# 2021 ROLEX NYYC INVITATIONAL CUP

## Competitor Briefing and Performance Document

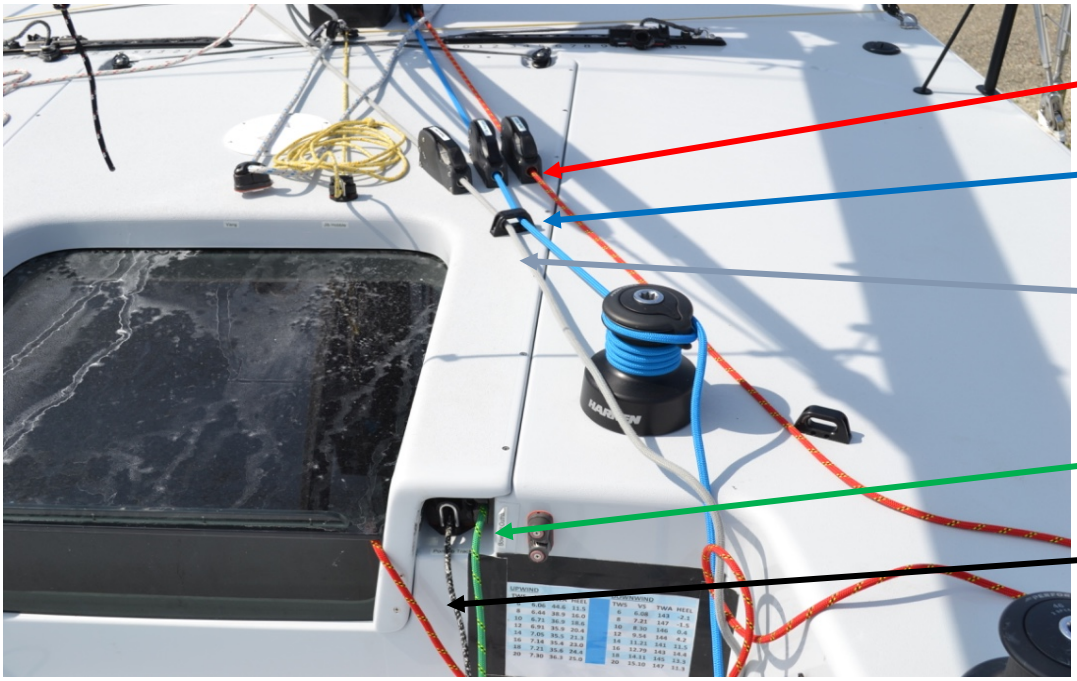

***"THE JOY OF RACING RE-IMAGINED"***

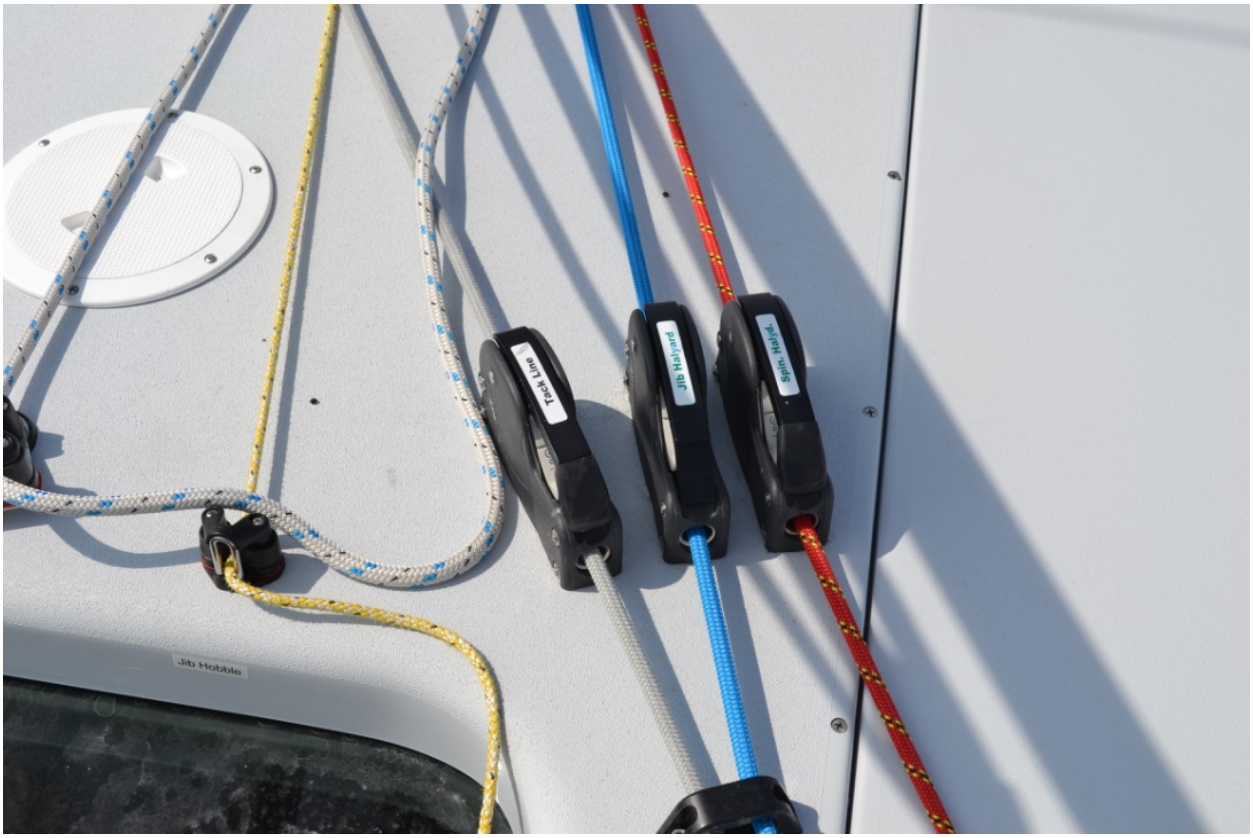
**IC37 Design Vision Statements**

*The IC37 was designed for close one-design racing in large fleets of 20 or more boats on the starting line. The design has: (1) rudder authority for maneuverability in close quarters, (2) longitudinal stability for confident control while planing in close quarters, and (3) a high lift keel with adequate area for quick acceleration out of tacks and the ability to hold a lane upwind in a large fleet.*

# SECTION 1: IC37 Deck Layout and Sail Setup

Winches: Pit Primary Main Backstay


Spinnaker Halyard
(Red)
Jib Halyard
(Blue)
Tack Line
(Grey)
Pole Out
(Green)
Port Jib Lead
Up-Down
(Black/White)


Tack Line
Jib Halyard
Spin. Halyard
Jib Hobble


Jib Hobble
(Black/White)
Vang
(Blue Specked)


Stb. Jib Lead
Up-Down
(Black/White)

Jib Hobble

Engine Instrument Panel

# SAIL SETUP

## Mainsail Batten Box Stud Installation:

The batten boxes are designed to have the studs screwed as far in as possible while still being only hand tight. The end of the stud attached to the slide might look like it is farther into the sail than the other bushings on the luff, but that is because the batten slides stick out of the mast farther than the intermediate slides. **This is important: don't over-tighten the studs.** They should be screwed in as far as possible by hand and then backed out half a turn. This allows the box to rotate on the stud lining up with the track when the main is hoisted. If the stud is in too far and the box can't rotate to vertical easily risking bending the stud and breaking the batten box.


