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February, 2013 

## The FIX: Start To Finish

August 2, 2011 - [Rob de Luca](#)

Earbud technology as you know it has changed. The FIX earbud and in-ear bring premium sound, noise isolation, and secure fit to the masses in an affordable, multi-functional and action-sport-friendly form. To get the story on how this feat was achieved, we went straight to Pete Kelly, Director of Industrial Design for Skullcandy.



**Skullcandy: Tell us about your background so we know what we're dealing with here.**

PK: I grew up riding motorcycles and skateboarding, and working in a body shop that made custom cars and bikes. And then I worked in a tattoo parlor.

**SK: Any tattoos?**

PK: Nope, not a single tat. I've given a few though.

**SK: What came next?**

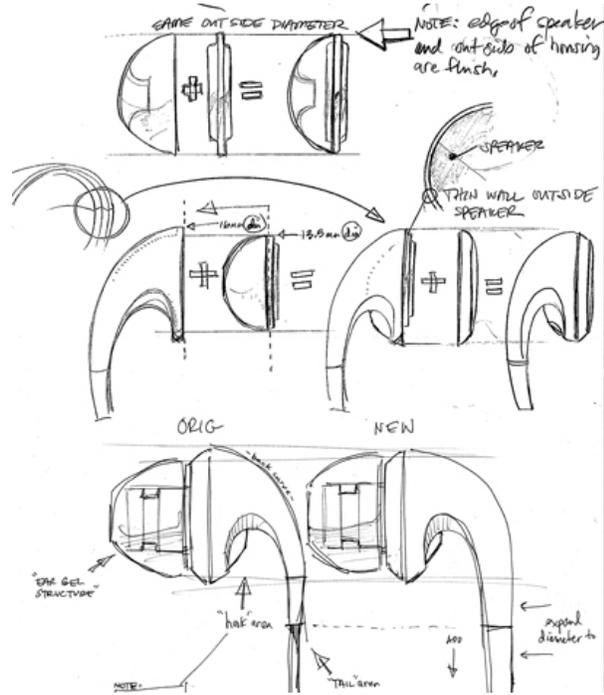
PK: Well I've always been drawing, ever since I was young. I started out airbrushing, but I didn't want to be a graphic designer. I like working with my hands, so I decided on industrial design. I was a professional model maker, and then I started designing watches. Now I design headphones.

**SK: Good enough. So, when did the FIX project go from someone's fantasy to your reality?**

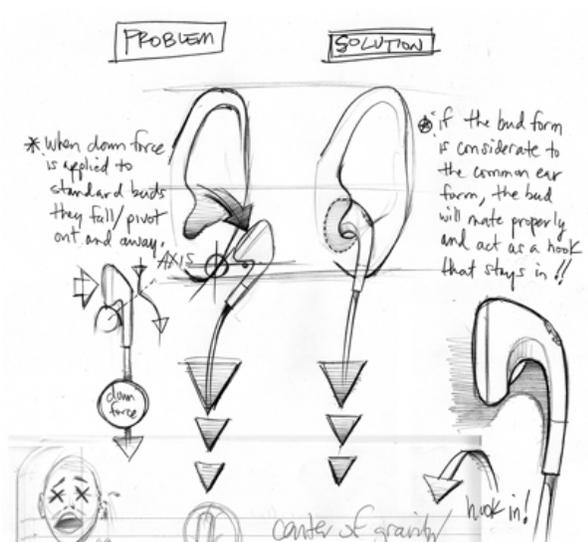
PK: It started in 2009, believe it or not. We had a solid OEM in-ear offering and we had the CHOPS, but we wanted to design a true "bud" in-house. Earbuds are the best way to listen to music while retaining peripheral awareness, basically to let you hear what's going on around you; with our roots in action sports, that's a huge factor.

**SK: Take us through the initial design process.**

PK: It starts with establishing a design language. I was looking for inspiration in custom cars, motorcycles, intakes, exhausts, carburetors, things that I knew from growing up. I'm a huge fan of things that incorporate function and style, so I said, "Let's find a way to make a ported speaker housing where the porting is part of the style, with construction nobody has ever used. Something where, if the Skullcandy branding isn't even present, it will still be recognizable as a Skullcandy product."



So we tried every bud on the market to see what they're all about, and that's when the focus started to shift.



Standard buds fall out, plain and simple. We're an active company, and the consistent complaint we heard was that people had to stop and fix their earbuds in the middle of a run or a skate session. So the question was, could we design an earbud that stays in your ear? So we looked at all of the sketches and said, that one looks like it would hook into your ear the best. Let's start from here and work on a solution. That's when it became the FIX.

