

RC HYDRO RACER 49 MHZ RECEIVER OPERATIONAL DESCRIPTION

The Hydro Racer R/C is a full function radio controlled toy boat . It operates on 3 volts supplied by two 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 block diagram and schematic.

The modulated RF signal from the transmitter induces an electrical signal into the boat's 11 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) where the signal is further amplified and decoded. Two pair of digital outputs from U1 drive two full H-bridge motor drive circuits (Q6,Q7,Q9,Q10 and Q4,Q5,Q12,Q13) for controlling the speed and rotational direction of the two drive motors. Steering is accomplished by changing the speed or rotational direction of one motor relative to the other.

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.