C.P. No. 382
(19,866)
A.R.C. Technical Report

C.P. No. 382
(19,866)
A.R.C. Technical Report

MINISTRY OF SUPPLY

AERONAUTICAL RESEARCH COUNCIL

CURRENT PAPERS

Tables of Aerodynamic Flutter Derivatives for Thin Wings and Control Surfaces in Two Dimensional Supersonic Flow

By

I. T. Minhinnick, M.A. and D. L. Woodcock, M.A.

LONDON: HER MAJESTY'S STATIONERY OFFICE

1958

SIX SHILLINGS NET

C P. No.382

U.D.C. No. 533.6.013.422 : 533.6.011.5 : 533.691.155 : 533.09.042

Report No. Structures 228

October, 1957

ROYAL AIRCRAFT ESTABLISHMENT

Tables of aerodynamic flutter derivatives for thin wings and control surfaces in two dimensional supersonic flow

by

I. T. Minhinnick, M.A.

and

D. L. Woodcock, M.A.

SUMMARY

This report gives tables of the two dimensional supersonic flutter derivatives for infinitesimally thin aerofoils. Most of the values given are based on the published work of several authors but some have been specially calculated for this report. Only the derivatives giving the forces on wings and control surfaces due to wing motion are tabulated but it is shown how the remaining derivatives can be very easily obtained from those tabulated. The values tabulated are for control surface/wing chord ratios of 0(0.1) 0.6, 1.0; for Mach Nos. (M) given by $\lambda(=1/M) = 0.3(0.1)$ 0.8, and for at least 11 values of the frequency parameter between 0 and 1.5.

LIST OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

1 Introduction

The two dimensional problem of the infinitesimally thin aerofoil in supersonic flow was first solved by Possio[6]. In England Temple and Jahn[3] obtained the same solution by a different method and gave tables of the wing derivatives. Apart from these, the only other tables in English notation are those given by Jordan[7] and these again are restricted to the wing derivatives. Extensive tables of wing and control surface derivatives have been issued by Weber[1], Huckel and Durling[2], and Jordan and Gawehn[5], but it still seemed desirable to have some tables of the control surface derivatives in English notation. The present report provides such a set of tables.

The control surface derivatives are functions of three parameters which are commonly taken to be λ the reciprocal of the Mach No., Ω the reduced frequency*, and E_β the control surface chord ratio. These are probably the most convenient for tabulation although others have been used. Jordan and Gawehn[5] for example used $\log \frac{\Omega(1-\lambda^2)}{2}$ instead of Ω. The range of values of these parameters covered in references 1, 2 and 5 and in the present report are briefly given in the following list.

Parameter	Present report	Weber (reference 1)	Huckel & Durling (reference 2)	Jorden & Gawehn (reference 5)
E_β	0(0.1) 0.6, 1.0	0.05(0.05) 0.5, 0.6, 1.0	0.1(0.1) 0.9	0.05(0.05) 0.3
λ	0.3(0.1) 0.8	0.3(0.1) 0.9	0.4(0.1) 0.9	0.25, 0.4(0.2) 0.8, 0.9
Ω	From 11 to 34 values in each case between 0 and approximately $1.5/(1-\lambda^2)$	23 values in each case between 0 and 2	About 35 values in each case between 0 and 20	13 values in each case between 0 and $2/(1-\lambda^2)$

It will be seen that at any particular Mach No. the values of Ω, for which we have tabulated the derivatives have been chosen so that we always cover a range of values of the frequency parameter ν up to about 1.5 rather than a constant range of values of Ω. This range of values of the frequency parameter and the range of values of the control surface chord ratio E_β are thought to be sufficient to cover all practical needs.

---

* The reduced frequency is a modified form of the frequency parameter; thus

$$\Omega = \frac{\omega c}{V(1-\lambda^2)}$$

where ω is the circular frequency.

2 Notation

The notation employed is as follows:-

Let ω = frequency of oscillation in radians/unit time

V = velocity of undisturbed airflow

c = chord of aerofoil (including control surface)

M = V/V_s, the Mach number where V_s is the velocity of sound

λ = $1/M$

ν = $\omega c/V$, the frequency parameter

Ω = $\nu/(1-\lambda^2)$

ρ = air density

t = time variable

$E_\beta\, c$ = distance from leading edge of control surface to trailing edge of control surface

x = $1 - E_\beta$

$z\, e^{i\omega t}$ = downward displacement of leading edge of aerofoil

$\alpha\, e^{i\omega t}$ = angular displacement of aerofoil (positive nose up)

$r\, e^{i\omega t}$ = downward displacement of leading edge of control surface relative to adjacent point on aerofoil

$\beta\, e^{i\omega t}$ = angular displacement of control surface relative to aerofoil (positive downwards)

$L\, e^{i\omega t}$ = aerodynamic lift on aerofoil (including control surface) per unit span

$\bar{M}\, e^{i\omega t}$ = aerodynamic moment about leading edge of aerofoil (including control surface) per unit span (positive nose-up)

$P\, e^{i\omega t}$ = aerodynamic lift on control surface per unit span

$H\, e^{i\omega t}$ = aerodynamic moment about leading edge of control surface per unit span (positive nose up).

The airforces per unit span are then given by the following relationships, which provide definitions of the aerodynamic derivatives:-

$$L = \rho V^2 c \left\{ L_z \frac{z}{c} + L_\alpha\, \alpha + L_r \frac{r}{c} + L_\beta\, \beta \right\}$$

$$\bar{M} = \rho V^2 c^2 \left\{ M_z \frac{z}{c} + M_\alpha\, \alpha + M_r \frac{r}{c} + M_\beta\, \beta \right\}$$

$$P = \rho V^2 c \left\{ P_z \frac{z}{c} + P_\alpha \alpha + P_r \frac{r}{c} + P_\beta \beta \right\}$$

$$H = \rho V^2 c^2 \left\{ H_z \frac{z}{c} + H_\alpha \alpha + H_r \frac{r}{c} + H_\beta \beta \right\}$$

where each of the derivatives L_z etc. is of the form

$$L_z = \ell_z + i\nu \ell_{\dot{z}} \quad .$$

The displacements r and β will not normally be independent but will be connected by a relationship

$$r + \varepsilon_\beta c\beta = 0$$

where $\varepsilon_\beta c$ is the distance of the control surface hinge line aft of the control surface leading edge. The P derivatives and the suffix r derivatives are therefore only required when there is some aerodynamic balance (i.e. when $\varepsilon_\beta \neq 0$).

3 Derivatives giving forces due to wing motion

All the derivatives which represent forces due to wing displacement (i.e. all those with suffixes z, $\dot{z}$, α, or $\dot{\alpha}$) are tabulated for control surface chord ratios given by

$$E_\beta = 0(0.1)\ 0.6,\ 1.0$$

and for the following sets of values of the Mach No. M and the reduced frequency Ω

$$M = {}^{10}/_3,\ {}^{10}/_4, \qquad \Omega = 0(0.2)\ 2.0$$

$$M = {}^{10}/_5 \qquad \Omega = 0(0.1)\ 2.0$$

$$M = {}^{10}/_6 \qquad \Omega = 0(0.1)\ 2.5$$

$$M = {}^{10}/_7 \qquad \Omega = 0(0.05)\ 0.5(0.1)\ 1.6(0.2)\ 3.0$$

$$M = {}^{10}/_8 \qquad \Omega = 0(0.05)\ 0.5(0.1)\ 1.6(0.2)\ 4.0\ .$$

The wing derivatives are thus entered as the particular cases of the control surface derivatives when the chord ratio $E_\beta = 1.0$. For example

$$\ell_z = (p_z)_{E_\beta = 1} \quad .$$

The present tables are based to a large extent on those of Weber[1]. The relationship of the English notation to that of reference 1 is given in Table 1. Weber's tables, which give his functions P_T' etc. (see Table 1) to an accuracy of six decimal places, were used to obtain all

TABLE 1 (Contd)

	English (present report)	French (reference 1)	American (reference 2)	German* (reference 5)
Wing-aileron derivatives $q = r, \dot{r}, \beta, \dot{\beta}$	ℓ_q, $-m_q$		As for wing derivatives but with suffices 3,4 replaced by 5,6 respectively and no primes. No terms corresponding to those with suffices 1 and 2	As for wing derivatives but with suffices a,b replaced by d,c respectively
Aileron derivatives $q = r, \dot{r}, \beta, \dot{\beta}$	p_q, $-h_q$		As for aileron-wing derivatives but with suffices 3,4 replaced by 5,6 respectively and no primes. No terms corresponding to those with suffices 1 and 2	As for aileron-wing derivatives but with suffices a,b replaced by d,c respectively

* Reference 5 considers both the open step and closed step cases and distinguishes them by a circle or a line over the suffix. The present report and reference 1 only consider the open step case.

$$p_\beta = \ell_\beta$$

$$p_{\dot\beta} = \ell_{\dot\beta}$$

$$-h_r = E_\beta \left\{-m_z \left(E_\beta\, \Omega\right)\right\}$$

$$-h_{\dot r} = E_\beta^{\;2} \left\{-m_{\dot z} \left(E_\beta\, \Omega\right)\right\}$$

$$-h_\beta = E_\beta^{\;2} \left\{-m_\alpha \left(E_\beta\, \Omega\right)\right\}$$

$$-h_{\dot\beta} = E_\beta^{\;3} \left\{-m_{\dot\alpha} \left(E_\beta\, \Omega\right)\right\} .$$

When considering the forces due to control surface displacement the question arises should we consider the gap between the leading edge of the control surface and the main part of the wing to be open or closed. If we use the standard wing derivatives then the above formulae will give derivatives for the open gap (or open step) case. To obtain derivatives for the closed gap (or closed step) case we would require wing derivatives for the unrealistic case of an aerofoil oscillating with a closed step at the leading edge. The type of gap will only affect the derivatives with suffix r. It is believed that, as at subsonic speeds, there will be very little difference between the flutter speeds obtained using the two sets of derivatives. Consequently, bearing in mind the other approximations involved, it is recommended that derivatives for the open gap should normally be used. Values for the closed gap can be obtained from references 4 and 5.

Acknowledgement

Acknowledgement is made of the assistance rendered by Col. A. D. Carden who performed most of the numerical work in the compilation of these tables.

REFERENCES

No.	Author	Title, etc
1	R. Weber	Tables des coefficients aérodynamiques instationnaires régime plan supersonique. O.N.E.R.A. Publication No.41 (1950).
2	V. Huckel B.J. Durling	Tables of wing-aileron coefficients of oscillating airforces for two dimensional supersonic flow. N.A.C.A. TN 2055 (March 1950).
3	G. Temple H.A. Jahn	Flutter at supersonic speeds: mid chord derivative coefficients for a thin aerofoil at zero incidence. R & M 2140 (April 1945).
4	P. Jordan	Unsteady aerodynamical coefficients for supersonic flow. I - Analytical part. M.A.P. Volkenrode Reports & Translation No.195 ARC 10052, (Sept 1946)

REFERENCES (Contd)

No.	Author	Title, etc
5	P. Jordan M. Gawehn	Unsteady aerodynamical coefficients for supersonic flow. II - Numerical tables. M.A.P. Volkenrode Reports & Translation No.886 ARC 11400, (July 1946).
6	C. Possio	The aerodynamical action on an oscillating aerofoil at supersonic speeds. ARC 7668. Translated from Acta, A.P.M.P., Vol.1, No.11 (1937).
7	P. Jordan	Aerodynamic flutter coefficients for subsonic, sonic and supersonic flow (linear two dimensional theory). R & M 2932, (April 1953).
8	L. Schwarz	Untersuchung einiger mit den Zylinderfunktionen nullter Ordnung verwandter Funktionen. LFF Vol.20, No.12 (Feb 1944) ARC 8699.

APPENDIX I

Formulae for the derivatives

AI.1 Control surface derivatives in terms of the wing derivatives

Remembering that the pressure at a point on an aerofoil in a supersonic stream is independent of the conditions downstream of that point, the following expressions for the control surface-wing derivatives, in terms of the wing derivatives, are easily obtained

$$p_z\,(\Omega,\,E_\beta) = \ell_z\,(\Omega) - \ell_z\,(x\Omega)$$

$$p_{\dot z}\,(\Omega,\,E_\beta) = \ell_{\dot z}\,(\Omega) - x\,\ell_{\dot z}\,(x\Omega)$$

$$p_\alpha\,(\Omega,\,E_\beta) = \ell_\alpha\,(\Omega) - x\,\ell_\alpha\,(x\Omega)$$

$$p_{\dot\alpha}\,(\Omega,\,E_\beta) = \ell_{\dot\alpha}\,(\Omega) - x^2\,\ell_{\dot\alpha}\,(x\Omega)$$

$$-h_z\,(\Omega,\,E_\beta) = -m_z\,(\Omega) - x\left\{-m_z\,(x\Omega) + p_z\,(\Omega,\,E_\beta)\right\}$$

$$-h_{\dot z}\,(\Omega,\,E_\beta) = -m_{\dot z}\,(\Omega) - x^2\left\{-m_{\dot z}\,(x\Omega)\right\} - x\,p_{\dot z}\,(\Omega,\,E_\beta)$$

$$-h_\alpha\,(\Omega,\,E_\beta) = -m_\alpha\,(\Omega) - x^2\left\{-m_\alpha\,(x\Omega)\right\} - x\,p_\alpha\,(\Omega,\,E_\beta)$$

$$-h_{\dot\alpha}\,(\Omega,\,E_\beta) = -m_{\dot\alpha}\,(\Omega) - x^3\left\{-m_{\dot\alpha}\,(x\Omega)\right\} - x\,p_{\dot\alpha}\,(\Omega,\,E_\beta)$$

where $x = 1 - E_\beta$.

AI.2 Formulae for wing derivatives in terms of Bessel functions

From Temple and Jahn[3], equation (A.90), transforming to a leading edge axis we have

$$\ell_z = 2\lambda\Omega\sqrt{1-\lambda^2}\left\{-(1-\lambda^2)\,J_o\,(\lambda,\Omega) + J_o\,(\Omega\lambda)\sin\Omega - \lambda\,J_1\,(\Omega\lambda)\cos\Omega\right\}$$

$$\ell_{\dot z} = \frac{2\lambda}{\sqrt{1-\lambda^2}}\left\{(1-\lambda^2)\,J_s\,(\lambda,\Omega) + J_o\,(\Omega\lambda)\cos\Omega + \lambda\,J_1\,(\Omega\lambda)\sin\Omega\right\}$$

$$\ell_\alpha = \ell_{\dot z} + \tfrac{1}{2}\,\ell_z + f_1$$

$$\ell_{\dot\alpha} = \tfrac{1}{2}\,\ell_{\dot z} - \frac{1}{(1-\lambda^2)^2}\left(\frac{1}{\Omega^2}\,\ell_z\right) + f_2$$

$$-m_z = \tfrac{1}{2}\,\ell_z - f_1$$

$$-m_{\dot z} = \tfrac{1}{2}\,\ell_{\dot z} - f_2$$

$$-m_\alpha = 1/3\,\ell_z - 2/3\,g_1 + \tfrac{1}{2}\,\ell_{\dot z} + f_2$$

$$-m_{\dot\alpha} = 1/3\,\ell_{\dot z} - 2/3\,g_2 - \frac{1}{\Omega^2\,(1-\lambda^2)^2}\left(\tfrac{1}{2}\,\ell_z + f_1\right)$$

where

$$f_1 = \frac{\lambda^2}{\sqrt{1-\lambda^2}}\left\{\frac{\lambda}{\Omega}\,J_c\,(\lambda,\Omega) - \lambda\,J_o\,(\Omega\lambda)\,\cos\Omega - J_1\,(\Omega\lambda)\,\sin\Omega\right\}$$

$$f_2 = \frac{\lambda^2}{\Omega\,(1-\lambda^2)^{3/2}}\left\{-\frac{\lambda}{\Omega}\,J_s\,(\lambda,\Omega) + \lambda\,J_o\,(\Omega\lambda)\,\sin\Omega - J_1\,(\Omega\lambda)\,\cos\Omega\right\}$$

$$g_1 = \frac{\lambda^2}{\sqrt{1-\lambda^2}}\left\{-\frac{2}{\Omega}\,J_1\,(\Omega\lambda)\,\cos\Omega + \lambda\,J_o\,(\Omega\lambda)\,\cos\Omega + J_1\,(\Omega\lambda)\,\sin\Omega\right\}$$

$$g_2 = \frac{\lambda^2}{\Omega\,(1-\lambda^2)^{3/2}}\left\{\frac{2}{\Omega}\,J_1\,(\omega\lambda)\,\sin\Omega - \lambda\,J_o\,(\Omega\lambda)\,\sin\Omega + J_1\,(\Omega\lambda)\,\cos\Omega\right\}$$

$$J_c\,(\lambda,\Omega) = \int_0^\Omega J_o\,(\lambda u)\,\cos u\,.\,du$$

$$J_s\,(\lambda,\Omega) = \int_0^\Omega J_o\,(\lambda u)\,\sin u\,.\,du$$

and J_o, J_1 are Bessel functions of the first kind.

The functions $J_c\,(\lambda,\Omega)$ and $J_s\,(\lambda,\Omega)$ have been tabulated by Schwarz[8] for

$$\begin{cases} \lambda = 0.1\ (0.1)\ 1.0 & \\ \Omega = 0\ (0.02)\ 2.0 & \text{(to an accuracy of 6 decimal places)} \\ \quad = 0\ (0.1)\ 5.0 & \text{(to an accuracy of 8 decimal places)}\,. \end{cases}$$

AI.3 Formulae for control surface derivatives in terms of Bessel functions when $E_\beta \to 0$

From Temple and Jahn[3], equation (A.52), the lift distribution at the trailing edge (due to wing displacement) is $\ell(1)\,e^{i\omega t}$ where

$$\ell(1) = 2\rho V^2 \frac{\lambda}{\sqrt{1-\lambda^2}} \left[\frac{z}{o} \left\{ - \Omega^2 (1-\lambda^2)^2 \int_0^1 e^{-i\Omega r} J_o (\Omega\lambda r) \, dr \right. \right.$$

$$\left. + i\Omega (1-\lambda^2) e^{-i\Omega} J_o (\Omega\lambda) \right\}$$

$$+ \alpha \left\{ - \Omega^2 (1-\lambda^2)^2 \int_0^1 e^{-i\Omega r} (1-r) J_o (\Omega\lambda r) \, dr \right.$$

$$+ 2i\Omega (1-\lambda^2) \int_0^1 e^{-i\Omega r} J_o (\Omega\lambda r) \, dr$$

$$\left. \left. + e^{-i\Omega} J_o (\Omega\lambda) \right\} \right] .$$

But

$$\int_0^1 e^{-i\Omega r} J_o (\Omega\lambda r) \, dr = \frac{1}{\Omega} \left\{ J_c (\lambda,\Omega) - i \, J_s (\lambda,\Omega) \right\}$$

$$\int_0^1 e^{-i\Omega r} r \, J_o (\Omega\lambda r) \, dr = \frac{e^{-i\Omega}}{\Omega (1-\lambda^2)} \left\{ - \lambda \, J_1 (\Omega\lambda) + i \, J_o (\Omega\lambda) \right\}$$

$$- \frac{1}{\Omega^2 (1-\lambda^2)} \left\{ J_s (\lambda,\Omega) + i \, J_c (\lambda,\Omega) \right\}$$

and so for $E_\beta \to 0$

$$\frac{p_z}{E_\beta} = 2\lambda\Omega \sqrt{1-\lambda^2} \left\{ J_o (\Omega\lambda) \sin \Omega - (1-\lambda^2) \, J_c (\lambda,\Omega) \right\}$$

$$\frac{p_{\dot z}}{E_\beta} = \frac{2\lambda}{\sqrt{1-\lambda^2}} \left\{ J_o (\Omega\lambda) \cos \Omega + (1-\lambda^2) \, J_s (\lambda,\Omega) \right\}$$

$$\frac{p_\alpha}{E_\beta} = \frac{p_{\dot z}}{E_\beta} + \ell_z$$

$$\frac{p_{\dot\alpha}}{E_\beta} = \ell_{\dot z} - \frac{1}{\Omega^2 (1-\lambda^2)^2} \left(\frac{p_z}{E_\beta} \right)$$

$$\frac{-h_z}{E_\beta^{\ 2}} = \tfrac{1}{2}\left(\frac{p_z}{E_\beta}\right)$$

$$\frac{-h_{\dot{z}}}{E_\beta^{\ 2}} = \tfrac{1}{2}\left(\frac{p_{\dot{z}}}{E_\beta}\right)$$

$$\frac{-h_\alpha}{E_\beta^{\ 2}} = \tfrac{1}{2}\left(\frac{p_\alpha}{E_\beta}\right)$$

$$\frac{-h_{\dot{\alpha}}}{E_\beta^{\ 2}} = \tfrac{1}{2}\left(\frac{p_{\dot{\alpha}}}{E_\beta}\right).$$

