

March 2011

Experimental Aircraft Association Chapter 33

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Headsets

By Tim Busch

Last month I discussed the need to carry two essentials in your airplane: plastic money and a cell phone. That may have taken some by surprise and annoyed the more traditional and/or adventurous among us, but it's difficult to argue the value of either of these items in the present day. My next item is also relatively new to aviation, but no less critical.

In the past couple of decades headsets have come from non-existent to the point where it is rare to not have them in a GA airplane. We have discovered from our deaf predecessors that headsets are not just a luxury, they are a required hearing saver. Having learned to fly in the close confines of a Cessna 152, I learned that it didn't make any difference how small the cockpit, you still needed to lean closer and yell at the other person in order to hear anything. Now as a flight instructor, being "wired-in" to your student is a vast improvement in teaching. (So far, none of my students has intentionally pulled the plug to quiet *my* noise!)

I will start by saying that although I have tested and used many different headsets, I certainly can't claim to have tested them all, and like many things, beauty (or functionality) is in the eye of the beholder, so feel free to disagree. I will just provide my observations. I'll start by breaking the field into four categories: Low-Cost, Passive Noise Reduction, Active Noise Reduction, and Lightweight headsets.

I have been down the low-cost path many times before. I won't get into the brand names, but I'll call them the "Under \$150" headsets. They all advertise similar specs to the big name brands: noise reduction ratings and reasonable warranty periods, except that the cost is too tempting to pass up. With these headsets, just say no! The only real guarantee with this group is that they will fail. I have owned piles of these misfits and seen piles of them in flight schools and FBOs. Since people pay money for them, no one wants to throw them away. I have even sent them in for repair, but that only prolongs the agony. Typical failures include intermittent connectors ("hey, wiggle that wire for me so I can hear you"), disintegrating ear cover plastic ("what's that black stuff on the side of your head"), and

gel seal breakage (“dude, you’ve been slimed”). I have been slimed before, and it’s no fun. Feel free to disagree and buy one or more, but I reserve the right to say I told you so.

The passive noise reduction headsets are the mainstream. Passives work by surrounding your ear with a lot of foam to reduce noise and a tight seal to prevent noise leakage past the foam. Past complaints of some passives was that users’ heads felt like they were in a vice. This resulted in gel seals, which dramatically improved comfort. Cost in this category is a reasonable compromise between the low-cost and the Active Noise Reduction headsets. There are many quality choices in this field, although I’ve never understood why a given manufacturer needs to present ten versions of the same headset.

David Clark is the premier manufacturer in the headset field, and not just in aviation. They never fail, and if they do, DC will fix it for free, and usually long beyond the warranty period. You can count on David Clark. The H10-13.4 is a good example of the best of the best. There are eight other DC choices, but frankly I can’t find a reason to split hairs and stick with the H10-13.4. I own several of these gems.

Here are specs for the H10-13.4:

- **Super Soft, Double Foam Head Pad**
- **New Comfort gel, undercut ear seals**
- **Certified Noise Reduction Rating - 23 dB**
- **Reduced headband force**
- **Universal Flex Boom for perfect microphone placement**
- **Exclusive M-7A, the most advanced noise-cancelling microphone available**
- **Low-profile volume control knob with detent settings**
- **Molded cord assembly made to exceptional pull and flex standards**
- **5-year Guarantee**
- **FAA TSO Approved C57 Cat. B and C58a**
- **Exceeds RTCA/DO-214 Standards**
- **Weight (without cord assembly): 13.4 oz.**
- **List Price: \$306**



When Peltor joined the field, they quickly became known as the lightest and most comfortable passive headset in the world. Many swear by them, and it’s hard to argue the comfort factor. I have used them and agree that they’re light and comfortable.

Specs for the Peltor 7000 Pro GT include:

- **Peltor Headset Bag & Gel Seals**
- **Padded, adjustable & folding stainless steel headband**
- **Single knob, dual earphone balance volume control adjustment**
- **Stereo/Mono**
- **Weight: 12.8 oz.**
- **25db of Hearing Protection**
- **Limited Lifetime Warranty**
- **List Price: \$379**



Sennheiser has been around for a while. I admit I've never used one, but those who own them seem to like them.

