Emergency Towing Booklet

Volume A

Table of Communicating Information

(Information to be provided
to a towing company)

Panamax Bulk Carrier

XXX Marine Transportation Ltd.

3					
2					
1					
0					
Rev.	Date	Description of Revision	Prepared	Checked	Approved

Table of Information (1/2)

<table>
<tr><th>No.</th><th>Item</th><th colspan="4">Current status</th></tr>
<tr><td rowspan="2">(1)</td><td rowspan="2">Present time</td><td>Day/Month/Year</td><td colspan="3">Time</td></tr>
<tr><td>10/10/08</td><td>JST</td><td colspan="2">12:30</td></tr>
<tr><td>(2)</td><td>Current position</td><td colspan="4">200km off Choshi 36° 59'48"N 142° 25'31"E</td></tr>
<tr><td>(3)</td><td>Cause of requesting towage</td><td colspan="4">Loss of navigability due to the breakage of the crankshaft of No.2 main engine</td></tr>
<tr><td>(4)</td><td>Weather conditions</td><td colspan="4">Cloudy</td></tr>
<tr><td rowspan="2">(5)</td><td rowspan="2">Wind velocity and direction</td><td colspan="2">Velocity (m/s)</td><td colspan="2">Direction</td></tr>
<tr><td colspan="2">About 10</td><td colspan="2">Northeast</td></tr>
<tr><td>(6)</td><td>Wave height</td><td colspan="3">about 1.5</td><td>(m)</td></tr>
<tr><td>(7)</td><td>Weather forecast</td><td colspan="4">The typhoon is approaching and wind is expected to become stronger.</td></tr>
<tr><td rowspan="2">(8)</td><td rowspan="2">Drifting speed and direction</td><td colspan="2">Speed (kt)</td><td colspan="2">Direction</td></tr>
<tr><td colspan="2">About 1.0</td><td colspan="2">Southwest</td></tr>
<tr><td>(9)</td><td>Imminent danger (e.g. grounding)
(if any, describe the expected danger)</td><td>☑Yes ☐No</td><td colspan="3">Note : There is no grounding risk now, but there is a possibility to approach to the land in 4 days with this drifting situation.</td></tr>
<tr><td>(10)</td><td>Flooding (if any, describe the status)</td><td>☐Yes ☑No</td><td colspan="3">Status :</td></tr>
<tr><td>(11)</td><td>Cargo (if any, describe the type)</td><td>☑Yes ☐No</td><td colspan="3">Note :
Grain</td></tr>
<tr><td>(12)</td><td>Fore draft</td><td colspan="3">10.6</td><td>(m)</td></tr>
<tr><td>(13)</td><td>Aft draft</td><td colspan="3">11.4</td><td>(m)</td></tr>
</table>

Table of Information (2/2)

No.	Item	Current status	
(14)	Can be towed from the bow?	☑Yes ☐No	Status :
(15)	Can use power on board?	☑Yes ☐No	Status :
(16)	Can use deck lighting for the towing line connection?	☑Yes ☐No	Status :
(17)	Can use the mooring winch for winding the towing line?	☑Yes ☐No	Status :
(18)	Can use the mooring equipment on the deck for the towing line connection?	☑Yes ☐No	Status :
(19)	Can use towing lights (side lights, stern lights)?	☑Yes ☐No	Status :
(20)	Ready to display the black diamond?	☐Yes ☑No	Status : Under preparation
(21)	Can use the rudder (describe the status)?	☑Yes ☐No	Status : No problem
(22)	If the rudder is damaged, what is the current rudder angle and is it possible to return to midship?	☐Yes ☐No	Status : No problem
(23)	Can use the main engine?	☐Yes ☑No	Status :
(24)	Can control the trim?	☑Yes ☐No	Status : Trim by stern at present
(25)	Is there heeling?	☐Yes ☑No	Status :
(26)	How to prevent free propeller rotation?	Now, we're working to connect the coupling bolts of the intermediate shaft bearing with hull. It will be finished within two hours.	
(27)	Oil leakage from the stern tube (if any, describe the status)	☐Yes ☑No	Status :

Emergency Towing Booklet

Volume B

Text

Panamax Bulk Carrier

XXX Marine Transportation Ltd

3					
2					
1					
0					
Rev.	Date	Description of Revision	Prepared	Checked	Approved

Contents

1.Main particulars

(1)	Ship's name	
(2)	Call sign	
(3)	IMO number	
(4)	Type of ship	Panamax BC
(5)	Principal dimensions	Loa=225m
		Lpp×B×D=217m×32.2m×19.15m
(6)	Height of mooring deck above keel	Bow ：21.75m
		Stern：19.96m
(7)	Draft and displacement at full load condition	Draft：13.85m
		Displacement：84,000MT
(8)	Draft and displacement at light ballast condition	Draft： 5.6 m
		Displacement：31,000MT

2.List of facilities

2.1 List of communication equipment

No.	Name	Particulars
(1)	Inmalsat B	Phone number (3〇〇〇〇〇〇〇)
(2)	Inmalsat C	Phone number (4〇〇〇〇〇〇〇)
(3)	Wireless radio	1-MF/HF radio station
(4)	Wireless radio	3-two-way VHF radio telephone
(5)	International VHF	1-main VHF radio telephone
(6)	International VHF	1-auxiliary VHF radio telephone
(7)	Maritime telephone	Phone number ( )
(8)	Portable wireless radio	5-Portable transceiver of 400MHz band,F3,1W

2.2 List of power supply equipment

No.	Name	Location	Particulars
(1)	Main generator	In engine room	D/G×3：400kw each
(2)	Emerg.generator	In engine casing on port side	E/G×1： 99kw
(3)	Portable generator		None
(4)	Battery for gen. use	In battery room on aft navig'n deck	1-DC 28V×200Ah,10hrs discharge
(5)	Do. for radio equip.	Do.	1-DC 24V×200Ah,10hrs discharge
(6)	Do. for emerg. gen.	Do.	1-DC 24V,20hrs discharge
(7)	Shore connection	On ESB in emerg. generator room (in engine casing on portside of upper deck)	Supplied to pump units for deck machineries

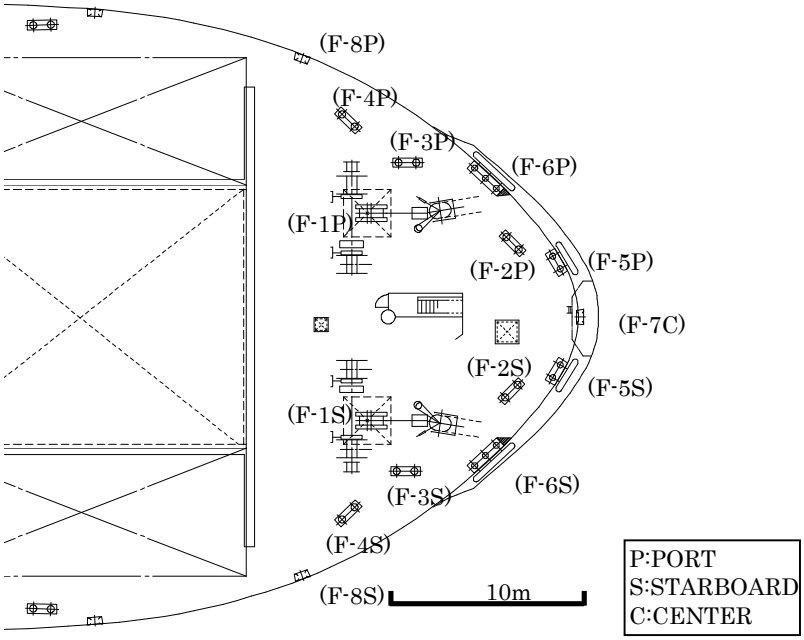
2.3 Steering gears

No.	Name	Particulars
(1)	Steering gear	Piston type P-80, Pump unit：18.5kw×2
(2)	Emerg.steering gear	
(3)	Power source for (2)	Emergency generator

2.4 Anchors, chain cables and mooring ropes

No.	Name	Particulars	SWL(kN)
(1)	Bower anchor	Stockless high holding power type AC-14 2-7875kg 2-anchor shackle with taper pin	
(2)	Chain cable	Extra high strength flash butt-welded steel with welded stud at both ends (Grade 3) Kenter joining shackle (every 55m) 2-φ78×330m	4300
(3)	Mooring rope	6-φ62×220m Polypropylene rope (8 Strand)	570
(4)	Chain cable stopper	Roller bar type	

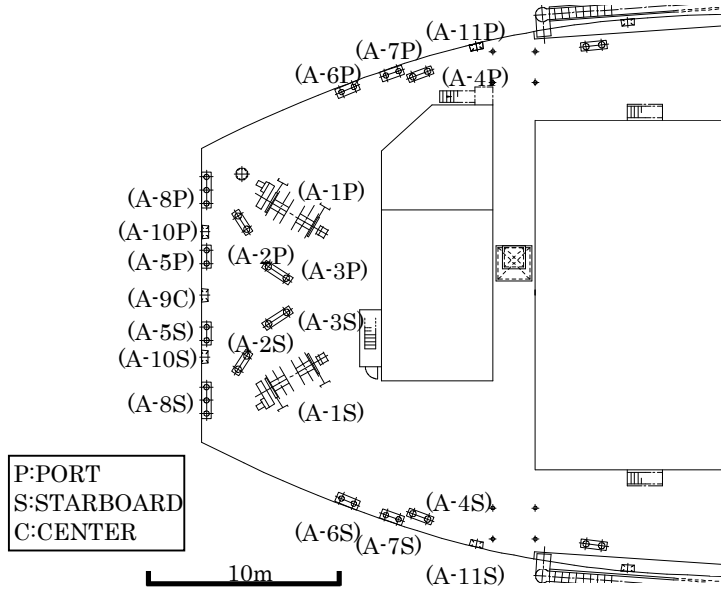
2.5 Arrangement of deck facilities on upper deck in the bow



No.	Name (deck machineries)		Particulars
(F-1P)	Windlass & mooring winch	Wheel	Gypsy wheel 289kN×9m/min
			Chain SWL 4300kN 78mm×330m
		P-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m
		S-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m
		Hydro power unit	99kw×3
(F-1S)	Windlass & mooring winch	Wheel	Gypsy wheel 289kN×9m/min
			Chain SWL 4300kN 78mm×330m
		P-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m
		S-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m
		Hydro power unit	99kw×3

No.	Name (deck fittings)	Particulars	SWL(kN)
(F-2P)	φ355 Bollard	JIS F2001-355	510
(F-2S)	φ355 Bollard	JIS F2001-355	510
(F-3P)	φ355 Bollard	JIS F2001-355	510
(F-3S)	φ355 Bollard	JIS F2001-355	510
(F-4P)	φ355 Bollard	JIS F2001-355	510
(F-4S)	φ355 Bollard	JIS F2001-355	510
(F-5P)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(F-5S)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(F-6P)	φ300×3 Rollers fairleader	JIS F2014 CF-300	824
(F-6S)	φ300×3 Rollers fairleader	JIS F2014 CF-300	824
(F-7C)	360×260 Panama chock	JIS F2017 BC360	686
(F-8P)	360×260 Panama chock	JIS F2017 AP360	686
(F-8S)	360×260 Panama chock	JIS F2017 AP360	686

