

**FS ENGINEERING<sup>®</sup>  
INCORPORATED**

aerocom III<sup>™</sup>

Portable Stereo Intercom  
with *IntelliVox*<sup>™</sup>

# PILOTS GUIDE



***Flying Never Sounded So Good<sup>™</sup>***

Congratulations on your purchase of the aerocom III, the intelligent choice in portable intercoms. Please read this instruction manual fully to take advantage of the aerocom III features.

### Description

The aerocom III is a 2-place portable intercom with individual *IntelliVox*<sup>™</sup> circuits for the pilot and copilot. The *IntelliVox*<sup>™</sup> (Voice Activated Squelch or VOX) prevents mic audio from getting through the intercom until someone speaks and automatically opens the circuit. The volume control adjusts the intercom level for both headsets and functions as the power switch.

The aerocom III has an automatic, fail-safe connection to the aircraft radio. In the event that power to the intercom is lost, or it is turned off, an internal relay will immediately connect the pilot's headset directly to the aircraft radio connection.

An entertainment input allows the pilot and copilot to listen to stereo music during flight. During radio or intercom activity, this music automatically mutes to allow communications without distraction. A *SoftMute*<sup>™</sup> circuit gradually returns the music to full volume after the radio or intercom activity ceases.

The 2-position switch acts as a mode selector. In the ALL position, each position will hear the aircraft radio, music, and each other. In the ISO position, (isolation mode) only the pilot is connected to the aircraft radio for undisturbed radio communications. In ISO, the pilot is no longer on the intercom. The copilot will continue to hear the music input.

With the aerocom III, both the pilot and copilot have radio transmit capabilities. Only the person who presses their Push To Talk (PTT) will be heard over the aircraft radio. If both pilot and copilot press the PTT, the copilot will override.

### Specifications

Internal Power: 9 VDC battery  
(Duracell MN1604, or equiv)  
External Input power: 12-28 Volts DC  
Headphone Impedance: 150-1000  $\Omega$  Typical  
Total audio power available: 80 mW  
Audio Distortion:  
    <10% @ 75 mW into 150  $\Omega$  load  
Aircraft Radio Impedance: 1000  $\Omega$  Typical  
 $\pm$ 3 dB Mic Frequency Response:  
    600 Hz-2800 Hz  
 $\pm$ 3 dB Music Frequency Response:  
    200 Hz - 15 kHz  
Net weight: 10.5 Ounces  
Dimensions: 4.375" L x 3.250" W x 1.500" h

The aerocom III is designed to work with either 12 or 28 volt DC negative ground systems. The aerocom III power cable is internally protected with a 3-amp fuse. The unit contains a low battery indicator. A tone will sound in the pilot's headset every 60 seconds when the battery has approximately 20% of its life left.

### Entertainment Input

A low-cost entertainment device (CD player, cassette player, etc.) can be connected to the aerocom III. An interface cable with a 1/8" stereo connector (not provided) can be used to provide a input. Use a NON ATTENUATING type interface cable. The entertainment will be automatically muted when the ICS becomes active.

When the intercom or radio traffic ceases, PS Engineering's *SoftMute* circuit will allow the music to return slowly to the previous level

### Push to Talk

Part of the aerocom III operation includes the use of PTT (Push-To-Talk) switches (not included) that allow the use of your aircraft communications radio for transmissions.

There are several possible configurations. Only the person pressing their PTT will be heard over the radio.

If the aircraft has a control wheel mounted PTT for the pilot, and only pilot transmission is desired, no action is required (See Fig. 1).

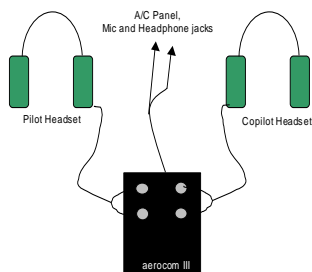


Fig. 1— Pilot PTT built-in control wheel

For copilot transmit capability, a **modified (See Appendix A)** external PTT switch must be connected to the copilot's microphone jack.

You must connect the push to talk switches into the aerocom III microphone inputs, and then insert your headset into the PTT cable (Fig. 2).

