

## ERRATA FOR "ENGINEERING NOISE CONTROL" 2nd Edn., 6th printing

November 12, 2002

p26, Equation (1.49) should be:

$$p(\mathbf{r}, t) = P(\mathbf{r}) e^{jk(ct + |\mathbf{r}| + \theta/k)} = P(\mathbf{r}) e^{j(\omega t + \theta_p(\mathbf{r}))} = A e^{j\omega t} \quad (1.49)$$

p106, Figure 4.3 caption, change "100" to "1000"

p109, After equation 4.28 add, "If the actual exposure time is greater than eight hours, then replace the "8" in the above equation with the actual exposure time (in hours)."

p165, Immediately after equation 5.143, add "where erfc is the error function"

p254, Replace the line above Equation (7.74) and Equations 7.74 - 7.76 with:  
For frequencies above twice the resonance frequency of the lowest order mode (see Equation (8.18)), the panel radiation ratio  $\sigma$  may be calculated using the following equations (Maidanik, 1962, Price and Crocker, 1970). Above twice the fundamental resonance frequency of the panel and below the critical frequency:

$$\sigma = \left( \frac{2c^2}{f_c^2 A_p} g_1(\alpha) + \frac{Pc}{f_c A_p} g_2(\alpha) \right) \gamma ; \quad 2f_{1,1} < f < 0.99f_c \quad (7.74a)$$

where,

$$g_1(\alpha) = \begin{cases} \frac{4}{\pi^4} \frac{(1 - 2\alpha^2)}{\alpha(1 - \alpha^2)^{1/2}}; & f < f_c/2 \\ 0; & f > f_c/2 \end{cases} \quad (7.74b)$$

$$g_2(\alpha) = \frac{1}{4\pi^2} \left[ \frac{(1 - \alpha^2) \log_e \left( \frac{1 + \alpha}{1 - \alpha} \right) + 2\alpha}{(1 - \alpha^2)^{3/2}} \right] \quad (7.74c)$$

Close to the critical frequency, the radiation ratio is:

$$\sigma \approx \sqrt{\frac{L_x f_c}{c}} + \sqrt{\frac{L_y f_c}{c}} ; \quad 0.99f_c < f < 1.01f_c \quad (7.75)$$

Above the critical frequency, the radiation ratio is:

$$\sigma = \left( 1 - \frac{f_c}{f} \right)^{-1/2} ; \quad f > 1.01f_c \quad (7.76a)$$

Below the first resonance frequency of the panel,  $f_{1,1}$ , defined by Equation (8.21), the

radiation ratio is (Beranek (1988):

$$\sigma = \frac{4A_p}{c^2} f^2 \quad (7.76b)$$

Between the lowest order modal resonance and twice that frequency, the radiation ratio is found by interpolating linearly (on a  $\log \sigma$  vs  $\log f$  plot).

p266, Equation 7.100 should be:

$$\langle p^2(\mathbf{r}) \rangle = \frac{W\rho c}{4\pi} \left[ \frac{1}{r^2} + \sum_{m=1}^{\infty} \sum_{n=1}^{\infty} \frac{4\beta^{m+n}}{(ma)^2 + (nb)^2 + r^2} + \sum_{n=1}^{\infty} \frac{2\beta^n}{(nb)^2 + r^2} + \sum_{m=1}^{\infty} \frac{2\beta^m}{(ma)^2 + r^2} \right]$$

p294, Replace " $D = 2$  if  $f < f_{c1}$  and  $f_{c2}$ " with " $D = 2/\beta$  if  $f < 0.9 \times \min(f_{c1} \text{ and } f_{c2})$ ";

p295, 2 lines above equation 8.48, delete "the stud is assumed rigid and" and replace equation (8.48) with

$$\tau_F = \frac{\pi(\xi_1 + \xi_2)n}{4\bar{\alpha}_1^2 \bar{\alpha}_2^2 \eta_1 \eta_2 \xi_1 \xi_2 (n^2 + \nu^2) \bar{\alpha}^2} + \frac{64\rho^2 c^3 D}{\left[ g^2 + \left( 4(2\pi f)^{3/2} m_1 m_2 c C_M - g \right)^2 \right] b (2\pi f)^2}$$

p295, first line after equation (8.52), insert after the word "panels" the following: " $\bar{\alpha}$  is the Sabine absorption coefficient of the acoustic material in the cavity between the two walls"

p389, After the first equation, add "where  $A_2/A_1$  is the ratio of the total duct cross sectional area to the open cross sectional area"

p409. Fig 10.5 caption, change "Q" to "Ω"

p434, Replace Equation 11.1 with:

$$L_w = C_F + 10 \log_{10} Q + 20 \log_{10} P - E/3 + 18 \text{ dB re } 10^{-12} \text{ W} \quad (11.1)$$

p574, add to list of symbols, " $K_1()$  Modified Hankel function (Chapter 7)"