Errata for Acoustics: Sound Fields and Transducers by Leo Beranek & Tim Mellow, June 2014 to Dec 2016.

Updated January 24, 2024

Cover images: Replace "Wave^{\textregistered}" with "Wave®".

P. 4, 2nd line from top: replace "lead" with "led".

P. 10, penultimate sentence: Replace "Mathematics" with "Mathematica" and "double-struck *i*" with "double-struck $\mathbb{i}$".

P. 18, Replace Eq. (1.23) with "$C_n = 10 \log_{10} (f_b - f_a)$ dB,".

P. 18, Replace Eq. (1.24) with "$L_n = C_n + S_n$,".

P. 29, in Eq. (2.27): Replace "*S*" with "*S*(*x*)".

P. 30, Eq. (2.33): Replace "∂x" with "∂t",

P. 31: Delete last sentence before Section 2.3.2.

P. 31, Eq. (2.38): replace "p_n" with "p".

P. 34, Last paragraph: Replace "both *x* and [see Eq. (2.46)]" with "both *x* and *t* [see Eq. (2.46)]".

P. 37, 8th line after heading 2.4: Replace "u_0 at $x = 0$" with "$\tilde{u}_0$ at $x = l$".

P. 38: Replace Eq. (2.56) with $\Gamma = \dfrac{\tilde{p}_+}{\tilde{p}_-} = \dfrac{Z_T - \rho_0 c}{Z_T + \rho_0 c}$.

P. 38: Replace Eq. (2.57) with $SWR = \dfrac{1 + |\Gamma|}{1 - |\Gamma|}$.

P. 38: Replace equation following Eq. (2.57) with

$$\alpha = 1 - |\Gamma|^2 .$$

P. 39, 2nd column of Table 2.1: Replace $\begin{matrix} 0 \\ 0 \\ -1 \\ 2 \end{matrix}$ with $\begin{matrix} 0 \\ \infty \\ -1 \\ 0 \end{matrix}$.

P. 40, 3rd line from top: Replace "Fig. 9.6 and Fig. 9.7" with "Figs. 10.6 and 10.7".

P. 41, 7th and 8th line after Eq. (2.67): "l – $n\lambda/2$" should be italic "$l - n\lambda/2$" in both instances.

P. 47, 1st line: Replace "Sec. 6.6" with "Section 7.6".

P. 47, Last line before Heading 2.6: Replace "Secs. 3.22 and 3.23" with "Sections 4.22 and 4.23".

P. 52, Eq. (2.109): Replace "s" or "*rayls*" with "rayls".

P. 55, 6th line after Eq. (2.115): Replace "three equations for each ordinate as follows" with "three equations, one for each ordinate as follows"

P. 57, 1st line: Replace "$W_n(w)\Phi(\phi)Z(z)$" with "$W_n(w)\Phi_n(\phi)Z(z)$".

P. 59, Eq. (2.140): Replace "arctan" with "arccot".

P. 60, Eqs. (2.149) and (2.156), Replace "Z_n^m" with "Z_{mn}".

P. 60, Eq. (2.153): Insert "j" before "y_n".

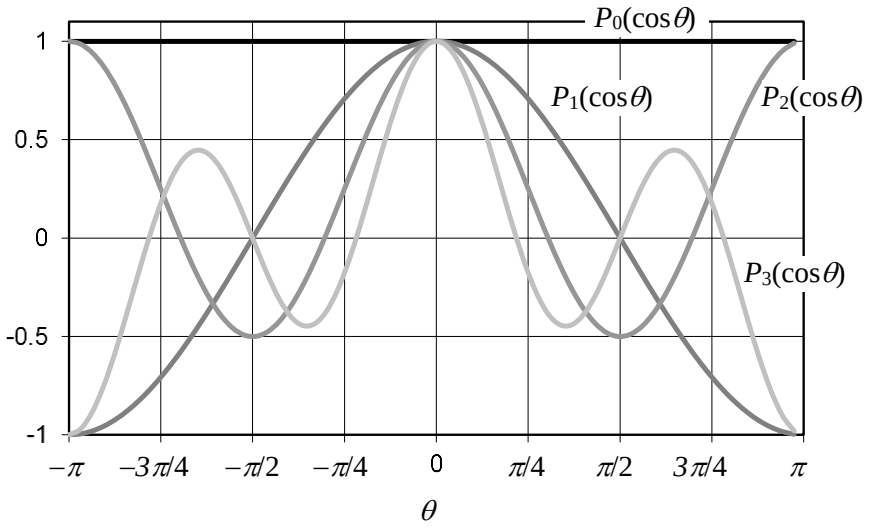
P. 62, Eq. (2.160): Replace "$Z_n^m(\cos\theta)$" with "$Z_{mn}(\theta)$".

P. 62, 1st line after Eq. (2.160): Replace "$P_n^m(\theta)$" with "$P_n^m(\cos\theta)$".

P. 62, 2nd line after Eq. (2.160): Replace "$P_n(\theta)$" with "$P_n(\cos\theta)$".

P. 62, Eqs. (2.163) and (2.164): Exchange "$h_n^{(1)}$" and "$h_n^{(2)}$".

P. 62, Fig. 2.22: Replace with



P. 63, 3rd line of paragraph [3]: Replace "m3" with "m^3".

P. 63, 4th line of paragraph [3]: Replace "n" with "n".

P. 72, 2nd line after Eq. (3.3): Replace “SFig. 3.1” with “Fig. 3.1”.

P. 78, Fig. 3.13: Add “3” and “$\tilde{u}_3$”.

P. 81, 2nd line from top: Replace “$Y_M = \frac{\tilde{u}}{\tilde{f}} + \frac{\tilde{u}}{\tilde{f}_1 + \tilde{f}_2}$” with “$Y_M = \frac{\tilde{u}}{\tilde{f}} = \frac{\tilde{u}}{\tilde{f}_1 + \tilde{f}_2}$”.

P. 84, Eq. (3.20): Replace “$_{M2}(l_1 + l_2)^2$” with “$M_{M2}(l_1 + l_2)^2$”.

P. 85, 9th line from top: Replace “\~p” with “ $\tilde{p}$ ”.

P. 86, Eq. (3.22): Replace “S” with “S^2” in last term:
$$\frac{f(t)}{S} = \frac{M_M}{S}\frac{d\big(u(t)S\big)}{dt\,S} = p(t) = \frac{M_M}{S^2}\frac{dU(t)}{dt}$$
$$p(t) = M_A\frac{dU(t)}{dt}$$

P. 88, 4th and 5th lines from top: Replace “Chapter 5” with “Chapter 4”.

P. 89, 4th line after Eq. (3.26): Replace “$G_A = G_M/S^2$” with “$G_A = G_M S^2$”.

P. 92, 4th eqn. from top: Replace “ $\tilde{p}_2 = (R_{A2} + j\omega M_{A2})\tilde{U}_2 + \tilde{p}_3$ ” with “ $\tilde{p}_2 = (R_{A1} + j\omega M_{A2})\tilde{U}_2 + \tilde{p}_3$ ”

P. 95, 5th line from top: Replace “e” with “$\tilde{e}$”.

P. 95, 6th line from top: Replace “i” with “$\tilde{i}$”.

P. 95, 7th line from top: Insert “ $\tilde{f}$ ” after “a force”.

P. 95, 2nd line after Eq. (3.27b): Replace “i” with “$\tilde{i}$”.

P. 96, last word before Eq. (3.28a): Replace “rewrite” with “write”.

P. 97,4th line from bottom: Between “permittivity of the” and “piezoelectric dielectric” insert “free (non-blocked)”.

P. 97: At end of 3rd line from bottom add “with electrical short-circuited”.

P. 99, 4th line of last paragraph: Replace “driving force blocked” with “motion blocked”.

P. 100, Eqs. (3.39a) to (3.40b): Replace “d_{33}” with “d_{31}”.

P. 102, Example 3.6: Replace “1.414 T” with “1.414 T·m”

P. 104, Example 3.8: Replace “acoustic impedance of 300 + j300 N·s/m^5” with “acoustic impedance of (300 + j300) N·s/m^5” and replace “= 1.92 + 1.92 Ns/m” with “= (1.92 + j1.92) N·s/m”.

P. 106, Caption to Fig. 3.42: Replace “Fig. 3.40” with “Fig. 3.41”.

P. 106, Eq. (3.44): Replace "e" with "$\tilde{e}$".

P. 107, 2nd line after Eq. (3.45): Replace "Eqs. (3.39) and (3.40)" with "Eqs. (3.44) and (3,45)".

P. 116, 4th line from bottom: Replace "farad" with "F".

P. 120, 1st line: Replace "Chapter 6" with "Chapter 7".

P. 121, after Eq. (4.2), replace "If $\ell' < 16$, the second term" with "If $\ell' < \lambda/16$, the second term".

P. 121, 1st line after heading 4.3: Replace "$(\ell = 0)$" with "$(x = 0)$".

P. 122, between Eqs. (4.10) and (4.11): Insert "Thus".

P. 122, between Eqs. (4.11) and (4.12): Replace "Thus" with "For $\ell' < \lambda/10$, Eq. (4.9) becomes".

P. 123, 3rd and 4th lines after Fig. 4.2: Replace "M_A/3 in (b), C_A/3 in (d)" with "C_A/3 in (b), M_A/3 in (d)".

P. 126, 2nd line after Fig. 4.4: Replace "Z_s" with "R_s".

P. 128, After Eq. (4.21), add "where $M_M = \rho_0 lwt$ = mass of air in the slit in kg".

P. 129, in Eq. (4.24): Replace "kg/m^2" with "kg/m^4".

P. 130, caption to Fig. 4.8: Replace "length l" with "length t".

P. 136: 1st line from top: Replace "The design impedance is equal to" with "The Q value is given by".

P. 137, 9th line from top: Replace "baffles, horns, and noise sources" with "baffles, and horns".

P. 139, 9th line after Heading 4.10: Replace "$\tilde{p}_+$" with "$\tilde{A}_+$".

P. 140, Eq. (4.70): Replace "$\boldsymbol{R}_s$" with "$\boldsymbol{R}_M$".

P. 142: Replace Eq. (4.73) with "$I = \left|\frac{\tilde{p}(r)}{\sqrt{2}}\right|^2 \frac{1}{\rho_0 c} = \left|\frac{\tilde{U}_0}{\sqrt{2}}\right|^2 \frac{f^2 \rho_0}{4r^2 c}$ W/m^2".

