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THEORETICAL INVESTIGATIONS OF THE
PROPERTIES OF OBLIQUE DETONATION WAVES

PHILIP 'F' GIBBER

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THEORETICAL INVESTIGATIONS OF THE PROPERTIES
OF OBLIQUE DETONATION WAVES

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Philip 'F' Gibber

THEORETICAL INVESTIGATIONS OF THE PROPERTIES
OF OBLIQUE DETONATION WAVES

by

Philip 'F' Gibber

Lieutenant, United States Navy

Submitted in partial fulfillment of
the requirements for the degree of

MASTER OF SCIENCE
IN
AERONAUTICAL ENGINEERING

United States Naval Postgraduate School
Monterey, California

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OF OBLIQUE DETONATION WAVES

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Philip 'F' Gibber

This work is accepted as fulfilling
the thesis requirements for the degree of
MASTER OF SCIENCE
IN
AERONAUTICAL ENGINEERING
from the
United States Naval Postgraduate School

ABSTRACT

One method of solving the problem of burning or combustion at supersonic speed is by combusting in a stationary detonation wave. Stabilization of a detonation wave has been recently accomplished and is reproducible, but only in laboratory type apparatus.

Using two-dimensional steady flow, perfect gas theory, this paper provides solutions for the changes in properties that may be expected across any oblique detonation wave. Equations are established and solved using the Control Data Corporation 1604 digital computer of the U. S. Naval Post-graduate School, Monterey, California, for different values of specific heat ratio, initial Mach number, a function of the flow deflection angle, and the amount of heat added in the detonation. The results appear in tabular form and for several specific values of Mach number and heat addition in graphical form. An example of use of the data is shown with reference to a ramjet engine operating with a stationary detonation wave for the combustion process.

The author wishes to express his sincere appreciation to Professor Michael H. Vavra for his encouragement, supervision, and patience during the period of this work.

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TABLE OF SYMBOLS

Symbol

a	Acoustic velocity
a^*	Critical acoustic velocity
M	Mach number
M_1^*	Velocity ratio, v_1/a_1^*
M_2^*	Velocity ratio, v_2/a_2^*
M_{2u}^*	Velocity ratio, u/a_2^*
M_{2v}^*	Velocity Ratio, v/a_2^*
p	Static pressure
p_T	Total pressure
PR21	Pressure ratio, p_2/p_1
PTR21	Total pressure ratio, p_{T2}/p_{T1}
R	Universal gas constant
T	Static temperature ($^{\circ}$ Rankine)
T_T	Total temperature ($^{\circ}$ Rankine)
TR21	Temperature ratio, T_2/T_1
u	Horizontal velocity component of v_2
v	Vertical Velocity component of v_2
V	Velocity
x	M_{2u}^*
y	M_{2v}^*
δ	Heat addition parameter, $(T_{T2}/T_{T1})^{1/2}$
γ	Specific heat ratio
ρ	Density
σ	Detonation (or shock) wave angle
θ	Flow deflection angle

TABLE OF SYMBOLS

Subscripts

1	Before Detonation Wave
2	After Detonation Wave
max	Maximum
min	Minimum
n	Normal
t	Tangential
T	Total (stagnation)
u	In u direction
v	In v direction

CHAPTER I

INTRODUCTION

A detonation wave is a phenomenon which may occur as a result of a combustion process. The difference between a detonation wave and an ordinary deflagration wave or burning is that a detonation wave travels at supersonic velocity whereas a deflagration wave travels at subsonic velocity.

Much has been written about detonation waves.^{1, 2, 3, 4} Recently stationary normal detonation waves have been produced and maintained in a special supersonic wind tunnel⁵.

This thesis evaluates the downstream properties of a plane oblique stationary detonation wave as a function of the initial Mach number, flow deflection angle, and the amount of heat added in the detonation wave. The heat added is represented by a parameter δ , the ratio of the total (stagnation) temperature after the detonation wave, to the total temperature prior to detonation. In addition, properties after the detonation wave are calculated for three values of the specific heat ratio γ , namely 1.2, 1.3, and 1.4.

Due to the complexities of establishing equations for actual flows for which solutions can be found, several basic assumptions have been made in the calculations. It is assumed that:

- 1) The flow is uniform and steady.
- 2) The gas to be burned is an ideal gas, i.e.,
the equation of state

$$pv = RT$$

defines the state of the fluid at any time.

- 3) The friction between the fluid and the wall is considered negligible, or a non-viscous fluid is assumed.
- 4) The entire process is considered to take place in an isolated system. The process is assumed to be adiabatic except for the addition of heat in the detonation.

5) Transport properties such as internal heat transfer by radiation and conduction are neglected.

6) The composition of the fluid and the specific heats are unchanged through the detonation wave, i.e., γ and the universal gas constant, R, remain constant.

Assumption 6) places the most severe restrictions on the applications of the results, but without these simplifications, the equations would become considerably more complicated if at all solvable.

If it proves possible to stabilize detonation waves in a practical manner, several possibilities for their use are imaginable; 1) use of the detonation as a combustion system for a ramjet, and 2) use of the detonation to provide underwing heating as a lift augmentation device or even as a means of primary propulsion.

There are several advantages of detonation wave combustion over conventional combustion in a ramjet. At the present state of the art, velocities of fuel-air mixtures entering a combustion chamber must be subsonic in order to achieve stable burning. This dictates deceleration of the incoming supersonic flow through a diffuser to subsonic speed. In the combustion chamber a flameholder is necessary to insure continuous combustion.

A ramjet operating with a standing detonation wave where the combustion takes place could be smaller and of simpler design. An inlet duct would be necessary to inject and mix fuel into the flow. The supersonic stream could be detonated in a normal detonation wave by spontaneous combustion if temperatures are high enough, or by an electric spark. The velocity after the detonation would be subsonic and would then be accelerated by passing through a converging diverging nozzle. A simplified schematic of such an engine is shown in Fig. 1.

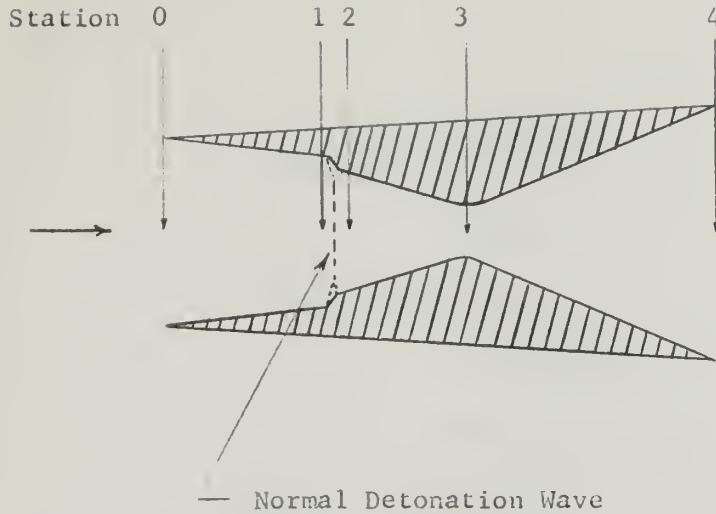


Fig. 1 Schematic of a Detonation Wave Ramjet Engine

The formation of the normal detonation wave between stations 1 and 2 near the wedge at the walls is postulated since such a near normal detonation wave has been stabilized, observed and reproduced⁵.

Fig. 2 shows an example of a ramjet engine using an oblique detonation wave for a combustion process. In this engine fuel is mixed with a supersonic incoming stream. An oblique detonation wave is formed at a conically pointed body. After the detonation wave the flow is of sonic velocity or greater and is then expanded to higher velocity.

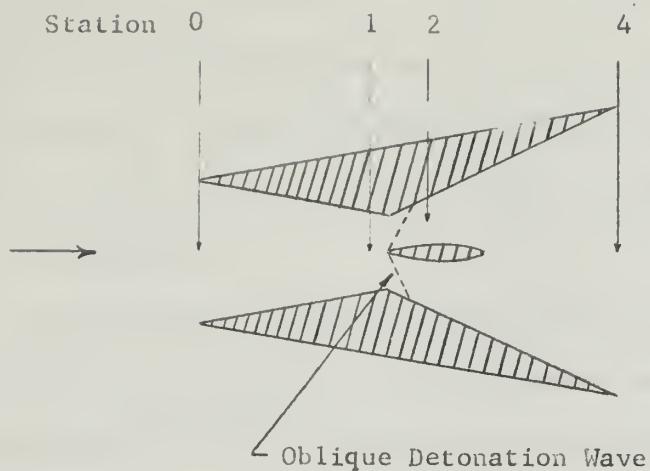


Fig. 2 Schematic of a
Detonation Wave Ramjet

Fig. 3 is a concept of Sargent and Gross⁶. In Fig. 3 a free stream of Mach 6 is decelerated to Mach 4.0 and is detonated such that the products of detonation have sonic velocity. This flow is then accelerated in a nozzle.

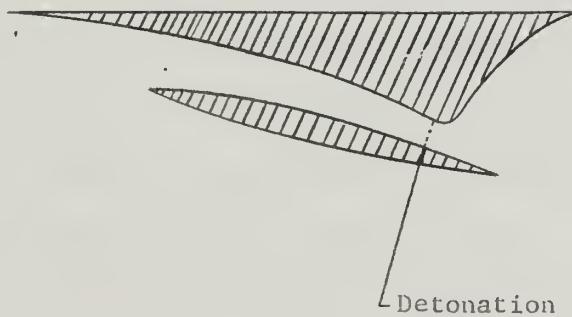


Fig. 3 Schematic of a Detonation
Wave Ramjet Engine

It has been theorized⁷ that the conventional subsonic burning ramjet engine will have a greater efficiency up to Mach numbers of 7 to 8. Above Mach 8 the efficiency of the supersonic combustion ramjet will be greater.

Experiments in supersonic combustion have been conducted with successful results without using detonation.^{8,9,10,11} Aluminum borohydride was burned under the surface of a wing and a flat plate in a wind tunnel in the Mach 2.4 to 3.0 range. It was found that underwing heating increased the static pressure in the heated area. This pressure increase resulted in an increased lift and lift-drag ratio. The added lift could be used to increase the rate of climb, decrease the wing area needed, or if intermittent burning is considered, as a means of controlling or increasing the maneuverability of a missile or ramjet at high altitude. With a specially designed airfoil underwing heating provides a method of propulsion¹⁰ as shown in Fig. 4. The similarity with Fig. 3 may be noted.

A detonation wave may be a possible method of adding the heat necessary for underwing heating.



Fig. 4 Schematic of Supersonic
Burning Under a Wing

CHAPTER II

ANALYSIS OF PROBLEM

1. Classical Shock Polar.

The solution to the problem of finding the properties of an oblique detonation wave is made along lines similar to those used for establishing the classical shock polar. The shock polar is used for determining properties after an oblique shock wave if no heat is added to the system. Fig. 5 depicts a wedge of flow deflection angle σ in a supersonic stream of velocity V_1 . An oblique shock wave forms at an angle σ , at

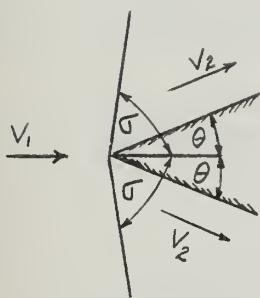


Fig. 5 A Wedge in a Supersonic Flow

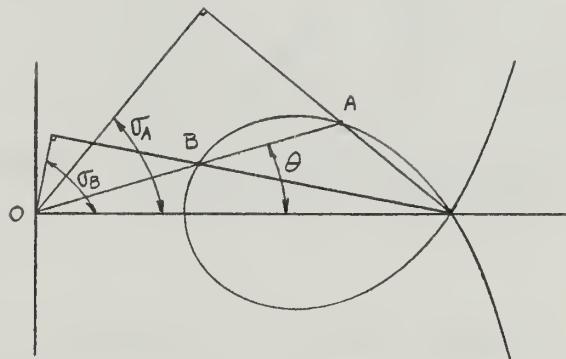


Fig. 6 Shock Polar Diagram

the apex of the wedge. Behind the shock wave the velocity V_2 , is shown at an angle θ . For a given V_1 Fig. 6 represents a typical shock polar diagram for a flow such as that of Fig. 5. For a flow deflection angle σ , OA and OB represent the two possible values of V_2 . The ordinate and abscissa represent

the vertical and horizontal components of V_2 , and σ_A and σ_B the possible shock wave angles. Fig. 5 and Fig. 6 are both symmetrical about the horizontal axis.

2. Detonation Polar.

If the shock in Fig. 5 is not considered to occur at constant total temperature or if the shock may be considered a detonation, the velocities of the fluid may be shown as in Fig. 7 and Fig. 8. Fig. 7 shows

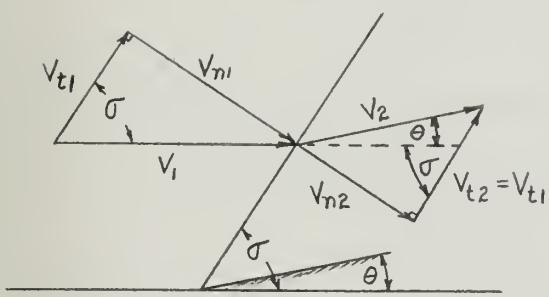


Fig. 7 Velocities across a Detonation Wave

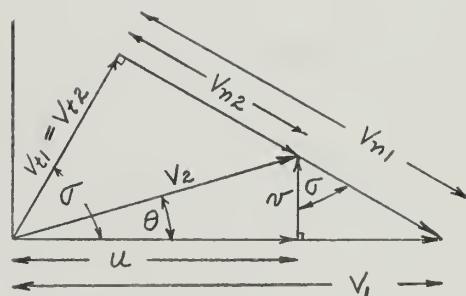


Fig. 8 Velocities across a Detonation Wave Superimposed

the velocities and their components as they would appear relative to the detonation wave and Fig. 8 shows them superimposed. Due to the symmetry about the horizontal axis only half the flow is shown. For such a detonation wave the law of conservation of mass can be applied normal to the detonation wave if it is assumed that the entire combustion takes place in the detonation wave and that the detonation wave is infinitesimally thin. Thus

$$\rho_1 V_{n1} = \rho_2 V_{n2} \quad (1)$$

Application of the conservation of momentum parallel to the detonation wave shows that the tangential components of the velocities, that is, the components parallel to the detonation wave, must be the same on both sides of the wave or

$$v_{t1} = v_{t2}$$

Likewise the conservation of momentum applied normal to the detonation wave can be written

$$p_1 + \rho_1 V_{n1}^2 = p_2 + \rho_2 V_{n2}^2 \quad (2)$$

Dividing Eq. 2 by Eq. 1 and rearranging

$$\frac{p_2}{\rho_2 V_{n2}} - \frac{p_1}{\rho_1 V_{n1}} = V_{n1} - V_{n2} \quad (3)$$

From $a^2 = \gamma RT$

and the equation of state

$$\frac{p}{\rho} = RT = \frac{a^2}{\gamma} \quad (4)$$

substitution into Eq. 3, for the appropriate subscripted values of $\frac{p}{\rho}$ and multiplying through by V_{n1} , gives

$$\frac{\alpha_2^2 V_{n1}}{\gamma V_{n2}} - \frac{\alpha_1^2}{\gamma} = V_{n1}(V_{n1} - V_{n2}) \quad (5)$$

From Fig. 5

$$\sin \sigma = \frac{V_{n1}}{V_t} = \frac{V_t - u}{V_{n1} - V_{n2}}$$

and

$$V_{n1}(V_{n1} - V_{n2}) = V_t(V_t - u) \quad (6)$$

or

$$\frac{V_{n2}}{V_{n1}} = 1 - \frac{V_t(V_t - u)}{V_{n1}^2} \quad (7)$$

From Fig. 8

$$\tan \sigma = \frac{V_t - u}{v} = \frac{V_{n1}}{V_t} = \frac{V_{n1}}{\sqrt{V_t^2 - V_{n1}^2}}$$

and

$$V_{n1}^2 v^2 = (V_t - u)^2 (V_t^2 - V_{n1}^2)$$

or

$$V_{n1}^2 v^2 = V_t^2 (V_t - u)^2 - V_{n1}^2 (V_t - u)^2$$

and

$$\frac{1}{V_{n1}^2} = \frac{v^2 + (V_t - u)^2}{V_t^2 (V_t - u)^2} \quad (8)$$

Substituting Eq. 8 into the right side of Eq. 7

$$\frac{V_{n2}}{V_{n1}} = \frac{u(V_t - u) - v^2}{V_t(V_t - u)}$$

or

$$\frac{V_{n1}}{V_{n2}} = \frac{V_i(V_i-u)}{u(V_i-u)-v^2} \quad (9)$$

Substituting Eq. (9) and Eq. (6) into Eq. (5)

$$a_2^2 \left[\frac{V_i(V_i-u)}{u(V_i-u)-v^2} \right] - a_i^2 = V_i(V_i-u)\gamma \quad (10)$$

In order to correlate the quantity of heat added in the detonation wave to the velocities and acoustic velocities before and after the detonation wave, a transformation to a new reference system is desirable. Considering the flow before the detonation wave as having originated in a reservoir, then for a given reservoir condition the relation between the acoustic velocity a_o , of the fluid in the reservoir and the critical acoustic velocity a^* for an isentropic process is

$$a^*^2 = \frac{2}{\gamma+1} a_o^2$$

The relation between reservoir conditions and conditions at any point in an isentropic flow is

$$\frac{a^2}{\gamma-1} + \frac{V^2}{2} = \frac{a_o^2}{\gamma-1}$$

where a and V refer to any point in the flow.

Elimination of a_o from these equations results in

a relation between a , a^* , and v , namely

$$a^2 = \left(\frac{\gamma+1}{2}\right) a^{*2} - \left(\frac{\gamma-1}{2}\right) v^2 \quad (11)$$

Using Eq. 11 with proper subscripts, a_1 and a_2 can be eliminated from Eq. 10 and

$$\begin{aligned} & \left[\left(\frac{\gamma+1}{2}\right) a_2^{*2} - \left(\frac{\gamma-1}{2}\right) V_2^2 \right] \left[\frac{v_i(v_i-u)}{u(v_i-u)-v^2} \right] - \left[\left(\frac{\gamma+1}{2}\right) a_1^{*2} - \left(\frac{\gamma-1}{2}\right) V_1^2 \right] \\ & \qquad \qquad \qquad = V_i(v_i-u)\gamma \end{aligned} \quad (12)$$

with

$$V_2^2 = u^2 + v^2 \quad (13)$$

The quantity V_2 may be eliminated from Eq. 12.

Substituting Eq. 12 into Eq. 13 and expanding yields

$$\begin{aligned} & \left[(\gamma+1) a_2^{*2} - (\gamma-1)(u^2+v^2) \right] \left[V_i(v_i-u) \right] \\ & - \left[(\gamma+1) a_1^{*2} - (\gamma-1)V_1^2 \right] \left[u(v_i-u) - v^2 \right] \\ & \qquad \qquad \qquad = 2V_i\gamma(v_i-u) [u(v_i-u) - v^2] \end{aligned}$$

or

$$\begin{aligned} & \left[(\gamma+1) a_2^{*2} v_i(v_i-u) \right] - \left[(\gamma-1) u^2 V_i(v_i-u) \right] \\ & - \left[(\gamma-1) v^2 V_i(v_i-u) \right] - \left[(\gamma+1) a_1^{*2} u(v_i-u) \right] \\ & + \left[(\gamma+1) a_1^{*2} v^2 \right] + \left[(\gamma-1) V_1^2 u(v_i-u) \right] - \left[(\gamma-1) V_1^2 v^2 \right] \\ & - \left[2\gamma V_i u(v_i-u)^2 \right] + \left[2\gamma V_i(v_i-u)v^2 \right] = 0 \end{aligned}$$

Solving for v^2

$$v^2 =$$

$$\frac{(V_1 - u) \left[(\gamma + 1) \alpha_2^{*2} V_1 - (\gamma - 1) u^2 V_1 - (\gamma + 1) \alpha_1^{*2} u + (\gamma - 1) V_1 u - 2\gamma V_1 u (V_1 - u) \right]}{(\gamma - 1) V_1 (V_1 - u) - (\gamma + 1) \alpha_1^{*2} + (\gamma - 1) V_1^2 - 2\gamma V_1 (V_1 - u)}$$

$$v^2 = \frac{(V_1 - u) \left[(\gamma + 1) \left\{ \alpha_2^{*2} V_1 - \alpha_1^{*2} u - V_1 u (V_1 - u) \right\} \right]}{- (\gamma + 1) \alpha_1^{*2} - 2V_1^2 + u V_1 (\gamma + 1)}$$

$$v^2 = \frac{(V_1 - u)^2 \left[u - \frac{(\alpha_2^{*2} V_1 - \alpha_1^{*2} u)}{V_1 (V_1 - u)} \right]}{\frac{\alpha_1^{*2}}{V_1} + \left(\frac{2}{\gamma + 1} \right) V_1 - u} \quad (14)$$

It is customary and useful to express supersonic velocities by non-dimensional velocity ratios. These velocity ratios can be used to eliminate α_1^{*2} and α_2^{*2} as working parameters and simultaneously introduce the heat addition parameter δ . To accomplish this let, by definition

$$M_{2v}^* = \frac{v}{\alpha_2^*} \quad (15)$$

$$M_{2u}^* = \frac{u}{\alpha_2^*} \quad (16)$$

$$M_1^* \equiv \frac{V_1}{\alpha_1^*} \quad (17)$$

$$\delta^2 = \frac{T_{T2}}{T_{T1}} \quad (18)$$

where the designation M^* means a velocity ratio based on a critical acoustic velocity of a fluid in a reservoir. The parameter δ is a measure of the heat added by combustion during the detonation.

Assuming that the specific heats remain unchanged by the combustion, δ is also proportional to the ratio of total enthalpies after and before the detonation wave.

With

$$a_1^{*2} = \left(\frac{\gamma}{\gamma+1}\right) a_0^2 = \left(\frac{\gamma}{\gamma+1}\right) \gamma R T_{T1}$$

and

$$a_2^{*2} = \left(\frac{\gamma}{\gamma+1}\right) \gamma R T_{T2}$$

there is

$$\frac{a_2^{*2}}{a_1^{*2}} = \frac{T_{T2}}{T_{T1}} = \delta^2 \quad (19)$$

Substitution of Eq. 15, Eq. 16, Eq. 17, and Eq. 19 into Eq. 14 yields the following series of equations

$$\frac{v^2 a_2^{*2}}{a_2^{*2}} = \frac{\left(V_1 a_1^{*2} - u a_2^{*2}\right)^2 \left[u \frac{d_2^{*2}}{a_2^{*2}} - \frac{a_2^{*2} V_1 \frac{d_1^{*2}}{a_1^{*2}}}{V_1 \frac{d_1^{*2}}{a_1^{*2}} \left(V_1 \frac{d_1^{*2}}{a_1^{*2}} - u \frac{d_2^{*2}}{a_2^{*2}}\right)} - a_1^{*2} u \frac{d_2^{*2}}{a_2^{*2}}\right]}{\frac{d_1^{*2}}{V_1} + \left(\frac{\gamma}{\gamma+1}\right) V_1 \frac{d_1^{*2}}{a_1^{*2}} - u \frac{d_2^{*2}}{a_2^{*2}}} .$$

or

$$M_{2r}^{*2} \alpha_2^{*2} = \frac{(M_1^{*2} - M_{2u}^{*2})^2}{\frac{1}{M_1^{*2}} + \left(\frac{2}{\gamma+1}\right) M_1^{*2} \alpha_1^{*2} - M_{2u}^{*2} \alpha_2^{*2}} \left[M_{2u}^{*2} \alpha_2^{*2} - \frac{(M_1^{*2} \alpha_1^{*2} - M_{2u}^{*2} \alpha_2^{*2})^2}{M_1^{*2} \alpha_1^{*2} (M_1^{*2} \alpha_1^{*2} - M_{2u}^{*2} \alpha_2^{*2})} \right]$$

$$M_{2v}^{*2} = \frac{\left(\frac{M_1^{*2}}{\delta} - M_{2u}^{*2}\right)^2}{\frac{1}{M_1^{*2}} + \left(\frac{2}{\gamma+1}\right) M_1^{*2} - \delta M_{2u}^{*2}} \left[M_{2u}^{*2} \delta - \frac{\delta^2 M_1^{*2} - \delta M_{2u}^{*2}}{M_1^{*2} (M_1^{*2} - \delta M_{2u}^{*2})} \right]$$

$$M_{2v}^{*2} = \frac{\left(M_1^{*2} - \delta M_{2u}^{*2}\right)^2}{\delta \left[\frac{1}{M_1^{*2}} + \left(\frac{2}{\gamma+1}\right) M_1^{*2} - M_{2u}^{*2} \delta\right]} \left[M_{2u}^{*2} - \frac{(\delta M_1^{*2} - M_{2u}^{*2})}{M_1^{*2} (M_1^{*2} - \delta M_{2u}^{*2})} \right]$$

$$M_{2v}^{*2} = \frac{\left(M_1^{*2} - \delta M_{2u}^{*2}\right) \left[M_{2u}^{*2} (M_1^{*2} - \delta M_{2u}^{*2}) - \frac{(\delta M_1^{*2} - M_{2u}^{*2})}{M_1^{*2}}\right]}{\delta \left[\frac{1}{M_1^{*2}} + \left(\frac{2}{\gamma+1}\right) M_1^{*2} - \delta M_{2u}^{*2}\right]} \quad (20)$$

This equation is the basic relation between the properties ahead of and after the oblique detonation wave. Introducing

$$x \equiv M_{2u}^{*2}$$

$$y \equiv M_{2v}^{*2}$$

substitution yields

$$y^2 = \frac{(M_1^{*2} - \delta x) \left[x (M_1^{*2} - \delta x) - \frac{(\delta M_1^{*2} - x)}{M_1^{*2}} \right]}{\delta \left[\frac{1}{M_1^{*2}} + \left(\frac{2}{\gamma+1}\right) M_1^{*2} - \delta x \right]} \quad (20a)$$

In equation Eq. 20a y is given as a function of δ , M_1^{*2} , γ , and x . When the heat addition parameter δ is unity,

i.e., if no heat is added, the equation reduces to that of the shock polar. When γ is greater than unity, however, the curve of the equation has two non-intersecting branches. One part is an ellipselike curve which shall henceforth be called the loop branch. The other part has a range of y values from plus infinity to minus infinity for finite values of x . This part shall be referred to as the infinite branch. Typical examples of the graph of Eq. 20a for a given γ and M_1^* are shown in Fig. 9 for values of γ of unity and greater than unity.

The velocity ratio M_1^* appears in Eq. 20a and also in later equations and calculations. A relation to transform M_1^* to M_1 and vice versa is useful and desirable. By definition

$$M_1^* \equiv \frac{V_1}{\alpha_1} = M_1 \frac{\alpha_1}{\alpha_1^*} \quad (21)$$

and

$$M_1^* \stackrel{*2}{=} M_1^2 \left(\frac{\alpha_1}{\alpha_1^*} \right)^2$$

From Eq. 11 $a_1^2 = \left(\frac{\gamma+1}{2} \right) \alpha_1^{*2} - \left(\frac{\gamma-1}{2} \right) V_1^2$

$$a_1^2 = \left(\frac{\gamma+1}{2} \right) \left(\frac{\alpha_1}{\alpha_1^*} \right)^2 - \left(\frac{\gamma-1}{2} \right) M_1^2 \quad (22)$$

$$\left(\frac{\alpha_1}{\alpha_1^*} \right)^2 = \frac{\gamma+1}{2 + (\gamma-1) M_1^2}$$

Therefore

$$M_1^* \stackrel{*2}{=} \frac{M_1^2 (\gamma+1)}{2 + (\gamma-1) M_1^2} \quad (23)$$

and

$$M_1^2 = \frac{2 M_1^{*2}}{(\gamma+1) - (\gamma-1) M_1^{*2}} \quad (24)$$

Eq. 23 shows that as M_1 approaches an infinitely large value, M_1^* approaches a finite limit of

$$M_1^* = \sqrt{\frac{\gamma+1}{\gamma-1}}$$

In particular, for $\gamma = 1.4$

$$M_1^* = \sqrt{6} = 2.4495$$

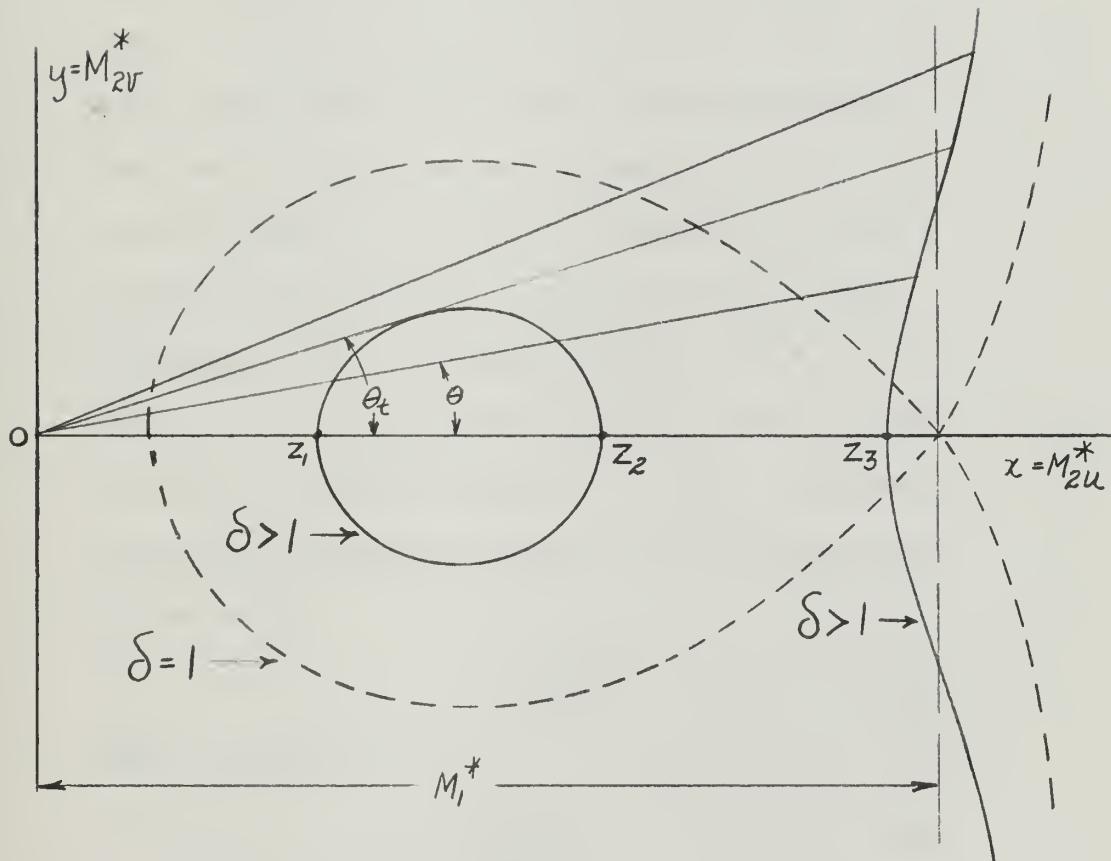


Fig. 9 Detonation Polar Diagram

Eq. 23 is shown in graphical form in Fig E-1 in Appendix E.

3. Discussion of Detonation Polar Equation.

The general form of Eq. 20a is that of a cubic

$$y^2 = f(x^3)$$

Such a curve may have three values of x at which y is zero or at which the curve crosses the x axis. For given values of M_1^* , δ , and γ these zero values are fixed. The minimum and maximum values of x on the loop branch, Z_1 and Z_2 respectively on Fig. 9, are found by setting the right hand bracket of the numerator to zero. For heat addition, $\delta > 1$, the values of x are always less than M_1^* . With no heat addition the maximum value of x is M_1^* . The general equation for finding the zeros of the loop branch may be reduced to

$$x = A \pm \sqrt{A^2 - 1} \quad (25)$$

where A is defined by

$$A \equiv \frac{M_1^{*2} + 1}{2\delta M_1^*} \quad (26)$$

From Eq. 25 and Eq. 26 it is seen that there exists a maximum value of δ or a maximum amount of heat which

can be added in the detonation wave for any given value of M_1^* . When A of Eq. 26 is equal to unity the loop branch degenerates to a single point. At values less than unity the solution becomes imaginary and the loop branch disappears completely. δ_{\max} , the maximum value of δ , is found from Eq. 26 for $A = 1$ by

$$\delta_{\max} = \frac{M_1^{*2} + 1}{2M_1^{*}} \quad (27)$$

The third zero, Z_3 on Fig. 9, is found by equating the left hand bracket of the numerator to zero so that

$$x = -\frac{M_1^{*}}{\delta} \quad (28)$$

This value of x is also less than M_1^* for $\delta > 1$. When $\delta = 1$, x reaches a maximum equal to M_1^* and the points Z_2 and Z_3 coalesce. Eq. 27 and Eq. 28 show that for values of $\delta > \delta_{\max}$, the infinite branch exists although the loop branch has disappeared.

A fourth value of interest is the value of x at which y becomes infinite, i.e., the value of x which makes the denominator of Eq. 20a zero. This is

$$x = \left[\frac{1}{M_1^{*}} + \left(\frac{2}{\delta+1} \right) M_1^{*} \right] \frac{1}{\delta} \quad (29)$$

Eq. 29 gives the maximum possible value of x for any given γ , M_1^* , and δ , and may be $\gtrsim M_1^*$ depending upon the amount of heat added in the detonation wave.

In the shock polar of Fig. 6, OA represents the velocity V_2 . θ represents the flow deflection angle.

In the detonation polar a position line, a line drawn from the origin ($x = 0$, $y = 0$) to any point on the detonation polar, represents a function of V_2 and δ .

θ remains the flow deflection angle. As can be seen in Fig. 9, there are three distinct cases and/or ranges of θ . In the first case θ varies from 0° to θ_t , the angle at which a position line is tangent to the loop branch. The second case is $\theta = \theta_t$, and in the third case $\theta > \theta_t$. All three conditions exist in the shock polar also. A position line intersects the infinite branch once, twice, or not at all. In the shock polar the intersection with the infinite branch can be eliminated as a possible solution since this part of the curve corresponds to values of V_2 greater than V_1 . Such an increase in velocity across a shock wave would be accompanied by a decrease in entropy, a violation of the second law of thermodynamics.

In the detonation polar the intersection of a position line with the infinite branch also produces solutions inconsistent with the second law of thermodynamics. By definition

$$x = \frac{u}{d_2^*} \leq \frac{v_2}{d_2^*}$$

Across a detonation wave $v_1 > v_2$ so that

$$x \leq \frac{v_2}{d_2^*} < \frac{v_1}{d_2^*} \quad (30)$$

By tautology, Eq. 19, and Eq. 17,

$$\frac{v_1}{d_2^*} = \frac{v_1}{d_2^*} \frac{d_2^*}{d_1^* \delta} = \frac{M_1^*}{\delta}$$

Substitution in Eq. 30 gives

$$x < \frac{M_1^*}{\delta} \quad (31)$$

Eq. 28 shows that the minimum value of x on the infinite branch is $\frac{M_1^*}{\delta}$ or

$$x \geq \frac{M_1^*}{\delta} \quad (32)$$

Comparison of the inequalities of Eq. 31 and Eq. 32 show the infinite branch of the detonation polar to correspond to solutions where $v_2 > v_1$. Thus the infinite branch is of no practical value for determining properties after an oblique detonation wave.

A position line generally intersects the loop branch of the detonation polar at two points, corresponding to weak and strong detonation waves. Each point determines the possible properties of the flow after the detonation wave. The values corresponding to points on the detonation polar are the principal subject of this thesis and

will be treated subsequently.

When $\theta = \theta_t$, the position line is tangent to the loop branch, and only one possible condition may exist after the detonation wave. Values of $\theta > \theta_t$ correspond to a detached shock wave in the shock polar. Similarly for the detonation polar it may be theorized that a detached detonation wave would form for $\theta > \theta_t$ but this occurrence would have to be verified by experimental evidence.

For the range θ to θ_t , using Eq. 20a as a basis for the conditions across a detonation wave, the properties of state after the detonation wave can be established.

4. Temperature Ratios.

By definition the total temperature ratio is

$$\frac{T_{T2}}{T_{T1}} = \delta^2$$

The total temperature is related to the static temperature by

$$T_T = T \left[1 + \left(\frac{\gamma-1}{2} \right) M^2 \right] \quad (33)$$

For simplicity, let

$$D = 1 + \left(\frac{\gamma-1}{2} \right) M^2 \quad (34)$$

hence,

$$T_T = TD$$

The static temperature ratio is therefore

$$\frac{T_2}{T_1} = \frac{T_{T2} D_1}{T_{T1} D_2} = \delta^2 \frac{D_1}{D_2} \quad (35)$$

5. Pressure Ratios.

With

$$\frac{P_2}{P_1} = \frac{\rho_2 R T_2}{\rho_1 R T_1}$$

Eq. 35 gives

$$\frac{P_2}{P_1} = \delta^2 \frac{\rho_2 D_1}{\rho_1 D_2}$$

Using the density ratio of Eq. 1

$$\frac{P_2}{P_1} = \delta^2 \frac{V_{n1} D_1}{V_{n2} D_2}$$

From Eq. 9 the ratio of the velocities normal to the detonation wave is expressed by

$$\frac{P_2}{P_1} = \left[\frac{v_i(v_i - u)}{u(v_i - u) - v^2} \right] \delta^2 \frac{D_1}{D_2}$$

By tautology, definition of Mach number, Eq. 19 and

$$\frac{d_2^2}{d_1^2} = \delta^2 \frac{D_1}{D_2}$$

there is

$$\frac{P_2}{P_1} = \delta^2 \frac{D_1}{D_2} \left[\frac{M_1^2 d_1^2 - M_1 M_{2u} d_1 d_2}{M_1 M_{2u} d_1 d_2 - M_{2u}^2 d_2^2 - M_{2v}^2 d_2^2} \right]$$

and

$$\frac{P_2}{P_1} = \delta^2 \frac{D_1}{D_2} \left[\frac{M_1^2 - M_1 M_{2u} \delta \left(\frac{D_1}{D_2} \right)^{1/2}}{M_1 M_{2u} \delta \left(\frac{D_1}{D_2} \right)^{1/2} - M_2^2 \delta^2 \left(\frac{D_1}{D_2} \right)} \right]$$

The static pressure ratio can then be calculated from

$$\frac{P_2}{P_1} = \delta \left(\frac{D_1}{D_2} \right)^{\frac{1}{2}} \left[\frac{M_1^2 - M_1 M_2 u \delta \left(\frac{D_1}{D_2} \right)^{\frac{1}{2}}}{M_1 M_2 u - M_2 \delta \left(\frac{D_1}{D_2} \right)^{\frac{1}{2}}} \right] \quad (36)$$

or

$$\frac{P_2}{P_1} = \delta \left(\frac{D_1}{D_2} \right)^{\frac{1}{2}} \left[\frac{M_1^2 - M_1 M_2 \cos \theta \delta \left(\frac{D_1}{D_2} \right)^{\frac{1}{2}}}{M_1 M_2 \cos \theta - M_2^2 \delta \left(\frac{D_1}{D_2} \right)^{\frac{1}{2}}} \right] \quad (37)$$

The total pressure is related to the static pressure by

$$P_T = P \left[1 + \left(\frac{\gamma-1}{2} \right) M^2 \right]^{\frac{\gamma}{\gamma-1}} = P D^{\frac{\gamma}{\gamma-1}} \quad (38)$$

and

$$\frac{P_{T2}}{P_{T1}} = \frac{P_2}{P_1} \left(\frac{D_2}{D_1} \right)^{\frac{\gamma}{\gamma-1}} \quad (39)$$

6. Flow Deflection Angle and Detonation Wave Angle.

The flow deflection angle θ is

$$\theta = \tan^{-1} \left(\frac{y}{x} \right) \quad (40)$$

The detonation wave angle σ may be found from the geometry of Fig. 8

$$\tan \sigma = \frac{v_i - u}{v} = \frac{v_i}{v} - \frac{u}{v}$$

Conversion to the starred system gives

$$\tan \sigma = \frac{v_i \alpha_i^* \alpha_2^*}{v \alpha_i^* \alpha_2^*} - \cot \theta = \frac{M_i \alpha_i^*}{y \alpha_2^*} - \cot \theta$$

and

$$\sigma = \tan^{-1} \left(\frac{M_1^*}{y \delta'^2} - \frac{x}{y} \right) \quad (41)$$

7. Mach number after a detonation wave.

The Mach number of the flow after the detonation wave is found as a function of x and y . From Eq. 24

$$M_2^2 = \frac{2 M_2^{*2}}{(\gamma+1) - (\gamma-1) M_2^{*2}}$$

With

$$M_2^{*2} = x^2 + y^2 \quad (42)$$

then

$$M_2^2 = \frac{2(x^2 + y^2)}{(\gamma+1) - (\gamma-1)(x^2 + y^2)}$$

The components of M_2 , namely M_{2u} and M_{2v} are

$$M_{2u} = M_2 \cos \theta$$

$$M_{2v} = M_2 \sin \theta$$

CHAPTER III

CALCULATIONS AND RESULTS

1. Calculations.

Properties concerning the oblique detonation wave, namely M_2 , θ , σ , $\frac{P_2}{P_1}$, $\frac{P_{T2}}{P_{T1}}$, and $\frac{T_2}{T_1}$ were calculated for given values of γ , M_1 , δ , and x , using a Control Data Corporation 1604 digital computer. A program was composed for a specific γ . M_1 , δ , and x were allowed to assume a range of suitable values for three values of γ . These ranges are given in Table I.

TABLE I

Ranges or Values of Parameters	
Parameter	Range of Values
γ	1.2, 1.3, 1.4
M_1	1.5 to 5.0 by increments of 0.50 8.0 to 14.0 by increments of 3.00
δ	1.0 to δ_{\max} by increments of 0.04 or 0.08
x	x_{\min} to x_{\max} by increments of 0.03 or 0.05

where

δ_{\max} is defined by Eq. 27

x_{\min} is the Z_1 value of Fig. 9 and is defined by Eq. 25

x_{\max} is the Z_2 value of Fig. 9 and is defined by Eq. 25

For the given set of conditions γ , M_1 , δ , and x , the order of calculation and the equations used are given in Table II.

TABLE II	
Order of Calculations	
Parameter	Equation Number
1) M_1^*	23
2) y	20a
3) θ	40
4) σ	41
5) M_2^*	42
6) M_2	24
7) T_2/T_1	35
8) P_2/P_1	37
9) P_{T2}/P_{T1}	39

The Fortran program used for the above calculations appears in Appendix F.

2. Results.

For given values of γ , M_1 , δ , and x (as indicated in Table I) the conditions defining the flow after an oblique detonation wave are shown in tabular form in Appendices G, H, and I. These properties are θ , M_2 , σ , P_2/P_1 , P_{T2}/P_{T1} , and T_2/T_1 . For several select values of γ , M_1 , and δ graphs of these conditions are

shown in Appenices A through D. With one notable exception the graphs are shown with x ($M_2^* u$) as the abscissa. Selections of the graphs of σ versus x were unintelligible in several cases. When this occurred the flow deflection angle θ was used as an abscissa.

CHAPTER IV

APPLICATIONS

The main application of the data presented in the appendices is the prediction of properties following a stationary oblique detonation wave which has formed on a wedge-like body in a supersonic stream. The actual physical establishment of such waves has been performed only on a small scale in special laboratory apparatus and only the normal detonation wave has been stabilized. Many experiments will be necessary to determine methods by which oblique detonation waves may be stabilized. Estimations of expected temperatures and pressures will be valuable in such experiments. Maximum values of wedge angles and the amount of heat that may be added for a given pre-detonation velocity should also prove useful.

The data in the appendices may also be used to give a first approximation in calculating or comparing the performance of detonation wave ramjet engines. As an example let the engines of Fig. 1 and Fig. 2 be denoted as A and B respectively. Consider these engines flying at an altitude of 50,000 feet at Mach 5. Table III gives the state of the flowing stream at various stations in these engines under the following assumptions:

- 1) Flow conditions at stations 0 and 1 are the same.
- 2) In engine A, a normal detonation wave occurs

TABLE III
FLOW CONDITIONS IN A RAMJET ENGINE

Altitude: 50,000 feet

Velocity: Mach 5

δ : 1.2

γ : 1.4

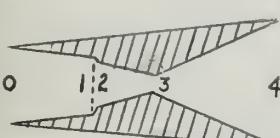
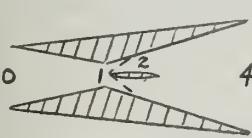
Configuration	Station	0	1	2	3	4
Ramjet A 	M	5	5	.587	1	2.88
	p (psia)	1.685	1.685	41.00	29.35	1.685
	p _T (psia)	890	890	51.7	51.7	51.7
	T (°R)	390	390	3150	2805	1050
	T _T (°R)	2340	2340	3370	3370	3370
	a (ft/sec.)	968.5				1592
	V (ft/sec.)	4843				4590
Ramjet B 	M	5	5	1		2.99
	p (psia)	1.685	1.685	32.1		1.685
	p _T (psia)	890	890	61.0		61.0
	T (°R)	390	390	2805		1210
	T _T (°R)	2340	2340	3370		3370
	a (ft/sec)	968.5				1710
	V (ft/sec)	4843				5130
Specific Impulse 8.90 lb-sec/lb	Area (cross-sectional)	A ₀	A ₀	A ₀		4.19A ₀

TABLE IV
FLOW CONDITIONS IN A RAMJET ENGINE

Altitude: 50,000 feet

Velocity: Mach 5

γ : 1.4

δ : 1.2

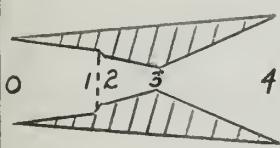
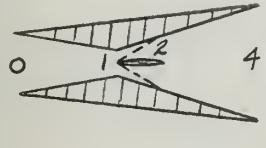
Configuration	Station	0	1	2	3	4
Ramjet A 	M	5	3	.72	1	4.03
	p (psia)	1.685	24.2	182	141.5	1.685
	p _T (psia)	890	890	268	268	268
	T (°R)	390	835	3100	2805	782
	T _T (°R)	2340	2340	3370	3370	3370
	a(ft/sec.)	968.3				1386
	V(ft/sec.)	4843				5600
	Area(cross-sectional)	Ao	.169Ao	.169Ao	.157Ao	1.69Ao
Specific Impulse 23.5 lb-sec/lb 	M	5	3	1		4.38
	p (psia)	1.685	24.2	148		1.685
	p _T (psia)	890	890	2795		279.5
	T (°R)	390	835	2805		780
	T _T (°R)	2340	2340	3370		3370
	a(ft/sec.)	968.5				1380
	V(ft/sec.)	4843				6050
	Area(cross-sectional)	Ao	.169Ao	.169Ao		2.53Ao

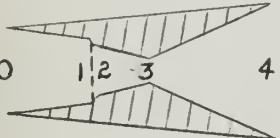
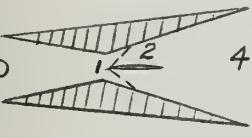
TABLE V
FLOW CONDITIONS IN A RAMJET ENGINE

Altitude: 100,000 feet

Velocity: Mach 8

γ : 1.4

δ : 1.2

Configuration	Station	0	1	2	3	4
Ramjet A 	M	8	3	.750	1	6.60
	P (psia)	.157	42.0	31.8	243.5	.157
	P _T (psia)	1540	1540	462	462	462
	T (°R)	419.6	2065	7480	6950	860
	T _T (°R)	5790	5790	8340	8340	8340
	a(ft/sec.)	1005				1440
	V(ft/sec.)	8040				9500
	Area(cross-sectional)	A ₀	.0223A ₀	.0223A ₀	.0209A ₀	1.75A ₀
Specific Impulse 45.4 lb-sec/lb 	Station	0	1	2		4
	M	8	3	1		6.71
	P (psia)	.157	42.0	256		.157
	P _T (psia)	1540	1540	484		484
	T (°R)	419.6	2065	6940		834
	T _T (°R)	5790	5790	8340		8340
	a(ft/sec.)	1005				1417
	V(ft/sec.)	8040				9500
45.4 lb-sec/lb	Area(cross-section)	A ₀	.0223A ₀	.0223A ₀		1.99A ₀

between stations 1 and 2. In engine B, an oblique detonation wave occurs between stations 1 and 2 such that $M_2 = 1$.

- 3) The properties across the detonation wave may be determined from Appendix G ($\gamma = 1.4$) for a δ of 1.2 or total temperature ratio of 1.44.
- 4) Engine A is choked at station 3, i.e., $M_3 = 1$.
- 5) The flow is fully expanded to ambient pressure by the divergent nozzle so that $P_4 = P_0$.
- 6) The mass flow rate remains constant throughout.
- 7) Except in the detonation wave, the entire cycle is isentropic.

One measure of the performance of a ramjet engine is the specific impulse, the pounds of thrust per pound of air flow per second. From Table III engine A may be seen to have the flow velocity at exit smaller than that at the inlet, $V_4 < V_0$. This is unacceptable. The exit velocity of engine B is greater than the inlet velocity and the specific impulse is 8.90. This is low compared to specific impulse estimations for a conventional type ramjet⁶. Since the exit pressure is fixed at ambient pressure, the total pressure at station 4 is the determining factor for the Mach number at exit. From Appendix G it may be seen that the total pressure losses across detonation waves are smaller at lower Mach numbers. The reason for the converging inlet duct of the ramjet shown in Fig. 3 is now evident.

Let the inlet ducts of engines A and B be such that the stream is isentropically compressed from free stream Mach number M_∞ of 5 to a pre-detonation Mach number M_1 of 3. Other assumptions remain the same as in the examples of Table III. Table IV gives conditions at stations in engines A and B. The specific impulse of A is 23.5 and B is 37.5. As expected, A has a smaller specific impulse due to greater losses in the stronger (normal) detonation wave.

A final example is shown in Table V for ramjet A and B at 100,000 feet and Mach 8. A specific impulse higher than any of the previous cases is shown. The high temperatures associated with hypersonic speeds may be noted. The pre-detonation temperature of $2065^\circ R$ may be sufficient to allow the detonation to occur spontaneously.

The cross-sectional areas were calculated for the engines in Tables III, IV, and V. The range of values of exit to inlet areas is from 1.69 to 4.19. Such sizes seem possible for a ramjet configuration. The inlet duct ratios A_o/A_1 are high, becoming almost 50 for the Mach 8 example. The efficiency or recovery factor of such an inlet duct will not be large.

More accurate values of performance parameters may be obtained by including representative efficiencies for the various stages, and by adjusting mass flow rate and γ appropriately. Performance parameters as specific

fuel consumption, mass flow rate, specific impulse and thermal efficiency can be estimated and optimized for various altitudes, flight Mach number, pre-detonation Mach number and amount of heat addition.

Although the values for the examples of Tables III, IV and V are not exact, they provide rough estimations of what can be expected, and may suggest methods for design improvement or for increasing the performance.

CHAPTER V

CONCLUSIONS

At the present time the interest in stationary detonation waves is primarily academic because of the lack of experimental data. Theoretically the use of detonation waves is a feasible method for supersonic combustion. Supersonic burning has been achieved without resort to detonation and the losses associated with detonation. But expensive, not readily available, exotic fuels such as aluminum borohydride are necessary whereas detonation wave combustion may be accomplished with common hydrocarbon fuels. The temperatures encountered in supersonic combustion are beyond the structural capabilities of any materials now in use. While external combustion or detonation may provide a means to lessen the effects of high temperature, external combustion is also in the theoretical category.

It may be concluded that a detonation wave process in a propulsive unit is a possibility, but it is still a method of the future and will depend on experimental progress in stabilization of detonation waves and technological advances in structural materials.

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APPENDIX A

DETTONATION POLAR

$$\gamma = 1.4$$

$$\delta = 1.04$$

FIG. A-1

$$Y = M_{2u}^*$$

$$M_{1u} = M_1$$

8.0

5.0

4.0

3.5

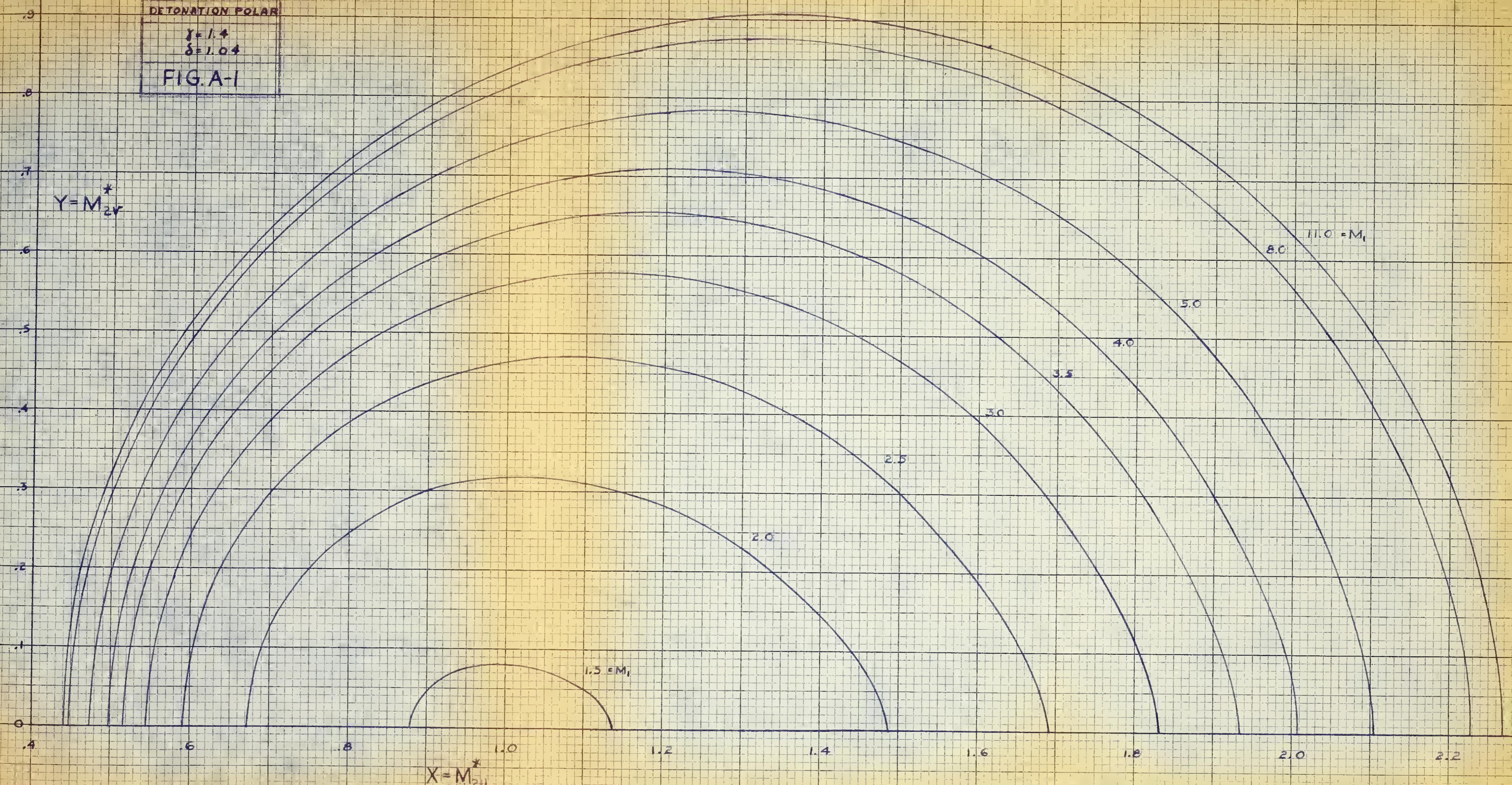
3.0

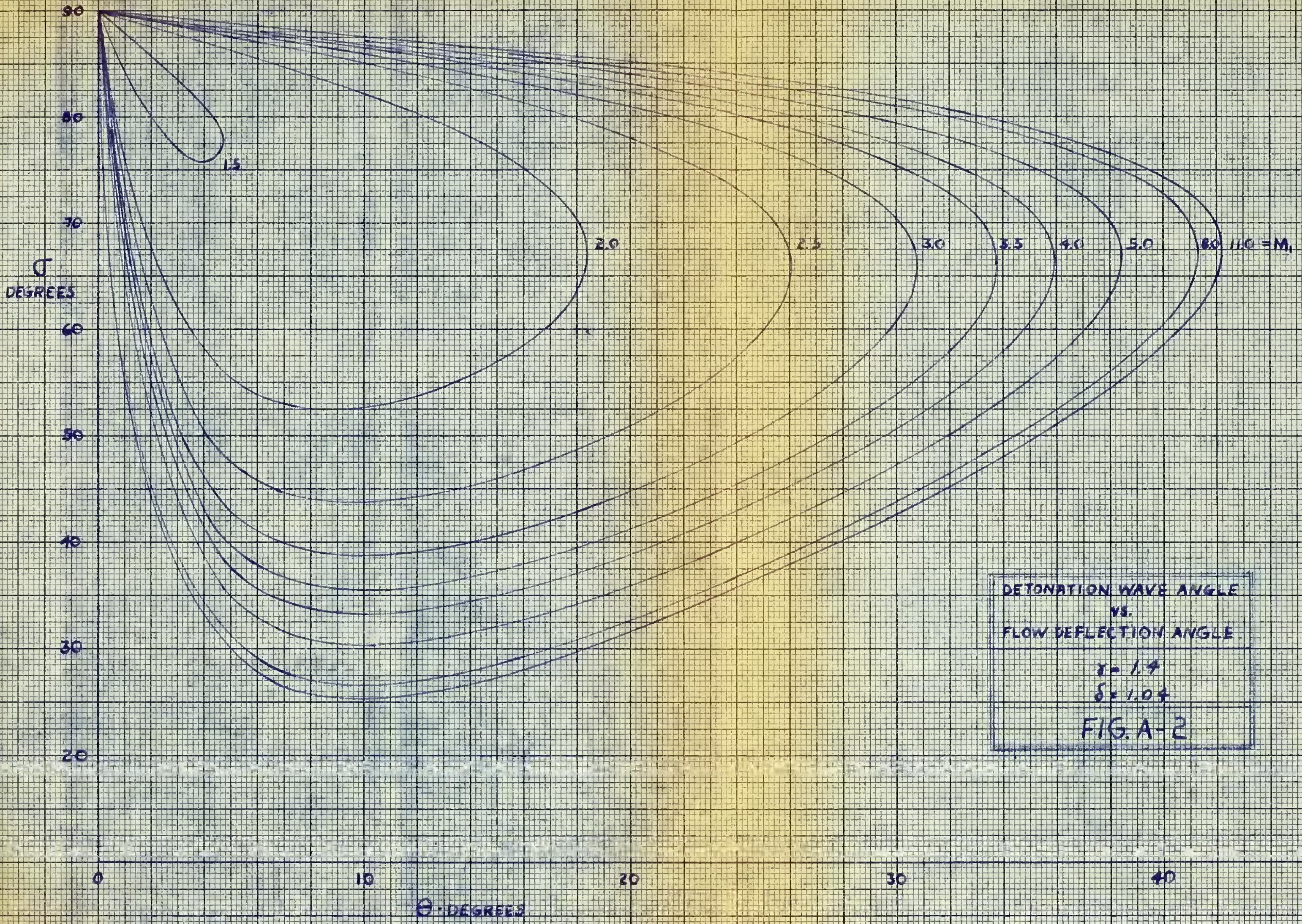
2.5

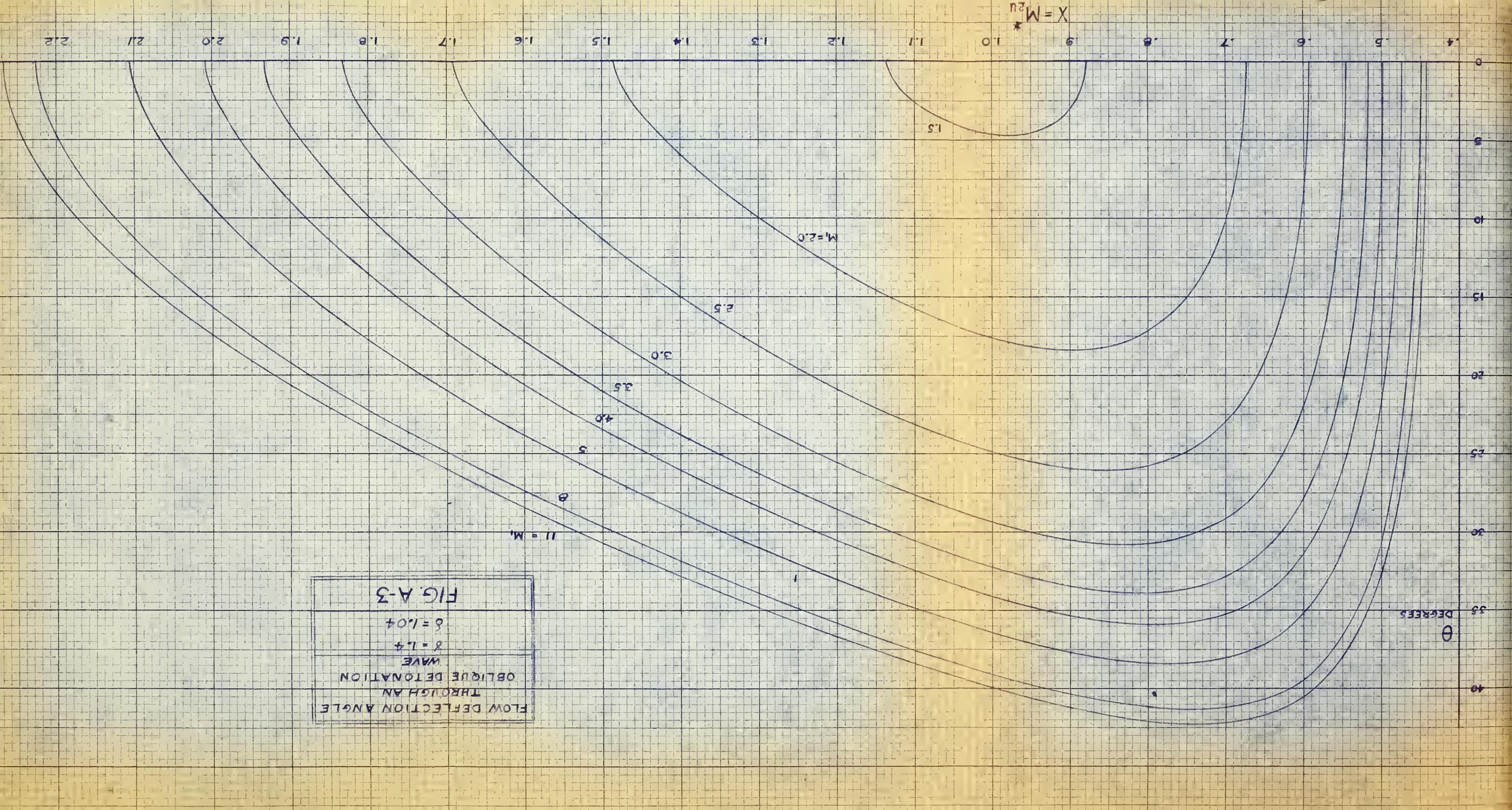
2.0

1.5 $\times M_1$

$$X = M_{2u}^*$$







$M_1 = 11.0$

8.0

5.0

4.0

3.5

3.0

2.5

2.0

$1.5 = M_1$

$X = M_{2n}^*$

MACH NUMBER AFTER
AN OBLIQUE DETONATION

WAVE

$\gamma = 1.4$

$S = 1.04$

FIG. A-4

M_2

$M_C = M_1$

STATIC PRESSURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

$$\gamma = 1.4$$

$$\delta = 1.04$$

FIG.A-5

$$\frac{P_2}{P_1}$$



$\theta = M_1$

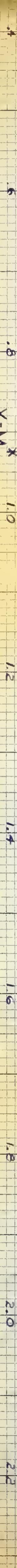
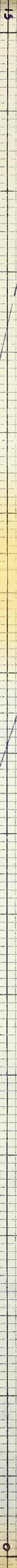
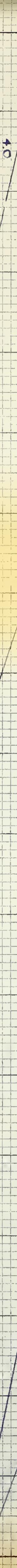
SC.M.

USE SCALE ON RIGHT

P_2



USE SCALE ON LEFT

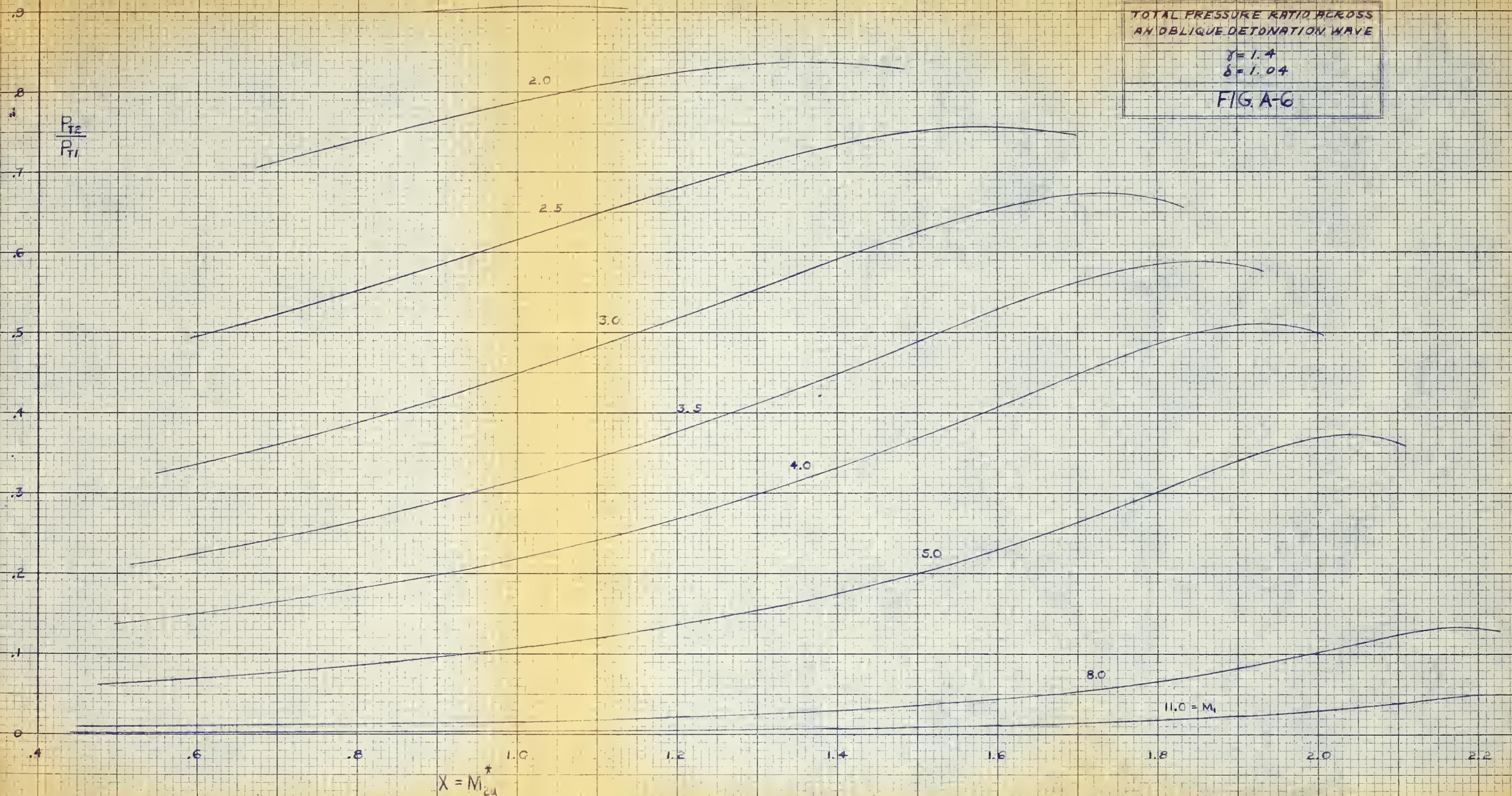


$M_1 = 1.5$

TOTAL PRESSURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

$$\gamma = 1.4$$
$$\delta = 1.04$$

FIG. A-6



6

TEMPERATURE RATIO ACROSS AN
OBLIQUE DETONATION WAVE

$$\gamma = 1.4$$
$$\delta = 1.04$$

FIG. A-7

30

25

20

15

10

5

0

USE SCALE
ON LEFT

USE SCALE ON RIGHT

M₁

= 1.5

$\frac{T_2}{T_1}$

$\frac{T_2}{T_1}$

2.0

2.5

3.0

3.5

4.0

5.0

6.0

11.0

APPENDIX B

DETTONATION PELOR

$$\gamma = 1.4$$

$$\delta = 1/2$$

FIG. B-1

$$Y = M_2 v$$

$$M_1 = 1.0$$

E.O.

S.C.

T.G.

