



Hear better. Live better.

EASY STEP-BY-STEP INSTRUCTION GUIDE

# Modification Guide



ADVANCED HEARING AID MODIFICATION TECHNIQUES

# Introduction

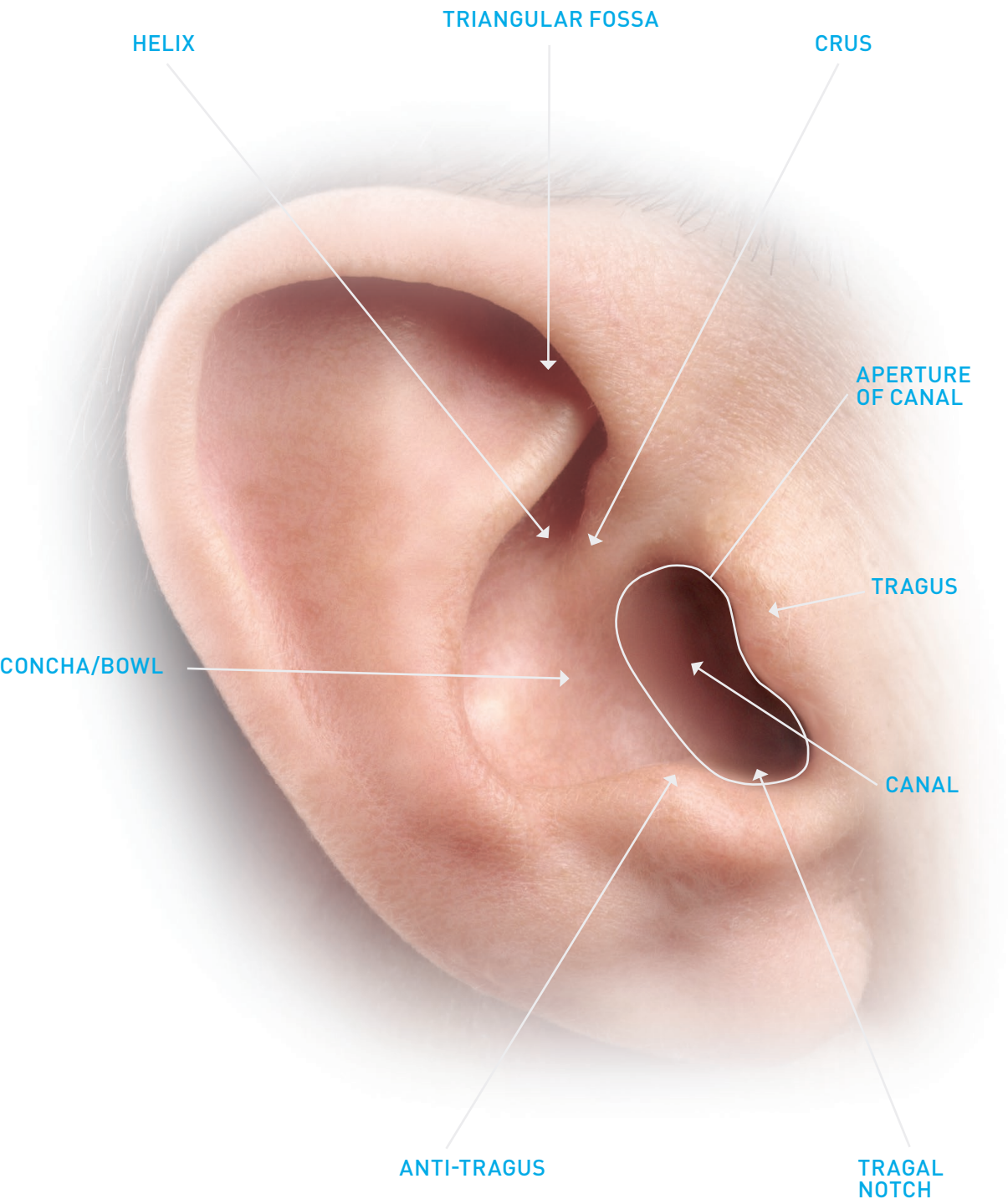
Starkey’s Hearing Aid Modification Program is designed to improve patient satisfaction by increasing the hearing care professional’s ability and confidence in fitting and modifying custom hearing aids. Professional skill, combined with Starkey’s flexible software platform, proper impression taking and precise modifications, will make the fitting process easier. Starkey’s goal is to make modification as simple as possible, so the hearing care professional feels confident with their skills and the patient is pleased with the product and service they receive.

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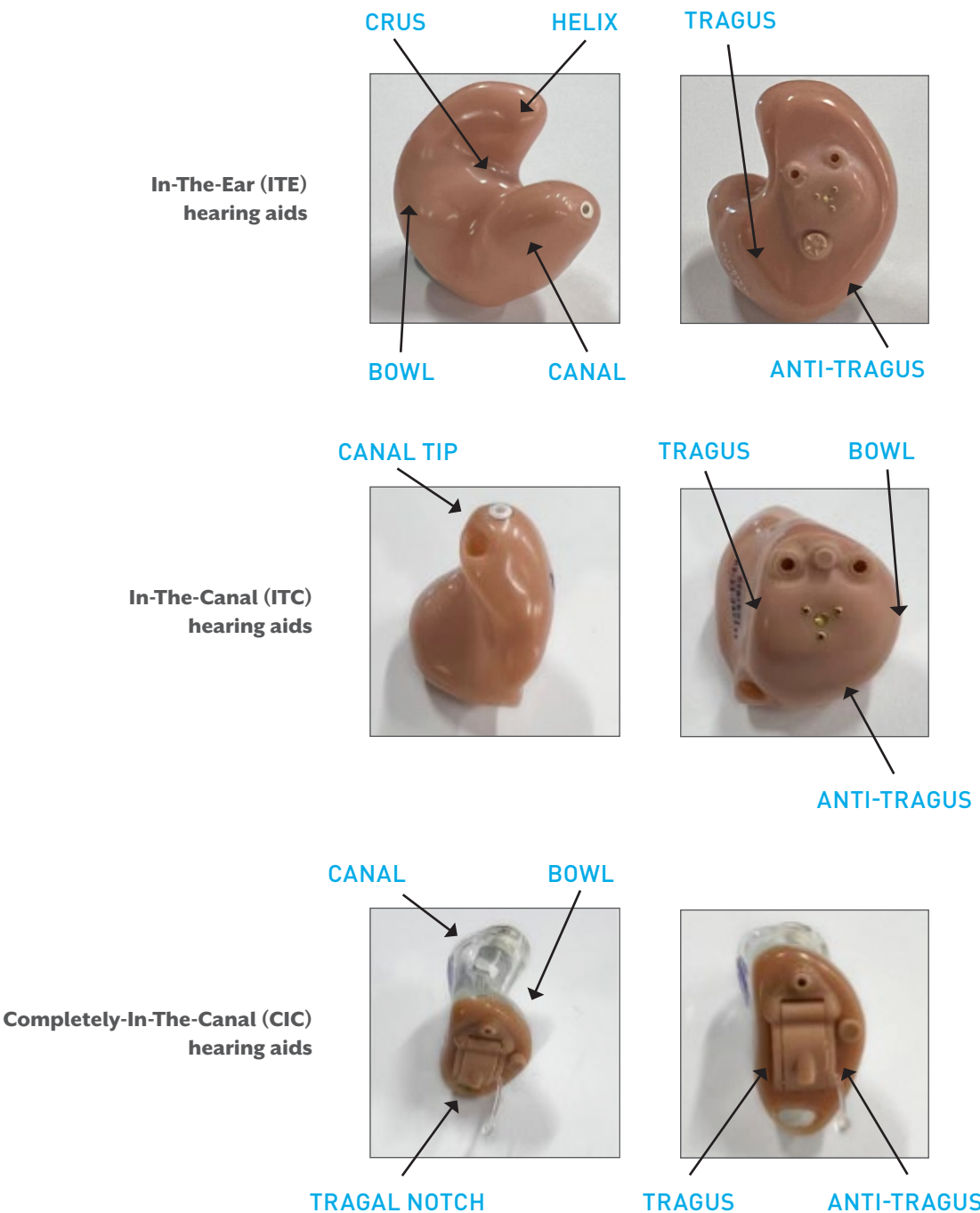
# Understanding the Ear

Knowing and understanding external ear anatomy is critical for effective communication during the manufacturing and repair processes.



