

Personal Survival Techniques Workbook

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How to use this workbook

The purpose of this workbook is to provide a permanent source of reference to the subject matter of Personal Survival Techniques following the successful completion of the online part of your PST training.

All the essential elements of the training have been provided on these pages.

As you progress through the online learning part of the course you can write additional comments and descriptions in the spaces provided within each section.

These additional comments will then be in a form that you can refer to during your maritime career.

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Module 1: PST Course – Introduction, safety & survival (Cont.)

Section 2 – Principles of survival at sea

Initial on board familiarisation

- Get to know the vessel as soon as possible
- Find my Muster list – Meaning of emergency signals – Emergency duties – Location of my Muster Station

Emergency signals

- General Alarm – 7 or more short and one long
- Prepare to abandon ship – one short followed by one long, sounded three times
- Abandon ship – usually given verbally by the Master or Senior Surviving Officer

Requirements for drills

- One Abandon Ship and one Fire drill every month & within 24 hours of leaving port if 25% of crew have not done a drill in the previous month
- On hearing the General Alarm, don my lifejacket and report to my Muster Station
- A head count is performed at the Muster Station to make sure everyone is present
- Find out what the emergency is

If boarding a lifeboat:

- Follow safety precautions for boarding and launching
- Access route to board the lifeboat might be fire protected with a water sprinkler system

If my survival craft is a liferaft:

- Make sure that the painter is connected to a strong point on the ship before launching
- Step into it if possible to avoid getting wet
- Follow abandon ship safety precautions to avoid injury to myself and others

In the water:

- Move away from fire, if necessary remove my lifejacket and tow it by the ties while swimming underwater below the fire on the water
- Find other survivors and stay together
- Use the HELP and Group Huddle to reduce body heat loss
- Do not panic – follow the actions learnt in the drills
- Look for a survival craft to board
- Use the whistle on my life jacket to attract attention
- Look for anything that is floating and hold on to it
- If no lifejacket, make buoyancy out of my clothing

Notes

Module 1: PST Course – Introduction, safety & survival (Cont.)

Section 3 – Survival Craft & Launching Apparatus Familiarity

Life rafts

- Rigid (rarely seen)
- Inflatable
- Sometime launched using davits
- Often launched manually over the side by hand

Lifeboats

- Solid construction – usually fibreglass
- Fully enclosed, Partially enclosed or Open

Rescue Boats

- Used to retrieve a person who has fallen overboard (MOB)
- A lifeboat can be used as a rescue boat if it meets SOLAS specifications as a rescue boat including a large opening and interior space for a stretcher and a motor that propels the craft at 6 knots
- Many large vessels have one or more Fast Rescue Boats which have positive buoyancy (they cannot sink) and are capable of 20 knots boat speed
- Capable of being launched quickly in adverse conditions

Float free launching

On SOLAS compliant vessels, life rafts are equipped with Hydrostatic Release Units:

- Activate when submerged to a minimum depth of 1.4 metres and a maximum depth of 4 metres
- Life raft retaining strap is cut automatically
- Life raft is inflated
- Weak link breaks, releasing painter from the strong point on the ship
- Life raft breaks the surface of the sea fully inflated with sea anchor deployed

Lifeboat Free Fall Launching

- Installed on vessels with high fire or explosive risks due to the cargo carried
- Fire protected after launching
- They can be launched quickly under the force of gravity

Immersion suit

- For use during ship abandonment or rescue in cold climates
- Cover the entire body except the face
- Are insulated to prevent core body temperature loss to within 2 degrees Celsius over 6 hours
- Are corrosion resistant to seawater and oil
- Leg straps can be adjusted to stop air being trapped in the legs
- Fitted with retro-reflective patches, a self-igniting light and a whistle
- Might be equipped with buoyancy equivalent to a lifejacket
- Some types are inflatable and/or require a lifejacket to be worn over them

