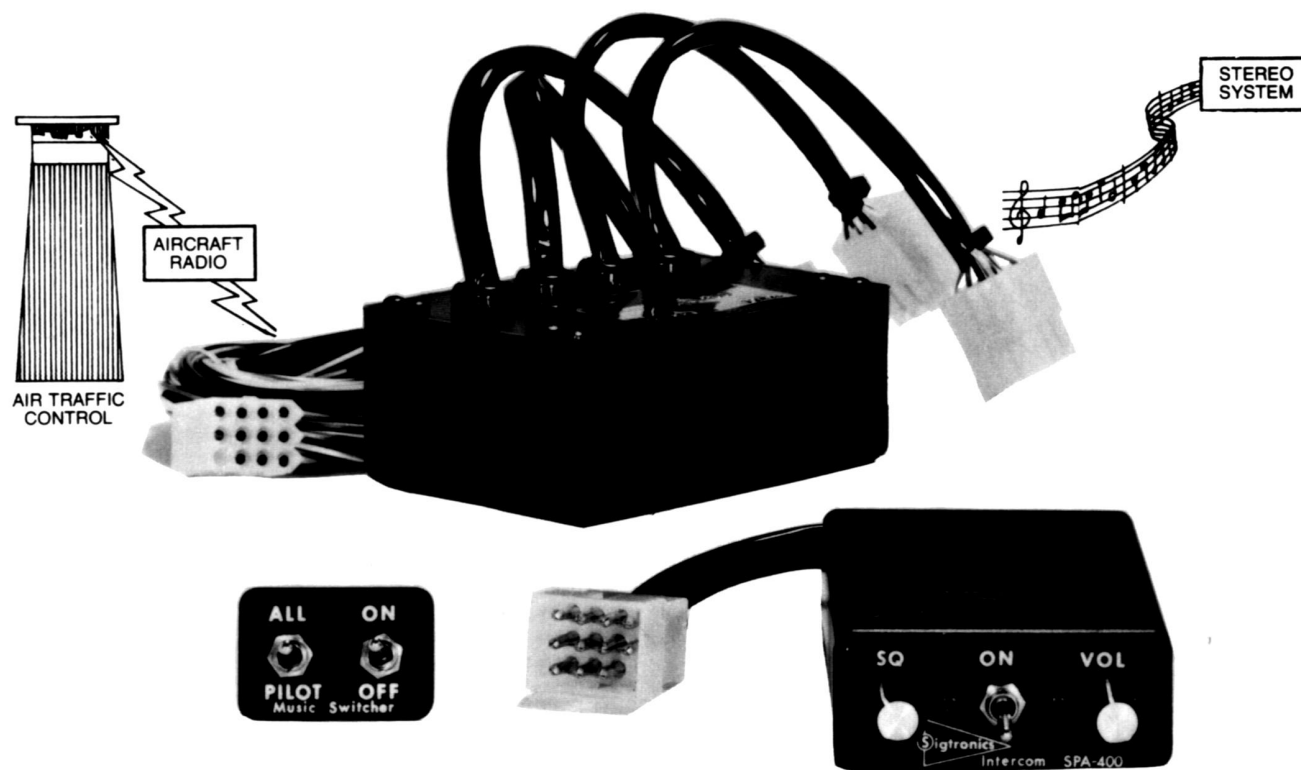


Sigtronic's STEREOCOM-400



Discover the pleasure of flying with stereo music while maintaining VHF and passenger communications!

The **STEREOCOM** is a voice actuated intercom that allows pilot-co-pilot and two passengers to intercom, listen to their stereo, yet hear the VHF radio. The pilot and co-pilot can also transmit using push-to-talk switches through the VHF radio to ATC. The music is automatically interrupted when the VHF radio is active (transmit or receive) or when talking on the intercom. The passengers may listen to music only; music interrupted by VHF and intercom; or VHF and intercom only. (See Mode Selection Table for various operating modes.)

