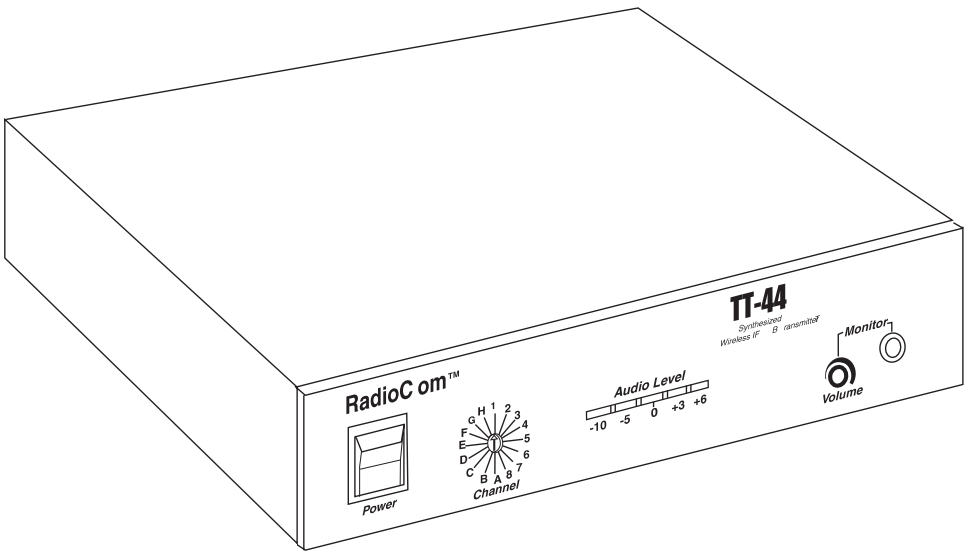
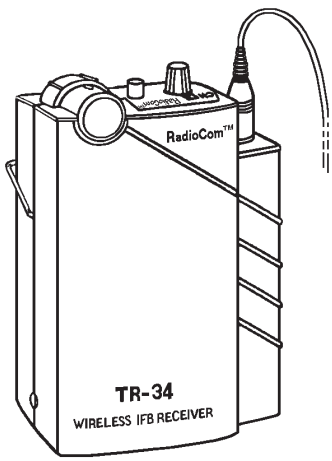
Telex

Operating Instructions



RadioCom™

WIRELESS IFB SYSTEMS



TR-34 TUNABLE RECEIVER

TT-44 TRANSMITTER

TELEX®

INTRODUCTION

WHAT IS THE TELEX WIRELESS IFB SYSTEM?

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 THE TELEX SYSTEM OPERATE IN?

The Telex Systems features a synthesized transmitter and a synthesized receiver operating in the VHF Band between 60-72 MHz. See Table 1 for standard frequencies available.

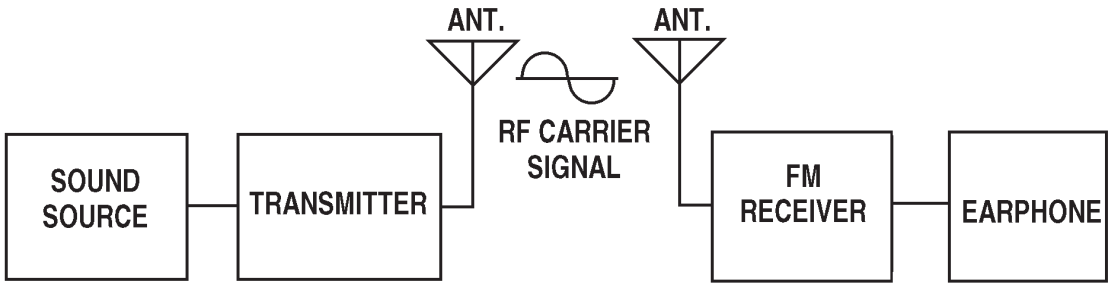


Figure 1
Block Diagram of Typical Wireless IFB System

Receiver: The FM VHF receiver is tuned to the frequency of the transmitter. The receiver picks up the radiated RF signal from the transmitter through the antenna and converts the RF signal into audio voltages for use with an earphone, headphone, button receiver, neckloop, etc. The receiver frequency must be matched to the transmitter frequency.