Module 1: PST Course – Introduction, safety & survival (Cont.)
Section 5 – Identification of IMO safety symbols used on board ships



Combination signs



Direction signs



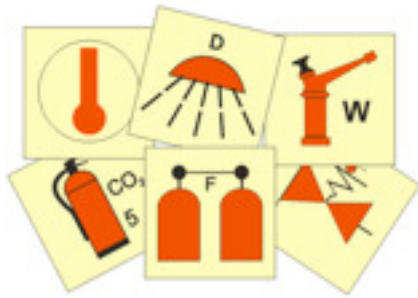
Emergency instructions



Evacuation signs



Exit location signs



Fire control symbols



General fire safety signs



Safety signs



Hazard diamond signs



Danger signs



Mandatory safety signs



Passenger amenity signs



Prohibition signs



Public room signs



Tie signs

Module 2: PST Course – Emergency situations

Section 1 – Types of emergencies

General

- Usually occur in times of limited visibility
- Can occur at any time due to the failure of officers to maintain a proper watch and make the right decisions

Contributing causes:

- Traffic density
- Human error and poor judgement
- Non-observance of Collision Regulations
- Inadequate use of collision prevention aids
- Navigational hazards
- Mechanical equipment failure

Stranding example:

- Pasha Bulka on Nobby's Beach in 2007 – maiden voyage
- Master failed to heed Harbour Master's orders to leave the anchorage
- Severe weather event
- Resulted in stranding on beach for about 3 weeks
- Significant risk of oil pollution, injury to crew
- Significant damage to steering and propulsion resulted in expensive tow back to Asia for repairs

Adverse reaction of dangerous goods or hazardous bulk materials

- Pyrophoric and reactive cargoes
- Example is brown coal exposed to normal atmosphere
- Special cargo holding and handling is required
- The IMO's International Maritime Dangerous Goods (IMDG) Code must be adhered to – refer Marine Orders part 41
- Can cause asphyxiation
- Ability to use SCBA could save my life

Shifting of cargo

- Free Surface Effect refers to movement of liquid cargo or grain in a seaway in a partly filled tank or cargo hold
- Results in a lateral shift of the vessel's Centre of Gravity
- Can result in List and Loll

Ro-Ro Ship Safety

- Open interior required for roll on – roll off operation of wheeled cargo
- Open design can result in rapid flooding if garage doors are not properly closed at sea
- Loading of trucks is out of control of the ship's crew and movement is possible when the vessel is underway
- The high sides of Ro-Ro ships creates a great deal of windage, making the vessel harder to handle in strong winds

Module 2: PST Course – Emergency situations (Cont.)

Section 2 – Avoiding collisions

Collision Regulations

- Rule 5 Maintain a proper lookout using all available means
- Rule 7 Operate the vessel in the prevailing circumstances so that a collision can be avoided
- Rule 19 applies to ship navigation in times of limited visibility – use all means and sail to the circumstances to avoid collisions

Precautions against flooding

- Watertight bulkheads
- Watertight doors
- Close all portholes
- Fit deadlights if heavy weather is forecast
- Close bulkheads at the stern, bow & midships

Dangers of rapid flooding

- Hypothermia
- Drowning

Lookout for shipping containers

- Hundreds fall off ships every year
- On a large vessel steering and propulsion can be damaged by running over one
- Smaller vessels can sink as a result of hitting one

Proper passage planning to avoid known hazards

- Accurate preparation to avoid all known hazards
- Refer Marine Orders Parts 3, 54, 56 and the Navigation Act 1912 which empower SOLAS & STCW Conventions

Accurate weather forecasting

- Forecasts up to 4 days are usually accurate
- Avoid placing the crew and ship in danger by exposure to severe weather

Adequate rest and fatigue

- Many accidents at sea are caused by improper watch keeping and bad decisions resulting from fatigue
- Refer Marine Orders Parts 9, 28, the regulations of the International Labour Organisation and STCW requirements for 'Fitness of Duty'

Drugs and alcohol

- Nil tolerance for recreational drug taking on Australian ships
- Only a very small blood/alcohol percentage is permitted – less than when driving a car in Australia and this can be even less in foreign waters
- Refer Marine Orders Part 9 and the Navigation Act 1912 for legislation

Module 2: PST Course – Emergency situations (Cont.)

