

# **Sea Safety and Regulations**

## **Life saving appliances**

# Introduction

- Know basic knowledge on life saving appliances and safety practices. Safety of life and property at sea should be given top most priority.
- minimum safety equipments to be carried on board a vessel
- knowledge on operation and maintenance of life saving appliances, fire fighting appliances, tackling the emergency situations especially during bad weather, is also required for a successful mariner.
- fishing vessels are concerned emergencies may include fouling of gear and its effect on the stability of the boat, handling huge catches, man overboard, fire, engine breakdown, leak, grounding, and distress and so on.
- Rules and regulations are framed for each class of vessel regarding the type and number of life saving appliances is to be carried on board a vessel.

# Life-saving appliances

- The following are the important points to be remembered while selecting the life saving appliances for any type of vessel,
- 1. The life saving appliances should be constructed with proper materials and workmanship
- 2. The material should withstand the air temperature range - 30°C to +65°C
- during storage
- 3 They should withstand the seawater temperature range - 1°C to +30°C;
- 4. The appliance is made from rot-proof, corrosion-resistant, and not be affected by seawater.
- 5. The outer color of appliances should be bright (red, orange yellow ) and highly visible for easy detection during search.

- 6. Reflective material on the appliances will help the search team to locate the person who requires the assistance.
- 7. The information of approval of the competent authority including any operational restrictions need to be printed clearly on the appliance.
- 8. The equipment or appliances shall be marked with date of manufacture and expiry or replacement of any part including batteries of the appliance or equipment.
- 9. Life jackets should be marked ADULT or CHILD to whom the particular size is meant for.
- 10. Step by step operation or usage instructions should be printed on the equipment or attach separately with water proof sheet.

- As per the life saving appliance rule , fishing vessels are classified into two groups.
- Vessels less than 60 m in length.
- Vessels more than 60 m in length.
- a) Vessels less than 60 m in length.
  - 1. At least four approved life buoys. If the length is less than 24 m, at least two life buoys.
  - 2. One approved life jacket per person.
  - 3. Survival raft-Emergency Position Indicating Radio Beacon (EPIRB).
  - 4. Manually operated locating device SART. Search and Rescue Radar Transponder.

- 5. Life rafts of sufficient aggregate capacity to accommodate all persons the vessel is certified to carry.
- b) Vessels more than 60 m in length
  - 1. At least six approved life buoys.
  - 2. One approved life jacket per person.
  - 3. Survival raft EPIRB.
  - 4. SART.
  - 5. Life rafts of sufficient aggregate capacity to accommodate all persons the vessel is certified to carry.
  - 6. Either a 'Rescue boat' or a class 'C' boat.

# Lifebuoys

- constructed of inherently buoyant material
- highly visible and bright colour( red/ orange/bright yellow).
- capable of supporting 14.5kg of iron in fresh water for a minimum period of 24 hours.
- weight minimum of 2.5 kg but not exceeding 6 kg.
- withstand a drop into the water from the height of 30 m
- with four grab lines of 9.5mm diameter secured
- outer diameter not exceeding 800 mm and inner diameter not less than 400 mm.
- Be marked with name of ship and port of registry in English language.
- fitted with self igniting lights
- Self activating lifebuoy smoke signals

# Life jackets

- constructed with any approved buoyant material
- correctly wear it within one minute by the person himself
- comfortable to wear
- highly visible and bright colour
- sustain burning or continue melting after being totally enveloped in a fire
- fitted with a ring or loop
- allow the wearer to jump from a height of at least 4.5 m
- be fitted with a plastic whistle firmly secured by a cord
- affixed with retro reflective tapes
- adults, and the other for children and which are marked
- allow the person wearing it to swim fitted with a fixed or flashing light burns for at least 8 hours.
- Wear the life jacket before you get into water, because it is impossible to wear a lifejacket while floating in water. Also the life jacket acts as insulator in preventing loss of body heat.



# Method of jumping into water with lifejacket

- Jump from a height of not more than 6 meters from water level. The tapes of the lifejackets must be tight with body. Before jumping, make sure that there are no obstructions in your way and that you are not jumping into a boat or on the canopy of a life raft. Then look parallel to the horizon, hold down your lifejacket by one hand and block off your nose and mouth by the other, keep your feet together, and jump-feet first.

# Immersion Suit

- Covers the whole body except the face and can be worn in very short time duration of 2 min. Non insulating immersion suits which are worn over warm clothing do not allow the body temperature to fall more than 2°C when a man is in water of 5°C for one hour.

# The immersion suit shall

- a) made of non flammable waterproof materials
- b) suitable to cover the whole body except the face.
- c) have the provision to minimize free air in the legs of the suit
- d) be brightly coloured (red/yellow/orange)
- e) be marked with instructions that it must be worn in conjunction with warm clothing

# Thermal Protective Wear

- used to cover a person to minimize both the convective and evaporative heat loss from his body cover the whole body except the face.
- thermal insulation to the body in temperatures ranging from  $-30^{\circ}\text{C}$  to  $+20^{\circ}\text{C}$

# Line Throwing Appliance

- Where a line is required between two vessels or between vessel and shore for transfer of persons or goods.
- A projectile attached to one end of a long thin line which can run out freely.
- Rockets are commonly used to propel the projectile

# Emergency Position Indicating Radio Beacon (EPIRB)

- Every **EPIRB shall**
- a) Portable, light weight , watertight, buoyant, battery operated
- b) Be transmitting continuously or intermittently, alert ships and aircraft via a polar satellite and enable them to locate a survival craft.
- c) power back up for 48 hrs
- d) automatic but can also be switched on and off manually.
- e) light that indicates that signals are being sent

