## **Racing Creative**

**WARNING:** This is a work in progress, by a novice, based on skipper's coaching, reading, personal observation, and whatever inputs crew-mates provide over beer in the very noisy Sloop Tavern. Use with appropriate grain of salt.

Harry George

### **Table of Contents**

1	The Boat	3
	1.1 Context.	3
	1.2 Sailplan.	
	1.3 Lines	
	1.4 Interior and safety	
2	Crew	6
	2.1 Roles	6
	2.2 Typical Assignments	7
	2.2.1 Crew = 1 (single-handed)	7
	2.2.2 Crew = 2 (double-handed)	7
	2.2.3 Crew = 3 (short-handed)	8
	2.2.4 Crew = 4 (short crew)	8
	2.2.5 Crew = 5 (short crew)	8
	2.2.6 Crew = 6 (full crew)	9
3	At the dock: Checkout	9
4	Out to the Course	11
	4.1 Raise mainsail	11
	4.2 Check course	11
5	Racing	12
6	Upwind Leg	12
	6.1 Raise jib	12
	6.2 Tack	12
	6.3 Windward Mark	13
	6.3.1 "1" Approach	13
	6.3.2 "2" Tack	13
	6.3.3 "3" Set Spinnaker	14
	6.3.4 "4" Furl jib	14
7	Downwind Leg	15
	7.1 Set Spinnaker	15
	7.2 Jibe	15
	7.3 Leeward Mark	
	7.3.1 Jibe take-down ("Mexican")	16

7.3.1.1 "1" Approach	16
7.3.1.2 "2" Take-down	
7.3.1.3 "3" Round mark	
7.3.1.4 "4" Trimmed for close-hauled	
8 Back from the Course	
9 At the dock: Checkin	19
10 Appendix	21
10.1 Template Revisions	
10.2 Document Revisions	
10.3 Glossary	

### 1 The Boat

#### 1.1 Context

"Creative" is a J/105 racing sailboat.

- As a physical object it is subject to the laws of physics, including effects of wind, waves, current, gravity, momentum.
- As a marine vessel it is subject to legal regulations (e.g., safety gear, right of way).
- As a sailboat it needs to be propelled by wind/waves/current in desired directions. This requires boat handling skills coordinated/choreographed by the crew.
- As a racing sailboat it tries to cross the finish line before others, without disqualification. This requires both tactics to know where to go, and boat handling to make it happen.
- As a J/105 it must comply with one-design class rules.
- As a race participant it must comply with the course and rules of the given race.

#### Resources include:

Seamanship, regulations, sail trim, racing

"Chapman's Seamanship and Piloting". THE book on coastal seamanship, power and sail. Good on regulations and on weather.

John Rousmaniere, "The Annapolis Book of Seamanship". Focus on sailing.

David Seidman, "The Complete Sailor". The technique and romance of sailing. Even the section on racing is philosophic.

North U. "Trim". More than you ever imagined could be known about trim. Read, re-read, practice, re-read again.

Adam Cort, Richard Stearns. "Getting Started in Sailboat Racing". Intro to tactics.

J/105 class governance, rules, tuning

http://j105.org/

J/105 Pacific NW fleet

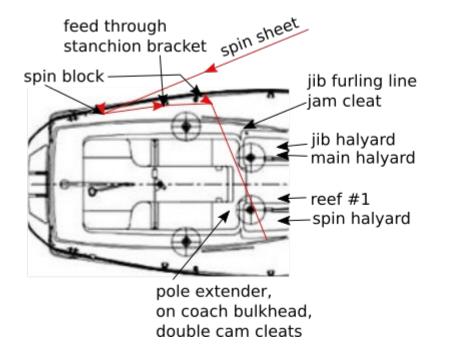
https://www.facebook.com/groups/J105PNWFleet

J/105 boat handling

# 1.2 Sailplan



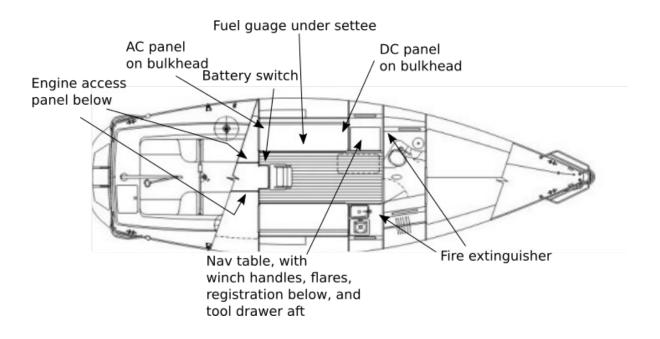
#### 1.3 Lines



At mast:

- a) rigid boom vang
- b) cunningham
- c) outhaul on boom

## 1.4 Interior and safety



### 2 Crew

A sailboat is powered by wind, slowed by drag, and steered by both wind and water. The crew's job is to manipulate control surfaces (hull, rudder, mainsail, jib, spinnaker) to get the best performance available. Usually this means seeking more power during low winds, reducing power during high winds, and reducing drag at all times. Some roles (navigator, tactician, skipper) do not directly control power, but rather decide where and how to control power.

#### 2.1 Roles

Power Role	Tasks	
Helm	Manipulate the rudder. Steer the boat straight when on course. Do smooth tacks, jibes, dips, and pinches as needed, coordinated with rest of crew.	
Main trimmer	Manipulate the mainsail. Manage main's power by controlling its angle of attack and shape, using mainsheet, mainsheet fine tuning, and traveler. Further control shape by coordinating with mast-man/bow-man re vang, cunningham, outhaul.	
Jib trimmer(s)	Manipulate the jib. Manage jib's power by controlling its angle of attack and shape, using jibsheets, jib cars, and furling line. Maintain power through tacks and jibes.	
Spinnaker trimmer	Manipulate the spinnaker. Manage spinnaker's power by controlling its angle of attack and shape, using spinnaker sheets, tack line, and halyard.	
Mast-man	Manipulate mainsail controls at the mast, under direction of mainsail trimmer. Typically vang, cunningham, and outhaul.	
Bow-man	Assist trimmers by guiding/hauling control lines, and sometimes directly shaping the sails.	
Ballast ("Rail meat")	Manipulate hull-and-keel. Generally put weight on rails to increase or decrease heel, but may also move fore and aft to improve helm balance.	

Analysis role	Tasks
Lookout	Identify and communicate to navigator: wind, wave, current, obstacles or hazards, aids to navigation (ATONS), vessels.  Identify and communicate to tactician: competitors, and competitors'
	actions.
Navigator	Understand present and future wind/current/waves and determine best course for Velocity Made Good (VMG) to next waypoint. Communicate this with

	tactician and skipper	
Tactician	Understand race tactics and strategy. Understand positions of other boats, their likely strategies and tactics, and their impacts on own boat. Recommend courses and maneuvers to optimize boat's standing in the race. Communicate this with navigator and skipper	
Skipper	Take into account all of the above, including crew's ability to perform, internal and external dangers to the vessel, and likelihood of success of maneuvers. Plan ahead, but communicate with crew primarily to prepare and execute next maneuver.	

In novice racing it is common for the skipper to be far more skilled in every role than any of the rest of the crew. The helm is a good place for such a skipper: From there he/she can steer a straight course, steer tacks/jibes/dips/pinches, see the sails, directly advise or assist mainsheet trimmer, see and advise rest of crew. Also can see around the sails to windward/leeward/forward/astern.

With a more skilled crew, the skipper might not take any power-management role -- just watch, absorb input from lookouts, navigator, and tactician, and make command decisions.

### 2.2 Typical Assignments

### 2.2.1 Crew = 1 (single-handed)

Crew member	Roles
1	All roles

### 2.2.2 Crew = 2 (double-handed)

Crew member	Roles
1	Skipper, tactician, navigator, helm, mainsheet trimmer, ballast. Lookout to leeward (under and behind sails), forward, and astern.
2	Jib trimmer, spin trimmer, mast-man, bow-man, ballast. Lookout to windward, forward, and astern.

### 2.2.3 Crew = 3 (short-handed)

Crew member	Roles
1 (experienced tactician)	Skipper, tactician, navigator, helm, mainsheet trimmer. Lookout leeward, forward, astern.
2	Jib trimmer, spin trimmer, ballast. Lookout to windward, astern
3	mast-man, bow-man, ballast, lookout to windward, forward.

Depending on mix of skills, mainsheet trimmer may do navigator and tactician, leaving helm to concentrate on driving.

### 2.2.4 **Crew = 4 (short crew)**

Crew member	Roles
1 (experienced tactician)	Skipper, tactician, navigator, helm. Lookout to leeward and astern
2	Mainsheet trimmer. Lookout to leeward and astern
3	Jib trimmer, ballast. Lookout to windward and forward. When lazy sheet, do mast-man and bow-man.
	On downwind leg, split spinnaker trimmer and bow-man duties with other jib trimmer.
4	Jib trimmer, ballast. Lookout to windward. and forward When lazy sheet, do mast-man and bowman.
	On downwind leg, split spinnaker trimmer and bow-man duties with other jib trimmer.