Up to five transmitter channels can be utilized by any number of receivers in any given area.

OFTEN ASKED QUESTIONS

Question: Can more than one system be used simultaneously?

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

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

Answer: No, the transmitter's 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.

Question: Can the receiver receive other transmissions when the transmitter is turned off?

Answer: Yes it can. Telex systems operate in the VHF Band between 60-72 MHz. However, it is not susceptible to radio wave skip, CB'ers or standard FM radio transmissions.

The frequency your system operates on is computer 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 going to be used in a permanent fixed location, it 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 may run into occasional frequency conflicts.

Whenever the system is in use, the transmitter should be left on to prevent the receiver from picking up outside interference.

CHANNEL	FREQ. in MHz
1	64.500
2	64.700
3	64.900
4	65.100
5	65.300
6	65.500
7	65.700
8	65.900
A	66.100
B	66.300
C	66.500
D	66.700
E	66.900
F	67.100
G	67.300
H	67.500

Table 1
Standard Frequencies Available

TECHNICAL INFORMATION

TR-34 RECEIVER

General Description TR-34

The Telex TR-34 Receiver is a component of a system which operates on 16 selectable channels in the 60-72 MHz frequency band. The receivers are designed to be used with the Telex TT-44 Transmitter.

Operating Features

Volume OFF/ON Control: This thumbwheel control serves as both an off/on switch and as a volume control. The receiver is turned off when the control is in the extreme counter-clockwise position, when viewed from the front, and the volume is loudest when the control is in the extreme clockwise position as indicated on the volume control.

NOTE: The Headphone Jack must have a headphone, or other accessory, plugged in to activate the TR-34 power "ON". Power "ON" is indicated by the lighting of the channel numbers.

Headphone Jack

The headphone jack accepts a 0.140-inch (3.5 mm) diameter miniature mono or stereo phone plug. A variety of accessory units can be plugged into this jack for reception of the desired channel(s) being transmitted.

Treble Control

A push button treble control is provided to enhance the "high" audio when the button is engaged, indicated by  , the "High" audio is emphasized.

Belt Clip

The belt clip supplied is detachable by spreading the wire apart at the tops and removing one side of the clip from the case and then the other.

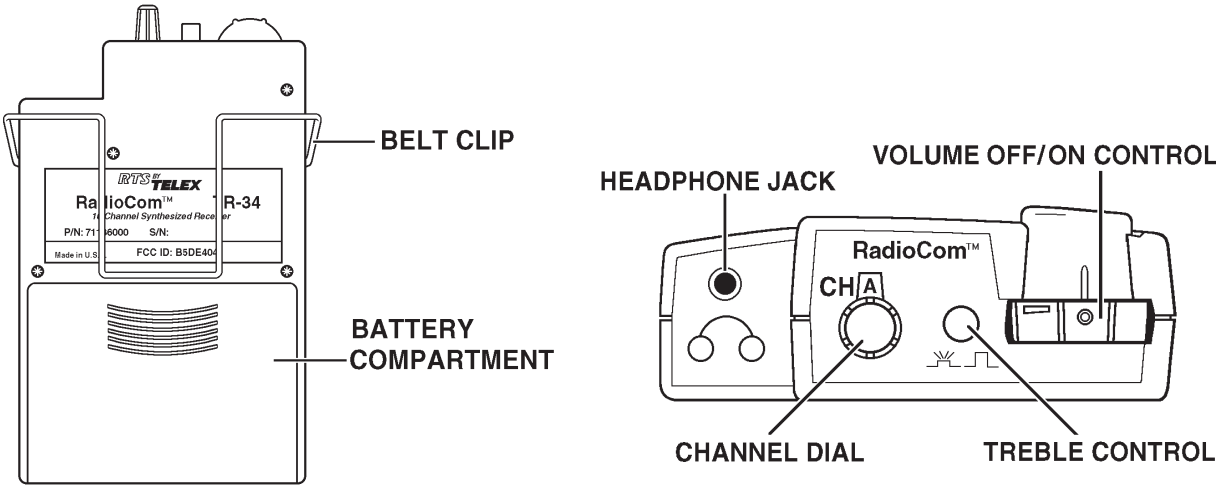


Figure 2
Operating Features of TR-34

TR-34 Specifications

Temperature Range.....0 to +50 degrees C
Supply Voltage .....2 - 3 Volts, (2) AA Batteries
Battery Life.....16 - 20 Hrs - Alkaline
8 - 10 Hrs - Nickel-cadmium
Frequency Response 100-10 kHz.....Less than 3 dB Variation
Sensitivity (12 dB SINAD @ 66.1 MHz).....1 uV max
Distortion.....less than 2%

