The Ship's Company of Penetanguishene



Crew Training Manual for achieving the rank of BOSUN LEVEL aboard H.M.S. BADGER

BOSUN LEVEL

Introduction

Once you have achieved the rank of Able Seaman, we encourage you to work towards the next level of training, which is **Bosun**.

The Bosun Level Training Manual is broken up into various Learning Modules. There are 7 Modules in total.

As with the previous levels, testing for the Bosun Level can also be done in sections if you find that method more suitable to your learning. We can also assist you with one-on-one and/or small group training sessions prior to testing if desired.

The Bosun Level is intended to further develop your seamanship skills aboard H.M.S. BADGER and will also help you in preparing for a final level of training, which is Coxswain.

MODULE 1: Setting (raising) and lowering the Split Course Sails and adjusting the Main Yard

Be able to **locate** and **name** the running rigging components (halyards and sheets) that are used to raise and lower the Split Course Sails, and understand the **function** of each. Also be able to locate and name the lines used to control the **Main Yard** which the Courses fly from.

H.M.S. BADGER's square sails, also called the Split Course sails, are identical and symmetrical. They are both located in the same bag in the forepeak. Each is raised with an inner and outer halyard. The **inner halyards overlap** i.e. the Port inner halyard is on the Starboard side of the mast, and the Starboard inner halyard is on the Port side of the mast. When sail is raised, both inner and outer halyards live on the inner cleat. Sheets stay attached to the sails and are led to cleats on the forward thwart.

In addition, the angle of the Main Yard, from which the Courses are flown, is controlled by **Bracing Lines (or Braces)** led to the knighthead bitts.

TIP: Study the diagram, which has been drawn viewing the mainmast **from the bow looking aft**. It will also be helpful to take the diagram to the vessel and look for these specific lines and their attachment points. **Face the Mainmast from the bow, looking aft, to match the diagram**. To assist you, note that the majority of cleats on BADGER for this Module are also labelled indicating what line(s) are attached to them.

SUMMARY CHART: KEY LINES ASSOCIATED WITH RAISING AND LOWERING THE SPLIT COURSE SAILS, AND ADJUSTING THE MAIN YARD

PORT COURSE: Two Halyards, one inner and one outer. Two Sheets.

STARBOARD COURSE: 2 Halyards, one inner and one outer. Two Sheets.

BRACING LINES: Two lines, one for the Starboard side of the Yard, and one for the Port side



1 Mast Cleat Diagram

	Achieved?
Demonstrated competency in setting (raising) the Split Course sails, under the	
command of the Coxswain	

Module 2: Setting (raising) and Lowering the Jib Topsail

Be able to **locate** and **name** the running rigging components (sheets and halyards) that are used to raise and lower the Jib Topsail, and understand the **function** of each.

SUMMARY CHART: KEY LINES ASSOCIATED WITH RAISING AND LOWERING THE JIB TOPS'L

Jib Tops'l Halyard: Runs from the port side of the mast to the top of the topmast, and back down to deck forward of the course, stbd of the forestay and jibstay. The end leading forward of the yard and on the starboard side is tied onto the head of the sail with a bowline. The hauling end (on the port side) is pulled to raise the sail.

Jib Tops'l Outhaul: Runs from port side, out to the tip of the bowsprit and back to the stbd side. The Stbd end is tied to the tack of the sail with a bowline. The port side is hauled AFTER the halyard has lifted the sail up fully.

Jib Tops'I Sheet pennant: A short lanyard attached to the clew of the sail to tie to the Jib Tops'I sheet. Care must be taken when tying to insure that the sheet stays inboard of the sail.

Jib Tops'l Sheet: The sheet is in place at all times running from port forward, outboard of stays and shrouds, and back to the stbrd side. There is a cut splice at the midway point to tie the Jib Tops'l Sheet Pennant to. It is easy when setting the sail to accidently get the sheet on the wrong side of the sail. To fix, ease off the outhaul, untie it, re - run the tack of the sail over the sheet and reattach the outhaul normally.