3.5

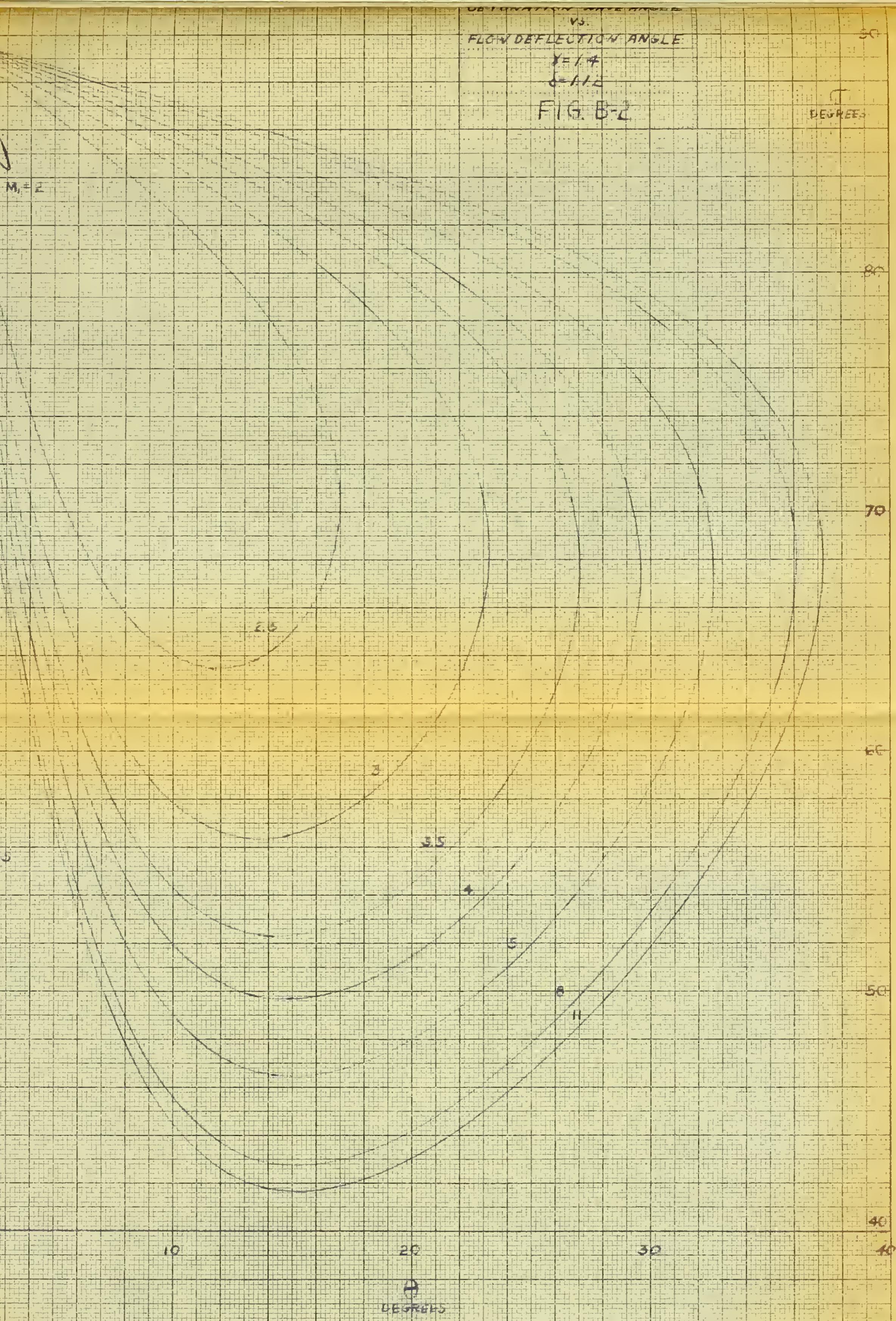
3.0

2.5

$$M_1 = 2.0$$

$$X = M_2 x$$

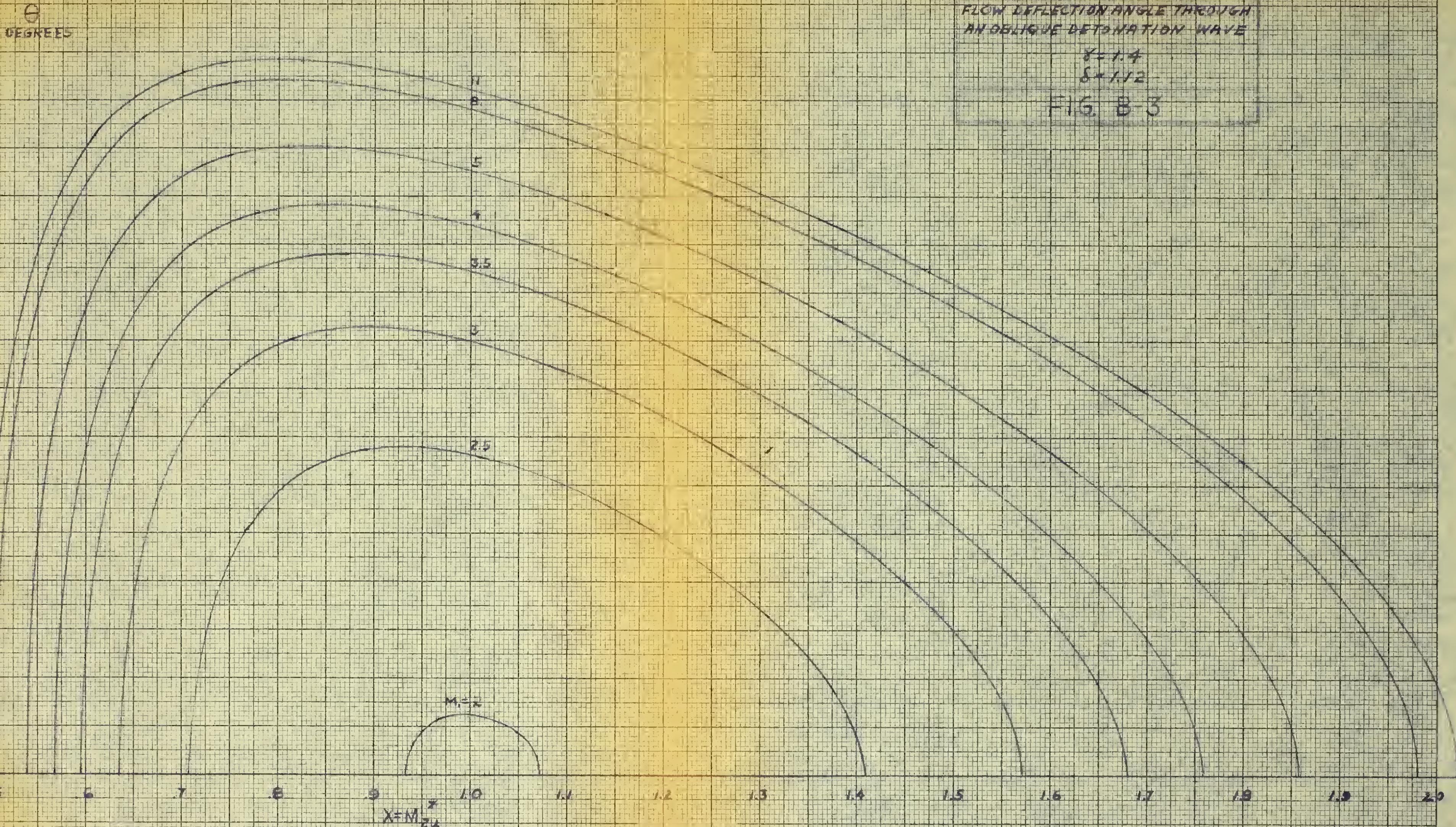




FLOW REFLECTION ANGLE THROUGH
AN OBLIQUE DETONATION WAVE

$\delta = 1.4$
 $S = 1/2$

FIG. B-3

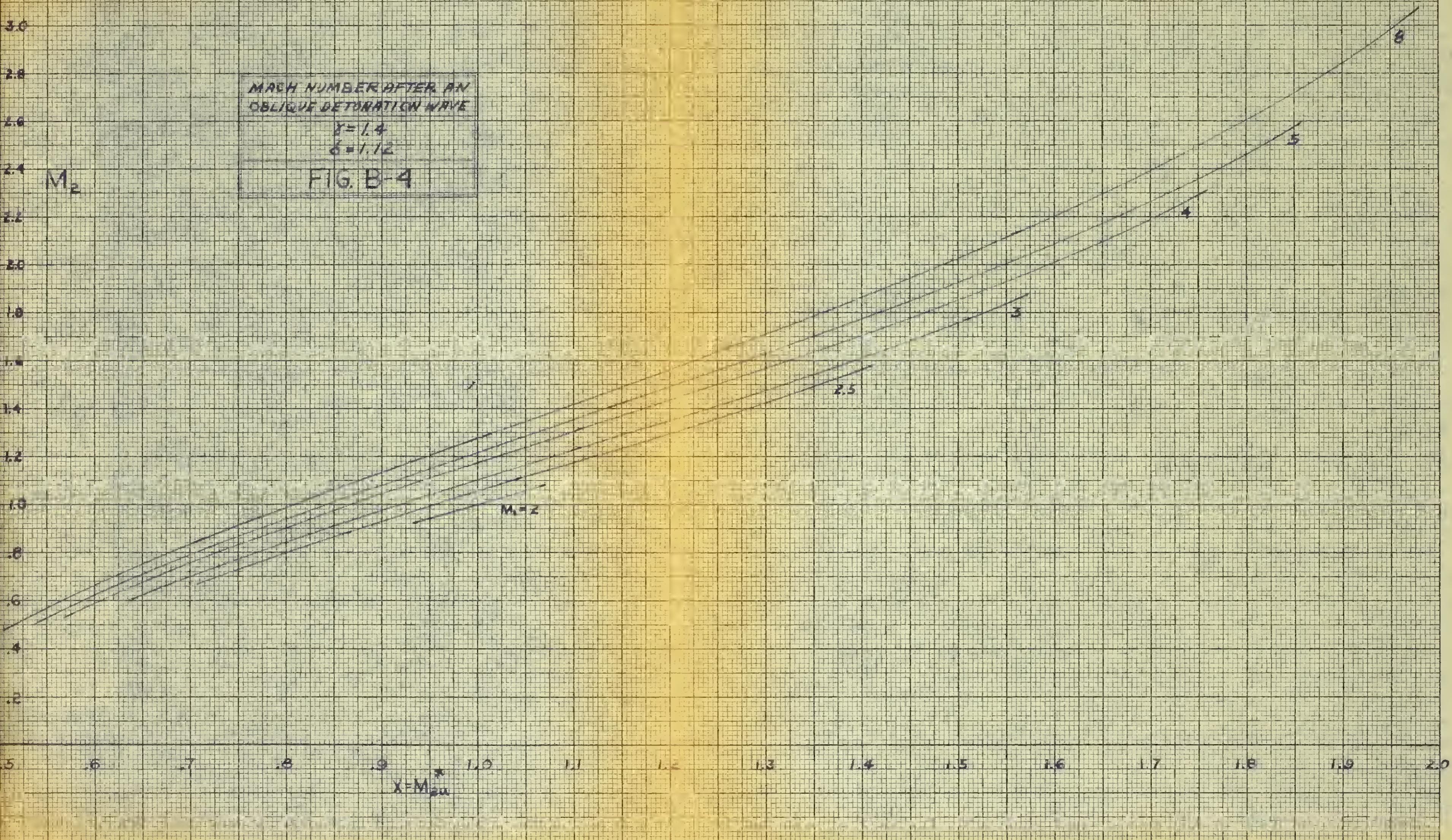


MACH NUMBER AFTER AN
OBLIQUE DETONATION WAVE

$$\gamma = 1.4$$

$$\delta = 1.12$$

FIG. B-4



STATIC PRESSURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

$$\delta = 1.4$$

$$\gamma = 1.12$$

FIG. B-5

14

120

100

80

60

40

20

0

$\frac{P_2}{P_1}$

100

80

60

40

20

0

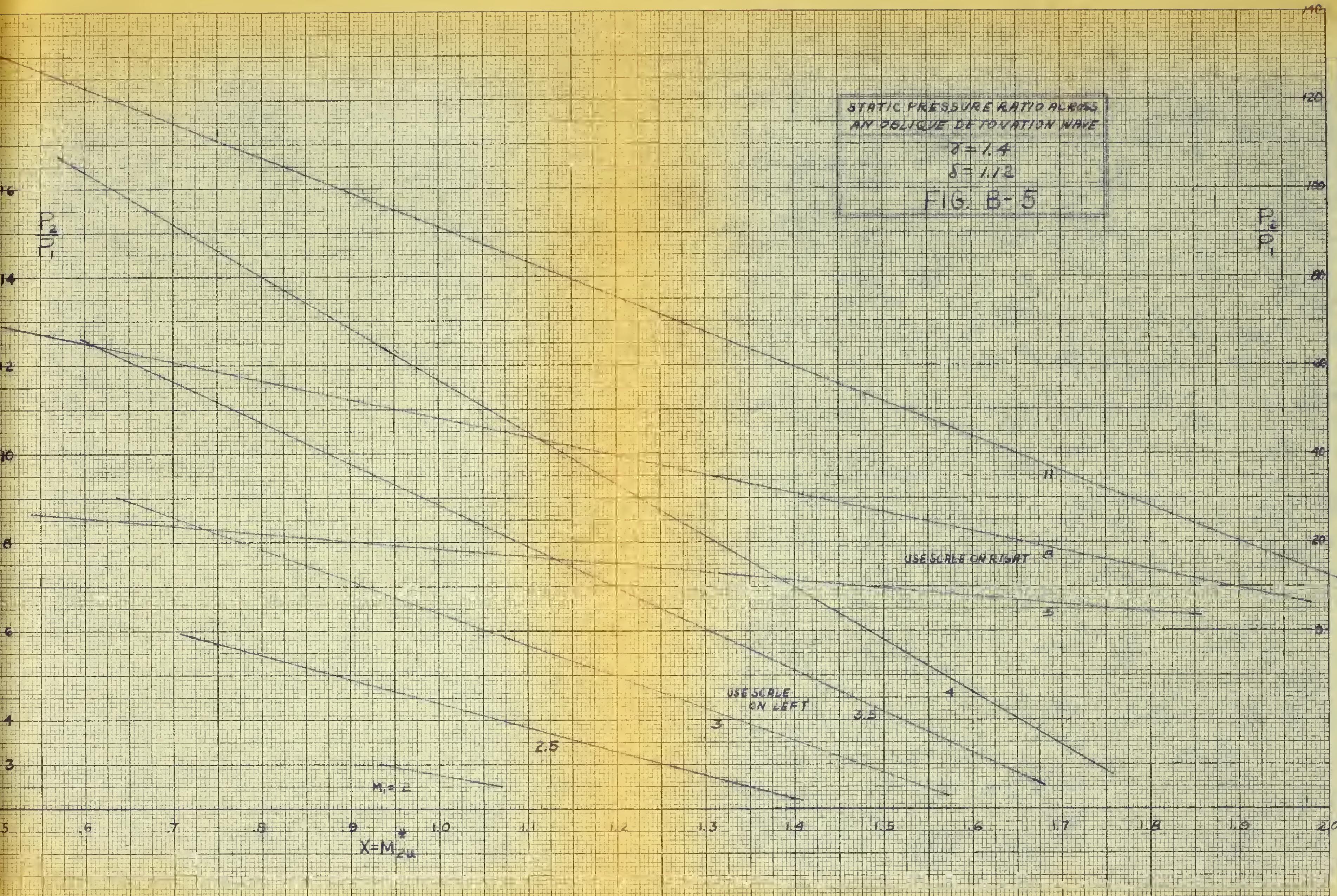
USE SCALE ON RIGHT

USE SCALE
ON LEFT

2.5

$M_{1e} E$

$X = M_{2u}$



TOTAL PRESSURE RATIO ACROSS

AN OBLIQUE DETONATION

WAVE

$\delta = 1.4$

$\kappa = 1.12$

FIG. B-6

P_{T2}

P_{T1}

$M_1 = 2.0$

2.5

3.0

3.5

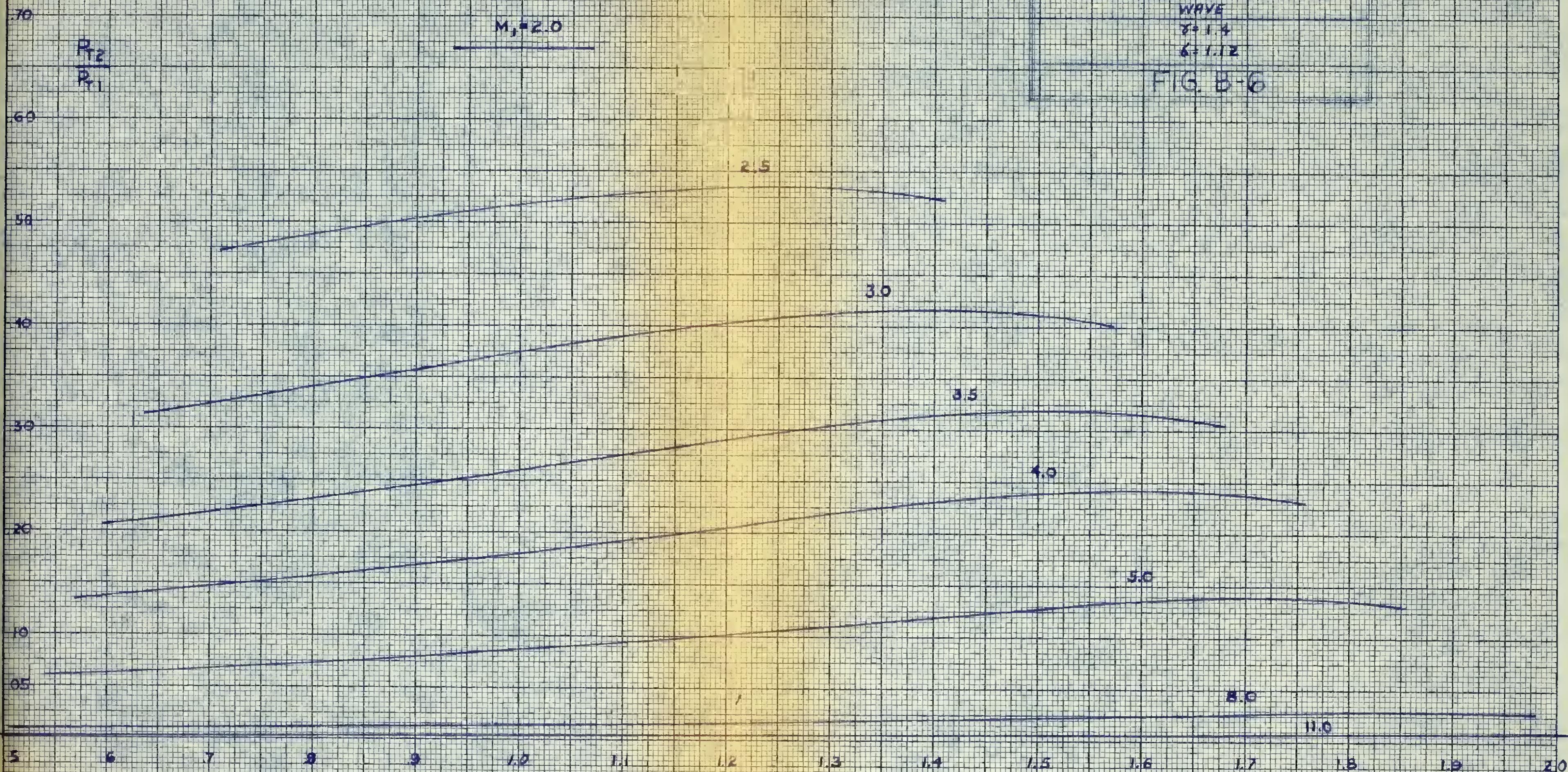
4.0

5.0

8.0

11.0

$X = M_{2u}^*$

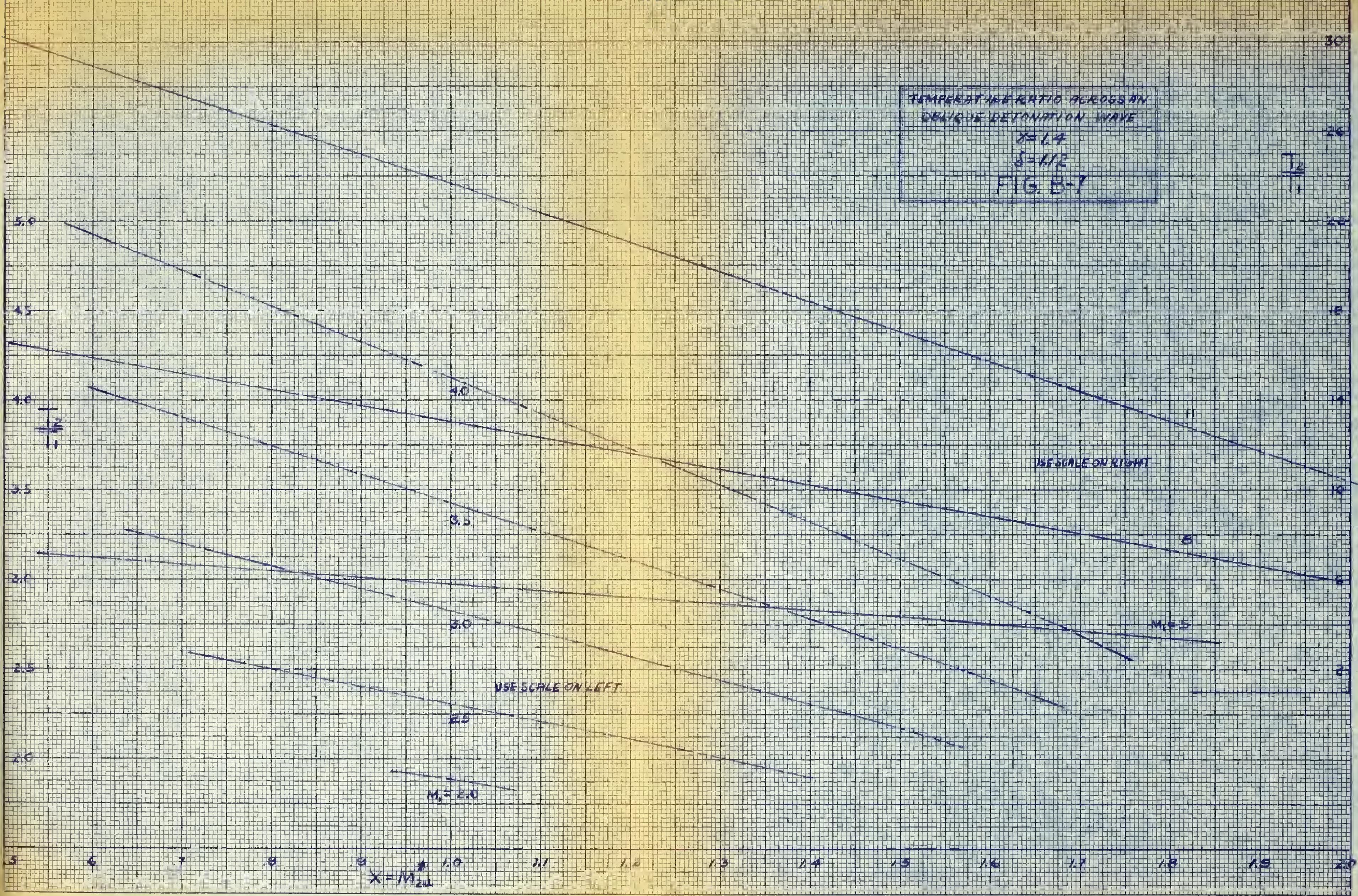


TEMPERATURE RATIO ACROSS AN
OBlique DETONATION WAVE

$$\chi = 1.9$$

$$\delta = 1/2$$

FIG. B-7



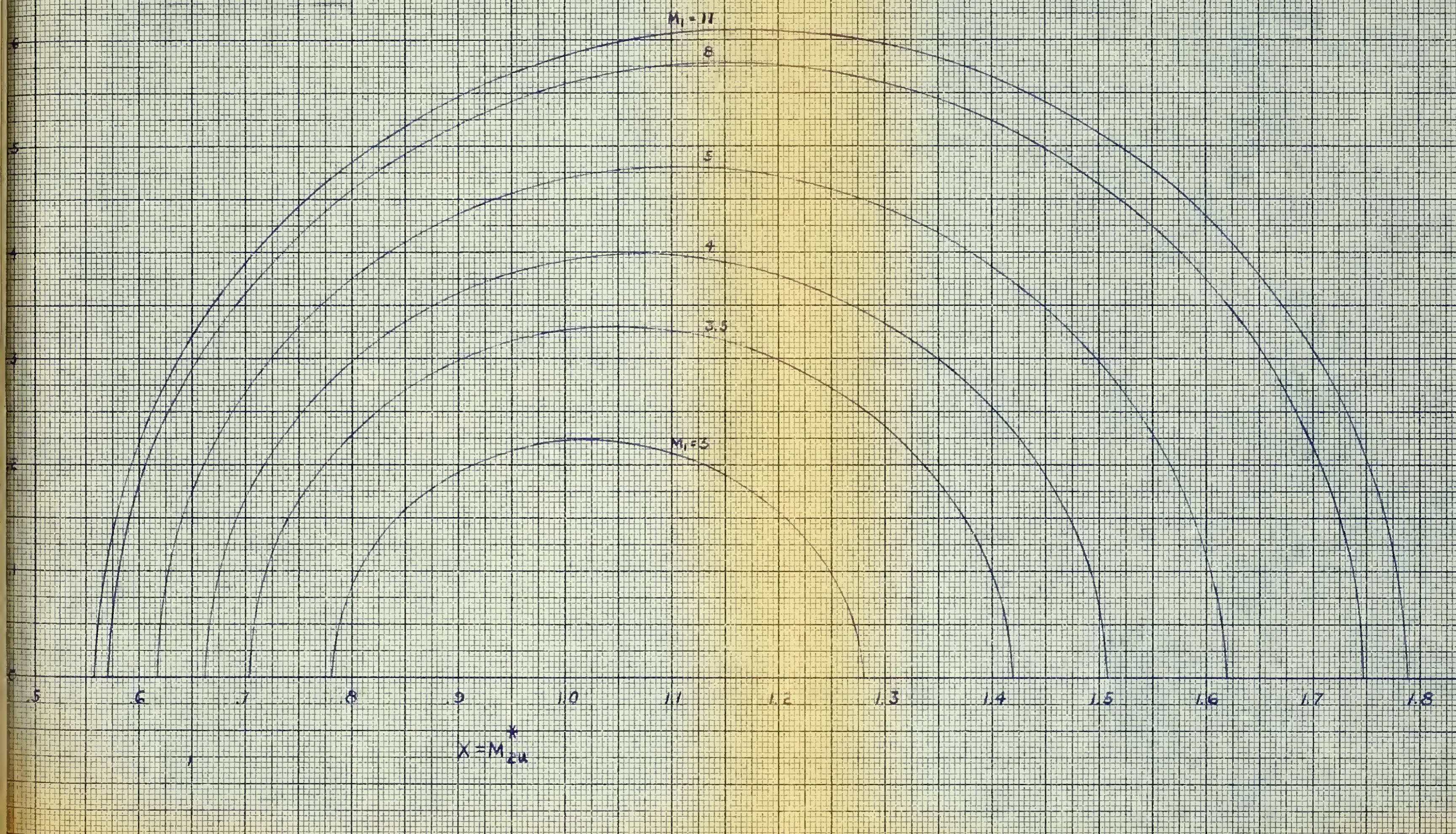
APPENDIX C

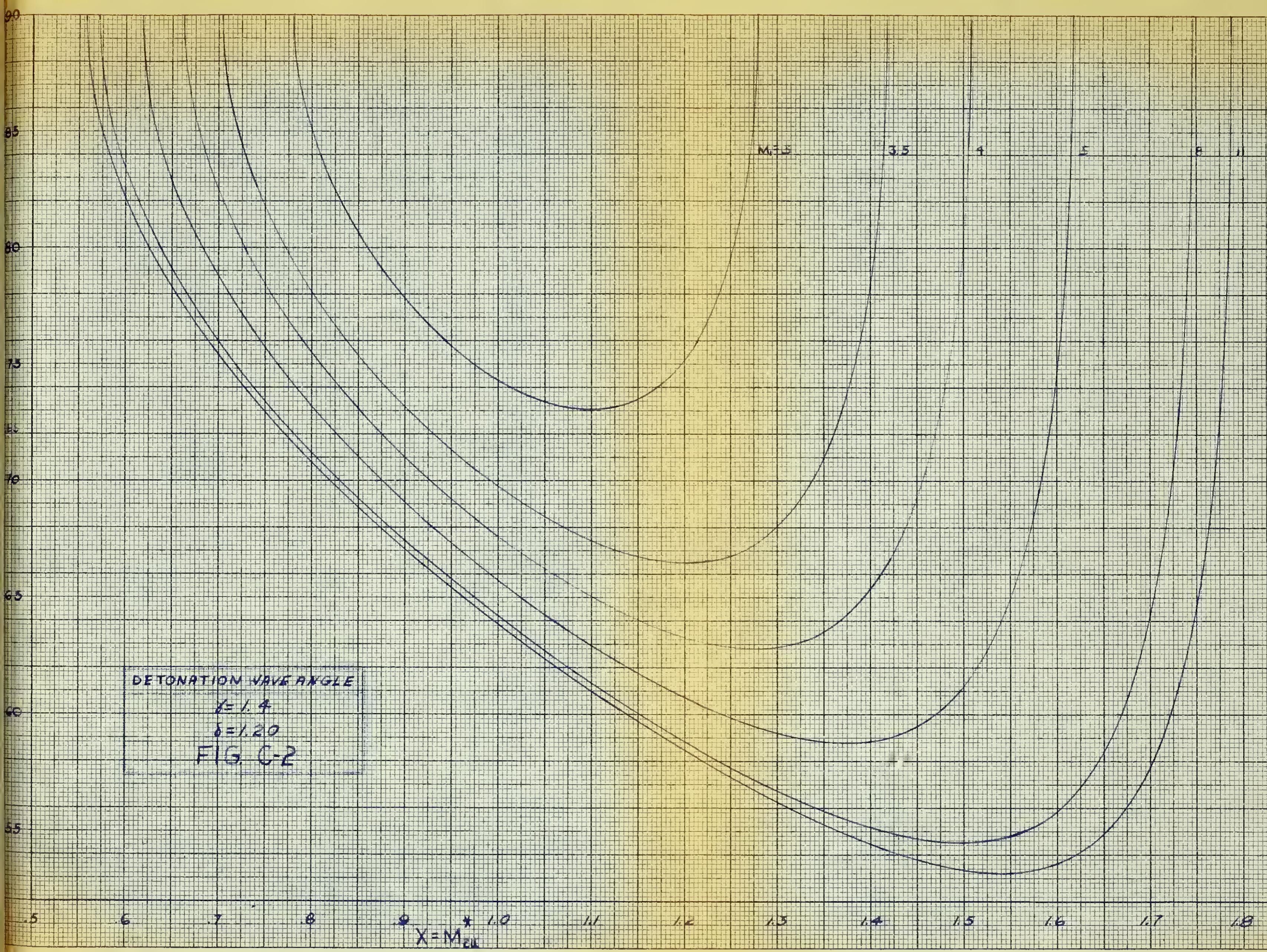
DETTONATION POLAR

$\chi = 1.4$

$\delta = 1.40$

FIG C-1

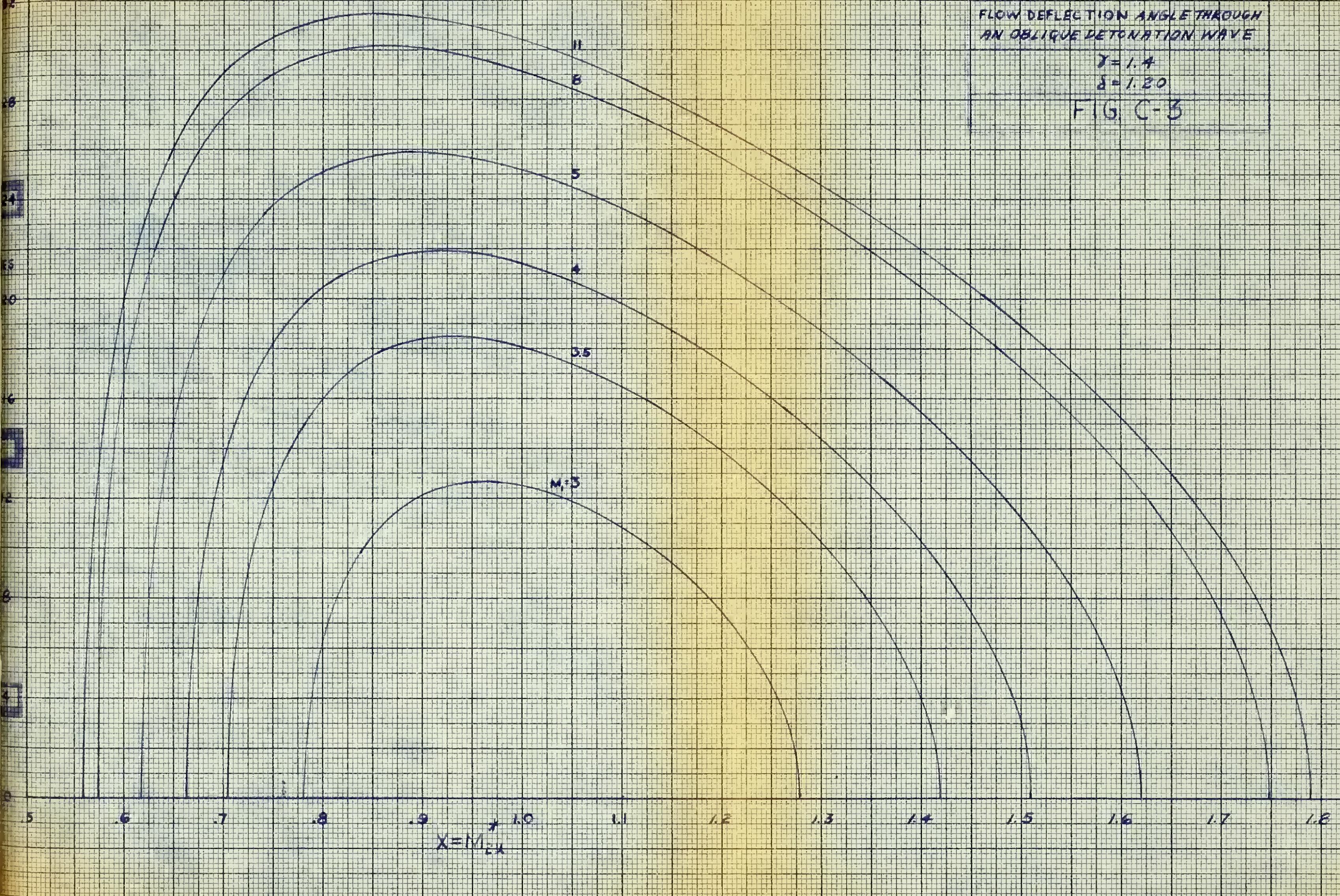




FLOW DEFLECTION ANGLE THROUGH
AN OBLIQUE DETONATION WAVE

$\gamma = 1.4$
 $\delta = 1.20$

FIG C-3



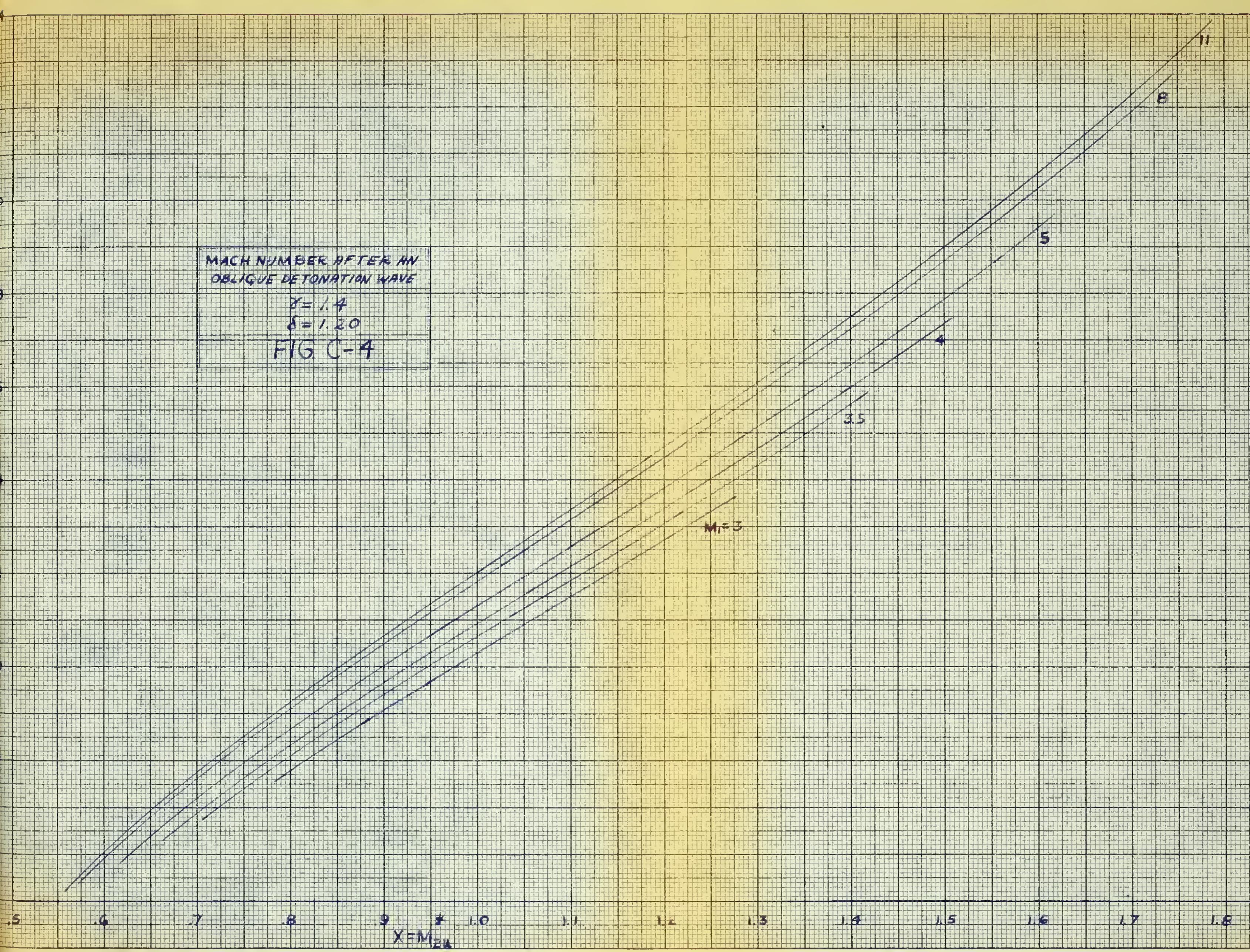
MACH NUMBER AFTER AN
OBLIQUE DETONATION WAVE

$$\gamma = 1.4$$

$$\delta = 1.20$$

FIG. C-4

$$M_1 = 3$$

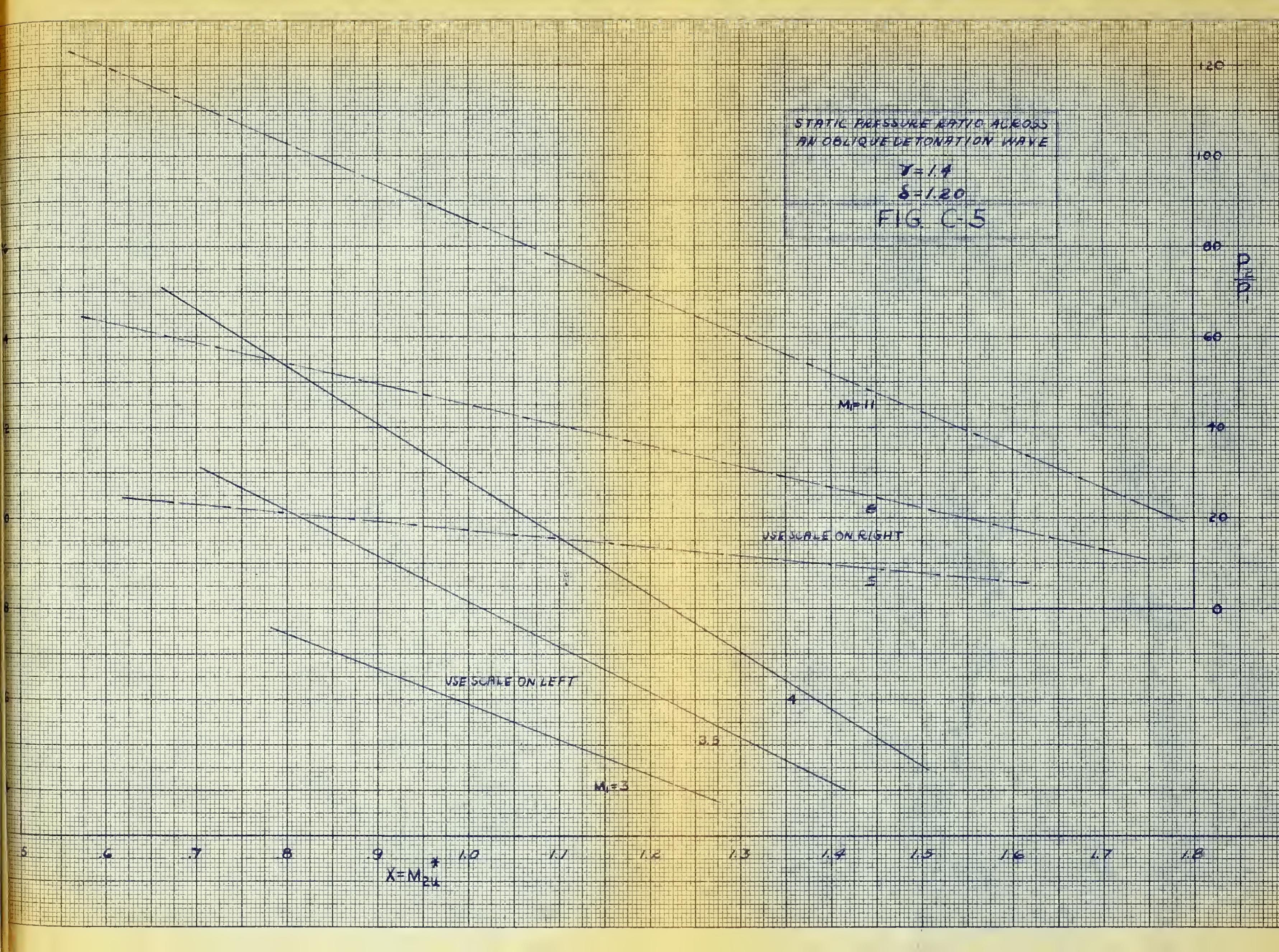


STATIC PRESSURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

$\gamma = 1.4$

$\delta = 1.20$

FIG. C-5



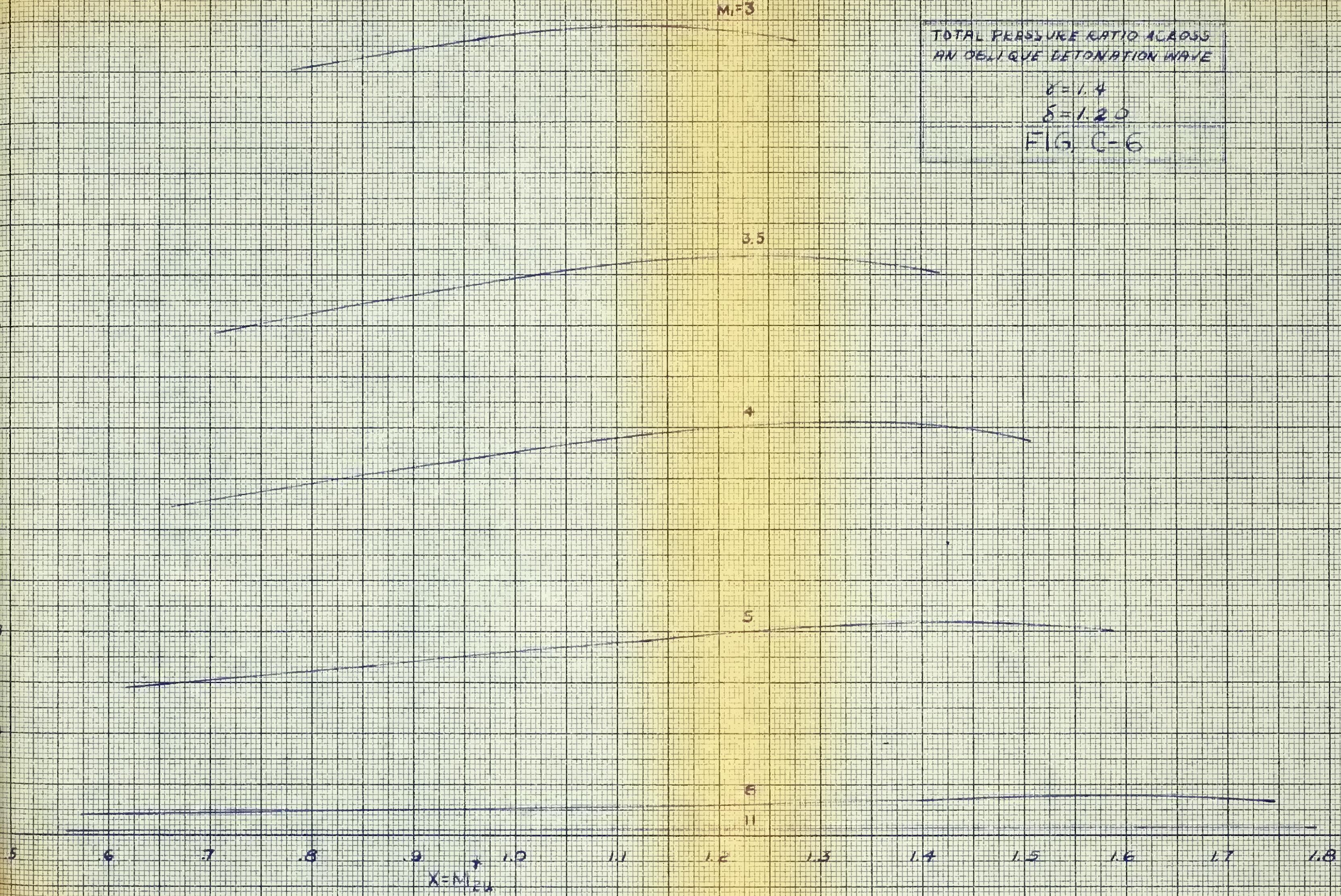
$M_1 = 3$

TOTAL PRESSURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

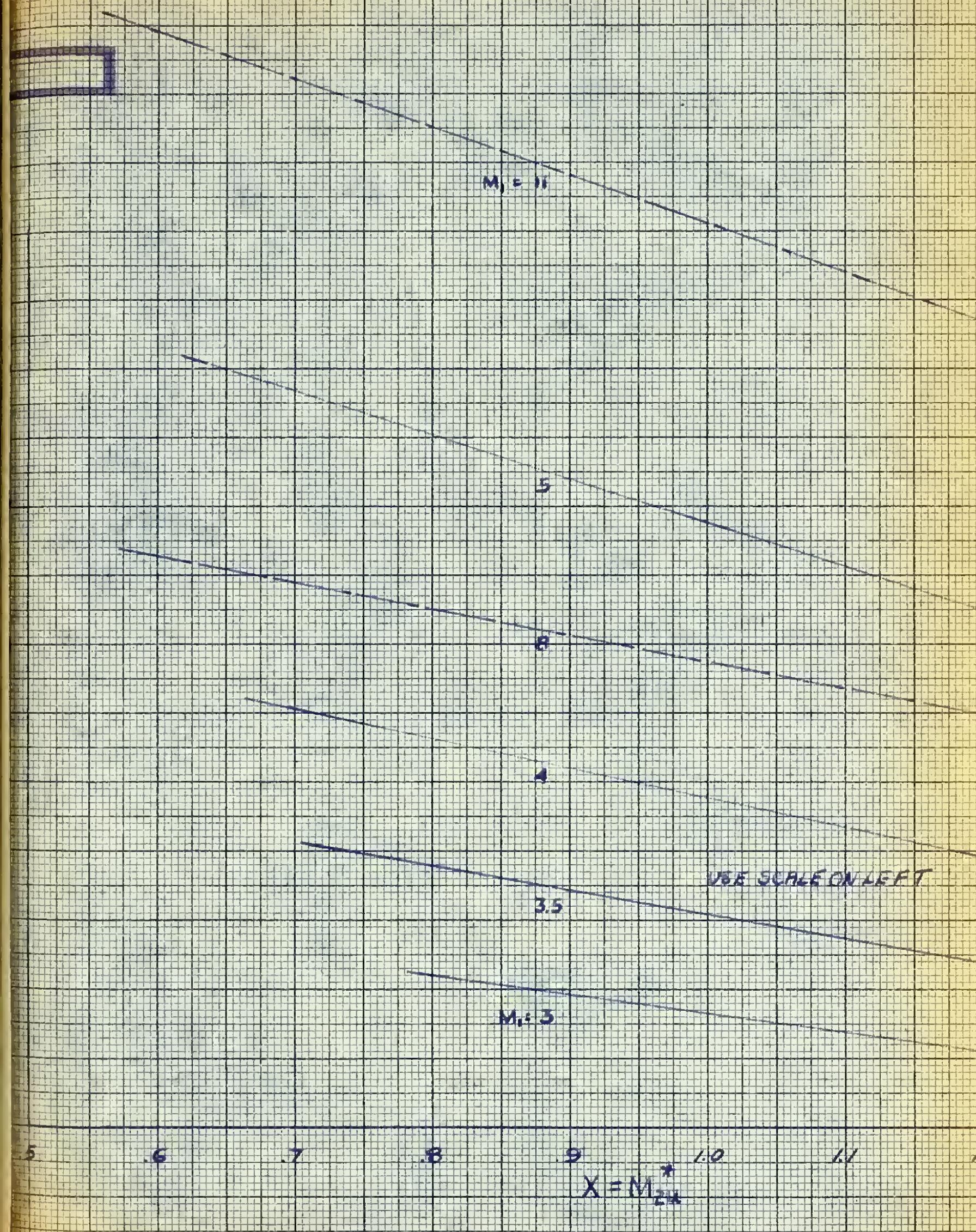
$$\delta = 1.4$$

$$\delta = 1.20$$

FIG. C-6



36



TEMPERATURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

$$\theta = 1.4$$

$$\delta = 1.20$$

FIG C-7

32

28

24

20

16

12

8

4

10

16

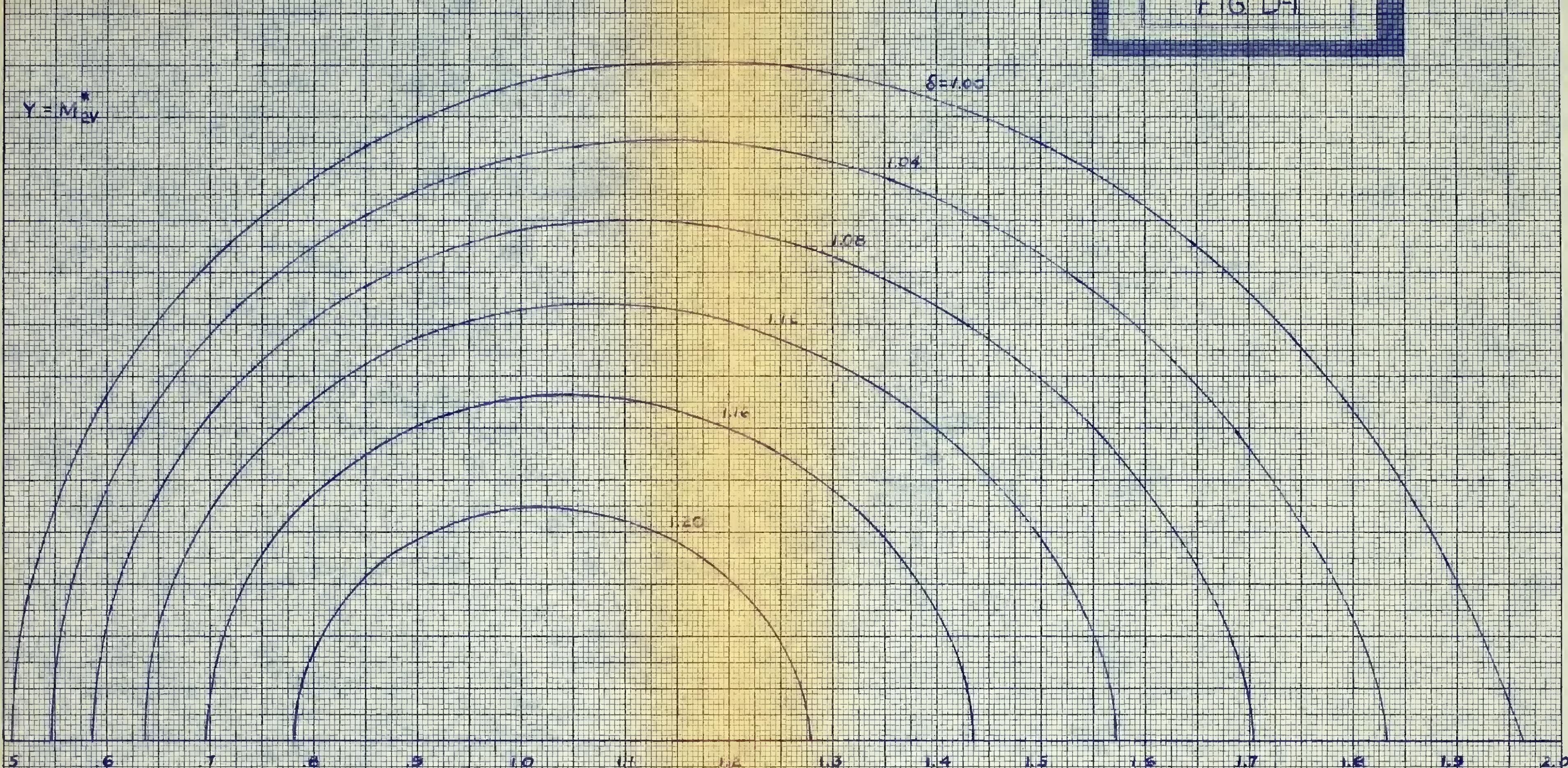
12

8

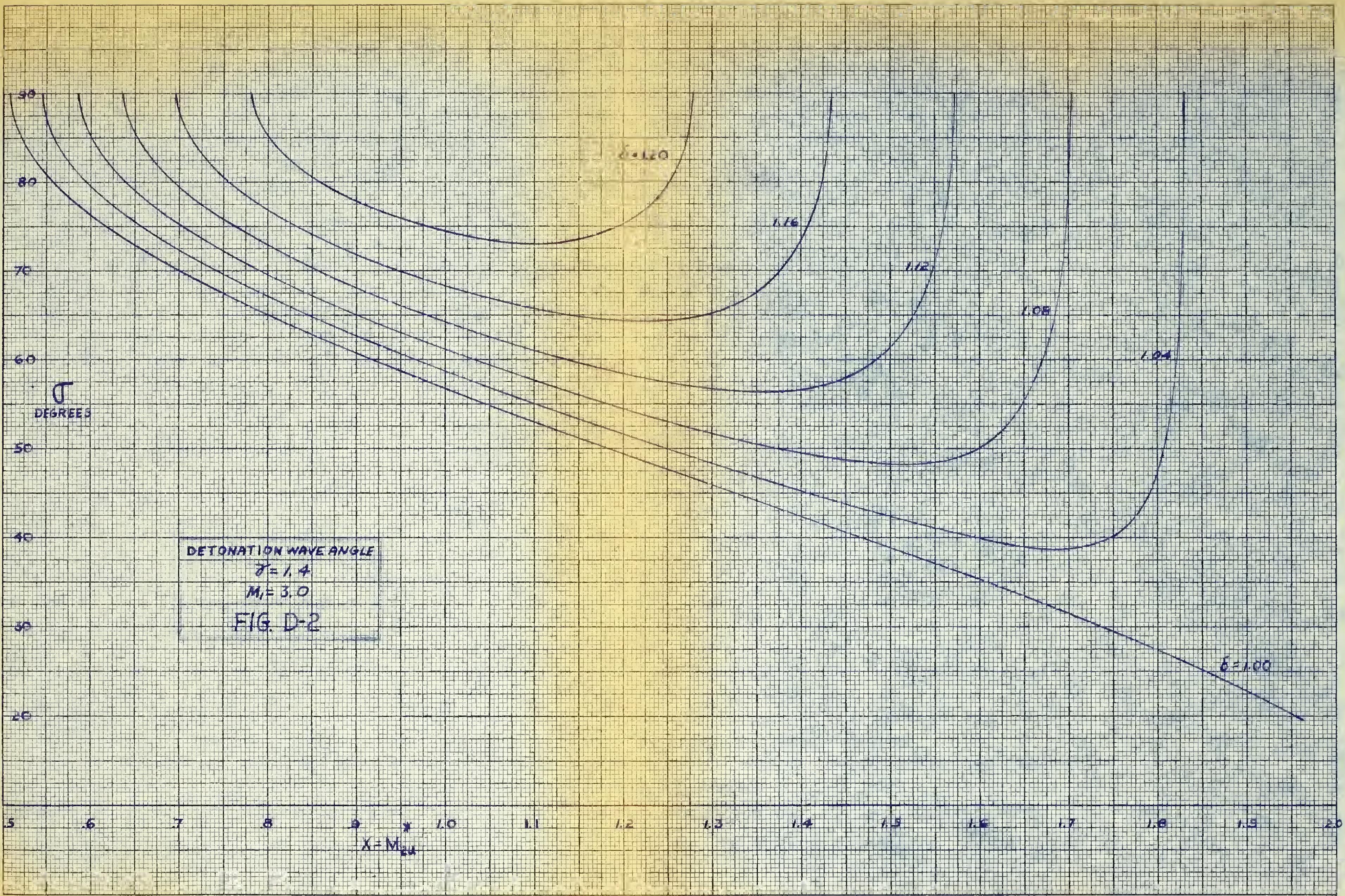
USE SCALE ON RIGHT

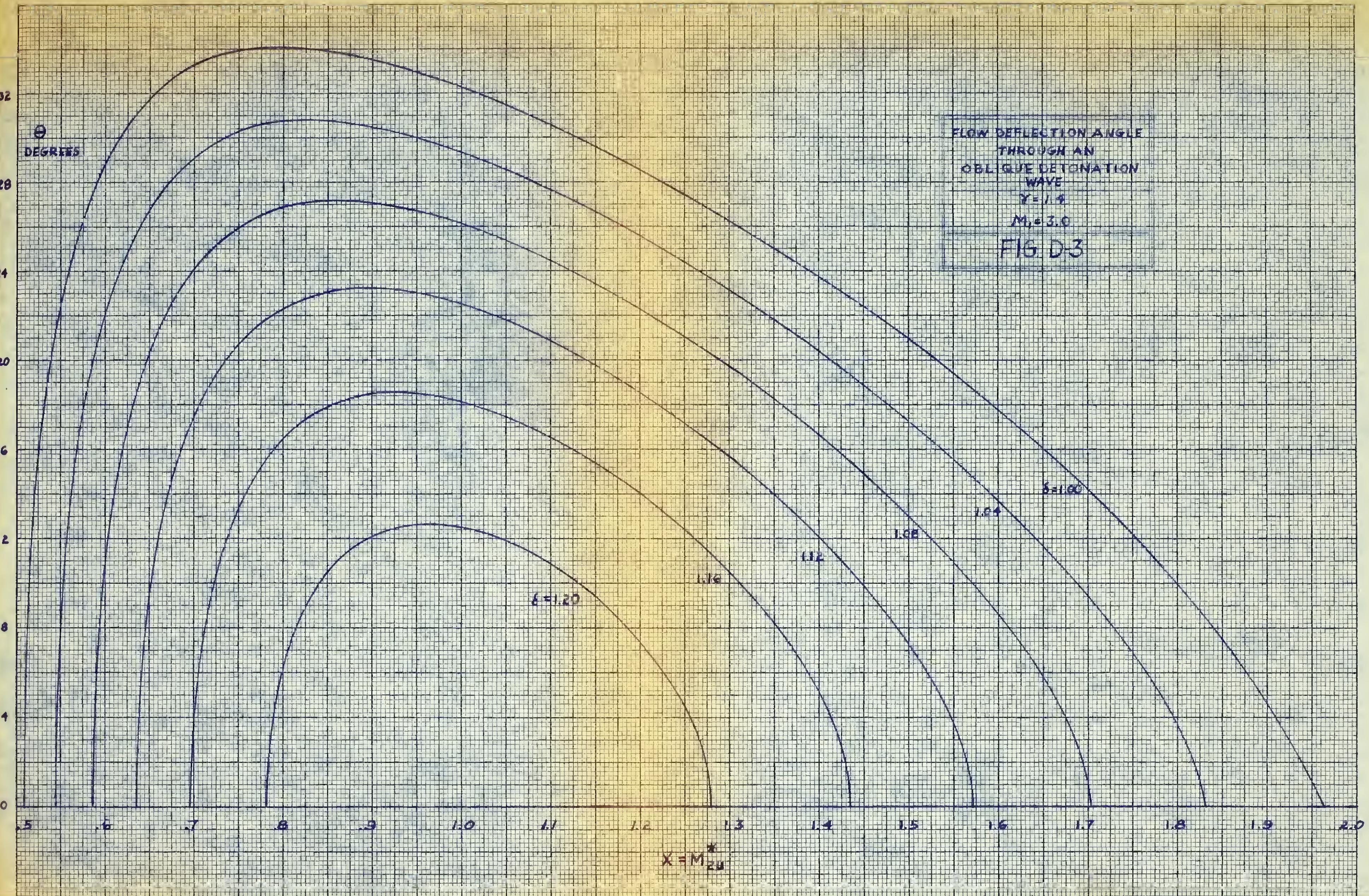
APPENDIX D

DETTONATION POLAR
 $\beta = 1.4$
 $M_1 = 3.0$
FIG D-1



$X = M_{\infty}$





3.2

2.8

2.4

2.0

1.6

1.2

.8

.4

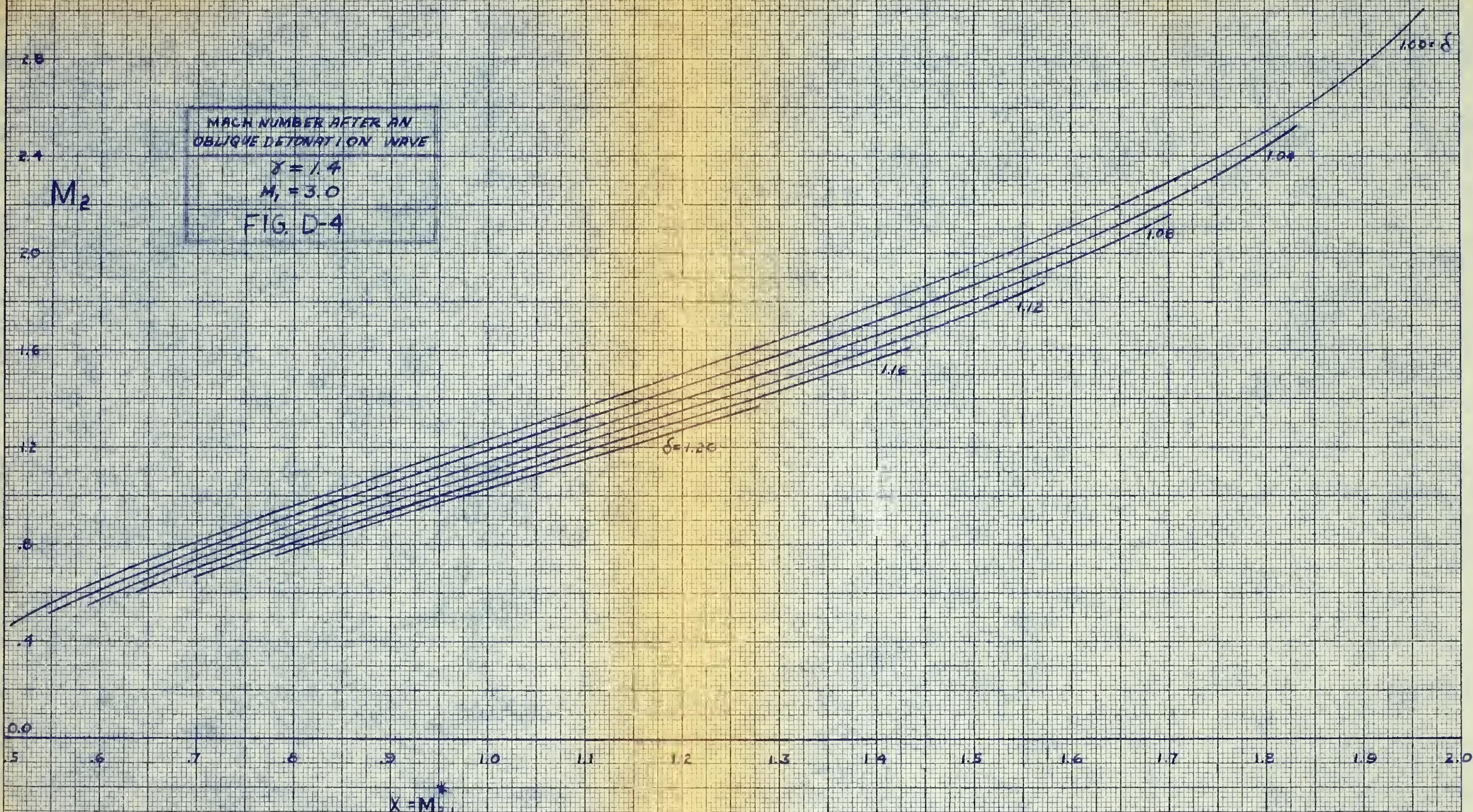
0.0

 M_2

MACH NUMBER AFTER AN
OBLIQUE DETONATION WAVE

 $\gamma = 1.4$ $M_1 = 3.0$

FIG. D-4



STATIC PRESSURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

$\chi = 1.4$

$M_1 = 3.0$

FIG D-5

$x = M_{\infty}$

$\delta = 1.20$

1.16

1.12

1.08

1.04

$\delta = 1.00$

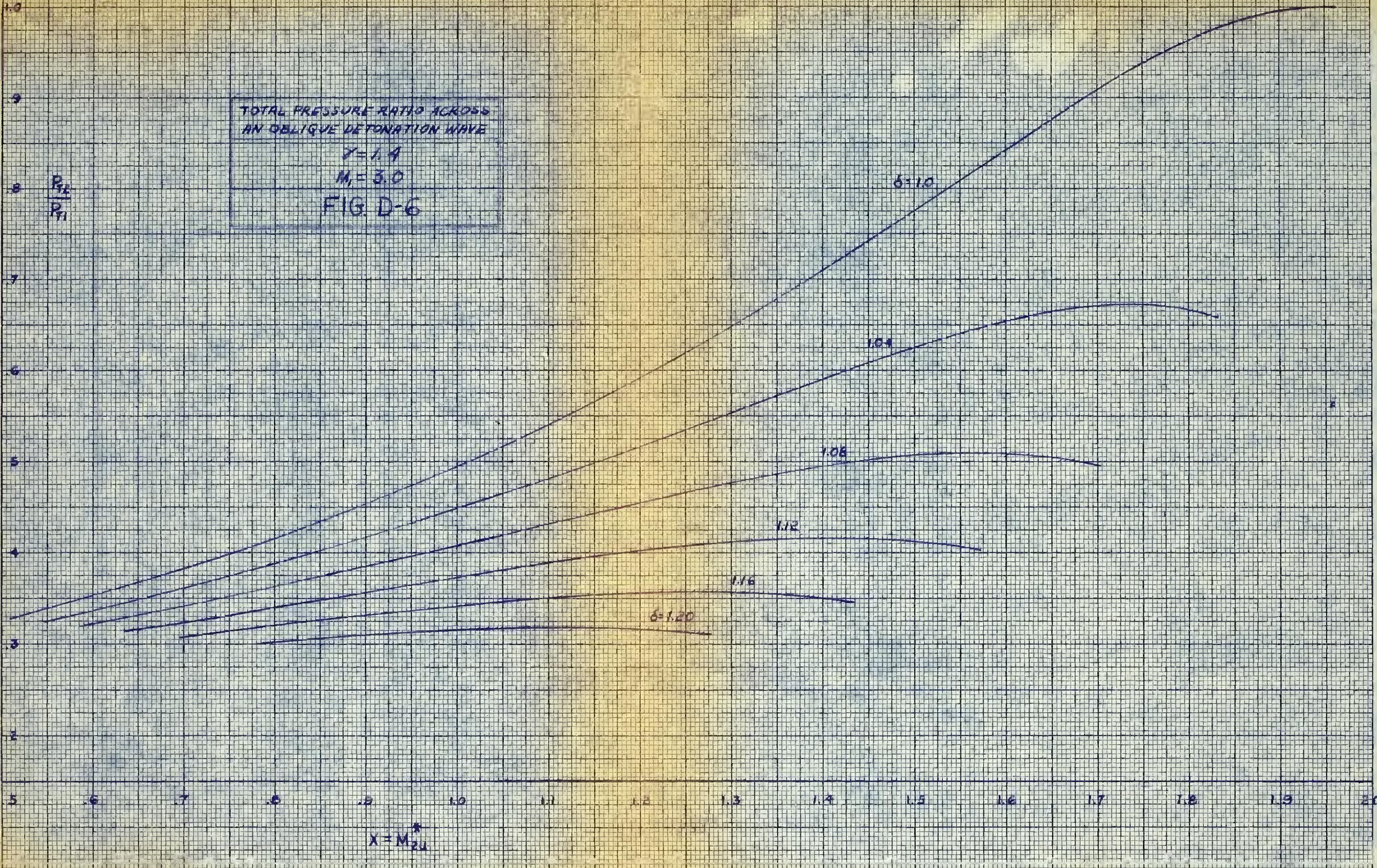
20

TOTAL PRESSURE RATIO ACROSS
AN OBLIQUE DETONATION WAVE

$$\gamma = 1.4$$

$$M_1 = 3.0$$

FIG. D-6

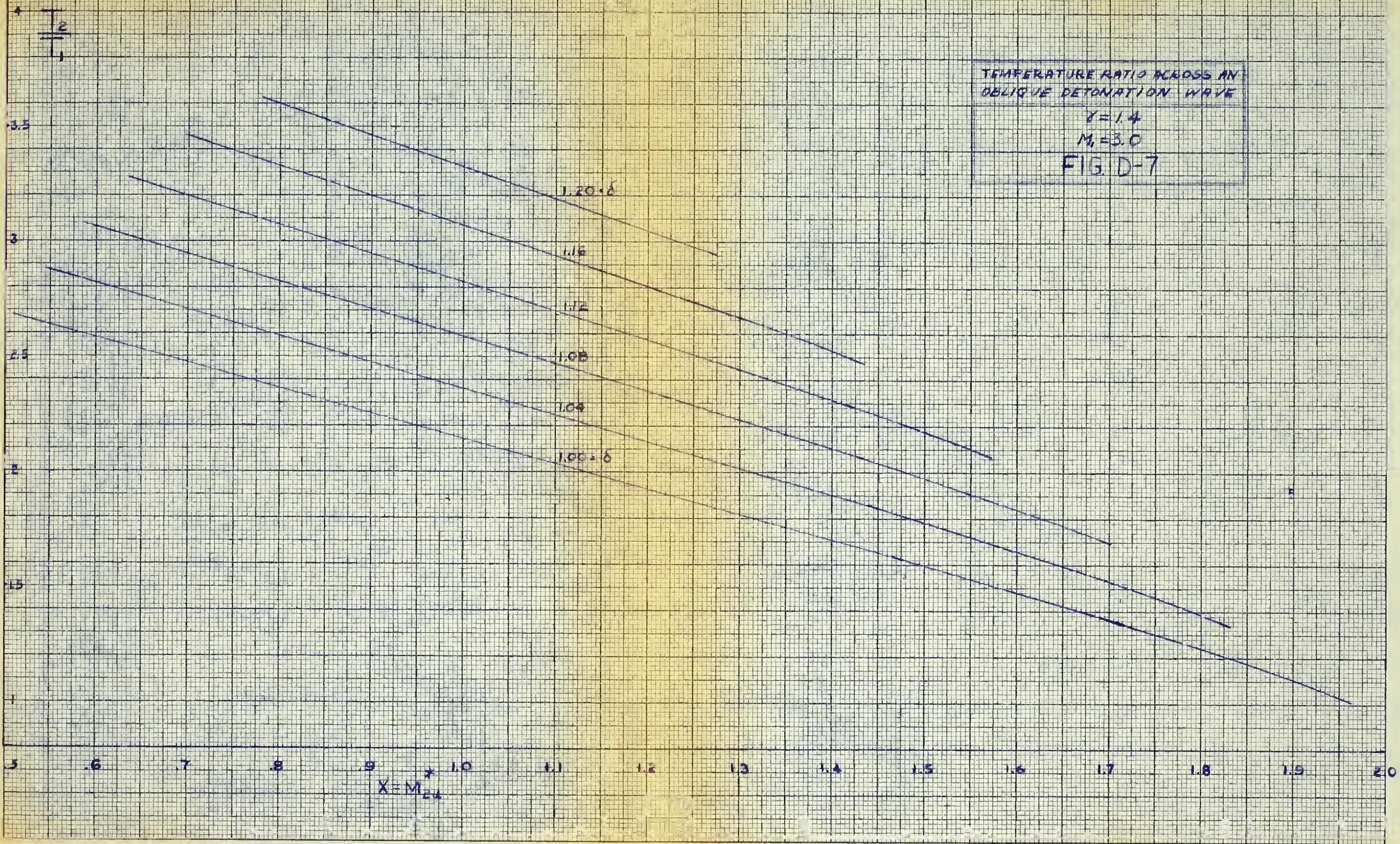


TEMPERATURE RATIO ACROSS AN
OBLIQUE DETONATION WAVE

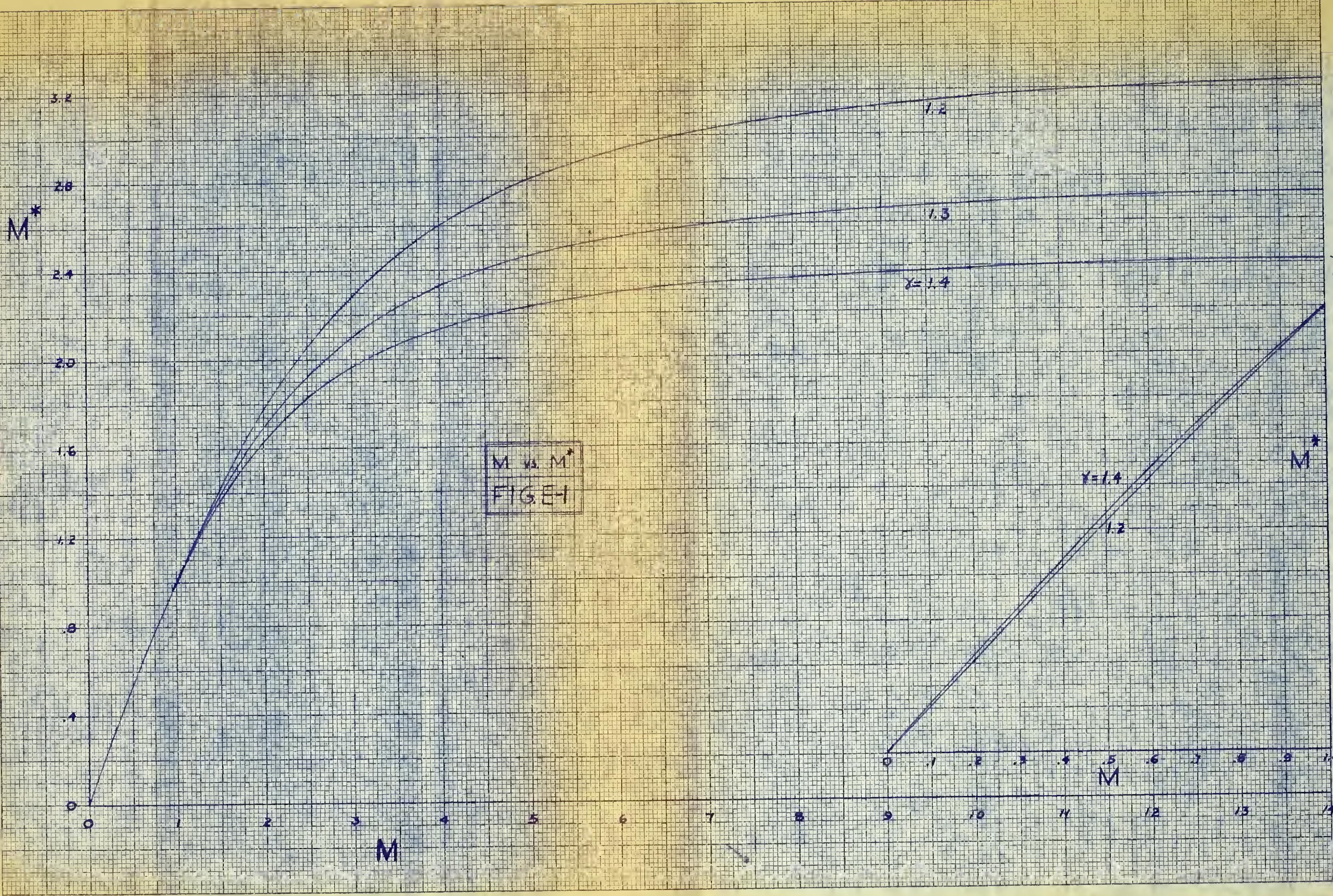
$\gamma = 1.4$

$M_1 = 3.0$

FIG. D-7



APPENDIX E

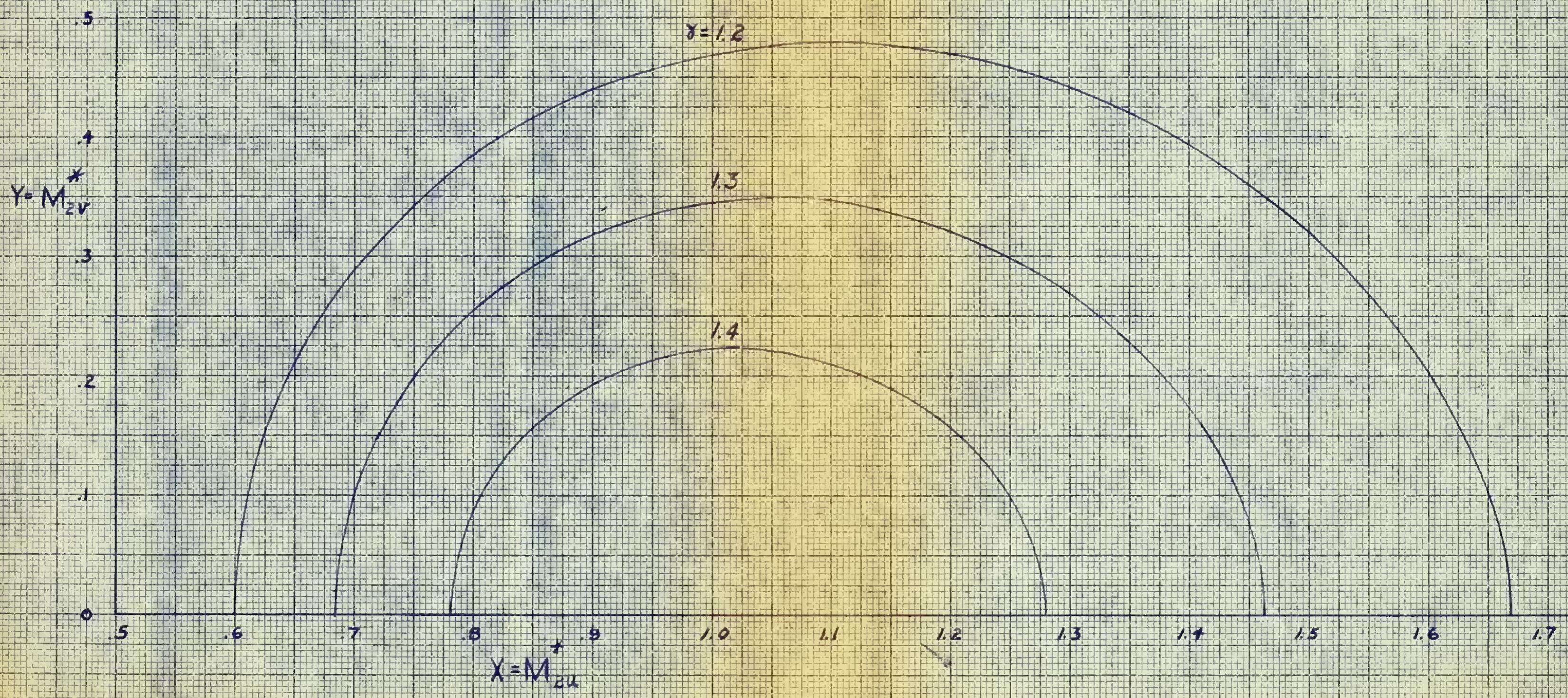


DETTONATION POLAR

$M_f = 3.0$

$S = 12.0$

FIG. E-2



APPENDIX F

APPENDIX F

COMPUTER PROGRAM

The data in Appendices G, H, and I was obtained by use of a Fortran (Formula translation) program on the U. S. Naval Postgraduate School Control Data Corporation 1604 digital computer. Table F-I is a list of variable names used in the program and their actual counterparts. Table F-II is an example of the program for a specific value of $\gamma = 1.4$. In this program the equations noted in Table II were solved for $\gamma = 1.4$. M_1 , δ , and x were allowed to assume ranges of values. Use of the program may be made for any value of γ , M_1 , or δ with only minor alterations.

TABLE F-I

TABLE OF FORTRAN VARIABLE NAMES

Fortran Symbol	Definition
BY	y
DEL	δ
DELMAX	δ_{\max}
EM1	M_1
EM1SQ	M_1^2
EM1ST	M_1^*
EM2	M_2
EM2SQ	M_2^2
EM2STSQ	$(M_2^*)^2$
EM2U	M_{2u}
EX	x
GAM	γ
P21	p_2/p_1
PT21	p_{T2}/p_{T1}
SIGD	σ (degrees)
SIGR	σ (radians)
THETAD	θ (degrees)
THETAR	θ (radians)
T21	T_2/T_1
XMA	x_{\max} (Z_2 value of Fig. 9)
XMI	x_{\min} (Z_1 value of Fig. 9)

TABLE F-II

```

PROGRAM OBLIQUE
OPROGRAM TO CALCULATE PROPERTIES OF AN OBLIQUE DETONATION (LOOP
1BRANCH M1 = 1 TO 5 BY .5)
OCOMMON GAM,GPL,GMS, EM1, EM1ST, DEL, EX, BY, EM2U, EM2, DELMAX,
1THETAD, SIGD, P21, PT21, XMI, IXMI, XMA, IXMA, A2, C5, EM1SQ,T21
GAM = 1.4
GPL = GAM+1.
GMS = GAM-1.
DO 120 IEM1 = 10,50,5
XEM1 = IEM1
EM1 = XEM1/10.
EM1SQ = EM1**2
EM1ST = SQRTF(EM1SQ * GPL / (2. + EM1SQ * GMS ))
DELMAX = (EM1ST**2+1.)/(2.*EM1ST)
DDELMX = DELMAX*1000.
IDELMX = DDELMX
WRITE OUTPUT TAPE 3,95
WRITE OUTPUT TAPE 3, 100
DO 60 IDEL= 1000,IDEMLX,40
XDEL=IDEL
DEL = XDEL/1000.
CALL ZERO
IF (A2) 60, 40, 40
40 DO 50 IEX=IXMI, IXMA, 300
XEX=IEX
EX = XEX/10000.
CALL CALCU
IF (C5) 50, 55, 55
550 WRITE OUTPUT TAPE 3, 110, EM1, EM1ST, DELMAX, DEL, XMI, XMA, EX,
1BY, EM2U, EM2, THETAD, SIGD, P21, PT21, T21
50 CONTINUE
WRITE OUTPUT TAPE 3, 57
57 FORMAT ( / )
60 CONTINUE
950 FORMAT (1H1 45X 29H LOOP BRANCH (M1 FROM 1 TO 5) //
112H GAMMA = 1.4, // )
1000 FORMAT (119H M1      M1*    DELMAX   DEL     XMIN     XMAX   X(M2U*) Y(
1M2V*) M2U      M2      THETA    SIGMA   PR21     PTR21   TR21 )
110 FORMAT (F5.1,2F8.4,F5.2,4F8.4, 2F9.4, 2F8.4, 2F9.4, 2F9.4, F 9.4)
120 CONTINUE
END FILE 3
STOP
END
SUBROUTINE ZERO
OCOMMON GAM,GPL,GMS, EM1, EM1ST, DEL, EX, BY, EM2U, EM2, DELMAX,
1THETAD, SIGD, P21, PT21, XMI, IXMI, XMA, IXMA, A2, C5, EM1SQ,T21
A1 = DELMAX/DEL
A2 = A1 ** 2 - 1.
IF (A2) 35, 29, 30
29 A3 = 0
GO TO 31
30 A3 = SQRTF (A2)
31 XMI = A1 - A3
XMA = A1+ A3
XXMI = XMI * 100. + 1.
IXXMI = XXMI
IXMI = IXXMI * 100
XXMA = XMA *10000.
IXMA = XXMA
35 RETURN
END
SUBROUTINE CALCU
OCOMMON GAM,GPL,GMS, EM1, EM1ST, DEL, EX, BY, EM2U, EM2, DELMAX,
1THETAD, SIGD, P21, PT21, XMI, IXMI, XMA, IXMA, A2, C5, E 1SQ,T21
C1 = EM1ST-DEL*EX
C2 = EX *C1-(DEL*EM1ST-EX )/EM1ST
C3 = 1./EM1ST + 2.*EM1ST/GPL
C4 = DEL*(C3-DEL*EX )
C5 = C1*C2/C4
IF (C5) 45, 46, 40
46 BY = 0.0
THETAR = 0.0
THETAD = 0.0

```

```
SIGD = 90.0
GO TO 42
40 BY = SQR TF(C5)
THETAR = ATANF (BY/EX)
THETAD = THETAR * 57.2958
W1 = EM1ST/ (BY * SQR TF(DEL))
SIGR = ATANF( W1 - EX/BY)
SIGD = SIGR * 57.2958
42 EM2STSQ = EX **2 + C5
EM2 = SQR TF ((2.* EM2STSQ) / (GPL - GMS * EM2STSQ ))
EM2U = EM2 * COSF(THETAR)
EM2SQ = EM2 ** 2
D1 = 1. + EM1SQ * GMS/2.
D2 = 1. + EM2SQ * GMS/2.
T21 = (DEL ** 2) * (D1/D2)
D3 = SQR TF (T21)
D4 = EM1 * EM2U
P21 = (EM1SQ - D4 * D3) * D3 / (D4 - EM2SQ * D3 )
PT21 = P21 * (D2/D1) ** (GAM / GMS )
45 RETURN
END
END
```

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Appendix

THEORETICAL INVESTIGATIONS OF THE PROPERTIES
OF OBLIQUE DETONATION WAVES

by

Philip 'F' Gibber

APPENDICES G, H, and I

Gibber, Philip 'F'

APPENDIX G

NPS ARCHIVE
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GIBBER, R.

~~Thasys~~
~~G 368~~
~~Appendix~~

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Monterey, California

LOOP BRANCH (MI FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
1.5	1.3646	1.0487	1.00	.7328	1.3646	.7400	.0498	.7088	.7104	3.8469	85.4450	2.4418	.9313	1.3171
1.5	1.3646	1.0487	1.00	.7328	1.3646	.7700	.1093	.7413	.7487	8.0791	79.5837	2.3725	.9374	1.3038
1.5	1.3646	1.0487	1.00	.7328	1.3646	.8000	.1415	.7741	.7861	10.0276	75.9337	2.3033	.9434	1.2905
1.5	1.3646	1.0487	1.00	.7328	1.3646	.8300	.1634	.8074	.8229	11.1377	73.0030	2.2340	.9492	1.2771
1.5	1.3646	1.0487	1.00	.7328	1.3646	.8600	.1790	.8410	.8590	11.7607	70.4630	2.1648	.9547	1.2635
1.5	1.3646	1.0487	1.00	.7328	1.3646	.8900	.1901	.8751	.8948	12.0544	68.1750	2.0955	.9600	1.2498
1.5	1.3646	1.0487	1.00	.7328	1.3646	.9200	.1973	.9096	.9303	12.1064	66.0646	2.0263	.9651	1.2360
1.5	1.3646	1.0487	1.00	.7328	1.3646	.9500	.2014	.9446	.9656	11.9711	64.0866	1.9570	.9699	1.2221
1.5	1.3646	1.0487	1.00	.7328	1.3646	.9800	.2027	.9801	1.0009	11.6845	62.2108	1.8878	.9744	1.2080
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.0100	.2013	1.0162	1.0362	11.2717	60.4157	1.8185	.9786	1.1937
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.0400	.1975	1.0528	1.0716	10.7504	58.6855	1.7493	.9824	1.1792
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.0700	.1912	1.0900	1.1072	10.1336	57.0079	1.6800	.9859	1.1645
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.1000	.1827	1.1278	1.1432	9.4304	55.3729	1.6108	.9891	1.1495
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.1300	.1719	1.1663	1.1797	8.6476	53.7726	1.5415	.9918	1.1343
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.1600	.1587	1.2056	1.2168	7.7896	52.2002	1.4722	.9941	1.1187
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.1900	.1431	1.2456	1.2546	6.8592	50.6496	1.4030	.9961	1.1028
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.2200	.1252	1.2866	1.2933	5.8578	49.1156	1.3337	.9976	1.0865
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.2500	.1046	1.3285	1.3331	4.7855	47.5935	1.2645	.9987	1.0697
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.2800	.0815	1.3715	1.3743	3.6410	46.0786	1.1952	.9994	1.0525
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.3100	.0554	1.4158	1.4170	2.4220	44.5668	1.1260	.9998	1.0345
1.5	1.3646	1.0487	1.00	.7328	1.3646	1.3400	.0263	1.4614	1.4617	1.1246	43.0537	1.0567	1.0000	1.0159
1.5	1.3646	1.0487	1.04	.8787	1.1380	.8800	.0124	.8608	.8609	.8076	88.4488	2.0373	.9003	1.3659
1.5	1.3646	1.0487	1.04	.8787	1.1380	.9100	.0568	.8950	.8968	3.5725	82.4399	1.9653	.9023	1.3510
1.5	1.3646	1.0487	1.04	.8787	1.1380	.9400	.0725	.9297	.9325	4.4122	79.6740	1.8933	.9040	1.3360
1.5	1.3646	1.0487	1.04	.8787	1.1380	.9700	.0796	.9649	.9682	4.6907	77.7987	1.8213	.9052	1.3207
1.5	1.3646	1.0487	1.04	.8787	1.1380	1.0000	.0809	1.0007	1.0039	4.6251	76.5427	1.7493	.9061	1.3052
1.5	1.3646	1.0487	1.04	.8787	1.1380	1.0300	.0775	1.0370	1.0399	4.3009	75.8863	1.6772	.9066	1.2894
1.5	1.3646	1.0487	1.04	.8787	1.1380	1.0600	.0695	1.0739	1.0762	3.7510	75.9686	1.6052	.9066	1.2734
1.5	1.3646	1.0487	1.04	.8787	1.1380	1.0900	.0564	1.1115	1.1130	2.9620	77.1915	1.5332	.9062	1.2569
1.5	1.3646	1.0487	1.04	.8787	1.1380	1.1200	.0351	1.1498	1.1503	1.7939	80.8621	1.4612	.9053	1.2401

LOOP BRANCH (M) FROM 1 TO 5

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
2.0	1.6330	1.1227	1.00	.6124	1.6330	.6200	.0761	.5853	.5897	6.9934	85.7064	4.4738	.7235	1.6829
2.0	1.6330	1.1227	1.00	.6124	1.6330	.6500	.1658	.6170	.6367	14.3067	80.4282	4.3710	.7339	1.6650
2.0	1.6330	1.1227	1.00	.6124	1.6330	.6800	.2179	.6489	.6815	17.7700	77.1191	4.2681	.7443	1.6470
2.0	1.6330	1.1227	1.00	.6124	1.6330	.7100	.2566	.6813	.7244	19.8700	74.4639	4.1652	.7549	1.6290
2.0	1.6330	1.1227	1.00	.6124	1.6330	.7400	.2873	.7141	.7660	21.2169	72.1669	4.0623	.7656	1.6110
2.0	1.6330	1.1227	1.00	.6124	1.6330	.7700	.3124	.7472	.8064	22.0805	70.1024	3.9595	.7763	1.5929
2.0	1.6330	1.1227	1.00	.6124	1.6330	.8000	.3331	.7808	.8458	22.6070	68.2031	3.8566	.7870	1.5747
2.0	1.6330	1.1227	1.00	.6124	1.6330	.8300	.3504	.8148	.8844	22.8853	66.4279	3.7537	.7979	1.5565
2.0	1.6330	1.1227	1.00	.6124	1.6330	.8600	.3646	.8492	.9224	22.9734	64.7495	3.6508	.8087	1.5382
2.0	1.6330	1.1227	1.00	.6124	1.6330	.8900	.3762	.8841	.9599	22.9109	63.1486	3.5479	.8196	1.5199
2.0	1.6330	1.1227	1.00	.6124	1.6330	.9200	.3853	.9195	.9969	22.7262	61.6109	3.4451	.8305	1.5015
2.0	1.6330	1.1227	1.00	.6124	1.6330	.9500	.3923	.9554	1.0337	22.4398	60.1256	3.3422	.8413	1.4831
2.0	1.6330	1.1227	1.00	.6124	1.6330	.9800	.3973	.9918	1.0702	22.0669	58.6839	3.2393	.8521	1.4645
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.0100	.4003	1.0287	1.1066	21.6192	57.2789	3.1364	.8629	1.4459
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.0400	.4014	1.0662	1.1429	21.1055	55.9047	3.0335	.8735	1.4272
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.1000	.3983	1.1429	1.1792	20.5323	54.5564	2.9307	.8841	1.4084
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.1300	.3941	1.1823	1.2156	19.9048	53.2297	2.8278	.8944	1.3894
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.1600	.3881	1.2222	1.2888	18.5008	50.6269	2.6220	.9046	1.3703
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.1900	.3804	1.2629	1.3259	17.7289	49.3443	2.5192	.9242	1.3317
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.2200	.3709	1.3044	1.3633	16.9120	48.0705	2.4163	.9336	1.3122
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.2500	.3596	1.3466	1.4013	16.0504	46.8027	2.3134	.9425	1.2925
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.2800	.3464	1.3897	1.4397	15.1438	45.5384	2.2105	.9511	1.2725
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.3100	.3313	1.4337	1.4789	14.1914	44.2752	2.1076	.9591	1.2522
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.3400	.3141	1.4787	1.5188	13.1914	43.0105	2.0048	.9666	1.2317
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.3700	.2947	1.5248	1.5597	12.1415	41.7420	1.9019	.9735	1.2109
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.4000	.2731	1.5721	1.6017	11.0389	40.4670	1.7990	.9797	1.1896
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.4300	.2490	1.6206	1.6450	9.8794	39.1829	1.6961	.9852	1.1679
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.4600	.2223	1.6706	1.6898	8.6583	37.8868	1.5932	.9898	1.1457
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.4900	.1927	1.7222	1.7365	7.3695	36.5757	1.4904	.9936	1.1228
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.5200	.1599	1.7756	1.7854	6.0055	35.2461	1.3875	.9964	1.0992
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.5500	.1235	1.8312	1.8370	4.5568	33.8943	1.2846	.9984	1.0747
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.5800	.0831	1.8894	1.8920	3.0118	32.5159	1.1817	.9995	1.0490
2.0	1.6330	1.1227	1.00	.6124	1.6330	1.6100	.0381	1.9506	1.9511	1.3559	31.1058	1.0789	1.0000	1.0219

2.0	1.6330	1.1227	1.04	.6729	1.4861	.6800	.0647	.6464	.6493	5.4348	85.9831	4.1748	.7083	1.7955
2.0	1.6330	1.1227	1.04	.6729	1.4861	.7100	.1444	.6785	.6924	11.4985	80.7953	4.0678	.7163	1.7765
2.0	1.6330	1.1227	1.04	.6729	1.4861	.7400	.1895	.7110	.7339	14.3642	77.5910	3.9608	.7242	1.7575
2.0	1.6330	1.1227	1.04	.6729	1.4861	.7700	.2222	.7438	.7742	16.0941	75.0372	3.8538	.7320	1.7385
2.0	1.6330	1.1227	1.04	.6729	1.4861	.8000	.2474	.7771	.8134	17.1843	72.8416	3.7468	.7398	1.7194
2.0	1.6330	1.1227	1.04	.6729	1.4861	.8300	.2674	.8108	.8518	17.8550	70.8813	3.6398	.7475	1.7002
2.0	1.6330	1.1227	1.04	.6729	1.4861	.8600	.2832	.8449	.8895	18.2268	69.0911	3.5328	.7551	1.6809
2.0	1.6330	1.1227	1.04	.6729	1.4861	.8900	.2956	.8795	.9267	18.3739	67.4319	3.4259	.7625	1.6615
2.0	1.6330	1.1227	1.04	.6729	1.4861	.9200	.3051	.9145	.9634	18.3450	65.8783	3.3189	.7698	1.6420
2.0	1.6330	1.1227	1.04	.6729	1.4861	.9500	.3119	.9500	.9999	18.1736	64.4131	3.2119	.7769	1.6225
2.0	1.6330	1.1227	1.04	.6729	1.4861	.9800	.3162	.98						

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
2.5	1.8257	1.1867	1.00	.5477	1.8257	.5500	.0494	.5153	.5174	5.1319	87.7827	7.1141	.4998	2.1356
2.5	1.8257	1.1867	1.00	.5477	1.8257	.5800	.1834	.5466	.5733	17.5475	81.6249	6.9703	.5098	2.1112
2.5	1.8257	1.1867	1.00	.5477	1.8257	.6100	.2512	.5782	.6253	22.3789	78.3274	6.8265	.5200	2.0868
2.5	1.8257	1.1867	1.00	.5477	1.8257	.6400	.3013	.6102	.6745	25.2100	75.7429	6.6828	.5305	2.0624
2.5	1.8257	1.1867	1.00	.5477	1.8257	.6700	.3417	.6427	.7214	27.0191	73.5312	6.5390	.5412	2.0379
2.5	1.8257	1.1867	1.00	.5477	1.8257	.7000	.3754	.6755	.7665	28.2058	71.5568	6.3952	.5522	2.0134
2.5	1.8257	1.1867	1.00	.5477	1.8257	.7300	.4043	.7088	.8102	28.9766	69.7493	6.2514	.5634	1.9889
2.5	1.8257	1.1867	1.00	.5477	1.8257	.7600	.4291	.7425	.8527	29.4520	68.0667	6.1076	.5749	1.9643
2.5	1.8257	1.1867	1.00	.5477	1.8257	.7900	.4508	.7767	.8942	29.7082	66.4812	5.9639	.5867	1.9398
2.5	1.8257	1.1867	1.00	.5477	1.8257	.8200	.4695	.8114	.9350	29.7964	64.9736	5.8201	.5987	1.9152
2.5	1.8257	1.1867	1.00	.5477	1.8257	.8500	.4859	.8465	.9750	29.7519	63.5298	5.6763	.6110	1.8905
2.5	1.8257	1.1867	1.00	.5477	1.8257	.8800	.4999	.8821	1.0146	29.6005	62.1391	5.5325	.6235	1.8659
2.5	1.8257	1.1867	1.00	.5477	1.8257	.9100	.5119	.9183	1.0537	29.3609	60.7929	5.3888	.6363	1.8412
2.5	1.8257	1.1867	1.00	.5477	1.8257	.9400	.5221	.9550	1.0924	29.0472	59.4846	5.2450	.6493	1.8164
2.5	1.8257	1.1867	1.00	.5477	1.8257	.9700	.5304	.9923	1.1310	28.6703	58.2086	5.1012	.6626	1.7917
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.0000	.5371	1.0302	1.1693	28.2385	56.9602	4.9574	.6762	1.7668
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.0300	.5421	1.0686	1.2076	27.7582	55.7355	4.8137	.6900	1.7420
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.0600	.5456	1.1077	1.2458	27.2345	54.5311	4.6699	.7040	1.7170
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.0900	.5475	1.1474	1.2840	26.6713	53.3440	4.5261	.7183	1.6920
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.1200	.5480	1.1878	1.3224	26.0716	52.1714	4.3823	.7327	1.6670
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.1500	.5470	1.2289	1.3609	25.4378	51.0110	4.2385	.7474	1.6419
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.1800	.5445	1.2708	1.3996	24.7716	49.8605	4.0948	.7622	1.6167
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.2100	.5406	1.3134	1.4385	24.0741	48.7179	3.9510	.7772	1.5914
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.2400	.5352	1.3568	1.4778	23.3460	47.5812	3.8072	.7922	1.5660
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.2700	.5283	1.4011	1.5175	22.5877	46.4485	3.6634	.8074	1.5405
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.3000	.5199	1.4463	1.5577	21.7990	45.3182	3.5197	.8226	1.5149
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.3300	.5100	1.4924	1.5984	20.9794	44.1883	3.3759	.8378	1.4891
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.3600	.4984	1.5395	1.6397	20.1282	43.0572	3.2321	.8529	1.4632
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.3900	.4853	1.5877	1.6816	19.2442	41.9230	3.0883	.8679	1.4372
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.4200	.4703	1.6370	1.7244	18.3256	40.7839	2.9445	.8826	1.4109
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.4500	.4536	1.6875	1.7681	17.3704	39.6381	2.8008	.8971	1.3844
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.4800	.4349	1.7393	1.8128	16.3760	38.4836	2.6570	.9112	1.3577
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.5100	.4142	1.7925	1.8587	15.3392	37.3181	2.5132	.9248	1.3306
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.5400	.3913	1.8472	1.9059	14.2561	36.1395	2.3694	.9377	1.3032
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.5700	.3660	1.9036	1.9546	13.1219	34.9452	2.2257	.9499	1.2754
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.6000	.3381	1.9618	2.0052	11.9309	33.7323	2.0819	.9611	1.2471
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.6300	.3073	2.0222	2.0578	10.6759	32.4977	1.9381	.9712	1.2183
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.6600	.2733	2.0849	2.1129	9.3481	31.2378	1.7943	.9800	1.1886
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.6900	.2356	2.1503	2.1711	7.9364	29.9483	1.6506	.9873	1.1581
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.7200	.1937	2.2190	2.2330	6.4270	28.6242	1.5068	.9930	1.1265
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.7500	.1470	2.2916	2.2997	4.8017	27.2594	1.3630	.9970	1.0935
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.7800	.0944	2.3690	2.3724	3.0366	25.8467	1.2192	.9992	1.0585
2.5	1.8257	1.1867	1.00	.5477	1.8257	1.8100	.0347	2.4528	2.4533	1.0996	24.3765	1.0754	1.0000	1.0210