Controls and Connections.....Volume OFF/ON Switch,
Treble Control Switch,
Channel Selection Switch,
Headphone Output Jack

TT-44 SYNTHESIZED TRANSMITTER

General Description

The Telex TT-44 is a portable base station transmitter which operates in the 60-72 MHz band and accepts intercom audio input levels.

Operating Features

Main Power Switch and Indicator LED: The Power "ON" LED is illuminated when the Power OFF/ON switch is ON. It remains illuminated while the transmitter is on.

Channel Select

This control is rotated in the clockwise and counterclockwise directions to attain reception of the desired channel(s) being transmitted within the 60-72 MHz frequency band.

RF Power Switch: 50 mW max in "Hi", approximately 5 mW in "Low".

Audio Level Meter: Provides visual indication for setting input levels.

Audio "Monitor" Output Jack: 1/4" jack provided for headset connection.

Audio "Monitor" Level Control: Adjusts output level for monitor headset.

Balanced Audio Input Connector: Accepts balanced two wire line or RTS two channel line.

Balanced Input Selection Switch: Selects either balanced two wire, RTS channel "1" or RTS channel "2".

Balanced Input Level Control: Adjusts input level for all balanced input modes.

Unbalanced Audio Input Connector: Accepts unbalanced audio via 1/4" plug.

Unbalanced Audio Level Control: Adjusts input level for unbalanced input mode.

Antenna Jack: Accepts 50-ohm whip (supplied).

Power Input Jack: Accepts either AC Power adaptor (supplied), or any source of 13 VAC 300MA or 15 to 24 VDC 300MA.

