0899	0.4980	0.3076	1.2206	0.8686
17.5	-0.0856	0.4765	0.2849	1.2026	0.8558
18.0	-0.0815	0.4566	0.2641	1.1843	0.8428
18.5	-0.0776	0.4382	0.2449	1.1658	0.8296
19.0	-0.0739	0.4210	0.2271	1.1472	0.8163
19.5	-0.0703	0.4050	0.2107	1.1285	0.8030
20.0	-0.0668	0.3900	0.1955	1.1099	0.7898
20.5	-0.0635	0.3759	0.1814	1.0914	0.7766
21.0	-0.0603	0.3627	0.1683	1.0730	0.7635
21.5	-0.0571	0.3503	0.1561	1.0547	0.7504
22.0	-0.0541	0.3386	0.1447	1.0365	0.7375
22.5	-0.0512	0.3274	0.1340	1.0185	0.7247
23.0	-0.0484	0.3169	0.1240	1.0006	0.7120
23.5	-0.0457	0.3069	0.1147	0.9829	0.6994
24.0	-0.0431	0.2973	0.1060	0.9654	0.6869
24.5	-0.0405	0.2882	0.0978	0.9480	0.6745
25.0	-0.0380	0.2795	0.0901	0.9308	0.6622
25.5	-0.0356	0.2712	0.0828	0.9137	0.6501
26.0	-0.0333	0.2632	0.0760	0.8968	0.6381
26.5	-0.0310	0.2555	0.0696	0.8801	0.6262
27.0	-0.0288	0.2481	0.0636	0.8635	0.6144

$\theta_s = 10^\circ$     $\bar{u}_s = 0.60$     $M = 1.8165$     $\theta_v = 34.452$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
27.5	-0.02671	0.2409	0.05789	0.8470	0.6027
28.0	-0.02464	0.2339	0.05252	0.8306	0.5910
28.5	-0.02263	0.2272	0.04745	0.8143	0.5794
29.0	-0.02067	0.2208	0.04267	0.7982	0.5679
29.5	-0.01878	0.2145	0.03815	0.7823	0.5566
29.75	-0.01785	0.2114	0.03599	0.7744	0.5510
30.00	-0.01693	0.2084	0.03388	0.7665	0.5454
30.25	-0.01603	0.2054	0.03183	0.7587	0.5398
30.50	-0.01514	0.2024	0.02984	0.7510	0.5343
30.75	-0.01426	0.1995	0.02791	0.7433	0.5289
31.00	-0.01339	0.1967	0.02603	0.7357	0.5235
31.25	-0.01254	0.1940	0.02420	0.7283	0.5182
31.50	-0.01170	0.1913	0.02241	0.7210	0.5130
31.75	-0.01088	0.1886	0.02068	0.7139	0.5079
32.00	-0.01006	0.1861	0.01899	0.7070	0.5030
32.125	-0.00965	0.1849	0.01816	0.7037	0.5007
32.250	-0.00925	0.1837	0.01734	0.7005	0.4984
32.375	-0.00885	0.1825	0.01653	0.6974	0.4962
32.500	-0.00845	0.1813	0.01574	0.6945	0.4941
32.625	-0.00806	0.1802	0.01496	0.6917	0.4921
32.750	-0.00767	0.1792	0.01418	0.6891	0.4903
32.875	-0.00728	0.1783	0.01341	0.6867	0.4886
33.000	-0.00689	0.1774	0.01265	0.6846	0.4871
33.125	-0.00650	0.1766	0.01190	0.6828	0.4858
33.250	-0.00611	0.1759	0.01116	0.6815	0.4849
33.375	-0.00573	0.1753	0.01043	0.6807	0.4844
33.500	-0.00535	0.1749	0.00970	0.6805	0.4843
33.625	-0.00497	0.1747	0.00898	0.6813	0.4848
33.750	-0.00459	0.1749	0.00826	0.6833	0.4862
33.875	-0.00421	0.1754	0.00755	0.6869	0.4887
34.000	-0.00383	0.1765	0.00684	0.6928	0.4929
34.125	-0.00344	0.1785	0.00613	0.7022	0.4996
34.250	-0.00304	0.1819	0.00541	0.7172	0.5103
34.375	-0.00264	0.1877	0.00468	0.7420	0.5279
34.452	-0.00238	0.1935	0.00421	0.7662	0.5452

$\theta_s = 10^\circ$     $\bar{u}_s = 0.65$     $M = 2.0750$     $\theta_v = 30.091$

$\theta$	x	y	z	$\eta/\bar{p}$	$\xi/\bar{p}$
10.000	-0.1898	1.3000	1.0942	1.4798	1.0527
10.125	-0.1870	1.2716	1.0648	1.5009	1.0677
10.250	-0.1842	1.2443	1.0365	1.5202	1.0814
10.375	-0.1815	1.2181	1.0092	1.5378	1.0939
10.500	-0.1789	1.1929	0.9829	1.5538	1.1053
10.625	-0.1763	1.1687	0.9575	1.5683	1.1156
10.750	-0.1738	1.1453	0.9329	1.5814	1.1250
10.875	-0.1713	1.1227	0.9092	1.5932	1.1334
11.000	-0.1689	1.1010	0.8862	1.6039	1.1410
11.125	-0.1665	1.0801	0.8640	1.6135	1.1478
11.250	-0.1642	1.0599	0.8426	1.6220	1.1538
11.375	-0.1619	1.0403	0.8218	1.6296	1.1592
11.500	-0.1596	1.0214	0.8017	1.6363	1.1640
11.625	-0.1574	1.0031	0.7822	1.6421	1.1682
11.750	-0.1552	0.9855	0.7634	1.6472	1.1718
11.875	-0.1531	0.9684	0.7451	1.6516	1.1749
12.000	-0.1510	0.9519	0.7274	1.6553	1.1776
12.125	-0.1489	0.9359	0.7102	1.6584	1.1798
12.250	-0.1469	0.9204	0.6935	1.6609	1.1816
12.375	-0.1449	0.9054	0.6773	1.6629	1.1830
12.500	-0.1430	0.8908	0.6616	1.6643	1.1840
12.625	-0.1411	0.8766	0.6463	1.6653	1.1847
12.750	-0.1392	0.8628	0.6315	1.6658	1.1850
12.875	-0.1373	0.8494	0.6171	1.6659	1.1851
13.000	-0.1355	0.8364	0.6030	1.6656	1.1849
13.25	-0.1319	0.8115	0.5761	1.6640	1.1838
13.50	-0.1284	0.7880	0.5507	1.6611	1.1817
13.75	-0.1250	0.7658	0.5266	1.6571	1.1788
14.00	-0.1217	0.7447	0.5037	1.6520	1.1752
14.25	-0.1185	0.7247	0.4820	1.6461	1.1710
14.50	-0.1154	0.7056	0.4614	1.6395	1.1663
14.75	-0.1124	0.6874	0.4418	1.6322	1.1611
15.00	-0.1094	0.6701	0.4231	1.6243	1.1555
15.25	-0.1065	0.6536	0.4053	1.6159	1.1495
15.50	-0.1037	0.6379	0.3884	1.6070	1.1432
15.75	-0.1009	0.6229	0.3723	1.5978	1.1366
16.00	-0.0982	0.6085	0.3569	1.5882	1.1298
16.25	-0.0956	0.5947	0.3422	1.5783	1.1227
16.50	-0.0930	0.5815	0.3281	1.5681	1.1155
16.75	-0.0905	0.5688	0.3146	1.5577	1.1081
17.00	-0.0881	0.5566	0.3017	1.5472	1.1006
17.25	-0.0857	0.5449	0.2893	1.5365	1.0930
17.50	-0.0833	0.5337	0.2775	1.5256	1.0853
17.75	-0.0810	0.5229	0.2661	1.5146	1.0774
18.00	-0.0788	0.5124	0.2552	1.5035	1.0695

$\theta_1 = 10^\circ$     $\bar{u}_1 = 0.65$     $M = 2.0750$     $\theta_2 = 30.091$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
13.25	-0.07654	0.5023	0.2447	1.4923	1.0616
18.50	-0.07437	0.4926	0.2347	1.4811	1.0536
18.75	-0.07224	0.4832	0.2251	1.4698	1.0456
19.00	-0.07015	0.4741	0.2158	1.4585	1.0375
19.25	-0.06810	0.4654	0.2069	1.4471	1.0294
19.50	-0.06609	0.4569	0.1983	1.4357	1.0213
19.75	-0.06412	0.4487	0.1901	1.4243	1.0132
20.00	-0.06218	0.4407	0.1821	1.4129	1.0051
20.25	-0.06027	0.4330	0.1744	1.4015	0.9970
20.50	-0.05840	0.4255	0.1670	1.3901	0.9889
20.75	-0.05656	0.4182	0.1599	1.3787	0.9808
21.00	-0.05475	0.4111	0.1530	1.3673	0.9727
21.25	-0.05297	0.4042	0.1464	1.3560	0.9646
21.50	-0.05122	0.3975	0.1400	1.3447	0.9565
21.75	-0.04950	0.3910	0.1338	1.3334	0.9485
22.00	-0.04781	0.3847	0.1278	1.3222	0.9405
22.25	-0.04615	0.3785	0.1221	1.3110	0.9325
22.50	-0.04451	0.3725	0.1165	1.2998	0.9246
22.75	-0.04290	0.3666	0.1111	1.2887	0.9167
23.00	-0.04131	0.3609	0.1059	1.2776	0.9088
23.25	-0.03975	0.3553	0.1009	1.2666	0.9009
23.50	-0.03821	0.3498	0.0960	1.2556	0.8931
23.75	-0.03669	0.3444	0.0913	1.2447	0.8853
24.00	-0.03520	0.3392	0.0867	1.2338	0.8776
24.25	-0.03373	0.3341	0.0823	1.2230	0.8699
24.50	-0.03228	0.3291	0.0780	1.2123	0.8622
24.75	-0.03085	0.3242	0.0738	1.2016	0.8546
25.00	-0.02945	0.3195	0.0698	1.1910	0.8471
25.25	-0.02807	0.3149	0.0659	1.1805	0.8396
25.50	-0.02671	0.3103	0.0621	1.1701	0.8322
25.75	-0.02537	0.3058	0.0584	1.1598	0.8249
26.00	-0.02404	0.3014	0.0549	1.1497	0.8177
26.25	-0.02273	0.2972	0.0515	1.1398	0.8106
26.50	-0.02144	0.2931	0.0481	1.1301	0.8037
26.75	-0.02017	0.2891	0.0448	1.1206	0.7969
27.00	-0.01892	0.2852	0.0417	1.1113	0.7903
27.25	-0.01768	0.2814	0.0387	1.1023	0.7839
27.50	-0.01646	0.2778	0.0357	1.0938	0.7779
27.75	-0.01526	0.2744	0.0328	1.0859	0.7723
28.00	-0.01407	0.2712	0.0300	1.0787	0.7672
28.25	-0.01289	0.2683	0.0273	1.0725	0.7628
28.50	-0.01173	0.2658	0.0246	1.0678	0.7594
28.75	-0.01057	0.2637	0.0220	1.0648	0.7573
29.00	-0.00942	0.2623	0.0195	1.0647	0.7572
29.25	-0.00828	0.2620	0.0170	1.0690	0.7603



$\theta_s = 10^\circ$     $\bar{u}_s = 0.65$     $M = 2.0750$     $\theta_w = 30.091$

$\theta$	$x$	$y^*$	$z$	$\eta/\beta$	$\xi/\beta$
29.3125	-0.00800	0.2622	0.01635	1.0711	0.7618
29.3750	-0.00771	0.2625	0.01573	1.0737	0.7636
29.4375	-0.00742	0.2629	0.01512	1.0768	0.7658
29.5000	-0.00714	0.2635	0.01450	1.0807	0.7685
29.5625	-0.00685	0.2643	0.01389	1.0854	0.7719
29.6250	-0.00656	0.2653	0.01328	1.0911	0.7760
29.6875	-0.00627	0.2666	0.01267	1.0980	0.7809
29.7500	-0.00598	0.2682	0.01205	1.1063	0.7868
29.8125	-0.00568	0.2702	0.01145	1.1163	0.7939
29.8750	-0.00539	0.2728	0.01082	1.1286	0.8027
29.9375	-0.00508	0.2760	0.01020	1.1436	0.8135
30.0000	-0.00478	0.2802	0.00957	1.1627	0.8270
30.0625	-0.00448	0.2856	0.00895	1.1868	0.8447
30.091	-0.00433	0.2885	0.00864	1.2000	0.8535

$\theta_s = 10^\circ$     $\bar{u}_s = 0.70$     $M = 2.3869$     $\theta_w = 26.363$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
10.000	-0.1951	1.4000	1.1278	1.8515	1.3159
10.250	-0.1892	1.3414	1.0666	1.9048	1.3538
10.500	-0.1834	1.2873	1.0098	1.9491	1.3853
10.625	-0.1806	1.2618	0.9829	1.9683	1.3990
10.750	-0.1779	1.2373	0.9570	1.9858	1.4114
10.875	-0.1752	1.2137	0.9319	2.0017	1.4227
11.000	-0.1726	1.1910	0.9076	2.0160	1.4329
11.125	-0.1700	1.1691	0.8842	2.0289	1.4421
11.250	-0.1675	1.1479	0.8615	2.0405	1.4504
11.375	-0.1650	1.1274	0.8395	2.0509	1.4578
11.500	-0.1626	1.1076	0.8182	2.0602	1.4644
11.625	-0.1602	1.0885	0.7976	2.0685	1.4703
11.750	-0.1578	1.0700	0.7777	2.0758	1.4755
11.825	-0.1555	1.0522	0.7584	2.0821	1.4800
12.000	-0.1532	1.0349	0.7397	2.0876	1.4839
12.125	-0.1510	1.0181	0.7216	2.0923	1.4872
12.250	-0.1488	1.0019	0.7040	2.0962	1.4900
12.375	-0.1466	0.9862	0.6869	2.0994	1.4923
12.500	-0.1445	0.9710	0.6703	2.1021	1.4942
12.625	-0.1424	0.9562	0.6542	2.1041	1.4956
12.750	-0.1403	0.9418	0.6384	2.1055	1.4966
12.875	-0.1383	0.9278	0.6230	2.1064	1.4973
13.000	-0.1363	0.9143	0.6079	2.1068	1.4976
13.25	-0.1323	0.8983	0.5794	2.1060	1.4970
13.50	-0.1285	0.8638	0.5524	2.1039	1.4955
13.75	-0.1248	0.8406	0.5269	2.1004	1.4930
14.00	-0.1212	0.8186	0.5027	2.0956	1.4895
14.25	-0.1177	0.7976	0.4797	2.0896	1.4852
14.50	-0.1143	0.7777	0.4578	2.0826	1.4803
14.75	-0.1109	0.7588	0.4370	2.0747	1.4747
15.00	-0.1076	0.7408	0.4172	2.0661	1.4686
15.25	-0.1044	0.7236	0.3983	2.0569	1.4620
15.50	-0.1013	0.7071	0.3803	2.0470	1.4550
15.75	-0.0983	0.6913	0.3632	2.0366	1.4476
16.00	-0.0953	0.6762	0.3468	2.0258	1.4399
16.25	-0.0924	0.6618	0.3311	2.0146	1.4319
16.50	-0.0895	0.6479	0.3161	2.0031	1.4237
16.75	-0.0867	0.6346	0.3018	1.9912	1.4153
17.00	-0.0839	0.6218	0.2881	1.9791	1.4067
17.25	-0.0812	0.6095	0.2750	1.9668	1.3979
17.50	-0.0786	0.5977	0.2624	1.9543	1.3890
17.75	-0.0760	0.5863	0.2503	1.9416	1.3800
18.00	-0.0735	0.5753	0.2387	1.9288	1.3709
18.25	-0.0710	0.5647	0.2276	1.9159	1.3617
18.50	-0.0686	0.5544	0.2169	1.9029	1.3524
18.75	-0.0662	0.5445	0.2066	1.8898	1.3431
19.00	-0.0638	0.5350	0.1967	1.8767	1.3338
19.25	-0.0615	0.5258	0.1872	1.8636	1.3245

$e_1 = 10^\circ$   $u_1 = 0.70$   $M = 2.3869$   $e_2 = 26.363$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\beta$
19.50	-0.0592	0.5168	0.1781	1.8505	1.3151
19.75	-0.0570	0.5081	0.1693	1.8374	1.3058
20.00	-0.0548	0.4997	0.1608	1.8243	1.2965
20.25	-0.0526	0.4916	0.1526	1.8112	1.2872
20.50	-0.0505	0.4837	0.1447	1.7982	1.2779
20.75	-0.0484	0.4760	0.1371	1.7853	1.2687
21.00	-0.0463	0.4686	0.1298	1.7725	1.2596
21.25	-0.0443	0.4614	0.1227	1.7599	1.2506
21.50	-0.0423	0.4545	0.1159	1.7474	1.2417
21.75	-0.0403	0.4477	0.1093	1.7350	1.2329
22.00	-0.0384	0.4411	0.1029	1.7228	1.2242
22.25	-0.0365	0.4347	0.0967	1.7109	1.2157
22.50	-0.0346	0.4286	0.0907	1.6992	1.2074
22.75	-0.0327	0.4227	0.0849	1.6879	1.1994
23.00	-0.0309	0.4170	0.0794	1.6770	1.1917
23.125	-0.0300	0.4143	0.0768	1.6718	1.1880
23.250	-0.0291	0.4116	0.0741	1.6667	1.1843
23.375	-0.0282	0.4090	0.0714	1.6617	1.1807
23.500	-0.0273	0.4064	0.0688	1.6569	1.1773
23.625	-0.0264	0.4039	0.0662	1.6523	1.1741
23.750	-0.0256	0.4015	0.0637	1.6479	1.1710
23.875	-0.0247	0.3991	0.0612	1.6438	1.1681
24.000	-0.0238	0.3968	0.0588	1.6400	1.1654
24.125	-0.0229	0.3946	0.0564	1.6365	1.1629
24.250	-0.0221	0.3926	0.0540	1.6334	1.1606
24.375	-0.0213	0.3907	0.0517	1.6307	1.1586
24.500	-0.0204	0.3889	0.0494	1.6284	1.1570
24.625	-0.0195	0.3872	0.0470	1.6266	1.1558
24.750	-0.0187	0.3857	0.0447	1.6255	1.1550
24.875	-0.0179	0.3844	0.0425	1.6251	1.1547
25.000	-0.0171	0.3833	0.0404	1.6257	1.1551
25.125	-0.0162	0.3824	0.0383	1.6273	1.1563
25.250	-0.0154	0.3818	0.0361	1.6303	1.1584
25.375	-0.0146	0.3816	0.0340	1.6349	1.1617
25.500	-0.0138	0.3819	0.0319	1.6415	1.1664
25.6250	-0.0129	0.3828	0.0298	1.6506	1.1729
25.6875	-0.0125	0.3834	0.0288	1.6563	1.1769
25.7500	-0.0120	0.3844	0.0278	1.6630	1.1817
25.8125	-0.0116	0.3856	0.0268	1.6708	1.1873
25.8750	-0.0112	0.3869	0.0258	1.6799	1.1937
25.9375	-0.0108	0.3887	0.0248	1.6904	1.2012
26.0000	-0.0104	0.3908	0.0237	1.7028	1.2100
26.0625	-0.0100	0.3934	0.0227	1.7172	1.2203
26.1250	-0.0095	0.3966	0.0216	1.7343	1.2324
26.1875	-0.0091	0.4005	0.0206	1.7546	1.2468
26.2500	-0.0086	0.4053	0.0195	1.7789	1.2642
26.3125	-0.0082	0.4111	0.0185	1.8085	1.2853
26.363	-0.0078	0.4172	0.0176	1.8375	1.3059

$\theta_0 = 10^\circ$     $\bar{u}_0 = 0.75$     $M = 2.7794$     $\theta_v = 23^\circ.101$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
10.000	-0.1983	1.5000	1.1526	2.3065	1.6567
10.125	-0.1951	1.4688	1.1194	2.3737	1.6831
10.250	-0.1919	1.4388	1.0876	2.4078	1.7074
10.375	-0.1888	1.4101	1.0571	2.4390	1.7297
10.500	-0.1857	1.3825	1.0277	2.4676	1.7500
10.625	-0.1827	1.3560	0.9994	2.4938	1.7686
10.750	-0.1798	1.3306	0.9720	2.5176	1.7856
10.875	-0.1769	1.3061	0.9456	2.5393	1.8010
11.000	-0.1741	1.2825	0.9200	2.5590	1.8150
11.125	-0.1713	1.2597	0.8952	2.5769	1.8277
11.250	-0.1686	1.2378	0.8713	2.5932	1.8393
11.375	-0.1659	1.2167	0.8482	2.6079	1.8498
11.500	-0.1633	1.1963	0.8258	2.6212	1.8593
11.625	-0.1607	1.1766	0.8041	2.6331	1.8678
11.750	-0.1582	1.1575	0.7830	2.6438	1.8754
12.00	-0.1532	1.1213	0.7428	2.6616	1.8880
12.25	-0.1484	1.0874	0.7050	2.6754	1.8979
12.50	-0.1437	1.0555	0.6693	2.6857	1.9052
12.75	-0.1392	1.0255	0.6357	2.6929	1.9103
13.00	-0.1348	0.9973	0.6039	2.6973	1.9134
13.25	-0.1305	0.9707	0.5738	2.6994	1.9149
13.50	-0.1263	0.9455	0.5453	2.6994	1.9149
13.75	-0.1222	0.9217	0.5183	2.6976	1.9136
14.00	-0.1182	0.8991	0.4927	2.6942	1.9112
14.25	-0.1144	0.8776	0.4684	2.6893	1.9077
14.50	-0.1106	0.8572	0.4452	2.6832	1.9034
14.75	-0.1069	0.8378	0.4232	2.6760	1.8983
15.00	-0.1033	0.8194	0.4022	2.6679	1.8926
15.25	-0.0998	0.8018	0.3822	2.6591	1.8863
15.50	-0.0963	0.7849	0.3631	2.6496	1.8795
15.75	-0.0929	0.7688	0.3449	2.6394	1.8722
16.00	-0.0896	0.7534	0.3275	2.6287	1.8646
16.25	-0.0863	0.7387	0.3108	2.6175	1.8566
16.50	-0.0831	0.7246	0.2949	2.6060	1.8484
16.75	-0.0800	0.7111	0.2797	2.5942	1.8400
17.00	-0.0769	0.6981	0.2651	2.5822	1.8315
17.25	-0.0739	0.6857	0.2511	2.5700	1.8229
17.50	-0.0709	0.6737	0.2377	2.5577	1.8142
17.75	-0.0680	0.6622	0.2248	2.5454	1.8054
18.00	-0.0651	0.6512	0.2124	2.5331	1.7966
18.25	-0.0623	0.6407	0.2005	2.5209	1.7879
18.50	-0.0595	0.6306	0.1890	2.5089	1.7793
18.75	-0.0568	0.6209	0.1780	2.4971	1.7709
19.00	-0.0541	0.6115	0.1674	2.4856	1.7627
19.25	-0.0515	0.6025	0.1572	2.4745	1.7548

$\theta_0 = 10^\circ$   $Q = 0.75$   $M = 2.7794$   $\theta_1 = 23.101$

$\theta$	$x$	$y$	$z$	$r/p$	$t/p$
19.50	-0.0489	0.5940	0.1474	2.4639	1.7473
19.75	-0.0463	0.5859	0.1379	2.4540	1.7403
20.00	-0.0438	0.5783	0.1288	2.4449	1.7338
20.25	-0.0413	0.5711	0.1200	2.4369	1.7281
20.50	-0.0388	0.5644	0.1114	2.4301	1.7233
20.75	-0.0363	0.5582	0.1031	2.4250	1.7196
21.00	-0.0339	0.5526	0.0951	2.4219	1.7174
21.25	-0.0315	0.5478	0.0873	2.4215	1.7171
21.50	-0.0291	0.5438	0.0798	2.4246	1.7193
21.75	-0.0268	0.5410	0.0725	2.4325	1.7250
22.0000	-0.0244	0.5397	0.0653	2.4471	1.7354
22.0625	-0.0238	0.5397	0.0636	2.4521	1.7389
22.1250	-0.0232	0.5398	0.0619	2.4577	1.7429
22.1875	-0.0226	0.5401	0.0602	2.4641	1.7475
22.2500	-0.0220	0.5405	0.0584	2.4714	1.7526
22.3125	-0.0215	0.5411	0.0567	2.4795	1.7584
22.3750	-0.0209	0.5419	0.0550	2.4886	1.7649
22.4375	-0.0203	0.5430	0.0533	2.4989	1.7722
22.5000	-0.0197	0.5444	0.0516	2.5105	1.7805
22.5625	-0.0191	0.5461	0.0499	2.5236	1.7898
22.6250	-0.0185	0.5481	0.0482	2.5385	1.8004
22.6875	-0.0179	0.5505	0.0465	2.5553	1.8124
22.7500	-0.0173	0.5534	0.0448	2.5744	1.8260
22.8125	-0.0167	0.5569	0.0431	2.5962	1.8415
22.8750	-0.0161	0.5610	0.0414	2.6214	1.8594
22.9375	-0.0155	0.5659	0.0397	2.6506	1.8802
23.0000	-0.0148	0.5718	0.0380	2.6843	1.9042
23.0625	-0.0141	0.5788	0.0363	2.7230	1.9318
23.101	-0.0138	0.5839	0.0352	2.7520	1.9524

$\theta_1 = 10^\circ$   $U_1 = 0.80$   $M = 3.3041$   $\theta_2 = 20.184$

$\theta$	$x$	$y$	$z$	$\frac{y}{z}$	$\frac{x}{z}$
10.00	-0.1990	1.6000	1.1731	2.9950	2.1107
10.25	-0.1921	1.5359	1.1027	3.0940	2.1811
10.50	-0.1856	1.4790	1.0392	3.1775	2.2406
10.625	-0.1824	1.4519	1.0092	3.2142	2.2667
10.750	-0.1792	1.4258	0.9802	3.2479	2.2907
10.875	-0.1761	1.4007	0.9522	3.2788	2.3127
11.000	-0.1731	1.3766	0.9252	3.3072	2.3329
11.125	-0.1701	1.3535	0.8991	3.3331	2.3514
11.250	-0.1672	1.3312	0.8738	3.3569	2.3683
11.375	-0.1643	1.3097	0.8493	3.3787	2.3838
11.500	-0.1615	1.2890	0.8256	3.3986	2.3980
11.625	-0.1587	1.2690	0.8026	3.4168	2.4109
11.750	-0.1559	1.2497	0.7804	3.4333	2.4226
11.875	-0.1532	1.2311	0.7588	3.4483	2.4333
12.000	-0.1506	1.2131	0.7379	3.4619	2.4430
12.125	-0.1480	1.1957	0.7176	3.4742	2.4517
12.250	-0.1454	1.1789	0.6979	3.4853	2.4596
12.375	-0.1428	1.1626	0.6788	3.4952	2.4667
12.500	-0.1403	1.1468	0.6602	3.5041	2.4730
12.625	-0.1378	1.1315	0.6432	3.5120	2.4786
12.750	-0.1353	1.1167	0.6266	3.5190	2.4836
12.875	-0.1329	1.1023	0.6075	3.5252	2.4880
13.000	-0.1305	1.0884	0.5909	3.5305	2.4918
13.125	-0.1282	1.0749	0.5747	3.5351	2.4951
13.250	-0.1259	1.0618	0.5590	3.5390	2.4979
13.375	-0.1236	1.0491	0.5437	3.5423	2.5002
13.500	-0.1213	1.0367	0.5288	3.5451	2.5022
13.625	-0.1190	1.0247	0.5143	3.5473	2.5038
13.750	-0.1168	1.0130	0.5002	3.5490	2.5050
13.875	-0.1146	1.0017	0.4864	3.5502	2.5058
14.000	-0.1124	0.9907	0.4729	3.5510	2.5064
14.125	-0.1103	0.9800	0.4598	3.5514	2.5067
14.250	-0.1082	0.9695	0.4470	3.5514	2.5067
14.375	-0.1061	0.9593	0.4346	3.5511	2.5065
14.500	-0.1040	0.9494	0.4224	3.5505	2.5060
14.625	-0.1019	0.9398	0.4105	3.5496	2.5054
14.750	-0.0998	0.9304	0.3989	3.5485	2.5046
14.875	-0.0978	0.9213	0.3876	3.5471	2.5037
15.000	-0.0958	0.9124	0.3765	3.5455	2.5026
15.125	-0.0938	0.9037	0.3657	3.5438	2.5013
15.250	-0.0918	0.8953	0.3552	3.5420	2.5000
15.375	-0.0899	0.8871	0.3449	3.5401	2.4986
15.500	-0.0880	0.8791	0.3348	3.5380	2.4971
15.625	-0.0861	0.8713	0.3249	3.5358	2.4956
15.750	-0.0842	0.8637	0.3153	3.5336	2.4940
15.875	-0.0823	0.8563	0.3059	3.5314	2.4924
16.000	-0.0804	0.8491	0.2966	3.5292	2.4909
16.125	-0.0786	0.8422	0.2875	3.5271	2.4894

$\theta = 10^\circ$     $\mu = 0.80$     $M = 3.3041$     $\theta = 20^\circ.184$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
16.250	-0.0768	0.8354	0.2767	3.5250	2.4879
16.375	-0.0750	0.8288	0.2701	3.5230	2.4868
16.500	-0.0732	0.8224	0.2616	3.5211	2.4851
16.625	-0.0714	0.8162	0.2533	3.5194	2.4839
16.750	-0.0696	0.8102	0.2452	3.5178	2.4820
16.875	-0.0678	0.8044	0.2372	3.5165	2.4818
17.000	-0.0661	0.7987	0.2294	3.5154	2.4810
17.125	-0.0644	0.7932	0.2218	3.5146	2.4805
17.250	-0.0627	0.7880	0.2143	3.5142	2.4802
17.375	-0.0610	0.7830	0.2069	3.5142	2.4802
17.500	-0.0593	0.7782	0.1997	3.5148	2.4806
17.625	-0.0576	0.7736	0.1926	3.5159	2.4815
17.750	-0.0559	0.7692	0.1856	3.5176	2.4827
17.875	-0.0542	0.7650	0.1788	3.5199	2.4843
18.000	-0.0525	0.7611	0.1721	3.5229	2.4864
18.125	-0.0508	0.7575	0.1655	3.5268	2.4892
18.250	-0.0492	0.7542	0.1590	3.5317	2.4927
18.375	-0.0476	0.7511	0.1526	3.5378	2.4970
18.500	-0.0460	0.7483	0.1464	3.5453	2.5023
18.625	-0.0443	0.7459	0.1402	3.5543	2.5088
18.6875	-0.0435	0.7449	0.1371	3.5595	2.5125
18.7500	-0.0427	0.7440	0.1341	3.5652	2.5165
18.8125	-0.0419	0.7432	0.1311	3.5714	2.5209
18.8750	-0.0411	0.7425	0.1281	3.5781	2.5257
18.9375	-0.0403	0.7420	0.1251	3.5854	2.5309
19.0000	-0.0395	0.7416	0.1222	3.5934	2.5366
19.0625	-0.0387	0.7414	0.1193	3.6022	2.5428
19.1250	-0.0378	0.7413	0.1164	3.6118	2.5496
19.1875	-0.0370	0.7414	0.1135	3.6223	2.5571
19.2500	-0.0362	0.7417	0.1106	3.6337	2.5653
19.3125	-0.0354	0.7422	0.1078	3.6462	2.5742
19.3750	-0.0346	0.7429	0.1050	3.6598	2.5839
19.4375	-0.0338	0.7439	0.1022	3.6748	2.5946
19.5000	-0.0330	0.7451	0.0994	3.6912	2.6063
19.5625	-0.0322	0.7466	0.0966	3.7093	2.6191
19.6250	-0.0313	0.7485	0.0938	3.7292	2.6332
19.6875	-0.0305	0.7508	0.0910	3.7512	2.6489
19.7500	-0.0297	0.7536	0.0883	3.7755	2.6662
19.8125	-0.0289	0.7569	0.0856	3.8025	2.6854
19.8750	-0.0280	0.7608	0.0828	3.8326	2.7068
19.9375	-0.0272	0.7653	0.0800	3.8663	2.7308
20.0000	-0.0264	0.7705	0.0772	3.9042	2.7579
20.0625	-0.0256	0.7764	0.0745	3.9470	2.7883
20.1250	-0.0247	0.7832	0.0718	3.9955	2.8228
20.184	-0.0239	0.7919	0.0693	4.0482	2.8603

$\theta_0 = 10^\circ$     $U_0 = 0.85$     $M = 4.0748$     $C_0 = 17.518$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\rho$
10.00	-0.1971	1.7000	1.2037	3.9352	2.7318
10.25	-0.1898	1.6359	1.1219	4.0847	2.8353
10.50	-0.1828	1.5775	1.0526	4.2086	2.9235
10.625	-0.1794	1.5501	1.0200	4.2637	2.9627
10.750	-0.1760	1.5240	0.9888	4.3146	2.9990
10.875	-0.1727	1.4990	0.9586	4.3617	3.0326
11.000	-0.1695	1.4750	0.9294	4.4054	3.0636
11.125	-0.1663	1.4520	0.9012	4.4459	3.0924
11.250	-0.1632	1.4299	0.8740	4.4834	3.1191
11.375	-0.1601	1.4087	0.8477	4.5183	3.1439
11.500	-0.1570	1.3883	0.8222	4.5507	3.1670
11.625	-0.1540	1.3687	0.7975	4.5809	3.1884
11.750	-0.1510	1.3498	0.7736	4.6090	3.2084
11.875	-0.1481	1.3316	0.7504	4.6351	3.2270
12.000	-0.1452	1.3141	0.7279	4.6594	3.2444
12.125	-0.1424	1.2972	0.7060	4.6821	3.2606
12.250	-0.1396	1.2809	0.6848	4.7034	3.2757
12.375	-0.1368	1.2652	0.6642	4.7233	3.2893
12.500	-0.1341	1.2501	0.6442	4.7419	3.3031
12.625	-0.1314	1.2355	0.6247	4.7594	3.3156
12.750	-0.1287	1.2214	0.6058	4.7759	3.3273
12.875	-0.1260	1.2078	0.5874	4.7914	3.3383
13.000	-0.1234	1.1946	0.5695	4.8060	3.3487
13.125	-0.1208	1.1819	0.5521	4.8199	3.3586
13.250	-0.1182	1.1696	0.5351	4.8331	3.3680
13.375	-0.1157	1.1578	0.5185	4.8458	3.3770
13.500	-0.1132	1.1464	0.5024	4.8580	3.3857
13.625	-0.1107	1.1354	0.4867	4.8698	3.3941
13.750	-0.1082	1.1248	0.4713	4.8812	3.4022
13.875	-0.1058	1.1146	0.4563	4.8924	3.4102
14.000	-0.1034	1.1047	0.4417	4.9033	3.4180
14.125	-0.1010	1.0952	0.4275	4.9141	3.4257
14.250	-0.0986	1.0860	0.4136	4.9249	3.4333
14.375	-0.0962	1.0772	0.4000	4.9357	3.4410
14.500	-0.0939	1.0687	0.3867	4.9467	3.4488
14.625	-0.0916	1.0606	0.3738	4.9581	3.4568
14.750	-0.0893	1.0529	0.3611	4.9697	3.4651
14.875	-0.0870	1.0456	0.3487	4.9818	3.4738
15.000	-0.0847	1.0386	0.3365	4.9945	3.4829
15.125	-0.0824	1.0320	0.3246	5.0078	3.4924
15.250	-0.0801	1.0258	0.3130	5.0219	3.5024
15.375	-0.0779	1.0199	0.3016	5.0370	3.5131
15.500	-0.0757	1.0144	0.2905	5.0532	3.5247
15.625	-0.0735	1.0094	0.2796	5.0708	3.5372
15.750	-0.0713	1.0048	0.2689	5.0900	3.5508
15.875	-0.0692	1.0007	0.2584	5.1110	3.5657
16.000	-0.0670	0.9972	0.2480	5.1342	3.5823
16.125	-0.0648	0.9943	0.2380	5.1601	3.6007



$\theta_0 = 10^\circ$     $U_0 = 0.65$     $M = 4.0746$     $G_0 = 17.516$

$\theta$	$x$	$y$	$z$	$\eta/\eta_0$	$\xi/\xi_0$
16.2500	-0.0626	0.9921	0.2280	5.1891	3.6213
16.3125	-0.0615	0.9912	0.2231	5.2049	3.6326
16.3750	-0.0604	0.9905	0.2182	5.2215	3.6444
16.4375	-0.0594	0.9900	0.2133	5.2390	3.6569
16.5000	-0.0583	0.9897	0.2085	5.2575	3.6701
16.5625	-0.0572	0.9898	0.2038	5.2775	3.6843
16.6250	-0.0562	0.9900	0.1991	5.2989	3.6995
16.6875	-0.0551	0.9905	0.1944	5.3218	3.7158
16.7500	-0.0540	0.9913	0.1897	5.3463	3.7333
16.8125	-0.0529	0.9924	0.1851	5.3726	3.7520
16.8750	-0.0518	0.9938	0.1805	5.4008	3.7720
16.9375	-0.0507	0.9956	0.1759	5.4311	3.7936
17.0000	-0.0497	0.9979	0.1714	5.4639	3.8170
17.0625	-0.0486	1.0008	0.1669	5.4995	3.8423
17.1250	-0.0475	1.0038	0.1624	5.5383	3.8698
17.1875	-0.0464	1.0076	0.1579	5.5806	3.8998
17.2500	-0.0453	1.0120	0.1534	5.6266	3.9326
17.3125	-0.0442	1.0172	0.1490	5.6770	3.9686
17.3750	-0.0431	1.0233	0.1446	5.7329	4.0084
17.4375	-0.0419	1.0304	0.1402	5.7950	4.0526
17.5000	-0.0408	1.0386	0.1358	5.8641	4.1018
17.518	-0.0405	1.0411	0.1345	5.8849	4.1166

$\theta_s = 10^\circ$     $\bar{u}_s = 0.90$     $M = 5.4223$     $\theta_v = 15:013$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
10.0	-0.1933	1.8000	1.2801	5.4019	3.5705
10.2	-0.1871	1.7489	1.1943	5.5963	3.7088
10.4	-0.1811	1.7017	1.1212	5.7692	3.8319
10.5	-0.1781	1.6796	1.0891	5.8487	3.8885
10.6	-0.1752	1.6584	1.0587	5.9240	3.9421
10.7	-0.1723	1.6380	1.0293	5.9954	3.9929
10.8	-0.1695	1.6184	1.0008	6.0633	4.0411
10.9	-0.1667	1.5996	0.9732	6.1279	4.0871
11.0	-0.1639	1.5815	0.9465	6.1895	4.1310
11.1	-0.1612	1.5641	0.9206	6.2483	4.1729
11.2	-0.1585	1.5473	0.8954	6.3046	4.2130
11.3	-0.1558	1.5312	0.8709	6.3586	4.2514
11.4	-0.1531	1.5157	0.8471	6.4105	4.2883
11.5	-0.1505	1.5008	0.8240	6.4605	4.3239
11.6	-0.1479	1.4865	0.8014	6.5088	4.3583
11.7	-0.1453	1.4727	0.7794	6.5556	4.3916
11.8	-0.1427	1.4594	0.7579	6.6009	4.4239
11.9	-0.1402	1.4466	0.7369	6.6450	4.4553
12.0	-0.1377	1.4344	0.7165	6.6880	4.4859
12.1	-0.1352	1.4227	0.6966	6.7301	4.5158
12.2	-0.1327	1.4114	0.6771	6.7715	4.5452
12.3	-0.1302	1.4006	0.6581	6.8122	4.5742
12.4	-0.1278	1.3902	0.6395	6.8524	4.6028
12.5	-0.1254	1.3804	0.6213	6.8922	4.6311
12.6	-0.1230	1.3709	0.6035	6.9318	4.6593
12.7	-0.1206	1.3618	0.5861	6.9713	4.6875
12.8	-0.1183	1.3532	0.5690	7.0109	4.7157
12.9	-0.1160	1.3450	0.5523	7.0508	4.7441
13.0	-0.1136	1.3373	0.5360	7.0912	4.7728
13.1	-0.1112	1.3301	0.5200	7.1322	4.8020
13.2	-0.1089	1.3234	0.5043	7.1741	4.8318
13.3	-0.1066	1.3171	0.4889	7.2171	4.8624
13.4	-0.1043	1.3113	0.4738	7.2613	4.8939
13.45	-0.1032	1.3086	0.4664	7.2840	4.9100
13.50	-0.1021	1.3060	0.4590	7.3071	4.9264
13.55	-0.1010	1.3035	0.4517	7.3306	4.9432
13.60	-0.0998	1.3012	0.4444	7.3546	4.9603
13.65	-0.0986	1.2991	0.4372	7.3792	4.9778
13.70	-0.0975	1.2971	0.4301	7.4044	4.9958
13.75	-0.0964	1.2952	0.4231	7.4302	5.0142
13.80	-0.0953	1.2935	0.4161	7.4567	5.0330
13.85	-0.0941	1.2920	0.4092	7.4839	5.0523
13.90	-0.0929	1.2906	0.4023	7.5118	5.0722
13.95	-0.0918	1.2894	0.3955	7.5406	5.0928
14.00	-0.0907	1.2884	0.3888	7.5704	5.1140
14.05	-0.0896	1.2875	0.3821	7.6012	5.1358
14.10	-0.0885	1.2868	0.3754	7.6330	5.1584
14.15	-0.0874	1.2863	0.3688	7.6659	5.1819

$\theta_s = 10^\circ$     $\bar{u}_s = 0.90$     $M = 5.4223$     $\theta_v = 15.013$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
14.20	-0.0863	1.2861	0.3623	7.7001	5.2062
14.25	-0.0851	1.2861	0.3558	7.7356	5.2315
14.30	-0.0840	1.2864	0.3494	7.7726	5.2578
14.35	-0.0829	1.2869	0.3430	7.8111	5.2852
14.40	-0.0818	1.2876	0.3366	7.8512	5.3137
14.45	-0.0806	1.2886	0.3303	7.8932	5.3436
14.50	-0.0795	1.2900	0.3241	7.9371	5.3749
14.55	-0.0784	1.2917	0.3179	7.9832	5.4077
14.60	-0.0773	1.2937	0.3117	8.0317	5.4422
14.65	-0.0762	1.2961	0.3055	8.0827	5.4785
14.70	-0.0750	1.2989	0.2994	8.1365	5.5169
14.75	-0.0738	1.3022	0.2933	8.1936	5.5575
14.80	-0.0726	1.3059	0.2873	8.2543	5.6006
14.85	-0.0715	1.3102	0.2813	8.3186	5.6464
14.90	-0.0704	1.3151	0.2753	8.3872	5.6952
14.95	-0.0693	1.3207	0.2693	8.4605	5.7474
15.00	-0.0681	1.3269	0.2634	8.5391	5.8033
15.013	-0.0678	1.3286	0.2619	8.5602	5.8184

$\theta_s = 10^\circ$     $\bar{u}_s = 0.95$     $M = 9.0999$     $\theta_v = 12.566$

$\theta$	$x$	$y$	$z$	$\eta/\bar{r}$	$\xi/\bar{r}$
10.0	-0.1915	1.9000	1.5256	7.981	4.2499
10.1	-0.1882	1.8754	1.4118	8.200	4.4053
10.2	-0.1849	1.8521	1.3467	8.407	4.5531
10.25	-0.1833	1.8409	1.3177	8.508	4.6244
10.30	-0.1817	1.8300	1.2905	8.606	4.6941
10.35	-0.1802	1.8195	1.2644	8.702	4.7624
10.40	-0.1786	1.8093	1.2394	8.796	4.8293
10.45	-0.1770	1.7994	1.2153	8.888	4.8949
10.50	-0.1754	1.7898	1.1919	8.978	4.9593
10.55	-0.1739	1.7805	1.1692	9.057	5.0225
10.60	-0.1723	1.7714	1.1471	9.154	5.0847
10.65	-0.1707	1.7626	1.1256	9.241	5.1460
10.70	-0.1692	1.7541	1.1046	9.327	5.2065
10.75	-0.1677	1.7459	1.0841	9.409	5.2662
10.80	-0.1662	1.7380	1.0640	9.492	5.3251
10.85	-0.1647	1.7304	1.0444	9.574	5.3834
10.90	-0.1632	1.7230	1.0252	9.655	5.4411
10.95	-0.1617	1.7159	1.0063	9.736	5.4984
11.00	-0.1602	1.7090	0.9878	9.816	5.5553
11.05	-0.1587	1.7024	0.9696	9.895	5.6119
11.10	-0.1572	1.6960	0.9517	9.974	5.6683
11.15	-0.1557	1.6899	0.9342	10.054	5.7245
11.20	-0.1542	1.6841	0.9170	10.132	5.7805
11.25	-0.1527	1.6785	0.9000	10.210	5.8364
11.30	-0.1512	1.6732	0.8833	10.289	5.8923
11.35	-0.1498	1.6682	0.8669	10.368	5.9484
11.40	-0.1484	1.6634	0.8507	10.447	6.0047
11.45	-0.1470	1.6589	0.8348	10.527	6.0614
11.50	-0.1455	1.6547	0.8191	10.607	6.1186
11.55	-0.1440	1.6507	0.8036	10.688	6.1763
11.60	-0.1426	1.6470	0.7883	10.770	6.2345
11.65	-0.1412	1.6436	0.7733	10.853	6.2933
11.70	-0.1398	1.6405	0.7585	10.936	6.3528
11.75	-0.1384	1.6377	0.7439	11.021	6.4131
11.80	-0.1369	1.6353	0.7295	11.107	6.4745
11.85	-0.1354	1.6332	0.7153	11.195	6.5372
11.90	-0.1340	1.6314	0.7012	11.285	6.6012
11.95	-0.1326	1.6299	0.6873	11.377	6.6666
12.00	-0.1312	1.6288	0.6736	11.471	6.7337
12.05	-0.1298	1.6281	0.6601	11.568	6.8027
12.10	-0.1284	1.6278	0.6467	11.668	6.8736
12.15	-0.1269	1.6279	0.6335	11.770	6.9466
12.20	-0.1255	1.6285	0.6204	11.876	7.0220
12.25	-0.1241	1.6296	0.6075	11.986	7.1002
12.30	-0.1227	1.6312	0.5947	12.100	7.1813
12.35	-0.1213	1.6334	0.5820	12.219	7.2657
12.40	-0.1199	1.6361	0.5695	12.343	7.3538
12.45	-0.1185	1.6395	0.5571	12.472	7.4460

$\theta_x = 10^\circ$     $U_x = 0.9^\circ$     $M = 9.0999$     $\theta_y = 12.566$

$\theta$	$x$	$y$	$z$	$r/\rho$	$r/p$
12.50	-0.1170	1.6436	0.5448	12.608	7.5428
12.55	-0.1155	1.6484	0.5327	12.751	7.6447
12.566	-0.1151	1.6501	0.5291	12.797	7.6773

$\theta_0 = 10^\circ$     $\bar{u}_0 = 0.97$     $M = 15.137$     $\theta_1 = 11.569$

$\theta$	$x$	$y$	$z$	$\eta/\bar{u}$	$\xi/\bar{u}$
10.0	-0.1943	1.9400	1.7483	9.679	3.3011
10.1	-0.1909	1.9169	1.5575	10.056	3.5694
10.2	-0.1876	1.8953	1.4598	10.418	3.8871
10.25	-0.1860	1.8851	1.4175	10.594	3.9524
10.30	-0.1844	1.8754	1.3784	10.768	4.0759
10.35	-0.1828	1.8661	1.3416	10.939	4.1978
10.40	-0.1811	1.8572	1.3066	11.108	4.3188
10.45	-0.1794	1.8487	1.2730	11.276	4.4374
10.50	-0.1778	1.8407	1.2407	11.442	4.5555
10.55	-0.1762	1.8331	1.2096	11.606	4.6727
10.60	-0.1746	1.8260	1.1795	11.770	4.7895
10.65	-0.1731	1.8193	1.1503	11.934	4.9062
10.70	-0.1715	1.8130	1.1220	12.098	5.0229
10.75	-0.1699	1.8071	1.0944	12.262	5.1396
10.80	-0.1683	1.8017	1.0676	12.426	5.2564
10.85	-0.1668	1.7968	1.0415	12.591	5.3737
10.90	-0.1652	1.7923	1.0160	12.757	5.4919
10.95	-0.1636	1.7883	0.9911	12.925	5.6114
11.00	-0.1620	1.7847	0.9667	13.095	5.7324
11.05	-0.1604	1.7816	0.9428	13.268	5.8552
11.10	-0.1589	1.7791	0.9194	13.443	5.9800
11.15	-0.1574	1.7772	0.8965	13.621	6.1071
11.20	-0.1559	1.7758	0.8740	13.804	6.2371
11.25	-0.1543	1.7750	0.8519	13.992	6.3706
11.30	-0.1527	1.7748	0.8303	14.185	6.5079
11.35	-0.1512	1.7753	0.8090	14.383	6.6492
11.40	-0.1496	1.7766	0.7881	14.588	6.7952
11.45	-0.1481	1.7786	0.7675	14.801	6.9468
11.50	-0.1465	1.7815	0.7473	15.023	7.1047
11.55	-0.1449	1.7853	0.7275	15.255	7.2698
11.569	-0.1444	1.7869	0.7199	15.344	7.3331

$\theta_x = 10^\circ$     $U_x = 0.98$     $M = 37.075$     $\theta_y = 11.059$

$\theta$	x	y	z	$\eta/\bar{r}$	$\xi/\bar{r}$
10.0	--0.1975	1.9608	1.8130	10.739	1.0129
10.1	--0.1941	1.9350	1.6354	11.366	1.4836
10.2	--0.1908	1.9179	1.5037	11.986	1.8881
10.25	--0.1891	1.9087	1.4449	12.261	2.0178
10.3	--0.1874	1.9001	1.3930	12.473	2.2115
10.35	--0.1857	1.8921	1.3442	12.744	2.4044
10.4	--0.1841	1.8847	1.2982	13.014	2.5971
10.45	--0.1824	1.8780	1.2544	13.286	2.7901
10.475	--0.1816	1.8749	1.2333	13.422	2.8868
10.5	--0.1808	1.8719	1.2126	13.558	2.9836
10.525	--0.1800	1.8691	1.1923	13.694	3.0806
10.550	--0.1792	1.8665	1.1724	13.831	3.1779
10.575	--0.1784	1.8640	1.1529	13.968	3.2756
10.6	--0.1776	1.8617	1.1337	14.106	3.3738
10.625	--0.1768	1.8596	1.1149	14.245	3.4727
10.650	--0.1760	1.8576	1.0964	14.385	3.5723
10.675	--0.1752	1.8558	1.0782	14.526	3.6727
10.7	--0.1743	1.8543	1.0603	14.668	3.7739
10.725	--0.1735	1.8530	1.0427	14.812	3.8761
10.750	--0.1727	1.8518	1.0254	14.957	3.9794
10.775	--0.1719	1.8508	1.0085	15.104	4.0838
10.8	--0.1711	1.8500	0.9918	15.252	4.1894
10.825	--0.1703	1.8494	0.9749	15.402	4.2962
10.850	--0.1695	1.8490	0.9585	15.554	4.4043
10.875	--0.1687	1.8489	0.9423	15.708	4.5138
10.9	--0.1679	1.8490	0.9264	15.864	4.6250
10.925	--0.1671	1.8494	0.9107	16.023	4.7382
10.950	--0.1663	1.8500	0.8952	16.185	4.8535
10.975	--0.1655	1.8508	0.8798	16.350	4.9711
11.0	--0.1646	1.8519	0.8646	16.519	5.0912
11.025	--0.1638	1.8533	0.8598	16.691	5.2140
11.050	--0.1629	1.8551	0.8546	16.866	5.3398
11.059	--0.1627	1.8558	0.8484	16.932	5.3851

$\theta_1 = 10^\circ$     $u_1 = 0.98205$     $M = \text{Infinity}$     $\theta_2 = 10^\circ.953$

$\theta$	$x$	$y$	$z$	$r/r$	$r/p$
10.0	-0.1985	1.9641	1.9543	11.050	0.0898
10.1	-0.1951	1.9425	1.6593	11.695	0.5489
10.2	-0.1917	1.9228	1.5167	12.323	0.9959
10.25	-0.1901	1.9140	1.4569	12.631	1.2154
10.30	-0.1885	1.9058	1.4023	12.940	1.4350
10.35	-0.1868	1.8983	1.3509	13.249	1.6548
10.40	-0.1851	1.8915	1.3026	13.558	1.8750
10.45	-0.1835	1.8854	1.2566	13.868	2.0957
10.475	-0.1827	1.8826	1.2344	14.024	2.2063
10.500	-0.1818	1.8800	1.2127	14.180	2.3172
10.525	-0.1810	1.8776	1.1914	14.336	2.4286
10.550	-0.1802	1.8754	1.1706	14.493	2.5407
10.575	-0.1794	1.8734	1.1502	14.651	2.6536
10.600	-0.1785	1.8716	1.1302	14.811	2.7675
10.625	-0.1777	1.8700	1.1105	14.973	2.8825
10.650	-0.1769	1.8686	1.0912	15.137	2.9987
10.675	-0.1761	1.8674	1.0722	15.302	3.1162
10.700	-0.1753	1.8665	1.0535	15.469	3.2350
10.725	-0.1745	1.8658	1.0351	15.638	3.3552
10.750	-0.1736	1.8653	1.0170	15.809	3.4770
10.775	-0.1728	1.8651	0.9992	15.983	3.6004
10.800	-0.1720	1.8651	0.9816	16.159	3.7255
10.825	-0.1712	1.8654	0.9643	16.337	3.8525
10.850	-0.1704	1.8660	0.9472	16.518	3.9816
10.875	-0.1696	1.8669	0.9303	16.703	4.1133
10.900	-0.1688	1.8680	0.9137	16.892	4.2478
10.925	-0.1680	1.8694	0.8973	17.085	4.3853
10.950	-0.1671	1.8711	0.8811	17.283	4.5261
10.953	-0.1670	1.8714	0.8791	17.306	4.5425



$\theta_1 = 18.5$     $\bar{U}_1 = 0.30$     $N = 1.3273(8)$     $\theta_2 = 86.797$

$\theta$	x	y	z	$\frac{z}{r}$	$\frac{x}{r}$
18.5	-0.2109	0.6000	0.9983	0.4705	0.3315
18.6	-0.2098	0.5885	0.9855	0.4788	0.3331
18.7	-0.2088	0.5773	0.9731	0.4749	0.3346
18.8	-0.2078	0.5663	0.9610	0.4769	0.3360
18.9	-0.2068	0.5556	0.9493	0.4787	0.3373
19.0					
19.1	-0.2058	0.5452	0.9378	0.4804	0.3385
19.2	-0.2049	0.5350	0.9265	0.4819	0.3396
19.3	-0.2040	0.5250	0.9155	0.4833	0.3406
19.4	-0.2031	0.5153	0.9048	0.4846	0.3415
19.5	-0.2022	0.5058	0.8943	0.4858	0.3423
19.6					
19.7	-0.2013	0.4965	0.8840	0.4868	0.3430
19.8	-0.2004	0.4874	0.8739	0.4877	0.3437
19.9	-0.1996	0.4786	0.8640	0.4885	0.3443
20.0	-0.1988	0.4699	0.8544	0.4892	0.3448
20.1	-0.1980	0.4614	0.8450	0.4899	0.3452
20.2					
20.3	-0.1972	0.4532	0.8357	0.4905	0.3456
20.4	-0.1953	0.4332	0.8135	0.4914	0.3463
20.5	-0.1935	0.4143	0.7923	0.4918	0.3466
20.6	-0.1917	0.3964	0.7721	0.4919	0.3467
20.7	-0.1900	0.3794	0.7529	0.4916	0.3465
20.8					
20.9	-0.1884	0.3633	0.7346	0.4909	0.3460
21.0	-0.1868	0.3480	0.7172	0.4899	0.3453
21.1	-0.1853	0.3334	0.7006	0.4887	0.3444
21.2	-0.1839	0.3196	0.6847	0.4873	0.3434
21.3	-0.1825	0.3064	0.6695	0.4856	0.3422
21.4					
21.5	-0.1812	0.2938	0.6550	0.4837	0.3409
21.6	-0.1800	0.2818	0.6411	0.4817	0.3394
21.7	-0.1788	0.2703	0.6278	0.4796	0.3379
21.8	-0.1776	0.2594	0.6150	0.4773	0.3363
21.9	-0.1765	0.2489	0.6028	0.4749	0.3346
22.0					
22.1	-0.1744	0.2293	0.5798	0.4698	0.3310
22.2	-0.1725	0.2114	0.5585	0.4645	0.3272
22.3	-0.1707	0.1949	0.5388	0.4589	0.3232
22.4	-0.1691	0.1798	0.5205	0.4532	0.3191
22.5	-0.1676	0.1658	0.5035	0.4474	0.3150
22.6					
22.7	-0.1662	0.1529	0.4877	0.4415	0.3108
22.8	-0.1649	0.1410	0.4729	0.4356	0.3066
22.9	-0.1637	0.1299	0.4591	0.4297	0.3024
23.0	-0.1626	0.1197	0.4462	0.4239	0.2983
23.1	-0.1616	0.1102	0.4341	0.4181	0.2942
23.2					
23.3	-0.1607	0.1014	0.4228	0.4123	0.2901
23.4	-0.1599	0.0932	0.4121	0.4066	0.2860
23.5	-0.1591	0.0855	0.4020	0.4010	0.2820
23.6	-0.1584	0.0784	0.3925	0.3954	0.2781
23.7	-0.1577	0.0717	0.3835	0.3899	0.2742

$\theta_1 = 12.5$   $U_1 = 0.30$   $N = 1.3273(8)$   $\theta_2 = 86.727$

$\theta$	x	y	z	$\frac{z}{y}$	$\frac{z}{x}$
26	-0.1566	0.0597	0.3670	0.3793	0.2666
27	-0.1556	0.0498	0.3528	0.3691	0.2593
28	-0.1548	0.0400	0.3388	0.3582	0.2523
29	-0.1542	0.0319	0.3267	0.3497	0.2458
30	-0.1537	0.0248	0.3157	0.3406	0.2390
31	-0.1533	0.0186	0.3056	0.3319	0.2328
32	-0.1531	0.0132	0.2964	0.3233	0.2269
33	-0.1529	0.0084	0.2880	0.3155	0.2212
34	-0.1528	0.0042	0.2802	0.3078	0.2157
35	-0.1527	0.0006	0.2730	0.3005	0.2104
36	-0.1527	-0.0026	0.2663	0.2934	0.2054
37	-0.1528	-0.0053	0.2601	0.2866	0.2006
38	-0.1529	-0.0077	0.2544	0.2801	0.1960
39	-0.1531	-0.0097	0.2490	0.2738	0.1915
40	-0.1533	-0.0113	0.2439	0.2678	0.1872
41	-0.1535	-0.0127	0.2392	0.2620	0.1831
42	-0.1537	-0.0138	0.2348	0.2564	0.1791
43	-0.1540	-0.0147	0.2306	0.2510	0.1753
44	-0.1542	-0.0153	0.2267	0.2459	0.1716
45	-0.1545	-0.0157	0.2230	0.2409	0.1680
46	-0.1548	-0.0160	0.2195	0.2361	0.1646
47	-0.1551	-0.0161	0.2162	0.2315	0.1613
48	-0.1553	-0.0160	0.2131	0.2271	0.1581
49	-0.1556	-0.0158	0.2101	0.2228	0.1551
50	-0.1559	-0.0154	0.2072	0.2187	0.1522
51	-0.1562	-0.0149	0.2045	0.2147	0.1494
52	-0.1564	-0.0143	0.2019	0.2109	0.1467
53	-0.1567	-0.0136	0.1994	0.2072	0.1441
54	-0.1569	-0.0127	0.1971	0.2036	0.1415
55	-0.1571	-0.0117	0.1949	0.2002	0.1390
56	-0.1573	-0.0107	0.1927	0.1969	0.1367
57	-0.1575	-0.0096	0.1906	0.1937	0.1345
58	-0.1576	-0.0084	0.1886	0.1907	0.1323
59	-0.1578	-0.0071	0.1867	0.1878	0.1302
60	-0.1579	-0.0057	0.1848	0.1849	0.1282
61	-0.1580	-0.0042	0.1830	0.1822	0.1263
62	-0.1580	-0.0027	0.1812	0.1796	0.1245
63	-0.1580	-0.0011	0.1795	0.1771	0.1227
64	-0.1580	0.0005	0.1779	0.1748	0.1210
65	-0.1580	0.0022	0.1763	0.1725	0.1194
66	-0.1580	0.0040	0.1748	0.1703	0.1179
67	-0.1579	0.0058	0.1733	0.1683	0.1164
68	-0.1578	0.0076	0.1718	0.1664	0.1150
69	-0.1576	0.0095	0.1704	0.1646	0.1137
70	-0.1574	0.0115	0.1690	0.1628	0.1125

$\theta_1 = 12.5$   $\mu_1 = 0.30$   $M = 1.3273(8)$   $\theta_2 = 86.797$

$\theta$	x	y	z	$\eta/\mu$	$\xi/\mu$
71	-0.1572	0.0135	0.1676	0.1612	0.1113
72	-0.1570	0.0156	0.1663	0.1597	0.1102
73	-0.1567	0.0177	0.1650	0.1583	0.1092
74	-0.1564	0.0199	0.1637	0.1570	0.1083
75	-0.1560	0.0221	0.1624	0.1558	0.1075
76	-0.1556	0.0243	0.1612	0.1548	0.1068
77	-0.1552	0.0266	0.1600	0.1539	0.1062
78	-0.1547	0.0289	0.1588	0.1531	0.1056
79	-0.1541	0.0312	0.1577	0.1524	0.1051
80	-0.1536	0.0336	0.1568	0.1518	0.1047
81	-0.1530	0.0361	0.1553	0.1514	0.1043
82	-0.1523	0.0386	0.1542	0.1511	0.1041
83	-0.1516	0.0411	0.1531	0.1510	0.1040
84	-0.1509	0.0436	0.1519	0.1510	0.1040
85	-0.1501	0.0462	0.1508	0.1511	0.1041
86	-0.1493	0.0489	0.1497	0.1514	0.1043
86.797	-0.1485	0.0510	0.1487	0.1517	0.1046

$\theta_0 = 12.5$     $Q_0 = 0.35$     $M = 1.0999(8)$     $\theta_1 = 80.903$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\beta$
12.50	-0.1687	0.7000	0.7813	0.4658	0.3310
12.75	-0.1657	0.6789	0.7526	0.4733	0.3365
13.00	-0.1628	0.6474	0.7856	0.4799	0.3418
13.25	-0.1600	0.6234	0.7000	0.4854	0.3481
13.50	-0.1573	0.6007	0.6758	0.4900	0.3484
13.75	-0.1548	0.5793	0.6529	0.4938	0.3511
14.00	-0.1523	0.5591	0.6312	0.4968	0.3532
14.25	-0.1499	0.5399	0.6106	0.4991	0.3549
14.50	-0.1476	0.5217	0.5911	0.5008	0.3561
14.75	-0.1454	0.5045	0.5725	0.5020	0.3569
15.00	-0.1432	0.4882	0.5548	0.5027	0.3574
15.25	-0.1411	0.4727	0.5379	0.5030	0.3577
15.50	-0.1391	0.4580	0.5218	0.5030	0.3577
15.75	-0.1371	0.4440	0.5065	0.5026	0.3574
16.00	-0.1352	0.4306	0.4919	0.5019	0.3569
16.5	-0.1315	0.4057	0.4645	0.4997	0.3553
17.0	-0.1281	0.3830	0.4395	0.4967	0.3532
17.5	-0.1249	0.3622	0.4165	0.4930	0.3506
18.0	-0.1218	0.3432	0.3953	0.4887	0.3475
18.5	-0.1189	0.3258	0.3758	0.4840	0.3441
19.0	-0.1161	0.3097	0.3577	0.4790	0.3406
19.5	-0.1134	0.2949	0.3410	0.4738	0.3369
20.0	-0.1109	0.2812	0.3255	0.4684	0.3330
20.5	-0.1085	0.2685	0.3110	0.4629	0.3291
21.0	-0.1062	0.2567	0.2975	0.4572	0.3251
21.5	-0.1040	0.2457	0.2849	0.4515	0.3210
22.0	-0.1019	0.2355	0.2732	0.4458	0.3169
22.5	-0.0999	0.2259	0.2622	0.4401	0.3128
23.0	-0.0980	0.2170	0.2518	0.4344	0.3088
23.5	-0.0962	0.2087	0.2420	0.4288	0.3048
24.0	-0.0944	0.2009	0.2329	0.4232	0.3008
24.5	-0.0927	0.1936	0.2243	0.4176	0.2969
25.0	-0.0910	0.1867	0.2161	0.4121	0.2930
25.5	-0.0894	0.1802	0.2084	0.4067	0.2891
26.0	-0.0878	0.1741	0.2012	0.4014	0.2853
27	-0.0849	0.1629	0.1878	0.3909	0.2779
28	-0.0821	0.1529	0.1757	0.3808	0.2707
29	-0.0795	0.1440	0.1648	0.3711	0.2638
30	-0.0771	0.1360	0.1549	0.3617	0.2571
31	-0.0748	0.1288	0.1459	0.3526	0.2506
32	-0.0726	0.1222	0.1377	0.3438	0.2444
33	-0.0705	0.1162	0.1301	0.3354	0.2384
34	-0.0686	0.1108	0.1232	0.3273	0.2326
35	-0.0667	0.1058	0.1168	0.3195	0.2270
36	-0.0649	0.1013	0.1109	0.3120	0.2217

$\theta_1 = 12.5$     $U_1 = 0.35$     $M = 1.0999(8)$     $\theta_2 = 80.903$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\beta$
37	-0.0632	0.0972	0.1054	0.3047	0.2165
38	-0.0615	0.0934	0.1003	0.2977	0.2115
39	-0.0599	0.0899	0.0956	0.2910	0.2067
40	-0.0584	0.0866	0.0912	0.2845	0.2021
41	-0.0569	0.0836	0.0871	0.2782	0.1976
42	-0.0554	0.0809	0.0832	0.2721	0.1933
43	-0.0540	0.0783	0.0796	0.2663	0.1892
44	-0.0527	0.0759	0.0762	0.2607	0.1852
45	-0.0514	0.0737	0.0730	0.2552	0.1813
46	-0.0501	0.0716	0.0700	0.2499	0.1775
47	-0.0489	0.0697	0.0672	0.2448	0.1739
48	-0.0477	0.0679	0.0645	0.2399	0.1704
49	-0.0465	0.0662	0.0619	0.2351	0.1670
50	-0.0454	0.0647	0.0595	0.2305	0.1637
51	-0.0443	0.0633	0.0572	0.2260	0.1605
52	-0.0432	0.0619	0.0550	0.2217	0.1574
53	-0.0421	0.0606	0.0529	0.2175	0.1544
54	-0.0410	0.0594	0.0510	0.2135	0.1516
55	-0.0400	0.0583	0.0491	0.2096	0.1488
56	-0.0390	0.0572	0.0473	0.2058	0.1461
57	-0.0380	0.0562	0.0456	0.2022	0.1436
58	-0.0370	0.0553	0.0439	0.1987	0.1411
59	-0.0360	0.0544	0.0423	0.1953	0.1387
60	-0.0351	0.0536	0.0408	0.1921	0.1364
61	-0.0342	0.0529	0.0393	0.1890	0.1342
62	-0.0333	0.0522	0.0379	0.1860	0.1320
63	-0.0324	0.0515	0.0365	0.1831	0.1300
64	-0.0315	0.0509	0.0352	0.1804	0.1281
65	-0.0306	0.0504	0.0339	0.1779	0.1263
66	-0.0297	0.0499	0.0327	0.1755	0.1246
67	-0.0288	0.0495	0.0315	0.1732	0.1229
68	-0.0280	0.0491	0.0303	0.1711	0.1214
69	-0.0272	0.0488	0.0292	0.1692	0.1201
70	-0.0264	0.0485	0.0281	0.1675	0.1189
71	-0.0255	0.0483	0.0270	0.1660	0.1178
72	-0.0246	0.0481	0.0259	0.1648	0.1169
73	-0.0237	0.0480	0.0249	0.1637	0.1162
74	-0.0229	0.0481	0.0239	0.1629	0.1156
75	-0.0221	0.0482	0.0229	0.1625	0.1153
76	-0.0213	0.0484	0.0220	0.1624	0.1152
77	-0.0205	0.0487	0.0210	0.1627	0.1154
78	-0.0196	0.0491	0.0200	0.1635	0.1160
79	-0.0187	0.0497	0.0191	0.1648	0.1170
80	-0.0178	0.0505	0.0181	0.1667	0.1183
80.903	-0.0170	0.0514	0.0172	0.1693	0.1201