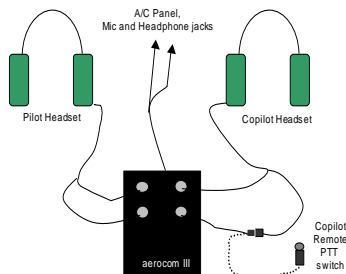


Fig 2— Pilot built-in, copilot PTT with external switch

If there is no PTT installed, and only the pilot position desires to transmit, connect a remote PTT between the aerocom III and aircraft mic jack, as shown in Fig 3.

If both pilot and copilot positions are

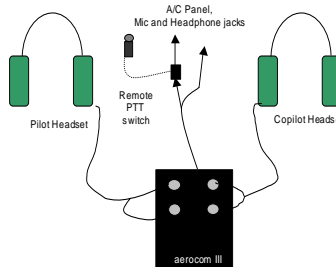


Fig. 3— Pilot ONLY PTT with portable switch

to talk on the radio, **two modified (see Appendix A)** external PTT switches are required, as shown in Fig 4.

Most after-market Push to Talk

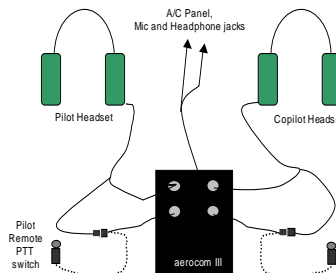


Fig. 4— Pilot and copilot PTT using MODIFIED portable switches

switches **must be modified** before use with the aerocom III. This is because the microphone audio circuit is opened by the switch, and no signal can reach the intercom when not transmitting. See Appendix A. PS Engineering can provide a *modified* PTT for \$24.95. Call 1-800-ICS-AERO to order.

### Input Power

The aerocom III is powered by a

9V battery (Duracell MN1604, or equiv.). After at least 12 hours of use, the unit will beep every 60 seconds. At this point the copilot position can no longer transmit, extending the remaining battery life, although the intercom is still active. When the unit can no longer function effectively, the beeping will cease. At this time the battery should be replaced, or the aerocom III disconnected from the aircraft. The aerocom III does have a fail safe system, so the pilot can continue to use the aircraft radio when the battery is depleted.

To replace the battery, open the battery compartment located on the bottom of the unit (see Fig. 6). Carefully remove the battery and disconnect the clip. Connect a fresh 9V battery, and reinstall into the unit.

Aircraft power (12 or 28 VDC) can be connected using the power cable (provided). When using external power, be sure that the plug is fully engaged with the jack, with the plug body against the unit case. It is not necessary to remove the battery when using aircraft power.

#### OPERATING INSTRUCTIONS

Switch on the aerocom III by turning the volume control knob clockwise. This also engages the automatic fail-safe system.

#### Adjusting the Volume

The volume control knob adjusts the loudness of the intercom for both headsets. Turning the control clockwise increases the audio. Many headsets have volume controls on them. If it becomes necessary to reduce the volume for an individual headset, the other should be set at maximum, and

the unit volume set for a comfortable level. That individual can then reduce their volume accordingly.

The volume control on the aerocom III does not affect the volume level of the aircraft radio or music.

#### VOX Squelch Control

No adjustment of the *IntelliVox*<sup>™</sup> squelch control is necessary. Through micro-controller processors, the ambient noise in both microphones is constantly being sampled. Non-voice signals are blocked. When someone speaks, only their microphone circuit opens, allowing their voice on the intercom.

For best performance, the microphone must be placed within ¼ inch of your lips, preferably against them. It is also a good idea to keep the microphone out of a direct wind path. Moving your head through a vent air stream may cause the *IntelliVox*<sup>™</sup> to open momentarily. This is normal.

For optimum microphone performance, we recommend installing a leatherette microphone muff. This will not only optimize VOX performance, but will improve the overall clarity of all your communications.

#### Mode Select

The mode selector is a 2- position switch. Regardless of configuration, the pilot will always hear the radio.

**ISO:** The pilot is isolated from the intercom and connected to the aircraft radios. He will hear only the aircraft radio reception and sidetone (during radio transmissions). The copilot will hear the intercom and music but not the aircraft radio.