Section 2 – Avoiding adverse reaction of dangerous goods or hazardous bulk materials

IMSBC Code

- Facilitates the safe loading & unloading, stowage & shipment of solid bulk cargoes
- Provides information about the dangers associated with particular cargoes
- Provides instructions on the procedures to follow in shipment of these cargoes
- Refer Marine Orders Part 34 which mandates compliance on Australian ships

Inerting a cargo space

- Reduce oxygen content in the atmosphere to below the point at which the cargo can ignite
- Argon and Nitrogen are commonly used gases
- These gases are toxic to human beings
- The space must be gas freed and the atmosphere tested before I enter the space

Reactive Cargoes

- Reactive cargoes can ignite or explode when they come in contact with each other
- Cofferdams provide a void space between cargo holds containing reactive cargoes

Notes

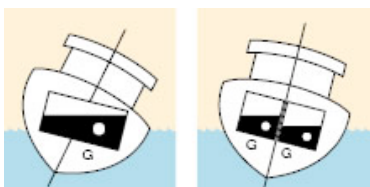
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Module 2: PST Course – Emergency situations (Cont.)

Section 2 – Precautions against Free Surface Effect

Cargo tank baffles

- Create sub-sections within the tank
- The movement of liquid in the tank is limited by the baffles
- Free Surface Effect is therefore minimised & vessel stability improved
- A similar approach is taken for grain & other free flowing solid cargo holds



Notes

Section 2 – Precautions against the flooding of Ro-Ro ships

SOLAS

- Has been amended to ensure operators follow enhanced safety procedures to ensure that cargo doors are closed when the vessel is underway
- Includes the sounding of alarms and visual alarms of the doors are not properly closed & watertight
- Includes amendments to ensure that wheeled cargo can be securely held in place in heavy seas

Notes

Section 2 – Precautions against shifting of containers

- Containers are secured in place with diagonal rigid lashings incorporating adjustable turnbuckles
- Twist lock devices secure containers stacked on top of each other at the corners
- Each layer of containers in a stack is also secured with rigid lashings and adjustable turnbuckles

Notes

Module 2: PST Course – Emergency situations (Cont.)

Section 2 – Precautions against the movement of general cargo

Cargo on the weather deck can be secured by

- Wire and rope lashings
- Cord straps with tightening mechanisms

Notes

Section 2 – Precautions against fires

Engine Room

- Must be well ventilated
- Fuel line checked for leaks & corrosion regularly and repaired immediately
- Oily rags kept in a steel container with a sealed metal lid

Galley

- Keep it clean
- Secure hot cooking oil
- Have a fire blanket ready – turn off the heat source before using
- Keep galley vents clean to avoid a build up of vegetable oils and animal fats

Cigarettes

- Warn crew & guests about falling asleep while smoking
- Carpet and interior decorations can be very flammable
- Smoking is often banned anywhere inside the ship and can be limited to particular locations on the weather deck

Electrical Faults

- Can occur anywhere on the vessel
- Overloaded circuits can generate enough heat to melt insulation
- If insulation melts then much more current can flow and the conductor can glow red hot
- Red hot conductors can become a fire ignition source
- Ensure that I do not bring appliances on board which are not certified to meet Australian standards

Exhaust Manifold

- Very high temperatures can build up on exhaust systems
- Should be insulated and separated from combustible substances

Spontaneous combustion

- Refers to automatic ignition and a substance bursting into flame
- Oily rags can self combust & must be stored in a sealed steel container

Module 2: PST Course – Emergency situations (Cont.)