$\theta_1 = 12.5$   $\theta_2 = 0.40$   $M = 1.1381$   $C_1 = 64.663$

$\theta$	$x$	$y$	$z$	$\eta/P$	$\xi/P$
12.50	-0.1756	0.8000	0.8115	0.5799	0.4127
12.75	-0.1721	0.7734	0.7803	0.5905	0.4202
13.00	-0.1682	0.7425	0.7509	0.5996	0.4267
13.25	-0.1657	0.7162	0.7231	0.6073	0.4322
13.50	-0.1626	0.6915	0.6966	0.6136	0.4368
13.75	-0.1596	0.6682	0.6719	0.6191	0.4406
14.00	-0.1568	0.6461	0.6483	0.6234	0.4437
14.25	-0.1540	0.6252	0.6259	0.6268	0.4461
14.50	-0.1513	0.6054	0.6046	0.6295	0.4480
14.75	-0.1487	0.5867	0.5843	0.6315	0.4494
15.00	-0.1462	0.5689	0.5650	0.6329	0.4504
15.25	-0.1438	0.5520	0.5467	0.6337	0.4510
15.50	-0.1414	0.5359	0.5292	0.6340	0.4512
15.75	-0.1391	0.5206	0.5125	0.6338	0.4511
16.00	-0.1368	0.5060	0.4966	0.6332	0.4507
16.25	-0.1346	0.4921	0.4814	0.6323	0.4500
16.50	-0.1325	0.4788	0.4668	0.6311	0.4491
16.75	-0.1304	0.4661	0.4529	0.6296	0.4480
17.00	-0.1284	0.4540	0.4395	0.6278	0.4468
17.25	-0.1265	0.4424	0.4267	0.6258	0.4454
17.5	-0.1246	0.4313	0.4144	0.6236	0.4438
18.0	-0.1209	0.4105	0.3914	0.6187	0.4403
18.5	-0.1174	0.3914	0.3702	0.6132	0.4364
19.0	-0.1141	0.3738	0.3506	0.6073	0.4322
19.5	-0.1109	0.3575	0.3324	0.6010	0.4277
20.0	-0.1076	0.3424	0.3155	0.5945	0.4231
20.5	-0.1049	0.3284	0.2998	0.5877	0.4183
21.0	-0.1021	0.3154	0.2851	0.5808	0.4133
21.5	-0.0994	0.3033	0.2714	0.5738	0.4083
22.0	-0.0968	0.2920	0.2586	0.5668	0.4033
22.5	-0.0943	0.2814	0.2466	0.5598	0.3983
23.0	-0.0919	0.2715	0.2353	0.5527	0.3933
23.5	-0.0896	0.2622	0.2247	0.5456	0.3883
24.0	-0.0873	0.2535	0.2148	0.5386	0.3833
24.5	-0.0851	0.2453	0.2055	0.5316	0.3784
25.0	-0.0830	0.2375	0.1967	0.5247	0.3735
25.5	-0.0810	0.2302	0.1883	0.5179	0.3686
26.0	-0.0790	0.2233	0.1804	0.5111	0.3638
26.5	-0.0771	0.2168	0.1729	0.5044	0.3591
27.0	-0.0752	0.2106	0.1658	0.4979	0.3544
27.5	-0.0734	0.2048	0.1591	0.4915	0.3498
28.0	-0.0717	0.1993	0.1527	0.4851	0.3452
28.5	-0.0700	0.1940	0.1466	0.4788	0.3407
29.0	-0.0683	0.1890	0.1409	0.4726	0.3363
29.5	-0.0667	0.1842	0.1354	0.4665	0.3320

$\theta_1 = 12.5$     $\bar{u}_1 = 0.40$     $M = 1.1381$     $\theta_2 = 64.663$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
30.0	-0.06506	0.1797	0.1302	0.4605	0.3277
30.5	-0.06381	0.1754	0.1252	0.4546	0.3235
31.0	-0.06200	0.1712	0.1205	0.4489	0.3194
31.5	-0.06052	0.1672	0.1160	0.4431	0.3153
32.0	-0.05908	0.1634	0.1116	0.4374	0.3113
32.5	-0.05767	0.1598	0.1074	0.4318	0.3074
33.0	-0.05629	0.1563	0.1034	0.4264	0.3035
33.5	-0.05494	0.1530	0.0996	0.4211	0.2997
34.0	-0.05362	0.1498	0.0959	0.4158	0.2959
34.5	-0.05233	0.1467	0.0924	0.4106	0.2922
35	-0.05106	0.1437	0.0890	0.4055	0.2886
36	-0.04860	0.1381	0.0827	0.3956	0.2815
37	-0.04624	0.1329	0.0769	0.3860	0.2746
38	-0.04396	0.1281	0.0715	0.3767	0.2680
39	-0.04176	0.1236	0.0664	0.3676	0.2616
40	-0.03964	0.1194	0.0617	0.3588	0.2554
41	-0.03760	0.1154	0.0574	0.3503	0.2493
42	-0.03562	0.1116	0.0533	0.3421	0.2434
43	-0.03370	0.1081	0.0495	0.3341	0.2377
44	-0.03184	0.1047	0.0459	0.3263	0.2322
45	-0.03004	0.1015	0.0425	0.3187	0.2268
46	-0.02830	0.0985	0.0394	0.3113	0.2215
47	-0.02661	0.0956	0.0364	0.3041	0.2164
48	-0.02496	0.0929	0.0336	0.2971	0.2114
49	-0.02336	0.0903	0.0310	0.2903	0.2066
50	-0.02180	0.0878	0.0285	0.2837	0.2019
51	-0.02029	0.0854	0.0261	0.2773	0.1973
52	-0.01882	0.0831	0.0239	0.2711	0.1928
53	-0.01739	0.0809	0.0218	0.2650	0.1885
54	-0.01600	0.0787	0.0198	0.2591	0.1843
55.0	-0.01464	0.0767	0.0179	0.2534	0.1803
55.5	-0.01398	0.0757	0.0170	0.2507	0.1784
56.0	-0.01332	0.0747	0.0161	0.2480	0.1765
56.5	-0.01267	0.0738	0.0152	0.2454	0.1746
57.0	-0.01203	0.0729	0.0144	0.2429	0.1728
57.5	-0.01140	0.0720	0.0136	0.2404	0.1710
58.0	-0.01078	0.0712	0.0128	0.2380	0.1693
58.5	-0.01016	0.0704	0.0120	0.2357	0.1677
59.0	-0.00955	0.0696	0.0112	0.2336	0.1662
59.5	-0.00894	0.0689	0.0104	0.2316	0.1648
60.0	-0.00834	0.0682	0.0097	0.2298	0.1635
60.5	-0.00775	0.0676	0.0089	0.2282	0.1623
61.0	-0.00716	0.0671	0.0082	0.2269	0.1614
61.5	-0.00658	0.0667	0.0075	0.2259	0.1607
62.0	-0.00600	0.0664	0.0068	0.2254	0.1603

$\theta_1 = 12.5$     $U_1 = 0.40$     $M = 1.1381$     $\theta_2 = 64.663$

$\theta$	x	y	z	$\eta/\bar{\rho}$	$\xi/\bar{\rho}$
62.5	-0.00542	0.0663	0.00614	0.2255	0.1604
63.0	-0.00484	0.0665	0.00546	0.2267	0.1613
63.5	-0.00426	0.0671	0.00478	0.2294	0.1632
64.0	-0.00367	0.0685	0.00409	0.2347	0.1670
64.5	-0.00306	0.0713	0.00340	0.2453	0.1745
64.663	-0.00286	0.0729	0.00316	0.2508	0.1784



$\sigma_x = 12.5$     $\sigma_y = 0.45$     $M = 1.2025$     $\sigma_z = 53.198$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
12.50	-0.1877	0.9000	0.8674	0.7344	0.5226
12.75	-0.1838	0.9675	0.8332	0.7487	0.5328
13.00	-0.1801	0.8359	0.8009	0.7609	0.5415
13.25	-0.1765	0.8082	0.7704	0.7712	0.5488
13.50	-0.1730	0.7811	0.7415	0.7799	0.5550
13.75	-0.1697	0.7555	0.7142	0.7872	0.5608
14.00	-0.1664	0.7313	0.6883	0.7932	0.5645
14.25	-0.1633	0.7084	0.6637	0.7980	0.5679
14.50	-0.1603	0.6867	0.6403	0.8018	0.5706
14.75	-0.1573	0.6662	0.6181	0.8048	0.5727
15.00	-0.1545	0.6467	0.5970	0.8069	0.5742
15.25	-0.1517	0.6282	0.5769	0.8082	0.5751
15.50	-0.1490	0.6106	0.5577	0.8089	0.5756
15.75	-0.1464	0.5939	0.5394	0.8091	0.5757
16.00	-0.1438	0.5779	0.5219	0.8087	0.5755
16.25	-0.1413	0.5627	0.5052	0.8078	0.5749
16.50	-0.1389	0.5481	0.4892	0.8065	0.5739
16.75	-0.1365	0.5342	0.4739	0.8048	0.5727
17.00	-0.1342	0.5209	0.4593	0.8028	0.5713
17.25	-0.1320	0.5082	0.4453	0.8005	0.5697
17.50	-0.1298	0.4961	0.4318	0.7980	0.5679
17.75	-0.1276	0.4844	0.4189	0.7952	0.5659
18.00	-0.1255	0.4732	0.4065	0.7921	0.5637
18.25	-0.1235	0.4625	0.3946	0.7889	0.5614
18.50	-0.1215	0.4522	0.3831	0.7855	0.5590
18.75	-0.1195	0.4423	0.3721	0.7820	0.5565
19.00	-0.1176	0.4328	0.3615	0.7783	0.5539
19.25	-0.1157	0.4237	0.3513	0.7745	0.5512
19.50	-0.1139	0.4149	0.3415	0.7706	0.5484
19.75	-0.1121	0.4065	0.3321	0.7666	0.5455
20.0	-0.1104	0.3983	0.3230	0.7625	0.5426
20.5	-0.1070	0.3828	0.3057	0.7541	0.5366
21.0	-0.1037	0.3684	0.2896	0.7455	0.5305
21.5	-0.1005	0.3550	0.2746	0.7368	0.5243
22.0	-0.0975	0.3424	0.2605	0.7280	0.5181
22.5	-0.0945	0.3306	0.2473	0.7191	0.5118
23.0	-0.0917	0.3196	0.2349	0.7102	0.5055
23.5	-0.0890	0.3092	0.2233	0.7013	0.4991
24.0	-0.0863	0.2995	0.2124	0.6924	0.4927
24.5	-0.0838	0.2903	0.2021	0.6835	0.4864
25.0	-0.0813	0.2816	0.1924	0.6747	0.4801
25.5	-0.0789	0.2734	0.1832	0.6660	0.4739
26.0	-0.0765	0.2656	0.1746	0.6574	0.4678
26.5	-0.0742	0.2582	0.1664	0.6489	0.4617
27.0	-0.0720	0.2513	0.1587	0.6404	0.4557

$\theta_1 = 12.5$     $U_1 = 0.45$     $M = 1.2825$     $\theta_2 = 53.198$

$\theta$	x	y	z	$\eta/\rho$	$L/\rho$
28	-0.0677	0.2383	0.1443	0.6837	0.4436
29	-0.0637	0.2265	0.1314	0.6075	0.4383
30	-0.0598	0.2157	0.1197	0.5817	0.4811
31	-0.0561	0.2058	0.1091	0.5763	0.4101
32	-0.0526	0.1967	0.0994	0.5613	0.3994
33	-0.0493	0.1883	0.0905	0.5468	0.3891
34	-0.0461	0.1805	0.0824	0.5386	0.3790
35	-0.0430	0.1733	0.0750	0.5186	0.3698
36	-0.0400	0.1665	0.0681	0.5054	0.3596
37	-0.0372	0.1601	0.0618	0.4923	0.3503
37.5	-0.0358	0.1571	0.0588	0.4859	0.3457
38.0	-0.0344	0.1541	0.0559	0.4795	0.3412
38.5	-0.0331	0.1513	0.0531	0.4732	0.3367
39.0	-0.0318	0.1485	0.0505	0.4670	0.3323
39.5	-0.0305	0.1458	0.0480	0.4609	0.3279
40.0	-0.0292	0.1431	0.0455	0.4548	0.3236
40.5	-0.0280	0.1405	0.0431	0.4488	0.3193
41.0	-0.0268	0.1380	0.0408	0.4429	0.3151
41.5	-0.0256	0.1355	0.0386	0.4371	0.3110
42.0	-0.0244	0.1331	0.0365	0.4313	0.3069
42.5	-0.0232	0.1308	0.0345	0.4256	0.3028
43.0	-0.0221	0.1285	0.0325	0.4199	0.2988
43.5	-0.0210	0.1262	0.0306	0.4143	0.2948
44.0	-0.0199	0.1240	0.0287	0.4088	0.2909
44.5	-0.0188	0.1219	0.0269	0.4034	0.2870
45.0	-0.0178	0.1198	0.0252	0.3980	0.2832
45.5	-0.0167	0.1177	0.0235	0.3927	0.2794
46.0	-0.0157	0.1157	0.0219	0.3874	0.2756
46.5	-0.0147	0.1138	0.0203	0.3823	0.2720
47.0	-0.0138	0.1118	0.0188	0.3773	0.2685
47.25	-0.0133	0.1109	0.0180	0.3748	0.2667
47.50	-0.0128	0.1100	0.0173	0.3724	0.2650
47.75	-0.0123	0.1091	0.0166	0.3700	0.2633
48.00	-0.0118	0.1082	0.0159	0.3676	0.2616
48.25	-0.0113	0.1073	0.0152	0.3653	0.2599
48.50	-0.0109	0.1065	0.0146	0.3631	0.2583
48.75	-0.0104	0.1056	0.0139	0.3609	0.2567
49.00	-0.0100	0.1048	0.0132	0.3588	0.2552
49.25	-0.0095	0.1040	0.0125	0.3567	0.2538
49.50	-0.0091	0.1032	0.0119	0.3547	0.2524
49.75	-0.0087	0.1025	0.0113	0.3528	0.2510
50.00	-0.0082	0.1018	0.0107	0.3510	0.2497
50.25	-0.0077	0.1011	0.0101	0.3494	0.2486
50.50	-0.0073	0.1005	0.0095	0.3480	0.2476
50.75	-0.0069	0.0999	0.0089	0.3468	0.2467

$\theta_0 = 18.5$     $\bar{u}_0 = 0.45$     $M = 1.2825$     $\theta_1 = 53.198$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
51.00	-0.00642	0.0995	0.00826	0.3458	0.2460
51.25	-0.00546	0.0992	0.00767	0.3452	0.2456
51.50	-0.00455	0.0989	0.00709	0.3450	0.2454
51.75	-0.00368	0.0988	0.00652	0.3454	0.2457
52.00	-0.00269	0.0990	0.00595	0.3467	0.2468
52.125	-0.00247	0.0992	0.00556	0.3477	0.2475
52.250	-0.00225	0.0995	0.00518	0.3491	0.2484
52.375	-0.00203	0.0999	0.00509	0.3509	0.2496
52.500	-0.00182	0.1004	0.00481	0.3531	0.2512
52.625	-0.00160	0.1011	0.00452	0.3560	0.2533
52.750	-0.00138	0.1021	0.00424	0.3598	0.2561
52.875	-0.00116	0.1034	0.00395	0.3649	0.2597
53.000	-0.00093	0.1051	0.00366	0.3715	0.2643
53.125	-0.00070	0.1073	0.00337	0.3798	0.2700
53.198	-0.00056	0.1093	0.00319	0.3869	0.2753

$\theta_0 = 12.5$     $u_0 = 0.50$     $M = 1.4532$     $\theta_1 = 45.834$

$\theta$	$x$	$y$	$z$	$r/r_0$	$r/p$
12.50	-0.1991	1.0000	0.9208	0.9204	0.6549
12.75	-0.1948	0.9646	0.8836	0.9392	0.6683
13.00	-0.1907	0.9314	0.8485	0.9552	0.6797
13.25	-0.1867	0.9002	0.8153	0.9689	0.6894
13.50	-0.1828	0.8708	0.7839	0.9806	0.6977
13.75	-0.1791	0.8431	0.7542	0.9904	0.7047
14.00	-0.1755	0.8169	0.7260	0.9985	0.7105
14.25	-0.1720	0.7921	0.6992	1.0051	0.7152
14.50	-0.1686	0.7686	0.6738	1.0104	0.7190
14.75	-0.1653	0.7464	0.6497	1.0146	0.7219
15.00	-0.1621	0.7253	0.6267	1.0177	0.7241
15.25	-0.1590	0.7052	0.6048	1.0198	0.7256
15.50	-0.1560	0.6861	0.5839	1.0211	0.7263
15.75	-0.1530	0.6680	0.5639	1.0217	0.7269
16.00	-0.1501	0.6507	0.5449	1.0216	0.7269
16.5	-0.1446	0.6184	0.5094	1.0197	0.7255
17.0	-0.1393	0.5889	0.4768	1.0157	0.7227
17.5	-0.1343	0.5619	0.4468	1.0102	0.7188
18.0	-0.1295	0.5372	0.4193	1.0034	0.7140
18.5	-0.1249	0.5144	0.3939	0.9957	0.7085
19.0	-0.1205	0.4933	0.3704	0.9871	0.7024
19.5	-0.1163	0.4737	0.3486	0.9778	0.6958
20.0	-0.1122	0.4556	0.3284	0.9681	0.6888
20.5	-0.1083	0.4387	0.3096	0.9579	0.6815
21.0	-0.1045	0.4230	0.2920	0.9474	0.6741
21.5	-0.1009	0.4083	0.2756	0.9367	0.6665
22.0	-0.0974	0.3945	0.2603	0.9259	0.6588
22.5	-0.0940	0.3816	0.2460	0.9149	0.6510
23.0	-0.0908	0.3694	0.2325	0.9039	0.6431
23.5	-0.0876	0.3580	0.2199	0.8928	0.6352
24.0	-0.0845	0.3472	0.2080	0.8817	0.6273
24.5	-0.0815	0.3370	0.1968	0.8706	0.6194
25.0	-0.0786	0.3273	0.1862	0.8596	0.6116
25.5	-0.0758	0.3182	0.1763	0.8487	0.6038
26.0	-0.0731	0.3095	0.1669	0.8378	0.5961
26.5	-0.0704	0.3012	0.1580	0.8270	0.5884
27.0	-0.0678	0.2933	0.1495	0.8162	0.5808
27.5	-0.0653	0.2858	0.1415	0.8056	0.5732
28.0	-0.0628	0.2786	0.1340	0.7951	0.5657
28.5	-0.0604	0.2718	0.1268	0.7847	0.5583
29.0	-0.0581	0.2652	0.1199	0.7743	0.5509
29.5	-0.0558	0.2589	0.1134	0.7641	0.5436
30.0	-0.0536	0.2529	0.1072	0.7540	0.5364
30.5	-0.0514	0.2471	0.1013	0.7440	0.5293
31.0	-0.0493	0.2415	0.0957	0.7341	0.5223

$\theta_1 = 12.5$     $U_1 = 0.50$     $M = 1.4552$     $\theta_2 = 45.224$

$\theta$	$x$	$y$	$z$	$\eta/\bar{\rho}$	$\xi/\bar{\rho}$
31.5	-0.04716	0.2361	0.09039	0.7243	0.5153
32.0	-0.04514	0.2309	0.08527	0.7146	0.5084
32.5	-0.04314	0.2259	0.08038	0.7051	0.5016
33.0	-0.04119	0.2211	0.07571	0.6956	0.4949
33.5	-0.03928	0.2164	0.07125	0.6862	0.4882
34.0	-0.03741	0.2119	0.06698	0.6769	0.4816
34.5	-0.03558	0.2075	0.06290	0.6678	0.4751
35.0	-0.03379	0.2032	0.05899	0.6587	0.4686
35.5	-0.03204	0.1991	0.05524	0.6497	0.4622
36.0	-0.03032	0.1951	0.05164	0.6408	0.4559
36.5	-0.02863	0.1912	0.04819	0.6320	0.4497
37.0	-0.02698	0.1874	0.04488	0.6234	0.4436
37.5	-0.02536	0.1837	0.04170	0.6149	0.4375
38.0	-0.02377	0.1801	0.03865	0.6065	0.4315
38.5	-0.02222	0.1766	0.03572	0.5982	0.4256
39.0	-0.02069	0.1732	0.03291	0.5900	0.4197
39.5	-0.01919	0.1700	0.03020	0.5820	0.4140
40.0	-0.01772	0.1668	0.02760	0.5743	0.4085
40.5	-0.01628	0.1637	0.02509	0.5668	0.4032
41.0	-0.01486	0.1606	0.02268	0.5596	0.3981
41.25	-0.01416	0.1594	0.02150	0.5562	0.3957
41.50	-0.01347	0.1580	0.02035	0.5529	0.3933
41.75	-0.01279	0.1567	0.01922	0.5497	0.3910
42.00	-0.01211	0.1554	0.01811	0.5467	0.3889
42.25	-0.01143	0.1542	0.01702	0.5439	0.3869
42.50	-0.01076	0.1531	0.01594	0.5414	0.3851
42.75	-0.01010	0.1520	0.01488	0.5392	0.3835
43.00	-0.00944	0.1511	0.01384	0.5374	0.3822
43.25	-0.00878	0.1503	0.01282	0.5361	0.3813
43.50	-0.00812	0.1497	0.01181	0.5354	0.3809
43.625	-0.00780	0.1495	0.01131	0.5354	0.3809
43.750	-0.00747	0.1494	0.01081	0.5356	0.3810
43.875	-0.00715	0.1494	0.01031	0.5361	0.3814
44.000	-0.00682	0.1494	0.00982	0.5370	0.3820
44.125	-0.00649	0.1495	0.00933	0.5383	0.3829
44.250	-0.00617	0.1498	0.00884	0.5402	0.3842
44.375	-0.00584	0.1503	0.00835	0.5427	0.3860
44.500	-0.00551	0.1510	0.00786	0.5460	0.3884
44.625	-0.00518	0.1519	0.00738	0.5503	0.3915
44.750	-0.00485	0.1533	0.00689	0.5560	0.3955
44.875	-0.00451	0.1551	0.00639	0.5635	0.4008
45.000	-0.00417	0.1575	0.00589	0.5735	0.4079
45.125	-0.00382	0.1610	0.00539	0.5870	0.4176
45.224	-0.00354	0.1648	0.00499	0.6016	0.4280

$\theta_1 = 12.5$     $\bar{u}_1 = 0.88$     $M = 1.6530$     $\theta_2 = 39.175$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\eta$
12.50	-0.3092	1.1000	0.9633	1.1429	0.8129
12.75	-0.2045	1.0620	0.9282	1.1673	0.6303
13.00	-0.2000	1.0263	0.8903	1.1833	0.8452
13.25	-0.1956	0.9927	0.8545	1.2002	0.6580
13.50	-0.1913	0.9611	0.8207	1.2216	0.8689
13.75	-0.1872	0.9313	0.7887	1.2346	0.8782
14.00	-0.1832	0.9032	0.7583	1.2455	0.8859
14.25	-0.1793	0.8766	0.7295	1.2545	0.8923
14.50	-0.1755	0.8514	0.7021	1.2618	0.8975
14.75	-0.1718	0.8276	0.6760	1.2677	0.9017
15.00	-0.1683	0.8050	0.6512	1.2722	0.9049
15.25	-0.1649	0.7835	0.6272	1.2755	0.9073
15.50	-0.1615	0.7631	0.6031	1.2777	0.9089
15.75	-0.1582	0.7437	0.5836	1.2790	0.9096
16.00	-0.1550	0.7251	0.5631	1.2795	0.9101
16.25	-0.1519	0.7074	0.5435	1.2792	0.9098
16.50	-0.1488	0.6905	0.5247	1.2782	0.9091
16.75	-0.1458	0.6744	0.5068	1.2765	0.9080
17.00	-0.1429	0.6590	0.4896	1.2743	0.9064
17.25	-0.1401	0.6442	0.4731	1.2716	0.9045
17.50	-0.1373	0.6301	0.4573	1.2684	0.9022
17.75	-0.1346	0.6165	0.4422	1.2648	0.8997
18.00	-0.1319	0.6035	0.4276	1.2609	0.8969
18.25	-0.1293	0.5910	0.4136	1.2566	0.8939
18.50	-0.1267	0.5790	0.4001	1.2520	0.8906
18.75	-0.1242	0.5674	0.3872	1.2472	0.8871
19.00	-0.1218	0.5563	0.3747	1.2421	0.8835
19.25	-0.1194	0.5456	0.3627	1.2368	0.8797
19.50	-0.1170	0.5353	0.3512	1.2313	0.8758
19.75	-0.1147	0.5253	0.3401	1.2256	0.8718
20.0	-0.1124	0.5157	0.3293	1.2198	0.8676
20.5	-0.1080	0.4975	0.3089	1.2078	0.8590
21.0	-0.1037	0.4805	0.2900	1.1954	0.8501
21.5	-0.0996	0.4645	0.2723	1.1826	0.8411
22.0	-0.0956	0.4496	0.2558	1.1696	0.8319
22.5	-0.0917	0.4356	0.2403	1.1564	0.8225
23.0	-0.0880	0.4224	0.2257	1.1430	0.8130
23.5	-0.0844	0.4099	0.2120	1.1296	0.8034
24.0	-0.0809	0.3981	0.1992	1.1161	0.7938
24.5	-0.0775	0.3869	0.1871	1.1026	0.7842
25.0	-0.0741	0.3763	0.1757	1.0892	0.7746
25.5	-0.0709	0.3662	0.1650	1.0758	0.7651
26.0	-0.0677	0.3566	0.1548	1.0624	0.7556
26.5	-0.0647	0.3474	0.1452	1.0491	0.7462
27.0	-0.0617	0.3387	0.1361	1.0359	0.7368

$\theta_s = 12.5$     $\bar{L}_s = 0.85$     $M = 1.6530$     $\theta_y = 39.173$

$\theta$	$x$	$y$	$z$	$z/\bar{L}$	$z/\beta$
27.5	-0.05875	0.3304	0.1275	1.0828	0.7275
28.0	-0.05590	0.3224	0.1193	1.0098	0.7182
28.5	-0.05312	0.3148	0.1116	0.9969	0.7090
29.0	-0.05041	0.3074	0.1042	0.9841	0.6999
29.5	-0.04776	0.3003	0.0972	0.9714	0.6909
30.0	-0.04517	0.2935	0.0905	0.9589	0.6820
30.5	-0.04264	0.2870	0.0841	0.9465	0.6731
31.0	-0.04016	0.2807	0.0781	0.9343	0.6644
31.5	-0.03774	0.2746	0.0724	0.9222	0.6558
32.0	-0.03537	0.2687	0.0669	0.9103	0.6474
32.5	-0.03305	0.2630	0.0616	0.8987	0.6391
33.0	-0.03078	0.2575	0.0566	0.8873	0.6310
33.5	-0.02855	0.2523	0.0518	0.8761	0.6230
34.0	-0.02637	0.2473	0.0472	0.8653	0.6153
34.5	-0.02423	0.2425	0.0428	0.8549	0.6079
35.00	-0.02214	0.2380	0.0387	0.8451	0.6010
35.25	-0.02110	0.2358	0.0366	0.8404	0.5976
35.50	-0.02008	0.2337	0.0346	0.8360	0.5944
35.75	-0.01906	0.2317	0.0327	0.8318	0.5914
36.00	-0.01806	0.2298	0.0308	0.8279	0.5887
36.25	-0.01706	0.2280	0.0289	0.8243	0.5862
36.50	-0.01607	0.2263	0.0271	0.8211	0.5839
36.75	-0.01509	0.2248	0.0253	0.8185	0.5820
37.00	-0.01411	0.2235	0.0235	0.8165	0.5806
37.25	-0.01313	0.2224	0.0217	0.8153	0.5797
37.375	-0.01265	0.2219	0.0209	0.8151	0.5796
37.500	-0.01217	0.2215	0.0200	0.8152	0.5797
37.625	-0.01168	0.2212	0.0192	0.8157	0.5800
37.750	-0.01120	0.2210	0.0183	0.8166	0.5806
37.875	-0.01072	0.2210	0.0175	0.8180	0.5816
38.000	-0.01024	0.2211	0.0167	0.8199	0.5830
38.125	-0.00975	0.2214	0.0158	0.8226	0.5849
38.250	-0.00927	0.2220	0.0150	0.8261	0.5874
38.375	-0.00878	0.2228	0.0142	0.8307	0.5907
38.500	-0.00830	0.2239	0.0133	0.8366	0.5949
38.5625	-0.00805	0.2246	0.0129	0.8401	0.5974
38.6250	-0.00781	0.2254	0.0125	0.8441	0.6002
38.6875	-0.00756	0.2264	0.0121	0.8487	0.6034
38.7500	-0.00731	0.2276	0.0117	0.8539	0.6071
38.8125	-0.00706	0.2290	0.0113	0.8599	0.6114
38.8750	-0.00681	0.2306	0.0109	0.8667	0.6163
38.9375	-0.00656	0.2324	0.0104	0.8745	0.6219
39.0000	-0.00631	0.2345	0.0100	0.8836	0.6284
39.0625	-0.00605	0.2370	0.0096	0.8942	0.6359
39.1250	-0.00579	0.2400	0.0092	0.9066	0.6447
39.173	-0.00559	0.2428	0.0088	0.9177	0.6526

$\theta_0 = 12.5$     $U_0 = 0.60$     $M = 1.8810$     $\theta_1 = 34.338$

$\theta$	x	y	z	$\frac{y}{x}$	$\frac{z}{x}$
12.50	-0.2177	1.2000	1.0097	1.4112	1.0029
13.75	-0.2126	1.1594	0.9566	1.4429	1.0235
13.00	-0.2076	1.1214	0.9261	1.4703	1.0450
13.125	-0.2052	1.1033	0.9067	1.4826	1.0537
13.250	-0.2028	1.0857	0.8878	1.4939	1.0618
13.375	-0.2004	1.0686	0.8694	1.5044	1.0693
13.500	-0.1981	1.0521	0.8516	1.5141	1.0762
13.625	-0.1958	1.0361	0.8343	1.5230	1.0826
13.750	-0.1936	1.0205	0.8174	1.5313	1.0884
13.875	-0.1914	1.0054	0.8009	1.5389	1.0938
14.000	-0.1892	0.9907	0.7849	1.5459	1.0988
14.125	-0.1871	0.9764	0.7693	1.5523	1.1034
14.250	-0.1850	0.9625	0.7541	1.5581	1.1075
14.375	-0.1829	0.9490	0.7392	1.5634	1.1113
14.500	-0.1808	0.9358	0.7247	1.5682	1.1147
14.625	-0.1788	0.9230	0.7106	1.5725	1.1178
14.750	-0.1768	0.9105	0.6968	1.5764	1.1206
14.875	-0.1748	0.8984	0.6833	1.5799	1.1229
15.00	-0.1729	0.8866	0.6702	1.5830	1.1251
15.25	-0.1691	0.8639	0.6449	1.5880	1.1287
15.50	-0.1654	0.8423	0.6208	1.5917	1.1314
15.75	-0.1618	0.8217	0.5978	1.5942	1.1332
16.00	-0.1582	0.8021	0.5758	1.5956	1.1342
16.25	-0.1547	0.7834	0.5548	1.5960	1.1345
16.50	-0.1513	0.7655	0.5347	1.5956	1.1342
16.75	-0.1480	0.7484	0.5154	1.5944	1.1333
17.00	-0.1448	0.7321	0.4969	1.5924	1.1319
17.25	-0.1417	0.7165	0.4792	1.5896	1.1300
17.5	-0.1386	0.7015	0.4624	1.5867	1.1278
18.0	-0.1326	0.6733	0.4305	1.5789	1.1223
18.5	-0.1268	0.6473	0.4010	1.5693	1.1155
19.0	-0.1213	0.6232	0.3737	1.5584	1.1077
19.5	-0.1160	0.6009	0.3484	1.5464	1.0992
20.0	-0.1108	0.5801	0.3249	1.5335	1.0900
20.5	-0.1058	0.5608	0.3031	1.5199	1.0803
21.0	-0.1010	0.5427	0.2828	1.5057	1.0702
21.5	-0.0963	0.5257	0.2638	1.4911	1.0598
22.0	-0.0918	0.5097	0.2460	1.4761	1.0491
22.5	-0.0874	0.4947	0.2293	1.4608	1.0383
23.0	-0.0831	0.4805	0.2136	1.4454	1.0273
23.5	-0.0790	0.4671	0.1989	1.4299	1.0162
24.0	-0.0750	0.4544	0.1851	1.4143	1.0051
24.5	-0.0711	0.4424	0.1721	1.3987	0.9940
25.0	-0.0673	0.4310	0.1598	1.3832	0.9830
25.5	-0.0636	0.4202	0.1482	1.3677	0.9720
26.0	-0.0599	0.4099	0.1372	1.3523	0.9611
26.5	-0.0564	0.4001	0.1268	1.3371	0.9503
27.0	-0.0530	0.3907	0.1170	1.3222	0.9396



$e_1 = 12.5$   $Q_1 = 0.60$   $M = 1.8818$   $e_2 = 34.338$

$\theta$	$x$	$y$	$z$	$\eta/\mu$	$\xi/\beta$
27.25	-0.0513	0.3863	0.1124	1.3148	0.9343
27.50	-0.0496	0.3817	0.1078	1.3073	0.9291
27.75	-0.0479	0.3774	0.1033	1.3003	0.9240
28.00	-0.0453	0.3732	0.0989	1.2931	0.9189
28.25	-0.0447	0.3691	0.0947	1.2860	0.9139
28.50	-0.0431	0.3651	0.0906	1.2791	0.9090
28.75	-0.0415	0.3612	0.0866	1.2723	0.9041
29.00	-0.0399	0.3574	0.0826	1.2656	0.8993
29.25	-0.0384	0.3537	0.0788	1.2590	0.8946
29.50	-0.0368	0.3501	0.0751	1.2528	0.8900
29.75	-0.0353	0.3466	0.0715	1.2464	0.8856
30.00	-0.0338	0.3432	0.0679	1.2405	0.8814
30.25	-0.0323	0.3400	0.0644	1.2348	0.8774
30.50	-0.0309	0.3369	0.0610	1.2294	0.8736
30.75	-0.0294	0.3339	0.0577	1.2244	0.8700
31.00	-0.0279	0.3311	0.0544	1.2198	0.8667
31.25	-0.0265	0.3284	0.0512	1.2157	0.8637
31.50	-0.0251	0.3259	0.0481	1.2121	0.8612
31.75	-0.0237	0.3236	0.0451	1.2092	0.8592
32.00	-0.0223	0.3216	0.0421	1.2072	0.8577
32.125	-0.0216	0.3207	0.0406	1.2067	0.8574
32.250	-0.0209	0.3199	0.0392	1.2064	0.8572
32.375	-0.0202	0.3191	0.0377	1.2064	0.8572
32.500	-0.0195	0.3185	0.0363	1.2068	0.8575
32.625	-0.0188	0.3180	0.0349	1.2077	0.8581
32.750	-0.0181	0.3176	0.0335	1.2091	0.8591
32.875	-0.0174	0.3174	0.0321	1.2111	0.8605
33.000	-0.0167	0.3173	0.0307	1.2138	0.8624
33.125	-0.0160	0.3175	0.0293	1.2173	0.8649
33.250	-0.0153	0.3179	0.0280	1.2217	0.8681
33.3750	-0.0146	0.3186	0.0266	1.2273	0.8721
33.4375	-0.0143	0.3190	0.0259	1.2306	0.8744
33.5000	-0.0139	0.3196	0.0252	1.2343	0.8770
33.5625	-0.0136	0.3203	0.0246	1.2384	0.8799
33.6250	-0.0132	0.3211	0.0239	1.2430	0.8832
33.6875	-0.0129	0.3220	0.0232	1.2481	0.8869
33.7500	-0.0125	0.3231	0.0225	1.2539	0.8910
33.8125	-0.0122	0.3244	0.0219	1.2603	0.8956
33.8750	-0.0118	0.3258	0.0212	1.2675	0.9007
33.9375	-0.0114	0.3275	0.0205	1.2756	0.9065
34.0000	-0.0111	0.3294	0.0198	1.2848	0.9130
34.0625	-0.0107	0.3316	0.0192	1.2951	0.9203
34.1250	-0.0104	0.3342	0.0185	1.3069	0.9286
34.1875	-0.0100	0.3372	0.0178	1.3203	0.9382
34.2500	-0.0096	0.3406	0.0171	1.3357	0.9492
34.3125	-0.0093	0.3445	0.0164	1.3534	0.9618
34.338	-0.0091	0.3465	0.0161	1.3617	0.9677

$\theta_0 = 12.5$     $\bar{u}_0 = 0.65$     $M = 2.1496$     $\theta_v = 30.335$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
12.500	-0.2244	1.3000	1.0450	1.7380	1.2330
12.625	-0.2216	1.2782	1.0215	1.7595	1.2482
12.750	-0.2188	1.2571	0.9986	1.7794	1.2624
12.875	-0.2161	1.2367	0.9769	1.7979	1.2756
13.000	-0.2134	1.2170	0.9556	1.8152	1.2879
13.125	-0.2108	1.1979	0.9349	1.8313	1.2993
13.250	-0.2082	1.1794	0.9148	1.8462	1.3099
13.375	-0.2056	1.1615	0.8953	1.8601	1.3198
13.500	-0.2031	1.1441	0.8763	1.8730	1.3290
13.625	-0.2006	1.1272	0.8578	1.8849	1.3375
13.750	-0.1982	1.1109	0.8398	1.8959	1.3453
13.875	-0.1958	1.0950	0.8223	1.9061	1.3526
14.000	-0.1934	1.0796	0.8052	1.9155	1.3593
14.125	-0.1911	1.0646	0.7885	1.9242	1.3655
14.250	-0.1888	1.0500	0.7723	1.9322	1.3712
14.375	-0.1865	1.0358	0.7565	1.9395	1.3764
14.500	-0.1842	1.0220	0.7411	1.9462	1.3811
14.625	-0.1820	1.0086	0.7261	1.9523	1.3854
14.750	-0.1798	0.9955	0.7114	1.9578	1.3894
14.875	-0.1776	0.9828	0.6971	1.9628	1.3929
15.00	-0.1756	0.9704	0.6831	1.9674	1.3962
15.25	-0.1714	0.9466	0.6561	1.9750	1.4016
15.50	-0.1673	0.9240	0.6304	1.9810	1.4059
15.75	-0.1633	0.9025	0.6059	1.9855	1.4091
16.00	-0.1594	0.8820	0.5824	1.9886	1.4113
16.25	-0.1556	0.8625	0.5600	1.9905	1.4126
16.50	-0.1519	0.8438	0.5385	1.9913	1.4132
16.75	-0.1483	0.8260	0.5180	1.9911	1.4131
17.00	-0.1447	0.8089	0.4983	1.9901	1.4124
17.25	-0.1412	0.7926	0.4794	1.9882	1.4111
17.50	-0.1378	0.7769	0.4613	1.9856	1.4092
17.75	-0.1344	0.7619	0.4440	1.9824	1.4069
18.00	-0.1311	0.7475	0.4273	1.9786	1.4042
18.25	-0.1279	0.7337	0.4112	1.9742	1.4011
18.50	-0.1247	0.7204	0.3958	1.9694	1.3977
18.75	-0.1216	0.7076	0.3809	1.9642	1.3940
19.00	-0.1185	0.6953	0.3666	1.9586	1.3900
19.25	-0.1155	0.6834	0.3528	1.9527	1.3858
19.50	-0.1126	0.6720	0.3396	1.9464	1.3813
19.75	-0.1097	0.6610	0.3268	1.9399	1.3766
20.00	-0.1068	0.6504	0.3144	1.9331	1.3718
20.25	-0.1040	0.6401	0.3025	1.9261	1.3669
20.50	-0.1012	0.6302	0.2910	1.9190	1.3618
20.75	-0.0985	0.6206	0.2799	1.9117	1.3566
21.00	-0.0958	0.6113	0.2692	1.9043	1.3513

$\theta_0 = 12.5$     $\bar{u}_0 = 0.68$     $M = 2.1496$     $\theta_1 = 30.335$

$\theta$	$x$	$y$	$z$	$\eta/\mu$	$\xi/\bar{u}$
21.5	-0.0905	0.5937	0.2487	1.8891	1.3405
22.0	-0.0854	0.5771	0.2326	1.8734	1.3294
22.5	-0.0805	0.5615	0.2117	1.8577	1.3182
23.0	-0.0756	0.5469	0.1949	1.8420	1.3070
23.5	-0.0709	0.5332	0.1791	1.8264	1.2959
24.0	-0.0663	0.5203	0.1642	1.8111	1.2850
24.5	-0.0618	0.5081	0.1501	1.7962	1.2743
25.0	-0.0574	0.4965	0.1368	1.7818	1.2641
25.5	-0.0532	0.4859	0.1242	1.7682	1.2544
26.0	-0.0490	0.4760	0.1124	1.7556	1.2456
26.50	-0.0448	0.4669	0.1011	1.7449	1.2379
26.75	-0.0428	0.4627	0.0957	1.7403	1.2346
27.00	-0.0408	0.4587	0.0904	1.7362	1.2317
27.25	-0.0388	0.4550	0.0852	1.7328	1.2293
27.50	-0.0368	0.4516	0.0802	1.7303	1.2275
27.75	-0.0348	0.4485	0.0753	1.7289	1.2265
28.00	-0.0329	0.4457	0.0705	1.7288	1.2264
28.25	-0.0310	0.4434	0.0658	1.7303	1.2275
28.50	-0.0291	0.4417	0.0611	1.7338	1.2300
28.75	-0.0271	0.4407	0.0566	1.7399	1.2343
29.000	-0.0252	0.4404	0.0522	1.7493	1.2410
29.125	-0.0242	0.4407	0.0500	1.7557	1.2455
29.250	-0.0233	0.4413	0.0478	1.7634	1.2510
29.375	-0.0223	0.4423	0.0456	1.7727	1.2577
29.500	-0.0214	0.4438	0.0435	1.7840	1.2657
29.5625	-0.0209	0.4447	0.0424	1.7904	1.2703
29.6250	-0.0204	0.4458	0.0413	1.7975	1.2753
29.6875	-0.0199	0.4470	0.0402	1.8052	1.2808
29.7500	-0.0194	0.4484	0.0392	1.8138	1.2869
29.8125	-0.0189	0.4500	0.0381	1.8233	1.2936
29.8750	-0.0184	0.4519	0.0371	1.8338	1.3011
29.9375	-0.0179	0.4540	0.0360	1.8454	1.3094
30.0000	-0.0174	0.4565	0.0349	1.8583	1.3186
30.0625	-0.0169	0.4593	0.0338	1.8726	1.3287
30.1250	-0.0164	0.4625	0.0328	1.8888	1.3408
30.1875	-0.0159	0.4662	0.0317	1.9070	1.3532
30.2500	-0.0154	0.4704	0.0306	1.9276	1.3679
30.3125	-0.0149	0.4752	0.0295	1.9508	1.3844
30.335	-0.0147	0.4771	0.0291	1.9598	1.3908

$\theta_0 = 12.5$     $\bar{u}_0 = 0.70$     $M = 2.4760$     $\theta_v = 26.931$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
12.50	-0.2290	1.4000	1.0766	2.1432	1.5144
12.75	-0.2230	1.3551	1.0266	2.1974	1.5530
13.00	-0.2172	1.3131	0.9805	2.2448	1.5868
13.125	-0.2144	1.2932	0.9585	2.2661	1.6020
13.250	-0.2116	1.2739	0.9371	2.2860	1.6161
13.375	-0.2088	1.2552	0.9163	2.3045	1.6293
13.500	-0.2061	1.2371	0.8960	2.3217	1.6415
13.625	-0.2034	1.2195	0.8763	2.3378	1.6529
13.750	-0.2008	1.2025	0.8572	2.3528	1.6636
13.875	-0.1982	1.1860	0.8386	2.3667	1.6735
14.000	-0.1956	1.1700	0.8204	2.3796	1.6827
14.125	-0.1931	1.1545	0.8027	2.3916	1.6918
14.250	-0.1906	1.1394	0.7855	2.4027	1.6991
14.50	-0.1856	1.1105	0.7522	2.4225	1.7132
14.75	-0.1809	1.0832	0.7206	2.4393	1.7252
15.00	-0.1762	1.0573	0.6905	2.4535	1.7353
15.25	-0.1717	1.0327	0.6618	2.4654	1.7438
15.50	-0.1672	1.0094	0.6345	2.4752	1.7507
15.75	-0.1629	0.9873	0.6084	2.4831	1.7554
16.00	-0.1586	0.9662	0.5834	2.4893	1.7608
16.25	-0.1544	0.9461	0.5595	2.4940	1.7641
16.50	-0.1503	0.9270	0.5366	2.4974	1.7665
16.75	-0.1463	0.9087	0.5147	2.4996	1.7681
17.00	-0.1424	0.8912	0.4937	2.5007	1.7689
17.25	-0.1385	0.8745	0.4735	2.5009	1.7690
17.50	-0.1347	0.8586	0.4542	2.5002	1.7685
17.75	-0.1310	0.8433	0.4356	2.4988	1.7675
18.00	-0.1274	0.8286	0.4178	2.4967	1.7660
18.25	-0.1238	0.8145	0.4006	2.4940	1.7641
18.50	-0.1203	0.8010	0.3841	2.4907	1.7618
18.75	-0.1168	0.7880	0.3682	2.4870	1.7591
19.00	-0.1134	0.7756	0.3529	2.4828	1.7561
19.25	-0.1100	0.7636	0.3381	2.4783	1.7529
19.50	-0.1067	0.7521	0.3239	2.4735	1.7495
19.75	-0.1035	0.7410	0.3102	2.4685	1.7460
20.00	-0.1003	0.7303	0.2969	2.4633	1.7423
20.25	-0.0971	0.7200	0.2841	2.4580	1.7385
20.50	-0.0940	0.7101	0.2717	2.4526	1.7347
20.75	-0.0909	0.7006	0.2598	2.4472	1.7308
21.00	-0.0879	0.6915	0.2482	2.4417	1.7269
21.25	-0.0849	0.6827	0.2370	2.4363	1.7231
21.50	-0.0819	0.6743	0.2262	2.4310	1.7193
21.75	-0.0790	0.6662	0.2157	2.4259	1.7157
22.00	-0.0761	0.6584	0.2055	2.4210	1.7122
22.25	-0.0732	0.6509	0.1956	2.4164	1.7089
22.50	-0.0704	0.6438	0.1860	2.4121	1.7059
22.75	-0.0676	0.6370	0.1767	2.4083	1.7032
23.00	-0.0648	0.6305	0.1677	2.4051	1.7009

$\theta_0 = 18.5$     $U_0 = 0.70$     $M = 2.4760$     $\theta_1 = 26.931$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
23.25	-0.0621	0.6244	1.590	2.4025	1.6990
23.50	-0.0594	0.6187	1.585	2.4006	1.6977
23.75	-0.0567	0.6134	1.422	2.3997	1.6970
24.00	-0.0540	0.6085	1.341	2.4000	1.6972
24.25	-0.0514	0.6041	1.263	2.4016	1.6984
24.500	-0.0488	0.6002	0.1186	2.4049	1.7007
24.625	-0.0475	0.5984	0.1148	2.4072	1.7024
24.750	-0.0462	0.5968	0.1111	2.4102	1.7045
24.875	-0.0449	0.5954	0.1075	2.4138	1.7071
25.000	-0.0436	0.5942	0.1039	2.4182	1.7102
25.125	-0.0423	0.5932	0.1003	2.4233	1.7138
25.250	-0.0410	0.5924	0.0968	2.4293	1.7181
25.375	-0.0397	0.5919	0.0933	2.4363	1.7231
25.500	-0.0384	0.5916	0.0898	2.4446	1.7290
25.625	-0.0371	0.5917	0.0863	2.4542	1.7358
25.7500	-0.0358	0.5922	0.0829	2.4654	1.7438
25.875	-0.0352	0.5926	0.0812	2.4717	1.7482
25.9375	-0.0345	0.5931	0.0795	2.4784	1.7530
25.9875	-0.0339	0.5937	0.0778	2.4857	1.7582
26.0000	-0.0332	0.5944	0.0761	2.4936	1.7638
26.0625	-0.0326	0.5953	0.0744	2.5021	1.7699
26.1250	-0.0319	0.5963	0.0728	2.5113	1.7764
26.1875	-0.0313	0.5975	0.0711	2.5213	1.7835
26.2500	-0.0306	0.5989	0.0695	2.5321	1.7912
26.3125	-0.0300	0.6005	0.0678	2.5438	1.7996
26.3750	-0.0293	0.6024	0.0662	2.5566	1.8087
26.4375	-0.0287	0.6045	0.0645	2.5705	1.8186
26.5000	-0.0280	0.6069	0.0629	2.5858	1.8295
26.5625	-0.0274	0.6096	0.0612	2.6025	1.8414
26.6250	-0.0267	0.6127	0.0596	2.6209	1.8545
26.6875	-0.0260	0.6162	0.0579	2.6411	1.8688
26.7500	-0.0253	0.6200	0.0563	2.6633	1.8845
26.8125	-0.0246	0.6242	0.0546	2.6877	1.9018
26.8750	-0.0239	0.6289	0.0530	2.7144	1.9208
26.931	-0.0233	0.6346	0.0515	2.7423	1.9409

$\theta_1 = 12.5$     $\mu_1 = 0.75$     $M = 2.8907$     $\theta_2 = 23.978$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
12.50	-0.2318	1.5000	1.1099	2.6566	1.6619
12.75	-0.2254	1.4534	1.0544	2.7294	1.9137
13.00	-0.2191	1.4100	1.0046	2.7933	1.9592
13.125	-0.2160	1.3894	0.9809	2.8222	1.9798
13.250	-0.2130	1.3696	0.9580	2.8492	1.9990
13.375	-0.2100	1.3504	0.9357	2.8745	2.0170
13.500	-0.2071	1.3318	0.9140	2.8982	2.0339
13.625	-0.2042	1.3138	0.8929	2.9204	2.0497
13.750	-0.2014	1.2964	0.8724	2.9411	2.0644
13.875	-0.1986	1.2795	0.8525	2.9605	2.0782
14.000	-0.1958	1.2631	0.8331	2.9787	2.0912
14.125	-0.1931	1.2472	0.8142	2.9957	2.1033
14.250	-0.1904	1.2318	0.7957	3.0116	2.1146
14.375	-0.1877	1.2169	0.7777	3.0265	2.1252
14.500	-0.1851	1.2024	0.7602	3.0404	2.1351
14.625	-0.1825	1.1883	0.7431	3.0534	2.1443
14.750	-0.1799	1.1746	0.7264	3.0655	2.1529
14.875	-0.1773	1.1613	0.7101	3.0767	2.1609
15.00	-0.1748	1.1484	0.6942	3.0874	2.1685
15.25	-0.1698	1.1236	0.6636	3.1064	2.1821
15.50	-0.1649	1.1001	0.6343	3.1229	2.1938
15.75	-0.1602	1.0778	0.6063	3.1371	2.2039
16.00	-0.1556	1.0567	0.5796	3.1493	2.2126
16.25	-0.1511	1.0366	0.5540	3.1598	2.2201
16.50	-0.1466	1.0175	0.5294	3.1687	2.2264
16.75	-0.1422	0.9994	0.5059	3.1763	2.2318
17.00	-0.1379	0.9821	0.4834	3.1826	2.2363
17.25	-0.1337	0.9656	0.4618	3.1879	2.2401
17.50	-0.1295	0.9499	0.4410	3.1924	2.2433
17.75	-0.1254	0.9349	0.4210	3.1961	2.2459
18.00	-0.1213	0.9206	0.4018	3.1992	2.2481
18.25	-0.1173	0.9070	0.3833	3.2019	2.2500
18.50	-0.1133	0.8941	0.3655	3.2043	2.2517
18.75	-0.1094	0.8818	0.3483	3.2064	2.2532
19.00	-0.1056	0.8701	0.3317	3.2084	2.2546
19.25	-0.1019	0.8589	0.3157	3.2105	2.2561
19.50	-0.0982	0.8482	0.3003	3.2127	2.2577
19.75	-0.0945	0.8381	0.2854	3.2153	2.2595
20.00	-0.0908	0.8286	0.2710	3.2183	2.2617
20.25	-0.0872	0.8197	0.2570	3.2220	2.2643
20.50	-0.0837	0.8114	0.2435	3.2265	2.2675
20.75	-0.0802	0.8037	0.2304	3.2321	2.2715
21.00	-0.0767	0.7966	0.2177	3.2391	2.2765
21.25	-0.0732	0.7902	0.2054	3.2477	2.2827
21.50	-0.0698	0.7845	0.1934	3.2584	2.2903
21.75	-0.0664	0.7796	0.1817	3.2717	2.2997
22.00	-0.0630	0.7757	0.1703	3.2883	2.3115
22.25	-0.0596	0.7728	0.1592	3.3089	2.3262

$\theta_0 = 12.5$   $U_0 = 0.75$   $M = 2.8907$   $\theta_0 = 23.972$

$\theta$	$x$	$y$	$z$	$\gamma/\beta$	$\epsilon/\beta$
22.375	-0.0579	0.7718	0.1539	3.3211	2.3349
22.500	-0.0562	0.7712	0.1486	3.3349	2.3446
22.625	-0.0545	0.7710	0.1433	3.3501	2.3555
22.750	-0.0528	0.7712	0.1380	3.3674	2.3678
22.875	-0.0512	0.7719	0.1328	3.3868	2.3816
23.0000	-0.0495	0.7731	0.1277	3.4087	2.3973
23.0625	-0.0486	0.7740	0.1251	3.4208	2.4059
23.1250	-0.0478	0.7750	0.1226	3.4338	2.4151
23.1875	-0.0469	0.7762	0.1200	3.4477	2.4250
23.2500	-0.0461	0.7777	0.1175	3.4625	2.4356
23.3125	-0.0452	0.7794	0.1150	3.4784	2.4469
23.3750	-0.0444	0.7813	0.1125	3.4955	2.4590
23.4375	-0.0435	0.7834	0.1100	3.5138	2.4720
23.5000	-0.0427	0.7859	0.1075	3.5335	2.4860
23.5625	-0.0418	0.7887	0.1050	3.5548	2.5012
23.6250	-0.0410	0.7919	0.1026	3.5779	2.5176
23.6875	-0.0401	0.7954	0.1001	3.6029	2.5354
23.7500	-0.0392	0.7994	0.0975	3.6301	2.5547
23.8125	-0.0383	0.8039	0.0951	3.6598	2.5758
23.8750	-0.0375	0.8089	0.0927	3.6923	2.5990
23.9375	-0.0366	0.8145	0.0903	3.7279	2.6246
23.972	-0.0361	0.8181	0.0888	3.7489	2.6393

$\theta_0 = 12.5$     $\bar{u}_0 = 0.80$     $M = 3.4532$     $\theta_1 = 21.345$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
12.50	-0.2328	1.6000	1.1549	3.3246	2.2900
12.75	-0.2259	1.5523	1.0897	3.4258	2.3519
13.00	-0.2192	1.5080	1.0345	3.5146	2.4252
13.125	-0.2159	1.4871	1.0085	3.5551	2.4541
13.250	-0.2127	1.4669	0.9833	3.5933	2.4812
13.375	-0.2095	1.4475	0.9589	3.6292	2.5068
13.500	-0.2064	1.4287	0.9352	3.6631	2.5309
13.625	-0.2033	1.4106	0.9122	3.6950	2.5536
13.750	-0.2003	1.3931	0.8899	3.7251	2.5750
13.875	-0.1973	1.3762	0.8682	3.7535	2.5952
14.000	-0.1943	1.3598	0.8471	3.7802	2.6142
14.125	-0.1913	1.3440	0.8265	3.8055	2.6322
14.250	-0.1884	1.3286	0.8064	3.8294	2.6493
14.50	-0.1827	1.2994	0.7678	3.8736	2.6807
14.75	-0.1771	1.2720	0.7311	3.9134	2.7090
15.00	-0.1716	1.2462	0.6961	3.9492	2.7345
15.25	-0.1662	1.2220	0.6628	3.9816	2.7576
15.50	-0.1609	1.1992	0.6310	4.0111	2.7786
15.75	-0.1557	1.1777	0.6006	4.0382	2.7979
16.00	-0.1506	1.1575	0.5715	4.0631	2.8156
16.25	-0.1456	1.1384	0.5436	4.0863	2.8321
16.50	-0.1407	1.1205	0.5169	4.1082	2.8477
16.75	-0.1359	1.1036	0.4913	4.1290	2.8625
17.00	-0.1311	1.0877	0.4667	4.1491	2.8768
17.25	-0.1264	1.0728	0.4431	4.1687	2.8908
17.50	-0.1217	1.0589	0.4203	4.1883	2.9047
17.75	-0.1171	1.0459	0.3984	4.2081	2.9188
18.00	-0.1126	1.0339	0.3772	4.2286	2.9334
18.250	-0.1081	1.0228	0.3569	4.2501	2.9487
18.375	-0.1058	1.0176	0.3470	4.2613	2.9567
18.500	-0.1036	1.0127	0.3372	4.2730	2.9650
18.625	-0.1014	1.0081	0.3276	4.2852	2.9736
18.750	-0.0992	1.0037	0.3182	4.2979	2.9826
18.875	-0.0970	0.9996	0.3089	4.3113	2.9921
19.000	-0.0949	0.9957	0.2998	4.3255	3.0022
19.125	-0.0927	0.9921	0.2908	4.3406	3.0130
19.250	-0.0906	0.9889	0.2820	4.3566	3.0245
19.375	-0.0884	0.9860	0.2733	4.3737	3.0367
19.500	-0.0863	0.9835	0.2647	4.3920	3.0497
19.625	-0.0841	0.9814	0.2562	4.4117	3.0637
19.750	-0.0820	0.9796	0.2479	4.4331	3.0789
19.875	-0.0798	0.9783	0.2397	4.4562	3.0954
20.000	-0.0777	0.9774	0.2316	4.4815	3.1134
20.1250	-0.0756	0.9771	0.2236	4.5091	3.1330
20.1875	-0.0745	0.9772	0.2196	4.5240	3.1436
20.2500	-0.0734	0.9774	0.2157	4.5395	3.1547
20.3125	-0.0724	0.9778	0.2118	4.5558	3.1663
20.3750	-0.0713	0.9784	0.2079	4.5730	3.1785



$\theta_s = 12.5$     $\bar{u}_s = 0.80$     $M = 3.4532$     $\theta_w = 21.345$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
20.4375	-0.0702	0.9792	0.2040	4.5911	3.1914
20.5000	-0.0692	0.9801	0.2002	4.6102	3.2050
20.5625	-0.0681	0.9812	0.1964	4.6304	3.2193
20.6250	-0.0670	0.9826	0.1926	4.6517	3.2345
20.6875	-0.0660	0.9843	0.1888	4.6743	3.2506
20.7500	-0.0649	0.9862	0.1850	4.6987	3.2677
20.8125	-0.0638	0.9884	0.1812	4.7228	3.2858
20.8750	-0.0627	0.9909	0.1774	4.7509	3.3051
20.9375	-0.0617	0.9938	0.1737	4.7798	3.3257
21.0000	-0.0606	0.9971	0.1700	4.8108	3.3478
21.0625	-0.0595	1.0008	0.1663	4.8440	3.3714
21.1250	-0.0584	1.0049	0.1626	4.8796	3.3967
21.1875	-0.0573	1.0095	0.1589	4.9180	3.4240
21.2500	-0.0562	1.0147	0.1553	4.9595	3.4536
21.3125	-0.0551	1.0205	0.1517	5.0044	3.4858
21.345	-0.0545	1.0239	0.1497	5.0291	3.5031

$\theta_0 = 12.5$     $u_0 = 0.85$     $M = 4.3002$     $\theta_1 = 18.962$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
12.50	-0.2329	1.7000	1.2327	4.2281	2.8014
12.75	-0.2256	1.6520	1.1476	4.3766	2.9071
13.00	-0.2185	1.6078	1.0827	4.5087	3.0011
13.125	-0.2150	1.5870	1.0525	4.5693	3.0443
13.250	-0.2116	1.5670	1.0235	4.6268	3.0852
13.375	-0.2082	1.5478	0.9956	4.6813	3.1240
13.500	-0.2046	1.5294	0.9686	4.7331	3.1608
13.625	-0.2015	1.5117	0.9425	4.7823	3.1959
13.750	-0.1982	1.4947	0.9171	4.8292	3.2293
13.875	-0.1949	1.4783	0.8925	4.8740	3.2612
14.000	-0.1917	1.4626	0.8685	4.9169	3.2917
14.125	-0.1885	1.4474	0.8452	4.9580	3.3209
14.250	-0.1854	1.4328	0.8226	4.9974	3.3490
14.375	-0.1823	1.4187	0.8006	5.0353	3.3760
14.500	-0.1792	1.4052	0.7791	5.0719	3.4020
14.625	-0.1761	1.3922	0.7581	5.1072	3.4272
14.750	-0.1731	1.3796	0.7377	5.1414	3.4515
14.875	-0.1701	1.3675	0.7178	5.1746	3.4751
15.000	-0.1672	1.3559	0.6983	5.2070	3.4981
15.125	-0.1642	1.3447	0.6793	5.2386	3.5206
15.250	-0.1613	1.3340	0.6608	5.2696	3.5427
15.375	-0.1584	1.3237	0.6427	5.3000	3.5644
15.500	-0.1555	1.3138	0.6250	5.3300	3.5857
15.625	-0.1526	1.3043	0.6077	5.3596	3.6067
15.750	-0.1498	1.2953	0.5908	5.3890	3.6276
15.875	-0.1470	1.2867	0.5742	5.4182	3.6485
16.000	-0.1442	1.2785	0.5580	5.4474	3.6693
16.125	-0.1414	1.2706	0.5421	5.4768	3.6902
16.250	-0.1387	1.2631	0.5265	5.5064	3.7112
16.375	-0.1359	1.2561	0.5113	5.5363	3.7325
16.500	-0.1332	1.2495	0.4963	5.5667	3.7542
16.625	-0.1305	1.2433	0.4816	5.5978	3.7753
16.750	-0.1278	1.2375	0.4672	5.6296	3.7969
16.875	-0.1251	1.2322	0.4531	5.6623	3.8222
17.000	-0.1224	1.2273	0.4392	5.6962	3.8463
17.125	-0.1197	1.2229	0.4256	5.7314	3.8713
17.250	-0.1171	1.2190	0.4122	5.7681	3.8975
17.375	-0.1144	1.2156	0.3991	5.8067	3.9250
17.500	-0.1118	1.2128	0.3862	5.8474	3.9540
17.625	-0.1091	1.2106	0.3735	5.8905	3.9847
17.750	-0.1065	1.2090	0.3610	5.9364	4.0173
17.875	-0.1038	1.2081	0.3487	5.9855	4.0523
18.000	-0.1012	1.2081	0.3366	6.0385	4.0900
18.0625	-0.0999	1.2084	0.3306	6.0666	4.1100
18.1250	-0.0986	1.2089	0.3247	6.0959	4.1308
18.1875	-0.0972	1.2097	0.3188	6.1264	4.1525
18.2500	-0.0959	1.2108	0.3129	6.1583	4.1752
18.3125	-0.0946	1.2121	0.3071	6.1918	4.1991

$\theta_0 = 18.5$     $\bar{u}_0 = 0.85$     $M = 4.3002$     $\theta_7 = 18.962$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
18.3750	-0.0933	1.2137	0.3013	6.2270	4.2241
18.4375	-0.0919	1.2156	0.2955	6.2640	4.2504
18.5000	-0.0906	1.2179	0.2898	6.3029	4.2761
18.5625	-0.0893	1.2205	0.2841	6.3439	4.3073
18.6250	-0.0880	1.2236	0.2784	6.3873	4.3382
18.6875	-0.0866	1.2271	0.2728	6.4333	4.3709
18.7500	-0.0853	1.2311	0.2672	6.4821	4.4057
18.8125	-0.0839	1.2356	0.2616	6.5341	4.4427
18.8750	-0.0826	1.2408	0.2561	6.5897	4.4823
18.9375	-0.0813	1.2468	0.2506	6.6494	4.5248
18.962	-0.0807	1.2490	0.2484	6.6739	4.5422

$\theta_s = 12.5$     $\bar{u}_s = 0.90$     $M = 5.8599$     $\theta_w = 16.749$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
12.500	-0.2338	1.8000	1.3852	5.515	3.3000
12.625	-0.2299	1.7759	1.3044	5.641	3.3897
12.750	-0.2261	1.7529	1.2539	5.760	3.4744
12.8125	-0.2242	1.7418	1.2310	5.817	3.5150
12.8750	-0.2223	1.7310	1.2092	5.873	3.5546
12.9375	-0.2204	1.7205	1.1882	5.927	3.5932
13.0000	-0.2185	1.7102	1.1680	5.980	3.6310
13.0625	-0.2166	1.7002	1.1483	6.032	3.6680
13.125	-0.2148	1.6904	1.1291	6.083	3.7043
13.250	-0.2111	1.6716	1.0923	6.181	3.7739
13.375	-0.2075	1.6537	1.0571	6.276	3.8416
13.500	-0.2039	1.6367	1.0233	6.367	3.9065
13.625	-0.2004	1.6205	0.9908	6.455	3.9691
13.750	-0.1969	1.6052	0.9594	6.540	4.0297
13.875	-0.1934	1.5907	0.9290	6.623	4.0887
14.000	-0.1899	1.5770	0.8996	6.704	4.1463
14.125	-0.1865	1.5640	0.8711	6.783	4.2027
14.250	-0.1831	1.5517	0.8434	6.861	4.2581
14.375	-0.1797	1.5402	0.8165	6.938	4.3129
14.500	-0.1763	1.5294	0.7904	7.015	4.3674
14.625	-0.1730	1.5193	0.7649	7.091	4.4218
14.750	-0.1697	1.5099	0.7401	7.167	4.4762
14.875	-0.1664	1.5012	0.7159	7.244	4.5308
15.000	-0.1631	1.4932	0.6924	7.321	4.5859
15.125	-0.1599	1.4860	0.6693	7.400	4.6417
15.250	-0.1567	1.4796	0.6469	7.480	4.6986
15.375	-0.1535	1.4740	0.6249	7.562	4.7570
15.500	-0.1503	1.4693	0.6034	7.647	4.8175
15.5625	-0.1487	1.4672	0.5928	7.691	4.8487
15.6250	-0.1471	1.4654	0.5824	7.736	4.8805
15.6875	-0.1455	1.4638	0.5720	7.782	4.9130
15.7500	-0.1439	1.4625	0.5618	7.828	4.9463
15.8125	-0.1423	1.4615	0.5517	7.876	4.9804
15.8750	-0.1407	1.4607	0.5417	7.925	5.0154
15.9375	-0.1391	1.4602	0.5318	7.976	5.0515
16.0000	-0.1375	1.4600	0.5219	8.028	5.0887
16.0625	-0.1359	1.4601	0.5122	8.082	5.1272
16.1250	-0.1343	1.4606	0.5025	8.138	5.1670
16.1875	-0.1327	1.4614	0.4929	8.196	5.2082
16.2500	-0.1311	1.4626	0.4834	8.256	5.2509
16.3125	-0.1295	1.4642	0.4740	8.319	5.2955
16.3750	-0.1279	1.4662	0.4647	8.384	5.3420
16.4375	-0.1263	1.4686	0.4555	8.452	5.3907
16.5000	-0.1247	1.4716	0.4463	8.524	5.4417
16.5625	-0.1231	1.4751	0.4372	8.599	5.4952
16.6250	-0.1215	1.4793	0.4282	8.678	5.5513
16.6875	-0.1199	1.4841	0.4193	8.761	5.6103
16.749	-0.1183	1.4894	0.4105	8.849	5.6730

$\theta_1 = 12.5$     $\bar{U}_1 = 0.95$     $M = 11.091$     $\theta_2 = 14.627$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
12.50	-0.2403	1.9000	1.7072	7.506	2.8234
12.55	-0.2386	1.8908	1.6036	7.617	2.9030
12.60	-0.2370	1.8818	1.5529	7.726	2.9805
12.625	-0.2362	1.8774	1.5312	7.780	3.0187
12.650	-0.2353	1.8731	1.5111	7.833	3.0567
12.675	-0.2345	1.8688	1.4921	7.886	3.0945
12.700	-0.2337	1.8645	1.4740	7.939	3.1321
12.725	-0.2329	1.8604	1.4567	7.991	3.1694
12.750	-0.2321	1.8563	1.4400	8.043	3.2064
12.775	-0.2313	1.8522	1.4239	8.095	3.2431
12.800	-0.2305	1.8472	1.4082	8.146	3.2795
12.825	-0.2297	1.8443	1.3930	8.197	3.3156
12.850	-0.2289	1.8404	1.3782	8.247	3.3514
12.875	-0.2281	1.8366	1.3638	8.297	3.3869
12.900	-0.2272	1.8329	1.3497	8.346	3.4222
12.925	-0.2265	1.8293	1.3359	8.396	3.4573
12.950	-0.2257	1.8257	1.3223	8.445	3.4923
12.975	-0.2249	1.8222	1.3090	8.494	3.5272
13.00	-0.2241	1.8187	1.2960	8.543	3.5620
13.05	-0.2225	1.8119	1.2706	8.639	3.6305
13.10	-0.2209	1.8054	1.2459	8.735	3.6987
13.15	-0.2194	1.7991	1.2219	8.830	3.7665
13.20	-0.2178	1.7931	1.1986	8.925	3.8339
13.25	-0.2162	1.7874	1.1759	9.019	3.9010
13.30	-0.2146	1.7819	1.1538	9.113	3.9677
13.35	-0.2131	1.7766	1.1322	9.206	4.0341
13.40	-0.2115	1.7716	1.1110	9.299	4.1004
13.45	-0.2100	1.7668	1.0903	9.392	4.1665
13.50	-0.2085	1.7622	1.0700	9.485	4.2327
13.55	-0.2070	1.7579	1.0501	9.578	4.2990
13.60	-0.2054	1.7539	1.0306	9.672	4.3656
13.65	-0.2039	1.7501	1.0114	9.766	4.4325
13.70	-0.2023	1.7466	0.9926	9.861	4.4999
13.75	-0.2008	1.7434	0.9740	9.956	4.5677
13.80	-0.1993	1.7405	0.9558	10.052	4.6361
13.85	-0.1978	1.7378	0.9379	10.149	4.7051
13.90	-0.1963	1.7354	0.9203	10.247	4.7748
13.95	-0.1948	1.7333	0.9029	10.346	4.8455
14.00	-0.1932	1.7315	0.8858	10.447	4.9172
14.05	-0.1917	1.7300	0.8690	10.550	4.9902
14.10	-0.1902	1.7289	0.8524	10.654	5.0645
14.15	-0.1887	1.7281	0.8360	10.760	5.1399
14.20	-0.1872	1.7276	0.8198	10.868	5.2168
14.25	-0.1857	1.7275	0.8039	10.978	5.2953
14.30	-0.1842	1.7278	0.7882	11.091	5.3756
14.35	-0.1827	1.7285	0.7727	11.207	5.4580
14.40	-0.1812	1.7297	0.7574	11.326	5.5428
14.45	-0.1797	1.7313	0.7423	11.449	5.6303