PIC 1


PIC 2

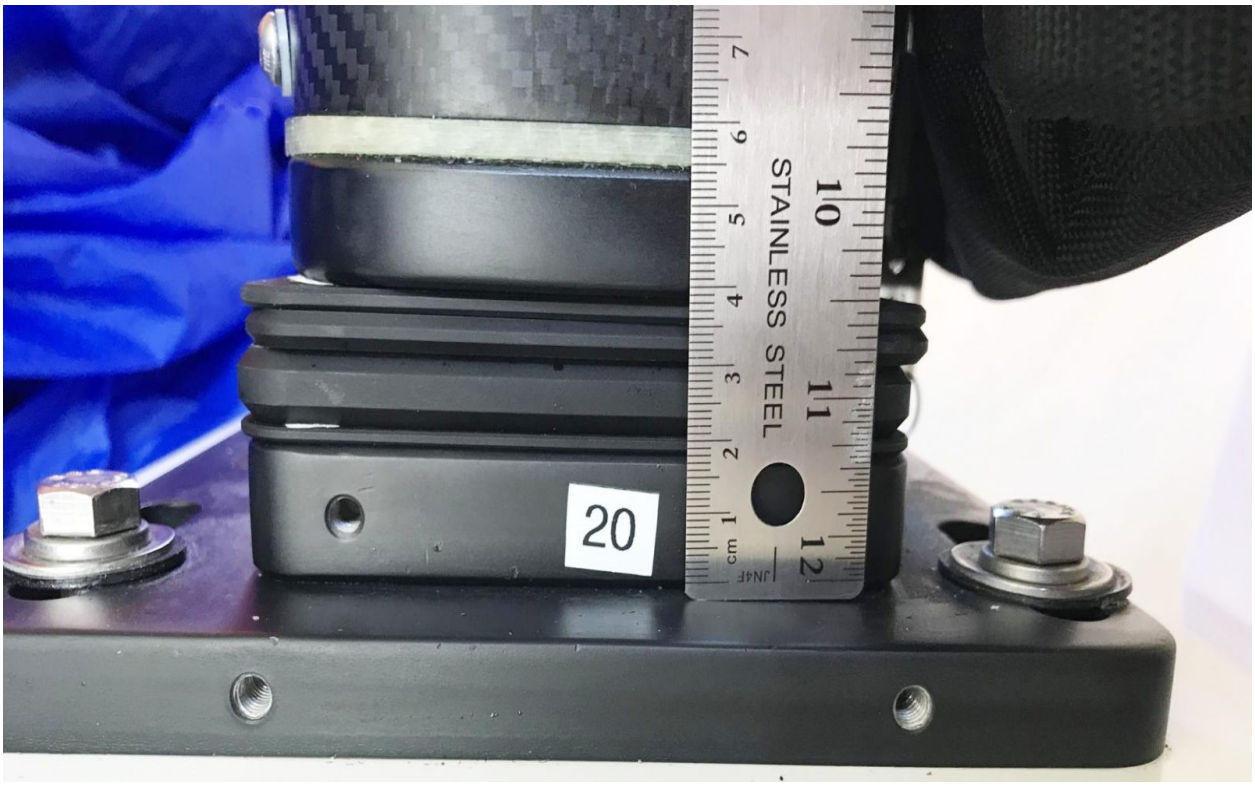
## Spinnaker Set-up:

1. Run tapes on port trampoline / Run sheets, halyard, and tack for port hatch launch
2. "Starboard Spin Sheet" runs inside (stb) halyard and tack to keep take-down line clear.
3. Sheets/Halyards: Attach sheets, halyard, and tack to respective corners of spinnaker
4. Take-Down Line: The take-down line patch is roughly half way to the head
    - Starting from the clew, work along the foot of the spinnaker roughly to the center, keeping the port side of the spinnaker up
    - Work from the center of the foot in the direction of the head along the port side of the spinnaker cloth
    - Pull the patch aft so it is the aft most part of the spinnaker and on top/visible
    - Attach one end of the provided take-down line to the attachment point with one of the two provided soft shackles
    - Run the take-down line aft through the upper, outboard bulkhead cutout and through the block mounted in the upper port aft corner of the boat.
    - Lead the take-down line back forward through the same bulkhead cutout, through the fairlead on the side of the engine compartment/companionway and to the block at the aft end of the keel box.
5. Connection to Halyard: Starting at the clutch, clear the tail of the spinnaker halyard
    - Lead the halyard tail through the companionway fairlead
    - Lead the halyard tail through the block at the aft end of the keel box with the rachet mechanism arrows pointing towards the cockpit/working end of halyard
    - Use the remaining soft shackle to attach the take-down line to the spinnaker halyard creating a continuous system.

# SECTION 2: Polar Boat Speeds, Tune Shim, Stock Items

**Detailed description of polars and tuning with shims can be found at:**
IC37 Tuning Guide: https://www.northsails.com/sailing/en/resources/ic37-by-melges-tuning-guide

| WIND SPEED (knots) | SHIM HEIGHT (mm) |
|---|---|
| 0-6 | 22 |
| 6-10 | 28 |
| 10-14 | 35 |
| 14-18 | 40 |
| 18+ | 40 |



