OpsPilot

Drawing Reader — User Manual

Read Drawings, Build a Bill of Characteristics · AI Engineering Co-Pilot

What this guide covers — what the Drawing Reader does, the outputs it produces, what to have ready, and how it protects you from misreading a drawing.

1. What is the Drawing Reader?

The Drawing Reader reads an engineering drawing comprehensively — title block, every view, every dimension, every GD&T feature control frame, materials, welding, surface finish, the BOM, revisions and notes — and turns it into a structured Bill of Characteristics with balloon numbers and inspection methods. It then routes to what you need: a handover package, an engineering change request, or both. Its discipline is that it reads what the drawing actually shows and refuses to guess — it fills in no defaults and flags every ambiguity for the designer to close out.

It applies *ISO 128/129/1101/5459/8015/2768, ASME Y14.5-2018, AS 1100, AS9102 (First Article Inspection), PPAP and ISO 10007 (configuration management)*.

2. What the OpsPilot module does

Role	Responsibility
🎯 **AI Drawing Reader & Change Coach (OpsPilot)**	Reads the drawing comprehensively, builds a balloon-numbered Bill of Characteristics with inspection methods, and routes on intent (Handover / ECR / Combined) — reading what the drawing shows, never guessing, flagging every ambiguity.
👷 **Engineer / Designer (you)**	Provide the drawing, verify the analysis, classify the Key and Safety-Critical characteristics, choose the path, and supply change details if applicable. The drawing is the authority; you confirm it was read correctly.

3. What you will be asked — have this ready

- The drawing (attach it).
- Your intent — handover/inspection package, an engineering change, or both.
- Which characteristics are Key or Safety-Critical.
- For a change, the change details and driver.

4. What you receive — the output

A structured output (Word): a balloon-numbered Bill of Characteristics covering every dimension, tolerance and GD&T callout with an inspection method for each, the materials/welding/finish/BOM detail, the revision status, and a list of flagged ambiguities for the designer — plus an ECR structure if a change is in scope.

5. Worked example (illustrative)

A machined component drawing goes in for a First Article Inspection package. The Drawing Reader balloons every characteristic — each dimension, each tolerance, each GD&T feature control frame — and assigns an inspection method (caliper, CMM, gauge) to each, producing the Bill of Characteristics an inspector works straight from. Crucially, where the drawing is ambiguous — a dimension with no tolerance and no general-tolerance note, or a datum referenced but not defined — it flags it rather than assuming the default, because assuming a default is how a part gets accepted that the designer never actually specified. The designer closes the ambiguities, and the FAI package is then complete and defensible.

6. Getting the best result

- **Let it read, don't pre-summarise.** The value is a complete, balloon-numbered reading — give it the full drawing.
- **Classify Key / Safety-Critical.** That's the designer's call and it drives the inspection rigour.
- **Close the flagged ambiguities.** An un-toleranced dimension is a defect waiting to be argued — resolve it.
- **Use it for the FAI/PPAP package.** The Bill of Characteristics is exactly what first-article inspection needs.