

Selecting an Aviation Headset

Four Critical Factors to Consider



TELEX[®]
FOR CRITICAL HEADSET SOUND

An aerial view from the cockpit of a propeller plane, looking out over a coastal city and a range of mountains. The sky is a clear, vibrant blue with a few wispy clouds. The city below is densely packed with buildings, and the coastline is visible. The mountains in the background are rugged and layered. The foreground shows the metallic structure of the plane's fuselage and the edge of the propeller.

The roar of the prop.

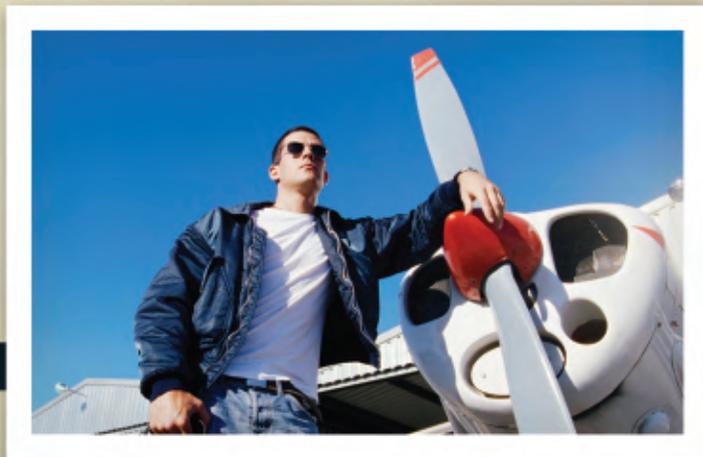
The rush of the wind outside the cockpit.

The chatter among passengers and the tower.

Sound is a critical part of the flying experience.

That's why choosing a headset is so important. You want one that provides protection and, at the same time, lets you enjoy the ambient sounds that come with the territory.

An aviation headset is a surprisingly complex piece of equipment; far more complex than a headset produced for consumer or land-based communication. While a headset may sound good on the showroom floor tuned to a CD, will it provide the same quality in the air? You don't want to wait until an emergency situation to find out.



When choosing an aviation headset, there are four important factors to consider:



