

U.S.C.G. Merchant Marine Exam
Master/Chief Mate of Unlimited Tonnage
Q103 Deck Safety
(Sample Examination)

Choose the best answer to the following Multiple-Choice Questions.

1. Loading cargo above the vessel's center of gravity will increase the vessel's vertical center of gravity. How will this affect the vessel?
- A. If your vessel's stability is increasing, the rolling period will increase
 - B. If your vessel's stability is decreasing, the roll period will increase
 - C. If your vessel's stability is increasing, the rolling period will remain the same
 - D. If your vessel's stability is decreasing, the rolling period will decrease

Correct answer: B

2. A thrust bearing is designed to accomplish which action?
- A. To absorb the shock of wave pressure at the bow
 - B. To be placed between the engines and the foundation to absorb the vibration
 - C. To transmit the thrust of the engine to the propeller
 - D. To transmit the thrust of the propeller to the vessel

Correct answer: D

3. Tonnage openings must be closed by means of _____.
- A. steel hatch boards
 - B. steel plates
 - C. wooden hatch boards
 - D. press board

Correct answer: B

4. The most detrimental effect on initial stability is a result of liquids _____.
- A. flowing in and out of a holed wing tank
 - B. pocketing in a slack tank as a vessel heels
 - C. flowing from side to side within the vessel
 - D. flowing from fore to aft within a vessel

Correct answer: A

5. Your rescue craft is broken down and rolling in heavy seas. You can reduce the possibility of capsizing by taking which action?
- A. Rigging a sea anchor
 - B. Moving all personnel forward and low
 - C. Moving all personnel aft
 - D. Shifting the rudder constantly

Correct answer: A

6. To prevent the spread of fire by convection you should take which action?
- A. Remove combustibles from direct exposure
 - B. Cool the bulkhead around the fire
 - C. Close all openings to the area
 - D. Shut off all electrical power

Correct answer: C

7. When evacuating a seaman by helicopter lift, which statement is TRUE?

- A. Evacuation should be from an area forward of the bridge.
- B. The vessel should be slowed to bare steerageway.
- C. The litter should not be touched until it has been grounded.
- D. If the hoist is at the stern, booms extending aft at the stern should be cradled with the topping lifts hove taut.

Correct answer: C

8. Provided every effort is used to produce, as well as preserve body moisture content by avoiding perspiration, how long is it normally possible to survive without stored quantities of water?

- A. Up to 3 days
- B. 8 to 14 days
- C. 15 to 20 days
- D. 25 to 30 days

Correct answer: B

9. In illustration D039SA below, which fire control plan symbol designates a space or compartment protected by Halon 1301?

- A. 10
- B. 11
- C. 12
- D. 44

Correct answer: B

10. In illustration D039SA below, which Fire Control Plan symbol represents a heat detector?

- A. 18
- B. 31
- C. 49
- D. 63

Correct answer: C

11. All lifeboats, rescue boats, and rigid-type liferafts shall be stripped, cleaned, and thoroughly overhauled at which time interval?

- A. 6 months
- B. Yearly
- C. 18 months
- D. Every two years

Correct answer: B

12. Where a propeller shaft passes through the hull, which device prevents water from entering the hull?

- A. Sea cock
- B. Propeller boss
- C. Stuffing box
- D. Stop-water

Correct answer: C

13. According to the Lifesaving regulations in Subchapter W, fire and abandon ship drills must be held within 24 hours of leaving port if the percentage of the crew that has not participated in drills aboard that particular vessel in the prior month exceeds which percentage?

- A. 5%
- B. 10%
- C. 25%
- D. 40%

Correct answer: C

14. The oxygen indicator is an instrument that measures the _____.

- A. amount of combustible gas as a percentage of the lower explosive limit in a confined space
- B. amount of oxygen in the atmosphere of a confined space
- C. concentration of CO₂ as a percentage of oxygen in a confined space
- D. None of the above

Correct answer: B

15. Jettisoning weight from topside _____.

- A. returns the vessel to an even keel
- B. reduces free surface effect
- C. raises the center of buoyancy
- D. lowers the center of gravity

Correct answer: D

16. What will cause the free surface effects of a partially full tank in a vessel to increase?

- A. The surface area of the fluid in the tank
- B. The height of the tank above the keel
- C. The draft of the vessel
- D. The displacement volume of the vessel

Correct answer: A

17. The terms "cant frame" and "counter" are associated with which part of the vessel?

- A. The stern
- B. The forecastle
- C. The steering engine
- D. A cargo hatch

Correct answer: A

18. Which statement is TRUE concerning life preservers?

- A. Life preservers are not designed to turn a person's face clear of the water when unconscious.
- B. Life preservers must always be worn with the same side facing outwards.
- C. Buoyant vests may be substituted for life preservers.
- D. Kapok life preservers must have vinyl-covered pad inserts.

