

# AMYA Soling 1 Meter™ Class Quarterly Newsletter

March 2023



## AMYA Soling 1 Meter™ Class Secretary Notes

Update for AMYA Soling 1 Meter™ Fleet Contacts

March 2, 2023

From Mike Wyatt, Soling 1 Meter Class Secretary

As we move into Spring 2023, there is some advance information, and some recommendations and ideas I would like to pass on.

Club Schedules and stuff you SHOULD do.

1. **Each Club in the AMYA is tasked by the AMYA with hosting ONE “regatta” each year.**

Of course, Regional Championship and National Championship regattas are also sorely needed within our Class. Now, that does **NOT** necessarily mean a “traveling regatta” where sailors come in from all across the fruited plain. It does mean a “regatta”, as in a **scored day or longer of special races**. So your “local regatta” can be just “YOUR guys”, racing on a special day or a weekend, where scores are kept and some kind of awards are given. These will increase the fun for your sailors!!

Here are some ideas:

- Pick a Saturday, Sunday or other day that is **not** a “regular sailing day”. Your regatta should be special and different than just another club racing day.
- **Send out a Simplified NOR, notification SOON and early.** Example at the end of this document.
- **Pick a name, date or theme that is catchy**, and makes the event special. One club has an annual one day “*Beanee Weenee*” regatta where the prize is (you guessed it) a can of Beenie Weenies mounted on a wooden pedestal with brass plates - a perpetual award that gets passed from winner to winner. The can of beans and hot dogs is now about 20 years old, and never opened. Yuck.



- **How about** *April Flowers* regatta; *Halloween Regatta*; *Summer Solstice Spectacular*, *May Mayhem*, *Kentucky Derby Regatta* (first Saturday in May, then everyone meets at a home to watch the Derby and drink mint juleps); *Couples Regatta* (wives and husbands or significant others race as a team), regatta to benefit a charity. *Back Asswards Regatta*, where the racing rules are all backwards- port over starboard, windward over leeward, inside boat stays clear, etc.; *Team Regatta*, where

2. **A set of Class Rules motions** has been submitted for the September '23 Ballot. Voting will take place during the month of September, for Rules changes to take effect October 1.

**So I ask for your vote of YES.** For all of them. Feel free to send these out to your club:

Summary:

- Motion #1 **Leaves the Victor hull Class Rule (bulkheads optional etc.) as is.** Adds a requirement that the new manufacturer's (3DRC and Vac-U-Boat) interior support structures be built as in the instructions. Adds to the one design character of the Soling.
- Motion #2 Clarifies (**does not change**) the measurement point of the jib pivot jib boom.
- Motion #3 **Returns** the #8 lead shot ballast (as was in the original Victor Manual) to say #8 or #9 shot is acceptable. #8 shot is generally easier to find in the market.
- Motion #4 One could read the current Rule as "solid wire" is not approved for rigging. Of course, solid stainless wire WAS what Victor included in their Kit, is still fine, and the revised Rule states that clearly.
- Motion #5 this one summarizes several current Class Rules relative to the rig.
  - **Defines vertical measurements** for the mainsail height, and jib connection to the mast are taken from the deck, with the rig

the back half of the fleet (the Silver Fleet) chooses a top sailor as a team partner. *Chili Challenge* - combine a regatta and chili cook off, *Night Owl Regatta* sail with only car headlights after dark, or mount LED Xmas lights on your boats.

- **Have a Club Challenge Regatta** where your club visits a club (say an hour-two away), alternating each year. Scores of the top four finishers in each Club are added together to pick the winning club.
- Then always **have a "dish to share" picnic at the end** where everybody including wives gets together a couple of hours for fun after the sailing.

**Use your imagination. Capture THEIR imagination!!!**

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in place ready for sailing. The measurements are the same; this is a clarification.

- **States** clearly that **TWO sets of shrouds/ stays and a set of spreaders are required.**
- **Clarifies what "multiple diamond rigging" IS** (again as was in the original Victor Kit), and what "double shroud rig" means.
- Motion #6 **"Tabling" on the sails:** reinforcing to the leech of the main and/or jib has been approved for a long time; it theoretically increases the life of a sail. But the current allowable maximum width of tabling requires the use of tape that is not readily available. The change makes the slightly wider, more easily available tape acceptable.
- Motion: #7 **NEW Class Rule 6.5:** limits use of substitute or replacement boats, sails and rigs within a competition: Makes changing boats, sails or rigs not allowed over a single competitive event (like a regatta). Applies to a regatta (up to 5 days in length, NOT to a Series of 6 days or

greater). You sail the equipment you start with, through the whole regatta. Otherwise, competitors who do not have additional boats, sails and rigs available would be at a disadvantage. A sailmaker could have 2, 3 - 10! different rigs for different wind conditions!

**Again, I ask for your vote of YES.** For all of them, to be effective October 1, 2023.  
That's it. Have a great spring!!  
Mike Wyatt  
AMYA Soling 1 Meter Class Secretary

\* [Regatta Name]

[enter dates here]

[Enter street address here] \*

[Enter city and state here] \*

Sponsored by [Your Club Name] Club [#000]

### NOTICE OF RACE

1. **\*Rules:** The regatta will be governed by the Racing Rules of Sailing, as modified by Appendix E regarding radio sailing, the Sailing Instructions, the [Class name] Class Rules and other attached documents. Measurement of boats [will or will not] be conducted (see note below)

OR

[no measurement will take place.]

2. **\*Eligibility:** The regatta is open to entrants sailing boats of the [Class name] Class whose skippers are current members of the AMYA, and where the boat has met measurement. [or no measurement will take place.]
3. **\*Regatta Registration:** Notify \_\_\_\_\_ at \_\_\_\_\_@.net or (1230 456-7890 of your intent to race.
4. **\*Registration fee** [\$0 .00] [is payable in advance with Registration, or will be collected on site at time of check-in].
5. **\* Schedule:** (regatta organizers need to state the date, time, and place to participate in the regatta. The times and dates need to be in the NOR for the first and last official required racing event, and for social events where attendance is NOT required such as a "welcome picnic", "practice session", or other non-competitive activity.)
6. **Check-in:** 00:00 [AM or PM] to 00:00 [AM or PM] on (day and date) at (enter location for check-in)
7. **Skippers Meeting** begins at [time], Daily [Heats] [Races] begin at [00:00]
  - a. No Race [Heat] will be started after [00:00] on [insert date and planned time of last Race or Heat.]
8. **\*Additional Information:** Please call [phone number] or e-mail [e-mail address].

## Soling 1 Meter™ Newsletter

### Second Edition

#### Contact information:

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Phone: 303 741 8647

Welcome to the second edition of the Soling 1-Meter™ Newsletter. Based on feedback that Mike Wyatt and I received on the fall edition of the newsletter, it was received very well by the Class.

I view the newsletter as a joint venture between the Class and myself as the editor (my responsibility being compiling the newsletter based on articles submitted by the Class membership). The future success of this Class newsletter will be possible with continued help from members providing informative articles for fellow sailors on topics that relate to Soling sailing. I thank you in advance for your participation regarding future editions.

This edition focuses on technical information regarding Soling 1-Meter sailing. Terry McMullen from the Palm Beach Model Yacht Squadron has provided an excellent article describing Protecting Your Soling 1-Meter sailboat in venerable areas.

The Naples Model Yacht Club White Soling 1 Meter fleet has established an informal rule to install bow bumpers<sup>1</sup> to protect other boats in the event of collisions. The agreement was established after a boat from another class was hit while on starboard by a port tack boat and resulted in a hole in the starboard tack boat. Other clubs may want to consider this method of boat protection.

One of most important aspects of sailboat racing is setting up a racecourse with a starting line that is square to the windward mark and achieving this goal means moving the windward mark and the starting line. Jack Knoblauch of the Macatawa Bay Yacht Club, Holland, Michigan and the Naples Model Yacht Club, Naples, Florida has written an article regarding a R/C boat that can move marks. Use of such a R/C mark set boat has been a great addition to the Naples racing program.

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<sup>1</sup> Soling Bow Bumpers can be obtained from Berger Boats 860 747 1254 or [hanssbeger@comcast.net](mailto:hanssbeger@comcast.net)

One Naples Model Yacht Club member has developed a R/C racing mark based on GPS technology using thrusters that keeps the mark stationary. This mark has been used as both a starting mark and a racing mark (nicknamed "bot") and has been very successful in addition to the mark set boat in establishing good fair racecourses.

Also included is a regatta report from the 2023 Soling Nationals held in Punta Gorda, FL.

The remaining articles relate to programing both FLYSKY and SPECTRUM transmitters written by Greg Norris, Micro Magic US Class Secretary. These articles added considerable length to this edition of the newsletter, but I felt the information presented was important to distribute to new sailors.

In the next edition I plan to include tips from a newbie sailor compiled by Lloyd Lineman of the Naples Model Yacht Club as well as other interesting articles submitted by membership.

For many years I competitively raced a Rebel sailboat. One of the requirements for maintaining a fleet charter was to submit an annual fleet report to the class newsletter. The fleet reports brought the class together by sharing information.

I am asking Soling 1-Meter fleets to submit fleet reports describing your racing program. In addition, information on club best practices and sharing information will ultimately help the class to grow.