# Search and Radar Transponder (SART)

- Every SART shall
  - a) buoyant, portable and manually operated
  - b) Easily identified by the radar beams of ships and aircrafts.
  - c) Signal which causes a series of dots to appear on the screens of search radars on activation.
  - d) indicated by visual and / or audible means.
  - e) switched on and off manually but may also be automatic.
  - f) safely thrown in water from a height of 20 m.
  - g) emit signals for 96 hours

# BUOYANT SMOKE SIGNALS

- packed in a water-resistant casing
- not explode instructions or diagrams clearly illustrating the use
- emit smoke of a highly visible color at a uniform
- not emit any flame



# Life rafts

- a) constructed with suitable materials that capable of withstanding exposure of 30 days in all sea conditions.
- b) canopy to protect the persons inside
- c) good insulation against heat and cold.
- d) capable of withstanding repeated jumps
- e) pleasing interior colour.
- f) provided with one or two entrances for entering the raft with perfect closing arrangements.
- g) least one viewing port

- i) provision for collecting the rainwater
- j) fitted with lifeline
- K) EPIRB and SART in working condition.
- l) provided with an efficient painter.
- m) constructed for towing at a speed of 3 knots
- N) fitted with mooring rope of length equal to not less than 10 m
- o) packed in a container that is constructed to withstand the hard conditions
- p) marking required on life rafts equipped in accordance with LSA code regulation
- q) fitted with a certificate of approval

- safety knives
- sponges for mopping
- sea anchors
- tin openers, which may be in combination with the safety knife.
- Whistle
- rocket parachute
- red hand flares
- orange colour smoke
- waterproof electric torch
- radar

- copy of life saving signals
- fishing tackle
- food rations totaling
- fresh water per person
- anti sea-sickness medicine
- *Rescue* Signal
- Drinking water
- s) Inflatable lifer afts
- t) First aid outfit.
- u) carbon dioxide gas

# **To make the liferaft inflate on emergency the following steps are to be followed**

- a) Confirm that the operating cord is tied to the convenient and strong point of the ship.
- b) Remove the tapes and make the life raft overboard.
- c) Pull out the rope to its full length and give a sharp pull.
- d) Now the life raft will inflate to the full shape
- e) Board the raft with specified number of persons(Do not overload the raft).
- f) Cut the operating cord using the safety knife.
- g) Using the paddles, move away from the sinking ship.

# Servicing of liferaft

- The liferaft, associated materials and hydrostatic release gear need to be inspected and surveyed every year by an authorized service station. On inspection of liferaft, the Surveyor of Mercantile Marine Department and will issue the certificate.

# Lifeboats

- A life boat shall
- constructed with non-combustible material
- rigid strong enough to with stand
- move stability and safely
- with enough free board
- inherent buoyancy
- maximum capacity of 150 persons.
- capable of rapid boarding
- compression ignition engine
- sufficient fuel for running under fully loaded
- fitted with a device to slip the forward painter
- arrangements for erecting the antennae of radar transponder
- electric flash light at not less than 50 flashes/min.
- Lifeboat markings
- number of persons for which the lifeboat is designed . name of the ship or boat and port of registry in block capitals of the Roman alphabet.

- Lifeboat outfits
- buoyant.
- boat hooks
- magnetic compass
- painters of length at least 15 m
- sea anchor
- Two hatches
- buoyant bailer and two buckets.
- manual pump.
- rocket parachute flares
- red hand flares.
- Buoyant smoke signals
- Full rations for the total number
- 3 litres of fresh water per person
- A rust proof dipper with lanyard.
- A rust proof graduated drinking vessel.



- jack-knife
- tin openers
- fishing tackle.
- first aid outfit
- anti-seasickness
- Heliograph for attracting attention of ships or aircraft in the daytime, with instructions for its use.
- water proof signaling torch
- mouth-blown plastic whistle
- efficient radar reflector.
- searchlight
- survival manual.
- One copy of Life Saving Signals on a water proof card.
- buoyant rescue quoits
- Thermal protective aids
- Portable fire extinguishing
- tools for minor adjustments to the engine.

# Rocket Parachute Flares

- packed in a water-resistant
- brief and clear instructions
- parachute printed on its casing
- have self ignition on activation
- not cause discomfort or irritation
- reach an altitude of not less than 300 m
- eject a parachute flare
- burn with bright colour
- burning period of not less than 40 s
- rate of descent of not more than 5 m/s

# Hand Flares

The hand flare shall

- a) be packed in a water-resistant casing
- b) have brief instructions or diagrams clearly illustrating the use of the hand flare
- c) have a self ignition
- d) not cause discomfort to the person holding the casing
- e) burn with a bright red colour
- f) burn uniformly with an average luminous intensity of not less than 15,000 candles
- g) have a burning period of not less than 1 min
- h) continue to burn after having been immersed for a period of 10s under 100 mm of water.

# The breeches' buoy

- Breeches' buoy is used to transfer of persons from a disabled ship to either rescue ship or to shore. It consists of a Life buoy which has a flat piece of good quality canvas sewn to it to act as the saddle. The life buoy is hung from a rope to be used for heaving with at least 4 ropes at each diagonal end of the life buoy.
- Persons may now embark on the buoy and again be pulled to the rescue ship.
- **EPIRB (Emergency Position Indicating Radio Beacon)**