Correct answer: D

19. What is the spoken emergency signal for a distress signal over a VHF radio?

- A. Security
- B. Mayday
- C. Pan
- D. Red Alert

Correct answer: B

20. A ship's forward draft is 22'-04" and its after draft is 23'-00". The draft amidships is 23'-04". Using this information, where is the concentration of weight on the vessel?

- A. At the ends
- B. Amidships
- C. At the bow
- D. In the lower holds

Correct answer: B

21. A crew member reports that the high-pressure alarm light of a low-pressure CO2 fixed fire extinguishing system is illuminated. What would be the most probable cause of this condition?

- A. An air leak has developed in the tank
- B. The pilot cylinder discharge valve is leaking
- C. An excessive amount of insulation has been installed on the tank and piping
- D. The tank cooling system has malfunctioned

Correct answer: D

22. What is one of the main purposes of the inclining experiment on a vessel?

- A. To determine the maximum load line
- B. To locate the position of the metacenter
- C. To locate the center of gravity of the light ship
- D. To locate the position of the center of buoyancy

Correct answer: C

23. While steering by autopilot you notice that the vessel is deviating from the given course and there is no follow up with corrective rudder action to return to the proper heading. The emergency operating procedure should require you to immediately change operation from _____.

- A. "control" to "hand"
- B. "hand" to "gyro"
- C. "gyro" to "control"
- D. "gyro" to "hand"

Correct answer: D

24. What is the proper stimulant for an unconscious person?

- A. Ammonia inhalant
- B. Coffee
- C. Tea
- D. Whiskey and water

Correct answer: A

25. On what type of pump would you find an impeller?

- A. Gear
- B. Centrifugal
- C. Piston
- D. Vane

Correct answer: B

26. How often are each EPIRB and SART for lifeboats required to be tested on the vessel?

- A. Weekly
- B. Every 2 weeks
- C. Monthly
- D. Every 3 months

Correct answer: C

27. Which is the MOST important consideration for a tank vessel?

- A. The vertical center of gravity
- B. The longitudinal center of gravity
- C. GM
- D. The stress on the hull

Correct answer: D

28. What is used as an indicator of initial stability?

- A. GZ
- B. GM
- C. KM
- D. KG

Correct answer: B

29. Which defines the "margin plate"?

- A. The outer strake of plating on each side of the main deck of a vessel
- B. The outboard strake of plating on each side of an inner bottom
- C. The uppermost continuous strake of plating on the shell of a vessel
- D. The plate which sits atop the center vertical keel

Correct answer: B

30. Your vessel has just received a distress message. As the master of the vessel, when are you relieved of your obligation to assist in the search and rescue operations?

- A. If your vessel is one of two vessels that has been requisitioned for assistance by the Rescue Coordination Center
- B. If you are informed by the persons in distress or by the master of another on scene vessel that assistance is no longer required
- C. If your vessel does not have a fast rescue boat or a motorized lifeboat readily available
- D. If your vessel's time schedule conflicts with rendering assistance

Correct answer: B

31. What is the meaning of the signal VJ 8 when sent by the International Code of Signals?

- A. Low clouds cover 8 octants of the sky.
- B. Winds of force 8 are expected.
- C. A gale is expected from the north.
- D. You should stop hauling your warps.

Correct answer: C

32. The tops of the thwarts, side benches, and the footings of a lifeboat are painted which color?

- A. Tanish Gray
- B. Gray
- C. Brown
- D. Vivid Redish Orange

Correct answer: D

33. A vessel has been damaged and is taking on water. Where can you find the data that will indicate how much water the vessel can retain and still possess reserve buoyancy?

- A. On the Builders Identification Plate for that specific vessel
- B. In the Floodable Length Curves that adjust for zero permeability
- C. In the Floodable Length Curves for the specific vessel
- D. In the Floodable Length Curves drawn by the designer for any vessel

Correct answer: C

34. What welding pattern is NOT used to permanently attach a stiffener to a plate?

- A. Staggered intermittent
- B. Chain intermittent
- C. Tack
- D. Continuous

Correct answer: C

35. What is the function of the international shore connection onboard a vessel?

- A. It satisfies pollution prevention requirements
- B. It allows hook up of firefighting water from shore facilities
- C. It permits discharge of waste oil to shore facilities
- D. It allows emergency use of the fire main for deballasting

Correct answer: B

36. You are at sea and have received a General Emergency message announcing the outbreak of war in Europe. You are directed to comply with the instructions in NGA (NIMA) PUB 117, Chapter Eight. Which statement is TRUE?

