日本船舶振興会昭和41年度補助事業
"船舶の経済性向上に関する調査"

研究資料 No. 56

第90研究部会

海象気象と船体構造との関連に関する調査研究

報　告　書

波浪曲げモーメントの計算

昭和42年3月

社団法人
日本造船研究協会

はしがき

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1. 研 究 目 的

船体の構造寸法は、それに作用する外力の推定が困難であつたため、主として経験により定められてきた。ところが、従来の船舶よりもさらに合理的な船体構造および将来建造されると考えられる巨大船を設計するためには、経験以外に大洋における海象をできるだけ、正確に推定し船体に働らく荷重を理論的に求めることがぜひとも必要である。本研究は波浪中において、船体が受ける縦曲げモーメント、および圧力分布等について、近年求められた多くの波浪の統計的観測値を用いて、それに対する船体の応答を理論的に算定し、これによつて船体構造部材の応力を求め、合理的な構造設計の基礎資料を得ることを目的とする。

昭和41年度は、正面規則波に対する船体の応答関数を求めると同時に、短期分布プログラムを作製し、一部の船体について試計算を行なつた。昭和42年度以降には残りの船体について短期分布を計算し、これを用いて海洋波浪の長期観測資料から、波浪曲げモーメントの長期分布を求め、縦強度計算上の基準となるべき波浪曲げモーメントの統計値を見いだすとともに、船体に作用する動的圧力の分布を求める予定である。

2. 委員会、幹事会の開催日程および会場

第1回委員会	昭和41年	3月31日	日本船舶クラブ
第2回 〃		4月22日	三菱重工 和田クラブ
第1回幹事会		5月19日	日立造船 大阪本社
第2回 〃		6月28日	日本船舶クラブ
第3回委員会		8月25日	〃
第4回 〃		9月28日	〃
第5回 〃		11月25日	〃
第6回 〃	昭和42年	1月27日	〃
第7回 〃		2月28日	〃

3. 計 算 法

3.1 計 算 法

渡辺教授の上下動、縦揺理論を基礎とし、福田教授が導びいた計算法を用いて規則波中の上下動、縦揺、剪断力、曲げモーメントを求める。流体力学的諸数値（$C_0, K_4, \bar{A}$）は、一田才教授の方法で計算して用いる。

この線型ストリップ法による理論計算が模型実験結果と、定性的、定量的に実用上差しつかえのない程度によく一致することが知られている。

3.2 基礎仮定条件

(i) 規則波中のPitch, Heave だけを考慮して、Surge, Sway, Roll, Yaw, Drift etc. は無視する。

(ii) 線型ストリップ法を用いる。

(iii) dS/dx, dy_w/dx etc. は微少であるSlenderbody を考える。

3.3 記　　号

L ： 船長

B_0 ： 船巾(Midship)　　d_0 ： 吃水(Midship)

ρ ： 水の密度　　$\bar{g}$ ： 重力の加速度

h ： 波表面の隆起　　h_A ： 波表面の振巾

r_θ ： Sub-Layerの隆起

λ ： 波長　　$k = 2\pi/\lambda$ ： 波数

$V_W = \sqrt{\bar{g}/k}$ ： 波の位相速度　　$\omega = kV_W$ ： 波の円周波数

V ： 船速　　$\omega_e = kV\cos\psi + \omega$ ： 出合い円周波数

ρS ： 断面付加質量　　N ： 断面減衰係数

y_W ： 船の半巾(at x)　　d ： 船の吃水(at x)

S ： 船の横截面積(at x)

∇ ： 船の排水容量　　J ： 船の質量慣性モーメント

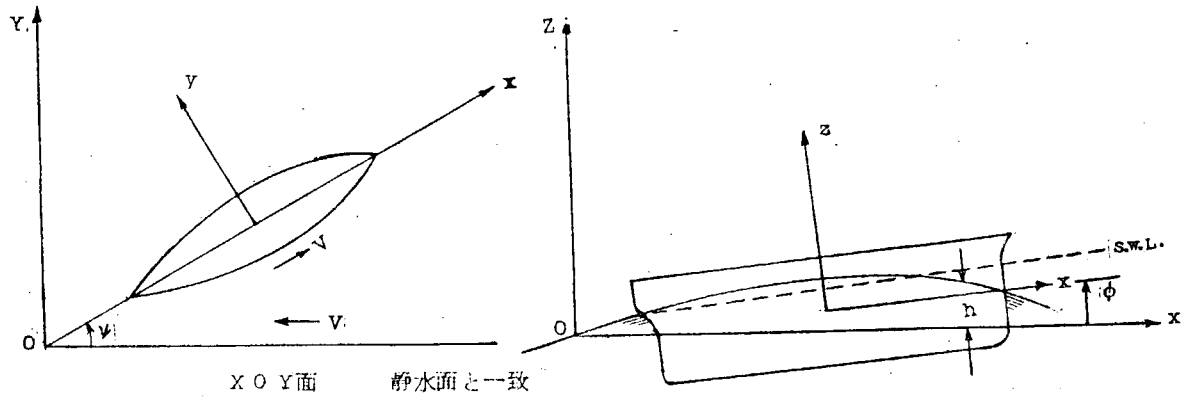
$\triangle$ ： 船の重量　　I ： 船の重量慣生モーメント

w ： 船の重量分布関数

3.4 座　　標　　系

O－XYZ　空間固定 -----船体運動を示す。

o－xyz　船体固定 -----船体内の位置を示す。



XOY面　　静水面と一致

xoy面　　重心をとおり、静止時吃水面と平行

3.5 船の進行方向

船は一定の速度Vで X軸と ψ の角度で進む。

$$\left.\begin{aligned} X &= (x + Vt) \cos \psi \\ Y &= (x + Vt) \cos \psi \end{aligned}\right\} \qquad (1)$$

3.6 波

波はX軸の正方向から負方向へ進行する規則波

表面隆起

$$h = h_A \cos (kX + \omega t) = h_A \cos \left[k x \cos \psi + (k V \cos \psi + \omega) t \right]$$

$$= h_A \cos (k^* x + \omega_e t) \qquad (2)$$

ただし、$k^* = k \cos \psi$

$$\omega_e = k V \cos \psi + \omega$$

深度 $-\xi$ の Sublayer の隆起は下式のとおり

$$r_e = h_A e^{-k\xi} \cos (kX + \omega t) = h_A e^{-k\xi} \cos (k^* x + \omega_e t) \qquad (3)$$

以後、問題も正面規則波に限定すると、

$k^* = k$, $\omega_e = kV + \omega$ であるから、

(2)は、

$$h = h_A \cos (kX + \omega t) = h_A \cos (kx + \omega_e t) \qquad (2)'$$

$$r_e = h_A e^{-k\xi} \cos (kX + \omega t) = h_A e^{-k\xi} \cos (kx + \omega_e t) \qquad (3)'$$

最大波傾斜

$$\left(\frac{dh}{dX} \right)_{max} = k h_A = 2\pi \frac{h_A}{\lambda} \qquad (4)$$

ξ としては、各断面の平均吃水 $dm(x) = S(x) / 2y_w(x)$ を用いて、この深度 $-\xi$ でのSublayerの隆起を有効波面隆起 $he(x \cdot y \cdot t)$ とすると、

$$he(x \cdot y \cdot t) = h_A e^{-k\,dm(x)} \cos (kx + \omega_e t) \qquad (5)$$

この横断面での平均高さ re を求めると

$$r_e (x \cdot t) = \frac{1}{2y_w} \int_{-y_w}^{y_w} he (x \cdot y \cdot t) dy = h_A e^{-k dm(x)} \cos (kx + \omega_e t) \qquad (6)$$

3.7 船体運動

船は上下揺れ、縦揺れのみをすると仮定すると、

船の重心点の 上下揺 …… $\zeta = \zeta_0 \cos (\omega_e t + \varepsilon_\zeta)$ (7)

縦 揺 …… $\theta = \theta_0 \cos (\omega_e t + \varepsilon_\theta)$ (8)

船体上任意の点の垂直変化は

$$Z=\zeta+(x-x_G)\theta \qquad =\zeta+(X-Vt-x_G)\theta \tag{9}$$

$$\dot{Z}=\dot{\zeta}+(x-x_G)\dot{\theta}-V\theta \quad =\dot{\zeta}+(X-Vt-x_G)\dot{\theta}-V\theta \tag{10}$$

$$\ddot{Z}=\ddot{\zeta}+(x-x_G)\ddot{\theta}-2V\dot{\theta} \quad =\ddot{\zeta}+(X-Vt-x_G)\ddot{\theta}-2V\dot{\theta} \tag{11}$$

3.8 船体に働らく力

船体の任意の位置に働らく、"上向きの流体力"をdF_f/dxとすると、

$$\frac{dF_f}{dx}=\frac{dF_1}{dx}+\frac{dF_2}{dx}+\frac{dF_3}{dx} \tag{12}$$

$$\frac{dF_1}{dx}=-2\rho\bar{g}y_w(Z-r_e) \quad \cdots\cdots\cdots\cdots \text{浮　力}$$

$$\frac{dF_2}{dx}=-N(\dot{Z}-\dot{r}_e) \quad \cdots\cdots\cdots\cdots \text{減衰力}$$

$$\frac{dF_3}{dx}=-\frac{d}{dt}\{\rho S(\dot{Z}-\dot{r}_e)\} \quad \cdots\cdots\cdots\cdots \text{波と船との相対運動による力}$$

$$=-(\dot{\rho}S)(\dot{Z}-\dot{r}_e)-(\rho S)(\ddot{Z}-\dot{r}_e)$$

3.9 運動方程式

上下揺、$\frac{\triangle}{\bar{g}}\ddot{\zeta}=\rho\nabla\ddot{\zeta}=\int_L\frac{dF_f}{dx}dx$ (13)

縦　揺、$\frac{I}{\bar{g}}\ddot{\theta}=J\ddot{\theta}=\int_L\frac{dF_f}{dx}(x-x_G)dx$ (14)

(7)～(12)式を使つて(13)、(14)式を書きなおすと、

$$\begin{aligned}\rho\nabla\ddot{\zeta}=\int_L\{&-2\rho\bar{g}y_w\{\zeta+(x-x_G)\theta\}-N\{\dot{\zeta}+(x-x_G)\dot{\theta}-V\theta\}\\&-\rho S\{\ddot{\zeta}+(x-x_G)\ddot{\theta}-2V\dot{\theta}\}-(\dot{\rho}S)\{\dot{\zeta}+(x-x_G)\dot{\theta}-V\theta\}\\&+2\rho g y_w r_e+N\dot{r}_e+\rho S\ddot{r}_e+(\dot{\rho}S)\dot{r}_e\}dx\end{aligned} \tag{15}$$

$$\begin{aligned}J\ddot{\theta}=\int_L\{&-2\rho\bar{g}y_w\{\zeta+(x-x_G)\theta\}-N\{\dot{\zeta}+(x-x_G)\dot{\theta}-V\theta\}\\&-\rho S\{\dot{\zeta}+(x-x_G)\ddot{\theta}-2V\dot{\theta}\}-(\dot{\rho}S)\{\dot{\zeta}+(x-x_G)\dot{\theta}-V\theta\}\\&+2\rho g y_w r_e+N\dot{r}_e+\rho S\ddot{r}_e+(\dot{\rho}S)\dot{r}_e\}(x-x_G)dx\end{aligned} \tag{16}$$

となる。

(注) Prim ・ ‥ …… それぞれtに関する1次・2次微分を示す。

$$\dot{Z}=\frac{dZ}{dt},\quad \ddot{Z}=\frac{d^2Z}{dt^2}$$

$\int_L$ …… は船の全長にわたる積分を示す。

(15)、(16)を整理すると、

$$a_\zeta \ddot{\zeta} + b_\zeta \dot{\zeta} + c_\zeta \zeta + d_\theta \ddot{\theta} + e_\theta \dot{\theta} + g_\theta \theta = F_\zeta \tag{17}$$

$$A_\theta \ddot{\theta} + B_\theta \dot{\theta} + C_\theta \theta + D_\zeta \ddot{\zeta} + E_\zeta \dot{\zeta} + G_\zeta \zeta = M_\theta \tag{18}$$

ここで、

$a_\zeta = a_0 + a_1$,　　$a_0 = \rho V$, $a_1 = \int_L \rho S \, dx$

$b_\zeta = b_1 + b_2$,　　$b_1 = \int_L N \, dx$, $b_2 = -V[\rho S]_{-l_1}^{l_2}$

$c_\zeta = c_0$,　　$c_0 = 2\rho g \int_L y_w \, dx$

$d_\theta = d_1 - x_G a_1$,　　$d_1 = \int_L \rho S \, x \, dx$

$e_\theta = e_1 - x_G b_\zeta - V a_1 + e_2$,　　$e_1 = \int_L N \, x \, dx$, $e_2 = -V[x \rho S]_{-l_1}^{l_2}$

$g_\theta = g_1 - x_G c_\zeta - V b_\zeta$,　　$g_1 = 2\rho g \int_L y_w \, x \, dx$

$A_\theta = A_0 + A_1 - 2x_G d_1 + x_G^2 a_1$,　　$A_0 = J$, $A_1 = \int_L \rho S \, x^2 \, dx$

$B_\theta = B_1 - 2x_G(e_1 + e_2) + x_G^2 b_\zeta + B_2$,　　$B_1 = \int_L N \, x^2 \, dx$, $B_2 = -V[x^2 \rho S]_{-l_1}^{l_2}$

$C_\theta = C_1 - 2x_G g_1 + x_G^2 c_\zeta - V E_\zeta$,　　$C_1 = 2\rho \bar{g} \int y_w \, x^2 \, dx$

$D_\zeta = d_1 - x_G a_1$,

$E_\zeta = e_1 + e_2 - x_G(b_1 + b_2) - V a_1$,

$G_\zeta = g_1 - x_G c_\zeta$,

である。

また、

$$F_\zeta = F_{\zeta c} \cos \omega_e t - F_{\zeta s} \sin \omega_e t = F_{\zeta 0} \cos(\omega_e t + \varepsilon_{F\zeta})$$

$$M_\theta = M_{\theta c} \cos \omega_e t - M_{\theta s} \sin \omega_e t = M_{\theta 0} \sin(\omega_e t + \varepsilon_{M\theta})$$

$$F_{\zeta 0} = \sqrt{F_{\zeta c}^2 + F_{\zeta s}^2} \qquad \varepsilon_{F\zeta} = \tan^{-1}(F_{\zeta s} / F_{\zeta c})$$

$$M_{\theta 0} = \sqrt{M_{\theta c}^2 + M_{\theta s}^2} \qquad \varepsilon_{M\theta} = \tan^{-1}(M_{\theta s} / M_{\theta c})$$

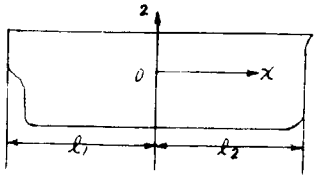
$\varepsilon_{F\zeta}$, $\varepsilon_{M\theta}$ はMidship に波頂がきた時の位相進み。

$$F_{\zeta c} = r_0(f_1 + f_2 + f_3 + f_4 + f_5) \qquad F_{\zeta s} = r_0(f_1' + f_2' + f_3' + f_4' + f_5')$$

$$M_{\theta c} = r_0\{(m_1 + m_2 + m_3 + m_4 + m_5 + m_6) - x_G F_{\zeta c}\}$$

$$M_{\theta s} = r_0\{(m_1 + m_2 + m_3 + m_4 + m_5 + m_6) - x_G F_{\zeta s}\}$$

(注) $[\quad]_{-l_1}^{l_2}$: $-l_1$, l_2 は、それぞれ積分の下限、上限を示す。



ここで

$$\begin{Bmatrix} f_1 \\ f_1' \end{Bmatrix} = 2\rho g \int_L e^{-k\,dm(x)} y_w \begin{Bmatrix} \cos kx \\ \sin kx \end{Bmatrix} dx$$

$$\begin{Bmatrix} f_2 \\ f_2' \end{Bmatrix} = \pm\omega \int_L e^{-k\,dm(x)} N \begin{Bmatrix} \sin kx \\ \cos kx \end{Bmatrix} dx$$

$$\begin{Bmatrix} f_3 \\ f_3' \end{Bmatrix} = -\omega(\omega + kV) \int_L e^{-k\,dm(x)} \rho S \begin{Bmatrix} \cos kx \\ \sin kx \end{Bmatrix} dx$$

$$\begin{Bmatrix} f_4 \\ f_4' \end{Bmatrix} = -\omega V \left[e^{-k\,dm(x)} \rho S \begin{Bmatrix} \sin kx \\ \cos kx \end{Bmatrix} \right]_{-l_1}^{l_2}$$

$$\left(\begin{Bmatrix} f_5 \\ f_5' \end{Bmatrix} = -\omega V \int_L k \frac{d(dm(x))}{dx} e^{-k\,dm(x)} \rho S \begin{Bmatrix} \sin kx \\ \cos kx \end{Bmatrix} dx = 0 \right)$$

$$\begin{Bmatrix} m_1 \\ m_1' \end{Bmatrix} = 2\rho g \int_L e^{-k\,dm(x)} y_w x \begin{Bmatrix} \cos kx \\ \sin kx \end{Bmatrix} dx$$

$$\begin{Bmatrix} m_2 \\ m_2' \end{Bmatrix} = \mp\omega \int_L e^{-k\,dm(x)} N x \begin{Bmatrix} \sin kx \\ \cos kx \end{Bmatrix} dx$$

$$\begin{Bmatrix} m_3 \\ m_3' \end{Bmatrix} = -\omega(\omega + kV) \int_L e^{-k\,dm(x)} \rho S x \begin{Bmatrix} \cos kz \\ \sin kx \end{Bmatrix} dx$$

$$\begin{Bmatrix} m_4 \\ m_4' \end{Bmatrix} = \mp\omega V \int_L e^{-k\,dm(x)} \rho S x \begin{Bmatrix} \sin kx \\ \cos kx \end{Bmatrix} dx$$

$$\begin{Bmatrix} m_5 \\ m_5' \end{Bmatrix} = -\omega V \left[e^{-k\,dm(x)} \rho S x \begin{Bmatrix} \sin kx \\ \cos kx \end{Bmatrix} \right]_{-l_1}^{l_2}$$

$$\left(\begin{Bmatrix} m_6 \\ m_6' \end{Bmatrix} = -\omega V \int_L k \frac{d(dm(x))}{dx} e^{-k\,dm(x)} \rho S x \begin{Bmatrix} \sin kx \\ \cos kx \end{Bmatrix} dx = 0 \right)$$

である。

運動方程式(17)、(18)を書きなおすと、

$$P_1\zeta_c - P_2\zeta_s + Q_1\theta_c - Q_2\theta_s = F\zeta_c \tag{19}$$

$$P_2\zeta_c + P_1\zeta_s + Q_2\theta_c + Q_1\theta_s = F\zeta_s \tag{20}$$

$$R_1\zeta_c - R_2\zeta_s + S_1\theta_c - S_2\theta_s = M\theta_c \tag{21}$$

$$R_2\zeta_c + R_1\zeta_s + S_2\theta_c + S_1\theta_s = M\theta_s \tag{22}$$

ここで、

$$P_1 = -\omega_e^2 a_\zeta + c_\zeta \quad , \qquad R_1 = -\omega_e^2 D_\zeta + G_\zeta$$

$$P_2 = \omega_e b_\zeta \quad , \qquad R_2 = \omega_e E_\zeta$$

(注) 計算を行なう時 $dm(x)$の代りに $dm = \dfrac{\nabla}{A_W}$ (A_W：水線面積)を用いても $\begin{Bmatrix} f_5 \\ f_5' \end{Bmatrix} \cdot \begin{Bmatrix} m_6 \\ m_6' \end{Bmatrix}$ の項は0となる。

$$Q_1 = -\omega_e^2 \, d_\theta + g_\theta \ , \qquad S_1 = -\omega_e^2 A_\theta + c_\theta$$

$$Q_2 = \omega_e \, \Theta_\theta \ , \qquad S_2 = \omega_e B_\theta$$

解

$$\zeta_c = \zeta_0 \cos \varepsilon_\zeta = \frac{\xi \xi_\zeta + \eta \eta_\zeta}{\xi^2 + \eta^2} \quad , \quad \zeta_s = \zeta_0 \sin \varepsilon_\zeta = \frac{\xi \xi_\zeta - \eta \eta_\zeta}{\xi^2 + \eta^2} \tag{23}$$

$$\theta_c = \theta_0 \cos \varepsilon_\theta = \frac{\xi \xi_\theta + \eta \eta_\theta}{\xi^2 + \eta^2} \quad , \quad \theta_s = \theta_0 \sin \varepsilon_\theta = \frac{\xi \xi_\theta - \eta \eta_\theta}{\xi^2 + \eta^2} \tag{24}$$

となる。

ここで、

$$\left.\begin{matrix} \xi_\zeta \\ \eta_\zeta \end{matrix}\right\} = S_1 \left\{ \begin{matrix} F_{\zeta c} \\ F_{\zeta s} \end{matrix} \right\} \mp S_2 \left\{ \begin{matrix} F_{\zeta s} \\ F_{\zeta c} \end{matrix} \right\} - Q_1 \left\{ \begin{matrix} M_{\theta c} \\ M_{\theta s} \end{matrix} \right\} \pm Q_2 \left\{ \begin{matrix} M_{\theta s} \\ M_{\theta c} \end{matrix} \right\}$$

$$\left.\begin{matrix} \xi_\theta \\ \eta_\theta \end{matrix}\right\} = P_1 \left\{ \begin{matrix} M_{\theta c} \\ M_{\theta s} \end{matrix} \right\} \mp P_2 \left\{ \begin{matrix} M_{\theta s} \\ M_{\theta c} \end{matrix} \right\} - R_1 \left\{ \begin{matrix} F_{\zeta c} \\ F_{\zeta s} \end{matrix} \right\} \pm R_2 \left\{ \begin{matrix} F_{\zeta s} \\ F_{\zeta o} \end{matrix} \right\}$$

$$\xi = P_1 S_1 + P_2 S_2 - Q_1 R_1 + Q_2 R_2$$

$$\eta = P_2 S_1 + P_1 S_2 - Q_2 R_1 - Q_1 R_2$$

船体運動の固有周期

	減衰項を考慮	減衰項を無視
上下揺	$T_{HC} = 2\pi \sqrt{\frac{c}{a} - \frac{b^2}{4ac}}$	$T_{H1} = 2\pi \sqrt{\frac{c}{a}}$
縦　揺	$T_{PO} = 2\pi \sqrt{\frac{C}{A} - \frac{B^2}{4AC}}$	$T_{P1} = 2\pi \sqrt{\frac{C}{A}}$

(25)

3.10　船体の任意の断面の運動

任意の断面位置xの垂直方向(Z－Direction) の運動(9)は、

$$Z = \zeta + (x - x_0)\theta = Z_0 \cos(\omega e t + \varepsilon_Z)$$

$$= Z_c \cos \omega e t - Z_s \sin \omega e t$$ と書きなおすと、

$$Z_c = \zeta_c + (x - x_G)\theta_c \ , \qquad Z_0 = \sqrt{Z_c^2 + Z_s^2}$$

$$Z_s = \zeta_s + (x - x_G)\theta_s \ , \qquad \varepsilon_Z = \tan^{-1}(Z_s / Z_c) \tag{9}'$$

となる。

ここでε_Zは波頂がMidship にきた時の位相の進みを与える。

3.11　波表面に対する相対運動は

$$Z_r = Z_{r0} \cos(\omega e t + \varepsilon_{Zr}) = Z_{rc} \cos \omega e t - Z_{rs} \sin \omega e t$$

$$Z_{rc} = Z_c - r_o \cos kx , \qquad Z_{ro} = \sqrt{Z_{ro}^2 + Z_{rs}^2}$$

$$Z_{rs} = Z_s - r_o \sin kx , \qquad \varepsilon_{Zr} = \tan^{-1}(Z_{rs} / Z_{rc}) \tag{26}$$

で与えられる。

3.1 2 船体運動の無次元化

上下揺はその振巾を波振巾で割る。

縦揺はその振巾を最大波傾斜で割る。

$$\bar{\zeta}_o = \zeta_o / h_A , \qquad \bar{Z}_o = Z_o / h_A , \qquad \bar{Z}_{ro} = Z_{ro} / h_A ,$$

$$\bar{\theta}_o = \theta_o / \left(\frac{dh}{dx}\right)_{max} \tag{27}$$

3.1 3 船体運動応答関数

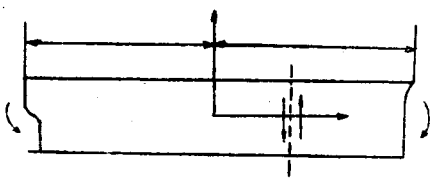
上下揺振巾応答関数　　$\bar{\zeta}_o = \zeta_o / h_A$

縦揺振幅応答関数　　$\bar{\phi}_o = \bar{\theta}_o / \frac{2\pi}{\lambda}$ (28)

3.1 4 剪断力、縦曲げモーメント

任意断面位置 x_1 に船体に働らく力は、単位長さあたり

$$\frac{dFm}{dx} = \frac{dFf}{dx} - \frac{w}{g}\ddot{Z} \tag{29}$$



$\frac{dFf}{dx}$ …… 流体力

$-\frac{w}{g}\ddot{Z}$ …… 慣性力

x_1 における剪断力、縦曲げモーメントを F_{x_1} M_{x_1} とし、上図の矢印の向きを正とすると

$$F_{x_1} = -\int_{-l_1}^{x_1} \frac{dFm}{dx} dx = \int_{x_1}^{l_2} \frac{dFm}{dx} dx \tag{30}$$

$$M_{x_1} = \int_{-l_1}^{x_1} \frac{dFm}{dx}(x - x_1)\, dx = -\int_{x_1}^{l_2} \frac{dFm}{dx}(x - x_1)\, dx \tag{31}$$

で与えられる。

これを書きなおすと

$$\begin{aligned} F_{x_1} = -\int_{-l_1}^{x_1} \Big[& -\frac{w}{g}\{\ddot{\zeta} + (x - x_G)\ddot{\theta}\} - 2\rho g y_w \{\zeta + (x - x_G)\theta\} \\ & - N\{\dot{\zeta} + (x - x_G)\dot{\theta} - V\theta\} - \rho S\{\ddot{\zeta} + (x - x_G)\ddot{\theta} - 2V\dot{\theta}\} \\ & - (\rho' S)\{\dot{\zeta} + (x - x_G)\dot{\theta} - V\theta\} \\ & + 2\rho g y_w r_e + N\dot{r}_e + \rho S \dot{r}_e + (\rho' S) r_e \Big] dx \end{aligned} \tag{32}$$

$$M_{x_1}=\int_{-l_1}^{x_1}\Big[-\frac{w}{g}\{\ddot{\zeta}+(x-x_G)\ddot{\theta}\}-2\rho\bar{g}y_w\{\zeta+(x-x_G)\theta\}$$
$$-\{\dot{\zeta}+(x-x_G)\dot{\theta}-V\theta\}-\rho S\{\ddot{\zeta}+(x-x_G)\ddot{\theta}-2V\dot{\theta}\}$$
$$-(\rho'S)\{\dot{\zeta}+(x-x_G)\dot{\theta}-V\theta\}$$
$$+2\rho\bar{g}y_w r_e+N\dot{r}_e+\rho S\ddot{r}_e+(\rho'S)\dot{r}_e\Big](x-x_1)\,dx \tag{33}$$

また、これらを

$$F=F_c\cos\omega_e t-F_s\sin\omega_e t=F_0\cos(\omega_e t+\delta_f) \tag{34}$$

$$M=M_c\cos\omega_e t-M_s\sin\omega_e t=M_0\cos(\omega_e t+\delta_m) \tag{35}$$

$$F_0=\sqrt{F_c^2+F_s^2}\quad,\qquad \delta_f=\tan^{-1}(F_s/F_c)$$

$$M_0=\sqrt{M_c^2+M_s^2}\quad,\qquad \delta_m=\tan^{-1}(M_s/M_c)$$

ここで δ_f , δ_m は波頂が Midship にきた時の位相の進み。

3.1 5　剪断力、縦曲げモーメントの無次元化

$$\bar{F}_0=F_0/\rho\bar{g}LBh_A\qquad \begin{Bmatrix}\bar{F}_c\\ \bar{F}_s\end{Bmatrix}=\begin{Bmatrix}F_c\\ F_s\end{Bmatrix}\frac{1}{\rho\bar{g}LBh_A} \tag{36}$$

$$\bar{M}_0=M_0/\rho\bar{g}L^2Bh_A\qquad \begin{Bmatrix}\bar{M}_c\\ \bar{M}_s\end{Bmatrix}=\begin{Bmatrix}M_c\\ M_s\end{Bmatrix}\frac{1}{\rho\bar{g}L^2Bh_A} \tag{37}$$

ここで、

$$\begin{Bmatrix}\bar{F}_c\\ \bar{F}_s\end{Bmatrix}=\Bigg\{\Big[(\omega_e^2P_1-P_3)\begin{Bmatrix}\bar{\zeta}_c\\ \bar{\zeta}_s\end{Bmatrix}\pm\omega_eP_2\begin{Bmatrix}\bar{\zeta}_s\\ \bar{\zeta}_c\end{Bmatrix}+Q_3\begin{Bmatrix}\bar{\phi}_c\\ \bar{\phi}_s\end{Bmatrix}\pm\omega_eQ_2\begin{Bmatrix}\bar{\phi}_s\\ \bar{\phi}_c\end{Bmatrix}+\begin{Bmatrix}R_1+R_3\\ R_2\end{Bmatrix}\Big]$$
$$+\Big[(\omega_e^2Q_1'-Q_3')\begin{Bmatrix}\bar{\phi}_c\\ \bar{\phi}_s\end{Bmatrix}\pm\omega_eQ_2'\begin{Bmatrix}\bar{\phi}_s\\ \bar{\phi}_c\end{Bmatrix}\pm\omega_eP_2'\begin{Bmatrix}\bar{\zeta}_s\\ \bar{\zeta}_c\end{Bmatrix}+\begin{Bmatrix}R_2'\\ R_1'+R_3'\end{Bmatrix}\Big]\Bigg\}\Big/\rho\bar{g}LB \tag{38}$$

$$\begin{Bmatrix}\bar{M}_c\\ \bar{M}_c\end{Bmatrix}=\Bigg\{\Big[(\omega_e^2p_1-p_3)\begin{Bmatrix}\bar{\zeta}_c\\ \bar{\zeta}_s\end{Bmatrix}\pm\omega_ep_2\begin{Bmatrix}\bar{\zeta}_s\\ \bar{\zeta}_c\end{Bmatrix}+q_3\begin{Bmatrix}\bar{\phi}_c\\ \bar{\phi}_s\end{Bmatrix}\pm\omega_eq_2\begin{Bmatrix}\bar{\phi}_s\\ \bar{\phi}_c\end{Bmatrix}+\begin{Bmatrix}r_1+r_3\\ r_2\end{Bmatrix}\Big]$$
$$+\Big[(\omega_e^2q_1'-q_3')\begin{Bmatrix}\bar{\phi}_c\\ \bar{\phi}_s\end{Bmatrix}\pm\omega_ep_2'\begin{Bmatrix}\bar{\phi}_s\\ \bar{\phi}_c\end{Bmatrix}\pm\omega_ep_2'\begin{Bmatrix}\bar{\zeta}_s\\ \bar{\zeta}_c\end{Bmatrix}+\begin{Bmatrix}r_2'\\ r_1'+r_3'\end{Bmatrix}\Big]\Bigg\}\Big/\rho\bar{g}L^2B \tag{39}$$

となる。

各係数はそれぞれ次のとおりである。

$$P_1=\int_{-l_1}^{x_1}\Big(-\frac{w}{g}-\rho S\Big)\,dx\quad,\qquad P_2=-\int_{-l_1}^{x_1}N\,dx$$

$$P_3=-2\rho\bar{g}\int_{-l_1}^{x_1}y_w\,dx\quad,\qquad P_2'=-\int_{-l_1}^{x_1}(\rho S)\,dx=V[\rho S]_{-l_1}^{x_1}$$

(注)　積分は〔 $-l$, x_1 〕の間について行なう。

$$Q_2 = 2V\int_{-l_1}^{x_1}\rho S\,dx - \int_{-l_1}^{x_1}(\rho S)(x-x_G)\,dx = V\int_{-l_1}^{x_1}\rho S\,dx + V\left[x\rho S\right]_{-l_1}^{x_1} - x_G V\left[\rho S\right]_{-l_1}^{x_1}$$

$$Q_3 = -V\int_{-l_1}^{x_1} N\,dx = V P_2$$

$$Q_1' = \int_{-l_1}^{x_1}\left\{-\frac{w}{g}(x-x_G) - \rho S(x-x_G)\right\}dx = -\int_{-l_1}^{x_1}\frac{w}{g}x\,dx + x_G\int_{-l_1}^{x_1}\frac{w}{g}\,dx -$$

$$-\int_{-l_1}^{x_1}\rho S\,x\,dx + x_G\int_{-l_1}^{x_1}\rho S\,dx$$

$$Q_2' = -\int_{-l_1}^{x_1} N(x-x_G)\,dx = -\int_{-l_1}^{x_1} N x\,dx + x_G\int_{-l_1}^{x_1} N\,dx$$

$$Q_3' = -2\rho\bar{g}\int_{-l_1}^{x_1} y_w(x-x_G)\,dx + V\int_{-l_1}^{x_1}(\rho S)\,dx \quad \text{又 } Q_3' = -2\rho\bar{g}\int_{-l_1}^{x_1} y_w(x-x_G)\,dx + V\int(\rho S)\,dx$$

$$= -2\rho\bar{g}\int_{-l_1}^{x_1} y_w x\,dx + 2\rho\bar{g}x_G\int_{-l_1}^{x_1} y_w\,dx - V^2\left[\rho S\right]_{-l_1}^{x_1}$$

$$\left.\begin{matrix}R_1\\R_1'\end{matrix}\right\} = -2\rho\bar{g}\int_{-l_1}^{x_1} e^{-kdm(x)}\,y_w\left\{\begin{matrix}\cos kx\\ \sin kx\end{matrix}\right\}dx$$

$$\left.\begin{matrix}R_2\\R_2'\end{matrix}\right\} = \mp\omega\int_{-l_1}^{x_1} e^{-kdm(x)}\,N\left\{\begin{matrix}\sin kx\\ \cos kx\end{matrix}\right\}dx$$

$$\left.\begin{matrix}R_3\\R_3'\end{matrix}\right\} = \omega(\omega+kV)\int_{-l_1}^{x_1} e^{-kdm(x)}\,\rho S\left\{\begin{matrix}\cos kx\\ \sin kx\end{matrix}\right\}dx \pm \omega V\left[e^{-kdm(x)}\rho S\left\{\begin{matrix}\sin kx\\ \cos kx\end{matrix}\right\}\right]_{-l_1}^{x_1}$$

$$p_1 = \int_{-l_1}^{x_1}\left(\frac{w}{g}+\rho S\right)(x-x_1)\,dx = \int\frac{w}{g}x\,dx - x_1\int\frac{w}{g}dx + \int\rho S\,x\,dx - x_1\int\rho S\,dx$$

$$p_2 = \int_{-l_1}^{x_1} N(x-x_1)\,dx = \int N x\,dx - x_1\int N\,dx$$

$$p_3 = 2\rho\bar{g}\int_{-l_1}^{x_1} y_w(x-x_1)\,dx = 2\rho\bar{g}\int y_w x\,dx - 2\rho\bar{g}x_1\int y_w\,dx$$

$$p_2' = \int_{-l_1}^{x_1}(\rho S)(x-x_1)\,dx = -V\left[(x-x_1)PS\right]_{-l_1}^{x_1} + V\int\rho S\,dx$$

$$q_2 = -2V\int_{-l_1}^{x_1}\rho S(x-x_1)\,dx + \int_{-l_1}^{x_1}(\rho S)(x-x_G)(x-x_1)\,dx$$

$$= -V\left[(x-x_1)^2\rho S\right]_{-l_1}^{x_1} + (x_1-x_G)P_2'$$

$$q_3 = V\int_{-l_1}^{x_1} N(x-x_1)\,dx = V P_2$$

$$q_1' = \int_{-l_1}^{x_1}\left(\frac{w}{\bar{g}}+\rho S\right)(x-x_G)(x-x_1)\,dx$$

$$= \int\frac{w}{\bar{g}}x^2\,dx - x_1\int\frac{w}{\bar{g}}x\,dx + \int\rho S\,x^2\,dx - x_1\int\rho S\,x\,dx - x_G P_1$$

$$q_2' = \int_{-l_1}^{x_1} N(x-x_G)(x-x_1)\,dx = \int N x^2\,dx - x_1\int N x\,dx - x_G P_2$$

$$q_3' = 2\rho\bar{g}\int_{-l_1}^{x_1} y_w(x-x_G)(x-x_1)\,dx - V\int_{-l_1}^{x_1}(\rho S)(x-x_1)\,dx$$

$$= 2\rho g \int y_w x^2 dx - 2\rho g x_1 \int y_w x\, dx - x_G p_3 - V p_2'$$

$$\left.\begin{matrix} r_1 \\ r_1' \end{matrix}\right\} = 2\rho g \left\{ \int e^{-k\,dm(x)} y_w x \left\{ \begin{matrix} \cos kx \\ \sin kx \end{matrix} \right\} dx - x_1 \int e^{-k\,dm(x)} y_w \left\{ \begin{matrix} \cos kx \\ \sin kx \end{matrix} \right\} dx \right\}$$

$$\left.\begin{matrix} r_2 \\ r_2' \end{matrix}\right\} = \pm\omega \left\{ \int e^{-k\,dm(x)} N x \left\{ \begin{matrix} \cos kx \\ \sin kx \end{matrix} \right\} dx - x_1 \int e^{-k\,dm(x)} N \left\{ \begin{matrix} \cos kx \\ \sin kx \end{matrix} \right\} dx \right\}$$

$$\left.\begin{matrix} r_3 \\ r_3' \end{matrix}\right\} = -\omega(\omega + kV) \left\{ \int e^{-kdm(x)} \rho_S x \left\{ \begin{matrix} \cos kx \\ \sin kx \end{matrix} \right\} dx - x_1 \int e^{-kdm(x)} \rho_S \left\{ \begin{matrix} \cos kx \\ \sin kx \end{matrix} \right\} dx \right\}$$

$$\mp \omega V \left\{ \int e^{-kdm(x)} \rho_S \left\{ \begin{matrix} \sin kx \\ \cos kx \end{matrix} \right\} dx \right\}$$

3.1 6　船体中央部の波浪曲げモーメント

船体に働らく力をMidship に関して対称なものと、非対称のものとに分けて考え、前者を(s)、後者を(a)で区別すると、計算は容易になる。

船体に働らく力　$$\frac{dFm}{dx} = \left(\frac{dFm}{dx}\right)^{(s)} + \left(\frac{dFm}{dx}\right)^{(a)} \tag{40}$$

またSufix x,-x でそれぞれの位置における値とすると

$$\left(\frac{dFm}{dx}\right)^{(s)} = \frac{1}{2}\left[\left(\frac{dFm}{dx}\right)_x + \left(\frac{dFm}{dx}\right)_{-x}\right] \tag{41}$$

$$\left(\frac{dFm}{dx}\right)^{(a)} = \frac{1}{2}\left[\left(\frac{dFm}{dx}\right)_x - \left(\frac{dFm}{dx}\right)_{-x}\right] \tag{42}$$

となる。

(31)の曲げモーメントは

$$M_{x_1} = \int_{-l_1}^{x_1} \left(\frac{dFm}{dx}\right)^{(s)} (x - x_1) dx + \int_{-l_1}^{x_1} \left(\frac{dFm}{dx}\right)^{(a)} (x - x_1)\, dx$$

$$= M_{x1}^{(s)} + M_{x1}^{(a)} \tag{43}$$

すなわち

$$M_{x1}^{(s)} = \int_{-l_1}^{x_1} \left(\frac{dFm}{dx}\right)^{(s)} (x - x_1)\, dx$$

$$M_{x1}^{(a)} = \int_{-l_1}^{x_1} \left(\frac{dFm}{dx}\right)^{(a)} (x - x_1)\, dx$$

中央⊠(x=0)では、(42)は0となりモーメントは$M_{\boxtimes}^{(s)}$だけを考えればよい。

$$\left.\begin{matrix} M_{\boxtimes c}^{(s)} \\ M_{\boxtimes s}^{(s)} \end{matrix}\right\} = \left[\left\{ (\omega_e^2 p_1'^{(s)} - p_3'^{(s)}) \left\{ \begin{matrix} \bar{\zeta}_c \\ \bar{\zeta}_s \end{matrix} \right\} \pm \omega_e p_2'^{(s)} \left\{ \begin{matrix} \bar{\zeta}_s \\ \bar{\zeta}_c \end{matrix} \right\} + q_3'^{(s)} \left\{ \begin{matrix} \bar{\phi}_c \\ \bar{\phi}_s \end{matrix} \right\} \pm \omega_e q_2'^{(s)} \left\{ \begin{matrix} \bar{\phi}_s \\ \bar{\phi}_c \end{matrix} \right\} + \left\{ \begin{matrix} r_1'^{(s)} + r_3'^{(s)} \\ r_2'^{(s)} \end{matrix} \right\} \right.$$

$$\left. + \left\{ (\omega_e^2 q_1'^{(s)} - q_3'^{(s)} \left\{ \begin{matrix} \bar{\phi}_c \\ \bar{\phi}_s \end{matrix} \right\} \pm \omega_e q_2'^{(s)} \left\{ \begin{matrix} \bar{\phi}_s \\ \bar{\phi}_c \end{matrix} \right\} \pm \omega_e p_2'^{(s)} \left\{ \begin{matrix} \bar{\zeta}_s \\ \bar{\zeta}_c \end{matrix} \right\} + \left\{ \begin{matrix} r_2'^{(s)} \\ r_1'^{(s)} + r_3'^{(s)} \end{matrix} \right\} \right] / \rho g L^2 B \tag{44}$$

$p_1^{(s)}$ 、$p_2^{(s)}$ ..... $q_1^{(s)}$ 、$q_2^{(s)}$ ..... $r_1^{(s)}$、$r_2^{(s)}$ ..... etcは、それぞれ下記の積分をする。

$$p_1^{(s)} = \int_{-l_1}^{0} \left\{ \left(\frac{w}{g}\right)^{(s)} + (\rho S)^{(s)} \right\} x \, dx = -\int_{-l_1}^{0} \left\{ \frac{w}{g} x + \rho S + \right\}^{(s)} dx$$

3.17 Appendix 重量、重心、慣動半径

$\frac{w}{g}$ ..... 単位長さあたりの重量分布を示す。

重　量　$W = \bar{g}\int_{-l_1}^{l_2} \frac{w}{g} dx$

重　心　$x_G = \bar{g}\int_{-l_1}^{l_2} \frac{w}{g} x \, dx / W$

慣動半径　$K = \left\{ \bar{g}\int_{-l_1}^{l_2} \frac{w}{g} (x - x_G)^2 \, dx / W \right\}^{1/2} = \left\{ \bar{g}\int_{-l_1}^{l_2} \frac{w}{g} x^2 \, dx / W - x_G^2 \right\}^{1/2}$

Midship の曲げモーメントを求める場合は、主船体および前半部の重量重心、2次モーメントを与えればよい。

前半部重量　$W_F = \bar{g}\int_{0}^{l_2} \frac{w}{g} dx / W$

前半部重心　$l_F = \bar{g}\int_{0}^{l_2} \frac{w}{g} x \, dx / W$

前半部の K_F　$K_F = \left\{ \bar{g}\int_{0}^{l_2} \frac{w}{g} x^2 \, dx / W \right\}^{1/2}$

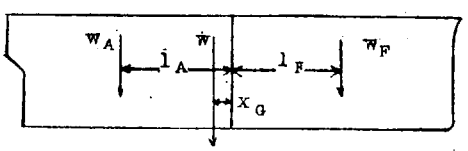
で与えられれば、

後半部重量　$W_A = W - W_F$

後半部重心　$l_A = \frac{W x_G - W_F l_F}{W_A}$

後半部の K_F　$K_A = \left\{ \frac{W(K^2 + x_G^2) - W_F K_F^2}{W_A} \right\}^{1/2}$

となる。



4. 数 値 計 算

4.1 船体運動、船体中央部波浪縦曲げモーメント

これらは三菱重工、長崎造船所所属のＩＢＭ－７０４０により行なわれた。計算プログラムは、藤井委員・小川原氏が、田才教授の方法による付加質量、減衰係数の計算をサブ・ルーチン化したものを用いている。

計算入力

船型を表わす諸元

垂直間長 …… L_{PP}

船巾、船長比 …… B_o/L_{PP}

船巾、吃水比 …… B_o/d_o

中央横断面係数 …… $C_{\text{横}}$

分割点、各分割点での船巾、吃水、横載面積

$2x_i/L$　　Bi/Bo　　di/do　　si/so

重量分布を示す諸元

水の密度 …… ρ

船体前半部重量 …… w_F/w

重心位置 …… x_G/L_{PP}

船体前半部重心 …… l_F/L_{PP}

慣動半径 …… K/L_{PP}

船体前半部慣動半径 … K_F/L_{PP}

計算条件

船速 …… V

斜路 …… ψ

波長 …… $\sqrt{L/\lambda}$

計算出力

船体運動 …… Heave, Pitch, Relative bow, Stern Motion

船体中央部の波浪曲げモーメントの振巾、位相角、その他必要事項が記録される。

所要計算時間は船速、斜路、波長を組合せた１条件で６～７sec である。

4.2　波浪中の剪断力、縦曲げモーメント分布

3.1で求めた付加質量、減衰係数を用いて、3.14の理論を使つて、大阪大学工学部造船学科教室で計算した。

5.　船　　型

各社から提出された実船とTodd Series 60船型とを、比較検討の結果、計算にはSeries 60船型を母船型とし、L/B 、C_b を系統的に変化させたTable 1 の14隻に決定した。

Table 1

-	Cargo Ship			Tanker		
L/B	6	7	8	5	6	7
C_b	0.55	0.55	0.55	—	0.75	—
	0.65	0.65	0.65	0.80	0.80	0.80
	0.75	0.75	0.75	—	0.85	—

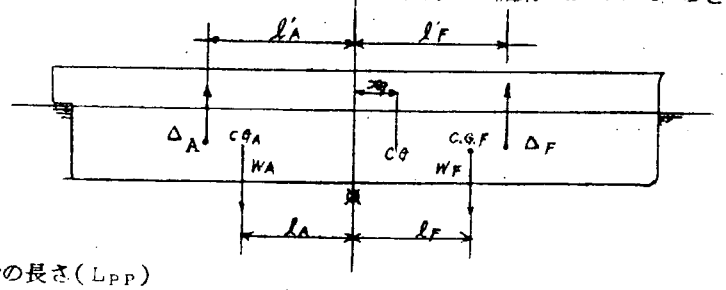
ただし、Tanker は Normal Bow とする。

上記14隻のOffset を Table 2 に示す。

6.　船　体　重　量

載荷状態は満載として、各社の提出資料Fig. 1 ～ 6を検討した結果Table 3 のとおりの値を決定した。

記　号



L　：船の長さ（L_{PP}）
W　：船体重量　$W_A + W_F$
W_F：前半部船体重量
Δ_F：　〃　浮力
l_F：前半部船体の重心から⊠までの距離
l'_F：　〃　の浮力中心　〃
l_G：船体重心から⊠までの距離
I　：船体重心まわりの2次モーメント
I_F：前半部船体の⊠まわりの2次モーメント
i_F：　〃　の重心　〃

W_A：後半部船体重量
Δ_A：　〃　浮力
l_A：後半部船体の重心から⊠までの距離
l'_A：　〃　の浮力中心　〃
I_A：後半部船体の⊠まわりの2次モーメント
i_A：　〃　の重心　〃

Table 2 Offset

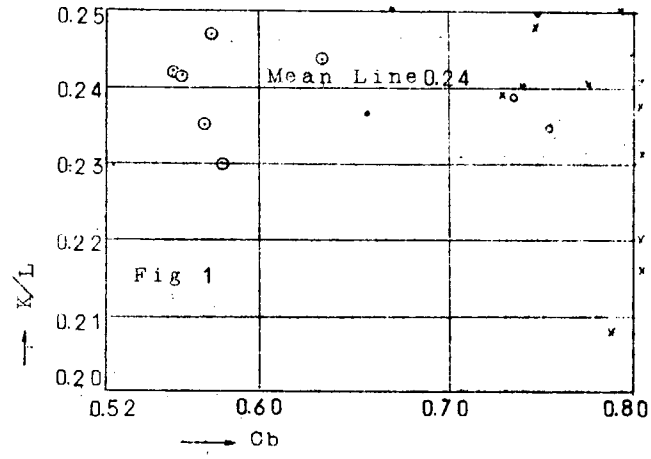
Type	Cargo Ship								
L_{PP}	150.000 m								
L_{PP}/B_O	6.0			7.0			8.0		
B_O/d_O	2.500								
C_b	0.550			0.650			0.750		
C_M	0.970			0.982			0.990		
Station	B_i/B_O	d_i/d_O	S_i/S_O	B_i/B_O	d_i/d_O	S_i/S_O	B_i/B_O	d_i/d_O	S_i/S_O
B_A	.000	.000	.000	.000	.000	.000	.000	.000	.000
A_A	.038	.072	.002	.042	.072	.002	.058	.072	.002
A.P.	.075	.101	.005	.084	.101	.005	.115	.101	.006
½	.280	1.000	.092	.331	1.000	.121	.427	1.000	.172
1	.480		.210	.571		.303	.660		.391
1½	.670		.355	.755		.492	.817		.594
2	.815		.510	.875		.662	.921		.760
2½	.905		.660	.949		.797	.975		.880
3	.960		.790	.984		.898	.996		.953
3½	.985		.889	.998		.958	1.000		.987
4	1.000		.955	1.000		.987			.998
4½	1.000		1.000			.998			1.000
5	1.000		1.000			1.000			
5½	.980		.960	1.000		.999			
6	.935		.889	.997		.987			
6½	.852		.791	.978		.951			1.000
7	.735		.678	.930		.879	1.000		.995
7½	.601		.540	.842		.765	.990		.969
8	.481		.415	.694		.609	.943		.887
8½	.355		.290	.508		.432	.824		.754
9	.217		.175	.308		.261	.608		.535
9½	.090	1.000	.060	.135	1.000	.115	.304	1.000	.261
F.P.	.000	.000	.000	.000	.000	.000	.000	.000	.000

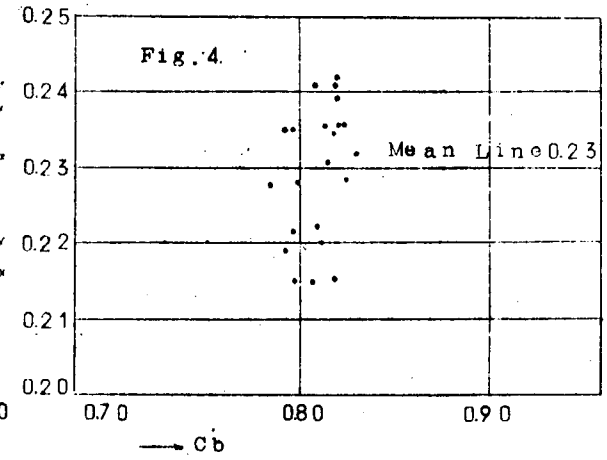
Type	Tanker								
L_{PP}	250.000 m								
L_{PP}/B_O	5.0			6.0			7.0		
B_O/d_O	3.000								
C_b	0.750			0.800			0.850		
C_M	0.990			0.994			0.996		
Station	B_i/B_O	d_i/d_O	S_i/S_O	B_i/B_O	d_i/d_O	S_i/S_O	B_i/B_O	d_i/d_O	S_i/S_O
B_A	.000	.000	.000	.000	.000	.000	.000	.000	.000
A_A	.058	.072	.002	.080	.072	.004	.069	.072	.005
A.P.	.115	.101	.006	.160	.101	.010	.137	.101	.013
½	.427	1.000	.172	.503	1.000	.212	.468	1.000	.232
1	.660		.391	.712		.449	.744		.543
1½	.817		.594	.851		.649	.923		.784
2	.921		.760	.941		.806	.992		.928
2½	.975		.890	.988		.915	1.000		.989
3	.996		.953	1.000		.974			1.000
3½	1.000		.987			.995			
4			.998			.999			
4½			1.000			1.000			
5									
5½									
6									
6½			1.000						
7	1.000		.995			1.000			
7½	.990		.969	1.000		.997			
8	.943		.887	.999		.975			1.000
8½	.824		.754	.964		.901	1.000		.997
9	.608		.535	.830		.746	.958		.929
9½	.304	1.000	.261	.522	1.000	.458	.712	1.000	.675
F.P.	.000	.000	.000	.000	.000	.000	.000	.000	.000

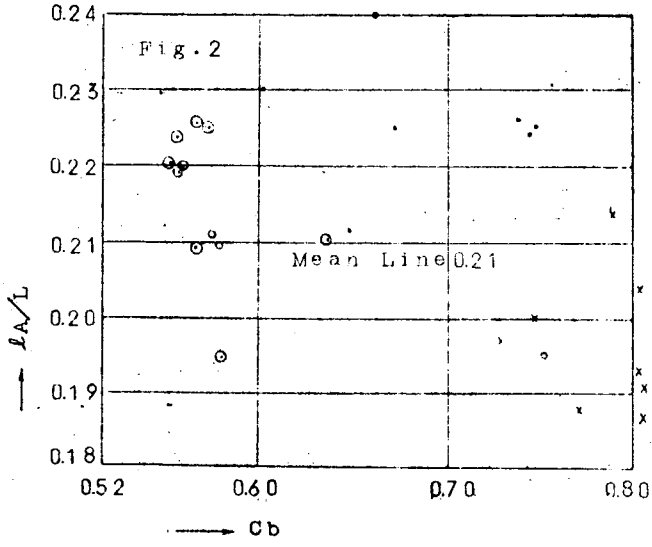
Cargo Ship

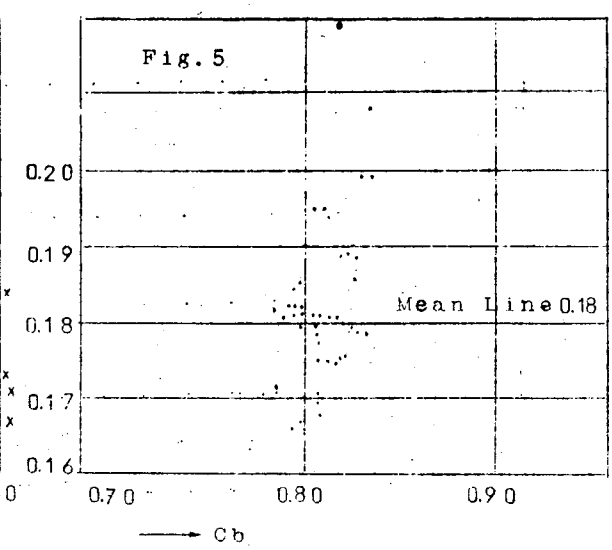
Tanker

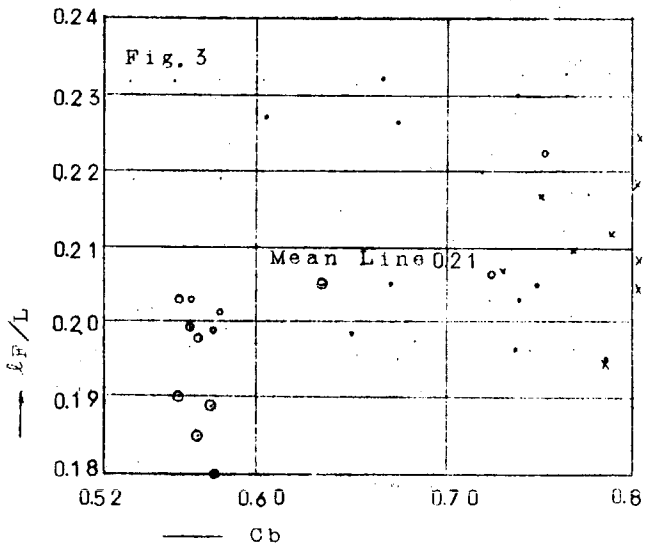
• Cargo Ship ⊠ Engine
° Cargo 〃 Aft 〃
⊙ Cargo 〃 Semi Aft Engine
× Bulk, Ore Carrir











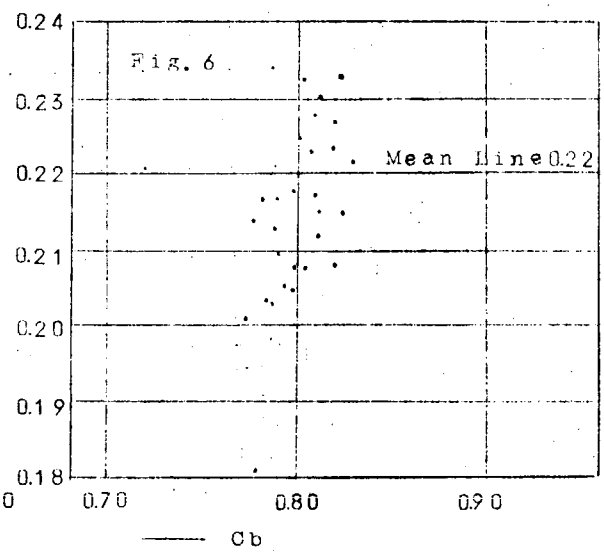


Table 3 、 4 を用いて必要な重量分布資料を計算する。

Table 3.

	K/L	I_A/L	I_F/L
Cargo Ship	0.240	-0.210	0.210
Tanker	0.230	-0.180	0.220

Table 4 Todd Series 資料

Type	Cargo Ship			Tanker		
C_b	0.55	0.65	0.75	0.75	0.80	0.85
x_G/L	-0.0150	-0.0050	0.0150	0.0150	0.0251	0.0285
V_A/W	5280	0.5080	0.4780	0.4780	0.4655	0.4650
V_F/W	0.4720	0.4920	0.5220	0.5220	0.5345	0.5350
l'_A/L	-0.2161	-0.2132	-0.1979	-0.2089	-0.1987	-0.1918
l'_F/L	0.2100	0.2100	0.2100	0.2200	0.2200	0.2200

計 算 法

仮 定 ： Even Keel状態

$$\frac{W_F}{W}=\frac{x_G/L+l_A/L}{l_F/L+l_A/L}\quad,\quad\frac{W_A}{W}=1-\frac{W_F}{W}\qquad(a)$$

$$\text{Mean L.C.G.}=W_F l_F/WL+W_A l_A/WL\qquad(b)$$

$$\text{Mean L.C.B.}=V_F l'_F/WL+V_A l_A'/WL\qquad(c)$$

$$M_{SW}/WL=\frac{1}{2}\{(b)-(c)\}\qquad(d)$$

正号 ： Hog. Mt.

$$I/WL^2=I_F/WL^2+I_A/WL^2-(x_G/L)^2$$

$$I_F/WL^2=(W_F/W)(l_F/L)^2+i_F/WL^2=(1+\alpha_F)(W_F/W)(l_F/L)^2$$

$$I_A/WL^2=(W_A/W)(l_A/L)^2+i_A/WL^2=(1+\alpha_A)(W_A/W)(l_A/L)^2$$

(注) $\alpha_{A,F}$ は、重量分布の形状に関するもので$\alpha=i/_{WL^2}$ なる関係がある。

$$\left(K/L\right)^2 = I/WL^2 = (1+\alpha_F)\left(W_F/W\right)\left(l_F/L\right)^2 + (1+\alpha_A)\left(W_A/W\right)\left(l_A/L\right)^2 - \left(x_G/L\right)^2 \quad (d)$$

の関係があるので、Table 3、4 の値を用い、実船資料からCargo $\alpha_F = \alpha_A$ 、Tanker $\alpha_A/\alpha_F = 1.40$ としてMsw/WL、α_F, α_A を求めるとTable 5 のとおりである。

Table 5

Type	Cargo Ship			Tanker		
Cb	0.55	0.65	0.75	0.75	0.80	0.85
M_{sw}/WL	0.0216	0.0152	0.0061	0.0009	-0.0042	-0.0087
α_F	0.311	0.307	0.311	0.267	0.276	0.276
α_A				0.374	0.386	0.386

この値は実船資料と比較（Fig. 7～12）すると是認できる値である。

最終的に決定した重量分布資料はTable 6 である。

7. 計 算 条 件

各船はいずれも満載状態、等吃水とする。計算結果は無次元値で表示するので、船長はどのような値でもよいが、絶対値もOutput されるため、次のように決める。

Cargo Ship　150M（L/B = 7.0 、Cb = 0.65 …… △ = 18,344 t）

Tanker　250M（L/B = 6.0 、Cb = 0.80 …… △ = 118,940 t）

船速

Cargo Ship　Fn = 0、0.05、0.10、0.15、0.20、0.25、0.30

Tanker　Fn = 0、0.05、0.10、0.15、0.20

斜路

常に正面迎波となるよう定める。

$$\psi = 0$$

波

波面 h_A は波長 λ との比を一定のConventional Wave とする。

$$h_A/\lambda = 1/50$$

波長は計算Data を後刻、統計処理する場合の便宜を考えて、$\sqrt{L/\lambda}$ で規定し、その範囲を次のようにとる。

Cargo Ship

Tanker

• 船尾機関
○ Aft Eng.
⊙ Semi-Aft Eng.