**All:** Both positions will hear the aircraft radio reception and transmissions, intercom, and music. However,

during any radio or intercom activity, the music volume automatically decreases.

### Interconnect

Refer to Fig. 5 for jack locations. The aerocom III has a 1/8" jack for Stereo Music, a power jack for aircraft power, which disconnects the battery.

The aerocom III is expandable to 4-place intercom using the 2717A expansion unit and the expansion jack.

### Appendix A.

#### **PTT Modifications**

When received from the manufacturer, an after-market PTT switch opens the mic audio path to the "ring" connection of the PTT mic plug. When the PTT is between the intercom and the headset, the intercom audio path will *not work* until the PTT switch is depressed. A simple modification can be performed to allow proper intercom operation.

NOTE: This modification does not alter normal radio operation.

Due to the variety of different PTT manufacturers, we can't provide all of the specific instructions. Contact the PTT manufacturer if you require more information, or purchase a modified PTT from PS Engineering for \$24.95.

### Warranty

PS Engineering, Inc. warrants this product to be free from defect in material and workmanship for a period of one year from the date of purchase. During the warranty period, the unit must be returned to PS Engineering, Inc. and, at its option, we will send a replacement at no charge. The customer is responsible for shipping charges returning the unit to PS Engineering.

This warranty is not transferable. Any implied warranties expire at the expiration date of this warranty.

WE SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. This warranty does not cover a defect that has resulted from improper or unreasonable use or maintenance as determined by us. This warranty is void if there is any attempt to disassemble this product without factory authorization.

This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusions may not apply to your state.

Modified P-T-T Schematic

## Service

Call PS Engineering, Inc. at (865) 988-9800 before you return any unit. This will allow the service technician to provide any other suggestions for identifying the problem and recommend possible solutions.

After discussing the problem with the technician and you obtain a **Return Authorization Number**, ship product to:

PS Engineering, Inc.  
Attn: Service Department  
9800 Martel Rd.  
Lenoir City, TN 37772  
(865) 988-9800 FAX (865) 988-6619  
Email: [contact@ps-engineering.com](mailto:contact@ps-engineering.com)

Units that arrive without an RMA number, or telephone number for a responsible contact, will be returned un-repaired. PS Engineering is not responsible for items sent via US Mail.

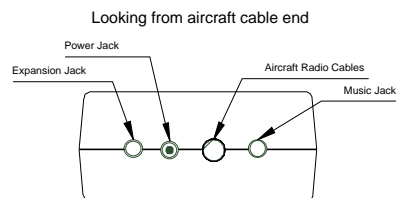


Fig. 5, Jack Connections

### NOTES:

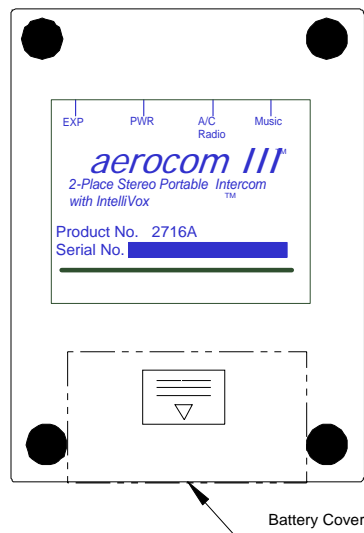


Fig. 6, Battery Compartment

**Note:** For optimum microphone performance, we recommend use of a Microphone Muff Kit from Oregon Aero (1-800-888-6910). This will not only optimize VOX performance, but will improve the overall clarity of *all* your communications.

Headset Manufacturer	Model	Part Number
Bose	Dynamic	90010
	Electret	90015
	M87	90020
David Clark	H10-30	90010
	H10-20, H10-40	90015
	H10-13.4, 13X	90015
	H20-10X	90015
Lightspeed	All	90015
Peltor	7003	90010
	ANR Pro, 7000	90015
Pilot	11-20, 11-90, 1776, DXL	90015
Sennheiser	All	90015
Telex	Airman 750, AIR4000	90010
	AIR3000, Echelon 100	90015

