This document contains the Errata for *Design with Op Amps and Analog ICs.*

The Errata are shown for the 4th Edition, 3rd Edition, and 2nd Edition, as follows:

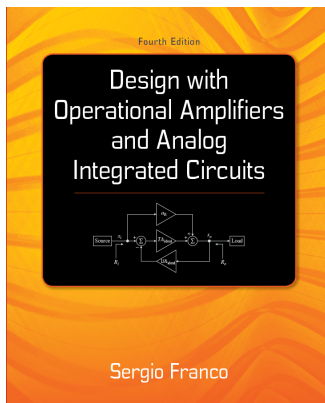For the 4th Edition Errata, scroll down to Page 2.

For the 3rd Edition Errata, scroll down to Page 3.

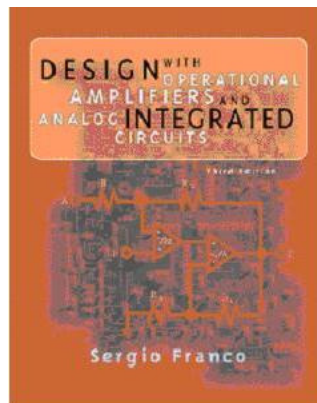For the 2nd Edition Errata, scroll down to Page 4.

If you find any additional errata, please let me know, so I can update this document. My email is:
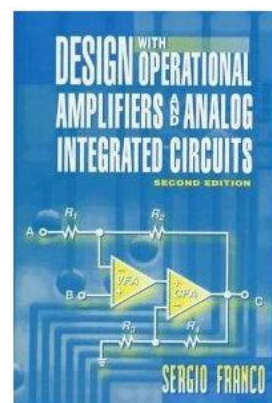
sfranco@sfsu.edu
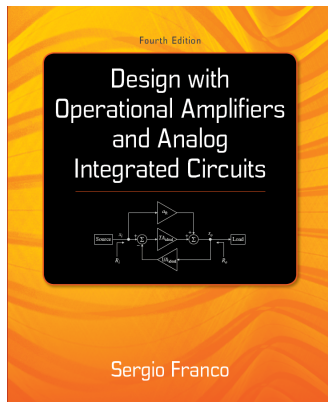
Thanks, Sergio Franco

4th Edition	3rd Edition	2nd Edition

Design with Operational Amplifiers and Analog Integrated Circuits – 4th Edition

Sergio Franco
San Francisco State University

McGraw-Hill Education, ©2015 - **ISBN 0-07-232084-2**

First-Printing Errata (Updated July 24, 2017)

Page 26, line before Eq. (1.49): append text as follows:
but with respect to *b*, we get, for *L* sufficiently large,

Page 38, Eqs. (1.70) and (1.71); page 39, Eqs. (1.75a), (1.75b), and (1.76); p. 285, Eq. (6.17a): change the denominator term $(R_1 + r_o)/r_d$ **to** $(R_2 + r_o)/r_d$ **throughout.**

Page 321, Example 6.17, 2nd line: change Example 6.15 **to** Example 6.16.

Page 584, Fig. 11.45: change the rightmost part of the *Q* waveform as shown below in red:
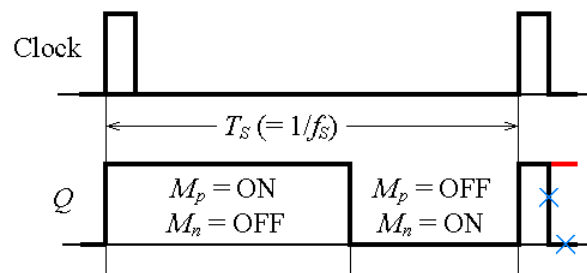
Page 584, starting at the 6th line from the bottom: change "intervene, the converter adjusts *D* so as to move the average current I_L up or down until the condition $I_L = I_O$ is met." **to** "intervene, the average current I_L will move up or down until the condition $I_L = I_O$ is reestablished."

Design with Operational Amplifiers and Analog Integrated Circuits – 3rd Edition

Sergio Franco - McGraw-Hill, 2002 - **ISBN 0-07-232084-2**

First-Printing Errata (Updated January 27, 2016)

Page 35, Solution (*a*), second line should be as: V/V; $R_n = (10^5 + 75)/(1 + 2 \times 10^5) \cong 0.5\ \Omega;\ldots$

Page 47, Problem 1.3, 1st line: change A_{oc} **to** A_r

Page 104, Fig. P2.54: swap the resistance labels R **and** $R(1+\delta)$

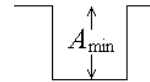**Page 113, Eq. (3.11*a*): change** $|H_1| - |H_2|$ **to** $|H_1| / |H_2|$

Page 114, Eq. (3.13*c*): change $|1/H_1|$ **to** $|1/H|$

Page 137, Example 3.11, Solution (*b*): change 136.69° **to** −136.69° **(twice), and** 46.69° **to** 133.31° **(twice)**

