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## FREQUENTLY ASKED QUESTIONS

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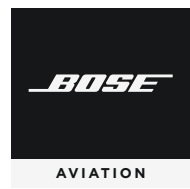
### GENERAL PRODUCT QUESTIONS

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#### **What is the Bose ProFlight Aviation Headset?**

The Bose ProFlight Aviation Headset is the industry's smallest, quietest and most comfortable active noise cancelling communication headset. With an on-head weight of 4.9 ounces, the new Bose ProFlight Aviation Headset is designed for long term comfort and is our most innovative headset yet. Engineered for pilots of moderately noisy pressurized turbine powered aircraft, it incorporates more than 30 U.S. utility and design patents. The ProFlight Aviation Headset features three levels of user selectable active noise cancellation, active equalization to improve intelligibility of incoming transmissions, a noise cancelling microphone for clearer outgoing transmissions, talk-through tap control for communication with those outside the intercom and full function *Bluetooth*® connectivity with smartphones, tablets or EFBs. The ProFlight Headset is FAA TSO and EASA E/TSO-C139a certified, meets all applicable ARINC standards and is available with four different plug configurations.

Best used where noise is pervasive, comfort is required and communication is critical, the ProFlight Aviation Headset marks the first time Bose will have multiple headsets to offer the aviation market.

**What is different about the Bose ProFlight Aviation Headset?**

The ProFlight, our most advanced aviation headset ever, features a unique combination of benefits. Industry-leading active noise cancellation comes with a comfortable, stable fit, without compromising the clear audio and simple operation you expect from Bose.

The high level of comfort is engineered into the unique form factor – unlike any other headset – a highly stable, in-ear configuration without the usual intrusive deep-insert eartips.

Also new with the ProFlight: three user selectable levels of active noise cancellation, a quick release, side-swappable down cable and mic, Bose Acoustic Noise Cancelling® technology, full function *Bluetooth*® connectivity and unique tap control. Talk-through tap control allows pilots to better communicate with those outside the intercom.

Two AA batteries power 45+ hours of use without *Bluetooth* and at least 25 hours with *Bluetooth* on. Aircraft-powered variants are also available. Users switch seamlessly from battery power to aircraft power without compromising headset performance. All models feature auto-off, which powers down the headset automatically when not in use. Select models offer auto-on.

**Why did Bose choose an in-ear configuration versus the more traditional on- or around-ear configuration?**

Bose has the technology that furthers the form factor's performance and provides a great balance of comfort, noise reduction and audio.

**How many new and existing patents does ProFlight have?**

This product is covered by more than 30 new and existing U.S. utility and design patents. ProFlight is one of the most heavily patented products Bose has ever produced.

**What is the difference between the ProFlight and A20® headsets?**

They are completely different headsets and have different fundamental architectures, although they share features such as *Bluetooth* capability, selectable stereo/mono and auto-on/auto-off. The A20 features an around-ear design and is meant for noisier aircraft, such as non-pressurized single engine models. The ProFlight features a headbanded, in-ear design and is meant for crewed aircraft, typically pressurized and less noisy, like most jets.

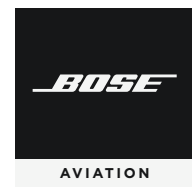
**What is included in the box with the Bose ProFlight Aviation Headset?**

The Bose ProFlight Aviation Headset comes with:

- Carrying case
- Two AA batteries
- Control module lanyard
- Quick-start guide
- Warranty card
- Owner's guide
- Three sizes of silicone eartips

**How do I know what size of tip I have?**

White, grey and black secondary colors found on the attach point of the silicone eartips identify the size. White is small, grey is medium and black is large.

**Does the ProFlight come with an app?**

Yes. The Bose Connect App, with Apple® and Android™ compatible versions, is free to download. The app is not necessary or required for headset operation. The app does provide unique functionality to the headset, including:

- Music/Audio share
- Easy connecting and renaming of connected *Bluetooth* devices
- Product tour and troubleshooting info
- Periodic updates to provide additional capability

**Why doesn't the Bose ProFlight Aviation Headset have volume knobs?**

There is a volume control/sensitivity switch inside the control module battery compartment to simplify and slim the module. This easily accessible two-position switch allows coarse-tuning. Fine-tuning the volume is typically done on the audio panel.

