

Ralicom Communication Systems

Instruction Manual

Fitting Ralicom communications equipment to a

Full Face Helmet

Overview

Ralicom helmet communications kits come pre-wired ready for installation. The exact procedure will vary slightly depending on the type of helmet, but the *general* procedure is described here. Wiring will need to be run **behind** the helmet lining. We recommend that you work out how you are going to do this before beginning the installation. If you have any questions please contact us at enquiries@ralicom.co.nz

Please note that the left side of a helmet or headset is normally the microphone side.

There are 4 steps required for the fitting of this equipment.

1. Install the earphone speakers
2. Install the microphone
3. Secure the communications cord
4. Secure wiring and restore the lining.

Earphone speaker installation

If your helmet has earphone recesses, the earphone speakers can be fitted into these. If you are fitting this equipment to a helmet without earphone recesses, you will need to cut recesses in the foam. The procedure is as follows;

1. First fit the helmet to your head and, using a finger, locate and mark the centre point of each ear. This is the centre point for the recesses you need to cut.
2. Peel back the helmet lining to expose the earphone speaker position on each side.
3. Measure the outside diameter and depth of the earphone speakers (typically 42mm diameter and 10mm depth – but please measure them to be sure).
4. Using the marks you have made as a centre point, mark on the foam on each side of the helmet, a circle with a diameter 1 or 2 millimetres smaller than the earphone speaker measurement so that the speaker will be a tight fit (you may need to adjust this later, so that the speaker will fit).

5. Next, cut a recess in the foam on each side, to the circle you have marked and to a depth equal to the depth of the earphone speaker plus 1 millimetre.
6. Cut a small groove from the centre of each of these recesses, directly down to the bottom edge of the helmet, large enough to accommodate the wiring to each speaker.
7. If necessary, trim the mounting lugs off the earphone speakers. Using small side cutting pliers, work your way along making small cuts of a few millimetres at a time to prevent the plastic from splitting.



Picture 1. *Trimming off earphone speaker mounting lugs*

Note: If earphone speakers need to be fixed using an adhesive such as *hot melt glue* or *contact adhesive*, the adhesive must be applied **only** to the protruding rear centre part of the earphone speaker, or the outside perimeter of the speaker housing. Apply adhesive **only to the areas indicated by green** in the picture below.



Picture 2. *Earphone speaker safe gluing areas*

8. Press the speakers into the recesses you have cut, then insert the wires into the prepared grooves. If you need to use adhesive on the speakers, be sure to follow the note above.
9. The speaker wires can be retained in the grooves with duct tape.
10. Fasten the wire between speakers with duct tape or an adhesive

Microphone installation

1. Run the microphone wire along the bottom edge of the helmet to the microphone position (in the centre, directly in front of your mouth).
2. The Ralicom noise cancelling microphone **must be close to your mouth** or it will not effectively detect speech.
3. The microphone should not be recessed unless this is necessary to allow proper fitting of the helmet (the closer to the mouth the better).
4. Fix the microphone by applying adhesive to the back of it (the back is the side **opposite** the connecting screws) and adhere it to the helmet shell or foam, preferably not to the lining unless the lining is very securely attached. If you wish to cover the microphone, use speaker cloth only, and **do not use any adhesive on the front of the microphone**.

Communications cord attachment

1. Drill a 3.2mm (1/8 inch) hole through the helmet shell just above the lower edge of the helmet (where it will not affect the structural integrity of the helmet).
2. Next, using the supplied 'P' clip, and fixing hardware, secure the helmet end of the communications cord as follows.
3. To avoid any possibility of injury the head of the screw should be placed on the inside of the helmet.
4. Fit the supplied 'P' clip to the communications cord so that the flat side is against the helmet shell.
5. Fit one flat washer under the head of the screw, pass the screw through the mounting hole in the 'P' clip, then insert the screw into the hole you have made through the helmet shell.



Picture 3. The helmet lining pulled back to show the communication cord attachment.

6. The nut with one flat washer and the spring washer should then be fitted on the outside of the helmet.
7. When the fixing is secure, cut off the excess screw length on the outside of the helmet, and file the end of the screw flush with the nut.
8. Paint the nut to match the helmet.

Finishing

1. When the installation is finished, make sure that **all wires are securely fastened** where they won't be caught or damaged, then fix the helmet lining back in place using contact adhesive or hot melt glue where necessary.
2. It is acceptable to cover the earphone speakers with a thin (acoustically transparent) lining, but **the microphone must not be covered** except as described in the preceding microphone section (cut the lining around the microphone if necessary).
3. If the helmet lining is rather thick and reduces earphone volume, cut a circle in the lining to expose the earphone on each side, then cover the cut-out by gluing speaker cloth over the hole and fixing it to the **back** of the lining with contact adhesive. Small pieces of speaker cloth are available from the [Ralicom on-line store](#).