Bait And Switch: A Product Disaster Story

3 tips for communicating the right product information to your suppliers every time.

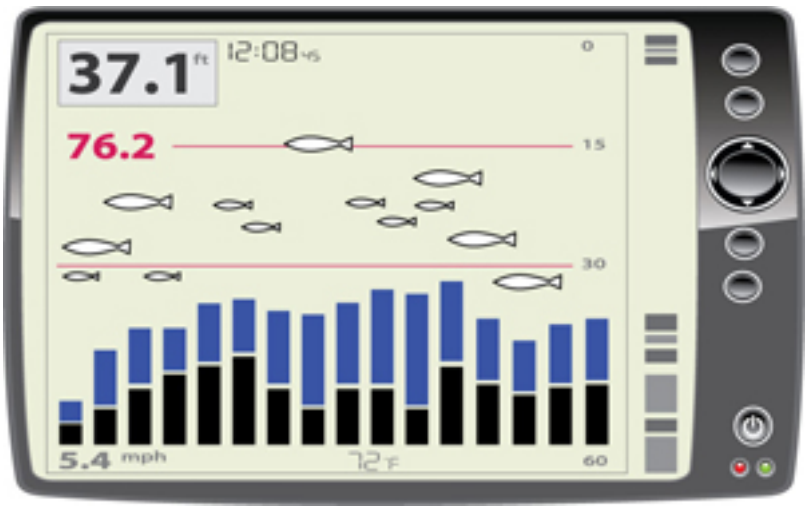
Tucked between the hills in a dense patch of pines halfway between Boise and Idaho City is the home office of Fogg Island Tackle. The brainchild of a cadre of entrepreneurial fishing enthusiasts who met as engineering undergrads at Stanford, FIT is a hip, young company frequently profiled in the trade press for its cutting-edge design and manufacturing processes and for pushing the technological envelope of recreational fishing. “Nothing else is FIT for fishing,” the corporate slogan, pretty much sums up the company's reputation for confidence in itself, as well as its uncanny knack for hitting the market with products that exceed users expectations.

The key to the design and manufacturing process at FIT was tight control over everything. They used Excel spreadsheets to maintain their bill of materials (BOM), they stored them in a centralized location, and only a couple of people had full authority to make changes to them. Documents were linked to the BOMs, indexed, and stored in a manner that made them readily available to anyone at the company when needed, yet protected from unauthorized changes.

More importantly, they had a standardized methodology for communicating amongst themselves and with their partners. Engineering change orders (ECOs) had to be double-signed before they could be appended to BOMs, then the ECO was routed to all parties through e-mail. And when the final revision was released, it was standard operating procedure for FIT to personally visit with their contract manufacturer (CM) and go over a printout of the BOM, line by line, and the drawings in detail so that everyone was on the same page and no questions would be unanswered or potential areas of confusion left unresolved.

This highly manual, heavily paper-based, and painstaking one-on-one process had served FIT well, at least it did until the *Fin-Angler Magazine* review of FIT's new, highly acclaimed boat-mounted King Ranos Depth Finder was published.

A Quick Rise and a Quicker Fall



The Fogg Island Tackle King Ranos

FIT could barely keep up with demand for the King Ranos even before the summer busy season. At $499, King Ranos had all the features of much more expensive devices: depth measurements down to 600 feet, image zoom and pan, fish silhouette identification software, water temperature sensor, and even a GPS with password-protected solid-state memory for coordinate recall of your secret fishing hole. But it was the screen that had everyone talking, and Celeste “CC” Celente was the design engineering genius behind the screen.

Celente wanted the screen to be as sharp and brilliant as any laptop out there. And she did it at a price that kept the unit affordable. The King Ranos had an 8.9-inch, full-color, 1024x600-pixel LCD screen. Working closely with the FIT programming team, they found a way to incorporate leading-edge anti-aliasing algorithms into the King Ranos to minimize sonar image smearing and dropouts whenever a boat planed, bobbed, or trolled along the surface. Nothing like it was on the market. The first reviews in magazines and blogs positively glowed. FIT had another hit — perhaps a mega-hit — on their hands.

Then, summer was in sight. Marketing began promoting the King Ranos heavily: “Dads & Grads Will Love the FIT You Give Them.” The campaign worked so well that manufacturing brought a second CM online to keep up with demand. It was about then that things started to go wrong.

First a trickle of units were returned, all of them because the LCD didn't work correctly. Then it was a flood of units returned, all with complaints about the LCD. The final straw was when a major magazine's review panned the King Ranos.

“Did you see this?” Adam Ridley, the CEO, yelled while waving a copy of *Fin-Angler* at Frederick Hong, the VP Operations. “Read the last paragraph. Out loud.”

Frederick began:

“Thinking that the first unit was a lemon, I asked for and received a second King Ranos. It, too, was worthless in all natural lighting settings. You can't see a blessed

thing. So, I recommend the King Ranos only if you fish exclusively at night. Then it works. Maybe it's good if you fish in your bathtub. I didn't bother to test that. Do yourself a favor. Spend your $499 on a real depth finder. King Ranos isn't one. It has bells. It has whistles. And it's junk. This King has no clothes."

"Got any brilliant ideas?" asked Ridley.

A Polarized Meeting

Everything — the BOM, disassembled units, complete units, random parts — was spread out across the conference room table as Frederick, a few manufacturing engineers, and Neil, the quality manager, sat down to try and sort out why King Ranos was suddenly failing.

"Old Fizzywig" — Frederick meant the CEO — "is about to fire the bunch of us. We got to figure out what's going on here."

