THE FOX HILLS CONDO ASSOC. WIRELESS SOUND SYSTEM

**General Description:**

The Association is in possession of two audio systems located in the clubhouse. They have been funded by the generosity of seven organization and club memberships. Installation and construction was provided by the Association’s Maintenance Department. The Association on behalf of the entire community expresses its sincere gratitude to both the contributing memberships and the maintenance staff.

The first system is a modified surround sound design. It is placed in the lounge area and enhances the use of the TV set where films and lectures are presented. Video via cable and DVD are supported as well as audio via the system’s receiver. Remote controllers are located in nearby table drawers along with operating instructions.

The second system is designed to furnish both public address and entertainment needs within the ballroom area. It is wireless and offers flexibility and safety as well as performance. Audio is delivered from ceiling speakers wired through a terminal block to a receptacle on the side of the center pillar along the outer wall. A separate, fused electrical circuit is supplied to power the system. Both audio and power receptacles are marked.

 The electronic elements are secured to a cart within a case. The cart also contains the microphones and associated connections. The assembly is kept under lock and key in a secure area. Requests for the use of the system are made to the Association as part of the standard ballroom arrangements. Access to the room and keys to unlock the cart will be provided by the Association. Organizations and Clubs wishing to use the system are invited to receive instructions and demonstration by contacting the office.

**Details:**

Mic and UniPak Transmitters

The ballroom sound system is equipped with four (4) Audio-Technica condenser wireless hand held mics (ATW-T220), two (2) instrument clip-on mic assemblies (ATW-251) and one (1) electronically connected pick-up (instrument) mic assembly (ATW-251/G). The first 6 mic transmitters are each powered with two (1.5V) AA alkaline batteries. The hand held units have self contained transmitters while the instrument and electronic pick-ups have body pack transmitters. The ATW-251/G requires a 9.5V battery. Spares are in the cart.

Connections between the clip-on and electronic pick-up mics are made via one of two impedance inputs. Power on/off switches are found on the base of the hand held mics and on the top of the transmitters. An associated light indicates battery condition.

Internal controls governing level trim and channel selection are discussed below.

Mic and UniPak Receivers

With the exception of the instrument receiver, all receivers are equipped with two (2) antennas receiving independent sections of a common frequency via BNC connections. Located on the rear panel of the receiver, they permit extensions to more distant antennas. The rear panel also has other controls plus both balanced and unbalanced output jacks and a 12-18V DC input.

The front panel contains the power on/off switch, an LCD window indicating channel settings and operational readings, up/down channel selector buttons and a set/scan button to either lock the desired chosen channel or automatically scan and set the next open channel.

Frequencies and Interference

Both transmitters and receivers have access to 10 channels within the UHF TV frequency bands. The transmitter channel selections are made internally with provided tools and the receiver channels are selected externally. Both transmitter and receiver of a chosen mic must operate on the same channel.

The Mixer

This unit (Peavey 14 Compact Console) provides a collection and distribution point for all mics and instruments. The resulting signal is sent directly to the system’s amplifier and then to the speakers. A variety of terminations allows for significant flexibility on both input and output ends of the mixer. The adjustments for a PA configuration are reasonably straightforward. For an entertainment function, the mixer offers a wider variety. Whatever mix of mics and instruments are chosen, the resulting sound is coupled to output connectors. We have chosen to employ both left and right main outputs in a balanced configuration and cabled them to compatible main amplifier inputs. Monitoring and recording capabilities are also provided.

Main Amplifier

Designed to match the characteristics of the mixer and other components of the system, a Peavey PV 1500 series amplifier produces up to 1500 watts of power. For the ballroom, a configuration providing effectively two amplifiers each driving four of the eight ceiling speakers is the chosen operating mode. Balanced XLR jacks are used to input the signals from the mixer and binding posts for the output connections to the speakers are presented on the amplifier’s rear panel. The front panel contains the power switch, channel volume control and LED indicators for signal compression and strength.

Wiring

Cable leads attached to the main amplifier outputs marked channel A and B have color coded banana plug terminations at both ends. The marked wall receptacle to which the cables are attached extends the cables over the ballroom ceiling to a speaker distribution board located in the attic space over the men’s room. Board terminals marked channel A, B, **+** and **–** and Series denote bus bars. All terminals are screw down connectors for ease of connection, maximum contact and flexibility. All speaker cables as well as the main amplifier output cables appear on the board.

The speaker configuration takes advantage of a combined series/parallel arrangement coupling speakers #1 and #4 in series, # 5 and #8 in series and both pairs in parallel marked as channel A. An exact duplicate of this wiring is arranged as channel B for speaker #s 2, 3, 6 and 7. The configuration results in an 8 ohm impedance presentation to the amplifier and an exact match to each of the speakers.