2.6 Arrangement of deck facilities on upper deck in the stern



No.	Name (deck machineries)		Particulars
(A-1P)	Mooring winch	Fore-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m
		Aft-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m
(A-1S)	Mooring winch	Fore-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m
		Aft-Rope drums	125kN×15m/min
			Rope SWL 570kN 62mmx220m

No.	Name (deck fittings)	Particulars	SWL(kN)
(A-2P)	φ355 Bollard	JIS F2001-355	510
(A-2S)	φ355 Bollard	JIS F2001-355	510
(A-3P)	φ355 Bollard	JIS F2001-355	510
(A-3S)	φ355 Bollard	JIS F2001-355	510
(A-4P)	φ355 Bollard	JIS F2001-355	510
(A-4S)	φ355 Bollard	JIS F2001-355	510
(A-5P)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(A-5S)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(A-6P)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(A-6S)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(A-7P)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(A-7S)	φ300×2 Rollers fairleader	JIS F2014 AF-300	824
(A-8P)	φ300×3 Rollers fairleader	JIS F2014 CF-300	824
(A-8S)	φ300×3 Rollers fairleader	JIS F2014 CF-300	824
(A-9C)	360×260 Panama chock	JIS F2017 AP360	686
(A-10P)	360×260 Panama chock	JIS F2017 AP360	686
(A-10S)	360×260 Panama chock	JIS F2017 AP360	686
(A-11P)	310×230 Panama chock	JIS F2017 AP310	686
(A-11S)	310×230 Panama chock	JIS F2017 AP310	686

2.7 List of deck tools

No.	Name	Particulars
(1)	Stopper chain or strop chain	2 pieces
(2)	Shackle for the above and sling wire for connecting hawser	2 sets
(3)	Sledgehammer, bar, hand hammer and knife	1 piece each
(4)	Stopper rope	20㎜×20m
(5)	Pin punch for joining shackle	
(6)	Seizing wire or sprit pin	
(7)	Life line throwing apparatus	

2.8 List of other facilities

No.	Name and Particulars
Cargo handling gears	
(1)	1-Electric motor driven traveling crane for handling engine parts and provisions Hoisting : 29.4kN×abt.12m/min Traveling speed : abt.15m/min Location : on upper deck between accommodation and engine casing
(2)	2-Steel davit for handling Suez boat & fuel oil hoses Hoisting : 39.2kN by air motor winch Slewing : Manually operated slewing gear Location : on upper deck in front of accommodation
(3)	1-200㎏chain block for Suez search light in the bow
Access Ladders	
(4)	2-Accommodation ladder operated by electric motor winch Location : on upper deck at accommodation
(5)	1 - Portable rope ladder Location : on upper deck in midship
(6)	2-Short accommodation ladders operated by air motor winch Location : on upper deck in midship

3.Decision matrix for determining towing patterns

The towing pattern should be decided by the captain of the ship, in consultation with the captain of the towing ship, by referring the following Decision Matrix. In considering the towing pattern, the ship status and the surrounding conditions (e.g. weather conditions, availability of the propulsion system and of power supply for deck machinery and imminent danger of grounding) should be taken into account.
NOTE: The primary towing patterns should be to tow from the bow. If it is not possible to tow from the bow for some reasons such as collision, towing from the stern may be selected as an alternative.

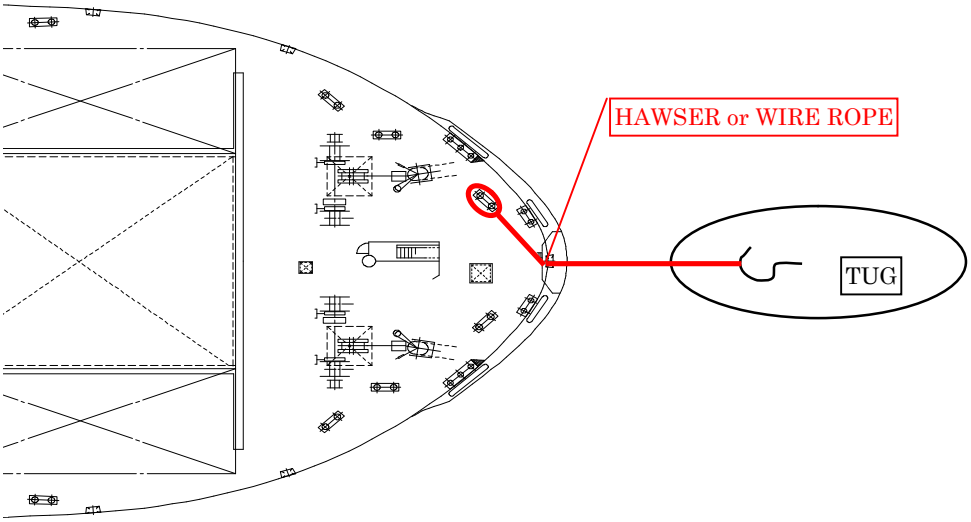
Condition	Towing pattern		Remarks
	f/m the bow	/m the stern	
In case there is imminent danger such as grounding in a short time; less than 1 hour for instance.	1-F	1-A	●In case the towing ship has the sufficient towing force, ①The pattern 2 (2-F or 2-A) should be taken, if it is necessary to distribute the towing force into two lines. ②However, when there is not enough time to make arrangements for the pattern 2, the pattern 1 may be taken on the condition that the towing force is controlled not to exceed the strength of the deck fittings. ③Furthermore, at the later stage, the towing pattern 1 should be changed to the pattern 2 when there is enough time to do so.
In case the weather is bad when connecting the towing lines between the ship and the towing ship	1-F	1-A	●In case the towing ship has the sufficient towing force, ①The pattern 2 (2-F or 2-A) should be taken, if it is necessary to distribute the towing force into two lines. ②However, when making arrangements for the pattern 2 may cause danger due to the bad weather, the pattern 1 may be taken on the condition that the towing force is controlled not to exceed the strength of the deck fittings. ③Furthermore, at the later stage, the towing pattern should be changed to the pattern 2 when the weather improves.
In case there is no power supply for deck machinery to handle the towing lines.	1-F	1-A	●In case the towing ship has the sufficient towing force, ①The pattern 2 (2-F or 2-A) should be taken, if it is necessary to distribute the towing force into two lines. ②However, when there is no choice but to take the pattern 1 for unavoidable reasons, the towing force should be controlled not to exceed the strength of deck fittings.
In case the duration of being towed is long; more than 1 day for instance.	2-F	2-A	●If possible, chain should be used.
In case towing apparatus is not supplied from the towing ship.	3-F	3-A	●The mooring hawser or other towing lines of the ship should be passed to the towing ship.

4.Towing patterns

The towing pattern for this ship are the following 6 patterns in principle.
The pattern is determined by the captain or the headquarters in consultation with the towing company, taking into account of the ship status and the surrounding conditions.

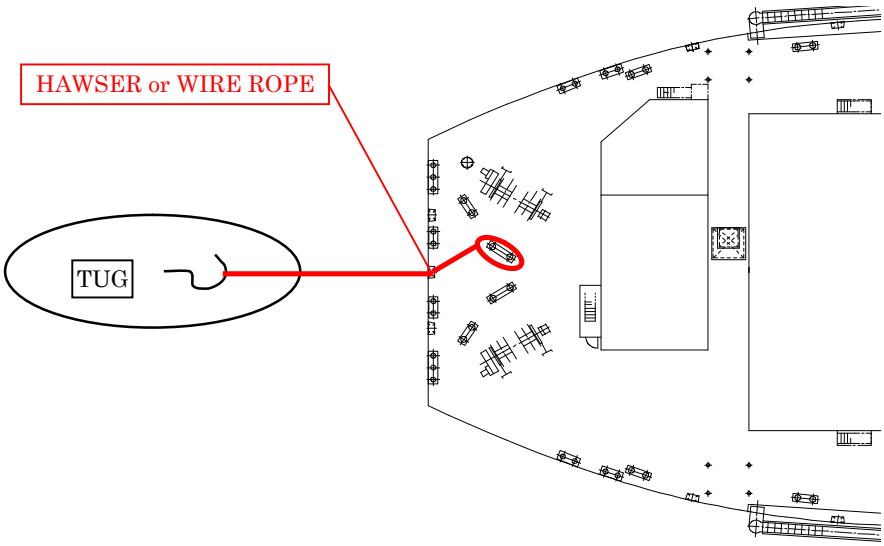
(1)Pattern1-F (towing from the bow)

Use a hawser or a wire rope and a bollard



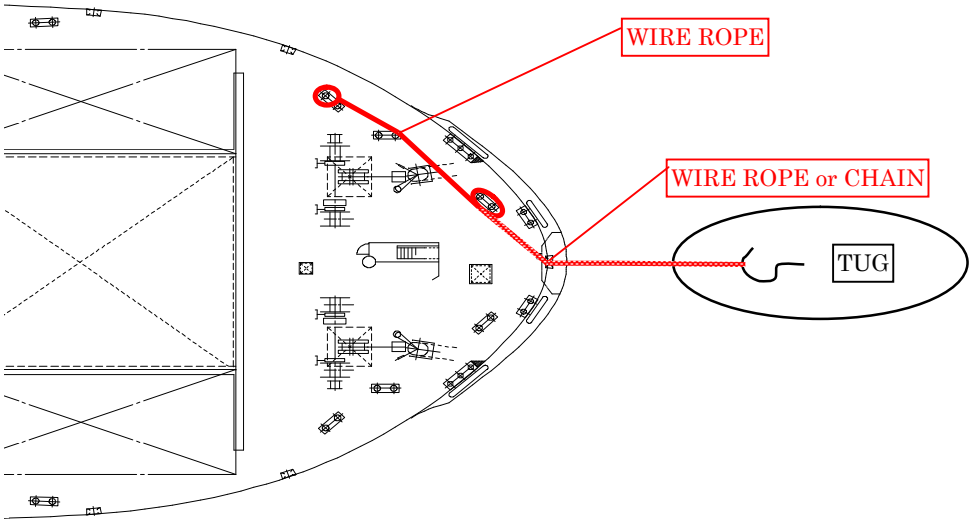
(2)Pattern1-A (towing from the stern)

Use a hawser or a wire rope and a bollard



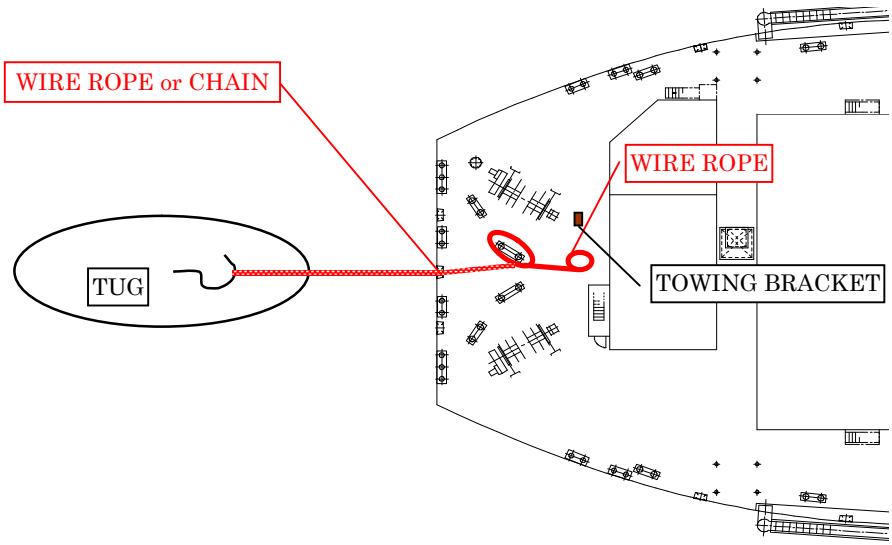
(3)Pattern2-F (towing from the bow)