Topics for fleet reports could include:

- Formal and informal racing programs
- Racing and regatta results
- Methods for encouraging new membership
- Obtaining boats for new members (loaner club boats or resale of boats to new members)
- New sailor instruction (boat handling, tuning and rules and tactics)
- Social events (group lunches, dinners, awards banquet)

Feel free to contact me with comments or suggestions



## Protect Your Soling 1 Meter

By Terry McMullen

Sail # 3916

Palm Beach Gardens Model Yacht Squadron

I have been sailing Soling 1 Meter boats for fifteen years. I have had two Victor Model Products boats (VMP ) and now sail a 3DRC boat. During that time, I have identified and had to deal with several vulnerable areas of these boats. The purpose of this article is to help Soling 1 Meter owners avoid the problems I have encountered:

1. The lateral hull areas just fore and aft of the main stiffener that is positioned under the mast step for both the VMP and 3DRC
2. The radio board of the 3DRC with a removable keel
3. The bow of the VMP and the 3DRC

### The Lateral Hull Areas

This is the most likely problem to be encountered by a boat owner of VMP and 3DRC Solings. I have had four incidents of this type of damage caused by boat to boat collisions.

If another Soling hits your boat on the side of the bow or the side of the stern, it will most likely push your boat out of the way. If another Soling hits your boat amidships in line with the keel just forward and aft of the main stiffener, it will most likely pierce the hull. The hull areas fore and aft of the stiffener are soft and thin like eggshells.

I have had three hull breaches aft of the stiffener and one forward of the stiffener all on the port side of the boat. Both areas are a nightmare to fix. The repair has to be made so the breach can be sealed up and the outside profile can be restored. This means doing an epoxy and glass cloth repair inside the boat with limited access. Every repair with heavy epoxy adds weight to the boat and makes the boat lopsided.

When I bought my 3DRC, I wanted to prevent this problem from ever happening again.

Requiring a bow bumper might be a way to avoid boat to boat damage, but an article in Model Yachting magazine revealed that unless there is some give space in a bow bumper, it may just result in a bigger hole in another boat.

I realized it must be up to the owner to have a feature added to the boat to prevent collision damage. Whether it is a brand new or an existing boat, the feature has to be simple, low cost, and lightweight (but very stiff) to shore up the soft sides of the Soling 1 Meter. It also had to be compact enough so as not to interfere with the control arm action and wiring.

The answer to the problem was to use 1/4-inch polystyrene square tubing lengths. This clicked all the boxes for design requirements. The square tubing cross section is very stable, stiff in bending, compact without any edges to snag internal lines and virtually weightless. I cut four inch long pieces of tubing. I glued the lengths horizontally to the inside wall of the boat, with one end positioned close to the stiffener, about 3/8 inch below the overlap of the deck on the hull. There should a piece of tubing fore and aft of the stiffener on both sides of the boat. I used CA (good quality super glue ) or Testors orange label cement ( like gel CA ).

If your boat is going to be hit, it will be up high just under the deck overlap. I bought my 3DRC boat with everything inside set up by Doug Rieger except to leave the deck separate. This enabled me to have free access to make additions to the interior of the boat prior to bonding the deck to the hull. Owners of existing boats also have access to these areas to make this addition. I found the 1/4-inch square tubing at the local Hobby Lobby but Amazon is another source.

An incident happened first time out in a race where another boat hit my boat amidships. There was no damage to my boat: there was only a paint chip at the point of contact. IT WORKED!!!<sup>2</sup>

### 3DRC radio board with a removable keel

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<sup>2</sup> Editor's note: VMP boats were built 2 ways deck inside lip and outside lip. If a boat is built with an inside lip the deck adds considerable strength to the hull. I do not know if the new boats can be built this way.

First off, I want to thank Doug Rieger for all his efforts in making the 3DRC Soling 1 Meter. This is the best Soling yet! The buying experience was easy. I was able to talk to Doug on the phone, give him the servo information and I had a new 3DRC order in two weeks. As I said before, I ordered the boat all built up but the deck was not attached. The boat is excellent and when ready to race, it came in a 2.5 ounces under the 10 pound minimum so I use a ballast weight to bring it up to spec.

I inadvertently found the radio board was a vulnerable area. One thing I liked about the 3DRC is that I was able to use the three keels I had made for the VMP boat in the new 3DRC boat. I installed one of the keels in the boat and didn't remove it for nine months. During that time, the boat was always bone dry inside after racing...no leaks. At nine months, the keel was looking kind of scratched up and I decided to take out that keel and repaint it and put in a freshly painted keel. The new keel needed some upper surface shaping to match the profile of the 3DRC hull. I would repeatedly put the keel in the boat, fit check it and then remove it for more shaping. When I was satisfied with the fit I installed the keel into the boat with the rubber seal, stainless steel washer and the wing nut.

The next time I had the boat in the water, the rudder servo failed after being in the water for twenty minutes. The rudder locked over to one side and the boat started doing circles while the sail servo still worked. After about a half hour, the boat finally got to shore. At that time, the sail servo failed. I opened the hatch to discover the boat was filled with water like a bathtub. What happened? How did the boat that was bone dry after racing for nine months suddenly become a filled up bathtub. I knew it must have something to do with changing the keel but what?

I drained all the water out of the boat and took the boat home. I did repeated tests of the hull without the keel in the bathtub to find the leak. I thought maybe the keel had loosened the joint between the radio board and the keel box below it. After adding more glue on the rudder servo side, the tub test showed it was still leaking towards the rudder servo cut out in the radio board. Several additions of glue followed by a tub test showed it still was leaking.

The problem was: Moving the keel in and out of the boat several times had made the stainless steel keel

stud threads act like a rasp and abraded the inside of the hole in the radio board. Since the radio board was a 3D printed component, the keel threads grinding on the hole edge had made the layers of 3D printed material separate and the water was leaking from the hole between the layers of material over to the cut out for the rudder servo. The distance from the hole to the rudder servo cut out is only about a 1/4 inch. That explained why the rudder servo failed first because the leak was showering the rudder servo with water. The rest of the water leaked in during the half hour that the boat was continually doing circles in the lake.

I found a fix for the damage and prevention for the future. Remove the keel, tape over the radio board hole for the keel mount on the inside of the boat. Turn the boat over and fill the hole in the radio board from inside the keel box with liquid CA. Leave the boat overnight until the CA gets good and hard. The very thin liquid CA initially wicks into and rebonds the 3D printed layers. Then the CA cures and dries solid.

After 24 hours, carefully redrill the keel mount hole. Apply some window sealant on the base of the keel stud and insert the keel into the radio board hole. Apply some more window sealant on the first few threads of the stud that protrude through the hole on the inside of the boat. Attach the rubber seal on the stud, then the stainless steel washer and finally screw on and tighten the wing nut. Leave all this to cure overnight. Aside from checking the tightness of the wing nut on the keel stud, leave it alone. Do not remove the keel. This will prevent any leakage from the radio board hole into the boat interior.

Once again, the boat was bone dry inside after racing. This procedure should be done anytime the keel is removed or replaced.

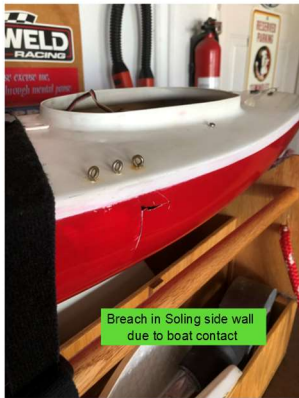
### **The Bow**

I may be the only person I know that had this problem, but I protect against it anyway. The first Soling I had was made by VMP. It was not well made and was always leaking out of glue joints that opened up. One day while racing, the boat went into a crowd of boats at a far mark, and I lost sight of it. When I could see it again, the boat was missing the first inch and a half of the bow...hull and deck. It was like someone had put it on a band saw and removed the first inch and a half of the boat. I don't know if I hit another boat, or another boat hit me.

Trying to restore the bow was a continuing nightmare. When it came time to build the other boats, I reinforced the bow. I lined the inside of the bow with glass mat and epoxy or carbon fiber mat and liquid CA before the deck was attached. The glass or carbon fiber mat has to be very flexible to sit down tight against the very 3D profile inside the bow. It is not practical to do this with an existing boat but can be made while building a new boat.

I want to thank Mike Wyatt for stepping up to be Class Secretary and Doug Blewitt to be the Editor of the Soling 1 Meter Newsletter.

I also want to thank my wife Margie (English Major and former real sailboat owner) for editing this article and encouraging my venture into RC racing.



## Good race mark placement is good for racing: building an RC mark set boat

Jack Knoblauch Macatawa Bay Yacht Club, Holland, Michigan, and Naples Model Yacht Club, Naples, Florida

We have been racing sailboats and officiating sailboat racing for over 40 years in our home port of Holland, Michigan. Around 10 years ago we were introduced to RC sailboats, and were hooked. We brought our boats to Florida and joined the Naples Model Yacht Club where we have been racing for around 7 years. There is one fundamental difference between racing in Holland and racing in Naples: the course and race mark placement. Back home we start every big boat race event with a “clean sheet of water”, meaning that we select a good location to set up a race course based on conditions that day, and then drop race marks in the water. For most big boat events we have a signal boat on the starting line, a mark set boat at the windward mark, and another markset boat at the pin end of the starting line. It is standard practice to set the starting line within 5 degrees of being square to the wind, and the windward mark within 10 degrees. During the race day a primary responsibility of the Principle Race Officer is to monitor the wind and request the mark set boats to move marks to maintain a good course, sometimes during a race. A square starting line evens the playing field for all sailors, and reduces big pileups at one end or the other.

As we started sailing in Naples, we found the classic “good news/bad news” scenario. The good news is we have permanent marks and don’t need to set them every day. The bad news is we have permanent marks and cannot reset them every day unless we have an inflatable boat and the willingness to reset some. The use of a throw-in mark provides some help, but it is usually close to shore and can reduce or eliminate up to 50% of the course. For a number of reasons we often end up with a skewed starting line, sometimes 45 degrees off of square, and that results in big pileups of boats at the favored end, and subsequent protests, bad language, and frustrations. How can we easily adjust the marks to provide good starts and fair competition?

