Personal FM System Instructions

Basic System (PFM SYS A) / Educational System (PFM SYS B)

PFM System B Shown: FM Transmitter Model PFM T16 & FM Receiver Model PFM R16

Please read through these instructions as you begin to operate the system. Then save them for questions that arise as you continue to use your Williams Sound Personal FM System.

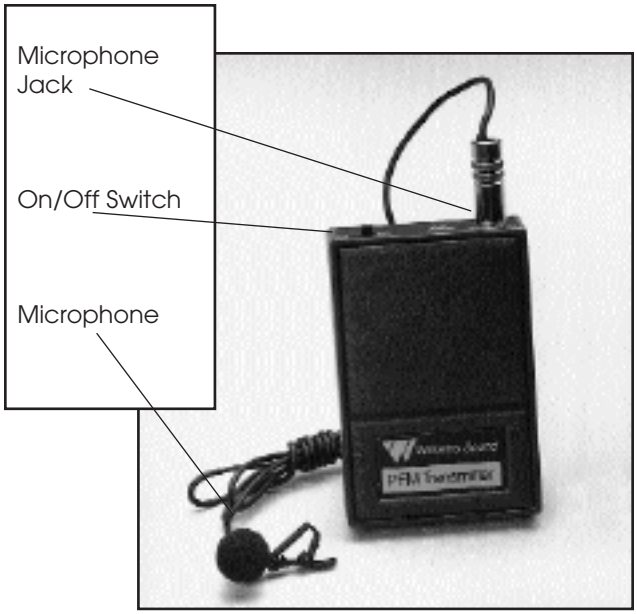
Overview

Thank you for purchasing the Personal FM System from Williams Sound Corporation. Anyone needing auditory assistance to overcome background noise, reverberation, or distance from the sound source can benefit from the Personal FM System.

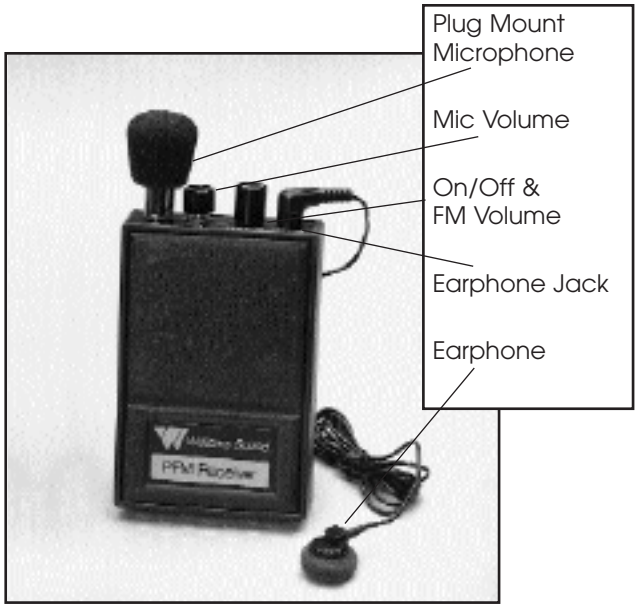
Your PFM System has two principal parts: the Transmitter and the Receiver. Much like a miniature radio station, the Transmitter and microphone pick up the sounds you want to hear and broadcast them over an FM radio signal. The receiver and earphone are used to pick up the broadcast up to 100 feet away.

To avoid difficulties, please read through these instructions as you begin to use the system. Then save them for questions that arise as you continue to use your Williams Sound Personal FM System.

If you have problems with the PFM system, don't hesitate to call us toll-free at 1-800-843-3544.



