

Ralicom Communication Systems

Instruction Manual

Fitting Ralicom communications equipment to an **Open 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 boom
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 boom installation

1. To determine the mounting position for the microphone boom, draw a vertical line running through the centre of the earphone speaker, on the side you want to install the microphone.
2. On this line, find and mark a position below the earphone speaker a minimum of 25mm below the centre of the earphone speaker, and a minimum of 20mm above the bottom edge of the helmet shell, allowing room for the microphone boom post to clear any trim on the bottom edge of the helmet.
3. Drill a 4mm (5/32 inch) hole at this position.
4. Remove the nut and flat washer from the microphone boom post assembly (note the exact arrangement of the boom post components. It is important that they are re-assembled in the same order and orientation. The best way is to hold these components **firmly** together until the post is installed and the nut tightened). The inner section of the boom post should be fitted against the helmet shell with the square tab facing forward.



Picture 3. Microphone boom post detail (the nut is removed prior to installation)

5. Fit the mounting stud through the hole in the helmet shell, then re-fit the washer and tighten the nut (the use of nut locking compound is recommended for a more secure nut). In addition to the 'star-washer-like' locking plate under the boom post, we also recommend using contact adhesive between the helmet shell and perimeter of the boom post base, to prevent the base from turning.
6. It is important to ensure that the boom post is **very secure** and will resist the turning of it's base, when the boom is swung through the ratchet.



Picture 4. *Microphone boom viewed from the outside (the wire must be on the outside of the boom, and the microphone securing screws must face the inside of the boom – towards helmet)*

7. Tuck and secure any excess microphone wire under the helmet lining (duct tape should be adequate for this), leaving a loop that will allow full movement of the boom when slid to the fully extended position, and turned through the normal arc that it would be used and stored in.



Picture 5. *Microphone boom fitted to an open face helmet*

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 6. *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.
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](#).