2.5	1.8257	1.1867	1.04	.5915</td
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2.5	1.8257	1.1867	1.08	.6434	1.5543	.6500	.0701	6157	.6193	6.1530	86.3774	6.3856	.4841	2.4375
2.5	1.8257	1.1867	1.08	.6434	1.5543	.6800	.1618	6477	.6658	13.3811	81.4569	6.2303	.4909	2.4107
2.5	1.8257	1.1867	1.08	.6434	1.5543	.7100	.2138	6800	.7102	16.7605	78.4554	6.0751	.4977	2.3839
2.5	1.8257	1.1867	1.08	.6434	1.5543	.7400	.2522	7128	.7531	18.8169	76.0723	5.9198	.5046	2.3571
2.5	1.8257	1.1867	1.08	.6434	1.5543	.7700	.2824	7460	.7946	20.1420	74.0293	5.7645	.5115	2.3302
2.5	1.8257	1.1867	1.08	.6434	1.5543	.8000	.3070	7796	.8350	20.9957	72.2098	5.6092	.5184	2.3032
2.5	1.8257	1.1867	1.08	.6434	1.5543	.8300	.3273	8136	.8745	21.5187	70.5520	5.4539	.5253	2.2762
2.5	1.8257	1.1867	1.08	.6434	1.5543	.8600	.3439	8480	.9133	21.7967	69.0189	5.2987	.5322	2.2492
2.5	1.8257	1.1867	1.08	.6434	1.5543	.8900	.3575	8830	.9515	21.8857	67.5864	5.1434	.5390	2.2220
2.5	1.8257	1.1867	1.08	.6434	1.5543	.9200	.3684	9184	.9893	21.8239	66.2380	4.9881	.5458	2.1948
2.5	1.8257	1.1867	1.08	.6434	1.5543	.9500	.3769	9543	1.0266	21.6388	64.9622	4.8328	.5525	2.1675
2.5	1.8257	1.1867	1.08	.6434	1.5543	.9800	.3831	9907	1.0637	21.3501	63.7507	4.6775	.5590	2.1401
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.0100	.3871	10276	1.1005	20.9726	62.5981	4.5223	.5655	2.1126
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.0400	.3892	10651	1.1373	20.5172	61.5005	4.3670	.5718	2.0851
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.0700	.3893	11032	1.1739	19.9921	60.4560	4.2117	.5779	2.0573
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.1000	.3874	11419	1.2107	19.4036	59.4643	4.0564	.5838	2.0295
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.1300	.3837	11812	1.2475	18.7560	58.5267	3.9011	.5894	2.0015
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.1600	.3781	12212	1.2844	18.0523	57.6463	3.7459	.5947	1.9733
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.1900	.3705	12619	1.3216	17.2944	56.8285	3.5906	.5997	1.9450
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.2200	.3610	13033	1.3592	16.4829	56.0813	3.4353	.6043	1.9164
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.2500	.3494	13455	1.3971	15.6175	55.4165	3.2800	.6084	1.8876
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.2800	.3357	13885	1.4355	14.6966	54.8514	3.1247	.6120	1.8585
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.3100	.3198	14325	1.4745	13.7176	54.4104	2.9695	.6150	1.8291
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.3400	.3014	14773	1.5142	12.6761	54.1302	2.8142	.6173	1.7993
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.3700	.2804	15233	1.5548	11.5656	54.0658	2.6589	.6188	1.7691
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.4000	.2564	15703	1.5964	10.3767	54.3044	2.5036	.6195	1.7383
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.4300	.2289	16186	1.6392	9.0947	54.9916	2.3484	.6193	1.7070
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.4600	.1973	16683	1.6834	7.6951	56.3912	2.1931	.6179	1.6750
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.4900	.1600	17195	1.7294	6.1304	59.0456	2.0378	.6155	1.6421
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.5200	.1137	17726	1.7775	4.2789	64.3489	1.8825	.6117	1.6082
2.5	1.8257	1.1867	1.08	.6434	1.5543	1.5500	.0385	18277	1.8283	1.4230	79.4540	1.7272	.6065	1.5729

2.5	1.8257	1.1867	1.12	.7093	1.4099	.7100	.0202	6772	.6775	1.6337	88.8573	5.9389	.4727	2.5851
2.5	1.8257	1.1867	1.12	.7093	1.4099	.7400	.1286	7097	.7204	9.8600	82.5619	5.7779	.4778	2.5570
2.5	1.8257	1.1867	1.12	.7093	1.4099	.7700	.1761	7426	.7618	12.8835	79.5527	5.6169	.4828	2.5289
2.5	1.8257	1.1867	1.12	.7093	1.4099	.8000	.2094	7758	.8020	14.6684	77.2464	5.4559	.4877	2.5007
2.5	1.8257	1.1867	1.12	.7093	1.4099	.8300	.2346	8095	.8413	15.7850	75.3126	5.2948	.4925	2.4724
2.5	1.8257	1.1867	1.12	.7093	1.4099	.8600	.2542	8436	.8797	16.4693	73.6238	5.1338	.4972	2.4441
2.5	1.8257	1.1867	1.12	.7093	1.4099	.8900	.2695	8782	.9176	16.8466	72.1158	4.9728	.5018	2.4156
2.5	1.8257	1.1867	1.12	.7093	1.4099	.9200	.2811	9132	.9549	16.9925	70.7523	4.8117	.5062	2.3871
2.5	1.8257	1.1867	1.12	.7093	1.4099	.9500	.2896	9487	.9918	16.9561	69.5113	4.6507	.5104	2.3584
2.5	1.8257	1.1867	1.12	.7093	1.4099	.9800	.2953	9847	1.0284	16.7707	68.3800	4.4897	.5143	2.3296
2.5	1.8257	1.1867	1.12	.7093	1.4099	1.0100	.2984	10212	1.0648	16.4599	67.3514	4.3286	.5181	2.3007
2.5	1.8257	1.1867	1.12	.7093	1.4099	1.0400	.2990	10583	1.1011	16.0401	66.4237	4.1676	.5215	2.2716
2.5	1.8257	1.1867	1.12	.7093	1.4099	1.0700	.2972	10959	1.1374	15.5232	65.5994	4.0066	.5247	2.2423
2.5	1.8257	1.1867	1.12	.7093	1.4099	1.1000	.2930	11341	1.17					

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	2U	M2	THETA	SIGMA	PR21	PTR21	TR21
3.0	1.9640	1.2366	1.00	.5092	1.9640	.5100	.0327	4760	.4770	3.6631	88.7136	10.3280	.3286	2.6781
3.0	1.9640	1.2366	1.00	.5092	1.9640	.5400	.1973	5071	.5399	20.0698	82.1120	10.1356	.3365	2.6458
3.0	1.9640	1.2366	1.00	.5092	1.9640	.5700	.2739	5386	.5975	25.6628	78.8849	9.9431	.3446	2.6134
3.0	1.9640	1.2366	1.00	.5092	1.9640	.6000	.3306	5705	.6514	28.8561	76.3746	9.7506	.3530	2.5486
3.0	1.9640	1.2366	1.00	.5092	1.9640	.6300	.3766	6028	.7023	30.8711	74.2341	9.5582	.3617	2.5162
3.0	1.9640	1.2366	1.00	.5092	1.9640	.6600	.4155	6356	.7510	32.1892	72.3278	9.3657	.3706	2.4857
3.0	1.9640	1.2366	1.00	.5092	1.9640	.6900	.4490	6688	.7979	33.0523	70.5859	9.1732	.3799	2.4188
3.0	1.9640	1.2366	1.00	.5092	1.9640	.7200	.4783	7025	.8434	33.5985	68.9668	8.9808	.3894	2.4513
3.0	1.9640	1.2366	1.00	.5092	1.9640	.7500	.5042	7366	.8876	33.9141	67.4434	8.7883	.3993	2.3864
3.0	1.9640	1.2366	1.00	.5092	1.9640	.7800	.5272	7713	.9309	34.0554	65.9968	8.5958	.4095	2.3539
3.0	1.9640	1.2366	1.00	.5092	1.9640	.8100	.5476	8065	.9735	34.0614	64.6132	8.4034	.4200	2.3214
3.0	1.9640	1.2366	1.00	.5092	1.9640	.8400	.5657	8422	1.0154	33.9599	63.2822	8.2109	.4308	2.2888
3.0	1.9640	1.2366	1.00	.5092	1.9640	.8700	.5818	8784	1.0567	33.7711	61.9956	8.0184	.4420	2.2563
3.0	1.9640	1.2366	1.00	.5092	1.9640	.9000	.5959	9152	1.0977	33.5101	60.7468	7.8260	.4536	2.2237
3.0	1.9640	1.2366	1.00	.5092	1.9640	.9300	.6083	9527	1.1383	33.1884	59.5306	7.6335	.4655	2.1911
3.0	1.9640	1.2366	1.00	.5092	1.9640	.9600	.6190	9907	1.1788	32.8150	58.3424	7.4410	.4779	2.1585
3.0	1.9640	1.2366	1.00	.5092	1.9640	.9900	.6282	1.0293	1.2191	32.3966	57.1786	7.2486	.4906	2.1258
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.0200	.6359	1.0686	1.2593	31.9389	56.0357	7.0561	.5038	2.0931
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.0500	.6421	1.1086	1.2995	31.4460	54.9111	6.8636	.5173	2.0604
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.0800	.6469	1.1493	1.3397	30.9213	53.8021	6.6711	.5314	2.0276
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.1100	.6504	1.1907	1.3801	30.3675	52.7067	6.4787	.5458	1.9948
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.1400	.6525	1.2329	1.4206	29.7868	51.6226	6.2862	.5607	1.9620
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.1700	.6534	1.2759	1.5025	28.5503	49.4816	5.9013	.5761	1.8921
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.2000	.6529	1.3198	1.5439	27.8966	48.4212	5.7088	.6082	1.8631
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.2300	.6512	1.3645	1.6279	26.5209	46.3130	5.5163	.6249	1.8300
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.2600	.6481	1.4101	1.6707	25.7993	45.2623	5.3239	.6421	1.7969
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.2900	.6438	1.4566	1.7141	25.0548	44.2120	5.1314	.6598	1.7636
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.3200	.6381	1.5042	1.7581	24.2869	43.1605	5.0447	.6780	1.7303
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.3500	.6311	1.5528	1.8029	23.4950	42.1066	4.5540	.7155	1.6969
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.3800	.6227	1.6025	1.8484	22.6779	41.0488	4.3615	.7348	1.6634
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.4100	.6129	1.6534	1.8949	21.8344	39.9855	4.1691	.7545	1.6297
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.4700	.5890	1.7589	1.9423	20.9629	38.9152	3.9766	.7745	1.5959
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.5000	.5747	1.8138	1.9908	20.0614	37.8361	3.7841	.8150	1.5619
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.5300	.5587	1.8701	2.0406	19.1275	36.7466	3.5917	.8353	1.4933
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.5600	.5410	1.9279	2.0917	18.1583	35.6447	3.3992	.8555	1.4586
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.5900	.5215	1.9875	2.1443	17.1505	34.5282	3.0143	.8755	1.4237
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.6200	.4999	2.0489	2.1986	16.0998	33.3947	2.8218	.8950	1.3883
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.6500	.4762	2.1124	2.2548	15.0013	32.2417	2.6293	.9139	1.3525
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.6800	.4502	2.1780	2.3133	13.8488	31.0661	2.4368	.9317	1.3161
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.7100	.4216	2.2460	2.3743	12.6346	29.8644	2.2444	.9483	1.2791
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.7400	.3900	2.3168	2.4383	11.3494	28.6325	2.0519	.9633	1.2412
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.7700	.3553	2.3906	2.5059	9.9812	27.3656	2.0859	.9762	1.2022
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.8000	.3168	2.4680	2.5779	8.5143	26.0577	1.6670	.9866	1.1617
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.8300	.2740	2.5495	2.6555	6.9282	24.7015	1.4745	.9941	1.1192
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.8600	.2260	2.6361	2.7402	5.1950	23.2878	1.2820	.9984	1.0740
3.0	1.9640	1.2366	1.00	.5092	1.9640	1.8900	.1718	2.7289	2.834					

3.0	1.9640	1.2366	1.08	.5873	1.7026	.5900	.0511	5551	.5571	4.9467	87.7502	9.5120	.3197	3.0750
3.0	1.9640	1.2366	1.08	.5873	1.7026	.6200	.1761	5867	.6099	15.8553	82.1051	9.3041	.3256	3.0398
3.0	1.9640	1.2366	1.08	.5873	1.7026	.6500	.2401	6186	.6595	20.2744	79.0395	9.0962	.3316	3.0046
3.0	1.9640	1.2366	1.08	.5873	1.7026	.6800	.2873	6510	.7067	22.9052	76.6405	8.8884	.3377	2.9693
3.0	1.9640	1.2366	1.08	.5873	1.7026	.7100	.3251	6838	.7521	24.6037	74.5937	8.6805	.3439	2.9340
3.0	1.9640	1.2366	1.08	.5873	1.7026	.7400	.3565	7170	.7959	25.7244	72.7729	8.4726	.3502	2.8987
3.0	1.9640	1.2366	1.08	.5873	1.7026	.7700	.3831	7507	.8385	26.4531	71.1128	8.2648	.3566	2.8633
3.0	1.9640	1.2366	1.08	.5873	1.7026	.8000	.4059	7848	.8800	26.8997	69.5743	8.0569	.3631	2.8279
3.0	1.9640	1.2366	1.08	.5873	1.7026	.8300	.4254	8194	.9207	27.2044	66.7681	7.8491	.3697	2.7925
3.0	1.9640	1.2366	1.08	.5873	1.7026	.8600	.4421	8545	.9607	27.1431	65.4699	7.6412	.3764	2.7570
3.0	1.9640	1.2366	1.08	.5873	1.7026	.8900	.4563	8900	1.0002	27.2044	66.7681	7.8491	.3831	2.7214
3.0	1.9640	1.2366	1.08	.5873	1.7026	.9200	.4682	9261	1.0392	26.9745	64.2279	7.2255	.3900	2.6859
3.0	1.9640	1.2366	1.08	.5873	1.7026	.9500	.4781	9627	1.0778	26.7165	63.0349	7.0176	.3969	2.6502
3.0	1.9640	1.2366	1.08	.5873	1.7026	.9800	.4861	9999	1.1161	26.3823	61.8854	6.8097	.4038	2.6145
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.0100	.4922	1.0376	1.1543	25.9822	60.7750	6.6019	.4108	2.5788
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.0400	.4966	1.0759	1.1923	25.5240	59.7004	6.3940	.4179	2.5430
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.0700	.4993	1.1148	1.2302	25.0138	58.6591	6.1861	.4249	2.5070
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.1000	.5003	1.1544	1.2682	24.4561	57.6495	5.9783	.4320	2.4711
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.1300	.4997	1.1947	1.3062	23.8544	56.6704	5.7704	.4390	2.4350
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.1600	.4974	1.2356	1.3444	23.2114	55.7216	5.5625	.4459	2.3988
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.1900	.4936	1.2772	1.3828	22.5287	54.8032	5.3547	.4528	2.3625
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.2200	.4881	1.3197	1.4214	21.8074	53.9165	5.1468	.4596	2.3260
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.2500	.4810	1.3629	1.4603	21.0480	53.0635	4.9389	.4662	2.2895
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.2800	.4722	1.4069	1.4996	20.2503	52.2471	4.7311	.4725	2.2527
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.3100	.4617	1.4518	1.5394	19.4136	51.4720	4.5232	.4787	2.2158
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.3400	.4493	1.4977	1.5796	18.5366	50.7446	4.3153	.4845	2.1787
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.3700	.4350	1.5445	1.6205	17.6172	50.0738	4.1075	.4900	2.1413
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.4000	.4188	1.5924	1.6621	16.6527	49.4721	3.8996	.4950	2.1036
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.4300	.4003	1.6414	1.7045	15.6393	48.9573	3.6917	.4995	2.0656
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.4600	.3795	1.6917	1.7479	14.5721	48.5548	3.4839	.5033	2.0272
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.4900	.3562	1.7432	1.7923	13.4447	48.3026	3.2760	.5065	1.9884
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.5200	.3300	1.7962	1.8380	12.2484	48.2587	3.0681	.5087	1.9491
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.5500	.3005	1.8507	1.8852	10.9710	48.5164	2.8603	.5099	1.9090
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.5800	.2671	1.9070	1.9341	9.5949	49.2359	2.6524	.5100	1.8682
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.6100	.2289	1.9653	1.9851	8.0915	50.7172	2.4445	.5088	1.8265
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.6400	.1842	2.0259	2.0387	6.4067	53.6051	2.2367	.5060	1.7835
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.6700	.1286	2.0893	2.0955	4.4040	59.6683	2.0288	.5015	1.7389
3.0	1.9640	1.2366	1.08	.5873	1.7026	1.7000	.0346	2.1559	2.1564	1.1662	79.6682	1.8209	.4951	1.6922

3.0	1.9640	1.2366	1.12	.6361	1.5720	.6400	.0562	6054	.6078	5.0196	87.3528	9.0013	.3145	3.2707
3.0	1.9640	1.2366	1.12	.6361	1.5720	.6700	.1630	6374	.6560	13.6767	82.1711	8.7857	.3193	3.2340
3.0	1.9640	1.2366	1.12	.6361	1.5720	.7000	.2197	6698	.7020	17.4253	79.2368	8.5702	.3242	3.1972
3.0	1.9640	1.2366	1.12	.6361	1.5720	.7300	.2612	7025	.7461	19.6884	76.9369	8.3546	.3291	3.1604
3.0	1.9640	1.2366	1.12	.6361	1.5720	.7600	.2941	7357	.7888	21.1522	74.9783	8.1390	.3341	3.1236
3.0	1.9640	1.2366	1.12	.6361	1.5720	.7900	.3209	7693	.8303	22.1084	73.2421	7.9235	.3390	3.0867
3.0	1.9640	1.2366	1.12	.6361	1.5720	.8200	.3432	8033	.8708	22.7123	71.6665	7.7079		

3.0	1.9640	1.2366	1.16	.6967	1.4353	.7000	.0456	6669	.6684	3.7288	87.6748	8.3905	.3082	3.4587
3.0	1.9640	1.2366	1.16	.6967	1.4353	.7300	.1421	6994	.7125	11.0132	82.5973	8.1673	.3119	3.4204
3.0	1.9640	1.2366	1.16	.6967	1.4353	.7600	.1913	7323	.7551	14.1263	79.8044	7.9440	.3156	3.3820
3.0	1.9640	1.2366	1.16	.6967	1.4353	.7900	.2265	7655	.7964	15.9959	77.6402	7.7207	.3192	3.3456
3.0	1.9640	1.2366	1.16	.6967	1.4353	.8200	.2536	7992	.8366	17.1842	75.8182	7.4975	.3228	3.3051
3.0	1.9640	1.2366	1.16	.6967	1.4353	.8500	.2750	8333	.8759	17.9302	74.2236	7.2742	.3264	3.2665
3.0	1.9640	1.2366	1.16	.6967	1.4353	.8800	.2921	8679	.9145	18.3626	72.7979	7.0509	.3298	3.2278
3.0	1.9640	1.2366	1.16	.6967	1.4353	.9100	.3055	9029	.9525	18.5591	71.5071	6.8277	.3332	3.1891
3.0	1.9640	1.2366	1.16	.6967	1.4353	.9400	.3158	9384	.9900	18.5704	70.3306	6.6044	.3364	3.1502
3.0	1.9640	1.2366	1.16	.6967	1.4353	.9700	.3233	9744	1.0271	18.4311	69.2558	6.3812	.3395	3.1112
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.0000	.3281	1.0109	1.0640	18.1656	68.2753	6.1579	.3425	3.0721
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.0300	.3305	1.0480	1.1006	17.7913	67.3862	5.9346	.3452	3.0329
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.0600	.3306	1.0856	1.1371	17.3204	66.5889	5.7114	.3478	2.9935
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.0900	.3283	1.1238	1.1736	16.7617	65.8877	5.4881	.3501	2.9539
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.1200	.3237	1.1625	1.2101	16.1208	65.2905	5.2648	.3522	2.9142
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.1500	.3168	1.2019	1.2467	15.4007	64.8100	5.0416	.3540	2.8742
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.1800	.3074	1.2420	1.2835	14.6020	64.4651	4.8183	.3554	2.8340
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.2100	.2955	1.2828	1.3205	13.7227	64.2834	4.5951	.3564	2.7935
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.2400	.2808	1.3243	1.3578	12.7576	64.3048	4.3718	.3571	2.7527
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.2700	.2629	1.3666	1.3956	11.6973	64.5895	4.1485	.3572	2.7114
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.3000	.2416	1.4098	1.4339	10.5261	65.2302	3.9253	.3568	2.6698
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.3300	.2158	1.4538	1.4728	9.2163	66.3805	3.7020	.3558	2.6277
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.3600	.1843	1.4989	1.5126	7.7163	68.3185	3.4787	.3541	2.5849
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.3900	.1439	1.5450	1.5532	5.9087	71.6413	3.2555	.3516	2.5414
3.0	1.9640	1.2366	1.16	.6967	1.4353	1.4200	.0838	1.5923	1.5950	3.3782	78.2643	3.0322	.3483	2.4971

3.0	1.9640	1.2366	1.20	.7817	1.2792	.7900	.0586	7621	.7642	4.2419	86.6561	7.5180	.3013	3.6103
3.0	1.9640	1.2366	1.20	.7817	1.2792	.8200	.1218	7955	.8042	8.4459	82.8661	7.2870	.3037	3.5702
3.0	1.9640	1.2366	1.20	.7817	1.2792	.8500	.1568	8293	.8433	10.4488	80.5607	7.0561	.3059	3.5300
3.0	1.9640	1.2366	1.20	.7817	1.2792	.8800	.1808	8635	.8815	11.6098	78.7972	6.8251	.3081	3.4896
3.0	1.9640	1.2366	1.20	.7817	1.2792	.9100	.1980	8982	.9192	12.2729	77.3616	6.5942	.3100	3.4492
3.0	1.9640	1.2366	1.20	.7817	1.2792	.9400	.2100	9333	.9563	12.5930	76.1674	6.3632	.3118	3.4086
3.0	1.9640	1.2366	1.20	.7817	1.2792	.9700	.2178	9689	.9930	12.6549	75.1745	6.1322	.3134	3.3678
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.0000	.2219	1.0050	1.0294	12.5099	74.3659	5.9013	.3148	3.3269
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.0300	.2225	1.0416	1.0656	12.1899	73.7393	5.6703	.3160	3.2858
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.0600	.2198	1.0787	1.1017	11.7143	73.3052	5.4393	.3168	3.2445
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.0900	.2137	1.1164	1.1377	11.0928	73.0875	5.2084	.3174	3.2029
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.1200	.2041	1.1547	1.1737	10.3264	73.1277	4.9774	.3176	3.1611
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.1500	.1905	1.1936	1.2099	9.4055	73.4938	4.7465	.3174	3.1189
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.1800	.1723	1.2332	1.2463	8.3051	74.3010	4.5155	.3168	3.0764
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.2100	.1479	1.2735	1.2829	6.9689	75.7611	4.2845	.3158	3.0334
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.2400	.1140	1.3145	1.3200	5.2546	78.3446	4.0536	.3142	2.9900
3.0	1.9640	1.2366	1.20	.7817	1.2792	1.2700	.0564	1.3563	1.3576	2.5447	83.8387	3.8226	.3121	2.9460

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	ZU	M2	THETA	SIGMA	PR21	PTR21	TR21
3.5	2.0642	1.2743	1.00	.4845	2.0642	.4900	.0895	4569	.4644	10.3561	86.7444	14.0789	.2140	3.3073
3.5	2.0642	1.2743	1.00	.4845	2.0642	.5200	.2243	4879	.5314	23.3341	81.7348	13.8297	.2198	3.2656
3.5	2.0642	1.2743	1.00	.4845	2.0642	.5500	.3014	5194	.5923	28.7229	78.7432	13.5804	.2257	3.2238
3.5	2.0642	1.2743	1.00	.4845	2.0642	.5800	.3599	5513	.6488	31.7790	74.3263	13.3312	.2319	3.1821
3.5	2.0642	1.2743	1.00	.4845	2.0642	.6100	.4080	5837	.7022	33.0552	72.4998	13.0819	.2384	3.1403
3.5	2.0642	1.2743	1.00	.4845	2.0642	.6400	.4491	6165	.7531	35.8881	70.8265	12.8327	.2451	3.0985
3.5	2.0642	1.2743	1.00	.4845	2.0642	.6700	.4848	6498	.8020	35.4135	69.2686	12.5834	.2520	3.0567
3.5	2.0642	1.2743	1.00	.4845	2.0642	.7000	.5163	6836	.8494	36.7157	67.8014	12.3342	.2592	3.0150
3.5	2.0642	1.2743	1.00	.4845	2.0642	.7300	.5444	7178	.8955	36.8502	66.4072	12.0849	.2667	2.9731
3.5	2.0642	1.2743	1.00	.4845	2.0642	.7600	.5696	7527	.9406	36.6706	59.0282	11.8357	.2745	2.8895
3.5	2.0642	1.2743	1.00	.4845	2.0642	.7900	.5922	7880	.9848	36.5772	63.7898	11.3371	.2825	2.8477
3.5	2.0642	1.2743	1.00	.4845	2.0642	.8200	.6125	8239	1.0284	36.5772	62.5492	11.0879	.2997	2.8058
3.5	2.0642	1.2743	1.00	.4845	2.0642	.8500	.6307	8604	1.0714	36.3289	61.3453	10.8386	.3088	2.7639
3.5	2.0642	1.2743	1.00	.4845	2.0642	.8800	.6471	8975	1.1140	36.0238	60.1731	10.5894	.3182	2.7221
3.5	2.0642	1.2743	1.00	.4845	2.0642	.9100	.6617	9352	1.1563	36.6706	59.0282	10.3401	.3281	2.6802
3.5	2.0642	1.2743	1.00	.4845	2.0642	.9400	.6747	9736	1.1984	35.4661	48.4904	7.8476	.4374	2.3021
3.5	2.0642	1.2743	1.00	.4845	2.0642	.9700	.6862	10126	1.2403	35.2760	57.9073	10.0909	.4523	2.2599
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.0000	.6962	10523	1.2822	34.8454	56.8072	9.8416	.4678	2.2178
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.0300	.7048	10927	1.3241	34.3829	55.7253	9.5924	.4839	2.1755
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.0600	.7121	11339	1.3660	33.8921	54.6593	9.3431	.4954	2.14704
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.0900	.7181	11759	1.4081	33.3754	53.6069	9.0939	.50954	2.1383
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.1200	.7228	12187	1.4504	32.8351	52.5664	8.8446	.54095	2.1232
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.1500	.7262	12623	1.4929	32.2729	51.5361	8.5954	.5423	2.1342
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.2100	.7296	13068	1.5358	31.6900	50.5143	8.3461	.54374	2.3021
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.2400	.7294	13986	1.6226	30.4661	48.4904	7.8476	.4523	2.2599
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.2700	.7281	14460	1.6668	29.8262	47.4856	7.5984	.4678	2.2178
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.3000	.7256	14944	1.7115	29.1681	46.4839	7.3491	.4839	2.1755
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.3300	.7219	15440	1.7568	28.4919	45.4840	7.0999	.5007	2.1332
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.3600	.7108	15947	1.8028	27.7975	44.4847	6.8506	.5183	2.0909
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.4200	.7034	16999	1.8971	26.3525	42.4830	6.3521	.5555	2.0061
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.4500	.6947	17546	1.9456	25.6008	41.4781	6.1029	.5753	1.9635
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.4800	.6847	18106	1.9950	24.8285	40.4689	5.8536	.5959	1.9209
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.5100	.6734	18682	2.0456	24.0346	39.4539	5.6044	.6172	1.8782
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.5400	.6606	19274	2.0973	23.2177	38.4318	5.3551	.6393	1.8354
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.5700	.6463	19883	2.1503	22.3762	37.4012	5.1059	.6622	1.7925
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.6000	.6305	20511	2.2047	21.5082	36.3603	4.8566	.6858	1.7494
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.6300	.6131	21159	2.2606	20.6116	35.3076	4.6074	.7102	1.7062
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.6600	.5938	21828	2.3182	19.6835	34.2411	4.3581	.7352	1.6628
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.6900	.5727	22520	2.3778	18.7209	33.1586	4.1089	.7607	1.6191
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.7200	.5496	23237	2.4394	17.7198	32.0579	3.8596	.7867	1.5752
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.7500	.5242	23981	2.5034	16.6757	30.9363	3.6104	.8130	1.5311
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.7800	.4964	24755	2.5699	15.5827	29.7907	3.3611	.8393	1.4865
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.8100	.4659	25562	2.6395	14.4340	28.6175	3.1119	.8654	1.4414
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.8400	.4323	26407	2.7126	13.2207	27.4125	2.8626	.8909	1.3958
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.8700	.3952	27294	2.7897	11.9317	26.1707	2.6134	.9154	1.3495
3.5	2.0642	1.2743	1.00	.4845	2.0642	1.9000	.3539	28231	2.8717	10.5524	24.8858	2.3641		

3.5	2.0642	1.2743	1.08	.5536	1.8062	.5600	.0850	.5254	.5315	8.6290	86.5902	13.1251	.2086	3.8089
3.5	2.0642	1.2743	1.08	.5536	1.8062	.5900	.2006	.5569	.5882	18.7804	81.8232	12.8559	.2130	3.7636
3.5	2.0642	1.2743	1.08	.5536	1.8062	.6200	.2674	.5888	.6412	23.3308	78.9259	12.5867	.2176	3.7183
3.5	2.0642	1.2743	1.08	.5536	1.8062	.6500	.3178	.6211	.6913	26.0546	76.6223	12.3175	.2223	3.6730
3.5	2.0642	1.2743	1.08	.5536	1.8062	.7100	.3588	.6538	.7392	27.8155	74.6427	12.0483	.2271	3.6276
3.5	2.0642	1.2743	1.08	.5536	1.8062	.7400	.4229	.6869	.7853	28.9817	72.8741	11.7792	.2320	3.5823
3.5	2.0642	1.2743	1.08	.5536	1.8062	.7700	.4486	.7206	.8299	29.7470	71.2565	11.5100	.2371	3.5369
3.5	2.0642	1.2743	1.08	.5536	1.8062	.8000	.4711	.7546	.8734	30.2259	69.7536	11.2408	.2422	3.4915
3.5	2.0642	1.2743	1.08	.5536	1.8062	.8300	.4907	.7892	.9158	30.4918	68.3414	10.9716	.2475	3.4460
3.5	2.0642	1.2743	1.08	.5536	1.8062	.8600	.5079	.8242	.9575	30.5935	67.0030	10.7024	.2529	3.4005
3.5	2.0642	1.2743	1.08	.5536	1.8062	.8900	.5228	.8598	.9985	30.5656	65.7264	10.4332	.2585	3.3550
3.5	2.0642	1.2743	1.08	.5536	1.8062	.9200	.5357	.9325	1.0390	30.2134	63.3230	10.1640	.2642	3.3095
3.5	2.0642	1.2743	1.08	.5536	1.8062	.9500	.5467	.9697	1.0791	30.9212	62.1835	9.8948	.2700	3.2639
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.0100	.5635	1.0075	1.1189	29.5669	61.0791	9.6256	.2759	3.2183
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.0400	.5694	1.0850	1.1584	29.1584	60.0061	9.0872	.2819	3.1727
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.0700	.5738	1.1247	1.2370	28.7022	58.9617	8.8181	.2943	3.0812
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.1000	.5767	1.1650	1.3154	27.6654	56.9492	8.5489	.3007	3.0354
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.1300	.5780	1.2061	1.3547	27.0915	55.9780	8.0105	.3137	2.9436
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.1600	.5779	1.2479	1.3942	26.4838	55.0285	7.7413	.3204	2.8976
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.1900	.5764	1.2905	1.4339	25.8441	54.1001	7.4721	.3271	2.8515
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.2200	.5734	1.3339	1.4738	25.1733	53.1926	7.2029	.3338	2.8053
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.2500	.5689	1.3781	1.5141	24.4722	52.3062	6.9337	.3406	2.7591
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.2800	.5630	1.4232	1.5547	23.7408	51.4414	6.6645	.3474	2.7127
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.3100	.5555	1.4692	1.5958	22.9791	50.5996	6.3953	.3542	2.6662
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.3400	.5465	1.5161	1.6374	22.1865	49.7825	6.1261	.3609	2.6195
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.3700	.5358	1.5641	1.6795	21.3618	48.9931	5.8570	.3675	2.5727
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.4000	.5235	1.6132	1.7223	20.5035	48.2351	5.5878	.3740	2.5257
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.4300	.5095	1.6633	1.7658	19.6098	47.5139	5.3186	.3803	2.4785
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.4600	.4936	1.7147	1.8101	18.6780	46.8369	5.0494	.3863	2.4311
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.4900	.4757	1.7674	1.8553	17.7049	46.2146	4.7802	.3920	2.3834
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.5200	.4556	1.8214	1.9015	16.6862	45.6613	4.5110	.3972	2.3353
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.5500	.4333	1.8770	1.9489	15.6169	45.1980	4.2418	.4019	2.2869
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.5800	.4083	1.9341	1.9976	14.4901	44.8552	3.9726	.4060	2.2380
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.6100	.3805	1.9929	2.0478	13.2971	44.6794	3.7034	.4093	2.1885
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.6400	.3494	2.0537	2.0998	12.0259	44.7445	3.4342	.4116	2.1384
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.6700	.3143	2.1167	2.1539	10.6598	45.1752	3.1651	.4128	2.0874
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.7000	.2745	2.1821	2.2104	9.1735	46.1986	2.8959	.4126	2.0353
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.7300	.2285	2.2504	2.2699	7.5234	48.2807	2.6267	.4108	1.9818
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.7600	.1731	2.3221	2.3333	5.6183	52.5772	2.3575	.4071	1.9265
3.5	2.0642	1.2743	1.08	.5536	1.8062	1.7900	.0983	2.3979	2.4015	3.1443	63.3888	2.0883	.4012	1.8687

3.5	2.0642	1.2743	1.12	.5951	1.6805	.6000	.0697	.5652	.5690	6.6228	87.0470	12.5668	.2052	4.0645
3.5	2.0642	1.2743	1.12	.5951	1.6805	.6300	.1824	.5969	.6214	16.1473	82.1353	12.2876	.2090	4.0174
3.5	2.0642	1.2743	1.12	.5951	1.6805	.6600	.2448	.6290	.6709	20.3501	79.2589	12.0085	.2129	3.9703
3.5	2.0642	1.2743	1.12	.5951	1.6805	.6900	.2912	.6616	.7181	22.8840	76.9898	11.7293	.2168	3.9231
3.5</														

3.5	2.0642	1.2743	1.16	.6438	1.5533	.6500	.0712	.6157	.6194	6.2535	86.7813	11.8855	.2018	4.3115
3.5	2.0642	1.2743	1.16	.6438	1.5533	.6800	.1688	.6478	.6675	13.9409	82.2268	11.5964	.2050	4.2625
3.5	2.0642	1.2743	1.16	.6438	1.5533	.7100	.2240	.6803	.7134	17.5083	79.4837	11.3072	.2081	4.2135
3.5	2.0642	1.2743	1.16	.6438	1.5533	.7400	.2648	.7132	.7575	19.6858	77.3183	11.0181	.2113	4.1644
3.5	2.0642	1.2743	1.16	.6438	1.5533	.7700	.2971	.7466	.8002	21.1004	75.4716	10.7290	.2145	4.1153
3.5	2.0642	1.2743	1.16	.6438	1.5533	.8000	.3236	.7803	.8418	22.0253	73.8358	10.4398	.2177	4.0661
3.5	2.0642	1.2743	1.16	.6438	1.5533	.8300	.3456	.8145	.8823	22.6083	72.3539	10.1507	.2208	4.0169
3.5	2.0642	1.2743	1.16	.6438	1.5533	.8600	.3640	.8492	.9221	22.9387	70.9921	9.8616	.2240	3.9676
3.5	2.0642	1.2743	1.16	.6438	1.5533	.8900	.3792	.8843	.9613	23.0747	69.7285	9.5725	.2272	3.9182
3.5	2.0642	1.2743	1.16	.6438	1.5533	.9200	.3916	.9200	.9998	23.0563	68.5482	9.2833	.2304	3.8688
3.5	2.0642	1.2743	1.16	.6438	1.5533	.9500	.4015	.9561	1.0380	22.9116	67.4412	8.9942	.2335	3.8193
3.5	2.0642	1.2743	1.16	.6438	1.5533	.9800	.4092	.9928	1.0758	22.6611	66.4004	8.7051	.2365	3.7697
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.0100	.4146	1.0300	1.1134	22.3199	65.4215	8.4159	.2396	3.7200
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.0400	.4181	1.0677	1.1508	21.8993	64.5016	8.1268	.2425	3.6702
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.0700	.4195	1.1061	1.1880	21.4077	63.6401	7.8377	.2453	3.6203
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.1000	.4190	1.1450	1.2253	20.8511	62.8375	7.5485	.2481	3.5703
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.1300	.4165	1.1846	1.2625	20.2341	62.0963	7.2594	.2507	3.5201
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.1600	.4121	1.2249	1.2999	19.5592	61.4209	6.9703	.2532	3.4698
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.1900	.4058	1.2658	1.3373	18.8281	60.8177	6.6811	.2554	3.4193
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.2200	.3974	1.3074	1.3750	18.0410	60.2962	6.3920	.2575	3.3685
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.2500	.3869	1.3498	1.4130	17.1967	59.8694	6.1029	.2593	3.3176
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.2800	.3741	1.3930	1.4513	16.2928	59.5557	5.8138	.2609	3.2664
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.3100	.3590	1.4370	1.4900	15.3251	59.3805	5.5246	.2621	3.2148
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.3400	.3412	1.4820	1.5293	14.2870	59.3803	5.2355	.2629	3.1629
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.3700	.3206	1.5278	1.5691	13.1692	59.6083	4.9464	.2633	3.1106
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.4000	.2965	1.5747	1.6096	11.9571	60.1455	4.6572	.2633	3.0578
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.4300	.2684	1.6227	1.6510	10.6285	61.1215	4.3681	.2626	3.0044
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.4600	.2350	1.6718	1.6934	9.1450	62.7607	4.0790	.2613	2.9503
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.4900	.1944	1.7223	1.7369	7.4326	65.5012	3.7898	.2593	2.8954
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.5200	.1411	1.7742	1.7819	5.3034	70.4138	3.5007	.2565	2.8393
3.5	2.0642	1.2743	1.16	.6438	1.5533	1.5500	.0444	1.8278	1.8286	1.6404	83.0953	3.2116	.2528	2.7819

3.5	2.0642	1.2743	1.20	.7046	1.4193	.7400	.1466	.7100	.7238	11.2065	82.6991	10.7722	.2002	4.4968
3.5	2.0642	1.2743	1.20	.7046	1.4193	.7700	.1945	.7430	.7664	14.1743	80.1006	10.4731	.2025	4.4458
3.5	2.0642	1.2743	1.20	.7046	1.4193	.8000	.2290	.7765	.8077	15.9716	78.0767	10.1740	.2049	4.3947
3.5	2.0642	1.2743	1.20	.7046	1.4193	.8300	.2556	.8103	.8479	17.1152	76.3738	9.8749	.2072	4.3435
3.5	2.0642	1.2743	1.20	.7046	1.4193	.8600	.2766	.8446	.8872	17.8301	74.8882	9.5758	.2094	4.2923
3.5	2.0642	1.2743	1.20	.7046	1.4193	.8900	.2933	.8793	.9259	18.2388	73.5663	9.2767	.2116	4.2409
3.5	2.0642	1.2743	1.20	.7046	1.4193	.9200	.3063	.9146	.9639	18.4157	72.3774	8.9776	.2137	4.1895
3.5	2.0642	1.2743	1.20	.7046	1.4193	.9500	.3162	.9502	1.0015	18.4096	71.3031	8.6785	.2158	4.1379
3.5	2.0642	1.2743	1.20	.7046	1.4193	.9800	.3232	.9864	1.0387	18.2535	70.3325	8.3794	.2177	4.0863
3.5	2.0642	1.2743	1.20	.7046	1.4193	1.0100	.3276	1.0231	1.0756	17.9707	69.4599	8.0803	.2195	4.0345
3.5	2.0642	1.2743	1.20	.7046	1.4193	1.0400	.3295	1.0604	1.1123	17.5778	68.6841	7.7812	.2212	3.9826
3.5	2.0642	1.2743	1.20	.7046	1.4193	1.0700	.3289	1.0982	1.1489	17.0860	68.0075	7.4821	.2227	3.9305
3.5	2.0642	1.2743	1.20	.7046	1.4193	1.1000	.3259	1.1365	1.1854	16.5032	67.4365	7.1830	.2241	3.8782
3.5	2.0642	1.2743	1.20	.7046										

LOOP BRANCH (MI FROM 1 TO 5)

GAMMA = 1.4

M1	M1#	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	ZU	M2	THETA	SIGMA	PR21	PTR21	TR21
4.0	2.1381	1.3029	1.00	.4677	2.1381	.4700	.0599	.4373	.4408	7.2603	87.9442	18.4760	.1391	4.0429
4.0	2.1381	1.3029	1.00	.4677	2.1381	.5000	.2226	.4683	.5126	23.9945	82.2630	18.1617	.1431	3.9903
4.0	2.1381	1.3029	1.00	.4677	2.1381	.5300	.3061	.4997	.5770	30.0068	79.2234	17.8474	.1473	3.9378
4.0	2.1381	1.3029	1.00	.4677	2.1381	.5600	.3688	.5315	.6364	33.3709	76.8445	17.5331	.1517	3.8852
4.0	2.1381	1.3029	1.00	.4677	2.1381	.5900	.4203	.5638	.6922	35.4623	74.8121	17.2188	.1562	3.8327
4.0	2.1381	1.3029	1.00	.4677	2.1381	.6200	.4641	.5966	.7452	36.8170	73.0008	16.9045	.1610	3.7801
4.0	2.1381	1.3029	1.00	.4677	2.1381	.6500	.5024	.6298	.7960	37.6999	71.3455	16.5902	.1659	3.7276
4.0	2.1381	1.3029	1.00	.4677	2.1381	.6800	.5363	.6636	.8451	38.2601	69.8073	16.2759	.1711	3.6750
4.0	2.1381	1.3029	1.00	.4677	2.1381	.7100	.5666	.6979	.8929	38.5887	68.3606	15.9616	.1764	3.6224
4.0	2.1381	1.3029	1.00	.4677	2.1381	.7400	.5938	.7327	.9395	38.7449	66.9878	15.6473	.1820	3.5699
4.0	2.1381	1.3029	1.00	.4677	2.1381	.7700	.6184	.7681	.9852	38.7691	65.6758	15.3330	.1879	3.5173
4.0	2.1381	1.3029	1.00	.4677	2.1381	.8000	.6407	.8041	1.0301	38.6897	64.4147	15.0187	.1940	3.4647
4.0	2.1381	1.3029	1.00	.4677	2.1381	.8300	.6609	.8406	1.0745	38.5273	63.1968	14.7044	.2004	3.4121
4.0	2.1381	1.3029	1.00	.4677	2.1381	.8600	.6791	.8778	1.1185	38.2972	62.0159	14.3901	.2071	3.3594
4.0	2.1381	1.3029	1.00	.4677	2.1381	.8900	.6956	.9156	1.1621	38.0110	60.8671	14.0758	.2141	3.3068
4.0	2.1381	1.3029	1.00	.4677	2.1381	.9200	.7105	.9541	1.2055	37.6776	59.7460	13.7615	.2214	3.2512
4.0	2.1381	1.3029	1.00	.4677	2.1381	.9500	.7238	.9933	1.2488	37.3040	58.6493	13.4472	.2290	3.2015
4.0	2.1381	1.3029	1.00	.4677	2.1381	.9800	.7357	1.0332	1.2919	36.8957	57.5739	13.1329	.2370	3.1489
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.0100	.7462	1.0738	1.3351	36.4569	56.5170	12.8186	.2454	3.0962
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.0400	.7554	1.1153	1.3784	35.9912	55.4765	12.5043	.2543	3.0435
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.0700	.7633	1.1575	1.4218	35.5013	54.4503	12.1900	.2635	2.9908
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.1000	.7699	1.2006	1.4655	34.9895	53.4366	11.8757	.2732	2.9380
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.1300	.7754	1.2446	1.5094	34.4575	52.4336	11.5614	.2834	2.8853
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.1600	.7797	1.2894	1.5537	33.9068	51.4398	11.2471	.2941	2.8325
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.1900	.7828	1.3353	1.5983	33.3385	50.4539	10.9328	.3053	2.7798
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.2200	.7848	1.3822	1.6434	32.7534	49.4745	10.6185	.3171	2.7269
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.2500	.7857	1.4301	1.6891	32.1521	48.5003	10.3042	.3295	2.6741
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.2800	.7855	1.4791	1.7354	31.5351	47.5302	9.9899	.3426	2.6213
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.3100	.7841	1.5292	1.7823	30.9027	46.5629	9.6756	.3564	2.5684
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.3400	.7816	1.5806	1.8299	30.2549	45.5975	9.3613	.3708	2.5154
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.3700	.7780	1.6333	1.8783	29.5916	44.6327	9.0470	.3861	2.4625
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.4000	.7732	1.6873	1.9276	28.9126	43.6675	8.7327	.4022	2.4095
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.4300	.7673	1.7428	1.9778	28.2177	42.7008	8.4184	.4191	2.3564
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.4600	.7602	1.7997	2.0291	27.5063	41.7315	8.1041	.4370	2.3033
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.4900	.7519	1.8583	2.0815	26.7777	40.7584	7.7898	.4558	2.2502
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.5200	.7424	1.9185	2.1351	26.0311	39.7803	7.4755	.4756	2.1969
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.5500	.7315	1.9806	2.1901	25.2655	38.7960	7.1612	.4965	2.1436
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.5800	.7194	2.0445	2.2465	24.4798	37.8043	6.8469	.5185	2.0903
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.6100	.7058	2.1105	2.3044	23.6725	36.8036	6.5326	.5417	2.0368
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.6400	.6908	2.1787	2.3641	22.8420	35.7926	6.2183	.5661	1.9832
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.6700	.6743	2.2492	2.4256	21.9863	34.7695	5.9040	.5917	1.9295
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.7000	.6561	2.3222	2.4892	21.1031	33.7326	5.5897	.6185	1.8757
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.7300	.6362	2.3980	2.5550	20.1895	32.6799	5.2754	.6465	1.8217
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.7600	.6144	2.4767	2.6232	19.2424	31.6091	4.9611	.6758	1.7675
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.7900	.5905	2.5586	2.6943	18.2578	30.5177	4.6468	.7063	1.7130
4.0	2.1381	1.3029	1.00	.4677	2.1381	1.8200	.5645	2.6441	2.7683	17.2308				

4.0	2.1381	1.3029	1.08	.5316	1.8812	.5400	.1027	.5059	.5149	10.7663	86.1287	17.2900	.1364	4.6522
4.0	2.1381	1.3029	1.08	.5316	1.8812	.5700	.2167	.5373	.5748	20.8134	81.7117	16.9506	.1397	4.5953
4.0	2.1381	1.3029	1.08	.5316	1.8812	.6000	.2856	.5691	.6302	25.4547	78.9123	16.6111	.1430	4.5383
4.0	2.1381	1.3029	1.08	.5316	1.8812	.6300	.3382	.6013	.6825	28.2311	76.6687	16.2717	.1464	4.4814
4.0	2.1381	1.3029	1.08	.5316	1.8812	.6600	.3814	.6340	.7322	30.0227	74.7336	15.9323	.1499	4.4245
4.0	2.1381	1.3029	1.08	.5316	1.8812	.7200	.4180	.6671	.7800	31.2088	73.0010	15.5928	.1535	4.3675
4.0	2.1381	1.3029	1.08	.5316	1.8812	.7500	.4497	.7007	.8261	31.9891	71.4140	14.9139	.1572	4.3105
4.0	2.1381	1.3029	1.08	.5316	1.8812	.7800	.4775	.7348	.8710	32.4813	69.9377	14.5745	.1610	4.2535
4.0	2.1381	1.3029	1.08	.5316	1.8812	.8100	.5019	.7693	.9148	32.7603	68.5491	14.5745	.1650	4.1965
4.0	2.1381	1.3029	1.08	.5316	1.8812	.8400	.5235	.8044	.9578	32.8761	67.2319	14.2350	.1691	4.1394
4.0	2.1381	1.3029	1.08	.5316	1.8812	.8700	.5427	.8400	.1.0001	32.8638	65.9742	13.8956	.1732	4.0823
4.0	2.1381	1.3029	1.08	.5316	1.8812	.9000	.5596	.8762	.1.0417	32.7486	64.7671	13.5561	.1776	4.0252
4.0	2.1381	1.3029	1.08	.5316	1.8812	.9300	.5874	.9502	.1.0830	32.2788	62.4775	12.8773	.1820	3.9681
4.0	2.1381	1.3029	1.08	.5316	1.8812	.9600	.5987	.9881	.1.1238	31.9488	61.3850	12.5378	.1866	3.9110
4.0	2.1381	1.3029	1.08	.5316	1.8812	.9900	.6083	.1.0266	.1.2049	31.5674	60.3221	12.1984	.1961	3.8538
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.0200	.6163	.1.0658	.1.2452	31.1410	59.2858	11.8589	.2010	3.7966
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.0500	.6228	.1.1056	.1.2855	30.6745	58.2736	11.5195	.2061	3.7393
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.0800	.6279	.1.1462	.1.3258	30.1720	57.2833	11.1800	.2113	3.6247
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.1100	.6315	.1.1874	.1.3662	29.6366	56.3133	10.8406	.2167	3.5673
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.1400	.6338	.1.2295	.1.4067	29.0708	55.3620	10.5012	.2222	3.5098
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.1700	.6346	.1.2723	.1.4474	28.4764	54.4285	10.1617	.2278	3.4524
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.2000	.6342	.1.3159	.1.4884	27.8547	53.5118	9.8223	.2335	3.3948
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.2300	.6323	.1.3604	.1.5297	27.2067	52.6115	9.4828	.2394	3.3372
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.2600	.6291	.1.4058	.1.5713	26.5331	51.7270	9.1434	.2453	3.2795
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.2900	.6246	.1.4521	.1.6134	25.8339	50.8586	8.8039	.2514	3.2217
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.3200	.6186	.1.4994	.1.6559	25.1092	50.0065	8.4645	.2575	3.1638
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.3500	.6112	.1.5478	.1.6990	24.3585	49.1714	8.1251	.2637	3.1058
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.3800	.6024	.1.5972	.1.7427	23.5811	48.3546	7.7856	.2700	3.0477
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.4100	.5920	.1.6477	.1.7870	22.7760	47.5577	7.4462	.2763	2.9895
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.4400	.5801	.1.6994	.1.8322	21.9417	46.7834	7.1067	.2825	2.8725
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.4700	.5665	.1.7524	.1.8781	21.0763	46.0352	6.7673	.2887	2.8137
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.5000	.5512	.1.8068	.1.9249	20.1776	45.3179	6.4278	.2948	2.7547
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.5300	.5341	.1.8626	.1.9728	19.2428	44.6381	6.0884	.3008	2.6954
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.5600	.5150	.1.9199	.2.0218	18.2681	44.0051	5.7490	.3119	2.6357
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.5900	.4937	.1.9788	.2.0720	17.2493	43.4319	5.4095	.3168	2.5757
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.6200	.4701	.2.0395	.2.1236	16.1807	42.9372	5.0701	.3250	2.4541
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.6500	.4438	.2.1021	.2.1768	15.0553	42.5484	4.7306	.3279	2.3922
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.6800	.4146	.2.1668	.2.2318	13.8637	42.3071	4.0517	.3298	2.3295
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.7100	.3820	.2.3034	.2.2889	12.5937	42.2799	3.7123	.3303	2.2656
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.7400	.3454	.2.3760	.2.3484	11.2280	42.5781	3.3729	.3291	2.2000
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.7700	.3038	.2.4107	.2.4766	9.7406	43.4048	3.0334	.3261	2.1324
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.8000	.2558	.2.4520	.2.5469	8.0890	45.1735	2.6940	.3206	2.0618
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.8300	.1984	.2.5320	.2.6230	6.1879	48.8922	2.3545	.2331	2.0618
4.0	2.1381	1.3029	1.08	.5316	1.8812	1.8600	.1141	.2.6172	.2.7835	5.80692	58.0692	2.3545	.2331	2.0618

4.0	2.1381
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4.0	2.1381	1.3029	1.16	.6118	1.6346	.6200	.0880	.5854	.5913	8.0792	86.3114	15.8652	.1324	5.2822
4.0	2.1381	1.3029	1.16	.6118	1.6346	.6500	.1867	.6174	.6423	16.0224	82.0415	15.5006	.1347	5.2207
4.0	2.1381	1.3029	1.16	.6118	1.6346	.6800	.2453	.6497	.6907	19.8359	79.3559	15.1360	.1371	5.1593
4.0	2.1381	1.3029	1.16	.6118	1.6346	.7100	.2894	.6824	.7369	22.1739	77.2147	14.7714	.1396	5.0978
4.0	2.1381	1.3029	1.16	.6118	1.6346	.7400	.3249	.7156	.7815	23.7016	75.3776	14.4069	.1420	5.0363
4.0	2.1381	1.3029	1.16	.6118	1.6346	.7700	.3544	.7492	.8247	24.7128	73.7422	14.0423	.1445	4.9748
4.0	2.1381	1.3029	1.16	.6118	1.6346	.8000	.3793	.7833	.8668	25.3663	72.2537	13.6777	.1470	4.9132
4.0	2.1381	1.3029	1.16	.6118	1.6346	.8300	.4005	.8178	.9080	25.7584	70.8787	13.3131	.1496	4.8516
4.0	2.1381	1.3029	1.16	.6118	1.6346	.8600	.4185	.8528	.9484	25.9512	69.5956	12.9485	.1522	4.7899
4.0	2.1381	1.3029	1.16	.6118	1.6346	.8900	.4338	.8883	.9882	25.9875	68.3894	12.5839	.1547	4.7281
4.0	2.1381	1.3029	1.16	.6118	1.6346	.9200	.4467	.9243	.10274	25.8974	67.2494	12.2193	.1573	4.6663
4.0	2.1381	1.3029	1.16	.6118	1.6346	.9500	.4573	.9608	.10663	25.7027	66.1678	11.8547	.1599	4.6045
4.0	2.1381	1.3029	1.16	.6118	1.6346	.9800	.4658	.9979	.1048	25.4197	65.1390	11.4902	.1625	4.5426
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.0100	.4723	1.0355	.1431	25.0607	64.1591	11.1256	.1651	4.4806
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.0400	.4769	1.0737	.1812	24.6348	63.2254	10.7610	.1677	4.4185
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.0700	.4797	1.1125	.2192	24.1492	62.3362	10.3964	.1703	4.3563
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.1000	.4808	1.1520	.2572	23.6091	61.4910	10.0318	.1728	4.2941
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.1300	.4801	1.1921	.2952	23.0184	60.6905	9.6672	.1753	4.2317
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.1600	.4776	1.2329	.3333	22.3798	59.9360	9.3026	.1777	4.1692
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.1900	.4734	1.2744	.3715	21.6951	59.2306	8.9380	.1800	4.1065
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.2200	.4675	1.3166	.4100	20.9650	58.5783	8.5735	.1822	4.0437
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.2500	.4597	1.3596	.4486	20.1895	57.9851	8.2089	.1843	3.9808
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.2800	.4499	1.4034	.4876	19.3677	57.4592	7.8443	.1863	3.9176
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.3100	.4383	1.4481	.5270	18.4976	57.0119	7.4797	.1881	3.8542
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.3400	.4245	1.4936	.5668	17.5764	56.6584	7.1151	.1896	3.7905
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.3700	.4084	1.5401	.6071	16.5997	56.4200	6.7505	.1910	3.7265
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.4000	.3899	1.5876	.6480	15.5615	56.3260	6.3859	.1920	3.6622
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.4300	.3686	1.6362	.6897	14.4535	56.4192	6.0213	.1927	3.5974
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.4600	.3441	1.6859	.7321	13.2635	56.7627	5.6568	.1930	3.5322
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.4900	.3160	1.7368	.7754	11.9741	57.4549	5.2922	.1929	3.4663
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.5200	.2833	1.7890	.8198	10.5574	58.6582	4.9276	.1922	3.3997
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.5500	.2445	1.8427	.8655	8.9657	60.6659	4.5630	.1909	3.3322
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.5800	.1968	1.8980	.9127	7.1012	64.0892	4.1984	.1889	3.2636
4.0	2.1381	1.3029	1.16	.6118	1.6346	1.6100	.1319	1.9551	.9617	4.6842	70.6271	3.8338	.1862	3.1936

4.0	2.1381	1.3029	1.20	.6628	1.5087	.6700	.0744	.6362	.6401	6.3396	86.6765	14.9768	.1299	5.5899
4.0	2.1381	1.3029	1.20	.6628	1.5087	.7000	.1664	.6685	.6871	13.3684	82.4302	14.5996	.1319	5.5262
4.0	2.1381	1.3029	1.20	.6628	1.5087	.7300	.2192	.7012	.7321	16.7144	79.8285	14.2225	.1338	5.4624
4.0	2.1381	1.3029	1.20	.6628	1.5087	.7600	.2582	.7343	.7756	18.7664	77.7747	13.8453	.1357	5.3986
4.0	2.1381	1.3029	1.20	.6628	1.5087	.7900	.2891	.7679	.8177	20.0984	76.0277	13.4681	.1376	5.3347
4.0	2.1381	1.3029	1.20	.6628	1.5087	.8200	.3142	.8019	.8587	20.9637	74.4861	13.0910	.1395	5.2707
4.0	2.1381	1.3029	1.20	.6628	1.5087	.8500	.3348	.8363	.8988	21.5000	73.0966	12.7138	.1414	5.2067
4.0	2.1381	1.3029	1.20	.6628	1.5087	.8800	.3518	.8712	.9382	21.7915	71.8274	12.3367	.1433	5.1426
4.0	2.1381	1.3029	1.20	.6628	1.5087	.9100	.3657	.9065	.9770	21.8929	70.6582	11.9595	.1452	5.0785
4.0	2.1381	1.3029	1.20	.6628	1.5087	.9400	.3768	.9424	.1.0153	21.8420	69.5758	11.5823	.1470	5.0142
4.0	2.1381	1.3029	1.20	.6628	1.5087	.9700	.3853	.9788						

LOOP 8 BRANCH (MI FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
4.5	2.1936	1.3247	1.00	.4559	2.1936	.4600	.0825	.4278	.4346	10.1652	87.2761	23.4050	.0921	4.8662
4.5	2.1936	1.3247	1.00	.4559	2.1936	.4900	.2350	.4587	.5088	25.6200	82.1467	23.0173	.0949	4.8014
4.5	2.1936	1.3247	1.00	.4559	2.1936	.5200	.3191	.4901	.5751	31.5365	79.2048	22.6295	.0978	4.7367
4.5	2.1936	1.3247	1.00	.4559	2.1936	.5500	.3830	.5220	.6361	34.8488	76.8842	22.2418	.1009	4.6720
4.5	2.1936	1.3247	1.00	.4559	2.1936	.5800	.4355	.5543	.6932	36.9031	74.8953	21.8541	.1041	4.6072
4.5	2.1936	1.3247	1.00	.4559	2.1936	.6100	.4805	.5871	.7474	38.2298	73.1199	21.4664	.1075	4.5425
4.5	2.1936	1.3247	1.00	.4559	2.1936	.6400	.5200	.6205	.7994	39.0914	71.4958	21.0787	.1110	4.4777
4.5	2.1936	1.3247	1.00	.4559	2.1936	.6700	.5550	.6543	.8496	39.6357	69.9857	20.6909	.1146	4.4129
4.5	2.1936	1.3247	1.00	.4559	2.1936	.7000	.5864	.6887	.8983	39.9527	68.5651	20.3032	.1184	4.3482
4.5	2.1936	1.3247	1.00	.4559	2.1936	.7300	.6147	.7236	.9460	40.1011	67.2167	19.9155	.1224	4.2834
4.5	2.1936	1.3247	1.00	.4559	2.1936	.7600	.6404	.7591	.9927	40.1206	65.9278	19.5278	.1266	4.2186
4.5	2.1936	1.3247	1.00	.4559	2.1936	.7900	.6638	.7952	1.0386	40.0392	64.6890	19.1401	.1310	4.1538
4.5	2.1936	1.3247	1.00	.4559	2.1936	.8200	.6851	.8319	1.0840	39.8772	63.4927	18.7524	.1356	4.0890
4.5	2.1936	1.3247	1.00	.4559	2.1936	.8500	.7044	.8692	1.1289	39.6497	62.3329	18.3646	.1405	4.0243
4.5	2.1936	1.3247	1.00	.4559	2.1936	.8800	.7220	.9072	1.1735	39.3680	61.2047	17.9769	.1455	3.9594
4.5	2.1936	1.3247	1.00	.4559	2.1936	.9100	.7380	.9459	1.2179	39.0410	60.1041	17.5892	.1509	3.8946
4.5	2.1936	1.3247	1.00	.4559	2.1936	.9400	.7524	.9854	1.2622	38.6754	59.0275	17.2015	.1565	3.8298
4.5	2.1936	1.3247	1.00	.4559	2.1936	.9700	.7654	1.0255	1.3064	38.2767	57.9721	16.8138	.1624	3.7650
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.0000	.7770	1.0665	1.3506	37.8490	56.9354	16.4260	.1686	3.7001
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.0300	.7874	1.1082	1.3949	37.3958	55.9149	16.0383	.1751	3.6353
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.0600	.7964	1.1508	1.4394	36.9199	54.9089	15.6506	.1820	3.5704
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.0900	.8043	1.1943	1.4842	36.4235	53.9154	15.2629	.1892	3.5055
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.1200	.8110	1.2387	1.5293	35.9083	52.9328	14.8752	.1969	3.4406
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.1500	.8165	1.2840	1.5748	35.3758	51.9598	14.0997	.2050	3.3757
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.1800	.8209	1.3304	1.6207	34.8270	50.9949	13.7120	.2135	3.3108
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.2100	.8243	1.3778	1.6671	34.2630	50.0369	13.3243	.2226	3.2459
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.2400	.8265	1.4263	1.7140	33.6843	49.0845	12.9366	.2321	3.1809
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.2700	.8276	1.4759	1.7617	33.0915	48.1366	12.5489	.2422	3.1160
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.3000	.8277	1.5268	1.8100	32.4849	47.1922	12.1611	.2530	3.0510
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.3300	.8267	1.5789	1.8591	31.8647	46.2501	12.0980	.2644	2.9859
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.3600	.8246	1.6324	1.9091	31.2308	45.3094	11.7734	.2764	2.9209
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.3900	.8215	1.6873	1.9600	30.5833	44.3691	11.3857	.2893	2.8558
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.4200	.8173	1.7438	2.0119	29.9219	43.4280	10.9980	.3029	2.7907
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.4500	.8119	1.8018	2.0650	29.2463	42.4853	10.6103	.3174	2.7256
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.4800	.8055	1.8614	2.1192	28.5561	41.5398	10.2225	.3329	2.6604
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.5100	.7978	1.9229	2.1748	27.8506	40.5905	9.8348	.3493	2.5952
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.5400	.7890	1.9862	2.2317	27.1292	39.6363	9.4471	.3668	2.5299
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.5700	.7790	2.0516	2.2903	26.3910	38.6761	9.0594	.3855	2.4646
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.6000	.7678	2.1191	2.3504	25.6350	37.7085	8.6717	.4054	2.3992
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.6300	.7552	2.1889	2.4124	24.8599	36.7324	8.2839	.4267	2.3337
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.6600	.7413	2.2611	2.4764	24.0645	35.7463	7.8962	.4493	2.2682
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.6900	.7260	2.3360	2.5425	23.2469	34.7487	7.5085	.4735	2.2025
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.7200	.7091	2.4138	2.6109	22.4052	33.7379	7.1208	.4993	2.1368
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.7500	.6907	2.4947	2.6819	21.5372	32.7122	6.7331	.5268	2.0709
4.5	2.1936	1.3247	1.00	.4559	2.1936	1.7800	.6705	2.5789	2.7557	20.6401	31.6693	6.3454	.5561	2.0049
4.5	2.1936	1.3247	1.00	.4559	2.1									

4.5	2.1936	1.3247	1.08	.5163	1.9369	.5200	.0707	4860	.4904	7.7401	87.4561	22.0919	.0900	5.6200
4.5	2.1936	1.3247	1.08	.5163	1.9369	.5500	.2104	5172	.5538	20.9345	82.3225	21.6732	.0922	5.5499
4.5	2.1936	1.3247	1.08	.5163	1.9369	.5800	.2859	5489	.6120	26.2424	79.4200	21.2544	.0946	5.4798
4.5	2.1936	1.3247	1.08	.5163	1.9369	.6100	.3427	5811	.6665	29.3284	77.1368	20.8357	.0970	5.4097
4.5	2.1936	1.3247	1.08	.5163	1.9369	.6400	.3891	6136	.7181	31.2953	75.1835	20.4170	.0995	5.3396
4.5	2.1936	1.3247	1.08	.5163	1.9369	.6700	.4284	6466	.7675	32.5921	73.4426	19.9982	.1020	5.2695
4.5	2.1936	1.3247	1.08	.5163	1.9369	.7000	.4624	6801	.8151	33.4482	71.8526	19.5795	.1047	5.1292
4.5	2.1936	1.3247	1.08	.5163	1.9369	.7300	.4923	7141	.8614	33.9960	70.3765	18.7420	.1103	5.0591
4.5	2.1936	1.3247	1.08	.5163	1.9369	.7600	.5188	7486	.9064	34.3183	68.9900	18.3233	.1132	4.9889
4.5	2.1936	1.3247	1.08	.5163	1.9369	.7900	.5423	7836	.9505	34.4698	67.6762	17.9045	.1163	4.9187
4.5	2.1936	1.3247	1.08	.5163	1.9369	.8200	.5820	8192	.9938	34.4884	66.4227	17.4858	.1194	4.8485
4.5	2.1936	1.3247	1.08	.5163	1.9369	.8500	.5987	8919	1.0365	34.4011	65.2202	17.0671	.1227	4.7782
4.5	2.1936	1.3247	1.08	.5163	1.9369	.8800	.6134	9292	1.1206	33.9830	62.9404	16.6483	.1260	4.7080
4.5	2.1936	1.3247	1.08	.5163	1.9369	.9100	.6264	9671	1.1621	33.6784	61.8526	16.2296	.1295	4.6377
4.5	2.1936	1.3247	1.08	.5163	1.9369	.9400	.6377	10056	1.2034	33.3225	60.7943	15.8109	.1331	4.5674
4.5	2.1936	1.3247	1.08	.5163	1.9369	.9700	.6475	10448	1.2446	32.4829	58.7535	14.9734	.1368	4.4970
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.0000	.6558	10846	1.2858	32.0087	57.7662	14.5547	.1406	4.4267
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.0300	.6626	11252	1.3269	31.5031	56.7982	14.1359	.1446	4.3563
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.0600	.6680	11665	1.3682	30.9686	55.8481	13.7172	.1529	4.2154
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.1200	.6721	12086	1.4095	30.4073	54.9143	13.2984	.1572	4.1448
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.1500	.6749	12515	1.4511	29.8209	53.9959	12.8797	.1617	4.0743
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.1800	.6764	12952	1.4929	29.2104	53.0919	12.4610	.1663	4.0037
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.2100	.6765	13398	1.5350	28.5767	52.2016	12.0422	.1711	3.9330
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.2400	.6754	13853	1.5775	27.9204	51.3246	11.6235	.1759	3.8622
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.2700	.6730	14317	1.6203	27.2416	50.4607	11.2048	.1809	3.7914
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.3000	.6693	14792	1.6637	27.5403	49.6097	10.7860	.1861	3.7206
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.3300	.6643	15277	1.7076	25.8161	48.7719	10.3673	.1913	3.6496
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.3600	.6579	15772	1.7521	25.0686	47.9479	9.9486	.1967	3.5785
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.3900	.6502	16280	1.7973	24.2968	47.1386	9.5298	.2021	3.5073
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.4200	.6411	16799	1.8431	23.4996	46.3454	9.1111	.2077	3.4360
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.4500	.6305	17331	1.8898	22.6756	45.5704	8.6923	.2132	3.3646
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.4800	.6184	17876	1.9374	22.0220	43.3879	7.4361	.2354	3.0769
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.5100	.6047	18436	1.9859	21.8229	44.8163	8.2736	.2406	3.0043
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.5400	.5893	19010	2.0355	20.9393	44.0870	7.8549	.2244	3.2212
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.5700	.5721	19601	2.0862	20.0220	43.3879	7.4361	.2300	3.1491
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.6000	.5530	20209	2.1382	19.0675	42.7262	7.0174	.2354	3.0769
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.6300	.5319	20835	2.1916	18.0717	42.1123	6.5987	.2406	3.0043
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.6600	.5084	21481	2.2466	17.0293	41.5608	6.1799	.2456	2.9313
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.6900	.4825	21848	2.3033	15.9337	41.0930	5.7612	.2502	2.8579
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.7200	.4537	22839	2.3620	14.7764	40.7408	5.3425	.2543	2.7859
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.7500	.4216	23555	2.4229	13.5461	40.5542	4.9237	.2578	2.7093
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.7800	.3857	24300	2.4864	12.2273	40.6150	4.5050	.2604	2.6338
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.8100	.3452	25077	2.5529	10.7980	41.0667	4.0862	.2621	2.5571
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.8400	.2988	25892	2.6231	9.2233	42.1867	3.6675	.2621	2.4790
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.8700	.2443	26750	2.6977	7.4417	44.5913	3.2488	.2604	2.3988
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.9000	.1767	27663	2.7782	5.3122	50.0337	2.8300	.2567	2.3157
4.5	2.1936	1.3247	1.08	.5163	1.9369	1.9300	.0733	28645						

4.5	2.1936	1.3247	1.16	.5905	1.6936	.6000	.0991	5654	.5731	9.3803	86.0535	20.3549	.0879	6.3764
4.5	2.1936	1.3247	1.16	.5905	1.6936	.6300	.1990	5972	.6263	17.5284	81.9488	19.9052	.0896	6.3009
4.5	2.1936	1.3247	1.16	.5905	1.6936	.6600	.2600	6295	.6765	21.4994	79.3064	19.4554	.0913	6.2254
4.5	2.1936	1.3247	1.16	.5905	1.6936	.6900	.3063	6621	.7244	23.9350	77.1877	19.0057	.0931	6.1498
4.5	2.1936	1.3247	1.16	.5905	1.6936	.7200	.3439	6952	.7704	25.5286	75.3639	18.5559	.0949	6.0743
4.5	2.1936	1.3247	1.16	.5905	1.6936	.7500	.3754	.7287	.8149	26.5883	73.7361	18.1062	.0968	5.9986
4.5	2.1936	1.3247	1.16	.5905	1.6936	.7800	.4023	.7627	.8581	27.2806	72.2509	17.6564	.0987	5.9230
4.5	2.1936	1.3247	1.16	.5905	1.6936	.8100	.4254	.7971	.9003	27.7060	70.8758	17.2066	.1006	5.8473
4.5	2.1936	1.3247	1.16	.5905	1.6936	.8400	.4453	.8320	.9417	27.9294	69.5892	16.7569	.1025	5.7716
4.5	2.1936	1.3247	1.16	.5905	1.6936	.8700	.4625	.8675	.9824	27.9347	68.3762	16.3071	.1045	5.6958
4.5	2.1936	1.3247	1.16	.5905	1.6936	.9000	.4772	.9034	1.0226	27.7704	66.1305	15.4076	.1065	5.5441
4.5	2.1936	1.3247	1.16	.5905	1.6936	.9300	.4897	.9399	1.0622	27.5194	65.0840	14.9579	.1106	5.4682
4.5	2.1936	1.3247	1.16	.5905	1.6936	.9600	.5002	.9769	1.1016	27.1943	64.0818	14.5081	.1126	5.3922
4.5	2.1936	1.3247	1.16	.5905	1.6936	.9900	.5087	1.0145	1.1406	26.8047	63.1206	14.0584	.1147	5.3162
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.0200	.5153	1.0527	1.1795	26.3583	62.1982	13.6086	.1168	5.2401
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.0500	.5203	1.0915	1.2182	25.8606	61.3129	13.1589	.1189	5.1639
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.0800	.5235	1.1310	1.2568	25.3159	60.4641	12.7091	.1209	5.0876
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.1100	.5251	1.1711	1.2955	24.7276	59.6518	12.2594	.1230	5.0113
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.1400	.5250	1.2118	1.3342	24.0978	58.8767	11.8096	.1250	4.9348
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.1700	.5233	1.2533	1.3730	23.4281	58.1405	11.3598	.1270	4.8582
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.2000	.5200	1.2956	1.4120	22.7192	57.4457	10.9101	.1290	4.7815
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.2300	.5150	1.3386	1.4906	21.9713	56.7961	10.4603	.1309	4.7046
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.2600	.5083	1.3824	1.5304	21.1836	56.1970	10.0106	.1327	4.6275
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.2900	.4999	1.4270	1.5706	20.3551	55.6552	9.5608	.1344	4.5503
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.3200	.4897	1.4725	1.6113	19.4835	55.1803	9.1111	.1361	4.4729
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.3500	.4776	1.5190	1.6524	18.5660	54.7852	8.6613	.1375	4.3951
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.3800	.4635	1.6149	1.6941	17.5984	54.4873	8.2116	.1388	4.2388
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.4100	.4472	1.6644	1.7366	16.5753	54.3108	7.7618	.1399	4.1600
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.4400	.4286	1.7151	1.7797	15.4891	54.2902	7.3121	.1407	4.0808
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.4700	.4074	1.7670	1.8237	14.3297	54.4757	6.8623	.1413	4.0009
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.5000	.3832	1.8202	1.8687	13.0824	54.9434	6.4126	.1415	3.9204
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.5300	.3555	1.8749	1.9148	11.7255	55.8151	5.9628	.1413	3.8389
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.5600	.3238	1.9311	1.9623	10.2242	57.3001	5.5130	.1406	3.7564
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.6200	.2426	1.9890	2.0112	8.5153	59.7975	5.0633	.1393	3.6724
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.6500	.1868	2.0489	2.0620	6.4580	64.2207	4.6135	.1374	3.5866
4.5	2.1936	1.3247	1.16	.5905	1.6936	1.6800	.1039	2.1110	2.1150	3.5378	73.7657	4.1638	.1347	

4.5	2.1936	1.3247	1.20	.6363	1.5716	.6400	.0570	6054	.6078	5.0872	87.6055	19.4244	.0861	6.7716
4.5	2.1936	1.3247	1.20	.6363	1.5716	.6700	.1689	6375	.6575	14.1506	82.7750	18.9591	.0876	6.6933
4.5	2.1936	1.3247	1.20	.6363	1.5716	.7000	.2282	6700	.7047	18.0525	80.0644	18.4939	.0890	6.6150
4.5	2.1936	1.3247	1.20	.6363	1.5716	.7300	.2717	7029	.7500	20.4129	77.9484	18.0286	.0905	6.5367
4.5	2.1936	1.3247	1.20	.6363	1.5716	.7600	.3063	7362	.7937	21.9478	76.1533	17.5633	.0919	6.4583
4.5	2.1936	1.3247	1.20	.6363	1.5716	.7900	.3347	7699	.8362	22.9603	74.5684	17.0981	.0934	6.3798
4.5	2.1936	1.3247	1.20	.6363	1.5716	.8200	.3584	8041	.8776	23.6116	73.1363	16.6328	.0949	6.3013
4.5	2.1936	1.3247	1.20	.6363	1.5716	.8500	.3784	8388	.9182	23.9981	71.8226	16.1676	.0964	6.2228
4.5	2.1936	1.3247	1.20	.6363	1.5716									

4.5	2.1936	1.3247	1.24	.6924	1.4443	.7000	.0729	6671	.6707	5.9420	86.7165	18.1320	.0847	7.1239
4.5	2.1936	1.3247	1.24	.6924	1.4443	.7300	.1585	6997	.7160	12.2473	82.7170	17.6512	.0858	7.0427
4.5	2.1936	1.3247	1.24	.6924	1.4443	.7600	.2077	7327	.7596	15.2879	80.2574	17.1705	.0869	6.9615
4.5	2.1936	1.3247	1.24	.6924	1.4443	.7900	.2438	7661	.8018	17.1521	78.3245	16.6897	.0881	6.8803
4.5	2.1936	1.3247	1.24	.6924	1.4443	.8200	.2720	8000	.8428	18.3522	76.6910	16.2089	.0892	6.7989
4.5	2.1936	1.3247	1.24	.6924	1.4443	.8500	.2946	8342	.8829	19.1163	75.2614	15.7281	.0902	6.7175
4.5	2.1936	1.3247	1.24	.6924	1.4443	.8800	.3128	8690	.9222	19.5692	73.9857	15.2474	.0913	6.6361
4.5	2.1936	1.3247	1.24	.6924	1.4443	.9100	.3274	9042	.9609	19.7874	72.8347	14.7666	.0923	6.5545
4.5	2.1936	1.3247	1.24	.6924	1.4443	.9400	.3388	9398	.9990	19.8209	71.7905	14.2858	.0933	6.4728
4.5	2.1936	1.3247	1.24	.6924	1.4443	.9700	.3474	9760	1.0367	19.7039	70.8420	13.8051	.0943	6.3910
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.0000	.3533	1 0127	1.0741	19.4605	69.9831	13.3243	.0952	6.3092
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.0300	.3568	1 0500	1.1112	19.1080	69.2111	12.8435	.0961	6.2271
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.0600	.3579	1 0877	1.1481	18.6585	68.5267	12.3627	.0969	6.1450
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.0900	.3567	1 1261	1.1848	18.1203	67.9336	11.8820	.0976	6.0626
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.1200	.3531	1 1650	1.2216	17.4988	67.4388	11.4012	.0983	5.9801
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.1500	.3471	1 2046	1.2583	16.7966	67.0533	10.9204	.0988	5.8974
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.1800	.3387	1 2448	1.2951	16.0138	66.7932	10.4397	.0993	5.8145
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.2100	.3276	1 2857	1.3320	15.1477	66.6812	9.9589	.0996	5.7313
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.2400	.3136	1 3273	1.3691	14.1923	66.7503	9.4781	.0998	5.6477
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.2700	.2964	1 3696	1.4064	13.1370	67.0479	8.9973	.0998	5.5639
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.3000	.2755	1 4127	1.4441	11.9647	67.6462	8.5166	.0997	5.4796
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.3300	.2500	1 4566	1.4821	10.6463	68.6593	8.0358	.0993	5.3948
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.3600	.2186	1 5014	1.5207	9.1299	70.2847	7.5550	.0987	5.3094
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.3900	.1782	1 5471	1.5598	7.3073	72.9146	7.0743	.0979	5.2233
4.5	2.1936	1.3247	1.24	.6924	1.4443	1.4200	.1209	1 5938	1.5996	4.8674	77.5983	6.5935	.0968	5.1364

4.5	2.1936	1.3247	1.28	.7683	1.3016	.8000	.1216	7737	.7826	8.6407	83.9071	16.1159	.0834	7.3710
4.5	2.1936	1.3247	1.28	.7683	1.3016	.8300	.1642	8074	.8230	11.1911	81.5766	15.6196	.0842	7.2868
4.5	2.1936	1.3247	1.28	.7683	1.3016	.8600	.1934	8414	.8625	12.6771	79.8347	15.1233	.0849	7.2024
4.5	2.1936	1.3247	1.28	.7683	1.3016	.8900	.2148	8759	.9011	13.5716	78.4241	14.6270	.0856	7.1180
4.5	2.1936	1.3247	1.28	.7683	1.3016	.9200	.2306	9109	.9391	14.0722	77.2467	14.1307	.0862	7.0334
4.5	2.1936	1.3247	1.28	.7683	1.3016	.9500	.2419	9463	.9765	14.2842	76.2558	13.6345	.0868	6.9487
4.5	2.1936	1.3247	1.28	.7683	1.3016	.9800	.2493	9822	1.0135	14.2704	75.4287	13.1382	.0873	6.8639
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.0100	.2531	1 0186	1.0501	14.0702	74.7563	12.6419	.0877	6.7789
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.0400	.2537	1 0555	1.0865	13.7086	74.2395	12.1456	.0881	6.6937
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.0700	.2510	1 0930	1.1226	13.2008	73.8884	11.6493	.0884	6.6083
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.1000	.2449	1 1310	1.1587	12.5534	73.7231	11.1531	.0886	6.5226
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.1300	.2354	1 1695	1.1946	11.7655	73.7767	10.6568	.0887	6.4367
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.1600	.2218	1 2087	1.2306	10.8269	74.1018	10.1605	.0886	6.3505
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.1900	.2037	1 2485	1.2667	9.7135	74.7835	9.6642	.0884	6.2639
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.2200	.1796	1 2890	1.3029	8.3761	75.9703	9.1679	.0881	6.1769
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.2500	.1469	1 3301	1.3393	6.7044	77.9593	8.6717	.0876	6.0895
4.5	2.1936	1.3247	1.28	.7683	1.3016	1.2800	.0976	1 3720	1.3760	4.3598	81.5752	8.1754	.0869	6.0015

4.5	2.1936	1.3247	1.32	.9188	1.0884	.9200	.0136	9062	.9063	.8458	89.2135	13.6551	.0803	7.5576
4.5	2.1936	1.3247	1.32	.9188	1.0884	.9500	.0628	9412	.9433					

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	ZU	M2	THETA	SIGMA	PR21	PTR21	TR21
5.0	2.2361	1.3416	1.00	.4472	2.2361	.4500	.0691	.4181	.4230	8.7322	87.7839	28.9564	.0619	5.7927
5.0	2.2361	1.3416	1.00	.4472	2.2361	.4800	.2350	.4490	.4999	26.0868	82.3775	28.4868	.0639	5.7144
5.0	2.2361	1.3416	1.00	.4472	2.2361	.5100	.3223	.4804	.5683	32.2926	79.4228	28.0172	.0659	5.6360
5.0	2.2361	1.3416	1.00	.4472	2.2361	.5400	.3883	.5122	.6308	35.7163	77.1061	27.5477	.0681	5.5577
5.0	2.2361	1.3416	1.00	.4472	2.2361	.5700	.4425	.5445	.6893	37.8231	75.1258	27.0781	.0703	5.4793
5.0	2.2361	1.3416	1.00	.4472	2.2361	.6000	.4890	.5773	.7447	39.1775	73.3607	26.6085	.0727	5.4009
5.0	2.2361	1.3416	1.00	.4472	2.2361	.6300	.5297	.6106	.7977	40.0552	71.7479	26.1389	.0751	5.3226
5.0	2.2361	1.3416	1.00	.4472	2.2361	.6600	.5659	.6445	.8489	40.6097	70.2495	25.6694	.0777	5.2442
5.0	2.2361	1.3416	1.00	.4472	2.2361	.6900	.5984	.6788	.8986	40.9341	68.8408	25.1998	.0804	5.1658
5.0	2.2361	1.3416	1.00	.4472	2.2361	.7200	.6278	.7138	.9470	41.0884	67.5044	24.7302	.0833	5.0874
5.0	2.2361	1.3416	1.00	.4472	2.2361	.7500	.6546	.7493	.9946	41.1135	66.2277	24.2606	.0863	5.0090
5.0	2.2361	1.3416	1.00	.4472	2.2361	.7800	.6789	.7855	1.0413	41.0376	65.0011	23.7911	.0894	4.9306
5.0	2.2361	1.3416	1.00	.4472	2.2361	.8100	.7012	.8222	1.0875	40.8815	63.8171	23.3215	.0927	4.8522
5.0	2.2361	1.3416	1.00	.4472	2.2361	.8400	.7215	.8597	1.1332	40.6603	62.6697	22.8519	.0961	4.7738
5.0	2.2361	1.3416	1.00	.4472	2.2361	.8700	.7400	.8978	1.1786	40.3855	61.5540	22.3823	.0998	4.6954
5.0	2.2361	1.3416	1.00	.4472	2.2361	.9000	.7570	.9366	1.2238	40.0661	60.4660	21.9128	.1036	4.6170
5.0	2.2361	1.3416	1.00	.4472	2.2361	.9300	.7723	.9761	1.2689	39.7088	59.4022	21.4432	.1077	4.5386
5.0	2.2361	1.3416	1.00	.4472	2.2361	.9600	.7863	1.0164	1.3139	39.3190	58.3597	20.9736	.1119	4.4602
5.0	2.2361	1.3416	1.00	.4472	2.2361	.9900	.7989	1.0575	1.3589	38.9010	57.3359	20.5040	.1164	4.3817
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.0200	.8101	1.0995	1.4041	38.4584	56.3288	20.0345	.1212	4.3033
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.0500	.8202	1.1423	1.4494	37.9938	55.3361	19.5649	.1262	4.2248
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.0800	.8290	1.1860	1.4951	37.5095	54.3564	19.0953	.1316	4.1464
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.1100	.8367	1.2306	1.5410	37.0073	53.3878	18.6258	.1372	4.0679
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.1400	.8432	1.2762	1.5874	36.4886	52.4290	18.1562	.1432	3.9894
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.1700	.8486	1.3229	1.6343	35.9546	51.4787	17.6866	.1495	3.9109
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.2000	.8530	1.3707	1.6817	35.4062	50.5355	17.2170	.1562	3.8324
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.2300	.8563	1.4195	1.7297	34.8442	49.5984	16.7475	.1634	3.7539
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.2600	.8585	1.4696	1.7783	34.2691	48.6662	16.2779	.1710	3.6753
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.2900	.8597	1.5210	1.8278	33.6812	47.7380	15.8083	.1791	3.5968
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.3200	.8599	1.5736	1.8780	33.0808	46.8126	15.3387	.1878	3.5182
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.3500	.8590	1.6277	1.9292	32.4681	45.8890	14.8692	.1970	3.4396
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.3800	.8571	1.6832	1.9814	31.8430	44.9665	13.9300	.2069	3.3610
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.4100	.8541	1.7402	2.0346	31.2055	44.0438	13.4604	.2287	3.2057
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.4400	.8501	1.7989	2.0890	30.5552	43.1202	13.9909	.2408	3.1251
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.4700	.8450	1.8594	2.1447	29.8920	42.1946	12.9909	.2538	3.0463
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.5000	.8388	1.9217	2.2018	29.2154	41.2661	12.5213	.2677	2.9676
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.5300	.8316	1.9860	2.2604	28.5247	40.3336	12.0517	.2827	2.8888
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.5600	.8232	2.0524	2.3206	27.8195	39.3961	11.5821	.2988	2.8100
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.5900	.8136	2.1210	2.3825	27.0988	38.4525	11.1126	.3162	2.7311
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.6200	.8028	2.1920	2.4464	26.3618	37.5016	10.6430	.3349	2.6521
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.6500	.7908	2.2655	2.5123	25.6074	36.5421	10.1734	.3551	2.5731
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.6800	.7775	2.3419	2.5805	24.8343	35.5728	9.7038	.3769	2.4940
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.7100	.7628	2.4212	2.6512	24.0409	34.5921	9.2343	.4005	2.4149
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.7400	.7467	2.5037	2.7245	23.2256	33.5985	8.7647	.4260	2.3356
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.7700	.7290	2.5898	2.8008	22.3863	32.5902	8.2951	.4536	2.2562
5.0	2.2361	1.3416	1.00	.4472	2.2361	1.8000	.							

