



National Défense
Defence nationale

A-CR-CCP-612/PF-001



ROYAL CANADIAN SEA CADETS
CANSAIL LEVEL 1
TECHNICAL PACKAGE

(ENGLISH)

Issued on Authority of the Chief of the Defence Staff

Canada^{🇨🇦}



CANADIAN CADET ORGANIZATIONS
CANSAIL LEVEL 1
TECHNICAL PACKAGE

(ENGLISH)

(Cette publication est disponible en français sous le numéro A-CR-CCP-612/PF-002)

Issued on Authority of the Chief of the Defence Staff

OPI: D Cdts 3 – Senior Staff Officer Youth Programs Development

2013-06-01

LIST OF EFFECTIVE PAGES

Insert latest changed pages and dispose of superseded pages in accordance with applicable orders.

NOTE

The portion of the text affected by the latest change is indicated by a black vertical line in the margin of the page. Changes to illustrations are indicated by miniature pointing hands or black vertical lines.

Dates of issue for original and changed pages are:

Original	0	2013-06-01	Ch	3
Ch	1		Ch	4
Ch	2		Ch	5

Zero in Change No. column indicates an original page.

Page No.	Change No.	Page No.	Change No.
Cover.....	0	Page	0
Title.....	0	A	0

Contact Officer: Staff Officer Sea Cadet Program Development

© 2013 DND/MDN Canada

FOREWORD AND PREFACE

1. **Issuing Authority.** This Technical Package A-CR-CCP-612/PF-001 was developed under the authority of the Director Cadets and Junior Canadian Rangers (D Cdts & JCR), and issued on the authority of the Chief of Defence Staff.
2. **Development.** Development of this Technical Package was in accordance with the performance oriented concept of training outlined in the Canadian Forces Individual Training and Education System A-P9-050 Series, *Manual of Individual Training and Education*, with modifications to meet the needs of the Canadian Cadet Organizations (CCO).
3. **Purpose of the Technical Package.** Following the first season of the implementation of Sail Canada's *CANSail Dinghy Program* and new instructor tools, feedback coming from the field identified the need for technical packages to augment the existing Instructor Packages developed by Sail Canada in support of the program. Incorporating a variety references and resources, this Technical Pack is intended to give detailed descriptions, information and video links for the various skills covered in the *CANSail Program*.

It should be noted that not all of the information included in this package needs to be passed along to the sailors. This package is intended to give the instructor the necessary background information to fully understand the skills being taught and some fundamental coaching tips. When using this package, the instructor should refer back to the applicable CANSail Rubric to ensure they assess the skills IAW the standard.

Note. This technical package focuses on CANSail skills in a doublehanded sailboat.

4. **Use of the Technical Package.** Throughout these instructional guides, a series of information boxes are used to highlight information; they include:



Note to the Instructor.



Key information to pass along to sailors.



Refer to the following CF regulations and policies.



Points of interest or special instructions the instructor should pass along to sailors.

4. **Suggested Changes.** Suggested changes to this document should be forwarded by e-mail to sea.dev@cadets.gc.ca or to National Defence Headquarters (NDHQ) Attention: Staff Officer Sea Cadet Program Development.

TABLE OF CONTENTS

	PAGE
Chapter 1 - Physical Literacy	
Long Term Sailor Development	1
Hydration	2
Coaches Corner – Physical Literacy	2
Chapter 2 - Prepare for Sailing	
Selecting and Wearing a Personal Floatation Device (PFD)	3
Clothing to be Worn for Sailing Based on the Forecast	3
Coaches Corner – Sail Clothing	4
Common and Ineffective Wind Direction Indicators	4
Coaches Corner – Wind Direction	5
Chapter 3 - Rigging	
Rigging a Sailboat	6
Coaches Corner – Rigging	14
De-Rigging	16
Coaches Corner – De-Rigging	17
Chapter 4 – Capsize Procedure	
Capsizing	18
Coaches Corner – Capsizing	19
Chapter 5 – Steering	
Steering	21
Coaches Corner – Steering	21
Chapter 6 – Balance	
Balance	23
Coaches Corner – Balance	23
Chapter 7 – Sail Trim and Sheeting	
Sheeting	25
Coaches Corner – Sail Trim	26
Chapter 8 – Tacking	
Tacking	27
Coaches Corner – Tacking	28
Chapter 9 – Gybing	
Gybing	29
Coaches Corner – Gybing	30
Chapter 10 – Heading Up and Bearing Away	
Heading Up	31
Bearing Away	31
Sailing on a Run	32
Coaches Corner – Heading Up and Bearing Away	33
Chapter 11 – Stopping	
Stop a Sailboat	35

Coaches Corner – Stop a Sailboat	36
Chapter 12 – Starting	
Starting	37
Coaches Corner – Starting	37
Chapter 13 – Slow a Boat While Sailing Downwind	
Down-Speed Sailing	38
Coaches Corner – Down-Speed Sailing	38
Chapter 14 – Launch and Recover a Sailboat	
Launch From the Leeward Side of Dock	39
Return to the Leeward Side of Dock	40
Launch From the Windward Side of Dock	40
Return to the Windward Side of Dock	41
Launch From a Beach With an Offshore Wind	41
Return to a Beach With an Offshore Wind	43
Launch From a Beach With an Onshore Wind	45
Return to a Beach With an Onshore Wind	47
Coaches Corner – Launch and Recover a Sailboat	49
Chapter 15 – References	50
Glossary	
Attachment A – Basic Sailboat Parts	A1
Attachment B – Rolling Sails	B1



ROYAL CANADIAN SEA CADETS

CANSAIL LEVEL 1

TECHNICAL PACKAGE



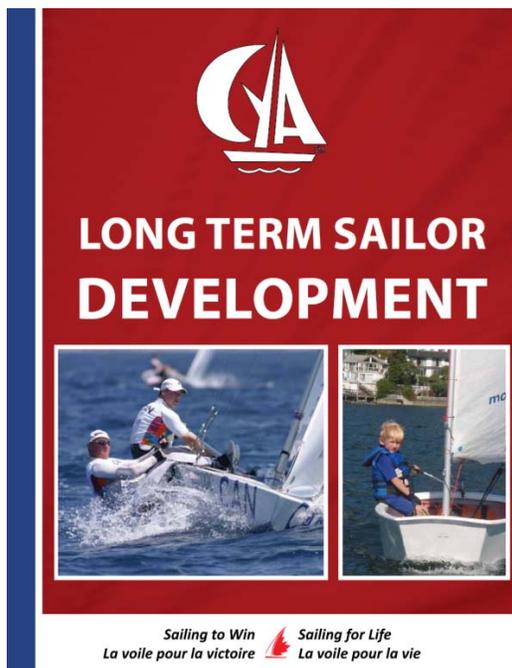
PHYSICAL LITERACY

LONG TERM SAILOR DEVELOPMENT

Sail Canada (SC) has designed all CANSail curricula around the Long Term Sailor Development (LTSD) framework. In addition, all SC events adhere to recommendations and guidelines for training and competition as set out in the LTSD.

What does this mean for you as an instructor? It means that the lessons that you provide for sailors are designed for their developmental age. Developmental age refers to a sailor's stage of development, as opposed to how old he or she might be.

It's important that all CANSail instructors understand the LTSD, and how it relates to CANSail programming. To becoming a fully certified coach, instructors must complete the online LTSD module. This can be done during the CANSail Fundamental Course, or on the instructor's own time. Below is a link to access the online LTSD module on the Sail Canada website.



Scan for LTSD Online Module
Or go to <http://www.sailing.ca>

The LTSD framework provides recommendations for on water training, dry-land, training, physical training, equipment, and competition.

HYDRATION

Due to the length of time spent on the water and subsequent exposure to environmental conditions, dehydration is common in sailing. Even mild dehydration can impair skill and judgment on the water so strategies to minimize dehydration should be introduced to sailors during their initial introduction to the sport. Appropriate education can help sailors identify their individual needs in specific weather conditions and racing/training scenarios. Sailors should be encouraged to keep a water bottle in their sailboat or in the coach boat.

COACHES CORNER—PHYSICAL LITERACY

Instructors, especially when coaching basic levels can easily overlook the hydration requirements of sailors. Drinking fluids while on the water is something that should be instilled at the beginning of a sailor's career to ensure it becomes habitual. Failure to do so will result in diminished performance on the water and increase the likelihood of missing time on the water, or leaving the sport entirely. When transitioning between drills, be sure to allow for a short rest and hydration break.

PREPARE FOR SAILING

SELECTING AND WEARING A PERSONAL FLOATATION DEVICE (PFD)

PFDs are designed for sporting activities and therefore are smaller, more comfortable than lifejackets and allow for easier movement. PFDs can be found in a range of sizes (based on chest sizes for adults and body weight for children) and colours. They are recommended for all small vessel recreational activities.

PFDs must meet the following requirements:

- **Suitable for the weight and size of the person.** The recommended weight range for a PFD is stipulated on the inside tag.
- **Suitable for activity.** The PFD should be comfortable for the activity taking place.
- **In good condition with no tears or rips.** PFDs are designed to work when they are in the best condition. If a PFD is damaged in any way it should not be used. Ensure all zippers, straps, clips, etc are intact and functioning properly.
- **Snug fit.** The PFD should fit so as not to slip off in the water.
- **Fisheries and Oceans Canada–Canadian Coast Guard (CCG) or Transport Canada approved.** Approval will be identified on the inside tag of the PFD.

CLOTHING TO BE WORN FOR SAILING BASED ON THE FORECAST

Sailing is an activity that is dependent on the weather. Training should only be conducted when the weather is favourable. Sailors should choose their clothing based on the anticipated length of a sailing session (time exposed to the elements), weather forecast, focusing on the wind strength, the air temperature, and the chance of precipitation.

EVERYDAY

- PFD (and pinny), and
- Sunscreen.

RAINY DAY

Recommended clothing to be worn on a rainy day includes:

- sailing boots /rubber boots,
- raincoat / rain pants,
- hat, and
- wetsuit / dry suit.

HOT AND SUNNY DAY

Recommended clothing to be worn on a hot and sunny day includes:

- soft-soled shoes,
- light-weight clothing,
- hat,
- sunglasses, and
- wetsuit / dry suit.

COLD DAY

Recommended clothing to be worn on a cold day includes:

- layered clothing,
- sailing boots / warm boots / shoes,
- warm hat, and
- wetsuit / dry suit.

COACHES CORNER—SAIL CLOTHING

Regardless of the type of weather, a PFD, hat and sunscreen should always be worn. Once committed to the sport of sailing, sailors should be encouraged to purchase a “PFD Pinny” which is worn to protect against UV damage, and to prevent the PFD from catching on lines and fittings. Each sailor should bring a change of clothes as well as warm clothing in case the forecast is incorrect.



Particularly in the ocean, warm air does not necessarily mean warm water. Sailors should take water temperature into consideration and select clothing based on the possibility that they may capsize and end up in the water.

COMMON AND INEFFECTIVE WIND DIRECTION INDICATORS

Determining wind direction is fundamental to all sailors because a sailboat must be able to harvest the wind to move effectively. The direction of the wind affects sail trim, direction, control, and the crew's position in the sailboat. The direction of the wind will also determine how to complete certain tasks, such as turning, docking, mooring and capsizing.

COMMON WIND DIRECTION INDICATORS

Some of the following indicators may be present at sailing areas:

- **Flags.** Flags will flutter in the direction the wind is blowing.
- **Smoke.** Smoke will always travel in the direction the wind is blowing.
- **Small trees.** Small trees or the branches of large trees that have the ability to bend in light winds.

- **Tall grass.** Tall grass will always bend in the direction the wind is blowing.
- **Windssocks.** Windssocks will fill in the direction the wind is blowing.
- **Moored boats.** When boats are moored at the bow, the bow of the boat will always point in the direction from which the wind is coming. Most effective in areas where there is **little to no** current.
- **Low altitude clouds.** Low altitude clouds will slowly travel in the direction the wind is blowing.
- **Weather vanes.** Traditional way of determining wind direction. Weather vanes will point in the direction the wind is blowing.

INEFFECTIVE METHODS OF DETERMINING WIND DIRECTION

The following wind indicators should be avoided:

- **Wet finger in the air.** The cold feeling on someone's finger is not an effective method of determining wind direction, as the cold feeling is more an indication of air temperature than of wind direction.
- **High altitude clouds.** Due to their altitude, they can cause you to misinterpret wind direction, as wind direction can be different at different altitudes.

COACHES CORNER—WIND DIRECTION

Wind direction awareness can have a significant impact on the likelihood of successfully leaving and arriving at a dock, slipway or mooring. Whenever getting ready to head out, use local wind indicators to help confirm with the sailors that they know where the wind is coming from.

RIGGING



Every type of sailboat is rigged slightly different. It is recommended that the sailors be exposed to different sailboats, if available, and methods of rigging.



Most boat manufactures publish online rigging manuals for their sailboats. The following section outlines the level of detail that should be presented at the CANSail 1 & 2 level. When preparing to rig a sailboat, consult the manufacturer's rigging guide to ensure the boat is set up properly.

RIGGING A SAILBOAT



Prior to rigging a sailboat, check to ensure all the required equipment is on hand and in working order.