Use wire ropes or a chains and two bollards in order to distribute the towing force



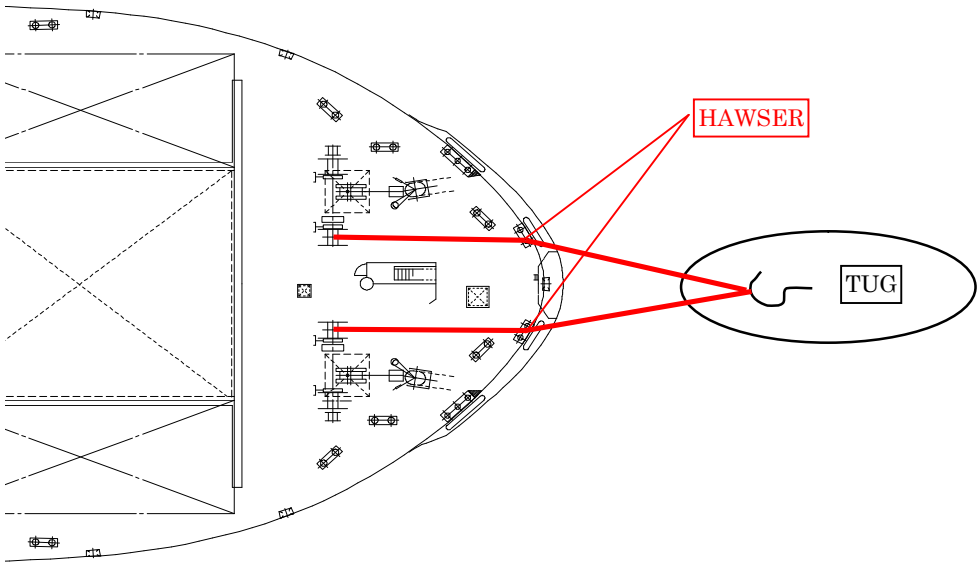
(4)Pattern2-A (towing from the stern)

Use wire ropes or a chains and two bollards in order to distribute the towing force. For this ship, however, in case it is difficult to distribute the towing force into two bollards due to the mooring arrangement as shown below, it is required to reinforce the fittings and/or install a towing bracket by workers of the towing ship.



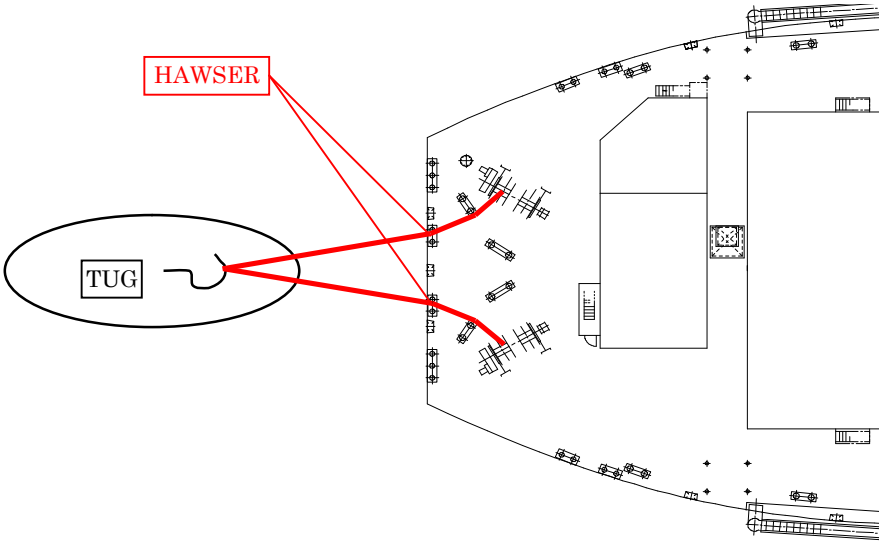
(5)Pattern3-F (towing from the bow)

Use hawsers of the ship



(6)Pattern3-A (towing from the stern)

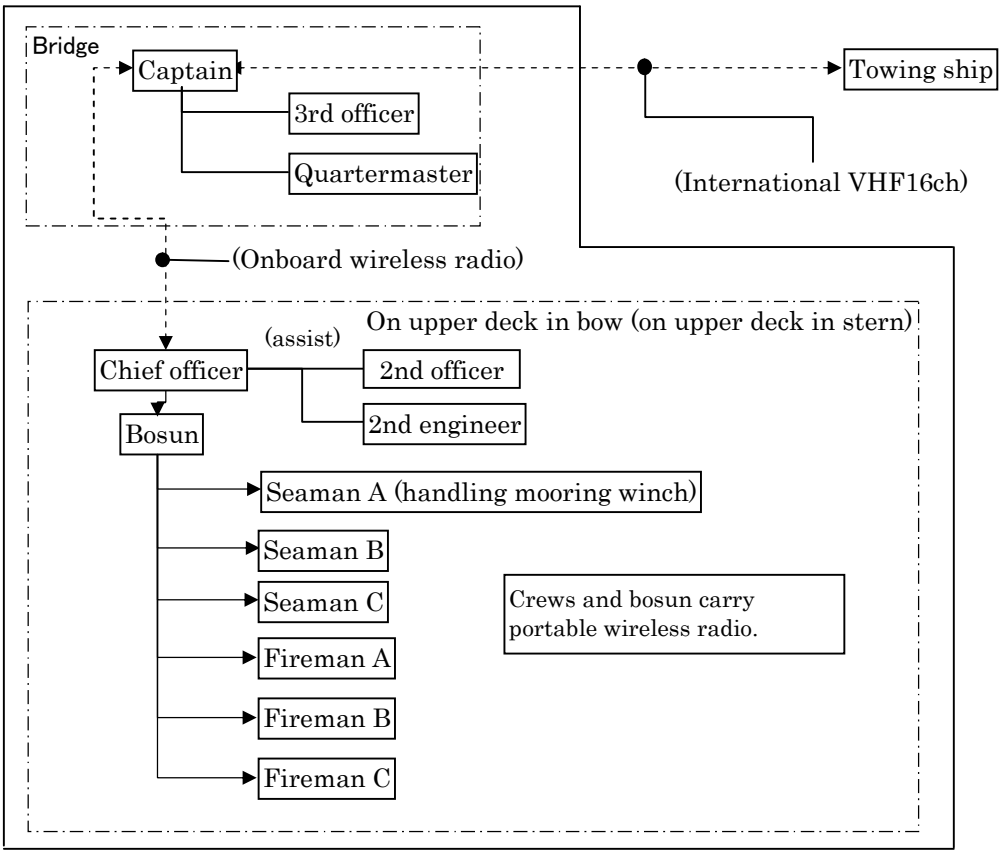
Use hawsers of the ship



5.Organization

5.1 Personnel Distribution

The towing operation should be conducted in accordance with the following organization chart.



5.2 List of tasks and necessary equipment

The following table shows the responsibilities of each crew and the necessary equipment for the towing operation. Bosun should have deck tools (refer to 2.7 Table of deck tools) prepared and provide crews with tools.

Title	Duty	Necessary equipment		
		Life saving equipment	Portable wireless radio	on-deck tool
Chief officer	Chief person on deck	○	○	×
2nd officer	Assistant to chief officer	○	○	×
2nd engineer	Assistant to chief officer	○	○	×
Bosun	Leader on deck directing work to members	○	○	×
Seaman A	Operator of mooring winches	○	×	○
Seaman B	Handling ropes	○	×	○
Seaman C	Do.	○	×	○
Fireman A	Do.	○	×	○
Fireman B	Do.	○	×	○
Fireman C	Do.	○	×	○

5.3 Notes for the towing operation

(1)During the connecting operation

①All the crews should be well informed of the work procedures and personnel distribution.
②The person in charge of the work (chief officer) on F'cle deck (or Poop deck) should always contact the captain, and finish the work as fast as possible.
③The person in charge of the work should watch the movement of towing ship carefully. When the towing line with eye splice is strained, he should evacuate the crews to safe places.

(2)During towing operation

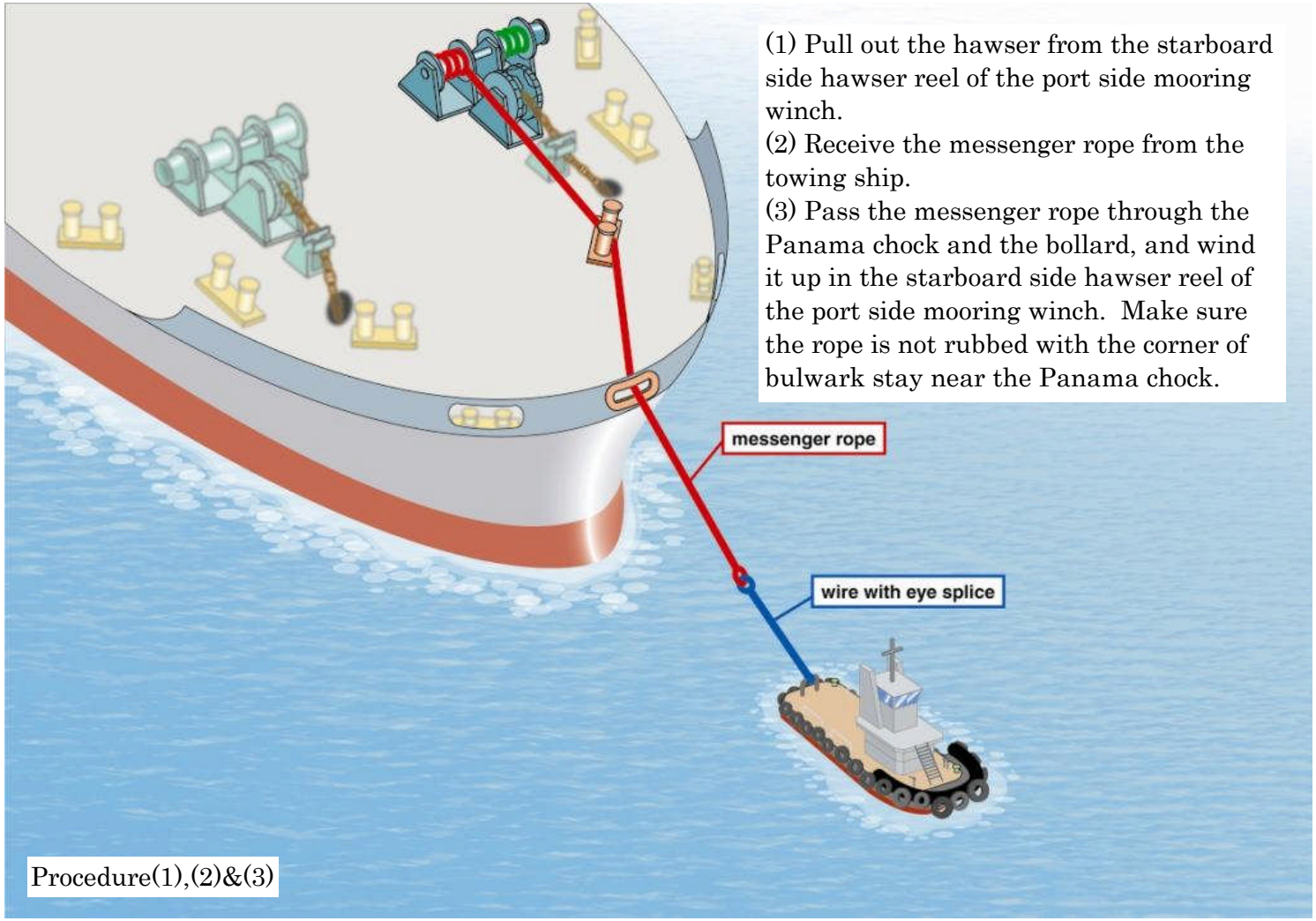
①It is necessary to grease up continuously in order to prevent wear of ropes in Panama chock when wire ropes are used as towing lines.
②Wear-out condition in Panama chock should be constantly checked.
③Rudder should be operated to improve the ship's movement of following to the towing ship, if necessary.
④It should be confirmed in the engine room if there is a problem of free propeller rotation.
It is necessary to determine in advance how to lock the propeller shaft.