# Understanding the Hearing Aid

There is a direct correlation between the physical characteristics of custom hearing aids and the external anatomy of the ear.





# It All Starts with a Good Impression

There is no hearing aid technology or physical modification that can substitute for a good impression. Having a good ear impression prevents problems such as feedback, discomfort, an aid “walking out” of the ear canal, and other fitting problems.

## Examine the ear canal

Before taking an impression, it is crucial to fully examine the ear canal. It is recommended to have the patient move their jaw or “chew” to assess the amount of movement. It is also important to assess the length, diameter, texture, and any abnormalities or growths in the canal.



A video otoscope is the preferred method for examining a patient's ear canal. The system's monitor helps you more easily assess the attributes that affect a good impression.

## Do not proceed if:

- Cerumen is obstructing the ear canal. Large amounts of cerumen will disrupt the accuracy of the impression and could be pushed further into the canal.
- There are visible signs of an outer or middle ear infection, inflammation, distended, perforated eardrum, or any other red flag conditions; medical clearance should be obtained first.
- There is excessive drainage or a foul odor; medical clearance should be obtained first.

## Use caution if:

- Cerumen is present and may be pushed further into the canal.
- The canal widens after the second bend; removal of the impression may be difficult.
- The canal is surgical, such as a mastoidectomy or fenestrated canal; medical clearance should be obtained first.

## Place the block

Place a flattened cotton oto-block in the ear canal to prevent the impression material from flowing further into the canal than is required. The block is flattened to provide the greatest amount of protection while sacrificing minimal canal length.

While a variety of oto-block materials are available, cotton oto-blocks, when used and placed properly, provide the best and least-compromising impression. The foam block often takes up much of the canal and does not provide an accurate representation of canal size and direction.

### TIPS:

- Every canal is unique, so it is important to select the size that best matches the size of the ear canal; it should not be too large or too small (no gaps).
- The oto-block should be sealed around the canal wall to avoid the possibility of material leaking past the oto-block.
- When using a cotton oto-block, flatten and flare out the edges for a good seal around the circumference of the canal wall.
- Use a bright light and position yourself at eye level to the patient's ear for the best view while inserting the oto-block.
- Place the oto-block past the second bend.

## Injecting the material

After the oto-block is placed properly in the ear canal, it is time to inject the impression material. Much discussion surrounds the materials used for impression taking. In general, most people take the best impressions when they utilize the material they are comfortable with, whether it is silicone or powder/liquid acrylic. It is important to note that powder/liquid acrylic may distort with heat or shrink over time.

## Removing the impression

Waiting for the material to cure is extremely important so that the material does not distort. Materials have different curing times, but typically after 7-10 minutes, most material has cured and the impression can be removed. To break the seal between the impression and the ear, gently pulling down, back, and up on the pinna. Grasp the impression and pull it out with a gentle, twisting motion suited to the shape of the patient's ear canal.

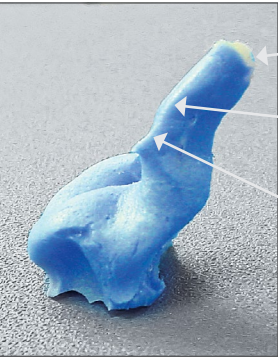
## Inspect your work

Always check the ear canal to ensure that no material is left in the ear. Inspect the impression for folds or stretch marks, gaps, voids, bubbles and canal length. When in doubt, take another impression; there is no better time than when the patient is seated in the chair.

### TIPS:

- When shooting the impression material into the ear canal, leave the tip inside the canal, beyond the aperture opening, for at least three seconds so the material completely fills the ear canal before removing the tip.
- The impression material should flow over the tip prior to moving the tip out of the canal.
- After the material has cured, break the seal around the impression and ear before removing the impression
- Pull the pinna outward and move in several directions to relieve pressure before pulling the cured impression, then slowly twist forward on the impression while removing from the ear.

A Good Impression



With a cotton oto-block

FLAT TIP

BONY PORTION OF CANAL

PAST SECOND BEND

A Bad Impression



With a foam oto-block

STRETCHES EAR CANAL AND USES LENGTH THAT SHOULD BE USED FOR IMPRESSION MATERIAL. THE CANAL IS TOO SHORT, CAUSING A LOOSE FIT.



When should you take a new ear impression?

- If it's not past the second bend
- Unexplained voids or bubbles
- If a hearing aid is being remade and the new impression is no longer than the hearing aid itself
- When in doubt, re-shoot

Open jaw versus closed jaw

The virtues of impressions made with the patient's jaw closed versus opened have been debated for years. Various studies show positive and negative results for each method. In general, the highest level of satisfaction with the lowest level of remakes for CIC and power fittings have resulted from impressions taken with an open jaw. The bottom line is that no one method works for all patients. The best approach is to assess the patient, their canal size, tissue firmness, ear canal movement, and the aid type and gain requirements. This assessment helps determine the "best" impression technique. If you are unsure which method to use, a relaxed jaw approach is usually the best option.

Packing up the impression

The packing method you choose can impact the type of impression material used. Most silicone impressions can withstand heat, cold, time and pressure. However, powder/ liquid is not as

resilient and should be shipped to the factory within a week of the impression being taken. Powder/liquid impressions need to fully dry prior to packing.

They should be glued to the bottom of the box and have tissue gently wrapped around the canals to support them during shipment. It is best to choose next day delivery with powder/liquid impressions since the material does not hold up well in heat and may melt or distort if exposed to hot conditions.

The scoop about impression material

There are various types of impression materials. The key factor is the viscosity of the material.

Low-viscosity materials are easier to inject and are the least likely to expand the ear canal. A high-viscosity material will be more difficult to inject and will expand the ear canal. A medium viscosity tends to work best in general.

All materials have advantages and disadvantages. One guideline may be to assess the current status of your impressions. How many fit, feedback, etc. problems are you experiencing? If you are having a few problems, then your current method and material must be working.

If you are having more problems, it may be time to consider a change in technique and material.



Ear impressions are much like fingerprints, no two are the same. The above shells show a good representation of different canal sizes and shapes. Because every ear is unique, you must examine and assess each canal individually prior to taking the patient's impression.

Three primary areas to look for retention



Scan to listen  
Starkey Sound Bites:  
The Ear is the Boss



Scan the QR code or  
visit [StarkeyPro.com](https://www.starkeypro.com)  
for more education,  
including how-to videos.




## Buffing the Hearing Aid

Buffing needs to be done after any grinding. Buffing can also be used to help reduce tight fits, especially in high-gain aids, when removing too much material can cause feedback.

Always buff on low and never hold the aid against the buffing wheel longer than 2 to 3 seconds at a time; otherwise, the plastic will heat and warp. Make sure to put a battery in the aid and have the volume control turned on. This prevents electrostatic discharge. Always put a sticker over the microphone and foam in the receiver to protect against foreign material.

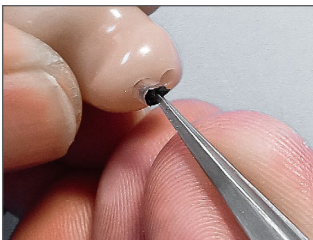
### Buffing the hearing aid

STEP 1



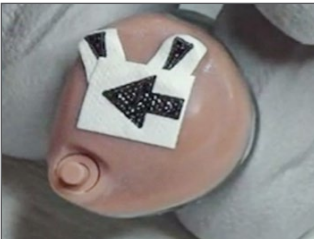
Insert the battery into the aid to protect against ESD (Electrostatic Discharge).

STEP 2




Remove wax protection and place foam in the receiver tube.

STEP 3




Place an arrow sticker over the mic and charge pins.

STEP 4




\*Buff the aid, holding it against the buffing wheel for 2-3 second intervals and stopping for 1-2 seconds until the area is smooth.

STEP 5



High shine on the wheel without compound. The entire aid should take only 5-10 seconds. Ninety percent of buffing should be done on the wheel with compound.

STEP 6



Remove foam from the receiver and remove sticker from the mic and charge pins.  
  
Clean with a brush (do not use compressed air). Replace the wax protection.

