

# **National Marine Manufacturers Association**

## **Product Compliance Specialist Examination**

### **A 1 - Marine Liquefied Petroleum Gas (LPG) Systems &**

### **A 30 – Cooking Appliances with Integral LPG Cylinders (12/08)**

1. These Standards apply to:
  - a. all LPG installations
  - b. LPG systems and associated equipment up to the appliance connection
  - c. cooking appliances with integral LPG cylinders > 16 ounces in capacity
  - d. LPG systems designed for internal combustion engines
  
2. The Static Floating Position includes the mass of:
  - a. all permanent gear and full fuel tanks
  - b. full water tanks
  - c. anchors and related chains and rode
  - d. full holding tanks and live wells
  
3. Printed instructions must be provided with an LPG system and must include:
  - a. test information
  - b. cleaning instructions
  - c. refuelling instructions
  - d. appliance maintenance instructions
  
4. A pressure gauge is required on each LPG System:
  - a. to enable quick and easy testing for leakage
  - b. to gauge how much fuel is left in the cylinder
  - c. to be mounted on the tank side of the regulator
  - d. A & C
  
5. Propane system warning labels must:
  - a. include a hazard definition
  - b. comply with ABYC T5
  - c. include emergency telephone numbers
  - d. include test instructions to be carried out every time the vessel is refuelled.
  
6. An LPG Locker is designed to:
  - a. hold LPG cylinders, valves, regulators and other equipment, properly secured for sea
  - b. have extra space for the storage of portable gasoline fuel tanks
  - c. be gas tight to the engine space unless the engine space is ignition protected
  - d. to contain spilled or leaked propane

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7. An LPG storage compartment with 15 square inches of open space per net cubic foot of compartment space requires:
  - a. ignition protected components
  - b. a mechanical ventilation system
  - c. a LPG system installed in accordance with ABYC A1
  - d. a ½ inch drain exiting the hull above the static floating position, 20 inches from any opening to the hull interior
  
8. A LPG System must have:
  - a. a separate low pressure supply line for each appliance
  - b. a colour code or other means of identifying each supply line
  - c. a LPG “sniffer” system
  - d. provision for multiple cylinders
  
9. A LPG System must have:
  - a. a readily accessible manual or electric solenoid shut off valve installed at the fuel supply
  - b. a readily accessible manual or electric solenoid shut off valve operable from the helm
  - c. a pressure regulator which delivers gas not in excess of 5 psi (35kPa)
  - d. a relief valve discharging into the open atmosphere
  
10. LPG Lockers must be:
  - a. located above the waterline
  - b. open only from the top
  - c. readily accessible
  - d. all of the above
  
11. LPG supply lines shall:
  - a. be UL listed according to UL21 – LP Gas Hose
  - b. if metal be either copper or stainless steel Grades K or L
  - c. be accessible and supported
  - d. if flexible have double hose clamps at all connections
  
12. LPG supply lines shall:
  - a. be continuous from the regulator or solenoid valve to the appliance or flexible hose at the appliance
  - b. be grounded
  - c. be galvanically compatible with the fittings
  - d. be bundled with the wiring harness to ensure adequate support

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13. After installation of a complete LPG system and every time the cylinder valve is opened the following tests are required:
  - a. a soap bubble test
  - b. with the appliance valves closed, apply cylinder pressure to the system. Close the cylinder valve and observe the pressure gauge for 3 minutes
  - c. a solenoid function test
  - d. an air pressure test of 5 psi (35kPa)
  
14. When testing for leaks:
  - a. use a liquid specifically sold for leak testing
  - b. use an OSHA recognized mine safety flammable gas detector to check for leaks
  - c. smell for escaped propane
  - d. use a lighter or match to observe leaks at any connection
  
15. Warning Labels must be:
  - a. placed in the vicinity of the cylinder
  - b. warn against open flames while refuelling gasoline powered vessels
  - c. warn against connecting the system to anything other than LPG
  - d. all of the above
  
16. ABYC Standard A-30 covers appliances with integral LPG cylinders:
  - a. used for cooking and heating purposes
  - b. less than 20 pounds in capacity
  - c. less than 16 ounces in capacity
  - d. designed for external grilling only
  
17. Appliances must be tested for:
  - a. heat rise of surrounding surfaces
  - b. ambient temperature rise of the compartment in which the appliance is located
  - c. LPG leakage using 5 psi (35kPa) air pressure over 3 minutes
  - d. the strength of the mechanical retaining device
  
18. Printed Instructions must include:
  - a. proper installation, location for use and stowage of the appliance
  - b. operating instructions
  - c. refuelling instructions
  - d. all of the above

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19. Cylinders:

- a. may be stowed inside the vessel if less than 8 ounces capacity and installed in the appliance or being held in reserve
- b. may be stowed in a propane locker
- c. must be less than 8 ounces capacity for use in an appliance in an accommodation space
- d. B and C

20. Appliances must:

- a. have easily accessible controls
- b. require a two stage operation to go from off to on
- c. be capable of being securely fastened to the vessel before use
- d. all of the above