Section 3 – Fire provisions

Contingency plans for Passenger vessels

- a. Alarm raised – manual call point or fire detector or voice contact from crew or passengers
- b. Full details conveyed to the Bridge
- c. Master assembles fire response team and prepares fire attack plan
- d. The Master will sound the General Alarm
- e. On larger vessels the Master might make a coded announcement over the P.A. system which the crew recognise as a fire alarm but does not create panic amongst the passengers

Other Vessels

- Steps a. through d. are followed
- The Master may then sound a particular fire alarm (usually continuous sounding of the alarm bell) and provide more information over the P.A. system

On all vessels

- Crew assemble at fire stations
- Fire response team don fire PPE
- Fire pump is started
- If in port shore authorities are informed
- Master decides on the most effective manner of fighting the fire

Master controls the fire fighting operations from the Bridge

- Communications via VHF or UHF portable transceivers and any other suitable communications means
- Master utilises the Fire Control Plan to pinpoint the location of the fire, the location of people, the fire fighting resources and potential risks

The Master might

- Direct the fire response team to perform boundary cooling
- Close ventilation dampers to starve the fire of oxygen
- Move flammable materials away from the fire affected area
- Utilise Hydrants, fire hoses and nozzles to fight the fire
- Utilise fixed installations such as CO₂ gas, foam, Dry Chemical Powder or Water
- When the fire is extinguished a fire watch is maintained in case the fire re-ignites

Module 2: PST Course – Emergency situations (Cont.)

Section 3 – Fire provisions (cont.)

Fire fighting equipment generally found on ships

- Portable fire extinguishers
- Fire hose reels
- Fire blanket

For extensive fires:

- Fire pumps & hydrants
- Fire hoses
- Fire Mains
- Nozzles and branches
- Personal Protective Equipment (PPE)
- Self Contained Breathing Apparatus (SCBA)

Fixed installations

- Water sprinklers
- Carbon Dioxide (CO₂) dumping systems and alarms
- High Expansion Foam Generators
- Fully covered in Maritime Career Training's Fire Prevention and Fire Fighting Course

Portable Extinguishers



Carbon Dioxide (CO₂) Extinguisher –

- suitable for electrically involved fires
- starves the fire of oxygen by replacing oxygen with carbon dioxide
- leaves no residue



Water Extinguisher –

- Must not be used on class (E) fires due to potential electric shock
- Extinguishes by cooling
- OK for class A fires

- Smothers the fire with a powder which leaves a damaging residue
- Safe to use on electrically involved class (E) fires
- Can be used effectively on most classes of fires



Foam –

- Must not be used on class (E) fires due to potential electric shock
- Ideal for small oil fires
- lays a foam blanket over the fire to starve it of oxygen

Notes

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Module 2: PST Course – Emergency situations (Cont.)

Section 4 – Foundering

Contingency plans

- Sound the General Alarm
- Isolate & restrict flooding
- Use emergency means to close damaged parts of the hull
- Use pumps to reduce flooding
- Regular drills & crew training to ensure prompt & efficient crew response
- Use radio equipment & other means to obtain assistance if necessary
- Take actions to minimise pollution of the environment
- Apply abandon ship procedures if necessary for crew survival

Notes

Section 5 – Crew Expertise

The effectiveness of the life-saving equipment depends on the expertise of the crew

Regular shipboard drills:

- Provide familiarity with equipment
- Enable regular checking of the condition & availability of the equipment
- Help to build good teamwork
- Provide the crew with emergency skills

Notes

Module 2: PST Course – Emergency situations (Cont.)

