National Marine Manufacturers Association

Product Compliance Specialist Examination
Exhaust Systems (2013 MY)
ABYC P-1(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) Which is true?

a. Protective guards, jacketing, or covers shall be provided wherever persons or gear might come in contact for longer than 5 seconds with the exhaust system where the temperature exceeds 200°F
b. Protective guards, jacketing, or covers shall be provided wherever persons or gear might come in contact with the exhaust system where the temperature exceeds 200°F ± 2,5 %
c. Protective guards, jacketing, or covers shall be provided with the exhaust system where the temperature exceeds 200°F
d. Protective guards, jacketing, or covers shall be provided wherever persons or gear might come in contact with the exhaust system where the temperature exceeds 200°F or 93°C

6) 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

7) 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

8) Exhaust systems shall be designed so that reverse operation:

a. cannot happen at all
b. cannot force water into the exhaust manifold of a non-operating auxiliary engine such as a generator
c. cannot force water into the exhaust manifold of a operating auxiliary engine such as a generator
d. cannot force water into the exhaust manifold of a non-operating auxiliary engine such as an outboard

9) 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

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10) Which materials are suitable for wet exhaust pipes for gasoline engines?

a. Aluminum, aluminized steel, copper-nickel, aluminized steel
b. Aluminum, nickel-iron-chrome, galvanized wrought iron, nickel-iron-chrome, nickel-copper, stainless steel, nickel-iron-chrome, synthetic rubber hose, nickel-iron-chrome, stainless steel
c. Aluminum, brass pipe, copper-nickel, copper tubing, enameled steel, fiber reinforced plastic, galvanized wrought iron, nickel-copper, nickel-iron-chrome, synthetic rubber hose, stainless steel
d. Aluminum, brass pipe, copper-nickel, copper tubing, enameled steel, fiber reinforced plastic, galvanized wrought iron, nickel-copper, nickel-iron-chrome, synthetic rubber hose, carbon steel

11) Which materials are suitable for wet exhaust pipes for Diesel engines?

a. Copper-nickel, galvanized fiberglass galvanized steel, galvanized wrought iron, nickel-copper, nickel-iron-chrome, stainless steel, synthetic rubber hose
b. Copper-nickel, fiberglass galvanized steel, galvanized wrought iron, nickel-copper, nickel-iron-chrome, stainless steel, synthetic rubber hose
c. Copper-nickel, fiberglass galvanized steel, galvanized iron, nickel-copper, nickel-iron-chrome, stainless steel, synthetic rubber hose
d. Copper-nickel, fiberglass galvanized steel, galvanized wrought iron, nickel-copper, nickel-iron-chrome, stainless steel, non-synthetic rubber hose

12) Which materials are suitable for dry exhaust pipes for Diesel engines?

a. Aluminized steel, non-carbon steel, nickel-iron-chrome, stainless steel
b. Aluminized steel, carbon steel, fiberglass, stainless steel
c. Aluminized steel, carbon steel, nickel-iron-chrome, all other steel types
d. Aluminized steel, carbon steel, nickel-iron-chrome, stainless steel

13) Which materials are suitable for dry exhaust pipes for gasoline engines?

a. Aluminized steel, mixed carbon steel, nickel-iron-chrome, stainless steel
b. Aluminized steel, carbon steel, fiberglass, stainless steel
c. Aluminized steel, carbon steel, nickel-iron-chrome, all other steel types
d. Aluminized steel, carbon steel, nickel-iron-chrome, stainless steel

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14) Which materials are suitable for wet exhaust flexible section for gasoline engines?

a. Copper, copper-nickel, nickel-copper, nickel-iron-chrome, nickel-iron-copper, stainless steel, synthetic rubber
b. Copper, copper-nickel, aluminized nickel-copper, nickel-iron-chrome, nickel iron- copper, stainless steel, synthetic rubber
c. Copper, copper-nickel, nickel-copper, nickel-iron-chrome, nickel-iron-copper, stainless steel, non-synthetic rubber
d. Copper, copper-nickel, nickel-copper, nickel-iron-chrome, nickel-iron-copper, stainless steel, fiberglass

15) 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

16) 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

17) Which materials are suitable for dry exhaust flexible section for Diesel engines?

a. Carbon steel, nickel-iron-copper, stainless steel
b. Carbon steel, nickel-iron-chrome, stainless steel
c. Carbon steel, nickel-iron-chrome, fiberglass
d. Carbon steel, nickel-iron-chrome, synthetic rubber

18) 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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19) Metallic connections shall be flanged, threaded, or _____.

a) clamped
b) welded
c) secured
d) joined with flex hose

20) Aluminum pipe shall be a minimum of schedule 40, with a corrosion resistance of 6061 or better, and may only be used in the self-draining, gas-only discharge part of _____.

a) dry exhaust systems
b) wet exhaust systems
c) diesel wet exhaust systems
d) dewatered exhaust systems

21) Threaded pipe and fittings for the engine exhaust(s) shall be at least schedule:

a. 120
b. 40
c. 60
d. 80

22) 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

23) 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

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24) An exhaust component designed for the purpose of noise attenuation is known as a:

a. waterlift
b. separator
c. flexible section
d. silencer

25) 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