

SPECIFICATIONS

GENERAL

Performance specifications are nominal unless otherwise specified and are subject to change without notice.

| | |
|-------------------------|--|
| General Frequency Range | 72-76 MHz Std. |
| Operation mode | Simplex, Duplex or Repeating (model specific) |
| Power Supply | 3.6V NiMh internal rechargeable battery system/1800mah |
| Charger | Output 6vdc @500ma into 3.5mm jack, Input 120vac@7.5w |
| Weight | Approximately 20 oz. |
| System hum and noise | -50 dB |
| Microphone | Electret, 3k Ohm |

TRANSMITTER

| | |
|----------------------|--|
| RF Output | 200 mW Simplex, 100 mW all other modes |
| Spurious & Harmonics | 75 dB |
| Modulation | 16K0F3E |
| Frequency Stability | 0.005% @ (-30 C° to +50 C°) |
| Voice Compressor | Attack, <1 ms; Decay, 130 ms |
| VOX Threshold | 6 dB below full modulation |
| VOX Characteristics | Attack, <1 ms; Delay, 750 ms |

RECEIVER

| | |
|-----------------------|---|
| Receiver Circuit | Dual conversion, 1st IF Frequency 10.7 MHz, 4 Pole Quartz Filter; 2nd IF 455 kHz, 4 Pole Ceramic Filter |
| Sensitivity | 0.4 uV for 12 dB quieting |
| Modulation Acceptance | 15 kHz |
| Selectivity | 30 kHz from center frequency @ -55 dB |
| Spurious & Image | -47 dB |
| Intermod Response | -70 dB |
| Frequency Stability | 0.005% @ (-30 C° to +50 C°) |

APPROVALS AND AUTHORIZATIONS

FEDERAL COMMUNICATIONS COMMISSION

All Headsets have been type accepted and certificated by the FCC for operation in Part 90 (Private Land Mobile Services) in the 72-76 MHz band. All transmitters, including Repeater Stations operate in the 72-76 MHz band with a power of 100 mW and modulation characteristics 16K0F3E. Type approval numbers are located on each unit. **FCC rules require licensing by the purchaser. Requests for application forms or information may be obtained from the FCC, Gettysburg, PA 17325.**



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OWNER'S MANUAL

OPERATING INSTRUCTIONS FOR THE SERIES 5 HEADSET

I DESCRIPTION AND GENERAL INFORMATION

Your new Earmark Series 5 Headset provides you with hands-free FM communication capability. It has many features to assist in building your productivity. Earmark Headsets are supplied in a variety of models. Before going any further, please check the name plate label on your Headset and determine which of the below listed models you have. If your Headset model does not match your network type (Simplex, Duplex, Repeater, Repeating, or Half Duplex), call Earmark.



MODEL NETWORK DESCRIPTION

| | |
|-------------|---|
| HD-5 | FULL DUPLEX HEADSET FOR USE IN PAIRS |
| HS-5 | SIMPLEX HEADSET FOR USE IN SIMPLEX NETWORKS |
| HR-5 | DUPLEX REPEATER HEADSET FOR USE WITH A REPEATING BASE STATION IN A FULL DUPLEX NETWORK |
| HH-5 | HALF-DUPLEX HEADSET FOR USE IN HALF DUPLEX NETWORKS WITH A MASTER, REPEATING HEADSET OR A REPEATING BASE STATION |
| HG-5 | REPEATING HEADSET FOR USE AS TOUR MASTER OR HALF-DUPLEX MASTER; MUST BE USED WITH ONE OR MORE HALF DUPLEX RADIOS |

Each of these models is interchangeable with the equivalent model Earmark Belt-Pak™, Headset, or Flex Pak. They have identical functions and similar performance. All the above models have certain features in common. Each has a variable volume control. The rotary Volume Control Switch is also the main power on/off switch. There is also a continuous reading, Battery Condition Indicator Light on the back of every unit. And, with an Earmark portable radio, you always have the ability to actuate the transmitter with your voice using VOX130™.

YOU'RE EQUIPPED WITH VOX130™!

Each Series 5 Radio Headset operates with VOX130 technology. VOX130 is a significant improvement in state-of-the-art *voice actuated transmitter* systems. VOX130™ provides several features which have never before been offered in portable radios.

- ◆ VOX130™ is self-adjusting- you never have to make a manual adjustment to go from high noise to low noise or back again. There are no instructions needed in this manual for adjusting VOX!
- ◆ VOX130™ is not sensitive to ordinary machine noise, no matter how loud it gets. Only your voice will cause your transmitter to activate. The louder the noise around you, the louder you must talk. That's to ensure that your voice is always much louder than the outside noise, so you'll always be easy to understand on your network.
- ◆ While you're using VOX130™, the noise cancelling microphone automatically suppresses the outside, environmental noise so your voice will always be sharp, clear and easy to hear.

