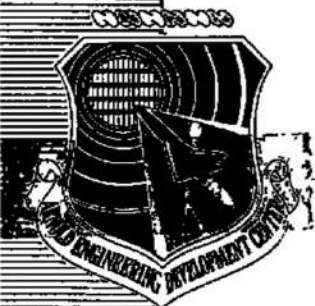


AEDC-TR-65-69

ARCHIVE COPY
DO NOT LOAN

C41



STRESS WAVES IN COMPOSITE LAMINATES

This document has been approved for public release
its distribution is unlimited.

*RUDDC TR-115
AD A011 100
Dtd July 1975*

Ray Kinslow

ARO, Inc.

June 1965

PROPERTY OF U. S. AIR FORCE
AEDC LIBRARY
AF 40(600)1000

**VON KÁRMÁN GAS DYNAMICS FACILITY
ARNOLD ENGINEERING DEVELOPMENT CENTER
AIR FORCE SYSTEMS COMMAND
ARNOLD AIR FORCE STATION, TENNESSEE**

AEDC TECHNICAL LIBRARY



9250 1E000 0220
5 0720 00031 0328

NOTICES

When U. S. Government drawings specifications, or other data are used for any purpose other than a definitely related Government procurement operation, the Government thereby incurs no responsibility nor any obligation whatsoever, and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise, or in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Qualified users may obtain copies of this report from the Defense Documentation Center.

References to named commercial products in this report are not to be considered in any sense as an endorsement of the product by the United States Air Force or the Government.

STRESS WAVES IN COMPOSITE LAMINATES

This document has been approved for public release
its distribution is unlimited. *Per DDC/TR-1515
AD A011 100
Dtd July 1975*

Ray Kinslow*

ARO, Inc.

*Chairman, Department of Engineering Science, Tennessee
Technological University, Cookeville, Tennessee, and Consultant,
ARO, Inc.

FOREWORD

The work reported herein was sponsored by Arnold Engineering Development Center (AEDC), Air Force Systems Command (AFSC), Arnold Air Force Station, Tennessee under Program Element 62405364, Project 8871, Task 887101.

The results of research presented were obtained by ARO, Inc. (a subsidiary of Sverdrup and Parcel, Inc.), contract operator of AEDC under Contract AF 40(600)-1000. The research was conducted from May 1, 1964 to January 15, 1965 under ARO Project No. VS3502 and ARO Consultant Contract 65-2-VKF. The report was submitted by the author on March 8, 1965.

The author is indebted to P. L. Clemens, Assistant Manager, Aerophysics Branch, von Kármán Gas Dynamics Facility, for his valuable assistance and suggestions in the preparation of this report.

This report has been reviewed and is approved.

Darrel K. Calkins
Major, USAF
AF Representative, VKF
DCS/Test

Jean A. Jack
Colonel, USAF
DCS/Test

ABSTRACT

Fractures caused by stress waves resulting from hypervelocity impact are sometimes reduced, and at other times are increased, by the use of laminated materials. An analysis of some of the parameters which affect the ability of a laminated structure to resist fracture following impact has been conducted. It is shown that there are multiple reflections from the interfaces bounding any layer of material. The amplitudes of these waves attenuate very rapidly, but because their transmitted components may combine in phase with other waves, they sometimes contribute substantially to the total stress produced. It is shown that these combined waves may result in a stress much greater in the laminated material than would have been produced by the same impact on a solid target of either of the materials used; however, under other conditions, the laminate may be employed to reduce the stress to a very small value. Pressure pulse amplitudes in materials having impedance mismatch values ranging from 0.1 to 10.0 and having as many as thirty laminations are presented in both graphical and tabular form.

CONTENTS

	<u>Page</u>
ABSTRACT	iii
NOMENCLATURE	vii
I. INTRODUCTION	1
II. ASSUMPTIONS AND LIMITATIONS	1
III. PULSE BEHAVIOR AT AN INTERFACE.	3
IV. MULTIPLE LAMINATIONS.	6
V. EFFECT OF PULSE LENGTH AND MATERIAL THICKNESS.	9
VI. SECONDARY PRESSURE WAVES	10
VII. FURTHER EFFECTS OF LAMINATION THICKNESS . . .	11
VIII. DISCUSSION.	14
REFERENCES.	14

ILLUSTRATIONS

Figure

1. Fracture in a Solid Target	17
2. Fracture in a Laminated Target	17
3. Mechanics of Pressure Pulse at an Interface	18
4. Transmitted and Reflected Pulse Amplitudes as a Function of Impedance Mismatch	19
5. Fractures in Plastic Blocks (Produced by Identical Blasting Caps)	20
6. Fractures in Plastic Cylinders (Produced by Identical Blasting Caps)	21
7. Primary Pulse Amplitude	22
8. Effect of Impedance Mismatch upon Primary Pulse Attenuation	24
9. Multiple Reflections within a Lamination.	28
10. Transmitted Waves in Water Produced by Multiple Reflections in Aluminum	29
11. Multiple Pressure Waves in Water	30
12. Effect of Pulse Length upon the Transmitted Wave in Water	31

<u>Figure</u>	<u>Page</u>
13. Effect of Pulse Profile upon the Transmitted Wave in Water	32
14. Primary and Secondary Pressure Waves in Composite Laminates	33
15. Possible Combinations of Primary and Secondary Pressure Waves	34
16. Conditions for Maximum Amplitude of Secondary Pressure Waves	35
17. Secondary Pulse Amplitude	36
18. Effect of Impedance Mismatch upon Amplitude of Secondary Pulses	38
19. Lamination Number at which Pulse Amplitude is a Maximum	39
20. Sum of Primary and Secondary Pulse Amplitudes.	40
21. Effect of Impedance Mismatch upon Sum of Primary and Secondary Pulse Amplitudes	42
22. Effect of Pulse Length upon Magnitude of Stress Developed by Reflected Wave.	43

TABLES

I. Properties of Some Typical Materials.	45
II. Impedance Mismatch for Various Combinations of Materials	46

APPENDIX

I. Values of Pulse Amplitudes in Laminated Material.	47
--	----

NOMENCLATURE

A, B, C,	Amplitudes of reflected waves
AA, BB, CC,	Transmitted components of A, B, C,
B', B''	Amplitudes of secondary waves
c	Velocity of elastic waves
E	Young's modulus
e	Base of natural logarithms
K	Impedance mismatch
N	Lamination or interface number
P	Amplitude of primary pressure wave
T	Time
t	Lamination thickness
V	Particle velocity
ν	Poisson's ratio
ρ	Material density
λ	Wave or pulse length

SUBSCRIPTS

A	Aluminum
N	Lamination or interface number
o	Original wave or pulse
r	Reflected component
t	Transmitted component
W	Water

SECTION I INTRODUCTION

It has been demonstrated that fractures caused by stress waves induced by hypervelocity impact can, in many cases, be reduced by employing laminated targets (Ref. 1). Figure 1 shows a fracture near the rear surface of a solid copper target caused by reflected stress waves. Figure 2 shows the absence of such fractures in a copper-solder laminated target of lesser thickness subjected to a slightly more severe impact. Solid copper targets one-inch thick have spalled near the rear surface when impacted by 3/16-in. -diam aluminum projectiles having velocities as low as 17,500 ft/sec, whereas laminated targets (Fig. 2) 0.75-in. thick have failed to spall when impacted with identical projectiles having velocities of 21,300 ft/sec.

The results of such experimental work have served to alert the design engineer to the possibility of reducing the probability of damage by the use of laminates. It is realized, however, that it is impossible to test all, or even a small percentage of the possible laminates (Ref. 2).

It is just as important that the design engineer realize that the use of laminates does not necessarily reduce the probability of damage but may in some cases result in an increase in damage to the structure. For example, a 30-cal by 0.15-in. Lexan[®] (a polycarbonate resin) projectile fired at a velocity of 21,100 fps destroyed a 2.25-in. -thick laminated plastic target, but an identical projectile fired at 21,800 fps into a 2.0-in. -thick solid target of the same plastic left the target intact (Ref. 3). It has been shown that an aluminum-copper laminate may sustain greater damage than a solid target of aluminum, but that an aluminum-polyethylene laminate would realize less damage (Ref. 4) when impacted at the same velocity by an identical projectile.

This report deals primarily with a theoretical study of the transmission and reflection of stress waves in composite laminates and an analysis of some of the parameters which may affect the ability of a structure to resist fracture induced by hypervelocity impact. It is hoped that this study will answer some of the questions as to how and why laminates act as they do when subjected to impact.

SECTION II ASSUMPTIONS AND LIMITATIONS

As in most theoretical investigations, it is necessary to make certain assumptions and to specify some limitations. This may be done

either to simplify the mathematical derivations or because of a lack of information or knowledge in certain areas. Both of these reasons have prompted the following assumptions:

1. This report is limited to the action of elastic waves in the targets. When a solid body is impacted by a hypervelocity projectile, a crater is formed which expands very rapidly at first. As the velocity of crater formation decreases, a shock wave is detached from its surface but soon decays into a spherical elastic wave which continues to travel through the target (Ref. 5). The relative distance covered by the plastic shock wave is small, assuming a thick target, and fractures produced within this distance consist mainly of deformation of the target and ejection of target material by forces other than those attributed to the shock wave.
2. Closely related to the above is the assumption that the velocity of the elastic wave is a constant through any given material and is specified by the relation

$$c = \left[\frac{E (1 - \nu)}{\rho (1 + \nu) (1 - 2\nu)} \right]^{\frac{1}{2}} \quad (1)$$

where c is the wave velocity, E is Young's modulus, ν is Poisson's ratio, and ρ is the material density. This assumption is made for both incident and reflected waves. Since the reflected wave will traverse material through which the incident wave has recently passed, it is acknowledged that the density and elastic constants may change slightly, perhaps because of the heating of the material. (It has been shown that the velocity of the reflected wave in Lucite® (acrylic resin) is about 80 percent of that of the incident wave (Ref. 3)). The reason for the assumption of constant velocity of the elastic wave is that, at present, the changes in material properties and temperatures are not known for the various materials.

3. Proceeding from the above, it is further assumed that the value of the product, ρc , called the "characteristic impedance" of the medium, remains constant.
4. The primary purpose of this study is to compare the stresses produced in laminates with the stresses produced in targets of a homogeneous material. This comparison can be made by neglecting the stress attenuation attributed to distance. Except as noted, this attenuation is neglected in this report. When the attenuation of the stress is not neglected, it is assumed that the rate of attenuation of stress amplitude at the wave front as a function of the distance from its origin is the same

in both homogeneous and laminated material, the amplitude of the spherical pulse being inversely proportional to the distance (Ref. 6).

5. Only the stresses along the axis perpendicular to the lamination interfaces will be considered. Unless the lateral dimensions of the target are very small, the maximum stress will be produced on this axis.
6. Energy losses are neglected.

SECTION III PULSE BEHAVIOR AT AN INTERFACE

An abrupt change in the physical properties of a material will result in the modification of a pressure pulse as it encounters this change. In general, a portion of the pulse will be transmitted, and a portion will be reflected.

The relations which describe the modification of a pulse are based upon the boundary conditions of continuity of pressure and continuity of particle velocity across the interface.

The equations which express these conditions may be written as

$$P_o + P_r = P_t \quad (2)$$

and

$$V_o - V_r = V_t \quad (3)$$

where P is pressure, V is particle velocity, and o , r , and t refer to the original pulse, the reflected pulse, and the transmitted pulse, respectively. The expression for the conservation of momentum at the pulse front is (Ref. 7)

$$P = \rho c V \quad (4)$$

Substituting the value of V from this relation into Eq. (3) gives

$$\frac{P_o}{\rho_o c_o} - \frac{P_r}{\rho_r c_r} = \frac{P_t}{\rho_t c_t} \quad (5)$$

Making use of the relation

$$\rho_o c_o = \rho_r c_r \quad (\text{Assumption 3}) \quad (6)$$

gives

$$\frac{P_o - P_r}{\rho_o c_o} = \frac{P_t}{\rho_t c_t} \quad (7)$$

Solving Eqs. (2) and (7) simultaneously gives the following important relations:

$$P_t = \left[\frac{2\rho_t c_t}{\rho_t c_t + \rho_o c_o} \right] P_o \quad (8)$$

$$P_r = \left[\frac{\rho_t c_t - \rho_o c_o}{\rho_t c_t + \rho_o c_o} \right] P_o \quad (9)$$

These may be referred to as the "impedance mismatch" equations. Dividing Eq. (8) by Eq. (9) gives

$$\frac{P_t}{P_r} = \frac{2\rho_t c_t}{\rho_t c_t - \rho_o c_o} \quad (10)$$

These equations are somewhat simplified by letting

$$K = \frac{\rho_t c_t}{\rho_o c_o} \quad (11)$$

giving

$$P_t = \left[\frac{2K}{K+1} \right] P_o \quad (12)$$

$$P_r = \left[\frac{K-1}{K+1} \right] P_o \quad (13)$$

and

$$\frac{P_t}{P_r} = \frac{2K}{K-1} \quad (14)$$

Some conclusions which may be drawn from these relations are:

1. The sign of P_t will always be the same as P_o . That is, a compression wave will always be transmitted as a compression wave, and a release or tensile wave will always be transmitted as a tensile wave.
2. The sign of P_r may be the same as that of P_o or it may be different. If $K < 1$ a compression wave will be reflected as tensile wave, and a tensile wave will be reflected as a compression wave. If $K > 1$ the sign of the reflected wave will be the same as that of the incident wave.
3. If $K \equiv 1$, $P_t \equiv P_o$ and $P_r \equiv 0$
4. When $K \ll 1$, $P_t \equiv 0$ and $P_r \equiv -P_o$
5. When $K \gg 1$, $P_t \equiv 2P_o$ and $P_r \equiv P_o$

Reference to Fig. 3 may aid in understanding the mechanics of the pulse at the interface. At the top of the figure are shown two distance-time plots of a step-function pulse having a length λ and an amplitude P_o . The one shown at the left is moving toward a region having a lower characteristic impedance than the first, $K < 1$, and at the right the pulse is

shown moving into a material of higher impedance, $K > 1$. Shown below the $x-t$ plots are profiles of the pulse as it is transmitted and reflected at the interfaces. For the conditions of $K < 1$ assume that $K = 0.5$. The transmitted pulse will have an amplitude of $+0.667 P_0$, and the reflected component will have an amplitude of $-0.333 P_0$. Until complete transmission and reflection have occurred (which requires a time of λ/c_0), the reflected and incident pulses will interact as shown. In the case of $K > 1$, assume $K = 2.0$. The amplitudes of the transmitted and reflected pulses will be $1.333 P_0$ and $0.333 P_0$, respectively.

Stresses developed will depend not only upon the amplitude of the incident pulse, P_0 , and upon the properties of the materials, but also upon the profile of the pressure pulse. No attempt will be made to describe these profiles, but references will be made to their effects. Profiles of simple geometric forms will be used as illustrations.

Figure 4 gives the values of the transmitted and reflected pulse amplitudes as functions of K . In order that these values may be determined for various combinations of actual materials, Table I gives some average handbook values of density, wave velocity, and characteristic impedance of some common materials, and Table II gives impedance mismatch values of some possible material combinations.

The effect of the impedance mismatch, K , on the amplitude of the reflected pulse is shown qualitatively in Fig. 5. Identical shock waves were produced in the two Lucite blocks by explosives placed on one face of each block. The first was surrounded by air when the explosion occurred. As $K \approx 0$ from Lucite to air, the amplitude of the reflected pulse, $P_r = -P_0$. The spall near the rear surface was therefore produced by the reflection of the pressure pulse as a tensile wave. The explosion occurred on the face of the second block while it was floating on mercury. The value of K from Lucite to mercury is approximately six. The pulse in this case was reflected as a pressure wave having a value of about $0.72 P_0$. Since no tensile stresses were produced, the material did not fracture.

Although the relations for the amplitude of transmitted and reflected waves were derived only for normal incidence of pressure waves, the fractures in the Lucite cylinders shown in Fig. 6 further illustrate the point. These cylinders were surrounded by air, water, and mercury, respectively, when subjected to identical explosive forces at their bases.

SECTION IV MULTIPLE LAMINATIONS

A laminated structure is made up of N interfaces joining $N + 1$ layers of material. The first layer of material in which the magnitude of the pressure pulse is P_0 is designated as $N = 0$. The structure may consist of any number of materials, but for the present it will be assumed that only two different materials are employed, because this is the most common type of laminate and is the only one for which it is practical to develop general relations. If more than two materials are used, it is usually more simple to compute the stress magnitudes layer by layer than to depend upon derived equations.

Consider the case in which the laminations $N = 0, 2, 4, 6 - - -$ have a characteristic impedance of $\rho_0 c_0$, and the alternate layers $N = 1, 3, 5, 7, - - -$ have an impedance of ρc . The amplitude of the pulse transmitted past the first interface has the value, according to Eq. (12), of

$$P_t \Big|_{N=1} = \left[\frac{2K}{K+1} \right] P_0$$

and the pressure reflected from this interface is (Eq. (13))

$$P_r \Big|_{N=1} = \left[\frac{K-1}{K+1} \right] P_0$$

if the value of $K = \rho c / \rho_0 c_0$. As the transmitted pulse reaches the second interface, a portion of it will be transmitted, and a part of it will be reflected. However, the value of the impedance mismatch at this interface is not K but has a value of $1/K$. The amplitude of the pulse transmitted across the second interface is, therefore,

$$P_t \Big|_{N=2} = \left[\frac{2}{K+1} \right] \left[\frac{2K}{K+1} \right] P_0 = \frac{4K}{(K+1)^2} P_0$$

and the amplitude of the reflected component is

$$P_r \Big|_{N=2} = \left[\frac{1-K}{1+K} \right] \left[\frac{2K}{K+1} \right] P_0 = \frac{2K(1-K)}{(K+1)^2} P_0$$

This process can be repeated again and again in order to determine the pulse amplitude at any point in the structure. The following relations, however, will eliminate much labor and will permit these values to be computed directly for any point in the structure.

The magnitude of the pulse transmitted past the N^{th} interface is given by the relation

$$P_t]_N = \left[\frac{2}{1+K} \right]^N K^{\frac{N}{2}} P_o \quad (15)$$

if N is an even number and

$$P_t]_N = \left[\frac{2}{1+K} \right]^N K^{\frac{N+1}{2}} P_o \quad (16)$$

if N is an odd number.

Plots of these values of pulse amplitudes in materials having impedance mismatch ranging from 0.1 to 10.0 and for thirty laminations (numbered zero through 29) are shown in Fig. 7. These will be referred to as primary pulses. A comparison of the effect of K on the pulse amplitude can be made by reference to Fig. 8.

The pulse reflected from the N^{th} interface has an amplitude of

$$P_r]_N = \left[\frac{1-K}{2} \right] \left[\frac{2}{1+K} \right]^N K^{\frac{N}{2}} P_o \quad (17)$$

for even values of N , and

$$P_r]_N = \left[\frac{K-1}{2} \right] \left[\frac{2}{1+K} \right]^N K^{\frac{N-1}{2}} P_o \quad (18)$$

for odd values of N .

There will be multiple reflections from the two interfaces bounding any layer of material. Figure 9 shows these reflections as A, B, C, - - -. A fraction of each reflected pulse will be transmitted through the bounding interfaces, and these are indicated as AA, BB, CC, - - -. The notations given in this figure replace the notations $P_t]_N$ by simply P_N and replace $P_r]_{N+1}$ by A_N . The values of these multiple reflected pulses are given by the following equations:

$$A_N = \pm \left(\frac{1-K}{1+K} \right) P_N \quad (19)$$

$$B_N = \left(\frac{1-K}{1+K} \right)^2 P_N \quad (20)$$

$$E_N = \pm \left(\frac{1-K}{1+K} \right)^5 P_N \quad (21)$$

The signs of the forward moving pulses (B, D, F, - - -) will always be plus (+), and those of the backward moving ones (A, C, E, - - -) will depend upon whether the bounding laminations have higher or lower impedance. If $K < 1$, the sign will be + if N is odd and minus (-) if N is even. If $K > 1$, the sign will be + if N is even and - if odd. The amplitude of the transmitted components, AA, BB, CC, . . . will be $2K/(K+1)$ or $2/(K+1)$ times the corresponding amplitudes of A, B, C, . . . , depending upon whether the transmission is into a material of higher or lower impedance.

These equations are very cumbersome to use. However, the values can be of importance to the design engineer, and therefore, values of P, A, B, C, D, E, AA, BB, CC, and DD have been computed for all values of N from 1 to 30 and for impedance mismatch values from 0.1 to 10.0. These are included in the Appendix. The value of P_0 has been taken as unity; therefore, all values given in the Appendix must be multiplied by P_0 .

The backward moving pulses AA, CC, EE, - - -, form a rapidly converging series, the sum of which can be shown to be equal to the value of $-A_{N-1}$. Therefore, the sum

$$A_{N-1} + AA_N + CC_N + \dots = 0$$

The forward moving pulses from the N^{th} lamination (P_{N+1} , BB_N , DD_N , - - -) also constitute a rapidly converging series with the sum of the series

$$P_{N+1} + BB_N + DD_N + \dots = P_{N-1}$$

This states that the sum of the amplitudes of the leading edges of all the pressure pulses transmitted at the second interface of any lamination is equal to the amplitude of the pulse impinging upon the first interface. This is to be expected because pulse attenuation and energy losses have been neglected.

The occurrence of these multiple reflections within a layer of material is illustrated by the following example. An aluminum plate having a thickness of 0.25-in. formed one side of a tank containing water. A small blasting cap was exploded in contact with the outside surface of the plate producing a pressure pulse in the aluminum having an amplitude of P_0 . The explosive was of sufficiently small magnitude as not to produce a crater of any significant size. The impedance mismatch between aluminum and water is approximately 0.1 and that between aluminum and air is practically zero. According to Eqs. (12) and (13), the amplitude of the pulse transmitted into the water was $0.182 P_0$ and that of the pulse reflected from the aluminum-water interface was a negative or release wave having an amplitude of $-0.818 P_0$. At the aluminum-air interface,

reflection is nearly total. This reflected pulse, upon reaching the aluminum-water interface, will again be partially transmitted and partially reflected. Figure 10 is a distance-time plot showing the wave fronts in the aluminum and in the water. Figure 11 is a photograph showing clearly these multiple waves in the water produced by the internal reflections in the aluminum plate. Considering the fact that the exact pulse velocity for this aluminum alloy is not known, there is very good agreement between the theoretical plot and the photograph of the waves in the water. According to the computations, there should be eight multiple pulses per inch, and the photographs show seven.

SECTION V

EFFECT OF PULSE LENGTH AND MATERIAL THICKNESS

If the thickness of a lamination is sufficiently small or if the pulse length is sufficiently large, the train of transmitted waves will merge into a single wave. For this to occur, the pulse length, λ , must be equal to or greater than twice the material thickness.

The previous example will serve to illustrate this. The velocities of pressure waves in aluminum and water are approximately 20,900 and 5,200 ft/sec, respectively. With the aluminum plate having a thickness of 0.25-in., the wave length in the aluminum must be at least 0.50-in. in order that the first and second pulses, the second and third, the third and fourth, etc. will merge. If the wave length is as great as 1.0 in., the first, second, and third will overlap. The effect of the wave length upon the profile of the transmitted pulse is shown in Fig. 12, where it is assumed that the initial pulse in the aluminum plate was a step-function having length λ and amplitude P_0 . In this example if λ is less than 0.50-in., the transmitted wave would be a series of separate and distinct pulses having amplitudes as shown in Fig. 10. The pulse length in the water would be the ratio of the pulse velocity in water to that in aluminum times the pulse length in the aluminum, or

$$\lambda_w = \frac{c_w}{c_A} \lambda$$

This rate of decrease in amplitude is shown by the curve marked λ_1 in Fig. 12. If λ is greater than 0.5 but less than 1.0 in., the pulses will overlap, and the transmitted wave will rise in a stepwise manner from zero to point A and then decay stepwise along the curve indicated by λ_2 . If λ had a value greater than 2 in. and less than 2.5 in., the pulse front would increase to point B and then decay along λ_5 . If the wave length is very long, the amplitude of the transmitted pulse will continue to increase as shown by the curve OABC, approaching a maximum amplitude

of P_0 . The effect of the original pulse profile in the aluminum plate upon the pulse transmitted into the water is shown in Fig. 13. Figure 13a shows the theoretical pulse resulting from the step pulse shown and is that described by the curve λ_5 of Fig. 12. Figure 13B shows the pulse in the water resulting from a sawtooth pulse in the aluminum plate. Although P_0 and λ are the same, both the maximum amplitude and location of the peak pressure differ in the two examples given.

SECTION VI SECONDARY PRESSURE WAVES

It has been shown that although the multiple reflections within a lamination converge very rapidly, they may contribute substantially to the amplitude of the transmitted stress waves. It will now be shown that this is especially true if conditions are such that these secondary waves combine in phase with other waves, producing a stress that may be greater than the primary wave P .

Laminates are generally constructed with alternate layers of equal thickness. This may or may not be advisable from a structural standpoint. A specific case will be given as an example. Figure 14 is a distance-time plot of the pressure pulse through a composite laminate in which the even numbered laminations are all of the same material and have equal thickness. The odd numbered layers, of another material, also are equal in thickness, and the impedance mismatch has a value of 0.5. The wave front is designated by P , the values of which are given both in the Appendix and Fig. 7. The first of the internal reflections, A and B and their transmitted components, AA and BB , are shown and their values may be determined by reference to the Appendix. (Notation used here is defined in Fig. 9.) The amplitudes of the primary wave front, P , and the first forward-moving internal reflection, B , are given in Fig. 15. The amplitude of B , given by Eq. (20), has a value of $0.111 P_N$ when $K = 0.5$. The amplitude of B_1 is $0.074 P_0$ and that of the transmitted wave, BB_1 , is $0.099 P_0$. The front of BB_1 reaches the interface between the laminations 2 and 3 at exactly the same time as A_3 . The transmitted component of BB_1 is $[2K/(K + 1)] BB$, or $0.066 P_0$. The amplitude of B_3 (the reflected component of A_3) also has a value of $0.066 P_0$, giving the first forward-moving secondary wave in the third lamination a value of $0.132 P_0$. This continues through the laminate, being reinforced in the odd numbered laminations. The amplitude of this wave is designated as B' . The value of B' for any value of N may be found by the relation

$$B_N' = \frac{N}{2} B_N \quad (22)$$

if N is even, and

$$B_N' = \frac{N+1}{2} B_N \quad (23)$$

if the value of N is odd. A plot of the amplitude of B' is shown in Fig. 15. It may be seen that for this case of $K = 0.5$, B' increases in amplitude up to the eighteenth lamination, after which it decreases as shown.

The lamination in which B' is a maximum may be found by writing the expression for B' by combining Eqs. (15), (20), and (22) giving

$$B' = \frac{N}{2} \left[\frac{1-K}{1+K} \right]^2 \left[\frac{2\sqrt{K}}{1+K} \right]^N P_0 \quad (24)$$

for even values of N . Differentiating with respect to N and equating to zero, this gives

$$e^{1/N} = \frac{1+K}{2\sqrt{K}} \quad (25)$$

The same relation is obtained by using the equation for B' for an odd number of laminations. When using Eq. (25) to determine the lamination in which the amplitude of the secondary wave B' reaches a maximum value, the nearest even value of N should be used for values of K less than unity and the nearest odd value for values of K greater than unity.

Referring again to Fig. 14, it is seen that reinforcement of pressure waves also occurs in the even numbered laminations, resulting in the wave indicated as B'' . The amplitude of B'' is the same as that of B' in the even numbered layers but has a different value in the odd layers, this being

$$B_N'' = \frac{N-1}{2} B_N \quad (26)$$

Values of the amplitude of B'' for both even and odd numbered laminations are shown in Fig. 15.

SECTION VII FURTHER EFFECTS OF LAMINATION THICKNESS

Suppose that the thickness, t_1 , of the odd numbered laminations of Fig. 14 is decreased. This will result in the front of the primary pressure wave P and that of the secondary wave B' coming closer together. As the thickness t_1 approaches zero, the amplitude of the wave front will approach the value of $P + B'$. Although t_1 must have a finite thickness (Ref. 8), the amplitude may actually have this value because a

pressure pulse generally rises rapidly from zero to a maximum and has a zero slope at that point (Ref. 9). Similarly, the amplitude of the wave front will approach $P + B''$ if the thickness of the even numbered laminations, t_0 , is decreased to a small value. The sums $P + B'$ and $P + B''$ for $K = 0.5$ are shown on Fig. 15.

Although the sum of the primary and one of the secondary waves never exceeds the value of P_0 , the pressure is much greater throughout the laminate than would have been computed if the effect of the secondary pulse had not been considered.

If the relative thickness of the laminations is such that

$$t_0/t_1 = c_0/c_1 \quad (27)$$

the fronts of the two waves B' and B'' will coincide, giving a secondary wave of amplitude

$$B_N' + B_N'' = N B_N \quad (28)$$

in all laminations, both even and odd. Figure 16 shows a distance-time plot of the wave fronts for this condition for the case where $K = 0.5$, and Fig. 15 shows the variation of the amplitude versus lamination number. Graphs of $B' + B''$ for values of K ranging from 0.1 to 10.0 for up to thirty laminations are given in Fig. 17. Curves showing the pulse amplitudes in the even numbered laminations for values of $K < 1$ are shown in Fig. 18. The relation given by Eq. (25), which also may be expressed in the form

$$N = \frac{1}{1 + \frac{2\sqrt{K}}{1+K}} \quad (29)$$

gives the lamination number in which the amplitude $B' + B''$ is a maximum. This value is given by the curve for N_1 shown in Fig. 19.

When the ratio of the wave velocities in the two media is very large (or very small) and the lamination thickness is in the same proportion, the leading edges of the waves P and $B' + B''$ will be very close together, and the resulting pulse amplitude will probably be the sum of the two. This will also be true in any case where the pulse has a very long wave length. The sum, $P + B' + B''$, is shown for K having a value of 0.5 in Fig. 15. For these conditions, the resulting pressure in the laminate is greater than the pressure would have been in a solid target. Graphs of $P + B' + B''$ for values of K ranging from 0.1 to 10.0 for up to thirty laminations are given in Fig. 20. Curves showing the pulse amplitudes in the even numbered layers for values of $K < 1$ are shown in Fig. 21.

The expression for the amplitude of this pulse for even values of N is

$$P + B' + B'' = \left[\frac{2\sqrt{K}}{1+K} \right]^N \left[1 + N \left(\frac{1-K}{1+K} \right)^2 \right] P_0 \quad (30)$$

The lamination in which the pulse amplitude is a maximum is found by differentiating this expression with respect to N and equating to zero. This gives

$$N = - \left[\frac{1}{1 + \frac{2\sqrt{K}}{1+K}} + \left(\frac{1+K}{1-K} \right)^2 \right] \quad (31)$$

These values are given by the curve N_2 of Fig. 19.

The third wave shown in Fig. 16 is a tensile or release wave. Although this wave is made up of many weak pulses meeting in phase (for example, sixty-five pulses combine to form this wave at the tenth lamination), it may contribute significantly to the stress developed in the target as shown in the following example.

Consider a target which consists of five laminations with an impedance mismatch of 0.5. (This would be the approximate value for a steel-lead or copper-aluminum combination.) The thickness of the first, t_0 , and the last, t_4 , is relatively large as shown in Fig. 22, and the thicknesses of the other laminations are such that $t_1 = t_3 = c_1 t_2 / c_0$, where c_0 is the pulse velocity in laminations 0, 2, and 4, and c_1 is the velocity in 1 and 3. The distance-time plot (Fig. 22) of the wave fronts is shown with the amplitudes given for the last lamination for the case of a step-pulse having amplitude P_0 .

First, consider the stress developed by the reflections from the rear surface if $\lambda < 2t_2$. The wave transmitted through the last lamination will consist of separate pulses as shown in Fig. 22a for time T_2 . Upon total reflection, the maximum tensile stress will occur when the reflected first pulse interacts with the oncoming third pulse giving a tensile stress of $0.965 P_0$. At time T_3 , the pulse form is shown in Fig. 22c.

For $\lambda > 2t_2$, the waves transmitted through the last lamination will overlap and appear as shown in Fig. 22b. The reflected tensile wave will have a maximum amplitude of $1.23 P_0$ at time T_4 , as shown in Fig. 22d. This means that if this target had been constructed of copper-aluminum laminations, the tensile stress developed in the last layer of copper would have been 23 percent greater than if a solid copper target had been used.

SECTION VIII DISCUSSION

According to these theoretical considerations, a few general conclusions may be drawn which, if properly observed, should lead to the use of laminates in such a way as to reduce the probability of damage produced by stress induced by explosions or impact.

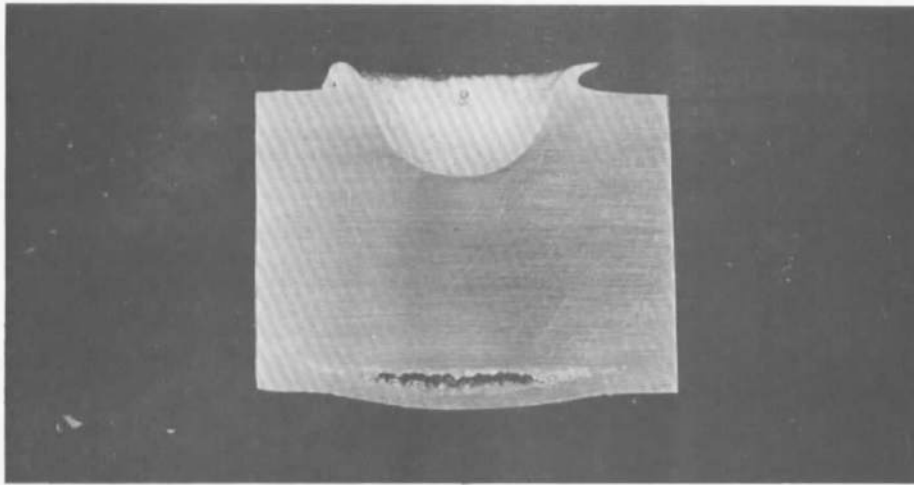
1. The impedance mismatch should not have a value near unity.
2. The last layer of a laminate should be of the material having the least characteristic impedance.
3. The relative thicknesses of the two materials should not be in the same proportions as the wave velocities in the respective materials.
4. The laminations should be of sufficient thickness so as not to result in a superposition of the transmitted pulses.
5. The number of laminations should not be such that the maximum stress, according to Fig. 19, will occur in the last layer.
6. Alternate laminations should not be of the same thickness.

Further experimental work is needed to verify the validity of the assumptions made and the conclusions reached in this study.

REFERENCES

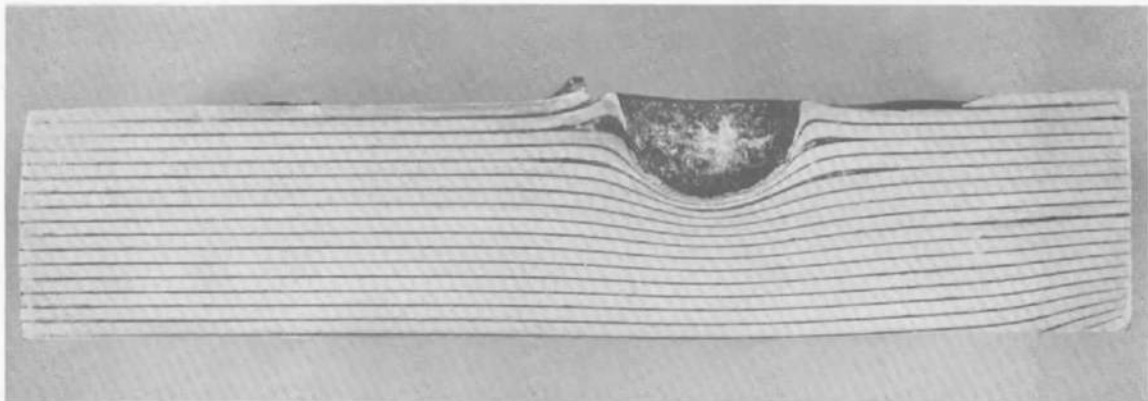
1. Summers, James L. and Nysmith, C. Robert. "The Resistance of Composite Space Structures to Hypervelocity Impact." AIAA Fifth Annual Structures and Materials Conference Proceedings, April 1964, p. 386.
2. McMillan, A. R. "An Investigation of the Penetration of Hypervelocity Projectiles Into Composite Laminates." Proceedings of the Sixth Symposium on Hypervelocity Impact, Vol. III, DA - 31 - 124 - ARO (D) - 16, Firestone Tire and Rubber Co., August 1963, p. 314.
3. Kinslow, Ray. "Observations of Hypervelocity Impact of Transparent Plastic Targets." AEDC-TDR-64-49 (AD 438947), May 1964, p. 7, 16.

4. Gehring, J. W., Christman, D. R., and McMillan, A. R. "Hypervelocity Impact Studies Concerning the Meteoroid Hazard to Aerospace Materials and Structures." AIAA Fifth Annual Structures and Materials Conference Proceedings, April 1964, p. 78.
5. Kinslow, Ray. "Properties of Spherical Stress Waves Produced by Hypervelocity Impact." AEDC-TDR-63-197 (AD 421578), October 1963, p. 1.
6. Kolsky, H. Stress Waves in Solids. Dover Publications, Inc., 1963, p. 16.
7. Rinehart, John S. and Pearson, John. Behavior of Metals Under Impulsive Loads. The American Society for Metals, 1954, p. 31.
8. Clay, Robert Blaine. Formation and Behavior of Shock Waves in Solids. University of Utah Press, 1960, p. 26.
9. Rinehart, John S. "Some Quantitative Data Bearing on the Scabbing of Metals." Journal of Applied Physics, Vol. 22, No. 5, May 1951, pp. 555-560.