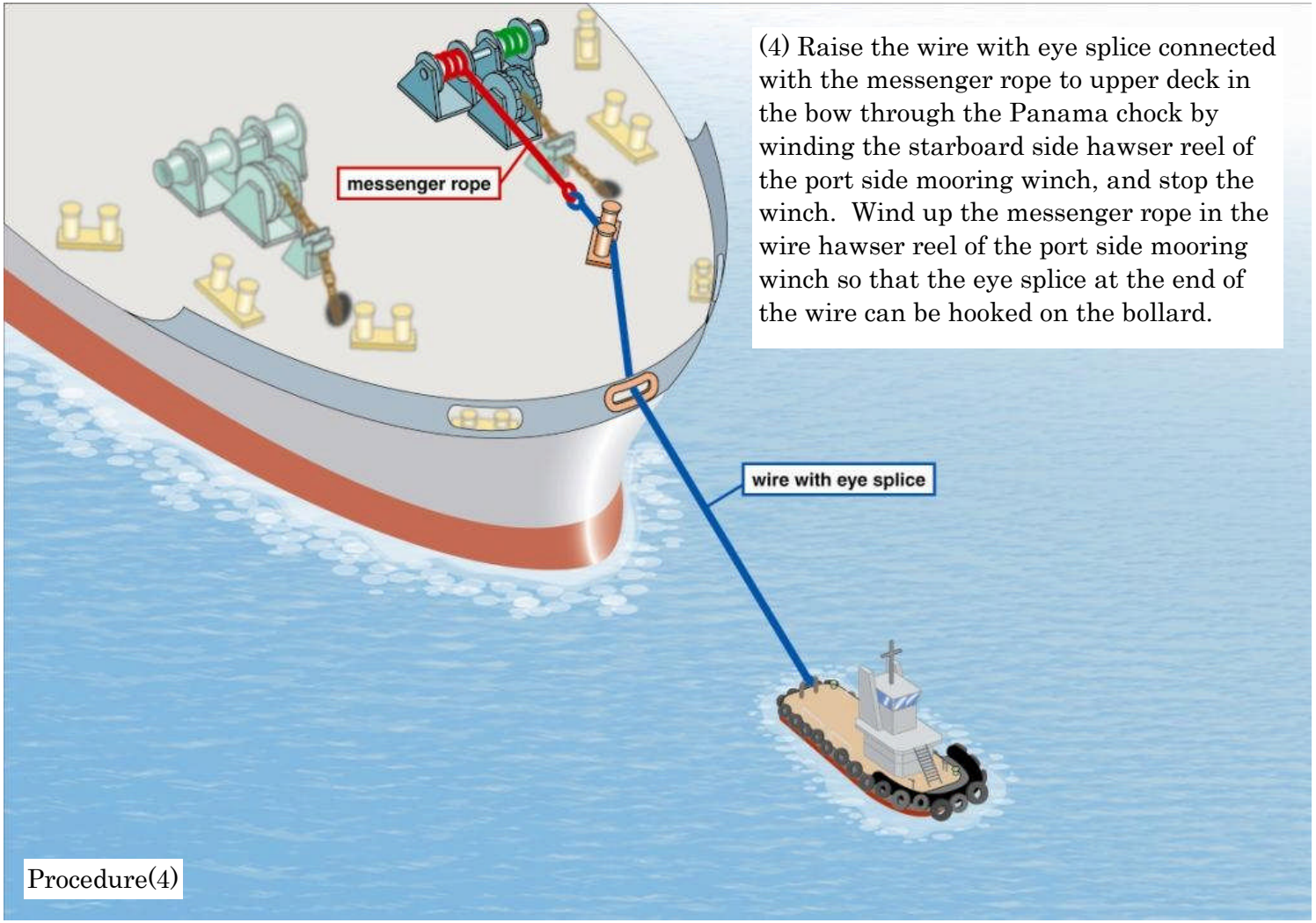
6.Examples of the procedures for connecting towing lines

As examples of the procedures for connecting towing lines, the basic procedures for the pattern 1-F, 2-F and 3-F are shown below. The captain should decide the connecting procedures in consideration of the arrangement of mooring equipment and the ship status after consulting with the captain of the towing ship and inform the crews of the procedures.

Note: In this section, the connecting procedures for the towing patterns described in Section 4 should be considered and explained. The following examples are developed to be used as the common procedures for ordinary ships. It should be noted, however, that the exmaples are developed for this ship and that there may be cases where these exmaples are not applicalbe to other ships, especially of which design and equipment are largely different from this ship. Showing the connecting procedures simply by diagrams of deck arrangements used in Section 2.5 and Section 2.6 may be a practical way.