- A. When over 200 miles from a port in the danger zone, you should not darken ship
- B. If on a coastwise voyage along the east coast of the U.S., you should put into the nearest port
- C. You should only enter a port in the danger zone during hours of darkness
- D. You should attempt to coordinate with the Shipping Control Team

Correct answer: D

37. In illustration D033DG below, the structural member indicated by the letter K was fitted in segments between continuous longitudinals. It is known as which type of floor?

- A. Intercostal
- B. Lightened
- C. Open
- D. Non-watertight

Correct answer: A

38. The engine in a covered lifeboat is fueled with _____.

- A. diesel oil
- B. leaded gasoline
- C. liquefied gas
- D. unleaded gasoline

Correct answer: A

39. Which statement about the free surface correction is TRUE?

- A. It is obtained by dividing the total free surface by the total vertical moments.
- B. It is added to the uncorrected GM to arrive at the corrected available GM.
- C. It is subtracted from the total longitudinal moments before dividing by displacement to find LCG.
- D. It is obtained by dividing the free surface moments by 12 times the volume of displacement.

Correct answer: D

40. You are reading the draft marks as shown in illustration D032DG. The water level is about 4 inches below the bottom of the number 11. What is the draft?

- A. 10'-08"
- B. 10'-10"
- C. 11'-04"
- D. 11'-08"

Correct answer: A

41. What would be the result of physical exertion on the part of a person who has fallen into cold water?

- A. It will increase the rate of heat loss from the body
- B. It will increase the water temperature between the body and layers of clothing
- C. It will decrease exposure of the body surface to cold water
- D. It will increase survival time in the water

Correct answer: A

42. Freeboard is measured from the upper edge of the _____.

- A. bulwark
- B. sheer strake
- C. deck line
- D. gunwale bar

Correct answer: C

43. If an engine shuts down due to high jacket water temperature, what action should be taken?

- A. Slowly add cool water to the expansion tank
- B. Open crankcase explosion covers
- C. Allow engine to cool gradually
- D. Back flush the cooling water system

Correct answer: C

44. Which defines the term reserve buoyancy?

- A. The volume of intact space above the waterline
- B. It is an unoccupied space below the waterline
- C. The excess of the buoyant force over the gravity force
- D. The difference in the buoyant force in salt and fresh waters

Correct answer: A

45. The shearing stresses on a ship's structure are usually greatest at which area?

- A. The bow
- B. The stern
- C. The midships section
- D. The ship's quarter-length points

Correct answer: D

46. The effect of free surface on initial stability depends upon which item(s)?

- A. The amount of liquid in the compartment
- B. The dimensions of the liquid surface and the vessel's displacement
- C. Only the length of the compartment
- D. The vertical position of the liquid in the vessel

Correct answer: B

47. A class C fire would be burning _____.

- A. celluloid
- B. fuel oil
- C. electrical insulation
- D. wood

Correct answer: C

48. Why does a centrifugal bilge pump require priming?

- A. To lubricate shaft seals
- B. Head pressure must equal discharge pressure
- C. Lack of ability to lift liquid to the impellers
- D. To overcome resistance of water in the discharge line

Correct answer: C

49. You hear the general alarm and ship's whistle sound for over 10 seconds. What does this signal mean?

- A. Dismissal from fire and emergency stations
- B. Man overboard
- C. Fire and emergency
- D. Abandon ship

Correct answer: C

50. You have abandoned ship and are adrift in a liferaft with a SART. What signal will indicate to you that a 3 cm radar has interrogated the SART unit?

- A. The unit will emit an audible alarm and visual signal
- B. The serial number of the unit will appear on the display
- C. SART units do not respond to interrogation by a 3cm radar
- D. Your latitude and longitude will appear on the display

Correct answer: A

51. The vessel shown in illustration D025DG has broken down and you are going to take her in tow. The wind is coming from her starboard beam. You are making more leeway than she. Where should you position your vessel when you start running lines?

