Williams Sound Corp.

Personal PA/FM Broadcasting System

Installation
and User Manual
for Transmitter Models
T4 and T4P
and Receiver Models
R7, R7-4, and R700

Personal PA / FM Broadcasting System
INSTALLATION AND USER MANUAL

Personal PA System Installation

INTRODUCTION

The Personal PA/FM Broadcasting System has been designed for easy installation by persons with minimal electronic experience. Some experience with sound systems will be helpful. Please read the manual completely and pay close attention to the antenna location guidelines if the remote antenna is used. Taking a few minutes now to read the instructions will save time and ensure proper system operation.

TRANSMITTER CONTROLS AND FEATURES, MODELS T4 AND T4P

There are two Personal PA/FM Transmitter models. Look at the drawings below to identify your Transmitter.

Model T4

Front Panel Jacks

The T4 Transmitter does not have microphone jacks on the front panel.

Model T4P

The T4P Transmitter has three jacks on the front panel. "Mic 1," "Mic 2," and "Tape Out." The "Mic 1" and "Mic 2" jacks are low-impedance, unbalanced microphone inputs for dynamic or electret microphones. Both microphone inputs are mixed together in the Transmitter. The "Tape Out" jack is a 1K Ohm line level output for tape recording or feeding a sound system.

Front Panel Indicators

The Transmitter front panel has two indicator lights, "POWER" and "AUDIO." The "POWER" light shows that the unit is on, and the "AUDIO" light indicates sufficient audio input level. Because the Transmitter draws very little power, it does not have a power switch and can be left plugged in continuously.

Rear Panel Controls and Connections

Model T4 and T4P have identical rear panel controls and connections. *Refer to Figure 1.*

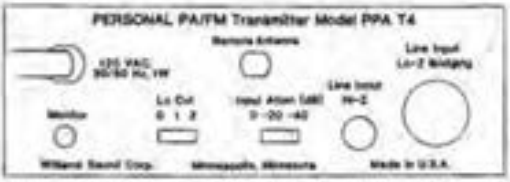


Figure 1

The "Hi-Z Line Input" is an unbalanced, high impedance input for line level signals (0.04 to 4 Vrms).

The "Lo-Z Bridging Line Input" is a balanced bridging input for line level signals from professional balanced line systems. Both line inputs are mixed within the Transmitter.

The "Input Atten" Switch is used with the "Audio" indicator light to set the proper line input level. The "0" (left) position does not attenuate or reduce the line input level. The "–20" (center) position attenuates the line input signal 20 dB. The "–40" (right) position attenuates the line input signal 40 dB.

The "Lo Cut" Switch provides low frequency attenuation. The "0" (left) position does not reduce the low frequencies. The "1" (center) position is the recommended position and provides a slight low frequency cut (–10 dB at 80 Hz). The "2" (right) position provides a steep low frequency cut (–10 dB at 240 Hz). The "Lo Cut" switch is used to temporarily overcome hum problems produced by the sound system or to tailor the Personal PA System frequency response. It is sometimes desirable to cut low frequencies to improve speech intelligibility for hearing impaired listeners.

The "Remote Antenna" Connector is a 75 Ohm, F-type connector for the optional Coaxial Antenna.

The "Monitor" Jack is used to monitor the input signal to the Transmitter stage. An 8-16 Ohm earphone or headphone plugs into the 3.5mm jack.

TRANSMITTER SET-UP AND OPERATION

Step 1. Install the Whip Antenna

The whip antenna fits into the hole on top of the Transmitter cabinet. Push the antenna straight through the hole. The antenna threads onto a bolt mounted on the circuit board. Guide the antenna onto the bolt and turn it clockwise to tighten. It only needs to be finger-tight. Extend the antenna to its full height when ready for use.

Alternately, the optional half-wave Coaxial Antenna may be used instead of the Whip Antenna if the system will be rack mounted. The Coax Antenna attaches to the connector labeled "Remote Antenna" on the back of the Transmitter.

See page 11 for further instructions on using the Coaxial Antenna.

Step 2. Connect the Transmitter to Power

AC Power

Plug the power cord into a 120 Volt, 60 Hz outlet. There is no power switch on the Transmitter, so it will be on continuously when it is plugged in. The green "Power" indicator on the front panel of the Transmitter should glow when the power is connected.