One day a member (Dave Boulanger) showed up at the pond with a battery powered RC catamaran about 1 meter long, and equipped with remote GPS location guidance systems, video camera, etc, and

he proceeded to program the boat to navigate from mark to mark and check the location against target GPS coordinates. Then, upon finding a mark out of position, he drove the catamaran up to the mark (which is a round 15” diameter inflatable buoy), maneuvered the boat to capture the mark between the fronts of the two hulls, and proceeded to push the mark back to the proper location! Ahah!! We understood that Dave had invested many dollars to develop this craft, and he uses it to inspect sea walls, bridges, etc. It would not be reasonable to expect him to use this sophisticated boat to move marks several times a week. So, we thought, what if we build a low cost utility version of this concepts just to move marks? Dave graciously shared the mechanics and dimensions of his boat, and during the summer back in Holland I built such a boat for our Naples Club.

I started with the hull fabrication; I thought a Soling 1m hull would be a good size, and I had a kit in my basement. However, I did not use the Soling hull as is for the boat; I thought we needed a much more robust construction to serve as a utility boat, so I used the Soling hull to create a mold for fiberglass hulls. I filled in the transom area with styrofoam and modeling clay to eliminate the reverse transom design, and then it waxed up. I cast a mold off the hull using plaster of paris with fiberglass cloth reinforcement. I then laid up two hulls using fiberglass cloth and epoxy resin. I added a flange to the inside of the hulls to provide good support for the deck, which I made from 1/8 marine plywood with fiberglass laid up on both top and bottom. Bulkheads and mounts for the rudder servos were added to the inside of the hulls. Rudders were fabricated by folding over several layers of fiberglass over a 3/16 inch stainless shaft. The rudders are about twice as big as a Soling rudder, and much more robust: this is a tug boat and not a race boat. Connecting the two hulls together was done using two 1 inch x 1 inch aluminum tubes that were bolted through the decks to aluminum tapping plates bonded to the bulkheads. An epoxy coated wood box was attached to the aluminum tubes between the hulls to house the batteries and electronics. Inside the box are two LIPO 4500 mah batteries, two ESCs, the receiver, and terminal strips. A power

switch and an LED indicator light were installed on the top of the box.

Up until now, the construction was straightforward. However, the key to making this boat work as intended is the use and proper installation of the thrusters. These devices are self-contained motors with caged propellers that are used to power underwater drones, and provide a lot of thrust ( 5 lbs each) in a nice, easy to install package. These high-quality thrusters came from Blue Robotics, and cost close to \$400 for the pair, and that was about half the total cost of the build. But there is no question that these make the boat work, as a lot of thrust is required to move marks.

An aluminum framework was fabricated to mount the marks; they needed to be below the water line, and at a slight angle for proper action. The framework was attached to the rear aluminum cross tube, and wiring was run to the electrical box above. The thrusters are set up with one rotating cw and the other ccw; they are both connected to a single channel in the receiver. We thought about putting them on separate channels so they could turn the boat without using the rudders, but kept it simple and found that the oversized rudders turn the boat very well in most cases.

After initial sea trials I determined that I had erred on the side of toughness, and needed to take out a little weight. I build a new electronics box out of much thinner material and eliminated the fiberglass

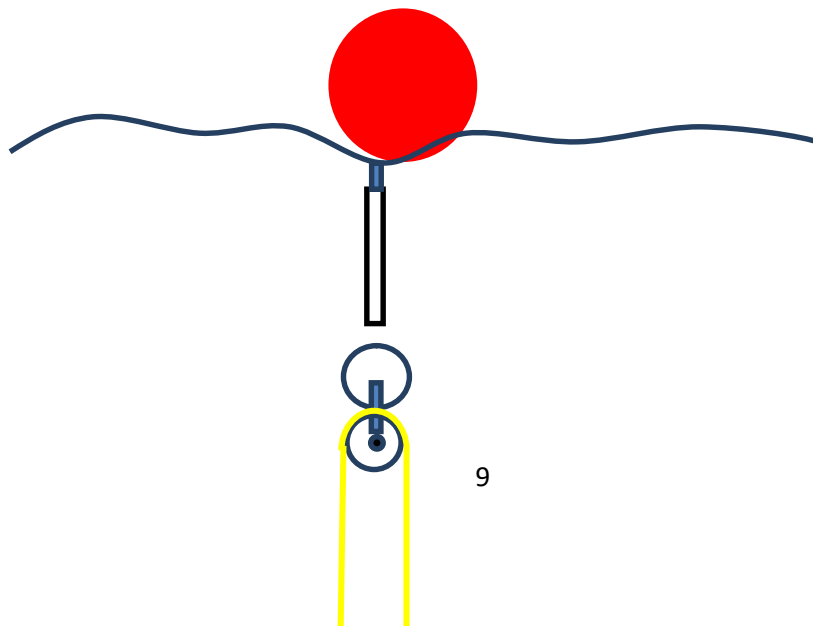
cloth wrap, and the boat was better. I also fabricated a front “cow catcher” out of aluminum to push the mark and not allow the boat to ride up over it, and incorporated a handle to use to launch and retrieve the boat.

The boat was put into service in November of 2019 and has served the Club well. It has been used to relocate marks for racing, and also bringing marks into the dock for repair. Once repaired, the marks are thrown back into the pond, and the catamaran is used to push them back to location.

A shipping box was constructed after the boat went into service; that allows the boat to be transported without damage to thrusters, rudders, etc. It does, however, take up a fair amount of space in a vehicle. Also, another “accessory” was built to carry “throw-in” marks farther out into the pond. It is basically a tray that attaches over the electrical box, and the throw in and weight is placed in the tray. Once the boat has driven to location, the retrieval line is jerked and the throw in drops in the water.

If the boat is stationed close to the race course launching dock, it can quickly be deployed to make a course change in just a few minutes. When the capabilities of this boat are understood, and when the race committee understands the advantages of setting a good course, better racing is the result. I am glad to share more details and/or consult on fabrication. Contact: jrknobby (at) comcast.net

### Typical counterbalanced mark system







**Modifying the Soling hull transom prior to casting the mold**

**Casting the hull mold**



**Hull mold with Soling hull removed**



**The first fiberglass hull removed from the mold**



**Glassing in the bulkheads and flanges**



***Hull complete with bulkheads, aluminum reinforcements, and rudder system***



***Deck and hatch glassed onto the hull***



***Checking cross beam assembly***



***Fitting the electronics/battery box***



***Applying epoxy barrier coat***

***Thruster and support frame installation***





**Final Assembly with revised electronics box and handles**



**RC flag installation**



**Transport box to protect boat Tray accessory installed to carry "throw in" mark to location**



### **Moving Marks**

Moving marks with the boat does require a few tricks. First, engage the mark and trap it between the two hulls by driving straight at the mark regardless of the direction that it needs to be moved. Once the mark is engaged, then turn the boat in the direction of desired movement. The boat will move quiet rapidly at first as it pulls the counterweight up to the pulley. Once that happens, the boat will slow down, indicating that the boat is now trying to drag the anchor on the bottom of the pond. Once it dislodges the anchor weight, it will move along at a decent speed. It is necessary to drive the boat and mark *beyond* the desired location, since the counterweight will pull the mark back until it takes out the slack in the lines. This “recoil” will vary depending on the depth of the water and lengths of the anchor lines. Also, depending on the bottom conditions of the pond, the anchor weight may get caught on an obstruction on the bottom, and then nothing moves; at this point it is best to turn the boat and mark around, pull the mark and anchors in the opposite direction for a short ways, and then pick a new path to the desired location. The boat is very good, but it is not perfect!

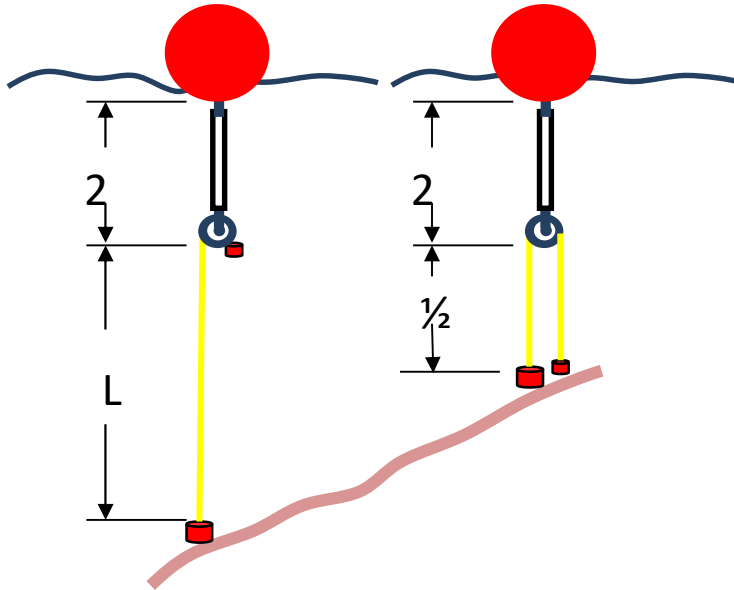
Another factor that comes into play is the change in depth at the bottom of the pond. This is not an issue if the mark is being moved to a new position that is at the same depth as the old position. However, if the mark is being moved from, say, shallow water to deeper water, it is possible to push the mark so far that the anchor rode is not long enough, and if the mark is released, it will just float around until it finds a shallower spot. Conversely, if the mark is moved into shallower water, both the anchor weight and the counterbalance weight may rest on the bottom, negating the effect of the counterbalance weight,



and the mark will float out to the end of the anchor rode and not be held firmly in location.

