

## KYOSHO'S WAVEMASTER AND SPEED VEE GET SPEED TREATMENT

By [fastelectrics.com](http://fastelectrics.com)

### A little effort can transform a Wavemaster and Speed Vee into water rockets!

This article is based around Lightning Marines 700 adaptor unit for the Kyosho Dolphin Outboard leg. This simple piece of equipment lets you use a 700BB and 12 cells on the Dolphin and transforms the Kyosho Wavemaster and Speed Vee.



*The outboard adaptor bolts on without modification.  
The 700BB fits like a glove.*

We didn't use bearings but they do help speed. They must be washed and oil soaked after each days use or they rust quickly (bearing size in 8\*5\*2.5mm).

### Cells

Twelve cells piggyback into the rear of the battery box to place the CoG 6.5" from the transom (27% of hull length). Using CP1700's provides additional flexibility with cell placement. With 3300's 7-8 minute runtimes are possible.

With the 700 you can go to 16 cells. In the Speed Vee any cell is ok. However in the Wavemaster a low freeboard means you have to use light cells like CP1700s or 1700 or 1950AUP's. Sub-C's are too heavy and the hull swamps easily. If you use extra cells for each hull go down to an Octura X442 or Graupner K42 prop

**Speed control:** With 12 times the standard torque a micro switch acts like a detonator. Unless you throw start, wheel stands and flips are unavoidable. We used an RC-Hydros sport BEC controller – a purpose built marine controller featuring good radio reception and waterproofing.

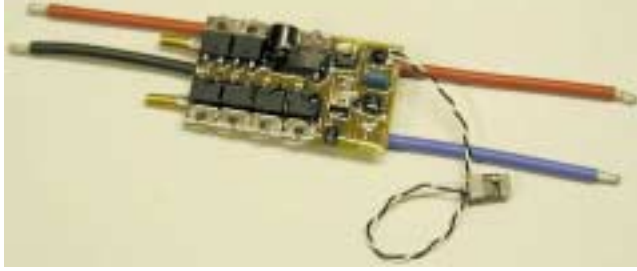
Fitting a Lightning outboard adaptor is a bolt of affair no extra holes or changes are required. The spacers set the motor at the correct height for an Octura 5mm-1.30 flex hex connector or standard grub screw style connectors.

The 700BB 8.4v is a very torquy motor which turns 1540 rpm/v – this is an excellent combination for an outboard leg where drag is high due to the sharp bend in the drive cable. Because the motor is exposed not cooling is necessary. Simple and neat.

Set the stub shaft so it runs ¼" shallower than the sponson (at the centreline of the drive dog) and 1-2 degrees negative angle (rear higher than front). Use an X642 for best performance

The extra power means you need to keep your flex shaft in top shape. It is easily removed after each day: undo the two screws into the bottom of the leg, slip the retaining ring off the stub and pull the stub and cable out the back of the boat.

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*The RC-Hydros SC3 Sport BEC controller is a great upgrade and cheaper than even the mechanical controllers.*

The RC-Hydros controller is a major improvement being cheaper, smoother and lighter than a mechanical controller like the Hughey and it eliminates the weight of a receiver packer.

Best of all the waterproofing allows it to run underwater. That is a lot of money saved the first time it gets wet.

**Steering:** The high speeds now reached place high torque loadings on the leg..

A stock servo will be fine although a metal geared servo will be a worthwhile investment. Twin push rods are recommended

**Waterproofing:** The Wavemaster's leaky radio box means radio and servo are prone to water damage.

In the Wavemaster and Speed Vee wrap you receiver in a plastic bag with tissues tie tightly and remove after each days running. For the servo use Tarzans grip or Shoe Goo to seal all the seams.

Or you can do what I did and build a new balsa radio box. The box was silconed in place. A shirt box made the lid. An aluminum tube epoxied to the box holds the aerial



**The Hull:** A sharper, straighter stiffer hull significantly improves efficiency and handling to make the most of the extra power.

**For the Wavemaster**

What is most important is that a ride plate, a strip of abs about 1" -25mm wide, is glued along the length of each sponson, so it overhangs the inside and trailing edges of the sponsons by a couple of mm or 1/16".

This helps the water break away from the hull and increases grip in turns

Spray rails and strakes create lift and reduce drag. A small L-shaped extrusion sharpens the inside sponson edges. A 1/4" L-shaped extrusion makes an inverted spray rail along the outside of the sponsons.



*The transom was stiffened, ride surfaces sharpened and spray rails added*

**For the Speed Vee** stiffen the inside of the planning surface with 1/8" balsa glued into the bottom of the hull and sharpen the rear edge of the planning surface at the transom using body filler

**Extra stuff.** The Wavemaster is pretty bendy. If you have the time, stiffen it up. This is easily fixed at the rear. The transom needs a sheet of 1/8" ply super glued or CA'd to it to help with the even the stock leg

Once ply stiffener is added, run some quick setting araldite or epoxy filler across the top of the seam across the rear of the boat to stiffen it.

The front of the hull is very bendy. In the bottom front of the radio box cut some holes in the sides to take some carbon fiber arrow shaft or tube or dowel. Glue this across the hull so it touches the outside of the sponsons and the bottom of the tub. Use a generous dollop of epoxy to hold them in place. Big difference in choppy water

**What we used:**

Motor	Graupner 700BB 8.4	\$48
Coupler:	Octura Hex Flex	\$15
Propeller:	Octura 642	\$10
ESC	RC Hydros SC3 sport BEC	\$75



That's a grand total of \$US148 or \$AUD 221 for all the parts. The kit is exclusive to fastelectrics.com and converts a couple fo pretty lame model into a fast and reliable contenders.

***This pic was taken when it was running only 7 cells [check the 12 cell video here!!!!](#)***

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