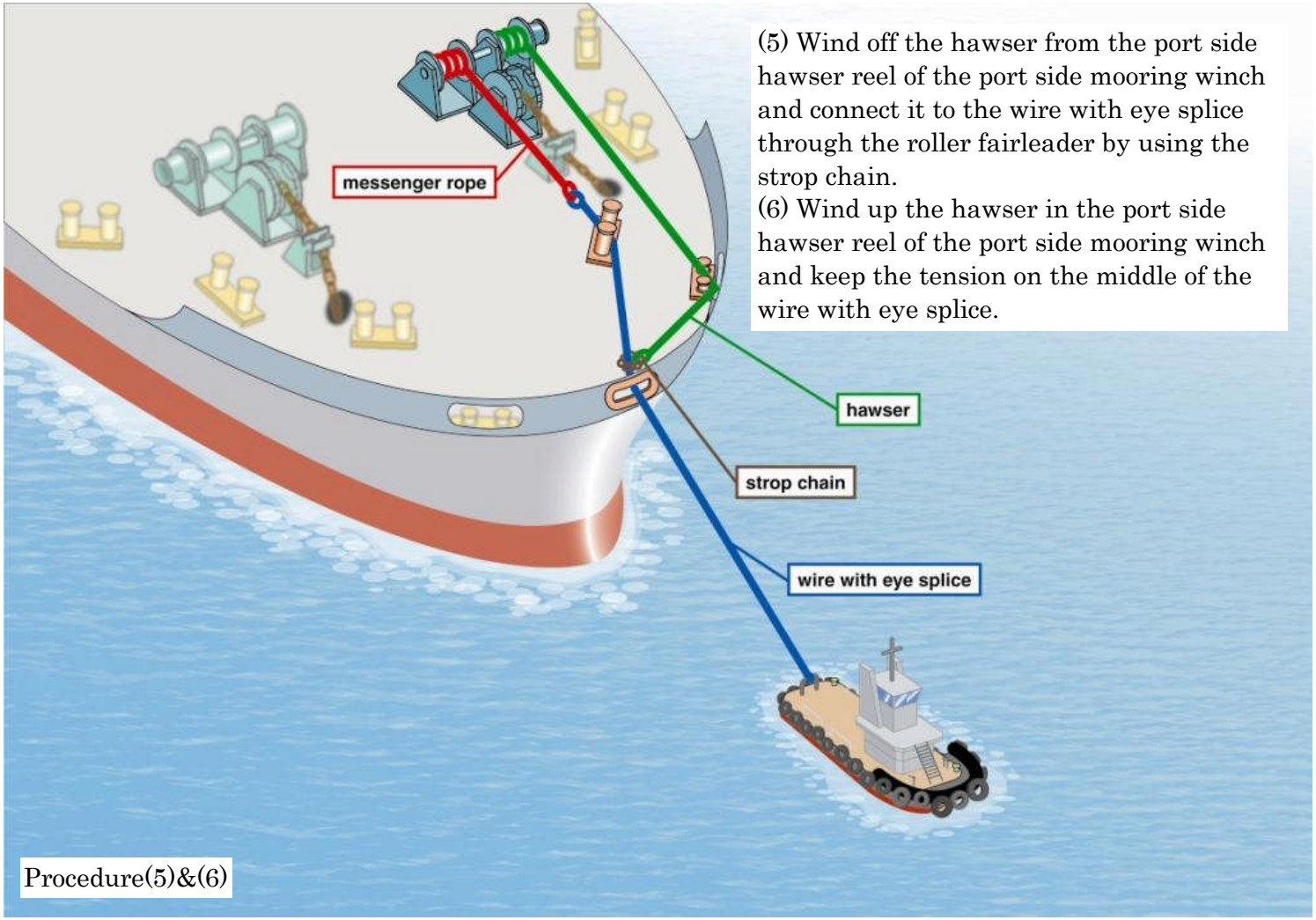
(1)Pattern1-F: Use a wire rope





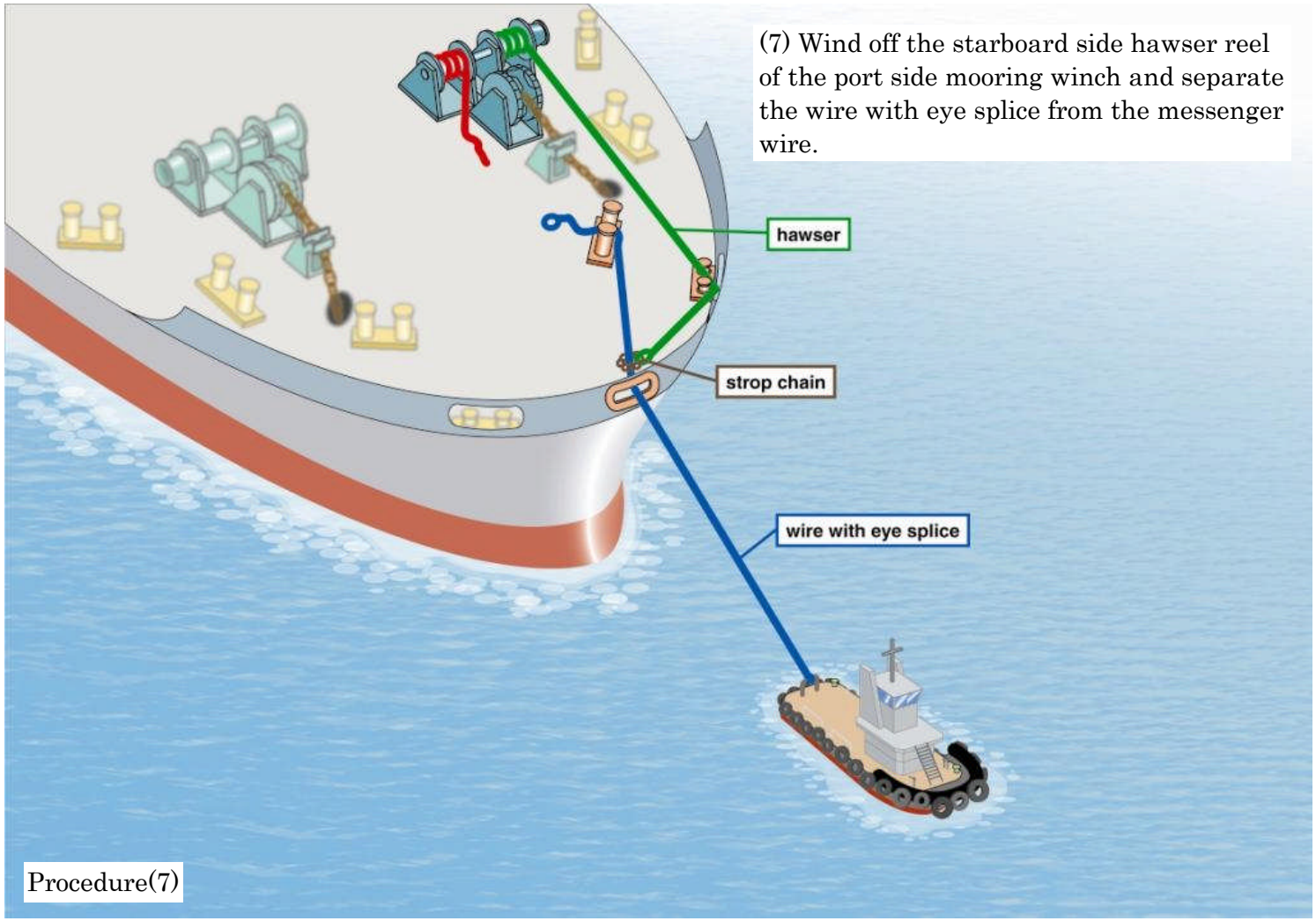
(4) Raise the wire with eye splice connected with the messenger rope to upper deck in the bow through the Panama chock by winding the starboard side hawser reel of the port side mooring winch, and stop the winch. Wind up the messenger rope in the wire hawser reel of the port side mooring winch so that the eye splice at the end of the wire can be hooked on the bollard.

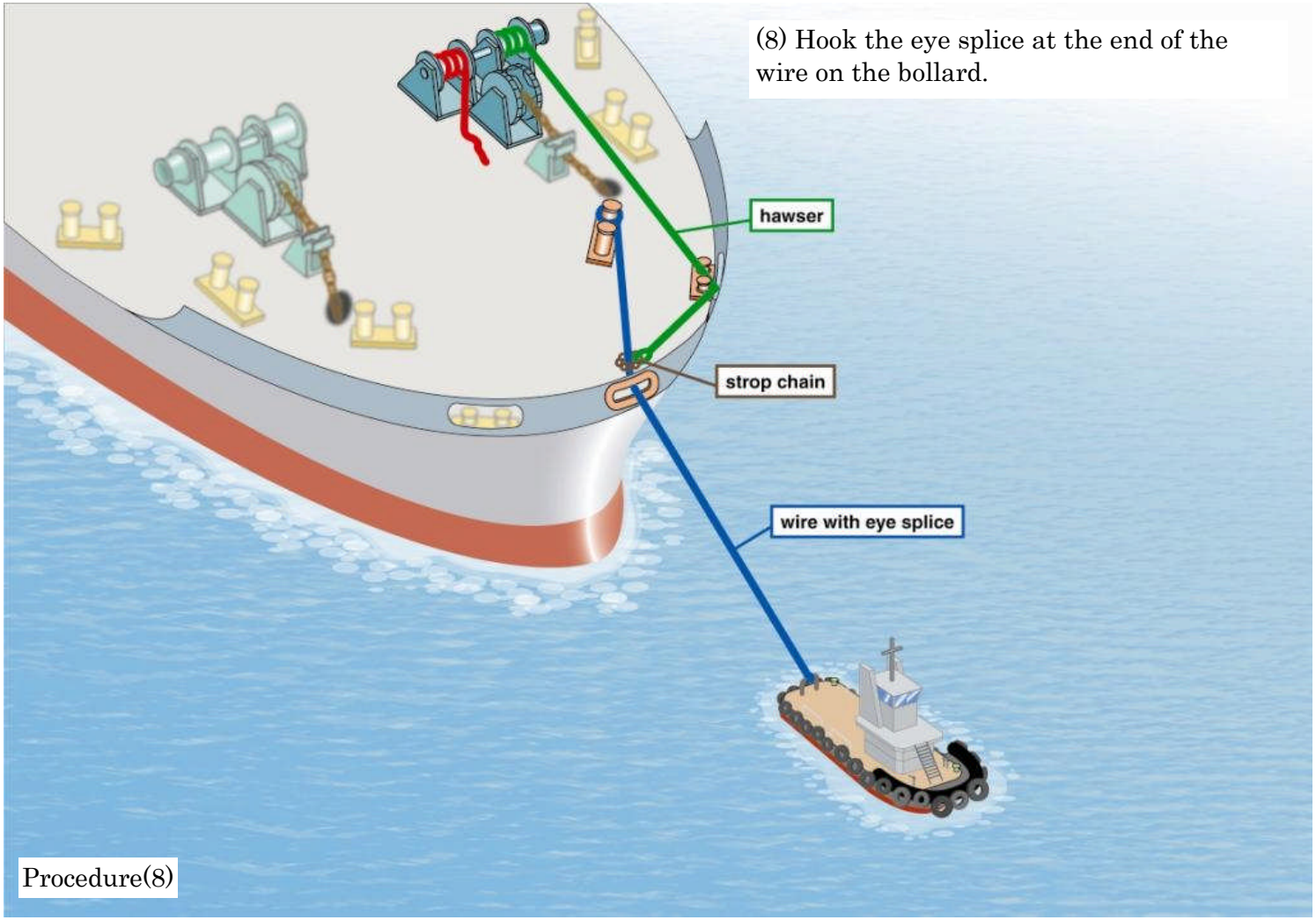
Procedure(4)

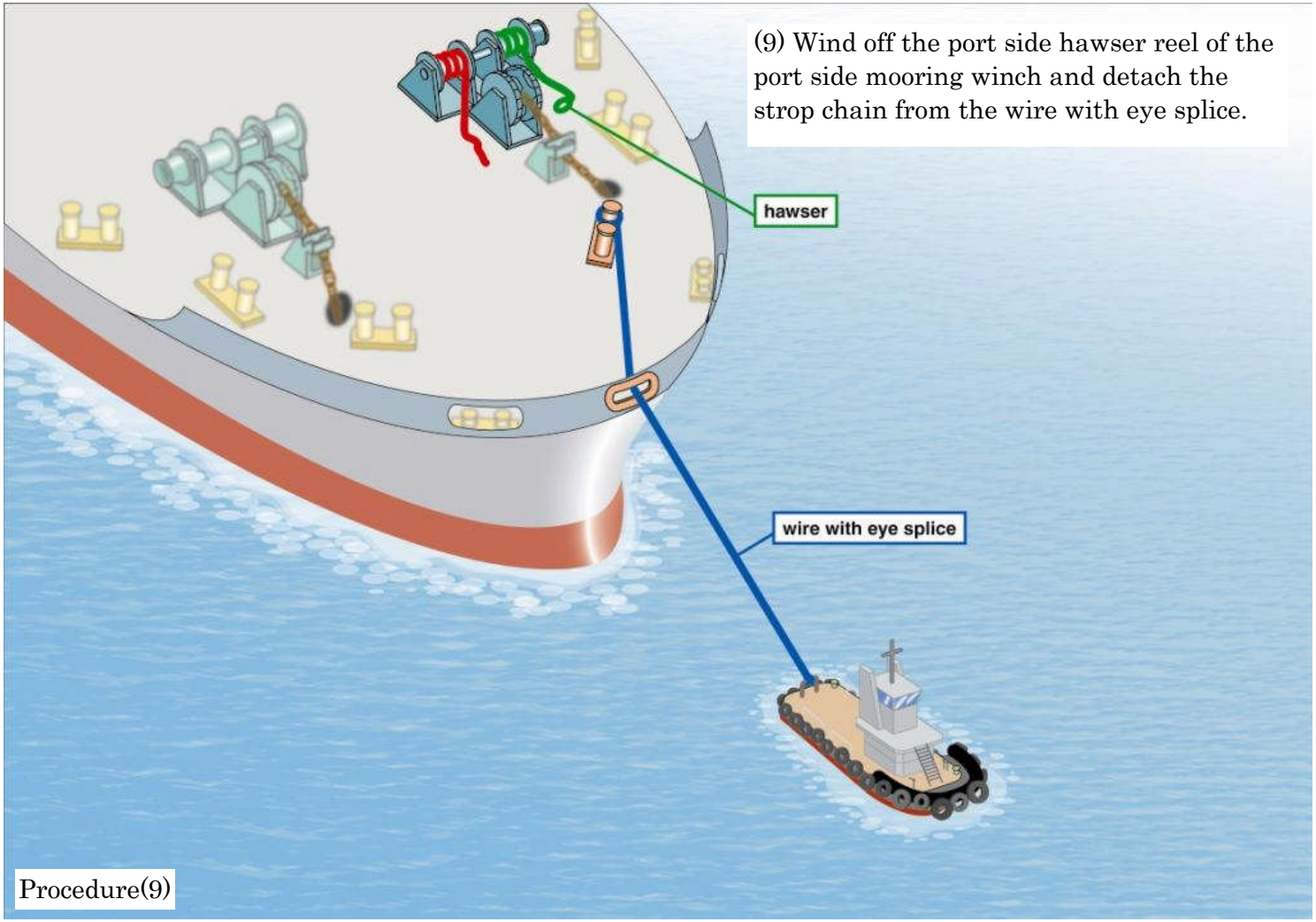


(5) Wind off the hawser from the port side hawser reel of the port side mooring winch and connect it to the wire with eye splice through the roller fairleader by using the strop chain.
(6) Wind up the hawser in the port side hawser reel of the port side mooring winch and keep the tension on the middle of the wire with eye splice.