The boat can also be useful in mark maintenance; to retrieve a mark for repair or cleaning, capture the mark and move it close to a dock or shore, and grab it with an extension pole with a hook. Once repaired, throw the mark and tackle in the water, and move it back to position with the boat. Use care in deploying; avoid twisting the anchor lines.

The above discussion relates to moving “fixed position” race marks with the typical counterweight system. The boat is also very good at deploying “throw in” marks (marks with a retrieval line) as it can precisely drop a mark much farther from shore than a human can throw it. This set up allows some change in position using the retrieval line, and does not get affected by water depth, as the anchor weight slides down the retrieval line until it finds the bottom, and then the slack is taken up with the retrieval line. An “accessory” tray was made to quickly attach to the top of the mark set catamaran to carry such marks out to location. The mark (usually a smaller slalom ski mark or hippity hop) is placed into the tray, and the retrieval line is threaded through a length of 3/8 inch chain and tied to the mark. Then the boat is driven out past the desired location, and the retrieval line is jerked, pulling the mark and chain off the tray and into the water. The chain slides down the line to the bottom of the pond, and then the retrieval line is used to pull the mark back to the desired position. Then the retrieval line is tied to a stake or weight on shore. Note that it is important to use a line that will sink; either a weighted line, or nylon line works. There is a lot of cheap line on the market, and most of it is polyolefin which will float. I have had good success with nylon mason’s line sourced on Amazon.



**More details**

Below is a spreadsheet that lists the materials and components that were used in the construction in 2019. A few additional minor materials were added from the odds and ends in my workshop.

Item	Source	Cost
Thrusters, mounting brackets, ESC, indicator light	Blue Robotics	\$ 323.24
Rudder servos, y harness. Rudder arms, threaded rod, links	Tower Hobbies	\$ 78.92
West system epoxy	Amazon Prime	\$ 43.04
On off toggle switch	Amazon Prime	\$ 7.47
3/16 stainless rod for rudder post	Amazon Prime	\$ 4.76
5200mAh batteries, cables, servo, terminal blocks, fuse holder	Amazon Prime	\$ 109.19
Flysky FS-i6 radio and receiver	Amazon Prime	\$ 45.55
Striping tape	Amazon Prime	\$ 8.35
Elect terminals; elbows	Menards	\$ 6.32
Elect terminals, body filler	Menards	\$ 10.10
Epoxy, vinyl tubing-conduit	Menards	\$ 14.92
Stainless fasteners, fiberglass cloth	Menards	\$ 25.67
Alum tube	Menards	\$ 13.99
Fiberglass cloth	Menards	\$ 34.16
Round aluminum bar	Home Depot	\$ 7.64
Plywood, etc. for transport box	Lowes	\$ 41.73

**Total**

**\$ 775.05**



## Summary of 2023 Soling 1M National Championship Regatta

By Ron Stephanz

- Class: Soling 1M
- Chevrons: Gold
- Date: February 10-12, 2023
- Location: Punta Gorda, FL
- Host Club: Sun Coast Model Sailing Club
- Number of Entries: 24
- Winds: 8-20+mph
- Races Completed: 30 heats of which each skipper raced in 20 races
- Scoring System: Low Point System
- Regatta Committee & Valuable Assistants: Art Hawes RD, Chad Kasten ARD, Dave Petersen Starter, Paul Newfield Scorer, Pauline Lacroix Breakfast and Lunches, Dave Spencer Rescue, as well as, numerous SCMSC volunteers handling Mark Watchers, Race Finish Recorders, etc.

### Results

1.	Peter Feldman	#42	32.2pts
2.	Don Ouimette	#61	45.1pts
3.	Chuck Millican	#21	53pts
4.	Ron Prokop	#243	66pts
5.	Sean Fidler	#129	66pts
6.	Ulf Lindberg	#90	101pts
7.	Norm Pavey	#48	102pts
8.	Martin Gray	#22	111pts
9.	Ron Stephanz	#27	113pts
10.	Mike Feldman	#29	120pts

Remaining finishers, in order of finish: George Balaschak, Ron Stryker, Jim Knape, Nick Chavasse, Kurt Martin, Jim Greene, Bob Piper, Calvin Obara, Jack Ward, Ray Seta, Greg Norris, Phil Maiese, Mike Wyatt and Phil Tonks.

Sun Coast Model Sailing Club hosted the 2023 Soling 1M National Championship in Punta Gorda, FL on February 10-12. The weather cooperated for the first two days with winds ranging from 10-15mph.

Sunday was another thing though. Racing started with winds around 18mph but with much stronger gusts. Sadly, it was decided to cancel racing for Sunday as the forecast was for ever increasing winds through the day which ended up being true.

Peter Feldman continued his dominance, beating defending champion Don Ouimette, followed by AMYA President Chuck Millican. Filling out the five place podium were Ron Prokop and Sean Fidler, with Ron winning the tie-breaker.

A hearty "Thank You" goes out to the numerous SCMSC volunteers, as many as 11 on a given day, for their tireless efforts that made this a successful regatta. Everything from mark watchers, finish recorders, rescue boat and food presentation allowing the skippers the opportunity to concentrate on racing. The race management was handled skillfully by Art Hawes, Chad Kasten and crew.

A raffle was held with two half kits provided by 3DRC Boats and K&K Hobbies in Port Charlotte, FL.

Additionally, a suit of sails by Chuck Millican and another by Pat Dion were raffled off. Thank you to these sponsors for supporting our regatta.

## Setting Up a FlySky FS-i6 for RC-Sailing

11/9/2022

Greg Norris, Micro Magic US Class Secretary

### Introduction:

The FlySky FS-i6 transmitter has become one of the most popular transmitters for radio sailing. This has to do primarily, I think, with the fact that it is a full featured, high-quality transmitter being sold at a bargain price, typically \$55-\$65 including receiver. It is not because it is easy to program initially. Nor because it comes with a great manual (printed or on-line). The paper manual is useful as kindling. I know of no use for the on-line one.

There is a very nice article about the use of FS-i6 for rc-sailing. You can find it here: [Set-up of FlySky FS-i6 Transmitter\(Tx\) and FS-iA6B Receiver\(Rx\) for DF65 RC Racing Sailboat](#). But the problem for the beginning or non-techy sailor is that you still need to figure out the exact set-ups for your boat. The purpose of this article is not to explain much of anything, but rather to show you, step by step, how I set-up a typical small RC boat and a typical larger one.

I will show you the set-ups for my Micro Magic and my ODOM. You will note that they are

### About receivers:

- FS-i6 transmitters used to come with FS-iA6 receivers. Now they often come with FS-iA6B receivers.
- The main differences are that the FS-iA6B seems to have better antennas, it is encased in a hard plastic box, and the plugs attach into the end of the receiver, not the top. Because of the better case, it is marginally heavier.
- Theoretically, the FS-iA6B should have better range. I have been able to test this on my ODOM at Harper Lake near Denver. At

### About servos:

- For this article, I am using standard servos in both my MM and my ODOM. (telltails and wind vanes invisible, small luffs in sails very hard to see) both receivers work fine, but the FS-iA6B seems to have lower error rates, suggesting better range.
- The MM has a Hitec HS-65HB rudder servo and a Hitec HS-485HB sail servo. Both are analog.
- The ODOM has a Hitec HS-5245MG rudder servo and a Hitec HS-7955TG sail servo. Both are digital.

### About all the lever, switches, and dials (Figure 1):

nearly identical. In fact, they might be actually identical if I were to also use analog servos on my ODOM. In most cases, the set-ups shown here will work, with minor adjustments, for most other classes and servos.

Separately, it is important to note that I am not a top US RC-sailor. Rather, I am an active class secretary with a slightly geeky side. I suggest asking the best skippers in your class what transmitter set-ups they use and trying those out. But you can certainly start with this set-up, it works fine.

I doubt that this article will be useful to read if you aren't already familiar with the FS-i6 or, alternatively, if you don't have a powered-up FS-i6 next to you.

### Setup and Use:

This article applies equally to the Turnigy TGY-i6 which is either identical or almost identical and to the FlySky FS-i6X which seems to be a standard FS-i6 upgraded to 10 channels.

reasonably far RC sailing distances That said, I once sailed my ODOM in Foster City, CA so far out that I couldn't distinguish the main from the jib. I was using a regular FS-iA6, and it worked fine. I don't recall the error rate, but I am certain that it was much lower than my own error rate at that distance.

- For Micro Magics, which normally aren't raced so far away, I am certain that either receiver will work fine. The FS-iA6B is likely a marginally better choice for ODOMs and other one meter boats

- I think that it is likely that if you are using different servos or different servo swing arms, your personal settings will be somewhat different from those that I show here, though obviously, the principles will be identical.
- The principles will also be the same for boats with sail winches, though the settings will differ.



Fig. 1

**1 - Sail Control Lever (Channel 3 Up and Down)**

I actually put a tiny drop of CA so that this lever only moves up and down, and no longer side to side. t it up so that down is trimmed in.

**2 - Rudder Control Lever (Channel 1)Side to side.**

- I also put a tiny drop of CA so that this lever only moves side to side.
- I set it so that pushing the lever to the right turns the boat to the right.

**3- Sail Trim tab**

Set it in the middle while we are setting up the transmitter. You can use it like a traveler to let the sail out ~5-10 degrees if the wind comes up during a race.

**4 - Rudder Trim tab**

You can use this to center your rudder mid-point if it comes out of adjustment and needs a fine adjustment.

**5 - Other Trim tabs**

Not used for RC sailing as far as I know.