Selecting Required Equipment

The following equipment is required for rigging:

- mainsail,
- jib sail,
- mainsheet,
- jib sheets,
- rudder,
- dagger board (if required by class of sailboat),
- tiller,
- tiller extension,
- bailer.

Attaching Sails



If the sailboat is ashore, ensure all plugs are screwed in prior to launching. Before attaching the sails, ensure there are no overhead hazards and that the sailboat is pointed into the wind, to prevent the sails from filling when hoisted.

To ensure the sailboat remains stable when rigging on the water, place the centreboard / daggerboard in the down position (as illustrated in Figure 1).

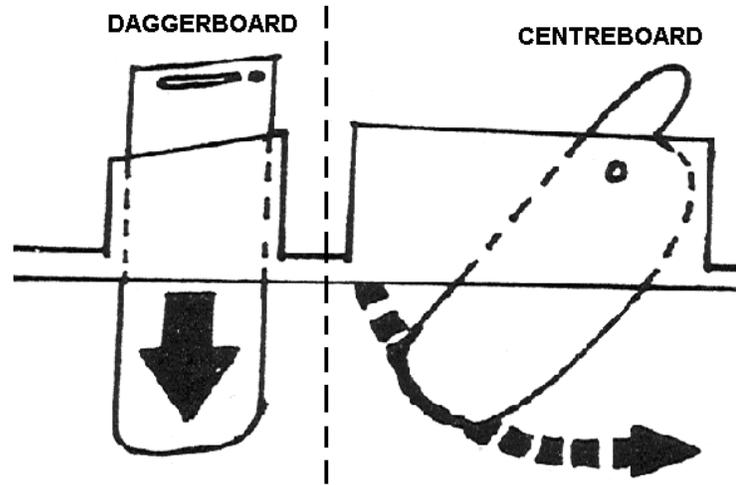


Figure 1 Daggerboard / Centreboard

Note. From *Basic Sailing Skills Manual* (p. 17), by S. Donaldson, 1994, Gloucester, ON: Love Printing Services. Copyright 1994 by Canadian Yachting Association.

1. **Attaching the main halyard to the head of the mainsail.** Attach the main halyard to the head of the mainsail by using a shackle, tying a small bowline (tight to the head of the mainsail), or tying a figure eight knot (through a bight [racing knot]).



Figure eight through a bight (racing knot)

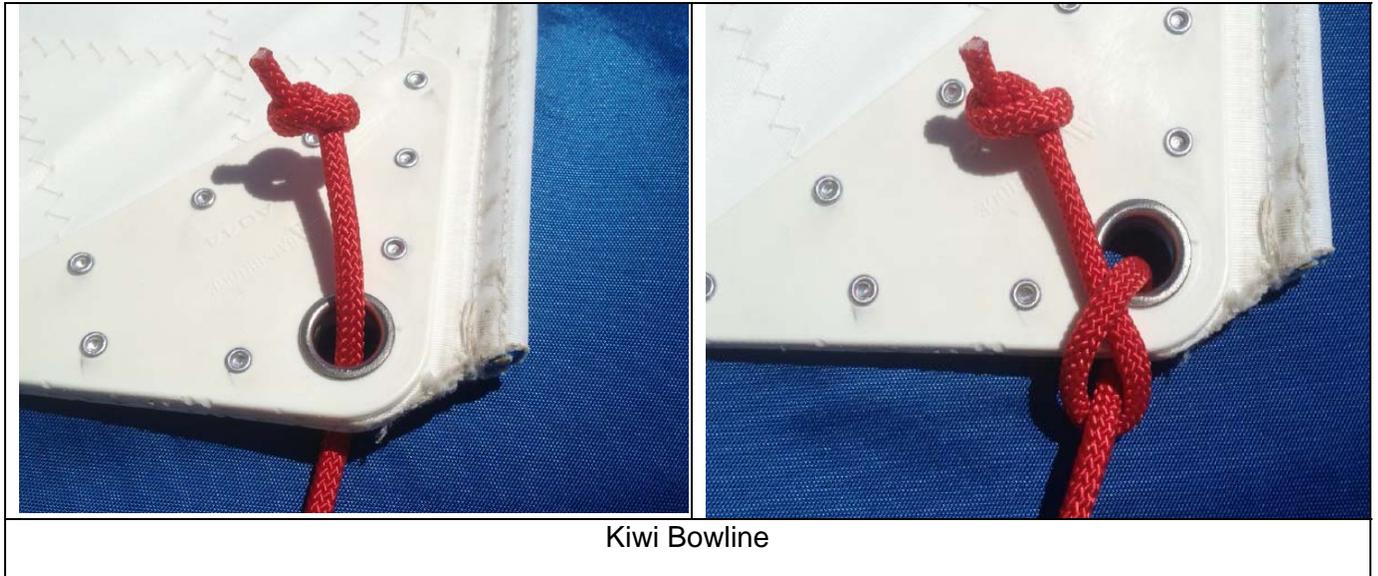


Figure 2 Connecting the Mainsail

2. **Attaching the mainsail to the boom.** The bottom of the mainsail is often fitted with a bolt rope (thick line sewn into the sail) that is fed through a small slot in the boom. The bottom corners of the mainsail are then secured starting with the tack and then the clew.

If the mainsail is not fitted with a bolt rope, attach the clew and tack ends.





Figure 3 Foot of Mainsail

3. **Attaching the boom to the mast by the gooseneck.** The gooseneck is a hinge and pin, or a large pin fitting into a slot in the boom. Connect the gooseneck according to its design.



Figure 4 Gooseneck

4. **Fitting the sail battens.** Battens are various lengths of plastic or fibreglass that fit into slots in the leech of the mainsail. Slide the battens into their respective slot and ensure the ends are secured.

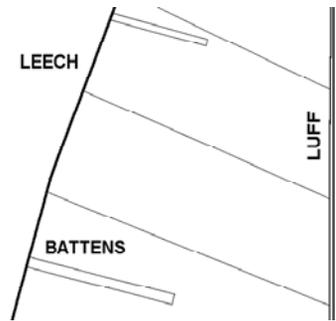


Figure 5 Batten Pocket

Note. From *Basic Sailing Skills Manual* (p. 37), by S. Donaldson, 1994, Gloucester, ON: Love Printing Services. Copyright 1994 by Canadian Yachting Association.

5. **Attaching the jib sail to the bow plate.** Connect the jib sail tack to the bow plate using a shackle (clevis pin) or bowline.



Figure 6 Connecting the Jib Sail

6. **Attaching the jib halyard to the head of the jib sail.** Connect the head of the jib sail to the jib halyard by using a shackle or a bowline.



Figure 7 Connecting the Jib Halyard



Keep all halyards secured to the sailboat, or in hand, at all times when rigging.

Attaching Rigging

1. Once the sails have been attached to the sailboat, the sheets must be rigged.
2. Reeve the mainsheet through the main block and tie a figure eight knot in the end to prevent the sheet from slipping back through the block.
3. Attach the jib sheets to the clew of the jib using a cow hitch in the middle of the line. There will now be two sheets; one for the starboard side, and the other for the port side. Pass each of the sheets through the fairlead and tie figure eight knots in the end of each sheet.



Figure 8 Ending the Jib Sheets

Hoisting Sails

Halyards are used to hoist the mainsail and jib sail to the top of the mast or forestay respectively. When the luff of the jib is tight and the head of the mainsail is at the top, secure the halyard around the cleat located on the bottom section of the mast.

When hoisting the sails, the jib sail is hoisted and secured with an emphasis placed on ensuring the halyard is tight. Once the jib is hoisted the mainsail can then be hoisted and secured, with an emphasis placed on ensuring the sail is hoisted all of the way to the top of the mast.



Figure 9 Horn Cleat

Attaching Rudder and Tiller

The rudder is secured to the transom of the sailboat using pintles and gudgeons. The pintle is a pin on the rudder and the gudgeon is a slot or hole in a piece of plastic or metal that is permanently attached to the transom. Rudders will vary depending on their design.



Figure 10 Pintle and Gudgeon

The tiller must be fitted through the top of the rudder. The method of attaching the tiller to the rudder will vary depending on the design.



When the sailboat is completely rigged, quickly check all lines to ensure they are coiled and secured to the sailboat. Any sail bags, bailers, etc should be secured to the sailboat in case of capsize.

Whenever a line is not being used on a sailboat, the line is to be neatly coiled and secured to the sailboat. This provides a means of easily releasing lines and preventing tangles.



Figure 11 Coiling a Line

COACHES CORNER—RIGGING

There are several ways to teach the parts of the boat and the knots used to rig a sailboat. Instead of teaching a class specifically for parts of the boat and knots, be sure to use the various part names and demonstrate how to tie to various knots and hitches while teaching rigging. Spend time with the sailors each morning while they are rigging as assist as required. The more the sailors, touch, use and talk about their sailboat, the more fluent they will become with sailing terminology and boat parts.



Refer to the Glossary and Attachment A as a reference to basic boat parts and the knots and hitches used to rig a basic sailboat.

Sailors are not how to tune their sailboats until they reach more advanced levels, however that does not mean that proper tuning is not important for basic sailing. Mast rake, rig tension, control settings and ensuring all running rigging is running smoothly is essential to a basic sailor getting the most out of their training. A sailor cannot be expected to sail upwind if their mast is not raked properly and they cannot be expect to keep their boats balanced if the rig tension is loose.

As a basic sail instructor it is important to look over your sailor's boats before each session and ensuring their boats are setup for the conditions. At the *CANSail* 1 and 2 levels, it is not important for the sailor to understand affect their boats performance, however as a sail instructor it is important to ensure you are not asking your sailors to perform a skill that their sailboat is not setup to do.



If the boats are not set up correctly, there is no point in leaving the dock.



Be sure to check for proper seamanship before the sailors head out.

Sail bags should be removed and stored ashore, and rudders, bailers and other equipment should be secured to prevent them from sinking or drifting away should they be washed overboard or if the sailboat capsizes.

To prevent the risk of becoming tangled should a sailboat capsize, all halyards should be neatly coiled and all other lines rigged in a way to reduce the risk of entrapment under the hull.

DE-RIGGING

SECURING A SAILBOAT TO A JETTY / DOCK

When securing to any cleat, mooring, or jetty, ensure the knot is tied correctly, and that enough slack line is provided to allow the sailboat some range of motion in waves, wake, change in tide height and change in wind direction.

LOWERING THE SAILS

Once the sailboat is tied to the jetty, lower the sails immediately (the mainsail should be lowered first and then the jib sail), to prevent the sails from filling with wind. To lower the sails, loosen the halyard from the cleat and allow it to slowly fall into the boat, keeping control of the lines.

DETACHING THE SAILS



Keep all halyards secured to a part of the sailboat or in hand at all times when de-rigging.

Once the mainsail and jib sail are lowered, the halyards must be untied and removed from the sails. This is completed in the following steps:

1. Untie the halyards from the mainsail and jib sail.
2. Remove the boom from the gooseneck.
3. Remove the mainsail from the boom.
4. Remove the jib sail from the bowplate.
5. Untie the sheets.
6. Remove the rudder and tiller.
7. Remove sails, sheets, rudder, and tiller from the sailboat.
8. Secure the boom and lines.
9. Connect the main halyard to the outhaul of the boom and raise the boom so it is perpendicular to the mast.
10. Tighten and cleat the mainsheet as well as the boom vang.
11. Secure all lines to prevent them from blowing in the wind and coming out of their intended position.
12. Raise the centreboard / removing the daggerboard.



If the sailboat remains on the water after de-rigging, ensure the raising of the centreboard or the removal of the daggerboard is the last task completed. This will ensure the sailboat is stable while it is being de-rigged.

STORING SAILS

In order to prevent sails from being damaged, they must dry prior to being rolled or folded and stored in a dry place, away from direct sunlight. Direct sunlight exposure and moisture, especially from salt water, can cause the sails to weaken and deteriorate, resulting in tearing.



Sails that are used in salt water should be rinsed off prior to being rolled or folded. All Sails are to be thoroughly dried before storing.



Refer Attachment B as a reference to rolling and folding sails.

COACHES CORNER—DE-RIGGING

When on the water, it can be difficult to notice or fix things that are wrong with the sailboat. When de-rigging experienced sailors use that time to look the sailboat over and identify areas that need to be re-rigged or repaired.

Basic sailors are (usually) not expected to complete their own boat maintenance however it is a good practice for instructors to have their sailors report any issues at the end of a training day. This will help ensure the sailboat is ready for the next person to use it, and is good experience for when the sailors are expected to complete their own boat maintenance.

CAPSIZE PROCEDURE

CAPSIZING

When a sailboat tips over and its sails are sitting horizontally in the water, it has capsized.