## 2.2.5 **Crew = 5 (short crew)**

Crew member	Roles
1 (experienced tactician)	Skipper, tactician, navigator, helm. Lookout to leeward and astern
2	Mainsheet trimmer. Lookup to leeward and astern.

3	Jib trimmer, ballast. Lookout to windward, forward, and astern. When lazy sheet, do mastman and bow-man.
	On downwind leg, split spinnaker trimmer and mast-man duties with other jib trimmer.
4	Jib trimmer, ballast. Lookout to windward, forward, and astern. When lazy sheet, do mastman and bow-man.
	On downwind leg, split spinnaker trimmer and mast-man duties with other jib trimmer.
5	bow-man, ballast.

## 2.2.6 Crew = 6 (full crew)

Crew member	Roles
1 (experienced tactician)	Skipper, tactician, navigator, helm. Lookout to leeward and astern.
2	Mainsheet trimmer. Lookup to leeward and astern.
3	Jib trimmer, ballast. Lookout to windward, forward, and astern
4	Jib trimmer, ballast. Lookout to windward, forward, and astern.
5	"Pit". Spinnaker trimmer, mast-man, ballast. Lookout to windward, foward, and astern.
6	bow-man, ballast. Lookout to windward and forward.

## 3 At the dock: Checkout

Do the official SSC checklist safety items, then set up the boat:

X	Task
	14011

#### Shortest jib trimmer:

- Go below
- Place companionway panel on aft end of port settee.
- Place checklist and key in galley sink
- Place personal gear on settees, roughly balanced for weight.
- With jib trimmer above, set up electrical:
  - Below: Turn off main AC (aft bulkhead, port side).
  - Above: Turn off AC at dock, remove cable, hand cable below
  - Below: Put cable on companionway panel.
  - Below: Hand up winch handles
  - Above: Put winch handles in pockets.
  - Below: Set battery switch to "1" (port side engine compartment).
  - Below: Turn on DC "Instruments" and "VHF" (forward bulkhead, port side).
- When sail cover and wheel cover handed down, put them on shorepower cable.
- Return to cockpit.

**Main trimmer, mast-man:** Roll mainsail cover from end of boom to mast. That way it is unrolled from mast -- where it makes a stable start point when covering the sail after the race. Hand sail cover and wheel cover below.

#### **Main trimmer:** Set up main:

- Butterlfy mainsheet into cockpit
- Run main halyard tail into cabin
- Take main halyard shackle from end of boom. Check clean run to masthead. Run under forward sail tie, then make fast to forward grommet in mainsail head. Tension slightly so halyard does not slap.
- Set vang snug but not tight
- Check that cunningham is free.
- Check that reef lines are free.

#### **Jib trimmer:** Set up jib:

- Butterfly jib furling line and place at forward end of port cockpit seat
- Check that jibsheets are clear, and (if enough line), take a wrap around the winch.

#### **Spin trimmer and bow-man:** Set up spinnaker (this section needs checking)

- Set spinnaker near forward hatch.
- Attach clew with red sheet to port and grene sheet to starbd
- "Run the tapes" from the clew: bow-man on green and spin trimmer (pit) on red.
- When arrive at head, attach spin halyard
- When arrive at tack, attach tack line
- Shove spinnaker down hatch with lines caught in hatch cover (partly dog one side).
- Lash spin halyard to port shroud base with temporary tie.
- Run spinnaker sheet outside shrouds, outside the lifelines, to and through the stern spin block. From there through stanchion bracket, then through midship spin block, then into cabin.

**Skipper:** Exit slip.

- Start engine.
- Determine which docklines are holding; direct crew to remove others and prepare to slip holding lines.
- Exit slip, and motor out of marina
- Crew put fenders and docklines below, port or starbd "shelf"