$\theta_s = 12.5$     $\bar{u}_s = 0.95$     $M = 11.091$     $\theta_w = 14.627$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$t/\bar{p}$
14.50	-0.1781	1.7333	0.7274	11.576	5.7207
14.55	-0.1766	1.7359	0.7126	11.707	5.8141
14.60	-0.1751	1.7391	0.6980	11.843	5.9108
14.627	-0.1743	1.7410	0.6902	11.918	5.9678

$\theta_0 = 12.5$     $U_0 = 0.97197$     $M = \text{Infinity}$     $\theta_v = 13.701$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
12.50	-0.2478	1.9439	1.9570	8.788	0.0745
12.55	-0.2461	1.9353	1.7792	8.992	0.2197
12.60	-0.2444	1.9269	1.6963	9.194	0.3636
12.625	-0.2436	1.9228	1.6619	9.295	0.4351
12.650	-0.2427	1.9188	1.6302	9.395	0.5063
12.675	-0.2419	1.9149	1.6006	9.495	0.5772
12.700	-0.2411	1.9111	1.5727	9.594	0.6478
12.725	-0.2403	1.9073	1.5462	9.693	0.7182
12.750	-0.2394	1.9037	1.5208	9.791	0.7883
12.775	-0.2386	1.9002	1.4964	9.889	0.8582
12.800	-0.2377	1.8968	1.4729	9.987	0.9279
12.825	-0.2369	1.8935	1.4502	10.085	0.9974
12.850	-0.2361	1.8903	1.4281	10.182	1.0667
12.875	-0.2353	1.8872	1.4067	10.279	1.1358
12.900	-0.2344	1.8842	1.3859	10.376	1.2049
12.925	-0.2336	1.8813	1.3656	10.473	1.2739
12.950	-0.2328	1.8785	1.3457	10.570	1.3429
12.975	-0.2320	1.8758	1.3263	10.667	1.4119
13.000	-0.2312	1.8732	1.3073	10.764	1.4810
13.025	-0.2304	1.8708	1.2887	10.861	1.5503
13.050	-0.2296	1.8685	1.2705	10.959	1.6197
13.075	-0.2288	1.8663	1.2526	11.057	1.6893
13.100	-0.2279	1.8642	1.2350	11.155	1.7592
13.125	-0.2271	1.8622	1.2178	11.253	1.8293
13.150	-0.2263	1.8603	1.2008	11.352	1.8996
13.175	-0.2255	1.8586	1.1841	11.451	1.9702
13.200	-0.2247	1.8570	1.1676	11.551	2.0411
13.225	-0.2239	1.8555	1.1514	11.651	2.1123
13.250	-0.2231	1.8541	1.1354	11.752	2.1839
13.275	-0.2223	1.8529	1.1196	11.853	2.2560
13.300	-0.2214	1.8518	1.1041	11.955	2.3286
13.325	-0.2206	1.8508	1.0888	12.058	2.4019
13.350	-0.2198	1.8500	1.0737	12.162	2.4759
13.375	-0.2190	1.8493	1.0588	12.267	2.5507
13.400	-0.2182	1.8487	1.0442	12.373	2.6262
13.425	-0.2174	1.8483	1.0297	12.480	2.7025
13.450	-0.2166	1.8480	1.0154	12.589	2.7796
13.475	-0.2158	1.8478	1.0012	12.699	2.8576
13.500	-0.2150	1.8478	0.9872	12.809	2.9364
13.525	-0.2142	1.8480	0.9733	12.921	3.0161
13.550	-0.2134	1.8483	0.9596	13.034	3.0969
13.575	-0.2126	1.8488	0.9461	13.149	3.1788
13.600	-0.2117	1.8495	0.9327	13.266	3.2618
13.625	-0.2109	1.8503	0.9195	13.385	3.3461
13.650	-0.2101	1.8514	0.9064	13.505	3.4318
13.675	-0.2093	1.8527	0.8935	13.627	3.5189
13.700	-0.2085	1.8542	0.8806	13.751	3.6076
13.701	-0.2085	1.8543	0.8802	13.756	3.6105

$\Theta_s = 15^\circ$     $\bar{u}_s = 0.30$     $M = 1.2926(8)$     $\Theta_w = 84.848$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
15.0	-0.2443	0.6000	0.9689	0.5439	0.3828
15.5	-0.2392	0.5561	0.9188	0.5542	0.3902
16.0	-0.2345	0.5164	0.8735	0.5616	0.3954
16.5	-0.2302	0.4804	0.8322	0.5665	0.3989
17.0	-0.2262	0.4477	0.7944	0.5694	0.4010
17.5	-0.2224	0.4179	0.7596	0.5707	0.4019
18.0	-0.2189	0.3907	0.7276	0.5707	0.4019
18.5	-0.2156	0.3658	0.6981	0.5696	0.4011
19.0	-0.2125	0.3429	0.6708	0.5676	0.3997
19.5	-0.2096	0.3218	0.6454	0.5649	0.3978
20.0	-0.2069	0.3024	0.6218	0.5616	0.3954
20.5	-0.2043	0.2845	0.5998	0.5578	0.3927
21.0	-0.2019	0.2679	0.5793	0.5536	0.3897
21.5	-0.1996	0.2526	0.5601	0.5490	0.3865
22.0	-0.1975	0.2383	0.5422	0.5442	0.3831
22.5	-0.1955	0.2250	0.5254	0.5392	0.3796
23.0	-0.1936	0.2127	0.5096	0.5340	0.3759
23.5	-0.1918	0.2012	0.4947	0.5288	0.3721
24.0	-0.1900	0.1905	0.4807	0.5235	0.3683
24.5	-0.1884	0.1805	0.4675	0.5181	0.3645
25	-0.1869	0.1711	0.4550	0.5127	0.3606
26	-0.1841	0.1541	0.4320	0.5018	0.3529
27	-0.1815	0.1392	0.4114	0.4910	0.3452
28	-0.1792	0.1261	0.3927	0.4803	0.3376
29	-0.1771	0.1145	0.3758	0.4698	0.3301
30	-0.1752	0.1042	0.3604	0.4595	0.3228
31	-0.1735	0.0951	0.3464	0.4495	0.3157
32	-0.1719	0.0870	0.3335	0.4398	0.3088
33	-0.1704	0.0799	0.3217	0.4304	0.3021
34	-0.1691	0.0735	0.3108	0.4213	0.2956
35	-0.1678	0.0678	0.3007	0.4125	0.2893
36	-0.1667	0.0628	0.2914	0.4040	0.2832
37	-0.1656	0.0583	0.2827	0.3958	0.2773
38	-0.1646	0.0543	0.2746	0.3878	0.2717
39	-0.1637	0.0500	0.2671	0.3801	0.2663
40	-0.1629	0.0477	0.2600	0.3727	0.2610
41	-0.1621	0.0450	0.2534	0.3655	0.2559
42	-0.1613	0.0427	0.2472	0.3586	0.2510
43	-0.1606	0.0407	0.2413	0.3519	0.2462
44	-0.1599	0.0389	0.2358	0.3454	0.2416
45	-0.1592	0.0374	0.2306	0.3392	0.2371
46	-0.1586	0.0361	0.2257	0.3332	0.2328
47	-0.1580	0.0351	0.2210	0.3274	0.2287
48	-0.1574	0.0343	0.2165	0.3218	0.2247
49	-0.1568	0.0337	0.2123	0.3163	0.2208



$\theta_s = 15^\circ$     $\bar{u}_s = 0.30$     $M = 1.2926(8)$     $\theta_v = 84.848$

$\theta$	x	y	z	$\eta/\rho$	$\epsilon/\rho$
50	-0.1562	0.0332	0.2083	0.3110	0.2171
51	-0.1556	0.0329	0.2045	0.3060	0.2135
52	-0.1550	0.0327	0.2008	0.3012	0.2101
53	-0.1544	0.0327	0.1973	0.2965	0.2068
54	-0.1539	0.0328	0.1939	0.2920	0.2035
55	-0.1533	0.0330	0.1907	0.2876	0.2004
56	-0.1527	0.0334	0.1876	0.2834	0.1974
57	-0.1521	0.0339	0.1846	0.2793	0.1945
58	-0.1515	0.0345	0.1817	0.2754	0.1917
59	-0.1509	0.0352	0.1790	0.2717	0.1890
60	-0.1503	0.0360	0.1764	0.2681	0.1865
61	-0.1497	0.0368	0.1738	0.2647	0.1841
62	-0.1491	0.0377	0.1713	0.2614	0.1818
63	-0.1484	0.0387	0.1689	0.2583	0.1796
64	-0.1477	0.0398	0.1666	0.2554	0.1775
65	-0.1470	0.0410	0.1643	0.2526	0.1755
66	-0.1463	0.0422	0.1621	0.2499	0.1736
67	-0.1455	0.0435	0.1600	0.2474	0.1718
68	-0.1447	0.0449	0.1579	0.2450	0.1701
69	-0.1439	0.0463	0.1558	0.2428	0.1685
70	-0.1431	0.0478	0.1538	0.2408	0.1671
71	-0.1422	0.0494	0.1519	0.2389	0.1658
72	-0.1413	0.0510	0.1500	0.2372	0.1646
73	-0.1404	0.0527	0.1481	0.2357	0.1635
74	-0.1395	0.0544	0.1463	0.2344	0.1625
75	-0.1386	0.0562	0.1445	0.2332	0.1617
76	-0.1376	0.0580	0.1427	0.2322	0.1610
77	-0.1366	0.0599	0.1409	0.2314	0.1605
78	-0.1355	0.0619	0.1392	0.2308	0.1601
79	-0.1344	0.0640	0.1375	0.2305	0.1598
80.0	-0.1332	0.0661	0.1358	0.2304	0.1597
80.5	-0.1327	0.0671	0.1349	0.2304	0.1597
81.0	-0.1321	0.0682	0.1341	0.2305	0.1598
81.5	-0.1315	0.0693	0.1333	0.2306	0.1599
82.0	-0.1309	0.0705	0.1325	0.2308	0.1600
82.5	-0.1302	0.0717	0.1317	0.2311	0.1602
83.0	-0.1296	0.0728	0.1308	0.2314	0.1604
83.5	-0.1290	0.0739	0.1299	0.2318	0.1607
84.0	-0.1283	0.0751	0.1291	0.2323	0.1611
84.5	-0.1277	0.0763	0.1283	0.2328	0.1614
84.848	-0.1272	0.0772	0.1277	0.2332	0.1617

$\theta_0 = 15^\circ$     $\bar{u}_0 = 0.35$     $M = 1.1207(8)$     $\theta_w = 75.758$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
15.0	-0.2032	0.7000	0.7882	0.5603	0.3981
15.5	-0.1973	0.6567	0.7411	0.5751	0.4087
16.0	-0.1918	0.6176	0.6983	0.5863	0.4167
16.5	-0.1866	0.5821	0.6593	0.5944	0.4225
17.0	-0.1816	0.5499	0.6235	0.6001	0.4265
17.5	-0.1769	0.5205	0.5906	0.6038	0.4291
18.0	-0.1725	0.4936	0.5604	0.6058	0.4305
18.5	-0.1683	0.4690	0.5325	0.6064	0.4310
19.0	-0.1643	0.4463	0.5067	0.6059	0.4306
19.5	-0.1605	0.4255	0.4828	0.6044	0.4295
20.0	-0.1569	0.4062	0.4606	0.6021	0.4279
20.5	-0.1534	0.3883	0.4399	0.5992	0.4258
21.0	-0.1501	0.3718	0.4206	0.5958	0.4234
21.5	-0.1469	0.3564	0.4026	0.5919	0.4206
22.0	-0.1439	0.3421	0.3858	0.5876	0.4176
22.5	-0.1410	0.3288	0.3700	0.5831	0.4144
23.0	-0.1381	0.3163	0.3551	0.5783	0.4110
23.5	-0.1354	0.3047	0.3412	0.5733	0.4074
24.0	-0.1328	0.2938	0.3281	0.5682	0.4038
24.5	-0.1303	0.2836	0.3157	0.5629	0.4000
25	-0.1279	0.2740	0.3040	0.5576	0.3962
26	-0.1232	0.2565	0.2825	0.5467	0.3885
27	-0.1189	0.2409	0.2632	0.5358	0.3807
28	-0.1149	0.2270	0.2458	0.5250	0.3730
29	-0.1111	0.2146	0.2300	0.5142	0.3653
30	-0.1074	0.2034	0.2157	0.5036	0.3577
31	-0.1039	0.1933	0.2027	0.4932	0.3503
32	-0.1006	0.1842	0.1908	0.4830	0.3431
33	-0.0974	0.1759	0.1799	0.4731	0.3361
34	-0.0944	0.1684	0.1698	0.4634	0.3292
35	-0.0915	0.1615	0.1605	0.4540	0.3225
36	-0.0887	0.1552	0.1519	0.4449	0.3160
37	-0.0861	0.1494	0.1439	0.4360	0.3097
38	-0.0836	0.1441	0.1365	0.4274	0.3036
39	-0.0811	0.1392	0.1296	0.4191	0.2977
40	-0.0787	0.1347	0.1231	0.4111	0.2920
41	-0.0764	0.1305	0.1171	0.4033	0.2864
42	-0.0742	0.1266	0.1114	0.3957	0.2810
43	-0.0720	0.1230	0.1061	0.3883	0.2758
44	-0.0699	0.1197	0.1011	0.3812	0.2707
45	-0.0678	0.1166	0.0964	0.3743	0.2658
46	-0.0658	0.1137	0.0920	0.3676	0.2610
47	-0.0638	0.1110	0.0878	0.3611	0.2564
48	-0.0619	0.1085	0.0838	0.3549	0.2519
49	-0.0600	0.1061	0.0800	0.3488	0.2476

$\theta_s = 15^\circ$     $\bar{u}_s = 0.35$     $M = 1.1207(8)$     $G_v = 75:758$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
50	-0.0582	0.1039	0.0764	0.3439	0.2435
51	-0.0564	0.1018	0.0730	0.3373	0.2395
52	-0.0546	0.0998	0.0697	0.3319	0.2356
53	-0.0529	0.0980	0.0666	0.3266	0.2318
54	-0.0512	0.0963	0.0636	0.3215	0.2282
55	-0.0496	0.0947	0.0608	0.3166	0.2247
56	-0.0480	0.0932	0.0581	0.3119	0.2213
57	-0.0464	0.0918	0.0555	0.3074	0.2181
58	-0.0448	0.0905	0.0530	0.3031	0.2151
59	-0.0432	0.0893	0.0506	0.2990	0.2122
60.0	-0.0416	0.0881	0.0483	0.2952	0.2095
60.5	-0.0408	0.0876	0.0471	0.2933	0.2081
61.0	-0.0401	0.0871	0.0460	0.2915	0.2068
61.5	-0.0394	0.0866	0.0449	0.2898	0.2056
62.0	-0.0386	0.0861	0.0438	0.2881	0.2044
62.5	-0.0378	0.0856	0.0428	0.2865	0.2033
63.0	-0.0370	0.0852	0.0418	0.2850	0.2022
63.5	-0.0363	0.0848	0.0408	0.2835	0.2011
64.0	-0.0356	0.0844	0.0398	0.2821	0.2001
64.5	-0.0349	0.0841	0.0388	0.2808	0.1992
65.0	-0.0341	0.0838	0.0378	0.2796	0.1983
65.5	-0.0334	0.0835	0.0368	0.2784	0.1975
66.0	-0.0327	0.0832	0.0358	0.2773	0.1967
66.5	-0.0319	0.0830	0.0349	0.2763	0.1960
67.0	-0.0312	0.0828	0.0340	0.2754	0.1954
67.5	-0.0305	0.0826	0.0331	0.2746	0.1948
68.0	-0.0298	0.0824	0.0322	0.2739	0.1943
68.5	-0.0291	0.0823	0.0313	0.2734	0.1940
69.0	-0.0283	0.0822	0.0304	0.2730	0.1937
69.5	-0.0276	0.0822	0.0296	0.2728	0.1935
70.0	-0.0269	0.0822	0.0287	0.2727	0.1934
70.5	-0.0262	0.0823	0.0278	0.2727	0.1934
71.0	-0.0255	0.0824	0.0269	0.2729	0.1936
71.5	-0.0247	0.0826	0.0261	0.2734	0.1940
72.0	-0.0240	0.0829	0.0253	0.2741	0.1945
72.5	-0.0233	0.0832	0.0245	0.2751	0.1952
73.0	-0.0226	0.0836	0.0236	0.2764	0.1961
73.5	-0.0218	0.0841	0.0228	0.2780	0.1972
74.0	-0.0211	0.0847	0.0220	0.2801	0.1987
74.5	-0.0204	0.0855	0.0211	0.2826	0.2005
75.0	-0.0196	0.0865	0.0203	0.2857	0.2027
75.5	-0.0188	0.0876	0.0195	0.2895	0.2054
75.758	-0.0185	0.0883	0.0190	0.2917	0.2070

$C_s = 15^\circ$     $\bar{u}_s = 0.40$     $M = 1.1916$     $\Theta_s = 61.679$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
15.0	-0.2101	0.8000	0.8131	0.6931	0.4930
15.5	-0.2033	0.7528	0.7621	0.7135	0.5074
16.0	-0.1969	0.7103	0.7156	0.7290	0.5185
16.5	-0.1909	0.6717	0.6733	0.7406	0.5268
17.0	-0.1852	0.6367	0.6345	0.7490	0.5328
17.5	-0.1798	0.6047	0.5989	0.7547	0.5369
18.0	-0.1747	0.5755	0.5661	0.7582	0.5394
18.5	-0.1698	0.5487	0.5359	0.7598	0.5405
19.0	-0.1651	0.5241	0.5079	0.7600	0.5406
19.5	-0.1606	0.5014	0.4819	0.7589	0.5398
20.0	-0.1563	0.4804	0.4578	0.7567	0.5383
20.5	-0.1522	0.4609	0.4354	0.7537	0.5362
21.0	-0.1483	0.4429	0.4145	0.7500	0.5335
21.5	-0.1445	0.4261	0.3949	0.7456	0.5304
22.0	-0.1408	0.4105	0.3766	0.7408	0.5270
22.5	-0.1373	0.3959	0.3595	0.7355	0.5232
23.0	-0.1339	0.3822	0.3434	0.7299	0.5192
23.5	-0.1307	0.3694	0.3282	0.7241	0.5150
24.0	-0.1275	0.3574	0.3139	0.7180	0.5107
24.5	-0.1244	0.3462	0.3005	0.7118	0.5063
25	-0.1214	0.3356	0.2879	0.7054	0.5018
26	-0.1158	0.3161	0.2646	0.6923	0.4925
27	-0.1104	0.2988	0.2436	0.6791	0.4831
28	-0.1053	0.2833	0.2248	0.6658	0.4736
29	-0.1005	0.2693	0.2077	0.6525	0.4641
30	-0.0959	0.2567	0.1922	0.6394	0.4548
31	-0.0915	0.2452	0.1781	0.6265	0.4456
32	-0.0873	0.2347	0.1652	0.6136	0.4366
33	-0.0833	0.2251	0.1535	0.6014	0.4278
34	-0.0795	0.2163	0.1424	0.5892	0.4191
35	-0.0758	0.2082	0.1324	0.5773	0.4106
36	-0.0722	0.2007	0.1231	0.5657	0.4023
37	-0.0687	0.1937	0.1145	0.5544	0.3943
38	-0.0654	0.1873	0.1065	0.5434	0.3865
39	-0.0622	0.1813	0.0991	0.5327	0.3789
40	-0.0591	0.1757	0.0922	0.5223	0.3715
41	-0.0561	0.1704	0.0857	0.5122	0.3643
42	-0.0532	0.1654	0.0796	0.5023	0.3572
43	-0.0504	0.1607	0.0739	0.4927	0.3504
44	-0.0476	0.1563	0.0686	0.4834	0.3438
45	-0.0449	0.1522	0.0636	0.4744	0.3374
46	-0.0423	0.1483	0.0589	0.4657	0.3312
47	-0.0397	0.1446	0.0544	0.4573	0.3252
48	-0.0372	0.1411	0.0502	0.4491	0.3194
49	-0.0348	0.1378	0.0462	0.4412	0.3138

$\theta_s = 15^\circ$     $u_s = 0.40$     $M = 1.1916$     $\theta_w = 61.679$

$\theta$	x	y	z	$\eta/\bar{\rho}$	$\epsilon/\bar{\rho}$
50.0	-0.0324	0.1346	0.0424	0.4336	0.3083
50.5	-0.0312	0.1331	0.0406	0.4300	0.3057
51.0	-0.0300	0.1316	0.0388	0.4264	0.3032
51.5	-0.0289	0.1302	0.0370	0.4229	0.3008
52.0	-0.0278	0.1288	0.0353	0.4196	0.2984
52.5	-0.0267	0.1275	0.0337	0.4164	0.2961
53.0	-0.0256	0.1262	0.0321	0.4132	0.2938
53.5	-0.0245	0.1250	0.0305	0.4102	0.2916
54.0	-0.0234	0.1238	0.0290	0.4074	0.2896
54.5	-0.0223	0.1227	0.0275	0.4047	0.2877
55.0	-0.0213	0.1216	0.0260	0.4022	0.2859
55.5	-0.0201	0.1206	0.0245	0.3999	0.2843
56.0	-0.0191	0.1197	0.0231	0.3978	0.2828
56.5	-0.0181	0.1189	0.0217	0.3960	0.2815
57.0	-0.0171	0.1182	0.0203	0.3945	0.2805
57.5	-0.0160	0.1176	0.0190	0.3935	0.2798
58.0	-0.0150	0.1171	0.0177	0.3930	0.2794
58.5	-0.0140	0.1168	0.0164	0.3931	0.2795
59.0	-0.0130	0.1167	0.0151	0.3940	0.2801
59.5	-0.0120	0.1170	0.0139	0.3960	0.2815
60.0	-0.0110	0.1177	0.0127	0.3995	0.2840
60.5	-0.0099	0.1191	0.0114	0.4052	0.2881
61.0	-0.0088	0.1214	0.0101	0.4144	0.2946
61.5	-0.0078	0.1253	0.0088	0.4294	0.3053
61.679	-0.0074	0.1274	0.0084	0.4370	0.3107

$\theta_s = 15^\circ$     $\bar{u}_s = 0.45$     $M = 1.3382$     $\theta_v = 51.737^\circ$

$\theta$	x	y	z	$\eta/\bar{p}$	$\xi/\bar{p}$
15.0	-0.2217	0.9000	0.8583	0.8662	0.6160
15.5	-0.2141	0.8485	0.8026	0.8933	0.6353
16.0	-0.2069	0.8022	0.7519	0.9143	0.6502
16.5	-0.2000	0.7602	0.7057	0.9302	0.6616
17.0	-0.1935	0.7221	0.6634	0.9419	0.6699
17.5	-0.1874	0.6874	0.6245	0.9501	0.6757
18.0	-0.1816	0.6556	0.5888	0.9555	0.6795
18.5	-0.1760	0.6265	0.5557	0.9585	0.6816
19.0	-0.1706	0.5997	0.5252	0.9595	0.6824
19.5	-0.1655	0.5750	0.4968	0.9589	0.6821
20.0	-0.1606	0.5522	0.4705	0.9570	0.6807
20.5	-0.1559	0.5310	0.4460	0.9540	0.6784
21.0	-0.1513	0.5114	0.4231	0.9499	0.6755
21.5	-0.1469	0.4931	0.4018	0.9450	0.6720
22.0	-0.1427	0.4760	0.3818	0.9394	0.6681
22.5	-0.1386	0.4601	0.3630	0.9333	0.6638
23.0	-0.1347	0.4451	0.3454	0.9268	0.6591
23.5	-0.1309	0.4311	0.3289	0.9199	0.6542
24.0	-0.1272	0.4180	0.3133	0.9127	0.6491
24.5	-0.1236	0.4056	0.2986	0.9052	0.6438
25	-0.1201	0.3939	0.2847	0.8976	0.6384
26	-0.1134	0.3725	0.2592	0.8818	0.6272
27	-0.1071	0.3533	0.2363	0.8657	0.6157
28	-0.1011	0.3361	0.2157	0.8495	0.6041
29	-0.0953	0.3204	0.1971	0.8332	0.5925
30	-0.0898	0.3062	0.1801	0.8170	0.5810
31	-0.0846	0.2933	0.1647	0.8010	0.5696
32	-0.0796	0.2814	0.1506	0.7852	0.5584
33	-0.0748	0.2704	0.1377	0.7697	0.5473
34	-0.0702	0.2603	0.1258	0.7544	0.5364
35	-0.0657	0.2509	0.1148	0.7394	0.5258
36	-0.0614	0.2421	0.1047	0.7248	0.5154
37	-0.0572	0.2339	0.0954	0.7106	0.5053
38	-0.0532	0.2263	0.0867	0.6967	0.4954
39	-0.0493	0.2192	0.0786	0.6832	0.4858
40	-0.0456	0.2125	0.0711	0.6701	0.4765
41	-0.0420	0.2062	0.0641	0.6574	0.4675
42	-0.0384	0.2003	0.0575	0.6452	0.4588
43	-0.0349	0.1947	0.0513	0.6336	0.4505
44	-0.0316	0.1895	0.0456	0.6225	0.4426
44.5	-0.0299	0.1871	0.0428	0.6173	0.4389
45.0	-0.0283	0.1848	0.0401	0.6123	0.4353
45.5	-0.0267	0.1825	0.0375	0.6075	0.4319
46.0	-0.0251	0.1803	0.0350	0.6031	0.4287
46.5	-0.0235	0.1783	0.0325	0.5990	0.4258

$$\theta_s = 15^\circ \quad \bar{u}_s = 0.45 \quad M = 2.3382 \quad \theta_T = 51.737$$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
47.0	-0.0220	0.1765	0.0301	0.5953	0.4212
47.5	-0.0205	0.1748	0.0278	0.5922	0.4210
48.0	-0.0190	0.1733	0.0256	0.5897	0.4192
48.5	-0.0175	0.1721	0.0234	0.5882	0.4181
49.0	-0.0160	0.1712	0.0212	0.5878	0.4179
49.5	-0.0145	0.1708	0.0190	0.5890	0.4187
50.0	-0.0130	0.1711	0.0169	0.5926	0.4213
50.5	-0.0115	0.1724	0.0149	0.5999	0.4265
51.0	-0.0100	0.1754	0.0128	0.6134	0.4361
51.5	-0.0084	0.1817	0.0107	0.6387	0.4541
51.737	-0.0076	0.1869	0.0097	0.6587	0.4683

$$\theta_s = 15^\circ \quad \bar{u}_s = 0.50 \quad M = 1.5144 \quad \theta_v = 44.559$$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
15.0	-0.2327	1.0000	0.9023	1.0725	0.7622
15.5	-0.2242	0.9444	0.8419	1.1083	0.7877
16.0	-0.2162	0.8943	0.7770	1.1361	0.8075
16.25	-0.2124	0.8711	0.7614	1.1475	0.8156
16.50	-0.2087	0.8491	0.7369	1.1574	0.8226
16.75	-0.2050	0.8281	0.7135	1.1660	0.8287
17.00	-0.2014	0.8081	0.6910	1.1734	0.8340
17.25	-0.1979	0.7890	0.6695	1.1797	0.8385
17.50	-0.1945	0.7707	0.6489	1.1850	0.8423
17.75	-0.1912	0.7533	0.6291	1.1894	0.8455
18.00	-0.1879	0.7366	0.6101	1.1930	0.8480
18.25	-0.1847	0.7206	0.5918	1.1958	0.8500
18.50	-0.1816	0.7053	0.5742	1.1979	0.8515
18.75	-0.1786	0.6906	0.5573	1.1994	0.8526
19.00	-0.1756	0.6765	0.5411	1.2003	0.8532
19.25	-0.1727	0.6629	0.5255	1.2007	0.8535
19.50	-0.1698	0.6499	0.5104	1.2006	0.8534
19.75	-0.1670	0.6374	0.4959	1.2001	0.8530
20.0	-0.1642	0.6253	0.4810	1.1992	0.8524
20.5	-0.1589	0.6025	0.4553	1.1963	0.8504
21.0	-0.1537	0.5814	0.4304	1.1922	0.8474
21.5	-0.1487	0.5617	0.4072	1.1870	0.8437
22.0	-0.1439	0.5433	0.3855	1.1810	0.8394
22.5	-0.1392	0.5261	0.3651	1.1743	0.8346
23.0	-0.1347	0.5100	0.3460	1.1670	0.8294
23.5	-0.1303	0.4949	0.3280	1.1591	0.8238
24.0	-0.1260	0.4806	0.3111	1.1508	0.8179
24.5	-0.1219	0.4672	0.2952	1.1422	0.8118
25.0	-0.1179	0.4545	0.2801	1.1333	0.8055
25.5	-0.1140	0.4425	0.2658	1.1242	0.7991
26.0	-0.1102	0.4312	0.2523	1.1150	0.7925
26.5	-0.1065	0.4205	0.2395	1.1056	0.7858
27.0	-0.1029	0.4103	0.2274	1.0961	0.7790
27.5	-0.0994	0.4006	0.2159	1.0865	0.7722
28.0	-0.0959	0.3914	0.2050	1.0769	0.7653
28.5	-0.0925	0.3826	0.1946	1.0673	0.7584
29.0	-0.0892	0.3742	0.1847	1.0577	0.7516
29.5	-0.0860	0.3662	0.1752	1.0481	0.7448
30.0	-0.0828	0.3585	0.1662	1.0385	0.7380
30.5	-0.0797	0.3512	0.1576	1.0290	0.7312
31.0	-0.0767	0.3442	0.1494	1.0195	0.7245
31.5	-0.0737	0.3375	0.1416	1.0101	0.7178
32.0	-0.0708	0.3310	0.1341	1.0008	0.7112
32.5	-0.0679	0.3248	0.1269	0.9916	0.7046
33.0	-0.0651	0.3188	0.1200	0.9825	0.6981
33.5	-0.0623	0.3130	0.1134	0.9735	0.6917
34.0	-0.0596	0.3075	0.1071	0.9646	0.6853
34.5	-0.0570	0.3022	0.1010	0.9558	0.6791



$\theta_s = 15^\circ$     $\bar{u}_s = 0.50$     $M = 1.5144$     $\theta_w = 44.559$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
35.0	-0.0544	0.2971	0.0951	0.9472	0.6730
35.5	-0.0518	0.2922	0.0895	0.9388	0.6670
36.0	-0.0493	0.2874	0.0841	0.9306	0.6612
36.5	-0.0468	0.2828	0.0789	0.9226	0.6555
37.0	-0.0443	0.2784	0.0739	0.9148	0.6500
37.5	-0.0419	0.2742	0.0691	0.9073	0.6446
38.0	-0.0395	0.2702	0.0645	0.9001	0.6395
38.5	-0.0372	0.2664	0.0600	0.8933	0.6347
39.0	-0.0349	0.2627	0.0556	0.8869	0.6302
39.5	-0.0326	0.2593	0.0514	0.8811	0.6260
40.0	-0.0304	0.2562	0.0474	0.8759	0.6223
40.5	-0.0282	0.2534	0.0435	0.8716	0.6192
41.0	-0.0260	0.2509	0.0397	0.8683	0.6169
41.5	-0.0238	0.2488	0.0360	0.8664	0.6155
42.0	-0.0216	0.2472	0.0324	0.8665	0.6156
42.25	-0.0205	0.2468	0.0306	0.8675	0.6163
42.50	-0.0195	0.2465	0.0288	0.8693	0.6176
42.75	-0.0184	0.2465	0.0271	0.8721	0.6196
43.00	-0.0173	0.2469	0.0254	0.8761	0.6224
43.25	-0.0162	0.2477	0.0237	0.8818	0.6265
43.50	-0.0151	0.2491	0.0220	0.8897	0.6321
43.75	-0.0140	0.2512	0.0203	0.9003	0.6396
44.00	-0.0129	0.2544	0.0186	0.9150	0.6501
44.25	-0.0118	0.2592	0.0169	0.9356	0.6648
44.50	-0.0107	0.2664	0.0152	0.9651	0.6858
44.559	-0.0104	0.2687	0.0148	0.9741	0.6922

$\theta_s = 15^\circ$     $\bar{u}_s = 0.55$     $M = 1.7178$     $\theta_v = 39.043$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
15.00	-0.2423	1.1000	0.9428	1.3164	0.9343
15.25	-0.2376	1.0694	0.9092	1.3412	0.9519
15.50	-0.2330	1.0404	0.8775	1.3632	0.9675
15.75	-0.2285	1.0129	0.8473	1.3826	0.9813
16.00	-0.2241	0.9869	0.8184	1.3997	0.9935
16.25	-0.2198	0.9622	0.7908	1.4148	1.0043
16.50	-0.2157	0.9387	0.7644	1.4281	1.0138
16.75	-0.2117	0.9163	0.7392	1.4397	1.0220
17.00	-0.2078	0.8950	0.7150	1.4498	1.0292
17.25	-0.2039	0.8747	0.6918	1.4585	1.0354
17.50	-0.2001	0.8553	0.6696	1.4659	1.0407
17.75	-0.1964	0.8367	0.6483	1.4722	1.0451
18.00	-0.1928	0.8190	0.6279	1.4775	1.0488
18.25	-0.1893	0.8020	0.6082	1.4818	1.0519
18.50	-0.1858	0.7857	0.5893	1.4852	1.0544
18.75	-0.1824	0.7701	0.5711	1.4879	1.0563
19.00	-0.1791	0.7551	0.5536	1.4898	1.0577
19.25	-0.1758	0.7407	0.5367	1.4911	1.0586
19.50	-0.1726	0.7269	0.5204	1.4918	1.0591
19.75	-0.1695	0.7136	0.5047	1.4919	1.0592
20.0	-0.1664	0.7008	0.4896	1.4915	1.0589
20.5	-0.1604	0.6767	0.4609	1.4894	1.0574
21.0	-0.1546	0.6542	0.4341	1.4857	1.0548
21.5	-0.1490	0.6333	0.4090	1.4808	1.0513
22.0	-0.1435	0.6137	0.3856	1.4748	1.0470
22.5	-0.1382	0.5954	0.3636	1.4679	1.0421
23.0	-0.1331	0.5783	0.3429	1.4602	1.0366
23.5	-0.1281	0.5622	0.3234	1.4518	1.0306
24.0	-0.1233	0.5470	0.3051	1.4430	1.0243
24.5	-0.1186	0.5327	0.2878	1.4337	1.0177
25.0	-0.1140	0.5192	0.2715	1.4241	1.0109
25.5	-0.1095	0.5065	0.2561	1.4142	1.0039
26.0	-0.1052	0.4944	0.2415	1.4041	0.9967
26.5	-0.1010	0.4829	0.2277	1.3938	0.9893
27.0	-0.0968	0.4720	0.2145	1.3834	0.9819
27.5	-0.0927	0.4617	0.2020	1.3730	0.9745
28.0	-0.0887	0.4519	0.1901	1.3626	0.9671
28.5	-0.0848	0.4425	0.1788	1.3522	0.9597
29.0	-0.0810	0.4336	0.1680	1.3418	0.9524
29.5	-0.0772	0.4251	0.1577	1.3316	0.9451
30.0	-0.0735	0.4170	0.1479	1.3215	0.9379
30.5	-0.0699	0.4092	0.1386	1.3116	0.9308
31.0	-0.0664	0.4018	0.1297	1.3019	0.9239
31.5	-0.0629	0.3948	0.1211	1.2925	0.9172
32.0	-0.0595	0.3881	0.1129	1.2834	0.9108

$\theta_0 = 15^\circ$     $\bar{u}_0 = 0.55$     $M = 1.7178$     $\theta_w = 39.043$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
32.5	-0.0561	0.3818	0.1051	1.2747	0.9046
33.0	-0.0528	0.3758	0.0976	1.2665	0.8988
33.5	-0.0496	0.3702	0.0904	1.2590	0.8934
34.0	-0.0464	0.3649	0.0834	1.2522	0.8886
34.5	-0.0432	0.3600	0.0767	1.2463	0.8844
35.00	-0.0401	0.3556	0.0702	1.2416	0.8810
35.25	-0.0386	0.3536	0.0671	1.2398	0.8797
35.50	-0.0370	0.3517	0.0640	1.2385	0.8788
35.75	-0.0355	0.3500	0.0610	1.2376	0.8782
36.00	-0.0340	0.3485	0.0580	1.2373	0.8780
36.125	-0.0332	0.3478	0.0566	1.2375	0.8781
36.250	-0.0324	0.3472	0.0552	1.2378	0.8783
36.375	-0.0317	0.3466	0.0537	1.2383	0.8787
36.500	-0.0310	0.3461	0.0522	1.2390	0.8792
36.625	-0.0302	0.3457	0.0507	1.2400	0.8799
36.750	-0.0294	0.3454	0.0493	1.2412	0.8808
36.875	-0.0286	0.3451	0.0479	1.2427	0.8819
37.000	-0.0279	0.3449	0.0465	1.2446	0.8832
37.125	-0.0272	0.3448	0.0452	1.2468	0.8848
37.250	-0.0265	0.3448	0.0438	1.2495	0.8866
37.375	-0.0257	0.3449	0.0424	1.2526	0.8888
37.500	-0.0249	0.3452	0.0410	1.2562	0.8914
37.625	-0.0241	0.3456	0.0397	1.2604	0.8944
37.750	-0.0234	0.3462	0.0384	1.2652	0.8978
37.875	-0.0227	0.3470	0.0370	1.2708	0.9018
38.000	-0.0219	0.3480	0.0356	1.2773	0.9064
38.125	-0.0211	0.3493	0.0342	1.2847	0.9117
38.250	-0.0203	0.3509	0.0329	1.2934	0.9179
38.375	-0.0196	0.3529	0.0316	1.3035	0.9251
38.500	-0.0188	0.3553	0.0303	1.3153	0.9335
38.625	-0.0180	0.3582	0.0290	1.3291	0.9433
38.750	-0.0172	0.3618	0.0277	1.3455	0.9550
38.875	-0.0164	0.3662	0.0263	1.3650	0.9688
39.000	-0.0156	0.3716	0.0249	1.3885	0.9856
39.043	-0.0154	0.3737	0.0244	1.3978	0.9922

$\theta_s = 15^\circ$     $\bar{u}_s = 0.60$     $M = 1.9541$     $\theta_v = 34.620$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
15.00	-0.2503	1.2000	0.9803	1.6055	1.1362
15.25	-0.2451	1.1675	0.9438	1.6377	1.1592
15.50	-0.2401	1.1368	0.9096	1.6664	1.1796
15.75	-0.2352	1.1077	0.8771	1.6918	1.1977
16.00	-0.2304	1.0802	0.8461	1.7143	1.2138
16.25	-0.2257	1.0541	0.8165	1.7343	1.2280
16.50	-0.2212	1.0293	0.7882	1.7520	1.2405
16.75	-0.2168	1.0057	0.7611	1.7676	1.2516
17.00	-0.2124	0.9833	0.7352	1.7813	1.2614
17.25	-0.2081	0.9619	0.7104	1.7933	1.2700
17.50	-0.2040	0.9415	0.6866	1.8038	1.2774
17.75	-0.2000	0.9220	0.6637	1.8128	1.2838
18.00	-0.1960	0.9034	0.6417	1.8205	1.2893
18.25	-0.1921	0.8855	0.6206	1.8270	1.2939
18.50	-0.1883	0.8685	0.6003	1.8325	1.2978
18.75	-0.1845	0.8522	0.5807	1.8370	1.3010
19.00	-0.1808	0.8365	0.5619	1.8406	1.3036
19.25	-0.1772	0.8214	0.5438	1.8434	1.3056
19.50	-0.1737	0.8069	0.5263	1.8454	1.3070
19.75	-0.1702	0.7930	0.5094	1.8468	1.3080
20.00	-0.1667	0.7797	0.4932	1.8476	1.3085
20.25	-0.1633	0.7668	0.4775	1.8478	1.3086
20.50	-0.1600	0.7544	0.4623	1.8475	1.3084
20.75	-0.1568	0.7424	0.4476	1.8467	1.3079
21.00	-0.1536	0.7309	0.4334	1.8454	1.3070
21.25	-0.1504	0.7198	0.4197	1.8437	1.3058
21.50	-0.1473	0.7091	0.4065	1.8417	1.3043
21.75	-0.1442	0.6987	0.3937	1.8394	1.3027
22.00	-0.1412	0.6886	0.3812	1.8368	1.3009
22.25	-0.1382	0.6789	0.3691	1.8340	1.2989
22.50	-0.1353	0.6696	0.3574	1.8309	1.2967
22.75	-0.1324	0.6606	0.3461	1.8275	1.2943
23.00	-0.1295	0.6518	0.3351	1.8239	1.2917
23.25	-0.1267	0.6433	0.3245	1.8202	1.2890
23.50	-0.1239	0.6351	0.3142	1.8163	1.2862
23.75	-0.1211	0.6271	0.3042	1.8123	1.2834
24.00	-0.1184	0.6193	0.2944	1.8082	1.2805
24.25	-0.1157	0.6117	0.2849	1.8039	1.2775
24.50	-0.1131	0.6044	0.2757	1.7996	1.2744
24.75	-0.1105	0.5974	0.2667	1.7952	1.2712
25.00	-0.1079	0.5906	0.2580	1.7907	1.2680
25.25	-0.1053	0.5839	0.2495	1.7861	1.2648
25.50	-0.1028	0.5774	0.2412	1.7816	1.2616
25.75	-0.1003	0.5711	0.2332	1.7770	1.2583
26.00	-0.0978	0.5650	0.2254	1.7724	1.2550

$\theta_s = 15^\circ$     $\bar{u}_s = 0.60$     $M = 1.9541$     $\theta_v = 34.620$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
26.25	-0.0953	0.5591	0.2178	1.7678	1.2517
26.50	-0.0929	0.5533	0.2104	1.7633	1.2485
26.75	-0.0905	0.5477	0.2032	1.7588	1.2453
27.00	-0.0881	0.5423	0.1961	1.7543	1.2421
27.25	-0.0857	0.5370	0.1892	1.7499	1.2390
27.50	-0.0834	0.5319	0.1825	1.7455	1.2359
27.75	-0.0811	0.5270	0.1760	1.7412	1.2329
28.00	-0.0788	0.5222	0.1696	1.7371	1.2300
28.25	-0.0765	0.5175	0.1633	1.7332	1.2271
28.50	-0.0743	0.5130	0.1572	1.7294	1.2244
28.75	-0.0721	0.5086	0.1513	1.7257	1.2218
29.00	-0.0699	0.5044	0.1455	1.7222	1.2193
29.25	-0.0677	0.5004	0.1398	1.7190	1.2170
29.50	-0.0655	0.4965	0.1342	1.7161	1.2149
29.75	-0.0633	0.4928	0.1288	1.7134	1.2130
30.00	-0.0612	0.4893	0.1235	1.7111	1.2113
30.25	-0.0591	0.4859	0.1183	1.7091	1.2099
30.50	-0.0570	0.4827	0.1132	1.7075	1.2088
30.75	-0.0549	0.4797	0.1082	1.7064	1.2081
31.00	-0.0528	0.4765	0.1033	1.7060	1.2078
31.250	-0.0507	0.4743	0.0985	1.7062	1.2079
31.375	-0.0497	0.4731	0.0968	1.7066	1.2082
31.500	-0.0486	0.4720	0.0938	1.7072	1.2086
31.625	-0.0476	0.4710	0.0915	1.7080	1.2092
31.750	-0.0466	0.4700	0.0892	1.7091	1.2100
32.0	-0.0445	0.4683	0.0846	1.7120	1.2120
32.2	-0.0429	0.4672	0.0810	1.7153	1.2144
32.4	-0.0413	0.4664	0.0775	1.7195	1.2174
32.6	-0.0397	0.4658	0.0740	1.7248	1.2211
32.8	-0.0380	0.4656	0.0706	1.7314	1.2258
33.0	-0.0364	0.4659	0.0672	1.7396	1.2316
33.2	-0.0348	0.4666	0.0638	1.7496	1.2387
33.4	-0.0331	0.4678	0.0605	1.7619	1.2475
33.6	-0.0315	0.4698	0.0572	1.7770	1.2583
33.8	-0.0299	0.4727	0.0539	1.7956	1.2715
34.0	-0.0282	0.4766	0.0506	1.8187	1.2879
34.2	-0.0265	0.4821	0.0473	1.8477	1.3086
34.4	-0.0248	0.4895	0.0440	1.8849	1.3351
34.6	-0.0231	0.4998	0.0407	1.9335	1.3697
34.620	-0.0229	0.5010	0.0404	1.9391	1.3727

$\theta_s = 15^\circ$     $\bar{u}_s = 0.65$     $M = 2.2345$     $\theta_v = 30.959$

$\theta$	$x$	$y$	$z$	$r/p$	$r/\bar{p}$
15.0	-0.2566	1.3000	1.0176	1.9510	1.3734
15.1	-0.2543	1.2861	1.0006	1.9683	1.3857
15.2	-0.2521	1.2725	0.9849	1.9849	1.3975
15.3	-0.2499	1.2592	0.9697	2.0007	1.4088
15.4	-0.2477	1.2462	0.9549	2.0158	1.4195
15.5	-0.2455	1.2336	0.9403	2.0303	1.4298
15.6	-0.2434	1.2212	0.9261	2.0441	1.4396
15.7	-0.2413	1.2091	0.9122	2.0573	1.4490
15.8	-0.2392	1.1973	0.8986	2.0699	1.4580
15.9	-0.2371	1.1857	0.8852	2.0820	1.4666
16.0	-0.2350	1.1743	0.8720	2.0936	1.4748
16.1	-0.2330	1.1632	0.8591	2.1047	1.4827
16.2	-0.2310	1.1524	0.8464	2.1152	1.4902
16.3	-0.2290	1.1418	0.8340	2.1252	1.4974
16.4	-0.2270	1.1314	0.8218	2.1348	1.5042
16.5	-0.2250	1.1212	0.8098	2.1440	1.5107
16.6	-0.2231	1.1113	0.7980	2.1528	1.5169
16.7	-0.2212	1.1015	0.7864	2.1611	1.5229
16.8	-0.2193	1.0919	0.7751	2.1690	1.5286
16.9	-0.2174	1.0825	0.7640	2.1766	1.5340
17.0	-0.2155	1.0733	0.7530	2.1839	1.5391
17.1	-0.2136	1.0643	0.7422	2.1908	1.5440
17.2	-0.2117	1.0555	0.7316	2.1974	1.5487
17.3	-0.2099	1.0468	0.7211	2.2036	1.5532
17.4	-0.2081	1.0383	0.7108	2.2095	1.5574
17.5	-0.2063	1.0299	0.7007	2.2152	1.5614
17.6	-0.2045	1.0217	0.6908	2.2206	1.5653
17.7	-0.2027	1.0137	0.6810	2.2257	1.5689
17.8	-0.2009	1.0058	0.6714	2.2306	1.5724
17.9	-0.1992	0.9981	0.6619	2.2352	1.5757
18.00	-0.1975	0.9905	0.6526	2.2396	1.5788
18.25	-0.1932	0.9721	0.6299	2.2495	1.5858
18.50	-0.1890	0.9545	0.6081	2.2582	1.5920
18.75	-0.1849	0.9376	0.5871	2.2657	1.5973
19.00	-0.1808	0.9215	0.5669	2.2721	1.6019
19.25	-0.1768	0.9060	0.5474	2.2775	1.6058
19.50	-0.1729	0.8911	0.5286	2.2820	1.6090
19.75	-0.1691	0.8768	0.5104	2.2857	1.6116
20.00	-0.1653	0.8631	0.4929	2.2887	1.6137
20.25	-0.1615	0.8500	0.4760	2.2911	1.6154
20.50	-0.1578	0.8373	0.4597	2.2928	1.6167
20.75	-0.1542	0.8251	0.4439	2.2940	1.6175
21.00	-0.1506	0.8133	0.4286	2.2947	1.6180
21.25	-0.1471	0.8020	0.4138	2.2949	1.6182
21.50	-0.1436	0.7911	0.3995	2.2948	1.6181

$\theta_s = 15^\circ$     $\bar{u}_s = 0.65$     $M = 2.2345$     $\theta_v = 30.959$

$\theta$	$x$	$y$	$z$	$r/p$	$s/p$
21.75	-0.1402	0.7806	0.3856	2.2943	1.6177
22.00	-0.1368	0.7705	0.3722	2.2935	1.6171
22.25	-0.1335	0.7607	0.3592	2.2925	1.6164
22.50	-0.1302	0.7513	0.3466	2.2913	1.6155
22.75	-0.1269	0.7422	0.3343	2.2899	1.6145
23.00	-0.1237	0.7334	0.3224	2.2883	1.6134
23.25	-0.1205	0.7249	0.3109	2.2865	1.6122
23.50	-0.1174	0.7167	0.2997	2.2846	1.6109
23.75	-0.1143	0.7088	0.2888	2.2828	1.6095
24.00	-0.1112	0.7012	0.2782	2.2809	1.6081
24.25	-0.1082	0.6939	0.2679	2.2790	1.6068
24.50	-0.1052	0.6869	0.2579	2.2772	1.6056
24.75	-0.1022	0.6801	0.2481	2.2755	1.6044
25.00	-0.0992	0.6735	0.2386	2.2739	1.6032
25.25	-0.0963	0.6672	0.2294	2.2724	1.6021
25.50	-0.0934	0.6612	0.2204	2.2711	1.6012
25.75	-0.0905	0.6554	0.2116	2.2701	1.6005
26.00	-0.0877	0.6499	0.2030	2.2695	1.6000
26.25	-0.0849	0.6446	0.1947	2.2692	1.5998
26.50	-0.0821	0.6396	0.1866	2.2693	1.5999
26.75	-0.0793	0.6349	0.1786	2.2699	1.6004
27.00	-0.0765	0.6305	0.1708	2.2711	1.6013
27.25	-0.0737	0.6264	0.1632	2.2731	1.6027
27.50	-0.0710	0.6226	0.1558	2.2759	1.6046
27.75	-0.0683	0.6192	0.1486	2.2795	1.6072
28.00	-0.0656	0.6161	0.1415	2.2843	1.6106
28.25	-0.0629	0.6135	0.1345	2.2905	1.6150
28.50	-0.0603	0.6113	0.1277	2.2982	1.6205
28.75	-0.0577	0.6096	0.1210	2.3077	1.6273
29.00	-0.0550	0.6086	0.1144	2.3195	1.6357
29.250	-0.0523	0.6083	0.1079	2.3342	1.6461
29.375	-0.0510	0.6085	0.1047	2.3427	1.6522
29.500	-0.0496	0.6089	0.1016	2.3522	1.6589
29.625	-0.0483	0.6096	0.0984	2.3620	1.6664
29.750	-0.0470	0.6106	0.0953	2.3746	1.6749
30.0	-0.0443	0.6137	0.0891	2.4026	1.6948
30.1	-0.0432	0.6153	0.0866	2.4157	1.7041
30.2	-0.0422	0.6173	0.0842	2.4302	1.7144
30.3	-0.0411	0.6197	0.0818	2.4462	1.7258
30.4	-0.0400	0.6224	0.0794	2.4639	1.7384
30.5	-0.0389	0.6256	0.0770	2.4835	1.7524
30.6	-0.0378	0.6294	0.0745	2.5053	1.7679
30.7	-0.0367	0.6338	0.0720	2.5298	1.7853
30.8	-0.0356	0.6389	0.0696	2.5574	1.8050
30.9	-0.0345	0.6447	0.0672	2.5885	1.8271
30.959	-0.0338	0.6487	0.0657	2.6089	1.8416

$\theta_s = 15^\circ$     $\bar{u}_s = 0.70$     $M = 2.5787$     $\theta_v = 27.854$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
15.00	-0.2614	1.4000	1.0595	2.3682	1.6505
15.25	-0.2554	1.3644	1.0136	2.4834	1.6898
15.50	-0.2495	1.3309	0.9732	2.4728	1.7250
15.75	-0.2438	1.2993	0.9351	2.5171	1.7565
16.00	-0.2382	1.2695	0.8990	2.5570	1.7849
16.25	-0.2327	1.2414	0.8646	2.5929	1.8105
16.50	-0.2274	1.2148	0.8317	2.6252	1.8335
16.75	-0.2222	1.1896	0.8003	2.6542	1.8541
17.00	-0.2170	1.1657	0.7703	2.6803	1.8727
17.25	-0.2119	1.1430	0.7415	2.7038	1.8894
17.50	-0.2070	1.1214	0.7138	2.7250	1.9045
17.75	-0.2022	1.1009	0.6873	2.7441	1.9181
18.00	-0.1974	1.0813	0.6619	2.7613	1.9303
18.25	-0.1927	1.0626	0.6374	2.7767	1.9413
18.50	-0.1881	1.0448	0.6138	2.7906	1.9512
18.75	-0.1836	1.0278	0.5911	2.8032	1.9601
19.00	-0.1792	1.0116	0.5692	2.8145	1.9682
19.25	-0.1748	0.9961	0.5481	2.8247	1.9754
19.50	-0.1705	0.9812	0.5278	2.8338	1.9819
19.75	-0.1662	0.9669	0.5082	2.8421	1.9878
20.00	-0.1620	0.9533	0.4893	2.8497	1.9932
20.25	-0.1579	0.9403	0.4710	2.8566	1.9981
20.50	-0.1538	0.9278	0.4533	2.8628	2.0026
20.75	-0.1498	0.9158	0.4362	2.8685	2.0067
21.00	-0.1458	0.9044	0.4196	2.8739	2.0105
21.25	-0.1419	0.8935	0.4035	2.8789	2.0140
21.50	-0.1380	0.8830	0.3879	2.8836	2.0173
21.75	-0.1342	0.8729	0.3728	2.8882	2.0205
22.00	-0.1304	0.8633	0.3582	2.8926	2.0237
22.25	-0.1267	0.8541	0.3440	2.8970	2.0269
22.50	-0.1230	0.8454	0.3302	2.9015	2.0301
22.75	-0.1193	0.8371	0.3168	2.9061	2.0334
23.00	-0.1157	0.8292	0.3038	2.9109	2.0368
23.25	-0.1121	0.8217	0.2912	2.9161	2.0405
23.50	-0.1085	0.8146	0.2789	2.9217	2.0445
23.75	-0.1049	0.8079	0.2669	2.9279	2.0489
24.00	-0.1014	0.8017	0.2552	2.9347	2.0537
24.25	-0.0980	0.7960	0.2438	2.9422	2.0592
24.50	-0.0946	0.7907	0.2327	2.9511	2.0654
24.75	-0.0911	0.7859	0.2219	2.9610	2.0725
25.000	-0.0876	0.7817	0.2114	2.9724	2.0806
25.125	-0.0859	0.7798	0.2062	2.9787	2.0851
25.250	-0.0842	0.7780	0.2011	2.9855	2.0899
25.375	-0.0825	0.7764	0.1960	2.9928	2.0950
25.500	-0.0808	0.7750	0.1910	3.0006	2.1005



$\theta_s = 15^\circ$     $\bar{u}_s = 0.70$     $M = 2.2787$     $\theta_v = 27.854$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
25.625	-0.0792	0.7738	0.1861	3.0091	2.1066
25.750	-0.0775	0.7738	0.1812	3.0183	2.1132
25.875	-0.0758	0.7720	0.1763	3.0283	2.1203
26.000	-0.0741	0.7714	0.1715	3.0391	2.1280
26.125	-0.0724	0.7710	0.1667	3.0508	2.1364
26.250	-0.0707	0.7709	0.1620	3.0636	2.1455
26.375	-0.0691	0.7711	0.1573	3.0776	2.1554
26.500	-0.0674	0.7716	0.1527	3.0929	2.1663
26.625	-0.0657	0.7725	0.1481	3.1097	2.1783
26.750	-0.0640	0.7738	0.1436	3.1281	2.1914
26.875	-0.0623	0.7755	0.1391	3.1484	2.2059
27.000	-0.0606	0.7777	0.1346	3.1709	2.2219
27.125	-0.0589	0.7805	0.1301	3.1959	2.2396
27.250	-0.0572	0.7839	0.1257	3.2237	2.2594
27.375	-0.0555	0.7881	0.1213	3.2549	2.2816
27.500	-0.0538	0.7932	0.1169	3.2901	2.3067
27.625	-0.0521	0.7993	0.1125	3.3300	2.3351
27.750	-0.0503	0.8067	0.1081	3.3757	2.3676
27.854	-0.0488	0.8140	0.1045	3.4189	2.3984

$\theta_0 = 15^\circ$     $\bar{U}_0 = 0.75$     $M = 3.0217$     $\theta_v = 25^\circ.163$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
15.00	-0.2651	1.5000	1.1136	2.8785	1.9695
15.25	-0.2586	1.4633	1.0587	2.9524	2.0221
15.50	-0.2523	1.4288	1.0132	3.0190	2.0695
15.625	-0.2492	1.4124	0.9917	3.0498	2.0914
15.750	-0.2461	1.3965	0.9709	3.0791	2.1123
15.875	-0.2431	1.3811	0.9507	3.1070	2.1322
16.000	-0.2401	1.3662	0.9310	3.1336	2.1511
16.125	-0.2371	1.3517	0.9118	3.1590	2.1691
16.250	-0.2342	1.3376	0.8930	3.1831	2.1863
16.375	-0.2313	1.3239	0.8747	3.2061	2.2027
16.500	-0.2284	1.3106	0.8569	3.2280	2.2183
16.625	-0.2256	1.2977	0.8395	3.2490	2.2338
16.750	-0.2228	1.2852	0.8225	3.2690	2.2475
16.875	-0.2200	1.2730	0.8058	3.2881	2.2611
17.000	-0.2172	1.2611	0.7895	3.3064	2.2741
17.125	-0.2145	1.2496	0.7736	3.3240	2.2866
17.250	-0.2118	1.2384	0.7580	3.3408	2.2986
17.375	-0.2091	1.2275	0.7427	3.3569	2.3100
17.500	-0.2064	1.2169	0.7277	3.3723	2.3210
17.625	-0.2038	1.2066	0.7131	3.3871	2.3315
17.750	-0.2012	1.1965	0.6987	3.4013	2.3416
17.875	-0.1986	1.1867	0.6846	3.4150	2.3514
18.000	-0.1960	1.1771	0.6708	3.4282	2.3608
18.25	-0.1909	1.1588	0.6440	3.4531	2.3785
18.50	-0.1859	1.1414	0.6182	3.4763	2.3950
18.75	-0.1810	1.1248	0.5934	3.4981	2.4105
19.00	-0.1761	1.1091	0.5694	3.5187	2.4252
19.25	-0.1713	1.0942	0.5463	3.5382	2.4391
19.50	-0.1665	1.0801	0.5240	3.5568	2.4523
19.75	-0.1618	1.0668	0.5024	3.5747	2.4650
20.00	-0.1572	1.0542	0.4816	3.5920	2.4774
20.25	-0.1526	1.0422	0.4615	3.6090	2.4895
20.50	-0.1481	1.0308	0.4420	3.6259	2.5015
20.75	-0.1436	1.0201	0.4231	3.6428	2.5135
21.00	-0.1392	1.0101	0.4048	3.6599	2.5257
21.25	-0.1348	1.0008	0.3871	3.6775	2.5382
21.50	-0.1305	0.9922	0.3699	3.6956	2.5511
21.75	-0.1262	0.9842	0.3532	3.7146	2.5647
22.000	-0.1219	0.9769	0.3369	3.7349	2.5791
22.125	-0.1198	0.9736	0.3290	3.7456	2.5867
22.250	-0.1176	0.9704	0.3211	3.7566	2.5945
22.375	-0.1155	0.9674	0.3133	3.7681	2.6027
22.500	-0.1134	0.9646	0.3057	3.7801	2.6112
22.625	-0.1113	0.9621	0.2982	3.7927	2.6202
22.750	-0.1092	0.9598	0.2906	3.8059	2.6296
22.875	-0.1071	0.9577	0.2835	3.8198	2.6395
23.000	-0.1050	0.9558	0.2762	3.8345	2.6500
23.125	-0.1030	0.9542	0.2690	3.8501	2.6611

$\theta_1 = 15^\circ$     $U_1 = 0.75$     $M = 1.0217$     $\theta_2 = 25.163^\circ$

$\theta$	$x$	$y$	$z$	$r/p$	$r/p$
23.250	-0.1009	0.9528	0.2619	3.8666	2.6728
23.375	-0.0988	0.9517	0.2549	3.8842	2.6853
23.500	-0.0967	0.9510	0.2480	3.9029	2.6985
23.625	-0.0947	0.9506	0.2412	3.9230	2.7129
23.750	-0.0925	0.9506	0.2344	3.9446	2.7283
23.875	-0.0905	0.9510	0.2277	3.9678	2.7448
24.000	-0.0884	0.9518	0.2211	3.9929	2.7627
24.125	-0.0864	0.9531	0.2145	4.0201	2.7821
24.250	-0.0843	0.9549	0.2080	4.0498	2.8032
24.375	-0.0822	0.9573	0.2016	4.0822	2.8262
24.500	-0.0801	0.9604	0.1952	4.1177	2.8515
24.625	-0.0780	0.9643	0.1888	4.1556	2.8794
24.750	-0.0759	0.9691	0.1825	4.2002	2.9103
24.875	-0.0738	0.9749	0.1762	4.2486	2.9447
25.000	-0.0716	0.9819	0.1699	4.3028	2.9833
25.125	-0.0695	0.9904	0.1637	4.3641	3.0269
25.163	-0.0688	0.9932	0.1619	4.3840	3.0411

$\theta_0 = 15^\circ$     $\bar{u}_0 = 0.80$     $M = 3.6345$     $\theta_1 = 22^\circ.784$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
15.00	-0.2684	1.6000	1.1928	3.5151	2.3224
15.25	-0.2615	1.5627	1.1219	3.6175	2.3953
15.50	-0.2547	1.5278	1.0686	3.7104	2.4614
15.625	-0.2514	1.5113	1.0436	3.7536	2.4922
15.750	-0.2481	1.4953	1.0195	3.7950	2.5216
15.875	-0.2449	1.4798	0.9963	3.8345	2.5498
16.000	-0.2417	1.4648	0.9738	3.8723	2.5767
16.125	-0.2385	1.4504	0.9519	3.9085	2.6024
16.250	-0.2353	1.4364	0.9300	3.9433	2.6271
16.375	-0.2322	1.4229	0.9099	3.9767	2.6509
16.500	-0.2291	1.4098	0.8897	4.0088	2.6738
16.625	-0.2260	1.3971	0.8700	4.0397	2.6958
16.750	-0.2230	1.3848	0.8508	4.0694	2.7170
16.875	-0.2200	1.3729	0.8320	4.0981	2.7374
17.000	-0.2170	1.3614	0.8137	4.1259	2.7572
17.125	-0.2140	1.3502	0.7958	4.1528	2.7763
17.250	-0.2111	1.3394	0.7782	4.1788	2.7948
17.375	-0.2082	1.3289	0.7610	4.2041	2.8128
17.500	-0.2053	1.3188	0.7442	4.2287	2.8303
17.625	-0.2024	1.3090	0.7277	4.2526	2.8473
17.750	-0.1996	1.2995	0.7116	4.2759	2.8639
17.875	-0.1968	1.2903	0.6958	4.2987	2.8801
18.000	-0.1940	1.2814	0.6803	4.3210	2.8960
18.125	-0.1912	1.2728	0.6651	4.3428	2.9116
18.250	-0.1884	1.2644	0.6502	4.3642	2.9269
18.375	-0.1857	1.2563	0.6356	4.3853	2.9419
18.500	-0.1830	1.2485	0.6212	4.4062	2.9567
18.625	-0.1803	1.2410	0.6071	4.4268	2.9713
18.750	-0.1776	1.2338	0.5933	4.4472	2.9858
18.875	-0.1749	1.2268	0.5797	4.4675	3.0003
19.000	-0.1722	1.2201	0.5664	4.4878	3.0147
19.125	-0.1695	1.2136	0.5533	4.5080	3.0291
19.250	-0.1669	1.2074	0.5404	4.5282	3.0435
19.375	-0.1643	1.2014	0.5277	4.5485	3.0579
19.500	-0.1617	1.1957	0.5153	4.5689	3.0724
19.625	-0.1591	1.1903	0.5031	4.5895	3.0871
19.750	-0.1565	1.1851	0.4911	4.6104	3.1020
19.875	-0.1539	1.1802	0.4792	4.6317	3.1171
20.000	-0.1513	1.1756	0.4675	4.6533	3.1325
20.125	-0.1488	1.1713	0.4560	4.6754	3.1483
20.250	-0.1463	1.1673	0.4447	4.6980	3.1644
20.375	-0.1437	1.1635	0.4336	4.7212	3.1809
20.500	-0.1411	1.1600	0.4227	4.7452	3.1980
20.625	-0.1386	1.1568	0.4119	4.7700	3.2156
20.750	-0.1361	1.1540	0.4013	4.7957	3.2339
20.875	-0.1336	1.1516	0.3909	4.8225	3.2530
21.000	-0.1311	1.1495	0.3804	4.8505	3.2729
21.125	-0.1285	1.1477	0.3702	4.8798	3.2937

$\theta_0 = 15^\circ$     $U_0 = 0.80$     $M = 3.6345$     $\theta_1 = 22.784$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\rho$
21.250	-0.1260	1.1464	0.3602	4.9106	3.3156
21.375	-0.1235	1.1455	0.3503	4.9431	3.3388
21.500	-0.1210	1.1451	0.3403	4.9776	3.3634
21.625	-0.1185	1.1452	0.3308	5.0147	3.3895
21.750	-0.1160	1.1459	0.3212	5.0534	3.4173
21.875	-0.1135	1.1472	0.3117	5.0953	3.4472
22.000	-0.1110	1.1492	0.3023	5.1405	3.4794
22.125	-0.1085	1.1519	0.2931	5.1893	3.5141
22.250	-0.1060	1.1555	0.2840	5.2423	3.5518
22.375	-0.1035	1.1600	0.2749	5.3002	3.5930
22.500	-0.1010	1.1657	0.2659	5.3638	3.6383
22.625	-0.0984	1.1726	0.2569	5.4342	3.6883
22.750	-0.0958	1.1811	0.2481	5.5126	3.7441
22.784	-0.0951	1.1837	0.2457	5.5354	3.7604

$\theta_0 = 15^\circ$     $\bar{u}_0 = 0.85$     $M = 4.5910$     $\theta_1 = 20.5^\circ$

