



CUSTOMIZED ASSESSMENT BLUEPRINT

MARINE SERVICE TECHNICIAN **(INLAND AND COASTAL - CORE)**

Test Code: 8681

Version: 01

Specific Competencies and Skills Tested in this Assessment:

General Shop Safety and Practices

Demonstrate appropriate shop behaviors and PPE
Properly use and maintain common hand and power tools
Comply with federal and state safety regulations regarding chemicals and safety practices
Identify basic first aid procedures
Demonstrate knowledge of firefighting procedures and regulations
Describe rationale for and methods of performing tagout, lockout procedures

Internal Combustion Engine Theory

Identify the components of an internal combustion engine
Identify operation specific to two-stroke engines
Identify operation specific to four-stroke engines
Identify operational theory of spark-ignition engines
Identify operational theory of compression-ignition engines

Marine Electrical System Theory

Demonstrate basic electrical principles and theory
Perform electrical calculations
Wire a circuit in series and parallel

Fuel Systems

Service gasoline fuel systems
Service diesel fuel systems

Marine Service Technician (Inland and Coastal – Core) (continued)

Outboard Engine Maintenance and Troubleshooting

Perform daily, monthly, and seasonal routine maintenance

Service outboard engines

Check engine-cylinder compression

Maintain steering and control systems

Service and test battery

Perform winterizing and spring commissioning procedures

Troubleshoot outboard engines

Gasoline Fueled Inboard Engine Maintenance and Troubleshooting

Daily, monthly, and seasonal routine maintenance for both carbureted and fuel-injected inboard gas

Service inboard drive systems

Maintain engine cooling systems on inboard engines

Inspect and replace belts on inboard engines

Inspect and replace water-pump impellers on inboard engines and stern drives

Change engine oil and filters on inboard engine

Procedures for winter layup/extended layup for inboard engine

Procedures for spring commissioning of inboard engines

Troubleshoot inboard engines symptoms and probable causes

Marine Electrical System Installation and Troubleshooting

Measure and interpret electrical measurements

Interpret size wire or cable

Identify marine color coding for electrical wiring

Interpret commonly used electrical symbols

Comply with wire support and routing requirements per ABYC Standards

Make high quality wire and cable terminations

Identify types and causes of circuit faults

Overcurrent protection requirements

Troubleshoot electrical faults

Marine Plumbing Systems

Demonstrate knowledge and function of common marine plumbing

Winterizing plumbing system

Customer Service Skills and General Boating Knowledge

Perform research and complete proper documentation

Identify components of a quality customer-service stance

Marine Service Technician (Inland and Coastal – Core) (continued)

Written Assessment:

Administration Time: 3 hours and 30 minutes

Number of Questions: 220

Areas Covered:

12%	General Shop Safety and Practices
13%	Internal Combustion Engine Theory
9%	Marine Electrical System Theory
7%	Fuel Systems
16%	Outboard Engine Maintenance and Troubleshooting
15%	Gasoline Fueled Inboard Engine Maintenance and Troubleshooting
21%	Marine Electrical System Installation and Troubleshooting
3%	Marine Plumbing Systems
4%	Customer Service Skills and General Boating Knowledge

Sample Questions:

A dial caliper can be used to measure

- A. shaft diameter
- B. propeller pitch
- C. engine alignment
- D. fastener torque

Spark plug electrodes that are black and sooty could indicate

- A. the correct heat range
- B. rich air/fuel mixture
- C. a defective head gasket
- D. high oil consumption

A relay/solenoid is sometimes used as a _____ in longer wiring runs.

- A. resistor
- B. switch
- C. diode
- D. capacitor

Which gasket material is **NOT** suitable for contact with fuel?

- A. cork
- B. neoprene
- C. buna-N
- D. viton

Marine Service Technician (Inland and Coastal – Core) (continued)

A battery that is designed to give maximum amperage for a short period of time is called

- A. gel cell
- B. deep cycle
- C. ni-cad
- D. lead acid starting battery

When inspecting v-belts, you should check for all of the following EXCEPT

- A. cracks
- B. fraying
- C. glazing
- D. color

An average charging circuit voltage on a 12-volt lead acid system is

- A. 7.5 to 8.4
- B. 11.5 to 13.3
- C. 13.8 to 14.8
- D. 14.9 to 16.1

Loss of water in a storage battery is usually due to

- A. overcharging
- B. absorption
- C. condensation
- D. sulfation

Which type of antifreeze is appropriate for decommission of a sanitation system?

- A. ethylene glycol
- B. propylene glycol
- C. benzene
- D. hydroxyl glycol

Cleaning up after an extensive repair job is the responsibility of

- A. the customer
- B. a professional cleaning service
- C. the technician
- D. an employee