

Workshop manual

X-COM R



English

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1 Introduction

1.1 Product information

X-COM R is available with headband or with a helmet.

1.2 Document description

This manual gives a full description of how to do maintenance and repair on the product. It also gives safety instructions that the personnel must obey.

1.3 Revisions

Changes to the product can cause changes to the maintenance work and spare parts. Separate information is sent out for each change.

Read the manual together with all received information about changes to maintenance and spare parts for the product.

1.4 Safety



WARNING: All personnel that repair or do servicing on the product must read and understand the safety instructions in this workshop manual.

1.5 Servicing tools

The manual gives information about necessary servicing tools. Always use original tools from Husqvarna.

2 Safety

2.1 Safety definitions

Warnings, cautions and notes are used to point out specially important parts of the manual.



WARNING: Used if there is a risk of injury or death for the operator or bystanders if the instructions in the manual are not obeyed.



CAUTION: Used if there is a risk of damage to the product, other materials or the adjacent area if the instructions in the manual are not obeyed.

Note: Used to give more information that is necessary in a given situation.

2.2 General safety instructions



WARNING: Apply a new warning label if a warning symbol on the product is damaged or missing.

2.3 Symbols on the product

Only use Husqvarna battery. Obey the safety instructions that are given for the battery and charger cable.



The product agrees with the applicable EC directives.

2.4 Special safety instructions

2.4.1 Battery



WARNING: Do not use accessories that are not approved by the manufacturer. Do not do changes that are not approved by the manufacturer.



WARNING: Always use original spare parts and accessories.

3 Prepare and do servicing on the product

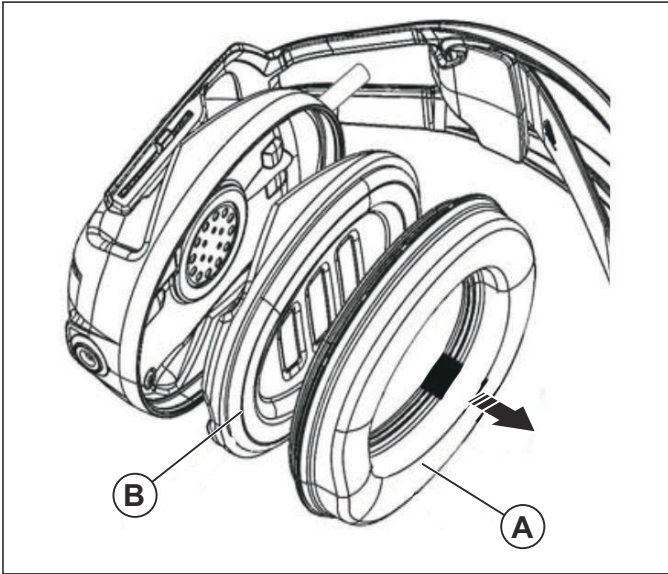
3.1 Life cycle and battery discharge

During long time storage, charge the battery each 6 months to prevent discharge of the battery. Discharge can decrease the life cycle of the battery.

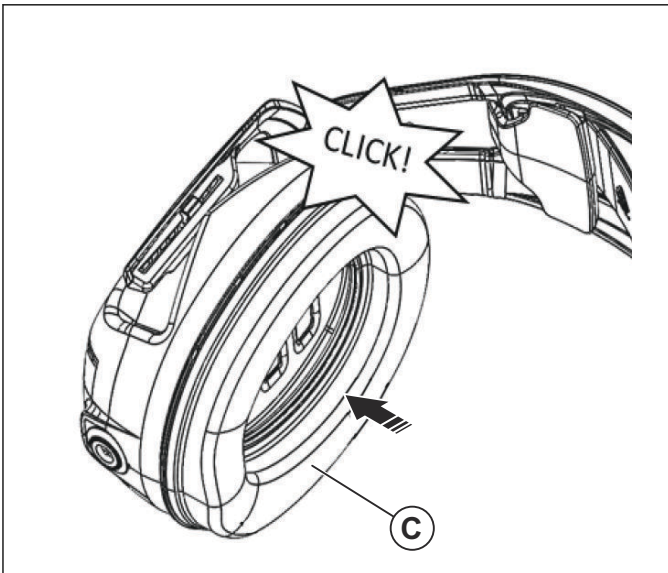
3.2 To replace the hygiene kit

Hygiene kit must be replaced when necessary or minimum each 6 months. Use the correct hygiene kit from Husqvarna .

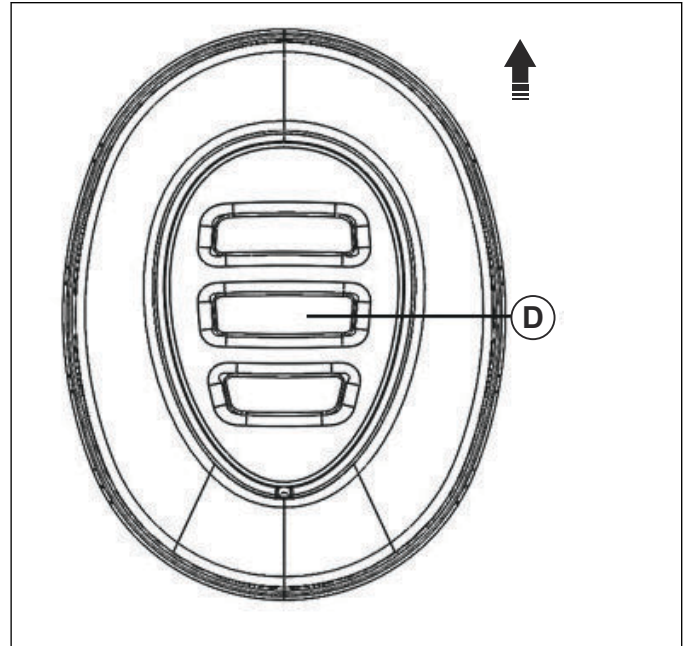
1. Loosen the sealing ring (A) and foam rubber insert (B).



2. Put the new foam rubber insert and attach the new seal ring. Put the bulge (C) of the sealing ring down.



3. The foam rubber insert must be put as shown (D).

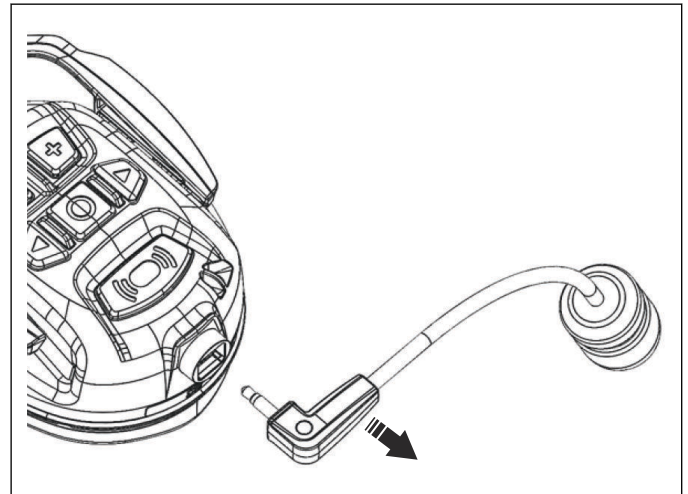


3.3 The boom microphone

3.3.1 To disassemble the boom microphone

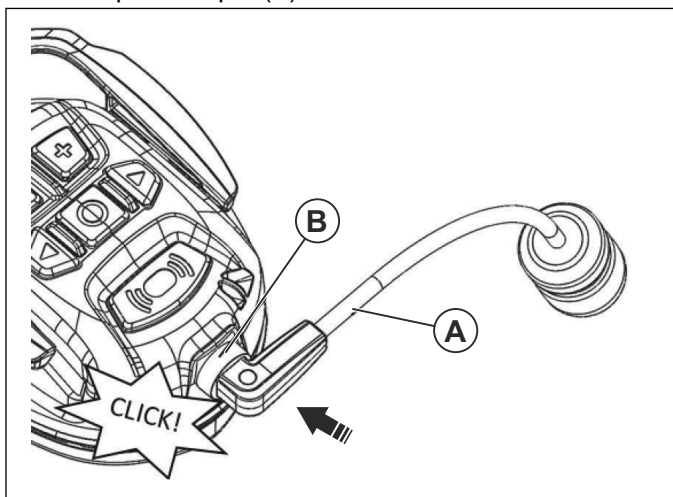
The boom microphone can be used to make sound quality better in phone calls in a environment with noise.

1. Remove the boom microphone straight out.



3.3.2 To assemble the boom microphone

1. Push the boom microphone (A) into 3.5mm microphone input (B) to attach it to the headset.



4 Servicing data

4.1 Servicing data

Tightening torque 0.3-0.5 NM T7



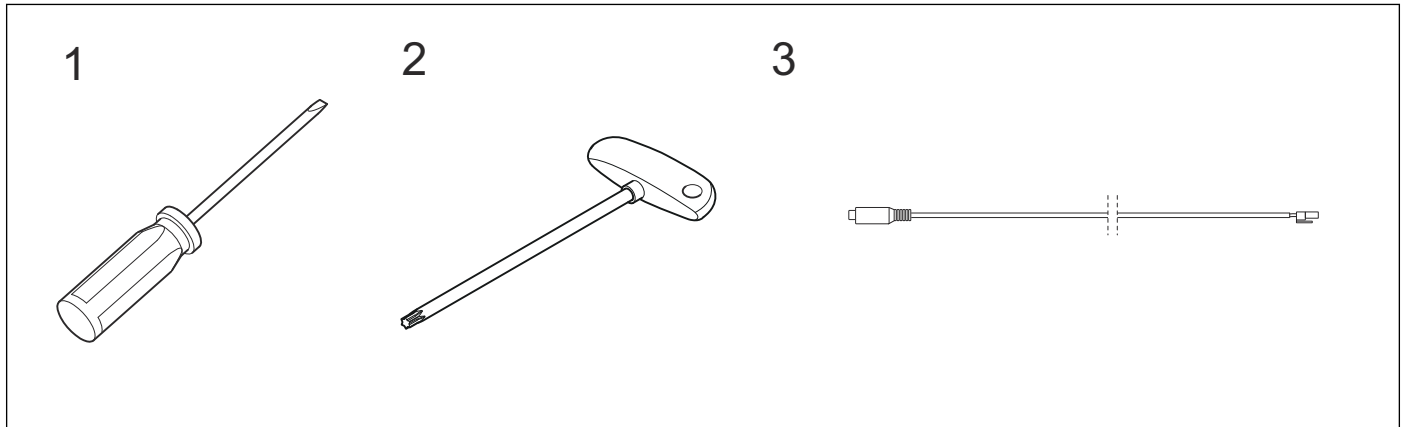
4.2 Servicing data

Tightening torque 0.3-0.5 NM T7



5 Servicing tools

5.1 Servicing tools

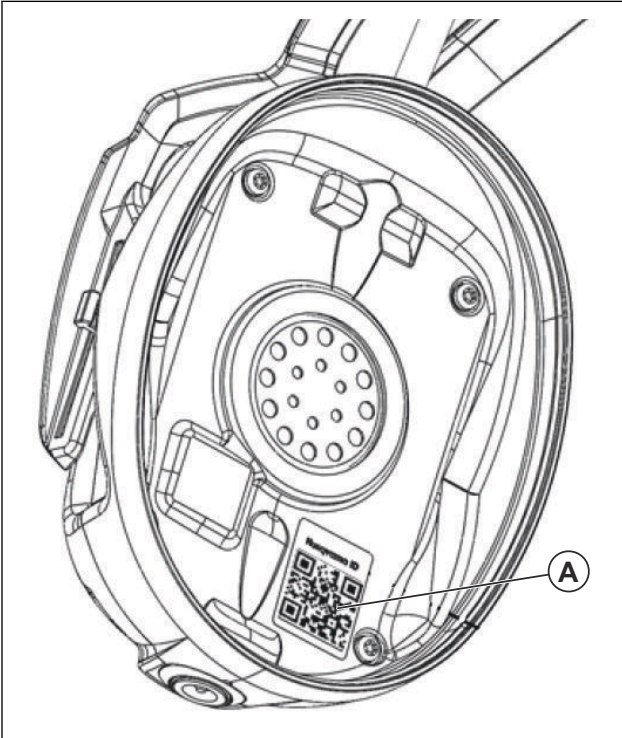


Item	Description	Use for	
1	Screw driver, Flat	Headband	N/A
2	T-handle (or screw driver) torx T7	Screws with torx head	N/A
3	USB to TTL Serial Cable (3,3V)	For Bluetooth Headset HP310	597 37 31-01

