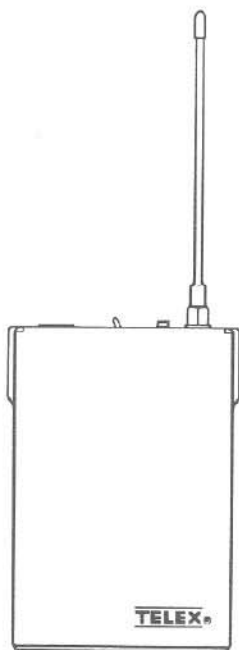


Telex

Operating Instructions



**Professional Wireless
Microphone Transmitter
Model WT-450**

TELEX®

INTRODUCTION

WHAT IS A WIRELESS MICROPHONE SYSTEM?

MICROPHONE: This is an electro-acoustic transducer which responds to sound waves and delivers essentially equivalent electrical waves. These electrical waves are sent to the belt transmitter unit.

TRANSMITTER: The transmitter generates and amplifies an RF (Radio Frequency) carrier signal, modulates this carrier with the microphone signal, and radiates the modulated RF carrier.

WHAT FREQUENCY BAND DOES THIS TELEX SYSTEM OPERATE IN?

The Telex systems feature single channel, crystal controlled transmitters and receivers operating in the UHF Bands between 524-608 MHz and 614-746 MHz.

The transmitter operates on a fixed frequency which can be computer selected to provide "interference-free" operation. Multiple systems can be operated in a single location simultaneously, without intermodulation.

OFTEN ASKED QUESTIONS

Questions: Can more than one microphone operate simultaneously?

Answer: Yes, but never on the same frequency. You will need to have different frequencies for every receiver/transmitter combination. All units are factory set for a specific frequency.

Question: Is the system more sensitive in any one particular direction?

Answer: No, the transmitter antenna radiates equally in all directions, but the signal is attenuated by your body, walls or other surrounding objects. The receiving antenna is essentially sensitive in all directions as well, except when using a directional antenna.

Question: When the transmitter is turned off can the receiver pick-up other transmissions?

Answer: Yes it can. The Telex System operates in the UHF Bands between 524-608 MHz and 614-746 MHz. However, it is not susceptible to radio wave skip, CB,ers or FM Radio transmissions. The frequency your system operates on has been selected for least interference, but there is no such thing as a 100% clear channel all the time, anywhere in the U.S.A., forever!

If the system is used in a permanently fixed location, the system should operate interference free until such a time or date when someone else begins using the same frequency.

If the system is going to be moving among various locations, you will inevitably run into occasional frequency conflicts.

In either case, when you're not using the wireless microphone, turn the gain down on your audio mixer, as you would a wired microphone. If mixer control is not available, turn the receiver off when the transmitter is not in use. This will prevent the reception of undesired signals. **If the system must be left on, the transmitter should be left on too, to prevent the receiver from picking up outside interference.**

Question: Is feedback a problem?

Answer: As with all microphones used in PA applications, feedback is a problem. To minimize feedback, the mixer or control operator should use the minimum level to produce the desired audio. If the system appears overly sensitive, reduce the "Microphone Gain" on the back of the transmitter with a small screwdriver until you obtain the minimum level necessary. This is the foremost way of adjusting "Microphone Gain." Use the minimum gain necessary. Professional equalization of the sound system may be needed.

TECHNICAL INFORMATION

WT-450 WIRELESS BELT TRANSMITTER

General Description: A metal encased belt-worn, battery powered, UHF FM transmitter which is ideally suited for any activity requiring a cordless portable microphone.

FEATURES

The unit is compact, lightweight, and self-contained.

Power On Switch: A low profile slide switch is provided to allow access to power ON but is clearly distinguishable from other controls to prevent accidentally turning off the power.

Low Battery/Overmodulation Indicator LED: Multi-purpose LED.