Hearing Protection

Earphone Speaker Quality

Microphone Quality

Comfort

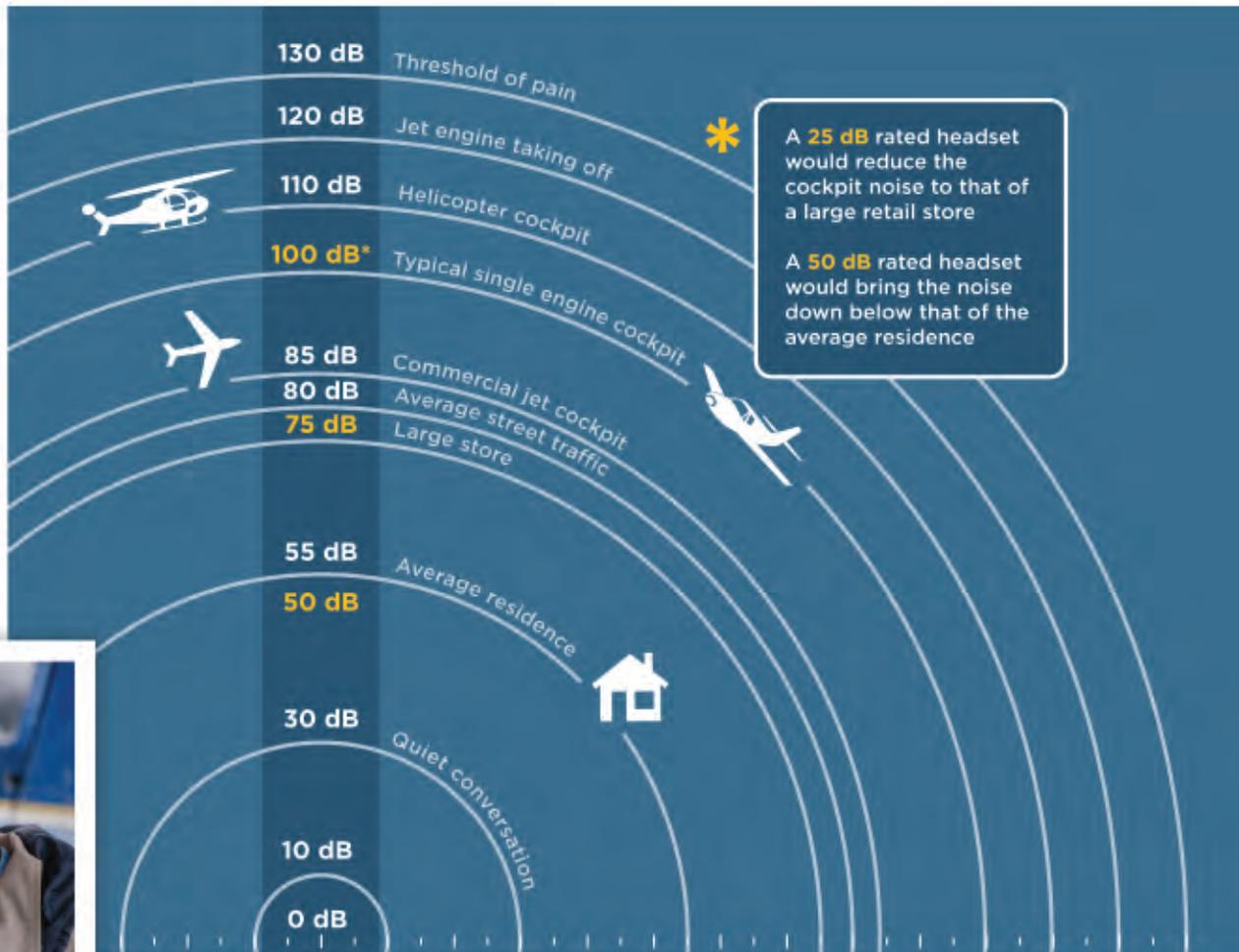
You'll find details about each on the following pages.



Hearing Protection

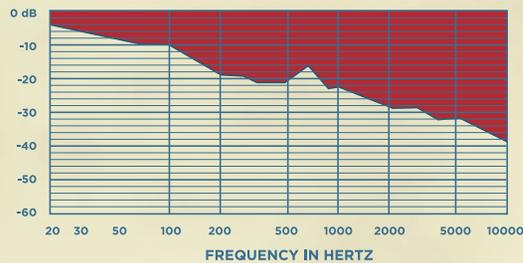
Noise Reduction

Noise reduction rating is measured in decibels (dB), or sound intensity. Most general aviation headsets provide from 10 dB to 30 dB of hearing protection. Minor differences in decibel ratings between headsets shouldn't effect sound quality, since most people don't notice a change in volume of less than 6 dB.



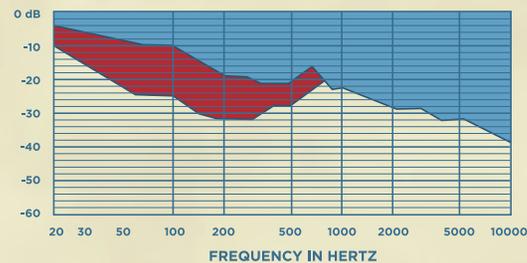
Choosing a Noise Reduction Technology

Low-frequency noises — such as engine and blade noise at around 90 Hz — cause the most long-term hearing damage, but not all headset technologies protect against those frequencies. These charts show the increasing noise protection provided by each type of technology.