Section 6 - Muster & Emergency Signals

Muster List	Emergency Signals	Emergency Drills
Clearly identifies who is to muster at which Muster Station	Alert passengers and crew to the existence of an emergency	Teach the passengers what to do in an emergency and this helps to minimise panic
Provide the opportunity for all the passengers and crew to learn what the emergency signals mean	Signal the crew to their particular duties depending upon the type of emergency	Teach the crew what to do in an emergency
Provides each passenger with the details of actions they must take in an emergency		Provide the crew with the opportunity to gain familiarisation with the emergency equipment and to check the condition of the equipment
Provides each crew member with the details of the actions they must take in each type of emergency		

Notes

Module 2: PST Course – Emergency situations (Cont.)

Section 6 – Muster & Emergency Signals (cont.)

Muster lists provide –

- The meanings of the emergency signals
- Individual Muster Station Assignments
- Emergency duties

At the Muster Stations a headcount is performed

Immediate action by all the crew is required in response to an emergency

Notes

[illegible]

- Learn the meanings of the emergency signals
- Learn what your emergency duties are
- Find the location of my Muster Station
- Learn where the lifesaving equipment is stowed
- Learn where the fire fighting equipment is located
- Read the SOLAS Training Manual to find out how to operate life saving equipment
- Locate the escape routes
- Learn the emergency contingency plans

[illegible]

- Fire blocking access to survival craft
- Collision damage to survival craft or launching equipment
- Vessel orientation preventing the launching of survival craft
- A crash abandonment resulting from a severe collision or explosion
- Trained personnel not being available to operate survival craft or launching equipment
- Absence of lighting as a result of failure of ship's power supply and emergency lighting

Notes

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Module 3: PST Course – Evacuation

Section 1 – Abandoning ship – last resort

The ship usually offers the best chance of survival. Actions leading to ship abandonment –

- An emergency situation arises from a collision, grounding, fire, explosion etc.
- The emergency General Alarm is sounded to alert the crew and passengers that an emergency exists
- Emergency response team under Master's Orders attempt repairs or fight fire
- In the event that the ship cannot be saved, emergency distress signals are made
- Possible arrival of rescue or stand-by ships

Exceptional circumstances where the above actions cannot be performed in this order -

- Make distress signals –grab an EPIRB and activate it if possible
- Grab a lifejacket
- Board a survival craft
- Try to alert isolated parties to the emergency

Finished with Engines on the engine room telegraph –

- Indicates that abandonment is imminent
- Stop or make safe all machinery that could hamper abandonment
- Stop pumps with an overside discharge that in any way impede the launching of survival craft
- Stop main engines and propellers
- Retract stabilisers

Prepare to Abandon Ship Signal –

- Lower lifeboats to embarkation deck
- Take additional emergency provisions and equipment to Lifeboats
- Board Lifeboats
- Be ready to launch lifeboats
- Ensure that liferafts are secured by their painters to strong points on the ship
- Deploy liferafts into the sea and inflate them ready for boarding

Abandon Ship Signal –

- Usually given verbally by the Master or Senior Surviving Officer
- Every attempt should be made to ensure that everyone on board is aware of the command
- Launch lifeboats
- Board liferafts
- If no survival craft is available, jump into the sea wearing a lifejacket or immersion suit if possible
- If not wearing a buoyancy aid, look for flotsam or make buoyancy out of my clothing
- If wearing a buoyance aid adopt H.E.L.P. position or form a group huddle with other survivors
- Look for a survival craft to board

Module 3: PST Course – Evacuation (Cont.)

Section 3 – Need to prevent panic

Panic results in injury or death –

- Panic is a sudden fear which overcomes logical thinking having disastrous consequences

To avoid panic –

- Follow the actions learnt in the drills
- Focus on the solution & not the impending danger
- Encourage others to follow what they learnt in the drills
- Maintain an optimistic state of mind

Notes

Section 4 – Crew duties to passengers

When emergency duties include marshalling passengers at a Muster Station –

- Ensure that I am visible as crew to the passengers
- Instruct & assist each passenger in the correct donning of their lifejacket
- Advise passengers on correct abandonment procedures
- Report to the Master the number of passengers mustered at the Muster Station

