

Helmet Audio Intercept System

Important FCC information

Compliance Statement required by FCC 47 CFR 15.19:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Requirement of FCC 47 CFR 15.21:

The user is cautioned that changes or modifications not expressly approved by E-OIR, the party responsible for compliance with FCC regulations, could void the user's authority to operate the equipment."

Introduction

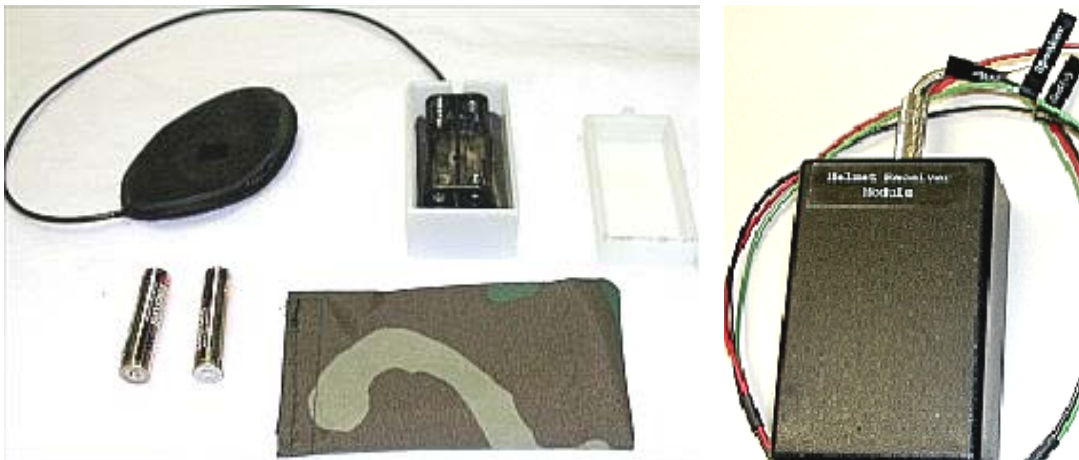


Figure 1 Helmet Audio Intercept System

The Helmet Audio Intercept System is designed to non-intrusively pick up the tactical vehicle intercom and radio conversations.

The Intercept system consists of two subsystems, a transmit unit worn on the commanders helmet, and the receive unit that is an integral part of the Range Evaluation System Video Control Box. The transmit unit requires no hard wire connection to the vehicle audio system. The transmit unit has two main parts (see fig 2), the audio pick up coil, and the R. F. transmit module.

The pick up transmit unit attaches to the back of the commander's helmet. A pick-coil is inserted in one of the helmet earpieces. Intercepted audio from the earpiece is then sent via wireless link, to the receiver unit located in the Video Control Box (VCB).

The receiver recovers the transmitted audio and redistributes this audio to the video transmitter located near the base of the video transmitter antenna.

The primary features of this system are:

1. The pick up unit is wireless, thus the commander is free to move normally.
2. The pick up is completely immune to external audio (noise).
3. The transmitter operates at very low output power. This allows several vehicles using the same frequency to operate near one another without interfering with each other.



Figure 2

Installation

1. Battery Installation/Replacement.



Figure 3

Install/replace the “AAA” batteries by first removing the transmitter assembly from the camo pouch (see Figure 3). Insure that the power switch is placed in the off position (see Figure 4). Remove the plastic housing cover to expose the battery holder (see Figure 5). Carefully remove the old batteries if necessary. (see Figure 6) If old batteries were present, carefully inspect the battery holder for any possible leakage damage.



Figure 4



Figure 5



Figure 6



Figure 7

If present and not excessive, leakage can be removed with a soft cloth or cotton swab and a mild detergent solution. Completely dry the holder before installing new batteries. Install new batteries as illustrated in Figure 7. Carefully observe polarity markings on both the holder and the batteries. Insure that the negative side of the battery goes against the spring terminal of the holder. Replace the housing cover and insert the housing back into the camo pouch. (see Figure 8)



Figure 8

NOTE: Experience has indicated that some batteries fit very snugly in the holder. With these batteries the holder spring may not provide enough pressure to push the positive side of the batteries into good electrical contact with the positive terminals of the holder. The installer should insure that the positive battery terminal makes good contact with the holder terminals.

NOTE: It is not uncommon for "dry cells" to leak battery chemicals as they grow old, even though they may not have been used. These chemicals are mildly corrosive. To prevent damage from batteries being left in transmit module during storage, the batteries should always be removed prior to storage.

2. Pick Up Module Installation.

The pick up module is installed by carefully pushing the soft rubber edge of the module under the helmet headset ear cushion. The module has an untreated rubber side with the E-OIR logo, (see Figure 9) and a fabric covered side, (see Figure 10). The rubber side is designed to go against the headset speaker while the fabric covered side is designed to go against the users ear. Figure 11 illustrates the process of pushing the module edge under the earpiece cushion recess. Figure 12 illustrates the completed installation of the module.



Figure 9



Figure 10



Figure 11



Figure 12

Figures 13 and 14 illustrates the proper installation in an actual helmet.



Figure 13



Figure 14

3. **Transmit Module Installation.**

The transmit module is installed by inserting the rear helmet strap through the camo pouch loop. Figure 15 illustrates the location of the loop and Figure 16 illustrates the correct installation on the rear of the helmet. After installation the unit is placed into operation by pushing the power slide switch to the on position. (away from the pick up cable) This can be done easily with the housing installed in the camo pouch.



Figure 15



Figure 16

4. **Operational Test**

The System may be tested for proper installation by talking into the vehicle intercom system and insuring that the audio can be heard at either the tower observation site receiver or on the vehicle system test set.

Receiver Unit

1. Installation

The Receiver Unit does not have any operator/user controls. It is fully integrated into the Range Evaluation Vehicle Subsystem. Once the VCB is installed and placed into operation, no further action is required.

Specifications Transmitter Unit

Size	transmit module	90mm x 30 mm x 40mm
	pick up module	oval 80mm x 50mm x 7mm
	interconnect cord	350mm
weight	with batteries	100 gms
power	2 each alkaline AAA size	3 Vdc @ 7.5 ma
battery life	w/ alkaline batteries	approx 24 hours
frequency		916.468 MHz
modulation		analog FM audio
audio band pass		300 Hz to 3 KHz
transmit power		approx 1 mw
harmonic emissions		-50 dbc
frequency deviation		approx 100 KHz max
operating temperature		0 to 70 degrees C.

Specifications Receiver Unit

Size	receiver unit	85mm x 30 mm x 55mm
weight		60 gms
power	derived from VCB	12 Vdc @ 15 ma
LO frequency		905.78 MHz
LO feed through		-50 dbc
receiver sensitivity		approx -100 dbm
audio band pass		300 Hz to 3 KHz
audio out power	into 8 ohms	approx 400 mw
frequency deviation		approx 100 KHz max
operating temperature		0 to 70 degrees C.

Manufacturer information

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