Procedure(5)&(6)

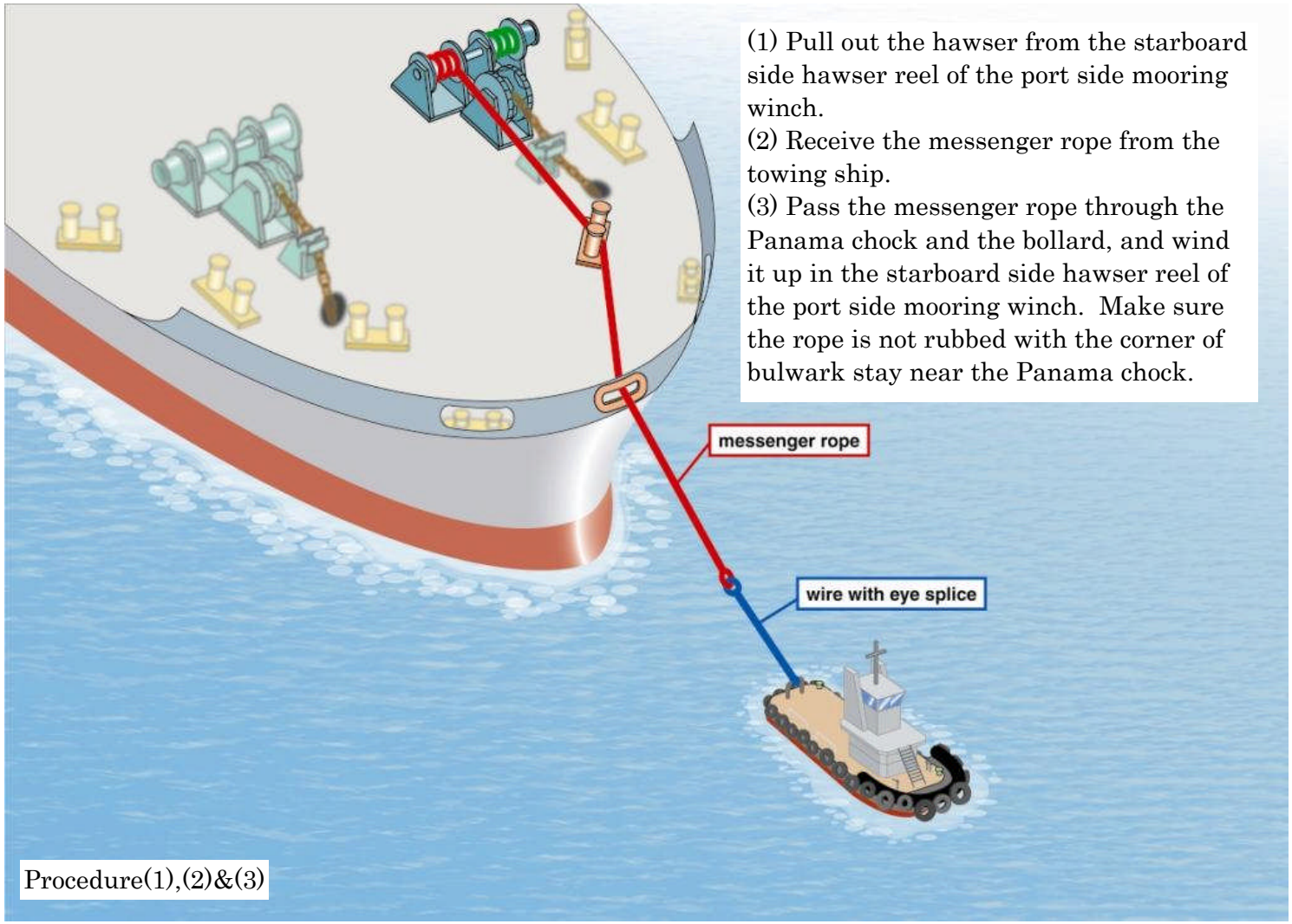

(7) Wind off the starboard side hawser reel of the port side mooring winch and separate the wire with eye splice from the messenger wire.
hawser
strop chain
wire with eye splice
Procedure(7)

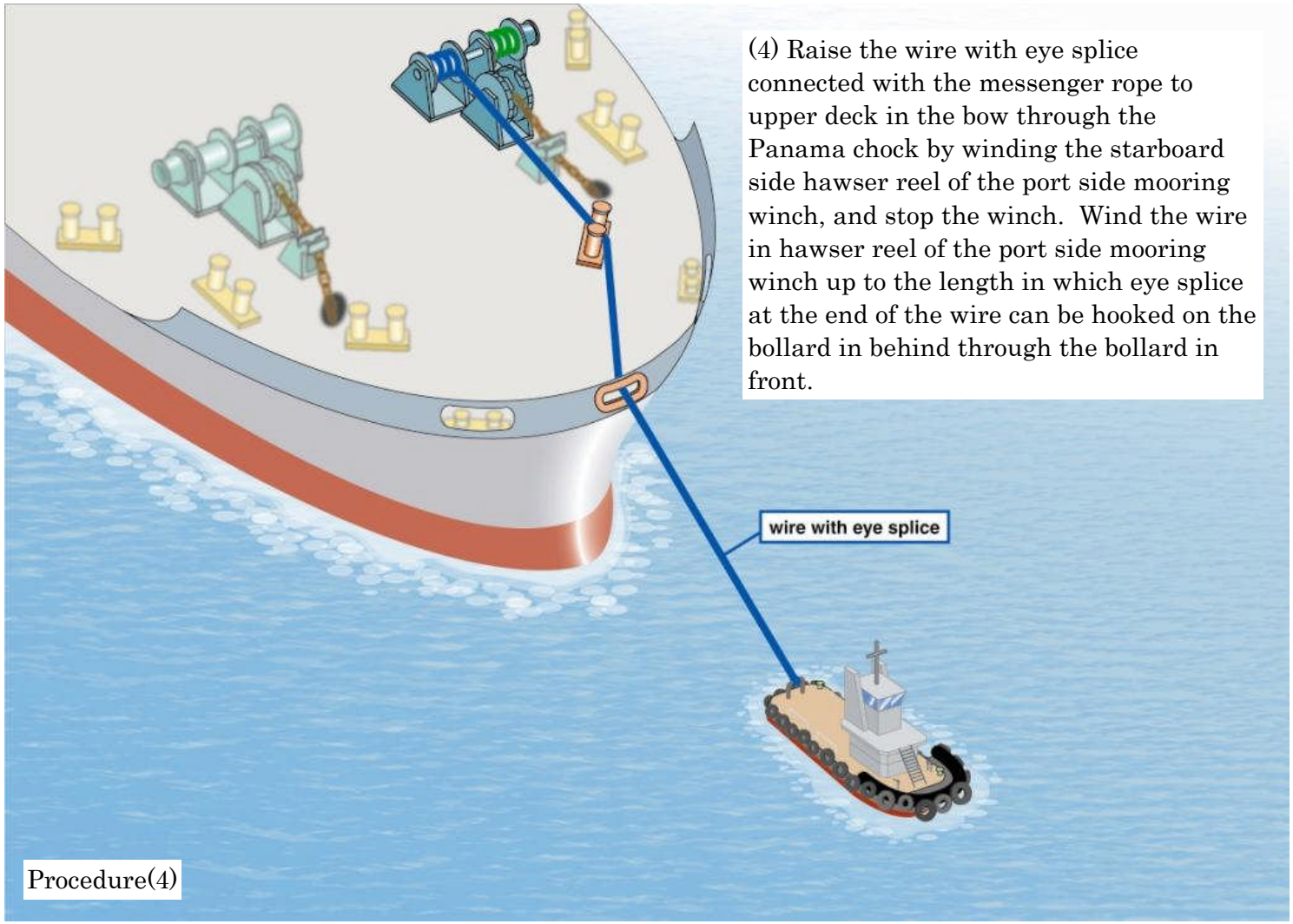

(8) Hook the eye splice at the end of the wire on the bollard.
hawser
strop chain
wire with eye splice
Procedure(8)

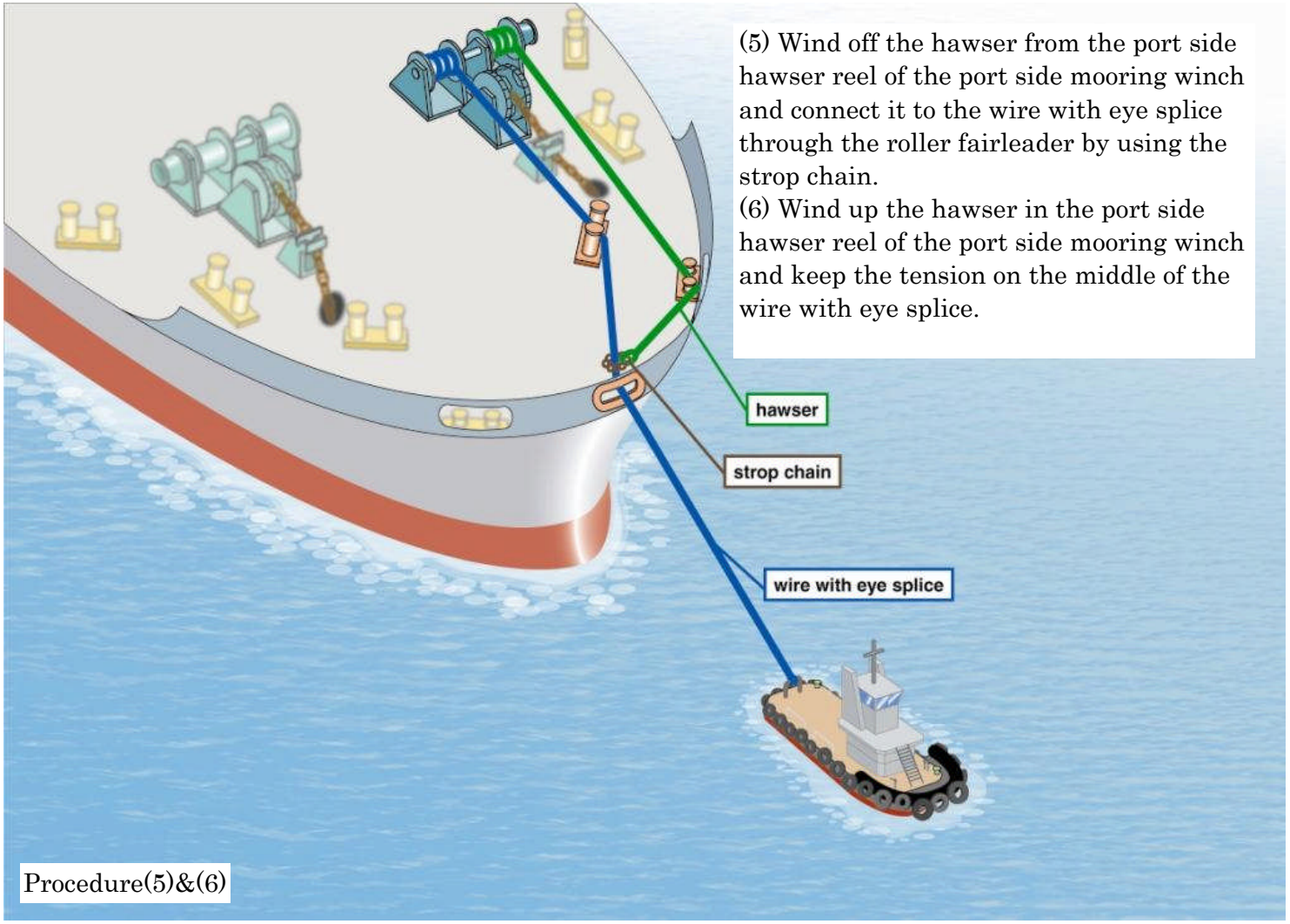

(9) Wind off the port side hawser reel of the port side mooring winch and detach the strop chain from the wire with eye splice.
hawser
wire with eye splice
Procedure(9)