FM Transmitter Model PFM T16
(Shown with MIC 050 Microphone)



FM Receiver Model PFM R16
(Shown with MIC 014 Microphone
and EAR 013 Earphone)

System Components

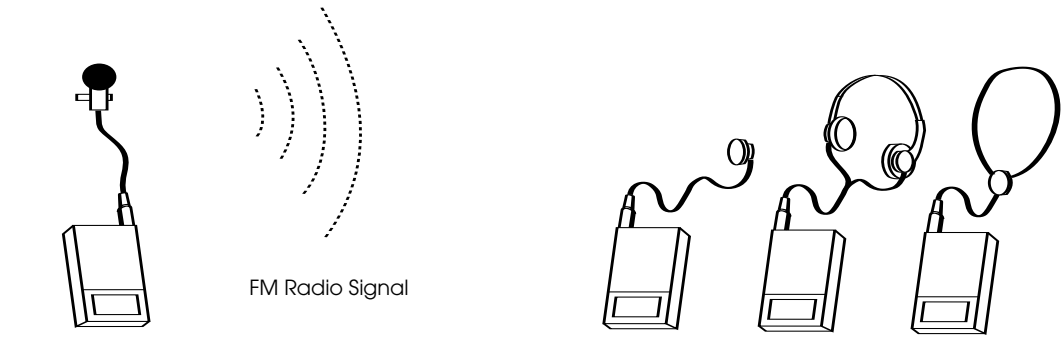
The Personal FM Basic and Educational Systems include the following components:

- **Body Pack Transmitter** (PFM T16E) with 9V battery (BAT 006)
- **Lavalier microphone** (MIC 050)
- **Mini earphone** (EAR 013)
- **Soft Nylon System Carry Case** (CCS 020)
- **(2) Belt clip cases** (CCS 001)
- **Instructions** (MAN 014)

- **Basic System Receiver:**
  Personal FM Receiver (PFM R7) with 9V battery (BAT 006)

(OR)

- **Educational System Receiver:**
  Personal FM Receiver (PFM R16) with Plug Mount Microphone (MIC 014) and 9V battery (BAT 006)



How the PFM System Works:

The speaker wears the body-pack transmitter and a clip-on microphone. The speaker's voice is broadcast as an FM radio signal over a distance of 100-150 feet (30m). Listeners use the pocket receiver and earphone or headphone to hear the speaker's voice directly, with reduced background noise. A neckloop telecoil coupler allows the system to be used with telecoil (T-Switch) equipped hearing aids.

Transmitter Operation: Model PFM T16 Transmitter

1. Plug the microphone cord into the "Mic" jack on top of the Transmitter.
2. Place the Transmitter in the belt clip case provided.
3. Turn the power switch on top of the Transmitter to "On."
4. Clip the microphone onto a collar, lapel, or tie. It should be as close to the speaker's mouth as is practical.

The transmitter can be placed in a pants pocket, or clipped onto a belt or waistband. Make sure the Transmitter is turned OFF when not in use.

Note On The Transmitter Antenna:

The microphone cord is the transmitting antenna. Do not bunch up the cord, wrap it around the transmitter, or place the transmitter in a shirt pocket. The cord should hang as straight as possible.

Receiver Operation: Model PFM R7 (System A)

Receiver Model PFM R7 has a single, wheel-type volume control and an earphone output jack.

1. Plug the earphone or headphone into the "Ear" jack on top of the Receiver.
2. Place the Receiver in the belt clip case provided.
3. Turn the power on by rotating the volume control on top of the Receiver.
4. Place the earphone in your ear.

The Receiver can be placed in a pants pocket, or clipped onto a belt, harness, or waistband. Make sure the Receiver is turned OFF when not in use.

Adjusting The R7 Volume Controls:

Adjust the receiver volume control to a comfortable listening level. You should be able to hear someone speaking into the Transmitter microphone.

Note On The Receiver Antenna:
The earphone cord is the receiving antenna. Do not bunch up the cord, wrap it around the receiver, or place the receiver in a shirt pocket. The cord should hang as straight as possible.

Receiver Operation: Model PFM R16 (System B)

Receiver model PFM R16 has two volume control knobs, a microphone input jack, and an earphone output jack.

1. Insert the small Plug Mount Microphone (MIC 014) into the "Mic" jack on top of the Receiver.
2. Next, plug the earphone or headphone into the "Ear" jack on top of the Receiver.
3. Place the Receiver in the belt clip case.
4. Turn the power on by rotating the taller "FM" volume control on top of the Receiver.
5. Place the earphone in your ear.

The Receiver can be placed in a pants pocket, or clipped onto a belt, harness, or waistband. Make sure the Receiver is turned OFF when not in use.

