

Article

Hearing Aid Repair & Modification Using UV Materials

Part Two: Repairing Holes in the Hearing Aid Shell

I'll never forget the day Ted, who worked in the repair department, brought me that chewed-up full shell hearing aid. We hadn't been using UV technology very long - maybe a month, and we were just beginning to experiment on some of the repairs, seeing how far we could go with damaged shells. We were trying to get a feel for when a damaged hearing aid shell should be repaired and when we should just rebuild the unit with a new shell. Apparently, this particular hearing aid had been attacked by the family dog. It had a jagged hole in the tragus area approximately 1/4" in diameter, and had several cracks spidering from the hole in all directions.

It was amazing to me that we were even considering a repair like this. A month ago, we would have been waiting for a new impression, but not now. Not after having great initial success with this miracle UV stuff. We were pushing the envelope on what we could and couldn't accomplish, and learning we were saving the most important element of all - time.

First - Let's start at the beginning.

Now when Ted brought me that hearing aid, we were looking at patching a significant hole. It took us a while with some trial and error to figure out a good process for this - and we will get into that in a minute-but first, we need to take a step back and look at something much easier - smaller holes.

Small holes and punctures are probably the easiest fix, requiring very little in the expertise arena. All that is needed is some UV patching material such as Fotoplast-Gel or FotoPlast S/IO shell material, a probe or toothpick, a UV light source, an alcohol wipe, and a method for buffing and polishing.

Oh yeah, and you need to think about color.

Why is color so important?

The color you choose for this project is ultimately going to reflect on the quality of your work. If you are working on a right CIC and you use clear gel to patch a hole, you are going to be able to see where the hole used to be. And the bigger the patch, the more noticeable the used-to-be hole. In this case, a red gel or shell material is going to blend real nice, making it look like you sent the aid back to the factory.

I know - I know, you only want to inventory clear material. You don't want to have a tube of red or blue or any other color. All I'm saying is for what it costs you are going to achieve much better results if you match the shell color with your UV material - and you are going to be much happier with the results.

Patching that small hole.

Now, Let's get into it.

Take a small amount of the patch material you are going to use with a probe or toothpick and swipe it over the hole in the shell. Providing the hole isn't too big, the shell material will fill the hole completely. More on this in a moment. If this is the case, place the unit under the UV light source with the UV material to be cured directly under the lamps. Cure times will vary depending on UV material color, light source used, lamp age, and proximity to the lamps. A general rule of thumb, check it after a couple of minutes in a florescent unit, 15 seconds under a spot cure unit. Some materials leave a sticky residue after curing. This is called the smear layer and is caused by oxidation during curing. This layer will need to be wiped off after curing with an alcohol wipe. At this point, the unit is ready for buffing. Buff smooth, trying to blend the patched area with the rest of the shell.

Now if the hole was a little too large and the material didn't quite fill the hole with one attempt, there are a couple of little tricks you can use:

Little Trick 1) Cure the material that sticks to the outer edges of the hole, making the hole diameter smaller. Then fill the remainder hole and cure as above.

Little Trick 2) Using a probe or toothpick, drag some material across the hole while curing under the UV lamps. Then patch the hole as above.

OK, now how about that large hole.

The hole in the hearing aid that Ted brought me was bigger than anything we had tried patching before. And none of the previously described methods would work – the diameter was just too big. Someone suggested using some kind of backing to hold the material in place so the UV material wouldn't fall through. And that's when we discovered clear Scotch tape.

We cut a piece of tape a little larger than the hole and using tweezers, placed the tape inside the hole with the adhesive side out. This allowed the tape to grab the inside wall of the shell, holding itself in place. Then we were able to apply the UV material in several steps, curing between each. After buffing, you couldn't even tell there used to be a hole there. It was amazing, and a lot faster than getting a new shell.

What else can we do?

Part Three will cover the last segment of shell repair – cracks in the shell.

About the Author

Chris Perkins is the owner of Lightning Enterprises, and facilitates the Lightning Enterprises newsletter. He has worked in the hearing aid industry since 1991 in hearing aid manufacturing and product development, as well as equipment and process consulting.