



## Purpose:

The e-learning module (ELM) is designed for theoretical training of navigators in accordance with Chapter II of the STCW Convention in the part concerning of shiphandling when getting off the ground.

The ELM is included in the "*Shiphandling basics*" library.

## What is an e-learning module?

E-learning module is the electronic textbook on one or more sections. Theoretical materials can be accompanied by drawings, diagrams, photos, animations and videos. There is a test for assessment of knowledge gained at the end of each section.

## Contents:

- Causes of Ships Groundings
- Actions to be taken in case of ship grounding
- Forces acting on a ship aground
- The choice the method to get the ship off the ground
- Getting the ship off the ground without assistance
- Getting the ship off the ground with other vessels' assistance

## Target groups

Deck - Management  
Deck - Operational

## Ship types

Generic



## Regulations

### Table A-II/1 STCW Code

Competence:

Respond to emergencies

Knowledge, understanding and proficiency:

Initial action to be taken following a collision or a grounding...

### Table A-II/2 STCW Code

Competence:

Respond to navigational emergencies

Knowledge, understanding and proficiency:

Refloating a grounded ship with and without assistance.

### Table A-II/3 STCW Code

Competence:

Respond to emergencies

Knowledge, understanding and proficiency:

Emergency procedures, including:  
.4 action to be taken following a grounding.




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Section 5. Getting the ship off the ground without assistance

Trimming method

The following must be done to determine the amount of cargo to be transferred from the damaged part of the ship to the opposite end of the ship:

- ▶ trim before grounding is determined
- ▶ accurately measure the draught of the steams after grounding and determine the trim
- ▶ change in the trim is found
- ▶ the required trimming moment is determined by multiplying the trim change by the trim moment by 1 cm.
- ▶ guided by the trimming moment obtained, the lever of the cargo transfer is outlined, and then the amount of cargo to be moved is determined



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Section 5. Getting the ship off the ground without assistance

If the holding power of one anchor is insufficient, 2 anchors (a) are laid out at one anchor cable. Anchors of different weight or type are laid out in tandem. The anchor of higher weight must be closest to the ship. The holding force of the 'tandem' is considered to be equal to the sum of the holding forces of both anchors. Anchors of the same type and the same weight are best placed 'fanwise' (b).

Heaving the anchors on board after getting off the ground can generally be done as follows. Anchor cable of the auxiliary anchor is completely payed overboard. The ship is pulled first to one heavy anchor which is heaved up, and then to another. The auxiliary anchor is then heaved from the lifeboat using ground-tackle. Depending on the situation, sometimes this anchor has to be sacrificed.

The maximum holding force of the anchors is equal to the maximum force obtained when getting off the ground in this way, and the forces applied to the anchor cables must be not less than the maximum holding force of the anchors.



Drop anchors "in tandem"(a) and "fanwise"(b)

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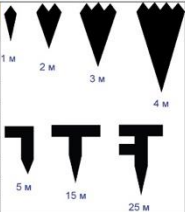
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Section 2. Actions to be taken in case of ship grounding

The breakdown of the sounding leadline is made in metric units and is indicated according to the following system: flag cloths of various colors are intertwined at tens of meters; each number of meters ending in 5 is marked with leather marks in the shape of triangles.

Sounding Leadline meters	Marks
5 m	mark with <b>one</b> triangle
10 m	<b>red</b> flag cloth
15 m	mark with <b>two</b> triangles
20 m	<b>blue</b> flag cloth
25 m	mark with <b>three</b> triangles
30 m	<b>white</b> flag cloth
35 m	mark with <b>four</b> triangles
40 m	<b>yellow</b> flag cloth
45 m	mark with <b>five</b> triangles
50 m	<b>white-red</b> flag cloth



In each five, the first meter is marked with one leather triangle, the second with two triangles, the third with three triangles, and the fourth with four.

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Section 6. Getting the ship off the ground with other vessels' assistance

Getting the ship off the ground by constructing a canal

Grounding of ships on coastal shallows, especially in stormy weather, is usually accompanied by the drift of ships with soil, and in some cases a ship stranded after a storm even ends up in a completely dry place, tens of meters from the water edge. Under such circumstances, the refloating of the ship without preliminary construction of the canal and formation of a pit at its sides is impossible.

The method of removing the soil in the area of contact of the ship's hull, as well as the washing of the canal, depends on the properties of the soil and the capabilities of the equipment used. This work can be done by dredgers, dredging pumps, propellers of rescue or other vessels, as well as hydraulic monitors, ejectors, etc.



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Section 6. Getting the ship off the ground with other vessels' assistance

Getting the ship off the ground with other vessels' assistance


Towing to get off the ground

This method towing to get off the ground is quite widespread, although not as effective. It involves a rescue vessel (one or several) approaching the ship in emergency and letting go the anchor at sufficient distance from her, after which she, operating the main engine astern, moves her stern close to the ship aground, giving the towing line.

When the towing line is fastened on both vessels, the rescue vessel heaves her anchor chain up until the towing line is tight.

Then she goes ahead, gradually increasing the speed, as far as the strength of the towing line allows (the increase in the ship's engine revolutions should be done smoothly). At the same time, the anchor is heaved up.

When the engines and the windlass work together, the windlass force is added to the propeller force. Towing to get off the ground should be timed to coincide with the moment of high water.



Towing to get off the ground

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Test task

Text of question: What is the name of the device shown in the figure?

Choose the correct answer:

- Hand log.
- Hand-lead.
- Sounding stick.

Attempts: 1



COMMENT

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