Wave Cruiser 2022

Construction description of the Wave Cruiser:

Normally we assemble the parts from low to high. In this case, that is a bit more difficult because it is a 3D kit. The assembly order below works well, but it is difficult to describe a uniform way for this. More ways of assembly are possible. The PCB also contains 2 solder supports, which can be used during construction. Furthermore, a small vice, clothespins or "sticky gums" for posters can be of good service. **The resistors in this kit are different than in the photo, the tables and the text have been adjusted on the included resistors!**

The resistors are mounted horizontally. To do this, bend both wires at an angle of 90 degrees taking into account the distance between the holes on the PCB. Insert the resistance through the pcb and gently bend the wires on the bottom of the PCB slightly apart. The PCB can now be turned over to solder without the resistance falling out of the PCB. After soldering, cut off the legs just above the soldering. Do this also for all other components with longer legs such as the LEDs and capacitors. If in doubt about the correct placement, look at the photos.
Tip 1: The dots at the beginning of the line can be colored to indicate which parts have already been assembled.
Tip 2: When in doubt about the assembly of a component, look at the photo of the built-up PCB, once soldered incorrectly, repair can sometimes be very difficult.
Tip 3: For the resistors, a component bending mold can do good service.

Mounting order:

The loose PCBs are stuck in the large PCBs by means of small "bridges", by applying force at the place of the bridges the PCBs can be carefully broken loose. If necessary, the place where the bridge was located can be finished smoothly with a small file or some sandpaper.

- Break the hull loose from the large PCB.
- Mount the battery holder at the bottom of the fuselage.
  Take a good look at the PCB to see how it should be mounted. The easiest way is to secure it on one side with a drop of tin. Then heat the solder again and carefully bring the battery holder into the right position with tweezers. Then solder the other side and then the first side tightly.

Mount the following resistors successively:

- R4, R7: 1.5 KΩ(brown, green, red, gold)
- R5: 470 K Ω(yellow, purple, yellow, gold)
- R6: 47 K Ω(yellow, purple, orange, gold)

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- Break the mast with sails loose from the large PCB.

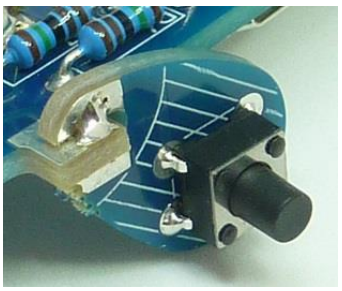
Assemble in sequence the following resistors:

- R1: 47 Ω(yellow, purple, black, gold)
- R2, R3 470 Ω (yellow, purple, brown, gold)

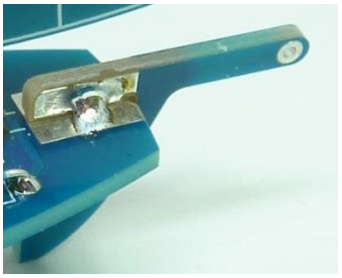
We are now going to assemble the boat:

- Mount the mast on the hull, it is slid in from the top.
  Attach it to one of the four surfaces at the top with a drop of solder. By making this warm every time, the mast can be positioned properly.
  If it is in good condition, the mast can be soldered to the top and bottom. Let the PCB cool down well after soldering a surface. The other parts are assembled in the same way.

TIP: To prevent the solder from flowing down through the hull, it is advisable to place the boat with the sail on a box or a block of wood horizontally during soldering.

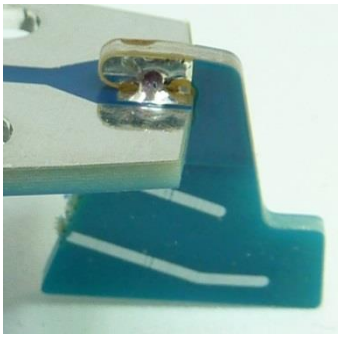


- Break both swords loose from the PCB.
- Mount a pressure switch (SW1 and SW2) on each sword.
- Secure both swords to the torso with a small drop of tin.
  The letter on the back of the sword should match the letter on the bottom of the hull.



- Break the bow out of the PCB.
- Secure the bow to the hull with a small drop of tin.

- Break the rudder out of the PCB.
- Secure the rudder to the hull with a small drop of tin.
- The boat must now remain standing itself.



- By heating the soldering of one of the swords, bow or rudder each time and repositioning the part, the ship can be straightened.
- After that, all surfaces (top and bottom) on the swords, bow and rudder can be soldered permanently.

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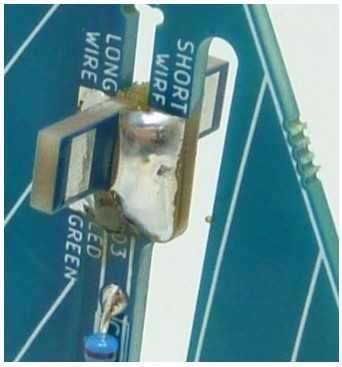
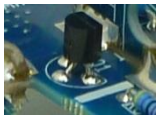
- Break the boards for the navigation lights out of the large board.
- Slide the PCB with the slot to the bottom of the mast.
  The front and back are the same so it doesn't matter how you mount this PCB.
- Solder the PCB neatly straight to all 4 places to the mast.



We are now going to assemble the remaining parts.

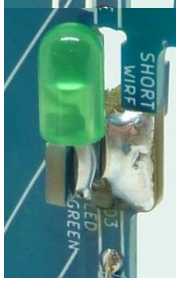
- Mount C1 (220 µF) on the hull, the long connection comes into the hole at the + on the PCB.
- Mount Q1 (BC337/25) on the hull, pay close attention to how it should be mounted, the shape of Q1 is drawn on the board



Now the LEDs can be mounted, they have a short and a long leg. Pay close attention to the placement of this! This is also indicated on the PCB.

- Place the green LED on the right (starboard) on the pcb for the navigation lights. The short connection comes on the bow side.
- Solder it neatly on both sides and cut the wires under the PCB.

- Do the same with the red LED on the left side (port side), the short connection also comes back on the bow side.



- Mount the top, which is the white LED. Of these, the legs must first be shortened a bit. Cut the short leg a little shorter than the long one, then you always know how to sit. The long leg comes on the starboard side, near the green LED.

- To complete the boat, mount a cut wire from the bow to the jib.

- Slide the battery (CR2032) into the battery holder under the fuselage, pay attention to the + and -!

The Wave Cruiser is now ready to use!

When pressing the switch on the starboard sword, the navigation lights turn on.
When pressing the switch on the port side, the top duty turns on and after a certain time automatically turns off again.
By touching the 2 silver-colored surfaces next to the rudder with wet fingers, the top obligation also turns on! Connect a Morse key to this and you can signal with THE top duty!