**Errata for *Engineering Electromagnetics* by Kenneth R. Demarest**

| Page | Line | Correction |
|---|---|---|
| 21 | (2.34c) | Replace "$sdz$ =" with "$dz$ =" |
| 21 | 7th line of Ex. 2-1 | Replace "(4)(2)" with "(4)(-2)" |
| 21 | Last | Replace "-0.176" with "-0.716" |
| 22 | 9th below Fig. 2-15 | Equation should read: $dy = \frac{dy}{d\phi}\, d\phi = \rho \cos\phi \; d\phi$ |
| 31 | 8th line of Ex.2-4 | Replace "sin $x\phi$ " with "sin $\phi$ " |
| 33 | 11th & 13th | Replace "- $\hat{\mathbf{a}}_z$ " with "+ $\hat{\mathbf{a}}_z$ " in both equations for **R** |
| 34 | 2nd to last | Far RH integral: replace "$\sin^2\theta \; d\theta \, d\phi$ " with "$\sin^2\theta \; \cos^2\phi \, d\theta \, d\phi$ " |
| 35 | 1st of Ex. 2-7 | Replace *ds* with **ds** . |
| 36 | 1st two under b) | Replace "$C_a$", "$C_b$", and "$C_c$", with "$C_x$", "$C_y$", and "$C_z$", respectively. |
| 37 | 1st above (2.75) | Replace "(2.64a)" with "(2.33)" |
| 42 | (2.91) | Replace $A_z\,(x_o, y_o, z_o)$ with $A_x\,(x_o, y_o, z_o)$ |
| 45 | 5th of Ex. 2-11 | Eq. should read: $\mathbf{ds} = \mathbf{ds}_r = r^2 \sin\theta \; d\theta \; d\phi \; \hat{\mathbf{a}}_r$ |
| 45 | 7th of Ex. 2-11 | Replace "$\sin\theta \sin\theta$ " with "$\sin\theta$ " |
| 49 | 2nd of (2.116) | Replace LH " $\hat{\mathbf{a}}_\phi$ " with " $\hat{\mathbf{a}}_\theta$ " |
| 50 | 8th | Should read: $\frac{1}{r \sin\theta}\left[\frac{\partial}{\partial\theta}(-r \sin^2\theta \sin^2\phi) - \frac{\partial}{\partial\phi}(r \sin\theta \cos\theta \sin\phi \cos\phi)\right]$ |
| 50 | 9th | Replace "sin" with "sin $\theta$ " in the denominator of the 1st fraction. |
| 50 | 10th | Replace "sin cos" with "sin $\phi$ cos $\phi$ " |
| 54 | (2.127) | Replace $\nabla(\nabla \mathbf{x} \mathbf{A})$ with $\nabla(\nabla \cdot \mathbf{A})$ |
| 56 | Prob. 2-3(e) | Replace **CxAxB** with **C•AxB** |
| 57 | Prob. 2-12(a) | Replace $0<z<1$ with $0<z<2$ |
| 58 | Figure P2-16 | Replace $P_2(2,3)$ with $P_3(2,3)$ |
| 79 | 1st of Ex.3-6 | $\mathbf{F}_1$ should read: $\mathbf{F}_1 = -8\,\hat{\mathbf{a}}_x + 3\,\hat{\mathbf{a}}_y$ |
| 79 | 7th of Ex.3-6 | Should read: $\mathbf{E} = \frac{\mathbf{F}_e}{Q} = \frac{(-8\hat{\mathbf{a}}_x + 3\hat{\mathbf{a}}_y)\text{x}10^{-12}}{2\text{x}10^{-12}} = -4\hat{\mathbf{a}}_x + 1.5\hat{\mathbf{a}}_y$ [ V/m] |
| 88 | 13th | Replace "$\nabla \mathbf{x} \mathbf{E} = \rho_v / \varepsilon_o$ " with "$\nabla \cdot \mathbf{E} = \rho_v / \varepsilon_o$ " |
| 95 | 3rd | Replace "$\sqrt{z'^2+\rho^2}$ " with "$\rho\sqrt{z'^2+\rho^2}$ " in second fraction. |
| 102 | 1st after (4.28) | Replace "(4.26)" with "(4.25)" |
| 107 | 2nd above (4.39) | Replace "(2.129)" with "(2.131)" |
| 119 | Prob. 4-7(a)&(d) | Replace "4π" with "2π" in both equations |
| 120 | 3rd of Prob.4-19 | Replace the second "$\rho_{sa}$ " with "$\rho_{sb}$ " |