Target Material:	Annealed Copper	Projectile Diameter:	3/16 in.
Target Thickness:	1 in.	Projectile Velocity:	20,000 ft/sec
Projectile Material:	Aluminum	Projectile Shape:	Sphere

Fig. 1 Fracture in a Solid Target



Target Material:	Annealed Copper- Solder Laminate	Projectile Diameter:	3/16 in.
Target Thickness:	3/4 in.	Projectile Velocity:	21,300 ft/sec
Projectile Material:	Aluminum	Projectile Shape:	Sphere

Fig. 2 Fracture in a Laminated Target

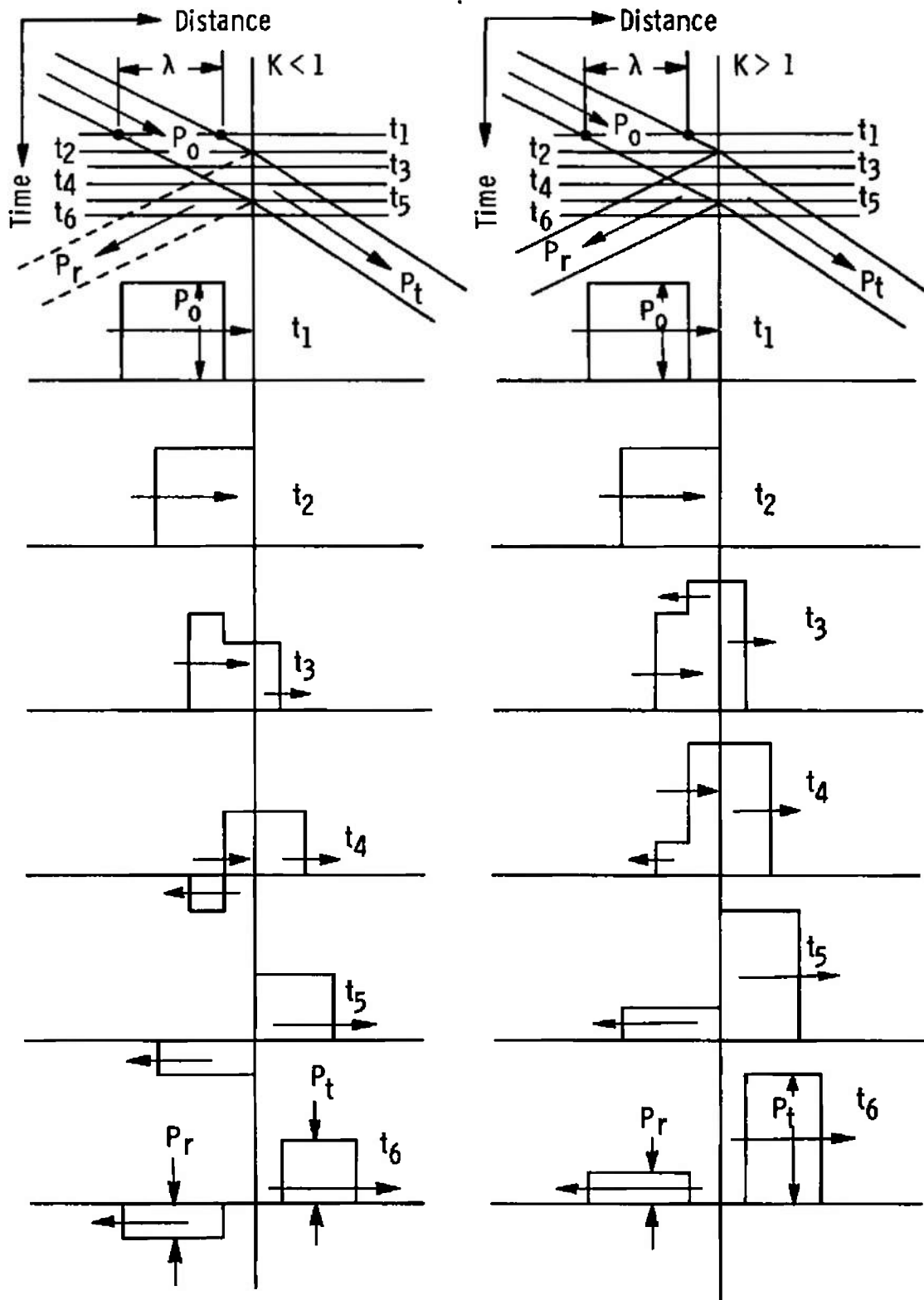


Fig. 3 Mechanics of Pressure Pulse at an Interface

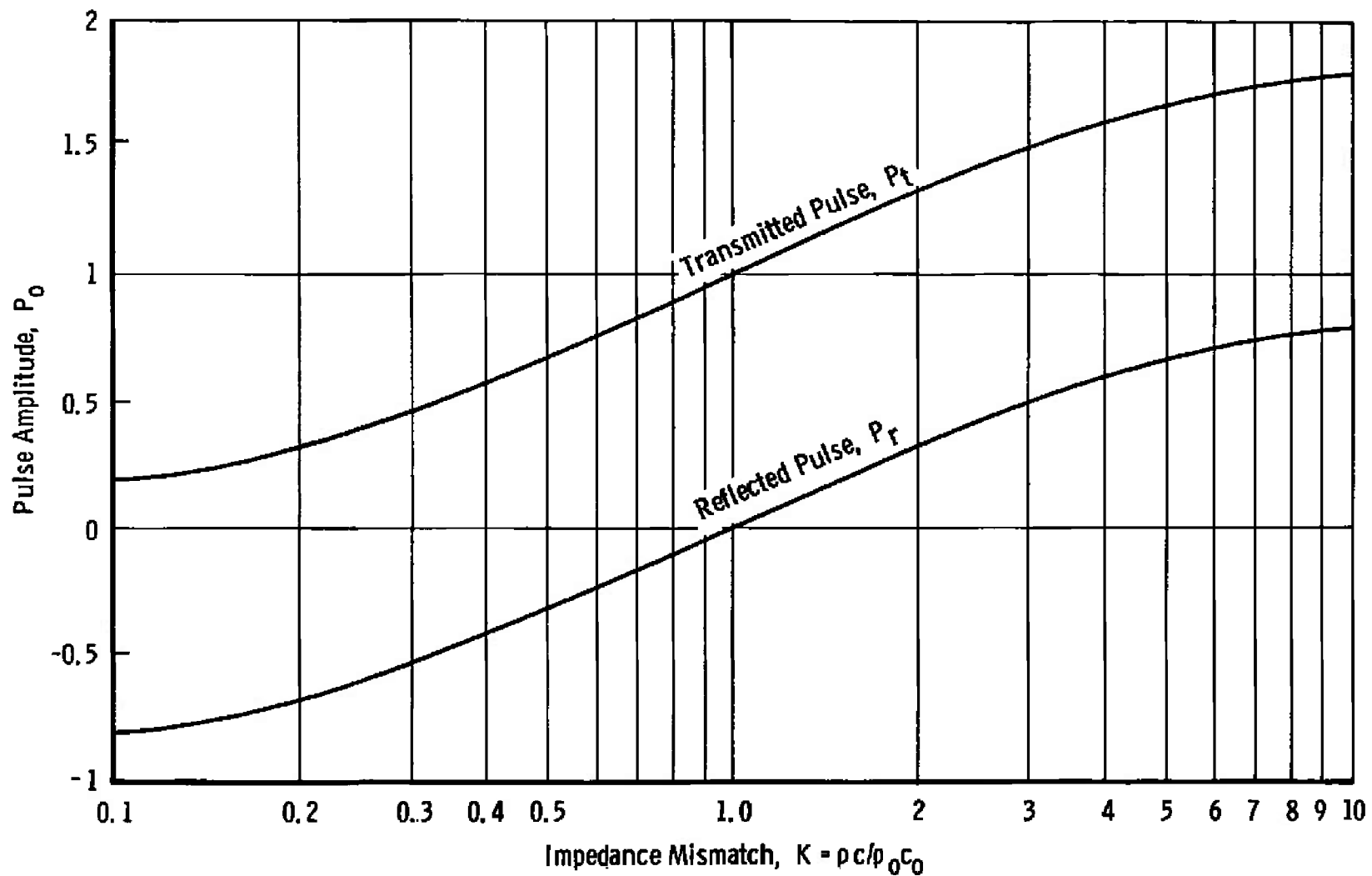


Fig. 4 Transmitted and Reflected Pulse Amplitudes as a Function of Impedance Mismatch

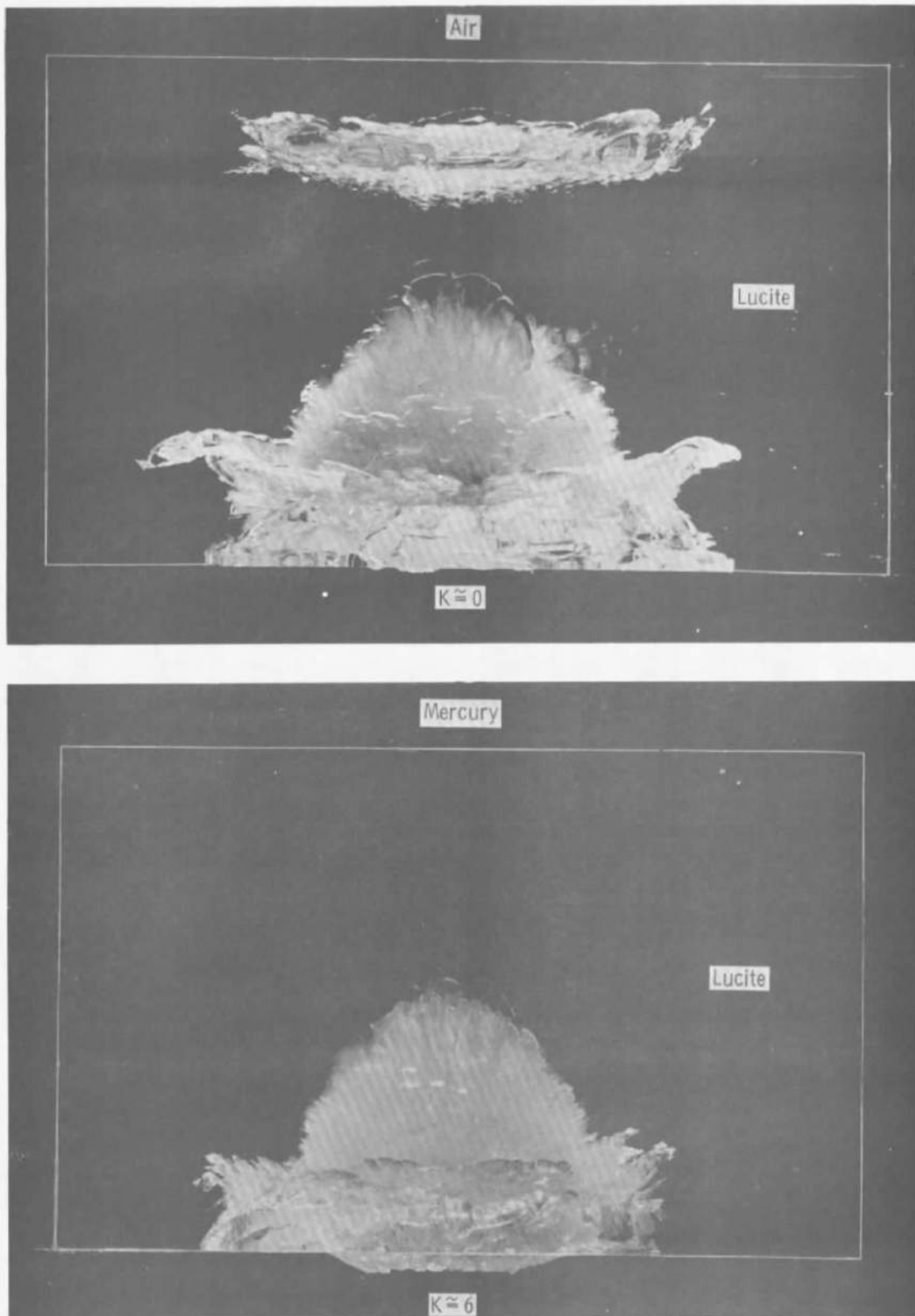


Fig. 5 Fractures in Plastic Blocks (Produced by Identical Blasting Caps)

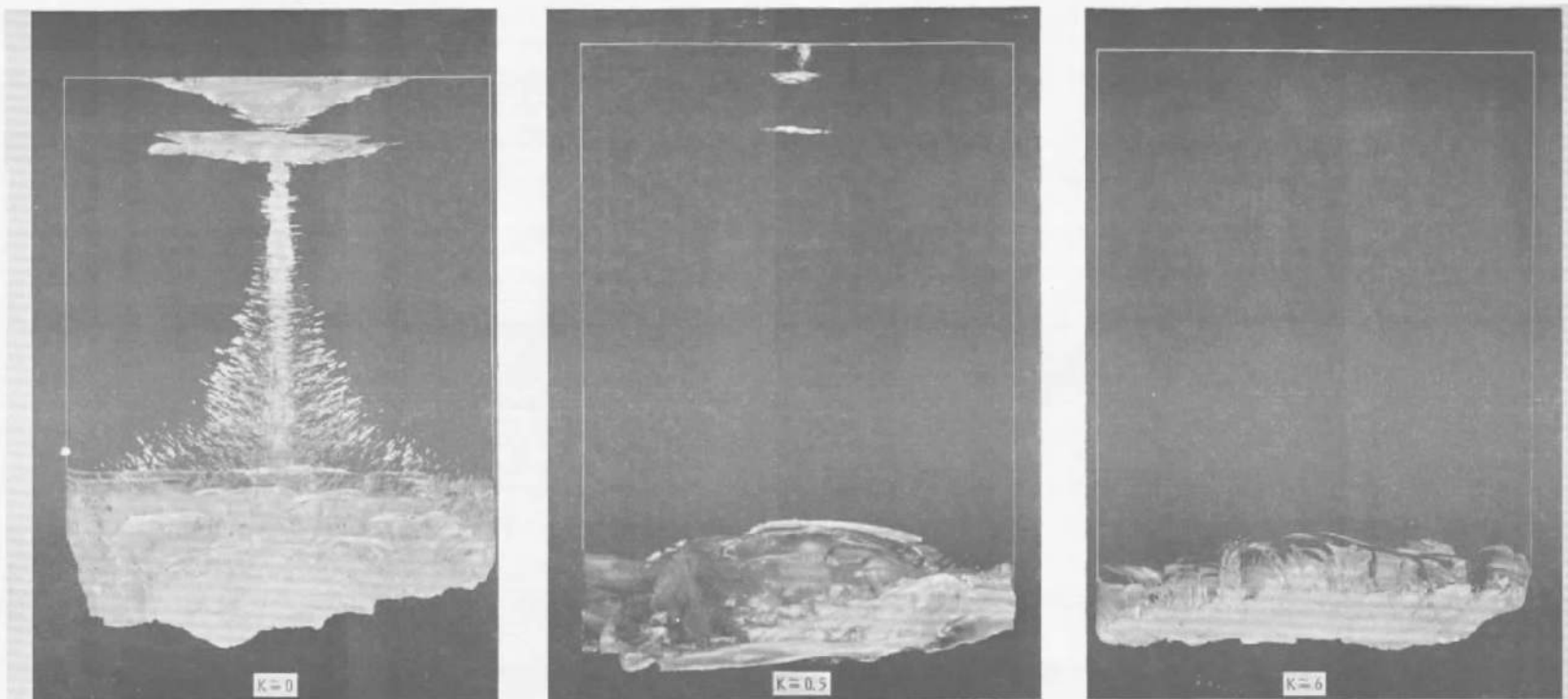


Fig. 6 Fractures in Plastic Cylinders (Produced by Identical Blasting Caps)

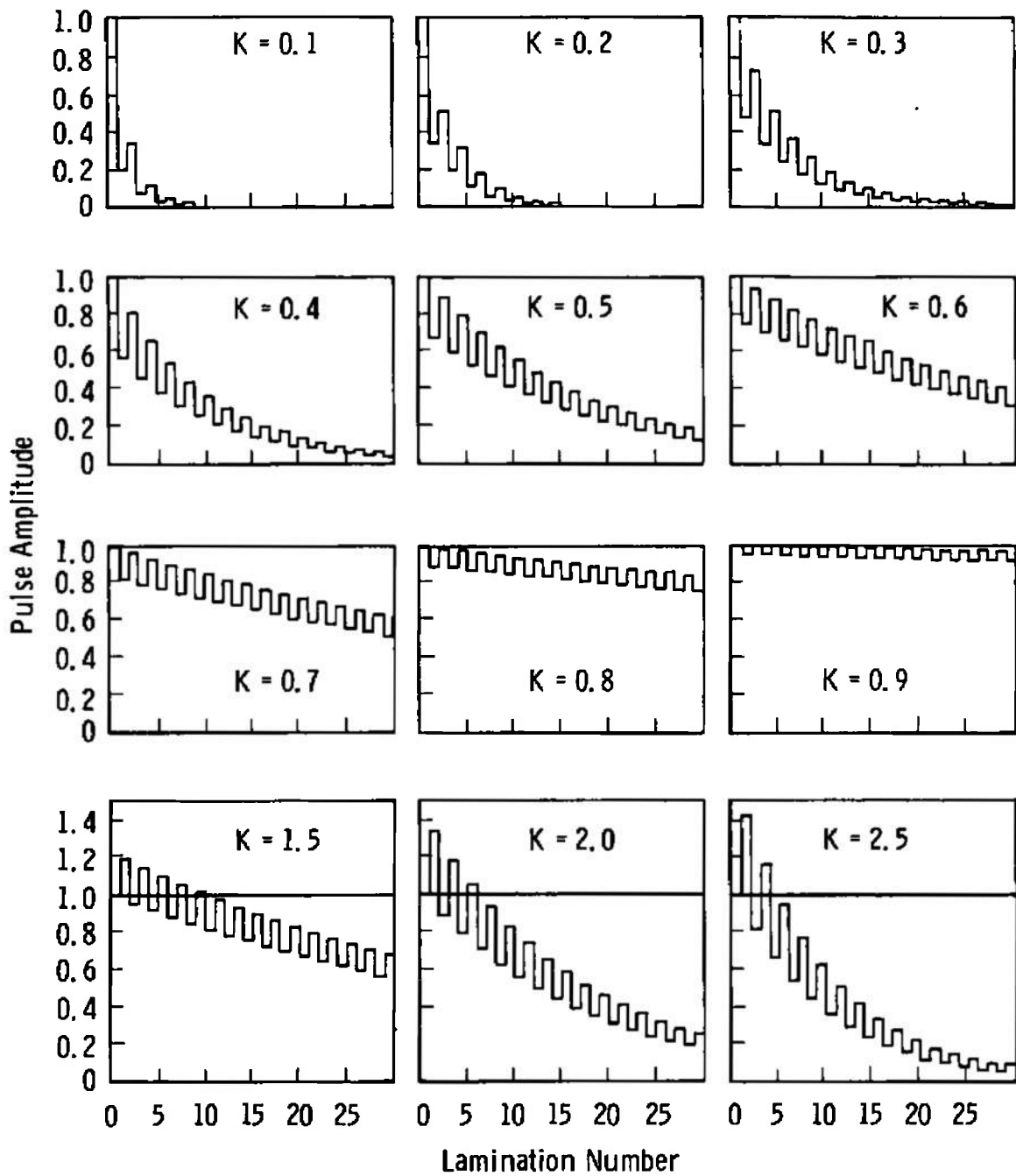


Fig. 7 Primary Pulse Amplitude

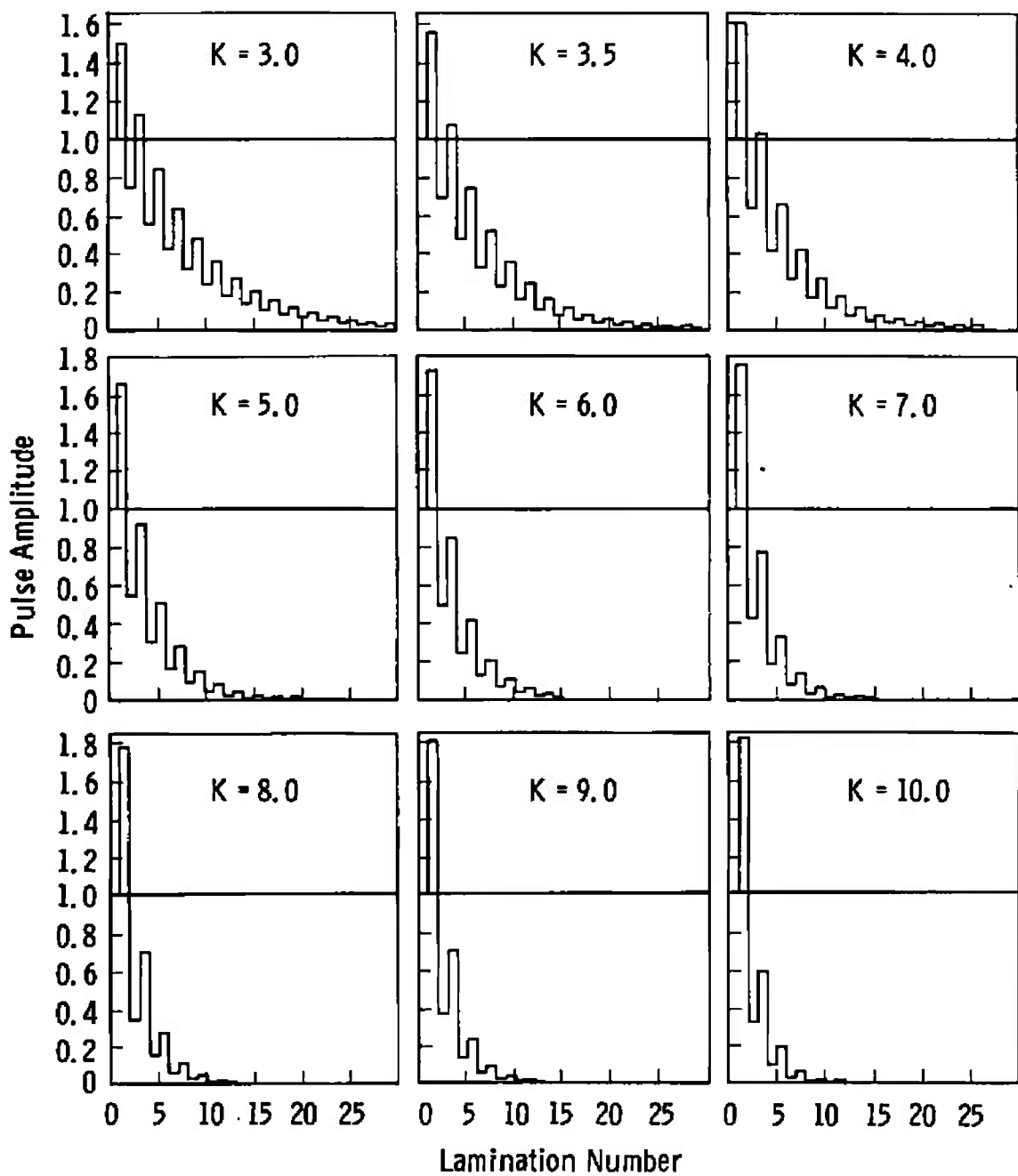


Fig. 7 Concluded

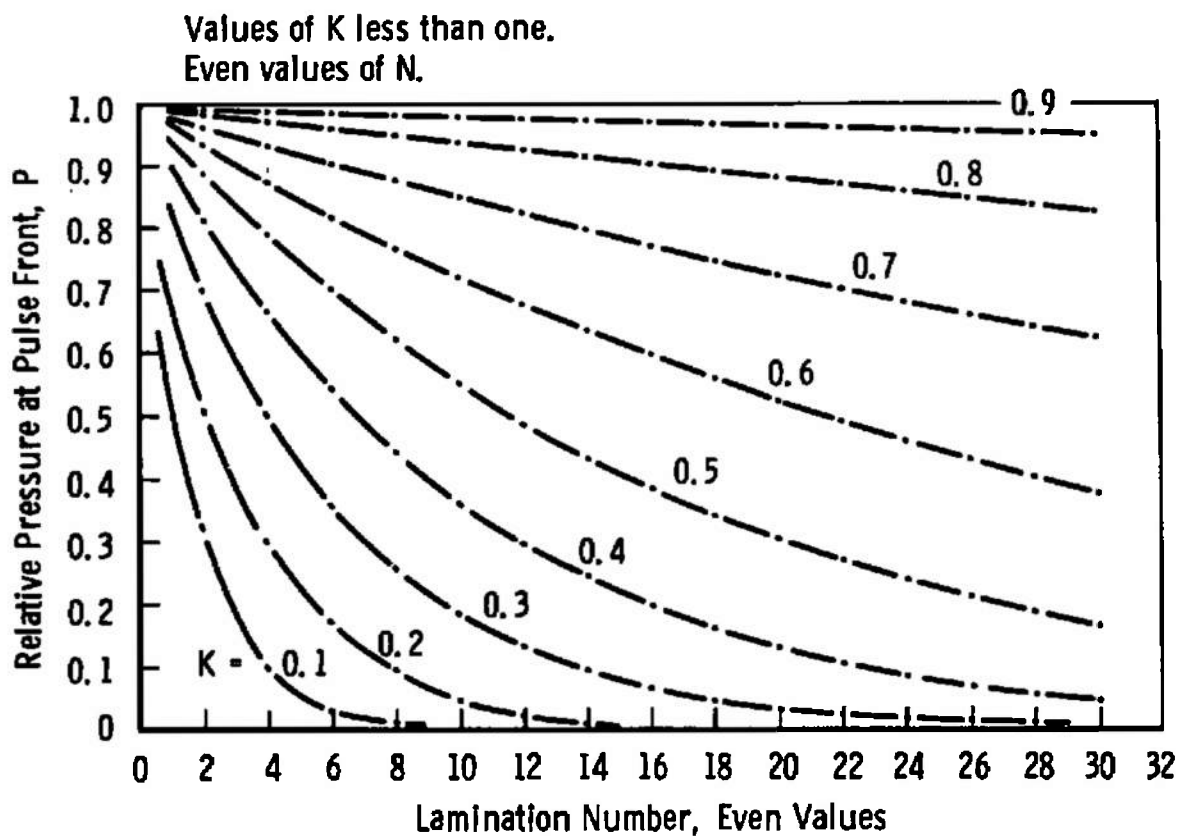


Fig. 8 Effect of Impedance Mismatch upon Primary Pulse Attenuation

Values of K greater than one.
Even values of N.

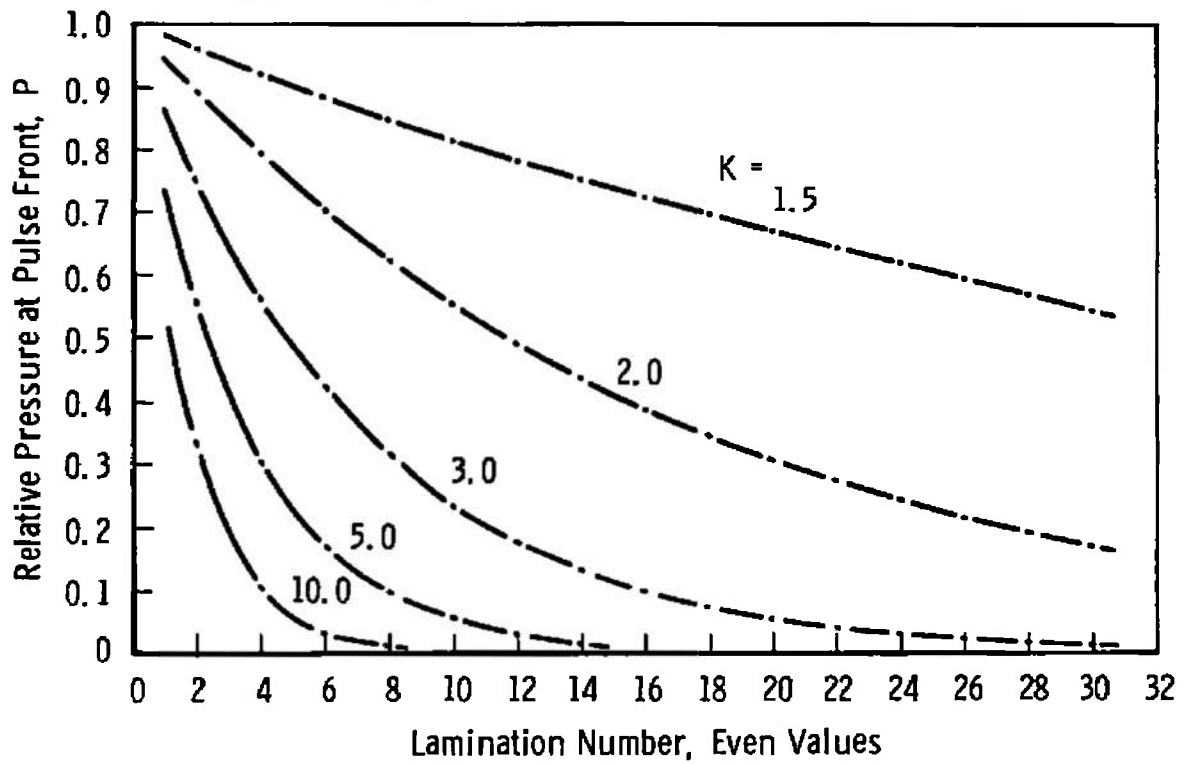


Fig. 8 Continued

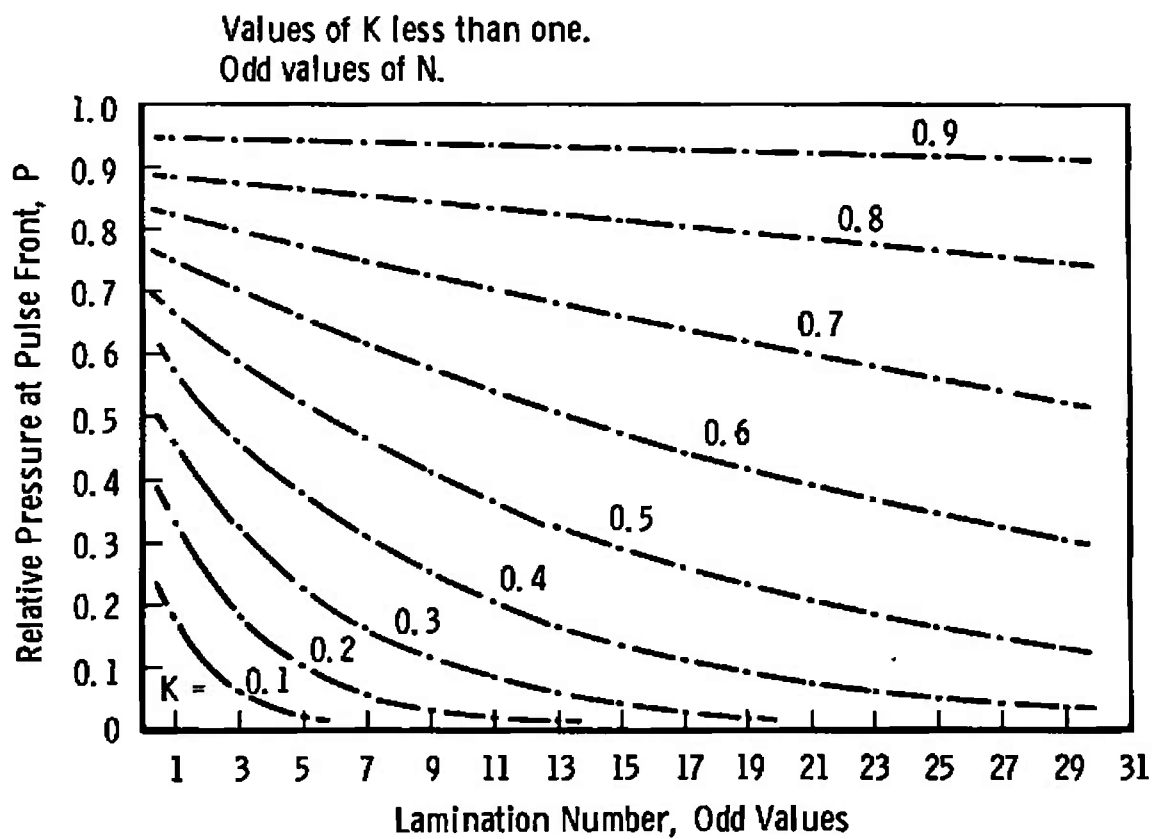


Fig. 8 Continued

Values of K greater than one.
Odd values of N.

