2.61 Internal Combustion Engines
Spring 2008

Corrections to text (current printing): (JBH 10/29/01)

p. 77 Table 3.2. The enthalpies of formation for C_8H_{18} are for n-octane. For isooctane they are –224.1 and –259.3 MJ/kmol for gas and liquid C_8H_{18}, respectively.

p. 89: Middle of page: x_{CO_2}, x_{CO} and x_{0_2} should be $\tilde{x}_{CO_2}$, $\tilde{x}_{CO}$, and $\tilde{x}_{O_2}$.

p. 122: Figure 4-10 is a repeat of Fig. 4-3 due to an editing error, though Fig. 4-10 is correctly labeled "burned mixture properties." A correct Fig. 4-10 is attached. It is only slightly different: e.g., at 1000 K the burned mixture u_s for $\phi = 1.2$ is 4% lower than the unburned mixture value, and h_s is 1% lower than the unburned mixture value. These differences scale, approximately, with ϕ.

p. 151 Underneath Eq (4.65) insert:

K is given by Eq. (4.63)

p. 152: Line 5. $C_mH_nO_r$ should be $C_nH_mO_r$.

p.188 In Eq. (5.66c), *m* is omitted. It should read:

$$S_{3b} - S_2 = mc_v \ln\left(\frac{T_{3a}}{T_2}\right) + mc_p \ln\left(\frac{T_{3b}}{T_{3a}}\right) = mc_v \ln\alpha + mc_p \ln\beta$$

p. 306: Equation (7.18): The sign at the beginning of the second line of the equation (a minus sign) should be a <u>plus sign.</u>

p. 388: Equation (9.27). The sign in front of the third term in the square bracket should be $-$, not $+$:

i.e., $$\left[\frac{T'}{T_w} + \frac{T}{T_w(\gamma-1)} - \frac{1}{bT_w}\ln\left(\frac{\gamma-1}{\gamma'-1}\right)\right]$$

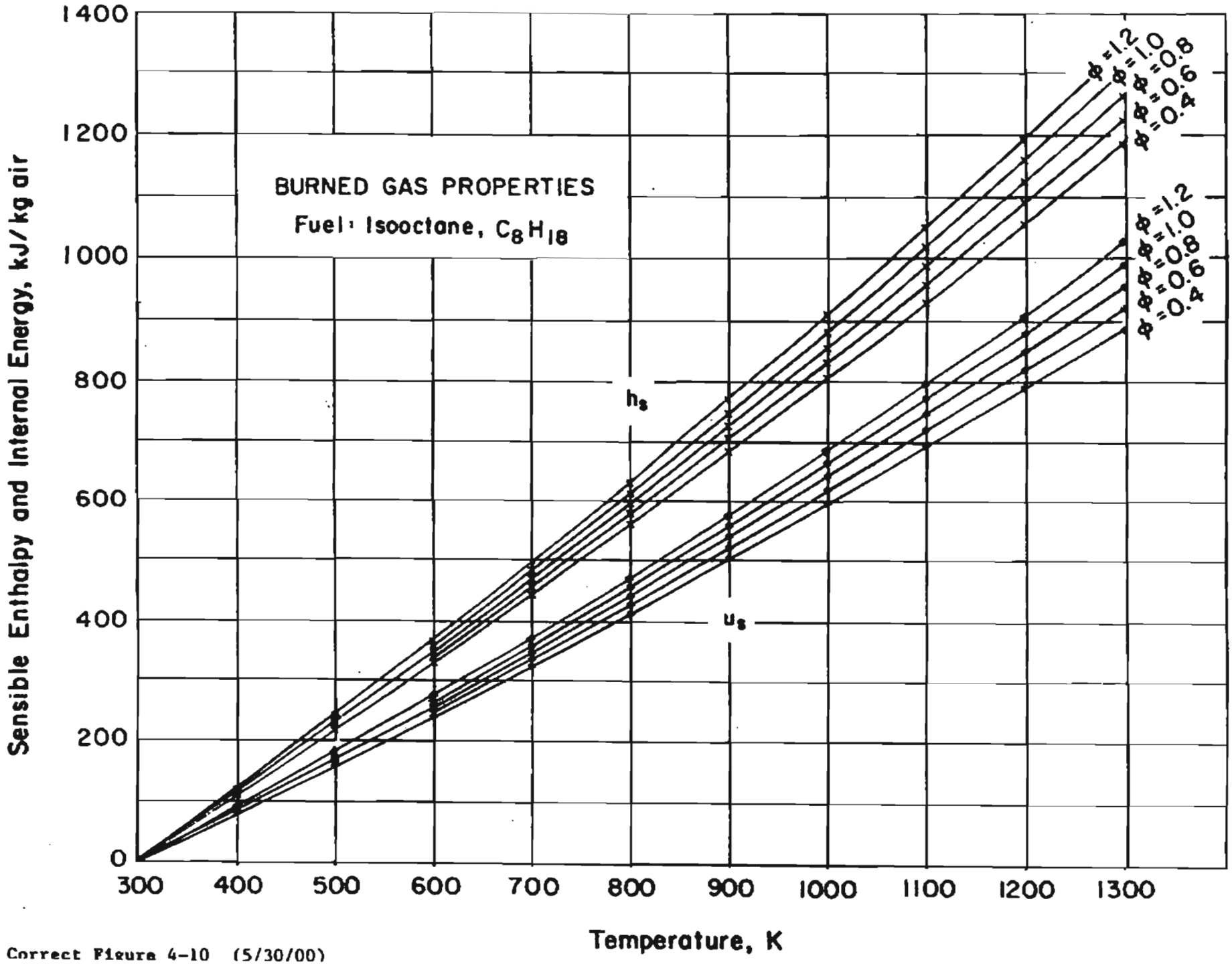
p. 553: Equation (10.37). There should be a + sign between the two round brackets within the square bracket., i.e.,

$$\tau_{id}(CA) = (0.36 + 0.22\bar{S}_p)\exp\left[E_A\left(\frac{1}{\tilde{R}T} - \frac{1}{17{,}190}\right) + \left(\frac{21.2}{p-12.4}\right)^{0.63}\right]$$

p. 620: The reference for Fig. 11-33 should be Yu, R.C., Wong, V.W., and Shahed, S.M., "Sources of Hydrocarbon Emissions from Direct Injection Diesel Engines," SAE paper 800048, SAE Trans., vol. 89, 1980. (This is a new reference; make it reference 87 and add it to p. 667.)

p. 679: In the inserted graph in Figure 12-5, the scale for thermal conductivity k_g is not correct. The values should be multiplied by 5 x 10^5: e.g., the peak value of 10 x 10^{-8} = 10^{-7} W/m.K should be 10^{-7} x (5 x 10^5) = 5 x 10^{-2} W/m.K.

p. 880 In Fig. 15-45, the units for pressure (middle left) should be kPa and not MPa.



Correct Figure 4-10 (5/30/00)