



Deck General – Safety

Vessel Maneuvering And Handlin

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You have determined the maneuvering characteristics of your vessel by taking the radar ranges and bearings of an isolated light while making a turn. The results are listed in illustration D035DG. Based on this data what is the tactical diameter of the turning circle?

880 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking the radar ranges and bearings of an isolated light while making a turn. The results are shown in illustration D035DG below. What is the transfer for a turn of 60°?

140 yards (126 meters)

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking the radar ranges and bearings of an isolated light while making a turn. The results are listed in illustration D035DG. Based on this data what is the advance for a turn of 30°?

470 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking radar ranges and bearings of an isolated light while making a turn. The results are as shown. Based on this data what is the advance for a turn of 60°? Illustration D035DG

665 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking the radar ranges and bearings of an isolated light while making a turn. The results are shown in illustration D035DG below. What is the transfer for a turn of 180°?

850 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking the radar ranges and bearings of an isolated light while making a turn. The results are shown in illustration D035DG below. What is the transfer for a turn of 30°?

40 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking the radar ranges and bearings of an isolated light while making a turn. The results are shown in illustration D035DG below. What is the transfer for a turn of 60°?

105 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking radar ranges and bearings of an isolated light while making a turn. The results are as shown. Based on this data what is the advance for a turn of 90°? Illustration D035DG

790 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking radar ranges and bearings of an isolated light while making a turn. The results are shown in illustration D035DG below. What is the transfer for a turn of 90°?

400 yards

Illustrations: D035DG_WM_081618

See REF839

You have determined the maneuvering characteristics of your vessel by taking the radar ranges and bearings of an isolated light while making a turn. The results are listed in illustration D035DG. Based on this data what is the tactical diameter of the turning circle?

880 yards

Illustrations: D035DG_WM_081618

See REF839

You are conducting trials to determine the maneuvering characteristics of your vessel. While making a turn, you take ranges and bearings of an isolated light with the results as shown. Based on this information, what is the advance for a turn of 45°? D034DG

690 yards

Illustrations: D034DG_WM_081618

See REF839

You are conducting trials to determine the maneuvering characteristics of your vessel. While making a turn, you take ranges and bearings of an isolated light. The results are shown in illustration D034DG below. What is the transfer for a turn of 45°?

130 yards

Illustrations: D034DG_WM_081618

See REF839

You are conducting trials to determine the maneuvering characteristics of your vessel. While making a turn, you take ranges and bearings of an isolated light. The results are shown in illustration D034DG below. What is the transfer for a turn of 180°?

910 yards

Illustrations: D034DG_WM_081618

See REF839

You are conducting trials to determine the maneuvering characteristics of your vessel. While making a turn, you take ranges and bearings of an isolated light with the results as shown. Based on this information, what is the advance for a turn of 75°? D034DG

825 yards (754 meters)

Illustrations: D034DG_WM_081618

See REF839

You are conducting trials to determine the maneuvering characteristics of your vessel. While making a turn, you take ranges and bearings of an isolated light. The results are shown in illustration D034DG below. What is the transfer for a turn of 90°?

380 yards

Illustrations: D034DG_WM_081618

See REF839

You are conducting trials to determine the maneuvering characteristics of your vessel. While making a turn, you take ranges and bearings of an isolated light with the results as shown. Based on this information, what is the advance for a turn of 90°? D034DG

870 yards

Illustrations: D034DG_WM_081618

See REF839

You are conducting trials to determine the maneuvering characteristics of your vessel. While making a turn you take the ranges and bearings of an isolated light. The results are shown in illustration D034DG below. What is the transfer for a turn of 75°?

300 yards (274 meters)

Illustrations: D034DG_WM_081618

See REF839

In stopping distances of vessels, "head reach" can best be described as the _____.

distance the vessel will run between taking action to stop her and being stationary in the water

Illustrations: HEADREACH

See REF836

You are aboard vessel "A" in a narrow channel and the pilot is approaching vessel "B" as shown in illustration D037RR below. Which of the following is the reason he has not previously changed course to the starboard side of the channel?

to avoid the effects of bank cushion and bank suction

Illustrations: D037RR_WM_091318

See REF825

In illustration D038DG below, what type of anchor is depicted?

Patent

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, which letter indicates the tripping palm?

G

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, which letter indicates the anchor shackle?

K

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, which letter indicates the pea?

J

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, what part of the anchor is indicated by the letter "J"?
bill

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, what part of the anchor is indicated by the letter "I"?
fluke

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, what part of the anchor is indicated by the letter "H"?
crown

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, what part of the anchor is indicated by the letter "K"?
ring

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, what part of the anchor is indicated by the letter "G"?
tripping palm

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below the crown of the anchor shown is indicated by which letter?
H

Illustrations: D038DG_WM_082918, D038DG_WM_REF

In illustration D038DG below, which letter indicates the tripping palm?
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Illustrations: D038DG_WM_082918, D038DG_WM_REF

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Illustrations: D038DG_WM_082918, D038DG_WM_REF

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Illustrations: D038DG_WM_082918, D038DG_WM_REF

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tripping palm

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In illustration D038DG below, what type of anchor is depicted?
Patent

Illustrations: D038DG_WM_082918, D038DG_WM_REF

The sprocket wheel in a windlass, used for heaving in the anchor, is called a _____.
wildcat

Illustrations: WILDCAT
See REF819

On an anchor windlass, the wheel over which the anchor chain passes is called a _____.
wildcat

Illustrations: WILDCAT
See REF819

A wildcat is a _____.
deeply-grooved drum on the windlass with sprockets which engage the links of the anchor chain

Illustrations: WILDCAT
See REF819

The wheel on the windlass with indentations for the anchor chain is the _____.
wildcat

Illustrations: WILDCAT
See REF819

Anchors are prevented from running out when secured by the _____.

devil's claw

pawls

brake

All of the above.