Specs for the Sennheiser HME-110 include:

- **Lightweight and comfortable**
- **Noise Attenuation of 24 dB NRR**
- **MKE 45 flexible boom mic for right or left-side use**
- **Noise-compensated boom microphone for superior speech transmission**
- **Switchable mono/stereo**
- **Advanced transducer design ensures excellent speech intelligibility**
- **High-quality carrier bag**
- **10-year warranty**
- **Weight 12.4 oz.**
- **List Price: \$312**



Now let's move on to Active Noise Reduction (ANR) Headsets.

Bose invented the Active Noise Reduction headset, and a brilliant idea it was. Starting with a solid passive noise reduction base, designers add a microphone inside the headset cup and use electronics to invert the noise inside and feed it back as "negative noise" to the user, thus canceling out much of the remaining noise. The benefit of adding ANR technology to passive headsets is additional reduction in low frequency noise that is difficult to remove with just foam. The effect is amazing, as many found while sitting in Bose's "Egg" demonstrator at Oshkosh. In real life use in the cockpit, many new users lift their headsets to verify the engine is actually running because the sound is so different.

During the early years of the ANR headsets, my employer paid me to test the first three ANR headsets: Bose, David Clark, and Telex. All three were still quite new, and their products have evolved since then, but at the time Bose was new to headsets and I wasn't too impressed. If you lifted the headset off your ears before the power was off the ANR circuitry, it would howl in your ears, and depending how you picked it off your head, it might result in a "Chinese Finger Torture". I'm happy to say they have improved a lot since then. At that time, I rated David Clark #1, even though it is almost \$400 less than Bose.

Now, the field has changed and become very competitive. Bose is well known and sells many headsets, even at \$1000 apiece. Bose owners *love* their headsets. David Clark, with their H10-13X and variants probably continues to sell more total headsets than all the others. New players such as Lightspeed with their beautiful \$850 Zulu are doing very well in the market. Lightspeed was first to introduce the Bluetooth music & cell phone interface, which is much appreciated by pilots. The Telex Stratus 50 looks like a winner on paper with 50dB of ANR attenuation. I haven't tried it yet, but I will as soon as I can get my hands on one.

One issue with ANR headsets is the need to power them. Manufacturers offer either a cable-mounted battery box or a special connector to a panel-mounted power source. Battery life varies from 25 hours for the David Clark to 40 hours for the Bose and Lightspeed. In-cable battery powered headsets use standard connectors, so you can change planes without worry. Since I hop

from plane to plane frequently, I stick with batteries. It's a small price to pay for better sound reduction

Bose A20 specifications include:

- **Significantly greater noise reduction for pilots than currently available.**
- **Improved level of comfort achieved through choice of materials, distribution of weight throughout the headset**
- **1/3 less clamping force than most conventional noise reducing aviation headsets, and additional room for the ears.**
- **Clear audio for enhanced communications.**
- **Auxiliary audio input, also included by Bose for the first time!**
- **Priority switching so pilots can decide which audio source they want to hear.**
- **At least 40 hours of typical headset use from just two AA alkaline batteries.**
- **Made in the U.S.A.**
- **Meets or exceeds all TSO**
- **All this, and these headsets still weigh only 12 ounces.**
- **5-Year Warranty**
- **List Price: \$995**



David Clark H10-13X specifications:

- **Super Soft Head Pad**
- **New Comfort gel, undercut ear seals**
- **Battery Power Module - One 9 volt battery for up to 25 hours of operation.**
- **Exclusive, patented flex/wire boom for easy, precise microphone placement.**
- **Reduced headband pressure.**
- **Passive Protection: 23dB**
- **When the ENC is turned on, low frequency noise cancellation improves by an additional 17-22 dB**
- **Pilot Selectable Automatic-Shut Off Feature.**
- **M-7A noise canceling electret microphone**
- **Stereo compatible for use with stereo intercom and cabin entertainment systems.**
- **5 Year Warranty**
- **Weight (without cord assembly): 18 oz.**
- **List Price: \$628**



