ROYAL CANADIAN SEA CADETS

PHASE TWO

INSTRUCTIONAL GUIDE

SECTION 7

EO M223.07 – IDENTIFY THE PROCEDURE FOR BERTHING A SHIP

Total Time: 60 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-602/PG-001, Chapter 4. Specific uses for said resources are identified throughout the Instructional Guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TP1, TP2, and TP4 to introduce the cadets to berthing lines and to give an overview of the procedure for berthing and slipping a ship.

Demonstration and performance was chosen for TP3 as it allows the instructor to explain and demonstrate line handling while providing an opportunity for the cadets to practice this skill under supervision.

A practical activity was chosen for TP5 as it is an interactive way to allow cadets to experience the procedure for berthing a ship in a safe and controlled environment. This activity contributes to the development of berthing skills and knowledge in a fun and challenging setting.

INTRODUCTION

REVIEW

Review EO M121.03 (Coil and Heave a Line), to include:

- coiling the line into the hand in bights about three to four feet in circumference;
- separating the group of coils in half, keeping the half with the heaving knot in the heaving hand, and allowing approximately five feet of line to hang in the space between the hands;
- turning the body sideways towards the target, and holding the other hand palm open facing the target;
- heaving the weighted end, including the coiled rope, towards the target and allowing as much of the rest of the line to go out as necessary; and
- retaining the end of the line in the other hand, or securing it.

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OBJECTIVES

By the end of this lesson the cadet shall be expected to identify the procedure for berthing a ship.

IMPORTANCE

It is important for cadets to identify the procedure for berthing a ship because it will be used when training aboard Sea Cadet Training Vessels (SCTVs). A ship can slip easier from a berth when this procedure is followed and berthing lines are secured properly.

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Teaching point 1 **Identify Berthing Lines**

Time: 10 min Method: Interactive Lecture

A ship is said to berth when it comes alongside a pier or jetty.

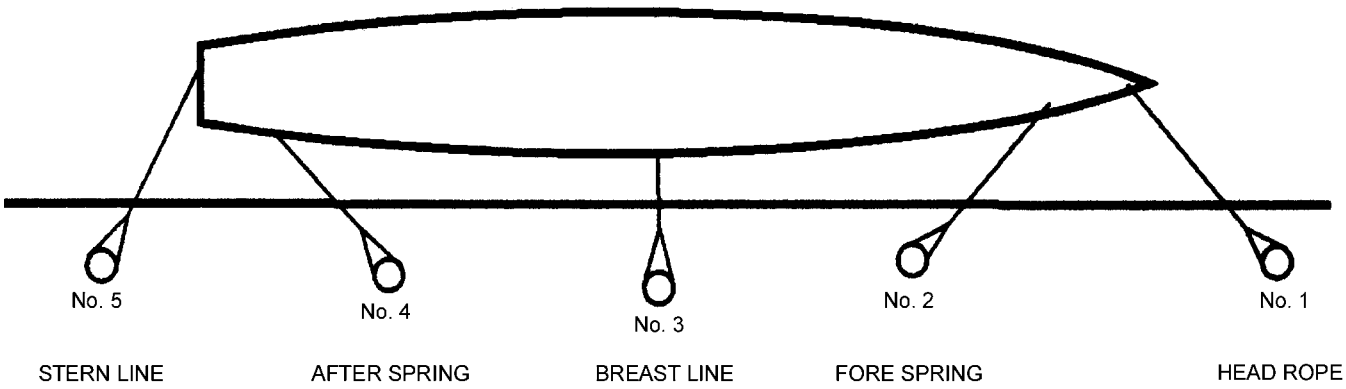

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Figure 1 Berthing Lines

A ship's berthing arrangement depends on the size and characteristics of the ship. Each berthing line has a special name and purpose, which are as follows:

Breast Line. Line extending from midships that controls the lateral movement/distance that the ship lies from the jetty.

Head Rope. Line extending from the bow of the ship that is used to adjust the ship's position alongside a jetty.

Spring Line. Controls the fore and aft position of the ship. Any spring line that leads aft and prevents the ship from moving forward is called a head/fore spring. Any spring line that leads forward and prevents the ship from moving aft is called a back/after spring.

