

Errata Sheet for *Fundamentals of Thermal-Fluid Sciences, Ed. 4* – Çengel, Turner, and Cimbala

Latest update: 09-12-2016

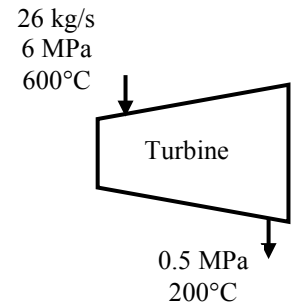
This is a list of errors (and *enhancements*) in the textbook. If you find any additional errors in the book, or have suggestions for improvement, please contact **John M. Cimbala** at **814-863-2739** or **jmc6@psu.edu** to report it. [By way of acknowledgment, the person (other than the authors) who first reports an error is listed in brackets, unless requested otherwise.]

Note: First check the copyright page to see which printing you have. Some of the errors reported here may have already been corrected in more recent printings. We categorize the changes as *major errors*, *minor errors*, or *enhancements*:

- **Major errors** are important and significant (e.g., incorrect equations or numerical values) – *these must be changed*.
- **Minor errors** are spelling or typo errors and other minor changes – *these may be skipped without impacting understanding of the material*.
- **Enhancements** are changes that clarify something and/or help you to understand the material better (e.g., improvements to a figure or wording changes) – *these may be skipped since they are not really errors, but are useful changes that enhance understanding of the material*.

Major Errors

- Pg. 175, Problem 5-45C: Mass should *not* be in the equation since these are specific properties. Change “ $mc_v\Delta T$ ” to “ $c_v\Delta T$ ”. [Alex Wouden]
- Pg. 175, Problem 5-46C: Mass should *not* be in the equation since these are specific properties. Change “ $mc_{v,avg}\Delta T$ ” to “ $c_{v,avg}\Delta T$ ”. [Alex Wouden]
- Pg. 175, Problem 5-47C: Mass should *not* be in the equation since these are specific properties. Change “ $mc_{p,avg}\Delta T$ ” to “ $c_{p,avg}\Delta T$ ”. [Alex Wouden]
- Pg. 222, Fig. P6-53: This is the wrong figure for Problem 6-53. The correct figure should look like the sketch to the right instead to agree with the problem statement. [Chris Hartemink]
- Pg. 452, Eq. 11-12: Insert “ gb ” into the equation between “ ρ ” and “ 2 ”, as shown:
$$F_R = (P_0 + \rho gb / 2)ab$$
. [Alex Wouden]
- Pg. 488, Remove the entire paragraph from the beginning of the page to the start of Section 12-3. (This paragraph was erroneously copied to the wrong location somehow.) [Alex Wouden]
- Pg. 515, Eq. 13-20: In the first term on the left, change “ bV ” to “ dV ” inside the integral. [David Ibrahim]
- Pg. 515, Eq. 13-20: In the second term on the left, change “ CV ” to “ CS ” below the integral. [David Ibrahim]
- Pg. 515, Eq. 13-20, Eq. 13-21, and both equations in Fig. 13-17 (five places total): Delete the degree symbol “ $^{\circ}$ ” everywhere it occurs. [This was some kind of printing error, unfortunately.] [David Ibrahim]
- Pg. 515, Eq. 13-22: Swap the “in” and the “out” on both equations. It should look like this:
$$\frac{d}{dt} \int_{cv} \rho dV = \sum_{in} \dot{m} - \sum_{out} \dot{m} \quad \text{or} \quad \frac{dm_{cv}}{dt} = \sum_{in} \dot{m} - \sum_{out} \dot{m}$$
. [David Ibrahim]
- Pg. 1041, 2nd row of data (at $T = 40^{\circ}\text{F}$), in the column for Dynamic Viscosity, Liquid (10th column from the left): Change “1.308” to “1.038”.



Minor Errors

- Pg. 122, Second item in list just above Example 4-6: Change “tempreatures” to “temperatures”. [Alex Wouden]
- Pg. 123, Second item in list just above Example 4-8: Change “tempreatures” to “temperatures”. [Alex Wouden]
- Pg. 402, Problem 9-13, first item in list: Change “1.2” to “1-2” as in the other two listed items. [Alex Wouden]
- Pg. 737, 2nd line of the caption for Table 18-1: Change “convention” to “convection”. [Alex Wouden]
- Pg. 744, 2nd line of numerator at far right of Eq. 18-17: Change “thikness” to “thickness”. [Alex Wouden]

Enhancements