Notes on the Jib Topsail: The Jib Topsail MUST be set on the stbd side of the vessel. It is easiest to do this on a stbd tack, but may be done on a port tack as well. It is easy when setting the sail to accidently get the sheet on the wrong side of the sail. To prevent it, make sure outhaul runs OVER the sheet. To fix, ease the outhaul, untie it, re - run the tack of the sail over the sheet and reattach the outhaul normally.

	Achieved?
Demonstrated competency in setting (raising) the Jib Topsail, under the	
command of the Coxswain	

Module 3: Setting (raising) and Lowering the Raffee

Be able to **locate** and **name** the running rigging components (sheets and halyards) that are used to raise and lower the Raffee, and understand the **function** of each.

Setting Raffee (stored in bag in forepeak)

Note: Raffee must be set BEFORE Courses.

Raffee is actually 2 sails, permanently secured at the inboard tacks.

SUMMARY CHART: KEY LINES ASSOCIATED WITH RAISING AND LOWERING THE RAFFEE

Raffee Halyards: There are two Raffee Halyards, each with the hauling part led aft the yard and the end that attaches to the sail is led forward of the yard. Attach the 2 frd Raffee Halyards (see mast cleat diagram) to sail heads.

Raffee Sheets: Attach Raffee sheets (see mast cleat diagram) to the outer clews. There is nothing attached to the center tacks.

Raise halyards then tighten sheets. Lowering is the reverse.

Note: bracing the yard will require readjusting the sheets.

	Achieved?
Demonstrated competency in setting (raising) the Raffee, under the command	
of the Coxswain	

Module 4: Pulling

On occasion, it may be necessary to propel H.M.S. BADGER (or H.M.S. BADGER) by using oars. As such, you must **understand and be able to respond to the Pulling commands** as given by the Coxswain. Well synchronized pulling can also be very impressive to onlookers, and really can create an historic atmosphere when done correctly and in unison.

Oars on H.M.S. BADGER are stored on the outside port side of the vessel. Oars on H.M.S. LYNX are stored inside the vessel, resting on the thwarts.

Pulling commands are the same for both H.M.S. BADGER and H.M.S. LYNX. When rowing, oars on H.M.S. LYNX and BADGER simply rest between each pair of thole pins. H.M.S. BADGER has 6 Pulling stations but may have only 4 oars aboard and H.M.S. LYNX has 6 Pulling stations with 6 oars aboard.

The following outlines the pulling commands, and the proper responses to them: (Note: **Oarsmen should be sitting on thwarts, facing AFT**.)

STAND BY TO TOSS YOUR OARS Prepare to raise your oar vertically, minding other crew members. Put the loom on the floorboards and steady it with your feet. The blade goes fore and aft.

TOSS OARS Raise oars vertically with **blades facing fore and aft**. Start raising oars from aft and work forward. Try to raise your oar at the same time as the person beside you.

STAND BY TO SHIP YOUR OARS Prepare to lower and position oars ready for pulling.

SHIP YOUR OARS Put oars in "Oars" position – with oar between the thole pins, blade perpendicular to the water, and ready to Pull.

STAND BY TO GIVE WAY TOGETHER Get ready to Pull.

GIVE WAY TOGETHER Start pulling. Watch the **Stroke Oarsman**, on the starboard side, aftermost, and try to keep pace with him. The Stroke Oarsman may also yell "stroke....stroke...." to help set and maintain the desired pace.

STAND BY EASY ALL Prepare to slow the pace following the Stroke Oarsman.

EASY ALL Slow down your pace and don't pull as hard on your oar. Continue to watch the Stroke Oarsman.

WAY ENOUGH Stop pulling.

STAND BY TO HOLD WATER Prepare to stop/slow the boats' movement.

HOLD WATER The brakes! Put your oar in the water, blade upright, and hold it in position to stop the ship's forward momentum. **Brace yourself when doing this action. If the boat is moving at speed, a lot of force may be transferred to the loom (handle).**

STAND BY FOR OARS Prepare to cease pulling.