**6 - Bind button**

Used to bind a new receiver to your transmitter. I will not discuss this here. There are multiple good YouTube videos that explain this.

**7 - Switch A (SwA)**

- Allows two rudder sensitivity set ups.
- I think that this is a terrible idea, but I will show you how to do it should you disagree with me, and how to disable it if you agree.

**8 - Switch B (SwB)**

- Allows two jib and main sheet endpoints and sensitivities.
- This is very useful, and I will show you a couple of possibilities.

**9 - Switch C (SwC)**

I haven't figured out any use for this yet, but it is probably not useful in RC-sailing, since I don't think that it can be assigned to Channel 1 (rudder servo) or Channel 3 (sail servo)

**10 - Switch D (SwD)**

Toggles Throttle Hold on and off. This is useful for flying airplanes, but I cannot picture any use for a throttle hold on a sailboat. I will show you how to inactivate this switch.

**11 - Dial A (VrA) amd Dial B (VrB)**

I haven't figured out any use for these yet, but they are probably not useful in RC-sailing, since I don't think that they can be assigned to Channel 1 or 3.

**About the menu system: The Basic Screen (Figure 2)**

This is nice. It shows a lot. Learn to use it.



Fig. 2

- **Upper right:** Transmitter and Receiver battery levels
- **Middle:** Boat name if you set this up, Gumdrop in this case.
  - **Middle:** Receiver (IntV1) voltage
  - **Middle:** Transmitter (Tx.V1) voltage
  - **Middle:** Error Rate (Err1)

(This basically shows how well connected you are. Usually reads 0-2%.)

- **Far Left:** The little bar shows the trim setting for the jib and main sheets. (I will discuss this below)
- **Lower Edge Left:** Another trim setting bar. (We don't use this one.)
- **Lower Edge Right:** The little bar shows the trim setting for the rudder. (I will discuss this below.)

- **Far Right:** Another trim setting bar. (We don't use this one either)
- **Using the Menu System:**
- If you ever used mainframe computers (which used to have weird and arbitrary menu systems), you will feel right at home.
- Navigation is sometimes weird and inconsistent:
  - Sometimes you advance in a menu with the OK button and sometimes with the Up and Down buttons.

**The System Menus (Figures 3 and 4)**

- You will likely only use the System menu for initial transmitter set-up. (And maybe if you change the type of battery that you are using for the transmitter or the receiver.)
- To get to the System menu, press and hold the OK button, and select the System menu by pressing and holding the OK button.
- Note that for all navigation, you can only navigate when the menu light is on. To turn on the light, just press the OK button briefly.
- RX Setup: Be sure that RX Battery is set to Low: 4.00V, Alarm: 4.20V, High 5.00V if you use 4 NiMh AAAs, or something else appropriate if you use other receiver batteries (Figure 2).
- Model Select: You can set up the FS-i6 for more than one boat. I don't do this.
- Model Name: You can put in your boat's name or something like "MM 666" or here "ODOM", but this is not all that useful.
- Much better to label the controller externally with some tape with the model name and your name in case someone finds it.
- If you use 5 NiMh AAAs or AAs, as I do on my ODOM, set to Low: 5.00V, Alarm: 5.20V, High 7.00V (Figures 2, 3 and 4).



Fig. 3

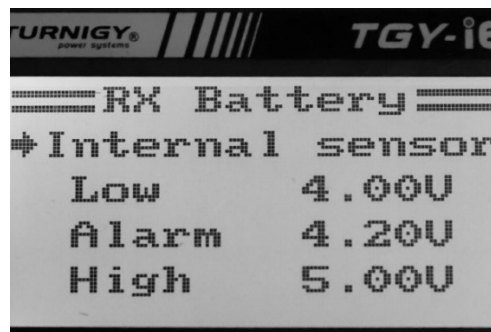


Fig. 4.

**The Setup Menus (Figures 5 and 6):**

- This is where the action is.
- This is the menu to the right of the System menu.
- Reverse: My usual is to reverse both the rudder and the sheets, so change Channels 1 (Rudder) and 3 (Main and Jib Sheets) to reverse.



Fig. 5



Fig. 6

### Rudder (Channel 1) End Points (Figure 7):

- Mark the bottom of your hull for 45 degrees port and starboard rudder throw, mid-line, and 3 degrees starboard and port rudder throw.
- Note that you do not want the boat to be totally neutral rudder going upwind, but rather to have 2-3 degrees weather helm. This is faster upwind. (I'm not sure if this is also true for boats that have the rudder attached to the aft end of the keel.)

- Adjust your rudder mechanism such that the rudder is mid-line with the receiver on and the trim marking on the transmitter screen is also midline.
- Now use Channel 1 End Point adjustment to get the rudder to 45 degrees port and starboard. You'd think you'd set it to 120% on each side, but my experience is that is rarely the setting for equal throw to each side.

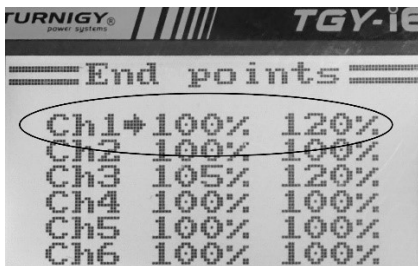


Fig. 7

### Dual Rate / Exponential (Figure 8 and 9):

- The preset sensitivity is linear. I find that it is way too sensitive and really promotes oversteering. I like the rudder to be really, really soft for most of its throw to avoid oversteering, and I don't change this setting.
- Set Switch A (SwA) to 1 (Normal), leave the Rate at 100 and Change Exp to -100.
- Be careful that it is -100 NOT 100.
- Try this out. If it is too soft for you, try Exp -25, -50, and -75 to see which you like best.
- Note that while initial steering is very soft, as soon as you get past about 10 degrees of rudder throw, it

becomes very aggressive (i.e exponential), AND that the softer you set it initially, the more aggressive it will get after the initial 10 degrees.

- Set Switch A (SwA) to 2 (Sport), leave the Rate at 100 and Change Exp to -100 (or whatever you set SwA setting 1 to.)
- This will assure that your rudder settings stay the same even if you throw Switch A inadvertently.
- If you would like 2 different steering sensitivities, you can do this with Switch A by simply assigning a different switch setting to 1 (Normal) or 2 (Sport). As I said earlier, I think that this is a really bad idea.

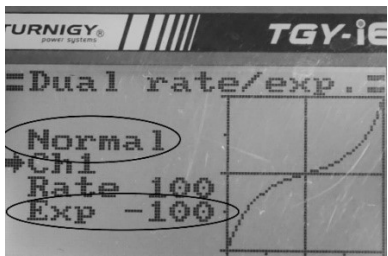


Fig. 8

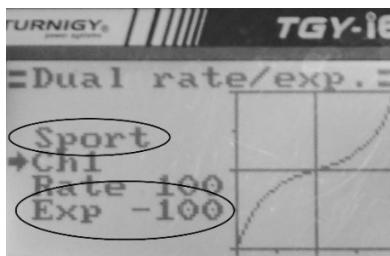


Fig. 9



**Main and Jib Sheets (Channel 3) (Figures 10 and 11):**

- You can set up in two separate ways, and you'll need to decide which you like best:
  - You can have a Normal and Pinch mode, the difference between the two being that the end of mainboom in Pinch mode is near midline and at the edge of the cockpit floor in Normal mode.
  - You can have a Normal and Puff mode, the difference being that the end of the mainboom is at the edge of the cockpit floor in Normal mode and 5 - 10 degrees further out in Puff mode.
- I like to have a Pinch and Normal mode. I use Normal mode 99% of the time, but switch to Pinch mode

**Normal and Pinch Modes (I will show you how to set-up both ways) Figures 10, 11, 12 and 13):**

- Assure that Switch B (SwB) is set to 1.
- Set up your rig so that you have mast rake, camber, and twist in exactly your usual settings, then adjust

when I need to pinch up and away from another boat, pinch to a nearby windward mark, etc.

- Note, your boat needs to be moving well before switching to Pinch mode. Your boat will not accelerate well from standstill sheeted in tight in Pinch mode.
- Also, you need to remember to put Switch B into position 2 each time you turn on your transmitter.
- Many racers, including my friend Ray Seta, who is a far better skipper than I am, prefer instead to have Normal and Puff (sheets eased) mode better. (I choose to ease the sheets manually in puffs.)

the main and jib sheets mechanically so that the slot is correct.

- Use the Channel 3 right endpoint setting to set the mainboom to a little off of the midline. (Pinch mode)
- Assure that the sheet trim marking on the screen is midline.



Fig. 10

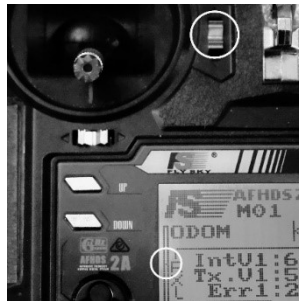


Fig. 11



Fig. 12



Fig. 13

- You need to make a decision concerning the maximum sheet eased setting for downwind: MMs don't have side stays, so that you can easily ease more than 90 degrees to sail by the lee. This is sometimes useful.
  - Use the Channel 3 left endpoint to set the maximum sheet out endpoint to main boom at either 85 degrees or 110 degrees (Figure 14).
  - Assure Switch B is in position 1. (This will become your Pinch mode.) Go to the Throttle Curve menu (Figures 15 and 16). The display will show Normal (sorry!).
- On the other hand, you can set the sheets for optimal downwind running (usually about 85 degrees.) (The actual optimal downwind running boom angle depends on how much twist you are sailing with.)

- Set L to 0%, 1 to 5%, 2 to 15%, 3 to 40% and H to 100%.