Step 3. Audio Connections

Connecting the Transmitter to a sound system amplifier:

"The Hi-Z Line Input" is the most commonly used input connection. The "Lo-Z Bridging Line Input" is used with professional balanced line sound systems.

To use the "Hi-Z Line Input":

Locate the audio cable included with the system. It has an RCA connector on both ends. Plug one end of the audio cable into the Transmitter "Hi-Z Line Input" jack. The other end plugs into an audio output jack on the sound system amplifier or mixer. Suitable connections are:

1st Choice: "TAPE OUT" or "LINE OUT" jack
2nd Choice: "BOOSTER" or "BRIDGING" jack
3rd Choice: Speaker Terminal, 8 Ohm tap

"Tape Out" or "Line Out Connection":

Refer to Figure 2.

Make sure the jack is an OUTPUT jack. An INPUT jack will not provide the proper signal level.

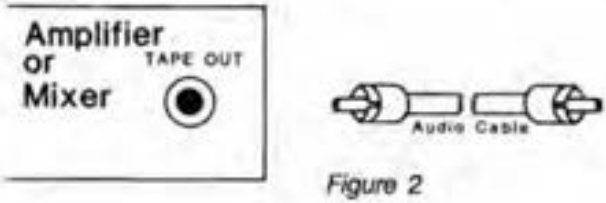


Figure 2

If you have a tape recorder connected to the "TAPE OUT" jack, you may order a Y-connector (Part No. WCA 003) from Williams Sound, or purchase one at a local stereo or radio parts store. The Y-connector allows both the tape recorder and Transmitter to be plugged into the TAPE OUT jack as in Figure 3.

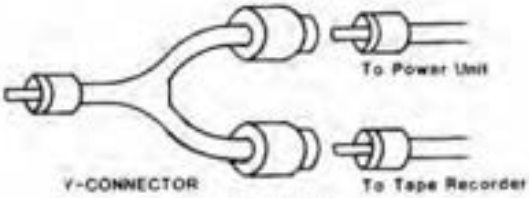


Figure 3

BOOSTER OR BRIDGING JACK CONNECTION

See Instructions for TAPE OUT or LINE OUT connection.

NOTE: Some amplifiers use 1/4" phone jacks for audio connections. If your amplifier or mixer has this type of jack, you will need to order a 1/4" phone plug to RCA jack adaptor (Part No. CNA 007) from Williams Sound, or purchase one at a local radio parts store.

Speaker Terminal Connection:

If the amplifier does not have a suitable line level output jack, the Transmitter may be connected to the 8 Ohm speaker terminals. This type of connection may be noisy or susceptible to interference. Do **not** connect the Transmitter to a remote speaker location or interference is likely.

CAUTION! Do **not** connect the Transmitter to a 70 volt speaker terminal or the unit will be damaged.

To connect the audio cable to the speaker terminals, cut off one of the RCA plugs and strip the wires. Refer to Figure 4 for connection details.

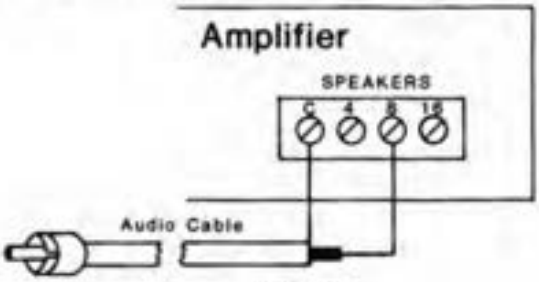


Figure 4

To use the "Lo-Z Bridging Line Input":

The Lo-Z Bridging Line Input is a 10K Ohm, balanced bridging input for connection to professional balanced line systems. Use a shielded cable and appropriate XLR connectors to connect the Transmitter to a balanced, line-level mixer or amplifier output. Refer to Figure 5 for connection details.