中計算値 (Table 4)

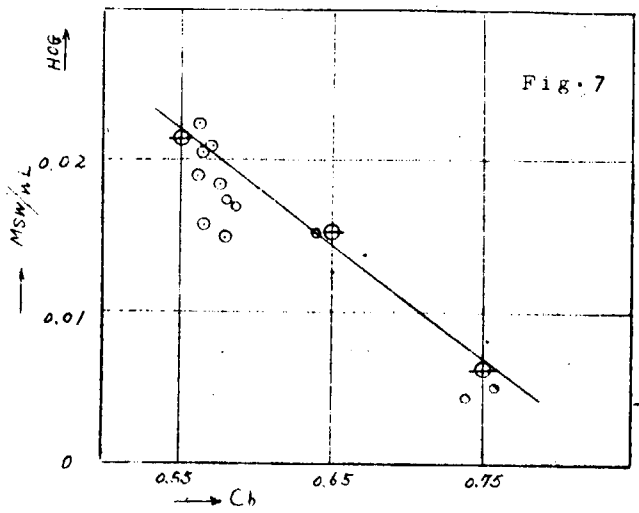


Fig. 7

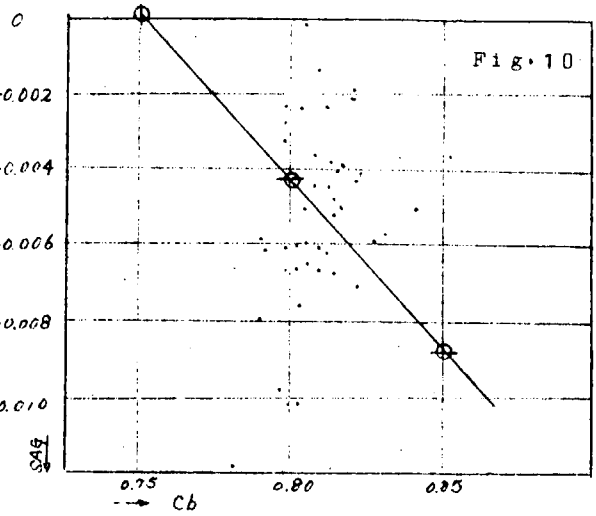


Fig. 10

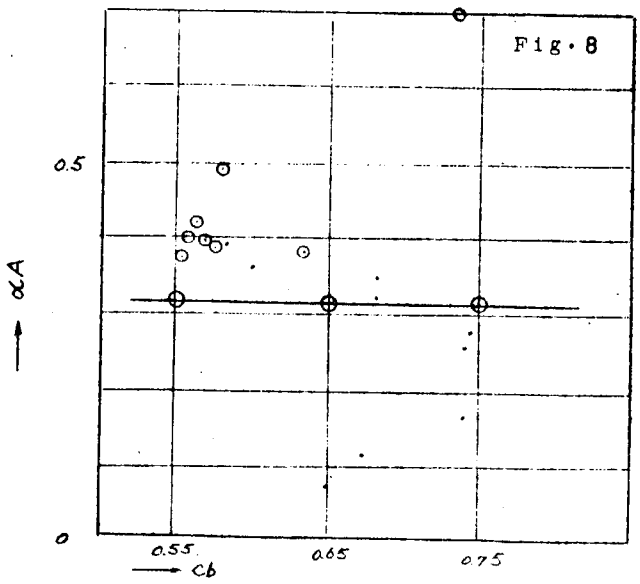


Fig. 8

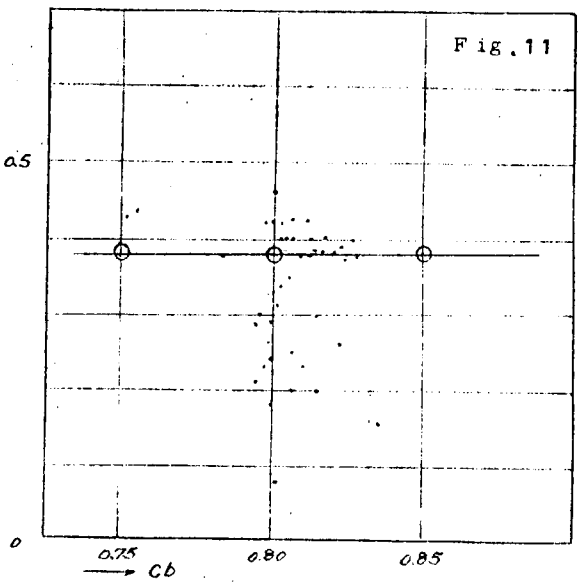


Fig. 11

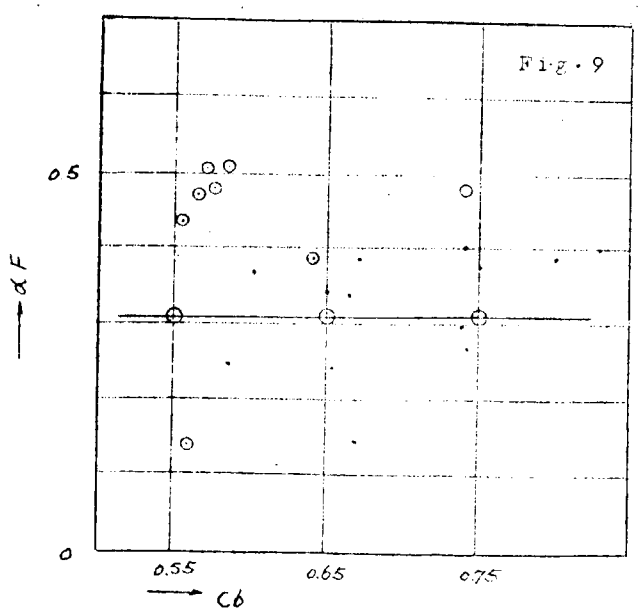


Fig. 9

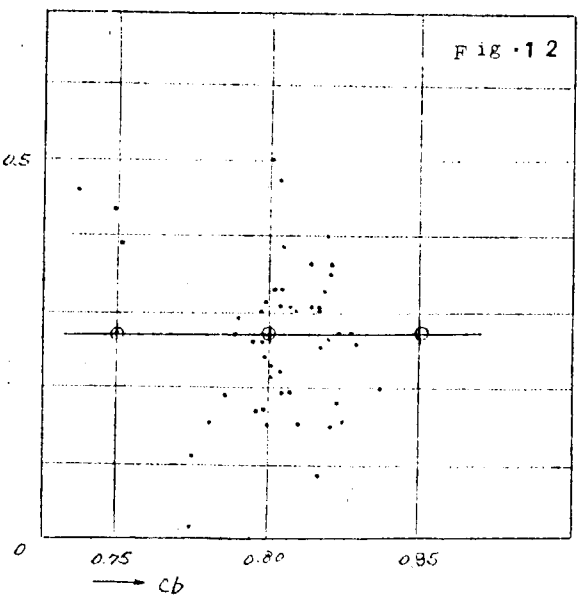


Fig. 12

Table 6 Weight Distribution

		CARGO SHIP			TANKER		
BLOCK COEFFICIENT	C_B	0.55	0.65	0.75	0.75	0.80	0.85
LONGITUDINAL GYRADIUS	K/L	0.24	0.24	0.24	0.23	0.23	0.23
AFTERBODY C.G. FROM MIDSHIP	ℓ_A/L	-0.21	-0.21	-0.21	-0.18	-0.18	-0.18
FOREBODY C.G. FROM MIDSHIP	ℓ_F/L	0.21	0.21	0.21	0.22	0.22	0.22
AFTERBODY WEIGHT	W_A/W	0.5360	0.5120	0.4640	0.5125	0.4874	0.4790
FOREBODY WEIGHT	W_F/W	0.4640	0.4880	0.5360	0.4875	0.5126	0.5210
AFTERBODY GYRADIUS	K_A/L	0.1637	0.1676	0.1761	0.1735	0.1765	0.1794
FOREBODY GYRADIUS	K_F/L	0.1761	0.1717	0.1637	0.1517	0.1480	0.1466
CENTER OF GRAVITY FROM MIDSHIP	X_G/L	-0.0150	-0.0050	0.0154	0.0150	0.0251	0.0285
STILL WATER HOGGING MOMENT	$M_{SW/WL}$	0.0216	0.0152	0.0061	0.0009	-0.0042	-0.0087

$\sqrt{L/\lambda}$ = 0.4 ～ 0.9 （0.10間隔）
0.9 ～ 1.2 （0.05間隔） } 20 Cases
1.2 ～ 2.0 （0.10間隔）

（λ/L = 6.25 ～ 0.25に相当する）

8. 計 算 結 果

付録2 "Results of Calculation of Ship Motions and Midship Bending Moments in Regular Waves"

SR.90-5-26 に計算結果がTableの形で示してある。

とくに、船体中央部の波浪曲げモーメントについては、

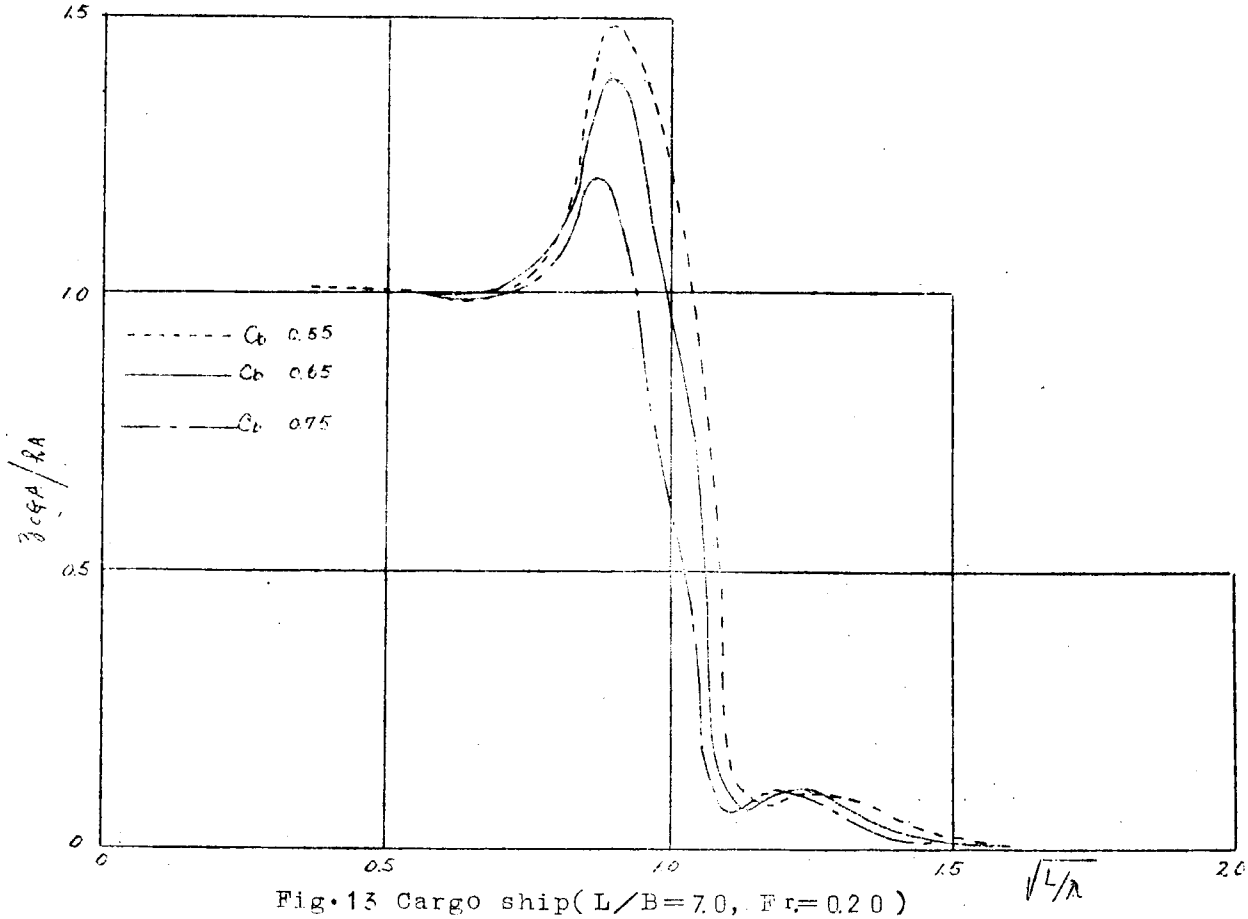
付録3 "Figures of Midship Bending Moments in Regular Waves"

SR.90-6-28 に、L/B、C_b の値ごとにFnをパラメータとして図示する。

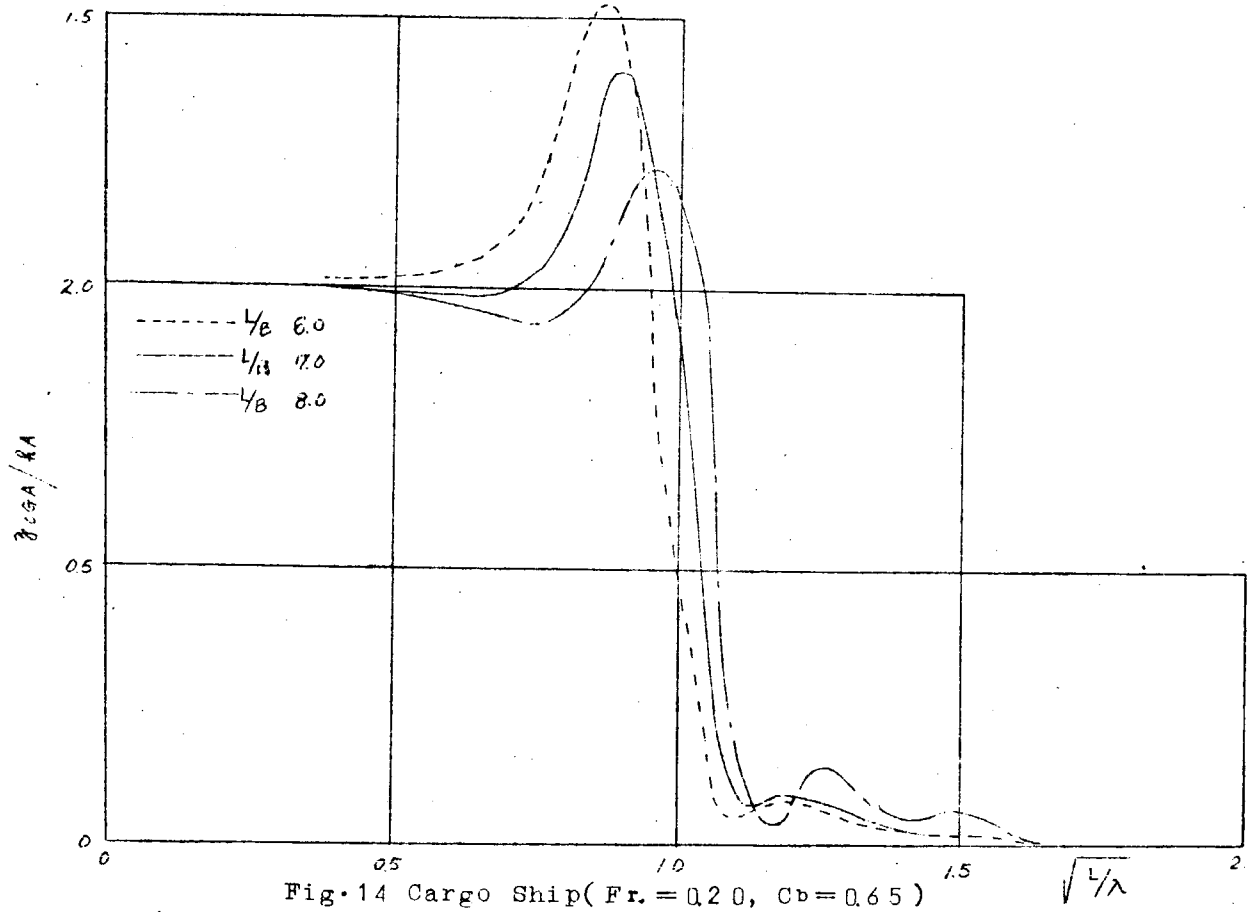
L/B、C_b の変化の影響をみるために比較図として次のとおり示す。

Page	Fig	Type	Item
29	13,14	Cargo Ship	Heave Motion
30	15,16	〃	Pitch Motion
31	17,18	〃	Relative Bow Motion
32	19,20	Tanker	Heave Motion
33	21,22	〃	Pitch Motion
34	23,24	〃	Relative Bow Motion
35	25,26	Cargo Ship	Midship Wave Bending Moment
36	27,28	〃	〃
37	29,30	Tanker	〃

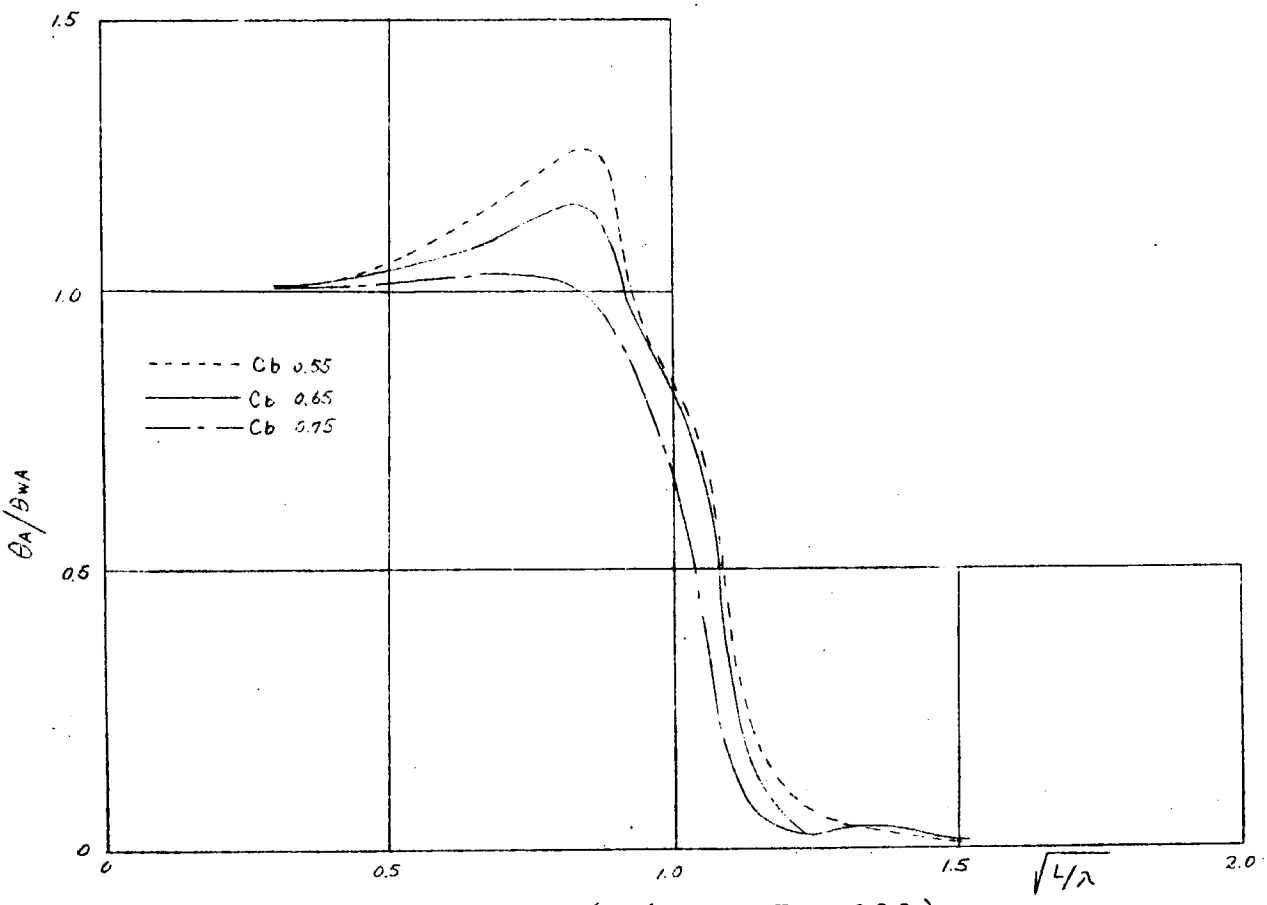
(注) Page は付録2のもの
Fig. は付録3のもの



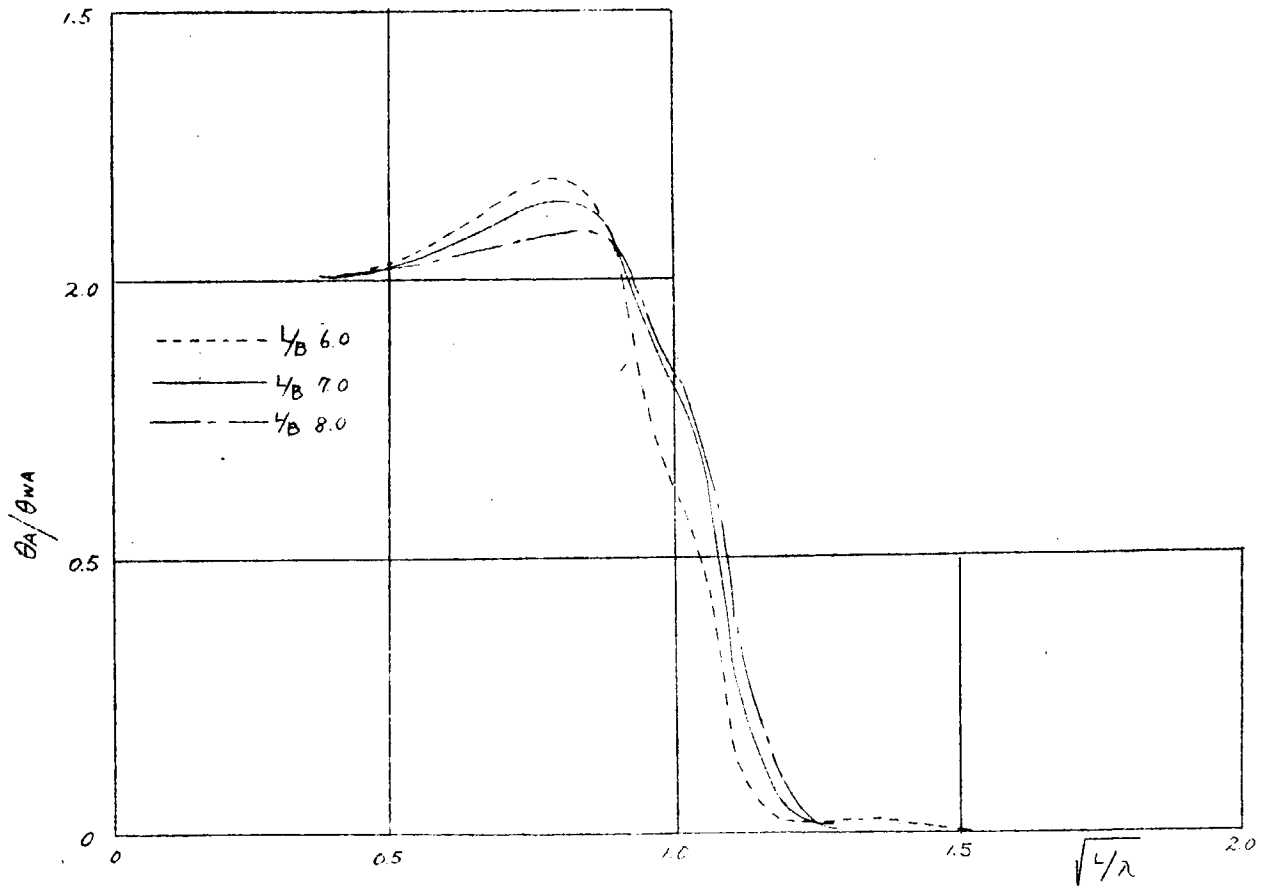
Fig·13 Cargo ship(L/B=7.0, Fr.=0.20)



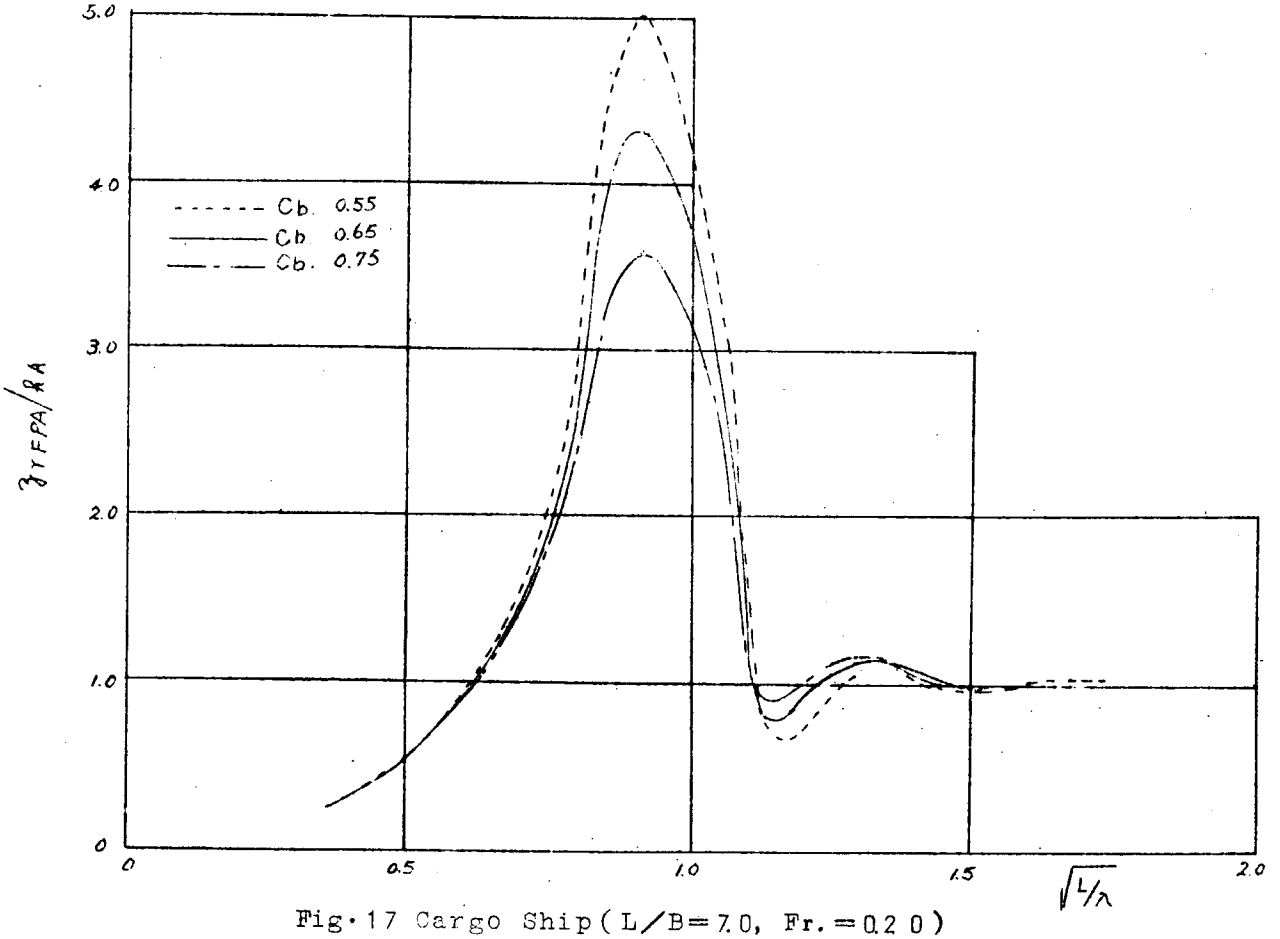
Fig·14 Cargo Ship(Fr.=0.20, Cb=0.65)



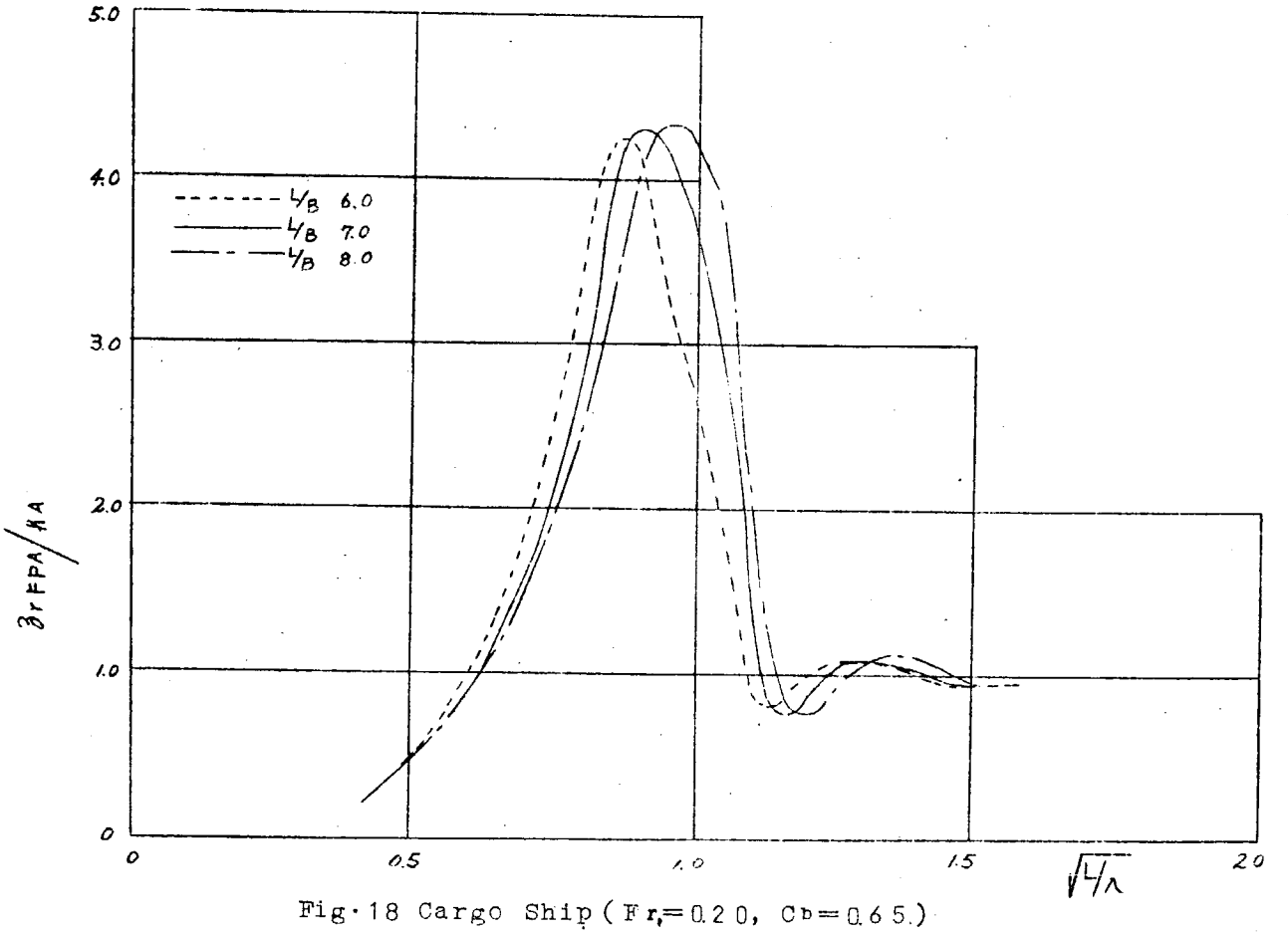
Fig·15 Cargo Ship (L/B=7.0, Fr.=0.20)



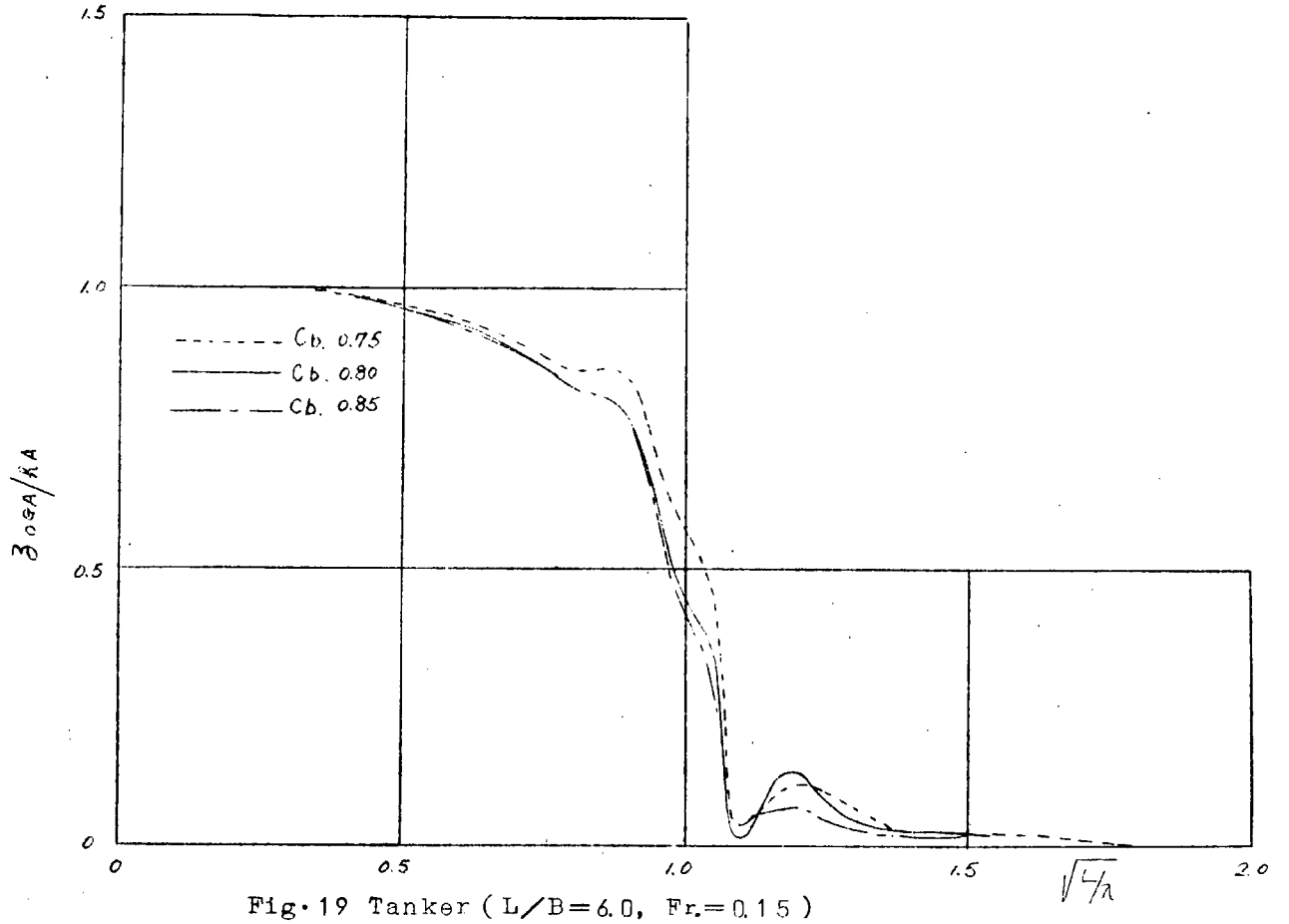
Fig·16 Cargo Ship (Fr.=0.20, Cb=0.65)



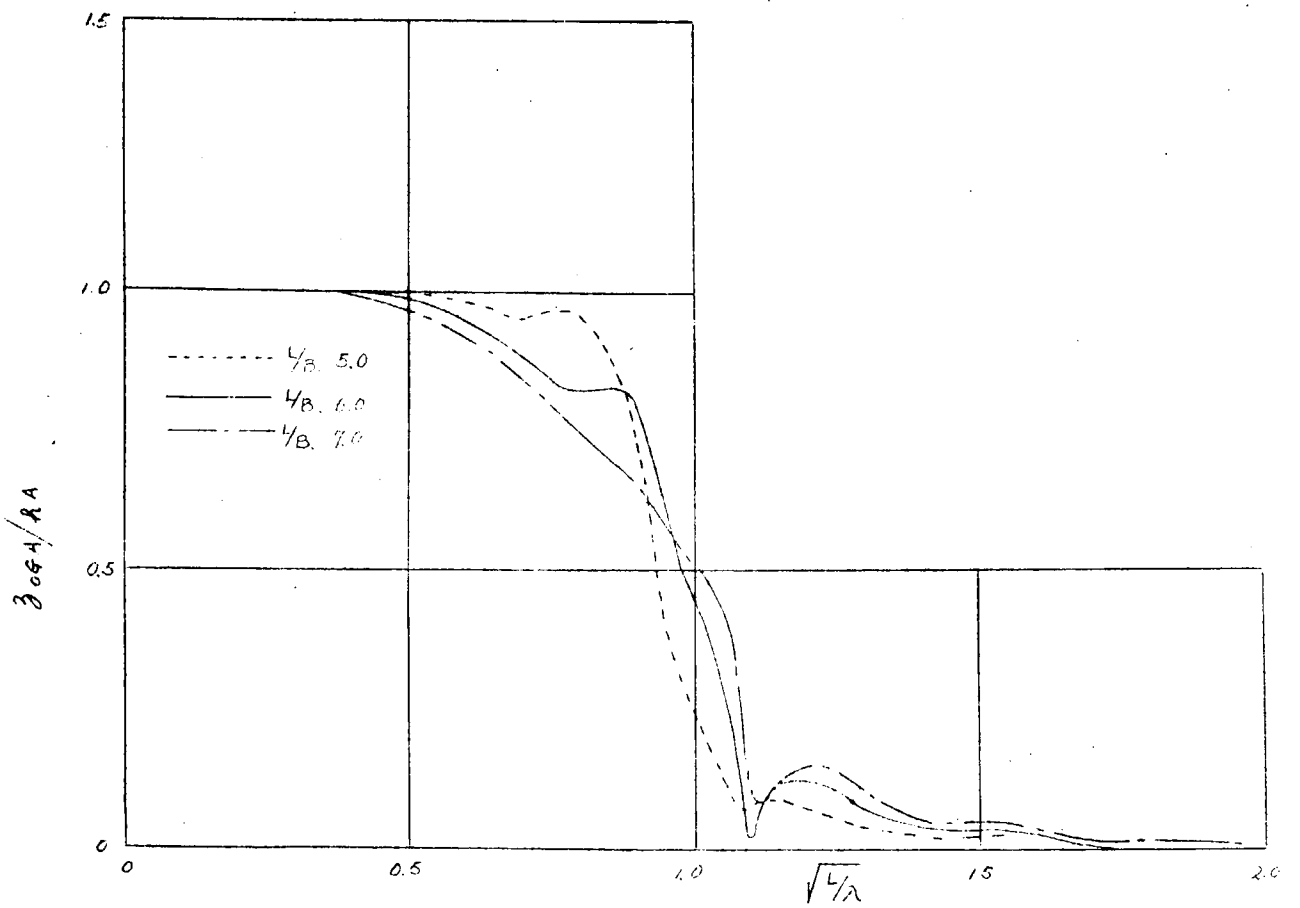
Fig·17 Cargo Ship (L/B= 7.0, Fr. = 0.2 0)



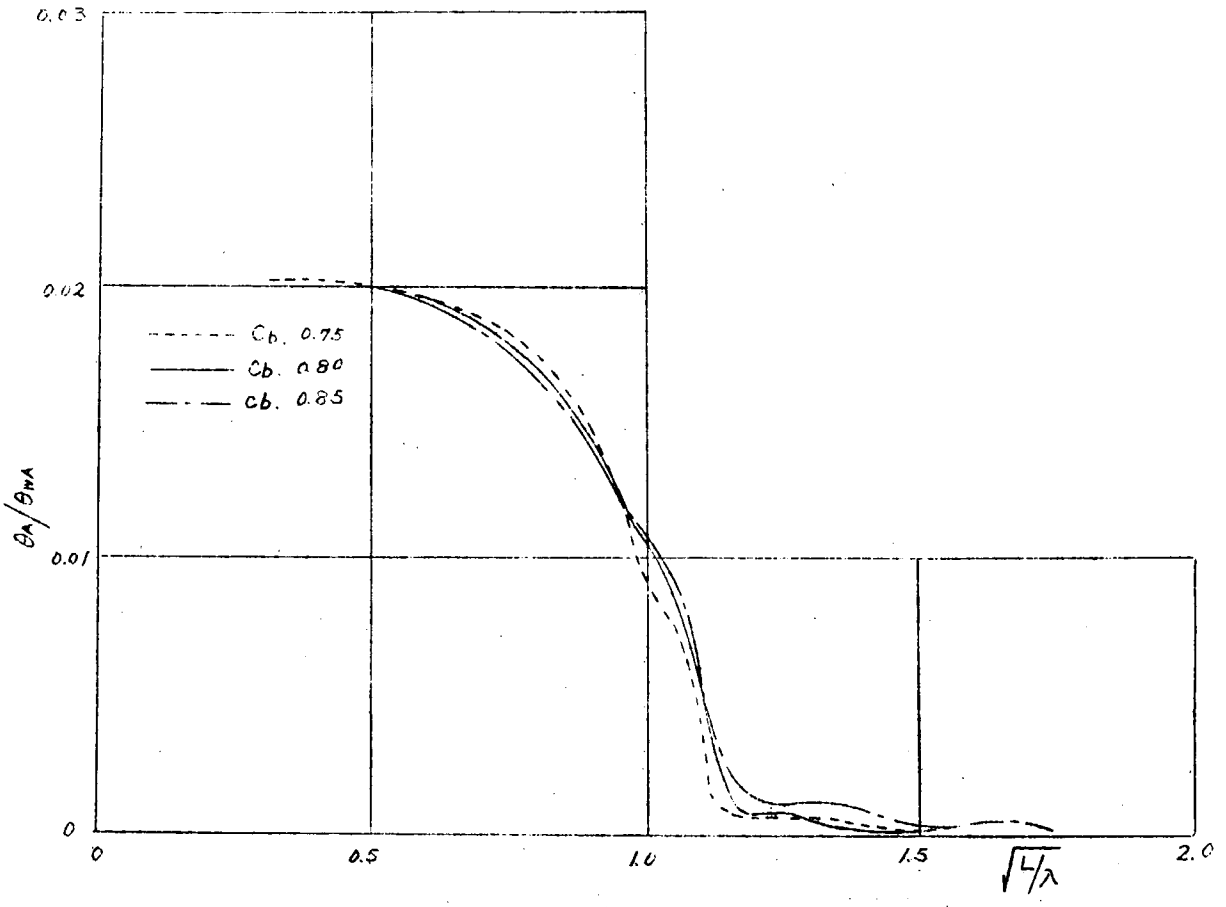
Fig·18 Cargo Ship (Fr_v= 0.2 0, Cb= 0.6 5.)



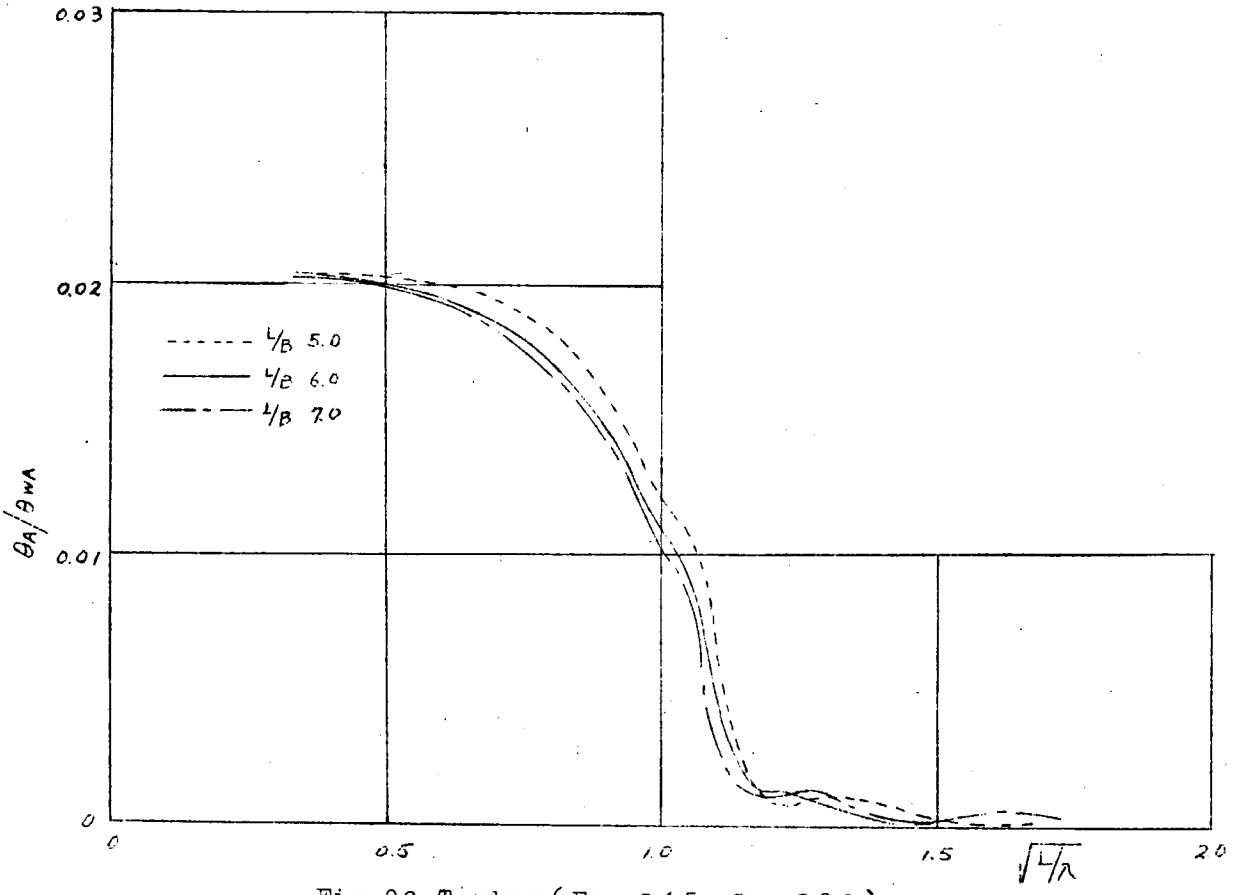
Fig·19 Tanker (L/B=6.0, Fr.=0.15)



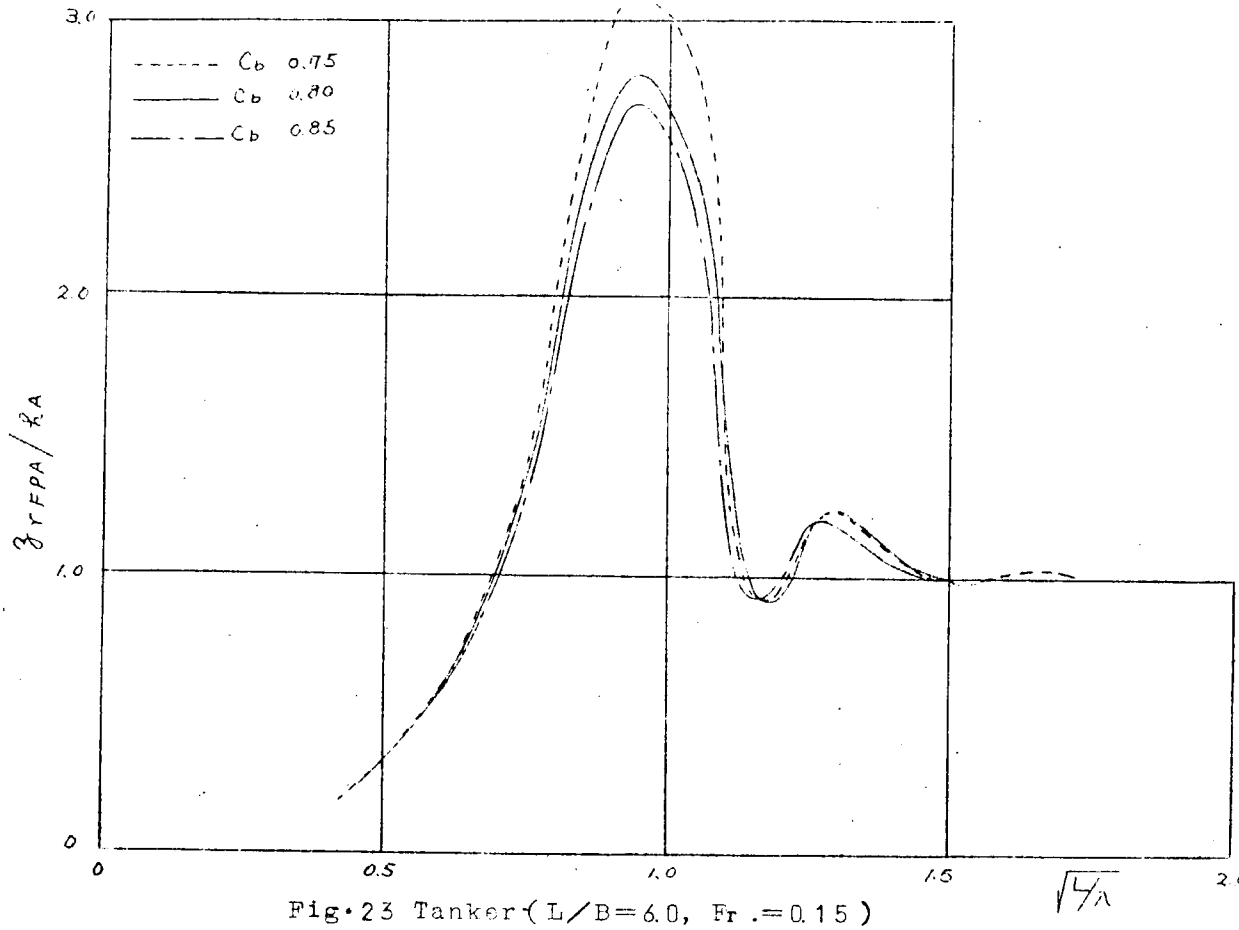
Fig·20 Tanker (Fr.=0.15, Cb=0.80)



Fig·21 Tanker (L/B=6.0, Fr.=0.15)



Fig·22 Tanker (Fr.=0.15, Cb=0.80)



Fig·23 Tanker(L/B=6.0, Fr .=0.15)

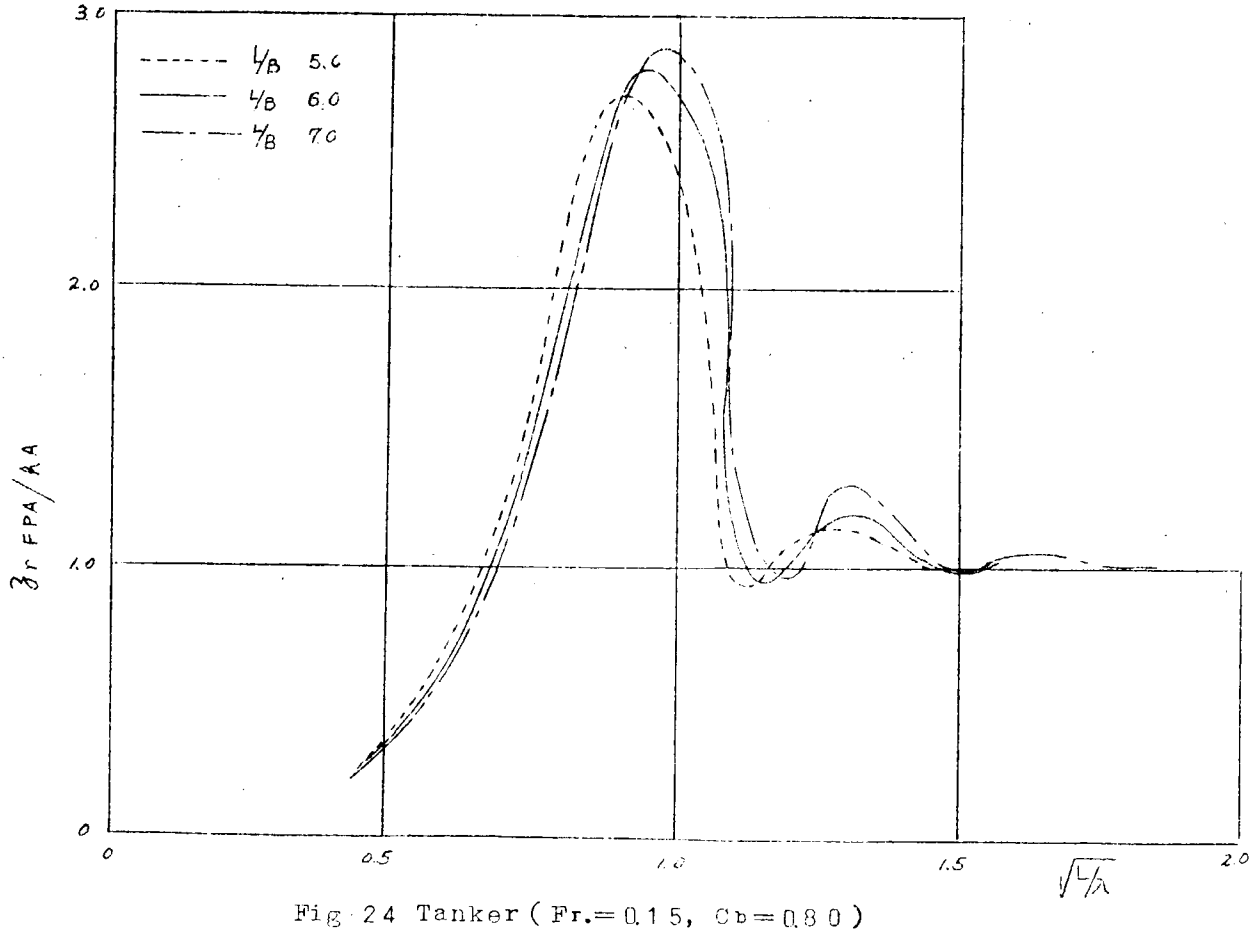


Fig 24 Tanker (Fr.= 0.15, Cb=0.80)

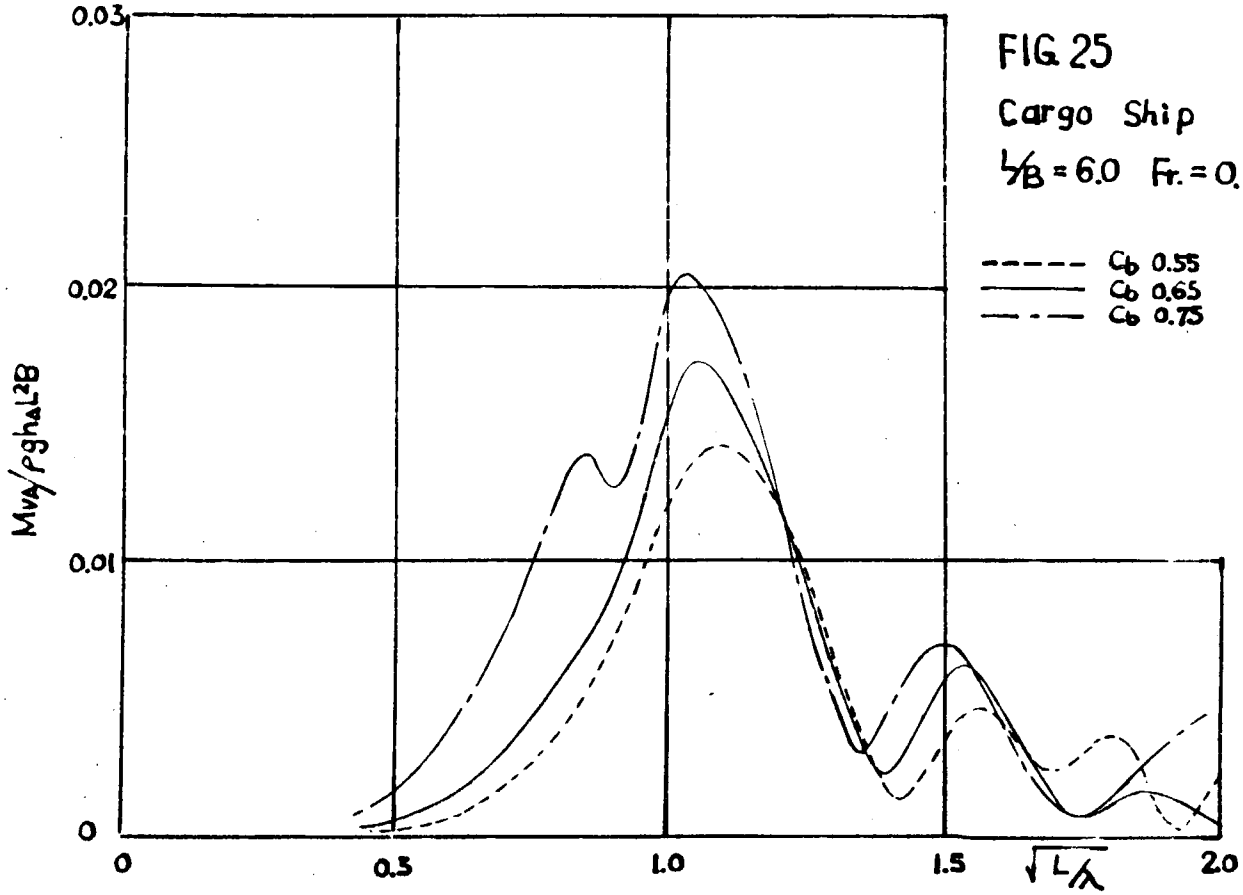


FIG. 25
Cargo Ship
$L/B = 6.0$ Fr. = 0.20

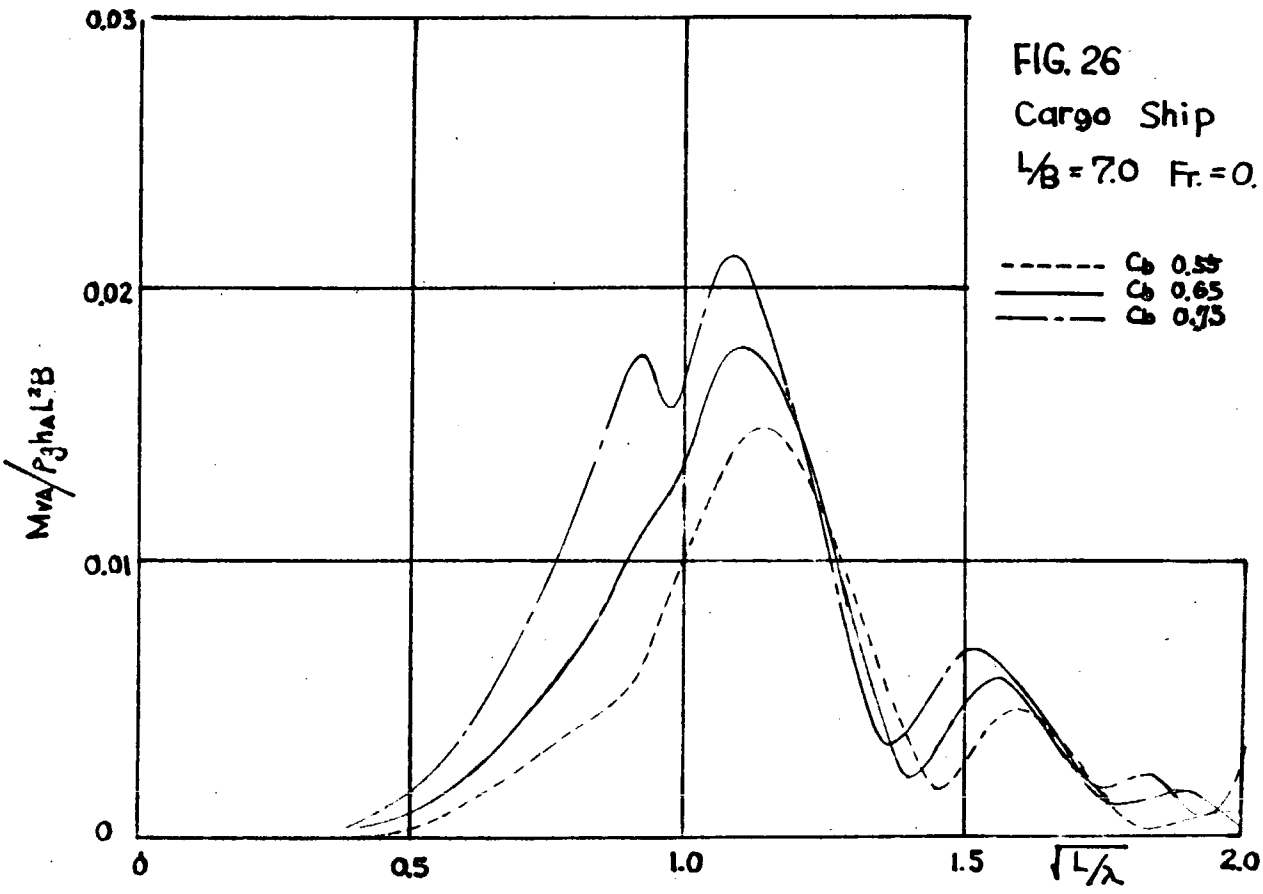


FIG. 26
Cargo Ship
$L/B = 7.0$ Fr. = 0.20

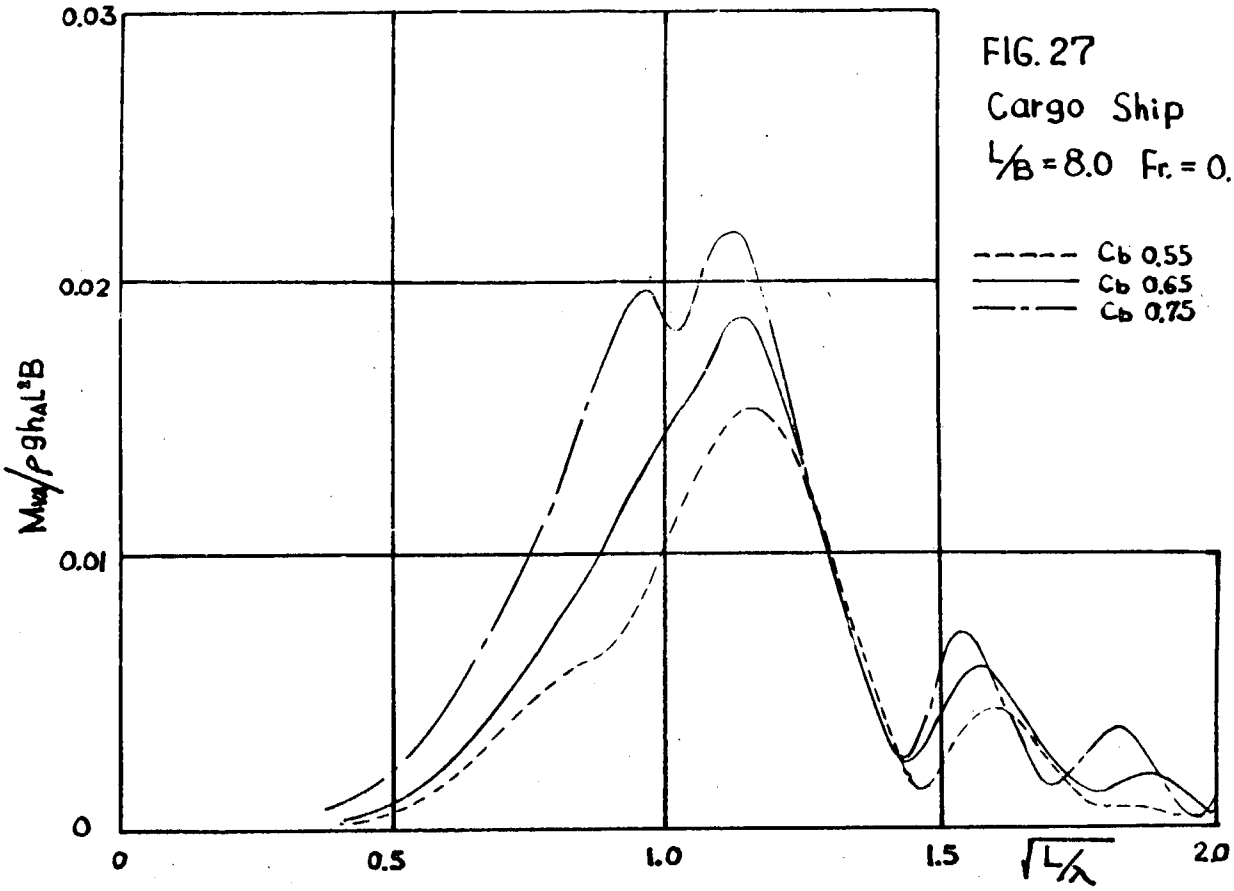


FIG. 27
Cargo Ship
$L/B = 8.0$ Fr. = 0.20

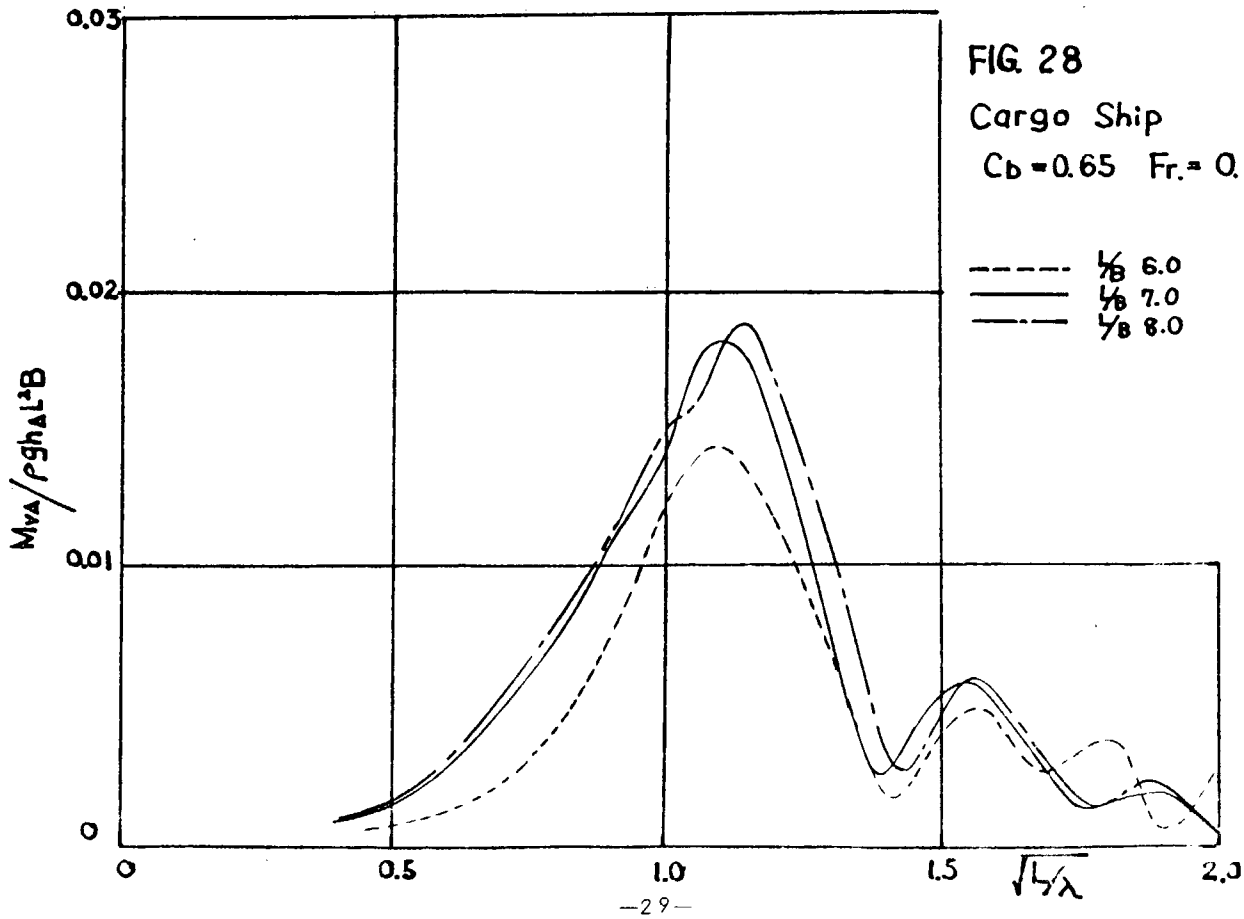


FIG. 28
Cargo Ship
Cb = 0.65 Fr. = 0.20

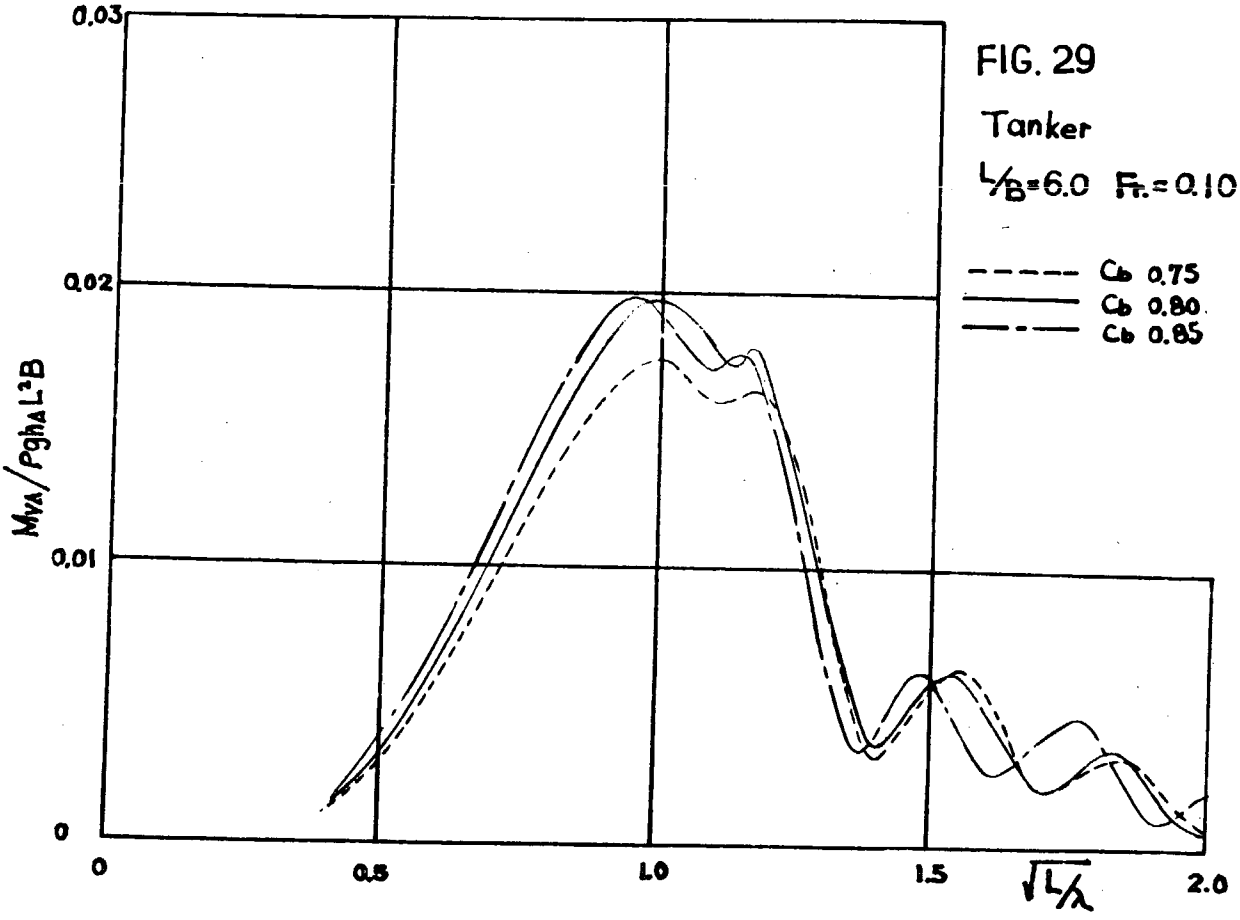


FIG. 29

Tanker

$L/B = 6.0$ $F_r = 0.10$

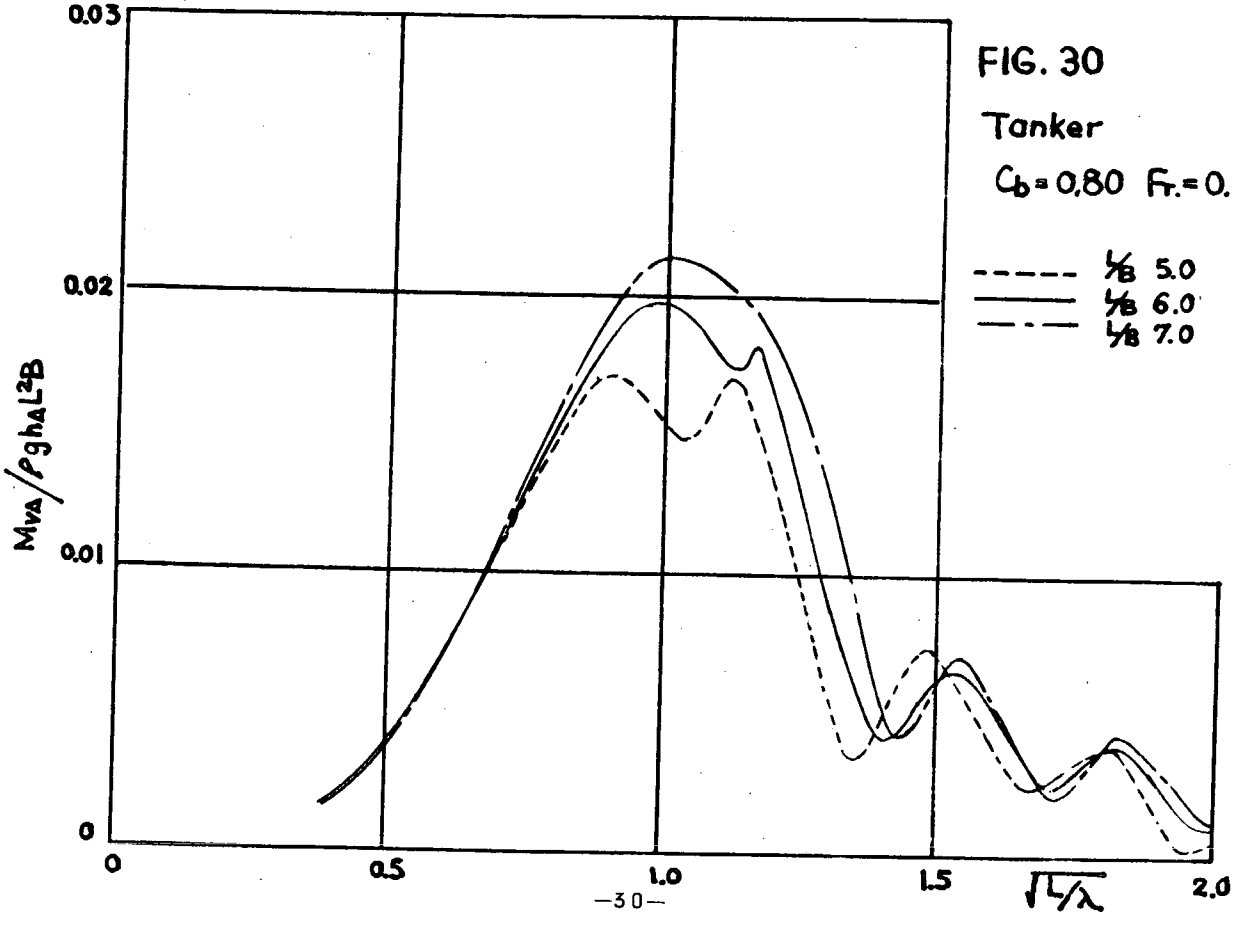


FIG. 30

Tanker

$C_b = 0.80$ $F_r = 0.10$

9. 応答関数に関する結論

9.1 Cargo Shipに対して

(i) Cbの変化が応答関数に与える影響は、かなり大きく顕著である。

一方L／Bの変化の影響はそれに比べて小さい。

(ii) 船体運動はCbが小さいほど激しく、縦曲げモーメントは反対にCbが大きいほど大きい。

(iii) L／Bの変化についてもほぼ同様のことがいえる。船体運動はL／Bが小さいほどその最大値が大になる。しかし$\sqrt{L/\lambda}$ の全域にわたつては、必らずしもL／Bが小さいほどよく揺れるとはいえない。縦曲げモーメントはL／Bが大きいほど大きくなる傾向があるが、変化量はわずかである。