CONFIGURATION: The Stereocom is configured in two sections: An SPA-400 intercom with transmit capability, and an RES-400 Stereo Switcher. Both units may be installed at the same time, or the switcher section may be easily added to an existing SPA-400 Transcom installation. The SPA-400 unit is in a 1 x 2.5' x 4 deep panel mount chassis, which can be mounted either in a horizontal or vertical position. Weight: 4.5 oz. The RES-400 unit is in a 4 x 2.9' x 2 chassis that is to be mounted remotely. Weight: 7.5 oz. All stereo headphone jacks, mike jacks, switches, controls, harness and connectors are supplied. Power: Stereocom operates 10 through 34 VDC without switching or adapters.

Intercom Panel Controls:

- Power Switch** — Turns intercom on and off.
- Volume Control** — Controls intercom volume, only.
- Squelch Control** — Controls the threshold of intercom amplifier turn-on. It is used to adjust for variations in background noise found in various aircraft.

Switcher Panel Controls:

- Music Switch** — Turns switcher on or off.
- Mode Selection Switch** — Four modes of operation are possible with Stereocom using the Music On/Off and Pilot/All switch. These are described in detail in the Mode Selection Table. In general, the modes allow the passengers to listen to uninterrupted music or hear the VHF and intercom. The pilot's and co-pilot's music is always interrupted by the VHF and intercom to assure fail safe operation. In order to eliminate VHF interrupt, it is necessary to turn the VHF radio volume down or off.

HEADSETS: The Stereocom is normally supplied to accommodate high impedance (300 to 600 ohm) stereo headsets, such as the Sigtronic Stereo headsets.

ENTERTAINMENT SYSTEM SELECTION: See "Helpful Hints" on back page.

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SIGTRONICS CORP.

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INSTALLATION FOR COMPLETE SPA-400 plus RES-400 SYSTEM

(If RES-400 is to be added to existing SPA-400 installation, proceed to Installation Retrofit.)

SPA-400 CHASSIS INSTALLATION

Hardware Supplied: (SPA-400, RES-400)

Four Headphone Output Jacks — Accept .250" stereo headphone plugs.
Four Microphone Input Jacks — Accept standard .206" aircraft microphone plugs.
Mike Jack Insulating Washers: 4 shoulders and 4 flat.
Transcom Panel: Lettered on both sides.
Control Knobs (2), Switch Nuts (3), 4-40 Screws (2)
Switcher Panel and harness
Template (Hole size pattern)
Aircraft/Intercom interface cable (4 ft. long)
Connectors for fabricating extension cable

The location selected requires a minimum front panel area of 21/2" by 1". Depth required behind panel is 4" plus cable access.

Allow approximately 1" by 11/2" space nearby to mount the RES-400 switcher panel.

CAUTION: Move aircraft flight controls through limits of travel while observing selected area to make certain intercom components will not interfere with aircraft control components.

PANEL PREPARATION:

1. Position adhesive template on aircraft panel in selected area.
2. Center punch each hole at cross lines. (The five holes are in a straight line and equally spaced 0.4" apart.)
3. Drill 1/8" pilot hole all five places.
4. Enlarge holes to 1/4" and 3/8" per template.

MOUNTING CHASSIS: See Figure 1

1. Remove nut from Transcom ON-OFF switch bushing.
2. Remove knobs from VOL and SQ controls using .050 Allen wrench. **DO NOT REMOVE** nuts from VOL and SQ control potentiometers.
3. Remove two 4-40 screws and remove panel from TRANSCOM chassis.
4. Insert Transcom from rear of aircraft panel with appropriate arrow pointing upwards.
5. Install panel and lightly thread nut on to ON-OFF switch. Nuts and washers on VOL and SQ controls should fit inside the 3/8" diameter holes drilled in aircraft panel.
6. Install two 4-40 screws through holes in Transcom panel. Tighten ON-OFF switch nut.
7. Install knobs on VOL and SQ control shafts.