P. 144, Eqs. (4.78) and (4.83): The tilde is missing from $\tilde{p}(r,\theta)$.

P. 146, 1st line after Eq. (4.84): Replace "Eq. (52)" with "Eq. (51)".

P. 153, 1st line after Eq. (4.103): Replace "Eq. (155)" with "Eq. (154)".

P. 153, 1st line after Eq. (4.107): Replace "Fig. 4.20a and Fig. 4.20b" with "Fig. 4.20c and Fig. 4.20d".

P. 153, 5th line after Eq. (4.107): Replace "(a) and (b)" with "(a) and (c)".

P. 155, Eq. (4.117), Replace "p_d" with "$\tilde{p}_d$".

P. 157, 11th line after Eq. (4.120): Replace “see Fig. 4.7” with “see Fig. 4.22”.

P. 157, 2nd line from bottom: Replace “see Sec. 12.10” with “see Sec. 13.10”.

P. 158, 2nd line from bottom: Replace “where the term $\tilde{\tilde{U}}_0 \Delta z_0$ has been replaced with the unknown coefficient $\tilde{A}_0 = \tilde{\tilde{U}}_0 \Delta z_0$” with “where the term $\tilde{\tilde{U}}_0 b$ has been replaced with the unknown coefficient $\tilde{A}_0 = \tilde{\tilde{U}}_0 b$”.

P. 159, Eq. (4.128): Replace “*i*” with “*j*”.

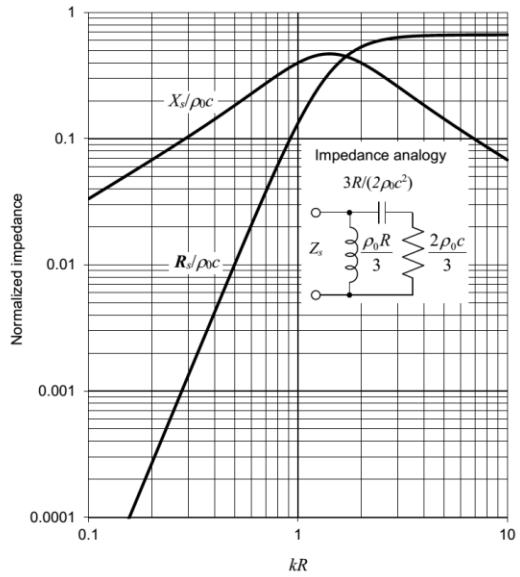
P. 161: Replace Eq. (4.136) with

$$\begin{aligned}\tilde{F} &= 2R^2 \int_0^{2\pi} \int_0^{\pi/2} \tilde{p}(R,\theta) \cos\theta \sin\theta \, d\theta \, d\varphi \\ &= \rho_0 c \tilde{\tilde{U}}_0 \frac{2}{3} . \frac{jkR(1+jkR)}{2 - k^2R^2 + 2jkR} e^{-jkR}.\end{aligned}$$

P. 161: Replace equation Eq. (4.137) with

$$\begin{aligned}Z_s = R_s + jX_s &= \frac{\tilde{\tilde{F}}}{\tilde{\tilde{U}}_0 e^{-jkR}} \\ &= \frac{2}{3} . \frac{jkR(1+jkR)}{2 - k^2R^2 + 2jkR} \rho_0 c \\ &= \frac{2}{3} . \frac{k^4R^4 + j(k^3R^3 + 2kR)}{k^4R^4 + 4} \rho_0 c.\end{aligned}$$

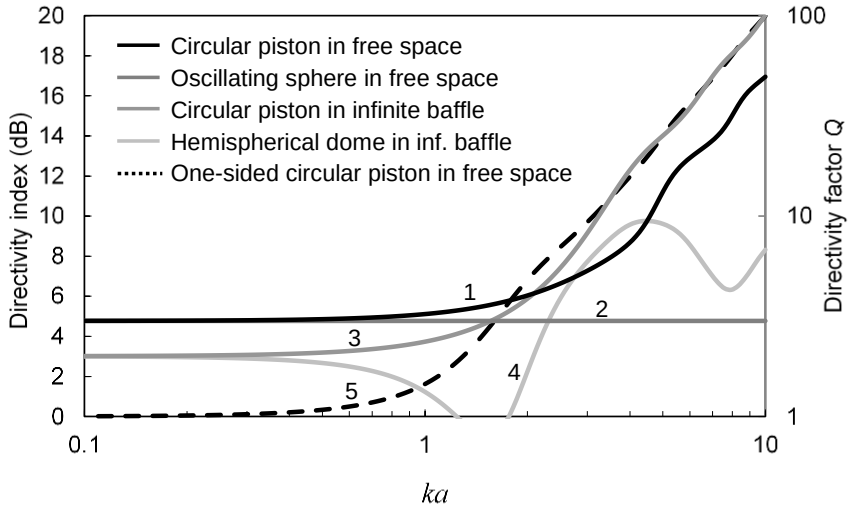
P. 162, Replace Fig. 4.27 with



P. 165, 4th line after Eq. (4.142): Replace "Eq. (12.271)" with "Eq. (13.271)".

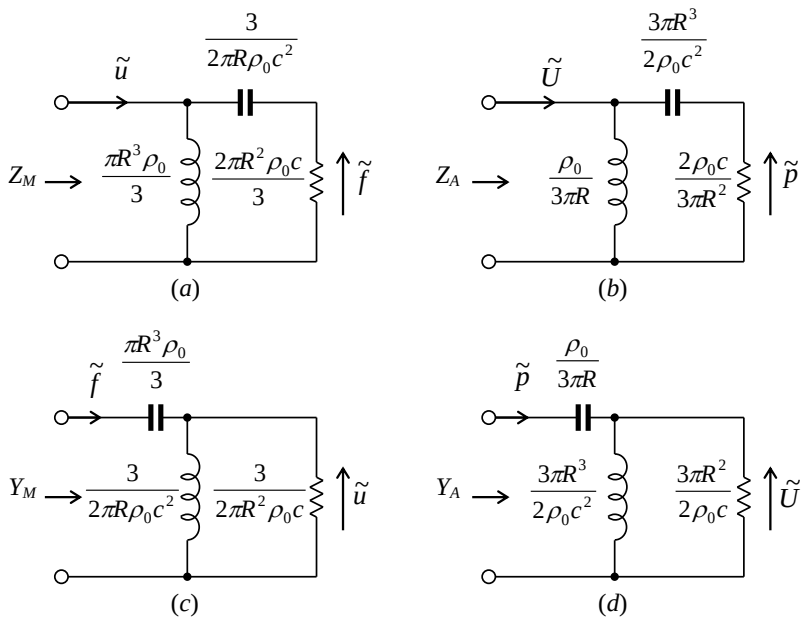
P. 165, 5th and 6th lines after Eq. (4.142): Replace "Eqs. (12.101) and (12.235)" with "Eqs. (13.101) and (13.235)".

P. 166, Replace Fig. 4.30 with



P. 166, Add to caption of Fig. 4.30 "These are plotted using Eq. (4.143), which is divided by 2 in the case of the piston and oscillating sphere in free space because they radiate from both sides and hence radiate twice the power.

P. 170, Replace Fig. 4.34 with



P. 170, 2nd line after heading 4.19: Replace "see Fig. 12.3" with "see Fig. 13.3" and replace "Eqs. (12.116), (12.117), and (12.118)" with "Eqs. (13.116), (13.117), and (13.118)".

P. 175, 3rd line after heading 4.20: Replace "Eqs. (12.249), (12.250), and (12.251)" with "Eqs. (13.248), (13.249), and (13.250)".

P. 176, In 5th and 10th rows of Table 4.5: Replace "Resistance R" and "Conductance G" with "Resistance R, R_2" and "Conductance G, G_2" respectively.

P. 177: Delete 1st sentence after Fig. 4.39.

P. 179, 4th row of Table 4.6: Replace " $R_{S2} = \pi a^2 \rho_0 c \qquad R_{S2} = \rho_0 c \qquad R_{S2} = \frac{\rho_0 c}{\pi a^2}$ "

with " $R_{M2} = \pi a^2 \rho_0 c \qquad R_{S2} = \rho_0 c \qquad R_{A2} = \frac{\rho_0 c}{\pi a^2}$ ".

P. 180, Just before Eq. (4.175): Replace "[10]" with "[10]".

P. 181, Just before Eq. (4.178): Replace "[11]" with "[11]".

P. 184, Just before Eq. (4.201): Replace "[12]" with "[12]".

P. 186, Last line before Eq. (4.218): Replace "Eq. (2.64)" with "Eq. (3.64)".

P. 187, 6th line after Eq. (4.220): Replace "Eqs. (2.74) to (2.77)" with "Eqs. (3.74) to (3.77)".

P. 187, Eq. (4.227): Replace both instances of "z_{11}" with "$z_{11} - z_{12}$".

P. 187, Eq. (4.228) and P. 188, Eq. (4.229): Replace "***1***" with "1".

P. 190, Eq. (4.244): Replace "**C**s" with "$\boldsymbol{C}_s$".

P. 194, 1st line after Eq. (4.252): Replace "regime #3" with "Eq. (4.251)".

P. 194, Between Eqs. (4.253) and (4.254), in Eq. (4.254) and 1st line after Eq. (2.54): Replace "δ_V" with "δ_{visc}".P. 195, 1st line: Replace "Eq. (49)" with "Eq. (48)".