$\theta$	$x$	$y$	$z$	$\frac{y}{z}$	$\frac{x}{z}$
15.00	-0.2723	1.7000	1.3172	4.3284	2.6604
15.25	-0.2649	1.6627	1.2158	4.4789	2.7675
15.50	-0.2578	1.6281	1.1483	4.6166	2.8655
15.625	-0.2542	1.6117	1.1175	4.6812	2.9115
15.750	-0.2507	1.5961	1.0882	4.7433	2.9557
15.875	-0.2472	1.5811	1.0600	4.8031	2.9982
16.000	-0.2438	1.5666	1.0328	4.8607	3.0392
16.125	-0.2404	1.5527	1.0065	4.9164	3.0788
16.250	-0.2370	1.5393	0.9810	4.9703	3.1172
16.375	-0.2337	1.5264	0.9563	5.0226	3.1544
16.500	-0.2304	1.5141	0.9323	5.0734	3.1906
16.625	-0.2271	1.5023	0.9089	5.1229	3.2258
16.750	-0.2238	1.4909	0.8861	5.1711	3.2601
16.875	-0.2206	1.4800	0.8639	5.2183	3.2937
17.000	-0.2174	1.4695	0.8422	5.2645	3.3266
17.125	-0.2142	1.4595	0.8211	5.3100	3.3590
17.250	-0.2110	1.4499	0.8004	5.3548	3.3909
17.375	-0.2078	1.4407	0.7802	5.3990	3.4224
17.500	-0.2047	1.4320	0.7604	5.4428	3.4535
17.625	-0.2016	1.4237	0.7410	5.4863	3.4844
17.750	-0.1985	1.4158	0.7221	5.5295	3.5152
17.875	-0.1954	1.4083	0.7036	5.5727	3.5459
18.000	-0.1923	1.4012	0.6854	5.6159	3.5767
18.125	-0.1893	1.3946	0.6676	5.6593	3.6076
18.250	-0.1863	1.3884	0.6501	5.7030	3.6387
18.375	-0.1833	1.3826	0.6330	5.7472	3.6702
18.500	-0.1803	1.3773	0.6162	5.7921	3.7021
18.625	-0.1773	1.3724	0.5997	5.8377	3.7346
18.7500	-0.1743	1.3679	0.5835	5.8842	3.7677
18.8125	-0.1728	1.3658	0.5755	5.9079	3.7845
18.8750	-0.1713	1.3639	0.5676	5.9319	3.8016
18.9375	-0.1698	1.3621	0.5597	5.9562	3.8182
19.0000	-0.1683	1.3604	0.5519	5.9809	3.8365
19.0625	-0.1669	1.3588	0.5442	6.0060	3.8544
19.1250	-0.1654	1.3574	0.5365	6.0316	3.8726
19.1875	-0.1639	1.3561	0.5289	6.0575	3.8911
19.2500	-0.1624	1.3550	0.5214	6.0842	3.9100
19.3125	-0.1610	1.3540	0.5139	6.1113	3.9293
19.3750	-0.1595	1.3532	0.5065	6.1390	3.9490
19.4375	-0.1580	1.3525	0.4991	6.1673	3.9692
19.5000	-0.1565	1.3520	0.4918	6.1963	3.9898
19.5625	-0.1550	1.3516	0.4846	6.2260	4.0109
19.6250	-0.1536	1.3514	0.4774	6.2564	4.0325
19.6875	-0.1521	1.3514	0.4703	6.2876	4.0548
19.7500	-0.1506	1.3516	0.4632	6.3197	4.0777
19.8125	-0.1491	1.3520	0.4562	6.3528	4.1012
19.8750	-0.1477	1.3526	0.4492	6.3869	4.1255
19.9375	-0.1462	1.3534	0.4422	6.4221	4.1505

$\theta_s = 15^\circ$     $\bar{u}_s = 0.85$     $M = 4.5910$     $\theta_v = 20.639$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
20.0000	-0.1447	1.3545	0.4353	6.4585	4.1764
20.0625	-0.1432	1.3558	0.4285	6.4961	4.2032
20.1250	-0.1417	1.3574	0.4217	6.5351	4.2309
20.1875	-0.1402	1.3592	0.4149	6.5755	4.2597
20.2500	-0.1388	1.3613	0.4082	6.6175	4.2896
20.3125	-0.1373	1.3637	0.4015	6.6612	4.3207
20.3750	-0.1358	1.3665	0.3949	6.7068	4.3532
20.4375	-0.1343	1.3696	0.3883	6.7544	4.3871
20.5000	-0.1328	1.3731	0.3818	6.8042	4.4225
20.5625	-0.1313	1.3770	0.3753	6.8564	4.4596
20.6250	-0.1298	1.3814	0.3688	6.9111	4.4986
20.639	-0.1295	1.3825	0.3673	6.9238	4.5076

$\theta_s = 15^\circ$     $\bar{U}_s = 0.90$     $M = 6.5012$     $\theta_v = 18.665$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
15.0	-0.2790	1.8000	1.5207	5.4036	2.7604
15.2	-0.2728	1.7707	1.3789	5.6031	2.9024
15.4	-0.2666	1.7434	1.2969	5.7909	3.0361
15.5	-0.2636	1.7306	1.2607	5.8807	3.1001
15.6	-0.2606	1.7183	1.2269	5.9684	3.1624
15.7	-0.2576	1.7065	1.1946	6.0540	3.2233
15.8	-0.2546	1.6952	1.1637	6.1377	3.2829
15.9	-0.2517	1.6843	1.1340	6.2197	3.3413
16.0	-0.2488	1.6739	1.1053	6.3002	3.3986
16.1	-0.2459	1.6640	1.0775	6.3793	3.4549
16.2	-0.2430	1.6545	1.0506	6.4572	3.5103
16.3	-0.2401	1.6455	1.0245	6.5341	3.5650
16.4	-0.2372	1.6370	0.9991	6.6102	3.6192
16.5	-0.2343	1.6289	0.9742	6.6858	3.6730
16.6	-0.2315	1.6213	0.9500	6.7510	3.7265
16.7	-0.2287	1.6141	0.9264	6.8362	3.7800
16.8	-0.2259	1.6074	0.9034	6.9114	3.8336
16.9	-0.2231	1.6011	0.8809	6.9868	3.8873
17.0	-0.2203	1.5953	0.8588	7.0624	3.9411
17.1	-0.2176	1.5900	0.8372	7.1384	3.9952
17.2	-0.2148	1.5851	0.8160	7.2152	4.0498
17.3	-0.2120	1.5807	0.7953	7.2930	4.1052
17.4	-0.2092	1.5769	0.7750	7.3721	4.1615
17.5	-0.2064	1.5736	0.7550	7.4527	4.2189
17.6	-0.2037	1.5708	0.7353	7.5351	4.2776
17.7	-0.2010	1.5686	0.7160	7.6197	4.3378
17.8	-0.1983	1.5670	0.6971	7.7068	4.3997
17.9	-0.1956	1.5660	0.6785	7.7968	4.4638
18.0	-0.1928	1.5657	0.6603	7.8902	4.5303
18.1	-0.1901	1.5661	0.6423	7.9872	4.5993
18.2	-0.1874	1.5674	0.6246	8.0885	4.6714
18.3	-0.1847	1.5695	0.6071	8.1947	4.7469
18.4	-0.1819	1.5726	0.5899	8.3066	4.8266
18.5	-0.1791	1.5768	0.5729	8.4250	4.9109
18.6	-0.1764	1.5821	0.5562	8.5510	5.0006
18.665	-0.1746	1.5862	0.5455	8.6378	5.0624



$\theta_s = 15^\circ$     $\bar{u}_s = 0.95$     $M = 16.855$     $\theta_v = 16.805$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
15.00	-0.2926	1.9000	1.8669	6.9016	1.1989
15.05	-0.2909	1.8929	1.7342	7.0131	1.2783
15.10	-0.2893	1.8859	1.6724	7.1231	1.3566
15.15	-0.2877	1.8791	1.6226	7.2318	1.4339
15.20	-0.2861	1.8725	1.5789	7.3392	1.5104
15.25	-0.2845	1.8661	1.5392	7.4456	1.5861
15.30	-0.2828	1.8599	1.5028	7.5511	1.6612
15.35	-0.2812	1.8539	1.4684	7.6557	1.7357
15.40	-0.2796	1.8482	1.4358	7.7596	1.8096
15.45	-0.2780	1.8427	1.4046	7.8629	1.8831
15.50	-0.2764	1.8374	1.3748	7.9656	1.9562
15.55	-0.2748	1.8323	1.3463	8.0678	2.0290
15.60	-0.2732	1.8275	1.3189	8.1597	2.1015
15.65	-0.2716	1.8229	1.2923	8.2714	2.1738
15.70	-0.2700	1.8186	1.2664	8.3729	2.2461
15.75	-0.2684	1.8145	1.2412	8.4744	2.3184
15.80	-0.2668	1.8106	1.2166	8.5761	2.3908
15.85	-0.2652	1.8070	1.1926	8.6780	2.4633
15.90	-0.2636	1.8036	1.1692	8.7802	2.5361
15.95	-0.2620	1.8004	1.1464	8.8829	2.6092
16.00	-0.2605	1.7975	1.1241	8.9862	2.6826
16.05	-0.2590	1.7949	1.1022	9.0902	2.7566
16.10	-0.2575	1.7925	1.0807	9.1950	2.8312
16.15	-0.2559	1.7904	1.0597	9.3008	2.9065
16.20	-0.2543	1.7886	1.0391	9.4076	2.9826
16.25	-0.2527	1.7871	1.0188	9.5157	3.0595
16.30	-0.2511	1.7859	0.9988	9.6252	3.1374
16.35	-0.2495	1.7850	0.9792	9.7363	3.2165
16.40	-0.2479	1.7843	0.9599	9.8492	3.2969
16.45	-0.2464	1.7840	0.9410	9.9641	3.3786
16.50	-0.2449	1.7840	0.9223	10.0811	3.4618
16.55	-0.2434	1.7844	0.9039	10.2005	3.5468
16.60	-0.2418	1.7852	0.8858	10.3226	3.6338
16.65	-0.2402	1.7864	0.8680	10.4476	3.7228
16.70	-0.2386	1.7880	0.8504	10.5758	3.8140
16.75	-0.2371	1.7901	0.8330	10.7075	3.9077
16.80	-0.2356	1.7926	0.8159	10.8428	4.0041
16.805	-0.2354	1.7928	0.8142	10.8570	4.0142

$\theta_s = 15^\circ$     $\bar{u}_s = 0.95965$     $M = \text{Infinity}$     $\theta_w = 16^\circ.454$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
15.0	-0.2967	1.9193	1.9594	7.2637	0.0619
15.1	-0.2934	1.9056	1.7252	7.5483	0.2603
15.2	-0.2900	1.8925	1.6140	7.8153	0.4544
15.25	-0.2883	1.8864	1.5674	7.9504	0.5506
15.30	-0.2867	1.8805	1.5249	8.0846	0.6461
15.35	-0.2851	1.8749	1.4849	8.2181	0.7411
15.40	-0.2835	1.8696	1.4472	8.3512	0.8358
15.45	-0.2819	1.8646	1.4113	8.4840	0.9303
15.50	-0.2802	1.8598	1.3770	8.6166	1.0247
15.55	-0.2786	1.8553	1.3441	8.7491	1.1190
15.60	-0.2770	1.8511	1.3124	8.8817	1.2134
15.65	-0.2754	1.8473	1.2817	9.0146	1.3080
15.70	-0.2738	1.8437	1.2520	9.1479	1.4029
15.75	-0.2722	1.8404	1.2232	9.2817	1.4982
15.80	-0.2705	1.8374	1.1952	9.4163	1.5940
15.85	-0.2689	1.8348	1.1679	9.5520	1.6906
15.90	-0.2673	1.8325	1.1413	9.6891	1.7882
15.95	-0.2657	1.8305	1.1153	9.8279	1.8869
16.00	-0.2641	1.8289	1.0899	9.9685	1.9869
16.05	-0.2625	1.8276	1.0651	10.1110	2.0883
16.10	-0.2610	1.8267	1.0408	10.2556	2.1913
16.15	-0.2594	1.8262	1.0170	10.4027	2.2960
16.20	-0.2578	1.8261	0.9937	10.5525	2.4026
16.25	-0.2562	1.8265	0.9708	10.7055	2.5115
16.30	-0.2546	1.8273	0.9483	10.8620	2.6229
16.35	-0.2530	1.8286	0.9263	11.0223	2.7370
16.40	-0.2514	1.8304	0.9046	11.1867	2.8540
16.45	-0.2498	1.8326	0.8833	11.3553	2.9740
16.454	-0.2497	1.8329	0.8814	11.3697	2.9843

$\theta_1 = 20^\circ$     $\bar{u}_1 = 0.30$     $M = 1.2794(8)$     $\theta_2 = 79.487$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
20.0	-0.3165	0.6000	0.9578	0.6984	0.4898
20.5	-0.3114	0.5696	0.9193	0.7092	0.4974
21.0	-0.3065	0.5415	0.8842	0.7178	0.5035
21.5	-0.3019	0.5156	0.8515	0.7244	0.5083
22.0	-0.2975	0.4916	0.8209	0.7295	0.5119
22.5	-0.2933	0.4693	0.7923	0.7332	0.5145
23.0	-0.2893	0.4486	0.7654	0.7357	0.5163
23.5	-0.2855	0.4293	0.7401	0.7371	0.5173
24.0	-0.2818	0.4114	0.7163	0.7377	0.5177
24.5	-0.2783	0.3946	0.6938	0.7375	0.5176
25.0	-0.2749	0.3789	0.6725	0.7366	0.5170
25.5	-0.2717	0.3643	0.6524	0.7351	0.5159
26.0	-0.2686	0.3506	0.6334	0.7331	0.5145
26.5	-0.2656	0.3377	0.6153	0.7308	0.5128
27.0	-0.2627	0.3256	0.5982	0.7280	0.5108
27.5	-0.2599	0.3143	0.5819	0.7249	0.5086
28.0	-0.2572	0.3036	0.5664	0.7216	0.5058
28.5	-0.2546	0.2936	0.5516	0.7180	0.5036
29.0	-0.2521	0.2842	0.5375	0.7142	0.5009
29.5	-0.2496	0.2753	0.5240	0.7102	0.4981
30	-0.2472	0.2669	0.5112	0.7061	0.4952
31	-0.2427	0.2515	0.4871	0.6976	0.4892
32	-0.2384	0.2377	0.4651	0.6887	0.4829
33	-0.2344	0.2254	0.4448	0.6797	0.4765
34	-0.2306	0.2144	0.4261	0.6706	0.4700
35	-0.2269	0.2045	0.4087	0.6615	0.4634
36	-0.2234	0.1957	0.3926	0.6524	0.4569
37	-0.2201	0.1878	0.3776	0.6433	0.4505
38	-0.2169	0.1806	0.3637	0.6343	0.4442
39	-0.2138	0.1741	0.3506	0.6255	0.4379
40	-0.2108	0.1683	0.3383	0.6168	0.4317
41	-0.2079	0.1631	0.3268	0.6083	0.4256
42	-0.2051	0.1584	0.3160	0.6000	0.4197
43	-0.2024	0.1542	0.3058	0.5919	0.4140
44	-0.1997	0.1505	0.2962	0.5840	0.4084
45	-0.1971	0.1472	0.2871	0.5763	0.4029
46	-0.1946	0.1442	0.2784	0.5689	0.3976
47	-0.1921	0.1416	0.2702	0.5617	0.3925
48	-0.1896	0.1393	0.2624	0.5547	0.3875
49	-0.1872	0.1372	0.2549	0.5479	0.3826
50	-0.1848	0.1354	0.2478	0.5413	0.3779
51	-0.1825	0.1338	0.2410	0.5349	0.3734
52	-0.1802	0.1325	0.2345	0.5288	0.3690
53	-0.1779	0.1314	0.2283	0.5229	0.3648
54	-0.1756	0.1305	0.2224	0.5172	0.3608

$\theta_1 = 20^\circ$     $U_1 = 0.30$     $N = 1.2794(8)$     $\theta_2 = 79.487$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi$
55	-0.1733	0.1298	0.2167	0.5118	0.3569
56	-0.1710	0.1292	0.2111	0.5066	0.3538
57	-0.1688	0.1288	0.2057	0.5017	0.3497
58	-0.1666	0.1286	0.2006	0.4970	0.3464
59	-0.1643	0.1285	0.1957	0.4925	0.3432
60.0	-0.1621	0.1285	0.1910	0.4883	0.3402
60.5	-0.1609	0.1286	0.1885	0.4868	0.3389
61.0	-0.1598	0.1287	0.1863	0.4843	0.3374
61.5	-0.1587	0.1289	0.1840	0.4824	0.3360
62.0	-0.1576	0.1290	0.1818	0.4806	0.3347
62.5	-0.1565	0.1292	0.1796	0.4789	0.3335
63.0	-0.1553	0.1295	0.1774	0.4772	0.3323
63.5	-0.1542	0.1298	0.1753	0.4756	0.3312
64.0	-0.1531	0.1301	0.1732	0.4741	0.3301
64.5	-0.1520	0.1304	0.1711	0.4727	0.3291
65.0	-0.1508	0.1307	0.1690	0.4713	0.3281
65.5	-0.1496	0.1311	0.1670	0.4700	0.3272
66.0	-0.1484	0.1315	0.1650	0.4688	0.3265
66.5	-0.1473	0.1320	0.1630	0.4677	0.3256
67.0	-0.1462	0.1325	0.1611	0.4667	0.3248
67.5	-0.1451	0.1330	0.1592	0.4657	0.3241
68.0	-0.1439	0.1336	0.1573	0.4648	0.3235
68.5	-0.1427	0.1342	0.1554	0.4640	0.3230
69.0	-0.1415	0.1348	0.1535	0.4634	0.3225
69.5	-0.1404	0.1354	0.1516	0.4629	0.3221
70.0	-0.1392	0.1360	0.1498	0.4624	0.3218
70.5	-0.1380	0.1367	0.1480	0.4620	0.3215
71.0	-0.1368	0.1375	0.1462	0.4617	0.3213
71.5	-0.1356	0.1383	0.1444	0.4616	0.3212
72.0	-0.1344	0.1391	0.1426	0.4616	0.3212
72.5	-0.1332	0.1399	0.1408	0.4617	0.3213
73.0	-0.1319	0.1408	0.1390	0.4619	0.3214
73.5	-0.1307	0.1417	0.1373	0.4623	0.3216
74.0	-0.1295	0.1427	0.1356	0.4628	0.3220
74.5	-0.1283	0.1437	0.1339	0.4634	0.3225
75.0	-0.1270	0.1447	0.1322	0.4642	0.3231
75.5	-0.1257	0.1458	0.1305	0.4652	0.3238
76.0	-0.1244	0.1470	0.1288	0.4663	0.3246
76.5	-0.1231	0.1482	0.1271	0.4676	0.3255
77.0	-0.1218	0.1494	0.1254	0.4691	0.3265
77.5	-0.1205	0.1507	0.1238	0.4708	0.3277
78.0	-0.1192	0.1521	0.1221	0.4727	0.3291
78.5	-0.1179	0.1535	0.1204	0.4748	0.3306
79.0	-0.1165	0.1550	0.1188	0.4771	0.3322
79.487	-0.1152	0.1565	0.1172	0.4797	0.3341

$\theta_1 = 20^\circ$     $\theta_2 = 0.35$     $M = 1.2175$     $\theta_3 = 66.507$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
20.0	-0.2761	0.7000	0.8182	0.7535	0.5333
20.5	-0.2701	0.6890	0.7813	0.7689	0.5443
21.0	-0.2644	0.6740	0.7473	0.7815	0.5533
21.5	-0.2589	0.6140	0.7156	0.7917	0.5605
22.0	-0.2537	0.5895	0.6859	0.7999	0.5663
22.5	-0.2487	0.5668	0.6581	0.8063	0.5709
23.0	-0.2437	0.5457	0.6319	0.8112	0.5744
23.5	-0.2391	0.5260	0.6073	0.8148	0.5769
24.0	-0.2346	0.5076	0.5842	0.8172	0.5786
24.5	-0.2302	0.4905	0.5624	0.8186	0.5796
25.0	-0.2260	0.4745	0.5418	0.8192	0.5801
25.5	-0.2219	0.4595	0.5223	0.8190	0.5800
26.0	-0.2179	0.4454	0.5038	0.8182	0.5794
26.5	-0.2141	0.4321	0.4863	0.8158	0.5784
27.0	-0.2104	0.4196	0.4697	0.8149	0.5771
27.5	-0.2068	0.4079	0.4539	0.8126	0.5755
28.0	-0.2033	0.3968	0.4388	0.8100	0.5736
28.5	-0.1998	0.3863	0.4245	0.8070	0.5714
29.0	-0.1965	0.3764	0.4109	0.8037	0.5690
29.5	-0.1933	0.3671	0.3979	0.8002	0.5665
30.0	-0.1902	0.3583	0.3854	0.7965	0.5639
31.0	-0.1841	0.3420	0.3622	0.7886	0.5583
32.0	-0.1782	0.3272	0.3408	0.7802	0.5523
33.0	-0.1726	0.3139	0.3212	0.7714	0.5460
34.0	-0.1672	0.3019	0.3032	0.7624	0.5396
35.0	-0.1620	0.2909	0.2865	0.7533	0.5331
36.0	-0.1570	0.2809	0.2709	0.7441	0.5266
37.0	-0.1522	0.2718	0.2564	0.7349	0.5201
38.0	-0.1476	0.2635	0.2430	0.7258	0.5136
39.0	-0.1431	0.2559	0.2304	0.7168	0.5072
40.0	-0.1387	0.2489	0.2186	0.7079	0.5009
41.0	-0.1344	0.2424	0.2075	0.6991	0.4946
42.0	-0.1302	0.2364	0.1971	0.6905	0.4885
43.0	-0.1261	0.2309	0.1873	0.6822	0.4826
44.0	-0.1221	0.2258	0.1781	0.6741	0.4758
45.0	-0.1182	0.2211	0.1694	0.6662	0.4712
46.0	-0.1144	0.2168	0.1611	0.6585	0.4658
47.0	-0.1107	0.2128	0.1532	0.6511	0.4605
48.0	-0.1070	0.2091	0.1457	0.6440	0.4554
49.0	-0.1034	0.2056	0.1386	0.6372	0.4505
50.0	-0.0998	0.2024	0.1318	0.6307	0.4458
51.0	-0.0963	0.1995	0.1253	0.6245	0.4414
52.0	-0.0928	0.1968	0.1191	0.6186	0.4373
53.0	-0.0894	0.1943	0.1132	0.6131	0.4334
54.0	-0.0860	0.1920	0.1075	0.6080	0.4297

$\theta_1 = 20^\circ$     $U_1 = 0.35$     $M = 1.2175$     $\theta_2 = 68.507$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
55	-0.0827	0.1900	0.1020	0.5833	0.4253
56	-0.0794	0.1882	0.0967	0.5990	0.4233
57	-0.0761	0.1866	0.0916	0.5952	0.4206
58	-0.0729	0.1852	0.0867	0.5920	0.4184
59	-0.0697	0.1841	0.0820	0.5895	0.4166
60.0	-0.0665	0.1832	0.0774	0.5878	0.4154
60.5	-0.0649	0.1829	0.0751	0.5872	0.4150
61.0	-0.0633	0.1826	0.0739	0.5868	0.4147
61.5	-0.0617	0.1824	0.0707	0.5867	0.4146
62.0	-0.0601	0.1823	0.0686	0.5869	0.4147
62.5	-0.0585	0.1823	0.0664	0.5874	0.4151
63.0	-0.0569	0.1824	0.0642	0.5882	0.4157
63.5	-0.0553	0.1826	0.0621	0.5894	0.4166
64.0	-0.0537	0.1830	0.0601	0.5911	0.4177
64.5	-0.0521	0.1835	0.0581	0.5932	0.4192
65.0	-0.0505	0.1841	0.0561	0.5958	0.4211
65.5	-0.0489	0.1849	0.0540	0.5991	0.4234
66.0	-0.0473	0.1859	0.0519	0.6031	0.4262
66.5	-0.0456	0.1872	0.0498	0.6079	0.4296
67.0	-0.0440	0.1887	0.0478	0.6137	0.4338
67.5	-0.0424	0.1906	0.0458	0.6207	0.4388
68.0	-0.0407	0.1929	0.0439	0.6292	0.4448
68.5	-0.0390	0.1956	0.0420	0.6393	0.4520
68.507	-0.0390	0.1958	0.0419	0.6396	0.4522

$\theta_0 = 2n^\circ$     $u_0 = 0.40$     $M = 1.3144$     $\theta_v = 58.043$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
20.0	-0.2786	0.8000	0.8247	0.9091	0.6437
20.5	-0.2718	0.7666	0.7851	0.9301	0.6587
21.0	-0.2652	0.7358	0.7486	0.9476	0.6712
21.5	-0.2589	0.7073	0.7146	0.9620	0.6814
22.0	-0.2528	0.6810	0.6827	0.9737	0.6898
22.5	-0.2470	0.6566	0.6529	0.9832	0.6955
23.0	-0.2414	0.6340	0.6249	0.9907	0.7018
23.5	-0.2360	0.6129	0.5985	0.9965	0.7059
24.0	-0.2307	0.5931	0.5736	1.0008	0.7090
24.5	-0.2256	0.5746	0.5501	1.0038	0.7112
25.0	-0.2207	0.5574	0.5280	1.0057	0.7125
25.5	-0.2159	0.5413	0.5071	1.0066	0.7131
26.0	-0.2112	0.5261	0.4873	1.0067	0.7132
26.5	-0.2067	0.5118	0.4685	1.0061	0.7128
27.0	-0.2023	0.4984	0.4507	1.0048	0.7119
27.5	-0.1980	0.4857	0.4337	1.0029	0.7106
28.0	-0.1938	0.4737	0.4175	1.0006	0.7089
28.5	-0.1897	0.4624	0.4021	0.9978	0.7069
29.0	-0.1857	0.4517	0.3875	0.9947	0.7047
29.5	-0.1818	0.4416	0.3735	0.9912	0.7022
30.0	-0.1780	0.4320	0.3601	0.9875	0.6995
30.5	-0.1743	0.4229	0.3473	0.9835	0.6967
31.0	-0.1707	0.4142	0.3351	0.9793	0.6937
31.5	-0.1671	0.4060	0.3234	0.9750	0.6906
32.0	-0.1636	0.3982	0.3122	0.9705	0.6874
32.5	-0.1601	0.3907	0.3014	0.9658	0.6841
33.0	-0.1567	0.3835	0.2910	0.9611	0.6807
33.5	-0.1534	0.3767	0.2811	0.9563	0.6773
34.0	-0.1502	0.3702	0.2716	0.9514	0.6739
34.5	-0.1470	0.3640	0.2624	0.9465	0.6704
35.0	-0.1438	0.3581	0.2535	0.9415	0.6668
35.5	-0.1407	0.3524	0.2450	0.9365	0.6632
36.0	-0.1376	0.3470	0.2368	0.9315	0.6597
36.5	-0.1346	0.3418	0.2289	0.9265	0.6562
37.0	-0.1317	0.3368	0.2213	0.9215	0.6526
37.5	-0.1288	0.3320	0.2139	0.9165	0.6491
38.0	-0.1259	0.3274	0.2068	0.9116	0.6456
38.5	-0.1231	0.3230	0.1999	0.9067	0.6421
39.0	-0.1203	0.3188	0.1932	0.9018	0.6386
39.5	-0.1175	0.3147	0.1867	0.8970	0.6352
40.0	-0.1148	0.3108	0.1804	0.8923	0.6318
40.5	-0.1121	0.3070	0.1744	0.8876	0.6284
41.0	-0.1094	0.3034	0.1686	0.8830	0.6251
41.5	-0.1068	0.2999	0.1629	0.8784	0.6219
42.0	-0.1042	0.2966	0.1573	0.8739	0.6187

$\theta_1 = 20'$      $\bar{u}_1 = 0.40$      $M = 1.3144$      $\theta_2 = 58.043$

$\theta$	x	y	z	$\sqrt{r}$	$r/\rho$
42.5	-0.1016	0.2933	0.1519	0.8693	0.6156
43.0	-0.0991	0.2902	0.1467	0.8652	0.6125
43.5	-0.0966	0.2872	0.1417	0.8610	0.6095
44.0	-0.0941	0.2843	0.1368	0.8569	0.6066
44.5	-0.0916	0.2816	0.1320	0.8529	0.6038
45.0	-0.0891	0.2790	0.1273	0.8491	0.6011
45.5	-0.0867	0.2765	0.1227	0.8454	0.5984
46.0	-0.0843	0.2740	0.1183	0.8419	0.5959
46.5	-0.0819	0.2717	0.1140	0.8385	0.5935
47.0	-0.0795	0.2695	0.1098	0.8352	0.5912
47.5	-0.0772	0.2674	0.1057	0.8321	0.5891
48.0	-0.0749	0.2654	0.1017	0.8293	0.5871
48.5	-0.0726	0.2635	0.0978	0.8267	0.5852
49.0	-0.0703	0.2617	0.0940	0.8243	0.5834
49.5	-0.0680	0.2600	0.0902	0.8221	0.5818
50.0	-0.0658	0.2584	0.0865	0.8202	0.5805
50.5	-0.0636	0.2570	0.0829	0.8187	0.5794
51.0	-0.0613	0.2557	0.0794	0.8175	0.5786
51.5	-0.0590	0.2546	0.0760	0.8167	0.5780
52.0	-0.0568	0.2536	0.0726	0.8164	0.5778
52.5	-0.0546	0.2528	0.0693	0.8166	0.5779
53.0	-0.0524	0.2522	0.0660	0.8174	0.5785
53.5	-0.0502	0.2518	0.0628	0.8189	0.5796
54.0	-0.0480	0.2516	0.0597	0.8212	0.5812
54.5	-0.0458	0.2517	0.0566	0.8245	0.5835
55.0	-0.0436	0.2522	0.0535	0.8290	0.5867
55.5	-0.0414	0.2531	0.0505	0.8350	0.5910
56.0	-0.0392	0.2545	0.0475	0.8428	0.5966
56.5	-0.0370	0.2566	0.0445	0.8530	0.6038
57.0	-0.0347	0.2596	0.0415	0.8663	0.6133
57.5	-0.0324	0.2638	0.0385	0.8838	0.6257
58.0	-0.0301	0.2696	0.0355	0.9073	0.6425
58.043	-0.0299	0.2702	0.0352	0.9097	0.6442



$\theta_1 = 20^\circ$     $\mu_1 = 0.45$     $M = 1.4672$     $\theta_2 = 50^\circ.281$

$\theta$	$x$	$y$	$z$	$r/\rho$	$r/\rho$
20.0	-0.2873	0.9000	0.8546	1.1054	0.7811
20.5	-0.2796	0.8819	0.8112	1.1356	0.8012
21.0	-0.2722	0.8308	0.7715	1.1572	0.8180
21.5	-0.2651	0.8008	0.7346	1.1768	0.8320
22.0	-0.2582	0.7719	0.7000	1.1930	0.8435
22.5	-0.2516	0.7457	0.6676	1.2063	0.8529
23.0	-0.2452	0.7214	0.6372	1.2171	0.8606
23.5	-0.2390	0.6988	0.6086	1.2258	0.8668
24.0	-0.2330	0.6777	0.5816	1.2326	0.8716
24.5	-0.2272	0.6580	0.5561	1.2378	0.8753
25.0	-0.2216	0.6395	0.5320	1.2415	0.8780
25.5	-0.2161	0.6222	0.5093	1.2440	0.8798
26.0	-0.2107	0.6060	0.4878	1.2454	0.8808
26.5	-0.2055	0.5907	0.4674	1.2459	0.8811
27.0	-0.2004	0.5763	0.4480	1.2456	0.8809
28	-0.1906	0.5499	0.4119	1.2428	0.8789
29	-0.1812	0.5264	0.3792	1.2380	0.8755
30	-0.1722	0.5052	0.3494	1.2315	0.8709
31	-0.1635	0.4861	0.3221	1.2238	0.8654
32	-0.1552	0.4689	0.2970	1.2152	0.8593
33	-0.1472	0.4532	0.2740	1.2061	0.8528
34	-0.1394	0.4389	0.2527	1.1966	0.8461
35	-0.1318	0.4258	0.2330	1.1870	0.8393
36	-0.1245	0.4139	0.2147	1.1774	0.8324
37	-0.1174	0.4030	0.1976	1.1679	0.8256
38	-0.1104	0.3930	0.1817	1.1588	0.8191
39	-0.1036	0.3839	0.1668	1.1502	0.8130
40	-0.0970	0.3756	0.1528	1.1423	0.8074
41	-0.0905	0.3681	0.1396	1.1353	0.8024
42	-0.0842	0.3614	0.1272	1.1294	0.7982
42.5	-0.0810	0.3583	0.1212	1.1269	0.7964
43.0	-0.0779	0.3555	0.1154	1.1249	0.7950
43.5	-0.0748	0.3529	0.1098	1.1234	0.7939
44.0	-0.0717	0.3505	0.1043	1.1224	0.7932
44.5	-0.0687	0.3484	0.0989	1.1221	0.7930
45.0	-0.0657	0.3465	0.0937	1.1225	0.7933
45.5	-0.0626	0.3449	0.0886	1.1239	0.7943
46.0	-0.0596	0.3437	0.0836	1.1263	0.7960
46.5	-0.0566	0.3429	0.0787	1.1300	0.7986
47.0	-0.0536	0.3426	0.0739	1.1353	0.8024
47.5	-0.0506	0.3429	0.0692	1.1425	0.8076
48.0	-0.0476	0.3439	0.0645	1.1523	0.8145
48.5	-0.0446	0.3459	0.0599	1.1654	0.8238
49.0	-0.0416	0.3493	0.0553	1.1830	0.8364
49.5	-0.0385	0.3544	0.0508	1.2068	0.8533
50.0	-0.0354	0.3614	0.0463	1.2398	0.8768
50.281	-0.0337	0.3672	0.0438	1.2641	0.8941

$\theta_s = 30^\circ$     $\bar{u}_s = 0.50$     $M = 1.6531$     $\theta_v = 44.424$

$\theta$	$x$	$y$	$z$	$r/p$	$r/p$
20.00	-0.2967	1.0000	0.8913	1.3347	0.9391
20.25	-0.2924	0.9973	0.8663	1.3541	0.9530
20.50	-0.2882	0.9944	0.8433	1.3718	0.9656
20.75	-0.2840	0.9433	0.8212	1.3881	0.9778
21.00	-0.2799	0.9259	0.8000	1.4031	0.9878
21.25	-0.2759	0.9093	0.7795	1.4168	0.9976
21.50	-0.2720	0.8933	0.7597	1.4294	1.0065
21.75	-0.2681	0.8780	0.7406	1.4409	1.0147
22.00	-0.2643	0.8633	0.7221	1.4514	1.0228
22.25	-0.2606	0.8491	0.7042	1.4610	1.0290
22.5	-0.2569	0.8354	0.6868	1.4698	1.0353
23.0	-0.2498	0.8096	0.6538	1.4850	1.0461
23.5	-0.2428	0.7856	0.6227	1.4976	1.0551
24.0	-0.2360	0.7633	0.5933	1.5078	1.0624
24.5	-0.2294	0.7425	0.5656	1.5160	1.0682
25.0	-0.2230	0.7230	0.5394	1.5224	1.0727
25.5	-0.2168	0.7047	0.5147	1.5273	1.0768
26.0	-0.2107	0.6876	0.4913	1.5309	1.0788
26.5	-0.2048	0.6715	0.4690	1.5334	1.0806
27.0	-0.1990	0.6564	0.4478	1.5348	1.0816
27.5	-0.1933	0.6421	0.4277	1.5354	1.0820
28.0	-0.1878	0.6287	0.4086	1.5353	1.0819
28.5	-0.1824	0.6160	0.3903	1.5345	1.0814
29.0	-0.1771	0.6040	0.3728	1.5332	1.0804
29.5	-0.1719	0.5926	0.3561	1.5314	1.0791
30.0	-0.1668	0.5818	0.3402	1.5293	1.0776
30.5	-0.1617	0.5716	0.3250	1.5268	1.0759
31.0	-0.1567	0.5619	0.3104	1.5241	1.0740
31.5	-0.1519	0.5527	0.2964	1.5212	1.0719
32.0	-0.1471	0.5440	0.2830	1.5181	1.0697
32.5	-0.1424	0.5358	0.2701	1.5150	1.0675
33.0	-0.1377	0.5280	0.2577	1.5119	1.0652
33.5	-0.1331	0.5205	0.2458	1.5088	1.0630
34.0	-0.1286	0.5134	0.2343	1.5057	1.0608
34.5	-0.1242	0.5067	0.2232	1.5027	1.0587
35.0	-0.1198	0.5003	0.2125	1.4999	1.0567
35.5	-0.1155	0.4943	0.2022	1.4974	1.0549
36.0	-0.1112	0.4887	0.1923	1.4951	1.0533
36.5	-0.1069	0.4834	0.1827	1.4932	1.0520
37.0	-0.1027	0.4784	0.1734	1.4917	1.0510
37.5	-0.0986	0.4738	0.1644	1.4908	1.0503
38.0	-0.0945	0.4696	0.1557	1.4905	1.0501
38.5	-0.0904	0.4657	0.1472	1.4910	1.0504
39.0	-0.0863	0.4622	0.1390	1.4923	1.0514
39.5	-0.0823	0.4592	0.1310	1.4948	1.0531

$\theta_0 = 20^\circ$     $U_0 = 0.50$     $M = 1.6531$     $\theta_v = 44.424$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
40.00	-0.0783	0.4567	0.1232	1.4985	1.0557
40.25	-0.0763	0.4556	0.1194	1.5010	1.0575
40.50	-0.0743	0.4547	0.1157	1.5039	1.0596
40.75	-0.0724	0.4540	0.1120	1.5073	1.0620
41.00	-0.0704	0.4534	0.1084	1.5112	1.0648
41.25	-0.0684	0.4531	0.1048	1.5158	1.0680
41.50	-0.0664	0.4529	0.1012	1.5210	1.0717
41.75	-0.0644	0.4529	0.0976	1.5271	1.0761
42.00	-0.0625	0.4532	0.0941	1.5341	1.0811
42.25	-0.0605	0.4538	0.0906	1.5421	1.0868
42.50	-0.0585	0.4548	0.0872	1.5513	1.0933
42.75	-0.0565	0.4562	0.0838	1.5620	1.1009
43.00	-0.0545	0.4580	0.0804	1.5742	1.1096
43.25	-0.0525	0.4603	0.0770	1.5885	1.1198
43.50	-0.0505	0.4633	0.0737	1.6051	1.1316
43.75	-0.0485	0.4670	0.0704	1.6246	1.1455
44.00	-0.0464	0.4717	0.0670	1.6477	1.1619
44.25	-0.0444	0.4776	0.0636	1.6753	1.1816
44.424	-0.0429	0.4826	0.0613	1.6978	1.1976

$\theta_0 = 20^\circ$     $\bar{L}_0 = 0.55$     $M = 1.8714$     $\theta_1 = 39.835$

$\theta$	$x$	$y$	$z$	$r/p$	$r/\bar{p}$
20.00	-0.3057	1.1000	0.9334	1.5978	1.1158
20.25	-0.3009	1.0791	0.9049	1.5831	1.1332
20.50	-0.2962	1.0591	0.8794	1.6463	1.1503
20.75	-0.2916	1.0399	0.8552	1.6676	1.1655
21.00	-0.2871	1.0215	0.8319	1.6873	1.1795
21.25	-0.2827	1.0039	0.8095	1.7055	1.1924
21.50	-0.2784	0.9871	0.7879	1.7222	1.2043
21.75	-0.2741	0.9710	0.7670	1.7376	1.2153
22.00	-0.2699	0.9555	0.7468	1.7518	1.2254
22.25	-0.2658	0.9406	0.7273	1.7648	1.2346
22.5	-0.2617	0.9263	0.7083	1.7768	1.2432
23.0	-0.2537	0.8993	0.6723	1.7981	1.2583
23.5	-0.2460	0.8742	0.6384	1.8160	1.2711
24.0	-0.2385	0.8509	0.6064	1.8311	1.2818
24.5	-0.2312	0.8292	0.5762	1.8437	1.2908
25.0	-0.2240	0.8090	0.5476	1.8543	1.2983
25.5	-0.2170	0.7901	0.5206	1.8631	1.3045
26.0	-0.2102	0.7724	0.4950	1.8703	1.3097
26.5	-0.2035	0.7558	0.4707	1.8761	1.3139
27.0	-0.1970	0.7403	0.4476	1.8809	1.3173
27.5	-0.1906	0.7257	0.4256	1.8847	1.3200
28.0	-0.1843	0.7120	0.4046	1.8878	1.3222
28.5	-0.1782	0.6991	0.3846	1.8902	1.3239
29.0	-0.1722	0.6869	0.3655	1.8921	1.3252
29.5	-0.1663	0.6754	0.3472	1.8936	1.3263
30.0	-0.1604	0.6647	0.3297	1.8949	1.3272
30.5	-0.1546	0.6546	0.3130	1.8960	1.3280
31.0	-0.1489	0.6451	0.2969	1.8971	1.3288
31.5	-0.1433	0.6362	0.2815	1.8983	1.3297
32.0	-0.1378	0.6279	0.2667	1.8997	1.3307
32.5	-0.1324	0.6202	0.2524	1.9014	1.3319
33.0	-0.1270	0.6130	0.2387	1.9036	1.3335
33.5	-0.1217	0.6064	0.2255	1.9065	1.3355
34.0	-0.1164	0.6004	0.2127	1.9102	1.3381
34.5	-0.1112	0.5950	0.2004	1.9149	1.3415
34.75	-0.1086	0.5925	0.1944	1.9178	1.3435
35.00	-0.1060	0.5902	0.1885	1.9210	1.3458
35.25	-0.1034	0.5381	0.1827	1.9246	1.3484
35.50	-0.1008	0.5862	0.1769	1.9287	1.3513
35.75	-0.0983	0.5844	0.1712	1.9333	1.3546
36.00	-0.0958	0.5828	0.1657	1.9385	1.3583
36.25	-0.0933	0.5815	0.1603	1.9443	1.3624
36.50	-0.0908	0.5805	0.1549	1.9508	1.3670
36.75	-0.0883	0.5797	0.1496	1.9581	1.3722
37.00	-0.0857	0.5792	0.1443	1.9664	1.3781

$\theta_s = 20^\circ$     $\bar{u}_s = 0.55$     $M = 1.8714$     $\theta_v = 39.835$

$\theta$	$x$	$y$	$z$	$r/\beta$	$z/\beta$
37.25	-0.0831	0.5790	0.1391	1.9758	1.3848
37.50	-0.0806	0.5792	0.1340	1.9863	1.3924
37.75	-0.0781	0.5798	0.1289	1.9983	1.4000
38.00	-0.0756	0.5808	0.1239	2.0119	1.4105
38.25	-0.0731	0.5823	0.1190	2.0274	1.4215
38.50	-0.0705	0.5843	0.1141	2.0452	1.4342
38.75	-0.0679	0.5874	0.1092	2.0658	1.4489
39.00	-0.0653	0.5911	0.1044	2.0895	1.4659
39.25	-0.0627	0.5959	0.0996	2.1173	1.4856
39.50	-0.0601	0.6019	0.0948	2.1501	1.5089
39.75	-0.0575	0.6096	0.0900	2.1893	1.5368
39.835	-0.0566	0.6127	0.0883	2.2044	1.5475

$\theta_0 = 20'$     $u_0 = 0.60$     $M = 2.1297$     $\theta_1 = 38'.124$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\beta$
20.000	-0.3141	1.2000	0.9834	1.8979	1.3090
20.125	-0.3115	1.1889	0.9649	1.9146	1.3209
20.250	-0.3089	1.1780	0.9497	1.9306	1.3323
20.375	-0.3063	1.1673	0.9352	1.9460	1.3433
20.500	-0.3038	1.1569	0.9211	1.9608	1.3539
20.625	-0.3013	1.1468	0.9074	1.9751	1.3640
20.750	-0.2988	1.1369	0.8941	1.9888	1.3737
20.875	-0.2963	1.1278	0.8811	2.0020	1.3831
21.000	-0.2938	1.1177	0.8684	2.0147	1.3922
21.125	-0.2914	1.1084	0.8559	2.0269	1.4009
21.250	-0.2890	1.0993	0.8436	2.0386	1.4092
21.375	-0.2866	1.0905	0.8316	2.0499	1.4172
21.500	-0.2842	1.0818	0.8198	2.0608	1.4250
21.625	-0.2819	1.0733	0.8082	2.0713	1.4325
21.750	-0.2796	1.0650	0.7968	2.0814	1.4396
22.00	-0.2750	1.0489	0.7746	2.1005	1.4532
22.25	-0.2704	1.0335	0.7532	2.1183	1.4659
22.50	-0.2659	1.0187	0.7324	2.1347	1.4776
22.75	-0.2615	1.0045	0.7123	2.1500	1.4885
23.00	-0.2572	0.9908	0.6928	2.1642	1.4986
23.25	-0.2529	0.9776	0.6739	2.1775	1.5080
23.50	-0.2486	0.9650	0.6556	2.1898	1.5168
23.75	-0.2444	0.9529	0.6379	2.2013	1.5250
24.00	-0.2403	0.9412	0.6207	2.2120	1.5327
24.25	-0.2362	0.9299	0.6039	2.2221	1.5399
24.50	-0.2322	0.9191	0.5875	2.2315	1.5466
24.75	-0.2282	0.9087	0.5716	2.2403	1.5528
25.00	-0.2243	0.8986	0.5562	2.2485	1.5586
25.25	-0.2204	0.8888	0.5412	2.2562	1.5641
25.50	-0.2165	0.8794	0.5266	2.2635	1.5693
25.75	-0.2127	0.8703	0.5123	2.2704	1.5742
26.00	-0.2089	0.8616	0.4984	2.2769	1.5788
26.25	-0.2052	0.8532	0.4848	2.2831	1.5832
26.50	-0.2015	0.8451	0.4716	2.2890	1.5874
26.75	-0.1978	0.8373	0.4588	2.2946	1.5914
27.00	-0.1942	0.8297	0.4463	2.2999	1.5952
27.25	-0.1906	0.8224	0.4340	2.3050	1.5988
27.50	-0.1870	0.8153	0.4220	2.3100	1.6023
27.75	-0.1835	0.8085	0.4103	2.3149	1.6058
28.00	-0.1800	0.8020	0.3989	2.3196	1.6092
28.25	-0.1765	0.7957	0.3878	2.3243	1.6125
28.50	-0.1730	0.7895	0.3769	2.3289	1.6158
28.75	-0.1696	0.7838	0.3662	2.3335	1.6191
29.00	-0.1662	0.7782	0.3557	2.3381	1.6224
29.25	-0.1628	0.7728	0.3455	2.3428	1.6257

$\theta_1 = 20^\circ$     $\bar{u}_1 = 0.60$     $M = 2.1297$     $\theta_2 = 36.124$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
29.50	-0.1594	0.7676	0.3355	2.3476	1.6291
29.75	-0.1561	0.7627	0.3257	2.3525	1.6326
30.00	-0.1528	0.7580	0.3162	2.3575	1.6362
30.25	-0.1495	0.7535	0.3069	2.3627	1.6399
30.50	-0.1462	0.7493	0.2977	2.3682	1.6438
30.75	-0.1429	0.7453	0.2886	2.3740	1.6479
31.00	-0.1396	0.7415	0.2797	2.3800	1.6522
31.25	-0.1364	0.7379	0.2710	2.3864	1.6568
31.50	-0.1332	0.7346	0.2625	2.3933	1.6617
31.75	-0.1300	0.7315	0.2541	2.4007	1.6669
32.00	-0.1269	0.7287	0.2459	2.4086	1.6725
32.25	-0.1237	0.7262	0.2378	2.4171	1.6786
32.50	-0.1205	0.7240	0.2299	2.4264	1.6852
32.75	-0.1173	0.7221	0.2221	2.4366	1.6925
33.00	-0.1141	0.7205	0.2144	2.4477	1.7004
33.25	-0.1110	0.7193	0.2069	2.4599	1.7090
33.50	-0.1079	0.7185	0.1995	2.4734	1.7186
33.75	-0.1048	0.7182	0.1922	2.4883	1.7292
34.00	-0.1017	0.7183	0.1849	2.5049	1.7411
34.25	-0.0986	0.7189	0.1777	2.5234	1.7543
34.500	-0.0954	0.7202	0.1707	2.5443	1.7691
34.625	-0.0938	0.7211	0.1672	2.5557	1.7772
34.750	-0.0922	0.7222	0.1638	2.5679	1.7858
34.875	-0.0907	0.7235	0.1603	2.5808	1.7950
35.000	-0.0891	0.7251	0.1569	2.5946	1.8049
35.125	-0.0875	0.7269	0.1535	2.6094	1.8154
35.250	-0.0859	0.7290	0.1501	2.6253	1.8267
35.375	-0.0843	0.7314	0.1467	2.6423	1.8389
35.500	-0.0827	0.7341	0.1433	2.6607	1.8520
35.625	-0.0811	0.7371	0.1400	2.6805	1.8661
35.750	-0.0795	0.7405	0.1367	2.7019	1.8813
35.875	-0.0779	0.7444	0.1333	2.7252	1.8979
36.000	-0.0763	0.7489	0.1299	2.7506	1.9159
36.124	-0.0746	0.7540	0.1266	2.7782	1.9356

$\theta_0 = 20^\circ$     $U_0 = 0.65$     $M = 2.4431$     $\theta_1 = 33.048^\circ$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\beta$
20.000	-0.3222	1.3000	1.0455	2.2355	1.5142
20.125	-0.3194	1.2884	1.0219	2.2512	1.5297
20.250	-0.3166	1.2771	1.0040	2.2671	1.5446
20.375	-0.3138	1.2660	0.9873	2.2832	1.5589
20.500	-0.3110	1.2552	0.9712	2.2996	1.5727
20.625	-0.3083	1.2447	0.9557	2.3403	1.5860
20.750	-0.3056	1.2344	0.9406	2.3583	1.5988
20.875	-0.3029	1.2243	0.9259	2.3757	1.6118
21.000	-0.3002	1.2145	0.9116	2.3924	1.6231
21.125	-0.2976	1.2049	0.8976	2.4085	1.6346
21.250	-0.2950	1.1956	0.8839	2.4241	1.6457
21.375	-0.2924	1.1865	0.8704	2.4392	1.6564
21.500	-0.2898	1.1775	0.8572	2.4538	1.6668
21.625	-0.2872	1.1688	0.8443	2.4678	1.6768
21.750	-0.2847	1.1603	0.8316	2.4814	1.6864
22.00	-0.2797	1.1438	0.8069	2.5072	1.7048
22.25	-0.2748	1.1281	0.7831	2.5315	1.7220
22.50	-0.2699	1.1130	0.7600	2.5542	1.7382
22.75	-0.2651	1.0985	0.7377	2.5755	1.7534
23.00	-0.2603	1.0847	0.7161	2.5956	1.7677
23.25	-0.2556	1.0715	0.6951	2.6146	1.7812
23.50	-0.2509	1.0588	0.6748	2.6325	1.7940
23.75	-0.2463	1.0466	0.6551	2.6495	1.8061
24.00	-0.2418	1.0349	0.6360	2.6656	1.8175
24.25	-0.2373	1.0237	0.6174	2.6810	1.8284
24.50	-0.2328	1.0130	0.5993	2.6957	1.8389
24.75	-0.2284	1.0027	0.5817	2.7098	1.8489
25.00	-0.2241	0.9929	0.5646	2.7233	1.8586
25.25	-0.2198	0.9834	0.5480	2.7364	1.8679
25.50	-0.2155	0.9743	0.5318	2.7491	1.8769
25.75	-0.2113	0.9656	0.5160	2.7614	1.8856
26.00	-0.2071	0.9573	0.5006	2.7734	1.8942
26.25	-0.2029	0.9494	0.4856	2.7852	1.9027
26.50	-0.1988	0.9418	0.4709	2.7969	1.9110
26.75	-0.1947	0.9345	0.4566	2.8085	1.9192
27.00	-0.1906	0.9276	0.4426	2.8201	1.9274
27.25	-0.1866	0.9210	0.4290	2.8317	1.9357
27.50	-0.1826	0.9148	0.4157	2.8433	1.9440
27.75	-0.1786	0.9089	0.4027	2.8551	1.9524
28.00	-0.1746	0.9034	0.3900	2.8672	1.9610
28.25	-0.1707	0.8982	0.3775	2.8796	1.9698
28.50	-0.1668	0.8933	0.3653	2.8923	1.9789
28.75	-0.1629	0.8888	0.3533	2.9055	1.9883
29.00	-0.1590	0.8847	0.3416	2.9194	1.9982
29.25	-0.1552	0.8809	0.3302	2.9340	2.0086



$\alpha = 20^\circ$     $L = 0.65$     $M = 8.4431$     $\beta = 33^\circ.048$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
29.50	-0.1814	0.8775	0.2190	2.9494	2.0196
29.75	-0.1476	0.8743	0.3080	2.9657	2.0312
30.00	-0.1138	0.8719	0.2972	2.9832	2.0436
30.25	-0.1400	0.8698	0.2866	3.0019	2.0569
30.50	-0.1362	0.8683	0.2762	3.0222	2.0713
30.75	-0.1324	0.8674	0.2660	3.0443	2.0870
31.00	-0.1286	0.8671	0.2559	3.0684	2.1042
31.25	-0.1248	0.8675	0.2460	3.0948	2.1230
31.50	-0.1210	0.8686	0.2362	3.1242	2.1439
31.75	-0.1172	0.8706	0.2265	3.1571	2.1672
32.000	-0.1134	0.8737	0.2170	3.1938	2.1935
32.125	-0.1115	0.8757	0.2123	3.2139	2.2078
32.250	-0.1096	0.8780	0.2076	3.2354	2.2231
32.375	-0.1077	0.8807	0.2030	3.2584	2.2394
32.500	-0.1058	0.8838	0.1984	3.2831	2.2570
32.625	-0.1038	0.8873	0.1938	3.3096	2.2759
32.750	-0.1018	0.8913	0.1892	3.3381	2.2962
32.875	-0.0999	0.8959	0.1846	3.3690	2.3182
33.000	-0.0980	0.9011	0.1800	3.4025	2.3420
33.045	-0.0973	0.9031	0.1784	3.4154	2.3512

$\theta_0 = 20^\circ$     $\mu_0 = 0.70$     $M = 2.8327$     $\theta_1 = 30.438$

$\theta$	$x$	$y$	$z$	$z/\mu$	$z/\mu_0$
20.000	-0.3305	1.4000	1.1254	2.6291	1.7219
20.125	-0.3274	1.3880	1.0938	2.6577	1.7422
20.250	-0.3244	1.3763	1.0720	2.6852	1.7618
20.375	-0.3214	1.3649	1.0520	2.7117	1.7807
20.500	-0.3184	1.3536	1.0331	2.7373	1.7989
20.625	-0.3155	1.3430	1.0150	2.7621	1.8165
20.750	-0.3126	1.3325	0.9975	2.7860	1.8335
20.875	-0.3097	1.3222	0.9806	2.8091	1.8500
21.000	-0.3068	1.3122	0.9641	2.8315	1.8659
21.125	-0.3040	1.3024	0.9480	2.8531	1.8813
21.250	-0.3012	1.2929	0.9323	2.8741	1.8962
21.375	-0.2984	1.2837	0.9169	2.8944	1.9107
21.500	-0.2956	1.2747	0.9015	2.9141	1.9247
21.625	-0.2928	1.2659	0.8872	2.9332	1.9383
21.750	-0.2900	1.2573	0.8728	2.9517	1.9515
21.875	-0.2873	1.2489	0.8587	2.9697	1.9643
22.000	-0.2846	1.2407	0.8448	2.9872	1.9768
22.125	-0.2819	1.2327	0.8312	3.0043	1.9889
22.250	-0.2792	1.2249	0.8178	3.0209	2.0007
22.375	-0.2765	1.2173	0.8047	3.0370	2.0122
22.500	-0.2739	1.2099	0.7918	3.0527	2.0234
22.625	-0.2713	1.2027	0.7791	3.0681	2.0343
22.750	-0.2687	1.1956	0.7666	3.0831	2.0450
22.875	-0.2661	1.1887	0.7543	3.0978	2.0554
23.000	-0.2635	1.1820	0.7423	3.1121	2.0656
23.125	-0.2608	1.1750	0.7305	3.1261	2.0755
23.250	-0.2582	1.1682	0.7187	3.1397	2.0853
23.375	-0.2556	1.1616	0.7072	3.1530	2.0948
23.500	-0.2530	1.1552	0.6958	3.1664	2.1043
23.625	-0.2504	1.1489	0.6846	3.1794	2.1136
23.750	-0.2478	1.1428	0.6736	3.1922	2.1226
23.875	-0.2452	1.1368	0.6627	3.2047	2.1314
24.000	-0.2426	1.1309	0.6521	3.2172	2.1404
24.125	-0.2400	1.1252	0.6417	3.2294	2.1491
24.250	-0.2384	1.1232	0.6312	3.2415	2.1577
24.375	-0.2368	1.1213	0.6209	3.2534	2.1661
24.500	-0.2352	1.1195	0.6109	3.2652	2.1746
24.625	-0.2336	1.1178	0.6011	3.2768	2.1828
24.750	-0.2320	1.1162	0.5911	3.2884	2.1912
24.875	-0.2304	1.1147	0.5811	3.2998	2.2000
25.000	-0.2288	1.1132	0.5719	3.3114	2.2075
25.125	-0.2272	1.1118	0.5627	3.3228	2.2157
25.250	-0.2256	1.1104	0.5532	3.3342	2.2237
25.375	-0.2240	1.1091	0.5437	3.3456	2.2319
25.500	-0.2224	1.1078	0.5350	3.3569	2.2399
25.625	-0.2208	1.1065	0.5261	3.3681	2.2477
25.750	-0.2192	1.1052	0.5172	3.3796	2.2560
25.875	-0.2176	1.1040	0.5083	3.3908	2.2641
26.000	-0.2160	1.1028	0.4995	3.4025	2.2723
26.125	-0.2144	1.1016	0.4908	3.4141	2.2808
26.250	-0.2128	1.1004	0.4822	3.4258	2.2889
26.375	-0.2112	1.0992	0.4737	3.4374	2.2972
26.500	-0.2096	1.0980	0.4664	3.4495	2.3058
26.625	-0.2080	1.0968	0.4593	3.4616	2.3146
26.750	-0.2064	1.0956	0.4523	3.4739	2.3232
26.875	-0.2048	1.0944	0.4453	3.4864	2.3320
27.000	-0.2032	1.0932	0.4384	3.4991	2.3411
27.125	-0.2016	1.0920	0.4315	3.5120	2.3503
27.250	-0.2000	1.0908	0.4246	3.5253	2.3597
27.375	-0.1984	1.0896	0.4177	3.5388	2.3692
27.500	-0.1968	1.0884	0.4108	3.5527	2.3792
27.625	-0.1952	1.0872	0.4040	3.5669	2.3898
27.750	-0.1936	1.0860	0.3972	3.5816	2.3998
27.875	-0.1920	1.0848	0.3904	3.5966	2.4101
28.000	-0.1904	1.0836	0.3837	3.6122	2.4216

$\theta_0 = 20^\circ$     $u_0 = 0.70$     $M = 2.8387$     $\theta_1 = 30.435$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\beta$
28.25	-0.1641	1.0247	0.3605	3.6449	2.4448
28.50	-0.1596	1.0237	0.3466	3.6801	2.4699
28.75	-0.1552	1.0233	0.3330	3.7183	2.4971
29.00	-0.1508	1.0243	0.3196	3.7600	2.5268
29.25	-0.1463	1.0262	0.3064	3.8059	2.5594
29.500	-0.1418	1.0294	0.2934	3.8569	2.5957
29.625	-0.1396	1.0316	0.2870	3.8846	2.6154
29.750	-0.1374	1.0342	0.2806	3.9140	2.6364
29.875	-0.1351	1.0372	0.2743	3.9454	2.6587
30.000	-0.1328	1.0407	0.2680	3.9788	2.6825
30.125	-0.1305	1.0447	0.2617	4.0146	2.7080
30.250	-0.1282	1.0494	0.2555	4.0531	2.7354
30.375	-0.1259	1.0547	0.2494	4.0945	2.7648
30.435	-0.1248	1.0576	0.2464	4.1159	2.7801

$\theta_0 = 30^\circ$     $U_0 = 0.75$     $M = 3.3694$     $\theta_1 = 28.150$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
20.000	-0.3396	1.5000	1.2299	3.0747	1.9104
20.125	-0.3363	1.4878	1.1853	3.1129	1.9377
20.250	-0.3331	1.4759	1.1579	3.1499	1.9640
20.375	-0.3299	1.4643	1.1331	3.1856	1.9894
20.500	-0.3267	1.4530	1.1101	3.2201	2.0140
20.625	-0.3235	1.4420	1.0882	3.2536	2.0378
20.750	-0.3204	1.4314	1.0673	3.2861	2.0609
20.875	-0.3173	1.4211	1.0471	3.3175	2.0833
21.000	-0.3142	1.4110	1.0276	3.3480	2.1050
21.125	-0.3111	1.4012	1.0086	3.3777	2.1261
21.250	-0.3081	1.3917	0.9901	3.4065	2.1466
21.375	-0.3051	1.3825	0.9721	3.4346	2.1666
21.500	-0.3021	1.3735	0.9546	3.4619	2.1860
21.625	-0.2991	1.3648	0.9374	3.4885	2.2050
21.750	-0.2961	1.3564	0.9206	3.5145	2.2235
22.00	-0.2902	1.3402	0.8881	3.5647	2.2592
22.25	-0.2844	1.3249	0.8569	3.6129	2.2933
22.50	-0.2787	1.3103	0.8268	3.6592	2.3264
22.75	-0.2730	1.2969	0.7997	3.7039	2.3583
23.00	-0.2674	1.2841	0.7769	3.7473	2.3892
23.25	-0.2618	1.2721	0.7426	3.7897	2.4194
23.50	-0.2562	1.2608	0.7163	3.8312	2.4489
23.75	-0.2507	1.2503	0.6908	3.8722	2.4781
24.00	-0.2453	1.2405	0.6661	3.9128	2.5070
24.25	-0.2399	1.2314	0.6421	3.9533	2.5358
24.50	-0.2346	1.2231	0.6188	3.9940	2.5647
24.75	-0.2293	1.2155	0.5961	4.0350	2.5940
25.00	-0.2240	1.2086	0.5740	4.0767	2.6237
25.25	-0.2187	1.2025	0.5525	4.1195	2.6541
25.50	-0.2135	1.1972	0.5316	4.1635	2.6854
25.75	-0.2083	1.1928	0.5112	4.2093	2.7180
26.00	-0.2031	1.1893	0.4912	4.2572	2.7521
26.25	-0.1979	1.1867	0.4717	4.3078	2.7881
26.50	-0.1927	1.1851	0.4527	4.3615	2.8264
26.75	-0.1876	1.1848	0.4340	4.4193	2.8675
26.8	-0.1865	1.1848	0.4303	4.4314	2.8761
26.9	-0.1844	1.1851	0.4230	4.4562	2.8937
27.0	-0.1823	1.1857	0.4158	4.4816	2.9119
27.1	-0.1802	1.1865	0.4086	4.5083	2.9308
27.2	-0.1781	1.1875	0.4015	4.5358	2.9504
27.3	-0.1760	1.1888	0.3944	4.5645	2.9708
27.4	-0.1740	1.1904	0.3873	4.5944	2.9921
27.5	-0.1720	1.1923	0.3803	4.6255	3.0143
27.6	-0.1699	1.1945	0.3734	4.6581	3.0374
27.7	-0.1678	1.1970	0.3665	4.6922	3.0616

$\theta_1 = 20^\circ$     $\beta_1 = 0.75$     $M = 3.3694$     $\theta_2 = 28.180$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
27.6	-0.1657	1.71999	0.3597	4.7279	3.0871
27.9	-0.1636	1.2032	0.3529	4.7655	3.1139
28.0	-0.1615	1.2070	0.3461	4.8052	3.1421
28.1	-0.1594	1.2113	0.3393	4.8471	3.1719
28.180	-0.1577	1.2150	0.3340	4.8822	3.1969

$\theta_0 = 20^\circ$     $U_0 = 0.80$     $M = 4.1538$     $\theta_1 = 26.199^\circ$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
20.000	-0.3503	1.6000	1.3679	3.5875	2.0307
20.125	-0.3468	1.5877	1.3031	3.5404	2.0584
20.250	-0.3433	1.5757	1.2661	3.6916	2.1048
20.375	-0.3399	1.5640	1.2341	3.7413	2.1402
20.500	-0.3365	1.5527	1.2048	3.7896	2.1746
20.625	-0.3331	1.5418	1.1773	3.8365	2.2080
20.750	-0.3298	1.5312	1.1512	3.8821	2.2404
20.875	-0.3265	1.5210	1.1263	3.9265	2.2720
21.000	-0.3232	1.5113	1.1023	3.9698	2.3028
21.125	-0.3199	1.5017	1.0791	4.0121	2.3328
21.25	-0.3166	1.4924	1.0566	4.0534	2.3623
21.50	-0.3101	1.4749	1.0135	4.1334	2.4193
21.75	-0.3037	1.4586	0.9726	4.2104	2.4741
22.00	-0.2974	1.4435	0.9336	4.2850	2.5272
22.25	-0.2911	1.4295	0.8963	4.3577	2.5789
22.50	-0.2849	1.4166	0.8605	4.4290	2.6297
22.75	-0.2788	1.4048	0.8260	4.4993	2.6797
23.00	-0.2727	1.3940	0.7927	4.5691	2.7294
23.25	-0.2666	1.3842	0.7605	4.6389	2.7791
23.50	-0.2606	1.3755	0.7294	4.7091	2.8291
23.75	-0.2546	1.3680	0.6994	4.7805	2.8799
24.00	-0.2486	1.3616	0.6703	4.8536	2.9319
24.25	-0.2427	1.3564	0.6421	4.9291	2.9856
24.50	-0.2368	1.3525	0.6146	5.0077	3.0416
24.75	-0.2309	1.3500	0.5879	5.0903	3.1004
25.0	-0.2250	1.3490	0.5619	5.1780	3.1628
25.1	-0.2237	1.3481	0.5517	5.2149	3.1890
25.2	-0.2224	1.3475	0.5416	5.2528	3.2160
25.3	-0.2210	1.3502	0.5315	5.2920	3.2439
25.4	-0.2196	1.3512	0.5216	5.3325	3.2727
25.5	-0.2182	1.3525	0.5118	5.3745	3.3026
25.6	-0.2168	1.3542	0.5021	5.4181	3.3337
25.7	-0.2084	1.3563	0.4924	5.4633	3.3660
25.8	-0.2061	1.3588	0.4828	5.5108	3.3997
25.9	-0.2038	1.3618	0.4733	5.5603	3.4349
26.0	-0.2014	1.3653	0.4639	5.6122	3.4718
26.1	-0.1990	1.3693	0.4546	5.6667	3.5106
26.199	-0.1966	1.3739	0.4454	5.7235	3.5510

$\theta_s = 20^\circ$     $\bar{u}_s = 0.85$     $M = 5.5457$     $\theta_{\text{ref}} = 4.433$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
20.000	-0.3637	1.7000	1.5511	4.1834	1.9555
20.125	-0.3600	1.6879	1.4520	4.2610	2.0108
20.250	-0.3563	1.6759	1.4001	4.3365	2.0646
20.375	-0.3527	1.6644	1.3563	4.4100	2.1169
20.500	-0.3491	1.6533	1.3170	4.4816	2.1678
20.625	-0.3455	1.6427	1.2806	4.5514	2.2175
20.750	-0.3419	1.6325	1.2464	4.6197	2.2661
20.875	-0.3383	1.6228	1.2140	4.6866	2.3137
21.000	-0.3348	1.6135	1.1830	4.7523	2.3604
21.125	-0.3313	1.5046	1.1532	4.8169	2.4064
21.250	-0.3278	1.5961	1.1245	4.8805	2.4517
21.375	-0.3243	1.5881	1.0968	4.9433	2.4964
21.500	-0.3208	1.5805	1.0699	5.0054	2.5406
21.625	-0.3174	1.5732	1.0438	5.0670	2.5844
21.750	-0.3140	1.5663	1.0184	5.1280	2.6278
21.875	-0.3106	1.5598	0.9937	5.1888	2.6710
22.000	-0.3072	1.5537	0.9697	5.2494	2.7142
22.125	-0.3038	1.5480	0.9462	5.3100	2.7574
22.250	-0.3004	1.5427	0.9233	5.3707	2.8006
22.375	-0.2970	1.5378	0.9008	5.4317	2.8440
22.500	-0.2937	1.5334	0.8788	5.4931	2.8877
22.625	-0.2904	1.5294	0.8573	5.5550	2.9318
22.750	-0.2871	1.5258	0.8362	5.6177	2.9764
22.875	-0.2837	1.5227	0.8156	5.6814	3.0217
23.000	-0.2804	1.5200	0.7954	5.7461	3.0678
23.125	-0.2771	1.5173	0.7755	5.8120	3.1147
23.250	-0.2738	1.5162	0.7559	5.8795	3.1627
23.375	-0.2705	1.5151	0.7367	5.9488	3.2120
23.500	-0.2672	1.5145	0.7178	6.0202	3.2628
23.625	-0.2639	1.5145	0.6993	6.0939	3.3153
23.750	-0.2606	1.5152	0.6811	6.1704	3.3698
23.875	-0.2573	1.5166	0.6631	6.2498	3.4263
24.000	-0.2540	1.5187	0.6454	6.3326	3.4852
24.125	-0.2506	1.5216	0.6280	6.4195	3.5470
24.250	-0.2473	1.5254	0.6108	6.5110	3.6122
24.375	-0.2440	1.5302	0.5939	6.6075	3.6809
24.433	-0.2424	1.5328	0.5861	6.6541	3.7140