AI.4 Series expressions for the control surface derivatives

From Weber[1] (Part 1, Section 2.4) writing his derivatives in our notation (see Table 1) the following series expressions for the control surface-wing derivatives are obtained

$$\frac{p_z}{E_\beta} = 2\lambda^3 \sqrt{1-\lambda^2} \sum_{m=o}^{\infty} \Omega^{2m+2}\, C_m(\lambda)\, F_{2m+1}(E_\beta)$$

$$\frac{p_{\dot{z}}}{E_\beta} = \frac{2\lambda^3}{\sqrt{1-\lambda^2}} \sum_{m=o}^{\infty} \Omega^{2m}\, D_m(\lambda)\, F_{2m}(E_\beta)$$

$$\frac{p_\alpha}{E_\beta} = \frac{2\lambda^2}{\sqrt{1-\lambda^2}} \sum_{m=o}^{\infty} \Omega^{2m}\, A_m(\lambda)\, F_{2m}(E_\beta)$$

$$\frac{p_{\dot{\alpha}}}{E_\beta} = \frac{2\lambda^3}{(1-\lambda^2)^{3/2}} \sum_{m=o}^{\infty} \Omega^{2m}\, B_m(\lambda)\, F_{2m+1}(E_\beta)$$

$$\frac{-h_z}{E_\beta^{\ 2}} = \lambda^3 \sqrt{1-\lambda^2} \sum_{m=o}^{\infty} \Omega^{2m+2}\, C_m(\lambda)\, G_{2m+1}(E_\beta)$$

$$\frac{-\dot{h}_z}{E_\beta^{\,2}} = \frac{\lambda^3}{\sqrt{1-\lambda^2}} \sum_{m=0}^{\infty} \Omega^{2m} D_m(\lambda)\, G_{2m}(E_\beta)$$

$$\frac{-h_\alpha}{E_\beta^{\,2}} = \frac{\lambda^2}{\sqrt{1-\lambda^2}} \sum_{m=0}^{\infty} \Omega^{2m} A_m(\lambda)\, G_{2m}(E_\beta)$$

$$\frac{-\dot{h}_\alpha}{E_\beta^{\,2}} = \frac{\lambda^3}{(1-\lambda^2)^{3/2}} \sum_{m=0}^{\infty} \Omega^{2m} B_m(\lambda)\, G_{2m+1}(E_\beta)$$

where

$$F_r(E_\beta) = \frac{1-(1-E_\beta)^{r+1}}{(r+1)\, E_\beta}$$

$$G_r(E_\beta) = \frac{2\left\{(1-E_\beta)^{r+2} - 1 + (r+2)\, E_\beta\right\}}{(r+1)(r+2)\, E_\beta^{\,2}}$$

$$A_m = \lambda \left\{ D_m + \frac{(1-\lambda^2)}{2m} C_{m-1} \right\} \quad (m \geq 1)$$

$$B_m = \frac{(1-\lambda^2)}{2m+1} D_m - C_m$$

$$C_m = (-)^m \frac{(m+1)}{(2m+1)} \sum_{r=0}^{m} \frac{(\lambda/2)^{2r}}{(2m-2r)!\, r!\, (r+1)!}$$

$$D_m = (-)^m \frac{(2m+1)}{4m} \sum_{r=0}^{m-1} \frac{(\lambda/2)^{2r}}{(2m-2r-1)!\, r!\, (r+1)!} \quad (m \geq 1)$$

and

$$A_o = 1/\lambda$$

$$D_o = 1/\lambda^2 .$$

The connection between these functions of λ, the functions $a_{\mu,\nu}$ used by Weber[1], and the functions H_r, G_r used by Temple and Jahn[3] is

$$A_m(\lambda) = (-)^m \sqrt{1-\lambda^2}\,(2m+2)\,a_{2m,3}(\lambda)$$

$$B_m(\lambda) = (-)^{m+1} \frac{\sqrt{1-\lambda^2}}{\lambda}\,(2m+3)\,a_{2m+1,4}(\lambda)$$

$$C_m(\lambda) = (-)^m \frac{(2m+3)}{\lambda\sqrt{1-\lambda^2}}\,a_{2m+2,1}(\lambda) = (-)^m \frac{(m+1)}{(2m+1)!}\,G_m\left(\frac{\lambda^2}{4}\right)$$

$$D_m(\lambda) = (-)^m \frac{(2m+2)}{\lambda\sqrt{1-\lambda^2}}\,a_{2m+1,2}(\lambda) = (\text{for } m \geq 1)\ (-)^m \frac{(2m+1)}{(2m)!}\cdot\frac{H_{m-1}\left(\frac{\lambda^2}{4}\right)}{2}.$$

Temple and Jahn[3] give the expressions for G_m, H_m for values of m as far as 10.

TABLE 1

Comparison of notations

	English (present report)	French (reference 1)	American (reference 2)	German* (reference 5)
Frequency parameter	$\nu = \Omega(1-\lambda^2)$	$\omega(1-\lambda^2)$	$2k = \frac{\bar{\omega}(M^2-1)}{M^2}$	2ω
Mach No.	$M = 1/\lambda$	$M = 1/\lambda$	M	$M = 1/\gamma$
Chord ratio	E_β	τ_1	$1 - x_1$	τ_1
Aileron-wing derivatives	p_z	$2\lambda^2 P_T'$		$\pi r_a'$
	$p_{\dot{z}}$	$\frac{2\lambda^2 P_T''}{\omega(1-\lambda^2)}$		$\frac{\pi}{2}\frac{r_a''}{\omega}$
	p_α	$2\lambda^2 P_R'$		$\frac{\pi}{2} r_b'$
	$p_{\dot{\alpha}}$	$\frac{2\lambda^2 P_R''}{\omega(1-\lambda^2)}$		$\frac{\pi}{4}\frac{r_b''}{\omega}$
	$-h_z$	$2\lambda^2 M_T'$	$2k^2 N_1$	$\frac{\pi}{2} n_a'$
	$-h_{\dot{z}}$	$\frac{2\lambda^2 M_T''}{\omega(1-\lambda^2)}$	$k N_2$	$\frac{\pi}{4}\frac{n_a''}{\omega}$
	$-h_\alpha$	$2\lambda^2 M_R'$	$k^2 N_3'$	$\frac{\pi}{4} n_b'$
	$-h_{\dot{\alpha}}$	$\frac{2\lambda^2 M_R''}{\omega(1-\lambda^2)}$	$\frac{k N_4'}{2}$	$\frac{\pi}{8}\frac{n_b''}{\omega}$
Wing derivatives $q = z, \dot{z}, \alpha, \dot{\alpha}$	ℓ_q	As for p_q $E_\beta \to 1$	As for $(-h_q)$ with N_r replaced by $2L_r$	As for p_q with r_r replaced by k_r
	$-m_q$	As for $(-h_q)$ $E\beta \to 1$	As for $(-h_q)$ with N_r replaced by M_r	As for $(-h_q)$ with n_r replaced by m_r

TABLE 1 (Contd)

	English (present report)	French (reference 1)	American (reference 2)	German* (reference 5)
Wing-aileron derivatives $q = r, \dot{r}, \beta, \dot{\beta}$	ℓ_q, $-m_q$		As for wing derivatives but with suffices 3,4 replaced by 5,6 respectively and no primes. No terms corresponding to those with suffices 1 and 2	As for wing derivatives but with suffices a,b replaced by d,c respectively
Aileron derivatives $q = r, \dot{r}, \beta, \dot{\beta}$	p_q, $-h_q$		As for aileron-wing derivatives but with suffices 3,4 replaced by 5,6 respectively and no primes. No terms corresponding to those with suffices 1 and 2	As for aileron-wing derivatives but with suffices a,b replaced by d,c respectively

* Reference 5 considers both the open step and closed step cases and distinguishes them by a circle or a line over the suffix. The present report and reference 1 only consider the open step case.

TABLE 2

p_z/E_β

E_β / Ω	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0								0
0.2	0.0020	0.0019	0.0018	0.0017	0.0016	0.0015	0.0014	0.0010	0.182
0.4	0.0078	0.0074	0.0071	0.0067	0.0064	0.0060	0.0056	0.0040	0.364
0.6	0.0163	0.0157	0.0151	0.0143	0.0136	0.0129	0.0121	0.0087	0.546
0.8	0.0262	0.0254	0.0246	0.0237	0.0226	0.0215	0.0203	0.0147	0.728
1.0	0.0354	0.0349	0.0343	0.0334	0.0322	0.0309	0.0293	0.0216	0.91
1.2	0.0419	0.0424	0.0425	0.0420	0.0412	0.0399	0.0383	0.0287	1.092
1.4	0.0438	0.0460	0.0475	0.0482	0.0482	0.0475	0.0462	0.0354	1.274
1.6	0.0391	0.0439	0.0477	0.0504	0.0520	0.0525	0.0519	0.0410	1.456
1.8	0.0267	0.0349	0.0418	0.0473	0.0513	0.0537	0.0546	0.0449	1.638
2.0	0.0058	0.0180	0.0289	0.0380	0.0452	0.0503	0.0533	0.0467	1.82
	$M = \frac{10}{4}$								
0	0								0
0.2	0.0046	0.0044	0.0042	0.0039	0.0037	0.0035	0.0033	0.0023	0.168
0.4	0.0177	0.0169	0.0161	0.0153	0.0145	0.0136	0.0127	0.0091	0.336
0.6	0.0371	0.0357	0.0342	0.0326	0.0310	0.0293	0.0275	0.0198	0.504
0.8	0.0594	0.0577	0.0559	0.0537	0.0514	0.0488	0.0461	0.0335	0.672
1.0	0.0801	0.0792	0.0777	0.0757	0.0731	0.0701	0.0666	0.0491	0.84
1.2	0.0949	0.0960	0.0962	0.0953	0.0934	0.0906	0.0869	0.0651	1.008
1.4	0.0990	0.1040	0.1074	0.1091	0.1092	0.1077	0.1047	0.0802	1.176
1.6	0.0888	0.0995	0.1080	0.1162	0.1176	0.1188	0.1176	0.0929	1.344
1.8	0.0616	0.0797	0.0951	0.1073	0.1162	0.1217	0.1237	0.1020	1.512
2.0	0.0163	0.0430	0.0668	0.0870	0.1030	0.1144	0.1213	0.1063	1.68
	M = 2								
0	0								0
0.1	0.0022	0.0021	0.0019	0.0018	0.0017	0.0016	0.0015	0.0011	0.075
0.2	0.0085	0.0081	0.0077	0.0073	0.0069	0.0064	0.0060	0.0043	0.15
0.3	0.0189	0.0180	0.0171	0.0162	0.0153	0.0143	0.0134	0.0096	0.225
0.4	0.0327	0.0312	0.0297	0.0282	0.0267	0.0251	0.0235	0.0168	0.3
0.5	0.0494	0.0474	0.0452	0.0430	0.0407	0.0384	0.0360	0.0259	0.375
0.6	0.0683	0.0658	0.0630	0.0601	0.0571	0.0539	0.0506	0.0365	0.45
0.7	0.0885	0.0856	0.0824	0.0789	0.0752	0.0712	0.0670	0.0486	0.525
0.8	0.1091	0.1061	0.1027	0.0988	0.0945	0.0898	0.0848	0.0617	0.6
0.9	0.1289	0.1263	0.1231	0.1191	0.1145	0.1092	0.1034	0.0758	0.675
1.0	0.1470	0.1454	0.1427	0.1390	0.1344	0.1288	0.1224	0.0903	0.75
1.1	0.1622	0.1622	0.1607	0.1578	0.1535	0.1480	0.1413	0.1050	0.825
1.2	0.1737	0.1759	0.1762	0.1747	0.1713	0.1663	0.1596	0.1197	0.9
1.3	0.1803	0.1856	0.1885	0.1889	0.1871	0.1829	0.1766	0.1339	0.975
1.4	0.1812	0.1904	0.1966	0.1998	0.2001	0.1974	0.1920	0.1473	1.05
1.5	0.1757	0.1895	0.1999	0.2067	0.2097	0.2092	0.2052	0.1595	1.125
1.6	0.1632	0.1824	0.1978	0.2088	0.2155	0.2178	0.2157	0.1706	1.2
1.7	0.1432	0.1685	0.1896	0.2038	0.2168	0.2226	0.2231	0.1800	1.275
1.8	0.1155	0.1476	0.1751	0.1971	0.2133	0.2233	0.2271	0.1874	1.35
1.9	0.0801	0.1194	0.1538	0.1825	0.2045	0.2195	0.2273	0.1927	1.425
2.0	0.0372	0.0838	0.1257	0.1616	0.1903	0.2110	0.2234	0.1958	1.5

TABLE 2 (Contd)

p_z/E_β

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	0								0
0.1	0.0034	0.0033	0.0031	0.0029	0.0028	0.0026	0.0024	0.0017	0.064
0.2	0.0136	0.0130	0.0123	0.0116	0.0109	0.0103	0.0096	0.0069	0.128
0.3	0.0301	0.0287	0.0272	0.0258	0.0243	0.0229	0.0214	0.0153	0.192
0.4	0.0521	0.0498	0.0474	0.0450	0.0425	0.0400	0.0374	0.0269	0.256
0.5	0.0788	0.0755	0.0721	0.0686	0.0649	0.0612	0.0574	0.0413	0.32
0.6	0.1088	0.1047	0.1003	0.0958	0.0909	0.0859	0.0807	0.0582	0.384
0.7	0.1407	0.1362	0.1311	0.1256	0.1197	0.1134	0.1067	0.0774	0.448
0.8	0.1732	0.1686	0.1632	0.1571	0.1503	0.1429	0.1349	0.0983	0.512
0.9	0.2044	0.2005	0.1954	0.1892	0.1819	0.1736	0.1644	0.1205	0.576
1.0	0.2328	0.2304	0.2263	0.2206	0.2133	0.2046	0.1945	0.1436	0.64
1.1	0.2567	0.2568	0.2546	0.2501	0.2435	0.2349	0.2244	0.1669	0.704
1.2	0.2745	0.2782	0.2789	0.2766	0.2715	0.2636	0.2531	0.1901	0.768
1.3	0.2843	0.2933	0.2980	0.2990	0.2962	0.2898	0.2800	0.2125	0.832
1.4	0.2864	0.3008	0.3107	0.3160	0.3166	0.3126	0.3042	0.2337	0.896
1.5	0.2781	0.2996	0.3159	0.3267	0.3318	0.3312	0.3250	0.2532	0.96
1.6	0.2592	0.2889	0.3128	0.3302	0.3409	0.3447	0.3416	0.2706	1.024
1.7	0.2292	0.2681	0.3006	0.3258	0.3432	0.3525	0.3535	0.2855	1.088
1.8	0.1880	0.2367	0.2787	0.3129	0.3382	0.3540	0.3601	0.2975	1.152
1.9	0.1357	0.1946	0.2470	0.2910	0.3252	0.3487	0.3609	0.3063	1.216
2.0	0.0728	0.1422	0.2054	0.2600	0.3042	0.3363	0.3557	0.3117	1.28
2.1	0.0003	0.0797	0.1540	0.2199	0.2748	0.3167	0.3442	0.3136	1.344
2.2	-0.0808	0.0081	0.0933	0.1708	0.2372	0.2896	0.3262	0.3117	1.408
2.3	-0.1689	-0.0717	0.0240	0.1132	0.1916	0.2553	0.3019	0.3062	1.472
2.4	-0.2624	-0.1583	-0.0530	0.0477	0.1383	0.2140	0.2713	0.2971	1.536
2.5	-0.3593	-0.2503	-0.1366	-0.0250	0.0779	0.1660	0.2347	0.2844	1.6
	$M = \frac{10}{7}$								
0	0								0
0.05	0.0012	0.0012	0.0011	0.0010	0.0010	0.0009	0.0009	0.0006	0.0255
0.1	0.0049	0.0046	0.0044	0.0042	0.0039	0.0037	0.0034	0.0024	0.051
0.15	0.0109	0.0104	0.0099	0.0093	0.0088	0.0082	0.0077	0.0055	0.0765
0.2	0.0193	0.0184	0.0174	0.0165	0.0155	0.0146	0.0136	0.0097	0.102
0.25	0.0299	0.0285	0.0270	0.0256	0.0241	0.0226	0.0211	0.0151	0.1275
0.3	0.0426	0.0406	0.0386	0.0365	0.0345	0.0324	0.0303	0.0217	0.153
0.35	0.0573	0.0547	0.0520	0.0493	0.0465	0.0437	0.0409	0.0293	0.1785
0.4	0.0738	0.0705	0.0671	0.0637	0.0602	0.0566	0.0530	0.0380	0.204
0.45	0.0919	0.0879	0.0838	0.0797	0.0753	0.0709	0.0664	0.0478	0.2295
0.5	0.1114	0.1068	0.1020	0.0970	0.0919	0.0866	0.0812	0.0584	0.255
0.6	0.1536	0.1479	0.1418	0.1354	0.1286	0.1215	0.1141	0.0824	0.306
0.7	0.1985	0.1921	0.1851	0.1774	0.1691	0.1602	0.1509	0.1094	0.357
0.8	0.2439	0.2376	0.2301	0.2217	0.2122	0.2018	0.1905	0.1389	0.408
0.9	0.2875	0.2822	0.2752	0.2666	0.2564	0.2449	0.2320	0.1702	0.459
1.0	0.3270	0.3239	0.3183	0.3104	0.3004	0.2883	0.2742	0.2026	0.51
1.1	0.3601	0.3604	0.3576	0.3516	0.3426	0.3307	0.3160	0.2353	0.561
1.2	0.3847	0.3901	0.3913	0.3885	0.3816	0.3708	0.3563	0.2678	0.612
1.3	0.3989	0.4108	0.4177	0.4194	0.4159	0.4073	0.3938	0.2992	0.663
1.4	0.4011	0.4212	0.4353	0.4430	0.4443	0.4390	0.4276	0.3289	0.714
1.5	0.3902	0.4198	0.4426	0.4579	0.4653	0.4648	0.4565	0.3563	0.765
1.6	0.3652	0.4058	0.4387	0.4630	0.4781	0.4837	0.4798	0.3808	0.816
1.8	0.2722	0.3371	0.3939	0.4406	0.4755	0.4976	0.5064	0.4190	0.918
2.0	0.1248	0.2149	0.2985	0.3718	0.4317	0.4758	0.5026	0.4405	1.02
2.2	-0.0666	0.0455	0.1554	0.2573	0.3459	0.4167	0.4664	0.4437	1.122
2.4	-0.2854	-0.1590	-0.0269	0.1024	0.2211	0.3217	0.3985	0.4286	1.224
2.6	-0.5102	-0.3813	-0.2356	-0.0835	0.0637	0.1953	0.3020	0.3969	1.326
2.8	-0.7177	-0.6014	-0.4541	-0.2877	-0.1165	0.0447	0.1824	0.3513	1.428
3.0	-0.8855	-0.7982	-0.6643	-0.4955	-0.3030	-0.1211	0.0456	0.2958	1.53

TABLE 2 (Contd)

p_z/E_β

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0	0								0
0.05	0.0015	0.0015	0.0014	0.0013	0.0012	0.0012	0.0011	0.0008	0.018
0.1	0.0061	0.0058	0.0055	0.0052	0.0049	0.0046	0.0043	0.0031	0.036
0.15	0.0137	0.0130	0.0124	0.0117	0.0110	0.0103	0.0096	0.0069	0.054
0.2	0.0242	0.0230	0.0218	0.0207	0.0195	0.0183	0.0171	0.0122	0.072
0.25	0.0375	0.0357	0.0339	0.0321	0.0302	0.0284	0.0265	0.0190	0.09
0.3	0.0534	0.0509	0.0484	0.0458	0.0432	0.0406	0.0379	0.0272	0.108
0.35	0.0718	0.0685	0.0651	0.0617	0.0583	0.0548	0.0513	0.0368	0.126
0.4	0.0923	0.0883	0.0841	0.0798	0.0754	0.0709	0.0664	0.0477	0.144
0.45	0.1149	0.1100	0.1049	0.0997	0.0943	0.0888	0.0832	0.0598	0.162
0.5	0.1392	0.1335	0.1276	0.1214	0.1150	0.1084	0.1016	0.0732	0.18
0.6	0.1918	0.1848	0.1772	0.1692	0.1608	0.1519	0.1427	0.1031	0.216
0.7	0.2475	0.2397	0.2310	0.2215	0.2112	0.2002	0.1886	0.1369	0.252
0.8	0.3037	0.2960	0.2869	0.2765	0.2648	0.2519	0.2379	0.1736	0.288
0.9	0.3574	0.3510	0.3425	0.3320	0.3196	0.3054	0.2894	0.2125	0.324
1.0	0.4058	0.4021	0.3956	0.3862	0.3740	0.3591	0.3418	0.2527	0.36
1.1	0.4462	0.4470	0.4438	0.4368	0.4260	0.4114	0.3934	0.2934	0.396
1.2	0.4761	0.4831	0.4851	0.4820	0.4739	0.4608	0.4431	0.3335	0.432
1.3	0.4933	0.5083	0.5172	0.5198	0.5159	0.5057	0.4893	0.3724	0.468
1.4	0.4963	0.5210	0.5386	0.5486	0.5506	0.5446	0.5309	0.4092	0.504
1.5	0.4837	0.5197	0.5477	0.5668	0.5765	0.5764	0.5666	0.4431	0.54
1.6	0.4549	0.5034	0.5434	0.5734	0.5924	0.5997	0.5954	0.4735	0.576
1.8	0.3492	0.4249	0.4922	0.5483	0.5908	0.6181	0.6293	0.5216	0.648
2.0	0.1861	0.2880	0.3844	0.4706	0.5420	0.5953	0.6279	0.5503	0.72
2.2	-0.0185	0.1035	0.2266	0.3435	0.4469	0.5308	0.5903	0.5587	0.792
2.4	-0.2415	-0.1107	0.0317	0.1758	0.3112	0.4281	0.5185	0.5476	0.864
2.6	-0.4561	-0.3321	-0.1825	-0.0190	0.1447	0.2945	0.4178	0.5197	0.936
2.8	-0.6353	-0.5362	-0.3951	-0.2241	-0.0397	0.1396	0.2959	0.4790	1.008
3.0	-0.7559	-0.6995	-0.5847	-0.4214	-0.2272	-0.0248	0.1619	0.4307	1.08
3.2	-0.8018	-0.8030	-0.7321	-0.5934	-0.4032	-0.1870	0.0253	0.3800	1.152
3.4	-0.7672	-0.8346	-0.8223	-0.7251	-0.5541	-0.3355	-0.1052	0.3320	1.224
3.6	-0.6573	-0.7909	-0.8467	-0.8056	-0.6694	-0.4612	-0.2203	0.2909	1.296
3.8	-0.4882	-0.6782	-0.8042	-0.8295	-0.7420	-0.5575	-0.3163	0.2597	1.368
4.0	-0.2850	-0.5118	-0.7012	-0.7975	-0.7696	-0.6212	-0.3895	0.2397	1.44