II SETUP

As received, your new Earmark Series 5 Headset is ready for use in a typical, industrial operating environment. Only a few items require your attention before you start operations.

A. BATTERIES

Your Headset comes with rechargeable NiMh batteries. This power system should last up to 12 hours when fully charged in full duplex radios and significantly longer in simplex and half duplex radios.

To recharge the headset, plug the power supply that came with your headset (see specs on back page) into the charging jack at the bottom of the receive side. A charge session of 7-8 hours should completely charge the batteries. Charging for longer than that time period may degrade the battery performance. The amber LED next to the charging jack will stay lit as long as the charger is attached and is functioning.



Charging the Series 5

B. COMFORT FEATURES

1. Vertical Stabilizer Strap

The Earmark Series 5 Headset is most comfortable when worn with the Vertical Stabilizer Strap. The wide strap distributes the Headset's weight over the greatest possible area and guarantees optimum comfort. You can move the Headband Pad from the Headband onto the Vertical Stabilizer Strap for even more comfort. Set the strap so the top of your ear just clears the inside of the earmuff. Lock it in place with the buckle. This setting will also provide good clearance for your shoulder under the muff.

V ACCESSORIES

A. HARDHAT MOUNTS

If you need a hard hat, you should equip your Series 5 Headset with Earmark's hard hat and hard hat brackets. Supplied as a package, the wide hard hat with ratchet suspension and the spring mount headset adapters assure the best fit and comfort. Contact Earmark for further information.

VI MAINTENANCE

A. REPLACEMENT PARTS

From time to time all devices need refreshing, especially soft parts such as headband pads, windscreens, and earmuffs. Replacement parts are available from Earmark directly or on our website www.earmark.com under "Order Parts". Please specify your Headset model when ordering.

B. SERVICE

Earmark has a full time service staff ready to perform maintenance on your radio. Whether in warranty or not, all radios are repaired quickly and professionally. Contact Earmark for more information or go to our website at www.earmark.com service.

C. STORING YOUR HEADSET

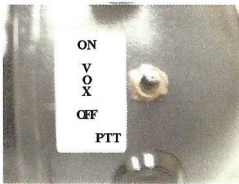
The Series 5 should be stored in its plastic case by placing the headset antennas down and with the microphone up as shown in the picture below. If you store your headset incorrectly, it can cause damage to the antennas and/or the microphone.



Storing the Series 5

C. PTT SWITCH

The PTT (Push To Talk) switch is located on the bottom of the transmit side of your headset (the side with the microphone). Pressing it will override any other setting and allow you to talk.



PTT & Mode Switches

D. MODE CONTROL

The Mode Control is between the PTT switch and the microphone. This switch selects the two operating modes, "VOX ON" or "VOX OFF".

Duplex, Repeater and Repeating Headsets offer a selection of "Continuous Transmit (VOX OFF)" and "VOX with PTT override (VOX ON)". In the "VOX OFF" mode everything you say is picked up by the microphone and transmitted into your network. In other words, you are transmitting all the time. In VOX ON you only transmit your voice when you speak loudly enough to trip the VOX setting or push the PTT (Push To Talk) button switch on the bottom of the cup.

Simplex and Half-Duplex Headsets offer a selection of PTT (Push-to-Talk) or VOX. To operate in the PTT mode, switch VOX to the off position and press the button switch on the bottom of the cup. To operate in the VOX mode, switch to the "VOX ON" position and speak loudly enough to trip the VOX setting. Remember in Simplex you will not be able to hear anything said by another person on your network while the PTT switch or VOX is activated. So, remember to release the PTT switch when you have finished speaking.

2. Back Support Strap

Adjust the Back Support Strap so that it fits gently against the back of the head and prevents the Headset from falling forward when you bend over.

C. EARMUFFS

Your Earmark Headset comes with hypo-allergenic, noise cancelling gel filled earmuffs. These earmuffs are specially manufactured for your Series 5 Headset and are fabricated with a polyurethane skin over gel filled foam.

D. SQUELCH

Squelch is a receiver adjustment that determines how much RF signal is necessary before your radio receiver will open. If squelch is wide open, you will hear all the random atmospheric in the form of a loud, annoying, background hiss. If squelch is set too tight and isn't sensitive enough, you will reduce the effective range of your Earmark radios. Squelch is preset at the factory and should rarely need adjustment. If it does require readjustment, for any reason, contact Earmark, or use the following procedure.

For best results, ensure no one is transmitting and adjust the squelch in the area and with the noise levels that match your normal work conditions. Turn the radio on and turn the volume all the way up. Locate the squelch adjustment on your radio (located under the receiver ear muff) and remove the vinyl "dot" to gain access to the squelch adjustment. Carefully insert a small screwdriver and turn the adjustment all the way counter clockwise (open). You should hear constant static.