5.0	2.2361	1.3416	1.08	.5052	1.9793	.5100	.0819	.4763	.4824	9.1237	87.1438	27.3786	.0607	6.6872
5.0	2.2361	1.3416	1.08	.5052	1.9793	.5400	.2188	.5075	.5476	22.0588	82.2681	26.8715	.0623	6.6024
5.0	2.2361	1.3416	1.08	.5052	1.9793	.5700	.2954	.5392	.6073	27.3955	79.4209	26.3643	.0639	6.5177
5.0	2.2361	1.3416	1.08	.5052	1.9793	.6000	.3533	.5713	.6630	30.4941	77.1714	25.8572	.0656	6.4329
5.0	2.2361	1.3416	1.08	.5052	1.9793	.6300	.4008	.6038	.7157	32.4649	75.2432	25.3501	.0674	6.3481
5.0	2.2361	1.3416	1.08	.5052	1.9793	.6600	.4412	.6369	.7661	33.7622	73.5229	24.8429	.0692	6.2633
5.0	2.2361	1.3416	1.08	.5052	1.9793	.7200	.5073	.6704	.8146	34.6178	71.9506	24.3358	.0711	6.1784
5.0	2.2361	1.3416	1.08	.5052	1.9793	.7500	.5347	.7389	.8616	35.1654	70.4902	23.8286	.0729	6.0936
5.0	2.2361	1.3416	1.08	.5052	1.9793	.7800	.5593	.7739	.9075	35.4883	69.1180	23.3215	.0752	6.0088
5.0	2.2361	1.3416	1.08	.5052	1.9793	.8100	.5813	.8095	.9523	35.6416	67.8172	22.8144	.0773	5.9239
5.0	2.2361	1.3416	1.08	.5052	1.9793	.8400	.6009	.8457	1.0398	35.5806	65.3846	22.3072	.0795	5.8390
5.0	2.2361	1.3416	1.08	.5052	1.9793	.8700	.6186	.8824	1.0827	35.4130	64.2364	21.2929	.0818	5.7542
5.0	2.2361	1.3416	1.08	.5052	1.9793	.9000	.6343	.9197	1.1252	35.1756	63.1254	20.7858	.0866	5.5843
5.0	2.2361	1.3416	1.08	.5052	1.9793	.9300	.6483	.9577	1.1674	34.8795	62.0470	20.2787	.0891	5.4994
5.0	2.2361	1.3416	1.08	.5052	1.9793	.9600	.6606	.9963	1.2094	34.5336	60.9974	19.7715	.0917	5.4144
5.0	2.2361	1.3416	1.08	.5052	1.9793	.9900	.6714	1.0356	1.2513	34.1445	59.9734	19.2644	.0945	5.3294
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.0200	.6807	1.0756	1.2932	33.7177	58.9724	18.7572	.0973	5.2444
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.0500	.6886	1.1163	1.3350	33.2574	57.9921	18.2501	.1003	5.1594
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.0800	.6951	1.1578	1.3769	32.7671	57.0304	17.7430	.1033	5.0743
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.1100	.7003	1.2001	1.4190	32.2493	56.0859	17.2358	.1065	4.9892
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.1400	.7042	1.2432	1.4613	31.7062	55.1570	16.7287	.1098	4.9041
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.1700	.7069	1.2871	1.5038	31.1394	54.2425	16.2215	.1132	4.8189
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.2000	.7083	1.3320	1.5467	30.5503	53.3415	15.7144	.1167	4.7337
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.2300	.7084	1.3777	1.5899	29.9396	52.4531	15.2073	.1204	4.6484
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.2600	.7073	1.4245	1.6336	29.3081	51.5766	14.7001	.1241	4.5631
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.2900	.7050	1.4722	1.6777	28.6561	50.7115	14.1930	.1280	4.4777
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.3200	.7014	1.5210	1.7224	27.9837	49.8576	13.6858	.1321	4.3923
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.3500	.6965	1.5710	1.7677	27.2908	49.0146	13.1787	.1362	4.3068
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.3800	.6904	1.6221	1.8137	26.5770	48.1827	12.6716	.1405	4.2212
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.4100	.6829	1.6744	1.8605	25.8419	47.3623	12.1644	.1449	4.1355
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.4400	.6741	1.7280	1.9080	25.0845	46.5538	11.6573	.1495	4.0498
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.4700	.6638	1.7831	1.9564	24.3037	45.7585	11.1501	.1541	3.9639
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.5000	.6522	1.8395	2.0058	23.4984	44.9776	10.6430	.1588	3.8779
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.5300	.6390	1.8975	2.0563	22.6666	44.2134	10.1358	.1636	3.7918
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.5600	.6242	1.9571	2.1079	21.8065	43.4686	9.6287	.1685	3.7054
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.5900	.6077	2.0184	2.1608	20.9155	42.7473	9.1216	.1734	3.6189
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.6200	.5893	2.0816	2.2151	19.9905	42.0549	8.6144	.1783	3.5322
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.6500	.5690	2.1468	2.2709	19.0279	41.3990	8.1073	.1831	3.4452
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.6800	.5466	2.2140	2.3283	18.0229	40.7903	7.6001	.1877	3.3579
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.7100	.5218	2.2836	2.3876	16.9699	40.2441	7.0930	.1922	3.2701
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.7400	.4944	2.3557	2.4489	15.8614	39.7830	6.5859	.1964	3.1819
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.7700	.4640	2.4304	2.5125	14.6880	39.4414	6.0787	.2002	3.0931
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.8000	.4300	2.5082	2.5788	13.4369	39.2736	5.5716	.2033	3.0036
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.8300	.3920	2.5893	2.6481	12.0905	39.3708	5.0644	.2057	2.9130
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.8600	.3488	2.6743	2.7209	10.6226	39.8976	4.5573	.2071	2.8212
5.0	2.2361	1.3416	1.08	.5052	1.9793	1.8900	.2991	2.7636	2.7980	8.9914	41.1841	4.0502	.2071	2.7276
5.0	2.2361	1.3416	1.08	.505										

5.0	2.2361	1.3416	1.16	.5755	1.7377	.5800	.0707	5452	.5492	6.9525	87.2935	25.4690	.0591	7.6142
5.0	2.2361	1.3416	1.16	.5755	1.7377	.6100	.1927	5769	.6050	17.5297	82.5131	24.9243	.0603	7.5229
5.0	2.2361	1.3416	1.16	.5755	1.7377	.6400	.2597	6089	.6572	22.0894	79.7483	24.3796	.0616	7.4317
5.0	2.2361	1.3416	1.16	.5755	1.7377	.6700	.3099	6414	.7067	24.8203	77.5723	23.8349	.0629	7.3404
5.0	2.2361	1.3416	1.16	.5755	1.7377	.7000	.3504	6744	.7542	26.5926	75.7138	23.2902	.0642	7.2490
5.0	2.2361	1.3416	1.16	.5755	1.7377	.7300	.3844	7078	.7999	27.7722	74.0617	22.7455	.0655	7.1577
5.0	2.2361	1.3416	1.16	.5755	1.7377	.7600	.4135	7416	.8443	28.5511	72.5576	22.2008	.0669	7.0663
5.0	2.2361	1.3416	1.16	.5755	1.7377	.7900	.4387	7759	.8875	29.0429	71.1665	21.6561	.0683	6.9749
5.0	2.2361	1.3416	1.16	.5755	1.7377	.8200	.4605	8107	.9298	29.3202	69.8654	21.1114	.0697	6.8834
5.0	2.2361	1.3416	1.16	.5755	1.7377	.8500	.4796	8460	.9713	29.4316	68.6385	20.5667	.0712	6.7919
5.0	2.2361	1.3416	1.16	.5755	1.7377	.8800	.4961	8818	1.0123	29.4113	67.4744	20.0220	.0727	6.7004
5.0	2.2361	1.3416	1.16	.5755	1.7377	.9100	.5103	9182	1.0527	29.2841	66.3644	19.4772	.0742	6.6089
5.0	2.2361	1.3416	1.16	.5755	1.7377	.9400	.5225	9551	1.0927	29.0682	65.3021	18.9325	.0757	6.5173
5.0	2.2361	1.3416	1.16	.5755	1.7377	.9700	.5328	9926	1.1324	28.7773	64.2826	18.3878	.0773	6.4256
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.0000	.5412	10306	1.1719	28.4218	63.3022	17.8431	.0789	6.3339
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.0300	.5479	10693	1.2112	28.0099	62.3578	17.2984	.0805	6.2421
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.0600	.5529	11087	1.2504	27.5477	61.4476	16.7537	.0821	6.1503
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.0900	.5563	11487	1.2896	27.0400	60.5699	16.2090	.0837	6.0584
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.1200	.5582	11893	1.3289	26.4906	59.7241	15.6643	.0853	5.9664
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.1500	.5585	12307	1.3682	25.9021	58.9100	15.1196	.0870	5.8744
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.1800	.5572	12729	1.4076	25.2765	58.1279	14.5749	.0886	5.7822
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.2100	.5544	13157	1.4473	24.6151	57.3789	14.0302	.0902	5.6900
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.2400	.5500	13595	1.4872	23.9186	56.6648	13.4855	.0918	5.5976
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.2700	.5440	14040	1.5274	23.1871	55.9884	12.9408	.0934	5.5051
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.3000	.5364	14494	1.5679	22.4201	55.3534	12.3961	.0950	5.4124
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.3300	.5270	14957	1.6089	21.6165	54.7649	11.8514	.0965	5.3196
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.3600	.5159	15430	1.6503	20.7748	54.2296	11.3067	.0979	5.2266
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.3900	.5030	15913	1.6923	19.8926	53.7569	10.7619	.0992	5.1334
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.4200	.4880	16407	1.7349	18.9666	53.3591	10.2172	.1005	5.0399
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.4500	.4709	16911	1.7781	17.9925	53.0529	9.6725	.1016	4.9461
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.4800	.4515	17428	1.8221	16.9647	52.8615	9.1278	.1025	4.8519
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.5100	.4294	17957	1.8669	15.8756	52.8180	8.5831	.1033	4.7573
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.5400	.4044	18500	1.9127	14.7150	52.9704	8.0384	.1038	4.6623
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.5700	.3760	19057	1.9596	13.4684	53.3915	7.4937	.1041	4.5666
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.6000	.3434	19629	2.0076	12.1145	54.1974	6.9490	.1040	4.4702
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.6300	.3056	20219	2.0571	10.6198	55.5868	6.4043	.1035	4.3728
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.6600	.2607	20827	2.1082	8.9246	57.9358	5.8596	.1026	4.2742
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.6900	.2046	21456	2.1613	6.9019	62.0861	5.3149	.1011	4.1741
5.0	2.2361	1.3416	1.16	.5755	1.7377	1.7200	.1244	22109	2.2167	4.1362	70.7478	4.7702	.0990	4.0720

5.0	2.2361	1.3416	1.20	.6180	1.6180	.6200	.0432	5851	.5865	3.9885	88.2578	24.3546	.0581	8.0838
5.0	2.2361	1.3416	1.20	.6180	1.6180	.6500	.1716	6171	.6382	14.7865	82.9696	23.7911	.0591	7.9892
5.0	2.2361	1.3416	1.20	.6180	1.6180	.6800	.2350	6494	.6871	19.0650	80.2050	23.2276	.0602	7.8946
5.0	2.2361	1.3416	1.20	.6180	1.6180	.7100	.2815	6821	.7338	21.6271	78.0604	22.6641	.0613	7.8000
5.0	2.2361	1.3416	1.20	.6180	1.6180	.7400	.3186	7153	.7788	23.2911	76.2439	22.1006	.0624	7.7053
5.0	2.2361	1.3416	1.20	.6180	1.6180	.7700	.3492	7489						

5.0	2.2361	1.3416	1.24	.6689	1.4951	.6700	.0298	6359	.6366	2.5501	88.7225	22.9959	.0571	8.5340
5.0	2.2361	1.3416	1.24	.6689	1.4951	.7000	.1532	6682	.6841	12.3466	83.3190	22.4137	.0579	8.4361
5.0	2.2361	1.3416	1.24	.6689	1.4951	.7300	.2105	7010	.7295	16.0823	80.6489	21.8314	.0588	8.3381
5.0	2.2361	1.3416	1.24	.6689	1.4951	.7600	.2517	7341	.7733	18.3226	78.5988	21.2491	.0596	8.2401
5.0	2.2361	1.3416	1.24	.6689	1.4951	.7900	.2839	7677	.8157	19.7699	76.8777	20.6668	.0605	8.1420
5.0	2.2361	1.3416	1.24	.6689	1.4951	.8200	.3101	8017	.8571	20.7140	75.3721	20.0846	.0613	8.0439
5.0	2.2361	1.3416	1.24	.6689	1.4951	.8500	.3315	8361	.8975	21.3078	74.0243	19.5023	.0622	7.9457
5.0	2.2361	1.3416	1.24	.6689	1.4951	.8800	.3492	8710	.9371	21.6429	72.8005	18.9200	.0630	7.8474
5.0	2.2361	1.3416	1.24	.6689	1.4951	.9100	.3636	9064	.9761	21.7784	71.6797	18.3377	.0638	7.7491
5.0	2.2361	1.3416	1.24	.6689	1.4951	.9400	.3751	9423	1.0145	21.7544	70.6485	17.7555	.0646	7.6506
5.0	2.2361	1.3416	1.24	.6689	1.4951	.9700	.3840	9787	1.0526	21.5990	69.6978	17.1732	.0654	7.5521
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.0000	.3905	1.0156	1.0903	21.3328	68.8224	16.5909	.0662	7.4535
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.0300	.3948	1.0531	1.1278	20.9703	68.0197	16.0087	.0669	7.3547
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.0600	.3968	1.0911	1.1650	20.5223	67.2892	15.4264	.0676	7.2559
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.0900	.3967	1.1297	1.2022	19.9965	66.6328	14.8441	.0682	7.1569
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.1200	.3944	1.1689	1.2393	19.3980	66.0547	14.2618	.0688	7.0577
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.1500	.3899	1.2088	1.2764	18.7298	65.5617	13.6796	.0694	6.9584
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.1800	.3832	1.2493	1.3135	17.9932	65.1637	13.0973	.0699	6.8588
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.2100	.3743	1.2905	1.3508	17.1872	64.8748	12.5150	.0703	6.7590
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.2400	.3628	1.3324	1.3882	16.3091	64.7147	11.9328	.0706	6.6590
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.2700	.3487	1.3750	1.4259	15.3533	64.7108	11.3505	.0708	6.5586
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.3000	.3316	1.4184	1.4638	14.3112	64.9026	10.7682	.0709	6.4579
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.3300	.3112	1.4626	1.5021	13.1689	65.3475	10.1859	.0709	6.3568
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.3600	.2867	1.5077	1.5409	11.9048	66.1339	9.6037	.0707	6.2553
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.3900	.2572	1.5537	1.5801	10.4831	67.4056	9.0214	.0704	6.1531
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.4200	.2208	1.6007	1.6199	8.8377	69.4213	8.4391	.0698	6.0502
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.4500	.1735	1.6487	1.6605	6.8218	72.7329	7.8568	.0691	5.9465
5.0	2.2361	1.3416	1.24	.6689	1.4951	1.4800	.1015	1.6978	1.7018	3.9246	79.1158	7.2746	.0681	5.8418

5.0	2.2361	1.3416	1.28	.7341	1.3622	.7400	.0589	7089	.7111	4.5523	87.2718	21.1740	.0561	8.9275
5.0	2.2361	1.3416	1.28	.7341	1.3622	.7700	.1417	7418	.7543	10.4239	83.3033	20.5729	.0567	8.8261
5.0	2.2361	1.3416	1.28	.7341	1.3622	.8000	.1868	7752	.7961	13.1450	80.9763	19.9719	.0573	8.7246
5.0	2.2361	1.3416	1.28	.7341	1.3622	.8300	.2191	8090	.8367	14.7856	79.1817	19.3708	.0579	8.6231
5.0	2.2361	1.3416	1.28	.7341	1.3622	.8600	.2436	8432	.8764	15.8142	77.6919	18.7698	.0585	8.5214
5.0	2.2361	1.3416	1.28	.7341	1.3622	.8900	.2626	8779	.9153	16.4363	76.4139	18.1687	.0591	8.4197
5.0	2.2361	1.3416	1.28	.7341	1.3622	.9200	.2771	9130	.9535	16.7637	75.3010	17.5676	.0596	8.3178
5.0	2.2361	1.3416	1.28	.7341	1.3622	.9500	.2880	9486	.9912	16.8645	74.3272	16.9666	.0601	8.2159
5.0	2.2361	1.3416	1.28	.7341	1.3622	.9800	.2956	9847	1.0285	16.7828	73.4787	16.3655	.0606	8.1138
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.0100	.3001	1.0213	1.0654	16.5482	72.7490	15.7645	.0610	8.0115
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.0400	.3018	1.0584	1.1021	16.1808	72.1381	15.1634	.0614	7.9091
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.0700	.3006	1.0961	1.1385	15.6936	71.6509	14.5624	.0617	7.8065
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.1000	.2967	1.1343	1.1749	15.0943	71.2981	13.9613	.0619	7.7037
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.1300	.2898	1.1731	1.2111	14.3858	71.0975	13.3603	.0621	7.6007
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.1600	.2799	1.2125	1.2473	13.5663	71.0757	12.7592	.0622	7.4974
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.1900	.2666	1.2526	1.2836	12.6282	71.2725	12.1581	.0623	7.3938
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.2200	.2495	1.2933	1.3200	11.5559	71.7486	11.5571	.0622	7.2899
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.2500	.2276	1.3347	1.3566	10.3211	72.6006	10.9560	.0620	7.1855
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.2800	.1998	1.3768	1.3935	8.8703	73.9950	10.3550	.0617	7.0807
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.3100	.1629	1.4197	1.4306	7.0882	76.2645	9.7539	.0613	6.9753
5.0	2.2361	1.3416	1.28	.7341	1.3622	1.3400</								

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SICMA	PR21	PTR21	TR21
8.0	2.3591	1.3915	1.00	.4239	2.3591	.4300	.1077	.3991	.4114	14.0566	86.8056	74.2681	.0085	13.3481
8.0	2.3591	1.3915	1.00	.4239	2.3591	.4800	.3221	.4509	.5430	33.8607	80.2742	72.3691	.0091	13.0315
8.0	2.3591	1.3915	1.00	.4239	2.3591	.5300	.4369	.5040	.6532	39.4991	76.5663	70.4700	.0096	12.7149
8.0	2.3591	1.3915	1.00	.4239	2.3591	.5800	.5225	.5586	.7518	42.0146	73.6329	68.5710	.0102	12.3984
8.0	2.3591	1.3915	1.00	.4239	2.3591	.6300	.5917	.6146	.8433	43.2060	71.1077	66.6719	.0109	12.0818
8.0	2.3591	1.3915	1.00	.4239	2.3591	.6800	.6498	.6723	.9299	43.7008	68.8424	64.7729	.0116	11.7652
8.0	2.3591	1.3915	1.00	.4239	2.3591	.7300	.6996	.7316	1.0134	43.7817	66.7591	62.8738	.0124	11.4486
8.0	2.3591	1.3915	1.00	.4239	2.3591	.7800	.7427	.7928	1.0947	43.5963	64.8109	60.9748	.0132	11.1320
8.0	2.3591	1.3915	1.00	.4239	2.3591	.8300	.7802	.8559	1.1746	43.2291	62.9669	59.0757	.0142	10.8154
8.0	2.3591	1.3915	1.00	.4239	2.3591	.8800	.8129	.9210	1.2539	42.7319	61.2053	57.1767	.0152	10.4988
8.0	2.3591	1.3915	1.00	.4239	2.3591	.9300	.8415	.9883	1.3329	42.1384	59.5100	55.2776	.0164	10.1822
8.0	2.3591	1.3915	1.00	.4239	2.3591	.9800	.8661	1.0581	1.4121	41.4708	57.8687	53.3786	.0177	9.8656
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.0300	.8873	1.1303	1.4919	40.7445	56.2716	51.4795	.0191	9.5490
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.0800	.9053	1.2054	1.5728	39.9704	54.7107	49.5805	.0207	9.2324
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.1300	.9202	1.2834	1.6550	39.1559	53.1792	47.6814	.0225	8.9157
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.1800	.9321	1.3646	1.7390	38.3066	51.6714	45.7824	.0246	8.5991
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.2300	.9413	1.4494	1.8251	37.4263	50.1823	43.8833	.0268	8.2824
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.2800	.9477	1.5380	1.9137	36.5173	48.7072	41.9843	.0294	7.9658
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.3300	.9515	1.6308	2.0052	35.5815	47.2419	40.0852	.0324	7.6491
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.3800	.9527	1.7282	2.1989	33.615	44.3250	36.2871	.0358	7.0156
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.4300	.9512	1.8308	2.3022	32.6172	42.8659	34.3880	.0442	6.6989
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.4800	.9471	1.9391	2.4107	31.5755	41.4011	32.4890	.0495	6.3821
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.5300	.9404	2.0538	2.5251	30.5049	39.9269	30.5899	.0557	6.0653
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.5800	.9309	2.1756	2.6464	29.4032	38.4389	28.6909	.0630	5.7484
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.6300	.9186	2.3055	2.7755	28.2677	36.9326	26.7918	.0717	5.4315
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.6800	.9034	2.4445	2.9139	27.0948	35.4031	24.8928	.0823	5.1146
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.7300	.8851	2.5941	3.0631	25.8800	33.8446	22.9937	.0951	4.7975
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.7800	.8636	2.7559	3.2250	24.6175	32.2504	21.0947	.1108	4.4804
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.8300	.8385	2.9319	3.4021	23.3001	30.6126	19.1956	.1304	4.1631
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.8800	.8097	3.1246	3.5975	21.9182	28.9217	17.2966	.1551	3.8457
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.9300	.7766	3.3375	3.8154	20.4593	27.1655	15.3975	.1867	3.5281
8.0	2.3591	1.3915	1.00	.4239	2.3591	1.9800	.7387	3.5748	4.0614	18.9062	25.3282	13.4985	.2278	3.2101
8.0	2.3591	1.3915	1.00	.4239	2.3591	2.0300	.6953	3.8422	4.3430	17.2347	23.3886	11.5994	.2821	2.8917
8.0	2.3591	1.3915	1.00	.4239	2.3591	2.0800	.6452	4.1480	4.6714	15.4084	21.3166	9.7004	.3552	2.5725
8.0	2.3591	1.3915	1.00	.4239	2.3591	2.1300	.5870	4.5035	5.0634	13.3688	19.6669	7.8013	.4551	2.2521
8.0	2.3591	1.3915	1.00	.4239	2.3591	2.1800	.5181	4.9262	5.5467	11.0117	16.5647	5.9023	.5918	1.9292
8.0	2.3591	1.3915	1.00	.4239	2.3591	2.2300	.4339	5.4415	6.1115	6.1733	8.1154	13.6694	.6006	.7717
8.0	2.3591	1.3915	1.00	.4239	2.3591	2.2800	.3251	6.1115	7.0803	4.0298	10.6433	2.1042	.9594	1.2516
8.0	2.3591	1.3915	1.04	.4491	2.2269	.4500	.0405	.4180	.4197	5.1450	88.7543	72.8249	.0084	14.4182
8.0	2.3591	1.3915	1.04	.4491	2.2269	.5000	.2941	.4698	.5451	30.4677	80.7859	70.8499	.0089	14.0889
8.0	2.3591	1.3915	1.04	.4491	2.2269	.5500	.4079	.5229	.6511	36.5635	76.9740	68.8748	.0094	13.7596
8.0	2.3591	1.3915	1.04	.4491	2.2269	.6000	.4912	.5774	.7462	39.3066	74.0019	66.8998	.0099	13.4303
8.0	2.3591	1.3915	1.04	.4491	2.2269	.6500	.5578	.6334	.8346	40.6362	71.4594	64.9248	.0105	13.1009
8.0	2.3591	1.3915	1.04	.4491	2.2269	.7000	.6132	.6908	.9184	41.2204	69.1869	62.9498	.0111	12.7716
8.0	2.3591	1.3915	1.04	.4491	2.2269	.7500	.6603	.7499	.9991	41.3597	67.1022	60.9748	.0118	12.4422
8.0	2.3591	1.3915	1.04	.4491	2.2269	.8000	.7006	.8107	1.0776					

8.0	2.3591	1.3915	1.08	.4760	2.1008	.4800	.0798	.4471	.4532	9.4590	87.4475	70.9106	.0084	15.4611
8.0	2.3591	1.3915	1.08	.4760	2.1008	.5300	.2888	.4992	.5685	28.5828	80.5776	68.8596	.0088	15.1191
8.0	2.3591	1.3915	1.08	.4760	2.1008	.5800	.3942	.5526	.6682	34.2029	76.8701	66.8087	.0092	14.7770
8.0	2.3591	1.3915	1.08	.4760	2.1008	.6300	.4716	.6073	.7586	36.8188	73.9563	64.7577	.0097	14.4348
8.0	2.3591	1.3915	1.08	.4760	2.1008	.6800	.5333	.6634	.8431	38.1084	71.4567	62.7067	.0102	14.0927
8.0	2.3591	1.3915	1.08	.4760	2.1008	.7300	.5844	.7210	.9236	38.6780	69.2201	60.6557	.0108	13.7505
8.0	2.3591	1.3915	1.08	.4760	2.1008	.7800	.6273	.7802	1.0012	38.8089	67.1677	58.6048	.0114	13.4084
8.0	2.3591	1.3915	1.08	.4760	2.1008	.8300	.6638	.8410	1.0768	38.6507	65.2524	56.5538	.0120	13.0662
8.0	2.3591	1.3915	1.08	.4760	2.1008	.8800	.6947	.9035	1.1512	38.2907	63.4435	54.5028	.0127	12.7239
8.0	2.3591	1.3915	1.08	.4760	2.1008	.9300	.7209	.9680	1.2248	37.7831	61.7193	52.4518	.0135	12.3817
8.0	2.3591	1.3915	1.08	.4760	2.1008	.9800	.7429	1.0344	1.2980	37.1632	60.642	50.4009	.0143	12.0394
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.0300	.7609	1.1030	1.3713	36.4545	58.4661	48.3499	.0151	11.6970
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.1300	.7863	1.2471	1.4450	35.6734	56.9157	46.2989	.0161	11.3546
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.1800	.7940	1.3231	1.5193	34.8310	55.4058	44.2479	.0171	11.0122
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.2300	.7985	1.4018	1.6713	32.9908	52.4842	40.1460	.0182	10.6697
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.2800	.7999	1.4836	1.7495	32.0015	51.0637	38.0950	.0208	9.9845
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.3300	.7982	1.5687	1.8295	30.9689	49.6657	36.0440	.0222	9.6418
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.3800	.7933	1.6574	1.9118	29.8933	48.2877	33.9930	.0238	9.2990
8.0	2.3591	1.3915	1.09	.4760	2.1008	1.4300	.7853	1.7501	1.9966	28.7740	46.9281	31.9421	.0255	8.9560
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.4800	.7740	1.8470	2.0843	27.6089	45.5861	29.8911	.0273	8.6129
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.5300	.7593	1.9486	2.1754	26.3948	44.2622	27.8401	.0293	8.2696
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.5800	.7410	2.0554	2.2703	25.1270	42.9583	25.7891	.0315	7.9260
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.6300	.7189	2.1680	2.3695	23.7992	41.6782	23.7382	.0339	7.5822
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.6800	.6925	2.2870	2.4737	22.4027	40.4297	21.6872	.0364	7.2379
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.7300	.6615	2.4133	2.5837	20.9259	39.2258	19.6362	.0391	6.8932
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.7800	.6252	2.5477	2.7002	19.3525	38.895	17.5852	.0420	6.5479
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.8300	.5826	2.6914	2.8245	17.6598	37.619	15.5343	.0448	6.2015
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.8800	.5325	2.8458	2.9578	15.8137	36.2215	13.4833	.0476	5.8539
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.9300	.4726	3.0129	3.1019	13.7603	35.7316	11.4323	.0501	5.5042
8.0	2.3591	1.3915	1.08	.4760	2.1008	1.9800	.3994	3.1951	3.2595	11.4039	35.9861	9.3813	.0518	5.1511
8.0	2.3591	1.3915	1.08	.4760	2.1008	2.0300	.3048	3.3964	3.4345	8.5399	38.2162	7.3304	.0522	4.7918
8.0	2.3591	1.3915	1.08	.4760	2.1008	2.0800	.1620	3.6237	3.6347	4.4528	49.5552	5.2794	.0499	4.4194

8.0	2.3591	1.3915	1.12	.5051	1.9797	.5100	.0838	.4763	.4827	9.3316	87.2091	68.9052	.0083	16.5400
8.0	2.3591	1.3915	1.12	.5051	1.9797	.5600	.2766	.5287	.5897	26.2889	80.5895	66.7783	.0087	16.1852
8.0	2.3591	1.3915	1.12	.5051	1.9797	.6100	.3756	.5823	.6838	31.6188	76.9413	64.6513	.0091	15.8303
8.0	2.3591	1.3915	1.12	.5051	1.9797	.6600	.4478	.6372	.7701	34.1586	74.0708	62.5244	.0095	15.4753
8.0	2.3591	1.3915	1.12	.5051	1.9797	.7100	.5051	.6935	.8511	35.4266	71.6094	60.3975	.0099	15.1204
8.0	2.3591	1.3915	1.12	.5051	1.9797	.7600	.5909	.7512	.9284	35.9885	69.4091	58.2705	.0104	14.7654
8.0	2.3591	1.3915	1.12	.5051	1.9797	.8100	.6235	.8713	1.0032	36.1122	67.5929	56.1436	.0109	14.4103
8.0	2.3591	1.3915	1.12	.5051	1.9797	.8600	.6507	.9338	1.0761	35.9426	65.5149	54.0167	.0115	14.0552
8.0	2.3591	1.3915	1.12	.5051	1.9797	.9100	.6730	.9981	1.2190	35.0331	62.625	49.7628	.0121	13.7001
8.0	2.3591	1.3915	1.12	.5051	1.9797	.9600	.6911	1.0644	1.2897	34.3814	60.4524	47.6358	.0133	13.3449
8.0	2.3591	1.3915	1.12	.5051	1.9797	1.0600	.7052	1.1327	1.3604	33.6335	58.9035	45.5089	.0140	12.6344
8.0	2.3591	1.3915	1.12	.5051	1.9797	1.1100	.7155	1.2031	1.4314	32.8053	57.4077	43.382		

8.0	2.3591	1.3915	1.20	.5725	1.7466	.5800	.0924	.5454	.5523	9.0544	86.6384	64.1652	.0081	18.7295
8.0	2.3591	1.3915	1.20	.5725	1.7466	.6300	.2509	.5985	.6442	21.7152	80.6483	61.8863	.0084	18.3490
8.0	2.3591	1.3915	1.20	.5725	1.7466	.6800	.3352	.6528	.7278	26.2425	77.1834	59.6075	.0087	17.9683
8.0	2.3591	1.3915	1.20	.5725	1.7466	.7300	.3960	.7084	.8059	28.4789	74.4541	57.3286	.0090	17.5876
8.0	2.3591	1.3915	1.20	.5725	1.7466	.7800	.4430	.7652	.8800	29.5970	72.1223	55.0497	.0093	17.2069
8.0	2.3591	1.3915	1.20	.5725	1.7466	.8300	.4804	.8234	.9514	30.0621	70.6507	52.7709	.0097	16.8260
8.0	2.3591	1.3915	1.20	.5725	1.7466	.8800	.5102	.8831	1.0208	30.1041	68.1679	50.4920	.0100	16.4451
8.0	2.3591	1.3915	1.20	.5725	1.7466	.9300	.5337	.9442	1.0887	29.8513	66.4324	48.2132	.0104	16.0640
8.0	2.3591	1.3915	1.20	.5725	1.7466	.9800	.5518	1.0070	1.1557	29.3809	64.8180	45.9343	.0108	15.6828
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.0300	.5649	1.0715	1.2221	28.7414	63.5081	43.6554	.0112	15.3015
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.0800	.5734	1.1378	1.2882	27.9644	61.5928	41.3766	.0116	14.9200
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.1300	.5775	1.2060	1.3544	27.0701	60.5670	39.0977	.0120	14.5383
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.1800	.5773	1.2763	1.4208	26.0714	59.3302	36.8188	.0124	14.1564
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.2300	.5729	1.3487	1.4878	24.9751	58.1867	34.5400	.0128	13.7742
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.2800	.5641	1.4234	1.5555	23.7837	57.1462	32.2611	.0132	13.3917
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.3300	.5508	1.5006	1.6242	22.4950	56.4258	29.9822	.0135	13.0087
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.3800	.5326	1.5805	1.6941	21.1023	55.4533	27.7034	.0139	12.6253
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.4300	.5090	1.6632	1.7655	19.5933	54.8731	25.4245	.0142	12.2412
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.4800	.4794	1.7491	1.8386	17.9479	54.5581	23.1457	.0145	11.8562
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.5300	.4426	1.8384	1.9138	16.1336	54.6327	20.8668	.0146	11.4702
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.5800	.3967	1.9314	1.9913	14.0955	55.5266	18.5879	.0147	11.0826
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.6300	.3385	2.0285	2.0717	11.7310	57.1162	16.3091	.0146	10.6929
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.6800	.2602	2.1556	2.1556	8.8034	61.2136	14.0302	.0143	10.3000
8.0	2.3591	1.3915	1.20	.5725	1.7466	1.7300	.1316	2.2372	2.2437	4.3515	72.7334	11.7513	.0138	9.9021

8.0	2.3591	1.3915	1.24	.6130	1.6313	.6200	.0834	.5854	.5907	7.6578	86.6159	61.4002	.0080	19.8349
8.0	2.3591	1.3915	1.24	.6130	1.6313	.6700	.2318	.6390	.6761	19.0823	80.4092	59.0453	.0082	19.4414
8.0	2.3591	1.3915	1.24	.6130	1.6313	.7200	.3091	.6937	.7549	23.2311	77.5386	56.6905	.0085	19.0478
8.0	2.3591	1.3915	1.24	.6130	1.6313	.7700	.3638	.7497	.8291	25.2882	74.9029	54.3357	.0087	18.6541
8.0	2.3591	1.3915	1.24	.6130	1.6313	.8200	.4052	.8069	.9001	26.2964	72.6692	51.9809	.0090	18.2603
8.0	2.3591	1.3915	1.24	.6130	1.6313	.8700	.4371	.8655	.9686	26.6771	70.7038	49.6260	.0093	17.8664
8.0	2.3591	1.3915	1.24	.6130	1.6313	.9200	.4615	.9255	.1034	26.6413	68.9389	47.2712	.0096	17.4723
8.0	2.3591	1.3915	1.24	.6130	1.6313	.9700	.4796	.9870	.1011	26.3080	67.5366	44.9164	.0098	17.0781
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.0200	.4920	.10501	.1658	25.7485	65.8753	42.5616	.0101	16.6836
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.0700	.4991	.11148	.2302	25.0074	64.5444	40.2067	.0104	16.2890
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.1200	.5013	.1813	.2943	24.1124	63.5416	37.8519	.0107	15.8940
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.1700	.4986	.2497	.3584	23.0796	62.4727	35.4971	.0109	15.4988
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.2200	.4909	.3201	.4229	21.9168	61.5524	33.1423	.0112	15.1031
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.2700	.4780	.3926	.4879	20.6238	60.6075	30.7874	.0114	14.7070
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.3200	.4595	.4673	.5537	19.1931	60.6822	28.4326	.0116	14.3102
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.3700	.4348	.5445	.6204	17.6073	59.8492	26.0778	.0117	13.9127
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.4200	.4028	.6243	.6884	15.8352	60.6321	23.7230	.0118	13.5142
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.4700	.3616	.7069	.7578	13.8205	60.8549	21.3681	.0119	13.1144
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.5200	.3080	.7926	.8291	11.4532	62.7725	19.0133	.0117	12.7128
8.0	2.3591	1.3915	1.24	.6130	1.6313	1.5700	.2337	.8818	.9025	8.4672	66.9211	16.6585	.0115</td	

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
11.0	2.4004	1.4085	1.00	.4166	2.4004	.4200	.0817	.3894	.3967	11.0136	87.6364	140.7599	.0020	24.4311
11.0	2.4004	1.4085	1.00	.4166	2.4004	.4700	.3197	.4411	.5335	34.2246	80.5962	137.2313	.0021	23.8429
11.0	2.4004	1.4085	1.00	.4166	2.4004	.5200	.4390	.4941	.6467	40.1737	76.8583	133.7027	.0022	23.2548
11.0	2.4004	1.4085	1.00	.4166	2.4004	.5700	.5275	.5486	.7475	42.7833	73.9232	130.1742	.0023	22.6667
11.0	2.4004	1.4085	1.00	.4166	2.4004	.6200	.5990	.6047	.8408	44.0132	71.4048	126.6456	.0025	22.0785
11.0	2.4004	1.4085	1.00	.4166	2.4004	.6700	.6590	.6623	.9290	44.5276	69.1501	123.1170	.0027	21.4904
11.0	2.4004	1.4085	1.00	.4166	2.4004	.7200	.7105	.7217	1.0139	44.6212	67.0794	119.5884	.0029	20.9023
11.0	2.4004	1.4085	1.00	.4166	2.4004	.7700	.7552	.7829	1.0966	44.4459	65.1450	116.0598	.0031	20.3141
11.0	2.4004	1.4085	1.00	.4166	2.4004	.8200	.7943	.8461	1.1779	44.0885	63.5157	112.5312	.0033	19.7260
11.0	2.4004	1.4085	1.00	.4166	2.4004	.8700	.8285	.9113	1.2585	43.6016	61.5695	109.0027	.0036	19.1378
11.0	2.4004	1.4085	1.00	.4166	2.4004	.9200	.8585	.9789	1.3389	43.0192	59.8904	105.4741	.0038	18.5497
11.0	2.4004	1.4085	1.00	.4166	2.4004	.9700	.8846	1.0488	1.4195	42.3640	58.2658	101.9455	.0042	17.9615
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.0200	.9072	1.1214	1.5008	41.6514	56.6860	98.4169	.0045	17.3734
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.0700	.9266	1.1908	1.5832	40.8924	55.1430	94.8883	.0049	16.7852
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.1200	.9429	1.2753	1.6671	40.0947	53.6302	91.3597	.0053	16.1971
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.1700	.9564	1.3571	1.7528	39.2637	52.1418	87.8312	.0058	15.6089
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.2200	.9671	1.4425	1.8408	38.4033	50.6729	84.3026	.0064	15.0207
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.2700	.9751	1.5319	1.9314	37.5163	49.2190	80.7740	.0071	14.4326
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.3200	.9805	1.6257	2.0251	36.6043	47.7760	77.2454	.0078	13.8444
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.3700	.9833	1.7243	2.1225	35.6683	46.3399	73.7168	.0087	13.2562
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.4200	.9836	1.8283	2.2240	34.7087	44.9073	70.1882	.0097	12.6680
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.4700	.9813	1.9382	2.3304	33.7254	43.4744	66.6597	.0109	12.0797
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.5200	.9765	2.0548	2.4423	32.7177	42.0377	63.1311	.0123	11.4915
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.5700	.9691	2.1789	2.5605	31.6845	40.5935	59.6025	.0139	10.9033
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.6200	.9590	2.3115	2.6861	30.6241	39.1378	56.0739	.0159	10.3150
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.6700	.9462	2.4538	2.8203	29.5343	37.6667	52.5453	.0183	9.7267
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.7200	.9505	2.6074	2.9645	28.4124	36.1755	49.0167	.0212	9.1384
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.7700	.9118	2.7740	3.1204	27.2549	34.0591	45.4882	.0249	8.5500
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.8200	.8899	2.9558	3.2903	26.0573	33.1118	41.9596	.0295	7.9616
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.8700	.8646	3.1559	3.4769	24.8143	31.5266	38.4310	.0353	7.3732
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.9200	.8356	3.3779	3.6839	23.5187	29.8956	34.9024	.0429	6.7847
11.0	2.4004	1.4085	1.00	.4166	2.4004	1.9700	.8024	3.6268	3.9161	22.1616	28.2085	31.3738	.0530	6.1961
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.0200	.7645	3.9092	4.1798	20.7310	26.4526	27.8452	.0667	5.6073
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.0700	.7215	4.2345	4.4842	19.2107	24.6110	24.3167	.0859	5.0184
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.1200	.6716	4.6162	4.8423	17.5776	22.6611	20.7881	.1137	4.4292
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.1700	.6139	5.0750	5.2742	15.7976	20.5697	17.2595	.1556	3.8395
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.2200	.5459	5.6440	5.8121	13.8152	18.2862	13.7309	.2221	3.2490
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.2700	.4631	6.3818	6.5132	11.5312	15.7250	10.2023	.3337	2.6570
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.3200	.3563	7.4059	7.4927	8.7304	12.7165	6.6737	.5312	2.0608
11.0	2.4004	1.4085	1.00	.4166	2.4004	2.3700	.1961	9.0271	9.0580	4.7303	8.8105	3.1452	.8620	1.4475
11.0	2.4004	1.4085	1.04	.4410	2.2677	.4500	.1275	.4185	.4350	15.8176	86.1689	137.3725	.0019	26.2626
11.0	2.4004	1.4085	1.04	.4410	2.2677	.5000	.3216	.4705	.5594	32.7477	80.1587	133.7027	.0021	25.6509
11.0	2.4004	1.4085	1.04	.4410	2.2677	.5500	.4308	.5238	.6654	38.0699	76.5680	130.0330	.0022	25.0391
11.0	2.4004	1.4085	1.04	.4410	2.2677	.6000	.5126	.5786	.7610	40.5076	73.7077	126.3633	.0023	24.4274
11.0	2.4004	1.4085	1.04	.4410	2.2677	.6500	.5787	.6348	.8499	41.6797	71.2392	122.6936	.0024	23.81

11.0	2.4004	1.4085	1.08	.4670	2.1413	.4700	.0705	.4374	.4423	8.5313	87.8054	134.5778	.0019	28.2868
11.0	2.4004	1.4085	1.08	.4670	2.1413	.5200	.2918	.4894	.5612	29.3017	80.7392	130.7670	.0020	27.6514
11.0	2.4004	1.4085	1.08	.4670	2.1413	.5700	.4005	.5427	.6633	35.0899	77.0378	126.9561	.0021	27.0160
11.0	2.4004	1.4085	1.08	.4670	2.1413	.6200	.4802	.5974	.7556	37.7565	74.1370	123.1452	.0022	26.3807
11.0	2.4004	1.4085	1.08	.4670	2.1413	.6700	.5438	.6535	.8417	39.0664	71.6517	119.3343	.0024	25.7453
11.0	2.4004	1.4085	1.08	.4670	2.1413	.7200	.5966	.7111	.9235	39.6471	69.4293	115.5235	.0025	25.1098
11.0	2.4004	1.4085	1.08	.4670	2.1413	.7700	.6412	.7703	.1.0024	39.7865	67.5910	111.7126	.0026	24.4744
11.0	2.4004	1.4085	1.08	.4670	2.1413	.8200	.6793	.8312	.1.0793	39.6372	65.4896	107.9017	.0028	23.8390
11.0	2.4004	1.4085	1.08	.4670	2.1413	.8700	.7118	.8939	.1.1549	39.2874	63.6942	104.0909	.0030	23.2035
11.0	2.4004	1.4085	1.08	.4670	2.1413	.9200	.7395	.9585	.1.2297	38.7919	61.9832	100.2800	.0031	22.5680
11.0	2.4004	1.4085	1.08	.4670	2.1413	.9700	.7629	.1.0251	.1.3042	38.1861	60.5409	96.4691	.0033	21.9325
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.0200	.7825	.1.0939	.1.3787	37.4938	58.7553	92.6583	.0036	21.2969
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.0700	.7985	.1.1650	.1.4537	36.7313	57.2171	88.8474	.0038	20.6613
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.1200	.8110	.1.2387	.1.5293	35.9101	55.7187	85.0365	.0041	20.0257
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.1700	.8204	.1.3150	.1.6061	35.0380	54.2542	81.2256	.0043	19.3900
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.2200	.8266	.1.3943	.1.6842	34.1204	52.8185	77.4148	.0046	18.7542
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.2700	.8298	.1.4766	.1.7639	33.1609	51.4075	73.6039	.0050	18.1185
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.3200	.8300	.1.5624	.1.8457	32.1614	50.0177	69.7930	.0054	17.4826
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.3700	.8272	.1.6520	.1.9297	31.1228	48.6464	65.9822	.0058	16.8466
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.4200	.8213	.1.7455	.2.0165	30.0448	47.2914	62.1713	.0062	16.2106
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.4700	.8124	.1.8435	.2.1063	28.9260	45.9511	58.3604	.0067	15.5744
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.5200	.8002	.1.9464	.2.1996	27.7642	44.6249	54.5496	.0073	14.9381
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.5700	.7847	.2.0547	.2.2970	26.5559	43.5128	50.7387	.0079	14.3016
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.6200	.7656	.2.1689	.2.3990	25.2962	42.0165	46.9278	.0085	13.6649
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.6700	.7428	.2.2899	.2.5062	23.9785	40.7394	43.1169	.0093	13.0280
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.7200	.7158	.2.4183	.2.6194	22.5943	39.4881	39.3061	.0101	12.3906
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.7700	.6841	.2.5553	.2.7395	21.1318	38.2743	35.4952	.0109	11.7528
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.8200	.6472	.2.7019	.2.8676	19.5749	37.1186	31.6843	.0119	11.1144
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.8700	.6040	.2.8595	.3.0050	17.9006	36.0583	27.8735	.0128	10.4751
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.9200	.5533	.3.0301	.3.1534	16.0749	35.1651	24.0626	.0138	9.8345
11.0	2.4004	1.4085	1.08	.4670	2.1413	1.9700	.4927	.3.2159	.3.3149	14.0428	34.5893	20.2517	.0147	9.1918
11.0	2.4004	1.4085	1.08	.4670	2.1413	2.0200	.4186	.3.4199	.3.4925	11.7063	34.6966	16.4409	.0154	8.5457
11.0	2.4004	1.4085	1.08	.4670	2.1413	2.0700	.3224	.3.6466	.3.6905	8.8515	36.6433	12.6300	.0157	7.8930
11.0	2.4004	1.4085	1.06	.4670	2.1413	2.1200	.1752	.3.9033	.3.9166	4.7230	47.2957	8.8191	.0149	7.2255

11.0	2.4004	1.4085	1.12	.4950	2.0202	.5000	.0867	.4666	.4735	9.8388	87.1924	130.8799	.0019	30.2541
11.0	2.4004	1.4085	1.12	.4950	2.0202	.5500	.2830	.5189	.5836	27.2300	80.6459	126.9279	.0020	29.5951
11.0	2.4004	1.4085	1.12	.4950	2.0202	.6000	.3843	.5725	.6798	32.6400	77.0267	122.9758	.0021	28.9361
11.0	2.4004	1.4085	1.12	.4950	2.0202	.6500	.4586	.6274	.7678	35.2025	74.1779	119.0238	.0022	28.2771
11.0	2.4004	1.4085	1.12	.4950	2.0202	.7000	.5176	.6836	.8502	36.4789	71.7345	115.0718	.0023	27.6180
11.0	2.4004	1.4085	1.12	.4950	2.0202	.7500	.5661	.7414	.9289	37.0462	69.5498	111.1198	.0024	26.9589
11.0	2.4004	1.4085	1.12	.4950	2.0202	.8000	.6067	.8006	.1.0049	37.1761	67.5475	107.1678	.0025	26.2998
11.0	2.4004	1.4085	1.12	.4950	2.0202	.8500	.6409	.8616	.1.0790	37.0149	65.6818	103.2158	.0027	25.6406
11.0	2.4004	1.4085	1.12	.4950	2.0202	.9000	.6696	.9242	.1.1519	36.6483	63.4229	99.2638	.0028	24.9814
11.0	2.4004	1.4085	1.12	.4950</td										

11.0	2.4004	1.4085	1.20	.5592	1.7883	.5600	.0314	.5252	.5260	3.2126	88.8961	122.9758	.0018	34.3854
11.0	2.4004	1.4085	1.20	.5592	1.7883	.6100	.2435	.5780	.6224	21.7597	81.2463	118.7415	.0019	33.6790
11.0	2.4004	1.4085	1.20	.5592	1.7883	.6600	.3355	.6321	.7091	26.9488	77.6401	114.5072	.0020	32.9725
11.0	2.4004	1.4085	1.20	.5592	1.7883	.7100	.4011	.6873	.7895	29.4651	74.6476	110.2729	.0021	32.2661
11.0	2.4004	1.4085	1.20	.5592	1.7883	.7600	.4519	.7459	.8655	30.7368	72.4766	106.0386	.0022	31.5595
11.0	2.4004	1.4085	1.20	.5592	1.7883	.8100	.4925	.8019	.9385	31.3011	70.3755	101.8043	.0022	30.8529
11.0	2.4004	1.4085	1.20	.5592	1.7883	.8600	.5253	.8613	1.0093	31.4159	68.4673	97.5700	.0023	30.1462
11.0	2.4004	1.4085	1.20	.5592	1.7883	.9100	.5516	.9223	1.0785	31.2229	66.7069	93.3357	.0024	29.4394
11.0	2.4004	1.4085	1.20	.5592	1.7883	.9600	.5724	.9849	1.1466	30.8061	65.6662	89.1014	.0025	28.7325
11.0	2.4004	1.4085	1.20	.5592	1.7883	.0100	.5883	1.0491	1.2141	30.2183	63.5266	84.8671	.0026	28.0255
11.0	2.4004	1.4085	1.20	.5592	1.7883	.0600	.5996	1.1152	1.2813	29.4937	62.6764	80.6328	.0027	27.3183
11.0	2.4004	1.4085	1.20	.5592	1.7883	.1100	.6066	1.1833	1.3484	28.6548	60.7081	76.3985	.0028	26.6110
11.0	2.4004	1.4085	1.20	.5592	1.7883	.1600	.6094	1.2533	1.4158	27.7162	59.4186	72.1642	.0029	25.9035
11.0	2.4004	1.4085	1.20	.5592	1.7883	.2100	.6082	1.3256	1.4836	26.6866	58.2081	67.9299	.0030	25.1958
11.0	2.4004	1.4085	1.20	.5592	1.7883	.2600	.6029	1.4002	1.5522	25.5705	57.6810	63.6956	.0031	24.4879
11.0	2.4004	1.4085	1.20	.5592	1.7883	.3100	.5934	1.4773	1.6218	24.3685	56.6464	59.4613	.0032	23.7796
11.0	2.4004	1.4085	1.20	.5592	1.7883	.3600	.5795	1.5570	1.6925	23.0775	55.1201	55.2270	.0034	23.0709
11.0	2.4004	1.4085	1.20	.5592	1.7883	.4100	.5608	1.6397	1.7646	21.6902	54.3270	50.9927	.0035	22.3617
11.0	2.4004	1.4085	1.20	.5592	1.7883	.4600	.5370	1.7254	1.8384	20.1946	53.7071	46.7584	.0036	21.6519
11.0	2.4004	1.4085	1.20	.5592	1.7883	.5100	.5073	1.8145	1.9142	18.5714	53.3247	42.5241	.0036	20.9413
11.0	2.4004	1.4085	1.20	.5592	1.7883	.5600	.4707	1.9073	1.9922	16.7903	53.2894	38.2898	.0037	20.2296
11.0	2.4004	1.4085	1.20	.5592	1.7883	.6100	.4254	2.0041	2.0729	14.8012	53.7997	34.0555	.0037	19.5164
11.0	2.4004	1.4085	1.20	.5592	1.7883	.6600	.3684	2.1053	2.1565	12.5140	55.2576	29.8212	.0037	18.8011
11.0	2.4004	1.4085	1.20	.5592	1.7883	.7100	.2933	2.2113	2.2436	9.7333	58.6383	25.5869	.0036	18.0827
11.0	2.4004	1.4085	1.20	.5592	1.7883	.7600	.1793	2.3229	2.3350	5.8170	67.4239	21.3526	.0035	17.3593

11.0	2.4004	1.4085	1.24	.5972	1.6746	.6500	.2315	.6184	.6565	19.6040	81.2586	113.5192	.0019	35.6729
11.0	2.4004	1.4085	1.24	.5972	1.6746	.7000	.3149	.6729	.7379	24.2217	77.7927	109.1438	.0020	34.9427
11.0	2.4004	1.4085	1.24	.5972	1.6746	.7500	.3738	.7286	.8141	26.4941	75.1064	104.7684	.0020	34.2124
11.0	2.4004	1.4085	1.24	.5972	1.6746	.8000	.4188	.7856	.8867	27.6297	72.8339	100.3929	.0021	33.4820
11.0	2.4004	1.4085	1.24	.5972	1.6746	.8500	.4538	.8440	.9568	28.0993	70.6321	96.0175	.0022	32.7515
11.0	2.4004	1.4085	1.24	.5972	1.6746	.9000	.4813	.9038	1.0249	28.1349	69.0289	91.6420	.0022	32.0209
11.0	2.4004	1.4085	1.24	.5972	1.6746	.9500	.5023	.9651	1.0916	27.8654	67.5833	87.2666	.0023	31.2901
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.0000	.5176	1.0279	1.1575	27.3680	65.8708	82.8911	.0024	30.5592
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.0500	.5279	1.0925	1.2228	26.6909	64.4775	78.5157	.0024	29.8281
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.1000	.5333	1.1588	1.2878	25.8650	63.1970	74.1402	.0025	29.0967
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.1500	.5340	1.2270	1.3528	24.9093	62.0293	69.7648	.0026	28.3651
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.2000	.5301	1.2972	1.4181	23.8344	60.9810	65.3894	.0027	27.6332
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.2500	.5215	1.3695	1.4839	22.6446	60.6662	61.0139	.0027	26.9009
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.3000	.5078	1.4441	1.5503	21.3376	59.3098	56.6385	.0028	26.1682
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.3500	.4888	1.5211	1.6177	19.9050	58.7519	52.2630	.0028	25.4348
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.4000	.4638	1.6007	1.6862	18.3299	58.4575	47.8876	.0029	24.7007
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.4500	.4318	1.6831	1.7561	16.5831	58.5358	43.5121	.0029	23.9657
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.5000	.3911	1.7685	1.8276	14.6143	59.1812	39.1367	.0029	23.2293
11.0	2.4004	1.4085	1.24	.5972	1.6746	1.5500	.3388	1						

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.4

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
14.0	2.4188	1.4161	1.00	.4134	2.4188	.4200	.1144	.3896	.4038	15.2323	86.7253	227.7539	.0006	38.9305
14.0	2.4188	1.4161	1.00	.4134	2.4188	.4700	.3312	.4414	.5400	35.1701	80.5554	222.0817	.0007	37.9851
14.0	2.4188	1.4161	1.00	.4134	2.4188	.5200	.4486	.4945	.6532	40.7369	76.7063	216.4095	.0007	37.0397
14.0	2.4188	1.4161	1.00	.4134	2.4188	.5700	.5365	.5491	.7541	43.2684	73.8168	210.7374	.0007	36.0943
14.0	2.4188	1.4161	1.00	.4134	2.4188	.6200	.6079	.6053	.8477	44.4332	71.3291	205.0652	.0008	35.1490
14.0	2.4188	1.4161	1.00	.4134	2.4188	.6700	.6679	.6631	.9363	44.9100	69.6976	199.3931	.0009	34.2036
14.0	2.4188	1.4161	1.00	.4134	2.4188	.7200	.7195	.7226	.10216	44.9804	67.0459	193.7209	.0009	33.2582
14.0	2.4188	1.4161	1.00	.4134	2.4188	.7700	.7644	.7840	.1047	44.7905	65.1278	188.0487	.0010	32.3128
14.0	2.4188	1.4161	1.00	.4134	2.4188	.8200	.8037	.8474	.1866	44.4240	63.5130	182.3766	.0011	31.3674
14.0	2.4188	1.4161	1.00	.4134	2.4188	.8700	.8382	.9130	.2677	43.9318	61.5800	176.7044	.0011	30.4220
14.0	2.4188	1.4161	1.00	.4134	2.4188	.9200	.8684	.9808	.3487	43.3470	59.9130	171.0323	.0012	29.4767
14.0	2.4188	1.4161	1.00	.4134	2.4188	.9700	.8948	.10511	.4300	42.6914	58.2999	165.3601	.0013	28.5313
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.0200	.9178	.1240	.5121	41.9802	56.7312	159.6879	.0014	27.5859
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.0700	.9375	.1999	.5953	41.2239	55.1989	154.0158	.0016	26.6405
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.1200	.9542	.2788	.6800	40.4301	53.6965	148.3436	.0017	25.6951
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.1700	.9680	.13612	.7667	39.6041	52.2185	142.6715	.0019	24.7497
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.2200	.9791	.14473	.8558	38.7498	50.7598	136.9993	.0021	23.8043
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.2700	.9876	.15374	.9476	37.8697	49.3161	131.3271	.0023	22.8588
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.3200	.9934	.16321	.0427	36.9656	47.6834	125.6550	.0026	21.9134
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.3700	.9968	.17317	.1415	36.0384	46.4580	119.9828	.0028	20.9680
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.4200	.9976	.18368	.2447	35.0887	45.0361	114.3107	.0032	20.0226
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.4700	.9959	.19480	.3529	34.1163	43.0143	108.6385	.0036	19.0771
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.5200	.9917	.20661	.4669	33.1206	42.1891	102.9663	.0041	18.1317
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.5700	.9849	.21920	.5875	32.1005	40.7569	97.2942	.0046	17.1863
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.6200	.9755	.23267	.7159	31.0547	39.5139	91.6220	.0053	16.2408
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.6700	.9634	.24715	.8533	29.9811	37.8561	85.9499	.0061	15.2953
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.7200	.9486	.26280	.0012	28.8772	36.5791	80.2777	.0072	14.3498
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.7700	.9308	.27982	.1615	27.7397	34.8781	74.6055	.0085	13.4043
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.8200	.9100	.29844	.3366	26.5648	33.5475	68.9334	.0101	12.4588
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.8700	.8858	.31898	.5296	25.3474	31.7808	63.2612	.0122	11.5132
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.9200	.8581	.34185	.7444	24.0813	30.1701	57.5891	.0150	10.5676
14.0	2.4188	1.4161	1.00	.4134	2.4188	1.9700	.8264	.36758	.9862	22.7585	28.5062	51.9169	.0188	9.6219
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.0200	.7903	.39693	.2623	21.3684	26.7768	46.2447	.0240	8.6762
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.0700	.7492	.43092	.5827	19.8971	24.9666	40.5726	.0316	7.7303
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.1200	.7021	.47109	.9626	18.3250	23.6544	34.9004	.0429	6.7843
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.1700	.6479	.51981	.4249	16.6236	21.0104	29.2283	.0608	5.8381
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.2200	.5844	.58098	.0077	14.7485	18.7895	23.5561	.0910	4.8914
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.2700	.5084	.6158	.7797	12.6236	16.3175	17.8839	.1468	3.9439
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.3200	.4131	.77599	.8819	10.0968	13.4540	12.2118	.2628	2.9944
14.0	2.4188	1.4161	1.00	.4134	2.4188	2.3700	.2809	.96088	.6761	6.7601	9.8607	6.5396	.5412	2.0380

14.0	2.4188	1.4161	1.04	.4375	2.2858	.4400	.0681	.4085	.4133	8.7976	87.9812	223.4884	.0006	42.0438
14.0	2.4188	1.4161	1.04	.4375	2.2858	.4900	.3063	.4628	.5428	32.0099	80.7553	217.5893	.0006	41.0605
14.0	2.4188	1.4161	1.04	.4375	2.2858	.5400	.4219	.5135	.6516	38.0010	77.6300	211.6903	.00	

14.0	2.4188	1.4161	1.12	.4906	2.0382	.5000	.1197	.4668	.4800	13.4596	86.1659	211.8718	.0006	48.2054
14.0	2.4188	1.4161	1.12	.4906	2.0382	.5500	.2964	.5193	.5898	28.3186	80.3094	205.5190	.0006	47.1463
14.0	2.4188	1.4161	1.12	.4906	2.0382	.6000	.3954	.5729	.6862	33.3864	76.7977	199.1662	.0007	46.0872
14.0	2.4188	1.4161	1.12	.4906	2.0382	.6500	.4689	.6279	.7743	35.8070	74.0026	192.8133	.0007	45.0280
14.0	2.4188	1.4161	1.12	.4906	2.0382	.7000	.5276	.6843	.8570	37.0081	71.5938	186.4605	.0007	43.9688
14.0	2.4188	1.4161	1.12	.4906	2.0382	.7500	.5761	.7422	.9359	37.5310	69.4343	180.1077	.0008	42.9096
14.0	2.4188	1.4161	1.12	.4906	2.0382	.8000	.6168	.8016	1.0123	37.6332	67.4515	173.7549	.0008	41.8504
14.0	2.4188	1.4161	1.12	.4906	2.0382	.8500	.6512	.8627	1.0868	37.4546	65.6017	167.4021	.0009	40.7911
14.0	2.4188	1.4161	1.12	.4906	2.0382	.9000	.6801	.9256	1.1601	37.0775	63.8561	161.0493	.0009	39.7318
14.0	2.4188	1.4161	1.12	.4906	2.0382	.9500	.7043	.9903	1.2328	36.5536	62.1944	154.6964	.0010	38.6724
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.0000	.7243	.10570	1.3051	35.9167	60.6022	148.3436	.0010	37.6130
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.0500	.7404	.1258	1.3776	35.1896	59.0684	141.9908	.0011	36.5536
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.1000	.7528	.1969	1.4504	34.3877	57.5846	135.6380	.0011	35.4941
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.1500	.7618	.2704	1.5239	33.5219	56.1445	129.2852	.0012	34.4345
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.2000	.7674	.3465	1.5983	32.5994	54.7430	122.9323	.0013	33.3748
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.2500	.7698	.4254	1.6740	31.6248	53.3765	116.5795	.0013	32.3151
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.3000	.7688	.5074	1.7513	30.6009	52.0424	110.2267	.0014	31.2552
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.3500	.7647	.5926	1.8303	29.5287	50.7395	103.8739	.0015	30.1952
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.4000	.7572	.6814	1.9115	28.4078	49.4676	97.5211	.0016	29.1351
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.4500	.7464	.7740	1.9952	27.2362	48.2281	91.1682	.0017	28.0747
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.5000	.7319	.8708	2.0817	26.0106	47.0243	84.8154	.0018	27.0142
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.5500	.7138	.9723	2.1714	24.7259	45.8623	78.4626	.0019	25.9533
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.6000	.6915	.20789	2.2647	23.3747	44.7520	72.1098	.0021	24.8921
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.6500	.6649	.1911	2.3623	21.9471	43.7098	65.7570	.0022	23.8305
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.7000	.6332	.3095	2.4645	20.4290	42.7623	59.4041	.0023	22.7682
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.7500	.5958	.4350	2.5722	18.8006	41.9547	53.0513	.0025	21.7051
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.8000	.5514	.5683	2.6861	17.0324	41.3667	46.6985	.0026	20.6408
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.8500	.4984	.7106	2.8072	15.0781	41.1516	40.3457	.0027	19.5748
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.9000	.4337	.8631	2.9367	12.8573	41.6409	33.9929	.0028	18.5061
14.0	2.4188	1.4161	1.12	.4906	2.0382	1.9500	.3511	.0275	3.0762	10.2063	43.7068	27.6400	.0027	17.4329
14.0	2.4188	1.4161	1.12	.4906	2.0382	2.0000	.2334	.2062	3.2280	6.6557	50.7443	21.2872	.0027	16.3512

14.0	2.4188	1.4161	1.16	.5205	1.9210	.5800	.2815	.5488	.6101	25.8920	80.4074	199.0754	.0006	50.3457
14.0	2.4188	1.4161	1.16	.5205	1.9210	.6300	.3748	.6027	.7013	30.7472	76.9420	192.4957	.0006	49.2486
14.0	2.4188	1.4161	1.16	.5205	1.9210	.6800	.4434	.6579	.7855	33.1096	74.1877	185.9160	.0007	48.1515
14.0	2.4188	1.4161	1.16	.5205	1.9210	.7300	.4978	.7145	.8648	34.2930	71.8184	179.3363	.0007	47.0543
14.0	2.4188	1.4161	1.16	.5205	1.9210	.7800	.5423	.7725	.9408	34.8074	69.6988	172.7566	.0007	45.9571
14.0	2.4188	1.4161	1.16	.5205	1.9210	.8300	.5790	.8320	1.0145	34.9000	67.7575	166.1769	.0008	44.8598
14.0	2.4188	1.4161	1.16	.5205	1.9210	.8800	.6095	.8931	1.0864	34.7064	65.9517	159.5972	.0008	43.7625
14.0	2.4188	1.4161	1.16	.5205	1.9210	.9300	.6346	.9559	1.1573	34.3076	64.2534	153.0175	.0009	42.6651
14.0	2.4188	1.4161	1.16	.5205	1.9210	.9800	.6549	.10205	1.2275	33.7544	62.6435	146.4378	.0009	41.5676
14.0	2.4188	1.4161	1.16	.5205	1.9210	1.0300	.6709	.10871	1.2973	33.0803	61.1084	139.8581	.0009	40.4701
14.0	2.4188	1.4161	1.16	.5205	1.9210	1.0800	.6829	.1556	1.3673	32.3075	59.6382	133.2784	.0010	39.3725
14.0	2.4188	1.4161	1.16	.5205	1.9210	1.1300	.6911	.2263	1.4375	31.4511	58.2262	126.6987	.0010	38.2747
14.0	2.4188	1.4161	1.16	.5205	1.9210	1.1800	.6957	.2						

14.0	2.4188	1.4161	1.24	.5904	1.6936	.6000	.1019	.5655	.5735	9.6380	86.2919	190.9983	.0006	57.9959
14.0	2.4188	1.4161	1.24	.5904	1.6936	.6500	.2485	.6189	.6626	20.9228	80.7278	183.9648	.0006	56.8228
14.0	2.4188	1.4161	1.24	.5904	1.6936	.7000	.3288	.6735	.7441	25.1628	77.4085	176.9313	.0006	55.6496
14.0	2.4188	1.4161	1.24	.5904	1.6936	.7500	.3867	.7293	.8205	27.2747	74.7893	169.8978	.0006	54.4763
14.0	2.4188	1.4161	1.24	.5904	1.6936	.8000	.4312	.7864	.8934	28.3239	72.5555	162.8643	.0007	53.3029
14.0	2.4188	1.4161	1.24	.5904	1.6936	.8500	.4662	.8449	.9637	28.7426	70.5780	155.8309	.0007	52.1295
14.0	2.4188	1.4161	1.24	.5904	1.6936	.9000	.4937	.9049	.10321	28.7475	68.7898	148.7974	.0007	50.9559
14.0	2.4188	1.4161	1.24	.5904	1.6936	.9500	.5150	.9663	.10992	28.4601	67.1524	141.7639	.0007	49.7822
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.0000	.5307	.10294	.11654	27.9539	65.6424	134.7304	.0008	48.6084
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.0500	.5414	.10942	.12310	27.2752	64.2460	127.6970	.0008	47.4344
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.1000	.5473	.11607	.12965	26.4534	62.9566	120.6635	.0008	46.2601
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.1500	.5487	.12292	.13619	25.5071	61.7734	113.6300	.0008	45.0856
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.2000	.5455	.12997	.14277	24.4470	60.7013	106.5965	.0009	43.9109
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.2500	.5377	.13723	.14939	23.2773	59.7523	99.5630	.0009	42.7357
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.3000	.5252	.14473	.15609	21.9969	58.9472	92.5296	.0009	41.5602
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.3500	.5074	.15247	.16288	20.5186	58.3198	85.4961	.0009	40.3841
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.4000	.4839	.16047	.16978	19.0681	57.9247	78.4626	.0009	39.2073
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.4500	.4539	.16875	.17683	17.3808	57.8516	71.4291	.0009	38.0296
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.5000	.4159	.17734	.18403	15.4952	58.2564	64.3956	.0010	36.8507
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.5500	.3675	.18626	.19142	13.3368	59.4340	57.3622	.0010	35.6702
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.6000	.3039	.19554	.19903	10.7535	62.0281	50.3287	.0009	34.4873
14.0	2.4188	1.4161	1.24	.5904	1.6936	1.6500	.2121	.20521	.20690	7.3248	67.8941	43.2952	.0009	33.3011

14.0	2.4188	1.4161	1.28	.6331	1.5796	.6400	.0805	.6056	.6104	7.1719	36.9227	182.4673	.0006	61.2962
14.0	2.4188	1.4161	1.28	.6331	1.5796	.6900	.2245	.6595	.6935	18.0104	81.1932	175.2070	.0006	60.0850
14.0	2.4188	1.4161	1.28	.6331	1.5796	.7400	.2986	.7145	.7705	21.9761	77.9423	167.9466	.0006	58.8736
14.0	2.4188	1.4161	1.28	.6331	1.5796	.7900	.3508	.7768	.8433	23.9413	75.4143	160.6862	.0006	57.6622
14.0	2.4188	1.4161	1.28	.6331	1.5796	.8400	.3897	.8283	.9131	24.8907	73.2862	153.4259	.0006	56.4506
14.0	2.4188	1.4161	1.28	.6331	1.5796	.8900	.4193	.8872	.9807	25.2248	71.4295	146.1655	.0007	55.2389
14.0	2.4188	1.4161	1.28	.6331	1.5796	.9400	.4412	.9474	.10466	25.1154	69.7802	138.9051	.0007	54.0270
14.0	2.4188	1.4161	1.28	.6331	1.5796	.9900	.4567	.10092	.11115	24.7663	68.3041	131.6448	.0007	52.8149
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.0400	.4664	.10726	.11755	24.1554	66.9840	124.3844	.0007	51.6026
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.0900	.4707	.11376	.12391	23.3544	65.8146	117.1240	.0007	50.3899
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.1400	.4696	.12044	.13025	22.3877	64.8009	109.8637	.0007	49.1770
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.1900	.4632	.12730	.13660	21.2679	63.9590	102.6033	.0008	47.9636
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.2400	.4513	.13436	.14298	19.9971	63.5193	95.3430	.0008	46.7497
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.2900	.4333	.14163	.14940	18.5675	62.9325	88.0826	.0008	45.5352
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.3400	.4086	.14912	.15590	16.9588	62.8837	80.8222	.0008	44.3199
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.3900	.3759	.15685	.16249	15.1315	63.3193	73.5619	.0008	43.1036
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.4400	.3327	.16484	.16918	13.0105	64.5123	66.3015	.0008	41.8859
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.4900	.2744	.17310	.17601	10.4356	67.6467	59.0411	.0008	40.6664
14.0	2.4188	1.4161	1.28	.6331	1.5796	1.5400	.1875	.18166	.18300	6.9410	72.5923	51.7808	.0008	39.4441

14.0	2.4188	1.4161
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APPENDIX H

PROPERTIES OF AN OBLIQUE DETONATION WAVE

GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
1.5	1.3909	1.0549	1.00	.7190	1.3909	.7200	.0197	.6953	.6956	1.5633	88.3223	2.4109	.9263	1.2470
1.5	1.3909	1.0549	1.00	.7190	1.3909	.7500	.1040	.7271	.7341	7.8953	80.7820	2.3478	.9325	1.2375
1.5	1.3909	1.0549	1.00	.7190	1.3909	.7800	.1408	.7591	.7714	10.2348	77.0180	2.2847	.9385	1.2279
1.5	1.3909	1.0549	1.00	.7190	1.3909	.8100	.1657	.7914	.8078	11.5633	74.0765	2.2216	.9444	1.2182
1.5	1.3909	1.0549	1.00	.7190	1.3909	.8400	.1837	.8240	.8435	12.3362	71.5580	2.1585	.9500	1.2085
1.5	1.3909	1.0549	1.00	.7190	1.3909	.8700	.1968	.8570	.8786	12.7442	69.3058	2.0954	.9554	1.1987
1.5	1.3909	1.0549	1.00	.7190	1.3909	.9000	.2060	.8902	.9132	12.8898	67.2390	2.0323	.9606	1.1888
1.5	1.3909	1.0549	1.00	.7190	1.3909	.9300	.2119	.9238	.9474	12.8353	65.3095	1.9692	.9655	1.1788
1.5	1.3909	1.0549	1.00	.7190	1.3909	.9600	.2150	.9577	.9814	12.6218	63.4858	1.9062	.9702	1.1687
1.5	1.3909	1.0549	1.00	.7190	1.3909	.9900	.2154	.9920	1.0152	12.2774	61.7456	1.8431	.9745	1.1584
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.0200	.2135	1.0266	1.0489	11.8224	60.0729	1.7800	.9786	1.1480
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.0500	.2093	1.0617	1.0826	11.2714	58.4551	1.7169	.9823	1.1375
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.0800	.2028	1.0972	1.1164	10.6352	56.8825	1.6538	.9857	1.1268
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.1100	.1942	1.1332	1.1504	9.9216	55.3470	1.5907	.9887	1.1160
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.1400	.1833	1.1696	1.1846	9.1365	53.8420	1.5276	.9914	1.1049
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.1700	.1703	1.2066	1.2193	8.2837	52.3619	1.4645	.9937	1.0936
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.2000	.1551	1.2441	1.2544	7.3658	50.9016	1.4014	.9957	1.0821
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.2300	.1376	1.2822	1.2902	6.3843	49.4567	1.3383	.9972	1.0703
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.2600	.1178	1.3210	1.3268	5.3393	48.0232	1.2753	.9984	1.0581
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.2900	.0954	1.3605	1.3642	4.2303	46.5972	1.2122	.9992	1.0456
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.3200	.0705	1.4009	1.4028	3.0555	45.1752	1.1491	.9997	1.0327
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.3500	.0427	1.4421	1.4428	1.8121	43.7537	1.0860	.9999	1.0192
1.5	1.3909	1.0549	1.00	.7190	1.3909	1.3800	.0120	1.4844	1.4844	.4964	42.3290	1.0229	1.0000	1.0052
1.5	1.3909	1.0549	1.04	.8443	1.1844	.8500	.0304	.8329	.8334	2.0464	86.6177	2.0660	.9003	1.3101
1.5	1.3909	1.0549	1.04	.8443	1.1844	.8800	.0714	.8658	.8686	4.6393	81.6051	2.0004	.9029	1.2996
1.5	1.3909	1.0549	1.04	.8443	1.1844	.9100	.0903	.8990	.9034	5.6682	78.7455	1.9348	.9051	1.2888
1.5	1.3909	1.0549	1.04	.8443	1.1844	.9400	.1008	.9326	.9379	6.1217	76.6211	1.8691	.9071	1.2780
1.5	1.3909	1.0549	1.04	.8443	1.1844	.9700	.1058	.9665	.9723	6.2252	74.9637	1.8035	.9087	1.2670
1.5	1.3909	1.0549	1.04	.8443	1.1844	1.0000	.1065	1.0009	1.0065	6.0779	73.6895	1.7379	.9099	1.2558
1.5	1.3909	1.0549	1.04	.8443	1.1844	1.0300	.1034	1.0356	1.0408	5.7325	72.7930	1.6723	.9107	1.2444
1.5	1.3909	1.0549	1.04	.8443	1.1844	1.0600	.0968	1.0707	1.0752	5.2178	72.3312	1.6067	.9112	1.2329
1.5	1.3909	1.0549	1.04	.8443	1.1844	1.0900	.0866	1.1064	1.1098	4.5448	72.4454	1.5411	.9112	1.2210
1.5	1.3909	1.0549	1.04	.8443	1.1844	1.1200	.0725	1.1425	1.1449	3.7035	73.4449	1.4755	.9108	1.2090
1.5	1.3909	1.0549	1.04	.8443	1.1844	1.1500	.0529	1.1791	1.1804	2.6332	76.1104	1.4099	.9101	1.1966
1.5	1.3909	1.0549	1.04	.8443	1.1844	1.1800	.0185	1.2164	1.2165	.9006	84.2400	1.3442	.9089	1.1838

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
2.0	1.6956	1.1427	1.00	.5898	1.6956	.5900	.0139	.5631	.5633	1.3471	89.2810	4.3906	.7007	1.5273
2.0	1.6956	1.1427	1.00	.5898	1.6956	.6200	.1556	.5942	.6126	14.0902	81.7673	4.2986	.7110	1.5147
2.0	1.6956	1.1427	1.00	.5898	1.6956	.6500	.2158	.6256	.6591	18.3649	78.3392	4.2066	.7215	1.5021
2.0	1.6956	1.1427	1.00	.5898	1.6956	.6800	.2593	.6572	.7034	20.8729	75.6773	4.1146	.7320	1.4895
2.0	1.6956	1.1427	1.00	.5898	1.6956	.7100	.2937	.6891	.7458	22.4712	73.4076	4.0226	.7426	1.4768
2.0	1.6956	1.1427	1.00	.5898	1.6956	.7400	.3219	.7214	.7867	23.5068	71.3851	3.9306	.7533	1.4641
2.0	1.6956	1.1427	1.00	.5898	1.6956	.7700	.3454	.7539	.8263	24.1602	69.5355	3.8386	.7641	1.4514
2.0	1.6956	1.1427	1.00	.5898	1.6956	.8000	.3652	.7867	.8648	24.5376	67.8145	3.7466	.7749	1.4386
2.0	1.6956	1.1427	1.00	.5898	1.6956	.8300	.3819	.8199	.9025	24.7073	66.1935	3.6546	.7857	1.4258
2.0	1.6956	1.1427	1.00	.5898	1.6956	.8600	.3958	.8534	.9394	24.7152	64.6522	3.5626	.7965	1.4129
2.0	1.6956	1.1427	1.00	.5898	1.6956	.8900	.4074	.8872	.9757	24.5935	63.1761	3.4706	.8074	1.4001
2.0	1.6956	1.1427	1.00	.5898	1.6956	.9200	.4167	.9214	1.0115	24.3657	61.7539	3.3786	.8183	1.3871
2.0	1.6956	1.1427	1.00	.5898	1.6956	.9500	.4239	.9559	1.0468	24.0491	60.3772	3.2865	.8291	1.3741
2.0	1.6956	1.1427	1.00	.5898	1.6956	.9800	.4293	.9908	1.0817	23.6568	59.0387	3.1945	.8399	1.3611
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.0100	.4329	1.0261	1.1164	23.1986	57.7328	3.1025	.8506	1.3480
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.0400	.4347	1.0618	1.1508	22.6824	56.4547	3.0105	.8612	1.3348
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.0700	.4348	1.0978	1.1850	22.1140	55.2003	2.9185	.8717	1.3216
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.1000	.4333	1.1344	1.2192	21.4980	53.9660	2.8265	.8821	1.3083
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.1300	.4301	1.1713	1.2533	20.8378	52.7487	2.7345	.8923	1.2949
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.1600	.4253	1.2087	1.2874	20.1360	51.5456	2.6425	.9023	1.2814
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.1900	.4189	1.2466	1.3216	19.3945	50.3541	2.5505	.9120	1.2678
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.2200	.4109	1.2850	1.3559	18.6145	49.1719	2.4585	.9215	1.2541
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.2500	.4012	1.3239	1.3904	17.7966	47.9968	2.3665	.9307	1.2403
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.2800	.3899	1.3634	1.4252	16.9409	46.8268	2.2745	.9395	1.2263
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.3100	.3768	1.4034	1.4603	16.0471	45.6598	2.1825	.9479	1.2122
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.3400	.3619	1.4441	1.4959	15.1144	44.4939	2.0905	.9558	1.1979
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.3700	.3452	1.4855	1.5319	14.1413	43.3272	1.9985	.9633	1.1834
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.4000	.3265	1.5275	1.5685	13.1262	42.1577	1.9065	.9701	1.1687
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.4300	.3057	1.5703	1.6058	12.0667	40.9834	1.8145	.9764	1.1537
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.4600	.2827	1.6140	1.6440	10.9598	39.8023	1.7225	.9820	1.1385
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.4900	.2574	1.6586	1.6832	9.8018	38.6122	1.6305	.9869	1.1228
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.5200	.2296	1.7042	1.7235	8.5884	37.4107	1.5385	.9910	1.1068
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.5500	.1989	1.7509	1.7653	7.3141	36.1954	1.4465	.9943	1.0903
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.5800	.1653	1.7989	1.8087	5.9723	34.9635	1.3545	.9968	1.0733
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.6100	.1283	1.8484	1.8542	4.5551	33.7120	1.2625	.9986	1.0556
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.6400	.0875	1.8995	1.9022	3.0526	32.4372	1.1705	.9996	1.0371
2.0	1.6956	1.1427	1.00	.5898	1.6956	.1.6700	.0423	1.9527	1.9533	1.4527	31.1352	1.0785	1.0000	1.0176
2.0	1.6956	1.1427	1.04	.6435	1.5539	.6500	.0655	.6237	.6269	5.7555	86.2984	4.1268	.6901	1.6342
2.0	1.6956	1.1427	1.04	.6435	1.5539	.6800	.1524	.6552	.6714	12.6284	81.1870	4.0312	.6983	1.6209
2.0	1.6956	1.1427	1.04	.6435	1.5539	.7100	.2012	.6869	.7140	15.8244	78.0723	3.9355	.7066	1.6076
2.0	1.6956	1.1427	1.04	.6435	1.5539	.7400	.2370	.7189	.7549	17.7573	75.5952	3.8398	.7148	1.5943
2.0	1.6956	1.1427	1.04	.6435	1.5539	.7700	.2650	.7513	.7945	18.9898	73.4669	3.7441	.7229	1.5809
2.0	1.6956	1.1427	1.04	.6435	1.5539	.8000	.2875	.7839	.8330	19.7691	71.5663	3.6484	.7310	1.5674
2.0	1.6956	1.1427	1.04	.6435	1.5539	.8300	.3059	.8168	.8705	20.2297	69.8296	3.5527	.7390	1.5539
2.0	1.6956	1.1427	1.04	.6435	1.5539	.8600	.3207	.8500	.9072	20.4535	68.2181	3.4571	.7469	1.5404
2.0	1.6956	1.1427	1.04	.6435	1.5539	.8900	.3327	.8836	.9433	20.4941	66.7066	3.3614		