9.2 Tankerに対して

(i) 船体運動についてはCargo Shipと同様の傾向がいえるが、Cb、L／Bの変化が応答関数に与える影響は小さい。

(ii) 曲げモーメントについては、Cargo Shipの場合とは逆に、L／Bの変化による影響の方がCbの変化による影響より大きい。

- Cbの変化の影響はCbが大なる程曲げモーメントの最大値は大きくなるが、Cb＝0.80と0.85では差は認められない。
- L／Bの変化の影響は$\sqrt{L/\lambda}<1.3$の範囲ではL／Bが大きい程相対的に大きくなる。

10. 剪断力、曲げモーメント分布の計算

10.1 計 算 法

波浪中、船体運動により生ずる剪断力、曲げモーメントの船長方向の分布を理論3.14を用い、3.15の方法で無次元化した。

また静水中の停止船に働らく剪断力、曲げモーメントの分布を求め、上記の動的な分布と比較した。

記 号

$\bar{F}o(x)=Fo(x)/\rho\ g\ L\ B\ h_A$ …… 波浪中における動的剪断力

$\bar{M}o(x)=Mo(x)/\rho\ g\ L^2 B\ h_A$ …… 〃 〃 曲げモーメント

$\bar{F}s(x)=Fs(x)/W$ …… 静水中停止船の静的剪断力

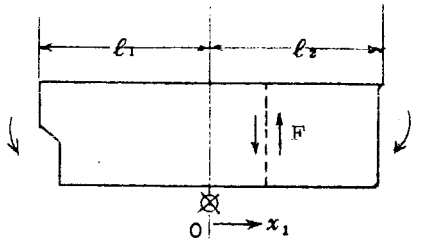
$\bar{M}s(x)=Ms(x)/WL$ …… 〃 〃 曲げモーメント

ここで $Fs(x_1)=-\int_{-l_1}^{x_1}\left(W(x)-\rho g S(x)\right)dx$

$Ms(x_1)=\int_{-l_1}^{x_1}\left(W(x)-\rho g S(x_1)\right)(x-x_1)\,dx$

$W(x)$ ：重量分布曲線 $W=\int_{-l_1}^{l_2}W(x)\,dx$

付　号



左図の方向を正とする。

10.2　計算の対象となつた船型、重量分布、計算条件

前記の応答関数を求めた１４隻中基準船として、次の２隻について計算した。

Cargo　L／B＝7.0，　Cb＝0.65

Tanker　L／B＝6.0，　Cb＝0.80

計算条件

Cargo，Tanker とも次の11casesである。

$\sqrt{L/\lambda}$ ＝ 0.7 ，　Fr. ＝ 0.20

$\sqrt{L/\lambda}$ ＝ 1.0 ，　Fr. ＝ 0，0.10，0.20，0.30（Cargoのみ）

$\sqrt{L/\lambda}$ ＝ 1.3 ，　Fr. ＝ 0.20

Tab.6

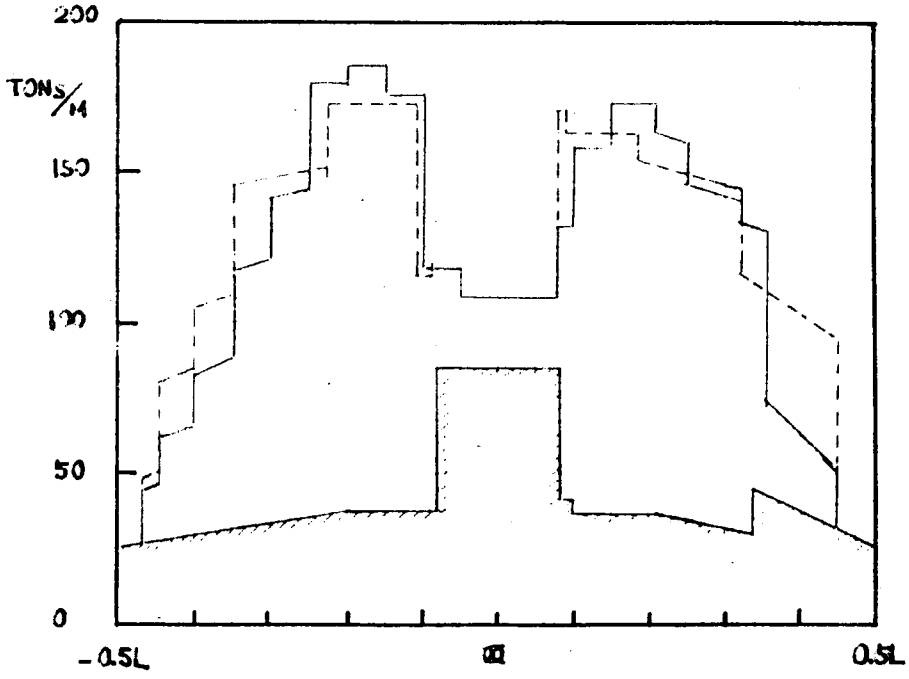
CARGO SHIP

		川崎重工提供の資料	計算の対称となった船
Principal Dimension	L_{pp}	150.300	150.000
	L_{pp}/B_o	7.332	7.000
	B_o/d_o	2.188	2.500
	C_b	.652	.650
	C_m	.980	.982
Weight Distribution	K/L	.2547	.240
	l_a/L	-.226	-.210
	l_f/L	.218	.210
	W_a/W	.5013	.5120
	W_f/W	.4987	.4880
	$\sqrt{I_a/WL^2}$		.1676
	$\sqrt{I_f/WL^2}$		.1637
	X_G/L	-.0042	-.0050

TANKER

		造船重工提供の資料	計算の対称となった船
Pricipal Dimension	L_{pp}	232.000	250.000
	L_{pp}/B_o	6.250	6.000
	B_o/d_o		3.000
	C_b	.825	.800
	C_m		.994
Weight Distribution	K/L	.2434	.230
	l_a/L	-.1880	-.180
	l_f/L	.2227	.220
	W_a/W	.4875	.4874
	W_f/W	.5125	.5126
	$\sqrt{I_a/WL^2}$		.1765
	$\sqrt{I_f/WL^2}$		.1466
	X_G/L	.0103	.0251

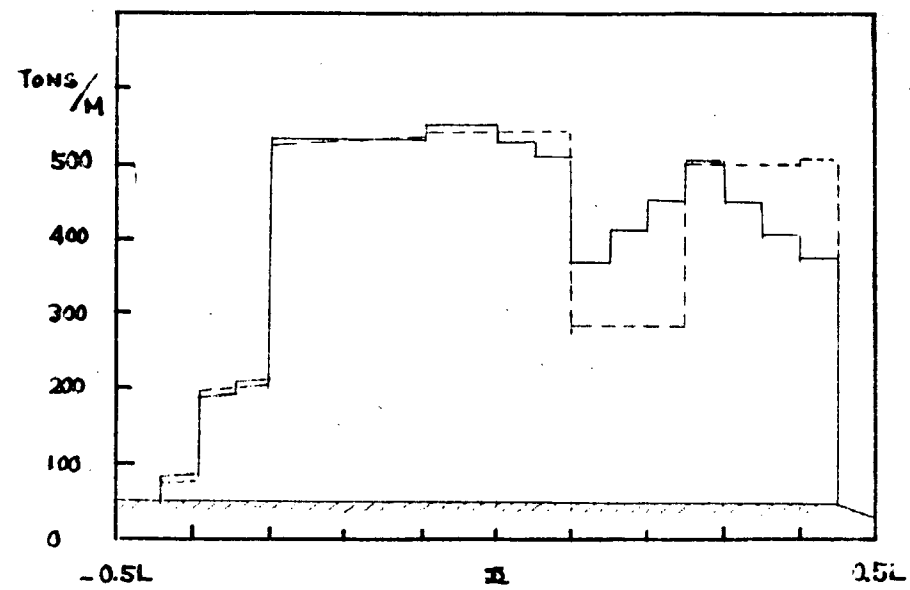
WEIGHT DISTRIBUTION of Cargo Ship



——— 川崎重工より提供の重量分布

——— 計算に使用した重量分布

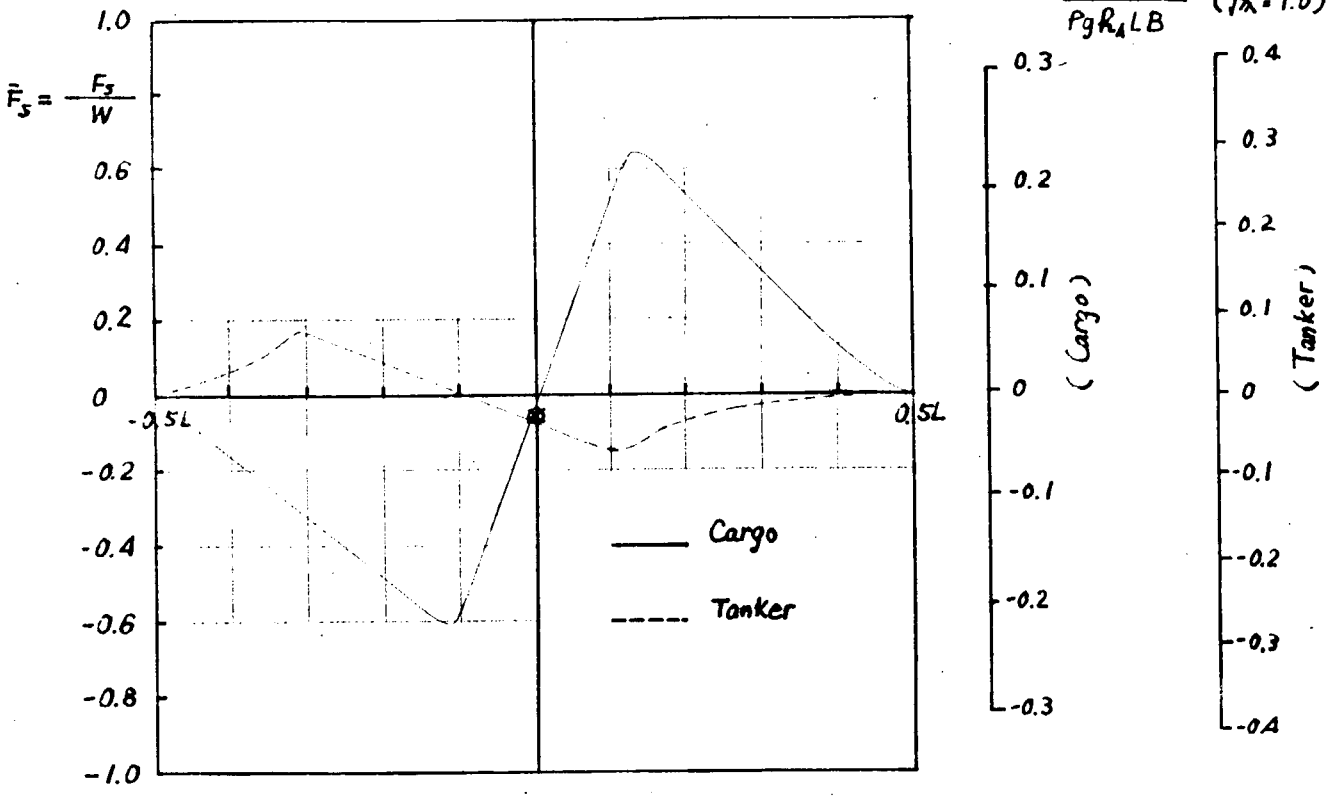
WEIGHT DISTRIBUTION of Tanker



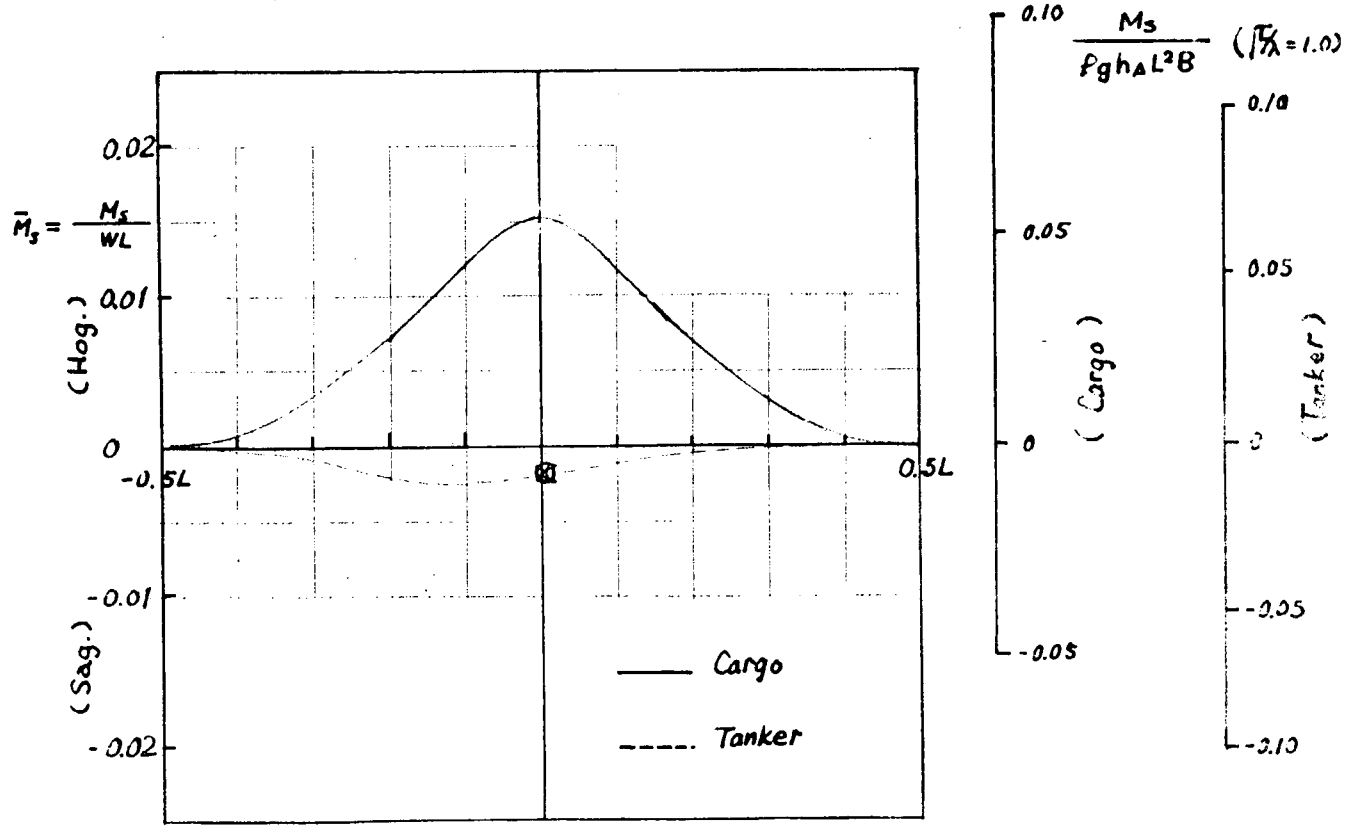
——— 三菱重工より提供の重量分布

——— 計算に使用した重量分布

STATICAL SHEARE FORCE

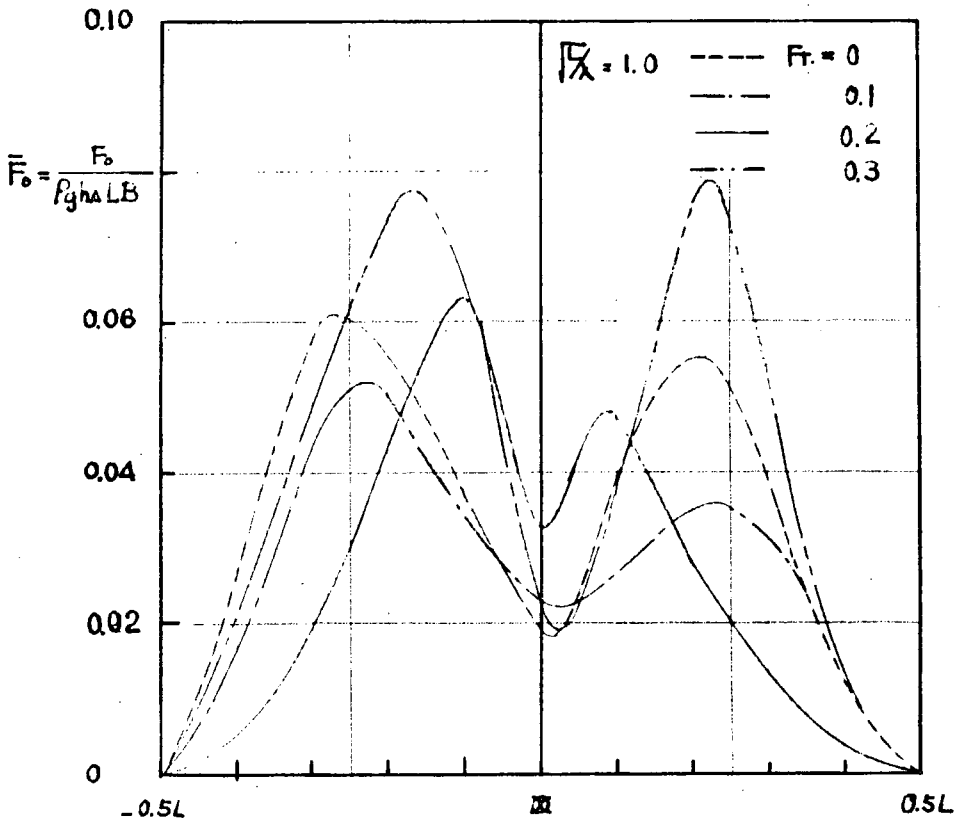


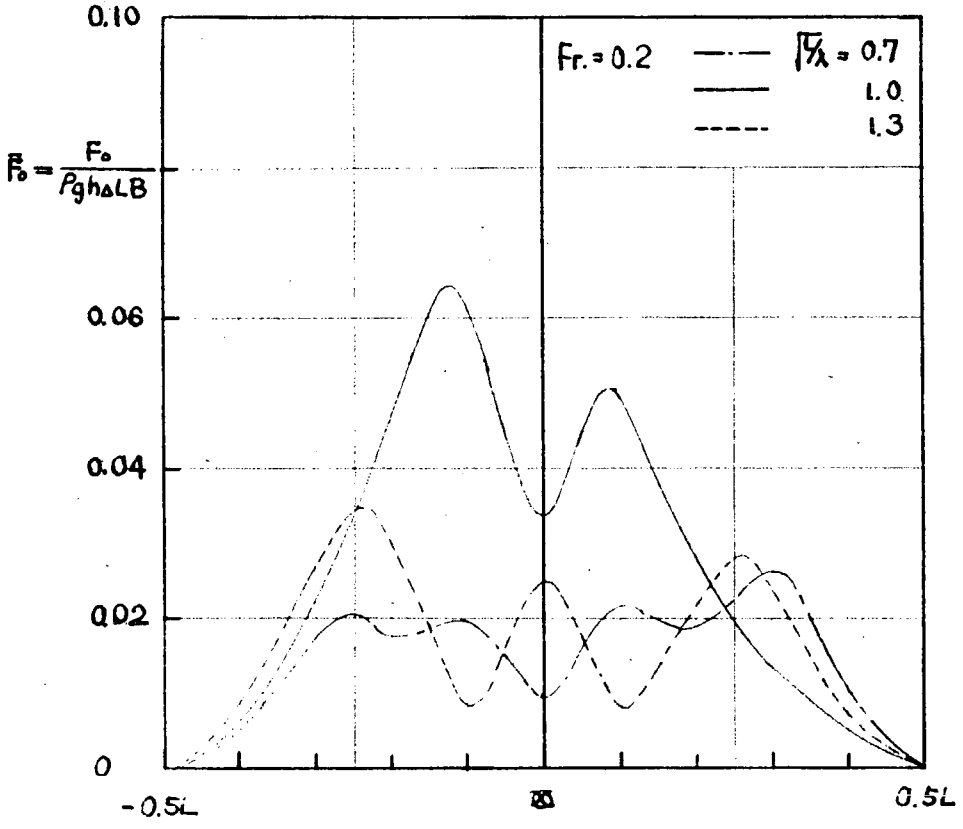
STATICAL BENDING MOMENT



WAVE SHEARE FORCE

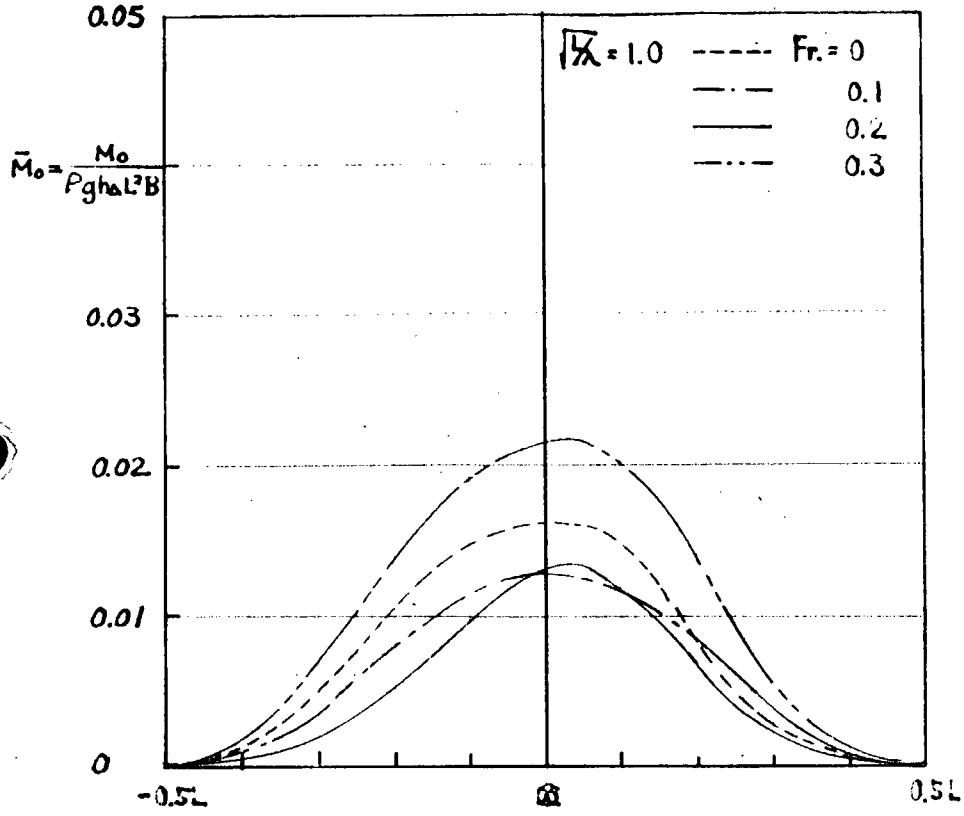
Cargo Ship
$L/B = 7.0$ $C_b = 0.65$

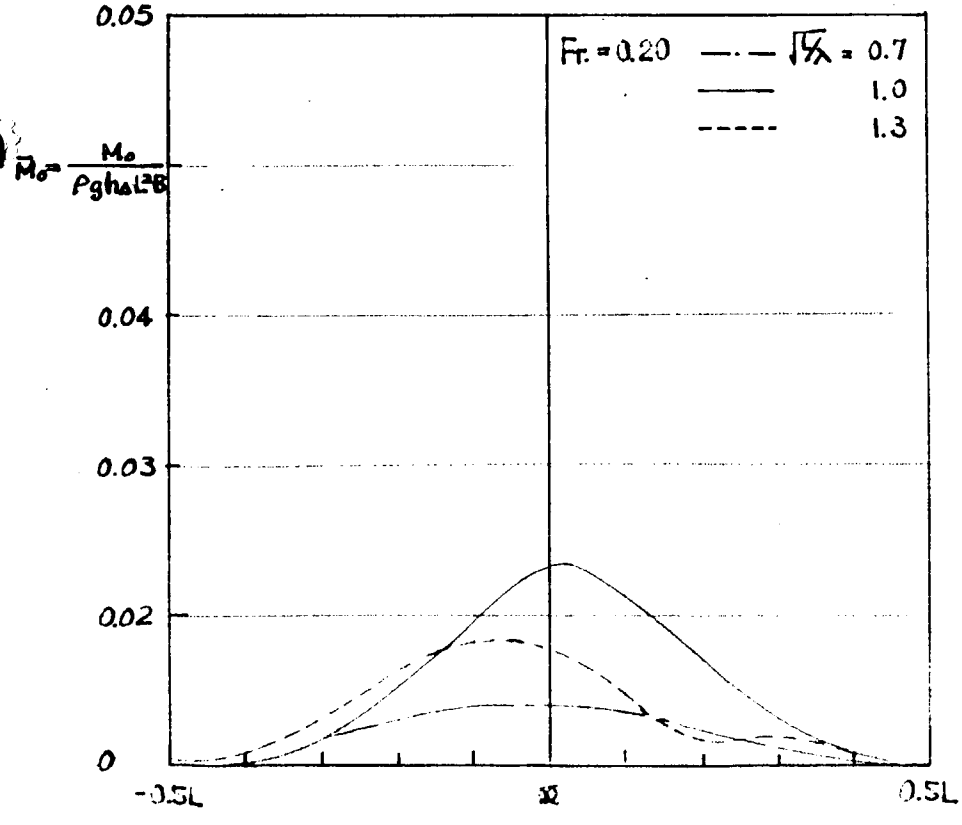




WAVE BENDING MOMENT

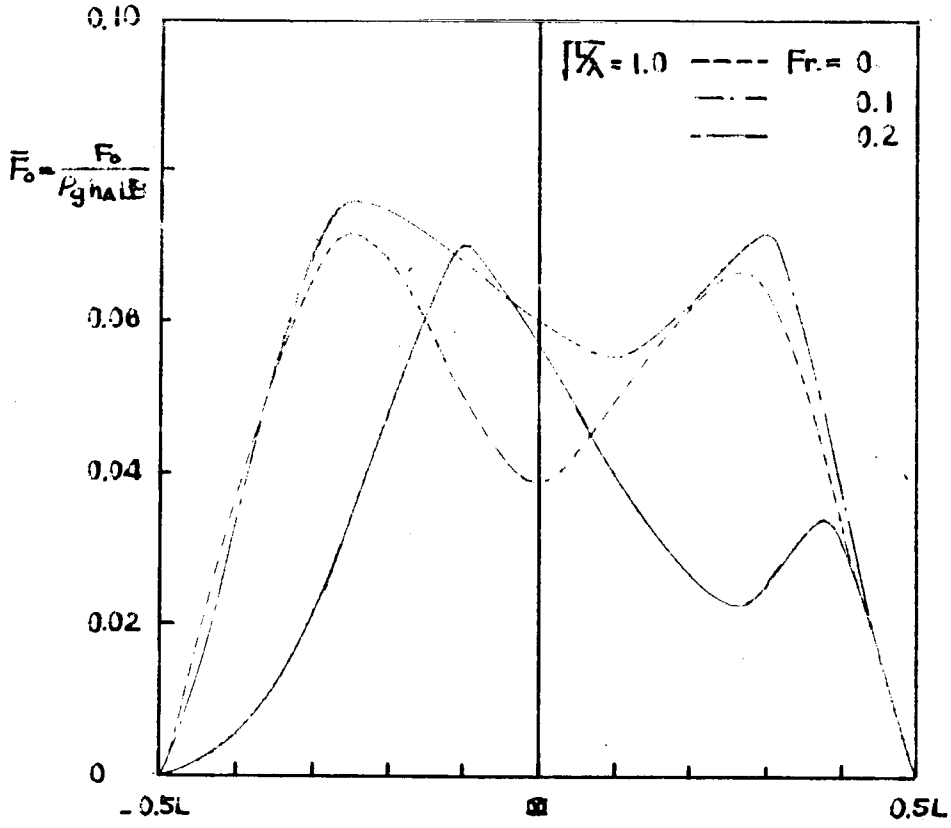
Cargo Ship
$L/B = 7.0$ $C_b = 0.65$

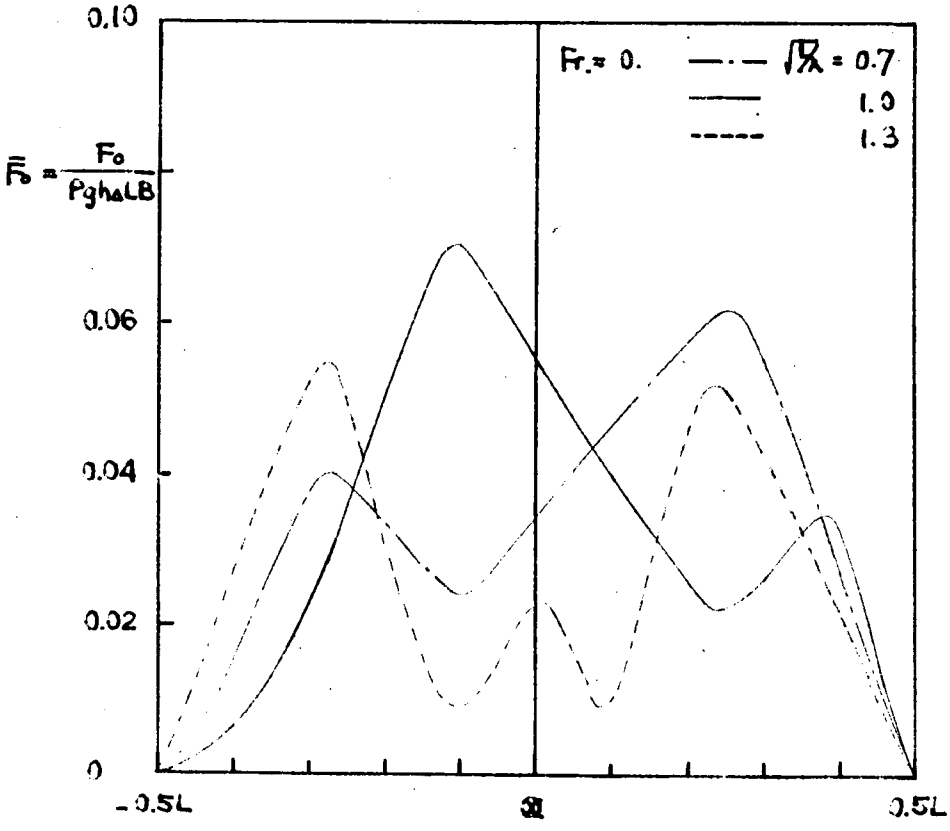




WAVE SHEAR FORCE

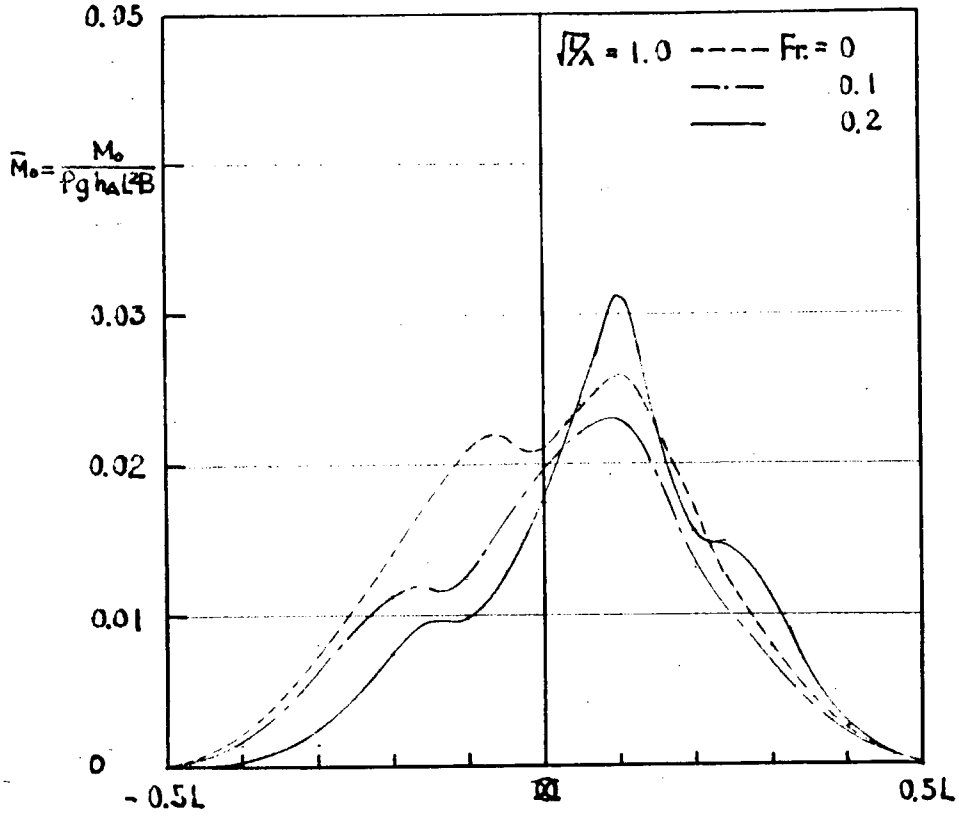
Tanker
L/B = 6.0 C_b = 0.80

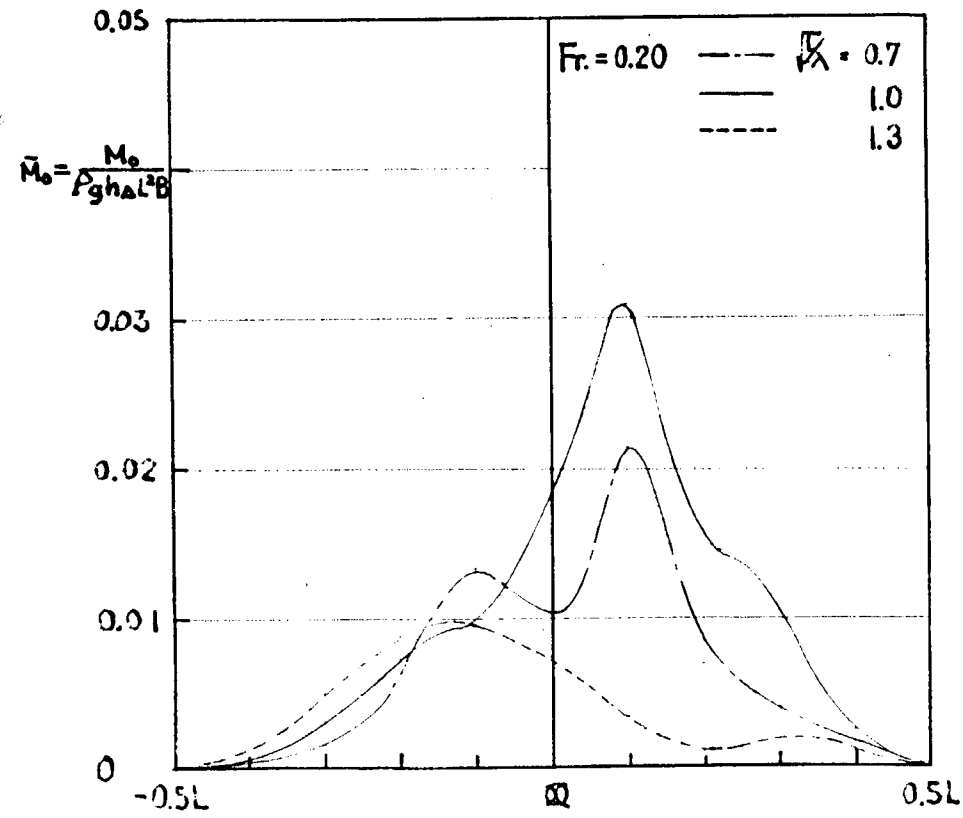




Tanker
$L/B = 6.0$ $C_b = 0.80$

WAVE BENDING MOMENT





10.3 計 算 結 果

10.3.1 Cargo Ship

重量分布が、ほぼ前後対称であるため静的剪断力は⊗で零、静的曲げモーメントは⊗で最大を示し、ほぼ前後対称の分布である。

波浪剪断力は$\sqrt{L/\lambda}=0.7\sim1.0$で$\pm0.25L$の位置で最大、⊗で最小（零ではない）を示す。

$\sqrt{L/\lambda}=1.3$の時は⊗でも極大を示す。これはTankerの場合にもいえることである。

波浪曲げモーメントの最大値は、⊗における値とほぼ等しく⊗に近い位置に生じる。Fr No.による影響は殊に結論が得られなかつたが、静止状態Fr＝0での波浪剪断力、曲げモーメントとも、かなり大きい値である事はいえる。

10.3.2 Tanker

重量分布が前後非対称である。計算のモデルとして参考とした船が＋0.1Lの近くに大きな空槽が存在しているような重量分布であるためCargo Shipの場合と異なり、－0.1Lの近くで静的剪断力が零、静的曲げモーメントが最大となる。波浪剪断力、波浪曲げモーメントは複雑な分布を示す。殊に注目されるのは波浪曲げモーメントの最大値が＋0.1Lの近くに生じ⊗位置での値の2倍近くに達することもある。

付録 (1)　委員会配付資料

資料番号	内　　容	
SR 90-1-1	委員名簿（案）	（造研提出）
〃 1-2	日本船舶振興会申請書	（　〃　）
〃 1-3	I.T.T.C. Seakeeping Committee資料	（三菱提出）
〃 1-4	"Calculation of wave Bending Moment Acting on Ship Structure and Pressure Distribution on the Suvfeco of Ship Hull"	（阪大・寺沢部会長提出）
SR 90-2-5	Moor："Longitudinal Bending Moment on Models in Head Sea"	（九大・福田委員提出）
〃 2-6	縦曲げモーメント計算資料	（日立提出）
〃 2-7	〃	（川重提出）
〃 2-8	〃	（三菱提出）
〃 2-9	〃	（石播提出）
SR㊀90-1-1	貨物船重量分布アンケートまとめ	（日立提出）
〃 1-2	Tanker SR90 "波浪曲げモーメントの計算"（重量分布資料）	（三菱提出）
〃 1-3	電子計算機による規則波中の波浪曲げモーメント応答関数の計算	（九大・福田委員提出）
〃 1-4	W.A. SWAAN "The Influence of Weight Distribution on Wave Bending Moment"	（三菱提出）
〃 1-5	I.S.S.C.資料	（九大・福田委員提出）
SR㊁90-2-6	資料作成要領	（三菱提出）
〃 2-7	重量分布資料作成用参考	（　〃　）
〃 2-8	SR90"波浪曲げモーメントの計算"重量分布及船型資料取まとめ	（　〃　）
〃 2-9	SR90．重量分布資料取りまとめ調査結果	（　〃　）
〃 2-10	Prof.J. Gerritsma；福田教授への書簡 Draft of Committee Report, Committee 2b[1]	（九大・福田委員提出）
〃 2-11	Table 1 -Weight Distribution	（日鋼提出）
SR 90-3-12	Research on Bulbous bow Ships Part 1B The Behaviour of a Fast Cargo Liner With a Conventional and With a Bulbous Bow in a Seaway	（造研提出）
〃 3-13	波浪曲げモーメント計算結果（その1）	（三菱提出）
〃 3-14	第90研究部会経過報告	（阪大・八木委員提出）

SR 90-4-15	Computer Program Results for Ship Beha Behaviour Part I in Regular Head Waves	（九大・福田委員提出）
〃 4-16	Part II in Regular Oblique Waves	（ 〃 ）
〃 4-17	電子計算機による規則波中の波浪曲げモーメント応答関数の計算	（ 〃 ）
〃 4-18	波浪荷重の長期分布推定法	（ 〃 ）
〃 4-19	船体中央における波浪横荷重について	（船研提出）
〃 4-20	波浪曲げモーメントの統計値に及ぼす操船の影響についての考察	（海技大・真能委員提出）
〃 4-21	Laboratorium Voor Scheepsbouwkunde Report of Committee 2 b' Wave Loads, Model and Theory.	（九大・福田委員提出）
〃 4-22	昭和42年度研究予算案	（阪大・八木委員提出）
〃 4-23	波浪曲げモーメントの計算結果（その2）	（三菱提出）
〃 4-24	規則的な縦波中で運動する船のMidship section に働らく変動圧力分布について	（ 〃 ）
〃 4-25	11th International Towing Tank Confere-nce Responce Operation of Ship Motion and Midship Bending Maments in Regular Wave	（ 〃 ）
SR 90-5-25	Result of Calculations of Ship Motions and Midship Bending Moments in Regular Waves	（造研提出）
〃 5-27	Walden ： 大西洋における波の統計資料	（九大・福田委員提出）
SR 90-6-28	Figures of Midship Bending Moments in Regular Wave	（造研提出）
〃 6-29	超巨大船に働らく波浪曲げモーメントの長期分布	（九大・福田委員提出）
〃 6-30	剪断力・波浪曲げモーメント分布（その1． Cargo Boat）	（阪大提出）
〃 6-31	波浪中の船体に働らく横荷重について	（船研提出）
SR 90-7-32	第90研究部会41年度報告	（阪大・寺沢部会長提出）
7-33	海象・気象と船体構造との関連に関する調査研究 昭和41年度報告書	（阪大提出）
〃 7-34	超巨大船に働らく波浪曲げモーメントの長期分布	（船研提出）
7-35-a	E.G.U.Band ： 波浪曲げモーメントの長期分布推定のための実船計測の解析	（海技大・真能委員提出）
〃 7-35-b	同 上 図表	（ 〃 ）

付　録　2

Results of Calculation of Ship Motions and Midship Bending Moments in Regular Waves

RESULTS OF CALCULATION OF SHIP MOTIONS AND MIDSHIP BENDING MOMENTS IN REGULAR WAVES

Systematic calculation of response operators of ship motions and vertical wave bending moment at midship in regular head waves were conducted under SR90. The purpose of this research is to obtain the statistical values of the wave loads, which are considered as a standard to examine the longitudinal strength of a ship, predicting the long term and short term distributions of the wave bending moment. This report shows the theoretical valves calculated by the linear strip method for 14 ship forms.

Ship Forms and Weight Distributions

Series 60 models were selected as original ship forms.

In order to investigate the variation of response operators with the block coefficient and the length-breadth ratio, the calculations were made for the following 14 ship forms, listed on table 1.

TYPE	CARGO SHIP			TANKER		
L/B	6.0	7.0	8.0	5.0	6.0	7.0
C_B	0.55	0.55	0.55	-	0.75	-
	0.65	0.65	0.65	0.80	0.80	0.80
	0.75	0.75	0.75	-	0.85	-

Table 1. Ship Forms

Weight distributions were assumed as shown in Table 2, analyzing about hundred data of actual ships built in recent years.

Items of Calculation

The response operators (amplitudes and phase angles leading the wave at midship) of

a) Heaving motion

b) Pitching motion

c) Relative bow motion at fore perpendicular

d) Relative stern motion at after perpendicular

e) Vertical wave bending moment at midship

were calculated for the following cases of ship speed and wave length in regular head waves.

Ship speed :

for cargo ship ; Fn = 0 to 0.30 (0.05 interval)

for tanker ; Fn = 0 to 0.20 (0.05 interval)

Wave length :

square root of L/λ = 0.40 - 0.90 (0.10 interval)

square root of L/λ = 0.90 - 1.20 (0.05 interval)

square root of L/λ = 1.20 - 2.00 (0.10 interval)

Method of Calculation

Numerical calculations were carried out by the computer IBM 7040 belonging to Nagasaki Shipyard & Engine Works, Mitsubishi Heavy Industries Ltd. The method of calculation is based upon the linear strip theory presented by Fukuda[1] who developed Watanabe's[2] theory. The theory takes into account the effects of ship speed and orbital motion of waves on ship motion.

The added mass and damping coefficients were evaluated by Tasai's[3] method. These coefficients were calculated for a wide range of parameters and were stored in computing program as constants[4], so that the time required for the calculation was not so much.

Nomenclatures

B : Breadth of ship

C_B : Block coefficient

F_N : Froude number

L : Length between perpendiculars

M_{VA} : Amplitude of vertical wave bending moment at midship

M_{SW} : Still water bending moment at midship (hog.: positive)

W : Weight of ship

W_A : Weight of afterbody

W_F : Weight of forebody

h_A : Wave amplitude

l_A : Distance from midship to center of gravity of afterbody

l_F : Distance from midship to center of gravity of forebody

xG : Distance from midship to center of gravity of ship

Z_{oGA} : Amplitude of heave at center of gravity of ship

Z_{rFPA} : Amplitude of vertical bow motion relative to wave surface at fore perpendicular

K : Longitudinal gyradius of ship

K_A : Longitudinal gyradius of afterbody

K_F : Longitudinal gyradius of forebody

λ : Wave length

ρ : Density of sea water

θ_A : Amplitude of pitch

θ_{WA} : Max. wave slope

Reference

(1) J. Fukuda : "On the midship bending moment of a ship in regular waves" Journal of the Society of Naval Architects of Japan. No.111 (1961) and No.111 (1962)

(2) Y. Watanabe : "On the theory of heave and pitch of a ship" Technology Reports of the Faculty of Engineering, Kuyshu Univ. Vol. 31 No.1 (1958)

(3) F. Tasai : "On the damping force and added mass of ships heaving and pitching" Journal of the Society of Naval Architects of Japan. No.105 (1959)

(4) H. Fujii & Y. Ogawara : "Calculation of heaving and pitching motions of a ship by the strip method" Mitsubishi Technical Bulletin. No.34 (1966)

		CARGO SHIP			TANKER		
BLOCK COEFFICIENT	C_B	0.55	0.65	0.75	0.75	0.80	0.85
LONGITUDINAL GYRADIUS	K/L	0.24	0.24	0.24	0.23	0.23	0.23
AFTERBODY C.G. FROM MIDSHIP	ℓ_A/L	-0.21	-0.21	-0.21	-0.18	-0.18	-0.18
FOREBODY C.G. FROM MIDSHIP	ℓ_F/L	0.21	0.21	0.21	0.22	0.22	0.22
AFTERBODY WEIGHT	W_A/W	0.5360	0.5120	0.4640	0.5125	0.4874	0.4790
FOREBODY WEIGHT	W_F/W	0.4640	0.4880	0.5360	0.4875	0.5126	0.5210
AFTERBODY GYRADIUS	K_A/L	0.1637	0.1676	0.1761	0.1735	0.1765	0.1794
FOREBODY GYRADIUS	K_F/L	0.1761	0.1717	0.1637	0.1517	0.1480	0.1466
CENTER OF GRAVITY FROM MIDSHIP	X_G/L	-0.0150	-0.0050	0.0154	0.0150	0.0251	0.0285
STILL WATER HOGGING MOMENT	M_{SW}/W_L	0.0216	0.0152	0.0061	0.0009	-0.0042	-0.0087

Table 2 WEIGHT DISTRIBUTIONS

HEAVE (sec)

TYPE	CARGO			TANKER			
C_B \ L/B	6.0	7.0	8.0	C_B \ L/B	5.0	6.0	7.0
0.55	7.57	7.01	6.58	0.75	-	10.04	-
0.65	7.91	7.32	6.85	0.80	11.13	10.15	9.40
0.75	8.17	7.56	7.08	0.85	-	10.38	-

PITCH (sec)

TYPE	CARGO			TANKER			
C_B \ L/B	6.0	7.0	8.0	C_B \ L/B	5.0	6.0	7.0
0.55	7.36	6.83	6.58	0.75	-	9.04	-
0.65	7.50	6.95	6.85	0.80	9.95	9.08	8.38
0.75	7.52	6.96	7.08	0.85	-	9.40	-

TABLE 3 NATURAL PERIODS OF HEAVE AND PITCH

CARGO SHIP L/B=6.0 CB=0.55

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP (M) =	0.15000E 03	(CBPP) = 0.54692	(RHO) = 0.10451E 03
LWL (M) =	0.15127E 03	(CBWL) = 0.54231	
BREADTH (BO) (M) =	0.25000E 02	CMID = 0.97000	
DRAFT (TO) (M) =	0.10000E 02	LONG. RADIUS OF GYRATION (K/LPP) =	0.24000
MIDSHIP AREA (SO) (M2) =	0.24249E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =	0.27781E 10
DISPLACEMENT (TON) =	0.21022E 05		
VOLUME (M3) =	0.20509E 05	WATER PLANE	
MIDSHIP TO C.G. (M) =	-0.22499E 01	AREA (M2) =	0.25132E 04
		CENTER OF FLOATATION (M) =	-0.64599E 01
LPP/BO = 6.00000		MOMENT OF INERTIA ABOUT C.F. (M4) =	0.27326E 07
BO/TO = 2.50000		BML (M) =	0.13323E 03
TO/LPP = 0.06667			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.97542E 04	0.30725E 06	0.12673E 08	0.31499E 02	0.36044E 02	0.20999E 00	0.24029E 00
AFT	0.11267E 05	-0.35455E 06	0.14677E 08	-0.31466E 02	0.36092E 02	-0.20977E 00	0.24061E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.55550E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.03800	0.07200	0.00200	0.65972	0.70906	0.51053
-1.00000	0.07500	0.10100	0.00500	0.92822	0.64026	0.64667

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.81641E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.07500	0.10100	0.00500	0.92822	0.64026	0.64667
-0.90000	0.28000	1.00000	0.09200	0.35000	0.31871	3.18714
-0.80000	0.48000	1.00000	0.21000	0.60000	0.42437	4.24375
-0.70000	0.67000	1.00000	0.35500	0.83750	0.51396	5.13955
-0.60000	0.81500	1.00000	0.51000	1.01875	0.60699	6.06994
-0.50000	0.90500	1.00000	0.66000	1.13125	0.70740	7.07403
-0.40000	0.96000	1.00000	0.79000	1.20000	0.79823	7.98229
-0.30000	0.98500	1.00000	0.88900	1.23125	0.87546	8.75462
-0.20000	1.00000	1.00000	0.95500	1.25000	0.92635	9.26350
-0.10000	1.00000	1.00000	0.98800	1.25000	0.95836	9.58360
0.00000	1.00000	1.00000	1.00000	1.25000	0.97000	9.70000
0.10000	0.98000	1.00000	0.96000	1.22500	0.95020	9.50204
0.20000	0.93500	1.00000	0.88900	1.16875	0.92228	9.22278
0.30000	0.85200	1.00000	0.79100	1.06500	0.90055	9.00552
0.40000	0.73500	1.00000	0.67800	0.91875	0.89478	8.94776
0.50000	0.60100	1.00000	0.54000	0.75125	0.87155	8.71547
0.60000	0.48100	1.00000	0.41500	0.60125	0.83690	8.36902
0.70000	0.35500	1.00000	0.29000	0.44375	0.79239	7.92394
0.80000	0.21700	1.00000	0.17500	0.27125	0.78226	7.82258
0.90000	0.09000	1.00000	0.08000	0.11250	0.86222	8.62222
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=6.0 CB=0.65

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP	(M) = 0.15000E 03	(CBPP) = 0.64959	(RHO) = 0.10451E 03
LWL	(M) = 0.15127E 03	(CBWL) = 0.64412	
BREADTH (BO)	(M) = 0.25000E 02	CMID = 0.98200	
DRAFT (TO)	(M) = 0.10000E 02	LONG. RADIUS OF GYRATION (K/LPP) = 0.24000	
MIDSHIP AREA (SO)	(M2) = 0.24549E 03	LONG. MOMENT OF INERTIA (KG.S2.M) = 0.32997E 10	
DISPLACEMENT	(TON) = 0.24968E 05		
VOLUME	(M3) = 0.24359E 05	WATER PLANE	
MIDSHIP TO C.G.	(M) = -0.75000E 00	AREA	(M2) = 0.28004E 04
		CENTER OF FLOATATION	(M) = -0.40559E 01
LPP/BO = 6.00000		MOMENT OF INERTIA ABOUT C.F.	(M4) = 0.33642E 07
BO/TO = 2.50000		BML	(M) = 0.13810E 03
TO/LPP = 0.06667			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.12184E 05	0.38381E 06	0.15791E 08	0.31499E 02	0.35999E 02	0.20999E 00	0.23999E 00
AFT	0.12783E 05	-0.40254E 06	0.16581E 08	-0.31488E 02	0.36015E 02	-0.20992E 00	0.24010E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.50658E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.04200	0.07200	0.00200	0.72917	0.64947	0.46762
-1.00000	0.08400	0.10100	0.00500	1.03960	0.57874	0.58452

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.87024E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.08400	0.10100	0.00500	1.03960	0.57874	0.58452
-0.90000	0.33100	1.00000	0.12100	0.41375	0.35898	3.58979
-0.80000	0.57100	1.00000	0.30300	0.71375	0.52110	5.21096
-0.70000	0.75500	1.00000	0.49200	0.94375	0.63993	6.39926
-0.60000	0.87500	1.00000	0.66200	1.09375	0.74295	7.42953
-0.50000	0.94900	1.00000	0.79700	1.18625	0.82471	8.24714
-0.40000	0.98400	1.00000	0.89800	1.23000	0.89617	8.96175
-0.30000	0.99800	1.00000	0.95800	1.24750	0.94264	9.42641
-0.20000	1.00000	1.00000	0.98700	1.25000	0.96923	9.69234
-0.10000	1.00000	1.00000	0.99800	1.25000	0.98004	9.80036
0.00000	1.00000	1.00000	1.00000	1.25000	0.98200	9.82000
0.10000	1.00000	1.00000	0.99900	1.25000	0.98102	9.81018
0.20000	0.99700	1.00000	0.98700	1.24625	0.97215	9.72150
0.30000	0.97800	1.00000	0.95100	1.22250	0.95489	9.54890
0.40000	0.93000	1.00000	0.87900	1.16250	0.92815	9.28148
0.50000	0.84200	1.00000	0.76500	1.05250	0.89220	8.92197
0.60000	0.69400	1.00000	0.60900	0.86750	0.86173	8.61726
0.70000	0.50800	1.00000	0.43200	0.63500	0.83509	8.35087
0.80000	0.30800	1.00000	0.26100	0.38500	0.83215	8.32149
0.90000	0.13500	1.00000	0.11500	0.16875	0.83652	8.36519
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=6.0 CB=0.75

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP (M) =	0.15000E 03	(CBPP) = 0.75097	(RHO) = 0.10451E 03
LWL (M) =	0.15127E 03	(CBWL) = 0.74464	
BREADTH (BO) (M) =	0.25000E 02	CMID = 0.99000	
DRAFT (TO) (M) =	0.10000E 02	LONG. RADIUS OF GYRATION (K/LPP) =	0.24000
MIDSHIP AREA (SO) (M2) =	0.24749E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =	0.38146E 10
DISPLACEMENT (TON) =	0.28865E 05		
VOLUME (M3) =	0.28161E 05	WATER PLANE	
MIDSHIP TO C.G. (M) =	0.22499E 01	AREA (M2) =	0.31092E 04
		CENTER OF FLOATATION (M) =	-0.89166E 00
LPP/BO = 6.00000		MOMENT OF INERTIA ABOUT C.F. (M4) =	0.43071E 07
BO/TO = 2.50000		BML (M) =	0.15294E 03
TO/LPP = 0.06667			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.15471E 05	0.48735E 06	0.20134E 08	0.31499E 02	0.36074E 02	0.20999E 00	0.24049E 00
AFT	0.13393E 05	-0.42241E 06	0.17420E 08	-0.31538E 02	0.36064E 02	-0.21025E 00	0.24043E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.39942E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.05800	0.07200	0.00200	1.00694	0.47414	0.34138
-1.00000	0.11500	0.10100	0.00600	1.42327	0.51141	0.51652

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.90623E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.11500	0.10100	0.00600	1.42327	0.51141	0.51652
-0.90000	0.42700	1.00000	0.17200	0.53375	0.39878	3.98782
-0.80000	0.66000	1.00000	0.39100	0.82500	0.58650	5.86500
-0.70000	0.81700	1.00000	0.59400	1.02125	0.71978	7.19780
-0.60000	0.92100	1.00000	0.76000	1.15125	0.81694	8.16938
-0.50000	0.97500	1.00000	0.88000	1.21875	0.89354	8.93538
-0.40000	0.99600	1.00000	0.95300	1.24500	0.94726	9.47259
-0.30000	1.00000	1.00000	0.98700	1.25000	0.97713	9.77130
-0.20000	1.00000	1.00000	0.99800	1.25000	0.98802	9.88020
-0.10000	1.00000	1.00000	1.00000	1.25000	0.99000	9.90000
-0.00000	1.00000	1.00000	1.00000	1.25000	0.99000	9.90000
0.10000	1.00000	1.00000	1.00000	1.25000	0.99000	9.90000
0.20000	1.00000	1.00000	1.00000	1.25000	0.99000	9.90000
0.30000	1.00000	1.00000	1.00000	1.25000	0.99000	9.90000
0.40000	1.00000	1.00000	0.99500	1.25000	0.98505	9.85050
0.50000	0.99000	1.00000	0.96900	1.23750	0.96900	9.69000
0.60000	0.94300	1.00000	0.88700	1.17875	0.93121	9.31209
0.70000	0.82400	1.00000	0.75400	1.03000	0.90590	9.05898
0.80000	0.60800	1.00000	0.53500	0.76000	0.87113	8.71135
0.90000	0.30400	1.00000	0.26100	0.38000	0.84997	8.49967
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=7.0 CB=0.55

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP	(M) = 0.15000E 03	(CBPP) = 0.54692	(RHO) = 0.10451E 03
LWL	(M) = 0.15127E 03	(CBWL) = 0.54231	
BREADTH (BO)	(M) = 0.21428E 02	CMID = 0.97000	
DRAFT (TO)	(M) = 0.85714E 01	LONG. RADIUS OF GYRATION (K/LPP) = 0.24000	
MIDSHIP AREA (SO)	(M2) = 0.17816E 03	LONG. MOMENT OF INERTIA (KG.S2.M) = 0.20411E 10	
DISPLACEMENT	(TON) = 0.15444E 05		
VOLUME	(M3) = 0.15068E 05	WATER PLANE	
MIDSHIP TO C.G.	(M) = -0.22499E 01	AREA	(M2) = 0.21542E 04
		CENTER OF FLOATATION	(M) = -0.64599E 01
LPP/BO = 7.00000		MOMENT OF INERTIA ABOUT C.F.	(M4) = 0.23423E 07
BO/TO = 2.50000		BML	(M) = 0.15544E 03
TO/LPP = 0.05714			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.71663E 04	0.22574E 06	0.93108E 07	0.31499E 02	0.36044E 02	0.20999E 00	0.24029E 00
AFT	0.82783E 04	-0.26049E 06	0.10783E 08	-0.31466E 02	0.36092E 02	-0.20977E 00	0.24061E 00

SECTION (O DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.47614E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.03800	0.07200	0.00200	0.65972	0.70906	0.43759
-1.00000	0.07500	0.10100	0.00500	0.92822	0.64026	0.55429

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.69978E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.07500	0.10100	0.00500	0.92822	0.64026	0.55429
-0.90000	0.28000	1.00000	0.09200	0.35000	0.31871	2.73184
-0.80000	0.48000	1.00000	0.21000	0.60000	0.42437	3.63750
-0.70000	0.67000	1.00000	0.35500	0.83750	0.51396	4.40533
-0.60000	0.81500	1.00000	0.51000	1.01875	0.60699	5.20280
-0.50000	0.90500	1.00000	0.66000	1.13125	0.70740	6.06346
-0.40000	0.96000	1.00000	0.79000	1.20000	0.79823	6.84196
-0.30000	0.98500	1.00000	0.88900	1.23125	0.87546	7.50396
-0.20000	1.00000	1.00000	0.95500	1.25000	0.92635	7.94014
-0.10000	1.00000	1.00000	0.98800	1.25000	0.95836	8.21451
0.00000	1.00000	1.00000	1.00000	1.25000	0.97000	8.31429
0.10000	0.98000	1.00000	0.96000	1.22500	0.95020	8.14461
0.20000	0.93500	1.00000	0.88900	1.16875	0.92228	7.90524
0.30000	0.85200	1.00000	0.79100	1.06500	0.90055	7.71901
0.40000	0.73500	1.00000	0.67800	0.91875	0.89478	7.66950
0.50000	0.60100	1.00000	0.54000	0.75125	0.87155	7.47041
0.60000	0.48100	1.00000	0.41500	0.60125	0.83690	7.17345
0.70000	0.35500	1.00000	0.29000	0.44375	0.79239	6.79195
0.80000	0.21700	1.00000	0.17500	0.27125	0.78226	6.70507
0.90000	0.09000	1.00000	0.08000	0.11250	0.86222	7.39048
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=7.0 CB=0.65