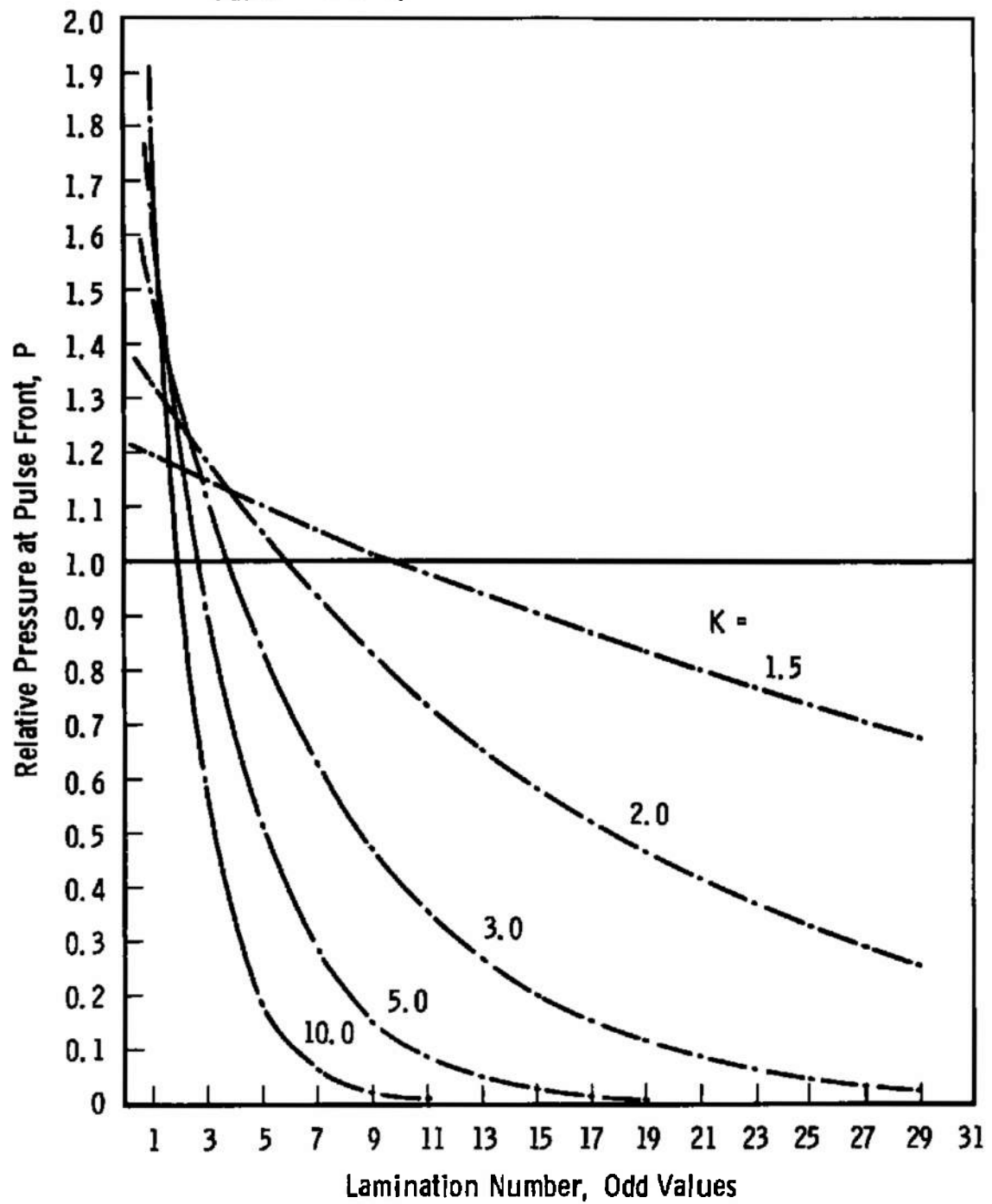


Fig. 8 Concluded

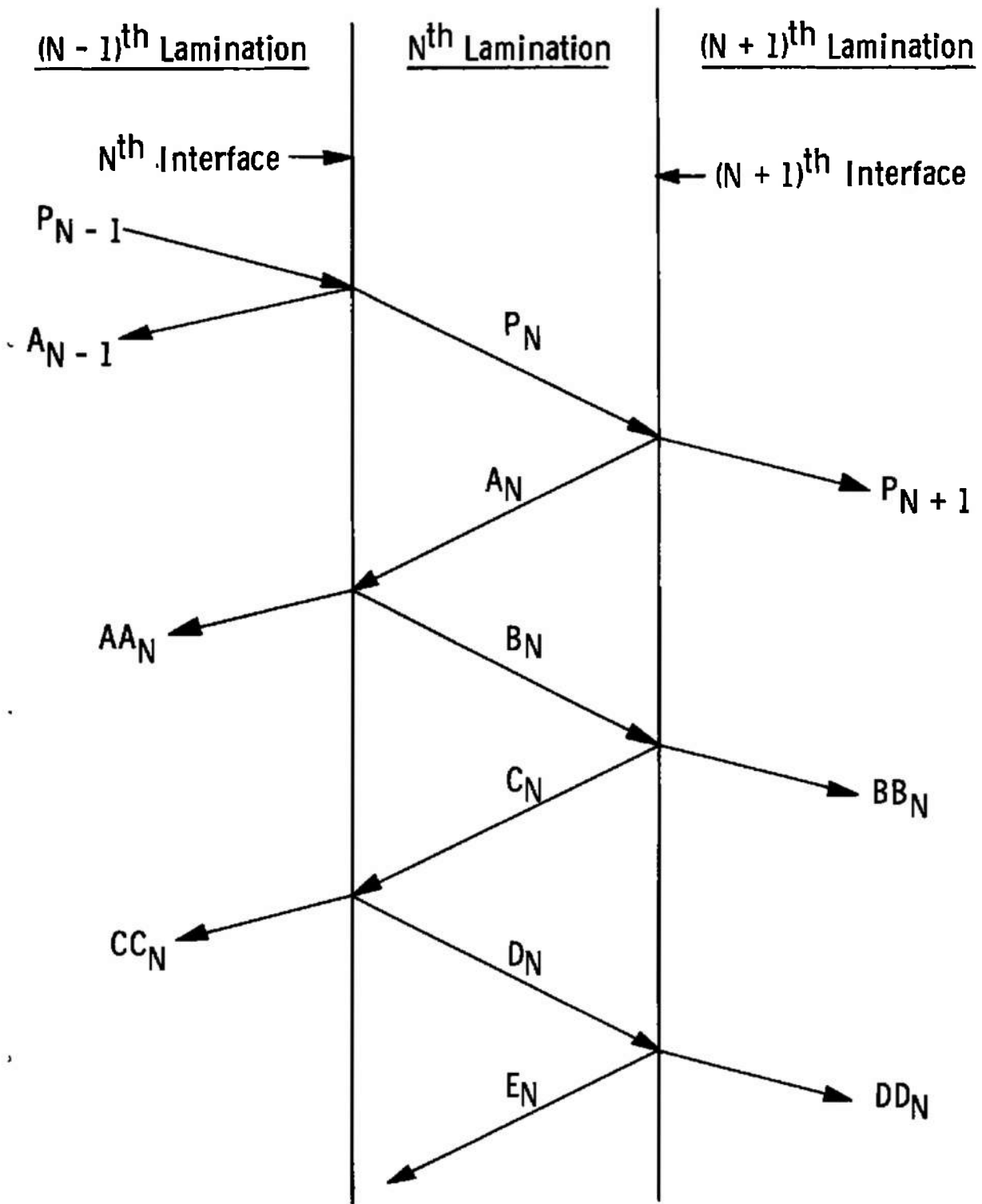


Fig. 9 Multiple Reflections within a Lamination

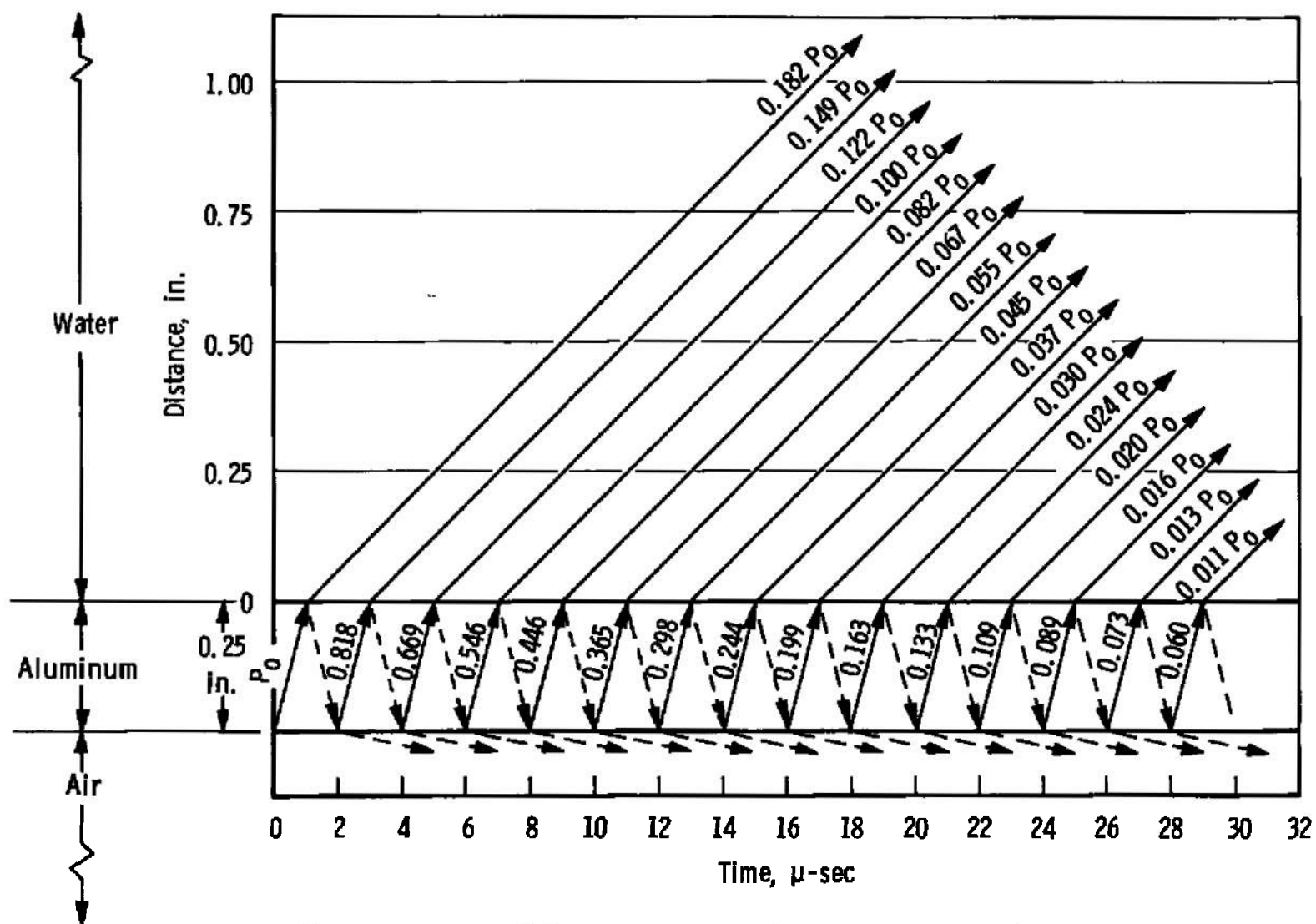


Fig. 10 Transmitted Waves in Water Produced by Multiple Reflections in Aluminum

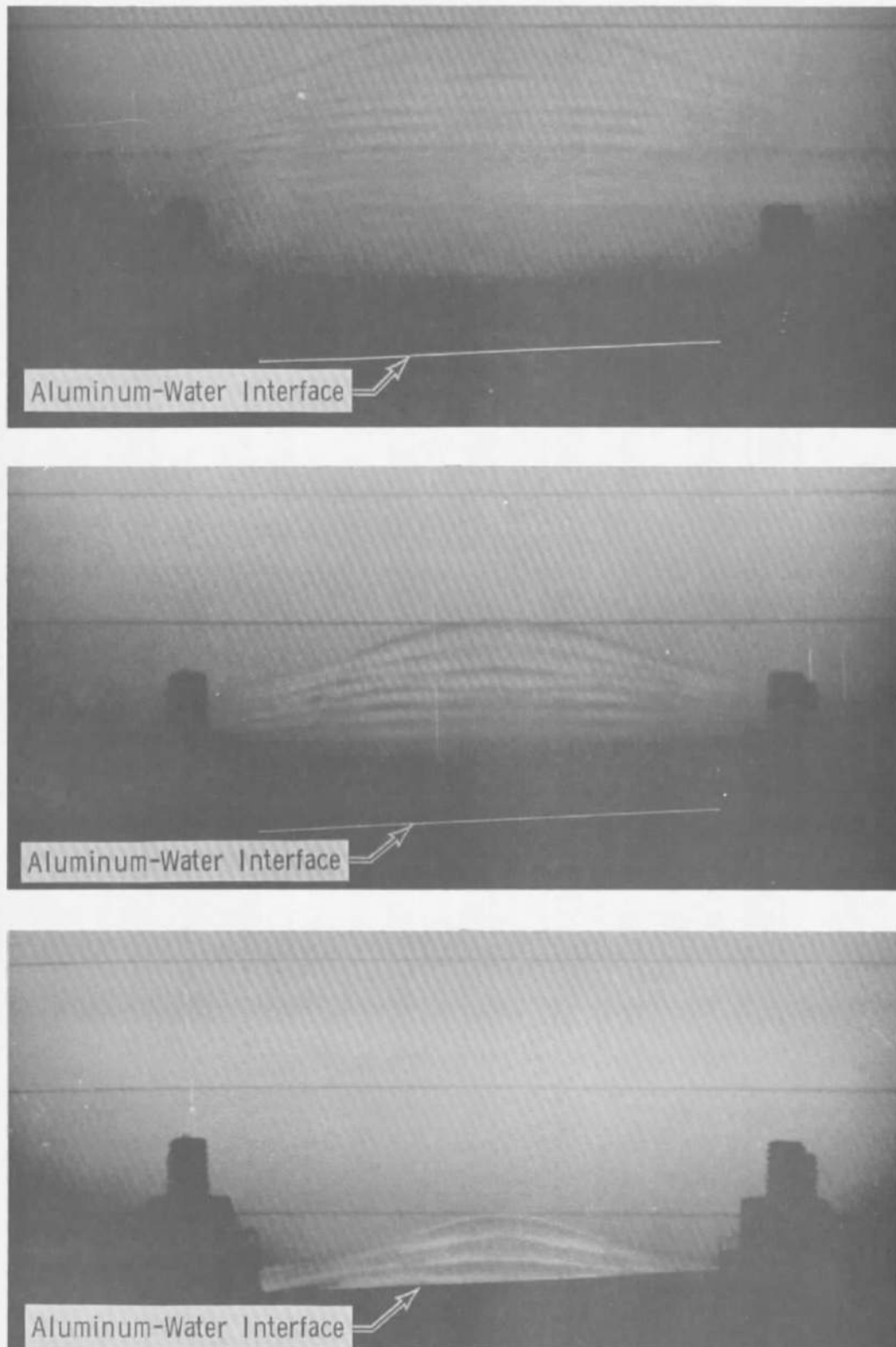


Fig. 11 Multiple Pressure Waves in Water

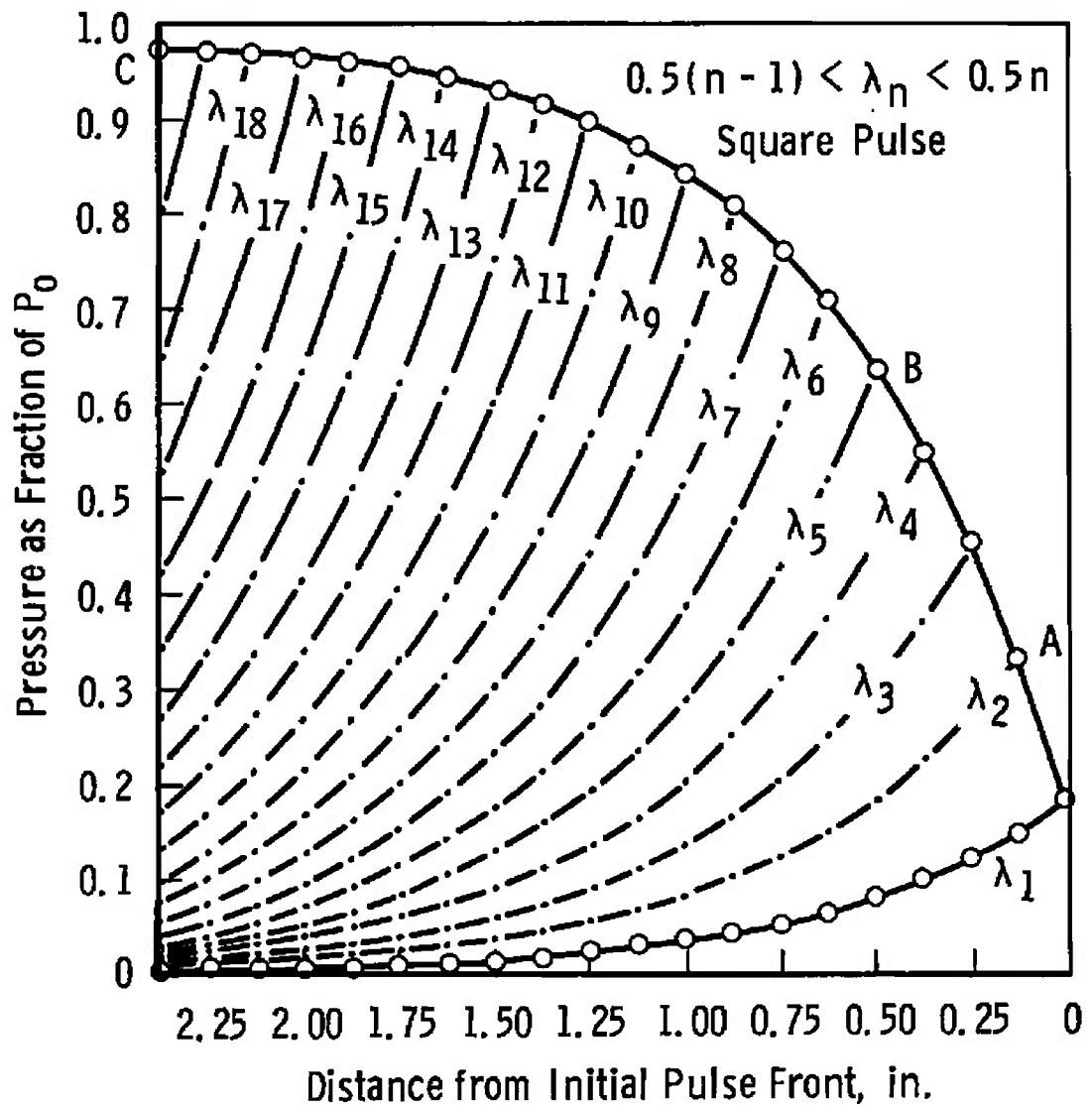
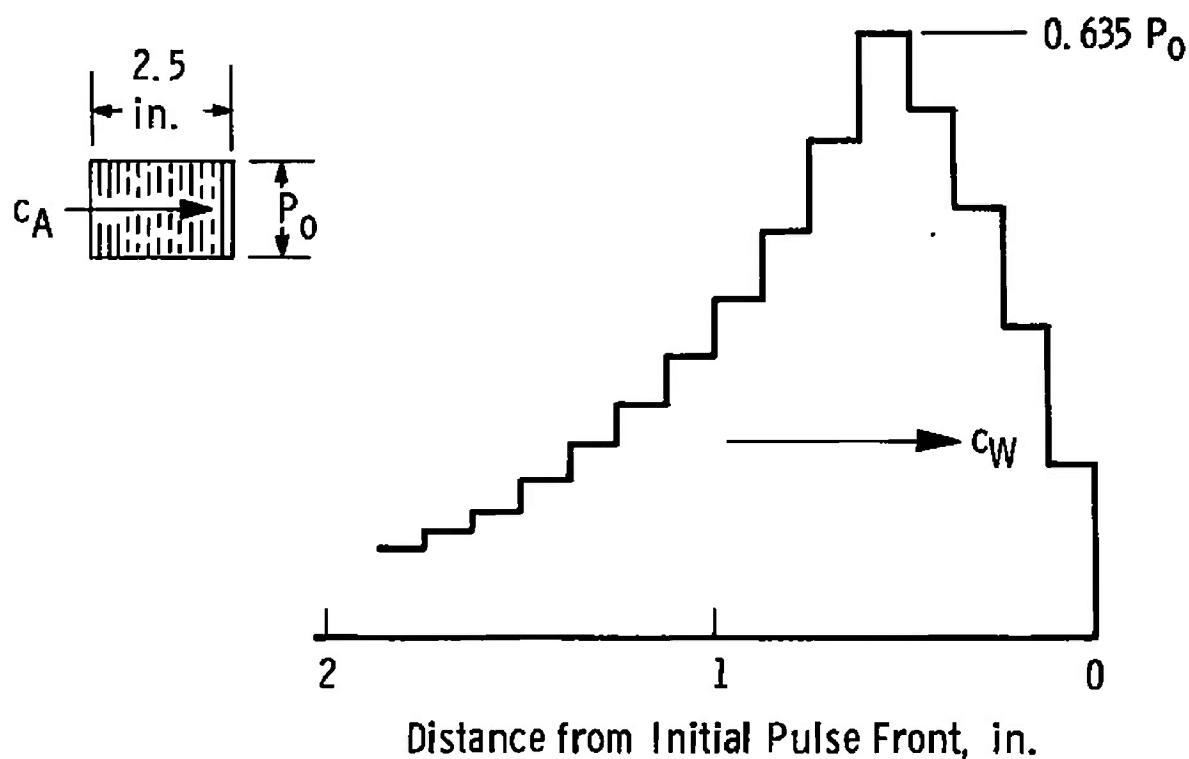
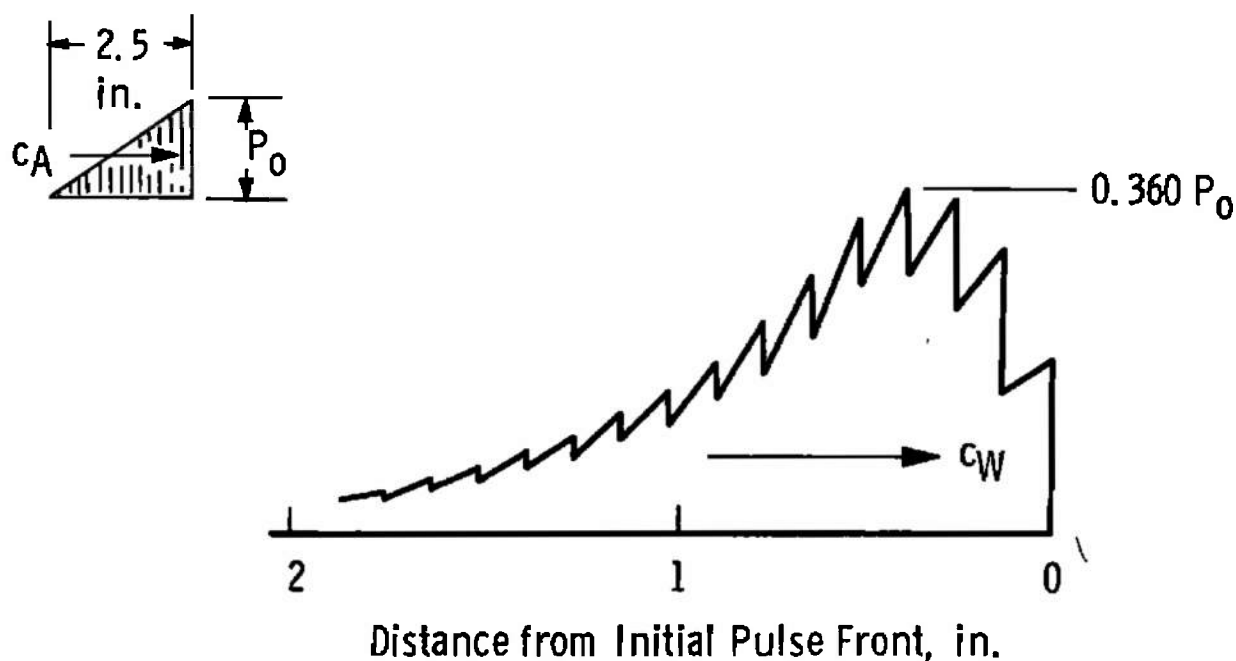


Fig. 12 Effect of Pulse Length upon the Transmitted Wave in Water



a. The above pulse in a 0.25-in. aluminum plate would transmit into water the wave shown



b. The above pulse in a 0.25-in. aluminum plate would transmit into water the wave shown

Fig. 13 Effect of Pulse Profile upon the Transmitted Wave in Water

Material Properties

If the Lamination Number is Even:

ρ_0 = Material Density

c_0 = Pulse Velocity

t_0 = Thickness

If the Lamination Number is Odd:

ρ_1 = Material Density

c_1 = Pulse Velocity

t_1 = Thickness

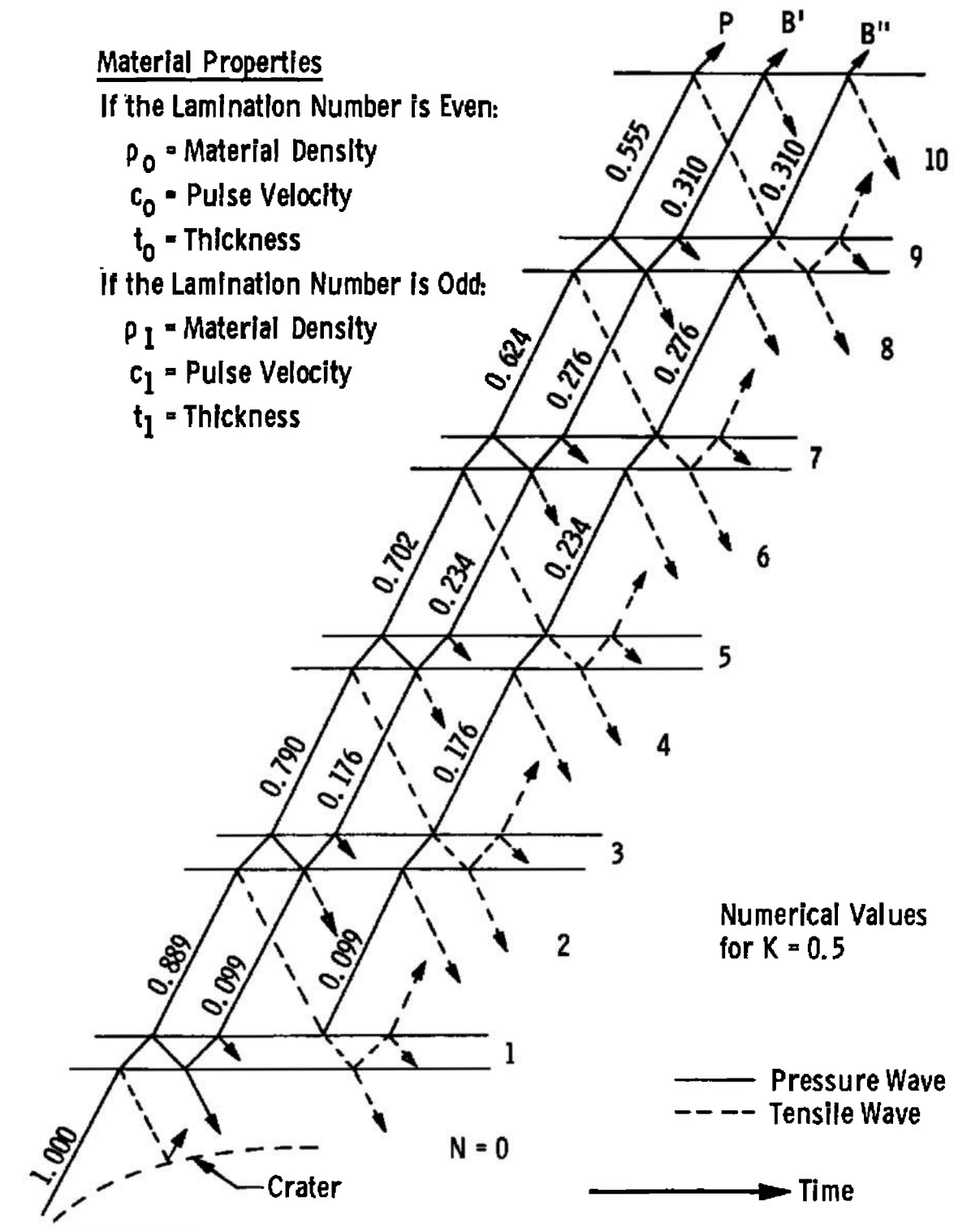


Fig. 14 Primary and Secondary Pressure Waves in Composite Laminates

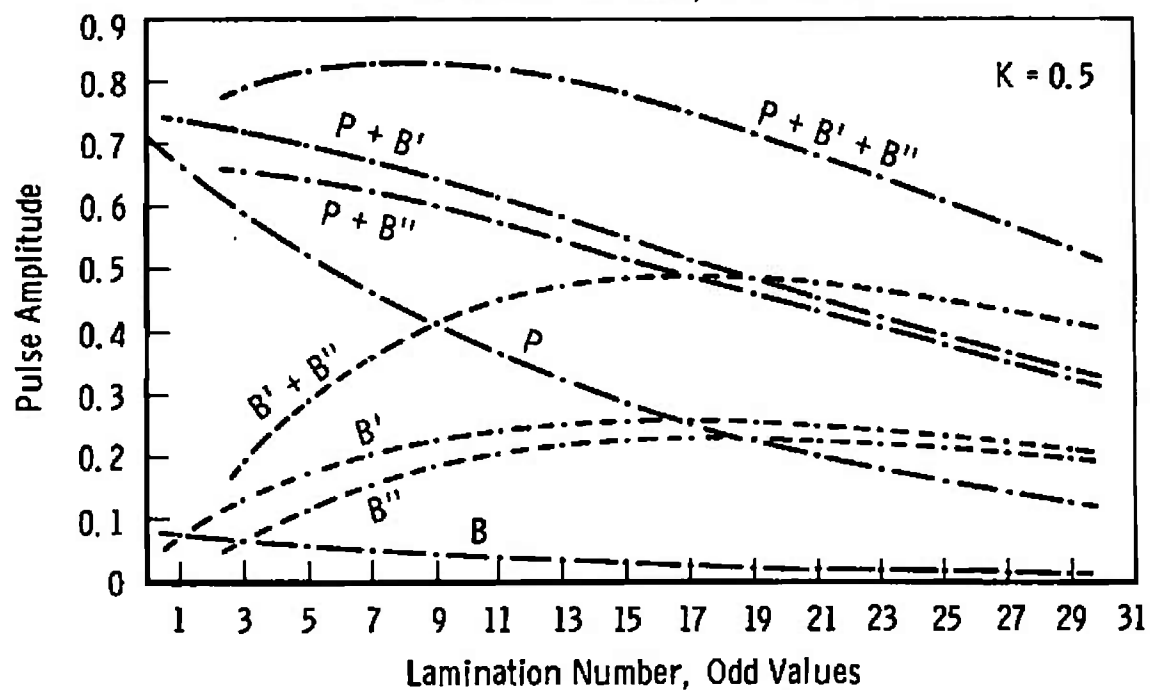
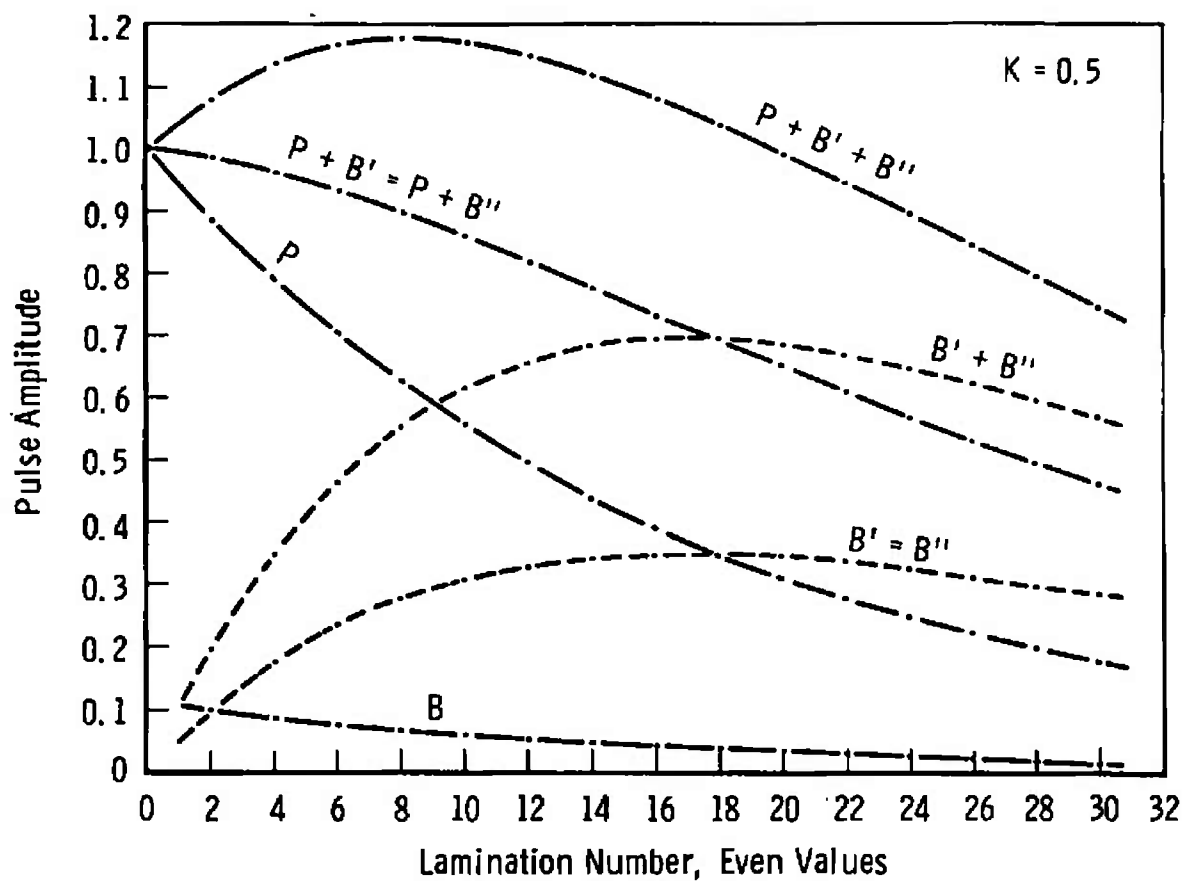