P. 195, 1st line after Eq. (4.258): Replace "defined in 1 to 3" with "those for an open-ended tube".

P. 195, 4th line after Eq. (4.259): Replace "light grey" with "dashed".

P. 197, Eq. (4.260) and Eq. (4.261): Replace "ω_V" with "ω_T".

P. 198, 1st line after Eq. (4.263): Replace "(6×10^7)" with "(6×10^6)".

P. 204, 1st line after Eq. (5.8): Replace "Eq. (2.107)" with "Eq. (2.89)".

P. 211, End of 1st paragraph: Replace "Chapter 6" with "Chapter 7".

P.216, Fig. 5.18 (a): Replace "$\tilde{\eta}(w)$ $\updownarrow$" with "$\downarrow \eta$"

P. 219, Eq. (5.40): Replace "$\tilde{e}$" with "$-\tilde{e}$".

P. 220, Figs. 5.20 and 5.21: Replace "$\uparrow \tilde{e}$" with "$\downarrow \tilde{e}$".

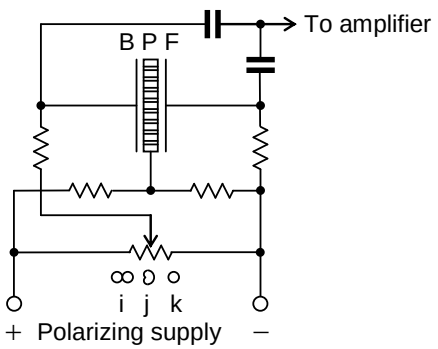
P. 221, 4th line from top: Replace "Fig. 5.20" with "Fig. 5.21b".

P. 225, 1st line after Eq. (5.54): Replace "[4]" with "[3]".

P. 227, last line before heading "*Performance*": Replace "$\tilde{f}_r = \tilde{p}_r S$" with "$\tilde{f}_R = \tilde{p}_R S$".

P. 230, 2nd line after heading 5.8: Replace "p. 208" with "p. 206".

P. 231: Replace Fig 5.31 with



P. 234, Eq. (5.81): Replace "$\Delta l = l + 3a/\pi$" with "$\Delta l = l + \pi a/4$".

P. 235, 1st line after Eq. (5.85): Replace "[3]" with "[1]".

P. 236, 5th line after Eq. (5.94): Replace "Chapter 12" with "Chapter 13".

P. 236, 2nd line after Eq. (5.95): Replace "Fig. 533" with "Fig. 5.34".

P. 236, 2nd line after Eq. (5.95): Replace "180\degree" with "180°".

P. 238, Eq. (5.108): Replace "$l + \frac{3a}{\pi}$" with "$l + \frac{\pi a}{4}$".

P. 239, Table 5.2, 2nd column: Replace "*D*" with "*d*".

P. 240, Delete all of reference "[3]" and make reference "[4]" into reference "[3]".

P. 247, Fig. 6.4a: Replace "*L*" with "L_E".

P. 247, Caption to Fig. 6.4: Replace "$\Re_{MR}{}^2$" with "$\boldsymbol{R}_{MR}{}^2$".

P. 269: Replace Eq. (6.90) with

$$E_{ff} \approx 100 \frac{2B^2 S_D^2 \rho_0}{\pi^2 \kappa \rho_w^2 V_g c}, \qquad 2f_0 < f < \frac{c}{4\pi a}, \qquad M'_{MS} \approx M_{MC}$$

P. 269, 4th line before Eq. (6.91): Replace "size of the magnet V_G is directly related to that of the magnetic gap V_G" with "size of the magnet V_M is directly related to that of the magnetic gap V_G".

P. 271, Fig. 6.14: Replace "SPL" with "re reference pressure".

P. 274, 9th line from top: Replace "289" with "285".

P. 274, 12th line from top: Replace "Fig. 12.24" with "Fig. 12.23".

P. 275, 7th line from top: Replace "the equations for maximum power available efficiency" with "Eqs. (4.65) and (4.66) for an omnidirectional source".

P. 275, 10th line from top: Replace “power-available response” with “efficiency response”.

P. 275, 12th line from top: Replace “power-available-efficiency” with “efficiency”.

P. 275, Eq. (6.95): Replace “$\log_{10} 4\pi r^2$” with “$10 \log_{10} 4\pi r^2$”.

P. 275, 1st line after Eq. (6.95): Replace “$I_{ax} = p_{ax}{}^2$” with “$I_{ax} = \left|p_{ax}\right|^2 / \rho_0 c$”.

P. 275, Eq. (6.96): Replace “$\log_{10} 4\pi r^2$” with “$10 \log_{10} 4\pi r^2$”.

P. 277, 1st line after Eq. (6.100): Replace “zeros” with “*zeros*”.

P. 282, 2nd line before Table 6.3,: Replace “[see (7) in Fig. 6.1]” with “[see (9) in Fig. 6.1]”.

P. 293, Eq. (7.1): Replace “$\tilde{U}_0$” with “$\left|\tilde{U}_0\right|$”.

P. 296, end of 5th line from top: Replace “[37]” with “[37]”.

P. 299, 2nd line after heading “*Values of the mechanical-circuit elements*”: Replace “Part XVIII” with “Part XIX”.

P. 305, last sentence before Eq. (7.9): Replace “total volume the absorbent” with “total volume of the absorbent”.

P. 306: Delete “α is the real part of the propagation coefficient”.

P. 306: Delete “β is the imaginary part of the propagation coefficient”.

P. 306, 5th line from end of last paragraph: Replace “bass-will reflex” with “bass-reflex”.

P. 311, 2nd line after Eq. (7.27): Replace “[38]” with “[38]”.

P. 313, 3rd line after Eq. (7.33): Delete “magnitude of the rms”.

P. 313, Eqs. (7.36) and (7.37): Replace “=” with “≈”.

P. 314, Eqs. (7.38) and (7.39): Replace “=” with “≈”.

P. 314, Replace Eq. (7.38) with

$$D(0) = \frac{1\text{-}2(ka/\sqrt{5})^2 + j2(ka/\sqrt{5})}{1\text{-}(ka/\sqrt{5})^2 + j(ka/\sqrt{5})}$$

P. 314, Replace Eq. (7.39) with

$$\left|p(r)\right| = \frac{f\rho_0 \left|U_c\right|}{2r} \sqrt{\frac{(5\text{-}2k^2a^2)^2 + 20k^2a^2}{(5\text{-}k^2a^2)^2 + 5k^2a^2}}.$$

P. 314, 5th line after Eq. (7.39): Replace “Sec. 7.24” with “Sec. 7.20”.

P. 319, Eq. (7.56): Replace “Q_{TS}” with “Q_{TC}” and “ω_0” with “ω_C”.

P. 320, last equation: Replace “$M_{AD} + M_{A1}$” with “$M_{AD} + M_{A1} + M_{AB}$”.

P. 323, 2nd line after 3rd equation: Replace “$R_f d$ is the flow resistance” with “R_f is the flow resistance”.

P. 324, 2nd equation: Replace “39” with “30.5”.

P. 330, 3rd line from bottom: Replace “l is the length of the tube” with “t is the length of the tube”.

P.337, After Eq. (7.85): Replace “$\omega_S^2 = P_4 / \omega_B^2$” with “$\omega_S^2 = P_0 / \omega_B^2$”.

P. 343, last sentence: Replace “series branch” with “mechanical or driver part”.

P. 345, last line before 4th equation: Replace “p. 336” with “p.334”.

P. 356: Replace Eq. (7.119) with

$$\begin{aligned}\tilde{u}_z(x,y,l_z) &= \frac{2}{k}\tilde{u}_0\sum_{m=0}^{\infty}\sum_{n=0}^{\infty}k_{mn}A_{mn}\frac{k\rho_0 c\cos k_{mn}l_z + jk_{mn}Z_s\sin k_{mn}l_z}{k\rho_0 c - k_{mn}Z_s}\\ &\times\int_0^{l_x}\cos(m\pi x/l_x)\cos(p\pi x/l_x)dx\int_0^{l_y}\cos(n\pi y/l_y)\cos(q\pi y/l_y)dy\\ &= \tilde{u}_0\int_{(l_x-a_1)/2}^{(l_x+a_1)/2}\cos(p\pi x/l_x)dx\int_{y_1-b_1/2}^{y_1+b_1/2}\cos(q\pi y/l_y)dy\end{aligned}$$

P. 357: Replace Eq. (7.123) with

$$\int_{y_1-b_1/2}^{y_1+b_1/2}\cos(n\pi y/l_y)dy = \begin{cases} b_1, & n=0 \\ \dfrac{2l_y}{n\pi}\cos\left(\dfrac{n\pi y_1}{l_y}\right)\sin\left(\dfrac{n\pi b_1}{2l_y}\right), & n=1,2,\cdots \end{cases}$$

P. 357: Replace Eq. (7.128) with

$$Z_{11} = \frac{1}{-\tilde{u}_0}\int_{(l_x-a_1)/2}^{(l_x+a_1)/2}\int_{y_1-b_1/2}^{y_1+b_1/2}\tilde{p}(x,y,l_z)dydx$$

P. 359, last line before equation: Replace “Eq. (6.33)” with “Eq. (6.34)”.

P. 359: Replace equation with $\text{"SPL}_{\max} = 20\log_{10}\left(\frac{1}{rc\times 20\times 10^{-6}}\sqrt{\frac{Z_{nom}W_{\max}2\pi f_S^3 V_{AS}\rho_0}{R_E Q_{ES}}}\right)\text{dB SPL @ 1 m"}.$

P. 360, 3rd line from top: Replace “Eq. (6.15)” with “Eq. (7.101)”.

P. 360: Replace 1st equation with "$\eta_{\max} = \frac{1}{S_D c}\sqrt{\frac{Z_{nom} W_{\max} V_{AS}}{R_E Q_{ES} \pi f_S \rho_0}}$".

P. 360, 4th line after "Summary of transmission-line design": Replace "acts as a high-pass filter" with "acts as a low-pass filter".

P. 360: Replace last equation with "$M_{A2} = 0.2026\rho_0/a_T$".

P. 362, 3rd line before heading 7.19.1.3: Replace "Fig. 7.5" with "Fig. 7.6".

P. 363, Eq. (7.134): Replace "$\tilde{U}_r$" with "$\tilde{U}_T$".

P. 364, 4th line after heading 7.19.1.4: Replace "$\tilde{U}_0$" with "$\tilde{U}_0$" and "$\tilde{U}_C$" with "$\tilde{U}_c$".

P. 369, 1st equation: Replace "$\begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$" with "$\begin{bmatrix} a_{22} & a_{12} \\ a_{21} & a_{11} \end{bmatrix}$".