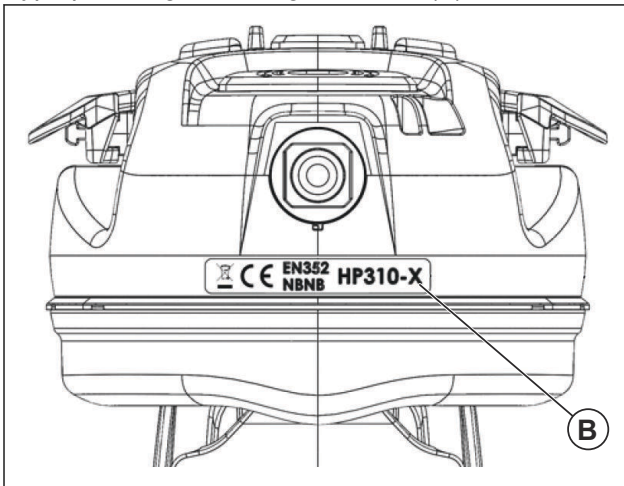
6 Function overview

6.1 Product serial number

- Serial number is given by scannable code on label (A) behind foam rubber insert on left earmuff on the battery side.



- Type plate is given on right earmuff (B).



7 Repair instructions

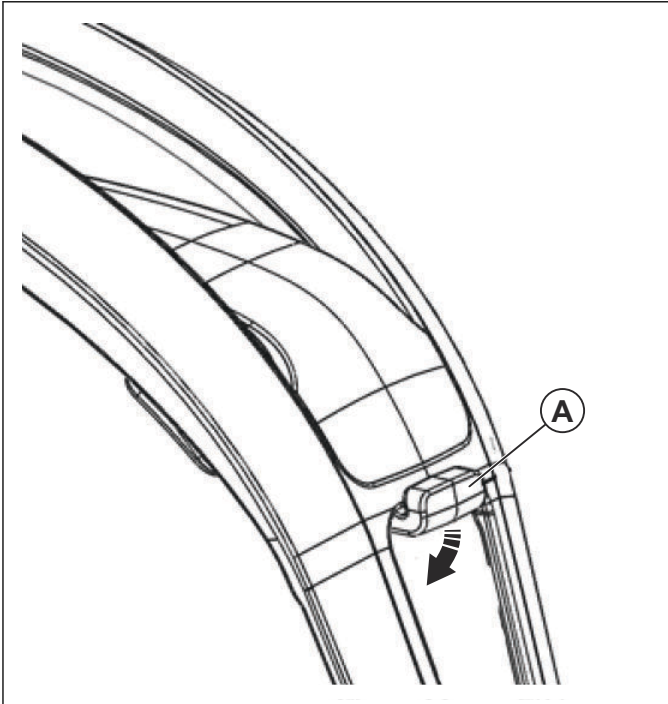
7.1 To clean and examine the product parts

- Clean and examine all parts fully. You find more instructions in the chapter for each part if special tools or procedures are necessary.
- Replace damaged or defective parts.
- Always use original spare parts.

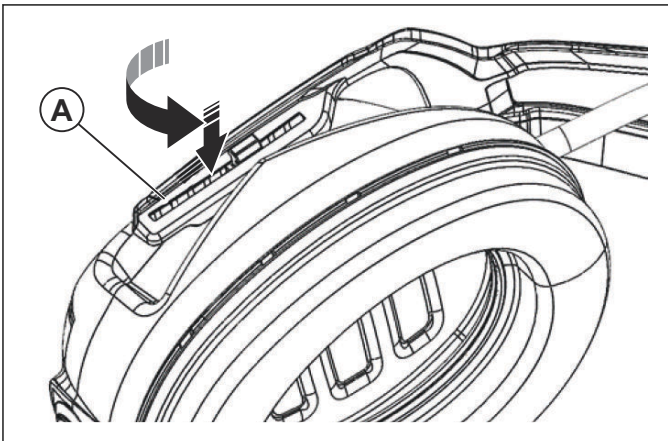
7.2 The headband

7.2.1 To disassemble the headband

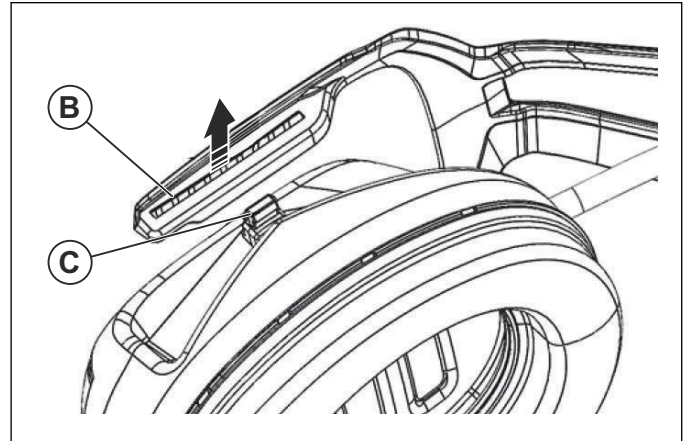
1. Remove the cable clip.



2. Use a screwdriver to open the slot (A).

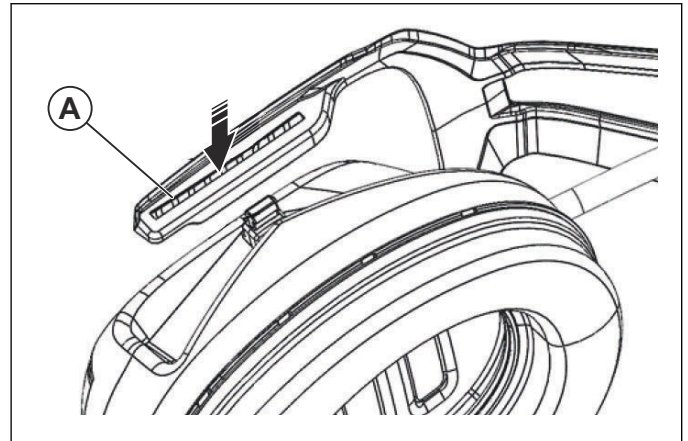


3. Disassemble the headband (B) from the pin (C).



7.2.2 To assemble the headband

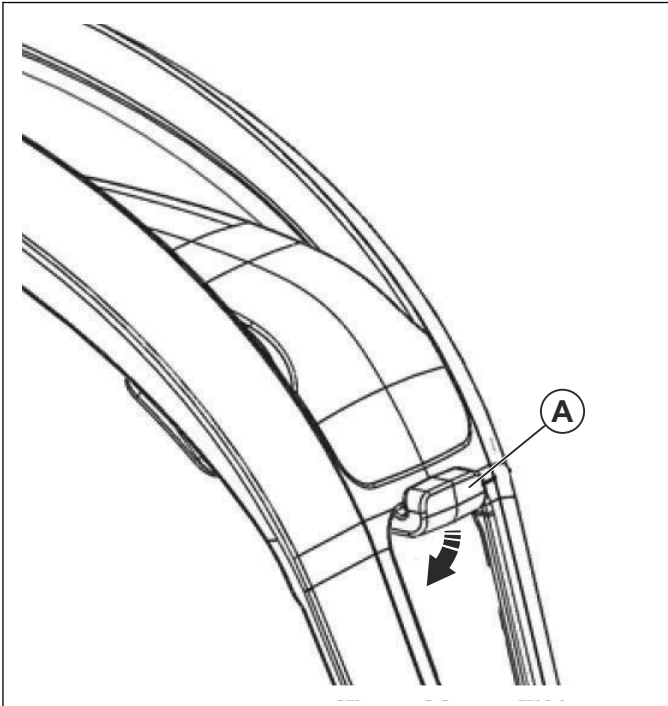
1. Carefully push the headband onto the pin until you hear a click sound.



7.3 The cable clip

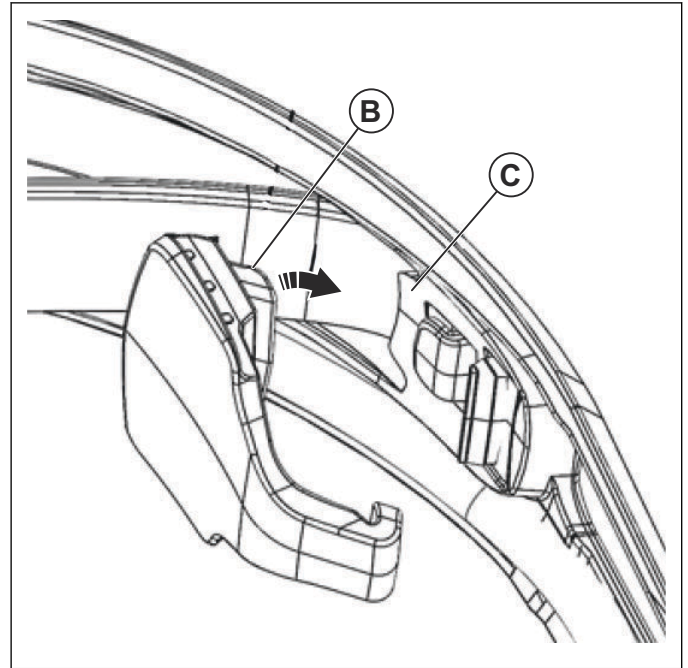
7.3.1 To disassemble the cable clip

1. Remove the cable clip (A).



7.3.2 To assemble the cable clip

1. Attach the cable clip (B) to the headband (C).



2. Push the clip (D) until you hear a click sound and the cable clip locks in position.



7.4 The earmuffs

7.4.1 To disassemble the right earmuff

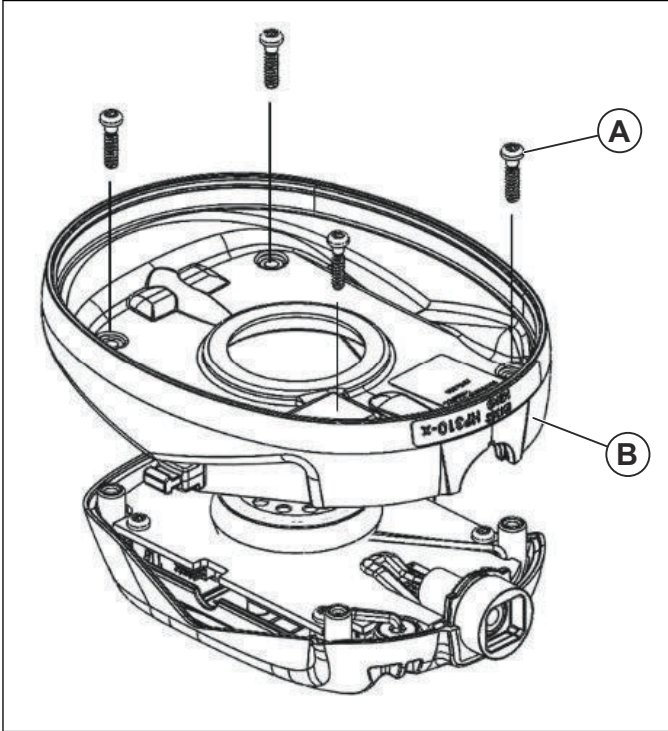


CAUTION: Note how the cables and components are installed when you disassemble the earmuff.