**Can the Bose ProFlight Aviation Headset be used for all types of aircraft?**

Yes. However, it is optimized for moderately noisy aircraft, typically pressurized and turbine powered, so the features address the needs of two or more pilots and crew. Pilots of noisier aircraft may prefer the Bose A20 Aviation Headset. Designed for use in both civilian and military aircraft, the ProFlight offers multiple plug configurations: twin plug, 5 pin XLR, 7 pin XLR or 6 pin LEMO.

**How many different versions and configurations are available for the Bose ProFlight Aviation Headset?**

Customers can configure their Bose ProFlight Aviation Headsets in many different ways. In addition, customers have their choice of connector configurations with each module. Designed for use in both civilian and military aircraft, the ProFlight offers all of the most common plug configurations:

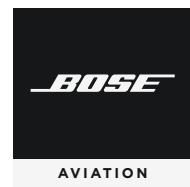
**Dual G/A plug (PJ 068 and 1/4-inch Stereo)** – With this option, the headset is connected to the aircraft's intercom via a dual plug and is not powered by the aircraft. Two AA alkaline batteries provide a minimum of 45 hours of operation while flying. This configuration is the most common version purchased by pilots.

**XLR 5 Pin** – Often called the Airbus plug, this configuration is a mono connection to the aircraft and, depending on the installation, may be powered by the aircraft. When disconnected, the flexible power feature lets the headset switch seamlessly from aircraft power to battery power so users experience no interruption when the headset is plugged into or unplugged from a source of power.

**XLR 7 Pin** – The latest ARINC defined standard pin connection, which provides for binaural audio, aircraft power as well as separate grounded audio, microphone and EMI/EMF shields. Although not in wide use yet, it is being adopted by the airline industry as a new standard plug type.

**6 pin connector wired to the aircraft (LEMO)** – With this option, the headset is connected to the aircraft via a 6 pin connector and is powered directly from the aircraft. Two AA alkaline batteries can also provide pilots with a new level of flexibility. When disconnected, the flexible power feature switches the headset seamlessly from aircraft power to battery power so users experience no interruption when the headset is plugged into or unplugged from the aircraft.\*

\*Adapters are available from Bose to convert a 6 pin connector to either a dual G/A plug or a U174 for additional connection flexibility.



**ProFlight Headset cable length in meters**

	Length (m)			
	Headset to CM	CM	CM to Aircraft	Total
<b>ProFlight</b>	1.33	0.1	0.58	2.0

**Can I comfortably wear glasses with the Bose ProFlight Aviation Headset?**

**Yes.** The side pads rest slightly behind and above the ear, which allows the user to put on and remove eyeglasses without touching the headset. You can wear any frames you want without affecting noise reduction or comfort.

**Can I switch the microphone to either side?**

**Yes.** The integrated boom mic and cable assembly can be attached to either the left or right side of the headset. The self-guiding connector makes it easy to attach the boom mic and cable assembly. The cable swaps easily in seconds and without tools.

**How does the ProFlight Aviation Headset work in open cockpits or in aerobatic aircraft?**

We do not suggest using the headset in open cockpits or outside of the protective area behind a windscreen (typical in open cockpits). Exposure to the slipstream will negatively impact performance. The low clamping force and lightweight structure may not be stable enough for vigorous aerobatics. We recommend that users use the headset on a 30-day trial to make sure it works properly in their aircraft.

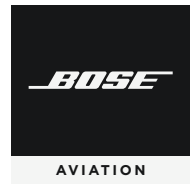
**Does the ProFlight Aviation Headset have an equalizer (EQ) or a way to equalize the headset audio?**

The Bose ProFlight Aviation Headset has multiple built-in equalization circuits. The primary ICS/radio communications path is designed to meet the latest TSO standard. An additional active EQ optimizes the experience through the secondary (*Bluetooth*) audio path.

