

# How to Choose a Headset

BY GEORGE WILHELMSEN

**W**hen pilots first start to learn to fly, they frequently are interested in buying a set of headsets. Apart from the fact that they are more comfortable than earplugs, headsets provide better communications in the cockpit, which enhances the safety of flight and reduces the learning curve for new pilots.

Since headsets cost anywhere from \$150 to \$1,000, everyone wants to make the right decision the first time. In an effort to assist pilots, the Aircraft Electronics Association has put together this headset primer. It is our goal to provide you with the information you need to make the right decision from the wide array of features that are available in headsets today.

### Comfort

The most important feature in headsets is how comfortable they are on your head. Everyone has a different shaped head, and a headset that fits your friend may be nothing but a pain to



you. Thus, no matter which headset you want to buy, you need to try it on first before you buy it! The interesting thing about trying on headsets is that you can usually pick out a bad fit within 15 minutes of wearing a pair, but you can't be sure of a good fit for at least an hour of wearing a pair.

Getting that hour can be difficult, but it isn't impossible. Start by trying on pairs that interest you at your local avionics or pilot's shop, or while you are attending an airshow. If a chair is provided, sit down and buy a book or magazine from the shop to pass the time. If you can read for an hour without having to reach up and fiddle around too much, the headset should work well for you.

If all else fails, you can rely on the money back comfort guarantees available from most headset vendors. While you should still try on the pair before you buy them, the 30-day return policy allows you some recourse in the event your initial fit doesn't work out as well as you had hoped.



### Comfort Features

There are a number of features that make headsets more comfortable to wear. The first and usually most noticed is the weight of the headset. The heavier the headset, the more that weight must be distributed across your head, and the more important other comfort features such as head pads become. Lighter weight headsets are not necessarily less effective than heavier versions, but there are some trade offs that are made in the design.

Head pads are used to distribute the weight of the headset across the top of your head. Their design is varied between headset models, and ranges from ridged vinyl-covered foam, to some that are covered with thick, soft sheepskin over similar foam pads. Depending on the headset, you may find one head-pad works well, while another leaves "hot spots" on your head.

Ear seals distribute the clamping forces of the headset across your ears. The material of the ear seals varies from foam filled, to very thick foam, to liquid filled seals. Liquid filled seals are considered better for people who wear glasses, as the liquid seal conform around the temple bars better than foam does. We have worn headsets with the entire gamut of ear seals, and have

found that all are fairly comfortable, so again, this goes more to individual preference than anything else.

### Speakers and Mics and Booms

The speaker in your headset is the heart of the audio reproduction system. The speakers are responsible for the quality of the audio that is reproduced in your headset, and need a good frequency response. Mics are mounted on a boom, which is used to position the mic in front of your mouth. The mic is as important as the boom, since without a good mic, you won't get good audio reproduction, while without a good boom, the best mic in the world won't be in the right place, and you'll still sound not as good as you might otherwise. For mics, you are looking for electret versions, with good frequency response.

To get an idea of what the headset will sound like, hook it up to an intercom system, and you will be able to listen to how you sound. There are subtle differences between the various brands in both speakers and mics, so look for the one that reproduces your voice in the manner you most like. If the shop has music available, listen to the music to get a feeling for the quality of audio reproduction that the headset will provide.

A mic muff is provided



ed with most headsets, and muffles any wind noises and pops from your breath. If your headset does not come with a mic muff, we strongly recommend you buy one.

The cost is more than worth the reduction in annoying noises the muff prevents.

Aside from that, the mic boom positions the mic in front of your mouth. There are wire booms, flex booms, and combination flex and wire booms, all of which are designed to allow you to put the mic in front of your mouth, and to easily move it when you need to, such as when you want to take a sip of water, or grab a snack while in flight. Look for the boom that will work best for you.

### ANR versus PNR

ANR, or Active Noise Reduction (also known as BNE, ENC, and a few other acronyms), involves the use of sophisticated electronics to cancel out the loud, low frequency noise present in aircraft, along with seals over the ears. These marvels can be more comfortable over the long haul, since they reduce the level of fatigue inducing noise in your ears.

ANR headsets are more effective at reducing noise, and as a result, are more expensive than their passive brethren. ANR



headsets require power for the most part to function. This means you will either need to connect them to battery packs, or with an installed panel power module. Most vendors have achieved 40 hours or more between battery changes.

PNR, or passive noise reduction headsets, depend on insulation in the ear cups, and sealing over the ears to keep those loud noises out. The ear cups seal over the ears with a variety of methods, but generally depend on clamping pressure combined with the insulation and the ear seals to reduce the noise levels. No matter which pair you choose, your cockpit communications with ATC personnel or with other passengers will be greatly enhanced with the addition of headsets.

With this said, we do have a suggestion. Since hearing loss is not reversible by today's medical technology, you should buy the most comfortable headsets with the best noise reduction rating (NRR) you can afford. By taking this approach, you will do the best towards conserving your precious hearing.

### Wires and Plugs

The wires of headsets are important, because the wrong combination of wires and cables will mean that the headsets don't last as long. Generally speaking, the more strands of wire in the cable, the more flexible the cable will be, and the longer it will last in service.

The connecting plugs range from brass to chrome to gold plated plugs. Brass is not a noble

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## Proper Mic Placement

Believe it or not, the proper placement of the microphone in front of your mouth is critical on headsets. The mic element is very directional, and thus is sensitive to the distance between your lips and the mic. If the mic is too far away, or is angled below or above your lips, the people you are talking to will have a hard time hearing you, which means you will be frustrated by requests to repeat your transmissions. Instructions vary between headset vendors, so be sure to check yours before using your headsets. As a good rule of thumb, a distance of around a quarter of an inch between your lips and the mic is usually about right. The mic should be square and in front of your mouth. With the mic in this location, speak in a clear tone to get the best reproduction and sound output on the mic. Using a mic muff is also a good idea - the muff will help cut out any "popped" P1's that might escape your lips in the course of airborne communications, and in doing so, make your communications as clear as possible.

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metal, and will oxidize and corrode over time.

This means you may need to pull and push in your headset plugs a few times if the connection gets fuzzy.



Chrome and gold don't experience this problem, with gold getting the nod for its noble, non-corrosive nature as the best material for connecting plugs.

### Handy Features

Some headset brands include extra value features, to make their headsets more usable. These include adapters between helicopter connectors and airplane connectors (for some reason, they are different—go figure!) and a push to talk switch built in to the headset.

Stereo/mono selectable headsets are available as well, and since you can't predict the future, we would suggest you get a set that is switchable over one that is not.

### Warranty

The warranty on headsets varies by manufacturer and even by model in some cases. The longer the warranty is, the longer the protection you have against problems. It is interesting to note that we have never made a warranty call on a headset we have

owned. Take that as you will, but over the past decade we have owned a good number of headsets, and they all work just as well as the day we took them out of the box.

By considering all the features above, you should be in the right position to figure out which headset is right for you. The most critical part of this decision is finding the headset that feels the best on your head, and then buying it. Comfort and noise reduction are the most critical aspects of a headset, so be sure to find a pair that meet your needs. With correctly selected headsets, you will be able to enjoy flying more than ever before, with better communications. ■