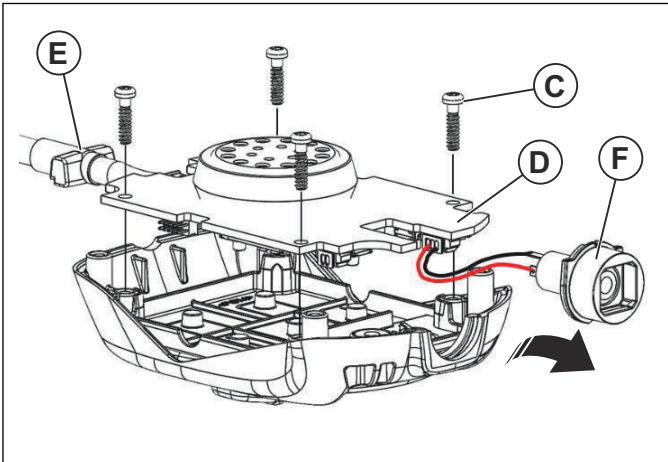


CAUTION: Be careful when you do work with the wires. The wires can easily be damaged.

1. Remove the earmuff from the headband. Refer to *To disassemble the headband on page 11*.
2. Remove the hygiene kit. Refer to *To replace the hygiene kit on page 5*.
3. Remove the 4 screws (A) and the inner earmuff (B).

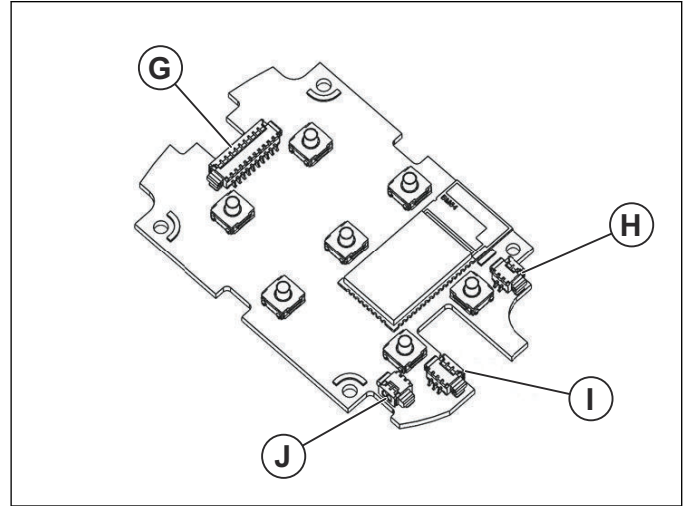


4. Remove the 4 screws (C) and lift the circuit board (D).



5. Loosen the strain relief (E) and microphone connector (F).

6. Disconnect the connectors to the strain relief (G), microphone (H), microphone connector (I) and loudspeaker (J).



7.4.2 To disassemble the left earmuff

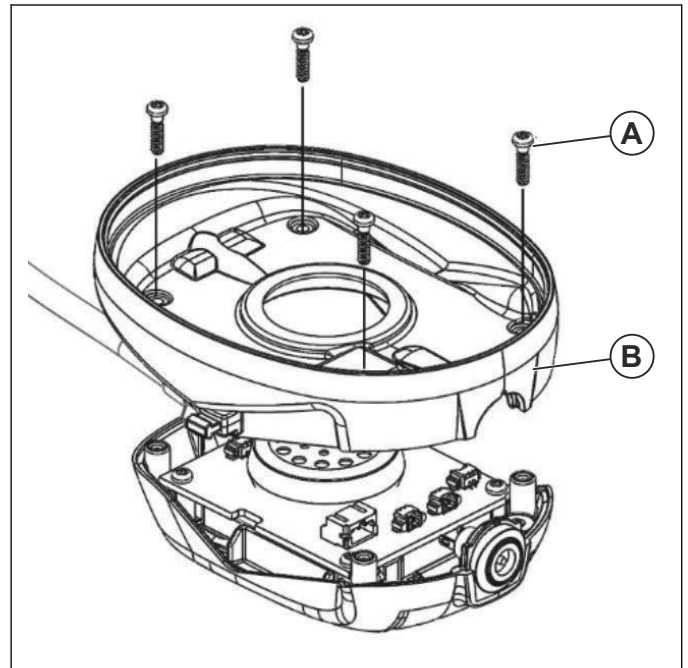


CAUTION: Note how the cables and components are installed when you disassemble the earmuff.

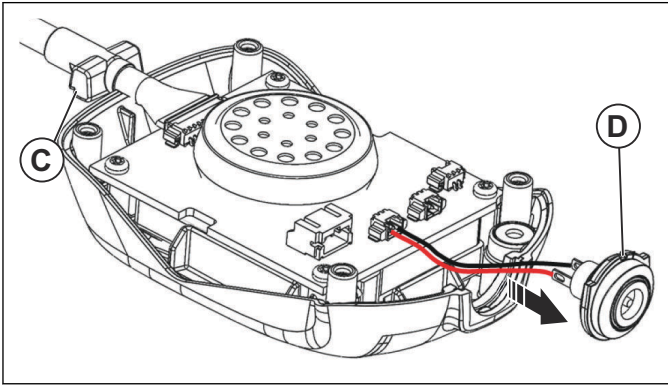


CAUTION: Be careful when you do work with the wires. The wires can easily be damaged.

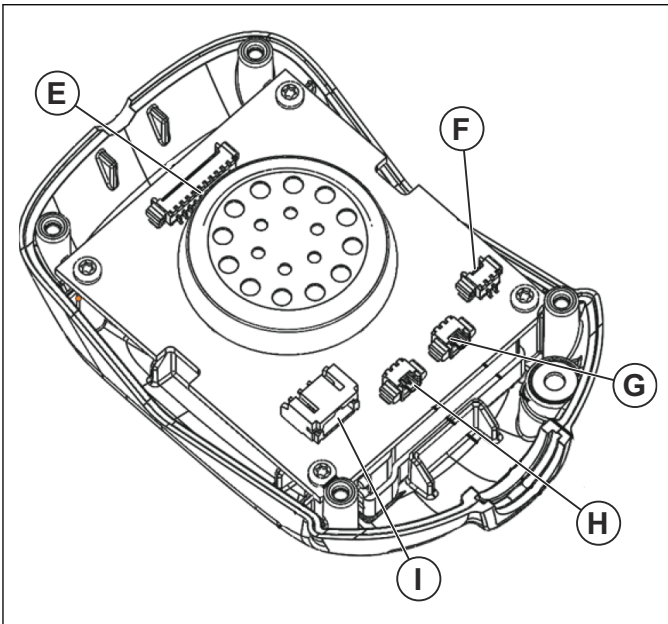
1. Remove the earmuff from the headband. Refer to *To disassemble the headband on page 11*.
2. Disassemble the hygiene kit. Refer to *To replace the hygiene kit on page 5*.
3. Remove the 4 screws (A) and the inner earmuff (B).



4. Loosen the strain relief (C) and DC connector (D).

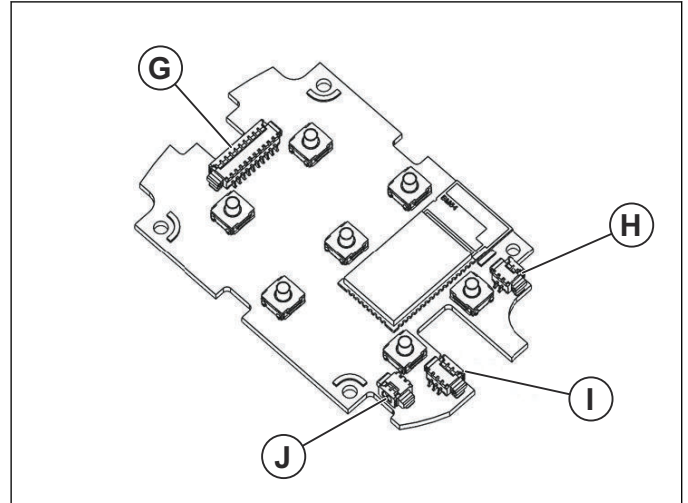


5. Disconnect the connectors to the strain relief cable (E), loudspeaker (F), microphone (G), power connector (H) and battery (I).