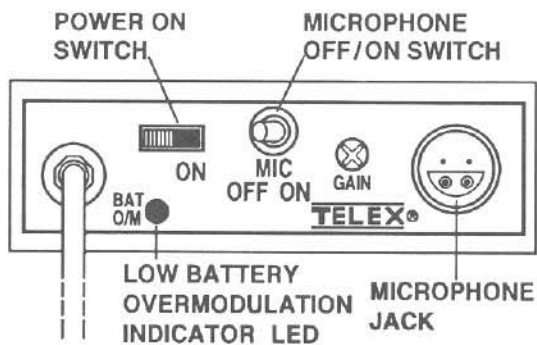
Low Battery Indicator: Part of the battery check circuit. When the power switch is placed in the "ON" position the LED will flash one time if the battery is good. A poor battery will cause the LED to be illuminated continuously and a bad or unusable battery will not cause illumination at all.

Overmodulation Indicator: Uses the same LED as the low battery indicator. During the transmit mode if microphone gain is too high the LED will illuminate when talking. Adjust microphone gain and/or microphone mouth spacing so that this LED does not light at all, or only occasionally.

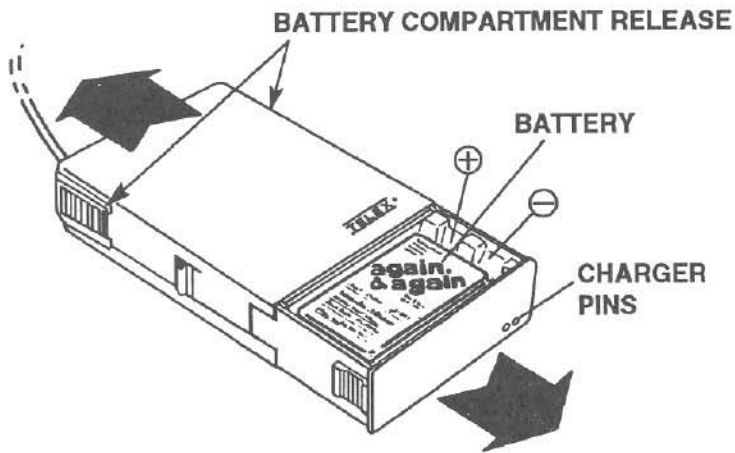
Microphone ON/OFF: A toggle switch is provided to allow the user to "MUTE" the microphone if desired. This switch does not turn off the transmitter RF and provides "popless" operation. Again this switch is clearly distinguishable from other controls for ease of operation. This switch does not disable the over-modulation indicator.

Microphone Jack: The WT-450 is designed to easily interface with dynamic or electret microphones in the 100-10k ohm impedance range. A pin on the microphone connector is permanently wired to provide a power source for electret microphones. No XLR adapter is provided with this system. The WT-450 can utilize all Telex and many other brands of electret lapel microphones.

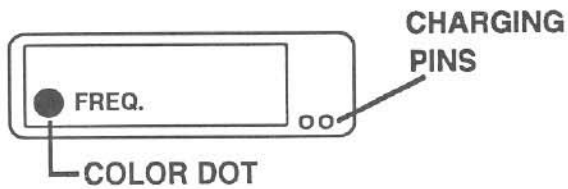
Microphone Gain Control: A screwdriver adjustable control which adjusts the Audio Gain of the microphone either up or down for different voice levels.



Battery Compartment Release: Depressing the two side spring latches and pulling the bottom of the case downward exposes the battery compartment. Accepts either an alkaline or nicad 9 volt transistor battery.



Charge Pins: The WT-450 also incorporates charge pins to allow the Telex 63912-000 battery to be charged without removing it from the case. Use the BC-80 Battery Charger.



Antenna Color Code: Be sure the color band on the transmit antenna matches the color dot on the bottom of the transmitter.

Color Band	Frequency
Blue	524-527.9
White	528-580.9
Yellow	581-632.9
Red	633-691.9
Green	692-746

Battery Requirement: For maximum uninterrupted service, TELEX recommends that a new 9 volt alkaline battery (Mallory MN 1604 or equivalent) be installed prior to use. TELEX also offers a heavy duty nickel-cadmium, 8.4 volt rechargeable battery. Part Number 63912-000.