**TECHNOLOGY FAQ**

**What is the latest technology in the Bose ProFlight Aviation Headset?**

The Bose ProFlight Aviation Headset includes a number of important technologies from Bose. The most significant is the digital active noise cancellation earbuds, which offer nearly the same active noise reduction performance provided by the industry-leading Bose A20, but with much less passive noise reduction by comparison. The headset performs in loud environments and across a wide range of frequencies with Bose proprietary microchip and microphones both inside and outside each bud. The small electronics system better senses the sound by more effectively measuring, comparing and reacting to produce an opposing cancellation signal. Proprietary eartip design provides additional passive attenuation. The carefully selected materials of the headset eartip block more noise from the ear and further improve comfort. The headset features a high-performance microphone for communication, *Bluetooth* audio and a communications interface, all weighing in at just a fraction of many competing headsets.



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## NOISE CANCELLATION FAQ

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**How much noise reduction does the Bose ProFlight Aviation Headset provide? What is the attenuation at different frequencies?**

The Bose ProFlight Aviation Headset provides three different levels of user selectable noise cancellation. Each mode is engineered for a distinct use. “Low” optimizes interpersonal communication outside the use of an intercom system. “Medium” provides consistent noise reduction across a wider range of frequencies. “High” provides the greatest amount of active noise reduction, maximizing the signal-to-noise ratio for radio communication.

Bose makes no claim about specific levels of noise reduction. Such numbers cannot accurately describe what you will hear when using the product. We encourage pilots to try the product in a variety of aircraft to experience the dramatic performance and capability of each mode for themselves.

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**What is the EPA-rated attenuation of the Bose ProFlight Aviation Headset?**

The current methods specified by the EPA Noise Reduction Rating (NRR) cannot be applied to active noise cancelling devices, only passive devices. That’s why you see the NRR on traditional aviation headsets, but not on noise cancelling headsets. The EPA has been looking for years at redefining the NRR to include active noise cancelling devices in its scope. However, the latest TSO guidelines call out ANSI test standards, which do relate to active noise reduction headsets, and which Bose contributed to and complies with.

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**How easy is it to hear other crew members in a lower noise environment with the headset on?**

Because active noise reduction technology excels at the lower frequencies (below 1kHz), the Bose ProFlight Aviation Headset will not completely cancel voices. Essentially, this means that in many situations, voices can be heard where they would usually be completely drowned out by aircraft and wind noise. In addition, the “low” mode of operation is designed to optimize communication outside the use of the intercom. Talk-through tap control puts the tapped earbud into this low mode and improves directional hearing to this ear.

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**Does Bose offer noise cancellation in helmets for pilots or motorcycles?**

At this time, Bose does not offer active noise reduction within helmets. But Bose conducts ongoing research to solve problems with unique technology offerings.

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## COMFORT FAQ

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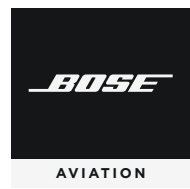
**How comfortable is the Bose ProFlight Aviation Headset?**

The ProFlight Headset achieves the highest level of comfort through thoughtful placement and shape of the side pads, the choice of materials, the low overall on-head weight and clamping force, and an exclusive silicone eartip design that allows for long term comfort without sacrificing stability. Additionally, the Bose ProFlight Aviation Headset has distinct left and right eartips with a quick release, side-swappable microphone and down cable for improved comfort and ergonomics.

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**What makes the ProFlight Aviation Headset so comfortable?**

Overall, the Bose ProFlight Aviation Headset is one of the smallest and lightest active noise cancelling headsets on the market. Its weight and size is a balance of function, comfort and excellent stability. The three sizes of the patented silicone eartips, which sit comfortably in the bowl of the ear, contribute to greater comfort.



**What is the weight of the headset without cables?**

Headphone only is 85.2 grams. The headphone and one-half of the upper cable with boom mic is 139 grams.

**What material are the earbuds made of?**

Silicone.

**Are there tests for the earbuds, for the ear health safety and long term use? Are there any tests regarding skin reactions or test certificates?**

Bose does extensive tests to assure that the products we use do not cause skin irritation. However, there are instances of allergic reactions to many different types of materials. When possible, Bose chooses materials that yield the best results for biocompatibility.

**Can the new headset be worn by pilots who suffer from auditory eczema (exostosis)?**

Bose has been selling these tips for years with millions of units in operation without any significant issues. In any case, customers with skin conditions should consult a doctor for advice. In any case, it is important to know that the buds do not fit deeply in the ear canal; they are meant to rest carefully in the concha or bowl of the ear and should not aggravate or irritate the skin in the canal.