Stern Line. Line extending from the stern of the ship that is used to adjust the ship's position alongside a jetty.

Berthing lines are numbered consecutively, with number one being the head rope (as illustrated in Figure 1).

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. What does berthing mean?

Q2. What is the purpose of the head rope?

Q3. Which line controls the distance that the ship lies from the jetty?

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ANTICIPATED ANSWERS

A1. When a ship comes alongside a pier or jetty.

A2. It is used to adjust the ship's position alongside a jetty.

A3. The breast line.

Teaching point 2 **Demonstrate, Explain, and Have the Cadets Practice Line Handing**

Time: 10 min Method: Demonstration and Performance



Review and allow the cadets to practice heaving lines. Demonstrate and have the cadets practice faking down a line and securing a line to a twin bollard. A mock bollard may be constructed using the method outlined at Annex A.

FAKING DOWN A LINE

To fake down a line, place it on the deck in large fakes/bights so that it is free for running (as illustrated in Figure 2).

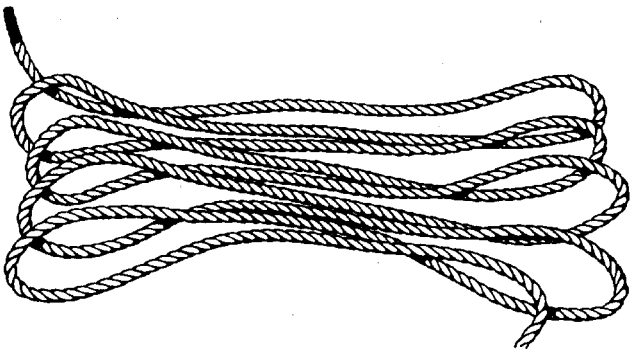

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Figure 2 Faking Down a Line

SECURING A LINE TO A TWIN BOLLARD

To secure a line to a twin bollard, first turn the line around the bollard farthest from the source of strain, from outboard to inboard. Belay the line by making figure-of-eight turns (as illustrated in Figure 3) to the top of the bollard.

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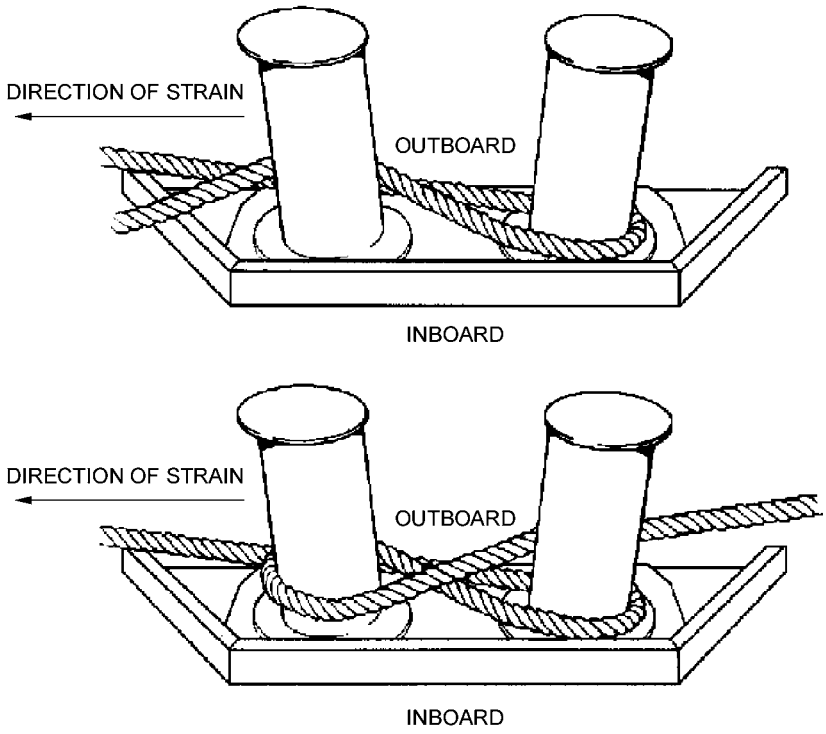

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Figure 3 Securing a Line to a Twin Bollard

If the line is to be belayed for a length of time, the two upper turns will be racked. This is done using a smaller piece of line (see Figure 4).