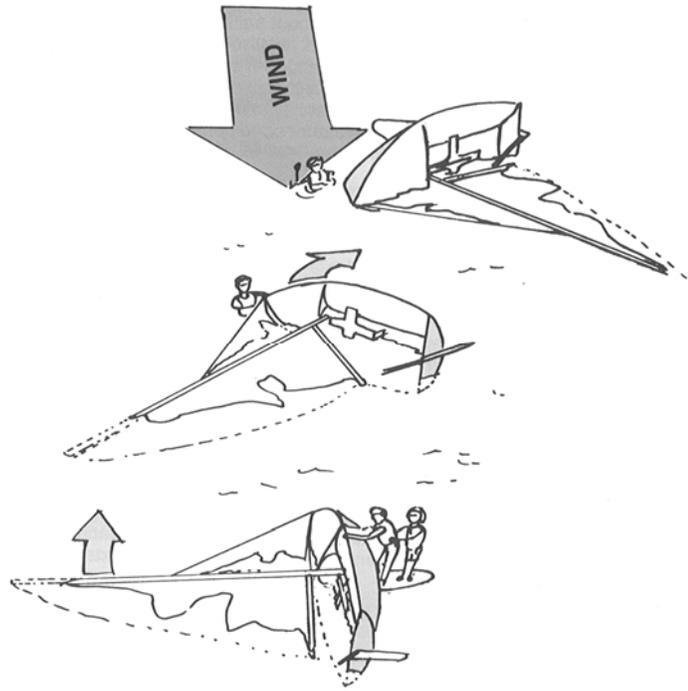


Figure 12 Capsize Procedure

Note. From *Basic Sailing Skills Manual* (p. 91), by S. Donaldson, 1994, Gloucester, ON: Love Printing Services. Copyright 1994 by Canadian Yachting Association.

THE STEPS TO RIGHTING A CAPSIZED SAILBOAT

1. **Check yourself.** Check for lines, tangles, or injuries.
2. **Check your crew.** Communicate with the crew and ensure they are okay.
3. **Release any cleated sheets.** If any sheets are cleated, release the sheet so the wind does not fill the sail once the boat is righted.
4. **The crew manoeuvres to the bow.** Using the “hand over hand” method, the crew will move to the bow of the boat.
5. **The helm manoeuvres to the centreboard.** Using the “hand over hand” method, the helm will move to the centreboard.

6. **The crew swims the sailboat head to wind (irons).** By using the bow or painter the crew will pull the bow of the sailboat head to wind.
7. **The helm puts weight on the centreboard.** The helm will put weight on the centreboard and if required will physically stand on top of the centreboard.
8. **The helm holds gunwales and leans back until the sailboat is in the upright position.** If the helm is not heavy enough to right the boat alone, the crew will manoeuvre to the centreboard, climb on, and assist the skipper.
9. **The helm manoeuvres to the stern and climbs into the sailboat.** The stern is the lowest part of the sailboat; the helm will move to the stern and climb in.



Depending on the type of sailboat it may be difficult to climb directly over the transom, and instead be easier to climb over the side. In these cases, sailors should climb over near the back corner, as close to the stern as possible.

10. **The crew manoeuvres to the stern and climbs in.**
11. **Bail the water and continue sailing.**



Depending on the nature of the capsize (where people land in the water) and physical ability, helm and crew roles can be modified based on the situation.

COACHES CORNER—CAPSIZING

PRE-CAPSIZING SAFETY BRIEFING

Capsizing is a normal part of dinghy sailing, however it can be intimidating to new sailors to the sport. A sailor's first capsize should be completed in a controlled setting under direct supervision from a sail instructor.

When alongside a sailor's boat about to capsize for the first time, complete the following briefing:

- **Ensure proper seamanship.** Ensure the rudder and dagger board are secure (centreboard pennant is cleated) to prevent losing them. Ensure all halyards are coiled and that there is no tangling in any of the running rigging. This is done to ensure the sailors do not get tangled in any of the lines when the sailboat capsizes.
- **Remain with the sailboat.** Never leave the sailboat for any reason (eg, retrieve a bailer, paddle, etc), unless instructed to do so by a sail instructor.
- **Don't panic.** Safety boats and qualified staff are present and will assist when a sailboat capsizes. One of the biggest concerns cadets have when they capsize is keeping their heads above water. PFDs are designed to keep individuals afloat, so sailors should relax and take a deep breath.
- **Clear yourself from the hull.** As soon as the boat capsizes, swim out from the aft section of the cockpit area. This ensures sailors are clear of any lines and prevent them from being

entrapped under the boat if it turtles.



Most basic sailboats have a deep cockpit, which becomes an air pocket when the boat turtles. If as a result of a capsize a sailor finds themselves in the air pocket, they should signal to their crew that they are “OK”, and exit under one of the aft gunwales as soon as possible.

On a light wind day, have your sailors complete controlled turtles and experience being inside the air pocket.

- **Using the “hand over hand” method when manoeuvring around the sailboat.** Never attempt to swim around the sailboat. Maintain contact with a part of the hull at all times. This will ensure that the sailboat and sailors do not drift apart.
- **Communication.** Maintain verbal communication among all crewmembers.



Tie a PFD or buoy to the top of the mast to prevent the sailors from turtling during their first capsize.

STEERING

STEERING

Steering a sailboat is similar to steering any other type of vehicle. When the tiller is in the middle of the sailboat, it will want to go straight. When the tiller is moved from the middle, the sailboat will turn; the further from the middle, the faster it will turn. The biggest difference between steering a sailboat and another type of vehicle is that the steering is opposite. To turn starboard (right), the tiller is moved to the left, and to turn port (left) the tiller is moved to the right.

The amount and how quickly the tiller is moved from the centreline have an effect on boat speed. When the sailboat moves, water flows around the rudder blade. When the rudder is moved aggressively or when moved far from the centerline, it creates drag and slows the sailboat down.

When sailing in a straight line, helms move the tiller with minimal movements to maintain heading, but without an excessive amount of tiller (movement). When heading up or bearing away, helms slowly guide the tiller to initiate the turn; as the sailboat begins to turn, the water flow will guide the rudder through the turn, so the helm need only hold the tiller in a way to guide the sailboat through the turn and slowly bringing the tiller back to the centerline when on the desired heading.

When tacking and gybing the helm slowly moves the tiller no further outboard than the inside of the buoyancy tanks; this results in a controlled turn and minimized drag throughout the maneuver.

COACHES CORNER—STEERING

Tiller extension. The tiller extension is an invaluable tools for dinghy sailors, however they are cumbersome until you learn how to hold them both when sitting and when switching sides of the sailboat. Not using the tiller extension forces the helm back in the sailboat, digging the stern into the water, and limiting their ability to properly sit on the windward side of the sailboat to maintain boat balance.

- When sitting in the normal sailing position, the helm holds the tiller extension across their lap in a way that allows them to freely move the tiller, and to (temporarily) hold the mainsheet when sheeting hand-over-hand.
- When tacking and gybing, the helm must negotiate switching the end of tiller extension from one side of the sailboat to the other without over-steering.



It is common for new sailors to move the tiller and tiller extension out of their way when switching sides of the sailboat. The results in severe over-steering and temporary loss of control.

- In a sailboat with an aft bridle, the helm pushes the end of the tiller extension under the boom, close to where the mainsheet runs down from the boom to the main block and gives the helm space between the mainsheet and tiller to switch sides of the boat.

- In a sailboat with a centre bridle or traveller, as the helm switches sides of the boat they swing their aft hand aft so the tiller extension passes around the back of the boom. This is physically an backward movement, but reduces the amount the tiller must be moved to allows for the helm to switch sides.



When gybing, the boom is outboard when allows the helm to pre-gybe the tiller extension before the boom swings across, which makes switching sides significantly easier and more controlled.



Refer to the Tacking and Gybing section of this technical package for more information on tacking and gybing.

Eyes out of boat. New sailors have a tendency to watch what is occurring inside their sailboat. Particularly in light and moderate wind conditions, basic sailboats do not move very fast; this can result in sailors not noticing when the boat is turning unless they have their eyes out of the boat.

The helm is able to keep the sailboat going straight by watching the jib sail when sailing upwind and by looking at landmarks when reaching and sailing downwind. By watching a fixed object such as a landmark ashore, or a mark on a course, the helm is able to gauge whether or not the sailboat is sailing straight, and correct with small tiller movements if the sailboat is turning slightly.

BALANCE
BALANCE

The helm should always sit on the side opposite the mainsail (windward side), unless sailing on a run. When the wind speed increases, the sailboat may begin to tip toward the mainsail; this is known as heeling. If the sailboat begins to heel, the helm will hook their feet under the hiking straps located near the bottom of the cockpit and lean their weight over the side opposite the mainsail to level the sailboat; this is known as hiking.

Because the helm always sits on the opposite side of the mainsail, the crew plays a very important role in maintaining boat balance. When the wind speed is light, the crew should sit on the same side as the mainsail (leeward side) or in the centre of the sailboat to keep the sailboat flat. As the wind speed increases, the crew will gradually transition their weight from the leeward side, to the windward side and eventually hiking with the helm to maintain boat balance (keep the sailboat flat). Especially when sailing upwind, the helm is very focused on steering, which puts the responsibility of maintain boat balance on the crew. The should be the first to hike in a gust, and the first to move inboard in a lull. By the crew doing the majority of the work, the helm can stay more stationary and concentrate on steering.

When the sailboat is balanced (flat) it will sail straight and flat. When the sailboat is heeling, that various forces acting on the sails, hull, rudder and centreboard results in the sailboat wanting to turn; requiring the helm to compensate with the rudder, which creates drag.



A flat boat is a fast boat.

COACHES CORNER—BALANCE

Helm. The effect of heel, or the amount the boat leans to one side is most felt in a sailboats' widest point; this is typically where the helm should be sitting. Subconsciously new sailors tend to sit in the aft of the sailboat where the effects of heel are less apparent. This digs the transom into the water which creates drag and slows the sailboat down. Sitting aft also places the helm behind the turning radius of the tiller, making it difficult to properly steer.

The proper position for the helm in most sailboats is ahead of the tiller, next to the traveler bar, or mainsheet cleat. This position will keep the transom out of the water, make steering easier, and give the helm the best feel for heel, which will enable them to keep the sailboat flat.

Crew. Sitting inboard in a sailboat lowers the crew's centre of gravity, which reduces the amount they feel the effects of heel. When sitting inboard, crews should watch the angle of the bow and adjust their weight as the sailboat begins to heel.

Hiking. Hiking can be very intimidating for new sailors because of the feeling that the sailboat may come over to windward on top of them. Many new sailors require a significant amount of heel before they are willing to extend out from the hiking straps. With practice sailors will gain the confidence required to hike properly with:

- feet under the hiking straps,

- legs straight with a slight bend at the knees,
- waistline out over the gunwale, and
- torso extended to keep the sailboat flat.

Eyes out of boat. A significant factor in the amount of heel is the wind speed. A gust is a temporary increase in wind speed, which appear as dark patches in the water's surface. A lull is a temporary decrease in wind speed, which appears as a flat or glossy area in the water's surface. Sailors are able to anticipate changes in heel and prepare to shift weight inboard or outboard by watching the water in front of the sailboat.

SAIL TRIM AND SHEETING

SHEETING

Each point of sail requires that the sails be properly trimmed to maximize boat speed. The general rule for trimming sails is to position them at the "point of almost luffing" or where the forward section of the sail just begins to flutter. As the sailors become more comfortable with sail trim they begin sailing using the tell tales / ticklers, to correct sail trim, or to maintain a close hauled course at the correct angle to the wind.



Tell Tales. Pieces of yarn or tape attached to the shrouds, near the luff and leech of the sail. Tell tales on the shrouds are used to show the wind direction felt by the sailboat by looking at the windward shroud.

The tell tales located on the luff and leech of the sails are used to show sailors if the sails are trimmed correctly.

Note. Tell tales on sails are often referred to as ticklers.

Tell tales are placed on the sail close to the luff because it is the part of the sail that luffs first when the sailboat heads up or there is a wind shift. Tell tales are placed on the mainsail leech as an early indicator of a stall (the sail is over-trimmed).

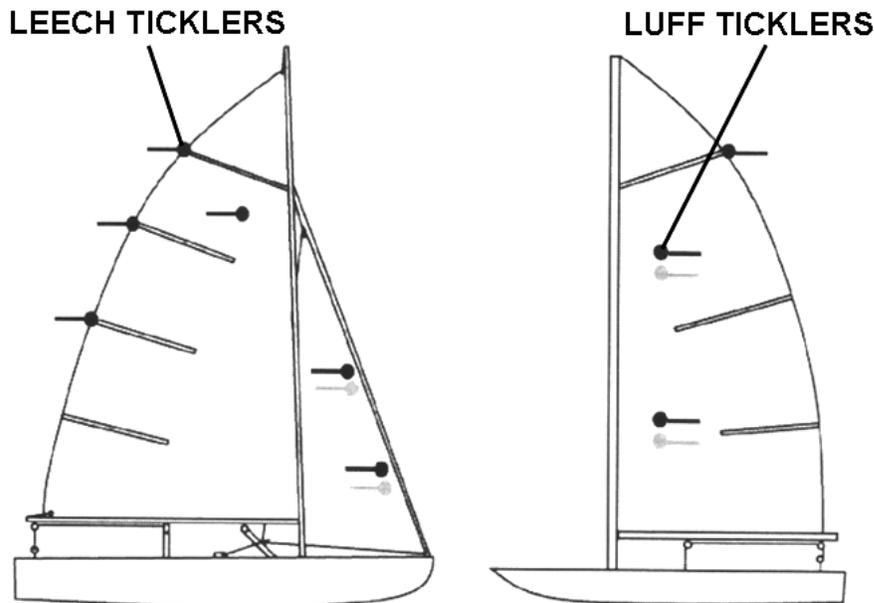


Figure 13 Tickler Positions

Note. From *CYA Bronze Sail Answer Key* (p. 35), by Canadian Yachting Association, 2005, Kingston, ON: Canadian Yachting Association. Copyright 2005 by Canadian Yachting Association.