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP	(M) = 0.15000E 03	(CBPP) = 0.64959	(RHO) = 0.10451E 03
LWL	(M) = 0.15127E 03	(CBWL) = 0.64412	
BREADTH (BO)	(M) = 0.21428E 02	CMID = 0.98200	
DRAFT (TO)	(M) = 0.85714E 01	LONG. RADIUS OF GYRATION (K/LPP) = 0.24000	
MIDSHIP AREA (SO)	(M2) = 0.18036E 03	LONG. MOMENT OF INERTIA (KG.S2.M) = 0.24242E 10	
DISPLACEMENT	(TON) = 0.18344E 05		
VOLUME	(M3) = 0.17896E 05	WATER PLANE	
MIDSHIP TO C.G.	(M) = -0.75000E 00	AREA	(M2) = 0.24003E 04
		CENTER OF FLOATATION	(M) = -0.40559E 01
LPP/BO = 7.00000		MOMENT OF INERTIA ABOUT C.F.	(M4) = 0.28836E 07
BO/TO = 2.50000		BML	(M) = 0.16112E 03
TO/LPP = 0.05714			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.89519E 04	0.28198E 06	0.11601E 08	0.31499E 02	0.35999E 02	0.20999E 00	0.23999E 00
AFT	0.93922E 04	-0.29574E 06	0.12182E 08	-0.31488E 02	0.36015E 02	-0.20992E 00	0.24010E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.43421E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.04200	0.07200	0.00200	0.72917	0.64947	0.40082
-1.00000	0.08400	0.10100	0.00500	1.03960	0.57874	0.50102

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.74592E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.08400	0.10100	0.00500	1.03960	0.57874	0.50102
-0.90000	0.33100	1.00000	0.12100	0.41375	0.35898	3.07696
-0.80000	0.57100	1.00000	0.30300	0.71375	0.52110	4.46654
-0.70000	0.75500	1.00000	0.49200	0.94375	0.63993	5.48508
-0.60000	0.87500	1.00000	0.66200	1.09375	0.74295	6.36817
-0.50000	0.94900	1.00000	0.79700	1.18625	0.82471	7.06898
-0.40000	0.98400	1.00000	0.89800	1.23000	0.89617	7.68150
-0.30000	0.99800	1.00000	0.95800	1.24750	0.94264	8.07978
-0.20000	1.00000	1.00000	0.98700	1.25000	0.96923	8.30772
-0.10000	1.00000	1.00000	0.99800	1.25000	0.98004	8.40031
0.00000	1.00000	1.00000	1.00000	1.25000	0.98200	8.41714
0.10000	1.00000	1.00000	0.99900	1.25000	0.98102	8.40873
0.20000	0.99700	1.00000	0.98700	1.24625	0.97215	8.33272
0.30000	0.97800	1.00000	0.95100	1.22250	0.95489	8.18477
0.40000	0.93000	1.00000	0.87900	1.16250	0.92815	7.95556
0.50000	0.84200	1.00000	0.76500	1.05250	0.89220	7.64740
0.60000	0.69400	1.00000	0.60900	0.86750	0.86173	7.38622
0.70000	0.50800	1.00000	0.43200	0.63500	0.83509	7.15789
0.80000	0.30800	1.00000	0.26100	0.38500	0.83215	7.13271
0.90000	0.13500	1.00000	0.11500	0.16875	0.83652	7.17016
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=7.0 CB=0.75

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP (M) =	0.15000E 03	(CBPP) = 0.75097	(RHO) = 0.10451E 03
LWL (M) =	0.15127E 03	(CBWL) = 0.74464	
BREADTH (BO) (M) =	0.21428E 02	CMID = 0.99C00	
DRAFT (TO) (M) =	0.85714E 01	LONG. RADIUS OF GYRATION (K/LPP) =	0.24000
MIDSHIP AREA (SO) (M2) =	0.18183E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =	0.28026E 10
DISPLACEMENT (TON) =	0.21206E 05		
VOLUME (M3) =	0.20689E 05	WATER PLANE	
MIDSHIP TO C.G. (M) =	0.22499E 01	AREA (M2) =	0.26650E 04
		CENTER OF FLOATATION (M) =	-0.89166E 00
LPP/BO = 7.00000		MOMENT OF INERTIA ABOUT C.F. (M4) =	0.36918E 07
BO/TO = 2.50000		BML (M) =	0.17843E 03
TO/LPP = 0.05714			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.11366E 05	0.35805E 06	0.14793E 08	0.31499E 02	0.36074E 02	0.20999E 00	0.24049E 00
AFT	0.98400E 04	-0.31034E 06	0.12798E 08	-0.31538E 02	0.36064E 02	-0.21025E 00	0.24043E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.34236E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.0C000	0.00000	0.00000	0.00C00	0.00000	0.00000
-1.00800	0.05800	0.07200	0.00200	1.00694	0.47414	0.29261
-1.00000	0.11500	0.10100	0.00600	1.42327	0.51141	0.44273

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.77676E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.11500	0.10100	0.00600	1.42327	0.51141	0.44273
-0.90000	0.42700	1.00000	0.17200	0.53375	0.39878	3.41813
-0.80000	0.66000	1.00000	0.39100	0.82500	0.58650	5.02714
-0.70000	0.81700	1.00000	0.59400	1.02125	0.71978	6.16954
-0.60000	0.92100	1.00000	0.76000	1.15125	0.81694	7.00233
-0.50000	0.97500	1.00000	0.88000	1.21875	0.89354	7.65890
-0.40000	0.99600	1.00000	0.95300	1.24500	0.94726	8.11936
-0.30000	1.0C000	1.00000	0.98700	1.25000	0.97713	8.37540
-0.20000	1.0C000	1.00000	0.99800	1.25000	0.98802	8.46874
-0.10000	1.0C000	1.00000	1.00000	1.25000	0.99C00	8.48571
-0.00000	1.0C000	1.00000	1.00000	1.25000	0.99C00	8.48571
0.10000	1.00000	1.00000	1.00000	1.25000	0.99C00	8.48571
0.20000	1.0C000	1.00000	1.00000	1.25000	0.99C00	8.48571
0.30000	1.0C000	1.00000	1.00000	1.25000	0.99000	8.48571
0.40000	1.0C000	1.00000	0.99500	1.25000	0.98505	8.44329
0.50000	0.99C00	1.00000	0.96900	1.23750	0.96900	8.30571
0.60000	0.94300	1.00000	0.88700	1.17875	0.93121	7.98179
0.70000	0.82400	1.00000	0.75400	1.03000	0.90590	7.76484
0.80000	0.60800	1.00000	0.53500	0.76000	0.87113	7.46687
0.90000	0.30400	1.00000	0.26100	0.38000	0.84997	7.28543
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=8.0 CB=0.55

LENGTH
LPP (M) = 0.15000E 03
LWL (M) = 0.15127E 03
BREADTH (BO) (M) = 0.18750E 02
DRAFT (TO) (M) = 0.75000E 01
MIDSHIP AREA (SO) (M2) = 0.13640E 03
DISPLACEMENT (TON) = 0.11824E 05
VOLUME (M3) = 0.11536E 05
MIDSHIP TO C G. (M) = -0.22499E 01

LPP/BO = 8.00000
BO/TO = 2.50000
TO/LPP = 0.05000

BLOCK COEFFICIENT
(CBPP) = 0.54692
(CBWL) = 0.54231
CMID = 0.97000
LONG. RADIUS OF GYRATION (K/LPP) = 0.24000
LONG. MOMENT OF INERTIA (KG.S2.M) = 0.15627E 10

FLUID DENSITY (KG.S2.M-4)
(RHO) = 0.10451E 03

WATER PLANE
AREA (M2) = 0.18849E 04
CENTER OF FLOATATION (M) = -0.64599E 01
MOMENT OF INERTIA ABOUT C.F. (M4) = 0.20495E 07
BML (M) = 0.17765E 03

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.54867E 04	0.17283E 06	0.71286E 07	0.31499E 02	0.36044E 02	0.20999E 00	0.24029E 00
AFT	0.63381E 04	-0.19943E 06	0.82563E 07	-0.31466E 02	0.36092E 02	-0.20977E 00	0.24061E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)
AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.41662E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-.00800	0.03800	0.07200	0.00200	0.65972	0.70906	0.38289
-.00000	0.07500	0.10100	0.00500	0.92822	0.64026	0.48500

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.61231E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-.00000	0.07500	0.10100	0.00500	0.92822	0.64026	0.48500
-.90000	0.28000	1.00000	0.09200	0.35000	0.31871	2.39036
-.80000	0.48000	1.00000	0.21000	0.60000	0.42437	3.18281
-.70000	0.67000	1.00000	0.35500	0.83750	0.51396	3.85466
-.60000	0.81500	1.00000	0.51000	1.01875	0.60699	4.55245
-.50000	0.90500	1.00000	0.66000	1.13125	0.70740	5.30552
-.40000	0.96000	1.00000	0.79000	1.20000	0.79823	5.98672
-.30000	0.98500	1.00000	0.88900	1.23125	0.87546	6.56596
-.20000	1.00000	1.00000	0.95500	1.25000	0.92635	6.94762
-.10000	1.00000	1.00000	0.98800	1.25000	0.95836	7.18770
.00000	1.00000	1.00000	1.00000	1.25000	0.97000	7.27500
.10000	0.98000	1.00000	0.96000	1.22500	0.95020	7.12653
.20000	0.93500	1.00000	0.88900	1.16875	0.92228	6.91709
.30000	0.85200	1.00000	0.79100	1.06500	0.90055	6.75414
.40000	0.73500	1.00000	0.67800	0.91875	0.89478	6.71082
.50000	0.60100	1.00000	0.54000	0.75125	0.87155	6.53661
.60000	0.48100	1.00000	0.41500	0.60125	0.83690	6.27677
.70000	0.35500	1.00000	0.29000	0.44375	0.79239	5.94296
.80000	0.21700	1.00000	0.17500	0.27125	0.78226	5.86694
.90000	0.09000	1.00000	0.08000	0.11250	0.86222	6.46667
.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=8.0 CB=0.65

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP (M) =	0.15000E 03	(CBPP) = 0.64959	(RHO) = 0.10451E 03
LWL (M) =	0.15127E 03	(CBWL) = 0.64412	
BREADTH (BO) (M) =	0.18750E 02	CMID = 0.98200	
DRAFT (TO) (M) =	0.75000E 01	LONG. RADIUS OF GYRATION (K/LPP) =	0.24000
MIDSHIP AREA (SO) (M2) =	0.13809E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =	0.18560E 10
DISPLACEMENT (TON) =	0.14044E 05		
VOLUME (M3) =	0.13702E 05	WATER PLANE	
MIDSHIP TO C.G. (M) =	-0.75000E 00	AREA (M2) =	0.21003E 04
		CENTER OF FLOATATION (M) =	-0.40559E 01
LPP/BO = 8.00000		MOMENT OF INERTIA ABOUT C.F. (M4) =	0.25231E 07
BO/TO = 2.50000		BML (M) =	0.18414E 03
TO/LPP = 0.05000			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.68538E 04	0.21589E 06	0.88826E 07	0.31499E 02	0.35999E 02	0.20999E 00	0.23999E 00
AFT	0.71909E 04	-0.22643E 06	0.93273E 07	-0.31488E 02	0.36015E 02	-0.20992E 00	0.24010E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.37994E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
- .01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
- .00800	0.04200	0.07200	0.00200	0.72917	0.64947	0.35071
- .00000	0.08400	0.10100	0.00500	1.03960	0.57874	0.43839

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.65268E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
- .00000	0.08400	0.10100	0.00500	1.03960	0.57874	0.43839
- .90000	0.33100	1.00000	0.12100	0.41375	0.35898	2.69234
- .80000	0.57100	1.00000	0.30300	0.71375	0.52110	3.90822
- .70000	0.75500	1.00000	0.49200	0.94375	0.63993	4.79944
- .60000	0.87500	1.00000	0.66200	1.09375	0.74295	5.57215
- .50000	0.94900	1.00000	0.79700	1.18625	0.82471	6.18536
- .40000	0.98400	1.00000	0.89800	1.23000	0.89617	6.72131
- .30000	0.99800	1.00000	0.95800	1.24750	0.94264	7.06981
- .20000	1.00000	1.00000	0.98700	1.25000	0.96923	7.26925
- .10000	1.00000	1.00000	0.99800	1.25000	0.98004	7.35027
.00000	1.00000	1.00000	1.00000	1.25000	0.98200	7.36500
.10000	1.00000	1.00000	0.99900	1.25000	0.98102	7.35763
.20000	0.99700	1.00000	0.98700	1.24625	0.97215	7.29113
.30000	0.97800	1.00000	0.95100	1.22250	0.95489	7.16167
.40000	0.93000	1.00000	0.87900	1.16250	0.92815	6.96111
.50000	0.84200	1.00000	0.76500	1.05250	0.89220	6.69148
.60000	0.69400	1.00000	0.60900	0.86750	0.86173	6.46295
.70000	0.50800	1.00000	0.43200	0.63500	0.83509	6.26315
.80000	0.30800	1.00000	0.26100	0.38500	0.83215	6.24112
.90000	0.13500	1.00000	0.11500	0.16875	0.83652	6.27389
.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=8.0 CB=0.75

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP (M) =	0.15000E 03	(CBPP) = 0.75097	(RHO) = 0.10451E 03
LWL (M) =	0.15127E 03	(CBWL) = 0.74464	
BREADTH (BO) (M) =	0.18750E 02	CMID = 0.99000	
DRAFT (TO) (M) =	0.75000E 01	LONG. RADIUS OF GYRATION (K/LPP) =	0.24000
MIDSHIP AREA (SO) (M2) =	0.13921E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =	0.21457E 10
DISPLACEMENT (TON) =	0.16236E 05		
VOLUME (M3) =	0.15840E 05	WATER PLANE	
MIDSHIP TO C.G. (M) =	0.22499E 01	AREA (M2) =	0.23319E 04
		CENTER OF FLOATATION (M) =	-0.89166E 00
LPP/BO = 8.00000		MOMENT OF INERTIA ABOUT C.F. (M4) =	0.32303E 07
BO/TO = 2.50000		BML (M) =	0.20392E 03
TO/LPP = 0.05000			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.87028E 04	0.27413E 06	0.11325E 08	0.31499E 02	0.36074E 02	0.20999E 00	0.24049E 00
AFT	0.75337E 04	-0.23760E 06	0.97989E 07	-0.31538E 02	0.36064E 02	-0.21025E 00	0.24043E 00

SECTION (O DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.29956E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
- .01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
- .00800	0.05800	0.07200	0.00200	1.00694	0.47414	0.25603
- .00000	0.11500	0.10100	0.00600	1.42327	0.51141	0.38739

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.67967E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
- .00000	0.11500	0.10100	0.00600	1.42327	0.51141	0.38739
- .90000	0.42700	1.00000	0.17200	0.53375	0.39878	2.99087
- .80000	0.66000	1.00000	0.39100	0.82500	0.58650	4.39875
- .70000	0.81700	1.00000	0.59400	1.02125	0.71978	5.39835
- .60000	0.92100	1.00000	0.76000	1.15125	0.81694	6.12704
- .50000	0.97500	1.00000	0.88000	1.21875	0.89354	6.70154
- .40000	0.99600	1.00000	0.95300	1.24500	0.94726	7.10444
- .30000	1.00000	1.00000	0.98700	1.25000	0.97713	7.32847
- .20000	1.00000	1.00000	0.99800	1.25000	0.98802	7.41015
- .10000	1.00000	1.00000	1.00000	1.25000	0.99000	7.42500
- .00000	1.00000	1.00000	1.00000	1.25000	0.99000	7.42500
.10000	1.00000	1.00000	1.00000	1.25000	0.99000	7.42500
.20000	1.00000	1.00000	1.00000	1.25000	0.99000	7.42500
.30000	1.00000	1.00000	1.00000	1.25000	0.99000	7.42500
.40000	1.00000	1.00000	0.99500	1.25000	0.98505	7.38787
.50000	0.99000	1.00000	0.96900	1.23750	0.96900	7.26750
.60000	0.94300	1.00000	0.88700	1.17875	0.93121	6.98407
.70000	0.82400	1.00000	0.75400	1.03000	0.90590	6.79424
.80000	0.60800	1.00000	0.53500	0.76000	0.87113	6.53351
.90000	0.30400	1.00000	0.26100	0.38000	0.84997	6.37475
.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

TANKER L/B=5.0 CB=0.80

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP (M) =	0.25000E 03	(CBPP) = 0.80213	(RHO) = 0.10451E 03
LWL (M) =	0.25212E 03	(CBWL) = 0.79537	
BREADTH (BO) (M) =	0.50000E 02	CMID = 0.99400	
DRAFT (TO) (M) =	0.16666E 02	LONG. RADIUS OF GYRATION (K/LPP) =	0.23000
MIDSHIP AREA (SO) (M2) =	0.82833E 03	LONG. MOMENT OF INERTIA / (KG.S2.M) =	0.57748E 11
DISPLACEMENT (TON) =	0.17128E 06		
VOLUME (M3) =	0.16711E 06	WATER PLANE	
MIDSHIP TO C.G. (M) =	0.62749E 01	AREA (M2) =	0.10932E 05
		CENTER OF FLOATATION (M) =	0.11104E 01
LPP/BO = 5.00000		MOMENT OF INERTIA ABOUT C.F. (M4) =	0.45683E 08
BO/TO = 3.00000		BML (M) =	0.27337E 03
TO/LPP = 0.06667			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.87801E 05	0.48290E 07	0.33832E 09	0.54999E 02	0.62074E 02	0.21999E 00	0.24829E 00
AFT	0.83484E 05	-0.37542E 07	0.23473E 09	-0.44969E 02	0.53025E 02	-0.17987E 00	0.21210E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.89736E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
- .01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
- .00800	0.08000	0.07200	0.00400	1.66667	0.69028	0.82833
- .00000	0.16000	0.10100	0.01000	2.37624	0.61510	1.03542

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.15296E 02)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
- .00000	0.16000	0.10100	0.01000	2.37624	0.61510	1.03542
- .90000	0.50300	1.00000	0.21200	0.75450	0.41894	6.98237
- .80000	0.71200	1.00000	0.44900	1.06800	0.62683	10.44724
- .70000	0.85100	1.00000	0.64900	1.27650	0.75806	12.63427
- .60000	0.94100	1.00000	0.80600	1.41150	0.85140	14.18994
- .50000	0.98800	1.00000	0.91500	1.48200	0.92056	15.34261
- .40000	1.00000	1.00000	0.97400	1.50000	0.96816	16.13593
- .30000	1.00000	1.00000	0.99500	1.50000	0.98903	16.48383
- .20000	1.00000	1.00000	0.99900	1.50000	0.99301	16.55010
- .10000	1.00000	1.00000	1.00000	1.50000	0.99400	16.56667
.00000	1.00000	1.00000	1.00000	1.50000	0.99400	16.56667
.10000	1.00000	1.00000	1.00000	1.50000	0.99400	16.56667
.20000	1.00000	1.00000	1.00000	1.50000	0.99400	16.56667
.30000	1.00000	1.00000	1.00000	1.50000	0.99400	16.56667
.40000	1.00000	1.00000	1.00000	1.50000	0.99400	16.56667
.50000	1.00000	1.00000	0.99700	1.50000	0.99102	16.51697
.60000	0.99900	1.00000	0.97500	1.49850	0.97012	16.16867
.70000	0.96400	1.00000	0.90100	1.44600	0.92904	15.48399
.80000	0.83000	1.00000	0.74600	1.24500	0.89340	14.89004
.90000	0.52200	1.00000	0.45800	0.78300	0.87213	14.53550
.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

TANKER L/B=6.0 CB=0.75

LENGTH
LPP (M) = 0.25000E 03
LWL (M) = 0.25212E 03
BREADTH (BO) (M) = 0.41666E 02
DRAFT (TO) (M) = 0.13888E 02
MIDSHIP AREA (SO) (M2) = 0.57291E 03
DISPLACEMENT (TON) = 0.11136E 06
VOLUME (M3) = 0.10864E 06
MIDSHIP TO C.G. (M) = 0.37500E 01

LPP/BO = 6.00000
BO/TO = 3.00000
TO/LPP = 0.05556

BLOCK COEFFICIENT
(CBPP) = 0.75097
(CBWL) = 0.74464
CMID = 0.99000
LONG. RADIUS OF GYRATION (K/LPP) = 0.23000
LONG. MOMENT OF INERTIA (KG.S2.M) = 0.37545E 11

FLUID DENSITY (KG.S2.M-4)
(RHO) = 0.10451E 03

WATER PLANE
AREA (M2) = 0.86368E 04
CENTER OF FLOATATION (M) = -0.14861E 01
MOMENT OF INERTIA ABOUT C.F. (M4) = 0.33234E 08
BML (M) = 0.30589E 03

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.54289E 05	0.29858E 07	0.20952E 09	0.54999E 02	0.62124E 02	0.21999E 00	0.24849E 00
AFT	0.57073E 05	-0.25682E 07	0.16022E 09	-0.44999E 02	0.52985E 02	-0.17999E 00	0.21194E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.55475E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.05800	0.07200	0.00200	1.20833	0.47414	0.47414
-1.00000	0.11500	0.10100	0.00600	1.70792	0.51141	0.71739

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.12586E 02)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.11500	0.10100	0.00600	1.70792	0.51141	0.71739
-0.90000	0.42700	1.00000	0.17200	0.64050	0.39878	5.53864
-0.80000	0.66000	1.00000	0.39100	0.99000	0.58650	8.14583
-0.70000	0.81700	1.00000	0.59400	1.22550	0.71978	9.99694
-0.60000	0.92100	1.00000	0.76000	1.38150	0.81694	11.34636
-0.50000	0.97500	1.00000	0.88000	1.46250	0.89354	12.41026
-0.40000	0.99600	1.00000	0.95300	1.49400	0.94726	13.15638
-0.30000	1.00000	1.00000	0.98700	1.50000	0.97713	13.57125
-0.20000	1.00000	1.00000	0.99800	1.50000	0.98802	13.72250
-0.10000	1.00000	1.00000	1.00000	1.50000	0.99000	13.75000
0.00000	1.00000	1.00000	1.00000	1.50000	0.99000	13.75000
0.10000	1.00000	1.00000	1.00000	1.50000	0.99000	13.75000
0.20000	1.00000	1.00000	1.00000	1.50000	0.99000	13.75000
0.30000	1.00000	1.00000	1.00000	1.50000	0.99000	13.75000
0.40000	1.00000	1.00000	0.99500	1.50000	0.98505	13.68125
0.50000	0.99000	1.00000	0.96900	1.48500	0.96900	13.45833
0.60000	0.94300	1.00000	0.88700	1.41450	0.93121	12.93346
0.70000	0.82400	1.00000	0.75400	1.23600	0.90590	12.58192
0.80000	0.60800	1.00000	0.53500	0.91200	0.87113	12.09909
0.90000	0.30400	1.00000	0.26100	0.45600	0.84997	11.80510
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

TANKER L/B=6.0 CB=0.80 NORMAL BOW

LENGTH			BLOCK COEFFICIENT		FLUID DENSITY (KG.S2.M-4)
LPP	(M) =	0.25000E 03	(CBPP) =	0.80213	(RHO) = 0.10451E 03
LWL	(M) =	0.25212E 03	(CBWL) =	0.79537	
BREADTH (BO)	(M) =	0.41666E 02	CMID =	0.99400	
DRAFT (TO)	(M) =	0.13888E 02	LONG. RADIUS OF GYRATION (K/LPP) =		0.23000
MIDSHIP AREA (SO)	(M2) =	0.57523E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =		0.40102E 11
DISPLACEMENT	(TON) =	0.11894E 06			
VOLUME	(M3) =	0.11604E 06	WATER PLANE		
MIDSHIP TO C.G.	(M) =	0.62749E 01	AREA	(M2) =	0.91105E 04
			CENTER OF FLOATATION	(M) =	0.11104E 01
LPP/BO = 6.00000			MOMENT OF INERTIA ABOUT C.F.	(M4) =	0.38069E 08
BO/TO = 3.00000			BML	(M) =	0.32805E 03
TO/LPP = 0.05556					

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.60973E 05	0.33535E 07	0.23494E 09	0.54999E 02	0.62074E 02	0.21999E 00	0.24829E 00
AFT	0.57975E 05	-0.26071E 07	0.16300E 09	-0.44969E 02	0.53025E 02	-0.17987E 00	0.21210E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.74780E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.08000	0.07200	0.00400	1.66667	0.69028	0.69028
-1.00000	0.16000	0.10100	0.01000	2.37624	0.61510	0.86285

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.12747E 02)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.16000	0.10100	0.01000	2.37624	0.61510	0.86285
-0.90000	0.50300	1.00000	0.21200	0.75450	0.41894	5.81864
-0.80000	0.71200	1.00000	0.44900	1.06800	0.62683	8.70603
-0.70000	0.85100	1.00000	0.64900	1.27650	0.75806	10.52856
-0.60000	0.94100	1.00000	0.80600	1.41150	0.85140	11.82495
-0.50000	0.98800	1.00000	0.91500	1.48200	0.92056	12.78551
-0.40000	1.00000	1.00000	0.97400	1.50000	0.96816	13.44661
-0.30000	1.00000	1.00000	0.99500	1.50000	0.98903	13.73653
-0.20000	1.00000	1.00000	0.99900	1.50000	0.99301	13.79175
-0.10000	1.00000	1.00000	1.00000	1.50000	0.99400	13.80556
0.00000	1.00000	1.00000	1.00000	1.50000	0.99400	13.80556
0.10000	1.00000	1.00000	1.00000	1.50000	0.99400	13.80556
0.20000	1.00000	1.00000	1.00000	1.50000	0.99400	13.80556
0.30000	1.00000	1.00000	1.00000	1.50000	0.99400	13.80556
0.40000	1.00000	1.00000	1.00000	1.50000	0.99400	13.80556
0.50000	1.00000	1.00000	0.99700	1.50000	0.99102	13.76414
0.60000	0.99900	1.00000	0.97500	1.49850	0.97012	13.47389
0.70000	0.96400	1.00000	0.90100	1.44600	0.92904	12.90333
0.80000	0.83000	1.00000	0.74600	1.24500	0.89340	12.40837
0.90000	0.52200	1.00000	0.45800	0.78300	0.87213	12.11292
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

TANKER L/B=6.0 CB=0.85

LENGTH		BLOCK COEFFICIENT	FLUID DENSITY (KG.S2.M-4)
LPP (M) =	0.25000E 03	(CBPP) = 0.85530	(RHO) = 0.10451E 03
LWL (M) =	0.25212E 03	(CBWL) = 0.84809	
BREADTH (BO) (M) =	0.41666E 02	CMID = 0.99600	
DRAFT (TO) (M) =	0.13888E 02	LONG. RADIUS OF GYRATION (K/LPP) =	0.23000
MIDSHIP AREA (SO) (M2) =	0.57638E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =	0.42760E 11
DISPLACEMENT (TON) =	0.12683E 06		
VOLUME (M3) =	0.12374E 06	WATER PLANE	
MIDSHIP TO C.G. (M) =	0.71249E 01	AREA (M2) =	0.93701E 04
		CENTER OF FLOATATION (M) =	0.29499E 01
LPP/BO = 6.00000		MOMENT OF INERTIA ABOUT C.F. (M4) =	0.40547E 08
BO/TO = 3.00000		BML (M) =	0.32768E 03
TO/LPP = 0.05556			

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.66080E 05	0.36344E 07	0.25524E 09	0.54999E 02	0.62150E 02	0.21999E 00	0.24859E 00
AFT	0.60753E 05	-0.27307E 07	0.17053E 09	-0.44947E 02	0.52981E 02	-0.17979E 00	0.21192E 00

SECTION (0 DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.11053E 01)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.06900	0.07200	0.00500	1.43750	1.00242	1.00242
-1.00000	0.13700	0.10100	0.01300	2.03465	0.93575	1.31265

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.13213E 02)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.13700	0.10100	0.01300	2.03465	0.93575	1.31265
-0.90000	0.46800	1.00000	0.23200	0.70200	0.49374	6.85755
-0.80000	0.74400	1.00000	0.54300	1.11600	0.72692	10.09610
-0.70000	0.92300	1.00000	0.78400	1.38450	0.84601	11.75009
-0.60000	0.99200	1.00000	0.92800	1.48800	0.93174	12.94086
-0.50000	1.00000	1.00000	0.98900	1.50000	0.98504	13.68117
-0.40000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
-0.30000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
-0.20000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
-0.10000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.00000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.10000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.20000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.30000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.40000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.50000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.60000	1.00000	1.00000	1.00000	1.50000	0.99600	13.83333
0.70000	1.00000	1.00000	0.99700	1.50000	0.99301	13.79183
0.80000	0.95800	1.00000	0.92900	1.43700	0.96585	13.41458
0.90000	0.71200	1.00000	0.67500	1.06800	0.94424	13.11447
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

TANKER L/B=7.0 CB=0.80

LENGTH			BLOCK COEFFICIENT		FLUID DENSITY (KG.S2.M-4)
LPP	(M) =	0.25000E 03	(CBPP) =	0.80213	(RHO) = 0.10451E 03
LWL	(M) =	0.25212E 03	(CBWL) =	0.79537	
BREADTH (BO)	(M) =	0.35714E 02	CMID =	0.99400	
DRAFT (TO)	(M) =	0.11904E 02	LONG. RADIUS OF GYRATION (K/LPP) =		0.23000
MIDSHIP AREA (SO)	(M2) =	0.42261E 03	LONG. MOMENT OF INERTIA (KG.S2.M) =		0.29463E 11
DISPLACEMENT	(TON) =	0.87390E 05			
VOLUME	(M3) =	0.85260E 05	WATER PLANE		
MIDSHIP TO C.G.	(M) =	0.62749E 01	AREA	(M2) =	0.78090E 04
			CENTER OF FLOATATION	(M) =	0.11104E 01
LPP/BO = 7.00000			MOMENT OF INERTIA ABOUT C.F.	(M4) =	0.32631E 08
BO/TO = 3.00000			BML	(M) =	0.38272E 03
TO/LPP = 0.04762					

	WEIT	WEIT*XG	WEIT*K*K	XG	PK	XG/LPP	PK/LPP
FORE	0.44796E 05	0.24638E 07	0.17261E 09	0.54999E 02	0.62074E 02	0.21999E 00	0.24829E 00
AFT	0.42594E 05	-0.19154E 07	0.11976E 09	-0.44969E 02	0.53025E 02	-0.17987E 00	0.21210E 00

SECTION (O DENOTES THE VALUE AT MIDSHIP)

AFTER A.P. (MEAN DRAFT (DMA) (M) = 0.64097E 00)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.01700	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
-1.00800	0.08000	0.07200	0.00400	1.66667	0.69028	0.59167
-1.00000	0.16000	0.10100	0.01000	2.37624	0.61510	0.73958

BETWEEN P.P. (MEAN DRAFT (DM) (M) = 0.10926E 02)

2X/LPP	2YB/BO	T/TO	S/SO	ALPHA	BETA	D MEAN
-1.00000	0.16000	0.10100	0.01000	2.37624	0.61510	0.73958
-0.90000	0.50300	1.00000	0.21200	0.75450	0.41894	4.98741
-0.80000	0.71200	1.00000	0.44900	1.06800	0.62683	7.46231
-0.70000	0.85100	1.00000	0.64900	1.27650	0.75806	9.02448
-0.60000	0.94100	1.00000	0.80600	1.41150	0.85140	10.13567
-0.50000	0.98800	1.00000	0.91500	1.48200	0.92056	10.95901
-0.40000	1.00000	1.00000	0.97400	1.50000	0.96816	11.52567
-0.30000	1.00000	1.00000	0.99500	1.50000	0.98903	11.77417
-0.20000	1.00000	1.00000	0.99900	1.50000	0.99301	11.82150
-0.10000	1.00000	1.00000	1.00000	1.50000	0.99400	11.83333
0.00000	1.00000	1.00000	1.00000	1.50000	0.99400	11.83333
0.10000	1.00000	1.00000	1.00000	1.50000	0.99400	11.83333
0.20000	1.00000	1.00000	1.00000	1.50000	0.99400	11.83333
0.30000	1.00000	1.00000	1.00000	1.50000	0.99400	11.83333
0.40000	1.00000	1.00000	1.00000	1.50000	0.99400	11.83333
0.50000	1.00000	1.00000	0.99700	1.50000	0.99102	11.79783
0.60000	0.99900	1.00000	0.97500	1.49850	0.97012	11.54905
0.70000	0.96400	1.00000	0.90100	1.44600	0.92904	11.05999
0.80000	0.83000	1.00000	0.74600	1.24500	0.89340	10.63574
0.90000	0.52200	1.00000	0.45800	0.78300	0.87213	10.38250
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

CARGO SHIP L/B=6.0 CB=0.55 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oaA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{wA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.982	-1.19	1.009	87.70	88.90	0.128	8.84	0.091	-19.31	0.00020	-19.65
2	0.50	0.953	-2.07	1.003	86.12	88.19	0.308	12.73	0.213	-24.77	0.00098	-5.73
3	0.60	0.900	-3.20	0.983	83.86	87.06	0.623	17.13	0.418	-31.32	0.00245	-2.35
4	0.70	0.812	-4.48	0.942	80.76	85.23	1.098	22.00	0.714	-39.32	0.00468	-0.60
5	0.80	0.686	-5.56	0.874	76.52	82.08	1.721	27.27	1.084	-49.04	0.00748	0.23
6	0.90	0.521	-5.38	0.772	70.78	76.16	2.394	32.84	1.472	-60.78	0.01034	0.23
7	0.95	0.429	-3.91	0.706	67.15	71.07	2.689	35.74	1.643	-67.57	0.01154	-0.04
8	1.00	0.335	-0.19	0.632	62.83	63.02	2.908	38.72	1.774	-75.14	0.01241	-0.40
9	1.05	0.247	8.33	0.549	57.59	49.25	3.009	41.80	1.849	-83.64	0.01285	-0.75
10	1.10	0.182	26.10	0.458	51.17	25.07	2.946	45.17	1.851	-93.24	0.01274	-0.94
11	1.15	0.160	53.21	0.360	43.24	-9.97	2.678	49.32	1.767	-104.12	0.01205	-0.66
12	1.20	0.180	76.32	0.257	33.34	-42.98	2.192	55.89	1.595	-116.52	0.01086	0.64
13	1.30	0.276	91.08	0.064	6.49	-84.59	1.164	100.85	1.071	-146.71	0.00786	7.09
14	1.40	0.286	69.25	0.044	174.00	104.74	1.242	160.15	0.640	169.69	0.00478	12.77
15	1.50	0.155	38.68	0.060	145.31	106.63	1.011	-158.95	0.623	113.54	0.00121	2.68
16	1.60	0.040	-2.13	0.030	118.27	120.41	0.769	-81.93	0.843	66.21	0.00190	-167.23
17	1.70	0.014	-125.97	0.006	66.77	192.73	1.000	-17.53	0.955	17.09	0.00267	177.44
18	1.80	0.010	-170.09	0.005	-61.84	108.25	0.979	40.62	0.947	-42.81	0.00147	158.40
19	1.90	0.002	61.13	0.003	-94.46	-155.58	0.969	110.61	0.966	-110.33	0.00029	63.06
20	2.00	0.004	-7.86	0.001	132.05	139.91	1.002	179.64	0.990	-179.60	0.00047	-37.86

CARGO SHIP L/B=6.0 CB=0.55 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oaA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{wA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.989	-1.23	1.014	87.24	88.47	0.139	8.81	0.094	-20.64	0.00014	-32.71
2	0.50	0.966	-2.15	1.018	85.25	87.39	0.336	13.39	0.219	-27.79	0.00084	-8.20
3	0.60	0.923	-3.31	1.015	82.31	85.61	0.687	18.07	0.428	-35.99	0.00219	-3.90
4	0.70	0.850	-4.53	0.997	78.05	82.58	1.239	22.77	0.729	-45.91	0.00426	-2.23
5	0.80	0.745	-5.18	0.960	71.87	77.05	2.008	27.17	1.109	-58.13	0.00683	-2.10
6	0.90	0.621	-3.77	0.897	62.63	66.40	2.931	30.42	1.507	-73.43	0.00926	-3.30
7	0.95	0.568	-1.76	0.853	55.96	57.72	3.397	30.90	1.672	-82.84	0.01009	-4.20
8	1.00	0.536	-0.01	0.796	47.04	47.04	3.793	29.80	1.779	-93.80	0.01041	-4.86
9	1.05	0.524	-2.85	0.717	34.65	37.51	3.981	26.01	1.788	-106.60	0.01007	-4.05
10	1.10	0.472	-16.16	0.594	17.77	33.93	3.659	19.02	1.646	-120.84	0.00935	0.90
11	1.15	0.293	-37.78	0.423	-1.98	35.80	2.639	13.28	1.352	-134.18	0.00911	8.73
12	1.20	0.064	-33.21	0.256	-22.15	11.06	1.436	20.23	0.997	-143.46	0.00918	13.88
13	1.30	0.199	52.74	0.051	-92.67	-145.40	0.841	122.75	0.592	-136.56	0.00827	13.17
14	1.40	0.156	24.78	0.047	146.73	121.95	1.157	162.11	0.650	-160.71	0.00459	-2.12
15	1.50	0.067	0.43	0.037	114.62	114.20	0.882	-148.61	0.714	138.29	0.00116	-97.14
16	1.60	0.015	-49.57	0.016	89.86	139.43	0.884	-77.06	0.869	76.37	0.00319	-168.57
17	1.70	0.010	-155.51	0.003	22.36	177.87	1.014	-19.07	0.963	19.65	0.00316	171.79
18	1.80	0.006	165.19	0.003	-78.06	-244.15	0.979	41.89	0.969	-42.34	0.00142	146.55
19	1.90	0.001	53.51	0.002	-116.49	-170.00	0.988	110.54	0.981	-109.63	0.00040	21.67
20	2.00	0.002	-20.37	0.001	112.42	132.79	1.001	179.69	0.996	-179.44	0.00053	-62.22

CARGO SHIP L/B=6.0 CB=0.55 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{wA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{wA}/\rho g L^3 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.996	-1.27	1.019	86.74	88.01	0.151	8.69	0.098	-21.83	0.00008	-79.11
2	0.50	0.991	-2.22	1.035	84.29	86.51	0.367	13.87	0.226	-30.69	0.00063	-11.67
3	0.60	0.950	-3.39	1.049	80.53	83.92	0.764	18.68	0.440	-40.74	0.00183	-5.33
4	0.70	0.900	-4.48	1.061	74.79	79.27	1.419	22.93	0.749	-53.06	0.00365	-3.49
5	0.80	0.844	-4.70	1.068	65.85	70.56	2.409	25.68	1.143	-68.71	0.00575	-3.82
6	0.90	0.858	-5.15	1.064	49.95	55.09	3.784	23.28	1.525	-90.33	0.00718	-4.26
7	0.95	0.942	-11.30	1.034	36.54	47.85	4.499	16.96	1.628	-104.49	0.00720	-1.04
8	1.00	1.008	-29.95	0.924	17.93	47.88	4.735	5.05	1.589	-120.45	0.00732	9.78
9	1.05	0.838	-60.87	0.708	-2.33	58.55	3.913	-7.60	1.395	-136.97	0.00856	18.91
10	1.10	0.473	-95.01	0.488	-20.95	74.06	2.591	-12.08	1.031	-154.69	0.00977	21.81
11	1.15	0.154	-136.26	0.302	-41.06	95.20	1.398	-4.43	0.525	-162.85	0.01074	21.82
12	1.20	0.069	90.19	0.158	-63.77	-153.96	0.645	37.43	0.316	-112.21	0.01105	18.14
13	1.30	0.138	28.70	0.030	-157.44	-186.14	1.021	125.63	0.761	-112.93	0.00847	5.02
14	1.40	0.090	6.72	0.035	123.87	117.14	1.077	162.61	0.837	-159.73	0.00364	-19.73
15	1.50	0.036	-15.62	0.024	99.07	114.69	0.886	-142.23	0.837	140.45	0.00212	-136.89
16	1.60	0.008	-80.05	0.009	74.61	154.66	0.939	-77.10	0.921	79.36	0.00397	-175.76
17	1.70	0.007	-174.61	0.002	-10.48	164.13	1.011	-19.78	0.978	20.37	0.00327	164.99
18	1.80	0.003	149.01	0.002	-95.87	-244.88	0.982	42.59	0.984	-42.31	0.00111	136.69
19	1.90	0.002	-0.16	0.001	-132.99	-132.83	0.995	110.29	0.990	-109.51	0.00046	-30.35
20	2.00	0.003	-29.10	0.000	53.47	82.57	0.995	179.93	0.999	-179.77	0.00048	-114.13

CARGO SHIP L/B=6.0 CB=0.55 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{wA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{wA}/\rho g L^3 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.003	-1.32	1.024	86.19	87.51	0.163	8.44	0.101	-22.85	0.00013	-144.33
2	0.50	0.997	-2.29	1.052	83.21	85.51	0.402	14.10	0.233	-33.44	0.00039	-18.54
3	0.60	0.983	-3.46	1.087	78.46	81.92	0.855	18.87	0.453	-45.51	0.00137	-6.38
4	0.70	0.971	-4.41	1.134	70.79	75.21	1.650	22.18	0.773	-60.59	0.00281	-3.37
5	0.80	1.020	-5.28	1.197	57.43	62.71	2.982	21.44	1.170	-80.90	0.00414	-1.19
6	0.90	1.341	-21.09	1.190	29.62	50.71	4.816	5.93	1.453	-109.15	0.00493	19.08
7	0.95	1.414	-48.01	1.019	9.83	57.83	4.905	-9.91	1.500	-125.07	0.00689	30.85
8	1.00	1.106	-82.34	0.791	-8.23	74.11	3.962	-21.67	1.449	-148.78	0.00884	31.29
9	1.05	0.631	-116.98	0.573	-28.20	88.78	2.746	-26.20	1.035	178.31	0.01069	30.87
10	1.10	0.253	-152.45	0.356	-49.42	103.03	1.575	-20.89	0.392	137.21	0.01235	26.34
11	1.15	0.070	139.79	0.189	-69.13	-208.91	0.776	10.18	0.223	-23.97	0.01282	19.41
12	1.20	0.084	52.93	0.087	-90.53	-143.45	0.687	70.07	0.587	-65.70	0.01199	12.41
13	1.30	0.099	15.74	0.023	164.49	148.75	1.066	123.63	0.903	-112.87	0.00791	-2.33
14	1.40	0.059	-2.60	0.027	110.52	113.12	1.033	164.09	0.920	-162.34	0.00274	-39.02
15	1.50	0.021	-24.49	0.017	88.96	113.46	0.906	-139.09	0.903	139.78	0.00301	-154.73
16	1.60	0.004	-114.41	0.006	63.68	178.09	0.966	-77.62	0.953	79.95	0.00445	177.28
17	1.70	0.005	166.62	0.001	-60.28	-226.90	1.004	-20.25	0.994	20.58	0.00304	158.84
18	1.80	0.001	95.32	0.002	-117.60	-212.92	0.981	42.93	0.994	-42.15	0.00057	139.91
19	1.90	0.005	-19.80	0.001	-135.85	-116.05	0.992	110.16	0.991	-109.27	0.00072	-78.32
20	2.00	0.010	-24.62	0.000	-54.57	-29.96	0.990	-179.68	0.992	-179.85	0.00073	-161.44

CARGO SHIP L/B=6.0 CB=0.55 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OGA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFP}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAP}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.011	-1.37	1.028	85.59	86.95	0.177	8.05	0.105	-23.69	C.CCC25	-163.39
2	0.50	1.016	-2.37	1.069	81.99	84.35	0.442	14.03	0.240	-35.98	0.CC013	-53.16
3	0.60	1.025	-3.53	1.127	76.00	79.54	0.964	18.47	0.466	-50.17	C.C0081	-5.56
4	0.70	1.073	-4.62	1.213	65.76	70.38	1.945	20.07	0.795	-68.26	0.C0175	3.08
5	0.80	1.336	-10.56	1.309	45.32	55.88	3.727	12.04	1.157	-92.74	0.CC258	28.52
6	0.90	1.709	-54.44	1.088	10.89	65.33	4.834	-17.01	1.566	-121.45	C.CC675	45.65
7	0.95	1.371	-89.44	0.920	-6.76	82.68	4.142	-28.69	1.727	-153.46	0.00885	43.60
8	1.00	0.813	-124.67	0.693	-30.17	94.50	3.058	-35.96	1.346	163.06	0.01168	39.44
9	1.05	0.359	-155.79	0.428	-52.44	103.35	1.869	-33.87	0.723	110.75	C.01382	30.11
10	1.10	0.118	67.48	0.233	-70.18	-237.66	1.009	-12.62	0.443	30.03	0.01433	21.09
11	1.15	0.055	80.99	0.115	-86.50	-167.48	0.701	35.87	0.607	-32.99	0.01361	13.69
12	1.20	0.077	34.54	0.050	-108.89	-143.43	0.824	77.73	0.799	-66.26	0.01205	7.21
13	1.30	0.075	7.66	0.020	140.23	132.56	1.073	122.26	0.973	-114.83	0.C0711	-8.66
14	1.40	0.042	-8.47	0.021	101.11	109.58	1.009	165.50	0.961	-164.47	0.C0209	-64.48
15	1.50	0.013	-29.66	0.012	81.41	111.06	0.926	-137.44	0.940	138.84	0.00378	-166.96
16	1.60	0.003	-171.56	0.003	54.80	226.35	0.983	-78.33	0.978	79.89	0.C0461	169.53
17	1.70	0.004	136.69	0.002	-106.85	-243.54	0.997	-20.76	1.009	20.78	0.00264	153.30
18	1.80	0.004	12.67	0.003	-125.93	-138.60	0.975	42.86	0.999	-41.59	0.C0041	-173.89
19	1.90	0.013	-16.65	0.002	-126.33	-109.67	0.980	110.27	0.980	-108.71	0.CC094	-130.79
20	2.00	0.028	-21.00	0.001	-122.78	-101.77	0.980	-178.89	0.969	-179.92	0.00256	164.87

CARGO SHIP L/B=6.0 CB=0.55 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OGA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFP}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAP}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.020	-1.42	1.031	84.90	86.32	0.193	7.37	0.108	-24.15	0.CC040	-170.71
2	0.50	1.038	-2.46	1.085	80.57	83.02	0.487	13.57	0.247	-38.22	0.CC025	-166.12
3	0.60	1.078	-3.70	1.166	73.05	76.74	1.095	17.26	0.477	-54.53	0.C0019	23.02
4	0.70	1.224	-5.85	1.286	59.24	65.08	2.316	15.72	0.801	-75.22	0.C0089	52.82
5	0.80	1.752	-25.24	1.288	31.54	56.78	4.292	-3.43	1.164	-96.45	0.00386	69.50
6	0.90	1.667	-87.22	1.079	-0.40	86.82	4.359	-31.03	2.063	-148.28	0.00867	58.51
7	0.95	1.058	-124.38	0.858	-27.68	96.70	3.478	-42.25	1.811	163.16	0.01265	48.89
8	1.00	0.501	-154.45	0.533	-51.95	102.49	2.251	-44.33	1.154	113.04	C.01515	34.53
9	1.05	0.194	179.66	0.296	-69.16	-243.82	1.313	-30.57	0.732	56.74	0.01571	23.55
10	1.10	0.061	132.17	0.155	-82.93	-215.10	0.826	4.00	0.679	-0.21	0.01513	15.68
11	1.15	0.053	51.32	0.074	-98.16	-149.48	0.775	48.11	0.792	-40.25	C.01380	9.31
12	1.20	0.068	23.11	0.030	-125.21	-148.31	0.910	79.30	0.908	-68.96	0.01179	2.92
13	1.30	0.059	2.13	0.018	124.26	122.13	1.069	121.52	1.008	-116.55	0.00629	-14.27
14	1.40	0.031	-11.96	0.017	93.53	105.49	0.996	166.70	0.984	-166.17	0.C0179	-99.18
15	1.50	0.006	-28.01	0.008	75.17	103.18	0.946	-136.46	0.966	137.81	C.C0436	-178.07
16	1.60	0.005	143.00	0.001	14.23	-128.76	0.996	-79.06	1.000	79.69	C.C0460	161.46
17	1.70	0.005	105.62	0.003	-117.01	-222.63	0.994	-21.40	1.023	21.21	C.C0254	152.36
18	1.80	0.009	6.37	0.004	-120.09	-126.47	0.964	42.19	0.997	-40.51	C.C0175	179.86
19	1.90	0.033	-12.51	0.004	-113.28	-100.77	0.947	110.15	0.951	-107.70	C.C0524	171.33
20	2.00	0.104	-13.72	0.004	-80.37	-67.15	0.894	-175.52	0.906	178.28	0.02712	166.70

CARGO SHIP L/B=6.0 CB=0.55 FN= 0.30 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_a	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfp}/h_a	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rap}/h_a	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 b h_a$	BENDING MOMENT ε_M (DEG)
1	0.40	1.030	-1.49	1.032	84.11	85.60	0.210	6.29	0.112	-24.07	0.00056	-174.83
2	0.50	1.063	-2.59	1.099	78.91	81.50	0.539	12.59	0.253	-40.01	0.00059	179.55
3	0.60	1.146	-4.10	1.200	69.50	73.60	1.249	14.98	0.484	-58.06	0.00061	146.27
4	0.70	1.440	-9.63	1.316	51.18	60.81	2.723	8.12	0.787	-78.52	0.00188	107.03
5	0.80	2.021	-45.31	1.187	25.94	71.26	4.250	-17.33	1.562	-98.64	0.00536	77.21
6	0.90	1.398	-117.77	1.083	-20.29	97.48	3.974	-44.46	2.344	173.84	0.01349	61.16
7	0.95	0.703	-150.18	0.686	-48.51	101.67	2.725	-52.18	1.640	123.60	0.01650	40.59
8	1.00	0.300	-172.81	0.384	-66.72	106.10	1.678	-44.67	1.065	77.03	0.01704	26.92
9	1.05	0.109	161.85	0.208	-79.53	-241.38	1.051	-21.16	0.824	29.40	0.01656	18.18
10	1.10	0.040	95.30	0.107	-91.50	-186.80	0.810	16.81	0.816	-12.65	0.01547	11.63
11	1.15	0.051	34.19	0.049	-107.57	-141.76	0.848	53.15	0.893	-45.08	0.01374	5.57
12	1.20	0.060	15.36	0.019	-142.62	-157.98	0.961	79.48	0.968	-71.26	0.01138	-0.60
13	1.30	0.048	-1.86	0.017	112.35	114.21	1.062	121.11	1.027	-117.97	0.00543	-19.89
14	1.40	0.021	-12.69	0.014	86.74	99.43	0.988	167.81	0.999	-167.69	0.00193	-134.39
15	1.50	0.001	53.02	0.005	68.19	15.18	0.964	-135.87	0.986	136.82	0.00473	171.72
16	1.60	0.009	129.43	0.002	-100.54	-229.97	1.007	-79.73	1.020	79.56	0.00456	155.86
17	1.70	0.007	91.69	0.005	-114.29	-205.98	0.994	-22.21	1.035	22.01	0.00355	164.14
18	1.80	0.021	5.26	0.007	-107.29	-112.55	0.953	40.30	0.986	-38.71	0.00798	175.68
19	1.90	0.137	-2.18	0.010	-75.32	-73.14	0.836	101.80	0.867	-105.44	0.05025	178.67
20	2.00	0.184	137.98	0.014	140.81	2.83	1.304	169.34	1.000	179.31	0.11019	-34.47

CARGO SHIP L/B=6.0 CB=0.65 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oa}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfp}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rap}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.981	-0.68	1.001	88.02	88.69	0.123	6.83	0.092	-17.60	0.00049	-4.91
2	0.50	0.949	-1.30	0.990	86.66	87.97	0.293	10.83	0.214	-22.76	0.00154	-0.57
3	0.60	0.891	-2.18	0.963	84.66	86.84	0.588	15.43	0.417	-29.06	0.00340	1.66
4	0.70	0.796	-3.21	0.913	81.88	85.08	1.030	20.54	0.707	-36.71	0.00609	3.29
5	0.80	0.658	-4.06	0.834	78.02	82.07	1.598	26.17	1.063	-46.04	0.00935	4.35
6	0.90	0.478	-3.40	0.720	72.74	76.14	2.194	32.40	1.422	-57.40	0.01252	4.78
7	0.95	0.376	-1.11	0.649	69.40	70.51	2.445	35.82	1.570	-64.01	0.01376	4.81
8	1.00	0.272	5.18	0.570	65.40	60.21	2.622	39.50	1.673	-71.42	0.01457	4.83
9	1.05	0.183	22.36	0.482	60.52	38.16	2.688	43.59	1.713	-79.77	0.01484	4.98
10	1.10	0.151	58.81	0.387	54.55	-4.25	2.610	48.46	1.672	-89.22	0.01446	5.49
11	1.15	0.202	87.00	0.288	47.24	-39.76	2.367	54.93	1.540	-99.89	0.01343	6.78
12	1.20	0.278	93.82	0.188	38.05	-55.77	1.977	64.75	1.318	-111.97	0.01192	9.41
13	1.30	0.351	80.86	0.009	-26.45	-107.31	1.240	111.81	0.716	-140.28	0.00859	19.11
14	1.40	0.242	54.99	0.087	168.50	113.52	1.450	162.69	0.335	-174.36	0.00517	20.80
15	1.50	0.074	23.70	0.071	137.38	113.68	1.065	-161.63	0.486	124.29	0.00053	-54.41
16	1.60	0.022	-135.97	0.025	107.94	243.90	0.816	-82.21	0.815	73.46	0.00330	-166.64
17	1.70	0.034	-169.34	0.005	-23.90	145.44	1.016	-20.93	0.935	21.99	0.00320	175.89
18	1.80	0.015	169.43	0.009	-77.62	-247.05	0.948	39.49	0.917	-40.77	0.00112	138.22
19	1.90	0.003	35.82	0.004	-106.89	-142.71	0.965	111.24	0.953	-109.85	0.00107	12.25
20	2.00	0.006	-22.64	0.001	131.81	154.46	1.005	179.48	0.985	-179.22	0.00102	-32.69

CARGO SHIP L/B=6.0 CB=0.65 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oa}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfw}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rap}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.988	-0.72	1.006	87.55	88.28	0.134	6.82	0.095	-18.84	0.00042	-5.37
2	0.50	0.964	-1.41	1.005	85.77	87.18	0.321	11.47	0.220	-25.74	0.00141	-0.86
3	0.60	0.916	-2.37	0.993	83.05	85.42	0.653	16.26	0.427	-33.66	0.00316	1.46
4	0.70	0.838	-3.48	0.964	79.04	82.52	1.168	21.12	0.721	-43.19	0.00570	2.92
5	0.80	0.724	-4.22	0.913	73.13	77.35	1.872	25.82	1.082	-55.02	0.00874	3.51
6	0.90	0.583	-3.02	0.833	64.13	67.16	2.696	29.64	1.443	-69.99	0.01151	3.33
7	0.95	0.517	-1.01	0.779	57.45	58.46	3.097	30.44	1.578	-79.26	0.01244	3.29
8	1.00	0.466	0.84	0.710	48.33	47.48	3.411	29.68	1.642	-90.04	0.01285	3.73
9	1.05	0.421	-1.86	0.615	35.64	37.50	3.484	26.53	1.596	-102.46	0.01272	5.26
10	1.10	0.316	-11.31	0.483	18.81	30.13	3.078	21.92	1.406	-116.22	0.01218	8.42
11	1.15	0.148	-4.84	0.325	-1.65	3.19	2.139	21.35	1.054	-128.71	0.01157	13.51
12	1.20	0.146	49.46	0.173	-27.55	-77.01	1.222	36.60	0.653	-128.12	0.01135	18.01
13	1.30	0.206	37.58	0.044	-173.61	-211.19	1.122	124.32	0.697	-104.17	0.00934	11.93
14	1.40	0.106	14.90	0.061	128.80	113.90	1.212	158.36	0.763	-149.53	0.00379	-12.83
15	1.50	0.022	-20.22	0.035	106.13	126.35	0.892	-147.74	0.774	143.00	0.00245	-140.83
16	1.60	0.019	-157.38	0.010	77.34	234.72	0.931	-78.35	0.911	80.32	0.00441	-172.40
17	1.70	0.019	178.00	0.004	-55.05	-233.05	1.014	-21.39	0.973	22.39	0.00319	167.40
18	1.80	0.007	153.23	0.005	-92.33	-245.56	0.962	41.56	0.961	-41.16	0.00098	101.77
19	1.90	0.003	10.86	0.002	-126.40	-137.26	0.938	110.69	0.979	-109.33	0.00144	-3.06
20	2.00	0.003	-32.86	0.001	104.16	137.02	1.000	179.50	0.995	-179.29	0.00102	-50.93

CARGO SHIP L/B=6.0 CB=0.65 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OSA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.995	-0.77	1.010	87.05	87.83	0.146	6.66	0.099	-19.89	0.00033	-5.73
2	0.50	0.980	-1.52	1.020	84.78	86.30	0.353	11.85	0.228	-28.52	0.00121	-0.44
3	0.60	0.947	-2.57	1.025	81.20	83.77	0.730	16.67	0.439	-38.23	0.00280	2.19
4	0.70	0.894	-3.76	1.022	75.65	79.41	1.343	20.97	0.740	-50.10	0.00510	3.82
5	0.80	0.832	-4.63	1.010	66.38	71.51	2.253	23.92	1.113	-65.27	0.00772	4.73
6	0.90	0.828	-7.65	0.974	50.76	58.40	3.470	21.39	1.451	-86.20	0.00990	6.98
7	0.95	0.869	-17.31	0.913	37.34	54.65	3.997	14.89	1.534	-99.59	0.01076	9.53
8	1.00	0.817	-39.54	0.787	20.17	59.71	3.989	4.90	1.519	-116.06	0.01146	11.70
9	1.05	0.548	-70.44	0.611	0.57	71.01	3.274	-3.12	1.286	-138.42	0.01155	15.49
10	1.10	0.207	-103.35	0.408	-22.80	80.55	2.196	-5.12	0.709	-161.99	0.01230	21.59
11	1.15	0.032	84.77	0.215	-48.50	-133.27	1.148	10.30	0.163	-109.27	0.01338	21.02
12	1.20	0.127	43.58	0.084	-79.43	-123.01	0.774	63.18	0.564	-68.20	0.01301	15.56
13	1.30	0.119	18.33	0.038	144.43	126.09	1.160	122.04	0.950	-107.53	0.00831	0.48
14	1.40	0.054	0.29	0.039	111.52	111.23	1.085	161.12	0.919	-157.86	0.00250	-44.49
15	1.50	0.009	-58.05	0.020	92.85	150.90	0.910	-141.15	0.891	141.21	0.00380	-155.65
16	1.60	0.015	-169.48	0.005	56.12	225.60	0.973	-78.52	0.961	80.87	0.00493	-178.81
17	1.70	0.013	170.36	0.004	-73.08	-243.44	1.008	-21.42	0.991	22.02	0.00289	159.36
18	1.80	0.003	140.41	0.003	-102.78	-243.20	0.972	42.37	0.981	-41.65	0.00083	52.92
19	1.90	0.003	-13.48	0.001	-148.65	-135.17	0.997	110.19	0.993	-109.32	0.00166	-19.33
20	2.00	0.002	-43.18	0.001	73.05	116.23	0.995	179.44	1.002	-179.26	0.00081	-79.05

CARGO SHIP L/B=6.0 CB=0.65 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OSA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.004	-0.83	1.014	86.50	87.33	0.160	6.32	0.103	-20.73	0.00020	-5.75
2	0.50	0.998	-1.64	1.035	83.66	85.30	0.389	11.90	0.235	-31.05	0.00095	1.45
3	0.60	0.984	-2.79	1.058	79.06	81.85	0.821	16.56	0.452	-42.67	0.00234	4.79
4	0.70	0.972	-4.19	1.086	71.55	75.73	1.565	19.82	0.763	-57.11	0.00430	7.70
5	0.80	1.023	-6.88	1.117	58.23	65.11	2.785	18.88	1.141	-76.29	0.00649	12.49
6	0.90	1.253	-29.78	1.043	32.06	61.84	4.193	3.27	1.489	-102.14	0.00952	19.27
7	0.95	1.164	-59.19	0.918	15.19	74.38	4.132	-8.52	1.662	-124.32	0.01055	18.53
8	1.00	0.778	-94.34	0.752	-6.96	87.38	3.478	-17.84	1.467	-160.36	0.01120	25.72
9	1.05	0.340	-130.49	0.496	-33.48	97.01	2.354	-22.47	0.781	152.29	0.01379	28.56
10	1.10	0.075	177.27	0.260	-56.92	-234.19	1.278	-9.86	0.277	49.02	0.01536	22.54
11	1.15	0.072	53.55	0.112	-78.51	-132.07	0.800	33.70	0.586	-35.15	0.01490	15.37
12	1.20	0.101	23.79	0.038	-114.53	-143.32	0.897	76.88	0.853	-66.05	0.01302	8.67
13	1.30	0.078	9.31	0.032	126.38	117.08	1.138	120.96	1.024	-112.20	0.00712	-7.80
14	1.40	0.032	-7.86	0.028	101.98	109.84	1.038	163.79	0.971	-162.32	0.00206	-87.35
15	1.50	0.005	-107.48	0.013	84.56	192.03	0.935	-138.41	0.943	139.50	0.00481	-165.07
16	1.60	0.013	-177.84	0.002	30.41	208.25	0.992	-78.90	0.986	80.65	0.00515	175.63
17	1.70	0.008	164.70	0.003	-88.12	-252.82	1.003	-21.31	1.003	21.53	0.00234	152.52
18	1.80	0.001	21.80	0.002	-114.87	-136.66	0.982	42.81	0.994	-42.11	0.00107	3.93
19	1.90	0.005	-26.64	0.001	111.45	138.09	1.002	109.64	1.005	-109.34	0.00173	-39.29
20	2.00	0.002	-44.14	0.001	62.39	106.53	0.990	179.14	1.007	-178.98	0.00064	-131.65

CARGO SHIP L/B=6.0 CB=0.65 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{0GA}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.012	-0.99	1.017	85.88	86.77	0.174	5.78	0.107	-21.32	0.00006	-2.48
2	0.50	1.019	-1.78	1.049	82.40	84.18	0.430	11.58	0.243	-33.25	0.00065	7.34
3	0.60	1.030	-3.09	1.092	76.56	79.65	0.928	15.78	0.466	-46.77	0.00180	11.85
4	0.70	1.085	-5.12	1.151	66.50	71.62	1.844	17.16	0.787	-63.61	0.00345	18.95
5	0.80	1.344	-15.28	1.183	46.91	62.18	3.400	8.39	1.175	-84.49	0.00626	30.57
6	0.90	1.467	-64.97	1.061	17.80	82.78	4.181	-14.65	1.928	-124.71	0.00932	27.23
7	0.95	1.039	-102.21	0.934	-8.16	94.06	3.782	-26.65	1.892	-169.59	0.01130	38.21
8	1.00	0.494	-138.16	0.611	-37.58	100.58	2.643	-34.89	1.205	136.50	0.01544	34.12
9	1.05	0.159	-170.97	0.322	-59.67	111.31	1.523	-26.60	0.656	69.13	0.01716	24.21
10	1.10	0.042	101.76	0.151	-76.78	-178.54	0.919	5.58	0.652	-1.61	0.01674	16.19
11	1.15	0.070	35.83	0.060	-97.18	-133.01	0.846	49.06	0.834	-42.34	0.01504	9.74
12	1.20	0.080	19.94	0.021	-149.47	-169.41	0.979	79.32	0.970	-69.37	0.01251	3.67
13	1.30	0.056	3.80	0.027	114.89	111.09	1.116	120.54	1.051	-115.17	0.00590	-15.78
14	1.40	0.020	-13.58	0.021	95.53	109.12	1.017	165.75	0.994	-165.01	0.00248	-124.24
15	1.50	0.005	-144.66	0.009	78.64	223.31	0.954	-137.06	0.969	138.24	0.00561	-172.24
16	1.60	0.009	174.95	0.001	-17.35	-192.29	1.002	-79.24	1.000	80.17	0.00507	170.74
17	1.70	0.003	149.33	0.003	-104.22	-253.55	1.000	-21.09	1.012	20.97	0.00157	150.03
18	1.80	0.006	-16.42	0.001	-140.73	-124.32	0.992	43.03	1.007	-42.53	0.00150	-32.84
19	1.90	0.008	-26.95	0.001	77.92	104.86	1.008	108.99	1.017	-109.22	0.00159	-61.79
20	2.00	0.004	-30.90	0.003	66.30	97.20	0.984	178.43	1.009	-178.25	0.00067	146.25