LOOP BRANCH (MI FROM 1 TO 5)

GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
2.5	1.9261	1.2226	1.00	.5192	1.9261	.5200	.0308	.4937	.4946	3.3898	88.7451	6.9314	.4612	1.8689
2.5	1.9261	1.2226	1.00	.5192	1.9261	.5500	.1884	.5246	.5545	18.9046	82.2057	6.8048	.4709	1.8521
2.5	1.9261	1.2226	1.00	.5192	1.9261	.5800	.2613	.5557	.6095	24.2490	79.0159	6.6783	.4808	1.8352
2.5	1.9261	1.2226	1.00	.5192	1.9261	.6100	.3151	.5872	.6609	27.3187	76.5354	6.5517	.4910	1.8184
2.5	1.9261	1.2226	1.00	.5192	1.9261	.6400	.3586	.6189	.7094	29.2601	74.4210	6.4252	.5014	1.8015
2.5	1.9261	1.2226	1.00	.5192	1.9261	.6700	.3951	.6510	.7558	30.5285	72.5383	6.2986	.5120	1.7846
2.5	1.9261	1.2226	1.00	.5192	1.9261	.7000	.4265	.6834	.8002	31.3542	70.8185	6.1721	.5228	1.7677
2.5	1.9261	1.2226	1.00	.5192	1.9261	.7300	.4539	.7161	.8432	31.8699	69.2203	6.0455	.5339	1.7508
2.5	1.9261	1.2226	1.00	.5192	1.9261	.7600	.4778	.7492	.8849	32.1584	67.7171	5.9190	.5452	1.7338
2.5	1.9261	1.2226	1.00	.5192	1.9261	.7900	.4989	.7826	.9256	32.2747	66.2900	5.7924	.5568	1.7169
2.5	1.9261	1.2226	1.00	.5192	1.9261	.8200	.5175	.8163	.9653	32.2565	64.9256	5.6659	.5686	1.6999
2.5	1.9261	1.2226	1.00	.5192	1.9261	.8500	.5338	.8505	1.0043	32.1310	63.6134	5.5393	.5806	1.6829
2.5	1.9261	1.2226	1.00	.5192	1.9261	.8800	.5481	.8850	1.0426	31.9180	62.3454	5.4127	.5929	1.6659
2.5	1.9261	1.2226	1.00	.5192	1.9261	.9100	.5605	.9199	1.0804	31.6323	61.1151	5.2862	.6054	1.6488
2.5	1.9261	1.2226	1.00	.5192	1.9261	.9400	.5712	.9552	1.1177	31.2853	59.9173	5.1596	.6182	1.6317
2.5	1.9261	1.2226	1.00	.5192	1.9261	.9700	.5802	.9908	1.1546	30.8857	58.7476	5.0331	.6312	1.6146
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.0000	.5876	1.0270	1.1911	30.4403	57.6022	4.9065	.6444	1.5975
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.0300	.5936	1.0635	1.2274	29.9545	56.4780	4.7800	.6579	1.5804
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.0600	.5981	1.1005	1.2635	29.4325	55.3722	4.6534	.6716	1.5632
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.0900	.6012	1.1379	1.2995	28.8776	54.2823	4.5269	.6855	1.5459
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.1200	.6029	1.1758	1.3353	28.2925	53.2062	4.4003	.6996	1.5286
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.1500	.6032	1.2142	1.3711	27.6791	52.1419	4.2738	.7138	1.5113
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.1800	.6023	1.2531	1.4069	27.0392	51.0876	4.1472	.7283	1.4940
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.2100	.6000	1.2925	1.4427	26.3736	50.0415	4.0206	.7429	1.4765
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.2400	.5963	1.3325	1.4785	25.6834	49.0023	3.8941	.7576	1.4415
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.2700	.5914	1.3730	1.5145	24.9689	47.9683	3.7675	.7724	1.4239
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.3000	.5851	1.4141	1.5507	24.2303	46.9381	3.6410	.8022	1.4062
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.3300	.5774	1.4558	1.5871	23.4675	45.9105	3.5144	.8172	1.3884
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.3600	.5683	1.4981	1.6237	22.6802	44.8841	3.3879	.8320	1.3706
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.3900	.5579	1.5411	1.6606	21.8678	43.8575	3.2613	.8468	1.3526
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.4200	.5459	1.5848	1.6979	21.0295	42.8294	3.1348	.8615	1.3345
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.4500	.5325	1.6292	1.7356	20.1641	41.7985	3.0082	.8759	1.3163
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.5100	.5007	1.7204	1.7738	19.2702	40.7634	2.8817	.8900	1.2979
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.5400	.4823	1.7672	1.8519	17.3897	38.6750	2.6286	.9038	1.2794
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.5700	.4620	1.8150	1.8920	16.3986	37.6186	2.5020	.9171	1.2606
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.6000	.4398	1.8638	1.9329	15.3697	36.5518	2.3754	.9298	1.2417
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.6300	.4155	1.9136	1.9748	14.2996	35.4727	2.2489	.9419	1.2224
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.6600	.3889	1.9646	2.0177	13.1839	34.3795	2.1223	.9531	1.2029
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.6900	.3598	2.0168	2.0620	12.0178	33.2697	1.9958	.9635	1.1830
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.7200	.3280	2.0705	2.1078	10.7951	32.1410	1.8692	.9727	1.1627
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.7500	.2931	2.1257	2.1553	9.5083	30.9904	1.7427	.9808	1.1418
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.7800	.2549	2.1828	2.2050	8.1485	29.8147	1.6161	.9876	1.1204
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.8100	.2128	2.2419	2.2574	6.7044	28.6100	1.4896	.9929	1.0981
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.8400	.1662	2.3036	2.3130	5.1617	27.3717	1.3630	.9966	1.0749
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.8700	.1144	2.3682	2.3727	3.5022	26.0943	1.2365	.9989	1.0505
2.5	1.9261	1.2226	1.00	.5192	1.9261	1.9000	.0565	2.4367	2.4377</					

2.5	1.9261	1.2226	1.08	.6014	1.6627	.6100	.0863	.5835	.5893	8.0482	86.0317	6.3459	.4501	2.1480
2.5	1.9261	1.2226	1.08	.6014	1.6627	.6400	.1800	.6148	.6386	15.7097	81.5612	6.2092	.4572	2.1296
2.5	1.9261	1.2226	1.08	.6014	1.6627	.6700	.2359	.6464	.6853	19.3979	78.7251	6.0725	.4643	2.1112
2.5	1.9261	1.2226	1.08	.6014	1.6627	.7000	.2779	.6783	.7298	21.6498	76.4550	5.9358	.4714	2.0927
2.5	1.9261	1.2226	1.08	.6014	1.6627	.7300	.3115	.7105	.7725	23.1102	74.5003	5.7992	.4786	2.0742
2.5	1.9261	1.2226	1.08	.6014	1.6627	.7600	.3394	.7431	.8138	24.0653	72.7539	5.6625	.4859	2.0557
2.5	1.9261	1.2226	1.08	.6014	1.6627	.8200	.3827	.8091	.8538	24.6701	71.1581	5.5258	.4932	2.0371
2.5	1.9261	1.2226	1.08	.6014	1.6627	.8500	.3995	.8426	.9310	25.0187	69.6780	5.3891	.5005	2.0185
2.5	1.9261	1.2226	1.08	.6014	1.6627	.8800	.4136	.8764	.9684	25.1723	66.9793	5.1158	.5078	1.9999
2.5	1.9261	1.2226	1.08	.6014	1.6627	.9100	.4253	.9106	1.0051	25.0488	65.7330	4.9791	.5151	1.9812
2.5	1.9261	1.2226	1.08	.6014	1.6627	.9400	.4348	.9452	1.0414	24.8232	64.5430	4.8424	.5224	1.9625
2.5	1.9261	1.2226	1.08	.6014	1.6627	.9700	.4423	.9801	1.0772	24.5116	63.4029	4.7057	.5297	1.9437
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.0000	.4479	1.0154	1.126	24.1262	62.3077	4.5690	.5440	1.9060
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.0300	.4516	1.0511	1.1477	23.6762	61.2540	4.4324	.5511	1.8871
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.0600	.4536	1.0872	1.1826	23.1688	60.2392	4.2957	.5581	1.8680
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.0900	.4539	1.1237	1.2173	22.6094	59.2617	4.1590	.5649	1.8489
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.1200	.4526	1.1607	1.2519	22.0022	58.3206	4.0223	.5716	1.8298
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.1500	.4495	1.1981	1.2864	21.3502	57.4162	3.8857	.5781	1.8105
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.1800	.4448	1.2360	1.3209	20.6558	56.5493	3.7490	.5844	1.7911
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.2100	.4385	1.2744	1.3555	19.9202	55.7222	3.6123	.5904	1.7716
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.2400	.4305	1.3132	1.3901	19.1442	54.9379	3.4756	.5961	1.7520
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.2700	.4207	1.3527	1.4249	18.3281	54.2013	3.3389	.6015	1.7323
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.3000	.4092	1.3926	1.4600	17.4711	53.5191	3.2023	.6065	1.7124
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.3300	.3958	1.4332	1.4953	16.5723	52.9009	3.0656	.6111	1.6923
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.3600	.3805	1.4744	1.5310	15.6297	52.3598	2.9289	.6152	1.6720
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.3900	.3631	1.5162	1.5671	14.6407	51.9143	2.7922	.6187	1.6515
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.4200	.3436	1.5588	1.6038	13.6017	51.5908	2.6555	.6216	1.6307
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.4500	.3217	1.6021	1.6411	12.5077	51.4281	2.5189	.6238	1.6096
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.4800	.2971	1.6463	1.6791	11.3522	51.4847	2.3822	.6252	1.5882
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.5100	.2697	1.6913	1.7181	10.1255	51.8536	2.2455	.6258	1.5664
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.5400	.2388	1.7374	1.7581	8.8137	52.6911	2.1088	.6241	1.5211
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.5700	.2037	1.7845	1.7995	7.3936	54.2835	1.9722	.6217	1.4974
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.6000	.1631	1.8329	1.8424	5.8203	57.2278	1.8355	.6180	1.4729
2.5	1.9261	1.2226	1.08	.6014	1.6627	1.6300	.1133	1.8827	1.8873	3.9769	63.0978	1.6988	.6131	1.4474

2.5	1.9261	1.2226	1.12	.6538	1.5294	.6600	.0661	.6339	.6371	5.7163	86.7402	6.0067	.4417	2.2909
2.5	1.9261	1.2226	1.12	.6538	1.5294	.6900	.1569	.6655	.6825	12.8128	82.0934	5.8650	.4474	2.2717
2.5	1.9261	1.2226	1.12	.6538	1.5294	.7200	.2079	.6974	.7259	16.1030	79.2990	5.7232	.4530	2.2524
2.5	1.9261	1.2226	1.12	.6538	1.5294	.7500	.2452	.7296	.7676	18.1027	77.0936	5.5815	.4586	2.2330
2.5	1.9261	1.2226	1.12	.6538	1.5294	.7800	.2745	.7621	.8080	19.3887	75.2133	5.4397	.4642	2.2136
2.5	1.9261	1.2226	1.12	.6538	1.5294	.8100	.2982	.7949	.8471	20.2134	73.5482	5.2980	.4697	2.1942
2.5	1.9261	1.2226	1.12	.6538	1.5294	.8400	.3176	.8281	.8853	20.7137	72.0405	5.1563	.4751	2.1747
2.5	1.9261	1.2226	1.12	.6538	1.5294	.8700	.3335	.8615	.9226	20.9731	70.6557	5.0145	.4805	2.1552
2.5	1.9261	1.2226	1.12	.6538	1.5294	.9000	.3463	.8953	.9593	21.0459	69.3717	4.8728	.4857	2.1356
2.5	1.9261	1.2226	1.12	.6538	1.5294	.9300	.3564	.9294	.9954	20.9695	68.1738	4.7310	.4909	2.1159
2.5	1.9261	1.2226	1.12	.6538	1.5294	.9600	.3641	.9639	1.03					

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
3.0	2.0986	1.2876	1.00	.4765	2.0986	.4800	.0709	.4546	.4596	8.4076	87.4904	10.0240	.2830	2.2778
3.0	2.0986	1.2876	1.00	.4765	2.0986	.5100	.2172	.4854	.5276	23.0723	82.2133	9.8567	.2902	2.2558
3.0	2.0986	1.2876	1.00	.4765	2.0986	.5400	.2959	.5165	.5890	28.7241	79.2493	9.6895	.2977	2.2338
3.0	2.0986	1.2876	1.00	.4765	2.0986	.5700	.3552	.5479	.6456	31.9315	76.9176	9.5222	.3054	2.2117
3.0	2.0986	1.2876	1.00	.4765	2.0986	.6000	.4038	.5796	.6986	33.9380	74.9215	9.3550	.3134	2.1897
3.0	2.0986	1.2876	1.00	.4765	2.0986	.6300	.4451	.6117	.7489	35.2395	73.1406	9.1877	.3216	2.1676
3.0	2.0986	1.2876	1.00	.4765	2.0986	.6600	.4810	.6441	.7970	36.0850	71.5123	9.0205	.3300	2.1456
3.0	2.0986	1.2876	1.00	.4765	2.0986	.6900	.5127	.6769	.8433	36.6159	69.9987	8.8532	.3388	2.1235
3.0	2.0986	1.2876	1.00	.4765	2.0986	.7200	.5410	.7100	.8881	36.9195	68.5750	8.6860	.3478	2.1014
3.0	2.0986	1.2876	1.00	.4765	2.0986	.7500	.5663	.7435	.9316	37.0529	67.2239	8.5187	.3571	2.0793
3.0	2.0986	1.2876	1.00	.4765	2.0986	.7800	.5890	.7774	.9741	37.0553	65.9326	8.3515	.3666	2.0572
3.0	2.0986	1.2876	1.00	.4765	2.0986	.8100	.6094	.8117	1.0157	36.9544	64.6915	8.1842	.3765	2.0351
3.0	2.0986	1.2876	1.00	.4765	2.0986	.8400	.6277	.8463	1.0566	36.7703	63.4931	8.0169	.3867	2.0129
3.0	2.0986	1.2876	1.00	.4765	2.0986	.8700	.6442	.8814	1.0968	36.5180	62.3314	7.8497	.3973	1.9908
3.0	2.0986	1.2876	1.00	.4765	2.0986	.9000	.6589	.9169	1.1364	36.2090	61.2013	7.6824	.4081	1.9686
3.0	2.0986	1.2876	1.00	.4765	2.0986	.9300	.6720	.9529	1.1756	35.8521	60.0989	7.5152	.4193	1.9465
3.0	2.0986	1.2876	1.00	.4765	2.0986	.9600	.6836	.9893	1.2145	35.4541	59.0207	7.3479	.4309	1.9243
3.0	2.0986	1.2876	1.00	.4765	2.0986	.9900	.6937	1.0261	1.2530	35.0203	57.9636	7.1807	.4428	1.9021
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.0200	.7025	1.0635	1.2913	34.5552	56.9253	7.0134	.4551	1.8798
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.0500	.7099	1.1013	1.3294	34.0621	55.9032	6.8462	.4677	1.8576
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.0800	.7160	1.1396	1.3673	33.5438	54.8956	6.6789	.4808	1.8353
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.1100	.7209	1.1784	1.4052	33.0023	53.9006	6.5117	.4942	1.8130
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.1400	.7246	1.2178	1.4430	32.4396	52.9166	6.3444	.5081	1.7907
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.1700	.7270	1.2577	1.4808	31.8569	51.9421	6.1772	.5224	1.7684
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.2000	.7283	1.2982	1.5186	31.2553	50.9757	6.0099	.5370	1.7460
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.2300	.7285	1.3393	1.5565	30.6357	50.0161	5.8427	.5521	1.7236
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.2600	.7274	1.3810	1.5946	29.9984	49.0622	5.6754	.5677	1.7012
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.2900	.7252	1.4233	1.6328	29.3440	48.1128	5.5082	.5836	1.6787
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.3200	.7219	1.4662	1.6712	28.6726	47.1669	5.3409	.6000	1.6562
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.3500	.7173	1.5099	1.7098	27.9842	46.2233	5.1737	.6168	1.6336
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.3800	.7116	1.5542	1.7487	27.2786	45.2810	5.0064	.6340	1.6110
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.4100	.7047	1.5993	1.7879	26.5555	44.3390	4.8392	.6516	1.5884
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.4400	.6966	1.6451	1.8275	25.8145	43.3964	4.6719	.6696	1.5657
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.4700	.6872	1.6917	1.8675	25.0549	42.4519	4.5047	.6879	1.5429
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.5000	.6765	1.7392	1.9079	24.2760	41.5047	4.3374	.7066	1.5200
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.5300	.6645	1.7875	1.9488	23.4766	40.5537	4.1702	.7256	1.4971
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.5600	.6511	1.8367	1.9903	22.6558	39.5976	4.0029	.7449	1.4711
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.5900	.6363	1.8869	2.0324	21.8121	38.6355	3.8357	.7644	1.4510
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.6200	.6200	1.9381	2.0752	20.9439	37.6659	3.6684	.7841	1.4277
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.6500	.6022	1.9904	2.1188	20.0492	36.6877	3.5011	.8038	1.4044
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.6800	.5826	2.0437	2.1631	19.1258	35.6995	3.3339	.8235	1.3808
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.7100	.5613	2.0983	2.2084	18.1711	34.6996	3.1666	.8431	1.3571
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.7400	.5380	2.1542	2.2548	17.1821	33.6864	2.9994	.8625	1.3332
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.7700	.5127	2.2114	2.3023	16.1549	32.6580	2.8321	.8815	1.3091
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.8000	.4852	2.2701	2.3512	15.0854	31.6124	2.6649	.8999	1.2847
3.0	2.0986	1.2876	1.00	.4765	2.0986	1.8300	.4552	2.3305	2.4015	13.9681	30.5471	2		

3.0	2.0986	1.2876	1.08	.5431	1.8413	.5500	.0886	.5236	.5303	9.1524	86.5490	9.3884	.2769	2.6301
3.0	2.0986	1.2876	1.08	.5431	1.8413	.5800	.2023	.5547	.5874	19.2246	82.0016	9.2078	.2826	2.6061
3.0	2.0986	1.2876	1.08	.5431	1.8413	.6100	.2687	.5861	.6404	23.7738	79.2059	9.0271	.2884	2.5822
3.0	2.0986	1.2876	1.08	.5431	1.8413	.6400	.3190	.6178	.6902	26.4917	76.9797	8.8465	.2942	2.5582
3.0	2.0986	1.2876	1.08	.5431	1.8413	.6700	.3599	.6498	.7376	28.2437	75.0660	8.6659	.3003	2.5342
3.0	2.0986	1.2876	1.08	.5431	1.8413	.7000	.3944	.6821	.7829	29.3998	73.3564	8.4853	.3064	2.5102
3.0	2.0986	1.2876	1.08	.5431	1.8413	.7300	.4241	.7148	.8266	30.1551	71.7933	8.3046	.3126	2.4862
3.0	2.0986	1.2876	1.08	.5431	1.8413	.7600	.4499	.7478	.8690	30.6245	70.3416	8.1240	.3190	2.4622
3.0	2.0986	1.2876	1.08	.5431	1.8413	.7900	.4725	.7811	.9101	30.8817	68.9783	7.9434	.3254	2.4381
3.0	2.0986	1.2876	1.08	.5431	1.8413	.8200	.4922	.8148	.9503	30.9757	67.6870	7.7627	.3320	2.4140
3.0	2.0986	1.2876	1.08	.5431	1.8413	.8500	.5095	.8489	.9897	30.9411	66.4560	7.5821	.3387	2.3899
3.0	2.0986	1.2876	1.08	.5431	1.8413	.8800	.5246	.8833	1.0284	30.8028	65.2763	7.4015	.3455	2.3658
3.0	2.0986	1.2876	1.08	.5431	1.8413	.9100	.5377	.9181	1.0664	30.5790	64.1409	7.2208	.3524	2.3416
3.0	2.0986	1.2876	1.08	.5431	1.8413	.9400	.5489	.9533	1.1040	30.2836	63.0445	7.0402	.3594	2.3174
3.0	2.0986	1.2876	1.08	.5431	1.8413	.9700	.5584	.9889	1.1411	29.9273	61.9827	6.8596	.3665	2.2932
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.0000	.5662	1.0249	1.1778	29.5181	60.9518	6.6789	.3737	2.2689
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.0300	.5724	1.0614	1.2143	29.0625	59.9492	6.4983	.3810	2.2446
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.0600	.5771	1.0983	1.2505	28.5654	58.9724	6.3177	.3883	2.2202
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.0900	.5803	1.1356	1.2865	28.0309	58.0196	6.1370	.3957	2.1959
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.1200	.5821	1.1734	1.3224	27.4620	57.0894	5.9564	.4031	2.1714
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.1500	.5824	1.2117	1.3583	26.8610	56.1807	5.7758	.4106	2.1469
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.1800	.5814	1.2505	1.3940	26.2297	55.2928	5.5951	.4181	2.1224
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.2100	.5789	1.2898	1.4298	25.5695	54.4252	5.4145	.4256	2.0978
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.2400	.5751	1.3296	1.4656	24.8811	53.5781	5.2339	.4330	2.0731
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.2700	.5698	1.3700	1.5016	24.1651	52.7517	5.0532	.4404	2.0483
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.3000	.5631	1.4109	1.5376	23.4215	51.9469	4.8726	.4478	2.0234
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.3300	.5550	1.4525	1.5739	22.6502	51.1650	4.6920	.4550	1.9985
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.3600	.5454	1.4946	1.6103	21.8506	50.4081	4.5114	.4621	1.9734
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.3900	.5342	1.5375	1.6471	21.0218	49.6789	4.3307	.4689	1.9482
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.4200	.5214	1.5809	1.6841	20.1625	48.9812	4.1501	.4756	1.9229
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.4500	.5070	1.6251	1.7216	19.2712	48.3203	3.9695	.4819	1.8975
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.4800	.4908	1.6701	1.7595	18.3456	47.7032	3.7888	.4880	1.8718
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.5100	.4727	1.7158	1.7980	17.3832	47.1394	3.6082	.4936	1.8459
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.5400	.4527	1.7624	1.8370	16.3807	46.6424	3.4276	.4987	1.8199
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.5700	.4305	1.8099	1.8767	15.3341	46.2306	3.2469	.5032	1.7935
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.6000	.4060	1.8584	1.9173	14.2382	45.9309	3.0663	.5071	1.7668
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.6300	.3789	1.9079	1.9587	13.0866	45.7830	2.8857	.5102	1.7398
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.6600	.3489	1.9585	2.0013	11.8707	45.8476	2.7050	.5125	1.7123
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.6900	.3156	2.0104	2.0452	10.5791	46.2232	2.5244	.5137	1.6843
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.7200	.2784	2.0638	2.0906	9.1951	47.0795	2.3438	.5138	1.6556
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.7500	.2364	2.1187	2.1379	7.6922	48.7377	2.1631	.5126	1.6261
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.7800	.1877	2.1755	2.1876	6.0209	51.8971	2.0825	.5099	1.5956
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.8100	.1282	2.2345	2.2401	4.0528	58.5165	1.8019	.5057	1.5639
3.0	2.0986	1.2876	1.08	.5431	1.8413	1.8400	.0243	2.2963	2.2965	.7562	82.2908	1.6212	.4997	1.5304

3.0	2.0986	1.2876	1.12	.5825	1.7167	.
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3.0	2.0986	1.2876	1.16	.6283	1.5917	.6300	.0381	.6034	.6045	3.4574	88.3465	8.6257	.2681	2.9979
3.0	2.0986	1.2876	1.16	.6283	1.5917	.6600	.1602	.6348	.6533	13.6421	82.9137	8.4317	.2721	2.9719
3.0	2.0986	1.2876	1.16	.6283	1.5917	.6900	.2194	.6666	.6995	17.6400	80.1106	8.2377	.2761	2.9459
3.0	2.0986	1.2876	1.16	.6283	1.5917	.7200	.2625	.6987	.7437	20.0302	77.9395	8.0437	.2802	2.9199
3.0	2.0986	1.2876	1.16	.6283	1.5917	.7500	.2966	.7311	.7862	21.5740	76.1025	7.8497	.2843	2.8939
3.0	2.0986	1.2876	1.16	.6283	1.5917	.8100	.3477	.7638	.8272	22.5861	74.4819	7.6557	.2883	2.8678
3.0	2.0986	1.2876	1.16	.6283	1.5917	.8400	.3672	.8301	.8671	23.2325	73.0173	7.4617	.2924	2.8417
3.0	2.0986	1.2876	1.16	.6283	1.5917	.8700	.3835	.8638	.9060	23.6120	71.6728	7.2677	.2964	2.8155
3.0	2.0986	1.2876	1.16	.6283	1.5917	.9000	.3970	.8978	.9440	23.7884	70.4256	7.0736	.3005	2.7893
3.0	2.0986	1.2876	1.16	.6283	1.5917	.9300	.4081	.9322	.9813	23.8049	69.2603	6.8796	.3044	2.7631
3.0	2.0986	1.2876	1.16	.6283	1.5917	.9600	.4169	.9669	1.0180	23.6920	68.1659	6.6856	.3084	2.7367
3.0	2.0986	1.2876	1.16	.6283	1.5917	.9900	.4235	1.0021	1.0542	23.4720	67.1350	6.4916	.3123	2.7104
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.0200	.4282	1.0376	1.1253	22.7716	65.2441	6.2976	.3161	2.6839
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.0500	.4309	1.0735	1.1603	22.3129	64.3789	5.9096	.3198	2.6574
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.0800	.4318	1.1098	1.1952	21.7918	63.5658	5.7156	.3234	2.6308
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.1100	.4308	1.1465	1.2298	21.2136	62.8055	5.5216	.3269	2.6042
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.1400	.4281	1.1837	1.2644	20.5821	62.1002	5.3275	.3303	2.5774
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.1700	.4235	1.2213	1.2989	19.8998	61.4534	5.1335	.3335	2.5505
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.2000	.4171	1.2594	1.3333	19.1681	60.8704	4.9395	.3365	2.5236
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.2300	.4089	1.2980	1.3678	18.3875	60.3586	4.7455	.3419	2.4965
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.2600	.3987	1.3371	1.4024	17.5576	59.9285	4.5515	.3441	2.4418
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.2900	.3864	1.3767	1.4372	16.6768	59.5941	4.3575	.3461	2.4142
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.3200	.3721	1.4169	1.4721	15.7424	59.3746	4.1635	.3477	2.3864
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.3500	.3554	1.4577	1.5074	14.7501	59.2967	3.9695	.3489	2.3584
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.3800	.3363	1.4991	1.5430	13.6940	59.3980	3.7754	.3497	2.3300
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.4100	.3143	1.5412	1.5790	12.5652	59.7333	3.5814	.3500	2.3014
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.4400	.2891	1.5840	1.6156	11.3504	60.3854	3.3874	.3497	2.2724
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.4700	.2600	1.6276	1.6528	10.0290	61.4864	3.1934	.3488	2.2430
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.5000	.2259	1.6720	1.6909	8.5660	63.2639	2.9994	.3473	2.2131
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.5300	.1849	1.7173	1.7298	6.8918	66.1618	2.8054	.3450	2.1825
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.5600	.1317	1.7637	1.7700	4.8254	71.2760	2.6114	.3419	2.1513
3.0	2.0986	1.2876	1.16	.6283	1.5917	1.5900	.0299	1.8112	1.8115	1.0776	85.2318	2.4174	.3378	2.1191

3.0	2.0986	1.2876	1.20	.6840	1.4619	.6900	.0630	.6646	.6673	5.2163	87.6582	8.0838	.2638	3.1721
3.0	2.0986	1.2876	1.20	.6840	1.4619	.7200	.1514	.6964	.7117	11.8735	82.7850	7.8831	.2670	3.1451
3.0	2.0986	1.2876	1.20	.6840	1.4619	.7500	.2004	.7286	.7542	14.9606	80.2457	7.6824	.2702	3.1180
3.0	2.0986	1.2876	1.20	.6840	1.4619	.7800	.2360	.7611	.7952	16.8372	78.2594	7.4817	.2733	3.0909
3.0	2.0986	1.2876	1.20	.6840	1.4619	.8100	.2638	.7938	.8349	18.0393	76.5821	7.2810	.2763	3.0637
3.0	2.0986	1.2876	1.20	.6840	1.4619	.8400	.2860	.8269	.8735	18.8016	75.1129	7.0803	.2793	3.0365
3.0	2.0986	1.2876	1.20	.6840	1.4619	.8700	.3038	.8603	.9113	19.2516	73.7992	6.8796	.2822	3.0092
3.0	2.0986	1.2876	1.20	.6840	1.4619	.9000	.3181	.8941	.9483	19.4671	72.6103	6.6789	.2850	2.9818
3.0	2.0986	1.2876	1.20	.6840	1.4619	.9300	.3293	.9281	.9846	19.4992	71.5273	6.4782	.2877	2.9544
3.0	2.0986	1.2876	1.20	.6840	1.4619	.9600	.3377	.9626	1.0204	19.3828	70.5381	6.2775	.2904	2.9269
3.0	2.0986	1.2876	1.20	.6840	1.4619	.9900	.3436	.9974	1.0557	19.1426	69.6355	6.0768	.2929	2.8993
3.0	2.0986	1.2876	1.20	.6840	1.4619	1.0200	.3472	1.0325	1.0907	18.7963	68.8160	5.8761	.2952	2.8716
3.0	2.0986	1.2876	1.20	.6840	1.4619	1.05								

LOOP 8RANCH (M1 FROM 1 TO 5)

GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
3.5	2.2282	1.3385	1.00	.4488	2.2282	.4500	.0443	.4253	.4274	5.6226	88.5728	13.7088	.1679	2.7618
3.5	2.2282	1.3385	1.00	.4488	2.2282	.4800	.2237	.5031	.5285	24.9829	82.7095	13.4944	.1728	2.7337
3.5	2.2282	1.3385	1.00	.4488	2.2282	.5100	.3103	.4870	.5701	31.3184	79.7626	13.2800	.1779	2.7056
3.5	2.2282	1.3385	1.00	.4488	2.2282	.5400	.3752	.5184	.6312	34.7922	77.4696	13.0656	.1831	2.6775
3.5	2.2282	1.3385	1.00	.4488	2.2282	.6000	.4737	.5501	.6881	36.9238	75.5161	12.8511	.1885	2.6493
3.5	2.2282	1.3385	1.00	.4488	2.2282	.6300	.5133	.5821	.7417	38.2907	73.7784	12.6367	.1941	2.6212
3.5	2.2282	1.3385	1.00	.4488	2.2282	.6600	.5485	.6145	.7927	39.1738	72.1929	12.4223	.2000	2.5931
3.5	2.2282	1.3385	1.00	.4488	2.2282	.6900	.5800	.6473	.8417	39.7289	70.7216	12.2079	.2061	2.5619
3.5	2.2282	1.3385	1.00	.4488	2.2282	.7200	.6084	.7141	.8890	40.0505	69.3396	11.9935	.2124	2.5368
3.5	2.2282	1.3385	1.00	.4488	2.2282	.7500	.6342	.7480	.9349	40.1996	68.0296	11.7791	.2189	2.5086
3.5	2.2282	1.3385	1.00	.4488	2.2282	.7800	.6576	.7824	.9796	40.2173	66.7790	11.5647	.2257	2.4523
3.5	2.2282	1.3385	1.00	.4488	2.2282	.8100	.6789	.8172	1.0233	40.1326	65.5784	11.3503	.2327	2.4241
3.5	2.2282	1.3385	1.00	.4488	2.2282	.8400	.6982	.8524	1.0663	39.9663	64.4203	11.1358	.2401	2.3959
3.5	2.2282	1.3385	1.00	.4488	2.2282	.8700	.7158	.8881	1.1085	39.7338	63.2987	10.9214	.2477	2.2548
3.5	2.2282	1.3385	1.00	.4488	2.2282	.9000	.7318	.9243	1.1501	39.4468	62.2088	10.7070	.2556	2.3677
3.5	2.2282	1.3385	1.00	.4488	2.2282	.9300	.7462	.9609	1.2320	38.7430	60.1088	10.2782	.2638	2.3395
3.5	2.2282	1.3385	1.00	.4488	2.2282	.9600	.7592	.9980	1.2724	38.3386	59.0925	10.0638	.2724	2.3113
3.5	2.2282	1.3385	1.00	.4488	2.2282	.9900	.7708	1.0356	1.3125	37.9054	58.0951	9.8494	.2813	2.2831
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.0200	.7812	1.0737	1.3525	37.4468	57.1145	9.6349	.2906	2.2548
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.0500	.7902	1.1124	1.3922	36.9656	56.1488	9.4205	.3002	2.2266
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.0800	.7981	1.1516	1.4319	36.4641	55.1963	9.2061	.3102	2.1983
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.1100	.8048	1.1914	1.4716	35.9441	54.2554	8.9917	.3115	2.1418
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.1400	.8104	1.2318	1.5113	35.4071	53.3248	8.7773	.3127	2.1135
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.1700	.8148	1.2727	1.5510	34.8542	52.4031	8.5629	.3148	2.0851
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.2000	.8182	1.3143	1.5908	34.2863	51.4892	8.3485	.3168	2.0568
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.2300	.8204	1.3566	1.6307	33.7042	50.5819	8.1341	.3179	2.0284
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.2600	.8216	1.3995	1.6707	33.1083	49.6803	7.9196	.3192	2.0001
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.2900	.8218	1.4431	1.7110	32.4990	48.7834	7.7052	.4066	1.9717
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.3200	.8209	1.4874	1.7516	31.8767	47.8902	7.4908	.4210	1.9432
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.3500	.8189	1.5325	1.7924	31.2412	46.9998	7.2764	.4359	1.9148
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.3800	.8159	1.5783	1.8335	30.5928	46.1113	7.0620	.4515	1.8863
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.4100	.8118	1.6250	1.8750	29.9311	45.2239	6.8476	.4676	1.8578
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.4400	.8066	1.6724	1.9169	29.2561	44.3366	6.6332	.4844	1.8292
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.4700	.8004	1.7208	1.9593	28.5672	43.4488	6.4187	.5019	1.8006
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.5000	.7930	1.7700	2.0022	27.8642	42.5595	6.2043	.5200	1.7720
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.5300	.7845	1.8202	2.0455	27.1463	41.6678	5.9899	.5388	1.7433
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.5600	.7748	1.8714	2.0895	26.4129	40.7728	5.7755	.5583	1.7116
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.5900	.7640	1.9236	2.1341	25.6633	39.8737	5.5611	.5785	1.6858
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.6200	.7519	1.9769	2.1794	24.8963	38.9694	5.3467	.5994	1.6570
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.6500	.7385	2.0313	2.2254	24.1110	38.0590	5.1323	.6210	1.6281
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.6800	.7237	2.0869	2.2723	23.3059	37.1414	4.9179	.6432	1.5990
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.7100	.7076	2.1437	2.3200	22.4797	36.2154	4.7034	.6661	1.5700
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.7400	.6900	2.2019	2.3687	21.6305	35.2799	4.4890	.6897	1.5408
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.7700	.6708	2.2615	2.4185	20.7564	34.3334	4.2746	.7137	1.5114
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.8000	.6500	2.3226	2.4694	19.8549	33.3746	4.0602	.7383	1.4820
3.5	2.2282	1.3385	1.00	.4488	2.2282	1.8300	.6274	2.3852	2.5215	18.9233				

3.5	2.2282	1.3385	1.08	.5072	1.9714	.5100	.0607	.4840	.4874	6.7821	87.8743	12.9884	.1647	3.1958
3.5	2.2282	1.3385	1.08	.5072	1.9714	.5400	.2068	.5149	.5514	20.9565	82.6532	12.7568	.1686	3.1653
3.5	2.2282	1.3385	1.08	.5072	1.9714	.5700	.2830	.5461	.6098	26.4042	79.8076	12.5252	.1727	3.1348
3.5	2.2282	1.3385	1.08	.5072	1.9714	.6000	.3400	.5777	.6640	29.5422	77.5801	12.2937	.1768	3.1043
3.5	2.2282	1.3385	1.08	.5072	1.9714	.6300	.3865	.6096	.7152	31.5303	75.6789	12.0621	.1811	3.0738
3.5	2.2282	1.3385	1.08	.5072	1.9714	.6600	.4259	.6418	.7639	32.8345	73.9873	11.8305	.1854	3.0433
3.5	2.2282	1.3385	1.08	.5072	1.9714	.6900	.4600	.6744	.8105	33.6912	72.4443	11.5990	.1899	3.0128
3.5	2.2282	1.3385	1.08	.5072	1.9714	.7200	.4900	.7073	.8555	34.2359	71.0134	11.3674	.1945	2.9822
3.5	2.2282	1.3385	1.08	.5072	1.9714	.7500	.5165	.7406	.8992	34.5531	69.6709	11.1358	.1993	2.9517
3.5	2.2282	1.3385	1.08	.5072	1.9714	.7800	.5401	.7742	.9417	34.6987	68.4000	10.9043	.2041	2.9211
3.5	2.2282	1.3385	1.08	.5072	1.9714	.8100	.5611	.8082	.9832	34.7110	67.1886	10.6727	.2091	2.8905
3.5	2.2282	1.3385	1.08	.5072	1.9714	.8400	.5799	.8426	1.0239	34.6174	66.0276	10.4411	.2142	2.8599
3.5	2.2282	1.3385	1.08	.5072	1.9714	.8700	.5965	.8775	1.0639	34.4379	64.9099	10.2096	.2195	2.8293
3.5	2.2282	1.3385	1.08	.5072	1.9714	.9000	.6114	.9127	1.1033	34.1875	63.8298	9.9780	.2249	2.7986
3.5	2.2282	1.3385	1.08	.5072	1.9714	.9300	.6244	.9483	1.1422	33.8775	62.7828	9.7464	.2304	2.7680
3.5	2.2282	1.3385	1.08	.5072	1.9714	.9600	.6358	.9844	1.1807	33.5168	61.7652	9.5149	.2361	2.7373
3.5	2.2282	1.3385	1.08	.5072	1.9714	.9900	.6457	1.0209	1.2188	33.1123	60.7738	9.2833	.2419	2.7066
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.0200	.6541	1.0578	1.2566	32.6693	59.8062	9.0517	.2478	2.6758
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.0500	.6610	1.0952	1.2942	32.1922	58.8601	8.8202	.2538	2.6451
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.0800	.6666	1.1332	1.3316	31.6844	57.9336	8.5886	.2601	2.6143
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.1100	.6709	1.1716	1.3689	31.1485	57.0254	8.3570	.2664	2.5835
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.1400	.6738	1.2105	1.4061	30.5867	56.1340	8.1255	.2728	2.5526
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.1700	.6755	1.2499	1.4433	30.0007	55.2584	7.8939	.2794	2.5217
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.2000	.6759	1.2899	1.4805	29.3917	54.3978	7.6623	.2861	2.4908
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.2300	.6751	1.3304	1.5177	28.7607	53.5515	7.4308	.2930	2.4598
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.2600	.6730	1.3716	1.5550	28.1082	52.7191	7.1992	.2999	2.4288
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.2900	.6697	1.4133	1.5924	27.4346	51.9004	6.9676	.3069	2.3977
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.3200	.6650	1.4557	1.6300	26.7401	50.3037	6.5045	.3212	2.3353
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.3500	.6592	1.4987	1.6678	26.0246	49.5265	6.2729	.3284	2.3040
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.3800	.6520	1.5423	1.7058	25.2877	48.7643	6.0414	.3356	2.2727
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.4100	.6434	1.5867	1.7441	24.5288	48.0183	5.8098	.3428	2.2412
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.4400	.6335	1.6318	1.7827	23.7473	48.4201	5.5782	.3500	2.2097
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.4700	.6222	1.6776	1.8217	22.9420	47.2901	5.3467	.3571	2.1780
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.5000	.6094	1.7243	1.8612	22.1117	46.5819	5.1151	.3642	2.1462
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.5300	.5951	1.7717	1.9010	21.2548	45.8969	4.8836	.3710	2.1143
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.5600	.5792	1.8201	1.9415	20.3694	45.2390	4.6520	.3777	2.0821
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.5900	.5616	1.8693	1.9825	19.4531	44.6137	4.4204	.3840	2.0498
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.6200	.5421	1.9195	2.0242	18.5031	44.0284	4.1889	.3900	2.0173
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.6500	.5208	1.9708	2.0666	17.5161	43.4933	4.006	.3956	1.9845
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.6800	.4973	2.0231	2.1099	16.4879	43.0225	3.9573	.4006	1.9514
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.7100	.4714	2.0767	2.1541	15.4135	42.6359	3.7257	.4050	1.9179
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.7400	.4431	2.1315	2.1995	14.2864	42.3629	3.4942	.4085	1.8840
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.7700	.4118	2.1876	2.2461	13.0985	42.2476	3.2626	.4127	1.8144
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.8000	.3773	2.2454	2.2942	11.8393	42.3598	3.0310	.4112	1.8495
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.8300	.3390	2.3048	2.3440	10.4939	42.8158	2.7995	.4129	1.7784
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.8600	.2960	2.3662	2.3959	9.0409	43.8253	2.5679	.4116	1.7413
3.5	2.2282	1.3385	1.08	.5072	1.9714	1.8900	.							

3.5	2.2282	1.3385	1.16	.5782	1.7295	.5800	.0435	.5532	.5547	4.2904	88.3260	12.1164	.1605	3.6497
3.5	2.2282	1.3385	1.16	.5782	1.7295	.6100	.1796	.5844	.6093	16.4072	82.9808	11.8677	.1635	3.6168
3.5	2.2282	1.3385	1.16	.5782	1.7295	.6400	.2467	.6160	.6602	21.0815	80.2031	11.6190	.1666	3.5838
3.5	2.2282	1.3385	1.16	.5782	1.7295	.6700	.2962	.6479	.7083	23.8480	78.0451	11.3703	.1697	3.5509
3.5	2.2282	1.3385	1.16	.5782	1.7295	.7000	.3359	.6800	.7543	25.6329	76.2132	11.1215	.1728	3.5179
3.5	2.2282	1.3385	1.16	.5782	1.7295	.7300	.3690	.7125	.7984	26.8153	74.5911	10.8728	.1760	3.4849
3.5	2.2282	1.3385	1.16	.5782	1.7295	.7600	.3972	.7453	.8410	27.5916	73.1189	10.6241	.1792	3.4519
3.5	2.2282	1.3385	1.16	.5782	1.7295	.7900	.4214	.7785	.8823	28.0775	71.7608	10.3754	.1824	3.4189
3.5	2.2282	1.3385	1.16	.5782	1.7295	.8200	.4424	.8120	.9226	28.3465	70.4936	10.1267	.1857	3.3858
3.5	2.2282	1.3385	1.16	.5782	1.7295	.8500	.4605	.8459	.9620	28.4479	69.3016	9.8780	.1891	3.3527
3.5	2.2282	1.3385	1.16	.5782	1.7295	.8800	.4761	.8801	1.0006	28.4163	68.1731	9.6292	.1924	3.3196
3.5	2.2282	1.3385	1.16	.5782	1.7295	.9100	.4895	.9147	1.0386	28.2767	67.0997	9.3805	.1958	3.2864
3.5	2.2282	1.3385	1.16	.5782	1.7295	.9400	.5008	.9496	1.0760	28.0474	66.0752	9.1318	.1992	3.2532
3.5	2.2282	1.3385	1.16	.5782	1.7295	.9700	.5102	.9850	1.1129	27.7423	65.0946	8.8831	.2025	3.2199
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.0000	.5177	1.0207	1.1494	27.3720	64.1545	8.6344	.2059	3.1866
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.0300	.5236	1.0569	1.1856	26.9446	63.2520	8.3856	.2093	3.1533
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.0600	.5277	1.0935	1.2215	26.4664	62.3854	8.1369	.2127	3.1199
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.0900	.5303	1.1305	1.2572	25.9422	61.5534	7.8882	.2161	3.0864
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.1200	.5312	1.1680	1.2927	25.3759	60.7556	7.6395	.2194	3.0529
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.1500	.5306	1.2059	1.3281	24.7701	59.9919	7.3908	.2227	3.0193
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.1800	.5285	1.2444	1.3635	24.1270	59.2633	7.1420	.2259	2.9856
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.2100	.5248	1.2833	1.3988	23.4478	58.5712	6.8933	.2291	2.9518
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.2400	.5195	1.3227	1.4341	22.7333	57.9179	6.6446	.2321	2.9180
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.2700	.5127	1.3627	1.4695	21.9837	57.3067	6.3959	.2351	2.8840
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.3000	.5042	1.4032	1.5050	21.1987	56.7421	6.1472	.2379	2.8499
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.3300	.4940	1.4442	1.5407	20.3775	56.2301	5.8984	.2405	2.8156
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.3600	.4821	1.4859	1.5765	19.5184	55.7785	5.6497	.2430	2.7813
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.3900	.4683	1.5282	1.6126	18.6195	55.3980	5.4010	.2452	2.7467
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.4200	.4526	1.5712	1.6490	17.6777	55.1025	5.1523	.2472	2.7119
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.4500	.4347	1.6148	1.6858	16.6893	54.9112	4.9036	.2489	2.6769
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.4800	.4146	1.6592	1.7231	15.6490	54.8501	4.6548	.2503	2.6417
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.5100	.3919	1.7043	1.7608	14.5500	54.9561	4.4061	.2512	2.6061
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.5400	.3664	1.7503	1.7992	13.3830	55.2829	4.1574	.2517	2.5702
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.5700	.3376	1.7972	1.8382	12.1347	55.9115	3.9087	.2517	2.5338
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.6000	.3048	1.8450	1.8782	10.7852	56.9707	3.6600	.2512	2.4969
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.6300	.2670	1.8938	1.9191	9.3025	58.6813	3.4112	.2500	2.4595
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.6600	.2223	1.9439	1.9612	7.6269	61.4654	3.1625	.2481	2.4212
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.6900	.1663	1.9952	2.0049	5.6187	66.3030	2.9138	.2453	2.3820
3.5	2.2282	1.3385	1.16	.5782	1.7295	1.7200	.0806	2.0481	2.0504	2.6825	76.9911	2.6651	.2416	2.3416

3.5	2.2282	1.3385	1.20	.6213	1.6095	.6300	.0877	.6036	.6094	7.9216	86.4274	11.5218	.1588	3.8704
3.5	2.2282	1.3385	1.20	.6213	1.6095	.6600	.1819	.6352	.6589	15.4091	82.4586	11.2645	.1613	3.8362
3.5	2.2282	1.3385	1.20	.6213	1.6095	.6900	.2382	.6670	.7057	19.0470	79.9492	11.0072	.1639	3.8020
3.5	2.2282	1.3385	1.20	.6213	1.6095	.7200	.2805	.6992	.7504	21.2829	77.9516	10.7499	.1664	3.7678
3.5	2.2282	1.3385	1.20	.6213	1.6095	.7500	.3144	.7316	.7933	22.7424	76.2423	10.4926	.1690	3.7355
3.5	2.2282	1.3385	1.20	.6213	1.6095									

3.5	2.2282	1.3385	1.24	.6730	1.4858	.6800	.0710	.6544	.6579	5.9608	86.9234	10.8986	.1560	4.0969
3.5	2.2282	1.3385	1.24	.6730	1.4858	.7100	.1602	.6862	.7035	12.7163	82.9254	10.6327	.1580	4.0615
3.5	2.2282	1.3385	1.24	.6730	1.4858	.7400	.2111	.7184	.7470	15.9228	80.4956	10.3668	.1600	4.0259
3.5	2.2282	1.3385	1.24	.6730	1.4858	.7700	.2485	.7508	.7889	17.8852	78.5876	10.1009	.1620	3.9904
3.5	2.2282	1.3385	1.24	.6730	1.4858	.8000	.2779	.7836	.8295	19.1528	76.9734	9.8351	.1640	3.9548
3.5	2.2282	1.3385	1.24	.6730	1.4858	.8300	.3016	.8166	.8689	19.9682	75.5577	9.5692	.1660	3.9191
3.5	2.2282	1.3385	1.24	.6730	1.4858	.8600	.3209	.8500	.9073	20.4636	74.2903	9.3033	.1679	3.8834
3.5	2.2282	1.3385	1.24	.6730	1.4858	.8900	.3367	.8838	.9449	20.7197	73.1417	9.0375	.1698	3.8477
3.5	2.2282	1.3385	1.24	.6730	1.4858	.9200	.3493	.9178	.9817	20.7893	72.0934	8.7716	.1716	3.8118
3.5	2.2282	1.3385	1.24	.6730	1.4858	.9500	.3665	.9523	.1.0180	20.7086	71.1335	8.5057	.1733	3.7759
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.0100	.3714	.1.0222	.1.0538	20.5033	70.2545	8.2398	.1750	3.7400
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.0400	.3742	.1.0577	.1.0891	20.1919	69.4523	7.9740	.1767	3.7039
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.0700	.3747	.1.0937	.1.1241	19.7880	68.7252	7.7081	.1782	3.6677
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.1000	.3732	.1.1300	.1.1932	18.7387	67.5017	7.1763	.1809	3.5951
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.1300	.3694	.1.1668	.1.2275	18.1050	67.0140	6.9105	.1821	3.5586
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.1600	.3636	.1.2039	.1.2617	17.4026	66.6193	6.6446	.1831	3.5220
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.1900	.3555	.1.2416	.1.2958	16.6324	66.3297	6.3787	.1840	3.4852
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.2200	.3451	.1.2797	.1.3299	15.7930	66.1620	6.1129	.1847	3.4482
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.2500	.3322	.1.3183	.1.3640	14.8811	66.1397	5.8470	.1851	3.4110
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.2800	.3165	.1.3574	.1.3983	13.8906	66.2957	5.5811	.1854	3.3735
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.3100	.2979	.1.3970	.1.4327	12.8114	66.6773	5.3152	.1853	3.3358
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.3400	.2757	.1.4372	.1.4674	11.6277	67.3552	5.0494	.1850	3.2978
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.3700	.2493	.1.4780	.1.5023	10.3134	68.4402	4.7835	.1844	3.2595
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.4000	.2173	.1.5195	.1.5377	8.8223	70.1216	4.5176	.1834	3.2207
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.4300	.1771	.1.5616	.1.5735	7.0587	72.7701	4.2517	.1821	3.1814
3.5	2.2282	1.3385	1.24	.6730	1.4858	1.4600	.1214	.1.6044	.1.6100	4.7533	77.3513	3.9859	.1803	3.1415

3.5	2.2282	1.3385	1.28	.7400	1.3514	.7700	.1245	.7483	.7580	9.1826	84.0753	9.8808	.1541	4.2800
3.5	2.2282	1.3385	1.28	.7400	1.3514	.8000	.1711	.7809	.7985	12.0699	81.6779	9.6064	.1555	4.2431
3.5	2.2282	1.3385	1.28	.7400	1.3514	.8300	.2033	.8137	.8378	13.7645	79.8827	9.3319	.1569	4.2062
3.5	2.2282	1.3385	1.28	.7400	1.3514	.8600	.2274	.8468	.8760	14.8141	78.4143	9.0575	.1582	4.1691
3.5	2.2282	1.3385	1.28	.7400	1.3514	.8900	.2459	.8803	.9133	15.4432	77.1685	8.7830	.1595	4.1320
3.5	2.2282	1.3385	1.28	.7400	1.3514	.9200	.2598	.9141	.9499	15.7707	76.0941	8.5086	.1607	4.0948
3.5	2.2282	1.3385	1.28	.7400	1.3514	.9500	.2700	.9483	.9858	15.8678	75.1639	8.2341	.1618	4.0575
3.5	2.2282	1.3385	1.28	.7400	1.3514	.9800	.2769	.9827	.1.0212	15.7801	74.3631	7.9597	.1628	4.0201
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.0100	.2808	.1.0176	.1.0562	15.5383	73.6855	7.6852	.1637	3.9826
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.0400	.2818	.1.0528	.1.0908	15.1629	73.1310	7.4108	.1645	3.9449
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.0700	.2801	.1.0884	.1.1250	14.6673	72.7052	7.1363	.1652	3.9071
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.1000	.2755	.1.1244	.1.1591	14.0597	72.4196	6.8619	.1657	3.8692
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.1300	.2680	.1.1608	.1.1930	13.3429	72.2931	6.5874	.1660	3.8311
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.1600	.2575	.1.1976	.1.2267	12.5151	72.3541	6.3130	.1662	3.7928
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.1900	.2436	.1.2348	.1.2605	11.5684	72.6453	6.0385	.1661	3.7543
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.2200	.2258	.1.2726	.1.2942	10.4862	73.2324	5.7641	.1659	3.7155
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.2500	.2033	.1.3108	.1.3280	9.2371	74.2219	5.4896	.1654	3.6764
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.2800	.1744	.1.3495	.1.3619	7.7587	75.8045	5.2152	.1646	3.6370
3.5	2.2282	1.3385	1.28	.7400	1.3514	1.310								

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.3

M1	M1*	OELMAX	OEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
4.0	2.3263	1.3781	1.00	.4299	2.3263	.4300	.0156	.4059	.4062	2.0750	89.5293	17.9553	.0993	3.3179
4.0	2.3263	1.3781	1.00	.4299	2.3263	.4600	.2295	.4365	.4879	26.5165	82.9892	17.6871	.1025	3.2828
4.0	2.3263	1.3781	1.00	.4299	2.3263	.4900	.3214	.4675	.5591	33.2640	80.0716	17.4188	.1057	3.2477
4.0	2.3263	1.3781	1.00	.4299	2.3263	.5200	.3901	.4988	.6236	36.8758	77.8139	17.1506	.1091	3.2126
4.0	2.3263	1.3781	1.00	.4299	2.3263	.5500	.4463	.5305	.6832	39.0604	75.8951	16.8824	.1126	3.1775
4.0	2.3263	1.3781	1.00	.4299	2.3263	.5800	.4945	.5626	.7393	40.4479	74.1910	16.6141	.1163	3.1424
4.0	2.3263	1.3781	1.00	.4299	2.3263	.6100	.5366	.5950	.7925	41.3382	72.6378	16.3459	.1202	3.1073
4.0	2.3263	1.3781	1.00	.4299	2.3263	.6400	.5741	.6278	.8435	41.8954	71.1977	16.0777	.1242	3.0722
4.0	2.3263	1.3781	1.00	.4299	2.3263	.6700	.6079	.6611	.8926	42.2176	69.8461	15.8094	.1283	3.0370
4.0	2.3263	1.3781	1.00	.4299	2.3263	.7000	.6385	.6947	.9402	42.3678	68.5659	15.5412	.1327	3.0019
4.0	2.3263	1.3781	1.00	.4299	2.3263	.7300	.6663	.7287	.9866	42.3879	67.3446	15.2730	.1372	2.9668
4.0	2.3263	1.3781	1.00	.4299	2.3263	.7600	.6917	.7632	1.0320	42.3072	66.1727	15.0047	.1419	2.9317
4.0	2.3263	1.3781	1.00	.4299	2.3263	.7900	.7150	.7981	1.0765	42.1468	65.0431	14.7365	.1469	2.8965
4.0	2.3263	1.3781	1.00	.4299	2.3263	.8200	.7363	.8335	1.1202	41.9222	63.9497	14.4682	.1520	2.8614
4.0	2.3263	1.3781	1.00	.4299	2.3263	.8500	.7559	.8694	1.1634	41.6451	62.8880	14.2000	.1574	2.8262
4.0	2.3263	1.3781	1.00	.4299	2.3263	.8800	.7738	.9057	1.2060	41.3243	61.8539	13.9318	.1631	2.7911
4.0	2.3263	1.3781	1.00	.4299	2.3263	.9100	.7901	.9425	1.2483	40.9668	60.8441	13.6635	.1690	2.7559
4.0	2.3263	1.3781	1.00	.4299	2.3263	.9400	.8051	.9799	1.2901	40.5780	59.8558	13.3953	.1751	2.7207
4.0	2.3263	1.3781	1.00	.4299	2.3263	.9700	.8186	1.0178	1.3318	40.1622	58.8867	13.1271	.1816	2.6855
4.0	2.3263	1.3781	1.00	.4299	2.3263	1.0000	.8309	1.0562	1.3732	39.7228	57.9345	12.8588	.1883	2.6504
4.0	2.3263	1.3781	1.00	.4299	2.3263	.0300	.8419	1.0952	1.4145	39.2626	56.9974	12.5906	.1954	2.6152
4.0	2.3263	1.3781	1.00	.4299	2.3263	.0600	.8518	1.1347	1.4557	38.7840	56.0738	12.3224	.2028	2.5800
4.0	2.3263	1.3781	1.00	.4299	2.3263	.0900	.8605	1.1749	1.4969	38.2886	55.1621	12.0541	.2105	2.5447
4.0	2.3263	1.3781	1.00	.4299	2.3263	.1200	.8681	1.2157	1.5381	37.7780	54.2611	11.7859	.2187	2.5095
4.0	2.3263	1.3781	1.00	.4299	2.3263	.1500	.8746	1.2571	1.5793	37.2533	53.3695	11.5177	.2272	2.4713
4.0	2.3263	1.3781	1.00	.4299	2.3263	.1800	.8800	1.2992	1.6207	36.7156	52.4861	11.2494	.2361	2.4390
4.0	2.3263	1.3781	1.00	.4299	2.3263	.2100	.8845	1.3419	1.6622	36.1655	51.6100	10.9812	.2455	2.4038
4.0	2.3263	1.3781	1.00	.4299	2.3263	.2400	.8879	1.3854	1.7039	35.6037	50.7401	10.7130	.2554	2.3685
4.0	2.3263	1.3781	1.00	.4299	2.3263	.2700	.8903	1.4296	1.7459	35.0306	49.8756	10.4447	.2657	2.3332
4.0	2.3263	1.3781	1.00	.4299	2.3263	.3000	.8917	1.4746	1.7881	34.4465	49.0155	10.1765	.2766	2.2979
4.0	2.3263	1.3781	1.00	.4299	2.3263	.3300	.8921	1.5203	1.8307	33.8517	48.1590	9.9083	.2880	2.2626
4.0	2.3263	1.3781	1.00	.4299	2.3263	.3600	.8915	1.5669	1.8736	33.2462	47.3054	9.6400	.3000	2.2273
4.0	2.3263	1.3781	1.00	.4299	2.3263	.3900	.8900	1.6143	1.9169	32.6301	46.4538	9.3718	.3126	2.1919
4.0	2.3263	1.3781	1.00	.4299	2.3263	.4200	.8874	1.6627	1.9606	32.0032	45.6036	9.1036	.3258	2.1565
4.0	2.3263	1.3781	1.00	.4299	2.3263	.4500	.8839	1.7119	2.0049	31.3655	44.7538	8.8353	.3397	2.1211
4.0	2.3263	1.3781	1.00	.4299	2.3263	.4800	.8793	1.7621	2.0496	30.7166	43.9038	8.5671	.3543	2.0857
4.0	2.3263	1.3781	1.00	.4299	2.3263	.5100	.8738	1.8133	2.0950	30.0563	43.0529	8.2988	.3697	2.0502
4.0	2.3263	1.3781	1.00	.4299	2.3263	.5400	.8672	1.8655	2.1410	29.3842	42.2002	8.0306	.3859	2.0147
4.0	2.3263	1.3781	1.00	.4299	2.3263	.5700	.8595	1.9189	2.1876	28.6997	41.3450	7.7624	.4029	1.9792
4.0	2.3263	1.3781	1.00	.4299	2.3263	.6000	.8508	1.9733	2.2350	28.0022	40.4866	7.4941	.4208	1.9437
4.0	2.3263	1.3781	1.00	.4299	2.3263	.6300	.8410	2.0290	2.2831	27.2912	39.6240	7.2259	.4395	1.9081
4.0	2.3263	1.3781	1.00	.4299	2.3263	.6600	.8300	2.0859	2.3321	26.5658	38.7565	6.9577	.4593	1.8724
4.0	2.3263	1.3781	1.00	.4299	2.3263	.6900	.8179	2.1442	2.3820	25.8250	37.8831	6.6894	.4800	1.8367
4.0	2.3263	1.3781	1.00	.4299	2.3263	.7200	.8045	2.2038	2.4329	25.0678	37.0029	6.4212	.5017	1.8010
4.0	2.3263	1.3781	1.00	.4299	2.3263	.7500	.7899	2.2648	2.4849	24.2931	36.1149	6.1530	.5245	1.7651
4.0	2.3263	1.3781	1.00	.4299	2.3263	.7800	.7739	2.3275	2.5379	23.4994	35.2180			

4.0	2.3263	1.3781	1.08	.4834	2.0686	.4900	.0985	.4646	.4739	11.3692	86.7748	17.0683	.0981	3.8365
4.0	2.3263	1.3781	1.08	.4834	2.0686	.5200	.2299	.4955	.5417	23.8530	82.3796	16.7786	.1006	3.7985
4.0	2.3263	1.3781	1.08	.4834	2.0686	.5500	.3070	.5267	.6032	29.1676	79.6960	16.4890	.1033	3.7605
4.0	2.3263	1.3781	1.08	.4834	2.0686	.5800	.3658	.5582	.6600	32.2402	77.5615	16.1993	.1061	3.7225
4.0	2.3263	1.3781	1.08	.4834	2.0686	.6100	.4143	.5901	.7134	34.1818	75.7274	15.9096	.1089	3.6845
4.0	2.3263	1.3781	1.08	.4834	2.0686	.6400	.4557	.6224	.7640	35.4505	74.0891	15.6199	.1118	3.6465
4.0	2.3263	1.3781	1.08	.4834	2.0686	.6700	.4918	.6550	.8125	36.2802	72.5911	15.3302	.1149	3.6084
4.0	2.3263	1.3781	1.08	.4834	2.0686	.7000	.5238	.6879	.8592	36.8051	71.1995	15.0405	.1180	3.5704
4.0	2.3263	1.3781	1.08	.4834	2.0686	.7300	.5523	.7213	.9044	37.1088	69.8921	14.7508	.1212	3.5323
4.0	2.3263	1.3781	1.08	.4834	2.0686	.7600	.5778	.7550	.9484	37.2462	68.6532	14.4611	.1245	3.4943
4.0	2.3263	1.3781	1.08	.4834	2.0686	.7900	.6008	.7891	.9914	37.2552	67.4712	14.1714	.1280	3.4562
4.0	2.3263	1.3781	1.08	.4834	2.0686	.8200	.6216	.8236	1.0335	37.1627	66.3375	13.8817	.1315	3.4181
4.0	2.3263	1.3781	1.08	.4834	2.0686	.8500	.6402	.8586	1.0749	36.9883	65.2452	13.5920	.1352	3.3800
4.0	2.3263	1.3781	1.08	.4834	2.0686	.8800	.6570	.8939	1.1156	36.7466	64.1891	13.3023	.1390	3.3419
4.0	2.3263	1.3781	1.08	.4834	2.0686	.9100	.6721	.9297	1.1558	36.4489	63.1645	13.0126	.1429	3.3037
4.0	2.3263	1.3781	1.08	.4834	2.0686	.9400	.6856	.9660	1.1956	36.1037	62.1680	12.7229	.1469	3.2656
4.0	2.3263	1.3781	1.08	.4834	2.0686	.9700	.6975	1.0027	1.2350	35.7177	61.1964	12.4332	.1511	3.2274
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.0000	.7079	1.0399	1.2741	35.2963	60.2473	12.1435	.1554	3.1892
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.0300	.7170	1.0775	1.3129	34.8436	59.5184	11.8539	.1598	3.1510
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.0600	.7248	1.1157	1.3516	34.3632	58.4079	11.5642	.1644	3.1128
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.0900	.7313	1.1544	1.3901	33.8575	57.5142	11.2745	.1691	3.0746
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.1200	.7365	1.1936	1.4286	33.3289	56.6359	10.9848	.1739	3.0363
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.1500	.7405	1.2334	1.4670	32.7791	55.7718	10.6951	.1789	2.9980
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.1800	.7434	1.2737	1.5054	32.2093	54.9209	10.4054	.1840	2.9597
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.2100	.7450	1.3146	1.5439	31.6206	54.0823	10.1157	.1893	2.9213
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.2400	.7455	1.3562	1.5824	31.0138	53.2554	9.8260	.1947	2.8829
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.2700	.7448	1.3983	1.6211	30.3894	52.4394	9.5363	.2003	2.8445
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.3000	.7429	1.4412	1.6599	29.7478	51.6339	9.2466	.2060	2.8061
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.3300	.7399	1.4846	1.6989	29.0891	50.8387	8.9569	.2119	2.7675
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.3600	.7358	1.5288	1.7382	28.4133	50.0535	8.6672	.2179	2.7290
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.3900	.7304	1.5737	1.7777	27.7201	49.2782	8.3775	.2240	2.6904
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.4200	.7238	1.6193	1.8176	27.0094	48.5131	8.0878	.2303	2.6517
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.4500	.7160	1.6658	1.8578	26.2804	47.7583	7.7981	.2366	2.6130
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.4800	.7070	1.7130	1.8984	25.5325	47.0146	7.5084	.2431	2.5742
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.5100	.6966	1.7611	1.9394	24.7649	46.2826	7.2188	.2496	2.5353
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.5400	.6849	1.8100	1.9809	23.9764	45.5636	6.9291	.2563	2.4964
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.5700	.6718	1.8599	2.0230	23.1658	44.8593	6.6394	.2629	2.4573
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.6000	.6572	1.9107	2.0656	22.3315	44.1717	6.3497	.2696	2.4181
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.6300	.6411	1.9626	2.1089	21.4716	43.5039	6.0600	.2762	2.3788
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.6600	.6234	2.0155	2.1529	20.5839	42.8597	5.7703	.2828	2.3393
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.6900	.6040	2.0695	2.1977	19.6659	42.2444	5.4806	.2892	2.2997
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.7200	.5827	2.1247	2.2433	18.7143	41.6652	5.1909	.2955	2.2598
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.7500	.5594	2.1812	2.2899	17.7255	41.1318	4.9012	.3015	2.2198
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.7800	.5338	2.2391	2.3376	16.6948	40.6581	4.6115	.3072	2.1794
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.8100	.5059	2.2983	2.3864	15.6164	40.2638	4.3218	.3124	2.1387
4.0	2.3263	1.3781	1.08	.4834	2.0686	1.8400	.4753	2.3592	2.4367	14.4835	39.9779	4.0321	.3170	2.0976
4.0	2.3263	1.3781	1.08	.4834	2.0686	1								

4.0	2.3263	1.3781	1.16	.5466	1.8294	.5500	.0633	.5234	.5269	6.5685	87.7473	16.0955	.0956	4.3921
4.0	2.3263	1.3781	1.16	.5466	1.8294	.5800	.1968	.5546	.5856	18.7426	82.8997	15.7844	.0976	4.3512
4.0	2.3263	1.3781	1.16	.5466	1.8294	.6100	.2677	.5860	.6400	23.6960	80.2000	15.4732	.0997	4.3102
4.0	2.3263	1.3781	1.16	.5466	1.8294	.6400	.3207	.6178	.6910	26.6147	78.0859	15.1621	.1018	4.2692
4.0	2.3263	1.3781	1.16	.5466	1.8294	.7000	.3636	.6499	.7395	28.4914	76.2840	14.8509	.1040	4.2282
4.0	2.3263	1.3781	1.16	.5466	1.8294	.7300	.3998	.6823	.7858	29.7346	74.6839	14.5398	.1062	4.1872
4.0	2.3263	1.3781	1.16	.5466	1.8294	.7600	.4310	.7151	.8304	30.5556	73.2281	14.2286	.1085	4.1462
4.0	2.3263	1.3781	1.16	.5466	1.8294	.7900	.4581	.7482	.8735	31.0775	71.8821	13.9175	.1108	4.1052
4.0	2.3263	1.3781	1.16	.5466	1.8294	.8200	.5027	.8154	.9155	31.3784	70.6231	13.6063	.1131	4.0641
4.0	2.3263	1.3781	1.16	.5466	1.8294	.8500	.5211	.8496	.9565	31.5101	69.4357	13.2952	.1155	4.0230
4.0	2.3263	1.3781	1.16	.5466	1.8294	.8800	.5372	.8842	.9966	31.5089	68.3085	12.9840	.1179	3.9819
4.0	2.3263	1.3781	1.16	.5466	1.8294	.9100	.5512	.9191	1.0359	31.4008	67.2329	12.6729	.1204	3.9407
4.0	2.3263	1.3781	1.16	.5466	1.8294	.9400	.5634	.9545	1.0746	31.2050	66.2025	12.3617	.1229	3.8996
4.0	2.3263	1.3781	1.16	.5466	1.8294	.9700	.5737	.9903	1.1128	30.9357	65.2122	12.0506	.1255	3.8584
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.0000	.5824	1.0265	1.1879	30.2186	63.3370	11.7394	.1281	3.8171
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.0300	.5895	1.0631	1.2249	29.7858	62.4466	11.1711	.1333	3.7759
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.0600	.5951	1.1002	1.2617	29.3109	61.5848	10.8059	.1360	3.6932
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.0900	.5992	1.1377	1.2982	28.7979	60.7505	10.4948	.1387	3.6518
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.1200	.6018	1.1757	1.3347	28.2501	59.9425	10.1836	.1414	3.6104
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.1500	.6030	1.2142	1.3710	27.6698	59.1603	9.8725	.1441	3.5689
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.1800	.6028	1.2532	1.4072	27.0589	58.4039	9.5613	.1469	3.5273
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.2100	.6011	1.2927	1.4434	26.4187	57.6734	9.2502	.1496	3.4857
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.2400	.5981	1.3327	1.4796	25.7500	56.9697	8.9390	.1523	3.4440
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.2700	.5936	1.3733	1.5159	25.0533	56.2940	8.6279	.1550	3.4022
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.3000	.5878	1.4145	1.5523	24.3286	55.6479	8.3167	.1576	3.3604
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.3300	.5804	1.4562	1.5889	23.5756	55.0342	8.0056	.1602	3.3184
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.3600	.5715	1.4986	1.6256	22.7938	54.4559	7.6944	.1627	3.2764
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.3900	.5611	1.5416	1.6625	21.9819	53.9175	7.3833	.1652	3.2342
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.4200	.5490	1.5853	1.6997	21.1385	53.4248	7.0721	.1675	3.1919
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.4500	.5353	1.6297	1.7372	20.2616	52.9850	6.7610	.1697	3.1494
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.4800	.5197	1.6748	1.7750	19.3486	52.6080	6.4498	.1717	3.1068
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.5100	.5022	1.7206	1.8133	18.3964	52.3068	6.1387	.1736	3.0639
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.5400	.4826	1.7673	1.8520	17.4007	52.0988	5.8275	.1752	3.0208
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.5700	.4608	1.8148	1.8913	16.3562	52.0082	5.5164	.1766	2.9714
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.6000	.4364	1.8632	1.9313	15.2561	52.0684	5.2052	.1777	2.9337
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.6300	.4092	1.9126	1.9719	14.0912	52.3283	4.8941	.1784	2.8896
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.6600	.3786	1.9629	2.0134	12.8489	52.8611	4.5829	.1787	2.8451
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.6900	.3442	2.0145	2.0558	11.5107	53.7822	4.2717	.1785	2.8000
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.7200	.3048	2.0672	2.0994	10.0482	55.2868	3.9606	.1777	2.7542
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.7500	.2588	2.1213	2.1443	8.4114	57.7375	3.6494	.1763	2.7076
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.7800	.2026	2.1769	2.1910	6.4948	61.9263	3.3383	.1742	2.6598
4.0	2.3263	1.3781	1.16	.5466	1.8294	1.8100	.1254	2.2344	2.2397	3.9634	70.2838	3.0271	.1713	2.6107

4.0	2.3263	1.3781	1.20	.5837	1.7131	.5900	.0807	.5634	.5686	7.7898	86.9874	15.4697	.0945	4.6695
4.0	2.3263	1.3781	1.20	.5837	1.7131	.6200	.1916	.5947	.6225	17.1696	82.7397	15.1478	.0963	4.6271

4.0	2.3263	1.3781	1.24	.6265	1.5963	.9600	.4370	.9682	1.0638	24.4752	68.8421	11.1564	.1095	4.4692
4.0	2.3263	1.3781	1.24	.6265	1.5963	.9900	.4446	.0035	1.1000	24.1838	67.9766	10.8238	.1110	4.4247
4.0	2.3263	1.3781	1.24	.6265	1.5963	.0200	.4502	.0391	1.1358	23.8136	67.1656	10.4912	.1124	4.3802
4.0	2.3263	1.3781	1.24	.6265	1.5963	.0500	.4538	.0752	1.1713	23.3741	66.4073	10.1586	.1137	4.3356
4.0	2.3263	1.3781	1.24	.6265	1.5963	.0800	.4556	.1116	1.2065	22.8721	65.7017	9.8260	.1151	4.2909
4.0	2.3263	1.3781	1.24	.6265	1.5963	.1100	.4555	.1485	1.2415	22.3128	65.0494	9.4934	.1163	4.2462
4.0	2.3263	1.3781	1.24	.6265	1.5963	.1400	.4537	.1858	1.2763	21.6997	64.4529	9.1608	.1176	4.2013
4.0	2.3263	1.3781	1.24	.6265	1.5963	.1700	.4500	.2236	1.3110	21.0355	63.9156	8.8282	.1187	4.1563
4.0	2.3263	1.3781	1.24	.6265	1.5963	.2000	.4444	.2618	1.3456	20.3212	63.4427	8.4956	.1198	4.1112
4.0	2.3263	1.3781	1.24	.6265	1.5963	.2300	.4369	.3006	1.3802	19.5573	63.0415	8.1629	.1207	4.0660
4.0	2.3263	1.3781	1.24	.6265	1.5963	.2600	.4275	.3398	1.4148	18.7428	62.7215	7.8303	.1216	4.0206
4.0	2.3263	1.3781	1.24	.6265	1.5963	.2900	.4161	.3795	1.4495	17.8758	62.4958	7.4977	.1223	3.9751
4.0	2.3263	1.3781	1.24	.6265	1.5963	.3200	.4024	.4198	1.4843	16.9532	62.3819	7.1651	.1229	3.9293
4.0	2.3263	1.3781	1.24	.6265	1.5963	.3500	.3863	.4606	1.5193	15.9698	62.4034	6.8325	.1233	3.8833
4.0	2.3263	1.3781	1.24	.6265	1.5963	.3800	.3677	.5021	1.5545	14.9186	62.5931	6.4999	.1236	3.8371
4.0	2.3263	1.3781	1.24	.6265	1.5963	.4100	.3460	.5441	1.5899	13.7893	62.9979	6.1673	.1236	3.7905
4.0	2.3263	1.3781	1.24	.6265	1.5963	.4400	.3210	.5868	1.6258	12.5665	63.6865	5.8347	.1234	3.7436
4.0	2.3263	1.3781	1.24	.6265	1.5963	.4700	.2918	.6302	1.6620	11.2266	64.7657	5.5021	.1230	3.6963
4.0	2.3263	1.3781	1.24	.6265	1.5963	.5000	.2572	.6744	1.6988	9.7300	66.4132	5.1694	.1223	3.6485
4.0	2.3263	1.3781	1.24	.6265	1.5963	.5300	.2151	.7193	1.7362	8.0010	68.9609	4.8368	.1212	3.6001
4.0	2.3263	1.3781	1.24	.6265	1.5963	.5600	.1600	.7651	1.7743	5.8559	73.1750	4.5042	.1198	3.5509
4.0	2.3263	1.3781	1.24	.6265	1.5963	.5900	.0667	.8118	1.8134	2.4029	82.3856	4.1716	.1180	3.5009

4.0	2.3263	1.3781	1.28	.6777	1.4756	.7100	.1507	.6861	.7013	11.9797	83.6146	13.6743	.0926	5.1878
4.0	2.3263	1.3781	1.28	.6777	1.4756	.7400	.2049	.7182	.7452	15.4747	81.1528	13.3309	.0938	5.1422
4.0	2.3263	1.3781	1.28	.6777	1.4756	.7700	.2439	.7507	.7874	17.5783	79.2610	12.9876	.0950	5.0965
4.0	2.3263	1.3781	1.28	.6777	1.4756	.8000	.2744	.7834	.8283	18.9330	77.6773	12.6443	.0962	5.0508
4.0	2.3263	1.3781	1.28	.6777	1.4756	.8300	.2990	.8165	.8679	19.8082	76.2983	12.3009	.0973	5.0051
4.0	2.3263	1.3781	1.28	.6777	1.4756	.8600	.3189	.8499	.9065	20.3473	75.0710	11.9576	.0985	4.9593
4.0	2.3263	1.3781	1.28	.6777	1.4756	.8900	.3352	.8837	.9443	20.6366	73.9648	11.6142	.0996	4.9134
4.0	2.3263	1.3781	1.28	.6777	1.4756	.9200	.3482	.9178	.9813	20.7319	72.9606	11.2709	.1006	4.8675
4.0	2.3263	1.3781	1.28	.6777	1.4756	.9500	.3584	.9522	1.0177	20.6715	72.0464	10.9275	.1017	4.8215
4.0	2.3263	1.3781	1.28	.6777	1.4756	.9800	.3661	.9870	1.0536	20.4821	71.2148	10.5842	.1027	4.7754
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.0100	.3713	1.0222	1.0891	20.1830	70.4616	10.2409	.1036	4.7292
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.0400	.3742	1.0577	1.1241	19.7882	69.7855	9.8975	.1045	4.6829
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.0700	.3749	1.0937	1.1588	19.3076	69.1874	9.5542	.1053	4.6366
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.1000	.3734	1.1300	1.1933	18.7485	68.6708	9.2108	.1061	4.5901
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.1300	.3697	1.1668	1.2276	18.1152	68.2416	8.8675	.1067	4.5435
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.1600	.3637	1.2040	1.2618	17.4102	67.9088	8.5242	.1073	4.4967
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.1900	.3555	1.2416	1.2958	16.6337	67.6851	8.1808	.1078	4.4498
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.2200	.3449	1.2797	1.3298	15.7839	67.5883	7.8375	.1081	4.4027
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.2500	.3316	1.3183	1.3638	14.8565	67.6430	7.4941	.1083	4.3554
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.2800	.3154	1.3573	1.3979	13.8436	67.8841	7.1508	.1084	4.3078
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.3100	.2960	1.3969	1.4321	12.7331	68.3618	6.8075	.1083	4.2600
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.3400	.2727	1.4370	1.4665	11.5049	69.1520	6.4641	.1080	4.2118
4.0	2.3263	1.3781	1.28	.6777	1.4756	1.3700</								

PROPERTIES OF AN OBLIQUE DETONATION WAVE GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
5.0	2.4602	1.4333	1.00	.4065	2.4602	.4100	.0834	.3868	.3947	11.4922	87.6718	28.0838	.0363	4.6415
5.0	2.4602	1.4333	1.00	.4065	2.4602	.4600	.3204	.4380	.5338	34.8611	80.8985	27.4233	.0384	4.5553
5.0	2.4602	1.4333	1.00	.4065	2.4602	.5100	.4398	.4903	.6474	40.7726	77.2918	26.7628	.0407	4.4640
5.0	2.4602	1.4333	1.00	.4065	2.4602	.5600	.5284	.5436	.7474	43.3350	74.4611	26.1023	.0432	4.3827
5.0	2.4602	1.4333	1.00	.4065	2.4602	.6100	.5999	.5981	.8389	44.5236	72.0345	25.4417	.0459	4.2965
5.0	2.4602	1.4333	1.00	.4065	2.4602	.6600	.6601	.6537	.9246	45.0032	69.8638	24.7812	.0488	4.2102
5.0	2.4602	1.4333	1.00	.4065	2.4602	.7100	.7117	.7106	1.0061	45.0675	67.8723	24.1207	.0520	4.1239
5.0	2.4602	1.4333	1.00	.4065	2.4602	.7600	.7565	.7687	1.0846	44.8673	66.0139	23.4602	.0554	4.0376
5.0	2.4602	1.4333	1.00	.4065	2.4602	.8100	.7957	.8282	1.1609	44.4885	64.2585	22.7997	.0592	3.9513
5.0	2.4602	1.4333	1.00	.4065	2.4602	.8600	.8300	.8890	1.2356	43.9831	62.5850	22.1392	.0632	3.8649
5.0	2.4602	1.4333	1.00	.4065	2.4602	.9100	.8601	.9514	1.3091	43.3847	60.9777	21.4787	.0676	3.7786
5.0	2.4602	1.4333	1.00	.4065	2.4602	.9600	.8863	1.0154	1.3820	42.7154	59.4249	20.8182	.0725	3.6923
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.0100	.9091	1.0810	1.4544	41.9906	57.9172	20.1576	.0778	3.6059
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.0600	.9286	1.1483	1.5267	41.2209	56.4470	19.4971	.0835	3.5196
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.1100	.9451	1.2175	1.5991	40.4138	55.0081	18.8366	.0899	3.4332
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.1600	.9588	1.2887	1.6719	39.5747	53.5950	18.1761	.0969	3.3468
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.2100	.9697	1.3619	1.7453	38.7075	52.2031	17.5156	.1045	3.2604
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.2600	.9779	1.4374	1.8195	37.8147	50.8285	16.8551	.1130	3.1739
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.3100	.9835	1.5152	1.8947	36.8981	49.4673	16.1946	.1224	3.0875
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.3600	.9866	1.5955	1.9712	35.9586	48.1163	15.5341	.1328	3.0010
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.4100	.9872	1.6786	2.0491	34.9968	46.7721	14.8735	.1443	2.9145
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.4600	.9852	1.7645	2.1287	34.0124	45.4319	14.2130	.1572	2.8279
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.5100	.9808	1.8535	2.2102	33.0050	44.0926	13.5525	.1715	2.7413
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.5600	.9738	1.9459	2.2939	31.9736	42.7514	12.8920	.1875	2.6547
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.6100	.9642	2.0419	2.3800	30.9166	41.4051	12.2315	.2054	2.5680
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.6600	.9519	2.1417	2.4689	29.8324	40.0509	11.5710	.2255	2.4813
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.7100	.9369	2.2459	2.5609	28.7183	38.6853	10.9105	.2481	2.3945
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.7600	.9190	2.3547	2.6563	27.5715	37.3050	10.2499	.2736	2.3076
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.8100	.8980	2.4686	2.7557	26.3882	35.9061	9.5894	.3023	2.2206
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.8600	.8738	2.5880	2.8594	25.1639	34.4844	8.9289	.3348	2.1335
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.9100	.8461	2.7137	2.9680	23.8930	33.0350	8.2684	.3715	2.0462
5.0	2.4602	1.4333	1.00	.4065	2.4602	1.9600	.8146	2.8462	3.0822	22.5684	31.5523	7.6079	.4131	1.9588
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.0100	.7789	2.9864	3.2028	21.1810	30.0295	6.9474	.4600	1.8711
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.0600	.7384	3.1353	3.3307	19.7193	28.4586	6.2869	.5130	1.7830
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.1100	.6924	3.2942	3.4670	18.1678	26.8293	5.6264	.5723	1.6946
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.1600	.6400	3.4645	3.6134	16.5055	25.1287	4.9658	.6382	1.6055
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.2100	.5799	3.6483	3.7718	14.7023	23.3395	4.3053	.7103	1.5156
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.2600	.5099	3.8484	3.9452	12.7137	21.4380	3.6448	.7868	1.4244
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.3100	.4268	4.0692	4.1381	10.4680	19.3893	2.9843	.8642	1.3311
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.3600	.3250	4.3180	4.3587	7.8398	17.1389	2.3238	.9348	1.2338
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.4100	.1929	4.6108	4.6255	4.5756	14.5919	1.6633	.9852	1.1285
5.0	2.4602	1.4333	1.00	.4065	2.4602	2.4600	.0010	4.9980	4.9980	.0239	11.5513	1.0028	1.0000	1.0000
5.0	2.4602	1.4333	1.08	.4546	2.1997	.4600	.0949	.4353	.4444	11.6535	87.1525	26.9371	.0357	5.3810
5.0	2.4602	1.4333	1.08	.4546	2.1997	.5100	.2993	.4868	.5645	30.4090	80.8451	26.2238	.0375	5.2877
5.0	2.4602	1.4333	1.08	.4546	2.1997	.5600	.4065	.5393	.6664	35.9727	77.3255	25.5104	.0394	5.1944
5.0	2.4602	1.4333	1.08	.4546	2.1997	.6100	.4856	.5928	.7577	38.5240	74.5521			

