Club Locarno UFO Foiler Sailing Manual

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Preliminary checkout and sailing conditions

(subject to revision based on further testing and familiarity):

1) You must be a competent sailor who is able to intuitively sail (hold a CanSail 3 or equivalent training, or 50+ hours on the water)
2) View and confirm UFO training archive ****REQUIRED VIEWING****

   Locarno Way rigging video with additional tips part 1 of 2 (part 2 coming soon)

   https://youtu.be/i3Ze8SOB9y0

   Manufacturer UFO rigging tutorial:

   https://www.youtube.com/watch?v=GaI0e63whvU

   UFO Flight School Lesson 1. Takeoffs and straight lines:

   https://www.youtube.com/watch?v=_F8doHBpkRw

   Show, Don't Tell. #1 Righting from a capsize:

   https://www.youtube.com/watch?v=NcV4Ul2VvKY

   Optional viewing everything else at:
   https://www.youtube.com/user/CaptainWPeachfuzz/videos

3) First day launch on the water when wind is under 10 knots (early on a day with a westerly predicted on a clear day) as thermal builds stop sailing before wind exceeds 15 knots (if there are many whitecaps, you are over the beginner UFO limit)
4) No sailing in tidal zones or with driftwood visible. If after launching you discover large amounts of visible driftwood or a tidal line (scum or froth on water with a collection of surface materials floating) avoid crossing this area and if you must do it at low speed while off the foils.
5) Start with a high wand configuration (foil skimming mode) to learn balance
6) Launch and land with foils up and rudder down only enough for steerage but still between the hulls for protection

7) NO BEACHING THE UFO even with foils and rudder up. Land at slow speed head up to wind in shallow water and step out. Lift onto beach enough to prevent drifting away while you get the dolly or have someone bring the dolly to you.

8) No approaching the shore with foils down. This includes the large tidal flats. Do not even get remotely close to this area even at high tide. Stay in front of JSCA when learning:



9) Have fun on (above) the water!

UFO Rigging the Locarno Way

1) Release all batten tension and tension until they just “stand up” when popped. If a note is included follow the instructions with understanding that it may not be accurate (For number of turns to get back to tuned state). From standing add 10 half turns to top batten and 5 to next down and 3 to next down

2) Attach halyard using figure 8 knot followed by a hitch such that no knot is in the way allowing a full hoist. Hoist main 45 degrees to the wind with ALL rig tension completely off putting sufficient bend in the mast that the sail luff raises easily without side force on the boltrope. This will likely be from the mid to rear position (further back than shown in the manufacturers rigging video).

3) Cleat halyard using cleat at top of mast and jerk sail down to ensure it is locked in the cleat.

4) Run main halyard through the eyelets behind the mast and tie off and store in shrouds. Run dedicated tie off line through the downhaul grommet and around the mast to prevent the sail from being pulled out of the track. This is extremely important and must always be done.

5) Run black downhaul line through grommet, pulley and cleat. Extend enough to tie a figure 8. This will be difficult and is required to prevent the mast lower section ($4000) from breaking (if the mast is ever not seated and loaded it will be damaged, the knot prevents this from happening)

6) Apply rig tension until the shrouds show 40kg on the rigsense gauge

7) Pull more downhaul using yellow line (fine tuning) until you have 5 inches of separation between the bottom of the bolt rope (not the car, the actual bolt rope) and the top surface of the mast collar. There is a marker on the mast for this position. Don’t pull past this marker.

8) Connect the outhaul and tension until shrouds show 80-100kg on the rigsense gauge

9) Use the middle pin setting on the foil and enough rudder to keep the wand in contact with the water at nearly all times (just aft of the midpoint in the rudder gudgeon) You can see this underneath the rudder as you screw the foil adjustment knob.

10) When main foil is down velcro around to secure the pin gates from swinging out

11) Main foil is not needed for launching, leave it locked up until in deep water to drop it.

12) Lower rudder foil in waist deep water 2 feet to have steerage. Lock using nylon thumb screw just enough to stop it dropping into the sand. Do not over tighten.

13) When out drop main foil use center pin position and velcro gate closed.

14) Release thumb screw and use green line to lock down rudder foil and cleat line in down position. Run line across to metal spacer then between spacer and white plastic hook to keep excess.

Capsize Recovery

According to Malcolm Gladwell's Outliers one needs 10,000 hours to truly master any skill with the caveat that the hours must be spent doing "deliberate practice." In the case of small boat sailing "deliberate practice" will result in capsizes--lots of them. Dinghy sailing may not be mastered without exploring the boundaries of stability and crossing them. Therefore, you'll need to be adept at capsize recovery techniques to master all things UFO.