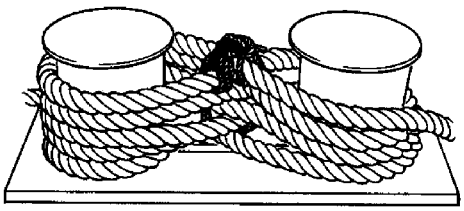

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Figure 4 Racking a Line on a Twin Bollard

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

Q1. Why would a line be faked down?

Q2. When securing a line to a twin bollard, the line must be turned around which bollard first?

Q3. What type of turns must be used to secure a line to a twin bollard?

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ANTICIPATED ANSWERS

A1. To ensure that it is free for running.

A2. The bollard farthest from the source of strain.

A3. Figure-of-eight turns.

Teaching point 3 **Describe the Procedure for Berthing a Ship**

Time: 5 min Method: Interactive Lecture

The normal procedure for approaching a jetty and the securing order of berthing lines are as follows:

1. To prepare for berthing the following must be completed:
   a. fake out all lines;
   b. position fenders along the jetty side of the ship;
   c. prepare the brow and gangway (platform placed between the ship and the jetty) by bringing it to its approximate location; and
   d. provide rat guards.

Rat guards are used to prevent rats, mice or any other rodents from climbing up the lines onto the ship. They are used on all lines that lead to the jetty and are placed approximately 1.5 metres from the jetty end of a line (see Figure 5).

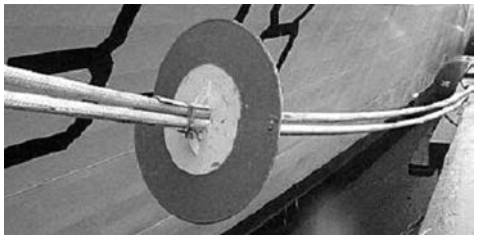

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Figure 5 Rat Guard

2. A ship, under normal circumstances, will approach a jetty bow first, at an angle of approximately 15 degrees.

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All berthing lines are adjusted and controlled from the ship. They are heaved ashore, passed through the fairlead, and returned back to the ship (see Figure 6).



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Figure 6 Fairlead

3. The fore spring is the first line heaved ashore. It is used to check the ship's forward movement and assist in moving the ship's stern towards the jetty.

4. The head rope is heaved ashore and is taken to the capstan in order to control the ship's head. A capstan is a revolving drum, mounted on a vertical shaft, used for working lines. Capstans are found fore and aft on a ship.

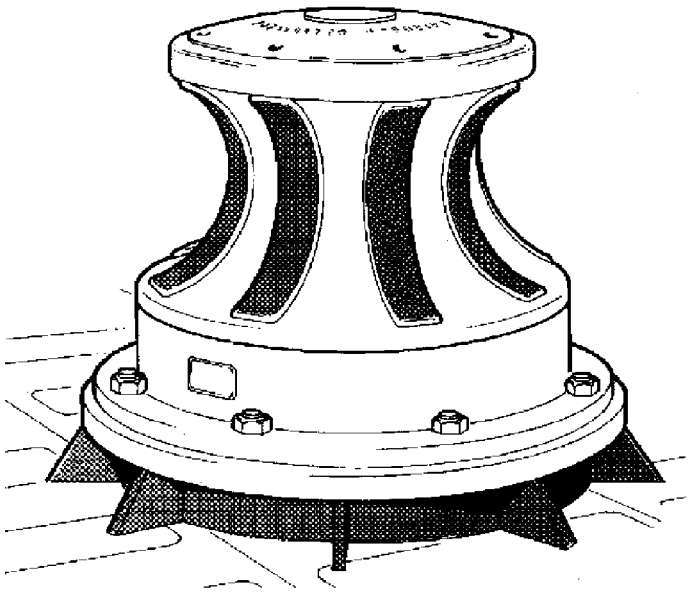

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Figure 7 Capstan

5. From aft, the stern rope is heaved ashore, which is taken to the capstan and hauled in to bring the stern into the jetty.