5.0	2.4602	1.4333	1.16	.5098	1.9614	.5100	.0155	.4839	.4841	1.7375	89.5005	25.6848	.0349	6.1746
5.0	2.4602	1.4333	1.16	.5098	1.9614	.5600	.2591	.5357	.5902	24.8303	81.4537	24.9186	.0363	6.0742
5.0	2.4602	1.4333	1.16	.5098	1.9614	.6100	.3593	.5884	.6829	30.4968	77.8888	24.1524	.0378	5.9758
5.0	2.4602	1.4333	1.16	.5098	1.9614	.6600	.4313	.6420	.7670	33.1659	75.1279	23.3862	.0394	5.8733
5.0	2.4602	1.4333	1.16	.5098	1.9614	.7100	.4879	.6967	.8453	34.4969	72.7801	22.6200	.0411	5.7729
5.0	2.4602	1.4333	1.16	.5098	1.9614	.7600	.5340	.7523	.9194	35.0911	70.6941	21.8538	.0428	5.6724
5.0	2.4602	1.4333	1.16	.5098	1.9614	.8100	.5720	.8090	.9904	35.2301	68.7930	21.0876	.0447	5.5718
5.0	2.4602	1.4333	1.16	.5098	1.9614	.8600	.6036	.8668	1.0590	35.0652	67.0314	20.3214	.0466	5.4712
5.0	2.4602	1.4333	1.16	.5098	1.9614	.9100	.6298	.9257	1.1258	34.6850	65.3800	19.5553	.0486	5.3706
5.0	2.4602	1.4333	1.16	.5098	1.9614	.9600	.6511	.9859	1.1912	34.1449	63.8190	18.7891	.0507	5.2699
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.0100	.6680	1.0473	1.2556	33.4810	62.3343	18.0229	.0528	5.1691
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.0600	.6810	1.1100	1.3193	32.7173	60.9160	17.2567	.0551	5.0683
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.1100	.6901	1.1741	1.3826	31.8703	59.5569	16.4905	.0575	4.9674
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.1600	.6956	1.2397	1.4455	30.9510	58.2521	15.7243	.0599	4.8663
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.2100	.6977	1.3068	1.5084	29.9667	56.9988	14.9581	.0624	4.7652
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.2600	.6962	1.3755	1.5715	28.9219	55.7959	14.1919	.0650	4.6640
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.3100	.6912	1.4458	1.6348	27.8187	54.6442	13.4257	.0676	4.5626
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.3600	.6827	1.5180	1.6986	26.6575	53.5466	12.6595	.0703	4.4610
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.4100	.6706	1.5921	1.7630	25.4365	52.5089	11.8933	.0730	4.3592
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.4600	.6547	1.6682	1.8282	24.1523	51.5404	11.1271	.0757	4.2572
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.5100	.6347	1.7464	1.8945	22.7993	50.6553	10.3609	.0783	4.1548
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.5600	.6104	1.8270	1.9619	21.3694	49.8758	9.5947	.0808	4.0521
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.6100	.5813	1.9100	2.0307	19.8512	49.2357	8.8285	.0831	3.9489
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.6600	.5467	1.9958	2.1012	18.2285	48.7892	8.0623	.0852	3.8451
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.7100	.5058	2.0844	2.1737	16.4780	48.6256	7.2961	.0869	3.7405
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.7600	.4573	2.1763	2.2486	14.5643	48.9035	6.5299	.0881	3.6348
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.8100	.3989	2.2719	2.3264	12.4294	49.9301	5.7637	.0885	3.5277
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.8600	.3268	2.3717	2.4080	9.9641	52.3955	4.9976	.0879	3.4184
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.9100	.2310	2.4766	2.4946	6.8963	58.3143	4.2314	.0861	3.3057
5.0	2.4602	1.4333	1.16	.5098	1.9614	1.9600	.0379	2.5880	2.5885	1.1088	83.3268	3.4652	.0825	3.1877

5.0	2.4602	1.4333	1.24	.5761	1.7357	.5800	.0652	.5533	.5568	6.4182	87.7069	23.9992	.0342	6.9791
5.0	2.4602	1.4333	1.24	.5761	1.7357	.6300	.2381	.6057	.6475	20.6998	81.4283	23.1801	.0353	6.8715
5.0	2.4602	1.4333	1.24	.5761	1.7357	.6800	.3227	.6589	.7294	25.3875	78.0848	22.3611	.0364	6.7639
5.0	2.4602	1.4333	1.24	.5761	1.7357	.7300	.3830	.7131	.8052	27.6826	75.4857	21.5421	.0376	6.6562
5.0	2.4602	1.4333	1.24	.5761	1.7357	.7800	.4293	.7681	.8768	28.8260	73.2835	20.7230	.0389	6.5485
5.0	2.4602	1.4333	1.24	.5761	1.7357	.8300	.4658	.8242	.9451	29.3004	71.3409	19.9040	.0401	6.4406
5.0	2.4602	1.4333	1.24	.5761	1.7357	.8800	.4947	.8813	1.0110	29.3426	69.5880	19.0850	.0414	6.3327
5.0	2.4602	1.4333	1.24	.5761	1.7357	.9300	.5173	.9394	1.0749	29.0840	67.9844	18.2659	.0427	6.2247
5.0	2.4602	1.4333	1.24	.5761	1.7357	.9800	.5344	.9986	1.1374	28.6035	66.5055	17.4469	.0440	6.1166
5.0	2.4602	1.4333	1.24	.5761	1.7357	1.0300	.5465	1.0590	1.1988	27.9507	65.1362	16.6279	.0453	6.0084
5.0	2.4602	1.4333	1.24	.5761	1.7357	1.0800	.5540	1.1205	1.2593	27.1576	63.8682	15.8088	.0466	5.9000
5.0	2.4602	1.4333	1.24	.5761	1.7357	1.1300	.5571	1.1833	1.3193	26.2450	62.6981	14.9898	.0479	5.7915
5.0	2.4602	1.4333	1.24	.5761	1.7357	1.1800	.5559	1.2474	1.3790	25.2259	61.6277	14.1708	.0491	5.6827
5.0	2.4602	1.4333	1.24	.5761	1.7357	1.2300	.5504	1.3130	1.4384	24.1074	60.6636	13.3517	.0503	5.5738
5.0	2.4602													

PROPERTIES OF AN OBLIQUE DETONATION WAVE GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
8.0	2.6350	1.5073	1.00	.3795	2.6350	.3800	.0332	.3578	.3591	5.0006	89.1553	72.2017	.0028	10.3988
8.0	2.6350	1.5073	1.00	.3795	2.6350	.4300	.3310	.4089	.5160	37.5892	81.4627	70.6229	.0030	10.1929
8.0	2.6350	1.5073	1.00	.3795	2.6350	.4800	.4616	.4611	.6397	43.8780	77.9112	69.0442	.0032	9.9869
8.0	2.6350	1.5073	1.00	.3795	2.6350	.5300	.5581	.5145	.7472	46.4807	75.1504	67.4655	.0034	9.7809
8.0	2.6350	1.5073	1.00	.3795	2.6350	.5800	.6364	.5691	.8448	47.6536	72.7940	65.8868	.0037	9.5750
8.0	2.6350	1.5073	1.00	.3795	2.6350	.6300	.7025	.6249	.9359	48.1126	70.6923	64.3080	.0040	9.3690
8.0	2.6350	1.5073	1.00	.3795	2.6350	.6800	.7596	.6820	1.0225	48.1630	68.7683	62.7293	.0043	9.1630
8.0	2.6350	1.5073	1.00	.3795	2.6350	.7300	.8096	.7405	1.1058	47.9584	66.9765	61.1506	.0046	8.9571
8.0	2.6350	1.5073	1.00	.3795	2.6350	.7800	.8537	.8005	1.1868	47.5843	65.2868	59.5718	.0049	8.7511
8.0	2.6350	1.5073	1.00	.3795	2.6350	.8300	.8929	.8620	1.2662	47.0923	63.6786	57.9931	.0053	8.5451
8.0	2.6350	1.5073	1.00	.3795	2.6350	.8800	.9278	.9252	1.3444	46.5149	62.1366	56.4144	.0058	8.3371
8.0	2.6350	1.5073	1.00	.3795	2.6350	.9300	.9588	.9901	1.4220	45.8738	60.6492	54.8357	.0062	8.1331
8.0	2.6350	1.5073	1.00	.3795	2.6350	.9800	.9863	1.0567	1.4993	45.1838	59.2075	53.2569	.0068	7.9271
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.0300	1.0106	1.1254	1.5766	44.4550	57.8040	51.6782	.0074	7.7211
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.0800	1.0319	1.1961	1.6543	43.6948	56.4327	50.0995	.0080	7.5151
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.1300	1.0504	1.2690	1.7325	42.9084	55.0886	48.5207	.0088	7.3091
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.1800	1.0662	1.3442	1.8116	42.0997	53.7673	46.9420	.0096	7.1031
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.2300	1.0795	1.4219	1.8919	41.2711	52.4650	45.3633	.0105	6.8971
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.2800	1.0903	1.5023	1.9735	40.4247	51.1783	43.7846	.0116	6.6911
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.3300	1.0988	1.5856	2.0567	39.5618	49.9042	42.2058	.0128	6.4851
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.3800	1.1049	1.6720	2.1419	38.6829	48.6398	40.6271	.0142	6.2790
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.4300	1.1088	1.7617	2.2293	37.7886	47.3825	39.0484	.0157	6.0730
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.4800	1.1104	1.8551	2.3191	36.8788	46.1298	37.4696	.0175	5.8669
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.5300	1.1097	1.9523	2.4118	35.9532	44.8792	35.8909	.0196	5.6609
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.5800	1.1068	2.0539	2.5077	35.0114	43.6284	34.3122	.0220	5.4548
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.6300	1.1016	2.1601	2.6071	34.0524	42.3750	32.7335	.0248	5.2487
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.6800	1.0941	2.2714	2.7106	33.0751	41.1165	31.1547	.0281	5.0425
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.7300	1.0843	2.3883	2.8186	32.0783	39.8504	29.5760	.0320	4.8364
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.7800	1.0721	2.5114	2.9318	31.0601	38.5741	27.9973	.0365	4.6302
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.8300	1.0573	2.6415	3.0507	30.0187	37.2846	26.4185	.0420	4.4241
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.8800	1.0400	2.7792	3.1761	28.9514	35.9789	24.8398	.0486	4.0116
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.9300	1.0200	2.9255	3.3089	27.8555	34.6536	23.2611	.0565	3.8052
8.0	2.6350	1.5073	1.00	.3795	2.6350	1.9800	.9970	3.0816	3.4502	26.7273	33.3046	21.6824	.0662	3.5989
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.0300	.9710	3.2488	3.6013	25.5627	31.9275	20.1036	.0782	3.3924
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.0800	.9416	3.4286	3.7635	24.3563	30.5171	18.5249	.0931	3.1858
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.1300	.9086	3.6230	3.9389	23.1016	29.0672	16.9462	.1118	3.0792
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.1800	.8715	3.8345	4.1296	21.7903	27.5700	15.3675	.1356	2.9723
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.2300	.8298	4.0662	4.3386	20.4116	26.0162	13.7887	.1662	2.7723
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.2800	.7829	4.3219	4.5696	18.9513	24.3936	12.2100	.2060	2.5652
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.3300	.7297	4.6069	4.8276	17.3894	22.6860	10.6313	.2585	2.3578
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.3800	.6689	4.9281	5.1191	15.6974	20.8713	9.0525	.3284	2.1498
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.4300	.5983	5.2954	5.4536	13.8311	18.9172	7.4738	.4221	1.9410
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.4800	.5143	5.7234	5.8452	11.7169	16.7737	5.8951	.5474	1.7306
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.5300	.4104	6.2360	6.3176	9.2145	14.3544	4.3164	.7090	1.5172
8.0	2.6350	1.5073	1.00	.3795	2.6350	2.5800	.2709	6.8822	6.9200	5.9933	11.4846	2.7376	.8920	1.2954
8.0	2.6350	1.5												

8.0	2.6350	1.5073	1.16	.4697	2.1290	.4700	.0223	.4447	.4452	2.7175	89.3534	66.9855	.0027	13.8515
8.0	2.6350	1.5073	1.16	.4697	2.1290	.5200	.2820	.4964	.5647	28.4740	81.6716	65.1542	.0029	13.6123
8.0	2.6350	1.5073	1.16	.4697	2.1290	.5700	.3919	.5489	.6662	34.5110	78.2037	63.3229	.0030	13.3732
8.0	2.6350	1.5073	1.16	.4697	2.1290	.6200	.4719	.6025	.7571	37.2737	75.5153	61.4916	.0032	13.1340
8.0	2.6350	1.5073	1.16	.4697	2.1290	.6700	.5355	.6571	.8412	38.6322	73.2268	59.6602	.0033	12.8948
8.0	2.6350	1.5073	1.16	.4697	2.1290	.7200	.5881	.7128	.9203	39.2401	71.1915	57.8289	.0035	12.6555
8.0	2.6350	1.5073	1.16	.4697	2.1290	.7700	.6324	.7696	.9959	39.3954	69.3341	55.9976	.0037	12.4163
8.0	2.6350	1.5073	1.16	.4697	2.1290	.8200	.6701	.8276	1.0687	39.2550	67.6101	54.1663	.0039	12.1770
8.0	2.6350	1.5073	1.16	.4697	2.1290	.8700	.7022	.8868	1.1396	38.9095	65.9907	52.3350	.0041	11.9377
8.0	2.6350	1.5073	1.16	.4697	2.1290	.9200	.7296	.9473	1.2090	38.4151	64.4559	50.5036	.0043	11.6984
8.0	2.6350	1.5073	1.16	.4697	2.1290	.9700	.7526	1.0092	1.2773	37.8079	62.9915	48.6723	.0045	11.4590
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.0200	.7718	1.0724	1.3448	37.1124	61.5868	46.8410	.0048	11.2196
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.0700	.7873	1.1372	1.4119	36.3451	60.2338	45.0097	.0050	10.9802
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.1200	.7994	1.2035	1.4787	35.5177	58.9262	43.1783	.0053	10.7407
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.1700	.8083	1.2715	1.5455	34.6382	57.6594	41.3470	.0056	10.5011
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.2200	.8140	1.3413	1.6124	33.7120	56.4298	39.5157	.0059	10.2615
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.2700	.8167	1.4128	1.6797	32.7428	55.2351	37.6844	.0063	10.0219
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.3200	.8163	1.4863	1.7476	31.7326	54.0738	35.8530	.0066	9.7821
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.3700	.8129	1.5619	1.8162	30.6820	52.9453	34.0217	.0070	9.5422
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.4200	.8064	1.6397	1.8856	29.5909	51.8502	32.1904	.0074	9.3022
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.4700	.7967	1.7197	1.9561	28.4578	50.7903	30.3591	.0078	9.0621
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.5200	.7839	1.8023	2.0278	27.2803	49.7691	28.5277	.0083	8.8219
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.5700	.7676	1.8875	2.1010	26.0546	48.7920	26.6964	.0087	8.5814
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.6200	.7477	1.9755	2.1758	24.7757	47.8676	24.8651	.0092	8.3407
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.6700	.7239	2.0665	2.2524	23.4368	47.0084	23.0338	.0096	8.0997
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.7200	.6959	2.1608	2.3310	22.0289	46.2336	21.2024	.0101	7.8584
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.7700	.6632	2.2587	2.4120	20.5397	45.5727	19.3711	.0106	7.6166
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.8200	.6250	2.3604	2.4956	18.9523	45.0725	17.5398	.0110	7.3741
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.8700	.5804	2.4662	2.5823	17.2426	44.8108	15.7085	.0114	7.1309
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.9200	.5279	2.5767	2.6723	15.3742	44.9260	13.8771	.0117	6.8865
8.0	2.6350	1.5073	1.16	.4697	2.1290	1.9700	.4653	2.6923	2.7664	13.2880	45.6883	12.0458	.0119	6.6405
8.0	2.6350	1.5073	1.16	.4697	2.1290	2.0200	.3880	2.8138	2.8653	10.8740	47.7077	10.2145	.0119	6.3919
8.0	2.6350	1.5073	1.16	.4697	2.1290	2.0700	.2863	2.9422	2.9702	7.8732	52.7594	8.3832	.0117	6.1391
8.0	2.6350	1.5073	1.16	.4697	2.1290	2.1200	.1113	3.0793	3.0836	3.0064	71.1731	6.5518	.0110	5.8787

8.0	2.6350	1.5073	1.24	.5245	1.9066	.5300	.0862	.5038	.5104	9.2410	87.3115	63.4492	.0027	15.6856
8.0	2.6350	1.5073	1.24	.5245	1.9066	.5800	.2688	.5559	.6127	24.8683	81.4414	61.4916	.0028	15.4298
8.0	2.6350	1.5073	1.24	.5245	1.9066	.6300	.3635	.6089	.7029	29.9837	78.1762	59.5340	.0029	15.1739
8.0	2.6350	1.5073	1.24	.5245	1.9066	.6800	.4324	.6628	.7855	32.4534	75.6174	57.5763	.0030	14.9180
8.0	2.6350	1.5073	1.24	.5245	1.9066	.7300	.4867	.7177	.8626	33.6922	73.4356	55.6187	.0032	14.6621
8.0	2.6350	1.5073	1.24	.5245	1.9066	.7800	.5308	.7737	.9358	34.2378	71.4980	53.6611	.0033	14.4061
8.0	2.6350	1.5073	1.24	.5245	1.9066	.8300	.5672	.8307	1.0061	34.3479	69.7362	51.7035	.0034	14.1501
8.0	2.6350	1.5073	1.24	.5245	1.9066	.8800	.5972	.8888	1.0741	34.1633	68.1092	49.7458	.0036	13.8940
8.0	2.6350	1.5073	1.24	.5245	1.9066	.9300	.6218	.9481	1.1405	33.7676	66.5912	47.7882	.0037	13.6379
8.0	2.6350	1.5073	1.24	.5245	1.9066	.9800	.6416	1.0085	1.2055	33.2133	65.1645	45.8306	.0039	13.3817
8.0	2.6350	1.5073	1.24	.5245	1.9066									

8.0	2.6350	1.5073	1.32	.5906	1.6931	.6000	.1002	.5735	.5815	9.4845	86.6126	59.1929	.0026	17.5780
8.0	2.6350	1.5073	1.32	.5906	1.6931	.6500	.2464	.6262	.6697	20.7596	81.4740	57.1090	.0027	17.3054
8.0	2.6350	1.5073	1.32	.5906	1.6931	.7000	.3262	.6797	.7499	24.9839	78.4319	55.0251	.0028	17.0327
8.0	2.6350	1.5073	1.32	.5906	1.6931	.7500	.3835	.7342	.8246	27.0845	76.0454	52.9412	.0029	16.7600
8.0	2.6350	1.5073	1.32	.5906	1.6931	.8000	.4276	.7896	.8953	28.1247	74.0231	50.8573	.0030	16.4872
8.0	2.6350	1.5073	1.32	.5906	1.6931	.8500	.4622	.8460	.9629	28.5354	72.2455	48.7733	.0031	16.2143
8.0	2.6350	1.5073	1.32	.5906	1.6931	.9000	.4893	.9034	1.0282	28.5328	70.6514	46.6894	.0032	15.9413
8.0	2.6350	1.5073	1.32	.5906	1.6931	.9500	.5102	.9618	1.0917	28.2381	69.2056	44.6055	.0033	15.6682
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.0000	.5256	1.0214	1.1539	27.7248	67.8875	42.5216	.0034	15.3950
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.0500	.5359	1.0821	1.2149	27.0391	66.6857	40.4377	.0035	15.1216
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.1000	.5415	1.1440	1.2751	26.2104	65.5953	38.3537	.0036	14.8481
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.1500	.5426	1.2072	1.3348	25.2573	64.6172	36.2698	.0037	14.5743
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.2000	.5391	1.2717	1.3941	24.1905	63.7582	34.1859	.0037	14.3004
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.2500	.5310	1.3376	1.4532	23.0145	63.0316	32.1020	.0038	14.0261
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.3000	.5181	1.4049	1.5124	21.7283	62.4595	30.0180	.0039	13.7515
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.3500	.5001	1.4737	1.5716	20.3251	62.0766	27.9341	.0039	13.4765
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.4000	.4764	1.5442	1.6311	18.7910	61.9366	25.8502	.0040	13.2010
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.4500	.4461	1.6163	1.6911	17.1021	62.1252	23.7663	.0040	12.9219
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.5000	.4081	1.6903	1.7517	15.2182	62.7859	21.6824	.0040	12.6479
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.5500	.3598	1.7661	1.8131	13.0672	64.1789	19.5984	.0040	12.3699
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.6000	.2966	1.8441	1.8755	10.5013	66.8457	17.5145	.0040	12.0904
8.0	2.6350	1.5073	1.32	.5906	1.6931	1.6500	.2058	1.9242	1.9392	7.1094	72.2657	15.4306	.0039	11.8068

8.0	2.6350	1.5073	1.40	.6777	1.4755	.6800	.0420	.6542	.6555	3.5353	88.4445	54.1410	.0026	19.5182
8.0	2.6350	1.5073	1.40	.6777	1.4755	.7300	.1952	.7076	.7325	14.9734	82.5695	51.9308	.0026	19.2286
8.0	2.6350	1.5073	1.40	.6777	1.4755	.7800	.2637	.7618	.8042	18.6762	79.6737	49.7206	.0027	18.9389
8.0	2.6350	1.5073	1.40	.6777	1.4755	.8300	.3098	.8169	.8720	20.4663	77.4977	47.5104	.0027	18.6491
8.0	2.6350	1.5073	1.40	.6777	1.4755	.8800	.3427	.8729	.9368	21.2783	75.7254	45.3001	.0028	18.3592
8.0	2.6350	1.5073	1.40	.6777	1.4755	.9300	.3661	.9299	.9994	21.4862	74.2384	43.0899	.0028	18.0690
8.0	2.6350	1.5073	1.40	.6777	1.4755	.9800	.3816	.9879	1.0602	21.2771	72.9838	40.8797	.0029	17.7787
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.0300	.3903	1.0469	1.1195	20.7552	71.9392	38.6695	.0029	17.4882
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.0800	.3927	1.1069	1.1778	19.9800	71.1022	36.4593	.0030	17.1973
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.1300	.3887	1.1681	1.2353	18.9843	70.4874	34.2490	.0030	16.9062
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.1800	.3784	1.2305	1.2922	17.7811	70.1284	32.0388	.0030	16.6146
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.2300	.3612	1.2940	1.3487	16.3655	70.0852	29.8286	.0031	16.3226
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.2800	.3361	1.3589	1.4049	14.7116	70.4610	27.6184	.0031	16.0300
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.3300	.3012	1.4250	1.4611	12.7593	71.4403	25.4082	.0031	15.7366
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.3800	.2526	1.4926	1.5174	10.3738	73.3925	23.1979	.0030	15.4423
8.0	2.6350	1.5073	1.40	.6777	1.4755	1.4300	.1800	1.5617	1.5741	7.1742	77.2737	20.9877	.0030	15.1467

8.0	2.6350	1.5073	1.48	.8256	1.2113	.8300	.0405	.8114	.8123	2.7948	88.2629	45.4138	.0025	21.1270
8.0	2.6350	1.5073	1.48	.8256	1.2113	.8800	.1325	.8666	.8763	8.5621	84.1177	43.0773	.0025	20.8198
8.0	2.6350	1.5073	1.48	.8256	1.2113	.9300	.1690	.9227	.9378	10.2985	82.2147	40.7408	.0025	20.5124
8.0	2.6350	1.5073	1.48	.8256	1.2113	.9800	.1862	.9796	.9972	10.7569	81.0783	38.4043	.0025	20.2047
8.0	2.6350	1.5073	1.48	.8256	1.2113	1.0300	.1895	1.0376	1.0550	10.4227	80.5312	36.0677	.0025	19.8966
8.0	2.6350	1.5073	1.48	.8256	1.2113	1.0800	.1797							

PROPERTIES OF AN OBLIQUE DETONATION WAVE GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
11.0	2.6956	1.5333	1.00	.3710	2.6956	.3800	.1440	.3582	.3831	20.7507	86.4422	136.1254	.0004	18.7375
11.0	2.6956	1.5333	1.00	.3710	2.6956	.4300	.3641	.4095	.5367	40.2591	80.8693	133.2077	.0004	18.3569
11.0	2.6956	1.5333	1.00	.3710	2.6956	.4800	.4894	.4620	.6597	45.5529	77.5453	130.2900	.0005	17.9764
11.0	2.6956	1.5333	1.00	.3710	2.6956	.5300	.5842	.5156	.7674	47.7869	74.9022	127.3723	.0005	17.5958
11.0	2.6956	1.5333	1.00	.3710	2.6956	.5800	.6300	.6266	.8656	48.7761	72.6252	124.4546	.0005	17.2152
11.0	2.6956	1.5333	1.00	.3710	2.6956	.6800	.7281	.6841	.9576	49.1301	70.5841	121.5369	.0006	16.8346
11.0	2.6956	1.5333	1.00	.3710	2.6956	.7300	.8360	.7430	1.0452	49.1162	68.7097	118.6192	.0006	16.4540
11.0	2.6956	1.5333	1.00	.3710	2.6956	.7800	.8807	.8035	1.2119	48.8708	66.9605	115.7015	.0007	16.0734
11.0	2.6956	1.5333	1.00	.3710	2.6956	.8300	.9206	.8656	1.2926	47.9636	63.7348	109.8661	.0008	15.3122
11.0	2.6956	1.5333	1.00	.3710	2.6956	.8800	.9563	.9293	1.3724	47.3782	62.2247	106.9484	.0009	14.9316
11.0	2.6956	1.5333	1.00	.3710	2.6956	.9300	.9881	.9949	1.4516	46.7346	60.7674	104.0307	.0010	14.5510
11.0	2.6956	1.5333	1.00	.3710	2.6956	.9800	1.0165	1.0624	1.5306	46.0462	59.3543	101.1130	.0010	14.1704
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.0300	1.0417	1.1319	1.6098	45.3226	57.9784	98.1953	.0011	13.7898
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.0800	1.0639	1.2035	1.6894	44.5705	56.6340	95.2776	.0012	13.4091
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.1300	1.0834	1.2775	1.7698	43.7947	55.3162	92.3598	.0014	13.0285
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.1800	1.1003	1.3540	1.8513	42.9987	54.0208	89.4421	.0015	12.6479
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.2300	1.1147	1.4331	1.9340	42.1850	52.7443	86.5244	.0017	12.2673
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.2800	1.1267	1.5150	2.0183	41.3554	51.4833	83.6067	.0018	11.8867
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.3300	1.1364	1.6000	2.1045	40.5111	50.2350	80.6890	.0020	11.5061
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.3800	1.1438	1.6883	2.1928	39.6527	48.9967	77.7713	.0023	11.1254
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.4300	1.1490	1.7802	2.2837	38.7808	47.7659	74.8536	.0025	10.7448
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.4800	1.1520	1.8760	2.3773	37.8953	46.5402	71.9359	.0029	10.3642
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.5300	1.1528	1.9760	2.4741	36.9961	45.3173	69.0182	.0032	9.9835
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.5800	1.1514	2.0806	2.5745	36.0827	44.0949	66.1005	.0037	9.6029
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.6300	1.1479	2.1903	2.6789	35.1545	42.8709	63.1828	.0042	9.2222
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.6800	1.1422	2.3056	2.7880	34.2106	41.6430	60.2651	.0048	8.8415
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.7300	1.1342	2.4270	2.9021	33.2710	39.1661	54.4297	.0055	8.4608
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.7800	1.1240	2.5553	3.0221	32.2710	37.9121	51.5120	.0064	8.0802
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.8300	1.1114	2.6913	3.1487	31.2722	37.9121	51.5120	.0074	7.6995
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.8800	1.0965	2.8358	3.2829	30.2517	36.6440	48.5943	.0087	7.3187
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.9300	1.0790	2.9900	3.4256	29.2072	35.3589	45.6766	.0103	6.9380
11.0	2.6956	1.5333	1.00	.3710	2.6956	1.9800	1.0588	3.1553	3.5781	28.1359	34.0532	42.7588	.0124	6.5572
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.0300	1.0359	3.3332	3.7421	27.0345	32.7232	39.8411	.0149	6.1764
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.0800	1.0099	3.5257	3.9194	25.8990	31.3642	36.9234	.0182	5.7956
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.1300	0.9808	3.7353	4.1123	24.7247	29.9712	34.0057	.0225	5.4148
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.1800	0.9481	3.9650	4.3238	23.5056	28.5378	31.0880	.0283	5.0338
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.2300	0.9116	4.2187	4.5576	22.2342	27.0563	28.1703	.0360	4.6528
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.2800	0.8707	4.5016	4.8187	20.9006	25.5171	25.2526	.0467	4.2718
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.3300	0.8247	4.8204	5.1135	19.4923	23.9079	22.3349	.0620	3.8905
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.3800	0.7729	5.1846	5.4511	17.9915	22.2120	19.4172	.0843	3.5091
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.4300	0.7139	5.6073	5.8443	16.3731	20.4067	16.4995	.1179	3.1274
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.4800	0.6459	6.1080	6.3118	14.5989	18.4587	13.5818	.1708	2.7452
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.5300	0.5658	6.7175	6.8834	12.6057	16.3153	10.6641	.2572	2.3621
11.0	2.6956	1.5333	1.00	.3710	2.6956	2.5800	0.4677	7.4876	7.6096	10.2748	13.8849	7.7464	.4039	1.9771
11.0	2.6956	1.5333	1.00	.3710	2.6956	2								

11.0	2.6956	1.5333	1.16	.4574	2.1862	.4600	.0665	.4351	.4396	8.2237	88.1361	127.1622	.0004	25.0422
11.0	2.6956	1.5333	1.16	.4574	2.1862	.5100	.2955	.4867	.5625	30.0907	81.5648	123.7777	.0004	24.6005
11.0	2.6956	1.5333	1.16	.4574	2.1862	.5600	.4065	.5393	.6664	35.9767	78.1819	120.3932	.0004	24.1588
11.0	2.6956	1.5333	1.16	.4574	2.1862	.6100	.4880	.5929	.7593	38.6619	75.5420	117.0086	.0005	23.7170
11.0	2.6956	1.5333	1.16	.4574	2.1862	.6600	.5533	.6476	.8450	39.9727	73.2886	113.6241	.0005	23.2753
11.0	2.6956	1.5333	1.16	.4574	2.1862	.7100	.6075	.7033	.9257	40.5509	71.2812	110.2395	.0005	22.8335
11.0	2.6956	1.5333	1.16	.4574	2.1862	.7600	.6534	.7603	1.0026	40.6885	69.4473	106.8550	.0005	22.3918
11.0	2.6956	1.5333	1.16	.4574	2.1862	.8100	.6928	.8184	1.0769	40.5394	67.7436	103.4705	.0006	21.9500
11.0	2.6956	1.5333	1.16	.4574	2.1862	.8600	.7266	.8778	1.1491	40.1921	66.1420	100.0859	.0006	21.5081
11.0	2.6956	1.5333	1.16	.4574	2.1862	.9100	.7555	.9385	1.2198	39.7016	64.6230	96.7014	.0007	21.0663
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.0100	.8011	1.0006	1.2895	39.1033	63.1725	93.3169	.0007	20.6244
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.0600	.8184	1.0642	1.3583	38.4209	61.7799	89.9323	.0008	19.7406
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.1100	.8323	1.1293	1.4268	37.6708	60.4371	86.5478	.0008	19.2986
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.1600	.8431	1.2645	1.4950	36.8643	59.1379	83.1632	.0009	18.8566
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.2100	.8508	1.3347	1.6317	35.1117	56.6520	76.3942	.0009	18.4145
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.2600	.8555	1.4069	1.7005	34.1748	55.4586	73.0096	.0010	17.9724
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.3100	.8573	1.4811	1.7700	33.2011	54.2952	69.6251	.0010	17.5302
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.3600	.8562	1.5574	1.8403	32.1915	53.1607	66.2405	.0011	17.0879
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.4100	.8521	1.6359	1.9115	31.1464	52.0546	62.8560	.0012	16.6456
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.4600	.8451	1.7169	1.9838	30.0649	50.9773	59.4715	.0012	16.2031
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.5100	.8351	1.8005	2.0575	28.9454	49.9304	56.0869	.0013	15.7605
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.5600	.8220	1.8868	2.1327	27.7853	48.9168	52.7024	.0014	15.3178
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.6100	.8056	1.9760	2.2096	26.5810	47.9410	49.3178	.0015	14.8749
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.6600	.7857	2.0684	2.2884	25.3276	47.0101	45.9333	.0016	14.4318
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.7100	.7620	2.1642	2.3694	24.0189	46.1347	42.5488	.0017	13.9884
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.7600	.7343	2.2637	2.4528	22.6463	45.3307	39.1642	.0018	13.5448
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.8100	.7020	2.3671	2.5390	21.1987	44.6224	35.7797	.0019	13.1006
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.8600	.6645	2.4749	2.6281	19.6607	44.0480	32.3952	.0020	12.6560
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.9100	.6210	2.5874	2.7207	18.0106	43.6702	29.0106	.0021	12.2106
11.0	2.6956	1.5333	1.16	.4574	2.1862	1.9600	.5700	2.7050	2.8171	16.2166	43.5981	25.6261	.0021	11.7641
11.0	2.6956	1.5333	1.16	.4574	2.1862	2.0100	.5096	2.8284	2.9179	14.2275	44.0385	22.2415	.0022	11.3162
11.0	2.6956	1.5333	1.16	.4574	2.1862	2.0600	.4361	2.9582	3.0238	11.9532	45.4370	18.8570	.0022	10.8659
11.0	2.6956	1.5333	1.16	.4574	2.1862	2.1100	.3417	3.0954	3.1357	9.2000	48.9769	15.4725	.0022	10.4119
11.0	2.6956	1.5333	1.16	.4574	2.1862	2.1600	.2012	3.2413	3.2553	5.3206	59.5957	12.0879	.0021	9.9508

11.0	2.6956	1.5333	1.24	.5092	1.9638	.5100	.0338	.4839	.4850	3.7971	88.9851	121.3969	.0004	28.4417
11.0	2.6956	1.5333	1.24	.5092	1.9638	.5600	.2658	.5358	.5931	25.3872	81.8719	117.7789	.0004	27.9694
11.0	2.6956	1.5333	1.24	.5092	1.9638	.6100	.3676	.5886	.6872	31.0725	78.5250	114.1609	.0004	27.4970
11.0	2.6956	1.5333	1.24	.5092	1.9638	.6600	.4411	.6424	.7727	33.7586	75.9344	110.5430	.0004	27.0246
11.0	2.6956	1.5333	1.24	.5092	1.9638	.7100	.4991	.6972	.8522	35.1060	73.7354	106.9250	.0005	26.5522
11.0	2.6956	1.5333	1.24	.5092	1.9638	.7600	.5465	.7530	.9275	35.7172	71.7863	103.3071	.0005	26.0798
11.0	2.6956	1.5333	1.24	.5092	1.9638	.8100	.5858	.8100	.9996	35.8740	70.0149	99.6891	.0005	25.6073
11.0	2.6956	1.5333	1.24	.5092	1.9638	.8600	.6186	.8680	1.0692	35.7279	68.3788	96.0712	.0005	25.1348
11.0	2.6956	1.5333	1.24	.5092	1.9638	.9100	.6459	.9272	1.1371	35.3675	66.8505	92.4532	.0006	24.6622
11.0	2.6956	1.5333	1.24	.5092	1.9638	.9600	.6684	.9877	1.2035	34.8				

11.0	2.6956	1.5333	1.32	.5706	1.7526	.5800	.1045	.5535	.5625	10.2175	86.6127	113.6241	.0004	31.8553
11.0	2.6956	1.5333	1.32	.5706	1.7526	.6300	.2569	.6061	.6545	22.1866	81.4859	109.7727	.0004	31.3523
11.0	2.6956	1.5333	1.32	.5706	1.7526	.6800	.3407	.6595	.7376	26.6150	78.4425	105.9213	.0004	30.8492
11.0	2.6956	1.5333	1.32	.5706	1.7526	.7300	.4015	.7138	.8147	28.8115	76.0488	102.0700	.0004	30.3460
11.0	2.6956	1.5333	1.32	.5706	1.7526	.7800	.4487	.7691	.8873	29.9099	74.0138	98.2186	.0004	29.8428
11.0	2.6956	1.5333	1.32	.5706	1.7526	.8300	.4863	.8254	.9566	30.3652	72.2181	94.3672	.0005	29.3396
11.0	2.6956	1.5333	1.32	.5706	1.7526	.8800	.5164	.8827	1.0235	30.4030	70.5995	90.5159	.0005	28.8362
11.0	2.6956	1.5333	1.32	.5706	1.7526	.9300	.5402	.9411	1.0884	30.1498	69.1220	86.6645	.0005	28.3328
11.0	2.6956	1.5333	1.32	.5706	1.7526	.9800	.5586	1.0007	1.1518	29.6816	67.7634	82.8131	.0005	27.8292
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.0300	.5720	1.0614	1.2141	29.0465	66.5103	78.9617	.0005	27.3256
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.0800	.5809	1.1233	1.2755	28.2756	65.3551	75.1104	.0005	26.8218
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.1300	.5855	1.1865	1.3363	27.3891	64.2950	71.2590	.0006	26.3178
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.1800	.5857	1.2510	1.3967	26.3996	63.3316	67.4076	.0006	25.8137
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.2300	.5818	1.3170	1.4569	25.3143	62.4709	63.5563	.0006	25.3094
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.2800	.5735	1.3844	1.5170	24.1353	61.7244	59.7049	.0006	24.8047
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.3300	.5607	1.4533	1.5772	22.8610	61.1105	55.8535	.0006	24.2998
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.3800	.5432	1.5239	1.6377	21.4847	60.6572	52.0021	.0006	23.7946
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.4300	.5203	1.5961	1.6985	19.9947	60.4076	48.1508	.0006	23.2888
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.4800	.4915	1.6702	1.7599	18.3715	60.4287	44.2994	.0006	22.7824
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.5300	.4556	1.7462	1.8220	16.5835	60.8290	40.4480	.0006	22.2753
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.5800	.4109	1.8242	1.8848	14.5779	61.7965	36.5967	.0006	21.7672
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.6300	.3541	1.9043	1.9487	12.2572	63.6911	32.7453	.0006	21.2578
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.6800	.2782	1.9868	2.0138	9.4022	67.3366	28.8939	.0006	20.7465
11.0	2.6956	1.5333	1.32	.5706	1.7526	1.7300	.1581	2.0717	2.0804	5.2229	75.6071	25.0425	.0006	20.2324

11.0	2.6956	1.5333	1.40	.6486	1.5418	.6500	.0355	.6236	.6245	3.1229	88.7523	105.1978	.0004	35.4594
11.0	2.6956	1.5333	1.40	.6486	1.5418	.7000	.2069	.6767	.7056	16.4664	82.5311	101.1130	.0004	34.9255
11.0	2.6956	1.5333	1.40	.6486	1.5418	.7500	.2817	.7306	.7805	20.5890	79.5542	97.0282	.0004	34.3915
11.0	2.6956	1.5333	1.40	.6486	1.5418	.8000	.3331	.7855	.8508	22.6069	77.3003	92.9434	.0004	33.8574
11.0	2.6956	1.5333	1.40	.6486	1.5418	.8500	.3709	.8412	.9178	23.5756	75.4412	88.8586	.0004	33.3233
11.0	2.6956	1.5333	1.40	.6486	1.5418	.9000	.3990	.8979	.9822	23.9111	73.8527	84.7738	.0004	32.7889
11.0	2.6956	1.5333	1.40	.6486	1.5418	.9500	.4194	.9556	1.0446	23.8205	72.4756	80.6890	.0004	32.2544
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.0000	.4331	1.0144	1.1054	23.4195	71.2802	76.6042	.0004	31.7198
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.0500	.4409	1.0742	1.1650	22.7764	70.2542	72.5194	.0004	31.1849
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.1000	.4429	1.1351	1.2237	21.9320	69.3978	68.4347	.0005	30.6498
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.1500	.4394	1.1972	1.2816	20.9094	68.7226	64.3499	.0005	30.1143
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.2000	.4301	1.2605	1.3391	19.7179	68.2535	60.2651	.0005	29.5786
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.2500	.4147	1.3251	1.3962	18.3549	68.0334	56.1803	.0005	29.0423
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.3000	.3926	1.3910	1.4531	16.8042	68.1323	52.0955	.0005	28.5056
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.3500	.3625	1.4584	1.5100	15.0303	68.6677	48.0107	.0005	27.9682
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.4000	.3223	1.5271	1.5671	12.9628	69.8495	43.9259	.0005	27.4299
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.4500	.2674	1.5975	1.6244	10.4502	72.1041	39.8411	.0005	26.8905
11.0	2.6956	1.5333	1.40	.6486	1.5418	1.5000	.1858	1.6694	1.6822	7.0593	76.5751	35.7564	.0005	26.3497

11.0	2.6956	1.5333	1.48	.7652	1.3068	.7700	.0502	.7476	.7492	3.7310	88.0109	91.7996	.0004	38.6885

<tbl_r cells

PROPERTIES OF AN OBLIQUE DETONATION WAVE GAMMA = 1.3

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
14.0	2.7230	1.5451	1.00	3672	2.7230	.3700	.0803	.3483	.3564	12.2387	88.0464	221.1773	.0001	29.8316
14.0	2.7230	1.5451	1.00	3672	2.7230	.4200	.3476	.3995	.5186	39.6147	81.4159	216.4986	.0001	29.2213
14.0	2.7230	1.5451	1.00	3672	2.7230	.4700	.4799	.4518	.6456	45.5944	77.9763	211.8198	.0001	28.6111
14.0	2.7230	1.5451	1.00	3672	2.7230	.5200	.5785	.5052	.7558	48.0487	75.2861	207.1411	.0001	28.0008
14.0	2.7230	1.5451	1.00	3672	2.7230	.5700	.6588	.5600	.8559	49.1354	72.9849	202.4623	.0001	27.3905
14.0	2.7230	1.5451	1.00	3672	2.7230	.6200	.7270	.6160	.9493	49.5407	70.9302	197.7836	.0001	26.7802
14.0	2.7230	1.5451	1.00	3672	2.7230	.6700	.7861	.6734	1.0381	49.5575	69.0484	193.1048	.0001	26.1699
14.0	2.7230	1.5451	1.00	3672	2.7230	.7200	.8380	.7322	1.1236	49.3325	67.2955	188.4261	.0001	25.5596
14.0	2.7230	1.5451	1.00	3672	2.7230	.7700	.8841	.7926	1.2068	48.9476	65.6426	183.7473	.0002	24.9493
14.0	2.7230	1.5451	1.00	3672	2.7230	.8200	.9253	.8546	1.2885	48.4519	64.0696	179.0686	.0002	24.3390
14.0	2.7230	1.5451	1.00	3672	2.7230	.8700	.9621	.9183	1.3691	47.8764	62.5618	174.3899	.0002	23.7288
14.0	2.7230	1.5451	1.00	3672	2.7230	.9200	.9950	.9838	1.4491	47.2418	61.1078	169.7111	.0002	23.1185
14.0	2.7230	1.5451	1.00	3672	2.7230	.9700	1.0244	1.0512	1.5289	46.5620	59.6990	165.0324	.0002	22.5082
14.0	2.7230	1.5451	1.00	3672	2.7230	1.0200	1.0506	1.1207	1.6089	45.8469	58.3282	160.3536	.0002	21.8979
14.0	2.7230	1.5451	1.00	3672	2.7230	1.0700	1.0739	1.1924	1.6893	45.1033	56.9897	155.6749	.0003	21.2876
14.0	2.7230	1.5451	1.00	3672	2.7230	1.1200	1.0943	1.2664	1.7705	44.3363	55.6783	150.9961	.0003	20.6773
14.0	2.7230	1.5451	1.00	3672	2.7230	1.1700	1.1122	1.3429	1.8528	43.5495	54.3901	146.3174	.0003	20.0670
14.0	2.7230	1.5451	1.00	3672	2.7230	1.2200	1.1276	1.4220	1.9364	42.7454	53.1213	141.6387	.0004	19.4567
14.0	2.7230	1.5451	1.00	3672	2.7230	1.2700	1.1405	1.5041	2.0216	41.9259	51.8687	136.9599	.0004	18.8464
14.0	2.7230	1.5451	1.00	3672	2.7230	1.3200	1.1512	1.5893	2.1088	41.0923	50.6293	132.2812	.0005	18.2361
14.0	2.7230	1.5451	1.00	3672	2.7230	1.3700	1.1596	1.6778	2.1981	40.2453	49.4006	127.6024	.0005	17.6258
14.0	2.7230	1.5451	1.00	3672	2.7230	1.4200	1.1658	1.7699	2.2900	39.3855	48.1799	122.9237	.0006	17.0155
14.0	2.7230	1.5451	1.00	3672	2.7230	1.4700	1.1698	1.8660	2.3848	38.5129	46.9650	118.2449	.0006	16.4052
14.0	2.7230	1.5451	1.00	3672	2.7230	1.5200	1.1717	1.9664	2.4828	37.6274	45.7537	113.5662	.0007	15.7948
14.0	2.7230	1.5451	1.00	3672	2.7230	1.5700	1.1715	2.0715	2.5846	36.7288	44.5436	108.8874	.0008	15.1845
14.0	2.7230	1.5451	1.00	3672	2.7230	1.6200	1.1691	2.1818	2.6906	35.8164	43.3328	104.2087	.0009	14.5742
14.0	2.7230	1.5451	1.00	3672	2.7230	1.6700	1.1646	2.2977	2.8012	34.8894	42.1190	99.5300	.0011	13.9639
14.0	2.7230	1.5451	1.00	3672	2.7230	1.7200	1.1578	2.4200	2.9172	33.9470	40.9000	94.8512	.0013	13.3535
14.0	2.7230	1.5451	1.00	3672	2.7230	1.7700	1.1489	2.5493	3.0393	32.9880	39.6734	90.1725	.0015	12.7432
14.0	2.7230	1.5451	1.00	3672	2.7230	1.8200	1.1377	2.6864	3.1682	32.0108	38.4369	85.4937	.0017	12.1328
14.0	2.7230	1.5451	1.00	3672	2.7230	1.8700	1.1242	2.8324	3.3049	31.0138	37.1878	80.8150	.0020	11.5225
14.0	2.7230	1.5451	1.00	3672	2.7230	1.9200	1.1083	2.9884	3.4505	29.9950	35.9232	76.1362	.0024	10.9121
14.0	2.7230	1.5451	1.00	3672	2.7230	1.9700	1.0898	3.1557	3.6064	28.9521	34.6401	71.4575	.0029	10.3017
14.0	2.7230	1.5451	1.00	3672	2.7230	2.0200	1.0687	3.3362	3.7743	27.8821	33.3348	66.7788	.0036	9.6913
14.0	2.7230	1.5451	1.00	3672	2.7230	2.0700	1.0448	3.5318	3.9562	26.7818	32.0034	62.1000	.0044	9.0809
14.0	2.7230	1.5451	1.00	3672	2.7230	2.1200	1.0179	3.7452	4.1545	25.6470	30.6410	57.4213	.0055	8.4705
14.0	2.7230	1.5451	1.00	3672	2.7230	2.1700	.9877	3.9796	4.3724	24.4729	29.2422	52.7425	.0070	7.8600
14.0	2.7230	1.5451	1.00	3672	2.7230	2.2200	.9539	4.2392	4.6140	23.2532	27.8000	48.0638	.0090	7.2495
14.0	2.7230	1.5451	1.00	3672	2.7230	2.2700	.9162	4.5296	4.8847	21.9802	26.3064	43.3850	.0119	6.6390
14.0	2.7230	1.5451	1.00	3672	2.7230	2.3200	.8741	4.8582	5.1916	20.6437	24.7506	38.7063	.0161	6.0283
14.0	2.7230	1.5451	1.00	3672	2.7230	2.3700	.8267	5.2352	5.5446	19.2304	23.1189	34.0275	.0225	5.4176
14.0	2.7230	1.5451	1.00	3672	2.7230	2.4200	.7733	5.6752	5.9579	17.7217	21.3928	29.3488	.0326	4.8067
14.0	2.7230	1.5451	1.00	3672	2.7230	2.4700	.7125	6.1999	6.4527	16.0908	19.5460	24.6701	.0494	4.1957
14.0	2.7230	1.5451	1.00	3672	2.7230	2.5200	.6422	6.8437	7.0624	14.2960	17.5392	19.9913	.0792	3.5842
14.0	2.7230	1.5451	1.00	3672	2.7230									

14.0	2.7230	1.5451	1.16	.4521	2.2119	.4600	.1173	.4354	.4493	14.3004	86.7551	205.8684	.0001	39.7039
14.0	2.7230	1.5451	1.16	.4521	2.2119	.5100	.3130	.4871	.5715	31.5384	81.1844	200.4411	.0001	38.9957
14.0	2.7230	1.5451	1.16	.4521	2.2119	.5600	.4209	.5398	.6752	36.9313	77.9281	195.0138	.0001	38.2876
14.0	2.7230	1.5451	1.16	.4521	2.2119	.6100	.5014	.5935	.7682	39.4197	75.3509	189.5864	.0001	37.5794
14.0	2.7230	1.5451	1.16	.4521	2.2119	.6600	.5663	.6483	.8541	40.6281	73.1380	184.1591	.0001	36.8713
14.0	2.7230	1.5451	1.16	.4521	2.2119	.7100	.6204	.7042	.9351	41.1460	71.1601	178.7317	.0001	36.1631
14.0	2.7230	1.5451	1.16	.4521	2.2119	.7600	.6664	.7612	1.0124	41.2461	69.3493	173.3044	.0001	35.4549
14.0	2.7230	1.5451	1.16	.4521	2.2119	.8100	.7059	.8195	1.0871	41.0728	67.6645	167.8770	.0001	34.7466
14.0	2.7230	1.5451	1.16	.4521	2.2119	.8600	.7400	.8791	1.1598	40.7103	66.0788	162.4497	.0001	34.0384
14.0	2.7230	1.5451	1.16	.4521	2.2119	.9100	.7693	.9401	1.2310	40.2107	64.5734	157.0224	.0001	33.3301
14.0	2.7230	1.5451	1.16	.4521	2.2119	.9600	.7944	1.0025	1.3012	39.6078	63.1347	151.5950	.0002	32.6218
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.0100	.8157	1.0663	1.3706	38.9243	61.7524	146.1677	.0002	31.9135
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.0600	.8334	1.1317	1.4396	38.1760	60.4187	140.7403	.0002	31.2051
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.1100	.8479	1.1988	1.5085	37.3737	59.1275	135.3130	.0002	30.4967
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.1600	.8591	1.2676	1.5774	36.5252	57.8738	129.8856	.0002	29.7883
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.2100	.8674	1.3382	1.6466	35.6357	56.6539	124.4583	.0002	29.0798
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.2600	.8728	1.4108	1.7162	34.7089	55.4648	119.0310	.0002	28.3713
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.3100	.8752	1.4855	1.7865	33.7471	54.3046	113.6036	.0002	27.6627
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.3600	.8748	1.5623	1.8576	32.7514	53.1716	108.1763	.0002	26.9541
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.4100	.8716	1.6415	1.9298	31.7220	52.0653	102.7489	.0003	26.2453
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.4600	.8654	1.7231	2.0031	30.6583	50.9858	97.3216	.0003	25.5365
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.5100	.8564	1.8074	2.0778	29.5590	49.9340	91.8942	.0003	24.8276
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.5600	.8443	1.8945	2.1541	28.4217	48.9122	86.4669	.0003	24.1185
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.6100	.8290	1.9846	2.2322	27.2432	47.9238	81.0396	.0003	23.4093
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.6600	.8103	2.0780	2.3123	26.0194	46.9745	75.6122	.0004	22.6999
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.7100	.7881	2.1748	2.3947	24.7445	46.0727	70.1849	.0004	21.9903
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.7600	.7620	2.2755	2.4796	23.4112	45.2311	64.7575	.0004	21.2804
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.8100	.7316	2.3802	2.5673	22.0098	44.4686	59.3302	.0004	20.5701
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.8600	.6964	2.4893	2.6581	20.5271	43.8149	53.9028	.0005	19.8594
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.9100	.6556	2.6033	2.7524	18.9452	43.3172	48.4755	.0005	19.1480
14.0	2.7230	1.5451	1.16	.4521	2.2119	1.9600	.6081	2.7225	2.8506	17.2378	43.0554	43.0482	.0005	18.4357
14.0	2.7230	1.5451	1.16	.4521	2.2119	2.0100	.5523	2.8476	2.9532	15.3648	43.1744	37.6208	.0005	17.7222
14.0	2.7230	1.5451	1.16	.4521	2.2119	2.0600	.4854	2.9792	3.0608	13.2593	43.9654	32.1935	.0005	17.0069
14.0	2.7230	1.5451	1.16	.4521	2.2119	2.1100	.4022	3.1181	3.1742	10.7923	46.1165	26.7661	.0005	16.2885
14.0	2.7230	1.5451	1.16	.4521	2.2119	2.1600	.2897	3.2653	3.2946	7.6380	51.8077	21.3388	.0005	15.5648
14.0	2.7230	1.5451	1.16	.4521	2.2119	2.2100	.0551	3.4226	3.4237	1.4283	80.1754	15.9114	.0005	14.8305

14.0	2.7230	1.5451	1.24	.5027	1.9894	.5100	.1040	.4842	.4942	11.5214	86.9252	196.6232	.0001	45.0913
14.0	2.7230	1.5451	1.24	.5027	1.9894	.5600	.2855	.5362	.6018	27.0105	81.3899	190.8216	.0001	44.3342
14.0	2.7230	1.5451	1.24	.5027	1.9894	.6100	.3836	.5891	.6960	32.1662	78.1933	185.0200	.0001	43.5771
14.0	2.7230	1.5451	1.24	.5027	1.9894	.6600	.4559	.6430	.7815	34.6365	75.6741	179.2183	.0001	42.8199
14.0	2.7230	1.5451	1.24	.5027	1.9894	.7100	.5134	.6979	.8613	35.8697	73.5192	173.4167	.0001	42.0627
14.0	2.7230	1.5451	1.24	.5027	1.9894	.7600	.5606	.7539	.9368	36.4132	71.6009	167.6150	.0001	41.3054
14.0	2.7230	1.5451	1.24	.5027	1.9894	.8100	.6000	.8110	1.0092	36.5277	69.8523	161.8134	.0001	40.5482
14.0	2.7230	1.5451	1.24											

14.0	2.7230	1.5451	1.32	.5621	1.7789	.5700	.0972	.5435	.5514	9.6771	86.9092	185.3943	.0001	50.6590
14.0	2.7230	1.5451	1.32	.5621	1.7789	.6200	.2581	.5959	.6455	22.6045	81.6091	179.2183	.0001	49.8528
14.0	2.7230	1.5451	1.32	.5621	1.7789	.6700	.3447	.6493	.7302	27.2260	78.5375	173.0424	.0001	49.0465
14.0	2.7230	1.5451	1.32	.5621	1.7789	.7200	.4075	.7035	.8084	29.5069	76.1285	166.8664	.0001	48.2402
14.0	2.7230	1.5451	1.32	.5621	1.7789	.7700	.4563	.7588	.8820	30.6529	74.0816	160.6905	.0001	47.4339
14.0	2.7230	1.5451	1.32	.5621	1.7789	.8200	.4954	.8150	.9522	31.1403	72.2743	154.5146	.0001	46.6274
14.0	2.7230	1.5451	1.32	.5621	1.7789	.8700	.5270	.8723	1.0198	31.2036	70.6434	148.3386	.0001	45.8210
14.0	2.7230	1.5451	1.32	.5621	1.7789	.9200	.5522	.9306	1.0854	30.9733	69.1518	142.1627	.0001	45.0144
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.0200	.5720	.9901	1.1494	30.5277	67.7767	135.9867	.0001	44.2077
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.0700	.5973	1.1127	1.2123	29.9161	66.5036	129.8108	.0001	43.4010
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.1200	.6034	1.1759	1.2743	29.1707	65.3241	123.6348	.0001	42.5941
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.1700	.6053	1.2404	1.3356	28.3124	64.2341	117.4589	.0001	41.7871
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.2200	.6031	1.3063	1.4573	26.3057	62.3260	105.1070	.0001	40.1725
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.2700	.5968	1.3738	1.5179	25.1688	61.5199	98.9311	.0001	39.3649
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.3200	.5861	1.4427	1.5786	23.9437	60.8288	92.7551	.0001	38.5570
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.3700	.5710	1.5133	1.6395	22.6260	60.2741	86.5792	.0001	37.7488
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.4200	.5510	1.5856	1.7008	21.2072	59.8876	80.4033	.0001	36.9402
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.4700	.5255	1.6597	1.7626	19.6726	59.7185	74.2273	.0001	36.1311
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.5200	.4939	1.7357	1.8251	17.9995	59.8435	68.0514	.0001	35.3213
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.5700	.4547	1.8138	1.8883	16.1511	60.3895	61.8754	.0001	34.5107
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.6200	.4059	1.8939	1.9525	14.0646	61.5814	55.6995	.0001	33.6990
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.6700	.3434	1.9764	2.0178	11.6198	63.8694	49.5235	.0001	32.8857
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.7200	.2578	2.0613	2.0843	8.5237	68.3681	43.3476	.0001	32.0703
14.0	2.7230	1.5451	1.32	.5621	1.7789	1.7700	.1022	2.1488	2.1524	3.3058	80.3303	37.1717	.0001	31.2516

14.0	2.7230	1.5451	1.40	.6367	1.5706	.6400	.0552	.6135	.6158	4.9266	88.0981	171.9569	.0001	56.3770
14.0	2.7230	1.5451	1.40	.6367	1.5706	.6900	.2159	.6666	.6984	17.3739	82.3689	165.4067	.0001	55.5216
14.0	2.7230	1.5451	1.40	.6367	1.5706	.7400	.2919	.7204	.7744	21.5245	79.4118	158.8564	.0001	54.6661
14.0	2.7230	1.5451	1.40	.6367	1.5706	.7900	.3446	.7752	.8457	23.5687	77.1544	152.3062	.0001	53.8105
14.0	2.7230	1.5451	1.40	.6367	1.5706	.8400	.3839	.8309	.9135	24.5609	75.2810	145.7559	.0001	52.9549
14.0	2.7230	1.5451	1.40	.6367	1.5706	.8900	.4135	.8875	.9787	24.9202	73.6698	139.2057	.0001	52.0991
14.0	2.7230	1.5451	1.40	.6367	1.5706	.9400	.4355	.9452	1.0417	24.8560	72.2617	132.6555	.0001	51.2451
14.0	2.7230	1.5451	1.40	.6367	1.5706	.9900	.4509	1.0039	1.1031	24.4853	71.0258	126.1052	.0001	50.3870
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.0400	.4604	1.0637	1.1632	23.8781	69.9476	119.5550	.0001	49.5307
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.0900	.4644	1.1246	1.2224	23.0766	69.0240	113.0047	.0001	48.6742
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.1400	.4630	1.1867	1.2808	22.1059	68.2617	106.4545	.0001	47.8174
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.1900	.4563	1.2500	1.3387	20.9783	67.6781	99.9043	.0001	46.9603
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.2400	.4439	1.3145	1.3962	19.6955	67.3039	93.3540	.0001	46.1028
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.2900	.4253	1.3805	1.4536	18.2486	67.1892	86.8038	.0001	45.2449
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.3400	.3999	1.4478	1.5108	16.6151	67.4154	80.2535	.0001	44.3863
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.3900	.3660	1.5165	1.5682	14.7512	68.1195	73.7033	.0001	43.5271
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.4400	.3211	1.5868	1.6258	12.5720	69.5522	67.1531	.0001	42.6668
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.4900	.2598	1.6588	1.6838	9.8895	72.2462	60.6028	.0001	41.8053
14.0	2.7230	1.5451	1.40	.6367	1.5706	1.5400	.1645	1.7324	1.7423	6.0954	77.8106	54.0526	.0001	40.9421

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APPENDIX I

PROPERTIES OF AN OBLIQUE DETONATION WAVE

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
1.5	1.4214	1.0625	1.00	.7035	1.4214	.7100	.0505	.6931	.6949	4.0668	85.9413	2.3513	.9234	1.1686
1.5	1.4214	1.0625	1.00	.7035	1.4214	.7600	.1414	.7452	.7579	10.5392	77.9331	2.2564	.9336	1.1584
1.5	1.4214	1.0625	1.00	.7035	1.4214	.8100	.1832	.7977	.8179	12.7454	73.3186	2.1614	.9433	1.1482
1.5	1.4214	1.0625	1.00	.7035	1.4214	.8600	.2084	.8508	.8754	13.6207	69.6361	2.0664	.9524	1.1378
1.5	1.4214	1.0625	1.00	.7035	1.4214	.9100	.2230	.9045	.9313	13.7705	66.4386	1.9714	.9609	1.1272
1.5	1.4214	1.0625	1.00	.7035	1.4214	.9600	.2296	.9588	.9858	13.4511	63.5440	1.8765	.9687	1.1165
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.0100	.2294	1.0137	1.0395	12.7965	60.8561	1.7815	.9758	1.1055
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.0600	.2231	1.0693	1.0927	11.8841	58.3162	1.6865	.9820	1.0943
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.1100	.2110	1.1257	1.1458	10.7610	55.8849	1.5915	.9873	1.0828
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.1600	.1932	1.1829	1.1992	9.4558	53.5335	1.4966	.9917	1.0710
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.2100	.1697	1.2410	1.2531	7.9852	51.2401	1.4016	.9951	1.0587
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.2600	.1404	1.3001	1.3081	6.3572	48.9867	1.3066	.9976	1.0460
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.3100	.1048	1.3604	1.3647	4.5729	46.7580	1.2116	.9991	1.0327
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.3600	.0624	1.4220	1.4235	2.6272	44.5398	1.1167	.9998	1.0186
1.5	1.4214	1.0625	1.00	.7035	1.4214	1.4100	.0125	1.4853	1.4854	.5092	42.3190	1.0217	1.0000	1.0036
1.5	1.4214	1.0625	1.04	.8126	1.2306	.8200	.0388	.8069	.8079	2.7114	86.1283	2.0801	.8995	1.2438
1.5	1.4214	1.0625	1.04	.8126	1.2306	.8700	.0990	.8600	.8656	6.4912	79.2986	1.9813	.9045	1.2326
1.5	1.4214	1.0625	1.04	.8126	1.2306	.9200	.1221	.9137	.9217	7.5617	75.5462	1.8825	.9086	1.2212
1.5	1.4214	1.0625	1.04	.8126	1.2306	.9700	.1309	.9680	.9768	7.6881	72.8304	1.7838	.9119	1.2096
1.5	1.4214	1.0625	1.04	.8126	1.2306	1.0200	.1298	1.0229	1.0312	7.2516	70.8526	1.6850	.9143	1.1976
1.5	1.4214	1.0625	1.04	.8126	1.2306	1.0700	.1202	1.0786	1.0854	6.4094	69.6351	1.5862	.9157	1.1853
1.5	1.4214	1.0625	1.04	.8126	1.2306	1.1200	.1025	1.1351	1.1399	5.2270	69.4838	1.4874	.9161	1.1726
1.5	1.4214	1.0625	1.04	.8126	1.2306	1.1700	.0754	1.1925	1.1950	3.6883	71.3768	1.3887	.9154	1.1594
1.5	1.4214	1.0625	1.04	.8126	1.2306	1.2200	.0301	1.2510	1.2514	1.4132	80.1760	1.2899	.9137	1.1456

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
2.0	1.7728	1.1684	1.00	.5641	1.7728	.5700	.0731	.5518	.5563	7.3039	86.5242	4.2567	.6788	1.3580
2.0	1.7728	1.1684	1.00	.5641	1.7728	.6200	.2186	.6031	.6395	19.4192	79.2643	4.1213	.6962	1.3450
2.0	1.7728	1.1684	1.00	.5641	1.7728	.6700	.2925	.6549	.7146	23.5845	75.1454	3.9859	.7138	1.3320
2.0	1.7728	1.1684	1.00	.5641	1.7728	.7200	.3446	.7073	.7841	25.5738	71.8779	3.8506	.7315	1.3189
2.0	1.7728	1.1684	1.00	.5641	1.7728	.7700	.3838	.7602	.8494	26.4945	69.0562	3.7152	.7494	1.3058
2.0	1.7728	1.1684	1.00	.5641	1.7728	.8200	.4140	.8137	.9115	26.7870	66.5160	3.5798	.7675	1.2926
2.0	1.7728	1.1684	1.00	.5641	1.7728	.8700	.4370	.8677	.9711	26.6702	64.1712	3.4444	.7855	1.2794
2.0	1.7728	1.1684	1.00	.5641	1.7728	.9200	.4540	.9224	1.0286	26.2668	61.9695	3.3090	.8036	1.2660
2.0	1.7728	1.1684	1.00	.5641	1.7728	.9700	.4658	.9777	1.0846	25.6512	59.8765	3.1737	.8215	1.2526
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.0200	.4728	1.0337	1.1394	24.8705	57.8676	3.0383	.8393	1.2391
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.0700	.4754	1.0904	1.1932	23.9555	55.9246	2.9029	.8569	1.2255
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.1200	.4737	1.1478	1.2463	22.9266	54.0331	2.7675	.8740	1.2118
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.1700	.4679	1.2060	1.2988	21.7971	52.1816	2.6321	.8908	1.1979
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.2200	.4580	1.2650	1.3511	20.5754	50.3603	2.4968	.9069	1.1839
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.2700	.4439	1.3248	1.4034	19.2660	48.5607	2.3614	.9222	1.1696
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.3200	.4256	1.3855	1.4558	17.8701	46.7751	2.2260	.9367	1.1552
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.3700	.4029	1.4473	1.5085	16.3865	44.9964	2.0906	.9501	1.1405
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.4200	.3755	1.5101	1.5620	14.8110	43.2177	1.9553	.9623	1.1254
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.4700	.3431	1.5741	1.6164	13.1371	41.4321	1.8199	.9730	1.1100
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.5200	.3052	1.6394	1.6721	11.3550	39.6324	1.6845	.9821	1.0941
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.5700	.2614	1.7062	1.7297	9.4514	37.8110	1.5491	.9894	1.0776
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.6200	.2106	1.7748	1.7898	7.4083	35.9593	1.4137	.9947	1.0603
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.6700	.1520	1.8456	1.8532	5.2018	34.0677	1.2784	.9981	1.0421
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.7200	.0841	1.9189	1.9212	2.7995	32.1244	1.1430	.9997	1.0226
2.0	1.7728	1.1684	1.00	.5641	1.7728	1.7700	.0048	1.9956	1.9956	.1568	30.1153	1.0076	1.0000	1.0013
2.0	1.7728	1.1684	1.04	.6114	1.6356	.6200	.0803	.6019	.6070	7.3766	85.8950	4.0542	.6690	1.4604
2.0	1.7728	1.1684	1.04	.6114	1.6356	.6700	.2029	.6535	.6829	16.8497	79.2459	3.9134	.6832	1.4468
2.0	1.7728	1.1684	1.04	.6114	1.6356	.7200	.2671	.7057	.7527	20.3564	75.3014	3.7726	.6974	1.4331
2.0	1.7728	1.1684	1.04	.6114	1.6356	.7700	.3115	.7583	.8181	22.0286	72.1661	3.6318	.7115	1.4193
2.0	1.7728	1.1684	1.04	.6114	1.6356	.8200	.3440	.8116	.8801	22.7577	69.4664	3.4910	.7254	1.4054
2.0	1.7728	1.1684	1.04	.6114	1.6356	.8700	.3677	.8653	.9395	22.9128	67.0490	3.3502	.7391	1.3914
2.0	1.7728	1.1684	1.04	.6114	1.6356	.9200	.3845	.9197	.9968	22.6821	64.8341	3.2094	.7525	1.3774
2.0	1.7728	1.1684	1.04	.6114	1.6356	.9700	.3953	.9747	1.0526	22.1733	62.7749	3.0686	.7656	1.3632
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.0200	.4008	1.0304	1.1071	21.4520	60.8419	2.9278	.7781	1.3489
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.0700	.4013	1.0868	1.1607	20.5600	59.0171	2.7870	.7901	1.3345
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.1200	.3971	1.1438	1.2136	19.5243	57.2900	2.6462	.8015	1.3198
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.1700	.3883	1.2016	1.2661	18.3620	55.6574	2.5054	.8120	1.3050
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.2200	.3749	1.2603	1.3184	17.0832	54.1230	2.3646	.8215	1.2900
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.2700	.3568	1.3198	1.3709	15.6929	52.7002	2.2238	.8300	1.2747
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.3200	.3338	1.3802	1.4237	14.1912	51.4163	2.0831	.8372	1.2590
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.3700	.3056	1.4417	1.4772	12.5743	50.3231	1.9423	.8430	1.2430
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.4200	.2717	1.5044	1.5317	10.8334	49.5196	1.8015	.8473	1.2265
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.4700	.2316	1.5683	1.5877	8.9532	49.2084	1.6607	.8497	1.2094
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.5200	.1841	1.6338	1.6457	6.9071	49.8638	1.5199	.8503	1.1915
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.5700	.1274	1.7010	1.7066	4.6378	52.8971	1.3791	.8490	1.1727
2.0	1.7728	1.1684	1.04	.6114	1.6356	1.6200	.0531	1.7704	1.77					

LOOP 8RANCH (M1 FROM 1 TO 5)

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
2.5	2.0569	1.2715	1.00	.4862	2.0569	.4900	.0710	.4725	.4774	8.2405	87.4069	6.7133	.4174	1.5888
2.5	2.0569	1.2715	1.00	.4862	2.0569	.5400	.2611	.5235	.5815	25.8089	80.2316	6.5310	.4330	1.5718
2.5	2.0569	1.2715	1.00	.4862	2.0569	.5900	.3557	.5751	.6715	31.0829	76.3707	6.3487	.4493	1.5549
2.5	2.0569	1.2715	1.00	.4862	2.0569	.6400	.4242	.6273	.7525	33.5377	73.3324	6.1664	.4661	1.5379
2.5	2.0569	1.2715	1.00	.4862	2.0569	.6900	.4781	.6800	.8273	34.7179	70.7216	5.9841	.4835	1.5209
2.5	2.0569	1.2715	1.00	.4862	2.0569	.7400	.5219	.7334	.8975	35.1942	68.3809	5.8017	.5015	1.5039
2.5	2.0569	1.2715	1.00	.4862	2.0569	.7900	.5580	.7875	.9641	35.2354	66.2284	5.6194	.5202	1.4868
2.5	2.0569	1.2715	1.00	.4862	2.0569	.8400	.5879	.8422	1.0279	34.9864	64.2149	5.5437	.5395	1.4697
2.5	2.0569	1.2715	1.00	.4862	2.0569	.8900	.6124	.8975	1.0895	34.5323	62.3080	5.50725	.5594	1.4526
2.5	2.0569	1.2715	1.00	.4862	2.0569	.9400	.6323	.9536	1.1493	33.9264	60.4852	5.40725	.5799	1.4354
2.5	2.0569	1.2715	1.00	.4862	2.0569	.9900	.6479	1.0104	1.2076	33.2034	58.7296	4.8902	.6010	1.4182
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.0400	.6597	1.0680	1.2647	32.3865	57.0283	4.7079	.6228	1.4009
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.0900	.6677	1.1263	1.3208	31.4916	55.3710	4.5255	.6450	1.3836
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.1400	.6723	1.1854	1.3762	30.5297	53.7492	4.3432	.6678	1.3662
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.1900	.6735	1.2454	1.4310	29.5081	52.1560	4.1609	.6911	1.3488
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.2400	.6714	1.3062	1.4854	28.4317	50.5850	3.9786	.7147	1.3313
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.2900	.6659	1.3680	1.5395	27.3034	49.0310	3.7963	.7387	1.3137
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.3400	.6572	1.4307	1.5935	26.1242	47.4887	3.6140	.7629	1.2959
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.3900	.6450	1.4944	1.6474	24.8942	45.9537	3.4317	.7872	1.2781
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.4400	.6295	1.5591	1.7016	23.6117	44.4215	3.2493	.8115	1.2601
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.4900	.6103	1.6250	1.7560	22.2741	42.8875	3.0670	.8356	1.2420
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.5400	.5874	1.6921	1.8110	20.8774	41.3475	2.8847	.8592	1.2237
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.5900	.5604	1.7604	1.8665	19.4163	39.7968	2.7024	.8822	1.2051
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.6400	.5292	1.8301	1.9230	17.8836	38.2304	2.5201	.9041	1.1863
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.6900	.4932	1.9013	1.9806	16.2701	36.6432	2.3378	.9248	1.1671
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.7400	.4521	1.9742	2.0398	14.5640	35.0290	2.1554	.9439	1.1476
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.7900	.4050	2.0490	2.1008	12.7501	33.3811	1.9731	.9608	1.1274
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.8400	.3513	2.1259	2.1643	10.8085	31.6915	1.7908	.9751	1.1066
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.8900	.2896	2.2054	2.2312	8.7125	29.9502	1.6085	.9864	1.0849
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.9400	.2185	2.2881	2.3026	6.4257	28.1452	1.4262	.9943	1.0620
2.5	2.0569	1.2715	1.00	.4862	2.0569	1.9900	.1356	2.3749	2.3804	3.8971	26.2608	1.2439	.9987	1.0373
2.5	2.0569	1.2715	1.00	.4862	2.0569	2.0400	.0374	2.4672	2.4676	1.0513	24.2759	1.0616	1.0000	1.0100

2.5	2.0569	1.2715	1.04	.5192	1.9260	.5200	.0307	.5020	.5029	3.3779	88.8254	6.5281	.4119	1.7142
2.5	2.0569	1.2715	1.04	.5192	1.9260	.5700	.2392	.5532	.5999	22.7626	80.6144	6.3385	.4256	1.6965
2.5	2.0569	1.2715	1.04	.5192	1.9260	.6200	.3296	.6049	.6850	27.9956	76.7243	6.1489	.4397	1.6788
2.5	2.0569	1.2715	1.04	.5192	1.9260	.6700	.3940	.6571	.7623	30.4601	73.6938	5.9593	.4542	1.6611
2.5	2.0569	1.2715	1.04	.5192	1.9260	.7200	.4440	.7100	.8341	31.6582	71.1034	5.7697	.4691	1.6433
2.5	2.0569	1.2715	1.04	.5192	1.9260	.7700	.4839	.7634	.9017	32.1473	68.7901	5.5800	.4844	1.6255
2.5	2.0569	1.2715	1.04	.5192	1.9260	.8200	.5162	.8175	.9660	32.1921	66.6702	5.3904	.5000	1.6076
2.5	2.0569	1.2715	1.04	.5192	1.9260	.8700	.5423	.8722	1.0278	31.9368	64.6941	5.2008	.5160	1.5897
2.5	2.0569	1.2715	1.04	.5192	1.9260	.9200	.5630	.9276	1.0875	31.4665	62.8295	5.0112	.5322	1.5717
2.5	2.0569	1.2715	1.04	.5192	1.9260	.9700	.5790	.9837	1.1456	30.8348	61.0542	4.8216	.5488	1.5537
2.5	2.0569	1.2715	1.04	.5192	1.9260	1.0200	.5907	1.0405	1.2023	30.0765	59.3521	4.6320	.5656	1.5356
2.5	2.0569	1.2715	1.04	.5192										

2.5	2.0569	1.2715	1.12	.5978	1.6728	.6000	.0440	.5817	.5833	4.1916	88.1255	6.0497	.4016	1.9713
2.5	2.0569	1.2715	1.12	.5978	1.6728	.6500	.2087	.6333	.6652	17.8036	80.8335	5.8455	.4116	1.9520
2.5	2.0569	1.2715	1.12	.5978	1.6728	.7000	.2837	.6854	.7396	22.0627	77.1485	5.6413	.4217	1.9327
2.5	2.0569	1.2715	1.12	.5978	1.6728	.7500	.3357	.7381	.8087	24.1162	74.2890	5.4371	.4318	1.9133
2.5	2.0569	1.2715	1.12	.5978	1.6728	.8000	.3746	.7914	.8738	25.0900	71.8638	5.2329	.4419	1.8938
2.5	2.0569	1.2715	1.12	.5978	1.6728	.8500	.4041	.8452	.9358	25.4261	69.7204	5.0287	.4520	1.8743
2.5	2.0569	1.2715	1.12	.5978	1.6728	.9000	.4263	.8996	.9954	25.3434	67.7818	4.8245	.4619	1.8546
2.5	2.0569	1.2715	1.12	.5978	1.6728	.9500	.4423	.9547	1.0531	24.9648	66.0041	4.6203	.4716	1.8349
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.0000	.4529	1.0104	1.1092	24.3644	64.3612	4.4162	.4811	1.8151
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.0500	.4585	1.0668	1.1641	23.5890	62.8375	4.2120	.4904	1.7951
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.1000	.4594	1.1239	1.2180	22.6689	61.4257	4.0078	.4992	1.7751
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.1500	.4559	1.1818	1.2712	21.6235	60.1250	3.8036	.5075	1.7548
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.2000	.4478	1.2404	1.3239	20.4646	58.9415	3.5994	.5152	1.7344
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.2500	.4353	1.2998	1.3764	19.1983	57.8895	3.3952	.5222	1.7137
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.3000	.4180	1.3601	1.4287	17.8259	56.9942	3.1910	.5283	1.6928
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.3500	.3959	1.4214	1.4812	16.3440	56.2980	2.9868	.5333	1.6716
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.4000	.3684	1.4836	1.5342	14.7442	55.8702	2.7826	.5372	1.6500
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.4500	.3351	1.5470	1.5878	13.0111	55.8300	2.5784	.5396	1.6280
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.5000	.2948	1.6116	1.6424	11.1182	56.3934	2.3742	.5404	1.6054
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.5500	.2460	1.6776	1.6986	9.0170	57.9963	2.1700	.5394	1.5820
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.6000	.1851	1.7451	1.7568	6.5980	61.6903	1.9658	.5362	1.5577
2.5	2.0569	1.2715	1.12	.5978	1.6728	1.6500	.0993	1.8147	1.8179	3.4428	71.3184	1.7617	.5307	1.5321

2.5	2.0569	1.2715	1.16	.6472	1.5451	.6500	.0450	.6321	.6336	3.9589	87.9550	5.7507	.3955	2.1022
2.5	2.0569	1.2715	1.16	.6472	1.5451	.7000	.1896	.6840	.7086	15.1578	81.0914	5.5392	.4036	2.0820
2.5	2.0569	1.2715	1.16	.6472	1.5451	.7500	.2555	.7364	.7780	18.8103	77.5774	5.3277	.4117	2.0618
2.5	2.0569	1.2715	1.16	.6472	1.5451	.8000	.3000	.7894	.8431	20.5543	74.8743	5.1162	.4195	2.0415
2.5	2.0569	1.2715	1.16	.6472	1.5451	.8500	.3319	.8430	.9050	21.3301	72.6097	4.9048	.4272	2.0211
2.5	2.0569	1.2715	1.16	.6472	1.5451	.9000	.3548	.8971	.9643	21.5151	70.6405	4.6933	.4346	2.0006
2.5	2.0569	1.2715	1.16	.6472	1.5451	.9500	.3704	.9519	1.0217	21.3002	68.8975	4.4818	.4416	1.9799
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.0000	.3797	1.0073	1.0775	20.7930	67.3451	4.2703	.4483	1.9592
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.0500	.3834	1.0633	1.1320	20.0585	65.9672	4.0588	.4544	1.9382
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.1000	.3817	1.1201	1.1856	19.1369	64.7621	3.8473	.4600	1.9171
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.1500	.3748	1.1776	1.2386	18.0523	63.7414	3.6358	.4649	1.8958
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.2000	.3627	1.2358	1.2911	16.8175	62.9324	3.4244	.4690	1.8742
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.2500	.3452	1.2949	1.3434	15.4361	62.3839	3.2129	.4722	1.8523
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.3000	.3218	1.3549	1.3958	13.9024	62.1794	3.0014	.4742	1.8301
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.3500	.2919	1.4158	1.4485	12.1988	62.4634	2.7899	.4751	1.8074
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.4000	.2541	1.4777	1.5019	10.2878	63.5041	2.5784	.4745	1.7842
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.4500	.2060	1.5409	1.5564	8.0867	65.8628	2.3669	.4724	1.7602
2.5	2.0569	1.2715	1.16	.6472	1.5451	1.5000	.1406	1.6054	1.6124	5.3550	71.0615	2.1554	.4684	1.7354

2.5	2.0569	1.2715	1.20	.7092	1.4100	.7100	.0208	.6930	.6933	1.6800	88.9783	5.3934	.3882	2.2327
2.5	2.0569	1.2715	1.20	.7092	1.4100	.7600	.1618	.7454	.7621	12.0153	81.7651	5.1746	.3943	2.2116
2.5	2.0569	1.2715	1.20	.7092	1.4100</									

LOOP BRANCH (M1 FROM 1 TO 5)