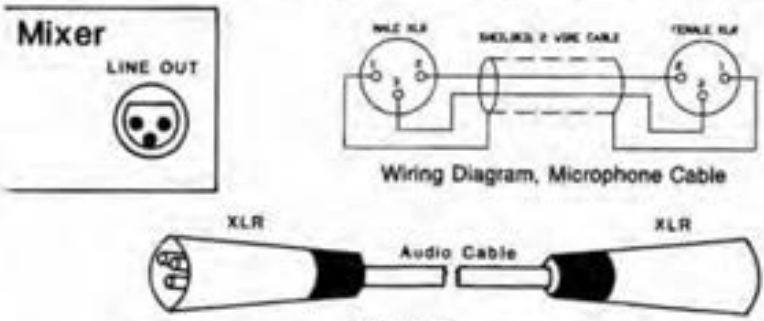


Figure 5

USING DIRECT MICROPHONE INPUTS WITH THE T4P TRANSMITTER

The T4P Transmitter has been designed to accept two low-impedance microphones with 1/4" plugs. It can accommodate either dynamic or electret microphones. The microphone(s) plugs into the "Mic 1" or "Mic 2" jack on the front panel of the Transmitter. Williams Sound offers several microphones for use with the T4P Transmitter. If you wish to use a different microphone, follow these wiring guidelines.

Dynamic Mics:

Use a Mono 1/4" Phone Plug.
Connect the positive (in-phase) lead to the ***tip*** of the plug. Connect the negative (return and shield) leads to the sleeve of the plug.

Electret Mics Which Include a Battery:

Follow directions for Dynamic Mics above.

Electret Mics Without a Battery:

Use a Stereo 1/4" Phone Plug. Connect the positive (in-phase) lead to the ***ring*** of the plug. Connect the negative (return and shield) leads to the sleeve. Do not make any connection to the tip of the plug.

If the microphone is connected properly, speaking into it should cause the "Audio" indicator light to flash. The two microphone inputs are mixed in the T4P preamplifier stage. The microphone inputs are also mixed with the line level input for voice-over effects, etc.

If the T4P is to be connected to a sound system, follow the directions given for the standard Model T4 on page 3.

Step 4: Check Audio Level.

If you are using the T4 or T4P Transmitter with line inputs, you will now need a program source for the Personal PA. Have someone speak into a sound system microphone or connect a tape player or radio to play music through the sound system. Make sure the sound system is on. To check the audio level:

1. Start with the "Input Atten" switch set to the −40 dB (right) position.
2. Plug one of the Receiver earphones into the "Monitor" jack. Listening with the earphone, you should be able to hear the program source clearly.
3. Watch the "Audio" indicator light on the front panel.
4. If the Audio light is not flashing, move the "Input Atten" switch to the −20 dB (middle) position.
5. If the Audio light still does not flash, move the "Input Atten" switch to the 0 dB (left) position.

With the proper input level, the Audio indicator light will flash regularly, in time with the program source. Optimum input signal level is 0.04 Volt rms to 4 Volt rms. If you cannot achieve this input level with the "Input Atten" switch, you will have to adjust the level at the program source.

If you are using the T4P Transmitter with direct microphone inputs, set the Input Attenuator Switch on the back panel of the T4P Transmitter to the "–40 dB" (right) position to reduce residual noise. The input attenuator switch affects only the line level inputs. The "AUDIO" light should flash when someone speaks into the Personal PA microphone.

Step 5. Set the "Lo Cut" Switch

Start by setting the "Lo Cut" switch on the "1" (center) position. The "Lo Cut" switch affects both the microphone and line inputs. It can be used to reduce hum from line level inputs or to improve speech intelligibility for hearing impaired listeners. Most hearing impaired listeners lose sensitivity to high frequencies. Setting the Lo Cut switch in the "1" or "2" position flattens the perceived system frequency response. The "Lo Cut" switch function is detailed on page 2.

Step 6. Test the System with a Receiver

Open a Receiver box and install the battery and earphone, following the receiver instructions. Stand near the antenna and turn the receiver on. Listen for the broadcast, using the program source you connected earlier.

If you can't hear the broadcast, first try another Receiver or another battery. If you have ordered rechargeable batteries, note that they are shipped in a discharged state. They must be charged for 14-16 hours before their initial use. If these suggestions don't work, consult the troubleshooting section.

Step 7. Check the System Range

Slowly walk away from the antenna while listening with the Receiver.

Walk throughout the seating area to check the range. You may find certain areas where the signal suddenly disappears. This is called a "drop-out" and is a normal occurence within a building due to reflections and cancellations of the radio signal. Moving slightly to the right or left will restore the signal.

IF THE SYSTEM IS WORKING CORRECTLY:

The orange "Audio" light on the front of the transmitter should flash regularly with the input signal. The signal should be clear and undistorted in the receivers. A slight amount of background hiss is normal. A hum or buzzing sound indicates a problem. System range should be 300 to 500 feet between the transmitting antenna and the receivers.