$\theta_0 = 20^\circ$     $u_0 = 0.90$     $M = 9.5988$     $G_0 = 28.834$

$\theta$	$x$	$y$	$z$	$\eta/\bar{\rho}$	$\xi/\bar{\rho}$
20.00	-0.3812	1.8000	1.7944	4.8835	1.2725
20.05	-0.3796	1.7952	1.6970	4.9348	1.3090
20.10	-0.3780	1.7904	1.6518	4.9857	1.3452
20.15	-0.3765	1.7856	1.6152	5.0361	1.3811
20.20	-0.3750	1.7809	1.5832	5.0860	1.4167
20.25	-0.3734	1.7763	1.5542	5.1355	1.4519
20.30	-0.3718	1.7719	1.5272	5.1845	1.4868
20.35	-0.3702	1.7676	1.5019	5.2331	1.5214
20.40	-0.3687	1.7633	1.4779	5.2815	1.5558
20.45	-0.3672	1.7591	1.4549	5.3296	1.5900
20.50	-0.3657	1.7550	1.4329	5.3772	1.6239
20.55	-0.3641	1.7511	1.4117	5.4245	1.6576
20.60	-0.3626	1.7473	1.3912	5.4716	1.6911
20.65	-0.3611	1.7435	1.3713	5.5184	1.7244
20.70	-0.3596	1.7398	1.3519	5.5650	1.7576
20.75	-0.3581	1.7362	1.3330	5.6115	1.7907
20.80	-0.3565	1.7327	1.3146	5.6577	1.8236
20.85	-0.3550	1.7293	1.2966	5.7037	1.8563
20.90	-0.3535	1.7260	1.2790	5.7495	1.8889
20.95	-0.3520	1.7228	1.2618	5.7952	1.9215
21.00	-0.3505	1.7197	1.2449	5.8409	1.9540
21.05	-0.3490	1.7167	1.2284	5.8866	1.9865
21.10	-0.3475	1.7139	1.2121	5.9322	2.0189
21.15	-0.3460	1.7111	1.1961	5.9777	2.0513
21.20	-0.3445	1.7084	1.1804	6.0232	2.0837
21.25	-0.3430	1.7059	1.1650	6.0687	2.1161
21.30	-0.3415	1.7035	1.1498	6.1143	2.1486
21.35	-0.3401	1.7012	1.1348	6.1600	2.1811
21.40	-0.3386	1.6990	1.1200	6.2058	2.2137
21.45	-0.3371	1.6969	1.1055	6.2516	2.2463
21.50	-0.3356	1.6949	1.0912	6.2975	2.2790
21.55	-0.3342	1.6930	1.0770	6.3437	2.3118
21.60	-0.3327	1.6912	1.0630	6.3901	2.3448
21.65	-0.3312	1.6895	1.0492	6.4367	2.3780
21.70	-0.3297	1.6879	1.0356	6.4836	2.4114
21.75	-0.3283	1.6865	1.0222	6.5307	2.4449
21.80	-0.3268	1.6852	1.0089	6.5782	2.4787
21.85	-0.3253	1.6840	0.9958	6.6260	2.5127
21.90	-0.3238	1.6829	0.9829	6.6742	2.5470
21.95	-0.3223	1.6820	0.9701	6.7228	2.5816
22.00	-0.3209	1.6812	0.9574	6.7719	2.6166
22.05	-0.3195	1.6805	0.9448	6.8214	2.6519
22.10	-0.3180	1.6800	0.9324	6.8715	2.6875
22.15	-0.3165	1.6796	0.9201	6.9221	2.7235
22.20	-0.3150	1.6793	0.9080	6.9733	2.7599



$\theta_s = 21^\circ$     $\bar{u}_s = 0.90$     $M = 9.5928$     $\theta_w = 22.834$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
22.25	-0.3135	1.6792	0.8960	7.0252	2.7968
22.30	-0.3121	1.6792	0.8841	7.0777	2.8342
22.35	-0.3107	1.6794	0.8723	7.1310	2.8721
22.40	-0.3092	1.6798	0.8606	7.1850	2.9106
22.45	-0.3077	1.6803	0.8491	7.2399	2.9497
22.50	-0.3062	1.6810	0.8377	7.2957	2.9894
22.55	-0.3047	1.6819	0.8264	7.3525	3.0298
22.60	-0.3033	1.6830	0.8151	7.4103	3.0709
22.65	-0.3019	1.6843	0.8039	7.4691	3.1128
22.70	-0.3004	1.6857	0.7929	7.5291	3.1555
22.75	-0.2989	1.6873	0.7820	7.5904	3.1991
22.80	-0.2974	1.6892	0.7712	7.6529	3.2436
22.834	-0.2964	1.6907	0.7638	7.6966	3.2747

$\theta_s = 20^\circ$     $\bar{U}_s = 0.927$     $M = 44.696$     $\theta_v = 22:027$

$\theta$	x	y	z	$\eta/\bar{p}$	$\xi/\bar{p}$
20.0	-0.3930	1.8540	1.9582	5.3170	0.1370
20.1	-0.3898	1.8446	1.7629	5.4638	0.2415
20.2	-0.3866	1.8355	1.6720	5.6083	0.3443
20.25	-0.3850	1.8311	1.6338	5.6798	0.3952
20.30	-0.3834	1.8268	1.5989	5.7509	0.4458
20.35	-0.3818	1.8227	1.5660	5.8216	0.4961
20.40	-0.3802	1.8187	1.5351	5.8920	0.5462
20.45	-0.3786	1.8148	1.5056	5.9621	0.5961
20.50	-0.3770	1.8111	1.4775	6.0320	0.6459
20.55	-0.3755	1.8075	1.4505	6.1017	0.6955
20.60	-0.3739	1.8041	1.4244	6.1712	0.7449
20.65	-0.3723	1.8008	1.3991	6.2406	0.7943
20.70	-0.3707	1.7976	1.3746	6.3100	0.8437
20.75	-0.3692	1.7946	1.3508	6.3794	0.8931
20.80	-0.3676	1.7917	1.3277	6.4488	0.9425
20.85	-0.3660	1.7890	1.3051	6.5183	0.9920
20.90	-0.3644	1.7864	1.2831	6.5879	1.0416
20.95	-0.3629	1.7840	1.2616	6.6576	1.0912
21.00	-0.3614	1.7817	1.2405	6.7275	1.1409
21.05	-0.3599	1.7796	1.2199	6.7977	1.1908
21.10	-0.3584	1.7776	1.1997	6.8682	1.2410
21.15	-0.3568	1.7758	1.1799	6.9391	1.2915
21.20	-0.3552	1.7742	1.1605	7.0105	1.3424
21.25	-0.3536	1.7727	1.1414	7.0825	1.3937
21.30	-0.3521	1.7714	1.1226	7.1551	1.4453
21.35	-0.3506	1.7703	1.1041	7.2282	1.4973
21.40	-0.3491	1.7694	1.0859	7.3019	1.5498
21.45	-0.3475	1.7686	1.0680	7.3764	1.6028
21.50	-0.3459	1.7680	1.0504	7.4518	1.6564
21.55	-0.3443	1.7676	1.0331	7.5280	1.7107
21.60	-0.3428	1.7674	1.0160	7.6052	1.7657
21.65	-0.3413	1.7674	0.9991	7.6835	1.8214
21.70	-0.3398	1.7677	0.9824	7.7629	1.8779
21.75	-0.3382	1.7682	0.9660	7.8435	1.9353
21.80	-0.3366	1.7689	0.9499	7.9255	1.9936
21.85	-0.3351	1.7698	0.9340	8.0090	2.0530
21.90	-0.3336	1.7710	0.9182	8.0940	2.1135
21.95	-0.3321	1.7725	0.9026	8.1806	2.1752
22.00	-0.3305	1.7742	0.8872	8.2690	2.2381
22.027	-0.3296	1.7752	0.8788	8.3186	2.2734

$\theta_1 = 20^\circ$     $\bar{u}_1 = 0.92836$     $M = \text{Infinity}$     $\theta_2 = 21.988$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
20.0	-0.3936	1.8557	1.9670	5.3383	0.0479
20.1	-0.3904	1.8473	1.7682	5.4882	0.1346
20.2	-0.3872	1.8388	1.6759	5.6357	0.2595
20.25	-0.3856	1.8338	1.6370	5.7088	0.3116
20.30	-0.3840	1.8296	1.6017	5.7815	0.3634
20.35	-0.3824	1.8255	1.5684	5.8539	0.4149
20.40	-0.3808	1.8215	1.5370	5.9260	0.4662
20.45	-0.3792	1.8176	1.5071	5.9978	0.5173
20.50	-0.3776	1.8139	1.4785	6.0693	0.5682
20.55	-0.3760	1.8103	1.4511	6.1406	0.6190
20.60	-0.3745	1.8069	1.4247	6.2118	0.6696
20.65	-0.3729	1.8036	1.3992	6.2829	0.7202
20.70	-0.3713	1.8005	1.3744	6.3539	0.7707
20.75	-0.3697	1.7975	1.3503	6.4249	0.8212
20.80	-0.3682	1.7947	1.3268	6.4960	0.8718
20.85	-0.3667	1.7920	1.3040	6.5672	0.9226
20.90	-0.3651	1.7895	1.2817	6.6386	0.9734
20.95	-0.3635	1.7871	1.2599	6.7101	1.0243
21.00	-0.3619	1.7849	1.2386	6.7819	1.0754
21.05	-0.3604	1.7828	1.2177	6.8541	1.1267
21.10	-0.3588	1.7809	1.1973	6.9266	1.1783
21.15	-0.3573	1.7792	1.1773	6.9995	1.2302
21.20	-0.3556	1.7777	1.1576	7.0729	1.2834
21.25	-0.3541	1.7763	1.1382	7.1469	1.3351
21.30	-0.3526	1.7751	1.1192	7.2215	1.3882
21.35	-0.3511	1.7741	1.1005	7.2968	1.4418
21.40	-0.3495	1.7733	1.0821	7.3728	1.4959
21.45	-0.3479	1.7726	1.0640	7.4496	1.5507
21.50	-0.3463	1.7721	1.0462	7.5273	1.6060
21.55	-0.3448	1.7718	1.0287	7.6059	1.6618
21.60	-0.3433	1.7718	1.0114	7.6855	1.7185
21.65	-0.3418	1.7720	0.9943	7.7664	1.7761
21.70	-0.3403	1.7724	0.9775	7.8486	1.8346
21.75	-0.3387	1.7730	0.9609	7.9321	1.8940
21.80	-0.3371	1.7738	0.9445	8.0169	1.9544
21.85	-0.3356	1.7749	0.9283	8.1032	2.0158
21.90	-0.3341	1.7763	0.9124	8.1912	2.0784
21.95	-0.3325	1.7779	0.8967	8.2813	2.1425
21.988	-0.3313	1.7793	0.8850	8.3504	2.1917

$\theta_0 = 25^\circ$     $\bar{u}_0 = 0.30$     $M = 1.3525(8)$     $\theta_w = 74.468$

$\theta$	$x$	$y$	$z$	$r/\bar{p}$	$r/\bar{p}$
25.0	-0.4056	0.6000	1.0185	0.8708	0.6034
25.5	-0.4004	0.5780	0.9840	0.8820	0.6114
26.0	-0.3955	0.5574	0.9535	0.8913	0.6180
26.5	-0.3907	0.5382	0.9248	0.8991	0.6235
27.0	-0.3861	0.5202	0.8978	0.9056	0.6282
27.5	-0.3817	0.5033	0.8722	0.9110	0.6320
28.0	-0.3774	0.4876	0.8478	0.9153	0.6351
28.5	-0.3732	0.4728	0.8246	0.9187	0.6375
29.0	-0.3691	0.4589	0.8025	0.9213	0.6393
29.5	-0.3651	0.4458	0.7814	0.9232	0.6406
30.0	-0.3613	0.4335	0.7612	0.9244	0.6415
30.5	-0.3576	0.4219	0.7420	0.9250	0.6420
31.0	-0.3539	0.4110	0.7236	0.9251	0.6421
31.5	-0.3503	0.4007	0.7060	0.9248	0.6418
32.0	-0.3469	0.3910	0.6891	0.9240	0.6413
32.5	-0.3436	0.3818	0.6728	0.9229	0.6405
33.0	-0.3403	0.3732	0.6572	0.9215	0.6395
33.5	-0.3371	0.3650	0.6422	0.9198	0.6383
34.0	-0.3339	0.3573	0.6278	0.9178	0.6369
34.5	-0.3308	0.3500	0.6139	0.9156	0.6353
35	-0.3278	0.3431	0.6005	0.9132	0.6336
36	-0.3219	0.3304	0.5752	0.9080	0.6299
37	-0.3163	0.3190	0.5516	0.9023	0.6257
38	-0.3108	0.3087	0.5295	0.8962	0.6213
39	-0.3055	0.2996	0.5089	0.8897	0.6167
40	-0.3003	0.2914	0.4895	0.8829	0.6120
41	-0.2953	0.2840	0.4712	0.8760	0.6072
42	-0.2904	0.2774	0.4540	0.8691	0.6023
43	-0.2856	0.2715	0.4378	0.8622	0.5974
44	-0.2809	0.2663	0.4224	0.8554	0.5925
45	-0.2763	0.2616	0.4078	0.8487	0.5877
46	-0.2718	0.2574	0.3940	0.8421	0.5830
47	-0.2673	0.2537	0.3809	0.8356	0.5783
48	-0.2629	0.2505	0.3684	0.8292	0.5737
49	-0.2586	0.2477	0.3564	0.8230	0.5693
50	-0.2543	0.2452	0.3449	0.8170	0.5651
51	-0.2500	0.2430	0.3340	0.8112	0.5610
52	-0.2458	0.2412	0.3235	0.8057	0.5571
53	-0.2416	0.2397	0.3134	0.8004	0.5534
54	-0.2374	0.2385	0.3037	0.7955	0.5499
55	-0.2333	0.2376	0.2943	0.7909	0.5466
56	-0.2292	0.2369	0.2853	0.7866	0.5435
57	-0.2250	0.2364	0.2766	0.7827	0.5407
58	-0.2209	0.2362	0.2682	0.7791	0.5382
59	-0.2168	0.2362	0.2601	0.7759	0.5359

$\theta_0 = 25^\circ$     $\bar{u}_0 = 0.30$     $M = 1.3525(S)$     $\theta_0 = 74.468$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
60	-0.2127	0.2365	0.2522	0.7731	0.5339
61	-0.2086	0.2370	0.2445	0.7708	0.5323
62	-0.2044	0.2377	0.2370	0.7690	0.5310
63	-0.2002	0.2386	0.2297	0.7678	0.5301
64	-0.1960	0.2398	0.2226	0.7671	0.5296
65	-0.1918	0.2412	0.2157	0.7671	0.5296
66	-0.1876	0.2428	0.2090	0.7678	0.5301
67	-0.1834	0.2447	0.2024	0.7692	0.5311
68	-0.1792	0.2468	0.1959	0.7715	0.5327
69	-0.1748	0.2492	0.1895	0.7748	0.5350
70	-0.1704	0.2520	0.1832	0.7792	0.5382
71	-0.1660	0.2552	0.1770	0.7849	0.5423
72	-0.1615	0.2588	0.1708	0.7920	0.5474
73	-0.1569	0.2628	0.1647	0.8008	0.5536
74	-0.1523	0.2674	0.1586	0.8115	0.5612
74.468	-0.1501	0.2698	0.1558	0.8172	0.5652

$\theta_s = 25^\circ$     $\bar{u}_s = 0.35$     $M = 1.3503$     $\theta_w = 64.819$

$\theta$	x	y	z	$\eta/\bar{p}$	$\epsilon/\bar{p}$
25.0	-0.3551	0.7000	0.8769	0.9401	0.6568
25.5	-0.3491	0.6773	0.8439	0.9558	0.6680
26.0	-0.3433	0.6561	0.8142	0.9693	0.6777
26.5	-0.3377	0.6362	0.7864	0.9811	0.6860
27.0	-0.3322	0.6177	0.7600	0.9911	0.6931
27.5	-0.3269	0.6004	0.7351	0.9994	0.6989
28.0	-0.3217	0.5841	0.7113	1.0068	0.7043
28.5	-0.3167	0.5688	0.6887	1.0128	0.7085
29.0	-0.3118	0.5544	0.6672	1.0178	0.7121
29.5	-0.3070	0.5408	0.6467	1.0219	0.7150
30.0	-0.3023	0.5280	0.6271	1.0252	0.7173
30.5	-0.2977	0.5160	0.6084	1.0277	0.7191
31.0	-0.2933	0.5047	0.5905	1.0296	0.7205
31.5	-0.2890	0.4940	0.5733	1.0309	0.7214
32.0	-0.2847	0.4839	0.5568	1.0317	0.7219
32.5	-0.2805	0.4743	0.5410	1.0320	0.7221
33.0	-0.2764	0.4652	0.5258	1.0319	0.7221
33.5	-0.2724	0.4566	0.5112	1.0314	0.7218
34.0	-0.2685	0.4484	0.4971	1.0306	0.7218
34.5	-0.2646	0.4406	0.4836	1.0295	0.7204
35	-0.2608	0.4333	0.4706	1.0282	0.7195
36	-0.2533	0.4196	0.4459	1.0249	0.7172
37	-0.2461	0.4073	0.4230	1.0208	0.7142
38	-0.2391	0.3961	0.4015	1.0162	0.7110
39	-0.2323	0.3859	0.3814	1.0113	0.7075
40	-0.2256	0.3767	0.3625	1.0061	0.7038
41	-0.2191	0.3683	0.3447	1.0007	0.6999
42	-0.2127	0.3607	0.3280	0.9952	0.6960
43	-0.2065	0.3538	0.3122	0.9897	0.6921
44	-0.2004	0.3475	0.2973	0.9843	0.6883
45	-0.1944	0.3417	0.2831	0.9790	0.6845
46	-0.1885	0.3365	0.2696	0.9739	0.6808
47	-0.1827	0.3318	0.2568	0.9690	0.6773
48	-0.1769	0.3275	0.2446	0.9644	0.6741
49	-0.1712	0.3237	0.2329	0.9602	0.6711
50	-0.1656	0.3203	0.2217	0.9564	0.6684
51	-0.1600	0.3173	0.2110	0.9531	0.6660
52	-0.1545	0.3147	0.2007	0.9503	0.6640
53	-0.1490	0.3125	0.1908	0.9481	0.6625
54	-0.1436	0.3106	0.1813	0.9467	0.6615
55	-0.1382	0.3091	0.1721	0.9461	0.6611
56	-0.1328	0.3080	0.1632	0.9465	0.6614
57	-0.1275	0.3074	0.1545	0.9481	0.6625
58	-0.1221	0.3073	0.1461	0.9510	0.6646
59	-0.1167	0.3077	0.1380	0.9556	0.6678

$\theta_0 = 25^\circ$      $\bar{u}_0 = 0.35$      $M = 1.3503$      $\theta_0 = 64.819$

$\theta$	x	y	z	$\eta/\rho$	$k/\rho$
59.5	-0.1140	0.3083	0.1340	0.9586	0.6699
60.0	-0.1113	0.3048	0.1301	0.9622	0.6724
60.5	-0.1086	0.3096	0.1262	0.9664	0.6754
61.0	-0.1059	0.3106	0.1223	0.9712	0.6789
61.5	-0.1032	0.3119	0.1185	0.9768	0.6829
62.0	-0.1005	0.3134	0.1147	0.9833	0.6876
62.5	-0.0978	0.3152	0.1109	0.9909	0.6930
63.0	-0.0950	0.3173	0.1072	0.9995	0.6991
63.5	-0.0922	0.3198	0.1034	1.0095	0.7068
64.0	-0.0894	0.3228	0.0998	1.0211	0.7145
64.5	-0.0866	0.3263	0.0960	1.0346	0.7241
64.819	-0.0846	0.3289	0.0937	1.0443	0.7310

$\theta_1 = 25^\circ$     $U_1 = 0.40$     $M = 1.4608$     $B_1 = 56.634$

$\theta$	$x$	$y$	$z$	$r/r_0$	$r/\rho$
25.0	-0.3502	0.8000	0.8683	1.1014	0.7679
25.5	-0.3433	0.7757	0.8324	1.1229	0.7852
26.0	-0.3366	0.7531	0.8007	1.1417	0.7966
26.5	-0.3301	0.7319	0.7709	1.1581	0.8089
27.0	-0.3238	0.7122	0.7428	1.1723	0.8184
27.5	-0.3177	0.6937	0.7161	1.1846	0.8271
28.0	-0.3117	0.6764	0.6907	1.1953	0.8347
28.5	-0.3059	0.6601	0.6666	1.2044	0.8418
29.0	-0.3002	0.6449	0.6437	1.2123	0.8468
29.5	-0.2946	0.6305	0.6218	1.2190	0.8516
30.0	-0.2892	0.6169	0.6008	1.2246	0.8556
30.5	-0.2839	0.6042	0.5808	1.2294	0.8590
31.0	-0.2787	0.5921	0.5617	1.2333	0.8618
31.5	-0.2735	0.5807	0.5433	1.2365	0.8640
32.0	-0.2685	0.5700	0.5257	1.2390	0.8658
32.5	-0.2636	0.5598	0.5088	1.2410	0.8672
33.0	-0.2587	0.5501	0.4926	1.2424	0.8683
33.5	-0.2540	0.5409	0.4770	1.2434	0.8689
34.0	-0.2493	0.5323	0.4620	1.2439	0.8694
34.5	-0.2447	0.5240	0.4475	1.2442	0.8695
35.0	-0.2402	0.5162	0.4336	1.2441	0.8695
35.5	-0.2357	0.5087	0.4202	1.2437	0.8692
36.0	-0.2313	0.5016	0.4072	1.2431	0.8688
36.5	-0.2269	0.4949	0.3947	1.2423	0.8682
37.0	-0.2226	0.4883	0.3826	1.2413	0.8675
37.5	-0.2184	0.4824	0.3709	1.2402	0.8667
38.0	-0.2142	0.4766	0.3596	1.2389	0.8658
38.5	-0.2101	0.4710	0.3486	1.2376	0.8648
39.0	-0.2060	0.4657	0.3380	1.2362	0.8638
39.5	-0.2020	0.4607	0.3277	1.2347	0.8628
40.0	-0.1980	0.4559	0.3178	1.2332	0.8617
40.5	-0.1940	0.4514	0.3081	1.2317	0.8606
41.0	-0.1901	0.4470	0.2987	1.2302	0.8596
41.5	-0.1862	0.4429	0.2895	1.2287	0.8585
42.0	-0.1823	0.4390	0.2807	1.2273	0.8575
42.5	-0.1785	0.4352	0.2720	1.2259	0.8565
43.0	-0.1748	0.4317	0.2636	1.2246	0.8556
43.5	-0.1710	0.4283	0.2554	1.2234	0.8548
44.0	-0.1673	0.4251	0.2475	1.2224	0.8540
44.5	-0.1636	0.4221	0.2397	1.2214	0.8533
45.0	-0.1599	0.4193	0.2321	1.2207	0.8526
45.5	-0.1563	0.4167	0.2247	1.2201	0.8524
46.0	-0.1526	0.4142	0.2175	1.2197	0.8521
46.5	-0.1490	0.4118	0.2105	1.2196	0.8520
47.0	-0.1454	0.4097	0.2036	1.2197	0.8521



$\theta_1 = 25^\circ$     $U_1 = 0.40$     $M = 1.4508$     $\theta_2 = 56.636$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
47.5	-0.14419	0.4077	0.1969	1.2201	0.8524
48.0	-0.1383	0.4060	0.1903	1.2209	0.8530
48.5	-0.1348	0.4044	0.1838	1.2220	0.8538
49.0	-0.1313	0.4029	0.1775	1.2236	0.8549
49.5	-0.1278	0.4017	0.1713	1.2256	0.8563
50.0	-0.1243	0.4007	0.1653	1.2281	0.8581
50.5	-0.1208	0.3999	0.1593	1.2318	0.8603
51.0	-0.1173	0.3994	0.1534	1.2350	0.8630
51.5	-0.1138	0.3991	0.1477	1.2395	0.8662
52.0	-0.1103	0.3991	0.1420	1.2449	0.8700
52.5	-0.1068	0.3994	0.1364	1.2513	0.8746
53.0	-0.1033	0.4001	0.1310	1.2588	0.8799
53.5	-0.0998	0.4012	0.1255	1.2677	0.8863
54.0	-0.0963	0.4028	0.1202	1.2782	0.8938
54.5	-0.0928	0.4049	0.1149	1.2906	0.9026
55.0	-0.0893	0.4077	0.1096	1.3053	0.9130
55.5	-0.0857	0.4113	0.1044	1.3228	0.9255
56.0	-0.0821	0.4159	0.0993	1.3438	0.9404
56.5	-0.0784	0.4217	0.0941	1.3693	0.9586
56.636	-0.0774	0.4236	0.0927	1.3763	0.9635

$\theta_1 = 25^\circ$     $\bar{u}_1 = 0.45$     $M = 1.6236$     $\theta_2 = 50.366$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
25.00	-0.3554	0.9000	0.8950	1.3021	0.9010
25.25	-0.3515	0.8868	0.8732	1.3170	0.9116
25.50	-0.3477	0.8740	0.8543	1.3310	0.9215
25.75	-0.3439	0.8617	0.8364	1.3441	0.9308
26.00	-0.3402	0.8499	0.8192	1.3563	0.9395
26.25	-0.3365	0.8385	0.8026	1.3677	0.9477
26.50	-0.3328	0.8274	0.7865	1.3784	0.9554
26.75	-0.3292	0.8167	0.7708	1.3885	0.9626
27.00	-0.3257	0.8064	0.7556	1.3980	0.9693
27.25	-0.3222	0.7964	0.7408	1.4069	0.9756
27.5	-0.3188	0.7868	0.7264	1.4152	0.9815
28.0	-0.3120	0.7685	0.6986	1.4303	0.9923
28.5	-0.3053	0.7513	0.6723	1.4435	1.0017
29.0	-0.2988	0.7352	0.6472	1.4551	1.0099
29.5	-0.2925	0.7200	0.6232	1.4653	1.0172
30.0	-0.2863	0.7057	0.6003	1.4742	1.0235
30.5	-0.2802	0.6923	0.5785	1.4819	1.0290
31.0	-0.2742	0.6797	0.5576	1.4887	1.0338
31.5	-0.2683	0.6678	0.5375	1.4946	1.0380
32.0	-0.2625	0.6565	0.5182	1.4997	1.0417
32.5	-0.2568	0.6458	0.4997	1.5041	1.0448
33.0	-0.2512	0.6357	0.4820	1.5079	1.0475
33.5	-0.2457	0.6262	0.4649	1.5112	1.0498
34.0	-0.2403	0.6172	0.4485	1.5141	1.0519
34.5	-0.2350	0.6086	0.4327	1.5166	1.0537
35.0	-0.2297	0.6005	0.4174	1.5187	1.0552
35.5	-0.2245	0.5928	0.4026	1.5205	1.0565
36.0	-0.2194	0.5856	0.3884	1.5222	1.0577
36.5	-0.2143	0.5787	0.3747	1.5237	1.0587
37.0	-0.2093	0.5722	0.3614	1.5251	1.0597
37.5	-0.2043	0.5660	0.3485	1.5264	1.0606
38.0	-0.1994	0.5601	0.3361	1.5276	1.0615
38.5	-0.1945	0.5546	0.3241	1.5286	1.0624
39.0	-0.1897	0.5494	0.3124	1.5291	1.0633
39.5	-0.1849	0.5445	0.3010	1.5295	1.0643
40.0	-0.1802	0.5399	0.2899	1.5297	1.0654
40.5	-0.1755	0.5356	0.2792	1.5297	1.0666
41.0	-0.1708	0.5316	0.2688	1.5297	1.0680
41.5	-0.1662	0.5279	0.2587	1.5299	1.0696
42.0	-0.1616	0.5244	0.2489	1.5301	1.0714
42.5	-0.1570	0.5212	0.2393	1.5301	1.0735
43.0	-0.1525	0.5184	0.2299	1.5300	1.0760
43.5	-0.1480	0.5159	0.2208	1.5299	1.0789
44.0	-0.1435	0.5137	0.2119	1.5297	1.0822
44.5	-0.1391	0.5118	0.2032	1.5295	1.0861

$\theta_s = 25^\circ$     $\bar{u}_s = 0.45$     $M = 1.6236$     $\theta_v = 50.366$

$\theta$	x	y	z	$\eta/\bar{p}$	$\xi/\bar{p}$
45.0	-0.1346	0.5103	0.1947	1.5686	1.0907
45.5	-0.1301	0.5092	0.1864	1.5760	1.0950
46.0	-0.1257	0.5085	0.1782	1.5847	1.1021
46.5	-0.1213	0.5083	0.1702	1.5947	1.1093
47.0	-0.1169	0.5087	0.1623	1.6065	1.1177
47.50	-0.1124	0.5097	0.1546	1.6204	1.1276
47.75	-0.1102	0.5105	0.1508	1.6283	1.1332
48.00	-0.1079	0.5115	0.1470	1.6368	1.1392
48.25	-0.1057	0.5127	0.1432	1.6460	1.1458
48.50	-0.1035	0.5141	0.1395	1.6562	1.1530
48.75	-0.1013	0.5158	0.1358	1.6673	1.1609
49.00	-0.0990	0.5179	0.1321	1.6794	1.1696
49.25	-0.0967	0.5203	0.1284	1.6928	1.1791
49.50	-0.0944	0.5230	0.1248	1.7076	1.1896
49.75	-0.0921	0.5262	0.1212	1.7239	1.2012
50.00	-0.0898	0.5300	0.1175	1.7420	1.2141
50.25	-0.0875	0.5342	0.1139	1.7623	1.2286
50.366	-0.0864	0.5364	0.1122	1.7724	1.2357

$\theta_1 = 25^\circ$     $\bar{u}_1 = 0.50$     $M = 1.8246$     $\theta_2 = 45^\circ.507$

$\theta$	x	y	z	$\frac{y}{x}$	$\frac{z}{x}$
25.00	-0.3639	1.0000	0.9392	1.5305	1.0453
25.25	-0.3596	0.9860	0.9128	1.5500	1.0591
25.50	-0.3553	0.9725	0.8914	1.5684	1.0728
25.75	-0.3511	0.9595	0.8713	1.5857	1.0846
26.00	-0.3469	0.9469	0.8520	1.6020	1.0968
26.25	-0.3428	0.9348	0.8334	1.6173	1.1070
26.50	-0.3388	0.9232	0.8154	1.6317	1.1171
26.75	-0.3348	0.9120	0.7980	1.6453	1.1270
27.00	-0.3308	0.9011	0.7811	1.6581	1.1361
27.25	-0.3269	0.8906	0.7647	1.6701	1.1447
27.5	-0.3230	0.8805	0.7487	1.6815	1.1528
28.0	-0.3154	0.8614	0.7180	1.7024	1.1676
28.5	-0.3080	0.8434	0.6888	1.7210	1.1808
29.0	-0.3007	0.8266	0.6610	1.7377	1.1927
29.5	-0.2936	0.8109	0.6346	1.7527	1.2034
30.0	-0.2866	0.7962	0.6093	1.7662	1.2130
30.5	-0.2797	0.7823	0.5851	1.7783	1.2217
31.0	-0.2729	0.7693	0.5620	1.7893	1.2295
31.5	-0.2662	0.7571	0.5398	1.7993	1.2366
32.0	-0.2596	0.7456	0.5185	1.8085	1.2431
32.5	-0.2532	0.7348	0.4981	1.8169	1.2491
33.0	-0.2469	0.7246	0.4784	1.8247	1.2547
33.5	-0.2406	0.7150	0.4595	1.8321	1.2599
34.0	-0.2344	0.7060	0.4413	1.8390	1.2648
34.5	-0.2283	0.6976	0.4238	1.8456	1.2695
35.0	-0.2222	0.6897	0.4069	1.8520	1.2741
35.5	-0.2162	0.6823	0.3905	1.8583	1.2786
36.0	-0.2103	0.6753	0.3747	1.8646	1.2831
36.5	-0.2044	0.6688	0.3594	1.8710	1.2876
37.0	-0.1986	0.6628	0.3446	1.8775	1.2922
37.5	-0.1929	0.6573	0.3303	1.8843	1.2971
38.0	-0.1872	0.6523	0.3164	1.8915	1.3022
38.5	-0.1815	0.6477	0.3029	1.8991	1.3076
39.0	-0.1758	0.6435	0.2898	1.9074	1.3135
39.5	-0.1702	0.6398	0.2770	1.9165	1.3200
40.0	-0.1646	0.6367	0.2646	1.9265	1.3271
40.5	-0.1591	0.6341	0.2526	1.9376	1.3350
41.0	-0.1536	0.6321	0.2409	1.9508	1.3440
41.5	-0.1481	0.6307	0.2294	1.9644	1.3541
42.0	-0.1426	0.6300	0.2181	1.9806	1.3656
42.5	-0.1371	0.6302	0.2071	1.9993	1.3789
43.0	-0.1316	0.6314	0.1964	2.0209	1.3943
43.5	-0.1261	0.6337	0.1859	2.0464	1.4125
44.0	-0.1205	0.6372	0.1755	2.0765	1.4339
44.5	-0.1149	0.6425	0.1653	2.1127	1.4597

$\theta_1 = 25^\circ$     $U_1 = 0.50$     $M = 1.8848$     $\theta_2 = 45.507^\circ$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
44.75	-0.1121	0.6459	0.1602	2.1337	1.4746
45.00	-0.1093	0.6499	0.1552	2.1569	1.4911
45.25	-0.1065	0.6547	0.1502	2.1828	1.5095
45.50	-0.1036	0.6603	0.1452	2.2118	1.5302
45.507	-0.1036	0.6603	0.1452	2.2126	1.5307

$\theta_0 = 25^\circ$     $\bar{u}_0 = 0.55$     $M = 2.0665$     $\theta_1 = 41.644$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
25.00	-0.3742	1.1000	0.9990	1.7843	1.1948
25.25	-0.3694	1.0853	0.9861	1.8098	1.2123
25.50	-0.3647	1.0711	0.9412	1.8338	1.2294
25.75	-0.3600	1.0574	0.9180	1.8564	1.2455
26.00	-0.3554	1.0443	0.8960	1.8778	1.2608
26.25	-0.3509	1.0317	0.8749	1.8980	1.2752
26.50	-0.3465	1.0195	0.8546	1.9171	1.2888
26.75	-0.3421	1.0078	0.8350	1.9352	1.3017
27.00	-0.3377	0.9966	0.8159	1.9524	1.3139
27.25	-0.3333	0.9858	0.7974	1.9687	1.3255
27.50	-0.3290	0.9753	0.7795	1.9842	1.3365
27.75	-0.3248	0.9652	0.7621	1.9989	1.3470
28.00	-0.3206	0.9555	0.7451	2.0129	1.3569
28.25	-0.3165	0.9461	0.7286	2.0262	1.3665
28.50	-0.3124	0.9370	0.7125	2.0389	1.3755
29.0	-0.3043	0.9199	0.6815	2.0626	1.3923
29.5	-0.2963	0.9039	0.6519	2.0844	1.4078
30.0	-0.2885	0.8890	0.6236	2.1045	1.4221
30.5	-0.2808	0.8751	0.5967	2.1232	1.4354
31.0	-0.2732	0.8621	0.5708	2.1407	1.4478
31.5	-0.2658	0.8501	0.5460	2.1572	1.4596
32.0	-0.2584	0.8388	0.5222	2.1729	1.4708
32.5	-0.2512	0.8284	0.4994	2.1881	1.4816
33.0	-0.2440	0.8187	0.4775	2.2028	1.4921
33.5	-0.2368	0.8097	0.4563	2.2173	1.5023
34.0	-0.2298	0.8015	0.4359	2.2317	1.5127
34.5	-0.2228	0.7939	0.4162	2.2464	1.5231
35.0	-0.2160	0.7871	0.3972	2.2613	1.5337
35.5	-0.2091	0.7809	0.3789	2.2769	1.5448
36.0	-0.2023	0.7755	0.3611	2.2933	1.5564
36.5	-0.1956	0.7706	0.3438	2.3106	1.5688
37.0	-0.1889	0.7668	0.3271	2.3294	1.5822
37.5	-0.1822	0.7637	0.3109	2.3500	1.5968
38.0	-0.1755	0.7616	0.2952	2.3726	1.6130
38.5	-0.1689	0.7604	0.2798	2.3980	1.6310
38.75	-0.1656	0.7602	0.2723	2.4119	1.6409
39.00	-0.1623	0.7603	0.2649	2.4268	1.6515
39.25	-0.1590	0.7608	0.2575	2.4427	1.6628
39.50	-0.1556	0.7617	0.2502	2.4598	1.6750
39.75	-0.1523	0.7630	0.2430	2.4782	1.6882
40.00	-0.1490	0.7647	0.2359	2.4982	1.7024
40.25	-0.1457	0.7669	0.2289	2.5199	1.7178
40.50	-0.1423	0.7696	0.2219	2.5437	1.7347
40.75	-0.1389	0.7729	0.2150	2.5696	1.7538
41.00	-0.1355	0.7770	0.2082	2.5983	1.7736

$\theta_1 = 25^\circ$     $\bar{u}_1 = 0.55$     $M = 2.0665$     $\theta_2 = 41.644$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
41.25	-0.1321	0.7820	0.2014	2.6300	1.7968
41.50	-0.1287	0.7878	0.1946	2.6654	1.8214
41.644	-0.1267	0.7916	0.1907	2.6878	1.8373

$\theta_1 = 25^\circ$     $U_1 = 0.60$     $M = 2.3604$     $\theta_2 = 38.495^\circ$

$\theta$	x	y	z	$r/r$	$E/\beta$
25.00	-0.3856	1.2000	1.0749	2.0215	1.3385
25.25	-0.3804	1.1846	1.0326	2.0946	1.3621
25.50	-0.3753	1.1699	1.0027	2.1259	1.3843
25.75	-0.3702	1.1557	0.9755	2.1555	1.4054
26.00	-0.3652	1.1421	0.9500	2.1836	1.4254
26.25	-0.3602	1.1290	0.9256	2.2102	1.4443
26.50	-0.3553	1.1165	0.9023	2.2355	1.4623
26.75	-0.3505	1.1045	0.8798	2.2596	1.4795
27.00	-0.3457	1.0930	0.8580	2.2826	1.4959
27.25	-0.3409	1.0820	0.8370	2.3045	1.5115
27.5	-0.3362	1.0713	0.8166	2.3254	1.5263
28.0	-0.3270	1.0512	0.7775	2.3647	1.5543
28.5	-0.3179	1.0327	0.7405	2.4011	1.5802
29.0	-0.3089	1.0156	0.7054	2.4348	1.6048
29.5	-0.3002	0.9999	0.6720	2.4666	1.6268
30.0	-0.2915	0.9853	0.6401	2.4966	1.6482
30.5	-0.2830	0.9720	0.6097	2.5254	1.6687
31.0	-0.2745	0.9597	0.5805	2.5532	1.6885
31.5	-0.2662	0.9485	0.5525	2.5804	1.7078
32.0	-0.2580	0.9383	0.5257	2.6073	1.7270
32.5	-0.2498	0.9292	0.4999	2.6343	1.7462
33.0	-0.2417	0.9211	0.4751	2.6618	1.7658
33.5	-0.2337	0.9140	0.4512	2.6901	1.7859
34.0	-0.2258	0.9079	0.4281	2.7197	1.8070
34.5	-0.2179	0.9030	0.4058	2.7512	1.8294
35.00	-0.2100	0.8994	0.3842	2.7850	1.8535
35.25	-0.2061	0.8981	0.3737	2.8030	1.8663
35.50	-0.2022	0.8970	0.3633	2.8220	1.8798
35.75	-0.1983	0.8964	0.3531	2.8420	1.8940
36.00	-0.1944	0.8961	0.3430	2.8631	1.9090
36.25	-0.1905	0.8963	0.3330	2.8856	1.9251
36.50	-0.1865	0.8970	0.3232	2.9095	1.9421
36.75	-0.1826	0.8982	0.3135	2.9352	1.9604
37.00	-0.1787	0.8999	0.3040	2.9628	1.9800
37.25	-0.1748	0.9023	0.2945	2.9926	2.0012
37.50	-0.1708	0.9054	0.2852	3.0251	2.0243
37.75	-0.1669	0.9093	0.2760	3.0605	2.0495
38.00	-0.1629	0.9141	0.2668	3.0994	2.0772
38.25	-0.1589	0.9200	0.2577	3.1425	2.1079
38.495	-0.1550	0.9270	0.2489	3.1895	2.1414



$\theta_1 = 25^\circ$     $u_1 = 0.65$     $M = 2.7296$     $\theta_2 = 35.873$

$\theta$	$x$	$y$	$z$	$r/p$	$r/p$
25.00	-0.3983	1.3000	1.1693	2.3623	1.4656
25.25	-0.3927	1.2842	1.1134	2.4054	1.4953
25.50	-0.3871	1.2690	1.0769	2.4483	1.5254
25.75	-0.3816	1.2544	1.0443	2.4851	1.5530
26.00	-0.3762	1.2405	1.0140	2.5221	1.5793
26.25	-0.3708	1.2272	0.9854	2.5573	1.6044
26.50	-0.3655	1.2145	0.9580	2.5909	1.6282
26.75	-0.3602	1.2023	0.9318	2.6231	1.6512
27.00	-0.3550	1.1907	0.9066	2.6540	1.6732
27.25	-0.3498	1.1796	0.8822	2.6837	1.6944
27.50	-0.3447	1.1690	0.8586	2.7123	1.7148
27.75	-0.3396	1.1589	0.8358	2.7399	1.7344
28.00	-0.3346	1.1492	0.8137	2.7667	1.7534
28.25	-0.3296	1.1399	0.7922	2.7927	1.7719
28.50	-0.3246	1.1311	0.7713	2.8180	1.7899
28.75	-0.3197	1.1227	0.7509	2.8426	1.8074
29.00	-0.3148	1.1147	0.7310	2.8667	1.8246
29.25	-0.3100	1.1071	0.7116	2.8904	1.8415
29.50	-0.3052	1.0999	0.6927	2.9137	1.8581
29.75	-0.3004	1.0931	0.6743	2.9367	1.8744
30.00	-0.2956	1.0866	0.6563	2.9595	1.8906
30.25	-0.2909	1.0805	0.6387	2.9821	1.9067
30.50	-0.2862	1.0747	0.6215	3.0047	1.9228
30.75	-0.2815	1.0693	0.6047	3.0273	1.9389
31.00	-0.2768	1.0643	0.5882	3.0500	1.9550
31.25	-0.2722	1.0596	0.5721	3.0728	1.9713
31.50	-0.2676	1.0553	0.5563	3.0960	1.9878
31.75	-0.2630	1.0514	0.5408	3.1196	2.0046
32.00	-0.2585	1.0479	0.5256	3.1437	2.0217
32.25	-0.2539	1.0448	0.5107	3.1684	2.0393
32.50	-0.2493	1.0421	0.4961	3.1937	2.0574
32.75	-0.2448	1.0398	0.4818	3.2199	2.0760
33.00	-0.2403	1.0379	0.4677	3.2471	2.0954
33.25	-0.2357	1.0365	0.4539	3.2755	2.1156
33.50	-0.2312	1.0356	0.4403	3.3052	2.1367
33.75	-0.2267	1.0353	0.4269	3.3365	2.1590
34.00	-0.2222	1.0356	0.4137	3.3696	2.1825
34.25	-0.2177	1.0365	0.4008	3.4047	2.2075
34.50	-0.2131	1.0381	0.3880	3.4422	2.2342
34.75	-0.2086	1.0405	0.3754	3.4825	2.2629
35.00	-0.2041	1.0438	0.3630	3.5261	2.2939
35.25	-0.1995	1.0481	0.3508	3.5734	2.3276
35.50	-0.1949	1.0535	0.3387	3.6253	2.3645
35.75	-0.1903	1.0603	0.3268	3.6825	2.4052
35.873	-0.1880	1.0642	0.3208	3.7130	2.4270

$\theta_0 = 25^\circ$     $\bar{u}_0 = 0.70$     $M = 3.2188$     $\theta_0 = 33.651$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\xi/\beta$
25.00	-0.4128	1.4000	1.2857	2.6881	1.5549
25.25	-0.4067	1.3838	1.2100	2.7448	1.5953
25.50	-0.4007	1.3683	1.1643	2.7988	1.6337
25.625	-0.3978	1.3608	1.1438	2.8248	1.6528
25.750	-0.3948	1.3535	1.1244	2.8508	1.6703
25.875	-0.3919	1.3464	1.1057	2.8751	1.6880
26.000	-0.3889	1.3394	1.0877	2.8994	1.7053
26.125	-0.3860	1.3327	1.0703	2.9238	1.7222
26.250	-0.3831	1.3261	1.0534	2.9466	1.7388
26.375	-0.3802	1.3197	1.0369	2.9694	1.7551
26.500	-0.3773	1.3134	1.0208	2.9918	1.7711
26.625	-0.3745	1.3073	1.0051	3.0138	1.7868
26.750	-0.3716	1.3014	0.9897	3.0355	1.8022
26.875	-0.3688	1.2956	0.9746	3.0568	1.8173
27.000	-0.3660	1.2899	0.9599	3.0777	1.8322
27.125	-0.3632	1.2844	0.9454	3.0983	1.8468
27.250	-0.3604	1.2791	0.9312	3.1186	1.8613
27.375	-0.3576	1.2739	0.9172	3.1386	1.8756
27.500	-0.3548	1.2689	0.9035	3.1584	1.8896
27.625	-0.3521	1.2640	0.8900	3.1779	1.9035
27.750	-0.3493	1.2592	0.8768	3.1972	1.9173
27.875	-0.3466	1.2546	0.8637	3.2163	1.9308
28.000	-0.3438	1.2501	0.8509	3.2352	1.9443
28.125	-0.3411	1.2457	0.8382	3.2539	1.9576
28.250	-0.3384	1.2414	0.8257	3.2725	1.9708
28.375	-0.3357	1.2373	0.8134	3.2910	1.9840
28.500	-0.3330	1.2333	0.8013	3.3093	1.9970
28.625	-0.3303	1.2295	0.7894	3.3275	2.0100
28.750	-0.3277	1.2258	0.7776	3.3456	2.0229
28.875	-0.3250	1.2222	0.7660	3.3637	2.0358
29.000	-0.3223	1.2187	0.7545	3.3818	2.0486
29.125	-0.3197	1.2154	0.7432	3.3998	2.0614
29.250	-0.3170	1.2122	0.7320	3.4178	2.0742
29.375	-0.3144	1.2091	0.7210	3.4357	2.0870
29.500	-0.3117	1.2062	0.7101	3.4537	2.0998
29.625	-0.3091	1.2033	0.6993	3.4718	2.1127
29.750	-0.3065	1.2006	0.6887	3.4899	2.1256
29.875	-0.3039	1.1980	0.6782	3.5081	2.1385
30.000	-0.3013	1.1956	0.6679	3.5264	2.1515
30.125	-0.2987	1.1933	0.6576	3.5449	2.1647
30.250	-0.2961	1.1911	0.6475	3.5635	2.1779
30.375	-0.2935	1.1891	0.6375	3.5822	2.1913
30.500	-0.2909	1.1872	0.6275	3.6012	2.2048
30.625	-0.2883	1.1854	0.6177	3.6204	2.2185
30.750	-0.2857	1.1838	0.6080	3.6399	2.2323
30.875	-0.2831	1.1823	0.5985	3.6596	2.2463
31.000	-0.2805	1.1810	0.5890	3.6796	2.2605
31.125	-0.2780	1.1799	0.5796	3.6999	2.2750

$\theta_1 = 25^\circ$     $U_1 = 0.70$     $M = 3.2188$     $\theta_2 = 33.651$

$\theta$	$x$	$y$	$z$	$\eta/\eta$	$\xi/\rho$
31.250	-0.2754	1.1789	0.5703	3.7206	2.2897
31.375	-0.2728	1.1780	0.5611	3.7417	2.3047
31.500	-0.2702	1.1774	0.5520	3.7632	2.3200
31.625	-0.2677	1.1769	0.5430	3.7852	2.3357
31.750	-0.2651	1.1765	0.5341	3.8077	2.3518
31.875	-0.2626	1.1764	0.5252	3.8308	2.3682
32.000	-0.2600	1.1765	0.5165	3.8545	2.3850
32.125	-0.2574	1.1768	0.5078	3.8788	2.4023
32.250	-0.2548	1.1773	0.4992	3.9038	2.4202
32.375	-0.2523	1.1783	0.4907	3.9296	2.4386
32.500	-0.2497	1.1789	0.4822	3.9563	2.4575
32.625	-0.2471	1.1801	0.4738	3.9839	2.4772
32.750	-0.2445	1.1816	0.4655	4.0126	2.4976
32.875	-0.2420	1.1834	0.4573	4.0423	2.5187
33.000	-0.2394	1.1855	0.4491	4.0732	2.5407
33.125	-0.2368	1.1879	0.4410	4.1054	2.5636
33.250	-0.2342	1.1907	0.4330	4.1390	2.5876
33.375	-0.2316	1.1938	0.4250	4.1742	2.6126
33.500	-0.2290	1.1974	0.4170	4.2110	2.6388
33.625	-0.2264	1.2014	0.4090	4.2494	2.6662
33.651	-0.2258	1.2022	0.4075	4.2578	2.6721

$\theta_1 = 25^\circ$     $U_1 = 0.75$     $M = 3.9260$     $\theta_2 = 31.737$

$\theta$	$x$	$y$	$z$	$\frac{z}{r}$	$\frac{z}{R}$
25.00	-0.4292	1.5000	1.4267	3.0388	1.5672
25.25	-0.4227	1.4836	1.3224	3.1148	1.6213
25.50	-0.4163	1.4680	1.2641	3.1874	1.6730
25.625	-0.4131	1.4605	1.2382	3.2225	1.6980
25.750	-0.4099	1.4532	1.2140	3.2569	1.7225
25.875	-0.4067	1.4461	1.1908	3.2907	1.7465
26.000	-0.4036	1.4392	1.1686	3.3239	1.7701
26.125	-0.4005	1.4325	1.1472	3.3565	1.7933
26.250	-0.3974	1.4260	1.1265	3.3885	1.8161
26.375	-0.3943	1.4197	1.1064	3.4200	1.8385
26.500	-0.3912	1.4136	1.0868	3.4510	1.8606
26.625	-0.3881	1.4078	1.0677	3.4816	1.8824
26.750	-0.3850	1.4021	1.0491	3.5118	1.9039
26.875	-0.3819	1.3966	1.0309	3.5416	1.9251
27.000	-0.3789	1.3913	1.0131	3.5711	1.9461
27.125	-0.3759	1.3862	0.9957	3.6003	1.9668
27.250	-0.3729	1.3812	0.9787	3.6292	1.9874
27.375	-0.3699	1.3764	0.9620	3.6578	2.0078
27.500	-0.3669	1.3718	0.9456	3.6863	2.0280
27.625	-0.3639	1.3674	0.9295	3.7146	2.0481
27.750	-0.3609	1.3632	0.9137	3.7427	2.0682
27.875	-0.3579	1.3591	0.8981	3.7706	2.0882
28.000	-0.3550	1.3552	0.8828	3.7987	2.1081
28.125	-0.3521	1.3515	0.8678	3.8266	2.1279
28.250	-0.3491	1.3480	0.8530	3.8545	2.1478
28.375	-0.3461	1.3446	0.8384	3.8825	2.1677
28.500	-0.3431	1.3414	0.8240	3.9105	2.1877
28.625	-0.3402	1.3384	0.8099	3.9386	2.2077
28.750	-0.3373	1.3356	0.7960	3.9669	2.2278
28.875	-0.3344	1.3330	0.7823	3.9954	2.2480
29.000	-0.3315	1.3306	0.7687	4.0240	2.2684
29.125	-0.3286	1.3284	0.7553	4.0529	2.2890
29.250	-0.3257	1.3264	0.7421	4.0821	2.3090
29.375	-0.3228	1.3245	0.7291	4.1116	2.3308
29.500	-0.3199	1.3228	0.7163	4.1415	2.3521
29.625	-0.3171	1.3214	0.7036	4.1718	2.3737
29.750	-0.3142	1.3202	0.6911	4.2026	2.3956
29.875	-0.3113	1.3192	0.6787	4.2340	2.4179
30.000	-0.3084	1.3184	0.6665	4.2660	2.4407
30.125	-0.3055	1.3179	0.6544	4.2987	2.4639
30.250	-0.3027	1.3177	0.6425	4.3321	2.4877
30.375	-0.2998	1.3177	0.6307	4.3663	2.5121
30.500	-0.2969	1.3180	0.6191	4.4014	2.5371
30.625	-0.2940	1.3185	0.6076	4.4375	2.5628
30.750	-0.2912	1.3193	0.5962	4.4747	2.5893
30.875	-0.2883	1.3205	0.5849	4.5132	2.6166
31.000	-0.2854	1.3221	0.5737	4.5530	2.6449
31.125	-0.2825	1.3240	0.5626	4.5941	2.6742

$\theta_s = 25^\circ$     $\bar{u}_s = 0.75$     $M = 3.9260$     $\theta_v = 31.737$

$\theta$	x	y	z	$\eta/\bar{\rho}$	$\xi/\bar{\rho}$
31.250	-0.2796	1.3263	0.5517	4.6368	2.7046
31.375	-0.2767	1.3290	0.5409	4.6813	2.7362
31.500	-0.2738	1.3322	0.5302	4.7275	2.7691
31.625	-0.2709	1.3359	0.5195	4.7758	2.8035
31.737	-0.2683	1.3394	0.5101	4.8210	2.8357

$\Theta_s = 25^\circ$     $\bar{U}_s = 0.80$     $M = 5.1233$     $\Theta_w = 30.066$

$\theta$	$x$	$y$	$z$	$\eta/\beta$	$\epsilon/\beta$
25.00	-0.4482	1.6000	1.5964	3.4169	1.4251
25.25	-0.4412	1.5836	1.4508	3.5222	1.5001
25.50	-0.4343	1.5680	1.3735	3.6235	1.5728
25.625	-0.4309	1.5606	1.3400	3.6727	1.6078
25.750	-0.4275	1.5534	1.3090	3.7211	1.6416
25.875	-0.4241	1.5465	1.2795	3.7687	1.6755
26.000	-0.4207	1.5399	1.2513	3.8156	1.7089
26.125	-0.4174	1.5335	1.2243	3.8619	1.7419
26.250	-0.4141	1.5274	1.1983	3.9076	1.7745
26.375	-0.4108	1.5215	1.1732	3.9528	1.8067
26.500	-0.4075	1.5159	1.1487	3.9976	1.8385
26.625	-0.4042	1.5105	1.1251	4.0420	1.8700
26.750	-0.4009	1.5053	1.1021	4.0861	1.9014
26.875	-0.3976	1.5004	1.0797	4.1300	1.9327
27.000	-0.3943	1.4958	1.0578	4.1737	1.9638
27.125	-0.3910	1.4914	1.0364	4.2172	1.9948
27.250	-0.3877	1.4873	1.0155	4.2607	2.0257
27.375	-0.3845	1.4834	0.9950	4.3042	2.0566
27.500	-0.3813	1.4798	0.9750	4.3478	2.0876
27.625	-0.3781	1.4765	0.9554	4.3915	2.1187
27.750	-0.3749	1.4734	0.9361	4.4354	2.1500
27.875	-0.3717	1.4706	0.9172	4.4795	2.1815
28.000	-0.3685	1.4680	0.8986	4.5240	2.2132
28.125	-0.3653	1.4657	0.8803	4.5690	2.2458
28.250	-0.3621	1.4637	0.8624	4.6146	2.2776
28.375	-0.3589	1.4620	0.8448	4.6607	2.3104
28.500	-0.3557	1.4606	0.8274	4.7075	2.3437
28.625	-0.3525	1.4595	0.8103	4.7551	2.3776
28.750	-0.3493	1.4587	0.7935	4.8036	2.4121
28.875	-0.3462	1.4583	0.7769	4.8531	2.4473
29.000	-0.3430	1.4582	0.7606	4.9038	2.4834
29.125	-0.3398	1.4585	0.7445	4.9558	2.5204
29.250	-0.3366	1.4592	0.7286	5.0092	2.5584
29.375	-0.3334	1.4603	0.7130	5.0642	2.5976
29.500	-0.3302	1.4619	0.6976	5.1210	2.6380
29.625	-0.3270	1.4640	0.6824	5.1797	2.6798
29.750	-0.3238	1.4666	0.6674	5.2405	2.7231
29.875	-0.3206	1.4697	0.6526	5.3039	2.7681
30.000	-0.3174	1.4734	0.6379	5.3699	2.8152
30.066	-0.3157	1.4756	0.6302	5.4058	2.8407

$\theta_s = 25^\circ$     $\bar{u}_s = 0.85$     $M = 8.0962$     $\theta_v = 28.589$

$\theta$	$x$	$y$	$z$	$\eta/P$	$\xi/P$
25.0	-0.4701	1.7000	1.7990	3.8251	0.9450
25.1	-0.4671	1.6933	1.6729	3.8880	0.9898
25.2	-0.4642	1.6868	1.6137	3.9496	1.0336
25.3	-0.4613	1.6805	1.5652	4.0104	1.0768
25.4	-0.4584	1.6744	1.5227	4.0706	1.1196
25.5	-0.4555	1.6685	1.4840	4.1308	1.1620
25.6	-0.4526	1.6628	1.4481	4.1898	1.2040
25.7	-0.4497	1.6573	1.4143	4.2475	1.2455
25.8	-0.4468	1.6520	1.3823	4.3051	1.2865
25.9	-0.4439	1.6469	1.3517	4.3622	1.3272
26.0	-0.4410	1.6421	1.3224	4.4189	1.3676
26.1	-0.4382	1.6375	1.2941	4.4753	1.4078
26.2	-0.4354	1.6331	1.2668	4.5316	1.4478
26.3	-0.4325	1.6290	1.2403	4.5877	1.4877
26.4	-0.4296	1.6251	1.2146	4.6437	1.5276
26.5	-0.4268	1.6215	1.1897	4.6997	1.5675
26.6	-0.4240	1.6181	1.1654	4.7558	1.6074
26.7	-0.4212	1.6149	1.1416	4.8120	1.6474
26.8	-0.4183	1.6119	1.1184	4.8683	1.6875
26.9	-0.4155	1.6092	1.0957	4.9249	1.7278
27.0	-0.4127	1.6068	1.0736	4.9819	1.7683
27.1	-0.4099	1.6047	1.0519	5.0393	1.8092
27.2	-0.4071	1.6028	1.0306	5.0973	1.8505
27.3	-0.4043	1.6012	1.0097	5.1559	1.8922
27.4	-0.4015	1.5998	0.9892	5.2151	1.9343
27.5	-0.3987	1.5987	0.9691	5.2750	1.9769
27.6	-0.3959	1.5980	0.9493	5.3357	2.0201
27.7	-0.3931	1.5976	0.9298	5.3974	2.0640
27.8	-0.3903	1.5974	0.9107	5.4602	2.1087
27.9	-0.3876	1.5976	0.8919	5.5243	2.1543
28.0	-0.3848	1.5982	0.8734	5.5898	2.2010
28.1	-0.3820	1.5992	0.8551	5.6569	2.2488
28.2	-0.3792	1.6005	0.8371	5.7257	2.2977
28.3	-0.3764	1.6023	0.8194	5.7964	2.3480
28.4	-0.3736	1.6045	0.8019	5.8693	2.3999
28.5	-0.3708	1.6072	0.7847	5.9445	2.4535
28.589	-0.3683	1.6100	0.7696	6.0141	2.5030

$\theta_s = 25^\circ$     $\bar{u}_s = 0.885$     $M = 28.702$     $\theta_v = 27.652$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
25.0	-0.4877	1.7700	1.9628	4.1303	0.1485
25.2	-0.4815	1.7571	1.7158	4.3031	0.2715
25.4	-0.4753	1.7450	1.5988	4.4780	0.3916
25.5	-0.4723	1.7394	1.5496	4.5555	0.4510
25.6	-0.4693	1.7340	1.5042	4.6384	0.5101
25.7	-0.4663	1.7289	1.4617	4.7210	0.5689
25.8	-0.4633	1.7241	1.4216	4.8033	0.6275
25.9	-0.4603	1.7197	1.3834	4.8856	0.6860
26.0	-0.4573	1.7156	1.3469	4.9679	0.7445
26.1	-0.4543	1.7118	1.3119	5.0502	0.8031
26.2	-0.4513	1.7084	1.2782	5.1326	0.8618
26.3	-0.4483	1.7053	1.2456	5.2153	0.9207
26.4	-0.4453	1.7025	1.2140	5.2984	0.9799
26.5	-0.4424	1.7001	1.1833	5.3820	1.0395
26.6	-0.4394	1.6981	1.1535	5.4664	1.0996
26.7	-0.4364	1.6964	1.1245	5.5519	1.1604
26.8	-0.4335	1.6951	1.0963	5.6388	1.2222
26.9	-0.4306	1.6942	1.0688	5.7273	1.2851
27.0	-0.4276	1.6938	1.0419	5.8175	1.3492
27.1	-0.4246	1.6938	1.0156	5.9095	1.4146
27.2	-0.4217	1.6943	0.9899	6.0033	1.4814
27.3	-0.4188	1.6953	0.9647	6.0991	1.5497
27.4	-0.4158	1.6968	0.9400	6.1971	1.6195
27.5	-0.4128	1.6988	0.9157	6.2975	1.6910
27.6	-0.4098	1.7014	0.8919	6.4009	1.7646
27.652	-0.4083	1.7030	0.8797	6.4561	1.8039



$\theta_s = 25^\circ$     $\bar{u}_s = 0.88821$     $M = \text{Infinity}$     $\theta_v = 27.569$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
25.0	-0.4893	1.7764	1.9785	4.1565	0.0391
25.1	-0.4862	1.7701	1.8045	4.2470	0.1035
25.2	-0.4831	1.7637	1.7246	4.3362	0.1670
25.25	-0.4816	1.7606	1.6911	4.3803	0.1985
25.30	-0.4800	1.7575	1.6605	4.4241	0.2296
25.35	-0.4785	1.7545	1.6317	4.4677	0.2605
25.40	-0.4770	1.7516	1.6046	4.5112	0.2914
25.45	-0.4755	1.7487	1.5799	4.5547	0.3224
25.50	-0.4739	1.7459	1.5543	4.5981	0.3534
25.55	-0.4724	1.7432	1.5306	4.6413	0.3848
25.60	-0.4709	1.7406	1.5078	4.6843	0.4148
25.65	-0.4694	1.7381	1.4858	4.7272	0.4453
25.70	-0.4679	1.7356	1.4644	4.7699	0.4757
25.75	-0.4664	1.7332	1.4436	4.8125	0.5060
25.80	-0.4649	1.7309	1.4233	4.8550	0.5368
25.85	-0.4633	1.7287	1.4035	4.8974	0.5664
25.90	-0.4618	1.7266	1.3842	4.9399	0.5967
25.95	-0.4603	1.7246	1.3654	4.9826	0.6271
26.00	-0.4588	1.7226	1.3470	5.0254	0.6576
26.05	-0.4573	1.7207	1.3290	5.0683	0.6881
26.10	-0.4558	1.7189	1.3113	5.1112	0.7186
26.15	-0.4543	1.7172	1.2939	5.1541	0.7491
26.20	-0.4528	1.7156	1.2768	5.1971	0.7797
26.25	-0.4513	1.7140	1.2600	5.2402	0.8104
26.30	-0.4498	1.7125	1.2435	5.2833	0.8411
26.35	-0.4483	1.7111	1.2273	5.3265	0.8719
26.40	-0.4468	1.7099	1.2113	5.3699	0.9027
26.45	-0.4453	1.7088	1.1955	5.4134	0.9337
26.50	-0.4438	1.7077	1.1800	5.4571	0.9648
26.55	-0.4423	1.7067	1.1647	5.5010	0.9961
26.60	-0.4408	1.7058	1.1496	5.5452	1.0276
26.65	-0.4393	1.7050	1.1347	5.5896	1.0592
26.70	-0.4378	1.7043	1.1200	5.6342	1.0909
26.75	-0.4363	1.7037	1.1055	5.6791	1.1228
26.80	-0.4348	1.7033	1.0911	5.7246	1.1551
26.85	-0.4334	1.7030	1.0769	5.7707	1.1880
26.90	-0.4319	1.7027	1.0630	5.8174	1.2213
26.95	-0.4304	1.7025	1.0493	5.8646	1.2549
27.00	-0.4289	1.7025	1.0357	5.9123	1.2888
27.05	-0.4275	1.7026	1.0222	5.9604	1.3230
27.10	-0.4260	1.7028	1.0089	6.0090	1.3576
27.15	-0.4245	1.7031	0.9957	6.0582	1.3926
27.20	-0.4230	1.7036	0.9826	6.1080	1.4280
27.25	-0.4216	1.7042	0.9697	6.1584	1.4639
27.30	-0.4201	1.7050	0.9570	6.2095	1.5003
27.35	-0.4186	1.7059	0.9444	6.2613	1.5378
27.40	-0.4171	1.7069	0.9319	6.3139	1.5747
27.45	-0.4156	1.7081	0.9195	6.3673	1.6127

$\theta_s = 25^\circ$     $u_s = 0.88821$     $M = \text{Infinity}$     $\theta_v = 27.569$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
27.50	-0.4142	1.7094	0.9072	6.4215	1.6513
27.55	-0.4127	1.7109	0.8951	6.4766	1.6905
27.569	-0.4121	1.7115	0.8904	6.4982	1.7058

$\theta_s = 30'$     $\bar{u}_s = 0.30$     $M = 1.4887(8)$     $\theta_v = 71'.348$

$\theta$	$x$	$y$	$z$	$\sqrt{y}$	$\frac{z}{\sqrt{y}}$
30.0	-0.5182	0.6000	1.1542	1.0507	0.7090
30.5	-0.5131	0.5844	1.1173	1.0619	0.7170
31.0	-0.5081	0.5697	1.0872	1.0718	0.7241
31.5	-0.5032	0.5558	1.0592	1.0806	0.7303
32.0	-0.4984	0.5428	1.0327	1.0883	0.7357
32.5	-0.4937	0.5306	1.0075	1.0950	0.7405
33.0	-0.4891	0.5191	0.9835	1.1008	0.7446
33.5	-0.4846	0.5083	0.9605	1.1058	0.7482
34.0	-0.4802	0.4981	0.9384	1.1101	0.7513
34.5	-0.4759	0.4885	0.9172	1.1138	0.7539
35.0	-0.4717	0.4795	0.8968	1.1169	0.7561
35.5	-0.4675	0.4710	0.8772	1.1195	0.7579
36.0	-0.4634	0.4630	0.8583	1.1216	0.7594
36.5	-0.4594	0.4554	0.8401	1.1233	0.7606
37.0	-0.4555	0.4483	0.8225	1.1246	0.7615
37.5	-0.4516	0.4416	0.8055	1.1255	0.7622
38.0	-0.4478	0.4353	0.7890	1.1261	0.7626
38.5	-0.4440	0.4293	0.7730	1.1264	0.7628
39.0	-0.4403	0.4237	0.7576	1.1265	0.7629
39.5	-0.4366	0.4184	0.7427	1.1264	0.7628
40.0	-0.4330	0.4134	0.7282	1.1260	0.7626
40.5	-0.4294	0.4087	0.7142	1.1254	0.7622
41.0	-0.4259	0.4043	0.7006	1.1247	0.7617
41.5	-0.4224	0.4002	0.6873	1.1239	0.7611
42.0	-0.4189	0.3963	0.6744	1.1229	0.7604
42.5	-0.4154	0.3926	0.6619	1.1218	0.7596
43.0	-0.4120	0.3891	0.6497	1.1206	0.7587
43.5	-0.4086	0.3859	0.6379	1.1193	0.7578
44.0	-0.4053	0.3829	0.6264	1.1180	0.7569
44.5	-0.4020	0.3801	0.6152	1.1166	0.7559
45.0	-0.3987	0.3775	0.6042	1.1151	0.7548
45.5	-0.3954	0.3750	0.5935	1.1136	0.7537
46.0	-0.3921	0.3727	0.5831	1.1121	0.7526
46.5	-0.3888	0.3706	0.5729	1.1106	0.7515
47.0	-0.3856	0.3687	0.5630	1.1090	0.7504
47.5	-0.3824	0.3669	0.5533	1.1074	0.7493
48.0	-0.3792	0.3652	0.5439	1.1058	0.7482
48.5	-0.3760	0.3636	0.5347	1.1043	0.7471
49.0	-0.3729	0.3622	0.5256	1.1028	0.7460
49.5	-0.3698	0.3609	0.5167	1.1013	0.7450
50.0	-0.3667	0.3598	0.5080	1.0999	0.7440
50.5	-0.3635	0.3588	0.4995	1.0985	0.7430
51.0	-0.3603	0.3579	0.4912	1.0971	0.7420
51.5	-0.3572	0.3571	0.4831	1.0958	0.7411
52.0	-0.3541	0.3564	0.4751	1.0945	0.7402