- A. A
- B. B
- C. C
- D. D

Correct answer: A

52. Why are deck beams cambered on a vessel?

- A. To provide drainage from the decks
- B. To relieve deck stress
- C. To increase their strength
- D. To allow for welding expansion

Correct answer: A

53. In illustration D016SA below, what number indicates the frapping line?

- A. 1
- B. 2
- C. 3
- D. 4

Correct answer: B

54. You have a large, broken-down vessel in tow with a wire rope and anchor cable towline. Both vessels have made provision for slipping the tow in an emergency; however, unless there are special circumstances which is TRUE?

- A. The vessel towed should slip first
- B. They should slip simultaneously
- C. The towing vessel should slip first
- D. Either vessel may slip first

Correct answer: C

55. Aboard ship, which term is given to the vertical flat plates running transversely and connecting the vertical keel to the margin plates?

- A. Stringers
- B. Intercostals
- C. Girders
- D. Floors

Correct answer: D

56. Deficient oxygen content inside a chain locker can be detected with which item?

- A. An oxygen indicator
- B. An oxygen breathing apparatus
- C. A combustible gas indicator
- D. Litmus paper

Correct answer: A

57. Symbol number (51) in illustration D039SA below is found all throughout the ship. What fire control equipment does this symbol represent?

- A. Fire main with fire valves
- B. Sprinkler valves
- C. Foam valves
- D. Bilge pump valves

Correct answer: A

58. What condition will result in the automatic shutdown of a diesel engine?

- A. Low lube oil pressure
- B. Excessive turbo charger speed
- C. High jacket water pressure
- D. High lube oil pressure

Correct answer: A

59. Which is the proper term given to a large basin cut into the shore, closed off by a caisson, and used for dry docking of ships?

- A. Caisson dock
- B. Ground warp
- C. Graving dock
- D. Slipway

Correct answer: C

60. You are underway in mid-ocean, when you hear a distress message over the VHF radio. The position of the sender is 20 miles away. What action should you take?

- A. Defer acknowledgment for a short interval so that a coast station may acknowledge receipt.
- B. Do not acknowledge because you are too far away to take action.
- C. Do not acknowledge receipt until other ships nearer to the distress have acknowledged.
- D. Immediately acknowledge receipt of the distress message.

Correct answer: D

61. You must medevac a critically injured seaman by helicopter hoist. Which statement is TRUE?

- A. The helicopter's drop line should be secured to the ship not more than 15 feet from the hoist position.
- B. The ship's relative wind should be from dead ahead at 10 to 30 knots.
- C. The deck crew at the hoist point should not wear baseball hats.
- D. When using a "horse collar", the bight of the loop should be around the chest of the injured seaman.

Correct answer: C

62. When should a fire be ventilated?

- A. When using the fixed CO2 system
- B. When attacking the fire directly
- C. When using a steam smothering system
- D. All of the above

Correct answer: B

63. When a ship is abandoned and there are several liferafts in the water, which task must be done to aid in your rescue?

- A. Separate the rafts by drifting away to increase chances of detection
- B. Transfer all supplies to one raft and post a guard
- C. Secure the rafts together to keep them from drifting apart
- D. Transfer all the injured to one raft

Correct answer: C

64. How should longitude 116°54.9'E be written when preparing an AMVER report?

- A. 116.9E
- B. Q1169
- C. 11655E
- D. 117E

Correct answer: C

65. How can the spread of fire be prevented?

- A. Shutting off the oxygen supply
- B. Cooling surfaces adjacent to the fire
- C. Removing combustibles from the endangered area
- D. All of the above

Correct answer: D

66. What is the period of validity of a De-Rat certificate?

- A. Specific voyage
- B. 6 months
- C. 1 year
- D. 2 years

Correct answer: B

67. In vessel construction, which is TRUE of the garboard strake?

- A. It is located next to and parallel to the keel
- B. It is another term for the rub rail
- C. It is another term for the bilge keel
- D. It is located next to and parallel to the gunwale

Correct answer: A

68. Which is TRUE of a distress signal?

- A. It shall consist of 5 or more short blasts of the fog signal apparatus
- B. It is used to indicate doubt about another vessel's intentions
- C. It may be used individually or in conjunction with other distress signals
- D. It shall consist of the raising and lowering of a large white flag

Correct answer: C

69. What does first aid mean?

- A. Dosage of medications
- B. Setting of broken bones
- C. Emergency treatment at the scene of the injury
- D. Medical treatment of accident