CARGO SHIP L/B=6.0 CB=0.65 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{0GA}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.022	-0.97	1.019	85.18	86.15	0.190	4.92	0.111	-21.46	0.00010	166.98
2	0.50	1.043	-1.95	1.061	80.96	82.92	0.475	10.78	0.250	-34.98	0.00036	29.15
3	0.60	1.089	-3.57	1.122	73.62	77.19	1.054	14.09	0.479	-50.16	0.00131	30.61
4	0.70	1.248	-7.50	1.198	60.31	67.81	2.176	12.08	0.808	-68.10	0.00314	42.52
5	0.80	1.688	-32.70	1.158	38.40	71.10	3.706	-5.51	1.439	-88.42	0.00718	38.98
6	0.90	1.365	-100.09	1.161	-3.22	96.87	4.126	-30.17	2.413	-165.18	0.01142	52.29
7	0.95	0.704	-138.01	0.778	-36.69	101.32	3.056	-43.50	1.742	139.32	0.01703	40.33
8	1.00	0.268	-165.46	0.414	-59.36	106.10	1.851	-40.36	1.045	85.43	0.01888	26.73
9	1.05	0.074	159.30	0.205	-74.65	-233.95	1.124	-18.04	0.794	29.16	0.01854	17.73
10	1.10	0.042	59.73	0.093	-88.93	-148.70	0.869	19.78	0.836	-15.85	0.01708	11.31
11	1.15	0.063	25.83	0.034	-113.18	-139.01	0.913	54.57	0.943	-47.15	0.01481	5.75
12	1.20	0.066	13.91	0.015	172.74	158.83	1.023	79.70	1.025	-71.95	0.01182	-0.44
13	1.30	0.042	0.15	0.023	107.13	106.98	1.099	120.48	1.061	-117.16	0.00478	-24.01
14	1.40	0.013	-17.57	0.016	90.77	108.33	1.006	167.18	1.005	-166.83	0.00329	-146.45
15	1.50	0.004	-165.29	0.006	74.89	240.17	0.969	-136.27	0.983	137.17	0.00616	-178.51
16	1.60	0.005	160.67	0.001	-87.25	-247.91	1.007	-79.47	1.009	79.55	0.00470	166.91
17	1.70	0.005	0.60	0.002	-124.58	-125.18	0.999	-20.79	1.020	20.33	0.00084	174.04
18	1.90	0.014	-13.28	0.001	141.75	160.02	1.005	43.07	1.021	-42.91	0.00186	-68.91
19	1.90	0.018	-21.58	0.003	73.01	94.58	1.015	107.04	1.033	-109.73	0.00086	-111.28
20	2.00	0.015	-9.75	0.005	76.54	86.30	0.973	176.61	1.001	-176.49	0.00296	83.36

CARGO SHIP L/B=6.0 CB=0.65 FN= 0.30 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.033	-1.06	1.017	84.39	85.45	0.208	3.58	0.115	-20.93	0.00028	167.43
2	0.50	1.070	-2.19	1.070	79.33	81.52	0.527	9.39	0.257	-36.02	0.00030	98.00
3	0.60	1.163	-4.41	1.142	70.26	74.67	1.197	11.26	0.492	-52.13	0.00122	66.26
4	0.70	1.464	-12.39	1.192	53.94	66.83	2.492	3.95	0.859	-67.68	0.00389	61.56
5	0.80	1.896	-52.69	1.259	35.78	88.47	3.764	-14.12	2.119	-102.50	0.00636	51.18
6	0.90	1.016	-132.33	1.031	-30.90	101.43	3.603	-47.90	2.378	151.24	0.01858	49.32
7	0.95	0.424	-160.39	0.553	-56.75	103.65	2.268	-51.18	1.486	101.51	0.02066	30.59
8	1.00	0.149	177.76	0.281	-72.05	-249.80	1.405	-36.78	1.018	55.16	0.02033	19.93
9	1.05	0.039	126.81	0.137	-83.84	-210.65	0.985	-7.47	0.893	11.72	0.01907	13.16
10	1.10	0.044	40.09	0.059	-98.09	-138.18	0.894	27.72	0.929	-23.08	0.01712	7.77
11	1.15	0.057	18.83	0.020	-132.36	-151.19	0.963	56.82	1.000	-50.37	0.01442	2.40
12	1.20	0.055	9.68	0.014	144.58	134.89	1.046	79.60	1.052	-73.80	0.01108	-3.76
13	1.30	0.033	-2.40	0.021	101.33	103.73	1.084	120.57	1.064	-118.56	0.00372	-34.30
14	1.40	0.009	-17.27	0.013	87.18	104.45	1.001	168.35	1.009	-168.24	0.00413	-160.33
15	1.50	0.003	165.30	0.003	74.17	-91.12	0.981	-135.74	0.991	136.17	0.00637	175.63
16	1.60	0.003	41.40	0.002	-120.93	-162.32	1.010	-79.60	1.016	78.78	0.00411	165.49
17	1.70	0.016	-7.20	0.002	-151.51	-144.31	1.003	-20.38	1.032	19.53	0.00141	-138.44
18	1.80	0.033	-16.12	0.002	102.93	119.05	1.027	42.64	1.045	-43.04	0.00273	-134.48
19	1.90	0.077	-5.11	0.004	59.88	64.99	1.007	103.60	1.032	-106.19	0.00885	166.77
20	2.00	0.012	169.44	0.018	117.81	-51.63	1.136	169.66	0.928	-167.82	0.02935	60.22

CARGO SHIP L/B=6.0 CB=0.75 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oeA}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{wA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho gL^2Bh_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.978	0.43	0.988	88.87	88.44	0.111	3.80	0.094	-13.89	0.00110	2.84
2	0.50	0.941	0.38	0.968	88.01	87.63	0.262	7.87	0.218	-18.43	0.00268	5.47
3	0.60	0.875	0.18	0.929	86.59	86.40	0.523	12.71	0.422	-24.11	0.00524	7.68
4	0.70	0.768	-0.07	0.863	84.50	84.57	0.905	18.19	0.706	-31.02	0.00877	9.71
5	0.80	0.614	0.02	0.766	81.47	81.45	1.385	24.42	1.042	-39.53	0.01280	11.39
6	0.90	0.415	2.36	0.634	77.17	74.82	1.868	31.70	1.359	-50.05	0.01637	12.61
7	0.95	0.305	6.90	0.556	74.40	67.50	2.059	35.94	1.475	-56.26	0.01758	13.12
8	1.00	0.199	19.82	0.471	71.01	51.19	2.183	40.74	1.538	-63.31	0.01815	13.73
9	1.05	0.136	56.44	0.380	66.78	10.34	2.216	46.41	1.530	-71.37	0.01797	14.68
10	1.10	0.181	95.91	0.287	61.44	-34.48	2.143	53.43	1.438	-80.61	0.01699	16.30
11	1.15	0.272	105.47	0.193	54.31	-51.16	1.965	62.42	1.257	-91.15	0.01534	19.16
12	1.20	0.340	100.92	0.102	42.55	-58.37	1.682	74.37	0.997	-103.23	0.01334	23.60
13	1.30	0.314	80.50	0.060	-138.71	-219.21	1.192	128.48	0.401	-131.27	0.00932	33.74
14	1.40	0.150	51.63	0.109	176.73	125.11	1.577	169.77	0.211	-167.08	0.00428	27.59
15	1.50	0.025	-58.72	0.058	141.64	200.37	1.115	-154.36	0.559	130.53	0.00230	-130.60
16	1.60	0.053	-139.02	0.010	72.97	211.99	0.958	-79.76	0.877	81.92	0.00481	-158.23
17	1.70	0.033	-160.99	0.014	-40.32	120.67	1.092	-23.12	0.909	26.99	0.00293	175.67
18	1.80	0.005	119.38	0.010	-65.41	-184.79	0.975	38.31	0.903	-40.77	0.00154	69.99
19	1.90	0.012	23.25	0.002	-129.37	-152.62	0.990	110.15	0.971	-108.87	0.00233	21.04
20	2.00	0.006	-5.81	0.003	119.75	125.56	1.012	178.25	0.975	-177.99	0.00096	-29.90

CARGO SHIP L/B=6.0 CB=0.75 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oeA}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{wA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho gL^2Bh_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.985	0.37	0.993	88.39	88.02	0.123	3.97	0.098	-15.16	0.00107	3.60
2	0.50	0.957	0.25	0.981	87.06	86.82	0.291	8.62	0.224	-21.32	0.00260	5.99
3	0.60	0.902	-0.08	0.955	84.89	84.98	0.586	13.56	0.429	-28.45	0.00511	8.22
4	0.70	0.812	-0.52	0.907	81.57	82.10	1.034	18.75	0.714	-37.02	0.00856	10.14
5	0.80	0.683	-0.56	0.832	76.49	77.05	1.631	24.12	1.050	-47.74	0.01245	11.49
6	0.90	0.523	1.75	0.727	68.44	66.69	2.301	29.18	1.359	-61.43	0.01581	12.35
7	0.95	0.445	4.86	0.660	62.19	57.34	2.614	30.87	1.453	-69.95	0.01685	12.94
8	1.00	0.383	8.36	0.579	53.37	45.01	2.844	31.19	1.472	-79.79	0.01729	13.81
9	1.05	0.320	8.06	0.477	40.69	32.63	2.851	29.55	1.382	-91.05	0.01702	14.97
10	1.10	0.209	9.09	0.350	23.04	13.95	2.470	27.79	1.148	-103.35	0.01593	17.04
11	1.15	0.141	43.10	0.211	-2.03	-45.12	1.741	31.72	0.769	-110.48	0.01463	21.56
12	1.20	0.194	60.22	0.089	-46.87	-107.08	1.026	57.66	0.513	-89.86	0.01385	24.67
13	1.30	0.165	36.82	0.078	168.72	131.90	1.299	129.35	0.812	-90.90	0.00951	13.38
14	1.40	0.053	3.66	0.061	132.85	129.20	1.249	161.59	0.788	-149.17	0.00278	-42.70
15	1.50	0.024	-116.75	0.023	107.21	223.97	0.958	-142.85	0.851	141.73	0.00470	-143.46
16	1.60	0.030	-152.59	0.005	4.97	157.56	1.013	-78.50	0.971	83.07	0.00510	-166.61
17	1.70	0.015	-173.23	0.008	-56.68	116.55	1.047	-22.56	0.971	24.49	0.00228	154.68
18	1.80	0.004	64.68	0.005	-78.94	-143.62	0.980	41.13	0.960	-41.38	0.00225	46.92
19	1.90	0.007	16.56	0.001	177.24	160.69	1.004	109.95	0.992	-108.35	0.00243	12.56
20	2.00	0.003	-13.81	0.002	108.81	122.63	1.005	178.84	0.990	-178.67	0.00074	-71.22

CARGO SHIP L/B=6.0 CB=0.75 FN= 0.10 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3A}/h_A	ε_3 (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{rFP}/h_A	ε_{rFP} (DEG)	ζ_{rAP}/h_A	ε_{rAP} (DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	0.993	0.31	0.997	87.86	87.55	0.136	3.90	0.102	-16.18	0.00099	4.99
2	0.50	0.974	0.10	0.995	86.02	85.92	0.324	9.00	0.231	-23.97	0.00245	7.32
3	0.60	0.935	-0.38	0.982	82.98	83.36	0.661	13.88	0.439	-32.69	0.00486	9.72
4	0.70	0.873	-1.10	0.955	78.11	79.21	1.197	18.48	0.728	-43.32	0.00817	11.84
5	0.80	0.798	-1.79	0.912	70.19	71.98	1.971	22.14	1.069	-56.94	0.01191	13.47
6	0.90	0.769	-6.56	0.834	55.00	61.56	2.958	20.50	1.358	-75.64	0.01537	15.12
7	0.95	0.756	-19.21	0.753	42.44	61.65	3.306	14.84	1.431	-88.17	0.01665	14.47
8	1.00	0.611	-43.18	0.632	26.53	69.71	3.200	7.95	1.387	-106.13	0.01643	13.07
9	1.05	0.324	-72.61	0.482	5.20	77.81	2.661	3.32	1.027	-130.42	0.01517	17.89
10	1.10	0.051	-109.76	0.292	-23.30	86.45	1.767	4.52	0.347	-143.03	0.01564	24.87
11	1.15	0.101	61.42	0.126	-58.92	-120.34	0.978	30.98	0.423	-44.95	0.01611	23.44
12	1.20	0.138	42.19	0.046	-125.52	-167.72	0.926	79.33	0.826	-59.89	0.01450	17.33
13	1.30	0.084	17.95	0.052	140.04	122.09	1.236	123.87	1.020	-104.89	0.00740	-3.03
14	1.40	0.022	-23.16	0.034	116.80	139.96	1.105	164.30	0.933	-159.44	0.00298	-97.44
15	1.50	0.020	-135.35	0.011	90.88	226.22	0.969	-138.18	0.945	139.59	0.00588	-152.11
16	1.60	0.020	-158.87	0.005	-29.22	129.65	1.027	-78.77	1.003	82.22	0.00499	-172.77
17	1.70	0.008	179.99	0.006	-65.41	-245.40	1.030	-21.98	0.990	23.10	0.00173	128.55
18	1.80	0.004	38.48	0.003	-85.32	-123.80	0.989	42.14	0.981	-42.04	0.00278	32.92
19	1.90	0.005	12.47	0.001	134.39	121.92	1.007	109.75	1.001	-109.15	0.00216	9.51
20	2.00	0.000	-50.96	0.001	103.47	154.43	1.003	179.33	0.997	-179.25	0.00051	-143.60

CARGO SHIP L/B=6.0 CB=0.75 FN= 0.15 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3A}/h_A	ε_3 (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{rFP}/h_A	ε_{rFP} (DEG)	ζ_{rAP}/h_A	ε_{rAP} (DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	1.002	0.25	1.000	87.28	87.03	0.149	3.60	0.106	-16.95	0.00089	7.31
2	0.50	0.994	-0.06	1.007	84.85	84.91	0.360	8.98	0.238	-26.29	0.00225	9.80
3	0.60	0.976	-0.75	1.010	80.79	81.54	0.748	13.60	0.450	-36.67	0.00453	12.66
4	0.70	0.958	-1.98	1.007	74.00	75.98	1.402	17.12	0.747	-49.47	0.00769	15.66
5	0.80	0.999	-5.82	0.993	61.70	67.53	2.439	16.63	1.101	-66.14	0.01162	18.80
6	0.90	1.107	-34.66	0.878	38.77	73.42	3.432	2.76	1.509	-92.13	0.01575	14.68
7	0.95	0.901	-64.77	0.793	22.28	87.04	3.369	-4.93	1.609	-120.08	0.01473	13.07
8	1.00	0.520	-100.12	0.634	-3.95	96.18	2.907	-12.82	1.196	-161.93	0.01450	25.19
9	1.05	0.171	-142.55	0.374	-34.28	108.28	1.915	-14.96	0.438	131.15	0.01739	29.14
10	1.10	0.053	97.59	0.166	-62.06	-159.66	1.077	6.61	0.478	1.76	0.01829	23.57
11	1.15	0.094	45.24	0.058	-98.95	-144.19	0.882	50.74	0.830	-40.23	0.01663	16.89
12	1.20	0.094	29.42	0.031	-175.00	-204.41	1.025	82.58	1.012	-65.82	0.01346	9.88
13	1.30	0.050	8.87	0.038	127.27	118.41	1.174	122.53	1.058	-111.52	0.00563	-17.00
14	1.40	0.011	-53.72	0.022	108.79	162.51	1.056	166.77	0.977	-164.10	0.00411	-125.17
15	1.50	0.018	-145.62	0.006	77.71	223.33	0.984	-136.39	0.982	138.03	0.00664	-158.17
16	1.60	0.015	-162.41	0.004	-47.48	114.93	1.030	-79.03	1.014	81.48	0.00461	-177.46
17	1.70	0.004	-177.24	0.004	-69.74	107.50	1.020	-21.41	0.997	22.04	0.00128	96.00
18	1.80	0.002	12.45	0.001	-76.37	-88.82	0.997	42.68	0.992	-42.82	0.00260	23.78
19	1.90	0.001	-11.40	0.001	78.06	89.46	1.006	109.58	1.007	-109.73	0.00104	42.43
20	2.00	0.003	176.17	0.000	-64.05	-240.22	1.003	179.99	1.003	179.98	0.00176	129.48

CARGO SHIP L/B=6.0 CB=0.75 FN= 0.20 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3OGA}/h_A	ε_3(DEG)	θ_A/θ_{WA}	ε_θ(DEG)	$\varepsilon_{\theta 3}$(DEG)	ζ_{3TFPA}/h_A	ε_{TFP}(DEG)	ζ_{3FAPA}/h_A	ε_{FAP}(DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M(DEG)
1	0.40	1.012	0.17	1.002	86.64	86.47	0.164	3.06	0.110	-17.44	0.00077	11.06
2	0.50	1.016	-0.26	1.018	83.55	83.80	0.401	8.50	0.246	-28.18	0.00202	14.03
3	0.60	1.026	-1.26	1.036	78.28	79.54	0.851	12.56	0.464	-40.13	0.00418	17.82
4	0.70	1.078	-3.63	1.055	69.11	72.74	1.656	14.11	0.774	-54.61	0.00737	22.52
5	0.80	1.310	-17.45	1.026	51.91	69.36	2.922	5.43	1.216	-72.55	0.01249	23.30
6	0.90	1.195	-70.63	0.978	24.32	94.94	3.494	-11.47	1.966	-124.48	0.01264	16.40
7	0.95	0.754	-108.46	0.820	-6.74	101.73	3.221	-23.44	1.670	-175.45	0.01446	35.17
8	1.00	0.301	-146.40	0.478	-38.37	108.03	2.172	-29.51	0.918	120.24	0.01928	32.87
9	1.05	0.075	161.14	0.222	-61.87	-223.02	1.270	-14.46	0.648	38.83	0.02041	24.56
10	1.10	0.060	61.74	0.088	-84.97	-146.71	0.914	22.06	0.818	-15.48	0.01893	17.70
11	1.15	0.075	34.17	0.030	-133.02	-167.20	0.948	57.66	0.984	-46.28	0.01599	11.55
12	1.20	0.068	22.36	0.027	157.34	134.98	1.063	82.40	1.070	-69.95	0.01220	4.50
13	1.30	0.032	2.91	0.029	119.67	116.76	1.135	122.23	1.065	-115.02	0.00421	-34.74
14	1.40	0.008	-90.38	0.015	103.79	194.17	1.035	168.46	0.995	-166.74	0.00531	-139.78
15	1.50	0.015	-151.60	0.003	64.18	215.78	0.995	-135.60	0.998	136.99	0.00710	-162.36
16	1.60	0.010	-160.84	0.003	-58.66	102.17	1.026	-79.24	1.015	80.72	0.00391	-177.48
17	1.70	0.002	-134.64	0.002	-69.51	65.13	1.011	-20.72	0.998	20.87	0.00070	34.66
18	1.80	0.002	-91.74	0.001	35.07	126.81	1.007	43.12	1.000	-43.88	0.00103	2.28
19	1.90	0.006	-163.04	0.001	26.90	189.94	1.002	109.37	1.015	-110.68	0.00309	142.22
20	2.00	0.010	174.39	0.002	-79.33	-253.71	1.006	-178.88	1.014	178.71	0.00506	111.82

CARGO SHIP L/B=6.0 CB=0.75 FN= 0.25 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3OGA}/h_A	ε_3(DEG)	θ_A/θ_{WA}	ε_θ(DEG)	$\varepsilon_{\theta 3}$(DEG)	ζ_{3TFPA}/h_A	ε_{TFP}(DEG)	ζ_{3FAPA}/h_A	ε_{FAP}(DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M(DEG)
1	0.40	1.022	0.08	1.002	85.91	85.84	0.181	2.15	0.114	-17.41	0.00065	17.65
2	0.50	1.042	-0.51	1.026	82.09	82.60	0.446	7.49	0.253	-29.47	0.00179	20.88
3	0.60	1.089	-2.04	1.056	75.42	77.46	0.970	10.55	0.479	-42.61	0.00390	26.01
4	0.70	1.249	-7.17	1.080	63.53	70.71	1.948	8.49	0.820	-57.14	0.00765	31.00
5	0.80	1.568	-37.24	1.043	47.45	84.69	3.070	-6.66	1.649	-82.55	0.01241	18.40
6	0.90	1.058	-106.56	1.062	-2.92	103.64	3.579	-28.55	2.276	-172.16	0.01435	46.54
7	0.95	0.474	-144.42	0.630	-37.69	106.73	2.538	-40.17	1.454	127.68	0.02106	37.42
8	1.00	0.253	-176.12	0.303	-60.12	116.00	1.538	-31.78	0.913	66.77	0.02251	26.37
9	1.05	0.044	112.53	0.132	-77.60	-190.13	1.030	-4.20	0.851	12.46	0.02131	19.03
10	1.10	0.056	45.61	0.049	-102.52	-148.13	0.923	31.11	0.952	-23.91	0.01872	13.38
11	1.15	0.061	27.48	0.021	-167.22	-194.70	0.994	59.72	1.044	-50.06	0.01516	7.71
12	1.20	0.052	17.87	0.025	140.86	122.98	1.079	81.94	1.091	-72.50	0.01092	-0.03
13	1.30	0.021	-1.57	0.024	114.48	116.05	1.110	122.24	1.064	-117.22	0.00327	-59.23
14	1.40	0.007	-116.71	0.011	101.04	217.74	1.025	169.59	1.002	-168.37	0.00637	-148.61
15	1.50	0.012	-153.84	0.001	61.04	214.88	1.002	-135.34	1.001	136.18	0.00701	-164.69
16	1.60	0.006	-147.45	0.002	-75.81	71.64	1.017	-79.44	1.010	79.79	0.00274	-165.42
17	1.70	0.005	-85.43	0.000	67.61	153.04	1.002	-19.80	0.996	19.34	0.00182	-61.47
18	1.80	0.009	-121.99	0.003	59.45	181.44	1.020	43.62	1.009	-45.50	0.00283	-146.23
19	1.90	0.020	-164.27	0.003	9.08	173.35	0.995	109.07	1.029	-112.42	0.00891	152.19
20	2.00	0.028	176.33	0.006	-78.12	-254.45	1.016	-176.37	1.045	176.05	0.00780	109.88

CARGO SHIP L/B=6.0 CB=0.75 FN= 0.30 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Diff.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3A}/h_A	ε_3 (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{rFPA}/h_A	ε_{rFP} (DEG)	ζ_{rAP}/h_A	ε_{rAP} (DEG)	$M_W/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	1.034	-0.04	0.998	85.09	85.13	0.199	0.74	0.118	-16.67	0.00053	29.39
2	0.50	1.072	-0.86	1.030	80.48	81.34	0.497	5.84	0.262	-29.93	0.00162	31.08
3	0.60	1.167	-3.28	1.064	72.34	75.61	1.103	7.34	0.500	-43.38	0.00387	36.32
4	0.70	1.460	-14.15	1.055	59.21	73.36	2.191	-0.08	0.954	-56.43	0.00855	34.05
5	0.80	1.705	-57.34	1.262	42.62	99.96	3.228	-12.04	2.372	-104.10	0.00849	23.93
6	0.90	0.735	-138.44	0.867	-32.62	105.82	3.029	-46.66	2.089	141.55	0.02273	44.42
7	0.95	0.273	-166.13	0.423	-57.04	109.10	1.884	-45.46	1.273	89.27	0.02466	29.23
8	1.00	0.081	161.85	0.195	-72.63	-234.47	1.227	-26.26	0.966	40.58	0.02371	20.76
9	1.05	0.038	77.36	0.082	-88.40	-165.76	0.968	4.54	0.949	0.86	0.02149	15.15
10	1.10	0.051	36.22	0.029	-121.09	-157.32	0.952	35.42	1.014	-28.66	0.01830	10.26
11	1.15	0.051	22.91	0.019	164.13	141.22	1.022	60.43	1.072	-52.49	0.01425	4.63
12	1.20	0.042	14.92	0.024	130.47	115.55	1.084	81.49	1.097	-74.19	0.00966	-3.92
13	1.30	0.015	-5.03	0.020	110.92	115.95	1.091	122.37	1.060	-118.67	0.00301	-89.63
14	1.40	0.006	-129.37	0.008	101.52	230.89	1.020	170.40	1.002	-169.51	0.00699	-155.00
15	1.50	0.007	-151.98	0.001	122.54	274.52	1.006	-135.38	0.997	135.42	0.00607	-165.44
16	1.60	0.004	-80.97	0.001	178.68	259.66	1.002	-79.69	0.998	78.54	0.00198	-109.48
17	1.70	0.010	-74.78	0.004	98.63	173.41	0.989	-18.45	0.993	17.07	0.00475	-83.07
18	1.80	0.022	-129.55	0.007	64.81	194.35	1.042	44.51	1.028	-48.40	0.00829	-158.82
19	1.90	0.064	-163.28	0.007	9.41	172.69	0.989	108.89	1.087	-116.48	0.01413	149.75
20	2.00	0.215	-52.92	0.048	-76.72	-23.80	1.047	-134.61	1.105	156.65	0.06936	-95.23

CARGO SHIP L/B=7.0 CB=0.55 FN= 0.00 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{aA}/h_A	ε_3(DEG)	θ_A/θ_{wA}	ε_θ(DEG)	$\varepsilon_{\theta 3}$(DEG)	ζ_{rFPA}/h_A	ε_{rFP}(DEG)	ζ_{rAPA}/h_A	ε_{rAP}(DEG)	$M_{wA}/\rho g L^2 B h_A$	ε_M(DEG)
1	0.40	0.981	-1.10	1.004	87.83	88.92	0.126	8.79	0.090	-17.12	0.00030	-9.70
2	0.50	0.950	-1.85	0.995	86.38	88.24	0.301	12.57	0.211	-22.34	0.00116	-3.40
3	0.60	0.895	-2.80	0.970	84.41	87.21	0.605	16.97	0.415	-28.58	0.00273	-1.09
4	0.70	0.806	-3.84	0.924	81.75	85.59	1.059	21.95	0.711	-36.13	0.00509	0.28
5	0.80	0.677	-4.65	0.848	78.25	82.89	1.644	27.52	1.084	-45.22	0.00809	1.13
6	0.90	0.510	-4.32	0.739	73.61	77.93	2.263	33.75	1.475	-56.19	0.01125	1.50
7	0.95	0.416	-2.97	0.671	70.78	73.75	2.527	37.17	1.648	-62.49	0.01263	1.50
8	1.00	0.319	0.28	0.594	67.52	67.24	2.717	40.88	1.785	-69.45	0.01372	1.40
9	1.05	0.225	7.90	0.510	63.72	55.82	2.798	45.03	1.869	-77.24	0.01440	1.28
10	1.10	0.148	26.61	0.420	59.22	32.61	2.738	49.87	1.883	-86.06	0.01455	1.23
11	1.15	0.117	64.39	0.327	53.86	-10.53	2.512	56.02	1.816	-96.21	0.01413	1.39
12	1.20	0.148	96.95	0.232	47.47	-49.47	2.124	64.98	1.666	-108.10	0.01311	1.96
13	1.30	0.256	115.01	0.055	33.17	-81.84	1.293	108.97	1.175	-140.44	0.00978	5.53
14	1.40	0.328	103.52	0.059	178.97	75.45	1.510	162.62	0.742	165.36	0.00587	11.21
15	1.50	0.228	71.72	0.074	159.58	87.85	1.181	-165.17	0.763	101.94	0.00193	18.15
16	1.60	0.070	31.64	0.042	135.86	104.22	0.704	-90.14	0.926	58.67	0.00129	-179.19
17	1.70	0.017	-104.05	0.008	89.02	193.07	0.979	-16.57	0.969	15.00	0.00249	176.68
18	1.80	0.015	-155.78	0.007	-53.24	102.54	0.980	39.36	0.927	-43.41	0.00151	160.19
19	1.90	0.001	44.12	0.004	-83.14	-127.27	0.953	110.42	0.958	-111.02	0.00027	64.20
20	2.00	0.006	-6.06	0.001	116.90	122.96	0.998	179.55	0.990	-179.50	0.00049	-30.74

CARGO SHIP L/B=7.0 CB=0.55 FN= 0.05 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{aA}/h_A	ε_3(DEG)	θ_A/θ_{wA}	ε_θ(DEG)	$\varepsilon_{\theta 3}$(DEG)	ζ_{rFPA}/h_A	ε_{rFP}(DEG)	ζ_{rAPA}/h_A	ε_{rAP}(DEG)	$M_{wA}/\rho g L^2 B h_A$	ε_M(DEG)
1	0.40	0.986	-1.12	1.010	87.42	88.54	0.135	8.99	0.092	-18.50	0.00024	-13.23
2	0.50	0.961	-1.91	1.009	85.65	87.56	0.324	13.37	0.216	-25.14	0.00103	-4.61
3	0.60	0.914	-2.87	0.998	83.11	85.98	0.659	18.00	0.422	-32.66	0.00251	-2.08
4	0.70	0.836	-3.84	0.970	79.56	83.40	1.173	22.90	0.722	-41.65	0.00476	-0.81
5	0.80	0.721	-4.27	0.918	74.59	78.86	1.867	27.90	1.101	-52.56	0.00761	-0.41
6	0.90	0.576	-2.73	0.835	67.60	70.33	2.657	32.68	1.504	-65.80	0.01051	-0.94
7	0.95	0.498	-0.20	0.781	62.96	63.16	3.031	34.78	1.682	-73.60	0.01170	-1.49
8	1.00	0.428	4.37	0.717	57.11	52.75	3.339	36.41	1.819	-82.44	0.01253	-2.11
9	1.05	0.375	10.82	0.643	49.55	38.73	3.524	37.24	1.892	-92.56	0.01283	-2.60
10	1.10	0.345	16.21	0.555	39.44	23.23	3.493	36.75	1.874	-104.19	0.01249	-2.46
11	1.15	0.305	15.96	0.447	25.60	9.64	3.094	34.63	1.738	-117.45	0.01158	-0.51
12	1.20	0.206	16.14	0.313	7.42	-8.72	2.207	33.82	1.474	-131.60	0.01057	3.98
13	1.30	0.222	68.97	0.074	-47.16	-116.13	0.766	105.68	0.816	-155.39	0.00891	10.68
14	1.40	0.231	42.52	0.054	165.55	123.04	1.209	162.37	0.514	-174.47	0.00575	4.30
15	1.50	0.109	13.70	0.051	126.16	112.45	0.905	-155.12	0.598	131.21	0.00135	-43.30
16	1.60	0.026	-27.64	0.023	100.08	127.72	0.828	-77.60	0.831	73.09	0.00266	-165.43
17	1.70	0.012	-142.27	0.004	41.01	183.28	1.013	-18.38	0.953	18.71	0.00312	174.07
18	1.80	0.008	176.82	0.004	-71.22	-248.04	0.977	41.27	0.957	-42.42	0.00155	149.60
19	1.90	0.001	56.69	0.002	-105.45	-162.14	0.980	110.63	0.974	-109.91	0.00043	33.63
20	2.00	0.003	-13.86	0.001	119.64	133.50	1.001	179.68	0.994	-179.62	0.00058	-44.66

CARGO SHIP L/B=7.0 CB=0.55 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oa}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{wa}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rfpa}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapa}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{wA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.992	-1.15	1.015	86.98	88.13	0.145	9.09	0.095	-19.77	0.00016	-20.94
2	0.50	0.973	-1.95	1.024	84.83	86.79	0.351	14.00	0.221	-27.84	0.00086	-6.07
3	0.60	0.936	-2.91	1.028	81.64	84.55	0.722	18.80	0.431	-36.85	0.00220	-2.83
4	0.70	0.874	-3.74	1.022	76.97	80.71	1.314	23.43	0.737	-47.64	0.00426	-1.59
5	0.80	0.789	-3.65	1.003	70.04	73.69	2.165	27.42	1.125	-61.02	0.00681	-1.66
6	0.90	0.709	-1.37	0.965	59.18	60.55	3.250	29.37	1.534	-78.16	0.00912	-2.75
7	0.95	0.702	-0.17	0.936	50.85	51.02	3.838	28.24	1.697	-88.97	0.00980	-3.05
8	1.00	0.738	-2.96	0.888	39.12	42.07	4.347	24.11	1.783	-101.74	0.00992	-1.85
9	1.05	0.772	-16.49	0.792	22.45	38.94	4.459	15.29	1.732	-116.39	0.00970	3.69
10	1.10	0.648	-43.45	0.613	1.98	45.44	3.670	3.91	1.514	-131.32	0.01017	11.86
11	1.15	0.341	-76.22	0.409	-18.12	58.10	2.275	-0.69	1.167	-145.12	0.01095	15.58
12	1.20	0.052	-125.33	0.240	-39.69	85.64	1.041	12.58	0.742	-151.54	0.01136	16.15
13	1.30	0.176	42.87	0.046	-119.90	-162.76	0.919	127.39	0.594	-122.12	0.00987	7.99
14	1.40	0.130	15.43	0.044	135.00	119.57	1.122	161.47	0.736	-157.95	0.00506	-10.64
15	1.50	0.055	-7.71	0.033	106.24	113.95	0.868	-145.91	0.763	140.55	0.00159	-107.02
16	1.60	0.012	-59.08	0.013	82.21	141.29	0.907	-76.66	0.886	78.28	0.00365	-171.48
17	1.70	0.009	-161.84	0.003	10.44	172.28	1.014	-19.39	0.969	20.00	0.00339	168.21
18	1.80	0.005	160.58	0.003	-85.01	-245.60	0.980	42.18	0.975	-42.31	0.00138	139.51
19	1.90	0.001	36.07	0.001	-121.41	-157.48	0.991	110.44	0.985	-109.61	0.00052	2.03
20	2.00	0.002	-25.43	0.000	86.89	112.32	0.998	179.82	0.998	-179.72	0.00050	-73.67

CARGO SHIP L/B=7.0 CB=0.55 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oa}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{wa}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rfpa}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapa}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{wA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.998	-1.18	1.020	86.50	87.68	0.156	9.07	0.098	-20.91	0.00007	-53.29
2	0.50	0.987	-2.00	1.040	83.93	85.92	0.380	14.45	0.226	-30.47	0.00064	-7.81
3	0.60	0.962	-2.92	1.061	79.95	82.88	0.795	19.29	0.441	-41.11	0.00181	-3.11
4	0.70	0.925	-3.56	1.082	73.84	77.41	1.491	23.36	0.753	-54.09	0.00360	-1.59
5	0.80	0.897	-3.15	1.107	64.15	67.30	2.572	25.53	1.151	-70.71	0.00562	-1.46
6	0.90	0.999	-4.86	1.124	46.12	50.99	4.136	20.91	1.525	-93.76	0.00689	1.47
7	0.95	1.154	-15.24	1.085	30.65	45.90	4.899	11.91	1.604	-108.20	0.00720	9.68
8	1.00	1.217	-39.94	0.934	10.78	50.72	4.905	-2.53	1.571	-123.28	0.00859	20.99
9	1.05	0.949	-74.03	0.704	-8.41	65.62	3.816	-14.61	1.433	-141.97	0.01050	23.54
10	1.10	0.515	-109.87	0.490	-28.00	81.87	2.435	-18.50	1.012	-165.74	0.01197	23.48
11	1.15	0.172	-153.08	0.295	-49.89	103.19	1.206	-9.36	0.392	-177.66	0.01312	20.54
12	1.20	0.072	92.27	0.148	-72.99	-165.26	0.552	45.66	0.290	-91.11	0.01315	14.76
13	1.30	0.126	24.38	0.029	-167.28	-191.67	1.036	125.45	0.802	-112.20	0.00965	0.83
14	1.40	0.083	2.99	0.033	118.94	115.95	1.060	162.71	0.865	-160.02	0.00417	-23.68
15	1.50	0.033	-18.41	0.022	94.78	113.20	0.885	-141.17	0.857	140.64	0.00231	-138.18
16	1.60	0.007	-84.11	0.009	70.78	154.89	0.946	-77.07	0.928	79.65	0.00426	-178.12
17	1.70	0.007	-177.93	0.002	-20.03	157.89	1.009	-19.91	0.983	20.42	0.00339	162.34
18	1.80	0.003	145.99	0.002	-102.99	-248.97	0.981	42.70	0.987	-42.24	0.00098	134.45
19	1.90	0.003	-16.04	0.001	-130.49	-114.45	0.993	110.24	0.990	-109.43	0.00058	-45.59
20	2.00	0.006	-25.76	0.000	5.57	31.33	0.992	-179.86	0.996	-179.83	0.00047	-133.17

CARGO SHIP L/B=7.0 CB=0.55 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OBA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{RFPA}/h_A	REL.BOW MOTION ε_{RFP} (DEG)	REL.STE MOTION ζ_{RAPA}/h_A	REL.STE MOTION ε_{RAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.005	-1.21	1.024	85.97	87.18	0.168	8.92	0.101	-21.91	0.00010	-148.82
2	0.50	1.002	-2.03	1.056	82.90	84.93	0.413	14.68	0.232	-32.98	0.00039	-10.45
3	0.60	0.994	-2.92	1.095	77.98	80.90	0.883	19.36	0.451	-45.38	0.00135	-2.14
4	0.70	0.995	-3.42	1.149	70.02	73.44	1.714	22.42	0.770	-60.83	0.00276	0.76
5	0.80	1.083	-4.02	1.223	56.00	60.02	3.130	20.96	1.162	-81.47	0.00405	5.55
6	0.90	1.494	-22.71	1.202	27.02	49.73	5.020	3.34	1.431	-107.80	0.00578	29.91
7	0.95	1.562	-51.28	1.019	8.33	59.61	4.995	-12.60	1.568	-122.47	0.00841	34.67
8	1.00	1.222	-86.39	0.817	-9.39	77.00	4.039	-24.13	1.602	-149.48	0.01056	33.22
9	1.05	0.699	-122.27	0.598	-31.39	90.87	2.770	-30.03	1.150	173.01	0.01291	30.93
10	1.10	0.283	-157.42	0.364	-53.82	103.60	1.514	-25.23	0.447	126.09	0.01470	24.21
11	1.15	0.081	144.05	0.190	-73.45	-217.50	0.705	9.55	0.255	-15.40	0.01491	16.44
12	1.20	0.078	54.69	0.086	-94.26	-148.95	0.676	72.58	0.600	-64.30	0.01376	9.41
13	1.30	0.094	14.01	0.023	162.40	148.40	1.065	123.59	0.913	-113.15	0.00909	-4.76
14	1.40	0.058	-4.14	0.026	107.95	112.09	1.025	164.20	0.929	-162.59	0.00327	-37.62
15	1.50	0.021	-25.41	0.016	86.74	112.15	0.905	-138.75	0.908	139.83	0.00306	-154.48
16	1.60	0.004	-115.98	0.005	62.78	178.76	0.968	-77.69	0.956	79.93	0.00462	175.24
17	1.70	0.005	162.32	0.001	-76.53	-238.84	1.002	-20.39	0.998	20.62	0.00311	157.07
18	1.80	0.001	43.06	0.002	-119.81	-162.86	0.978	42.86	0.995	-41.91	0.00052	145.37
19	1.90	0.008	-18.76	0.001	-128.68	-109.92	0.986	110.24	0.986	-109.05	0.00073	-87.55
20	2.00	0.017	-22.87	0.000	-111.29	-88.42	0.986	-179.33	0.983	-179.88	0.00100	177.59

CARGO SHIP L/B=7.0 CB=0.55 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OBA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{RFPA}/h_A	REL.BOW MOTION ε_{RFP} (DEG)	REL.STE MOTION ζ_{RAPA}/h_A	REL.STE MOTION ε_{RAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.013	-1.24	1.029	85.38	86.62	0.181	8.61	0.104	-22.73	0.00022	-169.26
2	0.50	1.019	-2.07	1.071	81.72	83.78	0.451	14.61	0.238	-35.31	0.00010	-21.52
3	0.60	1.033	-2.93	1.131	75.65	78.58	0.986	18.89	0.460	-49.56	0.00082	3.49
4	0.70	1.094	-3.58	1.220	65.28	68.86	1.992	20.23	0.782	-67.57	0.00179	11.78
5	0.80	1.393	-9.40	1.313	44.77	54.18	3.811	11.85	1.126	-90.91	0.00303	38.15
6	0.90	1.825	-52.82	1.095	12.25	65.08	4.940	-16.54	1.630	-115.93	0.00783	46.54
7	0.95	1.519	-88.02	0.963	-5.17	82.84	4.336	-28.56	1.903	-149.09	0.01026	44.67
8	1.00	0.927	-124.83	0.743	-30.39	94.43	3.221	-37.85	1.530	165.47	0.01374	39.09
9	1.05	0.416	-156.56	0.456	-54.04	102.51	1.918	-37.46	0.828	113.71	0.01608	28.28
10	1.10	0.143	170.15	0.246	-72.09	-242.24	0.986	-16.51	0.461	36.72	0.01646	18.81
11	1.15	0.055	93.25	0.122	-88.07	-181.33	0.664	35.10	0.593	-30.78	0.01554	11.45
12	1.20	0.072	36.66	0.053	-109.27	-145.94	0.808	78.35	0.787	-65.84	0.01377	5.18
13	1.30	0.074	7.09	0.019	141.00	133.91	1.069	122.34	0.972	-115.01	0.00833	-9.61
14	1.40	0.043	-9.02	0.021	99.97	109.00	1.006	165.49	0.963	-164.49	0.00255	-54.99
15	1.50	0.013	-28.46	0.012	80.67	109.13	0.925	-137.36	0.941	138.84	0.00370	-166.96
16	1.60	0.003	-178.72	0.003	55.29	234.02	0.984	-78.40	0.980	79.84	0.00475	167.95
17	1.70	0.004	131.35	0.002	-109.88	-241.23	0.997	-20.94	1.012	20.91	0.00282	152.69
18	1.80	0.005	8.18	0.003	-123.07	-131.25	0.970	42.61	0.998	-41.17	0.00072	176.98
19	1.90	0.019	-15.58	0.003	-121.24	-105.66	0.969	110.38	0.969	-108.33	0.00146	-165.62
20	2.00	0.046	-19.72	0.002	-114.42	-94.70	0.966	-178.03	0.950	179.91	0.00596	160.13

CARGO SHIP L/B=7.0 CB=0.55 FN= 0.30 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{0A}/h_A	ε_3 (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{FPA}/h_A	ε_{FP} (DEG)	ζ_{FAP}/h_A	ε_{FAP} (DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	1.021	-1.28	1.032	84.70	85.98	0.195	8.10	0.106	-23.34	0.00037	-175.35
2	0.50	1.039	-2.12	1.086	80.34	82.46	0.494	14.16	0.242	-37.39	0.00022	175.76
3	0.60	1.082	-3.02	1.166	72.85	75.88	1.108	17.68	0.467	-53.46	0.00032	44.91
4	0.70	1.235	-4.69	1.282	59.25	63.94	2.330	16.10	0.779	-73.52	0.00120	57.30
5	0.80	1.777	-22.51	1.281	32.64	55.15	4.304	-2.05	1.124	-91.90	0.00442	67.56
6	0.90	1.830	-82.05	1.117	3.31	85.36	4.570	-28.87	2.187	-139.86	0.00959	58.71
7	0.95	1.232	-120.87	0.934	-25.07	95.80	3.758	-42.02	2.033	170.59	0.01437	49.27
8	1.00	0.597	-152.93	0.586	-51.45	101.48	2.409	-46.77	1.297	119.83	0.01734	33.59
9	1.05	0.238	-178.26	0.324	-69.59	108.67	1.355	-34.78	0.770	64.55	0.01788	21.97
10	1.10	0.077	143.53	0.169	-83.45	-226.98	0.804	-0.01	0.659	4.65	0.01717	13.99
11	1.15	0.049	61.14	0.082	-98.05	-159.19	0.742	47.23	0.767	-38.62	0.01570	7.73
12	1.20	0.065	25.20	0.034	-122.38	-147.59	0.891	79.56	0.891	-68.53	0.01352	1.63
13	1.30	0.060	2.16	0.018	126.22	124.07	1.065	121.66	1.004	-116.55	0.00757	-13.81
14	1.40	0.032	-11.73	0.018	93.38	105.11	0.994	166.64	0.984	-166.10	0.00197	-79.17
15	1.50	0.007	-25.37	0.009	75.41	100.79	0.944	-136.49	0.965	137.84	0.00421	-178.08
16	1.60	0.005	140.86	0.001	9.27	-131.59	0.996	-79.10	1.001	79.67	0.00477	160.70
17	1.70	0.005	103.99	0.004	-115.90	-219.90	0.994	-21.64	1.026	21.43	0.00296	153.66
18	1.80	0.012	4.74	0.005	-116.78	-121.52	0.958	41.71	0.995	-39.91	0.00284	174.44
19	1.90	0.047	-12.14	0.006	-107.45	-95.31	0.923	109.79	0.934	-107.11	0.00977	168.97
20	2.00	0.216	-6.31	0.009	-52.39	-46.07	0.727	-171.21	0.851	176.06	0.07259	175.46

CARGO SHIP L/B=7.0 CB=0.65 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE z_{0wA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION z_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION z_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^3 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.979	-0.56	0.998	88.16	88.73	0.120	7.17	0.090	-15.55	0.00058	-2.75
2	0.50	0.946	-1.05	0.984	86.96	88.01	0.286	11.06	0.212	-20.50	0.00170	0.19
3	0.60	0.886	-1.70	0.953	85.26	86.96	0.571	15.66	0.415	-26.49	0.00365	2.06
4	0.70	0.789	-2.40	0.899	82.94	85.34	0.993	20.90	0.707	-33.74	0.00649	3.50
5	0.80	0.648	-2.79	0.814	79.84	82.63	1.529	26.84	1.068	-42.48	0.00999	4.62
6	0.90	0.466	-1.67	0.694	75.72	77.39	2.082	33.65	1.434	-53.08	0.01351	5.39
7	0.95	0.363	0.70	0.621	73.21	72.51	2.309	37.53	1.588	-59.20	0.01497	5.62
8	1.00	0.259	6.61	0.541	70.34	63.73	2.464	41.89	1.701	-66.01	0.01604	5.79
9	1.05	0.164	22.75	0.453	67.03	44.28	2.517	46.95	1.755	-73.68	0.01658	5.98
10	1.10	0.117	64.44	0.361	63.18	-1.26	2.444	53.14	1.734	-82.45	0.01648	6.34
11	1.15	0.162	103.44	0.266	58.80	-44.64	2.233	61.39	1.629	-92.64	0.01568	7.04
12	1.20	0.241	115.91	0.172	54.27	-61.64	1.914	73.60	1.438	-104.81	0.01421	8.39
13	1.30	0.367	111.74	0.015	102.29	-9.45	1.438	119.83	0.885	-140.31	0.01000	14.87
14	1.40	0.336	89.28	0.092	-174.71	-263.99	1.608	165.28	0.505	148.78	0.00571	26.70
15	1.50	0.143	59.39	0.095	160.40	101.00	1.322	-164.33	0.608	90.72	0.00143	37.71
16	1.60	0.013	-117.16	0.040	129.00	246.16	0.740	-91.86	0.817	61.98	0.00258	-169.29
17	1.70	0.049	-160.23	0.005	6.42	166.65	1.005	-20.34	0.905	20.46	0.00330	178.50
18	1.80	0.025	179.48	0.012	-68.89	-248.37	0.941	37.46	0.874	-41.02	0.00130	147.56
19	1.90	0.002	65.02	0.006	-96.30	-161.32	0.943	111.49	0.935	-110.74	0.00105	14.57
20	2.00	0.008	-18.78	0.001	140.56	159.35	1.005	179.55	0.980	-179.26	0.00113	-25.60

CARGO SHIP L/B=7.0 CB=0.65 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE z_{0wA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION z_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION z_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^3 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.985	-0.60	1.003	87.76	88.36	0.130	7.39	0.093	-16.88	0.00052	-2.80
2	0.50	0.958	-1.13	0.997	86.20	87.33	0.309	11.84	0.217	-23.25	0.00158	0.14
3	0.60	0.907	-1.82	0.980	83.90	85.73	0.625	16.63	0.422	-30.54	0.00345	1.92
4	0.70	0.821	-2.54	0.942	80.63	83.17	1.106	21.71	0.717	-39.20	0.00618	3.24
5	0.80	0.697	-2.74	0.878	75.98	78.72	1.744	27.01	1.080	-49.73	0.00953	4.03
6	0.90	0.535	-0.70	0.783	69.36	70.06	2.453	32.38	1.452	-62.63	0.01279	4.16
7	0.95	0.448	2.68	0.722	64.90	62.21	2.778	34.93	1.606	-70.29	0.01407	4.09
8	1.00	0.368	9.37	0.651	59.16	49.80	3.037	37.12	1.709	-79.02	0.01489	4.11
9	1.05	0.311	20.16	0.569	51.58	31.43	3.172	38.67	1.737	-89.03	0.01512	4.47
10	1.10	0.286	31.44	0.472	41.24	9.80	3.094	39.23	1.662	-100.43	0.01472	5.62
11	1.15	0.264	39.19	0.357	26.83	-12.36	2.672	39.26	1.462	-113.17	0.01380	8.06
12	1.20	0.236	51.77	0.226	7.00	-44.77	1.875	43.62	1.139	-126.08	0.01267	11.84
13	1.30	0.286	56.35	0.038	-120.64	-176.99	1.025	119.66	0.515	-125.90	0.01052	15.59
14	1.40	0.180	29.64	0.082	145.08	115.44	1.355	157.99	0.533	-142.57	0.00561	0.21
15	1.50	0.047	-0.47	0.052	116.30	116.78	0.905	-155.74	0.624	142.72	0.00159	-114.03
16	1.60	0.020	-147.26	0.016	89.57	236.83	0.879	-78.71	0.860	78.59	0.00413	-169.85
17	1.70	0.026	-176.82	0.005	-41.61	135.01	1.016	-21.25	0.956	22.43	0.00344	170.60
18	1.80	0.011	161.42	0.007	-86.44	-247.86	0.953	40.75	0.942	-40.81	0.00104	116.66
19	1.90	0.003	25.12	0.003	-116.48	-141.59	0.979	111.00	0.968	-109.50	0.00149	2.56
20	2.00	0.004	-26.87	0.001	116.39	143.26	1.002	179.49	0.991	-179.27	0.00120	-38.96

CARGO SHIP L/B=7.0 CB=0.65 FN= 0.10 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE ζoA/hA	HEAVE εζ (DEG)	PITCH θA/θwA	PITCH εθ (DEG)	Phase Dif. εθζ (DEG)	REL.BOW MOTION ζrfpA/hA	REL.BOW MOTION εrfp (DEG)	REL.STE MOTION ζrapA/hA	REL.STE MOTION εrap (DEG)	BENDING MOMENT MvA/ρgL²BhA	BENDING MOMENT εM (DEG)
1	0.40	0.992	-0.63	1.007	87.32	87.95	0.140	7.47	0.096	-18.05	0.00043	-2.48
2	0.50	0.971	-1.20	1.012	85.35	86.55	0.337	12.41	0.222	-25.89	0.00141	0.51
3	0.60	0.931	-1.94	1.008	82.36	84.30	0.689	17.28	0.431	-34.63	0.00314	2.44
4	0.70	0.864	-2.64	0.990	77.91	80.55	1.245	22.00	0.729	-45.04	0.00569	3.77
5	0.80	0.771	-2.66	0.956	71.20	73.85	2.030	26.23	1.099	-58.02	0.00873	4.50
6	0.90	0.676	-0.77	0.899	60.42	61.19	3.010	28.55	1.469	-74.79	0.01150	5.07
7	0.95	0.658	-0.25	0.856	51.91	52.17	3.520	27.48	1.598	-85.35	0.01246	6.05
8	1.00	0.665	-5.00	0.787	39.86	44.87	3.897	23.31	1.641	-97.57	0.01311	8.04
9	1.05	0.620	-21.14	0.669	23.49	44.63	3.815	15.61	1.566	-111.65	0.01356	10.58
10	1.10	0.407	-46.34	0.503	3.88	50.21	3.032	8.53	1.320	-128.33	0.01362	13.24
11	1.15	0.115	-60.65	0.321	-19.47	41.17	1.881	9.14	0.834	-142.47	0.01369	16.99
12	1.20	0.110	51.58	0.156	-49.14	-100.71	0.895	36.25	0.420	-118.75	0.01393	17.02
13	1.30	0.174	28.07	0.044	167.73	139.65	1.151	123.63	0.815	-103.13	0.01053	4.89
14	1.40	0.087	7.42	0.052	119.09	111.67	1.145	158.40	0.847	-152.33	0.00398	-22.79
15	1.50	0.018	-29.39	0.029	98.86	128.25	0.884	-144.81	0.825	143.05	0.00298	-144.52
16	1.60	0.017	-161.84	0.008	69.36	231.21	0.948	-78.18	0.930	80.75	0.00487	-175.71
17	1.70	0.017	174.94	0.004	-63.24	-238.17	1.011	-21.43	0.981	22.26	0.00328	163.32
18	1.80	0.006	150.97	0.004	-96.83	-247.80	0.964	41.92	0.969	-41.30	0.00090	77.55
19	1.90	0.003	1.15	0.001	-130.84	-131.98	0.991	110.51	0.984	-109.34	0.00180	-9.48
20	2.00	0.003	-35.47	0.001	87.12	122.59	0.997	179.47	0.998	-179.28	0.00106	-55.59

CARGO SHIP L/B=7.0 CB=0.65 FN= 0.15 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE ζoA/hA	HEAVE εζ (DEG)	PITCH θA/θwA	PITCH εθ (DEG)	Phase Dif. εθζ (DEG)	REL.BOW MOTION ζrfpA/hA	REL.BOW MOTION εrfp (DEG)	REL.STE MOTION ζrapA/hA	REL.STE MOTION εrap (DEG)	BENDING MOMENT MvA/ρgL²BhA	BENDING MOMENT εM (DEG)
1	0.40	0.998	-0.67	1.012	86.83	87.49	0.152	7.38	0.100	-19.05	0.00032	-1.29
2	0.50	0.986	-1.27	1.026	84.40	85.67	0.367	12.74	0.228	-28.39	0.00118	1.86
3	0.60	0.960	-2.05	1.037	80.59	82.64	0.763	17.54	0.441	-38.69	0.00274	4.11
4	0.70	0.921	-2.78	1.045	74.64	77.42	1.418	21.60	0.744	-51.20	0.00501	5.94
5	0.80	0.889	-3.02	1.048	65.06	68.08	2.418	23.87	1.122	-67.23	0.00762	7.91
6	0.90	0.976	-7.88	1.024	46.83	54.71	3.798	18.80	1.454	-88.88	0.01013	13.26
7	0.95	1.067	-22.30	0.950	32.02	54.32	4.312	9.84	1.551	-101.98	0.01172	16.33
8	1.00	0.984	-49.83	0.810	14.63	64.46	4.123	-1.43	1.604	-120.04	0.01300	16.56
9	1.05	0.636	-84.24	0.635	-6.29	77.95	3.268	-9.85	1.353	-148.33	0.01349	19.90
10	1.10	0.239	-121.73	0.411	-32.21	89.51	2.046	-12.19	0.645	179.24	0.01510	22.68
11	1.15	0.037	111.68	0.205	-58.30	-169.98	0.979	8.94	0.121	-53.27	0.01609	18.31
12	1.20	0.114	40.97	0.077	-88.40	-129.37	0.758	68.10	0.620	-64.88	0.01510	11.66
13	1.30	0.109	14.70	0.036	138.66	123.96	1.151	121.47	0.976	-108.87	0.00939	-3.20
14	1.40	0.050	-2.71	0.036	107.41	110.12	1.064	161.49	0.939	-158.88	0.00290	-46.11
15	1.50	0.008	-59.82	0.019	89.34	149.17	0.911	-140.29	0.906	141.00	0.00407	-157.67
16	1.60	0.014	-171.63	0.004	52.07	223.70	0.978	-78.55	0.967	80.86	0.00525	178.84
17	1.70	0.012	169.31	0.003	-77.89	-247.20	1.006	-21.41	0.995	21.89	0.00291	156.50
18	1.80	0.002	137.29	0.003	-105.86	-243.15	0.974	42.50	0.985	-41.76	0.00097	32.25
19	1.90	0.004	-20.08	0.001	-167.23	-147.15	0.998	109.98	0.997	-109.33	0.00194	-24.76
20	2.00	0.003	-41.03	0.001	66.78	107.81	0.992	179.27	1.004	-179.09	0.00075	-86.69

CARGO SHIP L/B=7.0 CB=0.65 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{wA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.006	-0.70	1.016	86.28	86.98	0.164	7.12	0.103	-19.86	0.00019	2.86
2	0.50	1.003	-1.35	1.040	83.33	84.67	0.401	12.77	0.234	-30.67	0.00092	5.34
3	0.60	0.996	-2.19	1.068	78.54	80.73	0.850	17.30	0.451	-42.61	0.00227	8.09
4	0.70	0.999	-3.09	1.103	70.70	73.79	1.633	20.23	0.761	-57.34	0.00422	11.74
5	0.80	1.091	-5.49	1.142	56.75	62.24	2.934	18.48	1.132	-76.46	0.00658	18.91
6	0.90	1.399	-30.98	1.054	30.46	61.45	4.363	1.20	1.528	-99.91	0.01072	24.79
7	0.95	1.310	-61.57	0.948	14.44	76.02	4.277	-10.46	1.815	-123.43	0.01202	22.80
8	1.00	0.891	-98.39	0.798	-9.42	88.97	3.610	-21.04	1.649	-163.25	0.01341	29.14
9	1.05	0.394	-135.79	0.518	-37.87	97.92	2.353	-27.05	0.888	145.87	0.01671	27.87
10	1.10	0.097	178.68	0.265	-61.33	-240.01	1.212	-13.18	0.340	50.78	0.01806	19.99
11	1.15	0.063	58.32	0.114	-82.02	-140.34	0.761	34.31	0.597	-33.68	0.01718	12.58
12	1.20	0.094	27.89	0.039	-115.77	-143.66	0.888	77.43	0.855	-66.16	0.01492	6.10
13	1.30	0.076	7.66	0.030	124.26	116.60	1.130	120.76	1.028	-112.75	0.00830	-9.30
14	1.40	0.032	-8.88	0.027	99.78	108.67	1.029	163.91	0.977	-162.62	0.00228	-78.33
15	1.50	0.005	-103.57	0.013	82.87	186.44	0.934	-138.20	0.946	139.47	0.00495	-166.08
16	1.60	0.012	-178.63	0.002	30.63	209.26	0.992	-78.93	0.987	80.56	0.00538	174.05
17	1.70	0.007	164.18	0.003	-91.89	-256.07	1.002	-21.28	1.005	21.41	0.00231	151.58
18	1.80	0.002	-6.05	0.002	-118.47	-112.42	0.984	42.84	0.997	-42.19	0.00128	-7.77
19	1.90	0.006	-26.00	0.001	90.93	116.93	1.004	109.39	1.009	-109.27	0.00192	-42.98
20	2.00	0.004	-35.82	0.002	64.29	100.12	0.986	178.77	1.008	-178.58	0.00053	-148.75

CARGO SHIP L/B=7.0 CB=0.65 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{wA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.014	-0.75	1.019	85.66	86.41	0.178	6.64	0.106	-20.42	0.00006	34.90
2	0.50	1.022	-1.44	1.053	82.10	83.54	0.440	12.44	0.240	-32.66	0.00063	14.52
3	0.60	1.039	-2.40	1.098	76.15	78.55	0.952	16.44	0.460	-46.22	0.00177	17.28
4	0.70	1.107	-3.91	1.159	65.94	69.85	1.895	17.51	0.774	-62.86	0.00350	25.21
5	0.80	1.403	-13.61	1.186	46.45	60.05	3.487	8.43	1.148	-81.86	0.00686	36.53
6	0.90	1.606	-62.31	1.086	19.72	82.03	4.329	-13.93	2.046	-119.34	0.01064	30.92
7	0.95	1.198	-100.54	1.000	-6.90	93.64	4.016	-27.00	2.122	-165.30	0.01333	40.17
8	1.00	0.587	-138.33	0.661	-38.43	99.90	2.782	-37.55	1.376	139.78	0.01821	33.40
9	1.05	0.199	-169.71	0.346	-61.31	108.41	1.546	-30.36	0.713	75.16	0.01988	22.38
10	1.10	0.047	123.65	0.163	-78.19	-201.84	0.893	2.62	0.639	2.25	0.01919	14.21
11	1.15	0.063	39.00	0.066	-97.18	-136.18	0.819	48.45	0.816	-41.36	0.01724	7.92
12	1.20	0.077	19.96	0.022	-142.95	-162.91	0.964	79.31	0.958	-69.28	0.01444	2.16
13	1.30	0.057	3.08	0.026	114.23	111.15	1.111	120.46	1.050	-115.34	0.00717	-15.03
14	1.40	0.021	-13.51	0.021	94.44	107.94	1.013	165.67	0.996	-164.98	0.00235	-112.39
15	1.50	0.004	-137.82	0.009	78.38	216.20	0.953	-137.05	0.968	138.28	0.00565	-172.81
16	1.60	0.008	174.44	0.001	-13.50	-187.94	1.001	-79.24	1.000	80.06	0.00526	169.92
17	1.70	0.001	129.37	0.003	-107.66	-237.03	1.000	-21.05	1.014	20.86	0.00156	152.92
18	1.80	0.008	-16.84	0.001	-151.74	-134.89	0.995	43.01	1.010	-42.57	0.00168	-40.56
19	1.90	0.012	-24.17	0.002	76.18	100.35	1.011	108.61	1.023	-109.02	0.00164	-64.41
20	2.00	0.007	-23.09	0.004	69.85	92.94	0.979	177.68	1.010	-177.48	0.00096	109.72

CARGO SHIP L/B=7.0 CB=0.65 FN= 0.30 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{a3}/h_A	ε_3 (DEG)	θ_{a5}/θ_{wA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{rFPA}/h_A	ε_{rFP} (DEG)	ζ_{rAPA}/h_A	ε_{rAP} (DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	1.023	-0.80	1.020	84.97	85.77	0.193	5.94	0.109	-20.70	0.00013	151.06
2	0.50	1.044	-1.56	1.064	80.70	82.25	0.483	11.66	0.245	-34.23	0.00038	43.22
3	0.60	1.093	-2.77	1.124	73.35	76.12	1.070	14.77	0.468	-49.18	0.00137	38.00
4	0.70	1.259	-6.01	1.197	60.20	66.21	2.199	12.72	0.781	-66.34	0.00340	47.83
5	0.80	1.727	-28.99	1.147	39.32	68.31	3.747	-4.07	1.389	-82.94	0.00798	42.55
6	0.90	1.564	-94.15	1.232	1.49	95.63	4.383	-27.74	2.621	-155.70	0.01278	53.45
7	0.95	0.858	-134.93	0.868	-34.54	100.38	3.333	-44.07	1.978	147.05	0.01955	40.78
8	1.00	0.338	-163.56	0.463	-59.17	104.39	1.970	-43.52	1.142	93.10	0.02162	25.83
9	1.05	0.102	167.36	0.229	-74.94	-242.30	1.143	-22.33	0.794	35.71	0.02112	16.41
10	1.10	0.037	77.72	0.105	-88.68	-166.40	0.844	16.97	0.809	-12.93	0.01948	9.98
11	1.15	0.059	28.37	0.040	-109.73	-138.10	0.888	53.86	0.920	-46.19	0.01702	4.60
12	1.20	0.065	14.30	0.015	-174.79	-189.08	1.009	79.63	1.011	-71.70	0.01381	-1.15
13	1.30	0.044	-0.10	0.023	107.24	107.33	1.096	120.44	1.059	-117.12	0.00610	-20.55
14	1.40	0.015	-16.30	0.017	90.44	106.74	1.005	167.02	1.004	-166.67	0.00287	-137.96
15	1.50	0.003	-159.20	0.006	75.69	234.89	0.967	-136.33	0.981	137.25	0.00613	-178.72
16	1.60	0.004	156.39	0.001	-91.71	-248.10	1.006	-79.44	1.009	79.45	0.00489	166.85
17	1.70	0.007	-2.64	0.002	-128.06	-125.42	1.000	-20.75	1.023	20.21	0.00101	-178.15
18	1.80	0.018	-17.16	0.001	130.23	147.39	1.010	42.98	1.027	-42.89	0.00199	-78.61
19	1.90	0.026	-18.49	0.004	73.71	92.20	1.019	107.25	1.041	-108.23	0.00089	-146.92
20	2.00	0.034	3.08	0.007	77.16	74.09	0.951	174.69	0.989	-175.21	0.00425	99.47

CARGO SHIP L/B=7.0 CB=0.75 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OSA}/h_A	HEAVE ε_3 (DEG)	PITCH $\theta_{A/\theta_{WA}}$	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{TFPA}/h_A	REL.BOW MOTION ε_{TFP} (DEG)	REL.STE MOTION ζ_{TAPA}/h_A	REL.STE MOTION ε_{TAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.976	0.55	0.987	89.02	88.47	0.108	4.67	0.093	-12.25	0.00115	2.85
2	0.50	0.938	0.66	0.965	88.31	87.64	0.256	8.64	0.217	-16.64	0.00277	5.10
3	0.60	0.869	0.74	0.923	87.20	86.46	0.507	13.47	0.422	-22.05	0.00543	7.20
4	0.70	0.759	0.89	0.855	85.57	84.68	0.874	19.05	0.710	-28.65	0.00911	9.14
5	0.80	0.602	1.60	0.754	83.30	81.70	1.329	25.52	1.054	-36.66	0.01344	10.89
6	0.90	0.403	4.66	0.619	80.16	75.50	1.781	33.22	1.382	-46.53	0.01744	12.38
7	0.95	0.293	9.40	0.539	78.21	68.81	1.955	37.79	1.506	-52.33	0.01892	13.01
8	1.00	0.186	21.88	0.453	75.99	54.11	2.064	43.09	1.582	-58.88	0.01980	13.62
9	1.05	0.115	59.64	0.363	73.41	13.77	2.085	49.47	1.592	-66.43	0.01993	14.33
10	1.10	0.147	109.31	0.271	70.44	-38.87	2.005	57.55	1.523	-75.29	0.01920	15.36
11	1.15	0.234	125.93	0.179	67.27	-58.66	1.832	68.51	1.370	-86.02	0.01759	16.97
12	1.20	0.318	127.73	0.093	65.09	-62.64	1.614	84.13	1.141	-99.61	0.01525	19.70
13	1.30	0.381	113.48	0.047	-144.25	-257.73	1.378	131.37	0.601	-147.05	0.00976	31.14
14	1.40	0.238	89.09	0.117	-158.28	-247.37	1.642	176.35	0.489	127.56	0.00482	47.09
15	1.50	0.033	46.52	0.087	169.25	122.73	1.392	-155.71	0.617	95.85	0.00084	-170.29
16	1.60	0.071	-129.02	0.018	114.59	243.61	0.910	-84.74	0.815	75.27	0.00457	-155.79
17	1.70	0.054	-151.62	0.019	-28.87	122.75	1.130	-23.16	0.839	28.30	0.00342	-175.61
18	1.80	0.010	163.37	0.015	-56.70	-220.07	0.979	35.29	0.840	-41.11	0.00132	80.23
19	1.90	0.015	25.94	0.003	-103.41	-129.34	0.974	109.98	0.954	-109.41	0.00257	22.05
20	2.00	0.010	0.34	0.004	122.70	122.35	1.017	177.72	0.963	-177.45	0.00124	-15.82