PERSONAL PA RECEIVER INSTRUCTIONS, MODELS R7, R7M, R7-4 AND R700

Instructions for Models R7, R7M, and R7-4:

1. Plug the earphone into the jack. The listener should use the earphone in their best ear. If the listener wears a hearing aid, they should remove it and use the earphone in its place. For more severe hearing losses, the listener may use the optional Neckloop (Part No. NKL 001) with their hearing aid if the aid is equipped with a "T" (telecoil) switch.

   A variety of earphone and headphone devices are available from Williams Sound to suit individual preferences and degrees of hearing loss. See publication SPC 011.

2. Battery Installation or Replacement—Open the battery compartment by lifting the thumb tab at the bottom of the Receiver. Connect the battery to the snap. Wind excess wire around the battery posts. Slip the battery into its compartment and snap the lid shut. Avoid excessive twisting or pulling on the battery wires.

3. Turn the Receiver on by rotating the control knob in the direction of the arrow on top of the case. Turning the knob in the direction of the arrow will increase the volume. Turning the knob against the arrow will decrease the volume. To avoid battery drain, make sure the Receiver is turned off when not in use. If the Receiver is left on, the battery will go dead overnight.

4. For Models R7M and R7-4, refer to the instructions included with the Receiver for additional user information.

Instructions for Model R700 Monitor Receiver:

1. Plug the R700 power cord into a 120 VAC, 60 Hz electrical outlet.
2. Attach the wire antenna (included) to the antenna connector on the rear panel of the receiver.
3. Turn the power switch on and turn the volume control up until you hear the signal from the transmitter.
4. Optional antennas are available to extend the pick-up range of the R700. The ANT 003 Mic-Stand Antenna or the ANT 006 Coaxial Antenna, may be used with R700.
5. An external loudspeaker may be used instead of the internal loudspeaker in the R700. Connect the (+) terminal of the loudspeaker to the tip connection of a ¼" mono phone plug. Connect the (–) terminal of the loudspeaker to the sleeve connection of the ¼" phone plug. The R700 will deliver approximately 1W maximum into an 8 Ohm speaker.

SUGGESTIONS FOR THE MANAGEMENT OF WILLIAMS SOUND PERSONAL PA RECEIVERS

Receiver Distribution

We suggest that the regular users of the receivers either be given or be allowed to purchase their own receivers, rather than asking for one each time. In that way, they need not call undue attention to their hearing loss. They can also assume the responsibility for battery maintenance and keeping the earphone sanitary. A visitor or infrequent user can obtain one from an usher, who will have extras.

Some customers have reported success with other arrangements. They issue earphones to the regular users but keep all the receivers on the premises. Some also assign receivers to individuals and designate their name with marking tape on the receiver, keeping both the receiver and earphone together for their regular users.

Earphone Sanitation

The earphone supplied with Williams Sound receivers have replaceable earpads.

Foam and fabric earpads can be washed in a mild detergent, rinsed, and air dried. Replacements are available if they become worn or lost.

BATTERY INFORMATION FOR RECEIVERS

In normal use, a transistor-type battery will last about 25 hours. When the sound becomes weak or distorted, replace the battery. Do not leave a dead battery in the Receiver. We recommend a "transistor-type" battery such as the Eveready 216 for replacement. Heavy duty alkaline batteries will work fine, but they are more expensive and will not offer greater economy in this application.

Rechargeable Batteries

The FM Receiver can also use a rechargeable nickel-cadmium battery available from Williams Sound. Given proper care, the rechargeable batteries will give hundreds of hours of service and eliminate the problems of dead batteries. In normal use, a rechargeable battery will last about four hours per charge.

NOTE: Rechargeable batteries are shipped in a discharged state. They must be charged 14-16 hours prior to initial use. DO NOT ATTEMPT TO RECHARGE NON-RECHARGEABLE BATTERIES!

To charge the rechargeable batteries

The battery may be charged without removing it from the FM Receiver by using the charger and charger cord. If the charger and charger cord are separate, attach the battery snap on the charger cord to the charger snaps. Some chargers have the charger cord permanently attached. Plug the end of the charger cord into the earphone jack. Make sure the Receiver is turned off while recharging the battery. Plug the charger into an unswitched wall outlet and charge 14-16 hours or overnight.