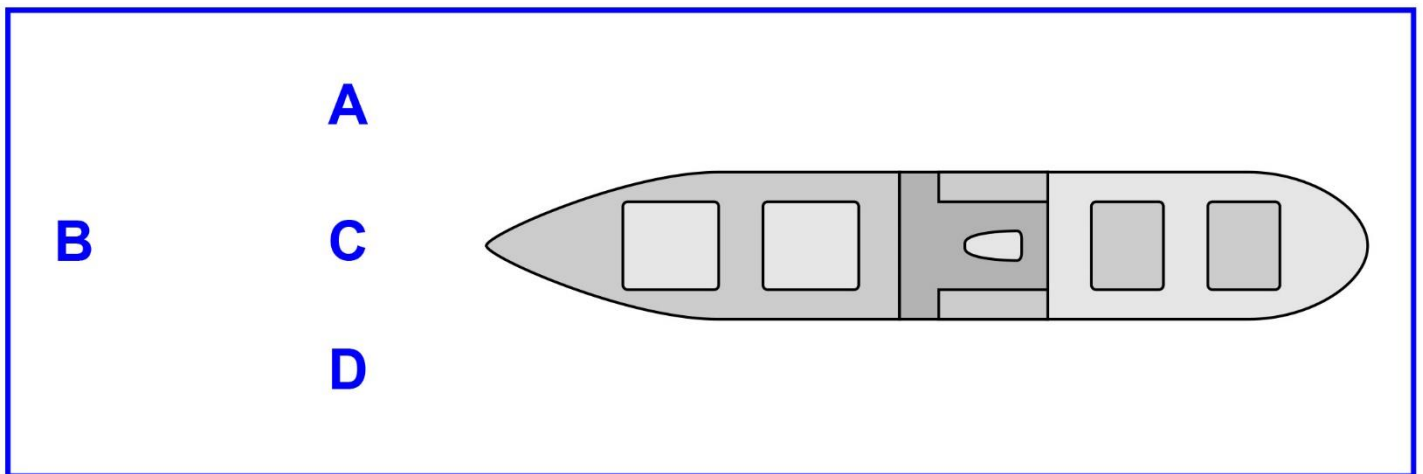
Correct answer: C

70. Which type of hull damage should be repaired FIRST?

- A. Damage below the waterline
- B. Damage in way of machinery rooms
- C. Damage at or just above the waterline
- D. Damage to interior watertight boundaries

Correct answer: C

D025DG



D032DG

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**AFT DRAFT
MARKS**

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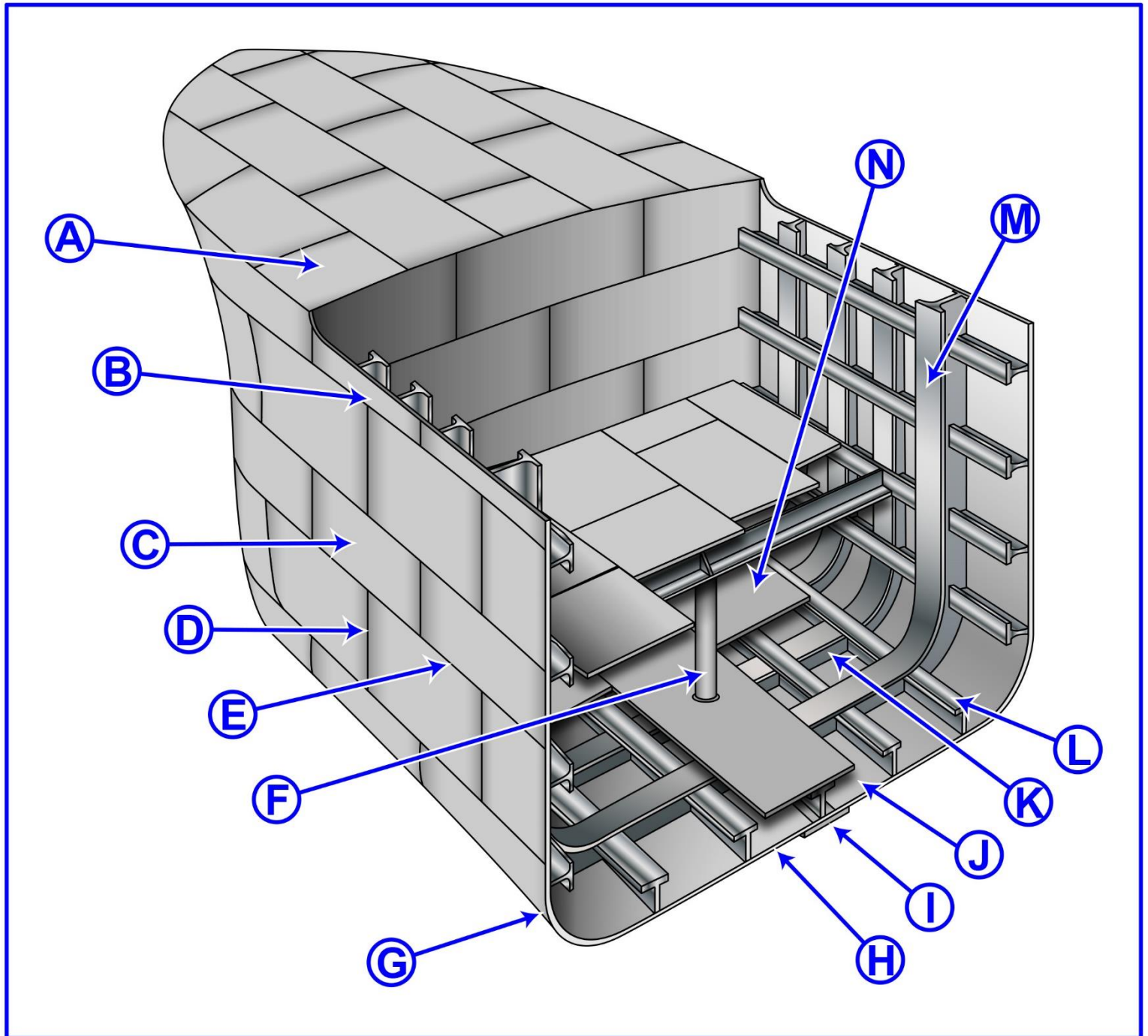
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**FWD DRAFT
MARKS**