## Stock Items on the IC37

Garmin GPS 1
Windex mast unit 1
Sailing data displays 2
Mast jack pump 1
Tiller extension 1
Harken 11” winch handles 4
Harken 9” winch handles 2
Life jackets with whistles 8
Jon Bouy 1
50’ Throw rope 1
Throwable floating cushion 1
Radar reflector 1
Flare kit 1
First aid kit 1
Set of wood plugs 1
Knife in sheath 1
Dry-bag for safety equipment 1
Orange dry-boxes 2
Flag pole 1
US flag 1
Fenders, covers and lines 4
Dock lines 4
Buckets 2
Chamois 1
Air Horn 1
Flashlights 2
Chart of Narragansett Bay 1
Fortress FX16 anchor, shackle, chain, rode and anchor bag 1
Mesh bag for anchor rode 1
Mooring pennants 2
Boathook 1
Tool kit (multi screwdriver, socket set, pliers, hex wrenches, adjustable wrench) 1

# SECTION 3: IC37 Recommended Basic Crew Positions

Based on a crew weight limit of 686 kg, the IC37 crew will consist of eight (8) or nine (9) crew with at least two (2) of the opposite gender, or if seven (7) crew with at least one of the crew members of the opposite gender on the crew.

**NOTE:** A detailed review of crew positions and maneuvers can be found on the North Sails site under "Boat Handling Manual: https://cfd.northsails.com/sailing/wp-content/uploads/2018/08/05122425/12-NS-IC37_manual_8.5.19.pdf

Example of recommendations for starting positions:

1. Helm
    - Execute smooth steering throughout the start.
    - Put the boat on angle and focus on heel angle and getting the boat to target speed off the line.
2. Tactician
    - Communicate clearly and precisely about where the boat needs to be and what's the next move.
    - Position the boat for acceleration with focus on timing, pulling the trigger.
    - Give starting targets for executing game plan.
    - Talk to trimmers to get the boat going with Helm.
    - Handle port runner or take starboard runner and wind on to load.
3. Main
    - Make sure the mainsail is ready for the start. Are mast shims set per tuning guide for conditions?
    - Listen to what's needed for boat speed.
    - Communicate about speed build with Helm and Trimmer.
    - Be ready to adapt and lead the mode if you are in a compromised position off the line.
    - Watch the gauge and speed of leeward boats off the line; give feedback to Helm and Tactician.
4. Trimmer
    - Grind sheet to leeward for maneuvers before taking tail from Trim #2.
    - Release jib in tacks, grind new sheet.
    - Talk about jib trim setting
    - Communicate about leeward boat's gauge and speed. If on lay-line or above the committee boat lay-line, talk with Helm and Tactician whether you could be shut out.
    - When slow or getting close to bottom boat speed, encourage speed build and angle.

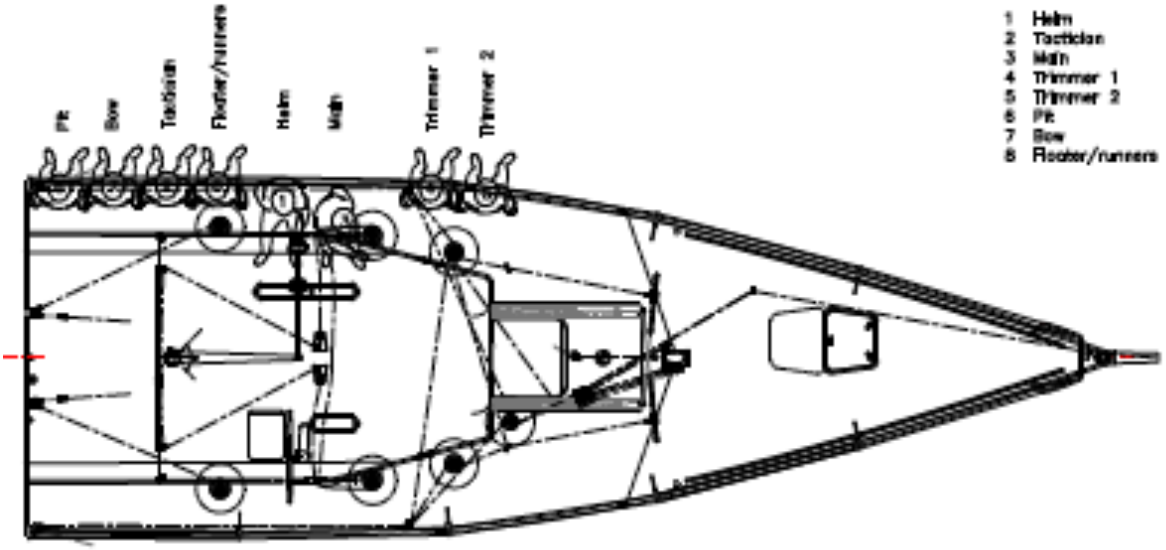
- Focus on getting the boat up to speed and move weight to windward ASAP once fully trimmed.
- Control the crew-weight movement. Set up your crew to maximize weight on the rail. The crew configurations shown below will give you a starting point; from there, move in/to leeward and forward, depending on the conditions.
- When slow or getting close to bottom boat speed, encourage speed build and angle. Focus on getting the boat up to speed and move weight to windward ASAP once fully trimmed.