Illustrations: NAVYCHAINSTOPPER

See REF814

The locking pin that joins the parts of a detachable link is held in position by _____.

a lead plug

Illustrations: DETACHABLELINK

See REF800

While heaving in the anchor prior to entering the wildcat you observe four white links on each side of a red link. What does this indicate?

There are four shots on deck

Illustrations: ANCHORCHAINMARKINGS

See REF800

When running before a heavy sea, moving weights aft will affect the handling of a vessel by _____.

reducing yawing

Illustrations: PITCH_ROLL_YAW

See REF291

Which action reduces the yawing of a vessel in a following sea?

Shifting weights to the stern

Illustrations: PITCH_ROLL_YAW

See REF291

You are riding to a single anchor. The vessel is yawing excessively. Which action should be taken to reduce the yawing?

Drop the second anchor at the extreme end of the yaw, then adjust the cables until the scope is equal

Illustrations: PITCH_ROLL_YAW

See REF291

Which BEST describes the riding pawl?

A stopper that prevents the anchor chain from running free if the chain jumps the wildcat

You are on a 120,000 DWT loaded bulk carrier. When anchoring without the aid of tugs, your maximum speed should not exceed how many feet per second?

0.5 (0.3 knot)

When dropping anchor, you are stationed at the windlass brake. The most important piece(s) of gear is(are) _____.

goggles

How many feet are there in 2 shots of anchor chain?

180

See REF800

Using a scope of 5, determine how many feet of cable you should put out to anchor in 5 fathoms of water.

150 feet

See REF807

The purpose of a devil's claw is to _____.

act as a chain stopper

See REF815

The angle at which the fluke penetrates the soil is called the _____.

fluke angle

You are the Master of a single-screw vessel. You are docking at a port which has no tugs available. You decide to drop the offshore anchor to help in docking. The amount of chain you should pay out is _____.

1 1/2 to 2 times the depth of the water

You are on a 120,000 DWT loaded bulk carrier. What is the maximum safe docking speed when coming alongside?

0.2 foot per second (0.12 knot)

You are underway in heavy weather and your bow is into the seas. To prevent pounding, you should _____.

decrease speed

An icebreaker assisting a vessel through an ice field would display a visual signal consisting of the code letter "E" (Echo) to signify that "_____".

I am altering my course to starboard

Ice is often strong enough to halt navigation through the St. Lawrence Seaway by mid- _____.

December

Ice concentration is measured in tenths. What concentration range of ice corresponds to "Close Pack"?

7 - 8 tenths

The pitch of a propeller is a measure of the _____.

number of feet per revolution the propeller is designed to advance in still water without slip

See REF829

Your vessel is a single-screw ship with a right-hand propeller. There is no current. The easiest way to make a landing is _____.

port side to

See REF278

When comparing twin screw tug to single-screw tugs, which statement about a twin-screw tug is FALSE?

It develops more bollard pull for the same horsepower.

A twin-screw vessel can clear the inboard propeller and maneuver off a pier best by holding a(n) _____.

forward spring line and going slow ahead on the outboard engine

When piloting a vessel, how are visual references used to establish a constant rate of turn?

Fixed objects that stay on the same relative bearing when the ship is turning indicate a constant rate of turn.

In the context of shiphandling, what would be the definition of shallow water?

Water depth of less than twice a vessel's draft

As a ship moves through the water, it drags with it a body of water called the wake. The ratio of the wake speed to the ship's speed is called _____.

wake fraction

See REF840

What is meant by veering the anchor chain?

Paying out more chain

See REF800

The BEST holding ground for conventional anchors is _____.

hard mud

Mooring with two bow anchors has which major advantage over anchoring with one bow anchor?

The radius of the vessel's swing will be shortened.

Forty-five fathoms is marked on the anchor chain by _____.

three turns of wire on the third stud from each side of the detachable link

See REF800

Using a scope of 6, determine how many feet of anchor cable you should put out to anchor in 12 feet (3.7 meters) of water.

72 feet (21.9 meters)

See REF808

A stopper used in securing the ground tackle for sea that consists of a grab attached to a turnbuckle is a _____.

devil's claw

See REF815

Tripping defects in anchors frequently occur in _____.

soft soils

The opening in the deck beneath the anchor windlass that leads to the chain locker is the _____.

spill pipe

You are docking a vessel starboard side to with the assistance of two tugs. You are attempting to hold the vessel off by operating both tugs at right angles to the vessel and at full power. You must ensure that _____.

the ship has no headway at the time

Which statement about a tunnel bow thruster is TRUE?

It provides lateral control without affecting headway.

An icebreaker assisting a vessel through an ice field would display a visual signal consisting of the code letter "M" (Mike) to signify that "_____".

my vessel is stopped and making no way through the water

Your ship is navigating independently in heavy ice when it becomes beset. Which statement is FALSE?

The propeller is more susceptible to ice damage when turning slowly than when stopped.

In general, a reinforced vessel can safely navigate in ice provided the concentration does not exceed how many tenths?

5- 7 tenths

Your vessel is proceeding along a narrow channel. The effect called bank cushion has which effect on the vessel?

