 Troubleshooting the Harmony™  
HiResolution™ Bionic Ear System

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**Troubleshooting Tools**  
Troubleshooting Resources  
Troubleshooting Steps

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**Troubleshooting - Tools**

 It is helpful to have a toolbox

- Spare equipment
- Microphone test
- Lights!



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**Troubleshooting - Tools**



**Headphones for Microphone Check**

- Microphone check assesses the status of built-in processor microphone
- Can be performed on both processors in the Harmony HiResolution Bionic Ear System: the Harmony and the PSP
- Provides reassurance to family members and professionals



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**Troubleshooting Tools  
Troubleshooting Resources  
Troubleshooting Steps**

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**Troubleshooting - Resources**



**Resources**

- Product Manuals
- Package Inserts
- [www.bionicear.com](http://www.bionicear.com)
  - Manuals
  - Tools for Schools™ Interactive Troubleshooting Guides
    - Harmony Processor
    - Platinum Sound Processor
- Customer Service

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## Troubleshooting - Resources



### Customer Service

- Customer Service is available from 5 AM – 5 PM PST Monday through Friday
  - **(877) 829-0026** - Customer Service
  - (877) 779-0229 – Reimbursement Services
  - Weekend emergency pager service - (800) 678-2575 (leave a message and pager will be alerted)
- Online chat available 5 AM – 5 PM PST M-F



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### Troubleshooting Tools Troubleshooting Resources Troubleshooting Steps

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## Troubleshooting Steps



### First Steps to Troubleshooting

- If there are problems with the cochlear implant system:
  1. Ensure the processor controls are set appropriately
  2. Ensure that the battery is in place
  3. Visually inspect the equipment

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**Troubleshooting Steps**

AB

### Visual Inspection

- Check the headpiece retention and the implant site – no visible sign of irritation or redness should be noted
- If irritation is noted, consult the audiologist and/or physician
- Check that cables are inserted properly and visually intact
- Check ports/jacks for debris and clean as necessary
- Check the LED indicator (as applicable) with respect to lock and battery status
- Check sound processor for damage

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**Troubleshooting Steps**

AB

### First Steps to Troubleshooting

- Additionally:
  4. Check the headpiece
    - Is the headpiece cracked?
  5. Check the battery for damage or cracks
  6. Change the battery
  7. Use spare equipment to troubleshoot
  8. Listen to the microphone

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**Troubleshooting - Steps**

AB

### Auditory Inspection

- Harmony microphone check requires:
  - Empty program position on the Harmony
  - Direct Connect System
    - Direct Connect earhook
    - Direct Connect cable
  - Headphones

The diagram illustrates the components for an auditory inspection. On the left, a 'Direct Connect Earhook' is shown attached to a headpiece. In the center, a 'Direct Connect Cable' is shown with its connectors. On the right, a pair of 'Headphones' is shown. Arrows point from the text labels to the corresponding components in the diagram.

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### Troubleshooting - Steps



#### Harmony Microphone Check

- Steps:
  - Attach the Direct Connect earhook
  - Attach the Direct Connect cable
  - Plug headphones into the direct connect cable
  - Connect a charged PowerCel battery
  - Set the program switch to an empty program position (solid green LED should illuminate)
  - Speak in a normal voice and monitor output



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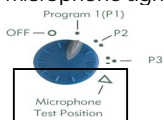
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### Troubleshooting - Steps



#### Auditory Inspection

- Steps to PSP microphone check
  - Plug microphone test earphones into aux jack of PSP that has a charged battery attached
  - Turn program switch to microphone test position
  - Place the earphones on your ears to listen through the implant user's microphone to assess the microphone signal



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### Troubleshooting Steps



#### First Steps to Troubleshooting

- Additionally:
  4. Check the headpiece
    - Is the headpiece cracked?
  5. Check the battery for damage or cracks
  6. Change the battery
  7. Use spare equipment to troubleshoot
  8. Listen to the microphone
  9. Try another audio source

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### Troubleshooting Steps



#### Another Audio Input Source

- To verify if the recipient can receive sound through another sound source, connect the direct connect system, audio interface cable, and either an auxiliary microphone or portable listening device.
- Should the recipient receive sound with another audio input source, this verifies that the processor microphone is not functioning
- Contact customer service for further assistance



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### Troubleshooting Steps



#### Weakest Link

- Cable is the weakest link in the system
  - Issue more often with body worn processors
- Cables have shielding to reduce interference from electrical devices
- Patients should always have a spare cable
- Old/bad cables should be discarded
- With a malfunctioning cable the recipient may experience intermittency, static, popping, interference, poor sound quality, or no sound



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### Troubleshooting Steps



#### Dirty Equipment

- Debris can accumulate on equipment – battery contacts, processors, programming cable pins, chargers, cable connections
- Clean with:
  - Dry Cloth
  - Hearing aid brush
  - Rubbing alcohol
- When equipment is dirty, the recipient may report intermittency, no sound, or unusual or improper function

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### Troubleshooting Steps

#### Battery Issues

- Proper care and maintenance is critical
- Clean battery contacts and frequently check for signs of corrosion
  - Clean with a cotton swab lightly soaked in alcohol
  - Store batteries in a cool, dry place
  - Rotate battery use
- An improperly functioning battery may cause the recipient to experience no sound, intermittency, or changes in sound quality

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### Troubleshooting Steps

#### Wet Processor

- Processors are designed with moisture in mind
- If a processor gets wet
  - Gently drain and/or shake out water
  - Place the processor in its carrying case with refreshed dri-aid crystals
  - Do **NOT** accelerate the drying process

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### Troubleshooting

#### Summary

- Tools
  - Spare equipment
  - Headphones
  - Lights!
- Resources
  - Product Manuals
  - Package Inserts
  - [www.bionicear.com](http://www.bionicear.com)
  - Customer Service

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## Troubleshooting

### Summary

- Basic troubleshooting steps
  - Ensure the processor controls are set appropriately
  - Ensure that the battery is in place
  - Visually inspect the equipment
  - Check the headpiece
  - Check the battery for damage or cracks
  - Change the battery
  - Use spare equipment to troubleshoot
  - Listen to the microphone
  - Try another audio input

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