Lightspeed Zulu Specifications:

- **Active Noise Cancellation over a deep, broad range of low frequency noise. Designed to be the quietest headset ever.**
- **Front Row Center (FRC®) gives you a theater-like listening experience, enhancing stereo sound reproduction so that audio seems to come from all around you, not just from your right and left.**
- **Auto MusicMute - quiets Auxiliary Devices when radio communications come in from the panel.**
- **Stereo/Mono: Switchable to match the signal from your audio panel.**
- **Bluetooth:Enabled - Allows wireless connection to Zulu from Bluetooth phones or other devices. If your phone features wireless music streaming, it should enable you to stream music wirelessly to the Headset.**
- **Cell/Music Wired Jacks for patching in cell phone, or music devices with supplied cables.**
- **Magnesium Cups - Durable yet light weight that also is 10x more effective at blocking out high frequency noise.**



- **Stainless Steel Headband - Light and comfortable. Thin to eliminate top of canopy clearance problems.**
- **5 Year Warranty**
- **Weight: 13 oz.**
- **List Price: \$850**

Telex Stratus 50 Specifications:

- **Exclusive Digital Signal Processing Technology**
- **50 dB ANR protection**
- **Customizable headsets for a comfortable fit**
- **Cell phone/Audio Adapter**
- **Advanced Microphone Technology**
- **Low Profile, Adjustable Headband**
- **Impact Resistant Headband Design**
- **Seal Out Sound, Seal In Comfort**
- **Dual volume controls**
- **Battery OR Aircraft Power Source**
- **Auto Shut-off to preserve batteries**
- **Flight Bag**
- **Designed & Assembled in Glencoe, MN, USA**
- **List Price: \$749**



I have used Bose, and they work well and are comfortable. The engineer in me wishes the passive noise reduction was better than it is (the muffs sit on your ears rather than around them, leaking noise), but the ANR seems to work very well. I own a David Clark H10-13X. It's not the lightest, and the battery life is less than the competition, but it's a David Clark and I know I can count on it. Of the three, with money being no object, I'd have a Lightspeed Zulu. They're light, have great battery life, and Bluetooth capability. Given their price range in the middle of the class, I'd pick a Zulu before the Bose, but that's just me. The Telex sounds interesting. I need to try it before ruling it out.

Lightweight headsets come in two types: lightweight ear covers and in-ear foam plugs. Originators of the latter are made by Clarity Aloft. They are completely passive, using no batteries, and rely on sophisticated foam earplugs similar to hearing aid foam to keep the noise down. They are far lighter than any other headsets. Since they don't cover your ears, they tend to be cooler in the summer as well. One unexpected benefit is tall pilots with limited cockpit headroom get an extra inch of space before the bruising begins.

Clarity Aloft Pro Specifications:

- **Full-spectrum noise reduction in a passive noise attenuation system.**
- **Self-molding Comply Canal™ Tips perform better than custom earmolds**
- **Comfortable for all-day use.**
- **Semi-rigid case with black ballistic nylon in a packable size.**
- **6 month supply of Comply Canal™ Tips**
- **3-year manufacturer's warranty**
- **Built to be rugged with professional Flight Instructors and Aviation Professionals in mind**

- **Clarity of sound that is unsurpassed**
- **Lightweight, cool and comfortable**
- **Hygienic replaceable foam tips, compliant to each individual ear**
- **High quality components tested to military specifications**
- **Stereo/Mono Capability with MP-3/iPod input**
- **Professional grade microphone**
- **No batteries are required**
- **List Price: \$695**



Lightweight ear cover headsets are made by Telex, Sennheiser, and others. I frankly don't see how a lightweight ear cover can provide any passive attenuation, but those with ANR technology do a good job of reducing noise while maintaining comfort at very little weight.

