

## Installation Instruction for installation of CEP into HGU-56/P

The CEP unit is connected into the communications circuit of the helmet using an SMB type connector. The CEP helmet interface consist of a mating SMB coaxial jack receptacle which is wired, via RG-174 coaxial cable, into the communications circuit inside the right ear cup. The CEP helmet interface includes a divider network, which adjust the speech output level at the ear to similar levels produced by the SPH-4B helmet ear phone. Modifications to earphone ear cup system will not reduce the sound attenuation characteristics of the helmet or affect the speech output level CEP is designed to allow you to communicate at lower volume settings, helping reduce noise exposure to your ears.

### Introduction

The CEP is designed to protect hearing and enhance communications for the aviator. It consists of a foam earplug tip that attaches to a miniature earphone receiver encapsulated in a plastic housing. The earplug tip protects hearing by attenuating aircraft sounds similar to the yellow foam earplug. The CEP earphone receiver connects to the communication signal in the aviator helmet using the SMB connector that is installed in accordance with this procedure.

### **TOOLS**

The tools required for the installations are:  
Soldering iron with small tip, not to exceed 40 watts  
Solder, type 40/60 rosin core  
Two pair of long-nose pliers  
Diagonal cutters, 4" length or less  
Wire strippers  
Hand drill with 1/4" drill bit  
Jewelers screwdrivers  
Small narrow blade screwdriver  
Shrink tubing, 1/16" diameter cut in 3/8" lengths  
Ruler  
Apparatus for holding helmet  
Diluted soap solution for grommet insertion (if necessary)

**Installation of the CEP interface harness, CEP900-I04, into the  
HGU-56/P or the SPH series helmets**

**STEP 1 CONNECTOR ASSEMBLY**

**HGU-56**

- Position helmet so that right side is facing up, visor housing towards you.
- Locate a point on the right side of the helmet that is one inch above the cut line and is midway on the flat plane of the transition between the sphere of the helmet and the earcup dome.



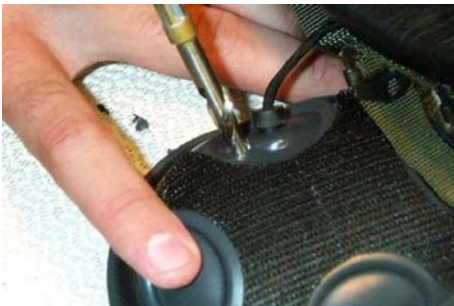
- Drill a 3/8 inch hole, at that point, through the helmet shell. Trim around the edge of the hole removing loose, excess fibers.

**STEP 2: ATTACH INTERFACE TO HELMET SHELL**

- Insert the interface, CEP900-I04, through the 3/8 inch hole, feeding the black and white wires through the hole first. Seat the connector into the hole with the ABS spacer between the outer shell and the connector.
- On the inside of the helmet, pass the solder tab washer over the grommet and position on the inside of the shell over the connector threads.
- Pass the connector nut over the grommet, may be a challenge the first time, and thread onto the connector threads.
- Position the solder tab washer so the solder tab is directed toward the top of the helmet and tighten the connector nut. The torque on the nut should be about 96-inch ounces.
- Using long nose pliers, pull the solder tab washer at the solder hole up and away from the helmet shell about 1/2 inch. Solder the black wire to the solder tab washer. Bend the solder tab back to the surface of the helmet.

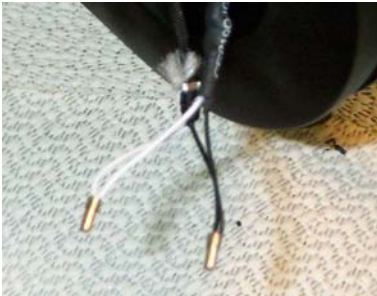
### STEP 3 **EARCUP ASSEMBLY**

- Position the helmet with the right earcup down, toward the table surface.
- Remove the earphone retaining foam, earphone receiver, and foam backing piece from the earcup.
- Disconnect the earphone receiver, using the jeweler's screwdriver.
- Carefully pull additional communication cable into the earcup to allow easier access to the metal tips.
- Rotate the earcup so the wire into the back of the earcup is positioned so the additional hole can be drilled through the earcup wall.
- Mark a location on the right earcup that is 3/8" to 1/2" adjacent to the existing grommet, Figure 1.
- Carefully drill a 1/4" hole at that location by positioning the drill bit 90 degrees to the surface of the earcup and drill through the earcup wall. Be very careful to keep the wires inside the earcup away from the drill bit when drilling the hole.



- Insert the CEP interface-cable assembly, black wire and white wire, into the hole and seat the grommet. To make the solder connections easier, additional wire may be pulled through the grommet into the earcup.
- Grasp the metal tip with the pliers. Use a wide rubber band to maintain pliers in a closed position.
- Position the pliers and tip for best access to unsolder the wire from the tip.

- With the wire removed, strip the wire insulation an additional 1/8".



- Replace the wire into the metal tip leaving 1/16" exposed wire at the base.
- With the long-nose pliers, bend the CEP interface-cable assembly wire into a hook and fit around the exposed wire at the metal tip base.
- Solder the metal tip and signal wires to form a single junction.
- Repeat this process for the other metal tip and CEP interface-cable assembly wire.
- Carefully pull the excess wire length from the communication signal wire and the CEP interface-cable assembly wire back through the grommet.
- Re-attach the earphone receiver.
- Replace the backing foam, earphone receiver, and the earphone retaining foam into the earcup.
- Position the earcup in the retaining harness at its original position for the user.



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