When sailing on a close hauled course, the crew should cleat the jib sheet. Cleating the jib sheet allows the helm to watch the ticklers and stay on a close hauled course by altering course as the wind

shifts. When sailing on a close reach or lower, the helm and crew should trim the sails by the ticklers and not by altering course.

If the windward (inside) jib tickler is flying erratically, the helm should bear away or the crew should sheet in the jib sail and the helm should adjust the mainsail trim accordingly (as illustrated in Number 1 of Figure 13).

If the leeward (outside) jib tickler is flying erratically, the helm should head up or the crew should sheet out the jib sail and the helm should adjust the mainsail trim accordingly (as illustrated in Number 2 of Figure 13).

If both jib ticklers are flying straight back, the sail is trimmed correctly for the point of sail (as illustrated in Number 3 of Figure 13).

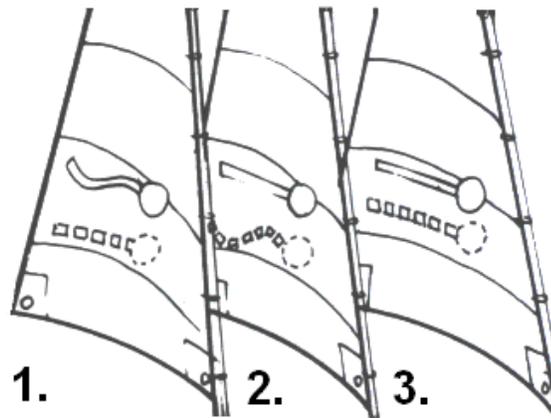


Figure 14 Jib Tell Tales

Note. From Basic Sailing Skills Manual (p. 48), by S. Donaldson, 2001, Kingston, ON: Canadian Yachting Association. Copyright 2001 by Canadian Yachting Association.

A mainsail will most commonly stall because of over trimming. If the leech tickler is flying erratically or hooking around the leeward side of the leech, the helm should head up or sheet out.



A leech tickler is often referred to as a “leech fly”.

COACHES CORNER—SAIL TRIM

It is common mistake for instructors to spend significant amounts of time on shore focusing on sail trim and identifying the points of sail. It seems important to the instructor for sailors to understand where the sails should be positioned on the various points of sail, however it takes a significant amount of time for sailors to be able to make the link between heading, wind direction, sail angle and the related point of sail. The various points of sail and how to trim sails are embedded in essentially all sail training, which enables the instructor to use experiential learning to gradually teach these skills over time.

By incorporating this into everyday sail training, the sailors will learn the art of sail trim and the various terms while they learn how to steer, head up, bear away and various other skills.

TACKING

TACKING

Tacking is performed when sailing upwind. To complete a tack, the helm pushes the tiller toward the mainsail causing the bow of the sailboat to turn toward the wind, eventually passing the bow through it. The sails, skipper and crew will switch sides.

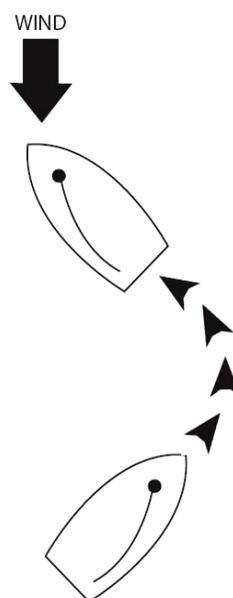


Figure 15 Tacking

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

Helm Skills	Crew Skills
Shoulder check (to windward) and communicate tack with partner.	Confirm tack with sailing partner.
Sit up straight and move aft (clear of bridle and mainsheet).	Crew counts in tack.
Helm gently heads up.	Crew keeps boat flat, holds jib sheet with aft hand.
As boom crosses boat, helm runs aft hand up tiller extension to universal.	As jib begins to back, crew uncleats it and lets go of sheet.
Helm crosses boat with aft foot first (facing forward) and punches tiller extension to other side of the boat.	Crew crosses boat and quickly trims new jib sheet to bring jib to new leeward side.
Helm sits and smoothly straightens tiller.	Crew sits and trims jib.
Helm switches tiller by reaching back to tiller extension with mainsheet hand to hold both main and tiller extension in mainsheet hand. Then old tiller hand reaches around to take mainsheet. Finally, the tiller extension is flipped over the helm's shoulder so that it is in their lap.	



The crew will maintain a lookout throughout the tack.

COACHES CORNER—TACKING

Tacking involves a complex series of movements however with proper skills which eventually becomes a reflex. For this reason it is very important to instill good habits in sailors when they are first introduced to the skill.

- **Eyes out of boat.** It is instinct for sailors to look inside the sailboat when performing manoeuvres; however there is little of importance to look at while completing a tack or gybe. It is important for the helm to keep their eyes forward on the jib to see what is happening with the sailboat in relation to the wind direction. By looking at the jib, the helm is able to see how quickly the sailboat is turning, and anticipate when they will need to switch sides and straighten their tiller. Helms who keep their eyes out of the boat are less likely to over- or under-steer when tacking.
- **Footwork.** It is not possible to look forward at the jib sail if the helm faces backwards. By crossing the boat with the aft foot first, the helm is forced to stay looking forward throughout the manoeuvre.
- **Tiller.** How the helm holds the tiller extension before, during and after a tack has a significant impact on the success of the movement. How best to hold the tiller extension varies depending on the type of sailboat, mainsheet / bridle / traveller arrangement and the physical size of the sailor in relation to the sailboat. Helms need to work through a fluid from one side of the sailboat to the other.
- **Back the jib.** Backing the jib in a tack helps steer the boat through the wind and reduces the amount of tiller movement required by the helm. The crew should keep the jib backed throughout the tack and trim the new jib sheet as the mainsail fills.
- **Exit the tack as entered.** The sitting positions after a tack will be the same as before. For example, if the crew was sitting on the leeward side (for balance) before a tack, they will likely need to sit slightly to windward while the boat accelerates and once the manoeuvre is complete the crew should sit on the new leeward side.

GYBING

GYBING

Gybing is performed when sailing downwind. To complete a gybe, the skipper pulls the tiller away from the mainsail, causing the bow of the sailboat to turn away from the wind eventually passing the stern through it. The sails, skipper and crew will switch sides.

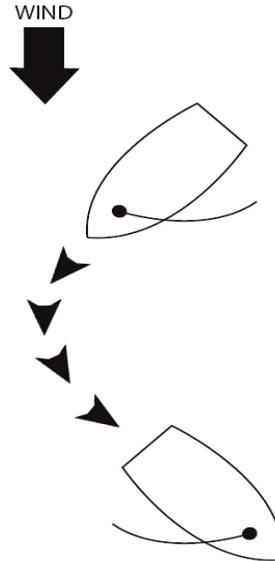


Figure 16 Gybing

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

Helm Skills	Crew Skills
Check under boom for other boats and communicate gybe with partner.	Confirm gybe with sailing partner.
Sit up straight and pre-gybe the tiller extension so that it is on the other side of the mainsheet.	
Helm gently bears off.	Crew keeps boat flat, uncleats jib sheet.
As the top of the battens on the mainsail begin to flick, helm grabs mainsheet and uses it to gybe the boom.	In a doublehanded boat, crew watches for the top battens on the main to flick and then gybes the main using the boom vang.
Helm crosses boat with aft foot first (facing forward).	Crew crosses boat and trims new jib sheet.
Helm sits and smoothly straightens tiller.	
Helm switches tiller by reaching back to tiller extension with mainsheet hand to hold both main and tiller extension in mainsheet hand. Then old tiller hand reaches around to take mainsheet. Finally, the tiller extension is flipped over the helm's shoulder so that it is in their lap.	



The crew will maintain a lookout throughout the gybe.

COACHES CORNER—GYBING

Gybing involves a complex series of movements however with proper skills which eventually becomes a reflex. For this reason it is very important to instill good habits in sailors when they are first introduced to the skill.

- **Eyes out of boat.** It is instinct for sailors to look inside the sailboat when performing manoeuvres; however there is little of importance to look at while completing a tack or gybe. It is important for the helm to keep their eyes forward on the jib to see what is happening with the sailboat in relation to the wind direction. By looking at the jib, the helm is able to see how quickly the sailboat is turning, and anticipate when they will need to switch sides and straighten their tiller. Helms who keep their eyes out of the boat are less likely to over- or under-steer when gybing.
- **Footwork.** It is not possible to look forward at the jib sail if the helm faces backwards. By crossing the boat with the aft foot first, the helm is forced to stay looking forward throughout the manoeuvre.
- **Gybing the mainsail.** Gybing can be more intimidating than tacking because of the amount of load on the sail and physical force required to gybe the boom. It can be tempting to slowly guide the boom to the new side, however as wind speed increases and the mainsail loads up slowly guiding the boom can make the manoeuvre more difficult.

Communication between the helm and crew is essential during a gybe. Crews need to watch the leech while bearing off and inform the helm when they are about to gybe the mainsail. Gybing the mainsail with a smooth but quick motion will reduce the amount the mainsail loads up limit the amount the sailboat heels when the mainsail fills on the new side.



When doublehanded sailing, the helm can anticipate the gybe by watching the clew of the jib sail. When the clew begins to go slack on the jib sheet and flickers slightly to windward, they can expect the crew to gybe the boom very soon.

- **Tiller.** To prevent an eased mainsail from touching the water, it is important for the helm to have a quick transition across the boat during a gybe. Pre-gybing the tiller extension during the bear away reduces the number of movement required during the gybe itself and improve the helm's ability to flatten the sailboat during the exit from the gybe.
- **Gybing the jib.** It is common for new sailors to trim the jib sail in hard after a gybe. After gibling the boom, crews should trim the jib in hard until the manoeuvre is complete and then re-trim for the point of sail.
- **Exit the gybe as entered.** The sitting positions after a gybe will be the same as before. For example, if the crew was sitting on the leeward side (for balance) before a gybe, they will likely need to sit slightly to windward while the boat accelerates and once the manoeuvre is complete the crew should sit on the new leeward side.

HEADING UP AND BEARING AWAY

Heading up and bearing away (bearing off) involve relatively simple skills, however require teamwork between the helm and crew to be completed effectively.

HEADING UP

The steps to heading up are as follows:

1. The helm will say, "Heading up."
2. The crew will reply, "Ready."
3. The helm will push the tiller slightly toward the leeward side, causing the sailboat to turn toward the wind.
4. Sheeting:
 - a. The helm will trim the mainsheet by pulling in with their forward hand, pass the sheet to their tiller hand and reach down the mainsheet and continue pulling (hand over hand).
 - b. The crew will sheet in the jib sail as the sailboat turns and keep the tickers flying.
5. The crew will move to the windward gunwale as required to hike.
6. When the bow reaches the new desired course the helm will straighten the tiller and continue sailing.

BEARING AWAY

The steps to bearing away are as follows:

1. The helm will say, "Bearing away."
2. The crew will reply, "Ready."
3. The helm will pull the tiller slightly toward the windward side, causing the sailboat to turn away from the wind.
4. The helm and crew will sheet out the mainsail and jib sail as the sailboat turns.
5. The crew will move inboard to maintain boat balance as required.
6. When the bow reaches the new desired course the helm will straighten the tiller and continue sailing.



Common phrases used by instructors when providing immediate feedback regarding sail trim are:

- **"Ease your sails."** Slowly sheet out the mainsail and jib sail.
- **"Dump / blow your sails."** Aggressively sheet out the mainsail and jib sail.
- **"Trim your sails."** Sheet in the mainsail and jib sail until the sails are on the proper angle to the wind.

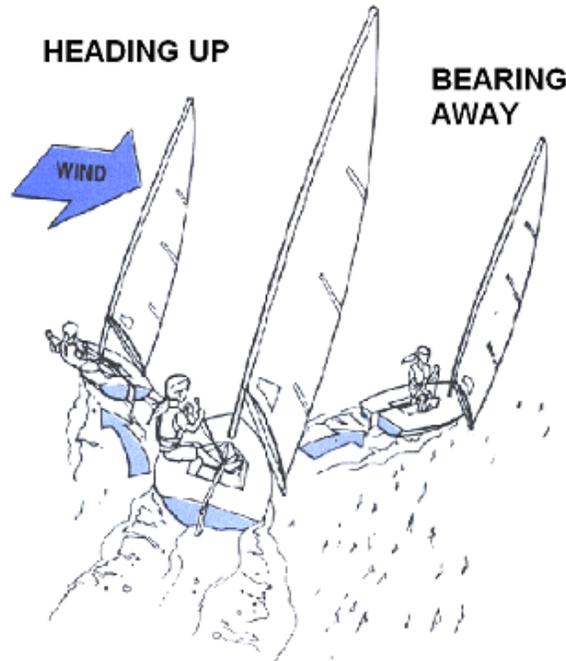


Figure 17 Heading Up and Bearing Away

Note. From *Basic Sailing Skills Manual* (p. 56), by S. Donaldson, 2001, Kingston, ON: Canadian Yachting Association. Copyright 2001 by Canadian Yachting Association.