"I've identified all the LCD failures as units coming out of Ackerly," said Neil. Ackerly was the contract manufacturer (CM) that they ramped after they maxed out the capacity at their primary CM in nearby Nampa.

"That figures," said Frederick. "Our margins are a lot better with them. Their price is $10 less per unit. It has to be that they cheaped out something on us. Is it the circuitry?"

"That's what I don't get," said one of the manufacturing engineers, grabbing a unit and idly switching it on. "A couple of us have gone over the BOMs from both CMs and compared everything — all lines are the same. They match perfectly. I don't get why the units from Nampa have no problems and the ones from Ackerly supposedly don't work. They look like they work just fine. See for yourself. This is an Ackerly unit. Does that look like the dead of night to you?" He said showing everyone what appeared to be a perfectly functioning screen.

Just then Celente walked in from lunch, characteristically late and wearing flip-flops and sunglasses. "So, that's one of the busted units. Yeah, look at that. Dark as night," she said.

Everyone in the room just looked at her. Neil broke the silence. "Take your sunglasses off."

"Oh, dear," said Celente, flipping her sunglasses on and off. "It's not polarized correctly. The glass is supposed to be polarized at a 45 degree angle. This is 90 degrees like the LCD on a car radio and most sunglasses. That's what's happening. They cancel each other out and the fishermen can't read the screen."

"But why is that? Why doesn't this LCD have the right polarization? And how come the guys in Nampa got the right LCD and Ackerly didn't?" asked Frederick.

Therein lies the tale.

Angling Off in the Wrong Direction

Once user testing of the King Ranos Depth Finder was complete and the final BOMs were released, Celente visited FIT's lead CM in Nampa to sit down and go over the BOM line by line. Not only was the CM just 50 miles away, but the two companies had a long, friendly, and prosperous relationship — Celente was one a first-name basis with Jim Leonard, the owner, and Peter Altobelli, his purchasing manager — so everything was relaxed and casual.

During the course of the BOM review, Celente noticed that the BOM was unintentionally ambiguous when specifying the LCD. This sort of thing happened now and then because Celente found it easier to use her own shorthand when working with Excel during her product development. Sometimes she missed a couple of these shorthand entries when she cleaned up her BOM later on.

So, Celente explained that what she wanted for the King Ranos when the BOM said “polarized LCD” was the unit with the glass polarized at a 45-degree angle, not the less-expensive standard model of the same device polarized at 90 degrees. Peter annotated his printout of the BOM with this information so that he'd remember it. Celente made a mental note to herself to attach this clarification to the master BOM when she got back to the office. Nothing else out of the ordinary cropped up during the next two hours of the review, so the rest of the meeting went smoothly with frequent breaks for updates on kids and plans for the weekend.

A few months later, Celente was busy designing the King Ranos II, when manufacturing ramped up Ackerly, the second CM. They forwarded Ackerly the same BOM released to the lead CM in Nampa, since there had been no modifications to the product. Or so they thought...

When the problems with the LCDs were first linked to Ackerly, Frederick reasoned that the problem had to be with the BOM even though the records indicated that both CMs had the same one. The only differences between the two CMs were that Celente had met with Nampa to go over the BOM, and manufacturing had e-mailed the BOM to Ackerly without meeting them. So, Frederick issued a work stop order and asked both CMs for a copy of the BOM they were using. But cross-checking proved inconclusive, which led to the meeting in the conference room that Celente walked in on late and inadvertently exposed the polarization problem.

Still, even after determining what was wrong with the one set of LCDs, all the FIT team really knew was that Ackerly was somehow using the wrong LCD for King Ranos and that the lead CM in Nampa was not. So, Frederick and Celente sat down with printouts of the BOMs and the approved manufacturers list (AML) from both CMs to compare the LCDs components. Almost immediately they saw the difference — one number. Peter in Nampa had selected the model number of the LCD with the correct specifications while Ackerly had selected the standard, 90 degree polarized model.

It was then that Celente remembered the fuzzy wording she uncovered in the Excel

spreadsheet during the BOM review meeting in Nampa. She also remembered her forgotten vow to clarify the specifications when she returned to the office. Because the clarification of the words “polarized LCD” had never made its way back to the master records, FIT handed the second CM the opportunity to misinterpret the LCDs specifications. Consequently, the two CMs were able to use the same BOM to build the King Ranos with slightly different versions of the same part simply because FIT failed to make its intentions perfectly clear.

Remember Not to Try and Remember

Memory is a tricky thing. You think that you would remember such a simple yet crucial correction as making sure that you fix a vague specification for a key part. But a lot can cross your mind in a casual meeting with friendly associates and even more can occupy your mind on a long drive home on a sunny Friday afternoon. Here are three tips to keep your communications flowing freely but without relying on memory to ensure all the parts listed in your BOM are specified as clear as glass, so that no one can misunderstand what you want.

3 Tips to Make Your Communication Better Right Now

#1: Eliminate ambiguous documentation. Define unique numbering, naming, and documentation conventions and stick to them. Acronyms, abbreviations, and short forms are the enemy. Don’t let spreadsheet cell size and formatting limit your documentation, item names or descriptions.

#2: Establish an Approved Manufacturers List (AML). Clearly define the parts and part numbers in your BOM and link each one to the corresponding part in the AML. Your linked BOM and AML ensures that no one can mistake which parts were approved, and you’ll never get the wrong part from the wrong — or right — vendor.

#3: Keep your suppliers in the loop. Share the linked AML and BOM directly with your contract manufacturers and keep them up-to-date with the latest information they need to see.

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