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
3.0	2.2827	1.3604	1.00	.4381	2.2827	.4400	.0560	.4233	.4267	7.2519	88.2596	9.7182	.2302	1.8660
3.0	2.2827	1.3604	1.00	.4381	2.2827	.4900	.2872	.4742	.5496	30.3717	80.8994	9.4816	.2409	1.8443
3.0	2.2827	1.3604	1.00	.4381	2.2827	.5400	.3960	.5257	.6519	36.2567	77.1963	9.2451	.2523	1.8225
3.0	2.2827	1.3604	1.00	.4381	2.2827	.5900	.4757	.5778	.7423	38.8795	74.3020	9.0085	.2642	1.8008
3.0	2.2827	1.3604	1.00	.4381	2.2827	.6400	.5393	.6306	.8247	40.1197	71.8244	8.7720	.2767	1.7790
3.0	2.2827	1.3604	1.00	.4381	2.2827	.6900	.5920	.6841	.9014	40.6291	69.6094	8.5354	.2899	1.7572
3.0	2.2827	1.3604	1.00	.4381	2.2827	.7400	.6365	.7383	.9738	40.7020	67.5776	8.2988	.3038	1.7354
3.0	2.2827	1.3604	1.00	.4381	2.2827	.7900	.6745	.7931	1.0429	40.4923	65.6816	8.0623	.3184	1.7136
3.0	2.2827	1.3604	1.00	.4381	2.2827	.8400	.7071	.8488	1.1094	40.0883	63.8903	7.8257	.3338	1.6918
3.0	2.2827	1.3604	1.00	.4381	2.2827	.8900	.7348	.9052	1.1738	39.5446	62.1821	7.5891	.3500	1.6699
3.0	2.2827	1.3604	1.00	.4381	2.2827	.9400	.7584	.9623	1.2365	38.8960	60.5409	7.3526	.3670	1.6480
3.0	2.2827	1.3604	1.00	.4381	2.2827	.9900	.7781	1.0203	1.2978	38.1660	58.9546	7.1160	.3849	1.6261
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.0400	.7943	1.0792	1.3579	37.3707	57.4136	6.8794	.4036	1.6042
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.0900	.8072	1.1389	1.4171	36.5214	55.9100	6.6429	.4234	1.5822
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.1400	.8169	1.1995	1.4757	35.6257	54.4375	6.4063	.4441	1.5602
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.1900	.8237	1.2610	1.5336	34.6893	52.9904	6.1697	.4658	1.5382
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.2400	.8275	1.3235	1.5912	33.7158	51.5639	5.9332	.4885	1.5161
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.2900	.8284	1.3870	1.6484	32.7076	50.1539	5.6966	.5122	1.4940
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.3400	.8265	1.4516	1.7055	31.6661	48.7563	5.4600	.5370	1.4719
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.3900	.8218	1.5173	1.7626	30.5916	47.3678	5.2235	.5629	1.4496
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.4400	.8142	1.5841	1.8198	29.4839	45.9847	4.9869	.5898	1.4273
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.4900	.8037	1.6521	1.8771	28.3420	44.6040	4.7503	.6176	1.4050
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.5400	.7902	1.7213	1.9347	27.1641	43.2223	4.5138	.6465	1.3825
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.5900	.7737	1.7919	1.9928	25.9478	41.8365	4.2772	.6762	1.3599
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.6400	.7540	1.8639	2.0514	24.6900	40.4432	4.0406	.7066	1.3372
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.6900	.7309	1.9373	2.1107	23.3865	39.0390	3.8041	.7377	1.3144
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.7400	.7041	2.0123	2.1709	22.0323	37.6200	3.5675	.7691	1.2914
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.7900	.6736	2.0890	2.2320	20.6211	36.1823	3.3309	.8006	1.2682
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.8400	.6388	2.1675	2.2944	19.1450	34.7212	3.0944	.8320	1.2447
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.8900	.5993	2.2480	2.3583	17.5939	33.2316	2.8578	.8626	1.2210
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.9400	.5546	2.3306	2.4240	15.9553	31.7074	2.6212	.8921	1.1968
3.0	2.2827	1.3604	1.00	.4381	2.2827	1.9900	.5040	2.4157	2.4920	14.2128	30.1415	2.3847	.9197	1.1721
3.0	2.2827	1.3604	1.00	.4381	2.2827	2.0400	.4465	2.5037	2.5629	12.3446	28.5250	2.1481	.9446	1.1467
3.0	2.2827	1.3604	1.00	.4381	2.2827	2.0900	.3806	2.5949	2.6376	10.3213	26.8471	1.9115	.9659	1.1205
3.0	2.2827	1.3604	1.00	.4381	2.2827	2.1400	.3046	2.6903	2.7174	8.1017	25.0934	1.6750	.9827	1.0929
3.0	2.2827	1.3604	1.00	.4381	2.2827	2.1900	.2157	2.7909	2.8044	5.6255	23.2452	1.4384	.9939	1.0635
3.0	2.2827	1.3604	1.00	.4381	2.2827	2.2400	.1095	2.8990	2.9025	2.7998	21.2760	1.2018	.9992	1.0313
3.0	2.2827	1.3604	1.04	.4648	2.1513	.4700	.0876	.4529	.4607	10.5618	87.1629	9.4873	.2287	2.0123
3.0	2.2827	1.3604	1.04	.4648	2.1513	.5200	.2819	.5039	.5731	28.4608	80.6841	9.2413	.2385	1.9897
3.0	2.2827	1.3604	1.04	.4648	2.1513	.5700	.3825	.5555	.6690	33.8643	77.0866	8.9953	.2486	1.9670
3.0	2.2827	1.3604	1.04	.4648	2.1513	.6200	.4564	.6077	.7546	36.3554	74.2519	8.7492	.2593	1.9443
3.0	2.2827	1.3604	1.04	.4648	2.1513	.6700	.5151	.6606	.8333	37.5525	71.8184	8.5032	.2704	1.9216
3.0	2.2827	1.3604	1.04	.4648	2.1513	.7200	.5634	.7142	.9068	38.0454	69.6404	8.2572	.2820	1.8989
3.0	2.2827	1.3604	1.04	.4648	2.1513	.7700	.6039	.7684	.9765	38.1085	67.6421	8.0112	.2941	1.8761
3.0	2.2827	1.3604	1.04	.4648	2.1513	.8200	.6381	.8233	1.0432	37.8882	65.7779	7.7651	.3068	1.8534
3.0	2.2827	1.3604	1.04	.4648	2.1513	.8700	.6669	.8789	1.1074	37.4701	64.0179	7.5191	.3199	1.8306
3.0	2.2													

3.0	2.2827	1.3604	1.08	.4937	2.0255	.5000	.0921	.4824	.4905	10.4362	86.8928	9.2451	.2266	2.1641
3.0	2.2827	1.3604	1.08	.4937	2.0255	.5500	.2703	.5336	.5946	26.1755	80.6757	8.9896	.2354	2.1405
3.0	2.2827	1.3604	1.08	.4937	2.0255	.6000	.3644	.5853	.6848	31.2723	77.1422	8.7341	.2444	2.1169
3.0	2.2827	1.3604	1.08	.4937	2.0255	.6500	.4331	.6377	.7663	33.6787	74.3533	8.4786	.2538	2.0932
3.0	2.2827	1.3604	1.08	.4937	2.0255	.7000	.4874	.6907	.8416	34.8493	71.9596	8.2231	.2635	2.0696
3.0	2.2827	1.3604	1.08	.4937	2.0255	.7500	.5316	.7443	.9123	35.3315	69.8194	7.9676	.2736	2.0459
3.0	2.2827	1.3604	1.08	.4937	2.0255	.8000	.5682	.7985	.9795	35.3858	67.8586	7.7121	.2840	2.0222
3.0	2.2827	1.3604	1.08	.4937	2.0255	.8500	.5986	.8535	1.0438	35.1534	66.0328	7.4566	.2948	1.9984
3.0	2.2827	1.3604	1.08	.4937	2.0255	.9000	.6236	.9091	1.1060	34.7176	64.3129	7.2012	.3059	1.9746
3.0	2.2827	1.3604	1.08	.4937	2.0255	.9500	.6439	.9654	1.1663	34.1308	62.6788	6.9457	.3173	1.9508
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.0000	.6601	1.0225	1.2252	33.4272	61.1161	6.6902	.3291	1.9269
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.0500	.6723	1.0804	1.2828	32.6297	59.6138	6.4347	.3412	1.9030
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.1000	.6808	1.1390	1.3395	31.7540	58.1639	6.1792	.3536	1.8790
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.1500	.6858	1.1985	1.3954	30.8110	56.7604	5.9237	.3662	1.8550
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.2000	.6875	1.2588	1.4508	29.8078	55.3988	5.6682	.3790	1.8308
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.2500	.6857	1.3200	1.5056	28.7492	54.0759	5.4127	.3920	1.8066
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.3000	.6807	1.3821	1.5602	27.6378	52.7901	5.1572	.4051	1.7823
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.3500	.6723	1.4452	1.6146	26.4747	51.5410	4.9017	.4183	1.7579
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.4000	.6606	1.5093	1.6689	25.2593	50.3297	4.6462	.4314	1.7334
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.4500	.6453	1.5745	1.7234	23.9900	49.1592	4.3907	.4443	1.7087
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.5000	.6263	1.6408	1.7781	22.6636	48.0353	4.1353	.4569	1.6838
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.5500	.6036	1.7082	1.8332	21.2754	46.9672	3.8798	.4691	1.6587
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.6000	.5766	1.7770	1.8888	19.8190	45.9696	3.6243	.4805	1.6334
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.6500	.5452	1.8470	1.9453	18.2859	45.0658	3.3688	.4912	1.6078
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.7000	.5089	1.9186	2.0027	16.6649	44.2933	3.1133	.5006	1.5817
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.7500	.4670	1.9918	2.0615	14.9408	43.7154	2.8578	.5086	1.5552
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.8000	.4186	2.0668	2.1220	13.0927	43.4439	2.6023	.5147	1.5281
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.8500	.3626	2.1439	2.1847	11.0907	43.6950	2.3468	.5185	1.5001
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.9000	.2971	2.2235	2.2505	8.8870	44.9418	2.0913	.5196	1.4711
3.0	2.2827	1.3604	1.08	.4937	2.0255	1.9500	.2184	2.3062	2.3206	6.3905	48.4577	1.8358	.5175	1.4405
3.0	2.2827	1.3604	1.08	.4937	2.0255	2.0000	.1155	2.3927	2.3967	3.3050	59.5532	1.5803	.5116	1.4076

3.0	2.2827	1.3604	1.12	.5252	1.9040	.5300	.0762	.5121	.5173	8.1789	87.3193	8.9915	.2239	2.3212
3.0	2.2827	1.3604	1.12	.5252	1.9040	.5800	.2522	.5633	.6143	23.4966	80.9153	8.7265	.2317	2.2967
3.0	2.2827	1.3604	1.12	.5252	1.9040	.6300	.3413	.6152	.6997	28.4466	77.4001	8.4616	.2396	2.2721
3.0	2.2827	1.3604	1.12	.5252	1.9040	.6800	.4056	.6677	.7774	30.8169	74.6424	8.1966	.2478	2.2475
3.0	2.2827	1.3604	1.12	.5252	1.9040	.7300	.4558	.7207	.8497	31.9795	72.2852	7.9317	.2561	2.2229
3.0	2.2827	1.3604	1.12	.5252	1.9040	.7800	.4961	.7744	.9178	32.4581	70.1855	7.6667	.2647	2.1982
3.0	2.2827	1.3604	1.12	.5252	1.9040	.8300	.5289	.8287	.9826	32.5049	68.2692	7.4018	.2735	2.1735
3.0	2.2827	1.3604	1.12	.5252	1.9040	.8800	.5554	.8837	1.0450	32.2583	66.4924	7.1368	.2825	2.1487
3.0	2.2827	1.3604	1.12	.5252	1.9040	.9300	.5766	.9393	1.1052	31.8007	64.8268	6.8718	.2917	2.1239
3.0	2.2827	1.3604	1.12	.5252	1.9040	.9800	.5931	.9957	1.1638	31.1838	63.2532	6.6069	.3009	2.0990
3.0	2.2827	1.3604	1.12	.5252	1.9040	1.0300	.6053	1.0527	1.2211	30.4415	61.7583	6.3419	.3103	2.0741
3.0	2.2827	1.3604	1.12	.5252	1.9040	1.0800	.6134	1.1106	1.2772	29.5968	60.3327	6.0770	.3198	2.0491
3.0	2.2827	1.3604	1.12	.5252	1.9040	1.1300	.6178	1.1692	1.3325	28.6648	58.9703	5.8120	.3294	2.0240
3.0	2.2827	1.3604	1.12	.5252	1.9040									

3.0	2.2827	1.3604	1.20	.5997	1.6676	.6000	.0180	.5817	.5819	1.7183	89.3050	8.3934	.2179	2.6464
3.0	2.2827	1.3604	1.20	.5997	1.6676	.6500	.2108	.6333	.6658	17.9652	81.6376	8.1096	.2236	2.6199
3.0	2.2827	1.3604	1.20	.5997	1.6676	.7000	.2893	.6855	.7418	22.4577	78.1898	7.8257	.2294	2.5933
3.0	2.2827	1.3604	1.20	.5997	1.6676	.7500	.3439	.7383	.8122	24.6311	75.5430	7.5418	.2352	2.5667
3.0	2.2827	1.3604	1.20	.5997	1.6676	.8000	.3847	.7917	.8784	25.6841	73.3168	7.2579	.2410	2.5400
3.0	2.2827	1.3604	1.20	.5997	1.6676	.8500	.4160	.8456	.9415	26.0797	71.3656	6.9740	.2467	2.5132
3.0	2.2827	1.3604	1.20	.5997	1.6676	.9000	.4398	.9002	1.0019	26.0457	69.6167	6.6902	.2524	2.4864
3.0	2.2827	1.3604	1.20	.5997	1.6676	.9500	.4574	.9554	1.0603	25.7092	68.0297	6.4063	.2581	2.4595
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.0000	.4694	1.0112	1.1171	25.1464	66.5808	6.1224	.2635	2.4325
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.0500	.4764	1.0677	1.1725	24.4054	65.2571	5.8385	.2688	2.4053
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.1000	.4787	1.1250	1.2269	23.5169	64.0536	5.5546	.2738	2.3780
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.1500	.4764	1.1830	1.2804	22.5005	62.9719	5.2708	.2786	2.3506
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.2000	.4695	1.2417	1.3334	21.3679	62.0208	4.9869	.2829	2.3230
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.2500	.4580	1.3013	1.3859	20.1245	61.2174	4.7030	.2868	2.2952
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.3000	.4418	1.3617	1.4382	18.7704	60.5903	4.4191	.2902	2.2671
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.3500	.4205	1.4230	1.4904	17.3006	60.1849	4.1353	.2929	2.2387
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.4000	.3936	1.4852	1.5428	15.7032	60.0735	3.8514	.2948	2.2100
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.4500	.3604	1.5486	1.5957	13.9577	60.3757	3.5675	.2957	2.1807
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.5000	.3196	1.6130	1.6492	12.0276	61.3013	3.2836	.2956	2.1510
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.5500	.2689	1.6787	1.7038	9.8437	63.2581	2.9997	.2942	2.1204
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.6000	.2034	1.7459	1.7599	7.2440	67.1984	2.7159	.2914	2.0890
3.0	2.2827	1.3604	1.20	.5997	1.6676	1.6500	.1025	1.8147	1.8182	3.5559	76.7007	2.4320	.2869	2.0562

3.0	2.2827	1.3604	1.24	.6459	1.5483	.7000	.1987	.6841	.7111	15.8448	81.6275	7.6932	.2199	2.7808
3.0	2.2827	1.3604	1.24	.6459	1.5483	.7500	.2665	.7366	.7817	19.5599	78.4151	7.3999	.2245	2.7532
3.0	2.2827	1.3604	1.24	.6459	1.5483	.8000	.3128	.7897	.8479	21.3551	75.9499	7.1065	.2291	2.7255
3.0	2.2827	1.3604	1.24	.6459	1.5483	.8500	.3464	.8434	.9107	22.1734	73.8961	6.8132	.2336	2.6977
3.0	2.2827	1.3604	1.24	.6459	1.5483	.9000	.3709	.8976	.9709	22.3958	72.1238	6.5198	.2379	2.6698
3.0	2.2827	1.3604	1.24	.6459	1.5483	.9500	.3880	.9525	1.0289	22.2147	70.5703	6.2265	.2421	2.6418
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.0000	.3987	1.0080	1.0852	21.7389	69.2038	5.9332	.2460	2.6136
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.0500	.4038	1.0642	1.1402	21.0336	68.0107	5.6398	.2496	2.5853
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.1000	.4034	1.1211	1.1941	20.1388	66.9906	5.3465	.2529	2.5569
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.1500	.3977	1.1787	1.2472	19.0782	66.1555	5.0531	.2557	2.5282
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.2000	.3868	1.2370	1.2997	17.8638	65.5315	4.7598	.2581	2.4993
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.2500	.3702	1.2962	1.3518	16.4975	65.1642	4.4664	.2599	2.4701
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.3000	.3476	1.3561	1.4038	14.9710	65.1288	4.1731	.2610	2.4405
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.3500	.3182	1.4170	1.4559	13.2624	65.5519	3.8798	.2613	2.4105
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.4000	.2804	1.4789	1.5083	11.3267	66.6599	3.5864	.2608	2.3800
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.4500	.2314	1.5419	1.5614	9.0669	68.9071	3.2931	.2592	2.3488
3.0	2.2827	1.3604	1.24	.6459	1.5483	1.5000	.1633	1.6060	1.6155	6.2137	73.4587	2.9997	.2563	2.3168

3.0	2.2827	1.3604	1.28	.7029	1.4227	.7600	.1794	.7456	.7661	13.2803	81.8823	7.1974	.2154	2.9404
3.0	2.2827	1.3604	1.28	.7029	1.4227	.8100	.2353	.7986	.8316	16.1992	78.9735	6.8946	.2189	2.9116
3.0	2.2827	1.3604	1.28	.7029	1.4227	.8600	.2720	.8521	.8937	17.5494	76.7785	6.5918	.2222</td	

LOOP 8RANCH (M1 FROM 1 TO 51

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	XIM2U*1	Y(M2V*1)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
3.5	2.4609	1.4336	1.00	.4064	2.4609	.4100	.0829	.3941	.4020	11.4314	87.6852	13.2509	.1202	2.1896
3.5	2.4609	1.4336	1.00	.4064	2.4609	.4600	.3136	.4449	.5385	34.2873	81.0915	12.9523	.1267	2.1623
3.5	2.4609	1.4336	1.00	.4064	2.4609	.5100	.4300	.4964	.6493	40.1358	77.5702	12.6536	.1336	2.1350
3.5	2.4609	1.4336	1.00	.4064	2.4609	.5600	.5162	.5486	.7461	42.6702	74.8073	12.0563	.1409	2.1077
3.5	2.4609	1.4336	1.00	.4064	2.4609	.6100	.5857	.6015	.8339	43.8376	72.4397	12.0563	.1487	2.0803
3.5	2.4609	1.4336	1.00	.4064	2.4609	.6600	.6440	.6551	.9153	44.2974	70.3231	11.7576	.1570	2.0530
3.5	2.4609	1.4336	1.00	.4064	2.4609	.7100	.6939	.7095	.9920	44.3416	68.3823	11.4589	.1659	2.0256
3.5	2.4609	1.4336	1.00	.4064	2.4609	.7600	.7370	.7646	1.0651	44.1208	66.5725	11.1603	.1753	1.9983
3.5	2.4609	1.4336	1.00	.4064	2.4609	.8100	.7746	.8206	1.1354	43.7206	64.8642	10.8616	.1853	1.9709
3.5	2.4609	1.4336	1.00	.4064	2.4609	.8600	.8074	.8773	1.2034	43.1932	63.2368	10.5629	.1960	1.9435
3.5	2.4609	1.4336	1.00	.4064	2.4609	.9100	.8360	.9350	1.2696	42.5719	61.6750	10.2643	.2074	1.9161
3.5	2.4609	1.4336	1.00	.4064	2.4609	.9600	.8607	.9935	1.3343	41.8790	60.1675	9.9656	.2195	1.8887
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.0100	.8820	1.0529	1.3978	41.1299	58.7050	9.6669	.2325	1.8613
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.0600	.9001	1.1132	1.4604	40.3351	57.2803	9.3682	.2463	1.8339
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.1100	.9151	1.1746	1.5223	39.5022	55.8874	9.0696	.2610	1.8064
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.1600	.9272	1.2369	1.5835	38.6366	54.5210	8.7709	.2768	1.7789
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.2100	.9366	1.3003	1.6444	37.7420	53.1767	8.4722	.2935	1.7514
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.2600	.9433	1.3649	1.7050	36.8210	51.8507	8.1736	.3114	1.7239
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.3100	.9474	1.4305	1.7654	35.8753	50.5396	7.8749	.3305	1.6963
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.3600	.9490	1.4973	1.8258	34.9059	49.2400	7.5762	.3509	1.6687
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.4100	.9479	1.5654	1.8863	33.9131	47.9493	7.2776	.3725	1.6411
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.4600	.9444	1.6347	1.9469	32.8969	46.6645	6.9789	.3956	1.6134
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.5100	.9383	1.7054	2.0079	31.8565	45.3830	6.6802	.4202	1.5857
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.5600	.9296	1.7775	2.0692	30.7909	44.1024	6.3816	.4463	1.5579
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.6100	.9183	1.8511	2.1310	29.6988	42.8199	6.0829	.4740	1.5301
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.6600	.9042	1.9262	2.1935	28.5781	41.5330	5.7842	.5033	1.5022
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.7100	.8874	2.0030	2.2566	27.4264	40.2391	5.4856	.5343	1.4743
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.7600	.8676	2.0815	2.3206	26.2407	38.9352	5.1869	.5670	1.4462
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.8100	.8447	2.1618	2.3856	25.0174	37.6185	4.8882	.6013	1.4180
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.8600	.8185	2.2440	2.4516	23.7521	36.2856	4.5896	.6371	1.3897
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.9100	.7888	2.3283	2.5190	22.4392	34.9330	4.2909	.6744	1.3612
3.5	2.4609	1.4336	1.00	.4064	2.4609	1.9600	.7552	2.4148	2.5878	21.0722	33.5564	3.9922	.7129	1.3326
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.0100	.7174	2.5037	2.6584	19.6427	32.1514	3.6936	.7523	1.3037
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.0600	.6749	2.5952	2.7309	18.1403	30.7123	3.3949	.7921	1.2745
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.1100	.6271	2.6896	2.8058	16.5515	29.2327	3.0962	.8317	1.2449
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.1600	.5731	2.7872	2.8836	14.8590	27.7046	2.7976	.8703	1.2148
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.2100	.5118	2.8885	2.9649	13.0391	26.1180	2.4989	.9066	1.1841
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.2600	.4417	2.9942	3.0508	11.0590	24.4601	2.2002	.9394	1.1524
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.3100	.3606	3.1053	3.1429	8.8717	22.7139	1.9016	.9667	1.1194
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.3600	.2649	3.2234	3.2457	6.4050	20.8557	1.6029	.9867	1.0842
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.4100	.1492	3.3519	3.3583	3.5420	18.8509	1.3042	.9976	1.0457
3.5	2.4609	1.4336	1.00	.4064	2.4609	2.4600	.0031	3.4971	3.4971	.0725	16.6450	1.0056	1.0000	1.0000

3.5	2.4609	1.4336	1.04	.4297	2.3273	.4300	.0237	.4135	.4141	3.1490	89.3166	13.0287	.1189	2.3660
3														

3.5	2.4609	1.4336	1.12	.4810	2.0791	.4900	.1144	.4727	.4854	13.1406	86.4336	12.4218	.1177	2.7268
3.5	2.4609	1.4336	1.12	.4810	2.0791	.5400	.2876	.5239	.5935	28.0377	80.8496	12.0873	.1226	2.6961
3.5	2.4609	1.4336	1.12	.4810	2.0791	.5900	.3839	.5757	.6868	33.0521	77.5254	11.7528	.1277	2.6653
3.5	2.4609	1.4336	1.12	.4810	2.0791	.6400	.4551	.6281	.7707	35.4189	74.8874	11.4183	.1330	2.6346
3.5	2.4609	1.4336	1.12	.4810	2.0791	.6900	.5119	.6811	.8481	36.5692	72.6200	11.0838	.1386	2.6038
3.5	2.4609	1.4336	1.12	.4810	2.0791	.7400	.5585	.7349	.9207	37.0441	70.5927	10.7493	.1443	2.5729
3.5	2.4609	1.4336	1.12	.4810	2.0791	.7900	.6302	.8443	.9896	37.1007	68.7365	10.4148	.1504	2.5421
3.5	2.4609	1.4336	1.12	.4810	2.0791	.8400	.6576	.9002	.0556	36.4594	65.3858	9.7458	.1566	2.5112
3.5	2.4609	1.4336	1.12	.4810	2.0791	.8900	.6803	.9567	.1192	36.8785	67.0099	10.0803	.1504	2.4803
3.5	2.4609	1.4336	1.12	.4810	2.0791	.9400	.6989	.0140	.1810	35.8951	63.8453	9.4113	.1631	2.4494
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.0400	.7135	.0721	.2412	35.2190	62.3748	9.0767	.1767	2.4184
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.0900	.7246	.1311	.3002	34.4538	60.9642	8.7422	.1839	2.3874
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.1400	.7322	.1909	.3582	33.6151	59.6060	8.4077	.1914	2.3564
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.1900	.7366	.2515	.4153	32.7135	58.2947	8.0732	.1990	2.3252
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.2400	.7377	.3131	.5278	30.7490	55.7970	7.7387	.2068	2.2941
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.2900	.7356	.3756	.5835	29.6938	54.6064	7.4042	.2149	2.2628
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.3400	.7304	.4390	.6389	28.5925	53.4536	6.7352	.2231	2.2001
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.3900	.7219	.5035	.6942	27.4451	52.3396	6.4007	.2398	2.1686
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.4400	.7101	.5691	.7495	26.2506	51.2669	6.0662	.2482	2.1369
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.4900	.6950	.6358	.8050	25.0067	50.2399	5.7317	.2566	2.1052
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.5400	.6763	.7037	.8607	23.7100	49.2658	5.3972	.2648	2.0732
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.5900	.6539	.7728	.9168	22.3556	48.3554	5.0627	.2728	2.0411
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.6400	.6275	.8432	.9735	20.9369	47.5251	4.7282	.2804	2.0087
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.6900	.5966	.9150	.0309	19.4454	46.7999	4.3936	.2875	1.9760
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.7400	.5610	.9884	.0892	17.8695	46.2183	4.0591	.2939	1.9430
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.7900	.5198	.0634	.1486	16.1940	45.8428	3.7246	.2994	1.9095
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.8400	.4723	.1402	.2096	14.3973	45.7791	3.3901	.3036	1.8754
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.8900	.4172	.2191	.2725	12.4481	46.2198	3.0556	.3062	1.8405
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.9400	.3524	.3004	.3380	10.2965	47.5553	2.7211	.3070	1.8046
3.5	2.4609	1.4336	1.12	.4810	2.0791	1.9900	.2743	.3845	.4071	7.8484	50.7186	2.3866	.3053	1.7671
3.5	2.4609	1.4336	1.12	.4810	2.0791	2.0400	.1730	.4723	.4812	4.8467	58.7768	2.0521	.3008	1.7275

3.5	2.4609	1.4336	1.16	.5096	1.9621	.5100	.0217	.4921	.4926	2.4318	89.3009	12.1662	.1158	2.9230
3.5	2.4609	1.4336	1.16	.5096	1.9621	.5600	.2533	.5433	.5963	24.3344	81.6475	11.8197	.1201	2.8911
3.5	2.4609	1.4336	1.16	.5096	1.9621	.6100	.3506	.5952	.6864	29.8856	78.1786	11.4733	.1246	2.8592
3.5	2.4609	1.4336	1.16	.5096	1.9621	.6600	.4204	.6476	.7678	32.4965	75.4942	11.1268	.1293	2.8273
3.5	2.4609	1.4336	1.16	.5096	1.9621	.7100	.4751	.7006	.8430	33.7874	73.2139	10.7803	.1341	2.7953
3.5	2.4609	1.4336	1.16	.5096	1.9621	.7600	.5194	.7543	.9136	34.3491	71.1910	10.4339	.1391	2.7633
3.5	2.4609	1.4336	1.16	.5096	1.9621	.8100	.5558	.8086	.9807	34.4590	69.3503	10.0874	.1442	2.7313
3.5	2.4609	1.4336	1.16	.5096	1.9621	.8600	.5859	.8636	.10450	34.2665	67.6479	9.7410	.1495	2.6992
3.5	2.4609	1.4336	1.16	.5096	1.9621	.9100	.6106	.9193	.1070	33.8596	66.0553	9.3945	.1549	2.6671
3.5	2.4609	1.4336	1.16	.5096	1.9621	.9600	.6304	.9757	.1673	33.2930	64.5535	9.0481	.1605	2.6349
3.5	2.4609	1.4336	1.16	.5096	1.9621	1.0100	.6460	.0328	.2260	32.6027	63.1291	8.7016	.1662	2.6027
3.5	2.4609	1.4336	1.16	.5096	1.9621	1.0600	.6576	.0908	.2836	31.8126	61.7726	8.3552	.1719	2.5705
3.5	2.4609	1.4336	1.16	.5096	1.9621	1.1100	.6653	.1495	.3401	30.9390	60.4774	8.0087	.1778	2.5381
3.5	2.4609	1.4336	1.16	.5096	1.9621	1.1600	.6695	.2090	.3959	29.9929	59.2395	7.6623	.1	

3.5	2.4609	1.4336	1.24	.5759	1.7364	.5800	.0656	.5618	.5654	6.4482	87.6971	11.4040	.1135	3.3152
3.5	2.4609	1.4336	1.24	.5759	1.7364	.6300	.2324	.6134	.6538	20.2456	81.6336	11.0336	.1169	3.2809
3.5	2.4609	1.4336	1.24	.5759	1.7364	.6800	.3144	.6656	.7332	24.8110	78.3892	10.6633	.1203	3.2466
3.5	2.4609	1.4336	1.24	.5759	1.7364	.7300	.3726	.7183	.8064	27.0379	75.8703	10.2929	.1238	3.2123
3.5	2.4609	1.4336	1.24	.5759	1.7364	.7800	.4171	.7716	.8750	28.1335	73.7402	9.9226	.1273	3.1778
3.5	2.4609	1.4336	1.24	.5759	1.7364	.8300	.4520	.8256	.9401	28.5699	71.8656	9.5522	.1309	3.1434
3.5	2.4609	1.4336	1.24	.5759	1.7364	.8800	.4794	.8802	.1.0023	28.5793	70.1788	9.1819	.1344	3.1088
3.5	2.4609	1.4336	1.24	.5759	1.7364	.9300	.5006	.9354	.1.0623	28.2911	68.6408	8.8115	.1379	3.0742
3.5	2.4609	1.4336	1.24	.5759	1.7364	.9800	.5163	.9913	.1.1205	27.7831	67.2281	8.4412	.1415	3.0395
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.0300	.5272	.1.0479	.1.1772	27.1044	65.9265	8.0708	.1449	3.0048
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.0800	.5335	.1.1052	.1.2327	26.2867	64.7283	7.7005	.1483	2.9699
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.1300	.5354	.1.1633	.1.2872	25.3509	63.6311	7.3301	.1516	2.9349
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.1800	.5330	.1.2221	.1.3410	24.3101	62.6373	6.9598	.1547	2.8997
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.2300	.5265	.1.2817	.1.3941	23.1718	61.7546	6.5894	.1576	2.8644
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.2800	.5156	.1.3421	.1.4469	21.9391	60.9965	6.2191	.1603	2.8289
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.3300	.5002	.1.4034	.1.4994	20.6107	60.3853	5.8488	.1627	2.7932
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.3800	.4801	.1.4657	.1.5518	19.1816	59.9545	5.4784	.1648	2.7572
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.4300	.4548	.1.5289	.1.6043	17.6413	59.7562	5.1081	.1664	2.7208
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.4800	.4236	.1.5931	.1.6571	15.9730	59.8723	4.7377	.1674	2.6841
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.5300	.3857	.1.6585	.1.7104	14.1488	60.4374	4.3674	.1678	2.6468
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.5800	.3393	.1.7251	.1.7644	12.1216	61.6905	3.9970	.1675	2.6089
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.6300	.2815	.1.7931	.1.8196	9.7998	64.1065	3.6267	.1663	2.5702
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.6800	.2049	.1.8626	.1.8764	6.9548	68.8595	3.2563	.1640	2.5303
3.5	2.4609	1.4336	1.24	.5759	1.7364	1.7300	.0686	.1.9339	.1.9354	2.2695	81.8709	2.8860	.1605	2.4889

3.5	2.4609	1.4336	1.28	.6156	1.6245	.6200	.0633	.6019	.6050	5.8253	87.6709	10.9595	.1121	3.5167
3.5	2.4609	1.4336	1.28	.6156	1.6245	.6700	.2159	.6537	.6868	17.8642	81.8357	10.5773	.1149	3.4812
3.5	2.4609	1.4336	1.28	.6156	1.6245	.7200	.2906	.7061	.7614	21.9773	78.7078	10.1950	.1178	3.4457
3.5	2.4609	1.4336	1.28	.6156	1.6245	.7700	.3427	.7591	.8309	23.9895	76.2957	9.8127	.1207	3.4100
3.5	2.4609	1.4336	1.28	.6156	1.6245	.8200	.3816	.8126	.8963	24.9550	74.2740	9.4304	.1236	3.3743
3.5	2.4609	1.4336	1.28	.6156	1.6245	.8700	.4111	.8668	.9587	25.2946	72.5149	9.0481	.1264	3.3386
3.5	2.4609	1.4336	1.28	.6156	1.6245	.9200	.4333	.9216	.1.0187	25.2190	70.9552	8.6658	.1292	3.3027
3.5	2.4609	1.4336	1.28	.6156	1.6245	.9700	.4492	.9770	.1.0767	24.8466	69.5600	8.2835	.1318	3.2668
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.0200	.4595	.1.0331	.1.1330	24.2488	68.3107	7.9012	.1344	3.2307
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.0700	.4646	.1.0898	.1.1881	23.4705	67.1991	7.5189	.1369	3.1945
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.1200	.4648	.1.1473	.1.2422	22.5395	66.2257	7.1366	.1391	3.1581
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.1700	.4602	.1.2055	.1.2954	21.4729	65.3986	6.7543	.1412	3.1216
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.2200	.4508	.1.2645	.1.3481	20.2792	64.7354	6.3720	.1430	3.0848
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.2700	.4363	.1.3243	.1.4003	18.9600	64.2655	5.9897	.1445	3.0478
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.3200	.4164	.1.3849	.1.4522	17.5097	64.0356	5.6074	.1457	3.0105
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.3700	.3906	.1.4465	.1.5041	15.9144	64.1200	5.2251	.1464	2.9729
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.4200	.3579	.1.5090	.1.5562	14.1477	64.6401	4.8428	.1462	2.8961
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.4700	.3168	.1.5725	.1.6086	12.1615	65.8087	4.0783	.1452	2.8566
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.5200	.2641	.1.6372	.1.6617	9.8582	68.0427	4.0783	.1433	2.8163
3.5	2.4609	1.4336	1.28	.6156	1.6245	1.5700	.1924	.1.7031	.1.7158	6.9868	72.3629	3.6960	.1405	2.7747

LOOP 8RANCH (M1 FROM 1 TO 5)

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
4.0	2.6018	1.4931	1.00	.3844	2.6018	.3900	.1082	.3747	.3888	15.5060	87.1993	17.3220	.0614	2.5613
4.0	2.6018	1.4931	1.00	.3844	2.6018	.4400	.3356	.4255	.5351	37.3300	81.1769	16.9530	.0650	2.5276
4.0	2.6018	1.4931	1.00	.3844	2.6018	.4900	.4566	.4770	.6520	42.9808	77.7989	16.5840	.0689	2.4940
4.0	2.6018	1.4931	1.00	.3844	2.6018	.5400	.5472	.5293	.7535	45.3800	75.1360	16.2150	.0731	2.4603
4.0	2.6018	1.4931	1.00	.3844	2.6018	.6400	.6208	.5823	.8453	46.4573	72.8506	15.8460	.0776	2.4266
4.0	2.6018	1.4931	1.00	.3844	2.6018	.6900	.7365	.6361	.9302	46.8582	70.8064	15.4771	.0824	2.3930
4.0	2.6018	1.4931	1.00	.3844	2.6018	.7400	.7832	.7460	1.0101	46.8659	68.9319	15.1081	.0876	2.3593
4.0	2.6018	1.4931	1.00	.3844	2.6018	.7900	.8243	.8023	1.0863	46.6251	67.1844	14.7391	.0932	2.3256
4.0	2.6018	1.4931	1.00	.3844	2.6018	.8400	.8606	.8594	1.1595	46.2178	65.5355	14.3701	.0992	2.2919
4.0	2.6018	1.4931	1.00	.3844	2.6018	.8900	.8926	.9174	1.2303	45.6935	63.9657	14.0012	.1056	2.2582
4.0	2.6018	1.4931	1.00	.3844	2.6018	.9400	.9208	.9764	1.2993	45.0838	62.4602	13.6322	.1125	2.2245
4.0	2.6018	1.4931	1.00	.3844	2.6018	.9900	.9456	1.0363	1.4331	43.6859	59.6007	12.8942	.1200	2.1907
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.0400	.9672	1.0973	1.4985	42.9221	58.2309	12.5252	.1280	2.1570
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.0900	.9858	1.1593	1.5631	42.1257	56.8930	12.1563	.1367	2.1232
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.1400	1.0016	1.2224	1.6272	41.3015	55.5821	11.7873	.1461	2.0895
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.1900	1.0147	1.2866	1.6909	40.4534	54.2941	11.4183	.1562	2.0557
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.2400	1.0252	1.3520	1.7543	39.5839	53.0253	11.0493	.1671	2.0219
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.2900	1.0333	1.4187	1.8177	38.6947	51.7724	10.6803	.1789	1.9881
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.3400	1.0389	1.4866	1.8811	37.7869	50.5327	10.3114	.1917	1.9543
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.3900	1.0422	1.5558	1.9446	36.8612	49.3033	9.9424	.2055	1.9205
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.4400	1.0431	1.6265	2.0083	35.9177	48.0819	9.5734	.2205	1.8866
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.4900	1.0416	1.6986	2.0725	34.9563	46.8660	9.2044	.2543	1.8188
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.5400	1.0378	1.7722	2.1371	33.9765	45.6536	8.8354	.2733	1.7849
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.5900	1.0317	1.8474	2.2022	32.9774	44.4423	8.4665	.2939	1.7509
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.6400	1.0231	1.9243	2.2680	31.9579	43.2300	8.0975	.3162	1.7169
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.6900	1.0121	2.0029	2.3346	30.9167	42.0145	7.7285	.3403	1.6828
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.7400	.9986	2.0834	2.4021	29.8519	40.7936	7.3595	.3665	1.6487
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.8400	.9637	2.1658	2.4706	28.7614	39.5650	6.9906	.3947	1.6145
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.8900	.9420	2.2503	2.5403	27.6426	38.3261	6.6216	.4252	1.5803
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.9400	.9173	2.3426	2.6835	25.3074	35.8070	6.2526	.4580	1.5459
4.0	2.6018	1.4931	1.00	.3844	2.6018	1.9900	.8895	2.5174	2.7574	24.0828	34.5206	5.8836	.4934	1.5115
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.0400	.8581	2.6115	2.8331	22.8135	33.2117	5.1457	.5312	1.4770
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.0900	.8230	2.7084	2.9108	21.4927	31.8761	4.7767	.5716	1.4423
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.1400	.7837	2.8084	2.9908	20.1124	30.5090	4.4077	.6145	1.4075
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.1900	.7397	2.9118	3.0734	18.6623	29.1048	4.0387	.6597	1.3724
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.2400	.6904	3.0188	3.1589	17.1289	27.6565	3.6697	.7069	1.3371
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.2900	.6348	3.1300	3.2480	15.4948	26.1557	3.3008	.8047	1.2652
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.3400	.5720	3.2459	3.3414	13.7361	24.5913	2.9318	.8531	1.2284
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.3900	.5001	3.3673	3.4402	11.8193	22.9494	2.5628	.8991	1.1907
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.4400	.4169	3.4955	3.5461	9.6949	21.2105	2.1938	.9400	1.1519
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.4900	.3183	3.6326	3.6622	7.2854	19.3475	1.8248	.9726	1.1106
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.5400	.1981	3.7826	3.7941	4.4598	17.3187	1.4559	.9933	1.0658
4.0	2.6018	1.4931	1.00	.3844	2.6018	2.5900	.0438	3.9543	3.9549	.9682	15.0562	1.0869	.9999	1.0140
4.0	2.6018	1.4931	1.04	.4056	2.4657	.4100	.0924	.3941	.4040	12.7040	87.5284	17.0533	.0608	2.7670
4.0	2.6018	1.4931	1.04	.4056	2.4657	.4600	.3195	.4450	.5418	34.7825	81.3136	16.6696	.0642	2.7320
4.0	2.6018	1.4931	1.0											

4.0	2.6018	1.4931	1.08	.4279	2.3370	.4300	.0613	.4136	.4177	8.1169	88.3060	16.7729	.0602	2.9806
4.0	2.6018	1.4931	1.08	.4279	2.3370	.4800	.3006	.4645	.5480	32.0563	81.5507	16.3744	.0633	2.9442
4.0	2.6018	1.4931	1.08	.4279	2.3370	.5300	.4147	.5161	.6553	38.0423	78.1329	15.9759	.0666	2.9078
4.0	2.6018	1.4931	1.08	.4279	2.3370	.5800	.4987	.5683	.7495	40.6871	75.4669	15.5774	.0700	2.8713
4.0	2.6018	1.4931	1.08	.4279	2.3370	.6300	.5660	.6213	.8352	41.9371	73.1904	15.1789	.0736	2.8349
4.0	2.6018	1.4931	1.08	.4279	2.3370	.6800	.6222	.6749	.9148	42.4577	71.1609	14.7804	.0775	2.7984
4.0	2.6018	1.4931	1.08	.4279	2.3370	.7300	.6700	.7293	.9900	42.5462	69.3048	14.3819	.0816	2.7620
4.0	2.6018	1.4931	1.08	.4279	2.3370	.7800	.7112	.7845	.1.0616	42.3569	67.5783	13.9834	.0859	2.7255
4.0	2.6018	1.4931	1.08	.4279	2.3370	.8300	.7468	.8404	.1.1305	41.9782	65.9530	13.5849	.0905	2.6890
4.0	2.6018	1.4931	1.08	.4279	2.3370	.8800	.7776	.8972	.1.1972	41.4639	64.4089	12.7880	.0954	2.6525
4.0	2.6018	1.4931	1.08	.4279	2.3370	.9300	.8041	.9547	.1.3256	40.1565	61.5098	11.3895	.1005	2.6159
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.0300	.8461	.1.0132	.1.3880	39.4023	60.1355	11.9910	.1117	2.5428
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.1300	.8750	.1.1939	.1.5100	37.7506	57.5029	11.1940	.1243	2.4695
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.1800	.8849	.1.2561	.1.5701	36.8663	56.2348	10.7955	.1311	2.4329
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.2300	.8920	.1.3193	.1.6297	35.9487	54.9936	10.3970	.1383	2.3962
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.2800	.8963	.1.3836	.1.6891	35.0006	53.7764	9.9985	.1459	2.3595
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.3300	.8979	.1.4490	.1.7483	34.0233	52.5806	9.6000	.1540	2.3227
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.3800	.8968	.1.5155	.1.8074	33.0178	51.4042	9.2015	.1624	2.2859
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.4300	.8930	.1.5833	.1.8666	31.9840	50.2456	8.8030	.1713	2.2490
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.4800	.8865	.1.6522	.1.9260	30.9215	49.1038	8.4045	.1806	2.2121
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.5300	.8773	.1.7225	.1.9856	29.8292	47.9780	8.0060	.1904	2.1751
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.5800	.8652	.1.7942	.2.0456	28.7053	46.8681	7.6075	.2006	2.1380
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.6300	.8502	.1.8673	.2.1060	27.5477	45.7747	7.2090	.2112	2.1008
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.6800	.8323	.1.9418	.2.1671	26.3533	44.6992	6.8105	.2221	2.0636
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.7300	.8111	.2.0180	.2.2288	25.1184	43.6440	6.4120	.2334	2.0262
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.7800	.7865	.2.0959	.2.2913	23.8384	42.6133	6.0135	.2449	1.9886
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.8300	.7583	.2.1755	.2.3548	22.5075	41.6134	5.6150	.2565	1.9508
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.8800	.7261	.2.2570	.2.4195	21.1184	40.6542	5.2165	.2681	1.9129
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.9300	.6896	.2.3405	.2.4855	19.6620	39.7513	4.8180	.2796	1.8746
4.0	2.6018	1.4931	1.08	.4279	2.3370	1.9800	.6482	.2.4263	.2.5530	18.1265	38.9292	4.4195	.2906	1.8360
4.0	2.6018	1.4931	1.08	.4279	2.3370	2.0300	.6012	.2.5145	.2.6224	16.4963	38.2285	4.0210	.3008	1.7969
4.0	2.6018	1.4931	1.08	.4279	2.3370	2.0800	.5476	.2.6054	.2.6941	14.7505	37.7195	3.6225	.3099	1.7572
4.0	2.6018	1.4931	1.08	.4279	2.3370	2.1300	.4862	.2.6993	.2.7687	12.8593	37.5334	3.2240	.3172	1.7167
4.0	2.6018	1.4931	1.08	.4279	2.3370	2.1800	.4150	.2.7969	.2.8471	10.7784	37.9416	2.8255	.3222	1.6749
4.0	2.6018	1.4931	1.08	.4279	2.3370	2.2300	.3306	.2.8988	.2.9305	8.4338	39.6027	2.4270	.3241	1.6315
4.0	2.6018	1.4931	1.08	.4279	2.3370	2.2800	.2264	.3.0067	.3.0215	5.6714	44.6349	2.0285	.3218	1.5853
4.0	2.6018	1.4931	1.08	.4279	2.3370	2.3300	.0700	.3.1230	.3.1244	1.7214	68.0278	1.6300	.3143	1.5346
4.0	2.6018	1.4931	1.12	.4515	2.2146	.4600	.1177	.4432	.4574	14.3572	86.6283	16.3980	.0601	3.1946
4.0	2.6018	1.4931	1.12	.4515	2.2146	.5100	.3048	.4943	.5758	30.8630	81.1097	.0629	3.1568	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.5600	.4086	.5460	.6759	36.1169	77.8533	.0659	3.1190	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.6100	.4859	.5984	.7650	38.5384	75.2724	.0690	3.0811	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.6600	.5480	.6515	.8467	39.7005	73.0550	.0723	3.0433	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.7100	.5996	.7052	.9230	40.1796	71.0726	.0758	3.0054	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.7600	.6432	.7597	.9952	40.2436	69.2571	.0794	2.9675	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.8100	.6805	.8149	.1.0643	40.0353	67.5679	.0832	2.9296	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.8600	.7124	.8708	.1.1308	39.6379	65.9779	.0872	2.8917	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.9100	.7396	.9276	.1.1953	39.1030	64.4685	.0915	2.8537	
4.0	2.6018	1.4931	1.12	.4515	2.2146	.960								

4.0	2.6018	1.4931	1.20	.5039	1.9845	.5100	.0916	.4923	.5002	10.1768	87.1898	15.6837	.0589	3.6526
4.0	2.6018	1.4931	1.20	.5039	1.9845	.5600	.2725	.5436	.6045	25.9453	81.4629	15.2409	.0612	3.6120
4.0	2.6018	1.4931	1.20	.5039	1.9845	.6100	.3676	.5955	.6953	31.0772	78.2343	14.7981	.0636	3.5713
4.0	2.6018	1.4931	1.20	.5039	1.9845	.6600	.4372	.6480	.7773	33.5223	75.6986	14.3554	.0661	3.5307
4.0	2.6018	1.4931	1.20	.5039	1.9845	.7100	.4922	.7012	.8531	34.7294	73.5334	13.9126	.0687	3.4900
4.0	2.6018	1.4931	1.20	.5039	1.9845	.7600	.5370	.7550	.9244	35.2450	71.6081	13.4698	.0713	3.4493
4.0	2.6018	1.4931	1.20	.5039	1.9845	.8100	.5741	.8094	.9921	35.3296	69.8548	13.0270	.0741	3.4085
4.0	2.6018	1.4931	1.20	.5039	1.9845	.8600	.6050	.8646	1.0571	35.1247	68.2332	12.5843	.0769	3.3677
4.0	2.6018	1.4931	1.20	.5039	1.9845	.9100	.6304	.9204	1.1198	34.7142	66.7171	12.1415	.0798	3.3269
4.0	2.6018	1.4931	1.20	.5039	1.9845	.9600	.6512	.9770	1.1806	34.1504	65.2888	11.6987	.0829	3.2860
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.0100	.6677	1.0344	1.2400	33.4677	63.9360	11.2560	.0859	3.2451
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.0600	.6802	1.0925	1.2981	32.6892	62.6498	10.8132	.0891	3.2041
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.1100	.6891	1.1514	1.3553	31.8307	61.4243	10.3704	.0923	3.1630
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.1600	.6943	1.2112	1.4116	30.9028	60.2556	9.9276	.0956	3.1219
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.2100	.6961	1.2718	1.4673	29.9127	59.1418	9.4849	.0989	3.0807
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.2600	.6945	1.3334	1.5225	28.8648	58.0827	9.0421	.1023	3.0394
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.3100	.6896	1.3958	1.5774	27.7616	57.0800	8.5993	.1056	2.9981
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.3600	.6811	1.4592	1.6320	26.6035	56.1376	8.1565	.1089	2.9566
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.4100	.6692	1.5236	1.6865	25.3896	55.2621	7.7138	.1121	2.9149
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.4600	.6536	1.5891	1.7411	24.1170	54.4633	7.2710	.1153	2.8731
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.5100	.6342	1.6557	1.7958	22.7813	53.7560	6.8282	.1182	2.8311
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.5600	.6106	1.7234	1.8507	21.3761	53.1619	6.3854	.1210	2.7888
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.6100	.5826	1.7924	1.9061	19.8922	52.7130	5.9427	.1235	2.7462
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.6600	.5495	1.8627	1.9621	18.3171	52.4577	5.4999	.1256	2.7033
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.7100	.5108	1.9343	2.0188	16.6330	52.4725	5.0571	.1273	2.6599
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.7600	.4655	2.0076	2.0766	14.8139	52.8833	4.6143	.1284	2.5712
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.8100	.4119	2.0825	2.1357	12.8192	53.9137	4.1716	.1282	2.5254
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.8600	.3474	2.1593	2.1967	10.5783	56.0051	3.7288	.1282	2.4782
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.9100	.2664	2.2384	2.2601	7.9396	60.1979	3.2860	.1265	2.4288
4.0	2.6018	1.4931	1.20	.5039	1.9845	1.9600	.1498	2.3202	2.3270	4.3718	70.1507	2.8432	.1235	2.4288

4.0	2.6018	1.4931	1.24	.5334	1.8748	.5400	.0905	.5220	.5293	9.5105	87.1171	15.2586	.0583	3.8888
4.0	2.6018	1.4931	1.24	.5334	1.8748	.5900	.2596	.5735	.6265	23.7494	81.5453	14.8011	.0604	3.8468
4.0	2.6018	1.4931	1.24	.5334	1.8748	.6400	.3488	.6255	.7124	28.5922	78.3809	14.3436	.0625	3.8047
4.0	2.6018	1.4931	1.24	.5334	1.8748	.6900	.4136	.6781	.7906	30.9386	75.8992	13.8860	.0647	3.7626
4.0	2.6018	1.4931	1.24	.5334	1.8748	.7400	.4642	.7314	.8634	32.1026	73.7857	13.4285	.0669	3.7204
4.0	2.6018	1.4931	1.24	.5334	1.8748	.7900	.5051	.7853	.9320	32.5924	71.9128	12.9710	.0692	3.6782
4.0	2.6018	1.4931	1.24	.5334	1.8748	.8400	.5383	.8398	.9975	32.6547	70.2145	12.5134	.0716	3.6360
4.0	2.6018	1.4931	1.24	.5334	1.8748	.8900	.5654	.8950	1.0603	32.4251	68.6517	12.0559	.0740	3.5937
4.0	2.6018	1.4931	1.24	.5334	1.8748	.9400	.5870	.9509	1.1211	31.9849	67.1996	11.5984	.0764	3.5514
4.0	2.6018	1.4931	1.24	.5334	1.8748	.9900	.6039	1.0075	1.1802	31.3850	65.8418	11.1408	.0789	3.5090
4.0	2.6018	1.4931	1.24	.5334	1.8748	1.0400	.6165	1.0649	1.2379	30.6591	64.5677	10.6833	.0814	3.4665
4.0	2.6018	1.4931	1.24	.5334	1.8748	1.0900	.6250	1.1230	1.2945	29.8294	63.3703	10.2258	.0839	3.4240
4.0	2.6018	1.4931	1.24	.5334	1.8748	1.1400	.6296	1.1819	1.3501	28.9109	62.2460	9.7682	.0864	3.3814
4.0	2.6018	1.4931	1.24	.5334	1.8748	1.1900	.6304	1.2416	1.4050	27.9136	61.1938	9.3107	.0888	3.3387
4.0	2.6018	1.4931	1.24	.5334	1.									

4.0	2.6018	1.4931	1.32	.6025	1.6597	.6100	.0852	.5919	.5977	7.9495	87.0529	14.2580	.0570	4.3740
4.0	2.6018	1.4931	1.32	.6025	1.6597	.6600	.2301	.6437	.6817	19.2197	81.8396	13.7709	.0585	4.3290
4.0	2.6018	1.4931	1.32	.6025	1.6597	.7100	.3062	.6961	.7581	23.3279	78.8577	13.2839	.0601	4.2840
4.0	2.6018	1.4931	1.32	.6025	1.6597	.7600	.3601	.7491	.8290	25.3541	76.5390	12.7968	.0617	4.2389
4.0	2.6018	1.4931	1.32	.6025	1.6597	.8100	.4010	.8027	.8957	26.3373	74.5879	12.3098	.0633	4.1938
4.0	2.6018	1.4931	1.32	.6025	1.6597	.8600	.4325	.8569	.9591	26.6979	72.8852	11.8227	.0649	4.1486
4.0	2.6018	1.4931	1.32	.6025	1.6597	.9100	.4566	.9117	1.0200	26.6471	71.3707	11.3357	.0665	4.1033
4.0	2.6018	1.4931	1.32	.6025	1.6597	.9600	.4745	.9671	1.0788	26.3036	70.0109	10.8486	.0680	4.0579
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.0100	.4869	1.0232	1.1360	25.7395	68.7869	10.3615	.0695	4.0125
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.0600	.4943	1.0801	1.1917	25.0000	67.6894	9.8745	.0709	3.9669
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.1100	.4968	1.1376	1.2463	24.1137	66.7161	9.3874	.0723	3.9211
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.1600	.4947	1.1958	1.3001	23.0985	65.8717	8.9004	.0735	3.8753
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.2100	.4880	1.2549	1.3531	21.9644	65.1676	8.4133	.0747	3.8292
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.2600	.4765	1.3147	1.4056	20.7147	64.6240	7.9263	.0757	3.7829
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.3100	.4600	1.3753	1.4577	19.3469	64.2725	7.4392	.0765	3.7364
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.3600	.4380	1.4369	1.5096	17.8520	64.1624	6.9522	.0771	3.6895
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.4100	.4100	1.4993	1.5614	16.2123	64.3707	6.4651	.0775	3.6422
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.4600	.3748	1.5628	1.6134	14.3968	65.0230	5.9781	.0776	3.5945
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.5100	.3306	1.6273	1.6658	12.3497	66.3396	5.4910	.0773	3.5462
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.5600	.2739	1.6929	1.7188	9.9582	68.7562	5.0040	.0766	3.4971
4.0	2.6018	1.4931	1.32	.6025	1.6597	1.6100	.1955	1.7598	1.7728	6.9231	73.3711	4.5169	.0754	3.4470

4.0	2.6018	1.4931	1.36	.6448	1.5509	.6500	.0657	.6321	.6354	5.7750	87.6191	13.6765	.0561	4.6224
4.0	2.6018	1.4931	1.36	.6448	1.5509	.7000	.2076	.6842	.7137	16.5218	82.2765	13.1746	.0575	4.5759
4.0	2.6018	1.4931	1.36	.6448	1.5509	.7500	.2776	.7368	.7857	20.3110	79.3838	12.6728	.0588	4.5294
4.0	2.6018	1.4931	1.36	.6448	1.5509	.8000	.3258	.7900	.8531	22.1616	77.1722	12.1710	.0601	4.4827
4.0	2.6018	1.4931	1.36	.6448	1.5509	.8500	.3612	.8438	.9169	23.0244	75.3415	11.6692	.0613	4.4361
4.0	2.6018	1.4931	1.36	.6448	1.5509	.9000	.3873	.8982	.9779	23.2850	73.7751	11.1674	.0625	4.3893
4.0	2.6018	1.4931	1.36	.6448	1.5509	.9500	.4060	.9532	1.0366	23.1380	72.4165	10.6656	.0637	4.3424
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.0000	.4182	1.0089	1.0935	22.6932	71.2375	10.1638	.0648	4.2953
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.0500	.4246	1.0652	1.1490	22.0163	70.2264	9.6620	.0658	4.2482
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.1000	.4255	1.1222	1.2032	21.1472	69.3832	9.1602	.0667	4.2008
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.1500	.4210	1.1799	1.2565	20.1091	68.7193	8.6583	.0675	4.1533
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.2000	.4112	1.2383	1.3090	18.9130	68.2583	8.1565	.0682	4.1055
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.2500	.3955	1.2975	1.3609	17.5592	68.0406	7.6547	.0687	4.0575
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.3000	.3737	1.3575	1.4125	16.0367	68.1313	7.1529	.0690	4.0091
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.3500	.3446	1.4184	1.4639	14.3194	68.6375	6.6511	.0690	3.9603
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.4000	.3066	1.4802	1.5153	12.3547	69.7455	6.1493	.0688	3.9110
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.4500	.2565	1.5429	1.5669	10.0318	71.8183	5.6475	.0682	3.8610
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.5000	.1856	1.6067	1.6190	7.0544	75.7521	5.1457	.0673	3.8102
4.0	2.6018	1.4931	1.36	.6448	1.5509	1.5500	.0249	1.6717	1.6719	.9212	87.9040	4.6438	.0660	3.7584

4.0	2.6018	1.4931	1.40	.6958	1.4371	.7000	.0530	.6829	.6849	4.3290	87.9754	12.9680	.0553	4.8677
4.0	2.6018	1.4931	1.40	.6958	1.4371	.7500	.1843	.7353	.7572	13.8075	82.7501			

LOOP BRANCH (MI FROM 1 TO 51

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*1)	Y(M2V*1)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
4.5	2.7136	1.5411	1.00	.3685	2.7136	.3700	.0575	.3551	.3593	8.8394	88.5936	21.9867	.0310	2.9864
4.5	2.7136	1.5411	1.00	.3685	2.7136	.4200	.3349	.4058	.5190	38.5651	81.6936	21.5389	.0330	2.9457
4.5	2.7136	1.5411	1.00	.3685	2.7136	.4700	.4647	.4573	.6431	44.6766	78.2977	21.0912	.0351	2.9049
4.5	2.7136	1.5411	1.00	.3685	2.7136	.5200	.5611	.5095	.7496	47.1764	75.6524	20.6435	.0374	2.8641
4.5	2.7136	1.5411	1.00	.3685	2.7136	.5700	.6393	.5626	.8453	48.2790	73.3940	20.1957	.0399	2.8233
4.5	2.7136	1.5411	1.00	.3685	2.7136	.6200	.7054	.6164	.9336	48.6858	71.3803	19.7480	.0426	2.7825
4.5	2.7136	1.5411	1.00	.3685	2.7136	.6700	.7625	.6710	.0166	48.6958	69.5379	19.3002	.0454	2.7417
4.5	2.7136	1.5411	1.00	.3685	2.7136	.7200	.8126	.7265	.0955	48.4587	67.8232	18.8525	.0486	2.7008
4.5	2.7136	1.5411	1.00	.3685	2.7136	.8200	.8962	.8402	.1714	48.0580	66.2078	18.4047	.0520	2.6600
4.5	2.7136	1.5411	1.00	.3685	2.7136	.8700	.9313	.8985	.2447	47.5438	64.6717	17.9570	.0556	2.6192
4.5	2.7136	1.5411	1.00	.3685	2.7136	.9200	.9624	.9577	.3162	46.9477	63.2004	17.5092	.0596	2.5784
4.5	2.7136	1.5411	1.00	.3685	2.7136	.9700	.9901	.0180	.3860	46.2907	61.7829	17.0615	.0639	2.5375
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.0200	.0146	.0794	.5224	44.8466	59.0763	16.6138	.0686	2.4967
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.0700	.0361	.1418	.5894	44.0765	57.7746	15.7183	.0737	2.4558
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.1200	.0548	.2054	.6558	43.2818	56.5005	15.2705	.0792	2.4150
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.1700	.0708	.2702	.7219	42.4660	55.2501	14.8228	.0853	2.3741
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.2200	.0844	.3363	.7878	41.6318	54.0198	14.3750	.0919	2.3332
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.2700	.0955	.4036	.8536	40.7809	52.8065	13.9273	.1069	2.2923
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.3200	.1043	.4723	.9195	39.9146	51.6074	13.4795	.1155	2.2514
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.3700	.1107	.5424	.9857	39.0337	50.4199	13.0318	.1250	2.2105
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.4200	.1150	.6140	.0521	38.1384	49.2419	12.5841	.1353	2.1886
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.4700	.1170	.6871	.1189	37.2289	48.0710	12.1363	.1466	2.0877
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.5200	.1167	.7619	.1863	36.3049	46.9052	11.6886	.1590	2.0467
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.5700	.1143	.8384	.2544	35.3659	45.7426	11.2408	.1727	2.0057
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.6200	.1097	.9166	.3232	34.4113	44.5812	10.7931	.1877	1.9646
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.6700	.1028	.9968	.3929	33.4401	43.4192	10.3453	.2042	1.9236
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.7200	.0937	.0789	.4636	32.4511	42.2545	9.8976	.2224	1.8825
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.7700	.0822	.1631	.5354	31.4430	41.0852	9.4499	.2424	1.8414
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.8200	.0684	.2495	.6084	30.4139	39.9093	9.0021	.2645	1.8002
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.8700	.0521	.3382	.6828	29.3620	38.7247	8.5544	.2888	1.7590
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.9200	.0332	.4294	.7588	28.2848	37.5291	8.1066	.3156	1.7177
4.5	2.7136	1.5411	1.00	.3685	2.7136	1.9700	.0116	.5232	.8364	27.1795	36.3200	7.6589	.3451	1.6764
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.0200	.9871	.6198	.9158	26.0428	35.0948	7.2111	.4132	1.5934
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.0700	.9596	.7194	.9974	24.8708	33.8503	6.7634	.4523	1.5518
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.1200	.9288	.8222	.0811	23.6586	32.5832	6.3156	.4949	1.5101
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.1700	.8944	.9284	.1674	22.4005	31.2897	5.8679	.5413	1.4681
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.2200	.8561	.1524	.2565	21.0893	29.9651	4.9724	.5914	1.4260
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.2700	.8135	.1524	.3487	19.7160	28.6039	4.5247	.6451	1.3835
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.3200	.7659	.2708	.5443	16.7333	25.7445	4.0769	.7019	1.3407
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.3700	.7125	.3942	.6490	15.0886	24.2277	3.6292	.7609	1.2974
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.4200	.6524	.5232	.7596	13.3065	22.6361	3.1814	.8205	1.2534
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.4700	.5842	.6586	.8774	11.3455	20.9516	2.7337	.8783	1.2083
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.5200	.5056	.8017	.0052	9.1418	19.1484	2.2859	.9304	1.1616
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.5700	.4136	.9543	.1474	6.5883	17.1881	1.8382	.9716	1.1121
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.6200	.3026	.4052	.1314	3.4857	15.0080	1.3905	.9954	1.0573
4.5	2.7136	1.5411	1.00	.3685	2.7136	2.6700	.1626	.4306	.3141	3.4857	15.0080	1.3905	.9954	1.0573
4.5	2.7136	1.5411</td												

4.5	2.7136	1.5411	1.08	.4090	2.4448	.4100	.0432	.3940	.3962	6.0090	88.8768	21.3348	.0306	3.4738
4.5	2.7136	1.5411	1.08	.4090	2.4448	.4600	.3097	.4449	.5363	33.9467	81.8088	20.8512	.0317	3.4940
4.5	2.7136	1.5411	1.08	.4090	2.4448	.5100	.4300	.4964	.6493	40.1376	78.4334	20.3676	.0332	3.8935
4.5	2.7136	1.5411	1.08	.4090	2.4448	.5600	.5186	.5487	.7478	42.8045	75.8099	19.8841	.0348	3.8460
4.5	2.7136	1.5411	1.08	.4090	2.4448	.6100	.5900	.6016	.8370	44.0447	73.5733	19.4005	.0364	3.3415
4.5	2.7136	1.5411	1.08	.4090	2.4448	.6600	.6498	.6554	.9197	44.5528	71.5813	18.9170	.0380	3.2974
4.5	2.7136	1.5411	1.08	.4090	2.4448	.7100	.7010	.7098	.9975	44.6333	69.7608	18.4334	.0402	3.2532
4.5	2.7136	1.5411	1.08	.4090	2.4448	.7600	.7453	.7651	.1.0716	44.4423	68.0685	17.9498	.0425	3.2091
4.5	2.7136	1.5411	1.08	.4090	2.4448	.8100	.7841	.8212	.1.1429	44.0679	66.4760	17.4663	.0447	3.1207
4.5	2.7136	1.5411	1.08	.4090	2.4448	.8600	.8179	.8781	.1.2119	43.5639	64.9637	16.9827	.0504	3.0765
4.5	2.7136	1.5411	1.08	.4090	2.4448	.9100	.8475	.9359	.1.2790	42.9644	63.5172	16.4991	.0534	3.0323
4.5	2.7136	1.5411	1.08	.4090	2.4448	.9600	.8733	.9946	.1.3446	42.2924	62.1257	16.0156	.0567	2.9881
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.0100	.8956	1.0543	.1.4090	41.5634	60.7808	15.5320	.0601	2.8499
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.0600	.9146	1.1149	.1.4725	40.7885	59.4756	15.0484	.0638	2.8896
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.1100	.9306	1.1765	.1.5352	39.9753	58.2049	14.5649	.0677	2.8554
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.1600	.9437	1.2391	.1.5974	39.1293	56.9641	14.0813	.0719	2.8111
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.2100	.9540	1.3028	.1.6591	38.2545	55.7494	13.5978	.0763	2.7668
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.2600	.9617	1.3677	.1.7205	37.3535	54.5578	13.1142	.0811	2.7224
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.3100	.9668	1.4337	.1.7818	36.4282	53.3864	12.6306	.0862	2.6781
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.3600	.9693	1.5009	.1.8431	35.4795	52.2332	12.1471	.0917	2.6337
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.4100	.9694	1.5694	.1.9044	34.5079	51.0961	11.6635	.0975	2.5893
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.4600	.9668	1.6391	.1.9660	33.5134	49.9736	11.1799	.1037	2.5448
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.5100	.9618	1.7103	.2.0278	32.4955	48.8645	10.6964	.1103	2.5003
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.5600	.9542	1.7829	.2.0900	31.4532	47.7678	10.2128	.1173	2.4557
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.6100	.9440	1.8570	.2.1527	30.3850	46.6829	9.7292	.1247	2.4111
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.6600	.9311	1.9327	.2.2160	29.2892	45.6096	9.2457	.1326	2.3664
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.7100	.9155	2.0100	.2.2799	28.1635	44.5482	8.7621	.1409	2.3216
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.7600	.8970	2.0890	.2.3447	27.0049	43.4996	8.2786	.1497	2.2767
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.8100	.8754	2.1699	.2.4104	25.8098	42.4656	7.7950	.1589	2.2317
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.8600	.8506	2.2528	.2.4771	24.5740	41.4492	7.3114	.1684	2.1866
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.9100	.8223	2.3377	.2.5451	23.2921	40.4551	6.8279	.1784	2.1413
4.5	2.7136	1.5411	1.08	.4090	2.4448	1.9600	.7902	2.4247	.2.6144	21.9574	39.4904	6.3443	.1885	2.0958
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.0100	.7540	2.5142	.2.6852	20.5616	38.5664	5.8607	.1988	2.0501
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.0600	.7131	2.6062	.2.7579	19.0941	37.7009	5.3772	.2090	2.0041
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.1100	.6669	2.7009	.2.8326	17.5411	36.9225	4.8936	.2189	1.9576
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.1600	.6146	2.7987	.2.9098	15.8839	36.2800	4.4100	.2283	1.9106
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.2100	.5550	2.8999	.2.9899	14.0968	35.8610	3.9265	.2365	1.8629
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.2600	.4862	3.0051	.3.0738	12.1422	35.8369	3.4429	.2432	1.8142
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.3100	.4057	3.1150	.3.1627	9.9606	36.5893	2.9593	.2474	1.7640
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.3600	.3084	3.2310	.3.2584	7.4446	39.1617	2.4758	.2482	1.7114
4.5	2.7136	1.5411	1.08	.4090	2.4448	2.4100	.1821	3.3554	.3.3650	4.3200	47.8548	1.9922	.2444	1.6547

4.5	2.7136	1.5411	1.12	.4308	2.3210	.4400	.1278	.4236	.4411	16.1973	86.5567	20.8870	.0306	3.7221
4.5	2.7136	1.5411	1.12	.4308	2.3210	.4900	.3202	.4746	.5670	33.1668	81.2229	20.3856	.0322	3.6764
4.5	2.7136	1.5411	1.12	.4308	2.3210	.5400	.4287	.5264	.6721	38.4471	78.0411	19.8841	.0338	3.6306
4.5	2.7136	1.5411	1.12	.4308	2.321									

4.5	2.7136	1.5411	1.20	.4785	2.0899	.4800	.0481	.4626	.4649	5.7235	88.6201	20.1420	.0299	4.2638
4.5	2.7136	1.5411	1.20	.4785	2.0899	.5300	.2755	.5137	.5790	27.4684	81.9460	19.6047	.0312	4.2147
4.5	2.7136	1.5411	1.20	.4785	2.0899	.5800	.3802	.5655	.6762	33.2463	78.6675	19.0674	.0325	4.1655
4.5	2.7136	1.5411	1.20	.4785	2.0899	.6300	.4563	.6179	.7630	35.9180	76.1229	18.5301	.0340	4.1164
4.5	2.7136	1.5411	1.20	.4785	2.0899	.6800	.5167	.6710	.8427	37.2302	73.9593	17.9928	.0354	4.0672
4.5	2.7136	1.5411	1.20	.4785	2.0899	.7300	.5664	.7247	.9173	37.9352	72.0388	17.4555	.0370	4.0179
4.5	2.7136	1.5411	1.20	.4785	2.0899	.7800	.6080	.6431	.8343	1.0554	37.7688	68.6733	.0386	3.9687
4.5	2.7136	1.5411	1.20	.4785	2.0899	.8300	.6727	.8902	.9879	37.9352	70.2908	16.9182	.0403	3.9194
4.5	2.7136	1.5411	1.20	.4785	2.0899	.8800	.6976	.9468	1.1205	37.3965	67.1593	15.8436	.0420	3.8701
4.5	2.7136	1.5411	1.20	.4785	2.0899	.9300	.7182	1.0042	1.1835	36.8735	65.7303	15.3063	.0439	3.8208
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.0300	.7349	1.0624	1.2450	36.2357	64.3731	14.7691	.0458	3.7714
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.0800	.7480	1.1215	1.3051	35.5072	63.0781	14.2318	.0477	3.7220
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.1300	.7576	1.1814	1.3641	34.7044	61.8384	13.6945	.0498	3.6726
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.1800	.7639	1.2422	1.4223	33.8388	60.6488	13.1572	.0519	3.6231
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.2300	.7670	1.3039	1.4798	32.9183	59.5059	12.6199	.0540	3.5735
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.2300	.7670	1.3039	1.5366	31.9482	58.4074	12.0826	.0563	3.5239
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.2800	.7670	1.3666	1.5931	30.9317	57.3523	11.5453	.0585	3.4742
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.3300	.7639	1.4302	1.6493	29.8706	56.3412	11.0080	.0609	3.4244
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.3800	.7576	1.4949	1.7054	28.7655	55.3755	10.4707	.0632	3.3746
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.4300	.7481	1.5607	1.7613	27.6154	54.4588	9.9334	.0656	3.3246
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.4800	.7353	1.6276	1.8173	26.4186	53.5963	9.3961	.0680	3.2745
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.5300	.7190	1.6956	1.8735	25.1719	52.7959	8.8588	.0703	3.2243
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.5800	.6992	1.7649	1.9300	23.8708	52.0694	8.3215	.0726	3.1738
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.6300	.6755	1.8354	1.9868	22.5093	51.4334	7.7842	.0748	3.1232
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.6800	.6476	1.9073	2.0441	21.0793	50.9122	7.2469	.0768	3.0723
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.7300	.6150	1.9807	2.1021	19.5697	50.5422	6.7097	.0787	3.0210
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.7800	.5772	2.0556	2.1609	17.9659	50.3787	6.1724	.0803	2.9694
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.8300	.5333	2.1321	2.2208	16.2468	50.5106	5.6351	.0815	2.9172
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.8800	.4821	2.2105	2.2820	14.3817	51.0880	5.0978	.0823	2.8644
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.9300	.4216	2.2909	2.3449	12.3215	52.3875	4.5605	.0825	2.8106
4.5	2.7136	1.5411	1.20	.4785	2.0899	1.9800	.3483	2.3736	2.4101	9.9769	54.9859	4.0232	.0820	2.7555
4.5	2.7136	1.5411	1.20	.4785	2.0899	2.0300	.2543	2.4591	2.4783	7.1390	60.3782	3.4859	.0805	2.6985
4.5	2.7136	1.5411	1.20	.4785	2.0899	2.0800	.1011	2.5481	2.5511	2.7819	75.7225	2.9486	.0779	2.6387
4.5	2.7136	1.5411	1.24	.5049	1.9807	.5100	.0844	.4923	.4990	9.3993	87.4913	19.6369	.0297	4.5382
4.5	2.7136	1.5411	1.24	.5049	1.9807	.5600	.2718	.5436	.6042	25.8887	81.7605	19.0817	.0309	4.4874
4.5	2.7136	1.5411	1.24	.5049	1.9807	.6100	.3683	.5955	.6957	31.1236	78.6014	18.5265	.0321	4.4365
4.5	2.7136	1.5411	1.24	.5049	1.9807	.6600	.4388	.6481	.7782	33.6152	76.1298	17.9713	.0334	4.3857
4.5	2.7136	1.5411	1.24	.5049	1.9807	.7100	.4944	.7012	.8545	34.8502	74.0243	17.4161	.0347	4.3347
4.5	2.7136	1.5411	1.24	.5049	1.9807	.7600	.5398	.7551	.9262	35.3854	72.1560	16.8609	.0361	4.2838
4.5	2.7136	1.5411	1.24	.5049	1.9807	.8100	.5775	.8096	.9942	35.4852	70.4581	16.3057	.0375	4.2328
4.5	2.7136	1.5411	1.24	.5049	1.9807	.8600	.6088	.8648	1.0595	35.2932	68.8908	15.7505	.0389	4.1818
4.5	2.7136	1.5411	1.24	.5049	1.9807	.9100	.6347	.9207	1.1225	34.8939	67.4289	15.1953	.0404	4.1308
4.5	2.7136	1.5411	1.24	.5049	1.9807	.9600	.6559	.9773	1.1837	34.3404	66.0549	14.6401	.0420	4.0797
4.5	2.7136	1.5411	1.24	.5049	1.9807	1.0100	.6728	1.0348	1.2433	33.6674	64.7569	14.0849	.0435	4.0285
4.5	2.7136	1.5411	1.24	.5049	1.9807	1.0600	.6857	1.0929	1.3017	32.8981	63.5266	13.5297	.0452	3.9773
4.5	2.7136	1.5411	1.24	.5049	1.9807	1.1100	.6949	1.1519	1.3591	32.0484	62.3584	12.9745	.0468	3.9261
4.5	2.7136	1.5411	1.24	.5049	1.9807	1.1600	.7006</td							

4.5	2.7136	1.5411	1.32	.5650	1.7699	.5700	.0752	.5518	.5566	7.5202	87.5954	18.5623	.0291	5.1124
4.5	2.7136	1.5411	1.32	.5650	1.7699	.6200	.2438	.6034	.6484	21.4663	82.0324	17.9713	.0300	5.0581
4.5	2.7136	1.5411	1.32	.5650	1.7699	.6700	.3291	.6556	.7305	26.1588	78.9931	17.3803	.0310	5.0038
4.5	2.7136	1.5411	1.32	.5650	1.7699	.7200	.3902	.7084	.8058	28.4537	76.6323	16.7893	.0320	4.9494
4.5	2.7136	1.5411	1.32	.5650	1.7699	.7700	.4373	.7618	.8761	29.5958	74.6379	16.1983	.0329	4.8950
4.5	2.7136	1.5411	1.32	.5650	1.7699	.8200	.4748	.8158	.9427	30.0707	72.8854	15.6072	.0339	4.8406
4.5	2.7136	1.5411	1.32	.5650	1.7699	.8700	.5047	.8705	.0064	30.1163	71.3112	15.0162	.0350	4.7861
4.5	2.7136	1.5411	1.32	.5650	1.7699	.9200	.5283	.9258	.0676	29.8646	69.8786	14.4252	.0360	4.7315
4.5	2.7136	1.5411	1.32	.5650	1.7699	.9700	.5464	.9818	.1269	29.3947	68.5653	13.8342	.0370	4.6768
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.0200	.5597	.0385	.1846	28.7568	67.3573	13.2431	.0380	4.6221
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.0700	.5685	.0960	.2411	27.9831	66.2470	12.6521	.0390	4.5673
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.1200	.5730	.1541	.2964	27.0952	65.2311	12.0611	.0400	4.5124
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.1700	.5733	.2131	.3509	26.1066	64.3106	11.4701	.0409	4.4573
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.2200	.5696	.2728	.4047	25.0257	63.4905	10.8791	.0418	4.4021
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.2700	.5616	.3334	.4580	23.8562	62.7805	10.2880	.0427	4.3468
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.3200	.5494	.3948	.5108	22.5981	62.1963	9.6970	.0435	4.2912
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.3700	.5327	.4572	.5635	21.2478	61.7616	9.1060	.0441	4.2355
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.4200	.5112	.5205	.6160	19.7973	61.5116	8.5150	.0447	4.1794
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.4700	.4843	.5847	.6685	18.2334	61.4998	7.9239	.0451	4.1230
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.5200	.4512	.6500	.7212	16.5348	61.8088	7.3329	.0454	4.0661
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.5700	.4109	.7165	.7743	14.6676	62.5739	6.7419	.0455	4.0088
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.6200	.3613	.7841	.8279	12.5731	64.0330	6.1509	.0453	3.9507
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.6700	.2985	.8530	.8824	10.1353	66.6610	5.5598	.0448	3.8917
4.5	2.7136	1.5411	1.32	.5650	1.7699	.1.7200	.2127	.9235	.9381	7.0504	71.6645	4.9688	.0439	3.8315

4.5	2.7136	1.5411	1.36	.6002	1.6660	.6600	.2374	.6438	.6842	19.7825	81.8949	17.2621	.0296	5.3448
4.5	2.7136	1.5411	1.36	.6002	1.6660	.7100	.3132	.6963	.7610	23.8051	79.0366	16.6532	.0305	5.2887
4.5	2.7136	1.5411	1.36	.6002	1.6660	.7600	.3674	.7493	.8323	25.7992	76.8044	16.0442	.0313	5.2326
4.5	2.7136	1.5411	1.36	.6002	1.6660	.8100	.4086	.8029	.8993	26.7685	74.9243	15.4353	.0321	5.1764
4.5	2.7136	1.5411	1.36	.6002	1.6660	.8600	.4405	.8572	.9631	27.1239	73.2840	14.8264	.0329	5.1201
4.5	2.7136	1.5411	1.36	.6002	1.6660	.9100	.4651	.9120	.1.0243	27.0728	71.8265	14.2174	.0338	5.0638
4.5	2.7136	1.5411	1.36	.6002	1.6660	.9600	.4835	.9675	.1.0833	26.7325	70.5198	13.6085	.0346	5.0074
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.0100	.4964	.1.0237	.1.1407	26.1738	69.3459	12.9996	.0353	4.9508
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.0600	.5043	.1.0806	.1.1967	25.4415	68.2958	12.3906	.0361	4.8942
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.1100	.5074	.1.1382	.1.2515	24.5639	67.3676	11.7817	.0368	4.8374
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.1600	.5058	.1.1965	.1.3053	23.5587	66.5655	11.1728	.0375	4.7805
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.2100	.4996	.1.2556	.1.3585	22.4356	65.9003	10.5638	.0381	4.7234
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.2600	.4887	.1.3155	.1.4110	21.1980	65.3908	9.9549	.0386	4.6661
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.3100	.4727	.1.3763	.1.4631	19.8433	65.0666	9.3460	.0391	4.6085
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.3600	.4514	.1.4378	.1.5150	18.3625	64.9731	8.7370	.0394	4.5506
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.4100	.4240	.1.5003	.1.5667	16.7380	65.1807	8.1281	.0396	4.4924
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.4600	.3895	.1.5638	.1.6185	14.9393	65.8027	7.5192	.0395	4.4336
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.5100	.3462	.1.6283	.1.6705	12.9122	67.0344	6.9102	.0395	4.3743
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.5600	.2905	.1.6939	.1.7230	10.5493	69.2522	6.3013	.0391	4.3143
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.6100	.2143	.1.7606	.1.7762	7.5805	73.3599	5.6924	.0385	4.2532
4.5	2.7136	1.5411	1.36	.6002	1.6660	.1.6600	.0710	.1.8288	.1.8305	2.4504</td				

LOOP BRANCH (M FROM 1 TO 5)

GAMMA = 1.2

M1	M1*	DELMAX	DFL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SICMA	PR21	PTR21	TR21
5.0	2.8031	1.5799	1.00	.3568	2.8031	.3600	.0873	.3454	.3554	13.6255	87.9544	27.1471	.0159	3.4563
5.0	2.8031	1.5799	1.00	.3568	2.8031	.4100	.3496	.3962	.5207	40.4534	81.6886	26.6119	.0170	3.4076
5.0	2.8031	1.5799	1.00	.3568	2.8031	.4600	.4815	.4477	.6481	46.3073	78.3877	26.0768	.0182	3.3589
5.0	2.8031	1.5799	1.00	.3568	2.8031	.5100	.5800	.5000	.6481	46.3073	78.3877	25.5417	.0194	3.3102
5.0	2.8031	1.5799	1.00	.3568	2.8031	.5600	.6604	.5531	.8552	49.7014	73.5955	25.0065	.0208	3.2615
5.0	2.8031	1.5799	1.00	.3568	2.8031	.6100	.7285	.6071	.9456	50.0595	71.6242	24.4714	.0223	3.2127
5.0	2.8031	1.5799	1.00	.3568	2.8031	.6600	.7876	.6619	1.0305	50.0587	69.8202	23.9363	.0239	3.1640
5.0	2.8031	1.5799	1.00	.3568	2.8031	.7100	.8397	.7175	1.1113	49.7829	68.1411	23.4012	.0256	3.1153
5.0	2.8031	1.5799	1.00	.3568	2.8031	.7600	.8858	.7742	1.1889	49.3722	66.5593	22.8660	.0275	3.0665
5.0	2.8031	1.5799	1.00	.3568	2.8031	.8100	.9270	.8317	1.2641	48.8546	65.0554	22.3309	.0296	3.0178
5.0	2.8031	1.5799	1.00	.3568	2.8031	.8600	.9639	.8903	1.3373	48.2603	63.6153	21.7958	.0318	2.9691
5.0	2.8031	1.5799	1.00	.3568	2.8031	.9100	.9969	.9499	1.4089	47.6094	62.283	21.2606	.0343	2.9203
5.0	2.8031	1.5799	1.00	.3568	2.8031	.9600	1.0264	1.0105	1.4794	46.9153	60.8859	20.7255	.0370	2.8715
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.0100	1.0528	1.0723	1.5489	46.1876	59.5815	20.1904	.0399	2.8228
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.0600	1.0761	1.1352	1.6177	45.4329	58.3094	19.6553	.0431	2.7740
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.1100	1.0968	1.1994	1.6861	44.6562	57.6650	19.1201	.0467	2.7252
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.1600	1.1148	1.2648	1.7541	43.8607	55.8445	18.5850	.0506	2.6765
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.2100	1.1303	1.3315	1.8220	43.0490	54.6442	18.0499	.0548	2.6277
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.2600	1.1434	1.3996	1.8899	42.2229	53.4613	17.5147	.0595	2.5789
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.3100	1.1543	1.4691	1.9580	41.3836	52.2932	16.9796	.0647	2.5301
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.3600	1.1629	1.5401	2.0263	40.5318	51.1373	16.4445	.0705	2.4812
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.4100	1.1693	1.6126	2.0950	39.6680	49.9914	15.9093	.0768	2.4324
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.4600	1.1735	1.6869	2.1642	38.7922	48.8536	15.3742	.0838	2.3836
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.5100	1.1757	1.7628	2.2341	37.9045	47.7218	14.8391	.0916	2.3347
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.5600	1.1757	1.8405	2.3047	37.0045	46.5943	14.3040	.1003	2.2858
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.6100	1.1731	1.9202	2.3762	36.0917	45.4693	13.7688	.1099	2.2369
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.6600	1.1695	2.0018	2.4487	35.1654	44.3450	13.2337	.1206	2.1880
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.7100	1.1632	2.0855	2.5223	34.2246	43.2197	12.6986	.1325	2.1391
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.7600	1.1547	2.1715	2.5972	33.2685	42.0916	12.1634	.1459	2.0901
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.8100	1.1440	2.2598	2.6734	32.2955	40.9590	11.6283	.1608	2.0412
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.8600	1.1311	2.3507	2.7512	31.3044	39.8200	11.0932	.1775	1.9921
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.9100	1.1158	2.4441	2.8306	30.2933	38.6726	10.5581	.1962	1.9431
5.0	2.8031	1.5799	1.00	.3568	2.8031	1.9600	1.0981	2.5404	2.9119	29.2601	37.5148	10.0229	.2171	1.8940
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.0100	1.0779	2.6397	2.9953	28.2026	36.3441	9.4878	.2407	1.8448
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.0600	1.0550	2.7422	3.0808	27.1178	35.1589	8.9527	.2671	1.7956
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.1100	1.0292	2.8481	3.1688	26.0025	33.9555	8.4175	.2967	1.7464
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.1600	1.0005	2.9577	3.2595	24.8527	32.7312	7.8824	.3300	1.6970
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.2100	9684	3.0712	3.4501	23.6636	31.4826	7.3473	.3674	1.6475
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.2600	9329	3.1891	3.5506	22.4295	30.2055	6.8121	.4092	1.5980
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.3100	9540	3.3116	3.5506	21.1432	28.8952	6.2770	.4558	1.5482
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.3600	8494	3.4392	3.6552	19.7956	27.5460	5.7419	.5076	1.4983
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.4100	8005	3.5724	3.7643	18.3751	26.1508	5.2068	.5647	1.4481
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.4600	7458	3.7119	3.8788	16.8664	24.7010	4.6716	.6271	1.3975
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.5100	6842	3.8585	3.9993	15.2487	23.1853	4.1365	.6942	1.3465
5.0	2.8031	1.5799	1.00	.3568	2.8031	2.5600	6142	4.0132	4.1271	13.4925	21.5889	3.6014	.7646	1.29

