CIRCUIT DESCRIPTION FOR MODEL 616 (EVF-0616-USA)

1. TRANSMITTER SECTION (Baby Unit)

RF Frequency Oscillator

L3, L4, D4, C15 and built in IC U3 circuit functions as a VCO oscillator. The frequency is determining by L3, L4, D4 and C15. Y1 (or Y2) function as the reference oscillation which will compare with the divided frequency of VCO oscillation in PLL circuit IC U3 to obtain the stability frequency.

RF Amplifier and Power Amplifier

RF pre-amplifier and power driver is located built in IC U3. Q1 is the RF power amplifier.

Circuits for Suppression of Spurious Radiation

RF power output from IC U3 is fed to Q1. The output of Q1 coupled to the antenna through triple 'LC' and 'PI' network (C3-C5, C1, C2, L5, L6) which serves both to match and reduce harmonic to adequate level. The RF maximum power is 500mV/m at 3meter.

Circuits for Limiting Power

During alignment, R39 is selected to provide about 500mV/m output power.

Modulation and Response

U1A-U1B is MIC amplifier. The amplified audio signal from pin1 of U1A output is fed to D2 for making F3E type modulation. C29, C27 and R15 are used to determine the transmit response.

Circuit for limiting Modulation

Q2 and Q3 give the auto MIC control circuit. When the modulating voltage is excessive, the DC voltage will be obtained on the emitter of Q2 that turns on Q3. This feedback system keeps the maximum modulation.

Battery Low detection and Indication

LED1 functions as the power indicator. When the power goes to ON by switch SW3, the LED1 light. Q8, R45-R47, Q5 and U4 function as the battery low detection circuit. When the battery is down to some level, Q5 goes to OFF, the oscillation Q4-Q5 will make LED1 flashing.

Power Supply

U2 is a regulator that the out DC voltage is 5.0V. This stable output is used to feed to mic amplifier circuit, U3 and RF amplifier.