

Operation Description of R/C Spymobile controller

The R/C Spymobile controller contains a transmitter operating at 49.890 MHz (3 times of 16.630 MHz) and a receiver operating at 26.690 MHz. The transmitter is controlled by a 16.630 MHz crystal. The receiver is controlled by a 26.690 MHz crystal. The controller is powered by a 9V battery. There are two joysticks, one push button, a headphone jack and a volume control. There are two joysticks, one push button and a headphone jack. It will transmit signals to the Spymobile vehicle when the forward/backward joystick is moved. The controller can also receive audio signal through receiver circuit from the Spymobile vehicle. If the controller has been idle for 10 minutes, it will activate a “Bi-Bi” sound followed by automatic power off. The red LED indicator will also turn off.

Referring to the circuit design, the circuit description is listed as follows:

- U4 and associated circuit act as the encoder
- Y2, Q3, Q5, C11, L7, C45, C8, T1 and associated circuit act as the oscillator for the transmitter and as 3 times frequency multiplier
- Q7, Q8, C13 and associated circuit act as automatic power control
- U3 and associated circuit act as power control
- Q1, C1, C3, C7, C10, L6 and associated circuit act as RF amplifier
- L1, L2, L4, L5, the antenna coil, C4, C5, C43 and associated circuit act as the antenna matching network
- Q3 and associated circuit act as the audio amplifier
- L7, C41, D1 and associated circuit modulate the carrier signal
- Y1, C25, U2, C24, L8, C26 and associated circuit act as the oscillator for the receiver
- Q4, C36, C37, C38, L9, T2 and associated circuit act as the frequency modulation amplifier
- U1 and associated circuit act as the audio signal amplifier