$\theta_s = 30^\circ$     $\bar{u}_s = 0.30$     $M = 1.4887(8)$     $\theta_v = 71.348$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
52.5	-0.3510	0.3558	0.4673	1.0933	0.7393
53.0	-0.3479	0.3553	0.4596	1.0922	0.7385
53.5	-0.3448	0.3549	0.4520	1.0912	0.7377
54.0	-0.3417	0.3546	0.4446	1.0902	0.7370
54.5	-0.3386	0.3544	0.4373	1.0893	0.7364
55.0	-0.3355	0.3543	0.4302	1.0885	0.7359
55.5	-0.3324	0.3543	0.4232	1.0878	0.7354
56.0	-0.3293	0.3543	0.4163	1.0872	0.7350
56.5	-0.3262	0.3544	0.4095	1.0868	0.7347
57.0	-0.3231	0.3547	0.4028	1.0865	0.7345
57.5	-0.3200	0.3551	0.3962	1.0863	0.7343
58.0	-0.3169	0.3555	0.3897	1.0862	0.7342
58.5	-0.3138	0.3560	0.3833	1.0863	0.7343
59.0	-0.3107	0.3565	0.3771	1.0866	0.7345
59.5	-0.3076	0.3572	0.3710	1.0870	0.7348
60.0	-0.3045	0.3580	0.3649	1.0876	0.7352
60.5	-0.3014	0.3588	0.3588	1.0883	0.7357
61.0	-0.2982	0.3597	0.3529	1.0893	0.7364
61.5	-0.2951	0.3607	0.3470	1.0905	0.7373
62.0	-0.2919	0.3618	0.3413	1.0919	0.7383
62.5	-0.2888	0.3630	0.3355	1.0935	0.7394
63.0	-0.2856	0.3643	0.3299	1.0954	0.7408
63.5	-0.2824	0.3657	0.3243	1.0975	0.7423
64.0	-0.2792	0.3671	0.3188	1.0999	0.7440
64.5	-0.2760	0.3687	0.3133	1.1026	0.7459
65.0	-0.2728	0.3704	0.3079	1.1056	0.7480
65.5	-0.2695	0.3722	0.3025	1.1090	0.7505
66.0	-0.2663	0.3741	0.2972	1.1127	0.7531
66.5	-0.2630	0.3761	0.2920	1.1168	0.7560
67.0	-0.2597	0.3783	0.2868	1.1213	0.7592
67.5	-0.2564	0.3806	0.2816	1.1263	0.7628
68.0	-0.2531	0.3830	0.2765	1.1317	0.7666
68.5	-0.2497	0.3856	0.2714	1.1377	0.7709
69.0	-0.2463	0.3883	0.2663	1.1442	0.7755
69.5	-0.2429	0.3913	0.2613	1.1513	0.7806
70.0	-0.2395	0.3944	0.2563	1.1591	0.7861
70.5	-0.2361	0.3977	0.2513	1.1677	0.7922
71.0	-0.2327	0.4013	0.2463	1.1770	0.7989
71.348	-0.2301	0.4039	0.2429	1.1839	0.8038

$\theta_s = 30^\circ$     $\bar{u}_s = 0.35$     $M = 1.5164$     $\theta_v = 63.320$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
30.0	-0.4465	0.7000	0.9852	1.1080	0.7518
30.5	-0.4404	0.6837	0.9495	1.1240	0.7632
31.0	-0.4345	0.6684	0.9205	1.1383	0.7734
31.5	-0.4287	0.6540	0.8935	1.1511	0.7825
32.0	-0.4231	0.6404	0.8679	1.1626	0.7907
32.5	-0.4176	0.6276	0.8435	1.1729	0.7980
33.0	-0.4122	0.6156	0.8202	1.1821	0.8045
33.5	-0.4069	0.6043	0.7980	1.1903	0.8103
34.0	-0.4017	0.5936	0.7767	1.1976	0.8155
34.5	-0.3966	0.5836	0.7562	1.2041	0.8201
35.0	-0.3915	0.5741	0.7365	1.2098	0.8242
35.5	-0.3865	0.5651	0.7175	1.2149	0.8279
36.0	-0.3816	0.5566	0.6992	1.2194	0.8311
36.5	-0.3768	0.5486	0.6816	1.2234	0.8339
37.0	-0.3720	0.5411	0.6646	1.2269	0.8364
37.5	-0.3673	0.5339	0.6481	1.2300	0.8386
38.0	-0.3627	0.5271	0.6322	1.2327	0.8405
38.5	-0.3581	0.5207	0.6168	1.2350	0.8422
39.0	-0.3536	0.5146	0.6019	1.2370	0.8437
39.5	-0.3491	0.5089	0.5875	1.2388	0.8449
40.0	-0.3447	0.5035	0.5735	1.2403	0.8460
40.5	-0.3403	0.4984	0.5599	1.2416	0.8469
41.0	-0.3360	0.4935	0.5467	1.2427	0.8477
41.5	-0.3317	0.4889	0.5339	1.2437	0.8484
42.0	-0.3275	0.4846	0.5215	1.2445	0.8490
42.5	-0.3233	0.4805	0.5094	1.2452	0.8495
43.0	-0.3191	0.4766	0.4976	1.2457	0.8498
43.5	-0.3150	0.4729	0.4861	1.2461	0.8501
44.0	-0.3109	0.4694	0.4750	1.2465	0.8504
44.5	-0.3068	0.4662	0.4641	1.2469	0.8507
45.0	-0.3027	0.4632	0.4535	1.2472	0.8509
45.5	-0.2987	0.4603	0.4431	1.2475	0.8511
46.0	-0.2947	0.4576	0.4330	1.2478	0.8513
46.5	-0.2907	0.4550	0.4232	1.2481	0.8515
47.0	-0.2867	0.4526	0.4136	1.2484	0.8517
47.5	-0.2828	0.4504	0.4042	1.2488	0.8520
48.0	-0.2789	0.4484	0.3950	1.2493	0.8523
48.5	-0.2750	0.4465	0.3860	1.2498	0.8527
49.0	-0.2711	0.4447	0.3772	1.2504	0.8531
49.5	-0.2672	0.4431	0.3686	1.2511	0.8536
50.0	-0.2633	0.4416	0.3602	1.2519	0.8542
50.5	-0.2595	0.4403	0.3520	1.2528	0.8549
51.0	-0.2557	0.4391	0.3439	1.2539	0.8557
51.5	-0.2518	0.4380	0.3359	1.2552	0.8566
52.0	-0.2480	0.4371	0.3281	1.2567	0.8576

$\theta_s = 30^\circ$     $\bar{u}_s = 0.35$     $M = 1.5164$     $\theta_w = 63.320$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
52.5	-0.2442	0.4363	0.3206	1.2583	0.8588
53.0	-0.2404	0.4356	0.3130	1.2601	0.8601
53.5	-0.2366	0.4351	0.3056	1.2622	0.8616
54.0	-0.2328	0.4348	0.2983	1.2646	0.8633
54.5	-0.2290	0.4346	0.2912	1.2673	0.8658
55.0	-0.2252	0.4345	0.2842	1.2703	0.8673
55.5	-0.2214	0.4345	0.2773	1.2736	0.8697
56.0	-0.2176	0.4347	0.2705	1.2773	0.8723
56.5	-0.2138	0.4351	0.2638	1.2815	0.8758
57.0	-0.2100	0.4357	0.2572	1.2861	0.8785
57.5	-0.2062	0.4365	0.2507	1.2912	0.8822
58.0	-0.2024	0.4375	0.2443	1.2968	0.8863
58.5	-0.1986	0.4386	0.2380	1.3031	0.8908
59.0	-0.1948	0.4399	0.2317	1.3101	0.8957
59.5	-0.1910	0.4415	0.2255	1.3179	0.9012
60.0	-0.1871	0.4434	0.2194	1.3265	0.9073
60.5	-0.1832	0.4456	0.2133	1.3360	0.9141
61.0	-0.1793	0.4481	0.2073	1.3466	0.9217
61.5	-0.1754	0.4510	0.2014	1.3585	0.9301
62.0	-0.1714	0.4543	0.1955	1.3717	0.9395
62.5	-0.1674	0.4580	0.1896	1.3866	0.9501
63.0	-0.1634	0.4623	0.1837	1.4032	0.9619
63.320	-0.1608	0.4653	0.1800	1.4150	0.9703

$\theta_1 = 30^\circ$     $U_1 = 0.40$     $M = 1.6404$     $\theta_2 = 56.695$

$\theta$	$x$	$y$	$z$	$r/p$	$E/p$
30.0	-0.4320	0.8000	0.9662	1.2585	0.8471
30.5	-0.4251	0.7826	0.9264	1.2804	0.8627
31.0	-0.4183	0.7663	0.8949	1.3002	0.8768
31.5	-0.4117	0.7510	0.8657	1.3181	0.8895
32.0	-0.4052	0.7366	0.8382	1.3343	0.9010
32.5	-0.3988	0.7231	0.8120	1.3489	0.9114
33.0	-0.3926	0.7104	0.7871	1.3622	0.9208
33.5	-0.3865	0.6985	0.7633	1.3748	0.9294
34.0	-0.3805	0.6872	0.7404	1.3851	0.9372
34.5	-0.3745	0.6766	0.7185	1.3951	0.9443
35.0	-0.3686	0.6666	0.6974	1.4042	0.9508
35.5	-0.3628	0.6571	0.6771	1.4125	0.9567
36.0	-0.3571	0.6482	0.6576	1.4201	0.9621
36.5	-0.3515	0.6398	0.6387	1.4270	0.9670
37.0	-0.3460	0.6319	0.6205	1.4333	0.9715
37.5	-0.3405	0.6244	0.6029	1.4392	0.9757
38.0	-0.3351	0.6173	0.5859	1.4446	0.9795
38.5	-0.3297	0.6106	0.5695	1.4496	0.9831
39.0	-0.3244	0.6043	0.5536	1.4543	0.9864
39.5	-0.3192	0.5983	0.5381	1.4586	0.9895
40.0	-0.3140	0.5926	0.5231	1.4627	0.9924
40.5	-0.3088	0.5873	0.5086	1.4666	0.9952
41.0	-0.3037	0.5823	0.4945	1.4703	0.9979
41.5	-0.2987	0.5776	0.4808	1.4739	1.0004
42.0	-0.2937	0.5731	0.4675	1.4773	1.0028
42.5	-0.2887	0.5689	0.4545	1.4807	1.0052
43.0	-0.2837	0.5650	0.4419	1.4840	1.0076
43.5	-0.2788	0.5613	0.4296	1.4873	1.0099
44.0	-0.2739	0.5579	0.4176	1.4907	1.0123
44.5	-0.2691	0.5547	0.4059	1.4941	1.0147
45.0	-0.2643	0.5517	0.3945	1.4976	1.0172
45.5	-0.2595	0.5490	0.3834	1.5012	1.0198
46.0	-0.2547	0.5465	0.3726	1.5049	1.0225
46.5	-0.2499	0.5442	0.3620	1.5088	1.0253
47.0	-0.2451	0.5421	0.3516	1.5130	1.0282
47.5	-0.2404	0.5403	0.3414	1.5175	1.0313
48.0	-0.2357	0.5387	0.3315	1.5223	1.0347
48.5	-0.2310	0.5373	0.3218	1.5274	1.0384
49.0	-0.2264	0.5362	0.3123	1.5329	1.0424
49.5	-0.2217	0.5353	0.3029	1.5389	1.0467
50.0	-0.2170	0.5346	0.2937	1.5454	1.0513
50.5	-0.2123	0.5342	0.2847	1.5525	1.0563
51.0	-0.2077	0.5341	0.2759	1.5603	1.0618
51.5	-0.2031	0.5343	0.2673	1.5688	1.0679
52.0	-0.1984	0.5348	0.2588	1.5782	1.0746

$\theta_s = 30^\circ$     $\bar{u}_s = 0.40$     $M = 1.6404$     $\theta_w = 56.695$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
52.5	-0.1937	0.5356	0.2504	1.5886	1.0820
53.0	-0.1890	0.5368	0.2421	1.6002	1.0902
53.5	-0.1843	0.5385	0.2339	1.6130	1.0994
54.0	-0.1796	0.5406	0.2258	1.6273	1.1096
54.5	-0.1749	0.5432	0.2178	1.6434	1.1210
55.0	-0.1701	0.5464	0.2100	1.6615	1.1339
55.5	-0.1653	0.5504	0.2023	1.6820	1.1485
56.0	-0.1605	0.5552	0.1946	1.7054	1.1651
56.5	-0.1556	0.5610	0.1869	1.7321	1.1848
56.695	-0.1537	0.5635	0.1839	1.7437	1.1924



$\theta_s = 30^\circ$     $\bar{u}_s = 0.45$     $M = 1.8199$     $\theta_v = 51.506$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
30.00	-0.4340	0.9000	0.9974	1.4458	0.9560
30.25	-0.4301	0.8907	0.9698	1.4608	0.9667
30.50	-0.4262	0.8816	0.9499	1.4751	0.9769
30.75	-0.4224	0.8728	0.9315	1.4888	0.9866
31.00	-0.4186	0.8643	0.9141	1.5018	0.9959
31.25	-0.4149	0.8561	0.8974	1.5142	1.0047
31.50	-0.4112	0.8481	0.8813	1.5260	1.0131
31.75	-0.4075	0.8404	0.8657	1.5373	1.0211
32.00	-0.4038	0.8330	0.8505	1.5481	1.0288
32.25	-0.4002	0.8258	0.8357	1.5585	1.0362
32.5	-0.3966	0.8188	0.8214	1.5684	1.0433
33.0	-0.3895	0.8055	0.7936	1.5868	1.0565
33.5	-0.3825	0.7930	0.7671	1.6039	1.0686
34.0	-0.3757	0.7812	0.7418	1.6197	1.0798
34.5	-0.3689	0.7702	0.7175	1.6343	1.0902
35.0	-0.3622	0.7599	0.6942	1.6478	1.0998
35.5	-0.3556	0.7502	0.6717	1.6604	1.1088
36.0	-0.3491	0.7410	0.6501	1.6722	1.1172
36.5	-0.3427	0.7323	0.6292	1.6833	1.1251
37.0	-0.3363	0.7242	0.6091	1.6937	1.1325
37.5	-0.3300	0.7166	0.5896	1.7036	1.1395
38.0	-0.3238	0.7095	0.5708	1.7130	1.1462
38.5	-0.3177	0.7028	0.5526	1.7221	1.1527
39.0	-0.3116	0.6965	0.5350	1.7309	1.1590
39.5	-0.3055	0.6907	0.5179	1.7394	1.1651
40.0	-0.2995	0.6853	0.5013	1.7478	1.1710
40.5	-0.2935	0.6802	0.4852	1.7561	1.1768
41.0	-0.2876	0.6754	0.4696	1.7643	1.1826
41.5	-0.2817	0.6710	0.4544	1.7725	1.1885
42.0	-0.2759	0.6670	0.4396	1.7808	1.1945
42.5	-0.2701	0.6633	0.4252	1.7893	1.2006
43.0	-0.2643	0.6600	0.4112	1.7981	1.2068
43.5	-0.2586	0.6570	0.3975	1.8072	1.2132
44.0	-0.2529	0.6544	0.3841	1.8166	1.2199
44.5	-0.2472	0.6521	0.3711	1.8265	1.2270
45.0	-0.2415	0.6502	0.3584	1.8370	1.2345
45.5	-0.2358	0.6487	0.3460	1.8482	1.2425
46.0	-0.2302	0.6476	0.3339	1.8602	1.2510
46.5	-0.2246	0.6469	0.3220	1.8732	1.2602
47.0	-0.2189	0.6466	0.3103	1.8873	1.2703
47.50	-0.2132	0.6468	0.2989	1.9027	1.2813
47.75	-0.2104	0.6471	0.2933	1.9110	1.2871
48.00	-0.2076	0.6476	0.2877	1.9195	1.2933
48.25	-0.2047	0.6483	0.2821	1.9286	1.2997
48.50	-0.2019	0.6491	0.2766	1.9382	1.3065

$\theta_s = 30^\circ$     $\bar{u}_s = 0.45$     $M = 1.8199$     $\theta_v = 51.506$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
48.75	-0.1991	0.6501	0.2712	1.9483	1.3137
49.00	-0.1962	0.6512	0.2658	1.9590	1.3213
49.25	-0.1933	0.6525	0.2605	1.9703	1.3293
49.50	-0.1905	0.6541	0.2552	1.9823	1.3378
49.75	-0.1877	0.6559	0.2499	1.9950	1.3459
50.00	-0.1848	0.6579	0.2447	2.0085	1.3566
50.25	-0.1819	0.6601	0.2395	2.0230	1.3669
50.50	-0.1790	0.6626	0.2343	2.0385	1.3779
50.75	-0.1761	0.6655	0.2292	2.0551	1.3897
51.00	-0.1732	0.6688	0.2241	2.0729	1.4024
51.25	-0.1703	0.6724	0.2190	2.0920	1.4161
51.50	-0.1674	0.6764	0.2139	2.1128	1.4308
51.506	-0.1673	0.6765	0.2138	2.1133	1.4311

H	x	y	z	z <sub>2</sub>	k/A
30.0	-0.4428	1.00000	1.0562	1.6540	1.0636
30.4	-0.4359	0.9844	1.0065	1.6851	1.0857
30.8	-0.4291	0.9696	0.9717	1.7141	1.1063
31.2	-0.4224	0.9556	0.9401	1.7410	1.1255
31.6	-0.4158	0.9424	0.9106	1.7661	1.1434
32.0	-0.4093	0.9299	0.8826	1.7897	1.1602
32.4	-0.4028	0.9180	0.8559	1.8119	1.1760
32.8	-0.3964	0.9067	0.8303	1.8328	1.1908
33.2	-0.3901	0.8961	0.8058	1.8525	1.2048
33.6	-0.3839	0.8861	0.7821	1.8713	1.2181
34.0	-0.3777	0.8765	0.7593	1.8888	1.2307
34.5	-0.3703	0.8654	0.7319	1.9099	1.2456
35.0	-0.3627	0.8549	0.7056	1.9293	1.2595
35.5	-0.3552	0.8451	0.6803	1.9480	1.2728
36.0	-0.3479	0.8360	0.6559	1.9659	1.2855
36.5	-0.3407	0.8275	0.6324	1.9830	1.2977
37.0	-0.3335	0.8196	0.6098	1.9996	1.3095
37.5	-0.3264	0.8123	0.5880	2.0158	1.3210
38.0	-0.3193	0.8056	0.5669	2.0316	1.3323
38.5	-0.3123	0.7994	0.5464	2.0473	1.3435
39.0	-0.3054	0.7937	0.5265	2.0630	1.3546
39.5	-0.2985	0.7886	0.5072	2.0787	1.3658
40.0	-0.2916	0.7840	0.4885	2.0946	1.3771
40.5	-0.2848	0.7799	0.4704	2.1108	1.3887
41.0	-0.2780	0.7763	0.4528	2.1275	1.4006
41.5	-0.2712	0.7732	0.4356	2.1449	1.4129
42.0	-0.2645	0.7707	0.4189	2.1630	1.4256
42.5	-0.2578	0.7688	0.4026	2.1822	1.4394
43.0	-0.2511	0.7675	0.3867	2.2026	1.4540
43.5	-0.2444	0.7668	0.3712	2.2246	1.4697
44.0	-0.2377	0.7669	0.3560	2.2485	1.4867
44.5	-0.2310	0.7678	0.3412	2.2745	1.5052
45.0	-0.2243	0.7696	0.3267	2.3033	1.5257
45.5	-0.2176	0.7725	0.3124	2.3352	1.5484
46.0	-0.2108	0.7765	0.2984	2.3711	1.5740
46.5	-0.2040	0.7819	0.2846	2.4119	1.6030
47.0	-0.1971	0.7891	0.2711	2.4567	1.6363
47.414	-0.1914	0.7966	0.2600	2.5034	1.6681

$\theta$	$x$	$y$	$z$	$\frac{y}{z}$	$\frac{x}{z}$
30.00	-0.4558	1.1000	1.1359	1.8780	1.1591
30.25	-0.4511	1.0898	1.0913	1.9037	1.1774
30.50	-0.4463	1.0799	1.0622	1.9283	1.1949
30.75	-0.4416	1.0703	1.0365	1.9519	1.2117
31.00	-0.4370	1.0610	1.0125	1.9746	1.2278
31.25	-0.4324	1.0521	0.9898	1.9963	1.2433
31.50	-0.4278	1.0435	0.9681	2.0172	1.2583
31.75	-0.4233	1.0353	0.9473	2.0374	1.2728
32.00	-0.4188	1.0274	0.9272	2.0569	1.2863
32.25	-0.4143	1.0197	0.9077	2.0757	1.2997
32.5	-0.4099	1.0123	0.8888	2.0938	1.3127
33.0	-0.4011	0.9983	0.8525	2.1284	1.3374
33.5	-0.3924	0.9854	0.8181	2.1610	1.3606
34.0	-0.3838	0.9735	0.7853	2.1920	1.3826
34.5	-0.3754	0.9625	0.7539	2.2216	1.4036
35.0	-0.3671	0.9523	0.7236	2.2500	1.4238
35.5	-0.3588	0.9430	0.6949	2.2775	1.4434
36.0	-0.3506	0.9344	0.6672	2.3044	1.4626
36.5	-0.3425	0.9266	0.6405	2.3309	1.4814
37.0	-0.3345	0.9196	0.6147	2.3572	1.5001
37.5	-0.3265	0.9133	0.5898	2.3835	1.5188
38.0	-0.3186	0.9077	0.5657	2.4100	1.5376
38.5	-0.3107	0.9029	0.5423	2.4369	1.5567
39.0	-0.3028	0.8989	0.5197	2.4645	1.5764
39.5	-0.2950	0.8956	0.4978	2.4932	1.5969
40.0	-0.2872	0.8932	0.4765	2.5233	1.6184
40.5	-0.2794	0.8917	0.4558	2.5553	1.6411
41.0	-0.2716	0.8912	0.4356	2.5895	1.6654
41.5	-0.2638	0.8917	0.4159	2.6265	1.6918
42.0	-0.2560	0.8934	0.3967	2.6671	1.7207
42.25	-0.2521	0.8948	0.3873	2.6889	1.7353
42.50	-0.2482	0.8966	0.3779	2.7120	1.7527
42.75	-0.2443	0.8988	0.3687	2.7364	1.7700
43.00	-0.2404	0.9014	0.3596	2.7623	1.7884
43.25	-0.2365	0.9045	0.3506	2.7899	1.8081
43.50	-0.2325	0.9082	0.3416	2.8195	1.8298
43.75	-0.2285	0.9124	0.3327	2.8512	1.8518
44.00	-0.2245	0.9172	0.3239	2.8854	1.8761
44.124	-0.2225	0.9200	0.3196	2.9034	1.8889

$\theta$	$x$	$y$	$z$	$\eta/\xi$	$\xi/\eta$
30.00	-0.4718	1.2000	1.2317	2.1134	1.2286
30.25	-0.4686	1.1894	1.2270	2.1467	1.2525
30.50	-0.4614	1.1792	1.2141	2.1788	1.2753
30.75	-0.4533	1.1693	1.2097	2.2096	1.2972
31.00	-0.4451	1.1598	1.2028	2.2393	1.3183
31.25	-0.4462	1.1507	1.20517	2.2679	1.3387
31.50	-0.4412	1.1420	1.20280	2.2955	1.3584
31.75	-0.4362	1.1337	1.20034	2.3222	1.3774
32.00	-0.4313	1.1257	0.9797	2.3481	1.3959
32.25	-0.4264	1.1180	0.9569	2.3733	1.4138
32.50	-0.4215	1.1106	0.9348	2.3978	1.4312
32.75	-0.4167	1.1035	0.9133	2.4216	1.4482
33.00	-0.4119	1.0968	0.8924	2.4449	1.4647
33.25	-0.4071	1.0904	0.8721	2.4677	1.4809
33.50	-0.4024	1.0843	0.8524	2.4900	1.4968
33.75	-0.3977	1.0784	0.8332	2.5119	1.5124
34.00	-0.3930	1.0728	0.8144	2.5334	1.5277
34.25	-0.3883	1.0675	0.7960	2.5546	1.5428
34.50	-0.3836	1.0624	0.7781	2.5756	1.5577
34.75	-0.3790	1.0576	0.7606	2.5964	1.5725
35.00	-0.3744	1.0531	0.7434	2.6170	1.5872
35.25	-0.3698	1.0489	0.7266	2.6375	1.6018
35.50	-0.3652	1.0449	0.7101	2.6579	1.6163
35.75	-0.3607	1.0411	0.6940	2.6783	1.6308
36.00	-0.3562	1.0376	0.6782	2.6988	1.6454
36.25	-0.3517	1.0344	0.6627	2.7194	1.6601
36.50	-0.3472	1.0315	0.6474	2.7402	1.6749
36.75	-0.3427	1.0288	0.6324	2.7611	1.6898
37.00	-0.3382	1.0263	0.6177	2.7823	1.7049
37.25	-0.3337	1.0241	0.6032	2.8039	1.7202
37.50	-0.3292	1.0223	0.5890	2.8259	1.7358
37.75	-0.3247	1.0208	0.5750	2.8483	1.7516
38.00	-0.3202	1.0195	0.5613	2.8712	1.7682
38.25	-0.3158	1.0185	0.5478	2.8948	1.7850
38.50	-0.3114	1.0179	0.5345	2.9192	1.8023
38.75	-0.3070	1.0176	0.5214	2.9444	1.8202
39.00	-0.3026	1.0177	0.5085	2.9705	1.8388
39.25	-0.2982	1.0182	0.4957	2.9977	1.8582
39.50	-0.2938	1.0191	0.4831	3.0261	1.8784
39.75	-0.2893	1.0205	0.4707	3.0558	1.8995
40.00	-0.2848	1.0223	0.4585	3.0871	1.9218
40.25	-0.2803	1.0246	0.4465	3.1202	1.9453
40.50	-0.2758	1.0276	0.4346	3.1553	1.9702
40.75	-0.2713	1.0312	0.4228	3.1926	1.9965
41.00	-0.2668	1.0355	0.4111	3.2324	2.0252
41.25	-0.2623	1.0404	0.3995	3.2749	2.0555
41.426	-0.2591	1.0446	0.3917	3.3074	2.0786

$\theta_s = 30^\circ$     $\bar{u}_s = 0.65$     $M = 3.1617$     $\theta_w = 39.175$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
30.00	-0.4904	1.3000	1.3576	2.3585	1.8546
30.25	-0.4848	1.2892	1.2770	2.4020	1.2855
30.50	-0.4792	1.2788	1.2320	2.4438	1.3153
30.75	-0.4736	1.2688	1.1932	2.4842	1.3440
31.00	-0.4680	1.2592	1.1580	2.5238	1.3718
31.25	-0.4626	1.2500	1.1253	2.5609	1.3987
31.50	-0.4572	1.2412	1.0944	2.5976	1.4248
31.75	-0.4518	1.2329	1.0649	2.6333	1.4501
32.00	-0.4464	1.2250	1.0367	2.6681	1.4748
32.25	-0.4411	1.2175	1.0096	2.7020	1.4990
32.50	-0.4358	1.2104	0.9834	2.7352	1.5227
32.75	-0.4305	1.2036	0.9580	2.7678	1.5459
33.00	-0.4253	1.1972	0.9335	2.7999	1.5687
33.25	-0.4201	1.1912	0.9097	2.8315	1.5912
33.50	-0.4149	1.1855	0.8865	2.8627	1.6135
33.75	-0.4097	1.1802	0.8639	2.8937	1.6356
34.00	-0.4046	1.1752	0.8419	2.9245	1.6575
34.25	-0.3995	1.1706	0.8205	2.9552	1.6793
34.50	-0.3944	1.1664	0.7996	2.9858	1.7011
34.75	-0.3893	1.1625	0.7791	3.0165	1.7229
35.00	-0.3842	1.1590	0.7591	3.0474	1.7449
35.25	-0.3791	1.1558	0.7395	3.0785	1.7671
35.50	-0.3741	1.1530	0.7203	3.1100	1.7895
35.75	-0.3691	1.1506	0.7015	3.1420	1.8122
36.00	-0.3641	1.1486	0.6831	3.1746	1.8354
36.25	-0.3591	1.1470	0.6651	3.2078	1.8591
36.50	-0.3541	1.1458	0.6474	3.2419	1.8833
36.75	-0.3491	1.1451	0.6300	3.2770	1.9083
37.00	-0.3441	1.1448	0.6129	3.3132	1.9341
37.25	-0.3391	1.1451	0.5961	3.3507	1.9608
37.50	-0.3341	1.1459	0.5796	3.3898	1.9886
37.75	-0.3291	1.1472	0.5634	3.4306	2.0176
38.00	-0.3241	1.1492	0.5475	3.4735	2.0481
38.25	-0.3191	1.1518	0.5318	3.5186	2.0803
38.50	-0.3141	1.1553	0.5163	3.5664	2.1143
38.75	-0.3090	1.1597	0.5010	3.6172	2.1505
39.00	-0.3039	1.1649	0.4859	3.6719	2.1893
39.175	-0.3004	1.1692	0.4755	3.7123	2.2182

$\bar{d}_1 = 10$      $\bar{d}_2 = 0.70$      $M = 1.8497$      $\bar{d}_3 = 37.268$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
30.00	-0.3115	1.4000	1.4975	2.6114	1.2074
30.25	-0.5054	1.3801	1.3805	2.6684	1.2480
30.50	-0.4994	1.3785	1.3323	2.7237	1.2873
30.75	-0.4934	1.3684	1.2840	2.7772	1.3254
31.00	-0.4874	1.3588	1.2404	2.8291	1.3623
31.25	-0.4815	1.3497	1.2004	2.8796	1.3982
31.50	-0.4756	1.3411	1.1627	2.9289	1.4333
31.75	-0.4698	1.3330	1.1271	2.9771	1.4676
32.00	-0.4640	1.3254	1.0931	3.0244	1.5013
32.25	-0.4582	1.3183	1.0605	3.0709	1.5344
32.50	-0.4525	1.3117	1.0291	3.1168	1.5671
32.75	-0.4468	1.3055	0.9988	3.1623	1.5995
33.00	-0.4411	1.3000	0.9696	3.2075	1.6316
33.25	-0.4354	1.2948	0.9413	3.2525	1.6636
33.50	-0.4298	1.2901	0.9138	3.2975	1.6956
33.75	-0.4242	1.2859	0.8871	3.3426	1.7277
34.00	-0.4185	1.2822	0.8611	3.3880	1.7600
34.25	-0.4130	1.2790	0.8358	3.4338	1.7927
34.50	-0.4074	1.2764	0.8111	3.4803	1.8258
34.75	-0.4019	1.2743	0.7870	3.5277	1.8595
35.00	-0.3964	1.2727	0.7635	3.5762	1.8940
35.25	-0.3908	1.2718	0.7405	3.6259	1.9294
35.50	-0.3852	1.2715	0.7180	3.6772	1.9659
35.75	-0.3797	1.2719	0.6960	3.7303	2.0037
36.00	-0.3742	1.2730	0.6745	3.7855	2.0431
36.25	-0.3686	1.2749	0.6533	3.8435	2.0843
36.50	-0.3630	1.2777	0.6325	3.9042	2.1275
36.75	-0.3574	1.2815	0.6121	3.9684	2.1734
37.00	-0.3518	1.2863	0.5921	4.0368	2.2219
37.25	-0.3462	1.2923	0.5724	4.1099	2.2734
37.268	-0.3457	1.2928	0.5710	4.1153	2.2777

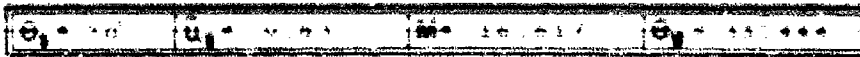
$\theta_0 = 30^\circ$     $u_0 = 0.75$     $M = 5.0109$     $\theta_1 = 35.631$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\rho$
30.00	-0.5351	1.5000	1.6577	2.8714	1.0366
30.25	-0.5287	1.4891	1.5123	2.9480	1.0911
30.50	-0.5221	1.4764	1.4386	3.0222	1.1440
30.625	-0.5189	1.4733	1.4068	3.0586	1.1629
30.750	-0.5157	1.4684	1.3775	3.0945	1.1955
30.875	-0.5125	1.4636	1.3496	3.1300	1.2207
31.000	-0.5093	1.4590	1.3231	3.1651	1.2457
31.125	-0.5062	1.4545	1.2977	3.1998	1.2704
31.250	-0.5030	1.4502	1.2733	3.2341	1.2948
31.375	-0.4998	1.4460	1.2497	3.2682	1.3190
31.500	-0.4966	1.4420	1.2269	3.3020	1.3431
31.625	-0.4935	1.4382	1.2047	3.3355	1.3670
31.750	-0.4904	1.4346	1.1831	3.3688	1.3907
31.875	-0.4873	1.4311	1.1621	3.4020	1.4143
32.000	-0.4841	1.4277	1.1416	3.4351	1.4370
32.125	-0.4810	1.4245	1.1215	3.4681	1.4614
32.250	-0.4779	1.4215	1.1019	3.5010	1.4848
32.375	-0.4748	1.4187	1.0827	3.5338	1.5081
32.500	-0.4717	1.4150	1.0639	3.5666	1.5314
32.625	-0.4687	1.4115	1.0454	3.5994	1.5548
32.750	-0.4656	1.4111	1.0273	3.6323	1.5782
32.875	-0.4625	1.4089	1.0096	3.6653	1.6017
33.000	-0.4594	1.4069	0.9922	3.6985	1.6253
33.125	-0.4563	1.4051	0.9750	3.7319	1.6490
33.250	-0.4532	1.4035	0.9581	3.7655	1.6729
33.375	-0.4502	1.4021	0.9415	3.7993	1.6970
33.500	-0.4472	1.4008	0.9252	3.8334	1.7213
33.625	-0.4442	1.3997	0.9091	3.8678	1.7458
33.750	-0.4411	1.3988	0.8932	3.9026	1.7706
33.875	-0.4380	1.3981	0.8775	3.9379	1.7957
34.000	-0.4349	1.3976	0.8621	3.9737	1.8211
34.125	-0.4319	1.3973	0.8469	4.0100	1.8469
34.250	-0.4289	1.3973	0.8319	4.0469	1.8732
34.375	-0.4259	1.3975	0.8171	4.0844	1.9000
34.500	-0.4228	1.3979	0.8025	4.1227	1.9273
34.625	-0.4197	1.3986	0.7881	4.1618	1.9551
34.750	-0.4166	1.3996	0.7739	4.2018	1.9835
34.875	-0.4136	1.4008	0.7598	4.2427	2.0126
35.000	-0.4106	1.4023	0.7459	4.2846	2.0425
35.125	-0.4075	1.4041	0.7322	4.3277	2.0732
35.250	-0.4044	1.4063	0.7186	4.3721	2.1048
35.375	-0.4013	1.4088	0.7052	4.4178	2.1373
35.500	-0.3983	1.4116	0.6919	4.4650	2.1709
35.625	-0.3953	1.4147	0.6787	4.5138	2.2056
35.631	-0.3951	1.4150	0.6781	4.5161	2.2073



$\theta_0 = 30^\circ$      $\bar{U}_0 = 0.80$      $M = 7.8539$      $\theta_1 = 34^\circ.21$

$\theta$	$x$	$y$	$z$	$r/p$	$L/p$
30.00	-0.5614	1.6000	1.8386	3.1368	0.6419
30.25	-0.5544	1.5891	1.6407	3.2431	0.7175
30.50	-0.5475	1.5785	1.5444	3.3467	0.7913
30.75	-0.5441	1.5716	1.5034	3.3977	0.8276
30.750	-0.5407	1.5688	1.4657	3.4482	0.8635
30.875	-0.5378	1.5649	1.4301	3.4989	0.8891
31.000	-0.5338	1.5598	1.3965	3.5479	0.9344
31.125	-0.5304	1.5557	1.3644	3.5972	0.9695
31.250	-0.5270	1.5518	1.3336	3.6462	1.0044
31.375	-0.5237	1.5481	1.3040	3.6951	1.0392
31.500	-0.5203	1.5446	1.2754	3.7439	1.0739
31.625	-0.5169	1.5414	1.2477	3.7925	1.1086
31.750	-0.5135	1.5384	1.2208	3.8411	1.1438
31.875	-0.5102	1.5356	1.1947	3.8898	1.1778
32.000	-0.5069	1.5330	1.1693	3.9387	1.2126
32.125	-0.5036	1.5307	1.1445	3.9878	1.2475
32.250	-0.5002	1.5286	1.1203	4.0371	1.2826
32.375	-0.4968	1.5268	1.0967	4.0868	1.3180
32.500	-0.4935	1.5253	1.0736	4.1369	1.3537
32.625	-0.4902	1.5240	1.0509	4.1875	1.3897
32.750	-0.4869	1.5230	1.0287	4.2387	1.4261
32.875	-0.4836	1.5223	1.0070	4.2905	1.4630
33.000	-0.4802	1.5218	0.9857	4.3431	1.5005
33.125	-0.4769	1.5216	0.9648	4.3966	1.5385
33.250	-0.4736	1.5218	0.9442	4.4510	1.5772
33.375	-0.4703	1.5223	0.9240	4.5065	1.6167
33.500	-0.4670	1.5232	0.9041	4.5631	1.6570
33.625	-0.4636	1.5244	0.8845	4.6209	1.6982
33.750	-0.4603	1.5260	0.8652	4.6803	1.7404
33.875	-0.4570	1.5281	0.8468	4.7414	1.7839
34.000	-0.4536	1.5305	0.8276	4.8043	1.8287
34.125	-0.4503	1.5335	0.8094	4.8691	1.8748
34.210	-0.4480	1.5357	0.7969	4.9143	1.9070



$\theta$	$x$	$y$	$z$	$\frac{z}{r}$	$\frac{z}{p}$
30.0	-0.51885	1.65000	1.95575	3.15018	0.21447
30.2	-0.51788	1.65112	1.74450	3.40078	0.29001
30.4	-0.51670	1.64228	1.64449	3.51120	0.36443
30.5	-0.51641	1.63888	1.60226	3.56335	0.40009
30.6	-0.51523	1.63449	1.56640	3.61146	0.43373
30.7	-0.51585	1.63112	1.52276	3.66553	0.47335
30.8	-0.51556	1.62766	1.48233	3.71851	0.50955
30.9	-0.51527	1.62442	1.44606	3.76666	0.54555
31.0	-0.51499	1.62110	1.42294	3.81170	0.58114
31.1	-0.51471	1.61779	1.39993	3.86773	0.61728
31.2	-0.51442	1.61500	1.37703	3.91175	0.65229
31.3	-0.51415	1.61223	1.34423	3.96776	0.68886
31.4	-0.51386	1.60998	1.31151	4.01178	0.72444
31.5	-0.51358	1.60775	1.28887	4.06682	0.76002
31.6	-0.51330	1.60553	1.26631	4.11187	0.79661
31.7	-0.51302	1.60333	1.23381	4.16693	0.83321
31.8	-0.51274	1.60116	1.21136	4.22201	0.86883
31.9	-0.51246	1.60001	1.18997	4.27713	0.90447
32.0	-0.51218	1.59887	1.16664	4.32229	0.94114
32.1	-0.51190	1.59777	1.14336	4.37449	0.97884
32.2	-0.51162	1.59668	1.12113	4.42273	1.01557
32.3	-0.51135	1.59561	1.09994	4.48003	1.05334
32.4	-0.51107	1.59556	1.07779	4.53339	1.09116
32.5	-0.51079	1.59554	1.05667	4.58882	1.13003
32.6	-0.51051	1.59554	1.03559	4.64333	1.16995
32.7	-0.51023	1.59557	1.01555	4.69992	1.20992
32.8	-0.49995	1.59553	0.99554	4.75560	1.24996
32.9	-0.49967	1.59571	0.97557	4.81139	1.29009
33.0	-0.49939	1.59882	0.95663	4.87330	1.33330
33.1	-0.49911	1.59996	0.93772	4.93334	1.37660
33.2	-0.48883	1.60114	0.91884	4.99552	1.41999
33.3	-0.48855	1.60035	0.89999	5.05884	1.46449
33.4	-0.48827	1.60060	0.88116	5.12330	1.51110
33.444	-0.48815	1.60072	0.87337	5.15118	1.53114

$\theta_3 = 30^\circ$     $u_0 = 0.83917$     $M = \text{Infinity}$     $\theta_4 = 33.221$

$\theta$	$x$	$y$	$z$	$r/p$	$r/\rho$
30.0	-0.5938	1.6783	1.9950	3.3492	0.0367
30.2	-0.5780	1.6696	1.7697	3.4636	0.1181
30.4	-0.5722	1.6612	1.6632	3.5762	0.1983
30.5	-0.5693	1.6572	1.6185	3.6319	0.2380
30.6	-0.5664	1.6534	1.5779	3.6872	0.2774
30.7	-0.5635	1.6497	1.5396	3.7422	0.3165
30.8	-0.5606	1.6462	1.5035	3.7969	0.3554
30.9	-0.5577	1.6429	1.4691	3.8515	0.3942
31.0	-0.5549	1.6398	1.4362	3.9060	0.4330
31.1	-0.5521	1.6369	1.4047	3.9606	0.4719
31.2	-0.5492	1.6342	1.3743	4.0151	0.5107
31.3	-0.5463	1.6316	1.3449	4.0696	0.5495
31.4	-0.5435	1.6292	1.3164	4.1242	0.5884
31.5	-0.5407	1.6270	1.2888	4.1790	0.6274
31.6	-0.5378	1.6251	1.2619	4.2341	0.6666
31.7	-0.5349	1.6234	1.2357	4.2895	0.7060
31.8	-0.5321	1.6219	1.2101	4.3452	0.7456
31.9	-0.5293	1.6205	1.1851	4.4013	0.7855
32.0	-0.5265	1.6196	1.1607	4.4579	0.8258
32.1	-0.5237	1.6188	1.1368	4.5152	0.8665
32.2	-0.5208	1.6182	1.1135	4.5731	0.9078
32.3	-0.5180	1.6179	1.0906	4.6318	0.9496
32.4	-0.5152	1.6178	1.0682	4.6913	0.9920
32.5	-0.5124	1.6180	1.0462	4.7517	1.0350
32.6	-0.5096	1.6185	1.0246	4.8132	1.0788
32.7	-0.5058	1.6193	1.0033	4.8759	1.1234
32.8	-0.5039	1.6204	0.9824	4.9397	1.1688
32.9	-0.5019	1.6219	0.9618	5.0047	1.2150
33.0	-0.4982	1.6237	0.9416	5.0711	1.2623
33.1	-0.4954	1.6258	0.9218	5.1392	1.3108
33.2	-0.4926	1.6283	0.9024	5.2092	1.3606
33.221	-0.4920	1.6289	0.8960	5.2241	1.3712

$\theta_0 = 35^\circ$     $\bar{U}_0 = 0.30$     $M = 1.6831(S)$     $\theta_1 = 69^\circ.894$

$\theta$	$x$	$y$	$z$	$r/\bar{r}$	$z/\bar{z}$
35.0	-0.6630	0.6000	1.3797	1.2229	0.7857
35.5	-0.6578	0.5901	1.3320	1.2343	0.7939
36.0	-0.6527	0.5807	1.2982	1.2448	0.8013
36.5	-0.6477	0.5718	1.2674	1.2543	0.8081
37.0	-0.6427	0.5635	1.2387	1.2629	0.8143
37.5	-0.6378	0.5557	1.2114	1.2708	0.8199
38.0	-0.6330	0.5484	1.1853	1.2780	0.8250
38.5	-0.6283	0.5416	1.1605	1.2846	0.8297
39.0	-0.6236	0.5352	1.1364	1.2906	0.8339
39.5	-0.6189	0.5292	1.1133	1.2960	0.8378
40.0	-0.6143	0.5236	1.0910	1.3010	0.8413
40.5	-0.6097	0.5184	1.0695	1.3055	0.8445
41.0	-0.6052	0.5135	1.0487	1.3096	0.8474
41.5	-0.6008	0.5090	1.0285	1.3133	0.8501
42.0	-0.5964	0.5048	1.0089	1.3167	0.8526
42.5	-0.5920	0.5009	0.9899	1.3198	0.8548
43.0	-0.5876	0.4973	0.9714	1.3227	0.8568
43.5	-0.5833	0.4940	0.9535	1.3253	0.8585
44.0	-0.5790	0.4909	0.9361	1.3277	0.8603
44.5	-0.5747	0.4881	0.9192	1.3299	0.8619
45.0	-0.5705	0.4855	0.9027	1.3319	0.8633
45.5	-0.5663	0.4831	0.8866	1.3337	0.8646
46.0	-0.5621	0.4809	0.8709	1.3354	0.8658
46.5	-0.5579	0.4790	0.8556	1.3370	0.8669
47.0	-0.5537	0.4773	0.8407	1.3385	0.8680
47.5	-0.5495	0.4758	0.8261	1.3399	0.8690
48.0	-0.5453	0.4744	0.8119	1.3412	0.8699
48.5	-0.5412	0.4732	0.7980	1.3424	0.8708
49.0	-0.5371	0.4722	0.7844	1.3436	0.8717
49.5	-0.5330	0.4713	0.7711	1.3448	0.8725
50.0	-0.5289	0.4706	0.7581	1.3460	0.8733
50.5	-0.5248	0.4701	0.7453	1.3472	0.8742
51.0	-0.5207	0.4697	0.7328	1.3483	0.8750
51.5	-0.5166	0.4694	0.7206	1.3494	0.8758
52.0	-0.5125	0.4693	0.7086	1.3506	0.8767
52.5	-0.5084	0.4693	0.6968	1.3519	0.8776
53.0	-0.5043	0.4694	0.6853	1.3532	0.8785
53.5	-0.5002	0.4697	0.6740	1.3545	0.8794
54.0	-0.4961	0.4701	0.6629	1.3559	0.8804
54.5	-0.4920	0.4706	0.6520	1.3574	0.8815
55.0	-0.4879	0.4712	0.6413	1.3590	0.8826
55.5	-0.4838	0.4719	0.6308	1.3607	0.8838
56.0	-0.4797	0.4727	0.6204	1.3625	0.8851
56.5	-0.4755	0.4737	0.6102	1.3644	0.8864
57.0	-0.4713	0.4748	0.6002	1.3664	0.8879

$\theta_1 = 55$     $U_1 = 0.50$     $M = 1.6831(S)$     $\theta_2 = 69.894$

$\theta$	$x$	$y$	$z$	$r/\rho$	$E/\rho$
57.5	-0.4872	0.4780	0.5905	1.3626	0.8895
58.0	-0.4831	0.4773	0.5806	1.3710	0.8912
58.5	-0.4589	0.4787	0.5710	1.3736	0.8930
59.0	-0.4547	0.4802	0.5616	1.3763	0.8949
59.5	-0.4505	0.4818	0.5523	1.3792	0.8970
60.0	-0.4463	0.4835	0.5431	1.3824	0.8993
60.5	-0.4421	0.4854	0.5341	1.3859	0.9017
61.0	-0.4379	0.4874	0.5252	1.3896	0.9043
61.5	-0.4336	0.4895	0.5164	1.3935	0.9071
62.0	-0.4293	0.4917	0.5077	1.3977	0.9101
62	-0.4250	0.4940	0.4991	1.4022	0.9133
63.0	-0.4207	0.4964	0.4906	1.4071	0.9168
63.5	-0.4164	0.4990	0.4822	1.4124	0.9206
64.0	-0.4120	0.5017	0.4739	1.4180	0.9246
64.5	-0.4076	0.5046	0.4657	1.4240	0.9289
65.0	-0.4032	0.5076	0.4576	1.4303	0.9335
65.5	-0.3987	0.5108	0.4496	1.4373	0.9385
66.0	-0.3942	0.5141	0.4415	1.4450	0.9438
66.5	-0.3897	0.5176	0.4336	1.4530	0.9495
67.0	-0.3852	0.5213	0.4258	1.4616	0.9556
67.5	-0.3806	0.5252	0.4180	1.4708	0.9622
68.0	-0.3760	0.5293	0.4103	1.4808	0.9693
68.5	-0.3714	0.5336	0.4026	1.4916	0.9770
69.0	-0.3667	0.5382	0.3950	1.5032	0.9853
69.5	-0.3620	0.5431	0.3875	1.5157	0.9942
69.894	-0.3582	0.5470	0.3815	1.5263	1.0017

$\theta_s = 35^\circ$     $\bar{u}_s = 0.35$     $M = 1.7301$     $\theta_w = 63^\circ.214$

$\theta$	x	y	z	$\eta/\bar{p}$	$\xi/\bar{p}$
35	-0.5587	0.7000	1.1624	1.2471	0.8015
36	-0.5466	0.6791	1.0837	1.2783	0.8237
37	-0.5330	0.6605	1.0265	1.3049	0.8425
37.5	-0.5292	0.6520	1.0003	1.3166	0.8509
38.0	-0.5236	0.6441	0.9754	1.3276	0.8587
38.5	-0.5180	0.6366	0.9515	1.3377	0.8659
39.0	-0.5125	0.6295	0.9285	1.3471	0.8726
39.5	-0.5070	0.6229	0.9064	1.3558	0.8788
40.0	-0.5016	0.6167	0.8851	1.3640	0.8846
40.5	-0.4962	0.6109	0.8645	1.3716	0.8899
41.0	-0.4909	0.6054	0.8446	1.3788	0.8951
41.5	-0.4857	0.6003	0.8253	1.3855	0.8999
42.0	-0.4805	0.5955	0.8066	1.3918	0.9044
42.5	-0.4753	0.5911	0.7885	1.3977	0.9087
43.0	-0.4701	0.5869	0.7709	1.4034	0.9127
43.5	-0.4650	0.5830	0.7538	1.4087	0.9165
44.0	-0.4600	0.5794	0.7371	1.4139	0.9201
44.5	-0.4549	0.5760	0.7209	1.4188	0.9236
45.0	-0.4499	0.5729	0.7052	1.4235	0.9270
45.5	-0.4455	0.5700	0.6898	1.4280	0.9302
46.0	-0.4400	0.5673	0.6748	1.4324	0.9333
46.5	-0.4350	0.5648	0.6602	1.4367	0.9364
47.0	-0.4301	0.5626	0.6460	1.4409	0.9394
47.5	-0.4252	0.5605	0.6320	1.4451	0.9424
48.0	-0.4203	0.5587	0.6184	1.4492	0.9453
48.5	-0.4155	0.5570	0.6051	1.4533	0.9482
49.0	-0.4106	0.5556	0.5921	1.4574	0.9511
49.5	-0.4058	0.5543	0.5794	1.4616	0.9541
50.0	-0.4009	0.5531	0.5670	1.4658	0.9571
50.5	-0.3961	0.5522	0.5548	1.4701	0.9601
51.0	-0.3913	0.5514	0.5428	1.4744	0.9632
51.5	-0.3865	0.5508	0.5311	1.4789	0.9664
52.0	-0.3817	0.5504	0.5196	1.4836	0.9697
52.5	-0.3769	0.5501	0.5083	1.4884	0.9732
53.0	-0.3721	0.5500	0.4973	1.4934	0.9767
53.5	-0.3673	0.5500	0.4864	1.4986	0.9804
54.0	-0.3625	0.5503	0.4757	1.5041	0.9843
54.5	-0.3577	0.5507	0.4652	1.5098	0.9884
55.0	-0.3529	0.5512	0.4549	1.5159	0.9927
55.5	-0.3480	0.5520	0.4448	1.5223	0.9973
56.0	-0.3432	0.5529	0.4348	1.5291	1.0021
56.5	-0.3384	0.5540	0.4249	1.5363	1.0073
57.0	-0.3335	0.5553	0.4152	1.5439	1.0127
57.5	-0.3287	0.5568	0.4057	1.5521	1.0185
58.0	-0.3238	0.5586	0.3963	1.5609	1.0248
58.5	-0.3189	0.5605	0.3870	1.5703	1.0315
59.0	-0.3140	0.5627	0.3778	1.5804	1.0387
59.5	-0.3091	0.5652	0.3687	1.5913	1.0464

$\theta_0 = 15^\circ$     $U_0 = 0.75$     $M = 1.7301$     $\theta_1 = 63.214$

$\theta$	x	y	z	$\sqrt{r}$	$r/p$
60.0	-0.3042	0.5679	0.3598	1.6031	1.0548
60.5	-0.2992	0.5710	0.3509	1.6158	1.0638
61.0	-0.2942	0.5744	0.3422	1.6296	1.0737
61.5	-0.2892	0.5782	0.3335	1.6445	1.0843
62.0	-0.2841	0.5823	0.3249	1.6609	1.0959
62.5	-0.2790	0.5869	0.3164	1.6787	1.1087
63.0	-0.2739	0.5921	0.3079	1.6983	1.1226
63.214	-0.2716	0.5944	0.3043	1.7073	1.1290

$\theta_0 = 35^\circ$   $L_0 = 0.40$   $M = 1.8731$   $\theta_0 = 57.728$

$\theta$	x	y	z	$\frac{z}{r}$	$\frac{r}{z}$
35.0	-0.5320	0.8000	1.1309	1.3719	0.8653
35.5	-0.5250	0.7885	1.0783	1.3941	0.8511
36.0	-0.5181	0.7776	1.0425	1.4147	0.8957
36.5	-0.5114	0.7673	1.0103	1.4338	0.9093
37.0	-0.5048	0.7576	0.9804	1.4516	0.9220
37.5	-0.4982	0.7485	0.9521	1.4683	0.9339
38.0	-0.4917	0.7400	0.9253	1.4839	0.9450
38.5	-0.4853	0.7321	0.8996	1.4985	0.9554
39.0	-0.4789	0.7246	0.8749	1.5122	0.9658
39.5	-0.4726	0.7176	0.8512	1.5251	0.9744
40.0	-0.4664	0.7110	0.8283	1.5374	0.9831
40.5	-0.4602	0.7048	0.8062	1.5490	0.9914
41.0	-0.4541	0.6991	0.7849	1.5601	0.9993
41.5	-0.4480	0.6937	0.7643	1.5707	1.0068
42.0	-0.4420	0.6887	0.7443	1.5809	1.0140
42.5	-0.4360	0.6840	0.7249	1.5907	1.0210
43.0	-0.4301	0.6797	0.7061	1.6001	1.0277
43.5	-0.4242	0.6757	0.6878	1.6092	1.0342
44.0	-0.4183	0.6719	0.6700	1.6181	1.0406
44.5	-0.4124	0.6684	0.6527	1.6269	1.0468
45.0	-0.4066	0.6653	0.6359	1.6356	1.0530
45.5	-0.4008	0.6625	0.6195	1.6442	1.0591
46.0	-0.3950	0.6599	0.6035	1.6527	1.0651
46.5	-0.3893	0.6575	0.5879	1.6612	1.0711
47.0	-0.3836	0.6553	0.5726	1.6698	1.0772
47.5	-0.3779	0.6533	0.5577	1.6784	1.0834
48.0	-0.3722	0.6510	0.5432	1.6872	1.0897
48.5	-0.3665	0.6507	0.5290	1.6962	1.0961
49.0	-0.3608	0.6496	0.5151	1.7054	1.1026
49.5	-0.3551	0.6488	0.5014	1.7149	1.1093
50.0	-0.3494	0.6482	0.4880	1.7247	1.1163
50.5	-0.3438	0.6479	0.4749	1.7349	1.1236
51.0	-0.3382	0.6479	0.4621	1.7456	1.1312
51.5	-0.3325	0.6482	0.4495	1.7568	1.1398
52.0	-0.3269	0.6488	0.4371	1.7686	1.1476
52.5	-0.3212	0.6496	0.4250	1.7811	1.1565
53.0	-0.3155	0.6507	0.4131	1.7944	1.1660
53.5	-0.3098	0.6522	0.4014	1.8086	1.1761
54.0	-0.3041	0.6541	0.3898	1.8238	1.1869
54.5	-0.2984	0.6564	0.3784	1.8402	1.1986
55.0	-0.2927	0.6592	0.3672	1.8579	1.2118
55.5	-0.2869	0.6625	0.3561	1.8772	1.2249
56.0	-0.2811	0.6663	0.3452	1.8982	1.2399
56.5	-0.2753	0.6707	0.3344	1.9212	1.2568
57.0	-0.2694	0.6758	0.3237	1.9465	1.2743
57.5	-0.2635	0.6816	0.3132	1.9746	1.2948
57.728	-0.2608	0.6846	0.3084	1.9884	1.3041



$\theta_1 = 35^\circ$     $\bar{u}_1 = 0.43$     $M = 2.0822$     $\theta_2 = 53.367$

$\theta$	$x$	$y$	$z$	$\eta/\bar{p}$	$\xi/\bar{p}$
35.0	-0.5301	0.9000	1.1662	1.5318	0.9336
35.2	-0.5270	0.8951	1.1319	1.5439	0.9422
35.4	-0.5239	0.8902	1.1113	1.5557	0.9506
35.6	-0.5208	0.8854	1.0932	1.5672	0.9588
35.8	-0.5177	0.8808	1.0764	1.5783	0.9667
36.0	-0.5146	0.8763	1.0606	1.5891	0.9744
36.2	-0.5115	0.8719	1.0455	1.5997	0.9819
36.4	-0.5085	0.8676	1.0309	1.6100	0.9892
36.6	-0.5055	0.8634	1.0168	1.6200	0.9963
36.8	-0.5025	0.8593	1.0031	1.6297	1.0033
37.0	-0.4995	0.8553	0.9897	1.6393	1.0101
37.5	-0.4921	0.8458	0.9577	1.6621	1.0263
38.0	-0.4848	0.8369	0.9273	1.6837	1.0417
38.5	-0.4775	0.8286	0.8984	1.7041	1.0562
39.0	-0.4703	0.8209	0.8708	1.7235	1.0700
39.5	-0.4631	0.8137	0.8442	1.7420	1.0832
40.0	-0.4560	0.8070	0.8185	1.7598	1.0958
40.5	-0.4490	0.8008	0.7939	1.7769	1.1080
41.0	-0.4421	0.7950	0.7701	1.7934	1.1197
41.5	-0.4358	0.7897	0.7471	1.8094	1.1311
42.0	-0.4283	0.7848	0.7248	1.8250	1.1422
42.5	-0.4215	0.7803	0.7032	1.8403	1.1531
43.0	-0.4147	0.7762	0.6822	1.8554	1.1639
43.5	-0.4079	0.7725	0.6618	1.8703	1.1745
44.0	-0.4012	0.7692	0.6420	1.8851	1.1851
44.5	-0.3945	0.7662	0.6227	1.9000	1.1957
45.0	-0.3878	0.7636	0.6040	1.9150	1.2063
45.5	-0.3811	0.7614	0.5857	1.9302	1.2171
46.0	-0.3745	0.7596	0.5679	1.9457	1.2281
46.5	-0.3679	0.7581	0.5505	1.9615	1.2394
47.0	-0.3613	0.7570	0.5335	1.9778	1.2510
47.5	-0.3547	0.7563	0.5168	1.9947	1.2630
48.0	-0.3481	0.7560	0.5005	2.0123	1.2756
48.5	-0.3415	0.7561	0.4846	2.0307	1.2887
49.0	-0.3349	0.7567	0.4691	2.0502	1.3025
49.5	-0.3283	0.7578	0.4539	2.0708	1.3172
50.0	-0.3217	0.7595	0.4389	2.0927	1.3328
50.5	-0.3151	0.7617	0.4242	2.1163	1.3496
51.0	-0.3084	0.7645	0.4098	2.1417	1.3677
51.5	-0.3017	0.7681	0.3956	2.1693	1.3873
52.0	-0.2950	0.7725	0.3816	2.1995	1.4088
52.5	-0.2882	0.7778	0.3678	2.2328	1.4325
53.0	-0.2814	0.7841	0.3542	2.2696	1.4587
53.367	-0.2763	0.7896	0.3444	2.2995	1.4800

$\theta_1 = 35^\circ$     $\bar{u}_1 = 0.50$     $M = 2.3564$     $\theta_2 = 49.885$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
35.0	-0.5397	1.0000	1.2381	1.7079	0.9883
35.5	-0.5311	0.9873	1.1574	1.7470	1.0161
36.0	-0.5225	0.9753	1.1079	1.7836	1.0422
36.5	-0.5140	0.9640	1.0646	1.8180	1.0667
37.0	-0.5056	0.9533	1.0248	1.8505	1.0898
37.5	-0.4973	0.9438	0.9877	1.8813	1.1117
38.0	-0.4891	0.9348	0.9527	1.9107	1.1326
38.5	-0.4810	0.9264	0.9194	1.9387	1.1526
39.0	-0.4730	0.9187	0.8876	1.9657	1.1718
39.5	-0.4650	0.9116	0.8572	1.9917	1.1903
40.0	-0.4571	0.9051	0.8280	2.0170	1.2083
40.5	-0.4492	0.8992	0.7998	2.0417	1.2259
41.0	-0.4414	0.8938	0.7726	2.0659	1.2431
41.5	-0.4336	0.8889	0.7464	2.0898	1.2601
42.0	-0.4259	0.8846	0.7210	2.1135	1.2770
42.5	-0.4182	0.8808	0.6964	2.1371	1.2938
43.0	-0.4105	0.8775	0.6725	2.1609	1.3107
43.5	-0.4028	0.8748	0.6494	2.1849	1.3278
44.0	-0.3952	0.8726	0.6269	2.2094	1.3452
44.5	-0.3876	0.8709	0.6050	2.2345	1.3631
45.0	-0.3800	0.8698	0.5837	2.2604	1.3815
45.5	-0.3724	0.8693	0.5629	2.2873	1.4007
46.0	-0.3648	0.8695	0.5426	2.3155	1.4207
46.5	-0.3572	0.8703	0.5228	2.3452	1.4419
47.0	-0.3496	0.8719	0.5034	2.3767	1.4643
47.5	-0.3420	0.8743	0.4845	2.4104	1.4883
48.0	-0.3344	0.8776	0.4660	2.4468	1.5142
48.5	-0.3267	0.8819	0.4478	2.4864	1.5424
49.0	-0.3190	0.8875	0.4299	2.5299	1.5733
49.5	-0.3112	0.8944	0.4124	2.5780	1.6076
49.885	-0.3052	0.9008	0.3991	2.6189	1.6367

$\theta_0 = 35^\circ$     $U_0 = 0.55$     $M = 9.7144$     $\theta_1 = 47.068$

$\theta$	x	y	z	$\eta/\beta$	$\xi/\beta$
35.0	-0.5556	1.1000	1.3348	1.8911	1.0148
35.2	-0.5518	1.0946	1.2769	1.9119	1.0295
35.4	-0.5480	1.0894	1.2455	1.9321	1.0439
35.6	-0.5442	1.0843	1.2167	1.9518	1.0580
35.8	-0.5404	1.0793	1.1945	1.9711	1.0718
36.0	-0.5366	1.0744	1.1718	1.9900	1.0852
36.2	-0.5329	1.0697	1.1504	2.0085	1.0983
36.4	-0.5292	1.0652	1.1300	2.0266	1.1111
36.6	-0.5255	1.0608	1.1104	2.0443	1.1237
36.8	-0.5218	1.0565	1.0914	2.0616	1.1361
37.0	-0.5181	1.0523	1.0730	2.0786	1.1483
37.2	-0.5144	1.0483	1.0552	2.0953	1.1602
37.4	-0.5108	1.0444	1.0379	2.1117	1.1719
37.6	-0.5072	1.0407	1.0210	2.1279	1.1834
37.8	-0.5036	1.0371	1.0045	2.1438	1.1947
38.0	-0.4999	1.0336	0.9884	2.1595	1.2059
38.5	-0.4909	1.0255	0.9496	2.1978	1.2331
39.0	-0.4820	1.0181	0.9127	2.2351	1.2596
39.5	-0.4732	1.0114	0.8774	2.2716	1.2856
40.0	-0.4644	1.0055	0.8435	2.3075	1.3118
40.5	-0.4556	1.0003	0.8109	2.3431	1.3366
41.0	-0.4469	0.9959	0.7796	2.3786	1.3618
41.5	-0.4382	0.9922	0.7494	2.4143	1.3872
42.0	-0.4296	0.9892	0.7202	2.4505	1.4130
42.5	-0.4210	0.9865	0.6919	2.4874	1.4393
43.0	-0.4124	0.9855	0.6645	2.5254	1.4663
43.5	-0.4038	0.9849	0.6379	2.5649	1.4944
44.0	-0.3952	0.9853	0.6121	2.6062	1.5238
44.5	-0.3866	0.9865	0.5870	2.6497	1.5548
45.0	-0.3779	0.9889	0.5624	2.6961	1.5877
45.2	-0.3745	0.9902	0.5528	2.7156	1.6016
45.4	-0.3711	0.9917	0.5433	2.7357	1.6160
45.6	-0.3676	0.9934	0.5338	2.7565	1.6308
45.8	-0.3641	0.9953	0.5244	2.7780	1.6461
46.0	-0.3606	0.9975	0.5151	2.8003	1.6619
46.2	-0.3571	0.9999	0.5059	2.8234	1.6704
46.4	-0.3536	1.0026	0.4968	2.8474	1.6955
46.6	-0.3501	1.0056	0.4878	2.8724	1.7133
46.8	-0.3466	1.0089	0.4788	2.8986	1.7319
47.0	-0.3431	1.0126	0.4699	2.9261	1.7514
47.068	-0.3420	1.0138	0.4672	2.9348	1.7577

$\theta_1 = 35^\circ$     $U_1 = 0.60$     $M = 3.2011$     $\theta_2 = 44.739^\circ$

$\theta$	$x$	$y$	$z$	$\frac{z}{\beta}$	$\frac{z}{\beta}$
35.00	-0.5763	1.2000	1.4526	2.0793	0.9977
35.25	-0.5711	1.1932	1.3660	2.1119	1.0216
35.50	-0.5659	1.1866	1.3201	2.1445	1.0448
35.75	-0.5607	1.1802	1.2815	2.1763	1.0674
36.00	-0.5556	1.1740	1.2467	2.2072	1.0894
36.25	-0.5505	1.1680	1.2145	2.2374	1.1109
36.50	-0.5454	1.1623	1.1842	2.2670	1.1319
36.75	-0.5403	1.1569	1.1555	2.2959	1.1525
37.00	-0.5353	1.1518	1.1281	2.3242	1.1727
37.25	-0.5303	1.1469	1.1017	2.3520	1.1925
37.50	-0.5253	1.1422	1.0762	2.3794	1.2120
37.75	-0.5203	1.1378	1.0516	2.4064	1.2312
38.00	-0.5154	1.1337	1.0278	2.4331	1.2502
38.25	-0.5105	1.1298	1.0047	2.4595	1.2690
38.50	-0.5056	1.1261	0.9822	2.4856	1.2876
38.75	-0.5007	1.1227	0.9603	2.5116	1.3060
39.00	-0.4958	1.1196	0.9389	2.5374	1.3244
39.25	-0.4909	1.1167	0.9180	2.5631	1.3427
39.50	-0.4860	1.1140	0.8976	2.5888	1.3610
39.75	-0.4811	1.1116	0.8776	2.6145	1.3793
40.00	-0.4763	1.1094	0.8580	2.6403	1.3976
40.25	-0.4715	1.1074	0.8389	2.6662	1.4160
40.50	-0.4667	1.1057	0.8202	2.6923	1.4346
40.75	-0.4619	1.1043	0.8018	2.7186	1.4534
41.00	-0.4570	1.1032	0.7837	2.7453	1.4724
41.25	-0.4522	1.1023	0.7660	2.7724	1.4917
41.50	-0.4474	1.1017	0.7486	2.7999	1.5113
41.75	-0.4426	1.1014	0.7315	2.8279	1.5312
42.00	-0.4378	1.1014	0.7147	2.8565	1.5516
42.25	-0.4330	1.1017	0.6982	2.8859	1.5726
42.50	-0.4281	1.1024	0.6820	2.9162	1.5941
42.75	-0.4233	1.1034	0.6660	2.9474	1.6162
43.00	-0.4185	1.1048	0.6502	2.9796	1.6391
43.25	-0.4137	1.1066	0.6347	3.0129	1.6628
43.50	-0.4089	1.1088	0.6194	3.0475	1.6874
43.75	-0.4041	1.1115	0.6043	3.0835	1.7131
44.00	-0.3992	1.1147	0.5894	3.1213	1.7400
44.25	-0.3943	1.1185	0.5747	3.1609	1.7682
44.50	-0.3894	1.1228	0.5603	3.2027	1.7979
44.739	-0.3847	1.1276	0.5466	3.2447	1.8278