TABLE 3

p_z/E_β

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0.6290	0.6290	0.6290	0.6290	0.6290	0.6290	0.6290	0.6290	0
0.2	0.6273	0.6274	0.6276	0.6277	0.6279	0.6280	0.6281	0.6284	0.182
0.4	0.6223	0.6230	0.6236	0.6241	0.6246	0.6251	0.6255	0.6267	0.364
0.6	0.6145	0.6158	0.6171	0.6183	0.6194	0.6204	0.6213	0.6240	0.546
0.8	0.6043	0.6065	0.6086	0.6105	0.6124	0.6141	0.6157	0.6204	0.728
1.0	0.5925	0.5955	0.5985	0.6013	0.6040	0.6066	0.6089	0.6160	0.91
1.2	0.5799	0.5837	0.5875	0.5912	0.5947	0.5981	0.6013	0.6111	1.092
1.4	0.5675	0.5718	0.5762	0.5806	0.5849	0.5891	0.5931	0.6057	1.274
1.6	0.5562	0.5606	0.5653	0.5702	0.5751	0.5800	0.5848	0.6002	1.456
1.8	0.5470	0.5509	0.5555	0.5605	0.5658	0.5713	0.5767	0.5948	1.638
2.0	0.5405	0.5435	0.5474	0.5522	0.5576	0.5633	0.5692	0.5897	1.82
	$M = \frac{10}{4}$								
0	0.8729	0.8729	0.8729	0.8729	0.8729	0.8729	0.8729	0.8729	0
0.2	0.8687	0.8691	0.8695	0.8698	0.8701	0.8704	0.8707	0.8715	0.168
0.4	0.8565	0.8581	0.8595	0.8609	0.8621	0.8633	0.8643	0.8674	0.336
0.6	0.8372	0.8405	0.8436	0.8465	0.8492	0.8517	0.8540	0.8607	0.504
0.8	0.8123	0.8176	0.8227	0.8275	0.8321	0.8363	0.8402	0.8518	0.672
1.0	0.7835	0.7909	0.7981	0.8050	0.8116	0.8178	0.8236	0.8411	0.840
1.2	0.7531	0.7622	0.7714	0.7803	0.7889	0.7972	0.8049	0.8290	1.008
1.4	0.7234	0.7336	0.7441	0.7547	0.7652	0.7754	0.7851	0.8160	1.176
1.6	0.6966	0.7069	0.7180	0.7298	0.7417	0.7535	0.7651	0.8027	1.344
1.8	0.6750	0.6842	0.6949	0.7068	0.7195	0.7326	0.7456	0.7896	1.512
2.0	0.6603	0.6670	0.6762	0.6873	0.7000	0.7137	0.7277	0.7774	1.680
	$M = 2$								
0	1.1547	1.1547	1.1547	1.1547	1.1547	1.1547	1.1547	1.1547	0
0.1	1.1525	1.1527	1.1530	1.1531	1.1533	1.1535	1.1536	1.1540	0.075
0.2	1.1461	1.1469	1.1477	1.1484	1.1491	1.1497	1.1502	1.1518	0.15
0.3	1.1355	1.1373	1.1391	1.1406	1.1421	1.1434	1.1447	1.1483	0.225
0.4	1.1210	1.1242	1.1271	1.1299	1.1325	1.1348	1.1370	1.1433	0.30
0.5	1.1028	1.1076	1.1122	1.1164	1.1204	1.1240	1.1273	1.1371	0.375
0.6	1.0813	1.0880	1.0944	1.1003	1.1059	1.1110	1.1157	1.1296	0.45
0.7	1.0569	1.0657	1.0740	1.0819	1.0892	1.0961	1.1023	1.1210	0.525
0.8	1.0302	1.0411	1.0515	1.0614	1.0707	1.0794	1.0873	1.1114	0.60
0.9	1.0016	1.0146	1.0271	1.0391	1.0505	1.0611	1.0709	1.1008	0.675
1.0	0.9716	0.9867	1.0013	1.0155	1.0289	1.0416	1.0534	1.0893	0.75
1.1	0.9410	0.9579	0.9745	0.9907	1.0062	1.0210	1.0348	1.0773	0.825
1.2	0.9104	0.9288	0.9471	0.9652	0.9828	0.9996	1.0154	1.0646	0.90
1.3	0.8802	0.8998	0.9196	0.9395	0.9589	0.9777	0.9955	1.0516	0.975
1.4	0.8511	0.8714	0.8924	0.9137	0.9349	0.9556	0.9753	1.0383	1.05
1.5	0.8238	0.8443	0.8660	0.8885	0.9111	0.9335	0.9551	1.0249	1.125
1.6	0.7987	0.8188	0.8408	0.8640	0.8878	0.9117	0.9350	1.0115	1.20
1.7	0.7763	0.7954	0.8172	0.8407	0.8654	0.8905	0.9153	0.9983	1.275
1.8	0.7572	0.7747	0.7955	0.8189	0.8441	0.8702	0.8963	0.9855	1.35
1.9	0.7417	0.7569	0.7762	0.7990	0.8242	0.8510	0.8782	0.9730	1.425
2.0	0.7301	0.7423	0.7596	0.7811	0.8059	0.8329	0.8610	0.9612	1.50

TABLE 3 (Contd)

p_z/E_β

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	0
0.1	1.4960	1.4963	1.4967	1.4970	1.4974	1.4976	1.4979	1.4981	0.064
0.2	1.4839	1.4855	1.4869	1.4882	1.4895	1.4906	1.4916	1.4946	0.128
0.3	1.4641	1.4675	1.4708	1.4737	1.4764	1.4790	1.4812	1.4880	0.192
0.4	1.4370	1.4429	1.4485	1.4537	1.4585	1.4629	1.4669	1.4788	0.256
0.5	1.4031	1.4121	1.4206	1.4285	1.4359	1.4426	1.4488	1.4671	0.32
0.6	1.3632	1.3757	1.3875	1.3986	1.4089	1.4185	1.4272	1.4532	0.384
0.7	1.3181	1.3343	1.3493	1.3644	1.3780	1.3907	1.4023	1.4372	0.448
0.8	1.2687	1.2888	1.3081	1.3264	1.3437	1.3598	1.3746	1.4192	0.512
0.9	1.2161	1.2400	1.2632	1.2853	1.3064	1.3260	1.3442	1.3996	0.576
1.0	1.1614	1.1889	1.2158	1.2418	1.2666	1.2900	1.3118	1.3786	0.64
1.1	1.1058	1.1364	1.1668	1.1964	1.2250	1.2522	1.2776	1.3563	0.704
1.2	1.0503	1.0835	1.1169	1.1499	1.1821	1.2130	1.2421	1.3331	0.768
1.3	0.9961	1.0312	1.0671	1.1031	1.1386	1.1731	1.2057	1.3093	0.832
1.4	0.9444	0.9805	1.0182	1.0567	1.0952	1.1328	1.1690	1.2850	0.896
1.5	0.8962	0.9324	0.9710	1.0113	1.0523	1.0929	1.1323	1.2607	0.96
1.6	0.8526	0.8876	0.9263	0.9677	1.0106	1.0538	1.0962	1.2365	1.024
1.7	0.8143	0.8472	0.8850	0.9266	0.9707	1.0159	1.0609	1.2128	1.088
1.8	0.7822	0.8116	0.8475	0.8884	0.9330	0.9798	1.0270	1.1897	1.152
1.9	0.7568	0.7818	0.8145	0.8539	0.8983	0.9459	0.9949	1.1676	1.216
2.0	0.7388	0.7580	0.7867	0.8235	0.8667	0.9145	0.9648	1.1466	1.28
2.1	0.7283	0.7409	0.7644	0.7976	0.8389	0.8861	0.9371	1.1269	1.344
2.2	0.7257	0.7306	0.7479	0.7765	0.8150	0.8610	0.9120	1.1087	1.408
2.3	0.7308	0.7273	0.7375	0.7607	0.7954	0.8394	0.8898	1.0921	1.472
2.4	0.7436	0.7310	0.7333	0.7501	0.7802	0.8214	0.8707	1.0773	1.536
2.5	0.7638	0.7417	0.7353	0.7450	0.7697	0.8074	0.8548	1.0643	1.6
	$M = \frac{10}{7}$								
0	1.9604	1.9604	1.9604	1.9604	1.9604	1.9604	1.9604	1.9604	0
0.05	1.9586	1.9588	1.9589	1.9591	1.9592	1.9593	1.9595	1.9598	0.0255
0.1	1.9532	1.9539	1.9545	1.9551	1.9557	1.9562	1.9566	1.9580	0.051
0.15	1.9443	1.9458	1.9473	1.9486	1.9498	1.9510	1.9520	1.9550	0.0765
0.2	1.9318	1.9345	1.9371	1.9394	1.9416	1.9436	1.9455	1.9508	0.102
0.25	1.9159	1.9202	1.9241	1.9278	1.9312	1.9343	1.9372	1.9455	0.1275
0.3	1.8967	1.9027	1.9084	1.9137	1.9185	1.9229	1.9271	1.9391	0.153
0.35	1.8742	1.8823	1.8900	1.8971	1.9037	1.9097	1.9152	1.9313	0.1785
0.4	1.8486	1.8591	1.8690	1.8782	1.8867	1.8945	1.9016	1.9227	0.204
0.45	1.8200	1.8331	1.8454	1.8570	1.8676	1.8774	1.8864	1.9129	0.2295
0.5	1.7887	1.8045	1.8195	1.8336	1.8466	1.8586	1.8695	1.9020	0.255
0.6	1.7183	1.7403	1.7611	1.7807	1.7989	1.8158	1.8313	1.8774	0.306
0.7	1.6390	1.6675	1.6946	1.7204	1.7445	1.7668	1.7874	1.8491	0.357
0.8	1.5525	1.5877	1.6215	1.6536	1.6840	1.7123	1.7385	1.8175	0.408
0.9	1.4609	1.5025	1.5429	1.5817	1.6185	1.6531	1.6852	1.7830	0.459
1.0	1.3662	1.4137	1.4604	1.5057	1.5491	1.5901	1.6284	1.7461	0.51
1.1	1.2704	1.3231	1.3755	1.4269	1.4767	1.5242	1.5687	1.7072	0.561
1.2	1.1756	1.2324	1.2897	1.3467	1.4025	1.4563	1.5070	1.6668	0.612
1.3	1.0840	1.1434	1.2045	1.2663	1.3276	1.3873	1.4442	1.6255	0.663
1.4	0.9975	1.0579	1.1216	1.1871	1.2532	1.3183	1.3810	1.5837	0.714
1.5	0.9179	0.9776	1.0423	1.1104	1.1803	1.2502	1.3183	1.5419	0.765
1.6	0.8468	0.9039	0.9680	1.0373	1.1099	1.1838	1.2568	1.5006	0.816
1.8	0.7359	0.7818	0.8393	0.9065	0.9809	1.0598	1.1404	1.4214	0.918
2.0	0.6731	0.7002	0.7439	0.8024	0.8730	0.9525	1.0372	1.3493	1.02
2.2	0.6621	0.6643	0.6875	0.7307	0.7916	0.8667	0.9515	1.2869	1.122
2.4	0.7018	0.6750	0.6724	0.6945	0.7400	0.8055	0.8862	1.2362	1.224
2.6	0.7865	0.7297	0.6981	0.6946	0.7196	0.7706	0.8429	1.1981	1.326
2.8	0.9066	0.8220	0.7607	0.7289	0.7295	0.7619	0.8218	1.1728	1.428
3.0	1.0497	0.9426	0.8539	0.7933	0.7672	0.7775	0.8216	1.1597	1.53

TABLE 3 (Contd)

P_z/E_β

E_β / Ω	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0	2.6667	2.6667	2.6667	2.6667	2.6667	2.6667	2.6667	2.6667	0
0.05	2.6635	2.6638	2.6641	2.6643	2.6645	2.6648	2.6650	2.6656	0.018
0.1	2.6539	2.6551	2.6563	0.6573	2.6583	2.6592	2.6600	2.6624	0.036
0.15	2.6380	2.6408	2.6433	2.6457	2.6479	2.6499	2.6517	2.6571	0.054
0.2	2.6159	2.6208	2.6252	2.6295	2.6334	2.6370	2.6402	2.6497	0.072
0.25	2.5877	2.5952	2.6023	2.6088	2.6149	2.6204	2.6254	2.6402	0.09
0.3	2.5536	2.5643	2.5744	2.5837	2.5924	2.6003	2.6075	2.6287	0.108
0.35	2.5138	2.5282	2.5418	2.5544	2.5660	2.5767	2.5864	2.6152	0.126
0.4	2.4685	2.4871	2.5046	2.5209	2.5359	2.5498	2.5624	2.5997	0.144
0.45	2.4181	2.4412	2.4630	2.4834	2.5022	2.5196	2.5354	2.5824	0.162
0.5	2.3627	2.3908	2.4172	2.4420	2.4651	2.4863	2.5056	2.5632	0.18
0.6	2.2389	2.2775	2.3142	2.3487	2.3809	2.4108	2.4380	2.5197	0.216
0.7	2.0999	2.1499	2.1974	2.2426	2.2851	2.3245	2.3607	2.4699	0.252
0.8	1.9492	2.0105	2.0694	2.1258	2.1791	2.2288	2.2748	2.4143	0.288
0.9	1.7904	1.8624	1.9326	2.0002	2.0647	2.1253	2.1816	2.3538	0.324
1.0	1.6272	1.7090	1.7897	1.8683	1.9438	2.0155	2.0825	2.2894	0.36
1.1	1.4636	1.5535	1.6434	1.7322	1.8185	1.9011	1.9789	2.2217	0.396
1.2	1.3032	1.3991	1.4968	1.5946	1.6908	1.7839	1.8723	2.1518	0.432
1.3	1.1498	1.2491	1.3524	1.4577	1.5628	1.6657	1.7643	2.0806	0.468
1.4	1.0068	1.1066	1.2131	1.3238	1.4363	1.5480	1.6563	2.0089	0.504
1.5	0.8774	0.9744	1.0813	1.1954	1.3136	1.4327	1.5497	1.9377	0.54
1.6	0.7641	0.8551	0.9595	1.0743	1.1962	1.3214	1.4460	1.8678	0.576
1.8	0.5948	0.6637	0.7538	0.8620	0.9844	1.1162	1.2523	1.7350	0.648
2.0	0.5106	0.5454	0.6091	0.6994	0.8124	0.9428	1.0839	1.6161	0.72
2.2	0.5138	0.5057	0.5328	0.5946	0.6883	0.8084	0.9476	1.5151	0.792
2.4	0.5980	0.5430	0.5263	0.5508	0.6160	0.7174	0.8473	1.4346	0.864
2.6	0.7485	0.6483	0.5851	0.5666	0.5959	0.6708	0.7844	1.3757	0.936
2.8	0.9447	0.8068	0.6993	0.6357	0.6242	0.6665	0.7576	1.3377	1.008
3.0	1.1621	0.9994	0.8550	0.7483	0.6942	0.6997	0.7633	1.3187	1.08
3.2	1.3756	1.2049	1.0353	0.8919	0.7966	0.7635	0.7962	1.3157	1.152
3.4	1.5622	1.4022	1.2224	1.0522	0.9207	0.8497	0.8497	1.3249	1.224
3.6	1.7033	1.5722	1.3992	1.2151	1.0550	0.9494	0.9168	1.3422	1.296
3.8	1.7866	1.7001	1.5507	1.3672	1.1887	1.0538	0.9904	1.3637	1.368
4.0	1.8075	1.7762	1.6654	1.4974	1.3121	1.1551	1.0641	1.3856	1.44

TABLE 4

p_α/E_β

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0.6290	0.6290	0.6290	0.6290	0.6290	0.6290	0.6290	0.6290	0
0.2	0.6283	0.6284	0.6284	0.6285	0.6285	0.6286	0.6286	0.6287	0.182
0.4	0.6263	0.6266	0.6268	0.6270	0.6272	0.6274	0.6276	0.6281	0.364
0.6	0.6232	0.6237	0.6242	0.6247	0.6252	0.6256	0.6259	0.6270	0.546
0.8	0.6190	0.6199	0.6208	0.6216	0.6223	0.6230	0.6237	0.6256	0.728
1.0	0.6141	0.6154	0.6166	0.6178	0.6189	0.6199	0.6209	0.6238	0.91
1.2	0.6086	0.6103	0.6119	0.6135	0.6150	0.6164	0.6177	0.6217	1.092
1.4	0.6029	0.6049	0.6069	0.6088	0.6107	0.6125	0.6142	0.6194	1.274
1.6	0.5972	0.5995	0.6018	0.6040	0.6063	0.6084	0.6105	0.6170	1.456
1.8	0.5919	0.5943	0.5967	0.5993	0.6018	0.6043	0.6067	0.6145	1.638
2.0	0.5872	0.5895	0.5920	0.5947	0.5975	0.6002	0.6030	0.6120	1.82
	$M = \frac{10}{4}$								
0	0.8729	0.8729	0.8729	0.8729	0.8729	0.8729	0.8729	0.8729	0
0.2	0.8710	0.8712	0.8714	0.8715	0.8717	0.8718	0.8719	0.8723	0.168
0.4	0.8657	0.8663	0.8670	0.8676	0.8681	0.8686	0.8691	0.8704	0.336
0.6	0.8571	0.8585	0.8599	0.8612	0.8624	0.8635	0.8645	0.8675	0.504
0.8	0.8458	0.8482	0.8505	0.8527	0.8547	0.8566	0.8583	0.8635	0.672
1.0	0.8326	0.8360	0.8393	0.8425	0.8455	0.8483	0.8508	0.8587	0.84
1.2	0.8182	0.8226	0.8269	0.8310	0.8350	0.8388	0.8423	0.8531	1.008
1.4	0.8036	0.8087	0.8138	0.8189	0.8238	0.8286	0.8331	0.8471	1.176
1.6	0.7896	0.7951	0.8008	0.8066	0.8124	0.8180	0.8234	0.8408	1.344
1.8	0.7770	0.7825	0.7884	0.7947	0.8011	0.8075	0.8138	0.8344	1.512
2.0	0.7666	0.7716	0.7774	0.7837	0.7905	0.7975	0.8045	0.8281	1.68
	$M = 2$								
0	1.1547	1.1547	1.1547	1.1547	1.1547	1.1547	1.1547	1.1547	0
0.1	1.1536	1.1537	1.1538	1.1539	1.1540	1.1541	1.1541	1.1543	0.075
0.2	1.1504	1.1508	1.1512	1.1516	1.1519	1.1522	1.1525	1.1533	0.15
0.3	1.1451	1.1460	1.1469	1.1477	1.1484	1.1491	1.1497	1.1515	0.225
0.4	1.1378	1.1394	1.1409	1.1423	1.1436	1.1448	1.1458	1.1490	0.3
0.5	1.1287	1.1311	1.1334	1.1355	1.1375	1.1393	1.1410	1.1459	0.375
0.6	1.1178	1.1212	1.1244	1.1274	1.1302	1.1328	1.1351	1.1421	0.45
0.7	1.1055	1.1099	1.1142	1.1181	1.1218	1.1253	1.1284	1.1378	0.525
0.8	1.0919	1.0975	1.1028	1.1078	1.1125	1.1168	1.1208	1.1329	0.6
0.9	1.0773	1.0840	1.0904	1.0965	1.1022	1.1076	1.1126	1.1276	0.675
1.0	1.0619	1.0697	1.0772	1.0844	1.0912	1.0977	1.1036	1.1218	0.75
1.1	1.0461	1.0548	1.0634	1.0717	1.0796	1.0871	1.0941	1.1156	0.825
1.2	1.0300	1.0397	1.0492	1.0586	1.0676	1.0762	1.0842	1.1092	0.9
1.3	1.0140	1.0244	1.0348	1.0452	1.0552	1.0649	1.0740	1.1024	0.975
1.4	0.9984	1.0093	1.0205	1.0317	1.0427	1.0534	1.0635	1.0956	1.05
1.5	0.9834	0.9947	1.0064	1.0183	1.0301	1.0418	1.0529	1.0885	1.125
1.6	0.9693	0.9806	0.9926	1.0051	1.0177	1.0302	1.0423	1.0816	1.2
1.7	0.9563	0.9674	0.9795	0.9924	1.0056	1.0188	1.0318	1.0746	1.275
1.8	0.9446	0.9553	0.9672	0.9802	0.9939	1.0078	1.0216	1.0677	1.35
1.9	0.9344	0.9444	0.9558	0.9688	0.9827	0.9972	1.0117	1.0609	1.425
2.0	0.9259	0.9347	0.9456	0.9583	0.9722	0.9870	1.0020	1.0544	1.5

TABLE 4 (Contd)