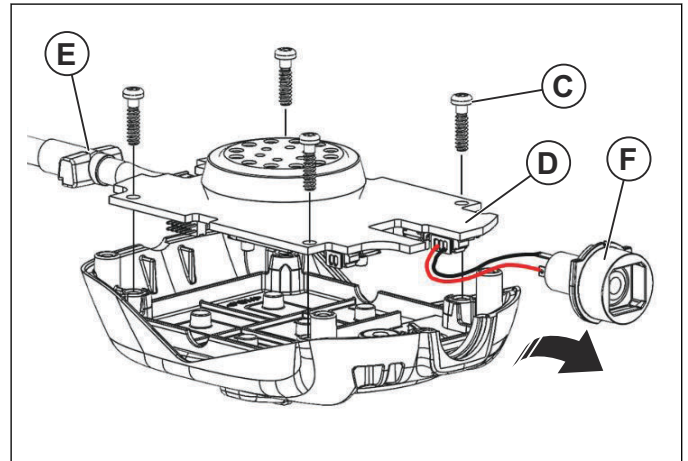


7.4.3 To assemble the right earmuff

1. Connect the connectors to the strain relief cable (G), microphone (H), microphone connector (I) and loudspeaker (J).

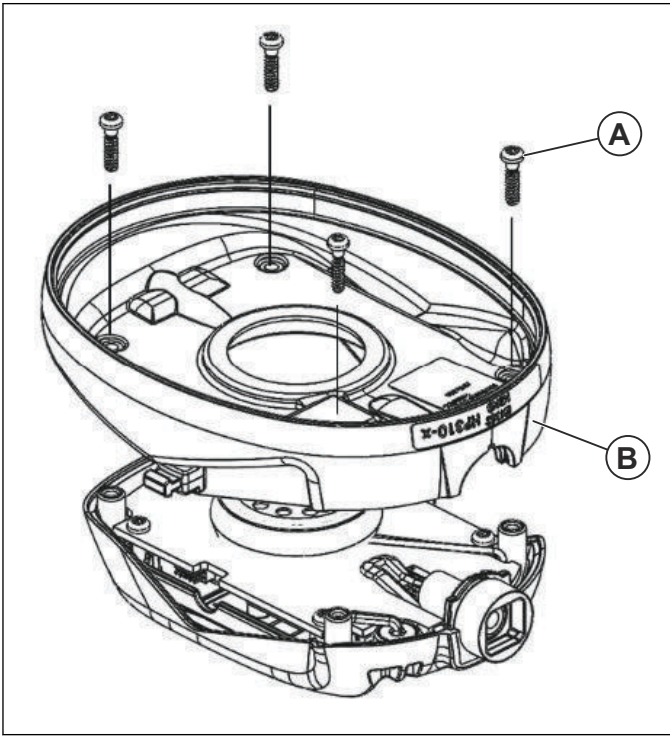


2. Attach the 4 screws (C) and lift the circuit board (D).



3. Assemble the strain relief (E) and microphone connector (F).

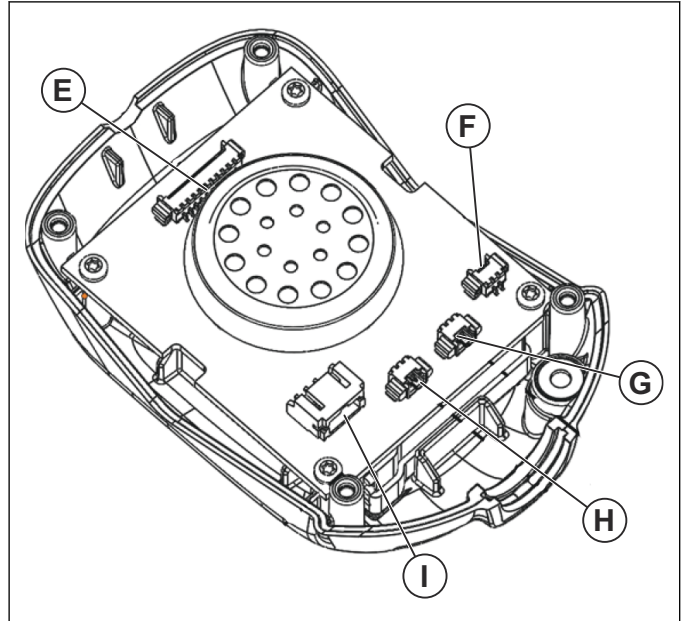
4. Assemble the inner earmuff (B) and attach the 4 screws (A).



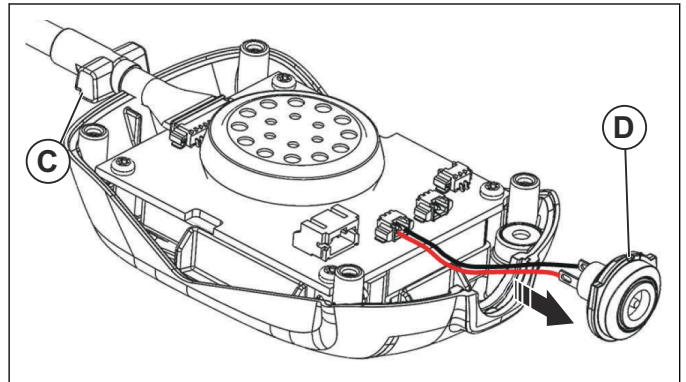
5. Put the foam rubber insert and attach the sealing ring.
6. Attach the earmuff to the headband. Refer to *To assemble the headband on page 11.*

7.4.4 To assemble the left earmuff

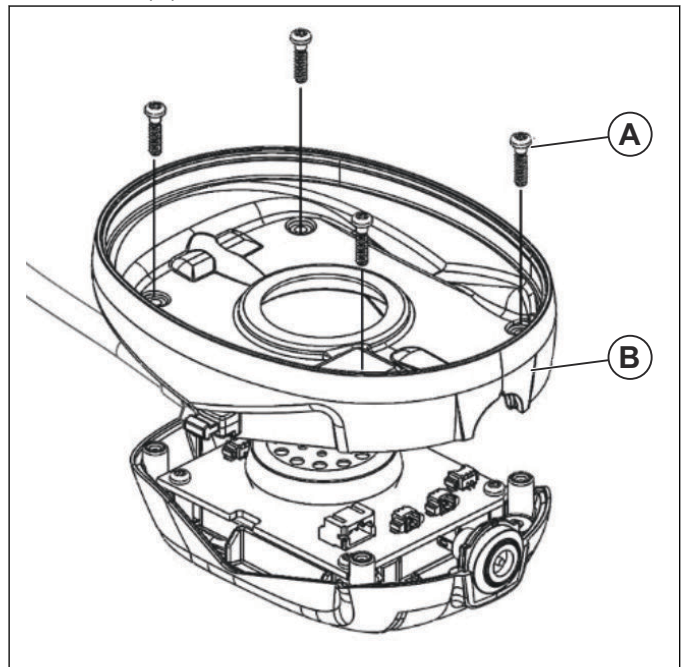
1. Connect the connectors for strain relief cable (E), loudspeaker (F), microphone (G), power connector (H) and battery (I).



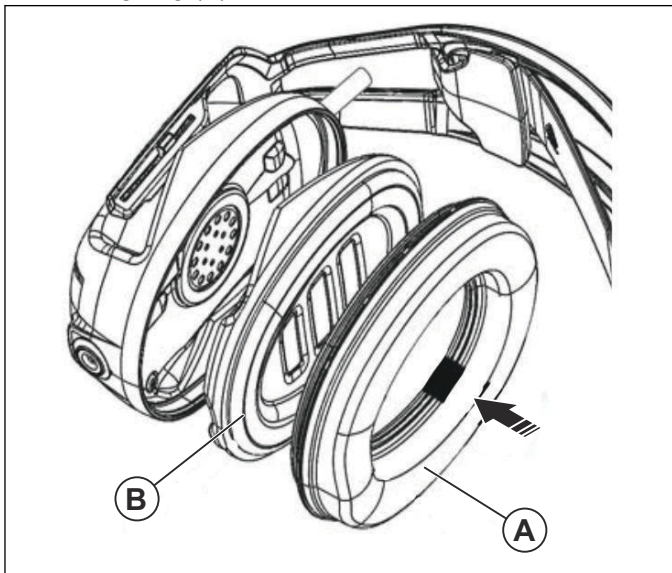
2. Assemble the strain relief (C) and DC connector (D).



3. Assemble the inner earmuff (B) and attach the 4 screws (A).



- Assemble the foam rubber insert (B) and attach the sealing ring (A).

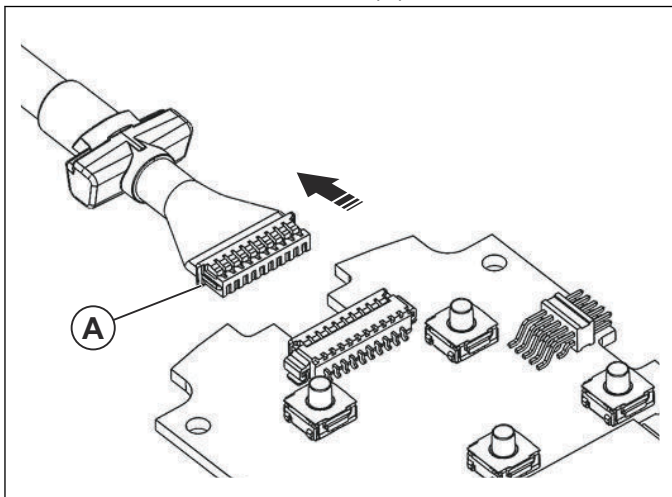


- Assemble the earmuff to the headband. Refer to *To assemble the headband on page 11*.

7.5 The strain relief cable

7.5.1 To disassemble the strain relief cable

- Disassemble the left earmuff. Refer to *To disassemble the left earmuff on page 13*.
- Disassemble the right earmuff. Refer to *To disassemble the right earmuff on page 12*.
- Disconnect the strain relief (A) from the circuit board.



7.5.2 To assemble the strain relief cable

Make sure that the strain relief cable has the correct length (B) before it is assembled.

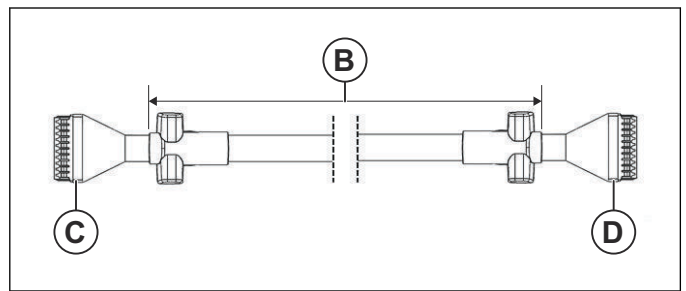
- Strain relief cable for headband: 400 mm.
- The strain relief cable for helmet: 850 mm.



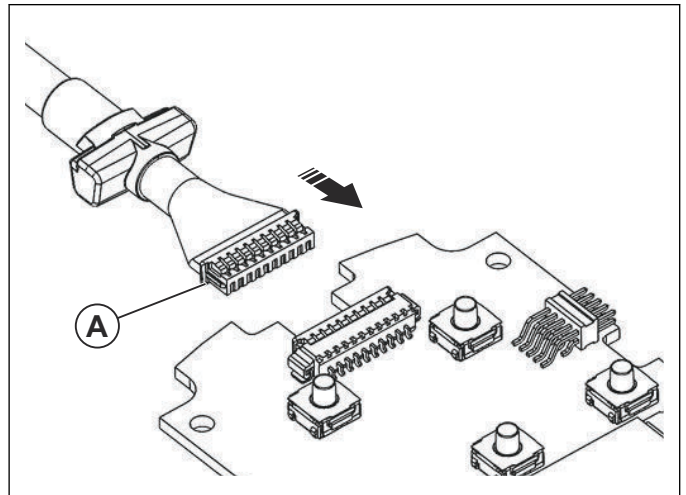
CAUTION: The strain relief cable is not symmetrical.

- The side (C) is for the right earmuff. (C = 10 wires)

- The side (D) is for the left earmuff. (D = 9 wires)



- Connect the strain relief (A) to the circuit boards.

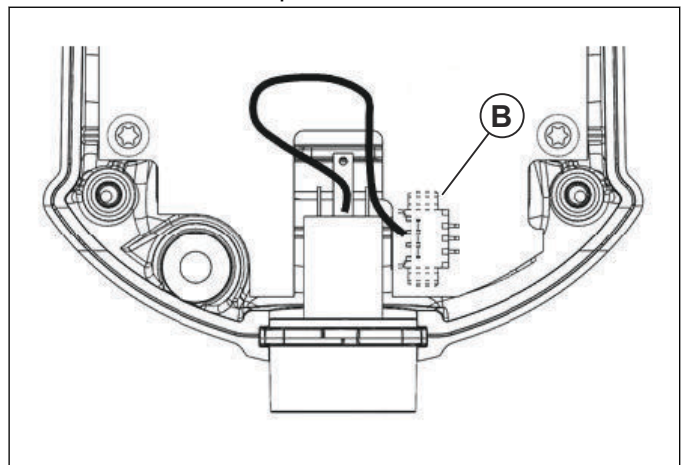


- Assemble the left earmuff. Refer to *To assemble the left earmuff on page 15*.
- Assemble the right earmuff. Refer to *To assemble the right earmuff on page 14*.