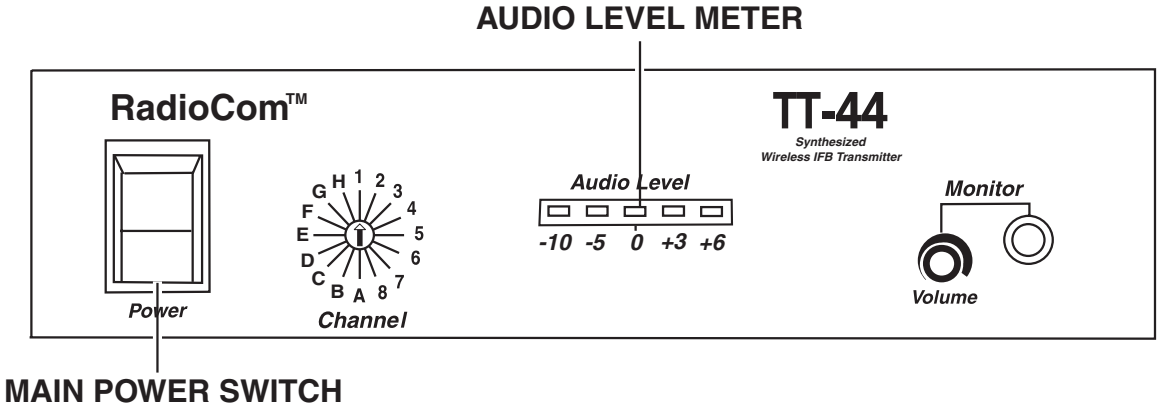


Figure 3
Operating Features TT-44
Front Panel

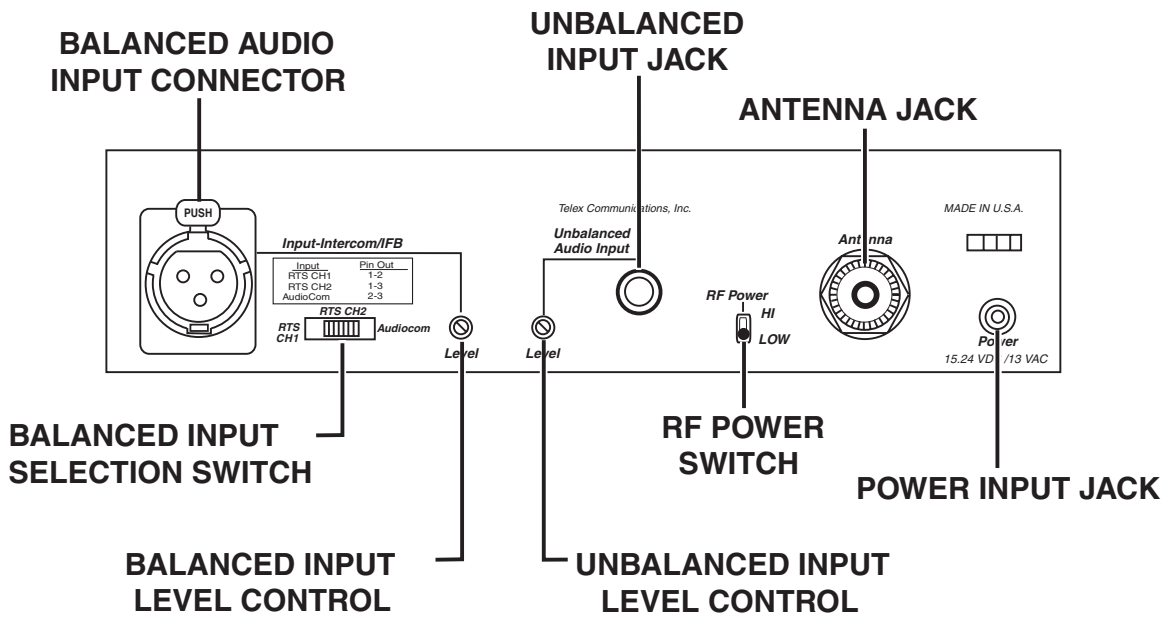


Figure 4
Operating Features TT-44
Back Panel

TT-44 Specifications

Audio Input: Balanced Female XLR

Input Impedance	150K ohms
Unbalanced Audio Input	100K Ω input impedance/70 mV-7 Volt input range
RF Power Switch	50 mW max in “Hi”, approx. 5mW in “Low”
AGC Range	30 dB
Signal-to-noise Ratio	58 dB
Pre-Emphasis	100μS
Maximum Deviation	±25 KHz
Frequency Control Crystal	+/-.005% tolerance
Available Frequencies	See Table 1, page 3
Max. Transmitter Output Power	50 mW
Power Requirements	13 VAC @ 300 mA or 15-24 VDC @ 300 mA
Dimensions	7 1/2"W x 1 3/4"H x 6 7/8"D
FCC I.D.	B5DM507

TT-44 Transmitter

UNPACKING: Unpack your wireless IFB system. If there are any damages or shortages, refer to the "Warranty Service Information."

TT-44 TRANSMITTER LOCATION: Select a suitable location for the TT-44 Transmitter. Try to keep a clear, unobstructed path between the transmitter and receiver and allow plenty of free space around the Transmitter antenna.

CAUTION
Avoid heat sources when selecting a location for the Transmitter. The heat given off by radiators or direct sunlight may eventually damage the unit.

POWER CONNECTION: Plug the supplied AC power adaptor into a standard 120 vac (U.S.A.) electrical outlet. Plug the other end of the cord into the power input jack on the rear panel of the TT-44 **DO NOT TURN UNIT ON AT THIS TIME.**

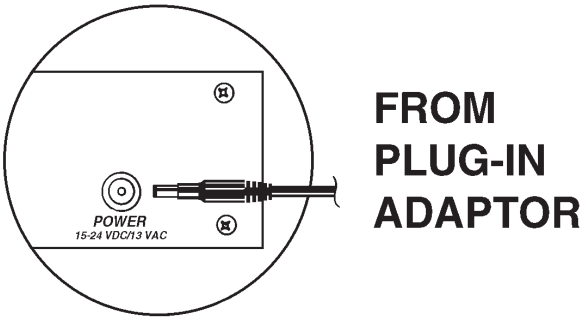


Figure 5
Connecting Power

ANTENNA CONNECTIONS: Connect the telescoping whip antenna to the rear panel ANTENNA jack.