P. 369, 5th equation: Replace "a_{12}" with "a_{22}".

P. 373, 4th line from top: Replace "$\tilde{i}_g = a_{21}\tilde{p}_9$" with "$\tilde{i}_g = a_{21}\tilde{p}_7$" and "$\tilde{p}_9 = \tilde{e}_g / a_{11}$" with "$\tilde{p}_7 = \tilde{e}_g / a_{11}$".

P. 375, Fig. 7.46e: $H_5(s) = \frac{s^5}{\left(s^2 + \frac{2}{\sqrt{5}+1}\omega_0 s + \omega_0^2\right)\left(s^2 + \frac{2}{\sqrt{5}-1}\omega_0 s + \omega_0^2\right)(s + \omega_0)}$

P. 379, 4th line before heading "*4th-order high-pass filter with a series capacitor and shunt inductor*": Replace "Q_{MS}" with "Q_{MC}". Also, in 1st line before heading: Replace "Q_M" with "Q_{MC}".

P. 381, 2nd line after Eq. (7.171): Replace "frequency f_0 if *below*" with "frequency f_0 is *below*".

P. 383, 1st line after 2nd equation: Replace "low frequencies to the high ones" with "low frequencies relative to the high ones".

P. 395, 1st line from top: Replace "– ζ a" with "– ζa".

P. 396, 5th line after Eq. (8.4), Replace "μ is velocity coefficient in N·s/m^2" with "μ is viscosity coefficient in N·s/m^2 [see Eq. (4.23)]".

P. 397, last word before heading 8.5: Replace "interesting" with "informative".

P. 399, last line before Eq. (8.11): Replace "[11]" with "[9]".

P. 399, Eq. (8.11): Delete "ε_{r1}".

P. 399, 8th line after Eq. (8.11): Replace "[10]" with "[9]".

P. 399, final paragraph: Replace "The circuit for an electret microphone shown in Fig. 8.7 is much simpler than that for an externally polarized microphone, shown in Fig. 5.18, because the electret provides both the polarization for the capsule and the bias for the FET." with "The circuit for an electret microphone shown in Fig. 8.7 is simpler than that for an externally polarized microphone, shown in Fig. 5.18, because the electret provides the polarization for the capsule, although the bias for the FET usually settles to zero due to leakage."

P. 402, last line before heading 8.6: Replace "[18, 20]" with "[18, 19]".

P. 404, Eq. (8.12): Replace "$s_i - w_i$" with "$S_i - W_i$".

P. 415, 3rd line from top: Delete "power available".

P. 415, Eq. (9.20): Insert "100" in numerator so that $E_{ff} = \dfrac{100B^2l^2\boldsymbol{G}_{Mc}}{R_E + B^2l^2\boldsymbol{G}_{Mc}}$

P. 418, 11th line from top: Delete "*a*".

P. 418, 20th line from top: Replace "[5]" with "[4]".

P. 420, Eq. (9.29): Replace 1st line of equation with "$\tilde{u}(x) = -\dfrac{1}{jk\rho_0 c}\dfrac{\partial}{\partial x}\tilde{p}(x)$".

P. 421, 1st line from top: Replace "Eqs. (75) and (112)" with "Eqs. (75) and (111)".

P. 421, Eq. (9.36): Replace 1st line of equation with "$\tilde{u}(x) = -\dfrac{1}{jk\rho_0 c}\dfrac{\partial}{\partial x}\tilde{p}(x)$".

P. 425, last line before Eq. (9.52): Replace "exponential" with "hyperbolic".

P. 439, 3rd line after heading "Example 9.3. Low-frequency horn design.": Replace "Fig. 9.17" with "Fig. 10.17".

P. 439, last line before last equation before Fig. 9.17: Replace "The flare constant in equals" with "The flare constant *m* equals".

P. 439, "=" missing from last equation before Fig. 9.17: "$m = \dfrac{4\pi f_c}{\mathrm{c}} = \dfrac{4\pi \times 40}{344.8} = 1.44\ \mathrm{m}^{-1}$".

P. 440, 2nd equation: Replace "$G_{MT} = \dfrac{S_T}{\rho_0 S_D^2}$" with "$G_{MT} = \dfrac{S_T}{\rho_0 c S_D^2}$".

P. 440, 1st and 2nd lines after 3rd equation (for E_{ff}): Replace both instances of "PAE" with "E_{ff}".

P. 445, equation preceding heading "6. *Horn*": Replace "4.99×10^{-12}" with "9.99×10^{-12}".

P. 446: Replace equation for S_T with

$$S_T = 4R_T^2\left\{\arctan\left(\frac{\tan\frac{\pi}{12}\tan\frac{\pi}{6}}{\sec^2\frac{\pi}{12}+\sqrt{\sec^2\frac{\pi}{12}+\tan^2\frac{\pi}{6}}}\right)+\arctan\left(\frac{\tan\frac{\pi}{12}\tan\frac{\pi}{6}}{\sec^2\frac{\pi}{6}+\sqrt{\sec^2\frac{\pi}{6}+\tan^2\frac{\pi}{12}}}\right)\right\}$$
$$= 4\times 0.022^2\times 0.13 = 2.52\,\text{cm}^2$$

P. 452, Eq. (10.7): Replace "P_{n_x,n_y,n_z}" with "p_{n_x,n_y,n_z}".

P. 453: Replace both equations with "$(\theta_x)_{1,1,0} = \arctan\frac{l_x}{l_y} = \arctan\frac{4}{3} = 53.1°$"

and "$(\theta_x)_{3,2,0} = \arctan\frac{2l_x}{3l_y} = \arctan\frac{8}{9} = 41.6°$".

P. 454: Replace both equations with "$(\theta_y)_{1,1,0} = \arctan\frac{l_y}{l_x} = \arctan\frac{3}{4} = 36.9°$"

and "$(\theta_y)_{3,2,0} = \arctan\frac{3l_y}{2l_x} = \arctan\frac{9}{8} = 48.4°$".

P. 456, caption to Fig. 10.4: Following "(b) one wall absorbent" add "where $R_f d/3 \approx \rho_0 c$.

P. 458, Eq. (10.13), Replace "R_f" with "$R_f d$".

P. 459, 1st line after Eq. (10.15): Replace "Eq. (44)" with "Eq. (43)".

P. 459, Eq. (10.23): Replace "$\frac{n\pi c}{1/\sqrt{\gamma}}$" with "$\frac{n\pi c}{l\sqrt{\gamma}}$".

P. 460, 1st line from top: Replace "Eq. (43)" with "Eq. (42)".

P. 461, after Eq. (10.28): Replace "Eq. (43)" with "Eq. (42)".

P. 461, Eq. (10.33): Replace "$\frac{n\pi c}{1/\sqrt{\gamma}}$" with "$\frac{n\pi c}{l\sqrt{\gamma}}$".

P. 461, last line: Replace "Eq. (44)" with "Eq. (43)".

P. 463, Eq. (10.40): Replace "$|P_n|$" with "$|p_n|$".

P. 470, Eq. (10.45): Replace "In" with "ln".

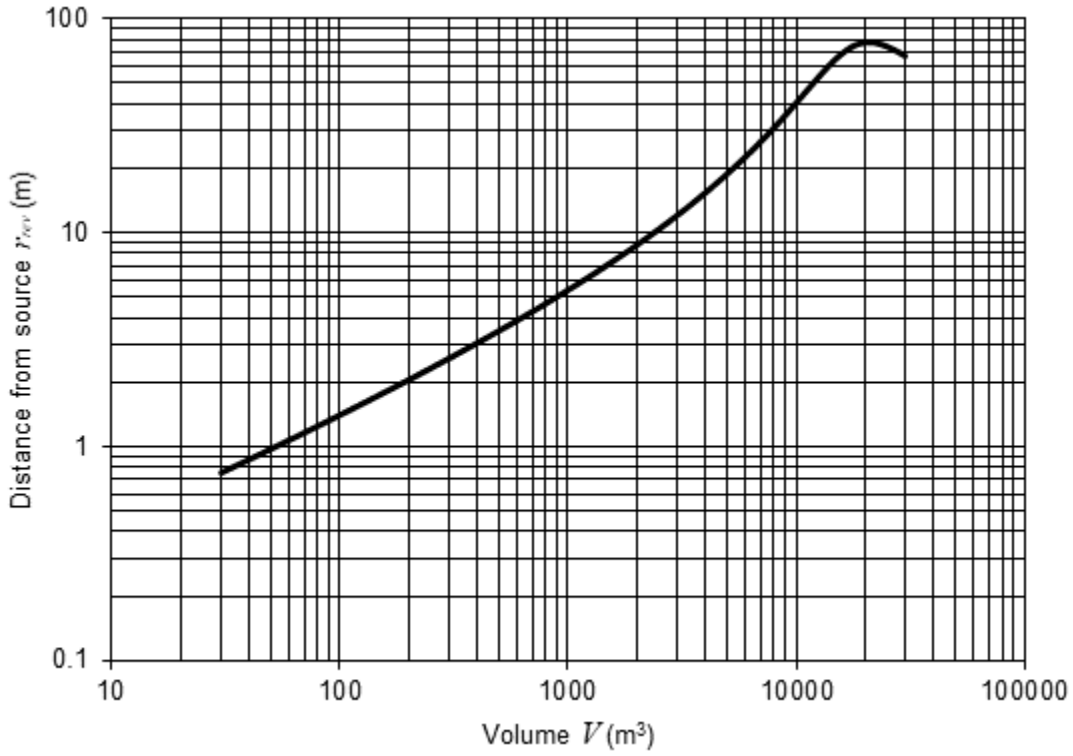
P. 470, Eq. (10.46): Replace "In" with "ln".