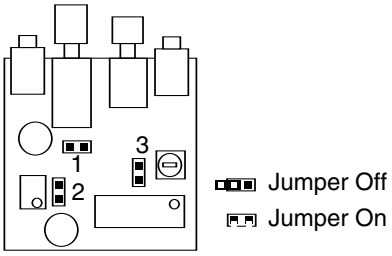
Adjusting The R16 Volume Controls
1. Adjust the taller “FM” volume control to a comfortable listening level. You should be able to hear someone speaking into the Transmitter microphone.
2. Now adjust the shorter “Mic” volume control until you can hear sounds picked up by the environmental microphone on top of the receiver.
3. Adjust the two volume controls for a comfortable mix of FM and environmental sounds.

You will normally want to have the FM signal louder than the environmental Mic signal to avoid picking up extra background noise. If no environmental sounds are desired, turn the “Mic” control fully off. If you want to hear nearby conversation or your own voice, turn the “Mic” control up.

Adjusting The R16 Receiver Tone Controls:
The R16 and R16M have internal adjustments to cut low frequency sounds and to boost high frequency sounds. The adjustments are made by moving jumpers inside the receiver.

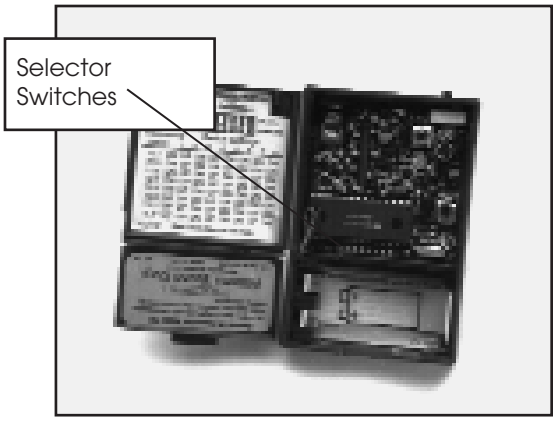
1. To open the Receiver, first flip open the battery compartment door. The back of the receiver opens like a book - pull up and out on the battery door to open the back.
2. Look at the R16 tone control diagram below to identify the jumpers. Don’t “adjust” anything but the jumpers!
3. The jumpers are moved by lifting them straight up. Placing the jumper across both posts sets it in the ON position. Placing the jumper on only one of the posts sets it in the OFF position. Each jumper has the effect shown in the chart below. The jumpers can be used individually or combined to alter the frequency response of the receiver. For example, using Jumpers 2 and 3 in the ON position provides 12dB of boost at 8kHz. The jumpers affect both the FM and environmental microphone signal. Receivers are sent from the factory with Jumper 1 on and Jumpers 2 and 3 off.

PFM R16 Receiver Tone Control Diagram



Jumper 1:	Low Frequency Boost: -10dB at 100Hz when jumper is on. -25dB at 100Hz when jumper is off
Jumper 2:	High Frequency Boost +6dB at 8kHz when jumper is on.
Jumper 3:	High Frequency Boost +6dB at 8kHz when jumper is on.

PFM T16 Transmitter
Frequency Change Diagrams



Switches set for 72.9 MHz

Channel		Switch Settings							
	(MHz)	1	2	3	4	5	6	7	8
A	72.1	DN	UP	DN	UP	DN	DN	DN	DN
B	72.3	DN	UP	DN	UP	UP	DN	DN	DN
C	72.5	DN	UP	DN	UP	DN	DN	UP	DN
D	72.7	DN	UP	DN	UP	UP	DN	UP	DN
E	72.9	DN	UP	DN	UP	DN	DN	DN	UP
F	75.5	UP	UP	DN	UP	UP	DN	DN	DN
G	75.7	UP	UP	DN	UP	DN	DN	UP	DN
H	75.9	UP	UP	DN	UP	UP	DN	UP	DN

Note On The Receiver Antenna:

The earphone cord is the receiving antenna. Do not bunch up the cord, wrap it around the receiver, or place the receiver in a shirt pocket. The cord should hang as straight as possible.