P_α/E_β

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	0
0.1	1.4977	1.4979	1.4981	1.4983	1.4985	1.4986	1.4988	1.4992	0.064
0.2	1.4908	1.4917	1.4925	1.4933	1.4940	1.4946	1.4952	1.4969	0.128
0.3	1.4794	1.4814	1.4832	1.4849	1.4865	1.4879	1.4892	1.4931	0.192
0.4	1.4639	1.4673	1.4705	1.4734	1.4762	1.4787	1.4810	1.4878	0.256
0.5	1.4444	1.4496	1.4544	1.4590	1.4632	1.4671	1.4706	1.4811	0.32
0.6	1.4215	1.4286	1.4354	1.4418	1.4477	1.4532	1.4582	1.4732	0.384
0.7	1.3955	1.4048	1.4137	1.4221	1.4300	1.4373	1.4439	1.4639	0.448
0.8	1.3670	1.3786	1.3897	1.4003	1.4102	1.4194	1.4280	1.4536	0.512
0.9	1.3367	1.3505	1.3638	1.3766	1.3887	1.4000	1.4105	1.4423	0.576
1.0	1.3050	1.3209	1.3364	1.3514	1.3658	1.3792	1.3918	1.4302	0.64
1.1	1.2727	1.2905	1.3081	1.3252	1.3417	1.3574	1.3720	1.4174	0.704
1.2	1.2403	1.2597	1.2791	1.2983	1.3169	1.3347	1.3515	1.4039	0.768
1.3	1.2086	1.2292	1.2501	1.2711	1.2917	1.3116	1.3305	1.3901	0.832
1.4	1.1781	1.1994	1.2215	1.2440	1.2663	1.2882	1.3091	1.3761	0.896
1.5	1.1495	1.1710	1.1938	1.2174	1.2413	1.2649	1.2877	1.3619	0.96
1.6	1.1232	1.1443	1.1673	1.1917	1.2168	1.2420	1.2666	1.3478	1.024
1.7	1.0998	1.1199	1.1426	1.1672	1.1932	1.2197	1.2459	1.3339	1.088
1.8	1.0797	1.0981	1.1199	1.1444	1.1708	1.1983	1.2259	1.3203	1.152
1.9	1.0631	1.0793	1.0996	1.1235	1.1499	1.1780	1.2068	1.3072	1.216
2.0	1.0505	1.0638	1.0821	1.1047	1.1307	1.1591	1.1887	1.2947	1.28
2.1	1.0419	1.0518	1.0675	1.0883	1.1134	1.1418	1.1718	1.2828	1.344
2.2	1.0374	1.0434	1.0559	1.0745	1.0983	1.1261	1.1564	1.2717	1.408
2.3	1.0370	1.0387	1.0475	1.0634	1.0855	1.1123	1.1426	1.2615	1.472
2.4	1.0407	1.0378	1.0426	1.0553	1.0750	1.1005	1.1303	1.2522	1.536
2.5	1.0482	1.0404	1.0409	1.0501	1.0669	1.0904	1.1197	1.2439	1.6
	$M = \frac{10}{7}$								
0	1.9604	1.9604	1.9604	1.9604	1.9604	1.9604	1.9604	1.9604	0
0.05	1.9592	1.9593	1.9594	1.9595	1.9596	1.9597	1.9598	1.9600	0.0255
0.1	1.9556	1.9561	1.9565	1.9569	1.9573	1.9576	1.9579	1.9588	0.051
0.15	1.9497	1.9508	1.9517	1.9526	1.9534	1.9542	1.9548	1.9568	0.0765
0.2	1.9415	1.9433	1.9450	1.9466	1.9480	1.9494	1.9506	1.9541	0.102
0.25	1.9310	1.9338	1.9365	1.9389	1.9411	1.9432	1.9451	1.9506	0.1275
0.3	1.9183	1.9223	1.9261	1.9296	1.9328	1.9357	1.9384	1.9463	0.153
0.35	1.9035	1.9089	1.9139	1.9186	1.9230	1.9269	1.9306	1.9412	0.1785
0.4	1.8866	1.8936	1.9001	1.9061	1.9118	1.9169	1.9216	1.9355	0.204
0.45	1.8678	1.8764	1.8846	1.8921	1.8992	1.9056	1.9115	1.9290	0.2295
0.5	1.8471	1.8576	1.8675	1.8767	1.8853	1.8932	1.9004	1.9219	0.255
0.6	1.8007	1.8152	1.8289	1.8418	1.8539	1.8650	1.8752	1.9056	0.306
0.7	1.7484	1.7672	1.7851	1.8020	1.8180	1.8327	1.8462	1.8870	0.357
0.8	1.6914	1.7146	1.7369	1.7581	1.7781	1.7948	1.8140	1.8661	0.408
0.9	1.6311	1.6585	1.6851	1.7107	1.7350	1.7578	1.7739	1.8434	0.459
1.0	1.5688	1.6001	1.6308	1.6606	1.6892	1.7162	1.7414	1.8191	0.51
1.1	1.5057	1.5404	1.5749	1.6083	1.6415	1.6728	1.7021	1.7934	0.561
1.2	1.4434	1.4807	1.5184	1.5560	1.5927	1.6281	1.6616	1.7669	0.612
1.3	1.3833	1.4223	1.4625	1.5035	1.5434	1.5827	1.6202	1.7397	0.663
1.4	1.3264	1.3661	1.4079	1.4510	1.4945	1.5373	1.5786	1.7121	0.714
1.5	1.2742	1.3133	1.3558	1.4006	1.4465	1.4925	1.5373	1.6847	0.765
1.6	1.2276	1.2650	1.3071	1.3526	1.4003	1.4489	1.4969	1.6575	0.816
1.8	1.1549	1.1850	1.2227	1.2667	1.3156	1.3675	1.4204	1.6054	0.918
2.0	1.1136	1.1315	1.1601	1.1985	1.2448	1.2970	1.3526	1.5580	1.02
2.2	1.1058	1.1076	1.1229	1.1513	1.1913	1.2406	1.2963	1.5170	1.122
2.4	1.1304	1.1138	1.1125	1.1273	1.1542	1.2003	1.2533	1.4836	1.224
2.6	1.1834	1.1479	1.1282	1.1265	1.1432	1.1769	1.2245	1.4583	1.326
2.8	1.2579	1.2054	1.1672	1.1475	1.1486	1.1702	1.2099	1.4412	1.428
3.0	1.3454	1.2800	1.2250	1.1873	1.17[illegible]5	1.1790	1.2085	1.4318	1.53

TABLE 4 (Contd)

p_{α}/E_{β}

Ω \ E_{β}	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0	2.6667	2.6667	2.6667	2.6667	2.6667	2.6667	2.6667	2.6667	0
0.05	2.6642	2.6645	2.6647	2.6649	2.6651	2.6652	2.6654	2.6659	0.018
0.1	2.6570	2.6579	2.6588	2.6596	2.6603	2.6610	2.6616	2.6634	0.036
0.15	2.6449	2.6470	2.6489	2.6508	2.6524	2.6539	2.6553	2.6594	0.054
0.2	2.6281	2.6318	2.6352	2.6384	2.6414	2.6441	2.6465	2.6538	0.072
0.25	2.6067	2.6124	2.6178	2.6227	2.6273	2.6315	2.6353	2.6466	0.09
0.3	2.5808	2.5889	2.5966	2.6037	2.6102	2.6162	2.6217	2.6378	0.108
0.35	2.5506	2.5615	2.5718	2.5814	2.5902	2.5983	2.6057	2.6276	0.126
0.4	2.5162	2.5303	2.5435	2.5559	2.5674	2.5779	2.5874	2.6158	0.144
0.45	2.4779	2.4954	2.5120	2.5274	2.5418	2.5550	2.5670	2.6027	0.162
0.5	2.4359	2.4572	2.4773	2.4961	2.5136	2.5296	2.5443	2.5881	0.18
0.6	2.3420	2.3713	2.3991	2.4253	2.4498	2.4724	2.4931	2.5551	0.216
0.7	2.2368	2.2745	2.3107	2.3449	2.3771	2.4070	2.4344	2.5173	0.252
0.8	2.1228	2.1691	2.2137	2.2564	2.2967	2.3345	2.3693	2.4751	0.288
0.9	2.0029	2.0573	2.1103	2.1614	2.2102	2.2561	2.2988	2.4294	0.324
1.0	1.8800	1.9416	2.0024	2.0617	2.1189	2.1731	2.2238	2.3806	0.36
1.1	1.7569	1.8245	1.8922	1.9592	2.0243	2.0867	2.1455	2.3295	0.396
1.2	1.6368	1.7086	1.7819	1.8555	1.9281	1.9984	2.0652	2.2767	0.432
1.3	1.5223	1.5964	1.6737	1.7527	1.8318	1.9094	1.9838	2.2231	0.468
1.4	1.4160	1.4901	1.5696	1.6525	1.7370	1.8210	1.9026	2.1691	0.504
1.5	1.3205	1.3921	1.4715	1.5566	1.6451	1.7347	1.8228	2.1157	0.54
1.6	1.2376	1.3042	1.3813	1.4667	1.5577	1.6515	1.7452	2.0633	0.576
1.8	1.1164	1.1653	1.2306	1.3102	1.4009	1.4991	1.6010	1.9643	0.648
2.0	1.0609	1.0830	1.1274	1.1925	1.2752	1.3717	1.4768	1.8761	0.72
2.2	1.0726	1.0614	1.0770	1.1195	1.1867	1.2746	1.3776	1.8021	0.792
2.4	1.1456	1.0984	1.0802	1.0936	1.1383	1.2111	1.3062	1.7439	0.864
2.6	1.2682	1.1868	1.1330	1.1130	1.1271	1.1816	1.2636	1.7023	0.936
2.8	1.4237	1.3144	1.2272	1.1728	1.1579	1.1843	1.2485	1.6767	1.008
3.0	1.5927	1.4662	1.3517	1.2648	1.2173	1.2153	1.2580	1.6655	1.08
3.2	1.7556	1.6254	1.4932	1.3791	1.3005	1.2689	1.2876	1.6661	1.152
3.4	1.8942	1.7751	1.6375	1.5044	1.3989	1.3386	1.3322	1.6756	1.224
3.6	1.9942	1.9008	1.7711	1.6295	1.5034	1.4172	1.3861	1.6907	1.296
3.8	2.0463	1.9907	1.8825	1.7439	1.6055	1.4980	1.4438	1.7083	1.368
4.0	2.0473	2.0377	1.9628	1.8391	1.6977	1.5747	1.5002	1.7254	1.44

TABLE 5

$p^{\circ}_{\alpha}/E_{\beta}$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0.5668	0.5384	0.5101	0.4818	0.4534	0.4251	0.3967		0
0.2	0.5670	0.5387	0.5103	0.4819	0.4536	0.4252	0.3968	0.2835	0.182
0.4	0.5679	0.5394	0.5109	0.4825	0.4540	0.4256	0.3972	0.2837	0.364
0.6	0.5692	0.5406	0.5119	0.4833	0.4548	0.4262	0.3977	0.2840	0.546
0.8	0.5711	0.5421	0.5133	0.4845	0.4558	0.4271	0.3985	0.2845	0.728
1.0	0.5733	0.5441	0.5150	0.4860	0.4570	0.4282	0.3995	0.2851	0.91
1.2	0.5759	0.5464	0.5170	0.4877	0.4585	0.4295	0.4006	0.2858	1.092
1.4	0.5788	0.5489	0.5192	0.4896	0.4602	0.4309	0.4018	0.2865	1.274
1.6	0.5818	0.5516	0.5215	0.4917	0.4620	0.4325	0.4032	0.2874	1.456
1.8	0.5849	0.5543	0.5240	0.4938	0.4639	0.4342	0.4047	0.2883	1.638
2.0	0.5879	0.5571	0.5265	0.4961	0.4659	0.4359	0.4062	0.2892	1.82
	$M = \frac{10}{4}$								
0	0.7066	0.6713	0.6359	0.6006	0.5653	0.5300	0.4946		0
0.2	0.7075	0.6721	0.6366	0.6012	0.5658	0.5304	0.4950	0.3535	0.168
0.4	0.7102	0.6744	0.6386	0.6029	0.5672	0.5316	0.4961	0.3542	0.336
0.6	0.7145	0.6781	0.6418	0.6057	0.5696	0.5337	0.4979	0.3553	0.504
0.8	0.72	0.6832	0.6462	0.6095	0.5729	0.5365	0.5003	0.3568	0.672
1.0	0.7275	0.6894	0.6516	0.6141	0.5769	0.5400	0.5033	0.3587	0.84
1.2	0.7356	0.6965	0.6578	0.6195	0.5816	0.5441	0.5069	0.3609	1.008
1.4	0.7444	0.7043	0.6646	0.6255	0.5868	0.5486	0.5108	0.3633	1.176
1.6	0.7535	0.7124	0.6719	0.6318	0.5924	0.5534	0.5151	0.3659	1.344
1.8	0.7627	0.7208	0.6793	0.6384	0.5982	0.5585	0.5195	0.3687	1.512
2.0	0.7720	0.7290	0.6868	0.6451	0.6041	0.5637	0.5241	0.3715	1.68
	M = 2								
0	0.7698	0.7313	0.6928	0.6543	0.6158	0.5774	0.5389		0
0.1	0.7704	0.7319	0.6933	0.6547	0.6162	0.5777	0.5391	0.3851	0.075
0.2	0.7724	0.7335	0.6947	0.6560	0.6172	0.5786	0.5399	0.3855	0.15
0.3	0.7755	0.7362	0.6971	0.6580	0.6190	0.5800	0.5412	0.3863	0.225
0.4	0.7799	0.7400	0.7003	0.6608	0.6214	0.5818	0.5430	0.3874	0.3
0.5	0.7855	0.7448	0.7044	0.6643	0.6244	0.5847	0.5453	0.3888	0.375
0.6	0.7921	0.7506	0.7094	0.6686	0.6281	0.5879	0.5480	0.3905	0.45
0.7	0.7998	0.7572	0.7151	0.6735	0.6324	0.5916	0.5512	0.3925	0.525
0.8	0.8084	0.7647	0.7216	0.6791	0.6372	0.5958	0.5548	0.3948	0.6
0.9	0.8179	0.7731	0.7288	0.6853	0.6425	0.6004	0.5589	0.3972	0.675
1.0	0.8281	0.7819	0.7365	0.6920	0.6484	0.6055	0.5633	0.3999	0.75
1.1	0.8389	0.7914	0.7448	0.6993	0.6546	0.6109	0.5630	0.4029	0.825
1.2	0.8502	0.8014	0.7536	0.7069	0.6613	0.6167	0.5730	0.4060	0.9
1.3	0.8620	0.8117	0.7627	0.7149	0.6682	0.6227	0.5783	0.4092	0.975
1.4	0.8740	0.8221	0.7722	0.7232	0.6755	0.6290	0.5838	0.4127	1.05
1.5	0.8861	0.8333	0.7818	0.7317	0.6829	0.6356	0.5895	0.4163	1.125
1.6	0.8982	0.8443	0.7916	0.7404	0.6906	0.6422	0.5953	0.4198	1.2
1.7	0.9103	0.8551	0.8014	0.7491	0.6983	0.6490	0.6013	0.4235	1.275
1.8	0.9221	0.8661	0.8113	0.7579	0.7061	0.6559	0.6073	0.4272	1.35
1.9	0.9336	0.8768	0.8210	0.7667	0.7139	0.6628	0.6133	0.4310	1.425
2.0	0.9446	0.8873	0.8307	0.7754	0.7217	0.6696	0.6194	0.4348	1.5

TABLE 5 (Contd)

p_α/E_β

E_β / Ω	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	0.6563	0.6234	0.5906	0.5578	0.5250	0.4922	0.4594		0
0.1	0.6580	0.6249	0.5919	0.5589	0.5260	0.4930	0.4601	0.3286	0.064
0.2	0.6631	0.6293	0.5957	0.5621	0.5287	0.4954	0.4622	0.3298	0.128
0.3	0.6715	0.6366	0.6019	0.5675	0.5334	0.4994	0.4656	0.3320	0.192
0.4	0.6832	0.6467	0.6106	0.5750	0.5398	0.5049	0.4704	0.3349	0.256
0.5	0.6980	0.6594	0.6216	0.5844	0.5479	0.5119	0.4765	0.3387	0.32
0.6	0.7157	0.6747	0.6348	0.5958	0.5577	0.5204	0.4838	0.3432	0.384
0.7	0.7360	0.6923	0.6500	0.6089	0.5690	0.5302	0.4923	0.3484	0.448
0.8	0.7587	0.7121	0.6671	0.6237	0.5818	0.5412	0.5020	0.3543	0.512
0.9	0.7836	0.7338	0.6860	0.6401	0.5959	0.5535	0.5125	0.3609	0.576
1.0	0.8102	0.7571	0.7063	0.6578	0.6113	0.5668	0.5241	0.3680	0.64
1.1	0.8384	0.7819	0.7280	0.6766	0.6277	0.5810	0.5365	0.3757	0.704
1.2	0.8677	0.8078	0.7508	0.6965	0.6450	0.5961	0.5496	0.3838	0.768
1.3	0.8978	0.8346	0.7744	0.7173	0.6631	0.6119	0.5634	0.3924	0.832
1.4	0.9283	0.8620	0.7987	0.7386	0.6818	0.6282	0.5777	0.4012	0.896
1.5	0.9590	0.8896	0.8233	0.7605	0.7010	0.6450	0.5924	0.4103	0.96
1.6	0.9894	0.9172	0.8482	0.7825	0.7205	0.6621	0.6073	0.4196	1.024
1.7	1.0192	0.9445	0.8729	0.8046	0.7401	0.6794	0.6225	0.4291	1.088
1.8	1.0481	0.9713	0.8973	0.8266	0.7597	0.6967	0.6377	0.4386	1.152
1.9	1.0758	0.9973	0.9212	0.8483	0.7791	0.7139	0.6528	0.4480	1.216
2.0	1.1021	1.0222	0.9445	0.8695	0.7982	0.7309	0.6679	0.4575	1.28
2.1	1.1267	1.0459	0.9669	0.8901	0.8168	0.7476	0.6828	0.4667	1.344
2.2	1.1494	1.0682	0.9880	0.9099	0.8349	0.7638	0.6972	0.4758	1.408
2.3	1.1700	1.0889	1.0079	0.9287	0.8523	0.7795	0.7112	0.4847	1.472
2.4	1.1885	1.1077	1.0266	0.9465	0.8688	0.7946	0.7248	0.4933	1.536
2.5	1.2046	1.1246	1.0437	0.9632	0.8845	0.8089	0.7377	0.5015	1.6
	$M = \frac{10}{7}$								
0	0.0769	0.0730	0.0692	0.0654	0.0615	0.0577	0.0538		0
0.05	0.0780	0.0740	0.0700	0.0661	0.0621	0.0582	0.0543	0.0387	0.0255
0.1	0.0815	0.0770	0.0726	0.0683	0.0640	0.0598	0.0557	0.0396	0.051
0.15	0.0873	0.0820	0.0769	0.0720	0.0672	0.0625	0.0581	0.0410	0.0765
0.2	0.0954	0.0890	0.0828	0.0771	0.0716	0.0664	0.0613	0.0431	0.102
0.25	0.1057	0.0978	0.0905	0.0836	0.0772	0.0712	0.0655	0.0457	0.1275
0.3	0.1182	0.1086	0.0998	0.0916	0.0834	0.0771	0.0707	0.0488	0.153
0.35	0.1330	0.1213	0.1107	0.1010	0.0922	0.0841	0.0767	0.0525	0.1785
0.4	0.1498	0.1359	0.1232	0.1117	0.1014	0.0920	0.0836	0.0568	0.204
0.45	0.1687	0.1521	0.1372	0.1238	0.1118	0.1010	0.0914	0.0616	0.2295
0.5	0.1896	0.1702	0.1528	0.1372	0.1233	0.1110	0.1000	0.0669	0.255
0.6	0.2371	0.2113	0.1883	0.1678	0.1497	0.1337	0.1198	0.0791	0.306
0.7	0.2915	0.2586	0.2292	0.2031	0.1801	0.1601	0.1426	0.0932	0.357
0.8	0.3522	0.3112	0.2750	0.2428	0.2145	0.1898	0.1684	0.1091	0.408
0.9	0.4184	0.3693	0.3253	0.2864	0.2522	0.2225	0.1968	0.1266	0.459
1.0	0.4890	0.4313	0.3795	0.3335	0.2931	0.2580	0.2277	0.1457	0.51
1.1	0.5631	0.4967	0.4369	0.3836	0.3367	0.2958	0.2607	0.1661	0.561
1.2	0.6398	0.5647	0.4968	0.4361	0.3825	0.3357	0.2955	0.1876	0.612
1.3	0.7180	0.6346	0.5587	0.4905	0.4301	0.3773	0.3318	0.2101	0.663
1.4	0.7968	0.7055	0.6219	0.5463	0.4791	0.4202	0.3692	0.2334	0.714
1.5	0.8752	0.7766	0.6856	0.6030	0.5290	0.4640	0.4076	0.2572	0.765
1.6	0.9522	0.8471	0.7493	0.6599	0.5794	0.5083	0.4465	0.2814	0.816
1.8	1.0985	0.9832	0.8739	0.7724	0.6798	0.5971	0.5247	0.3302	0.918
2.0	1.2293	1.1082	0.9909	0.8798	0.7769	0.6837	0.6014	0.3783	1.02
2.2	1.3399	1.2177	1.0963	0.9786	0.8676	0.7657	0.6744	0.4243	1.122
2.4	1.4267	1.3082	1.1867	1.0660	0.9496	0.8407	0.7420	0.4673	1.224
2.6	1.4882	1.3776	1.2601	1.1398	1.0208	0.9072	0.8025	0.5061	1.326
2.8	1.5247	1.4252	1.3153	1.1987	1.0800	0.9640	0.8551	0.5403	1.428
3.0	1.5380	1.4518	1.3522	1.2423	1.1265	1.0104	0.8991	0.5695	1.53