OARS Complete one more stroke and leave your oar out of the water. Turn blade **parallel** to the water.

STAND BY TO BACK WATER Prepare to reverse your stroke to move the boat astern.

BACK WATER Reverse stroke, keeping in unison with the Stroke Oarsman.

STAND BY TO LAY ON YOUR OARS Get ready to bring your oars inboard.

LAY ON YOUR OARS Bring your oar inboard so the handle of the oar is resting on the opposite gunwale. This is a resting position.

STAND BY TO TOSS OARS Prepare to raise your oar vertically, loom to the floorboards, blade fore and aft.

TOSS OARS Lower the handle of the oar to the floorboards and use your feet to steady it. Raise the oar to a vertical position. This should be done in unison with all other oars. Blades should face fore and aft.

STAND BY TO BOAT YOUR OARS Prepare to lower your oar into the boat – minding heads!

BOAT YOUR OARS Lower your oars into the boat starting from the forward oarsmen and working your way aft.

NOTES: Most commands will be preceded with a "**STAND BY TO**" command to give you time to prepare.

Some commands may be given side-specific, i.e. "**PORT SIDE MAKE WAY TOGETHER**, **STARBOARD SIDE HOLD WATER**". In these cases, know what side you are on and follow the Stroke Oarsman.

TIP: Take advantage of occasions when Pulling is done or practiced. You could also have an existing Coxswain take out an oar and go through the commands and actions with you while at dockside.

	Achieved?
Demonstrated competency in understanding and responding to the indicated	
Pulling commands, under the direction of the Coxswain	

Module 5: Understanding Tacking and Wearing Ship, and Responding to Commands for these Manoeuvres

The manoeuvres of **Tacking** ("Coming About") and **Wearing Ship** (also called Gybing) relate to changing the direction of travel of the vessel and are executed relative to the direction that the wind is blowing. **The commands to Tack or Wear Ship, and the coordination of these actions, still falls under the responsibility of the Coxswain**. But it is expected that you **understand the commands for these manoeuvres**, and **are able to respond to them** working with your shipmates to successfully complete the specific actions required.

Tacking:

Tacking involves changing the direction of travel of the vessel (by moving the **bow** through the wind) when the wind is coming from the forward area of the ship. This zone is roughly just off the bow to the midships area of the hull, and the manoeuvre will hence bring the bow through the wind as the vessel changes direction.

The sequence of commands by the Coxswain, and the appropriate responses, are generally as follows. (NB: For the purpose of this example, we will assume the wind is coming from the **Port side of the vessel to start**.)

- 1. "HANDS READY TO COME ABOUT" Crew are ready at their required stations and prepared to execute the maneuver.
- "HELM DOWN" The helmsman moves the Tiller "down" from the wind i.e. away from the direction of the wind. In this case, that means that the Tiller will be moved hard over to Starboard. The vessel starts to move in the opposite direction, i.e., to Port.
- 3. **"EASE YOUR SHEETS**" The Crew person on the Starboard side of the vessel will ease their sheet(s) slightly. This will typically be the Jib Sheet and/or other headsail sheets such as the Jib Topsail if it is being flown. The Main and Main Top should not be eased.
- 4. "HARDEN YOUR SHEETS" (AKA "BACK YOUR HEADSAILS") The Crew tightens up their respective sheets on the Starboard side so that the Jib and/or other headsails firm up. This helps the bow push through the wind to aid the change of direction. When these sails harden, a Crew member in the foredeck area typically notes that "The Jib is backed" to let the Coxswain know.