Forces the bow away from the bank

See REF825

As the propeller turns, voids are formed on the trailing and leading edges of the propeller blades causing a loss of propulsive efficiency, pitting of the blades, and vibration. These voids are known as _____.

cavitation

You are on a large vessel fitted with a right-handed controllable-pitch propeller. When making large speed changes while decreasing pitch, which statement is TRUE?

You may lose rudder control until the ship's speed has dropped to correspond to propeller speed.

See REF278

Your twin-screw vessel is moving ASTERN with rudders amidships. The starboard screw suddenly stops turning. Your vessel's head will _____.

go to port

You are stopped with no way upon your vessel at the pilot station. Your vessel is a large twin-screw ship. You must come around 180° to board your Pilot. How should you use the engines and rudder to turn the ship fastest in the least amount of space?

Half ahead with hard over rudder, then full astern on inboard engine

Conditions for crossing a rough bar are usually best at _____.

high water slack

How does a vessel's rate of turn change when entering shallow water?

There is no change.

The distance that a vessel travels from the time that the order to put engines full astern until the vessel is dead in the water is known as _____.

head reach

See REF837

Which statement is TRUE concerning the vessel's slipstream?

The propeller gives it a helical motion.

When steaming through an anchorage, a shipmaster should _____.

avoid crossing close ahead of the anchored ships

An anchor winch should be equipped with mechanical brakes capable of holding _____.

the full breaking strength of the mooring line

The marking on an anchor chain for 30 fathoms is _____.

two links on each side of the 30 fathom detachable link are painted white

See REF800

Using a scope of 6, how much cable would have to be used in order to anchor in 24 feet of water?

144 feet

See REF809

An example of a modern anchor which has a stock is a(n) _____.

Danforth anchor

See REF816

Which is NOT a part of an anchor?

Devil's claw

What is a spill pipe?

A pipe under the anchor windlass leading to the chain locker

You are docking a ship with a single-screw tug assisting on your starboard bow. How should the tug be tied up if you are anticipating that she will have to hold your bow off while you stem the current?

The tug should put a stern line up, leading ahead on the ship.

The bow thruster generally is ineffective at _____.
over 3 knots headway

Your vessel is off a lee shore in heavy weather and laboring. Which action should you take?
Put the sea and wind about two points on either bow and reduce speed.

A vessel which is being assisted by an icebreaker should indicate that he is ready to cast off the towline (if one is used) by _____.
displaying code letter "Y" (Yankee)

Commercial ships or other persons or agencies requiring the assistance of Canadian Coast Guard icebreakers should first contact _____.
Ice Sarnia

You are on an ice-reinforced vessel about to enter pack ice. You should _____.
look for areas of rotten ice and enter perpendicular to the ice edge

A wedge of water building up between the bow and nearer bank which forces the bow out and away describes _____.
bank cushion
See REF825

The force exerted by a propeller which tends to throw the stern right or left is called _____.
sidewise force

You are on a large vessel fitted with a right-handed controllable-pitch propeller set at maximum forward pitch. Which statement about reversing is TRUE?
There will probably be a loss of steering control.
See REF278

A vessel is equipped with twin propellers, both turning outboard with the engines half ahead. If there is no wind or current and the rudders are amidships, what will happen?
The vessel will steer a fairly straight course.

In twin-screw engine installations while going ahead, maneuvering qualities are most effective when the tops of the propeller blades both turn _____.
outboard from the center

You notice that your speed has decreased, the stern of your vessel has settled into the water, and your rudder is sluggish in responding. The MOST likely cause is _____.
shallow water

When taking a Pilot from a pilot vessel in a seaway, which way should you head your vessel if the ladder is on the leeward side?
Sea on the weather bow and ship moving ahead slowly

The distance that a ship moves forward with each revolution of its propeller, if there is no slip, is called _____.
pitch
See REF838

In relation to the turning circle of a ship, the term "transfer" means the distance _____.
gained at right angles to the original course
See REF839

As a ship moves through the water, it causes a wake, which is also moving forward relative to the sea. In addition to a fore and aft motion, this wake also has a(n) _____.

upward and inward flow

See REF841

While anchoring your vessel, the best time to let go the anchor is when the vessel is _____.

moving slowly astern over the ground

The holding capability of an anchor is primarily determined by the _____.

anchor's ability to dig in

How many turns of wire normally mark either side of the detachable link 45 fathoms from the anchor?

3

See REF800

Using a scope of five, determine how many feet of chain you should put out to anchor in 12 fathoms of water.

360 feet (110 meters)

See REF810

An example of an anchor which has a stock is a _____.

Danforth anchor

See REF816

How is the size of chain determined?

Diameter of metal in link in inches

The opening in the deck that leads the anchor cable outside the hull is the _____.

hawsepipe

When a tug is pulling on a hawser at right angles to the ship, and the pilot wants to come ahead or astern on the ship's engine, care must be taken that the pilot _____.

does not get too much way on the vessel

Which statement about tunnel bow thrusters fitted to large vessels is TRUE?

When going astern at slow speed, they provide effective steering control.

When a boat turns broadside to heavy seas and winds, thus exposing the boat to the danger of capsizing, the boat has

_____.

broached

An icebreaker assisting a vessel through an ice field would display a visual signal consisting of the code letter "I" (India) to signify that "_____".

I am altering my course to port

A vessel which is being assisted by an icebreaker would display a flag hoist consisting of the code numeral "4" when the vessel _____.

becomes icebound

What should NOT be used as an indicator that ice may be nearby?