### 4 Out to the Course

### 4.1 Raise mainsail

X	Task		
	Skipper: - Have helm steer to safe location and direction Call "Raise main"		
	Helm: Maintain course		
	Main trimmer: Prepare to trim mainsheet.		
	Jib trimmers and mast-man:  - Set main halyard clutch closed, 1 warp on coach roof winch - Release sail-ties and hoist main Synch hauling on halyard with mast-man "jumping" the halyard at the mast As needed add 2 more wraps to winch and use winch handle		
	<ul> <li>Main trimmer: <ul> <li>Watch that the hoist is clean (e.g., reefing lines are not too tight). Immediately trim to safe course.</li> <li>When luff is taut enough for conditions, call "Cleat Halyard". Due to clutch, it is alreaydy cleated, but the command lets jib trimmers know raising is complete.</li> <li>Direct bow-man to set vang, cunningham, outhaul (in that order) to get proper sail-shape.</li> </ul> </li> </ul>		
	Jib trimmers: - Run main halyard through port-side cabin port-light Put sail-ties in galley sink		

#### 4.2 Check course

X	Task		
	<b>Skipper (directing whole crew):</b> Do several tacks, noting true wind/current direction-and-speed.		
	<b>Skipper (directing whole crew):</b> Measure time required to reach start line at speed.		
	Skipper, navigator, tactician:  - Determine course (from committee boat).  - Determine favored end  - Determine upwind and downwind routes.  - Sync clocks to 4 min prep, checked again at each minute		
	<b>Skipper (directing whole crew):</b> Time permitting, practice/warmup. Round to windward and set spinnaker. Round to leeward and douse spinnaker.		

## 5 Racing

There is a course, a start time, and a whole lot of boats all trying to go the same place at the same time. See Context..."Getting Started in Sailboat Racing" for tactics. Most of that is for the tactician/skipper to consider.

What the crew can do is execute each maneuver swiftly and without mistakes (boat handling). That requires understanding the tasks, knowing who does what, and practicing to get the timing right. This is choreographed (and practiced) maneuver-by-maneuver (aka "evolution-by-evolution").

## 6 Upwind Leg

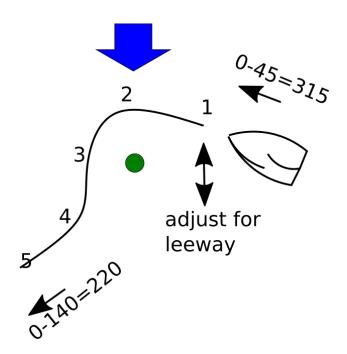
### 6.1 Raise jib

X	Task		
	Skipper: Determine approach (may depend on wind, waves, nearby boats) a) Steer broad reach, thus making the soon-to-be-active jib blanketed by the main b) Steer into wind, and let jib trimmer trim before falling off to close-hauled course		
	Helm: Steer directed course		
	<b>Lazy jib trimmer:</b> Take one wrap of furling line around winch. This provides enough tension to avoid furling line override.		
	Active jib trimmer: Haul jibsheet and trim to course.		
	Lazy jib trimmer: Cleat furling line. Butterfly and place in corner of port cockpit seat.		

## 6.2 Tack

X	Task
	Skipper: Call "Prepare to tack"
	Main trimmer: Prepare to move traveler. "Ready"
	Lazy jib trimmer: 2 wraps of jibsheet. "Ready"
	Active jib trimmer: Uncleat, and get down to 2 wraps. "Ready"
	Skipper: Call "Helm's alee"
	<b>Helm:</b> Pinch up smoothly until jib backwinds, then more swiftly across to new tack. As boat regains speed, come up further and re-trim. Course is about 45 deg off true wind.
	<b>Active jib trimmer (becoming lazy):</b> When jib backwinds, release jibsheet from winch. To avoid tangles and kinks, hold hand thumb up, hand circling about 6 inch radius and about 4 inches above winch.
	<b>Lazy jib handler (becoming active):</b> When jib backwinds, rapidly haul in. When close, add a wrap (total 3), then into self-tailer and cleat. Check position by line-of sight from winchinner mark on spreaderleech of jib. As boat picks up speed, trim tighter with winch handle. Check lower telltales.
	<b>Bow-man:</b> As needed, help jib clew past shrouds.
	<b>Main trimmer, jib trimmers, mast-man, bowman:</b> Let gravity assist sails across via "roll tack". Stay on previously windward (now leeward) side until sails tack. Then smoothly move to new windward side and go to rail. Bow-man forward of shrouds. Mast-man, jib trimmers aft of shrouds.

### **6.3 Windward Mark**



### 6.3.1 "1" Approach

Close-hauled or close-reach on layline, adjusted for leeway due to wind and tide. Also adjusted for traffic.

#### 6.3.2 "2" Tack

As usual, but continue the turn past to a beam reach.