Speakers

The eight (8) speakers (Polk 80i) are mounted in the ceiling with self contained clamps. All are 8” diameter co-axial with manually adjustable tweeters. Odd numbered are installed along the ballroom inner wall side and even numbered along the window side. The wiring connects alternate odd and even in the above mentioned configuration so that the loss of either channel A or B still provides adequate spatial sound within the ballroom. Cables are attached to the speakers via color coded pressure clamps and the grill covers are snap on and designed for easy access.

**Operation**

The following steps apply to all activities conducted by the various clubs and organizations making use of the ballroom when the sound system is required. Many of the device inter-connections have been made and although the system is ready for use, a reasonable amount of time should be allowed prior to an event.

Designed to perform at studio quality levels, these devices require careful attention both in setup and take-down procedures. Unlike previous arrangements, the equipment cart should be placed near the center of the outer ballroom wall. This is an accommodation to the Fox Hills band which makes use of the mixer features and needs to make adjustments prior to and during performances.

A brochure for each device employed in this system can be found in the cart. Users are encouraged to become familiar with these details if they wish to make use of the many features offered by the system.

**The Gator case and cart are kept in the secured room behind the kitchen. A properly authorized proximity pass will gain entrance. The case is on the cart. Remove and store the case covers in the secured room. Open the cart door for access to the mics and related equipment.**

**Wheel the cart to the ballroom outer wall. Grasp the cloth handle located at the top of the mixer and pull the mixer up several notches. The mixer will lock into place.**

**Within the Gator case as many cables as possible have been connected between equipment units. Most of the power switches on the various units are in the “ON” position.**

**First determine which mics are going to be needed for the particular event. There are 6 of them with matching receivers and have been preset to function together. The first 4 mics are hand held and serve PA and vocal requirements. Mics 5 and 6 are clip-on instrument types. The mics are stored in the base of the cart. The 4 hand held mics have self contained transmitters. The 5th and 6th have associated body pack transmitters. There is a 7th transmitter and receiver which has a different appearance from the other 6. It is used in conjunction with an electric guitar or an electronic keyboard. A body pack transmitter is supplied with a ¼” male plug to be inserted into the instrument.**

**Connections between the receivers and mixer depend on which mics and instruments are to be used for a particular event. Connections from the mixer, main amplifier and wall jacks remain the same for all events. Instrument connections will be discussed in a separate section below.**

**Connect the cable from the numbered receiver to the mic jack of the same number located along the top of the mixer board (REAR PANEL).**

**Connect the cables attached to the main amplifier input to the “LEFT OUT” and “RIGHT OUT” jacks located at the top, right hand corner of the mixer.**

**Connect the banana plug cables to the wall jacks as color coded and identified as channel A and B.**

**Connect the cable from the Tripp-Lite power strip to the wall outlet next to the speaker cable jack. (This outlet is specifically installed for system use.)**

**Turn the power strip switch to “ON” by squeezing the sides of the protective, plastic cover releasing the catch. Panel and indicator lights and lamps should appear on all required receivers.**

**Distribute the associated mics for the event. Turn each one on from the bottom of the hand held mic or top of the body pack transmitter. An indicator lamp should turn on.**

**Volume has been set for average levels with the exception of the main amplifier. Turn both “A” and “B” clockwise to the 20 level.**

**Try each mic for results. In addition to the main amplifier volume controls, each mic can be adjusted from the mixer (FRONT PANEL). Review the features on page 8 of the PV14 brochure enclosed.**

**At the end of the event, turn the main amplifier volume controls fully counter-clockwise.**

**Turn the Tripp-Lite power switch off and close the protective cover. Remove the power cable and speaker cables from the wall jacks and place them inside the case.**

**Turn off each mic and place them in their respective holders in the cart. Remove all the cables connected to the mixer board and let them rest on top of the mixer panel.**

**Wheel the cart back to the room, replace the side covers only, lock the cart door, turn out the lights and make sure the door is locked when you close it behind you. Return the proximity pass and keys to the office.**

**INSTRUMENTS:**

**The Tripp-Lite power panel has 6 outlets on the back and 6 in the front. The back is used to power the mixer, main amplifier and 4 hand held mics. The front will be used for the 3 remaining receivers and their associated power cables. Plug them in as required and turn on the receiver power switch (5 and 6) after the power panel switch has been turned on. Indicator lamps and lights should respond. The electronic instrument receiver will turn on when power is supplied.**

**The clip-on mics and associated transmitters are channel preset. The guitar/electronic keyboard receiver is frequency fixed and only the antenna needs positioning in either 90° (one horizontal, one vertical) or 45° with respect to the receiver case. Mic to transmitter cables should be connected.**

**A ¼” jack cable from the back of the guitar/keyboard receiver should be inserted into the L/MONO channel A jack marked 11/12 on the mixer’s FRONT PANEL. The A/B INPUT selector switch below has been preset to A.**

**A variety of effects are available from the EFX selector on the FRONT PANEL.**