A dark appearance of the sky

A vessel proceeding along the bank of a river or channel has the tendency to _____.

sheer away from the bank

See REF825

Sidewise force of the propeller tends to throw a vessel's stern to the right or left, depending on rotation. This force is caused by _____.

torque from the velocity and angle at which the surrounding water impinges upon the propeller blades

You are landing a single-screw vessel, with a right-hand propeller, starboard side to the dock. When you have approached the berth and back the engine, you would expect the vessel to _____.

turn her bow toward the dock

See REF278

You are going ahead on twin engines with rudder amidships. Your starboard engine stalls. To continue on course, you should _____.

apply left rudder

The BEST way to steer a twin-screw vessel if you lose your rudder is by using _____.

one engine running at reduced speed and controlling the vessel with the other

Which effect does speed through the water have on a vessel which is underway in shallow water?

An increase in speed results in the stern sucking down lower than the bow.

You are approaching the pilot station with the wind fine on the starboard bow and making about 3 knots. You can help to calm the seas by taking what action just before the pilot boat comes along on the port side?

A short burst of ahead full with left full rudder

A stream of water immediately surrounding a moving vessel's hull, flowing in the same direction as the vessel is known as _____.

wake current

You are going astern (single-screw, right-handed propeller) with the anchor down at a scope of twice the depth of the water. As the anchor dredges, you should expect the _____.

stern to walk to port but at a reduced rate

See REF278

The BEST holding ground for conventional anchors is _____.

sand

The holding capabilities of an anchor are determined PRIMARILY by the _____.

scope of the anchor chain

The next-to-last shot of an anchor cable is usually painted _____.

yellow

See REF800

Using a scope of five, determine how many shots of chain you should put out to anchor in 5 fathoms of water?

2

See REF811

If the winch should fail while you are hauling in the anchor, what prevents the anchor cable from running out?

Riding pawl

See REF817

On stud-link anchor chain the addition of the stud increases the strength of the link by about _____.

15 (%)

The best method of protecting that portion of a fiber anchor line nearest the anchor from chafing on the bottom is by _____.

replacing that portion with a short length of chain

You are docking an oceangoing single-screw vessel under normal circumstances with a single tug. The tug is usually used to _____.

control the bow and is tied to the offshore bow

When anchoring in a clay bottom, what is one hazard that may cause the anchor to drag?

The anchor may get shod with clay and not develop full holding power.

With a following sea, a vessel will tend to _____.

yaw

An icebreaker assisting a vessel through an ice field would display a visual signal consisting of the code letter "S" (Sierra) to signify that "_____".

I am operating astern propulsion

Which type of ice is the most difficult to combat and presents the greatest hazard to shipping on the Great Lakes during the winter months?

Pack slush ice

The proximity of pack ice may be indicated by _____.

glare on clouds on the horizon

How does the effect known as "bank suction" act on a single-screw vessel proceeding along a narrow channel?

It pulls the stern toward the bank.

See REF826

Which type of rudder may lose its effectiveness at angles of 10 or more degrees?

Balanced spade

You are landing a single-screw vessel with a left-handed propeller, starboard side to the dock. As you approach the dock you back your engine with your rudder amidships. You would expect the vessel to _____.

turn its stern towards the dock

See REF278

A twin-screw vessel with a single rudder is making headway. The engines are full speed ahead. There is no wind or current. Which statement is FALSE?

Turning response by use of the rudder only is greater than on a single-screw vessel.

A common occurrence when a vessel is running into shallow water is that _____.

"squat" will cause a decrease in bottom clearance and an increase in draft

See REF832

Insufficient space between the hull and bottom in shallow water will prevent normal screw currents resulting in _____.

waste of power

sluggish rudder response

sudden sheering to either side

All of the above.

"An electronic or electric device that indicates the rate of turn of a vessel," defines a/an _____.

swing meter

The distance a vessel moves parallel to the original course from the point where the rudder is put over to any point on the turning circle is called the _____.

advance

See REF839

In order to reduce your wake in a narrow channel you should _____.

reduce your speed

When moored with a Mediterranean moor, the ship should be secured to the pier by having _____.

a stern line and two quarter lines crossing under the stern

See REF798

Lifting the anchor from the bottom is called _____.

weighing the anchor

See REF801

When anchoring a vessel, it is best to release the anchor when _____.

going slow astern

Before being certified by the American Bureau of Shipping, anchor chain must undergo _____.

a breaking test

The last shot of an anchor cable is usually painted _____.

red

See REF800

When anchoring, it is a common rule of thumb to use a length of chain _____.

five to seven times the depth of water

The riding pawl is _____.

a stopper that prevents the anchor cable from running free if the cable jumps the wildcat

See REF817

The part of an anchor which takes hold on the bottom is the _____.

fluke

What part of the ground tackle is the most likely to develop fractures due to extensive anchor use?

Jews' harp

You are docking a vessel in a slip which has its entrance athwart the tide. You land the ship across the end of the pier, stemming the tide, preparatory to breaking the ship around the corner. You have one tug to assist. Where would you generally tie up the tug?

Tie her up on the offshore bow.

If your vessel is dragging her anchor in a strong wind, you should _____.

increase the scope of anchor cable

In which situation could a vessel most easily capsize?

Running in the trough

When more than one vessel is being assisted by an icebreaker, distances between vessels should be constant. Which signal should be given by a vessel which is ahead of another and whose speed suddenly begins to drop?

A flag hoist consisting of the code figure "5"

Which statement concerning the navigation of a vessel in ice is FALSE?

When anchoring in ice, it is advisable to increase the scope of the chain over what is normally used for non-icing conditions.

What is NOT an indication that pack ice may be nearby?

The presence of icebergs

How does the effect known as "bank suction" act on a single-screw vessel proceeding along a narrow channel?

