RECEIVER OPERATIONAL DESCRIPTION

The Sea Arrow R/C is a full function radio controlled toy boat . It is powered by a 6 volt rechargeable nicad battery pack or by four 1.5 volt alkaline AA batteries. It is designed to operate on a single fixed frequency in the 49.82 – 49.90 MHz band. See the attached schematic.

The modulated RF signal from the transmitter induces an electrical signal into the boat's 13 inch long permanently attached whip antenna . The electrical signal is selectively amplified by a super regenerative input circuit (Q1,L3,C3). The signal is then capacitively coupled (via C12) to an integrated circuit (U1) were the signal is further amplified and decoded. A pair of digital outputs from U1 drive a full H-bridge motor drive circuit (Q6,Q7,Q9,Q10) for controlling the speed and rotational direction of the drive motor.

Steering is accomplished by a closed loop three position servo system. A second set of digital outputs from U1, combined with position feedback signals from a position sensor (P1-P4) and discrete logic (Q14, Q15, Q17) , drive another full H-bridge circuit (Q4,Q5,Q12,Q13) to control the steering motor.

A self resetting fuse (PTC) is included in the positive supply line for overload protection.

All 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.