**Could a hearing aid be worn under/behind the earbud?**

Not likely. Hearing aids should be removed and the headset worn instead.

**Bluetooth AUDIO INPUT FAQ**

**What is the purpose of the Bluetooth input?**

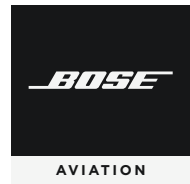
The ProFlight's full function *Bluetooth* wirelessly connects any *Bluetooth* enabled external audio source, including smartphones, tablets or EFBs, and GPS devices.

**Is it legal to use a Bluetooth device in the cockpit?**

Yes. The responsibility for permitting and using devices that emit a radio signal or that are considered personal electronic devices is with the pilot or the owner/operator. Depending on the country, circumstance and use case, different methods of qualification and approval may be required.

**How do I control the volume of the Bluetooth audio?**

The user may control the volume directly on the audio source if connected via *Bluetooth* or with the volume controls on the side of the ProFlight control module.



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**CUSTOMIZABLE AUDIO PRIORITIZATION FAQ**

**What is customizable audio prioritization?**

Priority switching allows pilots to decide which audio sources they want to hear through the ProFlight Aviation Headset and in which combination. Two options for audio prioritization may be selected: Mute or Mix.

**The Mute setting:** When the switch is in the top position and an intercom signal is detected, *Bluetooth* audio is muted.

**The Mix setting:** When the switch is in the middle position and an intercom signal is detected, *Bluetooth* audio is mixed with the intercom audio.

**How does customizable audio prioritization work?**

The control module has three possible user-defined prioritization states:

**Mixed audio position:** The intercom signal will be mixed with the *Bluetooth* input signal.

**Muted audio position:** The *Bluetooth* auxiliary input signal will be muted only when an ICS signal is present.

**OFF:** *Bluetooth* audio sources turned off for sterile cockpit operations.

Note: When a *Bluetooth* call is present, the audio from the call will always mix with the ICS signal. The *Bluetooth* function is always disabled in the passive mode and when the battery life indicator light is red.

**MICROPHONE FAQ**

**What kind of microphone does the Bose ProFlight Aviation Headset have?**

The ProFlight uses a noise cancelling electret microphone (often called a high-impedance microphone), typical on most commercial aircraft. It is optimized to reject far field noise and improve performance with "hot mic" systems.



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## POWER/BATTERY FAQ

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### What is the battery life of the Bose ProFlight Aviation Headset?

Using two AA alkaline batteries, the Bose ProFlight Aviation Headset will operate for at least 45 hours of flying in typical aircraft noise. With continuous operation of the *Bluetooth* function, battery life will be at least 25 hours. As always, battery life varies with the type of battery, the noise environment and features used. The headset's battery life indicator light alerts the user when batteries should be replaced.

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### Can I use rechargeable batteries?

Rechargeable batteries are discouraged because your flying-time battery life will be reduced from the 45-hour life, depending on the type of battery chemistry used. Rechargeable batteries also alter the accuracy of the battery status indicator light, so that when the light changes to amber, you will have less than the usual eight hours of flying time remaining that you can expect with non-rechargeable AA alkaline batteries.

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### Can I use lithium-ion batteries?

Lithium-ion batteries should not be used due to their typically higher voltage.

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### How are the batteries installed?

The two AA batteries fit lengthwise within the bottom of the control module. The battery compartment is easily accessed by pushing down and, at the same time, sliding the cover toward the headset. After the cover has cleared the detent, lift the cover into a vertical position to place the batteries.

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### What is flexible power?

Flexible power is available for headset configurations that allow aircraft power. When disconnected, the flexible power feature lets the headset switch seamlessly from aircraft power to battery power so users experience no interruption when the headset is plugged into or unplugged from a source of power. 6 pin LEMO, 7 pin and 5 pin XLR connectors have this function and also feature auto-on. The user may easily change from an aircraft-powered configuration to a battery-powered configuration using adapters available from Bose or third-party manufacturers.

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### How does the auto-on feature work?

Headsets that can use aircraft power (6 pin, 7 pin and 5 pin XLR) will automatically turn on when the aircraft power is present. A configurable switch inside the control module can disable this feature based on user preference.

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### How does the automatic shutoff feature work?