It pulls the stern toward the bank.

See REF826

If a tug equipped with flanking rudders is to be turned in a confined circle, when going astern, the stern will move to port the quickest if _____.

the rudder is hard to port and the flanking rudders are hard to port

See REF830

It is easier to dock a right-hand, single-screw vessel _____.

port side to the wharf

See REF278

You are going ahead on twin engines with rudders amidships. Your port engine stalls. To continue your course you should _____.

apply right rudder

Which shallow water effect will increase dramatically if you increase your ship's speed past its "critical speed"?

Squatting

See REF832

When you enter shallow water, you would expect your rudder response to _____.

be sluggish and your speed to decrease

Leeway is the _____.

lateral movement of a vessel downwind of her intended course

See REF834

You are on a course of 000°T and put the rudder right 30°. In which direction will the transfer be measured?

090°T

See REF839

A "Mediterranean moor" should be used when _____.

when docking stern to a berth

See REF798

Before letting the anchor go, you should check that the _____.

chain is clear

anchor is clear of obstructions

wildcat is disengaged

All of the above.

See REF802

When anchoring in calm water, it is best to _____.

have slight sternway on the vessel while letting go the anchor

What does the proof test load of an anchor chain demonstrate?

Strength of the anchor chain to a specified limit

By paying out more anchor cable, you _____.
increase the holding power of your anchor
See REF800

What is the best guide for determining the proper scope of anchor chain to use for anchoring in normal conditions?
One shot of chain for every fifteen feet of water

The safety stopper that prevents the anchor cable from running free if the cable jumps the wildcat is the _____.
riding pawl
See REF817

The purpose of the stripping bar on an anchor windlass is to _____.
prevent the chain from fouling the wildcat

When inspecting ground tackle, fractures are most frequently found in the _____.
end links

When using two tugs to assist in mooring a large, deeply laden ship, the most powerful tug is usually placed _____.
forward to control the bow

The best method of determining if a vessel is dragging anchor is to note _____.
changes in bearings of fixed objects onshore

When the period of beam seas equals the natural rolling period of a vessel, what will most likely occur?
Excessive rolling

An icebreaker may use the code letter "K" to remind ships of their obligation to listen continuously on their radio. This signal may be made by any of the following EXCEPT _____.
radiotelephone

How does an icebreaker normally free a ship which has become beset while navigating independently?
By approaching from the stern and crossing ahead at an angle of 20° to 30° to the beset ship's course

"Ice blink" is _____.
the yellowish-white glare on the underside of a cloud layer

You are proceeding along the right bank of a narrow channel aboard a right-handed single-screw vessel. The vessel starts to sheer due to bank suction/cushion effect. You should _____.
increase speed and put the rudder right full
See REF827

Flanking rudders effect a vessel's heading because of the _____.
effect of the propeller flow on the rudders

A single-screw vessel going ahead tends to turn more rapidly to port because of propeller _____.
sidewise force

You are operating a twin-screw vessel and lose your port engine. You continue to operate on your starboard engine only. Which action would you take to move your vessel ahead in a straight line?
Compensate with right rudder.

Your ship is in shallow water and the bow rides up on its bow wave while the stern sinks into a depression of its transverse wave system. What is this called?
Squatting

See REF832

Which will most likely occur when entering shallow water?

The vessel's trim will change.

As a rule, ships of most configurations, when drifting in calm water with negligible current, will lie _____.
beam to the wind

The anchors should be dropped well out from the pier while at a Mediterranean moor to _____.
permit the ship to maneuver in the stream while weighing anchors

See REF798

Which safety check(s) should be made before letting go the anchor?

See that the wildcat is disengaged.

See that the anchor is clear of obstructions.

See that the chain is all clear.

All of the above.

See REF802

You have arrived at your anchorage location. You have put the engines astern prior to letting go the anchor. How will you know when the vessel has stopped making way?

The backwash of the propeller reaches amidships

What happens to the efficiency of an anchor when it is moved from sand to mud?

The efficiency decreases.

If you shorten the scope of anchor cable, your anchor's holding power _____.

decreases

See REF800

When anchoring, good practice requires 5 to 7 fathoms of chain for each fathom of depth. In deep water you should use _____.

less chain for each fathom of depth

A design modification of an anchor chain which prevents kinking is the _____.

stud link

See REF818

A chain stripper is used to _____.

prevent chain from clinging to the wildcat

Fracture damage to the end links of the anchor cable, or to the Jews' harp may be eliminated by _____.

securing a piece of wood to the Jews' harp

You are taking the bow line from the port bow of a large vessel that is underway when the stern of your tug comes in contact with the vessel. The forward motion of both vessels causes your tug to be turned toward the other vessel and contact the stem thereby being "stemmed". You should immediately _____.

go full astern with rudder amidships

The best method to stop a vessel from dragging anchor in a sand bottom is to _____.

pay out more anchor cable

When making way in heavy seas you notice that your vessel's screw is being lifted clear of the water and racing. One way to correct this would be to _____.

