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.

Middle of page: x_{CO_2}, x_{CO} and x_0 should be \tilde{x}_{CO_2}, \tilde{x}_{CO}, and \tilde{x}_0.

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 \phi for \phi = 1.2 is 4% lower than the unburned mixture value, and \dot{h} is 1% lower than the unburned mixture value. These differences scale, approximately, with \phi.

Underneath Eq (4.65) insert:

K is given by Eq. (4.63)

Line 5. C_mH_nO_r should be C_nH_mO_r.

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

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

Equation (7.18): The sign at the beginning of the second line of the equation (a minus sign) should be a plus sign.

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

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

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

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

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.)

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

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

Fuel: Isooctane, C₈H₁₈

Sensible Enthalpy and Internal Energy, kJ/kg air

Temperature, K

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