| 129 | Fig. 5-5 | Add upward arrowhead to the line below "$\mathbf{E}_{nc}$ " |
| 132 | 15th | Replace "[Ω/m]" with "[Ω•m]" |
| 132 | 16th | Replace "(5.15)" with "(5.16)" |
| 147 | 1st below (5.52) | Replace "$E$ " with "$E_n$ " |

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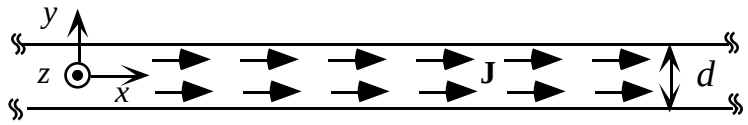
| 148 | 6th below figure | Replace "(5.51) and (5.56)" with "(5.49) and (5.55)" |
| 158 | Fig 5-25(b) | Replace "$-eN_a$ " with "$eN_a$ " |
| 158 | 1st Eq. | Replace "$\varepsilon$ " with "$e$ " in both numerators. |
| 164 | 2nd | Replace "$y = a$ " with "$y = 0$ " |
| 186 | Fig. 6-8 | Replace "$\rho_l$ " on the left side with "$-\rho_l$ " on left side |
| 193 | (6.25c) | Replace "$Q_2$" with "$Q_3$" |
| 194 | 10th | Add "By similar reasoning, it can be shown that $C_{20} = 0$." |
| 204 | Prob. 6-13 | Replace "$C_{12} = 0$" with "$C_{12} = C_{20} = 0$" |
| 209 | 2nd | Replace "IV" with "II" |
| 217 | 1st | Replace "(7.19)" with "(7.23)" |
| 227 | 1st above (7.40) | Replace "$\pi$" with "$2\pi$" |
| 234 | 12th of Ex.7-4 | In middle term, replace "$I\,a\,d\,\hat{\mathbf{a}}_\phi$" with "$I\,a\,d\phi\,\hat{\mathbf{a}}_\phi$" |
| 237 | Fig P7-5 | Insert:   |
| 275 | Prob. 8-16 | The 10 [A] and 5 [A] windings have 100 and 300 turns, respectively |
| 290 | 2nd to last of Ex.9-4 | Replace "clockwise" with "counterclockwise" |
| 295 | 3rd after (9.27) | Replace $p_{11}(t) = i_1 v_1 L_{11}\frac{di_1}{dt}$ with $p_{11}(t) = i_1 v_1 = i_1 L_{11}\frac{di_1}{dt}$ |
| 300 | (9.40) | Replace "$I_1$" with "$I_i$ " |
| 301 | 1st Eq. | Replace $\sum_{i=1}^{N}\sum_{i=1}^{N}$ with $\sum_{i=1}^{N}\sum_{j=1}^{N}$ |
| 301 | 4th from bottom | Replace "(7.36)" with "(7.30)" |
| 302 | 8th of Ex. 9-9 | Replace "$\rho_o$" with "$2\pi\rho_o$" and omit "$I_1$" and "$I_2$" from both bracked terms |
| 302 | last of Ex 9-9 | Omit "$\pi$" and move "2" to the denominator. |
| 316 | 5th | Last term should read: $\mu_o\left(\frac{NI}{L}\right)^2(\mu_r - 1)S\,\hat{\mathbf{a}}_z$ |
| 318 | (9.69) | Replace "$I_i\,I_i$ " with "$I_j\,I_i$ " |
| 318 | 3rd to last of Ex 9-15 | Replace "$\cos\|\theta\|$" with "$\|\cos\theta\|$" |
| 330 | 2nd Eq. | Replace "$(50\text{x}10^{-12})\text{x}10^{-12}$" with "$(50\text{x}10^{-12})\text{x}10^{-2}$" |
| 338 | 2nd of Sec 10-4-3 | Replace "(10.23)" with "(10.18)" |
| 341 | Fig. 10-5 | Symbol at the far left should be "$\hat{\mathbf{a}}_{21n}$ " |
| 342 | (10.78) | Should read: $\varepsilon_1 E_{1n} - \varepsilon_2 E_{2n} = \rho_s$ |
| 342 | (10.79) | Should read: $\mu_1 H_{1n} - \mu_2 H_{2n} = 0$ |
| 346 | 1st of Prob. 10-1 | Replace "a magnetic field" with "an electric field" |
| 348 | Eq. in Prob. 10-14 | Replace "$\alpha$ " with "$a$ " all three times |