$\theta_1 = 35^\circ$     $u_1 = 0.65$     $M = 3.9327$     $\theta_2 = 42.798$

$\theta$	$x$	$y$	$z$	$r/r$	$r/\beta$
35.00	-0.6007	1.3000	1.5886	2.2665	0.9143
35.25	-0.5950	1.2931	1.4753	2.3102	0.9454
35.50	-0.5894	1.2864	1.4178	2.3528	0.9757
35.75	-0.5838	1.2799	1.3699	2.3944	1.0053
36.00	-0.5782	1.2737	1.3273	2.4351	1.0343
36.25	-0.5727	1.2678	1.2880	2.4749	1.0627
36.50	-0.5672	1.2622	1.2513	2.5140	1.0905
36.75	-0.5617	1.2569	1.2167	2.5524	1.1178
37.00	-0.5562	1.2520	1.1837	2.5903	1.1448
37.25	-0.5507	1.2474	1.1521	2.6278	1.1715
37.50	-0.5453	1.2431	1.1217	2.6649	1.1979
37.75	-0.5399	1.2391	1.0924	2.7017	1.2241
38.00	-0.5345	1.2355	1.0641	2.7382	1.2501
38.25	-0.5291	1.2322	1.0366	2.7746	1.2760
38.50	-0.5238	1.2292	1.0099	2.8110	1.3019
38.75	-0.5185	1.2265	0.9840	2.8474	1.3278
39.00	-0.5131	1.2241	0.9588	2.8839	1.3538
39.25	-0.5077	1.2221	0.9342	2.9207	1.3800
39.50	-0.5024	1.2205	0.9102	2.9579	1.4064
39.75	-0.4971	1.2192	0.8867	2.9955	1.4331
40.00	-0.4918	1.2183	0.8638	3.0337	1.4603
40.25	-0.4864	1.2178	0.8414	3.0725	1.4880
40.50	-0.4811	1.2177	0.8194	3.1121	1.5162
40.75	-0.4758	1.2180	0.7979	3.1527	1.5451
41.00	-0.4705	1.2188	0.7768	3.1944	1.5748
41.25	-0.4652	1.2201	0.7561	3.2374	1.6054
41.50	-0.4599	1.2219	0.7358	3.2819	1.6370
41.75	-0.4546	1.2242	0.7159	3.3281	1.6699
42.00	-0.4492	1.2271	0.6963	3.3762	1.7041
42.25	-0.4438	1.2307	0.6770	3.4263	1.7398
42.50	-0.4384	1.2349	0.6580	3.4789	1.7772
42.75	-0.4330	1.2398	0.6394	3.5344	1.8167
42.798	-0.4320	1.2410	0.6358	3.5454	1.8246

$\theta_1 = 35^\circ$     $u_1 = 0.70$     $M = 5.1910$     $\theta_2 = 41.156^\circ$

$\theta$	$x$	$y$	$z$	$\frac{z}{r}$	$\frac{y}{r}$
35.00	-0.6280	1.4000	1.7407	2.4537	0.7296
35.25	-0.6219	1.3931	1.5930	2.5111	0.7705
35.50	-0.6159	1.3863	1.5202	2.5674	0.8106
35.625	-0.6129	1.3830	1.4892	2.5951	0.8303
35.750	-0.6099	1.3798	1.4606	2.6225	0.8498
35.875	-0.6069	1.3767	1.4335	2.6496	0.8691
36.000	-0.6039	1.3737	1.4077	2.6765	0.8882
36.125	-0.6009	1.3708	1.3831	2.7032	0.9078
36.250	-0.5979	1.3680	1.3595	2.7297	0.9261
36.375	-0.5949	1.3653	1.3368	2.7560	0.9449
36.500	-0.5919	1.3627	1.3148	2.7822	0.9635
36.625	-0.5889	1.3602	1.2934	2.8083	0.9820
36.750	-0.5859	1.3578	1.2726	2.8342	1.0004
36.875	-0.5830	1.3555	1.2524	2.8600	1.0186
37.000	-0.5801	1.3533	1.2327	2.8857	1.0371
37.125	-0.5772	1.3512	1.2134	2.9113	1.0553
37.250	-0.5742	1.3492	1.1946	2.9368	1.0735
37.375	-0.5712	1.3473	1.1761	2.9623	1.0917
37.500	-0.5682	1.3455	1.1580	2.9878	1.1098
37.625	-0.5653	1.3439	1.1403	3.0133	1.1279
37.750	-0.5624	1.3424	1.1229	3.0388	1.1461
37.875	-0.5595	1.3410	1.1058	3.0644	1.1643
38.000	-0.5566	1.3397	1.0890	3.0900	1.1825
38.125	-0.5536	1.3385	1.0724	3.1157	1.2008
38.250	-0.5507	1.3374	1.0561	3.1415	1.2192
38.375	-0.5478	1.3364	1.0401	3.1675	1.2377
38.500	-0.5449	1.3355	1.0244	3.1936	1.2563
38.625	-0.5420	1.3348	1.0089	3.2199	1.2750
38.750	-0.5391	1.3342	0.9936	3.2464	1.2938
38.875	-0.5361	1.3337	0.9785	3.2731	1.3128
39.000	-0.5332	1.3334	0.9637	3.3000	1.3320
39.125	-0.5303	1.3332	0.9490	3.3272	1.3513
39.250	-0.5274	1.3331	0.9345	3.3547	1.3708
39.375	-0.5245	1.3332	0.9202	3.3825	1.3906
39.500	-0.5216	1.3334	0.9061	3.4107	1.4107
39.625	-0.5187	1.3338	0.8922	3.4392	1.4311
39.750	-0.5158	1.3343	0.8784	3.4681	1.4517
39.875	-0.5129	1.3350	0.8648	3.4975	1.4726
40.000	-0.5100	1.3359	0.8514	3.5274	1.4939
40.125	-0.5070	1.3370	0.8381	3.5579	1.5155
40.250	-0.5041	1.3382	0.8249	3.5889	1.5376
40.375	-0.5012	1.3396	0.8119	3.6205	1.5601
40.500	-0.4983	1.3412	0.7991	3.6528	1.5831
40.625	-0.4954	1.3430	0.7864	3.6858	1.6066
40.750	-0.4924	1.3450	0.7737	3.7196	1.6306
40.875	-0.4895	1.3473	0.7610	3.7542	1.6552
41.000	-0.4866	1.3498	0.7483	3.7896	1.6805
41.125	-0.4837	1.3525	0.7356	3.8258	1.7064
41.156	-0.4829	1.3532	0.7337	3.8351	1.7129

$\theta_1 = 35^\circ$     $Q_1 = 0.75$     $M = 8.7095$     $\theta_2 = 39.751$

$\theta$	$x$	$y$	$z$	$r/p$	$k/p$
35.00	-0.6588	1.5000	1.9083	2.6394	0.3826
35.25	-0.6518	1.4934	1.7145	2.7165	0.4375
35.50	-0.6452	1.4866	1.6221	2.7922	0.4913
35.625	-0.6419	1.4833	1.5829	2.8295	0.5179
35.750	-0.6387	1.4802	1.5471	2.8666	0.5443
35.875	-0.6355	1.4772	1.5132	2.9034	0.5705
36.000	-0.6323	1.4743	1.4811	2.9400	0.5965
36.125	-0.6291	1.4716	1.4507	2.9764	0.6224
36.250	-0.6259	1.4690	1.4216	3.0127	0.6482
36.375	-0.6227	1.4666	1.3936	3.0489	0.6740
36.500	-0.6195	1.4643	1.3665	3.0850	0.6997
36.625	-0.6163	1.4621	1.3403	3.1210	0.7253
36.750	-0.6131	1.4600	1.3149	3.1569	0.7509
36.875	-0.6099	1.4581	1.2902	3.1928	0.7765
37.000	-0.6067	1.4564	1.2661	3.2288	0.8021
37.125	-0.6035	1.4548	1.2426	3.2649	0.8278
37.250	-0.6004	1.4533	1.2196	3.3012	0.8536
37.375	-0.5972	1.4520	1.1972	3.3376	0.8795
37.500	-0.5940	1.4509	1.1753	3.3741	0.9055
37.625	-0.5908	1.4499	1.1539	3.4108	0.9317
37.750	-0.5876	1.4491	1.1329	3.4478	0.9580
37.875	-0.5845	1.4485	1.1122	3.4851	0.9843
38.000	-0.5814	1.4481	1.0919	3.5227	1.0112
38.125	-0.5783	1.4478	1.0720	3.5606	1.0382
38.250	-0.5751	1.4477	1.0524	3.5989	1.0655
38.375	-0.5719	1.4478	1.0332	3.6377	1.0932
38.500	-0.5687	1.4481	1.0143	3.6771	1.1212
38.625	-0.5656	1.4487	0.9957	3.7171	1.1496
38.750	-0.5624	1.4495	0.9774	3.7577	1.1785
38.875	-0.5592	1.4505	0.9593	3.7990	1.2080
39.000	-0.5560	1.4517	0.9415	3.8411	1.2379
39.125	-0.5528	1.4531	0.9240	3.8840	1.2684
39.250	-0.5497	1.4548	0.9067	3.9278	1.2996
39.375	-0.5466	1.4568	0.8897	3.9726	1.3315
39.500	-0.5434	1.4591	0.8729	4.0186	1.3642
39.625	-0.5402	1.4617	0.8563	4.0657	1.3977
39.750	-0.5370	1.4645	0.8399	4.1140	1.4321
39.751	-0.5370	1.4645	0.8398	4.1145	1.4325

$\theta_1 = 35^\circ$     $U_1 = 0.77$     $M = 14.798$     $\theta_2 = 39.24^\circ$

$\theta$	x	y	z	$r/p$	$r/A$
35.0	-0.5708	1.5400	1.9788	2.7110	0.1735
35.2	-0.5654	1.5345	1.7873	2.7812	0.2235
35.4	-0.5600	1.5291	1.6979	2.8502	0.2786
35.5	-0.5574	1.5265	1.6600	2.8844	0.2969
35.6	-0.5548	1.5239	1.6258	2.9184	0.3211
35.7	-0.5521	1.5214	1.5934	2.9523	0.3453
35.8	-0.5494	1.5190	1.5629	2.9863	0.3693
35.9	-0.5467	1.5167	1.5338	3.0195	0.3931
36.0	-0.5441	1.5144	1.5059	3.0529	0.4169
36.1	-0.5415	1.5123	1.4792	3.0862	0.4408
36.2	-0.5389	1.5103	1.4534	3.1195	0.4643
36.3	-0.5362	1.5084	1.4284	3.1528	0.4880
36.4	-0.5336	1.5066	1.4042	3.1860	0.5116
36.5	-0.5310	1.5049	1.3806	3.2192	0.5352
36.6	-0.5284	1.5033	1.3577	3.2524	0.5589
36.7	-0.5257	1.5018	1.3354	3.2856	0.5825
36.8	-0.5231	1.5004	1.3136	3.3189	0.6062
36.9	-0.5205	1.4991	1.2923	3.3523	0.6300
37.0	-0.5179	1.4979	1.2714	3.3858	0.6538
37.1	-0.5153	1.4969	1.2510	3.4193	0.6777
37.2	-0.5127	1.4960	1.2310	3.4530	0.7016
37.3	-0.5101	1.4952	1.2113	3.4869	0.7258
37.4	-0.5075	1.4945	1.1920	3.5210	0.7500
37.5	-0.5048	1.4939	1.1731	3.5554	0.7745
37.6	-0.5022	1.4935	1.1545	3.5900	0.7991
37.7	-0.4996	1.4932	1.1361	3.6248	0.8239
37.8	-0.4970	1.4930	1.1180	3.6599	0.8489
37.9	-0.4944	1.4930	1.1003	3.6954	0.8748
38.0	-0.4918	1.4931	1.0829	3.7312	0.8996
38.1	-0.4892	1.4933	1.0657	3.7674	0.9254
38.2	-0.4866	1.4937	1.0487	3.8040	0.9515
38.3	-0.4840	1.4943	1.0320	3.8411	0.9779
38.4	-0.4814	1.4950	1.0155	3.8787	1.0046
38.5	-0.4788	1.4959	0.9992	3.9168	1.0317
38.6	-0.4762	1.4969	0.9831	3.9554	1.0592
38.7	-0.4736	1.4981	0.9672	3.9946	1.0871
38.8	-0.4710	1.4995	0.9515	4.0346	1.1156
38.9	-0.4683	1.5012	0.9360	4.0754	1.1446
39.0	-0.4657	1.5031	0.9208	4.1170	1.1742
39.1	-0.4631	1.5051	0.9057	4.1594	1.2044
39.2	-0.4605	1.5072	0.8907	4.2025	1.2351
39.245	-0.4593	1.5083	0.8841	4.2221	1.2490



$\theta_0 = 35^\circ$     $\bar{u}_0 = 0.78110$     $M = \text{Infinity}$     $\theta_v = 38.976$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
35.0	-0.6780	1.5622	2.0192	2.7515	0.0348
35.2	-0.6726	1.5567	1.8153	2.8270	0.0885
35.4	-0.6672	1.5513	1.7207	2.9012	0.1413
35.5	-0.6645	1.5487	1.6808	2.9380	0.1675
35.6	-0.6618	1.5462	1.6445	2.9747	0.1936
35.7	-0.6591	1.5437	1.6103	3.0112	0.2196
35.8	-0.6564	1.5413	1.5782	3.0476	0.2455
35.9	-0.6537	1.5390	1.5475	3.0838	0.2713
36.0	-0.6510	1.5368	1.5182	3.1199	0.2970
36.1	-0.6483	1.5347	1.4900	3.1560	0.3227
36.2	-0.6457	1.5328	1.4629	3.1920	0.3483
36.3	-0.6430	1.5310	1.4367	3.2279	0.3739
36.4	-0.6403	1.5293	1.4113	3.2639	0.3995
36.5	-0.6376	1.5277	1.3866	3.2999	0.4251
36.6	-0.6350	1.5262	1.3625	3.3360	0.4508
36.7	-0.6324	1.5248	1.3390	3.3721	0.4765
36.8	-0.6297	1.5233	1.3161	3.4083	0.5022
36.9	-0.6270	1.5224	1.2938	3.4445	0.5280
37.0	-0.6243	1.5214	1.2720	3.4809	0.5539
37.1	-0.6216	1.5205	1.2506	3.5176	0.5800
37.2	-0.6190	1.5197	1.2296	3.5545	0.6063
37.3	-0.6164	1.5191	1.2090	3.5916	0.6327
37.4	-0.6138	1.5186	1.1888	3.6290	0.6593
37.5	-0.6112	1.5183	1.1690	3.6667	0.6861
37.6	-0.6085	1.5181	1.1495	3.7047	0.7132
37.7	-0.6058	1.5190	1.1303	3.7430	0.7405
37.8	-0.6031	1.5181	1.1114	3.7817	0.7680
37.9	-0.6005	1.5184	1.0929	3.8208	0.7956
38.0	-0.5979	1.5188	1.0747	3.8604	0.8240
38.1	-0.5953	1.5194	1.0567	3.9006	0.8526
38.2	-0.5926	1.5202	1.0390	3.9413	0.8816
38.3	-0.5899	1.5211	1.0215	3.9827	0.9111
38.4	-0.5872	1.5222	1.0042	4.0247	0.9410
38.5	-0.5845	1.5235	0.9872	4.0673	0.9713
38.6	-0.5819	1.5250	0.9704	4.1106	1.0021
38.7	-0.5793	1.5267	0.9539	4.1548	1.0336
38.8	-0.5766	1.5287	0.9376	4.1999	1.0657
38.9	-0.5739	1.5309	0.9215	4.2460	1.0985
38.976	-0.5719	1.5327	0.9093	4.2816	1.1238

$\theta_s = 40^\circ$     $u_s = 0.30$     $M = 1.9585(8)$     $\theta_v = 69^\circ.632$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
40.0	-0.8534	0.6000	1.7201	1.3750	0.8124
40.5	-0.8482	0.5958	1.6503	1.3866	0.8206
41.0	-0.8430	0.5918	1.6076	1.3975	0.8284
41.5	-0.8379	0.5881	1.5699	1.4078	0.8357
42.0	-0.8328	0.5847	1.5352	1.4175	0.8426
42.5	-0.8277	0.5816	1.5025	1.4266	0.8491
43.0	-0.8226	0.5786	1.4717	1.4352	0.8558
43.5	-0.8176	0.5762	1.4422	1.4433	0.8609
44.0	-0.8126	0.5739	1.4139	1.4510	0.8664
44.5	-0.8076	0.5719	1.3866	1.4583	0.8716
45.0	-0.8026	0.5702	1.3603	1.4652	0.8766
45.5	-0.7976	0.5687	1.3349	1.4718	0.8813
46.0	-0.7926	0.5675	1.3103	1.4781	0.8858
46.5	-0.7877	0.5665	1.2864	1.4841	0.8900
47.0	-0.7828	0.5657	1.2632	1.4899	0.8941
47.5	-0.7779	0.5651	1.2406	1.4955	0.8981
48.0	-0.7730	0.5647	1.2186	1.5009	0.9019
48.5	-0.7680	0.5645	1.1972	1.5060	0.9056
49.0	-0.7630	0.5645	1.1764	1.5110	0.9092
49.5	-0.7581	0.5647	1.1561	1.5159	0.9126
50.0	-0.7532	0.5651	1.1362	1.5207	0.9160
50.5	-0.7483	0.5656	1.1167	1.5254	0.9193
51.0	-0.7434	0.5663	1.0972	1.5300	0.9226
51.5	-0.7385	0.5672	1.0792	1.5345	0.9259
52.0	-0.7335	0.5682	1.0611	1.5390	0.9291
52.5	-0.7285	0.5693	1.0433	1.5435	0.9323
53.0	-0.7235	0.5706	1.0259	1.5480	0.9355
53.5	-0.7185	0.5721	1.0088	1.5525	0.9387
54.0	-0.7135	0.5737	0.9921	1.5570	0.9419
54.5	-0.7085	0.5754	0.9757	1.5615	0.9451
55.0	-0.7035	0.5773	0.9596	1.5661	0.9483
55.5	-0.6985	0.5793	0.9438	1.5707	0.9516
56.0	-0.6934	0.5814	0.9283	1.5754	0.9550
56.5	-0.6883	0.5836	0.9130	1.5803	0.9585
57.0	-0.6832	0.5860	0.8980	1.5853	0.9620
57.5	-0.6781	0.5885	0.8832	1.5904	0.9656
58.0	-0.6730	0.5911	0.8687	1.5956	0.9693
58.5	-0.6678	0.5939	0.8544	1.6010	0.9731
59.0	-0.6626	0.5968	0.8404	1.6066	0.9771
59.5	-0.6574	0.5998	0.8265	1.6124	0.9812
60.0	-0.6522	0.6029	0.8130	1.6184	0.9855
60.5	-0.6469	0.6061	0.7995	1.6246	0.9900
61.0	-0.6416	0.6095	0.7862	1.6311	0.9946
61.5	-0.6363	0.6130	0.7731	1.6378	0.9994
62.0	-0.6309	0.6166	0.7602	1.6449	1.0044

$\theta_0 = 20^\circ$     $u_0 = 0.30$     $M = 1.9585(8)$     $\theta_1 = 69.632$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
62.5	-0.6255	0.6204	0.7475	1.6523	1.0097
63.0	-0.6201	0.6244	0.7350	1.6601	1.0132
63.5	-0.6146	0.6285	0.7226	1.6683	1.0210
64.0	-0.6091	0.6327	0.7103	1.6769	1.0272
64.5	-0.6036	0.6371	0.6982	1.6859	1.0337
65.0	-0.5980	0.6417	0.6862	1.6954	1.0405
65.5	-0.5924	0.6464	0.6743	1.7055	1.0476
66.0	-0.5867	0.6513	0.6626	1.7161	1.0551
66.5	-0.5810	0.6564	0.6510	1.7274	1.0631
67.0	-0.5753	0.6617	0.6395	1.7393	1.0716
67.5	-0.5695	0.6673	0.6280	1.7519	1.0806
68.0	-0.5636	0.6731	0.6167	1.7653	1.0902
68.5	-0.5577	0.6791	0.6055	1.7796	1.1003
69.0	-0.5518	0.6854	0.5944	1.7948	1.1111
69.5	-0.5458	0.6920	0.5834	1.8110	1.1226
69.632	-0.5442	0.6937	0.5805	1.8154	1.1258

$\theta_1 = 43^\circ$     $U_1 = 0.35$     $M = 2.0242$     $\theta_2 = 64.033$

$\theta$	x	y	z	$\eta$	$k/p$
40.0	-0.7012	0.7000	1.4234	1.3489	0.7896
40.5	-0.6951	0.6946	1.3564	1.3653	0.8013
41.0	-0.6891	0.6894	1.3157	1.3809	0.8123
41.5	-0.6831	0.6845	1.2801	1.3956	0.8228
42.0	-0.6771	0.6799	1.2472	1.4095	0.8327
42.5	-0.6712	0.6756	1.2165	1.4227	0.8421
43.0	-0.6653	0.6717	1.1873	1.4353	0.8511
43.5	-0.6595	0.6681	1.1595	1.4473	0.8596
44.0	-0.6537	0.6648	1.1328	1.4588	0.8677
44.5	-0.6479	0.6618	1.1072	1.4698	0.8755
45.0	-0.6421	0.6590	1.0825	1.4803	0.8830
45.5	-0.6364	0.6565	1.0586	1.4904	0.8902
46.0	-0.6307	0.6543	1.0354	1.5002	0.8972
46.5	-0.6250	0.6523	1.0130	1.5097	0.9040
47.0	-0.6193	0.6506	0.9912	1.5189	0.9106
47.5	-0.6136	0.6491	0.9700	1.5279	0.9170
48.0	-0.6079	0.6478	0.9494	1.5367	0.9232
48.5	-0.6022	0.6467	0.9293	1.5453	0.9293
49.0	-0.5966	0.6458	0.9097	1.5537	0.9353
49.5	-0.5910	0.6452	0.8906	1.5620	0.9412
50.0	-0.5854	0.6447	0.8720	1.5702	0.9471
50.5	-0.5798	0.6444	0.8539	1.5784	0.9530
51.0	-0.5741	0.6443	0.8362	1.5866	0.9588
51.5	-0.5685	0.6444	0.8188	1.5948	0.9646
52.0	-0.5629	0.6447	0.8017	1.6030	0.9704
52.5	-0.5573	0.6452	0.7850	1.6113	0.9763
53.0	-0.5516	0.6458	0.7687	1.6196	0.9822
53.5	-0.5459	0.6466	0.7527	1.6280	0.9882
54.0	-0.5403	0.6476	0.7370	1.6366	0.9943
54.5	-0.5347	0.6488	0.7216	1.6454	1.0006
55.0	-0.5290	0.6501	0.7065	1.6544	1.0070
55.5	-0.5233	0.6516	0.6917	1.6637	1.0136
56.0	-0.5176	0.6533	0.6771	1.6732	1.0204
56.5	-0.5119	0.6552	0.6627	1.6830	1.0274
57.0	-0.5062	0.6573	0.6486	1.6932	1.0346
57.5	-0.5005	0.6596	0.6347	1.7038	1.0422
58.0	-0.4947	0.6621	0.6211	1.7149	1.0501
58.5	-0.4889	0.6648	0.6077	1.7265	1.0583
59.0	-0.4831	0.6677	0.5945	1.7386	1.0669
59.5	-0.4773	0.6708	0.5814	1.7513	1.0759
60.0	-0.4714	0.6742	0.5685	1.7647	1.0854
60.5	-0.4655	0.6779	0.5558	1.7789	1.0955
61.0	-0.4596	0.6819	0.5432	1.7939	1.1062
61.5	-0.4536	0.6862	0.5308	1.8098	1.1176
62.0	-0.4476	0.6908	0.5186	1.8267	1.1297

$\theta_1 = 40^\circ$     $u_1 = 0.35$     $M = 2.0842$     $\theta_2 = 64.033$

$\theta$	$x$	$y$	$z$	$r/p$	$r/\rho$
62.5	-0.4415	0.6957	0.5065	1.8448	1.1426
63.0	-0.4354	0.7010	0.4945	1.8642	1.1554
63.5	-0.4293	0.7068	0.4826	1.8850	1.1712
64.0	-0.4231	0.7131	0.4709	1.9075	1.1872
64.033	-0.4227	0.7135	0.4701	1.9091	1.1893

$\theta_0 = 40^\circ$     $U_0 = 0.40$     $M = 2.2007$     $\theta_1 = 59.431$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
40.0	-0.6575	0.8000	1.3691	1.4372	0.8110
40.5	-0.6506	0.7938	1.2933	1.4597	0.8270
41.0	-0.6437	0.7879	1.2467	1.4810	0.8428
41.5	-0.6368	0.7823	1.2098	1.5013	0.8566
42.0	-0.6300	0.7771	1.1743	1.5206	0.8704
42.5	-0.6232	0.7723	1.1411	1.5390	0.8835
43.0	-0.6165	0.7679	1.1097	1.5567	0.8961
43.5	-0.6098	0.7638	1.0798	1.5737	0.9082
44.0	-0.6032	0.7600	1.0512	1.5901	0.9198
44.5	-0.5966	0.7565	1.0238	1.6059	0.9311
45.0	-0.5900	0.7534	0.9974	1.6212	0.9420
45.5	-0.5834	0.7506	0.9719	1.6361	0.9526
46.0	-0.5769	0.7481	0.9472	1.6506	0.9629
46.5	-0.5704	0.7459	0.9233	1.6648	0.9730
47.0	-0.5639	0.7439	0.9001	1.6788	0.9829
47.5	-0.5574	0.7422	0.8776	1.6925	0.9927
48.0	-0.5509	0.7408	0.8557	1.7061	1.0024
48.5	-0.5445	0.7397	0.8344	1.7196	1.0120
49.0	-0.5381	0.7388	0.8136	1.7331	1.0216
49.5	-0.5316	0.7381	0.7933	1.7466	1.0312
50.0	-0.5251	0.7377	0.7735	1.7601	1.0408
50.5	-0.5187	0.7376	0.7542	1.7737	1.0505
51.0	-0.5123	0.7377	0.7354	1.7875	1.0603
51.5	-0.5058	0.7381	0.7170	1.8015	1.0703
52.0	-0.4993	0.7388	0.6989	1.8158	1.0805
52.5	-0.4929	0.7397	0.6812	1.8304	1.0909
53.0	-0.4865	0.7408	0.6639	1.8455	1.1016
53.5	-0.4800	0.7422	0.6469	1.8610	1.1126
54.0	-0.4735	0.7440	0.6303	1.8771	1.1240
54.5	-0.4670	0.7461	0.6140	1.8939	1.1359
55.0	-0.4605	0.7485	0.5979	1.9114	1.1484
55.5	-0.4539	0.7512	0.5821	1.9297	1.1615
56.0	-0.4473	0.7543	0.5666	1.9490	1.1753
56.5	-0.4407	0.7578	0.5513	1.9694	1.1898
57.0	-0.4341	0.7617	0.5362	1.9910	1.2052
57.5	-0.4275	0.7661	0.5214	2.0141	1.2216
58.0	-0.4208	0.7710	0.5068	2.0387	1.2391
58.5	-0.4140	0.7765	0.4924	2.0652	1.2580
59.0	-0.4072	0.7826	0.4782	2.0939	1.2784
59.431	-0.4013	0.7885	0.4661	2.1205	1.2974

$\theta_1 = 40^\circ$     $u_1 = 0.45$     $M = 2.4673$     $\theta_2 = 55.734$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\rho$
40.0	-0.6499	0.9000	1.4014	1.5614	0.8280
40.5	-0.6481	0.8934	1.3100	1.5914	0.8493
41.0	-0.6343	0.8870	1.2580	1.6200	0.8697
41.5	-0.6266	0.8810	1.2133	1.6473	0.8891
42.0	-0.6188	0.8754	1.1727	1.6734	0.9077
42.5	-0.6113	0.8703	1.1349	1.6986	0.9256
43.0	-0.6037	0.8656	1.0994	1.7229	0.9429
43.5	-0.5962	0.8613	1.0657	1.7464	0.9596
44.0	-0.5887	0.8574	1.0335	1.7692	0.9758
44.5	-0.5812	0.8539	1.0027	1.7914	0.9916
45.0	-0.5738	0.8508	0.9731	1.8131	1.0071
45.5	-0.5664	0.8480	0.9445	1.8344	1.0223
46.0	-0.5590	0.8456	0.9169	1.8554	1.0373
46.5	-0.5516	0.8436	0.8902	1.8762	1.0521
47.0	-0.5442	0.8419	0.8643	1.8969	1.0668
47.5	-0.5369	0.8406	0.8392	1.9176	1.0815
48.0	-0.5296	0.8396	0.8148	1.9383	1.0963
48.5	-0.5223	0.8390	0.7911	1.9592	1.1112
49.0	-0.5149	0.8388	0.7680	1.9804	1.1262
49.5	-0.5076	0.8389	0.7455	2.0019	1.1415
50.0	-0.5003	0.8394	0.7235	2.0239	1.1571
50.5	-0.4930	0.8403	0.7020	2.0464	1.1731
51.0	-0.4857	0.8416	0.6810	2.0696	1.1897
51.5	-0.4783	0.8433	0.6605	2.0937	1.2069
52.0	-0.4709	0.8455	0.6404	2.1189	1.2248
52.5	-0.4635	0.8482	0.6207	2.1452	1.2435
53.0	-0.4561	0.8514	0.6014	2.1729	1.2632
53.5	-0.4487	0.8552	0.5825	2.2022	1.2841
54.0	-0.4412	0.8597	0.5639	2.2334	1.3063
54.5	-0.4336	0.8649	0.5457	2.2668	1.3301
55.0	-0.4260	0.8709	0.5278	2.3028	1.3557
55.5	-0.4184	0.8778	0.5101	2.3418	1.3834
55.734	-0.4148	0.8814	0.5020	2.3612	1.3972

$\theta_1 = 40^\circ$     $u_1 = 0.50$     $M = 2.6389$     $\theta_2 = 52.755^\circ$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
40.0	-0.6590	1.0000	1.4790	1.6987	0.8201
40.5	-0.6503	0.9931	1.3654	1.7381	0.8481
41.0	-0.6417	0.9863	1.3033	1.7759	0.8750
41.5	-0.6331	0.9802	1.2503	1.8122	0.9009
42.0	-0.6245	0.9744	1.2027	1.8471	0.9257
42.5	-0.6160	0.9692	1.1587	1.8809	0.9497
43.0	-0.6076	0.9645	1.1175	1.9137	0.9731
43.5	-0.5992	0.9603	1.0785	1.9457	0.9959
44.0	-0.5908	0.9566	1.0414	1.9770	1.0182
44.5	-0.5825	0.9533	1.0060	2.0078	1.0401
45.0	-0.5742	0.9505	0.9720	2.0383	1.0518
45.5	-0.5659	0.9482	0.9393	2.0686	1.0834
46.0	-0.5576	0.9464	0.9077	2.0988	1.1049
46.5	-0.5494	0.9451	0.8772	2.1292	1.1265
47.0	-0.5412	0.9443	0.8477	2.1598	1.1483
47.5	-0.5329	0.9440	0.8191	2.1908	1.1704
48.0	-0.5246	0.9442	0.7913	2.2224	1.1929
48.5	-0.5164	0.9450	0.7643	2.2549	1.2160
49.0	-0.5082	0.9464	0.7380	2.2885	1.2398
49.5	-0.4999	0.9484	0.7124	2.3233	1.2646
50.0	-0.4916	0.9510	0.6874	2.3597	1.2905
50.5	-0.4833	0.9544	0.6630	2.3979	1.3178
51.0	-0.4750	0.9586	0.6392	2.4385	1.3466
51.5	-0.4666	0.9638	0.6159	2.4817	1.3774
52.0	-0.4582	0.9700	0.5930	2.5281	1.4104
52.5	-0.4497	0.9772	0.5706	2.5783	1.4461
52.755	-0.4453	0.9814	0.5594	2.6057	1.4656



$\theta_1 = 40'$     $u_1 = 0.55$     $M = 3.3691$     $\theta_2 = 50'.327$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
40.0	-0.6775	1.1000	1.5849	1.8399	0.7714
40.1	-0.6680	1.0929	1.4420	1.8913	0.8080
41.0	-0.6585	1.0860	1.3667	1.9408	0.8432
41.25	-0.6537	1.0828	1.3341	1.9648	0.8603
41.50	-0.6499	1.0797	1.3035	1.9885	0.8771
41.75	-0.6443	1.0767	1.2746	2.0118	0.8937
42.00	-0.6396	1.0739	1.2470	2.0347	0.9101
42.25	-0.6349	1.0713	1.2206	2.0573	0.9262
42.50	-0.6303	1.0689	1.1952	2.0797	0.9421
42.75	-0.6257	1.0656	1.1706	2.1019	0.9579
43.00	-0.6210	1.0624	1.1468	2.1239	0.9735
43.25	-0.6163	1.0582	1.1237	2.1457	0.9890
43.50	-0.6117	1.0560	1.1012	2.1673	1.0044
43.75	-0.6071	1.0589	1.0793	2.1888	1.0197
44.00	-0.6024	1.0574	1.0579	2.2102	1.0350
44.25	-0.5978	1.0560	1.0370	2.2316	1.0502
44.50	-0.5932	1.0548	1.0166	2.2529	1.0654
44.75	-0.5886	1.0538	0.9967	2.2743	1.0806
45.00	-0.5840	1.0529	0.9772	2.2957	1.0958
45.25	-0.5794	1.0522	0.9581	2.3172	1.1111
45.50	-0.5748	1.0516	0.9393	2.3389	1.1265
45.75	-0.5703	1.0512	0.9209	2.3607	1.1420
46.00	-0.5657	1.0510	0.9028	2.3826	1.1577
46.25	-0.5611	1.0510	0.8850	2.4047	1.1735
46.50	-0.5565	1.0512	0.8675	2.4271	1.1894
46.75	-0.5519	1.0516	0.8504	2.4498	1.2055
47.00	-0.5473	1.0522	0.8336	2.4729	1.2219
47.25	-0.5427	1.0530	0.8170	2.4964	1.2386
47.50	-0.5381	1.0540	0.8006	2.5204	1.2557
47.75	-0.5335	1.0552	0.7845	2.5448	1.2731
48.00	-0.5289	1.0566	0.7686	2.5698	1.2909
48.25	-0.5243	1.0583	0.7530	2.5954	1.3091
48.50	-0.5197	1.0603	0.7376	2.6216	1.3279
48.75	-0.5151	1.0626	0.7224	2.6489	1.3472
49.00	-0.5104	1.0651	0.7074	2.6769	1.3671
49.25	-0.5057	1.0679	0.6926	2.7058	1.3877
49.50	-0.5010	1.0711	0.6780	2.7358	1.4090
49.75	-0.4964	1.0746	0.6635	2.7669	1.4312
50.00	-0.4917	1.0785	0.6492	2.7993	1.4543
50.25	-0.4870	1.0829	0.6351	2.8331	1.4783
50.327	-0.4855	1.0843	0.6308	2.8459	1.4860

$\theta_1 = 40^\circ$     $U_1 = 0.60$     $M = 4.2019$     $\theta_2 = 48.324$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi$
40.00	-0.7024	1.2000	1.7118	1.9806	0.6636
40.25	-0.6972	1.1964	1.5911	2.0143	0.6876
40.50	-0.6920	1.1928	1.5319	2.0475	0.7118
40.75	-0.6868	1.1893	1.4689	2.0800	0.7343
41.00	-0.6816	1.1859	1.4398	2.1121	0.7572
41.25	-0.6764	1.1827	1.4004	2.1436	0.7796
41.50	-0.6713	1.1797	1.3636	2.1747	0.8018
41.75	-0.6661	1.1768	1.3290	2.2055	0.8237
42.00	-0.6610	1.1742	1.2961	2.2360	0.8454
42.25	-0.6559	1.1717	1.2647	2.2662	0.8669
42.50	-0.6508	1.1695	1.2345	2.2961	0.8882
42.75	-0.6457	1.1674	1.2054	2.3259	0.9094
43.00	-0.6406	1.1656	1.1772	2.3555	0.9304
43.25	-0.6355	1.1639	1.1499	2.3850	0.9514
43.50	-0.6304	1.1625	1.1235	2.4146	0.9725
43.75	-0.6254	1.1613	1.0977	2.4441	0.9935
44.00	-0.6203	1.1603	1.0727	2.4738	1.0146
44.25	-0.6152	1.1596	1.0482	2.5036	1.0358
44.50	-0.6102	1.1591	1.0244	2.5336	1.0572
44.75	-0.6051	1.1588	1.0011	2.5638	1.0787
45.00	-0.6001	1.1587	0.9783	2.5943	1.1004
45.25	-0.5950	1.1590	0.9559	2.6252	1.1224
45.50	-0.5899	1.1594	0.9341	2.6566	1.1447
45.75	-0.5849	1.1602	0.9126	2.6885	1.1674
46.00	-0.5798	1.1612	0.8916	2.7211	1.1906
46.25	-0.5747	1.1626	0.8710	2.7543	1.2143
46.50	-0.5697	1.1642	0.8507	2.7884	1.2385
46.75	-0.5647	1.1662	0.8308	2.8233	1.2634
47.00	-0.5595	1.1686	0.8112	2.8592	1.2889
47.25	-0.5544	1.1713	0.7920	2.8963	1.3153
47.50	-0.5493	1.1745	0.7730	2.9346	1.3426
47.75	-0.5441	1.1781	0.7544	2.9744	1.3709
48.00	-0.5390	1.1821	0.7360	3.0157	1.4003
48.25	-0.5338	1.1867	0.7179	3.0589	1.4311
48.324	-0.5323	1.1882	0.7126	3.0719	1.4403

$\theta_0 = 40^\circ$     $U_0 = 0.65$     $M = 5.8336$     $\theta_1 = 46^\circ.650$

$\theta$	x	y	z	$r/p$	$x/p$
40.000	-0.7318	1.30000	1.8549	2.1179	0.4707
40.125	-0.7289	1.2982	1.7496	2.1400	0.4864
40.250	-0.7261	1.2963	1.7010	2.1619	0.5020
40.375	-0.7233	1.2946	1.6618	2.1836	0.5174
40.500	-0.7204	1.2927	1.6276	2.2051	0.5327
40.625	-0.7176	1.2910	1.5965	2.2265	0.5479
40.750	-0.7148	1.2892	1.5677	2.2477	0.5630
40.875	-0.7120	1.2876	1.5407	2.2688	0.5780
41.000	-0.7092	1.2859	1.5151	2.2898	0.5929
42.125	-0.7064	1.2843	1.4907	2.3107	0.6077
41.250	-0.7036	1.2828	1.4672	2.3314	0.6225
41.375	-0.7008	1.2813	1.4447	2.3520	0.6372
41.500	-0.6980	1.2799	1.4229	2.3726	0.6519
41.625	-0.6952	1.2786	1.4018	2.3930	0.6665
41.750	-0.6924	1.2773	1.3812	2.4134	0.6810
42.00	-0.6869	1.2749	1.3418	2.4540	0.7099
42.25	-0.6814	1.2728	1.3041	2.4945	0.7387
42.50	-0.6758	1.2710	1.2681	2.5349	0.7674
42.75	-0.6702	1.2695	1.2335	2.5753	0.7962
43.00	-0.6646	1.2682	1.2001	2.6158	0.8250
43.25	-0.6591	1.2672	1.1677	2.6564	0.8539
43.50	-0.6536	1.2665	1.1364	2.6973	0.8830
43.75	-0.6481	1.2652	1.1060	2.7386	0.9124
44.00	-0.6426	1.2642	1.0765	2.7804	0.9422
44.25	-0.6370	1.2635	1.0478	2.8228	0.9724
44.50	-0.6315	1.2632	1.0198	2.8659	1.0030
44.75	-0.6260	1.2623	0.9924	2.9098	1.0342
45.00	-0.6204	1.2618	0.9656	2.9547	1.0662
45.25	-0.6148	1.2717	0.9394	3.0007	1.0990
45.50	-0.6093	1.2741	0.9138	3.0479	1.1326
45.75	-0.6038	1.2770	0.8887	3.0966	1.1672
46.00	-0.5982	1.2904	0.8642	3.1470	1.2031
46.25	-0.5926	1.2843	0.8402	3.1993	1.2403
46.50	-0.5870	1.2889	0.8165	3.2537	1.2791
46.650	-0.5836	1.2919	0.8026	3.2875	1.3031

$\theta_s = 40^\circ$     $u_s = 0.70$     $M = 13.101$     $\theta_v = 45.235$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
40.00	-0.7647	1.4000	2.0115	2.2503	0.1514
40.25	-0.7586	1.3965	1.8156	2.3083	0.1926
40.50	-0.7525	1.3929	1.7238	2.3653	0.2332
40.625	-0.7495	1.3912	1.6851	2.3936	0.2533
40.750	-0.7464	1.3895	1.6499	2.4217	0.2733
40.875	-0.7433	1.3879	1.6167	2.4497	0.2932
41.000	-0.7403	1.3863	1.5854	2.4776	0.3131
41.125	-0.7373	1.3848	1.5555	2.5054	0.3329
41.250	-0.7343	1.3834	1.5270	2.5332	0.3527
41.375	-0.7313	1.3821	1.4996	2.5609	0.3724
41.500	-0.7283	1.3809	1.4731	2.5885	0.3920
41.625	-0.7253	1.3797	1.4475	2.6161	0.4116
41.750	-0.7223	1.3786	1.4227	2.6436	0.4312
41.875	-0.7193	1.3776	1.3986	2.6712	0.4508
42.000	-0.7163	1.3767	1.3751	2.6987	0.4704
42.125	-0.7133	1.3759	1.3522	2.7263	0.4901
42.250	-0.7103	1.3752	1.3298	2.7540	0.5098
42.375	-0.7073	1.3746	1.3079	2.7818	0.5296
42.500	-0.7043	1.3741	1.2865	2.8096	0.5494
42.625	-0.7013	1.3737	1.2656	2.8376	0.5693
42.750	-0.6983	1.3734	1.2451	2.8657	0.5893
42.875	-0.6953	1.3732	1.2250	2.8939	0.6094
43.000	-0.6923	1.3731	1.2052	2.9223	0.6296
43.125	-0.6893	1.3732	1.1858	2.9509	0.6500
43.250	-0.6863	1.3734	1.1667	2.9797	0.6705
43.375	-0.6833	1.3737	1.1480	3.0088	0.6912
43.500	-0.6803	1.3741	1.1295	3.0382	0.7121
43.625	-0.6773	1.3746	1.1113	3.0678	0.7332
43.750	-0.6743	1.3753	1.0934	3.0978	0.7545
43.875	-0.6713	1.3761	1.0758	3.1281	0.7761
44.000	-0.6683	1.3771	1.0584	3.1588	0.7979
44.125	-0.6653	1.3782	1.0412	3.1899	0.8200
44.250	-0.6623	1.3795	1.0243	3.2214	0.8424
44.375	-0.6592	1.3809	1.0076	3.2534	0.8652
44.500	-0.6562	1.3825	0.9911	3.2860	0.8884
44.625	-0.6532	1.3842	0.9748	3.3191	0.9120
44.750	-0.6502	1.3861	0.9588	3.3529	0.9361
44.875	-0.6472	1.3882	0.9430	3.3873	0.9606
45.000	-0.6442	1.3904	0.9274	3.4224	0.9856
45.125	-0.6412	1.3927	0.9120	3.4582	1.0111
45.235	-0.6384	1.3953	0.8992	3.4904	1.0339

$\theta_0 = 40^\circ$   $U_0 = 0.71357$   $M = \text{Infinity}$   $\theta_0 = 44.889$

$\theta$	$x$	$y$	$z$	$\frac{1}{r}$	$\frac{1}{r}$
40.00	-0.7742	1.4271	2.0563	2.2865	0.0354
40.25	-0.7680	1.4237	1.8470	2.3489	0.0798
40.50	-0.7618	1.4200	1.7497	2.4107	0.1238
40.625	-0.7587	1.4183	1.7088	2.4413	0.1456
40.750	-0.7556	1.4166	1.6715	2.4718	0.1672
40.875	-0.7525	1.4150	1.6363	2.5021	0.1888
41.000	-0.7494	1.4133	1.6032	2.5323	0.2103
41.125	-0.7464	1.4121	1.5717	2.5625	0.2318
41.250	-0.7434	1.4108	1.5416	2.5926	0.2532
41.375	-0.7403	1.4095	1.5126	2.6226	0.2746
41.500	-0.7372	1.4083	1.4847	2.6526	0.2959
41.625	-0.7341	1.4072	1.4577	2.6825	0.3172
41.750	-0.7310	1.4062	1.4316	2.7125	0.3386
41.875	-0.7279	1.4053	1.4062	2.7426	0.3600
42.000	-0.7248	1.4045	1.3815	2.7727	0.3814
42.125	-0.7217	1.4038	1.3574	2.8027	0.4029
42.250	-0.7187	1.4032	1.3339	2.8328	0.4244
42.375	-0.7157	1.4026	1.3109	2.8628	0.4460
42.500	-0.7127	1.4025	1.2884	2.8929	0.4677
42.625	-0.7095	1.4023	1.2664	2.9229	0.4895
42.750	-0.7065	1.4022	1.2449	2.9529	0.5114
42.875	-0.7034	1.4022	1.2238	2.9828	0.5335
43.000	-0.7003	1.4023	1.2030	3.0127	0.5558
43.125	-0.6973	1.4026	1.1826	3.0426	0.5783
43.250	-0.6943	1.4030	1.1626	3.0725	0.6010
43.375	-0.6912	1.4035	1.1429	3.1024	0.6239
43.500	-0.6881	1.4042	1.1235	3.1323	0.6470
43.625	-0.6850	1.4050	1.1045	3.1622	0.6705
43.750	-0.6819	1.4060	1.0857	3.1921	0.6943
43.875	-0.6789	1.4072	1.0672	3.2220	0.7184
44.000	-0.6758	1.4085	1.0490	3.2519	0.7428
44.125	-0.6727	1.4100	1.0311	3.2818	0.7676
44.250	-0.6696	1.4116	1.0134	3.3117	0.7929
44.375	-0.6666	1.4134	0.9959	3.3416	0.8186
44.500	-0.6635	1.4155	0.9787	3.3715	0.8448
44.625	-0.6604	1.4178	0.9617	3.4014	0.8715
44.750	-0.6573	1.4203	0.9449	3.4313	0.8988
44.875	-0.6542	1.4230	0.9283	3.4612	0.9266
44.889	-0.6538	1.4232	0.9264	3.5433	0.9299

$\delta_1 = 45^\circ$   $u_1 = 0.10$   $M = 2.3821$   $\delta_2 = 70^\circ.204$

$\theta$	$x$	$y$	$z$	$\eta$	$\xi/\rho$
45.0	-1.1093	0.6000	2.2108	1.4992	0.7678
45.5	-1.1041	0.6022	2.1030	1.5110	0.7762
46.0	-1.0988	0.6043	2.0441	1.5224	0.7843
46.5	-1.0935	0.6063	1.9935	1.5334	0.7921
47.0	-1.0882	0.6083	1.9486	1.5441	0.7997
47.5	-1.0829	0.6104	1.9066	1.5545	0.8071
48.0	-1.0776	0.6127	1.8670	1.5645	0.8144
48.5	-1.0722	0.6151	1.8294	1.5742	0.8211
49.0	-1.0668	0.6176	1.7935	1.5837	0.8279
49.5	-1.0614	0.6202	1.7591	1.5930	0.8345
50.0	-1.0560	0.6230	1.7260	1.6021	0.8410
50.5	-1.0506	0.6259	1.6939	1.6110	0.8473
51.0	-1.0451	0.6289	1.6629	1.6197	0.8535
51.5	-1.0396	0.6321	1.6329	1.6282	0.8596
52.0	-1.0341	0.6354	1.6037	1.6366	0.8656
52.5	-1.0285	0.6388	1.5753	1.6449	0.8715
53.0	-1.0229	0.6423	1.5476	1.6531	0.8773
53.5	-1.0173	0.6460	1.5206	1.6613	0.8831
54.0	-1.0116	0.6498	1.4943	1.6694	0.8889
54.5	-1.0059	0.6537	1.4687	1.6775	0.8947
55.0	-1.0002	0.6577	1.4436	1.6856	0.9005
55.5	-0.9945	0.6618	1.4190	1.6937	0.9062
56.0	-0.9887	0.6661	1.3950	1.7018	0.9119
56.5	-0.9828	0.6705	1.3714	1.7099	0.9177
57.0	-0.9769	0.6750	1.3483	1.7181	0.9233
57.5	-0.9710	0.6796	1.3257	1.7263	0.9294
58.0	-0.9650	0.6843	1.3035	1.7346	0.9353
58.5	-0.9590	0.6891	1.2817	1.7430	0.9413
59.0	-0.9530	0.6941	1.2603	1.7516	0.9474
59.5	-0.9469	0.6992	1.2392	1.7604	0.9536
60.0	-0.9407	0.7044	1.2185	1.7693	0.9600
60.5	-0.9345	0.7097	1.1981	1.7784	0.9665
61.0	-0.9283	0.7151	1.1781	1.7878	0.9732
61.5	-0.9221	0.7206	1.1584	1.7974	0.9801
62.0	-0.9158	0.7263	1.1391	1.8073	0.9871
62.5	-0.9094	0.7321	1.1200	1.8175	0.9943
63.0	-0.9030	0.7380	1.1012	1.8280	1.0018
63.5	-0.8965	0.7441	1.0826	1.8388	1.0095
64.0	-0.8900	0.7503	1.0643	1.8500	1.0175
64.5	-0.8834	0.7567	1.0462	1.8617	1.0258
65.0	-0.8768	0.7632	1.0284	1.8738	1.0344
65.5	-0.8701	0.7699	1.0108	1.8864	1.0433
66.0	-0.8634	0.7768	0.9935	1.8995	1.0526
66.5	-0.8566	0.7839	0.9763	1.9131	1.0623
67.0	-0.8497	0.7911	0.9593	1.9273	1.0725

$\theta_1 = 45^\circ$     $u_1 = 0.30$     $M = 2.3621$     $\theta_2 = 70.208$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
67.5	-0.8427	0.7985	0.9425	1.9422	1.0832
68.0	-0.8357	0.8062	0.9259	1.9579	1.0943
68.5	-0.8286	0.8141	0.9094	1.9744	1.1060
69.0	-0.8215	0.8222	0.8931	1.9918	1.1183
69.5	-0.8143	0.8306	0.8770	2.0101	1.1313
70.0	-0.8070	0.8393	0.8610	2.0292	1.1450
70.208	-0.8039	0.8430	0.8544	2.0374	1.1508

$\theta_1 = 45^\circ$     $u_1 = 0.35$     $M = 2.4768$     $\theta_2 = 65.496$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
45.0	-0.8855	0.7000	1.7847	1.4088	0.7024
45.5	-0.8794	0.7000	1.6840	1.4254	0.7142
46.0	-0.8733	0.7000	1.6294	1.4414	0.7256
46.5	-0.8672	0.7000	1.5831	1.4569	0.7367
47.0	-0.8611	0.7001	1.5413	1.4720	0.7474
47.5	-0.8550	0.7003	1.5026	1.4868	0.7579
48.0	-0.8489	0.7007	1.4663	1.5011	0.7681
48.5	-0.8428	0.7013	1.4317	1.5150	0.7780
49.0	-0.8367	0.7020	1.3987	1.5285	0.7876
49.5	-0.8305	0.7029	1.3671	1.5417	0.7970
50.0	-0.8243	0.7039	1.3367	1.5546	0.8062
50.5	-0.8181	0.7051	1.3074	1.5673	0.8153
51.0	-0.8120	0.7065	1.2790	1.5799	0.8243
51.5	-0.8058	0.7080	1.2515	1.5923	0.8331
52.0	-0.7996	0.7096	1.2248	1.6046	0.8418
52.5	-0.7934	0.7114	1.1988	1.6168	0.8505
53.0	-0.7872	0.7134	1.1733	1.6290	0.8591
53.5	-0.7810	0.7156	1.1489	1.6411	0.8677
54.0	-0.7747	0.7179	1.1249	1.6532	0.8763
54.5	-0.7684	0.7203	1.1015	1.6653	0.8850
55.0	-0.7621	0.7229	1.0786	1.6775	0.8937
55.5	-0.7558	0.7257	1.0562	1.6898	0.9025
56.0	-0.7495	0.7286	1.0343	1.7022	0.9113
56.5	-0.7431	0.7317	1.0128	1.7148	0.9202
57.0	-0.7367	0.7349	0.9917	1.7276	0.9293
57.5	-0.7303	0.7383	0.9711	1.7406	0.9385
58.0	-0.7238	0.7419	0.9509	1.7539	0.9479
58.5	-0.7173	0.7457	0.9310	1.7675	0.9576
59.0	-0.7108	0.7497	0.9115	1.7814	0.9676
59.5	-0.7042	0.7539	0.8923	1.7957	0.9778
60.0	-0.6976	0.7582	0.8734	1.8105	0.9883
60.5	-0.6910	0.7627	0.8549	1.8258	0.9992
61.0	-0.6843	0.7675	0.8367	1.8417	1.0105
61.5	-0.6776	0.7726	0.8187	1.8582	1.0222
62.0	-0.6708	0.7779	0.8010	1.8754	1.0344
62.5	-0.6640	0.7834	0.7835	1.8934	1.0472
63.0	-0.6571	0.7892	0.7663	1.9122	1.0606
63.5	-0.6502	0.7953	0.7493	1.9319	1.0747
64.0	-0.6432	0.8018	0.7325	1.9527	1.0895
64.5	-0.6362	0.8086	0.7159	1.9747	1.1052
65.0	-0.6291	0.8158	0.6996	1.9981	1.1218
65.496	-0.6220	0.8233	0.6836	2.0226	1.1392



$\theta_1 = 45^\circ$     $u_1 = 0.40$     $M = 3.7254$     $\theta_2 = 61.612$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
45.0	-0.8170	0.8000	1.6882	1.4547	0.6767
45.2	-0.8142	0.7997	1.6231	1.4638	0.6831
45.4	-0.8113	0.7993	1.5909	1.4728	0.6895
45.6	-0.8085	0.7989	1.5640	1.4816	0.6958
45.8	-0.8057	0.7985	1.5398	1.4903	0.7020
46.0	-0.8029	0.7981	1.5177	1.4989	0.7081
46.2	-0.8001	0.7977	1.4969	1.5074	0.7141
46.4	-0.7972	0.7974	1.4773	1.5158	0.7201
46.6	-0.7944	0.7971	1.4585	1.5240	0.7260
46.8	-0.7916	0.7968	1.4404	1.5322	0.7318
47.00	-0.7888	0.7965	1.4229	1.5403	0.7376
47.25	-0.7853	0.7962	1.4019	1.5505	0.7448
47.50	-0.7818	0.7959	1.3817	1.5605	0.7519
47.75	-0.7783	0.7957	1.3621	1.5704	0.7590
48.00	-0.7749	0.7956	1.3430	1.5802	0.7659
48.25	-0.7714	0.7955	1.3244	1.5898	0.7728
48.50	-0.7679	0.7954	1.3063	1.5994	0.7796
48.75	-0.7644	0.7954	1.2887	1.6089	0.7864
49.00	-0.7609	0.7955	1.2715	1.6183	0.7931
49.25	-0.7575	0.7956	1.2547	1.6276	0.7997
49.50	-0.7540	0.7957	1.2382	1.6369	0.8063
49.75	-0.7505	0.7959	1.2220	1.6461	0.8128
50.00	-0.7470	0.7962	1.2061	1.6552	0.8193
50.25	-0.7436	0.7965	1.1905	1.6643	0.8258
50.50	-0.7401	0.7968	1.1752	1.6733	0.8322
50.75	-0.7366	0.7972	1.1601	1.6823	0.8386
51.00	-0.7331	0.7977	1.1453	1.6913	0.8450
51.25	-0.7296	0.7982	1.1307	1.7003	0.8514
51.50	-0.7262	0.7987	1.1164	1.7092	0.8578
51.75	-0.7227	0.7993	1.1023	1.7181	0.8641
52.00	-0.7192	0.8000	1.0884	1.7271	0.8705
52.25	-0.7157	0.8008	1.0747	1.7361	0.8769
52.50	-0.7122	0.8016	1.0612	1.7451	0.8833
52.75	-0.7087	0.8025	1.0479	1.7541	0.8897
53.00	-0.7052	0.8034	1.0348	1.7630	0.8961
53.25	-0.7017	0.8043	1.0218	1.7719	0.9024
53.50	-0.6982	0.8053	1.0089	1.7809	0.9088
53.75	-0.6947	0.8064	0.9962	1.7899	0.9152
54.00	-0.6912	0.8075	0.9837	1.7990	0.9217
54.25	-0.6877	0.8087	0.9714	1.8082	0.9283
54.50	-0.6841	0.8100	0.9592	1.8175	0.9349
54.75	-0.6805	0.8113	0.9472	1.8269	0.9416
55.00	-0.6770	0.8127	0.9353	1.8364	0.9483
55.25	-0.6735	0.8141	0.9235	1.8459	0.9551
55.50	-0.6700	0.8156	0.9119	1.8555	0.9619

$\Theta_s = 45^\circ$     $U_s = 0.40$     $M = 2.7254$     $\Theta_v = 61.612$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
55.75	-0.6664	0.8172	0.9004	1.8652	0.9688
56.00	-0.6628	0.8188	0.8890	1.8750	0.9758
56.25	-0.6592	0.8205	0.8777	1.8850	0.9829
56.50	-0.6556	0.8222	0.8665	1.8951	0.9901
56.75	-0.6520	0.8240	0.8554	1.9053	0.9974
57.00	-0.6484	0.8259	0.8444	1.9157	1.0048
57.25	-0.6448	0.8279	0.8336	1.9263	1.0123
57.50	-0.6412	0.8300	0.8229	1.9371	1.0200
57.75	-0.6376	0.8321	0.8123	1.9481	1.0278
58.00	-0.6340	0.8343	0.8018	1.9593	1.0358
58.25	-0.6303	0.8366	0.7914	1.9707	1.0439
58.50	-0.6266	0.8390	0.7810	1.9823	1.0521
58.75	-0.6229	0.8415	0.7707	1.9942	1.0605
59.00	-0.6193	0.8441	0.7606	2.0063	1.0692
59.25	-0.6156	0.8467	0.7506	2.0187	1.0781
59.50	-0.6119	0.8495	0.7406	2.0315	1.0872
59.75	-0.6082	0.8524	0.7307	2.0446	1.0965
60.00	-0.6044	0.8554	0.7209	2.0581	1.1061
60.25	-0.6007	0.8585	0.7112	2.0720	1.1160
60.50	-0.5970	0.8617	0.7015	2.0863	1.1261
60.6	-0.5955	0.8631	0.6977	2.0920	1.1302
60.8	-0.5924	0.8658	0.6900	2.1038	1.1386
61.0	-0.5894	0.8686	0.6824	2.1159	1.1472
61.2	-0.5864	0.8715	0.6749	2.1284	1.1561
61.4	-0.5834	0.8745	0.6674	2.1412	1.1653
61.6	-0.5803	0.8777	0.6599	2.1545	1.1747
61.612	-0.5801	0.8779	0.6594	2.1553	1.1753

$\theta_0 = 45^\circ$     $u_0 = 0.45$     $M = 3.1290$     $\theta_1 = 58^\circ.468$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
45.0	-0.79999	0.90000	1.70663	1.5393	0.6366
45.2	-0.7967	0.8995	1.6288	1.5515	0.6453
45.4	-0.7936	0.8990	1.5910	1.5636	0.6540
45.6	-0.7905	0.8985	1.5598	1.5756	0.6625
45.8	-0.7873	0.8980	1.5322	1.5874	0.6709
46.0	-0.7841	0.8974	1.5068	1.5991	0.6792
46.2	-0.7810	0.8968	1.4831	1.6106	0.6874
46.4	-0.7779	0.8963	1.4607	1.6220	0.6955
46.6	-0.7748	0.8958	1.4394	1.6334	0.7036
46.8	-0.7717	0.8954	1.4189	1.6446	0.7116
47.00	-0.7686	0.8950	1.3992	1.6557	0.7195
47.25	-0.7647	0.8945	1.3755	1.6694	0.7293
47.50	-0.7608	0.8941	1.3526	1.6830	0.7390
47.75	-0.7569	0.8938	1.3305	1.6965	0.7486
48.00	-0.7530	0.8936	1.3091	1.7099	0.7581
48.25	-0.7491	0.8934	1.2883	1.7231	0.7675
48.50	-0.7452	0.8932	1.2680	1.7363	0.7768
48.75	-0.7413	0.8931	1.2482	1.7493	0.7861
49.00	-0.7374	0.8931	1.2289	1.7623	0.7954
49.25	-0.7335	0.8932	1.2101	1.7753	0.8046
49.50	-0.7296	0.8934	1.1916	1.7881	0.8137
49.75	-0.7257	0.8936	1.1735	1.8009	0.8228
50.00	-0.7218	0.8938	1.1558	1.8137	0.8319
50.25	-0.7179	0.8941	1.1385	1.8265	0.8410
50.50	-0.7140	0.8945	1.1215	1.8392	0.8501
50.75	-0.7101	0.8950	1.1047	1.8519	0.8592
51.00	-0.7062	0.8956	1.0882	1.8647	0.8683
51.25	-0.7023	0.8962	1.0720	1.8775	0.8774
51.50	-0.6983	0.8969	1.0561	1.8903	0.8865
51.75	-0.6944	0.8977	1.0405	1.9031	0.8956
52.00	-0.6905	0.8986	1.0251	1.9160	0.9048
52.25	-0.6866	0.8995	1.0099	1.9290	0.9141
52.50	-0.6827	0.9005	0.9949	1.9421	0.9234
52.75	-0.6787	0.9016	0.9801	1.9553	0.9328
53.00	-0.6748	0.9028	0.9655	1.9686	0.9422
53.25	-0.6709	0.9041	0.9512	1.9820	0.9517
53.50	-0.6670	0.9055	0.9370	1.9956	0.9614
53.75	-0.6630	0.9070	0.9230	2.0094	0.9712
54.00	-0.6590	0.9085	0.9092	2.0233	0.9811
54.25	-0.6550	0.9101	0.8956	2.0374	0.9912
54.50	-0.6511	0.9118	0.8821	2.0517	1.0014
54.75	-0.6471	0.9137	0.8688	2.0662	1.0117
55.00	-0.6431	0.9157	0.8557	2.0809	1.0222
55.25	-0.6391	0.9178	0.8427	2.0960	1.0329
55.50	-0.6351	0.9200	0.8298	2.1113	1.0438

$\theta_s = 45^\circ$     $u_s = 0.45$     $M = 3.1290$     $\theta_v = 58.468$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\epsilon/\rho$
55.75	-0.6311	0.9223	0.8171	2.1270	1.0549
56.00	-0.6270	0.9247	0.8045	2.1430	1.0663
56.25	-0.6229	0.9272	0.7921	2.1594	1.0780
56.50	-0.6189	0.9299	0.7798	2.1762	1.0900
56.75	-0.6149	0.9328	0.7676	2.1934	1.1028
57.0	-0.6108	0.9359	0.7556	2.2110	1.1147
57.2	-0.6075	0.9384	0.7460	2.2255	1.1251
57.4	-0.6043	0.9410	0.7365	2.2403	1.1356
57.6	-0.6010	0.9437	0.7271	2.2554	1.1463
57.8	-0.5977	0.9465	0.7178	2.2709	1.1573
58.0	-0.5944	0.9495	0.7085	2.2868	1.1687
58.2	-0.5910	0.9526	0.6993	2.3032	1.1804
58.4	-0.5877	0.9558	0.6901	2.3200	1.1923
58.468	-0.5866	0.9570	0.6882	2.3259	1.1965

$\theta_1 = 45^\circ$     $u_1 = 0.50$     $M = 3.7648$     $\theta_2 = 55^\circ 9' 19''$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
45.0	-0.8061	1.0000	1.7794	1.6372	0.5624
45.2	-0.8026	0.9994	1.6849	1.6532	0.5738
45.4	-0.7991	0.9988	1.6394	1.6691	0.5851
45.6	-0.7955	0.9981	1.6024	1.6848	0.5963
45.8	-0.7921	0.9974	1.5697	1.7004	0.6074
46.0	-0.7886	0.9967	1.5399	1.7158	0.6184
46.2	-0.7851	0.9960	1.5122	1.7311	0.6292
46.4	-0.7817	0.9954	1.4860	1.7462	0.6400
46.6	-0.7783	0.9949	1.4611	1.7612	0.6507
46.8	-0.7748	0.9944	1.4373	1.7761	0.6613
47.00	-0.7713	0.9939	1.4144	1.7908	0.6718
47.25	-0.7670	0.9934	1.3869	1.8091	0.6848
47.50	-0.7626	0.9930	1.3605	1.8273	0.6977
47.75	-0.7582	0.9927	1.3350	1.8454	0.7106
48.00	-0.7539	0.9924	1.3103	1.8634	0.7234
48.25	-0.7496	0.9922	1.2864	1.8812	0.7361
48.50	-0.7453	0.9921	1.2631	1.8990	0.7488
48.75	-0.7410	0.9921	1.2404	1.9168	0.7614
49.00	-0.7367	0.9922	1.2183	1.9345	0.7740
49.25	-0.7323	0.9924	1.1968	1.9522	0.7866
49.50	-0.7279	0.9927	1.1758	1.9699	0.7992
49.75	-0.7236	0.9931	1.1552	1.9876	0.8118
50.00	-0.7193	0.9936	1.1350	2.0053	0.8244
50.25	-0.7150	0.9942	1.1152	2.0231	0.8371
50.50	-0.7107	0.9949	1.0958	2.0410	0.8498
50.75	-0.7063	0.9958	1.0768	2.0590	0.8626
51.00	-0.7019	0.9967	1.0581	2.0771	0.8755
51.25	-0.6976	0.9977	1.0397	2.0953	0.8885
51.50	-0.6933	0.9989	1.0216	2.1137	0.9016
51.75	-0.6889	1.0002	1.0038	2.1323	0.9148
52.00	-0.6845	1.0016	0.9863	2.1511	0.9282
52.25	-0.6802	1.0031	0.9691	2.1702	0.9417
52.50	-0.6758	1.0049	0.9522	2.1895	0.9554
52.75	-0.6714	1.0066	0.9355	2.2091	0.9694
53.00	-0.6670	1.0086	0.9191	2.2290	0.9836
53.25	-0.6626	1.0107	0.9029	2.2493	0.9981
53.50	-0.6582	1.0130	0.8869	2.2700	1.0129
53.75	-0.6538	1.0154	0.8711	2.2912	1.0280
54.00	-0.6494	1.0180	0.8555	2.3129	1.0434
54.25	-0.6449	1.0208	0.8401	2.3351	1.0591
54.4	-0.6422	1.0225	0.8309	2.3484	1.0688
54.6	-0.6386	1.0251	0.8189	2.3670	1.0819
54.8	-0.6350	1.0277	0.8070	2.3859	1.0953
55.0	-0.6314	1.0304	0.7952	2.4052	1.1090
55.2	-0.6278	1.0333	0.7835	2.4249	1.1230

$\theta_1 = 45^\circ$     $u_1 = 0.50$     $M = 3.7648$     $\theta_2 = 54^\circ 019$

$\theta$	x	y	z	$r/\rho$	$r/\rho$
55.4	-0.6242	1.0363	0.7718	2.4451	1.1374
55.6	-0.6206	1.0395	0.7602	2.4659	1.1522
55.8	-0.6170	1.0429	0.7488	2.4872	1.1674
55.919	-0.6146	1.0451	0.7423	2.5003	1.1767

$\theta_1 = 48^\circ$     $U_1 = 0.55$     $M = 4.8947$     $\theta_2 = 53^\circ.833$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
45.0	-0.8262	1.1000	1.8871	1.7392	0.4363
45.1	-0.8242	1.0998	1.8068	1.7498	0.4438
45.2	-0.8223	1.0995	1.7701	1.7602	0.4512
45.3	-0.8204	1.0991	1.7406	1.7706	0.4586
45.4	-0.8185	1.0987	1.7150	1.7810	0.4660
45.5	-0.8166	1.0984	1.6919	1.7913	0.4733
45.6	-0.8147	1.0981	1.6704	1.8015	0.4806
45.7	-0.8128	1.0978	1.6503	1.8117	0.4879
45.8	-0.8108	1.0974	1.6313	1.8219	0.4951
45.9	-0.8089	1.0970	1.6131	1.8320	0.5023
46.0	-0.8070	1.0967	1.5957	1.8421	0.5095
46.1	-0.8051	1.0964	1.5789	1.8521	0.5167
46.2	-0.8032	1.0961	1.5627	1.8621	0.5238
46.3	-0.8013	1.0958	1.5470	1.8720	0.5308
46.4	-0.7994	1.0955	1.5317	1.8819	0.5378
46.5	-0.7974	1.0952	1.5167	1.8918	0.5449
46.6	-0.7955	1.0949	1.5021	1.9017	0.5520
46.7	-0.7936	1.0946	1.4879	1.9115	0.5590
46.8	-0.7917	1.0944	1.4740	1.9213	0.5659
46.9	-0.7898	1.0942	1.4604	1.9310	0.5728
47.00	-0.7879	1.0940	1.4471	1.9407	0.5798
47.25	-0.7831	1.0936	1.4147	1.9651	0.5971
47.50	-0.7783	1.0933	1.3837	1.9893	0.6143
47.75	-0.7735	1.0931	1.3539	2.0134	0.6314
48.00	-0.7687	1.0930	1.3252	2.0375	0.6486
48.25	-0.7639	1.0930	1.2973	2.0615	0.6658
48.50	-0.7592	1.0932	1.2702	2.0855	0.6829
48.75	-0.7545	1.0935	1.2438	2.1096	0.7000
49.00	-0.7497	1.0939	1.2181	2.1338	0.7172
49.25	-0.7449	1.0945	1.1931	2.1581	0.7344
49.50	-0.7401	1.0952	1.1688	2.1825	0.7517
49.75	-0.7354	1.0961	1.1450	2.2070	0.7692
50.00	-0.7306	1.0972	1.1217	2.2317	0.7868
50.25	-0.7258	1.0984	1.0989	2.2567	0.8046
50.50	-0.7210	1.0998	1.0765	2.2820	0.8226
50.75	-0.7162	1.1013	1.0546	2.3076	0.8408
51.00	-0.7114	1.1030	1.0331	2.3336	0.8593
51.25	-0.7066	1.1049	1.0120	2.3600	0.8781
51.50	-0.7017	1.1070	0.9912	2.3869	0.8973
51.75	-0.6969	1.1093	0.9708	2.4143	0.9168
52.00	-0.6921	1.1118	0.9508	2.4422	0.9367
52.25	-0.6872	1.1146	0.9310	2.4708	0.9570
52.50	-0.6823	1.1176	0.9115	2.5001	0.9779
52.75	-0.6775	1.1208	0.8923	2.5303	0.9993
53.00	-0.6725	1.1244	0.8736	2.5612	1.0214