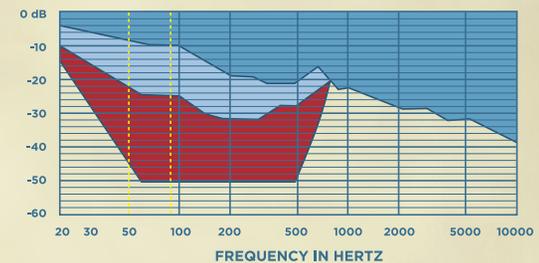
PASSIVE NOISE REDUCTION

Reduces primarily high-frequency noise. Protection comes from thick ear pads made of gel or foam that create a seal around the ear.



ANALOG ACTIVE NOISE REDUCTION (ANR)

Adds another layer of protection via an electronic system inside the ear cup. It picks up low-frequency noise not blocked by the pad and creates an equal and opposite signal. The two signals collide and cancel each other out.



DIGITAL ACTIVE NOISE REDUCTION

Reduces noise via the other two methods, plus includes more sophisticated electronics to further reduce noise at the critical 50 to 90 Hz levels. The electronics continually monitor sound, creating a profile of repetitive sounds and canceling them with equal and opposite signals. Non-repetitive sounds, such as engine trouble, are not completely canceled, so pilots are aware of emergency situations.





Earphone Speaker Quality

Frequency Range

Speaker tuning greatly affects communication clarity. Some headset manufacturers tune their speakers to make music CDs sound good on the showroom floor, which means they are tuning flat across all frequencies to pick up voice and the full range of musical frequencies. However, the FAA recommends aviation acoustics be tuned only to the frequency range of the human voice — from 350 to 3,000 Hz — to minimize distracting frequencies. When you listen to music on a speaker tuned to the FAA guidelines, it will sound tinny, since many of the bass musical frequencies are not coming through.



Volume Adjustment

Headsets that let you adjust volume on each ear cup independently are helpful if you have a hearing imbalance or there is a louder noise on one side of the plane.



Flexible Listening

If you like to plug in accessories such as cell phones and MP3 players, look for a dual adapter that lets you plug in both at the same time. It eliminates the need to switch cords during flight. The Telex dual cell phone/MP3 adapter also has a single switch, so you can immediately mute all accessory sound to hear important cockpit communication.

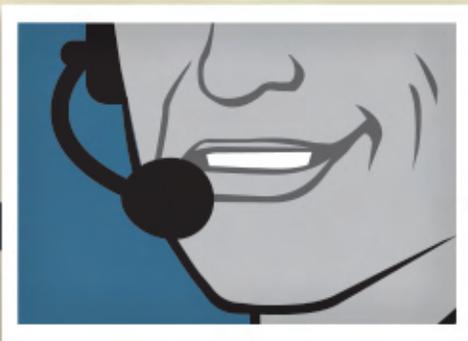




Microphone Quality

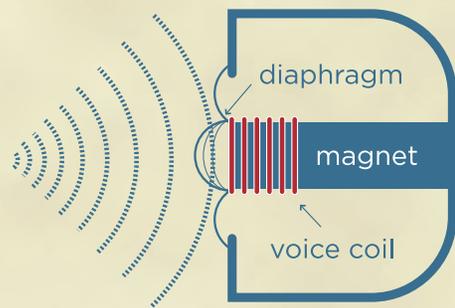
Microphone Placement

Transmission quality is affected by where the microphone is in relation to your mouth during transmission. It should be close and slightly to the corner to avoid extra hiss on sibilants like “c” and “s.” Hinged microphone booms typically bend in just one or two places. A fully adjustable boom allows you to place the microphone with great precision, on either the left or right side, and keeps the microphone firmly in place.