CARGO SHIP L/B=7.0 CB=0.75 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OSA}/h_A	HEAVE ε_3 (DEG)	PITCH $\theta_{A/\theta_{WA}}$	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{TFPA}/h_A	REL.BOW MOTION ε_{TFP} (DEG)	REL.STE MOTION ζ_{TAPA}/h_A	REL.STE MOTION ε_{TAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.982	0.52	0.992	88.60	88.08	0.118	5.06	0.096	-13.60	0.00111	3.47
2	0.50	0.950	0.57	0.977	87.52	86.94	0.279	9.51	0.221	-19.28	0.00271	5.61
3	0.60	0.892	0.57	0.947	85.76	85.20	0.560	14.47	0.427	-25.89	0.00531	7.63
4	0.70	0.794	0.65	0.893	83.16	82.52	0.980	19.86	0.715	-33.73	0.00894	9.50
5	0.80	0.654	1.42	0.809	79.32	77.90	1.523	25.74	1.056	-43.31	0.01316	11.04
6	0.90	0.473	5.33	0.692	73.66	68.34	2.102	32.22	1.381	-55.21	0.01699	12.10
7	0.95	0.378	11.00	0.621	69.73	58.73	2.357	35.63	1.499	-62.34	0.01832	12.61
8	1.00	0.296	22.59	0.541	64.51	41.92	2.550	38.94	1.557	-70.52	0.01904	13.34
9	1.05	0.256	41.10	0.453	57.27	16.17	2.640	41.94	1.531	-79.90	0.01901	14.54
10	1.10	0.266	56.37	0.353	46.72	-9.65	2.555	44.24	1.399	-90.45	0.01829	16.46
11	1.15	0.274	63.00	0.241	30.40	-32.59	2.176	46.74	1.150	-101.82	0.01699	19.05
12	1.20	0.274	68.68	0.124	1.99	-66.69	1.507	56.53	0.802	-111.29	0.01531	22.28
13	1.30	0.260	57.15	0.086	-162.03	-219.19	1.239	132.80	0.465	-86.93	0.01153	21.88
14	1.40	0.108	24.33	0.092	148.18	123.85	1.437	161.33	0.556	-135.60	0.00433	-9.04
15	1.50	0.024	-88.14	0.039	118.82	206.96	0.972	-149.21	0.716	142.60	0.00391	-135.25
16	1.60	0.040	-148.08	0.007	37.97	186.04	0.991	-78.70	0.934	83.20	0.00535	-163.72
17	1.70	0.023	-167.91	0.011	-52.01	115.91	1.063	-23.16	0.951	25.75	0.00272	164.35
18	1.80	0.004	96.52	0.007	-74.17	-170.70	0.973	39.99	0.937	-40.89	0.00215	51.92
19	1.90	0.009	19.18	0.001	-153.14	-172.32	0.998	110.02	0.984	-108.84	0.00280	15.05
20	2.00	0.005	-6.76	0.002	112.01	118.78	1.006	178.54	0.985	-178.35	0.00092	-44.05

CARGO SHIP L/B=7.0 CB=0.75 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{a6A}/h_A	HEAVE ε_ζ (deg)	PITCH θ_A/θ_{wA}	PITCH ε_θ (deg)	Phase Dif. $\varepsilon_{\theta\zeta}$ (deg)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (deg)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (deg)	BENDING MOMENT $M_{wA}/\rho g L B h_A$	BENDING MOMENT ε_M (deg)
1	0.40	0.989	0.48	0.996	88.13	87.65	0.129	5.23	0.099	-14.76	0.00105	4.61
2	0.50	0.965	0.48	0.990	86.62	86.13	0.307	10.11	0.227	-21.82	0.00257	6.62
3	0.60	0.918	0.39	0.972	84.14	83.76	0.622	15.07	0.434	-29.71	0.00509	8.79
4	0.70	0.840	0.36	0.934	80.35	79.99	1.110	20.07	0.722	-39.09	0.00860	10.75
5	0.80	0.732	1.07	0.874	74.45	73.37	1.781	24.95	1.064	-50.84	0.01263	12.37
6	0.90	0.619	3.86	0.787	64.58	60.73	2.591	28.44	1.378	-66.05	0.01628	13.96
7	0.95	0.587	4.44	0.727	56.44	52.01	2.996	28.06	1.468	-75.56	0.01767	15.11
8	1.00	0.565	-1.55	0.641	44.70	46.25	3.251	24.71	1.477	-86.51	0.01869	15.93
9	1.05	0.456	-18.30	0.519	28.80	47.10	3.080	19.20	1.372	-100.07	0.01877	15.78
10	1.10	0.222	-35.45	0.371	7.87	43.32	2.420	16.11	1.050	-116.37	0.01764	17.73
11	1.15	0.072	33.43	0.209	-22.07	-55.50	1.484	22.67	0.530	-116.85	0.01704	21.75
12	1.20	0.168	54.48	0.080	-74.20	-128.68	0.870	64.08	0.521	-69.37	0.01647	20.48
13	1.30	0.138	27.43	0.069	153.63	126.20	1.296	125.90	0.937	-96.08	0.01026	4.41
14	1.40	0.043	-4.13	0.050	123.23	127.35	1.175	161.45	0.869	-152.93	0.00309	-58.44
15	1.50	0.021	-122.45	0.018	99.48	221.93	0.952	-140.89	0.891	141.33	0.00536	-146.91
16	1.60	0.027	-155.90	0.005	-9.00	146.90	1.019	-78.66	0.985	82.75	0.00542	-169.90
17	1.70	0.012	-174.98	0.007	-61.68	113.30	1.039	-22.47	0.980	23.97	0.00213	144.69
18	1.80	0.004	54.21	0.004	-82.16	-136.37	0.982	41.53	0.969	-41.58	0.00282	37.16
19	1.90	0.007	14.77	0.001	159.08	144.31	1.005	109.83	0.997	-108.97	0.00278	9.69
20	2.00	0.002	-12.86	0.002	105.43	118.29	1.003	179.00	0.993	-178.88	0.00061	-86.15

CARGO SHIP L/B=7.0 CB=0.75 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{a6A}/h_A	HEAVE ε_ζ (deg)	PITCH θ_A/θ_{wA}	PITCH ε_θ (deg)	Phase Dif. $\varepsilon_{\theta\zeta}$ (deg)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (deg)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (deg)	BENDING MOMENT $M_{wA}/\rho g L B h_A$	BENDING MOMENT ε_M (deg)
1	0.40	0.997	0.44	1.000	87.61	87.18	0.141	5.18	0.102	-15.70	0.00095	6.53
2	0.50	0.981	0.38	1.002	85.61	85.22	0.338	10.38	0.232	-24.15	0.00238	8.52
3	0.60	0.949	0.18	0.997	82.30	82.12	0.694	15.19	0.441	-33.42	0.00478	10.98
4	0.70	0.901	-0.05	0.979	77.02	77.07	1.271	19.51	0.732	-44.62	0.00812	13.46
5	0.80	0.858	-0.11	0.949	68.29	68.40	2.130	22.45	1.078	-58.90	0.01204	16.03
6	0.90	0.916	-7.34	0.877	51.14	58.48	3.254	18.03	1.377	-77.73	0.01637	18.79
7	0.95	0.928	-25.05	0.786	37.80	62.84	3.558	10.19	1.498	-90.71	0.01829	16.84
8	1.00	0.738	-53.64	0.668	21.41	75.05	3.337	2.56	1.499	-112.58	0.01799	14.84
9	1.05	0.388	-87.75	0.511	-2.79	84.96	2.682	-3.32	1.055	-144.26	0.01728	21.00
10	1.10	0.078	-138.09	0.293	-33.80	104.29	1.630	-1.38	0.222	-172.95	0.01878	24.49
11	1.15	0.092	61.43	0.118	-68.90	-130.34	0.888	33.06	0.490	-37.15	0.01887	19.87
12	1.20	0.126	38.14	0.042	-134.27	-172.41	0.941	80.38	0.873	-61.02	0.01647	13.07
13	1.30	0.078	14.57	0.048	134.33	119.76	1.218	122.79	1.041	-106.89	0.00828	-6.82
14	1.40	0.021	-24.81	0.032	112.64	137.45	1.085	164.49	0.951	-160.43	0.00329	-98.00
15	1.50	0.019	-137.34	0.010	87.49	224.83	0.969	-137.75	0.954	139.33	0.00631	-153.97
16	1.60	0.019	-160.42	0.004	-34.93	125.49	1.027	-78.92	1.006	82.00	0.00520	-174.81
17	1.70	0.007	-178.53	0.005	-67.72	110.82	1.026	-21.92	0.992	22.87	0.00164	117.96
18	1.80	0.003	32.32	0.002	-83.47	-115.78	0.990	42.26	0.984	-42.26	0.00315	27.95
19	1.90	0.003	10.37	0.001	113.02	102.65	1.007	109.66	1.004	-109.37	0.00214	13.75
20	2.00	0.001	-172.91	0.001	100.60	273.51	1.003	179.55	1.000	-179.50	0.00073	157.90

CARGO SHIP L/B=7.0 CB=0.75 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.004	0.39	1.002	87.03	86.64	0.154	4.90	0.106	-16.39	0.00084	9.65
2	0.50	0.999	0.27	1.014	84.48	84.21	0.372	10.29	0.237	-26.20	0.00216	11.73
3	0.60	0.988	-0.09	1.022	80.20	80.29	0.778	14.75	0.449	-36.87	0.00442	14.74
4	0.70	0.985	-0.78	1.026	73.09	73.87	1.470	17.92	0.745	-49.87	0.00763	18.49
5	0.80	1.069	-4.26	1.017	60.20	64.45	2.586	16.58	1.097	-66.09	0.01197	22.93
6	0.90	1.244	-35.31	0.898	37.78	73.09	3.596	1.23	1.600	-90.67	0.01718	17.61
7	0.95	1.036	-66.52	0.839	21.27	87.79	3.542	-6.71	1.791	-120.85	0.01625	16.45
8	1.00	0.613	-103.98	0.680	-7.29	96.69	3.031	-16.44	1.368	-166.64	0.01710	28.01
9	1.05	0.210	-146.03	0.390	-38.93	107.10	1.900	-19.20	0.538	125.05	0.02069	27.84
10	1.10	0.051	112.45	0.170	-65.74	-178.19	1.033	4.84	0.498	4.89	0.02119	20.83
11	1.15	0.086	44.89	0.059	-99.86	-144.74	0.869	50.83	0.831	-40.32	0.01903	14.10
12	1.20	0.091	27.74	0.029	-174.88	-202.62	1.023	82.18	1.012	-66.51	0.01541	7.40
13	1.30	0.050	7.52	0.036	124.56	117.04	1.166	122.08	1.062	-112.11	0.00667	-16.96
14	1.40	0.012	-49.26	0.022	106.62	155.88	1.050	166.73	0.982	-164.27	0.00417	-122.53
15	1.50	0.017	-146.37	0.006	76.84	223.20	0.984	-136.35	0.983	137.98	0.00695	-159.17
16	1.60	0.015	-162.19	0.004	-49.21	112.98	1.028	-79.12	1.014	81.33	0.00477	-177.77
17	1.70	0.004	-168.66	0.004	-70.14	98.52	1.018	-21.32	0.996	21.82	0.00114	86.11
18	1.80	0.001	-20.27	0.001	-58.90	-38.63	0.999	42.76	0.993	-43.12	0.00255	19.47
19	1.90	0.002	-151.61	0.001	55.08	206.69	1.005	109.50	1.011	-110.03	0.00109	84.92
20	2.00	0.006	179.29	0.001	-71.47	-250.75	1.004	-179.66	1.008	179.63	0.00292	121.88

CARGO SHIP L/B=7.0 CB=0.75 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.013	0.33	1.004	86.38	86.05	0.168	4.38	0.109	-16.80	0.00071	14.75
2	0.50	1.020	0.12	1.024	83.20	83.08	0.411	9.79	0.243	-27.85	0.00192	16.96
3	0.60	1.035	-0.49	1.045	77.81	78.29	0.876	13.64	0.458	-39.82	0.00407	20.82
4	0.70	1.101	-2.23	1.066	68.48	70.71	1.710	14.87	0.762	-53.97	0.00739	26.36
5	0.80	1.372	-15.14	1.033	51.47	66.61	3.021	5.93	1.201	-69.64	0.01320	27.54
6	0.90	1.340	-67.34	1.017	26.26	93.60	3.660	-10.84	2.129	-119.45	0.01420	19.93
7	0.95	0.894	-106.57	0.891	-5.89	100.68	3.438	-24.20	1.911	-171.32	0.01689	36.74
8	1.00	0.370	-145.41	0.522	-39.33	106.08	2.278	-32.32	1.054	125.38	0.02247	31.84
9	1.05	0.098	171.13	0.242	-62.97	-234.11	1.283	-17.80	0.656	45.43	0.02345	22.65
10	1.10	0.053	69.79	0.097	-84.56	-154.35	0.896	20.05	0.795	-13.55	0.02166	15.72
11	1.15	0.072	34.56	0.033	-126.60	-161.16	0.934	56.97	0.967	-45.98	0.01841	9.80
12	1.20	0.068	21.68	0.025	159.89	138.21	1.056	82.04	1.061	-70.08	0.01426	3.28
13	1.30	0.034	2.73	0.029	118.30	115.57	1.133	121.97	1.067	-115.12	0.00529	-28.92
14	1.40	0.008	-80.86	0.016	102.57	183.43	1.033	168.28	0.996	-166.60	0.00518	-136.96
15	1.50	0.015	-151.00	0.003	68.64	219.64	0.993	-135.71	0.995	137.03	0.00729	-162.50
16	1.60	0.010	-159.06	0.003	-59.60	99.46	1.023	-79.30	1.013	80.57	0.00399	-175.92
17	1.70	0.003	-123.50	0.002	-67.91	55.59	1.010	-20.59	0.997	20.59	0.00068	2.17
18	1.80	0.004	-108.27	0.001	47.85	156.12	1.009	43.23	1.002	-44.29	0.00067	-29.66
19	1.90	0.010	-160.93	0.002	23.25	184.18	1.001	109.29	1.021	-111.11	0.00453	147.27
20	2.00	0.015	179.41	0.003	-75.43	-254.84	1.008	-178.26	1.024	178.16	0.00642	113.52

CARGO SHIP L/B=7.0 CB=0.75 FN= 0.30 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{0GA}/h_A	ε_ζ (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta\zeta}$ (DEG)	ζ_{rFPA}/h_A	ε_{rFP} (DEG)	ζ_{rAPA}/h_A	ε_{rAP} (DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	1.022	0.26	1.005	85.67	85.41	0.183	3.59	0.112	-16.88	0.00059	23.10
2	0.50	1.043	-0.07	1.032	81.77	81.84	0.454	8.80	0.248	-28.96	0.00170	25.11
3	0.60	1.093	-1.12	1.062	75.07	76.19	0.987	11.66	0.467	-41.86	0.00383	29.83
4	0.70	1.259	-5.29	1.085	63.28	68.57	1.978	9.63	0.792	-55.46	0.00778	35.16
5	0.80	1.627	-32.59	1.030	48.28	80.86	3.146	-5.15	1.608	-76.42	0.01346	23.15
6	0.90	1.252	-100.42	1.151	1.85	102.28	3.838	-26.31	2.534	-162.39	0.01594	47.42
7	0.95	0.595	-140.98	0.713	-35.80	105.17	2.769	-41.21	1.658	136.29	0.02403	37.52
8	1.00	0.201	-171.41	0.343	-59.71	111.70	1.624	-35.08	0.960	75.46	0.02565	25.30
9	1.05	0.052	134.36	0.151	-76.88	-211.23	1.037	-7.83	0.827	17.34	0.02427	17.65
10	1.10	0.051	50.95	0.058	-98.57	-149.52	0.905	29.18	0.924	-22.20	0.02146	12.04
11	1.15	0.060	28.13	0.022	-154.83	-182.96	0.979	59.06	1.026	-49.56	0.01765	6.68
12	1.20	0.054	17.66	0.024	143.64	125.98	1.072	81.69	1.082	-72.39	0.01308	-0.20
13	1.30	0.024	-0.98	0.024	113.79	114.77	1.109	122.05	1.065	-117.11	0.00415	-44.25
14	1.40	0.006	-105.44	0.012	100.61	206.04	1.025	169.35	1.001	-168.12	0.00607	-145.93
15	1.50	0.011	-152.50	0.002	72.61	225.10	1.000	-135.49	0.997	136.25	0.00710	-164.37
16	1.60	0.006	-143.15	0.001	-80.90	62.25	1.014	-79.50	1.007	79.63	0.00282	-161.81
17	1.70	0.006	-85.22	0.001	88.86	174.09	1.000	-19.62	0.995	18.97	0.00228	-67.52
18	1.80	0.012	-123.55	0.004	62.93	186.48	1.024	43.83	1.014	-46.07	0.00375	-147.77
19	1.90	0.028	-161.77	0.004	12.48	174.25	0.995	109.01	1.043	-113.09	0.01069	153.89
20	2.00	0.047	-177.18	0.008	-73.89	103.29	1.025	-174.93	1.078	175.13	0.00668	119.66

CARGO SHIP L/B=8.0 CB=0.55 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rPPA}/h_A	REL.BOW MOTION ε_{rPP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.980	-1.03	1.001	87.91	88.94	0.124	8.68	0.089	-15.58	0.00037	-5.99
2	0.50	0.949	-1.71	0.989	86.55	88.26	0.296	12.39	0.209	-20.63	0.00129	-2.26
3	0.60	0.892	-2.55	0.962	84.75	87.30	0.593	16.78	0.413	-26.71	0.00294	-0.45
4	0.70	0.801	-3.43	0.911	82.39	85.81	1.034	21.81	0.709	-33.99	0.00541	0.65
5	0.80	0.672	-4.07	0.831	79.33	83.40	1.595	27.56	1.083	-42.72	0.00856	1.45
6	0.90	0.504	-3.68	0.717	75.39	79.08	2.180	34.15	1.476	-53.22	0.01193	1.95
7	0.95	0.410	-2.44	0.647	73.00	75.44	2.426	37.86	1.650	-59.29	0.01344	2.09
8	1.00	0.313	0.48	0.570	70.30	69.82	2.601	41.96	1.787	-65.99	0.01467	2.15
9	1.05	0.218	7.16	0.486	67.23	60.07	2.672	46.62	1.872	-73.47	0.01550	2.17
10	1.10	0.136	24.05	0.397	63.69	39.64	2.613	52.14	1.890	-81.95	0.01580	2.21
11	1.15	0.094	65.11	0.306	59.54	-5.57	2.404	59.14	1.828	-91.79	0.01550	2.38
12	1.20	0.121	105.65	0.216	54.61	-51.04	2.055	68.98	1.685	-103.52	0.01458	2.82
13	1.30	0.215	128.27	0.050	41.16	-87.11	1.274	112.53	1.216	-137.07	0.01112	5.48
14	1.40	0.275	122.56	0.066	-157.00	-285.56	1.558	173.47	0.838	163.11	0.00672	12.66
15	1.50	0.254	108.65	0.094	177.14	68.49	1.532	-163.57	0.927	99.05	0.00262	24.98
16	1.60	0.100	70.20	0.053	152.65	82.45	0.707	-103.56	1.064	56.53	0.00100	154.07
17	1.70	0.017	-80.76	0.010	112.62	193.38	0.945	-16.36	1.007	13.69	0.00226	173.10
18	1.80	0.022	-139.56	0.009	-44.81	94.76	0.986	37.78	0.908	-44.50	0.00148	161.07
19	1.90	0.001	-4.26	0.006	-73.55	-69.29	0.932	110.01	0.949	-112.04	0.00030	58.58
20	2.00	0.009	-2.07	0.001	108.36	110.43	0.995	179.38	0.988	-179.37	0.00056	-23.80

CARGO SHIP L/B=8.0 CB=0.55 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rPPA}/h_A	REL.BOW MOTION ε_{rPP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.984	-1.05	1.006	87.55	88.60	0.132	9.03	0.091	-16.97	0.00032	-7.52
2	0.50	0.958	-1.75	1.002	85.91	87.66	0.317	13.24	0.213	-23.21	0.00118	-2.99
3	0.60	0.908	-2.59	0.986	83.64	86.23	0.639	17.85	0.419	-30.33	0.00275	-1.16
4	0.70	0.826	-3.40	0.951	80.54	83.94	1.129	22.84	0.718	-38.76	0.00513	-0.12
5	0.80	0.707	-3.71	0.889	76.33	80.04	1.777	28.16	1.097	-48.86	0.00818	0.36
6	0.90	0.553	-2.24	0.796	70.57	72.81	2.493	33.72	1.499	-61.07	0.01139	0.23
7	0.95	0.467	0.12	0.736	66.92	66.80	2.816	36.54	1.681	-68.09	0.01279	-0.08
8	1.00	0.382	4.74	0.667	62.55	57.81	3.071	39.33	1.826	-75.93	0.01388	-0.51
9	1.05	0.307	13.20	0.589	57.14	43.94	3.213	42.02	1.916	-84.78	0.01451	-0.93
10	1.10	0.255	26.46	0.502	50.31	23.85	3.190	44.56	1.930	-94.87	0.01457	-1.21
11	1.15	0.232	41.70	0.406	41.45	-0.25	2.943	47.04	1.854	-106.46	0.01399	-1.06
12	1.20	0.223	54.49	0.302	29.55	-24.93	2.413	50.34	1.677	-119.88	0.01282	0.09
13	1.30	0.251	82.56	0.086	-10.14	-92.71	0.996	93.93	1.086	-152.58	0.00984	5.68
14	1.40	0.301	64.04	0.051	179.80	115.76	1.249	161.48	0.574	165.44	0.00642	6.84
15	1.50	0.164	30.83	0.065	139.21	108.38	0.975	-161.12	0.552	114.56	0.00198	-14.72
16	1.60	0.042	-9.76	0.031	110.35	120.12	0.760	-79.44	0.810	67.24	0.00211	-162.34
17	1.70	0.014	-128.68	0.006	58.36	187.04	1.007	-17.61	0.950	17.45	0.00295	175.35
18	1.80	0.010	-173.84	0.005	-65.80	108.04	0.975	40.60	0.946	-42.56	0.00157	151.61
19	1.90	0.001	60.78	0.003	-97.50	-158.28	0.970	110.70	0.966	-110.22	0.00049	37.95
20	2.00	0.004	-10.79	0.001	120.73	131.52	1.000	179.67	0.993	-179.60	0.00064	-33.53

CARGO SHIP L/B=8.0 CB=0.55 FN= 0.10 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{aa}/h_A	ε_3 (DEG)	θ_A/θ_{wA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{rfpa}/h_A	ε_{rfp} (DEG)	ζ_{rapa}/h_A	ε_{rap} (DEG)	$M_{wa}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	0.989	-1.07	1.011	87.16	88.23	0.141	9.28	0.093	-18.27	0.00025	-9.92
2	0.50	0.968	-1.78	1.016	85.21	86.99	0.339	13.97	0.217	-25.77	0.00103	-3.67
3	0.60	0.926	-2.60	1.013	82.39	84.99	0.693	18.74	0.426	-34.08	0.00249	-1.61
4	0.70	0.857	-3.28	0.996	78.39	81.67	1.246	23.56	0.729	-43.93	0.00472	-0.64
5	0.80	0.758	-3.10	0.960	72.65	75.75	2.014	28.19	1.114	-55.94	0.00755	-0.52
6	0.90	0.640	-0.50	0.899	64.27	64.77	2.936	31.98	1.528	-70.74	0.01038	-1.34
7	0.95	0.590	2.38	0.858	58.37	55.99	3.407	33.01	1.710	-79.70	0.01148	-1.92
8	1.00	0.564	5.58	0.807	50.52	44.94	3.828	32.73	1.843	-90.07	0.01213	-2.28
9	1.05	0.569	5.53	0.740	39.68	34.15	4.100	30.11	1.892	-102.16	0.01219	-1.71
10	1.10	0.568	-4.05	0.640	24.32	28.37	3.979	23.80	1.809	-116.06	0.01175	1.52
11	1.15	0.447	-25.82	0.486	4.34	30.16	3.112	15.12	1.569	-130.61	0.01155	7.49
12	1.20	0.184	-48.57	0.308	-17.31	31.26	1.731	13.95	1.217	-143.87	0.01170	11.22
13	1.30	0.197	58.17	0.067	-85.17	-143.34	0.761	124.21	0.581	-147.04	0.01060	9.46
14	1.40	0.180	26.18	0.053	148.48	122.29	1.177	161.22	0.601	-159.57	0.00630	-4.95
15	1.50	0.080	0.75	0.042	113.56	112.81	0.862	-150.38	0.678	139.02	0.00155	-69.82
16	1.60	0.019	-44.43	0.018	88.96	133.39	0.870	-76.44	0.852	76.50	0.00323	-167.51
17	1.70	0.011	-151.24	0.003	25.87	177.11	1.015	-18.93	0.960	19.48	0.00338	170.44
18	1.80	0.006	170.27	0.003	-78.61	-248.87	0.977	41.77	0.967	-42.32	0.00150	142.66
19	1.90	0.001	56.14	0.002	-112.86	-169.00	0.986	110.56	0.980	-109.74	0.00061	16.28
20	2.00	0.002	-18.92	0.000	105.20	124.12	0.999	179.74	0.997	-179.67	0.00063	-50.17

CARGO SHIP L/B=8.0 CB=0.55 FN= 0.15 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{aa}/h_A	ε_3 (DEG)	θ_A/θ_{wA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{rfpa}/h_A	ε_{rfp} (DEG)	ζ_{rapa}/h_A	ε_{rap} (DEG)	$M_{wa}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	0.995	-1.09	1.016	86.74	87.83	0.150	9.44	0.096	-19.47	0.00016	-15.09
2	0.50	0.979	-1.81	1.030	84.42	86.23	0.364	14.56	0.222	-28.25	0.00084	-4.30
3	0.60	0.948	-2.58	1.042	80.96	83.55	0.755	19.40	0.433	-37.92	0.00215	-1.65
4	0.70	0.897	-3.07	1.047	75.84	78.91	1.388	23.85	0.742	-49.49	0.00417	-0.66
5	0.80	0.834	-2.39	1.045	68.07	70.46	2.326	27.31	1.135	-63.97	0.00662	-0.73
6	0.90	0.815	-0.09	1.032	55.26	55.35	3.590	27.54	1.545	-82.95	0.00873	-0.97
7	0.95	0.872	-1.26	1.014	44.89	46.15	4.304	24.27	1.692	-95.09	0.00924	0.50
8	1.00	0.983	-10.84	0.958	29.88	40.72	4.849	16.29	1.735	-109.06	0.00945	5.89
9	1.05	1.001	-34.66	0.811	10.09	44.75	4.627	3.15	1.639	-123.73	0.01038	14.83
10	1.10	0.736	-68.54	0.591	-10.05	58.49	3.372	-8.11	1.423	-139.82	0.01195	18.14
11	1.15	0.344	-105.78	0.389	-30.35	75.43	1.900	-9.80	0.996	-157.10	0.01299	18.11
12	1.20	0.068	-179.85	0.219	-54.00	125.85	0.735	12.44	0.490	-155.08	0.01349	15.55
13	1.30	0.154	34.89	0.040	-138.71	-173.60	0.977	127.81	0.666	-115.03	0.01103	3.49
14	1.40	0.110	9.11	0.040	126.90	117.79	1.091	161.58	0.799	-158.08	0.00541	-16.19
15	1.50	0.046	-13.08	0.029	100.28	113.36	0.866	-143.75	0.803	141.21	0.00186	-113.48
16	1.60	0.010	-66.08	0.011	76.79	142.87	0.924	-76.64	0.903	79.04	0.00395	-174.39
17	1.70	0.008	-167.11	0.002	1.02	168.12	1.013	-19.59	0.974	20.20	0.00352	164.94
18	1.80	0.004	159.16	0.003	-91.69	-249.86	0.980	42.41	0.980	-42.28	0.00125	134.34
19	1.90	0.002	-2.59	0.001	-123.30	-120.70	0.991	110.35	0.987	-109.56	0.00061	-15.11
20	2.00	0.004	-25.52	0.000	48.46	73.98	0.995	-179.99	0.998	-179.80	0.00041	-88.00

CARGO SHIP L/B=8.0 CB=0.55 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_{A}/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.001	-1.11	1.021	86.27	87.37	0.161	9.48	0.098	-20.56	0.00005	-41.51
2	0.50	0.992	-1.82	1.045	83.54	85.36	0.393	14.97	0.227	-30.67	0.00061	-4.54
3	0.60	0.974	-2.54	1.072	79.32	81.86	0.827	19.74	0.441	-41.82	0.00174	-0.83
4	0.70	0.949	-2.82	1.104	72.76	75.58	1.566	23.54	0.755	-55.43	0.00347	0.58
5	0.80	0.955	-2.04	1.145	62.13	64.17	2.744	24.93	1.153	-73.01	0.00537	1.60
6	0.90	1.160	-6.37	1.173	41.58	47.95	4.486	17.49	1.499	-97.09	0.00663	9.76
7	0.95	1.369	-21.73	1.107	24.30	46.03	5.197	5.76	1.558	-110.63	0.00774	21.40
8	1.00	1.374	-51.09	0.915	4.88	55.97	4.883	-9.63	1.596	-125.04	0.01022	27.04
9	1.05	1.009	-86.71	0.700	-13.50	73.21	3.663	-20.34	1.496	-148.82	0.01227	26.22
10	1.10	0.523	-123.69	0.486	-35.19	88.50	2.252	-24.09	0.966	-179.14	0.01413	24.23
11	1.15	0.173	-167.42	0.281	-58.11	109.31	1.018	-11.92	0.250	162.43	0.01530	18.69
12	1.20	0.073	89.24	0.136	-80.71	-169.95	0.520	56.06	0.335	-74.07	0.01491	11.74
13	1.30	0.115	20.83	0.027	-174.83	-195.66	1.045	125.17	0.836	-112.26	0.01063	-2.16
14	1.40	0.075	0.05	0.031	114.63	114.59	1.045	163.03	0.889	-160.68	0.00456	-26.22
15	1.50	0.030	-20.70	0.021	91.53	112.22	0.888	-140.28	0.874	140.57	0.00242	-139.18
16	1.60	0.006	-88.28	0.008	67.97	156.25	0.953	-77.15	0.935	79.80	0.00444	179.53
17	1.70	0.006	177.91	0.001	-35.13	-213.05	1.007	-20.07	0.988	20.47	0.00341	159.95
18	1.80	0.002	132.60	0.002	-109.55	-242.15	0.979	42.74	0.990	-42.10	0.00083	133.38
19	1.90	0.005	-18.69	0.001	-127.35	-108.67	0.989	110.26	0.987	-109.28	0.00066	-55.90
20	2.00	0.011	-23.83	0.000	-85.17	-61.34	0.989	-179.58	0.990	-179.88	0.00049	-157.56

CARGO SHIP L/B=8.0 CB=0.55 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_{A}/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.007	-1.13	1.026	85.74	86.86	0.172	9.38	0.100	-21.52	0.00009	-162.68
2	0.50	1.006	-1.83	1.060	82.53	84.36	0.425	15.15	0.231	-32.99	0.00035	-3.29
3	0.60	1.005	-2.49	1.105	77.39	79.89	0.912	19.69	0.449	-45.72	0.00128	2.17
4	0.70	1.021	-2.66	1.166	69.01	71.66	1.785	22.37	0.766	-61.59	0.00264	5.26
5	0.80	1.155	-3.42	1.249	54.04	57.46	3.294	19.88	1.145	-82.60	0.00394	13.43
6	0.90	1.644	-26.10	1.194	23.89	49.99	5.165	-0.20	1.410	-106.15	0.00682	37.40
7	0.95	1.680	-56.14	1.008	6.86	63.00	4.998	-15.61	1.666	-121.24	0.00973	36.97
8	1.00	1.301	-92.02	0.840	-11.27	80.75	4.055	-26.84	1.749	-152.76	0.01214	35.31
9	1.05	0.730	-128.85	0.611	-35.56	93.29	2.728	-33.88	1.221	165.32	0.01509	30.86
10	1.10	0.293	-163.28	0.361	-58.56	104.73	1.418	-28.49	0.475	112.85	0.01685	22.20
11	1.15	0.086	143.42	0.185	-77.62	-221.04	0.642	11.36	0.308	-13.02	0.01672	13.98
12	1.20	0.073	55.29	0.084	-97.73	-153.03	0.679	74.98	0.624	-63.57	0.01526	7.06
13	1.30	0.089	12.30	0.022	159.97	147.68	1.063	123.49	0.924	-113.62	0.01005	-6.58
14	1.40	0.055	-5.54	0.025	105.75	111.29	1.018	164.47	0.938	-163.00	0.00371	-36.55
15	1.50	0.020	-25.96	0.016	84.92	110.88	0.908	-138.39	0.915	139.71	0.00304	-154.85
16	1.60	0.003	-122.08	0.005	61.94	184.02	0.972	-77.82	0.961	79.90	0.00470	173.10
17	1.70	0.004	155.69	0.002	-90.91	-246.60	1.000	-20.56	1.002	20.70	0.00314	155.32
18	1.80	0.002	19.20	0.003	-120.63	-139.83	0.974	42.74	0.996	-41.60	0.00055	152.59
19	1.90	0.012	-17.29	0.002	-124.44	-107.15	0.979	110.35	0.978	-108.76	0.00070	-110.86
20	2.00	0.028	-21.58	0.001	-119.52	-97.94	0.980	-178.83	0.969	-179.95	0.00202	163.05

CARGO SHIP L/B=8.0 CB=0.55 FN= 0.30 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3A}/h_A	ε_3 (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta 3}$ (DEG)	ζ_{rFPA}/h_A	ε_{rFP} (DEG)	ζ_{rAPA}/h_A	ε_{rAP} (DEG)	$M_{rA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	1.014	-1.15	1.030	85.14	86.28	0.185	9.11	0.102	-22.31	0.00022	-176.44
2	0.50	1.023	-1.84	1.075	81.37	83.21	0.462	15.05	0.235	-35.17	0.00007	19.25
3	0.60	1.043	-2.46	1.138	75.12	77.58	1.012	19.11	0.455	-49.54	0.00078	12.77
4	0.70	1.119	-2.86	1.229	64.40	67.26	2.053	20.01	0.770	-67.61	0.00178	20.87
5	0.80	1.462	-9.31	1.315	43.34	52.65	3.917	10.70	1.091	-89.78	0.00351	46.42
6	0.90	1.919	-53.56	1.091	12.92	66.48	4.976	-17.14	1.715	-112.59	0.00874	47.54
7	0.95	1.627	-89.06	0.999	-4.80	84.26	4.453	-29.19	2.071	-148.07	0.01158	46.50
8	1.00	0.999	-127.14	0.776	-32.03	95.11	3.302	-40.12	1.671	164.11	0.01579	38.94
9	1.05	0.448	-158.94	0.468	-56.52	102.42	1.909	-40.44	0.901	111.98	0.01819	26.62
10	1.10	0.158	169.98	0.250	-74.40	-244.39	0.949	-18.70	0.492	38.19	0.01833	16.87
11	1.15	0.055	101.19	0.124	-89.90	-191.10	0.639	35.66	0.596	-29.71	0.01718	9.65
12	1.20	0.068	38.03	0.054	-110.20	-148.23	0.801	79.00	0.786	-65.74	0.01521	3.56
13	1.30	0.072	6.39	0.019	141.25	134.86	1.065	122.41	0.973	-115.33	0.00934	-10.37
14	1.40	0.042	-9.57	0.021	98.80	108.36	1.002	165.65	0.966	-164.71	0.00296	-49.15
15	1.50	0.013	-27.48	0.012	79.84	107.32	0.927	-137.22	0.944	138.74	0.00358	-167.46
16	1.60	0.003	169.83	0.002	54.82	-115.01	0.985	-78.52	0.983	79.79	0.00480	166.18
17	1.70	0.004	124.98	0.003	-111.92	-236.90	0.996	-21.16	1.016	21.07	0.00298	152.25
18	1.80	0.007	6.62	0.004	-120.55	-127.17	0.964	42.31	0.997	-40.69	0.00121	172.94
19	1.90	0.027	-14.51	0.004	-116.99	-102.48	0.954	110.42	0.956	-107.88	0.00298	176.43
20	2.00	0.075	-17.87	0.003	-100.05	-82.18	0.937	-176.57	0.924	179.48	0.01408	161.34

CARGO SHIP L/B=8.0 CB=0.65 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{wa}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.978	-0.49	0.996	88.26	88.75	0.118	7.34	0.089	-14.12	0.00064	-1.68
2	0.50	0.944	-0.89	0.980	87.15	88.04	0.281	11.16	0.210	-18.93	0.00181	0.50
3	0.60	0.882	-1.39	0.946	85.65	87.04	0.559	15.75	0.414	-24.75	0.00385	2.18
4	0.70	0.784	-1.87	0.889	83.63	85.50	0.970	21.05	0.707	-31.77	0.00680	3.45
5	0.80	0.642	-1.99	0.800	81.00	82.99	1.486	27.16	1.071	-40.18	0.01048	4.54
6	0.90	0.460	-0.63	0.678	77.60	78.24	2.011	34.32	1.442	-50.33	0.01427	5.41
7	0.95	0.358	1.72	0.604	75.56	73.84	2.225	38.45	1.598	-56.22	0.01588	5.76
8	1.00	0.254	7.23	0.522	73.27	66.04	2.369	43.12	1.714	-62.77	0.01712	6.06
9	1.05	0.158	21.77	0.435	70.73	48.96	2.416	48.61	1.773	-70.14	0.01784	6.34
10	1.10	0.101	63.05	0.345	67.90	4.86	2.345	55.34	1.759	-78.59	0.01791	6.67
11	1.15	0.133	109.72	0.253	64.83	-44.89	2.148	64.20	1.664	-88.55	0.01726	7.21
12	1.20	0.203	126.30	0.163	61.85	-64.45	1.849	76.95	1.487	-100.73	0.01588	8.13
13	1.30	0.315	130.57	0.013	122.09	-8.48	1.384	125.54	0.975	-138.45	0.01135	12.55
14	1.40	0.331	120.45	0.097	-159.43	-279.88	1.737	173.44	0.709	148.66	0.00612	25.04
15	1.50	0.199	98.30	0.108	-179.05	-277.35	1.598	-160.86	0.917	88.52	0.00208	59.15
16	1.60	0.015	124.35	0.056	152.80	28.45	0.795	-106.22	0.978	54.10	0.00207	174.34
17	1.70	0.066	-148.76	0.005	52.74	201.50	0.973	-20.06	0.896	17.25	0.00318	-179.75
18	1.80	0.040	-169.33	0.016	-58.05	111.27	0.945	34.83	0.822	-42.66	0.00145	155.61
19	1.90	0.003	126.19	0.008	-86.29	-212.48	0.912	111.52	0.914	-112.28	0.00103	17.07
20	2.00	0.010	-14.92	0.001	150.42	165.34	1.006	179.66	0.976	-179.36	0.00123	-20.44

CARGO SHIP L/B=8.0 CB=0.65 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{aA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{wa}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.983	-0.51	1.000	87.91	88.42	0.127	7.72	0.092	-15.48	0.00059	-1.61
2	0.50	0.954	-0.94	0.992	86.49	87.43	0.302	12.02	0.215	-21.48	0.00172	0.53
3	0.60	0.900	-1.47	0.970	84.48	85.95	0.606	16.78	0.420	-28.37	0.00368	2.07
4	0.70	0.811	-1.94	0.927	81.67	83.61	1.065	21.98	0.714	-36.51	0.00655	3.26
5	0.80	0.681	-1.84	0.855	77.81	79.66	1.662	27.61	1.080	-46.26	0.01012	4.11
6	0.90	0.511	0.44	0.750	72.47	72.03	2.307	33.71	1.456	-58.11	0.01373	4.52
7	0.95	0.417	3.92	0.684	69.08	65.16	2.590	36.97	1.616	-64.98	0.01523	4.53
8	1.00	0.324	11.23	0.610	64.98	53.75	2.804	40.38	1.734	-72.70	0.01632	4.51
9	1.05	0.249	26.07	0.526	59.83	33.76	2.911	43.89	1.788	-81.48	0.01686	4.61
10	1.10	0.219	49.55	0.435	53.22	3.67	2.866	47.62	1.757	-91.54	0.01671	5.00
11	1.15	0.245	69.82	0.335	44.46	-25.36	2.621	51.92	1.626	-103.14	0.01587	6.04
12	1.20	0.292	78.80	0.228	32.25	-46.55	2.143	58.35	1.387	-116.54	0.01445	8.15
13	1.30	0.358	76.18	0.029	-48.98	-125.16	1.124	109.56	0.682	-147.50	0.01105	14.84
14	1.40	0.272	49.97	0.097	164.39	114.42	1.483	160.46	0.259	-163.01	0.00688	10.29
15	1.50	0.088	17.70	0.074	129.30	111.60	0.996	-164.22	0.444	131.44	0.00126	-59.34
16	1.60	0.019	-131.93	0.025	100.58	232.50	0.810	-80.17	0.802	74.71	0.00373	-167.21
17	1.70	0.033	-172.22	0.005	-28.14	144.08	1.014	-21.00	0.939	22.15	0.00354	172.78
18	1.80	0.016	167.74	0.008	-81.48	-249.22	0.944	39.79	0.921	-40.55	0.00116	126.09
19	1.90	0.002	45.69	0.004	-108.99	-154.68	0.967	111.31	0.955	-109.79	0.00153	7.07
20	2.00	0.005	-22.82	0.001	125.52	148.35	1.003	179.52	0.988	-179.28	0.00134	-31.36

CARGO SHIP L/B=8.0 CB=0.65 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.989	-0.54	1.005	87.51	88.05	0.136	7.97	0.095	-16.72	0.00052	-1.18
2	0.50	0.965	-0.99	1.005	85.76	86.75	0.325	12.69	0.219	-23.98	0.00156	0.93
3	0.60	0.920	-1.53	0.995	83.15	84.69	0.660	17.57	0.426	-32.06	0.00341	2.48
4	0.70	0.845	-1.96	0.969	79.39	81.35	1.180	22.51	0.724	-41.58	0.00613	3.64
5	0.80	0.736	-1.59	0.920	73.91	75.50	1.892	27.38	1.093	-53.23	0.00947	4.38
6	0.90	0.604	1.43	0.844	65.79	64.36	2.728	31.68	1.473	-67.70	0.01272	4.60
7	0.95	0.545	4.86	0.794	59.93	55.06	3.144	33.02	1.627	-76.52	0.01397	4.84
8	1.00	0.509	8.80	0.733	51.94	43.13	3.502	33.02	1.719	-86.73	0.01477	5.54
9	1.05	0.497	8.83	0.651	40.70	31.86	3.680	30.67	1.714	-98.47	0.01511	7.13
10	1.10	0.448	-0.60	0.534	25.02	25.63	3.431	25.48	1.580	-111.68	0.01512	9.56
11	1.15	0.277	-13.00	0.381	4.98	17.97	2.566	21.13	1.296	-126.09	0.01483	12.11
12	1.20	0.125	24.17	0.220	-20.44	-44.61	1.419	28.75	0.855	-136.68	0.01439	14.61
13	1.30	0.235	40.85	0.047	-159.54	-200.40	1.087	124.80	0.606	-104.60	0.01210	8.92
14	1.40	0.133	15.79	0.069	128.87	113.08	1.235	156.42	0.730	-145.39	0.00556	-12.39
15	1.50	0.033	-13.74	0.040	104.96	118.70	0.867	-149.72	0.738	144.63	0.00227	-128.76
16	1.60	0.018	-153.28	0.012	78.50	231.78	0.915	-77.95	0.894	80.17	0.00466	-172.95
17	1.70	0.021	178.70	0.004	-53.21	-231.91	1.013	-21.37	0.970	22.38	0.00352	166.06
18	1.80	0.009	157.29	0.005	-92.38	-249.67	0.958	41.44	0.957	-41.01	0.00098	93.77
19	1.90	0.002	16.44	0.002	-122.34	-138.79	0.985	110.79	0.976	-109.40	0.00188	-3.36
20	2.00	0.004	-29.81	0.001	101.60	131.41	0.999	179.50	0.995	-179.31	0.00130	-43.00

CARGO SHIP L/B=8.0 CB=0.65 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.995	-0.56	1.010	87.08	87.63	0.146	8.08	0.097	-17.82	0.00042	-0.01
2	0.50	0.978	-1.03	1.019	84.93	85.96	0.351	13.19	0.224	-26.38	0.00136	1.95
3	0.60	0.944	-1.59	1.022	81.64	83.23	0.723	18.05	0.434	-35.78	0.00305	3.69
4	0.70	0.889	-1.96	1.015	76.70	78.67	1.321	22.54	0.734	-46.96	0.00556	5.04
5	0.80	0.820	-1.42	0.997	69.10	70.52	2.193	26.16	1.109	-61.00	0.00854	6.21
6	0.90	0.790	0.05	0.961	56.23	56.18	3.342	26.52	1.475	-79.42	0.01129	8.39
7	0.95	0.834	-2.87	0.922	45.59	48.46	3.947	23.00	1.588	-90.86	0.01247	11.04
8	1.00	0.886	-15.99	0.835	30.78	46.77	4.276	15.08	1.619	-103.59	0.01381	13.99
9	1.05	0.777	-42.22	0.687	12.77	54.99	3.881	4.81	1.564	-119.60	0.01492	14.95
10	1.10	0.445	-75.01	0.506	-8.42	66.59	2.829	-2.06	1.242	-142.02	0.01529	16.92
11	1.15	0.097	-109.99	0.305	-34.88	75.11	1.547	0.90	0.579	-157.44	0.01613	18.33
12	1.20	0.101	53.88	0.135	-65.89	-119.76	0.708	45.26	0.350	-89.90	0.01623	14.24
13	1.30	0.147	21.35	0.040	155.04	133.68	1.152	122.54	0.893	-105.17	0.01136	0.19
14	1.40	0.074	2.29	0.046	112.66	110.37	1.100	159.18	0.896	-154.91	0.00416	-28.66
15	1.50	0.015	-36.25	0.025	93.73	129.98	0.887	-142.73	0.860	142.57	0.00334	-148.16
16	1.60	0.016	-165.36	0.006	63.60	228.95	0.960	-78.21	0.944	80.86	0.00517	-178.55
17	1.70	0.015	172.65	0.004	-69.20	-241.84	1.008	-21.43	0.987	22.12	0.00328	159.61
18	1.80	0.005	149.58	0.004	-100.42	-250.00	0.968	42.18	0.975	-41.46	0.00098	54.73
19	1.90	0.003	-10.48	0.001	-136.88	-126.40	0.994	110.28	0.989	-109.35	0.00209	-15.15
20	2.00	0.003	-37.04	0.001	74.43	111.47	0.994	179.36	1.001	-179.18	0.00101	-60.33

CARGO SHIP L/B=8.0 CB=0.65 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{FPA}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{SAPA}/h_A	REL.STE MOTION ε_{SAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.001	-0.58	1.014	86.58	87.17	0.157	8.03	0.100	-18.76	0.00030	3.01
2	0.50	0.992	-1.07	1.032	84.00	85.07	0.381	13.45	0.229	-28.65	0.00112	4.33
3	0.60	0.973	-1.64	1.050	79.91	81.55	0.796	18.14	0.441	-39.46	0.00263	6.36
4	0.70	0.948	-2.02	1.067	73.48	75.50	1.495	21.87	0.746	-52.56	0.00485	8.55
5	0.80	0.953	-1.97	1.084	62.92	64.89	2.590	23.26	1.121	-69.36	0.00743	12.02
6	0.90	1.140	-10.26	1.059	42.38	52.64	4.102	15.12	1.440	-90.92	0.01059	20.15
7	0.95	1.253	-29.61	0.964	26.99	56.61	4.514	4.22	1.588	-103.37	0.01296	21.38
8	1.00	1.108	-60.82	0.827	9.97	70.80	4.157	-7.08	1.728	-125.14	0.01433	20.01
9	1.05	0.683	-97.76	0.653	-13.56	84.20	3.205	-16.22	1.401	-160.49	0.01552	23.78
10	1.10	0.246	-137.49	0.401	-41.46	96.03	1.852	-18.00	0.566	157.24	0.01790	22.39
11	1.15	0.045	114.69	0.190	-66.65	-181.33	0.841	10.94	0.221	-24.52	0.01842	15.58
12	1.20	0.103	38.26	0.070	-95.48	-133.74	0.766	71.96	0.676	-63.90	0.01680	8.60
13	1.30	0.100	11.76	0.033	134.22	122.46	1.139	121.13	0.993	-110.21	0.01029	-5.66
14	1.40	0.046	-5.13	0.033	103.90	109.03	1.047	162.04	0.955	-159.96	0.00316	-47.13
15	1.50	0.008	-62.33	0.017	86.63	148.96	0.914	-139.57	0.918	140.68	0.00424	-159.45
16	1.60	0.014	-173.46	0.004	48.81	222.27	0.981	-78.61	0.972	80.79	0.00544	176.72
17	1.70	0.010	168.40	0.003	-82.46	-250.87	1.004	-21.37	0.998	21.72	0.00284	154.13
18	1.80	0.001	112.42	0.003	-109.13	-221.55	0.977	42.61	0.989	-41.89	0.00115	15.45
19	1.90	0.005	-23.30	0.000	139.94	163.24	1.000	109.74	1.002	-109.31	0.00215	-29.61
20	2.00	0.003	-37.79	0.002	65.33	103.11	0.989	179.00	1.006	-178.82	0.00062	-95.39

CARGO SHIP L/B=8.0 CB=0.65 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{FPA}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{SAPA}/h_A	REL.STE MOTION ε_{SAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.008	-0.61	1.018	86.03	86.64	0.169	7.79	0.102	-19.51	0.00016	13.06
2	0.50	1.008	-1.12	1.045	82.93	84.05	0.414	13.43	0.233	-30.74	0.00085	9.75
3	0.60	1.007	-1.72	1.078	77.90	79.62	0.881	17.77	0.448	-42.99	0.00216	11.91
4	0.70	1.027	-2.29	1.120	69.61	71.90	1.706	20.26	0.755	-58.02	0.00409	16.42
5	0.80	1.167	-4.97	1.163	54.74	59.70	3.092	17.36	1.115	-76.97	0.00672	25.75
6	0.90	1.535	-34.08	1.053	28.74	62.82	4.473	-1.54	1.590	-98.27	0.01185	28.33
7	0.95	1.428	-65.80	0.977	13.22	79.02	4.371	-12.74	1.984	-124.81	0.01316	26.57
8	1.00	0.966	-104.37	0.835	-13.23	91.15	3.677	-24.79	1.799	-169.05	0.01566	32.33
9	1.05	0.419	-142.28	0.522	-43.08	99.20	2.284	-31.31	0.948	136.72	0.01952	26.85
10	1.10	0.109	175.95	0.260	-65.82	-241.77	1.128	-14.90	0.402	45.73	0.02044	17.72
11	1.15	0.057	61.83	0.111	-85.40	-147.23	0.734	36.10	0.621	-33.38	0.01911	10.34
12	1.20	0.087	26.82	0.038	-117.43	-144.25	0.886	77.99	0.863	-66.54	0.01651	4.14
13	1.30	0.073	6.10	0.029	122.08	115.98	1.121	120.63	1.031	-113.43	0.00927	-10.40
14	1.40	0.031	-9.93	0.026	97.89	107.82	1.022	164.19	0.982	-163.07	0.00249	-71.55
15	1.50	0.005	-100.30	0.012	81.50	181.80	0.936	-137.95	0.949	139.32	0.00500	-167.22
16	1.60	0.011	-179.54	0.002	30.38	209.92	0.993	-78.97	0.988	80.42	0.00550	172.56
17	1.70	0.005	162.67	0.003	-96.01	-258.68	1.001	-21.22	1.007	21.25	0.00221	151.11
18	1.80	0.004	-13.07	0.002	-123.99	-110.92	0.987	42.87	1.001	-42.28	0.00149	-17.96
19	1.90	0.009	-24.99	0.001	82.73	107.73	1.007	109.09	1.015	-109.16	0.00205	-46.32
20	2.00	0.005	-30.43	0.003	66.98	97.41	0.982	178.27	1.010	-178.06	0.00040	172.67

CARGO SHIP L/B=8.0 CB=0.65 FN= 0.30 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3A}/h_A	ε_3(DEG)	θ_A/θ_{WA}	ε_θ(DEG)	$\varepsilon_{\theta 3}$(DEG)	ζ_{3FPA}/h_A	ε_{FP}(DEG)	ζ_{3AP}/h_A	ε_{AP}(DEG)	$M_{WA}/\rho gL^2Bh_A$	ε_M(DEG)
1	0.40	1.015	-0.64	1.020	85.40	86.04	0.182	7.34	0.105	-20.03	0.00007	81.42
2	0.50	1.026	-1.18	1.058	81.71	82.89	0.451	13.06	0.237	-32.56	0.00057	23.34
3	0.60	1.049	-1.88	1.105	75.56	77.44	0.980	16.80	0.454	-46.20	0.00170	23.58
4	0.70	1.134	-3.12	1.168	64.99	68.10	1.958	17.37	0.760	-62.71	0.00353	31.96
5	0.80	1.473	-13.34	1.184	45.26	58.60	3.581	7.42	1.126	-79.72	0.00750	41.29
6	0.90	1.718	-62.26	1.110	20.60	82.85	4.431	-14.08	2.181	-117.05	0.01158	34.49
7	0.95	1.314	-101.64	1.054	-7.55	94.09	4.181	-28.34	2.322	-165.10	0.01540	42.74
8	1.00	0.645	-140.60	0.689	-40.75	99.85	2.834	-40.41	1.497	138.61	0.02093	32.61
9	1.05	0.224	-170.77	0.356	-63.66	107.10	1.528	-33.11	0.764	75.88	0.02230	20.68
10	1.10	0.053	134.86	0.167	-80.01	-214.87	0.864	1.26	0.645	3.93	0.02129	12.54
11	1.15	0.057	41.69	0.069	-97.85	-139.55	0.802	48.44	0.808	-40.95	0.01909	6.47
12	1.20	0.074	19.66	0.023	-139.46	-159.12	0.955	79.35	0.951	-69.41	0.01605	0.94
13	1.30	0.056	2.30	0.025	113.42	111.13	1.105	120.44	1.049	-115.66	0.00822	-14.66
14	1.40	0.022	-13.64	0.021	93.38	107.02	1.010	165.77	0.997	-165.13	0.00230	-101.48
15	1.50	0.004	-130.72	0.009	78.04	208.76	0.952	-136.98	0.968	138.21	0.00561	-173.58
16	1.60	0.007	173.21	0.001	-13.09	-186.30	1.000	-79.24	1.000	79.92	0.00532	169.04
17	1.70	0.001	35.19	0.002	-112.05	-147.24	1.000	-20.99	1.016	20.70	0.00149	156.67
18	1.80	0.011	-16.86	0.001	-170.44	-153.58	0.999	42.98	1.015	-42.63	0.00183	-48.50
19	1.90	0.016	-22.15	0.003	75.86	98.01	1.014	108.19	1.030	-108.75	0.00154	-67.46
20	2.00	0.011	-18.15	0.005	73.41	91.56	0.973	176.70	1.008	-176.48	0.00183	86.05

CARGO SHIP L/B=8.0 CB=0.75 FN= 0.00 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		z_{0wA}/h_A	ε_z (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta z}$ (DEG)	z_{rfpA}/h_A	ε_{rfp} (DEG)	z_{rapA}/h_A	ε_{rap} (DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	0.975	0.63	0.986	89.12	88.49	0.106	5.23	0.092	-11.14	0.00118	2.76
2	0.50	0.936	0.85	0.963	88.50	87.65	0.251	9.15	0.216	-15.43	0.00284	4.71
3	0.60	0.865	1.10	0.919	87.60	86.50	0.496	13.94	0.422	-20.67	0.00558	6.70
4	0.70	0.754	1.51	0.849	86.27	84.76	0.854	19.57	0.713	-27.09	0.00939	8.51
5	0.80	0.596	2.58	0.746	84.47	81.88	1.294	26.18	1.062	-34.84	0.01393	10.24
6	0.90	0.396	6.04	0.609	82.06	76.02	1.726	34.13	1.398	-44.32	0.01828	11.80
7	0.95	0.287	10.78	0.529	80.59	69.81	1.892	38.86	1.527	-49.93	0.01996	12.52
8	1.00	0.182	22.54	0.443	78.94	56.40	1.995	44.34	1.608	-56.26	0.02105	13.21
9	1.05	0.105	58.52	0.353	77.16	18.63	2.012	50.96	1.625	-63.56	0.02141	13.89
10	1.10	0.125	114.00	0.262	75.28	-38.72	1.931	59.34	1.566	-72.20	0.02089	14.69
11	1.15	0.201	135.06	0.173	73.60	-61.46	1.758	70.63	1.426	-82.84	0.01942	15.78
12	1.20	0.275	140.80	0.089	73.70	-67.10	1.533	86.87	1.215	-96.73	0.01707	17.46
13	1.30	0.350	137.83	0.049	-138.54	-276.38	1.350	138.49	0.746	-146.30	0.01061	25.08
14	1.40	0.273	124.34	0.115	-143.98	-268.32	1.704	-178.16	0.767	136.26	0.00448	49.48
15	1.50	0.073	116.88	0.101	-165.38	-282.26	1.629	-149.91	0.959	91.73	0.00172	144.63
16	1.60	0.084	-121.94	0.030	152.19	274.13	0.948	-93.72	0.874	65.62	0.00414	-158.47
17	1.70	0.084	-139.34	0.023	-13.44	125.89	1.162	-22.28	0.745	26.58	0.00371	-166.70
18	1.80	0.020	-168.77	0.022	-45.59	123.18	1.008	31.58	0.760	-43.83	0.00101	96.05
19	1.90	0.019	28.93	0.005	-83.36	-112.29	0.951	109.44	0.935	-110.61	0.00271	22.41
20	2.00	0.015	5.20	0.005	125.96	120.75	1.023	177.14	0.949	-176.89	0.00153	-7.29

CARGO SHIP L/B=8.0 CB=0.75 FN= 0.05 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		z_{0wA}/h_A	ε_z (DEG)	θ_A/θ_{WA}	ε_θ (DEG)	$\varepsilon_{\theta z}$ (DEG)	z_{rfpA}/h_A	ε_{rfp} (DEG)	z_{rapA}/h_A	ε_{rap} (DEG)	$M_{VA}/\rho g L^2 B h_A$	ε_M (DEG)
1	0.40	0.980	0.61	0.991	88.75	88.14	0.115	5.78	0.095	-12.52	0.00115	3.27
2	0.50	0.947	0.79	0.974	87.80	87.01	0.272	10.10	0.220	-17.89	0.00278	5.15
3	0.60	0.884	0.99	0.941	86.35	85.37	0.542	15.03	0.426	-24.12	0.00548	7.06
4	0.70	0.783	1.38	0.883	84.22	82.83	0.944	20.52	0.715	-31.52	0.00924	8.85
5	0.80	0.636	2.61	0.793	81.16	78.55	1.454	26.68	1.063	-40.44	0.01372	10.42
6	0.90	0.448	7.03	0.670	76.78	69.75	1.984	33.73	1.396	-51.42	0.01791	11.67
7	0.95	0.346	13.11	0.595	73.95	60.83	2.205	37.75	1.523	-57.88	0.01949	12.16
8	1.00	0.253	26.49	0.513	70.45	43.96	2.362	42.20	1.599	-65.22	0.02045	12.70
9	1.05	0.200	53.28	0.424	65.90	12.63	2.426	47.14	1.602	-73.67	0.02064	13.50
10	1.10	0.227	82.07	0.330	59.79	-22.28	2.373	52.81	1.515	-83.53	0.01997	14.80
11	1.15	0.300	93.62	0.232	50.94	-42.68	2.173	59.61	1.325	-95.01	0.01851	17.00
12	1.20	0.358	92.59	0.131	35.72	-56.87	1.795	69.13	1.035	-108.38	0.01656	20.27
13	1.30	0.349	78.49	0.067	-135.50	-213.99	1.185	128.65	0.323	-135.37	0.01212	26.41
14	1.40	0.187	48.37	0.122	168.84	120.46	1.632	165.61	0.175	-129.41	0.00586	12.50
15	1.50	0.027	-36.60	0.061	132.79	169.40	1.055	-156.70	0.530	136.35	0.00287	-124.03
16	1.60	0.051	-142.75	0.010	69.73	212.48	0.956	-79.51	0.882	82.26	0.00543	-161.02
17	1.70	0.033	-163.38	0.013	-47.35	116.03	1.081	-23.73	0.925	27.08	0.00310	171.12
18	1.80	0.005	133.33	0.009	-69.92	-203.25	0.967	38.56	0.908	-40.48	0.00199	56.36
19	1.90	0.011	21.33	0.002	-127.85	-149.17	0.991	110.05	0.974	-108.97	0.00305	16.53
20	2.00	0.006	-2.83	0.003	114.25	117.09	1.008	178.23	0.979	-178.03	0.00118	-28.47

CARGO SHIP L/B=8.0 CB=0.75 FN= 0.10 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE ζ_{3OGA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{3FPA}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{3APA}/h_A	REL.STE MOTION ε_{AP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.986	0.58	0.995	88.33	87.75	0.125	6.13	0.097	-13.74	0.00109	4.22
2	0.50	0.958	0.72	0.986	87.03	86.31	0.295	10.79	0.224	-20.25	0.00267	6.03
3	0.60	0.906	0.88	0.964	84.95	84.07	0.596	15.78	0.430	-27.60	0.00527	8.00
4	0.70	0.819	1.25	0.919	81.84	80.59	1.052	21.00	0.720	-36.22	0.00894	9.84
5	0.80	0.695	2.60	0.849	77.14	74.54	1.662	26.44	1.065	-46.81	0.01324	11.44
6	0.90	0.544	7.46	0.748	69.97	62.51	2.354	31.88	1.395	-60.09	0.01723	12.73
7	0.95	0.477	12.67	0.685	64.57	51.91	2.688	34.03	1.508	-68.21	0.01871	13.59
8	1.00	0.436	18.83	0.611	56.92	38.09	2.964	34.99	1.551	-77.56	0.01967	14.85
9	1.05	0.415	20.18	0.517	45.71	25.53	3.069	33.73	1.496	-88.11	0.02013	16.32
10	1.10	0.340	13.59	0.396	29.58	15.99	2.779	30.60	1.320	-100.02	0.01991	17.29
11	1.15	0.195	20.51	0.256	6.84	-13.67	2.024	30.92	0.985	-112.43	0.01869	18.74
12	1.20	0.190	56.62	0.120	-31.80	-88.42	1.137	49.39	0.560	-109.23	0.01743	20.78
13	1.30	0.210	40.23	0.086	172.58	132.35	1.320	129.46	0.755	-85.27	0.01263	10.78
14	1.40	0.077	9.53	0.071	131.74	122.20	1.284	159.18	0.762	-143.77	0.00416	-30.69
15	1.50	0.021	-103.81	0.028	106.95	210.76	0.941	-144.71	0.816	143.04	0.00478	-141.21
16	1.60	0.033	-152.82	0.005	16.52	169.34	1.005	-78.63	0.962	83.05	0.00565	-167.46
17	1.70	0.018	-171.70	0.009	-58.57	113.14	1.048	-22.95	0.969	24.86	0.00251	154.55
18	1.80	0.003	79.00	0.005	-78.83	-157.84	0.976	40.83	0.954	-41.19	0.00271	41.15
19	1.90	0.008	16.58	0.001	-174.42	-191.00	1.002	109.89	0.991	-108.91	0.00317	11.03
20	2.00	0.003	-6.68	0.002	107.36	114.04	1.004	178.74	0.990	-178.60	0.00083	-55.60