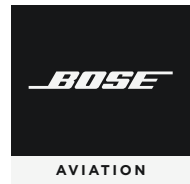
The automatic shutoff feature in your Bose ProFlight Aviation Headset detects when the headset is not in use and shuts it off after several minutes to preserve battery power. The exact time it takes to shut off varies and can range between 6 and 45 minutes of inactivity.

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### Can I use the Bose ProFlight Aviation Headset to listen to audio from a *Bluetooth* device even when I am unplugged from the intercom?

**Yes.** As long as the headset is turned on, audio can be played through the *Bluetooth* connection. However, *Bluetooth* audio will not play when there is less than two hours of battery life left in the headset.





**How difficult is it to install a flex-powered version, and how much would it cost?**

It depends on the aircraft and where you would like the aircraft plugs to be located. It could take as few as 30 minutes or a few hours to install; it simply depends on how you would like to set up your system. Essentially, the system consists of just six soldered wires: two audio, two microphone, a ground and a power wire. Installing near the existing phone and mic jacks will facilitate the installation because four of the six wires can be installed directly to the back of the existing jacks. This also allows existing jacks to be used with conventional headsets. The cost of the installation depends on the hourly rate of the avionics professional you select to perform the job.

**Why is the installed/aircraft-powered version of the control module the same size as the battery-powered control module?**

Installed/Aircraft-powered versions of the Bose ProFlight Aviation Headset contain a feature we call flexible power circuitry. Headsets with the flexible power circuitry can be seamlessly switched between aircraft power and batteries. This allows users to retain the flexibility and additional options of using batteries or an optional adapter cable. The adapter cable is useful if you fly in other aircraft without an aircraft-powered connector, or if you want to disconnect from the aircraft and enjoy a quiet flight with active noise reduction. Because batteries take up to 70% of the control module space, the modules were designed to have the same size.

**Do the aircraft-powered versions (6 pin, 7 pin and 5 pin XLR connector versions) of the headset require batteries for any of the functions?**

**No.** These versions of the Bose ProFlight Aviation Headset do not require batteries for any function when connected to the aircraft. However, if you keep batteries in the module, you will be able to seamlessly continue use of the headset when it is disconnected from the aircraft power. For example, you could make a private phone call with the *Bluetooth* version of the headset by disconnecting from the panel. It also gives you the capability to use a small adapter cable to fly in other aircraft instead of purchasing a new down cable with different connectors.

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## BLUETOOTH FAQ

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**Which *Bluetooth* profiles does the A20 Aviation Headset have?**

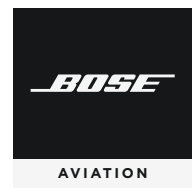
These *Bluetooth* profiles are offered: HFP, A2DP, AVRCP and Multi-Point.

**Can I use the Bose ProFlight headset's *Bluetooth* function even when it is unplugged from the intercom?**

**Yes.**

**How do I know if my phone is compatible with the Bose ProFlight Aviation Headset?**

The Bose ProFlight Aviation Headset is designed with *Bluetooth* ADK 4.2. If your device is compatible with *Bluetooth* 4.1 or previous versions, it is compatible with the Bose ProFlight Aviation Headset.



**Why does the power LED have three colors, and what do they mean?**

The tri-color power LED provides continuous status indication of battery health and tells the pilot the remaining battery life at a glance. In addition, the tri-color status LED allows pilots to extract maximum energy from a set of AA batteries while enabling proactive battery replacements.

**Can you dim the LED lights on the control module?**

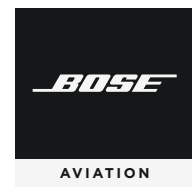
**Yes.** The lights can be dimmed by pressing the on/off button twice quickly. You can reset the lights to normal mode by pressing the on/off button twice quickly. The headset defaults to normal setting when the headset is powered off.

Power LED			
Indicator color	Power source	Type of light	Indicates
Green	Aircraft	Slow flashing	Power ON
Green	Battery	Flashing	Power ON and batteries good
Amber	Battery	Fast flashing	Power ON, but batteries low (8 hours or less remaining)
Red	Battery	Faster flashing	Power ON, but batteries very low (2 hours or less remaining)
Off	None	None	Power OFF or batteries depleted

**What does the blue or purple light mean on the Bluetooth module?**

The blue and purple lights on the *Bluetooth* module indicate the status of the *Bluetooth* functionality.