P. 470, Eqs. (10.45) and (10.46): Replace "*cs*" with "*cS*".

P. 471, Eq. (10.49): Replace “In” with “ln” and “log” with “$\log_{10}$”.

P. 472, Eq. (10.56): Replace “In” with “ln” and “log” with “$\log_{10}$”.

P. 477: Replace Fig. 10.16 with



P. 477: Replace Eq. (10.70) with $\alpha_{tot} = \dfrac{0.161V}{S_{tot}T}, \qquad \alpha_{ey} = 1 - e^{-0.161V/(S_{tot}T)}$

P. 461, Eq. (10.33): Replace “$\dfrac{n\pi c}{1/\sqrt{\gamma}}$” with “$\dfrac{n\pi c}{l\sqrt{\gamma}}$”.

P. 489, 5th line after heading 12.3: Replace “rotationally” with “axially”.

P. 490, 3rd line after Eq. (12.12): Replace “$\widetilde{P}_s$” with “$\widetilde{p}_S$” and “$\widetilde{P}_I$” with “$\widetilde{p}_I$”.

P. 490, Eq. (12.15): Insert “=” after “$h'^{(2)}_n(kR)$”.

P. 491, Eq. (12.17): Replace “$h_n^{(2)}(kR)$” with “$h_n^{(2)}(kr)$”.

P. 491, 3rd line after Eq. (12.17): Replace “$r = \sqrt{w^2 + Z^2}$” with “$r = \sqrt{w^2 + z^2}$”

and "$\cos\theta = Z/\sqrt{w^2 + Z^2}$" with "$\cos\theta = z/\sqrt{w^2 + z^2}$".

P. 491, Eq. (12.18): Replace "$j_n^{(2)}$" with "$h_n^{(2)}$".

P. 492, 1st line after Fig. 12.3: Replace "$D(r, \theta)$" with "$D(\theta)$".

P.493, Fig. 12.5: Exchange "$D(\pi)$" and "$D(0)$".

P. 494, 2nd line after Eq. (12.24): Replace "Eq. (13.68)" with "Eq. (13.62)".

P. 495, Eq. (12.32): Insert "=" after "$h'^{(2)}_n(kR)$".

P. 497, 1st line after Eq. (12.35): Replace "$D(r, \theta)$" with "$D(\theta)$".

P. 497, Eq. (12.36): Replace "$h_n^{(1)}$" with "$h_n^{(2)}$".

P.498, Fig. 12.10: Exchange "$D(\pi)$" and "$D(0)$".

P.499, Fig. 12.11: Exchange "$D(\pi)$" and "$D(0)$".

P. 499, 4th line after Fig. 12.11: Replace "in the plot for $d = 2R$," with "In the plot for $d = 2R$,".

P. 500, Eq. (12.42): Replace "$h_n'^{(1)}$" with "$h_n'^{(2)}$".

P. 500, 3rd line after Eq. (12.42), Replace "Eqs. (67) and (68)" with "Eqs. (66) and (67)".

P. 501, Eq. (12.45): Replace "e^{jkr}" with "e^{-jkr}".

P. 501, 1st line after Eq. (12.46): Replace "$20\log_{10}(D(\theta)/D(0))$" with "$20\log_{10}(|D(\theta)|/|D(0)|)$".

P. 503, Caption to Fig. 12.15 and 1st line after Eq. (12.47): Replace "$20\log_{10}(D(0))$" with "$20\log_{10}|D(0)|$" and replace "$20\log_{10}(D(\pi))$" with "$20\log_{10}|D(\pi)|$".

P. 503, 4th line after Heading 12.6: Replace "the next problem" with "Section 12.8".

P. 504, after Eq. (12.51): Insert "of Eq. (2.4a)" between "condition" and "gives".

P. 505, 2nd line from top: Replace "Eq. (12.41)" with "Eq. (12.52)".

P. 505, Eq. (12.53): Replace "$h_n'^{(1)}$" with "$h_n'^{(2)}$".

P. 505, 1st line after Eq. (12.56), Replace "Eqs. (67) and (69) in Appendix II" with "Eqs. (66) and (68) in Appendix II".

P. 505, 2nd line after Eq. (12.56): Replace "$n = 0$ and 1 in Eq. (69)" with "$n = 0$ and 1 in Eq. (68)".

P. 505, 4th line after Eq. (12.56): Replace “use Eq. (70) from Appendix II” with “use Eq. (69) from Appendix II”.

P. 505, Eq. (12.57): Replace “$h_0'^{(1)}$” with “$h_0'^{(2)}$” and “$h_1'^{(1)}$” with “$h_1'^{(2)}$”.

P. 505, Eq. (12.57), Replace “ρ” with “ρ_0”.

P. 506, Eq. (12.59): Replace “$h_1^{(1)}$” with “$h_1^{(2)}$”.

P. 506, Eq. (12.60): Replace “Re^{jkR}” with “Re^{jkR}”.

P. 506, Eq. (12.60), Replace first instance of “$(2n + 1)$” with “$(2n + 2)$”.

P. 506, last line before Fig. 12.17: Replace “$20\log_{10}(D(\theta)/D(0))$” with “$20\log_{10}(|D(\theta)|/|D(0)|)$”.

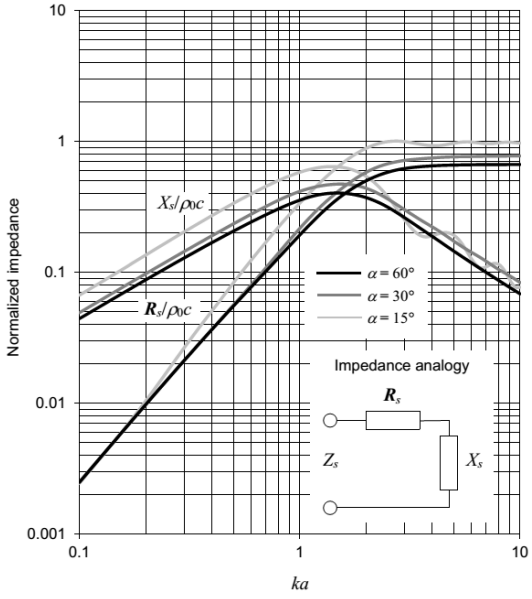
P. 507, Eq. (12.61): Replace “h_2^0” with “$h_2^{(2)}$”.

P. 507, 1st line after Eq. (12.61) and caption to Fig. 12.18: Replace “$20\log_{10}(D(0))$” with “$20\log_{10}|D(0)|$”.

P. 507, Replace Eq. (12.62) with

$$\widetilde{F} = R^2 \int_0^{2\pi} \int_0^{\alpha} \widetilde{p}(R,\theta) \cos\theta \sin\theta d\theta d\phi$$

P. 508, Replace Fig. 12.19 with



P. 508, 1st line after Fig. 12.19: Replace “equation (70)” with “Eq. (68) from Appendix II”.

P. 508, Replace Eq. (12.63) with

$$Z_s = \frac{\tilde{F}}{\tilde{U}_0} = j\rho_0 c\left(\frac{\sin^2\alpha\ h_0^{(2)}(kR)}{4h_1^{(2)}(kR)} - \frac{(1-\cos^3\alpha)^2 h_1^{(2)}(kR)}{\sin^2\alpha\ \left(h_0^{(2)}(kR) - 2h_2^{(2)}(kR)\right)} \right.$$
$$\left. - \sum_{n=2}^{\infty} \frac{(2n+1)^2 \left(\sin\alpha\ P_n(\cos\alpha) + \cos\alpha\ P_n^1(\cos\alpha)\right)^2 h_n^{(2)}(kR)}{(n-1)^2(n+2)^2 \left(nh_{n-1}^{(2)}(kR) - (n+1)h_{n+1}^{(2)}(kR)\right)} \right)$$

P. 508, Replace "When $\alpha = \frac{1}{2}\pi$, the second term simplifies to that for an oscillating sphere, as described in Par. 4.15, and the expansion vanishes so that Eq. (12.63) simplifies to" with "When $\alpha = \frac{1}{2}\pi$, the odd terms of the expansion vanish, except for the second term, which simplifies to that for an oscillating sphere, as described in Sec. 4.15. Hence, Eq. (12.63) simplifies to"

P. 508: Replace Eq. (12.64) with

$$Z_s\Big|_{\alpha=\frac{\pi}{2}} = \rho_0 c\left(\frac{k^4R^4 + j(k^3R^3 + 2kR)}{3(k^4R^4 + 4)} - j\sum_{n=0}^{\infty} \frac{(4n+1)^2 \left(P_{2n}(0)\right)^2 h_{2n}^{(2)}(kR)}{(2n-1)^2(2n+2)^2 \left(2nh_{2n-1}^{(2)}(kR) - (2n+1)h_{2n+1}^{(2)}(kR)\right)} \right)$$

P. 513, Eq. (12.81): Replace "$h_n^{(1)}$" with "$h_n^{(2)}$".

P. 513, 1st line after Eq. (12.81): Replace "Eq. (12.51)" with "Eq. (12.71)".

P. 513, 1st line after Eq. (12.82): Replace "the dome effective area given by Eq. (12.49)" with "the cap effective area given by Eq. (12.69)".