Notes

Section 5 – Crew duties – launching survival craft

Where the survival craft is a lifeboat -

- Head count completed at Muster Station and all parties present
- Prepare to Abandon Ship alarm has been sounded (short long 3 times)
- Lifeboat is lowered to embarkation deck
- EPIRB, SART, additional food & water put in lifeboat
- Passengers & crew board lifeboat in an orderly fashion
- Following Abandon Ship command lifeboats are launched into the sea

Where the survival craft is a liferaft -

- Head count completed at Muster Station and all parties present
- Prepare to Abandon Ship alarm has been sounded (short long 3 times)
- Liferaft is lowered into the sea and inflated
- Abandon Ship command is given
- EPIRB, SART, additional food & water put in liferaft
- Passengers & crew board liferaft in an orderly fashion

Module 3: PST Course – Evacuation (Cont.)

Section 6 – Master's orders to Abandon Ship

- Abandon Ship order will usually be given verbally & always by the Master or Senior Surviving Officer
- The Public address system or a Megaphone might be used to give this command
- All crew & passengers must immediately abandon ship
- When the Abandon Ship signal is given, all attempts to save the ship have failed. Therefore it is essential that all survival craft are launched immediately
- In a crash abandonment do my best to remain calm and follow the survival procedures taught in this course & in drills
- SOLAS compliant vessels equipped with liferaft HRU's will automatically launch liferafts when the vessel submerges at a depth of 1.4 metres to 4 metres. The liferafts' sea anchors will automatically be deployed

Notes

Section 7 – Means of survival

If I find myself in the sea with no buoyancy aid –

- Make a buoyancy aid from my clothes (knots in leg ends, scoop air in waist, hold waist down)



- Look for anything that floats (flotsam) & hold on to it

Notes

Module 3: PST Course – Evacuation (Cont.)

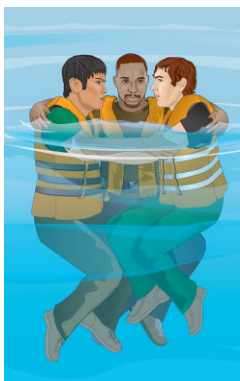
Section 7 – Means of survival (cont.)

If I am wearing a lifejacket –

- Use HELP posture to conserve body heat to vital organs



- Find other survivors and form a Group Huddle



- 40 to 50% of heat loss is through head & neck
- Heat transfer is 25 times faster in water than in air

Treating Hypothermia –

- Never place casualty in warm shower or bath
- Put in dry clothes
- Put in Thermal Protective Aid if one is available
- Use other's body to transfer heat
- Keep head out of water
- Do not massage, rub or give alcohol

Entering survival craft –

- If jumping into a liferaft be careful to ensure you will land safely
- If boarding a liferaft from the sea, survivors should spread out and hold on to external lifeline to stabilise the liferaft
- Spread out inside the liferaft and hold onto lifeline for vessel stability
- Fittest & strongest first then assist others into liferaft

Module 4: PST Course – Survival craft & rescue boats

Section 1 – Lifeboats

Types of lifeboats –

- Fully enclosed
- Partially enclosed
- Open

Methods of launching –

- Davits
- Free Fall – can be fire protected with a water sprinkler system on the outside of the craft

Specifications for SOLAS compliant Lifeboats and launching apparatus can be found in the Life Saving Appliance (LSA) Code.