Average life on an alkaline battery is (8-10 hours and 1 1/2 to 2) hours per charge on a nickel-cadmium (nicad) battery.

Beltclip Pouch: The WT-450 is supplied with a beltclip pouch.

SPECIFICATIONS: WT-450

RF Frequency Range	524 to 608 MHz and 614 to 746 MHz
RF Power Output	50 mW maximum 45 mW typical
RF Frequency Stability	0.005% crystal controlled
Modulation	FM, 40 KHz Deviation
Pre-Emphasis	50 µSec
AF Frequency Response	50 to 15000 Hz
Microphone Input	Low impedance, 100-10K ohm Dynamic or Electret
Current Drain	50 mA typical
FCC	Type accepted under FCC Part 90 and 74H.
FCC ID	B5DB103

EQUIPMENT SET-UP AND CONNECTION

Unpacking: Unpack your Wireless Microphone System. If there are any damages or shortages, refer to the "Warranty Service Information."

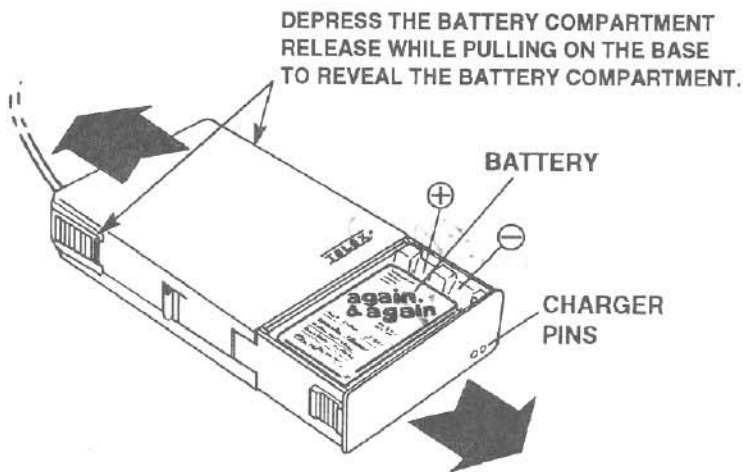
RECEIVER SET-UP

NOTE: Refer to the manual of the receiver you will be using. This transmitter will work with all Telex UHF wireless microphone receivers. Set up the receiver according to the operators manual.

TRANSMITTER SET-UP

WT-450U Belt Transmitter

Battery Installation: For maximum uninterrupted service it is suggested that a new 9 volt alkaline battery (Mallory MN 1604 or equivalent) be installed prior to use. Operation on a heavy duty 8.4 volt nicad battery is also permissible.

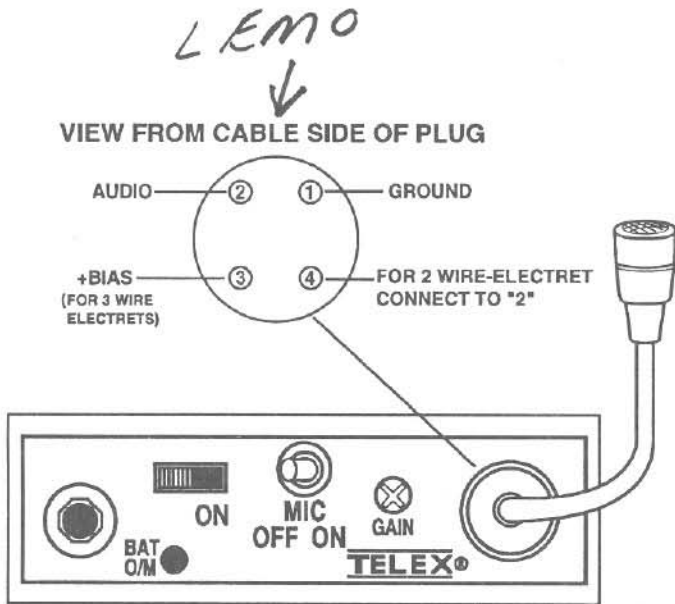


WT-450 Battery Installation

WT-450: Insure that the power switch is in the "OFF" position. Depress the two spring latches on each side of the case. Pull the front panel assembly forward until the transmitter is removed from the case. Insert the battery as shown above, making sure the proper polarity is observed.

