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FIT, FORM, FUNCTION (FFF) Review

Aim: To expose latent errors within the product design and specification documentation which, if undetected, could result in unwanted cost and schedule overruns. This activity would ensure that the product launches on time, on budget, enhances company reputation and secures future business.

Objectives

- Clarify and restate the business requirements, usually:
 - cost target;
 - product launch date target;
 - product performance targets e.g. USPs.
- Review any existing FMEA to confirm potential ways in which the above business requirements could fail to be achieved;
- Create an exploded view and detail the build sequence of the final product;
- Create a matrix that identifies the critical FFFs to be analysed;
- For each component in the product assembly:
 1. Confirm production process, material selection and commercial tolerance ranges;
 2. Identify unintended interferences and eliminate them (clash detection);
 3. Conduct tolerance analysis for intended interferences, touches, clearances and cosmetic matches e.g. 'gap and flush';
 4. Specify datums and functional dimensions on 2D drawings for components and sub-assemblies;
 5. Design gauging, fixtures and test equipment for verification of incoming components if needed.

Pre-requisites

- 3D CAD ready for tooling/manufacture pre-release (ready for RFQ release);
- Materials selected;
- Production methods selected;
- Marketing requirements available;
- Product delivery plan available (Project Plan);
- Budget costings available;
- Factory hand-time estimates available (assembly time estimates).