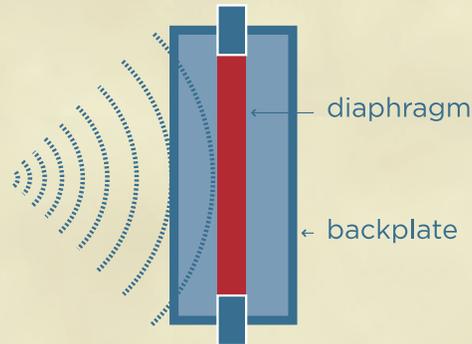
Some pilots are initially attracted to headsets with in-the-ear speakers because they are lightweight. But the drawback is that the microphone is connected to the earpiece, so when you move the microphone, the ear plug moves and breaks the protective sound seal.

Choosing a Microphone Technology



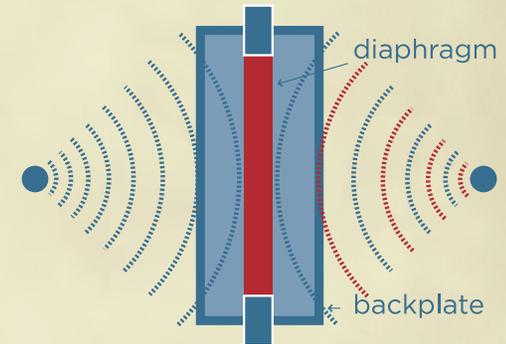
DYNAMIC

A diaphragm is attached to a coil suspended in a large magnetic field. Sound waves move the diaphragm, generating an electrical signal. While these are inexpensive and durable, their magnetic field makes them susceptible to electromagnetic interference, which can garble transmissions.



ELECTRET

A charged, flexible diaphragm is placed a given distance from a fixed plate. Sound waves move the diaphragm, changing the distance between the plate. The changes are translated into electrical signals.



NOISE CANCELING

Some electret microphones have an added feature, in which carefully designed openings channel noise to both sides of the diaphragm at the same time. The equal pressure keeps the diaphragm from moving — to cancel ambient noise, yet allow voice sound waves to be transmitted.





Comfort

Headband Adjustment

There's a misconception that lighter headsets are more comfortable, but weight plays a minor role in comfort. The key factor is adjustability. Over time, the clamping force of the headset can become uncomfortable and create hot spots. Look for a headset that lets you easily adjust each ear cup independently, since most heads aren't symmetrical.



The Telex ComfortCam™ technology offers quick and easy tension control for clamp-free flying.



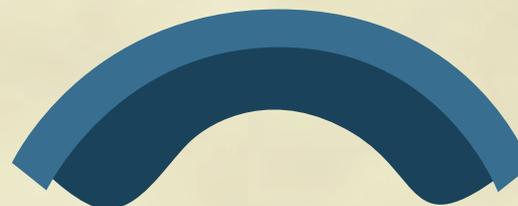
Bigger is Better

Some pilots shy away from traditional aviation headsets because they're worried about the weight. In fact, the more padding and surface area a headset has, the more comfortable it will be.



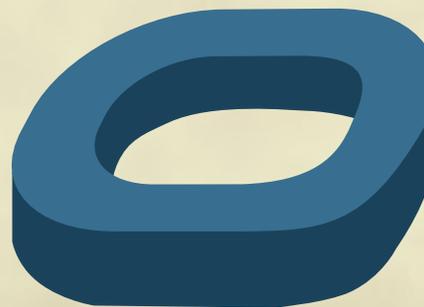
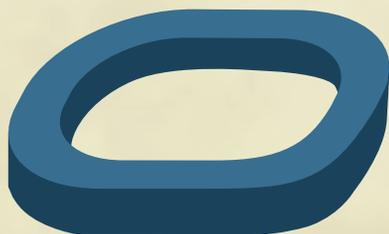
STANDARD

Standard ear pads and headbands are thinner with less surface area, which puts more pressure on the head. Some headbands also have a joint at the top, which can pinch the head.



HIGH END

Higher-quality ear pads and headbands are thicker with more surface area to dissipate the clamping pressure across a greater area. Larger pads also conform better around glasses to keep a tight seal over the ear. Look for a wide, one-piece headband to eliminate any pressure points.



