Solutions

2.1

- A table with one row per part type: shaft 1, bearing 2, gear 1, key 1, circlip 2, M8 bolt 4.
- Total $1 + 2 + 1 + 1 + 2 + 4 = \mathbf{11}$ parts.

2.2

- Bearing seats **40** mm; shoulder **47** mm; gear bore **40** mm (it follows the seat).

2.3

- The seat grows to 40 mm but the gear bore stays at 30 mm, so the model no longer fits together.
- Nothing warns the designer; it is found at assembly or inspection, the most expensive point.

3.1

- Reason: supplier tooling, face 30 $\rightarrow$ 34 mm.
- Parts: gear, key (longer engagement), spacer or shaft step length.
- Checks: gear bending stress (it falls with the wider face) and the shaft span and bearing reactions, which change if the gear moves.
- New revision letter on every affected drawing, with the old ones withdrawn.

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