

Re: Future: 0603 versus 0402 parts

Both your process and your fucktard mentality!

What's wrong with 100% yield? Can you do better?

We build and ship stuff. We send invoices. People send us checks, and occasionally plaques and letters of appreciation [1]. The system works. It's the end of the fiscal year, bonus time! I share the profits with the people who "broke" our processes.

John

[1] and some really cool Dragon Lady posters and patches from the Skunk Works.

In 1988–90 I was fortunate to be a part of a 5–man team the developed the Ford car radio for model years 1992–1996, for sale in North America. Ford was fanatical about process control, and also about training it's designers. I'm not a big fan of training courses, but it wasn't presented to me as an option.

Myself and my colleagues trained with Dr. Genichi Taguchi and Dr. Jake Fremenko. They both defined a process as follows:

"A process is a *repeatable* and *quantifiable* construct of procedures, formulae and tactics that result in a reliable finished assembly".

Ford built 114,000 radios per week in Brazil. Only 4/1000 field complaints (these included things like "my cassette got stuck"). The process managers at the plant in Brazil would recommend a shut down for diagnosis if there were more than 3 final–test failures per week.

From your description, it sounds like your process meets the criteria.

Frank

In addition to engineer–created documentation (drawings, procedures, eco's) my mfg people keep a parallel database of manufacturing notes for things they build. We also allow them to restructure BOMs for best fit to their processes and procedures. For example, they can redefine what's on various levels of subassembly, or can create a BOM and dash number for a partial assembly to be sent out to an assembly house, then stocked and, when orders come in, finished in–house into one of several official dash–numbered versions. We buy them all the toys they want.

I don't think we'd do very well on a ISO9000 audit, because a lot of

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what they do is undocumented practices and plain skill.

As long as the result conforms to our drawings and tests OK, we don't tell them how to make it. We do meet with them before designs are solid, to get their input on packaging, cabling, manufacturability and such. They have come up with some very good stuff.

I worked for more than one company where engineering and manufacturing were camps at war. In one case, engineering made drawings that were as prim and complex as possible, an unreadable mess of flag notes, find numbers, sections, and dash-number exceptions, so that they could call manufacturing stupid. Manufacturing, if they spotted an error on a drawing, would build as many as possible, as fast as possible, just like that.

John

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