decrease speed

wildcat is disengaged. All but one stopper is taken off and the anchor buoy line is shackled to the chafing chain or pendant. The chain locker is checked for loose gear that may become wedged in the chain pipes or come flying out, endangering personnel on deck. An order then is given to stand clear of the chain. For obvious reasons, it is urgent that all hands obey this order! At the command "STAND BY" the brake is released and two Seamen—one with a sledgehammer or maul—take stations at the stopper outboard side of the chain. When the command "LET GO" is given, one Seaman pulls the pin from the stopper tongue. The Seaman with the maul knocks the bail off the tongue of the pelican hook and steps clear. As soon as the Seaman is clear, the brake is fully released. If for some reason the stopper does not fall clear, the chain can still be controlled by the brake. The Seaman tending the anchor buoy tosses it over the side and the jack is two-blocked (hoisted all the way up). On the signal bridge, the anchor ball is hoisted. The anchor buoy indicates the actual position of the anchor to which it is attached by floating above it. The buoys are painted a distinctive color; green for the starboard anchor, red for the port anchor, and white for the stern anchor. If an anchor buoy floats on the surface, it is said to be "watching." An anchor buoy may fail to watch because its line is too short or the line is fouled in the chain. Before anchoring, the line attaching the buoy to the anchor should be adjusted to a length that is a couple of fathoms greater than the depth of the water at anchorage. This extra length allows for slight fouling, tide variations, or the sinking of the anchor in mud, which might cause the actual depth to be greater than that shown on the navigational chart being used. The anchor buoy and line must be laid up along, and outboard of, the lifelines. It should be put overboard, well clear of the ship the instant the anchor is let go. On ships with power assist hand brakes, the power assist mechanism must be adjusted so when the brake is applied, the chain will not jump off the wildcat when it comes to a stop. An anchor buoy is a valuable time-saver in locating an anchor lost in weighing or one that is slipped in an emergency. Slipping an anchor happens when unexpected circumstances do not permit time to weigh anchor. As soon as the anchor hits bottom the brake is set so the chain will not pile on it. As the ship gains sternway, the brake is released to lay the chain out evenly on the bottom and to control any running movement of the chain. As each chain marking passes the wildcat, the report "(Number) FATHOM ON DECK" is made to the conning officer on the bridge. The direction the chain is tending is indicated by pointing the arm and/or reporting "CHAIN TENDING (number) O'CLOCK." If the chain tends around the stem, the situation is reported to the bridge. The chain must be allowed to run freely or the sharp bend around the stem may damage a link. Detachable links are particularly susceptible to damage in this regard. If the anchor chain starts to get near the sonar dome, this situation is reported to the bridge, because anchor chain rubbing against the sonar dome can cause serious damage to it. When the desired scope of chain is out, the conning officer gives the order "PASS THE STOPPERS." The brake is set and the stoppers are applied and evened up, the brake is taken off, and the chain is slacked between the windlass and stopper. The brake is set, and the wildcat is left disengaged. Before securing, all gear is picked up and stowed.

REF803

A boat is wind-ride when she lies at anchor with head to wind. If the effect of the tidal stream is stronger, she will lie Tide-ride. In the same anchorage and at the same time some craft will be wind-ride and others tide-ride, depending on their relative proportions of Wetted area and Windage.

REF804

Tide-ride definition is - swung by the tide regardless of the wind when at anchor —opposed to wind-ride.

REF805

Scope of chain calculation. $A^2 \times B^2 = C^2$ OR $C = \sqrt{\text{of } A^2 + B^2}$ You are arriving in port and are assigned to anchor in anchorage circle B-4. It has a diameter of 500 yards and your vessel's LOA is 484 feet. If you anchor in 8 fathoms at the center of the circle, what is the maximum number of shots of chain you can use and still remain in the circle? Diameter of anchorage = 500 yards X 3' = 1500' radius of anchorage = 1500' / 2 = 750' A= radius minus length of ship or 750' - 484' = 266' B= depth of water 8 fathoms X 6 or 48' $A^2 = 266 \times 266 = 70756$ $B^2 = 48 \times 48 = 2304$ $A^2 + B^2 = 73060$ $\sqrt{\text{of } 73060} = 270.29 / 90 = 3$ shots

REF806

Scope of chain calculation. $A^2 \times B^2 = C^2$ OR $C = \sqrt{\text{of } A^2 + B^2}$ You are arriving in port and are assigned to anchor in anchorage circle B-4. It has a diameter of 700 yards and your vessel's LOA is 600 feet. If you anchor in 11 fathoms at the center of the circle, what is the maximum number of shots of chain you can use and still remain in the circle? Diameter of anchorage = 700 yards X 3' = 2100' radius of anchorage = 2100' / 2 = 1050' A= radius minus length of ship or 1050' - 600' = 450' B= depth of water 11 fathoms X 6 or 66' $A^2 = 450' \times 450' = 202500$ $B^2 = 66 \times 66 = 4356$ $A^2 + B^2 = 206856$ $\sqrt{\text{of } 206856} = 454.81 / 90 = 5.05$ shots

REF807

Using a scope of 5, determine how many feet of cable you should put out to anchor in 5 fathoms of water. Scope Depth of water. $5 \times 5 = 25$ fathoms of chain. 25×6 "feet per fathom" = 150 feet 90 feet to a shot.

REF808

Using a scope of 6, determine how many feet of anchor cable you should put out to anchor in 12 feet (3.7 meters) of water. Scope Depth of water. $6 \times 12 = 72$ feet of cable $72 / 3.28 = 21.95$ meters

REF809

Using a scope of 6, determine how many feet of anchor cable you should put out to anchor in 12 feet (3.7 meters) of water. Scope X Depth of water. $6 \times 12 = 72$ feet of cable $72 / 3.28 = 21.95$ meters

REF810

Using a scope of five, determine how many feet of chain you should put out to anchor in 12 fathoms of water. Scope Depth of water. $5 \times 12 = 60$ fathoms of chain. 60×6 "feet per fathom" = 360 feet 90 feet to a shot.