Using the BAT 012 Multiple Charger Case

The BAT 012 Charger is designed to charge 12 receivers simultaneously. To use the charger, make sure all receivers are turned OFF. Plug the charger cords into the earphone jack on each receiver. Plug the wall transformer into a wall outlet and charge the units for 14 to 16 hours. Once the receivers are charged, unplug the charger. Leaving the receivers on a constant charge can shorten battery life.

Rechargeable Battery Care

For maximum performance and long life, rechargeable batteries should be charged at least once a month, even if they are not in use. It is a good practice to let the batteries discharge completely before recharging. Charging for 14 to 16 hours is sufficient to fully recharge the battery.

A fully charged battery will give about 4 to 5 hours of continuous use. The sound will become weak and "flutter" when the battery needs charging. If properly cared for the battery can be recharged hundreds of times.

To conserve the battery, make sure the Receiver is OFF when not in use.

Avoid shorting the + and – terminals together with metal objects. Battery damage can result.

REMOTE COAXIAL ANTENNA INSTALLATION

The optional ANT 005 Coaxial Antenna is intended for use with rack-mounted transmitters or in installation areas where a remote antenna is needed for maximum coverage.

CAUTION! Do not cut or alter the Antenna Cable before reading the instructions below.

The ANT 005 Antenna Cable is a length of coaxial cable with an "F" connector on one end and an 80 inch antenna built onto the other end. The last 80 inches of the antenna is covered with nylon braid. This is the active antenna element. **The active element should never be altered.** The remainder of the Antenna Cable is RG-59 coax feedline. The feedline can be shortened if you have the tools to install a new F-connector. If you need a longer feedline, extension cables are available from Williams Sound in 50 foot lengths (Part No. WCA 008 50). Do not splice the cable to lengthen it. Use the proper connectors.

Remote Antenna Location Guidelines

You will want to select an antenna location that is inconspicuous, but still provides adequate range. For maximum signal strength, it is best to select an antenna location somewhere within the listening area. The preferred antenna location is towards the front of the listening area and above the seats, if possible. The active element (nylon braid covered portion) of the Antenna should be kept straight, not coiled. Try a vertical orientation first.

You may have to experiment with antenna orientation and location to achieve maximum range. Try temporarily taping the antenna in a corner, behind a partition, along a piece of wooden moulding, or along a ceiling beam. You can also allow the antenna to hang freely, with a small weight attached to the end to make it hang straight.

Avoid placing the antenna on steel beams or near structural steel elements. Metal plaster lath, ductwork, and foil-backed insulations will absorb radio frequency energy, greatly reducing the range of the Transmitter. A little time spent experimenting with antenna location will ensure maximum range.

Install the Transmitter near the other sound equipment. Keep audio cable length to a minimum. Make sure the Transmitter is connected to a three-wire, grounded outlet. For professional rack installations, the Rack Panel Mounting Kit (Part No. RPK 003) should be used.

Mounting the Coaxial Antenna

The coaxial cable portion of the Antenna Cable may be mounted with the 3/16" brown nylon clamps and brown No. 6 x 1/2" screws provided in the hardware kit. Drill 3/32" holes, 3/8" deep for the clamps and screws, approximately every 3 to 4 feet. If you need to pass the cable through a wall, a 1/2" hole size is necessary to pass the cable connector through. When mounting the Antenna Cable, observe the following instructions:

- Do not bend the cable sharply at the connector.
- Do not staple the cable in place.
- Avoid tight turns with the cable; allow at least a 3" radius for turns.

The coaxial cable portion of the Antenna Cable may be run in a conduit with other audio wiring. However, to avoid radio frequency feedback, do not run the cable in a conduit with microphone cables. Do not run the cable in a conduit with AC power wires. To do so is hazardous and in violation with the National Electrical Code.

Figure 6

Antenna Cable Connection

Run the Antenna Cable from the antenna location to the Transmitter. If the Antenna Cable is not long enough to reach the Transmitter, use one or more 50 foot Extension Cables (Part No. WCA 008-50). The Extension Cables connect between the Antenna Cable and the Transmitter.

Refer to Figure 7 for connection details. Be careful that the small inner wire on the Antenna Cable enters the hole in the center of the receptable. The connectors screw together and only need to be finger-tight.