7.6 The microphone connector

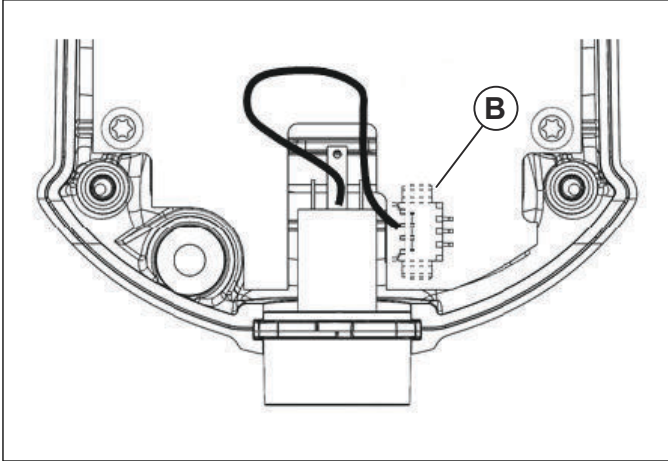
7.6.1 To disassemble the microphone connector

- Disassemble the right earmuff. Refer to *To disassemble the right earmuff on page 12*.
- Disconnect the microphone connector cable from the circuit board in position B.

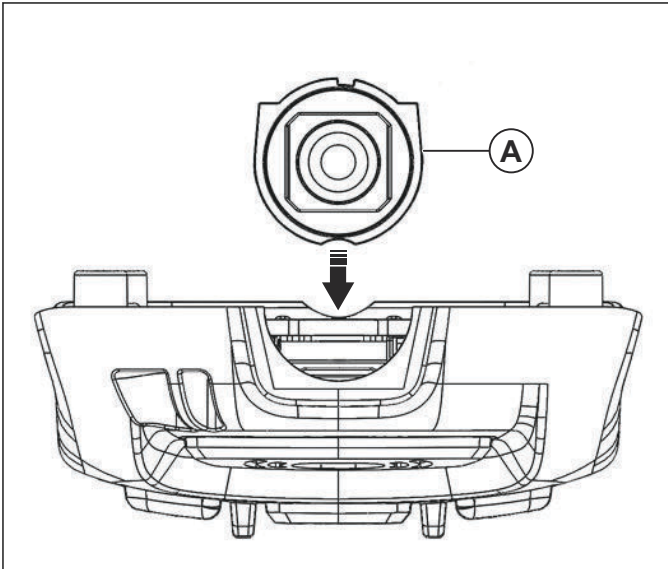


7.6.2 To assemble the microphone connector

1. Connect the microphone connector cable to the circuit board in position B. Put the cable in a loop according to the illustration.



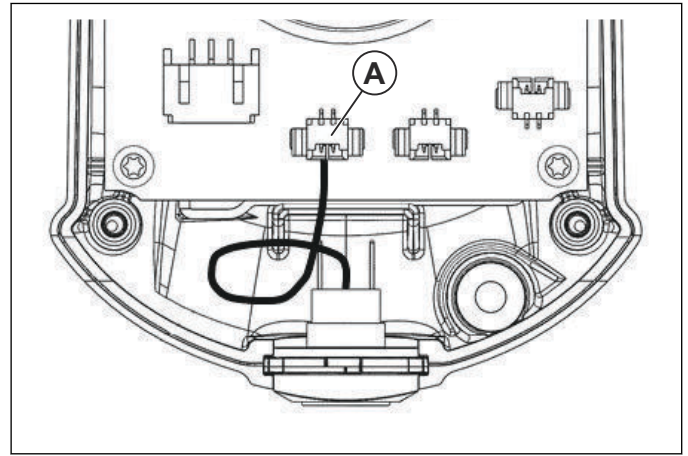
2. Make sure that the microphone connector (A) is turned the correct way. Put in the microphone connector (A) in the earmuff housing.



7.7 The DC connector

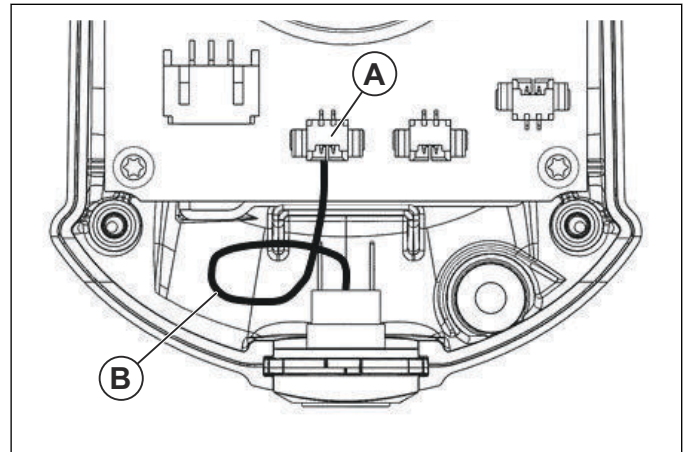
7.7.1 To disassemble the DC connector

1. Disassemble the left earmuff. Refer to step 1-4 in *To disassemble the left earmuff on page 13*.
2. Disconnect the DC connector cable from the circuit board in position (A).



7.7.2 To assemble the DC connector

1. Connect the DC connector to position (A) on the circuit board and put the wire in a loop (B) according to the illustration.



2. Assemble the left earmuff *To assemble the left earmuff on page 15*.

7.8 The loudspeaker

7.8.1 To disassemble the loudspeaker

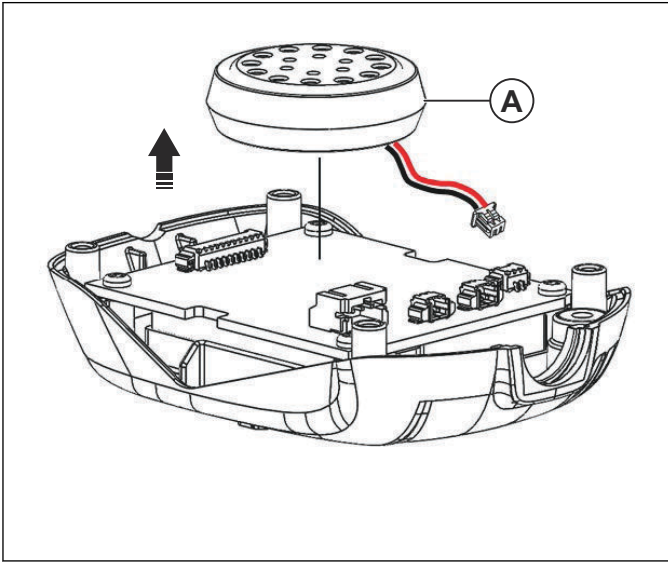


CAUTION: Note how the cables and components are installed before you disassemble the loudspeaker.

Note: Make sure that the loudspeaker and the sealing are in position.

1. Disassemble the left earmuff. Refer to step 1-4 in *To disassemble the left earmuff on page 13*.
2. Disassemble the right earmuff. Refer to step 1-4 in *To disassemble the right earmuff on page 12*.

3. Remove the loudspeaker (A) from the circuit board.



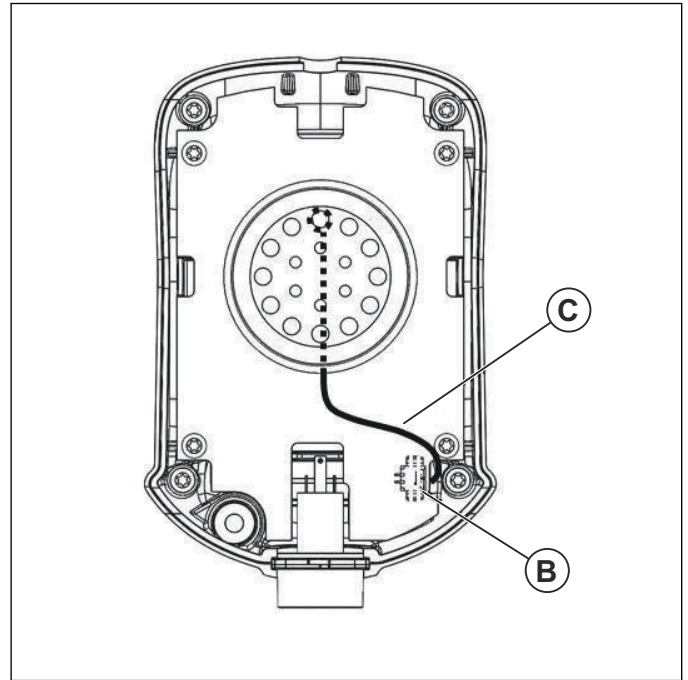
4. Disconnect the the loudspeaker cables from the circuit board.

7.8.2 To assemble the loudspeaker

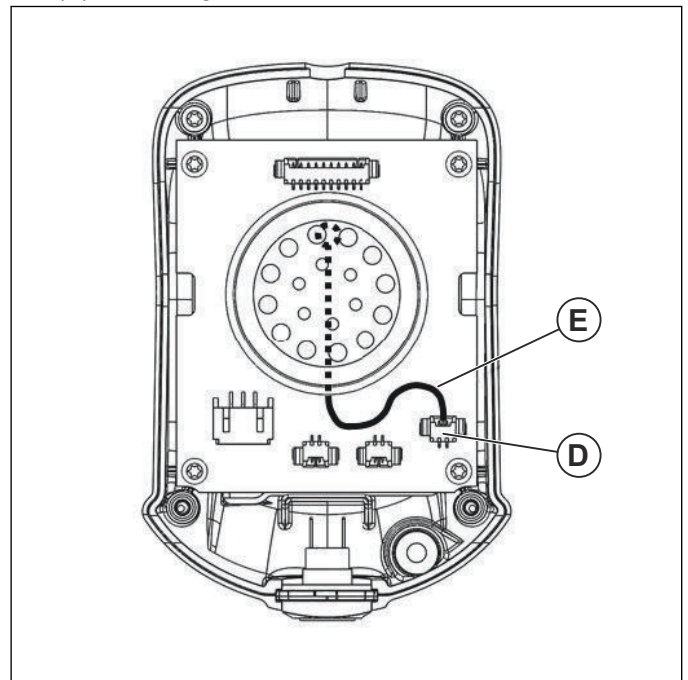


CAUTION: Make sure that the wires are not damaged when you assemble the loudspeaker.

1. Right earmuff: Assemble the loudspeaker on the circuit board according to the illustration. Connect the loudspeaker cable to position B. Put the cable (C) according to the illustration.



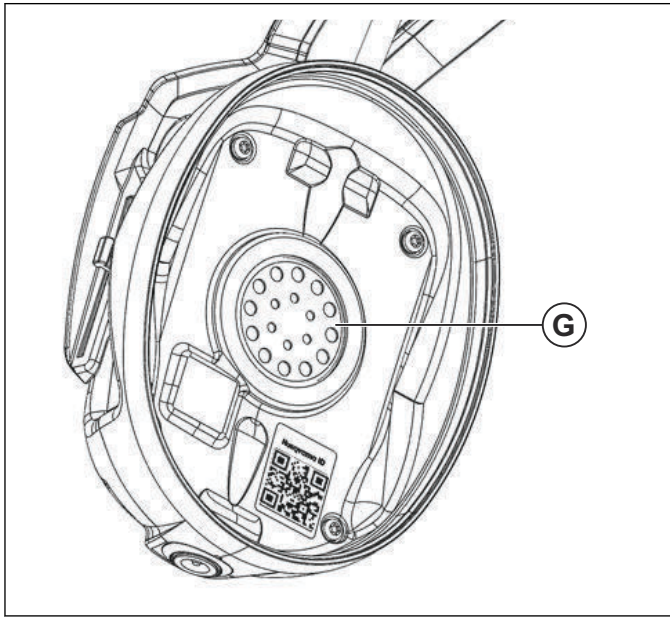
2. Left earmuff: Assemble the loudspeaker on the circuit board according to the illustration. Connect the loudspeaker cable to position D. Put the cable (E) according to the illustration.