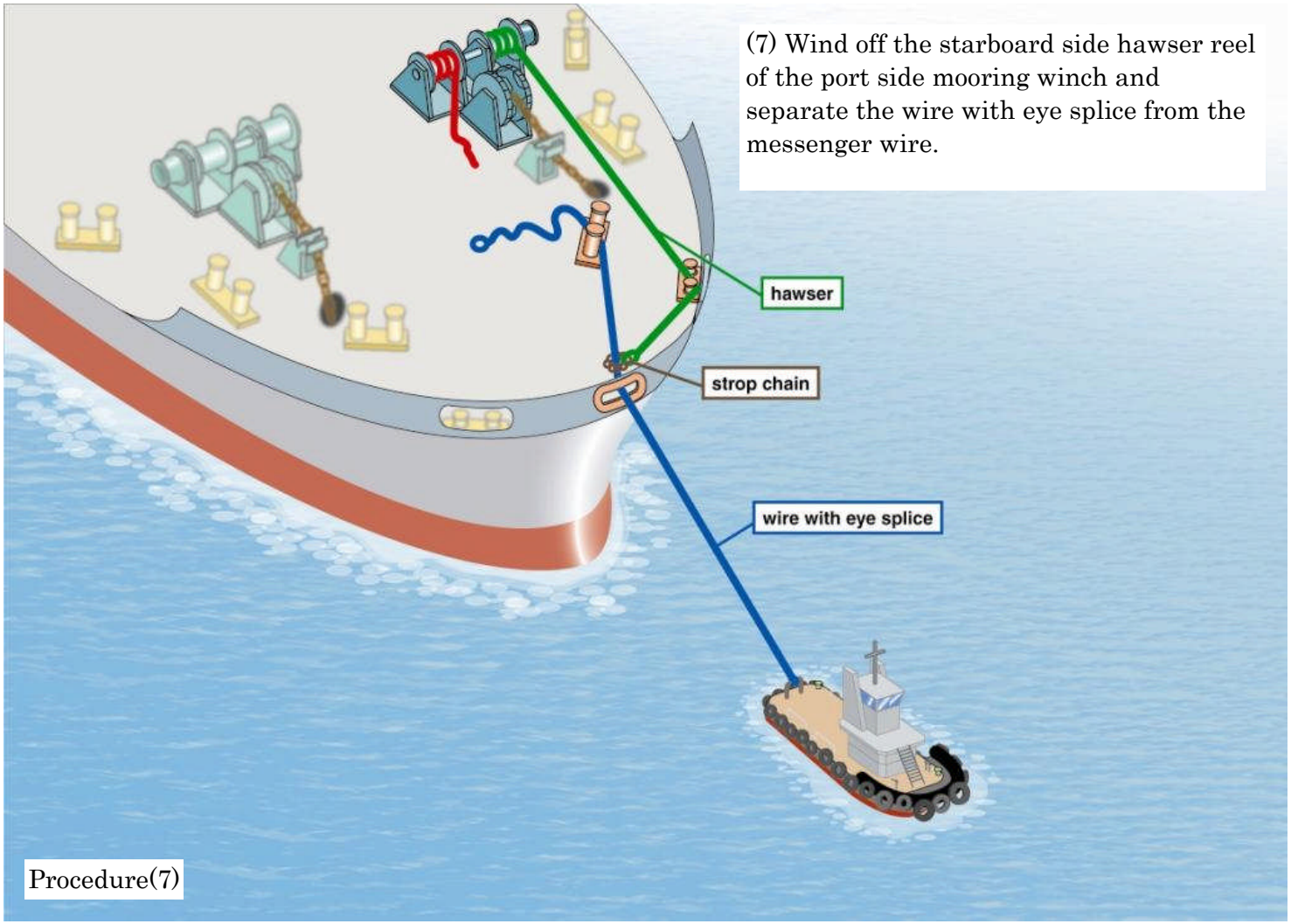
(10) Make sure the wire with eye splice does not touch the corner of any structures. Take in the slack by pounding with a sledgehammer so that the wire in the bollard is lowered as much as possible.
(11) Lubricate the wire with eye splice with grease where it is rubbed with the Panama chock and finish the connecting operation

