

## RC HYDRO RACER 49 MHZ TRANSMITTER OPERATIONAL DESCRIPTION

The Hydro Racer R/C transmitter is a low powered, hand held unit for controlling the movement of a toy boat. The transmitter is powered by a 9 volt battery. 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.

Switch inputs trigger an integrated circuit ( TX2 ) which produces the digital control signals which will modulate the carrier signal. The carrier signal is generated by a crystal oscillator/ amplifier circuit comprised of a 49.860 MHz crystal ( X1 ) and a pnp transistor ( Q2 ). The RF carrier signal is modulated by the digital control signal at the base of an RF amplifier stage ( Q1 ). The modulated output of the RF amplifier stage is capacitively coupled ( via C6 ) to the antenna through a “ pi “ matching network comprised of C7, L4 and C8. The whip antenna is 12 inches long and permanently attached.

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 transmitter.