MOUNTING HEADPHONE AND MICROPHONE JACKS

1. Locate mounting areas. (One mike and one headphone jack for each headset.)
2. Drill 3/8" diameter holes for headphone jacks and install.
3. Drill 1/2" diameter holes for mike jacks and install with insulating washers supplied. (See Figure 2)
4. Terminals on the stereo phone jacks may be identified per the mike jack shown in Figure 2. The phone jack bushings (sleeve terminal) must be grounded to airframe or wired to aircraft ground.

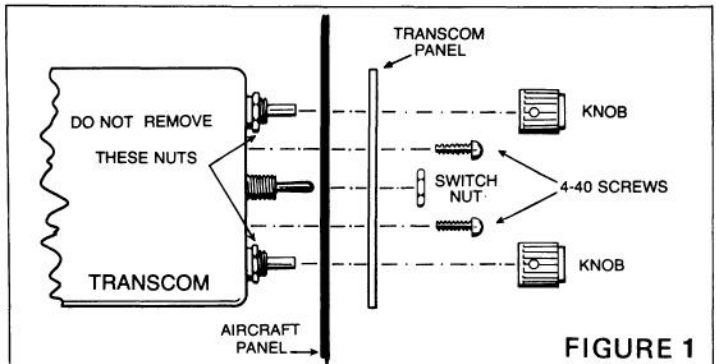


FIGURE 1

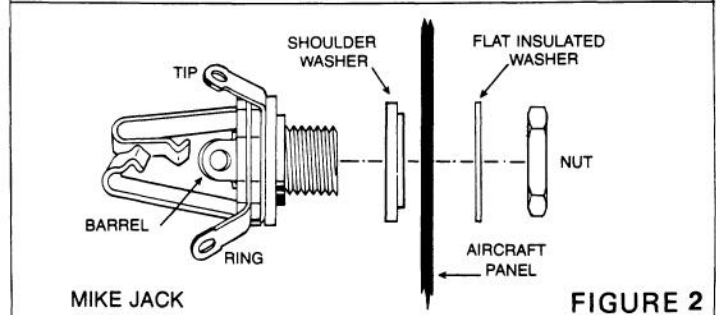


FIGURE 2

RES-400 SWITCHER CHASSIS INSTALLATION

1. As in mounting the intercom, select a mounting location which will not cause interference with flight controls. (If space allows, mounting of the Switcher within a few inches of the intercom will allow connectors J1 and P1 to be mated directly. Otherwise, an extension cable may be fabricated, from the connectors provided, to permit mounting the switcher chassis elsewhere.)
2. Remove the four corner panel screws and remove unit from case.
3. Drill aircraft with same hole pattern as in the switcher case. Use a #27 drill. (Clearance drill for 6/32")
4. Secure case to aircraft with screw heads **inside** switcher case for circuit board clearance. (Care should be taken not to crush grommets while applying torque to screws.)
5. Replace unit in the case and secure.

SWITCHER HARNESS INSTALLATION

1. Select area on panel and drill 1/4" diameter holes for Music (On/Off) and Mode (Pilot/All) Switches.
2. Mount switches with bushing key slots down.
3. Route harness to Switcher to clear aircraft controls and secure with suitable ties.

INSTALLATION RETROFIT

If the Transcom SPA-400 has been previously installed, the RES-400 Switcher may be added as follows:

1. Mount the RES-400 chassis per paragraph "RES-400 Switcher Chassis Installation"
2. Install the Music and Mode Switches and route the harness per paragraph "Switcher Harness Installation".
3. Unplug SPA-400 from its wiring harness and insert Connectors J1 and P2 on the RES-400 as shown in Figure 3. Connect remaining plugs per Figure 3.
4. Remove the headphone jacks from the pilot, co-pilot, and passenger

positions in aircraft. Wires which had been connected to the phone jacks should be cut, insulated and tied back. If two or more wires appear on a single jack terminal, they should be cut free of the jack, then spliced together before insulating and tying back. **Do Not Disturb Microphone Jacks.**

5. Replace headphone jacks with three-terminal type "stereo" jacks supplied with the RES-400 switcher. Connect wires to the stereo jacks per Figure 3. Terminals on the stereo phone jacks may be identified per the mike jack shown in Figure 2. The jack bushings (barrel terminal) must be grounded to the airframe or wired to aircraft ground.