$\theta_s = 45^\circ$     $u_s = 0.55$     $M = 4.8947$     $\theta_w = 53.833$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
53.1	-0.6706	1.1259	0.8661	2.5738	1.0303
53.2	-0.6687	1.1274	0.8587	2.5866	1.0394
53.3	-0.6667	1.1290	0.8513	2.5995	1.0486
53.4	-0.6647	1.1307	0.8440	2.6126	1.0579
53.5	-0.6627	1.1324	0.8367	2.6259	1.0674
53.6	-0.6607	1.1342	0.8295	2.6394	1.0770
53.7	-0.6588	1.1360	0.8223	2.6531	1.0868
53.8	-0.6569	1.1378	0.8151	2.6670	1.0967
53.833	-0.6561	1.1385	0.8127	2.6716	1.0999



$\theta_0 = 45^\circ$     $U_0 = 0.60$     $M = 7.8615$     $\theta_1 = 52.109$

$\theta$	$x$	$y$	$z$	$\eta/\rho$	$\xi/\rho$
45.0	-0.8545	1.2000	2.0167	1.8405	0.2383
45.2	-0.8503	1.1995	1.871	1.8677	0.2576
45.4	-0.8461	1.1988	1.8041	1.8946	0.2768
45.6	-0.8419	1.1981	1.7498	1.9213	0.2958
45.8	-0.8378	1.1974	1.7026	1.9478	0.3147
46.0	-0.8335	1.1968	1.6598	1.9741	0.3334
46.2	-0.8294	1.1962	1.6203	2.0003	0.3520
46.4	-0.8252	1.1956	1.5833	2.0264	0.3706
46.6	-0.8210	1.1951	1.5482	2.0523	0.3891
46.8	-0.8166	1.1948	1.5148	2.0782	0.4075
47.0	-0.8126	1.1946	1.4829	2.1041	0.4259
47.2	-0.8085	1.1944	1.4522	2.1300	0.4443
47.4	-0.8044	1.1943	1.4226	2.1559	0.4627
47.6	-0.8003	1.1943	1.3940	2.1818	0.4812
47.8	-0.7961	1.1944	1.3662	2.2077	0.4997
48.0	-0.7919	1.1946	1.3392	2.2337	0.5182
48.2	-0.7877	1.1950	1.3129	2.2597	0.5367
48.4	-0.7835	1.1955	1.2873	2.2856	0.5552
48.6	-0.7794	1.1961	1.2623	2.3120	0.5738
48.8	-0.7752	1.1968	1.2379	2.3383	0.5926
49.0	-0.7710	1.1977	1.2140	2.3649	0.6115
49.2	-0.7668	1.1987	1.1906	2.3917	0.6306
49.4	-0.7626	1.1999	1.1677	2.4188	0.6499
49.6	-0.7584	1.2012	1.1452	2.4463	0.6695
49.8	-0.7542	1.2026	1.1232	2.4741	0.6893
50.0	-0.7500	1.2042	1.1016	2.5023	0.7093
50.2	-0.7458	1.2060	1.0803	2.5308	0.7296
50.4	-0.7416	1.2080	1.0594	2.5598	0.7503
50.6	-0.7374	1.2102	1.0389	2.5893	0.7713
50.8	-0.7332	1.2125	1.0187	2.6194	0.7927
51.0	-0.7289	1.2150	0.9988	2.6501	0.8145
51.2	-0.7246	1.2178	0.9792	2.6814	0.8368
51.4	-0.7204	1.2208	0.9599	2.7134	0.8596
51.6	-0.7162	1.2241	0.9409	2.7462	0.8830
51.8	-0.7119	1.2276	0.9221	2.7799	0.9070
52.0	-0.7076	1.2313	0.9036	2.8145	0.9316
52.109	-0.7050	1.2337	0.8934	2.8328	0.9446

$\theta_s = 45^\circ$     $\bar{U}_s = 0.63544$     $M = \text{Infinity}$     $\theta_r = 51.063$

$\theta$	$x$	$y$	$z$	$r/\bar{r}$	$k/\beta$
45.00	-0.8777	1.2709	2.1176	1.9080	0.0378
45.25	-0.8781	1.2703	1.9261	1.9488	0.0668
45.50	-0.8666	1.2694	1.8375	1.9893	0.0950
45.625	-0.8639	1.2590	1.8005	2.0094	0.1093
45.750	-0.8611	1.2686	1.7668	2.0295	0.1236
45.875	-0.8583	1.2682	1.7350	2.0495	0.1379
46.000	-0.8555	1.2678	1.7050	2.0695	0.1522
46.125	-0.8527	1.2675	1.6765	2.0895	0.1664
46.250	-0.8500	1.2672	1.6493	2.1094	0.1805
46.375	-0.8473	1.2669	1.6231	2.1292	0.1946
46.500	-0.8445	1.2667	1.5978	2.1490	0.2087
46.625	-0.8417	1.2665	1.5733	2.1688	0.2228
46.750	-0.8389	1.2663	1.5496	2.1886	0.2369
46.875	-0.8361	1.2662	1.5266	2.2084	0.2510
47.000	-0.8334	1.2662	1.5042	2.2282	0.2651
47.125	-0.8307	1.2662	1.4824	2.2480	0.2791
47.250	-0.8279	1.2662	1.4611	2.2678	0.2932
47.375	-0.8251	1.2663	1.4403	2.2876	0.3073
47.500	-0.8223	1.2665	1.4199	2.3075	0.3215
47.625	-0.8195	1.2667	1.3999	2.3274	0.3357
47.750	-0.8168	1.2669	1.3803	2.3474	0.3499
47.875	-0.8141	1.2672	1.3611	2.3675	0.3642
48.000	-0.8114	1.2676	1.3422	2.3876	0.3786
48.125	-0.8086	1.2681	1.3237	2.4079	0.3930
48.250	-0.8058	1.2686	1.3055	2.4283	0.4075
48.375	-0.8030	1.2692	1.2876	2.4488	0.4221
48.500	-0.8002	1.2699	1.2699	2.4694	0.4368
48.625	-0.7975	1.2705	1.2525	2.4901	0.4515
48.750	-0.7947	1.2713	1.2354	2.5109	0.4663
48.875	-0.7919	1.2722	1.2185	2.5319	0.4812
49.000	-0.7891	1.2731	1.2019	2.5531	0.4963
49.125	-0.7864	1.2741	1.1855	2.5745	0.5115
49.250	-0.7836	1.2752	1.1693	2.5960	0.5268
49.375	-0.7808	1.2764	1.1533	2.6177	0.5423
49.500	-0.7780	1.2776	1.1375	2.6397	0.5580
49.625	-0.7752	1.2789	1.1219	2.6619	0.5738
49.750	-0.7724	1.2803	1.1065	2.6844	0.5898
49.875	-0.7696	1.2818	1.0913	2.7072	0.6059
50.000	-0.7668	1.2834	1.0763	2.7302	0.6222
50.125	-0.7640	1.2851	1.0615	2.7535	0.6388
50.250	-0.7612	1.2869	1.0468	2.7771	0.6557
50.375	-0.7584	1.2888	1.0323	2.8011	0.6728
50.500	-0.7556	1.2908	1.0179	2.8254	0.6901
50.625	-0.7528	1.2930	1.0037	2.8501	0.7077
50.750	-0.7500	1.2953	0.9896	2.8753	0.7256
50.875	-0.7472	1.2977	0.9757	2.9009	0.7438
51.000	-0.7443	1.3002	0.9620	2.9269	0.7623
51.063	-0.7428	1.3015	0.9550	2.9399	0.7716

$\theta_1 = 50^\circ$     $u_1 = 0.30$     $M = 3.1652$     $\theta_2 = 71.387$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
50.0	-1.4545	0.6000	2.8953	1.5809	0.6219
50.5	-1.4492	0.6098	2.7263	1.5931	0.6306
51.0	-1.4439	0.6289	2.6415	1.6052	0.6392
51.5	-1.4385	0.6277	2.5714	1.6171	0.6476
52.0	-1.4330	0.6363	2.5089	1.6283	0.6560
52.5	-1.4274	0.6448	2.4515	1.6405	0.6643
53.0	-1.4218	0.6532	2.3981	1.6522	0.6726
53.5	-1.4161	0.6615	2.3477	1.6639	0.6809
54.0	-1.4103	0.6697	2.2999	1.6755	0.6892
54.5	-1.4044	0.6779	2.2542	1.6871	0.6974
55.0	-1.3985	0.6861	2.2103	1.6987	0.7056
55.5	-1.3925	0.6944	2.1680	1.7102	0.7139
56.0	-1.3864	0.7027	2.1271	1.7217	0.7221
56.5	-1.3802	0.7110	2.0875	1.7333	0.7303
57.0	-1.3740	0.7193	2.0491	1.7449	0.7385
57.5	-1.3677	0.7276	2.0113	1.7565	0.7468
58.0	-1.3613	0.7360	1.9755	1.7682	0.7552
58.5	-1.3549	0.7444	1.9401	1.7800	0.7636
59.0	-1.3484	0.7529	1.9056	1.7919	0.7721
59.5	-1.3418	0.7615	1.8719	1.8039	0.7807
60.0	-1.3352	0.7701	1.8389	1.8160	0.7893
60.5	-1.3284	0.7788	1.8066	1.8282	0.7979
61.0	-1.3215	0.7875	1.7749	1.8405	0.8066
61.5	-1.3146	0.7963	1.7439	1.8530	0.8155
62.0	-1.3076	0.8052	1.7135	1.8657	0.8246
62.5	-1.3005	0.8141	1.6837	1.8787	0.8339
63.0	-1.2934	0.8232	1.6544	1.8920	0.8433
63.5	-1.2862	0.8323	1.6257	1.9055	0.8529
64.0	-1.2789	0.8415	1.5975	1.9194	0.8628
64.5	-1.2715	0.8508	1.5697	1.9336	0.8729
65.0	-1.2640	0.8503	1.5423	1.9481	0.8832
65.5	-1.2565	0.8599	1.5154	1.9630	0.8938
66.0	-1.2488	0.8796	1.4889	1.9784	0.9047
66.5	-1.2411	0.8894	1.4628	1.9942	0.9160
67.0	-1.2333	0.8994	1.4371	2.0105	0.9276
67.5	-1.2254	0.9095	1.4117	2.0274	0.9396
68.0	-1.2174	0.9198	1.3866	2.0449	0.9521
68.5	-1.2094	0.9302	1.3619	2.0630	0.9650
69.0	-1.2012	0.9408	1.3375	2.0818	0.9784
69.5	-1.1930	0.9516	1.3134	2.1013	0.9923
70.0	-1.1846	0.9627	1.2896	2.1217	1.0068
70.5	-1.1761	0.9740	1.2661	2.1430	1.0219
71.0	-1.1676	0.9855	1.2429	2.1652	1.0377
71.387	-1.1611	0.9946	1.2251	2.1833	1.0506

$\theta_0 = 30^\circ$     $u_0 = 0.35$     $M = 3.3344$     $\theta_1 = 67.420$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
50.0	-1.1231	0.7000	2.2630	1.4185	0.5226
50.5	-1.1169	0.7060	2.1114	1.4353	0.5345
51.0	-1.1108	0.7115	2.0356	1.4520	0.5464
51.5	-1.1047	0.7168	1.9750	1.4686	0.5583
52.0	-1.0985	0.7220	1.9176	1.4851	0.5700
52.5	-1.0922	0.7271	1.8668	1.5014	0.5816
53.0	-1.0858	0.7322	1.8194	1.5174	0.5930
53.5	-1.0794	0.7373	1.7747	1.5332	0.6043
54.0	-1.0729	0.7425	1.7323	1.5490	0.6155
54.5	-1.0664	0.7477	1.6918	1.5647	0.6266
55.0	-1.0599	0.7529	1.6529	1.5803	0.6377
55.5	-1.0533	0.7582	1.6155	1.5959	0.6488
56.0	-1.0467	0.7636	1.5794	1.6114	0.6599
56.5	-1.0399	0.7691	1.5444	1.6270	0.6710
57.0	-1.0332	0.7746	1.5105	1.6427	0.6822
57.5	-1.0264	0.7802	1.4776	1.6585	0.6934
58.0	-1.0196	0.7859	1.4455	1.6743	0.7047
58.5	-1.0127	0.7917	1.4143	1.6902	0.7160
59.0	-1.0058	0.7976	1.3838	1.7064	0.7275
59.5	-0.9988	0.8037	1.3541	1.7228	0.7392
60.0	-0.9918	0.8099	1.3251	1.7394	0.7510
60.5	-0.9847	0.8162	1.2967	1.7562	0.7630
61.0	-0.9775	0.8226	1.2689	1.7734	0.7753
61.5	-0.9703	0.8292	1.2417	1.7911	0.7878
62.0	-0.9631	0.8360	1.2150	1.8092	0.8006
62.5	-0.9558	0.8429	1.1888	1.8277	0.8138
63.0	-0.9484	0.8500	1.1631	1.8467	0.8274
63.5	-0.9409	0.8573	1.1378	1.8663	0.8413
64.0	-0.9334	0.8648	1.1130	1.8865	0.8557
64.5	-0.9258	0.8725	1.0886	1.9075	0.8706
65.0	-0.9182	0.8805	1.0646	1.9293	0.8861
65.5	-0.9105	0.8888	1.0409	1.9519	0.9022
66.0	-0.9027	0.8973	1.0176	1.9755	0.9190
66.5	-0.8948	0.9061	0.9947	2.0001	0.9365
67.0	-0.8869	0.9153	0.9721	2.0261	0.9550
67.420	-0.8803	0.9233	0.9534	2.0491	0.9714

$\theta_s = 50'$     $u_s = 0.40$     $M = 3.8108$     $\theta_v = 64.144$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
50.0	-1.0195	0.8000	2.0995	1.4230	0.4521
50.2	-1.0167	0.8020	2.0021	1.4321	0.4585
50.4	-1.0138	0.8038	1.9563	1.4411	0.4650
50.6	-1.0110	0.8055	1.9192	1.4501	0.4714
50.8	-1.0082	0.8072	1.8865	1.4591	0.4778
51.0	-1.0053	0.8088	1.8569	1.4681	0.4842
51.2	-1.0025	0.8104	1.8294	1.4771	0.4906
51.4	-0.9997	0.8120	1.8035	1.4860	0.4970
51.6	-0.9969	0.8136	1.7789	1.4949	0.5033
51.8	-0.9940	0.8151	1.7554	1.5038	0.5096
52.00	-0.9911	0.8167	1.7328	1.5127	0.5159
52.25	-0.9876	0.8187	1.7059	1.5238	0.5238
52.50	-0.9840	0.8206	1.6798	1.5348	0.5316
52.75	-0.9804	0.8226	1.6546	1.5456	0.5393
53.00	-0.9768	0.8246	1.6303	1.5563	0.5470
53.25	-0.9732	0.8266	1.6067	1.5670	0.5547
53.50	-0.9696	0.8286	1.5838	1.5778	0.5623
53.75	-0.9659	0.8307	1.5615	1.5886	0.5699
54.00	-0.9623	0.8327	1.5397	1.5994	0.5775
54.25	-0.9587	0.8347	1.5185	1.6101	0.5852
54.50	-0.9551	0.8368	1.4978	1.6209	0.5929
54.75	-0.9514	0.8390	1.4775	1.6317	0.6006
55.00	-0.9477	0.8412	1.4576	1.6424	0.6082
55.25	-0.9440	0.8434	1.4380	1.6531	0.6158
55.50	-0.9403	0.8456	1.4188	1.6638	0.6234
55.75	-0.9366	0.8479	1.3999	1.6745	0.6311
56.00	-0.9329	0.8502	1.3814	1.6853	0.6388
56.25	-0.9292	0.8526	1.3632	1.6962	0.6465
56.50	-0.9255	0.8550	1.3453	1.7072	0.6543
56.75	-0.9218	0.8574	1.3277	1.7182	0.6621
57.00	-0.9180	0.8598	1.3104	1.7291	0.6699
57.25	-0.9142	0.8623	1.2933	1.7401	0.6777
57.50	-0.9105	0.8648	1.2764	1.7512	0.6856
57.75	-0.9067	0.8674	1.2598	1.7624	0.6936
58.00	-0.9029	0.8700	1.2434	1.7737	0.7017
58.25	-0.8991	0.8727	1.2273	1.7851	0.7098
58.50	-0.8953	0.8755	1.2114	1.7966	0.7180
58.75	-0.8915	0.8783	1.1957	1.8082	0.7262
59.00	-0.8877	0.8811	1.1801	1.8198	0.7345
59.25	-0.8838	0.8840	1.1647	1.8316	0.7429
59.50	-0.8799	0.8869	1.1495	1.8436	0.7514
59.75	-0.8760	0.8899	1.1345	1.8556	0.7601
60.00	-0.8721	0.8930	1.1197	1.8681	0.7689
60.25	-0.8682	0.8961	1.1050	1.8805	0.7777
60.50	-0.8643	0.8993	1.0905	1.8931	0.7866

$\theta_s = 50^\circ$     $U_s = 0.40$     $M = 3.8108$     $\theta_v = 64.144$

$\theta$	$x$	$y$	$z$	$\eta/p$	$\xi/p$
60.75	-0.8634	0.9025	1.0762	1.9059	0.7957
61.00	-0.8565	0.9058	1.0620	1.9189	0.8050
61.25	-0.8525	0.9092	1.0480	1.9322	0.8145
61.50	-0.8485	0.9127	1.0341	1.9457	0.8241
61.75	-0.8445	0.9162	1.0204	1.9594	0.8339
62.00	-0.8405	0.9198	1.0068	1.9734	0.8438
62.25	-0.8365	0.9235	0.9933	1.9877	0.8539
62.50	-0.8325	0.9273	0.9799	2.0023	0.8643
62.75	-0.8285	0.9313	0.9667	2.0172	0.8750
63.00	-0.8244	0.9354	0.9536	2.0325	0.8859
63.25	-0.8203	0.9396	0.9406	2.0482	0.8970
63.50	-0.8162	0.9438	0.9278	2.0642	0.9084
63.75	-0.8121	0.9481	0.9152	2.0804	0.9200
64.00	-0.8079	0.9527	0.9023	2.0976	0.9322
64.144	-0.8055	0.9553	0.8951	2.1075	0.9392

$\theta_0 = 50^\circ$     $U_0 = 0.45$     $M = 4.7548$     $\theta_1 = 61.476$

$\theta$	x	y	z	$\eta/\rho$	$\xi/\rho$
50.0	-0.9881	0.9000	2.0893	1.4712	0.3561
50.2	-0.9850	0.9018	1.9770	1.4835	0.3642
50.4	-0.9819	0.9034	1.9249	1.4957	0.3735
50.6	-0.9787	0.9049	1.8828	1.5079	0.3828
50.8	-0.9755	0.9063	1.8460	1.5200	0.3908
51.0	-0.9724	0.9077	1.8126	1.5321	0.3994
51.2	-0.9692	0.9091	1.7817	1.5441	0.4079
51.4	-0.9660	0.9105	1.7527	1.5561	0.4164
51.6	-0.9628	0.9119	1.7252	1.5680	0.4249
51.8	-0.9596	0.9132	1.6989	1.5798	0.4334
52.00	-0.9565	0.9145	1.6738	1.5916	0.4418
52.25	-0.9525	0.9163	1.6436	1.6065	0.4523
52.50	-0.9485	0.9180	1.6147	1.6212	0.4628
52.75	-0.9445	0.9197	1.5868	1.6359	0.4733
53.00	-0.9405	0.9215	1.5599	1.6505	0.4837
53.25	-0.9364	0.9233	1.5338	1.6651	0.4941
53.50	-0.9324	0.9252	1.5084	1.6797	0.5045
53.75	-0.9284	0.9271	1.4838	1.6943	0.5149
54.00	-0.9243	0.9290	1.4598	1.7089	0.5253
54.25	-0.9202	0.9310	1.4364	1.7235	0.5357
54.50	-0.9162	0.9330	1.4135	1.7382	0.5461
54.75	-0.9121	0.9351	1.3911	1.7529	0.5566
55.00	-0.9080	0.9372	1.3692	1.7676	0.5671
55.25	-0.9039	0.9393	1.3477	1.7824	0.5776
55.50	-0.8998	0.9415	1.3266	1.7973	0.5882
55.75	-0.8957	0.9438	1.3059	1.8123	0.5988
56.00	-0.8915	0.9462	1.2856	1.8273	0.6095
56.25	-0.8874	0.9486	1.2657	1.8424	0.6203
56.50	-0.8833	0.9511	1.2461	1.8577	0.6312
56.75	-0.8792	0.9536	1.2268	1.8731	0.6422
57.00	-0.8750	0.9562	1.2078	1.8887	0.6533
57.25	-0.8708	0.9589	1.1891	1.9045	0.6645
57.50	-0.8666	0.9617	1.1707	1.9204	0.6758
57.75	-0.8624	0.9645	1.1526	1.9365	0.6878
58.00	-0.8582	0.9674	1.1347	1.9528	0.6988
58.25	-0.8540	0.9704	1.1171	1.9694	0.7106
58.50	-0.8498	0.9735	1.0997	1.9862	0.7226
58.75	-0.8455	0.9767	1.0825	2.0032	0.7347
59.00	-0.8412	0.9800	1.0656	2.0205	0.7470
59.25	-0.8369	0.9834	1.0490	2.0381	0.7595
59.4	-0.8343	0.9855	1.0389	2.0490	0.7713
59.6	-0.8308	0.9884	1.0258	2.0636	0.7777
59.8	-0.8274	0.9914	1.0128	2.0784	0.7842
60.0	-0.8240	0.9944	0.9999	2.0934	0.7905
60.2	-0.8205	0.9975	0.9871	2.1087	0.8008

$\theta_1 = 50^\circ$     $u_1 = 0.45$     $M = 4.7548$     $\theta_2 = 61.476$

$\theta$	$x$	$y$	$z$	$r/p$	$E/p$
60.4	-0.8170	1.0007	0.9744	2.1243	0.8209
60.6	-0.8135	1.0040	0.9619	2.1402	0.8322
60.8	-0.8100	1.0074	0.9495	2.1564	0.8437
61.0	-0.8065	1.0108	0.9372	2.1729	0.8555
61.2	-0.8029	1.0144	0.9250	2.1898	0.8675
61.4	-0.7994	1.0181	0.9128	2.2071	0.8798
61.476	-0.7980	1.0196	0.9083	2.2138	0.8846



$\theta_1 = 50^\circ$     $U_1 = 0.50$     $M = 7.1010$     $\theta_2 = 59.303$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
50.0	-0.9895	1.0000	2.1501	1.5350	0.2157
50.2	-0.9860	1.0017	2.0166	1.5511	0.2272
50.4	-0.9825	1.0032	1.9554	1.5672	0.2386
50.6	-0.9790	1.0046	1.9063	1.5832	0.2500
50.8	-0.9755	1.0059	1.8635	1.5991	0.2613
51.00	-0.9719	1.0072	1.8247	1.6149	0.2725
51.25	-0.9675	1.0088	1.7803	1.6347	0.2867
51.50	-0.9631	1.0104	1.7395	1.6544	0.3007
51.75	-0.9587	1.0120	1.7011	1.6741	0.3147
52.00	-0.9543	1.0136	1.6648	1.6937	0.3287
52.25	-0.9499	1.0153	1.6302	1.7132	0.3426
52.50	-0.9454	1.0170	1.5971	1.7327	0.3565
52.75	-0.9409	1.0187	1.5653	1.7523	0.3704
53.00	-0.9365	1.0205	1.5346	1.7719	0.3843
53.25	-0.9321	1.0224	1.5049	1.7915	0.3983
53.50	-0.9277	1.0243	1.4761	1.8111	0.4123
53.75	-0.9232	1.0262	1.4481	1.8308	0.4263
54.00	-0.9187	1.0282	1.4208	1.8506	0.4404
54.25	-0.9142	1.0303	1.3942	1.8705	0.4545
54.50	-0.9097	1.0325	1.3683	1.8905	0.4687
54.75	-0.9052	1.0348	1.3430	1.9106	0.4830
55.00	-0.9006	1.0372	1.3182	1.9309	0.4974
55.25	-0.8961	1.0396	1.2940	1.9513	0.5120
55.50	-0.8916	1.0421	1.2702	1.9719	0.5267
55.75	-0.8870	1.0447	1.2469	1.9927	0.5415
56.00	-0.8824	1.0475	1.2240	2.0138	0.5565
56.25	-0.8778	1.0504	1.2016	2.0351	0.5717
56.50	-0.8732	1.0534	1.1795	2.0568	0.5871
56.75	-0.8686	1.0565	1.1578	2.0788	0.6027
57.00	-0.8640	1.0597	1.1365	2.1011	0.6186
57.25	-0.8594	1.0630	1.1155	2.1238	0.6348
57.50	-0.8548	1.0665	1.0949	2.1470	0.6513
57.75	-0.8501	1.0702	1.0746	2.1706	0.6681
58.00	-0.8454	1.0740	1.0545	2.1947	0.6852
58.25	-0.8407	1.0780	1.0347	2.2193	0.7028
58.50	-0.8360	1.0822	1.0152	2.2446	0.7207
58.75	-0.8313	1.0866	0.9950	2.2705	0.7391
59.00	-0.8265	1.0911	0.9771	2.2971	0.7581
59.25	-0.8217	1.0958	0.9584	2.3244	0.7779
59.303	-0.8208	1.0969	0.9545	2.3303	0.7818

$\theta_s = 50^\circ$     $u_s = 0.54354$     $M = \text{Infinity}$     $\theta_w = 57.732$

$\theta$	x	y	z	$\eta/p$	$\xi/p$
50.00	-1.0056	1.0871	2.2367	1.5936	0.0421
50.25	-1.0008	1.0892	2.0597	1.6190	0.0602
50.50	-0.9960	1.0910	1.9788	1.6443	0.0782
50.75	-0.9912	1.0927	1.9139	1.6695	0.0961
51.00	-0.9865	1.0943	1.8575	1.6946	0.1140
51.25	-0.9818	1.0959	1.8066	1.7197	0.1319
51.50	-0.9770	1.0975	1.7597	1.7447	0.1497
51.75	-0.9722	1.0991	1.7158	1.7697	0.1674
52.00	-0.9674	1.1007	1.6744	1.7946	0.1852
52.25	-0.9626	1.1024	1.6349	1.8196	0.2030
52.50	-0.9578	1.1042	1.5973	1.8446	0.2208
52.75	-0.9530	1.1061	1.5611	1.8697	0.2386
53.00	-0.9481	1.1080	1.5263	1.8948	0.2565
53.25	-0.9432	1.1100	1.4926	1.9201	0.2745
53.50	-0.9384	1.1121	1.4600	1.9455	0.2926
53.75	-0.9336	1.1143	1.4283	1.9710	0.3108
54.00	-0.9287	1.1166	1.3975	1.9967	0.3291
54.25	-0.9238	1.1191	1.3675	2.0227	0.3476
54.50	-0.9189	1.1217	1.3383	2.0490	0.3663
54.75	-0.9140	1.1244	1.3098	2.0756	0.3852
55.00	-0.9091	1.1272	1.2820	2.1025	0.4043
55.25	-0.9042	1.1301	1.2547	2.1297	0.4237
55.50	-0.8993	1.1332	1.2280	2.1573	0.4434
55.75	-0.8943	1.1365	1.2018	2.1854	0.4634
56.00	-0.8893	1.1400	1.1762	2.2140	0.4837
56.25	-0.8843	1.1437	1.1510	2.2432	0.5044
56.50	-0.8793	1.1476	1.1263	2.2730	0.5256
56.75	-0.8743	1.1516	1.1020	2.3034	0.5473
57.00	-0.8693	1.1558	1.0781	2.3346	0.5695
57.25	-0.8642	1.1603	1.0546	2.3666	0.5923
57.50	-0.8592	1.1651	1.0316	2.3995	0.6157
57.732	-0.8544	1.1698	1.0105	2.4309	0.6380

## II SURVEY OF THE RESULTS

*The individual columns indicate:*

- $\bar{u}_r$  = radial velocity-component of the axial flow along the solid surface;
- $\theta_w$  = semi-apex angle of the shock wave;
- $M$  = Mach number (i.e., stream velocity divided by the velocity of sound in the undisturbed air in front of the shock wave);
- $d$  = constant specifying the change of entropy across streamlines;
- $\delta/\epsilon$  = ratio of the yaw  $\delta$  of the shock wave to the yaw  $\epsilon$  of the solid cone;
- $K_D$  = coefficient of head drag on the cone;
- $K_N$  = coefficient of normal drag on the cone.

$\theta_s$	$\theta_w$	$M$	$d$	$\delta/e$	$K_D$	$K_H$
$\theta = 5^\circ$						
.30	89.612	1.4593 (S)	.001222	.9986	.35616	.7731
.35	89.243	1.1816 (S)	.0002090	.4005	.19976	.6615
.40	81.656	1.0152	.0000001161	.0252	.02938	.7870
.46	60.026	1.1554	.000000904417	.0066	.01931	.7828
.50	49.262	1.3210	.000000007934	.0069	.01701	.7814
.55	41.673	1.5458	.00000002296	.0091	.01554	.7593
.60	35.732	1.7153	.00000008463	.0129	.01442	.7667
.65	30.804	1.9580	.0000003859	.0195	.01348	.7539
.70	26.544	2.2473	.000001760	.0304	.01261	.7504
.75	22.735	2.6064	.000039730	.0491	.01179	.7468
.80	19.223	3.0774	.00006360	.0822	.01098	.7423
.85	15.884	3.7495	.0005206	.1431	.01011	.7380
.90	12.593	4.8602	.005904	.2592	.00914	.7351
.95	9.174	7.4152	.1215	.4928	.00795	.7401
.96	8.444	8.4925	.2566	.5664	.00765	.7439
.97	7.683	10.146	.5968	.6558	.00733	.7498
.98	6.878	13.186	1.636	.7698	.00698	.7593
.99	6.002	22.513	6.442	.9288	.00652	.7768
.995	5.523	74.807	18.88	1.0418	.00627	.7923
.99551	5.472	$\infty$	22.04	1.0554	.00624	.7942

$\theta_s = 7^\circ.5$

.30	89.060	1.4166 (S)	.002377	.9246	.34883	.7378
.35	87.982	1.1473 (S)	.0003481	.3854	.18600	.6602
.40	73.978	1.0484	.000001200	.0480	.04917	.7374
.45	57.528	1.1902	.0000004768	.0285	.03713	.7424
.50	47.728	1.3577	.0000009978	.0325	.03270	.7410
.55	40.601	1.5462	.000003052	.0428	.02979	.7386
.60	34.962	1.7610	.00001095	.0597	.02757	.7356
.65	30.274	2.0108	.00004262	.0853	.02570	.7327
.70	26.239	2.3105	.0001753	.1231	.02401	.7298
.75	22.667	2.6817	.0007667	.1775	.02244	.7275
.80	19.430	3.1795	.003443	.2546	.02092	.7261
.85	16.427	3.8948	.01695	.3622	.01937	.7248
.90	13.560	5.1033	.09652	.5124	.01714	.7322
.95	10.695	8.0589	.7937	.7367	.01588	.7482
.98990	8.211	$\infty$	14.64	1.0562	.01399	.7867

$\theta_s = 10^\circ$

.30	88.162	1.3710 (S)	.003616	.8640	.33628	.7081
.35	85.421	1.1134 (S)	.0004190	.3266	.17147	.6608
.40	68.653	1.0901	.00001248	.0884	.07243	.7181
.45	55.162	1.2330	.00001165	.0753	.05784	.7186
.50	46.309	1.4028	.00002676	.0886	.05113	.7186
.55	39.708	1.5956	.00007898	.1140	.04866	.7171
.60	34.432	1.8165	.0002528	.1508	.04318	.7152
.65	30.091	2.0750	.0008295	.2001	.04028	.7138
.70	26.363	2.3869	.002726	.2630	.03772	.7132
.75	23.101	2.7794	.008932	.3408	.03539	.7139

$\theta_s$	$\theta_w$	M	$\delta$	$\delta/z$	$K_D$	$K_H$
$\theta_s = 10^\circ$						
.80	20.184	3.3041	.02951	.4354	.93319	.7168
.85	17.818	4.0748	.1011	.5495	.93101	.7224
.90	15.013	5.4223	.3854	.6902	.92882	.7327
.95	12.566	9.0993	2.010	.8791	.92646	.7518
.97	11.569	15.137	5.041	.9815	.92544	.7650
.98	11.059	37.075	9.368	1.0426	.92468	.7737
.98205	10.953	=	10.92	1.0570	.92477	.7759

$\theta_s = 12^\circ.5$						
.30	86.797	1.3273 (S)	.004804	.8103	.32532	.6819
.35	80.938	1.0999 (S)	.0065010	.3068	.16546	.6588
.40	64.663	1.1381	.00068345	.1539	.09721	.6918
.45	53.198	1.2825	.0001212	.1484	.38041	.6961
.50	45.224	1.4552	.0002810	.1742	.07158	.6966
.55	39.173	1.6530	.0007543	.2152	.06553	.6962
.60	34.338	1.8910	.002090	.2687	.06084	.6965
.65	30.335	2.1498	.005791	.3327	.05695	.6975
.70	26.931	2.4760	.01539	.4065	.05357	.6997
.75	23.972	2.8907	.04064	.4800	.05054	.7036
.80	21.345	3.4532	.1072	.5633	.04773	.7094
.85	18.962	4.3032	.2921	.6591	.04505	.7178
.90	16.749	5.3599	.8784	.8131	.04242	.7301
.95	14.627	11.091	3.538	.9792	.03973	.7495
.97197	13.701	=	6.683	1.0584	.03848	.7627

$\theta_s = 15^\circ$						
.30	84.848	1.2926 (S)	.006012	.7700	.31607	.6604
.35	75.758	1.1207 (S)	.0008643	.3334	.17528	.6486
.40	61.879	1.1916	.0004339	.2337	.12292	.6682
.45	51.737	1.3382	.0007076	.2408	.19428	.6731
.50	44.559	1.5144	.001569	.2772	.09362	.6752
.55	39.043	1.7178	.003772	.3287	.08614	.6769
.60	34.620	1.9541	.009088	.3898	.08034	.6793
.65	30.959	2.2345	.02142	.4585	.07557	.6827
.70	27.854	2.5787	.04925	.5331	.07148	.6874
.75	25.163	3.0217	.1113	.6130	.06785	.6933
.80	22.784	3.6345	.2521	.6992	.06455	.7009
.85	20.639	4.5910	.5906	.7939	.06147	.7107
.90	18.665	6.5012	1.525	.9014	.05852	.7234
.95	16.805	16.855	5.217	1.0309	.05561	.7416
.95965	16.454	=	7.177	1.0598	.05504	.7460

$\theta_s = 20^\circ$						
.30	79.487	1.2794 (S)	.01030	.7672	.31390	.6288
.35	66.507	1.2175	.004235	.4748	.21723	.6152
.40	53.043	1.3144	.004630	.4251	.17594	.6238
.45	50.281	1.4672	.007880	.4444	.15498	.6297
.50	44.424	1.6531	.01524	.4880	.14162	.6348

$u_a$	$\theta_w$	$N$	$d$	$\delta/w$	$(K_D)$	$K_H$
$\theta_s = 20^\circ$						
.55	39.835	1.8714	.03012	.5422	.13199	.6401
.60	36.124	2.1297	.05871	.6017	.12450	.6459
.65	33.045	2.4431	.1120	.6642	.11841	.6524
.70	30.435	2.9387	.2089	.7288	.11325	.6596
.75	28.180	3.3684	.3905	.7952	.10880	.6675

.80	26.199	4.1538	.7343	.8644	.10483	.6762
.85	24.433	5.5457	1.436	.9375	.10122	.6862
.90	22.834	9.5928	3.096	1.0161	.09794	.6978
.927	22.027	44.696	5.124	1.0619	.09624	.7050
.9236	21.988	$\infty$	5.271	1.0642	.09616	.7051

$\theta_s = 25^\circ$

.30	74.468	1.3525 (s)	.02302	.8767	.33790	.6008
.35	64.819	1.3503	.01731	.8568	.26750	.6787
.40	56.636	1.4608	.02249	.8183	.23078	.5819
.45	50.366	1.6236	.03618	.6347	.20901	.6879
.50	45.507	1.8248	.06186	.6714	.19428	.5943

.55	41.644	2.0665	.1064	.7189	.18345	.6014
.60	39.495	2.3604	.1809	.7660	.17489	.6086
.65	35.873	2.7296	.3031	.8167	.16817	.6160
.70	33.651	3.2188	.5035	.8685	.16244	.6238
.75	31.737	3.9260	.8369	.9208	.15756	.6316

.80	30.086	5.1233	1.415	.9739	.15332	.6398
.85	28.589	8.0962	2.497	1.0282	.14956	.6464
.885	27.652	28.702	3.922	1.0671	.14716	.6547
.88821	27.569	$\infty$	4.102	1.0707	.14693	.6549

$\theta_s = 30^\circ$

.30	71.348	1.4887 (s)	.05455	1.0550	.37662	.5722
.35	63.320	1.5164	.05168	.8434	.32064	.5409
.40	56.695	1.6404	.06837	.7959	.28745	.5387
.45	51.506	1.8199	.1026	.8001	.26602	.5444
.50	47.414	2.0470	.1597	.8244	.25100	.5506

.55	44.124	2.3289	.2495	.8573	.23977	.5576
.60	41.426	2.6863	.3870	.8942	.23100	.5646
.65	39.175	3.1617	.5958	.9327	.22392	.5716
.70	37.268	3.8497	.9151	.9716	.21806	.5785
.75	35.631	5.0109	1.415	1.0107	.21310	.5853

.80	34.210	7.8599	2.235	1.0496	.20884	.5919
.85	33.444	16.617	3.000	1.0728	.20657	.5965
.83917	33.221	$\infty$	3.298	1.0798	.20590	.5972

$\theta_s = 35^\circ$

.20	69.894	1.6831 (s)	.1189	1.2870	.42169	.5405
.35	63.214	1.7301	.1211	1.0258	.37536	.5006
.40	57.728	1.8731	.1562	.9570	.34564	.4947
.45	53.387	2.0822	.2201	.9436	.32545	.4970
.50	49.885	2.3564	.3193	.9531	.31091	.5020

$\theta$	$R_w$	$M$	$d$	$\delta/e$	$\epsilon_D$	$\epsilon_R$
$\theta_s = 35^\circ$						
.85	47.062	2.7144	.4653	.9712	.29995	.5075
.80	44.739	3.2011	.6766	.9964	.29135	.5134
.85	42.798	3.9227	.9820	1.0228	.28444	.5191
.70	41.155	5.1910	1.428	1.0497	.27875	.5247
.75	39.751	8.7095	2.162	1.0769	.27398	.5302

.77	39.245	14.798	2.467	1.0974	.27226	.5320
.78110	38.978	"	2.753	1.0934	.27140	.5333

$\theta_s = 40^\circ$						
.30	69.632	1.9585 (3)	.2337	1.5009	.46946	.5041
.35	64.033	2.0242	.2396	1.2027	.43081	.4550
.40	59.431	2.2007	.2977	1.1039	.40469	.4454
.45	55.734	2.4673	.3981	1.0396	.38632	.4449
.50	52.755	2.8389	.5465	1.0622	.37289	.4476

.55	50.327	3.3691	.7561	1.0674	.36284	.4516
.60	48.324	4.2019	1.048	1.0789	.35464	.4559
.65	46.650	5.8336	1.457	1.0935	.34819	.4602
.70	45.235	13.101	2.038	1.1098	.34290	.4642
.71357	44.889	"	2.237	1.1140	.34163	.4655

$\theta_s = 45^\circ$						
.30	70.208	2.3821	.4205	1.7642	.51793	.4621
.35	65.496	2.4768	.4219	1.3751	.48600	.4085
.40	61.612	2.7254	.5040	1.2386	.46358	.3919
.45	58.468	3.1290	.6448	1.1810	.44747	.3884
.50	55.919	3.7644	.8470	1.1554	.43553	.3888

.55	53.828	4.8947	1.128	1.1467	.42638	.3911
.60	52.169	7.8615	1.508	1.1462	.41920	.3941
.63544	51.063	"	1.856	1.1464	.41499	.3959

$\theta_s = 50^\circ$						
.30	71.387	3.1652	.7072	2.0262	.66563	.4122
.35	67.420	3.3344	.6843	1.5402	.53974	.3511
.40	64.144	3.8108	.7879	1.3618	.57111	.3341
.45	61.476	4.7548	.9709	1.2788	.50753	.3285
.50	59.303	7.1010	1.232	1.2354	.47730	.3274

.54354	57.732	"	1.534	1.2151	.49036	.3279
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III

TABLE GIVING THE SHOCK-TO-CONE YAW RATIO,  $\delta/\alpha$ , IN TERMS OF THE  
RADIAL VELOCITY COMPONENT,  $u_r$ , ALONG THE SOLID SURFACE, AND THE  
SEMI-APEX ANGLE OF THE CONE,  $\theta$ .



$\theta$	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
.30										1.7592	2.0251
.31								1.1807	1.4144	1.6365	1.8727
.32							.9263	1.1261	1.3437	1.5478	1.7590
.33						.7118	.8866	1.0847	1.2862	1.4778	1.6709
.34					.5062	.6800	.8664	1.0516	1.2398	1.4213	1.5988
.35					.4748	.6507	.8434	1.0258	1.2027	1.3751	1.5402
.36			.2953		.4532	.6402	.8262	1.0052	1.1792	1.3470	1.5014
.37			.2685		.4303	.6293	.8137	.9886	1.1609	1.3255	1.4804
.38		.1310	.2507		.4110	.6227	.8050	.9754	1.1412	1.2794	1.4159
.39		.1027	.2397		.4286	.6193	.7993	.9650	1.1162	1.2574	1.3867
.40	.0252	.0884	.2337		.4251	.6183	.7959	.9570	1.1040	1.2386	1.3618
.41	.0125	.0813	.2313		.4259	.6191	.7943	.9511	1.0940	1.2234	1.3404
.42	.0094	.0774	.2314		.4285	.6213	.7941	.9471	1.0858	1.2103	1.3218
.43	.0079	.0754	.2331		.4326	.6248	.7951	.9447	1.0790	1.1990	1.3056
.44	.0070	.0748	.2363		.4380	.6293	.7972	.9431	1.0737	1.1893	1.2914
.45	.0065	.0753	.2408		.4444	.6347	.8001	.9436	1.0696	1.1810	1.2789
.46	.0063	.0767	.2464		.4517	.6409	.8038	.9444	1.0665	1.1738	1.2679
.47	.0063	.0788	.2530		.4599	.6478	.8082	.9458	1.0645	1.1677	1.2582
.48	.0064	.0815	.2604		.4686	.6552	.8132	.9477	1.0631	1.1627	1.2497
.49	.0066	.0848	.2685		.4781	.6631	.8186	.9502	1.0624	1.1586	1.2423
.50	.0069	.0886	.2772		.4880	.6714	.8244	.9531	1.0622	1.1553	1.2358
.51	.0072	.0928	.2865		.4982	.6800	.8305	.9563	1.0625	1.1527	1.2301
.52	.0078	.0974	.2963		.5088	.6889	.8369	.9598	1.0632	1.1507	1.2250
.53	.0081	.1025	.3067		.5197	.6981	.8435	.9637	1.0643	1.1491	1.2205
.54	.0085	.1080	.3175		.5308	.7074	.8503	.9678	1.0657	1.1478	1.2164
.55	.0091	.1140	.3287		.5422	.7169	.8573	.9722	1.0674	1.1469	
.56	.0097	.1204	.3402		.5538	.7265	.8645	.9768	1.0693	1.1463	
.57	.0104	.1273	.3521		.5655	.7363	.8718	.9815	1.0715	1.1459	
.58	.0112	.1347	.3644		.5774	.7461	.8792	.9863	1.0738	1.1458	
.59	.0120	.1425	.3770		.5895	.7560	.8867	.9913	1.0763	1.1459	
.60	.0129	.1508	.3899		.6017	.7660	.8942	.9964	1.0789	1.1462	
.61	.0140	.1596	.4031		.6140	.7761	.9018	1.0015	1.0816	1.1466	
.62	.0151	.1689	.4165		.6264	.7862	.9095	1.0067	1.0845	1.1472	
.63	.0164	.1788	.4302		.6389	.7963	.9172	1.0120	1.0874	1.1479	
.64	.0179	.1892	.4442		.6515	.8065	.9249	1.0173	1.0904		
.65	.0195	.2001	.4585		.6642	.8167	.9327	1.0227	1.0935		
.66	.0212	.2115	.4730		.6770	.8270	.9403	1.0280	1.0966		
.67	.0231	.2235	.4877		.6897	.8373	.9482	1.0334	1.0998		
.68	.0253	.2361	.5026		.7027	.8477	.9560	1.0388	1.1030		
.69	.0277	.2494	.5177		.7157	.8581	.9638	1.0443	1.1063		
.70	.0304	.2630	.5331		.7288	.8685	.9716	1.0497	1.1096		
.71	.0333	.2773	.5487		.7419	.8789	.9794	1.0552	1.1130		
.72	.0366	.2923	.5644		.7551	.8893	.9872	1.0606			
.73	.0403	.3078	.5804		.7684	.8998	.9950	1.0661			
.74	.0444	.3240	.5966		.7818	.9103	1.0028	1.0715			
.75	.0491	.3408	.6130		.7952	.9208	1.0107	1.0769			
.76	.0543	.3583	.6297		.8088	.9313	1.0185	1.0823			
.77	.0601	.3765	.6466		.8225	.9419	1.0263	1.0878			
.78	.0666	.3954	.6638		.8363	.9526	1.0341	1.0928			
.79	.0739	.4150	.6814		.8503	.9632	1.0419				
.80	.0822	.4354	.6992		.8644	.9739	1.0496				
.81	.0916	.4565	.7174		.8787	.9847	1.0573				
.82	.1022	.4784	.7359		.8931	.9955	1.0650				
.83	.1142	.5011	.7548		.9077	1.0063	1.0727				
.84	.1277	.5248	.7741		.9225	1.0172					
.85	.1431	.5493	.7939		.9375	1.0282					
.86	.1607	.5752	.8143		.9528	1.0392					
.87	.1807	.6020	.8352		.9683	1.0503					
.88	.2034	.6300	.8568		.9840	1.0614					
.89	.2294	.6593	.8786		.9999						
.90	.2582	.6902	.9013	1.0161							
.91	.2904	.7228	.9249	1.0327							
.92	.3327	.7575	.9495	1.0497							
.93	.3781	.7948	.9752								
.94	.4309	.8351	1.0023								
.95	.4928	.8791	1.0309								
.96	.5663	.9275									
.97	.6558	.9815									
.98	.7693	1.0426									
.99	.9287										

IV

TABLE GIVING THE COEFFICIENT OF NORMAL DRAG,  $K_N$ , IN TERMS  
OF THE RADIAL VELOCITY COMPONENT,  $u_r$ , ALONG THE SOLID SURFACE, AND  
THE SEMI-APEX ANGLE OF THE CONE,  $\theta$ .

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
.30									.4621	.4122
.31								.5264	.4881	.4438
.32							.5517	.5164	.4781	.4360
.33					.5799	.5404	.5093	.4873	.4619	.4368
.34				.6151	.5789	.5430	.5042	.4808	.4523	.4279
.35				.6152	.5787	.5403	.5006	.4659	.4365	.4111
.36			.6551	.6164	.5790	.5397	.4981	.4523	.4220	.3960
.37			.6601	.6183	.5796	.5391	.4965	.4498	.4185	.3920
.38		.7040	.6637	.6203	.5803	.5390	.4955	.4476	.4157	.3888
.39		.7110	.6663	.6222	.5812	.5392	.4949	.4463	.4135	.3862
.40	.7570	.7151	.6682	.6238	.5821	.5397	.4947	.4454	.4119	.3841
.41	.7603	.7173	.6696	.6252	.5831	.5404	.4948	.4445	.4070	.3824
.42	.7617	.7184	.6708	.6265	.5842	.5413	.4951	.4445	.4058	.3811
.43	.7623	.7191	.6718	.6276	.5854	.5423	.4956	.4445	.4052	.3800
.44	.7628	.7194	.6725	.6287	.5866	.5433	.4962	.4447	.4057	.3792
.45	.7626	.7195	.6731	.6297	.5878	.5444	.4970	.4449	.4064	.3785
.46	.7625	.7196	.6736	.6307	.5891	.5455	.4978	.4453	.4072	.3780
.47	.7623	.7194	.6740	.6317	.5904	.5467	.4987	.4458	.4082	.3777
.48	.7620	.7193	.6744	.6326	.5917	.5480	.4997	.4463	.4093	.3774
.49	.7617	.7191	.6748	.6336	.5930	.5493	.5008	.4469	.4105	.3774
.50	.7614	.7188	.6751	.6348	.5944	.5506	.5019	.4476	.4118	.3774
.51	.7610	.7185	.6755	.6359	.5957	.5520	.5030	.4483	.4132	.3775
.52	.7608	.7182	.6758	.6369	.5971	.5534	.5041	.4491	.4146	.3776
.53	.7602	.7178	.6762	.6380	.5985	.5548	.5053	.4499	.4160	.3777
.54	.7598	.7175	.6765	.6390	.5999	.5562	.5064	.4507	.4174	.3779
.55	.7593	.7171	.6769	.6401	.6014	.5576	.5076	.4516	.4188	.3781
.56	.7589	.7167	.6773	.6412	.6028	.5590	.5087	.4524	.4202	.3783
.57	.7584	.7163	.6778	.6423	.6042	.5604	.5098	.4533	.4216	.3785
.58	.7579	.7159	.6782	.6435	.6057	.5618	.5110	.4541	.4230	.3787
.59	.7573	.7155	.6787	.6446	.6071	.5632	.5122	.4550	.4244	.3789
.60	.7568	.7152	.6793	.6458	.6086	.5646	.5133	.4559	.4258	.3791
.61	.7562	.7149	.6799	.6471	.6101	.5660	.5145	.4568	.4272	.3793
.62	.7556	.7146	.6805	.6484	.6116	.5674	.5157	.4578	.4286	.3795
.63	.7551	.7143	.6812	.6497	.6130	.5688	.5168	.4585	.4300	.3796
.64	.7545	.7140	.6819	.6510	.6145	.5702	.5180	.4593		
.65	.7539	.7136	.6827	.6523	.6160	.5716	.5191	.4602		
.66	.7532	.7133	.6835	.6537	.6176	.5730	.5203	.4610		
.67	.7525	.7134	.6844	.6551	.6191	.5743	.5214	.4619		
.68	.7518	.7133	.6853	.6566	.6206	.5757	.5225	.4627		
.69	.7511	.7132	.6863	.6581	.6222	.5771	.5237	.4636		
.70	.7504	.7131	.6873	.6598	.6237	.5785	.5248	.4644		
.71	.7496	.7132	.6884	.6611	.6253	.5798	.5259	.4652		
.72	.7489	.7133	.6896	.6627	.6268	.5812	.5270			
.73	.7481	.7134	.6908	.6643	.6284	.5826	.5281			
.74	.7473	.7136	.6920	.6659	.6300	.5839	.5292			
.75	.7465	.7139	.6933	.6675	.6318	.5853	.5302			
.76	.7457	.7143	.6947	.6692	.6332	.5866	.5312			
.77	.7449	.7145	.6962	.6709	.6349	.5879	.5322			
.78	.7440	.7153	.6977	.6727	.6365	.5893	.5332			
.79	.7432	.7160	.6993	.6745	.6381	.5906				
.80	.7423	.7168	.7010	.6763	.6398	.5919				
.81	.7414	.7176	.7023	.6782	.6415	.5932				
.82	.7406	.7186	.7046	.6801	.6432	.5946				
.83	.7397	.7197	.7065	.6821	.6449	.5960				
.84	.7389	.7210	.7088	.6841	.6466					
.85	.7380	.7224	.7107	.6862	.6484					
.86	.7373	.7240	.7129	.6884	.6501					
.87	.7366	.7258	.7153	.6908	.6519					
.88	.7359	.7279	.7178	.6929	.6537					
.89	.7354	.7302	.7205	.6953						
.90	.7351	.7327	.7234	.6979						
.91	.7350	.7355	.7265	.6994						
.92	.7352	.7386	.7299	.7030						
.93	.7360	.7421	.7335							
.94	.7375	.7471	.7374							
.95	.7401	.7519	.7416							
.96	.7439	.7578								
.97	.7498	.7650								
.98	.7593	.7737								
.99	.7768									

DIAGRAMS ILLUSTRATING SOME PHYSICAL PROPERTIES  
OF SUPERSONIC FLOW OF AIR AROUND SLIGHTLY YAWING CONES, SUMMARIZED  
IN TABLES II, III, AND IV

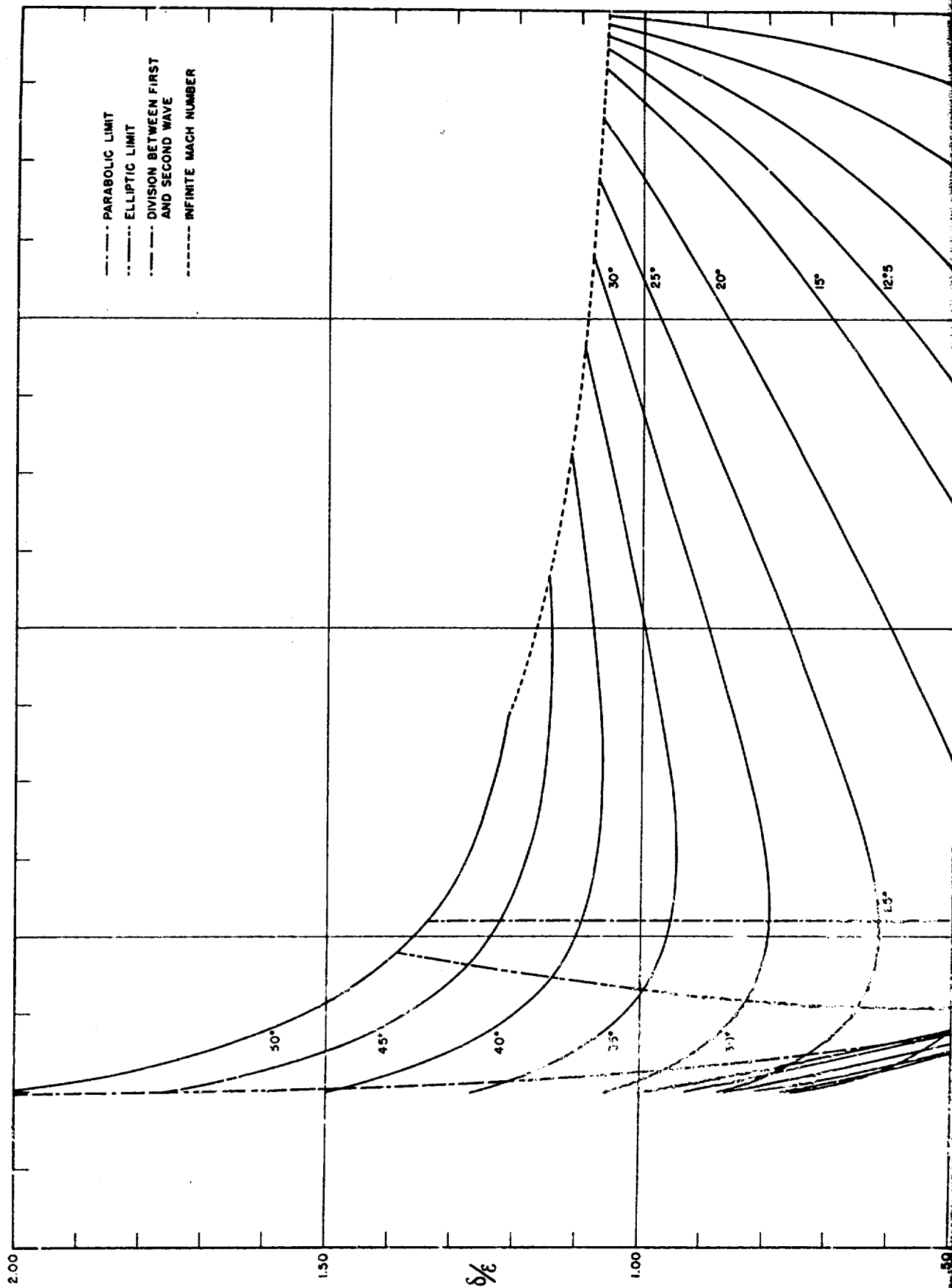
*The individual diagrams indicate:*

1. Shock-to-Cone Yaw Ratios,  $\delta/\epsilon$ , plotted against  $\bar{u}_s$ ;
2. Coefficient of Normal Drag,  $K_N$ , plotted against  $\bar{u}_s$ .

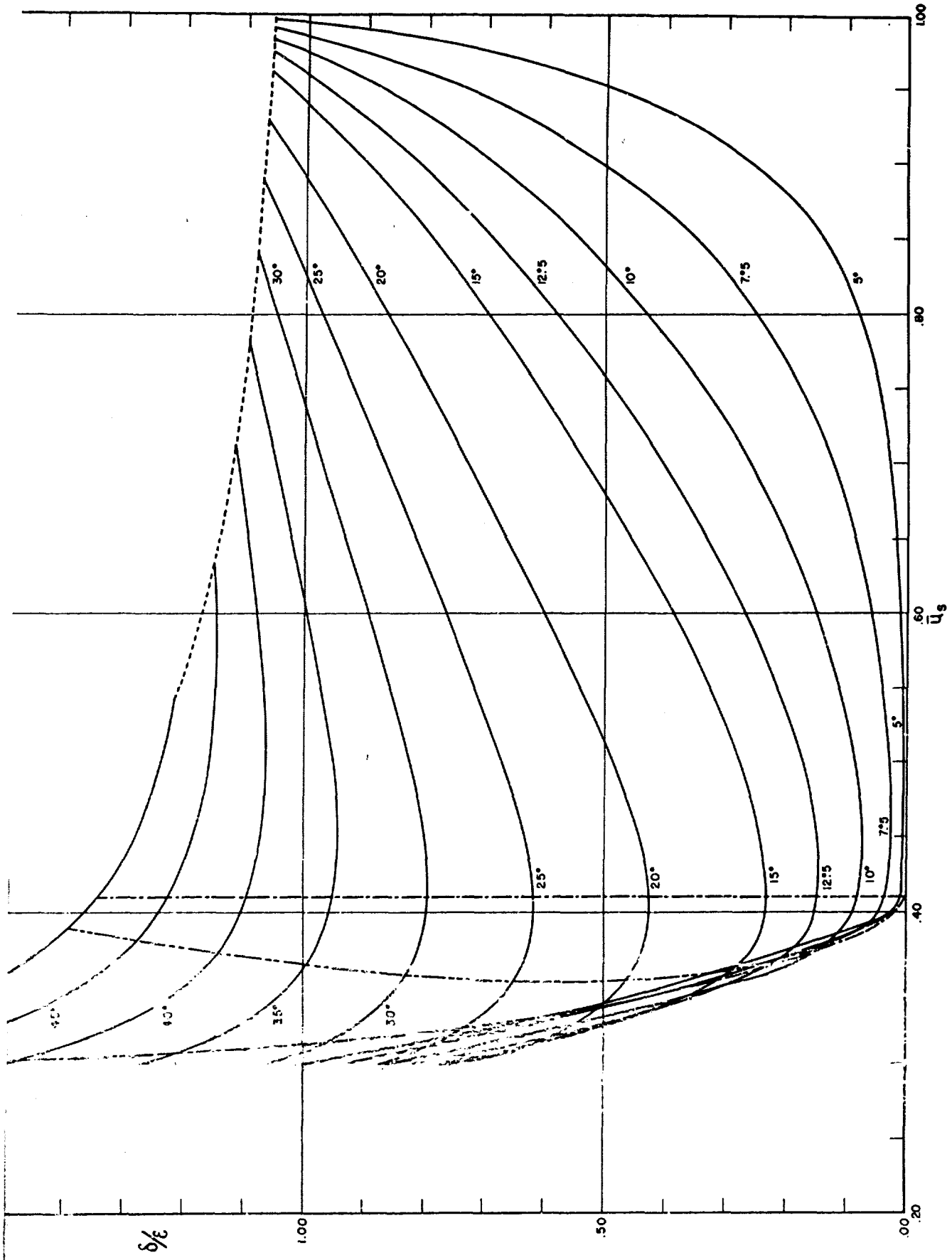
Different types of broken lines in the diagrams indicate, respectively:

1. The parabolic limit, *i.e.* the values of  $\bar{u}_s$  corresponding to the minimum Mach numbers for which the stream between the cone and the shock wave remains entirely supersonic;
2. The elliptic limit, *i.e.* the values of  $\bar{u}_s$  corresponding to the maximum Mach numbers for which the stream between the cone and the shock wave is entirely subsonic;
3. The separation between "first" and "second" waves, *i.e.* the values of  $\bar{u}_s$  corresponding to the minimum Mach numbers for which a conical regime of flow is possible.
4. Infinite Mach number, *i.e.* the values of  $\bar{u}_s$  corresponding to Mach number infinity.

SHOCK-TO-CONE YAW RATIOS  $\frac{\delta}{\epsilon}$

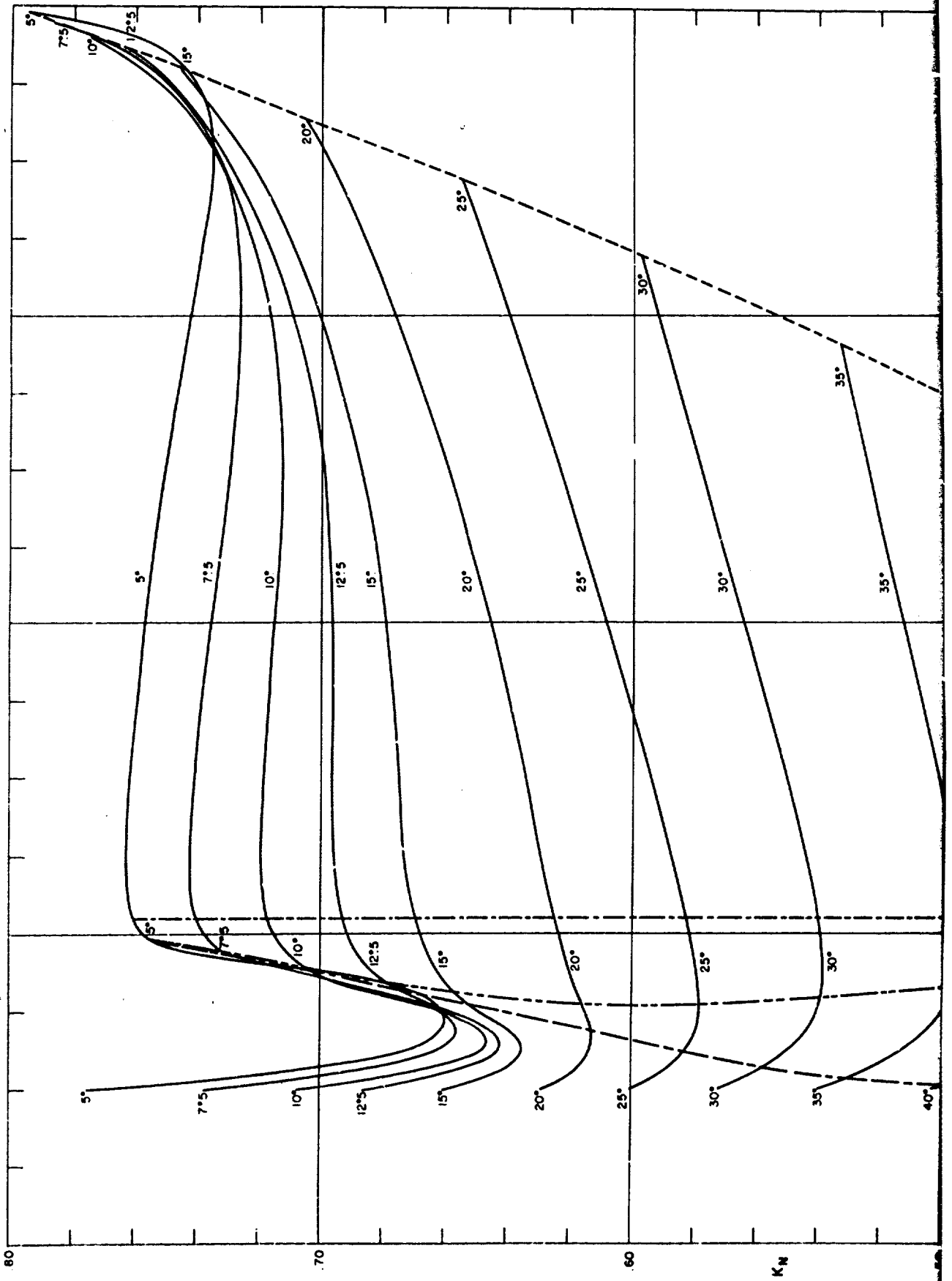


A

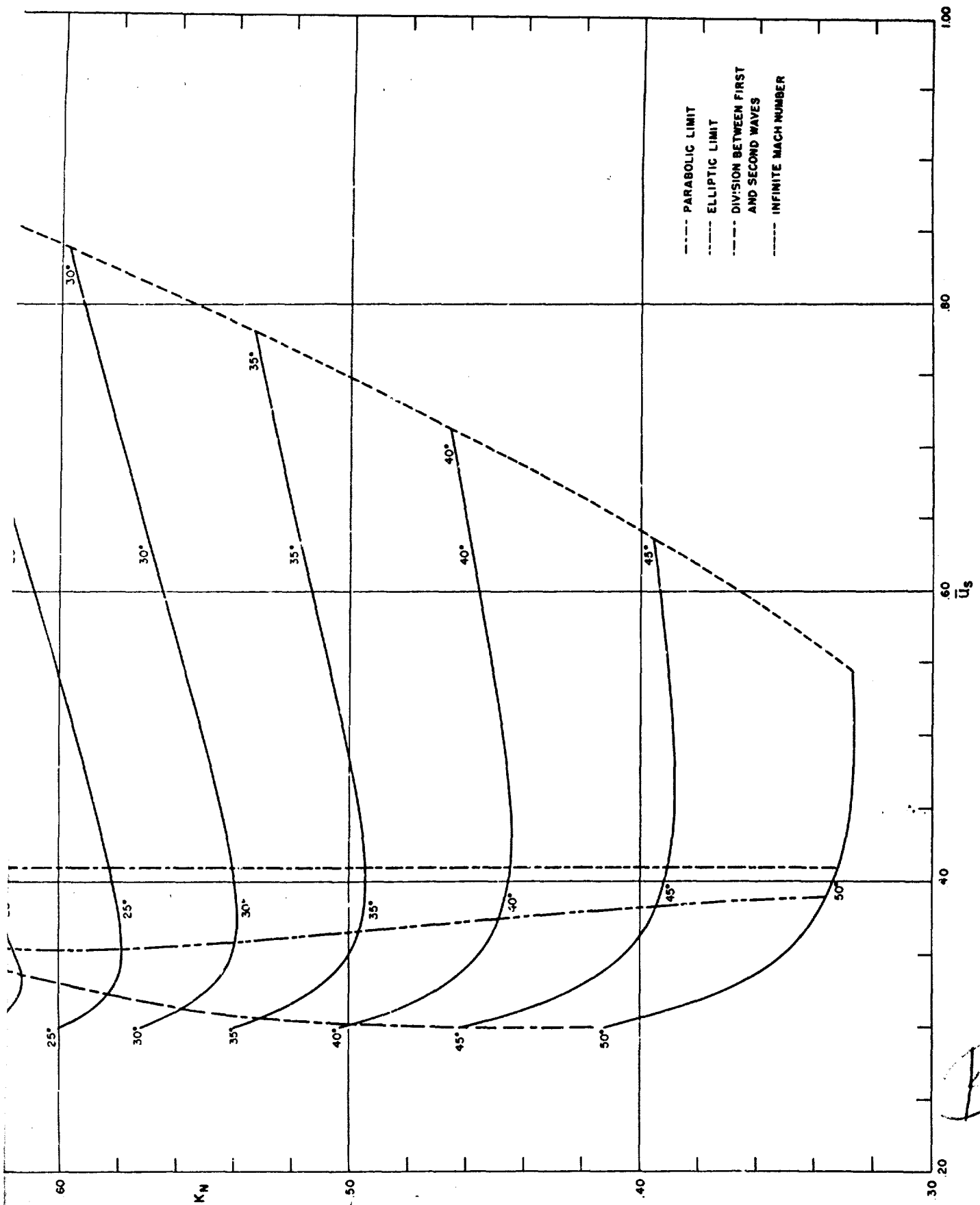


B

COEFFICIENT OF NORMAL DRAG  $K_N$



H



END