SAILING ON A RUN

The steps to sailing on a run are as follows:

1. The helm will say, "Bearing away to a run."
2. The crew will reply, "Ready."
3. The helm will pull the tiller slightly toward the windward side, causing the sailboat to turn away from the wind.
4. The helm and crew will ease out the mainsheet and jib sheet and the crew will raise the centreboard three-quarters the way as the sailboat turns.
5. When the jib sail switches to the windward side, the crew will switch the jib sheets and the helm will straighten the tiller.
6. The helm and crew will switch sides so the helm is on the leeward side and the crew is on the windward side.
7. The helm will maintain a straight course to prevent the boom from swinging while the crew holds the jib sheet out around the windward shroud.



Sailing on a run is often referred to as "wing-on-wing" or "running free."

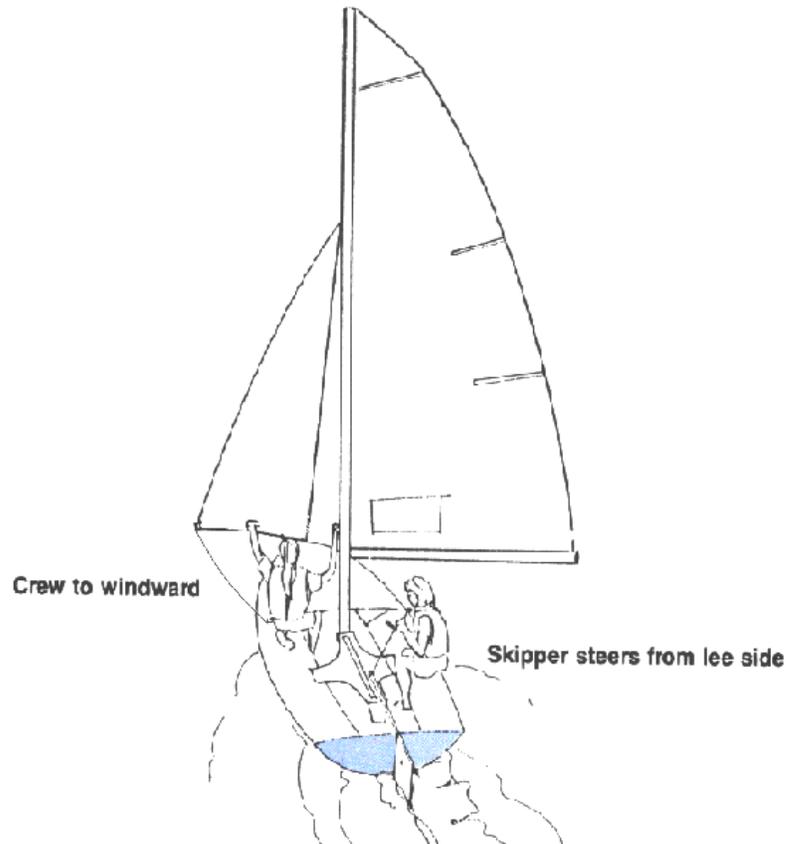


Figure 18 Sailing on a Run

Note. From *Basic Sailing Skills Manual*, by S. Donaldson, 2001, Kingston, ON: Canadian Yachting Association. Copyright 2001 by Canadian Yachting Association.

COACHES CORNER—HEADING UP AND BEARING AWAY

The act of heading up and bearing away are among the first skills that helms and crew begin to feel comfortable with, however at the time they are unaware that in addition to simply changing direction they are also learning about tiller control at different speeds, the effects on sail trim and how heel (boat balance) are affected differently on the various points of sail. It is for this reason that it is important to instill good habits while they are learning these skills.

- **Eyes out of boat.** It is important for the helm to keep their eyes forward on the jib to see what is happening with the sailboat in relation to the wind direction. By looking at the jib, the helm is able to see how quickly the sailboat is turning.
- **Tiller.** It is common for new sailors to aggressively move the tiller from side-to-side; this disturbs flow across the surface of the rudder, induces drags and hinders the rudder's ability to turn the boat. Helms gently guides the tiller in the desired direction in a way that allows the

sailboat to smoothly turn.

- **Sail Trim.** New sailors quickly learn that a luffing sail is not trimmed correctly, however often take longer to learn how to identify when a sail is over-trimmed. When sailors ease an over-trimmed sail it is important for them to note the improved boat speed. With practice, sailors are able to sense when the boat is sailing fast (sails are correctly trimmed) without having to constantly look at the telltales on the sail.
- **Boat Balance.** In order to maintain boat balance when heading up and bearing away, crews must anticipate changes in heel when turning closer to, or away from the wind. With proper communication from the helm, crews are able to adjust their body position as the sailboat turns in order to keep the sailboat balanced.

STOPPING

STOP A SAILBOAT

Stopping is performed to stop a sailboat at a predetermined point such as at a control position, at a mooring ball, or on start line.



Luff. To cause a sail to flutter by heading up or easing the sheet.

Luff up. To head up, causing the sails to flutter.

Skull. To pump the rudder as a way to turn the sailboat when it is not making way.

The steps to stopping are as follows:

1. The helm will say, "Prepare to luff up."
2. The crew will reply, "Ready."
3. The helm will say, "Luffing."
4. The helm will push the tiller toward the mainsail, causing the sailboat to turn toward the wind.
5. The skipper and crew will dump the sheets.
6. The crew will move inboard to maintain boat balance as required.
7. When the bow of the sailboat reaches head to wind, the sailboat will slow to a stop.
8. Unless mooring, when the sailboat comes to a complete stop, the skipper will skull the rudder, to bear the sailboat away slightly so it does not become stuck in irons.
9. If stopping for a control position or an extended period of time, the crew will backwind the jib to reduce noise and flogging.



Stopping from a reach to stop a sailboat is often referred to as a "J-approach."

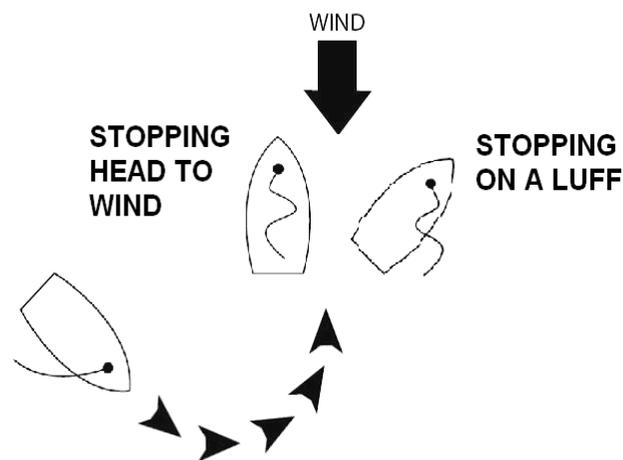


Figure 19 J-Approach

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.



Figure 20 Head to Wind (Irons)

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.



Figure 21 Luffing

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

COACHES CORNER—STOP A SAILBOAT

Instinctively, stopping a sailboat is one of the first skills that new sailors are able to teach themselves; however stopping at a predetermined position in a controlled manner takes time and practice.

- **Eyes out of boat.** It is important for the helm to keep their eyes forward on the mainsail and jib to see what is happening with the sailboat in relation to the wind direction. By looking at the sails, the helm is able to see where the bow is pointing in relation to the wind direction.
- **Reduce speed.** Anytime a sail is luffing it creates drag which will reduce the speed of the sailboat. If the helm wants to reduce speed prior to stopping, they instruct the crew to blow the jib. When ready to stop, blowing both the mainsail and jib sail creates enough drag to quickly.
- **Tiller.** Helms will be told throughout their sailing career “not too use too much tiller”, because of the rudders’ effect on drag and boat speed. When stopping, the helm uses the rudders’ drag to their advantage. When ready to turn into the wind, the helm quickly thrusts the tiller to leeward, maximizing drag from the rudder and aggressively turning the sailboat into the wind
- **Boat Balance.** When the sails are dumped, the reduced pressure in the sails also reduces heel. To maintain boat balance, crews adjust their weight inboard as sheets are released.

STARTING

STARTING

When starting / accelerating the helm and crew must identify any obstructions to ensure a safe path for the sailboat, and identify the wind direction in relation to the sailboat so its heading can be adjusted accordingly.

The steps to starting / accelerating a sailboat include:

1. **Identify a safe path and the wind direction.** Prior to sheeting in, the helm and crew will scan the area to locate other sailboats and other obstructions and plan a path based on the wind direction.
2. **Skull the rudder.** The helm will skull the rudder to assist with turning the sailboat off onto a close reach.
3. **Sheet in.** When the wind starts blowing over the side of the sailboat, the crew will trim the jib sail in hard to assist with turning. When the sailboat has turned down onto a close reach, the helm will trim in the mainsheet using doublehanded sheeting

COACHES CORNER—STARTING

Starting / accelerating incorporates communication between sailing partners, awareness of wind direction, sail trim and reacting to changes in boat balances as the sails are trimmed in. For this reason it is very important to instill good habits in sailors when they are first introduced to the skill.

- **Eyes out of boat.** When preparing to accelerate the helm should be looking towards the bow to maintain awareness of wind direction, at the same time the crew should be looking around the jib sail, under the boom and behind the sailboat to look for other sailboats and potential obstructions.
- **Tiller.** The helm needs to skull the rudder to assist with bearing the sailboat away, however it is common for new sailors to centreline the tiller when sheeting in. When the boom is released, the helm should centre the tiller, allowing the jib sail to steer the sailboat and promote acceleration.
- **Boat Balance.** In order to maintain boat balance when accelerating, crews must anticipate changes in heel when the sails are sheeted in wind. With proper communication between sailing partners, crews are able to adjust their body position as the sails fill in order to keep the sailboat balanced.

SLOW A BOAT WHILE SAILING DOWNWIND

DOWN-SPEED SAILING

When approaching a predetermined point downwind such as a mark, dock or slipway it may be necessary to intentionally slow the sailboat while sailing downwind.

The possible techniques to slowing a sailboat while sailing downwind include:

- **Over-sheet the sails.** The helm and crew will over-sheet the mainsail and jib sail to disturb airflow (stall) the sails and reduce speed.
- **Shift crew weight aft.** The helm and crew will shift (crew) weight aft to dig the transom into the water and increase drag through the water.
- **Over-steer.** The helm will head up and bear away slightly to increase the total distance sailed and increase the drag caused the rudder.

COACHES CORNER—DOWN-SPEED SAILING

Downspeed sailing while sailing upwind typically becomes second nature to sailors because it incorporates many of the techniques used for luffing, however downwind downspeed sailing contradicts the good sailing habits instilled by instructors for performance the majority of other skills. By thinking about how to make a sailboat go fast downwind, sailors are often able to then think about how to slow a boat down. The technique used to slow the sailboat down will vary depending on how fast the sailboat is moving, and how long the downspeed sailing is required.

LAUNCH AND RECOVER A SAILBOAT



IAW the CANSail Level 1 Rubric, sailors are required to launch and recover a sailboat from a sailing facility; this standard is designed to be flexible to suit the needs and different types of infrastructure. Instructors should coach the sailors based on the type of launching facilities and conditions.

LAUNCH FROM THE LEEWARD SIDE OF DOCK

When leaving a dock the helm must determine a safe path to ensure no damage to the sailboat will occur when leaving.

When leaving the leeward side of a dock use the following steps:

1. **Rig the sailboat.** Lower the centreboard / daggerboard, raise the sails and attach the rudder. Ensure the sails remain loose until ready to leave the dock.
2. **Pull the painter.** The crew will pull the painter to bring the sailboat closer to the dock.
3. **Untie the painter.** The crew will untie the painter from the dock when the skipper is ready.
4. **Push away from the dock.** The crew will push the sailboat away from the dock to prevent the sailboat from touching it. The skipper will take control of the tiller.
5. **Sheet in.** The helm and crew will begin to sheet in the sails, speeding up as they sail away.

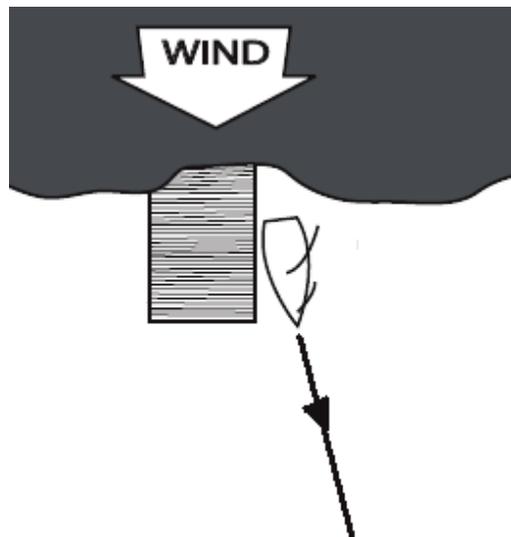


Figure 22 Leaving the Leeward Side of a Dock

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

RETURN TO THE LEEWARD SIDE OF A DOCK

When returning to the leeward side of a dock use the following steps:

1. **Determine the leeward side.** The skipper must determine the wind orientation to the dock in order to position the sailboat for the approach.
2. **Position the sailboat for the J-approach.** The skipper positions the sailboat away from the dock to make an angle of approach of approximately 45 degrees.
3. **Approach the dock.** The speed of the sailboat should be monitored as it sails towards the dock. Sails should be eased out in order to spill the air and slow the sailboat. When the sailboat is approximately two boat lengths from the dock (distance will vary depending on boat and wind speed), begin to slowly head into irons.
4. **Secure the painter to the dock.** The crew will tie the painter to the dock. Once secured to the dock, lower the sails immediately.



