Engineering Noise Control 1st edn. Errata and Clarifications

January 3, 2023

ERRATA FOR "ENGINEERING NOISE CONTROL" 1st Edn.

p5, The symbol "E" in equation (1.1) should be replaced with "D".

p5, The first line of the text after equation (1.1) should be replaced by the following, "where D is the stiffness of the unbounded medium. For unbounded 3-Dimensional solids D is related to the more familiar Young's Modulus, E, by $D = E(1-\nu)/(1+\nu)(1-2\nu)$. For thin plates of infinite extent, $D = E/(1-\nu^2)$ and for slender rods, $D = E$. For fluids, D is the bulk".

p5, In equation (1.2) replace E with D.

p6, After equation (1.4) add "T is in K and M is in kg/mole".

p12, Second term in equation (1.2lb) should be: "$iA\sin(k(ct \pm x)) + \theta$".

p21, Table 1.2: last number in column 2 should be changed from 10,000 to 16,000.

p44, 2nd. line above figure : change "21 dB" to "56 dB".

p75, Equation (4.2) should be replaced by, $L_{eq} = 16.61 \log_{10}\left(\frac{1}{8}\int_0^T 2^{(L_p(t)-90)/5}\,\mathrm{d}t\right)$ dB(A).

p76, Replace the 3 lines preceding "4.4.2 Impulse noise" with: "Alternatively, if N = 5, then use equation (4.2) to calculate $L_{eq} = 90.9$.
$x = (90.9 - 90)/5 = 0.176$
$T = 8/2^{0.176} = 7.1$ hours".

p94, Middle of page: "Bies 1971" should be "Bies 1961".

p106, Half way down the page, the unnumbered equation: change W_{lat} to W_{long}.

p109, Equation (5.52) should be $r >> 2\pi a^2/\lambda$.

p125, End of line 7, replace θ with β.

p136, Replace "machine dimension is 0.5 m and the frequency of interest is 500 Hz ($\lambda = 0.69$ m)" with "machine dimension is 2 m and the frequency of interest is 125 Hz ($\lambda = 2.75$ m)".

p147, Equation 6.19 : Replace S, with $S_1(1-\bar{\alpha})$.

p164, Equation (7.21) should be $\Delta E = (2/3)I(2r/c)\,\mathrm{d}a$.

p177, Numerator in equation 7.44 should be $5.5P^{1/2}$.

p181, Equation (7.46) should be replaced with $\Delta L_p = 10\log_{10}[1 + R_i/R_T]$ where R_i is the increase in room constant over the original R_T.

p184, Equation (8.2) should be $B = EI'/(1-\nu^2)$.

p184, Last line above Eqn. 8.3: replace "$\sum b_n z_n^2$" with "$\sum b_n z_n$".

p184, Equation (8.4) should be $B = [Eh^3/12(1-\nu^2)]\left[\sum_n^{b_n} /l\right]$.

p187, Equation (8.7) should be TL = NR $+10\log_{10}(A/S\bar{\alpha})$ (dB).

p189, The term "$(1-\nu^2)$" should be removed from all places in equation (8.8b), as should the "0.5".

p189, "Hearman 1959" should be "Hearmon 1959".

p190 ,The last term in equation (8.8c) should be $(1-\nu^2)^{-1/2}$.

p190, Equation (8.10) should be $\mathrm{TL}_\theta = 10\log_{10}[1 + (\pi f_m/\rho c)^2\cos^2\theta]$.

p191, Equation (8.13a) should be: TL $= 10\log_{10}[1 + (\pi f_m/\rho c)^2] - 5$ (dB).

p191, First line following Equation (8.13b), last few words should read "between twice the first panel".

p192, second line of figure caption: replace "Appendix 3 for values of f_c, m and η" with "Appendix 2 for values of η and data for calculating f_c and m".

p192, Last line: replace "16 dB" with "13.2 dB".

p197, Second line from the bottom should be: $f_0 = 80[2 \times 12.67/0.101 \times 12.67^2]^{1/2} = 100$ Hz.

p208, 8 lines and 7 lines from the bottom of the page: replace the words "row two" with "row three".

p213, Last line above item (4) replace "(0.000597) = 0.37" with "(0.000203) = 0.0126".

p213, Last line of item (4): replace with "$= -10\log_{10} 0.0126 = 19.0$ dB".

p220, dashed line labelled d in the figure should be solid on the left hand side of the barrier.

p226, Part (b) should be replaced with the following: (b) Reflected waves around barrier ends (two paths):
Image source – receiver path:

$d = 4.5$ m $\quad A + B = 2\sqrt{14} = 7.5$ m; $\quad N = 4.3$
$A_b = 20$ dB, $\ A_g = 1.5$ dB
$A_b + A_g = 21.5$ dB.

p226, 4th. line in item (4): replace "1 dB" with "2.3 dB".

p226, 6th. line in item (4) replace "1 = 9 dB" with "2.3 = 10.3 dB".

p229, Beneath equation (8.43): replace "T_0 (K) with T_0 °C".

p229, Half way down the page, the group of equations should be numbered "(8.44)".

p230, Eight lines from the bottom of the page: replace "$S_1 + S_2 = S+$" with "$S_1 + S_2 = S_0+$".

p233, Line 9: replace "see Eqns 8.5 and 8.11" with "see Eqns 8.5 and 8.9".

p236, Table 9.1: Dimensions of volume velocity are $[\mathrm{L}^3\mathrm{T}^{-1}]$.

p242, In figure 9.5, replace u with Au.

p250, Line 4: replace "volume velocity" "with acoustic pressure".

p250, Line 25: replace "Eqn 9.29" with "Eqn 9.22".

p252, At the end of the paragraph after equation (9.31) add after the word "write", the following phrase: "(for a short duct of length l)".

p256, Fig. 9.11: replace "v_e" with "v_L".

p257, A_L is the cross sectional area of the pipe.

p259, Eqns. (9.49) and (9.50): replace "Z_e" with "Z_L".

p269, 2nd. line: replace "Equation 1.43" with "Equation 1.50".

p278, Fig. 9.18(b) Left, middle of figure: replace "$M = 0.25$" with "$M = 0.05$".

p323, Fig. 11.2: replace "f_0" with "f_p".

p337, 2/3 down the page: replace 11.4.1 with 11.14.1.

p343, Equation 12.3: RHS is $\omega_l^2[1 - (\omega/\omega_l)^2 - i(\omega/\omega_l)\eta]$.

p350, Five lines from the bottom of the page; remove the phrase: "at the same height as the hole, but".

p363, Equation A3.12 should be: $T_3 = 2.537 + 9.66X$.

p380, Add the following reference:
Igbal, M.A., Willson, T.K. and Thomas, R.J.(eds.) 1977. The control of noise in ventilation systems - a designers guide. Atkins Research and Development, London. E & F.N. Spon Ltd.