TABLE 5 (Contd)

p_{α}/E_{β}

Ω \ E_{β}	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0	-2.0741	-1.9704	-1.8667	-1.7630	-1.6593	-1.5556	-1.4519		0
0.05	-2.0706	-1.9673	-1.8641	-1.7607	-1.6573	-1.5539	-1.4504	-1.0362	0.018
0.1	-2.0600	-1.9583	-1.8563	-1.7541	-1.6516	-1.5489	-1.4462	-1.0335	0.036
0.15	-2.0425	-1.9432	-1.8434	-1.7429	-1.6421	-1.5407	-1.4390	-1.0291	0.054
0.2	-2.0181	-1.9222	-1.8253	-1.7275	-1.6288	-1.5293	-1.4291	-1.0230	0.072
0.25	-1.9869	-1.8954	-1.8022	-1.7077	-1.6117	-1.5146	-1.4164	-1.0152	0.09
0.3	-1.9490	-1.8627	-1.7742	-1.6836	-1.5910	-1.4967	-1.4009	-1.0056	0.108
0.35	-1.9046	-1.8244	-1.7412	-1.6552	-1.5666	-1.4757	-1.3827	-0.9944	0.126
0.4	-1.8538	-1.7806	-1.7035	-1.6228	-1.5387	-1.4516	-1.3618	-0.9816	0.144
0.45	-1.7968	-1.7314	-1.6611	-1.5863	-1.5073	-1.4245	-1.3383	-0.9671	0.162
0.5	-1.7339	-1.6770	-1.6142	-1.5459	-1.4725	-1.3945	-1.3123	-0.9510	0.18
0.6	-1.5913	-1.5535	-1.5075	-1.4539	-1.3932	-1.3260	-1.2528	-0.9144	0.216
0.7	-1.4281	-1.4117	-1.3848	-1.3479	-1.3016	-1.2468	-1.1841	-0.8720	0.252
0.8	-1.2469	-1.2536	-1.2475	-1.2290	-1.1988	-1.1578	-1.1068	-0.8243	0.288
0.9	-1.0504	-1.0816	-1.0975	-1.0988	-1.0860	-1.0599	-1.0217	-0.7717	0.324
1.0	-0.8415	-0.8978	-0.9367	-0.9587	-0.9643	-0.9543	-0.9297	-0.7149	0.36
1.1	-0.6234	-0.7047	-0.7670	-0.8104	-0.8350	-0.8418	-0.8318	-0.6543	0.396
1.2	-0.3991	-0.5050	-0.5906	-0.6554	-0.6996	-0.7238	-0.7288	-0.5905	0.432
1.3	-0.1719	-0.3012	-0.4094	-0.4957	-0.5596	-0.6014	-0.6218	-0.5242	0.468
1.4	+0.0552	-0.0958	-0.2257	-0.3328	-0.4162	-0.4757	-0.5118	-0.4559	0.504
1.5	0.2790	+0.1084	-0.0416	-0.1686	-0.2710	-0.3481	-0.3999	-0.3862	0.54
1.6	0.4967	0.3092	+0.1410	-0.0047	-0.1254	-0.2196	-0.2870	-0.3159	0.576
1.8	0.9035	0.6913	0.4936	+0.3156	+0.1618	+0.0353	-0.0621	-0.1753	0.648
2.0	1.2571	1.0340	0.8179	0.6160	0.4350	0.2803	+0.1555	-0.0386	0.72
2.2	1.5445	1.3248	1.1023	0.8862	0.6855	0.5079	0.3593	+0.0904	0.792
2.4	1.7582	1.5550	1.3384	1.1186	0.9065	0.7122	0.5442	0.2084	0.864
2.6	1.8963	1.7209	1.5213	1.3079	1.0929	0.8887	0.7064	0.3133	0.936
2.8	1.9630	1.8229	1.6495	1.4517	1.2422	1.0349	0.8436	0.4035	1.008
3.0	1.9667	1.8658	1.7249	1.5504	1.3538	1.1499	0.9548	0.4784	1.08
3.2	1.9198	1.8576	1.7526	1.6067	1.4291	1.2346	1.0406	0.5383	1.152
3.4	1.8370	1.8090	1.7396	1.6253	1.4714	1.2911	1.1026	0.5842	1.224
3.6	1.7336	1.7321	1.6949	1.6125	1.4831	1.3228	1.1434	0.6176	1.296
3.8	1.6245	1.6393	1.6284	1.5758	1.4755	1.3337	1.1664	0.6403	1.368
4.0	1.5231	1.5428	1.5499	1.5227	1.4486	1.3283	1.1751	0.6545	1.44

TABLE 6

$-h_z/E_\beta^{\ 2}$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0								0
0.2	0.0010	0.0010	0.0010	0.0009	0.0009	0.0008	0.0008	0.0007	0.182
0.4	0.0039	0.0038	0.0037	0.0035	0.0034	0.0033	0.0032	0.0027	0.364
0.6	0.0082	0.0080	0.0077	0.0075	0.0073	0.0070	0.0068	0.0057	0.546
0.8	0.0131	0.0128	0.0126	0.0123	0.0120	0.0116	0.0113	0.0096	0.728
1.0	0.0177	0.0176	0.0174	0.0171	0.0168	0.0164	0.0160	0.0139	0.91
1.2	0.0210	0.0210	0.0212	0.0212	0.0210	0.0208	0.0204	0.0180	1.092
1.4	0.0219	0.0226	0.0232	0.0236	0.0239	0.0239	0.0238	0.0217	1.274
1.6	0.0196	0.0212	0.0226	0.0237	0.0246	0.0251	0.0254	0.0242	1.456
1.8	0.0133	0.0161	0.0186	0.0207	0.0225	0.0239	0.0249	0.0252	1.638
2.0	0.0029	0.0070	0.0108	0.0142	0.0172	0.0196	0.0216	0.0244	1.82
	$M = \frac{10}{4}$								
0	0								0
0.2	0.0023	0.0022	0.0022	0.0021	0.0020	0.0019	0.0019	0.0016	0.168
0.4	0.0089	0.0086	0.0083	0.0081	0.0078	0.0075	0.0072	0.0061	0.336
0.6	0.0186	0.0181	0.0176	0.0171	0.0166	0.0160	0.0155	0.0130	0.504
0.8	0.0297	0.0291	0.0286	0.0279	0.0272	0.0264	0.0256	0.0218	0.672
1.0	0.0401	0.0398	0.0394	0.0388	0.0381	0.0373	0.0363	0.0315	0.84
1.2	0.0474	0.0479	0.0480	0.0480	0.0476	0.0470	0.0462	0.0409	1.008
1.4	0.0495	0.0512	0.0526	0.0535	0.0540	0.0541	0.0538	0.0491	1.176
1.6	0.0444	0.0481	0.0512	0.0537	0.0556	0.0569	0.0576	0.0548	1.344
1.8	0.0308	0.0369	0.0424	0.0471	0.0511	0.0542	0.0564	0.0573	1.512
2.0	0.0081	0.0172	0.0255	0.0330	0.0395	0.0449	0.0493	0.0556	1.68
	$M = 2$								
0	0								0
0.1	0.0011	0.0010	0.0010	0.0010	0.0009	0.0009	0.0009	0.0007	0.075
0.2	0.0043	0.0041	0.0040	0.0039	0.0037	0.0036	0.0034	0.0029	0.15
0.3	0.0094	0.0091	0.0088	0.0085	0.0082	0.0079	0.0076	0.0064	0.225
0.4	0.0164	0.0159	0.0154	0.0149	0.0144	0.0138	0.0133	0.0112	0.3
0.5	0.0247	0.0240	0.0233	0.0226	0.0219	0.0211	0.0203	0.0171	0.375
0.6	0.0342	0.0333	0.0324	0.0315	0.0305	0.0295	0.0285	0.0240	0.45
0.7	0.0443	0.0433	0.0423	0.0412	0.0400	0.0388	0.0375	0.0318	0.525
0.8	0.0545	0.0536	0.0525	0.0513	0.0500	0.0486	0.0471	0.0402	0.6
0.9	0.0644	0.0636	0.0627	0.0615	0.0601	0.0586	0.0569	0.0489	0.675
1.0	0.0735	0.0730	0.0723	0.0712	0.0700	0.0684	0.0667	0.0579	0.75
1.1	0.0811	0.0812	0.0808	0.0802	0.0792	0.0778	0.0761	0.0667	0.825
1.2	0.0868	0.0877	0.0880	0.0879	0.0873	0.0863	0.0848	0.0752	0.9
1.3	0.0901	0.0920	0.0933	0.0939	0.0940	0.0935	0.0924	0.0830	0.975
1.4	0.0906	0.0938	0.0962	0.0979	0.0989	0.0991	0.0986	0.0900	1.05
1.5	0.0879	0.0926	0.0965	0.0995	0.1016	0.1028	0.1031	0.0959	1.125
1.6	0.0816	0.0882	0.0938	0.0984	0.1019	0.1043	0.1056	0.1006	1.2
1.7	0.0716	0.0802	0.0878	0.0942	0.0993	0.1032	0.1058	0.1037	1.275
1.8	0.0578	0.0686	0.0784	0.0869	0.0939	0.0995	0.1036	0.1052	1.35
1.9	0.0401	0.0533	0.0655	0.0763	0.0854	0.0930	0.0988	0.1048	1.425
2.0	0.0186	0.0341	0.0489	0.0621	0.0737	0.0835	0.0913	0.1026	1.5

TABLE 6 (Contd)

$-h_z/E_\beta^2$

E_β / Ω	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	0								0
0.1	0.0017	0.0017	0.0016	0.0015	0.0015	0.0014	0.0014	0.0012	0.064
0.2	0.0068	0.0066	0.0064	0.0062	0.0059	0.0057	0.0055	0.0046	0.128
0.3	0.0150	0.0146	0.0141	0.0136	0.0131	0.0127	0.0122	0.0102	0.192
0.4	0.0261	0.0253	0.0245	0.0237	0.0229	0.0221	0.0212	0.0178	0.256
0.5	0.0394	0.0383	0.0372	0.0360	0.0348	0.0336	0.0324	0.0273	0.32
0.6	0.0544	0.0530	0.0516	0.0501	0.0486	0.0470	0.0454	0.0383	0.384
0.7	0.0704	0.0689	0.0673	0.0655	0.0637	0.0617	0.0596	0.0506	0.448
0.8	0.0866	0.0851	0.0834	0.0815	0.0795	0.0772	0.0748	0.0639	0.512
0.9	0.1022	0.1009	0.0995	0.0975	0.0954	0.0931	0.0904	0.0778	0.576
1.0	0.1164	0.1157	0.1147	0.1129	0.1110	0.1086	0.1059	0.0919	0.64
1.1	0.1283	0.1285	0.1280	0.1270	0.1254	0.1233	0.1207	0.1059	0.704
1.2	0.1373	0.1386	0.1392	0.1391	0.1382	0.1366	0.1344	0.1192	0.768
1.3	0.1424	0.1454	0.1474	0.1485	0.1487	0.1479	0.1463	0.1316	0.832
1.4	0.1432	0.1482	0.1520	0.1548	0.1563	0.1567	0.1560	0.1427	0.896
1.5	0.1390	0.1464	0.1525	0.1573	0.1606	0.1626	0.1631	0.1520	0.96
1.6	0.1296	0.1397	0.1484	0.1556	0.1611	0.1649	0.1670	0.1594	1.024
1.7	0.1146	0.1277	0.1394	0.1493	0.1574	0.1635	0.1676	0.1644	1.088
1.8	0.0940	0.1105	0.1254	0.1384	0.1494	0.1581	0.1645	0.1669	1.152
1.9	0.0678	0.0877	0.1061	0.1225	0.1367	0.1484	0.1574	0.1667	1.216
2.0	0.0364	0.0597	0.0816	0.1016	0.1193	0.1343	0.1463	0.1636	1.28
2.1	0.0001	0.0268	0.0522	0.0759	0.0973	0.1159	0.1312	0.1576	1.344
2.2	-0.0404	-0.0107	0.0183	0.0457	0.0709	0.0932	0.1121	0.1486	1.408
2.3	-0.0845	-0.0521	-0.0197	0.0113	0.0404	0.0665	0.0891	0.1368	1.472
2.4	-0.1312	-0.0967	-0.0615	-0.0270	0.0059	0.0360	0.0624	0.1221	1.536
2.5	-0.1796	-0.1437	-0.1061	-0.0684	-0.0320	0.0021	0.0325	0.1048	1.6
	$M = \frac{10}{7}$								
0	0								0
0.05	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0004	0.0255
0.1	0.0024	0.0024	0.0023	0.0022	0.0021	0.0020	0.0020	0.0016	0.051
0.15	0.0055	0.0053	0.0051	0.0049	0.0047	0.0046	0.0044	0.0037	0.0765
0.2	0.0097	0.0093	0.0090	0.0087	0.0084	0.0081	0.0078	0.0065	0.102
0.25	0.0150	0.0145	0.0140	0.0135	0.0130	0.0125	0.0120	0.0101	0.1275
0.3	0.0213	0.0206	0.0200	0.0193	0.0186	0.0179	0.0172	0.0144	0.153
0.35	0.0287	0.0278	0.0269	0.0260	0.0251	0.0242	0.0232	0.0195	0.1785
0.4	0.0369	0.0358	0.0347	0.0336	0.0324	0.0312	0.0301	0.0252	0.204
0.45	0.0459	0.0446	0.0433	0.0419	0.0405	0.0391	0.0376	0.0316	0.2295
0.5	0.0557	0.0542	0.0526	0.0510	0.0493	0.0476	0.0459	0.0386	0.255
0.6	0.0768	0.0749	0.0729	0.0709	0.0687	0.0664	0.0641	0.0542	0.306
0.7	0.0993	0.0972	0.0949	0.0925	0.0899	0.0871	0.0843	0.0716	0.357
0.8	0.1220	0.1199	0.1176	0.1149	0.1121	0.1090	0.1056	0.0903	0.408
0.9	0.1438	0.1420	0.1401	0.1374	0.1345	0.1312	0.1275	0.1098	0.459
1.0	0.1635	0.1625	0.1614	0.1589	0.1562	0.1529	0.1492	0.1296	0.51
1.1	0.1800	0.1803	0.1797	0.1784	0.1763	0.1734	0.1698	0.1491	0.561
1.2	0.1923	0.1943	0.1953	0.1952	0.1940	0.1919	0.1888	0.1678	0.612
1.3	0.1994	0.2036	0.2066	0.2082	0.2086	0.2076	0.2054	0.1851	0.663
1.4	0.2006	0.2075	0.2130	0.2169	0.2192	0.2198	0.2189	0.2005	0.714
1.5	0.1951	0.2053	0.2137	0.2204	0.2251	0.2279	0.2287	0.2136	0.765
1.6	0.1826	0.1964	0.2084	0.2183	0.2260	0.2314	0.2344	0.2239	0.816
1.8	0.1361	0.1580	0.1780	0.1957	0.2107	0.2227	0.2315	0.2350	0.918
2.0	0.0624	0.0926	0.1214	0.1480	0.1717	0.1920	0.2084	0.2317	1.02
2.2	-0.0333	0.0040	0.0411	0.0768	0.1099	0.1395	0.1648	0.2136	1.122
2.4	-0.1427	-0.1009	-0.0574	-0.0137	0.0286	0.0678	0.1026	0.1813	1.224
2.6	-0.2551	-0.2130	-0.1662	-0.1168	-0.0225	-0.0188	0.0256	0.1367	1.326
2.8	-0.3589	-0.3205	-0.2760	-0.2244	-0.1695	-0.1142	-0.0612	0.0829	1.428
3.0	-0.4427	-0.4157	-0.3767	-0.3276	-0.2713	-0.2115	-0.1518	0.0236	1.53

TABLE 6 (Contd)

$-h_z/E_\beta^{\;2}$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0									0
0.05	0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.018
0.1	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026	0.0024	0.0020	0.036
0.15	0.0069	0.0066	0.0064	0.0062	0.0060	0.0057	0.0055	0.0046	0.054
0.2	0.0121	0.0117	0.0113	0.0109	0.0105	0.0101	0.0097	0.0081	0.072
0.25	0.0187	0.0181	0.0175	0.0169	0.0163	0.0157	0.0151	0.0126	0.09
0.3	0.0267	0.0259	0.0250	0.0242	0.0233	0.0225	0.0216	0.0181	0.108
0.35	0.0359	0.0348	0.0337	0.0326	0.0314	0.0303	0.0291	0.0244	0.126
0.4	0.0462	0.0448	0.0434	0.0420	0.0406	0.0391	0.0377	0.0316	0.144
0.45	0.0575	0.0558	0.0542	0.0525	0.0507	0.0489	0.0471	0.0396	0.162
0.5	0.0696	0.0677	0.0658	0.0638	0.0617	0.0596	0.0574	0.0483	0.18
0.6	0.0959	0.0936	0.0911	0.0885	0.0859	0.0831	0.0802	0.0678	0.216
0.7	0.1238	0.1212	0.1184	0.1154	0.1122	0.1088	0.1052	0.0895	0.252
0.8	0.1518	0.1493	0.1466	0.1433	0.1397	0.1359	0.1318	0.1127	0.288
0.9	0.1787	0.1766	0.1743	0.1710	0.1674	0.1634	0.1589	0.1370	0.324
1.0	0.2029	0.2018	0.2006	0.1974	0.1942	0.1902	0.1856	0.1615	0.36
1.1	0.2231	0.2235	0.2230	0.2214	0.2189	0.2155	0.2111	0.1856	0.396
1.2	0.2380	0.2405	0.2419	0.2419	0.2407	0.2382	0.2345	0.2086	0.432
1.3	0.2467	0.2519	0.2556	0.2578	0.2584	0.2574	0.2548	0.2300	0.468
1.4	0.2481	0.2567	0.2635	0.2684	0.2713	0.2723	0.2713	0.2490	0.504
1.5	0.2418	0.2542	0.2645	0.2728	0.2787	0.2823	0.2834	0.2651	0.54
1.6	0.2274	0.2440	0.2584	0.2705	0.2799	0.2867	0.2905	0.2780	0.576
1.8	0.1746	0.2001	0.2237	0.2447	0.2627	0.2773	0.2881	0.2923	0.648
2.0	0.0930	0.1271	0.1601	0.1910	0.2189	0.2429	0.2625	0.2903	0.72
2.2	−0.0092	0.0313	0.0724	0.1127	0.1507	0.1850	0.2146	0.2717	0.792
2.4	−0.1208	−0.0778	−0.0315	0.0162	0.0634	0.1078	0.1478	0.2383	0.864
2.6	−0.2281	−0.1880	−0.1410	−0.0893	−0.0355	0.0176	0.0673	0.1930	0.936
2.8	−0.3177	−0.2865	−0.2445	−0.1936	−0.1368	−0.0778	−0.0200	0.1399	1.008
3.0	−0.3779	−0.3617	−0.3305	−0.2861	−0.2312	−0.1699	−0.1068	0.0839	1.08
3.2	−0.4009	−0.4042	−0.3897	−0.3574	−0.3098	−0.2508	−0.1858	0.0295	1.152
3.4	−0.3836	−0.4091	−0.4154	−0.4005	−0.3655	−0.3137	−0.2509	−0.0187	1.224
3.6	−0.3287	−0.3758	−0.4050	−0.4114	−0.3936	−0.3538	−0.2973	−0.0576	1.296
3.8	−0.2441	−0.3092	−0.3606	−0.3900	−0.3928	−0.3689	−0.3228	−0.0849	1.368
4.0	−0.1425	−0.2184	−0.2881	−0.3398	−0.3647	−0.3597	−0.3272	−0.1001	1.44

TABLE 7

$-h_z/E_\beta^2$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0.3145	0.3145	0.3145	0.3145	0.3145	0.3145	0.3145	0.3145	0
0.2	0.3136	0.3137	0.3137	0.3138	0.3138	0.3139	0.3139	0.3141	0.182
0.4	0.3112	0.3114	0.3116	0.3118	0.3120	0.3121	0.3123	0.3128	0.364
0.6	0.3072	0.3077	0.3081	0.3085	0.3089	0.3093	0.3096	0.3108	0.546
0.8	0.3021	0.3029	0.3036	0.3043	0.3049	0.3055	0.3061	0.3081	0.728
1.0	0.2962	0.2973	0.2983	0.2992	0.3002	0.3011	0.3019	0.3049	0.91
1.2	0.2900	0.2913	0.2925	0.2937	0.2949	0.2961	0.2973	0.3013	1.092
1.4	0.2838	0.2852	0.2866	0.2881	0.2896	0.2910	0.2924	0.2974	1.274
1.6	0.2781	0.2796	0.2811	0.2827	0.2843	0.2859	0.2876	0.2935	1.456
1.8	0.2735	0.2748	0.2761	0.2778	0.2795	0.2812	0.2830	0.2898	1.638
2.0	0.2702	0.2712	0.2724	0.2738	0.2754	0.2772	0.2790	0.2863	1.82
	$M = \frac{10}{4}$								
0	0.4364	0.4364	0.4364	0.4364	0.4364	0.4364	0.4364	0.4364	0
0.2	0.4344	0.4345	0.4346	0.4347	0.4349	0.4350	0.4350	0.4354	0.168
0.4	0.4283	0.4288	0.4293	0.4298	0.4302	0.4306	0.4310	0.4323	0.336
0.6	0.4186	0.4197	0.4208	0.4218	0.4227	0.4236	0.4245	0.4274	0.504
0.8	0.4061	0.4079	0.4096	0.4113	0.4129	0.4144	0.4159	0.4208	0.672
1.0	0.3917	0.3942	0.3967	0.3990	0.4013	0.4035	0.4056	0.4128	0.84
1.2	0.3765	0.3796	0.3826	0.3857	0.3886	0.3915	0.3943	0.4040	1.008
1.4	0.3617	0.3650	0.3685	0.3721	0.3756	0.3791	0.3825	0.3947	1.176
1.6	0.3483	0.3517	0.3553	0.3591	0.3630	0.3669	0.3708	0.3853	1.344
1.8	0.3375	0.3405	0.3439	0.3476	0.3516	0.3558	0.3600	0.3763	1.512
2.0	0.3301	0.3323	0.3350	0.3383	0.3421	0.3462	0.3506	0.3682	1.68
	$M = 2$								
0	0.5774	0.5774	0.5774	0.5774	0.5774	0.5774	0.5774	0.5774	0
0.1	0.5763	0.5763	0.5764	0.5764	0.5765	0.5766	0.5766	0.5768	0.075
0.2	0.5730	0.5733	0.5736	0.5738	0.5741	0.5743	0.5745	0.5752	0.15
0.3	0.5678	0.5684	0.5690	0.5695	0.5700	0.5705	0.5710	0.5725	0.225
0.4	0.5605	0.5616	0.5626	0.5636	0.5645	0.5653	0.5662	0.5688	0.3
0.5	0.5514	0.5530	0.5546	0.5560	0.5574	0.5588	0.5600	0.5642	0.375
0.6	0.5406	0.5429	0.5451	0.5471	0.5491	0.5510	0.5527	0.5586	0.45
0.7	0.5285	0.5314	0.5342	0.5370	0.5396	0.5420	0.5443	0.5522	0.525
0.8	0.5151	0.5187	0.5223	0.5257	0.5290	0.5321	0.5350	0.5451	0.6
0.9	0.5008	0.5051	0.5094	0.5135	0.5175	0.5213	0.5249	0.5373	0.675
1.0	0.4858	0.4908	0.4958	0.5006	0.5053	0.5098	0.5141	0.5289	0.75
1.1	0.4705	0.4761	0.4817	0.4872	0.4926	0.4978	0.5028	0.5201	0.825
1.2	0.4552	0.4613	0.4674	0.4736	0.4795	0.4854	0.4910	0.5109	0.9
1.3	0.4401	0.4466	0.4532	0.4598	0.4664	0.4729	0.4792	0.5015	0.975
1.4	0.4256	0.4323	0.4392	0.4463	0.4533	0.4602	0.4672	0.4920	1.05
1.5	0.4119	0.4187	0.4258	0.4331	0.4406	0.4480	0.4555	0.4826	1.125
1.6	0.3993	0.4060	0.4131	0.4206	0.4283	0.4361	0.4440	0.4732	1.2
1.7	0.3882	0.3944	0.4014	0.4089	0.4166	0.4247	0.4330	0.4641	1.275
1.8	0.3786	0.3843	0.3908	0.3981	0.4059	0.4141	0.4226	0.4554	1.35
1.9	0.3709	0.3757	0.3816	0.3885	0.3962	0.4044	0.4130	0.4471	1.425
2.0	0.3651	0.3689	0.3740	0.3803	0.3876	0.3956	0.4042	0.4394	1.5