The approach angle will differ depending on the orientation of the dock to the wind direction.

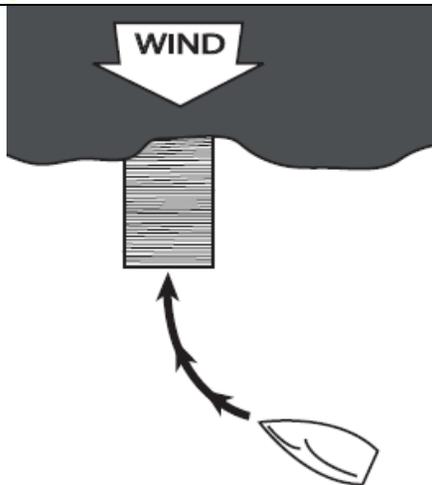


Figure 23 Leeward Side of a Dock (180 degrees)

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

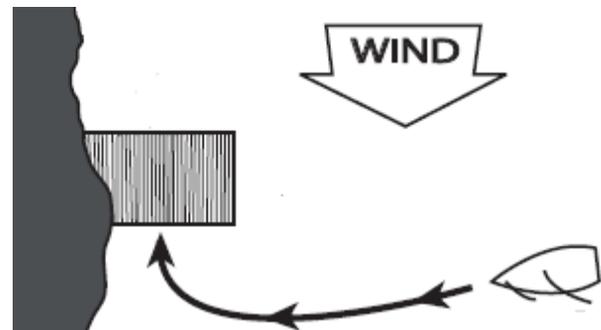


Figure 24 Returning to the Leeward Side of a Dock (90 degrees)

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

LAUNCH FROM THE WINDWARD SIDE OF A DOCK

When leaving the windward side of a dock use the following steps:

1. **Pull the painter.** The crew will pull the painter to bring the sailboat closer to the dock.

2. **Untie the painter.** The crew will untie the painter from the dock when the helm is ready.
3. **Push away from the dock.** The crew will push the sailboat away from the dock to prevent the sailboat from touching it.
4. **Point the bow into irons.** Point the bow into irons as to ensure the sails do not fill with wind while rigging.
5. **Rig the sailboat.** Lower the centreboard / daggerboard, raise the sails and attach the rudder.

RETURN TO THE WINDWARD SIDE OF A DOCK

When returning to the windward side of a dock use the following steps:

1. **Sail to a point upwind of the dock.** The helm sails upwind of the dock.
2. **Point the sailboat into irons.** The helm shall point the bow of the sailboat into irons at a safe distance away from the dock.
3. **Lower the mainsail.** Lower only the mainsail.
4. **Sail towards the dock.** Using only the jib sail, the skipper shall bear away and steer a course to the dock at a slow and steady speed.
5. **Secure the painter to the dock.** The crew will tie the painter to the dock.
6. **Lower the jib sail.** Lower the jib sail as soon as possible.

LAUNCH FROM A BEACH WITH AN OFFSHORE WIND

When leaving a beach with an offshore wind, use the following steps:

1. **Rig.** With the bow pointed into irons, raise the sails and attach the rudder.
2. **Ease the sheets.** Ensure the sheets are loose.
3. **Lower the centreboard / daggerboard halfway.** Due to the depth of water the centreboard / daggerboard may not be able to be lowered all the way. Ensure some of the centreboard / daggerboard is lowered to have stability when leaving the beach.
4. **Lower the rudder blade halfway.** Due to the depth of water the rudder may not be able to be lowered all the way. Ensure some of the rudder is lowered to have steerage when leaving the beach.
5. **Steady the sailboat.** The crew shall steady the sailboat for the skipper to enter.
6. **Skipper climbs in.** The helm climbs in the sailboat. The helm takes position in the cockpit of the sailboat.

7. **Turn the sailboat sideways.** The crew turns the sailboat sideways to the direction of the wind.
8. **Crew climbs in.** The crew quickly climbs in the sailboat, taking position on the jib sheets.
9. **Sheet in.** Both the helm and crew begin to sheet in the sails, gradually gaining speed.
10. **Set the fastest course to deeper water.** The helm steers a course to the deepest water and lowers the centreboard / daggerboard and rudder blade all the way.

 The centreboard / daggerboard and rudder blade should be lowered at the earliest opportunity.

When using a dolly, the sailboat can be partly rigged prior to placing the sailboat in the water.



Figure 25 Steps 1–6

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

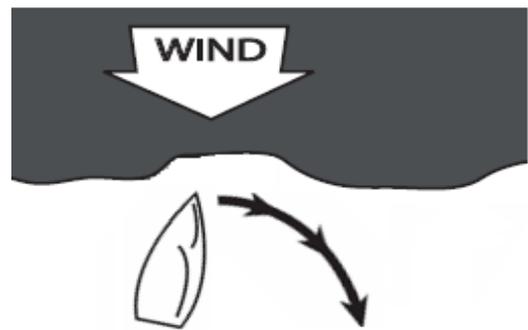


Figure 26 Steps 7–9

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

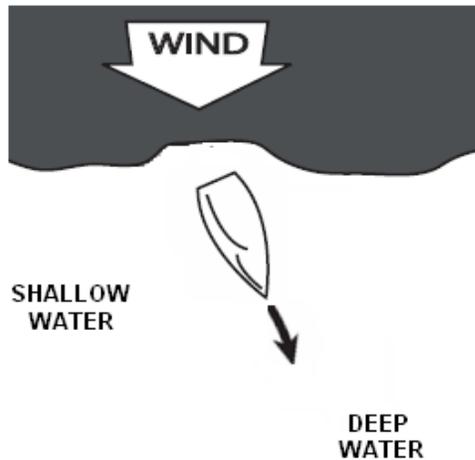


Figure 27 Step 10

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

RETURN TO A BEACH WITH AN OFFSHORE WIND

When returning to a beach with an offshore wind, use the following steps:

1. **Select an approach.** The helm must decide where to land on the beach, and the approach to be made. The location should be free of rocks, shoals or any other geographical hazard.
2. **Sail towards the beach.** The helm steers a course to the beach which will place the sailboat in the desired location.
3. **Luff the sails.** The helm and crew will begin to ease the sheets, slowing down the sailboat.
4. **Raise the centreboard / daggerboard.** To prevent damage to the centreboard / daggerboard, the crew should raise it as they get closer to the beach.
5. **Raise the rudder blade.** To prevent damage to the rudder blade, the helm should raise it as they get closer to the beach.
6. **Crew exits the sailboat.** The crew will exit the sailboat just before the hull reaches the beach.
7. **Skipper exits the sailboat.** The helm will exit the sailboat assisting the crew.
8. **Lower the sails.** Lower the mainsail and jib sail as soon as possible.
9. **Remove the sailboat from the water.** The helm and crew work together to remove the sailboat from the water.

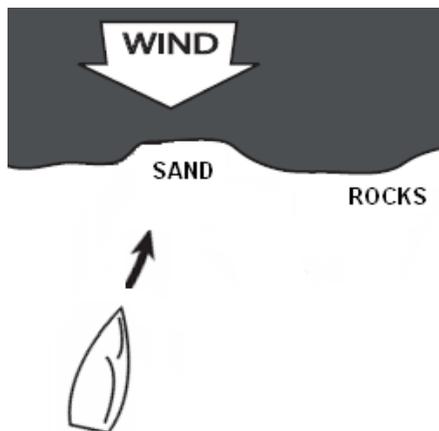


Figure 28 Steps 1 and 2

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

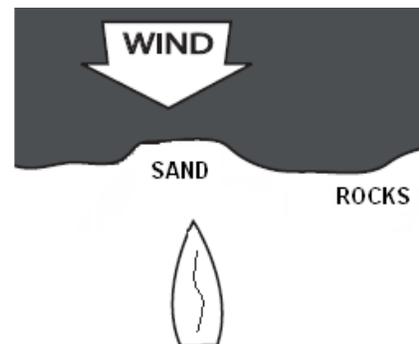


Figure 29 Steps 3–5

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.



Figure 30 Steps 6–8

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

LAUNCH FROM A BEACH WITH AN ONSHORE WIND

When leaving a beach with an onshore wind, use the following steps:

1. **Rig.** With the bow pointed into irons, raise the sails and attach the rudder.
2. **Ease the sheets.** Ensure the sheets are loose.
3. **Lower the centreboard / daggerboard halfway.** Due to the depth of water the centreboard / daggerboard may not be able to be lowered all the way. Ensure some of the centreboard / daggerboard is lowered to have stability when leaving the beach.
4. **Lower the rudder blade halfway.** Due to the depth of water the rudder may not be able to be lowered all the way. Ensure some of the rudder is lowered to have steerage when leaving the beach.
5. **Turn the sailboat onto the desired tack.** Before climbing in the sailboat, point the bow of the sailboat onto the desired tack, heading to deepest water as soon as possible.
6. **Push off the beach.** When the helm and crew are climbing in they will push the sailboat away from the beach.
7. **Skipper and crew climb in quickly.** The helm and crew must quickly climb in the sailboat and take position on the tiller, mainsheet and jib sail.
8. **Sheet in.** The helm and crew begin to sheet in the sails, gradually gaining speed.
9. **Set the fastest course to deeper water.** The helm steers a course to the deepest water and lowers the centreboard / daggerboard and rudder blade all the way as soon as possible.



The centreboard / daggerboard and rudder blade should be lowered at the earliest opportunity.

When using a dolly, the sailboat can be partly rigged prior to placing the sailboat in the water.



Figure 31 Steps 1-4

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

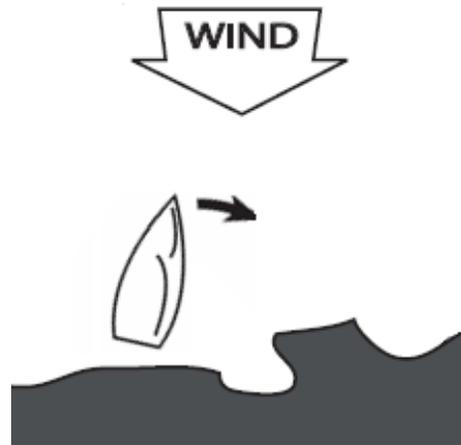


Figure 32 Steps 5-8

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

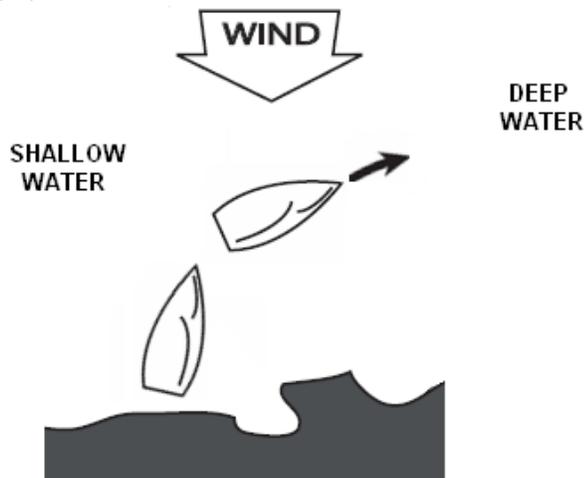


Figure 33 Step 9

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.



Approaches should be slow enough to ensure the crew will not be injured when exiting the sailboat upon reaching the beach.

If the sailboat is sailing too fast, the skipper should turn around and make another approach.

RETURN TO A BEACH WITH AN ONSHORE WIND

When returning to a beach with an onshore wind, use the following steps:

1. **Select an approach.** The helm must decide where to land on the beach, and the approach to be made. The location should be free of rocks, shoals or any other geographical hazard.
2. **Point the sailboat into irons.** The helm shall point the bow of the sailboat into irons at a safe distance away from the beach.
3. **Lower the mainsail.** Lower only the mainsail.
4. **Sail towards the beach.** Using only the jib sail, the skipper shall bear away and steer a course to the beach at a slow and steady speed.
5. **Raise the centreboard / daggerboard.** To prevent damage to the centreboard / daggerboard, the crew should raise it as they get closer to the beach.
6. **Raise the rudder blade.** To prevent damage to the rudder blade the skipper should raise it as they get closer to the beach.
7. **Crew exits the sailboat.** The crew will exit the sailboat just before the hull reaches the beach.
8. **Skipper exits the sailboat.** The helm will exit the sailboat assisting the crew.
9. **Lower the jib sail.** Lower the jib sail as soon as possible.
10. **Remove the sailboat from the water.** The helm and crew work together to remove the sailboat from the water.