Frequency Change Procedures

PFM T16 Transmitter

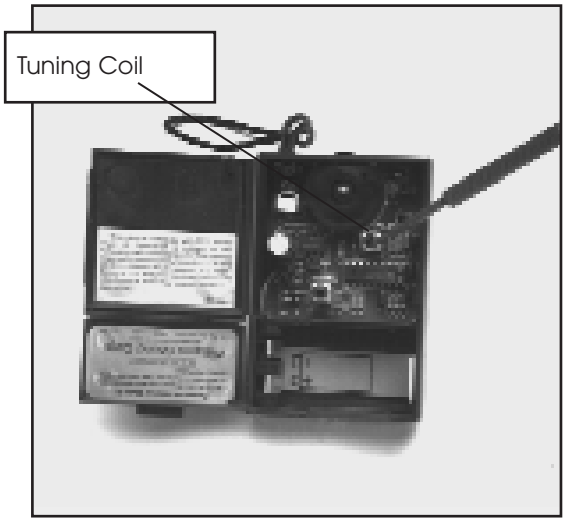
1. Remove the Transmitter from the Belt Clip Case.
2. Open the battery door and remove the battery.
3. Grasp the right corner of the battery door and lift the flap up and to your left. The back of the Transmitter case will open like a book, exposing the circuit board.
4. Use the photo diagram on the following page to locate the channel selector switches.
5. Use the tip of a paper clip or a small screwdriver (not a pencil point) to move the switches to correspond with the switch positions on the programming chart above. Select a new frequency at least two channels away from the one you are experiencing interference on. DO NOT TOUCH ANY OF THE OTHER ADJUSTMENTS!
6. Close the back of the Transmitter and install the battery. Plug the microphone in and turn the Transmitter on to provide a tuning signal for the receivers. See the next section for receiver tuning instructions.

PFM R7 & R16 Receivers

Tuning for the R7 and R16 Receivers is determined by a single tuning coil, and is stabilized by phase-locked-loop circuitry. A plastic tuning wrench (PLT 004) is needed to adjust the receiver tuning coil.

1. Use the Transmitter as a tuning signal source. Have someone speak into the microphone so you have something to listen to.
2. Keep the Transmitter and Receiver about 15 - 20 feet apart while tuning. The receiver must be tuned under weak signal conditions.
3. Open the back of the receiver to expose the circuit board. Open the receiver battery flap first. The receiver back snaps open like a book.
4. Use the photo diagram shown here to locate the tuning coil. Use the headphone supplied with the

PFM R7 & R16 Receiver Tuning



receiver to listen for the transmitter signal while you slowly and gently rotate the tuning slug inside the tuning coil with the tuning wrench. Adjust the tuning coil slowly and carefully. Do not press down on the tuning slug. Adjust for maximum signal.

5. Re-tune all the receivers and mark the new frequency inside the case for future reference.

To Charge Batteries

1. Make sure both the Transmitter and Receiver are turned off.
2. Plug the charger cord into the "MIC/CHARGE" jack on top of the Transmitter.
3. Plug the second charger cord into the "EAR/CHG" jack on top of the Receiver.
4. Plug the chargers into a wall outlet and charge for 12 hours.

The charge indicator light on the chargers should be lit while the Transmitter and Receiver are charging. It is okay to leave the Transmitter or Receiver charging for extended periods of time.

Rechargeable Batteries

The PFM 100 and PFM 200 System utilize a special rechargeable Ni-Cad 6 volt battery (BAT 021) designed to operate the systems for approximately 10 hours on an overnight charge. The batteries are charged using a single battery charger (BAT 005) or a multiple battery charger case (CHG 1269A) which charges up to 12 receivers or transmitters.

Note: These units will not accept any other battery.

Using Your Personal FM System with a Hearing Aid

If you have a hearing aid equipped with a Telecoil (T-Switch), you can use a Neckloop (NKL 003–children's size, or NKL 001–adult's size) or Silhouette coil (INC 005 WC) to magnetically couple the signal from the PFM Receiver into your hearing aid. The Neckloop plugs into the earphone jack of the receiver. Turn the switch to the "T" position on your hearing aid and adjust the volume control on the receiver

to a comfortable level. If you have two hearing aids with telecoils, the signal will couple into both hearing aids.