P. 513, Eq. (12.85): Replace "$D(0, \phi)$" with "$D(0, 0)$".

P. 513, 1st line after Eq. (12.85): Replace "$20\log_{10}(D(0,0))$" with "$20\log_{10}|D(0,0)|$".

P. 513, 2nd line after Eq. (12.85): Replace "[from Eq. (12.85)]" with "[from Eq. (13.83)]".

P. 514, Caption to Fig. 12.21: Replace "$20\log_{10}(D(0,0))$" with "$20\log_{10}|D(0,0)|$".

P. 515, 1st line from top: Replace "Eq. (12.49)" with "Eq. (12.69)".

P. 515, 2nd line from top: Replace "plotted in Fig. 12.19 where" with "given by".

P. 516: Replace Eq. (12.92) with $\tilde{u}_r(R,\theta) = \frac{1}{-jk\rho_0 c} \cdot \frac{\partial}{\partial r} \tilde{p}(r,\theta)\big|_{r=R} = 0, \qquad \alpha < \theta \le \pi, \qquad r = R$

P. 516, 2nd line after Eq. (12.97): Replace "Eq. (66)" with "Eq. (65)".

P. 517, 1st line after Eq. (12.108): Replace "Eq. (71)" with "Eq. (70)".

P. 518, 1st line after Eq. (12.111): Replace "$20\log_{10}(D(\theta)/D(0))$" with "$20\log_{10}(|D(\theta)|/|D(0)|)$".

P. 518, 1st line after Eq. (12.112): Replace "$20\log_{10}(D(0))$" with "$20\log_{10}|D(0)|$".

P. 519, Caption to Fig. 12.24: Replace "$20\log_{10}(D(0))$" with "$20\log_{10}|D(0)|$".

P. 521, Eq. (12.118), Replace "$p(r,\theta)$" with "$\tilde{p}(r,\theta)$".

P. 522, 2nd line after Eq. (12.125): Replace "Eq. (66)" with "Eq. (65)".

P. 522, 1st line after Eq. (12.127): Replace "Eq. (12.118)" with "Eq. (12.125)".

P. 523, Eq. (12.130), Replace "$P_m^1(\alpha)$" with "$P_m^1(\cos\alpha)$".

P. 523, 1st line after Eq. (12.130): Replace "Eqs. (67) and (69)" with "Eqs. (66) and (68)".

P. 523, Eq. (12.133), Delete "j" from the denominator.

P. 524, Eq. (12.138): Replace "$(2n-1)(2n+1)$" with "$(2n-1)(2n+2)$".

P. 524, 1st line after Eq. (12.137): Delete "can".

P. 524, 1st line after Eq. (12.138): Replace "$20\log_{10}(D(\theta)/D(0))$" with "$20\log_{10}(|D(\theta)|/|D(0)|)$".

P. 524, 1st line after Eq. (12.138): Replace "kR" with "ka".

P. 525, Caption to Fig. 12.28 and 1st line after Eq. (12.139): Replace "$20\log_{10}(D(0))$" with "$20\log_{10}|D(0)|$".

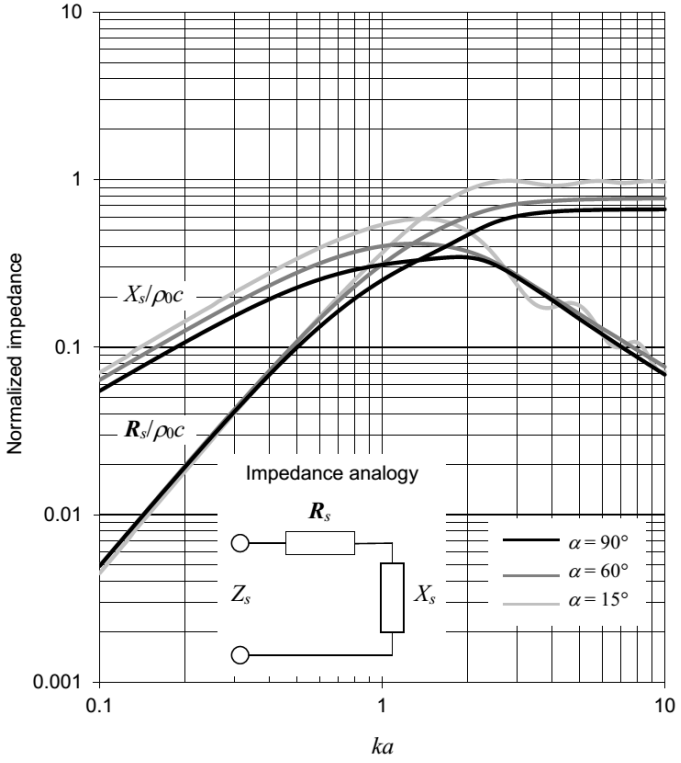
P. 525, 1st line after Eq. (12.139): Replace "kR" with "ka".

P. 525, Replace Eq. (12.140) with $\tilde{F} = R^2 \int_0^{2\pi} \int_0^{\alpha} \tilde{p}(R,\theta) \cos\theta \sin\theta \, d\theta \, d\phi$.

P. 525, 1st line after Eq. (12.140): Replace "Eq. (70)" with "Eq. (68)".

P. 525, Replace Eq. (12.141) with $Z_s = \dfrac{\tilde{F}}{\tilde{U}_0} = \dfrac{2\rho_0 c}{\sin^2\alpha} \sum_{n=0}^{N} A_n h_n^{(2)}(kR) K_n$.

P. 526, Replace Fig. 12.29 with



P. 527, Eq. (12.144), Replace " $p(r,\theta)$ " with " $\tilde{p}(r,\theta)$ ".

P. 527, Eq. (12.145), Replace " $\tilde{p}_I$ " with " $\tilde{p}_I$ ".

P. 527, Eq. (12.146): Replace " j_n " with " j'_n ".

P. 528, 2nd line after Eq. (12.147): Replace "has to match on" with "has to match that on".

P. 529, Eq. (12.158): Replace " h'_m " with " j'_m ".

P. 529, Eq. (12.161): Replace "$P_n(\cos\theta_1)$" with "$P_n(\cos\theta)$".

P. 529, Eq. (12.161): Replace "$P_n(\cos\alpha)P_m(\cos\alpha) - P_m(\cos\alpha)P_n(\cos\alpha)$" with "$P_m(\cos\alpha)P'_n(\cos\alpha) - P_n(\cos\alpha)P'_m(\cos\alpha)$".

P. 530, 1st line from top: Replace "Eqs. (67). (69), and (71)" with "Eqs. (66). (68), and (70)".

P. 531, 1st line after Eq. (12.167): Replace "kR" with "ka".

P. 531, Eq. (12.168): Replace "$D(\theta)$" with "$D(0)$".

P. 531, 1st line after Eq. (12.167): Replace "$20\log_{10}(D(\theta)/D(0))$" with "$20\log_{10}(|D(\theta)|/|D(0)|)$".

P. 531, 1st line after Eq. (12.168) and caption to Fig. 12.32: Replace "$20\log_{10}(D(0))$" with "$20\log_{10}|D(0)|$".

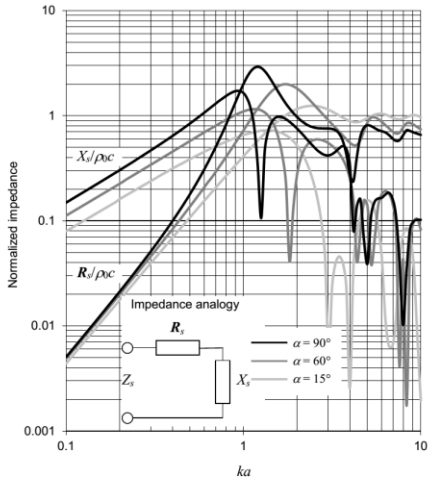
P. 531, 1st line after Eq. (12.168): Replace "*kR*" with "*ka*".

P. 532, Replace Eq. (12.169) with $\tilde{F} = R^2 \int_0^{2\pi} \int_0^{\alpha} \tilde{p}(R,\theta) \cos\theta \sin\theta \, d\theta \, d\phi$.

P. 532, 1st line after Eq. (12.169): Replace "Eq. (70)" with "Eq. (68)".

P. 532, Replace Eq. (12.170) with $Z_s = \dfrac{\tilde{F}}{\tilde{U}_0} = \dfrac{2\rho_0 c}{\sin^2 \alpha} \sum_{n=0}^{N} y_n j_n(kR) L_n$.

P. 532, Replace Fig. 12.33 with



P. 539: Replace Eq. (13.19) with "$\delta(\mathbf{r} - \mathbf{r}_0) = \delta(\mathbf{r}_0 - \mathbf{r})$".

P. 540, Eq. (13.28): Insert "–" after "=".

P. 541, Eq. (13.29): Delete "$= -\tilde{p}_V(\mathbf{r})/2$".

P. 541: Replace Eq. (13.30) with "$\tilde{p}(\mathbf{r})\big|_{\mathbf{r} \notin V_0} = 0, \quad \tilde{p}_S(\mathbf{r}) = -\tilde{p}_V(\mathbf{r}), \quad \begin{pmatrix} \tilde{p}_M(\mathbf{r}) = \tilde{p}_D(\mathbf{r}) = -\tilde{p}_V(\mathbf{r})/2 \\ \text{if planar infinite surface} \end{pmatrix}$".

P. 541, following Eq. (13.31): Replace "where" with "where *R* is the Euclidean distance, which is given by"

P. 542, 4th line from top: Replace "waves are converging" with "waves converge towards them".

P. 542, 14th line after Eq. (13.34): Replace "Sec. 13.20" with "Sec. 13.19".

P. 542, 4th line from bottom: Replace "non-integral" with "Euclidean".

P. 542, 3rd line from bottom: Replace both instances of "an integral" with "a Fourier".

P. 543, 1st line after Eq. (13.38): Replace "Eq. (155)" with "Eq. (154)".

P. 543, 1st line after Eq. (13.40): Replace "integral" with "Fourier".

P. 545, 2nd line after Eq. (13.49): Replace "non-integral" with "Euclidean".

P. 545, 2nd line after Eq. (13.52): Replace "integral" with "Fourier".

P. 545, 3rd line after Eq. (13.52): Replace "$k_y = k_w \cos \varphi$" with "$k_y = k_w \sin \varphi$".

P. 545, last line before Eq. (13.53): Replace "Eq. (47)" with "Eq. (46)".

P. 546, 1st line from top: Replace "Eq. (111)" with "Eq. (110)".

P. 546, Eq. (13.60): Insert "+" between "$\cos(\phi - \phi_0)$" and "$\cos \theta$".

P. 546, last line: Replace "non-integral" with "Euclidean".

P. 547, Eq. (13.61), Replace "$2 - \delta_{m0}$" with "$(2 - \delta_{m0})$".

P. 547: Replace sentence following Eq. (13.63) with "Like the Fourier Green's functions in rectangular and cylindrical coordinates, this expansion form in spherical coordinates can be applied to reverse problems (see Ref. [41], pp. 210-211, Eqs. (6.107)-(6.110) for compact Kirchhoff-Helmholtz integrals. Note that G_N and G_D are not equivalent to the Green's function given by Eq. (13.61) above or its normal derivative but can be derived from it using the method we shall apply in Sec. 13.5)"

