

INTERMEDIATE POWERBOAT STANDARD

(Bareboat Skipper – Power)

OBJECTIVE

To be able to operate safely as a skipper a powerboat between 9 to 12 metres with inboard engine(s) by day in moderate wind and sea conditions.

PREREQUISITES

Basic Powerboat Standard, Coastal Navigation;

ROC(M) VHF with DSC endorsement;

Pleasure Craft Operator's Card.

It is recommended that the student have a recognized first aid and CPR certificate.

Note: To maximize the likelihood of successfully completing the Intermediate Powerboat Standard, a student should:

- a) Have experience as skipper of at least ten day cruises (or equivalent),
- b) Have applied the knowledge and practiced the skills in the Basic Powerboat Standard,
- c) Be able to consistently demonstrate the skills learned in the Basic Powerboat Standard.

ASHORE KNOWLEDGE

Section I: Planning

The candidate must be able to:

1. State the fuel tank capacity and range of the candidate's boat and list what factors could affect the range of the boat under power;
2. State the water capacity of the selected boat and the minimum daily water requirements of a person and the means to conserve water;
3. State the causes, prevention and cures for seasickness as well as the impact seasickness has on the effectiveness of the crew;
4. List the appropriate personal clothing and safety gear clothing for cruising and describe how its choice is related to safety and comfort;
5. Discuss menu planning and relate it to suitability for the day's activities;
6. Describe provisioning requirements and the factors to consider in stocking the vessel;
7. List the minimum contents of a first aid kit for a one week cruise in familiar waters;
8. Know the spare engine parts one might deem prudent for a one week cruise in familiar waters;
9. Know the minimum set of tools required for a one week cruise in local waters;
10. Describe the general procedures to be followed and the documents required for entering a country after leaving another country, and the current procedures for marine travel between Canada and the USA.

Section II: Living Afloat & Boat Systems

The candidate must be able to:

11. Discuss galley procedures in order to minimize the danger of fire, scalding or other galley accidents;
12. Describe the common cooking systems (stoves and fuels) with respect to safe procedures for the operation of appliances, including safety checks, igniting appliances and system shut down, convenience, speed of cooking and costs;
13. Discuss the common types of cabin heaters with respect to safety, convenience and cost;
14. Describe the principle elements of the 120V and 12V vessel systems, their use, and considerations for proper battery management;
15. Describe refrigeration system types and state two ways to conserve power when a vessel is equipped with an electric refrigeration system;
16. Describe water distribution systems with multiple tanks and various styles of pumps;
17. Describe the proper operating procedures for the head and holding tank, list the precautions necessary to prevent malfunction and identify issues relating to holding tank capacity;
18. Identify boating environmental issues, with particular reference to responsible disposal of waste and management of pollutants;
19. Describe the safe operation of an anchor windlass including appropriate vessel handling while using this equipment.

Section III: The Inboard Engine

The candidate must be able to:

20. Identify the following parts used in the normal operation of an inboard engine:
- | | | |
|------------------|--------------|------------------|
| Engine cover | Fuel line | Fuel level gauge |
| Gear shift lever | Fuel tank | Choke |
| Starter | Engine bed | Throttle |
| Propeller shaft | Rudder post | Rudder |
| Exhaust | Stuffing box | Flange coupling |
| Cutlass bearing | Skeg | |
21. Name and describe the use of the following systems/components of gasoline and diesel powered inboard engines:
- Fuel system: fuel tank, fuel line, fuel filter, fuel-water separator, carburetor, fuel pump, injectors,
 - Ignition system: spark plugs, distributor, ignition wires and coil,
 - Cooling system: water pump, cooling water intake valve and discharge, thermostat control,
 - Lubrication: oil fill, dipstick, oil filter,
 - Propulsion: Shaft, transmission, stuffing box;
22. Describe the importance of selecting the correct propeller and the significance of pitch and diameter;
23. Describe how to check and maintain the following:
- | | |
|-----------------------------|------------------------------|
| Carburetor | Stuffing box |
| Sea water strainer | Propeller shaft |
| Steering components | Spark plugs |
| Fluid levels | Alternator belt |
| Water pump belt | Electric starter and battery |
| Power controls and linkages | Fuel tanks |
24. Describe probable causes and troubleshooting for the following situations:
- Engine will not start or is difficult to start,
 - Engine overheats,
 - Engine seems to be running well but then slows down and knocks,
 - Engine spits, coughs or slows,
 - Engine knocks excessively,
 - Engine stops suddenly,
 - Engine is running well but boat is not moving well,
 - Excessive vibration,
 - Engine cooling water fails to flow;
25. List and describe the required steps to winterize both inboard diesel and gasoline engines.

Section IV: Weather

The candidate must be able to:

26. Describe the effect of local heating and cooling of land and water as related to wind and cloud formation;
27. Identify conditions likely to lead to the formation of fog.

