Tech Feature

Making a Great Impression

In the early 1980s, there were no real solutions for musicians hearing onstage. With the support of the Who’s Pete Townshend, H.E.A.R.® (Hearing Education and Awareness for Rockers), a San Francisco-based non-profit organization, was instrumental in conducting the first public information campaigns on music hearing conservation throughout North American and worldwide media with MTV, PBS, BBC, Time magazine, Rolling Stone and many others.

The Steve Miller Band and The Grateful Dead co-headlined the first full in-ear, wedge-less national stadium tour using Future Sonics’ Ear Monitors, creating a whole revolution: no floor monitors, speakers or equipment on stage: just performers and their musical instruments. Clean stages significantly cut down on overall stage sound levels and artists and sound crew were no longer at the mercy of being blasted by loud stage wedges and auxiliary amplification on stage, as they were now in control of their own stage volume and mix.

Today, sales of custom-fitted in-ear monitors (CIEM) have grown exponentially, benefiting music professionals in every field, including touring musicians, club and dance bands, DJs, sound, monitor and FOH engineers, musical theatre orchestras, symphony and opera orchestras, houses of worship bands and audiophiles, as well as the general public. The pro sound market for CIEMs is reported to be 30 percent of audiology clientele and growing fast.

There are many excellent pro companies supplying in-ear systems with drivers that appeal to nearly anyone’s taste or budget (see boxed list, above right). “Universal-fit” IEMs supplied with a variety of eartip styles and sizes are often a good way for musicians to “test the waters” of using in-ear devices, but for the best possible performance in terms of achieving isolation and eliminating sound leakage, custom fitted systems are the way to go.

» The Customized Approach

Once you’ve found a driver to your liking, the next step is having a custom earmold made. Different CIEM products may have different technical requirements in terms of the type of “dam” used (see below) to make the impression or how much outer ear coverage is needed, so check with them before moving on to the ear impressions phase. The process then requires going to a hearing specialist who is experienced in making custom in-ear music products. The importance of making an accurate ear impression is an essential factor in the formula for making the best possible CIEM earpiece.
The art of crafting ear impressions is much like making a three-dimensional sculpture of the inside of your ears. Precise measurements and the knowledge of the interior dimensions of your ear is key. An ear impression is essentially a cast of your ear. Hearing professionals such as audiologists have the tools and know-how for being able to take accurate impressions.

Handcrafted custom impressions that uniquely fit your ears are not something off the shelf. It takes a true artisan. And something that you purchase in a kit and attempt to do by yourself could be a very dangerous experience for your ears if you are untrained.

There are some do-it-yourself impression kits on the market — of varying levels of quality and efficiency — and these provide a possible alternative to someone who absolutely (due to geographic proximity) cannot access a trained impressionist or audiologist. However, given the affordability and availability of having professional impressions done (some companies even do them free toward purchase during industry tradeshows such as NAMM and InfoComm), the convenience and economic considerations of getting pro impressions makes a lot of sense. And aside from the health considerations of inexperienced hands properly placing the dam and molding material into your ears, impressions from an experienced practitioner are far more likely to be properly made with a higher degree of ear sealing efficiency.

If you’re about to invest in a quality set of CIEMs, starting out with a great set of pro impressions is definitely worth the extra expense or inconvenience. Our H.E.A.R. partner and friend, audiologist Jami Tanihana (Los Angeles) would agree that attempting to make an ear impression yourself could end up costing you more with bad results and safety issues than if you went to your local audiologist to begin with.

Six Steps Toward Making a Great Impression

1. Set up an appointment with your local audiologist/ear impressionist.
2. Start with clean ears with no wax or debris present; if needed, have a doctor clean your ears beforehand.
3. A small ear “dam” made of cotton or soft foam is placed just past the second bend of your ear canal in order to protect your eardrum and serve as a backstop for the impression material.
4. A bite-block will be provided to allow an open mouth impression to be taken. It helps to keep your jaw open in a relaxed position producing a more comfortable, natural-fitting custom in-ear monitor.
5. A two-part epoxy designed for medical use is mixed and put into a specially designed syringe. Some ear impressionists use an ear gun syringe that holds a two-part mixture. The impression mixture is semi-viscous and it looks like Silly Putty. It’s then injected into your ear, a feeling much like putting your toes in mud. The impression material goes right up to the ear dam and fills up the in-ear canal completely. I prefer to mix by hand and use a small syringe that is easy for me to control. Mixing by hand is like molding clay in your hands, it warms the impression material before it goes in the ear canal giving the ears a more comfortable experience. Some ear impressionists then pat everything down. In making impression it is a matter of technique choice, but I personally do not recommend patting the mixture down after it is in the ear canal as it can possibly move and change the impression shape.
6. Impressions I make at H.E.A.R. usually harden in about one minute, possibly due to measuring and mixing the impression material by hand, the kind of silicone impression materials used for how fast it sets up. It could take about six minutes to harden typically. After the earmolds harden and set up, they are taken out of the ear. This is where I usually check for uniformity and balance at the first bend and the second bend of the ear canal, a detail of the full helix, crus of the helix and tragus and antitragus, and also check the ear canal tip for length and over all tight fit. A great ear impressionist will know if it is not the proper fit and will make a new impression over in order to check and compare if need be. If it’s not right, it should be made over.

—Kathy Peck

Custom IEM Suppliers