*\*Buffing compound should be added periodically to your buffing wheel. If the wheel has already been broken in, the compound will only need to be added every 2-4 aids. If you have a new buffing wheel, break it in by holding a sandpaper strip against it for 1-2 minutes. This will help remove any loose fabric. Then, add the compound for approximately one minute.*

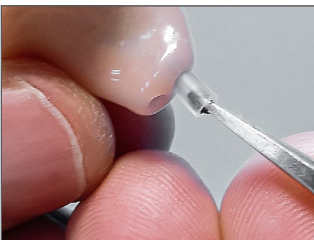
## Difficult Insertion/Tight Fit

When encountering aids that are tight or difficult to insert, first check to see if there are any bulbous areas on the canal that need to be reduced. If there are no bulbous areas, start with tapering the canal tip.

Before starting to taper, always check the canal tip to determine how much material is there to grind down. The areas to watch for are as follows: ITE, ITC and CIC bulbous area and canal tip; ITE helix and anti-tragus.

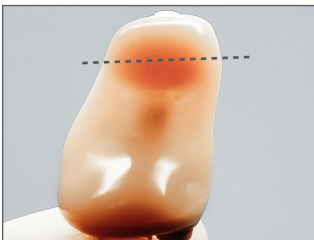
### Taper canal modification

STEP 1




Always put foam in the receiver tube to protect it from debris.

STEP 2




Check for shell thickness before starting to grind.

STEP 3



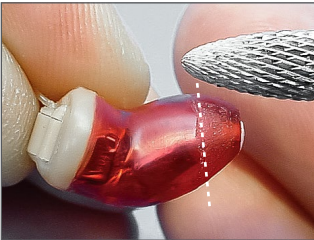
Check for the bulbous area and reduce the size of the bulb.

STEP 4



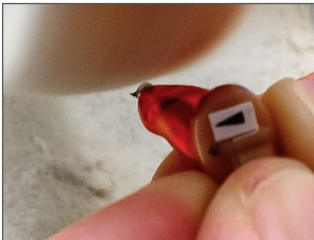
Step back vent.

STEP 5



Taper tip, but do not taper past the halfway point or you may cause a loose fit.

STEP 6



Buff canal tip. Use foam or sticker to cover the mic and receiver.



Detailing the anti-tragus on ITC hearing aids

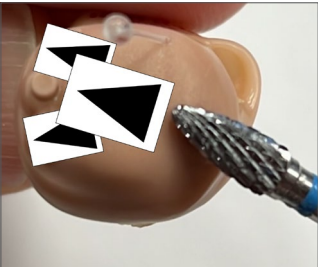
A common area of discomfort can be the anti-tragus, specifically the edges, causing this to be an area of importance in tight fits. Most of the time you will see redness, or the ear will be tender to the touch when the fit is too tight.

STEP 1



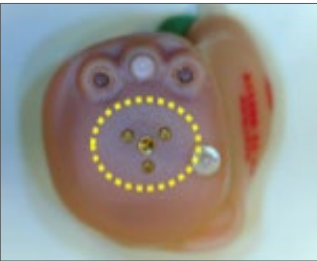
Verify the fit of the device in the patient's ear, and identify where the device is rubbing

STEP 2



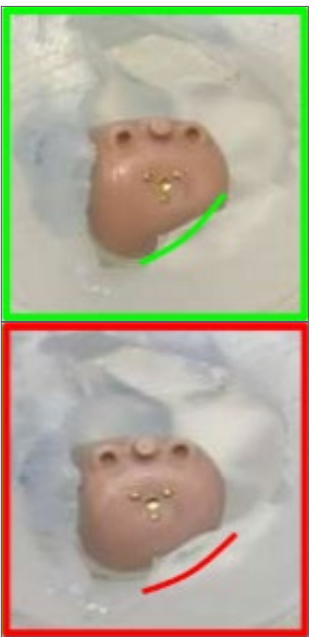
Using a hand drill with trimming burr, bevel the top of the faceplate to eliminate the possibility of the faceplate rubbing the Anti-Tragus.

STEP 3



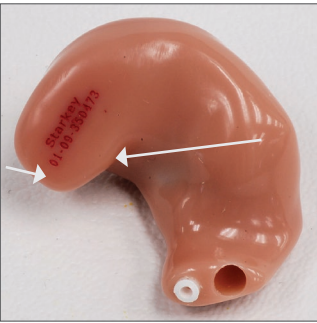
When detailing a custom rechargeable hearing aid, avoid the charge pins area. It is also important to avoid over detailing and beveling the anti-tragus because that may expose and damage the components embedded in the plastic faceplate.

STEP 4



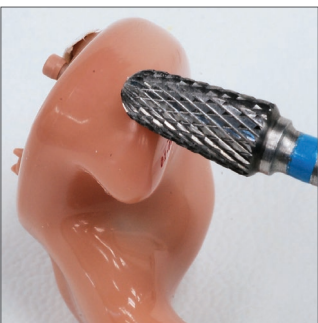
Physically Verify Fit - Ensure that the faceplate is not putting excessive pressure onto the Anti-Tragus.

STEP 1



Identify area of concern.

STEP 2



Grind outside of helix.

STEP 3



Grind inside of helix.

STEP 4



Alternatively, the tragal notch (bottom of the ear) may be reduced to relieve pressure in the Helix area (top of the ear).

STEP 5



Buff all reduced areas until smooth.

STEP 6



Buff until smooth.

ITE helix modification


A common area of discomfort can be the helix, specifically the edges, causing this to be an area of importance in tight fits. Most of the time you will be able to see redness or the ear will be tender to the touch.



CIC canal tip modification

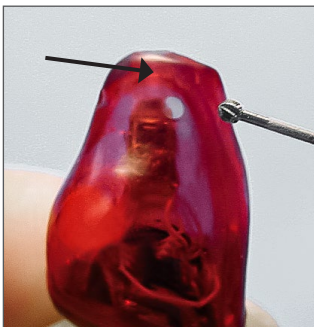
When tapering CIC canal tips, it is possible for the canal to become thin due to the size of the hearing aid. The canal tip may be filled in to prevent putting a hole in the shell. This will be easier than trying to patch a hole later.

STEP 1



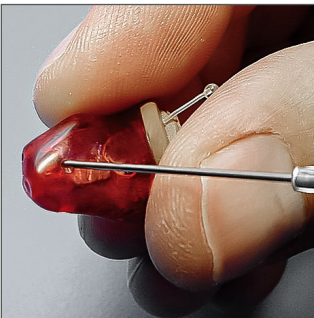
Locate receiver in shell.

STEP 2




Drill 2 to 3 holes, but don't drill through the vent.

STEP 3




Fill in tip using UV material. Do not cover beyond half of the receiver. Desirable to match shell color but clear UV material can also work.

STEP 4



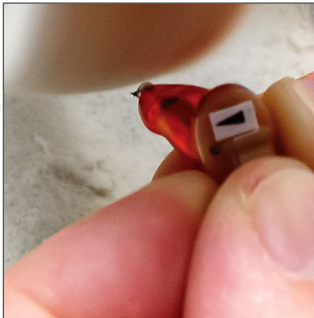
Cure hearing aid at a distance of 1-inch under the UV light and cure for 30 to 60 seconds depending on the transparency of the shell color.

STEP 5



Taper canal.

STEP 6



Buff canal tip.

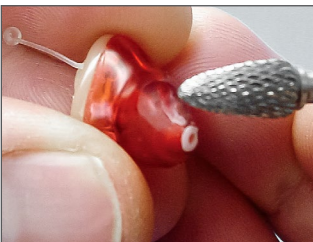
Occlusion Modifications

The complaint of feeling plugged up can be addressed in two ways. First, reduce low frequencies through the software. Second, modify the vent by stepping the vent back and/or increasing the circumference. *\*Note: Risk of penetrating through the vent wall and causing a leak.*

Externalized vent modification is the easiest way to increase vent size. However, be aware that you can create a loose fit when performing this modification.


Opening CIC vent

STEP 1



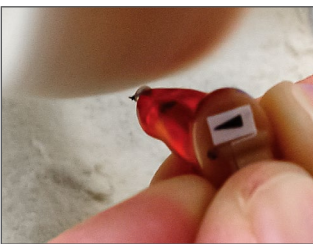
Step back vent.

STEP 2



Slowly open vent using a Tymp #2 extended burr.


STEP 3



Buff and clean.

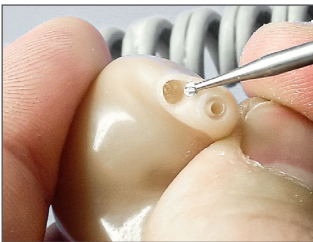
Opening ITE/ITC vent

STEP 1



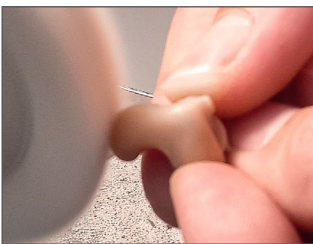
Step back vent. Angle parallel to vent.