For best results, the antenna should be vertically aligned. Tighten the coaxial connector to hold the antenna in place, and extend the antenna to full length.

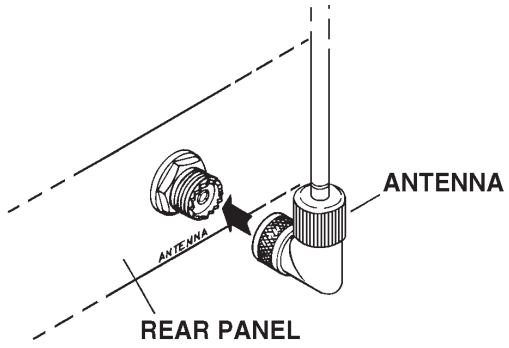


Figure 6
Antenna Connection

AUDIO INPUT: Select the appropriate input on the rear panel switch depending on the interfacing equipment. Then connect the audio input to the rear panel XLR Jack or to the unbalanced 1/4" input jack if required.

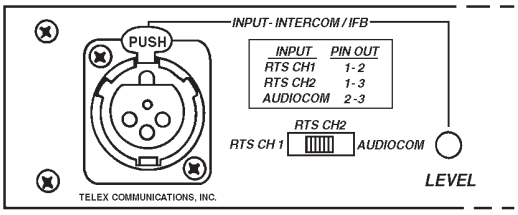


Figure 7
Balanced Input Jack, Switch, and Level Control

Turn the input level control fully counterclockwise.

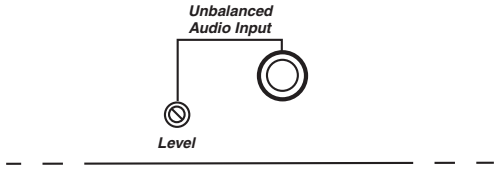


Figure 8
Unbalanced Input Jack and Level Control

Turn the unbalanced control fully counterclockwise.

Refer to page 11, “Setting System Gain”, for setting the optimum signal gain.

MULTIPLE SYSTEM INSTALLATIONS: As with any radio device, interference can occur at any time. The frequencies offered are shared with other legitimate users. The severity of interference varies with the distance to the interfering station. Multiple systems further complicate installations. The following steps are suggested in order to achieve best results in your installation.

1. In order to determine whether your selected frequencies have minimum interference, Telex recommends that you first temporarily install the receivers only, in your proposed setting, and monitor the channel for interference. To do this, with fresh batteries installed, turn on your receiver, but DO NOT turn on any other receiver or transmitter at this time. Audible interference may be present, indicating another user on the channel. Monitoring should be repeated for each channel that you propose to use.

2. Next, you must decide on the placement of the various channels. This is best accomplished by placing adjacent channel operating areas as far apart as possible.

3. For best results, each transmitter should be installed separately in its own service area.

The Transmitter should now be ready for use.

NOTE: When not in use, return the POWER switch to the OFF position and unplug the transmitter.

EQUIPMENT OPERATION

TR-34 RECEIVER

Operation of the TR-34 Receiver

Try to keep a clear, unobstructed path between the transmitter and receiver antennas for a clear transmission.

Plug in a unit such as an earphone, headphone button receiver, induction coil neckloop, or audio-input hearing aid into the receiver jack (The cord acts as a receiving antenna).

Rotate the VOLUME OFF/ON control slowly in the clockwise direction while monitoring the volume level, and select the correct receive channel.

Adjust volume for desired comfort. (Engage treble control to enhance "Highs" if desired.)

When satisfied with the channel selection and volume level, place the receiver in a pocket or clip it to your belt for convenience.

Always return the VOLUME OFF/ON control to the OFF position when the Receiver is not in use to preserve battery life.

BATTERY REPLACEMENT

The TR-34 Receiver uses two (2) AA batteries. When the batteries are low the sound will be distorted. Replace weak batteries with two fresh AA batteries, and position them in the battery compartment as illustrated in Figure 9.