First step on your way to capsize recovery is TO CAPSIZE. Hopefully, you've got this one down already. If not, dial your ride height to the max, get foiling, bear away and start trying to foil gybe. You'll figure out how to capsize somewhere in there. Once the boat capsizes it will either be laying on its side with the mast in the water or fully turtled. There are a variety of ways to get it upright depending on your situation.

Righting a UFO on its side



Climbing Up

1. Climb onto the lower hull.



2. Standup. You can use the main vertical to help balance your way up.

a. Don’t stand too far aft. You can roll the boat onto its sterns with bows sticking up in the air, what we call the “Space Invader”.



b. In the same vein, don’t stand too far forward, but that will be hard to do if you’re aft of the main vertical.

3. Grab the handle connected through the hull and lean back.



    a. When standing on the hull keep your feet on the chine for the best footing.

4. If you're having trouble getting the boat upright or are impatient and want it upright faster, move to using the righting handle (see below). If you're on the smaller side, you'll probably be using the righting handle more often than not.

Using the Righting Handle

1. Reach or climb up to grab the righting handle on the top hull.
2. Put your feet on the chine of the lower hull and lean back. You can do this by climbing up onto the hull as you did for Technique #1 or merely pushing off in the water once you

have the righting handle in hand.



3. Keep leaning back. Try to make sure your body weight stays out of the water. Arching your back can help pull your butt up and out of the water as the boat comes upright.

4. As the boat starts to come upright, you'll inevitably end up with your body in the water. As this happens start climbing up the righting handle with your hands to complete the recovery. If you're on the heavy side such efforts probably won't be necessary.

Cal**ufo**rnia Roll

1. If you find yourself on the leeward side of the boat as it comes upright, reach for the lower handle.

    a. Note that you can get away with not doing this in mild and moderate breeze due to the UFO's hullform stability.

2. Allow the boat to right on top of you, wearing it like a hat, with hands holding both handles. Once it's upright and stable, swim around or duck your head under the hull to get to the windward side and climb aboard.

3. If you want to make the Cal**ufo**rnia Roll an even quicker maneuver, here's how. Once you've grabbed the handle on the lower hull and are sure the boat is coming upright, release your hand from the top hull. You're now holding on to the new windward hull, which in big breeze will get lifted up in the air as the boat tries to capsize the other way.

Slide your head under the new windward hull, pull it back down to the water and climb aboard.



Fully Turtled

1. Climb onto the boat and grab a righting handle.
2. Go to the hull opposite the righting handle and stand on the chine. You can use the main vertical and foil to steady yourself as you're standing up.
    a. Note, that you can hold the mainfoil on a UFO without cutting yourself as the hydrofoils come from the factory with dull, rounded trailing edges. Do not sharpen the trailing edge of your foils. It's dangerous and will not be one-design class legal for racing.

3. Once standing on the chine of the hull, lean back.







The boat will slowly come upright. Once it's on its side, choose your method from above.

4. In order to right the boat from a full turtle as quickly as possible grab the windward righting handle and lean back from the leeward hull. Wind and wave action will help you right the boat quicker. Once the UFO is on its side, you'll do a Cal**ufo**rnia Roll.

5. If you find the boat takes too long to right from a full turtle for your height and weight, you may need lengthen your righting handle line. You want the righting handle to be long enough to right the boat from a full turtle easily, but not so long that your body ends up floating in the water when the boat is halfway up.

Non-Foiling Tacks or How to Heisman Tack

Unconventional Foiling One-Design, would be an accurate backronym for the UFO, and the tacking technique certainly exemplifies the wonderful, weird and unconventional world of the UFO. Due the catamaran hull that you love for it's stability and mainfoil forward of mast setup that makes beach launching a breeze, conventional sailboat tacking techniques will not suffice. Instead you'll have to learn a maneuver called the Heisman Tack.

If you're not American, here's picture of the Heisman Trophy, awarded to the most outstanding college football player in the country each year.



The crux of the maneuver is pulling the mainsail over your head and then stiff-arming (see above) it out on the new leeward side to help the boat turn. Stiff-arming is an apt turn of phrase, because the push out on the sail does have to be fairly aggressive. Effectively, you're using the sail as an air rudder to help turn the boat along with the rudder in the water we're all familiar with.

So without further ado, here are the steps to the Heisman Tack. Don't be discouraged, if your first few attempts end with you getting the boat stuck in irons. That's how it starts for everyone,

but with practice you'll soon be tacking like a pro even in the lightest breeze. [linked video here could be improved, but it's the best Heisman tack vid I've seen]

1. Get going hull speed on a closed hauled course with your mainsheet flaked out near the front beam. [ADD PICTURE of mainsheet flaked forward, POV GoPro Shot] One of the biggest reasons for tacking failure is standing, sitting or kneeling on the mainsheet. You'll come through the breeze and be fighting your own "butt-cleat" as you try to stiff arm the sail out.