STEP 2



\*Select vent size (2V or 3V). Open vent at canal end.

STEP 3



Buff and clean.

*\*When using a 2V extended burr, the vent will result in the size of a regular 3V. If more venting is required, use a #1 extended burr and go down the edge of vent to open like IROS.*

# Feedback/Loose Fit

There are many different solutions for feedback or loose fit. Generally, the focus of the buildup should be around the aperture of the canal. When building up for feedback, hard material is best for longevity. However, sometimes using a soft material will be required to alleviate feedback completely.

When encountering mild to moderate feedback from jaw movement, building up the area around the aperture of the canal is usually the most effective.

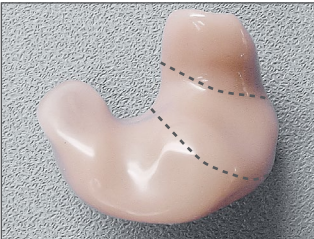
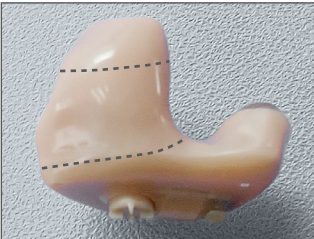
When building up an ITE, be careful not to let the material run into the crux area. The cartilage in this part of the ear is ridged and buildup in this area could cause discomfort.

## ITE and ITC feedback

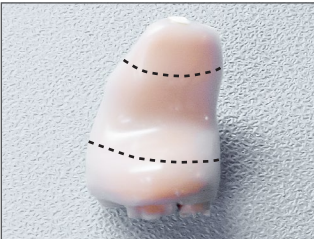
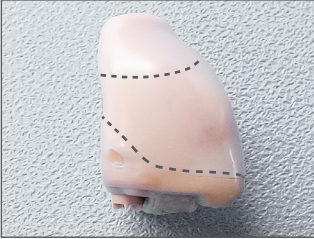
The Buildup UV section on the next page provides instructions for adding material to the locations indicated below.

## Suggested locations for adding material to ITE and ITC aids

ITE

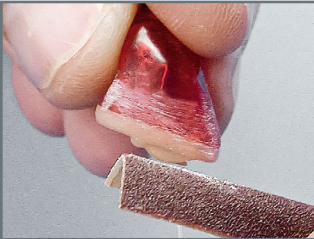


ITC



## Buildup UV (Band around aperture of canal)

STEP 1



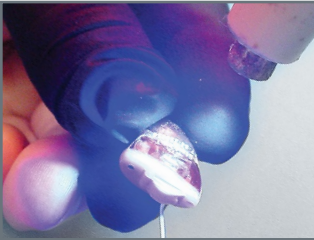
Rough up surface area of the aperture using a sanding sponge or 120 grit sandpaper.

STEP 2



Apply a band of colored UV or CLR UV shell material (33025-001 Clear HV) around the aperture, 5-7mm wide. Do not use UV adhesive or UV silicone.

STEP 3



Cure hearing aid at a distance of 1-inch under the UV light and cure for 30 to 60 seconds depending on the transparency of the shell color.

STEP 4



\*Buff until tackiness is removed.

*\*When building up with UV material, the patch will be tacky after curing. Make sure to buff until tackiness is removed.*




Aid walking out of the ear

This usually occurs from the ear canal being pinched closed during jaw movement. This is more common in small custom hearing aid styles. You can check for this using a video otoscope before or after taking the impression. Adding a canal lock to the hearing aid can prevent the hearing aid from walking out of the ear. An alternative is to remove the area of the hearing aid that is causing the hearing aid to work its way out of the ear.

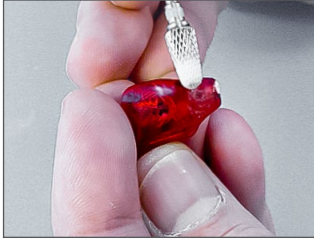
Walking out of ear buildup

STEP 1




Use video otoscope to locate the area where the ear is moving. Identify area where ear moves and hits shell causing aid to move.

STEP 2



Remove shell from area where canal moves.

STEP 3



Verify and buff.

Patching

When patching, always clean the area thoroughly of wax and other debris. Use a foam pick or wax loop to remove any foreign material. After the initial cleaning, rough up the interior, damaged area of the shell with a small burr so that the patch will adhere to the shell. Then, wipe with alcohol before proceeding.


Patching blue, red or clear UV shells with UV material

STEP 1



Rough up only inside perimeter of damaged area.

STEP 2



Moisten only inside perimeter of damaged area.

STEP 3




Stretch additional patching material over damaged area only.

STEP 4



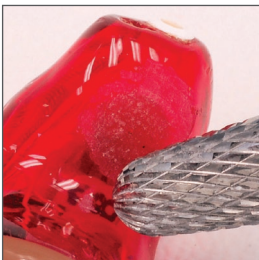
Cure patch under UV light at a distance of 1 inch for 30-60 seconds depending on the transparency of the shell color. Clean patched area with alcohol to remove any sticky residue.

STEP 5




Add small amount of additional material to center of patch to level cavity.

STEP 6



Lightly grind and smooth out patched area only.

STEP 7



Buff patched area until completely smooth and blended with shell.



Patching a vent

When encountering an external hole in the vent, patch the area using the previous steps. However, if you have an internal hole or cavity leak, use the following steps to repair. Internal holes must be fixed or aids will create feedback, giving the false impression of a fit problem.

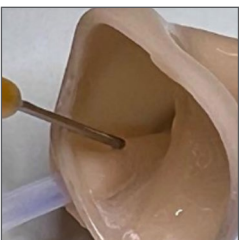
Patching holes in vents

STEP 1



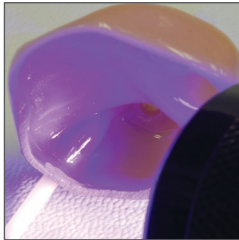
Insert correctly sized Teflon tube into vent. If tube does not fit, carefully grind inside vent with extended burr at blockage area.

STEP 2



Add minimal amount of UV shell material, directly from the syringe needle (or use applicator), to cover damaged area.

STEP 3



Cure patch under UV light before removing Teflon tube.

Cased aid

STEP 1



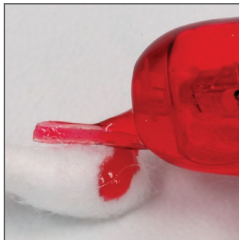
Insert correctly sized Teflon tube into vent from faceplate side to verify fit. If tube does not fit, carefully grind inside vent with extended burr at blockage area.

STEP 2



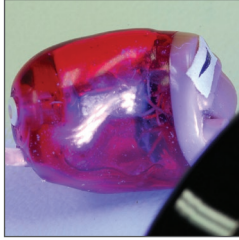
Remove tube and flood entire vent with UV material from faceplate side.

STEP 3



Holding aid in correct orientation, re-insert Teflon tube into flooded vent from faceplate side. Wipe away excess material. Avoid UV material getting into soundhole.

STEP 4



Cure entire vent under UV light while holding aid in correct orientation. Once Teflon is removed, re-cure for a few seconds before buffing canal tip.

Wax Protection

Biconic wax guards

Biconic Wax Guards are used to stop wax damage in receivers and will need to be replaced whenever plugged.



19304-000  
Silicone Tube

17445-000  
Viton Tube

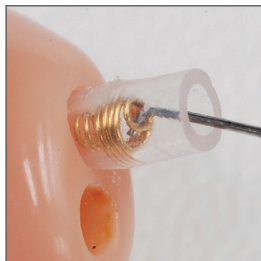
Removing biconic wax guards

STEP 1



Use a hooked foam/wax pick to pull on removal bar of Biconic wax guard.

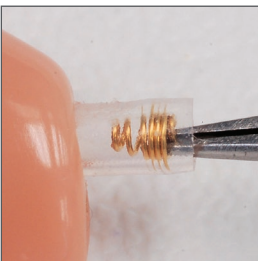
STEP 2



Hook removal bar and pull Biconic wax guard from tube. Ensure NOT to puncture tube with hook.

