

ERRATA for MAGNETIC ACTUATORS AND SENSORS

For First Printing, corrections as of 2006 December 6

Page 24, Example 2.6, add y to final answer, giving:

$$\mathbf{E} = -\nabla f_v - \frac{\partial \mathbf{A}}{\partial t} = -2\mathbf{u}_x - (0.2y)(2p60)\cos(2p60t)\mathbf{u}_z$$

Page 27, Problem 2.7, parts 2 and 3 should be labeled parts b and c.

Page 27, Problem 2.9, change ft to ft , conductivity to $3.54E7$.

Page 35, Example 3.2, add brackets to equations:

Left brackets to (E3.2.1) and (E3.2.2) giving $[(12.57E-7)$

Right brackets to (E3.2.5) and (E3.2.6) giving $[(0.01)(0.10)]=$

Page 48, Problem 4.2, change equation to roman bold, giving:

Substitute the first order triangular shape function of (4.8) into $\mathbf{B} = \nabla \times \mathbf{A}$ to show that \mathbf{B} is constant in each such finite element.

Page 49, Problem 4.4, change “steel_1020” to “steel_1008”, which is on the Maxwell material list.

Page 72, Example 6.2, final 2 equations contain a factor of 2 error, and should be:

$$F_{mag} = \frac{\partial W_{co}}{\partial x} \Big|_{I=const} = 0.1I^{1.5} \frac{\partial}{\partial x} x^{-1} = -0.1I^{1.5} x^{-2} \quad (E6.1.3)$$

$$F_{mag} = -0.1(2)^{1.5} / (.05)^2 = -113 \quad \text{newtons} \quad (E6.1.4)$$

Page 80, Problem 6.11, change “steel_1020” to “20”.

Page 94, end of 5th line from bottom should have R_{YO}^2 changed to R_P^2 , which causes the 2nd line from the bottom to become:

$$+(0.016+0.006)/[2.514E-3(\pi 0.02^2)]=12,470+13,500+6,964=32,934$$

Page 101, on the bottom line before the fraction “360/12” add the term “360/8 -”.

Pages 105-6, refs. 7, 8, 9, 13 “Lesquesne” should be “Lequesne”.

Page 186, Problem 11.2, add the word “relative” before “permeability”.

Pages 176-177, Example 11.5, all fluxes must be multiplied by 0.01, giving in order: “-2.93E-5 webers and +2.94E-5 webers” and “-2.59E-5 webers and +3.58E-5 webers”

and the final answer is changed to 3.11 volts.

Page 193, Equation (E12.1.4) needs a / on its rightmost side, giving:

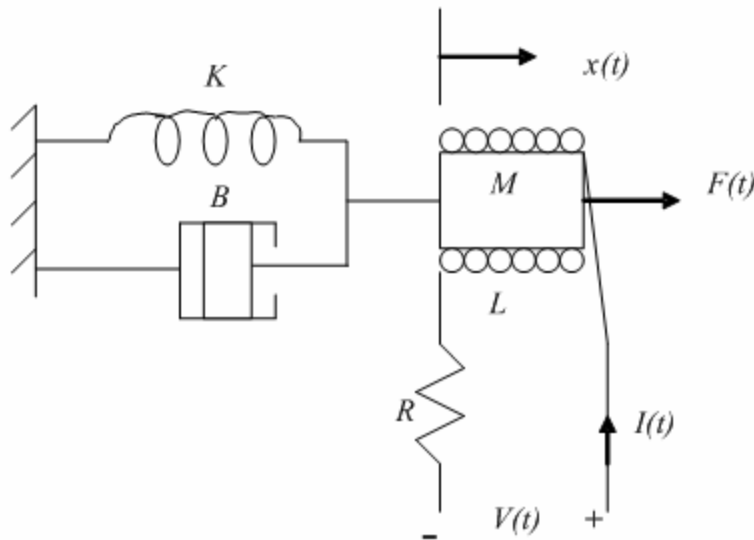
$$N = F_p S_w / S_c = 4 F_p S_w / (p d^2) \quad (\text{E12.1.4})$$

Page 195, Equation (12.17) left hand side should be changed from σ to δ

Page 236, 3rd line of text should have (17) changed to “on page 195”.

Page 251, 2nd line (14.10) should be (14.12); line after (15.3) should have (14.11).

Page 259, Figure E15.4.1, the spring K and dashpot B should be changed from series to parallel as shown here:



Page 261, Equation (E15.4.7) should be:

$$G(s) = \frac{500}{(s+25)(s^2+4s+20)} = \frac{500}{s^3+29s^2+120s+500} \quad (\text{E15.4.7})$$

Page 263, the table number (on the table and its text reference above) should be Table E15.4.1. The equation referenced in the right heading should be (E15.4.2).

Page 272, Fig. 16.1 upper left: draw arrow from left to right for Electrical input power.

Page 273, Table 16.1, in the last (hydraulic) column, Resistance equation should not contain a v , and thus should be simply: $Q = Kp^{1/2}$

THANKS go to the following readers for emailing errors to jbrauer@ieee.org:
Dr. Andrei Chugunov. All other corrections are appreciated.