Sigtronics SCI-S4 / SCI-S6 Operating Instructions

INTRODUCTION

This instruction sheet describes the operation of the Sigtronics SCI-S4 / SCI-S6 intercom system. For information on SCIS4 / SCI-S6 installation see the separate SCI-S4 / SCI-S6 INSTALLATION INSTRUCTIONS.

The SCI-S series of aircraft intercoms incorporate voice activated (VOX) intercom with “transmit through the aircraft radio capability” using your push-to-transmit (PTT) switches. These systems include three main modes of operation - ALL, ISO, and CREW. In addition they allow for two separate Stereo music inputs one for the Crew and one for the Passengers.

CONTROLS

Five controls are provided on the SCI-S units:

ALL/ISO/CREW Switch - Sets the intercom mode of operation.

PILOT/CO-PILOT VOL - Volume Control - Controls the intercom volume for pilot (except in ISO mode when the pilot is switched off the intercom) and co-pilot. (Does not affect aircraft radio volume. Set radio volume on radio as normal.)

PILOT/CO-PILOT SQ - Squelch Control - Sets the pilot (except in ISO mode) and co-pilot intercom turn-on threshold for voice activated intercom (VOX) mode.

PASSENGER VOL - Volume Control - Controls the passenger intercom volume. (Does not affect aircraft radio volume. Set radio volume on radio as normal.)

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

SQUELCH INDICATOR LIGHTS - In addition the SCI-S units provide two Squelch Indicator Lights - one for the Crew and one for the Passengers. These lights show when the Crew or Passenger intercom is active. These indicators greatly simplify the setting of the intercom Squelch controls.

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 SCI-S intercoms voice activated (VOX) feature, the Crew and Passengers Squelch Controls 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 power on, set the SCI-S ALL/ISO/CREW switch to the “ALL” position - the preferred mode for setting the squelch. Turn both the SCI-S unit volume (VOL) controls to the 10 o’clock position.

2. The Squelch controls are set one at a time. To set the Crew VOX first, turn the Crew Squelch (SQ) control full clockwise and the Passenger Squelch control full counter-clockwise. Inform everyone on the intercom to remain silent until you finish setting the intercom squelch. Set the Crew VOX with the Crew Squelch control and indicator light...

3. Turn the Squelch control all the way counter-clockwise. At this point the corresponding squelch indicator light will be off. Now, without speaking, rotate the Squelch control clockwise just until you hear the background noise in your headset and the squelch indicator light turns on. Next, rotate the Squelch counter-clockwise a small amount and wait (approximately 1 second) until the background noise disappears - squelch indicator off. 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. Now with the Crew squelch set, repeat step 3 for the Passenger VOX with the Passenger Squelch control and indicator light.

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 Crew and Passenger Volume controls should be set to minimum levels for best performance. Intercom Volume levels set too high allows excessive background noise into 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 Sqelch (VOX) operation.

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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 SCI-S system automatically mutes and restores the music to the headsets at the appropriate time depending on the mode. The SCI-S default mode of operation is to partially mute during intercom conversations and full mute during any aircraft radio communications. See the SCI-S4 / SCI-S6 AUDIO PRIORITY TABLE below for a more detailed operation listing.

INTERCOM OPTIONS

MUSIC MUTE LEVEL DURING ICS - During normal intercom operation there is two possible muting levels, full or partial. This level is user selectable prior to intercom installation. Note: during radio transmission and reception, the music will always full mute. This is for communication safety reasons.

PILOT TRANSMIT PRIORITY- When the pilot and the copilot press their PTT switches at the same time one of two things will happen. Only the pilot will go out over the radio, or both will go out over the air. This is user selectable prior to intercom installation.

INTERCOM MODES

ALL MODE - When the SCI-S is in the "ALL" mode, transmitting from both pilot and co-pilot positions is possible. As normal, the pilot selects the appropriate radio he wishes to use. When the pilot presses his PTT switch, his headset mic is automatically routed through the intercom to the radio. Only his mic will be live. The microphones of the co-pilot and any passengers will be muted when the pilot transmits. Similarly, when the co-pilot transmits, only the copilots mic will go out on the radio. Depending upon which priority mode is selected, only the pilot or both will go out when both PTT switches are pressed at the same time. When transmitting, everyone on the intercom will hear the transmitting pilots voice via the SCI-S sidetone return.