For additional information refer to the "Battery Information" Section.

NOTE: If the unit is to be stored for any length of time make sure you remove the batteries from the unit.

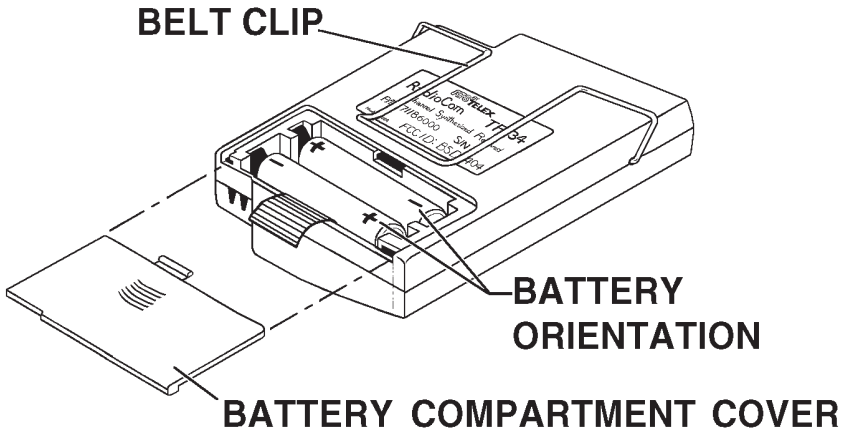


Figure 9
Battery Installation - TR-34

SETTING SYSTEM GAIN

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.

Place the power switch on the TT-44 Transmitter to the "ON" position. The red LED in the power switch should now be lit. Turn your microphone or other input equipment on and the AUDIO LEVEL Meter will now respond to your equipment.

Normal Level Setting: The balanced or unbalanced "Audio Gain" (Input Level Control) will adjust the audio of the transmitter and for normal readings this is in the green area between -10 and O. Readings in this area of the meter give the highest dynamic range and no overload.

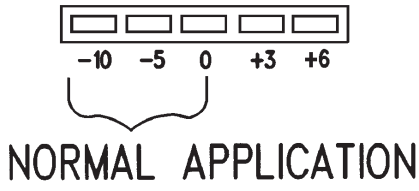


Figure 10
Ideal Audio Level Meter Reading

High Level Setting: If your input equipment has a high output, you will have to adjust the Input Switch or Input Level Control to the green area of the AUDIO LEVEL Meter or you will overload the TT-44 indicated by one or more red LED's resulting in distortion.

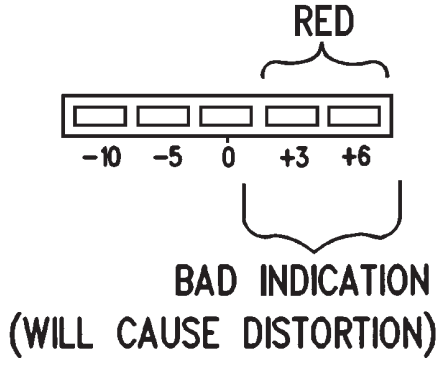


Figure 11
High Level Setting

TESTING THE SYSTEM

PRE WALK-THRU CHECKLIST

Following the instructions fully to this point you have successfully completed the following checklist:

- ☐ Located the Transmitter properly.
- ☐ Connected power to the TT-44 Transmitter.
- ☐ Connected the antenna to the TT-44 Transmitter.
- ☐ Connected your Intercom to your transmitter.
- ☐ Installed the batteries in the TR-34
- ☐ Set the Transmitter Audio Gain(s)

If you missed any of the above instructions, go back and complete that instruction before going on.

SYSTEM WALK-THRU

Now that you have successfully "set up" your Telex Wireless System and turned on your sound equipment, you are ready to test the overall performance by "walking" the Telex receiver through the areas in which you will be using it.

The "system walk-thru" can detect the following problems:

- Weak signal strength caused by:
- Power Transmitter location
- RF "Trouble Spots"
- Operating distance beyond system capability
- Malfunctioning system.
- Mistuned Receiver

Under normal conditions the AUDIO LEVEL Meter, located on the front panel of the TT-44, should show a reading in the -10 to 0 (green) range with occasional +3 peaks (red). Avoid +6 peaks as these will result in distorted audio at the receiver.