5. Trim #2
    - Tail jib sheet in maneuvers and then hand off to Trimmer.
    - Load and ready new winch.
    - Adjust jib halyard and leads if needed.
    - Possibly help wind in mainsheet on windward winch; if not, help the Trimmer.
6. Pit
    - Call time and Velocitek distance from the line.
    - Countdown start time for whole boat.
7. Bow
    - Keep boat progressing with the fleet to the line.
    - Communicate time to kill vs. build time; make calls on not letting the boat get slow vs. nearby boats.
    - Try to keep boat moving level with the fleet, positioning for best build slot or trajectory to build in.
    - Make good, clear calls on where the bow needs to be and if you can swing or not (without hitting an overlapped boat).
    - Skirt jib when needed.
8. Floater
    - Does runners with tactician.
    - Make sure that you get the runner to the desired tension off the line. Be ready to adjust down if breeze drops.

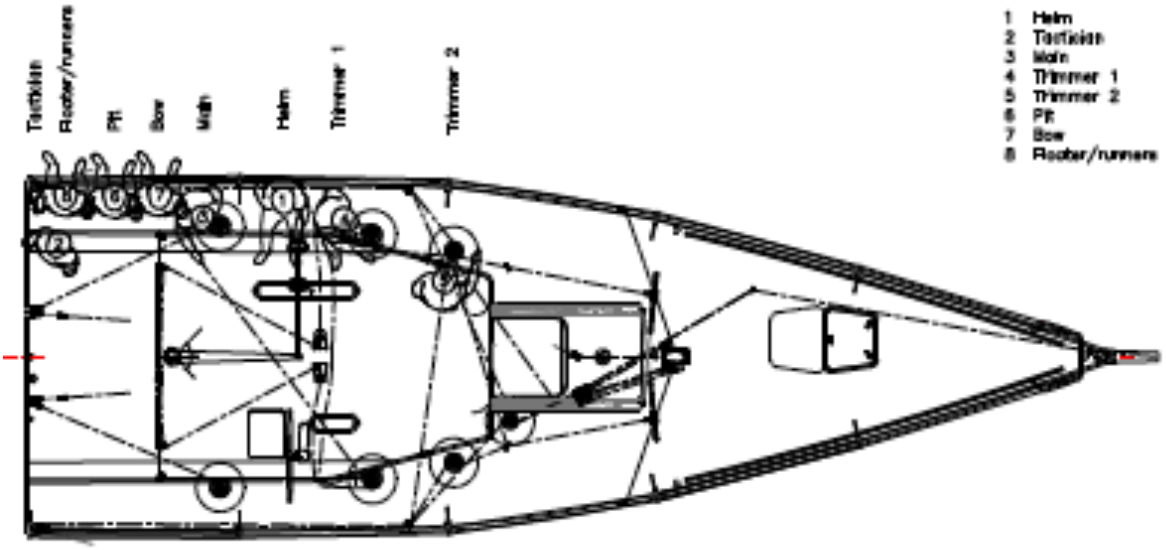
NOTE: Cross sheeting the headsail is prohibited. Except when using an outboard lead or during the process of changing sheets, the jib shall be trimmed using only the primary winch on the side on which the jib is set.