P. 549, Eq. (13.73): Replace "j_2'" with "j_n'".

P. 549, 1st line after Eq. (13.76): Replace "Eqs. (67) and (70)" with "Eqs. (66) and (69)".

P. 550, 1st line after Eq. (13.80): Replace "Eqs. (67) and (70)" with "Eqs. (66) and (69)".

P. 551, 1st line from top: Replace "$\sin^2 \alpha/2$" with "$\sin^2 \alpha/2$".

P. 551, Eq. (13.86): Replace "$\left(p_n^{-1}(\cos\alpha)\right)^2$" with "$\left(P_n^{-1}(\cos\alpha)\right)^2$".

P. 553, 4th line before *Boundary conditions*: Replace "non-integral" with "Euclidean".

P. 553, 2nd line before *Boundary conditions*: Replace "integral" with "Fourier".

P. 555, Eq. (13.100): After "=" insert "–".

P. 555, 2nd and 3rd lines after Eq. (13.100): Replace "Eqs. (77) and (96)" with "Eqs. (76) and (95)".

P. 555, Eq. (13.101): After "=" delete "–".

P. 555, Eq. (13.101): Replace "$\tilde{u}$" with "$\tilde{u}_0$".

P. 556, In caption to Fig. 13.5: Replace "ω" with "$2\pi fa$".

P. 556, Eq. (13.104): After "=" delete "–".

P. 557, Eq. (13.106): Replace "$\frac{k^2a^2}{4}$" with "$-\frac{k^2a^2}{4}$".

P. 561, 1st line from top: Replace "Eq. (96)" with "Eq. (95)".

P. 561, Eq. (13.114): Replace "*i*" with "*j*" in both instances.

P. 561, last line before Eq. (13.115): Replace "Eq. (96)" with "Eq. (95)".

P. 561, 1st line after Eq. (13.118), Replace "Eqs. (72) and (126)" with "Eqs. (71) and (125)".

P. 563, Eq. (13.125): After "=" delete "–".

P. 564, In caption to Fig. 13.9: Replace "ω" with "$2\pi fa$".

P. 564, Eq. (13.130): After "=", delete "–".

P. 565, In Eq. (13.131): Delete "2".

P. 566, 1st line after Eq. (13.141): Replace "integral" with "Fourier".

P. 566, Eq. (13.142): Replace "$\rho c\tilde{u}$" with "$\rho_0 c\tilde{u}_0$".

P. 567, Caption to Fig. 13.10: Delete "ρ is the density of the acoustic medium and c is the speed of sound in that medium".

P. 569, Eq. (13.144): Replace "E(w^2/a^2)" with "$\boldsymbol{E}(w^2/a^2)$".

P. 569, Eqs. (13.144) and (13.145): Replace all instances of "ρc" with "$\rho_0 c$".

P. 569, last line before Eq. (13.145): Replace "Eq. (96)" with "Eq. (95)".

P. 571, 2nd and 3rd lines after Fig. 13.14: Replace "(see Fig. 13.45 and Fig. 13.46 respectively)" with "(see Fig. 4.35 and Fig. 4.36 respectively)".

P. 573, 5th line after Eq. (13.159): Exchange "n + ½" and "n – ½".

P. 573, Eq. (13.160): Replace "w_0" with "w_0".

P. 573, 2nd and 3rd lines after Eq. (13.160): Replace "Inserting Eqs. (13.52), (13.158), (13.159), and (13.99) into" with "Inserting Eqs. (13.52), (13.158), and (13.159) into".

P. 573, last line before Eq. (13.161): Replace "Eq. (97)" with "Eq. (96)".

P. 573, Eq. (13.161): Replace "wk_w" with "$k_w w$" and "ak_w" with "$k_w a$".

P. 574, Eq. (13.166): Replace "$I_{nR}(w)$ –" with "$I_{nR}(w)$ =".

P. 574, Eq. (13.167): Replace "$k_w W$" with "$k_w w$".

P. 575, 3rd line after Eq. (13.177): Replace "Eqs. (77) and (97)" with "Eqs. (76) and (96)".

P. 576: Replace 3rd equation from top with "$D(0) = ka\rho_0 c(\boldsymbol{G}_S + jB_S)$".

P. 576, Eq. (13.182): Replace "i" with "j".

P. 576, caption to Fig. 13.15: Replace "Plot of 20 $\log_{10}(D(0))$" with "Plot of 20 $\log_{10}(\pi |D(0)|/4)$"

P. 577, 6th line from top: Replace "Eq. (13.28)" with "Eq. (13.27)".

P. 577, In caption to Fig. 13.16: Replace "ω" with "$2\pi fa$".

P. 578, Eq. (13.184): Replace "$\frac{k^2a^2}{4}$" with "$-\frac{k^2a^2}{4}$".

P. 578, 1st line after Eq. (13.187): Replace "Eq. (110)" with "Eq. (109)".

P. 580, 4th line after Fig. 13.18: Delete "and again using the integral of Eq. (96) from Appendix II".

P. 580, Eq. (13.191): Replace "$\sum_{m=0}^{M} \tau_m$" with "$\sum_{n=0}^{N} A_n$".

P. 580, Eq. (13.192): Insert "=" just before "$\boldsymbol{G}_s + jB_s$".

P. 580, 1st line after Eq. (13.192): Delete "$= \pi a^2 \tilde{u}_0$".

P. 581, Eq. (13.196): Replace "$- j\frac{\boldsymbol{G}_s}{\boldsymbol{G}_s^2 + B_s^2}$" with "$- j\frac{B_s}{\boldsymbol{G}_s^2 + B_s^2}$".

P. 584, 3rd line from top: Delete "second term or" and "part".

P. 584, 3rd line after Eq. (13.203): Replace "Eq. (97)" with "Eq. (96)".

P. 585, 1st line after Eq. (13.212): Replace "Eq. (13.209)" with "Eq, (13.207)".

P. 586, Eqs. (13.219) and (13.221): Replace "+" with "–" and replace "N" with "∞".

P. 586, Eq. (13.223): Replace "$_n\boldsymbol{B}_p$" with "$_m\boldsymbol{B}_p$".

P. 587, Eqs. (13.226), (13.227), and (13.231): Replace "$_m\boldsymbol{B}_p(kb) - j\,_m\boldsymbol{S}_p(kb)$" with "$_m\boldsymbol{B}_p(kb) + j\,_m\boldsymbol{S}_p(kb)$".

P. 587, Eq. (13.232): Replace "$- j$" with "$+ j$".

P. 588, 3rd line after Eq. (13.233): Replace "Eqs. (77) and (97)" with "Eqs. (76) and (96)".

P. 588, Eqs. (13.234) and (13.237): After "=" delete "–".

P. 590, In caption to Fig. 13.23: Replace "ω" with "$2\pi fa$".

P. 590, Eq. (13.239): Delete "2".

P. 590, Eq. (13.240): Replace "i" with "j".

P. 591, In captions to Fig. 13.24: Replace "ω" with "$2\pi fa$".

P. 592, 1st line after Eq. (13.243): Replace "Eq. (110)" with "Eq. (109)".

P. 599, In caption to Figs. 13.31 & 13.32: Replace "ω" with "$2\pi fa$".

P. 604, 8th line after Fig. 13.37: Replace "an infinite baffle" with "an infinite rigid baffle".

P. 605, Eq. (13.258): Replace "i" with "j".

P. 605, Eq. (13.258): Replace "ρc" with "$\rho_0 c$".

P. 606, Eq. (13.260): Replace "i" with "j".

P. 606, Eq. (13.260): Replace "ρc" with "$\rho_0 c$".

P. 607, Eq. (13.265): Replace "i" with "j".

P. 609, Eqs. (13.267) and (13.268): Replace "i" with "j".

P. 609, Eq. (13.268): Replace "ρc" with "$\rho_0 c$".

P. 610. 1st line: Replace "impedance" with "resistance".

P. 610, 2nd line after Eq. (13.272): Replace "μ" with "k_w".

P. 612, Eq. (13.281): Replace with "$W = \left|\frac{\widetilde{U}_0}{\sqrt{2}}\right|^2 \boldsymbol{R}_{AR} = \frac{l}{\rho_0 c}\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \left|\frac{\widetilde{p}(r,\theta)}{\sqrt{2}}\right|^2 r d\theta\Big|_{r\to\infty}$"

P. 613, Eq. (13.285): Replace "In" with "ln".

P. 616, 1st line after Eq. (13.305): Replace "Eq. (77)" with "Eq. (76)".

P. 617, 2nd line from top: Replace "$f(k_0)$" with "$f(w_0)$".

P. 617, 1st line after Eq. (13.309): Replace "Eq. (96)" with "Eq. (95)".

P. 619, after Eq. (13.318): Replace "θ_1 is the angle between the normal to the surface of the piston and the projection of the line joining the middle of the surface and the observation point on the plane normal to the surface and parallel to d_1. θ_2 is the same as θ_1 with d_2 substituted for d_1." with "θ_1 is the angle between the line joining the middle of the surface of the piston to the observation point and the projection of this line on the plane normal to the surface and parallel to d_2. θ_2 is the same as θ_1 with d_1 substituted for d_2."

P. 621, 2nd line from top: Replace “Eqs. (47) and (51)” with “Eqs. (46) and (50)”.

P. 621, Eqs. (13.328) and (13.329): Replace “$g_{m,n}(q)$” with “$g_{m,n}$”.

P. 623, 1st line after Eq. (13.333): Replace “$\mu = k \sin \theta$” with “$k_w = k \sin \theta$”.

P. 623, Eq. (13.334): Replace “$J_1(ka)$” with “$J_1(2ka)$” and “$\mathbf{H}_1(ka)$” with “$\mathbf{H}_1(2ka)$”.

P. 624, 2nd line after Fig. 13.45: Replace “Eq. (78)” with “Eq. (77)”.

P. 625, Eq. (13.336): Replace “$s\sqrt{1-s}$” with “$s\sqrt{1-s^2}$”.

P. 625, Eq. (13.338): Replace “i” with “j”.

P. 626, 1st line after Fig. 13.47: Replace “Eqs. (97). (98), and (99)” with “Eqs. (96). (97), and (98)”.

P. 626, 1st line after Eq. (13.339): Replace “Eq. (134)” with “Eq. (133)”.

P. 627, 3rd line before Eq. (13.342): Replace “integral” with “Fourier”.

P. 634, 5th line after Eq. (14.2): Delete “current-source equivalents of the”.

P. 637, top of page: Replace “Table 6.1” with “Table 14.1”.

P. 640, 1st line after Table 14.2: Replace “[9]” with “[8]”.

P. 648, Eq. (14.64): Replace “$-1/L_1$” with “$-1/L_2$”.

P. 648, heading 14.8: Replace “[10]” with “[9]”.

P. 649, Eq. (14.70): Replace with “$P_2 = \frac{1}{L_1C_1} + \frac{1}{L_2C_1} + \frac{1}{L_2C_2} + \frac{R_1 + R_2}{R_1R_2C_1}\frac{R_3}{L_2}$”.