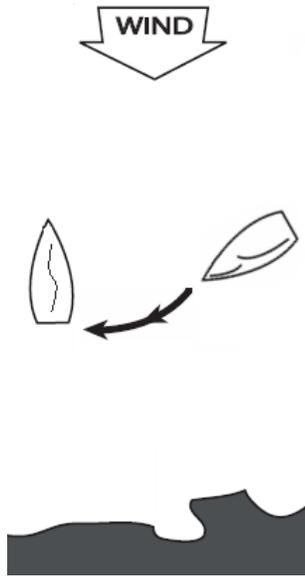


Figure 34 Steps 1 and 2

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

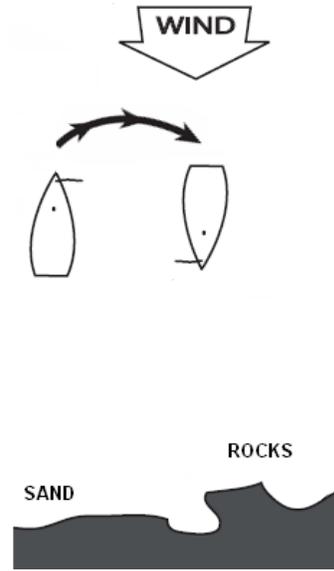


Figure 35 Steps 3 and 4

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

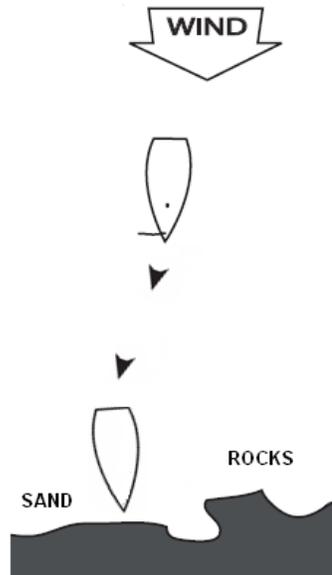


Figure 36 Steps 5-10

Note. From *White Sail Workbook*. Canadian Yachting Association. (2007). Manuscript in preparation.

COACHES CORNER—LAUNCH AND RECOVER A SAILBOAT

The risk of hitting obstructions, the dock and other sailboats when launching and recovering a sailboat can make these skills very stressful for novice sailors. For this reason, it is important for sailors to have a solid grasp of how to start, stop and slow a sailboat prior to attempting this skill for the first time.

- **Route planning.** Many good sailors have botched a docking or launching attempt because of failure to incorporate wind directions and obstacles into their route. Prior to launching or recovering from any dock or slipway, sailors discuss the local areas and plan a route. The plan should include any known obstacles, wind direction and any known manoeuvres (the first tack or gybe when leaving, or when to slow down on the approach).
- **Seamanship.** The overall seamanship of the sailboat can have a big impact on success. When preparing to launch, the entire sailboat should be looked over to ensure all of the running rigging is functioning properly, and that the tiller (and extension) are not fouled by the mainsheet or bridle.

When preparing to recover, lines such as the halyards should be checked to ensure they can be released quickly if required, and the painter is ready on the deck.

- **If in doubt, bail out.** Sailors who botch a launch or recovery will often report that they had doubts about their success before things went wrong. If experienced sailors see a heavy gust coming, they delay untying / launching until the gust has gone by. If the sailboat is carrying excessive speed during the final approach to a dock, sailors should abort the attempt and circle around to try again.

REFERENCES

C0-027 Canadian Red Cross. (1999–2006). *Lifejacket comparison chart*. Retrieved October 2, 2006, from http://www.redcross.ca/cmslib/general/lifejacket_chart.pdf

C1-009 Canadian Dermatology Association. (n.d.). *Facts about sun exposure: Prevention*. Retrieved April 4, 2006, from http://www.dermatology.ca/sun/facts_e.html

C1-098 Office of Boating Safety. (2006). *Safe boating guide*. Ottawa, ON: Her Majesty the Queen in Right of Canada, as represented by Transport Canada.

C1-305 Sail Canada. (2012). *CANSail 1 & 2 Instructor Package*. Kingston, ON: Sail Canada

C1-301 Australian Institute of Sport. (2013). *Sailing Facts Sheets*. Retrieved February 9, 2013, from <http://www.ausport.gov.au/ais/nutrition/factsheets/sports/sailing>

GLOSSARY

Batten. Stiff wood or plastic strip used to support the trailing edge of a sail.

Batten pocket. Slots sewn in the leech where battens are inserted to maintain the proper shape of the mainsail.

Beam reach. Sailing a course approximately 90 degrees to the wind.

Broad reach. Sailing with the wind coming over one corner of the stern.

Bolt rope. Rope sewn along the luff and the foot of a mainsail which slips into a groove in the spars.

Boom vang. Tackle leading downward from the boom which controls the mainsail shape by adjusting the tension on the trailing edge. Boom vang tension will also prevent the boom from slipping off the gooseneck.

Boom. Horizontal spar at the bottom of the mainsail.

Bow. Front of the sailboat.

Bowline. Makes a non-slip loop in the end of a line. Used to tie the painter to a bow ring, for attaching sheets and halyards to sails, and for many other purposes.

Centreboard. A blade of wood, fibreglass or metal fixed to the sailboat that pivots through a slot in the bottom of the sailboat to prevent sideslipping while sailing. It is similar in function to a daggerboard.

Cleats. Fittings that grip and hold lines.

Clew. Lower, aft corner of a sail.

Close hauled. Sailing as close to the wind as possible with sails filling in order to approach an upwind destination.

Close reach. Sailing on a point of sail above a beam reach (90 degrees to the wind), but lower than the close hauled position.

Cringle. Reinforced ring on the corners of a sail to which a line is attached.

Daggerboard. A blade of wood, fibreglass or metal that extends and retracts vertically through a slot in the bottom of the sailboat to prevent sideslipping while sailing. It is similar in function to a centreboard.

Fairlead. Ring or U-shaped fitting which guides a control line and helps prevent tangles.

Figure eight. Used as a 'stopper knot' to prevent a line from slipping through a block or fairlead.

Figure eight through a bight (racing knot). A bight passed through a grommet or cringle, which is secured in place by the standing end of the line with a figure eight knot. A low profile knot which is ideal for securing halyards.

Fog. A thick cloud of water near the Earth's surface. Fog reduces visibility making it difficult to navigate.

Foot. Lower edge of a sail.

Geographic hazards. Naturally occurring obstructions that pose a safety concern to a vessel.

Gooseneck. Attachment used to connect the boom to the mast.

Gust (synonym—puff). An abrupt increase in wind speed, which appears on the water's surface as dark, rippled patches.

Hanks. Metal or plastic fitting used to secure the jib sail to the forestay.

Head. Upper corner of a sail.

Header. Forces the sailboat to bear off or trim sails. Typically comes down from the front of the bow, windward jib telltales (ticklers) begin to wave erratically.

Heat-related illness. The condition of having an abnormally high body temperature. This is caused by prolonged exposure to extreme heat or heavy exertions in a hot environment, both of which can occur when sailing

Hiking strap. Foot straps which enable the skipper and crew to lean back further without falling overboard.

Hull. Main shell or body of the sailboat.

Hypothermia. The condition of having an abnormally low body temperature. This is caused by exposure to cold air temperature or cold water, both of which can occur when sailing.

Irons. The bow of the sailboat is pointed directly in the wind and temporarily unable to turn onto either tack.

Jib halyard. Control line used to hoist the jib sail and hold it up.

Jib sail. Small sail set ahead of the mast.

Jib sheet. Line used to control the jib sail. The jib sheet can be pulled in or eased out to trim the jib sail.

Leech. Aft edge of a sail extending from the head to the clew.

Lee helm. The tendency for a sailboat to want to bear off.

Leeway. Side slipping motion of a sailboat.

Lift. Allows the sailboat to head up or ease sails. Typically comes down from the windward side of the bow, leeward jib telltales (ticklers) being to wave erratically.

Line squalls. A sudden and short-lived gust of wind. Line squalls can be identified by a fast approaching line of dark water.

Luff. Forward edge of a sail extending from the head to the tack.

Luff. To cause a sail to flutter by heading up or easing the sheet.

Luff up. To head up, causing the sails to flutter.

Lull (synonym—hole). An abrupt decrease in wind speed, which appears on the water's surface as a smooth or glassy area.

Main halyard. Control line used to hoist the mainsail and hold it up.

Mainsail. Large sail set behind the mast.

Mainsheet. Line used to control the mainsail. The mainsheet can be pulled in or eased out to trim the mainsail.

Mast. Vertical spar that holds up the sails.

Navigational hazards. Man-made obstructions that pose a safety concern to a vessel.

Neutral helm. The tendency for a sailboat to want to go straight.

Outhaul. Control line that attaches the clew of the mainsail to the boom and tensions the bottom of the mainsail.

Port tack. Sailing with the boom on the starboard side.

Reef knot. Used to join two lines of the same diameter and type (eg, manila, polypropylene, etc.)

Rudder. Hinged blade mounted to the outside, flat section of the stern, used for steering.

Running free. Sailing directly away from the wind.

Sailing by the lee. Sailing on a point of sail above a run with the wind on the same side as the boom.

Skull. To pump the rudder as a way to turn the sailboat when it is not making way.

Starboard tack. Sailing with the boom on the port side.

Stern. Back of the sailboat.

Tack. Lower, forward corner of a sail.

Tack. The side of the sailboat opposite the boom.

Thwart. Supports the top of the centreboard housing and provides a seat.

Tiller extension. Handle attached to the end of the tiller which allows the skipper to sit further ahead and outboard to help stabilize the sailboat.

Tiller. Handle attached to the top of the rudder which is used to steer the sailboat.

Transom. Flat portion of the hull that spans the stern of the sailboat.

Weather hazard. A meteorological event which poses a safety concern to a vessel.

Weather helm. The tendency for a sailboat to want to head up.

BASIC SAILBOAT PARTS

SAILS AND PARTS INCLUDED IN THE RUNNING RIGGING

Main halyard. Control line used to hoist the mainsail and hold it up.

Jib halyard. Control line used to hoist the jib sail and hold it up.

Boom vang. Tackle leading downward from the boom which controls the mainsail shape by adjusting the tension on the trailing edge. Boom vang tension will also prevent the boom from slipping off the gooseneck.

Outhaul. Control line that attaches the clew of the mainsail to the boom and tensions the bottom of the mainsail.

Mainsail. Large sail set behind the mast.

Batten. Stiff wood or plastic strip used to support the trailing edge of a sail.

Jib sail. Small sail set ahead of the mast.

Mainsheet. Line used to control the mainsail. The mainsheet can be pulled in or eased out to trim the mainsail.

Jib sheet. Line used to control the jib sail. The jib sheet can be pulled in or eased out to trim the jib sail.

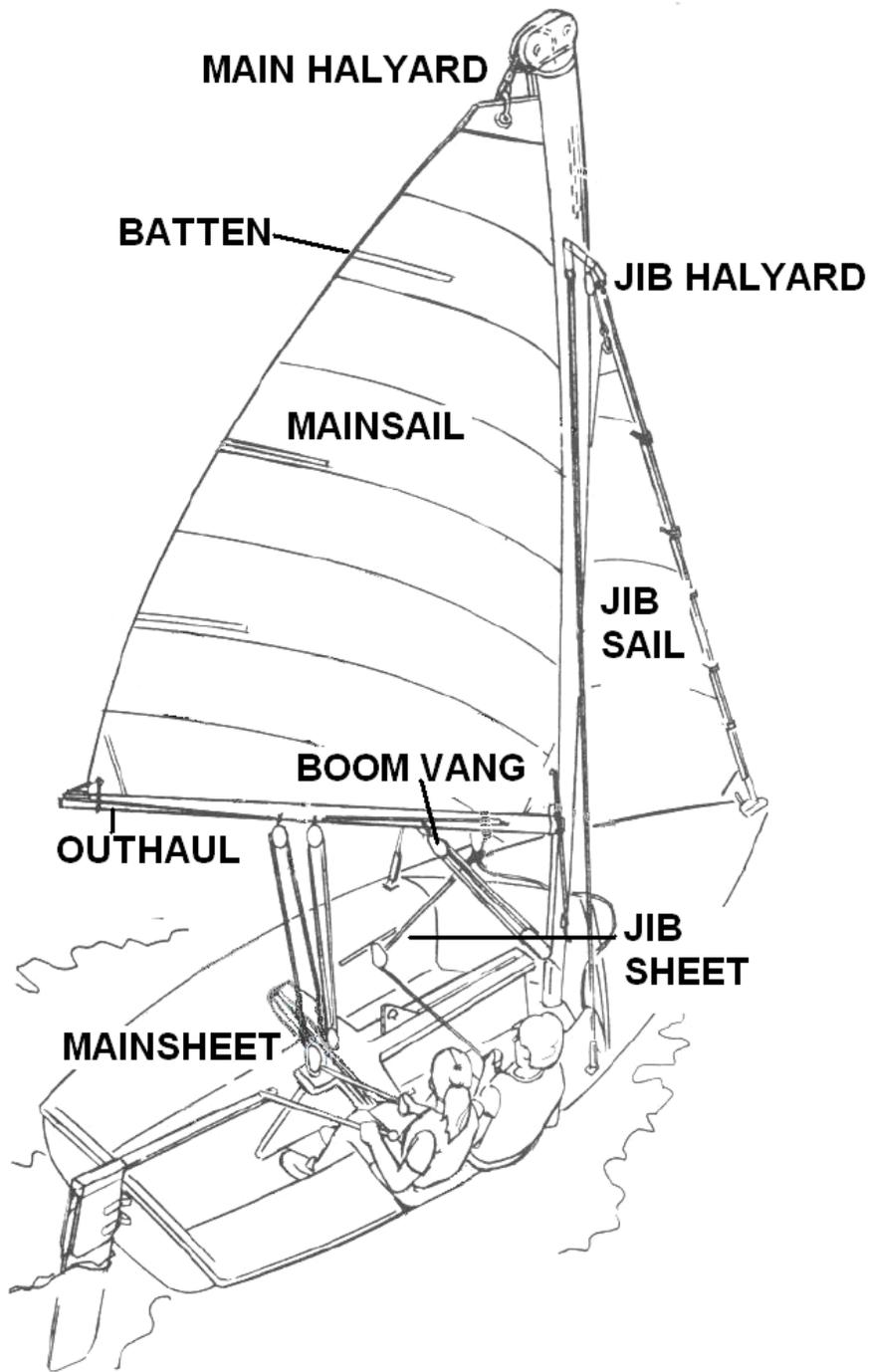


Figure A-1 Sails and Parts Included in the Running Rigging

Note. From *White Sail Workbook*. Canadian Yachting Association, 2007, Manuscript in preparation

PARTS OF THE HULL

Bow. Front of the sailboat.