5.0	2.8031	1.5799	1.08	.3952	2.5306	.4000	.0994	.3844	.3960	13.9526	87.5229	26.3765	.0158	4.0194
5.0	2.8031	1.5799	1.08	.3952	2.5306	.4500	.3306	.4353	.5401	36.3016	81.6317	25.7985	.0163	4.5680
5.0	2.8031	1.5799	1.08	.3952	2.5306	.5000	.4513	.4869	.6559	42.0715	78.3924	25.2206	.0171	4.5114
5.0	2.8031	1.5799	1.08	.3952	2.5306	.5500	.5414	.5392	.7566	44.5497	75.8480	24.6427	.0177	4.4547
5.0	2.8031	1.5799	1.08	.3952	2.5306	.6000	.6145	.5923	.8478	45.6834	73.6696	24.0647	.0187	3.8613
5.0	2.8031	1.5799	1.08	.3952	2.5306	.6500	.6761	.6461	.9321	46.1261	71.7251	23.4868	.0199	3.8087
5.0	2.8031	1.5799	1.08	.3952	2.5306	.7000	.7291	.7008	.0118	46.1658	69.9458	22.9088	.0211	3.7560
5.0	2.8031	1.5799	1.08	.3952	2.5306	.7500	.7753	.7562	.0876	45.9499	68.4902	22.3309	.0224	3.7033
5.0	2.8031	1.5799	1.08	.3952	2.5306	.8000	.8159	.8125	.1605	45.5621	66.7314	21.7530	.0238	3.6506
5.0	2.8031	1.5799	1.08	.3952	2.5306	.8500	.8516	.8697	.2311	45.0530	65.4505	21.1750	.0253	3.5979
5.0	2.8031	1.5799	1.08	.3952	2.5306	.9000	.8830	.9278	.2998	44.4552	63.8336	20.5971	.0269	3.5451
5.0	2.8031	1.5799	1.08	.3952	2.5306	.9500	.9107	.9868	.3670	43.7904	62.4703	20.0191	.0286	3.4924
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.0000	.9349	.10468	.4330	43.0732	61.1524	19.4412	.0304	3.3869
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.1000	.9739	.1698	.5625	41.5203	58.6280	18.2853	.0346	3.3341
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.2000	.10015	.1078	.4981	42.3140	59.8734	18.8633	.0369	3.2813
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.2500	.10114	.13627	.7529	38.9771	55.0524	16.5515	.0421	3.1757
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.3000	.10188	.14293	.8159	38.0843	53.9036	15.9736	.0449	3.1229
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.3500	.10236	.14973	.8790	37.1716	52.7721	15.3956	.0480	3.0700
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.4000	.10261	.15665	.9422	36.2393	51.6560	14.8177	.0514	3.0171
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.4500	.10262	.16371	.0057	35.2878	50.5536	14.2397	.0550	2.9642
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.5000	.10239	.17092	.0694	34.3167	49.4634	13.6618	.0589	2.9113
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.5500	.10191	.17828	.1337	33.3254	48.3841	13.0839	.0631	2.8583
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.6000	.10120	.18580	.1984	32.3129	47.3149	12.5059	.0676	2.8053
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.6500	.10023	.19348	.2638	31.2779	46.2550	11.9280	.0725	2.7522
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.7000	.19902	.20133	.3300	30.2188	45.2040	11.3500	.0777	2.6991
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.7500	.19754	.20937	.3970	29.1335	44.1617	10.7721	.0833	2.6460
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.8000	.19579	.21760	.4649	28.0194	43.1286	10.1942	.0893	2.5927
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.8500	.19375	.22604	.5340	26.8734	42.1057	9.6162	.0957	2.5394
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.9000	.19141	.23468	.6043	25.6919	41.0945	9.0383	.1099	2.4860
5.0	2.8031	1.5799	1.08	.3952	2.5306	1.9500	.18874	.24356	.6760	24.4702	40.0981	8.4603	.1175	2.3789
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.0000	.18573	.25268	.7492	23.2029	39.1209	7.8824	.1256	2.3251
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.0500	.18234	.26206	.8240	21.8831	38.1699	7.3045	.1340	2.2111
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.1000	.17852	.27171	.9009	20.5022	37.2560	6.7265	.1427	2.169
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.1500	.17424	.28167	.9799	19.0490	36.3965	6.1486	.1515	2.1623
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.2000	.16940	.29195	.0614	17.5090	35.6199	5.5706	.1602	2.1074
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.2500	.16393	.30260	.1458	15.8626	34.5743	4.9927	.1685	2.0519
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.3000	.15770	.32337	.10822	12.1268	34.5159	3.8368	.1760	1.9956
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.3500	.15049	.3260	.12.1268	34.5159	3.8368	.1824	1.9382	
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.4000	.14202	.3728	.9.9302	35.2770	3.2589	.1864	1.8792	
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.4500	.1369	.35010	.7.3700	37.9620	2.6809	.1973	1.8174	
5.0	2.8031	1.5799	1.08	.3952	2.5306	2.5000	.1799	.36398	.4.1162	47.6315	2.1030	.1838	1.7508	

5.0	2.8031	1.5799	1.12	.4157	2.4056	.4200	.0904	.4039	.4131	12.1472	87.6772	25.9655	.0156	4.3167
5.0	2.8031	1.5799	1.12	.4157	2.4056	.4700	.3172	.4548	.5487	34.0117	81.7173	25.3662	.0165	4.2621
5.0	2.8031	1.5799	1.12	.4157	2.4056	.5200	.4336	.5065	.6594	39.8242	78.4860	24.7668	.0174	4.2074
5.0	2.8031	1.5799	1.12	.4157	2.4056	.5700	.5201	.5588	.7565	42.3780	75.9529			

5.0	2.8031	1.5799	1.20	.4602	2.1730	.4700	.1264	.4530	.4691	15.0480	86.5383	24.9637	.0155	4.9315
5.0	2.8031	1.5799	1.20	.4602	2.1730	.5200	.3073	.5042	.5857	30.5817	81.4287	24.3216	.0162	4.8728
5.0	2.8031	1.5799	1.20	.4602	2.1730	.5700	.4098	.5561	.6849	35.7139	78.3572	23.6794	.0170	4.8142
5.0	2.8031	1.5799	1.20	.4602	2.1730	.6200	.4863	.6086	.7734	38.1077	75.4202	23.0373	.0178	4.7555
5.0	2.8031	1.5799	1.20	.4602	2.1730	.6700	.5478	.6617	.8547	39.2673	73.8282	22.3951	.0186	4.6969
5.0	2.8031	1.5799	1.20	.4602	2.1730	.7200	.5989	.6421	.7156	39.7521	71.9609	21.7530	.0195	4.6382
5.0	2.8031	1.5799	1.20	.4602	2.1730	.7700	.6420	.6790	.7702	39.8243	70.5547	21.1108	.0204	4.5794
5.0	2.8031	1.5799	1.20	.4602	2.1730	.8200	.6790	.7104	.8255	1.0028	39.6244	68.6712	.0214	4.5207
5.0	2.8031	1.5799	1.20	.4602	2.1730	.8700	.7372	.7959	.9385	1.0718	39.2348	67.1852	.0224	4.4619
5.0	2.8031	1.5799	1.20	.4602	2.1730	.9200	.7787	.7939	.9962	1.2026	38.7067	65.7792	.0235	4.4032
5.0	2.8031	1.5799	1.20	.4602	2.1730	.9700	.8058	.8146	.1.0547	1.2654	38.0735	64.4407	.0246	4.3444
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.0200	.8146	.8203	.1.1141	1.3269	37.3577	63.1604	.0258	4.2855
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.0700	.8230	.8270	.1.1441	1.3872	36.5747	61.9313	.0270	4.2266
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.1200	.8270	.8297	.1.1743	1.4467	35.7353	60.7481	.0283	4.1677
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.1700	.8297	.8333	.1.2355	1.5055	34.8471	59.6069	.0296	4.1088
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.2200	.8333	.8360	.1.2977	1.5637	33.9153	58.5049	.0310	4.0498
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.2700	.8360	.8397	.1.3608	1.6215	32.9433	57.4405	.0324	3.9907
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.3200	.8427	.8454	.1.4250	1.6791	31.9330	56.4128	.0339	3.9316
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.3700	.8454	.8492	.1.4902	1.7365	30.8853	55.4219	.0354	3.8724
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.4200	.8538	.8566	.1.7938	1.7938	29.8002	54.4691	.0370	3.8131
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.4700	.8604	.8640	.1.8511	1.8511	28.6767	53.5568	.0386	3.7537
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.5200	.8640	.8697	.1.9086	1.9664	27.3056	52.6891	.0403	3.6942
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.5700	.8761	.8762	.1.9664	2.0245	25.0512	51.1134	.0419	3.6346
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.6200	.8762	.8764	.2.0830	2.0830	23.7443	50.4263	.0435	3.5749
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.6700	.8834	.8907	.2.1421	2.1421	22.3782	49.8280	.0452	3.5149
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.7200	.8907	.8980	.2.2019	2.2019	20.9438	49.3441	.0467	3.4547
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.7700	.8980	.8984	.2.2626	2.2626	19.4293	49.6127	.0482	3.3943
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.8200	.8984	.8987	.2.3243	2.3243	17.8186	48.8928	.0496	3.3335
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.8700	.9011	.9011	.2.3872	2.3872	16.0888	49.0795	.0507	3.2723
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.9200	.9538	.9538	.2.4517	2.4517	14.2063	49.7368	.0516	3.2104
5.0	2.8031	1.5799	1.20	.4602	2.1730	1.9700	.9587	.9587	.2.5181	2.5181	12.1162	51.1731	.0522	3.1479
5.0	2.8031	1.5799	1.20	.4602	2.1730	2.0200	.9587	.9587	.2.5871	2.5871	9.7168	54.0538	.0524	3.0843
5.0	2.8031	1.5799	1.20	.4602	2.1730	2.0700	.9587	.9587	.2.6597	2.6597	6.7577	60.2111	.0520	3.0192
5.0	2.8031	1.5799	1.20	.4602	2.1730	2.1200	.9587	.9587	.2.7376	2.7376	1.5322	81.5096	.0508	2.9518
5.0	2.8031	1.5799	1.20	.4602	2.1730	2.1700	.9587	.9587	.2.7376	2.7376	1.5322	81.5096	.0488	2.8809

5.0	2.8031	1.5799	1.24	.4846	2.0637	.4900	.0903	.4726	.4805	10.4434	87.4491	24.4971	.0153	5.2601
5.0	2.8031	1.5799	1.24	.4846	2.0637	.5400	.2839	.5238	.5918	27.7324	81.8292	23.8335	.0159	5.1995
5.0	2.8031	1.5799	1.24	.4846	2.0637	.5900	.3848	.5757	.6873	33.1127	78.7084	23.1700	.0166	5.1389
5.0	2.8031	1.5799	1.24	.4846	2.0637	.6400	.4589	.6282	.7730	35.6417	76.2631	22.5064	.0173	5.0782
5.0	2.8031	1.5799	1.24	.4846	2.0637	.6900	.5178	.6813	.8519	36.8875	74.1774	21.8429	.0181	5.0175
5.0	2.8031	1.5799	1.24	.4846	2.0637	.7400	.5664	.7352	.9258	37.4283	72.3244	21.1793	.0189	4.9568
5.0	2.8031	1.5799	1.24	.4846	2.0637	.7900	.6070	.7897	.9959	37.557	70.6378	20.5157	.0197	4.8960
5.0	2.8031	1.5799	1.24	.4846	2.0637	.8400	.6412	.8449	.1.0630	37.3554	69.6785	19.8522	.0205	4.8353
5.0	2.8031	1.5799	1.24	.4846	2.0637	.8900	.6700	.9009	.1.1277	36.9730	67.6207	19.1886	.0214	4.7715
5.0	2.8031	1.5799	1.24	.4846	2.0637	.9400	.6941</td							

5.0	2.8031	1.5799	1.32	.5392	1.8546	.5400	.0317	.5219	.5228	3.3544	89.0456	23.3712	.0149	5.9362
5.0	2.8031	1.5799	1.32	.5392	1.8546	.5900	.2473	.5733	.6216	22.7417	82.3849	22.6648	.0155	5.8715
5.0	2.8031	1.5799	1.32	.5392	1.8546	.6400	.3411	.6253	.7086	28.0587	79.2672	21.9585	.0160	5.8068
5.0	2.8031	1.5799	1.32	.5392	1.8546	.6900	.4082	.6780	.7878	30.6096	76.8677	21.2521	.0166	5.7421
5.0	2.8031	1.5799	1.32	.5392	1.8546	.7400	.4604	.7313	.8612	31.8890	74.8440	20.5457	.0172	5.6773
5.0	2.8031	1.5799	1.32	.5392	1.8546	.7900	.5024	.7852	.9305	32.4533	73.6336	19.8393	.0178	5.6125
5.0	2.8031	1.5799	1.32	.5392	1.8546	.8400	.5365	.8397	.9964	32.5677	71.4592	19.1330	.0184	5.5476
5.0	2.8031	1.5799	1.32	.5392	1.8546	.8900	.5643	.8950	.1.0597	32.3770	69.9920	18.4266	.0190	5.4827
5.0	2.8031	1.5799	1.32	.5392	1.8546	.9400	.6041	.1.0075	.1.1209	31.9666	68.8375	17.7202	.0196	5.4178
5.0	2.8031	1.5799	1.32	.5392	1.8546	.9900	.6171	.1.0649	.1.2383	31.3904	67.3799	17.0139	.0202	5.3527
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.0400	.6260	.1.1231	.1.2951	29.8688	65.1190	15.6011	.0215	5.2876
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.0900	.6309	.1.1820	.1.3509	28.9623	64.1069	14.8947	.0222	5.1572
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.1400	.6320	.1.2417	.1.4060	27.9740	63.1728	14.1884	.0228	5.0918
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.1900	.6294	.1.3023	.1.4604	26.9099	62.3197	13.4820	.0234	5.0264
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.2400	.6229	.1.3637	.1.5144	25.7731	61.5540	12.7756	.0240	4.9607
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.2900	.6125	.1.4261	.1.5680	24.5636	60.8858	12.0693	.0246	4.8950
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.3400	.5980	.1.4894	.1.6213	23.2789	60.3307	11.3629	.0251	4.8290
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.3900	.5793	.1.5536	.1.6746	21.9137	59.9112	10.6565	.0255	4.7628
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.4400	.5559	.1.6189	.1.7279	20.4590	59.6603	9.9501	.0260	4.6963
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.4900	.5273	.1.6853	.1.7813	18.9016	59.6272	9.2438	.0263	4.6294
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.5400	.4928	.1.7528	.1.8350	17.2212	59.8874	8.5374	.0265	4.5622
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.6400	.4513	.1.8215	.1.8892	15.3869	60.5624	7.8310	.0266	4.4944
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.6900	.4010	.1.8915	.1.9440	13.3473	61.8617	7.1247	.0265	4.4258
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.7400	.3384	.1.9629	.1.9997	11.0071	64.1886	6.4183	.0263	4.3564
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.7900	.2561	.2.0359	.2.0566	8.1435	68.4850	5.7119	.0258	4.2857
5.0	2.8031	1.5799	1.32	.5392	1.8546	1.8400	.1222	.2.1107	.2.1153	3.7984	78.4873	5.0055	.0250	4.2132

5.0	2.8031	1.5799	1.36	.5705	1.7529	.5800	.1031	.5619	.5708	10.0794	86.7642	22.5578	.0149	6.2694
5.0	2.8031	1.5799	1.36	.5705	1.7529	.6300	.2520	.6137	.6609	21.8024	81.9130	21.8300	.0153	6.2026
5.0	2.8031	1.5799	1.36	.5705	1.7529	.6800	.3339	.6660	.7419	26.1492	79.0379	21.1022	.0158	6.1359
5.0	2.8031	1.5799	1.36	.5705	1.7529	.7300	.3930	.7189	.8164	28.2983	76.7839	20.3745	.0163	6.0691
5.0	2.8031	1.5799	1.36	.5705	1.7529	.7800	.4388	.7724	.8862	29.3627	74.8752	19.6467	.0168	6.0022
5.0	2.8031	1.5799	1.36	.5705	1.7529	.8300	.4752	.8265	.9523	29.7900	73.1982	18.9189	.0173	5.9353
5.0	2.8031	1.5799	1.36	.5705	1.7529	.8800	.5040	.8813	.1.0156	29.8032	71.6945	18.1911	.0178	5.8683
5.0	2.8031	1.5799	1.36	.5705	1.7529	.9300	.5268	.9367	.1.0765	29.5273	70.5301	17.4634	.0183	5.8013
5.0	2.8031	1.5799	1.36	.5705	1.7529	.9800	.5441	.9928	.1.1355	29.0375	69.0846	16.7356	.0188	5.7342
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.0300	.5565	.1.0496	.1.1930	28.3816	67.9456	16.0078	.0193	5.6670
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.0800	.5644	.1.1072	.1.2492	27.5906	66.9067	15.2800	.0198	5.5997
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.1300	.5679	.1.1655	.1.3044	26.6846	65.9661	14.5523	.0203	5.5323
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.1800	.5673	.1.2245	.1.3587	25.6764	65.1263	13.8245	.0208	5.4648
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.2300	.5624	.1.2844	.1.4123	24.5733	64.3942	13.0967	.0212	5.3971
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.2800	.5533	.1.3451	.1.4654	23.3779	63.7820	12.3689	.0216	5.3292
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.3300	.5398	.1.4067	.1.5181	22.0891	63.3087	11.6412	.0220	5.2611
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.3800	.5215	.1.4691	.1.5705	20.7012	63.027	10.9134	.0223	5.1928
5.0	2.8031	1.5799	1.36	.5705	1.7529	1.4300	.4981	.1.5325	.1.6228	19.2037	62.9063	10.1856	.0225	5.1242

5.0	2.8031	1.5799	1.44	.6458	1.5485	.6500	.0601	.6321	.6348	5.2793	87.9597	20.7824	.0145	6.9765
5.0	2.8031	1.5799	1.44	.6458	1.5485	.7000	.2087	.6842	.7140	16.6001	82.7304	20.2118	.0148	6.9056
5.0	2.8031	1.5799	1.44	.6458	1.5485	.7500	.2803	.7369	.7867	20.4946	79.9755	19.4412	.0152	6.8346
5.0	2.8031	1.5799	1.44	.6458	1.5485	.8000	.3298	.7901	.8546	22.4012	77.8825	18.6706	.0155	6.7636
5.0	2.8031	1.5799	1.44	.6458	1.5485	.8500	.3661	.8440	.9189	23.3008	76.1595	17.9000	.0158	6.6925
5.0	2.8031	1.5799	1.44	.6458	1.5485	.9000	.3930	.8984	.9803	23.5885	74.6936	17.1294	.0162	6.6213
5.0	2.8031	1.5799	1.44	.6458	1.5485	.9500	.4123	.9535	1.0394	23.4628	73.4309	16.3589	.0165	6.5500
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.0000	.4252	1.0092	1.0966	23.0352	72.3442	15.5883	.0168	6.4785
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.0500	.4322	1.0655	1.1523	22.3723	71.4226	14.8177	.0170	6.4070
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.1000	.4336	1.1226	1.2066	21.5143	70.6663	14.0471	.0173	6.3352
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.1500	.4296	1.1803	1.2600	20.4842	70.0863	13.2765	.0175	6.2633
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.2000	.4201	1.2388	1.3125	19.2925	69.7053	12.5059	.0177	6.1911
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.2500	.4047	1.2980	1.3643	17.9384	69.5617	11.7353	.0178	6.1186
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.3000	.3828	1.3580	1.4157	16.4091	69.7170	10.9647	.0178	6.0459
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.3500	.3535	1.4189	1.4667	14.6753	70.2719	10.1942	.0179	5.9727
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.4000	.3150	1.4806	1.5176	12.6785	71.4005	9.4236	.0178	5.8990
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.4500	.2634	1.5432	1.5685	10.2949	73.4426	8.6530	.0176	5.8246
5.0	2.8031	1.5799	1.44	.6458	1.5485	1.5000	.1892	1.6069	1.6196	7.1890	77.2461	7.8824	.0173	5.7495

5.0	2.8031	1.5799	1.48	.6939	1.4411	.7000	.0653	.6829	.6859	5.3270	87.6700	19.9121	.0143	7.3219
5.0	2.8031	1.5799	1.48	.6939	1.4411	.7500	.1912	.7354	.7589	14.3016	82.9864	19.1201	.0146	7.2489
5.0	2.8031	1.5799	1.48	.6939	1.4411	.8000	.2529	.7884	.8269	17.5457	80.4541	18.3281	.0148	7.1758
5.0	2.8031	1.5799	1.48	.6939	1.4411	.8500	.2942	.8420	.8910	19.0910	78.5625	17.5361	.0151	7.1025
5.0	2.8031	1.5799	1.48	.6939	1.4411	.9000	.3229	.8962	.9521	19.7384	77.0479	16.7441	.0153	7.0292
5.0	2.8031	1.5799	1.48	.6939	1.4411	.9500	.3424	.9509	1.0108	19.8178	75.8114	15.9522	.0156	6.9557
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.0000	.3540	1.0063	1.0675	19.4965	74.8109	15.1602	.0158	6.8821
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.0500	.3588	1.0624	1.1227	18.8670	74.0333	14.3682	.0159	6.8083
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.1000	.3570	1.1190	1.1765	17.9809	73.4854	13.5762	.0161	6.7343
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.1500	.3486	1.1764	1.2293	16.8629	73.1936	12.7842	.0162	6.6600
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.2000	.3332	1.2345	1.2812	15.5164	73.2090	11.9922	.0162	6.5854
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.2500	.3098	1.2933	1.3324	13.9210	73.6205	11.2002	.0162	6.5105
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.3000	.2768	1.3529	1.3832	12.0207	74.5874	10.4082	.0162	6.4352
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.3500	.2305	1.4153	1.4337	9.6817	76.4287	9.6162	.0161	6.3592
5.0	2.8031	1.5799	1.48	.6939	1.4411	1.4000	.1596	1.4745	1.4841	6.5023	79.9908	8.8242	.0158	6.2826

5.0	2.8031	1.5799	1.52	.7559	1.3229	.7600	.0466	.7445	.7459	3.5091	88.2364	18.6364	.0140	7.6602
5.0	2.8031	1.5799	1.52	.7559	1.3229	.8100	.1614	.7974	.8131	11.2708	83.7061	17.8230	.0142	7.5849
5.0	2.8031	1.5799	1.52	.7559	1.3229	.8600	.2124	.8509	.8765	13.8732	81.4548	17.0096	.0144	7.5095
5.0	2.8031	1.5799	1.52	.7559	1.3229	.9100	.2437	.9049	.9368	14.9895	79.8689	16.1962	.0146	7.4340
5.0	2.8031	1.5799	1.52	.7559	1.3229	.9600	.2624	.9595	.9947	15.2869	78.7037	15.3828	.0147	7.3583
5.0	2.8031	1.5799	1.52	.7559	1.3229	1.0100	.2713	1.0148	1.0507	15.0347	77.8828	14.5694	.0149	7.2824
5.0	2.8031	1.5799	1.52	.7559	1.3229	1.0600	.2714	1.0706	1.1051	14.3610	77.3944	13.7560	.0149	7.2063
5.0	2.8031	1.5799	1.52	.7559	1.3229	1.1100	.2628	1.1271	1.1583	13.3218	77.2712	12.9426	.0150	7.1299
5.0	2.8031	1.5799	1.52	.7559	1.3229	1.1600	.2449							

PROPERTIES ACROSS AN 08LIQUE DETONATION WAVE

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
8.0	3.0844	1.7043	1.00	.3242	3.0844	.3300	.1253	.3164	.3385	20.7867	87.3961	69.5832	.0005	7.3162
8.0	3.0844	1.7043	1.00	.3242	3.0844	.3800	.3853	.3672	.5230	45.3978	81.8913	68.3382	.0005	7.2030
8.0	3.0844	1.7043	1.00	.3242	3.0844	.4300	.5256	.4189	.6615	50.7124	78.8000	67.0932	.0005	7.0898
8.0	3.0844	1.7043	1.00	.3242	3.0844	.4800	.6317	.4713	.7791	52.7696	76.3666	65.8482	.0006	6.9766
8.0	3.0844	1.7043	1.00	.3242	3.0844	.5300	.7189	.5247	.8842	53.6005	74.2818	64.6033	.0006	6.8634
8.0	3.0844	1.7043	1.00	.3242	3.0844	.5800	.7935	.5790	.9812	53.8342	72.4204	63.3583	.0007	6.7502
8.0	3.0844	1.7043	1.00	.3242	3.0844	.6300	.8587	.6343	1.0722	53.7337	70.7171	62.1133	.0007	6.6370
8.0	3.0844	1.7043	1.00	.3242	3.0844	.6800	.9166	.6905	1.1590	53.4292	69.1324	60.8683	.0008	6.5237
8.0	3.0844	1.7043	1.00	.3242	3.0844	.7300	.9685	.7478	1.2424	52.9922	67.6405	59.6234	.0009	6.4105
8.0	3.0844	1.7043	1.00	.3242	3.0844	.7800	.0152	.8062	1.3233	52.4654	66.2233	58.3784	.0009	6.2973
8.0	3.0844	1.7043	1.00	.3242	3.0844	.8300	.0576	.8657	1.4022	51.8752	64.8675	57.1334	.0010	6.1841
8.0	3.0844	1.7043	1.00	.3242	3.0844	.8800	.0960	.9264	1.4796	51.2393	63.5632	55.8884	.0011	6.0709
8.0	3.0844	1.7043	1.00	.3242	3.0844	.9300	.1310	.9882	1.5559	50.5695	62.3024	54.6435	.0012	5.9577
8.0	3.0844	1.7043	1.00	.3242	3.0844	.9800	.1627	.10514	1.6314	49.8739	61.0788	53.3985	.0013	5.8445
8.0	3.0844	1.7043	1.00	.3242	3.0844	.0300	.1915	.1159	1.7064	49.1582	59.8872	52.1535	.0015	5.7312
8.0	3.0844	1.7043	1.00	.3242	3.0844	.0800	.2176	.1818	1.7810	48.4268	58.7233	50.9085	.0016	5.6180
8.0	3.0844	1.7043	1.00	.3242	3.0844	.1300	.2411	.2492	1.8555	47.6824	57.5835	49.6636	.0018	5.5048
8.0	3.0844	1.7043	1.00	.3242	3.0844	.1800	.2622	.2810	1.9301	46.9274	56.4647	48.4186	.0020	5.3916
8.0	3.0844	1.7043	1.00	.3242	3.0844	.2300	.2800	.2976	2.0049	46.1632	55.3640	47.1736	.0022	5.2783
8.0	3.0844	1.7043	1.00	.3242	3.0844	.2800	.3300	.3121	2.0801	45.3910	54.2791	45.9286	.0024	5.1651
8.0	3.0844	1.7043	1.00	.3242	3.0844	.3300	.3800	.3245	2.1559	44.6115	53.2079	44.6837	.0027	5.0519
8.0	3.0844	1.7043	1.00	.3242	3.0844	.3800	.4300	.3350	2.2325	43.8251	52.1483	43.4387	.0030	4.9386
8.0	3.0844	1.7043	1.00	.3242	3.0844	.4300	.4800	.3435	2.3099	43.0321	51.0986	42.1937	.0033	4.8254
8.0	3.0844	1.7043	1.00	.3242	3.0844	.4800	.5300	.3501	2.3883	42.2327	50.0572	40.9487	.0037	4.7122
8.0	3.0844	1.7043	1.00	.3242	3.0844	.5300	.5800	.3549	2.4680	41.4268	49.0225	39.7038	.0042	4.5989
8.0	3.0844	1.7043	1.00	.3242	3.0844	.5800	.6300	.3578	2.5489	40.6141	47.9931	38.4588	.0047	4.4856
8.0	3.0844	1.7043	1.00	.3242	3.0844	.6300	.6800	.3588	2.6314	39.7944	46.9675	37.2138	.0053	4.3724
8.0	3.0844	1.7043	1.00	.3242	3.0844	.6800	.7300	.3584	2.7156	38.9672	45.9445	35.9688	.0060	4.2591
8.0	3.0844	1.7043	1.00	.3242	3.0844	.7300	.7800	.3554	2.8016	38.1322	44.9226	34.7239	.0068	4.1459
8.0	3.0844	1.7043	1.00	.3242	3.0844	.7800	.8300	.3510	2.8897	37.2887	43.9007	33.4789	.0078	4.0326
8.0	3.0844	1.7043	1.00	.3242	3.0844	.8300	.8800	.3446	2.9801	36.4360	42.8773	32.2339	.0089	3.9193
8.0	3.0844	1.7043	1.00	.3242	3.0844	.8800	.9300	.3364	2.0529	35.5734	41.8512	30.9889	.0102	3.8060
8.0	3.0844	1.7043	1.00	.3242	3.0844	.9300	.9800	.3262	2.1675	34.6999	40.8211	29.7440	.0117	3.6927
8.0	3.0844	1.7043	1.00	.3242	3.0844	.9800	.0300	.3141	2.2671	33.8146	39.7855	28.4990	.0136	3.5794
8.0	3.0844	1.7043	1.00	.3242	3.0844	.0800	.2999	.2975	2.3689	32.9164	38.7429	27.2540	.0157	3.4661
8.0	3.0844	1.7043	1.00	.3242	3.0844	.1300	.1800	.2837	2.4744	32.0039	37.6918	26.0090	.0183	3.3527
8.0	3.0844	1.7043	1.00	.3242	3.0844	.1800	.2300	.2652	2.5838	31.1302	35.5574	23.5191	.0214	3.2394
8.0	3.0844	1.7043	1.00	.3242	3.0844	.2300	.2800	.2445	2.6976	30.1302	35.5574	22.2741	.0252	3.1260
8.0	3.0844	1.7043	1.00	.3242	3.0844	.2800	.3300	.2215	2.7624	29.1654	34.4703	22.0291	.0298	3.0126
8.0	3.0844	1.7043	1.00	.3242	3.0844	.3300	.3800	.1959	2.8082	28.1793	33.3671	21.0291	.0354	2.8992
8.0	3.0844	1.7043	1.00	.3242	3.0844	.3800	.4300	.1676	2.8762	27.1691	32.2452	19.7841	.0423	2.7858
8.0	3.0844	1.7043	1.00	.3242	3.0844	.4300	.4800	.1365	2.9401	28.1395	32.0492	18.5392	.0509	2.6723
8.0	3.0844	1.7043	1.00	.3242	3.0844	.4800	.5300	.1022	2.9475	23.9624	28.7380	16.0492	.0616	2.5587
8.0	3.0844	1.7043	1.00	.3242	3.0844	.5300	.5800	.0232	2.9339	22.8204	27.5091	14.8042	.0922	2.3315
8.0	3.0844	1.7043	1.00	.3242	3.0844	.5800	.6300	.9776	2.0172	20.3897	24.9306	12.3143	.1139	2.2178
8.0	3.0844	1.7043	1.00	.3242	3.0844	.6300	.6800	.9271	2.141	19.0826	23.5662	11.0693	.1420	2.1039
8.0	3.0844	1.7043	1.00	.3242										

8.0	3.0844	1.7043	1.16	.3928	2.5456	.4000	.1230	.3845	.4022	17.0932	87.1419	66.2466	.0004	9.7989
8.0	3.0844	1.7043	1.16	.3928	2.5456	.4500	.3432	.4354	.5476	37.3322	81.9076	64.8025	.0005	9.6675
8.0	3.0844	1.7043	1.16	.3928	2.5456	.5000	.4642	.4871	.6647	42.8722	78.8903	63.3583	.0005	9.5361
8.0	3.0844	1.7043	1.16	.3928	2.5456	.5500	.5551	.5396	.7666	45.2643	76.5093	61.9141	.0005	9.4047
8.0	3.0844	1.7043	1.16	.3928	2.5456	.6000	.6291	.5928	.8590	46.3580	74.4687	60.4699	.0006	9.2733
8.0	3.0844	1.7043	1.16	.3928	2.5456	.6500	.6917	.6468	.9445	46.7818	72.6477	59.0258	.0006	9.1418
8.0	3.0844	1.7043	1.16	.3928	2.5456	.7000	.7458	.7016	.10252	46.8139	70.9827	57.5816	.0006	9.0104
8.0	3.0844	1.7043	1.16	.3928	2.5456	.7500	.7930	.7573	.1021	46.5975	69.4354	56.1374	.0007	8.8790
8.0	3.0844	1.7043	1.16	.3928	2.5456	.8000	.8346	.8138	.1761	46.2138	67.9808	54.6933	.0007	8.7475
8.0	3.0844	1.7043	1.16	.3928	2.5456	.8500	.8714	.8712	.2477	45.7122	66.6012	53.2491	.0008	8.6161
8.0	3.0844	1.7043	1.16	.3928	2.5456	.9000	.9039	.9296	.3175	45.1245	65.2838	51.8049	.0008	8.4846
8.0	3.0844	1.7043	1.16	.3928	2.5456	.9500	.9326	.9890	.3859	44.4716	64.0189	50.3607	.0009	8.3531
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.0000	.9579	.10493	.4530	43.7681	62.7991	48.9166	.0009	8.2216
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.0500	.9800	.1107	.5193	43.0241	61.6183	47.4724	.0010	8.0901
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.1000	.9991	.1731	.5848	42.2469	60.4716	46.0282	.0011	7.9586
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.1500	.10153	.2367	.6498	41.4415	59.3552	44.5841	.0012	7.8271
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.2000	.10290	.3015	.7144	40.6118	58.2658	43.1399	.0012	7.6955
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.2500	.10400	.3675	.7789	39.7602	57.2007	41.6957	.0013	7.5640
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.3000	.10485	.4347	.8432	38.8886	56.1577	40.2515	.0014	7.4324
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.3500	.10547	.5032	.9076	37.9982	55.1349	38.8074	.0015	7.3008
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.4000	.10584	.5732	.9721	37.0896	54.1308	37.3632	.0016	7.1691
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.4500	.10598	.6445	.0369	36.1629	53.1443	35.9190	.0018	7.0375
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.5000	.10588	.7174	.1021	35.2181	52.1744	34.4749	.0019	6.9058
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.5500	.10555	.7918	.1678	34.2546	51.2206	33.0307	.0020	6.7741
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.6000	.10499	.8678	.2340	33.2716	50.2827	31.5865	.0022	6.6423
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.6500	.10418	.9456	.3010	32.2678	49.3607	30.1423	.0023	6.5105
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.7000	.10313	.2052	.3687	31.2419	48.4553	28.6982	.0025	6.3787
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.7500	.10182	.1066	.4373	30.1920	47.5674	27.2540	.0027	6.2467
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.8000	.10025	.1901	.5069	29.1157	46.6987	25.8098	.0029	6.1147
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.8500	.9841	.2756	.5776	28.0103	45.6158	24.3657	.0032	5.9827
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.9000	.9628	.3634	.6495	26.8725	45.0302	22.9215	.0034	5.8505
8.0	3.0844	1.7043	1.16	.3928	2.5456	1.9500	.9384	.4535	.7228	25.6981	44.2391	21.4773	.0036	5.7182
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.0000	.9107	.5460	.7976	24.4822	43.4857	20.0331	.0039	5.5858
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.0500	.8794	.6412	.8740	23.2185	42.7805	18.5890	.0042	5.4532
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.1000	.8442	.7392	.9523	21.8992	42.1386	17.1448	.0045	5.3203
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.1500	.8045	.8402	.0325	20.5143	41.5824	15.7006	.0048	5.1872
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.2000	.7597	.9444	.1150	19.0503	41.1463	14.2565	.0051	5.0537
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.2500	.7090	.0520	.1999	17.4891	40.8852	12.8123	.0054	4.9198
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.3000	.6510	.1634	.2877	15.8048	40.8921	11.3681	.0056	4.7851
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.3500	.5841	.2790	.3788	13.9581	41.3360	9.9239	.0058	4.6495
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.4000	.5051	.3992	.4737	11.8842	42.5606	8.4798	.0060	4.5124
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.4500	.4082	.5249	.5735	9.4587	45.3915	7.0356	.0060	4.3730
8.0	3.0844	1.7043	1.16	.3928	2.5456	2.5000	.2787	.6574	.6801	6.3616	52.5422	5.5914	.0058	4.2295

8.0	3.0844	1.7043	1.24	.4315	2.3174	.4400	.1250	.4236	.4403	15.8652	86.9278	64.2148	.0004	11.1618
8.0	3.0844	1.7043	1.24	.4315	2.3174	.4								

8.0	3.0844	1.7043	1.40	.5231	1.9116	.5300	.0966	.5121	.5206	10.3277	87.3374	59.3246	.0004	14.1213
8.0	3.0844	1.7043	1.40	.5231	1.9116	.5800	.2726	.5636	.6228	25.1728	82.3401	57.5816	.0004	13.9625
8.0	3.0844	1.7043	1.40	.5231	1.9116	.6300	.3665	.6157	.7123	30.1868	79.4973	55.8386	.0005	13.8036
8.0	3.0844	1.7043	1.40	.5231	1.9116	.6800	.4351	.6685	.7936	32.6139	77.2749	54.0957	.0005	13.6447
8.0	3.0844	1.7043	1.40	.5231	1.9116	.7300	.4892	.7218	.8689	33.8300	75.3892	52.3527	.0005	13.4857
8.0	3.0844	1.7043	1.40	.5231	1.9116	.7800	.5333	.7759	.9399	34.3621	73.7253	50.6097	.0005	13.3268
8.0	3.0844	1.7043	1.40	.5231	1.9116	.8300	.5697	.8306	1.0074	34.4637	72.2233	48.8668	.0005	13.1678
8.0	3.0844	1.7043	1.40	.5231	1.9116	.8800	.5997	.8860	1.0721	34.2739	70.8481	47.1238	.0006	13.0087
8.0	3.0844	1.7043	1.40	.5231	1.9116	.9300	.6243	.9421	1.1347	33.8751	69.5774	45.3808	.0006	12.8496
8.0	3.0844	1.7043	1.40	.5231	1.9116	.9800	.6442	.9989	1.1954	33.3193	68.3964	43.6379	.0006	12.6905
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.0300	.6597	1.0565	1.2547	32.6404	67.2954	41.8949	.0006	12.5313
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.0800	.6712	1.1149	1.3127	31.8612	66.2682	40.1519	.0006	12.3720
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.1300	.6789	1.1741	1.3698	30.9970	65.3114	38.4090	.0007	12.2126
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.1800	.6829	1.2342	1.4259	30.0581	64.4241	36.6660	.0007	12.0532
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.2300	.6832	1.2951	1.4815	29.0508	63.6074	34.9230	.0007	11.8937
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.2800	.6800	1.3569	1.5364	27.9787	62.8650	33.1801	.0007	11.7340
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.3300	.6731	1.4196	1.5910	26.8430	62.2033	31.4371	.0007	11.5743
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.3800	.6624	1.4832	1.6452	25.6425	61.6318	29.6942	.0008	11.4143
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.4300	.6479	1.5478	1.6993	24.3739	61.1648	27.9512	.0008	11.2542
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.4800	.6292	1.6135	1.7532	23.0311	60.8222	26.2082	.0008	11.0939
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.5300	.6059	1.6802	1.8072	21.6053	60.6327	24.4653	.0008	10.9333
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.5800	.5777	1.7480	1.8612	20.0831	60.6381	22.7223	.0008	10.7724
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.6300	.5437	1.8170	1.9154	18.4451	60.9010	20.9793	.0008	10.6110
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.6800	.5028	1.8872	1.9699	16.6618	61.5194	19.2364	.0008	10.4492
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.7300	.4534	1.9586	2.0248	14.6859	62.6560	17.4934	.0008	10.2867
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.7800	.3924	2.0315	2.0802	12.4334	64.6081	15.7504	.0008	10.1232
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.8300	.3137	2.1057	2.1364	9.7263	68.0110	14.0075	.0008	9.9586
8.0	3.0844	1.7043	1.40	.5231	1.9116	1.8800	.1977	2.1816	2.1936	6.0036	74.7816	12.2645	.0008	9.7922

8.0	3.0844	1.7043	1.48	.5805	1.7226	.5900	.1026	.5719	.5805	9.8662	86.9806	56.0578	.0004	15.6805
8.0	3.0844	1.7043	1.48	.5805	1.7226	.6400	.2512	.6238	.6701	21.4298	82.4504	54.2152	.0004	15.5124
8.0	3.0844	1.7043	1.48	.5805	1.7226	.6900	.3327	.6762	.7507	25.7431	79.7795	52.3726	.0004	15.3443
8.0	3.0844	1.7043	1.48	.5805	1.7226	.7400	.3916	.7292	.8250	27.8856	77.6964	50.5301	.0005	15.1761
8.0	3.0844	1.7043	1.48	.5805	1.7226	.7900	.4370	.7828	.8946	28.9513	75.9426	48.6875	.0005	15.0079
8.0	3.0844	1.7043	1.48	.5805	1.7226	.8400	.4730	.8370	.9606	29.3817	74.4123	46.8449	.0005	14.8396
8.0	3.0844	1.7043	1.48	.5805	1.7226	.8900	.5014	.8919	1.0238	29.3975	73.0510	45.0024	.0005	14.6713
8.0	3.0844	1.7043	1.48	.5805	1.7226	.9400	.5237	.9475	1.0846	29.1221	71.8278	43.1598	.0005	14.5028
8.0	3.0844	1.7043	1.48	.5805	1.7226	.9900	.5404	.1.0038	1.1436	28.6303	70.7242	41.3172	.0005	14.3343
8.0	3.0844	1.7043	1.48	.5805	1.7226	1.0400	.5523	.1.0607	1.2010	27.9692	69.7300	39.4747	.0005	14.1658
8.0	3.0844	1.7043	1.48	.5805	1.7226	1.0900	.5594	.1.1184	1.2571	27.1691	68.8406	37.6321	.0006	13.9971
8.0	3.0844	1.7043	1.48	.5805	1.7226	1.1400	.5622	.1.1768	1.3121	26.2496	68.0560	35.7896	.0006	13.8282
8.0	3.0844	1.7043	1.48	.5805	1.7226	1.1900	.5605	.1.2360	1.3662	25.2224	67.3812	33.9470	.0006	13.6593
8.0	3.0844	1.7043	1.48	.5805	1.7226	1.2400	.5545	.1.2960	1.4196	24.0934	66.8256	32.1044	.0006	13.4902
8.0	3.0844	1.7043	1.48	.5805	1.7226	1.2900	.5440	.1.3568	1.4725	22.8638	66.4050	30.2619	.0006	13.3208
8.0	3.0844	1.7043	1.48	.5805	1.7226	1.3400	.5286	.1.4184	1.5248	21.5295				

PROPERTIES ACROSS AN OBLIQUE DETONATION WAVE

GAMMA = 1.2

M1	M1*	DELMAX	DEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
11.0	3.1875	1.7506	1.00	.3137	3.1875	.3200	.1336	.3068	.3325	22.6610	87.3324	131.6232	.0000	12.9568
11.0	3.1875	1.7506	1.00	.3137	3.1875	.3700	.3965	.3576	.5241	46.9812	81.9893	129.3455	.0000	12.7497
11.0	3.1875	1.7506	1.00	.3137	3.1875	.4200	.5400	.4093	.6666	52.1250	78.9592	127.0679	.0000	12.5427
11.0	3.1875	1.7506	1.00	.3137	3.1875	.4700	.6488	.4618	.7872	54.0810	76.5717	124.7903	.0000	12.3356
11.0	3.1875	1.7506	1.00	.3137	3.1875	.5200	.7385	.5153	.8950	54.8488	74.5258	122.5126	.0000	12.1285
11.0	3.1875	1.7506	1.00	.3137	3.1875	.5700	.8153	.5697	.9943	55.0418	72.6992	120.2350	.0000	11.9214
11.0	3.1875	1.7506	1.00	.3137	3.1875	.6200	.8827	.6251	1.0876	54.9153	71.0279	117.9574	.0000	11.7144
11.0	3.1875	1.7506	1.00	.3137	3.1875	.6700	.9426	.6816	1.1765	54.5946	69.4735	115.6798	.0000	11.5073
11.0	3.1875	1.7506	1.00	.3137	3.1875	.7200	.9964	.7391	1.2620	54.1488	68.0104	113.4021	.0001	11.3002
11.0	3.1875	1.7506	1.00	.3137	3.1875	.7700	1.0451	.7978	1.3450	53.6184	66.6210	111.1245	.0001	11.0932
11.0	3.1875	1.7506	1.00	.3137	3.1875	.8200	1.0893	.8577	1.4261	53.0289	65.2924	108.8469	.0001	10.8861
11.0	3.1875	1.7506	1.00	.3137	3.1875	.8700	1.1296	.9187	1.5057	52.3972	64.0146	106.5692	.0001	10.6790
11.0	3.1875	1.7506	1.00	.3137	3.1875	.9200	1.1664	.9811	1.5842	51.7342	62.7800	104.2916	.0001	10.4719
11.0	3.1875	1.7506	1.00	.3137	3.1875	.9700	1.1999	1.0448	1.6619	51.0479	61.5822	102.0140	.0001	10.2648
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.0200	1.2305	1.1099	1.7392	50.3437	60.4164	99.7363	.0001	10.0578
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.0700	1.2584	1.1765	1.8162	49.6256	59.2783	97.4587	.0001	9.8507
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.1200	1.2837	1.2446	1.8932	48.8962	58.1642	95.1811	.0001	9.6436
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.1700	1.3066	1.3144	1.9703	48.1578	57.0712	92.9034	.0001	9.4365
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.2200	1.3273	1.3858	2.0479	47.4117	55.9966	90.6258	.0001	9.2295
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.2700	1.3458	1.4591	2.1259	46.6590	54.9380	88.3482	.0002	9.0224
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.3200	1.3621	1.5342	2.2047	45.9003	53.8934	86.0706	.0002	8.8153
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.3700	1.3765	1.6114	2.2843	45.1363	52.8609	83.7929	.0002	8.6082
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.4200	1.3890	1.6907	2.3650	44.3671	51.8388	81.5153	.0003	8.4011
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.4700	1.3995	1.7722	2.4469	43.5928	50.8255	79.2377	.0003	8.1940
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.5200	1.4082	1.8561	2.5302	42.8134	49.8195	76.9600	.0003	7.9869
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.5700	1.4151	1.9425	2.6150	42.0288	48.8195	74.6824	.0003	7.7798
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.6200	1.4201	2.0316	2.7016	41.2388	47.8241	72.4048	.0004	7.5727
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.6700	1.4234	2.1235	2.7902	40.4431	46.8322	70.1271	.0004	7.3656
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.7200	1.4250	2.2185	2.8809	39.6412	45.8424	67.8495	.0005	7.1585
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.7700	1.4248	2.3167	2.9741	38.8328	44.8536	65.5719	.0006	6.9514
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.8200	1.4228	2.4185	3.0698	38.0172	43.8647	63.2943	.0007	6.7443
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.8700	1.4191	2.5240	3.1685	37.1939	42.8744	61.0166	.0008	6.5372
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.9200	1.4136	2.6335	3.2703	36.3622	41.8816	58.7390	.0009	6.3301
11.0	3.1875	1.7506	1.00	.3137	3.1875	1.9700	1.4063	2.7474	3.3756	35.5213	40.8850	56.4614	.0011	6.1230
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.0200	1.3972	2.8660	3.4848	34.6703	39.8834	54.1837	.0013	5.9159
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.0700	1.3862	2.9898	3.5982	33.8084	38.8753	51.9061	.0015	5.7087
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.1200	1.3733	3.1191	3.7163	32.9344	37.8596	49.6285	.0018	5.5016
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.1700	1.3584	3.2545	3.8396	32.0471	36.8345	47.3508	.0021	5.2945
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.2200	1.3416	3.3966	3.9687	31.1451	35.7986	45.0732	.0026	5.0873
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.2700	1.3226	3.5461	4.1041	30.2269	34.7501	42.7956	.0032	4.8801
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.3200	1.3014	3.7037	4.2466	29.2909	33.6870	40.5180	.0039	4.6730
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.3700	1.2780	3.8703	4.3971	28.3348	32.6072	38.2403	.0048	4.4658
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.4200	1.2521	4.0469	4.5565	27.3565	31.5083	35.9627	.0060	4.2586
11.0	3.1875	1.7506	1.00	.3137	3.1875	2.4700	1.2236	4.2348	4.7260	26.3532	30.3874	33.6851	.0076	4.0513
11.0	3.1875	1.7506	1											

11.0	3.1875	1.7506	1.16	.3789	2.6394	.3800	.0504	.3648	.3680	7.5519	88.8812	126.1204	.0000	17.3919
11.0	3.1875	1.7506	1.16	.3789	2.6394	.4300	.3346	.4156	.5267	37.8906	82.4642	123.4784	.0000	17.1516
11.0	3.1875	1.7506	1.16	.3789	2.6394	.4800	.4652	.4673	.6507	44.1036	79.3737	120.8363	.0000	16.9113
11.0	3.1875	1.7506	1.16	.3789	2.6394	.5300	.5620	.5196	.7574	46.6796	76.9750	118.1943	.0000	16.6710
11.0	3.1875	1.7506	1.16	.3789	2.6394	.5800	.6406	.5728	.8534	47.8405	74.9335	115.5522	.0000	16.4308
11.0	3.1875	1.7506	1.16	.3789	2.6394	.6300	.7069	.6268	.9421	48.2938	73.1186	112.9102	.0000	16.1905
11.0	3.1875	1.7506	1.16	.3789	2.6394	.6800	.7643	.6816	1.0254	48.3421	71.4634	110.2681	.0000	15.9502
11.0	3.1875	1.7506	1.16	.3789	2.6394	.7300	.8147	.7373	1.1048	48.1374	69.9279	107.6261	.0000	15.7099
11.0	3.1875	1.7506	1.16	.3789	2.6394	.7800	.8592	.7939	1.1811	47.7646	68.4862	104.9840	.0000	15.4695
11.0	3.1875	1.7506	1.16	.3789	2.6394	.8300	.8987	.8514	1.2549	47.2749	67.1202	102.3420	.0000	15.2292
11.0	3.1875	1.7506	1.16	.3789	2.6394	.8800	.9330	.9099	1.3268	46.7006	65.8168	99.6999	.0001	14.9889
11.0	3.1875	1.7506	1.16	.3789	2.6394	.9300	.9652	.9694	1.3971	46.0632	64.5661	97.0578	.0001	14.7486
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.0300	1.0176	1.0300	1.4663	45.3773	63.3604	94.4158	.0001	14.5082
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.0800	1.0392	1.1543	1.6020	43.8981	61.0609	89.1317	.0001	14.2679
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.1300	1.0581	1.2183	1.6689	43.1172	59.9581	86.4896	.0001	13.7871
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.1800	1.0743	1.2834	1.7356	42.3142	58.8820	83.8476	.0001	13.5468
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.2300	1.0879	1.3498	1.8020	41.4919	57.8296	81.2055	.0001	13.3064
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.2800	1.0991	1.4175	1.8684	40.6522	56.7987	78.5635	.0001	13.0660
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.3300	1.1080	1.4867	1.9349	39.7962	55.7873	75.9214	.0001	12.8255
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.3800	1.1145	1.5572	2.0016	38.9249	54.7936	73.2794	.0001	12.5851
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.4300	1.1188	1.6293	2.0687	38.0385	53.8163	70.6373	.0001	12.3446
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.4800	1.1208	1.7029	2.1361	37.1372	52.8543	67.9953	.0001	12.1041
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.5300	1.1206	1.7782	2.2042	36.2207	51.9066	65.3532	.0001	11.8636
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.5800	1.1182	1.8552	2.2728	35.2886	50.9725	62.7112	.0002	11.6231
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.6300	1.1136	1.9340	2.3423	34.3400	50.0517	60.0691	.0002	11.3825
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.6800	1.1067	2.0148	2.4126	33.3739	49.1439	57.4271	.0002	11.1419
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.7300	1.0974	2.0975	2.4839	32.3892	48.2494	54.7850	.0002	10.9013
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.7800	1.0858	2.1824	2.5564	31.3846	47.3685	52.1430	.0002	10.6606
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.8300	1.0718	2.2694	2.6300	30.3571	46.5022	49.5009	.0002	10.4199
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.8800	1.0552	2.3589	2.7050	29.3056	45.6520	46.8589	.0003	10.1791
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.9300	1.0360	2.4508	2.7815	28.2270	44.8201	44.2168	.0003	9.9382
11.0	3.1875	1.7506	1.16	.3789	2.6394	1.9800	1.0140	2.5453	2.8597	27.1182	44.0094	41.5748	.0003	9.6973
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.0300	0.9890	2.6426	2.9396	25.9753	43.2245	38.9327	.0003	9.4562
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.0800	0.9608	2.7429	3.0214	24.7936	42.4714	36.2907	.0004	9.2150
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.1300	0.9291	2.8464	3.1054	23.5672	41.7592	33.6486	.0004	8.9737
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.1800	0.8936	2.9532	3.1917	22.2889	41.1006	31.0066	.0004	8.7321
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.2300	0.8537	3.0637	3.2805	20.9492	40.5144	28.3645	.0004	8.4903
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.2800	0.8090	3.1780	3.3721	19.5359	40.0295	25.7225	.0005	8.2482
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.3300	0.7585	3.2965	3.4668	18.0324	39.6914	23.0804	.0005	8.0056
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.3800	0.7011	3.4196	3.5649	16.4149	39.5760	20.4384	.0006	7.7624
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.4300	0.6351	3.5477	3.6668	14.6480	39.8192	17.7963	.0006	7.5184
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.4800	0.5577	3.6812	3.7732	12.6742	40.6898	15.1543	.0006	7.2730
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.5300	0.4637	3.8211	3.8847	10.3869	42.8072	12.5122	.0006	7.0254
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.5800	0.3414	3.9683	4.0028	7.5370	48.0320	9.8702	.0006	6.7738
11.0	3.1875	1.7506	1.16	.3789	2.6394	2.6300	0.1345	4.1250	4.1304	2.9284	67.7918	7.2281	.0006	6.5141

11.0

11.0	3.1875	1.7506	1.40	.4997	2.0012	.5000	.0210	.4823	.4827	2.4049	89.4517	114.3132	.0000	25.0914
11.0	3.1875	1.7506	1.40	.4997	2.0012	.5500	.2688	.5336	.5939	26.0492	82.8528	111.1245	.0000	24.8012
11.0	3.1875	1.7506	1.40	.4997	2.0012	.6000	.3730	.5855	.6894	31.8666	79.9002	107.9358	.0000	24.5110
11.0	3.1875	1.7506	1.40	.4997	2.0012	.6500	.4483	.6381	.7751	34.5933	77.6294	104.7471	.0000	24.2207
11.0	3.1875	1.7506	1.40	.4997	2.0012	.7000	.5078	.6913	.8541	35.9564	75.7131	101.5584	.0000	23.9304
11.0	3.1875	1.7506	1.40	.4997	2.0012	.7500	.5565	.7453	.9280	36.5757	74.0249	98.3698	.0000	23.6401
11.0	3.1875	1.7506	1.40	.4997	2.0012	.8000	.5971	.7999	.9981	36.7388	72.5004	95.1811	.0000	23.3498
11.0	3.1875	1.7506	1.40	.4997	2.0012	.8500	.6313	.8552	1.0652	36.5994	71.1020	91.9924	.0000	23.0594
11.0	3.1875	1.7506	1.40	.4997	2.0012	.9000	.6598	.9113	1.1299	36.2473	69.8057	88.8037	.0000	22.7690
11.0	3.1875	1.7506	1.40	.4997	2.0012	.9500	.6836	.9681	1.1927	35.7384	68.5954	85.6150	.0000	22.4786
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.0000	.7030	1.0257	1.2538	35.1089	67.4600	82.4264	.0000	22.1881
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.0500	.7185	1.0841	1.3136	34.3831	66.3920	79.2377	.0000	21.8976
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.1000	.7302	1.1433	1.3723	33.5778	65.3864	76.0490	.0000	21.6010
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.1500	.7384	1.2034	1.4301	32.7043	64.4401	72.8603	.0000	21.3163
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.2000	.7432	1.2644	1.4872	31.7701	63.5520	69.6716	.0000	21.0256
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.2500	.7446	1.3263	1.5437	30.7802	62.7223	66.4829	.0000	20.7348
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.3000	.7426	1.3891	1.5998	29.7374	61.9534	63.2943	.0000	20.4439
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.3500	.7373	1.4529	1.6555	28.6423	61.2493	60.1056	.0001	20.1529
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.4000	.7286	1.5177	1.7109	27.4945	60.6162	56.9169	.0001	19.8618
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.4500	.7164	1.5836	1.7663	26.2913	60.0634	53.7282	.0001	19.5705
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.5000	.7004	1.6505	1.8216	25.0289	59.6038	50.5395	.0001	19.2791
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.5500	.6804	1.7186	1.8769	23.7008	59.2555	47.3508	.0001	18.9874
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.6000	.6562	1.7878	1.9323	22.2985	59.0444	44.1622	.0001	18.6955
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.6500	.6271	1.8582	1.9879	20.8094	59.0007	40.9735	.0001	18.4033
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.7000	.5925	1.9300	2.0438	19.2161	59.1989	37.7848	.0001	18.1107
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.7500	.5515	2.0030	2.1001	17.4927	59.7033	34.5961	.0001	17.8176
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.8000	.5025	2.0774	2.1569	15.5990	60.6574	31.4074	.0001	17.5238
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.8500	.4430	2.1533	2.2142	13.4675	62.3026	28.2187	.0001	17.2291
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.9000	.3682	2.2308	2.2722	10.9661	65.1228	25.0301	.0001	16.9332
11.0	3.1875	1.7506	1.40	.4997	2.0012	1.9500	.2656	2.3098	2.3312	7.7563	70.3527	21.8414	.0001	16.6356
11.0	3.1875	1.7506	1.40	.4997	2.0012	2.0000	.0410	2.3907	2.3912	1.1731	86.6226	18.6527	.0001	16.3354

11.0	3.1875	1.7506	1.48	.5511	1.8146	.5600	.1053	.5420	.5515	10.6471	87.0746	108.4460	.0000	27.8473
11.0	3.1875	1.7506	1.48	.5511	1.8146	.6100	.2650	.5937	.6473	23.4844	82.4888	105.0751	.0000	27.5404
11.0	3.1875	1.7506	1.48	.5511	1.8146	.6600	.3527	.6459	.7324	28.1219	79.7987	101.7042	.0000	27.2334
11.0	3.1875	1.7506	1.48	.5511	1.8146	.7100	.4167	.6988	.8103	30.4064	77.6947	98.3333	.0000	26.9264
11.0	3.1875	1.7506	1.48	.5511	1.8146	.7600	.4667	.7523	.8829	31.5532	75.9154	94.9624	.0000	26.6194
11.0	3.1875	1.7506	1.48	.5511	1.8146	.8100	.5070	.8065	.9515	32.0425	74.3536	91.5915	.0000	26.3123
11.0	3.1875	1.7506	1.48	.5511	1.8146	.8600	.5397	.8613	.10169	32.1102	72.9535	88.2206	.0000	26.0052
11.0	3.1875	1.7506	1.48	.5511	1.8146	.9100	.5661	.9168	.0798	31.8874	71.6826	84.8497	.0000	25.6980
11.0	3.1875	1.7506	1.48	.5511	1.8146	.9600	.5872	.9730	.1406	31.4528	70.5209	81.4789	.0000	25.3907
11.0	3.1875	1.7506	1.48	.5511	1.8146	1.0100	.6034	.10300	.1998	30.8559	69.4558	78.1080	.0000	25.0834
11.0	3.1875	1.7506	1.48	.5511	1.8146	1.0600	.6152	.10877	.2576	30.1292	68.4799	74.7371	.0000	24.7760
11.0	3.1875	1.7506	1.48	.5511	1.8146	1.1100	.6228	.1461	.3141	29.2942	67.5895	71.3662	.0000	24.4686
11.0	3.1875	1.7506	1.48	.5511	1.8146	1.1600	.6263	.12053	.3698	28.3				

PROPERTIES ACROSS AN OBLIQUE DETONATION WAVE

GAMMA = 1.2

M1	M1*	OELMAX	OEL	XMIN	XMAX	X(M2U*)	Y(M2V*)	M2U	M2	THETA	SIGMA	PR21	PTR21	TR21
14.0	3.2351	1.7721	1.00	.3091	3.2351	.3100	.0510	.2969	.3009	9.3371	89.0017	213.6624	.0000	20.4152
14.0	3.2351	1.7721	1.00	.3091	3.2351	.3600	.3815	.3476	.5065	46.6629	82.4411	210.0273	.0000	20.0847
14.0	3.2351	1.7721	1.00	.3091	3.2351	.4100	.5325	.3992	.6543	52.4041	79.3262	206.3922	.0000	19.7542
14.0	3.2351	1.7721	1.00	.3091	3.2351	.4600	.6454	.4517	.7782	54.5196	76.9084	202.7571	.0000	19.4238
14.0	3.2351	1.7721	1.00	.3091	3.2351	.5100	.7379	.5051	.8883	55.3488	74.8495	199.1220	.0000	19.0933
14.0	3.2351	1.7721	1.00	.3091	3.2351	.5600	.8170	.5595	.9895	55.5707	73.0178	195.4869	.0000	18.7628
14.0	3.2351	1.7721	1.00	.3091	3.2351	.6100	.8862	.6149	1.0844	55.4598	71.3457	191.8518	.0000	18.4323
14.0	3.2351	1.7721	1.00	.3091	3.2351	.6600	.9478	.6713	1.1748	55.1491	69.7930	188.2167	.0000	18.1019
14.0	3.2351	1.7721	1.00	.3091	3.2351	.7100	1.0032	.7288	1.2616	54.7105	68.3336	184.5816	.0000	17.7714
14.0	3.2351	1.7721	1.00	.3091	3.2351	.7600	1.0532	.7875	1.3458	54.1861	66.9490	180.9465	.0000	17.4409
14.0	3.2351	1.7721	1.00	.3091	3.2351	.8100	1.0988	.8474	1.4281	53.6024	65.6261	177.3114	.0000	17.1104
14.0	3.2351	1.7721	1.00	.3091	3.2351	.8600	1.1403	.9085	1.5088	52.9762	64.3548	173.6763	.0000	16.7800
14.0	3.2351	1.7721	1.00	.3091	3.2351	.9100	1.1782	.9710	1.5885	52.3191	63.1272	170.0412	.0000	16.4495
14.0	3.2351	1.7721	1.00	.3091	3.2351	.9600	1.2129	1.0348	1.6673	51.6390	61.9371	166.4060	.0000	16.1190
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.0100	1.2446	1.1000	1.7457	50.9414	60.7792	162.7709	.0000	15.7885
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.0600	1.2736	1.1667	1.8238	50.2302	59.6495	159.1358	.0000	15.4581
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.1100	1.3000	1.2350	1.9020	49.5083	58.5442	155.5007	.0000	15.1276
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.1600	1.3240	1.3050	1.9803	48.7778	57.4603	151.8656	.0000	14.7971
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.2100	1.3457	1.3767	2.0590	48.0401	56.3952	148.2305	.0000	14.4666
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.2600	1.3653	1.4502	2.1384	47.2963	55.3465	144.5954	.0000	14.1362
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.3100	1.3827	1.5257	2.2184	46.5472	54.3120	140.9603	.0000	13.8057
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.3600	1.3982	1.6033	2.2994	45.7931	53.2901	137.3252	.0000	13.4752
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.4100	1.4117	1.6830	2.3815	45.0344	52.2788	133.6901	.0000	13.1447
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.4600	1.4233	1.7650	2.4649	44.2713	51.2768	130.0550	.0000	12.8142
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.5100	1.4331	1.8494	2.5498	43.5036	50.2825	126.4199	.0000	12.4837
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.5600	1.4411	1.9365	2.6363	42.7314	49.2946	122.7848	.0000	12.1533
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.6100	1.4473	2.0263	2.7247	41.9544	48.3118	119.1497	.0000	11.8228
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.6600	1.4518	2.1191	2.8151	41.1724	47.3329	115.5146	.0001	11.4923
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.7100	1.4546	2.2150	2.9079	40.3850	46.3568	111.8795	.0001	11.1618
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.7600	1.4556	2.3142	3.0032	39.5918	45.3822	108.2444	.0001	10.8313
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.8100	1.4549	2.4172	3.1012	38.7923	44.4081	104.6093	.0001	10.5008
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.8600	1.4525	2.5240	3.2023	37.9861	43.4333	100.9742	.0001	10.1703
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.9100	1.4483	2.6668	3.3069	37.1724	42.4566	97.3391	.0001	9.8398
14.0	3.2351	1.7721	1.00	.3091	3.2351	1.9600	1.4424	2.7505	3.4151	36.3506	41.4770	93.7040	.0001	9.5093
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.0100	1.4348	2.8710	3.5275	35.5200	40.4932	90.0689	.0002	9.1788
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.0600	1.4253	2.9969	3.6443	34.6797	39.5041	86.4338	.0002	8.8483
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.1100	1.4141	3.1286	3.7662	33.8288	38.5082	82.7987	.0002	8.5178
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.1600	1.4009	3.2668	3.8937	32.9662	37.5043	79.1636	.0003	8.1873
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.2100	1.3858	3.4120	4.0273	32.0908	36.4909	75.5285	.0003	7.8568
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.2600	1.3688	3.5650	4.1678	31.2012	35.4664	71.8934	.0004	7.5262
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.3100	1.3496	3.7266	4.3160	30.2960	34.4291	68.2583	.0005	7.1957
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.3600	1.3284	3.8978	4.4729	29.3735	33.3770	64.6232	.0006	6.8652
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.4100	1.3048	4.0798	4.6394	28.4318	32.3080	60.9881	.0008	6.5346
14.0	3.2351	1.7721	1.00	.3091	3.2351	2.4600	1.2789	4.2740	4.8171	27.4686	31.2198	57.3530	.0010	6.2041

14.0	3.2351	1.7721	1.16	.3728	2.6826	.3800	.1287	.3650	.3853	18.7043	87.1928	204.1529	.0000	27.3138
14.0	3.2351	1.7721	1.16	.3728	2.6826	.4300	.3581	.4160	.5413	39.7840	82.0799	199.9362	.0000	26.9304
14.0	3.2351	1.7721	1.16	.3728	2.6826	.4800	.4846	.4677	.6646	45.2748	79.1300	195.7195	.0000	26.5469
14.0	3.2351	1.7721	1.16	.3728	2.6826	.5300	.5801	.5201	.7711	47.5842	76.8024	191.5028	.0000	26.1635
14.0	3.2351	1.7721	1.16	.3728	2.6826	.5800	.6582	.5734	.8673	48.6122	74.8078	187.2861	.0000	25.7801
14.0	3.2351	1.7721	1.16	.3728	2.6826	.6300	.7245	.6275	.9563	48.9893	73.0280	183.0694	.0000	25.3966
14.0	3.2351	1.7721	1.16	.3728	2.6826	.6800	.7820	.6825	.10401	48.9904	71.4009	178.8526	.0000	25.0132
14.0	3.2351	1.7721	1.16	.3728	2.6826	.7300	.8326	.7384	.11200	48.7555	69.8890	174.6359	.0000	24.6297
14.0	3.2351	1.7721	1.16	.3728	2.6826	.7800	.8774	.7952	.11968	48.3633	68.4677	170.4192	.0000	24.2463
14.0	3.2351	1.7721	1.16	.3728	2.6826	.8300	.9173	.8529	.12713	47.8613	67.1199	166.2025	.0000	23.8628
14.0	3.2351	1.7721	1.16	.3728	2.6826	.8800	.9530	.9117	.13438	47.2801	65.8329	161.9858	.0000	23.4774
14.0	3.2351	1.7721	1.16	.3728	2.6826	.9300	.9848	.9714	.14149	46.6395	64.5972	157.7690	.0000	23.0959
14.0	3.2351	1.7721	1.16	.3728	2.6826	.9800	.10132	.10323	.14848	45.9536	63.4054	153.5523	.0000	22.7124
14.0	3.2351	1.7721	1.16	.3728	2.6826	.10300	.10384	.10942	.15537	45.2317	62.2516	149.3356	.0000	22.3289
14.0	3.2351	1.7721	1.16	.3728	2.6826	.10800	.10606	.11573	.16220	44.4809	61.1309	145.1189	.0000	21.9455
14.0	3.2351	1.7721	1.16	.3728	2.6826	.11300	.10801	.12216	.16899	43.7061	60.0395	140.9022	.0000	21.5620
14.0	3.2351	1.7721	1.16	.3728	2.6826	.11800	.10969	.12872	.17574	42.9107	58.9741	136.6855	.0000	21.1784
14.0	3.2351	1.7721	1.16	.3728	2.6826	.12300	.11113	.13540	.18248	42.0974	57.9319	132.4687	.0000	20.7949
14.0	3.2351	1.7721	1.16	.3728	2.6826	.12800	.11232	.14222	.18922	41.2679	56.9106	128.2520	.0000	20.4114
14.0	3.2351	1.7721	1.16	.3728	2.6826	.13300	.11329	.14919	.19597	40.4234	55.9082	124.0353	.0000	20.0278
14.0	3.2351	1.7721	1.16	.3728	2.6826	.13800	.11402	.15630	.20275	39.5648	54.9230	119.8186	.0000	19.6443
14.0	3.2351	1.7721	1.16	.3728	2.6826	.14300	.11453	.16357	.20956	38.6924	53.9536	115.6019	.0000	19.2607
14.0	3.2351	1.7721	1.16	.3728	2.6826	.14800	.11483	.17100	.21643	37.8063	52.9988	111.3852	.0000	18.8771
14.0	3.2351	1.7721	1.16	.3728	2.6826	.15300	.11490	.17860	.22335	36.9064	52.0577	107.1684	.0000	18.4935
14.0	3.2351	1.7721	1.16	.3728	2.6826	.15800	.11476	.18638	.23035	35.9921	51.1294	102.9517	.0000	18.1098
14.0	3.2351	1.7721	1.16	.3728	2.6826	.16300	.11440	.19435	.23744	35.0628	50.2135	98.7350	.0000	17.7262
14.0	3.2351	1.7721	1.16	.3728	2.6826	.16800	.11382	.20251	.24461	34.1178	49.3097	94.5183	.0000	17.3425
14.0	3.2351	1.7721	1.16	.3728	2.6826	.17300	.11302	.21088	.25190	33.1557	48.4177	90.3016	.0000	16.9587
14.0	3.2351	1.7721	1.16	.3728	2.6826	.17800	.11199	.21948	.25930	32.1754	47.5380	86.0848	.0000	16.5750
14.0	3.2351	1.7721	1.16	.3728	2.6826	.18300	.11072	.22830	.26683	31.1751	46.6709	81.8681	.0000	16.1912
14.0	3.2351	1.7721	1.16	.3728	2.6826	.18800	.10921	.23737	.27451	30.1529	45.8175	77.6514	.0000	15.8073
14.0	3.2351	1.7721	1.16	.3728	2.6826	.19300	.10745	.24670	.28235	29.1065	44.9793	73.4347	.0000	15.4234
14.0	3.2351	1.7721	1.16	.3728	2.6826	.19800	.10543	.25630	.29037	28.0332	44.1585	69.2180	.0000	15.0394
14.0	3.2351	1.7721	1.16	.3728	2.6826	.20300	.10312	.26619	.29857	26.9297	43.3582	65.0013	.0000	14.6553
14.0	3.2351	1.7721	1.16	.3728	2.6826	.20800	.10052	.27639	.30698	25.7920	42.5830	60.7845	.0000	14.2711
14.0	3.2351	1.7721	1.16	.3728	2.6826	.21300	.9759	.28693	.31561	24.6154	41.8391	56.5678	.0000	13.8868
14.0	3.2351	1.7721	1.16	.3728	2.6826	.21800	.9431	.29782	.32449	23.3937	41.1355	52.3511	.0001	13.5023
14.0	3.2351	1.7721	1.16	.3728	2.6826	.22300	.9064	.30908	.33364	22.1197	40.4853	48.1344	.0001	13.1177
14.0	3.2351	1.7721	1.16	.3728	2.6826	.22800	.8653	.3075	.34308	20.7835	39.9078	43.9177	.0001	12.7327
14.0	3.2351	1.7721	1.16	.3728	2.6826	.23300	.8193	.3286	.35284	19.3725	39.4328	39.7009	.0001	12.3475
14.0	3.2351	1.7721	1.16	.3728	2.6826	.23800	.7673	.34544	.36295	17.8692	39.1074	35.4842	.0001	11.9618
14.0	3.2351	1.7721	1.16	.3728	2.6826	.24300	.7082	.35854	.37345	16.2487	39.0114	31.2675	.0001	11.5754
14.0	3.2351	1.7721	1.16	.3728	2.6826	.24800	.6401	.37219	.38439	14.4730	39.2893	27.0508	.0001	11.1881
14.0	3.2351	1.7721	1.16	.3728	2.6826	.25300	.5599	.38647	.39582	12.4794	40.2333	22.8341	.0001	10.7994
14.0	3.2351	1.7721	1.16	.3728	2.6826	.25800	.4618	.40145	.40783	10.1479	42.5392	18.6174	.0001	10.4082
14.0	3.2351	1.7721	1.16	.3728	2.6826	.26300	.3313	.41723	.42053	7.1806	48.4409	14.4006	.0001</	

14.0	3.2351	1.7721	1.32	.4468	2.2382	.4500	.0757	.4332	.4393	9.5467	88.1678	193.0150	.0000	35.2140
14.0	3.2351	1.7721	1.32	.4468	2.2382	.5000	.3033	.4843	.5664	31.2389	82.5391	188.2167	.0000	34.7776
14.0	3.2351	1.7721	1.32	.4468	2.2382	.5500	.4162	.5361	.6723	37.1161	79.5915	183.4183	.0000	34.3411
14.0	3.2351	1.7721	1.32	.4468	2.2382	.6000	.4995	.5886	.7659	39.7763	77.2969	178.6200	.0000	33.9047
14.0	3.2351	1.7721	1.32	.4468	2.2382	.6500	.5663	.6418	.8513	41.0654	75.3459	173.8217	.0000	33.4682
14.0	3.2351	1.7721	1.32	.4468	2.2382	.7000	.6221	.6957	.9308	41.6278	73.6155	169.0233	.0000	33.0317
14.0	3.2351	1.7721	1.32	.4468	2.2382	.7500	.6695	.7504	.10059	41.7555	72.0425	164.2250	.0000	32.5953
14.0	3.2351	1.7721	1.32	.4468	2.2382	.8000	.7103	.8058	.10777	41.6016	70.5891	159.4267	.0000	32.1587
14.0	3.2351	1.7721	1.32	.4468	2.2382	.8500	.7455	.8621	.11467	41.2540	69.2308	154.6283	.0000	31.7222
14.0	3.2351	1.7721	1.32	.4468	2.2382	.9000	.7760	.9191	.12136	40.7670	67.9508	149.8300	.0000	31.2857
14.0	3.2351	1.7721	1.32	.4468	2.2382	.9500	.8021	.9770	.12787	40.1757	66.7369	145.0317	.0000	30.8491
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.0000	.8244	.10358	.13425	39.5035	65.5804	140.2333	.0000	30.4125
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.0500	.8432	.10955	.14050	38.7665	64.4746	135.4350	.0000	29.9759
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.1000	.8587	.11561	.14667	37.9761	63.4145	130.6366	.0000	29.5393
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.1500	.8710	.12177	.15276	37.1401	62.3963	125.8383	.0000	29.1026
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.2000	.8803	.12803	.15879	36.2642	61.4175	121.0400	.0000	28.6659
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.2500	.8868	.13439	.16477	35.3521	60.4762	116.2416	.0000	28.2291
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.3000	.8903	.14086	.17073	34.4063	59.5715	111.4433	.0000	27.7923
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.3500	.8911	.14744	.17667	33.4281	58.7033	106.6450	.0000	27.3554
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.4000	.8891	.15414	.18260	32.4182	57.8724	101.8466	.0000	26.9185
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.4500	.8843	.16096	.18852	31.3761	57.0803	97.0483	.0000	26.4815
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.5000	.8766	.16790	.19446	30.3007	56.3297	92.2500	.0000	26.0444
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.5500	.8659	.17497	.20042	29.1904	55.6246	87.4516	.0000	25.6073
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.6000	.8523	.18218	.20641	28.0423	54.9706	82.6533	.0000	25.1700
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.6500	.8354	.18952	.21243	26.8530	54.3756	77.8550	.0000	24.7326
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.7000	.8152	.19702	.21849	25.6179	53.8501	73.0566	.0000	24.2950
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.7500	.7913	.20466	.2461	24.3308	53.4089	68.2583	.0000	23.8573
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.8000	.7635	.21247	.23079	22.9838	53.0726	63.4600	.0000	23.4193
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.8500	.7312	.22044	.23704	21.5665	52.8707	58.6616	.0000	22.9810
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.9000	.6940	.22859	.24337	20.0648	52.8462	53.8633	.0000	22.5424
14.0	3.2351	1.7721	1.32	.4468	2.2382	1.9500	.6509	.23693	.24978	18.4589	53.0647	49.0650	.0000	22.1033
14.0	3.2351	1.7721	1.32	.4468	2.2382	2.0000	.6008	.24546	.25629	16.7199	53.6311	44.2666	.0000	21.6635
14.0	3.2351	1.7721	1.32	.4468	2.2382	2.0500	.5417	.25419	.26292	14.8026	54.7246	39.4683	.0000	21.2229
14.0	3.2351	1.7721	1.32	.4468	2.2382	2.1000	.4705	.26315	.26967	12.6286	56.6830	34.6700	.0000	20.7811
14.0	3.2351	1.7721	1.32	.4468	2.2382	2.1500	.3806	.27233	.27657	10.0377	60.2489	29.8716	.0000	20.3375
14.0	3.2351	1.7721	1.32	.4468	2.2382	2.2000	.2533	.28178	.28364	6.5670	67.6441	25.0733	.0000	19.8910

14.0	3.2351	1.7721	1.40	.4898	2.0418	.4900	.0194	.4724	.4728	2.2731	89.5035	186.3264	.0000	39.4933
14.0	3.2351	1.7721	1.40	.4898	2.0418	.5400	.2739	.5237	.5872	26.8928	82.8853	181.2373	.0000	39.0304
14.0	3.2351	1.7721	1.40	.4898	2.0418	.5900	.3803	.5756	.6848	32.8059	79.9420	176.1481	.0000	38.5674
14.0	3.2351	1.7721	1.40	.4898	2.0418	.6400	.4575	.6281	.7721	35.5570	77.6775	171.0590	.0000	38.1044
14.0	3.2351	1.7721	1.40	.4898	2.0418	.6900	.5186	.6814	.8523	36.9270	75.7653	165.9698	.0000	37.6414
14.0	3.2351	1.7721	1.40	.4898	2.0418	.7400	.5688	.7353	.9274	37.5492	74.0794	160.8807	.0000	37.1783
14.0	3.2351	1.7721	1.40	.4898	2.0418	.7900	.6109	.7899	.9985	37.7156	72.5556	155.7916	.0000	36.7153
14.0	3.2351	1.7721	1.40	.4898	2.0418	.8400	.6464	.8452	.10666	37.5811	7			

14.0	3.2351	1.7721	1.48	.5388	1.8559	.5400	.0394	.5219	.5233	4.1772	88.9339	178.0965	.0000	43.9197
14.0	3.2351	1.7721	1.48	.5388	1.8559	.5900	.2538	.5734	.6242	23.2725	83.0086	172.7166	.0000	43.4302
14.0	3.2351	1.7721	1.48	.5388	1.8559	.6400	.3496	.6255	.7128	28.6474	80.1769	167.3366	.0000	42.9406
14.0	3.2351	1.7721	1.48	.5388	1.8559	.6900	.4184	.6783	.7932	31.2340	78.0039	161.9567	.0000	42.4510
14.0	3.2351	1.7721	1.48	.5388	1.8559	.7400	.4722	.7317	.8679	32.5411	76.1785	156.5767	.0000	41.9614
14.0	3.2351	1.7721	1.48	.5388	1.8559	.7900	.5156	.7857	.9382	33.1298	74.5801	151.1968	.0000	41.4718
14.0	3.2351	1.7721	1.48	.5388	1.8559	.8400	.5511	.8404	1.0051	33.2674	73.1473	145.8168	.0000	40.9821
14.0	3.2351	1.7721	1.48	.5388	1.8559	.8900	.5802	.8958	1.0693	33.0993	71.8449	140.4369	.0000	40.4923
14.0	3.2351	1.7721	1.48	.5388	1.8559	.9400	.6037	.9519	1.1313	32.7116	70.6507	135.0569	.0000	40.0025
14.0	3.2351	1.7721	1.48	.5388	1.8559	.9900	.6224	1.0087	1.1915	32.1583	69.5506	129.6770	.0000	39.5127
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.0400	.6367	1.0663	1.2502	31.4744	68.5358	124.2970	.0000	39.0227
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.0900	.6468	1.1246	1.3077	30.6834	67.6011	118.9171	.0000	38.5327
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.1400	.6529	1.1838	1.3642	29.8007	66.7443	113.5371	.0000	38.0426
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.1900	.6552	1.2437	1.4198	28.8365	65.9661	108.1572	.0000	37.5524
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.2400	.6537	1.3045	1.4747	27.7968	65.2699	102.7772	.0000	37.0621
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.2900	.6484	1.3662	1.5291	26.6843	64.6619	97.3973	.0000	36.5717
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.3400	.6391	1.4288	1.5830	25.4989	64.1520	92.0173	.0000	36.0811
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.3900	.6258	1.4923	1.6365	24.2377	63.7550	86.6374	.0000	35.5903
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.4400	.6081	1.5567	1.6899	22.8947	63.4916	81.2574	.0000	35.0993
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.4900	.5857	1.6222	1.7430	21.4602	63.3918	75.8775	.0000	34.6080
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.5400	.5581	1.6886	1.7961	19.9192	63.4994	70.4975	.0000	34.1164
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.5900	.5243	1.7562	1.8492	18.2494	63.8800	65.1176	.0000	33.6244
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.6400	.4832	1.8248	1.9024	16.4158	64.6370	59.7376	.0000	33.1318
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.6900	.4327	1.8946	1.9557	14.3602	65.9445	54.3577	.0000	32.6386
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.7400	.3690	1.9656	2.0093	11.9736	68.1283	48.9777	.0000	32.1444
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.7900	.2836	2.0378	2.0633	9.0036	71.9294	43.5978	.0000	31.6490
14.0	3.2351	1.7721	1.48	.5388	1.8559	1.8400	.1419	2.1114	2.1177	4.4114	80.1702	38.2178	.0000	31.1518

14.0	3.2351	1.7721	1.56	.5971	1.6749	.6000	.0561	.5818	.5843	5.3397	88.3860	168.1509	.0000	48.4771
14.0	3.2351	1.7721	1.56	.5971	1.6749	.6500	.2322	.6336	.6728	19.6552	83.1765	162.4801	.0000	47.9610
14.0	3.2351	1.7721	1.56	.5971	1.6749	.7000	.3157	.6861	.7526	24.2749	80.5181	156.8094	.0000	47.4448
14.0	3.2351	1.7721	1.56	.5971	1.6749	.7500	.3747	.7391	.8262	26.5497	78.4892	151.1386	.0000	46.9285
14.0	3.2351	1.7721	1.56	.5971	1.6749	.8000	.4198	.7927	.8953	27.6877	76.8028	145.4679	.0000	46.4122
14.0	3.2351	1.7721	1.56	.5971	1.6749	.8500	.4550	.8470	.9607	28.1598	75.3471	139.7971	.0000	45.8959
14.0	3.2351	1.7721	1.56	.5971	1.6749	.9000	.4825	.9019	1.0234	28.1980	74.0663	134.1263	.0000	45.3794
14.0	3.2351	1.7721	1.56	.5971	1.6749	.9500	.5037	.9575	1.0838	27.9312	72.9295	128.4556	.0000	44.8629
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.0000	.5192	1.0138	1.1422	27.4366	71.9191	122.7848	.0000	44.3463
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.0500	.5295	1.0707	1.1992	26.7626	71.0263	117.1141	.0000	43.8296
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.1000	.5351	1.1284	1.2548	25.9399	70.2483	111.4433	.0000	43.3128
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.1500	.5360	1.1867	1.3093	24.9876	69.5876	105.7726	.0000	42.7958
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.2000	.5322	1.2459	1.3629	23.9164	69.0525	100.1018	.0000	42.2787
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.2500	.5237	1.3058	1.4158	22.7304	68.6572	94.4310	.0000	41.7613
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.3000	.5102	1.3666	1.4680	21.4276	68.4242	88.7603	.0000	41.2458
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.3500	.4913	1.4281	1.5197	19.9992	68.3872	83.0895	.0000	40.7259
14.0	3.2351	1.7721	1.56	.5971	1.6749	1.								



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