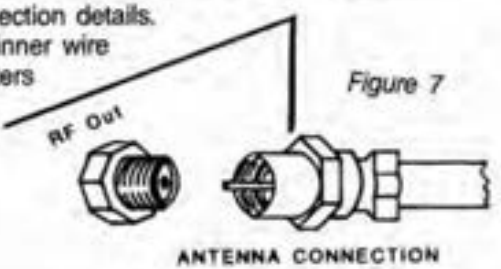
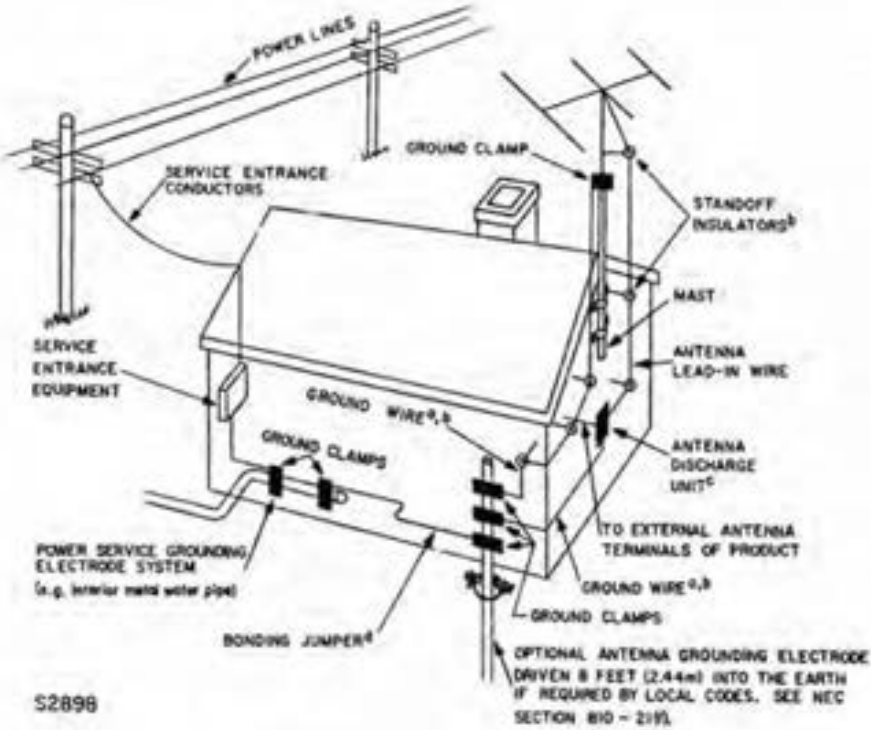


Figure 7

"Outdoor Antenna System - If this transmitter is intended for connection to an outdoor antenna system or possibly a single outdoor antenna, then they must be installed to provide some protection against voltage surges and built static charges. Articles 810 and 820 of the National Electrical Code, ANSI/NFPA 70 - 1984, provides information with respect to wire to an antenna discharge unit, and the coaxial cable system; and with respect to the size of grounding conductors, location of antenna-discharge units, connection to grounding electrodes, and the requirements for grounding the electrode (all for a possible outside antenna system). If an outside antenna is connected to the antenna terminal of the transmitter, be sure the antenna system is grounded in a manner similar to the accompanying Figure."



[a]Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as a ground wire.

[b]Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4—6 feet (1.22—1.83 m) apart.

[c]Mount antenna discharge unit as close as possible to where lead-in enters house.

[d]Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21(j).

TROUBLESHOOTING GUIDE FOR THE T4 TRANSMITTER

Re-read the installation procedure and check your wiring for errors. **Most problems are caused by failure to read or follow the installation procedure.**

"CAUTION: To avoid electric shock do not perform any servicing other than that contained in this Troubleshooting Guide unless you are qualified to do so. Refer all servicing to qualified service personnel."

Symptom: Transmitter "Power" light not on.

1. Make sure the Transmitter is plugged in.
2. Make sure the electrical outlet is on.

Symptom: Hum or buzz in system

1. Make sure the Transmitter and sound system amplifier are plugged into 3-wire, grounded outlets.
2. Check installation for ground loops. Try using a two-prong isolation adaptor on the Transmitter plug. Do not connect the adaptor ground lead.
3. If ground loops have been eliminated and the hum persists, move the Transmitter "Lo Cut" Switch to the "1" (middle) position. If there is still a hum, move the "Lo Cut" Switch to the "2" (right) position.