Section V: Seamanship

The candidate must be able to:

28. Describe the action to be taken in the following situations:
- | | |
|---------------------------|--|
| a) Springing a leak, | f) Collision with another vessel, |
| b) Steering fails, | g) Fire, |
| c) Grounding, | h) Propane leak, |
| d) Fouling the propeller, | i) Engine failure in an anchorage or busy channel; |
| e) Dragging anchor, | |
29. Describe in detail two methods of getting a crew overboard back aboard;
30. Describe three methods of recovering fouled anchors;
31. Describe options for stowing and securing a dinghy when snugging down for the night;
32. Describe handling considerations (including stowage, launching/retrieving and towing) and differences between an inflatable dinghy, a rigid inflatable boat (RIB) and a rigid dingy;
33. Describe precautions for safe handling of an outboard motor for the tender and actions to take in the event of accidental submersion;
34. Describe the methods of rafting at anchor and dangers involved;
35. State the factors to be considered before allowing anyone to go swimming while the boat is at anchor;

36. Describe the information required and the procedures to be followed when tying a boat to a fixed dock in local tidal conditions;
37. Describe how to secure the boat with an anchor on the bow or stern and the opposite end made fast to a dock or shore;
38. Describe a seamanlike method of preparing a boat in order that it may be left at the dock or on a mooring for a period of a week or more without crew;
39. Describe the responsibilities of skipper and crew for the following courtesies, customs and legal obligations:
 - a) Permission to board,
 - b) Permission and entitlement to come alongside,
 - c) Courtesy in crossing adjacent boats when rafted,
 - d) Rights of first boat at an anchorage,
 - e) Keeping clear of sailboats racing,
 - f) Flag etiquette:
 - (i) National Flag,
 - (ii) Courtesy flag,
 - (iii) Burgee / house flag,
 - g) Offering assistance to other yachts in trouble,
 - h) Operating in restricted passages and in harbours,
 - i) Alcohol consumption;
40. Describe the characteristics, limitations, and uses of the following rope: Polypropylene, Dacron, and Nylon.

Section VII: Navigation & Passage Planning

The candidate must be able to:

41. Convert directions between true, magnetic and compass, using the compass rose on a current chart;
42. Determine speed, time and distance when two are known;
43. Determine estimated time of arrival (ETA) and revised ETA;
44. Identify sources of navigation and use of this information in route planning.

AFLOAT SKILLS

Section VIII: Preliminaries

The candidate must be able to:

1. File a boating plan;
2. Obtain and interpret the Marine forecast;
3. Check stowage and condition of all mandated and recommended equipment aboard the vessel;
4. Perform routine daily and weekly maintenance procedures on engine;
5. Demonstrate the correct starting procedure for an inboard engine while observing commonly accepted safety practices;
6. With specific reference to the candidate's boat, identify and describe the functions of all through-hulls, sea cocks, bilge pumps and related plumbing components;
7. Check out that all systems on boat are in working order: power plant, galley, head, electronics, hull, deck hardware etc.

Section IX: Under Way

The candidate must be able to:

8. Depart and arrive at a side dock with use of a spring line to simulate limited manoeuvring room;
9. Manoeuvre an inboard boat from and to a side dock using correct techniques, under the following wind and current conditions:
 - a) The wind and/or current moving parallel to the dock,
 - b) The wind and/or current moving toward the dock,
 - c) The wind and/or current moving away from the dock;
10. Manoeuvre an inboard boat from and to a mooring where the boat is anchored from the bow or the stern and the opposite end is made fast to the dock under the following wind and current conditions:
 - a) The wind and/or current moving parallel to the dock,
 - b) The wind and/or current moving toward the dock,
 - c) The wind and/or current moving away from the dock;
11. Use an anchor to hold the vessel away from a dock;
12. Bring the boat to a mooring buoy and successfully secure the boat;
13. Manoeuvre the boat under power in minimum space;
14. Demonstrate rafting alongside another boat at anchor;

15. Manoeuvre a boat at various speeds under varying sea and wind conditions with the wind from the following points: Ahead, Astern, Abeam, Quarter;
16. Anchor the boat in water over 3 metres deep so that the anchor will not drag when the boat is driven in reverse for one minute;
17. Weigh anchor and get the boat underway using commonly accepted practices;
18. Demonstrate suitable methods and precautions while towing a dinghy;
19. Demonstrate the correct actions as skipper to return to a crew overboard within three minutes. These actions include the proper manoeuvring of the boat and the correct command of crew members.
20. Demonstrate the stopping ability of an inboard boat by bringing the boat to a full stop from normal operating speed using reverse to stop within a half boat length of a marker while maintaining a straight course;
21. Apply Rules 1 through 19, 40 and 45 of the *Collision Regulations*;
22. Prepare a meal underway;
23. Dock with stern or bow to dock or shore using bow or stern anchor;
24. Secure the boat to a dock so as to prevent excessive movement and set out fenders correctly, demonstrating how to secure a vessel for the night using appropriate dock lines.

Section X: Navigation

The candidate must be able to:

25. Read a chart and identify corresponding landmarks and aids to navigation;
26. Demonstrate how to take soundings using electronic and manual methods;
27. Determine the depth above or below chart datum and apply;
28. Lay off a course and determine compass heading and Estimated Time of Arrival (ETA) (assuming no current or leeway);
29. Plot and determine your position using deduced reckoning (DR) methodology;
30. Plot a fix using bearings taken on objects visible at the same time;
31. Pilot a vessel into an unfamiliar harbour or anchorage by day using charts and publications and application of passage planning techniques.

Section XI: Seamanship

The candidate must be able to:

32. Throw a heaving line to a target a distance of ten meters away, coming within two meters in three times out of five attempts;
33. Demonstrate use of the VHF marine radio, including specific operation aboard the candidate's vessel;
34. Tie a rolling hitch;
35. Act as skipper and as responsible crew on a live-aboard cruise of at least 48 hours.

ENDORSEMENTS

Marlinspike Seamanship

1. Whip a line;
2. Make an eye splice in laid line.