Number of lifeboats required –

- Passenger Ships – sufficient for the number of persons that the ship is certified to carry
- Cargo ships – capacity is twice the number of persons the ship is certified to carry with at least one lifeboat on each side of the ship

Davit Launching –

- Cargo ships – usually boarded in the stowed position
- Passenger ships – usually the lifeboats are lowered to an embarkation deck before boarding
- Coxswain operates a control line accessed through an overhead hatch to lower the lifeboat in to the sea using wire falls on the davit arms
- A release lever is actuated by the Coxswain to open the hooks mounted at the bow and the stern which release the davit fall wire suspension links
- A hydrostatic device prevents operation of the release lever before the craft is waterborne
- If required the hydrostatic device can be overridden to enable release before the craft is fully waterborne

Dangers associated with Davit Launching –

- Premature release resulting in the craft free falling into the sea – can result in damage, death and injury
- Improper closure of release hooks following a previous drill – if not properly closed, release hooks can give way when the lifeboat is being lowered or hoisted to it's stowed position
- Inadequate maintenance can result in failure of launching equipment causing damage, death or injury

Notes

Module 4: PST Course – Survival craft & rescue boats (Cont.)

Section 2 – Liferafts

Types –

- Rigid
- Inflatable

Deployment –

- Rigid liferafts are sometimes found on oil rigs
- Inflatable liferafts are usually lowered or thrown into the sea and then inflated by pulling on the Painter
- Liferafts fitted with a Hydrostatic Release Unit (HRU) will be automatically inflated and freed from the ship if it sinks as a result of an emergency
- Rarely liferafts are inflated on the deck, boarded and lowered into the sea by a davit

Inflation –

- Automatically inflated from a cylinder of CO₂ gas
- Pressure in the buoyancy tubes can be topped up using a bellows pump

Fitted with –

- Self igniting light, Bright orange colour & Retro-reflective patches to aid in location by SAR vessels & aircraft
- Buoyancy bags for stability
- Sea anchor to hold craft in the area of the distress signal location prior to abandonment
- Water & food rations
- Signalling mirror & flares to attract attention
- Knife to cut the Painter
- Means of cleaning the interior for comfort
- Means of insulation for the floor of the raft
- Puncture repair kit
- First aid kit
- Survival instructions
- EPIRB and SART should be taken to the liferaft when boarding
- Additional communications, safety & other equipment & rations should be taken to the liferaft when boarding

Notes

Module 6: PST Course – Personal life-saving appliances – (demonstrations)

Section 1 – Practical exercises & demonstrations

Lifebuoy –

- Throw towards an MOB in the pool represented by a weighted float

Lifejacket -

- Correctly don within 1 minute
- Jump from a 3 metre height into the pool
- Swim a short distance
- Adopt HELP posture
- Form a Group Huddle
- Be assisted in boarding a liferaft
- Assist others in boarding a liferaft

Inflatable lifejacket –

- Observe inflation
- Observe how the lifejacket can be inflated manually
- Operate light & whistle

Immersion Suit –

- Correctly don within 2 minutes
- Jump from a 3 metre height into the water
- Swim a short distance
- Board a liferaft unaided
- Disembark the liferaft unaided
- Adopt the HELP position
- Form a Group Huddle with other survivors
- Climb a ladder to safety

Thermal Protective Aid (TPA) –

- Observe use of TPA to assist a hypothermic person – dry the person – put casualty in dry clothes - place casualty into the TPA
- Describe how a hypothermic person would be treated by having a second healthy person in the TPA to slowly warm the casualty by sharing body heat

Crash Abandonment –

- Could be insufficient time to don lifejacket or immersion suit
- Fully clothed including shoes
- Stay afloat without buoyancy for some time
- Can make buoyancy using clothes

Board survival craft –

- Survivors spread out holding external lifeline of survival craft
- This improves stability if my survival craft is a liferaft
- Board one at a time and assist others

- Simulate cutting the Painter (saving as much length as safe to do so), retrieving the sea anchor, activate location aids including EPIRB & SART
- Find paddles and paddle away from the sinking ship & look for other survivors
- When at a safe distance from the ship stream the sea anchor
- Close the canopy
- Assign a leader, appoint a lookout, ration food and water, maintain morale

- Each student to right an inverted liferaft unaided
- Stand on the gas bottle
- Grab the righting strop
- Straighten legs and lean back

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Module 7: PST Course – Survival at sea (Cont.)