See "SETTING SYSTEM GAIN".

BATTERY INFORMATION

General

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

Alkaline Batteries

Alkaline batteries such as Mallory's DURACELL® or Eveready's ENERGIZER® provide the most reliable operation in wireless transmitters and receivers. The use of low cost carbon-zinc batteries is NOT RECOMMENDED.

Nickel-Cadmium Batteries

These batteries can save you money in the long run, as they can be recharged, but they can also cause disappointing wireless performance. If you want to use rechargeable nickel-cadmium batteries you must select a heavy duty nickel-cadmium.

*ENERGIZER® is a registered trademark of Union Carbide Corporation

*DURACELL® is a registered trademark of Duracell Inc.

ANTENNA INFORMATION

Antenna Alignment

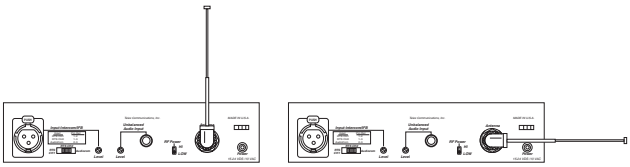


Figure 12
Antenna Alignment
Do and Don't

Antenna Placement

Proper antenna placement probably has the most effect on your TELEX Wireless System's overall performance. Following the suggestions that follow should result in "dropout free" performance.

Keep the distance between the transmitter and the receiver(s) as short as possible. The greater the distance the weaker the signal.

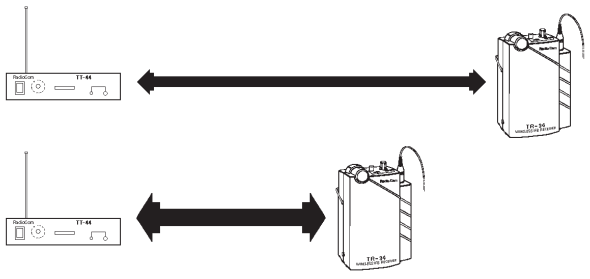
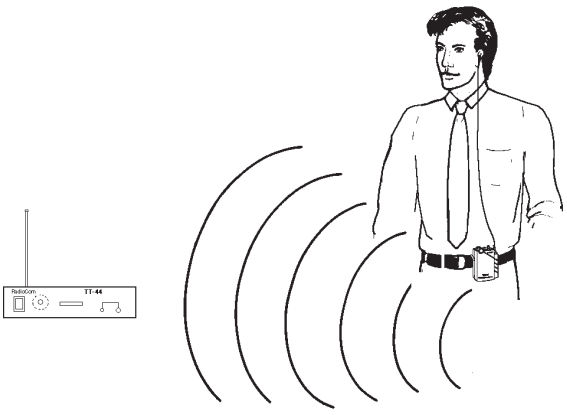


Figure 13
Distance Between Transmitter and Receiver

Make sure the "signal path" between the transmitter and receiver(s) is unobstructed. You should always be able to visually locate the antenna of the transmitter at all times.



SIGNAL REACHES ANTENNA AT FULL STRENGTH WITH NO OBSTRUCTIONS.

Figure 14
Keeping Site Clear to Antenna

Attempting to operate the sound enhancement system through or around walls, ceilings, metal objects, etc., will reduce system range and performance.

SIGNAL REFLECTION OFF A METAL OBSTRUCTION CAUSES REDUCED SIGNAL AND "MULTIPATH"

Figure 15
Operating Through Obstruction

DO NOT - Mount the transmitter on, or next to, metal such as beams, walls with metal studs, etc. This will "detune" the transmitter antenna which can result in loss of signal at the receiver.

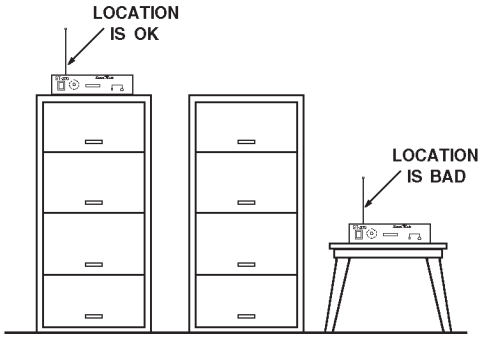


Figure 16
Transmitter Antenna Placement

TROUBLESHOOTING

Reread the sections of this manual to make sure you have completed system set-up properly.