Type of light	Indicates
Purple light flashing with power LED	Discoverable or pairing, not connected to device
Blue light flashing with power LED	<i>Bluetooth</i> ON and connecting or connected to device
OFF	<i>Bluetooth</i> not enabled




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**PRICING FAQ**

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**What is the price of the Bose ProFlight Aviation Headset?**

The Bose ProFlight Aviation Headset is available directly from Bose for \$995.95. The headphone and the cables can be purchased separately. Headphone only: \$699.95 USD. Cable only: \$295.95 USD.

**Why does the Bose ProFlight Aviation Headset cost so much more than the competition?**

The Bose ProFlight Aviation Headset is the result of years of research by some of the top engineers in the company. It is supported by the resources of a world-class company and it incorporates proprietary technology offered only by Bose. We believe the ProFlight Aviation Headset is the only headset that has the unique mix of features to deliver performance worthy of the price. However, only you can decide the value. We encourage you to compare our new headset with competitive products and judge for yourself. We offer a 30-day flight trial to allow you to experience the ProFlight Aviation Headset in your own flying environment.

**Do you have a trade-in program for existing Bose aviation headsets?**

From time to time, there may be a limited-time offer for select headsets. Please contact Bose for detailed information.

**How much are the additional cable accessories?**

Down cables are available for \$295.95.

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**QUALITY/SERVICE FAQ**

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**Which Bose ProFlight Aviation Headset replacement items or accessories are available for purchase?**

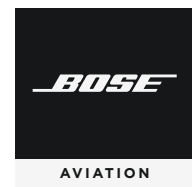
Bose offers the following accessories for your Bose ProFlight Aviation Headset:

- Additional control module cable
- Cable options include XLR 5, XLR 7, 6 pin LEMO, Dual plug
- Side pad cushion kit (contains two cushions)
- Eartip replacement kit that contains two pair per size
- Carrying case
- Microphone windscreen
- Clothing clip
- Control module lanyard
- 6 pin install to Dual G/A cable adapter
- 6 pin install to U174 cable adapter
- Aircraft panel connector installation kit
- Aircraft panel installation kit cover plate
- Termination cap

**The Bose ProFlight Aviation Headset seems very light, but that must mean it is not durable. Can it withstand the rigors of aviation?**

The Bose ProFlight Aviation Headset has been designed as a total system. It delivers breakthrough performance and withstands the rigors of aviation use. High-performance engineering materials were used in the design, carefully chosen for function and durability. The headset has been tested to FAA requirements for headsets and is certified for manufacture under TSO C139a approval. It also has been tested to meet some additional requirements based on our experience designing headsets for the military. The cables were designed and tested to exceed the TSO-required 25,000-cycle flex life.

Note that the headset is not intended for use as part of a crash protection system, and has not been certified for crash protection. Dismantling, reassembly or modification of the headset, or any part, for use in a helmet or other crash protection system could result in severe bodily injury and such unauthorized use will void the limited product warranty.



**The headset seems fragile. What sort of wear should I expect from the components?**

The Bose ProFlight Aviation Headset has been designed to withstand the rigors of aviation use. The high-performance engineering materials used in the design were carefully chosen for function and durability. Side pad cushions, microphone windscreen, earbud tips and headband cushion are all consumable items and should be replaced periodically. We suggest that you replace the side pad and microphone muff yearly or more often if excess wear is noticed.

**Can I interchange the control modules from my A20 with the ProFlight?**

**No.** The control module can only be used for the product that it is built for.

**Can I use any of the parts or accessories from other Bose products Headset X (cushions, mic muffs, etc.) with the ProFlight Aviation Headset?**

**No.** Although some of the cushions and parts may be forced onto the Bose ProFlight Aviation Headset, they have not been designed or implemented for this product. You should only use parts designed for use on the ProFlight headset.

**What does the three-year warranty cover?**

The Bose ProFlight Aviation Headset warranty is three years from the date of purchase, covering defects in material and workmanship with parts, labor and one-way return shipping from Bose, all provided at no charge to the customer. Bose maintains a dedicated FAA-Certified Repair Station to support all versions of Bose aviation headsets.