NOTE: Using the "Lo Cut" Switch to reduce hum is a temporary remedy. Excessive hum is an indication of problems in the sound system which should be checked by a qualified service technician.

Symptom: Buzzing in system

1. Some types of sound system amplifiers (Bogen in particular) are susceptible to RF pick-up from the PPA Transmitter. This causes a buzzing sound in the p.a. system. The problem can be corrected by soldering bypass capacitors directly across the power supply rectifiers in the amplifier. This work should be performed by a qualified service technician. To eliminate the buzz, solder one .01 ufd, 200 Volt ceramic disk capacitor directly across each rectifier.

Symptom: Weak, noisy sound.

1. Try moving the "Input Atten" Switch to the "0" or "–20" position.
2. Check for adequate audio signal level as described on page 6.
3. Measure the input signal level. Proper level should be .04 to 4 Volt rms.

3a. If the signal level is not correct:

   1. If your sound system amplifier has separate microphone controls and a master gain control, turn the microphone controls up and the master gain control down. If the audio level is excessive, reduce the microphone controls and increase the master audio gain to restore the loudspeaker volume.
   2. Try an alternate audio connection as shown on page 4.

Symptom: No sound in Receiver or very limited range.
1. Make sure Receiver is working properly. See page 7.
2. Make sure antenna is connected to transmitter.
3. Review section on antenna installation and especially antenna location if coaxial antenna is used.
4. Check for adequate signal level as described on page 6.

Symptom: "Scratchy" noise when Receiver volume control is adjusted.
1. Open back of Receiver case by opening the battery compartment and lifting the battery compartment flap up and to the left.
2. Remove screw from top of volume control knob and remove knob.
3. Lift clear plastic cover on top of exposed volume control.
4. Spray GC SPRA-KLEEN (Catalog No. 10-8666), LPS Contact Cleaner, or equivalent into the volume control.
5. Replace volume control plastic cover, control knob, and screw.
6. Rotate the knob several times. If the noise persists, repeat the above steps.

TROUBLESHOOTING GUIDE FOR THE T4P TRANSMITTER

Symptom: System does not operate. Green "Power" light not on.
1. Make sure the Transmitter is plugged in. Make sure the outlet is good by plugging in a lamp.

Symptom: Amber "Audio" light does not flash with input signal.
1. Make sure the microphone is plugged in. Make sure the microphone is wired properly and works. Substitute a known good microphone.
2. Plug an earphone into the "Audio Test" jack on the back of the Transmitter. When someone speaks into the microphone, you should be able to hear them through the earphone.

Symptom: Signal "drops out" in certain areas.
1. Transmitter location can affect drop-outs. Try moving the Transmitter to another location.
2. It may be necessary to use the coaxial antenna when maximum range is needed.

See also the Model T4 Transmitter Troubleshooting Section.

If you cannot determine the cause of a failure, contact your dealer for assistance.

RADIO INTERFERENCE

Since no broadcast stations operate on the frequency of the Personal PA Broadcast System, it is normally immune to radio station interference. However, certain local conditions can combine to create an interference problem from other sources. Please contact your dealer or Williams Sound for help, because further corrective action is dependent upon a technical understanding of local conditions. Usually, changing the system frequency will clear up the problem.

PRODUCT SPECIFICATIONS

SYSTEM OPERATING FREQUENCIES

Channel	Frequency (MHz)	Channel	Frequency (MHz)
A	72.1	E	72.9 (Standard)
B	72.3	F	75.5
C	72.5	G	75.7
D	72.7	H	75.9

TRANSMITTER MODEL T4, T4P

Transmitter, Physical:
Dimensions: 6-1/2" W * 2-1/2" H x 6" D
Weight: 1.6 lbs

Audio Specifications:
Balanced Bridging, 10K Impedance Female XLR
Unbalanced, 100K Impedance, RCA Jack
Input Level: 0.04 to 4 Vrms, nominal
Automatic Gain Control: 40 dB range, 30 mV threshold
Input Attenuator: 3 positions,
"0" = -3 dB at 10 Hz,
"1" = -10 dB at 80 Hz,
"2" = -10 dB at 240 Hz
Monitor Jack: 3.5 mm Jack, 8-32 Ohms
Microphone - two 1/4" phone jacks, (T4P only) low impedance
Tape Output - 1/4" phone jack (T4P only) 1K impedance, line level