If you are unable to solve the problem, contact the dealer from whom you purchased the system for assistance.

PROBLEM	SOLUTION
DISTORTION - System's audio quality seems distorted at medium to high input levels.	Reduce audio gain on transmitter by adjusting the gain controls as suggested on page 11.
HISS - System seems to produce a "hiss which is undesirable.	Check the gain settings on the transmitter and the volume control on the receiver. They may be too low.
DROPOUTS - When moving around the area in which you will be using the system there seem to be locations where the signal "swooshes" or completely disappears.	Make sure the antenna is connected and fully extended. Follow the location suggestions on pages 15 and 16 Change the location of the transmitter antenna or avoid the bad area with the receivers.
INTERFERENCE - System picks up signals other than wireless transmitter.	Make sure the Telex TT-44 is turned on - this will usually eliminate the interference signal. If problem persist with the transmitter "ON", try changing to another channel.
REDUCED DISTANCE - System doesn't operate as far as it once did. System doesn't operate as well as you think it should.	Receiver Battery is possibly in need of replacement. Transmitter antenna possibly located incorrectly. Receiver not tuned properly.
BATTERIES DON'T LAST	If using "throw away" batteries make sure they are alkaline. If using nickel-cadmium batteries make sure they were fully charged when you are using them and fully drained when you are done before recharging them.
HUM - Audio System emits hum or Buzz thru speakers and sound enhancement receiver.	Locate Transmitter away from the audio equipment.

CUSTOMER SERVICE INFORMATION

If your receiver or transmitter should need servicing under the warranty, please contact:

Customer Service Department
TELEX COMMUNICATIONS, INC.
8601 East Cornhusker Highway,
P.O. Box 5579,
Lincoln, Nebraska 68505-5579 U.S.A.
Phone: (402) 467-5321 or 465-7021

All claims of defect or shortage should be sent to the above address. When returning items for service, you must provide date and proof of purchase, such as a copy of the sales receipt, to establish warranty. A letter should be included outlining all symptoms and claimed defects. Information on how the equipment was installed and used is very helpful. Please include your phone number and return address in case our service technicians need to contact you.

Units that have been modified cannot be accepted for repair.

Include all information requested by the Service Center. Then pack the unit as follows:

Check the unit to see that all parts and screws are in place. Then wrap it in heavy paper or put it in a plastic bag. If the original carton is not available, place the unit in a strong carton that is at least six inches bigger in all three dimensions than the unit. Fill the carton equally around the unit with resilient packing material (shredded paper, foam, etc.). Seal it with gummed paper tape, tie it with a strong cord, and ship it by prepaid express, United Parcel Service or insured parcel post to the Telex Service Department.

It is very important that the shipment be well-packed and fully insured. Damage claims must be settled between you and the carrier and this can delay repair and return of the unit to you.

Telex reserves the right to make changes in design and improvement on its product without assuming any obligation to install the same on any of its products previously manufactured. Further Telex reserves the right to ship new and/or improved products which are similar to the form, fit and function of products originally ordered.

FCC INFORMATION

The Telex TT-44 Transmitter is authorized under part 74 of the FCC Regulations. The Telex TR-34 Receiver is authorized under Part 15 of the FCC Regulations. Changes or modifications to this equipment could void the user's authority to operate the equipment.

ACCESSORIES

Rack Mounting Kit
RM-S For mounting one TT-44 71081-001
RM-D For mounting two TT-44's 71081-002

Earphone (For TR-34))
(single) 59840-005

Earphone (For TR-34)
(dual) 59840-007

Headphone (For TR-34))
(lightweight) 59840-003

Headphone
(Full Cushion) 63510-021

Button Receiver
(8-ohm) 63699-006

Button Receiver Cord
(30 inch) 35796-011

NL-4
Induction Coil Neckloop 71120-001

Antenna, Telescoping
For TT-44 877960-1

TELEX®

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PN 801564-1 April 2002 Made in U.S.A.