REF811

Using a scope of five, determine how many shots of chain you should put out to anchor in 5 fathoms of water? Scope Depth of water. $5 \times 5 = 25$ fathoms of chain. 25×6 "feet per fathom" = 150 feet 90 feet to a shot.

REF812

Veer the anchor chain to a length equal to five to seven times the depth of water at the anchorage. The exact amount to veer is a function of both vessel type and severity of weather expected at the anchorage. When calculating the scope of anchor chain to veer, take into account the maximum height of tide.

REF813

All links are studded; that is, a solid piece is forged in the center of the link. Studs prevent the chain from kinking and the links from pounding on adjacent links. They also further strengthen the chain up to 15 percent.

REF814

ANCHOR BRAKE: The anchor brake, as the name implies, is a friction brake designed to stop, or hold, the shaft thereby preventing the anchor from dropping. PAWL: A term applied to a short piece of metal so hinged as to engage in teeth or depressions of a revolving mechanism for the purpose of preventing recoil. Fitted to capstans, windlasses, etc. Also called Pall. CHAIN STOPPER : A device used to secure the chain cable when riding at anchor, thereby relieving the strain on the windlass and for securing an anchor in the housing position in the hawse pipe. Stoppers differ widely in construction. For the smaller cables they are of rope, usually hemp, with a stopper knot or an iron toggle in the outer end and a lanyard for lashing to the cable. For larger cables wire rope is used in lieu of hemp, while for the largest cables the stoppers are of heavy chain fitted with slip hooks and turnbuckles for adjusting and for equalizing the strain when more than one stopper is attached to a cable. According to its use a chain stopper is termed a "riding stopper" or a "housing stopper". The inner end of the stopper is attached to a deck pad by means of a shackle or lashing.

REF815

CHAIN STOPPER : A device used to secure the chain cable when riding at anchor, thereby relieving the strain on the windlass and for securing an anchor in the housing position in the hawse pipe. Stoppers differ widely in construction. For the smaller cables they are of rope, usually hemp, with a stopper knot or an iron toggle in the outer end and a lanyard for lashing to the cable. For larger cables wire rope is used in lieu of hemp, while for the largest cables the stoppers are of heavy chain fitted with slip hooks and turnbuckles for adjusting and for equalizing the strain when more than one stopper is attached to a cable. According to its use a chain stopper is termed a "riding stopper" or a "housing stopper". The inner end of the stopper is attached to a deck pad by means of a shackle or lashing.

REF816

Parts of an anchor: All anchors don't have all parts. •Ring (Shackle) - Device used to attach the anchor chain to the shank of the anchor. The ring is secured to the top of the shank with a riveted pin. •Shank - The long center part of the anchor running between the ring and the crown. •Crown - The lower section of the anchor to which the shank is secured. The shank is fitted to the crown with (on some anchors) a pivot or ball-and-socket joint that allows a movement from 30° to 45° either way. •Stock - a crossmember, spar, or rod, that rolls the anchor into an attitude that enables the flukes to dig into the sea bed. Most newer anchors are stockless. •Arms - The parts that extend from each side of the crown. •Throat - The inner part of an arm where it joins the shank. •Fluke or Palm - The broad shield part of the anchor that extends upward from the arms. •Blade - That part of the arm extending outward below the fluke. •Bill or Pea - Tip of the palm or fluke. •Cup - on a Mushroom Anchor, the round ground-holding portion corresponding to the fluke of other designs

REF817

PAWL: A term applied to a short piece of metal so hinged as to engage in teeth or depressions of a revolving mechanism for the purpose of preventing recoil. Fitted to capstans, windlasses, etc. Also called Pall.

REF818

STUD LINK: Chain in which each link has a short distance piece (known as a stud) worked at its mid-length at right angles with its major axis. This is done in order to maintain the link shape.

REF819

WILDCAT : A special type of drum whose faces are so formed as to fit the links of a chain of given size.

REF820

"A drift lead is useful although not always to be trusted. This is a heavy lead kept on the bottom, with its line made fast, but left hanging with considerable slack, to some place well forward that is convenient for observation. As long as the ship is fairly steady, a drift lead will usually give notice of dragging, but if it sheers about considerably, it cannot be relied upon."

REF821

A broach occurs when a wave overtakes you from behind, pushes your stern to the side (turning the boat sideways), and capsizes you. Or, if the wave is large enough, it may just capsize you end over end. This style of roller coaster is not recommended. However, a mellow following sea can be a nice asset; not only will it assist your forward progress with speed-over-ground, but it can also cushion your boat as it rides from one wave to the next.

REF822

Buys Ballot's law. In the Northern Hemisphere, if you face the wind the atmospheric pressure decreases toward your right and increases toward your left. In the Southern Hemisphere the reverse is true. The law is useful in locating centers of cyclones and anticyclones. Buys Ballot's law. . A rule useful in locating the center of cyclones and anticyclones. It states that, facing away from the wind in the northern hemisphere, the low pressure lies to the left. Facing away from the wind in the southern hemisphere, it is to the right; named after Dutch meteorologist C. H. D. Buys Ballot, who published it in 1857.

REF823

162.134 Connecting waters from Lake Huron to Lake Erie; traffic rules.

REF824

A bergy bit is a medium to large fragment of ice. Its height is generally greater than three feet but less than 16 feet above sea level and its area is normally about 1,076-3,229 square feet . Growlers are smaller fragments of ice and are roughly the size of a truck or grand piano.

REF825

Bank Cushion is the effect experienced when a vessel is navigating on the outer limits of channel and the bow is pushed away from the bank.

