

## TELEX

### Owners Manual/Operating Instructions Telex Model UT-12 VHF Transmitter

#### General.....

The Telex UT-12 is a Hand Held "Plug-on" Transmitter operating within the UHF FCC Part 74H frequency range.

The transmitter is especially suited for use wherever a small, reliable wireless microphone is required. Provisions are made to accommodate either Electret or Dynamic microphones. The microphone connector is a standard XLR type.

Please note that each transmitter requires a matching receiver on the same operating frequency. Standard "preferred" frequencies and systems are available from the catalog listing.

The Telex UT-12 Transmitter features single channel crystal control for the ultimate stability and clarity as well as economy.

#### SETUP:

Before setting up the transmitter, it is necessary to set up the receiver or at least check the receiver operation if the receiver has been installed previously.

Place the receiver in an area with the antennas in clear view of the transmitter operating area. Connect the receiver audio output to the audio input of the mixer, amplifier or other device. Turn the input to these items down at this point.

Apply power to the receiver. Note that there should be no "Carrier" or TX light on at the receiver at this time. If there is a light on, this indicates RF interference to the channel and the interference must be eliminated or you should consider changing the channel frequency. If the interference is not severe, suitable operation can sometimes be made possible by adjusting the squelch control until the light goes off.

If the light cannot be made to go off by adjusting the squelch control, then the channel should be abandoned.

Set the receiver audio output control to its midpoint (50 % of rotation). Set the audio device volume control to its normal setting.

Open the transmitter battery door and install a fresh 9 volt alkaline battery. Place the transmitter and microphone in the position desired and turn on the transmitter power switch. The battery light should flash once and go off. The carrier light at the receiver should now be on. Turn on the Audio switch on the transmitter. You are now ready to use the microphone. Talk into the microphone in your normal tone and volume. If the audio to the mixer or amplifier sounds distorted or clipped, try reducing the input volume of the mixer or amplifier, or turn the volume down on the receiver. If the audio is still distorted, adjust the transmitter microphone gain control located on the bottom of the transmitter.

## REGULATIONS

The Telex Model UT-12 is Type Accepted under United States Federal Communications Part 74H. Licensing of Telex equipment is the users responsibility and licensibility depends upon the users classification and the frequency selected. Telex strongly urges the user to contact the appropriate telecommunications authority before ordering frequencies other than factory preset frequencies.

### CAUTION:

Changes or modifications made by the user could void the users authority to use the equipment.

UT-12 ALIGNMENT PROCEDURE

1. Preset all trimmer capacitors to half meshed(slots pointing to solder pads). Adjust VR1 maximum clockwise.
2. Feed audio in, from E2 (hot) to E1 (ground). Terminal E2 has bias voltage on it so a blocking capacitor will be required. Set the audio level at 7.75 mV at 1 kHz.
3. Make the RF output connection from J102 to ground.
4. Apply 9VDC to the battery contacts and turn the power switch on.
5. Adjust VC103 through VC110 for maximum supply current.
6. Adjust VC111 and VC112 for maximum RF power.
7. Adjust VC102(coarse) and VC101(fine) for correct center frequency.
8. Turn the mute switch on and adjust VR1 for 40 kHz deviation.

## **FCC Information**

Theory of operation

Telex Model UT-12 Transmitter

### **Audio Section:**

I.C. U2B-7 provides regulated voltages to all stages, including microphone bias at E3.

Audio from the microphone capsule enters at terminal E2 and is routed to the microphone pre-amplifier at U1B-5. The gain of U1B is controlled by VR1. Amplified audio from U1B-7 is routed through C9 and R13 to U2A-12. Pre-emphasis is provided by C10 in conjunction with R14. U2A is configured as a 2:1 compressor and its output appears at U2A-10. The amplified, compressed audio appears at the vari-cap modulators D101/102.

### **RF Section:**

Crystal Y101, in conjunction with transistor Q101/Q102 oscillate at the transmitter operating frequency divided by 36 (Fo36). Vari-caps D101/D102 are the FM modulators and VC101/VC102 are used to set the transmitter operating frequency. The output of Q102 is tuned to the 3<sup>rd</sup> harmonic of Y101. L103/L104 and their components provide selectivity at the 3<sup>rd</sup> harmonic frequency. The X3 frequency is applied to transistor Q104 that functions as a frequency Doubler. L105/L106 and their components provide selectivity at the 6<sup>th</sup> harmonic of Y101. The X6 frequency is applied to transistor Q105, that operates as a Tripler. L107/L108 provide selectivity at the operating frequency and match the RF power to the final amplifier Q106. L111/L112 and their components provide additional selectivity at the operating frequency and match the output power to the low pass filter L113/C122 and from there, to the integral antenna. The antenna consists of the audio board and RF board ground foils that function as half of a dipole. The remaining half of the dipole is the microphone handle. L1,2 and 3 provide continuity for audio and DC and isolates the dipole halves for RF.

### **Miscellaneous:**

Switch S1 is the Power on/off switch and S2 is the Audio Mute switch. U1A is the low battery detector and lights DS1 if the battery is low.