Page 145, expression for V_{HP}/V_i **in the 3rd line after Eq. (3.78): rewrite as**

$$\frac{V_{HP}}{V_i} = -\frac{R_5}{R_3} \frac{\dfrac{R_4 R_6 C_1 R_7 C_2}{R_5} s^2}{\dfrac{R_4 R_6 C_1 R_7 C_2}{R_5} s^2 + \dfrac{R_4 R_7 C_2 (1 + R_5/R_3 + R_5/R_4)}{R_5(1 + R_2/R_1)} s + 1}$$

Page 162, Fig. 4.2*b*: change arrow as shown on the right:

Page 162, text preceding Eq. (4.2): change b_2 **to** b_1**, and change** b_3 **to** $b_2 = b_3$

Page 205, Problem 4.8, 2nd line from the end: change 11.080 Hz **to** 11.080 kHz

Page 285, Eq. (6.38), last denominator term: change $-(f/f_t)^4$ **to** $+(f/f_t)^4$

Page 295, 2nd line: change −10 dec/dec **to** −1 dec/dec

Page 351, last line: change $(\sqrt{5} - 1)$ **to** $(\sqrt{5} - 2)$

Page 352, right edge of Fig. 8.4 (b): change 45° **to** –45°

Page 358, Fig. 8.9: swap "+" and "−" inside the op amp

Page 362, Solution: change $f_x = 10^7/(\ldots)$ **to** $f_x = 2 \times 10^7/(\ldots)$

Page 363, after Eq. (8.20*a*): change $1/2\pi R_2 C_f$ **to** $(1 + R_1/R_2)/(2\pi R_2 C_f)$

Page 364, Solution (*b*): change $1/2\pi R_2 C_f \cong 140$ kHz **to** $(1 + R_1/R_2)/(2\pi R_2 C_f) \cong 210$ kHz**; in the denominator of** $A(jf)$**, change** 140 **to** 210

Page 385, line after Eq. (8.36): change Problem 8.46 **to** Problem 8.48**; Example 8.16, second line: change** 99 k **to** 99 kΩ

Page 386, 4th line: change $a_0 = a_{01}(\ldots)$ **to** $a_0 = a_{10}(\ldots)$

Page 451, expression after Eq. (10.2): change $\exp[(t - t_0)$ **to** $\exp[-(t - t_0)$. **Ditto in the text 5 lines further down**

Page 488, 4th line: change 273.2 K **to** 298.2 K

Page 522, Solution, 3rd line: change $V_{BE3(on)}/(R_3 + R_4)$ **to** $V_{BE3(on)}/R_4$**; 4th line: change** 160 Ω **to** 210 Ω**, and** 540 Ω **to** 700 Ω

Page 541, 3rd line before Eq. (11.46): change "to $t_{OFF}/2$**" to "**to $t_{ON} + t_{OFF}/2$**"; Eq. (11.48): change numerator from** $I_O(1 - V_I/V_O)$ **to** $I_O/(1 - V_I/V_O)$
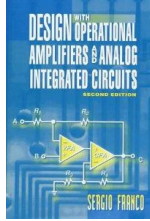
Design with Operational Amplifiers and Analog Integrated Circuits – 2nd Edition

Sergio Franco - WCB/McGraw-Hill, 1998. **ISBN 0-07-021857-9**

First-Printing Errata (Updated September 15, 1999)

Page 16, 8th and 6th line from bottom: change -4 V **to** -6 V

Page 30, Fig. 1.26*b*: interchange + and − inside op amp

Page 60, Eq. (2.2): change R_2 **to** R

Page 64, change Eq. (2.7) as: $A = (1/R) \times (a - R/r_d) / (1 + a + r_o/R + r_o/r_d)$

Page 66, Fig. 2.8*a*: change 3 kΩ **to** 4.42 kΩ

Page 89, Eq. (2.42*a*): change R_2 **to** R

Page 98, Prob. 2.8, 3d line: change anode **to** cathode

Page 100, 1st line: change 2.11 **to** 2.12

Page 101, Fig. P2.34: interchange v_1 **and** v_2**; interchange + and − inside** OA_1 **and** OA_3**;**
    change the label of the 30-kΩ **resistance from** R_2 **to** R_3

Page 106, bottom line, should read: $\text{Arg}(H) = t_0\omega$, where t_0 is a …

Page 120, numerator of Eq. (3.29*a*): drop 1 + ; **denominator of Eq. (3.29*b*): drop** 2π

Page 122, 4th line after Tape Preamplifier: change R **to** R_1

Page 129, put the denominator of Eq. (3.46*b*) under a radical

Page 137, 2nd line of the Solution: change 70.71 **to** 11.25; **3rd line: change** 69.8 **to** 11.3

Page 140, denominator of Q **in Eq. (3.69): replace** K **with** $2K$

Page 141, 2nd line of Solution: replace K **with** $2K$**; 3rd line: replace** 2.92 kΩ **with** 9.53 kΩ

