Transport Canada Transports Canada

TP 10936 E

BRIDGE WATCHMAN

TRAINING COURSE

Responsible Authority	**Approval**
The Director, Marine Personnel Standards and Pilotage is responsible for this document, including any change, correction, or update.	Director, Marine Personnel Standards and Pilotage Marine Safety **Date signed: March 31, 2003**

MARINE SAFETY
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Revisions

Description	Issue Date	Revision No:

NOTE: **EXPLANATION OF REF.:**

FOR EXAMPLE - **10936-INF-1-1** REFLECTS: TP #(10936) -TYPE OF DOCUMENT (**INFORMATION**)-CHAPTER #(**1**)-PAGE #(**1**)

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Scope and Application

1.1 Objective

(1) Compliance with *International Maritime Organisation's* (IMO) requirement under Regulation II/6 of *the Convention on Standards of Training, Certification and Watchkeeping (*STCW*)* 1978, as amended by Chapter II, Section A-II/4 of STCW 1995.

1.2 Purpose

(1) To provide an awareness of the hazards, knowledge, skills, and standards of safe working procedures that will enable a new seaperson to prepare for and pursue a career in the Merchant Marine leading to certification as Bridge Watchman.

1.3 Scope

(1) The pre-sea Bridge Watchman safety course is intended for new entry seapersons who intend to embark upon a marine career where they form part of Bridge Watch team.

Course Information

2.1 Duration

Duration of course is 60 days.

2.2 Course Approval

A qualitative assessment of a course success can be carried out by considering each of the following factors individually:

(1) Course Location - Is the course easy to get to and are there sufficient transportation amenities for the course? Examples of this would be sufficient parking places, or whether convenient buses are available to transport the students to the school without difficulty and get them home afterwards especially if the classes continue after supper?

(2) Compliance With Course Equipment Requirements - Does the course have all the equipment required for the course? What state is the equipment in and is it all serviceable? Is there an adequate provision made for storage, care and maintenance? The latter question is most important when viewing Marine Security provided equipment.

(3) Qualified Instructors - What are the individual instructor qualifications? They must be provided in detail. All coursers require an instructor who has obtained some qualification as an instructor which is acceptable to this office, or can be improved upon within a specific agreed to time frame, with a commitment form the school. Simply being a subject matter expert for the technical detail of the course is not enough.

(4) Teaching Environment and Facilities - Are the classrooms large enough? Are they well lighted? Does the class size meet the minimum requirements and not exceed the maximum? Are there a sufficient number of appropriate training aids? Is the practical portion (if appropriate) carried out in a suitable location with all the necessary layout and amenities? How many hours a day do the students attend classes? Is it comfortable or is the day too long?

(5) Compliance with Course Content - Has the course been properly developed in terms of content, objectives and lesson plans? Is this detail in compliance with the minimum requirements of the TP document. Compare it with the TP document with special attention to any changes made to the requirements by the school. Are all the references available to the candidates and the instructors? For any other course, does the content conform to that submitted to this office for course approval? Does the course follow the schedule?

(6) Course Delivery Evaluation - How is the course delivered? Does it comply fully with the lesson plans? This should be an assessment of how effectively the course is being delivered to the students and includes instructor techniques and their understanding and presentation of the material, generic training aids, etc., and also how the school measures this. A sample of the school course evaluation sheet may be of use here. This phase could occupy up to 40% of the course duration.

(7) Course Reception Evaluation - How effectively was the course received by the students, and how was this measured by the instructors? A review of tests or performance checks as well as an interview of a student or two may be of assistance here.

(8) Course Administration - What are the reporting procedures for course completion to Ship Safety? If an EXN-24 is issued, is it being handled in a correct administrative manner

Syllabus

3.1 General

(1) The students will receive an explanation on all the points contained in the following syllabus and will be expected to obtain a basic understanding of the principles involved.

3.2 Steering Duties

(1) Magnetic compass --- construction and theory. Gyro compass --- construction and theory. (Precession and rigidity in space.) Comparison between magnetic and gyro compasses their advantages and disadvantages.

(2) Explanation of earth's magnetic field. Limitations of magnetic compass in Arctic regions.

(3) Basic helm orders. Helm and steering clear procedures before leaving dock. Steering by compass and/or marks ashore.

(4) Change over from hand steering to automatic and vice versa. The necessity of checking that automatic steering is holding course. Dangers of changing from hand to automatic and vice versa especially in close quarters situation. Necessity of O.O.W. to supervise changes from hand to automatic and vice versa. Action to be taken if steering fails.