Stern. Back of the sailboat.

Transom. Flat portion of the hull that spans the stern of the sailboat.

Rudder. Hinged blade mounted on the transom which is used for steering.

Tiller. Handle attached to the top of the rudder which is used to steer the sailboat.

Tiller extension. Handle attached to the end of the tiller which allows the skipper to sit further ahead and outboard to help stabilize the sailboat.

Fairlead. Ring or U-shaped fitting which guides a control line and helps prevent tangles.

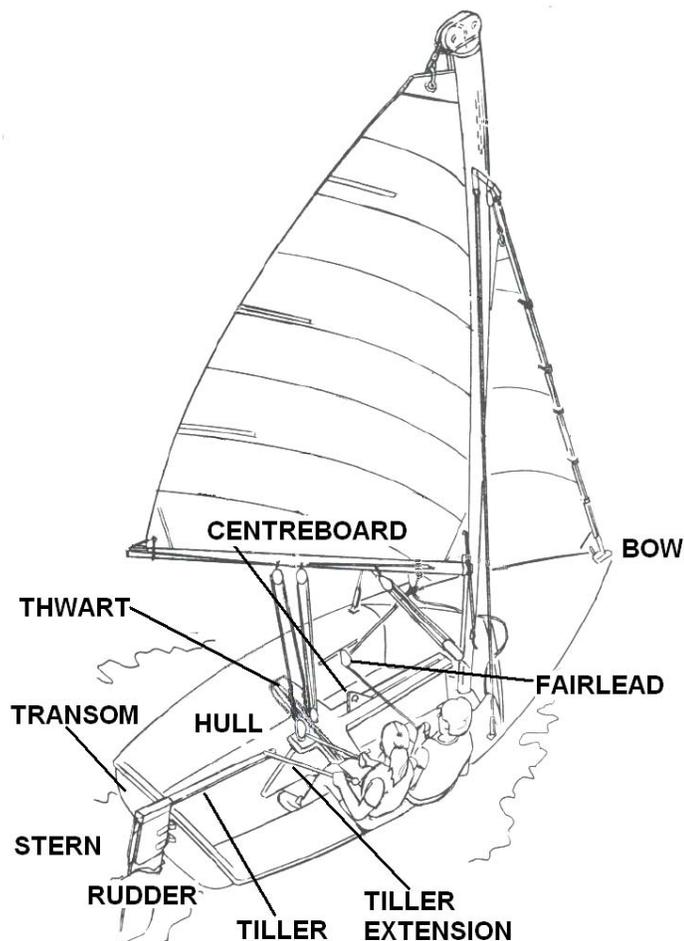


Figure A-2 Parts of the Hull

Note. From *White Sail Workbook*. Canadian Yachting Association, 2007, Manuscript in preparation

Centreboard. A blade of wood, fibreglass or metal fixed to the sailboat that pivots through a slot in the bottom of the sailboat to prevent sideslipping while sailing. It is similar in function to a daggerboard.

Daggerboard. A blade of wood, fibreglass or metal that extends and retracts vertically through a slot in the bottom of the sailboat to prevent sideslipping while sailing. It is similar in function to a centreboard.

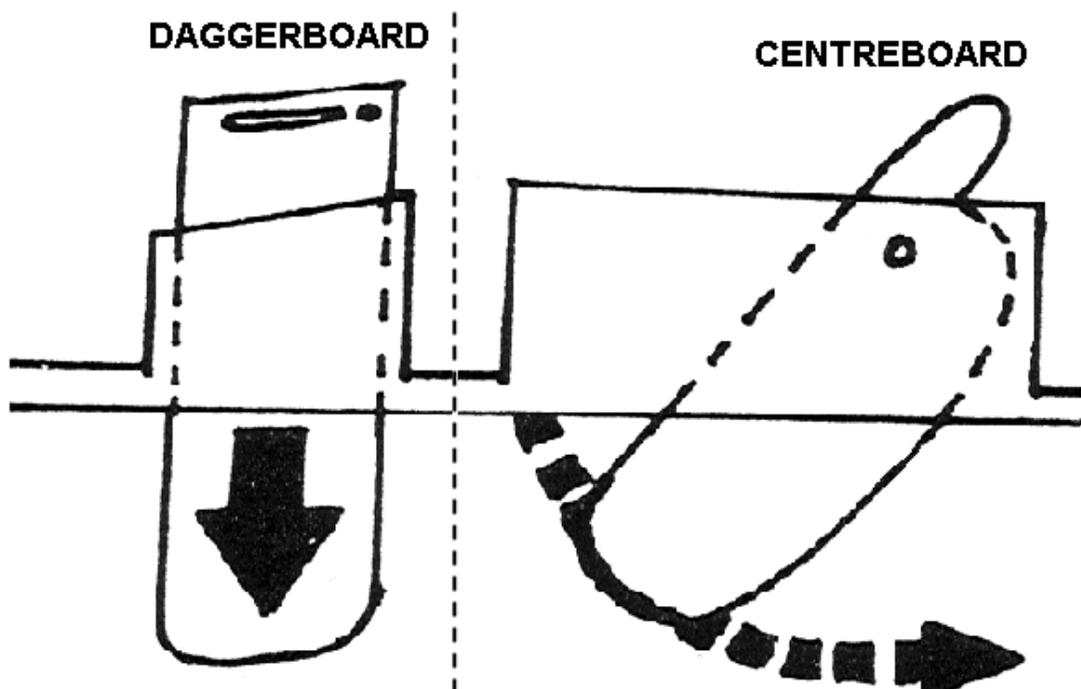


Figure A-3 Daggerboard / Centreboard

Note. From *Basic Sailing Skills Manual* (p. 17), by S. Donaldson, 2001, Kingston, ON: Canadian Yachting Association. Copyright 2001 by Canadian Yachting Association.

Thwart. Supports the top of the centreboard housing and provides a seat.

Hiking strap. Foot straps which enable the skipper and crew to lean back further without falling overboard.

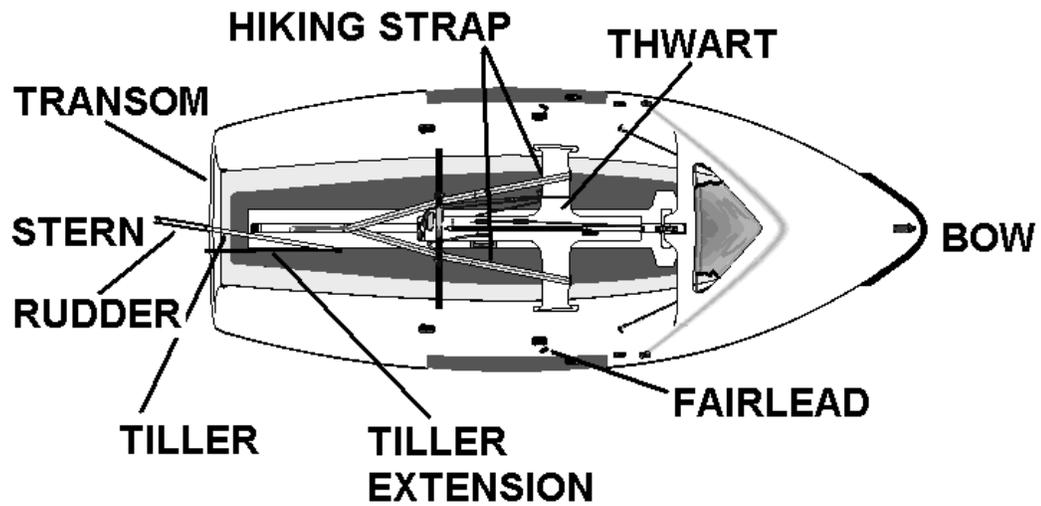


Figure A-4 Aerial View of the Hull

Note. From *Bronze Sail Workbook* (p. 17), Canadian Yachting Association, 2005, Kingston, ON: Canadian Yachting Association. Copyright 2005 by Canadian Yachting Association.

ROLLING SAILS

Rolling is effective for sails that have permanently fitted battens along the leech of the mainsail. Rolling sails also helps to avoid damage from creasing over long periods of time. To roll a sail, use the following steps:

1. Lay the mainsail out on a dry and flat area (as illustrated in Figure B-1).
2. Lay the jib sail on top of the mainsail with the luff of the jib sail lined up with the leech of the mainsail (as illustrated in Figure B-1).
3. Fold the top of the main sail along the top batten (as illustrated in Figure B-2).
4. Line up the foot of both sails and begin rolling them together from the head to the foot (as illustrated in Figure B-3).
5. When rolled, store these sails in a long sail bag (as illustrated in Figures B-4 and B-5).



Figure B-1 Steps 1 and 2

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-2 Step 3

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-3 Step 4

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-4 Step 5

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-5 Step 6

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.

FOLDING SAILS

One method for folding sails is known as the accordion method. The accordion method is used when the battens can be removed from the main sail. The mainsail and jib sail are folded separately but are stored in the same sail bag. The battens must be removed prior to folding the sail.

To fold a sail using the accordion method, use the following steps:

1. Lay the mainsail out on a dry and flat area (as illustrated in Figure B-6).

Attachment B to
CANSail 1 Technical Package

2. One cadet will kneel near the tack of the mainsail, and another cadet will kneel near the clew of the mainsail (as illustrated in Figures B-6 and B-7).
3. Holding the tack and clew firmly with one hand, begin pulling the mainsail toward the foot, folding it twice each time (as illustrated in Figure B-7).
4. While folding, keep the bolt rope in the luff straight and lined up on top of each fold (as illustrated in Figure B-8).
5. Continue folding the mainsail until the entire sail is folded to the head (as illustrated in Figures B-9 and B-10).
6. Starting at the bolt rope, roll the sail neatly (as illustrated in Figure B-11).
7. Fold the jib sail using the same method. Secure the jib sheets around the sail.
8. When folded and rolled, store the sails in a sail bag.



When using the accordion method, attempt to place fold marks at different locations each time the sail is folded. This will prevent permanent creases from forming in the sail material.



Figure B-6 Steps 1 and 2

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-7 Steps 2 and 3

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.

Attachment B to
CANSail 1 Technical Package



Figure B-8 Step 4

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-9 Step 5

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-10 Step 5

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-11 Step 6

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.

If the battens in a sail cannot be removed and folding is required, use the following steps:

1. Lay the mainsail out on a dry and flat area (as illustrated in Figure B-12).
2. Fold the leech of sail back onto the mainsail along the line formed by the front of the batten pockets (as illustrated in Figure B-13).
3. Fold the luff of the sail so the fold lines up with the leech of the sail (as illustrated in Figure B-14).
4. Fold the luff back on top of the mainsail. In the end you will have performed three folds (as illustrated in Figure B-15).
5. Take the head of sail and fold it to the foot (as illustrated in Figure B-16).
6. Roll from the fold of the sail to the foot (as illustrated in Figures B-17 and B-18).
7. Fold the jib sail using the accordion method. Secure the jib sheets around the sail.

Attachment B to
CANSail 1 Technical Package

8. When folded and rolled, store the sails in a sail bag.



Figure B-12 Step 1

Note. Created by D Cds 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-13 Step 2

Note. Created by D Cds 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-14 Step 3

Note. Created by D Cds 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-15 Step 4

Note. Created by D Cds 3, 2007, Ottawa, ON: Department of National Defence.

Attachment B to
CANSail 1 Technical Package



Figure B-16 Step 5

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-17 Step 6

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.



Figure B-18 Step 6

Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.