

# **National Marine Manufacturers Association**

## **Product Compliance Specialist Examination**

### **Exhaust Systems (2014 MY)**

#### **ABYC P-1(7/09 – Corrected 7/10)**

- 1) The standard P-1 (7/09) is applicable to:
  - a. all craft
  - b. all craft but powered sailing dinghies
  - c. all craft with inboard or sterndrive engines except sterndrive installations with integral exhaust
  - d. all craft with inboard or sterndrive engines or permanently installed auxiliary engines, from the exhaust outlet of the engine or the turbocharger
  
- 2) To minimize the accumulation of hazardous CO gases from gasoline exhaust, the exhaust gas terminus(i) shall be installed in one of the following locations:
  - a. most suitable place
  - b. in the proximity of the intersection of the hull side and transom on the side of the boat or in the bottom of the boat, or in the transom positioned as far outboard of the centerline as practicable, or above the highest occupied deck and its weather enclosure/cover
  - c. in the proximity of the intersection of the hull side and transom on the side of the boat or in the top of the boat, or in the transom positioned as far outboard of the centerline as practicable, or above the highest occupied deck and its weather enclosure/cover
  - d. in the proximity of the intersection of the hull side and transom on the side of the boat or in the bottom of the boat, or in the transom positioned as far outboard of the centerline, or above the highest occupied deck and its weather enclosure/cover
  
- 3) In order to minimize the potential for migration of carbon monoxide from machinery compartments containing gasoline engines to adjacent accommodation compartments:
  - a. all penetrations shall be sealed in accordance with the requirements of ABYC H-2
  - b. bulkhead and deck penetrations shall be sealed in accordance with the requirements of ABYC H-25
  - c. all penetrations shall be sealed in accordance with the requirements of ABYC H-25
  - d. bulkhead and deck penetrations shall be sealed in accordance with the requirements of ABYC H-2

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- 4) If multiple exhaust systems are onboard, then:
- a. a combined exhaust system and terminus shall be provided for each engine and generator installation
  - b. a separate exhaust system and terminus shall be provided for each engine and generator installation
  - c. a separate exhaust system and terminus shall be provided for each engine and generator installation per side of the craft
  - d. a separate exhaust system and terminus shall be provided for each engine and generator installation into the cockpit may drain into the same tube
- 5) The exhaust system shall be designed and installed to prevent:
- a. only rain water from entering the engine through the exhaust system under all normal operating conditions
  - b. cooling water, rain water, or raw water from entering the engine through the exhaust system under all normal operating conditions
  - c. only cooling water from entering the engine through the exhaust system under all normal operating conditions
  - d. only raw water cooling water from entering the engine through the exhaust system under all normal operating conditions
- 6) Additional discharges, other than cooling water:
- a. shall not share the exhaust gas passage except rain water, bilge or raw water
  - b. shall not share the exhaust gas passage except drainage or rain water or raw water
  - c. shall not share the exhaust gas passage except rain water or spillage or raw water
  - d. shall not share the exhaust gas passage

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7) Provision shall be made for draining all exhaust system components that can trap or retain:

- a. exhaust cooling water, rain water, raw water, or condensation, if the component can be damaged
- b. only exhaust cooling water, if the component can be damaged by freezing of the water or chemical action accelerated by the presence of the water when the system is out of service
- c. exhaust cooling water, rain water, raw water, bilge water, or condensation, if the component can be damaged by freezing of the water or chemical action accelerated by the presence of the water when the system is out of service
- d. exhaust cooling water, rain water, raw water, or condensation, if the component can be damaged by freezing of the water or chemical action accelerated by the presence of the water when the system is out of service

8) The primary purpose of an exhaust riser is to:

- a. direct laminar flow of exhaust gases overboard
- b. prevent water from entering the engine
- c. mix jacket cooling water, exhaust gases and raw water
- d. silence and noise attenuation

9) A wet exhaust system incorporating an accumulating chamber in which the cooling water collects before being expelled is removed by \_\_\_\_\_.

- a. drain pipes
- b. gas pressure
- c. water pump
- d. separator valve

10) Protective guards, jacketing, or covers shall be provided wherever persons or gear might come in contact with the exhaust system where the temperature exceeds \_\_\_\_.

- a. 100 degF, (37.7 degC)
- b. 300 deg F, (148.8 degC)
- c. 200 degF, (93 degC)
- d. 150 degF, (65.5 degC)

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- 11) Metallic connections shall be flanged, threaded, or \_\_\_\_\_.
- a) clamped
  - b) welded
  - c) secured
  - d) joined with flex hose
- 12) Threaded pipe and fittings for the engine exhaust(s) shall be at least schedule:
- a. 120
  - b. 40
  - c. 60
  - d. 80
- 13) Vertical dry exhaust systems shall be designed and installed to \_\_\_\_\_.
- a) arrest sparks
  - b) reduce smoke
  - c) reduce carbon monoxide
  - d) reduce station wagon effect
- 14) For auxiliary power in sailboats, it is best to locate the siphon break on the boat's \_\_\_\_\_.
- a) centerline
  - b) waterline
  - c) exhaust terminus
  - d) muffler section
- 15) An exhaust component designed for the purpose of noise attenuation is known as a:
- a. waterlift
  - b. separator
  - c. flexible section
  - d. silencer

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16) A section in the exhaust system that uses an elevation to prevent water from flowing back into the engine is known as the:

- a. waterlift
- b. water separator
- c. exhaust riser
- d. exhaust elbow

17) There are jurisdictions in some parts of the country that have \_\_\_\_\_ requirements and limits.

- a. carbon emissions
- b. noise abatement, noise level limits
- c. sheening on waterways
- d. sulfur content of emissions

18) A system where water and exhaust gases are separated and discharged through individual outlets is designated as \_\_\_\_\_.

- a. dry exhaust system
- b. wet exhaust system
- c. combined exhaust system
- d. dewatered exhaust systems

19) A dewatered exhaust system which discharges below the waterline is required to have a \_\_\_\_\_.

- a. seacock installed
- b. separate terminus and approved point of water injection
- c. hoses that conform to UL J 1527
- d. spring tension clamp

20) Siphon breaks for sailboat configurations are best suited to

- a. being placed on the centerline
- b. being placed at the sheer line
- c. being placed at the 7 degree heeled waterline
- d. being placed at the minimum heel pitch

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21) For flexible exhaust hose connections, clamps depending solely on spring tension may be used.

- a. True
- b. False

22) Exposed surface temperatures of dry exhaust system shall not exceed \_\_\_\_\_.

- a. 200 degF
- b. 180 degF
- c. Boiling point of seawater
- d. 220 degF

23) UL 1129 is the Standard for \_\_\_\_\_.

- a. Wet exhaust components for Marine Engines
- b. Wet exhaust systems for auxiliary engines
- c. Performance of exhaust hose used in exhaust systems
- d. Flammability of plastic materials

24) An exhaust system which accumulates water and subsequently is expelled by exhaust gas pressure is known as \_\_\_\_\_.

- a. water cooled system
- b. intermittent pulse system
- c. dewatered exhaust system
- d. water lift exhaust system

25) Cooling water in a wet exhaust system can be

- a. jacket water
- b. cooling water with ethylene glycol
- c. engine cooling water, raw water from the heat exchanger, raw water and/or a combination thereof
- d. Treated and pre-cooled raw water