(5) Being relieved at wheel. The necessity of repeating courses given. The necessity of advising O.O.W. of course steered. The passing of all relevant information to new wheelsman.

3.3 Keeping a Look Out

(1) Need to keep a look out including the practical need and the requirements under the *Collision Regulations.*

(2) Standard procedures of reporting sightings by relative bearings in points or degrees and estimated distances.

(3) The recognition of the appearance of lights, shapes and sound signals from other vessels and their meaning. A basic understanding of how the heading of the other vessel can be determined from lights exhibited. Basics of the *Collision Regulations* as they pertain to lights, shapes and sound signals.

(4) Ability to recognise fixed and floating aids. Understand their directional significance. Be aware of their reliability and limitations.

(5) Ability to recognise visual and sound distress signals. Ability to recognise distress signals transmitted by radio telephones. Ability to recognise aircraft distress signals. Understanding of reporting distress signals on an immediate basis to the Master or O.O.W..

(6) Ability to recognise hazardous situations threatening the safety of the ship crew and passengers. Understanding of the risk of collision from a vessel approaching on a steady bearing.

3.4 Detached Duties

(1) Ability to operate vessel's internal communications systems. Bridge telephones. Loudspeaker systems. Voice pipes.

(2) Ability to understand and operate vessel's alarm systems. How to switch general alarm on and its meaning. Practice fire and boat drill whistle signals. Automatic fire alarms and their significance. CO_2 alarm in Engine Room and its significance.

(3) Knowledge of and ability to use pyrotechnic distress signals. Knowledge of where pyrotechnic distress signals are stored. Familiarity with the various methods of igniting them. Knowledge of when signals expire and should be replaced. Knowledge of signals carried on individual lifeboats and liferafts.

(4) Ability to understand and be understood by the O.O.W. Understanding the need to repeat orders given to eliminate possibility of phonetic errors. Understand the requirement to feel free to ask questions for clarification if this is necessary. Understand the need to keep the O.O.W. informed of developments at all times. Speak clearly and raise one's voice to the appropriate volume to overcome background noise.

(5) Knowledge and purpose of monitoring Deck Log and Engine Room Movement Book. Understanding the legal requirement under the CSA for a Deck log to be kept. Its significance as a reference for events taking place, particularly those of an accidental nature. Understanding the importance of the Bridge Engine Room Movement Book when compared to the Engine Room Movement Book. Understanding the importance of synchronising clocks between the Engine Room and Bridge.

(6) Elementary understanding of signalling and flag work. Flag etiquette. Dipping Ensign, removal of Ensign at sunset. Seniority of hoists. Review of meaning of individual alphabetic flags and their colours and shapes. Numeral pendants. Introduction to International Code of Signals.

3.5 General Seamanship

(1) Knowledge of shipboard terms and nautical terminology. Use of nautical dictionary. Understand origin of terminology to assist memory. A basic understanding that some nautical terms apply only to the particular type of ship served on.

(2) Understand names and functions of vessel's construction. A basic understanding of how a steel vessel is constructed and the stages through which it passes.

(3) Ability to recognise and name different types of vessel. A review of different types of vessels, their construction, design and loading purpose ie. tankers, self unloaders, cargo vessels, MODU's, tugs, buoy tenders, flat backs, hovercrafts, warships, fishing vessels.

3.6 Ropes and Chains

(1) Ability to recognise various types of synthetic ropes. An approximate knowledge of their breaking strengths and S.W.L.'s. A basic knowledge of care of synthetic ropes and their weakness i.e. chaffing, or deterioration in sunlight.

(2) Ability to make knots, hitches, bends, whipping and splices. The skill of putting on eye splice in wire rope, synthetic rope and fibre rope. All knots including bowline, sheetbend, clovehitch, reef knot and a half hitch. Ability to put common whipping and sailmakers whipping in fibre rope.

(3) Knowledge of wire rope construction. Includes a practical demonstration of opening up a coil and cutting a section of wire rope, including a study of the cross section.

(4) Use of bull dog clips to join wire rope. This includes a practical demonstration of the right and wrong way, with class participation. An understanding of the strengths and weakness of this arrangement as compared to a regular wire splice.

(5) Types of chains, shackles and slips. Practical demonstration of all of these items will be made with class handling and participation.

3.7 Anchoring

(1) Knowledge of windlasses. All the basic functions of a windlass will be explained i.e. letting go the anchor, warping drums, heaving up the anchor. The need to hose down the cable when heaving in the anchor will be explained. The purpose of having men in the chain locker coiling the chain and the dangers of such an operation. A knowledge of the difference in operation of steam and electric windlasses.