| 352 | 2nd above (11.5) | Should read: $V = \int_1^2 (E_x dx + E_y dy)$ |

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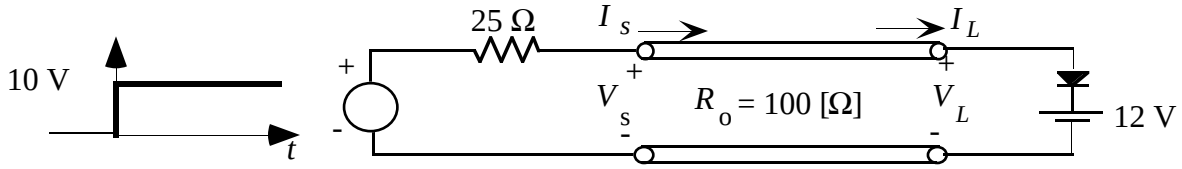
| 353 | (11.7) | Should read: $(\nabla \mathbf{x} \mathbf{E})_y = \partial E_x / \partial z = -\partial B_y / \partial t$ |
| 366 | (11.50) | Replace "$R_o$" with "1" in numerator |
| 368 | (11.58) and (11.59) | Replace "$\Gamma_L V^+(t + z/u)$" with "$\Gamma_L V^+(t + (z - 2l)/u)$" in both equations |
| 370 | Fig. 11-13a | Replace "$\Gamma_L = 2/3$" with "$\Gamma_g = -2/3$ " and "$u$ =3x10" with "$u$ =3x10$^8$" |
| 373 | 6th | Replace "$R_s$" with "$R_g$" |
| 376 | Fig. 11-21 a&b | Replace "0.9" with ".09" on both $z$ axis labels |
| 379 | Fig. 11-23 | Replace capacitor symbol with an inductor in (b) and replace "capacitor" with "inductor" in caption for (c) |
| 381 | 2nd line of step 3. | Replace "$2V_1$ " with "$2(V_1 - V_0)$" |
| 383 | Top 2 equations | Replace both plus "+" signs with minus "-" signs |
| 385 | (11.90) | Omit the first "$e$ " after "$V^+$" |
| 388 | Ex. 11-8 | Replace "(D.23-24)" with "(D.22-23)","(D.25-26)" with "(D.24-25)", and "(D.24)" with "(D.23)" |
| 389 | 2nd | Replace "(D.23)" with "(D.22)" |
| 389 | 3rd | Add exponent "-1" after bracked term, and replace "5.215" with "3.066" |
| 389 | 4th | Replace "5.215" with "3.066" |
| 381 | Fig 11-25 | Replace figure with: |

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| 389 | 5th | Replace "(D.25-26)" with "(D.24-25)" |
| 389 | 11th | Replace "(D.21)" with "(D.20)" |
| 389 | (11.98) | Replace "$V^- e^{-\gamma z}$ " with "$V^- e^{+\gamma z}$ " |
| 390 | 1st below (11.105) | Replace "(11.100)" with "(11.101)" |
| 392 | (11.111) | Replace "$j$ " with "1" |
| 393 | (11.121) | Eq. should read: $\beta = 2\pi/\lambda \approx \omega\sqrt{\mu_o \varepsilon'}$ |
| 396 | 1st below (11.127) | Replace "(11.120)" with "the initial waveform" |
| 399 | 1st below (11.131) | Replace "(11.91)" with "(11.131)" |
| 403 | Eq. above (11.144) | Should read: $Z_{in} = Z_{11} - Z_{12} + Z_{12} \,\|\|\, (Z_{22} - Z_{12}) = Z_{11} - Z_{12} + \dfrac{Z_{12}(Z_{22} - Z_{12})}{Z_{22}}$ |
| 412 | 1st below (11.163) | Replace "(11.162)" with "(11.163)" |
| 429 | 1st | Replace "(D.25) and (D.26)" with "(D.24) and (D.25)" |
| 429 | 13th | Replace "(D.21)" with "(D.20)" |
| 422 | Fig. 11-63 | Replace ".3937 WTG" with ".3973 WTG" |
| 437 | Prob. 11-14 | Replace "Problem 12" with "Problem 13" |
| 442 | 3rd above (12.5) | Replace "$(\nabla \bullet \mathbf{E})$" with "$\nabla(\nabla \bullet \mathbf{E})$" |
| 443 | 2nd | Replace "(2.136)" with "(2.127)" |
| 447 | 2nd | Replace "(2.66)" with "(2.64a)" |
| 449 | last | Replace both $\phi$ 's with $\theta$ 's |

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| 450 | 7th after (12.43) | Replace $\phi_y$ with $\theta_y$ |