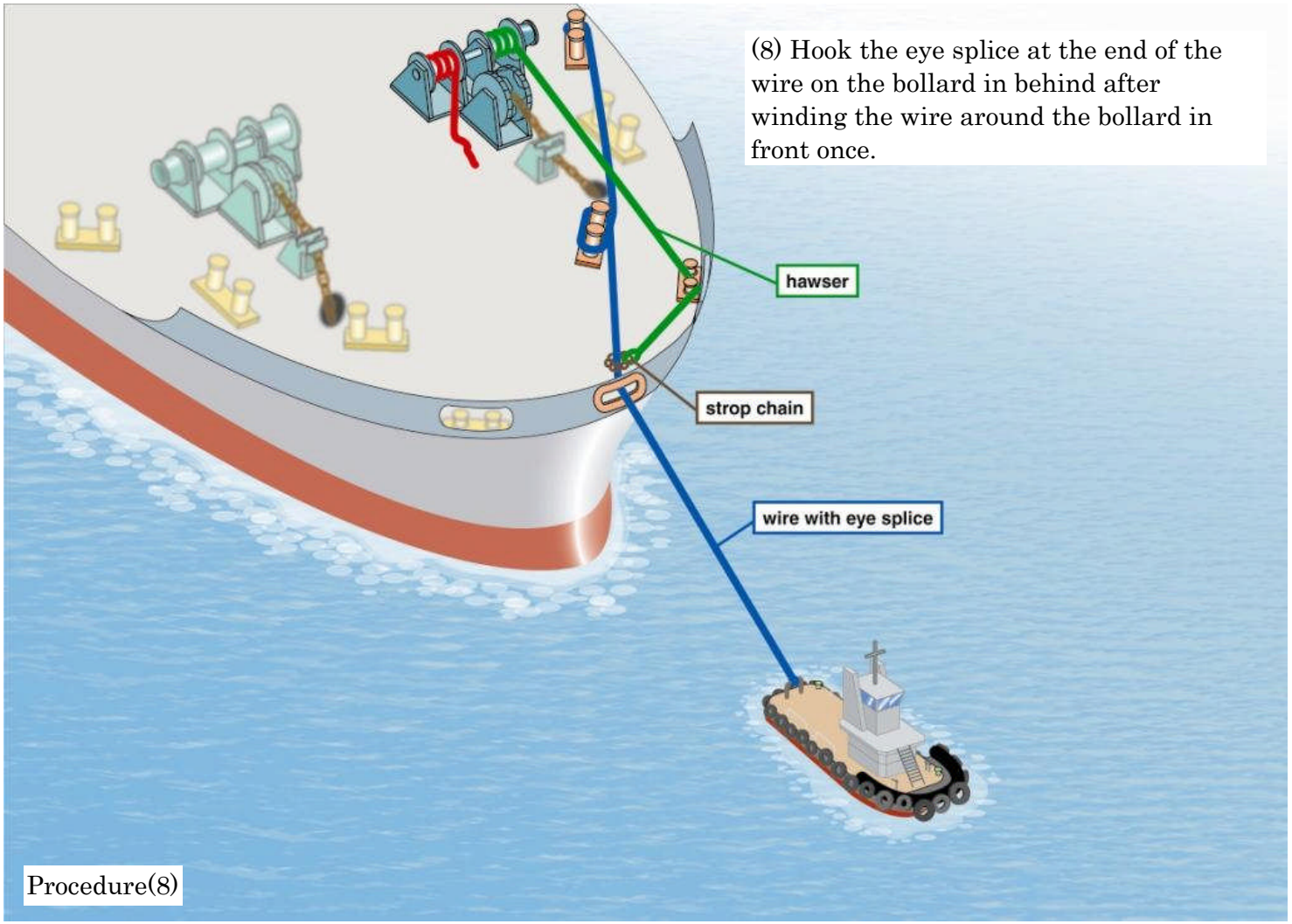
(2)Pattern2-F: Use wire ropes

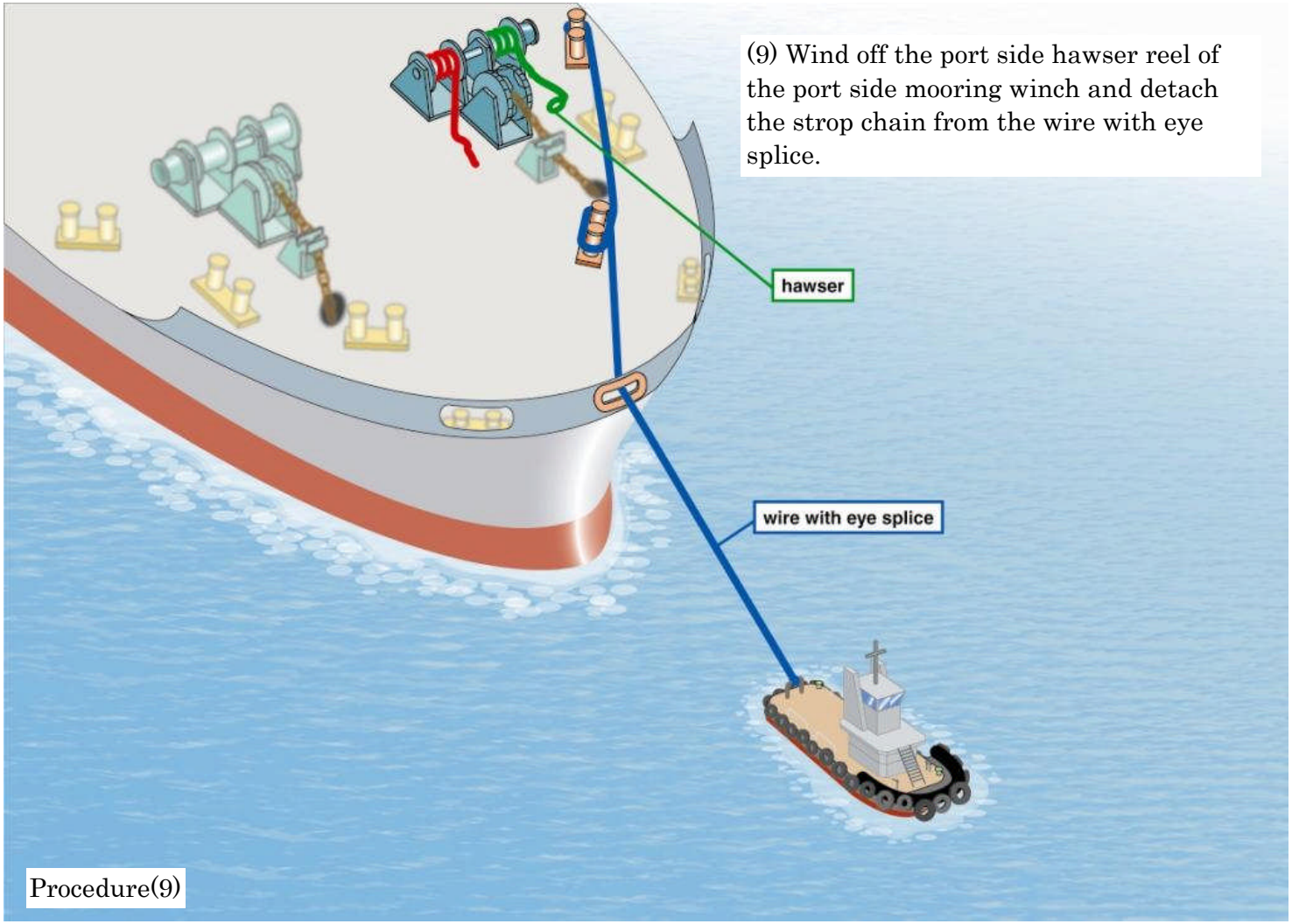



(4) Raise the wire with eye splice connected with the messenger rope to upper deck in the bow through the Panama chock by winding the starboard side hawser reel of the port side mooring winch, and stop the winch. Wind the wire in hawser reel of the port side mooring winch up to the length in which eye splice at the end of the wire can be hooked on the bollard in behind through the bollard in front.
wire with eye splice
Procedure(4)


(5) Wind off the hawser from the port side hawser reel of the port side mooring winch and connect it to the wire with eye splice through the roller fairleader by using the strop chain.
(6) Wind up the hawser in the port side hawser reel of the port side mooring winch and keep the tension on the middle of the wire with eye splice.
hawser
strop chain
wire with eye splice
Procedure(5)&(6)

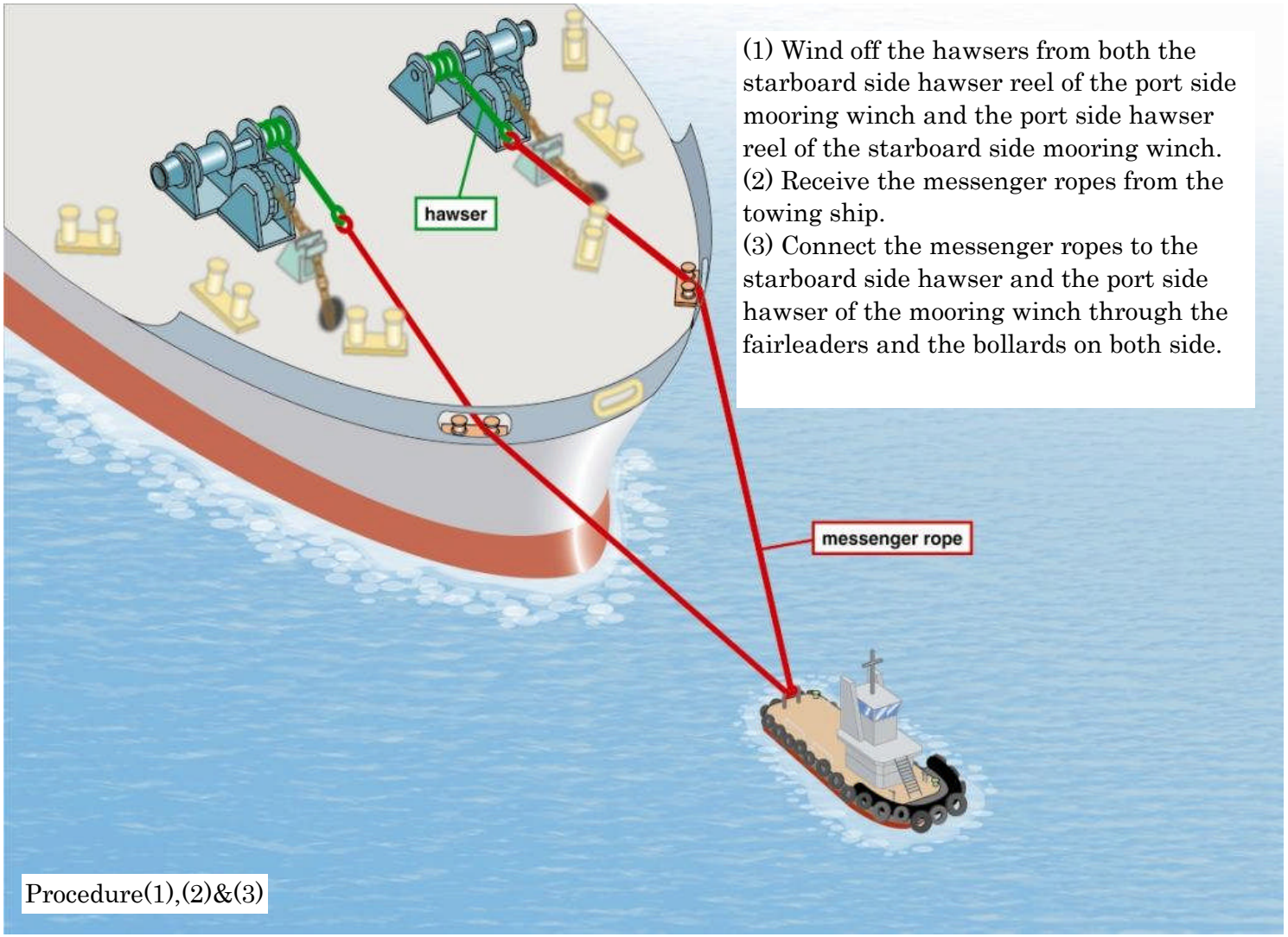

(7) Wind off the starboard side hawser reel of the port side mooring winch and separate the wire with eye splice from the messenger wire.
hawser
strop chain
wire with eye splice
Procedure(7)

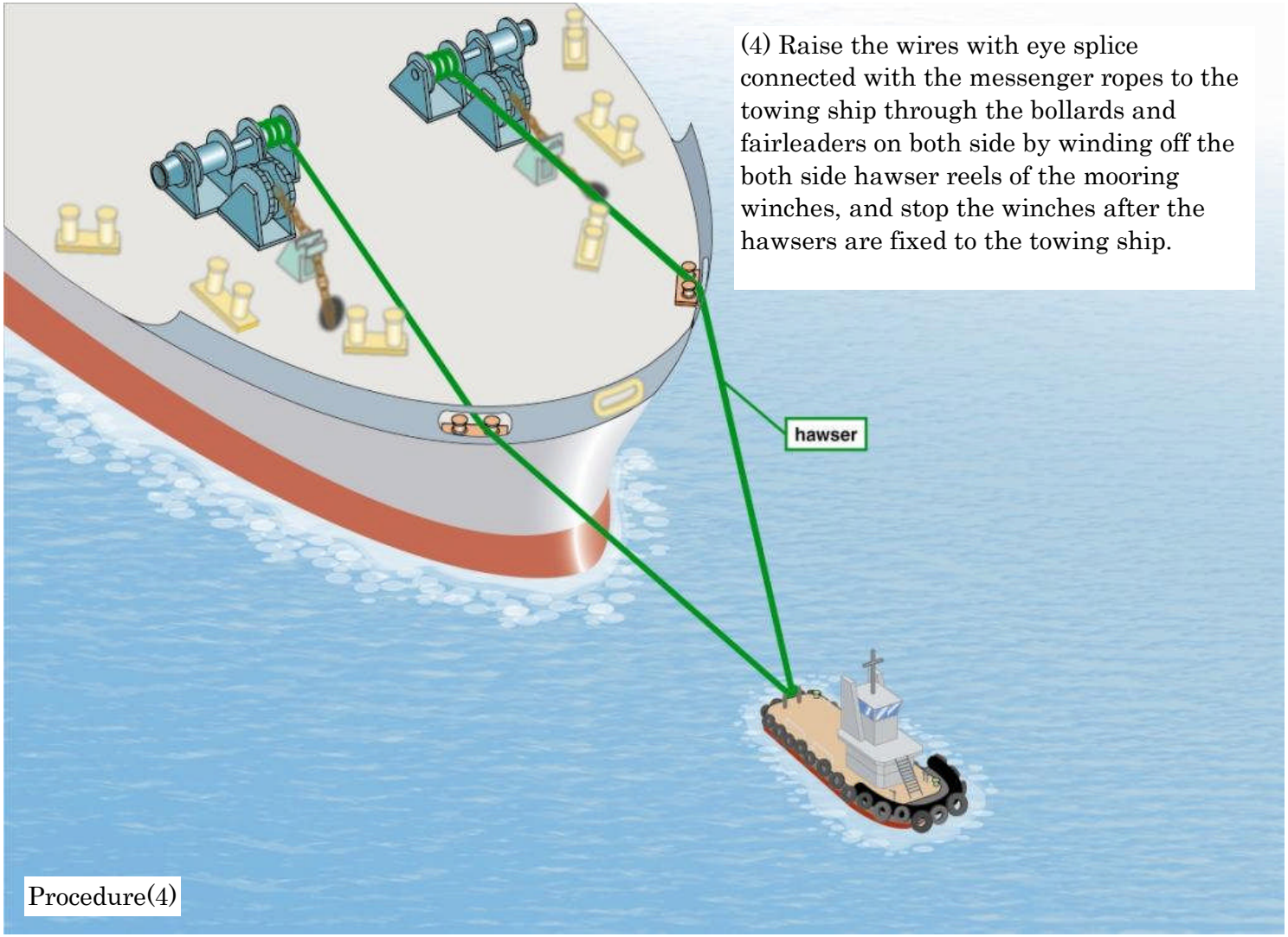

(8) Hook the eye splice at the end of the wire on the bollard in behind after winding the wire around the bollard in front once.
hawser
strop chain
wire with eye splice
Procedure(8)


(9) Wind off the port side hawser reel of the port side mooring winch and detach the strop chain from the wire with eye splice.
hawser
wire with eye splice
Procedure(9)

(10) Make sure the wire with eye splice does not touch the corner of any structures. Take in the slack by pounding with a sledgehammer so that the wire in the bollard is lowered as much as possible.
(11) Lubricate the wire with eye splice with grease where it is rubbed with the Panama chock and finish the connecting operation.

(3)Pattern3-F: Use hawsers of the ship




(4) Raise the wires with eye splice connected with the messenger ropes to the towing ship through the bollards and fairleaders on both side by winding off the both side hawser reels of the mooring winches, and stop the winches after the hawsers are fixed to the towing ship.
hawser
Procedure(4)

(5) Adjust winches so that the tension of both sides becomes approximately the same extent and make sure that the hawsers do not touch the corners of any structures.
Then, disengage the clutches and apply brakes of the winches, and finish the connecting operation.