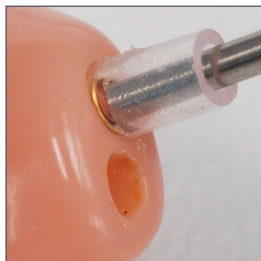
Adding biconic wax guards

STEP 1



Use tweezers to pick up Biconic wax guard, holding on to removal bar.

STEP 2



Using a blunt tool, push Biconic wax guard below surface of canal tip.

Hear Clear

Hear Clear is another type of wax protection system which is easier to install than a biconic wax guard and should be replaced whenever plugged.

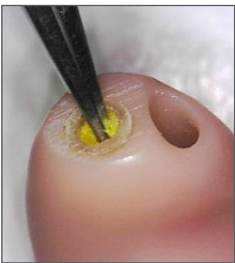
Adding Hear Clear

STEP 1



Cut receiver tube or wax proof flush with canal tip.

STEP 2



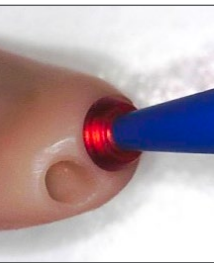
Protect the receiver with foam. Rough canal tip with dull finish pad for better adhesion.

STEP 3



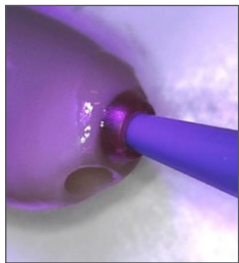
Remove foam and apply adhesive around the receiver tube.

STEP 4

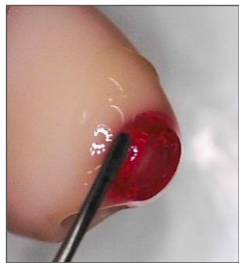


Place HCB with larger base facing up on blue needle tip and insert the blue needle tip into the receiver tube.

STEP 5



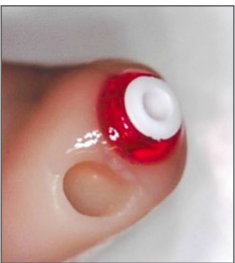
Press and hold under UV light 1 inch away for 30-60 sec. Apply additional adhesive around the HCB and cure.



STEP 6



Using the Hear Clear stick, insert Hear Clear into the center of the HCB. Push straight in and pull straight out.



Removing Hear Clear

STEP 1



Use the OTHER (removal) end of the Hear Clear stick to penetrate (harpoon) and remove Hear Clear.

# Accessories

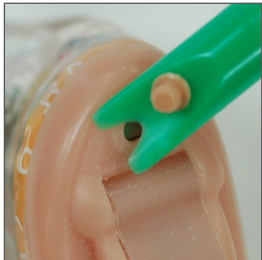
## Microphone protection

Protecting the microphone keeps foreign material from entering the microphone port. Always ensure that the cover snaps into place inside the microphone and that the cover is sitting flush with the faceplate.

Use the dedicated tool to lift and remove the microphone cover correctly.

## Adding omni microphone protection

STEP 1



Use the fork end of the tool to lift and remove the used microphone cover.

STEP 2



Use the sphere end of the tool to insert the microphone cover directly into the microphone opening. Push directly in and verify it is flush against the hearing aid, before pulling the tool out.

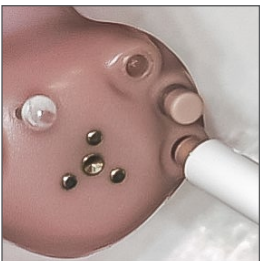
## Adding HC4 ITC/ITE omni and directional microphone protection

STEP 1



Thread the HC4 stick clockwise and pull straight out to remove the HC4.

STEP 2



Using the opposite end of the HC4 stick, insert the HC4 straight into the center of the microphone port. Push straight in and pull straight out.

## CIC removal handle

When replacing a CIC removal handle on a hearing aid that already has one, the best location is directly next to the location of the previous one. Do not drill through the existing hole from the previous removal handle. This usually still has the previous removal handle material in it and will break the drill bit when trying to drill it out.

## Adding a CIC removal handle

STEP 1



Remove any existing removal handle using a sharp razor blade.

STEP 2



Drill new removal handle hole adjacent to old handle or in custom location. For first time removal handles: ITE, place in Concha. ITC, place in Tragal notch.

STEP 3



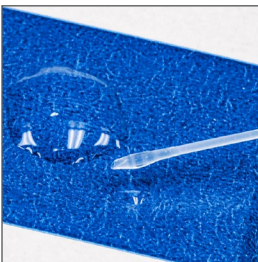
Using a sharp razor blade, remove any melted faceplate (flash) around hole.

STEP 4



Using tweezers cutters, cut removal handle to a point and verify dry fit.

STEP 5



Add a minimal amount of Loctite adhesive to removal handle tip (2-3mm). Remove any excess before inserting.

STEP 6



Grip handle close to pointed tip and insert into faceplate (2-3mm). Allow adhesive to dry completely (5 minutes).



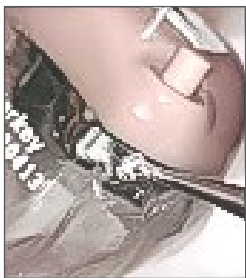
Adding a CIC Removal handle on a rechargeable ITC

STEP 1



Protect microphone and charge pins with arrow sticker.

STEP 2



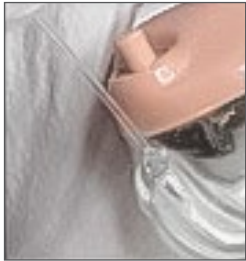
Drill a 1mm dimple below the faceplate seam in the tragal notch area.

STEP 3



Using a hot solder iron, pancake the handle end and apply UV shell color onto the pancake.

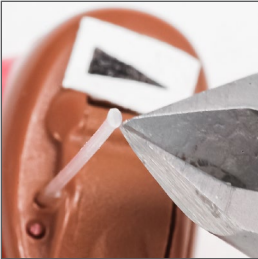
STEP 4



Hold handle in place on the device and verify that the vent is not occluded by the material used to secure the handle. Then, cure under the UV light 1 inch away for 30-60 seconds.

Adding a CIC removal handle ball

STEP 1



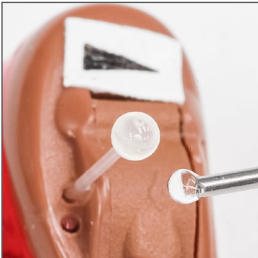
Using a tweezer cutter, cut handle 2mm longer than required.

STEP 2



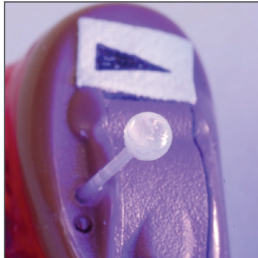
Using a hot soldering iron, pancake cut off tip of handle by dabbing it a couple of times against hot surface (10mm total length).

STEP 3



Add clear ball to handle (encase pancake) using clear HV UV material.

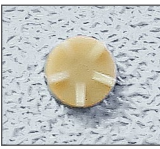
STEP 4



Cure ball under UV light. Once cured, verify strength of handle in faceplate and ball adhesion with a pull test.

Raised/stacked volume control (VC)

Raised/stacked volume controls are needed when a patient has poor dexterity or difficulty using the VC. There are 2 types of raised VCs or 2Ws. The CVC (4-mm) ITC 2W will fit on a 3VC or a 4VC and the 5-mm ITE 2W will fit on a 5VC. Check your custom data sheet or invoice for the type that is on your aid.



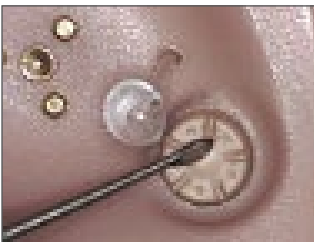
5-mm ITE (Glue)



CVC ITC (Glue)

Adding a raised/stacked volume control

CVC STEP 1



Apply small amount of glue on top of VC.

CVC STEP 2



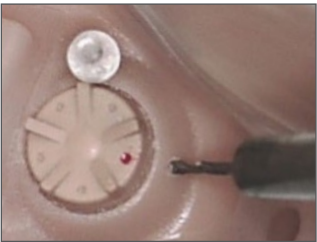
Line up grooves and apply 2W.

Analog VC dot wheel

Align the dots with the VC in the off position; Right is Red, Left is marked with Blue. If the VC is not marked, verify the VC is off and mark VC dimple in the area where the faceplate can also be marked.