(2) Joining shackles and marking the cable. Methods of marking the cable length by painting relevant links or attaching wire to them to mark the length of cable according to shackles paid out. Demonstration of dismantling and rejoining cable at joining shackles - how it differs from a normal cable link.

(3) Knowledge of anchor signals. Explanation of day and night signals required by a vessel at anchor or aground and their significance under the *Collision Regulations* for other vessels. Means by which anchor signals are hoisted and their care and storage. The use of back up oil lanterns.

3.8 Draft and Soundings

(1) Marking and heaving hand lead line. A practical demonstration of how the lead is heaved, with class participation. The method of calling soundings to the bridge. The weight of the lead and its other purpose i.e. ascertain nature of sea bottom and checking to see if the vessel is moving ahead or astern.

3.9 Ability to Read Draft Markings

(1) Ability to read Imperial System Draft marks, Arabic and Roman numerals. Ability to read Metric System Draft marks. Knowledge of loading to a load line.

3.10 Familiarization

(1) Seaman's responsibilities and principles governing conduct i.e. do not leave the helm until relieved, relieve watch promptly, don't smoke in bed, know your ship, know your emergency station and life boat, etc.

(2) Necessity of discipline. An understanding of the principle that a disciplined ship is a happy ship as everybody knows where they stand and events are controlled. Panic can create a disaster which could be avoided by organized and cohesive action. The word disaster in the marine environment can translate into injury or death.

3.11 Safety

(1) The seaman must be aware of the inherent dangers aboard a ship. Apparently harmless activities like reeving a wire onto a winch can be extremely dangerous if a man is drawn into the drum.

(2) Knowledge of the *Safe Working Practices Regulations* and *Canada Labour Code* and their provisions i.e. working aloft and use of safety belt, entering and working in confined spaces, hot work, etc.

Bridge Watchman Equipment Checklist

4.1 Facilities

(1) A minimum of 1,000 square feet for a seamanship room with provision to rig overhead stays, to hang ropes, wires or nets to work on.

4.2 Equipment

Number Required	Tools
8	Wooden fids
3	10" Marlin spikes
2	8" Marlin spikes
5	14" Marlin spikes
9	Safety glasses
Various	Assorted steel thimbles
7	Pushers
1	1" Fids (nylon)
2	5/8 Fids (nylon)
7	3/8 Fids (nylon)
4	5/16" Fids (nylon)
2	7/8" Fids (nylon)
2	7/16" Fids (nylon)
2	3/4" Fids (nylon)
1	1/2" Fids (nylon)
8	Black felt markers
Various	Assorted bulldog clips
6	Sailmakers palms
19	Sailmakers palms
6	Cold chisels
4	Crescent wrenches
-	Punch
1	Hammer
2	Pipe wrenches
1	Sharpening steel
1	Wedge socket
1	Guillotine
1	Serving board
1	Serving mallet
1	Stage
2	Bosun's chairs

Various	Old steel and wooden blocks
1	Twistlock
1	Bridge fitting
3	Turnbuckles
1	Kenter shackle
1	Rigging vice
1	Leadline lead and leadline
Various	Assorted shackles
2	Load binders c/w chain
2	Deck buckets
2	Deck brushes c/w handles
1 pr.	Pliers
1 pr.	36" bolt cutters
2	4 lb. hammer
8	Workshop vices
1	Brailer frame
1	Sounding rod
1	Sounding tape
8	Fid assemblies for braided rope splicing
8	Bamboo poles
8	Lead weights
32	Styrofoam sleeve floats
20	3/8" chain
8 spools	2.5mm polypropylene twine
1 Fathom	3/8" chain
1 spool	3/8" double braided nylon rope
1 Spool	1/2" 3-strand polypropylene wire rope of various length, size and type

4.3 Consumables

3/8" Manila, 3-strand rope
3/8" 6 X 24 galvanized wire rope, hemp core
3/8" Herzog double braid, nylon rope
3/8" Poly., 3-strand rope
3/4" Manila, 3-strand rope
1 1/4" Poly., plaited 8-strand rope
Polyester sailmakers twine, 40 lb. test
Polyester sailmakers twine, 100 lb. test
PVC electrical tape
Tarred marline
3/8" galvanized thimbles
3/4" galvanized thimbles
Sharpening stones
Beeswax

4.4 Other Equipment Needed

(1) Anchor winch

(2) Steering gear

(3) Bridge for watchkeeping duties

Note: In addition training with portable and fixed VHF sets as well as intercom link on telephone systems.