NOTATIONS

Following notations have been used in this thesis.

W = Deflection normal to the middle of the plate.

u, v = In-plane displacements.

h = Thickness of the plate.

G = Modulus of elasticity in shear.

D = Flexural rigidity of the plate = $\frac{Eh^3}{12(1-\nu^2)}$

E = Modulus of elasticity in tension and compression.

D_x, D_y = Flexural rigidity in x- and y- directions respectively.

D_{xy} = Torsional rigidity.

E_x, E_y = Young's modulus along x- and y- axes.

ν = Poisson's ratio = 0.3.

α_t = Co-efficient of linear expansion.

τ = Component of the temperature field $T(x,y,z)$.

δ_{ij} = Kronecker symbol.

s = Laplace transformation parameter.

L, L_1 = Mapping function coefficients.

q = Load function.

x,y,z = Rectangular cartesian co-ordinates.

r, θ = Polar co-ordinates.

P = Concentrated load.

ρ = Density of the plate material.

t = time parameter.

a = Plate radius.

w = Vibrational frequency of the plate.

J_o, I_o = Bessel functions of zeroth order.

J_m, I_m = Bessel functions of mth. order.

N_i = Concentrated reactions at the supports.

∇ = Laplacian operator.

W_s = Normal displacement for quasi-static part.

W_d = Normal displacement for dynamic part.

χ = Conductivity coefficient.

λ = Coefficient of internal heat conduction.

Γ = Gamma function

${}_2F_1$ = Hypergeometric function.

V = Strain energy of a plate.

$$H = \frac{E^{*}h^{3}}{12} + \frac{\eta h^{3}}{6}$$

E^{*} = Elastic constant of the plate material.

η = Co-efficient of viscosity.

$u(t)$ = Unit step function.

$\in (r, \theta)$ = Error function.

$(\xi, \bar{\xi})$ = Complex co-ordinates.

$L(x,y,t)$ = Load function.

P_o = Boom pressure.

$H(t - T)$ = Heaviside unit step function.

T = Boom period.

T_f = Fundamental period of the plate.