Reinsert the transmitter into the case until the latches are secure.

Microphone Connection: Plug the microphone you will be using into the microphone jack. If the microphone brand that you are using is other than Telex, refer to the chart on Page 11 for interface information.



Microphone Connection

LAVALIERS	MODEL NO.	PIN 1	PIN 2	PIN3	PIN 4
SONY	ECM 50	SHLD	WHITE	RED	N/C
SONY	ECM 77	SHLD	WHITE	RED	N/C
SONY	ECM 55	SHLD	WHITE	RED	N/C
SENNHEISER	MKE-2	SHLD	BLACK	RED	N/C
SENNHEISER	MKE-40	SHLD	BLUE	RED	N/C
TRAM	TR-50LX	SHLD	BLACK	RED	N/C
BEYER	MCE 5.9	OUTER SHLD	GREEN	INNER SHLD	N/C
CROWN	PZM	BLACK & SHLD	WHITE	RED	N/C
AUDIO TECHNICA	AT 831C	SHLD	YELLOW (2)	RED (2)	N/C
AUDIO TECHNICA	AT 803C	SHLD	YELLOW BLACK	WHITE/ RED	N/C
SHURE	SM83	SHLD	BLACK	RED	N/C
SHURE	SM10-A-HEADSET	BLACK SHLD	RED	N/C	N/C
ELECTRO VOICE	CO-90	SHLD	WHITE	RED	N/C
COUNTRYMAN	ISOMAX II	BLACK SHLD	WHITE	RED	N/C
FENDER	M-1	BLACK SHLD	WHITE	RED	N/C
SONY	ECM44	SHLD	WHITE	RED	N/C
+BIAS LAVALIER	3 WIRE	SHLD	AUDIO	BIAS	N/C
-BIAS LAVALIER	3 WIRE	BIAS	AUDIO	SHLD	N/C
AKG +BIAS	CK67-3 2 WIRE	SHLD	WHITE AUDIO	N/C	WHITE AUDIO
SONY -BIAS	ECM 150	RED AUDIO	SHLD	N/C	SHLD
PIN INFOMATION		GRND	AUDIO	BIAS	

Wiring Chart

SETTING SYSTEM GAIN LEVELS

TRANSMITTER GAIN SETTING

If you have followed the instructions up to this point, you should now be ready to turn both the transmitter and the receiver "ON" and set optimum signal gain settings on each.

Place the power switch on the receiver in the "ON" position. The red power "LED" should illuminate.

Turn your transmitter power "ON". This is accomplished by placing the power switch in the "ON" position.

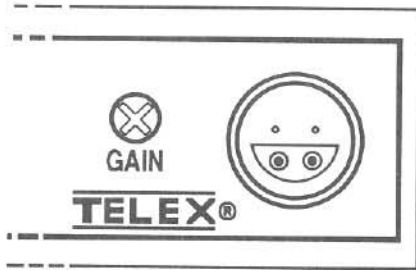
Normal (SPL) Setting: The "Audio Gain" potentiometer on your transmitter has been factory set to provide the highest dynamic range and no overload.

High (SPL) Setting: If your application is high Sound Pressure Level (SPL), such as singing, the factory gain setting is probably too high and will result in overloading the transmitter as indicated by the red LED, resulting in distortion.

Low (SPL) Setting: If your application is low level, such as a very soft spoken individual, the factory gain setting may be too low and could result in poor overall signal-to-noise ratio.

To correct either a too high, or too low setting, adjust the Microphone Gain Control so that average audio levels cause the meter to indicate appropriate levels.*

*Refer to your receiver manual for proper meter indications.