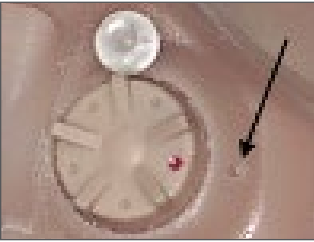
Adding a dot wheel

STEP 1



Use HV or pot marker and drill dimple that is aligned with VC in off position.

STEP 2



Mark dimple with paint pick.

STEP 3



Verify quality of dot.

Minor Repairs

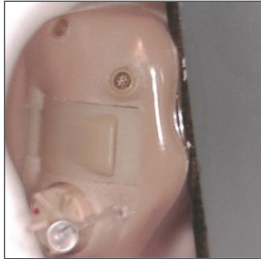
Opening the faceplate

STEP 1



Use a razor blade with razor blade holder PN 25069-000 and cut into the seam around the microphone area.

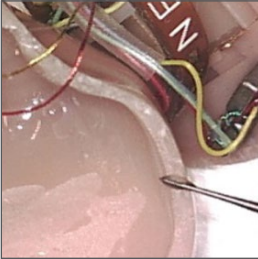
STEP 2



Rock blade back and forth around the entire faceplate seam to crack open seam.

Attaching faceplate

STEP 1



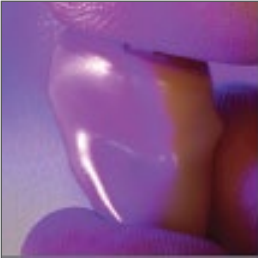
Moisten entire seam of shell with UV adhesive. (Do not attempt to grind shell seam or clean faceplate before adhering).

STEP 2



Add faceplate to shell. Ensure alignment and no wires in seam or over antenna on wireless device. Wipe excess UV adhesive from seam.

STEP 3



While applying pressure, cure UV adhesive under UV light 1 inch away for 30-60 sec. depending on the transparency of the shell color.

STEP 4



Buff seam and ensure seam is smooth.

Re-tubing receivers

Receiver tubing can be damaged or pushed in over time. In most cases, replacing the tubing is all the aid will need to function properly.

Re-tubing a receiver

STEP 1



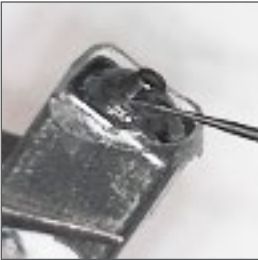
Cut angle on receiver tube to match specific angle on canal. General guide: CIC 0°, ITC 20°, ITE 30°.

STEP 2



Using a tweezer cutter, clear receiver spout/canister of all debris. Be mindful not to damage/remove spout.

STEP 3



Apply bead of UV Loctite 4306 or 4307 around spout onto receiver canister. Keep away from inside spout.

STEP 4



Press angled tube onto canister and cure UV adhesive 1 inch away for 30-60 sec.

STEP 5



Apply UV adhesive around receiver spout.

STEP 6



After insertion of receiver, apply UV adhesive around the entire receiver tube.

STEP 7



Cure UV adhesive 1 inch away for 30-60 seconds depending on the transparency of the shell color.

Microphone pushed in

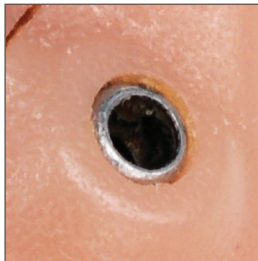
Microphones can become dislodged from cleaning and/or being dropped. When putting a microphone back in place, follow the steps below: *Be careful to not use excessive amounts of adhesive to the microphones when fixing the microphone.*

STEP 1



Clear all debris around mic spout using tweezer. Then, add minimal amount of adhesive around spout.

STEP 2



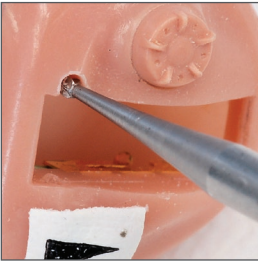
Insert mic completely into mic cavity in faceplate and verify mic spout flush with faceplate.



Patching a battery door hinge pin

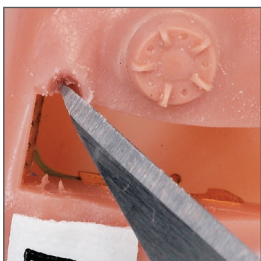
This is one of the more difficult patches. Always practice on an old aid before working on your repair. Typically, this is also only a temporary repair.

STEP 1



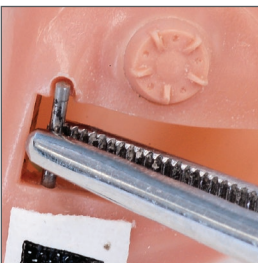
Hand clear damaged hinge pin cavity with drill bit.

STEP 2



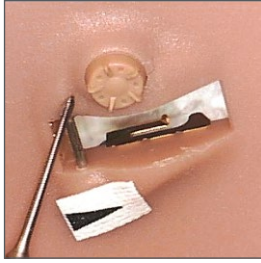
Use scalpel to clear any plastic flash in or around cavity.

STEP 3



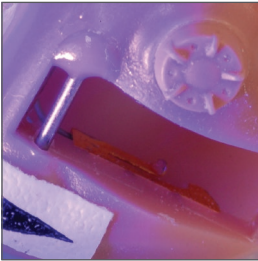
Dry fit hinge pin.

STEP 4



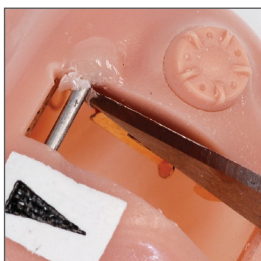
Add UV material. Lift hinge pin slightly to allow material to surround hinge pin in cavity.

STEP 5



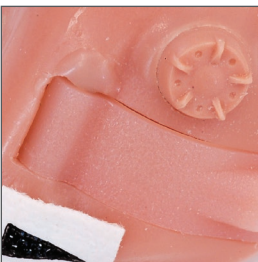
Cure UV patch 1 inch away for 30-60 seconds.

STEP 6



Remove excess patch in cavity to allow battery door to fit properly.

STEP 7



Verify fit of battery door.

Battery Doors

Battery door replacement

When replacing damaged battery doors, always check that the polarity (+/-) of the battery door is correct before sending the hearing aid to the facility for a dead aid repair!

Battery door extractor

The extractor can be used on any Starkey-series faceplate. Insert the battery door extractor into the opened battery door and then twist (“roll”) away from the hinge pin or try pretending to close the battery door with the extractor. The battery door will then release (“pop”) from the hinge pin.

DO NOT PULL ON THE DOOR WITH THE EXTRACTOR!



Battery training doors

Size 312 battery PNs and Descriptions	
53142-001	TRNG BATT DWR 312 L PNK
53143-001	TRNG BATT DWR 312 R PNK
53142-023	TRNG BATT DWR 312 L LTB2
53143-023	TRNG BATT DWR 312 R LTB2
P00000822	TRNG BATT DWR 312 L BLC
P00000823	TRNG BATT DWR 312 R BLC

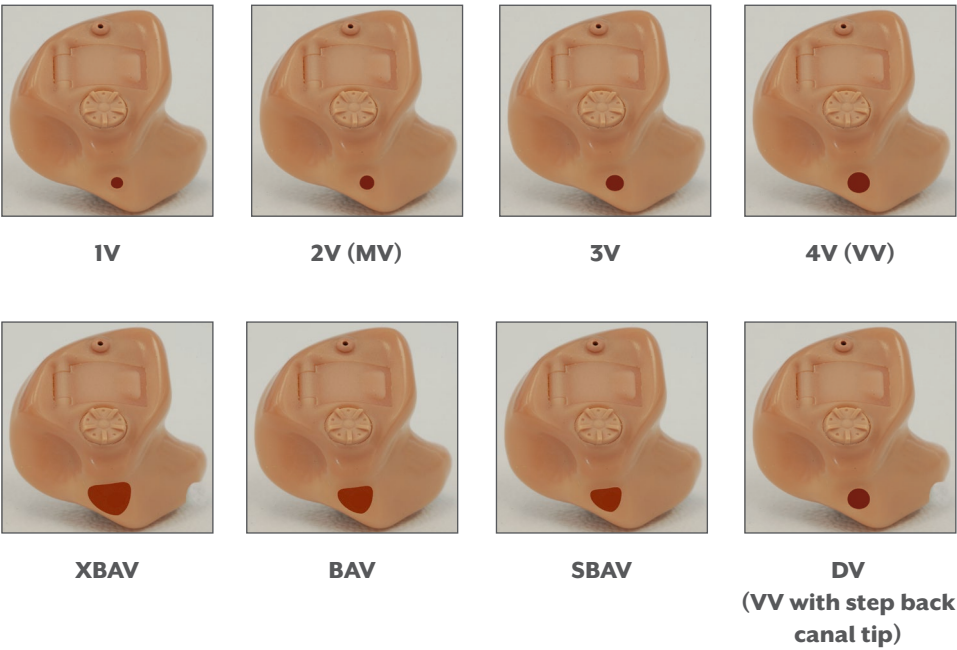
Size 13 battery PNs and Descriptions	
53144-001	TRNG BATT DWR 13 L PNK
53145-001	TRNG BATT DWR 13 R PNK
53144-023	TRNG BATT DWR 13 L LTB2
53145-023	TRNG BATT DWR 13 R LTB2
P00000824	TRNG BATT DWR 13 L BLC
P00000825	TRNG BATT DWR 13 R BLC