**CREW POSITIONS**

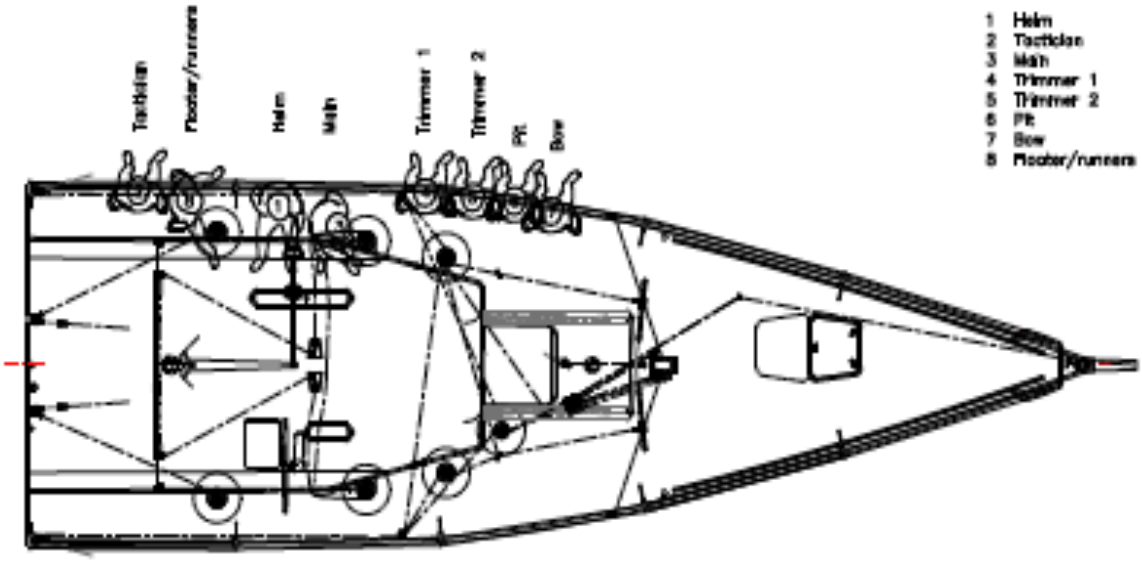
## 12+ Knot Upwind Configuration




## 12+ Knot Downwind Configuration



## Light Air Upwind Configuration

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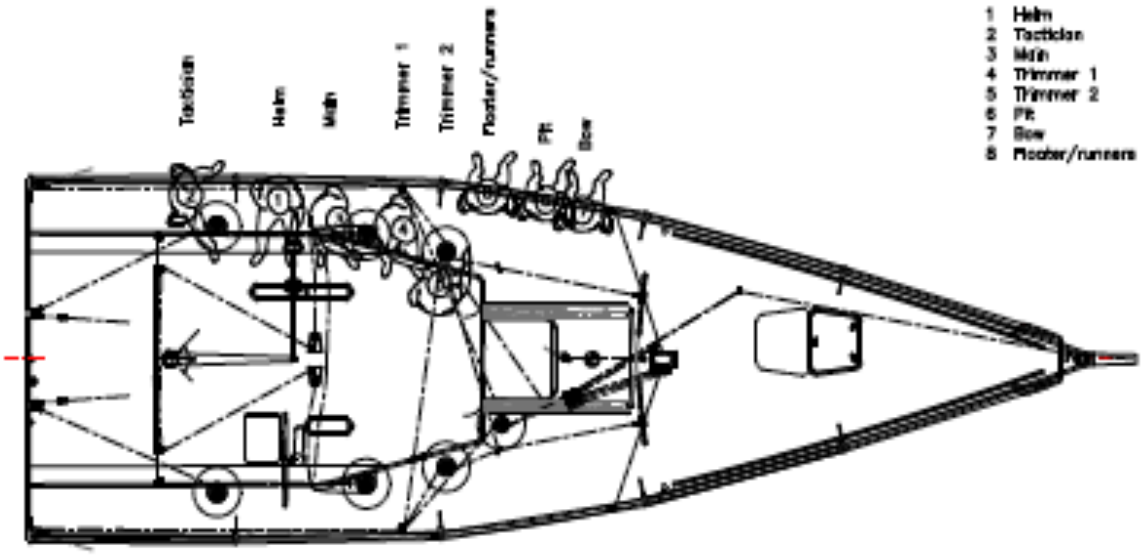

# SECTION 4: IC37 Performance Tips

## UPWIND

### Achieving the Correct Upwind Sail Settings

When it comes to your upwind heel angle and sail shapes, the IC37 is optimized at 18-20 degrees of heel. The goal with your sail setup is to create as much power as possible to achieve that heel. This involves keeping the runner eased, the main sheet trimmed so the number-two batten is just open, and the traveler is high. Your outhaul should be max in over 12 kts. Also, a little vang in heavy air helps flatten the bottom of the main. For the jib set up, the halyard should be on the loose side and the lead set for a powerful foot. The sheet should be trimmed so the mid-leech is just closing. Once you have achieved the correct upwind heel angle, you do everything that you can to get the bow down, and the boat moving faster so that the keel starts generating lift. This will give you the ability to point. Opposite to trying to achieve heel, trying to achieve speed involves making the sail plan rapidly flatter to reduce drag.

