FCC Information
Theory of operation
Telex Model HTU Transmitter

Audio Section:

I.C. U2B-7 provides regulated voltages to all stages, including microphone bias at E1.

Audio from the microphone capsule enters at terminal E3 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 C8 and R11 to U2A-12. Pre-emphasis is provided by C9 in conjunction with R12 . U2A is configured as a 2:1 compressor and its output appears at U2A-10. The amplified, compressed audio appears at the vari-cap modulator D6.

RF Section:

Crystal Y1, in conjunction with transistor Q1 oscillate at the transmitter operating frequency divided by 36 (Fo36). Vari-cap D6 is the FM modulator and inductor L5 is used to set the transmitter operating frequency. Diodes D2 through D5 are used to temperature compensate the oscillator circuit frequency drift with temperature. The output of Q1 is tuned to the 3rd harmonic of Y1. L6, L7 and their components provide selectivity at the 3rd harmonic frequency. The X3 frequency is applied to transistor Q2 that functions as a frequency tripler. L8 L9 and their components provide selectivity at the 9th harmonic of Y1. The X9 frequency is applied to transistor Q3, that operates as a quadrupler. L10, and L11 provide selectivity at the operating frequency and match the RF power to the final amplifier Q4. L12, l13 and their components provide additional selectivity at the operating frequency and match the output power to the low pass filter L14/C39 and from there, to the integral antenna. The antenna consists of the audio board and RF board ground foils that function as a dipole. L15 provides 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 extinguishes DS1 if the battery is low.