**How do you clean eartips and mesh of earbuds?**

#### **Deep cleaning**

This deep-cleaning method is to be used to resolve some audio issues. To deep clean the earbuds, follow these steps:

1. Remove the tips from the earbuds.
2. Apply a small amount of hydrogen peroxide (3% concentration only) to the mesh surface of the earbud using a soft cloth or tissue (be careful not to allow excess liquid to enter the open port on the earbud).
3. Let sit for 5 minutes to allow wax to soften .
4. Wet a soft-bristled toothbrush with hydrogen peroxide (3% concentration only).
5. Gently scrub the mesh surface to loosen and remove the wax without allowing excess hydrogen peroxide to enter the open port on the earbud.
6. After mesh surface is clean, gently shake out any excess liquid and debris.
7. Dry earbud with a soft cloth.

#### **Preventive maintenance**

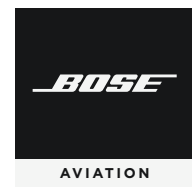
To clean the eartips, follow these steps:

1. Remove the tips from the earbuds.
2. Wash eartips with mild soap and rinse with water.
3. Dry eartips with a soft cloth.
4. Allow the eartips to completely dry before reattaching them to the earbuds.

To clean the **earbuds**, follow these steps:

1. Remove the tips from the earbuds.
2. Lightly brush mesh screens with a soft dry cloth (be careful not to push cerumen (earwax) into the mesh surface or porthole).

Note: It is recommended that protective gloves be worn when using hydrogen peroxide.




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**CERTIFICATION/TSO FAQ**

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**What is TSO, and why is it important?**

A Technical Standard Order (TSO) is a minimum performance standard for specified materials, parts and appliances used on civil aircraft. When a company is authorized to manufacture a material, part or appliance to a TSO standard, this is referred to as TSO authorization. When a company receives a TSO authorization, it is assured that the product meets these minimums in both design and production. Bose Corporation meets all and exceeds many TSO requirements.

Receiving a TSO authorization is not an approval to install and use the authorized article in the aircraft.

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**How do I prove to a check pilot that the product is TSO certified?**

Markings on or inside the control module and under the side pad of the headset indicate TSO certification.

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**What is the Bose position on the InFO document from the FAA on noise cancelling headsets?**

Bose supports the recommendation in the InFO memo that operators should thoroughly evaluate headsets for performance in their own aircraft. Each aircraft type has unique acoustic qualities, and Bose strongly believes the best way to evaluate performance is through real-world testing.

The Bose ProFlight Aviation Headset meets or exceeds all FAA TSO requirements for pilot headsets and has been thoroughly tested in many different aircraft. Civilian and military pilots have accumulated millions of flight hours during the 25 plus years our products have been in the field.

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**Do I have to get special permission to use this headset on my airline? Is an STC required?**

The requirements put in place by airlines vary widely. Some allow the pilots to use a headset of their choice, while others restrict use to either a list of products or only certain products.

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**Have you tested ProFlight with different pressure/O<sup>2</sup> masks?**

**Yes.** Several different pressure masks have been tested and used with the headset. It is possible to don the headset and use the headset with the pressure masks.

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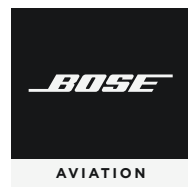
**Is ProFlight Airbus/Boeing/Embraer/etc., certified? Why not?**

The term “certified” can take on many meanings. It is best to review with the appropriate OEM manager and business development manager for the aircraft or airline in question to get the latest status. Keep in mind, the headset is TSO certified and has been tested on many different aircraft. Approval to use the headset on any specific aircraft can vary by the type of operation the headset will be used in, by country and even by the aircraft certification organizations. Depending on your needs, Bose can assist in getting the appropriate approvals you may require.

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**How can you be sure that the pilot always has his own earbuds available?**

It’s a good idea to have extra sets of earbuds available to pilots or stored in aircraft. If extra tips are stored on aircraft where multiple pilots will use the headset, it is good to plan on making medium tips available as this size should fit the majority of the pilot population.