Fig. 15 Possible Combinations of Primary and Secondary Pressure Waves

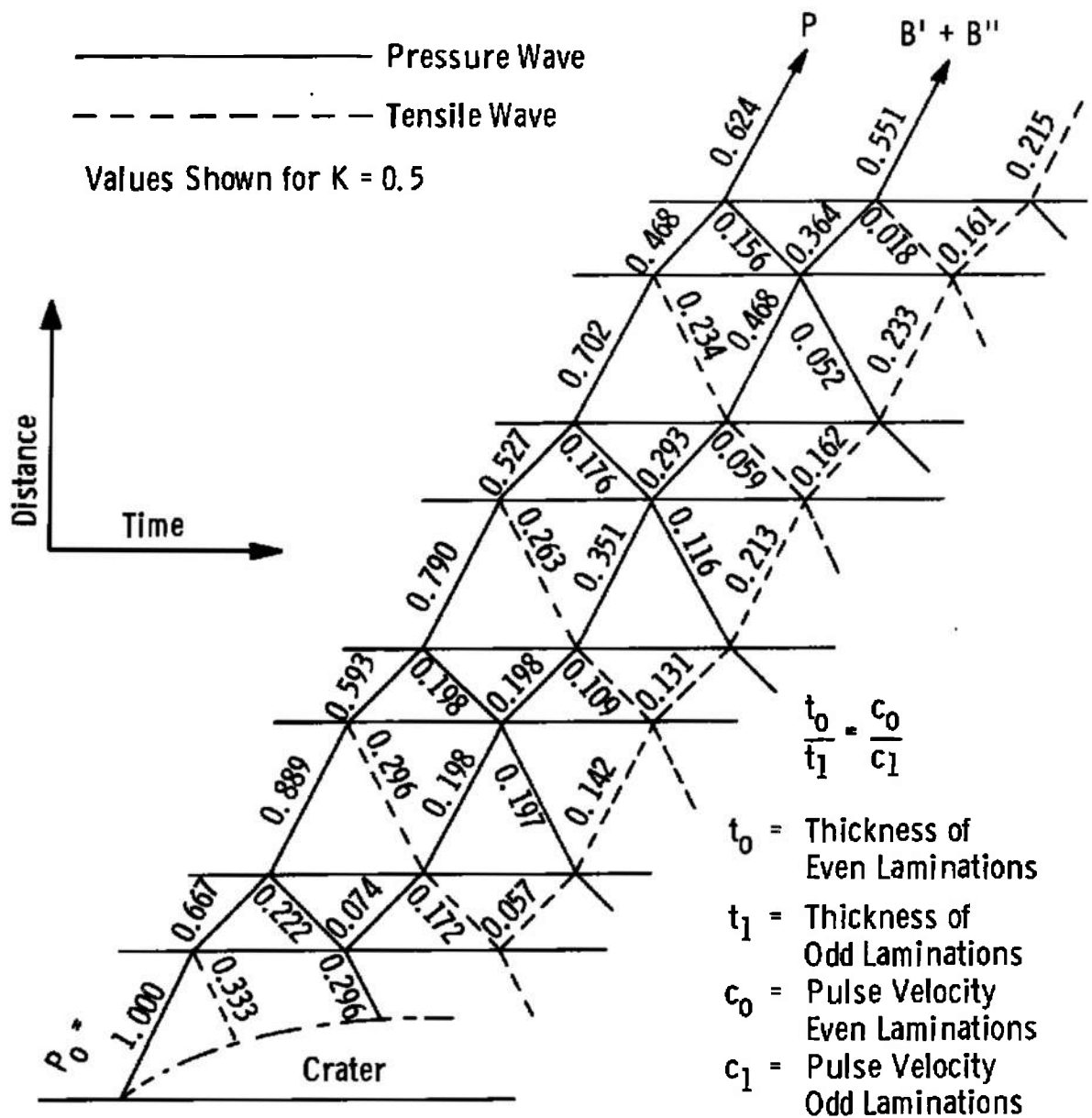


Fig. 16 Conditions for Maximum Amplitude of Secondary Pressure Waves

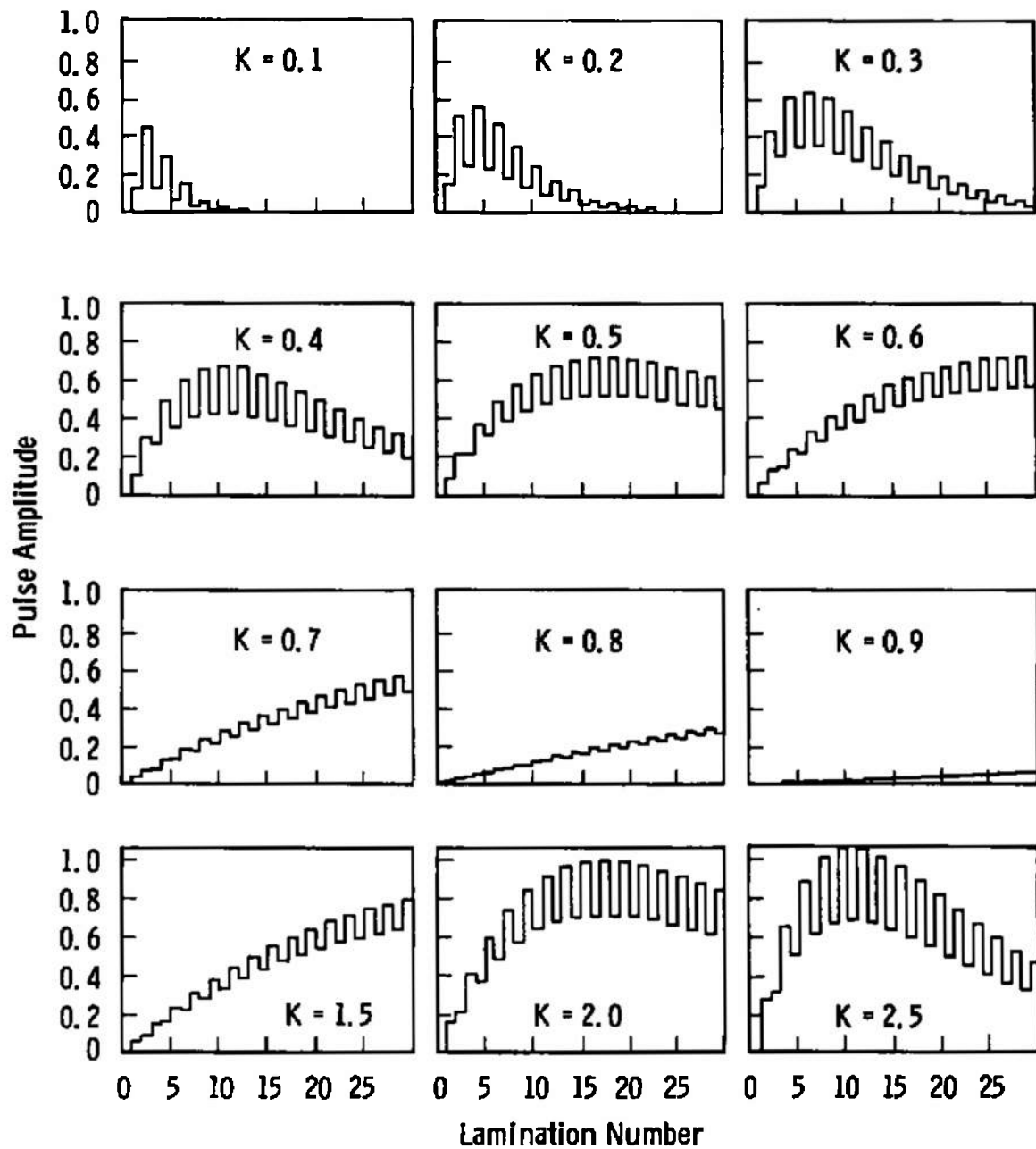


Fig. 17 Secondary Pulse Amplitude

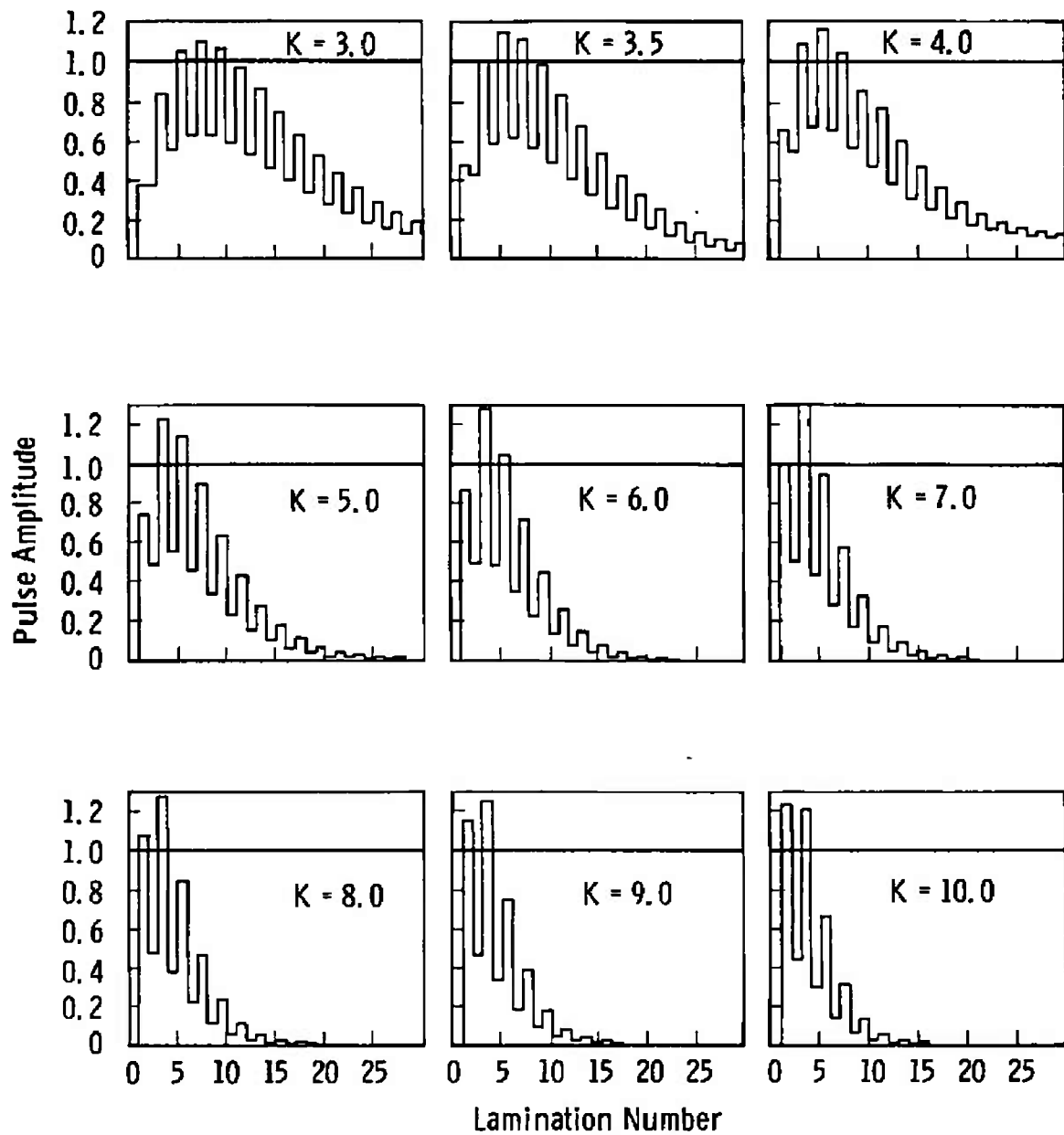


Fig. 17 Concluded

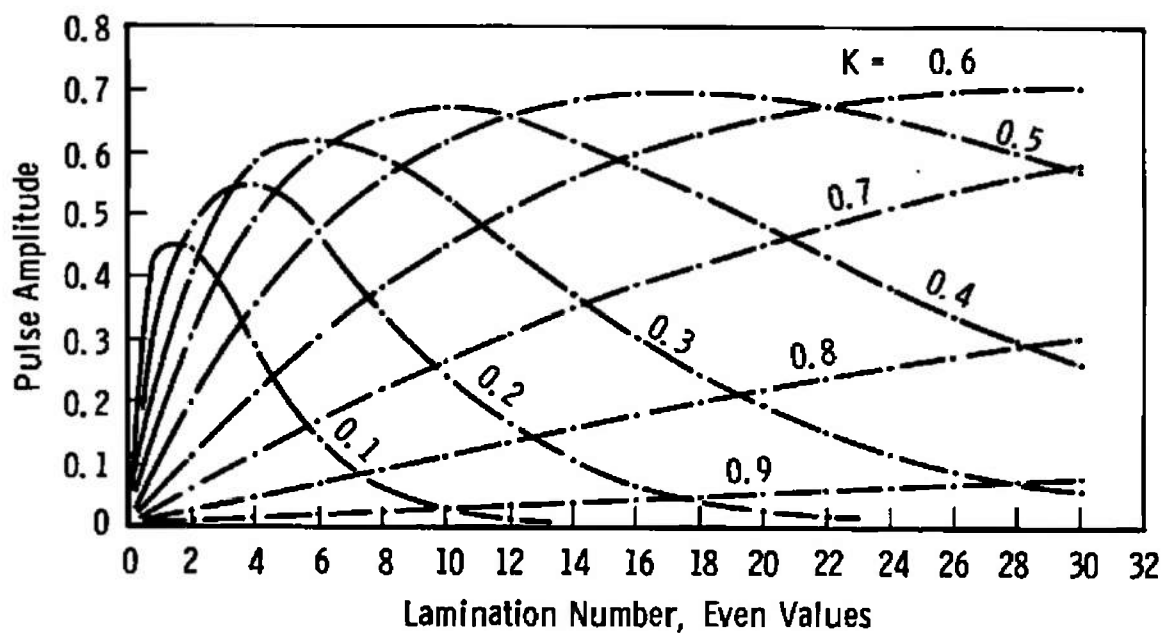


Fig. 18 Effect of Impedance Mismatch upon Amplitude of Secondary Pulses

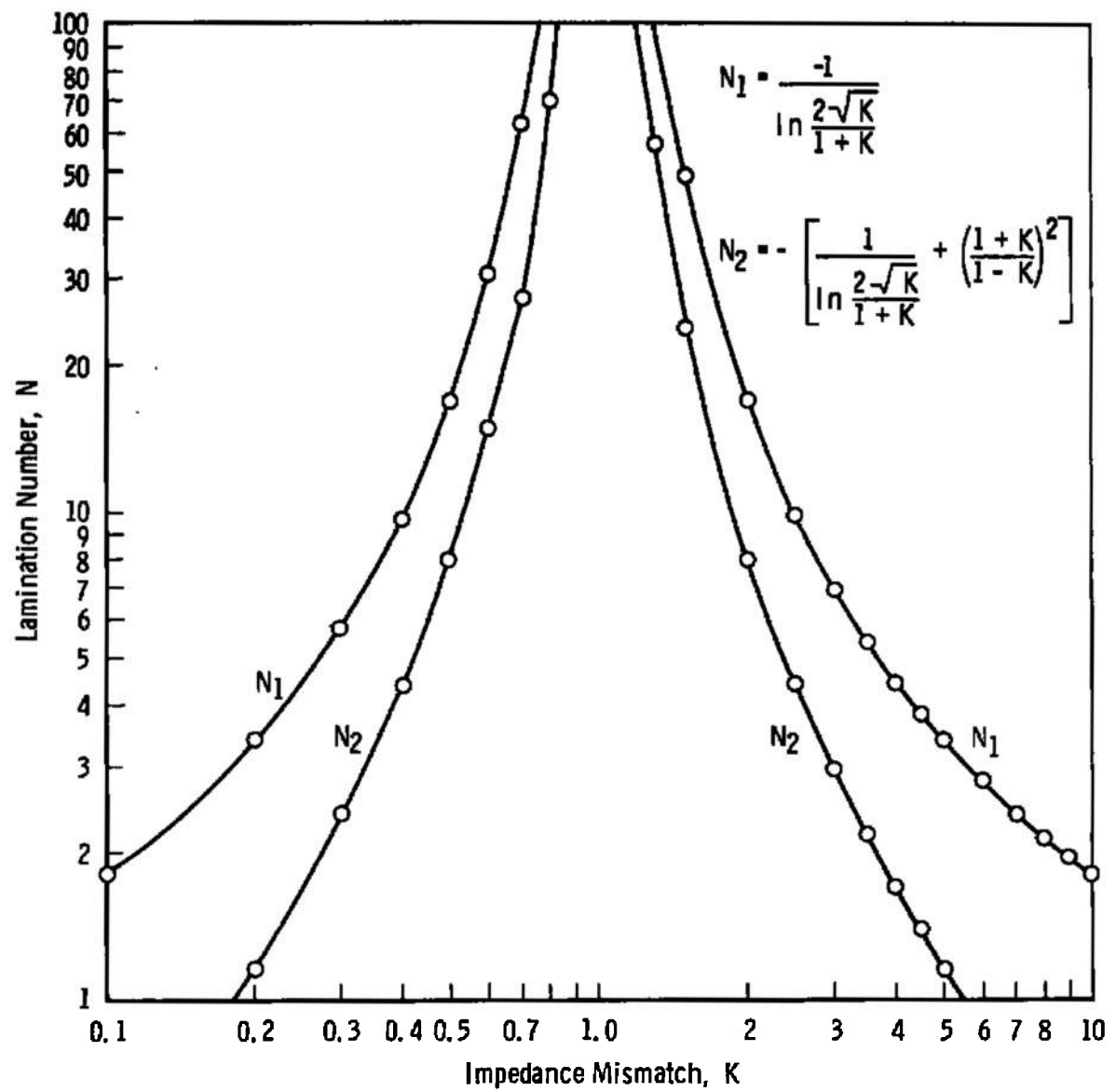


Fig. 19 Lamination Number at which Pulse Amplitude is a Maximum

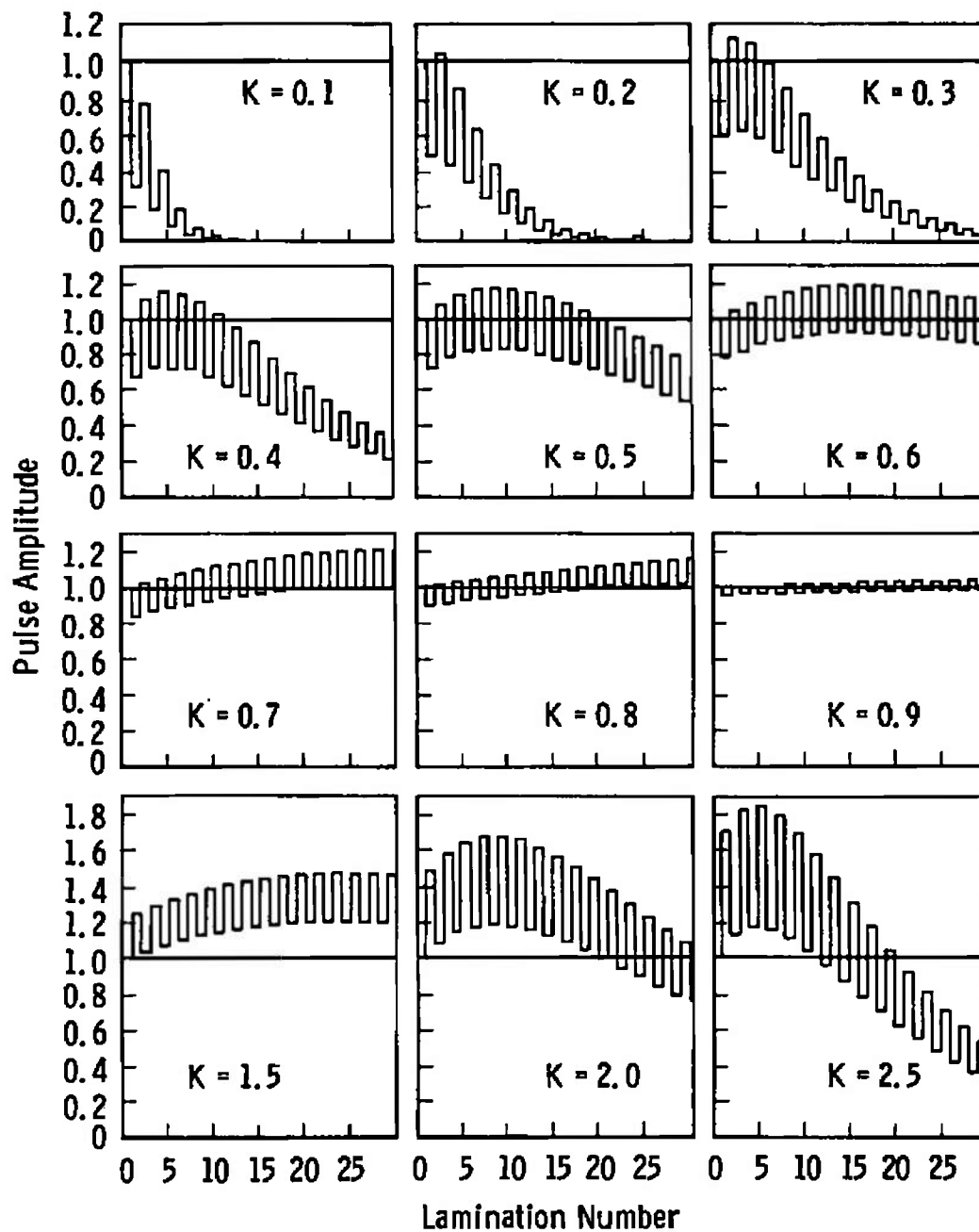


Fig. 20 Sum of Primary and Secondary Pulse Amplitudes

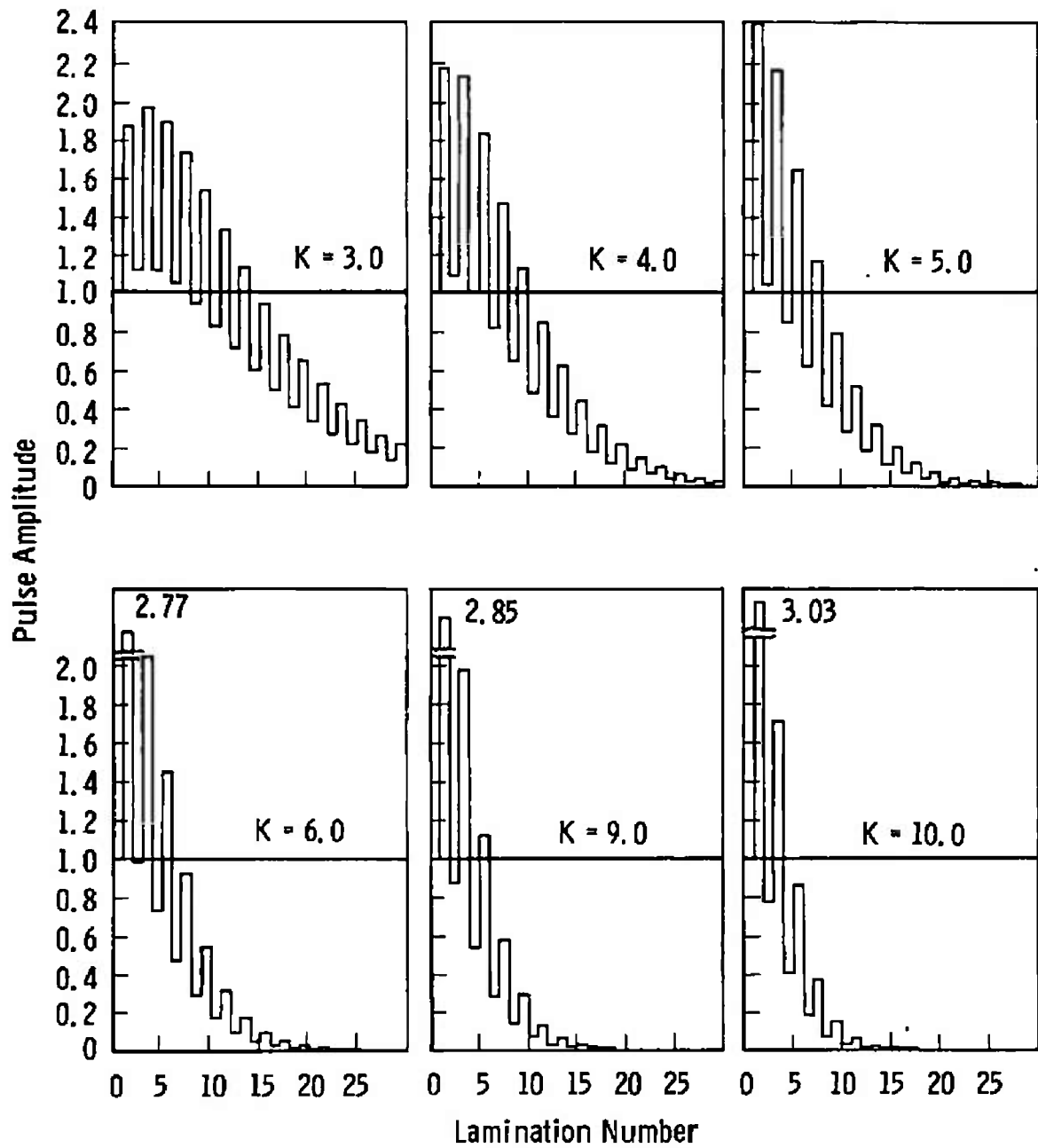


Fig. 20 Concluded

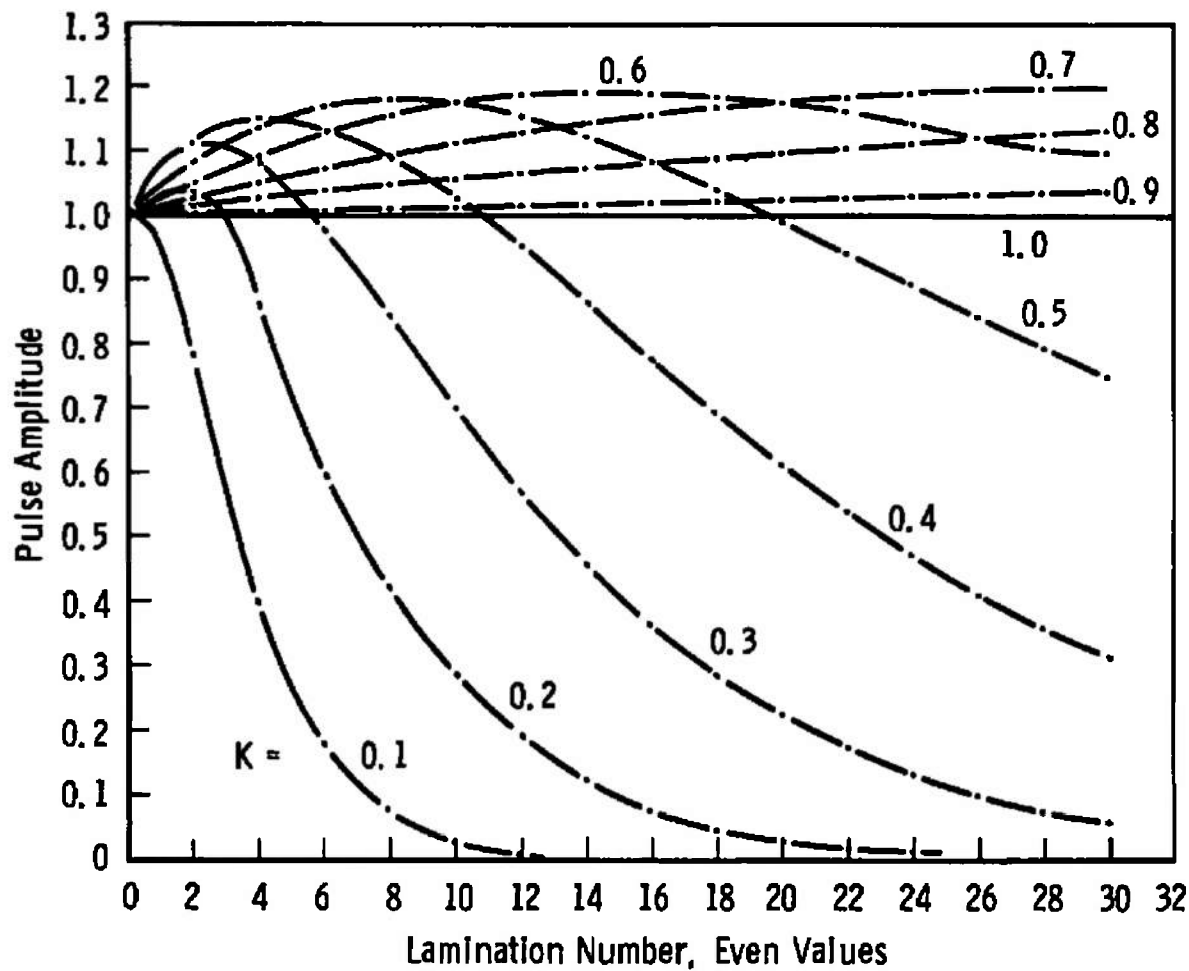


Fig. 21 Effect of Impedance Mismatch upon Sum of Primary and Secondary Pulse Amplitudes

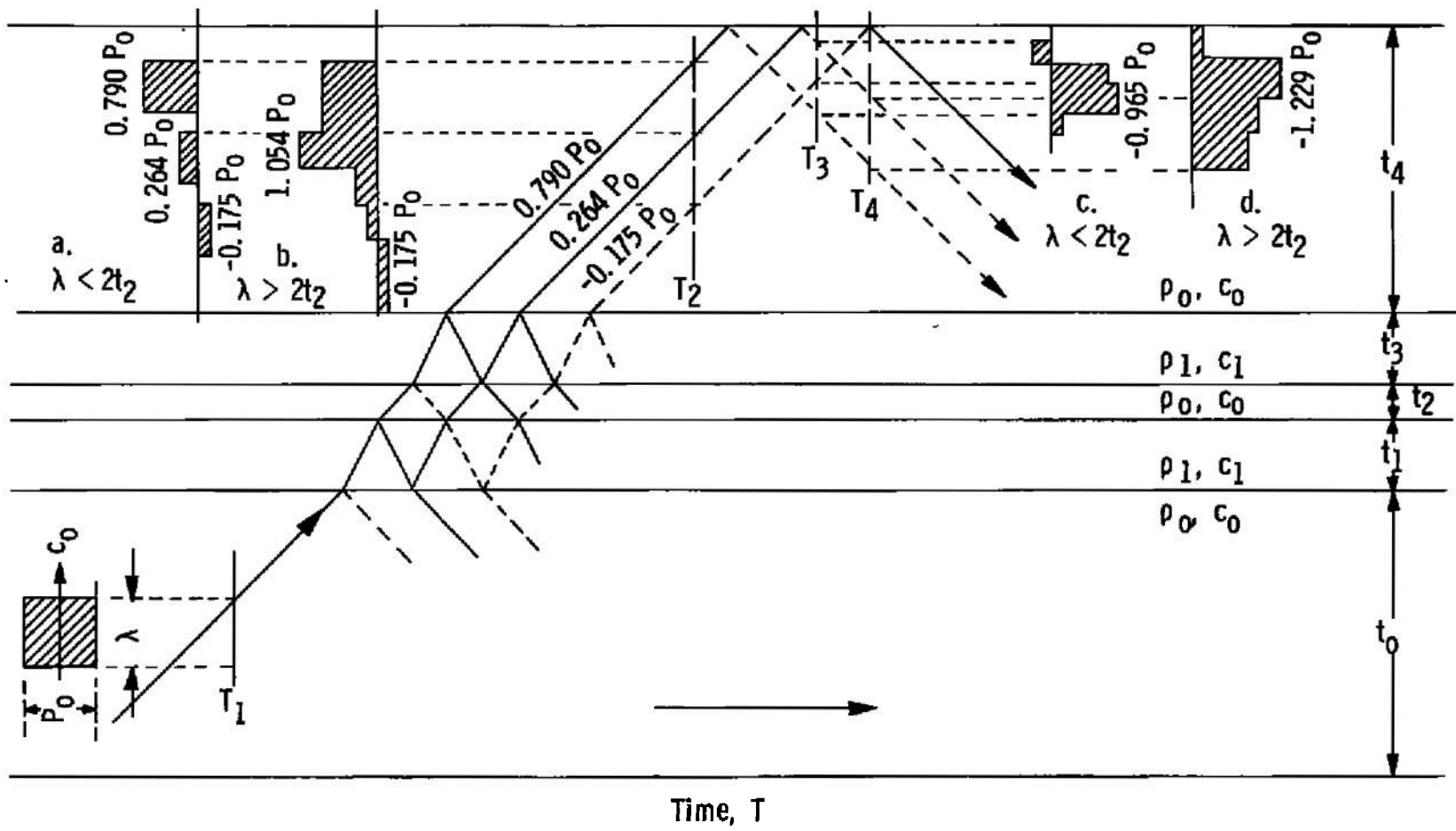


TABLE I
PROPERTIES OF SOME TYPICAL MATERIALS

	Density, ρ , $\text{lb-sec}^2\text{-ft}^{-4}$	Wave Velocity, c , ft-sec^{-1}	Characteristic Impedance, ρc , lb-sec-ft^{-3}
Steel	15.2	19,500	29.6×10^4
Silver	20.4	13,400	27.3×10^4
Copper	17.2	14,000	24.1×10^4
Lead	22.0	7,100	15.6×10^4
Mercury	26.3	4,500	11.8×10^4
Glass	5.0	22,300	11.15×10^4
Aluminum	5.22	20,900	10.9×10^4
Lucite	2.3	8,700	2.0×10^4
Water	1.94	5,200	1.01×10^4

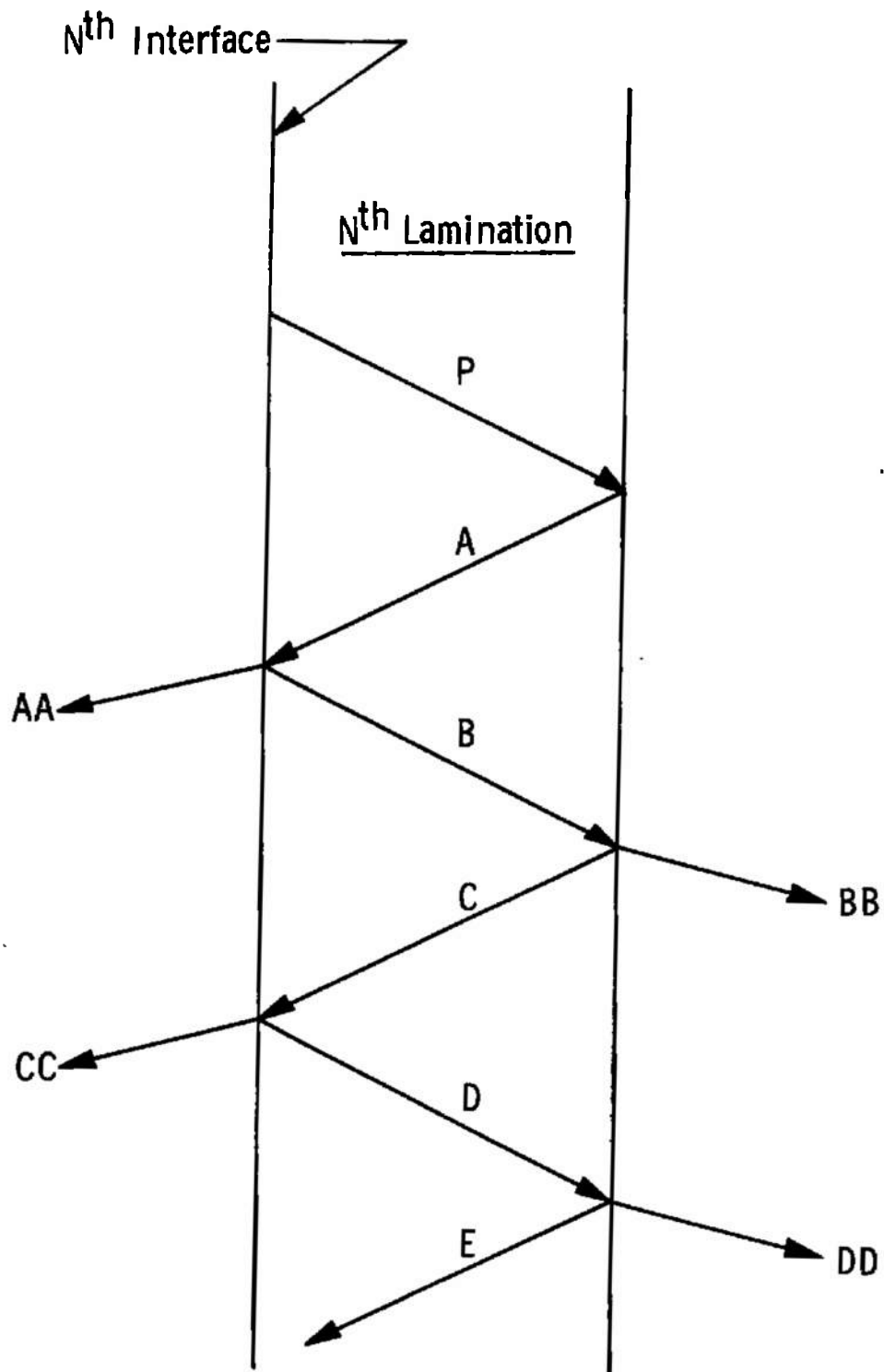
TABLE II
 IMPEDANCE MISMATCH FOR VARIOUS COMBINATIONS OF MATERIALS,
 IMPEDANCE MISMATCH, $K = \left(\frac{\rho_1 c_1}{\rho_0 c_0} \right)$

1st ↓ \ 2nd →	Steel	Silver	Copper	Lead	Mercury	Glass	Aluminum	Lucite	Water
Steel	-	0.92	0.81	0.53	0.40	0.38	0.37	0.068	0.034
Silver	1.08	-	0.88	0.57	0.43	0.41	0.40	0.073	0.037
Copper	1.23	1.13	-	0.65	0.49	0.46	0.45	0.083	0.042
Lead	1.90	1.75	1.54	-	0.76	0.71	0.70	0.128	0.065
Mercury	2.51	2.31	2.04	1.32	-	0.94	0.92	0.169	0.086
Glass	2.65	2.45	2.16	1.40	1.06	-	0.98	0.179	0.091
Aluminum	2.72	2.50	2.21	1.43	1.08	1.02	-	0.183	0.093
Lucite	14.8	13.65	12.0	7.80	5.90	5.57	5.45	-	0.51
Water	29.3	27.0	23.9	15.4	11.68	11.00	10.8	1.98	-

APPENDIX I
VALUES OF PULSE AMPLITUDES IN LAMINATED MATERIAL

NOTE: Use of the values presented in this appendix must be undertaken with the recognition that their derivation has been based upon the assumptions set forth in Section II of the text.

Guide to the Use of the Appendix



K = +.10 N = +1

AA = +.27047334
CC = +.18106065P = +.18181819
A = +.14876094
B = +.12171300
C = +.09958236
D = +.08147729
E = +.06666324BB = +.22129636
DD = +.14814053

K = +.10 N = +2

AA = -.04917697
CC = -.03292012P = +.33057853
A = -.27047234
B = +.22129437
C = -.18106066
D = +.14814054
E = -.12120989BB = +.04023571
DD = +.02593465

K = +.10 N = +2

AA = +.08941268
CC = +.05985477P = +.06010519
A = +.04917697
B = +.04023570
C = +.02292012
D = +.02693464
E = +.02203743BB = +.07215583
DD = +.04897208

K = +.10 N = +4

AA = -.01625685
CC = -.01088268P = +.10928217
A = -.08941268
B = +.07315582
C = -.05985477
D = +.04897208
E = -.04006604BB = +.01320104
DD = +.00890401

K = +.10 N = +5

AA = +.02955791
CC = +.01978670P = +.01966948
A = +.01625685
B = +.01330106
C = +.01066248
D = +.00890401
E = +.00728510BB = +.02418274
DD = +.01618911

K = +.10 N = +6

AA = -.00537416
CC = -.00359758P = +.03612633
A = -.02955790
B = +.02418274
C = -.01978669
D = +.01618911
E = -.01324564BB = +.00439704
DD = +.00294347

K = +.10 N = +7

AA = +.00977121
CC = +.00654105P = +.00656842
A = +.00537416
B = +.00439704
C = +.00359758
D = +.00294247
E = +.00240829BB = +.00799462
DD = +.00535177

K = +.10 N = +8

AA = -.00177658
CC = -.00118928P = +.01194259
A = -.00977121
B = +.00799462
C = -.00654105
D = +.00535177
E = -.00437872BB = +.00145356
DD = +.00097305

K = +.10 N = +9

AA = +.00322015
CC = +.00216232P = +.00217138
A = +.00177658
B = +.00149258
C = +.00118928
D = +.00097305
E = +.00079613BB = +.00264285
DD = +.00174918

K = +.10 N = +10

AA = -.00058720
CC = -.00039315P = +.00394796
A = -.00222015
B = +.00264285
C = -.00216223
D = +.00174918
E = -.00144751BB = +.00048051
DD = +.00022166

K = +.10 N = +11

AA = +.00106781
CC = +.00071482P = +.00071781
A = +.00058730
B = +.00046051
C = +.00039315
D = +.00032166
E = +.00026318BB = +.00087367
DD = +.00058485

K = +.10 N = +12

AA = -.00019414
CC = -.00012996P = +.00120511
A = -.00106781
B = +.00087367
C = -.00071482
D = +.00058485
E = -.00047851BB = +.00015684
DD = +.00010622

K = +.10 N = +13

AA = +.00025299
CC = +.00022630P = +.00022729
A = +.00019414
B = +.00015884
C = +.00012996
D = +.00010632
E = +.00008700BB = +.00028881
DD = +.00019334

K = +.10 N = +14

AA = -.00006418
CC = -.00004296P = +.00043144
A = -.00035299
B = +.00028881
C = -.00023630
D = +.00019334
E = -.00015818BB = +.00005251
DD = +.00003513

K = +.10 N = +15

AA = +.00011669
CC = +.00007811P = +.00007844
A = +.00006418
B = +.00005251
C = +.00004296
D = +.00003515
E = +.00002878BB = +.00009547
DD = +.00006391

K = +.10 N = +16

AA = -.00002121 P = +.00014262
 A = -.00011669
 B = +.00009547 BB = +.00001735
 CC = -.00001420 C = -.00007811
 D = +.00006391 DD = +.00001162
 E = -.00005229

K = +.10 N = +17

AA = +.00003857 P = +.00002593
 A = +.00002121
 B = +.00001735 BB = +.00003156
 CC = +.00002982 C = +.00001420
 D = +.00001162 DD = +.00002112
 E = +.00000950

K = +.10 N = +18

AA = -.00000701 P = +.00000471
 A = -.00003857
 B = +.00003156 BB = +.00000573
 CC = -.00000469 C = -.00002588
 D = +.00002112 DD = +.00000584
 E = -.00001728

K = +.10 N = +19

AA = +.00001275 P = +.00000697
 A = +.00000701
 B = +.00000573 BB = +.00001043
 CC = +.00000853 C = +.00000469
 D = +.00000384 DD = +.00000698
 E = +.00000314

K = +.10 N = +20

AA = -.00000231 P = +.00001558
 A = -.00001275
 B = +.00001043 BB = +.00000189
 CC = -.00000155 C = -.00000853
 D = +.00000698 DD = +.00000126
 E = -.00000571

K = +.10 N = +21

AA = +.00000421 P = +.00000283
 A = +.00000231
 B = +.00000189 BB = +.00000344
 CC = +.00000282 C = +.00000155
 D = +.00000126 DD = +.00000103
 E = +.00000103

K = +.10 N = +22

AA = -.00000076 P = +.00000315
 A = -.00000421
 B = +.00000344 BB = +.00000062
 CC = -.00000051 C = -.00000287
 D = +.00000231 DD = +.00000041
 E = -.00000188

K = +.10 N = +23

AA = +.00000139 P = +.00000093
 A = +.00000076
 B = +.00000062 BB = +.00000114
 CC = +.00000093 C = +.00000051
 D = +.00000041 DD = +.00000076
 E = +.00000034

K = +.10 N = +24

AA = -.00000025 P = +.00000170
 A = -.00000139
 B = +.00000114 BB = +.00000020
 CC = -.00000016 C = -.00000093
 D = +.00000076 DD = +.00000013
 E = -.00000062

K = +.10 N = +25

AA = +.00000046 P = +.00000030
 A = +.00000025
 B = +.00000020 BB = +.00000037
 CC = +.00000030 C = +.00000016
 D = +.00000013 DD = +.00000025
 E = +.00000011

K = +.10 N = +26

AA = -.00000008 P = +.00000056
 A = -.00000046
 B = +.00000037 BB = +.00000006
 CC = -.00000005 C = -.00000030
 D = +.00000025 DD = +.00000084
 E = -.00000020

K = +.10 N = +27

AA = +.00000015 P = +.00000010
 A = +.00000008
 B = +.00000006 BB = +.00000012
 CC = +.00000010 C = +.00000005
 D = +.00000004 DD = +.00000008
 E = +.00000003

K = +.10 N = +28

AA = -.00000002 P = +.00000018
 A = -.00000015
 B = +.00000012 BB = +.00000002
 CC = -.00000001 C = -.00000010
 D = +.00000008 DD = +.00000001
 E = -.00000006

K = +.10 N = +29

AA = +.00000005 P = +.00000003
 A = +.00000002
 B = +.00000002 BB = +.00000004
 CC = +.00000005 C = +.00000001
 D = +.00000001 DD = +.00000002
 E = +.00000001

K = +.10 N = +30

AA = -.00000000 P = +.00000006
 A = -.00000005
 B = +.00000004 BB = +.00000000
 CC = -.00000000 C = -.00000003
 D = +.00000002 DD = +.00000000
 E = -.00000002

K = +.20 N = +16

AA = -.00201654
CC = -.00059624
P = +.00907443
A = -.00604942
B = +.00403308
C = -.00268872
D = +.00179248
E = -.00119498
BB = +.00134438
DD = +.00059749

K = +.20 N = +17

AA = +.00336090
CC = +.00149373
P = +.00902481
A = +.00201654
B = +.00134438
C = +.00089624
D = +.00059749
E = +.00039832
BB = +.00224060
DD = -.00079582

K = +.20 N = +18

AA = -.00112030
CC = -.00049791
P = +.00504135
A = -.00338090
B = +.00224060
C = -.00149373
D = +.00099582
E = -.00046388
BB = +.00074686
DD = +.00033194

K = +.20 N = +19

AA = +.00186718
CC = +.00082985
P = +.00168045
A = +.00112030
B = +.00074688
C = +.00049791
D = +.00033194
E = +.00022129
BB = +.00124477
DD = +.00055323

K = +.20 N = +20

AA = -.00062236
CC = -.00027661
P = +.00260075
A = -.00188716
B = +.00124477
C = -.00082989
D = +.00055323
E = -.00036882
BB = +.00041492
DD = +.00018441

K = +.20 N = +21

AA = +.00103731
CC = +.00046102
P = +.00093358
A = +.00062238
B = +.00041492
C = +.00027661
D = +.00018441
E = +.00012294
BB = +.00069154
DD = +.00030735

K = +.20 N = +22

AA = -.00034577
CC = -.00015367
P = +.00155597
A = -.00103731
B = +.00069154
C = -.00046102
D = +.00030735
E = -.00020490
BB = +.00023051
DD = +.00010245

K = +.20 N = +23

AA = +.00057628
CC = +.00025812
P = +.00051865
A = +.00034577
B = +.00023051
C = +.00015387
D = +.00010245
E = +.00006830
BB = +.00038419
DD = +.00017075

K = +.20 N = +24

AA = -.00019209
CC = -.00008537
P = +.00066442
A = -.00037628
B = +.00038419
C = -.00025812
D = +.00017075
E = -.00011383
BB = +.00012806
DD = +.00005691

K = +.20 N = +25

AA = +.00032019
CC = +.00014229
P = +.00028814
A = +.00019209
B = +.00012806
C = +.00008537
D = +.00005691
E = +.00003794
BB = +.00021343
DD = +.00009486

K = +.20 N = +26

AA = -.00010671
CC = -.00004743
P = +.00048023
A = -.00032019
B = +.00021343
C = -.00014229
D = +.00009486
E = -.00006324
BB = +.00007114
DD = +.00003162

K = +.20 N = +27

AA = +.00017786
CC = +.00007905
P = +.00016007
A = +.00010671
B = +.00007114
C = +.00004743
D = +.00003182
E = +.00002108
BB = +.00011857
DD = +.00005270

K = +.20 N = +28

AA = -.00005928
CC = -.00002635
P = +.00026679
A = -.00017786
B = +.00011857
C = -.00007905
D = +.00005270
E = -.00003513
BB = +.00003952
DD = +.00001756

K = +.20 N = +29

AA = +.00009881
CC = +.00004391
P = +.00008893
A = +.00005928
B = +.00003952
C = +.00002635
D = +.00001756
E = +.00001171
BB = +.00006587
DD = +.00002927

K = +.20 N = +30

AA = -.00003293
CC = -.00001463
P = +.00014622
A = +.00009881
B = +.00006587
C = -.00004391
D = +.00002927
E = -.00001951
BB = +.00002195
DD = +.00000975

K = +.30 N = +1		P = +.48153844 A = +.24852069 B = +.13381883 C = +.07205629 D = +.03878954 E = +.02089206		AA = +.38233992 CC = +.11085583		AB = +.20587912 DD = +.05969160	
K = +.30 N = +2		P = +.71005913 A = +.38233993 B = +.20887513 C = +.11085584 D = +.05969160 E = +.05214163		AA = -.17646440 CC = -.05116424		BB = +.09501929 DD = +.02754997	
K = +.30 N = +3		P = +.32771962 A = +.17646441 B = +.09501929 C = +.05116423 D = +.02754997 E = +.01483460		AA = +.27148370 CC = +.07871420		BB = +.14618353 DD = +.04238457	
K = +.30 N = +4		P = +.50418404 A = -.27148371 B = +.14618353 C = -.07871421 D = +.04238457 E = -.02282246		AA = -.12530018 CC = -.03632963		BB = +.06746992 DD = +.01956211	
K = +.30 N = +5		P = +.23270050 A = +.12530016 B = +.06746931 C = +.03632963 D = +.01956210 E = +.01053344		AA = +.19278947 CC = +.05589174		BB = +.10379894 DD = +.03009555	
K = +.30 N = +6		P = -.08897091 A = -.02579618 B = -.05589173 C = +.03009554 D = -.01620529 E =		AA = -.08897091 CC = -.02579618		BB = +.04790720 DD = +.01389025	
K = +.30 N = +7		P = +.16523096 A = +.08897091 B = +.04790720 C = +.02579618 D = +.01589029 E = +.00747938		AA = +.16523096 CC = +.03968643		BB = +.07370338 DD = +.02136961	
K = +.30 N = +8		P = +.25420148 A = -.12687772 B = +.07370338 C = -.03968643 D = +.02138962 E = -.01150671		AA = -.06317454 CC = -.01831681		BB = +.03401694 DD = +.00986290	
K = +.30 N = +9		P = +.11752376 A = +.06317433 B = +.03401694 C = +.01831681 D = +.00986290 E = +.00531079		AA = +.09719127 CC = +.02817971		BB = +.05233376 DD = +.01917169	
K = +.30 N = +10		P = +.18049809 A = -.09719127 B = +.05233376 C = -.02817971 D = +.01517389 E = -.00817045		AA = -.04489751 CC = -.01300602		BB = +.02415404 DD = +.00700324	
K = +.30 N = +11		P = +.08330680 A = +.04485751 B = +.02415404 C = +.01300602 D = +.00700324 E = +.00377097		AA = +.06901159 CC = +.02000928		BB = +.03716006 DD = +.01077422	
K = +.30 N = +12		P = +.12816432 A = -.06901155 B = +.03716006 C = -.02000928 D = +.01077422 E = -.00580150		AA = -.03189148 CC = -.00923504		BB = +.01715080 DD = +.00497271	
K = +.30 N = +13		P = +.05915278 A = +.03189148 B = +.01715079 C = +.00923504 D = +.00497271 E = +.00267761		AA = +.04900228 CC = +.01420776		BB = +.02638584 DD = +.00785033	
K = +.30 N = +14		P = +.09100424 A = -.04900228 B = +.02638584 C = -.01420776 D = +.00785033 E = -.00411941		AA = -.02261643 CC = -.00659743		BB = +.01217808 DD = +.00353092	
K = +.30 N = +15		P = +.04200194 A = +.02261644 B = +.01217808 C = +.00655742 D = +.00353092 E = +.00190126		AA = +.03479452 CC = +.01008895		BB = +.01873591 DD = +.00543218	

K = +.30 N = +16

AA = -.01605900 P = +.06461839
 BB = +.00864715 A = -.03479451
 CC = -.00465616 B = +.01873551
 C = -.01008825
 D = +.00543210
 E = -.00292502
 DD = +.00250716

K = +.50 N = +17

AA = +.02470516 P = +.02982387
 BB = +.01330332 A = +.01605901
 CC = +.00716332 B = +.00864715
 C = +.00465616
 D = +.00250716
 E = +.00135001
 DD = +.00385717

K = +.30 N = +18

AA = -.01140284 P = +.04588288
 BB = +.00613999 A = -.02470617
 CC = -.00330615 B = +.01330332
 C = -.00716332
 D = +.00385717
 E = -.00207694
 DD = +.00178023

K = +.30 N = +19

AA = -.01754284 P = +.02117671
 BB = +.00944614 A = +.01140284
 CC = -.00508638 B = +.00613999
 C = +.00330615
 D = +.00178023
 E = +.00095858
 DD = +.00273882

K = +.30 N = +20

AA = -.00809669 P = +.03257956
 BB = +.00435975 A = -.01754284
 CC = -.00234756 B = +.00944614
 C = -.00508638
 D = +.00273882
 E = -.00147475
 DD = +.00126407

K = +.30 N = +21

AA = +.01245649 P = +.01505671
 BB = +.00670731 A = +.00809669
 CC = +.00361163 B = +.00435975
 C = +.00234756
 D = +.00126407
 E = +.00068065
 DD = +.00194472

K = +.30 N = +22

AA = -.00574913 P = +.02313340
 BB = +.00309568 A = -.01245649
 CC = -.00166690 B = +.00670731
 C = -.00361163
 D = +.00194472
 E = -.00104716
 DD = +.00089756

K = +.30 N = +23

AA = +.00884481 P = +.01067695
 BB = +.00476259 A = +.00574913
 CC = +.00256447 B = +.00309568
 C = +.00166690
 D = +.00089756
 E = +.00048330
 DD = +.00138087

K = +.30 N = +24

AA = -.00408222 P = +.01642607
 BB = +.00219811 A = -.00884481
 CC = -.00118160 B = +.00476259
 C = -.00256447
 D = +.00138086
 E = -.00074354
 DD = +.00063712

K = +.30 N = +25

AA = +.00628034 P = +.00758127
 BB = +.00338172 A = -.00408222
 CC = +.00182092 B = +.00219811
 C = -.00118160
 D = +.00063712
 E = +.00034317
 DD = +.00098049

K = +.30 N = +26

AA = -.00289862 P = +.01166349
 BB = +.00156079 A = -.00628034
 CC = -.00084042 B = +.00338172
 C = -.00182092
 D = +.00098049
 E = -.00052796
 DD = +.00045253

K = +.50 N = +27

AA = +.00445941 P = +.00538315
 BB = +.00240122 A = +.00289862
 CC = +.00129296 B = +.00156079
 C = +.00084042
 D = +.00045253
 E = +.00024367
 DD = +.00069621

K = +.30 N = +28

AA = -.00205819 P = +.00828177
 BB = +.00110825 A = -.00445941
 CC = -.00059675 B = +.00240122
 C = -.00129296
 D = +.00069621
 E = -.00037488
 DD = +.00032192

K = +.30 N = +29

AA = +.00316644 P = +.00382235
 BB = +.00170501 A = +.00205819
 CC = +.00091808 B = +.00110825
 C = +.00059675
 D = +.00032132
 E = +.00017302
 DD = +.00049435

K = +.30 N = +30

AA = -.00146143 P = +.00528054
 BB = +.00078692 A = -.00316644
 CC = -.00042973 B = +.00170501
 C = -.00091808
 D = +.00049435
 E = -.00026818
 DD = +.00022816

K = +.40 N = +1

AA = +.34985420 P = +.57142853
 CC = +.06425893 A = +.24489794 BB = +.14993751
 E = +.10495626
 C = +.04498125 D = +.01927767 DD = +.02753954
 E = +.008826186

K = +.40 N = +2

AA = -.19991670 P = +.81632850
 CC = -.03671939 A = -.34985421 BB = +.08367838
 B = +.14993751
 C = -.08425893 D = +.02753954 DD = +.01573688
 E = -.01180266

K = +.40 N = +3

AA = +.28559524 P = +.46647224
 CC = +.03245626 A = +.18991667 BB = +.12239799
 B = -.08587897
 C = +.03671938 D = +.01973688 DD = +.02248125
 E = +.00674437

K = +.40 N = +4

AA = -.16319729 P = +.66638890
 CC = -.02447501 A = -.18559524 BB = +.06994169
 B = +.12239799
 C = -.05145626 D = +.02248125 DD = +.01284645
 E = -.00763482

K = +.40 N = +5

AA = +.23513898 P = +.38079569
 CC = +.04282144 A = +.16319729 BB = +.09991670
 B = +.08994145
 C = +.02997501 D = +.01284643 DD = +.01835204
 E = +.00550561

K = +.40 N = +6

AA = -.13522228 P = +.54599096
 CC = -.02446939 A = -.23315898 BB = +.05709525
 B = +.09991670
 C = -.04282144 D = +.01835204 DD = +.01048688
 E = -.00786516

K = +.40 N = +7

AA = +.19031751 P = +.31005195
 CC = +.03495627 A = +.13522228 BB = -.008156464
 B = +.05709525
 C = +.02446939 D = +.01048688 DD = +.01498126
 E = +.00449437

K = +.40 N = +8

AA = -.108752 7 P = +.44407423
 CC = -.01997501 A = -.19031752 BB = +.04660837
 B = +.08156465
 C = -.03495627 D = +.01498126 DD = +.00856072
 E = -.00642054

K = +.40 N = +9

AA = +.15556122 P = +.25575667
 CC = +.02859973 A = +.10875286 BB = +.06658338
 B = +.04660836
 C = +.01997501 D = +.00856071 DD = +.00368887
 E = +.00368887

K = +.40 N = +10

AA = -.08877784 P = +.56250950
 CC = -.01630613 A = -.15556121 BB = +.03804744
 B = +.06658337
 C = -.02859973 D = +.01222959 DD = +.00698834
 E = -.00524125

K = +.40 N = +11

AA = +.12682588 P = +.20714830
 CC = +.02329447 A = +.08877784 BB = +.05435577
 B = +.03804764
 C = +.01650615 D = +.00698834 DD = +.00998334
 E = +.00299500

K = +.40 N = +12

AA = -.07247171 P = +.29592615
 CC = -.01931112 A = -.12682588 BB = +.03105930
 B = +.05435377
 C = -.02329447 D = +.00998334 DD = +.00570476
 E = -.00427857

K = +.40 N = +13

AA = +.10355101 P = +.16910066
 CC = +.01901589 A = +.07247171 BB = +.04437043
 B = +.05105930
 C = +.01331113 D = +.00570476 DD = +.00814967
 E = +.00244490

K = +.40 N = +14

AA = -.05916059 P = +.24157259
 CC = -.01086422 A = -.10355101 BB = +.02535453
 B = -.04437042
 C = -.01901589 D = +.00814967 DD = +.00465695
 E = -.00349271

K = +.40 N = +15

AA = +.08451510 P = +.15804135
 CC = +.01552318 A = +.05916057 BB = +.03622076
 B = +.02535453
 C = +.01086422 D = +.00465695 DD = +.00665279
 E = +.00199581

K = +.40 N = +16

AA = -.04829434
CC = -.00887039
P = +.19720192
A = -.08451510
B = +.03622075
C = -.01552318
D = +.00665279
E = -.00285119
BB = +.02069757
DD = +.00380139

K = +.40 N = +17

AA = +.06899191
CC = +.01267198
P = +.11268680
A = +.04829434
B = +.02069757
C = +.00687038
D = +.00380139
E = +.00162925
BB = +.02956796
DD = +.00543085

K = +.40 N = +18

AA = -.03942399
CC = -.00724113
P = +.15098119
A = -.06899192
B = +.02956796
C = -.01267198
D = +.00543085
E = -.00292750
BB = +.01689598
DD = +.00310334

K = +.40 N = +19

AA = +.05631993
CC = +.01036447
P = +.09198922
A = +.03942399
B = +.01689597
C = +.00724113
D = +.00310334
E = +.00133000
BB = +.02413711
DD = +.00443334

K = +.40 N = +20

AA = -.03218281
CC = -.00593112
P = +.13141314
A = -.05631992
B = +.02413711
C = -.01036447
D = +.00443334
E = -.00290000
BB = +.01379263
DD = +.00253334

K = +.40 N = +21

AA = +.04597545
CC = +.00844447
P = +.07509324
A = +.03218281
B = +.01379263
C = +.00593112
D = +.00253334
E = +.00108571
BB = +.01970376
DD = +.00361905

K = +.40 N = +22

AA = -.02627168
CC = -.00482541
P = +.10727606
A = -.04597545
B = +.01970376
C = -.00844447
D = +.00361905
E = -.00155102
BB = +.01125929
DD = +.00206803

K = +.40 N = +23

AA = +.03753097
CC = +.00689344
P = +.06130058
A = +.02627168
B = +.01125929
C = +.00482541
D = +.00206803
E = +.00088629
BB = +.01608470
DD = +.00295433

K = +.40 N = +24

AA = -.02144626
CC = -.00393911
P = +.08757226
A = -.03753097
B = +.01608470
C = -.00689344
D = +.00295433
E = -.00126614
BB = +.00919125
DD = +.00168819

K = +.40 N = +25

AA = +.03063754
CC = +.00562730
P = +.05004183
A = +.02144626
B = +.00919126
C = +.00393911
D = +.00168819
E = +.00072551
BB = +.01313037
DD = +.00241170

K = +.40 N = +26

AA = -.01750717
CC = -.00321560
P = +.07148760
A = -.03663754
B = +.01313037
C = -.00562730
D = +.00241170
E = -.00103598
BB = +.00730307
DD = +.00137911

K = +.40 N = +27

AA = +.02501023
CC = +.00459371
P = +.04085005
A = +.01750716
B = +.00730307
C = +.00321560
D = +.00137911
E = +.00059062
BB = +.01071867
DD = +.00196873

K = +.40 N = +28

AA = -.01429156
CC = -.00262498
P = +.05835721
A = -.02501023
B = +.01071867
C = -.00459371
D = +.00196873
E = -.00084374
BB = +.00612495
DD = +.00112499

K = +.40 N = +29

AA = +.02041651
CC = +.00374997
P = +.03334698
A = +.01429156
B = +.00612495
C = +.00262498
D = +.00112499
E = +.00048213
BB = +.00874993
DD = +.00160713

K = +.40 N = +30

AA = -.01166898
CC = -.00214284
P = +.04763854
A = -.02041652
B = +.00874993
C = -.00374997
D = +.00160713
E = -.00068877
BB = +.00499996
DD = +.00091836