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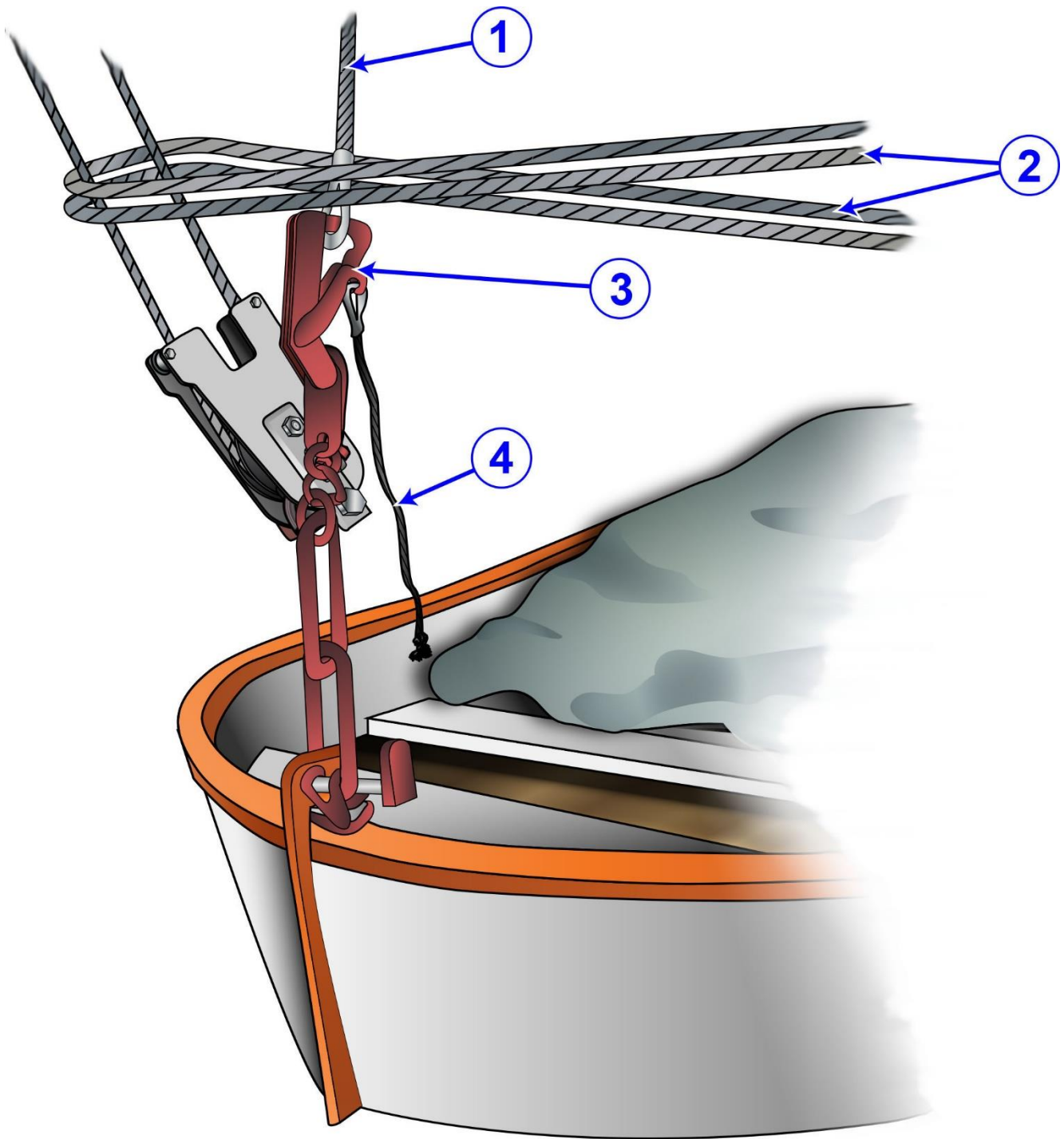