### Mainsail Trim

In light air carrying the boom just above centerline allows for a proper twist profile without having the main fall into the jib. Don't get carried away with this. A boom width above center seems to work; up near the runner is too much. Unless running very deep, actively trim main when reaching. It is very easy to ease too far out and lose any advantage from a properly trimmed main.

### Jib Halyard

Play with the controls, constantly. Jib halyard tension directly affects shape and often it is an overlooked control as the breeze picks up or dies down. Keep the cabin-top winch loaded with jib halyard when going upwind to allow for fine tuning as velocity shifts happen – clutch stays open. On final approach to windward mark, the pit person closes clutch, swings legs in, transfers load from cabin-top winch to clutch and preloads cabin-top with spin halyard ahead of hoist.

### Jib Trim

It is recommended that the jib track starts all the way inboard and only moves out when the mainsail starts too luff due to excess backwind. Due to the shape of the cockpit, the jib trimmer when trimming to leeward, sits well outboard from the clew of the jib. This makes an optical illusion for the jib trimmer as the lower part of the jib is very round and looks to literally be pointing back towards the middle of the boat. That is actually not the case. The lower leech of these jibs is quite open to allow for the jib to be sheeted quite far inboard so take advantage of the lead positioning and keep trying to sneak it inboard.

### Runners During Tacks

In fresh breeze, with the runners loaded hard, it pays to trim the new runner on before the old runner is eased – the goal is to transfer the runner load rather than ease one side and reload the other side. This requires that the tactician loads and grinds the new runner before the helm goes down, as the old runner needs to be eased promptly as the bow goes through the wind. When it is

windy enough to require this, there should be at least two crew behind the driver – usually tactician and floater. Marking the runner with tape near where the line goes around the winch at max load helps to keep the runner trimmer's head down grinding instead of looking up at the main to see how much is on.

## Recommended Steps to Achieve Speed and Reduce Drag

Think of the boat as having two power levels, and not a linear power increase. One level is where you are looking for heel. The second level is where you have all the heel you need and are translating the surplus power into speed. Speed steps: (1) increasing shims and backstay tensions, (2) easing the mainsheet, and (3) moving the jib lead out and flattening the jib foot

## Recommended Best Boat Trim Tips

Crew weight on the IC37 needs to be as active side-to-side as it is fore-and-aft. Since the boat is very wedge-shaped, more heel makes the bow want to drive down into the water. To compensate, move the crew aft earlier up the wind range than expected. There are three good rules of thumb for most conditions about where the crew should sit:

1. How much noise does the water make exiting the transom? If you hear a lot of bubbling/gurgling noises, your crew is too far aft.
2. The knuckle of the bow should always be about two inches underwater. If more than that is submerged, your crew is probably too far forward.
3. In very wavy conditions: If you take three waves over the bow in quick succession, you are too far forward in the boat.

In very flat water, pressing farther forward than normal will help reduce wetted surface. On the downwind legs, when there is enough pressure to be constantly planing, moving weight farther aft will help stabilize the boat. Getting more of the wide stern in the water and getting the bow out helps the boat track better and makes it easier to drive. If there is too much weather helm downwind, it could be because the crew weight is too far forward, and the bow is digging in.

## Recommended Best Pit Practice Tips

At the start, have the jib halyard loaded on the winch with the handle in and the clutch open. This allows for quick tensioning and easing of the halyard in tacks, as conditions warrant.

1. **Offset leg:** the pit person hikes as long as possible and then goes legs in to transfer the jib halyard from winch to clutch. Some halyard tension will be lost, but the luff should be softer for the offset and downwind legs.
2. **Spinnaker Set:** the winch is now available for the spinnaker hoist. The kite halyard should live on the winch for the downwind leg. You might also wrap the tack line around the winch with a couple of "safety wraps" to prevent slipping. If the tack line needs to be adjusted, the spinnaker halyard can be temporarily transferred to the clutch.
3. **Bottom Mark:** use the winch to control the spinnaker halyard through the drop. Once the kite is under control, load the jib halyard onto the winch and tension as needed for the windward leg. Finally, open the clutch to allow for fine tuning upwind.