Direct Audio Input Hearing Aids

If your hearing aid has a direct audio input boot, you can obtain a cord from your hearing aid manufacturer to plug directly into the PFM receiver. The cord's plug should be of a 3.5mm diameter in order to match the receiver jack.

Applications

The Personal FM is designed to provide hearing assistance for anyone when background noise or distance from the sound source make listening difficult. The microphone and transmitter are placed close to the desired sound source to help minimize background noise and to effectively eliminate the distance between the listener and the sound source. Because hearing ability varies, three categories of amplification have been delineated:

1. No Hearing Loss–Low Amplification

Among Low Amplification applications are classroom and related uses. The PFM System can be used with headphones or earphones for Central Auditory Processing Disorders, Learning Disabilities, or Attention Deficit Disorders. The PFM System is used primarily to boost speech sounds above other background noises, making it easier for the listener to focus on what is being said. The optional Rugged Headphone (HED 012–children's size, and HED 014–adult's size) are recommended for this application. The EAR 013 Single Mini Earphone, EAR 008 Surround Earphone, or EAR 014 Dual Mini Earphone can also be used.

2. Mild–Moderate Hearing Loss

These applications include the classroom, TV listening, car riding, and one-on-one conversations. The PFM System can be used with the Single or Dual Mini Earphone (EAR 013 or EAR 014) for moderate amplification fittings. The Button Receiver Earphone (EAR 012 WC) is also available for use with a snap-on custom earmold. The PFM System is also suitable for temporary mild hearing loss due to Otitis Media. The Rugged Headphones (HED 008) or Surround Earphone (EAR 022 or EAR 008) are recommended since they do not enter the ear canal.

3. Severe–Profound Hearing Loss

These applications include the classroom, TV listening, car riding, and one-on-one conversations. For severe to profound hearing loss, the PERSONAL FM System should be used in conjunction with a hearing aid. A Neckloop can be used with hearing aids that have a telecoil. An adaptor cord can be used with hearing aids that have direct audio input.

In Case of Difficulty

If your Personal FM System is not working, check the following:

1. Make sure the batteries are fresh or completely charged and that the "plus" and "minus" terminals are installed correctly.
2. If the rechargeable batteries will only work for a short period of time (less than 1 hour) even after it is fully charged, it must be regenerated. Leave it in the unit, with the unit turned on, for 5 - 6 hours. Then turn the unit off and charge for 14 - 16 hours. This should restore normal battery life. The rechargeable battery will gradually lose its capacity over time and should be replaced every year.

3. Make sure the microphone is plugged into the transmitter and the earphone is plugged into the receiver.

4. If you have the PFM System B, make sure the R16 Receiver's plug mount microphone IS NOT plugged into the Transmitter.

5. If you're using the PFM System B with the PFM R16 Receiver, make sure that the earphone has been plugged into the earphone jack and not into the receiver's microphone jack.

6. Move the Transmitter and Receiver closer together. You may be out of range. When using the system indoors, it's normal for the signal to momentarily disappear in certain locations. This is called a "drop-out". Moving a few feet will restore the signal.

7. Make sure that the Transmitter and Receivers are tuned to the same channel. The units have stickers inside the back cover identifying the channel.

8. Do not try to use more than one Transmitter on the same channel in close proximity to each other. MORE THAN ONE TRANSMITTER ON THE SAME CHANNEL WILL RESULT IN INTERFERENCE IF THEY ARE CLOSE TOGETHER. Keep the systems 50 - 100 feet apart or use separate channels for each system used.

9. If you are still hearing interference on the Receivers, turn the Transmitter off and listen with a receiver. If you hear the interference with the Transmitter off, you need to change to a clear channel. See the re-tuning instructions.

10. If problems remain, contact your dealer for further help. Or call Williams Sound toll-free at 1-800-843-3544.

Warranty

See the enclosed Warranty Card for Warranty details. Be sure to fill out and mail the Warranty Card to register your serial number and warranty.

Williams Sound Corp.
10321 West 70th St., Eden Prairie, MN 55344-3450
U.S.A. 800-843-3544 / 952-943-2252 / FAX: 952-943-2176