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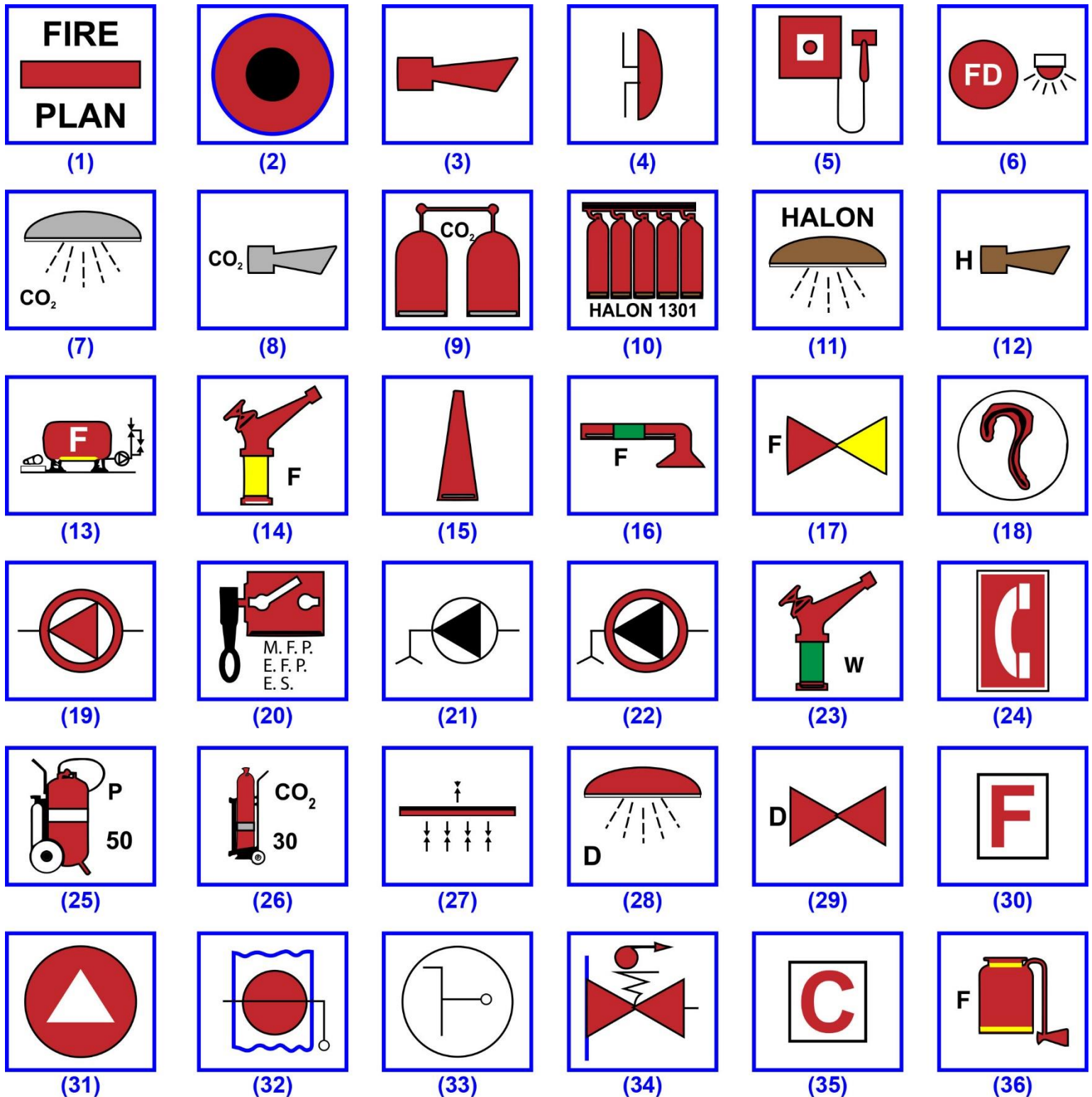
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