IMPORTANT NOTE: During the above actions, a Crew member also must pay attention to the Running Backstays and/or the Topmast Running backstays if a Topsail is being flown (Main or Jib). In this example, the stays on the Starboard side should be tightened, and then the stays on the Port side should be loosened. **IT IS IMPORTANT THAT ONE RUNNING BACKSTAY IS TIGHTENED BEFORE THE OTHER IS LOOSENED SO THAT THE MAST DOES NOT BECOME UNSUPPORTED WITH THE SAILS FULL!**

5. "LET FLY AND HAUL" The crew on the Starboard side releases their sheets, and the crew on the Port side correspondingly tighten their sheets in a controlled manner. The head sails flop over to the Port side of the vessel, and some adjustment of the tension on the sheets is also usually done to achieve optimal sail shape. The helmsman will also bring the tiller to the Midships (centered) position to help the vessel track on to its new course.

In addition to the above steps, the main sheet is also typically managed by either the Helmsman and/or the Coxswain when tacking. It may be hauled in to help tack the boat, then eased after the tack for the correct point of sail.

Achieved?Demonstrated competency in understanding the process of, and responding to,
the commands to Tack aboard H.M.S. BADGER

Wearing Ship:

Wearing Ship (also called Gybing) is also a maneuver that allows the vessel to change direction. However, in this case, the manoeuvre is executed by bringing the **stern** through the wind, as opposed to the bow. It is typically also executed when the wind is coming off the stern quarter of the vessel. Generally speaking, Wearing Ship is used less frequently than Tacking, depending on conditions.

The steps involved are somewhat similar to Tacking, but the initial order is instead "HANDS **READY TO WEAR SHIP**", followed by the Tiller order "HELM UP", whereby the Tiller is moved **towards** the direction of the wind. For example, if the wind is coming from the Port side to start, the Tiller would be moved TOWARDS the Port side, i.e. up INTO the wind. This will cause the stern of the vessel to turn to Starboard, bringing the **stern** through the wind as the vessel changes direction.

When "wearing ship", there is no need for step #4, hardening sheets.

IMPORTANT NOTE: Great care and control needs to be exercised when Wearing Ship, as generally speaking, it can put more stress on the rigging and spars than Tacking, especially in stronger winds. Special care must be given to the running backstays as they will be relied on to counter the forward force the wind is putting on the sail. The Main Sheet must also be tightened and well controlled, to prevent the Main Boom from swinging over wildly across the stern during the manoeuvre. Watch your head near the Main Boom!

SQUARE SAILS (and Raffee):

Tacking: When tacking squares they will start braced hard over. When the command is given "Let Fly and Haul" one crewman controlling both braces will brace hard over to the other side. If bracing becomes difficult, check the sheets for the squares and raffee or the square halyards to see if they need to be tended.

Wearing Ship: Comparatively easy, but requires the crewman on braces to pay attention to the wind direction. When the command is given "Helm Up" the crewman will start adjusting the braces so that the yard is perpendicular to the wind direction. This will continue SEPARATELY from the command to "Let Fly and Haul". Adjusting braces will continue until BADGER is on her new course. If bracing becomes difficult, check the sheets for the squares and raffee to see if they need to be tended.

	Achieved?
Demonstrated competency in understanding the process of, and responding to,	
the commands to "Wear Ship" aboard H.M.S. BADGER	





Module 6: Basic Navigation (local waters) and Boating Right-of-Way Rules

To achieve the rank of **Bosun**, you must understand the basics of how to read a nautical chart, and have sound knowledge of the buoy system and marker system relative to the local waters of Penetanguishene Bay and Midland Bay. You must also understand the right-of-way for approaching another vessel as well as passing another vessel.

Charts and Buoys:

On the local charts of Penetanguishene Bay and Midland Bay you should be able to:

-identify red and green buoys in local waters and which side of them you must be on in order to boat safely and avoid hazards

-read the indicated depths on the charts

-use the lit port side day marker on Asylum Point to help guide you back into the entrance of Penetanguishene Bay at night

-use the Range at the south end of Penetanguishene Bay to assist you in travelling on Penetanguishene Bay at night and to assist you in keeping in between the various green and red buoys. -understand that the phrase "Red Right Returning" is also used to remind you to keep Red buoys to starboard when returning to home port or entering a Marina. However, always double check with up-to-date charts for accurate buoy locations and a safe route. *TIP*: Have a current Coxswain spend some time with you to review the local charts of Penetanguishene Bay and Midland Bay and indicate to you the components noted above.