| 463 | 2 above (12.98) | Replace "(6.69) and (9.74)" with "(6.34) and (9.39)" |
| 464 | last | Replace "(5.93) and (7.24)" with "(5.65) and (7.35)" |
| 468 | (12.108) | Replace "$\hat{\mathbf{a}}_k$ " with "$\hat{\mathbf{a}}_z$ " |
| 472 | 1st Eq. above (12.117) | Replace $E^r e^{-\gamma_1 z}$ with $E^r e^{\gamma_1 z}$ . |
| 474 | 3rd line of (12.125) | Replace $\Gamma e^{-j2\beta_1 z}$ with $\Gamma^* e^{-j2\beta_1 z}$ |
| 475 | 8th | Replace $\mathcal{P}^{(a)}_{\text{ave}}$ with $\mathcal{P}^{(2)}_{\text{ave}}$ |
| 476 | last | Replace "(12.68)" with "(12.69)" |
| 481 | Fig. 12-18 | Bottom right term should be: $T_a^+(\Gamma_b^+\Gamma_a^-)^n T_b^+ E^i e^{-j2(n+1)\beta_2 l}$ |
| 481 | last | 2nd expression should read: $T_a^+ \Gamma_b^+ E^i e^{-j\beta_2 l}$ |
| 486 | (12.156) | Replace $\Gamma_o e^{-\gamma_2 z}$ with $\Gamma_o e^{+\gamma_2 z}$ |
| 486 | (12.158) | Change the signs in all 4 exponents |
| 487 | 2nd from bottom | Replace "(12.131)" with "(12.160)" |
| 487 | last | Replace "$\eta_2/\eta_2$" with "$\eta^2/\eta_2$" |
| 491 | (12.167) | Omit "-" sign in front of "$z\cos\theta_t$ " in the exponent |
| 495 | Fig. 12-28 | Replace "$\odot$" with "$\otimes$" next to $\mathbf{H}^r$ |
| 495 | (12.183) | Replace "$k_2$" with "$k_1$" |
| 495 | (12.185) | Replace "$k_2$" with "$jk_2$" |
| 496 | (12.187)&(12.188) | Replace "$-jk_1 x \sin\theta_t$ " with "$-jk_2 x \sin\theta_t$ " in the far RH side terms |
| 496 | (12.187) | Replace "cos $\theta_r$ " with "cos $\theta_t$ " in far RH side term |
| 496 | (12.188) | Replace "$\Gamma_{\parallel}$ " with "$T_{\parallel}$ " in the far RHS expression. |
| 503 | 8th & 12th | Replace "(12.197)" with "(12.208)" and "(12.66)" with "(12.64)" |
| 510 | (13.2) | Should read: $\nabla \mathbf{x} \mathbf{H} = j\omega\varepsilon \mathbf{E}$ |
| 516 | 1st Eq. below (13.33) | Replace "$k_x a$ " with "$k_x x$ " and replace "$k_y y$ " with "$k_y b$ " |
| 520 | 1st above (13.51) | RHS should read: " $= -k_x H_o \sin k_x a \cos k_y y e^{-\gamma z} = 0$" |
| 520 | 1st above (13.52) | RHS should read: $= -k_y H_o \cos k_x x \sin k_y b e^{-\gamma z} = 0$ |
| 521 | 1st of (13.55) | Replace " $-\left(\frac{n\pi}{b}\right)^2$ " with " $+\left(\frac{n\pi}{b}\right)^2$ " |
| 527 | 1st from bottom | Replace "(12.22) and (12.65)" with "(12.21) and (12.66)" |
| 528 | 5th | Replace "(13.68) with "(13.67)" |
| 534 | 4th from bottom | Replace "(12.66) with "(12.64)" |
| 549 | Figure 13-31 | Insert "$\theta$ " after the "cos" inside the tangent function |
| 550 | (13.119) | Replace "$\|x\| < d/2$" with "$\|x\| > d/2$" for $m$ odd case |
| 550 | 1st after (13.119) | Replace "$x > 0$" with "$x > d/2$". Replace "$x < 0$" with "$x > -d/2$". |
| 551 | 3rd below Fig.13-32 | Replace "(13.112)" with "(13.109)" |