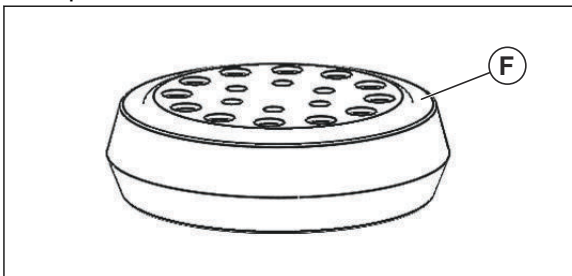
3. Assemble the right earmuff. Refer to *To assemble the right earmuff on page 14*.

4. Assemble the left earmuff. Refer to *To assemble the left earmuff on page 15*.

5. Make sure that the loudspeaker and the sealing is in its correct position (G).



CAUTION: The rubber sealing is not symmetrical. Make sure to assemble with the flat side (F) against the front side of the loudspeaker.



7.9 The microphone

7.9.1 To disassemble the microphone

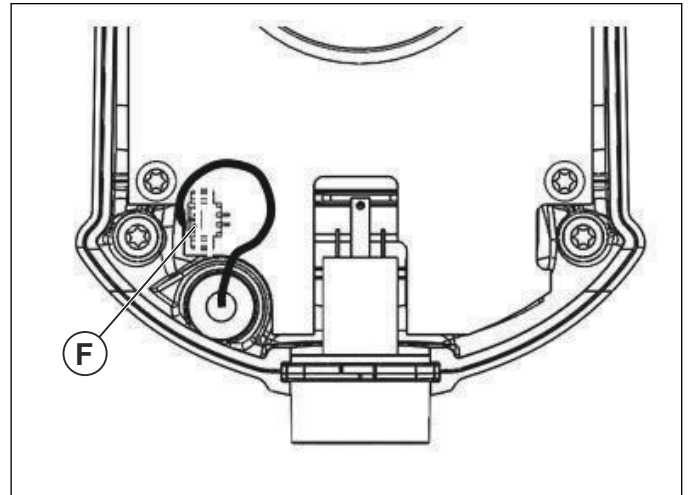


CAUTION: Note how the cables and components are installed when you disassemble the microphone.

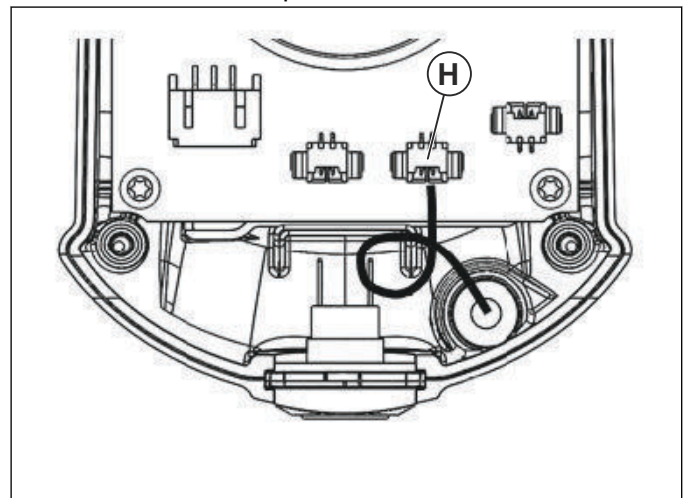
Note: Make sure that the microphone and the sealing is in position.

1. Disassemble the left earmuff. Refer to step 1-4 in *To disassemble the left earmuff on page 13*.
2. Disassemble the right earmuff. Refer to step 1-4 in *To disassemble the right earmuff on page 12*.

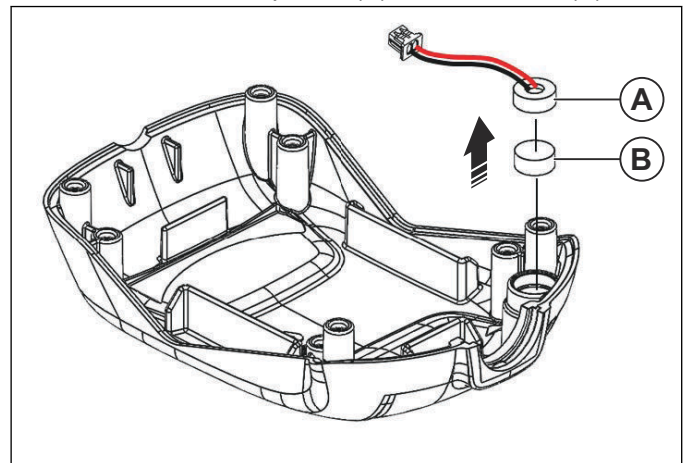
3. Right earmuff: Disconnect the microphone cable from the circuit board at position F.



4. Left earmuff: Disconnect the microphone cable from the circuit board at position H.

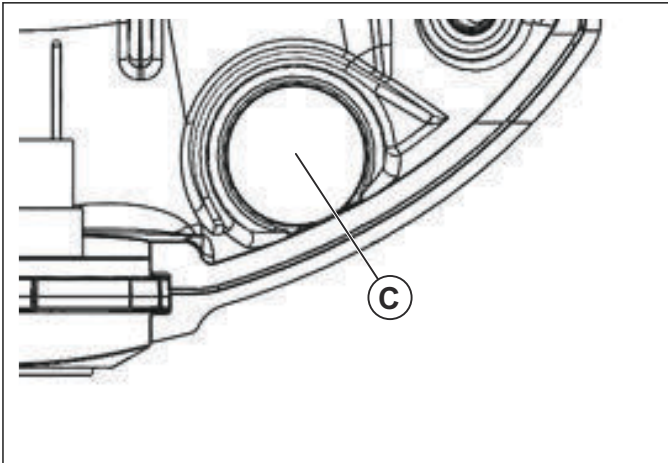


5. Remove the microphone (A) and wind filter (B).

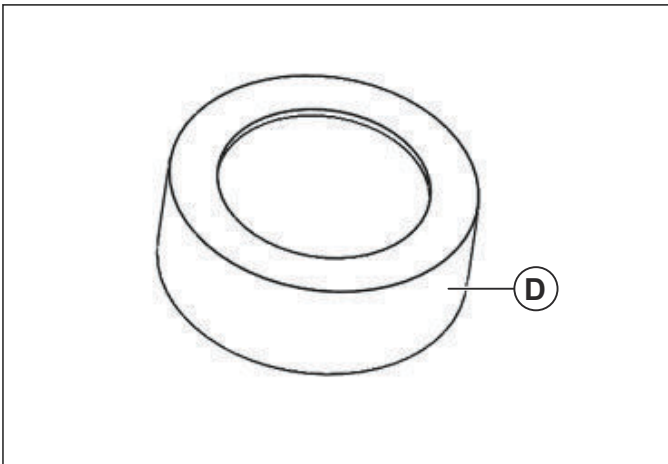


7.9.2 To assemble the microphone

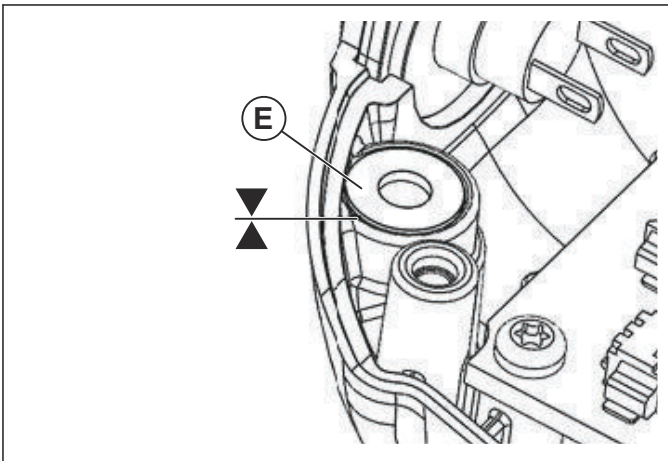
1. Assemble the wind filter (C).



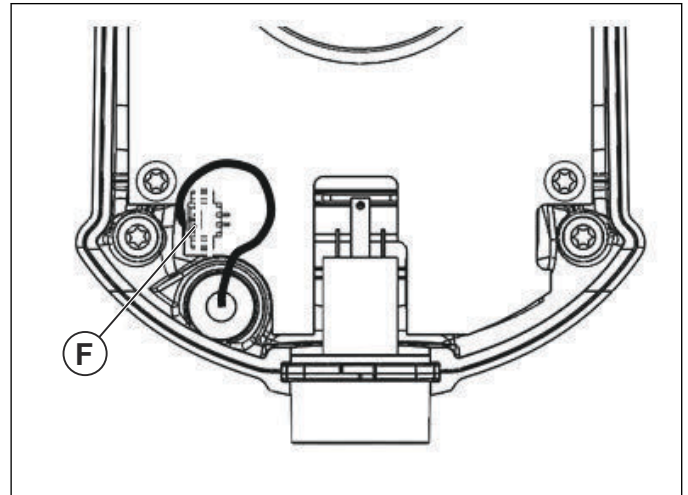
2. Put the rubber sealing boot (D) over the microphone.



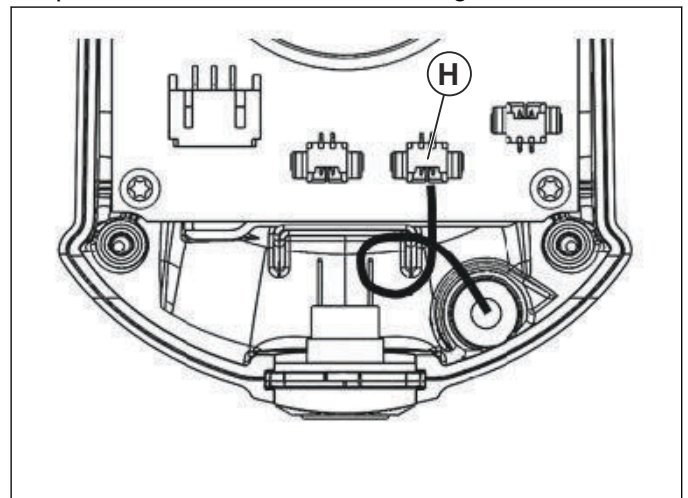
3. Push the microphone rubber boot and make sure it aligns with the top of seat in earmuff (E).