TABLE 7 (Contd)

h_z/E_β^2

$\Omega \backslash E_\beta$	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0
0.1	0.7480	0.7481	0.7482	0.7484	0.7485	0.7486	0.7487	0.7490	0.064
0.2	0.7420	0.7425	0.7430	0.7434	0.7438	0.7443	0.7447	0.7460	0.128
0.3	0.7321	0.7332	0.7343	0.7354	0.7363	0.7372	0.7381	0.7410	0.192
0.4	0.7185	0.7205	0.7224	0.7242	0.7259	0.7276	0.7290	0.7341	0.256
0.5	0.7016	0.7046	0.7075	0.7102	0.7128	0.7153	0.7176	0.7254	0.32
0.6	0.6816	0.6858	0.6898	0.6937	0.6973	0.7008	0.7041	0.7151	0.384
0.7	0.6591	0.6645	0.6697	0.6748	0.6796	0.6842	0.6885	0.7032	0.448
0.8	0.6344	0.6411	0.6476	0.6539	0.6600	0.6658	0.6713	0.6899	0.512
0.9	0.6081	0.6161	0.6239	0.6315	0.6388	0.6458	0.6525	0.6755	0.576
1.0	0.5807	0.5899	0.5989	0.6078	0.6164	0.6247	0.6326	0.6600	0.64
1.1	0.5529	0.5631	0.5733	0.5833	0.5931	0.6027	0.6118	0.6438	0.704
1.2	0.5251	0.5362	0.5473	0.5584	0.5694	0.5801	0.5905	0.6270	0.768
1.3	0.4981	0.5097	0.5216	0.5336	0.5455	0.5573	0.5689	0.6099	0.832
1.4	0.4722	0.4842	0.4966	0.5092	0.5220	0.5347	0.5473	0.5927	0.896
1.5	0.4481	0.4600	0.4726	0.4857	0.4991	0.5131	0.5261	0.5756	0.96
1.6	0.4263	0.4378	0.4503	0.4635	0.4773	0.4914	0.5056	0.5588	1.024
1.7	0.4071	0.4179	0.4299	0.4430	0.4569	0.4713	0.4861	0.5425	1.088
1.8	0.3911	0.4006	0.4118	0.4244	0.4381	0.4527	0.4678	0.5270	1.152
1.9	0.3784	0.3864	0.3964	0.4081	0.4213	0.4358	0.4510	0.5124	1.216
2.0	0.3694	0.3754	0.3838	0.3944	0.4068	0.4208	0.4359	0.4988	1.28
2.1	0.3642	0.3679	0.3744	0.3834	0.3947	0.4080	0.4227	0.4865	1.344
2.2	0.3628	0.3640	0.3682	0.3754	0.3853	0.3975	0.4115	0.4756	1.408
2.3	0.3654	0.3637	0.3653	0.3704	0.3785	0.3894	0.4026	0.4661	1.472
2.4	0.3718	0.3670	0.3659	0.3685	0.3746	0.3839	0.3959	0.4581	1.536
2.5	0.3819	0.3739	0.3698	0.3697	0.3735	0.3809	0.3915	0.4517	1.6
	$M = \frac{10}{7}$								
0	0.9802	0.9802	0.9802	0.9802	0.9802	0.9802	0.9802	0.9802	0
0.05	0.9793	0.9794	0.9794	0.9795	0.9795	0.9796	0.9796	0.9797	0.0255
0.1	0.9766	0.9768	0.9771	0.9773	0.9775	0.9777	0.9778	0.9784	0.051
0.15	0.9721	0.9726	0.9731	0.9736	0.9740	0.9745	0.9749	0.9762	0.0765
0.2	0.9659	0.9668	0.9677	0.9686	0.9693	0.9700	0.9708	0.9730	0.102
0.25	0.9579	0.9594	0.9607	0.9620	0.9632	0.9644	0.9655	0.9690	0.1275
0.3	0.9483	0.9504	0.9523	0.9542	0.9559	0.9576	0.9591	0.9642	0.153
0.35	0.9371	0.9398	0.9424	0.9448	0.9473	0.9495	0.9516	0.9585	0.1785
0.4	0.9243	0.9278	0.9312	0.9344	0.9375	0.9403	0.9430	0.9520	0.204
0.45	0.9100	0.9144	0.9186	0.9227	0.9264	0.9300	0.9334	0.9446	0.2295
0.5	0.8943	0.8997	0.9048	0.9097	0.9143	0.9187	0.9228	0.9366	0.255
0.6	0.8591	0.8665	0.8736	0.8804	0.8869	0.8930	0.8988	0.9182	0.306
0.7	0.8195	0.8290	0.8383	0.8472	0.8556	0.8637	0.8714	0.8973	0.357
0.8	0.7763	0.7880	0.7995	0.8105	0.8212	0.8313	0.8410	0.8739	0.408
0.9	0.7305	0.7444	0.7580	0.7712	0.7841	0.7964	0.8082	0.8486	0.459
1.0	0.6831	0.6990	0.7146	0.7300	0.7450	0.7595	0.7734	0.8216	0.51
1.1	0.6352	0.6528	0.6703	0.6876	0.7047	0.7213	0.7373	0.7933	0.561
1.2	0.5878	0.6067	0.6257	0.6448	0.6637	0.6823	0.7003	0.7642	0.612
1.3	0.5420	0.5617	0.5819	0.6024	0.6229	0.6432	0.6632	0.7346	0.663
1.4	0.4987	0.5187	0.5396	0.5611	0.5829	0.6047	0.6263	0.7051	0.714
1.5	0.4589	0.4786	0.4996	0.5216	0.5443	0.5673	0.5904	0.6758	0.765
1.6	0.4234	0.4421	0.4626	0.4847	0.5078	0.5317	0.5558	0.6473	0.816
1.8	0.3679	0.3827	0.4005	0.4209	0.4435	0.4677	0.4930	0.5940	0.918
2.0	0.3365	0.3449	0.3574	0.3738	0.3937	0.4164	0.4413	0.5476	1.02
2.2	0.3310	0.3309	0.3360	0.3463	0.3613	0.3805	0.4033	0.5101	1.122
2.4	0.3509	0.3410	0.3371	0.3393	0.3476	0.3615	0.3803	0.4828	1.224
2.6	0.3933	0.3734	0.3595	0.3525	0.3526	0.3596	0.3729	0.4662	1.326
2.8	0.4533	0.4243	0.4007	0.3839	0.3749	0.3738	0.3804	0.4602	1.428
3.0	0.5248	0.4886	0.4564	0.4303	0.4119	0.4021	0.4011	0.4639	1.53

TABLE 7 (Contd)

$-h_z/E_\beta^2$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	0
0.05	1.3317	1.3318	1.3319	1.3320	1.3321	1.3322	1.3323	1.3326	0.018
0.1	1.3270	1.3274	1.3278	1.3282	1.3285	1.3288	1.3291	1.3301	0.036
0.15	1.3190	1.3199	1.3208	1.3216	1.3223	1.3231	1.3239	1.3262	0.054
0.2	1.3079	1.3096	1.3111	1.3126	1.3140	1.3153	1.3166	1.3206	0.072
0.25	1.2938	1.2964	1.2988	1.3012	1.3032	1.3053	1.3072	1.3135	0.09
0.3	1.2768	1.2804	1.2838	1.2872	1.2902	1.2931	1.2958	1.3049	0.108
0.35	1.2569	1.2617	1.2664	1.2709	1.2750	1.2789	1.2825	1.2948	0.126
0.4	1.2342	1.2405	1.2465	1.2522	1.2576	1.2626	1.2674	1.2832	0.144
0.45	1.2090	1.2168	1.2242	1.2313	1.2380	1.2444	1.2504	1.2703	0.162
0.5	1.1814	1.1908	1.1998	1.2085	1.2166	1.2243	1.2316	1.2560	0.18
0.6	1.1194	1.1324	1.1449	1.1568	1.1682	1.1791	1.1893	1.2237	0.216
0.7	1.0500	1.0667	1.0828	1.0984	1.1133	1.1276	1.1411	1.1867	0.252
0.8	0.9746	0.9951	1.0150	1.0344	1.0530	1.0709	1.0879	1.1457	0.288
0.9	0.8952	0.9193	0.9429	0.9660	0.9884	1.0099	1.0305	1.1014	0.324
1.0	0.8136	0.8409	0.8680	0.8947	0.9206	0.9458	0.9701	1.0543	0.36
1.1	0.7318	0.7617	0.7918	0.8217	0.8510	0.8798	0.9076	1.0053	0.396
1.2	0.6516	0.6835	0.7159	0.7485	0.7809	0.8128	0.8441	0.9551	0.432
1.3	0.5749	0.6078	0.6418	0.6765	0.7115	0.7463	0.7806	0.9044	0.468
1.4	0.5034	0.5364	0.5711	0.6071	0.6440	0.6812	0.7181	0.8540	0.504
1.5	0.4387	0.4706	0.5051	0.5416	0.5796	0.6185	0.6577	0.8045	0.54
1.6	0.3821	0.4117	0.4450	0.4811	0.5195	0.5595	0.6002	0.7566	0.576
1.8	0.2974	0.3195	0.3469	0.3792	0.4157	0.4554	0.4975	0.6683	0.648
2.0	0.2553	0.2657	0.2833	0.3079	0.3388	0.3750	0.4155	0.5930	0.72
2.2	0.2569	0.2528	0.2574	0.2708	0.2926	0.3220	0.3579	0.5339	0.792
2.4	0.2990	0.2792	0.2687	0.2683	0.2782	0.2979	0.3264	0.4926	0.864
2.6	0.3743	0.3395	0.3135	0.2980	0.2941	0.3018	0.3206	0.4693	0.936
2.8	0.4723	0.4254	0.3853	0.3550	0.3364	0.3308	0.3382	0.4628	1.008
3.0	0.5810	0.5265	0.4754	0.4319	0.3994	0.3802	0.3752	0.4711	1.08
3.2	0.6878	0.6314	0.5739	0.5205	0.4759	0.4439	0.4267	0.4910	1.152
3.4	0.7811	0.7291	0.6708	0.6119	0.5584	0.5154	0.4868	0.5190	1.224
3.6	0.8516	0.8102	0.7570	0.6977	0.6391	0.5881	0.5499	0.5514	1.296
3.8	0.8933	0.8675	0.8249	0.7705	0.7116	0.6559	0.6105	0.5846	1.368
4.0	0.9038	0.8968	0.8694	0.8250	0.7703	0.7138	0.6640	0.6155	1.44

TABLE 8

$-h_\alpha/E_\beta^2$

E_β / Ω	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0.3145	0.3145	0.3145	0.3145	0.3145	0.3145	0.3145	0.3145	0
0.2	0.3142	0.3142	0.3142	0.3142	0.3142	0.3142	0.3143	0.3143	0.182
0.4	0.3132	0.3133	0.3133	0.3134	0.3135	0.3136	0.3136	0.3138	0.364
0.6	0.3116	0.3118	0.3120	0.3121	0.3123	0.3124	0.3126	0.3130	0.546
0.8	0.3095	0.3098	0.3101	0.3104	0.3107	0.3109	0.3111	0.3119	0.728
1.0	0.3070	0.3075	0.3079	0.3083	0.3087	0.3091	0.3094	0.3106	0.91
1.2	0.3043	0.3048	0.3054	0.3060	0.3065	0.3070	0.3074	0.3091	1.092
1.4	0.3014	0.3021	0.3028	0.3034	0.3041	0.3047	0.3053	0.3074	1.274
1.6	0.2986	0.2994	0.3001	0.3009	0.3016	0.3024	0.3031	0.3057	1.456
1.8	0.2960	0.2967	0.2975	0.2984	0.2992	0.3001	0.3009	0.3039	1.638
2.0	0.2936	0.2944	0.2952	0.2960	0.2969	0.2978	0.2988	0.3022	1.82
	$M = \frac{10}{4}$								
0	0.4364	0.4364	0.4364	0.4364	0.4364	0.4364	0.4364	0.4364	0
0.2	0.4355	0.4356	0.4356	0.4357	0.4357	0.4358	0.4358	0.4360	0.168
0.4	0.4328	0.4331	0.4333	0.4335	0.4337	0.4339	0.4340	0.4346	0.336
0.6	0.4285	0.4291	0.4295	0.4299	0.4304	0.4308	0.4312	0.4324	0.504
0.8	0.4229	0.4237	0.4245	0.4252	0.4260	0.4266	0.4273	0.4295	0.672
1.0	0.4163	0.4174	0.4185	0.4196	0.4207	0.4217	0.4226	0.4259	0.84
1.2	0.4091	0.4106	0.4120	0.4134	0.4148	0.4161	0.4174	0.4218	1.008
1.4	0.4018	0.4035	0.4052	0.4069	0.4086	0.4102	0.4118	0.4175	1.176
1.6	0.3948	0.3966	0.3987	0.4006	0.4023	0.4042	0.4061	0.4129	1.344
1.8	0.3885	0.3903	0.3922	0.3943	0.3963	0.3985	0.4006	0.4084	1.512
2.0	0.3833	0.3849	0.3868	0.3888	0.3909	0.3931	0.3954	0.4041	1.68
	$M = 2$								
0	0.5774	0.5774	0.5774	0.5774	0.5774	0.5774	0.5774	0.5774	0
0.1	0.5768	0.5769	0.5769	0.5769	0.5769	0.5770	0.5770	0.5771	0.075
0.2	0.5752	0.5754	0.5755	0.5756	0.5757	0.5758	0.5759	0.5763	0.15
0.3	0.5725	0.5728	0.5731	0.5734	0.5737	0.5739	0.5742	0.5749	0.225
0.4	0.5689	0.5694	0.5699	0.5704	0.5709	0.5713	0.5717	0.5731	0.3
0.5	0.5643	0.5651	0.5659	0.5667	0.5674	0.5680	0.5687	0.5708	0.375
0.6	0.5589	0.5601	0.5611	0.5622	0.5632	0.5641	0.5650	0.5680	0.45
0.7	0.5528	0.5543	0.5557	0.5571	0.5584	0.5596	0.5608	0.5647	0.525
0.8	0.5460	0.5478	0.5496	0.5513	0.5530	0.5546	0.5561	0.5611	0.6
0.9	0.5387	0.5409	0.5430	0.5451	0.5472	0.5491	0.5509	0.5572	0.675
1.0	0.5310	0.5336	0.5361	0.5386	0.5409	0.5432	0.5454	0.5529	0.75
1.1	0.5230	0.5260	0.5288	0.5317	0.5344	0.5371	0.5396	0.5484	0.825
1.2	0.5150	0.5182	0.5214	0.5246	0.5277	0.5307	0.5336	0.5437	0.9
1.3	0.5070	0.5105	0.5139	0.5174	0.5208	0.5242	0.5274	0.5389	0.975
1.4	0.4992	0.5029	0.5065	0.5103	0.5140	0.5176	0.5212	0.5339	1.05
1.5	0.4917	0.4954	0.4993	0.5032	0.5072	0.5111	0.5150	0.5289	1.125
1.6	0.4847	0.4884	0.4923	0.4964	0.5005	0.5047	0.5088	0.5240	1.2
1.7	0.4781	0.4818	0.4857	0.4899	0.4941	0.4985	0.5029	0.5191	1.275
1.8	0.4723	0.4758	0.4796	0.4837	0.4881	0.4926	0.4971	0.5144	1.35
1.9	0.4672	0.4704	0.4741	0.4780	0.4825	0.4870	0.4916	0.5098	1.425
2.0	0.4629	0.4658	0.4692	0.4730	0.4773	0.4818	0.4866	0.5054	1.5

TABLE 8 (Contd)

$-h_\alpha/E_\beta^2$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0
0.1	0.7488	0.7489	0.7490	0.7491	0.7491	0.7492	0.7492	0.7494	0.064
0.2	0.7454	0.7457	0.7460	0.7462	0.7465	0.7467	0.7470	0.7477	0.128
0.3	0.7397	0.7404	0.7410	0.7416	0.7422	0.7427	0.7432	0.7448	0.192
0.4	0.7319	0.7331	0.7342	0.7352	0.7362	0.7371	0.7380	0.7409	0.256
0.5	0.7222	0.7240	0.7256	0.7272	0.7287	0.7301	0.7314	0.7359	0.32
0.6	0.7107	0.7132	0.7154	0.7177	0.7198	0.7218	0.7236	0.7300	0.384
0.7	0.6977	0.7009	0.7039	0.7069	0.7096	0.7122	0.7147	0.7231	0.448
0.8	0.6835	0.6875	0.6912	0.6948	0.6983	0.7016	0.7048	0.7155	0.512
0.9	0.6683	0.6730	0.6775	0.6818	0.6861	0.6901	0.6940	0.7072	0.576
1.0	0.6525	0.6579	0.6630	0.6682	0.6731	0.6779	0.6825	0.6983	0.64
1.1	0.6363	0.6422	0.6482	0.6540	0.6597	0.6652	0.6705	0.6889	0.704
1.2	0.6202	0.6266	0.6331	0.6395	0.6459	0.6521	0.6581	0.6792	0.768
1.3	0.6043	0.6111	0.6181	0.6251	0.6320	0.6389	0.6456	0.6693	0.832
1.4	0.5891	0.5961	0.6034	0.6108	0.6183	0.6257	0.6330	0.6592	0.896
1.5	0.5747	0.5818	0.5893	0.5970	0.6048	0.6127	0.6206	0.6493	0.96
1.6	0.5616	0.5685	0.5760	0.5838	0.5920	0.6002	0.6085	0.6394	1.024
1.7	0.5499	0.5565	0.5637	0.5715	0.5798	0.5883	0.5970	0.6298	1.088
1.8	0.5398	0.5458	0.5527	0.5603	0.5685	0.5771	0.5860	0.6206	1.152
1.9	0.5316	0.5367	0.5430	0.5503	0.5583	0.5669	0.5759	0.6119	1.216
2.0	0.5252	0.5295	0.5349	0.5416	0.5492	0.5577	0.5667	0.6038	1.28
2.1	0.5209	0.5240	0.5285	0.5344	0.5415	0.5496	0.5585	0.5962	1.344
2.2	0.5187	0.5204	0.5238	0.5287	0.5351	0.5427	0.5513	0.5894	1.408
2.3	0.5185	0.5187	0.5208	0.5246	0.5302	0.5371	0.5452	0.5834	1.472
2.4	0.5204	0.5190	0.5197	0.5223	0.5268	0.5329	0.5405	0.5782	1.536
2.5	0.5241	0.5212	0.5203	0.5215	0.5248	0.5301	0.5370	0.5738	1.6
	$M = \frac{10}{7}$								
0	0.9802	0.9802	0.9802	0.9802	0.9802	0.9802	0.9802	0.9802	0
0.05	0.9796	0.9796	0.9797	0.9797	0.9797	0.9798	0.9798	0.9799	0.0255
0.1	0.9778	0.9779	0.9781	0.9783	0.9784	0.9785	0.9786	0.9790	0.051
0.15	0.9749	0.9752	0.9755	0.9758	0.9761	0.9764	0.9767	0.9775	0.0765
0.2	0.9708	0.9714	0.9719	0.9725	0.9730	0.9735	0.9740	0.9755	0.102
0.25	0.9655	0.9665	0.9674	0.9682	0.9690	0.9698	0.9705	0.9728	0.1275
0.3	0.9592	0.9605	0.9618	0.9630	0.9642	0.9652	0.9663	0.9696	0.153
0.35	0.9517	0.9535	0.9553	0.9569	0.9585	0.9599	0.9613	0.9659	0.1785
0.4	0.9433	0.9456	0.9479	0.9500	0.9520	0.9539	0.9556	0.9616	0.204
0.45	0.9339	0.9369	0.9396	0.9422	0.9447	0.9471	0.9493	0.9567	0.2295
0.5	0.9235	0.9271	0.9304	0.9337	0.9367	0.9396	0.9423	0.9514	0.255
0.6	0.9003	0.9052	0.9099	0.9144	0.9186	0.9227	0.9265	0.9393	0.306
0.7	0.8742	0.8805	0.8866	0.8924	0.8980	0.9034	0.9084	0.9255	0.357
0.8	0.8457	0.8535	0.8610	0.8683	0.8753	0.8820	0.8884	0.9101	0.408
0.9	0.8156	0.8248	0.8337	0.8424	0.8509	0.8590	0.8668	0.8934	0.459
1.0	0.7844	0.7949	0.8051	0.8153	0.8252	0.8347	0.8439	0.8756	0.51
1.1	0.7529	0.7644	0.7759	0.7874	0.7986	0.8095	0.8201	0.8570	0.561
1.2	0.7217	0.7341	0.7467	0.7592	0.7716	0.7839	0.7957	0.8378	0.612
1.3	0.6916	0.7046	0.7178	0.7313	0.7448	0.7582	0.7713	0.8184	0.663
1.4	0.6632	0.6763	0.6900	0.7041	0.7185	0.7328	0.7471	0.7989	0.714
1.5	0.6371	0.6501	0.6638	0.6782	0.6931	0.7083	0.7234	0.7797	0.765
1.6	0.6138	0.6261	0.6395	0.6540	0.6692	0.6849	0.7008	0.7610	0.816
1.8	0.5774	0.5871	0.5988	0.6122	0.6270	0.6429	0.6595	0.7259	0.918
2.0	0.5568	0.5623	0.5705	0.5813	0.5943	0.6092	0.6256	0.6955	1.02
2.2	0.5529	0.5529	0.5564	0.5631	0.5730	0.5856	0.6005	0.6708	1.122
2.4	0.5652	0.5591	0.5567	0.5583	0.5638	0.5730	0.5853	0.6528	1.224
2.6	0.5917	0.5793	0.5706	0.5663	0.5666	0.5713	0.5801	0.6416	1.326
2.8	0.6290	0.6110	0.5963	0.5859	0.5803	0.5799	0.5844	0.6373	1.428
3.0	0.6727	0.6506	0.6307	0.6146	0.6032	0.5973	0.5970	0.6390	1.53