WIRING INSTRUCTIONS

Connections should be made as shown in Figure 3 and as indicated in Table 1.

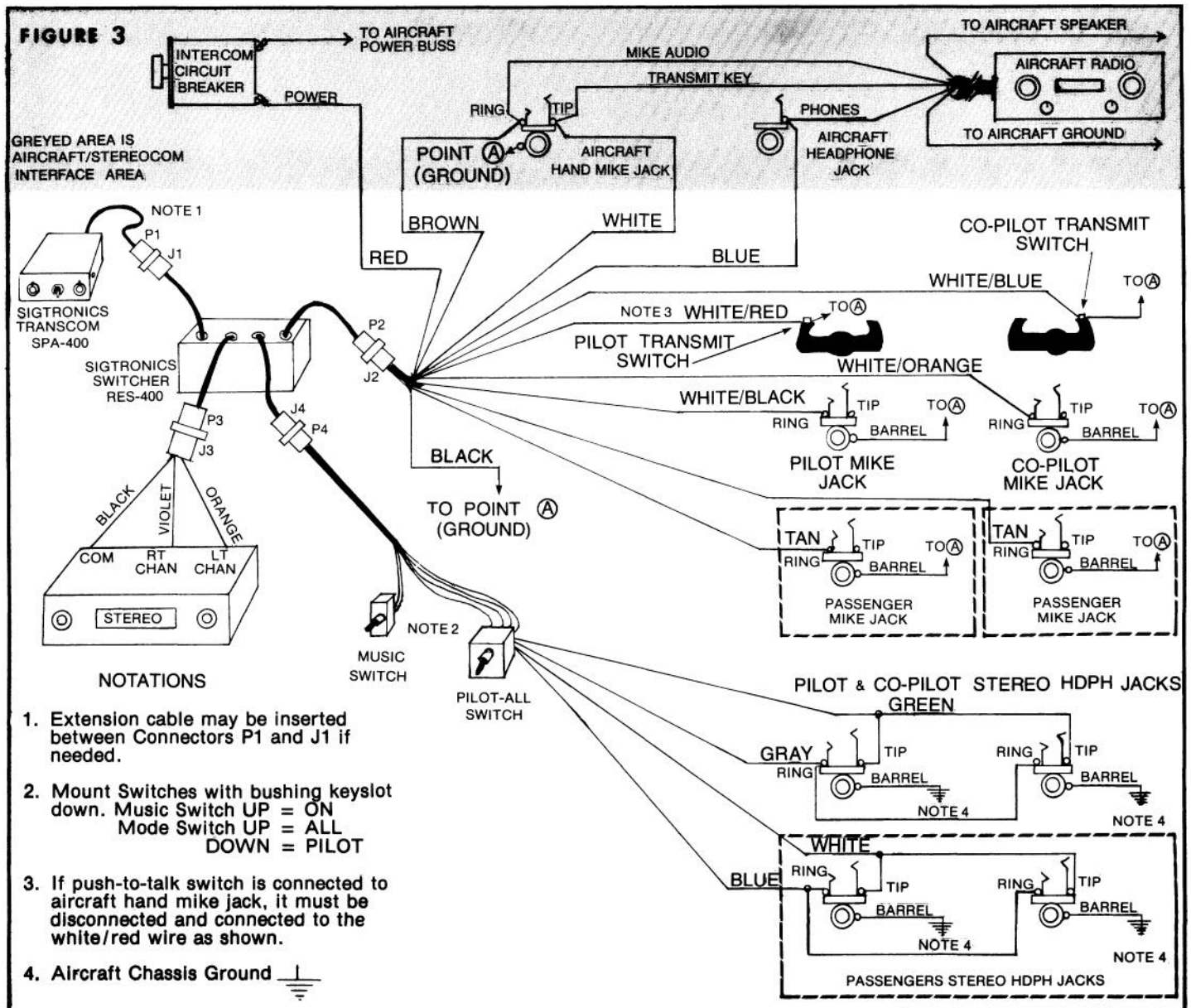
- *1. White/red (pilot push-to-talk) must correspond with white/black (pilot mike input) as shown.
- *2. The blue wire from Pin 3 must be connected to the aircraft radio **headphone output** — NOT the speaker output.
- *3. Connect all mike jack grounds to Point A as shown in Figure 3.

