
Theory of Operation

Audio Amplifier and Compressor

The audio signal is amplified by $\frac{1}{2}$ of IC101 and the gain is set by adjusting R103. A high pass filter (C106 and R106) is used for pre-emphasis on the audio signal. IC102 compresses the audio signal's dynamic range to improve the system S/N ratio. The audio output is routed to the RF PCB to modulate the transmitter. IC102 is also utilized as a low battery voltage detector to illuminate the LOW BATT LED (D101) when the battery is weak and to momentarily flash D101 when the power is turned on.

Oscillator and Modulator

Q201 and Y201, Y202, Y023 are used to form a crystal oscillator and a tuning coil, L201, is used to select the desired oscillator frequency. Frequency modulation is provided by varactor diode D201 when the audio signal is applied to pin 6 of J201.

Frequency Doubler

The oscillator frequency from Q201 is doubled at Q202 and then doubled again at Q203 to become the transmitter's carrier frequency.

RF Power Amplifier and Antenna

Q204 is used as the tuned power amplifier to drive the antenna matching circuits L211, L212, C220, C217, C221.