CREW MODE - When the SCI-S is in the "CREW" mode, transmitting from both pilot and co-pilot positions are possible. The pilot selects the appropriate radio he wishes to use. When the pilot presses his PTT switch, his headset mic is automatically routed through the intercom to the radio. Only his mic will be live. The microphone of the co-pilot will be muted when the pilot transmits. Similarly, when the co-pilot transmits, only the co-pilots mic will go out on the radio. Depending upon which priority mode is selected, only the pilot or both will go out during simultaneous keying of the PTT switches. When transmitting, the pilots will hear their own voice via the SCI-S sidetone return. In this mode, the passengers will still have the ability to intercom and listen to music among themselves and not be bothered by radio traffic interruptions or crew intercom conversation. Similarly, the pilots will not hear the passenger's conversations.

ISO MODE - When the SCI-S is set to the "ISO" mode, only the pilot can transmit and receive on the aircraft radio(s). The pilot will not hear intercom or music and cannot talk to the other headsets. The co-pilot and passengers still have intercom and music, but do not hear the radios. If the radio does not provide transmit sidetone, then the pilot will not hear his voice in the "ISO" mode.

SOLO FLIGHTS

Since the intercom is not needed during solo flights, it may be turned to the "ISO" 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 CREW or ALL mode. To hear music, the intercom will also have to be in the ALL or CREW mode.

FAIL-SAFE

If power to the SCI-S unit fails, the pilot can still transmit and receive on the aircraft radio(s) (assuming the radio(s) are still functioning). Additionally, if a problem is ever suspected in the intercom, switch to "ISO" mode or remove power to the unit. 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 the "FAIL-SAFE" or "ISO" mode.

SCI-S4 / SCI-S6 MODE SELECTION TABLE

MODE	PILOT HEARS	CO-PILOT HEARS	PASSENGERS HEAR
ALL	ATC, Crew ICS, Pass ICS, Crew Music	ATC, Crew ICS, Pass ICS, Crew Music	ATC, Crew ICS, Pass ICS, Pass Music
ISO	ATC	Co-pilot ICS, Pass ICS, Crew Music	Co-pilot ICS, Pass ICS, Pass Music
CREW	ATC, Crew ICS, Crew Music	ATC, Crew ICS, Crew Music	Pass ICS, Pass Music

SCI-S4 / SCI-S6 AUDIO PRIORITY TABLE

MODE	ALL	ISO	CREW
AUDIO	**AUDIO IS MUTED BY:**		
PILOT MIC	Co-pilot PTT*	Never Muted	Co-pilot PTT*
CO-PILOT MIC	Pilot PTT*	Co-pilot PTT	Pilot PTT*
PASSENGER MICS	Pilot PTT or Co-pilot PTT	Never Muted	Never Muted
PILOT ATC RADIO	Pilot PTT or Co-pilot PTT	Never Muted	Pilot PTT or Co-pilot PTT
CO-PILOT ATC RADIO	Pilot PTT or Co-pilot PTT	Always Muted	Pilot PTT or Co-pilot PTT
PASSENGER ATC RADIO	Pilot PTT or Co-pilot PTT	Always Muted	Always Muted
CREW MUSIC **	Pilot PTT, Co-pilot PTT, ATC, Crew ICS, or Pass ICS	Co-pilot PTT, Co-pilot ICS, or Pass ICS	Pilot PTT, Co-pilot PTT, ATC, or Crew ICS
PASS MUSIC **	Pilot PTT, Co-pilot PTT, ATC, Crew ICS, or Pass ICS	Co-pilot PTT, Co-pilot ICS, or Pass ICS	Passenger ICS

NOTES:
ATC - Aircraft VHF Radio.
Crew - Pilot and Co-pilot.
ICS - Intercom Audio.
PTT - Push-To-Transmit Switch.

* Pilot Mic will always go out over the VHF radio when his PTT is keyed. Co-pilot Mic will also go out when both PTT's are pressed, unless the "Pilot Transmit Priority" option is enabled.

** Music sources will partial mute on ICS, unless the "Full Music Mute During ICS" option is enabled.

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