# Vent Identification and Vent Size Logic

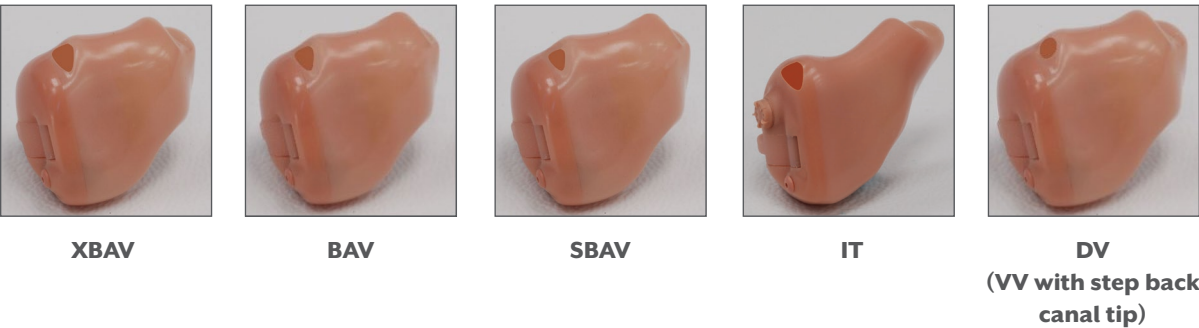
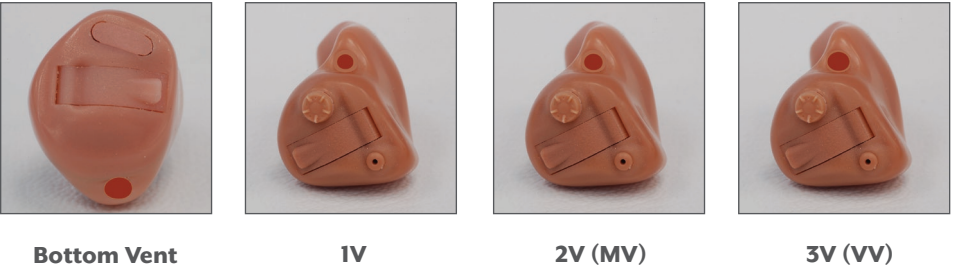
## Vent size logic

Hearing Loss Logic for Default Vent Sizes (Hearing Loss Thresholds = X)					
X < 30 dB XBAV	30 < X < 35 BAV	35 < X < 40 SBAV	40 < X < 45 3V	45 < X < 55 2V	55 dB < X 1V or NV

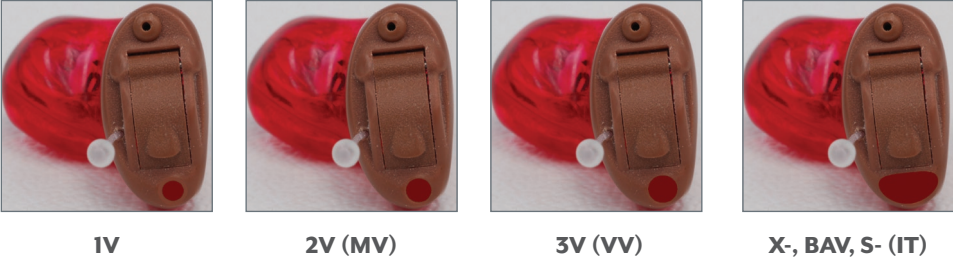
## ITE



## ITC



## CIC

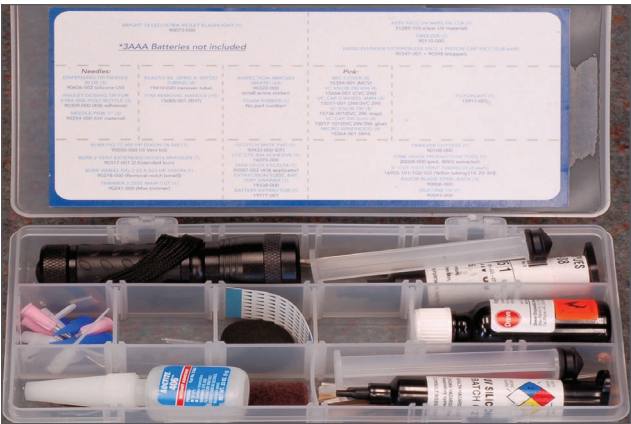


IROS (XBAV, IT, etc.) vent sizes are relevant sizes and are output and shell size dependent.

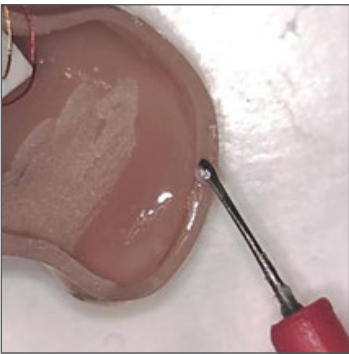
Modification Tools

Hearing aid modification kit

52498-000



Adhesive, Applicator



**90587-002 (S)**  
blue handle

**90587-003 (L)**  
red handle

*Apply small amounts adhesive/material*

Adhesive, Loctite



**16070-001 (406)**  
medium viscosity (included)

**16071-001 (401)**  
high viscosity (additional)

**90789-000**  
Loctite UV Flashcure 4306 1 Oz. low viscosity (additional)

*Adhere removal handle in faceplate*

Adhesive, Tip



**90309-000 (401-4081 Loctite)**

Burr, Extended



**90470-001**  
1 vent extended (additional)

**90603-000**  
1.5 vent extended 1.2mm (additional) not depicted

**90377-001**  
2 vent extended (included)

**90062-000**  
3 vent extended (additional)

*Enlarge vent sizes*

Burr, Trimmer



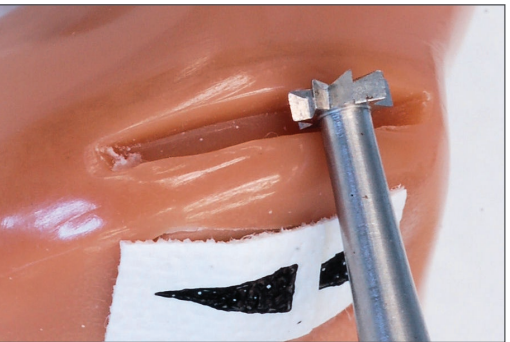
**90242-000 red**  
(pineapple-sharp nose, fine) (additional)

**90241-000 blue**  
(pineapple-sharp nose, rough) (included)

**90243-000 blue**  
(rounded, rough) (additional)

*Cut back canal tip*

Burr, Wheel (RN)



**90278-000**  
(removal notch, small) (included)

**90210-000**  
(removal notch, large) (additional)

*Also, grind out hairline cracks & cosmetically poor seams*



Hearing aid modification kit (cont.)