TABLE 8 (Contd)

$-h_\alpha/E_\beta^2$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	1.3333	0
0.05	1.3321	1.3322	1.3323	1.3323	1.3324	1.3325	1.3325	1.3327	0.018
0.1	1.3285	1.3288	0.3291	1.3294	1.3297	1.3299	1.3301	1.3309	0.036
0.15	1.3224	1.3231	1.3238	1.3244	1.3251	1.3256	1.3261	1.3279	0.054
0.2	1.3140	1.3153	1.3165	1.3176	1.3187	1.3196	1.3206	1.3237	0.072
0.25	1.3033	1.3053	1.3071	1.3088	1.3105	1.3120	1.3135	1.3183	0.09
0.3	1.2904	1.2932	1.2957	1.2982	1.3006	1.3028	1.3048	1.3117	0.108
0.35	1.2753	1.2790	1.2825	1.2858	1.2890	1.2919	1.2947	1.3040	0.126
0.4	1.2581	1.2630	1.2674	1.2717	1.2757	1.2796	1.2832	1.2953	0.144
0.45	1.2389	1.2449	1.2505	1.2559	1.2610	1.2658	1.2703	1.2855	0.162
0.5	1.2180	1.2252	1.2319	1.2385	1.2447	1.2506	1.2561	1.2746	0.18
0.6	1.1710	1.1808	1.1903	1.1994	1.2080	1.2162	1.2240	1.2501	0.216
0.7	1.1184	1.1310	1.1433	1.1551	1.1664	1.1772	1.1874	1.2221	0.252
0.8	1.0614	1.0769	1.0920	1.1066	1.1207	1.1342	1.1471	1.1910	0.288
0.9	1.0014	1.0197	1.0375	1.0549	1.0718	1.0881	1.1037	1.1574	0.324
1.0	0.9400	0.9605	0.9809	1.0010	1.0207	1.0397	1.0581	1.1219	0.36
1.1	0.8785	0.9009	0.9235	0.9460	0.9682	0.9899	1.0109	1.0849	0.396
1.2	0.8184	0.8422	0.8665	0.8910	0.9154	0.9395	0.9631	1.0470	0.432
1.3	0.7611	0.7857	0.8111	0.8371	0.8633	0.8895	0.9154	1.0088	0.468
1.4	0.7080	0.7325	0.7583	0.7853	0.8129	0.8408	0.8685	0.9710	0.504
1.5	0.6602	0.6838	0.7093	0.7365	0.7649	0.7940	0.8234	0.9339	0.54
1.6	0.6188	0.6405	0.6650	0.6917	0.7203	0.7501	0.7806	0.8982	0.576
1.8	0.5582	0.5738	0.5936	0.6171	0.6440	0.6734	0.7047	0.8325	0.648
2.0	0.5305	0.5369	0.5489	0.5663	0.5886	0.6151	0.6449	0.7772	0.72
2.2	0.5363	0.5314	0.5333	0.5419	0.5570	0.5780	0.6041	0.7344	0.792
2.4	0.5728	0.5559	0.5461	0.5440	0.5498	0.5632	0.5834	0.7053	0.864
2.6	0.6341	0.6060	0.5843	0.5706	0.5657	0.5697	0.5823	0.6901	0.936
2.8	0.7118	0.6748	0.6426	0.6176	0.6015	0.5952	0.5989	0.6876	1.008
3.0	0.7964	0.7540	0.7139	0.6791	0.6524	0.6358	0.6300	0.6962	1.08
3.2	0.8778	0.8349	0.7904	0.7485	0.7129	0.6867	0.6716	0.7134	1.152
3.4	0.9471	0.9086	0.8644	0.8189	0.7769	0.7426	0.7190	0.7363	1.224
3.6	0.9971	0.9678	0.9285	0.8836	0.8385	0.7985	0.7678	0.7620	1.296
3.8	1.0231	1.0071	0.9771	0.9370	0.8924	0.8494	0.8137	0.7877	1.368
4.0	1.0236	1.0233	1.0062	0.9749	0.9345	0.8916	0.8532	0.8109	1.44

TABLE 9

$-h_{\alpha} / E_{\beta}^{2}$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{3}$								
0	0.2834	0.2739	0.2645	0.2550	0.2456	0.2361	0.2267	0.1889	0
0.2	0.2835	0.2741	0.2646	0.2552	0.2457	0.2362	0.2268	0.1890	0.182
0.4	0.2839	0.2744	0.2649	0.2555	0.2460	0.2365	0.2270	0.1891	0.364
0.6	0.2846	0.2751	0.2655	0.2560	0.2464	0.2369	0.2274	0.1894	0.546
0.8	0.2855	0.2759	0.2663	0.2567	0.2471	0.2375	0.2279	0.1898	0.728
1.0	0.2867	0.2769	0.2672	0.2575	0.2478	0.2382	0.2286	0.1903	0.910
1.2	0.2880	0.2781	0.2683	0.2585	0.2487	0.2390	0.2293	0.1908	1.092
1.4	0.2894	0.2794	0.2695	0.2596	0.2498	0.2399	0.2302	0.1914	1.274
1.6	0.2909	0.2808	0.2708	0.2608	0.2508	0.2409	0.2311	0.1921	1.456
1.8	0.2924	0.2823	0.2721	0.2620	0.2520	0.2420	0.2321	0.1928	1.638
2.0	0.2940	0.2837	0.2735	0.2633	0.2531	0.2431	0.2331	0.1935	1.820
	$M = \frac{10}{4}$								
0	0.3533	0.3415	0.3298	0.3180	0.3062	0.2944	0.2826	0.2355	0
0.2	0.3538	0.3419	0.3301	0.3183	0.3065	0.2947	0.2829	0.2357	0.168
0.4	0.3551	0.3432	0.3312	0.3193	0.3074	0.2955	0.2837	0.2363	0.336
0.6	0.3573	0.3451	0.3330	0.3209	0.3089	0.2969	0.2849	0.2371	0.504
0.8	0.3602	0.3478	0.3354	0.3231	0.3109	0.2987	0.2865	0.2383	0.672
1.0	0.3638	0.3510	0.3384	0.3258	0.3134	0.3009	0.2886	0.2398	0.84
1.2	0.3678	0.3547	0.3418	0.3289	0.3162	0.3035	0.2910	0.2415	1.008
1.4	0.3722	0.3588	0.3455	0.3324	0.3193	0.3064	0.2936	0.2435	1.176
1.6	0.3768	0.3630	0.3495	0.3360	0.3227	0.3095	0.2965	0.2455	1.344
1.8	0.3814	0.3674	0.3535	0.3397	0.3261	0.3127	0.2994	0.2477	1.512
2.0	0.3860	0.3716	0.3575	0.3435	0.3296	0.3159	0.3024	0.2499	1.68
	$M = 2$								
0	0.3849	0.3721	0.3593	0.3464	0.3336	0.3208	0.3079	0.2566	0
0.1	0.3852	0.3724	0.3595	0.3467	0.3338	0.3210	0.3081	0.2567	0.075
0.2	0.3862	0.3733	0.3603	0.3474	0.3344	0.3215	0.3086	0.2571	0.15
0.3	0.3878	0.3747	0.3616	0.3485	0.3355	0.3225	0.3095	0.2577	0.225
0.4	0.3900	0.3766	0.3634	0.3502	0.3370	0.3239	0.3108	0.2586	0.3
0.5	0.3927	0.3792	0.3657	0.3522	0.3389	0.3256	0.3123	0.2598	0.375
0.6	0.3961	0.3822	0.3684	0.3547	0.3412	0.3276	0.3142	0.2611	0.45
0.7	0.3999	0.3857	0.3716	0.3576	0.3438	0.3300	0.3164	0.2627	0.525
0.8	0.4042	0.3896	0.3752	0.3609	0.3467	0.3327	0.3189	0.2645	0.6
0.9	0.4089	0.3939	0.3791	0.3645	0.3500	0.3357	0.3216	0.2664	0.675
1.0	0.4140	0.3986	0.3834	0.3684	0.3536	0.3390	0.3246	0.2686	0.75
1.1	0.4195	0.4035	0.3879	0.3725	0.3574	0.3425	0.3278	0.2709	0.825
1.2	0.4251	0.4088	0.3927	0.3769	0.3614	0.3462	0.3312	0.2733	0.9
1.3	0.4310	0.4142	0.3977	0.3815	0.3656	0.3500	0.3347	0.2759	0.975
1.4	0.4370	0.4198	0.4028	0.3862	0.3700	0.3540	0.3384	0.2786	1.05
1.5	0.4430	0.4254	0.4081	0.3911	0.3744	0.3581	0.3421	0.2814	1.125
1.6	0.4491	0.4311	0.4134	0.3960	0.3790	0.3623	0.3460	0.2842	1.2
1.7	0.4551	0.4367	0.4186	0.4009	0.3835	0.3665	0.3499	0.2871	1.275
1.8	0.4610	0.4424	0.4239	0.4058	0.3881	0.3708	0.3539	0.2900	1.35
1.9	0.4668	0.4480	0.4292	0.4107	0.3927	0.3751	0.3579	0.2929	1.425
2.0	0.4723	0.4533	0.4342	0.4155	0.3971	0.3792	0.3617	0.2957	1.5

TABLE 9 (Contd)

$-h_\alpha/E_\beta^2$

E_β / Ω	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{6}$								
0	0.3281	0.3172	0.3063	0.2953	0.2844	0.2734	0.2625	0.2188	0
0.1	0.3290	0.3180	0.3070	0.2959	0.2850	0.2740	0.2630	0.2191	0.064
0.2	0.3315	0.3203	0.3091	0.2979	0.2867	0.2755	0.2644	0.2201	0.128
0.3	0.3358	0.3241	0.3125	0.3010	0.2895	0.2781	0.2668	0.2218	0.192
0.4	0.3416	0.3294	0.3173	0.3054	0.2935	0.2817	0.2701	0.2242	0.256
0.5	0.3490	0.3361	0.3234	0.3109	0.2985	0.2863	0.2742	0.2272	0.32
0.6	0.3579	0.3441	0.3307	0.3175	0.3045	0.2918	0.2792	0.2308	0.384
0.7	0.3680	0.3534	0.3391	0.3252	0.3115	0.2981	0.2850	0.2349	0.448
0.8	0.3794	0.3637	0.3486	0.3338	0.3193	0.3053	0.2916	0.2397	0.512
0.9	0.3918	0.3751	0.3589	0.3432	0.3280	0.3132	0.2988	0.2449	0.576
1.0	0.4051	0.3873	0.3701	0.3534	0.3373	0.3217	0.3066	0.2505	0.64
1.1	0.4192	0.4003	0.3820	0.3643	0.3473	0.3309	0.3150	0.2566	0.704
1.2	0.4338	0.4138	0.3944	0.3758	0.3578	0.3405	0.3238	0.2630	0.768
1.3	0.4489	0.4278	0.4073	0.3876	0.3687	0.3505	0.3330	0.2697	0.832
1.4	0.4642	0.4419	0.4204	0.3998	0.3799	0.3608	0.3425	0.2766	0.896
1.5	0.4795	0.4562	0.4338	0.4121	0.3913	0.3713	0.3522	0.2837	0.96
1.6	0.4947	0.4705	0.4471	0.4245	0.4028	0.3820	0.3620	0.2910	1.024
1.7	0.5096	0.4846	0.4603	0.4369	0.4143	0.3926	0.3719	0.2983	1.088
1.8	0.5240	0.4984	0.4733	0.4491	0.4257	0.4032	0.3818	0.3056	1.152
1.9	0.5379	0.5117	0.4860	0.4610	0.4369	0.4137	0.3915	0.3128	1.216
2.0	0.5510	0.5244	0.4981	0.4726	0.4478	0.4239	0.4010	0.3200	1.28
2.1	0.5633	0.5364	0.5097	0.4836	0.4582	0.4338	0.4102	0.3270	1.344
2.2	0.5747	0.5476	0.5207	0.4942	0.4684	0.4434	0.4193	0.3339	1.408
2.3	0.5850	0.5579	0.5309	0.5042	0.4781	0.4525	0.4280	0.3405	1.472
2.4	0.5942	0.5673	0.5403	0.5134	0.4869	0.4610	0.4360	0.3468	1.536
2.5	0.6023	0.5758	0.5488	0.5219	0.4952	0.4690	0.4436	0.3528	1.6
	$M = \frac{10}{7}$								
0	0.0384	0.0372	0.0359	0.0346	0.0333	0.0320	0.0308	0.0256	0
0.05	0.0390	0.0377	0.0364	0.0350	0.0337	0.0324	0.0311	0.0259	0.0255
0.1	0.0408	0.0393	0.0378	0.0363	0.0349	0.0335	0.0320	0.0266	0.051
0.15	0.0437	0.0419	0.0401	0.0385	0.0368	0.0352	0.0337	0.0277	0.0765
0.2	0.0477	0.0455	0.0435	0.0415	0.0395	0.0377	0.0359	0.0293	0.102
0.25	0.0528	0.0502	0.0477	0.0453	0.0430	0.0409	0.0388	0.0314	0.1275
0.3	0.0591	0.0559	0.0528	0.0500	0.0473	0.0447	0.0423	0.0339	0.153
0.35	0.0665	0.0626	0.0589	0.0555	0.0523	0.0493	0.0465	0.0369	0.1785
0.4	0.0749	0.0702	0.0658	0.0617	0.0580	0.0545	0.0512	0.0403	0.204
0.45	0.0844	0.0788	0.0736	0.0688	0.0644	0.0603	0.0565	0.0441	0.2295
0.5	0.0948	0.0883	0.0822	0.0766	0.0715	0.0668	0.0625	0.0484	0.255
0.6	0.1185	0.1098	0.1018	0.0945	0.0877	0.0816	0.0759	0.0581	0.306
0.7	0.1458	0.1346	0.1244	0.1150	0.1064	0.0986	0.0915	0.0693	0.357
0.8	0.1761	0.1623	0.1497	0.1380	0.1274	0.1178	0.1091	0.0819	0.408
0.9	0.2092	0.1926	0.1773	0.1633	0.1505	0.1389	0.1284	0.0959	0.459
1.0	0.2445	0.2250	0.2070	0.1905	0.1754	0.1616	0.1492	0.1109	0.51
1.1	0.2816	0.2591	0.2384	0.2192	0.2017	0.1858	0.1714	0.1270	0.561
1.2	0.3199	0.2946	0.2710	0.2493	0.2294	0.2112	0.1947	0.1440	0.612
1.3	0.3590	0.3309	0.3047	0.2803	0.2579	0.2375	0.2189	0.1616	0.663
1.4	0.3984	0.3677	0.3389	0.3120	0.2871	0.2644	0.2437	0.1798	0.714
1.5	0.4376	0.4042	0.3731	0.3438	0.3167	0.2917	0.2689	0.1983	0.765
1.6	0.4761	0.4407	0.4072	0.3757	0.3463	0.3191	0.2943	0.2171	0.816
1.8	0.5492	0.5106	0.4733	0.4379	0.4045	0.3734	0.3447	0.2546	0.918
2.0	0.6147	0.5742	0.5345	0.4962	0.4596	0.4251	0.3931	0.2911	1.02
2.2	0.6699	0.6292	0.5886	0.5486	0.5098	0.4728	0.4380	0.3255	1.122
2.4	0.7133	0.6740	0.6338	0.5934	0.5535	0.5149	0.4781	0.3569	1.224
2.6	0.7441	0.7076	0.6692	0.6296	0.5898	0.5505	0.5125	0.3846	1.326
2.8	0.7624	0.7297	0.6943	0.6568	0.6180	0.5790	0.5407	0.4082	1.428
3.0	0.7690	0.7409	0.7093	0.6748	0.6381	0.6003	0.5624	0.4275	1.53

TABLE 9 (Contd)

$-h_{\dot{\alpha}}/E_{\beta}^{2}$

Ω \ E_β	0	0.1	0.2	0.3	0.4	0.5	0.6	1.0	ν
	$M = \frac{10}{8}$								
0	-1.0370	-1.0025	-0.9679	-0.9333	-0.8988	-0.8642	-0.8296	-0.6914	0
0.05	-1.0353	-1.0009	-0.9665	-0.9320	-0.8976	-0.8631	-0.8286	-0.6906	0.018
0.1	-1.0300	-0.9961	-0.9621	-0.9281	-0.8940	-0.8599	-0.8257	-0.6885	0.036
0.15	-1.0213	-0.9882	-0.9550	-0.9216	-0.8881	-0.8545	-0.8208	-0.6850	0.054
0.2	-1.0091	-0.9771	-0.9450	-0.9126	-0.8799	-0.8470	-0.8140	-0.6801	0.072
0.25	-0.9934	-0.9630	-0.9322	-0.9009	-0.8694	-0.8375	-0.8052	-0.6739	0.09
0.3	-0.9745	-0.9458	-0.9166	-0.8868	-0.8565	-0.8258	-0.7946	-0.6663	0.108
0.35	-0.9523	-0.9257	-0.8983	-0.8703	-0.8415	-0.8121	-0.7821	-0.6573	0.126
0.4	-0.9269	-0.9027	-0.8774	-0.8513	-0.8243	-0.7964	-0.7678	-0.6470	0.144
0.45	-0.8984	-0.8768	-0.8540	-0.8300	-0.8049	-0.7788	-0.7517	-0.6355	0.162
0.5	-0.8669	-0.8482	-0.8280	-0.8064	-0.7835	-0.7593	-0.7339	-0.6227	0.18
0.6	-0.7956	-0.7834	-0.7691	-0.7528	-0.7347	-0.7148	-0.6933	-0.5935	0.216
0.7	-0.7140	-0.7090	-0.7013	-0.6911	-0.6785	-0.6635	-0.6464	-0.5597	0.252
0.8	-0.6234	-0.6262	-0.6258	-0.6222	-0.6156	-0.6061	-0.5939	-0.5219	0.288
0.9	-0.5252	-0.5362	-0.5434	-0.5469	-0.5468	-0.5432	-0.5363	-0.4802	0.324
1.0	-0.4208	-0.4402	-0.4554	-0.4662	-0.4729	-0.4755	-0.4743	-0.4353	0.36
1.1	-0.3117	-0.3396	-0.3628	-0.3812	-0.3948	-0.4039	-0.4085	-0.3875	0.396
1.2	-0.1996	-0.2357	-0.2668	-0.2927	-0.3135	-0.3291	-0.3397	-0.3374	0.432
1.3	-0.0859	-0.1299	-0.1686	-0.2020	-0.2298	-0.2520	-0.2688	-0.2855	0.468
1.4	+0.0276	-0.0236	-0.0696	-0.1100	-0.1447	-0.1734	-0.1963	-0.2323	0.504
1.5	0.1395	+0.0819	+0.0292	-0.0179	-0.0592	-0.0942	-0.1230	-0.1782	0.54
1.6	0.2484	0.1851	0.1265	+0.0733	+0.0259	-0.0152	-0.0497	-0.1239	0.576
1.8	0.4517	0.3804	0.3126	0.2492	0.1911	+0.1392	+0.0940	-0.0164	0.648
2.0	0.6286	0.5541	0.4809	0.4106	0.3445	0.2839	0.2298	+0.0866	0.72
2.2	0.7723	0.6993	0.6252	0.5518	0.4809	0.4142	0.3531	0.1821	0.792
2.4	0.8791	0.8121	0.7413	0.6686	0.5963	0.5263	0.4607	0.2674	0.864
2.6	0.9482	0.8909	0.8271	0.7587	0.6882	0.6178	0.5501	0.3409	0.936
2.8	0.9815	0.9363	0.8825	0.8215	0.7558	0.6878	0.6204	0.4016	1.008
3.0	0.9834	0.9514	0.9094	0.8581	0.7996	0.7364	0.6715	0.4493	1.08
3.2	0.9599	0.9410	0.9113	0.8711	0.8216	0.7650	0.7045	0.4844	1.152
3.4	0.9185	0.9107	0.8930	0.8642	0.8246	0.7761	0.7213	0.5081	1.224
3.6	0.8668	0.8675	0.8600	0.8419	0.8125	0.7726	0.7246	0.5218	1.296
3.8	0.8123	0.8178	0.8180	0.8092	0.7892	0.7580	0.7172	0.5274	1.368
4.0	0.7615	0.7681	0.7728	0.7710	0.7592	0.7360	0.7023	0.5269	1.44

WT.2078.C.P.382.K3 - Printed in Great Britain

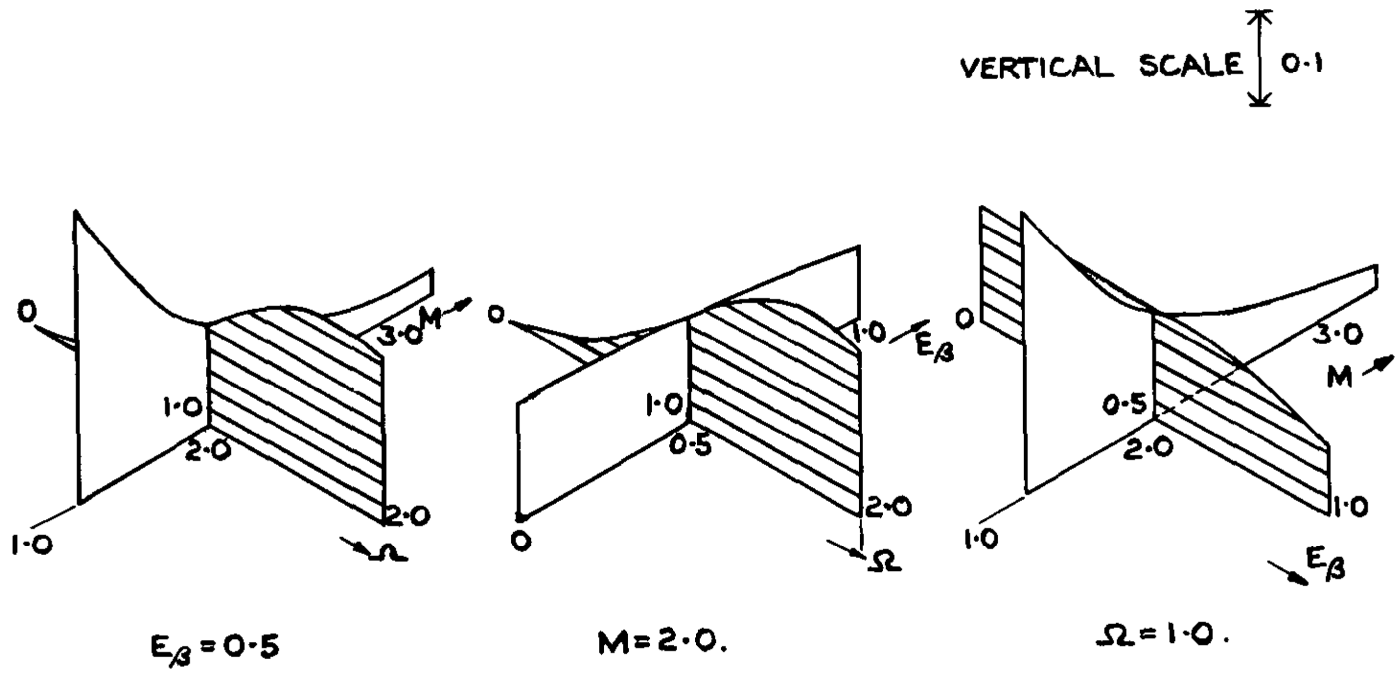


FIG. 1. $^{P}z/E_{\beta}$.