CARGO SHIP L/B=8.0 CB=0.75 FN= 0.15 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE ζ_{3OGA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{3FPA}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{3APA}/h_A	REL.STE MOTION ε_{AP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.992	0.56	0.999	87.87	87.31	0.135	6.27	0.100	-14.79	0.00100	5.82
2	0.50	0.972	0.66	0.998	86.15	85.49	0.322	11.26	0.228	-22.53	0.00249	7.52
3	0.60	0.932	0.76	0.987	83.36	82.60	0.657	16.16	0.436	-31.04	0.00498	9.73
4	0.70	0.867	1.07	0.959	79.06	77.99	1.185	20.90	0.726	-41.12	0.00850	11.85
5	0.80	0.784	2.30	0.913	72.26	69.96	1.935	25.15	1.071	-53.78	0.01261	13.97
6	0.90	0.736	4.14	0.841	60.26	56.13	2.896	26.54	1.381	-70.22	0.01664	16.74
7	0.95	0.760	-0.03	0.780	50.04	50.07	3.370	23.47	1.466	-80.14	0.01863	18.21
8	1.00	0.746	-15.89	0.677	36.12	52.01	3.531	16.64	1.496	-91.97	0.02031	17.55
9	1.05	0.549	-42.45	0.542	18.77	61.22	3.122	9.80	1.393	-109.97	0.02015	16.19
10	1.10	0.225	-71.28	0.380	-5.70	65.58	2.272	6.60	0.918	-132.36	0.01932	19.61
11	1.15	0.043	59.95	0.195	-39.79	-99.74	1.216	18.35	0.292	-108.08	0.01967	21.07
12	1.20	0.152	48.54	0.068	-95.00	-143.55	0.842	71.89	0.638	-60.39	0.01856	16.18
13	1.30	0.117	20.97	0.060	143.37	122.41	1.267	123.68	1.000	-100.84	0.01073	-1.07
14	1.40	0.036	-9.72	0.043	116.89	126.62	1.127	162.06	0.913	-155.86	0.00332	-67.33
15	1.50	0.020	-127.04	0.015	94.11	221.15	0.953	-139.58	0.917	140.75	0.00584	-149.78
16	1.60	0.024	-158.14	0.004	-18.53	139.61	1.021	-78.81	0.994	82.41	0.00558	-172.38
17	1.70	0.011	-176.38	0.007	-65.38	111.00	1.032	-22.34	0.987	23.56	0.00196	133.70
18	1.80	0.003	46.65	0.003	-83.30	-129.95	0.985	41.81	0.975	-41.82	0.00330	31.03
19	1.90	0.005	13.31	0.001	140.11	126.80	1.006	109.73	1.000	-109.16	0.00292	9.85
20	2.00	0.000	-34.79	0.001	102.91	137.69	1.003	179.22	0.996	-179.13	0.00034	-126.50

CARGO SHIP L/B=8.0 CB=0.75 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OGA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{3FPA}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{3APA}/h_A	REL.STE MOTION ε_{AP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.999	0.53	1.003	87.34	86.81	0.146	6.22	0.103	-15.64	0.00089	8.42
2	0.50	0.987	0.60	1.010	85.16	84.56	0.352	11.43	0.232	-24.62	0.00227	10.04
3	0.60	0.963	0.62	1.010	81.56	80.94	0.728	16.10	0.441	-34.35	0.00463	12.64
4	0.70	0.930	0.74	1.001	75.78	75.05	1.347	20.04	0.733	-46.05	0.00798	15.56
5	0.80	0.924	0.89	0.983	66.09	65.20	2.294	22.05	1.078	-60.83	0.01208	19.21
6	0.90	1.073	-10.54	0.904	47.00	57.55	3.515	14.40	1.393	-79.02	0.01753	22.00
7	0.95	1.080	-32.90	0.805	33.82	66.72	3.715	5.31	1.596	-93.33	0.01970	18.00
8	1.00	0.832	-64.58	0.705	16.43	81.01	3.420	-2.41	1.625	-120.72	0.01903	17.05
9	1.05	0.423	-102.32	0.529	-11.58	90.75	2.639	-9.89	1.051	-160.50	0.01960	24.25
10	1.10	0.090	-157.57	0.281	-43.77	113.80	1.462	-5.46	0.145	127.77	0.02181	23.29
11	1.15	0.085	59.93	0.108	-77.08	-137.01	0.834	36.72	0.570	-34.79	0.02115	16.82
12	1.20	0.114	34.50	0.038	-141.40	-175.90	0.956	80.83	0.910	-62.63	0.01805	9.98
13	1.30	0.072	11.79	0.044	129.89	118.09	1.199	122.09	1.052	-108.68	0.00899	-9.20
14	1.40	0.020	-26.74	0.029	109.36	136.11	1.069	164.85	0.964	-161.42	0.00350	-98.95
15	1.50	0.018	-139.15	0.009	85.01	224.16	0.971	-137.39	0.961	139.02	0.00659	-155.62
16	1.60	0.018	-161.47	0.004	-39.11	122.36	1.027	-79.02	1.008	81.78	0.00530	-176.32
17	1.70	0.007	-175.66	0.005	-69.12	106.54	1.023	-21.79	0.994	22.56	0.00151	108.08
18	1.80	0.002	20.73	0.002	-79.24	-99.97	0.993	42.40	0.986	-42.55	0.00329	23.95
19	1.90	0.001	-3.02	0.001	85.78	88.80	1.006	109.59	1.007	-109.63	0.00185	23.54
20	2.00	0.003	-176.04	0.000	86.28	262.32	1.003	179.84	1.004	-179.81	0.00152	133.06

CARGO SHIP L/B=8.0 CB=0.75 FN= 0.25 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OGA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{3FPA}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{3APA}/h_A	REL.STE MOTION ε_{AP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.007	0.49	1.006	86.75	86.26	0.159	5.93	0.105	-16.25	0.00076	12.66
2	0.50	1.004	0.52	1.021	84.04	83.52	0.385	11.27	0.236	-26.44	0.00203	14.12
3	0.60	1.000	0.41	1.033	79.50	79.09	0.810	15.51	0.447	-37.38	0.00426	17.27
4	0.70	1.014	0.06	1.043	71.93	71.88	1.543	18.20	0.740	-50.55	0.00753	21.74
5	0.80	1.147	-3.76	1.036	58.22	61.98	2.736	15.65	1.088	-66.14	0.01238	26.99
6	0.90	1.364	-38.03	0.913	36.77	74.80	3.707	-0.83	1.711	-90.51	0.01825	19.31
7	0.95	1.144	-70.36	0.886	19.37	89.73	3.682	-8.91	1.972	-124.05	0.01726	20.12
8	1.00	0.674	-110.01	0.713	-12.15	97.86	3.092	-20.66	1.493	-174.32	0.01980	30.83
9	1.05	0.230	-151.56	0.391	-44.30	107.26	1.831	-22.86	0.605	114.75	0.02380	26.45
10	1.10	0.052	120.33	0.168	-69.60	-189.93	0.983	4.57	0.537	4.99	0.02369	18.56
11	1.15	0.079	44.06	0.058	-101.46	-145.53	0.863	51.34	0.840	-40.87	0.02103	11.95
12	1.20	0.086	26.03	0.027	-175.46	-201.49	1.021	81.82	1.013	-67.34	0.01701	5.58
13	1.30	0.049	6.19	0.035	122.14	115.95	1.156	121.76	1.065	-112.83	0.00752	-17.00
14	1.40	0.011	-46.70	0.021	104.78	151.48	1.044	166.84	0.986	-164.61	0.00416	-120.52
15	1.50	0.016	-146.78	0.006	76.55	223.33	0.984	-136.30	0.984	137.87	0.00713	-159.96
16	1.60	0.014	-161.64	0.004	-50.68	110.95	1.026	-79.20	1.013	81.13	0.00480	-177.63
17	1.70	0.004	-158.71	0.003	-70.20	88.51	1.015	-21.16	0.996	21.50	0.00092	72.77
18	1.80	0.002	-76.61	0.001	-19.76	56.84	1.002	42.89	0.996	-43.48	0.00224	13.89
19	1.90	0.005	-156.05	0.001	41.25	197.30	1.004	109.43	1.015	-110.38	0.00180	121.95
20	2.00	0.010	-177.54	0.001	-71.05	106.49	1.005	-179.19	1.015	179.20	0.00427	119.32

CARGO SHIP L/B=8.0 CB=0.75 FN= 0.30 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE		PITCH		Phase Dif.	REL.BOW MOTION		REL.STE MOTION		BENDING MOMENT	
		ζ_{3A}/h_A	ε_3(DEG)	θ_A/θ_{WA}	ε_θ(DEG)	$\varepsilon_{\theta 3}$(DEG)	ζ_{FPA}/h_A	ε_{FP}(DEG)	ζ_{FAP}/h_A	ε_{FAP}(DEG)	$M_{VA}/\rho g B h_A$	ε_M(DEG)
1	0.40	1.015	0.45	1.007	86.09	85.64	0.173	5.41	0.107	-16.58	0.00063	19.70
2	0.50	1.024	0.41	1.030	82.77	82.36	0.423	10.72	0.240	-27.90	0.00179	20.58
3	0.60	1.045	0.07	1.053	77.16	77.08	0.904	14.28	0.452	-39.91	0.00394	24.34
4	0.70	1.128	-1.35	1.077	67.48	68.83	1.773	15.01	0.749	-53.76	0.00741	30.38
5	0.80	1.441	-14.59	1.032	50.50	65.09	3.114	5.26	1.200	-67.39	0.01392	30.57
6	0.90	1.457	-66.84	1.057	26.81	93.64	3.798	-11.02	2.292	-117.87	0.01516	23.75
7	0.95	0.997	-107.63	0.945	-7.18	100.45	3.594	-26.01	2.108	-171.72	0.01941	39.10
8	1.00	0.415	-146.97	0.544	-41.76	105.21	2.311	-35.15	1.155	124.94	0.02554	30.85
9	1.05	0.114	174.39	0.250	-64.88	-239.27	1.268	-19.98	0.679	47.77	0.02613	20.98
10	1.10	0.048	76.84	0.101	-85.15	-162.00	0.881	19.14	0.787	-12.67	0.02397	14.11
11	1.15	0.068	34.55	0.034	-123.01	-157.57	0.925	56.55	0.956	-46.01	0.02042	8.45
12	1.20	0.067	20.83	0.024	161.53	140.70	1.050	81.71	1.055	-70.40	0.01596	2.32
13	1.30	0.035	2.32	0.028	116.95	114.63	1.127	121.78	1.067	-115.40	0.00620	-25.56
14	1.40	0.008	-73.19	0.016	101.55	174.73	1.030	168.23	0.997	-166.63	0.00501	-134.48
15	1.50	0.014	-150.39	0.003	72.26	222.65	0.992	-135.79	0.993	137.00	0.00734	-162.66
16	1.60	0.010	-156.83	0.002	-61.09	95.74	1.020	-79.36	1.011	80.37	0.00394	-173.93
17	1.70	0.004	-113.04	0.001	-64.30	48.74	1.007	-20.38	0.996	20.21	0.00088	-30.98
18	1.80	0.006	-115.74	0.002	56.55	172.30	1.013	43.40	1.006	-44.77	0.00080	-99.88
19	1.90	0.015	-159.59	0.002	21.91	181.50	1.001	109.23	1.029	-111.61	0.00628	150.97
20	2.00	0.024	-176.43	0.004	-73.01	103.42	1.012	-177.41	1.040	177.49	0.00743	116.55

TANKER L/B=5.0 CB=0.80 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.977	0.87	0.976	89.26	88.39	0.106	-0.41	0.096	-11.29	0.00178	2.21
2	0.50	0.937	0.98	0.947	88.63	87.66	0.247	3.56	0.219	-15.35	0.00379	5.20
3	0.60	0.866	0.86	0.897	87.45	86.59	0.488	8.41	0.419	-20.54	0.00685	8.03
4	0.70	0.749	0.56	0.819	85.65	85.08	0.833	14.00	0.692	-26.88	0.01078	10.77
5	0.80	0.583	0.43	0.707	82.93	82.49	1.254	20.52	1.004	-34.77	0.01492	13.33
6	0.90	0.369	2.67	0.563	78.87	76.20	1.659	28.46	1.274	-44.75	0.01804	15.88
7	0.95	0.251	8.50	0.480	76.17	67.66	1.808	33.28	1.358	-50.69	0.01878	17.39
8	1.00	0.148	29.25	0.393	72.83	43.58	1.896	38.94	1.384	-57.36	0.01874	19.45
9	1.05	0.129	80.15	0.302	68.59	-11.56	1.910	45.73	1.339	-64.80	0.01792	22.57
10	1.10	0.206	103.97	0.211	62.76	-41.21	1.847	53.84	1.216	-73.07	0.01653	27.28
11	1.15	0.275	103.42	0.124	53.18	-50.24	1.688	63.31	1.024	-82.09	0.01497	33.53
12	1.20	0.293	96.02	0.043	27.37	-68.65	1.395	76.75	0.785	-91.77	0.01345	39.93
13	1.30	0.204	79.25	0.086	-142.28	-221.54	1.155	138.66	0.363	-113.52	0.00970	46.04
14	1.40	0.064	49.18	0.093	-178.73	-227.91	1.503	173.83	0.354	-169.65	0.00325	21.50
15	1.50	0.040	-105.16	0.035	145.32	250.48	1.098	-146.23	0.721	133.94	0.00430	-124.80
16	1.60	0.049	-132.45	0.010	14.27	146.72	1.025	-76.92	0.927	85.71	0.00565	-151.26
17	1.70	0.019	-155.59	0.015	-31.84	123.75	1.118	-21.87	0.897	27.09	0.00280	165.89
18	1.80	0.010	64.93	0.007	-54.55	-119.48	1.002	39.64	0.924	-41.80	0.00272	69.49
19	1.90	0.013	36.96	0.002	175.37	138.41	1.013	110.28	0.983	-108.00	0.00267	32.53
20	2.00	0.003	0.49	0.003	132.19	131.70	1.024	178.32	0.967	-178.03	0.00093	-59.63

TANKER L/B=5.0 CB=0.80 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.985	0.80	0.979	88.73	87.93	0.119	-0.29	0.099	-12.47	0.00179	2.63
2	0.50	0.953	0.78	0.958	87.56	86.78	0.277	4.18	0.224	-18.16	0.00381	5.37
3	0.60	0.894	0.44	0.919	85.55	85.11	0.552	8.97	0.422	-24.70	0.00686	8.05
4	0.70	0.796	-0.28	0.853	82.40	82.68	0.958	14.08	0.690	-32.55	0.01077	10.47
5	0.80	0.654	-1.14	0.758	77.39	78.53	1.480	19.49	0.990	-42.51	0.01476	12.51
6	0.90	0.470	-0.68	0.628	69.17	69.85	2.024	24.84	1.230	-55.28	0.01757	14.56
7	0.95	0.373	1.20	0.547	62.79	61.59	2.243	26.93	1.279	-62.92	0.01800	16.19
8	1.00	0.283	5.28	0.454	53.83	48.55	2.363	28.28	1.248	-71.42	0.01768	18.66
9	1.05	0.199	13.33	0.346	40.91	27.59	2.289	28.96	1.112	-80.16	0.01670	22.62
10	1.10	0.139	36.19	0.226	21.98	-14.22	1.938	31.09	0.871	-85.72	0.01560	28.79
11	1.15	0.150	61.90	0.109	-10.39	-72.29	1.364	41.45	0.644	-78.19	0.01510	34.73
12	1.20	0.171	63.05	0.048	-96.11	-159.16	0.962	75.37	0.669	-64.41	0.01452	34.88
13	1.30	0.105	40.40	0.079	168.40	128.00	1.310	131.89	0.849	-93.25	0.00852	14.57
14	1.40	0.022	-21.00	0.047	139.52	160.52	1.217	165.94	0.811	-156.02	0.00344	-81.23
15	1.50	0.032	-125.40	0.012	102.93	228.34	0.992	-138.47	0.925	139.72	0.00639	-138.88
16	1.60	0.026	-144.24	0.009	-22.28	121.96	1.047	-77.45	1.000	84.26	0.00514	-163.96
17	1.70	0.007	-177.65	0.008	-46.52	131.13	1.060	-21.68	0.964	24.27	0.00231	124.80
18	1.80	0.008	50.34	0.003	-70.52	-120.85	0.998	41.97	0.974	-42.03	0.00345	53.94
19	1.90	0.007	33.07	0.002	147.74	114.66	1.017	110.09	0.999	-108.36	0.00228	23.74
20	2.00	0.001	-32.87	0.002	124.81	157.68	1.012	178.99	0.985	-178.79	0.00129	-109.03

TANKER L/B=5.0 CB=0.80 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{FP}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{RPA}/h_A	REL.STE MOTION ε_{RP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.993	0.71	0.981	88.14	87.43	0.132	-0.49	0.103	-13.32	0.00176	3.45
2	0.50	0.972	0.56	0.968	86.40	85.83	0.311	4.31	0.229	-20.61	0.00374	6.16
3	0.60	0.929	-0.08	0.939	83.44	83.53	0.626	8.86	0.428	-28.62	0.00676	8.85
4	0.70	0.860	-1.49	0.889	78.65	80.14	1.113	13.10	0.696	-38.36	0.01059	11.17
5	0.80	0.769	-4.39	0.812	70.63	75.01	1.779	16.31	0.992	-51.06	0.01458	12.90
6	0.90	0.659	-15.63	0.686	55.94	71.57	2.472	14.85	1.214	-68.99	0.01721	13.44
7	0.95	0.541	-29.79	0.594	44.42	74.21	2.625	12.09	1.217	-82.47	0.01683	13.32
8	1.00	0.346	-48.26	0.479	28.09	76.35	2.526	9.46	1.016	-99.31	0.01512	18.41
9	1.05	0.128	-65.36	0.328	4.60	69.95	2.097	7.85	0.561	-109.52	0.01481	30.47
10	1.10	0.042	59.21	0.166	-26.85	-86.06	1.399	15.69	0.353	-51.57	0.01644	35.60
11	1.15	0.111	56.85	0.058	-80.77	-137.62	0.950	48.76	0.746	-42.61	0.01647	30.82
12	1.20	0.113	44.26	0.046	-168.08	-212.34	1.022	85.93	0.985	-60.60	0.01384	22.05
13	1.30	0.051	20.33	0.051	143.20	122.87	1.231	125.80	1.021	-106.36	0.00562	-14.14
14	1.40	0.014	-80.42	0.025	123.30	203.72	1.094	167.74	0.942	-163.21	0.00525	-117.10
15	1.50	0.025	-135.15	0.004	63.38	198.53	0.996	-135.51	0.991	138.22	0.00724	-147.13
16	1.60	0.016	-149.09	0.007	-37.65	111.43	1.047	-78.01	1.019	82.90	0.00438	-173.36
17	1.70	0.002	146.57	0.005	-53.32	-199.89	1.038	-21.19	0.985	22.80	0.00255	87.37
18	1.80	0.007	42.03	0.001	-78.42	-120.45	1.001	42.76	0.991	-42.51	0.00386	44.78
19	1.90	0.004	37.01	0.001	134.04	97.03	1.013	109.88	1.003	-108.94	0.00164	29.43
20	2.00	0.001	73.41	0.001	135.03	61.62	1.007	179.57	0.992	-179.61	0.00078	-154.77

TANKER L/B=5.0 CB=0.80 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{FP}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{RPA}/h_A	REL.STE MOTION ε_{RP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.002	0.62	0.982	87.50	86.89	0.146	-1.03	0.106	-13.80	0.00170	4.74
2	0.50	0.993	0.30	0.976	85.12	84.82	0.348	3.91	0.235	-22.58	0.00362	7.70
3	0.60	0.972	-0.77	0.958	81.12	81.88	0.712	7.97	0.437	-32.07	0.00659	10.60
4	0.70	0.949	-3.42	0.922	74.40	77.82	1.301	10.73	0.713	-43.76	0.01045	13.11
5	0.80	0.949	-12.32	0.854	62.71	75.03	2.128	9.24	1.043	-59.67	0.01478	13.56
6	0.90	0.799	-45.14	0.735	42.11	87.25	2.708	1.32	1.322	-92.86	0.01515	7.89
7	0.95	0.550	-70.58	0.637	22.52	93.10	2.725	-3.45	1.126	-123.07	0.01261	18.74
8	1.00	0.258	-101.54	0.445	-5.06	96.48	2.302	-9.25	0.529	-166.50	0.01456	38.04
9	1.05	0.046	-157.46	0.228	-34.77	122.69	1.527	-4.82	0.264	31.50	0.01826	37.88
10	1.10	0.067	64.25	0.084	-69.12	-133.36	1.006	22.80	0.739	-18.84	0.01849	30.09
11	1.15	0.087	43.85	0.033	-143.30	-187.15	0.963	59.62	0.997	-44.80	0.01584	21.59
12	1.20	0.074	32.68	0.040	160.51	127.82	1.083	85.39	1.094	-66.89	0.01171	11.55
13	1.30	0.027	7.44	0.035	131.68	124.24	1.165	124.16	1.052	-112.62	0.00409	-49.44
14	1.40	0.014	-112.64	0.015	114.99	227.63	1.051	169.59	0.983	-166.85	0.00699	-132.06
15	1.50	0.020	-141.16	0.003	8.79	149.95	1.005	-134.45	1.015	137.05	0.00765	-152.76
16	1.60	0.011	-150.98	0.006	-46.78	104.20	1.043	-78.37	1.024	81.98	0.00351	177.79
17	1.70	0.001	105.24	0.004	-54.13	-159.37	1.026	-20.74	0.991	21.76	0.00270	64.34
18	1.80	0.004	36.55	0.001	-32.23	-68.78	1.005	42.91	0.994	-43.15	0.00291	45.23
19	1.90	0.002	73.09	0.000	16.13	-56.96	1.002	109.56	1.000	-109.99	0.00180	105.97
20	2.00	0.004	76.93	0.001	-99.37	-176.30	1.001	-179.67	0.998	179.18	0.00350	81.77

TANKER L/B=5.0 CB=0.80 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3A}/h_A	HEAVE ε_3(DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ(DEG)	Phase Dif. $\varepsilon_{\theta 3}$(DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp}(DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap}(DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M(DEG)
1	0.40	1.012	0.50	0.981	86.81	86.31	0.162	-1.91	0.110	-13.88	0.00162	6.58
2	0.50	1.017	-0.04	0.981	83.74	83.78	0.390	2.91	0.242	-23.90	0.00348	10.14
3	0.60	1.026	-1.75	0.971	78.59	80.34	0.810	6.12	0.451	-34.71	0.00644	13.46
4	0.70	1.069	-6.79	0.944	69.90	76.69	1.514	6.44	0.755	-47.89	0.01060	15.71
5	0.80	1.144	-27.55	0.880	56.37	83.92	2.371	-0.82	1.242	-70.72	0.01487	8.90
6	0.90	0.789	-76.74	0.823	22.80	99.54	2.897	-11.12	1.470	-133.97	0.01000	22.44
7	0.95	0.427	-110.60	0.594	-8.40	102.20	2.562	-21.39	0.960	170.37	0.01489	47.29
8	1.00	0.137	-147.97	0.309	-37.51	110.46	1.736	-21.43	0.554	82.24	0.02024	40.64
9	1.05	0.038	106.40	0.126	-62.82	-169.21	1.127	-0.82	0.740	9.90	0.02078	30.91
10	1.10	0.065	49.85	0.040	-104.34	-154.19	0.952	33.24	0.962	-25.02	0.01835	22.77
11	1.15	0.067	35.31	0.028	175.82	140.51	1.012	62.23	1.082	-49.20	0.01434	14.61
12	1.20	0.052	25.98	0.035	144.58	118.60	1.098	84.21	1.119	-70.68	0.00962	2.57
13	1.30	0.015	-5.00	0.027	125.20	130.20	1.124	123.74	1.056	-115.96	0.00416	-88.54
14	1.40	0.014	-128.53	0.009	109.53	238.06	1.032	170.81	1.000	-168.91	0.00849	-140.80
15	1.50	0.017	-144.74	0.003	-27.02	117.73	1.011	-134.10	1.023	136.26	0.00777	-156.22
16	1.60	0.008	-145.82	0.005	-52.75	93.07	1.035	-78.71	1.021	81.13	0.00241	179.93
17	1.70	0.002	-94.82	0.002	-44.09	50.72	1.018	-20.30	0.990	20.75	0.00159	29.06
18	1.80	0.001	-117.14	0.002	2.17	119.31	1.010	42.71	0.989	-44.02	0.00100	169.37
19	1.90	0.003	146.08	0.002	-32.67	-178.76	0.983	109.04	0.993	-111.58	0.00573	136.98
20	2.00	0.008	71.46	0.003	-80.18	-151.64	0.992	-178.59	1.004	177.50	0.01220	67.75

TANKER L/B=6.0 CB=0.75 FN= 0.00 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE ζ_{3aA}/h_A	HEAVE ε_{ζ_3} (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta_3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho gL^2Bh_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.977	0.50	0.983	89.00	88.50	0.109	3.05	0.093	-11.36	0.00136	0.20
2	0.50	0.939	0.54	0.958	88.28	87.74	0.255	6.98	0.216	-15.66	0.00306	2.60
3	0.60	0.869	0.50	0.913	87.18	86.68	0.504	11.82	0.419	-20.97	0.00575	5.04
4	0.70	0.759	0.46	0.841	85.55	85.09	0.864	17.43	0.703	-27.46	0.00939	7.34
5	0.80	0.600	0.89	0.737	83.32	82.43	1.306	24.00	1.040	-35.31	0.01353	9.56
6	0.90	0.399	3.60	0.598	80.27	76.68	1.737	31.93	1.357	-44.97	0.01719	11.75
7	0.95	0.288	8.24	0.518	78.39	70.15	1.902	36.68	1.473	-50.67	0.01845	12.90
8	1.00	0.181	21.14	0.432	76.27	55.13	2.002	42.24	1.541	-57.12	0.01912	14.17
9	1.05	0.114	60.57	0.343	73.87	13.30	2.018	48.98	1.544	-64.51	0.01905	15.77
10	1.10	0.151	107.56	0.253	71.25	-36.32	1.943	57.50	1.469	-73.13	0.01819	18.05
11	1.15	0.234	121.81	0.165	68.67	-53.14	1.787	68.76	1.315	-83.48	0.01662	21.42
12	1.20	0.305	122.26	0.083	67.48	-54.79	1.586	84.05	1.090	-96.55	0.01456	26.39
13	1.30	0.323	108.48	0.048	-141.04	-249.52	1.300	131.26	0.581	-142.32	0.01025	40.80
14	1.40	0.179	92.07	0.108	-155.62	-247.69	1.588	178.67	0.503	137.91	0.00564	52.54
15	1.50	0.016	90.07	0.077	176.30	86.23	1.395	-151.86	0.704	102.35	0.00063	-170.13
16	1.60	0.064	-129.16	0.014	126.88	256.04	0.949	-85.00	0.868	75.55	0.00487	-151.08
17	1.70	0.048	-144.05	0.019	-26.78	117.27	1.137	-22.79	0.842	27.47	0.00384	-171.46
18	1.80	0.007	-175.45	0.015	-49.60	125.85	0.997	35.26	0.844	-42.49	0.00142	93.04
19	1.90	0.014	26.57	0.002	-90.20	-116.77	0.977	109.51	0.963	-109.79	0.00263	27.57
20	2.00	0.009	8.78	0.004	124.06	115.28	1.019	177.66	0.963	-177.54	0.00124	-11.51

TANKER L/B=6.0 CB=0.75 FN= 0.05 PSI= 0.0 (DEG)

NO	√L/λ	HEAVE ζ_{3aA}/h_A	HEAVE ε_{ζ_3} (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta_3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho gL^2Bh_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.983	0.46	0.986	88.55	88.09	0.119	3.31	0.096	-12.63	0.00135	0.46
2	0.50	0.951	0.43	0.969	87.43	87.00	0.279	7.67	0.220	-18.24	0.00303	2.69
3	0.60	0.892	0.27	0.934	85.63	85.36	0.557	12.57	0.421	-24.73	0.00570	4.93
4	0.70	0.793	0.08	0.874	82.97	82.89	0.968	17.88	0.701	-32.37	0.00929	7.02
5	0.80	0.650	0.40	0.784	79.09	78.70	1.491	23.73	1.029	-41.64	0.01329	8.89
6	0.90	0.467	3.53	0.659	73.38	69.85	2.036	30.27	1.331	-53.14	0.01669	10.62
7	0.95	0.368	8.72	0.585	69.47	60.75	2.264	33.82	1.435	-59.95	0.01775	11.66
8	1.00	0.283	19.83	0.501	64.35	44.52	2.425	37.38	1.478	-67.57	0.01816	13.25
9	1.05	0.237	38.40	0.409	57.37	18.97	2.479	40.84	1.441	-76.04	0.01790	15.74
10	1.10	0.239	54.91	0.308	47.38	-7.53	2.363	44.11	1.310	-85.16	0.01712	19.37
11	1.15	0.246	63.12	0.199	32.23	-30.90	1.993	48.61	1.086	-94.20	0.01606	23.94
12	1.20	0.245	68.38	0.091	4.97	-63.41	1.415	61.54	0.805	-100.35	0.01496	28.54
13	1.30	0.214	60.93	0.082	-163.99	-224.92	1.245	133.86	0.518	-93.19	0.01190	27.40
14	1.40	0.086	34.83	0.086	153.90	119.08	1.442	163.82	0.533	-143.49	0.00457	-5.84
15	1.50	0.019	-101.63	0.036	126.73	228.36	1.007	-148.22	0.735	139.06	0.00428	-131.17
16	1.60	0.038	-145.82	0.005	27.97	173.80	1.004	-79.06	0.949	82.74	0.00576	-160.59
17	1.70	0.021	-160.76	0.011	-50.86	109.90	1.070	-23.20	0.949	25.74	0.00293	166.36
18	1.80	0.003	82.06	0.007	-68.58	-150.64	0.979	39.81	0.936	-41.32	0.00230	56.05
19	1.90	0.009	20.51	0.001	-159.63	-180.14	1.000	109.83	0.988	-108.96	0.00289	19.08
20	2.00	0.004	1.89	0.002	113.33	111.44	1.008	178.45	0.984	-178.34	0.00086	-44.97

TANKER L/B=6.0 CB=0.75 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{0A}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rrA}/h_A	REL.BOW MOTION ε_{rr} (DEG)	REL.STE MOTION ζ_{rsA}/h_A	REL.STE MOTION ε_{rs} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.990	0.41	0.990	88.05	87.65	0.130	3.31	0.099	-13.66	0.00130	1.07
2	0.50	0.965	0.31	0.980	86.47	86.16	0.307	8.07	0.223	-20.67	0.00293	3.18
3	0.60	0.918	0.01	0.956	83.89	83.88	0.619	12.87	0.425	-28.40	0.00552	5.45
4	0.70	0.839	-0.41	0.910	80.00	80.41	1.095	17.66	0.702	-37.45	0.00900	7.48
5	0.80	0.728	-0.54	0.837	73.98	74.53	1.734	22.30	1.023	-48.72	0.01280	9.27
6	0.90	0.602	0.28	0.732	64.14	63.86	2.460	25.70	1.304	-63.00	0.01597	11.25
7	0.95	0.547	-0.66	0.660	56.37	57.03	2.779	25.65	1.379	-71.67	0.01696	12.74
8	1.00	0.482	-6.41	0.566	45.66	52.07	2.933	23.72	1.378	-81.70	0.01739	14.24
9	1.05	0.355	-17.69	0.448	31.24	48.93	2.757	21.03	1.256	-93.64	0.01688	16.45
10	1.10	0.174	-21.75	0.310	11.61	33.36	2.212	20.60	0.952	-104.41	0.01604	21.96
11	1.15	0.092	35.30	0.164	-16.93	-52.23	1.425	29.85	0.595	-96.49	0.01620	27.48
12	1.20	0.151	53.97	0.056	-74.76	-128.73	0.932	68.54	0.642	-71.15	0.01615	25.84
13	1.30	0.121	33.66	0.069	155.01	121.36	1.307	126.94	0.928	-97.32	0.01017	6.99
14	1.40	0.034	4.73	0.049	128.07	123.34	1.193	162.53	0.850	-154.42	0.00329	-65.62
15	1.50	0.021	-129.63	0.016	105.89	235.51	0.971	-140.65	0.897	139.98	0.00604	-145.09
16	1.60	0.026	-153.60	0.005	-23.59	130.01	1.028	-78.84	0.995	82.61	0.00580	-167.82
17	1.70	0.011	-167.84	0.008	-60.72	107.12	1.044	-22.58	0.979	24.08	0.00223	144.17
18	1.80	0.004	41.85	0.004	-76.81	-118.66	0.986	41.41	0.968	-41.78	0.00308	39.67
19	1.90	0.007	16.10	0.001	146.39	130.29	1.006	109.72	0.998	-109.01	0.00291	12.69
20	2.00	0.002	1.72	0.002	106.04	104.32	1.003	178.97	0.993	-178.90	0.00060	-86.96

TANKER L/B=6.0 CB=0.75 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{0A}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rrA}/h_A	REL.BOW MOTION ε_{rr} (DEG)	REL.STE MOTION ζ_{rsA}/h_A	REL.STE MOTION ε_{rs} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.997	0.35	0.992	87.50	87.15	0.142	3.05	0.101	-14.40	0.00121	2.18
2	0.50	0.981	0.17	0.990	85.39	85.22	0.338	8.09	0.227	-22.83	0.00277	4.33
3	0.60	0.950	-0.30	0.976	81.96	82.26	0.690	12.62	0.429	-31.85	0.00526	6.81
4	0.70	0.900	-1.16	0.946	76.56	77.72	1.248	16.55	0.705	-42.54	0.00858	9.14
5	0.80	0.849	-2.83	0.894	67.78	70.61	2.045	19.04	1.026	-55.99	0.01229	11.44
6	0.90	0.835	-13.21	0.790	51.92	65.13	2.949	15.38	1.310	-73.93	0.01577	13.12
7	0.95	0.769	-29.41	0.702	40.12	69.53	3.150	10.33	1.398	-87.69	0.01643	11.88
8	1.00	0.569	-52.30	0.592	24.04	76.34	3.008	5.43	1.294	-108.06	0.01527	14.42
9	1.05	0.286	-78.60	0.434	0.82	79.42	2.464	1.32	0.824	-131.25	0.01513	25.83
10	1.10	0.041	-105.15	0.241	-28.01	77.14	1.570	5.72	0.217	-104.04	0.01750	30.58
11	1.15	0.085	55.09	0.091	-64.09	-119.18	0.943	38.50	0.590	-46.43	0.01820	25.12
12	1.20	0.115	40.36	0.035	-146.79	-187.15	0.985	81.38	0.916	-63.41	0.01605	16.89
13	1.30	0.070	20.46	0.050	135.52	115.06	1.235	123.39	1.038	-106.91	0.00778	-7.64
14	1.40	0.015	-21.24	0.031	116.45	137.69	1.097	164.98	0.942	-161.08	0.00399	-108.01
15	1.50	0.019	-141.91	0.008	92.55	234.46	0.982	-137.57	0.959	138.58	0.00715	-152.92
16	1.60	0.019	-158.09	0.005	-44.65	113.44	1.035	-79.02	1.013	81.99	0.00555	-173.37
17	1.70	0.007	-171.00	0.006	-67.02	103.98	1.030	-22.06	0.992	23.02	0.00175	113.77
18	1.80	0.003	21.37	0.002	-77.95	-99.32	0.991	42.11	0.982	-42.34	0.00333	28.93
19	1.90	0.004	8.46	0.000	38.56	80.	1.003	109.55	1.002	-109.58	0.00215	15.23
20	2.00	0.001	36.51	0.000	65.95	29.	0.998	179.76	1.001	-179.83	0.00066	102.48

TANKER L/B=6.0 CB=0.75 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{0a4}/h_a	HEAVE ε_3 (DEG)	PITCH θ_a/θ_{wa}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpa}/h_a	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapa}/h_a	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{va}/\rho g L^2 B h_a$	BENDING MOMENT ε_M (DEG)
1	0.40	1.005	0.29	0.993	86.88	86.59	0.155	2.50	0.104	-14.82	0.00111	4.00
2	0.50	1.000	0.01	0.999	84.20	84.19	0.373	7.69	0.232	-24.60	0.00258	6.44
3	0.60	0.988	-0.73	0.995	79.79	80.52	0.772	11.73	0.435	-34.88	0.00495	9.37
4	0.70	0.983	-2.45	0.979	72.61	75.06	1.432	14.29	0.715	-47.10	0.00817	12.57
5	0.80	1.034	-8.70	0.936	60.45	69.14	2.406	12.63	1.059	-62.28	0.01225	15.19
6	0.90	1.033	-38.95	0.826	40.58	79.53	3.181	2.07	1.496	-90.52	0.01489	9.66
7	0.95	0.815	-65.22	0.757	23.02	88.23	3.219	-4.05	1.498	-119.59	0.01296	14.94
8	1.00	0.469	-97.08	0.584	-3.86	93.23	2.780	-12.16	1.002	-160.26	0.01443	34.12
9	1.05	0.153	-133.15	0.332	-33.18	99.97	1.822	-12.85	0.264	123.83	0.01908	34.79
10	1.10	0.035	94.74	0.140	-60.29	-155.03	1.062	10.76	0.524	-11.02	0.02035	26.37
11	1.15	0.082	43.83	0.044	-102.18	-146.02	0.917	53.07	0.874	-44.12	0.01843	18.04
12	1.20	0.085	30.52	0.030	170.66	140.14	1.055	82.88	1.041	-67.48	0.01475	9.76
13	1.30	0.044	12.83	0.038	125.10	112.27	1.181	122.35	1.065	-111.97	0.00588	-22.92
14	1.40	0.008	-59.06	0.021	110.14	169.20	1.059	167.05	0.977	-164.68	0.00529	-129.20
15	1.50	0.018	-149.43	0.004	79.11	228.54	0.993	-136.18	0.988	137.49	0.00792	-158.46
16	1.60	0.015	-160.55	0.005	-56.93	103.62	1.035	-79.25	1.020	81.35	0.00512	-176.95
17	1.70	0.005	-158.53	0.004	-71.65	86.88	1.019	-21.54	0.997	21.96	0.00103	86.15
18	1.80	0.002	-66.91	0.001	-60.90	6.01	0.996	42.44	0.988	-43.07	0.00211	8.25
19	1.90	0.002	-103.54	0.001	-18.64	84.89	0.991	109.29	1.002	-110.58	0.00069	105.24
20	2.00	0.001	76.80	0.002	-57.81	-134.61	0.989	-179.04	1.012	178.88	0.00346	77.01

TANKER L/B=6.0 CB=0.80 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_a/h_a	HEAVE ε_z (DEG)	PITCH θ_a/θ_{wa}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{z\theta}$ (DEG)	REL.BOW MOTION ζ_{rfpa}/h_a	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapa}/h_a	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{va}/\rho g L^2 B h_a$	BENDING MOMENT ε_M (DEG)
1	0.40	0.974	1.06	0.977	89.46	88.40	0.102	1.42	0.094	-9.63	0.00175	2.43
2	0.50	0.933	1.40	0.947	83.99	87.60	0.239	5.29	0.218	-13.60	0.00379	5.09
3	0.60	0.858	1.70	0.896	88.20	86.51	0.470	10.15	0.421	-18.53	0.00695	7.85
4	0.70	0.739	2.05	0.817	86.95	84.90	0.802	15.85	0.701	-24.63	0.01111	10.52
5	0.80	0.571	2.96	0.703	85.13	82.18	1.202	22.63	1.026	-32.07	0.01570	13.15
6	0.90	0.359	6.69	0.557	82.54	75.85	1.583	30.96	1.319	-41.38	0.01953	15.80
7	0.95	0.244	13.05	0.474	80.88	67.82	1.723	36.03	1.418	-46.97	0.02071	17.22
8	1.00	0.140	32.83	0.386	78.95	46.11	1.803	42.05	1.464	-53.38	0.02116	18.81
9	1.05	0.106	88.84	0.297	76.72	-12.12	1.807	49.44	1.443	-60.86	0.02075	20.81
10	1.10	0.178	123.54	0.208	74.23	-49.31	1.732	58.87	1.346	-69.72	0.01943	23.58
11	1.15	0.263	130.24	0.123	71.70	-58.53	1.595	71.29	1.173	-80.65	0.01738	27.63
12	1.20	0.322	127.58	0.047	70.77	-56.81	1.430	87.71	0.942	-95.05	0.01491	33.42
13	1.30	0.293	111.37	0.069	-128.72	-240.08	1.214	136.86	0.499	-149.31	0.00998	48.33
14	1.40	0.125	95.44	0.109	-149.33	-244.77	1.556	-177.16	0.534	137.71	0.00438	58.89
15	1.50	0.027	-106.44	0.062	178.20	284.64	1.342	-147.51	0.713	110.76	0.00241	-132.71
16	1.60	0.076	-122.22	0.011	61.19	183.41	0.993	-79.17	0.846	82.93	0.00594	-144.49
17	1.70	0.039	-141.38	0.024	-19.49	121.89	1.184	-21.34	0.799	29.12	0.00352	-175.08
18	1.80	0.009	81.58	0.013	-43.21	-124.79	1.021	36.65	0.859	-42.81	0.00248	74.63
19	1.90	0.019	39.29	0.002	-162.74	-202.03	1.007	110.06	0.969	-108.06	0.00324	33.55
20	2.00	0.007	15.59	0.005	135.11	119.52	1.037	177.54	0.947	-177.25	0.00111	-28.50

TANKER L/B=6.0 CB=0.80 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_a/h_a	HEAVE ε_z (DEG)	PITCH θ_a/θ_{wa}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{z\theta}$ (DEG)	REL.BOW MOTION ζ_{rfpa}/h_a	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapa}/h_a	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{va}/\rho g L^2 B h_a$	BENDING MOMENT ε_M (DEG)
1	0.40	0.981	1.01	0.980	89.99	87.97	0.113	1.84	0.097	-10.96	0.00176	2.77
2	0.50	0.946	1.27	0.958	88.12	86.84	0.263	6.09	0.221	-16.14	0.00380	5.32
3	0.60	0.881	1.44	0.916	86.60	85.17	0.523	10.97	0.422	-22.18	0.00695	7.92
4	0.70	0.775	1.60	0.847	84.30	32.70	0.902	16.36	0.696	-29.32	0.01109	10.42
5	0.80	0.621	2.35	0.745	80.83	78.48	1.377	22.43	1.010	-38.08	0.01557	12.75
6	0.90	0.424	6.43	0.611	75.49	69.06	1.859	29.46	1.283	-49.11	0.01914	15.07
7	0.95	0.321	13.27	0.531	71.72	58.44	2.054	33.41	1.365	-55.70	0.02012	16.50
8	1.00	0.236	28.79	0.444	66.70	37.91	2.184	37.56	1.383	-63.01	0.02032	18.56
9	1.05	0.209	53.60	0.350	59.64	6.04	2.220	41.79	1.320	-71.07	0.01978	21.63
10	1.10	0.234	70.07	0.251	48.94	-21.13	2.107	45.99	1.167	-79.50	0.01877	25.79
11	1.15	0.251	74.97	0.146	30.87	-44.10	1.764	51.86	0.934	-87.16	0.01752	30.38
12	1.20	0.249	76.44	0.054	-15.55	-91.99	1.253	68.00	0.671	-90.20	0.01613	34.24
13	1.30	0.190	63.10	0.100	-163.12	-226.22	1.281	138.40	0.499	-83.56	0.01181	29.17
14	1.40	0.056	26.17	0.030	156.94	130.77	1.415	166.33	0.554	-146.67	0.00389	-24.83
15	1.50	0.035	-113.74	0.025	123.17	236.91	1.010	-143.67	0.807	140.00	0.00580	-130.76
16	1.60	0.039	-140.19	0.010	-6.97	133.22	1.042	-77.25	0.970	85.38	0.00591	-158.78
17	1.70	0.014	-163.26	0.012	-42.74	120.52	1.087	-22.37	0.938	26.12	0.00260	145.58
18	1.80	0.009	57.25	0.005	-64.04	-121.29	0.995	40.78	0.949	-41.63	0.00351	56.47
19	1.90	0.011	34.34	0.002	157.59	123.25	1.017	110.10	0.993	-108.13	0.00298	25.77
20	2.00	0.002	0.35	0.003	126.25	125.90	1.017	178.54	0.977	-178.32	0.00112	-85.88

TANKER L/B=6.0 CB=0.80 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oa}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{wa}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rpa}/h_A	REL.BOW MOTION ε_{rp} (DEG)	REL.STE MOTION ζ_{rap}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.988	0.96	0.984	88.47	87.51	0.124	1.97	0.099	-12.02	0.00172	3.48
2	0.50	0.960	1.14	0.968	87.11	85.97	0.291	6.54	0.224	-18.52	0.00373	5.97
3	0.60	0.908	1.14	0.936	84.82	83.68	0.584	11.28	0.424	-25.71	0.00683	8.63
4	0.70	0.821	1.01	0.878	81.28	80.27	1.024	16.13	0.694	-34.17	0.01090	11.08
5	0.80	0.698	1.12	0.793	75.63	74.51	1.606	21.00	0.998	-44.79	0.01524	13.37
6	0.90	0.554	2.22	0.673	66.13	63.90	2.248	24.89	1.245	-58.36	0.01870	15.86
7	0.95	0.486	1.61	0.593	58.53	56.92	2.514	25.30	1.299	-66.53	0.01967	17.47
8	1.00	0.405	-2.99	0.496	47.90	50.89	2.627	24.20	1.273	-76.04	0.01989	19.06
9	1.05	0.273	-10.36	0.379	33.04	43.39	2.453	22.73	1.119	-86.89	0.01908	21.63
10	1.10	0.124	1.26	0.246	11.32	10.06	1.954	23.87	0.805	-93.62	0.01810	27.07
11	1.15	0.118	55.83	0.116	-25.15	-80.97	1.259	36.70	0.554	-75.58	0.01805	30.99
12	1.20	0.161	57.73	0.051	-112.27	-169.99	0.934	78.29	0.720	-59.49	0.01725	27.67
13	1.30	0.100	33.27	0.074	156.93	123.67	1.317	128.65	0.939	-96.00	0.00952	3.64
14	1.40	0.021	-24.35	0.042	130.73	155.09	1.172	165.05	0.865	-156.89	0.00426	-87.64
15	1.50	0.029	-128.46	0.010	93.88	222.34	0.985	-137.74	0.943	139.70	0.00706	-141.84
16	1.60	0.024	-147.12	0.008	-28.67	118.46	1.049	-77.76	1.008	83.89	0.00532	-167.85
17	1.70	0.006	-179.39	0.008	-50.92	128.48	1.052	-21.76	0.973	23.99	0.00244	108.47
18	1.80	0.008	46.53	0.002	-74.34	-120.87	0.998	42.19	0.979	-42.09	0.00421	46.27
19	1.90	0.007	32.77	0.002	140.52	107.74	1.017	109.97	1.002	-108.48	0.00258	20.56
20	2.00	0.001	9.05	0.002	124.41	115.36	1.010	179.10	0.988	-179.00	0.00130	-118.38

TANKER L/B=6.0 CB=0.80 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{oa}/h_A	HEAVE ε_ζ (DEG)	PITCH θ_A/θ_{wa}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta\zeta}$ (DEG)	REL.BOW MOTION ζ_{rpa}/h_A	REL.BOW MOTION ε_{rp} (DEG)	REL.STE MOTION ζ_{rap}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.995	0.90	0.986	87.89	86.99	0.136	1.79	0.102	-12.77	0.00165	4.68
2	0.50	0.977	0.99	0.977	86.00	85.01	0.322	6.59	0.228	-20.61	0.00360	7.26
3	0.60	0.941	0.78	0.954	82.84	82.07	0.654	11.00	0.427	-28.99	0.00663	10.12
4	0.70	0.883	0.10	0.910	77.81	77.71	1.172	14.96	0.696	-38.96	0.01062	12.82
5	0.80	0.819	-1.71	0.841	69.40	71.11	1.898	17.62	0.998	-51.65	0.01503	15.37
6	0.90	0.766	-13.17	0.719	54.21	67.38	2.676	14.57	1.255	-69.00	0.01887	16.36
7	0.95	0.667	-29.47	0.630	42.71	72.18	2.828	10.60	1.308	-83.11	0.01912	15.14
8	1.00	0.455	-51.57	0.520	26.03	77.59	2.696	6.91	1.138	-103.10	0.01755	18.81
9	1.05	0.194	-76.72	0.363	1.07	77.80	2.193	3.93	0.623	-121.73	0.01756	29.45
10	1.10	0.013	67.94	0.184	-31.43	-99.38	1.390	11.53	0.275	-52.49	0.01966	32.26
11	1.15	0.103	55.95	0.063	-82.26	-138.21	0.926	47.90	0.736	-41.68	0.01945	26.05
12	1.20	0.112	41.58	0.044	-170.42	-212.00	1.028	85.37	0.996	-61.25	0.01626	17.01
13	1.30	0.054	18.06	0.050	138.66	120.60	1.227	124.70	1.038	-106.99	0.00695	-16.46
14	1.40	0.013	-73.08	0.025	119.06	192.14	1.084	167.33	0.952	-163.10	0.00562	-115.16
15	1.50	0.024	-136.31	0.005	62.07	198.38	0.995	-135.51	0.992	138.22	0.00773	-148.37
16	1.60	0.016	-150.57	0.007	-40.42	110.15	1.048	-78.16	1.021	82.80	0.00456	-175.80
17	1.70	0.002	156.54	0.005	-55.27	-211.81	1.036	-21.27	0.986	22.77	0.00286	78.69
18	1.80	0.006	40.74	0.001	-71.09	-111.84	1.002	42.70	0.990	-42.61	0.00433	41.45
19	1.90	0.004	41.84	0.001	126.53	84.69	1.010	109.75	1.002	-109.22	0.00181	38.88
20	2.00	0.002	74.01	0.000	154.21	80.20	1.005	179.75	0.994	-179.95	0.00079	121.37

TANKER L/B=6.0 CB=0.80 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\pi}$	HEAVE ζ_{0GA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{FPA}/h_A	REL.BOW MOTION ε_{FP} (DEG)	REL.STE MOTION ζ_{APA}/h_A	REL.STE MOTION ε_{AP} (DEG)	BENDING MOMENT $M_{WA}/\rho L^2 B h_A$	BENDING MOMENT ε^M (DEG)
1	0.40	1.003	0.83	0.987	87.25	86.41	0.150	1.29	0.105	-13.17	0.00156	6.49
2	0.50	0.996	0.80	0.985	84.77	83.97	0.358	6.17	0.232	-22.28	0.00343	9.39
3	0.60	0.980	0.27	0.970	80.65	80.39	0.735	10.05	0.432	-31.81	0.00640	12.63
4	0.70	0.967	-1.46	0.938	73.86	75.32	1.349	12.58	0.705	-43.19	0.01041	15.89
5	0.80	0.998	-8.51	0.874	62.32	70.83	2.229	11.00	1.038	-57.67	0.01541	17.68
6	0.90	0.925	-39.90	0.760	43.31	83.21	2.875	2.09	1.426	-87.65	0.01756	11.54
7	0.95	0.688	-66.00	0.685	24.81	90.81	2.913	-3.07	1.335	-117.61	0.01516	18.64
8	1.00	0.362	-98.42	0.505	-3.47	94.95	2.492	-10.39	0.761	-160.24	0.01706	35.86
9	1.05	0.092	-141.94	0.267	-34.46	107.48	1.619	-8.44	0.192	67.18	0.02143	35.30
10	1.10	0.055	73.06	0.102	-66.93	-139.99	1.005	18.99	0.673	-15.99	0.02180	27.01
11	1.15	0.086	44.04	0.035	-132.03	-176.07	0.948	58.27	0.968	-44.28	0.01888	18.51
12	1.20	0.078	31.61	0.038	161.75	130.14	1.079	84.82	1.085	-66.88	0.01434	9.07
13	1.30	0.031	7.74	0.036	129.35	121.61	1.167	123.62	1.058	-112.42	0.00531	-39.69
14	1.40	0.013	-105.72	0.016	112.61	218.33	1.050	169.15	0.984	-166.42	0.00705	-129.18
15	1.50	0.020	-141.50	0.003	17.26	158.75	1.003	-134.58	1.013	137.17	0.00809	-153.09
16	1.60	0.012	-151.14	0.006	-47.63	103.51	1.043	-78.46	1.024	81.97	0.00372	178.08
17	1.70	0.001	-176.32	0.004	-54.42	121.90	1.026	-20.82	0.990	21.78	0.00278	59.65
18	1.80	0.003	32.65	0.001	-27.60	-60.26	1.006	42.77	0.991	-43.28	0.00287	43.28
19	1.90	0.002	87.10	0.001	-17.79	-104.89	0.997	109.39	0.998	-110.38	0.00245	110.96
20	2.00	0.005	74.05	0.001	-85.18	-159.23	0.997	-179.42	1.000	178.74	0.00572	74.33

TANKER L/B=6.0 CB=0.85 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{TFPA}/h_A	REL.BOW MOTION ε_{TFP} (DEG)	REL.STE MOTION ζ_{TAPA}/h_A	REL.STE MOTION ε_{TAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.974	1.22	0.973	89.86	88.63	0.098	0.08	0.097	-8.50	0.00203	3.56
2	0.50	0.931	1.61	0.941	89.62	88.01	0.229	3.95	0.224	-12.27	0.00425	6.40
3	0.60	0.855	1.95	0.887	89.09	87.15	0.449	8.92	0.431	-17.00	0.00760	9.31
4	0.70	0.734	2.25	0.804	88.11	85.85	0.766	14.77	0.715	-22.92	0.01191	12.18
5	0.80	0.563	2.94	0.687	86.55	83.61	1.148	21.73	1.042	-30.24	0.01652	15.06
6	0.90	0.350	6.03	0.540	84.12	78.10	1.514	30.28	1.330	-39.50	0.02014	17.98
7	0.95	0.235	11.83	0.457	82.47	70.65	1.651	35.49	1.423	-45.12	0.02112	19.50
8	1.00	0.131	31.30	0.371	80.48	49.17	1.732	41.66	1.462	-51.57	0.02133	21.18
9	1.05	0.100	89.39	0.283	78.02	-11.37	1.745	49.14	1.432	-59.13	0.02065	23.28
10	1.10	0.172	122.32	0.196	74.95	-47.37	1.685	58.49	1.324	-68.11	0.01913	26.22
11	1.15	0.251	126.54	0.114	70.95	-55.60	1.564	70.35	1.142	-79.10	0.01699	30.42
12	1.20	0.297	121.24	0.040	64.42	-56.82	1.395	85.58	0.904	-93.16	0.01459	35.93
13	1.30	0.235	100.31	0.073	-128.86	-229.17	1.137	137.20	0.443	-141.45	0.00972	45.76
14	1.40	0.076	69.84	0.098	-161.44	-231.28	1.504	179.40	0.393	157.85	0.00373	34.21
15	1.50	0.048	-97.01	0.039	151.36	248.37	1.132	-146.13	0.693	131.29	0.00342	-117.90
16	1.60	0.055	-131.48	0.017	16.77	148.24	1.024	-74.49	0.900	89.11	0.00485	-152.85
17	1.70	0.018	178.30	0.018	-27.78	-206.08	1.138	-21.14	0.876	28.67	0.00258	145.28
18	1.80	0.019	68.95	0.006	-66.63	-135.59	0.999	40.62	0.934	-40.61	0.00323	65.36
19	1.90	0.015	39.73	0.004	168.98	129.25	1.030	111.31	0.981	-106.28	0.00235	25.17
20	2.00	0.004	-59.92	0.004	136.23	196.15	1.032	178.41	0.961	-177.65	0.00156	-88.32

TANKER L/B=6.0 CB=0.85 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{TFPA}/h_A	REL.BOW MOTION ε_{TFP} (DEG)	REL.STE MOTION ζ_{TAPA}/h_A	REL.STE MOTION ε_{TAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.980	1.17	0.977	89.39	88.22	0.109	0.62	0.100	-9.86	0.00205	3.83
2	0.50	0.944	1.48	0.951	88.74	87.27	0.253	4.87	0.227	-14.80	0.00428	6.61
3	0.60	0.878	1.65	0.907	87.48	85.83	0.502	9.90	0.432	-20.66	0.00763	9.35
4	0.70	0.771	1.72	0.834	85.41	83.70	0.867	15.43	0.712	-27.67	0.01191	12.08
5	0.80	0.616	2.12	0.730	82.09	79.97	1.325	21.68	1.028	-36.39	0.01638	14.67
6	0.90	0.420	5.41	0.596	76.63	71.22	1.800	28.87	1.297	-47.59	0.01968	17.12
7	0.95	0.320	11.44	0.518	72.52	61.07	2.002	32.77	1.374	-54.37	0.02042	18.59
8	1.00	0.239	24.90	0.433	66.70	41.80	2.147	36.56	1.381	-62.02	0.02039	20.69
9	1.05	0.206	44.51	0.340	57.96	13.45	2.192	39.77	1.302	-70.44	0.01966	23.67
10	1.10	0.203	57.52	0.237	44.06	-13.47	2.042	42.33	1.125	-78.99	0.01845	27.34
11	1.15	0.193	66.22	0.128	19.70	-46.52	1.611	47.89	0.865	-84.93	0.01696	31.25
12	1.20	0.193	70.50	0.046	-49.61	-120.11	1.084	69.58	0.643	-80.16	0.01555	33.32
13	1.30	0.129	46.38	0.098	178.97	132.59	1.304	134.62	0.743	-88.23	0.00999	16.27
14	1.40	0.030	-27.50	0.051	139.57	167.07	1.228	165.72	0.796	-153.62	0.00373	-65.27
15	1.50	0.037	-123.01	0.012	78.86	201.87	0.971	-137.10	0.949	141.60	0.00555	-137.50
16	1.60	0.024	-151.35	0.012	-20.77	130.59	1.057	-76.14	1.010	86.03	0.00403	-175.70
17	1.70	0.008	115.72	0.009	-46.85	-162.57	1.060	-21.27	0.970	24.71	0.00307	97.52
18	1.80	0.014	54.83	0.002	-116.64	-171.47	0.996	43.06	0.993	-41.32	0.00393	52.20
19	1.90	0.007	30.81	0.003	151.44	120.63	1.028	110.75	1.001	-107.28	0.00174	3.08
20	2.00	0.004	-101.61	0.002	127.26	228.88	1.015	179.15	0.985	-178.58	0.00262	-112.42

TANKER L/B=6.0 CB=0.85 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ξ_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFP}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAP}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.988	1.11	0.980	88.88	87.77	0.120	0.82	0.103	-10.93	0.00201	4.46
2	0.50	0.959	1.33	0.961	87.75	86.42	0.281	5.43	0.231	-17.18	0.00422	7.19
3	0.60	0.907	1.31	0.926	85.69	84.38	0.564	10.32	0.436	-24.20	0.00752	10.02
4	0.70	0.819	1.01	0.866	82.34	81.33	0.990	15.31	0.712	-32.58	0.01173	12.76
5	0.80	0.698	0.60	0.780	76.69	76.09	1.562	20.30	1.021	-43.37	0.01602	15.25
6	0.90	0.566	-0.02	0.663	66.44	66.46	2.218	23.84	1.270	-57.65	0.01916	17.67
7	0.95	0.504	-3.64	0.585	57.72	61.36	2.496	23.33	1.320	-66.76	0.01986	18.98
8	1.00	0.411	-14.45	0.486	45.11	59.57	2.581	20.81	1.272	-78.22	0.01950	20.24
9	1.05	0.243	-30.16	0.363	26.55	56.71	2.336	18.08	1.034	-91.71	0.01805	24.29
10	1.10	0.066	-18.37	0.218	-1.63	16.74	1.731	19.23	0.609	-92.12	0.01762	30.95
11	1.15	0.097	58.67	0.085	-49.07	-107.74	1.048	40.55	0.590	-55.25	0.01781	30.24
12	1.20	0.122	47.53	0.046	-147.72	-195.25	0.973	83.92	0.899	-59.51	0.01561	21.71
13	1.30	0.056	13.65	0.053	144.37	130.72	1.230	126.03	1.022	-105.12	0.00693	-13.16
14	1.40	0.021	-86.91	0.023	115.87	202.78	1.072	168.02	0.968	-163.23	0.00495	-108.33
15	1.50	0.027	-134.47	0.007	20.32	154.79	0.987	-133.86	1.023	139.02	0.00600	-147.91
16	1.60	0.013	-161.04	0.010	-34.79	126.25	1.054	-77.11	1.030	83.91	0.00324	163.07
17	1.70	0.007	78.54	0.005	-54.05	-132.59	1.035	-20.73	0.992	22.85	0.00413	73.55
18	1.80	0.011	47.71	0.001	-170.12	-217.83	1.000	43.72	1.009	-42.02	0.00440	44.46
19	1.90	0.004	27.31	0.003	142.29	114.97	1.025	110.44	1.007	-107.92	0.00126	-25.66
20	2.00	0.003	-120.13	0.001	126.93	247.06	1.010	179.51	0.992	-179.12	0.00333	-124.70

TANKER L/B=6.0 CB=0.85 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ξ_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFP}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAP}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.995	1.05	0.982	88.31	87.26	0.133	0.67	0.106	-11.66	0.00195	5.53
2	0.50	0.977	1.16	0.971	86.64	85.49	0.313	5.55	0.235	-19.25	0.00410	8.36
3	0.60	0.941	0.89	0.945	83.71	82.82	0.635	10.11	0.441	-27.48	0.00733	11.48
4	0.70	0.885	-0.07	0.899	78.81	78.87	1.141	14.17	0.717	-37.46	0.01145	14.49
5	0.80	0.831	-2.79	0.832	70.19	72.97	1.869	16.73	1.033	-50.57	0.01578	17.07
6	0.90	0.795	-18.89	0.715	53.67	72.56	2.656	12.23	1.320	-70.54	0.01897	17.00
7	0.95	0.671	-40.10	0.633	40.05	80.15	2.786	7.33	1.352	-89.41	0.01794	16.85
8	1.00	0.426	-68.76	0.515	17.75	86.51	2.609	1.51	1.035	-117.36	0.01633	27.00
9	1.05	0.148	-105.36	0.319	-14.20	91.16	1.920	-2.42	0.281	-141.94	0.01878	36.29
10	1.10	0.033	87.84	0.130	-50.87	-138.71	1.122	14.67	0.493	-20.66	0.02026	30.65
11	1.15	0.031	46.74	0.040	-114.60	-161.34	0.924	55.82	0.910	-43.63	0.01785	21.13
12	1.20	0.075	30.53	0.039	169.16	138.63	1.055	85.16	1.071	-66.14	0.01342	10.19
13	1.30	0.026	-9.67	0.034	130.66	140.33	1.149	124.21	1.058	-113.01	0.00510	-42.90
14	1.40	0.020	-113.51	0.012	101.61	215.11	1.028	170.36	1.009	-167.55	0.00643	-125.78
15	1.50	0.021	-140.42	0.006	-14.21	126.21	1.000	-132.98	1.044	137.46	0.00616	-154.24
16	1.60	0.007	-168.06	0.008	-42.71	125.35	1.048	-77.64	1.034	82.69	0.00273	136.24
17	1.70	0.007	60.61	0.003	-57.65	-118.26	1.024	-20.37	0.999	21.86	0.00527	59.78
18	1.80	0.009	44.71	0.001	159.20	114.49	1.004	43.86	1.012	-42.52	0.00468	41.13
19	1.90	0.003	43.96	0.002	137.25	93.29	1.020	110.21	1.007	-108.52	0.00045	-45.11
20	2.00	0.001	-160.63	0.001	151.87	312.49	1.010	179.77	0.992	-179.68	0.00270	-144.54

TANKER L/B=6.0 CB=0.85 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OSA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{3\theta}$ (DEG)	REL.BOW MOTION ζ_{YFPA}/h_A	REL.BOW MOTION ε_{YFP} (DEG)	REL.STE MOTION ζ_{YAPA}/h_A	REL.STE MOTION ε_{YAP} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	1.004	0.97	0.982	87.68	86.71	0.146	0.18	0.109	-12.01	0.00186	7.13
2	0.50	0.997	0.95	0.978	85.43	84.48	0.348	5.17	0.240	-20.87	0.00394	10.30
3	0.60	0.982	0.31	0.961	81.53	81.21	0.716	9.16	0.448	-30.27	0.00712	13.86
4	0.70	0.975	-1.86	0.928	74.83	76.69	1.322	11.72	0.734	-41.75	0.01124	17.40
5	0.80	1.028	-10.86	0.867	63.03	73.89	2.211	9.54	1.107	-57.23	0.01608	18.46
6	0.90	0.935	-48.90	0.792	41.04	89.94	2.875	-0.38	1.550	-96.11	0.01562	14.77
7	0.95	0.661	-81.24	0.702	15.10	96.34	2.903	-9.23	1.328	-137.36	0.01455	35.29
8	1.00	0.292	-120.76	0.441	-19.93	100.83	2.193	-18.51	0.583	154.74	0.02072	42.62
9	1.05	0.060	-175.50	0.190	-51.15	124.35	1.290	-7.65	0.504	26.02	0.02304	32.40
10	1.10	0.049	60.79	0.062	-86.90	-147.69	0.934	27.82	0.863	-21.96	0.02066	22.62
11	1.15	0.060	34.90	0.028	-165.25	-200.15	0.978	61.03	1.048	-48.39	0.01625	13.39
12	1.20	0.048	20.82	0.033	149.62	128.80	1.076	84.13	1.108	-70.62	0.01116	0.93
13	1.30	0.014	-38.55	0.024	123.59	162.14	1.105	123.92	1.060	-116.77	0.00484	-76.88
14	1.40	0.020	-126.69	0.006	88.05	214.75	1.013	171.77	1.022	-169.77	0.00781	-135.24
15	1.50	0.017	-144.25	0.006	-31.34	112.90	1.008	-132.76	1.050	136.51	0.00610	-159.01
16	1.60	0.004	-171.73	0.007	-47.59	124.15	1.043	-77.96	1.034	81.92	0.00264	107.52
17	1.70	0.006	50.77	0.002	-54.58	-105.35	1.020	-20.12	0.999	21.28	0.00602	51.14
18	1.80	0.007	46.58	0.001	125.23	78.65	1.008	43.69	1.008	-42.98	0.00452	44.21
19	1.90	0.004	76.21	0.001	131.15	54.93	1.013	109.93	1.002	-109.22	0.00177	119.91
20	2.00	0.003	95.34	0.001	-162.34	-257.69	1.012	-179.98	0.987	179.57	0.00291	120.89