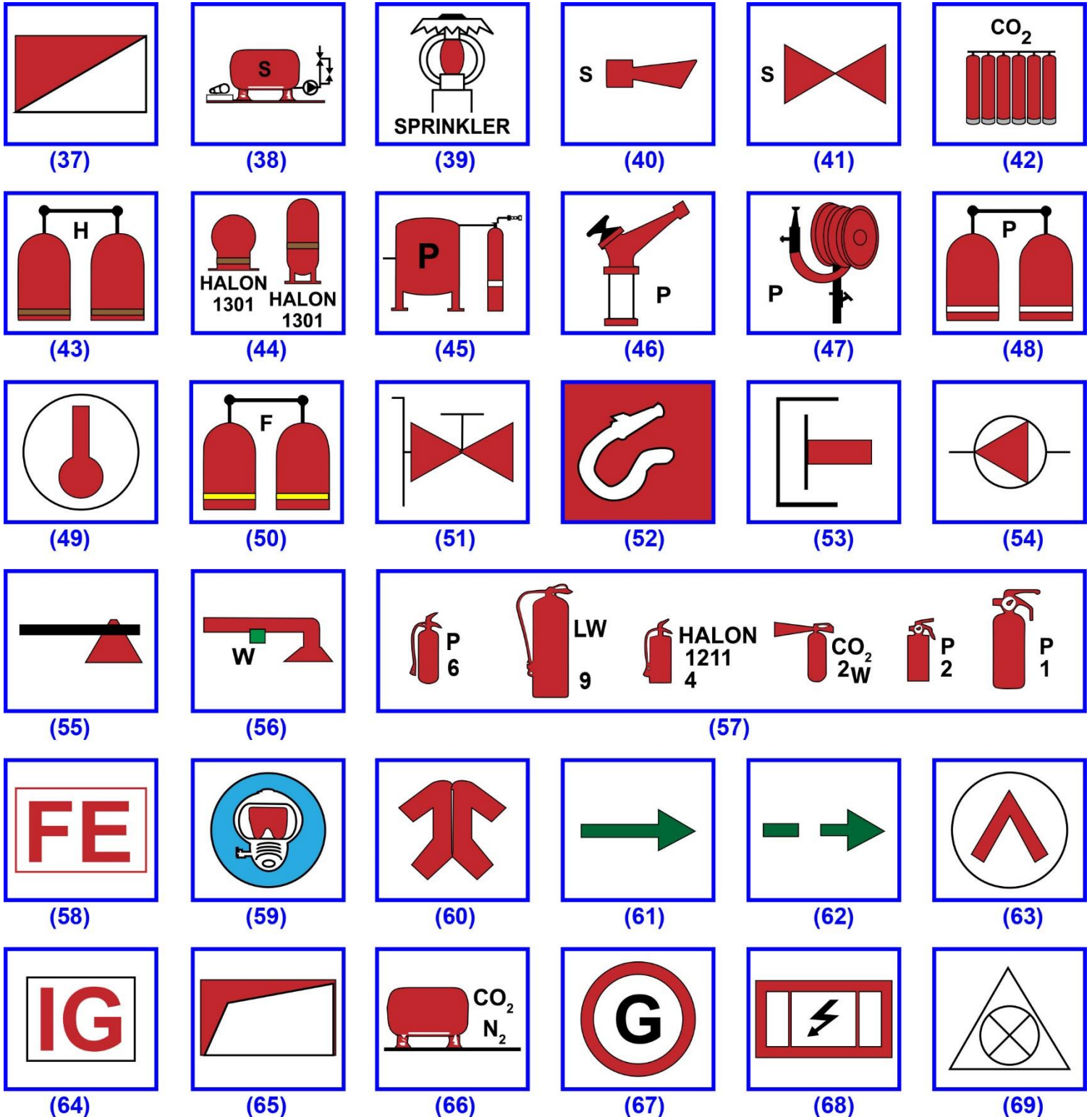


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