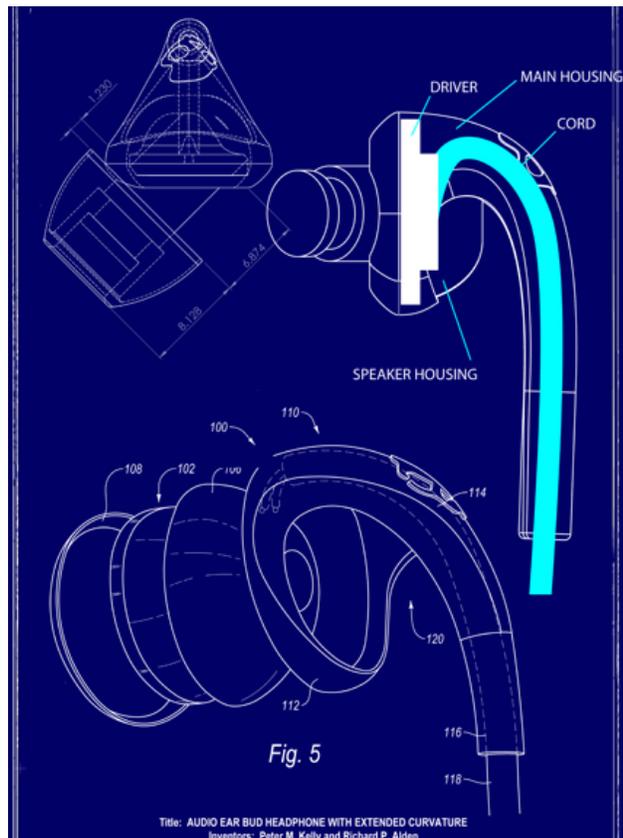
**SK: How did you go from a sketch to the real thing?**

PK: Well, first I had to figure out the ergonomics. I would mock something up, prototype it, and then put it in pretty much every ear in the office. This was right when we got our rapid prototyping machine, and it made a huge difference. From changing the design to having a printed, 3D prototype in hand, it takes about 30 minutes. That meant we were able to try dozens of different versions and make tiny adjustments without waiting weeks for a sample. And we're talking fractions of a millimeter here, in every direction possible. I had military schematics of the average human head all over my desk and the walls, but the best way to study the ear is with actual ears. If you were walking down the hall I would just grab you and look at your ears. By a couple of months into the prototyping stage, I knew everyone's ears.

**SK: What were some issues you came across during the design process?**

PK: One of the major factors was, we were putting real cables into these prototypes, and halfway through we realized the cable has to exit a certain way for this to work. When you pull on the cord of an average bud, it wants to pivot out. That's because the cable is attached internally to the back of the driver, perpendicular to your head, which means the cord routing has to come off the middle of the speaker bowl. You tug on the cord, and the leverage pushes the driver up and out of the ear. So we designed the cable of the FIX to route up from the top edge of the driver, then curve down through the chassis, putting the pivot point closer and allowing us to cut away the center of the bud and create the hook shape. When you apply downforce, the FIX's

speaker housing lowers into your ear. That's the hook in action.