Page 143, line before Eq. (3.74): change $H_{0BP}H_{BP}$ **to** $H_{0LP}H_{LP}$

Page 152, Eq. (3.95*b*): replace ½ **with** 2

Page 154, Fig. P3.3: change R_2 **to** C_2**, and** C_2 **to** R_2**; Prob. 3.4, 2nd line: change** upper-
    left **to** upper-right

Page 156, Prob. 3.20, 2nd line: change H_{0LP} **to** H_{0HP} **and** H_{LP} **to** H_{HP}**; 3rd line: change** R_1 **to** R_2
and R_2 **to** R_1

Page 157, Prob. 3.24, 2nd line: interchange R_1 **and** R_2**; Prob. 3.27: change** $f_0 = 1/\sqrt{2}\ RC$ **to**
    $\omega_0 = \sqrt{2}\ /RC$

Page 180, 2nd line: change R_2 **to** R_3

Page 206, Prob. 4.3: change seventh-order **to** seventh-order, 0.5-dB

Page 249, Prob. 5.19, 3rd line: change 1 MHz **to** 10 kHz

Prob. 5.20, 4th line: change $2\text{CMRR}_{OA(min)}$ **to** $(1/2)\text{CMRR}_{OA(min)}$

Page 250, Prob. 5.27: change data as follows: (*a*) $v_2 = -0.75$ V, (*b*) $v_2 = 0.30$ V, (*c*) $v_2 =$
    -1.70 V, (*d*) $v_2 = -0.25$ V

Page 276, Eq. (6.23): change f_t **to** f_a **and** f_a **to** f_t

Page 277, Solution: insert − **in** $A_0 = -(1 + R_2/R_1)R = -1$ V/μA, **and in** $A(jf) = -10^6$ V/A**...**

Page 288, Eq. (6.38): in the last numerator change $(jf/f_t)^3$ **to** $j(f/f_t)^3$

Page 289, Fig. 6.27b: change rightmost R **to** R_1

Page 306, Prob. 6.2, 2nd line: change −68° **to** −58°

Page 310, Fig. P6.39: change uppermost resistance from R_1 to R_2; Fig. P6.40: change uppermost resistance from R_2 to R_1

Page 336, 3rd line: change $E_{noe}^2/3$ to $E_{noe}^2/3^2$

Page 345, Prob. 7.2, 2d line: change NEB_{HP} to $Q^2\text{NEB}_{\text{BP}}$

Page 347, Prob. 7.19, 4th line: change $4kT(R_G//R_3)$ to $4kT(R_G//2R_3)$; Prob. 7.20, 2nd line: change 7.17 to 7.19 ; Prob. 7.24, 2nd line: change $1/\sqrt{2}$ to ½

Page 348, Fig. P7.34: change $R_1, R_2, \ldots R_n$ to R

Page 362, 1st line: change $jf[2\pi$ to $jf/[2\pi$; Figs. 8.10b and 8.13b: change $|1 \neq \beta|$ to $|1/\beta|$

Page 377, line above Eq. (8.29): replace r_o with $r_o = 0$

Page 393, Prob. 8.2, 3rd line: change T_0 o T; Prob. 8.3, 5th line: change parts (a) and (b) to parts (b) and (c)

Page 394, Prob. 8.12, 1st line: change Fig. 8.8a to Example 8.2; Prob. 8.15, 1st line: change R_2/R_2 to R_2/R_1

Page 395, Prob. 8.27, 3rd line: change -10 V/V to -100 V/V

Page 397, Prob. 8.44, 1st line: change $-R_2H_{\text{LP}}$ to R_2H_{LP}; 2nd and 3rd lines: change as follows:
$$f_0 = \sqrt{z_0 f_a / 2\pi r_n R_2 C_n} \text{ and } Q = z_0 f_a /(r_n + R_2)f_0$$

Page 398, Prob. 8.51, 4th line: change as follows:
$$1/(1 + 1/T) = (1 + jf/\beta_2 f_{t2})/(1 + jf/\beta f_{t1} - f^2/\beta f_{t1}\beta_2 f_{t2})$$

Page 422, Eq. (9.14): in the last numerator change V_{TH} to V_{TL}

Page 458, Fig. 10.5: change R_2 from 21.0 kΩ to 2.1 kΩ

Page 480, Fig. 10.24a: make $C = 2.2$ nF and $R = 90.9$ kΩ

Page 497, Fig. P10.3: interchange + and − inside OA_2; Prob. 10.4, 2nd line: change 10 V to 5 V

Page 498, Prob. 10.12, 1st line: change Fig. 10.11a to Fig. 10.12a

Page 500, Prob. 10.28, 4th line: change Eq. (10.24) to Eq. (10.21)

Page 545 & 547, Eqs. (11.45) & (11.48): change + to −

Page 610, Prob. 10, 2nd line: change a 10-bit to a dual 10-bit

Page 614, Eq. (13.6) and following line: change I_{OS} to I_B

Page 643, Fig. 13.27b: change 2π to π

Page 648, 6th line of the Solution: change s^{-1} to (rad/s)/V