K = +.50 N = +1				K = +.50 N = +6				K = +.50 N = +11			
AA = +.29629627	P = +.66666663			AA = -.15607374	P = +.70233185			AA = +.16442335	P = +.36995255		
CC = +.03292180	A = +.22222221	BB = +.09876542		CC = -.01734152	A = -.23411061	BB = +.03202458		CC = +.01626926	A = +.12331752	BB = +.03460778	
	B = +.07407406				B = +.07803687				B = +.04310583		
	C = +.02469135	DD = +.01097393			C = -.02601129	DD = +.00578050			C = +.01370194	DD = +.00608975	
	D = +.00623045				D = +.00 67076				D = +.00456731		
	E = +.00274548				E = -.00269029				E = +.00152243		
K = +.50 N = +2				K = +.50 N = +7				K = +.50 N = +12			
AA = -.19153086	P = +.88888884			AA = +.20809854	P = +.46822127			AA = -.10961956	P = +.49327003		
CC = -.02194787	A = -.29629628	BB = +.06384361		CC = +.02312203	A = +.15607376	BB = +.06938611		CC = -.01217950	A = -.16442336	BB = +.03653852	
	B = +.09876542				B = +.05202458				B = -.05480778		
	C = -.03292180	DD = +.00731595			C = +.01734152				C = -.01826926	DD = +.00403989	
	D = +.01097393				D = +.00578050	DD = +.00770734			D = +.00608975		
	E = -.00365797				E = +.00192683				E = -.00202991		
K = +.50 N = +3				K = +.50 N = +8				K = +.50 N = +13			
AA = +.26337444	P = +.59259250			AA = -.19873223	P = +.62429499			AA = +.14615409	P = +.32884670		
CC = +.02926382	A = +.19753083	BB = +.08779148		CC = -.01541469	A = -.20809853	BB = +.04624407		CC = +.01623934	A = +.10961557	BB = +.04871802	
	B = +.06964361				B = +.06938610				B = +.03653852		
	C = +.02194787	DD = +.00973460			C = -.02312203	DD = +.00313823			C = -.01217950	DD = +.00541311	
	D = +.00731595				D = +.00770734				D = +.00608975		
	E = +.00245865				E = -.00256911				E = +.00135327		
K = +.50 N = +4				K = +.50 N = +9				K = +.50 N = +14			
AA = -.17558296	P = +.79012334			AA = +.18497628	P = +.41619663			AA = -.09743608	P = +.43846224		
CC = -.01950921	A = -.26337444	BB = +.05852765		CC = +.02058292	A = -.19873221	BB = -.06183876		CC = -.01082612	A = -.14615408	BB = +.03247868	
	B = +.08779148				B = +.04624407				B = +.04871802		
	C = -.02926382	DD = +.00650307			C = +.01541469				C = -.01217950	DD = +.00360876	
	D = +.00973460				D = +.00770734	DD = +.00685097			D = +.00541311		
	E = -.00325153				E = +.00171274				E = -.00180437		
K = +.50 N = +5				K = +.50 N = +10				K = +.50 N = +15			
AA = +.23411062	P = +.52674895			AA = -.12331752	P = +.59259269			AA = +.12991474	P = +.29230819		
CC = -.02601229	A = -.17558297	BB = +.07803687		CC = -.01370194	A = -.18497627	BB = +.04110583		CC = +.01443497	A = +.09743606	BB = +.04530491	
	B = +.06964361				B = -.06183875				B = +.03247868		
	C = +.01950921	DD = +.00867076			C = -.02058291	DD = +.00456731			C = +.01082612	DD = +.00481165	
	D = +.00650307				D = +.00685097				D = +.00360876		
	E = +.00216769				E = -.00228363				E = +.00120291		

K = +.50 N = +16

AA = -.08660983
CC = -.00962331
P = +.38974423
A = -.12991474
B = +.04330491
C = -.01443497
D = +.00481165
E = -.00160388
BB = +.02886994
DD = +.00320177

K = +.50 N = +17

AA = +.11547975
CC = +.01283108
P = +.25982945
A = +.08660981
B = +.02886993
C = +.00962331
D = +.00320177
E = +.00160925
BB = +.03849325
DD = +.00427702

K = +.50 N = +18

AA = -.07698650
CC = -.00855405
P = +.34643924
A = -.11547975
B = +.05849325
C = -.01283108
D = -.00427702
E = -.00142367
BB = +.02566216
DD = +.00285135

K = +.50 N = +19

AA = +.10264868
CC = +.01140540
P = +.23095954
A = +.07698651
B = +.02566217
C = +.00855405
D = +.00285135
E = +.00095045
BB = +.03421622
DD = +.00380180

K = +.50 N = +20

AA = -.06843245
CC = -.00760360
P = +.30794602
A = -.10264867
B = +.03421622
C = -.01140540
D = +.00380180
E = -.00126726
BB = +.02281081
DD = +.00253443

K = +.50 N = +21

AA = +.09124326
CC = +.01019814
P = +.20529735
A = +.06843244
B = +.02281081
C = +.00760360
D = +.00253453
E = +.00084484
BB = +.03041442
DD = +.00337938

K = +.50 N = +22

AA = -.06082883
CC = -.00675876
P = +.27372978
A = -.09124325
B = +.03041442
C = -.01019814
D = +.00337938
E = -.00112646
BB = +.02027628
DD = +.00225292

K = +.50 N = +23

AA = +.08110511
CC = +.00901167
P = +.18248651
A = +.06082883
B = +.02027627
C = +.00675875
D = +.00225291
E = +.00075097
BB = +.02703503
DD = +.00300389

K = +.50 N = +24

AA = -.05407007
CC = -.00600778
P = +.24331533
A = -.08110510
B = +.02703503
C = -.00901167
D = +.00300389
E = -.00100129
BB = +.01802395
DD = +.00200259

K = +.50 N = +25

AA = +.07209145
CC = +.00801838
P = +.16221023
A = +.05407007
B = +.01802395
C = +.00600778
D = +.00200259
E = +.00066753
BB = +.02403114
DD = +.00267012

K = +.50 N = +26

AA = -.04806228
CC = -.00534025
P = +.21628028
A = -.07209342
B = +.02403114
C = -.00801038
D = +.00267012
E = -.00089004
BB = +.01602076
DD = +.00178008

K = +.50 N = +27

AA = +.06408305
CC = +.00712033
P = +.14418687
A = +.04806229
B = +.01602076
C = +.00534025
D = +.00178008
E = +.00059336
BB = +.02136101
DD = +.00237344

K = +.50 N = +28

AA = -.04272203
CC = -.00474689
P = +.19224915
A = -.06408304
B = +.02136101
C = -.00712033
D = +.00237344
E = -.00079114
BB = +.01424067
DD = +.00158229

K = +.50 N = +29

AA = +.05696289
CC = +.00632918
P = +.12816806
A = +.04272202
B = +.01424067
C = +.00474689
D = +.00158229
E = +.00052743
BB = +.01898756
DD = +.00210972

K = +.50 N = +30

AA = -.03797512
CC = -.00421945
P = +.17088807
A = -.05696288
B = +.01898756
C = -.00632918
D = +.00210972
E = -.00070324
BB = +.01265837
DD = +.00140648

K = +.60 N = +1

AA = +.25437498	P = +.74899996	BB = +.05859374
CC = +.01464843	A = +.18749999	DD = +.00366210
	B = +.04687499	
	C = +.01171874	
	D = +.00292960	
	E = +.00073242	

K = +.60 N = +2

AA = -.17578123	P = +.93769997	BB = +.04394531
CC = -.01098632	A = -.23437499	DD = +.00274658
	B = +.05859374	
	C = -.01464843	
	D = +.00366210	
	E = -.00091532	

K = +.60 N = +5

AA = +.21972656	P = +.70512300	BB = +.03493164
CC = +.01373291	A = +.17378123	DD = +.00343322
	B = +.04594531	
	C = +.01096632	
	D = +.00274658	
	E = +.00068664	

K = +.60 N = +6

AA = -.16479493	P = +.87890628	BB = +.04119875
CC = -.01029966	A = -.21972657	DD = +.00257492
	B = +.05493164	
	C = -.01373291	
	D = +.00343322	
	E = -.00085930	

K = +.60 N = +5

AA = +.20599366	P = +.65917971	BB = +.05149841
CC = +.01287460	A = +.16479493	DD = +.00321865
	B = +.04119875	
	C = +.01029968	
	D = +.00237492	
	E = +.00066373	

K = +.60 N = +6

AA = -.15449324	P = +.82397460	BB = +.03862581
CC = -.00963395	A = -.20399363	DD = +.00241398
	B = +.03149641	
	C = -.01287460	
	D = +.00321863	
	E = -.00080466	

K = +.60 N = +7

AA = +.19511905	P = +.61798097	BB = +.04827976
CC = +.01206994	A = +.13449524	DD = +.00301748
	B = +.05862581	
	C = +.00965393	
	D = +.00241598	
	E = +.00060549	

K = +.60 N = +8

AA = -.14483926	P = +.77247617	BB = +.03620982
CC = -.00905245	A = -.19311904	DD = +.00226511
	B = +.04827976	
	C = -.01206994	
	D = +.00301748	
	E = -.00073437	

K = +.60 N =

AA = +.18104912	P = +.57935721	BB = +.04326228
CC = +.01151557	A = +.14483930	DD = +.00282889
	B = +.03620982	
	C = +.00905243	
	D = +.00226311	
	E = +.00036377	

K = +.60 N = +10

AA = -.13578684	P = +.72419648	BB = +.05394671
CC = -.00848667	A = -.18104912	DD = +.00212166
	B = +.04326228	
	C = -.01151337	
	D = +.00282889	
	E = -.00070722	

K = +.60 N = +11

AA = +.16973354	P = +.543314755	BB = +.04243336
CC = +.01060834	A = +.13578684	DD = +.00263208
	B = +.03394670	
	C = +.00848667	
	D = +.00212166	
	E = +.00033041	

K = +.60 N = +12

AA = -.12730016	P = +.67893414	BB = +.03182303
CC = -.00795626	A = -.16873334	DD = +.00196906
	B = +.04243338	
	C = -.01060834	
	D = +.00265208	
	E = -.00066302	

K = +.60 N = +13

AA = +.15912520	P = +.30920063	BB = +.03978130
CC = +.00994532	A = +.12730016	DD = +.00248633
	B = +.03182304	
	C = +.00795626	
	D = +.00196906	
	E = +.00049726	

K = +.60 N = +14

AA = -.11934390	P = +.63630077	BB = +.02983597
CC = -.00745899	A = -.13912319	DD = +.00186474
	B = +.03978129	
	C = -.00994332	
	D = +.0024 635	
	E = -.00062158	

K = +.60 N = +15

AA = +.14917986	P = +.47737337	BB = +.03729496
CC = +.00932374	A = +.11934389	DD = +.00253093
	B = +.02983597	
	C = +.00743899	
	D = +.00186474	
	E = +.00046618	

K = +.60 N = +16

AA = -.11188490
CC = -.00699280
P = +.59671944
A = -.14917906
O = +.03729496
C = -.00932374
D = +.00233093
E = -.00098273
BB = +.02797122
DD = +.00174820

K = +.60 N = +17

AA = +.13985612
CC = +.00874100
P = +.445753961
A = +.11188490
B = +.02797122
C = +.00699280
D = +.00174820
E = +.00043709
dB = +.03496403
DD = +.00218525

K = +.60 N = +18

AA = -.10489209
CC = -.00655975
P = +.55942448
A = -.13985612
B = +.03496403
C = -.00874100
D = +.00218525
E = -.00054631
BB = +.02622302
DD = +.00163893

K = +.60 N = +19

AA = +.13111513
CC = +.00819469
P = +.41956842
A = +.10489211
B = +.02622302
C = +.00655975
D = +.00163893
E = +.00040973
BB = +.03277878
DD = +.00204807

K = +.60 N = +20

AA = -.09833695
CC = -.00614602
P = +.52446050
A = -.13111513
B = +.03277878
C = +.00819469
D = +.00204807
E = -.00091218
BB = +.02458408
DD = +.00133695

K = +.60 N = +21

AA = +.12292042
CC = +.00768252
P = +.39334556
A = +.09833695
B = +.02458408
C = +.00614602
D = +.00133695
E = +.00038412
BB = +.03073010
DD = +.00192063

K = +.60 N = +22

AA = -.09219032
CC = -.00576189
P = +.49168169
A = -.12292042
B = +.03073010
C = -.00768252
D = +.00192063
E = -.00048019
BB = +.02304758
DD = +.00144047

K = +.60 N = +23

AA = +.11523790
CC = +.00720236
P = +.36876128
A = +.09219032
B = +.02304758
C = +.00576189
D = +.00144047
E = +.00036011
BB = +.02880947
DD = +.00180059

K = +.60 N = +24

AA = -.08642843
CC = -.00540177
P = +.46095159
A = -.11523790
B = +.02880947
C = -.00720236
D = +.00180059
E = -.00045014
BB = +.02160710
DD = +.00135044

K = +.60 N = +25

AA = +.10803952
CC = +.00675222
P = +.34571368
A = -.08642843
B = +.02160710
C = +.00540177
D = +.00135044
E = +.00033761
BB = +.02700888
DD = +.00168805

K = +.60 N = +26

AA = -.08102664
CC = -.00506416
P = +.43214208
A = -.10803952
B = +.02700888
C = -.00675222
D = +.00168805
E = -.00042701
BB = +.02025666
DD = +.00126604

K = +.60 N = +27

AA = +.10128331
CC = +.00633020
P = +.32410660
A = -.08102664
B = +.02025666
C = -.00506416
D = +.00126604
E = +.00031651
BB = +.02532082
DD = +.00158255

K = +.60 N = +28

AA = -.07596249
CC = -.00474765
P = +.40513323
A = -.10128331
B = +.02532082
C = -.00633020
D = +.00158255
E = -.00039563
BB = +.01899062
DD = +.00118691

K = +.60 N = +29

AA = +.09499311
CC = +.00593456
P = +.30304995
A = -.07596249
B = +.01899062
C = +.00474765
D = +.00118691
E = +.00029672
BB = +.02373827
DD = +.00148364

K = +.60 N = +30

AA = -.07121482
CC = -.00445092
P = +.37981241
A = -.09499311
B = +.02373827
C = -.00593456
D = +.00148364
E = -.00037091
BB = +.01780370
DD = +.00111273

K = +.70 N = +1 AA = +.17091482 CC = +.00532447 P = +.82552929 A = +.14532869 B = +.02544623 C = +.00452580 D = +.00079867 E = +.00014094 BB = +.03017204 DD = +.00093941	K = +.70 N = +6 AA = -.15216967 CC = -.00411601 P = +.90945523 A = -.14049174 B = +.02852207 C = -.00499801 D = +.00088200 E = -.00015544 BB = +.02552405 DD = +.00072659	K = +.70 N = +11 AA = +.14995974 CC = +.00454545 P = +.70303945 A = +.12406578 B = +.02189396 C = +.00586365 D = +.00068181 E = +.00012032 BB = +.02575759 DD = +.00080215
K = +.70 N = +2 AA = -.14080289 CC = -.00458486 P = +.96885797 A = -.17097493 B = +.03017204 C = -.00532447 D = +.00093941 E = -.00016581 BB = +.02484756 DD = +.00077579	K = +.70 N = +7 AA = +.15549578 CC = +.00484256 P = +.74894138 A = +.15214945 B = +.02332405 C = +.00411400 D = +.00072635 E = +.0001281 BB = +.02744006 DD = +.00085453	K = +.70 N = +12 AA = -.12020213 CC = -.00174191 P = +.82710512 A = -.14595972 B = +.02575759 C = -.00454545 D = +.00080213 E = -.00014155 BB = +.02121215 DD = +.00066058
K = +.70 N = +5 AA = +.16565045 CC = +.00515866 P = +.79788291 A = -.14080287 B = +.02444756 C = +.00458486 D = +.00077579 E = +.00011655 BB = +.02923242 DD = +.00091039	K = +.70 N = +8 AA = -.12805162 CC = -.00398782 P = +.88115092 A = -.15449368 B = +.02744006 C = -.00484256 D = +.00084451 E = -.00015080 BB = +.02259769 DD = +.00070573	K = +.70 N = +13 AA = +.14141426 CC = +.00440590 P = +.68114542 A = +.12020215 B = +.02121215 C = +.00574551 D = +.00066058 E = +.00011657 BB = +.02495545 DD = +.00077719
K = +.70 N = +4 AA = -.15641801 CC = -.00424831 P = +.93868581 A = -.16565045 B = +.02923242 C = -.00515866 D = +.00091035 E = -.00016065 BB = +.02407376 DD = +.00074970	K = +.70 N = +9 AA = +.15065182 CC = +.00469156 P = +.72565725 A = +.12805162 B = +.02259769 C = +.00598782 D = +.00070375 E = +.00012418 BB = +.02658552 DD = +.00082792	K = +.70 N = +14 AA = -.11645880 CC = -.00562674 P = +.80154745 A = -.14141425 B = +.02495545 C = -.00440390 D = +.00077715 E = -.00015714 BB = +.02055155 DD = +.00064001
K = +.70 N = +5 AA = +.16049179 CC = +.00499801 P = +.77505550 A = +.13641799 B = +.02407576 C = +.00424831 D = +.00074970 E = +.00015230 BB = +.02852207 DD = +.00084209	K = +.70 N = +10 AA = -.12406579 CC = -.00386564 P = +.85569077 A = -.15065131 B = +.02658552 C = -.00449136 D = +.00082792 E = -.00014610 BB = +.02189396 DD = +.00068181	K = +.70 N = +15 AA = +.13701034 CC = +.00426675 P = +.65995315 A = +.11645879 B = +.02055155 C = +.00362674 D = +.00064001 E = +.00011294 BB = +.02417829 DD = +.00075295

K = +.70 N = +16

AA = -.11283204
CC = -.00351380
P = +.77639188
A = -.13701033
B = +.02417829
C = -.00426675
D = +.00073295
E = -.00013287
BB = +.01991151
DD = +.00062008

K = +.70 N = +17

AA = +.13274355
CC = +.00413388
P = +.63938149
A = +.11283202
B = +.01991153
C = +.00351379
D = +.00062008
E = +.00010942
BB = +.02342533
DD = +.00072950

K = +.70 N = +18

AA = -.10931822
CC = -.00340437
P = -.75221341
A = -.13274354
B = +.02342532
C = -.00413388
D = +.00072950
E = -.00012873
BB = -.0192914
DD = +.00060077

K = +.70 N = +19

AA = +.12880965
CC = +.00400514
P = +.61946986
A = +.10931821
B = +.01929144
C = +.00340437
D = +.00060077
E = +.00010601
BB = +.02269581
DD = +.00070679

K = +.70 N = +20

AA = -.10541363
CC = -.00329835
P = +.72878798
A = -.12880964
B = +.02269581
C = -.00400514
D = +.00070679
E = -.00012472
BB = +.01869067
DD = +.00058206

K = +.70 N = +21

AA = +.12460449
CC = +.00388041
P = +.80017835
A = +.10591382
B = +.01869067
C = +.00329835
D = +.00058206
E = +.00010271
BB = +.02198902
DD = +.00068477

K = +.70 N = +22

AA = -.10261546
CC = -.00319563
P = +.70609209
A = -.12460448
B = +.02198902
C = -.00388041
D = +.00068477
E = -.00012084
BB = +.01810860
DD = +.00056393

K = +.70 N = +23

AA = +.12072404
CC = +.00375957
P = +.58148753
A = +.10261544
B = +.01810860
C = +.00319563
D = +.00056393
E = +.00009951
BB = +.02130424
DD = +.00066345

K = +.70 N = +24

AA = -.09941979
CC = -.00309611
P = +.68410288
A = -.12072403
B = +.02130424
C = -.00375957
D = +.00066345
E = -.00011708
BB = +.01754466
DD = +.00054637

K = +.70 N = +25

AA = +.11696446
CC = +.00364249
P = +.56337989
A = +.10994197
B = +.01754467
C = +.00309611
D = +.00054637
E = +.00009641
BB = +.02064078
DD = +.00064279

K = +.70 N = +26

AA = -.09652367
CC = -.00299969
P = +.66279860
A = -.11696445
B = +.02064078
C = -.00364249
D = +.00064279
E = -.00011343
BB = +.01699829
DD = +.00052935

K = +.70 N = +27

AA = +.11332195
CC = +.00342905
P = +.54583402
A = +.09652365
B = +.01699829
C = +.00299969
D = +.00052935
E = +.00009341
BB = +.01999799
DD = +.00062277

K = +.70 N = +28

AA = -.09332396
CC = -.00290628
P = +.64215768
A = -.11332194
B = +.01999799
C = -.00342905
D = +.00062277
E = -.00010940
BB = +.01646893
DD = +.00051287

K = +.70 N = +29

AA = +.10979287
CC = +.00341915
P = +.52883572
A = +.09332394
B = +.01646893
C = +.00290628
D = +.00051287
E = +.00009050
BB = +.01937521
DD = +.00060338

K = +.70 N = +30

AA = -.09041765
CC = -.00281577
P = +.62215958
A = -.10979286
B = +.01937521
C = -.00341915
D = +.00060338
E = -.00010647
BB = +.01595605
DD = +.00049690

K = +.80 N = +1				K = +.80 N = +6				K = +.80 N = +11			
AA = +.10973956	P = +.00088887	BB = +.01219326	AA = -.09515243	P = +.96941830	BB = +.01057249	AA = +.10313093	P = +.03535730	BB = +.0145894	CC = -.00127321	DD = +.00014146	
CC = +.00135480	A = +.00076542		CC = -.00117472	A = -.10704648	DD = +.00013052		A = +.09281747				
	B = +.01097393			B = +.01189405			B = +.01031305				
	C = +.00121932			C = -.00132154			C = +.00114589				
	D = +.00013548			D = +.00014684			D = +.00012732				
	E = +.00061305			E = -.00001631			E = +.00001414				
K = +.80 N = +2				K = +.80 N = +7				K = +.80 N = +12			
AA = -.09754611	P = +.98765431	BB = +.01003845	AA = +.10572490	P = +.05637177	BB = -.01174721	AA = -.09167159	P = +.02817478	BB = +.01018573	CC = -.00113174	DD = +.00012574	
CC = -.00120427	A = -.10973937		CC = +.00130524	A = +.09515241	DD = +.00014502		A = -.10313053				
	B = +.01219326			B = +.01097249			B = +.01145094				
	C = -.00135480			C = +.00117472			C = -.00127321				
	D = +.00013053			D = +.00013052			D = +.00014146				
	E = -.00001672			E = +.00001450			E = -.00001571				
K = +.80 N = +3				K = +.80 N = +8				K = +.80 N = +13			
AA = +.10838455	P = +.87791493	BB = +.01204272	AA = -.09397770	P = +.95152419	BB = +.01044196	AA = +.10185730	P = +.82504420	BB = +.0131747	CC = +.00125749	DD = +.00013972	
CC = +.00133800	A = +.09754610		CC = -.00116021	A = -.10572491	DD = +.00012891		A = +.09167157				
	B = +.01083845			B = +.01174721			B = +.01018573				
	C = +.00130427			C = -.00130524			C = +.00113174				
	D = +.00013380			D = +.00014502			D = +.00012574				
	E = +.00001406			E = -.00001611			E = +.00001397				
K = +.80 N = +4				K = +.80 N = +9				K = +.80 N = +14			
AA = -.09634184	P = +.97546105	BB = +.01070464	AA = +.10441966	P = +.84579927	BB = -.01160218	AA = -.09053984	P = +.91471576	BB = +.01005998	CC = -.00111777	DD = +.00012419	
CC = -.00118940	A = -.10838456		CC = +.00128913	A = +.09397769	DD = +.00014323		A = -.10185731				
	B = +.01204272			B = +.01044196			B = +.01131747				
	C = -.00133800			C = +.00116021			C = -.00125749				
	D = +.00014887			D = +.00012891			D = +.00013972				
	E = -.00001651			E = +.00001432			E = -.00001552				
K = +.80 N = +5				K = +.80 N = +10				K = +.80 N = +15			
AA = +.10704647	P = +.86707649	BB = +.01189405	AA = -.09241748	P = +.93977197	BB = +.01051303	AA = +.10059982	P = +.81405856	BB = +.01117775	CC = +.00124197	DD = +.00013799	
CC = +.00132156	A = +.09634183		CC = -.00114589	A = -.10441966	DD = +.00011991		A = +.09053983				
	B = +.01070464			B = +.01160218			B = +.01005990				
	C = +.00118940			C = -.00128913			C = +.00111777				
	D = +.00013219			D = +.00014323			D = +.00012419				
	E = +.00001468			E = -.00001591			E = +.00001379				

K = +.80 N = +16

AA = -.08942207	P = +.90519638	
	A = -.10059982	
	B = +.01117773	BB = +.00993578
CC = -.00110397	C = -.00124197	
	D = -.00013799	DD = +.00012266
	E = -.00001513	

K = +.80 N = +17

AA = +.099935783	P = +.80479849	
	A = -.08942205	
	B = +.00993518	BB = +.01103975
CC = +.00122664	C = +.00110397	
	D = +.00012266	DD = +.00013629
	E = +.00001362	

K = +.80 N = +18

AA = -.08831807	P = +.89422055	
	A = -.099935783	
	B = +.01103976	BB = +.00981512
CC = -.00109834	C = -.00122664	
	D = +.00013629	DD = +.00012114
	E = -.00001514	

K = +.80 N = +19

AA = +.09813120	P = +.79486273	
	A = -.08831808	
	B = +.00981312	BB = +.01090346
CC = +.00121149	C = +.00109034	
	D = -.00012114	DD = +.00013461
	E = +.00001346	

K = +.80 N = +20

AA = -.08722773	P = +.88318078	
	A = -.09813119	
	B = +.01090346	BB = +.00969197
CC = -.00107688	C = -.00121149	
	D = +.00013461	DD = +.00011965
	E = -.00001495	

K = +.80 N = +21

AA = +.09691970	P = +.78504961	
	A = +.08722773	
	B = +.00969197	BB = +.01076885
CC = +.00119653	C = +.00107688	
	D = +.00011965	DD = +.00011294
	E = +.00001329	

K = +.80 N = +22

AA = -.08615084	P = +.87227729	
	A = -.09691969	
	B = +.01076885	BB = +.00957231
CC = -.00106359	C = -.00119653	
	D = +.00013294	DD = +.00011817
	E = -.00001477	

K = +.80 N = +23

AA = -.09572316	P = +.77535765	
	A = +.08615084	
	B = +.00957231	BB = +.01063590
CC = +.00118176	C = +.00106359	
	D = +.00011817	DD = +.00013130
	E = +.00001313	

K = +.80 N = +24

AA = -.08506725	P = +.86150845	
	A = -.09572316	
	B = +.01063590	BB = +.00945414
CC = -.00105046	C = -.00118176	
	D = -.00013130	DD = +.00011671
	E = -.00001458	

K = +.80 N = +25

AA = +.09454139	P = +.76578532	
	A = +.08506725	
	B = +.00945413	BB = +.01050459
CC = +.00116717	C = +.00105046	
	D = -.00011671	DD = +.00012968
	E = +.00001296	

K = +.80 N = +26

AA = -.08403679	P = +.85087257	
	A = -.09454139	
	B = +.01050460	BB = +.00933742
CC = -.00103749	C = -.00116717	
	D = +.00012968	DD = +.00011527
	E = -.00001440	

K = +.80 N = +27

AA = +.09337421	P = +.75633118	
	A = +.08403679	
	B = +.00933742	BB = +.01037491
CC = +.00115276	C = +.00103749	
	D = +.00011527	DD = +.00012808
	E = +.00001290	

K = +.80 N = +28

AA = -.08299930	P = +.84036801	
	A = -.09337422	
	B = +.01037491	BB = +.00922214
CC = -.00102468	C = -.00115276	
	D = +.00012808	DD = +.00011385
	E = -.00001423	

K = +.80 N = +29

AA = +.09222144	P = +.74699370	
	A = -.08299930	
	B = +.00922214	BB = +.01024682
CC = +.00113853	C = +.00102468	
	D = +.00011385	DD = +.00012450
	E = +.00001265	

K = +.80 N = +30

AA = -.08197461	P = +.82999300	
	A = -.09222144	
	B = +.01024682	BB = +.00910829
CC = -.00101203	C = -.00113853	
	D = +.00012450	DD = +.00011244
	E = -.00001405	

K = +.90 N = +1

AA = +.05248577 P = +.94736826
 A = +.04986148
 B = +.00262428 BB = +.00276240
 CC = +.00014538 C = +.00013812
 O = +.00000726 OD = +.00000765
 E = +.00000038

K = +.90 N = +2

AA = -.04972136 P = +.99722970
 A = -.05248577
 B = +.00276240 BB = +.00261701
 CC = -.00013773 C = -.00014538
 O = +.00000765 OD = +.00000724
 E = -.00000040

K = +.90 N = +3

AA = +.05234038 P = +.94474397
 A = +.04972356
 B = +.00261701 BB = +.00275475
 CC = +.00014498 C = +.00013773
 O = +.00000724 OD = +.00000763
 E = +.00000038

K = +.90 N = +4

AA = -.04958562 P = +.99446721
 A = -.05234037
 B = +.00275475 BB = +.00260976
 CC = -.00013735 C = -.00014498
 O = +.00000763 OD = +.00000722
 E = -.00000040

K = +.90 N = +5

AA = +.05219558 P = +.94212672
 A = +.04958561
 B = +.00260976 BB = +.00274712
 CC = +.00014458 C = +.00013735
 O = +.00000722 OD = +.00000740
 E = +.00000038

K = +.90 N = +6

AA = -.04944825 P = +.99171228
 A = -.05219558
 B = +.00274712 BB = +.00260253
 CC = -.00013697 C = -.00014458
 O = +.00000760 OD = +.00000720
 E = -.00000040

K = +.90 N = +7

AA = +.05205079 P = +.93951683
 A = +.04944825
 B = +.00260253 BB = +.00273951
 CC = +.00014418 C = +.00013697
 O = +.00000720 OD = +.00000756
 E = +.00000037

K = +.90 N = +8

AA = -.04931127 P = +.98696499
 A = -.05205078
 B = +.00273951 BB = +.00259533
 CC = -.00013659 C = -.00014418
 O = +.00000756 OD = +.00000718
 E = -.00000039

K = +.90 N = +9

AA = +.05190659 P = +.93691411
 A = +.04931126
 B = +.00259532 BB = +.00273192
 CC = +.00014378 C = +.00013659
 O = +.00000718 OD = +.00000756
 E = +.00000037

K = +.90 N = +10

AA = -.04917467 P = +.98622534
 A = -.05190659
 B = +.00273192 BB = +.00258814
 CC = -.00013621 C = -.0001437
 O = +.00000756 OD = +.00000716
 E = -.00000039

K = +.90 N = +11

AA = +.05176280 P = +.93451866
 A = +.04917466
 B = +.00258814 BB = +.00272435
 CC = +.00014358 C = +.00013621
 O = +.00000716 OD = +.00000754
 E = +.00000037

K = +.90 N = +12

AA = -.04903844 P = +.98349327
 A = -.05176280
 B = +.00272435 BB = +.00258097
 CC = -.00013584 C = -.00014358
 O = +.00000754 OD = +.00000714
 E = -.00000039

K = +.90 N = +13

AA = +.05161941 P = +.93173038
 A = +.04903844
 B = +.00258097 BB = +.00271841
 CC = +.00014299 C = +.00013584
 O = +.00000714 OD = +.00000752
 E = +.00000037

K = +.90 N = +14

AA = -.04890259 P = +.98076871
 A = -.05161940
 B = +.00271841 BB = +.00257382
 CC = -.00013546 C = -.00014299
 O = +.00000752 OD = +.00000712
 E = -.00000039

K = +.90 N = +15

AA = +.05147441 P = +.929714927
 A = +.04890259
 B = +.00257382 BB = +.00270928
 CC = +.00014259 C = +.00013546
 O = +.00000712 OD = +.00000750
 E = +.00000037

K = +.90 N = +16

AA = -.04876712
CC = -.00013508
P = +.97805181
A = -.05147641
B = +.00270928
C = -.00014259
D = +.00000750
E = -.00000039
BB = +.00256669
DD = +.00000710

K = +.90 N = +17

AA = +.05133381
CC = +.00014219
P = +.92657531
A = +.04876712
B = +.00256669
C = -.00013508
D = +.00000710
E = +.00000037
BB = +.00270177
DD = +.00000748

K = +.90 N = +18

AA = -.04863202
CC = -.00013471
P = +.97534233
A = -.05133380
B = +.00270177
C = -.00014219
D = +.00000748
E = -.00000039
BB = +.00255958
DD = +.00000709

K = +.90 N = +19

AA = +.05119160
CC = +.00014180
P = +.92400847
A = +.04863202
B = +.00255958
C = +.00013471
D = +.00000709
E = +.00000037
BB = +.00269429
DD = +.00000746

K = +.90 N = +20

AA = -.04849730
CC = -.00013434
P = +.97264043
A = -.05119160
B = +.00269429
C = -.00014180
D = +.00000746
E = -.00000039
BB = +.00255246
DD = +.00000707

K = +.90 N = +21

AA = +.05104979
CC = +.00014141
P = +.92144878
A = +.04849730
B = +.00255248
C = +.00013434
D = +.00000707
E = +.00000037
BB = +.00268683
DD = +.00000744

K = +.90 N = +22

AA = -.04836293
CC = -.00013396
P = +.96994596
A = -.05104978
B = +.00268683
C = -.00014141
D = +.00000744
E = -.00000039
BB = +.00254541
DD = +.00000705

K = +.90 N = +23

AA = +.05090897
CC = +.00014102
P = +.91889620
A = +.04836293
B = +.00254541
C = +.00013396
D = +.00000705
E = +.00000037
BB = +.00267938
DD = +.00000742

K = +.90 N = +24

AA = -.04822898
CC = -.00013359
P = +.96725907
A = -.05090897
B = +.00267938
C = -.00014102
D = +.00000742
E = -.00000039
BB = +.00253896
DD = +.00000703

K = +.90 N = +25

AA = +.05076734
CC = +.00014062
P = +.91655053
A = -.04822897
B = +.00253896
C = -.00013359
D = +.00000703
E = +.00000037
BB = +.00267196
DD = +.00000740

K = +.90 N = +26

AA = -.04809537
CC = -.00013322
P = +.96457941
A = -.05076733
B = +.00267196
C = -.00014062
D = +.00000740
E = -.00000038
BB = +.00253133
DD = +.00000701

K = +.90 N = +27

AA = +.05062670
CC = +.00014024
P = +.91381200
A = +.04809536
B = +.00253133
C = +.00013322
D = +.00000701
E = +.00000036
BB = +.00266456
DD = +.00000738

K = +.90 N = +28

AA = -.04796214
CC = -.00013289
P = +.96190739
A = -.05062670
B = +.00266456
C = -.00014024
D = +.00000738
E = -.00000038
BB = +.00252492
DD = +.00000699

K = +.90 N = +29

AA = +.05048645
CC = +.00013985
P = +.91128040
A = +.04796213
B = +.00252492
C = +.00013285
D = +.00000699
E = +.00000036
BB = +.00265718
DD = +.00000736

K = +.90 N = +30

AA = -.04782927
CC = -.00013249
P = +.95924265
A = -.05048645
B = +.00265718
C = -.00013985
D = +.00000736
E = -.00000038
BB = +.00251733
DD = +.00000697

```

88 *      +.00000000
00 *      +.00000000

```

```

BB = 0.00000000
DB = 0.00000000

```

88 = 4.00000000
00 = 4.00000000

```
BB = +.00000000
00 = +.00000000
```

BB = +.000000000
DD = +.000000000

55 + +.00000000

60 + +.00000000

```
BB = +.00000000
00 = +.00000000
```

BB = +.000000000
DD = +.000000000

00 * 7.00000000
00 = 1.00000000

```
BB = +.00000000
DD = +.00000000
```

```

BB = +.00000000
DD = +.00000000

```

```
BB + +.000000000
00 = +.000000000
```

```

68 *      +.000000000
00 =      +.000000000

```

BA = +.00000000
BB = -.00000000

```
BB = +.00000000
DD = +.00000000
```


K = +1.50 N = +1

AA =	-0.19200000	P =	+1.20000000		
		A =	-0.24000000	BB =	+0.03840000
CC =	+0.00768000	B =	+0.04800000		
		C =	-0.00960000	DD =	+0.00153600
		D =	+0.00192000		
		E =	-0.00038400		

K = +1.50 N = +2

AA =	+0.23040000	P =	+0.96000000		
		A =	+0.19200000	BB =	+0.04608000
CC =	+0.00921600	B =	+0.03840000		
		C =	+0.00768000	DD =	+0.00184320
		D =	+0.00153600		
		E =	+0.00030720		

K = +1.50 N = +3

AA =	-0.18432000	P =	+1.35200000		
		A =	-0.23040000	BB =	+0.03686400
CC =	-0.00737280	B =	+0.04608000		
		C =	-0.00921600	DD =	+0.00147456
		D =	+0.00184320		
		E =	-0.00036864		

K = +1.50 N = +4

AA =	+0.22118398	P =	+0.92159996		
		A =	+0.18431999	BB =	+0.04423679
CC =	+0.00886735	B =	+0.03686399		
		C =	-0.00737279	DD =	+0.00176947
		D =	+0.00147455		
		E =	+0.00029491		

K = +1.50 N = +5

AA =	-0.17694719	P =	+1.10591990		
		A =	-0.22118398	BB =	+0.03538943
CC =	-0.00707788	B =	+0.04423679		
		C =	-0.00886735	DD =	+0.00141957
		D =	+0.00176947		
		E =	-0.00035389		

K = +1.50 N = +6

AA =	+0.21233662	P =	+0.88473595		
		A =	+0.17694719	BB =	+0.04246732
CC =	+0.00849346	B =	+0.03538943		
		C =	+0.00707788	DD =	+0.00169869
		D =	+0.00141557		
		E =	+0.00028311		

K = +1.50 N = +7

AA =	-0.16986930	P =	+1.06188310		
		A =	-0.21233662	BB =	+0.03397386
CC =	-0.00679477	B =	+0.04246732		
		C =	-0.00849346	DD =	+0.00135895
		D =	+0.00169869		
		E =	-0.00033973		

K = +1.50 N = +8

AA =	+0.20184316	P =	+0.84934651		
		A =	+0.16986930	BB =	+0.04076863
CC =	+0.00815372	B =	+0.03397386		
		C =	+0.00679477	DD =	+0.00130374
		D =	+0.00135895		
		E =	+0.00027179		

K = +1.50 N = +9

AA =	-0.16107453	P =	+1.01921590		
		A =	-0.20184318	BB =	+0.03261490
CC =	-0.00652298	B =	+0.04076863		
		C =	-0.00815372	DD =	+0.00130459
		D =	+0.00163074		
		E =	-0.00032614		

K = +1.50 N = +10

AA =	+0.19568894	P =	+0.81537271		
		A =	+0.16107454	BB =	+0.03011788
CC =	+0.00782757	B =	+0.03261490		
		C =	+0.00652298	DD =	+0.00156551
		D =	+0.00130459		
		E =	+0.00026091		

K = +1.50 N = +11

AA =	-0.15655156	P =	+0.97844725		
		A =	-0.19568894	BB =	+0.03131031
CC =	+0.00628206	B =	+0.03913789		
		C =	-0.00782757	DD =	+0.00125241
		D =	+0.00156551		
		E =	-0.00013110		

K = +1.50 N = +12

AA =	+0.18786188	P =	+0.78275785		
		A =	+0.15655157	BB =	+0.03757237
CC =	+0.00751447	B =	+0.03131031		
		C =	+0.00628206	DD =	+0.00150289
		D =	+0.00125241		
		E =	+0.00025048		

K = +1.50 N = +13

AA =	-0.15028949	P =	+0.93990931		
		A =	-0.18786186	BB =	+0.03005789
CC =	-0.00601157	B =	+0.03757237		
		C =	-0.00751447	DD =	+0.00120231
		D =	+0.00150289		
		E =	-0.00030057		

K = +1.50 N = +14

AA =	+0.18034740	P =	+0.75144751		
		A =	+0.15028950	BB =	+0.03606948
CC =	+0.00721389	B =	+0.03005790		
		C =	+0.00601154	DD =	-0.00144277
		D =	+0.00120231		
		E =	+0.00024046		

K = +1.50 N = +15

AA =	-0.14427792	P =	+0.90173696		
		A =	-0.18034739	BB =	+0.02865558
CC =	-0.00577111	B =	+0.03606947		
		C =	-0.00721389	DD =	+0.00115422
		D =	+0.00144277		
		E =	-0.00028655		

K = +1.50 N = +16

AA = +.17315530
CC = +.00692914
P = +.72138961
A = +.14427792
B = +.02885558
C = +.00577111
D = +.00115422
E = +.00023084
BB = +.03462670
DD = +.00138506

K = +1.50 N = +17

AA = -.13850681
CC = -.00554027
P = +.85566748
A = -.17313950
B = +.03462649
C = -.00692533
D = +.00138506
E = -.00027701
BB = +.02770156
DD = +.00110809

K = +1.50 N = +18

AA = +.16620816
CC = +.00664832
P = +.69253401
A = +.13850680
B = +.02770136
C = +.00554027
D = +.00110809
E = +.00022141
BB = +.03324163
DD = +.00132966

K = +1.50 N = +19

AA = -.13796652
CC = -.00531886
P = +.83104079
A = -.16620815
B = +.03324163
C = -.00664832
D = +.00110809
E = -.00026593
BB = +.02659350
DD = +.00106373

K = +1.50 N = +20

AA = +.15955981
CC = +.00638239
P = +.66483263
A = +.13296653
B = +.02659330
C = +.00531866
D = +.00106373
E = +.00021274
BB = +.03191196
DD = +.00127647

K = +1.50 N = +21

AA = -.12764788
CC = -.00510591
P = +.79779922
A = -.15955984
B = +.03191196
C = -.00638259
D = +.00127647
E = -.00025529
BB = +.02552957
DD = +.00102119

K = +1.50 N = +22

AA = +.15317745
CC = +.00612709
P = +.63823938
A = +.12764788
B = -.02552957
C = +.00510591
D = +.00102118
E = +.00020423
BB = +.03063549
DD = +.00122541

K = +1.50 N = +23

AA = -.12254194
CC = -.00490167
P = +.76588719
A = -.15317744
B = +.03063548
C = -.00612709
D = +.00122541
E = -.00024508
BB = +.02450839
DD = +.00096033

K = +1.50 N = +24

AA = +.14705034
CC = +.00588201
P = -.61270976
A = -.12254195
B = +.02450859
C = +.00490167
D = +.00096033
E = +.00019606
BB = +.02941086
DD = +.00117640

K = +1.50 N = +25

AA = -.11764028
CC = -.00470561
P = +.73525169
A = -.14705034
B = +.02941086
C = -.00588201
D = +.00117640
E = -.00023528
BB = +.02352805
DD = +.00094112