4. Right earmuff: Connect the microphone cable to position F. Put the cable according to the illustration.



5. Left earmuff: Connect the microphone cable to position H. Put the cable according to the illustration.



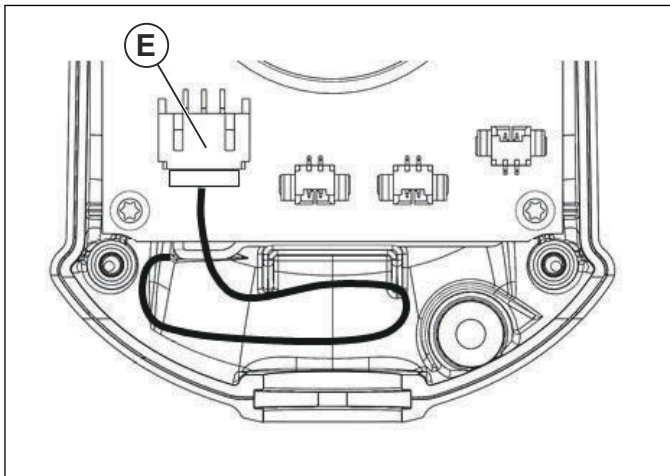
6. Assemble the right earmuff. Refer to *To assemble the right earmuff on page 14.*

7. Assemble the left earmuff. Refer to *To assemble the left earmuff on page 15.*

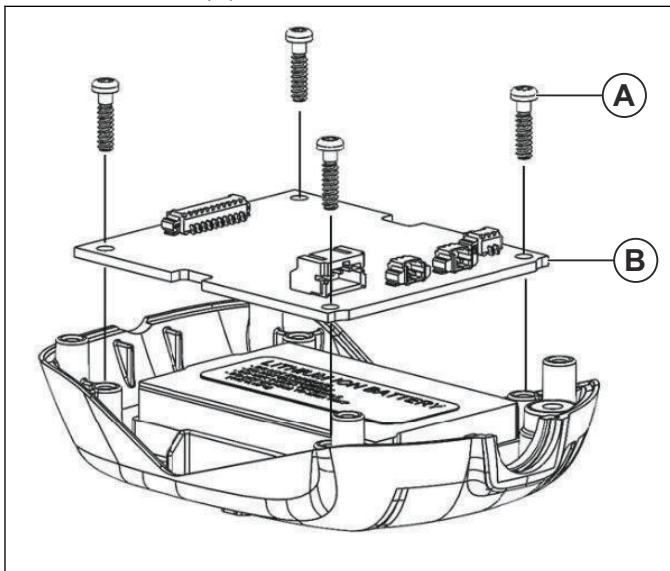
7.10 The battery

7.10.1 To disassemble the battery

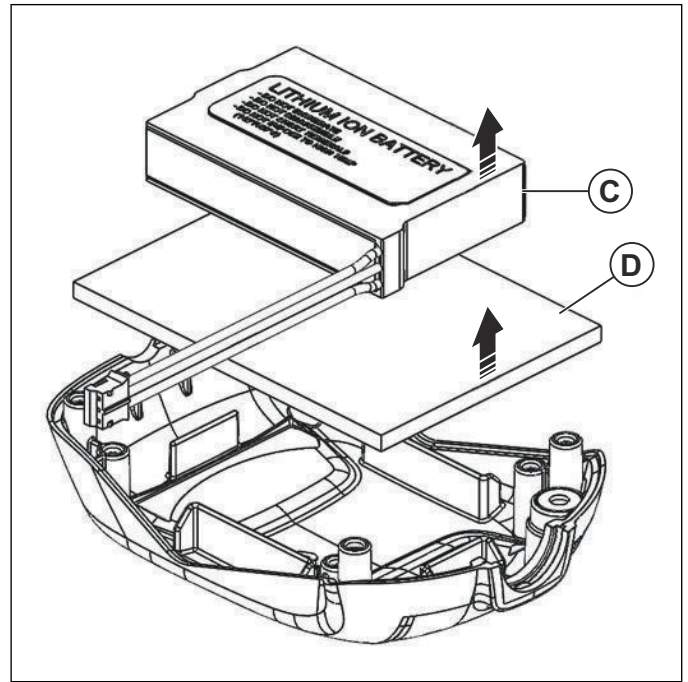
1. Disassemble the left earmuff. Refer to step 1-4 in *To disassemble the left earmuff on page 13*.
2. Disconnect the battery cable from the circuit board in position E.



3. Remove the screws (A) and carefully remove the circuit board (B).

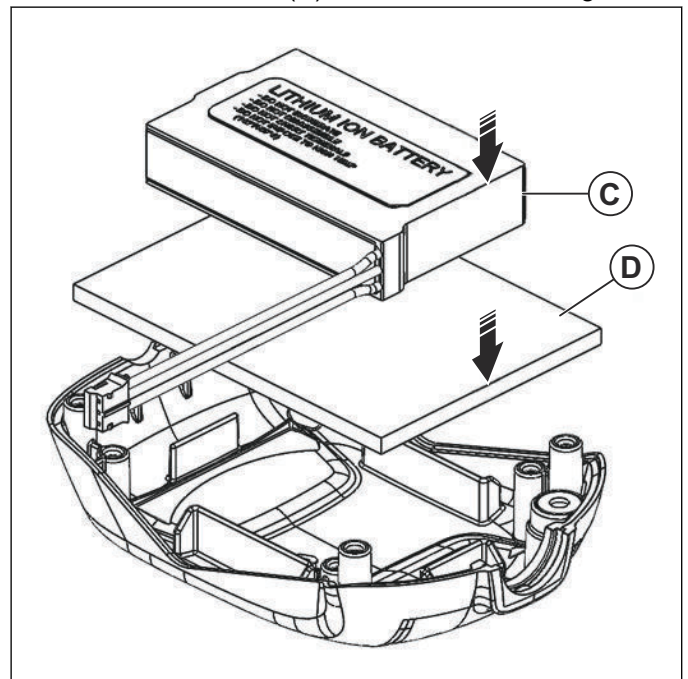


4. Remove the battery (C) and foam sheet (D).



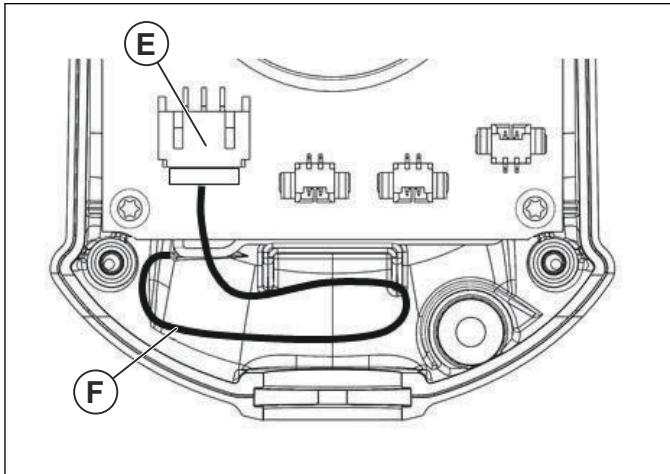
7.10.2 To assemble the battery

1. Put the foam sheet (D) in the earmuff housing.

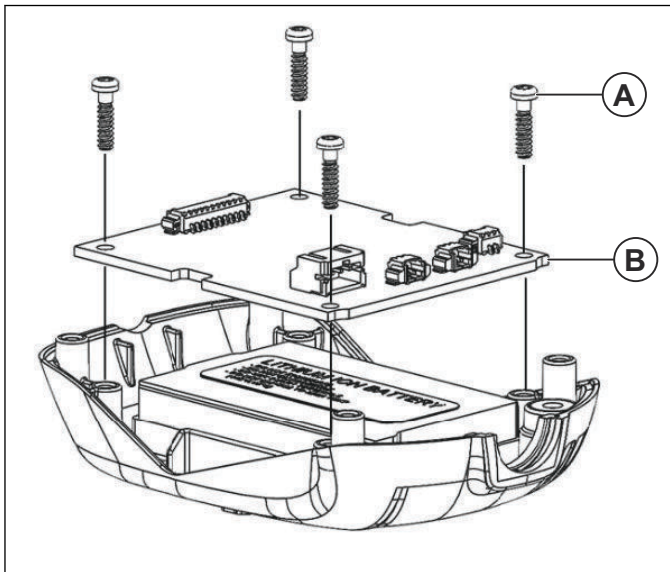


2. Assemble the battery (C).

3. Attach the battery cable to the circuit board in position E. Make sure that you put the cable (F) according to the illustration.



4. Attach the circuit board (B) with the 4 screws (A).

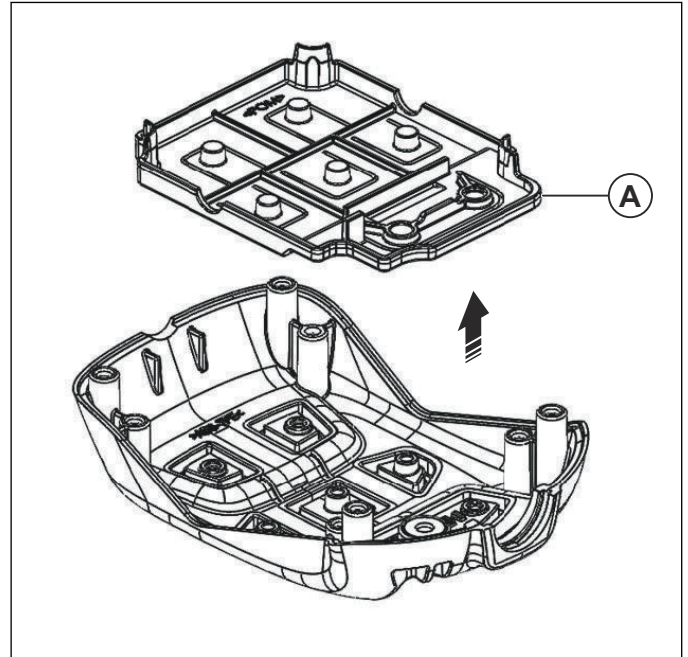


5. Assemble the left earmuff. Refer to *To assemble the left earmuff on page 15*.

7.11 The push button adapter

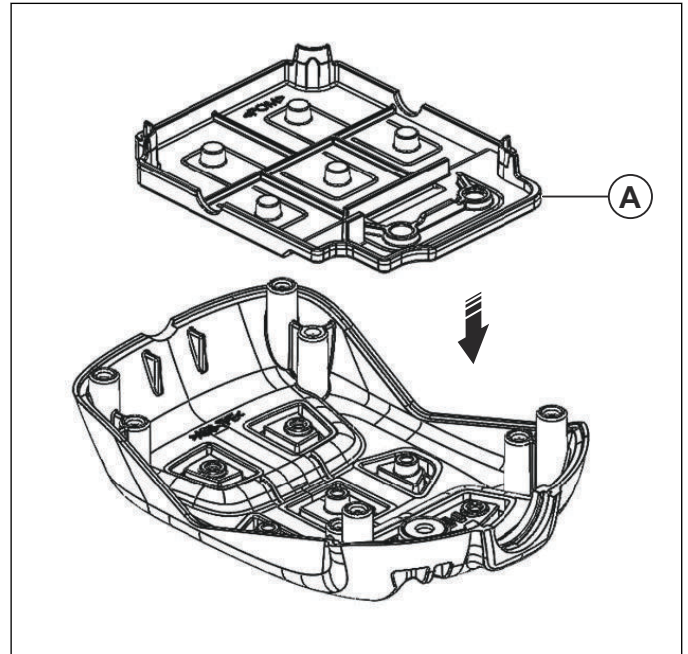
7.11.1 To disassemble the push button adapter

1. Disassemble the right earmuff. Refer to step 1-4 in *To disassemble the right earmuff on page 12*.
2. Remove the push button adapter (A).