P. 649, Eq. (14.74): Replace “$p_3s + p_4$” with “$P_3s + P_4$”.

P. 652, 2nd line after heading 14.10: Replace “current sources” with “a current source”.

P. 655, 1st line after Eq. (14.105): Replace “Eq. (14.104)” with “Eq. (14.35)”.

P. 658, Eq. (14.125): Replace “R_2” with “R_3”.

P. 661, 1st line after Eq. (14.140): Replace “Eqs. (14.121) and (14.139)” with “Eqs. (14.121) and (14.140)”.

P. 661, last sentence: Replace “characteristics of the transformer respectively” with “characteristics respectively of the transformer”.

P. 667, Eq. (14.164): Replace “$\tilde{i}_{T1P}$”,“$\tilde{i}_{T1S}$”,“$\tilde{i}_{G1P}$”, and “$\tilde{i}_{G1S}$” with “$\tilde{i}_{VV1S}$”,“$\tilde{i}_{CC1S}$”,“$\tilde{i}_{VC1S}$”, and “$\tilde{i}_{VC2S}$” respectively.

P. 667, Eq. (14.164): Add "–" sign to **M**(13,13) and **M**(14,14).

P. 668, Eq. (14.167): Add "–" sign to $\mathbf{M}_{33}(6,6)$ and $\mathbf{M}_{33}(7,7)$.

P. 680, Eq. (70): Replace integral limits "0" and "α" to "α" and "π" respectively.

P. 680, Eq. (70): Replace "$m(m + 1) - n(n + 1)$" with "$n(n + 1) - m(m + 1)$".

P. 682, Eq. (87): Replace "$\frac{\Gamma(\nu)}{\pi}\left(\frac{z}{2}\right)^{\nu}$" with "$-\frac{\Gamma(\nu)}{\pi}\left(\frac{2}{z}\right)^{\nu}$"

P. 683, Eq. (97): Change lower limit of integral from 0 to a.

P. 684, Eq. (101): Replace "$\alpha_{km}\ n\ \alpha_{kn}$" with "$\alpha_{km} \neq \alpha_{kn}$".

P. 684, Eq. (102): Replace "α_m" with "α_{km}" and "α_n" with "α_{kn}".

P. 684, Eq. (108): Replace "$J_0\left(z\sqrt{1-t^2}\right)2$" with "$J_0\left(z\sqrt{1-t^2}\right)=$".

P. 685, Eq. (110): Insert "2" before summation sign.

P. 686, Eq. (125): Replace "1" with "$(-1)^m$".

P. 688, Eq. (147): Insert "–" sign after "=".

P. 688, Eq. (152): Replace "x" with "z".

P. 384, Replace Eq. (7.179) with

$$f_0 = \sqrt{5}c/(2\pi a)$$

After "=" insert "–" in Eqs. (4.116), (4.134), (4.135), (12.30), (12.33), (12.34), (12.46), (13.13), (13.105), (13.160), (13.177), and (13.181).

After "=" delete "–" in Eqs. (4.64), (4.65), (4.67), (4.71), (4.72), (4,75), (4.110), (4.112), (4.114), (4.117), (4.118), (4.125), (4.126), (4.127), (4,129), (4.130), (4.132), (4.133), (6.31), (6.32), (6.36), (12.24), (12.25), (12.35), (12.45), (13.2), (13.11), (13.12), (13.87), (13.89), (13.91), (13.92), (13.178), (13.184), (13.204), (13.206), (13.215), (13.222), (13.227), (13.230), (13.231), (13.232), (13.247), and (13.269).

P. 385-386: Replace Example 7.4 with the following simpler corrected version:

Example 7.4. Crossover for woofer of Example 7.2. In this example we shall implement a 3rd-order Butterworth high-pass filter using a series capacitor for the 1st-order section and the native response of the tweeter for the 2nd-order section. Because the tweeter will be mounted in a sphere, we shall design a crossover to compensate for the 6 dB lift associated with a point source in a sphere (see Fig. 7.14) so that it provides part of the 1st-order section. The low-pass section will be designed to give an all-pass overall response with zero phase shift, as discussed in the previous section. Hence the low-pass section will use

just a series inductor together with the 6 dB lift due to the baffle effect, using a closed-back piston as a model (see Fig. 7.15). Since the woofer occupies almost the full width of the box, we will take a as 9.4 cm which, using Eq. (7.179), gives us a crossover frequency of

$$f_0 = 2.24 \times 344.8/(2 \times 3.14 \times 0.094) = 1305 \text{ Hz}$$

Hence the value of the series inductance needed is

$$L_1 = \frac{R_E}{2\pi f_0} = \frac{6.27}{2 \times 3.14 \times 1305} = 0.766 \text{ mH}$$

However, the coil inductance is 0.71 mH, so to make up the difference we will use an inductor with a value of 0.766 – 0.71 = 56 μH. Next we need to choose a tweeter suitable for a crossover frequency of 1305 Hz. The SEAS model 27TFF (H0831) has a resonance frequency of f_C = 1200 Hz, which is close enough. The effective area of the dome is S_D = 7.5 cm^2. The maximum sound pressure of the woofer has already been specified as 99.6 dB SPL at a distance of r = 1 m. At the crossover frequency f_0, the sound pressure produced by the tweeter is 3 dB less than this, that is 96.6 dB SPL, and decreases at a rate of 18 dB/octave below f_0. The peak displacement at f_0 is obtained from Eq. (6.35) to give

$$\eta_{\text{peak}} = \frac{\sqrt{2} r \times 10^{\frac{\text{SPL}}{20} - 5}}{\pi f^2 \rho_0 S_D} = \frac{1.414 \times 1 \times 10^{\frac{96.6}{20} - 5}}{3.14 \times 1305^2 \times 1.18 \times 7.5 \times 10^{-4}} = 0.2 \text{ mm}$$

which is within the linear excursion limit of 0.5 mm and at frequencies above and below f_0 the displacement is reduced. Using the method described in Sec. 6.10 for measuring the Thiele-Small parameters, we estimate the Q factors from the impedance curve to be

$$Q_{EC} = \omega_S M_{MD} R_{ES}/(Bl)^2 = 2\pi \times 1200 \times 0.0003 \times 4.8/3.5^2 = 0.89$$

$$Q_{MC} = \omega_S M_{MD} R_E/(Bl)^2 = 2\pi \times 1200 \times 0.0003 \times 10.2/3.5^2 = 1.88$$

Also, the quoted sensitivity is 92 dB SPL in a baffle at 1 m with an input voltage of 2.83 Vrms (or 86 dB SPL in free space). However, the woofer has a sensitivity of 79.6 dB SPL in free space, so the tweeter needs a series resistor to match its sensitivity to that of the woofer. If R_E = 4.8 Ω, then the series resistor value is

$$\begin{aligned} R_1 &= R_E(10^{(TweeterSensitivity - WooferSensitivity)/20} - 1) \\ &= 4.8 \times (10^{(92-79.6)/20} - 1) = 15.2\,\Omega \approx 15\,\Omega \end{aligned}$$

This will modify the values of Q_{EC} and Q_{TC} as follows

$$Q'_{EC} = \left(1 + \frac{R_1}{R_E}\right) Q_{EC} = \left(1 + \frac{15}{4.8}\right) \times 0.89 = 3.67$$

$$Q'_{TC} = Q'_{EC} Q_{MC}/(Q'_{EC} + Q_{MC}) = 1.24$$

which is close enough to unity for a 3rd-order Butterworth response. We need to correct for the 6 dB lift in the response of the tweeter due to the baffle effect. We will simplify this by mounting the tweeter on a wooden sphere so that we can model it as a point source on a sphere of radius *R*. Then the transfer function of the point source on a sphere from Eq. (7.36) (producing a 6 dB lift) provides the shelf filter response

$$\frac{s + c/R}{s + 2c/R} = \frac{s + \omega_E}{s + \omega_0}$$

where the radius of the sphere is given by

$$R = 2c/\omega_0 = 344.8/(3.14 \times 1305) = 84.1 \text{ mm}$$

Thus the 6 dB transition takes place between $f_E = f_0/2 = 1305/2 = 653$ Hz and $f_0 = 1305$ Hz with a 1st-order slope. Hence we need the series capacitor to continue the 1st-order slope from f_E downwards and its value is determined by

$$C_1 = \frac{1}{2\pi f_E (R_E + R_1)} = \frac{1}{2 \times 3.14 \times 653 \times (4.8 + 15)} = 12.3\ \mu\text{F} \approx 12\ \mu\text{F}$$

The network is shown in Fig. 7.51.

P. 386: Replace Figure 7.51 with:

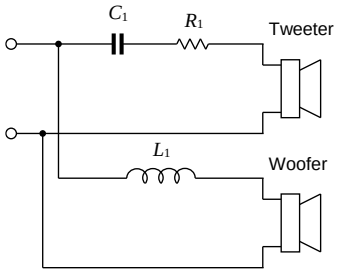


Fig. 7.51. Crossover network of Example 7.4 with a crossover frequency of $f_0 = 1305$ Hz. The values of the crossover circuit elements are $R_1 = 15\ \Omega$ (25 W), $L_1 = 56\ \mu$H, and $C_1 = 12\ \mu$F. The woofer is a Bandor type 100DW/8A mounted in a closed-box baffle as described in Example 7.2 and shown Fig. 7.18. The tweeter is a SEAS type 27TFF (H0831) mounted in a 16 cm diameter sphere.