(Use black washers supplied to insulate the mike jacks from aircraft chassis ground.)

- *4. Do NOT connect transmit switches to white (key) wire.
- *5. Red wire may be connected to either 12 (14V) or 24 (28V) power source.
- *6. Tan wires from Pins 8 and 9 are only used on 4-way installations.

PIN #J2	WIRE COLOR	FUNCTION	CONNECT TO	PIN #J2	WIRE COLOR	FUNCTION	CONNECT TO
1	White/Black	Pilot Mike Input	Ring Terminal of Pilot Intercom Mike Input Jack	7	Red *5	12V or 24 VDC Power Input	Intercom Circuit Breaker
2	White/Red *1	Pilot Transmit Switch Input	Pilot Transmit Switch (PTT)	8	Tan *6	Rear Mike Input (either Side)	Ring Terminal of Rear Intercom Mike Jack
3	Blue *2	Intercom Output	Radio Headphone Output	9	Tan *6	Rear Mike Input (Either Side)	Ring Terminal of Other Rear Mike Jack
4	Black *3	Ground	Hand Mike Jack Ground Terminal (Point A)	10	White/Blue	Co-Pilot Transmit Switch	Co-Pilot Transmit Switch (PTT)
5	White *4	Transmit Relay (Key) Control Output	Tip Terminal of Aircraft Mike Jack or Key Input of Aircraft Radio or Audio Panel	11	White/Orange	Co-Pilot Mike Input	Ring Terminal of Co-Pilot Intercom Mike Input Jack
6	Brown	Mike Audio Output	Ring Terminal of Aircraft Mike Jack or Input of Aircraft Radio or Audio Panel	12			No Connection

TABLE 1 — *See Wiring Instructions Below



FINAL CHECKOUT AND ADJUSTMENT

After the unit is installed, again check that the SPA-400 intercom chassis, RES-400 switcher chassis, jacks and wiring harness are clear of all air-

craft operating controls and cause no interference with them. Check out the system function by following the Operating Instructions.

SPA-400 INTERCOM OPERATING INSTRUCTIONS

I. INTERCOM MODE

A. Put on headset/s and position the boom mike close to the mouth, as is the practice with a hand-held mike. Voice clarity is best when mike is at one side of the mouth and ¼" from the lips.

B. Set audio panel to "Headphone" position, if applicable.

C. Turn power on" and set volume control to a low level (1/4th to 1/3rd open for best signal to noise ratio).

D. Set Music switch to "OFF" and Mode Switch to "ALL".

E. Adjust Squelch Control clockwise to the point where ambient background noise becomes audible. Then rotate counter clockwise a very small amount and wait (approximately 1 second) for background noise to diminish. Very small adjustments may be necessary if aircraft background noise changes significantly (such as from taxi to take-off power conditions). The above procedure is necessitated by the fact that the squelch system is a fast attack/slow off system.

II. RADIO TRANSMIT MODE

— Transmitting from both pilot and copilot positions is possible on a one-at-a-time basis. The transmitting mike disables all other mikes. When you are ready to talk to ATC, depress the transmit switch on your yoke and your voice is automatically transmitted via the aircraft radio. (You will hear your own voice when transmitting via the aircraft radio side-tone.) If the radio does not have side-tone, then you will not hear your voice.

(A minor modification to the Transcom will enable it to simulate side-tone.)