Slowly turn the squelch back clockwise (closed) until the noise stops. You may be required to adjust the squelch a few times to get it set just right. It is also a good idea to test the range of your headset after adjusting the squelch.

It may seem like a good idea to either open the squelch all the way to maximize range or close it all the way to reduce the chance of interference, however this is not recommended. If you open the squelch all the way you make your radio vulnerable to interfering signals, on the other hand, if you close the squelch all the way you will compromise your range.



Squelch Adjustment

E. MICROPHONE GAIN and VOX OPERATION

This control adjusts the sensitivity of your microphone. It is preset at the factory for nominal operating conditions and may require adjustment to satisfy your specific requirements. Once set properly, the mic gain setting should allow you to use your VOX mode without difficulty. When using VOX, always remember to speak up, if you don't, you will lose at least the first syllable. The best method for making this adjustment is under actual operating conditions with someone else listening or

wearing a second Headset yourself. The adjustment control is located inside the transmitter earcup. If you feel you are having a problem with microphone gain, please contact Earmark for detailed instructions.

III THE SERIES 5 MICROPHONE

A. STANDARD BOOM MICROPHONE

Earmark designs and provides only "noise cancelling" Boom Microphones. With a noise cancelling design, the front and back of the microphone respond differently to outside noise energy. It's all done to give you an advantage when you have to work and talk in high noise. The microphone's front side, the side closest to your mouth, hears your voice up to 16 times better than the microphone's back side. That's why it's so important to talk into the front side. At Earmark, we mark our microphones so the side you talk into is **red**.

You're always ok if you keep the **red** side closest to you.

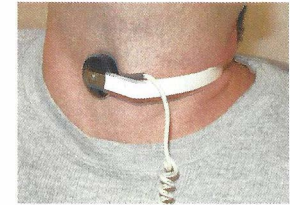
Noise cancelling works best when you "*close talk*" the microphone. To *close talk* means to keep the microphone's front side very close to your lips, within 1/4 inch. When you keep the microphone's front side close to your lips, you'll sound great, and your voice will seem much louder than the outside noise around you. *Close talking* also makes VOX much easier because more voice energy goes straight to the right place. The extra effort required to use a boom Microphone the right way really pays off; it dramatically improves sound quality.



Maintaining your Boom Microphone requires very little effort. Preventative maintenance is the key to long life. First and foremost, make certain the front and back are covered by windscreens. Windscreens keep the metallic micro-mesh guards from getting gunked up, and they reduce the effects of air noise across the microphone. When the micro-mesh guards get blocked with dust and moisture, they block the sound energy from getting through and make it hard to talk. Guard blockage, caused by missing windscreens, is the most common reason for microphone service.

B. OPTIONAL THROAT MICROPHONE

Throat microphones are one way of communicating when you're wearing respiratory protection, such as an SCBA, or must keep the area in front of your face clear of obstructions. The Throat Microphone rests on the side of your throat and senses the vibration of the larynx, or voice box. It then converts those vibrations to useful voice energy.



Throat Microphone

Positioning the Throat Microphone is very important. Properly positioned, the Throat Microphone provides good speech quality. Improperly positioned, a Throat Microphone sounds garbled. The microphone's working end is called the microphone capsule. The microphone capsule belongs in the little hollow that's formed between the large throat muscle and the Adam's Apple, about halfway down the neck. To establish the best position for the microphone capsule, slide your fingers along your neck, starting under the ear and moving to the front. About midway you'll feel an indent where the large muscle ends. Position the microphone capsule at the center of the indent.

The soft, white band wraps around the front of the neck and the red tip winds up in the back. The cord should exit the capsule over the top of the white band. If the white band is too tight, loosen it by unrolling it a few times. If it gets too loose, tighten it by rolling it up. If you wish to secure the microphone in place, use the Velcro tape and strap provided in the kit. Don't strap it on too tight or it might feel restrictive if you start breathing hard. Don't be afraid to experiment with the microphone position; everyone's neck is a little different. Your optimum position could vary a half inch in any direction.

IV CONTROLS AND OPERATION

A. ON/OFF VOLUME SWITCH

This switch turns the Headset ON and provides a continuous volume control, from min to max. Located behind the receiver earcup, the switch is easy to find and large enough to control with a gloved hand.



B. BATTERY CONDITION

Power/Volume Switch

The red light next to the Volume knob is an indicator of battery condition. As long as the LED stays lit, the battery is adequately charged. When the battery charge degrades too much, the LED will go out and you will hear a clicking noise in your headset. This means you only have a few minutes of power left and should recharge your headset.