Section 2 – Best use of survival craft facilities

Move away from the sinking ship –

- Avoid damage to the survival craft by moving a safe distance from the ship using paddles or if equipped with an engine, motor away a short distance

Once in a safe place in the vicinity of the sinking ship –

- Stream the sea anchor to keep the survival craft in the vicinity of the location given in the distress signal before the ship was abandoned

Make it easier for potential rescuers to find me –

- Activate EPIRB
- Activate SART
- Have flares ready for use
- Have a signalling mirror ready for use
- Tie survival craft together to make a larger target
- Have VHF radio transceiver ready for use
- If a Satellite phone is available, make contact with rescue organisations

Maintain Morale –

- Keep a positive frame of mind
- Administer first aid
- Ration food
- Use fishing tackle to catch fish
- Collect rainwater if it rains – there is a means of doing this built into the canopy of the liferaft
- Tell stories, jokes, play card (but do not gamble rations!)
- Pray, sing etc.
- Maintain a good lookout at all times for potential rescuers
- Look for an use flotsam to provide additional buoyancy if conditions permit

Notes

Module 8: PST Course – Emergency radio equipment

Section 1 – Handheld VHF Transceiver

General -

- Has a range of about 5 nautical miles depending upon antennae height & power output
- Every vessel carries at least 2
- Can be used for on-board communications
- Fully charged battery must be ready for immediate use
- Recommended that every crew member knows how to use one

To transmit a distress signal –

- Turn radio on
- Select Channel 16
- Say “MAYDAY” 3 times
- Give name of vessel 3 times
- Give last known position
- Give nature of distress (fire, grounding or flooding)
- Give vessel description and number of persons

Emergency Position Indicating Radio Beacon (EPIRB) –

- Sends a distress signal via earth orbiting satellites to a Rescue Co-ordination Centre (RCC)
- All EPIRBs are registered and a code is transmitted which identifies the particular EPIRB
- A search and rescue will be initiated within 1 hour of activation
- Can have a built-in GPS
- Can be equipped with a Hydrostatic Release Unit (HRU)
- Turn EPIRB on
- Attach lanyard to self or survival craft
- Float the EPIRB in the sea

Search And Rescue Transponder (SART) –

- Transmits a distress signal using 3 centimetre (cm) radar
- Operates in standby until a passing vessel comes within range and transmits a 3 cm radar signal
- On receipt of a 3cm radar signal the SART transmits a series of pulses which appear on the radar of the passing ship as a distress signal, showing the location of the SART
- To operate, turn it on
- A red light flashes every 2 seconds
- Mount as high as possible
- When a 3 cm radar signal is detected the SART transmits the distress signal and beeps every 2 seconds as well as flashing the red light

Notes

[illegible]

Module 9: PST Course – Helicopter Assistance

Section 1 – Helicopter Assistance

Communicating with a helicopter -

- Any verbal communications will be difficult once the helicopter is overhead
- Discuss order of evacuation, complications caused by injuries, safety procedures before the helicopter arrives
- Only a few rescue helicopters will have marine VHF channels
- If VHF contact cannot be made directly with the helicopter, use a satellite phone to communicate directly with the helicopter or call a third party to initiate communications
- If in coastal waters try contacting a land based marine rescue service by cell phone or by VHF radio
- Use the 'Thumbs Up' signal to tell the helicopter you are secure in the harness and ready to be hoisted
- Allow the rescue harness, basket or stretcher to be immersed in the sea before I touch it to allow it to be grounded and discharge static electricity
- If a rescue diver is present in the water follow his instructions carefully
- If being rescued from a liferaft, lower the canopy for greater stability – there will be a down draft of about 40 knots and the liferaft could easily be capsized.

Evacuation from the deck of a vessel –

- Can only be safely done if there are no obstructions caused by rigging and masts etc.
- If no clear space then launch liferaft or tender and evacuate from it
- If no other option, evacuate from the sea

Notes