# WINDWARD MARK

## Spinnaker Sets

The jib is fairly large compared to the spinnaker size which makes it hard to set the spinnaker due to backwind from the jib. Mark the spinnaker halyard with a piece of tape so the mast person pulling up the halyard knows when they have "rung the bell". As soon as the mast person says "made":

1. **Light air** (under 10 knots TWS): the jib halyard is released immediately and completely, un-cleating the jammer and smoking the luff down the headstay to get the kite to fly properly, but not before the mast person says "made".
2. **Heavier air** (over 10 knots TWS): a complete release of the jib sheet on the "made" call will ensure that the kite fills properly and immediately. Then, trim in the jib slightly if your intention is to use it as a staysail.

Regarding using the jib as a staysail: (1) Under 10 kts is too light for a jib staysail, (2) 10-12 kts is marginal and (3) over 12 kts – the jib can be used as a staysail

# LEEWARD MARK

## Leeward Mark Approach

When it's breezy, aim for the middle of the gates. This gives you the option of rounding either mark as well as providing room for the spinnaker drop. It's a big loss to over-stand the gates. Preparing for mark rounding:

1. Ease the vang downwind in bow up mode. A loose vang will reduce helm so driver can go bow up in order to get to the proper heel angle and to reach the target speed
2. The traveler should be all the way to leeward and just use the mainsheet for leech tension. As speed builds, apparent wind will go forward and VMG will increase.
3. Backstay on downwind in overpowering conditions (15+knots). This will keep mast aft in order to keep the luff of the spin tight, keeping draft forward and exit straight for better heavy air, bow up, shape. Backstay on will also flatten the main so the boat will not trip up in a big puff or crashing into a wave. Remember: Release old backstay in a Jibe! Not releasing will be a guaranteed broach in big breeze.
4. When it comes to managing the upwind lay-line, it's better to over-stand a little than to tack shy of the lay-line and be forced to gybe out.

**Remember:** an IC37 accelerates over boats that are pinching and going slow trying to make the mark. You can use this to your advantage.

## Spinnaker Douse Overview

For both windward side and leeward side takedowns, time the drop with a decisive turn down to unload the spin. Timing and positioning are everything! As the wind picks up, start the takedown process earlier and be careful not to over-stand the gate marks. It is much better to soak a bit into the marks than it is to be coming in hot with no wiggle room and sail past the marks. You will find in big breeze that a conservative takedown will almost always gain a point or two at the leeward gate. Understand your crew strengths from the mast forward and set them up for a successful mark rounding. Depending on the takedown, they may need more time.

## Spinnaker Drop: Step by Step

Timing and clear actions are everything for a successful spinnaker douse:

1. Put your strongest person on the takedown line, ready to go in the cockpit.
2. Just prior to the start of the takedown, save time by preloading the takedown/retriever line. No slack should be present once the maneuver is initiated.
3. A decisive turn down to unload the spinnaker should be timed at the exact instance when a douse happens.
4. Blow sheet and halyard while takedown line is being hauled; all load is now out of sail and belly is aimed at the hatch.
5. The bow person can assist the retriever line by pulling down while focusing on getting the middle-foot of the kite up to keep the tack inside the lifelines.
6. The floater assists from the middle of the kite to the clew, making sure no cloth is over the lifelines. If you divide up the foot, and keep pulling until you reach the corners, the kite should never end up in the water.
7. When foot and belly are under control, blow the pole while bow team is gathering the tack line – this helps bring the pole in.
8. The tack is released with the pole at the same time after foot is in control and on deck or in the hatch.
9. The tack line is then pulled into hatch until the knot stops at the clutch and the pole is pulled in. If it happens at the same time, the tack release will help bring the pole-in, and the tack will be the last corner inside the hatch

## Go to the North Sails for detailed and up to date tuning and boat handling information:

IC37 Tuning Guide: https://www.northsails.com/sailing/en/resources/ic37-by-melges-tuning-guide

Boat Handling Manual: https://cfd.northsails.com/sailing/wp-content/uploads/2018/08/05122425/12-NS-IC37_manual_8.5.19.pdf