2. Push the helm over to tack and reach for the trailing edge of the sail with your mainsheet hand where the lowest horizontal colored taping (and seam) taping intersects the leach. [ADD PICTURE of sail with circle in arrow where to grab]. You can and should drop the mainsheet as you go head to wind. Otherwise you'll pin it against the sail as you "stiff-arm" it out.

3. Pull the sail over your head as you start to cross the boat and "stiff-arm" it out. Don't be afraid to push hard, but if the sail doesn't go anywhere make sure you don't have a

butt-cleat” jamming up the works.



4. If you’ve made it this far on your first attempt without getting stuck in irons and starting to drift backwards, you’re doing abnormally well. If not, it’s time to start backing the boat down to complete the tack.

    4.1. Switch your helm over to the new leeward side. Tiller and mainsail, which you’re pushing out, will be on the same side of the boat.

    4.2. Keep pushing out on the mainsail and hold the helm over until the boat is on a beam reach. Sitting a bit aft, while backing can help free the bows and rotate the boat. Be aware in bigger breeze (particularly in waves) you can dig the sterns in backing the boat down and start to reverse pitchpole. If that happens just move weight forward and if necessary release the backwinded sail temporarily. Once the bows get back down to the water continue backing out of the tack.

4.3. When you get to a beam reach, rejoin the tacking instructions.

5. Whether you got the boat stuck in irons or you got through the breeze cleanly, you've now got the boat on a beam reach. Finish crossing the boat and sit a bit forward, on the front pad works well.

6. Centerline your tiller (you should have switched tiller hands behind your back by now) and start trimming in your mainsheet very slowly. The major risk at this point is trimming the main in too quickly and rounding up into irons again. If that happens just go back to step 4. Due to the mainfoil being in front of the mast the boat has a tendency to round up, so you need to keep the bow down and not trim in too much main until the boat accelerates. Once you accelerate out of the tack, you can begin trimming in and heading back up to a close-hauled course.

Now that you've digested the basic boat handling involved in the Heisman Tack. Here are a few more nuances you'll need to know to master the maneuver.

1. When you want a boat, not just the UFO, to tack quickly it helps to have weight a little bit aft to get the bow knuckle out of the water and free the boat to rotate. Then when you're on the new tack, you want to push weight forward to put the bow knuckle back in the water and "lock-in" the heading as the boat accelerates on its new course. This is why you may have been taught to roll aft and flatten forward, when learning to roll tack a Laser, 420, FJ or other dinghy. The same principle applies in the UFO, but you have to be careful with the weight aft bit, as weight too far aft can kill a lot of speed through wave drag off the sterns.[LINK TO light air technique write-up for fuller explanation] You have to balance loss of forward momentum from wave drag as you move aft with lifting the bows out of the water to make rotation easier. You'll pick up the balance here with practice. [May be cut the details below, sometimes too much info is a bad thing]

    1.1. In light breeze moving weight aft through tacks seems to work well (remember drag increases with velocity squared). You basically convert all forward momentum into rotation and end up with the boat on the new tack beam reaching at 0 knots, if you've done everything right. Now you reaccelerate and proceed upwind.

    1.2. In heavier breeze you can maintain more forward momentum through a Heisman Tack, and have power to help push the bows around. Therefore, keeping weight more towards the middle of boat is better. Additionally, if you get stuck in irons, you can dig the sterns in and reverse pitchpole in heavy air and not moving aft keeps you away from that risk.

    1.3. Finally, when the boat is stuck in irons and velocity is near zero, definitely get weight aft to free the bows. Be wary of digging the sterns in as you back down in

big breeze, but don't worry about wave drag, when velocity is zero, so is wave drag.

2. When trying to re-accelerate out of tack, without rounding up you have a few more techniques at your disposal than just not trimming main in to quickly while you let the boat accelerate.

    2.1. First, as discussed above, get weight forward to put the bow knuckles in the water and the help the boat resist rounding up (i.e. rotating).

    2.2. If you're rounding up, not accelerating or you feel yourself losing flow on the rudder, try "fishing" the rudder to stimulate flow on the foil. This is distinct from sculling in that it doesn't exceed ~20 degrees from center and happens at a higher frequency. You're fluttering rather than flapping. Each tug should move the end of the tiller around 3 inches off centerline and back to centerline. [ADD GIF or VIDEO here] Once the boat starts moving, you can resume normal helm operations.

    2.3. DO NOT try to scull the boat to get the bow down. The UFO is far too resistant to rotation when not foiling to scull (or paddle it with the rudder) onto the correct course. You need to maintain flow over the surface of the rudder and use the lift generated by the flow to steer onto the correct course.