**Why is the down cable so thick?  
Can't you make it more pliable?**

The cable has 14 individual conductors (each jacketed), three separate shields (one over the microphone wires, one over the audio wires and a third that covers all the conductors), a Kevlar stay cord, a Teflon slip sleeve and an over-molded jacket. This design enables the required EMI and EMC performance as well as the durability required by TSO and by Bose. Environmental requirements include flammability testing, bend testing and even other types of testing done by Bose to assure long term durability.

**Does it have an audio output limiter like Sennheiser's "peak level protection"? Why not?**

The headset is required by TSO to output up to 110dB. All headsets we have tested to date provide this level of output.

**How is the ear pressure equalization, including while used through several flight phases?**

These earbuds don't create a strong seal and in fact, even with a less-than-perfect fit, the earbuds provide great noise reduction.

**CERTIFICATION/TSO FAQ**

**Is the Bose A20® Aviation Headset still available?**

**Yes.** The Bose ProFlight Aviation Headset did not replace the A20. It is designed to meet the unique needs of pilots and crew who fly pressurized and crewed aircraft, which are typically less noisy.

**How does the ProFlight headset compare to the A20 in terms of noise reduction?**

The ProFlight does not have as much total noise reduction as the A20.

**What are the advantages of the ProFlight vs. the Bose A20 Aviation Headset (Aviation Headset X, Aviation Headset Series I and Aviation Headset Series II, pre-2015 A20 Aviation Headset)?**

The Bose ProFlight Aviation Headset is our most advanced aviation headset yet.

Compared to the Bose A20 Aviation Headset, the ProFlight has:

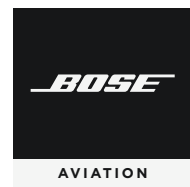
- A new level of comfort achieved through choice of materials, redistribution of weight throughout the headset and a purposeful in-ear design.
- Digital active noise reduction with multiple modes of active noise cancellation.
- A microphone and down cable that are side-swappable without tools.
- Storage in a smaller carrying case.

ProFlight compared to Series I and II:

- Weighs significantly less (less than 4.9 oz. on head and 10.6 oz. total vs. 18 oz.) and is designed for greater comfort, with low clamping force (275 grams of clamping force on average heads).
- At least 45 hours of battery life from two AA batteries (Series I had a large NICAD system or large plug installation for power; Series II had a six AA battery pack or small dime-size installation).
- Storage in a more compact space/bag.
- Less total noise cancellation as compared to the Bose A20.

2015 A20 Aviation Headset added features:

- Note: These features are not present in all versions.
- A2DP: streaming *Bluetooth* audio.
- Auto-on (select models using aircraft power).
- High-performance microphone.
- Coil cord option.



**Cable length comparison chart:**

	Length (m)			
	Headset to CM	CM	CM to Aircraft	Total
<b>ProFlight</b>	1.33	0.1	0.58	2.0

**I have Series I installed in my aircraft. What would I need to do to upgrade my panel?**

The Bose A20® and ProFlight Aviation Headset installation kit comes with a dime-sized connector and wire harness. Installation instructions with wire diagrams are provided. In addition, you can purchase a new cover plate with label assembly (Material Number 019585, costs \$15). This cover plate fits in place of the Series I install plate. The installation is quick and easy and consists of just a few steps:

1. Remove existing plate and pull wires forward so several inches of wire are exposed through the panel.
2. Cut or disconnect the wiring.
3. Splice in the wire set provided to the dime-sized connector.
4. Attach the dime-sized connector to the cover plate and reinstall cover.  
For more specific information on this installation, contact Bose Customer Service.

**I have Series II installed in my aircraft. What would I need to do to upgrade my panel?**

Nothing. The Bose ProFlight Aviation Headset is ready to be used in your aircraft.

**How do I know which previous headset version I have?**

Aviation Headset Series I has the on/off switch and volume control located on the separate control module. Some Series I headsets have clear windows on the ear cups allowing a view of the ear cup electronics.

Aviation Headset Series II headsets are distinguished by the dual volume controls and on/off switch located on the headset itself. This is located behind the left arm board.

Aviation Headset X® can be identified by the magnesium headband and domed, smooth ear cups with a single port in the middle of the cups. The modules (portable and installed) have a power on/off button and dual volume controls.

The A20 Aviation Headset can be identified by looking for the Mute/Mix/Off switch position labels on the control module. Those labels will indicate that the A20 headset is the most current version.

The ear cups have two separate ports on each ear cup.