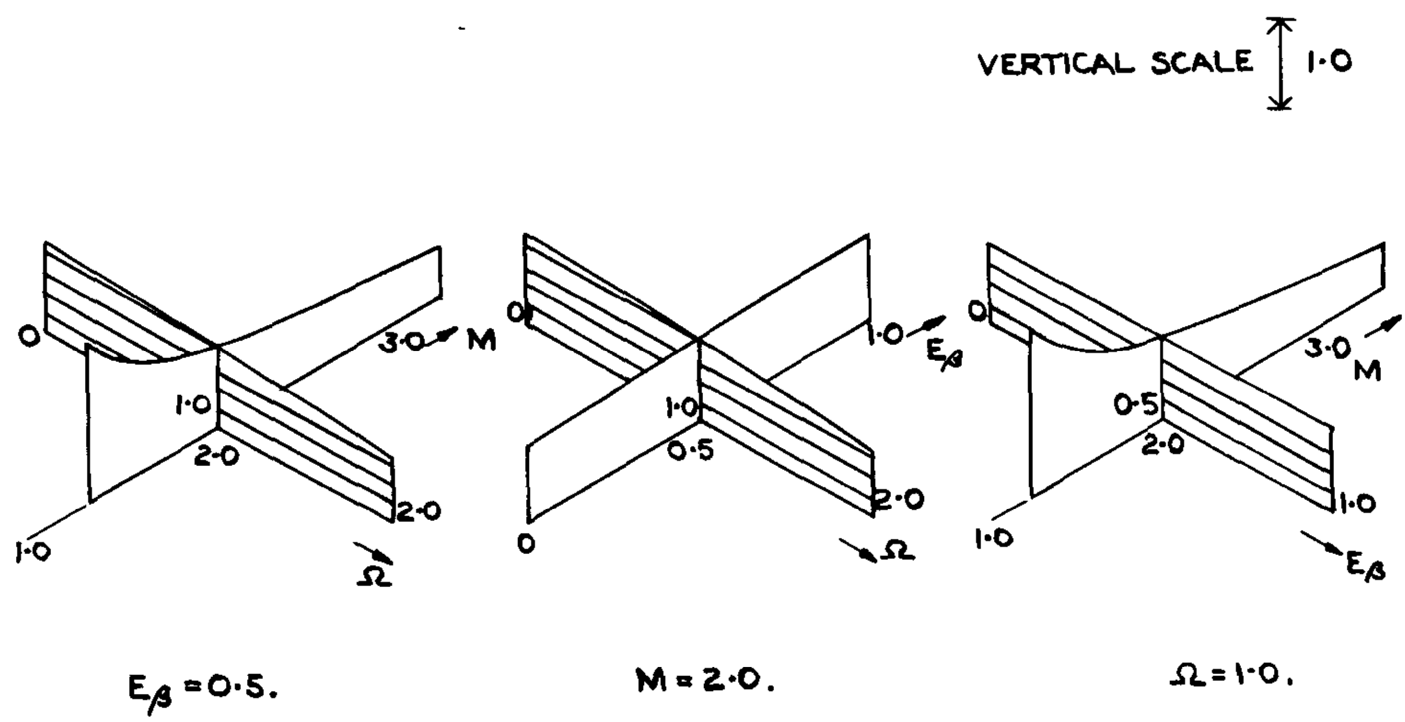


FIG. 2. $^{P}\dot{z}/E_{\beta}$.

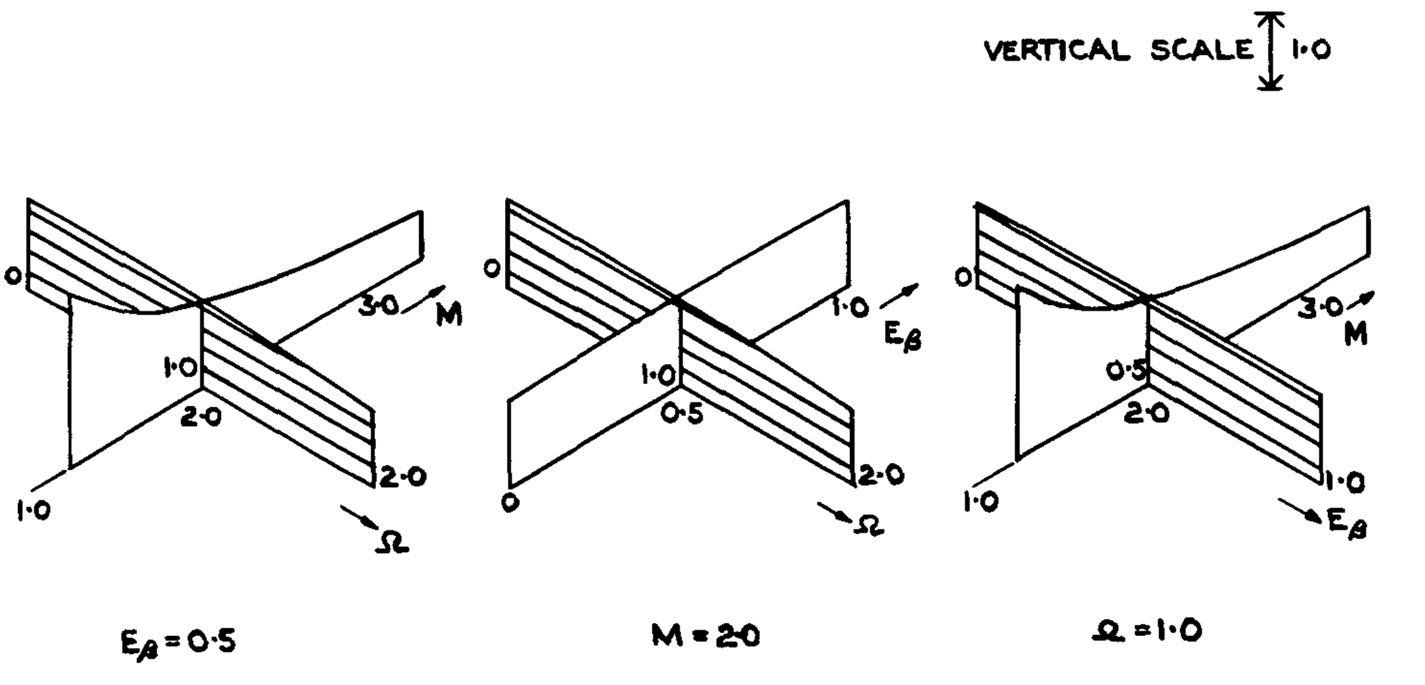


FIG. 3. P_α/E_β

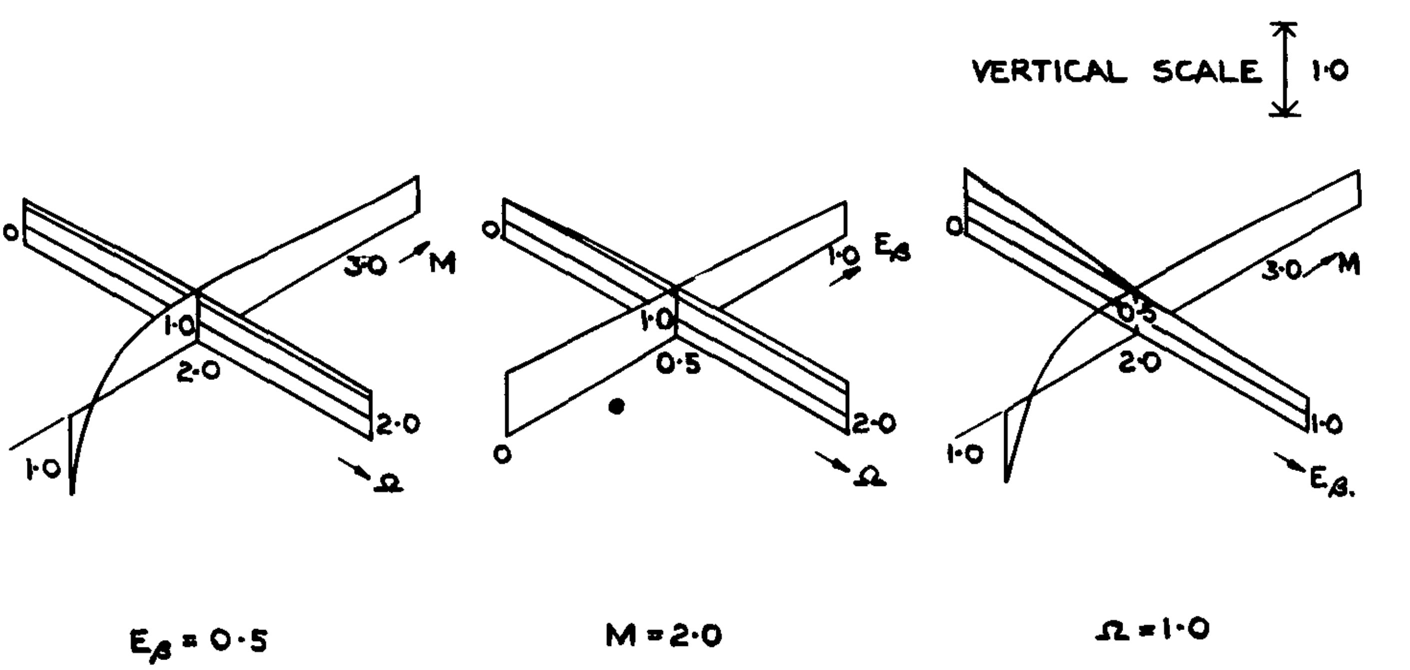
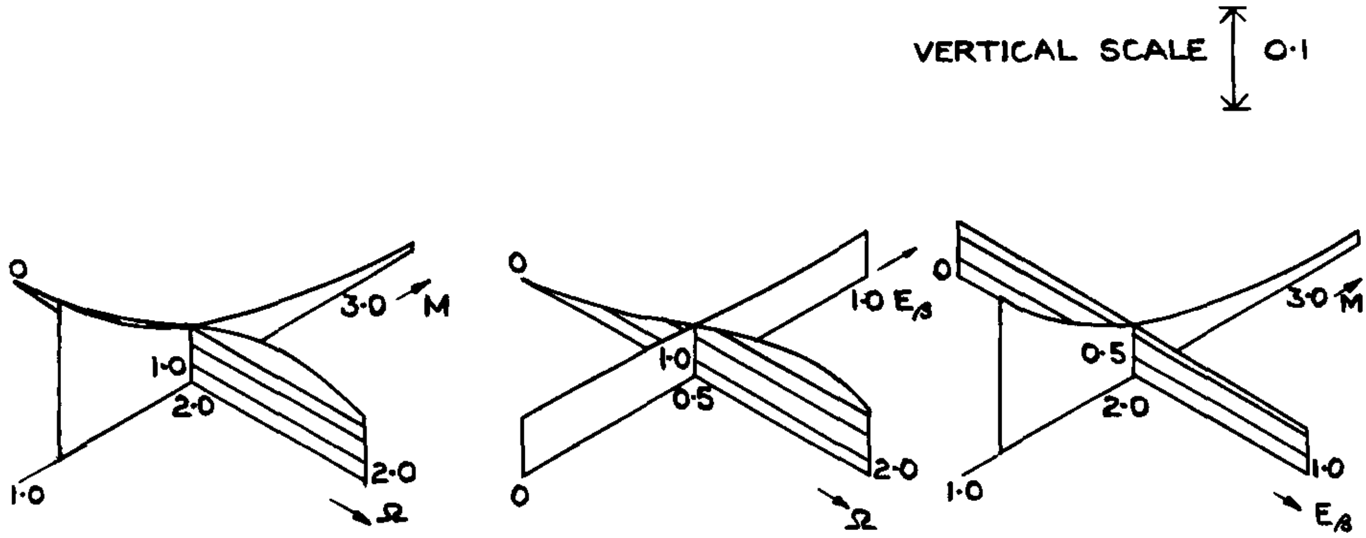
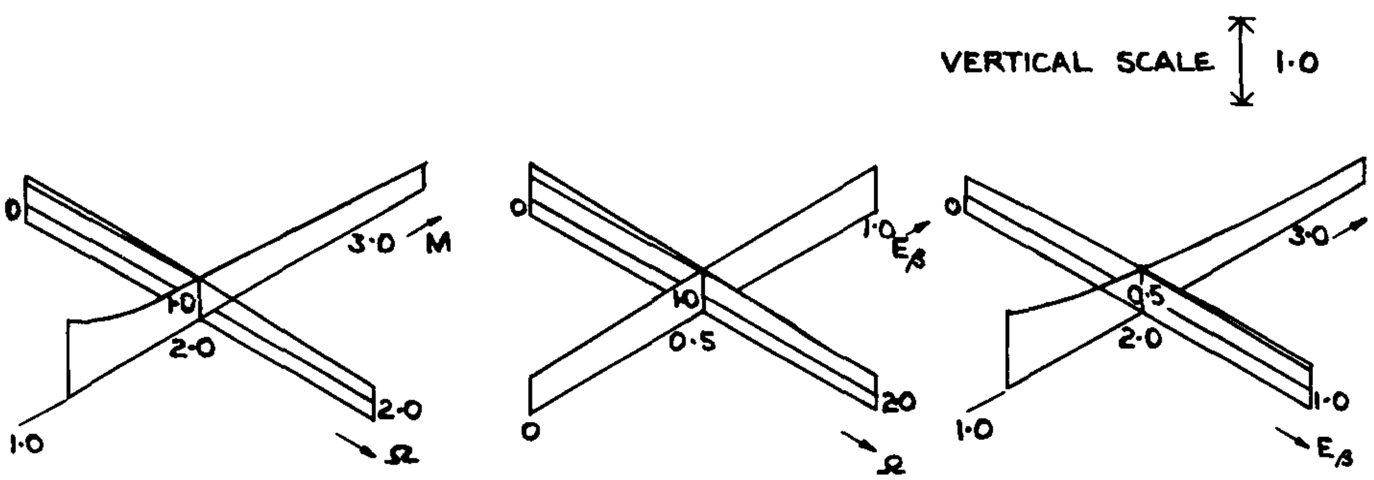


FIG. 4. $P_{\dot{\alpha}}/E_\beta$



$E_\beta = 0{\cdot}5$ M = 2·0 $\Omega = 1{\cdot}0$

FIG. 5 $(-h_z)/E_\beta{}^2$



$E_\beta = 0{\cdot}5$ M = 2·0 $\Omega = 1{\cdot}0$

FIG. 6. $(-h_{\dot{z}})/E_\beta{}^2$

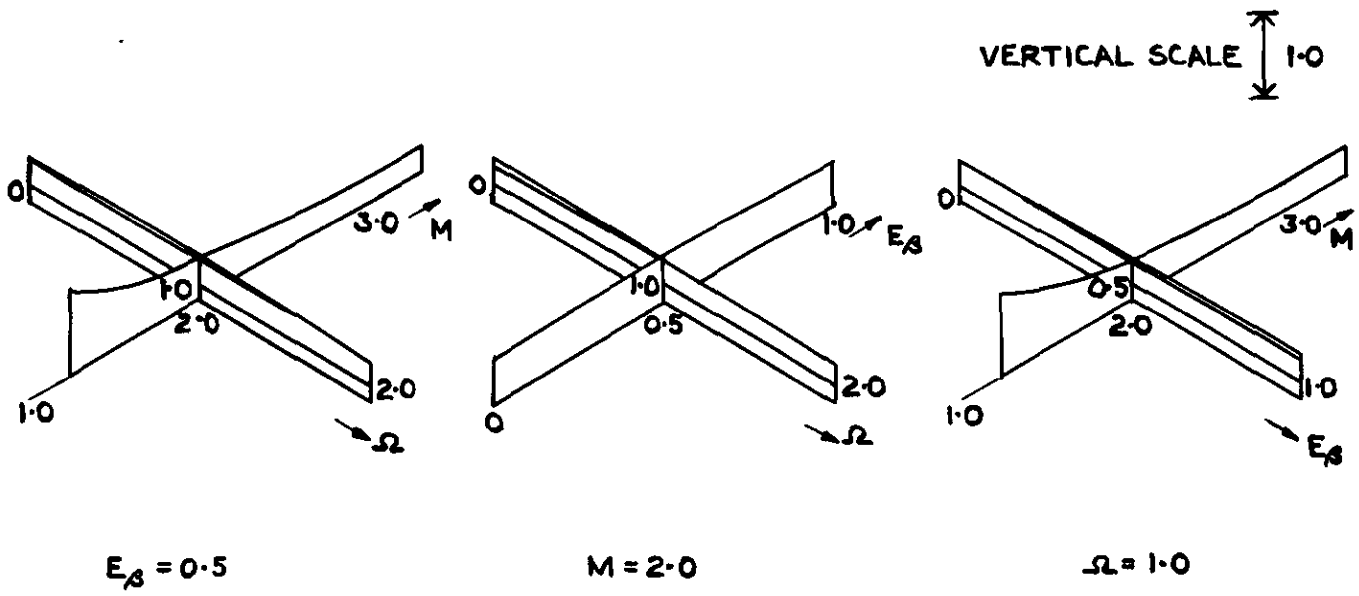


FIG. 7. $(-h_\alpha)/E_\beta^2$

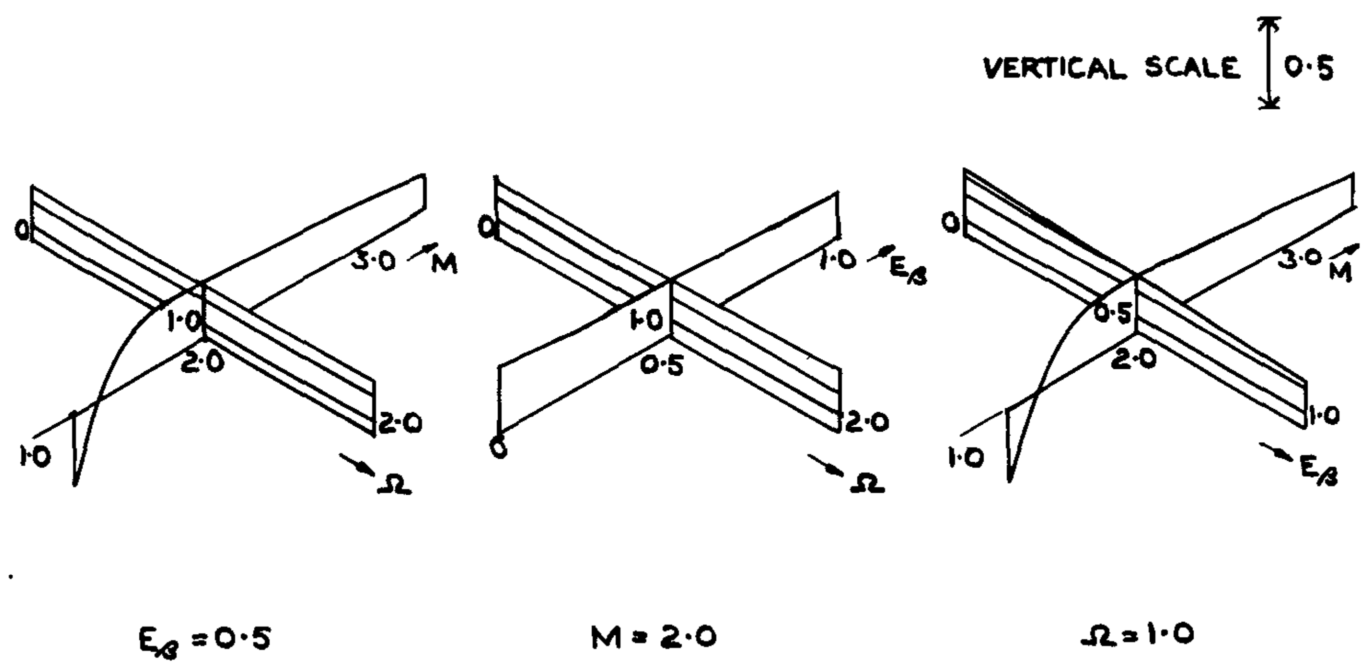


FIG. 8. $(-h_{\dot\alpha})/E_\beta^2$

C.P. No. 382
(19,866)
A.R.C. Technical Report

Published by
HER MAJESTY'S STATIONERY OFFICE

To be purchased from
York House, Kingsway, London W.C.2
423 Oxford Street, London W.1
13A Castle Street, Edinburgh 2
109 St. Mary Street, Cardiff
39 King Street, Manchester 2
Tower Lane, Bristol 1
2 Edmund Street, Birmingham 3
80 Chichester Street, Belfast
or through any bookseller

PRINTED IN GREAT BRITAIN

S.O. Code No. 23-9010-82

C.P. No. 382