K = +1.50 N = +26

AA = +.14116853
CC = +.00564679
P = +.58820159
A = +.11764028
B = +.02352805
C = +.00470561
D = +.00094112
E = +.00018822
BB = +.02823366
DD = +.00112934

K = +1.50 N = +27

AA = -.11795466
CC = -.00451738
P = +.70584160
A = -.14116832
B = +.02823566
C = -.00564673
D = +.00112934
E = -.00022586
BB = +.02258693
DD = +.00090347

K = +1.50 N = +28

AA = -.13552159
CC = +.00542086
P = +.56467332
A = -.11795464
B = +.02258693
C = +.00451738
D = +.00090347
E = +.00018069
BB = +.02710431
DD = +.00108417

K = +1.50 N = +29

AA = -.10841728
CC = -.00433669
P = +.61760800
A = -.13552160
B = +.02710432
C = -.00542086
D = +.00108417
E = -.00021683
BB = +.02168345
DD = +.00086735

K = +1.50 N = +30

AA = +.13010074
CC = +.00520402
P = +.54208644
A = +.10841729
B = +.02168345
C = +.00433666
D = +.00086733
E = +.00017346
BB = +.02602014
DD = +.00104080

K = +2.00 N = -1

AA = -0.29629629
CC = -0.03292180

P = +1.33533330
A = -0.44444445
B = +0.14814814
C = -0.04958271
D = +0.01646090
E = -0.00548696

BB = +0.09876543
DD = +0.01097393

K = +2.00 N = +2

AA = +0.39506170
CC = +0.04989574

P = +0.88888884
A = +0.29629628
B = +0.09876542
C = +0.03292180
D = +0.01097393
E = +0.00365797

BB = +0.13168723
DD = +0.01463191

K = +2.00 N = +3

AA = -0.26337447
CC = -0.02926382

P = +1.28918510
A = -0.39306170
B = +0.13168723
C = -0.04958274
D = +0.01463191
E = -0.00487730

BB = +0.08779149
DD = +0.00975461

K = +2.00 N = +4

AA = +0.39116396
CC = +0.03901844

P = +0.79012342
A = +0.25337447
B = +0.08779149
C = +0.02926383
D = +0.00975461
E = +0.00325153

BB = +0.11703532
DD = +0.01300614

K = +2.00 N = +5

AA = -0.23411062
CC = -0.02601229

P = +1.05349780
A = -0.35116593
B = +0.11703531
C = -0.03901843
D = +0.01300614
E = -0.00433338

BB = +0.07803488
DD = +0.00867076

K = +2.00 N = +6

AA = +0.31214751
CC = +0.03468305

P = +0.70235192
A = +0.23411064
B = +0.07803687
C = +0.02601229
D = +0.00867076
E = +0.00289025

BB = +0.10404917
DD = +0.01156101

K = +2.00 N = +7

AA = -0.20809835
CC = -0.02312205

P = +0.93644258
A = -0.31214752
B = +0.10404917
C = -0.03468305
D = +0.01156101
E = -0.00589361

BB = +0.06936612
DD = +0.00770734

K = +2.00 N = +8

AA = +0.27746442
CC = +0.03082938

P = +0.62429497
A = +0.20809832
B = +0.06936610
C = +0.02312205
D = +0.00770734
E = +0.00294911

BB = +0.09248814
DD = +0.01027646

K = +2.00 N = +9

AA = -0.18497650
CC = -0.02055292

P = +0.85239332
A = -0.27746444
B = +0.09248814
C = -0.03082938
D = +0.01027646
E = -0.00342348

BB = +0.06169876
DD = +0.00685097

K = +2.00 N = +10

AA = +0.24663505
CC = +0.02740389

P = +0.55492888
A = +0.1849762
B = +0.06165876
C = +0.02033292
D = +0.00885097
E = +0.00228365

BB = +0.08221168
DD = +0.00913483

K = +2.00 N = +11

AA = -0.16442333
CC = -0.01826926

P = +0.73990315
A = -0.24663505
B = +0.08221168
C = -0.02740389
D = +0.00913463
E = -0.00304483

BB = +0.054880778
DD = +0.00608975

K = +2.00 N = +12

AA = +0.21923113
CC = +0.02435901

P = +0.49327014
A = +0.16442335
B = +0.054880779
C = +0.01826926
D = +0.00608975
E = +0.00202991

BB = +0.07307705
DD = +0.00811967

K = +2.00 N = +13

AA = -0.14615410
CC = -0.01623934

P = +0.65769347
A = -0.21923115
B = +0.07307705
C = -0.02435901
D = +0.00811961
E = -0.00270653

BB = -0.04831803
DD = +0.00541311

K = +2.00 N = +14

AA = +0.19487213
CC = +0.02185245

P = +0.43846231
A = +0.14615410
B = +0.04831803
C = +0.01623934
D = +0.00541311
E = +0.00180437

BB = +0.06495737
DD = +0.00721748

K = +2.00 N = +15

AA = -0.12991474
CC = -0.01443497

P = +0.56461635
A = -0.19487211
B = +0.04849577
C = -0.02165243
D = +0.00721748
E = -0.00240582

BB = +0.04330491
DD = +0.00481165

K = +2.00 M = +16

AA = +.17321964
CC = +.01924662
P = +.36976423
A = +.12991474
B = +.04330491
C = +.01443497
O = +.00483165
E = +.00160368
BB = +.05773988
DD = +.00641554

K = +2.00 M = +17

AA = -.11547978
CC = -.01283108
P = +.51965899
A = -.17321966
B = +.05773988
C = -.01924662
O = +.00641554
E = -.00213851
BB = +.03849325
DD = +.00427702

K = +2.00 M = +18

AA = +.15397302
CC = +.01710811
P = +.34643932
A = +.11547977
B = +.03849325
C = +.0128310
D = +.00427702
E = +.00142567
BB = +.05132414
DD = +.00570270

K = +2.00 M = +19

AA = -.10264868
CC = -.01140540
P = +.46191907
A = -.15397302
B = +.05132434
C = -.01710811
O = +.00570270
E = -.00190090
BB = +.03421622
DD = +.00380180

K = +2.00 M = +20

AA = +.13686490
CC = +.01570721
P = +.30794605
A = +.10264868
B = +.03421622
C = +.01140540
O = +.00380180
E = +.00126726
BB = +.04562163
DD = +.00506907

K = +2.00 M = +21

AA = -.09124328
CC = -.01019814
P = +.41059473
A = -.13686491
B = +.04562163
C = -.01520721
O = +.00506907
E = -.0016496
BB = +.03041442
DD = +.00337930

K = +2.00 M = +22

AA = +.12165770
CC = +.01991752
P = +.27372983
A = -.09124327
B = +.03041442
C = +.01019814
O = +.00337938
E = +.00112646
BB = +.04055256
DD = +.00450584

K = +2.00 M = +23

AA = -.08110514
CC = -.00901168
P = +.36497313
A = -.12165771
B = +.04055257
C = -.01351752
O = +.00450584
E = -.00150194
BB = +.02703504
DD = +.00300389

K = +2.00 M = +24

AA = +.10814017
CC = +.01201557
P = +.24391540
A = -.08110513
B = +.02703504
C = +.00901168
O = +.00300389
E = +.00100129
BB = +.03604572
DD = +.00400519

K = +2.00 M = +25

AA = -.07209345
CC = -.00801038
P = +.32442052
A = -.10814017
B = +.03604672
C = -.01201557
O = +.00400519
E = -.00133906
BB = +.02403115
DD = +.00267012

K = +2.00 M = +26

AA = +.09612460
CC = +.01068051
P = +.21628037
A = +.07209345
B = +.02403115
C = +.00801038
O = +.00267012
E = +.00089064
BB = +.03204153
DD = +.00356017

K = +2.00 M = +27

AA = -.06408307
CC = -.00712054
P = +.28837385
A = -.09612461
B = +.03204153
C = -.01068051
O = +.00356017
E = -.00118672
BB = +.02136102
DD = +.00237344

K = +2.00 M = +28

AA = +.08544411
CC = +.00949376
P = +.19224925
A = +.06408308
B = +.02136102
C = +.00712054
O = +.00237344
E = +.00079114
BB = +.02848117
DD = +.00316459

K = +2.00 M = +29

AA = -.05696276
CC = -.00632919
P = +.25633246
A = -.08544415
B = +.02848118
C = -.00949379
O = +.00316459
E = -.00105486
BB = +.01898759
DD = +.00210973

K = +2.00 M = +30

AA = +.07595029
CC = +.00843892
P = +.17088816
A = +.05696271
B = +.01898757
C = +.00632919
O = +.00210973
E = +.00070324
BB = +.02531676
DD = +.00281297

K = +2.50 N = +1		K = +2.50 N = +6		K = +2.50 N = +11	
AA = -0.36985422	P = +1.42857140 A = -0.61224487 B = +0.26239065 C = -0.11245313 D = +0.04819419 E = -0.02054655	BB = +0.14993752	AA = +0.33305571 A = +0.23313900 B = +0.09991671 C = +0.04262144 D = +0.01835204 E = +0.00786518	BB = +0.14273815	AA = -0.12682553 A = -0.22194466 B = +0.09511913 C = -0.04076534 D = +0.01747086 E = -0.00748751
CC = -0.06425894		DD = +0.02753954	CC = +0.06117349	DD = +0.02621721	CC = -0.02329448
K = +2.50 N = +2		K = +2.50 N = +7		K = +2.50 N = +12	
AA = +0.49979171	P = +0.81632649 A = +0.34985420 B = +0.14593751 C = +0.06425893 D = +0.02753954 E = +0.0180266	BB = +0.21419644	AA = -0.19031755 A = -0.33305571 B = +0.14273816 C = -0.06117349 D = +0.02621721 E = -0.01123594	BB = +0.08156487	AA = +0.18117931 A = +0.12682552 B = +0.09435579 C = +0.02329444 D = +0.00998334 E = +0.00427857
CC = +0.09179847		DD = +0.03934220	CC = -0.03495628	DD = +0.01498126	CC = +0.03127782
K = +2.50 N = +3		K = +2.50 N = +8		K = +2.50 N = +13	
AA = -0.28559528	P = +1.16618070 A = -0.49979172 B = +0.21419644 C = -0.09179847 D = +0.03934220 E = -0.01688094	BB = +0.12239797	AA = +0.27188219 A = +0.19031754 B = +0.08156465 C = +0.03495628 D = +0.01498126 E = +0.00642054	BB = +0.11652093	AA = -0.10353104 A = -0.18117931 B = +0.07764827 C = -0.03327783 D = +0.01426192 E = -0.00611225
CC = -0.05245827		DD = +0.02248125	CC = +0.04493754	DD = +0.02140180	CC = -0.01401590
K = +2.50 N = +4		K = +2.50 N = +9		K = +2.50 N = +14	
AA = +0.40799322	P = +0.66618895 A = +0.28559526 B = +0.12239796 C = +0.05245827 D = +0.02248125 E = +0.00963482	BB = +0.17489423	AA = -0.15936128 A = -0.27188223 B = +0.11652095 C = -0.04493755 D = +0.02140180 E = -0.00917220	BB = +0.06658340	AA = +0.14790148 A = +0.10353104 B = +0.04437044 C = -0.01901590 D = +0.00814967 E = +0.00348271
CC = +0.07493752		DD = +0.03211808	CC = -0.02853574	DD = +0.01222960	CC = +0.02716557
K = +2.50 N = +5		K = +2.50 N = +10		K = +2.50 N = +15	
AA = -0.25313899	P = +0.95198422 A = -0.0799323 B = +0.17489424 C = -0.07493752 D = +0.03211608 E = -0.01376403	BB = +0.09991672	AA = +0.22194467 A = +0.19536127 B = +0.06658340 C = +0.02853574 D = +0.01222960 E = +0.00524125	BB = +0.09511914	AA = -0.08451513 A = -0.14790147 B = +0.06338634 C = -0.02716557 D = +0.01164238 E = -0.00498959
CC = -0.04262144		DD = +0.01835204	CC = +0.04076534	DD = +0.01747086	CC = -0.01552518

K = +2.50 N = +16

AA = +.12075589
CC = +.02117597
BB = +.05174395
DD = +.00990399

K = +2.50 N = +17

AA = -.06879195
CC = -.01267199
BB = +.02956797
DD = +.00543085

K = +2.50 N = +18

AA = +.09853994
CC = +.01810284
BB = -.04223997
DD = +.00775836

K = +2.50 N = +19

AA = -.05631995
CC = -.01034448
BB = +.02413712
DD = +.00443334

K = +2.50 N = +20

AA = +.08045705
CC = +.01477782
BB = +.03448159
DD = +.00633335

K = +2.50 N = +21

AA = -.04597545
CC = -.00844447
BB = +.01970376
DD = +.00361905

K = +2.50 N = +22

AA = +.06567926
CC = +.01206333
BB = +.02814875
DD = +.00517008

K = +2.50 N = +23

AA = -.01753101
CC = -.00689345
BB = +.01608472
DD = +.00293433

K = +2.50 N = +24

AA = +.05361571
CC = +.00984778
BB = +.02297816
DD = +.00422047

K = +2.50 N = +25

AA = -.03063752
CC = -.00562730
BB = +.01317036
DD = +.00241170

K = +2.50 N = +26

AA = -.04576788
CC = +.00803899
BB = +.01875766
DD = +.00344528

K = +2.50 N = +27

AA = -.02901024
CC = -.00459371
BB = +.01071867
DD = +.00196873

K = +2.50 N = +28

AA = +.03572891
CC = +.00656245
BB = +.01531239
DD = +.00281248

K = +2.50 N = +29

AA = -.02041652
CC = -.00374997
BB = +.00874994
DD = +.00160713

K = +2.50 N = +30

AA = +.02916645
CC = +.00533710
BB = +.01249991
DD = +.00229590

K = +3.00 N = +1				K = +3.00 N = +6				K = +3.00 N = +11			
AA =	-0.37499997	P =	+1.49999990	AA =	+0.31640616	P =	+0.42107488	AA =	-0.00898922	P =	+0.35595686
CC =	-0.09875000	A =	-0.74999995	BB =	+0.18749999	A =	+0.21093744	BB =	+0.19820908	A =	-0.17797843
		B =	+0.37499998	DD =	+0.04687499	B =	+0.10546872	CC =	-0.02224730	B =	+0.08898921
		C =	-0.18749999			C =	+0.05273456			C =	-0.04449460
		D =	+0.09374999			D =	+0.02636718			D =	+0.02224730
		E =	-0.04687499			E =	+0.01318359			E =	-0.01112365
K = +3.00 N = +2				K = +3.00 N = +7				K = +3.00 N = +12			
AA =	+0.56249993	P =	+0.74999990	AA =	-0.15820307	P =	+0.63281227	AA =	+0.13348381	P =	+0.17797842
CC =	+0.14062498	A =	+0.37499995	BB =	+0.28124996	A =	-0.31640616	BB =	+0.07910154	A =	+0.08898921
		B =	+0.18749998	DD =	+0.07031249	B =	+0.15820307	CC =	+0.03337095	B =	-0.04449460
		C =	+0.09374999			C =	-0.07910153			C =	+0.02224730
		D =	+0.04687499			D =	+0.03955076			D =	+0.01112365
		E =	+0.02343749			E =	-0.01977538			E =	+0.00556182
K = +3.00 N = +3				K = +3.00 N = +8				K = +3.00 N = +13			
AA =	-0.28124995	P =	+0.12499980	AA =	+0.29730462	P =	+0.31640616	AA =	-0.04687499	P =	+0.26696760
CC =	-0.07031250	A =	-0.56249995	BB =	+0.14062497	A =	-0.15820308	BB =	+0.11865231	A =	-0.17348380
		B =	+0.28124995	DD =	+0.03515624	B =	+0.07910154	CC =	-0.01668547	B =	+0.06674190
		C =	-0.14062498			C =	+0.03955077			C =	-0.03337095
		D =	+0.07031248			D =	+0.01977538			D =	+0.01668547
		E =	-0.03515624			E =	+0.00988769			E =	-0.00834273
K = +3.00 N = +4				K = +3.00 N = +9				K = +3.00 N = +14			
AA =	+0.42187498	P =	+0.56249992	AA =	-0.11865229	P =	+0.47460916	AA =	+0.10011285	P =	+0.13348381
CC =	+0.10546873	A =	+0.28124996	BB =	+0.21093747	A =	-0.23730458	BB =	+0.05932615	A =	+0.06674190
		B =	-0.14062498	DD =	+0.05273456	B =	+0.11865229	CC =	+0.02502821	B =	+0.03337095
		C =	+0.07031249			C =	-0.05932614			C =	+0.01668547
		D =	+0.03515624			D =	+0.02966307			D =	+0.00834273
		E =	+0.01757812			E =	-0.01483153			E =	+0.00417136
K = +3.00 N = +5				K = +3.00 N = +10				K = +3.00 N = +15			
AA =	-0.21093744	P =	+0.84974875	AA =	+0.17797845	P =	+0.23730460	AA =	-0.05005642	P =	+0.20022563
CC =	-0.05273457	A =	-0.42187498	BB =	+0.10546872	A =	+0.11865230	BB =	+0.08898922	A =	-0.10011282
		B =	+0.21093744	DD =	+0.02636717	B =	+0.05992615	CC =	-0.02224730	B =	+0.05005640
		C =	-0.10546872			C =	+0.02966307			C =	-0.02902820
		D =	+0.05273455			D =	-0.01483153			D =	+0.01251410
		E =	-0.02636718			E =	+0.00741576			E =	-0.00625705

K = +3.00 N = +16

AA = +.07508462
CC = +.01077115
P = +.10011283
A = +.05005641
B = +.02502020
C = +.01251410
D = +.00625705
E = +.00312052
BB = +.03754231
DD = +.00938557

K = +3.00 N = +17

AA = -.03754231
CC = -.00938558
P = +.15016927
A = -.07508463
B = +.03754231
C = -.01077115
D = +.00938557
E = -.00469278
BB = +.01077115
DD = +.00469278

K = +3.00 N = +18

AA = +.05631348
CC = +.01407837
P = +.07508464
A = +.03754232
B = +.01077116
C = +.00938558
D = +.00469279
E = +.00234839
BB = +.02815674
DD = +.00703918

K = +3.00 N = +19

AA = -.02815674
CC = -.00703918
P = +.11262698
A = -.05631349
B = +.02815674
C = -.01407837
D = +.00703918
E = -.00351959
BB = +.01407837
DD = +.00351959

K = +3.00 N = +20

AA = +.04223508
CC = +.01055877
P = +.05631344
A = +.02815672
B = +.01407836
C = +.00703918
D = +.00351959
E = +.00175979
BB = +.02111754
DD = +.00527938

K = +3.00 N = +21

AA = -.02111753
CC = -.00527938
P = +.08447015
A = -.04223507
B = +.02111753
C = -.01055876
D = +.00527938
E = -.00263969
BB = +.01055876
DD = +.00263969

K = +3.00 N = +22

AA = +.03167631
CC = +.00791907
P = +.04223508
A = +.02111754
B = +.01055877
C = +.00527938
D = +.00263969
E = +.00131984
BB = +.01583815
DD = +.00395953

K = +3.00 N = +23

AA = -.01583815
CC = -.00395953
P = +.06335261
A = -.03167630
B = -.01583815
C = -.00791907
D = +.00395953
E = -.00197976
BB = +.00791907
DD = -.00197976

K = +3.00 N = +24

AA = +.02375723
CC = +.00593930
P = +.03167631
A = +.01583815
B = +.00791907
C = +.00395953
D = +.00197976
E = +.00098988
BB = +.01187861
DD = +.00296965

K = +3.00 N = +25

AA = -.01187861
CC = -.00296965
P = +.04751446
A = -.02375723
B = +.01187861
C = -.00593930
D = +.00296965
E = -.00148482
BB = -.00593930
DD = -.00148482

K = +3.00 N = +26

AA = -.01781792
CC = +.00445448
P = +.02375723
A = +.01187861
B = +.00593930
C = +.00296965
D = +.00148482
E = +.00074241
BB = +.00890896
DD = +.00222724

K = +3.00 N = +27

AA = -.00890896
CC = -.00222724
P = +.03563585
A = -.01781792
B = +.00890896
C = -.00445448
D = +.00222724
E = -.00111362
BB = +.00445448
DD = +.00111362

K = +3.00 N = +28

AA = +.01396344
CC = +.00334086
P = +.01781793
A = +.00890896
B = +.00445448
C = +.00222724
D = +.00111362
E = +.00055681
BB = +.00445448
DD = +.00167043

K = +3.00 N = +29

AA = -.00668172
CC = -.00167043
P = +.02672689
A = -.01396344
B = +.00668172
C = -.00334086
D = +.00167043
E = -.00083521
BB = +.00334086
DD = -.00083521

K = +3.00 N = +30

AA = +.01002258
CC = +.00250444
P = +.01396344
A = +.00668172
B = +.00334086
C = +.00167043
D = +.00083521
E = +.00041760
BB = +.00501129
DD = +.00125282

K = +3.50 N = +1

AA =	-0.38408778	P =	+1.55555550	A =	-0.86419749	BB =	+0.71338209
CC =	-0.11854561	B =	+0.48010971	C =	-0.26672762	DD =	+0.06585868
		O =	+0.14818201	E =	-0.08232333		

K = +3.50 N = +2

AA =	+0.59746980	P =	+0.69155792	A =	+0.58408775	BB =	+0.33192766
CC =	+0.18440423	B =	+0.21538207	C =	+0.11854559	DD =	+0.10244680
		O =	+0.06585866	E =	+0.05658814		

K = +3.50 N = +3

AA =	-0.26554232	P =	+1.07344560	A =	-0.59746977	BB =	+0.14752340
CC =	-0.08195745	B =	+0.35192765	C =	-0.18440423	DD =	+0.04553191
		O =	+0.10244680	E =	-0.05651489		

K = +3.50 N = +4

AA =	+0.41306353	P =	+0.47797584	A =	+0.26554213	BB =	+0.22948084
CC =	+0.12748936	B =	+0.14752340	C =	+0.08195744	DD =	+0.07082742
		O =	+0.04553191	E =	+0.02529550		

K = +3.50 N = +5

AA =	-0.18358465	P =	+0.74351784	A =	-0.41306346	BB =	+0.10199147
CC =	-0.03666195	B =	+0.22948081	C =	-0.12748954	DD =	+0.03147885
		O =	+0.07082741	E =	-0.03934856		

K = +3.50 N = +6

AA =	+0.28557612	P =	+0.33045238	A =	+0.18358465	BB =	+0.15865339
CC =	+0.08814077	B =	+0.10199147	C =	+0.05666192	DD =	+0.04896709
		O =	+0.03147884	E =	+0.01748824		

K = +3.50 N = +7

AA =	-0.12692271	P =	+0.51403699	A =	-0.28557610	BB =	+0.07051262
CC =	-0.03917567	B =	+0.15865339	C =	-0.08814077	DD =	+0.02176315
		O =	+0.04896709	E =	-0.02720394		

K = +3.50 N = +8

AA =	+0.19743532	P =	+0.22846088	A =	+0.12692271	BB =	+0.10968629
CC =	+0.06093682	B =	+0.07051261	C =	+0.03917567	DD =	+0.03585379
		O =	+0.02176315	E =	+0.01209064		

K = +3.50 N = +9

AA =	-0.08774903	P =	+0.35538358	A =	-0.19743532	BB =	+0.04874947
CC =	-0.02708303	B =	+0.10968629	C =	-0.06093682	DD =	+0.01504413
		O =	+0.03585379	E =	-0.01880766		

K = +3.50 N = +10

AA =	+0.13649848	P =	+0.15794825	A =	+0.08774902	BB =	+0.07583249
CC =	+0.04212916	B =	+0.04874945	C =	+0.02708303	DD =	+0.02340508
		O =	+0.01504412	E =	+0.00835896		

K = +3.50 N = +11

AA =	-0.06066599	P =	+0.24569725	A =	-0.13649847	BB =	+0.03370332
CC =	-0.01872407	B =	+0.07585248	C =	-0.04212915	DD =	+0.01040226
		O =	+0.02340508	E =	-0.01300282		

K = +3.50 N = +12

AA =	+0.09436991	P =	+0.10919878	A =	+0.06066598	BB =	+0.05242739
CC =	+0.02912633	B =	+0.03370332	C =	+0.01872407	DD =	+0.01618129
		O =	+0.01040226	E =	+0.00577903		

K = +3.50 N = +13

AA =	-0.04194191	P =	+0.16986476	A =	-0.09436991	BB =	+0.02330106
CC =	-0.01294503	B =	+0.05242739	C =	-0.02912633	DD =	+0.00719168
		O =	+0.01618129	E =	-0.00898960		

K = +3.50 N = +14

AA =	+0.06524299	P =	+0.07549546	A =	+0.04194192	BB =	+0.03624610
CC =	+0.02015672	B =	+0.02330106	C =	+0.01294503	DD =	+0.01118706
		O =	+0.00719168	E =	+0.00399538		

K = +3.50 N = +15

AA =	-0.028996 B	P =	+0.11743738	A =	-0.06524298	BB =	+0.01610938
CC =	-0.00894965	B =	+0.03624610	C =	-0.02015672	DD =	+0.00497203
		O =	+0.01118706	E =	-0.00621503		

K = +3.50 N = +16

AA = +.04510622
CC = +.01392167
P = +.05219435
A = +.02699686
B = +.01610956
C = +.00894964
D = +.00497202
E = +.00276223
BB = +.02509901
DD = +.00773476

K = +3.50 N = +17

AA = -.02004721
CC = -.00618741
P = +.00119125
A = -.04510624
B = +.02509902
C = -.01392167
D = +.00773426
E = -.00429681
BB = +.01113734
DD = +.00343745

K = +3.50 N = +18

AA = +.03118456
CC = +.00982486
P = +.03608500
A = +.02004722
B = +.01113734
C = +.00618741
D = +.00343745
E = +.0019096
BB = +.01732475
DD = +.00534714

K = +3.50 N = +19

AA = -.01385981
CC = -.00427771
P = +.05615223
A = -.03118457
B = +.01732476
C = -.00982486
D = +.00534714
E = -.00297063
BB = +.00769989
DD = +.00237651

K = +3.50 N = +20

AA = +.02155969
CC = +.00665427
P = +.02494764
A = +.01385980
B = +.00769988
C = +.00427771
D = +.00237650
E = +.00132028
BB = +.01197760
DD = +.00369679

K = +3.50 N = +21

AA = -.00938208
CC = -.00295745
P = +.03880745
A = -.02155969
B = +.01197760
C = -.00665422
D = +.00369679
E = -.00205377
BB = +.00532338
DD = +.00164301

K = +3.50 N = +22

AA = +.01490547
CC = +.00460045
P = +.01724776
A = +.00958208
B = +.00532338
C = +.00295743
D = +.00164301
E = +.00091278
BB = +.00828081
DD = +.00255580

K = +3.50 N = +23

AA = -.00662465
CC = -.00204464
P = +.02682985
A = -.01490547
B = +.00828081
C = -.00460045
D = +.00255580
E = -.00141984
BB = +.00368036
DD = +.00113521

K = +3.50 N = +24

AA = +.01030501
CC = +.00318055
P = +.01192637
A = +.00662465
B = +.00532338
C = +.00204464
D = +.00113591
E = +.00063106
BB = +.00572500
DD = +.00176697

K = +3.50 N = +25

AA = -.00408000
CC = -.00141358
P = +.01834902
A = -.01030501
B = +.00572500
C = -.00118055
D = +.00176697
E = -.00098165
BB = +.00254444
DD = +.00078532

K = +3.50 N = +26

AA = +.00712445
CC = +.00219890
P = +.00824401
A = +.00458000
B = +.00254444
C = +.00141358
D = +.00078532
E = +.00036229
BB = +.00395803
DD = +.00122161

K = +3.50 N = +27

AA = -.00316642
CC = -.00097729
P = +.01282402
A = -.00712445
B = +.00395803
C = -.00219890
D = +.00122161
E = -.00067867
BB = +.00175912
DD = +.00054293

K = +3.50 N = +28

AA = +.00492555
CC = +.00152023
P = +.00569956
A = +.00316642
B = +.00175912
C = +.00097729
D = +.00054293
E = +.00030163
BB = +.00273641
DD = +.00084457

K = +3.50 N = +29

AA = -.00218913
CC = -.00067565
P = +.00886598
A = -.00492554
B = +.00273641
C = -.00152023
D = +.00084457
E = -.00049920
BB = +.00121618
DD = +.00037536

K = +3.50 N = +30

AA = +.00340551
CC = +.00105102
P = +.00394043
A = +.00218913
B = +.00121618
C = +.00067565
D = +.00037536
E = +.00020853
BB = +.00189184
DD = +.00058300

K = +4.00 N = +1

AA = -0.38399998
CC = -0.13823999P = +1.59999999
A = -0.55999999
B = +0.57599999
C = -0.34599998
D = +0.20725999
E = -0.12441599BB = +0.23039998
DD = +0.08294400

K = +4.00 N = +2

AA = +0.61439992
CC = +0.22118396P = +0.63999991
A = +0.38399995
B = -0.23039997
C = +0.13823998
D = +0.08294398
E = +0.04974639BB = +0.34863995
DD = +0.13271038

K = +4.00 N = +3

AA = -0.24575998
CC = -0.08847359P = +1.02399990
A = -0.61439994
B = +0.36863996
C = -0.22118398
D = +0.13271039
E = -0.07982623BB = +0.14745598
DD = +0.05308416

K = +4.00 N = +4

AA = +0.39321594
CC = +0.14155773P = +0.40999994
A = +0.24575996
B = +0.14745597
C = +0.08847358
D = +0.05308415
E = +0.03185049BB = +0.23592956
DD = +0.08493464

K = +4.00 N = +5

AA = -0.15728635
CC = -0.05662309P = +0.65535980
A = -0.39321588
B = +0.23529593
C = -0.14155772
D = +0.08493463
E = -0.05096077BB = +0.09437181
DD = +0.03397385

K = +4.00 N = +6

AA = +0.25165819
CC = +0.09059694P = +0.26214395
A = +0.15728637
B = +0.09437182
C = +0.05662309
D = +0.03397385
E = +0.02038431BB = +0.15099491
DD = +0.05435817

K = +4.00 N = +7

AA = -0.10046127
CC = -0.03623877P = +0.41943029
A = -0.25165817
B = +0.15099490
C = -0.09059694
D = +0.05435816
E = -0.02261489BB = +0.06039796
DD = +0.02174326

K = +4.00 N = +8

AA = +0.16106123
CC = +0.05798204P = +0.16777212
A = +0.10046127
B = +0.06039796
C = +0.03623877
D = +0.02174326
E = +0.01304596BB = +0.09663674
DD = +0.03478922

K = +4.00 N = +9

AA = -0.06442449
CC = -0.02319281P = +0.26843535
A = -0.16106121
B = +0.09663672
C = -0.05798203
D = +0.03478922
E = -0.02087353BB = +0.03865469
DD = +0.01391568

K = +4.00 N = +10

AA = +0.10307917
CC = +0.03710850P = +0.10737414
A = +0.06442448
B = +0.03865469
C = +0.02319281
D = +0.01391568
E = +0.00834941BB = +0.06184750
DD = +0.02228510

K = +4.00 N = +11

AA = -0.04173167
CC = -0.01484340P = +0.17179864
A = -0.10307918
B = +0.06184751
C = -0.03710850
D = +0.02228510
E = -0.01339906BB = +0.02473900
DD = +0.00890604

K = +4.00 N = +12

AA = +0.06597865
CC = +0.02374943P = +0.06871943
A = +0.04123166
B = +0.02473899
C = +0.01484339
D = +0.00890603
E = +0.00534362BB = +0.03958239
DD = +0.01424966

K = +4.00 N = +13

AA = -0.02638828
CC = -0.00949978P = +0.10995117
A = -0.06597070
B = +0.03958242
C = -0.02374945
D = +0.01424967
E = -0.00894980BB = +0.01583296
DD = +0.00569986

K = +4.00 N = +14

AA = +0.04222123
CC = +0.01519964P = +0.04398845
A = +0.02638827
B = +0.01583296
C = +0.00949977
D = +0.00569986
E = +0.00341992BB = +0.02533274
DD = +0.0011978

K = +4.00 N = +15

AA = -0.01688848
CC = -0.00607985P = +0.07036867
A = -0.04222120
B = +0.02533272
C = -0.01519963
D = +0.00911978
E = -0.00547186BB = +0.01613308
DD = +0.00364791

K = +4.00 N = +16

AA = +.02702156
CC = +.00972776
P = +.02814746
A = +.01688847
B = +.01013308
C = +.00607985
D = +.00364791
E = +.00218874
BB = +.01621293
DD = +.00983665

K = +4.00 N = +17

AA = -.01080864
CC = -.00389111
P = +.04503600
A = -.02702160
B = +.01621296
C = -.00972777
D = +.00363666
E = -.00350199
BB = +.00648518
DD = +.00233466

K = +4.00 N = +18

AA = +.01729382
CC = +.00622977
P = +.01801439
A = +.01080863
B = +.00648518
C = +.00389110
D = +.00233466
E = +.00140079
BB = +.01037629
DD = +.00373546

K = +4.00 N = +19

AA = -.00691752
CC = -.00249030
P = +.02882301
A = -.01729381
B = +.01037628
C = -.00622977
D = +.00373546
E = -.00224127
BB = +.00415051
DD = +.00149418

K = +4.00 N = +20

AA = +.01106803
CC = +.00398449
P = +.01152920
A = +.00691752
B = +.00415051
C = +.00249030
D = +.00149418
E = +.00059651
BB = +.00664082
DD = +.00239069

K = +4.00 N = +21

AA = -.00442721
CC = -.00159379
P = +.01844673
A = -.01106804
B = +.00664082
C = -.00398449
D = +.00239069
E = -.00143441
BB = +.00265632
DD = +.00095627

K = +4.00 N = +22

AA = +.00708354
CC = +.00255007
P = +.00737869
A = +.00442721
B = +.00265632
C = +.00159379
D = +.00095627
E = +.00057376
BB = +.00425012
DD = +.00153004

K = +4.00 N = +23

AA = -.00283341
CC = -.00102003
P = +.01180591
A = -.00708354
B = +.00425012
C = -.00255007
D = +.00153004
E = -.00091802
BB = +.00170005
DD = +.00061201

K = +4.00 N = +24

AA = +.00453346
CC = +.00163204
P = +.00472236
A = +.00283341
B = +.00170005
C = +.00102003
D = +.00061201
E = -.00036721
BB = +.00272008
DD = +.00097422

K = +4.00 N = +25

AA = -.00181338
CC = -.00065281
P = +.00735578
A = -.00453346
B = +.00272008
C = -.00163204
D = +.00097422
E = -.00038753
BB = +.00108603
DD = +.00039169

K = +4.00 N = +26

AA = +.00290142
CC = +.00104451
P = +.00302231
A = +.00181338
B = +.00108603
C = +.00065281
D = +.00039169
E = +.00023501
BB = +.00174085
DD = +.00062670

K = +4.00 N = +27

AA = -.00116056
CC = -.00041780
P = +.00483569
A = -.00290141
B = +.00174085
C = -.00104451
D = +.00062670
E = -.00037602
BB = +.00069634
DD = +.00025068

K = +4.00 N = +28

AA = +.00185690
CC = +.00066848
P = +.00193428
A = +.00116056
B = +.00069634
C = +.00041780
D = +.00025068
E = +.00015040
BB = +.00111414
DD = +.00040109

K = +4.00 N = +29

AA = -.00074276
CC = -.00026739
P = +.00309484
A = -.00185690
B = +.00111414
C = -.00066848
D = +.00040109
E = -.00024065
BB = +.00044565
DD = +.00016043

K = +4.00 N = +30

AA = +.00118642
CC = +.00042783
P = +.00123793
A = +.00074276
B = +.00044565
C = +.00026739
D = +.00016043
E = +.00009626
BB = +.00071305
DD = +.00025669

K = +4.50 N = +1

AA = -0.37866270
CC = -0.15534274

P = +1.63636360
A = -1.04132230
B = +0.66265963
C = -0.42109249
D = +0.26834975
E = -0.17076803

BB = +0.24096714

DD = +0.09758172

K = +4.50 N = +2

AA = +0.81902981
CC = +0.25092446

P = +0.59504153
A = +0.57806266
B = +0.24096715
C = +0.15554273
D = +0.09758173
E = +0.06209746

BB = +0.39430968

DD = +0.15987919

K = +4.50 N = +3

AA = -0.27531993
CC = -0.09124527

P = +0.07370397
A = -0.61962979
B = +0.39430986
C = -0.25092446
D = +0.15987919
E = -0.10161403

BB = +0.14338540

DD = +0.05806514

K = +4.50 N = +4

AA = +0.36870532
CC = +0.14933041

P = +0.35407417
A = +0.22531992
B = +0.14338540
C = +0.09124525
D = +0.05806516
E = +0.03693055

BB = +0.23463065

DD = +0.09901571

K = +4.50 N = +5

AA = -0.13407468
CC = -0.05429472

P = +0.57930436
A = -0.36870537
B = +0.23463049
C = -0.14931044
D = +0.09501572
E = -0.06046435

BB = +0.08552025

DD = +0.03455117

K = +4.50 N = +6

AA = +0.21939492
CC = +0.08884587

P = +0.21068878
A = +0.13407468
B = +0.08532024
C = +0.05429470
D = +0.03455117
E = +0.02198711

BB = +0.13961495

DD = +0.05653828

K = +4.50 N = +7

AA = -0.07977998
CC = -0.03230759

P = +0.34476346
A = -0.21939493
B = +0.13963495
C = -0.08884587
D = +0.05653828
E = -0.03597890

BB = +0.05076908

DD = +0.02055937

K = +4.50 N = +8

AA = +0.13054904
CC = +0.05286696

P = +0.12536853
A = +0.07977997
B = +0.05076907
C = +0.03230759
D = +0.02055937
E = +0.01308329

BB = +0.08307666

DD = +0.03364261

K = +4.50 N = +9

AA = -0.04747238
CC = -0.01922435

P = +0.20514849
A = -0.13054904
B = +0.08307666
C = -0.05286696
D = +0.03364261
E = -0.02140893

BB = +0.03020969

DD = +0.01223367

K = +4.50 N = +10

AA = +0.07768208
CC = +0.03145803

P = +0.07459944
A = +0.04747238
B = +0.03020969
C = +0.01922435
D = +0.01223367
E = +0.00778506

BB = +0.04943485

DD = +0.02001874

K = +4.50 N = +11

AA = -0.02824802
CC = -0.01143928

P = +0.12207183
A = -0.07768207
B = +0.04943484
C = -0.03145802
D = +0.02001874
E = -0.01273920

BB = +0.01797601

DD = +0.00727954

K = +4.50 N = +12

AA = +0.04022404
CC = +0.01871882

P = +0.04438975
A = +0.02824802
B = +0.01797601
C = +0.01143928
D = +0.00727954
E = +0.00463243

BB = +0.02941529

DD = +0.01191398

K = +4.50 N = +13

AA = -0.01680874
CC = -0.00688064

P = +0.07263778
A = -0.04022404
B = +0.02941530
C = -0.01871882
D = +0.01191398
E = -0.00758035

BB = +0.01069047

DD = +0.00433163

K = +4.50 N = +14

AA = +0.02750521
CC = +0.01713847

P = +0.02641374
A = +0.01680874
B = +0.01069047
C = +0.00688064
D = +0.00433162
E = +0.00275649

BB = +0.01750331

DD = +0.00708812

K = +4.50 N = +15

AA = -0.01000189
CC = -0.00408035

P = +0.04322245
A = -0.02750520
B = +0.01750331
C = -0.01139847
D = +0.00708811
E = -0.00451061

BB = +0.00436484

DD = +0.00257749

K = +4.50 N = +16

AA = +.01636674
CC = +.00662785
P = +.01571727
A = +.01000190
B = +.00636484
C = +.00405035
D = +.00257749
E = +.00164022
BB = +.01041520
DD = +.00421772

K = +4.50 N = +17

AA = -.00599154
CC = -.00241013
P = +.02571918
A = +.01636675
B = +.01041520
C = -.00642785
D = +.00421772
E = -.00268400
BB = +.00378734
DD = +.00153371

K = +4.50 N = +18

AA = +.00973889
CC = +.00194384
P = +.00935243
A = +.00595154
B = +.00378734
C = +.00241013
D = +.00154371
E = +.00097600
BB = +.00619747
DD = +.00250972

K = +4.50 N = +19

AA = -.00154141
CC = -.00143412
P = +.01530397
A = -.00973888
B = +.00619747
C = +.00394384
D = +.00250972
E = -.00159709
BB = +.00225362
DD = +.00091262

K = +4.50 N = +20

AA = +.00579404
CC = +.00214674
P = +.00556507
A = +.00354141
B = +.00225362
C = +.00143412
D = +.00091262
E = +.00038076
BB = +.00368775
DD = +.00149338

K = +4.50 N = +21

AA = -.00210728
CC = -.00085336
P = +.00910648
A = -.00579503
B = +.00368775
C = -.00234675
D = +.00149338
E = -.00095033
BB = +.00134100
DD = +.00054304

K = +4.50 N = +22

AA = +.00344828
CC = +.00139641
P = +.00331145
A = +.00210728
B = +.00134100
C = +.00085336
D = +.00054304
E = +.00034557
BB = +.00219436
DD = +.00038862

K = +4.50 N = +23

AA = -.00125392
CC = -.00050778
P = +.00541873
A = -.00344828
B = +.00219436
C = -.00139641
D = +.00088862
E = -.00056549
BB = +.00079795
DD = +.00032313

K = +4.50 N = +24

AA = +.00205187
CC = +.00083092
P = +.00197045
A = +.00125392
B = +.00079795
C = +.00050778
D = +.00032313
E = +.00020563
BB = +.00130573
DD = +.00052876

K = +4.50 N = +25

AA = -.00074613
CC = -.00030215
P = +.00322437
A = -.00205187
B = -.00130573
C = -.00083092
D = +.00052876
E = -.00033648
BB = +.00047481
DD = +.00019227

K = +4.50 N = +26

AA = +.00122095
CC = +.00049443
P = +.00117250
A = +.00074613
B = +.00047481
C = +.00030215
D = +.00019228
E = +.00012236
BB = +.00077696
DD = +.00031464