RF Specifications:
Max. DC Power Supplied to Final RF Stage: 250 mW
Max. Transmitted Field Strength: 8000 uV/m at 30 m
Operating Frequency: 72.1 to 75.9 Mhz
Frequency Stability: ±.005%
Maximum Deviation: ± 75 kHz
Pre-Emphasis: 75 uS
S/N Ratio: 60 dB

Antenna
42" Telescoping Whip
Optional 80" Half-Wave Coaxial Antenna
Feedline: RG 59 Coax, 75 Ohm

Transmitter Power:
AC Power: 100 to 130 VAC 50-60 Hz, 2.5 W, AC Connection: 3-wire grounded plug, 6' cord

RECEIVER MODELS R7, R7-4

Physical:
Dimensions: 3-5/8" L × 2-3/8" W × 7/8" H
Weight: 4 oz. with battery
Color: Burgundy

Electrical:
Operating Frequency: R7 - Fixed, 72.1 to 75.9 MHz
R7-4A - Preset to Channels A, C, E, G
R7-4B - Preset to Channels B, D, F, H
De-Emphasis: 75 uS
Sensitivity: 2uV at 12 dB Sinad, squelch defeated
Frequency Response: 40 to 15 kHz+3 dB
Total Harmonic Distortion: 1.5% @ rated output
Power Output: 250 mW max., @ 16 Ohms
Acoustic Output: 130 db SPL max. with EAR 013 @ 250 mW
Battery Type: One 9 Volt, Eveready 216, Eveready 522, or Varta TR 7/8
Battery Life: Eveready 216 - 10 hours continuous
Eveready 522 - 17 hours continuous
Varta TR 7/8 - 5 hours/charge continuous

RECEIVER MODEL R7M

Physical:

Dimensions: 3-5/8" L×2-3/8"W×7/8" H
Weight: 4 oz. with battery
Color: Burgundy

Electrical:

Operating Frequency: Fixed, 72.1 to 75.9 MHz
De-Emphasis: 75 uS
Sensitivity: 2uV at 12 dB Sinad, squelch defeated
Frequency Response: 80 to 15 kHz+3 dB
Total Harmonic Distortion: 1.5% @ rated output
Power Output: 200 mW max. @ 16 Ohms
Acoustic Output: 125 db SPL max. with EAR 013 @ 200 mW
Max. Gain: Microphone - 60 dB, adjustable
FM - 40 dB adjustable
Battery Type: 9 Volt, Eveready 216, Eveready 522, or Varta TR 7/8
Battery Life: Eveready 216 - 10 hours continous
Eveready 522 - 17 hours continuous
Varta TR 7/8 - 5 hours/charge continuous

RECEIVER MODEL R700

Physical:

Dimensions: 6-12"W×2-1/2"H×6"D
Weight: 2.1 lbs.
Color: Black

Electrical:

Operating Frequency: Fixed, 72.1 to 75.9 MHz
De-Emphasis: 75 uS
Sensistivity: 2uV at 12 db Sinad, squelch defeated
Frequency Response: 40 to 15 kHz+3 dB
Total Harmonic Distortion: 1.5% @8 Ohms
Power Output: 120 VAC, 50-60 Hz, 3W

RACK PANEL MOUNTING

Rack Panel Mounting Kit, Model RPK 003

Dimensions: 19" W * 3-1/2" H * 8" D
Color: Black

Specifications subject to change without notice

Three Year Warranty

Williams Sound products are engineered and manufactured to give many years of trouble free service. Occasionally, latent defects occur. If this happens, return the product to us with shipping costs prepaid and advise us by letter of the observed difficulty. During the first three years following the date of purchase, we will promptly repair or replace the product and return it at our expense. After three years from the date of purchase, we will service our products for a modest service charge. Please return the enclosed warranty card to register your date of purchase. This warranty does not extend to physical damage, or damage caused by leaking batteries. Microphones, earphones, rechargeable batteries and chargers, headphones and cables are warranted for 90 days. Unauthorized modifications or repairs of the product will void the warranty.

Made in U.S.A.

Williams Sound Corp.
Minneapolis, Minnesota U.S.A.
1-800-328-6190

MAN 010E

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