TANKER L/B=7.0 CB=0.80 FN= 0.00 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OMA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAM}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^3 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.973	1.17	0.977	89.58	88.41	0.100	2.61	0.093	-8.63	0.00174	2.46
2	0.50	0.930	1.66	0.947	89.22	87.56	0.234	6.44	0.217	-12.53	0.00380	4.84
3	0.60	0.854	2.20	0.895	88.67	86.47	0.458	11.24	0.422	-17.32	0.00704	7.48
4	0.70	0.733	2.94	0.815	87.74	84.81	0.782	17.00	0.706	-23.28	0.01136	10.00
5	0.80	0.564	4.40	0.701	86.44	82.04	1.171	23.88	1.040	-30.54	0.01627	12.55
6	0.90	0.353	8.82	0.554	84.68	75.86	1.540	32.39	1.347	-39.53	0.02063	15.13
7	0.95	0.241	15.26	0.470	83.60	68.33	1.674	37.57	1.454	-44.93	0.02212	16.50
8	1.00	0.138	33.60	0.383	82.36	48.76	1.751	43.66	1.510	-51.14	0.02287	17.97
9	1.05	0.093	89.15	0.294	81.06	-8.10	1.752	51.12	1.500	-58.48	0.02278	19.58
10	1.10	0.153	131.28	0.206	79.81	-51.47	1.674	60.65	1.415	-67.40	0.02172	21.54
11	1.15	0.232	142.55	0.122	79.22	-63.33	1.528	73.44	1.257	-78.75	0.01968	24.11
12	1.20	0.291	144.70	0.048	83.60	-61.10	1.356	91.17	1.043	-94.18	0.01684	27.79
13	1.30	0.306	138.95	0.064	-124.31	-263.26	1.237	142.07	0.677	-150.80	0.01010	41.19
14	1.40	0.166	131.57	0.107	-131.90	-263.47	1.534	-171.93	0.821	141.36	0.00413	70.21
15	1.50	0.045	-147.25	0.076	-152.62	-5.37	1.538	-141.09	0.973	104.54	0.00240	-168.92
16	1.60	0.104	-111.97	0.011	130.28	242.25	1.020	-84.64	0.842	75.70	0.00563	-141.68
17	1.70	0.069	-125.32	0.032	-1.93	123.40	1.243	-18.98	0.665	26.02	0.00412	-157.26
18	1.80	0.005	140.00	0.021	-28.79	-168.79	1.078	33.31	0.781	-47.39	0.00191	81.87
19	1.90	0.027	42.27	0.002	-121.87	-164.13	0.996	109.42	0.952	-108.76	0.00366	34.45
20	2.00	0.012	24.25	0.007	138.87	114.62	1.055	176.67	0.919	-176.42	0.00147	-8.55

TANKER L/B=7.0 CB=0.80 FN= 0.05 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3OMA}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rFPA}/h_A	REL.BOW MOTION ε_{rFP} (DEG)	REL.STE MOTION ζ_{rAPA}/h_A	REL.STE MOTION ε_{rAP} (DEG)	BENDING MOMENT $M_{WA}/\rho g L^3 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.978	1.14	0.981	89.17	88.03	0.108	3.23	0.095	-10.01	0.00174	2.74
2	0.50	0.941	1.57	0.957	88.44	86.87	0.255	7.37	0.219	-14.91	0.00380	5.05
3	0.60	0.872	2.04	0.914	87.29	85.25	0.504	12.21	0.421	-20.57	0.00703	7.57
4	0.70	0.762	2.69	0.842	85.50	82.81	0.867	17.72	0.701	-27.36	0.01134	10.00
5	0.80	0.602	4.22	0.737	82.91	78.69	1.315	24.09	1.025	-35.53	0.01618	12.36
6	0.90	0.401	9.48	0.599	79.07	69.59	1.760	31.69	1.317	-45.70	0.02030	14.73
7	0.95	0.294	17.26	0.518	76.53	59.27	1.933	36.22	1.414	-51.78	0.02164	15.99
8	1.00	0.203	36.04	0.431	73.35	37.31	2.044	41.42	1.456	-58.70	0.02221	17.51
9	1.05	0.175	71.55	0.340	69.24	-2.30	2.072	47.50	1.424	-66.60	0.02189	19.64
10	1.10	0.229	97.29	0.246	63.58	-33.71	2.003	54.74	1.307	-75.67	0.02072	22.78
11	1.15	0.300	103.03	0.153	54.65	-48.38	1.824	63.61	1.104	-86.11	0.01901	27.22
12	1.20	0.335	99.14	0.064	34.34	-64.80	1.511	76.21	0.831	-98.06	0.01715	32.31
13	1.30	0.270	85.74	0.091	-138.64	-224.38	1.189	138.07	0.277	-126.08	0.01270	37.47
14	1.40	0.113	60.11	0.113	-179.76	-239.87	1.611	172.12	0.208	-173.35	0.00534	14.56
15	1.50	0.030	-97.00	0.045	142.76	239.76	1.102	-149.88	0.648	133.01	0.00466	-120.96
16	1.60	0.055	-135.22	0.010	15.53	150.75	1.025	-77.48	0.924	85.75	0.00641	-154.07
17	1.70	0.024	-154.93	0.017	-38.02	116.91	1.121	-22.95	0.901	28.21	0.00301	161.27
18	1.80	0.008	66.55	0.008	-58.19	-124.74	0.995	39.16	0.916	-41.43	0.00340	58.65
19	1.90	0.014	34.86	0.002	169.47	134.61	1.014	110.05	0.985	-108.05	0.00353	26.41
20	2.00	0.004	11.26	0.004	127.17	115.91	1.022	178.04	0.968	-177.81	0.00111	-58.94

TANKER L/B=7.0 CB=0.80 FN= 0.10 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rAp} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.984	1.11	0.985	88.71	87.60	0.118	3.59	0.098	-11.19	0.00170	3.35
2	0.50	0.953	1.49	0.967	87.59	86.10	0.278	7.96	0.222	-17.13	0.00373	5.66
3	0.60	0.894	1.87	0.932	85.75	83.89	0.556	12.77	0.422	-23.80	0.00691	8.18
4	0.70	0.798	2.39	0.871	82.95	80.56	0.969	17.89	0.696	-31.57	0.01115	10.60
5	0.80	0.659	3.77	0.778	78.70	74.93	1.499	23.45	1.010	-41.07	0.01585	12.92
6	0.90	0.488	8.69	0.653	72.00	63.31	2.063	29.40	1.281	-53.05	0.01979	15.36
7	0.95	0.406	14.52	0.577	67.01	52.49	2.308	32.21	1.358	-60.18	0.02101	16.99
8	1.00	0.344	22.77	0.490	60.07	37.29	2.479	34.37	1.366	-68.04	0.02159	19.21
9	1.05	0.302	29.98	0.390	50.00	20.02	2.497	35.47	1.287	-76.57	0.02157	21.89
10	1.10	0.246	35.35	0.276	35.08	-0.27	2.241	36.33	1.107	-85.35	0.02091	24.66
11	1.15	0.194	51.12	0.156	11.03	-40.09	1.679	41.71	0.828	-91.08	0.01976	27.86
12	1.20	0.205	65.99	0.060	-49.30	-115.29	1.068	65.74	0.585	-81.73	0.01865	29.67
13	1.30	0.168	49.12	0.098	176.87	127.76	1.362	133.90	0.735	-82.81	0.01294	15.24
14	1.40	0.046	9.98	0.066	141.12	131.14	1.301	163.29	0.727	-148.14	0.00444	-50.81
15	1.50	0.031	-119.84	0.019	109.54	229.39	0.981	-141.17	0.870	140.92	0.00666	-136.00
16	1.60	0.033	-144.81	0.009	-18.11	126.71	1.046	-77.63	0.990	84.69	0.00598	-163.66
17	1.70	0.011	-168.86	0.010	-48.85	120.00	1.069	-22.36	0.958	25.29	0.00253	127.18
18	1.80	0.008	52.22	0.004	-69.20	-121.42	0.995	41.41	0.963	-41.74	0.00423	48.36
19	1.90	0.009	32.57	0.002	146.99	114.42	1.018	109.99	0.998	-108.26	0.00326	20.78
20	2.00	0.001	1.59	0.002	122.86	121.28	1.014	178.71	0.983	-178.53	0.00135	-101.02

TANKER L/B=7.0 CB=0.80 FN= 0.15 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{3a}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{rapA}/h_A	REL.STE MOTION ε_{rAp} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^2 B h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.990	1.08	0.988	88.19	87.11	0.129	3.69	0.099	-12.12	0.00163	4.41
2	0.50	0.966	1.39	0.977	86.63	85.24	0.305	8.25	0.224	-19.20	0.00361	6.72
3	0.60	0.920	1.66	0.950	84.03	82.37	0.616	12.86	0.423	-26.89	0.00670	9.45
4	0.70	0.845	1.94	0.900	80.05	78.11	1.090	17.37	0.692	-35.82	0.01085	12.03
5	0.80	0.744	2.61	0.823	73.67	71.06	1.733	21.59	0.997	-46.98	0.01544	14.68
6	0.90	0.647	2.81	0.709	62.71	59.90	2.468	23.74	1.247	-61.04	0.01956	17.70
7	0.95	0.605	-1.55	0.628	53.95	55.50	2.761	22.34	1.309	-69.51	0.02113	18.99
8	1.00	0.518	-13.32	0.525	42.14	55.46	2.824	19.27	1.300	-80.32	0.02175	19.25
9	1.05	0.333	-29.67	0.403	25.75	55.42	2.540	16.66	1.122	-94.27	0.02083	21.22
10	1.10	0.115	-32.54	0.260	0.99	33.53	1.911	17.27	0.709	-102.15	0.02027	26.77
11	1.15	0.095	55.54	0.116	-38.90	-94.44	1.136	34.26	0.490	-67.34	0.02080	28.14
12	1.20	0.150	52.41	0.050	-127.11	-179.52	0.940	80.96	0.794	-57.90	0.01943	21.98
13	1.30	0.092	27.24	0.067	148.05	120.81	1.300	126.22	0.996	-99.37	0.01020	-3.45
14	1.40	0.020	-28.26	0.037	124.34	152.60	1.137	164.90	0.902	-158.24	0.00481	-91.83
15	1.50	0.027	-130.89	0.009	86.77	217.67	0.983	-137.15	0.957	139.48	0.00753	-144.20
16	1.60	0.022	-149.23	0.008	-33.35	115.88	1.049	-78.02	1.013	83.49	0.00536	-170.83
17	1.70	0.005	177.67	0.007	-54.22	-231.89	1.046	-21.75	0.979	23.69	0.00268	94.34
18	1.80	0.007	44.10	0.002	-75.44	-119.55	0.998	42.33	0.983	-42.20	0.00482	41.52
19	1.90	0.006	34.36	0.001	135.60	101.24	1.015	109.85	1.002	-108.73	0.00275	21.79
20	2.00	0.001	53.61	0.001	126.34	73.23	1.008	179.30	0.990	-179.33	0.00084	-131.89

TANKER L/B=7.0 CB=0.80 FN= 0.20 PSI= 0.0 (DEG)

NO	$\sqrt{L/\lambda}$	HEAVE ζ_{a0A}/h_A	HEAVE ε_3 (DEG)	PITCH θ_A/θ_{WA}	PITCH ε_θ (DEG)	Phase Dif. $\varepsilon_{\theta 3}$ (DEG)	REL.BOW MOTION ζ_{rfpA}/h_A	REL.BOW MOTION ε_{rfp} (DEG)	REL.STE MOTION ζ_{raA}/h_A	REL.STE MOTION ε_{rap} (DEG)	BENDING MOMENT $M_{VA}/\rho g L^3 h_A$	BENDING MOMENT ε_M (DEG)
1	0.40	0.997	1.04	0.990	87.61	86.57	0.141	3.51	0.101	-12.78	0.00153	6.07
2	0.50	0.982	1.29	0.985	85.54	84.25	0.335	8.21	0.226	-21.02	0.00343	8.51
3	0.60	0.952	1.38	0.967	82.12	80.74	0.684	12.42	0.424	-29.70	0.00644	11.59
4	0.70	0.907	1.16	0.929	76.72	75.56	1.235	15.99	0.691	-39.86	0.01052	14.62
5	0.80	0.871	-0.24	0.865	67.73	67.97	2.021	17.88	0.994	-52.52	0.01531	17.84
6	0.90	0.871	-13.63	0.742	51.95	65.58	2.852	13.05	1.286	-69.40	0.02024	18.44
7	0.95	0.776	-32.25	0.656	40.56	72.81	2.982	8.34	1.387	-84.77	0.02075	16.17
8	1.00	0.542	-57.06	0.553	23.06	80.12	2.820	3.90	1.232	-108.22	0.01918	19.93
9	1.05	0.242	-87.09	0.388	-3.96	83.13	2.234	-0.35	0.642	-134.10	0.02001	30.05
10	1.10	0.014	-175.84	0.192	-37.43	138.41	1.340	8.19	0.224	-41.44	0.02265	30.00
11	1.15	0.096	54.64	0.064	-85.99	-140.63	0.904	48.25	0.749	-41.04	0.02196	22.46
12	1.20	0.108	38.62	0.041	-173.83	-212.45	1.035	84.76	1.009	-62.40	0.01816	13.41
13	1.30	0.054	15.61	0.047	134.66	119.05	1.216	123.82	1.051	-108.05	0.00795	-18.15
14	1.40	0.013	-68.75	0.024	115.66	184.41	1.074	167.21	0.961	-163.35	0.00589	-114.00
15	1.50	0.023	-137.38	0.004	60.36	197.74	0.994	-135.47	0.994	138.13	0.00804	-149.48
16	1.60	0.016	-151.81	0.007	-42.69	109.11	1.047	-78.31	1.022	82.62	0.00462	-177.86
17	1.70	0.002	167.77	0.005	-56.45	-224.22	1.034	-21.27	0.987	22.63	0.00304	72.00
18	1.80	0.005	39.21	0.001	-61.80	-101.01	1.002	42.65	0.989	-42.76	0.00448	39.11
19	1.90	0.004	48.49	0.000	101.91	53.42	1.006	109.60	1.001	-109.60	0.00194	52.70
20	2.00	0.003	72.86	0.000	-128.63	-201.49	1.002	179.99	0.996	179.61	0.00220	83.60

付　　録　3

Figures of Midship Bending Moments in Regular Waves

CARGO SHIP

C_b \ L/B	6.0	7.0	8.0
0.55	FIG 1-1 ~ 1-6	4-1 ~ 4-6	7-1 ~ 7-6
0.65	2-1 ~ 2-6	5-1 ~ 5-6	8-1 ~ 8-6
0.75	3-1 ~ 3-6	6-1 ~ 6-6	9-1 ~ 9-6

TANKER

C_b \ L/B	5.0	6.0	7.0
0.75		11-1 ~ 11-6	
0.80	FIG 10-1 ~ 10-6	12-1 ~ 12-6	14-1 ~ 14-6
0.85		13-1 ~ 13-6	

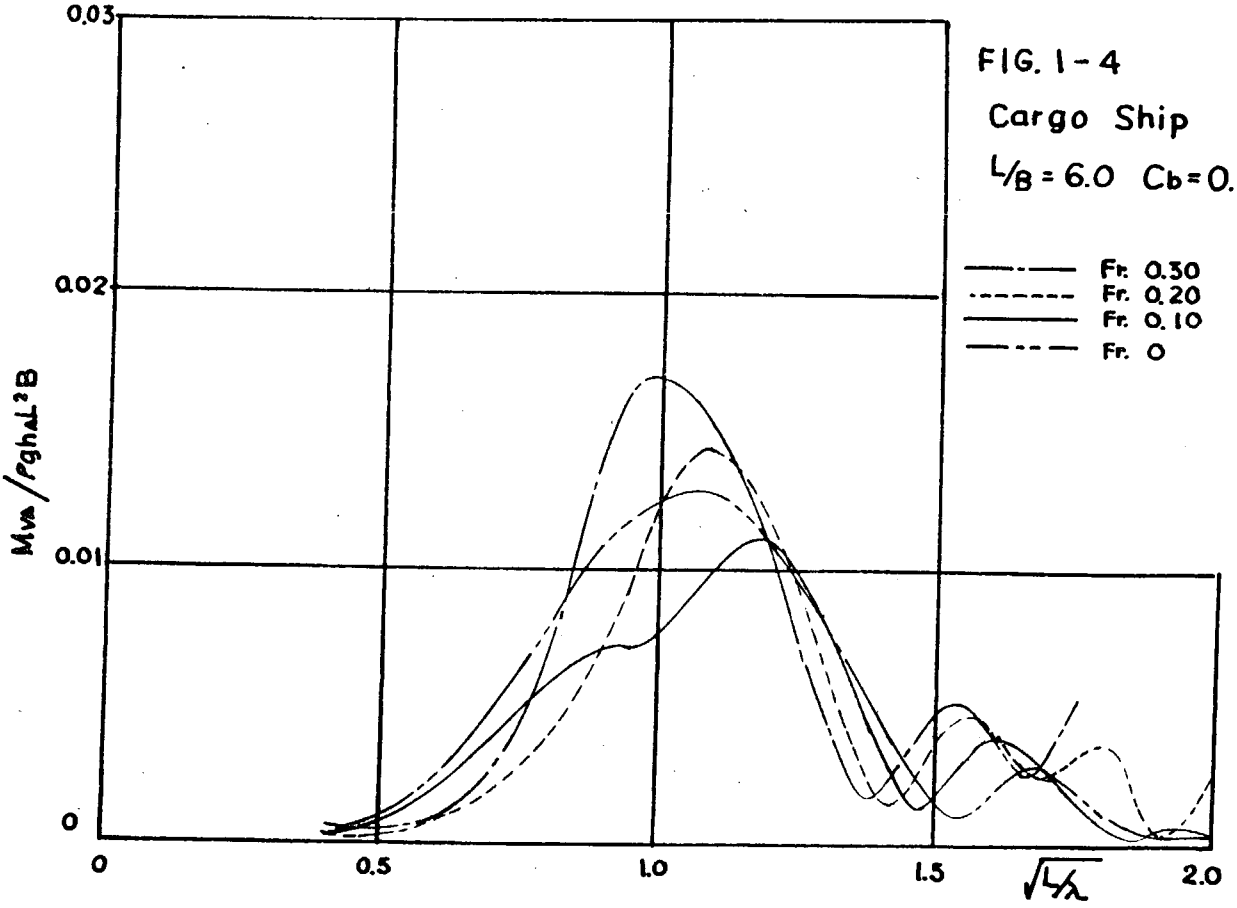


FIG. 1-4
Cargo Ship
$L/B = 6.0$ $C_b = 0.55$

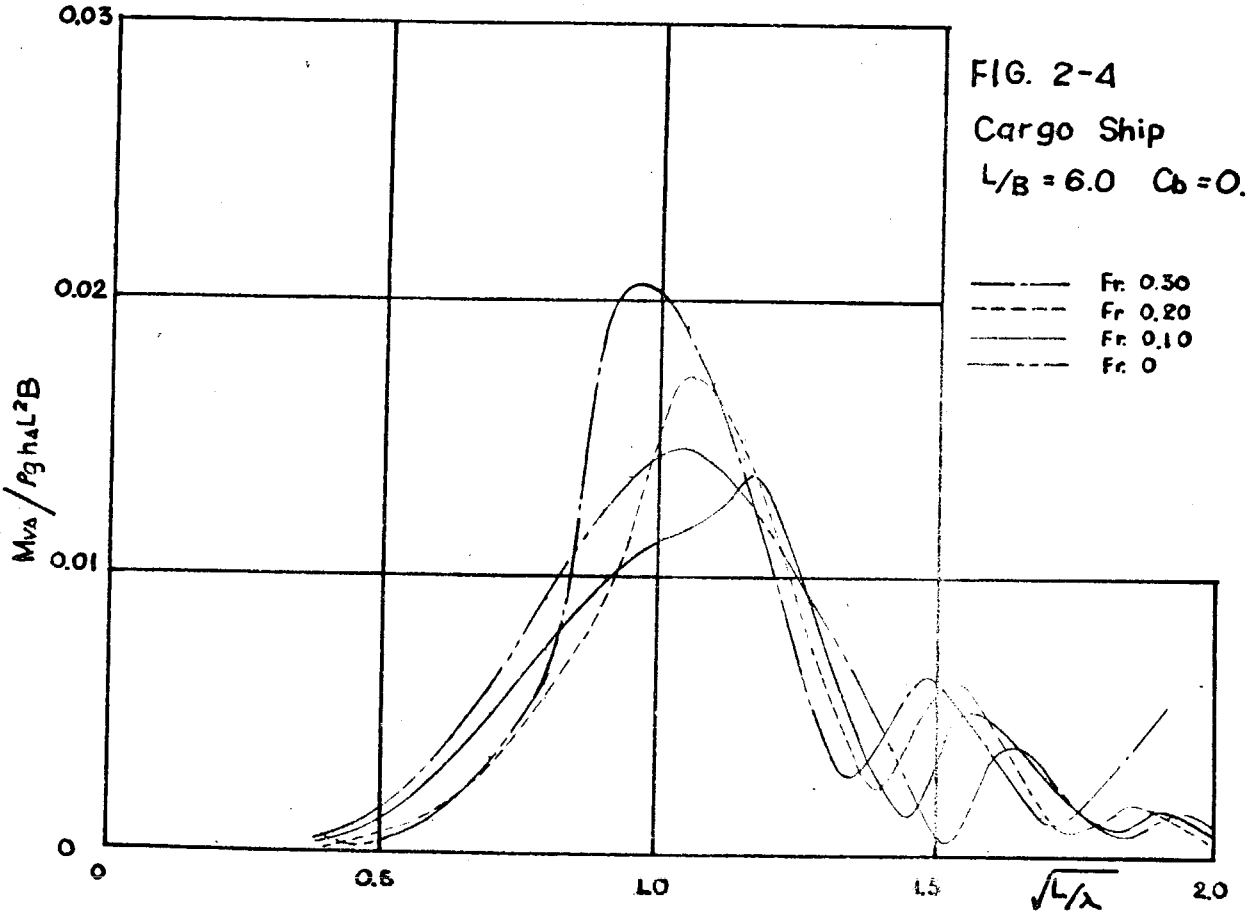


FIG. 2-4
Cargo Ship
$L/B = 6.0$ $C_b = 0.65$

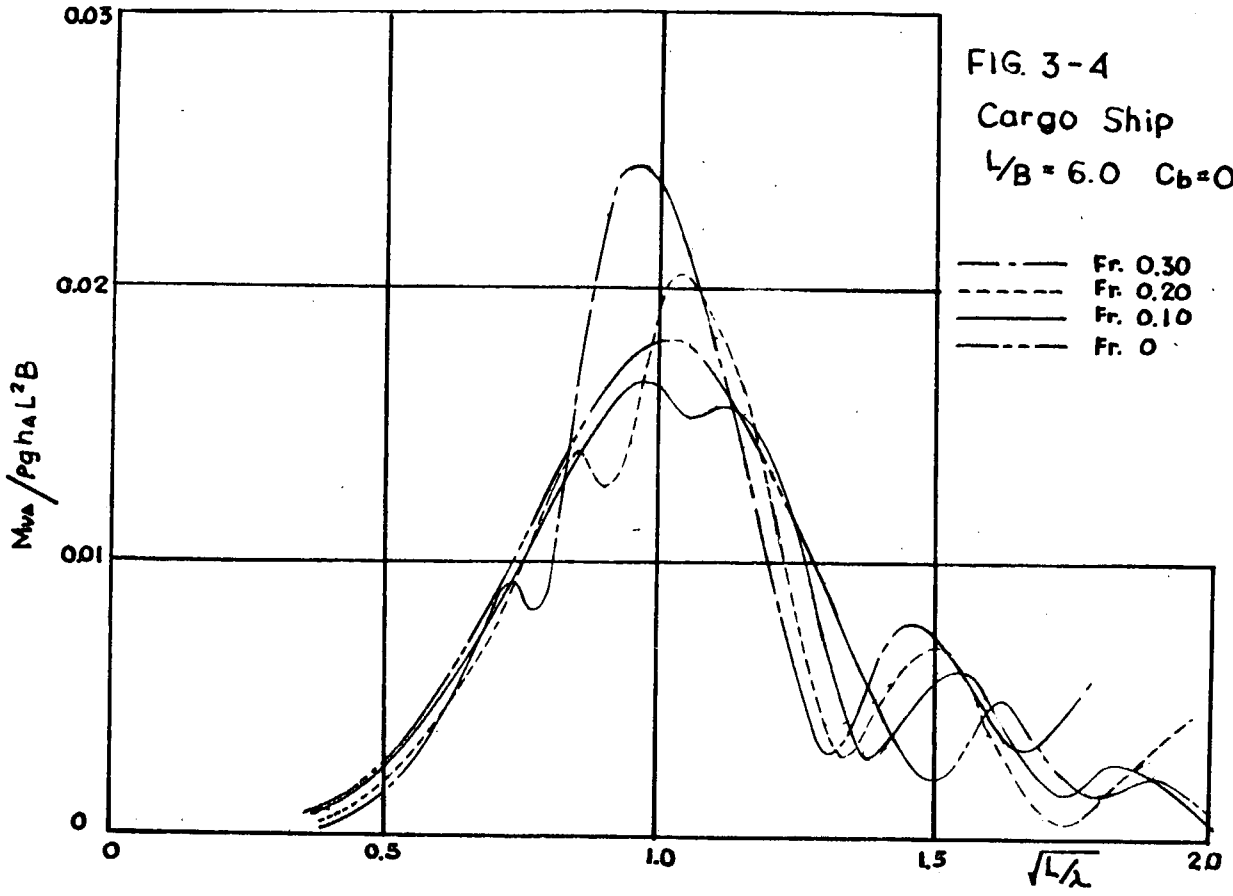


FIG. 3-4
Cargo Ship
$L/B = 6.0$ $C_b = 0.75$

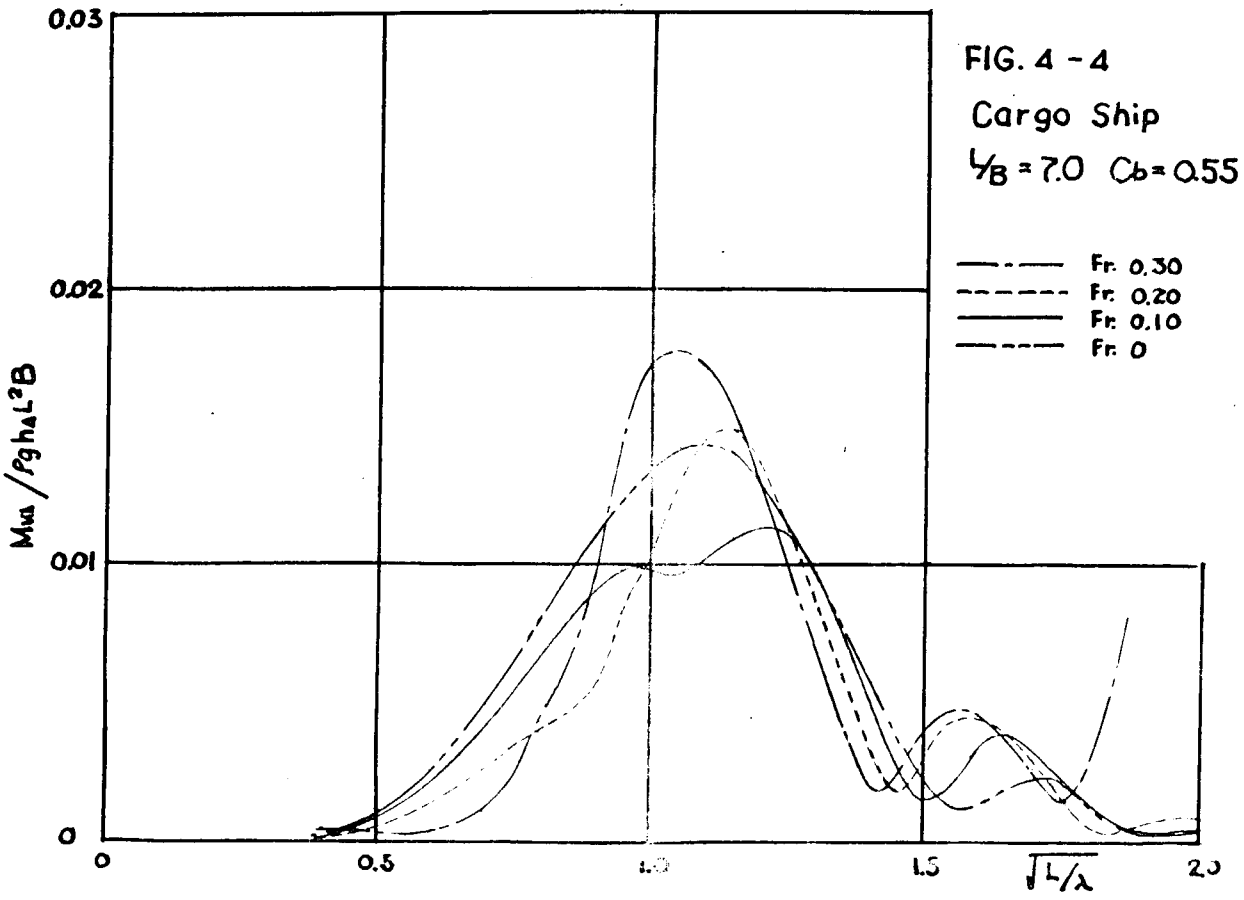


FIG. 4-4
Cargo Ship
$L/B = 7.0$ $C_b = 0.55$

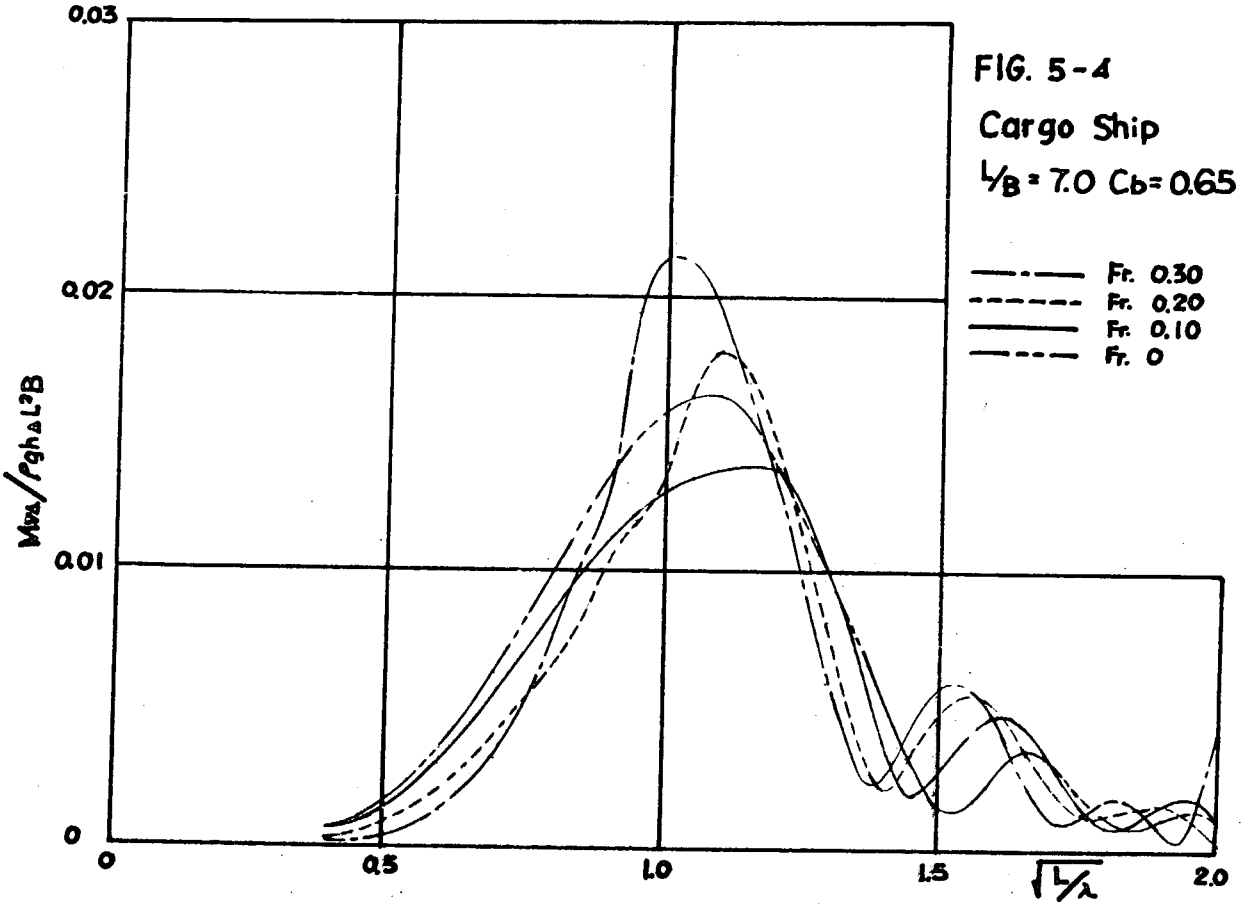


FIG. 5-4
Cargo Ship
$L/B = 7.0$ $C_b = 0.65$

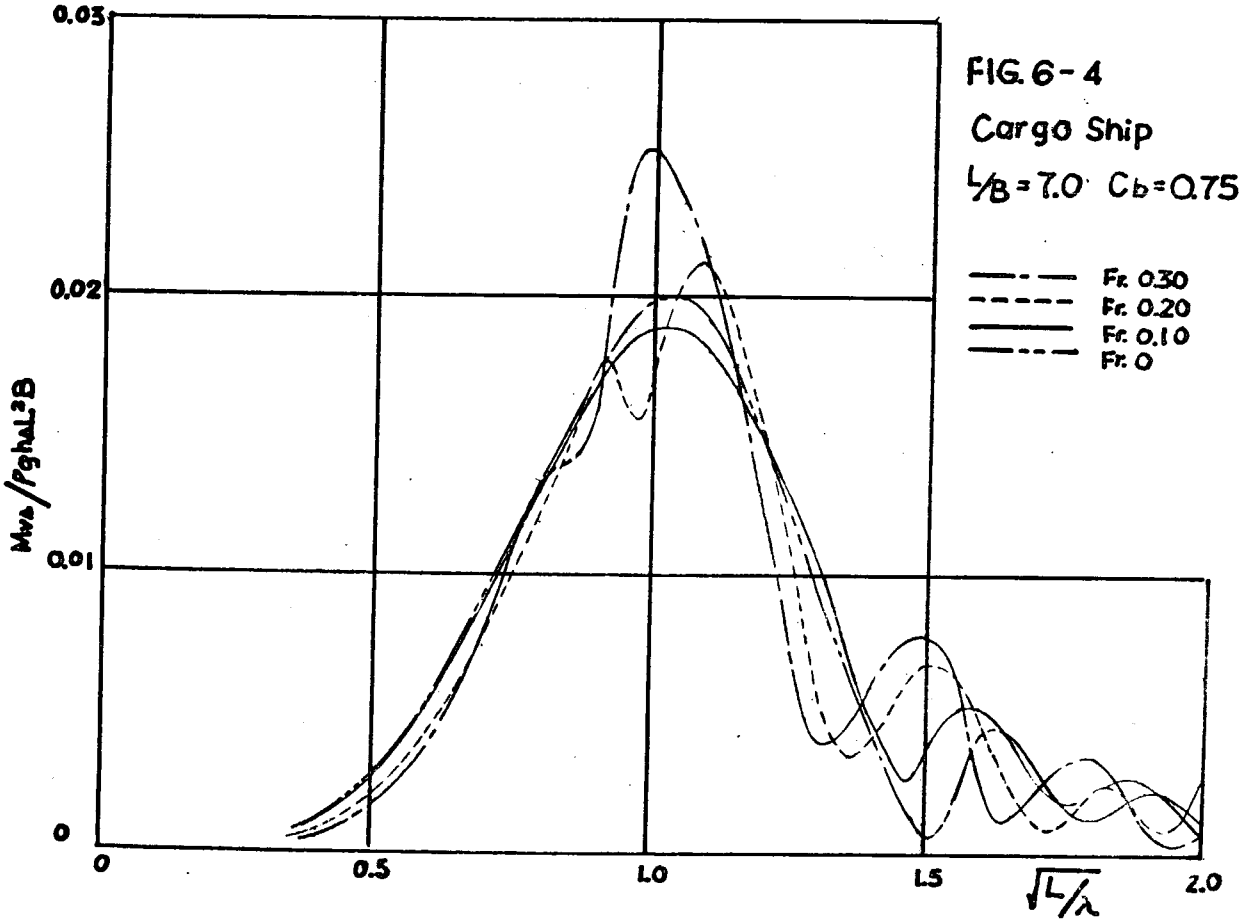


FIG. 6-4
Cargo Ship
$L/B = 7.0$ $C_b = 0.75$

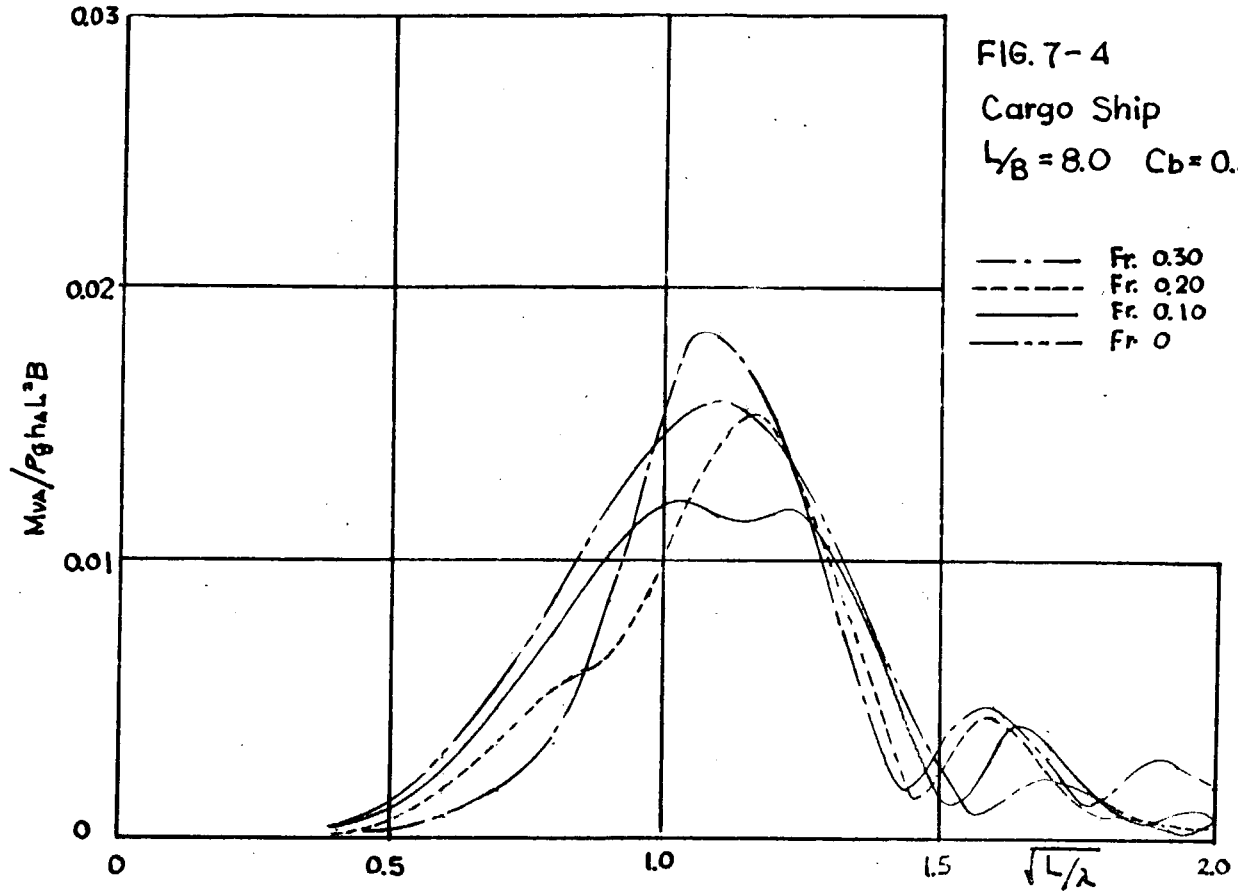


FIG. 7-4
Cargo Ship
$L/B = 8.0$ $C_b = 0.55$

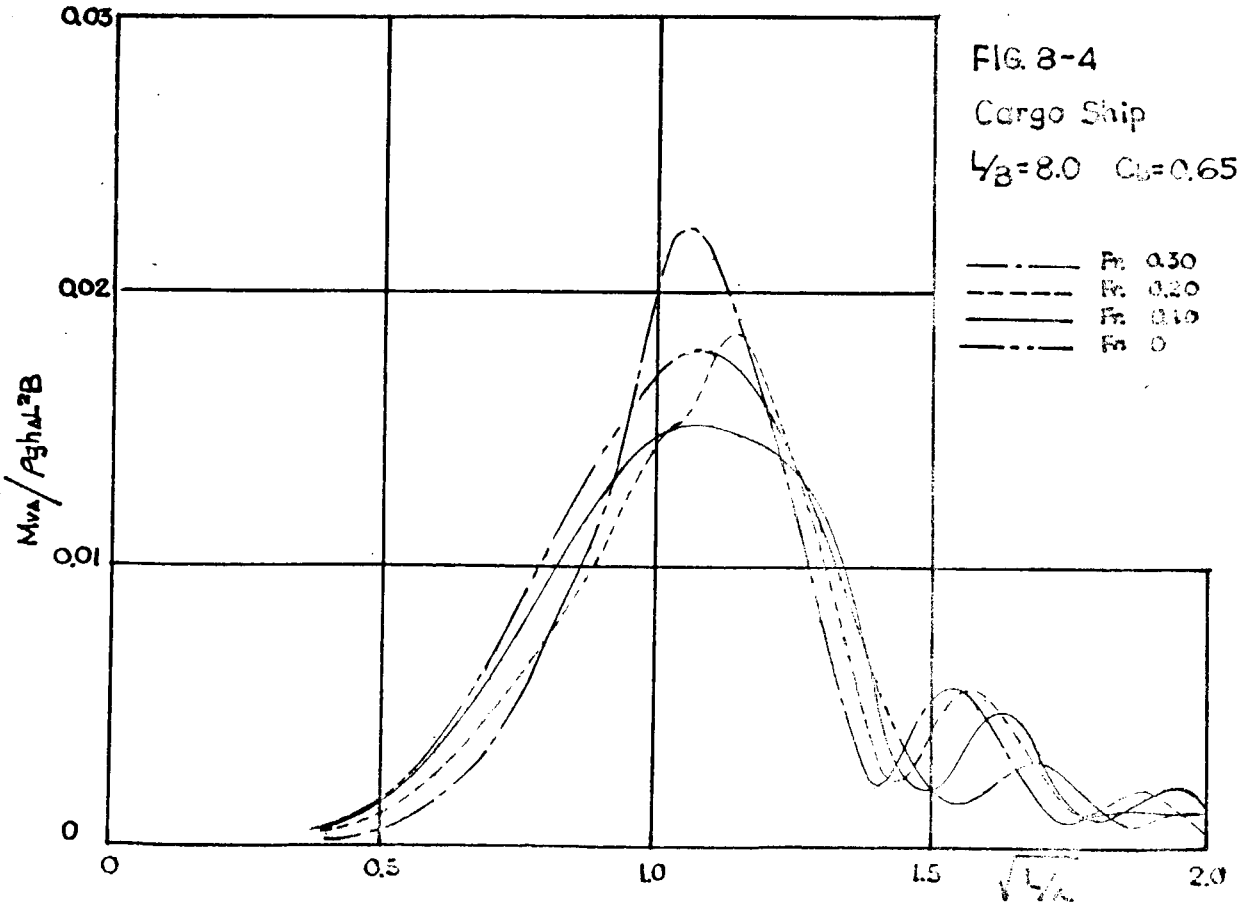


FIG. 8-4
Cargo Ship
$L/B = 8.0$ $C_b = 0.65$

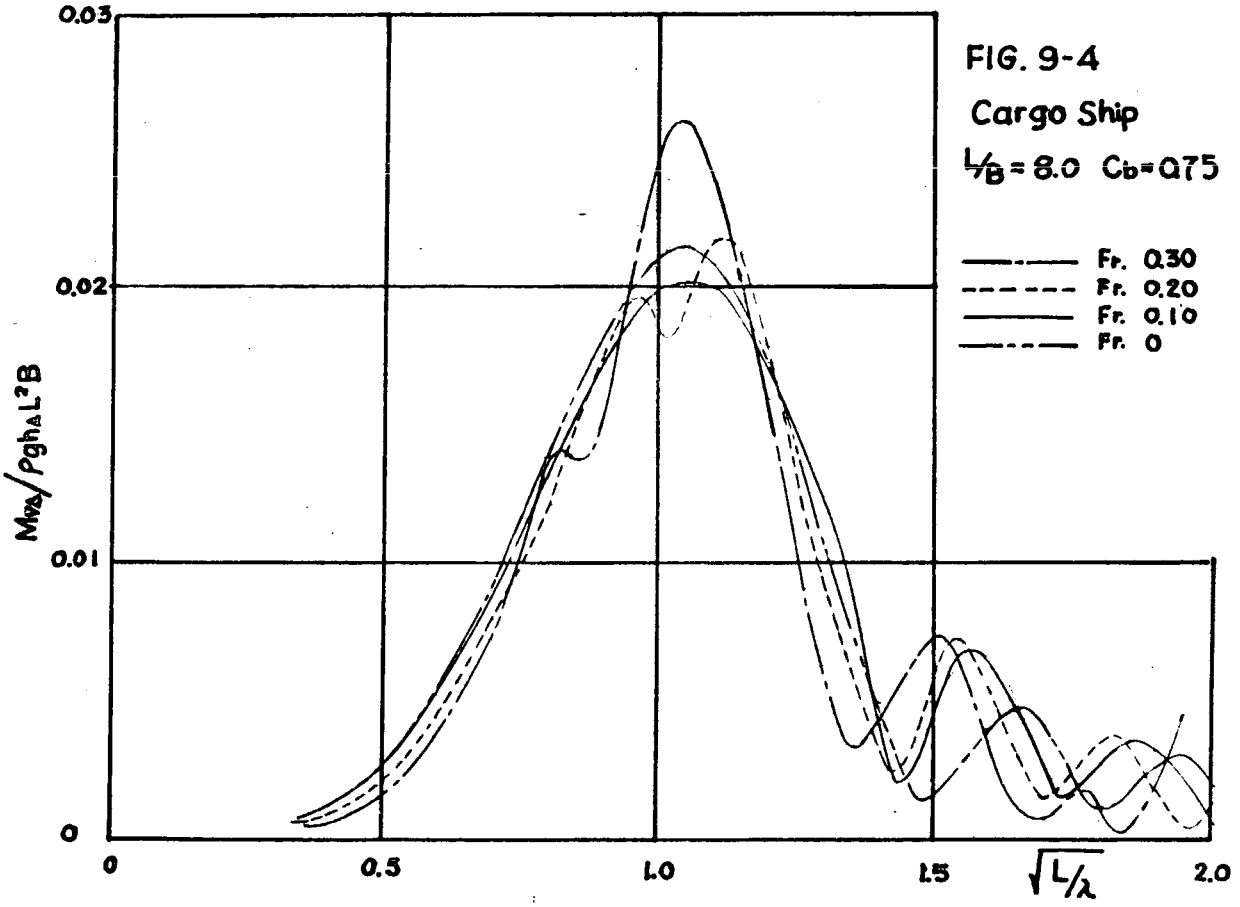


FIG. 9-4
Cargo Ship
$L/B = 8.0$ $C_b = 0.75$

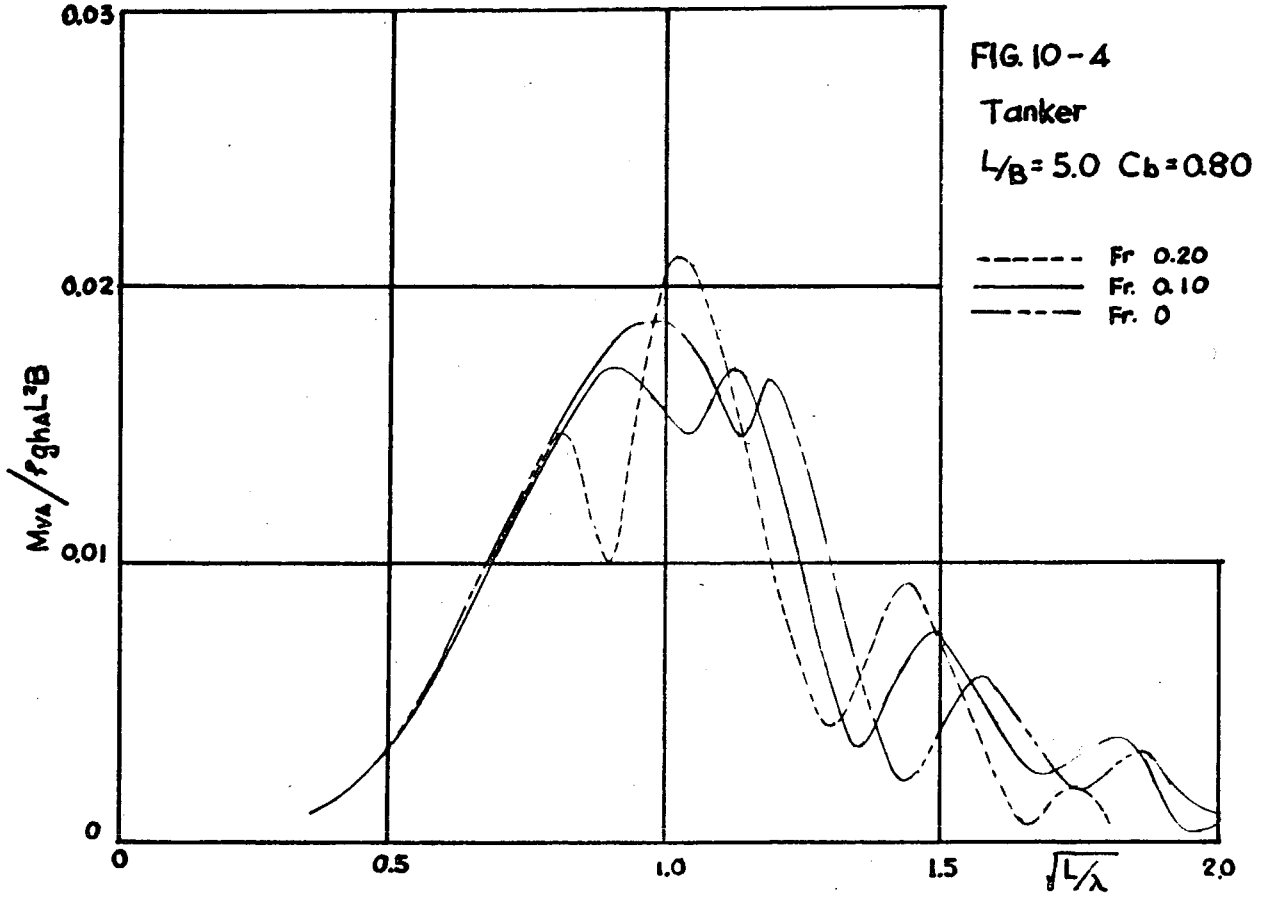


FIG. 10-4
Tanker
$L/B = 5.0$ $C_b = 0.80$

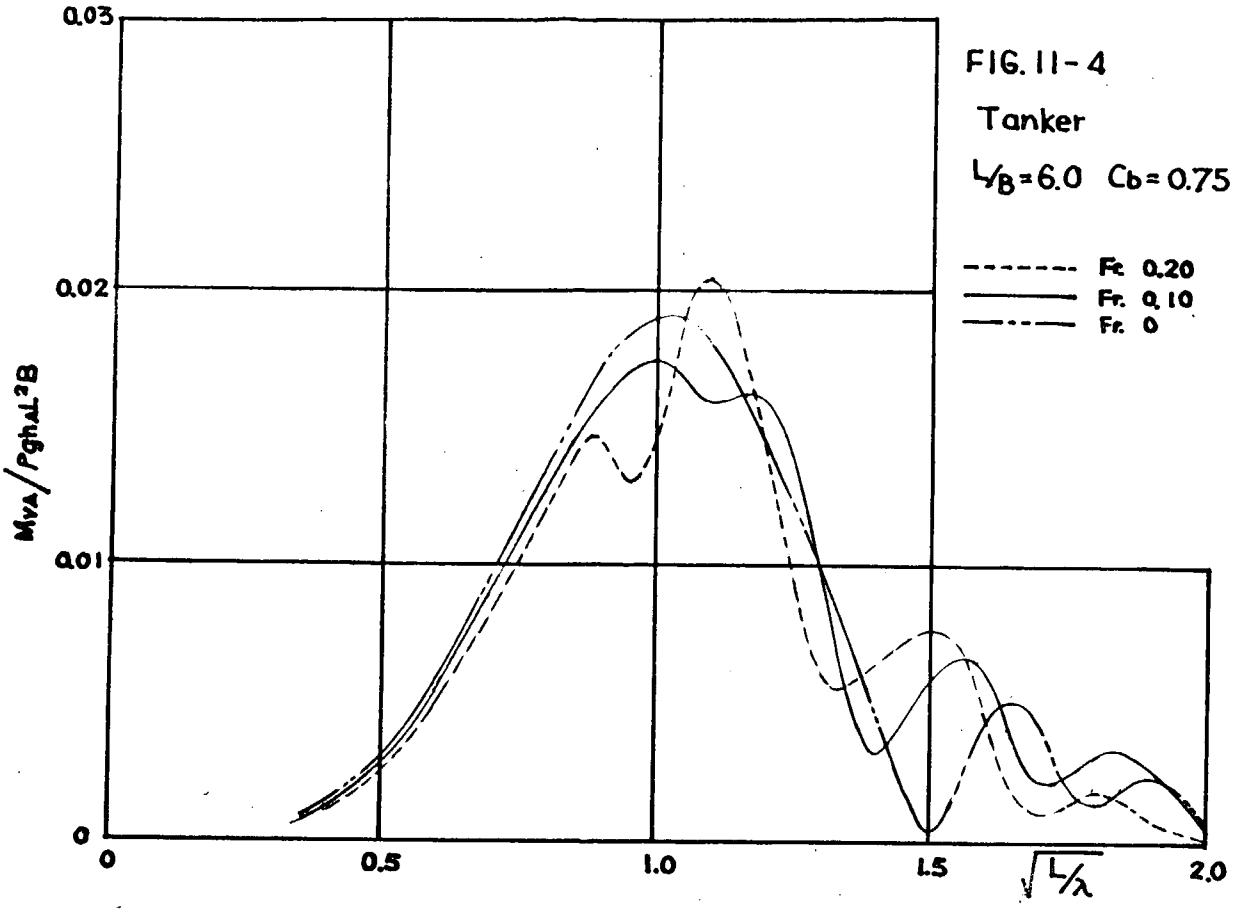


FIG. 11-4
Tanker
$L/B = 6.0$ $C_b = 0.75$

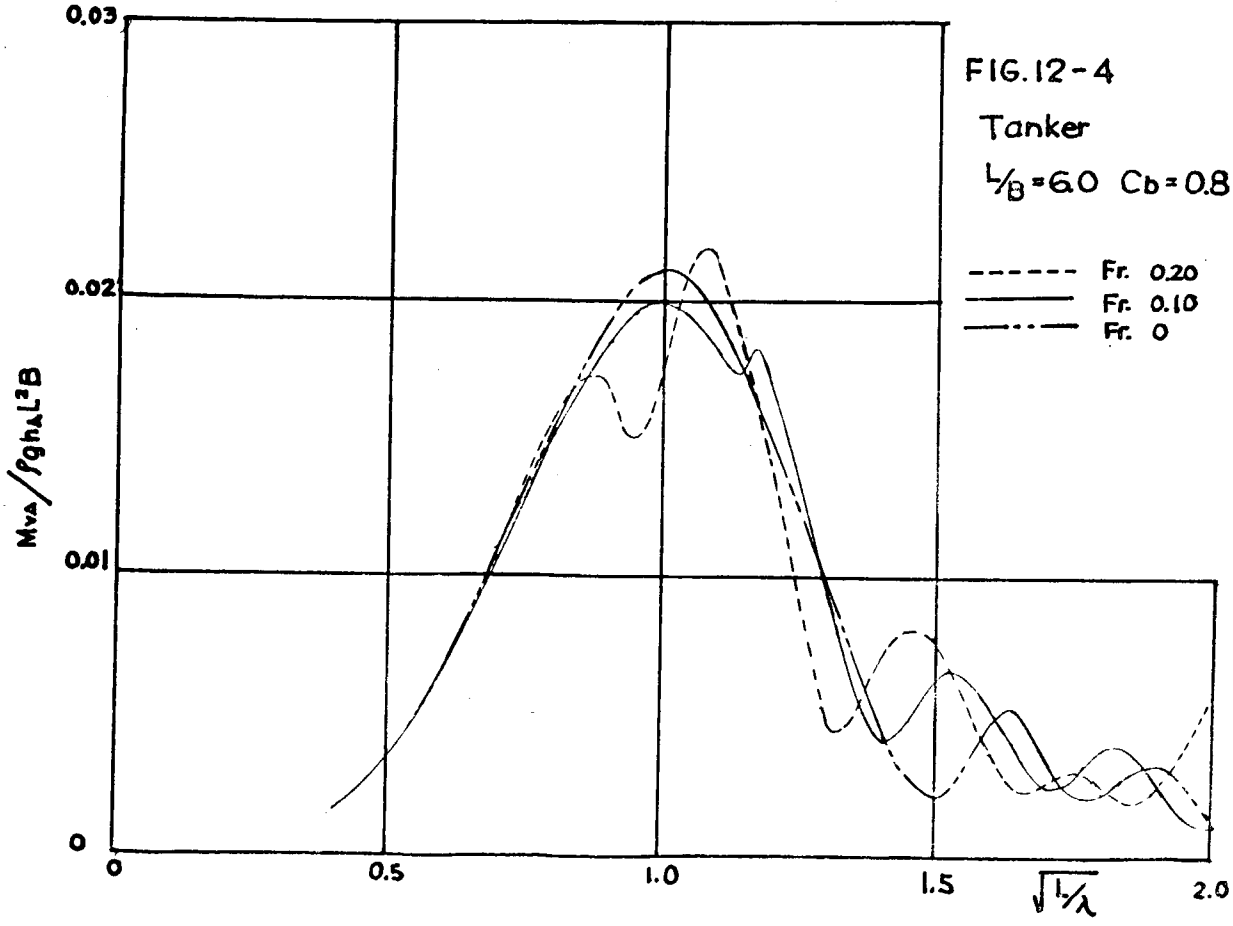


FIG. 12-4
Tanker
$L/B = 6.0$ $C_b = 0.80$

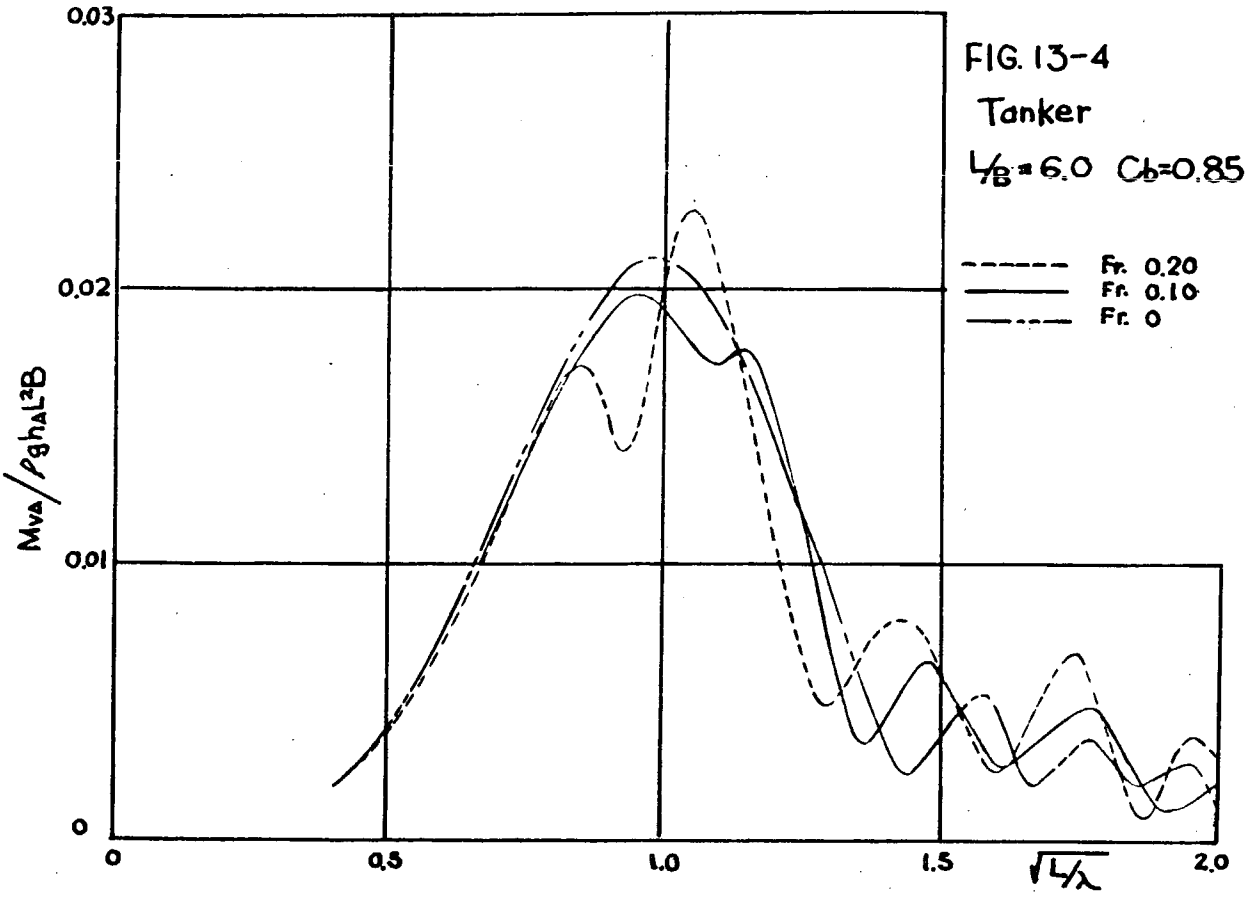


FIG. 13-4
Tanker
$L/B = 6.0$ $C_b = 0.85$

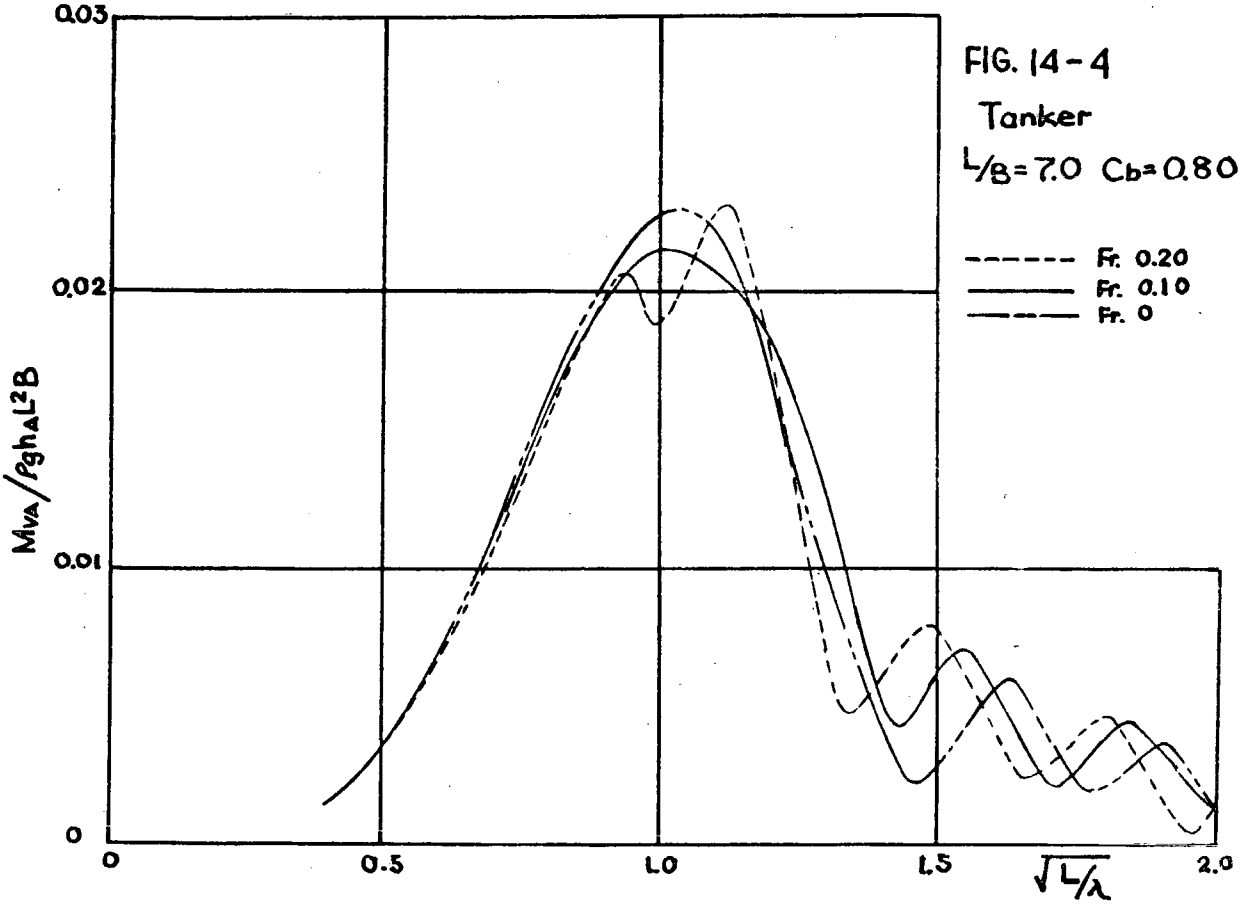


FIG. 14-4
Tanker
$L/B = 7.0$ $C_b = 0.80$