K = +4.50 N = +27

AA = -.00044398
CC = -.00017979
P = +.00191863
A = -.00122095
B = +.00077696
C = -.00049443
D = +.00031464
E = -.00020022
BB = +.00028259
DD = +.00011441

K = +4.50 N = +28

AA = +.00072651
CC = +.00029420
P = -.00069768
A = +.00044398
B = +.00028253
C = +.00017979
D = +.00011441
E = -.00007280
BB = +.00046232
DD = +.00016722

K = +4.50 N = +29

AA = -.00026418
CC = -.00010698
P = +.00114166
A = -.00072651
B = +.00046232
C = -.00029420
D = +.00018722
E = -.00011974
BB = +.00016811
DD = +.00006809

K = +4.50 N = +30

AA = +.00043230
CC = +.00017506
P = +.00041515
A = +.00026418
B = +.00016811
C = +.00010698
D = +.00006809
E = +.00004332
BB = +.00027510
DD = +.00011140

K = +9.00 N = +1

AA = -0.37037040 P = +1.66666660
 CC = -0.16460904 A = -1.11111110
 BB = +0.24691397 B = -0.74074070
 DD = +0.10973937 C = -0.49382713
 E = -0.21947872 D = +0.32021809

K = +9.00 N = +2

AA = +0.61726386 P = +0.55555548
 CC = +0.27434038 A = +0.37037032
 BB = +0.41152257 B = +0.24691354
 DD = +0.10209091 C = +0.16460903
 E = +0.07315956 D = +0.10973935

K = +9.00 N = +3

AA = -0.20576131 P = +0.92592589
 CC = -0.09144947 A = -0.61726392
 BB = +0.13717420 B = +0.41152261
 DD = +0.06096632 C = -0.27434041
 E = -0.12193262 D = +0.10209094

K = +5.00 N = +4

AA = +0.34293546 P = +0.30844194
 CC = +0.15241577 A = +0.20576129
 BB = +0.22862365 B = +0.19717419
 DD = +0.10181051 C = +0.09144946
 E = +0.04064420 D = +0.06096630

K = +5.00 N = +5

AA = -0.11431183 P = +0.51440322
 CC = -0.09080526 A = -0.34293548
 BB = +0.07620788 B = +0.22862365
 DD = +0.03387017 C = -0.15241577
 E = -0.06774034 D = +0.10181051

K = +5.00 N = +6

AA = +0.19051971 P = +0.17146774
 CC = +0.08467942 A = +0.11431183
 BB = +0.12701313 B = +0.07620788
 DD = +0.05645028 C = +0.05080525
 E = +0.02258011 D = +0.03387017

K = +5.00 N = +7

AA = -0.08350657 P = +0.28577957
 CC = -0.02822514 A = -0.19051971
 BB = +0.04233772 B = +0.12701314
 DD = +0.01881676 C = -0.08467542
 E = -0.03763352 D = +0.05845028

K = +5.00 N = +8

AA = +0.10584427 P = +0.09525965
 CC = +0.04704190 A = +0.08350656
 BB = +0.07056285 B = +0.04233771
 DD = +0.03136126 C = +0.02822514
 E = +0.01254450 D = +0.01881676

K = +5.00 N = +9

AA = -0.03528143 P = +0.15876642
 CC = -0.01568063 A = -0.10584428
 BB = +0.02352095 B = +0.07056285
 DD = +0.01045375 C = -0.04704190
 E = -0.02090751 D = +0.01136126

K = +5.00 N = +10

AA = +0.05880237 P = +0.05292213
 CC = +0.02613438 A = +0.03528142
 BB = +0.03920158 B = +0.02352095
 DD = +0.01742292 C = +0.01588083
 E = +0.00606917 D = +0.01045375

K = +5.00 N = +11

AA = -0.01960079 P = +0.08820359
 CC = -0.00871146 A = -0.05880237
 BB = +0.01906719 B = +0.03920159
 DD = +0.00580764 C = -0.02613419
 E = -0.0116152 D = +0.01742293

K = +5.00 N = +12

AA = +0.03266797 P = +0.02940117
 CC = +0.01401909 A = +0.01960078
 BB = +0.02177864 B = +0.01306718
 DD = +0.00580763 C = +0.00871145
 E = +0.00387175 D = +0.00580763

K = +5.00 N = +13

AA = -0.01088932 P = +0.04900196
 CC = -0.00483970 A = -0.03266797
 BB = +0.00725955 B = +0.02177864
 DD = +0.00322646 C = -0.01401909
 E = -0.00645293 D = +0.00580763

K = +5.00 N = +14

AA = +0.01814887 P = +0.01633399
 CC = +0.00806616 A = +0.01088932
 BB = +0.01209923 B = +0.00725955
 DD = +0.00337744 C = +0.00483970
 E = +0.00215097 D = +0.00337744

K = +5.00 N = +15

AA = -0.00604961 P = +0.02722330
 CC = -0.00248872 A = -0.01814886
 BB = +0.00403308 B = +0.01209924
 DD = +0.00179248 C = -0.00806616
 E = -0.00358496 D = +0.00337744

K = +5.00 N = +16

AA = +.01008270
CC = +.00448120

P = +.00907443
A = +.00604962
B = +.00403308
C = +.00268872
D = +.00179248
E = +.00119498

BB = +.00672180
DD = +.00298746

K = +5.00 N = +17

AA = -.00136090
CC = -.00149373

P = +.01312408
A = -.01008271
B = +.00672180
C = -.00448120
D = +.00298746
E = -.00119498

BB = +.00224060
DD = +.00099582

K = +5.00 N = +18

AA = +.00560150
CC = +.00248955

P = +.00504135
A = +.00336090
B = +.00224060
C = +.00149373
D = +.00099582
E = +.00066388

BB = -.00373433
DD = +.00163970

K = +5.00 N = +19

AA = -.00186716
CC = -.00082985

P = +.00840225
A = -.00560150
B = +.00373433
C = -.00248955
D = +.00163970
E = -.00110647

BB = +.00124477
DD = +.00055323

K = +5.00 N = +20

AA = +.00311194
CC = +.00138308

P = +.00280075
A = +.00186716
B = +.00124477
C = +.00082985
D = +.00055323
E = +.00036882

BB = +.00207463
DD = +.00002205

K = +5.00 N = +21

AA = -.00103731
CC = -.00046102

P = +.00466792
A = -.00311194
B = +.00207463
C = -.00158308
D = +.00092205
E = -.00061470

BB = +.00069154
DD = +.00030735

K = +5.00 N = +22

AA = +.00172885
CC = +.00076838

P = +.00155597
A = +.00103731
B = +.00069154
C = +.00046102
D = +.00030735
E = +.00020490

BB = +.00115257
DD = +.00051225

K = +5.00 N = +23

AA = -.00057628
CC = -.00025612

P = +.0025932
A = -.00172885
B = +.00115257
C = -.00076838
D = +.00051225
E = -.00034150

BB = +.00038419
DD = +.00017075

K = +5.00 N = +24

AA = +.00096047
CC = +.00042687

P = +.00086443
A = +.00057628
B = +.00038419
C = +.00025612
D = +.00017075
E = +.00011983

BB = +.00064031
DD = +.00028458

K = +5.00 N = +25

AA = -.00032015
CC = -.00014229

P = +.00144071
A = -.00096047
B = +.00064031
C = -.00042687
D = +.00028458
E = -.00018972

BB = +.00021343
DD = +.00009486

K = +5.00 N = +26

AA = +.00053359
CC = +.00023715

P = +.00048023
A = +.00032015
B = +.00021343
C = +.00014229
D = +.00009486
E = +.00006324

BB = +.00035573
DD = +.00015810

K = +5.00 N = +27

AA = -.00017786
CC = -.00007905

P = +.00086039
A = -.00053359
B = +.00035573
C = -.00023715
D = +.00015810
E = -.00010540

BB = +.00011897
DD = +.00005270

K = +5.00 N = +28

AA = +.0002964
CC = +.00013175

P = +.00026679
A = +.00017786
B = +.00011897
C = +.00007905
D = +.00005270
E = +.00003513

BB = +.00019762
DD = +.00008783

K = +5.00 N = +29

AA = -.00009881
CC = -.00004391

P = +.00044666
A = -.00029644
B = +.00019762
C = -.00013175
D = +.00008783
E = -.00005855

BB = +.00006587
DD = +.00002927

K = +5.00 N = +30

AA = +.00016469
CC = +.00007519

P = +.00014822
A = +.00009881
B = +.00006587
C = +.00004391
D = +.00002927
E = +.00001951

BB = +.00010979
DD = +.00004879

K = +5.50 N = +1

AA = -.3604918D P = +1.69230770
 CC = -.17278000 A = -1.1719976D BB = +.2495711D
 B = +.61110606
 C = -.56153496
 D = +.38875496
 E = -.26911805

K = +5.50 N = +2

AA = +.61006272 P = +.5207101D
 CC = +.29239692 A = +.56049161 BB = +.42235111
 B = +.24957111
 C = +.17278000
 D = +.11961692
 E = +.08281171

K = +5.50 N = +3

AA = -.18771159 P = +.88120165
 CC = -.08996828 A = -.61006268 BB = +.12495419
 B = +.42235109
 C = -.29239698
 D = +.20242862
 E = -.14014289

K = +5.50 N = +4

AA = +.51766579 P = +.27113898
 CC = +.152754D1 A = +.18771160 BB = +.21992247
 B = +.12995419
 C = +.08996828
 D = +.06228575
 E = +.04312089

K = +5.50 N = +5

AA = -.09774331 P = +.45885055
 CC = -.04684798 A = -.31766576 BB = +.06766845
 B = +.21992245
 C = -.15225400
 D = +.10540662
 E = -.07297361

K = +5.50 N = +6

AA = +.16541176 P = +.14116479
 CC = +.07428019 A = +.09774331 BB = +.11451583
 B = +.06766845
 C = +.04684798
 D = +.03243280
 E = +.02245348

K = +5.50 N = +7

AA = -.05089595 P = +.23892810
 CC = -.02439390 A = -.16541176 BB = +.03523564
 B = +.11451583
 C = -.07928019
 D = +.05488628
 E = -.03799819

K = +5.50 N = +8

AA = +.08613157 P = +.07351634
 CC = +.04126199 A = +.05089592 BB = +.05962954
 B = +.03523564
 C = +.02439390
 D = +.01888808
 E = +.01189175

K = +5.50 N = +9

AA = -.026502D1 P = +.12441226
 CC = -.01270215 A = -.08613156 BB = +.01834755
 B = +.05962954
 C = -.04126199
 D = +.02857984
 E = -.01978604

K = +5.50 N = +10

AA = +.09484957 P = +.03828069
 CC = +.02149594 A = +.02650202 BB = +.03104970
 B = +.01834755
 C = +.01270215
 D = +.00879379
 E = +.00608801

K = +5.50 N = +11

AA = -.01379987 P = +.06478274
 CC = -.00661414 A = -.04484959 BB = +.00955375
 B = +.03104971
 C = -.02149595
 D = +.01488181
 E = -.01090279

K = +5.50 N = +12

AA = +.02335363 P = +.01993315
 CC = +.01119316 A = +.01379987 BB = +.01616790
 B = +.00955375
 C = +.00661414
 D = +.00457902
 E = +.00317009

K = +5.50 N = +13

AA = -.00718575 P = +.03373302
 CC = -.00344405 A = -.02335363 BB = +.00497473
 B = +.01616789
 C = -.01119316
 D = -.00774911
 E = -.00536476

K = +5.50 N = +14

AA = +.01216047 P = +.01037939
 CC = +.00582839 A = +.00718573 BB = +.00841878
 B = +.00497473
 C = +.00344404
 D = +.00238454
 E = +.00165089

K = +5.50 N = +15

AA = -.00374168 P = +.01756312
 CC = -.00179335 A = -.01216047 BB = +.00259059
 B = +.00841878
 C = -.00582839
 D = +.00403503
 E = -.00279348

K = +5.50 N = +16

AA = +.00633207
CC = +.00393490
P = +.00540463
A = +.00574168
B = +.00239039
C = +.00179535
D = +.00124159
E = +.00085953
BB = +.00438374
DD = +.00210108

K = +5.50 N = +17

AA = -.00194833
CC = -.00093381
P = +.00914633
A = -.00633207
B = +.00438374
C = -.00303490
D = +.00210108
E = -.00145459
BB = +.00134884
DD = +.00064648

K = +5.50 N = +18

AA = +.00329717
CC = +.00158030
P = +.00281425
A = +.00194833
B = +.00134884
C = +.00093381
D = +.00064648
E = +.00044754
BB = +.00228266
DD = +.00109405

K = +5.50 N = +19

AA = -.00101451
CC = -.00048624
P = +.00476258
A = -.00329717
B = +.00228266
C = -.00158030
D = +.00109405
E = -.00075742
BB = +.00070235
DD = +.00035663

K = +5.50 N = +20

AA = +.00171607
CC = +.00082287
P = +.00146541
A = +.00101451
B = +.00070235
C = +.00048624
D = +.00035663
E = +.00025303
BB = +.00118860
DD = +.00056968

K = +5.50 N = +21

AA = -.00052828
CC = -.00025319
P = +.00247992
A = -.00171607
B = +.00118860
C = -.00082287
D = +.00056968
E = -.00039439
BB = +.00036572
DD = +.00017528

K = +5.50 N = +22

AA = +.00089399
CC = +.00042848
P = +.00076305
A = +.00032826
B = +.00036572
C = +.00025319
D = +.00017528
E = +.00012155
BB = +.00061893
DD = +.00029667

K = +5.50 N = +23

AA = -.00027507
CC = -.00013184
P = +.00129132
A = -.00089399
B = +.00061891
C = -.00042848
D = +.00029667
E = -.00020536
BB = +.00019043
DD = +.00009127

K = +5.50 N = +24

AA = +.00046551
CC = +.00022311
P = +.00039753
A = +.00027507
B = +.00019043
C = +.00013184
D = +.00009127
E = +.00005318
BB = +.00032227
DD = +.00015446

K = +5.50 N = +25

AA = -.00014323
CC = -.00006863
P = +.00067240
A = -.00046551
B = +.00032227
C = -.00022311
D = +.00015446
E = -.00010893
BB = +.00009916
DD = +.00004752

K = +5.50 N = +26

AA = +.00024259
CC = +.00011817
P = +.00020689
A = +.00014323
B = +.00009916
C = +.00006865
D = +.00004752
E = +.00002590
BB = +.00016781
DD = +.00008043

K = +5.50 N = +27

AA = -.00007498
CC = -.00003574
P = +.00035012
A = -.00024259
B = +.00016781
C = -.00011817
D = +.00008043
E = -.00005568
BB = +.00005163
DD = +.00002474

K = +5.50 N = +28

AA = +.00012621
CC = +.00006047
P = +.00010773
A = +.00007498
B = +.00005163
C = +.00003574
D = +.00002474
E = +.00001713
BB = +.00008738
DD = +.00004188

K = +5.50 N = +29

AA = -.00003883
CC = -.00001861
P = +.00018231
A = -.00012621
B = +.00008738
C = -.00006049
D = +.00004188
E = -.00002899
BB = +.00002688
DD = +.00001288

K = +5.50 N = +30

AA = +.00006572
CC = +.00005150
P = +.00005609
A = +.00003885
B = +.00002688
C = +.00001861
D = +.00001288
E = +.00000892
BB = +.00004550
DD = +.00002180

K = +6.00 N = +1				K = +6.00 N = +6				K = +6.00 N = +11			
AA = -0.34965450	P = +1.71428570			AA = +0.14388009	P = +0.11750206			AA = -0.00986195	P = +0.04632356		
CC = -0.17649705	A = -1.22446960	BB = +0.24989589		CC = +0.07940621	A = +0.06393005	BB = +0.10277149		CC = -0.00503160	A = -0.03451689	BB = +0.00704425	
	B = +0.87463356				B = +0.05995004				B = +0.02465487		
	C = -0.62475967	DD = +0.12749789			C = +0.04282145	DD = +0.05243443			C = -0.01761062	DD = +0.00359400	
	D = +0.44242424				D = +0.05056675				D = +0.01257901		
	E = -0.51874475				E = +0.02184766				E = -0.00896501		
K = +6.00 N = +2				K = +6.00 N = +7				K = +6.00 N = +12			
AA = +0.59975016	P = +0.46979596			AA = -0.04110660	P = +0.20145214			AA = +0.01690620	P = +0.01360673		
CC = +0.80599497	A = +0.34965426	BB = +0.42639297		CC = -0.02097377	A = -0.14388010	BB = +0.02956329		CC = +0.00662561	A = +0.00986195	BB = +0.01207565	
	B = +0.24989590				B = +0.10277150	DD = +0.01496126			B = +0.00704425	DD = +0.00616115	
	C = +0.17049707	DD = +0.21856765			C = -0.07940621				C = +0.00503160		
	D = +0.12749790				D = +0.05243443				D = +0.00359400		
	E = +0.09106993				E = -0.03745317				E = +0.00256714		
K = +6.00 N = +3				K = +6.00 N = +8				K = +6.00 N = +13			
AA = -0.17159717	P = +0.85965018			AA = +0.07047190	P = +0.05755205			AA = -0.00465056	P = +0.02364869		
CC = -0.06742715	A = -0.59975012	BB = +0.12239799		CC = +0.05595505	A = +0.04110861	BB = +0.05053707		CC = -0.00246446	A = -0.01690621	BB = +0.00345024	
	B = +0.42639295				B = +0.02956329	DD = +0.02566216			B = +0.01207566	DD = +0.00176033	
	C = +0.50599494	DD = +0.06244795			C = -0.02097378				C = -0.00662561		
	D = +0.21456783				D = +0.01496127				D = +0.00616115		
	E = -0.15611968				E = +0.01070090				E = -0.00440082		
K = +6.00 N = +4				K = +6.00 N = +9				K = +6.00 N = +14			
AA = +0.29375520	P = +0.23990008			AA = -0.02013482	P = +0.09664065			AA = +0.00829059	P = +0.00676246		
CC = +0.14967509	A = +0.17159720	BB = +0.20962514		CC = -0.01027267	A = -0.07047189	BB = +0.01456202		CC = +0.00422479	A = +0.00485034	BB = +0.00591470	
	B = +0.12239800				B = +0.05053706	DD = +0.00755776			B = +0.00545024	DD = +0.00301770	
	C = +0.08742714	DD = +0.10705364			C = -0.03595504				C = +0.00246446		
	D = +0.00244795				D = +0.02566217				D = +0.00176035		
	E = +0.04460566				E = -0.01454441				E = +0.00125757		
K = +6.00 N = +5				K = +6.00 N = +10				K = +6.00 N = +15			
AA = -0.08393005	P = +0.41125725			AA = +0.05451684	P = +0.02618675			AA = -0.00256566	P = +0.01159162		
CC = -0.04282146	A = -0.29375516	BB = +0.05995004		CC = +0.01761063	A = +0.02013482	BB = +0.02465469		CC = -0.00120708	A = -0.00628056	BB = +0.00166991	
	B = +0.20962519				B = +0.01458202	DD = +0.01257902			B = +0.00591470	DD = +0.00066220	
	C = -0.14967509	DD = +0.05056675			C = +0.01027267				C = -0.00422479		
	D = +0.10705365				D = -0.0755776				D = +0.00501770		
	E = -0.07644888				E = +0.00524126				E = -0.00215559		

K = +6.00 N = +16

AA = +.00405580	P = +.00331223	
	A = +.00236588	
	B = +.00168991	BB = +.00289700
CC = +.00206928	C = +.00120708	
	D = +.00086220	DD = +.00147806
	E = +.00061585	

K = +6.00 N = +17

AA = -.00115860	P = +.00567812	
	A = -.00405589	
	B = +.00289700	BB = +.00082771
CC = -.00059122	C = -.00206928	
	D = +.00147806	DD = +.00042230
	E = -.00105575	

K = +6.00 N = +18

AA = +.00198651	P = +.00162232	
	A = +.00115880	
	B = +.00082771	BB = +.00141894
CC = +.00101352	C = +.00059122	
	D = +.00042230	DD = +.00072394
	E = +.00030164	

K = +6.00 N = +19

AA = -.00056757	P = +.00278112	
	A = -.00198651	
	B = +.00141893	BB = +.00040541
CC = -.00028957	C = -.00101352	
	D = +.00072394	DD = +.00020684
	E = -.00051710	

K = +6.00 N = +20

AA = +.00097298	P = +.00079460	
	A = +.00056757	
	B = +.00040541	BB = +.00069499
CC = +.00049642	C = +.00028957	
	D = +.00020684	DD = +.00035458
	E = +.00014774	

K = +6.00 N = +21

AA = -.00027799	P = +.00138218	
	A = -.00077298	
	B = +.00069499	BB = +.00019856
CC = -.00014185	C = -.00049642	
	D = +.00035458	DD = +.00010131
	E = -.00025327	

K = +6.00 N = +22

AA = +.00047656	P = +.00038919	
	A = +.00027799	
	B = +.00019858	BB = +.00034040
CC = +.00024314	C = +.00014185	
	D = +.00010131	DD = +.00017367
	E = +.00007236	

K = +6.00 N = +23

AA = -.00019816	P = +.00046719	
	A = -.00047656	
	B = +.00034040	BB = +.00009725
CC = -.00006947	C = -.00024314	
	D = +.00017367	DD = +.00004962
	E = -.00012405	

K = +6.00 N = +24

AA = +.00023941	P = +.00019082	
	A = +.00013616	
	B = +.00009725	BB = +.00016672
CC = +.00011909	C = +.00006947	
	D = +.00004962	DD = +.00000506
	E = +.00003344	

K = +6.00 N = +25

AA = -.00006669	P = +.00032678	
	A = -.00023941	
	B = +.00016672	BB = +.00004763
CC = -.00003402	C = -.00011909	
	D = +.00000508	DD = +.00000243
	E = -.00000078	

K = +6.00 N = +26

AA = +.00011432	P = +.00009336	
	A = +.00006689	
	B = +.00004763	BB = +.00000816
CC = +.00005833	C = +.00003402	
	D = +.00002430	DD = +.00004164
	E = +.00001736	

K = +6.00 N = +27

AA = -.00003266	P = +.00016005	
	A = -.00011432	
	B = +.00008188	BB = +.00002333
CC = -.00001666	C = -.00005833	
	D = -.00004166	DD = +.00001190
	E = -.00002976	

K = +6.00 N = +28

AA = +.00005599	P = +.00004573	
	A = +.00003266	
	B = +.00002333	BB = +.00003999
CC = +.00002857	C = +.00001666	
	D = +.00001190	DD = +.00002040
	E = +.00000850	

K = +6.00 N = +29

AA = -.00001599	P = +.00007539	
	A = -.00005599	
	B = +.00003999	BB = +.00001142
CC = -.00000816	C = -.00002857	
	D = +.00002040	DD = +.00000583
	E = -.00001457	

K = +6.00 N = +30

AA = +.00002742	P = +.00002239	
	A = +.00001599	
	B = +.00001142	BB = +.00001959
CC = +.00001399	C = +.00000816	
	D = +.00000583	DD = +.00000099
	E = +.00000046	

K = +6.50 N = +1

AA = -.33894300
CC = -.18228674P = +1.73533330
A = -1.27111110
B = +.93214812
C = -.6835728
D = +.50128654
E = -.36761158BB = +.24857284
DD = +.13367696

K = +6.50 N = +2

AA = +.387135 2
CC = +.31596370P = +.46222224
A = +.33896297
B = +.24857285
C = +.18228675
D = +.13367695
E = +.09802976BB = +.43085960
DD = +.23170671

K = +6.50 N = +3

AA = -.19867820
CC = -.08425697P = +.80118512
A = -.58733575
B = +.43085955
C = -.31596366
D = +.23170669
E = -.16991823BB = +.11489989
DD = +.06178846

K = +6.50 N = +4

AA = -.27157210
CC = +.14604543P = +.21364938
A = +.19667621
B = +.13489589
C = +.08425698
D = -.06178845
E = +.04531153BB = +.19915287
DD = +.10709998

K = +6.50 N = +5

AA = -.07241922
CC = -.03894545P = +.37032557
A = -.27157206
B = +.19915286
C = -.14604543
D = +.10709998
E = -.07853998BB = +.09310743
DD = +.02856000

K = +6.50 N = +6

AA = +.12552445
CC = +.06790544P = +.09875349
A = +.07241922
B = +.05310743
C = +.03894545
D = +.02855999
E = +.02094399BB = +.09205268
DD = +.04950399

K = +6.50 N = +7

AA = -.05347378
CC = -.01800145P = +.17117272
A = -.12557666
B = +.09205286
C = -.06790544
D = +.04950399
E = -.03630292BB = +.02454743
DD = +.01320106

K = +6.50 N = +8

AA = +.09802123
CC = +.03120252P = +.04564607
A = +.03347378
B = +.02454744
C = +.01800145
D = +.01320107
E = +.00968078BB = -.04294890
DD = +.02288165

K = +6.50 N = +9

AA = -.01547232
CC = -.00832067P = +.07911984
A = -.05602122
B = +.04294889
C = -.03120252
D = +.02288185
E = -.01678002BB = +.01134637
DD = +.00610182

K = +6.50 N = +10

AA = +.02681869
CC = +.0144224P = +.02109862
A = +.01547232
B = +.01134636
C = +.00832067
D = +.00610182
E = +.00447467BB = +.01966703
DD = +.01057649

K = +6.50 N = +11

AA = -.00715165
CC = -.00384800P = +.03657095
A = -.02681869
B = +.01966704
C = -.01442250
D = +.01057650
E = -.00775609BB = +.00524454
DD = +.00282040

K = +6.50 N = +12

AA = +.01239619
CC = +.00666639P = +.00975225
A = +.00715165
B = +.00524454
C = +.00384899
D = +.00282039
E = +.00206829BB = +.00909054
DD = +.00488864

K = +6.50 N = +13

AA = -.00130565
CC = -.00177770P = +.01690391
A = -.01239620
B = +.00909054
C = -.00666640
D = +.00488864
E = -.00398504BB = +.00242414
DD = +.00130365

K = +6.50 N = +14

AA = +.00972980
CC = +.00108135P = +.00450771
A = +.00330565
B = +.00242414
C = +.00177770
D = +.00130365
E = +.00095601BB = +.00420185
DD = +.00225966

K = +6.50 N = +15

AA = -.00152794
CC = -.00082169P = +.00781334
A = -.00572979
B = +.00420185
C = -.00308135
D = +.00225966
E = -.00165708BB = +.00112049
DD = +.00060257

K = +6.50 N = +16

AA = +.00264843
CC = +.00142427
P = +.00208356
A = +.00152794
B = +.00112049
C = +.00082169
D = +.00060257
E = +.00044188
BB = +.00194218
DD = +.00104446

K = +6.50 N = +17

AA = -.00070525
CC = -.00037980
P = +.00361150
A = -.00264843
B = +.00194218
C = -.00142427
D = +.00104446
E = -.00074694
BB = +.00051791
DD = +.00027852

K = +6.50 N = +18

AA = +.00122416
CC = +.00065833
P = +.00096306
A = +.00070625
B = +.00051791
C = +.00037980
D = +.00027852
E = +.00020423
BB = +.00089772
DD = +.00048277

K = +6.50 N = +19

AA = -.00032644
CC = -.00017555
P = +.00166931
A = -.00122416
B = +.00089772
C = -.00065833
D = +.00048277
E = -.00035403
BB = +.00023959
DD = +.00012874

K = +6.50 N = +20

AA = +.00056583
CC = +.00030429
P = +.00044515
A = +.00032644
B = +.00023959
C = +.00017555
D = +.00012874
E = +.00009440
BB = -.00041494
DD = -.00022314

K = +6.50 N = +21

AA = -.00015088
CC = -.00008114
P = +.00077159
A = -.00056583
B = +.00041494
C = -.00030429
D = +.00022314
E = -.00016364
BB = +.00011065
DD = +.00005950

K = +6.50 N = +22

AA = +.00026154
CC = +.00014065
P = +.00020575
A = +.00015088
B = +.00011065
C = +.00008114
D = +.00005950
E = +.00004363
BB = +.00019179
DD = +.00010314

K = +6.50 N = +23

AA = -.00006974
CC = -.00003750
P = +.00035664
A = -.00026154
B = +.00019179
C = -.00014065
D = +.00010314
E = -.00007563
BB = +.00005114
DD = -.00002750

K = +6.50 N = +24

AA = +.00012089
CC = +.00006501
P = +.00009510
A = -.00006974
B = +.00005114
C = +.00003750
D = +.00002750
E = +.00002017
BB = +.00008165
DD = +.00004767

K = +6.50 N = +25

AA = -.00003223
CC = +.00001733
P = +.00016485
A = -.00012089
B = +.00008165
C = -.00006501
D = +.00004767
E = -.00003496
BB = +.00002364
DD = +.00001271

K = +6.50 N = +26

AA = +.00005587
CC = +.00003005
P = +.00004395
A = +.00003223
B = +.00002364
C = +.00001733
D = +.00001271
E = +.00000932
BB = +.00004097
DD = +.00002203

K = +6.50 N = +27

AA = -.00001490
CC = -.00000801
P = +.00007619
A = -.00005587
B = +.00004097
C = -.00003005
D = +.00002203
E = -.00001616
BB = +.00001892
DD = +.00000587

K = +6.50 N = +28

AA = +.00002582
CC = +.00001388
P = +.00002031
A = +.00001490
B = +.00001092
C = +.00000801
D = +.00000587
E = +.00000430
BB = +.00001894
DD = +.00001018

K = +6.50 N = +29

AA = -.00000688
CC = -.00000370
P = +.00003522
A = -.00002582
B = +.00001894
C = -.00001388
D = +.00001018
E = -.00000746
BB = +.00000505
DD = +.00000271

K = +6.50 N = +30

AA = +.00001193
CC = -.00000642
P = +.00000939
A = +.00000688
B = +.00000505
C = +.00000370
D = +.00000271
E = +.00000199
BB = +.00000075
DD = +.00000040

K = +7.00 N = +1

AA = -0.52812500
CC = -0.18457031P = +1.75000000
A = -1.31250000
B = +0.98437500
C = -0.73828125
O = +0.55371094
E = -0.41528321BB = +0.24609375
DD = +0.13842775

K = +7.00 N = +2

AA = +0.57421882
CC = +0.22299808P = +0.43750005
A = +0.32812504
B = +0.24609378
C = +0.18457033
O = +0.13842775
E = +0.10382081BB = +0.43066411
DD = +0.24224856

K = +7.00 N = +3

AA = -0.14355470
CC = -0.08074952P = +0.76562505
A = -0.57421879
B = +0.43066409
C = -0.32299807
O = +0.24224855
E = -0.18168642BB = +0.10766602
DD = +0.06056215

K = +7.00 N = +4

AA = +0.25122074
CC = +0.14131166P = +0.19140628
A = +0.14355471
B = +0.10766603
C = +0.08074952
O = +0.06056214
E = +0.04542160BB = +0.18841553
DD = +0.10598375

K = +7.00 N = +5

AA = -0.06280519
CC = -0.03532792P = +0.33496101
A = -0.25122076
B = +0.18841557
C = -0.14131168
O = +0.10598376
E = -0.07948781BB = +0.04710369
DD = +0.02649595

K = +7.00 N = +6

AA = +0.10990908
CC = +0.06182385P = +0.08574025
A = +0.06280518
B = +0.04710369
C = +0.03552791
O = +0.02649595
E = +0.01987195BB = +0.08243181
DD = +0.04616789

K = +7.00 N = +7

AA = -0.02747728
CC = -0.01545596P = +0.14654545
A = -0.10990909
B = +0.08243181
C = -0.04618238
D = +0.04636789
E = -0.03477592BB = +0.02060795
DD = +0.01159197

K = +7.00 N = +8

AA = +0.04808524
CC = +0.02704794P = +0.05663637
A = +0.02747728
B = +0.02060796
C = +0.01545597
O = +0.01159197
E = +0.00869398BB = +0.03606593
DD = +0.02028596

K = +7.00 N = +9

AA = -0.01202130
CC = -0.00676198P = +0.04411361
A = -0.04808521
B = +0.05666590
C = -0.02704793
D = +0.02028594
E = -0.01521446BB = +0.00901597
DD = +0.00507148

K = +7.00 N = +10

AA = +0.02103728
CC = +0.01185347P = +0.01602841
A = +0.01202130
B = +0.00901598
C = +0.00676198
O = +0.00507148
E = +0.00388361BB = +0.01577796
DD = +0.00875110

K = +7.00 N = +11

AA = -0.00525932
CC = -0.00295837P = +0.02804973
A = -0.02103730
B = +0.01577797
C = -0.01185354
O = +0.00875111
E = -0.00665633BB = +0.00394449
DD = +0.00221877

K = +7.00 N = +12

AA = +0.00920381
CC = +0.00417714P = +0.00701242
A = +0.00525932
B = +0.00394449
C = +0.00295836
O = +0.00221877
E = +0.00166440BB = +0.00690286
DD = +0.00388285

K = +7.00 N = +13

AA = -0.00230095
CC = -0.00129428P = +0.01227175
A = -0.00920381
B = +0.00690286
C = -0.00517714
O = +0.00388285
E = -0.00291216BB = +0.00172571
DD = +0.00097071

K = +7.00 N = +14

AA = +0.00402667
CC = +0.00226500P = +0.00306793
A = +0.00230095
B = +0.00172571
C = +0.00129428
O = +0.00097071
E = +0.00072803BB = +0.00302000
DD = +0.00169875

K = +7.00 N = +15

AA = -0.00100646
CC = -0.00056625P = +0.00536889
A = -0.00402666
B = +0.00302000
C = -0.00226500
O = +0.00169875
E = -0.00127406BB = +0.00075500
DD = +0.00042468

K = +7.00 N = +16

AA = +.00176166
CC = +.00099093

P = +.00134272
A = +.00100666
B = +.00075900
C = +.00036625
D = +.00042468
E = +.00031851

BB = +.00137125
DD = +.00074320

K = +7.00 N = +17

AA = -.00044041
CC = -.00024773

P = +.00234889
A = -.00176166
B = +.00132125
C = -.00099093
D = +.00074320
E = -.00055740

BB = +.00033031
DD = +.00018580

K = +7.00 N = +18

AA = +.00077073
CC = +.00043343

P = +.00058722
A = +.00044041
B = +.00033031
C = +.00024773
D = +.00018580
E = +.00013935

BB = +.00057804
DD = +.00012515

K = +7.00 N = +19

AA = -.00019268
CC = -.00010838

P = +.00102763
A = -.00071072
B = +.00057804
C = -.00044041
D = +.00032515
E = -.00024384

BB = +.00014451
DD = +.00008128

K = +7.00 N = +20

AA = +.00033719
CC = +.00018967

P = +.00025690
A = +.00019268
B = +.00014451
C = +.00010838
D = +.00008128
E = +.00006096

BB = +.00025289
DD = +.00014225

K = +7.00 N = +21

AA = -.00008429
CC = -.00004741

P = +.00044959
A = -.00033719
B = +.00025289
C = -.00018967
D = +.00014225
E = -.00010666

BB = -.00006322
DD = +.00003956

K = +7.00 N = +22

AA = +.00014752
CC = +.00008298

P = +.00011239
A = -.00008429
B = +.00006322
C = -.00004741
D = +.00003956
E = +.00002667

BB = -.00011064
DD = +.00006223

K = +7.00 N = +23

AA = -.00003688
CC = -.00002074

P = +.00019669
A = -.00014752
B = +.00011064
C = -.00008298
D = +.00006223
E = -.00004667

BB = +.00002766
DD = +.00001555

K = +7.00 N = +24

AA = +.00004654
CC = +.00003630

P = +.00004917
A = +.00003688
B = +.00002766
C = +.00002074
D = +.00001555
E = +.00001166

BB = +.00004840
DD = +.00002722

K = +7.00 N = +25

AA = -.00001613
CC = -.00000907

P = +.00008609
A = -.00006454
B = +.00004840
C = -.00003630
D = +.00002722
E = -.00002042

BB = +.00001210
DD = +.00000880

K = +7.00 N = +26

AA = +.00002823
CC = +.00001588

P = +.00002151
A = +.00001613
B = +.00001210
C = +.00000907
D = +.00000680
E = +.00000510

BB = +.00002117
DD = +.00001191

K = +7.00 N = +27

AA = -.00000705
CC = -.00000397

P = +.00003764
A = -.00002823
B = +.00002117
C = -.00001588
D = +.00001191
E = -.00000893

BB = +.00000529
DD = +.00000297

K = +7.00 N = +28

AA = +.00001235
CC = +.00000694

P = +.00000941
A = +.00000705
B = +.00000529
C = +.00000397
D = +.00000297
E = +.00000223

BB = +.00000926
DD = +.00000521

K = +7.00 N = +29

AA = -.00000308
CC = -.00000173

P = -.00001647
A = -.00001235
B = +.00000926
C = -.00000694
D = +.00000521
E = -.00000390

BB = +.00000231
DD = +.00000130

K = +7.00 N = +30

AA = +.00000540
CC = +.00000304

P = +.00000411
A = +.00000308
B = +.00000231
C = +.00000173
D = +.00000130
E = +.00000097

BB = +.00000405
DD = +.00000228

K = +7.50 N = +1

AA = -0.91752490
CC = -0.18548087D = +1.76470560
A = -1.34948090
B = +1.03195600
C = +.78914280
D = +.60346213
E = -.46147104BB = +.24281320
DD = +.14199109

K = +7.50 N = +2

AA = -0.96033808
CC = -0.32767175P = +.41522489
A = +.31732491
B = +.24281317
C = +.18548086
D = +.14199109
E = +.10858142BB = +.44284978
DD = +.25097251

K = +7.50 N = +3

AA = -0.13184425
CC = -0.07704923P = +.73274975
A = -.56093804
B = -.42849379
C = -.32767172
D = -.25097249
E = -.19161426BB = +.10082287
DD = +.05895823

K = +7.50 N = +4

AA = +.23266632
CC = +.13605746P = +.17241171
A = +.13184425
B = +.10082287
C = +.07704923
D = +.05895823
E = +.04506570BB = +.17792150
DD = +.10404394

K = +7.50 N = +5

AA = -0.09474501
CC = -0.03201352D = +.30425595
A = -.23266631
B = +.17792150
C = -.13605746
D = +.10404394
E = -.07956301BB = +.04186384
DD = +.02448093

K = +7.50 N = +6

AA = +.09660884
CC = +.03649444P = +.07158963
A = +.05474501
B = +.04186383
C = +.03201351
D = +.02448092
E = +.01872070BB = +.07387735
DD = +.04320163

K = +7.50 N = +7

AA = -0.02273149
CC = -0.01329281P = +.12659466
A = -.09660884
B = +.07387734
C = -.05649444
D = +.04320163
E = -.03203654BB = +.01798290
DD = +.01016909

K = +7.50 N = +8

AA = +.04011439
CC = +.02945790P = +.02912579
A = +.02273149
B = +.01798290
C = +.01329281
D = +.01016509
E = +.00777330BB = +.03067571
DD = +.01793839

K = +7.50 N = +9

AA = -0.08945868
CC = +.00551950P = +.05245728
A = -.04011439
B = -.03067571
C = -.02945789
D = +.01793839
E = -.01371759BB = +.00721781
DD = +.00422079

K = +7.50 N = +10

AA = +.01665649
CC = +.00974030P = +.01234289
A = +.00945868
B = +.00721781
C = +.00551950
D = +.00422079
E = +.00322766BB = -.01273792
DD = +.00744846

K = +7.50 N = +11

AA = -.00391917
CC = -.00229183P = +.002178157
A = -.01665649
B = +.01273791
C = -.00974030
D = +.00744846
E = -.00569988BB = +.00299701
DD = +.00175248

K = +7.50 N = +12

AA = +.00691619
CC = +.00404441P = +.00512507
A = +.00391917
B = +.00299701
C = +.00229183
D = +.00175258
E = +.00134020BB = +.00528885
DD = +.00389278

K = +7.50 N = +13

AA = -.00162733
CC = -.00093162P = +.00984425
A = -.00691619
B = +.00528885
C = -.00404441
D = +.00389278
E = -.00296507BB = -.00124443
DD = +.00072771

K = +7.50 N = +14

AA = +.00287177
CC = +.00167934P = +.00212885
A = +.00162733
B = +.00124443
C = +.00093162
D = +.00072771
E = +.00053648BB = -.00219608
DD = +.00128420

K = +7.50 N = +15

AA = -.00067571
CC = -.00039513P = +.00375539
A = -.00287177
B = +.00219606
C = -.00167934
D = -.00128420
E = -.00098203BB = +.00051472
DD = +.00030216

K = +7.50 N = +16

AA = +.00119243 P = +.00088362
 A = +.00067571 B = +.00051872 BB = +.00091186
 CC = +.00069730 C = +.00039513 D = +.00030216 DD = +.00033323
 E = +.00023106

K = +7.50 N = +17

AA = -.00028057 P = +.00155933
 A = -.00119243 B = +.00091186 BB = +.00021495
 CC = -.00016407 C = -.0006730 D = +.00053323 DD = +.00012346
 E = -.00040776

K = +7.50 N = +18

AA = +.00049512 P = +.00036690
 A = +.00028057 B = +.00021455 BB = +.00057862
 CC = +.00028953 C = +.00016407 D = +.00012346 DD = +.00022141
 E = +.00009594

K = +7.50 N = +19

AA = -.00011650 P = +.00064747
 A = -.00049512 B = +.00037862 BB = +.00008908
 CC = -.00006812 C = -.00028953 D = +.00022141 DD = +.00005209
 E = -.00016931

K = +7.50 N = +20

AA = +.00020556 P = +.00015234
 A = +.00011650 B = +.00008908 BB = +.00015721
 CC = +.00012022 C = +.00006812 D = +.00005209 DD = +.00009193
 E = +.00003983

K = +7.50 N = +21

AA = -.00004837 P = +.00026884
 A = -.00020556 B = +.00015721 BB = +.00003699
 CC = -.00002826 C = -.00012022 D = +.00009193 DD = +.00002163
 E = -.00007030

K = +7.50 N = +22

AA = +.00008536 P = +.00006325
 A = +.00004837 B = +.00003699 BB = +.00006527
 CC = +.00004991 C = +.00002826 D = +.00002163 DD = +.00003817
 E = +.00001654