Approaching and/or Passing another vessel:

-when approaching another vessel bow to bow, you should pass "Port to Port" i.e. your Port side faces their Port side. Make your position decision well in advance so the other vessel knows your intention

-when overtaking another vessel you may pass on either side as long as there is enough room for safe distance relative to the other vessel, other boat traffic, and navigational hazards. As the vessel who is doing the passing, you are considered the "Give-way" vessel and therefore must yield to the vessel you are overtaking

-a sailboat with engines off has the right of way over a powerboat under power. However, never assume that the other boat is paying attention to this rule. Always err on the side of caution and leave as much room as possible

-if a sailboat is running **under power**, even if its sails are up, then it is considered a powerboat -while under power, any vessel approaching you bow-to-bow who is on the starboard corner of your vessel up to **112.5 degrees aft of your bow** is considered to be in your "danger zone" and as such **you must yield to them**

Give-way vessel

should alter course to pass astern (behind)





Stand-on vessel should maintain its course and speed

	Achieved?
Demonstrated competency in reading the charts of Penetanguishene Bay and	
Midland Bay, relative to buoy locations, day markers, range lights, and water	
depths	
Demonstrated knowledge of the various Right-of-Way protocols for approaching	
and passing another vessel, as indicated	

Module 7: Making an Eye Splice and doing an Admiralty Whipping

One item in constant demand aboard H.M.S. BADGER is a lanyard. Lanyards are handy for a variety of purposes, and as such, a good supply aboard is needed. As well, making a lanyard can be a good activity to pass time aboard during longer passages.

To make a lanyard, you must be able to do an **Eye Splice** and an **Admiralty Whipping**. Having these skills is also handy for other rigging applications, both on board, and during annual Rigging maintenance in the Boat Shop.



G. Do the same with the other ends. Pull to an even tension.

H. Do this again for a total of three tucks. in natural fibre, or four tucks in synthetic rope.

Doing an Admiralty Whipping



Step 1. Unlay the line slightly. Cut yourself an armspan of whipping twine. Form a byte at the end of the twine. Lay the bite of whipping twine over the end of the line as seen in Image 1. Do not pull tight. The byte should stick out 1-3" past the line. Part A of your whipping twine should be long enough for you to grab f rmly.



Step 3. Take the byte of twine and pass it up, following the lay its strand that it surrounds, and flip it over the end of its strand. Pull Part A tight. When you pull Part A, the byte will tighten.



Step 2. Put your line back together. Start wrapping Part B of the whipping twine clockwise towards the end of the line. Make sure not to wrap up Part A or the byte Make sure each wrap is tight around the line and tight against each other. The final whipping should be as tall as the diameter of the line. For example, for a line 1/4" diameter, there should be enough wraps to cover 1/4" of line.





Step 4. Bring Part A to the top of the whipping. See Image 4. Have it follow along the crease of the line. Tie Part A and Part B together with a reef knot in the centre of the line. See Image 5. Trim the end of the line, but do not cut it too close to the finished whipping.

	Achieved?
Demonstrated completion of an eyesplice	
Demonstrated completion of an Admiralty whipping	

Module 8: Assisting in training

The Ship's Company of Penetanguishene counts on its members to safely operate its vessels in casual and public circumstances. These manuals are meant to assist members in "Learning the Ropes" but they only work when supplemented by the guidance of trained crew. You are now part of our trained crew! As such, we are counting on you to help guide less knowledgeable crew on the material you have been trained in to date. Offer your assistance to members working on Seaman or Able-Seaman tests and quiz them on their knowledge. The best way to remember what you have learned is to teach someone else.

	Achieved?
Show a crewman a new skill from Seaman or Able-Seaman manual	
Test a crewman on a skill from Seaman or Able-Seaman manual	