Telex Ascend Specifications:

- **Superior Sound Quality**
- **Modular Design**
- **Battery-Free Active Noise Reduction**
- **Three Year Warranty**
- **Fold Flat Swivel Design**
- **Upgradeable**
- **List Price: \$445**



Before I close out the discussion of headsets, I need to touch on a few special cases. First, it is important to protect young ears and standard headsets are just too big for kids, so there are youth headsets made for smaller heads.

Ladies, there ARE pink headsets available! Guys, we need more girl pilots, so we need to make sure the gals get headsets in their color of choice. Functionally, they are identical, and unfortunately not all manufacturers have a good color variety, but they are improving.

Due to demand, there are now "Mutt Muffs" for dogs too, so Fido doesn't go deaf while riding with master. They are reasonably priced, so pet owners protect their pet's hearing as well.

Finally, technology is changing all the time. Active Noise Reduction, or ANR, was a giant leap forward in aviation ear protection. Manufacturers continue to improve with Telex, for example, providing a headset with 50dB of total attenuation. The next big thing appears to be the wireless headset and intercom system. EQ-1 is a new player and appears to be a leader in wireless headsets, although as with any new technology, they are very high priced. I'm looking forward to wireless so we can stop worrying about tangled and intermittent wires.

In closing, I need to add a disclaimer. My flight school does have a small pilot store where we currently stock David Clark headsets. Since we're small, we only carry H10-13.4 passive and H10-13X ANR models. My goal was to have equipment available that our students & customers could count on. Without the luxury of a wide variety, I focused on the mainstream. In a perfect world we could have every model of all the manufacturers' equipment.

I hope you've enjoyed this look at the headset field. Next time we'll take a look at portable GPS units.



The Board of Directors of Chapter 33

Invites you to a celebration of 50 years of Experimental Aviation

50th Anniversary Gala

Where: Cedar Rapids Marriott Hotel When: April 15, 2011
1200 Collins Road NE Social Hour – 6:00 PM
Cedar Rapids, IA 52402 Dinner – 7:00 PM
Program - 7:45 PM

Special Keynote Address by Rod Hightower, President, EAA

Dinner will include your choice of: Sautéed Breast of Chicken Dinner OR Manicotti (please specify in your RSVP)

EAA Members \$30 per-person/Non-Members \$35 per-person (Member price valid for Spouses)

Name: _____ Number in Party: _____ EAA #: _____

Phone: _____ Address (City, State, Zip): _____

Sautéed Chicken [] Manicotti [] Special Dietary Request: _____

Rooms will be available for \$129 per night in conjunction with this event. Rooms may be reserved by contacting the Marriott directly at (319) 393-6600 before March 15th and mentioning the Chapter 33 50th Anniversary Gala.

Please RSVP by returning this form before March 15th to Denny Hodge via eMail at dennyhodge@mchsi.com, via snail mail at 3465 26th Avenue, Marion, Iowa 52302, or by phone at 319-373-3465. This event is limited to the first 150 RSVPs.

The remainder of the menu includes: House Salad of Mixed Seasonal Greens topped with Grape Tomatoes, Julienne Carrots, Peeled Cucumber & Julienne Yellow Squash with Choice Ranch & Raspberry Vinaigrette Dressings; Assorted Breads & Butter; Baked Potato (sour cream); Honey Glazed Carrots; NY Style Cheesecake / Strawberry Topping; Coffee, Tea or Milk

From the President's Pen . . .

The snow is disappearing and the temperatures are starting to remind us that spring will eventually come to the upper Midwest. For those of us that fly, these are welcome signs that we will soon be able to once again take to the skies and enjoy our passion. As you begin the flying season, be sure to focus on safety. Perhaps consider taking an instructor with you on your first flight or two until you have cleaned out all the cobwebs. We have several instructors in the chapter who would be happy to spend some time whipping you back into flying form.

I had the privilege in February of attending the Chapter Leadership Academy at EAA Headquarters in Oshkosh. While there I met many of the staff members who make the organization run on a daily basis, as well as many exceptional chapter leaders from around the country. We met as a group for nearly 16 hours over 2 days to learn about chapter leadership and share ideas . . . after which we settled by the huge fireplace in the Great Room of the Air Academy Lodge where we lived for the weekend, sharing ideas and experiences with each other.