INCREASE



DECREASE

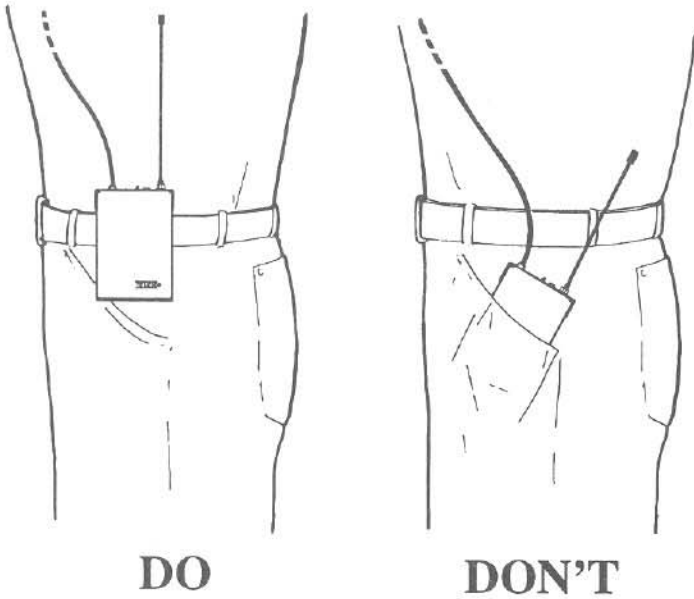
WT-450 Microphone Gain Adjustment

ANTENNA INFORMATION

ANTENNA ALIGNMENT

Antenna Placement: Proper antenna placement probably has the biggest effect on your TELEX Wireless System's overall performance. The following suggestions will result in optimum performance.

Proper placement of the transmitter can be critical. The antenna should be unobstructed. Covering the antenna with articles of clothing and placing the transmitter in a pocket, etc., will reduce system distance.



Increasing/improving Reception And Range: Keeping the distance from the transmitter to the receiver as short and unobstructed as possible will produce the most reliable performance.

BATTERY INFORMATION

General: Improper battery selection, use, installation and care are the cause of numerous wireless microphone system failures.

Alkaline Batteries: Alkaline batteries such as Mallory's DURACELL® or Eveready's ENERGIZER® provide the most reliable operation in wireless microphone transmitters. Low cost carbon zinc "bargain" batteries are lower cost but will not sufficiently operate the transmitter.

Nickel-cadmium Batteries: Nickel-Cadmium batteries can save you money in the long run, as they can be recharged, but nickel-cadmium's can also cause disappointing wireless performance. If you want to use rechargeable nickel-cadmium batteries you must select a "heavy duty" nickel-cadmium, (8.4 volts). Conventional "9 volt size" such as GE® or Radio Shack® are only capable of providing 7.2 volts, which is not sufficient to power the Telex WT-450 transmitters.

ENERGIZER® is a registered trademark of Union Carbide Corporation.
DURACELL® is a registered trademark of Duracell Inc.
GE® is a registered trademark of General Electric Company
Radio Shack® is a registered trademark of the Tandy Corp.

Battery Type	Volts	Expected Life
Alkaline "MALLORY" MN1604 or Equivalent	9	8-10 Hours
GE or Radio Shack Nickel- Cadmium Rechargeable	7.2	Does Not Work
Varta or Gould "Again and Again" Nickel-Cadmium Rechargeable	8.4	1 1/2 to 2 Hours per charge

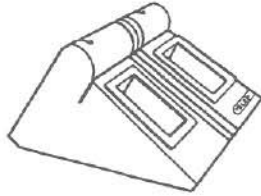
Battery Information

ACCESSORIES

**Nickel-Cadmium Battery - For
WT-450 Transmitters, 8.4 Volts
Order No. 63912-000**



**BC-80 Battery Charger - For
charging WT-450 units
equipped with nickel-cadmium
battery.
Order No. 71020-001**



Frequency Range	P/N	Color
524-527.9	870533-2	Blue
528-580.9	870533-3	White
581-632.9	870533-4	Yellow
633-691.9	870533-5	Red
692-746	870533-6	Green