| 557 | 2nd of Ex 13-11 | Replace "[mm]" with "[μm]" |

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| 559 | 1st from bottom | Replace "time-averaged-energy" with "time-averaged electric energy" |
| 561 | (13.134) | Add ")" after "$d^3a$ " |
| 570 | 12th, 19&20th | Replace "(14.9) and (14.10)" with "(14.11) and (14.12)" |
| 570 | 2nd&4th from bottom | Replace "(14.12)" with "(14.16)" and "(14.71)" with "(14.61)" |
| 571 | 1st & 5th | Replace "(4.43)" with "(4.46)" and "(4.73)" with "(4.46)", respectively |
| 572 | 8th of Ex. 14-1 | Replace "$\nabla \bullet \mathbf{A}$" with "$\nabla \mathbf{x} \mathbf{A}$" |
| 573 | 2nd below (14.26) | Replace "at time $t$ " with "at time $t'$ " |
| 576 | 2nd from bottom | Replace "(14.29)" with "(14.33)" |
| 589 | 3rd | Replace "(14.58)" with "(14.61)" |
| 593 | 2nd equation | Add $1/4\pi$ in front of the double integral |
| 595 | 5th | Replace "Figure 9-23b" with "Figure 9-26b" |
| 610 | 3rd above (14.98) | Add "-" in exponents of LH terms in upper and lower brackets |
| 613 | 1st above 1st Eq. | Replace "(14.54)" with "(14.55)" |
| 624 | 3rd | Replace "[$ms^{-1}$] " with "[$m \bullet s^{-1}$] " |
| 633 | 5th | Replace "(2.133)" with "(2.123)" |
| 638 | 2nd of Tbl B-3 | Right-most entry should be: $A_r \sin\theta \sin\phi + A_\theta \cos\theta \sin\phi + A_\phi \cos\phi$ |
| 638 | 3rd of Tbl B-3 | Right-most entry should be: $A_r \cos\theta - A_\theta \sin\theta$ |
| 646 | 2nd below (D.11) | Replace "Section 12-7-4" with "Section 12-5" |
| 646 | 2nd to last | Replace "(11.114)" with "(11.115)" |
| 651 | Entry 2-13 | Answer to part a) should be 4.5 |
| 651 | Entry 2-25 | Replace subscript "$\rho$ " with "$r$ " |
| 652 | Entry 3-8 | Entry should read: $\mathbf{dF}_1 = 6.93 \times 10^{-9}\ \hat{\mathbf{a}}_x$ [N] |
| 652 | Entry 4-2 | Add [kV/m] at the end |
| 652 | Entry 4-18 | Replace "2" with "$2\varepsilon_o$" |
| 652 | Entry 5-17 | Replace "$\rho^2$" with "$x^2 + y^2$ " |
| 653 | Entry 7-14 | Replace "4" with "2" |
| 653 | Entry 7-15 | Replace "$I$ " with "$I\,l$" |
| 653 | Entry 8-16 | Replace "26.9" with "65.8" |
| 653 | Entry 9-8 | Should read: $i(t) = 0.24 \sin \omega t$ [mA] |
| 654 | Entry 11-2 | Replace "[nH]" with "[nH/m]" |
| 654 | Entry 11-12 | Replace "[ps]" with "[ns]" all three times |
| 654 | Entry 12-1, 2nd line | Replace "+ $\pi/4$ " with "- $\pi/4$ " both times |
| 654 | Entry 10-4 | Replace "$3 \times 10^7$" with "$1.5 \times 10^7$" |
| 654 | Entry 10-10 | $\mathbf{J}_d = -j\beta H_o \cos k_x x\ e^{-j\beta z}\ \hat{\mathbf{a}}_y$ |
| 655 | Entry 13-4 | Replace "$TM_{10}$" with "$TM_{11}$" |
| 655 | Entry 14-8 | Replace "$R_{rad}$" with "$R_{in}$" |
| | Back,left Endcover | In the spherical $\nabla \mathbf{x} \mathbf{A}$ expression, the 2nd unit vector should be $\hat{\mathbf{a}}_\theta$ |