7.11.2 To assemble the push button adapter

1. Assemble the push button adapter (A).

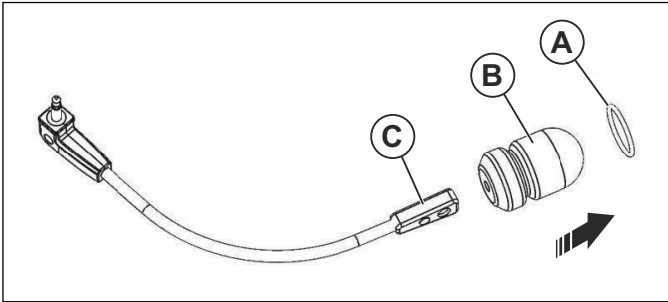


2. Assemble the right earmuff. Refer to *To assemble the right earmuff on page 14*.

7.12 The wind screen

7.12.1 To disassemble the wind screen

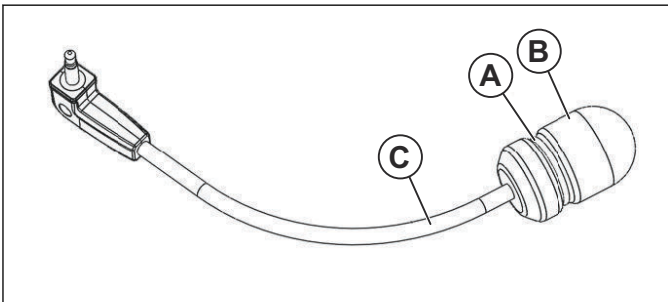
1. Remove the O-ring (A).



2. Remove the wind screen (B) from the boom microphone (C).

7.12.2 To assemble the wind screen

1. Assemble the wind screen (B) to the boom microphone (C).



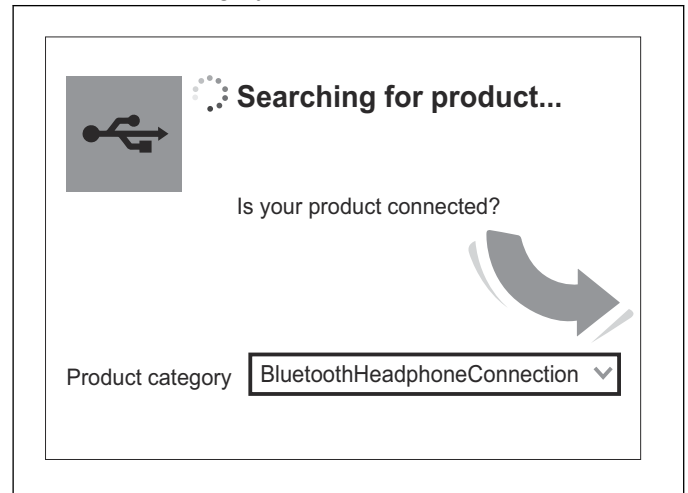
2. Assemble the O-ring (A) to the wind screen.

7.13 To use CST to flash the headset

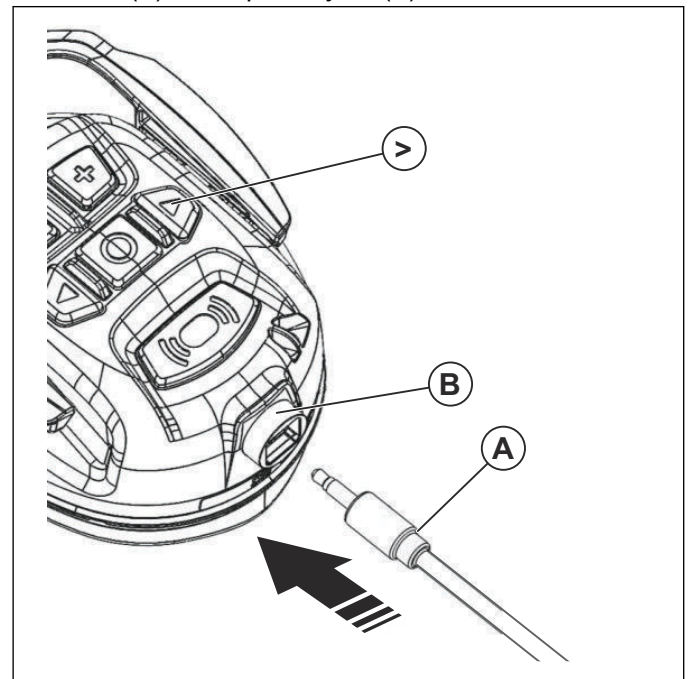
Note: Make sure that the headset is charged to a minimum of 50% or connect the charger cable.

1. Connect the charger cable to the left earmuff. Wait for the beep sound to make sure that the headset charges.
2. Connect the cable (A) (USB to TTL Serial Cable) to the your computer.
3. Start the CST software on your computer.

4. Choose the correct product in the drop down menu "Product category".



5. Press the forward button when you connect the cable (A) to the phone jack (B).



6. Refer to the CST instructions to flash the headset.

8 Troubleshooting

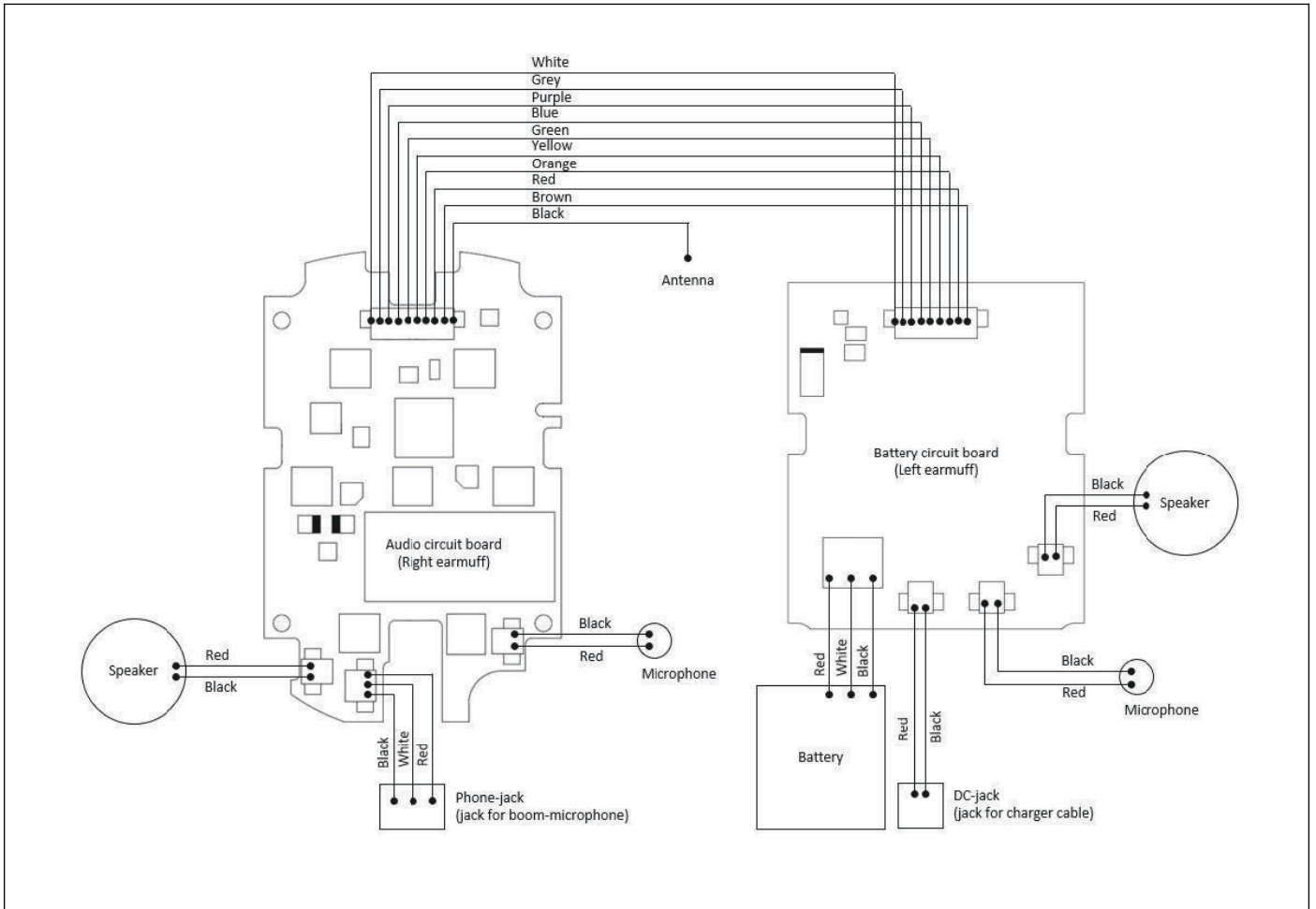
8.1 Troubleshooting of the product

Symptom	Possible causes	Recommended step
The product does not start.	Battery out of power.	Charge the product for minimum 1h.
	The cables are not connected correctly.	Use the wiring diagram to make sure that the cables connected correctly. Replace defective cables.
	Defective battery.	Replace battery.
	Circuit board fault.	Replace the product.
	Battery deep discharge	Charge the product for a few hours.
A function does not start when you push button.	Software problem.	Force shutdown (refer to the operators manual). This will reset the product. Start the product and test the function.
	The cables are not connected correctly.	Use the wiring diagram to make sure that the cables connected correctly. Replace defective cables.
	Defective push button adapter.	Replace push button adapter.
	Defective push button on circuit board.	Replace the product.
Bluetooth pairing operation not possible.	The product is not in pairing operation mode.	Set in pairing operation and retry pairing operation.
	Configuration problem.	Force shutdown (refer to the operators manual). This will reset the product. Remove the product from the bluetooth list in the phone. Retry pairing.
	Not the correct settings in the phone.	Change the settings on the phone and retry pairing operation.
	Software / hardware problem.	Replace the product.
Not possible to receive phone call.	Incorrect configuration.	Remove the product from the bluetooth list in the phone. Retry pairing operation.
		Change the settings on the phone and retry pairing operation.
	Software / hardware problem.	Replace product.
Only sound from one loudspeaker.	Not the correct settings in the phone.	Change the balance settings in phone.
	The cables are not connected correctly.	Use the wiring diagram to make sure that the cables connected correctly. Replace defective cables.
	Defective loudspeaker.	Replace loudspeaker.
	Defective circuit board.	Replace the product.

Symptom	Possible causes	Recommended step
Low / unclear sound from microphone.	Loud work environment.	Use the boom microphone (accessory) in loud environment.
	Defective microphone.	Replace microphone.
	The cables are not connected correctly.	Use the wiring diagram to make sure that the cables connected correctly. Replace defective cables.
	Defective circuit board.	Replace headset.
No / low / unclear sound from boom microphone.	Defective boom microphone.	Replace boom microphone.
	The cables are not connected correctly.	Use the wiring diagram to make sure that the cables connected correctly. Replace defective cables.
	Defective phone jack.	Replace phone jack.
	Defective circuit board.	Replace the product.
Headset does not charge.	Defective charger cable.	Replace charger cable.
	The cables are not connected correctly.	Use the wiring diagram to make sure that the cables connected correctly. Replace defective cables.
	Defective DC connector.	Replace the DC connector.
	Defective battery.	Replace the battery.
	Defective circuit board.	Replace the product.
Headset freeze when you try to flash software.	Low battery level (< 25%) and/or the charger cable is not connected before flashing.	Remove the battery to reset the product. Assemble the battery. Retry to flash software.
Earmuffs does not respond after connection with CST.	The headset is in update mode after the cable has been disconnected.	Connect the power cable to the earmuffs. Connect the computer cable to the earmuffs and the computer. Close the CST software with the earmuffs still connected to the computer (you will hear a beep from the earmuffs).

9 Wiring diagram

9.1 Wiring diagram





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