

### Choosing the right headset:

Choosing a headset can be difficult, due to the range of manufacturers, products, specifications and of course prices available. A new headset is a worthwhile investment, as it's important to choose a set which is comfortable and right for you and your flying. However with prices ranging from £99.00 to over £500.00, it might be useful to explore these features further and explain some of the apparent price disparity.

There are two main differences which set apart headsets and define price ranges:

**The two categories are:**

- **Passive Headsets**
- **Active-Noise Reduction (ANR) Headsets (Or Electronic Noise Reduction; or similar wording)**

Both Passive and Active sets contribute to the reduction of noise entering the ear:

**Noise** *noun:* sound, esp. of a loud, harsh, or confused kind: *deafening noises*

In the cockpit, noise is the unwelcome engine note which is known to damage your hearing over periods of time.

### Passive- purely physical:

Passive headsets rely on a physical barrier to reduce the level of outside noise entering the ear. Nothing wrong with this, as some of the best and most expensive sets use this technology. The David Clark H10-13.4 (pictured-starting at £252.95) is a very popular passive set, with a noise Impedance (reduction) of 24dB.



### ANR-electrical silence:

ANR sets also provide passive noise reduction when the ANR itself is switched off (these typically have a battery power module, taking one nine volt battery, for 25 hrs service). However with ANR turned-on, expect further reductions in the region of 17dB-22dB on top of the normal passive noise reduction.

This level of noise cancellation is impressive; the unit directly reacts to the volume of the noise encountered, and simply raises its guard against it as the volume increases. As the noise increases, the unit takes-in this inbound sound wave, and generates an equal 'sound' in order to counteract the inbound sound. This means greater clarity in communications, and reduced stress resulting from prolonged exposure to steady noise.

The cancellation effect is channelled primarily towards steady background sound. To this end, a cockpit warning sound or suchlike is not affected in the same way, due to its different signature frequency. Similarly, airflow noise, on a higher frequency, is not cancelled-out. This is generally advantageous, since a change in the sound of the airflow noise is all important in identifying an anomaly- for example, decreasing airspeed or the approach to a stall.

*Typical ANR control module pictured*



### Prices:

ANR sets will typically be around twice the price of the passive sets.

You can expect similar quality and comfort between both, with most ANR sets an upgrade of a manufacturers standard passive headset (for example the David Clark H10 13.4 GA headset becomes the David Clark H.10 13X ANR set.

This extra cost is justified in the additional features and comfort levels afforded by the ANR sets. What you're really paying for is the electronic noise cancellation (ENC this time!). Think of it as an investment, particularly if you're a frequent flyer up-front.

### Headset Microphones:

Both types of headset will feature Electret or Dynamic microphones.

Dynamic microphones are similar to those in a telephone; they use an amplifier to bring the low-power signal up to a significant voltage to be accepted by the aircraft intercom.

Electret microphones are more sophisticated; they generate an electrical signal from the incoming sound which has a much higher output impedance.

**Compatibility:** Take into account that it is different types of microphone which generally causes incompatibility between headsets on an aircraft's intercom system. Most systems will accept both types of microphone, but not at the same time. Because the dynamic mike requires more voltage, to drive the microphone, it will tend to sap the power required by the high-impedance, Electret microphone.



This is the main source of incompatibility between headsets; it is generally not differing brands which cause problems, but different microphone units.

### **Comfort:**

Comfort is very important in a headset. There are many things which generate stress and fatigue in an aircraft; the workload, the noise, the temperature, pressure, and operating environment, and a heavy, uncomfortable headset. All of these factors can contribute to fatigue in proportion to flight length. A very important contributor to a comfortable, safe flight is the headset. Look for sets which are lightweight, whilst maintaining good noise-attenuation qualities. The key to noise attenuation in passive sets is the ability of the ear cup to close the gap where noise could 'seep' in. The bigger the cup, the more effective it is. Conversely, bigger ear-cups mean weight and bulk- not desirable on long flights. There's a balance to be sought- between noise attenuation and weight; between weight and comfort. Some sets, with smaller ear-cups attempt to provide a good 'seal' by using clamping pressure. Clamping pressure, like it sounds, isn't very nice!

Generally, look for noise attenuation of 20-24 dB; don't go too far above 20 oz. What you decide on will depend on your flying- it may be best to sacrifice some noise-attenuation for less weight and more comfort.

### **Finally : Price**

The point where all the balancing and comparisons come together; what do all these features and weights and gel pads mean for your wallet?

Budget headsets start below £150 and can be a good step away from the club set. It's always advisable to fly with your own set- not least because it's more hygienic, but also because you have chosen it personally and it's yours to become used to. It's also a great addition to your perhaps sparse flight bag which shows you're serious! It also means you can get airborne quicker, rather than having the instructor scrambling around a dusty cupboard looking for the well-worn club set once again!

We offer four sets below £150; although two of these would definitely not be classed as budget sets- The Sennheiser HME 95 and HMD 120 (for helicopters) are both superb with the standard 3 year warranty NoiseGuard technology, and lightweight design. Under £100 we feature the Pooleys PH2000; comfortable and lightweight with Electret microphone and a sturdy construction; and secondly, the ASA HS-1 which has had a good dose of positive feedback recently. All of these are noise attenuating sets.

Spend a bit more, and you're in the market for the David Clark noise attenuating sets, and within range of the Sennheiser ANR sets. These sets, from around £150-£200 have many more features and do not compromise on long-term comfort and clarity. Over £200, the sets are aimed at professional pilots, flying regularly and seeking maximum benefit from their headsets.

Browse our range, and decide your budget- decide what you fly, how long for, and for how often. Ask around too- and don't hesitate in sending an e-mail or giving us a call. We'd be happy to help.



<http://proviation.com>

+44 (0) 800 380 0577

February 2010

\*please note, prices often change due to exchange rates.