

SPA-4S OPERATING INSTRUCTIONS



INTRODUCTION

This instruction sheet describes the operation of the Sigtronics SPA-4S intercom system. For information on SPA-4S installation see the separate SPA-4S INSTALLATION INSTRUCTIONS.

The SPA-4S series of aircraft intercoms incorporate voice activated (VOX) intercom with "transmit through the aircraft radio capability" using your push-to-transmit (PTT) switches. In addition they allow for stereo music input.

CONTROLS

Three controls are provided on the SPA-4S units:

ON/OFF Switch - Turns the intercom "on" or "off".

INTERCOM VOL - Volume Control - Controls the intercom volume. (Except in OFF mode when the intercom is switched off)

INTERCOM SQ - Squelch Control - Sets the intercom turn-on threshold for voice activated intercom (VOX) mode.

INTERCOM OPERATION

CAUTION - As is standard practice with all aircraft avionics equipment, be sure that the aircraft radio master switch is turned off when you start up the aircraft engine.

SQUELCH SETTING - To use the SPA-4S intercoms voice activated (VOX) feature, the Squelch Control will have to be set. This can be performed by the following procedure:

1. To set the Squelch controls it is helpful to have some background noise present and music sources off. With aircraft electrical power on, set the SPA-4S ON/OFF switch to the "ON" position. Turn the SPA-4S unit volume (VOL) control to the 10 o'clock position.

2. Turn the Squelch control all the way counter-clockwise. Now, without speaking, rotate the Squelch control clockwise just until you hear the background noise in your headset. Next, rotate the Squelch counter-clockwise a small amount and wait (approximately 1 second) until the background noise disappears. Finally, make small adjustments until your voice triggers the unit at comfortable speaking levels. This procedure is necessary because the squelch is a "Fast-on, Slow-off" system.

Once set, the intercom stays silent until someone speaks in their headset microphone (mic). Then it instantly turns on and relays the conversation. After about a second of no conversation the intercom goes silent again.

In most aircraft the squelch controls will not need to be set again unless you change the number or type of headsets used with the system. In some high noise aircraft it is better to set the squelch during climb or cruise.

VOLUME SETTING - The Volume control should be set to the minimum level for best performance. Intercom Volume levels set too high allows excessive background noise to enter the headsets and promotes whispering into the headset microphones. These combine to degrade what is called the "signal to noise ratio" which decreases intelligibility and interferes with proper Squelch (VOX) operation.

MUSIC OPERATION - Music is controlled at the music source itself. To adjust the music volume level set the volume control on the music source. Similarly, to turn on or off the music use the appropriate control on the music source. When the music source is "on" the SPA-4S system automatically mutes and restores the music to the headsets at the appropriate time. The SPA-4S default mode of operation is to partially mute during intercom conversations and full mute during any aircraft radio communications



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MUSIC MUTE OPTIONS

MUSIC MUTE LEVEL DURING ICS - During normal intercom operation there are three possible muting levels, full, partial, or none. Partial mute is the factory default. Alternately, "no mute" or "full mute" modes are user selectable prior to intercom installation. Note: during radio transmission and reception, the music will always full mute. This is for communication safety reasons.

SOLO FLIGHTS

Since the intercom is not needed during solo flights, it may be turned to the "OFF" position. The pilot will still hear the aircraft radio(s), since this circuit is always active, and may transmit to ATC via his headset and push-to-transmit switch. If the aircraft radio does not provide sidetone, then switch intercom mode to the "ON" mode. To hear music, the intercom will also have to be in the "ON" mode.

FAIL-SAFE

If power to the SPA-4S unit fails, the pilot can still transmit and receive on the aircraft radio(s) (assuming the radio(s) are still functioning). If a problem is ever suspected, switch the intercom "OFF". In this mode you will still be able to transmit and receive on the aircraft radio(s) from the pilot's position. If the radio does not provide sidetone, then the pilot will not hear his voice in this "FAIL-SAFE" or "OFF" mode.

STEREO MUSIC SYSTEMS

Most automotive stereo units operate from 12V-14V sources. If you want to use a 12 volt music source in a 28 volt aircraft do not connect them directly to power. Regulators or converters are available to permit operation from 24V-28V sources.

Some AM-FM music receivers are capable of causing interference with aircraft COM and NAV receivers. The aircraft panel should be placarded accordingly. Most player only units (cassette or CD) do not cause interference with aircraft receivers.

Line level stereo music outputs can also be used into the SPA-4S system. Some line level outputs however, are a fixed level and are not adjusted by the devices volume control. If this is the case you will not be able to change the volume of the music you hear in the headsets. Headphone level or Speaker level outputs would be better in this case.

STEREO HEADSETS

The Sigtronics SPA-4S systems are designed for use with general aviation Stereo headsets with high impedance speakers (300 to 600 ohms). Headsets with low impedance (less than 100 ohms) speakers should not be used with SPA-4S systems without modification. Contact Sigtronics for details. In general, headsets with speakers of high and low impedance and/or unmatched audio efficiencies should not be used together without modifications.

Sigtronics stereo headsets are specifically designed for the aircraft high noise environment and give excellent noise attenuation. They also provide full frequency response stereo for maximum enjoyment. They are compatible with aircraft mic circuits and can be used as general aviation headsets in aircraft that are not equipped with stereo headphone jacks. This is because they include a switch to change from "Stereo" to "Monaural". No adapters required.

NOTE: General aviation headset (monaural) phone plugs should not be plugged into SPA-4S stereo phone jacks. A monaural plug in a stereo jack shorts out one of the audio channels. This will not damage the SPA-4S system in any way but will cause reduced performance. General aviation headsets may be used only if one of the following three changes are made:

1. Monaural to stereo adapters are used on the headset headphone plugs. (Only monaural music will be heard.)
2. The general aviation headsets are re-wired for stereo reception.
3. Install the Sigtronics SPA-4S system for monaural operation. See note 6 on page 2 in the "WIRING INSTRUCTIONS" section.

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