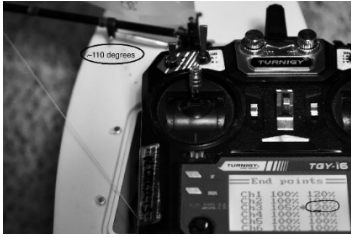


Fig. 14

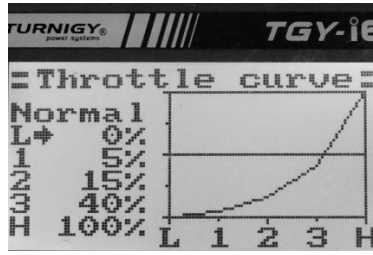


Fig. 15

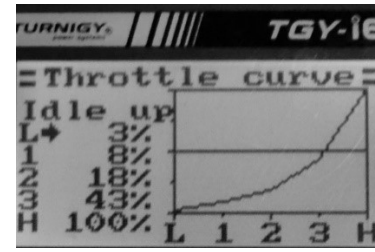


Fig. 16

- Now put Switch B in position 2. (This will become your Normal mode.) The display will show Idle Up (sorry, again!).
- Set L to 3%, 1 to 8%, 2 to 18%, 3 to 43% and H to 100%.
- Note that if these settings are too soft you can try L to 0%, 1 to 10%, 2 to 25%, 3 to 50% and H to 100% for switch position 1 and L to 3%, 1 to 13%, 2 to 28%, 3 to 53% and H to 100% for switch position 2. And if you'd like more difference between Pinch and Normal

- Assure that the sheet trim marking on the screen is midline.
- Set up your rig so that you have mast rake, camber, and twist in exactly your usual settings, then adjust.

- This section is a verbatim copy of a paragraph in the Normal and Pinch mode section. See there for all of the photos.) You need to make a decision concerning the maximum sheet eased setting for downwinds: MMs don't have sidestays, so that you can easily ease more than 90 degrees to sail by the lee. This is sometimes useful. (Fig. 13) On the other hand you can set the sheets for optimal downwind running (usually about 85 degrees.) (The actual optimal downwind running boom angle depends on how

- Now put Switch B in position 2. (This will become your Puff mode.) The display will show Idle Up.
  - Set L to 3%, 1 to 8%, 2 to 18%, 3 to 43% and H to 100%.
  - Note that if these settings are too soft you can try L to 0%, 1 to 10%, 2 to 25%, 3 to 50% and H to 100% for switch position 1 and L to 3%, 1 to 13%, 2 to 28%, 3 to 53% and H to 100% for switch position 2.
  - And if you'd like more difference between Normal and Puff modes you can try something like L to 5%, 1 to 10%, 2 to 20%, 3 to 45% and H to 100% for switch position 2.
  - Obviously, you sail with Switch B in position 1 (Normal) until you are overpowered, then flick to position 2 (Puff) for the puff, and back to position 1 when it is time to sheet back in.

modes you can try something like L to 5%, 1 to 10%, 2 to 20%, 3 to 45% and H to 100% for switch position 2 (and obviously consider pulling the base (Pinch) mainboom position further inboard before you do this.)

- Normal and Puff Modes
  - Actually the set-up for the transmitter is the same, but the boat is set up differently.
  - Assure that Switch B (SwB) is set to 1.

the main and jib sheets mechanically so that the slot is correct.

- Use the Channel 3 right endpoint setting to set the end of the mainboom just at the edge of the cockpit floor. (Normal mode)

much twist you are sailing with.) (Fig. 14) Use the Channel 3 left endpoint to set the maximum sheet out endpoint to either 85 degrees or 100 degrees. (Figs. 15 and 16)

- Assure Switch B is in position 1. (This will become your Normal mode.) Go to the Throttle Curve menu. The display will show Normal.
  - Set L to 0%, 1 to 5%, 2 to 15%, 3 to 40% and H to 100%.

- My ODOM is set-up for Normal and Pinch mode. The set-up method is identical, but the settings are:
  - L to 0%, 1 to 5%, 2 to 15%, 3 to 40% and H to 100%. (Fig. 16) for Pinch mode (Switch B, position 1)
  - Set L to 5%, 1 to 10%, 2 to 20%, 3 to 45% and H to 100%. (Fig. 17) for Normal mode (Switch B, position 2)
  - For Normal and Puff mode, I would use the same settings, but different initial end point settings as described above.
  - ODOMs have sidestays, so I set up the downwind sheets out end point for 85 degrees of main boom angle (which is where the sidestays are anyway).

**Getting Rid of Throttle Hold on Switch D (and Assuring that All of the Switches are Assigned Correctly Figures 17 and 18).**

- Switch Assign:
  - Assure Fly Mode says SwA and is Normal for Switch A in position 1 and Sport in position 2.

- Assure Idle Mode says SwB and is Normal for Switch B in position 1 and Idle Up in position 2.
- Assure Thro. Hold is SwD and is Off in position 1 and On in position 2.

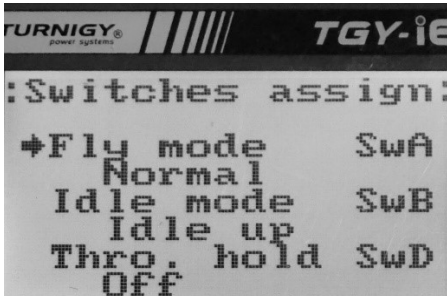


Fig. 17

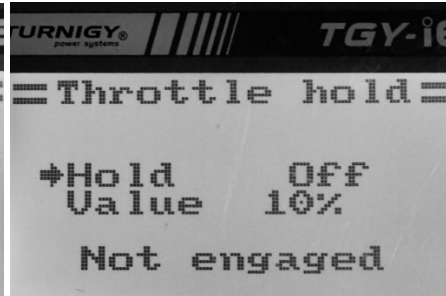


Fig. 18

- Throttle Hold: Assure that Hold is Off. (A sailboat does not need throttle hold to be on ever, I think. :-))

- Sub-trim: I don't use this, since I prefer to set my rudder mid-line mechanically. I think that this works much better. I do use the rudder trim tab (fig 1. #4) for minor adjustments between races.

**Menu Settings that I Don't Use:**

- Mix
- Elevon
- Display
- Aux. Channels

**Conclusion:** I hope that this has been useful. I know that it is a lot, but if you go step by step you should be able to set-up your FS-i6 transmitter easily enough. As always, contact me at [gsnorris@gmail.com](mailto:gsnorris@gmail.com) for any questions, comments, or criticisms.

## Setting Up a Spektrum DX6e for RC-Sailing

1/7/2023

Greg Norris, Micro Magic US Class Secretary  
With a lot of help from  
Mike Wyatt, Soling 1 Meter US Class Secretary

### Introduction:

Spektrum transmitters have long been among the most popular transmitters for radio sailing. The Spektrum DX6e is the model that I see the most currently. Spektrum's popularity has to do primarily, I think, with the fact that their products are full featured, very high quality, with very good documentation, and, I'm told, great product support.

I am not a long-time Spektrum user, and I was very pleasantly surprised how quickly I could get the DX6e set-up. The documentation is so good that this article does not have the necessity of my similar article about the FlySky FS-i6, which has abysmal documentation.

This article is not, for the most part, a how-to on how to use a Spektrum DX6e. Rather it is written for the beginning or non-techy sailor. The issue isn't so much how-to, but rather which settings shall I use on this or that menu. The goal is to show you, step by step, how I set-up the DX6e for a typical small RC boat and a typical larger one.

I will show you the set-ups for my Micro Magic and my ODOM. You will note that they are nearly identical. In fact, they might be actually identical if I were to also use analog servos on my ODOM. The set-ups shown here should work well, with minor adjustments, for most other classes and servos.

Separately, it is important to note that I am not a top US rc-sailor. Rather, I am an active class secretary with a slightly geeky side. I suggest asking the best skippers in your class what transmitter set-ups they use and trying those out. But you can certainly start with this set-up, it works fine. A second disclaimer: I am not even a DX6e owner. Mike Wyatt was kind enough to loan me the transmitter and receiver that I used in this article. Thank you, Mike!

I doubt that this article will be useful to read if you aren't already familiar with the DX6e or, alternatively, if you don't have a powered up DX6e next to you.

### Setup and Use:

#### • About receivers:

- The DX6e can be used with a number of Spektrum receivers. For this article I used an AR410 (SPMAR410 DSM2/DSMX). It is a small, light 4 channel receiver with an internal antenna. It has a bind button, so that you do not have to use a binding cable. It is very nice.
- Unlike all of the other brands of transmitters that I've used, you can assign any of the receiver channels to any of the transmitter controls. Pretty cool!
- Most current Spektrum receivers, including the 4-channel AR410, feature basic telemetry; so the receiver will, without modification or added devices, send receiver (boat) battery voltage to the transmitter. See: "Flight Log" section below.

#### • About servos:

- For this article, I am using standard servos in both my MM and my ODOM.
  - The MM has a Hitec HS-65HB rudder servo and a Hitec HS-485HB sail servo. Both are analog.
  - The ODOM has a Hitec HS-5245MG rudder servo and a Hitec HS-7955TG sail servo. Both are digital.
  - I think that it is likely that if you are using different servos or different servo swing arms, your personal settings will be somewhat different from those that I show here, though obviously, the principles will be identical.

- The principles will also be the same for boats with sail winches, though the settings will differ.