6. The after spring is then heaved ashore from the aft, and is used to prevent any backwards movement while manoeuvring alongside.

7. The breast line is taken ashore in no particular order and is down-slacked by hand as the head and stern lines are worked to bring the ship alongside.

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Fenders are also used as part of the equipment for berthing a ship. Fenders are like bumpers that, when positioned properly, protect the ship from scraping and hitting the pier/jetty. There are many different types/sizes of fenders. The most common type of fender used in the Cadet Program is a grey rubber inflated tube with loops that allow line to be tied to each end (see Figure 8).



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Figure 8 Fenders

8. Secure all berthing lines to the corresponding twin bollards on the ship.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS

Q1. A ship will normally approach a jetty at what angle?

Q2. Which line is heaved ashore first?

Q3. What is a capstan?

ANTICIPATED ANSWERS

A1. Approximately 15 degrees.

A2. The fore spring.

A3. A revolving drum, mounted on a vertical shaft, used for working lines.

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Teaching point 4 **Describe the Procedure for Slipping a Ship**

Time: 5 min Method: Interactive Lecture

A ship will slip from a jetty in reverse order from the arrival. The breast line, after spring and stern rope are simultaneously taken in first. The fore spring is held while the head rope is heaved in on the capstan, and engines are used to move the ship's head in towards the jetty. The head rope and fore spring are then taken in, and the ship makes a sternboard (reverse) departure.



Slipping procedures may differ depending on the area/circumstances.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS

Q1. In what order does a ship slip from a jetty?

Q2. Which lines are simultaneously taken in first?

Q3. What type of departure does the ship make from a jetty?

ANTICIPATED ANSWERS

A1. In reverse order from the arrival.

A2. The breast line(s), after spring and stern rope.

A3. A sternboard (reverse) departure.

Teaching point 5 **Supervise While the Cadets Participate in a Simulated Berthing and Slipping Activity**

Time: 20 min Method: Practical Activity

ACTIVITY

OBJECTIVE

The objective of this activity is to allow the cadets to practice the procedure for berthing and slipping a ship.

RESOURCES

- Five berthing lines measuring approximately 20 feet each, and
- Five twin bollards (mock bollards may be used [See Annex A]).

ACTIVITY LAYOUT

Designate an area that is to simulate a jetty with five twin bollards (see Annex A), and a ship.

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ACTIVITY INSTRUCTIONS

1. Assign a cadet to each of the following positions:
   a. head rope,
   b. fore spring,
   c. breast,
   d. after spring,
   e. stern rope,
   f. fenders, and
   g. receivers on the jetty.
2. Simulate berthing and slipping a ship using the procedures outlined in TP3 and TP4.



The simulation may be repeated with cadets assuming different positions.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 5

The cadets' participation in the activity will serve as the confirmation of this TP.

END OF LESSON CONFIRMATION

The cadets' participation in the activity in TP5 will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Berthing and slipping procedures used on a ship require teamwork among the crew. These procedures will be used when training aboard Sea Cadet Training Vessels (SCTVs).

INSTRUCTOR NOTES/REMARKS

N/A.

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A1-004 B-GN-181-105/FP-E00 Chief of the Maritime Staff. (1997). *CFCD 105 Fleet Seamanship Rigging and Procedures Manual.* Ottawa, ON: Department of National Defence.

C1-047 (ISBN 0 11 772695 8/B-ON-050-002/PT-004) Command of the Defence Council. (1995). *BR 76 Admiralty Manual of Seamanship.* London, England: HMSO Publications Centre.

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CONSTRUCTING A TRAINING BOLLARD

Resources Required

- Two small coffee cans,
- Piece of wood (approximate dimensions 20 inches long, 8 inches wide, 2 inches high), and
- Nails or screws.

Instructions

1. Nail or screw the cans to the largest surface on the piece of wood, spacing one towards each end.
2. Place the lids back on the cans.



D Cdts 3, 2007, Ottawa, ON: Department of National Defence

Figure A-1 Mock Twin Bollard

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