    2.4. As you trim in the main to accelerate be very sensitive to the boats tendency to round up. A quick release of the mainsheet when it gets trimmed on to quickly out of a tack can save you from rounding up. And when I say quick release, I mean let it run through your hand or just drop it on the deck.

3. Finally, I've been telling you throughout to get the boat onto a beam reach before trimming in and accelerating on the new tack. I've told a lie of omission. In certain conditions you can reaccelerate on your new tack closer to the breeze, but the beam reach is a good and safe point of sail where it's easy for beginners to get the boat going again in all conditions. Once again, there's a balance you'll have to develop a feel for, but generally the more momentum you maintain through a tack the closer to the breeze you can be when you try to accelerate on your new tack. The higher boat speed and better flow over the rudder give you better steerage, allow you to trim the main and means you don't have to weight forward to dig in the bows on the new course.

Well that's all I've got when it comes to Heisman Tacking. I can guarantee your initial practices will involve quite a lot of getting stuck in irons and backing down. I know mine did. Don't be discouraged. Unless you're an A-Cat sailor of a certain vintage, you've never done anything like

this before. As much as I'd like to claim we invented the Heisman Tack, we just stole it from the A-Cat class and adapted it to the UFO.

So get out on the water, practice, try things and figure it out. If you have any questions, put them in the comments and we'll do our best to answer them, if one of your fellow foilers doesn't beat us to it.

Foiling in a Light Breeze

Here's the post from the forums about light/moderate breeze sail setup. There are a lot of good tips from Dave on the SA thread, so check that out if you haven't already.

First comment, when Dave says add 15 turns to the gaff batten, they are half turns equal to 180 degrees. He assumes you're starting from a reasonable full batten tension, where it's not loose anymore and has just enough tension to pop back and forth.

The instructions also require a Spinlock RigSense tuning gauge, but if you don't have that just pull on the shroud tension as tight as possible once you have the cunningham and outhaul connected, but not tightened. Then bring the end of the bolt rope on the sails tack down to 5.5 inches from the mast collar. Finally, pull on the outhaul until the clew (measuring from the edge of the eyelet) is about 4 inches from the u-bolt in the end of the boom. If you want more power ease the outhaul and leave everything else the same. This will also add more twist to the sail, which will make the trimming more forgiving. To depower and twist off the sail just add cunningham to bend the mast back and stretch the luff.

With twist some part of the sail will likely be trimmed correctly as the boat accelerates and apparent wind moves forward even if you don't adjust your mainsheet correctly. Additionally, in marginal conditions (under 10 knots for your weight) some pumping and kinetics will be very helpful to get you up on the foils. The technique takes time to teach yourself. It took me a number of days sailing to work out marginal breeze launches. When you're pumping 4+ feet of mainsheet (use both hands) and the apparent wind is shifting with acceleration and deceleration even an expert needs some twist in the sail to keep the flow attached.

10-14 knots sounds like enough breeze to get the boat foiling for your weight even if the sail tuning was a bit off. So make sure your foil trim is correct. I'm assuming you had the mainfoil in the middle pin setting, this is the max AoA that's useful. You want the rudder 7 turns from the end of the range (this is the middle). If you think you need more rudder lift to fly, add AoA 1 turn at a time. If you've added three turns on AoA from the middle, you're close to the end of the useful range, so consider looking elsewhere. Finally, when your mainfoil is assembled the pushrod should be just above, but not pushing down on the flap.

If you have a big gap between the push rod and the flap, you need to adjust the calibration. This requires pulling the gearing out of the wand and adjusting the calibration. Good

explanation of how that works here. FYI, this is not the official class website, but something one of the early owners put together.

Maintaining the mast step

Obviously, don't have a bunch of sand in your mast step, but the broader obvious wisdom is that there's a lot of torque in the spar and helping to resolve it is good maintenance. The boom wants to rotate the spar and the bearing at the mast step doesn't, with varying degrees of aggression. I just saw this personally in a highly aggressive state and it wasn't pretty.

So here's the tip to lower the odds of this happening to other spars in the field: Grease your mast lowers at the step. Essentially, all the points where it makes contact with the hull and tries to turn. My grease of choice is tallow. This is otherwise known as rendered animal fat over the years this stuff has shown stunning results in a variety of applications I've used it in. Plus it's less horrible for the ocean than most synthetic greases and is so thick and greasy that seawater takes a long time to wash it off. The objective should be to make sure that the mast lower rotates cleanly while you ease, even if you have tons of Cunningham on. We're working on increasing the bearing area at the deck plate on future boats as well to address this risk structurally.