K = +7.50 N = +23

AA = -.00002008 P = +.00011163
 A = -.00008536 B = +.00006527 BB = +.00001595
 CC = -.00001174 C = -.00004991 D = +.00003817 DD = +.00000898
 E = -.0000291

K = +7.50 N = +24

AA = +.00003544 P = +.00002626
 A = +.00002008 B = +.00001595 BB = +.00002710
 CC = +.00002072 C = +.00001174 D = +.00000898 DD = +.00001585
 E = +.00000686

K = +7.50 N = +25

AA = -.00000834 P = +.00004635
 A = -.00003544 B = +.00002710 BB = +.00000637
 CC = -.00000487 C = -.00002072 D = +.00001585 DD = +.00000372
 E = -.00001212

K = +7.50 N = +26

AA = -.00001471 P = +.00001090
 A = -.00000834 B = +.00000637 BB = +.00001125
 CC = +.00000860 C = +.00000487 D = +.00000372 DD = +.00000658
 E = +.00000285

K = +7.50 N = +27

AA = -.00000346 P = +.00001924
 A = -.00001471 B = +.00001125 BB = +.00000264
 CC = -.00000202 C = -.00000860 D = +.00000658 DD = +.00000154
 E = -.00000503

K = +7.50 N = +28

AA = +.00000611 P = +.00000452
 A = +.00000346 B = +.00000264 BB = +.00000467
 CC = +.00000357 C = +.00000202 D = +.00000154 DD = +.00000273
 E = +.00000118

K = +7.50 N = +29

AA = -.00000143 P = +.00000799
 A = -.00000611 B = +.00000467 BB = +.00000109
 CC = -.00000084 C = -.00000357 D = +.00000273 DD = +.00000064
 E = -.00000208

K = +7.50 N = +30

AA = +.00000293 P = +.00000168
 A = +.00000143 B = +.00000109 BB = +.00000194
 CC = +.00000148 C = +.00000084 D = +.00000064 DD = +.00000113
 E = +.00000049

K = +8.00 N = +1

AA = -0.30727020
CC = -0.18987950

P = +1.77777760
A = -1.38271590
B = +1.07544570
C = -0.83645775
D = +0.65057825
E = -0.50800530

BB = +0.23098800
DD = +0.14497295

K = +8.00 N = +2

AA = +0.54625817
CC = +0.33045246

P = +0.39506172
A = +0.30727022
B = +0.23898795
C = +0.18987951
D = +0.14457295
E = +0.11244563

BB = +0.42486746
DD = +0.25761898

K = +8.00 N = +3

AA = -0.12139070
CC = -0.07943388

P = +0.70233190
A = -0.54625814
B = +0.42486744
C = -0.33045245
D = +0.25761897
E = -0.19990331

BB = -0.09441499
DD = -0.05711524

K = +8.00 N = +4

AA = +0.21580560
CC = +0.13054911

P = +0.15807376
A = +0.12139070
B = +0.09441498
C = +0.07943387
D = +0.05711523
E = +0.04442294

BB = +0.16784886
DD = +0.10153820

K = +8.00 N = +5

AA = -0.04795682
CC = -0.02901091

P = +0.27746445
A = -0.21580568
B = +0.16784886
C = -0.13054911
D = +0.10153820
E = -0.07897415

BB = +0.03729975
DD = +0.02256405

K = +8.00 N = +6

AA = +0.08525656
CC = +0.05157495

P = +0.06165876
A = +0.04795681
B = +0.03729974
C = +0.02901091
D = +0.02256404
E = +0.01754981

BB = +0.06631065
DD = +0.04011385

K = +8.00 N = +7

AA = -0.01894589
CC = -0.01146109

P = +0.10961555
A = -0.08525653
B = +0.06631064
C = -0.05157494
D = +0.04011384
E = -0.03118945

BB = +0.01473589
DD = +0.00891418

K = +8.00 N = +8

AA = +0.03368161
CC = +0.02037929

P = +0.02435982
A = +0.01894590
B = +0.01473570
C = +0.01146110
D = +0.00891419
E = +0.00693326

BB = +0.02619680
DD = +0.01584745

K = +8.00 N = +9

AA = -0.00748480
CC = -0.00452784

P = +0.04330491
A = -0.03368160
B = +0.02619680
C = -0.02037929
D = +0.01584744
E = -0.01232579

BB = +0.00582191
DD = +0.00352165

K = +8.00 N = +10

AA = +0.01350631
CC = +0.00804950

P = +0.00962331
A = +0.00748480
B = +0.00582151
C = +0.00452784
D = +0.00352165
E = +0.00273906

BB = +0.01044935
DD = +0.00626072

K = +8.00 N = +11

AA = -0.00295695
CC = -0.00178877

P = +0.01710612
A = -0.01350631
B = +0.01044935
C = -0.00804949
D = +0.00626072
E = -0.00486945

BB = +0.00229985
DD = +0.00159127

K = +8.00 N = +12

AA = +0.00525881
CC = +0.00318004

P = +0.00380100
A = +0.00295695
B = +0.00229985
C = +0.00178877
D = +0.00159127
E = +0.00108209

BB = +0.00408863
DD = +0.00247337

K = +8.00 N = +13

AA = -0.00116818
CC = -0.00070667

P = +0.00675876
A = -0.00525881
B = +0.00408863
C = -0.00318005
D = +0.00247337
E = -0.00192171

BB = +0.00090858
DD = +0.00054963

K = +8.00 N = +14

AA = +0.00207676
CC = +0.00125631

P = +0.00150194
A = +0.00116818
B = +0.00090858
C = +0.00070667
D = +0.00054963
E = +0.00042749

BB = +0.00161526
DD = +0.00097713

K = +8.00 N = +15

AA = -0.00046150
CC = -0.00027918

P = +0.00267012
A = -0.00207676
B = +0.00161526
C = -0.00125631
D = +0.00097713
E = -0.00075999

BB = +0.00035894
DD = +0.00021714

K = +8.00 N = +16

AA = +.00082045
CC = +.00049632
P = +.00059336
A = +.00046150
B = +.00035894
C = +.00027918
D = +.00021714
E = +.00016888
BB = +.00063812
DD = +.00038802

K = +8.00 N = +17

AA = -.00018232
CC = -.00011029
P = +.00109486
A = -.00062045
B = +.00063812
C = -.00049632
D = +.00038802
E = -.00030024
BB = +.00014180
DD = +.00008578

K = +8.00 N = +18

AA = +.00032412
CC = +.00019607
P = +.00023441
A = +.00018232
B = +.00014180
C = +.00011029
D = +.00008578
E = +.00006872
BB = +.00029210
DD = +.00019240

K = +8.00 N = +19

AA = -.00007202
CC = -.00004587
P = +.00041673
A = -.00032412
B = +.00025209
C = -.00019607
D = +.00015250
E = -.00011861
BB = +.00005602
DD = +.00003388

K = +8.00 N = +20

AA = +.00012835
CC = +.00007746
P = +.00009260
A = +.00007202
B = +.00005602
C = +.00004587
D = +.00003388
E = +.00002635
BB = +.00009959
DD = +.00006024

K = +8.00 N = +21

AA = -.00002845
CC = -.00001721
P = +.00016463
A = -.00012805
B = +.00009959
C = -.00007746
D = +.00006024
E = -.00004686
BB = +.00002213
DD = +.00001338

K = +8.00 N = +22

AA = +.00005098
CC = +.00003060
P = +.00003658
A = +.00002845
B = +.00002213
C = +.00001721
D = +.00001358
E = +.00001041
BB = +.00003934
DD = +.00002380

K = +8.00 N = +23

AA = -.00001124
CC = -.00000660
P = +.00006504
A = -.00005058
B = +.00003934
C = -.00003060
D = +.00002380
E = -.00001851
BB = +.00000874
DD = +.00000528

K = +8.00 N = +24

AA = +.00001998
CC = +.00001208
P = +.00001445
A = +.00001124
B = +.00000874
C = +.00000680
D = +.00000528
E = +.00000411
BB = +.00001554
DD = +.00000940

K = +8.00 N = +25

AA = -.00000444
CC = -.00000268
P = +.00002569
A = -.00001998
B = +.00001554
C = -.00001208
D = +.00000940
E = -.00000731
BB = +.00000345
DD = +.00000208

K = +8.00 N = +26

AA = +.00000789
CC = +.00000477
P = +.00000971
A = +.00000444
B = +.00000345
C = +.00000268
D = +.00000208
E = +.00000162
BB = +.00000614
DD = +.00000371

K = +8.00 N = +27

AA = -.00000175
CC = -.00000106
P = +.00001015
A = -.00000789
B = +.00000614
C = -.00000477
D = +.00000371
E = -.00000288
BB = +.00000136
DD = +.00000082

K = +8.00 N = +28

AA = +.00000311
CC = +.00000188
P = +.00000225
A = +.00000175
B = +.00000136
C = +.00000106
D = +.00000082
E = +.00000064
BB = +.00000242
DD = +.00000146

K = +8.00 N = +29

AA = -.00000869
CC = -.00000041
P = +.00000401
A = -.00000311
B = +.00000242
C = -.00000188
D = +.00000146
E = -.00000114
BB = +.00000053
DD = +.00000032

K = +8.00 N = +30

AA = +.000000123
CC = +.000000074
P = +.00000089
A = +.00000069
B = +.00000053
C = +.00000041
D = +.00000032
E = +.00000025
BB = +.00000095
DD = +.00000057

K = +8.50 N = +1

AA = -.29741940
CC = -.18537223

P = +1.78947360
A = -1.41274230
B = +1.11532290
C = -.88051805
D = +.69514582
E = -.54879952

BB = +.23480490
DD = +.14654650

K = +8.50 N = +2

AA = +.55222427
CC = +.33171872

P = +.37673130
A = +.29741945
B = +.23480482
C = +.18537223
D = +.14654644
E = +.11553670

BB = +.42017705
DD = +.26188319

K = +8.50 N = +3

AA = -.11204722
CC = -.06983553

P = +.67419075
A = -.53222427
B = +.42017705
C = -.33171873
D = +.26188320
E = -.20674989

BB = +.08845832
DD = +.05513331

K = +8.50 N = +4

AA = +.20050531
CC = +.12496881

P = +.14192646
A = +.11204720
B = +.08845831
C = -.06983551
D = +.05513330
E = +.04752628

BB = +.15829383
DD = +.09865958

K = +8.50 N = +5

AA = -.04221389
CC = -.02650923

P = +.25397307
A = -.20050553
B = +.15829384
C = -.12496882
D = +.09865959
E = -.07788915

BB = +.03352502
DD = +.02077044

K = +8.50 N = +6

AA = +.07553671
CC = +.04707966

P = +.05346814
A = +.04221169
B = +.03332501
C = +.02650922
D = +.02077044
E = +.01639771

BB = +.05963424
DD = +.03716815

K = +8.50 N = +7

AA = -.01590246
CC = -.00991151

P = +.09567984
A = -.07553672
B = +.05963425
C = -.04707967
D = +.03716816
E = -.02934328

BB = +.01255458
DD = +.00782487

K = +8.50 N = +8

AA = +.02845703
CC = +.01773637

P = +.02014311
A = +.01590244
B = +.01255457
C = +.00991150
D = +.00782487
E = +.00617753

BB = +.02246608
DD = +.01400240

K = +8.50 N = +9

AA = -.00599096
CC = -.00373397

P = +.03604561
A = -.02845704
B = +.02246610
C = -.01773639
D = +.01400242
E = -.01105454

BB = +.00472970
DD = +.00294787

K = +8.50 N = +10

AA = +.01072066
CC = +.00668185

P = +.00758854
A = +.00599099
B = +.00472970
C = +.00373397
D = +.00294787
E = +.00232727

BB = +.00846368
DD = +.00527514

K = +8.50 N = +11

AA = -.00225698
CC = -.00140670

P = +.01557949
A = -.01072065
B = +.00846367
C = -.00668184
D = +.00527514
E = -.00416458

BB = +.00178182
DD = +.00111055

K = +8.50 N = +12

AA = +.00403880
CC = +.00251726

P = +.00285884
A = +.00225698
B = +.00178182
C = +.00140670
D = +.00111055
E = +.00087675

BB = +.00318853
DD = +.00198731

K = +8.50 N = +13

AA = -.00085027
CC = -.00052995

P = +.00511582
A = -.00403880
B = +.00318853
C = -.00251726
D = +.00198731
E = -.00156893

BB = +.00067124
DD = +.00041838

K = +8.50 N = +14

AA = +.00152154
CC = +.00094833

P = +.00107701
A = +.00085027
B = +.00067127
C = +.00052995
D = +.00041838
E = +.00035030

BB = +.00120122
DD = +.00074868

K = +8.50 N = +15

AA = -.00032032
CC = -.00019984

P = +.00192729
A = -.00152154
B = +.00120122
C = -.00094833
D = +.00074868
E = -.00059106

BB = +.00025288
DD = +.00015761

K = +8.50 N = +16

AA = +.00057321
CC = +.00095726
P = +.00040574
A = +.00032032
B = +.00025289
C = +.00019964
D = +.00015761
E = +.00012443
BB = +.00045253
DD = +.00028205

K = +8.50 N = +17

AA = -.00012067
CC = -.00007521
P = +C00072607
A = -.00057321
B = +.00045253
C = -.00035724
D = +.00028205
E = -.00022267
BB = +.00009527
DD = +.00005937

K = +8.50 N = +18

AA = +.00021994
CC = +.00013459
P = +.00015285
A = +.00012067
B = +.00009527
C = +.00007521
D = +.00005937
E = +.00004697
BB = +.00017048
DD = +.00010625

K = +8.50 N = +19

AA = -.00004546
CC = -.00002833
P = +.00027353
A = -.00021994
B = +.00017048
C = -.00013459
D = +.00010625
E = -.00008388
BB = +.00003589
DD = +.00002237

K = +8.50 N = +20

AA = +.00008135
CC = +.00005070
P = +.00005758
A = +.00004546
B = +.00003589
C = +.00002833
D = +.00002237
E = +.00001766
BB = +.00004422
DD = +.00004003

K = +8.50 N = +21

AA = -.00001712
CC = -.00001067
P = +.000010504
A = -.00008135
B = +.00006422
C = -.00005070
D = +.00004003
E = -.00003160
BB = +.00001352
DD = +.00000842

K = +8.50 N = +22

AA = +.00003064
CC = +.00001910
P = +.00002169
A = +.00001712
B = +.00001352
C = +.00001067
D = +.00000842
E = +.00000663
BB = +.00002419
DD = +.00001508

K = +8.50 N = +23

AA = -.00000645
CC = -.00000402
P = +.00003882
A = -.00003064
B = +.00002419
C = -.00001910
D = +.00001508
E = -.00001190
BB = +.00000569
DD = +.00000317

K = +8.50 N = +24

AA = +.00001154
CC = +.00000719
P = +.00000817
A = +.00000645
B = +.00000509
C = +.00000402
D = +.00000317
E = +.00000250
BB = +.00000431
DD = +.00000368

K = +8.50 N = +25

AA = -.00000743
CC = -.00000151
P = +.00001462
A = -.00001154
B = +.00000911
C = -.00000719
D = +.00000568
E = -.00000448
BB = +.00000191
DD = +.00000119

K = +8.50 N = +26

AA = +.00000434
CC = -.00000271
P = +.00000307
A = +.00000243
B = +.00000191
C = +.00000151
D = +.00000119
E = +.00000094
BB = +.00000343
DD = +.00000214

K = +8.50 N = +27

AA = -.00000091
CC = -.00000057
P = +.00000550
A = -.00000434
B = +.00000343
C = -.00000271
D = +.00000214
E = -.00000168
BB = +.00000072
DD = +.00000045

K = +8.50 N = +28

AA = +.000000163
CC = +.000000102
P = +.000000115
A = +.000000091
B = +.000000072
C = +.000000057
D = +.000000045
E = +.000000035
BB = +.000000129
DD = +.000000080

K = +8.50 N = +29

AA = -.000000034
CC = -.000000021
P = +.000000207
A = -.000000163
B = +.000000129
C = -.000000102
D = +.000000080
E = -.000000063
BB = +.000000027
DD = +.000000016

K = +8.50 N = +30

AA = +.000000061
CC = +.000000038
P = +.000000043
A = +.000000034
B = +.000000027
C = +.000000021
D = +.000000016
E = +.000000013
BB = +.000000048
DD = +.000000030

K = +9.00 N = +1

AA = -0.28799990
CC = -0.18431998P = +1.79999980
A = -1.43999980
B = +1.15199980
C = -0.92199980
D = +0.73729992
E = -0.58982393BB = +0.29040000
DD = +0.14745599

K = +9.00 N = +2

AA = +0.51839997
CC = +0.33177998P = +0.39999998
A = +0.28799998
B = +0.20399999
C = +0.18431999
D = +0.14745599
E = +0.11796479BB = +0.41471998
DD = +0.26542078

K = +9.00 N = +3

AA = -0.10367999
CC = -0.06639919P = -0.64799994
A = -0.51839995
B = -0.41471996
C = -0.33177997
D = -0.26542078
E = -0.21233682BB = +0.08294399
DD = +0.03308416

K = +9.00 N = +4

AA = +0.18662390
CC = +0.11943995P = +0.12999999
A = +0.10367999
B = +0.08294399
C = +0.06639919
D = +0.05308416
E = +0.04246752BB = +0.34429918
DD = +0.09595148

K = +9.00 N = +5

AA = -0.03732480
CC = -0.02388787P = +0.23327996
A = -0.18662397
B = +0.14929917
C = -0.11943994
D = -0.09595147
E = -0.07644117BB = +0.02985983
DD = +0.01913029

K = +9.00 N = +6

AA = +0.06718463
CC = +0.04299816P = +0.04665599
A = +0.03732479
B = +0.02985983
C = +0.02388786
D = +0.01913029
E = +0.01520823BB = +0.05374770
DD = +0.03439859

K = +9.00 N = +7

AA = -0.01343692
CC = -0.00859963P = +0.08398080
A = -0.06718464
B = +0.05374771
C = -0.04299817
D = +0.03439853
E = -0.02751883BB = +0.01040954
DD = +0.00687970

K = +9.00 N = +8

AA = +0.02416647
CC = +0.01547934P = +0.01679616
A = +0.01343692
B = +0.01074954
C = +0.00859963
D = +0.00687970
E = +0.00550376BB = +0.01934937
DD = +0.01238347

K = +9.00 N = +9

AA = -0.00483729
CC = -0.00309587P = +0.03023309
A = -0.02416647
B = +0.01934918
C = -0.01547934
D = +0.01238347
E = -0.00990678BB = +0.00386983
DD = +0.00247669

K = +9.00 N = +10

AA = +0.00870713
CC = +0.00557256P = +0.00604661
A = +0.00483729
B = +0.00386983
C = +0.00309586
D = +0.00247669
E = +0.00198155BB = +0.00696570
DD = +0.00465885

K = +9.00 N = +11

AA = -0.00174142
CC = -0.00113451P = +0.01088390
A = -0.00870712
B = +0.00696570
C = -0.00557256
D = +0.00465884
E = -0.00396643BB = +0.00139314
DD = +0.00089160

K = +9.00 N = +12

AA = +0.00313456
CC = +0.00200412P = +0.00217678
A = +0.00174142
B = +0.00139314
C = +0.00113451
D = +0.00089160
E = +0.00071328BB = +0.00250765
DD = +0.00160489

K = +9.00 N = +13

AA = -0.00062691
CC = -0.00040122P = +0.00391820
A = -0.00313456
B = +0.00250765
C = -0.00200412
D = -0.00160489
E = -0.00128391BB = +0.00050153
DD = +0.00032097

K = +9.00 N = +14

AA = +0.00112844
CC = +0.00072220P = +0.00078364
A = +0.00062691
B = +0.00050153
C = +0.00040122
D = +0.00032097
E = +0.00025678BB = +0.00090275
DD = +0.00057776

K = +9.00 N = +15

AA = -0.00022568
CC = -0.00014444P = +0.00141055
A = -0.00112844
B = +0.00090275
C = -0.00072220
D = +0.00057776
E = -0.00046221BB = +0.00018055
DD = +0.00011545

K = +9.00 N = -16

AA = +.00040623
CC = +.00025999

P = +.00028211
A = +.00022568
B = +.00018059
C = +.00014444
D = +.00011555
E = +.00009244

BB = +.00032499
DD = +.00020799

K = +9.00 N = -17

AA = -.00008124
CC = -.00005199

P = +.00050779
A = -.00040623
B = +.00032499
C = -.00025999
D = -.00020799
E = -.00016639

BB = +.00006499
DD = +.00004159

K = +9.00 N = +18

AA = +.00014624
CC = +.00009359

P = +.00010155
A = +.00008124
B = +.00006499
C = +.00005199
D = +.00004159
E = +.00003327

BB = +.00011679
DD = +.00007487

K = +9.00 N = +19

AA = -.00002924
CC = -.00001871

P = +.00018280
A = -.00014624
B = +.00011699
C = -.00009359
D = -.00007487
E = -.00005990

BB = +.00002339
DD = +.00001497

K = +9.00 N = +20

AA = +.00005264
CC = +.00003369

P = +.00003656
A = +.00002924
B = +.00002339
C = +.00001871
D = +.00001497
E = +.00001198

BB = +.00004211
DD = +.00002695

K = +9.00 N = +21

AA = -.00001052
CC = -.00000673

P = +.00006581
A = -.00005264
B = +.00004211
C = -.00003369
D = -.00002695
E = -.00002156

BB = +.00000842
DD = +.00000539

K = +9.00 N = +22

AA = +.00001895
CC = +.00001219

P = +.00001316
A = +.00001052
B = +.00000842
C = +.00000673
D = +.00000539
E = +.00000421

BB = +.00001516
DD = +.00000970

K = +9.00 N = +23

AA = -.00000379
CC = -.00000242

P = +.00002369
A = -.00001895
B = +.00001516
C = -.00001219
D = -.00000970
E = -.00000776

BB = +.00000303
DD = +.00000194

K = +9.00 N = +24

AA = +.00000682
CC = +.00000436

P = +.00000473
A = +.00000379
B = +.00000303
C = +.00000242
D = +.00000194
E = +.00000155

BB = +.00000545
DD = +.00000349

K = +9.00 N = +25

AA = -.00000136
CC = -.00000087

P = +.00000852
A = -.00000682
B = +.00000545
C = -.00000436
D = -.00000349
E = -.00000279

BB = +.00000109
DD = +.00000069

K = +9.00 N = +26

AA = +.00000245
CC = +.00000157

P = +.00000170
A = +.00000136
B = +.00000109
C = +.00000087
D = +.00000069
E = +.00000055

BB = +.00000196
DD = +.00000125

K = +9.00 N = +27

AA = -.00000049
CC = -.00000031

P = +.00000307
A = -.00000243
B = +.00000196
C = -.00000157
D = +.00000125
E = -.00000100

BB = +.00000039
DD = +.00000025

K = +9.00 N = +28

AA = +.00000088
CC = +.00000056

P = +.00000061
A = +.00000049
B = +.00000039
C = +.00000031
D = +.00000025
E = +.00000020

BB = +.00000070
DD = +.00000045

K = +9.00 N = +29

AA = -.00000017
CC = -.00000011

P = +.00000110
A = -.00000088
B = +.00000070
C = -.00000056
D = +.00000045
E = -.00000036

BB = +.00000014
DD = +.00000009

K = +9.00 N = +30

AA = +.00000031
CC = +.00000020

P = +.00000022
A = +.00000017
B = +.00000014
C = +.00000011
D = +.00000009
E = +.00000007

BB = +.00000025
DD = +.00000016

K = +9.50 N = +1

AA = -0.27901960
CC = -0.18284955
P = +1.80952390
A = -1.46485270
B = +1.18583310
C = -0.95996010
D = +0.77711055
E = -0.62908949
BB = +0.22587300
DD = +0.14802106

K = +9.50 N = +2

AA = +0.50489257
CC = +0.33087063
P = +0.34467125
A = +0.27901958
B = +0.22587299
C = +0.18184954
D = +0.14802107
E = +0.11982658
BB = +0.40872255
DD = +0.26784765

K = +9.50 N = +3

AA = -0.09617003
CC = -0.08302299
P = +0.62369093
A = -0.50489265
B = +0.40872262
C = -0.33087068
D = +0.26784769
E = -0.21882908
BB = +0.07785194
DD = +0.05101861

K = +9.50 N = +4

AA = +0.17402195
CC = +0.11404159
P = +0.11879827
A = +0.09617002
B = +0.07785192
C = +0.06302298
D = +0.05101860
E = +0.04130077
BB = +0.14087491
DD = +0.09251938

K = +9.50 N = +5

AA = -0.03314704
CC = -0.02172222
P = +0.21496872
A = -0.17402197
B = +0.14087493
C = -0.11404161
D = +0.09251939
E = -0.07473474
BB = +0.02683332
DD = +0.01758464

K = +9.50 N = +6

AA = +0.05998036
CC = +0.03930686
P = +0.04094635
A = +0.03314704
B = +0.02683332
C = +0.02172221
D = +0.01758464
E = +0.01423519
BB = +0.04855553
DD = +0.03181983

K = +9.50 N = +7

AA = -0.01142483
CC = -0.00748702
P = +0.07489360
A = -0.05998037
B = +0.04855553
C = -0.03930684
D = +0.03181984
E = -0.02575891
BB = +0.00924867
DD = +0.00606092

K = +9.50 N = +8

AA = +0.07067950
CC = +0.01354794
P = +0.01411303
A = +0.01142483
B = +0.00924867
C = +0.00748702
D = +0.00606092
E = +0.00490646
BB = +0.01673569
DD = +0.01096798

K = +9.50 N = +9

AA = -0.00393781
CC = -0.00258056
P = +0.02553786
A = -0.02067351
B = +0.01673569
C = -0.01354794
D = +0.01096798
E = -0.00887835
BB = +0.00318775
DD = +0.00208902

K = +9.50 N = +10

AA = +0.00712556
CC = -0.00466958
P = +0.00486435
A = +0.00393781
B = +0.00318775
C = +0.00258056
D = +0.00208902
E = +0.00169111
BB = +0.00076871
DD = +0.00078014

K = +9.50 N = +11

AA = -0.00135725
CC = -0.00088944
P = +0.00880217
A = -0.00712556
B = +0.00574831
C = -0.00466958
D = +0.00378014
E = -0.00306011
BB = +0.00109872
DD = +0.00072002

K = +9.50 N = +12

AA = +0.00245597
CC = +0.00140947
P = +0.00167660
A = +0.00135725
B = +0.00109872
C = +0.00088944
D = +0.00072002
E = +0.00058287
BB = +0.00198817
DD = +0.00130290

K = +9.50 N = +15

AA = -0.00044780
CC = -0.00030656
P = +0.00303385
A = -0.00245597
B = +0.00188817
C = -0.00140947
D = +0.00109872
E = -0.00105473
BB = +0.00037869
DD = +0.00024817

K = +9.50 N = +14

AA = +0.00084650
CC = +0.00055473
P = +0.00057787
A = +0.00044780
B = +0.00037869
C = +0.00030656
D = +0.00024817
E = +0.00020090
BB = +0.00068526
DD = +0.00044907

K = +9.50 N = +15

AA = -0.00016125
CC = -0.00010566
P = +0.00104568
A = -0.00084650
B = +0.00068526
C = -0.00055473
D = +0.00044907
E = -0.00036553
BB = +0.00013052
DD = +0.00008553

K = +9.50 N = +16

AA = +.00029176
CC = +.00019120

P = +.00019917
A = +.00016123
B = +.00013052
C = +.00010564
D = +.00008553
E = +.00006924

BB = +.00023619
DD = +.00015478

K = +9.50 N = +17

AA = -.00005557
CC = -.00003641

P = +.00036041
A = -.00029176
B = +.00023619
C = -.00019120
D = +.00015478
E = -.00012530

BB = +.00004498
DD = +.00002948

K = +9.50 N = +18

AA = +.00010056
CC = +.00006590

P = +.00006865
A = +.00005557
B = +.00004498
C = +.00003641
D = +.00002948
E = +.00002386

BB = +.00008140
DD = +.00005334

K = +9.50 N = +19

AA = -.00001915
CC = -.00001255

P = +.00012422
A = -.00010054
B = +.00008140
C = -.00006590
D = +.00005334
E = -.00004318

BB = +.00001550
DD = +.00001014

K = +9.50 N = +20

AA = +.00003466
CC = +.00002271

P = +.00002386
A = +.00001915
B = +.00001550
C = +.00001255
D = +.00001016
E = +.00000822

BB = +.00002805
DD = +.00001838

K = +9.50 N = +21

AA = -.00000660
CC = -.00000432

P = +.000004281
A = -.00003466
B = +.00002805
C = -.00002271
D = +.00001838
E = -.00001488

BB = +.00000534
DD = +.00000350

K = +9.50 N = +22

AA = +.00001194
CC = +.00000782

P = +.00000815
A = +.00000660
B = +.00000534
C = +.00000432
D = +.00000350
E = +.00000283

BB = +.00000967
DD = +.00000633

K = +9.50 N = +23

AA = -.00000227
CC = -.00000149

P = +.00001475
A = +.00001194
B = +.00000967
C = -.00000782
D = +.00000633
E = -.00000513

BB = +.00000184
DD = +.00000120

K = +9.50 N = +24

AA = +.00000411
CC = +.00000269

P = +.00000281
A = +.00000227
B = +.00000184
C = +.00000149
D = +.00000120
E = +.00000097

BB = +.00000333
DD = +.00000218

K = +9.50 N = +25

AA = -.00000078
CC = -.00000051

P = +.00000050
A = -.00000411
B = +.00000333
C = -.00000269
D = +.00000218
E = -.00000176

BB = +.00000063
DD = +.00000041

K = +9.50 N = +26

AA = +.00000141
CC = +.00000093

P = +.00000096
A = +.00000078
B = +.00000063
C = +.00000051
D = +.00000041
E = +.00000033

BB = +.00000114
DD = +.00000075

K = +9.50 N = +27

AA = -.00000027
CC = -.00000017

P = +.00000175
A = -.00000141
B = +.00000114
C = -.00000093
D = +.00000075
E = -.00000060

BB = +.00000021
DD = +.00000014

K = +9.50 N = +28

AA = +.00000048
CC = +.00000032

P = +.00000033
A = +.00000027
B = +.00000021
C = +.00000017
D = +.00000014
E = +.00000011

BB = +.00000039
DD = +.00000023

K = +9.50 N = +29

AA = -.00000009
CC = -.00000006

P = +.00000060
A = -.00000048
B = +.00000039
C = -.00000032
D = +.00000023
E = -.00000021

BB = +.00000007
DD = +.00000004

K = +9.50 N = +30

AA = +.00000016
CC = +.00000011

P = +.00000011
A = +.00000009
B = +.00000007
C = +.00000006
D = +.00000004
E = +.00000004

BB = +.00000013
DD = +.00000008

K = +10.00 N = +1			K = +10.00 N = +6			K = +10.00 N = +11		
AA = -.27047330	P = +1.81818160		AA = +.05374161	P = +.03612630		AA = -.00106781	P = +.00717811	
CC = -.18106063	A = -1.48760310	BB = +.22129640	CC = +.03597578	A = +.02955788	BB = +.04597040	CC = -.00071482	A = -.00587300	BB = +.00087366
	B = +1.21712980			B = +.02418372			B = +.00480518	
	C = -.99583346	DD = +.1A814053		C = +.01978668	DD = +.02943473		C = -.00393151	DD = +.00058A85
	D = +.81477283			D = +.01618910			D = +.00521669	
	E = -.68661230			E = +.01324563			E = -.00263183	
K = +10.00 N = +2			K = +10.00 N = +7			K = +10.00 N = +12		
AA = +.49176962	P = +.33057847		AA = -.00977120	P = +.06568419		AA = +.00194148	P = +.00130511	
CC = +.32920114	A = +.27047329	BB = +.40235696	CC = -.00654105	A = -.05174161	BB = +.00799462	CC = +.00129967	A = +.00106781	BB = +.00158848
	B = +.22129633			B = +.04397040	DD = +.00535177		B = +.00087366	
	C = +.18106063	DD = +.26934638		C = -.03597578			C = +.00071A82	DD = +.00106336
	D = +.1A81A051			D = +.02943473			D = +.00058485	
	E = +.12120587			E = -.02408296			E = +.00047851	
K = +10.00 N = +3			K = +10.00 N = +8			K = +10.00 N = +15		
AA = -.08941265	P = +.60105172		AA = +.01776582	P = +.0119A258		AA = -.00035299	P = +.00237292	
CC = -.05985473	A = -.49176958	BB = +.07315581	CC = +.01189282	A = +.00977120	BB = +.01453567	CC = -.00023690	A = -.00194148	BB = +.00028881
	B = +.40235693			B = -.00799461	DD = +.00973049		B = +.00158847	
	C = -.32920112	DD = +.0A897207		C = +.00654105			C = -.00129967	DD = +.00019333
	D = -.26934637			D = +.00535177			D = +.00106336	
	E = -.22037430			E = +.00437872			E = -.00087002	
K = +10.00 N = +4			K = +10.00 N = +9			K = +10.00 N = +14		
AA = +.16256145	P = +.10928213		AA = -.00323015	P = +.02171378		AA = +.0006A181	P = +.00043144	
CC = +.10882681	A = +.08941265	BB = +.13301055	CC = -.00216233	A = -.01776582	BB = +.00264285	CC = +.00042964	A = +.00035299	BB = +.00052512
	B = +.07315580			B = +.01453567	DD = +.00176818		B = +.00028881	
	C = -.05985474	DD = +.08904012		C = -.01189282			C = +.00023630	DD = +.00039519
	D = +.04897206			D = +.00973049			D = +.00019333	
	E = +.04006805			E = -.00796131			E = +.0001581	
K = +10.00 N = +5			K = +10.00 N = +10			K = +10.00 N = +15		
AA = -.02953790	P = -.19869A76		AA = +.00587300	P = +.0039A796		AA = -.00011669	P = +.00078443	
CC = -.01978669	A = -.16256844	BB = +.02418374	CC = +.00393151	A = +.00323015	BB = +.00460518	CC = -.00007811	A = -.0006A181	BB = +.00009547
	B = +.1330105A			B = +.00264285	DD = +.00321669		B = +.00052512	
	C = -.10882680	DD = +.01618911		C = +.00216233			C = -.00042964	DD = +.00006391
	D = +.08904011			D = +.00176918			D = +.00035152	
	E = -.07285099			E = +.00144731			E = -.00028761	

K = +10.00 N = +16

AA = +.00021216 P = +.00014262
 A = +.00011669
 O = +.00009547 BB = +.00017359
 CC = +.00014203 C = +.00007811
 D = +.00006391 DD = +.00011620
 E = +.00009229

K = +10.00 N = +17

AA = -.00003857 P = +.00025931
 A = -.00021216
 B = +.00017359 BB = +.00003156
 CC = -.00002582 C = -.00014203
 D = +.00011620 DD = +.00002112
 E = -.00009507

K = +10.00 N = +18

AA = +.00007013 P = +.00004714
 A = +.00003857
 B = +.00003156 BB = +.00005738
 CC = +.00004695 C = +.00002582
 D = +.00002112 DD = +.00003841
 E = +.00001728

K = +10.00 N = +19

AA = -.00001275 P = +.00008572
 A = -.00007013
 B = +.00005738 BB = +.00001043
 CC = -.00000883 C = -.00004695
 D = +.00003841 DD = +.00000698
 E = -.00003143

K = +10.00 N = +20

AA = +.00002318 P = +.00001558
 A = +.00001275
 B = +.00001043 BB = +.00001897
 CC = +.00001552 C = +.00000853
 D = +.00000698 DD = +.00001269
 E = +.00000571

K = +10.00 N = +21

AA = -.00000421 P = +.00002833
 A = -.00002318
 B = +.00001897 BB = +.00000344
 CC = -.00000282 C = -.00001552
 D = +.00001269 DD = +.00000230
 E = -.00001039

K = +10.00 N = +22

AA = +.00000766 P = +.00000515
 A = +.00000421
 B = +.00000344 BB = +.00000427
 CC = +.00000513 C = +.00000282
 D = +.00000230 DD = +.00000419
 E = +.00000188

K = +10.00 N = +23

AA = -.00000139 P = +.00000934
 A = -.00000766
 B = +.00000627 BB = +.00000114
 CC = -.00000093 C = -.00000513
 D = +.00000419 DD = +.00000076
 E = -.00000343

K = +10.00 N = +24

AA = -.00000253 P = +.00000170
 A = -.00000139
 B = +.00000114 BB = +.00000207
 CC = +.00000169 C = +.00000093
 D = +.00000076 DD = +.00000138
 E = +.00000062

K = +10.00 N = +25

AA = -.00000046 P = +.00000309
 A = -.00000253
 B = +.00000207 BB = +.00000037
 CC = -.00000030 C = -.00000149
 D = +.00000138 DD = +.00000025
 E = -.00000113

K = +10.00 N = +26

AA = +.00000083 P = +.00000056
 A = +.00000046
 B = +.00000037 BB = +.00000068
 CC = +.00000056 C = +.00000030
 D = +.00000025 DD = +.00000045
 E = +.00000020

K = +10.00 N = +27

AA = -.00000015 P = +.00000102
 A = -.00000083
 B = +.00000068 BB = +.00000014
 CC = -.00000010 C = -.00000056
 D = +.00000045 DD = +.00000008
 E = -.00000037

K = +10.00 N = +28

AA = +.00000027 P = +.00000001
 A = +.00000015
 B = +.00000012 BB = +.00000022
 CC = +.00000018 C = +.00000010
 D = +.00000008 DD = +.00000015
 E = +.00000006

K = +10.00 N = +29

AA = -.00000005 P = +.00000033
 A = -.00000027
 B = +.00000022 BB = +.00000004
 CC = -.00000003 C = -.00000018
 D = +.00000019 DD = +.00000002
 E = -.00000012

K = +10.00 N = +30

AA = +.00000009 P = +.00000006
 A = +.00000005
 B = +.00000004 BB = +.00000007
 CC = +.00000006 C = +.00000003
 D = +.00000002 DD = +.00000005
 E = +.00000002

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Arnold Engineering Development Center ARO, Inc. Arnold Air Force Station, Tennessee		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP N/A	
3. REPORT TITLE STRESS WAVES IN COMPOSITE LAMINATES			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) N/A			
5. AUTHOR(S) (Last name, first name, initial) Kinslow, Ray ARO, Inc.			
6. REPORT DATE June 1965		7a. TOTAL NO. OF PAGES 114	7b. NO. OF REFS 9
8a. CONTRACT OR GRANT NO. AF 40(600)-1000		9a. ORIGINATOR'S REPORT NUMBER(S) AEDC-TR-65-69	
b. PROJECT NO. 8871			
c. Program Element 62405364		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d. Task 887101		N/A	
10. AVAILABILITY/LIMITATION NOTICES <u>Qualified requesters may obtain copies of this report from DDC.</u>			
11. SUPPLEMENTARY NOTES N/A		12. SPONSORING MILITARY ACTIVITY Arnold Engineering Development Center Air Force Systems Command Arnold Air Force Station, Tennessee	

13. ABSTRACT

Fractures caused by stress waves resulting from hypervelocity impact are sometimes reduced, and at other times are increased, by the use of laminated materials. An analysis of some of the parameters which affect the ability of a laminated structure to resist fracture following impact has been conducted. It is shown that there are multiple reflections from the interfaces bounding any layer of material. The amplitudes of these waves attenuate very rapidly, but because their transmitted components may combine in phase with other waves, they sometimes contribute substantially to the total stress produced. It is shown that these combined waves may result in a stress much greater in the laminated material than would have been produced by the same impact on a solid target of either of the materials used; however, under other conditions, the laminate may be employed to reduce the stress to a very small value. Pressure pulse amplitudes in materials having impedance mismatch values ranging from 0.1 to 10.0 and having as many as thirty laminations are presented in both graphical and tabular form.

KEY WORDS

stress waves
laminates
impact

LINK A

LINK B

LINK C

ROLE

WT

ROLE

WT

ROLE

WT

INSTRUCTIONS

1. **ORIGINATING ACTIVITY:** Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization (*corporate author*) issuing the report.

2a. **REPORT SECURITY CLASSIFICATION:** Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.

2b. **GROUP:** Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.

3. **REPORT TITLE:** Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.

4. **DESCRIPTIVE NOTES:** If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.

5. **AUTHOR(S):** Enter the name(s) of author(s) as shown on or in the report. Enter: last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.

6. **REPORT DATE:** Enter the date of the report as day, month, year, or month, year. If more than one date appears on the report, use date of publication.

7a. **TOTAL NUMBER OF PAGES:** The total page count should follow normal pagination procedures, i.e., enter the number of pages containing information.

7b. **NUMBER OF REFERENCES:** Enter the total number of references cited in the report.

8a. **CONTRACT OR GRANT NUMBER:** If appropriate, enter the applicable number of the contract or grant under which the report was written.

8b, 8c, & 8d. **PROJECT NUMBER:** Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.

9a. **ORIGINATOR'S REPORT NUMBER(S):** Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to this report.

9b. **OTHER REPORT NUMBER(S):** If the report has been assigned any other report numbers (*either by the originator or by the sponsor*), also enter this number(s).

10. **AVAILABILITY/LIMITATION NOTICES:** Enter any limitations on further dissemination of the report, other than those

imposed by security classification, using standard statements such as:

- (1) "Qualified requesters may obtain copies of this report from DDC."
- (2) "Foreign announcement and dissemination of this report by DDC is not authorized."
- (3) "U. S. Government agencies may obtain copies of this report directly from DDC. Other qualified DDC users shall request through _____."
- (4) "U. S. military agencies may obtain copies of this report directly from DDC. Other qualified users shall request through _____."
- (5) "All distribution of this report is controlled. Qualified DDC users shall request through _____."

If the report has been furnished to the Office of Technical Services, Department of Commerce, for sale to the public, indicate this fact and enter the price, if known.

11. **SUPPLEMENTARY NOTES:** Use for additional explanatory notes.

12. **SPONSORING MILITARY ACTIVITY:** Enter the name of the departmental project office or laboratory sponsoring (paying for) the research and development. Include address.

13. **ABSTRACT:** Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.

It is highly desirable that the abstract of classified reports be unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as (TS), (S), (C), or (U).

There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.

14. **KEY WORDS:** Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words must be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location, may be used as key words but will be followed by an indication of technical context. The assignment of links, rules, and weights is optional.