Choose the Headset That's Right for You

Compare the four critical factors and other features of Telex headsets to other brands, and we think you'll discover why Telex is the headset of choice for more than 70 percent of commercial pilots and a growing number of general aviation pilots. **To learn more, visit our Web site at www.telex.com/aircraft.**

		Echelon 20™	Echelon 25XT™	Stratus 30™
Hearing Protection	Passive	•	•	•
	ANR			•
	Digital ANR			
	Noise Reduction	20 dB	25 dB	30 dB
Earphone Speaker Quality	Cockpit Communication Tuning	•	•	•
Microphone Quality	Noise Canceling Electret	•	•	•
	Fully Adjustable Boom Placement	•	•	•
Comfort	Ear Pad	3/4 inch	1 inch	3/4 inch
	ComfortCam™ Headband Adjustment	•	•	•
Other	Power Source	N/A	N/A	2AA batteries
	Smart Auto Shut Off	N/A	N/A	•
	Built-in Recharging System	N/A	N/A	
	Built-in Panel Power Adapter	N/A	N/A	
	Built-in Cell Phone/MP3 Adapter		•	•

Use this area to compare Telex
with other headset brands

Stratus 30XT™	Stratus 50 Digital™		
•	•		
•	•		
	•	Exclusive to Telex	Exclusive to Telex
30 dB	50 dB		
•	•		
•	•		
•	•		
1 inch	1 inch		
•	•	Exclusive to Telex	Exclusive to Telex
2AA batteries	4AA batteries		
•	•	Exclusive to Telex	Exclusive to Telex
•		Exclusive to Telex	Exclusive to Telex
•	•	Exclusive to Telex	Exclusive to Telex
•	•	Exclusive to Telex	Exclusive to Telex



What to Look for in Power Features

Smart Auto Shut Off: Monitors the headset and all plugged-in accessories, and shuts off power when not in use, which prolongs battery life.

Built-in Recharging System: A built-in system automatically recharges batteries while in use. Some headsets don't have a recharging system or only offer it as an optional feature. Look for models with the system built in.

Built-in Panel Power Adapter: Lets you use power from your flight panel to extend battery life. Some headsets require you to buy a separate adapter. Look for models with an adapter included.

Dual Cell Phone/MP3 Adapter: Allows you to connect both your phone and MP3 player at the same time to avoid finding and switching cords in flight.



Setting the Standards in Aviation Sound

Telex invented the first noise-canceling microphone for U.S. Armed Forces during World War II combat. Later, Telex microphones were used on the Mercury, Gemini and Apollo space missions, making them the first microphones on the moon. Today, Telex continues to pioneer mission-critical sound technology. We design and manufacture high-performance commercial and general aviation headsets for optimum comfort, reliable performance and value.

Telex headsets are engineered for pilots who share our passion for sound clarity. Whether used on a single-prop airplane or a jumbo jet, our headsets set the standard for clear, reliable and consistent communications.

From pilots to designers to operators, Telex is the headset of choice for 70 percent of commercial aviation professionals. In fact, Telex is standard equipment on all prominent commercial and general aviation aircraft.



Image courtesy of NASA
Goddard Space Flight Center

Improving Communications Across the Globe

Telex offers an unparalleled legacy of quality sound innovation. We are the worldwide leader for clarity and reliability in mission-critical applications. We enhance communications in schools, restaurants, theaters and airplanes. We help direct the action during football games. We ensure the integrity of aerospace, military and tactical programs for the U.S. government.

In fact, wherever people need to hear or be heard, Telex is there. We have established a reputation for high-performance in a wide range of industries, including:

- Aviation
- Broadcast
- Cinema
- Club sound
- Commercial and industrial
- Concert sound
- Education
- Government and military
- House of worship
- Life/public safety
- Performance/sports venues



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