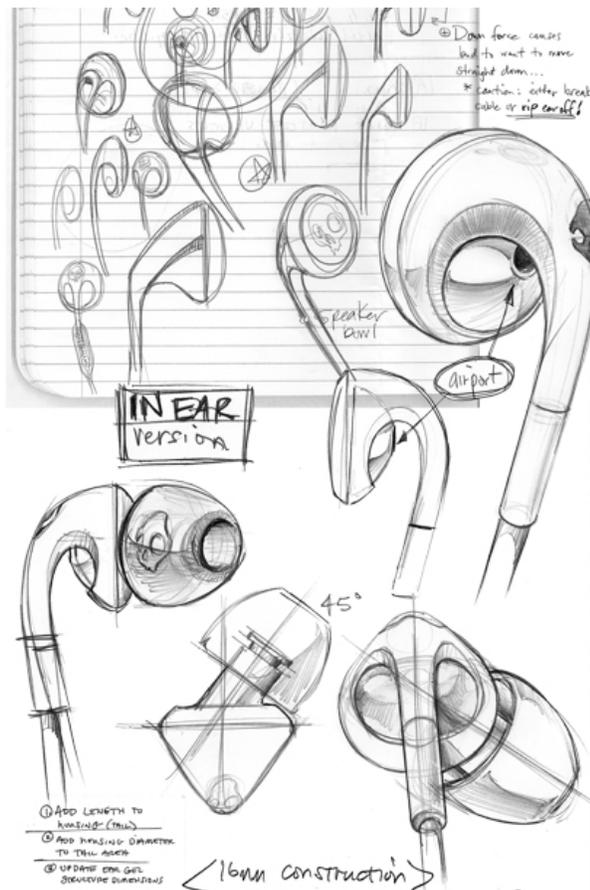


**SK: So you have the shape, what about the sound?**

PK: Well as we got closer to the final prototype, we were building them to house electronics. So on the one hand, we knew everything would fit inside while remaining ported, keeping the rich sound. On the other, I'm a designer, not an acoustic engineer. Luckily, the factory we were working with had all the best sound testing equipment. H.A.T.S. (head-and-torso simulators), echo-free chambers, all the good stuff. Using their equipment, we were able to dictate the cavity shape and porting size, do calculations on how much air was moving past the driver, and take the measurements to our engineers so they could make adjustments. The FIX actually uses a unique, patented construction, where the chassis and the driver housing are separate units that fit together. Nobody has ever done that. The modular design of the bud actually made it very easy to tweak the sound, but on the flip side it was really hard to produce in large quantities.

**SK: So at that point the FIX bud was ready, but that's only half the story. How did the FIX in-ear come about?**

PK: Well in the last stages of evaluating, Matt and Josh figured out the final shape of the bud and had it dialed. Then someone asked whether we could cap the driver with an in-ear front end to see if it would fit. A couple of tries later we had it, and it was like a revelation. The sound was phenomenal, the isolation was amazing, and the fit was even more locked in. It was like they were padlocked into your ear canal. Deciding to produce it was a no-brainer.



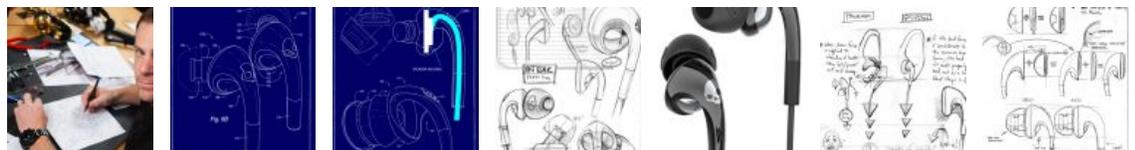
**SK: So is FIX technology literally the future of all earbud and in-ear headphones?**

PK: Yes and no. It's definitely going to make waves in the industry, because for the majority of people it will fit better than any non-custom in-ear monitor. It's affordable, it sounds amazing, and it has functions that the ultra-audiophile versions don't, like mic3 and in-line volume and track control. But yes, there will be some people who don't like it. That's the thing with ergonomics; there's always a percentage of the population that falls outside the norm. What we found in testing was, if you have never had a problem with earbuds falling out of your ears, the FIX might not be designed for you. That's why we still have models like the 50/50 and the FMJ, and we'll continue to make traditional buds and in-ears. FIX technology also dictates the look of a headphone; it's 100% form following function. Skullcandy is all about sound with style, and it doesn't make sense to limit the future to one style. So to answer your question, FIX is definitely in the future, but we're always innovating and you never know what could be around the corner.



**For years, this kind of tech was available only to audio engineers, professional musicians, and audiophile geeks. This August, the FIX will bring that same technology to the street. Whoever you are, whatever you do, your ears are in for a totally new experience.**

[Click here to buy the FIX now on Skullcandy.com](#)



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Any idea w hen they are coming out?

August 3, 2011 by Nick

8/8/11 that's w hen it comes out.

August 3, 2011 by Mr.Dark

Word is they're dropping next w eek.

August 3, 2011 by Brett

Those are uber epic.

August 4, 2011 by THEMAN\_10

What about testing them in a helmet because I have problems w ith my skull candy ear buds being uncomfortable in my helmet

August 5, 2011 by Dhtutor

Some guy is selling them on ebay and they're coming out next w eek. I have no idea how he made that photo. Anyw ays I'm so buying them w hen they come out, I alw ays needed something like that.

August 6, 2011 by zicka

Pete, you are the man, and your team does such great w ork! Lovin' THE FIX!

August 9, 2011 by Angela

Just got a pair of FIX..... Holy mother of Jesus! I can honestly say (at least for me) those earbuds are the crazy glue of in-ear headphone (and this is from someone w ho've seen many designs)!!!!!! And the bass is pretty much right up there w ith another "hiphop physician" in-ear headphone, the highs are not as clean though but overall this is a really nice package for iPhone 4 users (yes unlike the FMJs those FULLY w ork!!!!).

August 17, 2011 by Moz

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