REF826

Bank Suction is the effect experienced when a vessel is navigating on the outer limits of a channel and the stern swings into the bank.

REF827

Right-hand propellers turn clockwise when going ahead, when viewed from the stern. A solid propeller has its blades cast integral with its hub. Bank Suction is the effect experienced when a vessel is navigating on the outer limits of a channel and the stern swings into the bank.

REF828

Bow Cushion and Bank Suction In a restricted channel, when the ship moves near the bank, the bow is pushed away from the bank, an effect known as bow cushion, and the vessel is bodily attracted toward the bank, an effect known as bank suction. The bank cushion results from high pressure buildup between the bank and the bow of the ship, and the bank suction is caused by loss of pressure and increased velocity of water in the restricted space between the vessel and the bank. The squat effect is the hydrodynamic phenomenon by which a vessel moving quickly through shallow water creates an area of lowered pressure that causes the ship to be closer to the seabed than would otherwise be expected.

REF829

Pitch: Is the displacement a propeller makes in a complete spin of 360° degrees. This means that if we have a propeller of 40" pitch it will advance 40 inches for every complete spin as long as this is made in a solid surface; in a liquid environment, the propeller will obviously slide with less displacement.

REF830

Flanking rudders are often used for inland river tow boats. They are located forward of the propellers in order to provide manoeuvrability during astern operations, giving the convoy control when backing or flanking.

REF831

A.) The correct trim will be obtained more easily Incorrect B.) The drag effect will be cancelled out Incorrect C.) The side forces will be cancelled out Correct Reference: Knight's Modern Seamanship, A twin-screw vessel has two opposite turning propellers, each cancelling the side forces of the other. D.) The vessels speed will be increased Incorrect

REF832

As a vessel moves through the water, it experiences a change in mean draft known as sinkage. This change could be equally distributed fore and aft or could be more pronounced on either the bow or stern. The simultaneous change in mean draft or sinkage and change in trim is known as squat. Squat effect is approximately proportional to the square of the speed of the ship. Thus, by reducing speed by half, the squat effect is reduced by a factor of four. Squat effect is usually felt more when the depth/draft ratio is less than four or when sailing close to a bank.

REF833

Reference: Mac Elrevey and Mac Elrevey; Shiphandling for the Mariner, Fourth Edition If the buoy is moving forward (towards the bow) the ship is turning at a rate that will take it closer to the buoy upon completion of the turn. By decreasing the rate of turn you will increase the radii of the turn. The optimum turn would maintain the relative position of the buoy, thereby maintaining the same distance off of the buoy.

REF834

Leeway is a nautical term, referring to a vessel's drift to the lee, (nautical for "downwind").

REF835

164.35 Equipment: All vessels.

REF836

Head Reach: Stopping ability is measured by the "track reach" and "head reach" realized in a stop engine-full astern maneuver performed after a steady approach at the test speed until ahead speed in ship coordinates changes sign (i.e., vessel starts going backward). • Track Reach is defined as a distance along the vessel's track that the vessel covers from the moment that the "full astern" command is given until ahead speed changes sign. • Head Reach is defined as a distance along the direction of the course at the moment when the "full astern" command was given. The distance is measured from the moment when the "full astern" command is given until the vessel is stopped dead in the water.

REF837

Head Reach is defined as a distance along the direction of the course at the moment when the "full astern" command was given. The distance is measured from the moment when the "full astern" command is given until the vessel is stopped dead in the water.

REF838

Pitch is the theoretical forward distance, in inches, that a propeller travels during one revolution. There is always some "slip" between the propeller and the water (generally 10 to 15 percent) so the actual distance traveled is somewhat less than the theoretical value.

REF839

Turning Circles The circle is the path of the ship's pivot point as it executes a 360° turn. In shallow water, the rate of turn is likely to be decreased, so the vessel will have a larger turning circle. Advance This is the distance the ship travelled in the direction of the original heading, measured from the point at the moment when helm was first applied to the turn. Transfer This is the distance of the centre of gravity of the ship from the original track line. Thus, the transfer for a turn of 90° is the distance of the centre of gravity of the ship from the original track line when the heading of the ship is 90° relatively from the original heading, and it is about two ship's lengths. Tactical Diameter This is the transfer for a turn of 180°, which is

almost equal to the max transfer and about the maximum advance. The diameter will vary, based on the speed, the amount of rudder used and the trim. 1: When the vessel is trimmed by the stern, the tactical diameter of turn is increased 2: When the vessel is trimmed by the head, the tactical diameter of turn is decreased 3: The vessel with a list will take longer to execute the turn, and, when turned into the list, will develop a larger circle 4: The vessel with a right-hand turn propeller, if making a turn to port, will end up with a smaller diameter than starboard due to the effect of transverse thrust. The ship should have a Turn Table, which gives the turning characteristics of the ship at various speeds and rudder angles.

REF840

Wake fraction coefficient. The speed of advance of the propeller "VA" relative to the water in which it is working is lower than the observed speed of the vessel "V". This difference in speed, expressed as a percentage of the ship speed, is known as the wake fraction coefficient "w".

REF841

When the ship is sailing ahead, the friction of the hull will create a boundary layer of water around the hull. The velocity of the water on the surface of the hull is equal to that of the ship, but is reduced by the distance from the surface of the hull. The thickness of the boundary layer increases with its distance from the bow. The layer is therefore the thickest at the end of the hull. It means that there will be a certain wake velocity caused by friction along the sides of the hull. Additionally, the displacement of water by the ship will also cause wake waves both fore and aft. All this results in the propeller behind the hull is working in non-uniform water flow called wake-field.