

## **TERRAIN TWISTER B5120 49.860 MHz TRANSMITTER**

The EUT is a full function radio controlled toy car. It operates on 7.2 volts rechargeable NIMH pack battery and is designed to operate on a single fixed frequency in the 49.82-49.90 MHz band. See the attached block diagram and schematic.

The modulated RF signal from the transmitter induces an electrical signal into the car's permanently attached metal external antenna. The electrical signal is selectively amplified by a super regenerative input circuit (Q1, T1, L2, C2-C5).

An amplifier consist of the transistors Q2, Q3 & it's associated components.

The amplified signal is then input into an integrated circuit (U1) where the signal is decoded. Six pairs of digital outputs from the integrated circuit (U1) drives three full H-bridge drive circuit (Q5, Q6, Q8, Q9, Q12, Q13, Q15, Q17, Q19, Q20, Q22, Q23) for controlling the direction of three drive motors.

Two micro switches SW2, SW3 feedback the movement position information of steering motor (M3), When release the related key on transmitter, the steering motor can move to center. (auto-center)

The battery voltage is detected by a Low voltage protection circuit (R24~R27, C28, C29, U2). The voltage of U2's pin1 will turn to low level (from high level) when the battery voltage drop to preset low level. When the low level at U2's pin 1 maintain preset time, U1 will cut off its output until re-power off/on.

The operating current of motors is detected by a over current protection circuit (R14~R23, C22~C27, R46, R56, R66, U2). The voltage of U2's pin2 (or pin13, pin14) will turn to low level (from high level) when the operating current is rising up to preset value. When the low level at U2's pin2 (or pin13, pin14) maintain preset time, U1 will cut off its output until retoggle the transmitter.

All tuning and verifications are performed by the manufacturer and there are no adjustments that can be made by the user. No external ground is required or used with this receiver.