**About levers and switches:**



Fig. 1



Fig. 2

- 1 - Sail Control Lever (I set-up for Receiver Channel 1)
  - Throttle (THR) in the manual and the menus.
  - Up and down.
  - I set it up so that down is trimmed in.
- 2 - Rudder Control Lever (I set-up for Receiver Channel 2)
  - Aileron (AIL) in the manual and the menus.
  - Side to side.
  - I set it so that pushing the lever to the right turns the boat to the right.
- 3 - Sail Trim tab
  - Set it in the middle while we are setting up the transmitter. You can use it like a traveler to trim the sails in ~10 degrees or out ~15-20 degrees if the wind changes during a race.

- Check that it is midline at the beginning of the day.
- 4 - Rudder Trim tab
  - You can use this to center your rudder mid-point if it comes out of adjustment and needs a fine adjustment.
- 5 - Other Trim tabs
  - Not useful for RC sailing as far as I know.
- 6 - Bind button
  - Used to bind a new receiver to your transmitter. I will not discuss this at length here. There are multiple YouTube videos that explain this.

I will note that the bind button on the Spektrum AR410 receiver is really nice. You can wire your receiver all up as you want it, press the receiver bind button so that the receiver LED flashes, then press the receiver bind button, turn on the receiver, release the receiver bind button, and the receiver and transmitter will pair.

You can also bind by going to “System Setup”, scrolling to and clicking “Bind”.

- The Many Switches
  - The DX6e has 7 switches. You can pretty much pair any of them up with any servo and/or transmitter function. Amazingly :-), this is all pretty well described in the manual.

7 - Switch A (I didn't use this.)

8 - Switch B

I set this up linked to Throttle Curve (Sail Servo Control Curve in sailor speak). It allows for three jib and main sheet endpoints and sensitivities. This is very useful, and I will show you how to set this up.

9 - Switch C (I didn't use this.)

10 - Switch D

I didn't use this, but it can be used in place of Switch B to select Sail Servo Control modes, if you prefer this switch location.)

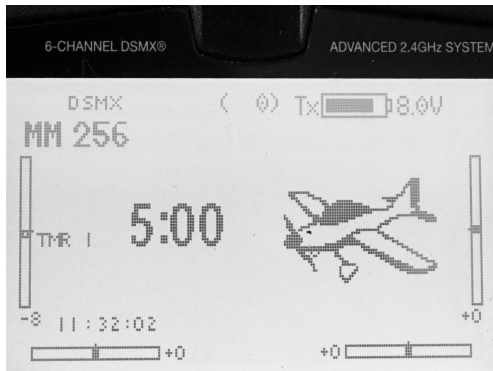
11- Switch F (There isn't a physical Switch E on the DX6e. I didn't use this.)



- 12- Switch G (I didn't use this.)
- 13- Switch H (I didn't use this.)
- 14 - The Roller Bar (This is the main control for all of setup. Its use will be explained below.)

**About the menu system:**

- The Main Screen



**Fig. 3**

- This is fine, but no cigar. It could show more, but it As above- the actual RX voltage is displayed on the "Flight Log" screen (this does not need to be adjusted on setup).
- Low voltage audible warnings for the RX (receiver/boat) battery pack voltage. The default setting is a low voltage of 4.3 volts, which is probably OK without changing, or you can modify or you can modify depending on what type of battery you use. This is done in the form of setting a minimum voltage using the "Telemetry" screen. Click on the RX voltage reading under "Telemetry. The "RX Voltage" in Telemetry has to have the warning set to "Tone" instead of "Inhibit".
- Less importantly, the "Flight Log" "Telemetry Lost" feature is factory-set at "Inhibit", you could change that to "Tone" also, which indicates that the telemetry function is not working.
- To test, turn the boat and transmitter "on", then turn the boat off- it should set off a beeping warning in the transmitter (you just took the RX voltage to zero by turning off the boat). You could also hook up a battery that you know is weak, below the set minimum voltage and it should give the audible warning.
- works, so learn to use it.
- Upper right: Transmitter battery level  
I couldn't get it to also display the Receiver battery level on the Main Screen. (See Other Screens, directly below)  
Middle: Boat Name. MM 256 in this case.

- If you have more than one boat linked to this transmitter, the boat name is also the currently selected model.
- Middle: Timer.
- Restarts when you press clear. This can be used as a visual start count down timer if you are hearing impaired.
- Far Left: The little bar shows the trim setting for the jib and main sheets.

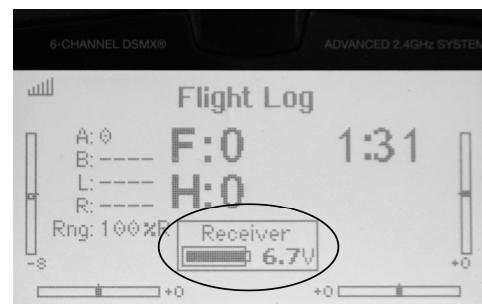
I will discuss this below.

- Lower Edge Left: Another trim setting bar.  
We don't use this one.
- Lower Edge Right: The little bar shows the trim setting for the rudder.  
I will discuss this below.
- Far Right: Another trim setting bar.  
We don't use this one either.

- Other Screens
- If you scroll right with the scroll wheel without pressing it down first (which takes you to the setup sub menus), you will get to some useful screens.

- Monitor: Shows the current state of the various controls. In our case, we really only care about THR (Sails) and AIL (Rudder).  
I only rarely use this screen, basically for troubleshooting.
- Flight Log: Shows the trim tab displays, just like the Main Screen, and, importantly, **your receiver battery volts.**

It would be much nicer to have this on the main screen, but at least you have it here.



**Fig. 4**

**Using the Menu System:**

- Navigation is straightforward and consistent, though you do need to get used to using the scroll/selection bar:
  - To get to the Menu System ("Function List"), simply press on the scroll bar.
  - Down is scroll right, Up is scroll left.

- Menu choice selection is also consistent and straight-forward. Just press the scroll bar (usually, the menu box you want to deal with starts to flash). Then you deal with that choice by scrolling through the options with the scroll bar, and press the scroll bar when you've finished (usually the box stops flashing).
- Exiting a menu is easy. Just scroll to the top "<Main Screen>" for the main menu, or "List" for sub-menus, and press the scroll bar and you'll be out of the menu.
- My overlong description here makes all of this sound much harder than it is in practice.

#### The System Setup Menu:

- You will likely only use the System Setup menu for initial transmitter set-up and when you want to link the DX6e to a new boat.
- Scroll way down to the System Setup submenu and select it.
- Answer "Yes" to the caution question and you are in.
- Model Select:
  - You can set up the DX6e for up to 250 boats. :-)
  - Select Model Select.
  - Scroll and select "Add New Model", then "Create"
  - Select the Airplane "icon".
  - Select Model Name and add the model name, here "MM 256".
    - Note the line at the bottom shows all the available numbers and letters, making it easier to find the ones you want, vs. trying to follow them one by one in the other indicator
  - Select Aircraft Type, and assure that Wing and Tail both say Normal.
  - Select Channel Assign
  - On the RX Port Assignments menu,
    - Select 1 THRO: Throttle
    - Select 2 AILE: Aileron
  - Be sure to also label the controller externally with some tape with your name and maybe phone number in case someone finds it.

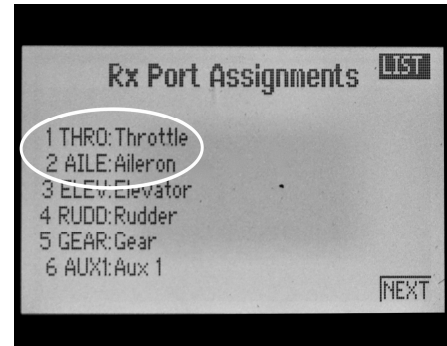


Fig. 5

#### The Servo Setup Submenu:

- Select Servo Setup
- Scroll to Travel and select.
- Scroll from Travel, past Sub Trim, to the Reverse submenu, select this
- Scroll THR and reverse it (for Left Lever down is sheets in), select, and exit the submenu
- You will get a message that you need to rebind. Do this.
- I am using a Spektrum AR410 receiver. It is very easy to bind.

Leave everything attached to the receiver. Turn off the transmitter.

Press the bind button on the receiver. The receiver LED will start flashing.

Press and hold the bind button on the transmitter and turn on the transmitter. Then release the bind button, and the transmitter and receiver will bind.

If you are using another receiver, simply follow the Spektrum instructions, which are excellent.

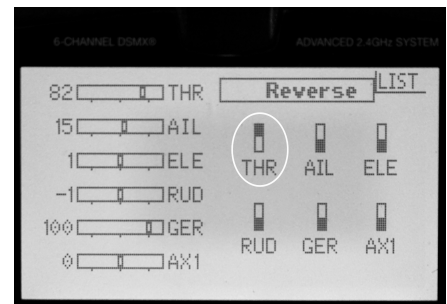


Fig. 6

- Rudder (Right Stick):
- End Points:
- Mark the bottom of your hull for 45 degrees port and starboard rudder throw, mid-line, and 3 degrees starboard and port rudder throw.

- o Note that you do not want the boat to be totally neutral rudder going upwind, but rather to have 2-3 degrees weather helm. This is faster upwind. (I'm not sure if this is also true for boats that have the rudder attached to the aft end of the keel.)
- Adjust your rudder mechanism such that the rudder is mid-line with the receiver on and the trim marking on the transmitter screen is also midline.



Fig. 7

- Now select Servo Setup, scroll to Travel.
- Scroll to AIL and select.
- Move the right stick to the left, press the scroll bar so that a single box is blinking and scroll with the scroll bar until your rudder hits the 45 degree mark, then do the same with the right stick all the way right.
- You'd think you'd set it to the same number on each side, but my experience is that only rarely is the setting the same for each side.