## 6.3.3 "3" Set Spinnaker

X	Tasks
	Skipper: Call "Prepare to set spinnaker"
	Bow-man:  - Move lazy jib sheet behind hatch - Open hatch - Drag tack line to get tack to end of pole - "Ready"

Spin trimmer ("Pit"):  - Extend pole fully and cleat  - Haul in tack line fully and cleat  - Take wrap of spin halyard on coach roof winch.  - "Ready"
<b>Helm:</b> After Spin trimmer calls Ready, steer down on starbd broad-reach so main and jib blanket spinnaker going up on port side.
Skipper: When spinnaker will be adequately blanketed, call "Raise spinnaker"
<b>Spin trimmer:</b> Rapidly haul in halyard. Then get halyard off winch and take 2 wraps with spin sheet. Spin sheet goes from port side midship spin block, across cabin, 2 wraps around starbd coach roof winch, to spin trimmer standing on starbd (windward) side deck.
<b>Helm:</b> Head back up to starbd, so spinnaker is no longer blanketed. Course is about 140-145 deg off true wind.

### 6.3.4 "4" Furl jib

X	Task	
	Skipper: Call "Furl jib"	
	<b>Active jib trimmer:</b> Uncleat and release jibsheet smoothly, in synch with furling line. When done snug remaining active sheet (if any) on winch	
	<b>Lazy jib trimmer:</b> Uncleat and haul in furling line ASAP. Get one full wrap of sheets on furled jib. Snug remaining lazy jibsheet (if any) on winch	
	Helm: When jib is in, resume downwind course (about 140 deg off true wind)	
	Main trimmer: Trim to course	
	Spin Trim: Trim to course	

# 7 Downwind Leg

## 7.1 Set Spinnaker

See "Upwind Leg"..."Windward mark".

### **7.2 Jibe**

Depends on specific jibe style. Typically:

X	Task	
	Skipper: Call "Prepare to jibe"	
	<b>Bow-man:</b> Move to windward shroud. Grab lazy spinnaker sheet. "Ready"	
	Spin trimmer:  - Move to cockpit.  - Hand active spin sheet to jib trimmer.  - Check that lazy sheet is clear, and take 2 wraps on winch.  - Position to control lazy sheet .  - "Ready"	
	<b>Main trimmer:</b> In light winds, grab main sheet tackle to hand-pull boom across. Otherwise, trim main fullly in to centerline. "Ready"	
	Skipper: Call "Jibe ho"	
	<b>Helm:</b> Slowly/smoothly steer to opposite course (140 deg off true wind). [Something about "steer boat under the spinnaker"]	
	<b>Main trimmer:</b> Help main across, and immediately ease to proper trim for course.	

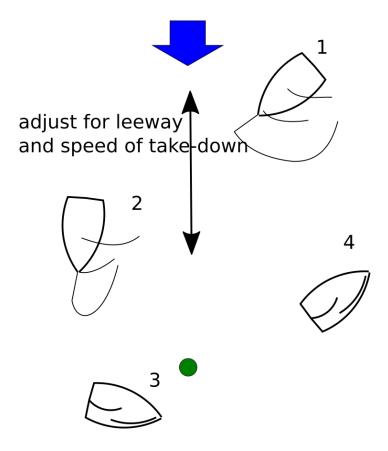
#### 7.3 Leeward Mark

There are many alternatives for spinnaker take-down. Add them as the crew learns them.

All depend on "arrive high, dive down" to blanket spinnaker,, and the use of all available crew to haul down the spin sheets to get to the sail fabric.

### 7.3.1 Jibe take-down ("Mexican")

See North U "Trim", pg 145.



### 7.3.1.1 "1" Approach

Set jib about 1 minute early. See "Upwind Leg...Raise Jib". Lazy jibsheet trimmer goes below to haul in the spinnaker ("squirrel").

Arrive high so you can dive down (blanketing the spinnaker) with enough time for take-down before reaching the mark. Adjust for leeway and traffic.