It may be necessary at this time to adjust the Transcom mike output to the aircraft radios. A small, square, adjustable trimmer potentiometer is provided inside the unit for this purpose. It is accessible through a hole in the side of the case, marked "Mod. Adj.," and can be adjusted with a screwdriver. In the event of overmodulation (garbled), or reports of weak transmissions over the aircraft radio, an appropriate adjustment can be made. Clockwise rotation increases the output level to the aircraft radio mike input. Counterclockwise rotation decreases modulation level. This adjustment sometimes needs to be made after initial installation of the intercom, or if a new radio is installed. (The output is set for unity gain at Sigtronics.)

III. RADIO MONITORING — The aircraft radio is always heard with the Transcom switched on or off to provide fail safe operation.

IV. SOLO FLIGHTS — Since the intercom is not needed during solo flights, it may be turned off. The pilot will still hear the aircraft radio, and may transmit to ATC via his push-to-talk switch. (Co-pilot position cannot transmit when intercom is off.)

V. BACK-UP — If a problem is suspected in the intercom, simply turn it off. You will still receive the aircraft radio and will be able to transmit from the pilot's position. The hand mike may also be used, however, the Transcom should be turned off and you should unplug your boom mike from the intercom mike jack. (Leave headphone plugged in for radio reception.)

RES-400 SWITCHER OPERATING INSTRUCTIONS

1. Turn Stereo Switcher and entertainment system "ON" and adjust entertainment to suitable listening level.
2. Select Pilot or All position to suit switching mode desired,
3. Switching: Pilot and co-pilot are automatically switched from the audio bus of the entertainment system to the VHF radio when a radio message is received or transmitted and is switched back when the radio traffic is completed.
4. Music is automatically switched OFF when voices are present on the intercom.
5. See Mode Selection Table for additional switching options.

MODE SELECTION TABLE

Mode Pilot/All Switch	Music On/Off Switch	Pilot & Co-Pilot Hear	Passengers Hear
PILOT	ON	VHF & CS Interrupt Music	Music Only
ALL	ON	VHF & CS Interrupt Music	VHF & CS Interrupt Music
PILOT	OFF	VHF & CS Only	Music Only
ALL	OFF	VHF & CS Only	VHF & CS Only

HELPFUL HINTS AND TECHNICAL INFORMATION

ENTERTAINMENT SYSTEMS: Stereo entertainment systems should be used that have a common ground output (speaker) connection. Systems that have a full floating output (two pair of speaker wires that have directions not to tie speaker returns together) cannot be used with stereo headphones or with the RES-400 without modifications. Power: Most automotive stereo units operate from 12V-14V sources. Regulators or converters are available to permit operation from 24V-28V sources.

Portable stereo units may be used, however, minor modifications may have to be made to the RES-400 unit; particularly if they have headphone outputs rather than speaker outputs.

Some automotive FM receivers are capable of causing interference with aircraft COM and NAV receivers. The aircraft panel should be placarded accordingly. Tape players (cassette or CD players) do not cause interference with aircraft receivers.

STEREO HEADSETS: The Stereocom is designed for use with high impedance receivers such as are in the Sigtronics headsets. If the use of low impedance receiver headsets is contemplated, then modifications to them or the Stereocom will be necessary. Contact Sigtronics for details. In general, headsets of high and low impedance receivers and/or unmatched audio efficiencies should not be used together without modifications.

The Sigtronics stereo headsets were specifically designed for the aircraft high noise environment and give excellent noise attenuation. They also provide full frequency response for maximum stereo enjoyment. They are compatible with aircraft mike circuits and can be used as a general aviation headset (in aircraft that are not equipped with stereo headphone jacks) by using a "stereo-to-monaural" adapter plug.

General aviation headsets may be used only if one of the following three changes is made:

1. Monaural phone jacks are substituted for the stereo headphone jacks provided. (Only monaural music will be heard.)
2. Monaural to stereo adapters are used on the headset headphone plugs. (Only monaural music will be heard.)
3. The general aviation headsets are re-wired for stereo reception.

The VHF and intercom outputs will be short circuited and therefore rendered inoperative if one of the above three changes is not made. (General aviation headset phone plugs cannot be plugged into Stereocom stereo phone jacks.)