

N.S.E.C.T. J9863

49.860MHz RECEIVER OPERATIONAL DESCRIPTION

The N.S.E.C.T is a full function radio control toy **N.S.E.C.T.** . It operates a single fixed frequency that the bandwidth is between 48.82MHz to 49.90MHz . Please refer to the block diagram and the schematic.

The modulated RF signal which transmits from the transmitter including the code signal is received by the **N.S.E.C.T.** internal permanently antenna. The electrical signal is amplified selectively by a super regenerative circuit (Q1, C1~C5, T1, L1, L3)

An amplifier circuit which consist of the transistor Q2, Q3 and other associated components (resistor and capacitance) amplify the code signal.

The amplified signal goes into the input pin of the integrated circuit(U1) which decode the signal. One pair of the U1 pins (P52, P51) output the signal to drive a full H-bridge drive circuit (Q13~Q18),which is control the Raise/Lower Gun and Fire Gun Motor (M3).

Another paire of output pins (P57, P60) output signal to drive a full H-bridge driving circuit which control the open/close claws motor (M4) (Q19, Q21, Q23~Q26)

Other two pairs of output pins (P53, P54 and P55, P56) have the same function of P57 and P60, but the driving circuit uses Relays to replace the power transistors.

There are three switches SW1, SW2, SW3,which are extreme position detectors. When the **N.S.E.C.T.**'s claws is open fully, SW1 closed, Then U1 stop output the signal of P57, to stop M4. When the player raise the **N.S.E.C.T.**'s gun manually by the transmitter, if the gun on the position is ready to Fire, SW2 closed. If the fire command received, U1 output the signal of P52 to drive M3. If the gun was lowered at the lowest position, SW3 closed, U1 stop outputing the signal of P51 to stop M3.

The battery voltage is detected by a low voltage protection circuit (R60~R64, C46, C47, U2). The voltage on the pin1 of U2 will turn to low level from high level when the battery voltage drop lower than the value of preset protection voltage. And the eyes become red and flare slowly. The **N.S.E.C.T.** has no function unless reset the power.

The operating current of M1 or M2 is detected by a over current protection circuit (R65~R71, C48~C51, U2). The voltage on pin2 or pin14 of U2 will turn to low level from high level when the value of M1 or M2 operating current is bigger than the preset value. If the low level at pin2 or pin14 of U2 keep as long as the preset time, U1 will cut off the output signal to stop all motors until the **N.S.E.C.T.** has waited for the preset time. If that happen three times, the **N.S.E.C.T.** has no function unless reset it.

Two eyes are yellow when power on, if there is no transmitter was power on in the received range of the **N.S.E.C.T.** , they flare slowly. When the gun is ready to fire, two eyes become red.

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