Corrigenda - "Geometric Dimensioning

and Tolerancing for Mechanical Design – 2E" – by Cogorno

Created by AT 3/22/16

Cover Image

The feature control frame identifying datum C already has datum C inside it. This is not allowed. Datum C should not appear in the FCF as it has not yet been established.

Chapter 3

Page 19, Figure 3-2) Datum feature M points to nothing. The arrow head should be pointing to a hole.

Page 25, paragraph 4 – "The X should be preceded and followed by a space, as shown in figure 3-16." When using an X to mean "number of instances" there should be no space preceding the X.
Example: 4X .250-.260 hole. A space preceding the X has a different meaning (by).
Example: .050 X 45° CHMF.

Chapter 4

Problem 3) The general drawing tolerances are left off. Use .xxx = +/- .015 angles = +/- 1°

Problem 4) The gage dimensions are not included in the answer key. Dimensions have been calculated by AT and are located in the hard copy of the answer key. Do not take these as correct. Please calculate for yourself. See AT if your gage design differs.

Chapter 5

Page 72 – Interpretation of Flatness of a Median Plane

The text reads that any flatness of a median plane has a virtual condition (RFS or MMC). "A feature with a flatness control of a median plane has a virtual condition." In fact, a virtual condition only exists if flatness of a median plane is specified at MMC/LMC.

Page 74 – Interpretation (Straightness) (last sentence of the paragraph)

Should read - "…of each part does not exceed a straightness of **.004**, as shown in Table 5-3."

Page 76 – Interpretation of Straightness of a Median Line

The text reads that any straightness of a median line has a virtual condition (RFS or MMC). "Consequently, a cylinder with a straightness control of a median line has a virtual condition." In fact, a virtual condition only exists if straightness of a median line is specified at MMC/LMC.

Page 77 – Specifying Circularity Tolerance

The text reads that circularity FCF should be attached to the surface of the feature with a leader. While this is an acceptable way to "tag" circularity you can also associate the circularity (or cylindricity) FCF with a size dimension for cylindrical geometry (see ASME Y14.5-2009 figures 5-13 & 5-14 on page 97). It can be assumed that it is also acceptable to associate a circularity FCF with a spherical size dimension as an extension of this principle.

Chapter 6

Page 94, figure 6-8) the 4.000 dimension should be basic.

Page 96, figure 6-10) The 30° angle dimension should be basic.

Page 97, Figure 6-12), The 60° angle dimension should be basic. The 3.000 dimension should be basic. The 2.000 dimension should be basic. **Additionally, the 3.000 basic dimension is measured from Datum A. Per the text description of this figure, the hole should be located from datum C with a basic dimension.**

Chapter 7

Figure 7-2, 7-3, 7-4, 7-5 & 7-6) The leader pointing to the feature control frame could say "location & orientation tolerance" or "position tolerance". Position is one of the location controls, along with concentricity and symmetry. Position controls orientation and location. Simply calling it location control might confuse the beginning student that orientation is not also being controlled, when, in fact, it is.

Page 106 The Tolerance of Position – All references to actual mating envelope in this section should read **UNRELATED ACTUAL MATING ENVELOPE** or actual mating envelope **SIZE**.

Page 108 Inspection – second sentence should read "Suppose that the **UNRELATED** actual mating envelope of the hole is determined to be 2.012….".

Page 108 Inspection – fifth sentence should read "Next, the largest pin gage that will fit inside the hole is used to simulate the **RELATED** actual mating envelope. The **RELATED** actual mating envelope for ~~an~~ **THIS** internal feature of size is the largest, similar, perfect feature counterpart that can be inscribed within the feature so that it just contacts the surface of the hole at the highest points, **WHILE BEING PERPENDICULAR TO DATUM A AND LOCATED AT TRUE POSITION**."

Page 110 should read – "**UNRELATED** actual mating envelope – MMC = bonus"

Or "actual mating envelope **SIZE** – MMC = bonus"

Page 110 last sentence should read – "Bonus tolerance…..between the **UNRELATED** actual mating envelope and the MMC." Or "Bonus tolerance….between the actual mating envelope **SIZE** and the MMC."

Table 7-2 – the first column should read "**UNRELATED** actual mating envelope" or "actual mating envelope **SIZE**".

End of Chapter Problems, Figure 7-22) Both the pin and the hole geometric tolerance should read dia. .004 @ MMC instead of dia. .000 @ MMC.

End of Chapter Problems, Figure 7-24) The general tolerances are left off. Use .xx = +/- .01 angles = +/- 1°

Chapter 8

Page 146 & 147, text referring to Fig. 8-18) The text describes the FRITZ tolerance zone as diameter .006 inches. It should read diameter .005 inches.

Page 151, Figure 8-24) – the arrow head for the 4X .395-.410 holes should point to the smaller of the two coaxial circles.

Problem 6) The .000 positional tolerance is for the clearance hole. The 60% location tolerance is for the threaded hole. The text is not totally clear on this.

Problem 13) Acceptable answer is also clearance holes 4X dia. .420 - .450 positional tolerance of dia. .000 at MMC with corresponding thread holes 4X 3/8-16 positional tolerance of dia. .045 @ MMC with projected tolerance zone of 2.53 inches.

Chapter 11

The text reads that runout FCF should be attached to the surface of the feature with a leader. While this is an acceptable way to "tag" runout you can also associate the runout FCF with a size dimension for cylindrical geometry (see ASME Y14.5-2009 figure 9-7 on page 184).

Chapter 14

Problem 2) The pin that will go through the center hole has a virtual condition of .500 inches in diameter.