#### 7.3.1.2 "2" Take-down

X	Task		
	Skipper: Call "Take-down spinnaker"		
	Helm: Steer to run, and under spinnaker.		
	Bow-man:  - Confirm hatch open, lazy jibsheet behind Grab lazy spin sheet and use it to pull down clew, with help from others Standing near hatch, haul in foot, bringing tack from pole to hatch - When tack grabbed, shove foot down hatch - Squirrel begins hauling in red tape which is the leech and thus bringing down the spinnaker Surround spinnaker with arms, making a funnel toward the hatch - Call "Ease halyard" as spinnaker is squirreled When spinnaker fully in, clamp the halyard, tack, clew in the hatch cover (one side		
	dogged).  Spin trimmer:  - Coordinate with bow-man  - Open spin tack clutch fully  - Drop spin halyard.		
	Mast-man and anyone available: - Go forward to help with hauling down lazy spin sheet, and then whatever is needed.		
	Jib trimmer who went below ("squirrel"): - Haul down leech (red tape) to head - Haul in body of sail		

#### 7.3.1.3 "3" Round mark

Round on a reach with main and jib. Steering and trim will be shifting rapidly from run to broad reach to beam reach to close reach to close-hauled. Adjust for traffic.

### 7.3.1.4 "4" Trim for close-hauled

Sail away close-hauled.

### 8 Back from the Course

Σ	Task	
	<b>Skipper:</b> Find a safe place to lower mainsail.	
	- On the way there, direct crew to furl jib (see "Windward Mark").	

	- Start engine - Call "Prepare to lower main"
Shortes	st jib trimmer:
	- Go below, get sail ties, bring them up, shut companionway hatch.
	- With mast-man, loop ties onto boom, roughly in position.
	- Butterfly main halyard into cockpit, then take 2 warps on coach roof winch and release
	clutch fully.
	-Prepare to ease halyard at mast-man's command.
	- "Ready"
Mast-n	nan: Position at mast. "Ready"
Skippe	r: Call "Lower main"
Helm:	Steer into wind
Main t	rimmer, tallest jib trimmer:
	- Trim mainsheet and traveler to centerline
	- Following mast-man's lead flake mainsail from boom end
	- Do sail ties at jib winch, then at coach roof winch.
	- Stand by to get halyard shackle from mast-man
Mast-n	nan:
	- Release vang and cunningham
	- Call "Ease halyard" to synch flaking at mast and boom end.
	- Do forward most sail tie
	- When finished flaking and tieing, call "Ease halyard" again to remove halyard shackle
	and hand it to main trimmer.
Main t	rimmer:
	- Take main halyard shackle to boom end, and make fast.
	- Call "Raise halyard 6 inches" as main trimmer and/or tallest jib trimmer lifts boom
	using halyard as a topping lift.
	- Call "Cleat halyard" (Actually it is already cleated via the clutch, but this tells jib
	trimmer at winch that the task is done)
	- Cleat mainsheet snug to reduce slamming

- Butterfly and secure mainsheet.
  - Call to skipper "Main is secured"

**Skipper:** Direct helm to steer course to marina.

## 9 At the dock: Checkin

Do the official SSC checkin, including:

Σ	Task
	Skipper: Enter slip.

- Determine holding lines, and direct crew.
- When ready, enter and position boat for crew to step off.
- As needed, direct setting docklines
- When safely set, turn off engine.

**Dockside jib trimmer:** Assist with docklines, then return to work shorepower

#### Non-dockside jib trimmer:

- Take winch handles below and put them in nav table.
- Hand up sailcover and wheel cover to main trimmer.
- Hand up shorepower cable to dockside jib trimmer, and jointly shutdown electrical
  - Below: Turn off all DC including "Instruments" and "VHF" (forward bulkhead, port side).
  - Below: Set battery switch to "Off "(port side engine compartment).
  - Above: Plug cable in boat, then on dock.
  - Above: Turn on power at dock, Call "Shorepower on"
  - Below: Turn on AC circuit breaker in boat (aft bulkhead, port side).
  - Below: Check that bilge pump works and is set to "auto".
  - Below: Hand instrument covers (nav table)
  - Above: Put on instrument covers
- *After mainsail cover is on*, hand personal gear to cockpit. Dockside jib trimmer hands them to someone on dock.
- Hand checklist, lock, and companionway cover boards to cockpit.
- Come up on deck.
- Latch companionway hatch. May need to loop key lanyard to lift latch plate.

**Main trimmer and mast-man:** Unroll mainsail cover from mast to end of boom. Put on wheel cover.

**Spin trimmer, mast-man, bow-man:** Clean up spinnaker and spinnaker lines.

[Steps?]

#### Anyone still around:

- When hatches are closed and everyone is off the boat, hose down, then recoil hose on dock
- Finish tick-marking checklist
- Take checklist and key to office

# 10 Appendix

## 10.1 Template Revisions

Rev	Author	Date	Notes

### 10.2 Document Revisions

Rev	Author	Date	Notes
New_rc01	Harry George	2019-08-08	First draft

## 10.3 Glossary

Term	Definition