Two additional highlights of the weekend were the time we spent with the “heart and soul” of EAA, Paul Poberezny and our “backstage tour” of the EAA Museum. Our time with Paul and his wife of 60 years, Audrey, was filled with stories of “the old days,” mixed with the founder’s view of the current and future EAA. Our tour of the museum included views of the archive rooms, workshops and even included close up (inside the ropes) view of the many incredible aircraft. If you’ve never seen the museum, it would be worth a weekend trip to Oshkosh just for that.



EAA Chapter Leadership Academy

February 18-20, 2011

EAA puts on as many as eight Leadership Academies each year – 3 or 4 in the spring and another 3 or 4 in the fall. If you ever have the opportunity and the inclination, I would recommend attending the Leadership Academy to any chapter member, whether you are a board member, or officer, or rank and file member. You will come away with a new perspective of the EAA organization and your place in it.

We’re getting close to the big 50th Anniversary Gala and final preparations are underway. We need to fill the house for our featured speaker and as of the first of March, I’ve not gotten reservations from many of you. We are opening the event to other chapters, but want Chapter 33 members to have “first shot” at the seats. Get your reservations in TODAY.

Reference: Tool Library

By Marvin V. Hoppenworth, EAA #2519L

About a year ago I donated a group of tools to the Chapter. I no longer work as an A & P so I have no need to keep them. If any of the Chapter members have a need for any of the tools they are yours to BORROW. Notice I said borrow! These are currently located in a black toolbox that is housed in the Alpha-Omega area 51 with Randy Hartman. Hanger 51 is located at the East 'T's at the municipal airport. There is access from the road without going through the security gate.

If you want to borrow a tool, better call to make sure that Randy is there. There is a notebook in the toolbox for you to list what you are borrowing and the date. Then, when you return the tool or tools, also date the notebook. This system will work well if everyone 'plays nice'.

A personal friend, namely Charles Harris has ended his home building career and has also donated a group of tools he no longer sees a need for.

Remember the Chapter also has 4 electronic scales. These are excellent for getting the weight and balance of your new homebuilt. They too, are stored at Randy's area 51.

The below tools have been donated to the Chapter 33 tool collection by Charles Harris of Cedar Rapids, IA, and are available for you to borrow:

- 1 - 100 ft. lbs. 3/8" drive torque wrench w/lock in setting.
- 1/4", 5/16", & 3/8" tubing bender.
- 1/2" cylinder base wrench.
- 9/16" cylinder base wrench.
- 1/8", 3/16", 1/4", 7/16", 1/2", 5/8", 3/4"-flaring tool.
- Ring compressor.
- Safety wire pliers.
- 1/8" stamp set 26 letters A-Z, 9 numbers
- 3/16" number stamp set, 9 numbers
- Kneepad or chart holder.
- 1/16", 3/32", 1/8" cable, nicopress squeezer, bolt type.

The below tools were donated by Marv

- Toolbox
- Dual magneto timer
- Compression tester
- Valve spring compressor
- 1/2" cylinder base wrench
- 9/16" cylinder base wrench
- 5/8" cylinder base wrench
- 3/4" cylinder base wrench
- 3 each ring compressors with ratchet handle
- 7/16" vacuum pump wrench
- 1/8" nicopress tool
- cable cutter

We wish to thank Mr. Harris for this kind donation to our Chapter tool collection.

Last Meeting - Light Sport Aircraft

Chapter 33 met on February 24th at the Marion Library for a presentation by Jim Meade on the Light Sport arena. Jim gave a great presentation, which led to some excellent discussion.



Next Meeting - Glass Panels

Our March meeting will be held on March 24th at the Iowa City Airport. Our featured presenter will be Dave Lammers discussing Glass Panels, specifically the Garmin panel in his RV-10. It is sure to be an interesting presentation and discussion. The meeting will begin at 7:30. The Board meeting will precede the regular meeting at 6:30.