Fig. 8

- Dual Rate / Exponential: The preset sensitivity is linear. I find that it is way too sensitive and really promotes oversteering. I like the rudder to be really soft for most of its throw to avoid oversteering.
- Select the D/R and Expo submenu.
- Assure that Channel: Aileron and Curve:1.
- Leave Dual Rate at 100% for both inputs.
- Change Expo to 60% for both inputs.

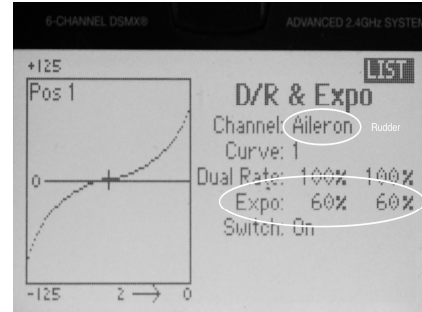


Fig. 9

- Try this out. If it is too soft for you, try Expo 20% and 40% to see which you like best. Note that while initial steering is very soft, as soon as you get past about 10 degrees of rudder throw, it becomes very aggressive (i.e exponential), AND that the softer you set it initially, the more aggressive it will get after the initial 10 degrees or so.
- This is a great time to practice a little: Put your boat on its side. See how much stick travel is 2-3 degrees on each side, then how much is 10, 20, and 30 degrees. I'm weird, but I do this before each time I sail.

- Rudder set-up is identical on my MM and my ODOM.
- Main and Jib Sheets (Left Stick):
- Unlike the FlySky FS-i6 that I set-up in my other article, the DX6e allows for 3 separate sheet trim modes.
- Normal is as it sounds, your normal upwind sheet position. On a Micro Magic that is the end of the mainboom at the edge of the cockpit floor. On an ODOM that is mainboom either at or just inside the transom corner.
- Pinch mode trims in about 5 degrees, so that on both the Micro Magic and the ODOM the mainboom is near midline.
- Puff mode eases the sheets 5 to 10 degrees (you can adjust this to your liking.)
- I use Normal mode 99% of the time, but switch to Pinch mode when I need to pinch up and away from another boat, pinch to a nearby windward mark, etc. Note that your boat needs to be moving well before switching to Pinch mode. Your boat will not accelerate well from standstill sheeted in tight in Pinch mode.

Also, you need to remember to put Switch B into position 1 (normal) each time you turn on your

transmitter, and particularly when you are tuning your boat.

- Puff mode works just great for very quick reaction to puffs.
- I set the three modes up so that only the sheet in endpoints are different, the sensitivity curves are identical for all three modes.
- Normal, Pinch, and Puff Modes:
- Decide whether you want to use Switch B or Switch D. Both are 3 position switches, and both work well for this.
- Switch B is on the upper edge of the transmitter. You can't see it well, but it is an excellent position to move with your forefinger while sailing.
- Switch D's position is a little harder to reach while sailing, but the switch is visible.
- I use Switch B.
- Assure that Switch B is set to 0.

- Assure that the sheet trim marking on the screen is midline.

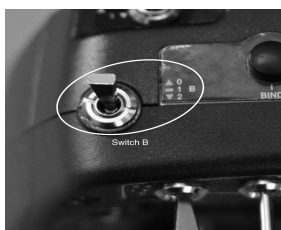


Fig. 10



Fig. 11

- Set up your rig so that you have mast rake, camber, and twist in exactly your usual settings, then adjust the main and jib sheets mechanically so that the slot is correct.
- Select Servo Setup, scroll past Travel, to THR (Throttle). Move the left stick all the way down and the upper number will be highlighted. Select it by pressing the scroll bar down. Adjust the mainsheet with either the scroll bar or

mechanically to set the mainboom to a little off of the midline. (Pinch mode) Press the roller bar again so that the box stops flashing.



Fig. 12

- You need to make a decision concerning the maximum sheet eased setting for downwinds: MMs don't have sidestays, so that you can easily ease more than 90 degrees to sail by the lee. This is sometimes useful.



Fig. 13

- On the other hand you can set the sheets for optimal downwind running (usually about 85 degrees.) (The actual optimal downwind running boom angle depends on how much twist you are sailing with.)



Fig. 14

- Move the Left Stick all the way up and the THR adjustment box will shift to the lower number. Press the roller bar and the box will start flashing. Now scroll with the roller bar to set the maximum sheet out endpoint to main boom at either 85 degrees or 110 degrees. Exit the Servo Setup menu.



Fig. 15

Set 1 to 3%, 2 to 8%, 3 to 18%, 4 to 43% and 5 to 100%.

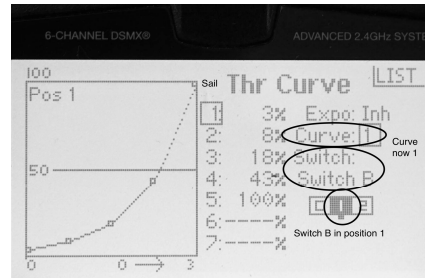


Fig. 18



Fig. 16

- Now switch Switch B to position 2. (This will become your Puff mode.) On the throttle Curve submenu scroll to Curve and press the scroll bar to select. Scroll to 2 (Curve:2) and press the scroll bar to select. The submenu should show Curve: 2 and Switch B in position 2. Set 1 to 8%, 2 to 13%, 3 to 23%, 4 to 48% and 5 to 100%. Exit the submenu and you are done.

- Assure Switch B is in position 0. (This will become your Pinch mode.) Select the Throttle Curve submenu. Set 1 to 0%, 2 to 5%, 3 to 15%, 4 to 40% and 5 to 100%. Leave Expo: Inh Assure Curve: 0 Scroll to Switch and select by pressing the scroll bar, then scroll to Switch B and select by pressing the scroll bar. Assure that the little rectangular box bottom right shows that Switch B is in position 0.

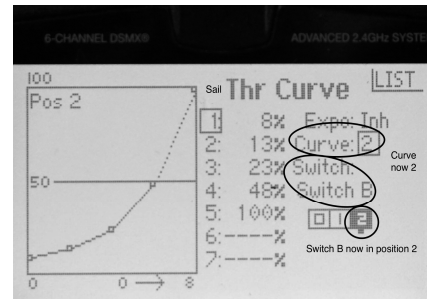


Fig. 19

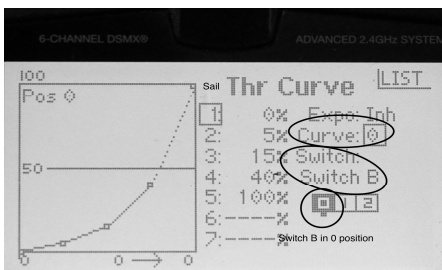


Fig. 17

- Now switch Switch B to position 1. (This will become your Normal mode.) On the throttle Curve submenu scroll to Curve and press the scroll bar to select. Scroll to 1 (Curve:1) and press the scroll bar to select. The submenu should show Curve: 1 and Switch B in position 1.

- Note that if these settings are too soft you can try 1 to 0%, 2 to 10%, 3 to 25%, 4 to 50% and 5 to 100% for switch position 0 (Pinch), 1 to 3%, 2 to 13%, 3 to 28%, 4 to 53% and 5 to 100% for switch position 1 (Normal), and 1 to 8%, 2 to 18%, 3 to 33%, 4 to 58% and 5 to 100% for switch position 2 (Puff).
- And if you'd like more difference between Pinch and Normal modes you can try something like 1 to 5%, 2 to 10%, 3 to 20%, 4 to 45% and 5 to 100% for switch position 0 (pinch) (and obviously, consider pulling the base (Pinch) mainboom position further inboard before you do this.)
- And if you'd like more difference between Normal and Puff modes you can try something like 1 to 10%, 2 to 15%, 3 to 25%,

- 4 to 50% and 5H to 100% for switch position 2 (Puff).
- Obviously, you sail with Switch B in position 1 (Normal) until you are overpowered, then flick to position 2 (Puff) for the puff, and back to position 1 when it is time to sheet back in.
  - My ODOM set-up method is identical, but the settings are
  - 1 to 0%, 2 to 5%, 3 to 15%, 4 to 40% and 5 to 100%. (Fig. 16) for Pinch mode (Switch B, position 0).
  - 1 to 5%, 2 to 10%, 3 to 20%, 4 to 45% and 5 to 100%. (Fig. 17) for Normal mode (Switch B, position 1).  
1 to 10%, 2 to 15%, 3 to 25%, 4 to 50% and 5 to 100%. (Fig. 17) for Puff mode (Switch B, position 2).
  - ODOMs have sidestays, so you can set up the downwind sheets out end point for 85 degrees of main boom angle (Travel sub menu, THR (Throttle): 100 80) or for a little bit of by the lee sailing, where the sidestays are at (Travel sub menu, THR (Throttle): 100 100).  
Depending on how much mainsail twist you are using, the optimal direct downwind mainboom angle will normally be a little less than 85 degrees.
  - Menu Settings that I Don't Use:  
Servo Setup, Sub Trim Submenu: I don't use this, since I prefer to set my rudder mid-line mechanically. I think that this works much better. I do use the rudder trim tab (Fig 1. #4) for minor adjustments between races.  
Throttle Cut  
Analog Switch Setup  
Digital Switch Setup  
Mixing  
Range Test  
Timer  
Telemetry  
VTX Setup  
Lap Timer  
Monitor: This is a display of where your controls are currently at. I use this rarely, when I need to troubleshoot.

but I hope that it was useful for you to see some sample settings for the most important options. And for the beginner, this should help with initial setup no matter what. As always, contact me at [gsnorris@gmail.com](mailto:gsnorris@gmail.com) for any questions, comments, or criticisms.

**Conclusion:** I hope that this has been useful. Setup for the DX6e is not quite intuitive, but pretty easy,