

Custom Step-by-Step Victoria R/C Sailing Yachts by OMSA
revision June 4, 2007, Chapter F

Okanagan Model Sailboat Association, Kelowna, B.C. Canada



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Step F1: Radio Considerations.

Radio System:

Our OMSA group tends to favour the Futaba 2 channel radio systems for a number of reasons. Their radios are inexpensive and is readily available. Also, the battery connections in the radio transmitter have shown themselves to be more reliable than at least one other common and inexpensive unit on the market.

Whether you purchase a Futaba transmitter/receiver package on the old 27 mhz band or on the newer 75 mhz band does not seem to be relevant.

NEW: The recently released Spektrum DX6 radio system appears to be the radio system of choice for those who can justify having the very best and most reliable radio system that we have yet tested. This revolutionary new radio system employs dual-link digital communication to the boat on the 2.4 Ghz band. See our review of this system at: [SpektrumDX6](#)

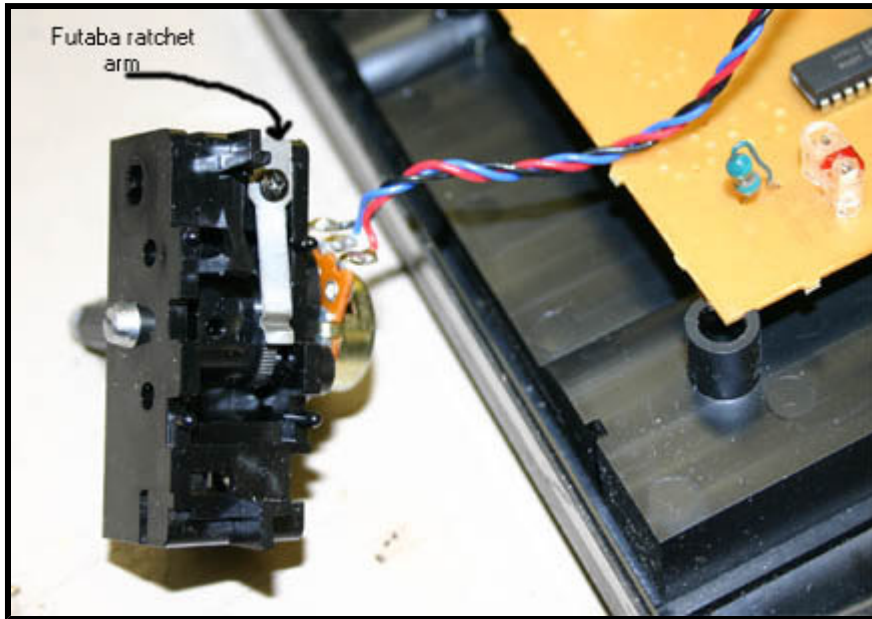
Radio Transmitter:

Regardless of what conventional radio you choose, however, you will likely have to open the case of the transmitter and remove the self-centering spring on the sail servo control as most of the transmitters available seem to be configured for model cars and trucks. On the Futaba 2ER this is very easy with the removal of the transmitter crystal and the power on-off slider from the front of the transmitter and then removing the four Philips head screws from the back of the transmitter. The two halves of the case then separate and the left controller can be lifted out to remove the small coil spring from the centering mechanism.

The Futaba 2DR radio transmitter is almost as easy to modify but can be a bit tricky to reassemble the case after removing the offending return spring on the sail control. Pay attention to the clear plastic piece that channels the LED light from the circuit board up to the front case.

Radio Controls:

The sail servo control now doesn't have any tension on it which doesn't feel very appropriate, but if you look at the rear of the control mechanism you can see where an optional "ratchet arm" made by Futaba can be mounted to give some friction to the control arm. Futaba does market this ratchet arm, but it may be difficult to obtain from your dealer.



We usually make up a bunch of these arms ourselves, using pieces of spring steel from an old tape measure with a small piece of brass rod soldered on to the spring steel at the right location to engage the plastic teeth on the control.

The little arm is then mounted on the control with a very small sheet metal screw into the hole designed for this purpose. Get a production line going and you can fix up your entire group in a hour or so.

Re-assemble the transmitter case in the reverse order.

Receiver Antennae:

Although some of our boat builders have decent success at short range with allowing the receiver antennae to lie inside the Victoria hull, most of us have opted for an **external, vertical receiver antennae**. This allows for a greater range and more reliable radio operation. A few options are open to the builder in this regard.

1: The stock receiver antennae can be run through a hole in the deck and **secured, but insulated from the mast**. This works ok but doesn't look very good and it also adds some unnecessary "windage" to the boat.

2: Provided that the back-stay is made out of the nylon-coated stainless "Tiger Wire" and is insulated from the mast-head crane, then the **tag end of the backstay** can be routed inside the hull and connected to a shortened length of the receiver antennae. ([See Step-by-Step #D4](#)).

For the common 27 mhz or 75 mhz radio systems, This second option is our usual choice for our boats and produces very reliable reception even at great distances.

The nylon coating on the tiger wire must of course be stripped off for the splice between the backstay tag and the original radio wire. Make any connections as reliable as you can using a short piece of aluminum or brass tubing as a crimp and your Victoria should be controllable up to a range of 1000 feet. (which is further than yours-truly can see)

Battery considerations:

It is our experience that although inexpensive rechargeable alkaline AA batteries (RAM technology) can work very successfully in the transmitter, they do require a full overnight recharge after every use. Another rechargeable battery that works well in the transmitter is a set of Nickel Metal Hydride batteries that can be obtained for as little as \$20 for a set of eight including a recharger. Of course, standard inexpensive alkalines (as little as \$13.00 for a package of 40 or 50 batteries) work very well in the transmitter.

Inside the Victoria, however, the current demands are quite high when sailing in a good breeze as the sail-servo is called upon to pull in the sails against the force of the wind. Under these conditions, if rechargeable batteries are not at full charge, the receiver might not be able to control the sails.

Also, if the battery voltage drops low enough when attempting to pull in the sails, you may experience complete loss of rudder control. So, either keep the Victoria boat batteries at full charge by recharging after every use, or stick with a fresh set of standard alkaline batteries in the boat.

Ounce for ounce, standard alkalines can deliver more power than most rechargeable batteries. The exception to this is the lithium-ion battery which is not yet readily available to us at an affordable price.

Another successful solution in the Victoria is to use a pack of five rechargeable nickel metal hydride batteries, rather than just four of them. This last option can be used without any penalty to bring your Victoria up to the minimum weight specification of 4.50 pounds.

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