Upcoming Meetings

April 15th – 50th Anniversary Gala – Cedar Rapids Marriott, Social - 6:00 PM; Dinner – 7:00PM

May 26th – Regular Meeting – Location TBD – Formation Flying Presentation – Board Meeting – 6:30 PM; Regular Meeting – 7:30 PM

Meeting Reminder

Just a reminder that all regular meetings in 2011 will be held on the fourth Thursday of each month. If you have ideas for topics or speakers for a meeting, please call Randy Hartman.

EAA Chapter 75 March Meeting

The March Chapter meeting will be held on Saturday, March 12th at 7PM. It will be held at the Deere-Wiman Carriage House, located at 817 11th Avenue in Moline, IL. This month's meeting will feature a presentation Marv Hoppenworth from Chapter 33 on the early days of the Repair Barn at Rockford, the EAA in the 1960's and homebuilding in the 1960's. Been told, Marv was one of the founders of the Repair Barn!! Should be interesting!!

50 Years Ago this Month . . .

On March 1, 1961, President John F. Kennedy signed [Executive Order 10924](#), officially authorizing the establishment of an "agency in the Department of State which shall be known as the Peace Corps." Fifty years later, that Agency has sent more than 200,000 volunteers to over 93 countries.

Fly Market

FOR SALE: 1977 Cessna T210M, with 4,000 GW STC. \$105,000. I'm planning a move to Light Sport Aircraft in the near future and sadly the 210 has to go. About 4700 TTAF and 1250 TSMOH. 2 Garmin 430s and a Sandel 3308 EFIS connected to a Cessna 400B autopilot. Many extras. Check out N6860M on FlightAware to see some of my many long trips. For actual current hours and equipment list, contact Jim Meade at 319.330.5548 or jnmeade@southslope.net



FOR FREE I have a solidly built "H" frame free to any one in the building process. I will offer free delivery to any one in the Cedar Rapids area. Armin Jacobs Phone 319-465-5298---e-mail ajacobs@n-connect.net

FOR SALE: A gorgeous Cessna 175 for sale <http://www.greatusermanuals.com/c175/> Ed Wischmeyer 319-491-6904. Also available for rent, two slots in East Executive Hangar at CID.

Chapter 33 Calendar

March 12, 2011 EAA Chapter 75 General Meeting - John Deere Wiman Center, Marv Hoppenworth on the early days of the Repair Barn at Rockford

March 18 11am-1pm Commemorative Air Force Museum, Free Chili Fly-In, Council Bluffs Municipal Airport

March 24 7:30pm Chapter meeting, Iowa City Airport. Dave Lammers discussing Glass Panels, specifically the Garmin panel in his RV-10

April 15 Chapter 33 will celebrate its 50th Anniversary on April 15th of next year with an Anniversary Gala at the Marriott Hotel in Cedar Rapids. Keynote speaker Rod Hightower, new President of EAA.

April 16 11am-2pm Annual Chili Fly-in/Drive-in, Fort Dodge Regional Airport

April 17 Fly-in / Drive-in Breakfast, Hosted by the University of Dubuque Flight Team, Dubuque Regional Airport

April 30 Fly-in breakfast, Webster City Airport

June 17-21 Iowa City Municipal Airport, 35th Annual Air Race Classic (Iowa City IA to Mobile AL), Start Weekend festivities (organized by Iowa 99s) – Jun 17/18 racers arrive; Fri Jun 17 – Early Arrivals Party @ Iowa Children's Museum Take Flight! exhibit; Sat Jun 18 – Young Eagles event and All Racers Welcome Hangar BBQ Party @ IOW (hosted by EAA 33); volunteers needed and tickets available – contact Minnetta Gardinier m.gardinier@gmail.com; Tue Jun 21 @ 0800 racers launch from IOW.

July 9 7am Flight Breakfast, Zangger Vintage Airpark 2VA, 432704.9N 0962421.1W, 122.9 CTAF, left traffic 12-30, 17-35 taxiway only, Caution - hot air balloons. Coincides with "Larchwood Days" - transportation available to events in town. Sponsored by: "Larchwood Community Group" and American Legion.

In March 2011 Issue...

Headsets, Reference: Tool Library



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