Drill, Removal Handle (RHT)



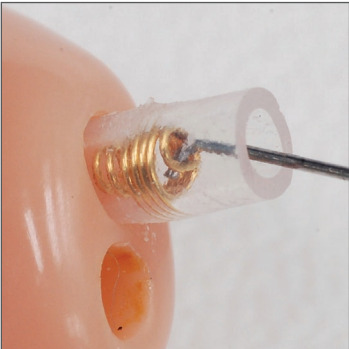
90050-000 (½ vent)

Dull Finish (DF)



90433-000  
Dull finish on faceplate

Hook, Tube



20028-000  
(foam/wax removal pick,  
Biconic wax guard (BWG) extractor)

Mic Cover (OMC)



52829-(00B BLK, 002 DKB,  
005 CLR, 006 CBN, 023 LTB/PNK)

Extractor, Battery



19777-001  
(metal, formed)

Extractor, Battery Drawer



P00001332  
Battery Drawer Extraction Tool

Mic Windhood (WH)



15264-001  
PNK [2/DKB, 4/ CNT, 6/CBN,  
7/red (as WC Rt.), 8/blue  
(as WC Lt.), 13/LTB]

WC = Rec. Wax Cap on canal tip

Plunger Clear, 10cc

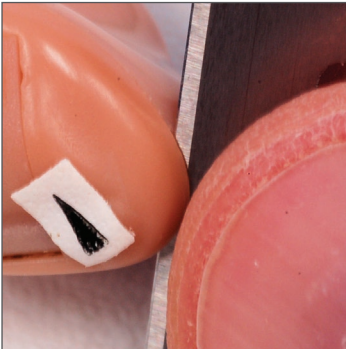


90347-000/1 + 90348-000  
(10CC black barrel, black cap,  
white plunger)

NOT included with additional 10CC  
orders, e.g. UV material shell, 10CC  
& UV silicone, 10CC

Hearing aid modification kit (cont.)

Razor Blade, steel back 100 PK



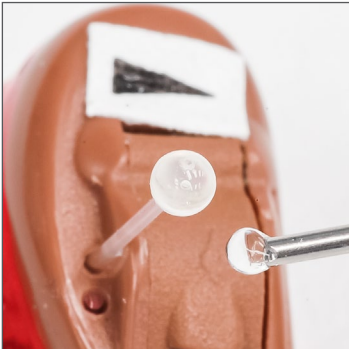
**90006-000**  
(included)  
**22469-000**  
Razor Blade Housing (additional)

Stickers, arrow inspection (white)



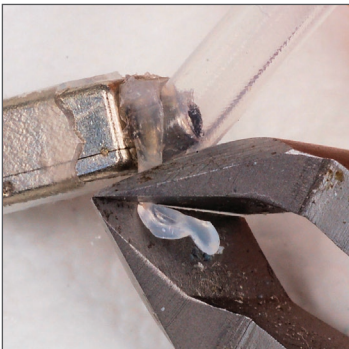
**90322-064** (small sheet)  
**90322-000** (large box)  
Debris protection, microphone

Removal Handle, CIC (RHT)



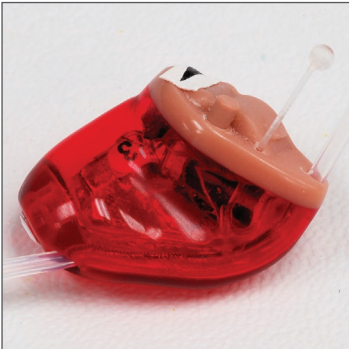
**90877-005**  
Removal Handle Earmold Clear (100/pk) with ball  
**90877-001 (500)**  
Removal Handles (500/PK)  
**90877-002 (25)**  
Removal Handles (25/PK)  
Ref. adhesive, loctite drill, removal handle (RHT)  
UV material shell, 10CC (CLR)

Tube, Silicone only, Receiver 0.75"



**19410-020 Silicone**  
**16057-001 (bulk) Silicone**  
**16091-000 Viton (white)**  
*Re-tubing receivers*

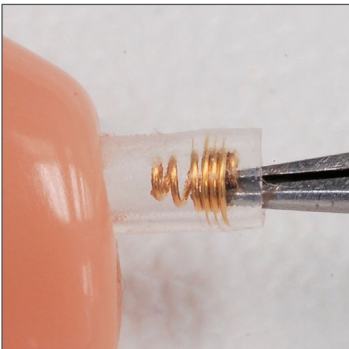
Tube, vent Teflon



**16903-101 (1V)**  
**16903-102 (2V)**  
**16903-103 (3V)**  
**16903-104 (4V)**  
(additional)

*Patch vent leaks*

Tweezer, sharp nose



**90110-000**

Tweezer, cutter



**91482-000**

UV Adhesive

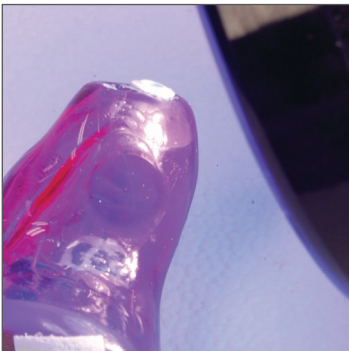


**90569-000**  
Fotofix 20 ML CLR  
*Adhere faceplate to shell*



Hearing aid modification kit (cont.)

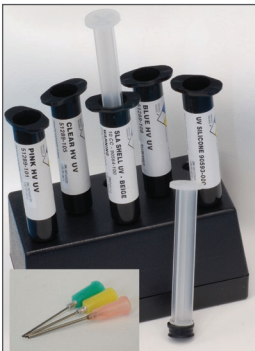
UV Flashlight, 14 LED



**90073-000**  
(batteries not included)

*Use @ 1" distance, for 30-60 sec.,  
depending on the transparency or  
opaqueness of the material/color.*

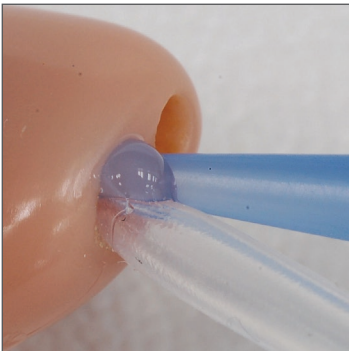
UV Material Shell, 10CC



**01958-001** Eight Syringe Holder Box (additional)  
**Shell:** **33025-001 Clear HV** (for removal handle ball)  
**Material:** **51289-107/8 Red/Blue HV** (additional)  
**90564-100 Beige, SLA** (additional)  
**Needles:** **90254-000 Pink, large (additional)**  
**91471-000 Green, small (included)**  
**91473-000 Yellow, medium (additional)**

Ref. Plunger, 10CC

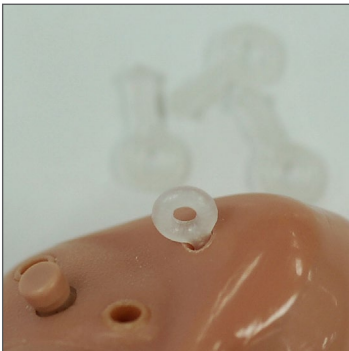
UV Silicone, 10CC



**90593-000 10CC syringe**  
**90606-002 blue needle**

Adhere silicone tubing ref. plunger, 10CC

CHAIN LOOP (CL)



**91017-000**

Razor Blade Housing



**22469-000**

RCVR HCK Viton Tube HBI Clear Assy.



**52908-003**

Buffing Compound Full Bar



**90457-000**

Wax Basket



**19304-000** (For Silicone Tube)  
**17445-000** (For Viton Tube)

Hearing aid modification kit (cont.)

Vent Brush



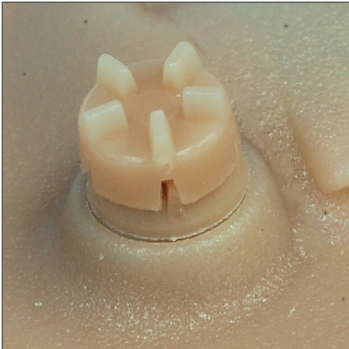
90794-001 (S = Yellow)  
90794-002 (M = Blue)

VC Cap, 2W/3W 5VC, glue



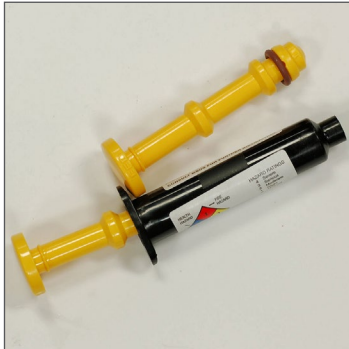
15017-101 PNK  
(102/DKB, 104/CNT, 106/CBN, 113/LTB)

VC Cap, 2W/3W CVC (4VC) or 3VC, glue



15017-001 PNK  
(2/DKB, 4/CNT, 6/CBN, 13/LTB)

Plunger Yellow, 10cc



90999-000







[Starkey.com](https://www.starkey.com)

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